

## **Appendix A**

### **Geophysical Surveys**

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**U. S. ARMY CORPS OF ENGINEERS  
MOBILE DISTRICT**

**Mississippi Coastal Improvements Program  
Barrier Island Restoration Project**

**Offshore Sand Borrow Investigation, 2010-2014**

**Geotechnical Engineering Report**

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## TABLE OF CONTENTS

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	APPENDICES .....	III
	FIGURES AND TABLES .....	IV
	ACRONYMS.....	VIII
<b>1.0</b>	<b>INTRODUCTION.....</b>	<b>1</b>
1.1	PROJECT DESCRIPTION.....	2
1.2	OBJECTIVES .....	4
1.3	SCOPE OF WORK .....	4
1.3.1	BEACH AND ISLAND SEDIMENT SAMPLING .....	5
1.3.2	GEOPHYSICAL SURVEYS .....	6
1.3.3	GEOTECHNICAL INVESTIGATION .....	7
1.3.4	INVESTIGATION RESULTS.....	9
<b>2.0</b>	<b>GEOLOGICAL SETTING.....</b>	<b>11</b>
2.1	GULF COASTAL PLAIN .....	11
2.2	JACKSON, HARRISON, AND HANCOCK COUNTIES .....	12
2.3	OUTER CONTINENTAL SHELF .....	13
<b>3.0</b>	<b>PLACEMENT SITE FIELD INVESTIGATIONS.....</b>	<b>16</b>
3.1	FILL COMPATIBILITY REQUIREMENTS.....	16
3.1.1	COLOR .....	16
3.1.2	GRAIN SIZE.....	17
3.1.3	GRAIN ANGULARITY .....	17
3.1.4	CARBONATE CONTENT .....	18
3.1.5	FINE SEDIMENT CONTENT .....	18
3.2	BARRIER ISLAND SEDIMENT SAMPLING .....	19
3.2.1	2006 BEACH SEDIMENT INVESTIGATIONS .....	20
3.2.2	2009 BEACH SEDIMENT INVESTIGATIONS .....	21
3.2.3	2010 BEACH SEDIMENT INVESTIGATIONS .....	25
3.2.4	2011 DA-10/SAND ISLAND SAMPLING.....	30
3.2.5	BARRIER ISLAND SEDIMENT SAMPLING CONCLUSION.....	31
<b>4.0</b>	<b>GEOPHYSICAL INVESTIGATIONS .....</b>	<b>33</b>
4.1	2010 GEOPHYSICAL SURVEY .....	33
4.1.1	2010 SURVEY METHODOLOGY .....	35

## TABLE OF CONTENTS

---

4.1.2	CONCLUSIONS AND RECOMMENDATIONS FROM 2010 GEOPHYSICAL INVESTIGATION .....	38
4.2	2013 GEOPHYSICAL SURVEY .....	44
4.2.1	RESULTS OF THE 2013 GEOPHYSICAL SURVEY .....	46
<b>5.0</b>	<b>GEOTECHNICAL SAMPLING .....</b>	<b>49</b>
5.1	VIBRACORE SAMPLING PROCEDURES AND PROTOCOL.....	55
5.2	INVESTIGATION AREAS AND INITIAL FINDINGS .....	63
5.2.1	GULFPORT CHANNEL INVESTIGATION AREA .....	63
5.2.2	CAT ISLAND INVESTIGATION AREA.....	65
5.2.3	MISSISSIPPI SOUND INVESTIGATION AREA .....	67
5.2.4	SHIP ISLAND PASS INVESTIGATION AREA.....	69
5.2.5	SHIP ISLAND INVESTIGATION AREA .....	71
5.2.6	DOG KEYS PASS INVESTIGATION AREA .....	73
5.2.7	HORN ISLAND PASS INVESTIGATION AREA.....	75
5.2.8	DISPOSAL AREA 10 (DA-10) INVESTIGATION AREA .....	79
5.2.9	PETIT BOIS PASS- ALABAMA INVESTIGATION AREA .....	81
5.2.10	PETIT BOIS PASS-MISSISSIPPI INVESTIGATION AREA.....	88
5.2.11	PETIT BOIS PASS- OUTER CONTINENTAL SHELF (OCS) INVESTIGATION AREA .....	92
5.2.11.1	PBP-OCS West Investigation Area	95
5.2.11.2	PBP-OCS East Investigation Area	107
5.2.11.2.1	PBP-OCS East, Northwest Corner .....	108
5.2.11.2.2	PBP-OCS East, Central Shoal Complex .....	109
5.2.11.2.3	PBP-OCS East, Eastern Shoals.....	112
<b>6.0</b>	<b>BORROW AREAS .....</b>	<b>114</b>
<b>7.0</b>	<b>CONCLUSION .....</b>	<b>131</b>
<b>8.0</b>	<b>REFERENCES .....</b>	<b>132</b>

## **TABLE OF CONTENTS**

---

### **APPENDICES**

- APPENDIX A: Barrier Island Sampling Locations and Lab Results
- APPENDIX B: Gulfport Channel Vibracores and Lab Results
- APPENDIX C: Cat Island Vibracores and Lab Results
- APPENDIX D: Mississippi Sound Vibracores and Lab Results
- APPENDIX E: Ship Island Pass Vibracores and Lab Results
- APPENDIX F: Ship Island Vibracores and Lab Results
- APPENDIX G: Dog Keys Pass Vibracores and Lab Results
- APPENDIX H: DA-10 Vibracores and Lab Results
- APPENDIX I: Horn Island Pass and Pascagoula Bar Channel Vibracores and Lab Results
- APPENDIX J: Petit Bois Pass - Mississippi Vibracores and Lab Results
- APPENDIX K: Petit Bois Pass – Outer Continental Shelf Vibracores and Lab Results
- APPENDIX L: Petit Bois Pass – Alabama Vibracores and Lab Results

## FIGURES AND TABLES

---

### **FIGURES AND TABLES**

Figure 1.1.1 – The locations of the Mississippi Barrier Islands and navigation channels in the local vicinity.....	3
Figure 1.1.2- Boundaries of the Mississippi section of the Gulf Islands National Seashore .....	4
Figure 1.3.1.1- Sediment grab sample locations within the Mississippi section of the Gulf Islands National Seashore and Cat Island. ....	5
Figure 1.3.3.1- Borrow Material Investigation Locations (Figure 3-2 from USACE SEIS, 2014) .....	8
Figure 1.3.4.1- Proposed borrow material locations (Figure 3-3 from USACE SEIS, 2014).....	9
Figure 2.2.1 - Generalized Geologic Map of Coastal Mississippi (After Otvos, 1997) .....	13
Figure 3.2.1 Barrier Island grab sample locations.....	19
Table 3.2.1.1 – Munsell Color Analyses of Beach Samples from Petit Bois, Horn, East Ship, and West Ship Islands taken in 2006 .....	20
Table 3.2.2.1– 2009 Beach Samples Gradation Data.....	21
Table 3.2.2.2 – Location, Color, and Particle Shape of 2009 Beach samples .....	22
Figure 3.2.3.1 – Location of sampling locations for 2010 West Ship Island beach transect. ....	26
Table 3.2.3.1 – Results of Grain Size Analyses, Transects at West Ship Island; Depths from 0.0 to 1.0 feet .....	26
Figure 3.2.3.2 - Location of sampling locations for 2010 Horn Island beach transect. ....	27
Table 3.2.3.2 – Results of Grain Size Analyses, Transects at Horn Island with Depths from 0.0 to 1.0 feet .....	27
Figure 3.2.3.3 – Bar graph comparison of grain sizes for West Ship and Horn Island beach transects.....	28
Figure 3.2.3.4 - Sampling locations for 2010 West Ship Island transect. ....	29
Table 3.2.3.3 - Results of Grain Size Analyses, Transect at West Ship Island, Depth 0.0 to 5.0 feet.....	30
Table 3.2.4.1 - Results of Grain Size Analyses, Beach Grab Samples at DA-10.....	31
Figure 3.2.4.1 - Sampling locations for 2011 DA-10 transect.....	31
Table 3.2.5.1 – Surficial sediment information for barrier islands .....	32
Figure 4.1.1 – Past geophysical surveys conducted by the USGS at Gulf Islands National Seashore. ....	33

## FIGURES AND TABLES

---

Figure 4.1.2 – Areas designated for geophysical survey to identify potential sand borrow sites. ....	34
Figure 4.1.3 Map showing the tracklines for geophysical data collected. Vibracores collected by USACE for the MsCIP project and the USGS for the Northern Gulf of Mexico (NGOM) project are shown. Main features were separated into three Study Areas (From Twichell et al. 2011). ....	35
Figure 4.1.1.1 - Tracklines along which geophysical data (CHIRP seismic-reflection, swath bathymetry, and sidescan sonar) were collected. Also, locations of vibracores collected by USACE.....	36
Figure 4.1.1.2. Map showing the extent of the survey area affected by shallow gas (gray polygon) and an example profile showing the blanking of the deeper stratigraphy by gas (from Twichell et al., 2011) .....	38
Figure 4.1.2.1 – Example isopach of area south of Camille Cut and East Ship Island designated as Ship Island study area, part of USGS' Study Area 1. ....	39
Figure 4.1.2.2 – Initial interpretation of geophysical data indicating sandy shoals south of Petit Bois Pass and designated as Petit Bois Pass study. ....	39
Figure 4.1.2.3 Locations of potential sand resources identified in this study. Each deposit is assigned a unit number that corresponds to textural information in Table 4.1.2.1 (from Twichell et al., 2011).....	40
Table 4.1.2.1- Characteristics of potential sand-resource deposits located on the shelf offshore of the barrier islands south of the Mississippi coast. The unit number corresponds to the circled numbers in Figure 4.1.2.3. (Table 4.1 from Twichell et al., 2011).....	40
Figure 4.1.2.4 – Initial field interruptions of geophysical data with recommended proof vibracore locations, western area of investigation .....	41
Figure 4.1.2.5 – Initial field interruptions of geophysical data with recommended vibracore proof locations, eastern area of investigation south of Petit Bois Pass. ...	42
Figure 4.2.2 Isopach map of surface sediments show shoal systems extending NW-SE across study area surrounded by a thin (<1.5 m) sand sheet. Base of surface sediments is defined by the top of the Holocene transgressive deposits (Flocks, 2014).....	46
Figure 4.2.1.1 Significant features identified in the USGS's study include shoals and fluvial deposits (Flocks, 2014).....	47
Table 4.2.1.1. Physical characteristics of features identified in the study, the study area, and neighboring Petit Bois Island for comparison (Flocks, 2014). ....	48
Figure 5.0.1 – 2010 Sampling Areas.....	49
Figure 5.0.2 – 2011 Sampling Areas.....	51
Figure 5.0.3 – 2012 Sampling Areas.....	52
Figure 5.0.4 – 2013 Sampling Areas.....	53

## FIGURES AND TABLES

---

Figure 5.0.5 – Locations of vibracores completed for the 2010-2013 sampling events. ....	54
Figure 5.1.1 Vibracore unit used for 2010, 2011, and 2013 sampling events. ....	55
Figure 5.1.2 Vibracore unit being deployed during the 2012 sampling event.....	56
Figure 5.1.3 20-ft vibracore tube cut longitudinally for inspector to sample sediment during 2013 sampling event. ....	57
Figure 5.1.4 Vibracore tube cut into 4 5-ft sections and then longitudinally for logging during 2012 sampling event. ....	57
Figure 5.1.5 Example gradation curve showing the graphical determination of the D60, D50, D30, and D10 values. ....	59
Figure 5.2.1.1 – 2010 Vibracores completed for Gulfport Channel sampling area...	64
Figure 5.2.2.1 – 2010 (green circles) and 2011 vibracores (red triangles) completed for the investigation for borrow material at Cat Island. ....	66
Figure 5.2.3.1 - Layout of the 2010 vibracores completed for the Mississippi Sound area.....	68
Figure 5.2.4.1 - General layout of the vibracores completed for Ship Island Pass...	70
Figure 5.2.5.1 – General layout of the Ship Island vibracores completed for the investigation. ....	72
Figure 5.2.6.1 - General layout of the vibracores completed for the Dog Keys Pass area.....	74
Figure 5.2.7.1 - General layout of the vibracores completed for the investigation of borrow material from Horn Island Pass area.....	78
Figure 5.2.8.1 - Layout of the vibracores completed for the 2011 investigation for borrow material from Disposal Area 10. ....	80
Figure 5.2.9.1 - Layout of the vibracores completed for the 2010-2012 investigation for borrow material from the Petit Bois Pass- Alabama area. ....	85
Figure 5.2.9.2 - Layout of the vibracores completed for the investigation for borrow material from the Petit Bois Pass- Alabama West area. Note the sizeable shoals in the west. ....	86
Figure 5.2.9.3 – 2010-2012 Vibracores completed for the Petit Bois Pass-Alabama East area. ....	87
Figure 5.2.10.1 2012 Vibracores for Petit Bois Pass- Mississippi sampling area with bathymetric contours illustrating the main shoal in the area. The blue contours are at 5-ft intervals. ....	90
Figure 5.2.10.2 Map of sand thicknesses in the Petit Bois Pass- Mississippi sampling area. ....	91
Figure 5.2.11.1 Petit Bois Pass-OCS sampling areas and vibracore locations.....	94
Figure 5.2.11.1.1 Petit Bois Pass-OCS West with major shoal outlines.....	95
Figure 5.2.11.1.2 Petit Bois Pass-OCS West, Shoal 1 vibracores. ....	96

## FIGURES AND TABLES

---

Figure 5.2.11.1.3 Petit Bois Pass-OCS West, Shoal 2 vibracores. ....	98
Figure 5.2.11.1.4 Petit Bois Pass-OCS West, Shoal 2 with USGS Isopach showing potential borrow material vicinity vibracores BI-PBS-94-12 and BI-PBS-268-13. ....	99
Figure 5.2.11.1.5 Petit Bois Pass-OCS West, Shoal 3 vibracore locations.....	100
Figure 5.2.11.1.6 Western end of Petit Bois Pass-OCS West, Shoal 3 with USGS Isopach showing potential borrow material thicknesses. ....	101
Figure 5.2.11.1.7 Petit Bois Pass-OCS West, Shoal 3 (northwest side) suitable borings outlined in red.....	102
Figure 5.2.11.1.8 Central portion of Petit Bois Pass-OCS West, Shoal 3 with USGS Isopach showing potential borrow material thicknesses. ....	104
Figure 5.2.11.1.9 Sandy fill area adjacent to central portion of Petit Bois Pass-OCS West, Shoal 3 with USGS Isopach showing potential borrow material thicknesses. ....	105
Figure 5.2.11.1.10 Eastern third of Petit Bois Pass-OCS West, Shoal 3 with USGS Isopach showing potential borrow material thicknesses. The shoal extends across two pipelines into PBP-OCS East investigation area. ....	106
Figure 5.2.11.2 Petit Bois Pass-OCS East Investigation Area with vibracore locations.....	107
Figure 5.2.11.2.1 Completed vibracores for the northeast corner of the Petit Bois Pass-OCS East investigation area with USGS sand isopach as background. Note: there is a U.S. Air Force communications tower (yellow triangle) in the area that requires a buffer.....	109
Figure 5.2.11.2.2 Completed vibracores for the Petit Bois Pass-OCS East central shoal complex with bathymetric contours illustrating the main shoals in the area..	111
Figure 5.2.11.2.3 Completed vibracores for the Petit Bois Pass-OCS East eastern shoals investigation sub area with the USGS' isopach illustrating sandy substrate thicknesses. ....	112
Table 6.1 Borrow Area statistics .....	117
Figure 6.1 Cat Island Borrow Area.....	118
Figure 6.2 Ship Island Pass Borrow Area for north shore placement on West Ship Island .....	119
Figure 6.3 - Ship Island Borrow Area .....	120
Figure 6.4 – Horn Island Pass Borrow Area.....	122
Figure 6.5 – Petit Bois Pass-OCS West Borrow Areas 1 thru 4.....	125
Figure 6.6 – Petit Bois Pass-OCS West Borrow Areas 5 and 6, and PBP-OCS East Borrow Areas 1 thru 4. ....	128
Figure 6.7 - Petit Bois Pass-AL Borrow Areas .....	130



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## ACRONYMS

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### ACRONYMS

BOEM	Bureau of Ocean Energy Management
CL	low plasticity (lean) clay (USCS classification)
CH	high plasticity (fat) clay (USCS classification)
GSA	Geological Survey of Alabama
GUIS	Gulf Islands National Seashore
mcy	million cubic yards
mya	Million years ago
MAFLA	(M)ississippi-(AL)abama-(FL)orid(A) sand sheet
mm	millimeter
ML	Silt (USCS classification)
MsCIP	Mississippi Coastal Improvements Program
NGOM	Northern Gulf of Mexico
NOAA	National Oceanic and Atmospheric Administration
NPS	National Park Service
OCS	outer continental shelf
SC	clayey sand (USCS classification)
SM	silty sand (USCS classification)
SP	poorly graded sand (USCS classification)
SP-SM	poorly graded sand with silt (USCS classification)
USACE	United States Army Corps of Engineers
USCS	Unified Soil Classification System
USGS	United States Geological Survey

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## **1.0 INTRODUCTION**

In 2005, Hurricane Katrina caused widespread damage along the Mississippi and Louisiana Gulf coasts. The Mississippi Coastal Improvement Plan was developed by the Mobile District, USACE, in conjunction with other Federal and State agencies, to help mitigate future damage along the Mississippi Gulf coast caused by hurricanes and their associated tidal surge flooding.

As part of the Comprehensive Plan, Mississippi's barrier island chain was evaluated for ways to restore it to pre-Katrina form with the overall purpose to restore its natural ability to reduce the impact of hurricanes striking the Mississippi Gulf coast. Storm events and natural sediment transport have eroded and reshaped the barrier islands into their present configuration.

This report chronicles Mobile District's geophysical and geotechnical investigations to find suitable sand borrow sources for use on the Mississippi Barrier Islands. The investigation spans more than 8 years, beginning in 2006 with initial beach sampling from the islands and concluding in 2014 with the identification and delineation of several borrow areas. Multiple agencies were involved in this investigation, including the United States Geological Survey (USGS), the National Park Service (NPS), the Bureau of Ocean Energy Management (BOEM), and the State of Mississippi. Investigative methods included geophysical surveying and geotechnical sampling.

The focus for this report is on the investigative steps taken to identify suitable sand sources for use on and around the different islands involved with the project. Each island has different sediment requirements based on engineering and biological considerations, and the report includes grain size, shape, and color information for each one. Initial placement designs were used to help establish quantities needed for each project site. However, all mentions of placement locations and borrow area shapes or dimensions are initial considerations for planning only and do not necessarily reflect their final designs. Extensive modeling has been conducted to determine optimal borrow area locations, orientations, and dimensions that will maximize sand quality and quantity while reducing potential side effects due to wave action. These final designs are included in this report, but all figures are subject to change.

Should any questions arise concerning this report or the assumed scope of work, please contact Michael FitzHarris, Geotechnical and Dam Safety Section, (251) 690-3488.

## **1.1 PROJECT DESCRIPTION**

Following Hurricane Katrina in 2005, the MsCIP was established to conduct comprehensive planning to address the following issues:

- Hurricane and storm damage reduction
- Salt water intrusion
- Shoreline erosion
- Fish and wildlife preservation
- Other water-related resource projects

One of the primary components of the Program is the Comprehensive Barrier Island Restoration Plan. Major tasks of the Plan are the following:

- Renourish the northern shoreline of West Ship Island
- Renourish the eastern shoreline of Cat Island
- Revise the dredge material disposal plan for the Pascagoula navigation channel
- Restore the sediment budget of the Mississippi barrier island chain

The Comprehensive Barrier Island Restoration Plan was developed to restore the sediment budget for the Mississippi Barrier Islands using appropriate coastal engineering designs that would maximize island chain stability while minimizing impacts to the local environment. This chain of barrier islands is located between 6 and 12 miles south of the Mississippi Gulf coastal counties of Hancock, Harrison, and Jackson Counties and consists of five natural islands and one man-made island. From west to east, the natural islands are Cat Island, West Ship Island, East Ship Island, Horn Island, and Petit Bois Island. The man-made island is Sand Island (Disposal Area 10) and it is located between Horn Island and Petit Bois Island. It was created as a disposal area for dredged material from local projects such as the Pascagoula Bar Channel. Major inlets within the island system are Ship Island Pass, Camille Cut, Dog Keys Pass, Horn Island Pass, and Petit Bois Pass. The locations of the islands, along with the location of the local navigation channels, are shown in Figure 1.1.1. In this figure, Ship Island is shown as two separate islands. It was breached during Hurricane Camille (AUG 1969) and

has remained as two separate islands since that time. Historic maps also show that Ship Island has been breached by hurricanes prior to Camille, but natural processes have closed the breaches. Except for Cat Island, all the islands are wholly owned by the NPS and are within the Gulf Islands National Seashore (GUIS). Cat Island is partly owned by the NPS, with most of the island under private ownership. The NPS' guidelines for nourishment within the park boundaries states that only sediment removed from the sediment budget due to anthropogenic activities (e.g. channel dredging) can be restored to the littoral zone. Sediment that was removed due to natural transport processes (i.e. storms, long shore currents, etc.) would not be restored. A study was conducted to determine the sediment budget loss due to anthropogenic activity within the NPS boundary and it was established at 22 million cubic yards of sand. This was based on historical dredging records for that area. This constraint means that only 22 million cubic yards of sand can be placed within the NPS-controlled area of the barrier islands. Cat Island is not completely included in this quantity. Figure 1.1.2 shows the boundaries of the Mississippi section of the GUIS.

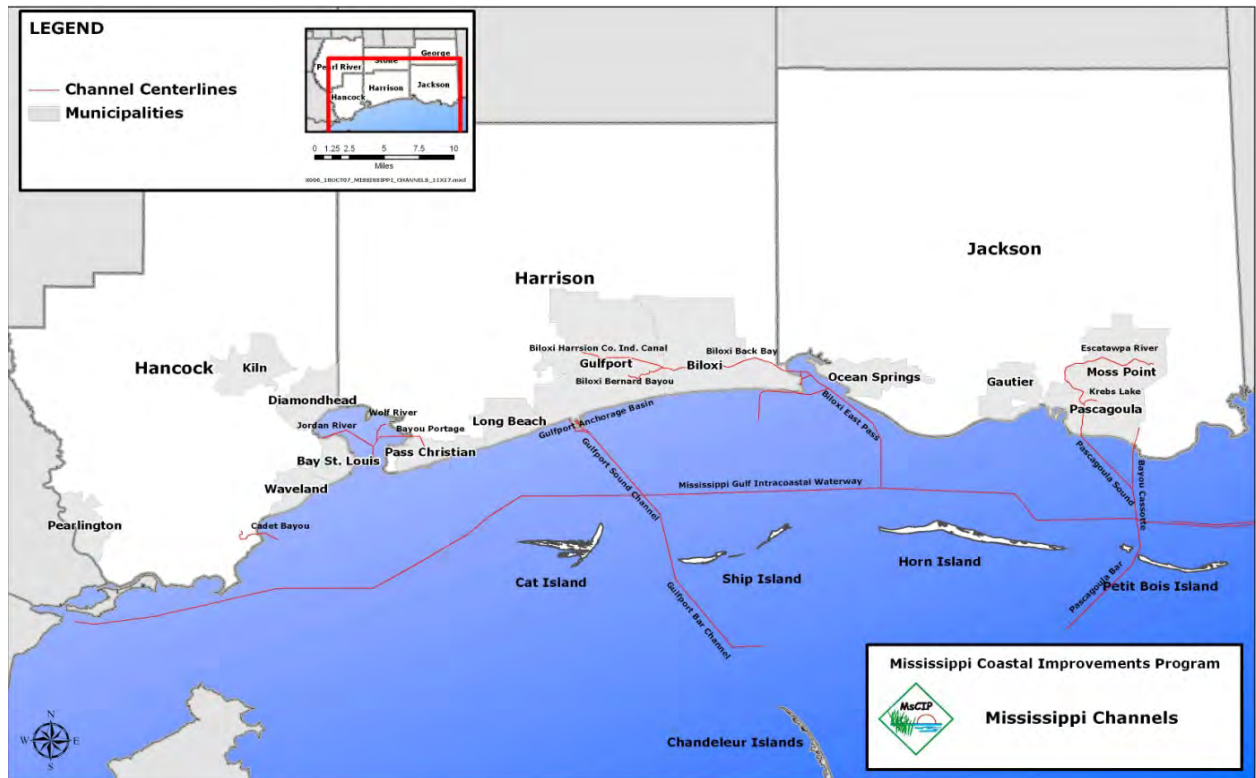


Figure 1.1.1 – The locations of the Mississippi Barrier Islands and navigation channels in the local vicinity.



**Figure 1.1.2- Boundaries of the Mississippi section of the Gulf Islands National Seashore**

The project to renourish the northern shoreline of West Ship Island was completed in the spring of 2013. A borrow area was identified for the Cat Island renourishment project as part of the 2010 and 2011 vibracore sampling events. However, that project is progressing slowly due to real estate issues. The revision of the dredge material disposal plan for the Pascagoula navigation channel has been implemented and the long term effects are being monitored. A plan has been developed to restore the sediment budget within the barrier islands system. The two major components of this plan include projects to place approximately 12.8 million cubic yards (mcy) of sand within Camille Cut to reconnect East and West Ship Islands, and direct placement of approximately 4.9 mcy of sand on the southern shoreline of East Ship Island.

## 1.2 OBJECTIVES

The objectives of this report are:

- To outline the procedures of the geotechnical investigation;
- To describe the sampling areas' grain size, fines content, color, and angularity; and,
- To identify potential borrow areas and provide estimates on borrow area sand quantities and characteristics.

## 1.3 SCOPE OF WORK

The scope of work for this geotechnical engineering study was derived from the project requirements and includes the following technical approaches:

- Identify areas of potential sand resources based on past studies and utilizing subject matter experts from the USGS, the BOEM, and other governmental and non-governmental organizations.

- Conduct geophysical surveys to identify potential sand deposits.
- Conduct vibracore sampling of the deposits and sample potentially useable sediments for further lab testing.
- Conduct laboratory testing of samples for grain size, angularity, percent fine material, calcium carbonate content, and color.
- Use the spatial and textural data to identify areas with suitable borrow material in economical quantities.

### 1.3.1 BEACH AND ISLAND SEDIMENT SAMPLING

Beginning in 2006, grab-sampling events were conducted by USACE personnel along the Mississippi Barrier Islands (Figure 1.3.1.1). The intent of the sampling was to identify typical sediment characteristics within the barrier island system.

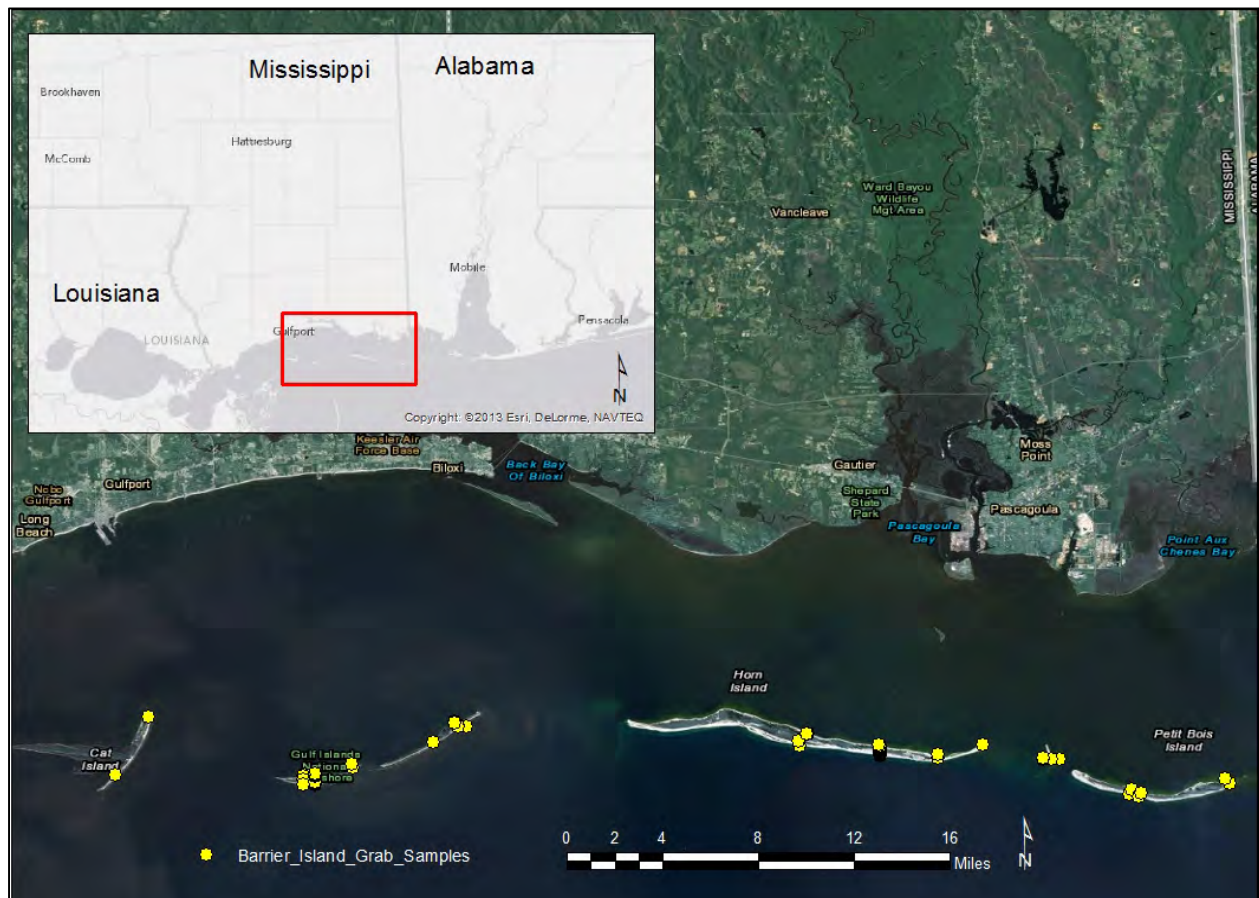


Figure 1.3.1.1- Sediment grab sample locations within the Mississippi section of the Gulf Islands National Seashore and Cat Island.



Based on the sampling, the following sediment characteristics and in situ condition baselines were established for potential sand sources for the Camille Cut and East Ship Island projects.

**Table 1.3.1.1 Baselines for suitable sediment characteristics and borrow areas**

Characteristic	Baseline
Sand layer thickness	Greater than or equal to 4 ft.
D50 Grain Size range	0.26 to 0.32 mm
Percent Fines	Less than 15% silt and/or clay content
Color	Dry Munsell Color Value greater than or equal to 6
Overburden / unsuitable sediments	≤ 2 feet of unsuitable material on top of the sand, or, throughout the entire useable thickness of sand with at least 4 feet of suitable material intermixed
Location	Outside active littoral zone; Outside GUIS boundaries; Within economical distance to placement sites

Although borrow area location was initially restricted to areas outside of the GUIS boundaries during the 2010 geotechnical investigation, the findings of the Engineer Research and Development Center / Coastal and Hydraulics Laboratory Technical Report-12-9 “Littoral Sediment Budget for the Mississippi Sound Barrier Islands” (Byrnes et al., 2012) identified DA-10 (Sand Island) as a potential sand source because of its position within Horn Island Pass and the effect this had on the barrier island littoral system. This report provided a justification for sampling the area adjacent to DA-10 during the 2011 geotechnical sampling event. For the purposes of the 2012 and 2013 sampling events, no areas were sampled within the GUIS boundaries or within the littoral zone. Section 3 details these island sediment sampling events.

### 1.3.2 GEOPHYSICAL SURVEYS

The USGS, in conjunction with USACE, the NPS, and the State of Mississippi, conducted three major geophysical surveys in the areas surrounding the barrier islands. The first survey was in 2009, the second survey in 2010, and the third survey in 2013. The two main purposes of these surveys were to gather information about the geological setting surrounding the islands and further offshore from Petit Bois Island, and to identify possible sources of sandy material for use with the barrier island restoration project. Section 4.0 details these surveys.

**1.3.3 GEOTECHNICAL INVESTIGATION**

For the geotechnical investigation, vibracore sampling was used to collect sediment samples in areas identified by the USGS as having potentially suitable sand. These samples were then laboratory-tested and classified according to the Unified Soils Classification System (USCS). Sampling was conducted from 2010-2014. The 2010 vibracore sampling locations were initially identified during the preceding geophysical surveys (see Section 4.0) and were altered and augmented throughout the sampling event based on the real-time results of the sampling. It consisted of 369 vibracores scattered across the barrier island chain's waters, from Gulfport Channel in the west to Petit Bois Pass in the east. The 2011 sampling event only consisted of 89 vibracores near Cat Island, DA-10, and the Petit Bois Pass area. The 2012 sampling event consisted of 230 vibracores and focused on Horn Island Pass, Petit Bois Pass (Alabama and Mississippi waters), and the Outer Continental Shelf area south of Petit Bois Island. Following the USGS's geophysical survey in August 2013, the 2013 sampling event consisted of 206 vibracores and focused on Horn Island Pass and the OCS area south of Petit Bois Island. Figure 1.3.3.1 outlines the sampling areas and Table 1.3.3.1 shows the breakdown of vibracores and lab samples per sampling event. Vibracores containing visually suitable material for use in the project placement areas were sampled. All other material was discarded. The samples were lab-tested to determine grain size distribution and percentage of fine material, while qualitative Munsell color classification and grain angularity classification were conducted mostly by USACE personnel. These test results helped determine if a particular vibracore's contents met the fill textural characteristics criteria established during the beach and island sediment sampling events. The vibracores containing suitable sediments were then spatially analyzed to delineate potential borrow areas. Section 5.0 details this investigation.

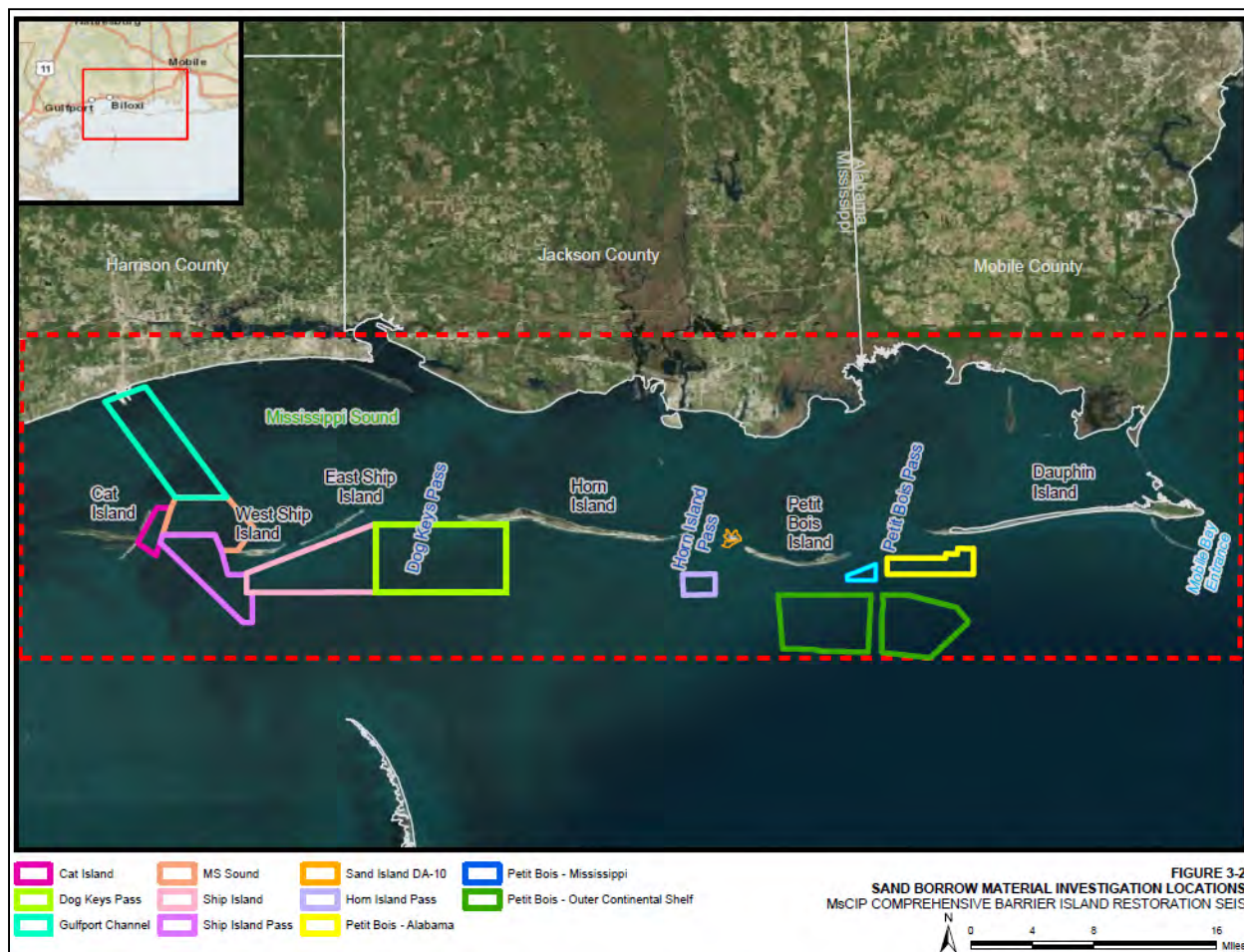


Figure 1.3.3.1- Borrow Material Investigation Locations (Figure 3-2 from USACE SEIS, 2014)

Table 1.3.3.1 Number of vibracores and lab samples per sampling event.

Sampling Event	No. of Vibracores	No. of Lab Samples
2010	369	649
2011	89	176
2012	230	488
2013	206	455
Total	894	1,768

### 1.3.4 INVESTIGATION RESULTS

From 2010-2014, each sampling event either identified or refined potential borrow areas. Potential borrow areas were identified just east of Cat Island, just west of West Ship Island, south of West Ship Island, south of Horn Island Pass, south of Petit Bois Island in Mississippi state waters, south of Petit Bois Island in Federal waters, and south of Petit Bois Pass in Alabama state waters. Figure 1.3.4.1 highlights these areas.

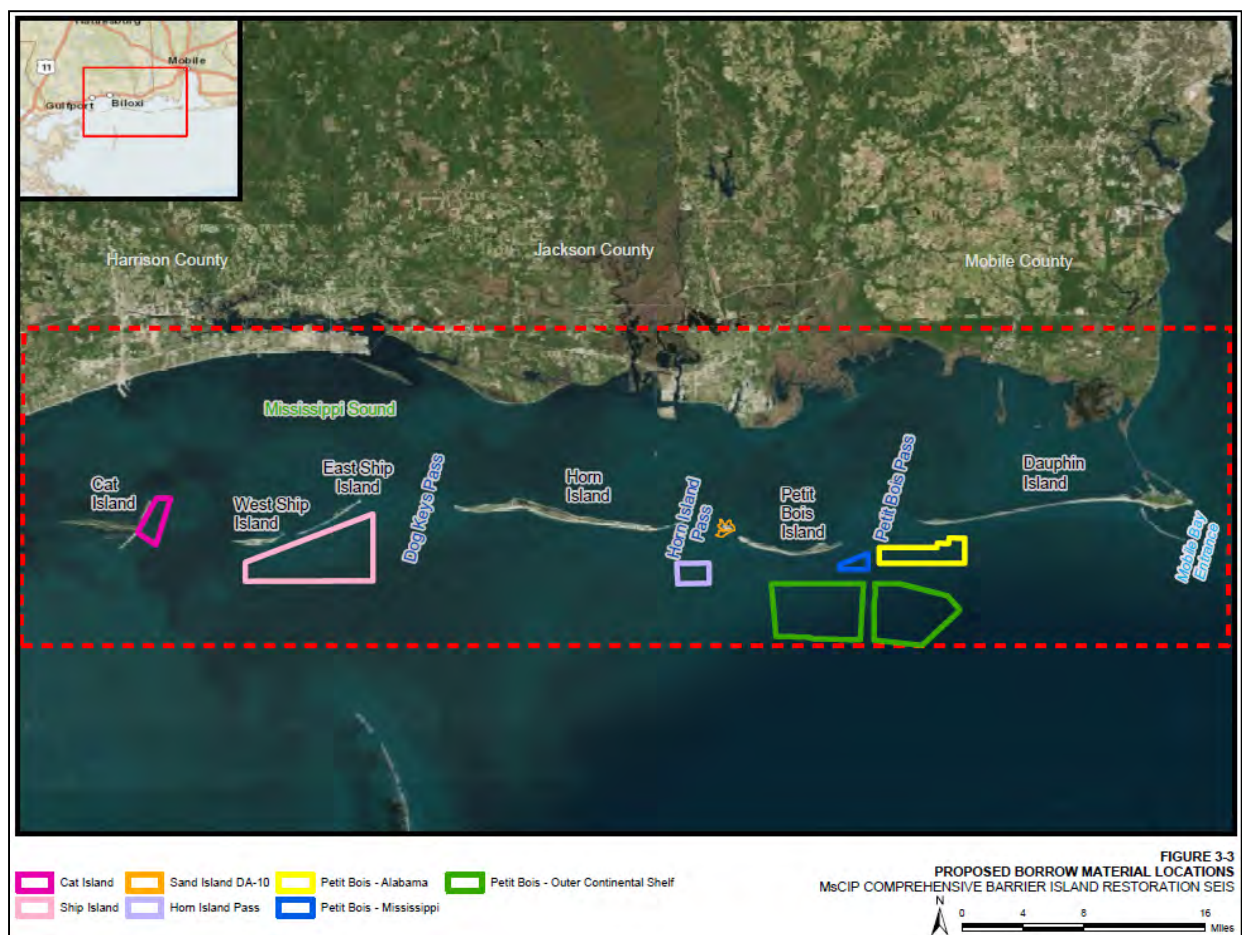


Figure 1.3.4.1- Proposed borrow material locations (Figure 3-3 from USACE SEIS, 2014)

The following table is a consolidated list of the spatial and textural characteristics for each of the new potential borrow areas.

**Table 1.3.4.1 Potential Borrow Area Characteristics**

<i><b>Borrow Area</b></i>	<i><b>Template Volume (mcy)<sup>2</sup></b></i>	<i><b>Area (Acres)<sup>3</sup></b></i>	<i><b>D50 (mm)</b></i>	<i><b>Percent Fines</b></i>	<i><b>Dry Munsell Value</b></i>
Petit Bois Pass-Alabama East	14.7	885	0.33	7	6
Petit Bois Pass-Alabama West	5.1	380	0.31	4	6
Petit Bois Pass-Mississippi	2.0	175	0.31	3	7
Petit Bois Pass-Outer Continental Shelf East	4.2	464	0.29	2	7
Petit Bois Pass-Outer Continental Shelf West	15.4	1,383	0.27	3.4	6
Horn Island Pass	4.9	612	0.28	4.4	7
Ship Island	2.7	183	0.21	6	7
Ship Island Pass <sup>1</sup>	0.45	20.9	0.48	< 1	6
Cat Island	4.3	429	0.20	5	6
Total	53.7				

<sup>1</sup>The Ship Island Pass borrow area was used for the West Ship Island North Shore Restoration Project.

<sup>2</sup>Borrow area template volume does not include estimated losses caused by dredging inefficiencies. Template volume includes the estimated required dredge volume and the estimated allowable dredge volume.

<sup>3</sup>Borrow area acreages are estimated based on cut bottom area and do not include side slopes.

These values are estimates. While borrow area designs attempt to optimize the in situ characteristics of the sediments within their boundaries, sediment characteristics in the fill template will vary due to natural variability in the borrow area, dredging efficiency, handling and placement losses, placement method, and, ultimately, natural processes (wind, waves, and precipitation) at the placement site winnowing out finer sediments as the fill settles into equilibrium with site conditions.

## **2.0 GEOLOGICAL SETTING**

The study area for this geotechnical report is a subset of the MsCIP study area and includes the barrier islands and surrounding waters off the Mississippi coast and south of Alabama's western end of Dauphin Island. The study area also includes an area of the outer continental shelf located approximately south and southeast of Petit Bois Island, MS. The purpose of this section is to provide an overview of the geology for the study area in order to better understand where potential sand sources might be located.

### **2.1 GULF COASTAL PLAIN**

The coastal area of Mississippi is part of the Gulf Coastal Plain which extends from Florida westward to Texas. This plain includes the barrier island chain which lies 6 to 12 miles offshore and that is of interest for this project. This island chain consists of the following islands: (east to west) Petit Bois, Horn, East Ship, West Ship, and Cat Islands. It was first thought of this area to be remnants of topographic highs of the upland surface that had been separated from the mainland by marine inundation as the Gulf Coast slowly subsided (McGee, 1891). However, this interpretation was proven to be incorrect after accurately dating and correlating the stratigraphy and sediments of the Coastal Plains through core sampling (Morton, 1977).

Interpretations of these cores led to indicate the gradual near shore sediment aggradation that led to the formation of the narrow, sandy platform belt over the lower muddy-sandy nearshore deposits (Otvoš, 1985). This near surface deposit stratigraphy of the Mississippi-Alabama Shelf is the product of the fluvial-deltaic deposition during sea level lowstands that have occurred since the late Pleistocene. The gulfward growth of the deltas during the glacio-eustatic fluctuations in sea level produced stacked, off-lapped sedimentary sequences derived from the Mississippi, Pearl, Pascagoula, Tombigbee, Alabama, and west Florida river watersheds. During the late Pleistocene, deltaic loads from the fluvial systems produced differential rates of subsidence of the shelf which acts as the primary mechanism for fluvial orientation and shelf geometry (Bartek et al, 2004). During this time period, sea level changes associated with global glacial action caused a transgressive-regressive sequence reworking sand along the coast. The last glacial period created a coastline near the edge of the continental shelf. As the ice began to melt, the associated sea level rise and wave action began to form the exposed sand into barrier islands with replenishment to this system coming from the east associated

with sediments from the Apalachicola River that contribute to the barrier islands in northwest Florida westward into Alabama along Dauphin Island.

The sediment supply of the barrier islands is transported by the long shore littoral drift moving from the east to the west, along with Mobile Bay's huge ebb-tidal delta which receives sand intermixed with dominant mud from the Bay interior by powerful tidal currents. A relic late Pleistocene barrier ridge on the western flank of the Bay entrance became the intermediate base that enabled continued westward sand transport by littoral drift and currents off, and parallel with, the mainland shore which sourced sediment for the northern Gulf of Mexico barrier islands (Otvos, 1981). The relics of the earliest islands are buried under deltaic deposits and preserved west of the Square Handkerchief Shoals, approximately 2-3 miles south of Bay St. Louis, MS. The littoral drift reaches Petit Bois Island and the other islands via the shoals and ebb-tide deltas south of the inter-island passes (Otvos, 1985). However, growth of the St. Bernard sub-deltas of the Mississippi River south of Hancock and Harrison Counties in Mississippi resulted in the cutoff of the littoral drift west of Ship Island approximately 4,000 years ago (Frazer, 1967).

## **2.2 JACKSON, HARRISON, AND HANCOCK COUNTIES**

The Geologic Map of Mississippi (Moore, 1976), published by the Mississippi Geological Survey, identifies three strata, or formations, that underlie the three subject counties north of the barrier islands. These include the alluvial/coastal deposits of Holocene age, the Citronelle formation of Pliocene/Pleistocene age, and the Pascagoula/Hattiesburg formation of Miocene age. Otvos (1986, 1992, and 2005) further defines the various formations and provides information to their depositional environment. These formations and environments also apply to the barrier islands concerning this project. The later work addresses the presence of, or lack of, sand and other sediments along the coast, in the Mississippi Sound and near the barrier islands.

Within the Mississippi Sound, Holocene-aged deposits form thin, muddy strata that cover the older Pleistocene formations. These include alluvial, estuarine, and lagoonal-bay deposits. Sampling studies have shown the strata to contain particle sizes from colloidal to sand size depending on the energy associated with its depositional environment (Upshaw, Creath and Brooks, 1966).



The transgressive-regressive sequence, which reworked the sand and other sediments along the coast, resulted in three formations that correlate from the alluvium along the coast to the barrier islands: the Prairie, Biloxi, and Gulfport formations. The Gulfport and Prairie formations are generally very sandy and have some economic value because of this characteristic. A generalized geologic map of the Mississippi coast based on these studies is shown in Figure 2.1, (after Otvos, 1997). The Prairie formation is found just landward of the coast in all three counties, while the Gulfport formation is found along the beaches and barrier islands.

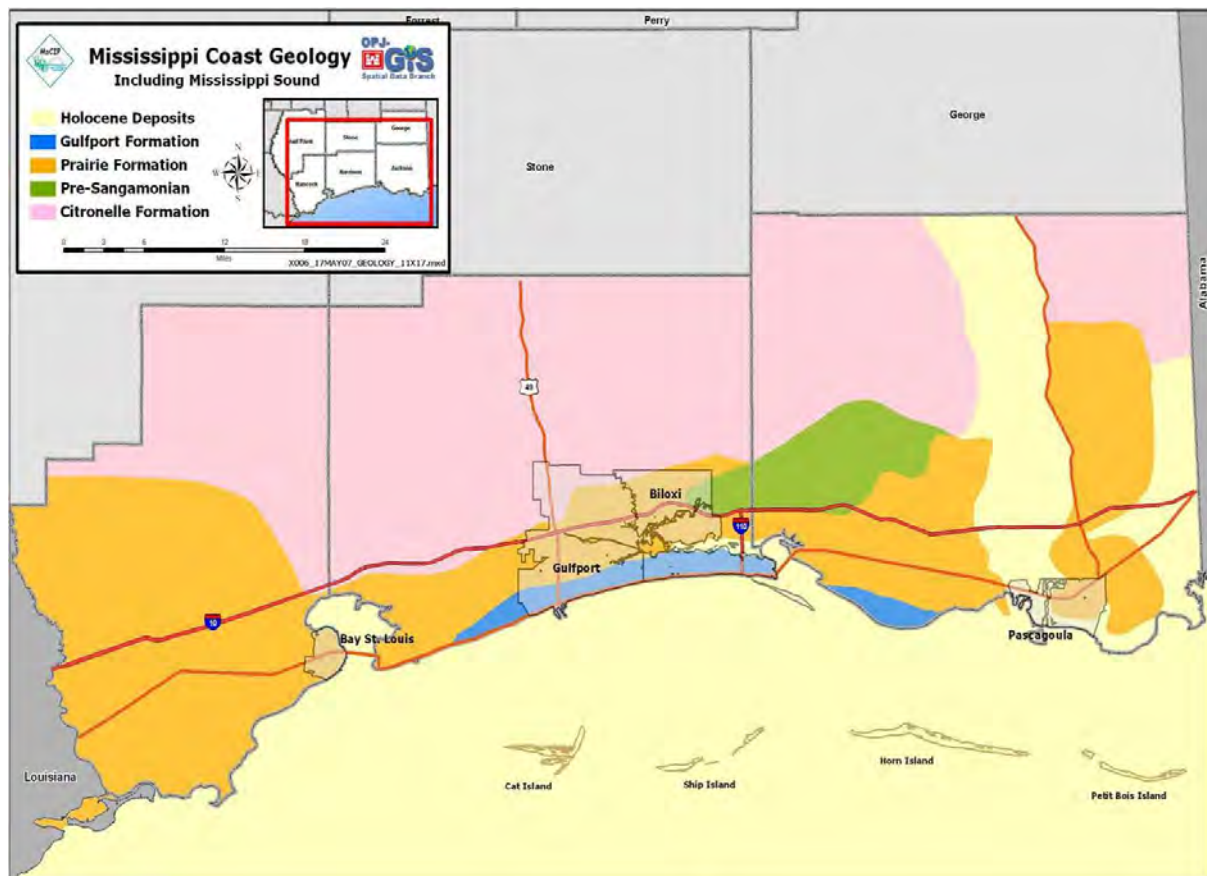


Figure 2.2.1 - Generalized Geologic Map of Coastal Mississippi (After Otvos, 1997)

## 2.3 OUTER CONTINENTAL SHELF

The following is an excerpt from the 2014 USGS report, *Near-surface stratigraphy and morphology, Mississippi inner shelf, northern Gulf of Mexico*, describing the modern morphological setting for this region.



The area south of the barrier islands is “the inner Mississippi-Alabama shelf, which is a slowly subsiding, passive continental margin bound to the west by the Mississippi River delta and to the east by the DeSoto Canyon located offshore of the Florida panhandle (Sydow and Roberts, 1994). The shallow stratigraphy of this region is the product of fluvial-marine sedimentation, driven by sea-level oscillations during the late Pleistocene and into the Holocene (Flocks and others, 2011b). During periods of lower sea level, the region was a flat, low elevation coastal plain, with low gradient rivers meandering across older shelf stratigraphy (Kindinger and others, 1994; Bartek and others, 2004). Within the study area, fluvial systems that extended across the shelf are related to the modern watersheds of southern Mississippi and Alabama (e.g. Fowl, Bayou La Batre, Pascagoula, and Pearl Rivers). Throughout the Holocene, sea-level rise flooded the coastal plain, infilling the river embayments with sediment and forcing bayhead deltas to migrate upstream (Bart and Anderson, 2004). Burial of these transgressive deposits produced the most complete stratigraphic component of inner-shelf features. Tidal inlet and barrier island development seaward of the embayments were inundated by rapid sea-level rise and reworked into expansive sand sheets and shoals comprised of moderately sorted, medium to fine sand (Doyle and Sparks, 1980). West of present day Mobile Bay, shoals are rare and occur almost exclusive to the area between Dauphin and Petit Bois Islands. These shoals are stable features extending from ~4 to 20 m water depth (13.1 to 65.6 feet). They trend NW-SE, parallel to the prevailing wave climate, and are composed of poor to moderately-sorted, medium sand (Flocks and others, 2011a). By about 5 thousand years before present (kyr BP), sea-level rise reached the position of GUIs, and a dominant westward littoral system initiated the development of the barrier islands. Sediment supply for the islands was sourced primarily from the Mobile River embayment deposits (Otvos, 1981; Greene and others, 2007). As sea level reached its present position, the St. Bernard delta complex of the Mississippi River delta encroached into the western Mississippi-Alabama shelf, covering the backfilled stratigraphy with muddy, prodelta deposits until delta development ceased about 2 kyr BP (Otvos and Giardino, 2005), completing the modern morphologic setting of the inner shelf.” (Flocks, 2014)

Section 4 includes more details about the geology and geomorphology of the sampling areas, with emphasis on potential borrow sites, while discussing the

USGS's 2010 and 2013 geophysical surveys around the GUIS islands and south of Petit Bois Island.

### **3.0 PLACEMENT SITE FIELD INVESTIGATIONS**

Textural and color characteristics of the native material at the placement sites are critical to determining the fill characteristics required to meet the project's objectives. Before any borrow area investigation could begin in earnest, sediments at the placement sites had to be analyzed to determine their textural and color characteristics.

#### **3.1 FILL COMPATIBILITY REQUIREMENTS**

Shorelines are dynamic environments and vary spatially and temporally. Therefore, determining the in situ characteristics of the placement areas is challenging. Fill material should match native material as closely as possible to ensure stability and minimize environmental impacts due to changes in material characteristics. Color, grain size, shape, and carbonate content all affect the engineering and environmental characteristics of the fill. General guidelines for identification of compatible borrow were reviewed in USACE publications, as well as other agency publications such as the National Oceanic and Atmospheric Administration's (NOAA) publication, "Beach Nourishment: A Guideline for Local Government Officials" and Florida's Department of Environmental Protection guide for selecting borrow material for beach nourishment projects.

##### **3.1.1 COLOR**

The color of beach sand is an issue not only for aesthetics, but it also affects marine life. The color of the sand directly affects the absorption of solar energy from the sun, which in turn affects the temperature of the sand. Darker sand absorbs more solar energy, making it warmer than lighter colored sand which reflects more of the solar energy. Temperature plays a role in determining the gender of sea turtle hatchlings. Researchers have discovered that the warmer the sand, the higher the percentage of female sea turtle hatchlings that develop (Hayes, G.C.; et al.). For this investigation, samples were qualitatively analyzed and assigned a Munsell Color Munsell color hue, value, and chroma classification (ASTM D1535-12a) in order to quantitatively compare each sample. For the purposes of classifying the color of large borrow areas, the Munsell value is used because it describes the material's lightness on a continuous scale from 1 to 10. 1 is black and 10 is white, with shades of gray in between. The value gives an indication to the lightness of the sediment, regardless of its hue or chroma, thus simplifying comparisons between samples that

might have different hues. In general, a wet sample is one to two Munsell values darker than a dried sample. Because moisture affects color, wet and dry color characterization was done for each sample. For this report, a volumetrically-weighted average Munsell value was used for describing the sediment for borrow areas and placement areas when possible.

### **3.1.2 GRAIN SIZE**

The grain size distribution, or gradation, of a sediment sample refers to the range of particle sizes contained in the sample and is a significant factor for nourishment projects because particle size distribution directly affects beach fill stability and the equilibrium profile's slope. Existing beach sediments are typically in a state of equilibrium with the energy from waves and currents surrounding them. Generally, the sediments finer (smaller) than those in equilibrium with these surrounding conditions will be transported away by wind, waves, and currents, leaving only the proper particle size based on existing environmental conditions (Dean, 1974 and 1991). Coarser (larger) grain sizes require relatively greater energy to be moved, in comparison to finer grains, so coarser sands generally remain in place (unless a significant storm event occurs), thereby increasing beach stability. Coarser grained sand also has a steeper angle of repose, which produces steeper equilibrium profiles.

Although no single statistic can completely describe a sediment's grain size distribution, the D50 (median grain size, in mm) was used because it provided a more conservative estimate of the approximate average sample grain size due to the poorly graded (relatively uniform) nature of the samples. Therefore, when possible, volumetrically-weighted average D50 was used for describing the sediment size for borrow areas and placement areas.

### **3.1.3 GRAIN ANGULARITY**

The angularity, or roundness, of individual grains affects sediment settling, compaction, and motion initiation. The sand found on the barrier islands is typically a sub-angular to rounded shape, which is expected with sand grains that have been transported over long distances. More angular sand grains tend to pack tightly together and make a harder beach surface, while rounded sand grains tend to be less compacted and contain a higher porosity. These variations in the firmness of

the surface will affect the use of the islands by many types of fauna. Nesting sea turtles prefer sand that is loosely packed for nesting. The more rounded sand grains allow for easier nest digging by the turtles. Changes in the compaction of the beaches will also affect the benthic community at the shoreline, which will in turn influence the use of the beaches by shorebirds. USACE and NPS personnel qualitatively compared a representative sample from each vibracore sample to a Geotechnical Gauge containing different degrees of angularity to determine the overall angularity of that sample. Compaction testing on the native beaches was not conducted.

### **3.1.4 CARBONATE CONTENT**

Beach sands can be broadly categorized by their chemical composition into either carbonate ( $\text{CaCO}_3$ ) beaches or siliciclastic/quartz ( $\text{SiO}_2$ ) beaches. Carbonate content is important because carbonate sands perform differently from silica sands due to different intraparticle porosities, density, bulk density, and structural integrity of carbonate grains (Halley, 2000). Weathering of carbonates can produce sediments with higher concentrations of silt- and clay-sized material resulting in cementation of grains and elevated turbidity. Carbonate content was generally not an issue with this investigation because the vast majority of sand located was siliciclastic / quartz with very little shell fragments. That is not to say that there will not be shell fragments in the borrow material, but the overwhelming constituent of the borrow material will be quartz sand. Quartz sand is very resistant to physical and chemical weathering, so sand of this type will tend to have less turbidity and cementation issues in the long term.

### **3.1.5 FINE SEDIMENT CONTENT**

The Unified Soil Classification System (USCS) defines fine sediment, or fines, as any sediment that passes through a U.S. Standard #200 (0.074 mm) sieve. This fine sediment can be either silt- or clay-size particles. Fines affect the overall quality of the sand. It increases turbidity in the foreshore area and, in significant amounts, can alter the engineering properties of the sand. Aesthetically, quartz sand with a high percentage of fine material tends to look dirty and is not appealing to beachgoers. Therefore, clean quartz sand with less than 5% fine sediment is optimal and 10% or less fines is acceptable. The NPS was willing to allow up to 10% fine material on beaches (15% in the nearshore area) because of natural

sorting that occurs along the coast over time. The dredging and placement process will winnow out fine sediments as well. When hopper dredges are filling up, the fine sediments will tend to stay in suspension and be pushed out of the hold with the water as it is filled up. Further, silty or clayey sand are expected to contain less fine sediments after placement because the fines are again in suspension during placement and will likely be dispersed during hydraulic placement and through subsequent natural coastal processes. Because of the anticipated loss of fines due to dredging and natural coastal processes, sand sources with fines up to 15% were considered acceptable.

### 3.2 BARRIER ISLAND SEDIMENT SAMPLING

Multiple beach and island sediment sampling events took place between 2006 and 2011 (Figure 3.2.1). Their purpose was to identify the native materials' textural characteristics in order to determine the best matching fill for the projects. Samples were taken from sandy sediments that were most representative; relatively small exposed deposits of clay or peat were not sampled and tested.

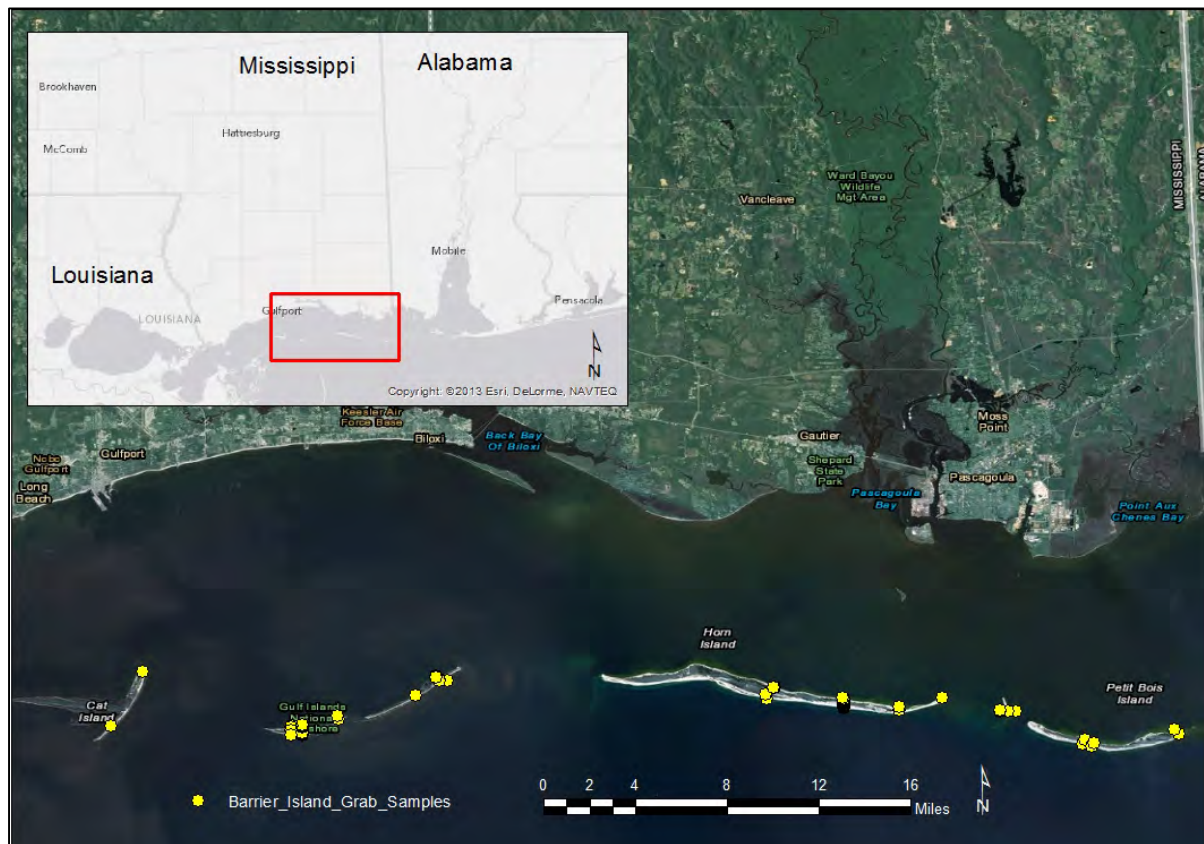


Figure 3.2.1 Barrier Island grab sample locations

**3.2.1 2006 BEACH SEDIMENT INVESTIGATIONS**

During initial stages of the Barrier Island Plan in 2006, geologists and biologists from the USACE Mobile District took samples from various locations on beaches on Petit Bois, Horn, East Ship, and West Ship Islands. Cat Island was not included in the project plan at this time. These samples were analyzed for color using Munsell Color Charts and for angularity by qualitative comparison using a McCollough Geotechnical Gauge. The samples were not lab-tested for grain size distribution, but were visually-manually classified according to the USCS. The results of the sampling indicated that the majority of the sediments were poorly graded, sand-sized quartz, light gray in color, with sub-angular to rounded particle shape. The results of the sampling are shown in Table 3.2.1.1. Aerial imagery maps for the 2006 sampling events are shown in Appendix A.

**Table 3.2.1.1 – Munsell Color Analyses of Beach Samples from Petit Bois, Horn, East Ship, and West Ship Islands taken in 2006**

Sample #	Location	Latitude	Longitude	Description	Dry Munsell Color
HI-1-06	North beach of Horn Island See Appendix A, Fig 3.2.2.1.4	30.2376	-88.6674	Medium, poorly graded sand, SP	white, 2.5Y 8/1
HI-2-06	South beach of Horn Island See Appendix A, Fig 3.2.2.1.4	30.2329	-88.6725	Medium, poorly graded sand, SP	lt. grey, 2.5Y 7/2
PB-3-06	North beach Petit Bois Island See Appendix A, Fig 3.2.2.1.5	30.2023	-88.4653	Medium, poorly graded sand, SP	lt. grey, 2.5Y 7/2
PB-4-06	South beach Petit Bois Island See Appendix A, Fig 3.2.2.1.5	30.2001	-88.467	Medium, poorly graded sand, SP	lt. grey, 2.5Y 7/2
ES-5-06	North beach East Ship Island See Appendix A, Fig 3.2.2.1.3	30.2441	-88.8803	Medium, poorly-graded sand, SP	lt. grey, 2.5Y 7/2
ES-6-06	South beach East Ship Island See Appendix A, Fig 3.2.2.1.3	30.2418	-88.8784	Medium, poorly graded sand, SP	lt. grey, 2.5Y 7/1
ES-7-06	South beach East Ship Island See Appendix A, Fig 3.2.2.1.3	30.2423	-88.8785	Organic Peat	black, 5Y 2.5/2
WS-8-06	South beach West Ship Isl. See Appendix A, Fig 3.2.2.1.2	30.2072	-88.9721	Medium, poorly graded sand, SP, contains some dark particles	lt. grey, 2.5Y 7/1
WS-9-06	Central part West Ship Island See Appendix A, Fig 3.2.2.1.2	30.2105	-88.9721	Medium, poorly graded sand, SP, mix of light and dark particles	dk. Grey, 5Y 4/1
WS-10-06	North beach W. Ship Island at Pier See Appendix A, Fig 3.2.2.1.2	30.2127	-88.9717	Medium, poorly graded sand, SP	lt. brownish grey, 2.5Y 6/2

**3.2.2 2009 BEACH SEDIMENT INVESTIGATIONS**

In 2009, a sampling event was completed on all the GUIS islands, including Cat Island. This event was performed by personnel from the USACE Mobile District, accompanied by a coastal geomorphologist from the NPS Regional Office in Atlanta, GA. In addition to qualitatively determining the Munsell color and particle shape, the samples were taken to a soils laboratory for grain size analysis. The samples were analyzed using methods contained in ASTM D2487, "Practice for Classification of Soils for Engineering Purposes (Unified Soil Classification System)". Selected results of the grain size analyses are shown in Table 3.2.2.1 and complete results are shown in Appendix A. The sampling locations and the results of the qualitative color and particle shape classification are shown in Table 3.2.2.2.

**Table 3.2.2.1– 2009 Beach Samples Gradation Data**

Sample ID	Sample Location	USCS	Percentages Passing Sieves					D <sub>50</sub>
			#20	#40	#60	#100	#200	
CI-1-09	Cat Island - East Shore Spit See Appendix A, Fig 3.2.2.1.1	SP	100	94	6.6	0.2	0.2	0.3275
CI-2-09	Cat Island – E. Shore S. Spit See Appendix A, Fig 3.2.2.1.1	SP	100	96.4	17	0.9	0.2	0.3129
WSI-1-09	West Ship Island – Dock See Appendix A, Fig 3.2.2.1.2	SP	99.4	40.2	7.9	0.2	0	0.4735
WSI-2-09	West Ship Island - South East See Appendix A, Fig 3.2.2.1.2	SP	100	96.7	14.3	0	0	0.316
WSI-3-09	West Ship Island - East North See Appendix A, Fig 3.2.2.1.2	SP	99.7	79.7	9.8	0.7	0.2	0.341
WSI-4-09	West Ship Island - East South See Appendix A, Fig 3.2.2.1.2	SP	100	96.1	27	3.1	0.1	0.2988
ES-1-09	East Ship Island - West End South See Appendix A, Fig 3.2.2.1.3	SP	100	95.7	13.2	0.4	0.2	0.3183
ES-2-09	East Ship Island - East North See Appendix A, Fig 3.2.2.1.3	SP	100	90.9	14.7	0.3	0.1	0.3209
ES-3-09	East Ship Island - East South See Appendix A, Fig 3.2.2.1.3	SP	100	91.2	12.3	0.3	0.3	0.3237
HI-1-09	Horn Island - Center North See Appendix A, Fig 3.2.2.1.4	SP	99.9	31.4	1.6	0.4	0.4	0.5088
HI-2-09	Horn Island - Center South See Appendix A, Fig 3.2.2.1.4	SP	100	76.1	2.8	0.1	0	0.3539
HI-3-09	Horn Island - East North See Appendix A, Fig 3.2.2.1.4	SP	100	81.5	7.1	0.2	0	0.3414
HI-4-09	Horn Island - East South See Appendix A, Fig 3.2.2.1.4	SP	99.9	89.9	11.5	0.3	0.2	0.3259
HI-5-09	Horn Island – Sand Spit East See Appendix A, Fig 3.2.2.1.4	SP	100	92.3	9.9	0.4	0.3	0.3255
S-1-09	Sand Island (DA-10)- South Shore See Appendix A, Fig 3.2.2.1.5	SP	100	88.4	6.2	0.4	0.4	0.3337
PBI-1-09	Petit Bois Island - North Center See Appendix A, Fig 3.2.2.1.5	SP	98.7	59.5	6.3	0.7	0.6	0.3888



**SECTION 3****Offshore Sand Borrow Investigation, 2010-2014  
Placement Site Field Investigations**

PBI-2-09	Petit Bois Island - South Center See Appendix A, Fig 3.2.2.1.5	SP	99.9	84.4	6.4	0.4	0.4	0.3382
PBI-3-09	Petit Bois Island - North East See Appendix A, Fig 3.2.2.1.5	SP	99.9	83.9	8	0.5	0.2	0.3371
PBI-4-09	Petit Bois Island - South East See Appendix A, Fig 3.2.2.1.5	SP	99.9	71.1	4.7	0.8	0.8	0.3613

**Table 3.2.2.2 – Location, Color, and Particle Shape of 2009 Beach samples**

Name	Location	Latitude	Longitude	Angularity	Wet color code	Wet color	Dry color code	Dry color
CI-1-09	Cat Island - East shore north spit See Appendix A, Fig 3.2.2.1.1	30.24744	-89.065957	Sub-angular to rounded	2.5Y 7/2	Lt. Gray	2.5Y 8/1	Lt. Gray
CI-2-09	Cat Island - East shore south spit See Appendix A, Fig 3.2.2.1.1	30.212874	-89.085645	Sub-angular to rounded	2.5Y 7/2	Lt. Gray	2.5Y 7/1	Lt. Gray
WSI-1-09	West Ship Island - Boat dock north shore - See Appendix A, Fig 3.2.2.1.2	30.212801	-88.971456	Sub-angular to rounded	GLE Y1 5/N	Gray	GLE Y1 5/N	Gray
WSI-2-09	West Ship Island - End of boardwalk, south shore See Appendix A, Fig 3.2.2.1.2	30.207668	-88.972008	Sub-angular to rounded	5Y 7/1	Lt. Gray	5Y 7/1	Lt. Gray
WSI-2A-09	West Ship Island - End of boardwalk, south shore See Appendix A, Fig 3.2.2.1.2	30.207668	-88.972008	Sub-angular to rounded	GLE Y1 4/N	Dark gray	GLE Y1 5/N	Gray
WSI-3-09	West Ship Island - East end on north shore See Appendix A, Fig 3.2.2.1.2	30.219334	-88.943008	Sub-angular to rounded	2.5Y 7/1	Lt. Gray	2.5Y 7/1	Lt. Gray
WSI-4-09	West Ship Island - East end on south shore See Appendix A, Fig 3.2.2.1.2	30.217771	-88.941908	Sub-angular to rounded	GLE Y1 5/N	Gray	GLE Y1 5/N	Gray
ES-1-09	East Ship Island - West tip See Appendix A, Fig 3.2.2.1.3	30.232522	-88.893823	Sub-angular to rounded	2.5Y 7/2	Lt. Gray	2.5Y 7/1	Lt. Gray
ES-2-09	East Ship Island - East end on north shore See Appendix A, Fig 3.2.2.1.3	30.244648	-88.880641	Sub-angular to rounded	2.5Y 7/1	Lt. Gray	2.5Y 7/1	Lt. Gray

**SECTION 3****Offshore Sand Borrow Investigation, 2010-2014  
Placement Site Field Investigations**

Name	Location	Latitude	Longitude	Angularity	Wet color code	Wet color	Dry color code	Dry color
ES-3-09	E Ship Isl. - East end south shore See Appendix A, Fig 3.2.2.1.3	30.241771	-88.873645	Sub-angular to rounded	2.5Y 7/1	Lt. Gray	2.5Y 7/1	Lt. Gray
HI-1-09	Horn Isl. - Boat dock north shore See Appendix A, Fig 3.2.2.1.4	30.237523	-88.667247	Sub-angular to rounded	2.5Y 7/2	Lt. Gray	2.5Y 7/2	Lt. Gray
HI-2-09	Horn Island - End of path from boat dock on south shore See Appendix A, Fig 3.2.2.1.4	30.230631	-88.67218	Sub-angular to rounded	2.5Y 7/2	Lt. Gray	2.5Y 8/1	Lt. Gray
HI-3-09	Horn Island - Eastern end on north shore See Appendix A, Fig 3.2.2.1.4	30.225408	-88.588682	Sub-angular to rounded	5Y 5/1	Gray	5Y 5/1	Gray
HI-4-09	Horn Island - Eastern end on south shore See Appendix A, Fig 3.2.2.1.4	30.222977	-88.588228	Sub-angular to rounded	2.5Y 7/1	Lt. Gray	2.5Y 7/1	Lt. Gray
H1-5-09	Horn Island - Sand Spit east of eastern end of island See Appendix A, Fig 3.2.2.1.4	30.231314	-88.56119	Sub-angular to rounded	5Y 5/2	Olive gray	5Y 7/1	Lt. Gray
S-1-09	Sand Island (DA-10)- South shore See Appendix A, Fig 3.2.2.1.5	30.222838	-88.524765	Sub-angular to rounded	2.5Y 7/1	Lt. Gray	2.5Y 7/1	Lt. Gray
PBI-1-09	Petit Bois Island - North shore in center of island See Appendix A, Fig 3.2.2.1.5	30.204569	-88.47165	Sub-angular to rounded	2.5Y 7/1	Lt. Gray	2.5Y 7/1	Lt. Gray
PBI-2-09	Petit Bois Island - South shore in center of island See Appendix A, Fig 3.2.2.1.5	30.201675	-88.473103	Sub-angular to rounded	2.5Y 7/1	Lt. Gray	2.5Y 7/1	Lt. Gray
PBI-3-09	Petit Bois Island - East end north shore See Appendix A, Fig 3.2.2.1.5	30.210826	-88.414782	Sub-angular to rounded	2.5Y 7/2	Lt. Gray	2.5Y 7/1	Lt. Gray
PBI-4-09	Petit Bois Island - East end south shore See Appendix A, Fig 3.2.2.1.5	30.207911	-88.41232	Sub-angular to rounded	2.5Y 7/1	Lt. Gray	2.5Y 7/1	Lt. Gray

Note: Colors in Table 3.2.2.2 may differ from the colors listed on the lab reports in Appendix A because the lab did not conduct a color analysis using a Munsell Soil Color Chart and USACE personnel did the classification after receiving the lab results.

**3.2.3 2010 BEACH SEDIMENT INVESTIGATIONS**

Beaches are relatively high energy environments compared to the interior portions of the islands and the variation of sediment grain size across the islands was not known. Two transects were established; one on West Ship Island and another on Horn Island. Each transect had 11 sample locations spaced across the island from the Sound to the Gulf. Each location was sampled from the surface to a depth of approximately one foot. Each sample was sent to an engineering laboratory for a grain size analysis. In addition, an equal amount of sediment from each sample, from each of the islands, was composited into an additional sample for a separate analysis. The intent of the composite samples was to characterize the entire island along that transect. The location of the samples taken at West Ship Island and Horn Island are plotted on imagery in Figures 3.2.3.1 and 3.2.3.2, respectively. Native material for both islands proved to be mostly poorly graded, medium-grained, sand-sized quartz with trace fine sediments. Grain size undulates along the transect, going from finer grain in deeper water, coarsening with decreasing water depth, and then becoming finer towards the center of the island in the subaerial samples.

For West Ship Island, the sampling results show that the locations in deeper water (WSI-1-10 and WSI-11-10) had smaller grain sizes than those samples in the shallower, more active areas of the foreshore (WSI-3-10, WSI-10-10, and WSI-9-10). The smallest grain sizes were in samples located towards the center of the island (WSI-5-10 and WSI-6-10). The samples on the northern side of the island were generally larger in size as well. This may be due to the decreased wave energy on the Sound-side of the island and subsequent reduction in transport capacity of the coarser grain sizes, thus leaving the coarser sediment in place. Whereas, the south shore is subject to greater wave energy which is capable of transporting coarser material. Previous storm overwash may have also had the energy to transport and deposit the coarser grain sizes from the gulf-side of the island to the sound-side. However, these samples are from discrete locations and the depositional environment when they were deposited, along with the subsequent reworking due to coastal processes, affects the gradational consistency throughout the island. Therefore, other locations could show slightly different gradation results. Despite this variability, the majority of the island is expected to be poorly graded, medium to fine grain, sand-sized quartz with minimal (<5%) fine sediment content. Selected results of the grain size analyses are shown in Tables 3.2.3.1 and 3.2.3.2, with complete results included in Appendix A.

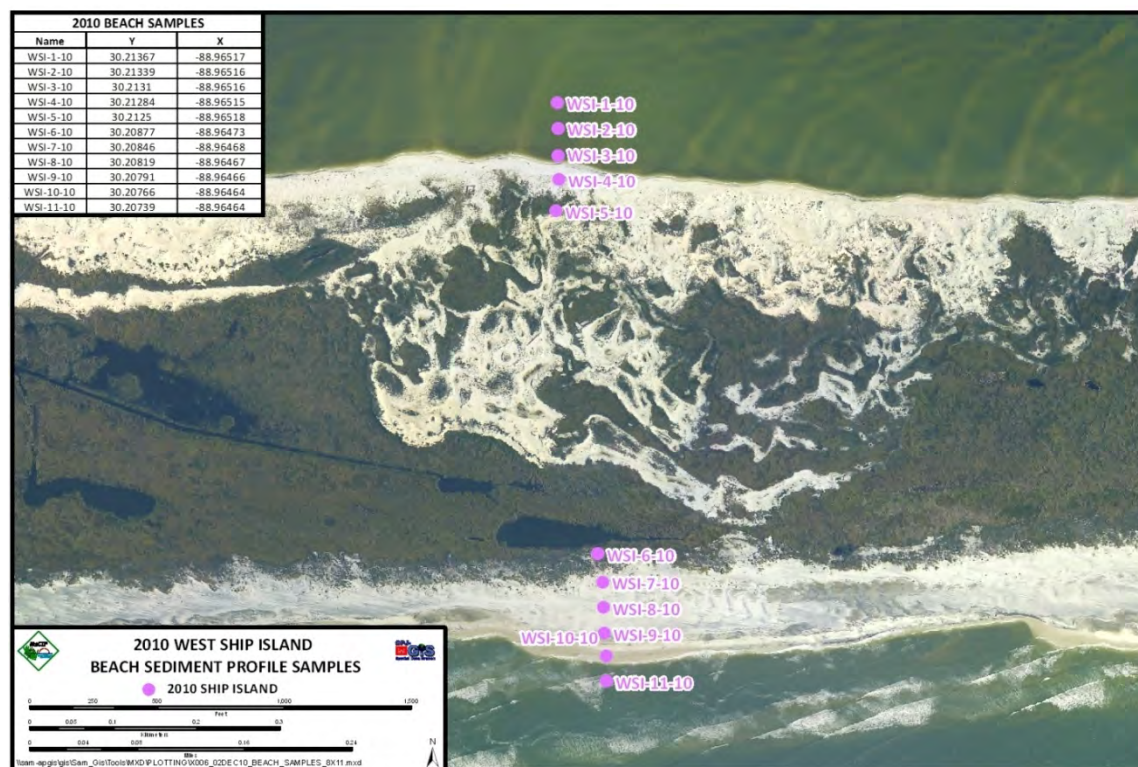


Figure 3.2.3.1 – Location of sampling locations for 2010 West Ship Island beach transect.

Table 3.2.3.1 – Results of Grain Size Analyses, Transects at West Ship Island; Depths from 0.0 to 1.0 feet

USACE Sample #	USCS	Percentages Passing Sieves					D50 mm
		#20	#40	#60	#100	#200	
BI-SIB-1-10 (a.k.a. WSI-1-10)	SP	99.8	77.6	17.6	3.9	1	0.3346
BI-SIB-2-10 (a.k.a. WSI-2-10)	SP	99.6	70.6	13.1	3.4	1.4	0.3535
BI-SIB-3-10 (a.k.a. WSI-3-10)	SP	94.4	45	7.2	0.7	0.6	0.4504
BI-SIB-4-10 (a.k.a. WSI-4-10)	SP	99.8	69	7.3	5.5	0.3	0.3638
BI-SIB-5-10 (a.k.a. WSI-5-10)	SP	99.9	97.3	53	10.7	0.9	0.2426
BI-SIB-6-10 (a.k.a. WSI-6-10)	SP	100	99	47	2.4	0.2	0.2567
BI-SIB-7-10 (a.k.a. WSI-7-10)	SP	100	95	39.4	5.6	2.7	0.2756
BI-SIB-8-10 (a.k.a. WSI-8-10)	SP	99.8	84.8	32.3	5.4	1.7	0.2983
BI-SIB-9-10 (a.k.a. WSI-9-10)	SP	100	95.8	27.8	7.6	1.3	0.2988
BI-SIB-10-10 (a.k.a. WSI-10-10)	SP	99.8	70.2	8.9	5.8	0.5	0.3596
BI-SIB-11-10 (a.k.a. WSI-11-10)	SP	99.6	95.5	68.7	5.3	1.1	0.2147
BI-SIB-10 COMP	SP	99.4	81.7	29.5	9.8	0.9	0.3095

For Horn Island, the sampling results indicated a similar pattern as the West Ship Island samples. Finer grain sizes in the deeper water (HI-1-10, HI-11-10) and coarsening shoreward as the water depth decreases. The middle of the island is slightly finer than the beaches on either side. As with West Ship Island, grain size will vary throughout the island due to natural processes, but the majority of the island is expected to consist mostly of poorly graded, medium-grained, sand-sized quartz with minimal (<5%) fine sediment content.

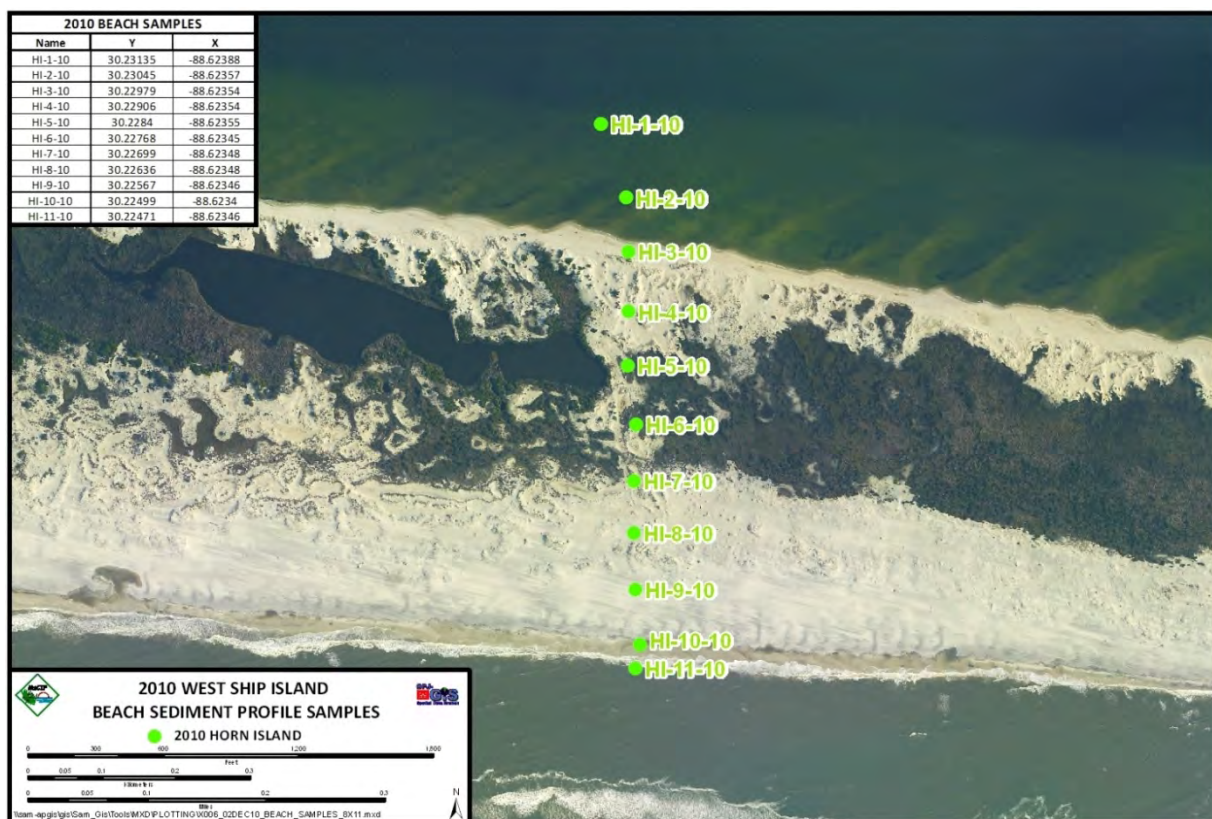
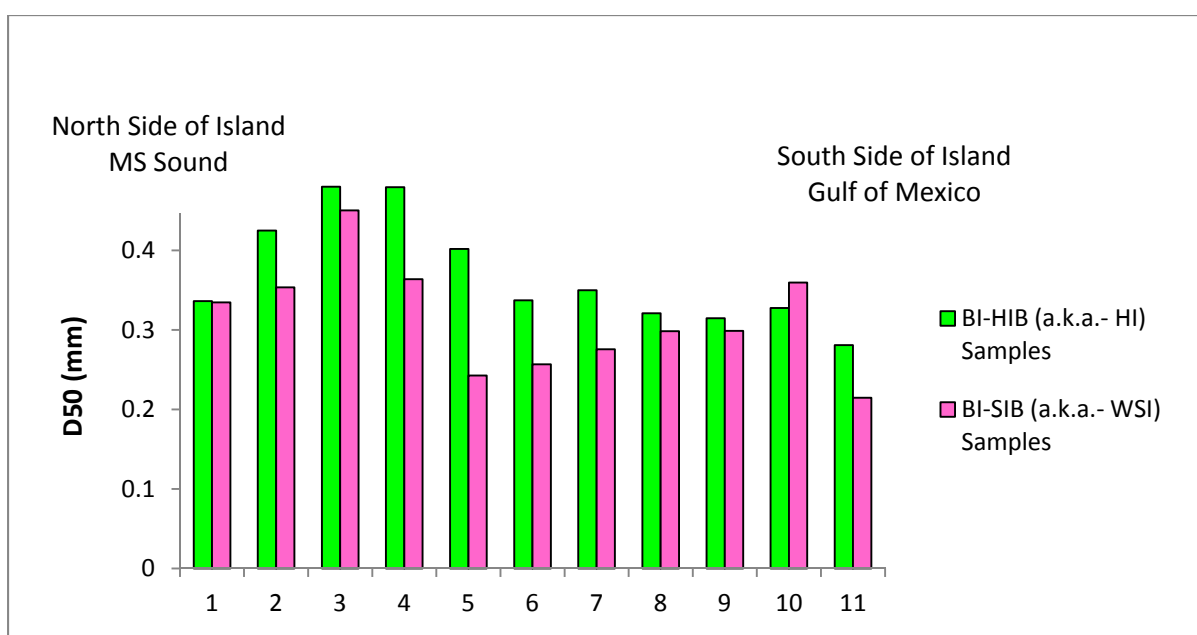


Figure 3.2.3.2 - Location of sampling locations for 2010 Horn Island beach transect.

Table 3.2.3.2 – Results of Grain Size Analyses, Transects at Horn Island with Depths from 0.0 to 1.0 feet

USACE Sample #	USCS	Percentages Passing Sieves					D50 mm
		#20	#40	#60	#100	#200	
BI-HIB-1-10 (a.k.a. HI-1-10)	SP	99.9	75.9	17.9	1.3	1	0.3362
BI-HIB-2-10 (a.k.a. HI-2-10)	SP	98.2	50	7.3	0.6	0.3	0.425
BI-HIB-3-10 (a.k.a. HI-3-10)	SP	99.1	37.8	1.2	1	0.2	0.4801
BI-HIB-4-10 (a.k.a. HI-4-10)	SP	99.7	37.8	0.9	0.7	0.3	0.4795

BI-HIB-5-10 (a.k.a. HI-5-10)	SP	99.7	55.8	5.1	0.5	0.2	0.4018
BI-HIB-6-10 (a.k.a. HI-6-10)	SP	100	79.2	13.3	0.9	0.3	0.3372
BI-HIB-7-10 (a.k.a. HI-7-10)	SP	99.5	72.5	12.5	1	0.2	0.3499
BI-HIB-8-10 (a.k.a. HI-8-10)	SP	99.7	86	19.6	6.7	0.2	0.321
BI-HIB-9-10 (a.k.a. HI-9-10)	SP	99.9	89.8	21.2	8	0.5	0.3147
BI-HIB-10-10 (a.k.a. HI-10-10)	SP	99.5	83.7	15.8	0.9	0.6	0.3275
BI-HIB-11-10 (a.k.a. HI-11-10)	SP	99.7	92.9	38.7	16.2	1	0.2809
BI-HIB-10 COMP	SP	99.5	69.2	12.3	1.1	0.6	0.3571



**Figure 3.2.3.3 – Bar graph comparison of grain sizes for West Ship and Horn Island beach transects.**

Figure 3.2.3.3 graphs the sampling results, minus the composite samples, and illustrates the undulating grain sizes based on the sample location on the transect. It must also be taken into account that the samples along each transect were not necessarily in the exact same relative location on the island as the counterpart sample (i.e. WSI-5 and HI-5 are not exactly in the center of their respective island). The graph does not model accurately these variations. Although the sample locations are not exactly the same, the general pattern of fluctuation across the transect is similar across both islands, corresponding to roughly the same geologic features of their respective island. Also of note, the West Ship Island samples were generally finer than the Horn Island samples which is indicative of it being further down drift from the sediment source feeding the island chain.



Further discussions within the Engineering team led to another round of sampling on West Ship Island (Figure 3.2.3.4). These samples were taken as composites, with total depths ranging from 4.0 to 5.0 feet below ground surface. The purpose of these samples was to determine if there were any significant differences in sediment characteristics because of the sample's stratigraphic position. The samples' coordinates and selected results of the gradation analysis are shown in Table 3.2.3.3.

The results do not indicate a significant change in material type (poorly graded quartz sand) from the surface to the target depth of 4.0 – 5.0 ft below ground surface. Results did indicate that grain size was slightly larger on the southern side of the island. However, the results are so close (range of 0.05 mm) that they do not indicate a significant variation to the overall characteristics of the island's surficial sediments.

Figure 3.2.3.4 shows the layout of the 2010 samples on West Ship Island and gradation curves are included in Appendix A.



Figure 3.2.3.4 - Sampling locations for 2010 West Ship Island transect.



**Table 3.2.3.3 - Results of Grain Size Analyses, Transect at West Ship Island, Depth 0.0 to 5.0 feet**

USACE Sample #	Latitude	Longitude	Depth (ft)	USCS	< #200 (%)	D50 (mm)
WSI-5-10A	30.20877	-88.96473	0.0 - 1.5	SP	0.4	0.3681
WSI-5-10B	30.20877	-88.96473	1.5 - 3.0	SP	0.9	0.3369
WSI-5-10C	30.20877	-88.96473	3.0 - 4.5	SP	0.4	0.3168
WSI-12-10A	30.211333	-88.965078	1.0 - 2.0	SP	0.5	0.3287
WSI-12-10B	30.211333	-88.965078	2.0 - 3.0	SP	0.2	0.2654
WSI-12-10C	30.211333	-88.965078	3.0 - 4.0	SP	0.4	0.2786
WSI-13-10A	30.210011	-88.964875	1.0 - 2.0	SP	0.1	0.3381
WSI-13-10B	30.210011	-88.964875	2.0 - 3.0	SP	2.9	0.2661
WSI-13-10C	30.210011	-88.964875	3.0 - 4.0	SP	0.6	0.2722
WSI-13-10D	30.210011	-88.964875	4.0 - 5.0	SP	0.2	0.317

Both sampling events demonstrate that the majority of sediment on the barrier islands is poorly graded, medium to fine grained sand-sized quartz with minimal (<5%) fine sediments. However, the aerial photos illustrate that other finer grained material (clays and/or silts) can be found surficially on both islands as evidenced by the darker colors, ponded water, and more robust vegetation. These deposits are encountered mostly on the interior of the islands where wave action cannot winnow out the fines and transport them away.

### 3.2.4 2011 DA-10/SAND ISLAND SAMPLING

Three grab samples were taken from the DA-10 / Sand Island in 2011 to further characterize the sediment on the island. Because it is dredged sediment from the Pascagoula Shipping Channel, the island contained very clean, poorly graded, medium-grained, sand-sized quartz with less than 2% fine material. As with Horn and West Ship Island, the interior sample (BI-DA10-16-11) did contain slightly finer sand than the two samples closer to the water line. Table 3.2.4.1 shows the lab results for the samples. Figure 3.2.4.1 shows the layout of the samples on the island. Lab reports are included in Appendix A.

Table 3.2.4.1 - Results of Grain Size Analyses, Beach Grab Samples at DA-10

USACE Sample #	Latitude	Longitude	Depth (ft)	USCS	< #200 (%)	D50 (mm)
BI-DA10-15-11	30.222764	-88.524672	1	SP	1.0	0.3937
BI-DA10-16-11	30.222764	-88.519922	1	SP	1.0	0.2998
BI-DA10-17-11	30.222764	-88.515101	1	SP	1.2	0.3244

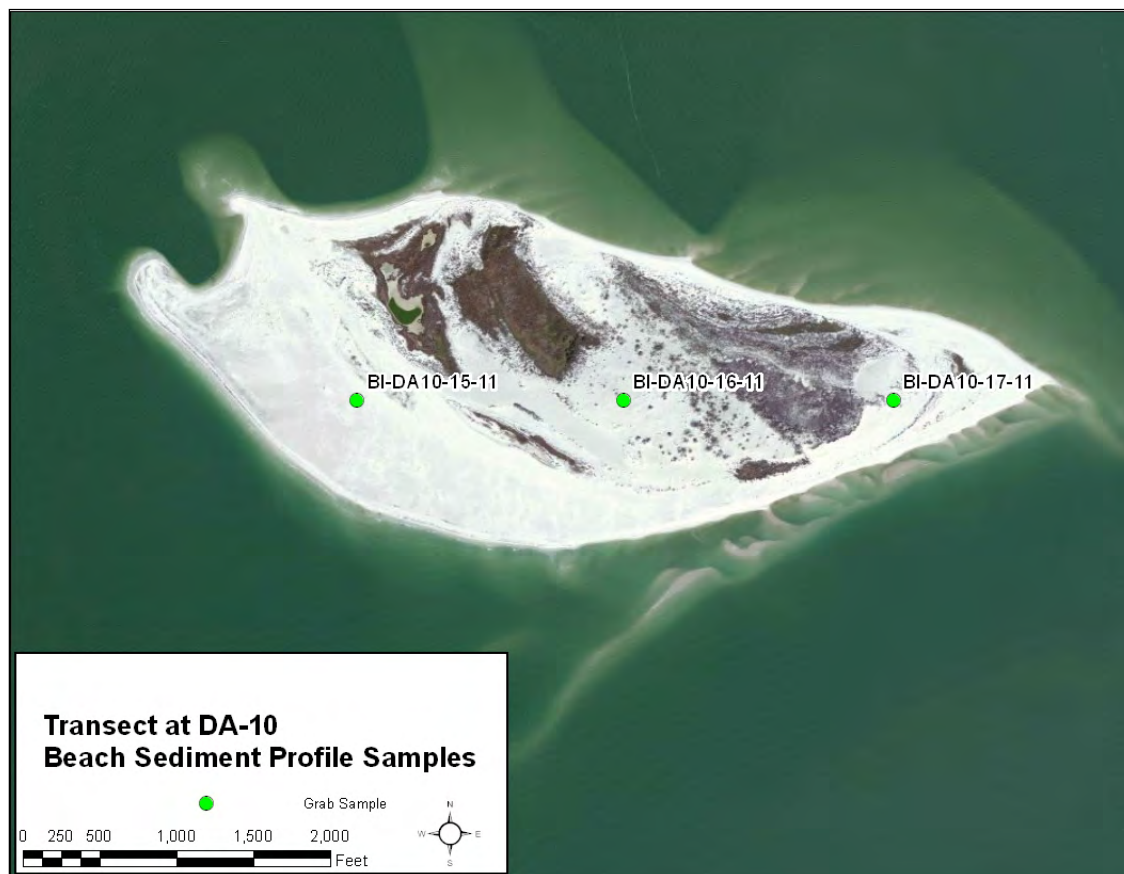


Figure 3.2.4.1 - Sampling locations for 2011 DA-10 transect.

### 3.2.5 BARRIER ISLAND SEDIMENT SAMPLING CONCLUSION

The island sampling events from 2006 to 2011 helped to evaluate the different sediment gradations throughout the barrier islands and characterize the different placement sites for the upcoming projects. As expected, grain size distribution is spatially variable on each island and directly affected by the geographic location of the sample. Specifically, coarser grain sizes were typically found in areas of higher energy along the beaches, while samples located in deeper waters and towards the

interiors of the islands were finer-grained. Grain sizes also typically became finer from east to west along the island chain. Table 3.2.5.1 is a summarized listing of the surficial sediments for Cat Island, West and East Ship Islands, Horn Island, DA-10, and Petit Bois Island. D<sub>50</sub> values for Cat Island, Petit Bois Island, and DA-10 were calculated using an arithmetic mean of the D<sub>50</sub>s of the grab samples taken on the islands (Table 3.2.2.1 and Table 3.2.4.1). Horn Island's and West Ship Island's composite sample D<sub>50</sub>s were used to represent the average D<sub>50</sub> on these islands. The Camille Cut placement site was not sampled directly to determine grain size. Rather, grain size information from the western tip of East Ship Island (ES-1-09) and the eastern tip of West Ship Island (WSI-4-09) were used as proxies. As such, Camille Cut fill should have a D<sub>50</sub> grain size of approximately 0.28 mm, ranging to as coarse as 0.34 mm, to most closely match the native material on the tips of East and West Ship Islands.

**Table 3.2.5.1 – Surficial sediment information for barrier islands**

Location	USCS	Average D <sub>50</sub> (mm)	Average Dry Munsell Value	Average Shape
Cat Island	SP	0.32	7	Sub-Angular to Rounded
West Ship Island (eastern tip)	SP	0.32	6	Sub-Angular to Rounded
West Ship Island (Composite Sample)	SP	0.31	6	Sub-Angular to Rounded
East Ship Island (western tip)	SP	0.32	7	Sub-Angular to Rounded
Horn Island (Composite Sample)	SP	0.36	7	Sub-Angular to Rounded
Petit Bois Island	SP	0.36	7	Sub-Angular to Rounded
DA-10	SP	0.34	7	Sub-Angular to Rounded

## 4.0 GEOPHYSICAL INVESTIGATIONS

The USGS conducted geophysical surveys in 2009, 2010, and 2013 to identify offshore areas with sandy material. This section details these investigations.

### 4.1 2010 GEOPHYSICAL SURVEY

Since 2007, the USGS has conducted geophysical surveys in collaboration with the NPS within GUIS park boundaries as part of the USGS Northern Gulf of Mexico (NGOM) Ecosystem Change and Hazard Susceptibility project (Figure 4.1.1).

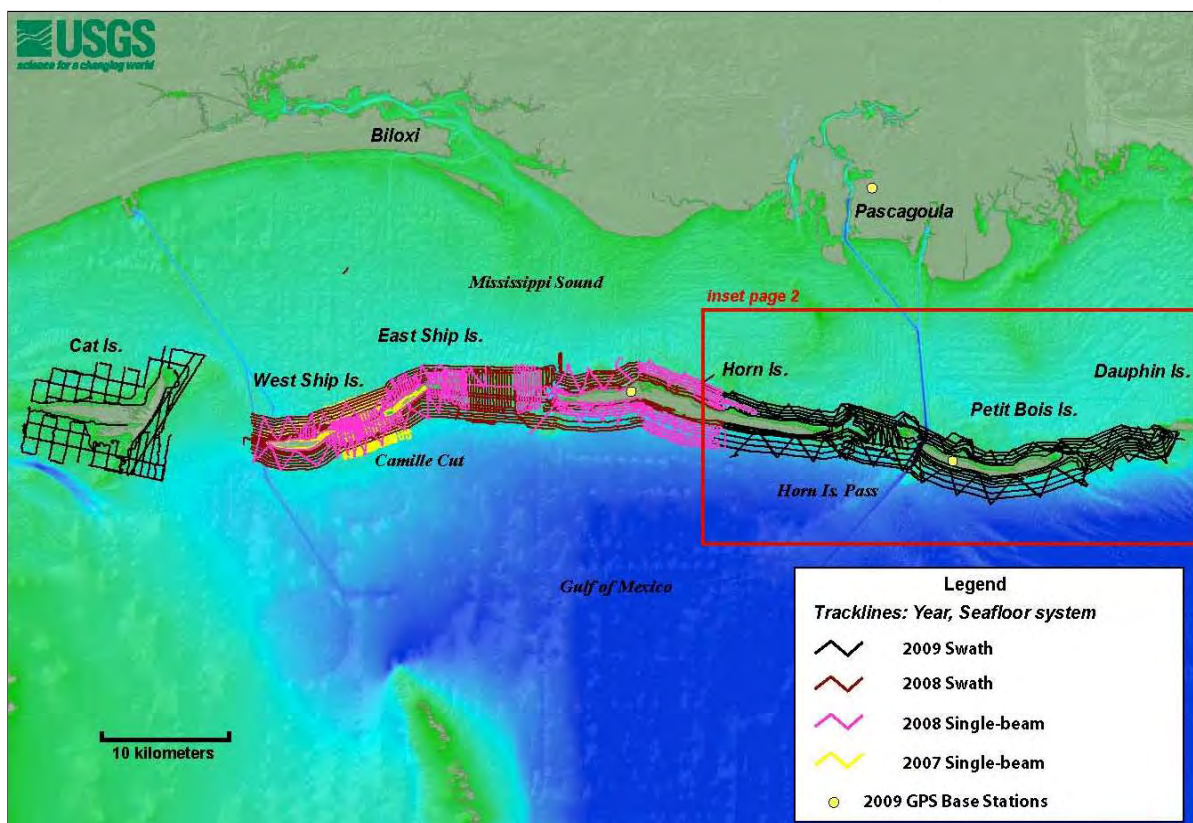


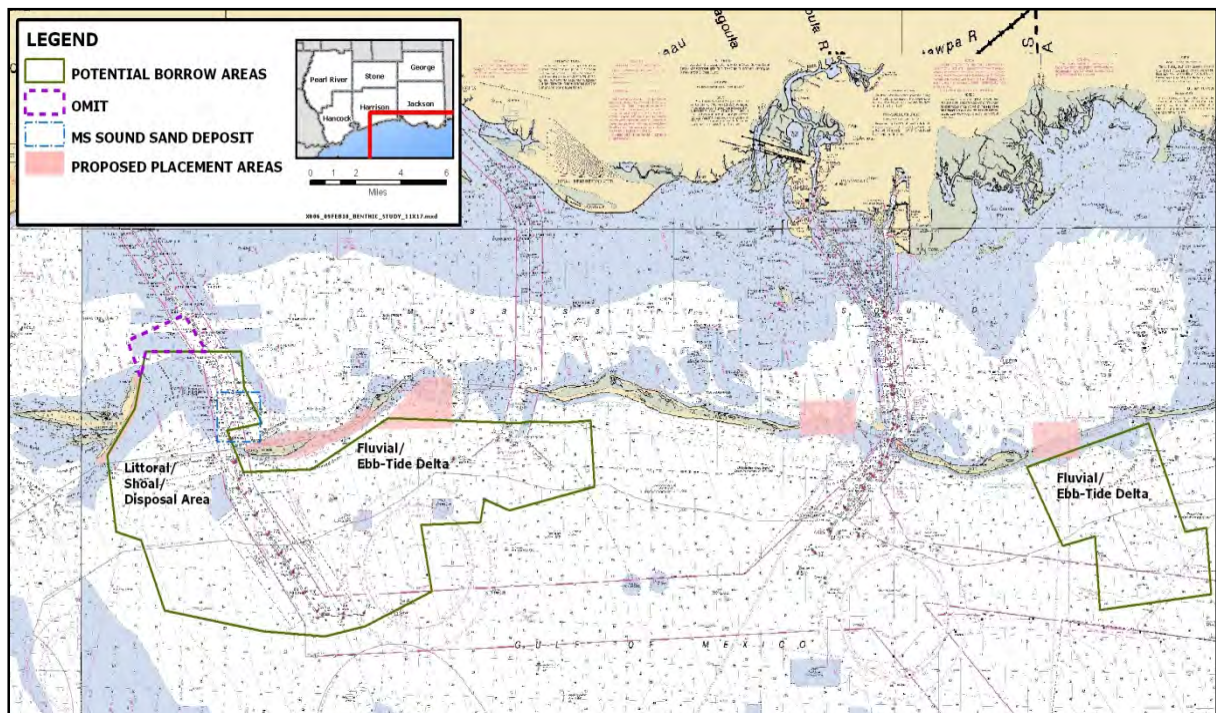
Figure 4.1.1 – Past geophysical surveys conducted by the USGS at Gulf Islands National Seashore.

In 2009, USACE entered into an Interagency Agreement with USGS to gain a better understanding of the availability of potential borrow areas containing suitable, high quality sand. This additional work would complement the ongoing USGS NGOM study effort by expanding survey data coverage beyond the Park's boundaries while incorporating USACE vibracore textural data to further validate and refine the geophysical interpretations. The overall intent was for the geophysical survey data to be collected by USGS and integrated with the vibracores collected by USACE "to



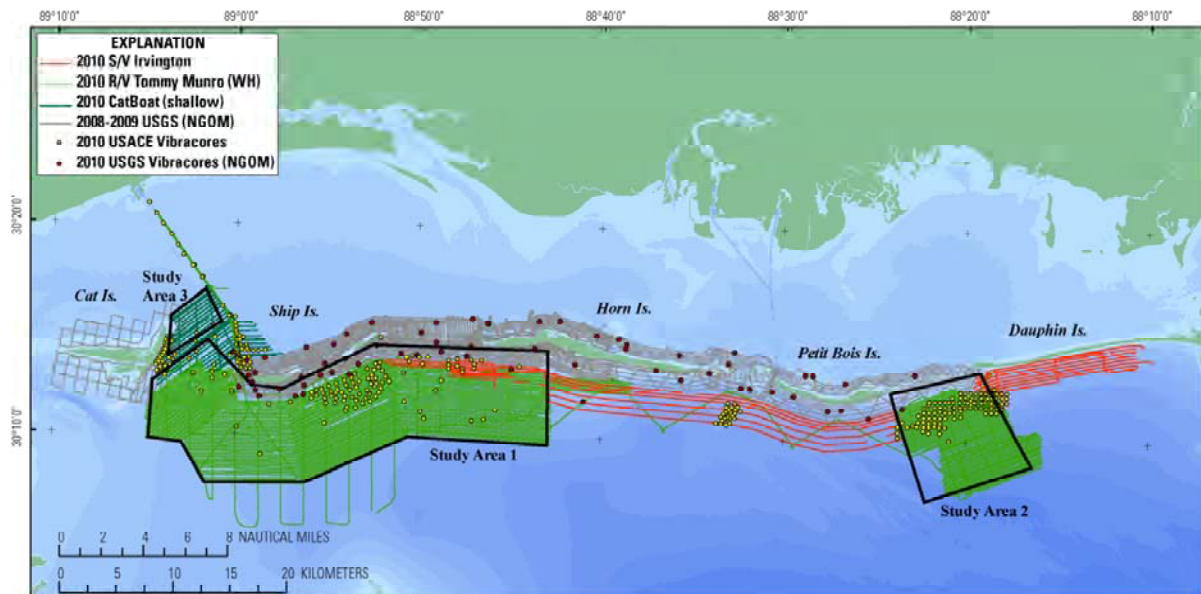
provide a detailed understanding of the regional shallow stratigraphy and the lithology of its various units” (Twichell et al., 2011).

Meetings between USACE and USGS led to the identification of areas of interest deemed to be geologically conducive to large sand deposits. Areas within the NPS boundaries were considered off limits. Figure 4.1.2 shows the areas selected for additional geophysical investigation by the USGS. These areas were not within park boundaries, but were adjacent to previous and ongoing investigations for the NPS.



**Figure 4.1.2 – Areas designated for geophysical survey to identify potential sand borrow sites.**

The entire region was then divided into three general Study Areas: seaward of Ship Island and Horn Island (Study Area 1); seaward of Petit Bois Pass (Study Area 2); and within Ship Island Pass, adjacent to Cat Island (Study Area 3). Figure 4.1.3 shows the Study Areas (black outlines), the tracklines of the geophysical surveys conducted by USGS for this study and the NGOM study, and the general location of the USGS and 2010 USACE vibracores.



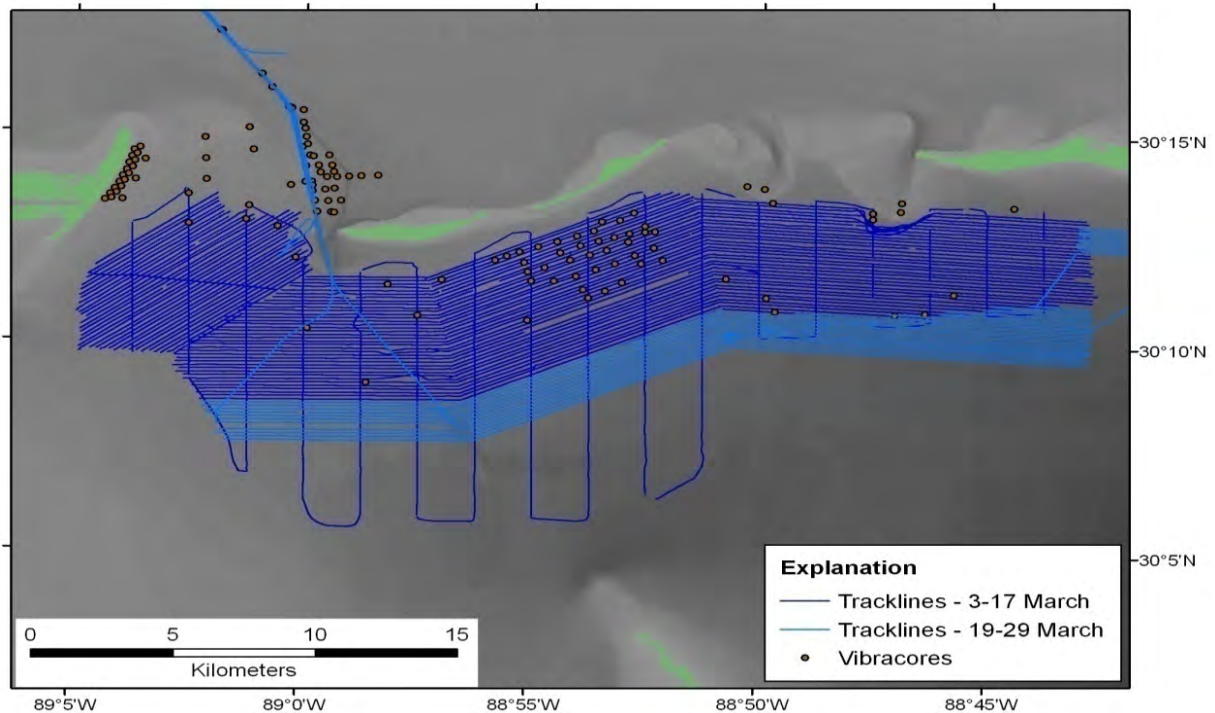
**Figure 4.1.3** Map showing the tracklines for geophysical data collected. Vibracores collected by USACE for the MsCIP project and the USGS for the Northern Gulf of Mexico (NGOM) project are shown. Main features were separated into three Study Areas (From Twichell et al. 2011).

#### 4.1.1 2010 SURVEY METHODOLOGY

In March of 2010, the USGS conducted two surveys covering approximately 300 square kilometers of the inner continental shelf offshore of the western Mississippi barrier islands, along the Gulfport Navigation Channel, portions of Mississippi Sound near Ship Island Pass, and south of Petit Bois Pass (Figure 4.1.1.1). The first survey cruise was conducted during March 3-17 and was staffed primarily by the Woods Hole Science Center. The second survey cruise was conducted March 19-29 and was staffed by USGS, St. Petersburg, FL. The University of Southern Mississippi's research vessel, *R/V Tommy Munro*, was used to collect the large offshore sections. In addition, the USGS research vessel, *R/V Gilbert*, a USGS 8-m Glacier Bay catamaran, surveyed the shallower Study Area 3, while the USACE survey vessel, *S/V Irvington*, assisted by surveying the nearshore area between Study Area 1 and 2 and east of Study Area 2. Much of this survey area abuts the seaward edge of a survey completed by the USGS in 2008 and 2009 (NGOM survey) and extends from 1 to 3 km seaward of the island chain, approximately 8 to 13 km offshore. Positions of the ship and geophysical data were determined using Differential Global Positioning System (DGPS) navigation, with an antenna mounted directly above the interferometric-sonar head on the starboard side of the vessel.

During acquisition, the survey vessels maintained speeds between 1.5 and 2.5 m/s (Twichell et al., 2011).

Study Area 1 was the largest study area. Data were collected along approximately 2,000 km of tracklines spaced approximately 150 m apart in the shore-parallel direction, and about 2 km apart in the shore-perpendicular direction as shown in Figure 4.1.1.1.

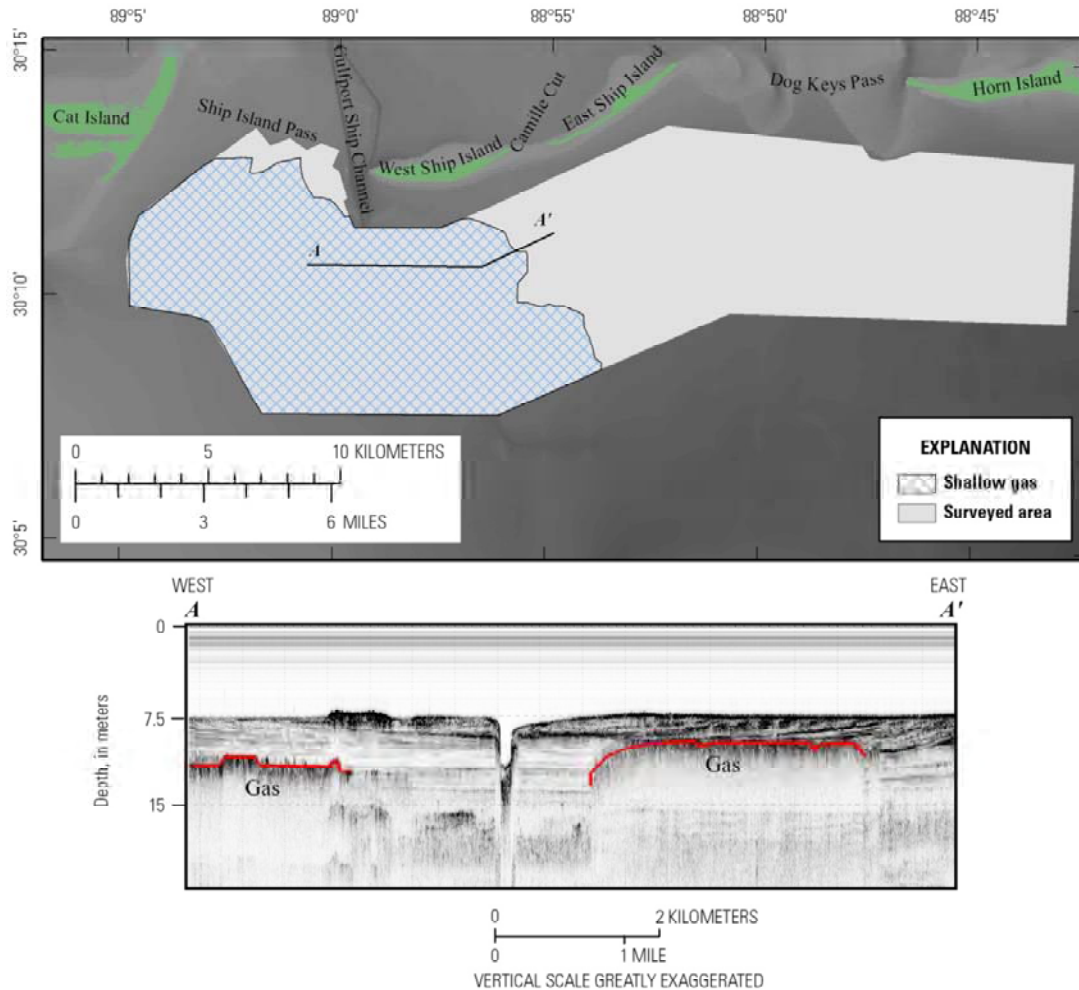


**Figure 4.1.1.1 - Tracklines along which geophysical data (CHIRP seismic-reflection, swath bathymetry, and sidescan sonar) were collected. Also, locations of vibracores collected by USACE.**

Shore-parallel, trackline spacing was chosen to ensure at least a 10% overlap of adjacent sidescan sonar swaths. The sidescan system produces a large swath width, typically between 150 and 200 m. Shore-perpendicular tracklines were used to facilitate internal comparison and correlation of bathymetric and CHIRP seismic-reflection data with shore-parallel versus shore-perpendicular orientations (Twichell et al., 2011). Interferometric-sonar, sidescan-sonar, and CHIRP seismic-reflection systems were deployed simultaneously during all the cruises. However, all three were not necessarily collected for the entire length of the tracklines. During the first leg of Study Area 1, interferometric-sonar, sidescan-sonar, and CHIRP seismic-reflection data were acquired along 1,321 km, 1,332 km, and 1,523 km of trackline,

respectively. During the second leg of Study Area 1, interferometric-sonar, sidescan-sonar, and CHIRP seismic-reflection data were acquired along 445 km, 455 km, and 492 km of trackline, respectively. Processed bathymetric soundings yielded a final bathymetric surface area of about 265 km<sup>2</sup>, which was gridded at a resolution of 50 m per pixel. The total area imaged with sidescan sonar was approximately 260 km<sup>2</sup> with gray-scale GeoTIFF images of the mosaics produced at 1 and 5 meter resolutions. Approximately 2,015 km of high-resolution CHIRP seismic-reflection profiles were collected. A 1,500 m/s speed of sound was used to convert the vertical scale of the seismic data from milliseconds of two-way travel time to depths in meters. Grid surface calculations were used to compute the thickness and volume of different stratigraphic units (Twichell et al., 2011). Gas was extensive in the sediment under much of the western part of Study Area 1 and limited interpretation of deeper horizons. Figure 4.1.1.2 shows an example of this phenomenon.





**Figure 4.1.1.2. Map showing the extent of the survey area affected by shallow gas (gray polygon) and an example profile showing the blanking of the deeper stratigraphy by gas (from Twichell et al., 2011)**

Data collection for Study Area 2 and 3 progressed in similar fashion. Further descriptions of the equipment, acquisition techniques, and data processing used in this survey are documented in Pendleton and others (2011), Forde and others (in press) and Pfeiffer and others (2011).

#### 4.1.2 CONCLUSIONS AND RECOMMENDATIONS FROM 2010 GEOPHYSICAL INVESTIGATION

At the conclusion of the March 2010 geophysical surveys, the USGS provided initial field interpretations of the survey data and also identified initial vibracore locations to gather physical samples of the sediments for inspection and textural classification to

validate their field interpretations. These recommendations were based on an area having the potential for large deposits of sand that could be economically dredged and used for the Barrier Island Project. Examples of the field interpretations are shown in Figures 4.1.2.1 and 4.1.2.2.

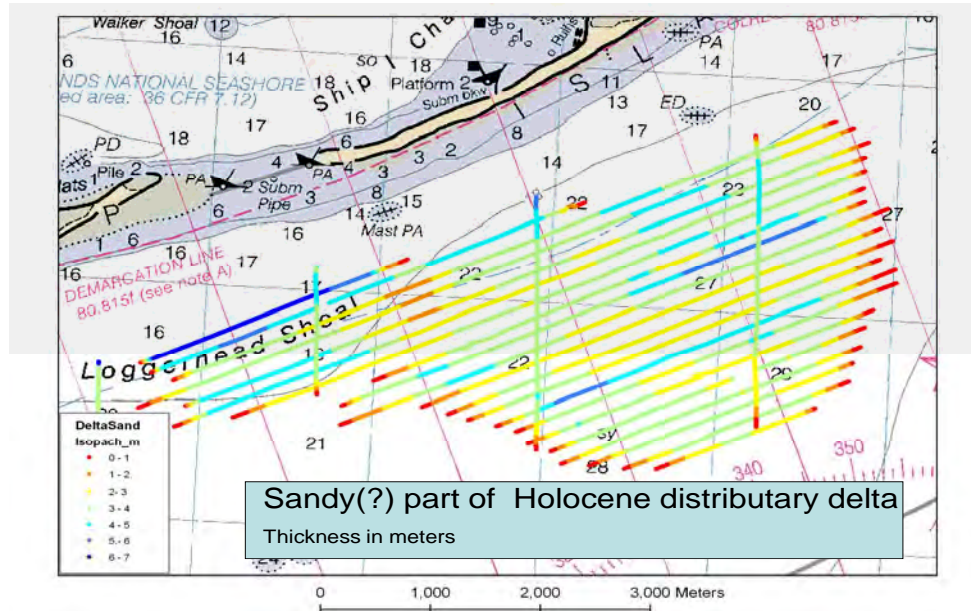


Figure 4.1.2.1 – Example isopach of area south of Camille Cut and East Ship Island designated as Ship Island study area, part of USGS' Study Area 1.

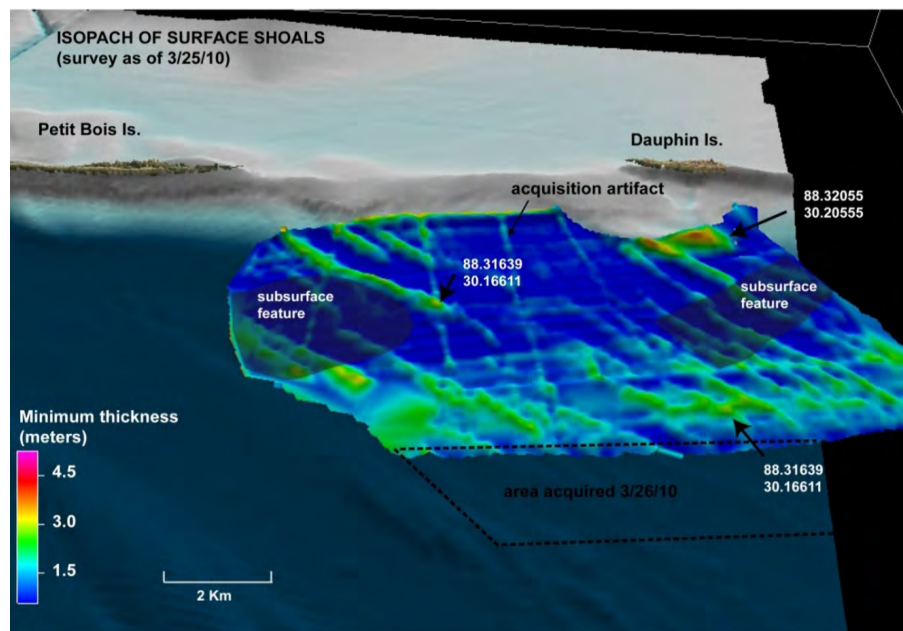


Figure 4.1.2.2 – Initial interpretation of geophysical data indicating sandy shoals south of Petit Bois Pass and designated as Petit Bois Pass study.

The USGS identified potential sand sources in the three study areas (Figure 4.1.2.3) and estimated quantities of useable sand in each one (Table 4.1.2.1).

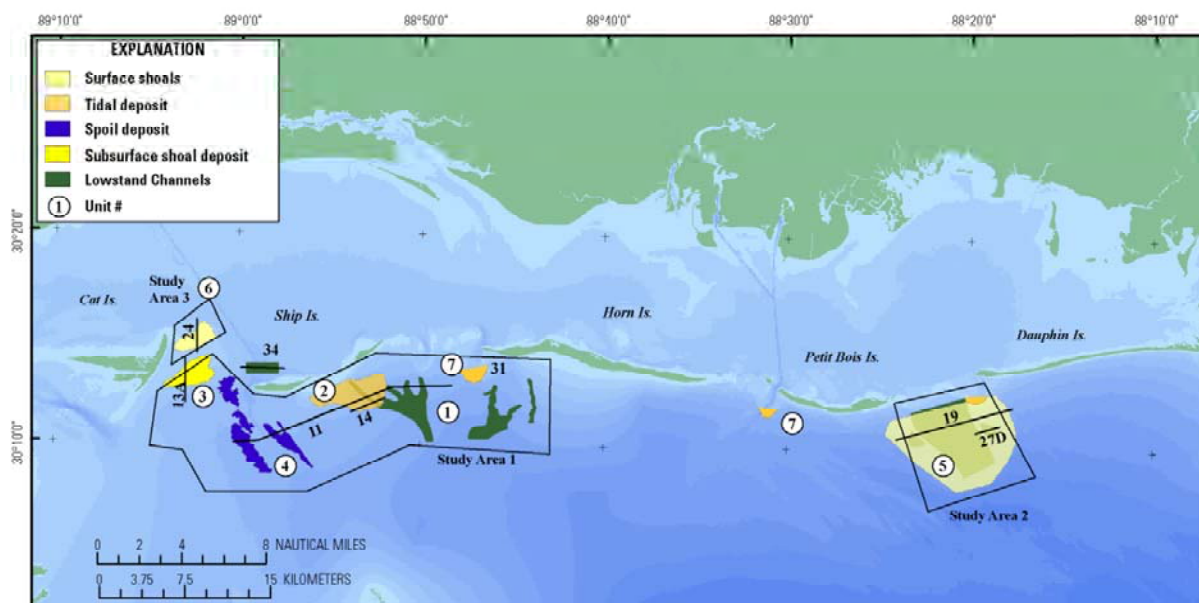


Figure 4.1.2.3 Locations of potential sand resources identified in this study. Each deposit is assigned a unit number that corresponds to textural information in Table 4.1.2.1 (from Twichell et al., 2011)

Table 4.1.2.1- Characteristics of potential sand-resource deposits located on the shelf offshore of the barrier islands south of the Mississippi coast. The unit number corresponds to the circled numbers in Figure 4.1.2.3. (Table 4.1 from Twichell et al., 2011)

Unit Number	Study Area	Deposit	Total volume ( $\times 10^6 \text{ m}^3$ )	Volume of deposit > 1 m thick ( $\times 10^6 \text{ m}^3$ )	Proximity to Camille Cut (km)	Sediment cover (m)	Median grain-size range (mm)	Estimated sand (%)
1	1	Lowstand Channels	97*	70*	3-17	>3	0.1694-0.2778	25-75
2	1	Loggerhead Shoal and Tidal Delta	40	29	1.5-6	0	0.1409-0.3360	92-95
3	1	Ship Island Pass Shoal	7*	4*	9-14	<1	0.1275-0.1992	94-97
4	1	Dredge Spoil	11	2	8-10	0	0.1991-0.2030	30-96
5	2	Petit Bois Pass Shoals	56	2-22	52	0	0.2300-0.2800	>90
6	3	Cat Island Shoal	25	20	10	0	0.1850-0.1900	88-97
7	1	Modern ebb-deltas	>6 each	>4 each	11, 33, 50	0	0.1600-0.2300	94-99

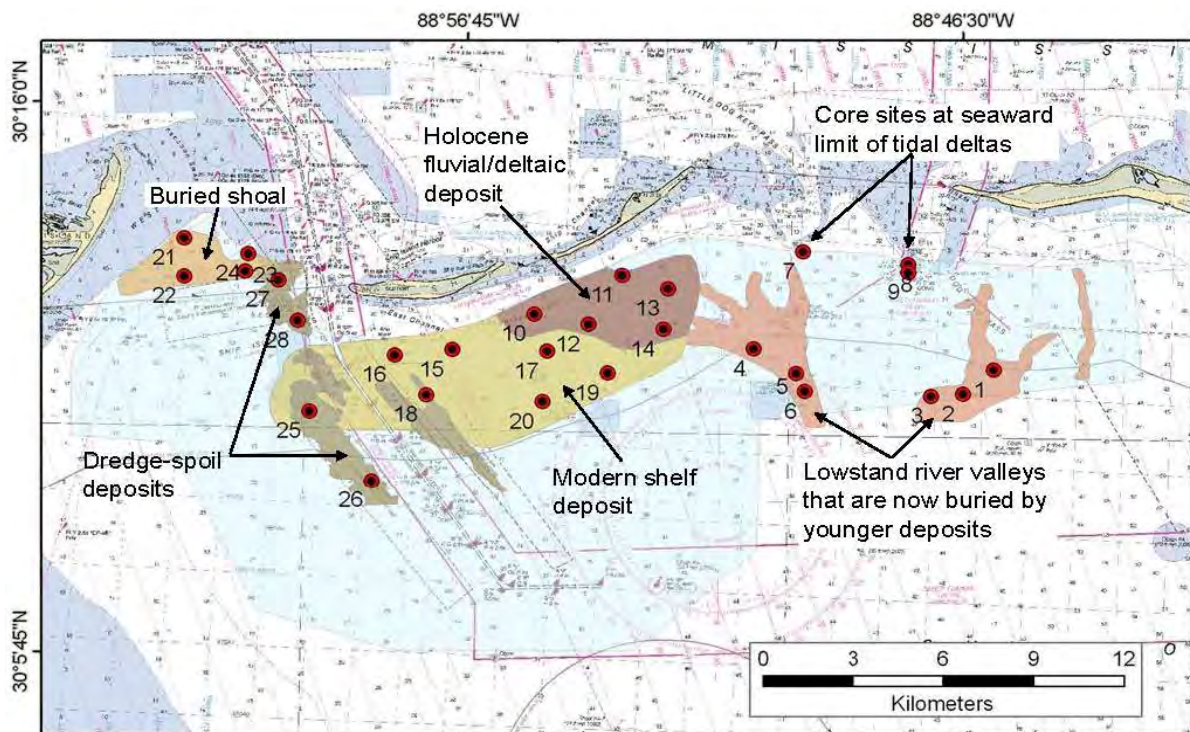
\* Volumes only for the part of the deposit within the Study Area.

While several recommended areas may contain potential borrow material, three primary areas were of interest because of their location, potential volume of the



available material, and habitat designation. These areas of interest were Cat Island, Ship Island, and Petit Bois Pass.

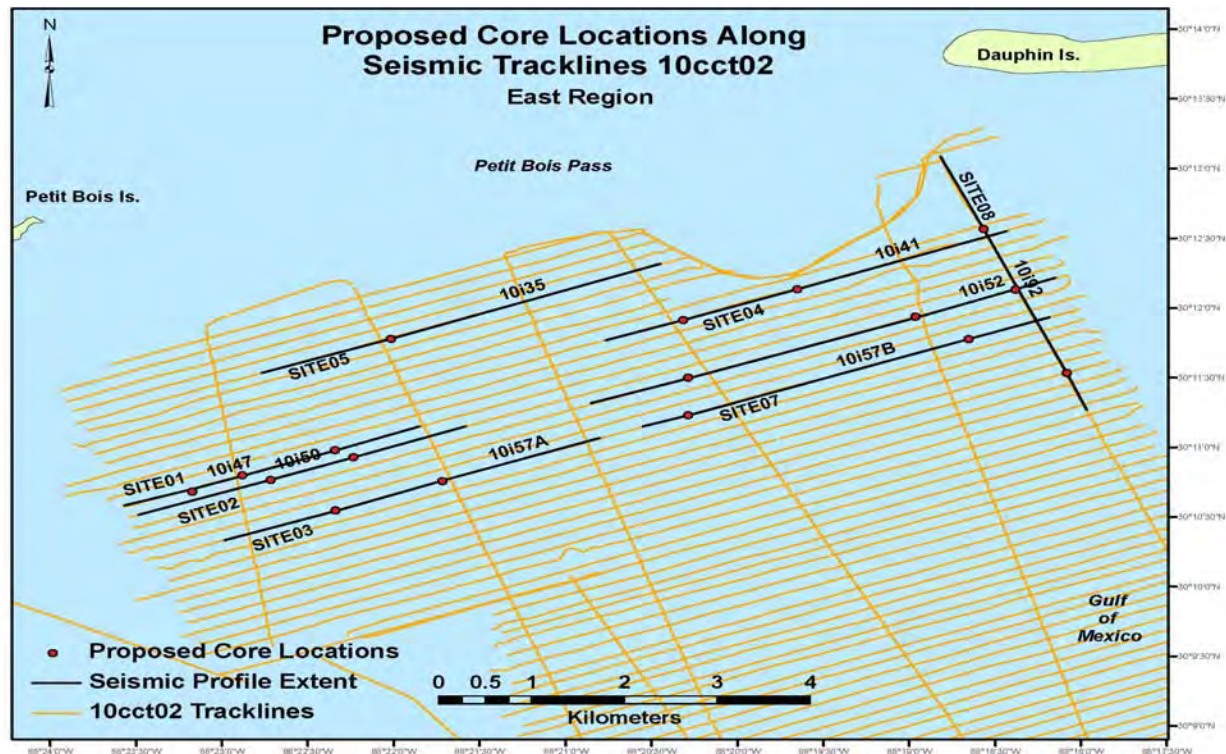
These locations were sampled with vibracores to obtain physical samples of the material to correlate with the geophysical data. Geologists classified the sediments and made initial observations of grain size and color. These vibracore locations covered several different areas near the islands, extending from near Cat Island (not within GUIs) eastward to Petit Bois Pass. This vibracore sampling is described in greater detail in Section 5.2. The westernmost area that was surveyed is shown in Figure 4.1.2.4, along with recommended vibracore locations based on initial field interpretation of the geophysical data. The recommended vibracores were used to determine textural characteristics of the different strata identified and validate the geophysical model. A separate layout of recommended vibracores was provided for the eastern portion that included the area south of Petit Bois Pass (Figure 4.1.2.5).



**Figure 4.1.2.4 – Initial field interruptions of geophysical data with recommended proof vibracore locations, western area of investigation**

The interpretations identified in Figures 4.1.2.2 and 4.1.2.3 were included in several different study areas. The buried shoal (#3) and dredge spoil deposits (#4) between Cat and West Ship Islands were included in the Ship Island Pass study area. The modern shelf (#7) and Holocene fluvial/deltaic deposits south of West Ship Island

(#2) were included in the Ship Island study area, and the remaining core sites to the east were all included in the Dog Keys Pass study area. Other study areas not identified as potential borrow sites, but falling within the limits of Figure 4.1.2.4, are Gulfport Channel, Mississippi Sound, and Dog Keys Pass. Figure 4.1.2.5 provides the recommended vibracore locations for Petit Bois Pass in Study Area 2.



**Figure 4.1.2.5 – Initial field interruptions of geophysical data with recommended vibracore proof locations, eastern area of investigation south of Petit Bois Pass.**

The shoals south of Camille Cut and the fluvial/deltaic deposit that lies south of East Ship Island represented the largest target areas for useable sand in Camille Cut and at East Ship Island. The deposit stretches along the front of East Ship Island for 9 km, is up to 5 km wide, and reaches 5.7 m in thickness. The deposit is 1.5 to 6 km from the Camille Cut restoration area. Seismic data show that this sandy deposit is exposed on the sea floor for much of its extent (Twichell et al., 2011). The dimensions of this deposit indicate it contains the required quantity of sediment for the Camille Cut area, while the geophysical interpretations, vibracores, and field classification indicate the material meets most of the proper criteria for restoration use. Unfortunately, lab data from the vibracores indicates that the sand is too fine-grained to be used in the core of the Camille Cut fill project, but could possibly be used as a capping material.

Another large deposit of interest was identified as Petit Bois Pass Shoals, shown in Figures 4.1.2.2 and 4.1.2.3. Flocks (2010) has described the features in this area as a combination of ebb tidal delta overlaying lowstand channel deposits. The fluvial deposits are not considered part of the ebb tidal delta and “do not contribute significantly to the littoral system that maintains the islands.” The shoal system and ebb-tidal delta contain > 90% sand. The delta contains moderately well-sorted, medium sand with a 2.3 - 4 m thickness. Removal of sediment within the inlet would likely “disrupt the littoral system”. The shoal systems, on the other hand, “do not contribute significantly to the littoral system”. The shoals contain poorly-sorted, medium sand and range in thickness from 2 - 5 m, surrounded by a 1 - 2 m mantle of poorly-sorted, silty sand. The shoal sands “originate from the same fluvial sources and are genetically related to barrier islands.” (Flocks et al. 2011) Based on these data interpretations and dimensions, the Petit Bois Pass is potentially a suitable borrow area.

Another area of interest for borrow was offshore from the east face of Cat Island. This area is within Ship Island Pass, but was given a separate study designation as the Cat Island study area. Although the geophysical surveys could not be performed in the shallow water of the study area, survey lines as completed in Ship Island Pass and other prior work by Otvos (1975) indicated that shoals in the Pass extend westward to Cat Island. Based on these previous studies and the USGS data interpretations, offshore of the east face of Cat Island was identified as a potentially good source for further investigation as a borrow site.

A final potential borrow area was identified from bathymetry work conducted as part of a separate sediment budget study. This study identified several mounds of sediments south of Horn Island Pass (the eastern-most #7 on Figure 4.1.2.3) that were located within a permitted offshore dredged material disposal area (Byrnes, oral comm.). These mounds were mostly sediments transported by littoral zone processes from Petit Bois Island, deposited in the Pascagoula Bar Channel, and then dredged and placed in the disposal area, thus creating the mounded features. Considering the source of the dredged material, this area was added as a sample area, designated as Horn Island Pass.

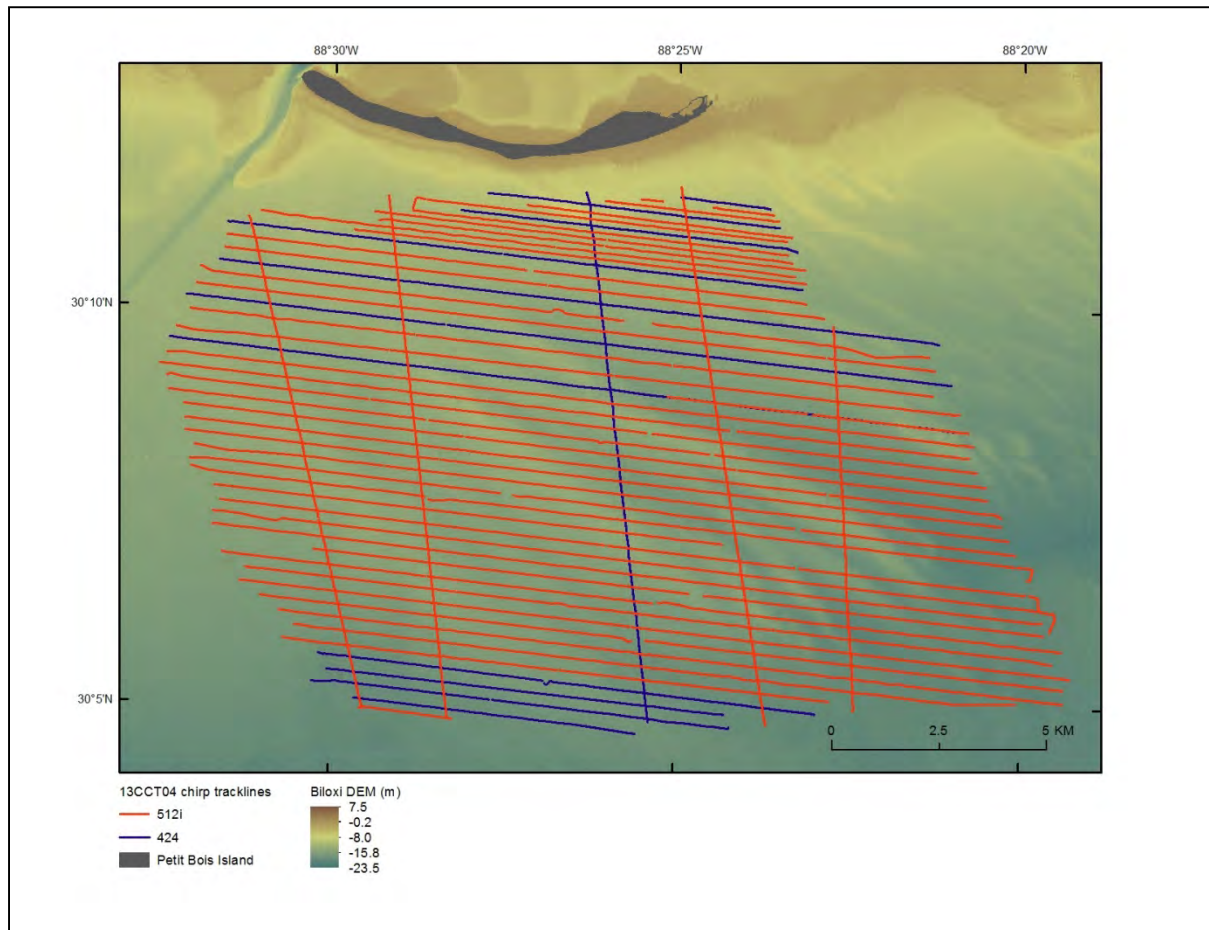
For a more detailed discussion of the 2010 surveys, see the USGS Open-File Report 2011-1173, The Shallow Stratigraphy and Sand Resources Offshore of the Mississippi Barrier Islands, (Twichell et al., 2011).

## 4.2 2013 GEOPHYSICAL SURVEY

Bathymetry for the area south of Petit Bois Island, and adjacent to the eastern edge of the geophysical survey from 2010, indicated several large shoals that might offer suitable sediment in economical quantities. Unfortunately, there was no current geophysical data for this area to confirm this supposition. This data gap led to USACE entering into another Inter-Agency Agreement with USGS to conduct a geophysical survey similar to the 2010 surveys, with the purpose of gathering data to conduct a stratigraphic and morphologic assessment south of Petit Bois Island and to identify core locations in support of the USACE sediment sampling strategy.

The survey was conducted in August 2013 and covered a region approximately 1 km to 13 km offshore of Petit Bois Island and approximately 77 miles<sup>2</sup> (212 km<sup>2</sup>) in area (Flocks, 2014). The survey equipment used and the data collected was the same as for the 2009-2010 surveys. The University of Southern Mississippi's research vessel *Tommy Munro* was the platform used to conduct the surveys. Line spacing of the tracklines was 150 m in waters less than 15 m, and 300 m in deeper waters, oriented parallel to the shoreline. Five shore-perpendicular tracklines were collected across the survey area to tie the horizontal lines together. Data collected included DGPS navigation, high-resolution CHIRP seismic-reflection profiles for mapping the shallow stratigraphy, interferometric swath bathymetry to provide a detailed understanding of the seafloor morphology, and sidescan sonar imagery for mapping the seafloor geology (Flocks, 2014). Figure 4.2.1 shows the area surveyed and the completed survey tracklines described previously.





**Figure 4.2.1 – 2013 Geophysical Survey tracklines. Petit Bois Island is directly to the north. (Flocks, 2014)**

The USGS used the survey data to create a sand isopach map for the surveyed area, incorporating the surface and subsurface features, and outlining the thickest shoals (Figure 4.2.2) for sampling. The black dotted lines trace the shoal boundaries. The thickness of the shoals and sand sheets is represented by red (thickest deposits) and grades to blue (thinnest deposits).



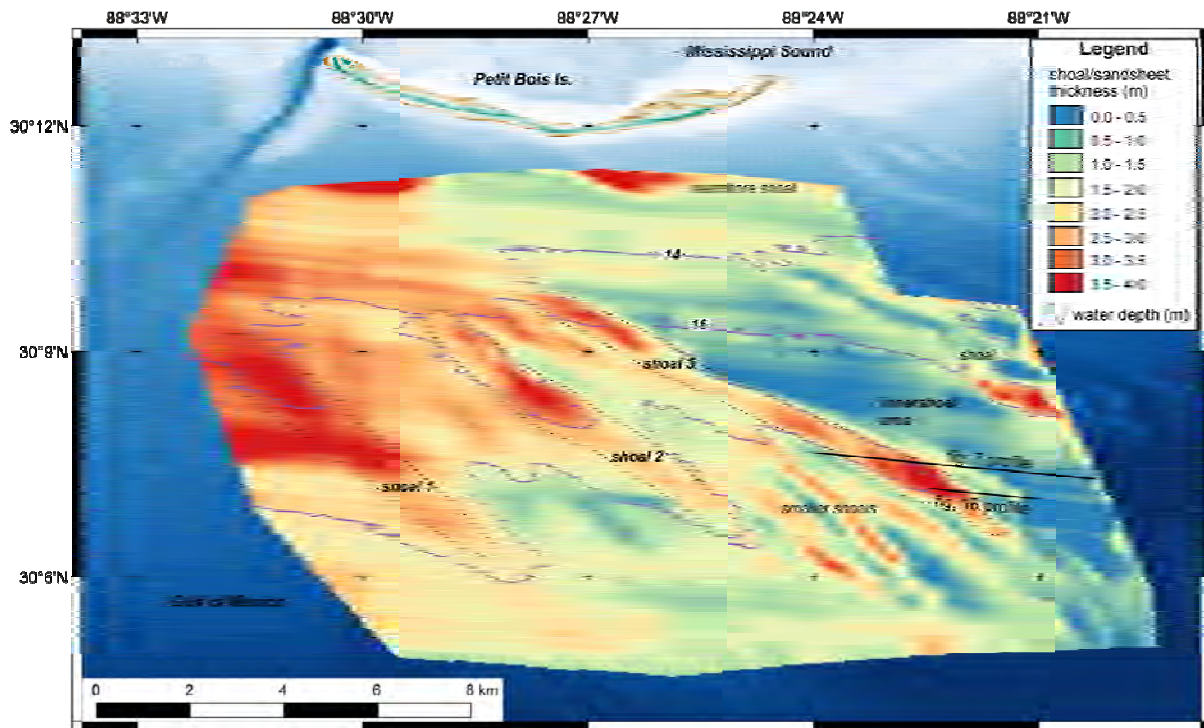


Figure 4.2.2 Isopach map of surface sediments show shoal systems extending NW-SE across study area surrounded by a thin (<1.5 m) sand sheet. Base of surface sediments is defined by the top of the Holocene transgressive deposits (Flocks, 2014).

#### 4.2.1 Results of the 2013 Geophysical Survey

The results of the 2013 survey and subsequent study indicate that the shallow stratigraphy of this region is the product of fluvial-marine sedimentation, driven by sea-level oscillations during the late Pleistocene and into the Holocene (Flocks, 2014, and, Flocks and others, 2011b). The predominant sea floor features include shoals and shelf sand sheets of various sizes and orientations. The inner shelf is mainly covered by flat sand sheets that grade laterally into muds within the inner shoal areas. In profile, the shoals are the predominant vertical features in the area (Flocks, 2014). The seafloor within the study area slopes to the southeast with gradients generally about 0.03 degrees, which is generally consistent with the Mississippi-Alabama shelf within 20m of water (Flocks, 2014). Three major NW-SE trending shoals run through the study area (Figure 4.2.1.1), with side angles ranging from 0.07 – 0.35 degrees, with the shoals adjacent to the large inner-shoal area in the eastern half of the survey area (Figure 4.2.2) having the highest gradients (Flocks, 2014). The major subsurface geology includes Holocene and Pleistocene-

age features such as bayhead delta deposits and marine-transgressive deposits infilling older fluvial distributary systems (Flocks, 2014). Figure 4.2.1.1 shows the refined location of these major features. Because these shoals are in deeper water, they are generally more stable features than ones in shallower waters. This study area dovetails in with the 2010 geophysical survey area south of Petit Bois Pass and indicates that the area is divided between fewer larger shoals in the west and smaller, more numerous shoals in the east. The dividing intershoal area also contains sand, but in thinner, surficial deposits (Table 4.2.2). Table 4.2.1.1 contains the estimated volumes, thicknesses, grain size, and sand content for these major features.

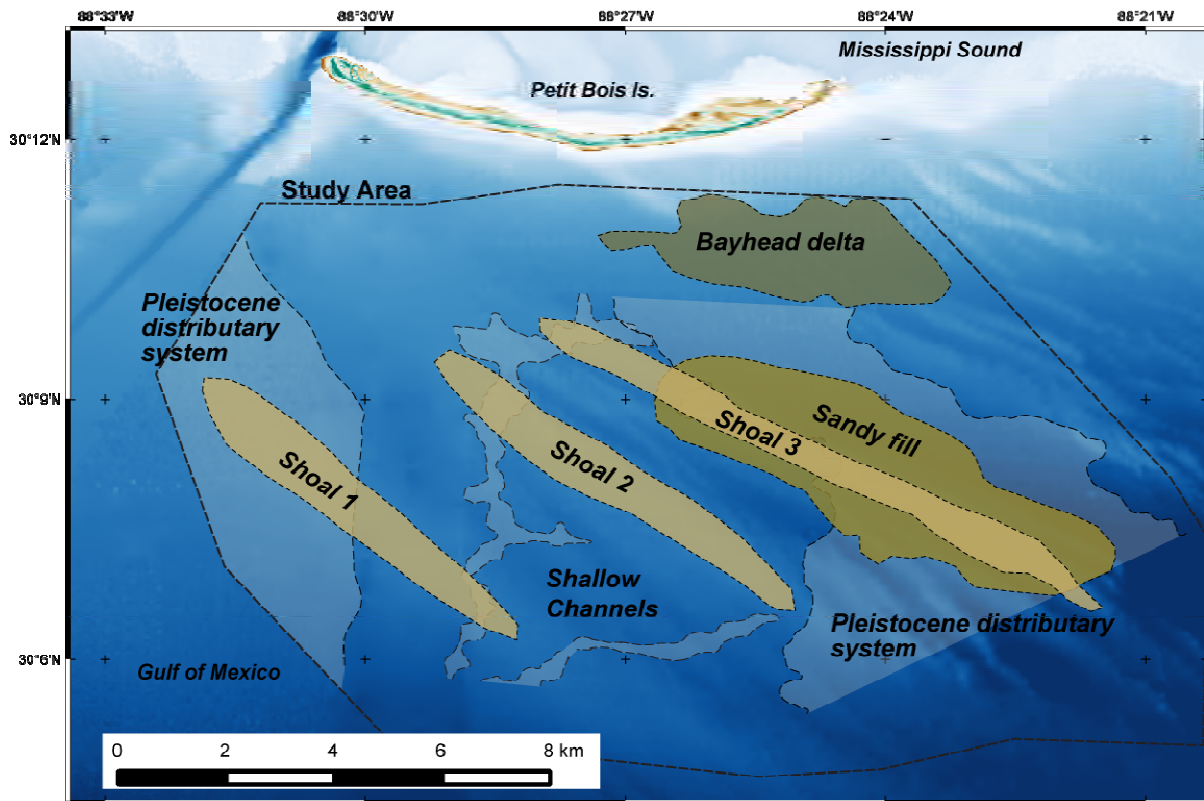


Figure 4.2.1.1 Significant features identified in the USGS's study include shoals and fluvial deposits (Flocks, 2014)

**Table 4.2.1.1. Physical characteristics of features identified in the study, the study area, and neighboring Petit Bois Island for comparison (Flocks, 2014).**

Deposit	Area (km <sup>2</sup> )	Volume (x10 <sup>6</sup> m <sup>3</sup> )	Min. thickness (m)	Max. thickness (m)	Volume per unit area (x10 <sup>6</sup> m <sup>3</sup> /km <sup>2</sup> )	Overburden thickness (m)	D50 <sup>4</sup> (mm)	Sand content (%)
Shoal 01	7.1	24.2	2.5	4.0	3.40	0	0.11– 0.25	81-98
Shoal 02	7.2	20.3	2.1	3.8	2.83	0	0.13- 0.32	84-99
Shoal 03	7.6	21.7	1.4	4.0	2.84	0	0.19- 0.34	84-99
ISS <sup>1</sup>	15.0	14.5	0.0	1.5	0.96	0	0.17- 0.32	65-99
Sandy fill	19.7	83.5	1.0	6.8	4.23	2 - 9	0.18- 0.24	83-97
bayhead delta <sup>2</sup>	12.6	100.4	4.0	11.0	7.94	3 - 6	0.28	91
Study Area <sup>3</sup>	198.4	431.0	0.0	5.8	2.17	0	0.19- 0.51	80-99
Petit Bois Island. <sup>3</sup>	4.0	5.3	0.0	5.3	1.33	0	0.36	99

<sup>1</sup>Inner-shoal sand sheet, area east of shoal 3 (fig. 4.2.1.1). <sup>2</sup>Portion within study area. <sup>3</sup>Surface deposits only.

<sup>4</sup>Grainsize analysis from USACE 2014. Bayhead delta grain size analysis from Kelso and Flocks (2014).

USACE personnel used the shoal outlines and suggested initial vibracore locations as guides to develop a vibracore layout for the 2013 geotechnical sampling event. Because of the relatively thin sand sheets between the shoals and throughout the study area, the thickness and composition of the three shoals made them the primary targets for core sampling by USACE. Other core sites were suggested by USGS to identify potential subsurface deposits, too. The large subsurface sandy fill deposit in Figure 4.2.1.1 was not initially identified before sampling began, but the vibracore layouts were readjusted to sample this new area after it was identified by USACE vibracores and verified in the USGS's geophysics.

For a more detailed discussion of the 2013 survey, see the USGS's report, *Near-surface stratigraphy and morphology, Mississippi inner shelf, northern Gulf of Mexico*. (Flocks and others, 2014).

## 5.0 GEOTECHNICAL SAMPLING

Sediment sampling events were conducted in 2010, 2011, 2012, and 2013. The vibracoring method was selected to collect the sediment samples for the geotechnical investigation because it works well in unconsolidated, granular material and produces a minimally-disturbed sediment core relative to other sampling techniques. It is especially useful in a marine environment where it can be difficult to maintain a stationary position for extended periods of time for other sampling techniques. The following paragraphs provide a brief summary of each sampling event.

The 2010 sampling event included all recommended vibracore sites identified by the USGS' initial field interpretations of the geophysical survey data collected in 2010. This phase of sampling consisted of 369 vibracores and included sites from Cat Island eastward to Petit Bois Pass. A site south of Horn Island Pass was also included after results from the sediment budget study indicated that a potential deposit of sand was located there. This sand is a historical disposal site where dredged sediments from the Pascagoula Bar Channel were placed.

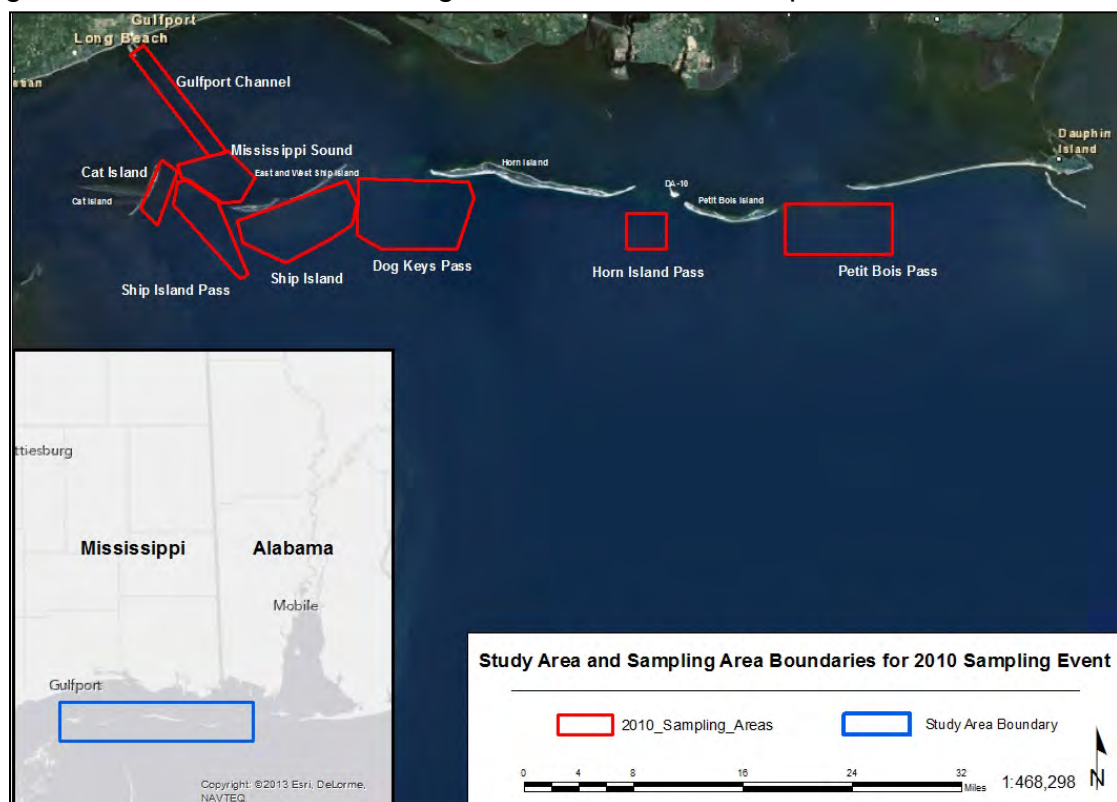


Figure 5.0.1 – 2010 Sampling Areas.

The 2011 sampling event was performed during the summer of 2011. The purpose of this sampling event was to fill data gaps for the Cat Island and Petit Bois Pass-Alabama investigation sites, and to obtain data on an active dredged material disposal site for the Pascagoula Bar Channel running through Horn Island Pass, designated as Disposal Area 10 (DA-10), and known locally as Sand Island. This phase of sampling consisted of 89 vibracores and included sites from Cat Island, DA-10, and Petit Bois Pass. The initial borrow site proposed for Cat Island had negative findings based on modeling of wave-focusing caused by the excavation of the borrow material. Three other sites were proposed, but none were recommended because of a lack of sufficient vibracore data. Vibracores were added to obtain the data needed, but then these three sites were eliminated because of the vibracore data. However, these results did lead to a revised potential borrow site designated as Cat Borrow Site 4, considered the best alternative. In the east, vibracores were added to the existing array at Petit Bois Pass-Alabama to further delineate the proposed sites identified in 2010. The last site investigated during 2011 was at DA-10 where there was no available vibracore data other than old Pascagoula Bar Channel vibracores. The results of the sediment budget modeling report (Byrnes, et al., 2011), showed that the disposed sediment was placed too far north in the pass for longshore currents to transport it downdrift to feed the other islands as initially intended when it was designed. This lack of movement made the man-made island a viable sand source because the sand was not going to be taken out of the littoral system, merely moved downdrift. Therefore, removal of the sand would not be interfering with the littoral system as a whole.

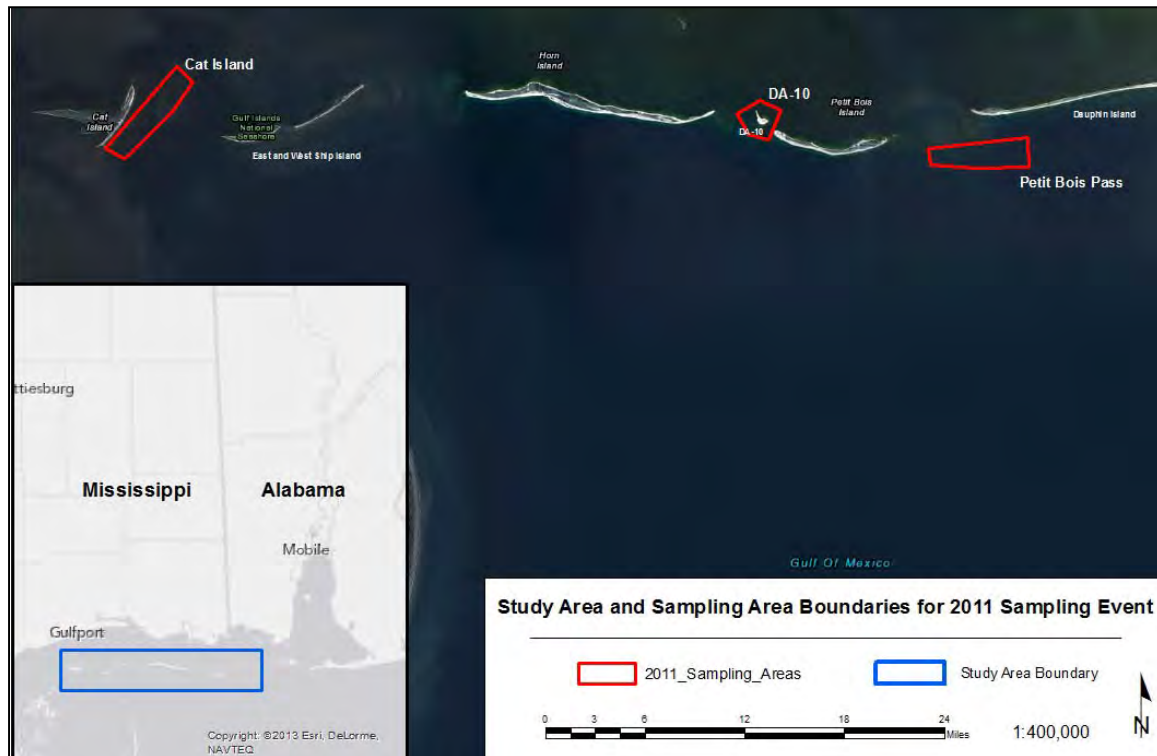


Figure 5.0.2 – 2011 Sampling Areas.

The 2012 sampling event was conducted from November 2012 to January 2013. This sampling event consisted of 230 vibracores in Horn Island Pass, Petit Bois Pass-Alabama, Petit Bois Pass-Mississippi, and Petit Bois Pass-Outer Continental Shelf (OCS). This event collected more samples in the Horn Island Pass area to further delineate the dredge-disposal mounds and to determine if the margins of the Pascagoula Bar Channel contained suitable sediment for use in this project. Sampling was conducted south of the eastern end of Petit Bois Island to determine the sediment characteristics of a large northwest-southeast-trending shoal located outside the NPS boundary in Mississippi state waters. Additional vibracores were drilled around the Petit Bois Pass-Alabama borrow areas identified in the 2010 and 2011 sampling events to determine the feasibility of expanding their boundaries out further. Vibracores were also drilled in an area 5 miles south of Petit Bois Pass, targeting several shoals identified during the 2010 geophysical survey.



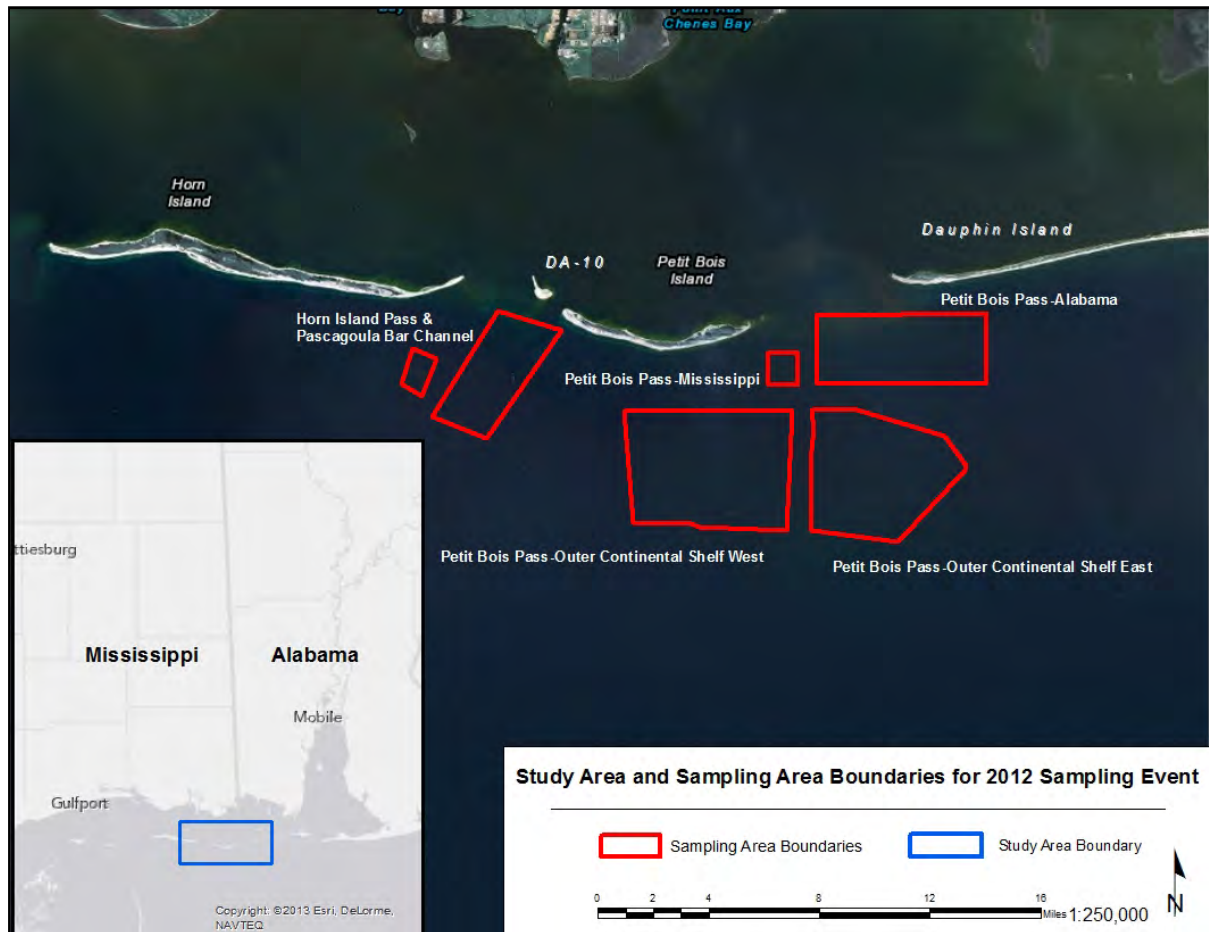


Figure 5.0.3 – 2012 Sampling Areas.

The 2013 sampling event was conducted from 22 November 2013 to 22 February 2014. It consisted of 206 vibracores in the area south of Petit Bois Island and in the southern reach of Horn Island Pass. The Horn Island Pass vibracores were conducted to further delineate borrow areas previously identified on the dredged disposal mounds during the 2012 sampling event. The Petit Bois Pass-OCS vibracores targeted the large shoals identified during the 2013 geophysical survey on the western side of the area and also augmented vibracores in the eastern portion of the area from the 2012 sampling event.

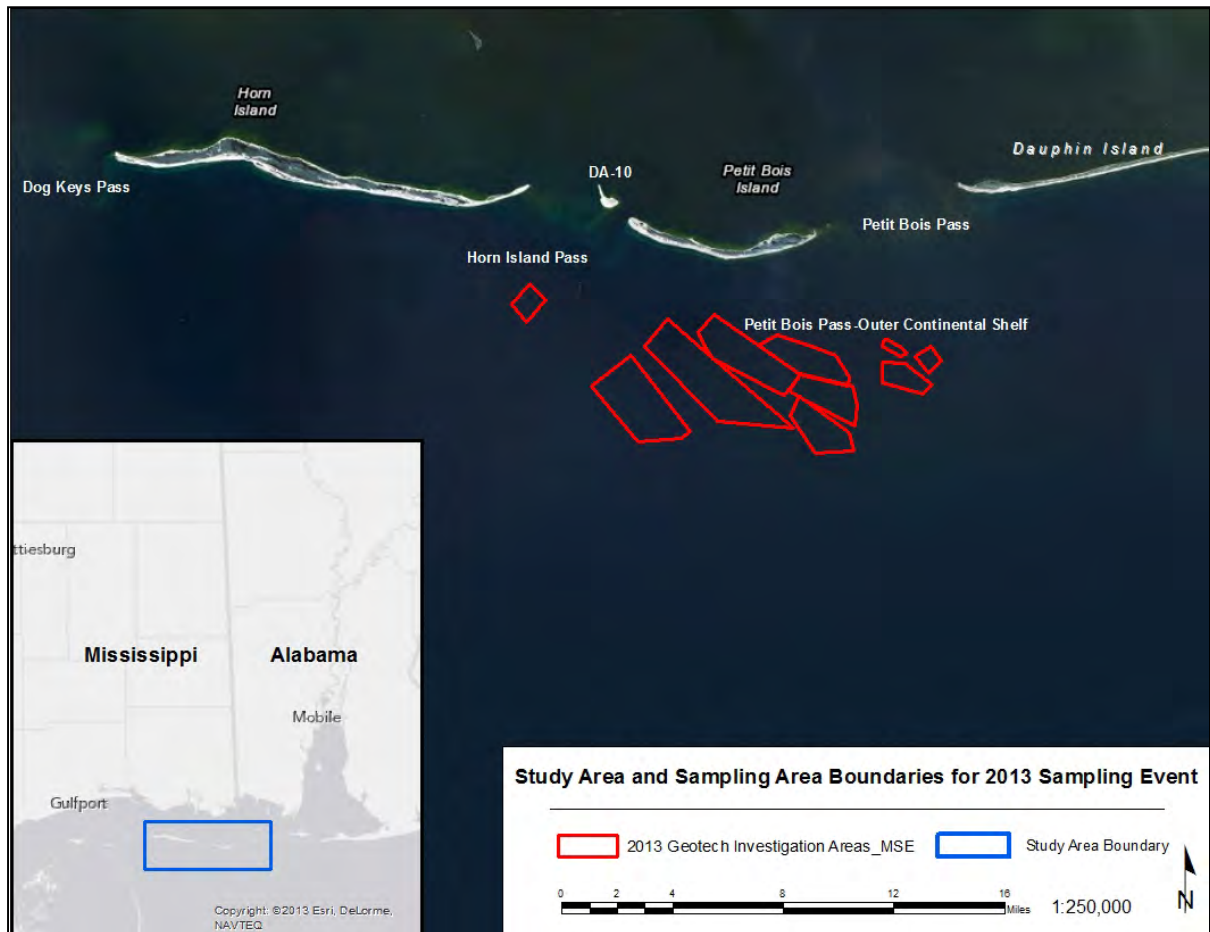


Figure 5.0.4 – 2013 Sampling Areas.

Figure 5.0.5 is a consolidated map view of the actual vibracore locations from the 2010-2013 sampling events. Each sampling event is color-coded to show the temporal and spatial extent of sampling throughout the four-year investigation.



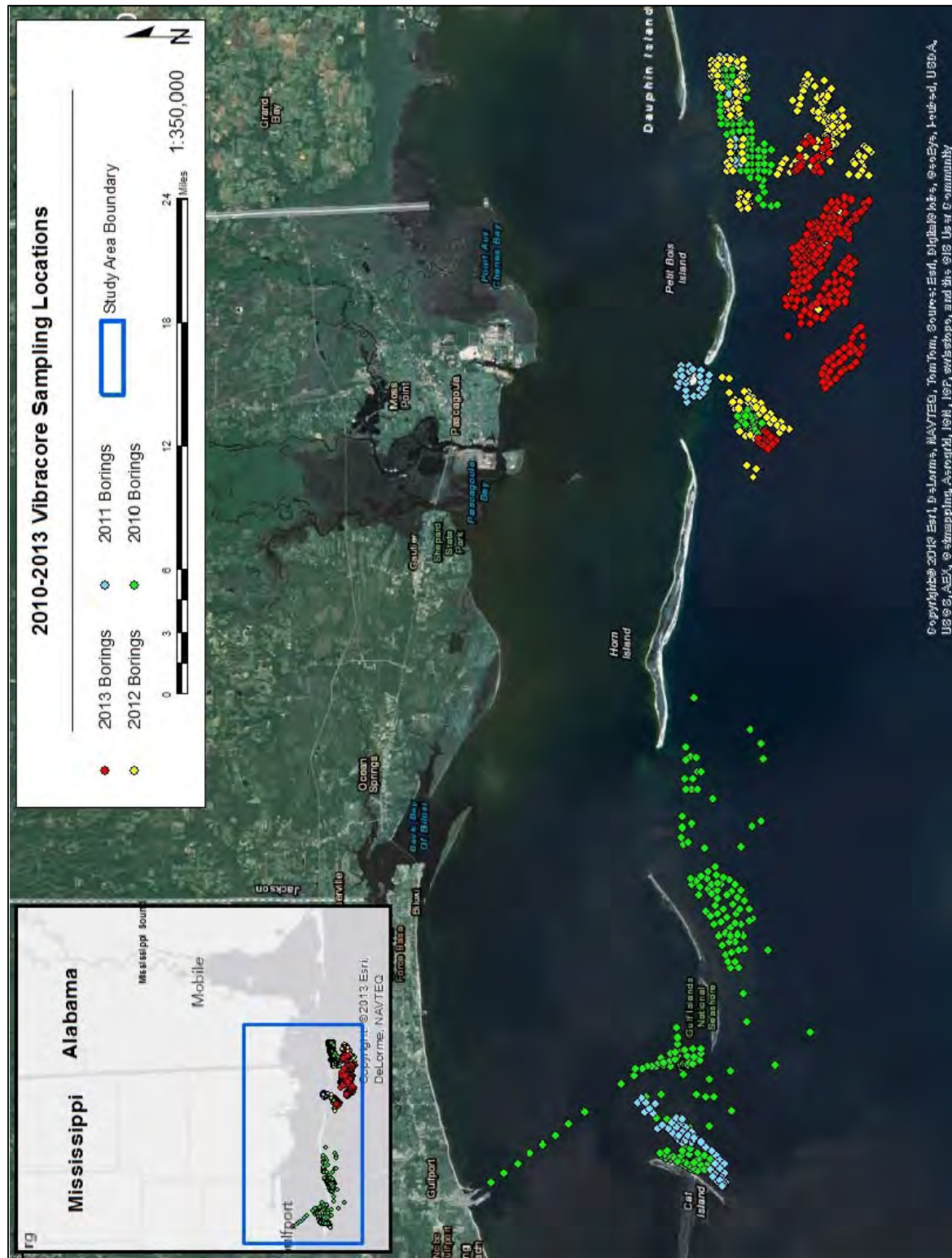


Figure 5.0.5 – Locations of vibracores completed for the 2010-2013 sampling events.

## 5.1 VIBRACORE SAMPLING PROCEDURES AND PROTOCOL

Geotechnical sampling was conducted using a vibracore sampler with a 20-foot core barrel. Photographs of the operation with the vibracore sampler used for the 2010, 2011, and 2013 sampling events are shown in Figures 5.1.1, 5.1.2, and 5.1.3. Figure 5.1.1 is the vibracore unit lying on its side on the deck of the vessel used during sampling in 2010, 2011, and 2013. The red unit at the top of the vibracore barrel, to the right side of the photograph, is a hydraulically-driven concentric motor. When in operation, the motor produces a high frequency, low amplitude vibration that is transmitted through the attached 20-foot core barrel, shown in the photograph. This barrel runs vertically through the center of the derrick's four legs and the center of the base plate. The vibracorer used for the 2012 sampling event was different in its design, but the same principles apply. The core barrel has an inner sleeve constructed of clear plastic that is inserted prior to sampling and is held in place by a stainless steel shoe that screws onto the bottom of the core barrel. A metal catcher is also placed in the end of the sample tube, prior to the shoe being screwed on. It prevents the sample from falling out of the barrel as the barrel is lifted from the seafloor. The entire unit is lifted from the deck by a crane, or an A-frame with winch, and lowered into the water until its four foot pads are resting on the sea floor (Figure 5.1.2).



Figure 5.1.1 Vibracore unit used for 2010, 2011, and 2013 sampling events.



**Figure 5.1.2** Vibracore unit being deployed during the 2012 sampling event.

The vibratory motor is activated and the vibrations transmitted down the barrel cause liquefaction of the sediments. Gravity pulls the core barrel down through the sediment. A core of the sediment slides up into the inner sleeve as the core barrel penetrates the underlying formation. This 20-foot penetration usually takes less than 60 seconds. When full penetration is complete, or the barrel will not penetrate any further, the unit is shut down. The vibratory unit is lifted first, pulling the core barrel up with it. When the vibratory unit slides to the top of the derrick, the entire unit is then lifted back onto the deck and laid on its side. The shoe is removed and the plastic inner tube containing the sample can be removed. After the plastic sample tube is removed from the core barrel, it is laid on a table, the metal catcher is removed from the bottom end, and the plastic tube is sawed open longitudinally with a circular saw to expose the entire sediment core. The size of the sampling vessel dictated how the sample was opened. For the 2010, 2011, and 2013 sampling events, the vessel was large enough to cut the entire 20-ft tube longitudinally and keep the sample relatively intact (Figure 5.1.3). The 2012 vessel was smaller and the tubes were cut into 4 5-ft sections and then cut longitudinally for access to the sediment (Figure 5.1.4).



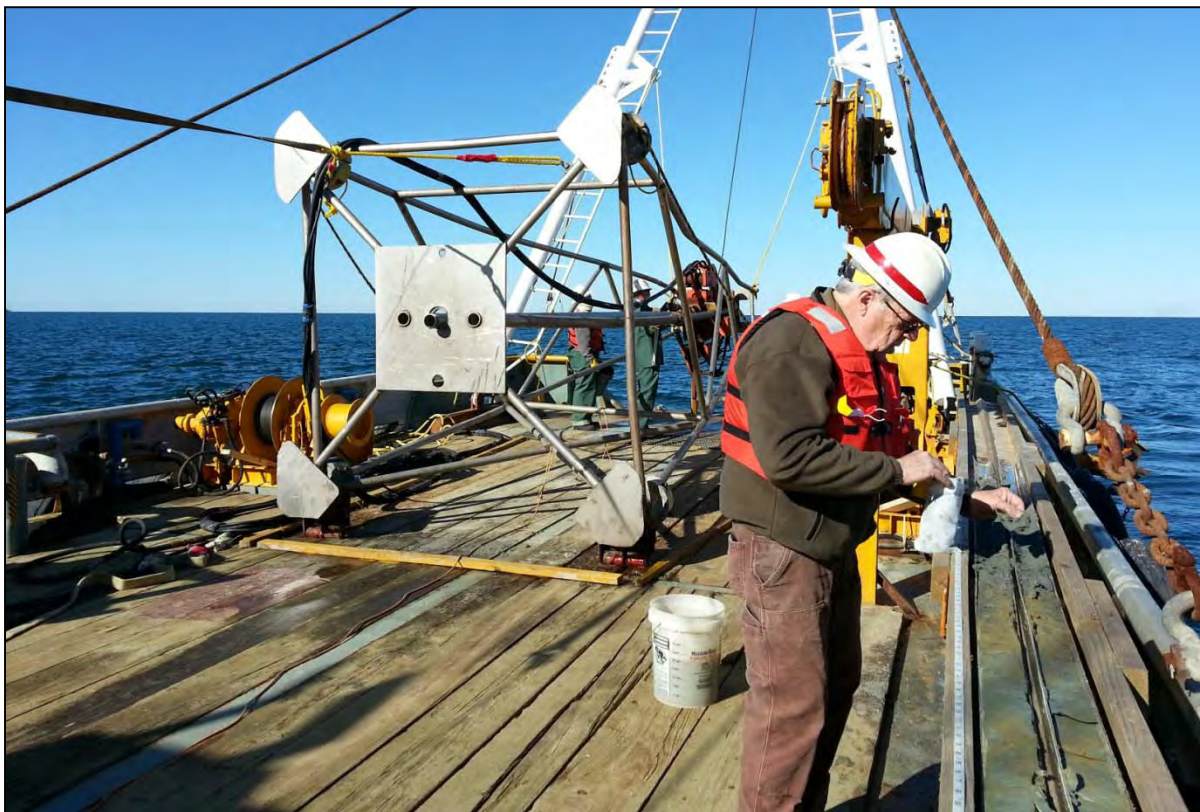


Figure 5.1.3 20-ft vibracore tube cut longitudinally for inspector to sample sediment during 2013 sampling event.

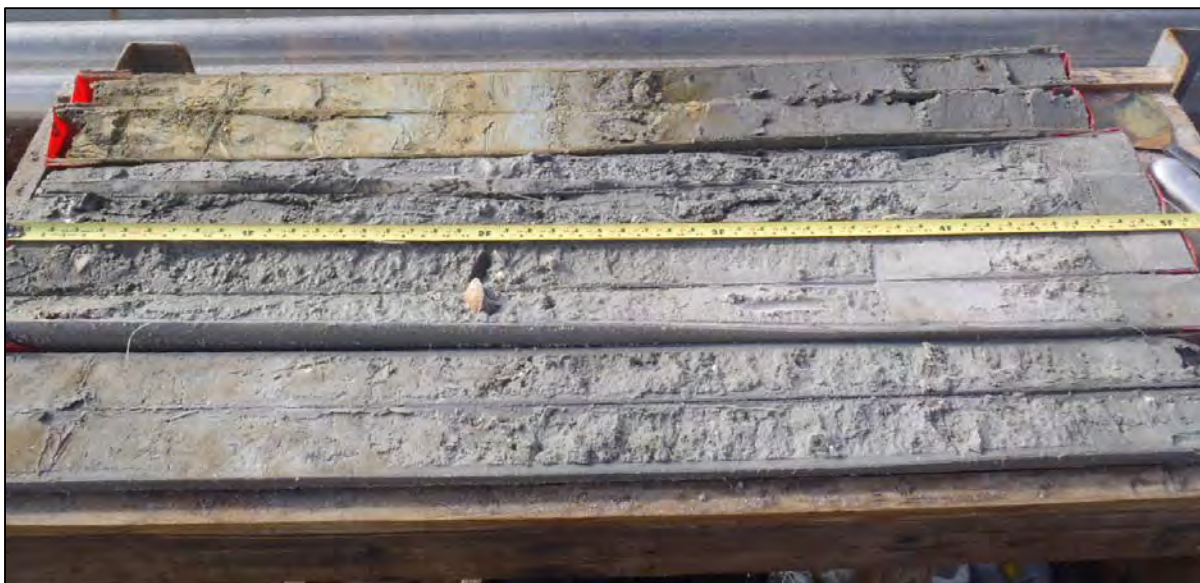


Figure 5.1.4 Vibracore tube cut into 4 5-ft sections and then longitudinally for logging during 2012 sampling event.

A USACE geologist or geotechnical engineer conducted the sampling for the 2010-2013 sampling events. During the 2010 sampling event, the NPS had geologists or geotechnical engineers on the vessel during all sampling to make field determinations of the material. A protocol was established to streamline the sampling effort as much as practicable. Each vibracore was photographed and then classified using visual-manual techniques (ASTM D2488) by the drilling inspector in its entirety. Geotechnical lab testing (ASTM D2487) was conducted only on sediment samples that were perceived by the on-site geologist to be of potentially suitable material for project use. Therefore, some vibracores did not have any geotechnical testing conducted on the recovered material other than the geologist's visual-manual field classification. Recoveries that included thick clay or silt strata were typically disregarded for sampling. Bag-samples for laboratory testing were extracted from the core at selected intervals depending on field-estimated textural characteristics. Sands, ranging from silty sands (SM) to poorly graded sands (SP), were bag-sampled, while clays (CL and CH) and silts (ML and MH) were discarded. The USACE inspector had the discretion to not sample sandy material that did not appear to be suitable either because of its dark color or because of its fines content. This eliminated some SM material and most clayey sands (SC). If a two-foot or greater thickness of clay or silt was in the vibracore, deeper material below it was generally not sampled. These thick clay or silt layers were used as a basement cutoff because of the difficulty in dredging through them and their effect on sediment quality control at the placement site.

For potentially suitable samples, a commercial laboratory conducted a mechanical sieve analysis on the sediment using the following sieve sizes: 0.375-in., Standard U.S. #4, #10, #20, #40, #60, #100, and #200. A cumulative grain size distribution curve was created by plotting the percentages of the dry weight sample retained on each sieve size (Y-axis, linear scale) versus the sieve size (X-axis, log scale) and then drawing a best-fit curve through these data points (Figure 5.1.5). Grain size distribution curves were plotted for almost all sediment samples collected on the islands and all the offshore samples. The following statistics were determined or calculated from information on the curve: the median (D<sub>50</sub>), the graphic mean, the coefficient of uniformity (C<sub>u</sub>), and the coefficient of curvature (C<sub>c</sub>).

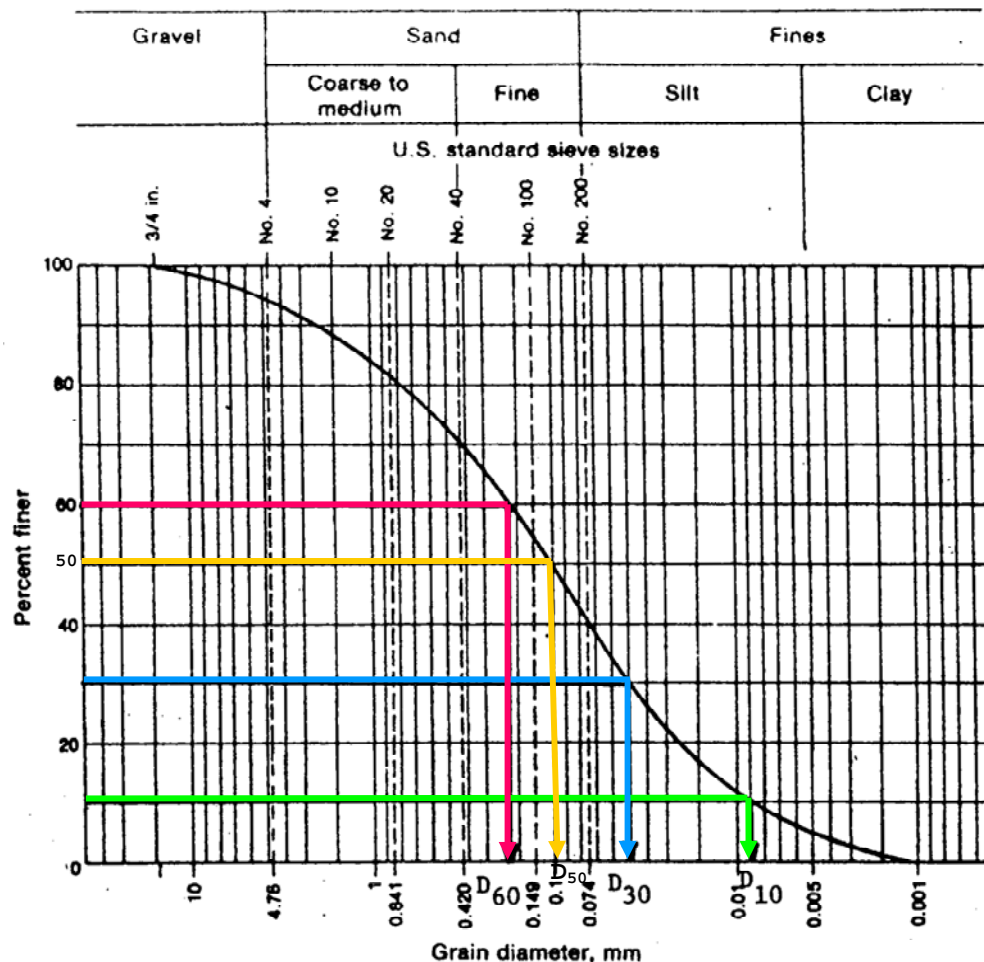


Figure 5.1.5 Example gradation curve showing the graphical determination of the D60, D50, D30, and D10 values.

The median grain size by weight, or D50, means that half of the sample is coarser and half of the sample is finer than this grain size. It is taken straight from the gradation curve. See Figure 5.1.5.

The graphic mean,  $(D_{84} + D_{50} + D_{16})/3$  (substituting the  $D_{15}$  and  $D_{85}$  values for the  $D_{16}$  and  $D_{84}$  values in the formula), was calculated for each sample to compare with the D50. The graphic method of computing the mean reduces much of the sampling and testing errors associated with calculating the mean statistic because it discounts the bottom 16% fine fraction and top 16% coarse fraction of the sample curve (in this case the top 15% and the bottom 15%) which are generally susceptible to error and might otherwise skew the statistic (CEM, 2008). In a normal distribution, the median and the mean are equal. However, generally with sediments these two statistics are not the exact same because the grain size distribution is not exactly normal. For this

study, the D50 statistic for each sample was almost always slightly finer than the graphic mean statistic.

The coefficient of uniformity,  $C_u = D_{60}/D_{10}$ , measures the particle size range within the sample. The smaller the  $C_u$ , the steeper the gradation curve because it contains a smaller range between the  $D_{60}$  and  $D_{10}$  values (Figure 5.1.5). The smallest  $C_u$  value is 1, which would indicate a sediment with the same grain size throughout. This would be shown as a completely vertical curve on the graph. For sand, a  $C_u$  value greater than 6 indicates a non-uniform size range, or well-graded distribution, where the  $D_{10}$  is much smaller than the  $D_{60}$ . This is represented on the graph with a more gentle slope (Curve 1, Figure 3.1.2.2). There were no samples collected with a  $C_u$  greater than 6.

The coefficient of curvature,  $C_c = (D_{30}/D_{10}) / (D_{60}/D_{30}) = D_{30}^2 / (D_{10} \cdot D_{60})$ , is a measure of the symmetry and shape of the gradation curve, and compares the slope of the curve representing the finer particles ( $D_{30}/D_{10}$ ) with the slope of the curve representing the coarser particles ( $D_{60}/D_{30}$ ). The minimum value of  $C_c$  is 1 and occurs when all sizes contributing to the  $C_u$  are about equally represented. As the coefficient of curvature increases, the smaller particle size content increases and becomes more influential on the engineering properties of the sediment. A value from 1 to 3 indicates a well-graded sample. A sediment sample's  $C_u$  and  $C_c$  are both used to determine if it is poorly graded or well-graded. Only poorly graded sands were found during the investigation.

The percentages of coarse, medium, and fine sand were calculated, in addition to the percentage of fine material (clays and silts) passing through the #200 sieve. A USCS classification and material description were assigned to each sample. For the 2010-2012 sampling events, qualitative wet and dry Munsell Color classification and grain angularity classification were conducted by Mobile District personnel with aid from the NPS. The 2013 sampling event was evaluated by USACE's Savannah District Materials Testing Lab during their grain size testing. The drilling inspector completed a SAM FORM 1836-MsCIP (Drilling Log) for each vibrocore using Bentley's gINT V8i software. The final logs include both the field classification and the laboratory classification for the samples, lab data ( $D_{50}$  and percent fines), the Munsell Color Classification, and estimated seafloor elevation.

Water depths at the site of sampling were taken using the sampling vessel's fathometer. These water depth readings were converted later to elevations using local NOAA tidal gauge data for the date/time that the sample was taken. Because of the potential for error with this method, all potential borrow areas will be surveyed by a USACE hydrographic survey vessel as part of the plans and specifications process to verify seafloor surface elevations and make adjustments to the borrow area cut elevations as necessary.

Due to the lag time between collection of samples and return of lab results, decisions had to be made as to the potential suitability of the sand for use in the project based on its initial field classification. If the quality of the sand was deemed suitable by the inspector, the limits of the area defined by the geophysical survey were gridded with holes to better delineate the deposit and to provide samples for textural classification. If the initial cores did not contain suitable sand, that area would not receive any additional coring investigation. This technique was used throughout the four sampling events to be as efficient with coring as possible.

Appendices B through L contain the gINT-generated drilling logs for each vibracore, followed by the respective laboratory testing worksheets as applicable. Each appendix also contains a consolidated listing of each sample taken from the cores for laboratory testing in that particular area, along with its relevant statistics.

Once the final drilling logs were completed, an analysis was conducted to begin delineating potential borrow areas. If the vibracore samples in an area did not show any potential for use as a borrow area, either because the material was unsuitable or the distribution of the suitable material was too thinly bedded or too widely dispersed to design an effective borrow area, that study area was discounted. For remaining borrow areas, initial rough order of magnitude volume calculations were performed to ensure that enough suitable material was available in the area to make it economical for mining. Wave modeling and hydrodynamic modeling were conducted for potential borrow sites that were in areas of shallow water or contained features that might be affected by the removal of the material. Borrow area shapes and cut depths were refined, taking into account bathymetry, sediment thickness, hydrodynamic, archaeological concerns, and potential dredge equipment types, to optimize the mining of the suitable material for the borrow areas. This refinement has led, in most cases, to a reduced quantity of available material from the initial



USGS estimates. The borrow area statistics in Section 6.0 are based on these updated borrow area designs.

**5.2 INVESTIGATION AREAS AND INITIAL FINDINGS**

The following sections discuss the results from the 2010-2013 sampling events organized by investigation area.

**5.2.1 GULFPORT CHANNEL INVESTIGATION AREA**

The sediments along the sides and below the bottom of the Gulfport Navigation Channel were sampled to determine if their material could be used as a borrow source if the channel is widened or deepened in the future. Previous investigations of the channel have included numerous vibracores to characterize the sediments as part of channel dredging operations. Twenty-nine (29) 2010 vibracores were completed along the channel alignment for this project. Of these 29 vibracores, eight (8) vibracores were initially positioned based on the results of the USGS' geophysical survey. The results of the new vibracores indicated that very limited amounts of sand were located over scattered areas. Most of the sediments observed in the samples contained silts or clays and would not be useful for the project. Another fifteen (15) vibracores were cored in one selected area based on data obtained during a geotechnical investigation for the existing channel alignment. The final six (6) vibracores were cored near the Gulfport Harbor to verify that sediment composition in that area was not suitable for beneficial use. This material was too fine-grained for the project. Unfortunately, the vibracores did not indicate suitable material in large enough quantities for use in the project. The general layout of the vibracores completed for Gulfport Channel is shown in Figure 5.2.1.1. The table in Appendix B provides the coordinates of the vibracores, the Unified Soil Classification System designation of the sample, the Munsell Color designations for wet and dry samples, and data from the laboratory gradation analyses. Additional information, including drilling logs and full gradation information, is included in Appendix B.

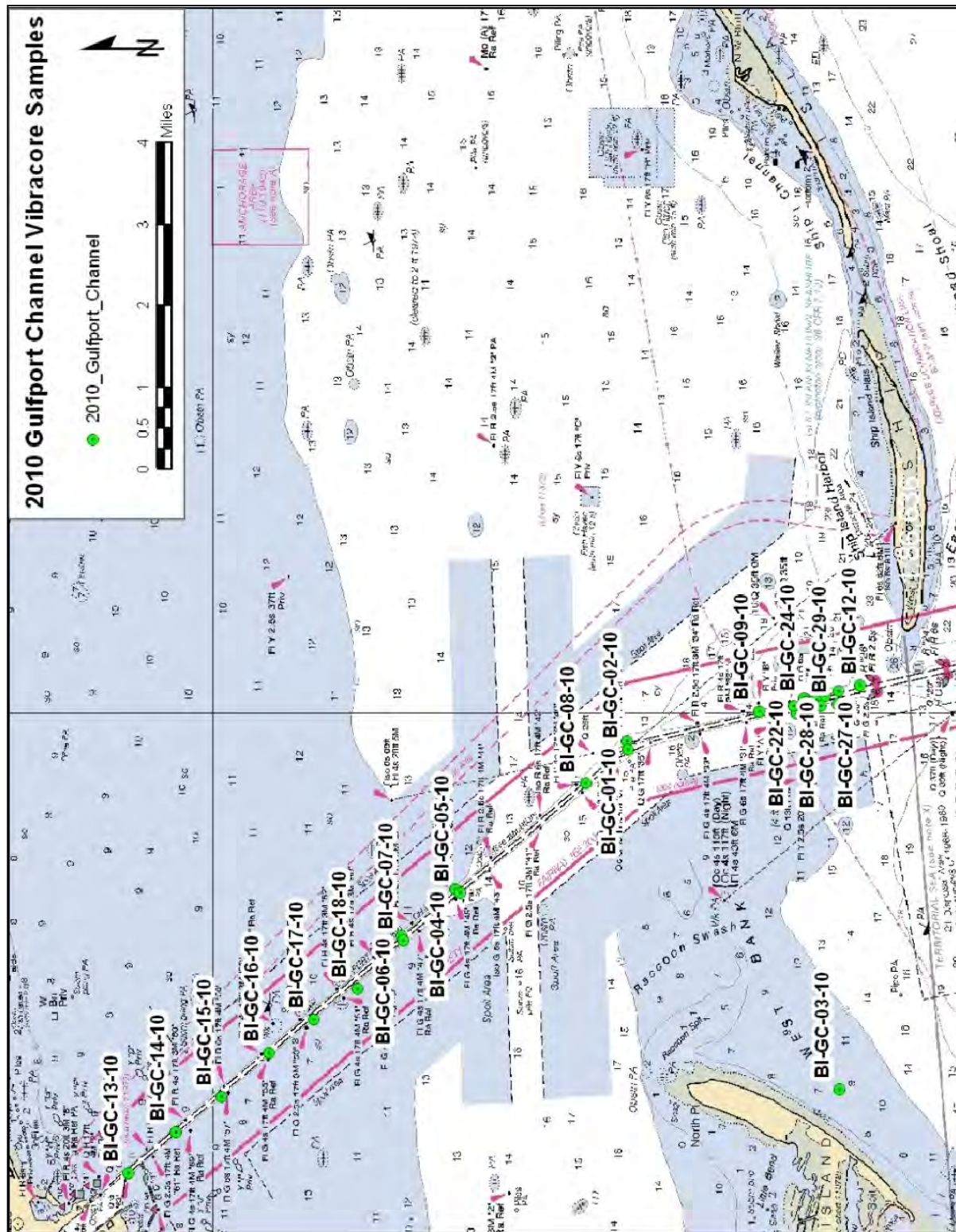
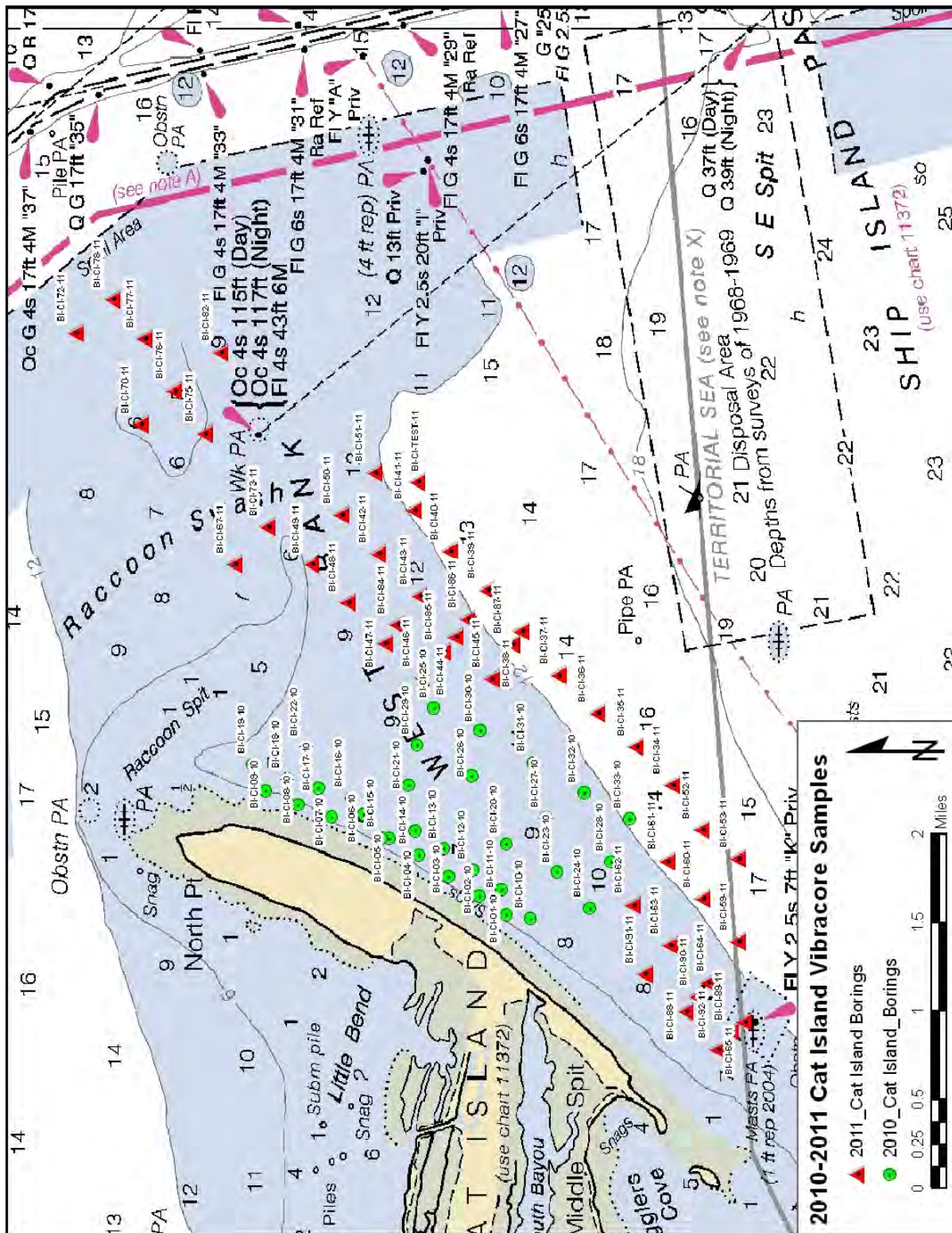


Figure 5.2.1.1 – 2010 Vibracores completed for Gulfport Channel sampling area.

### 5.2.2 CAT ISLAND INVESTIGATION AREA

Potential borrow sites were investigated offshore of the eastern beach at Cat Island. The USGS's geophysical surveys in 2010 indicated that extensive sand deposits were available in this area. The Cat Island shoal and the Ship Island Pass shoal were identified and estimated to contain 25 million cubic meters and 7 million cubic meters of sediment, respectively, with over 90% estimated to be sand (Flocks and others, 2011). Initially, thirty-three (33) vibracores were completed during the 2010 sampling event and confirmed the presence of the sand. These vibracores were mostly near shore, however. An additional forty-five (45) vibracores were completed during the 2011 sampling event to expand the investigation into deeper water. The 2011 sampling event was implemented after 3D modeling on all potential borrow sites showed adverse wave effects would occur if desired cut depths were used during dredging of the 2010 core sites. Although extensive sand deposits were identified, the recommended area will have an average cut depth of approximately five (5) feet to minimize effects of wave refraction over the site after excavation. Based on the 2011 vibracores, approximately 2.1 million cubic yards of sand were delineated from an area of approximately 282 acres, for dredging and placement on the beach at Cat Island. The area-weighted, average D50 grain size is 0.20 mm and the predominant color is light gray (with a Munsell Value of 6) for these samples. The vibracores indicate that the seafloor surface is predominantly poorly graded, fine-grained sand-sized quartz, with some siltier sand in the northern half of the area. Grain size grades finer with depth so dredging should be done in such a way as to produce a thicker cut to achieve the coarsest mix of the sediments. This area is also within the designated threatened species habitat for the Gulf Sturgeon. However, the volume of material to be removed will be relatively low and, due to the widespread availability of the sand in this area, a very shallow borrow excavation can help minimize disruption of the habitat. The general layout of the vibracores completed for the investigation for borrow material for Cat Island is shown in Figure 5.2.2.1. The table in Appendix C provides the coordinates of the vibracores, the Unified Soil Classification System designation of the samples, the Munsell Color designations for wet and dry samples, and grain size data from the laboratory gradation analyses. Drilling logs and full lab gradation data are included in Appendix C.



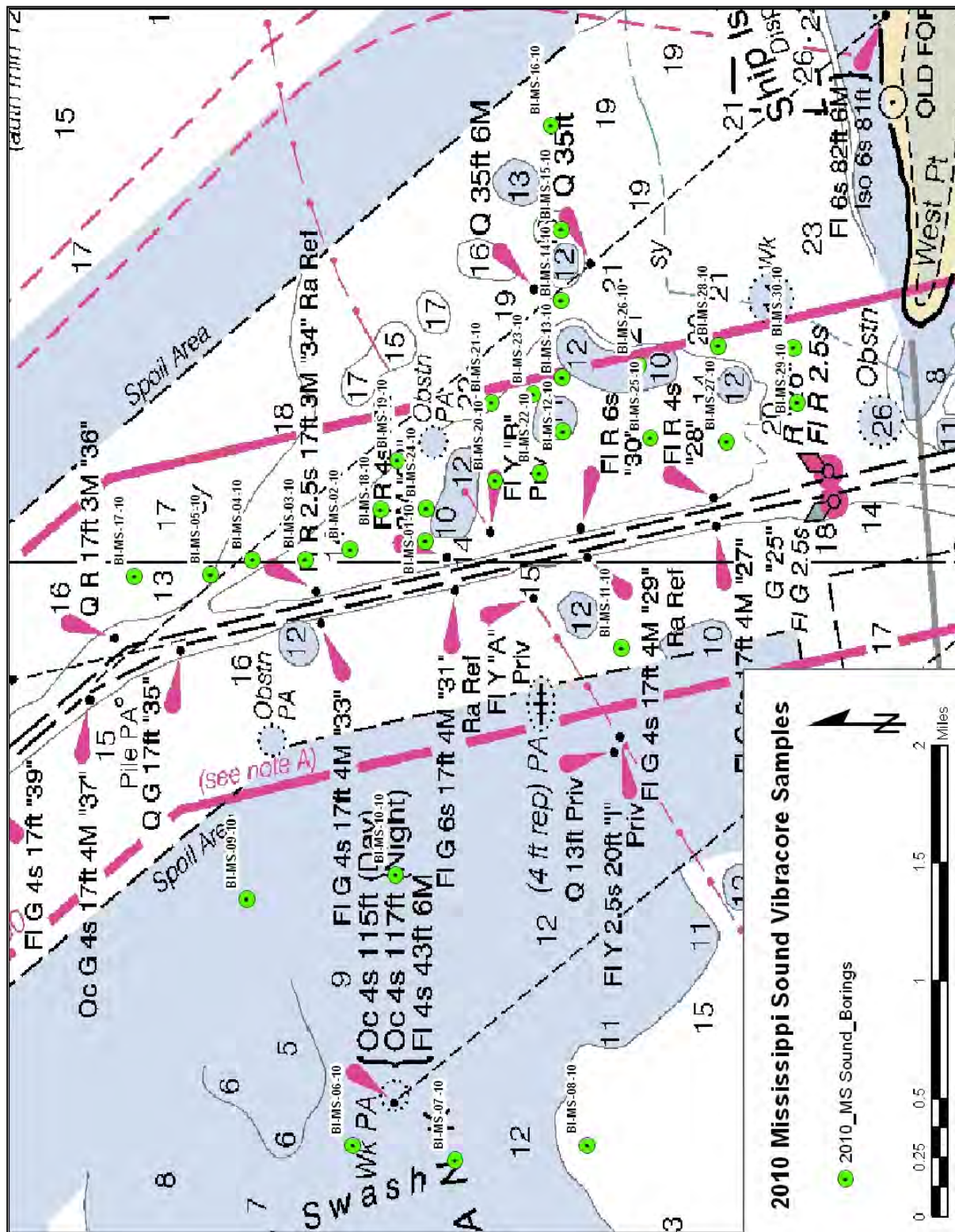


**Figure 5.2.2.1 – 2010 (green circles) and 2011 vibracores (red triangles) completed for the investigation for borrow material at Cat Island.**

**5.2.3 MISSISSIPPI SOUND INVESTIGATION AREA**

Previous investigations have revealed that some areas in Mississippi Sound, near West Ship Island, have large sand deposits at the surface suitable for beach re-nourishment (Oivanki, 1995). This same localized area was described by Otvos (1975/76) as sandy, while most of the surface sediments in this area of the Sound are described as muddy. A previous geotechnical investigation by the USACE also confirmed the presence of this sand deposit. The boundaries of the sand deposit were defined by the USGS's geophysical investigation and a series of sixteen (16) vibracores were completed in 2010 to validate the geophysical data. An additional fourteen (14) 2010 vibracores were completed to further delineate the deposit. Unfortunately, the sand from this area is finer-grained than desired for these projects. Also, it is located in a designated threatened species habitat for the Gulf Sturgeon. While this information would not preclude the use of this material, it would make it less desirable for potential borrow sites. The layout of the vibracores completed for Mississippi Sound is shown in Figure 5.2.3.1. The table in Appendix D provides the coordinates of the vibracores, the Unified Soil Classification System designation of the sample, the Munsell Color designations for wet and dry samples, and data from the laboratory gradation analyses. Drilling logs and full lab gradation information are included in Appendix D.





**Figure 5.2.3.1 - Layout of the 2010 vibracores completed for the Mississippi Sound area.**



#### 5.2.4 SHIP ISLAND PASS INVESTIGATION AREA

The 2010 USGS geophysical survey included the area located between the western edge of the Gulfport Navigation Channel and Cat Island. The survey was expected to locate a very large deposit of sand associated with an ebb tidal delta just south of the western tip of West Ship Island. However, the vibracores did not support this expectation. Potential sand deposit locations on the northern portion of the pass were consistent with the area identified by Otvos (1975/76). The geophysical surveys also confirmed the presence of shoals in this area (Twichell et al., 2011). Ten (10) 2010 vibracores were completed to define and confirm the extent of the deposit. Unfortunately, the grain size was finer than desired for placement. The unweighted D50 for this study area was 0.16 mm. Also, like other sand deposits north of the islands, the area is within the designated threatened species habitat for the Gulf Sturgeon. The disposal site adjacent to the channel, south of Ship Island, was also sampled. The vibracores contained only thick clay, with a thin veneer of sand on the northern edge of the site. The material located adjacent to the western tip of West Ship Island (Ship Island Pass borrow area in Table 6.1) was approved for placement on the northern shore of West Ship Island by the NPS because it is composed mostly of material migrating westward from the island. The old Gulfport Channel acts as a sink and fills up as the natural longshore transport of the island's sediment moves westward. This material had been used in previous NPS beach nourishment projects on the island. No vibracores were taken in this sand body, however. Instead, a proxy sample was taken from the north side of West Ship Island. The material consists of poorly graded, medium- to fine-grained, sand-sized quartz with an unweighted D50 of 0.48 mm, with percent fines being less than 5%. Dry Munsell value is 6. This borrow area is estimated at approximately 20.8 acres in size with approximately 480,000 cy of material available. Figure 6.2 shows the approximate outline of the borrow area. The layout of the vibracores completed for Ship Island Pass is shown in Figure 5.2.4.1. The table in Appendix E provides the coordinates of the vibracores, the Unified Soil Classification System designation of the sample, the Munsell Color designations for both wet and dry samples, and the laboratory gradation analyses data. Drilling logs and full gradation information are included in Appendix E.



**5.2.5 SHIP ISLAND INVESTIGATION AREA**

At the completion of the geophysical surveys and the initial field interpretations, one of the primary targets identified was an area south of Camille Cut and East Ship Island identified as Loggerhead Shoal and tidal delta (Figure 4.1.2.3). Using the survey data, the USGS identified eleven (11) locations for 2010 vibracores. These vibracores indicated a large expanse of quality sand. Therefore, fifty-four (54) additional 2010 vibracores were completed to fully define the sand deposit. Initial analysis of the vibracore data indicated that approximately twenty-two (22) million cubic yards of fine-grained sand was available from two locations within that general area. This area was selected for further analyses by computer modeling to predict any adverse effects from wave refraction caused by use of the area as a borrow site because the seafloor has such a gradual slope. Wave and hydrodynamic modeling indicated that the footprint of the borrow area needed to be altered to reduce potential wave impacts on the fill placed in Camille Cut. As borrow area design progressed and modeling showed a need to reduce and reshape the borrow area, the new borrow area was whittled down to 1.2 mcy with an average D50 grain size of 0.21 mm, a dry Munsell color of light gray, and a dry Munsell value of 7. The D50 grain size of the sand is smaller than desired for a potential borrow source. The vibracores indicated that grain size grades finer with depth, so dredge cuts should be thicker to more fully composite the sediments. Potential solutions to make this borrow site more suitable could include applying overfill to mitigate erosion losses or mixing with sand from other borrow sites to increase the average D50. The layout of completed vibracores is shown in Figure 5.2.5.1. The table in Appendix F provides the coordinates of the vibracores, the Unified Soil Classification System designation of the samples, the Munsell Color designations for wet and dry samples, and data from the laboratory gradation analyses. Drilling logs and full lab gradation information is included in Appendix F.



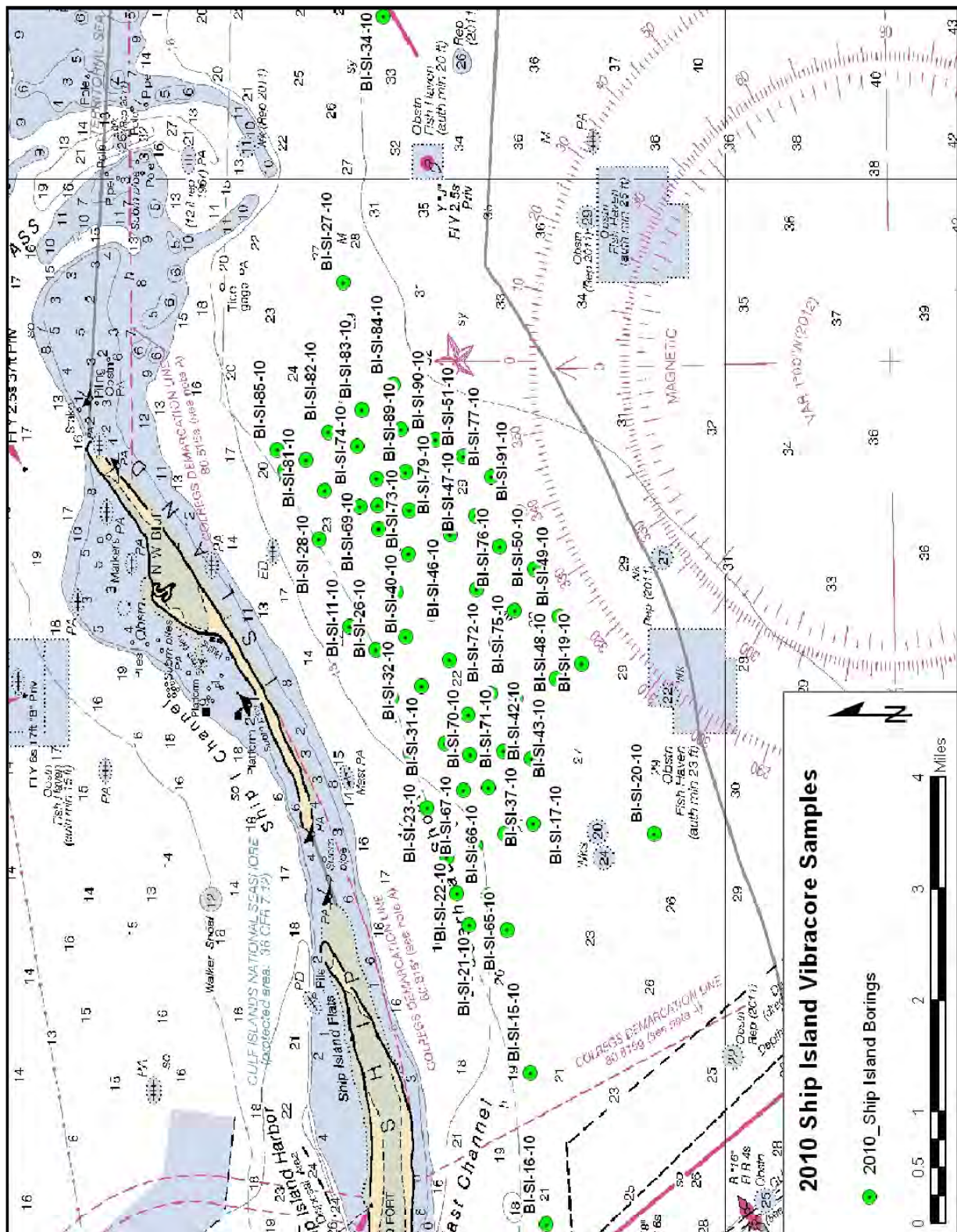


Figure 5.2.5.1 – General layout of the Ship Island vibracores completed for the investigation.

### 5.2.6 DOG KEYS PASS INVESTIGATION AREA

Two separate, well-defined ebb tidal deltas located east of East Ship Island and to the west of Horn Island are associated with Little Dog Keys Pass and Dog Keys Pass (Figure 4.1.2.3). Initially, the deltas were believed to contain large volumes of high quality sand, but the exact conditions of littoral sediment transport relationships were not well defined. This area was added for further investigation in an updated sediment budget to determine if sediment transport was terminating southward and extending these deltas. The geophysical survey provided updated bathymetry and information on the extent of the deposits. The survey also indicated buried lowstand channels south of the tidal deposits. The USGS located twelve (12) Phase One vibracores to validate their geophysical data. An additional twelve (12) 2010 vibracores were added to further define the limits of the sand deposit, for a total of twenty-four (24) vibracores in 2010. The vibracores in the north indicated that the sand on the delta is fairly clean SP, but too fine for the project. Only one vibracore on the delta had an acceptable grain size. Vibracores off the delta indicate that the typical sediments for the area are clays and silts which are not useful for the project. Aside from the grain size issue, this area appears to be within the active littoral system and would not be considered for borrow. South of the deltas, vibracores targeting the buried lowstand channels had thick clay overburden atop fine grain sand, which is finer than desired for this project. Therefore, it will not be considered for use as borrow. The layout of the vibracores for Dog Keys Pass is shown in Figure 5.2.6.1. The table in Appendix G provides the coordinates of the vibracores taken in the area, the Unified Soil Classification System designation of the sample, the Munsell Color designations for wet and dry samples, and select data from the laboratory gradation analyses. Drilling logs and full gradation information are included in Appendix G.



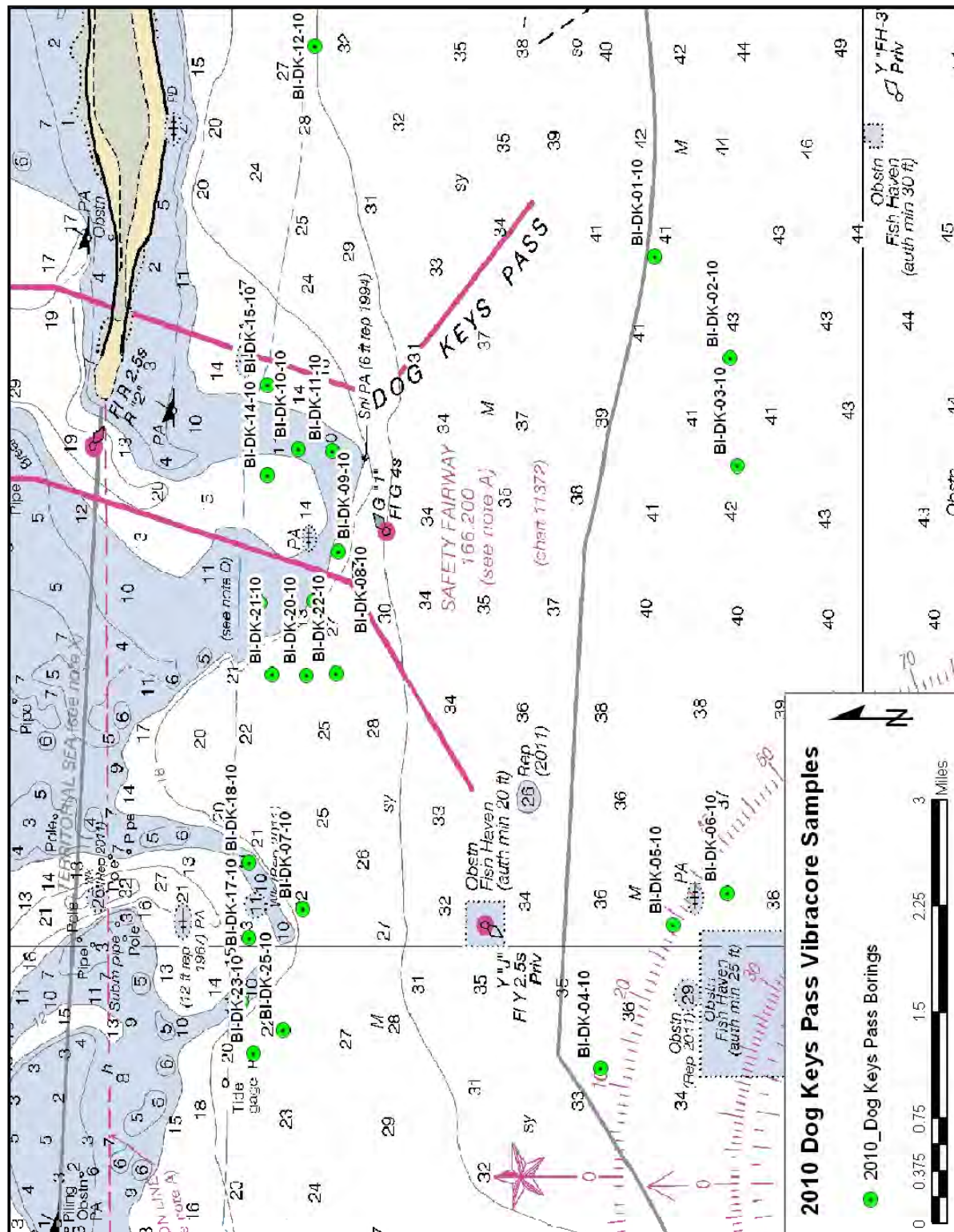


Figure 5.2.6.1 - General layout of the vibracores completed for the Dog Keys Pass area.



**5.2.7 HORN ISLAND PASS INVESTIGATION AREA**

Horn Island Pass is located between Petit Bois Island to the east and Horn Island to the west. Disposal Area 10, a USACE disposal area, is located in the pass between the two islands. It contains a man-made island, locally known as Sand Island. The pass also has a shipping channel (Pascagoula Bar Channel) to the east and two pipelines that run north-south through the western half of the area. The USGS geophysical survey identified a tidal deposit at the southern entrance to the pass. However, Horn Island Pass was not selected initially as an area to investigate for borrow sites because of the distance to potential placements and indications that all potential sand deposits would be in the active littoral zone. Ambient water depths in this area range from 19 to 40 feet. During the study of the sediment budget for the barrier islands, it was noted that several mounds of sediment just south of Horn Island Pass had the potential for sand resources. These mounds were created by the disposal of dredged material from the bar channel section of the Pass where much of this material was sand naturally transported from Petit Bois Pass-OCS Island and deposited in the channel.

Twenty-six (26) vibracores were completed for the 2010 sampling event, focusing on the main disposal mound to the east. The recovered cores illustrated that the mounds contain suitable sand for use in the MsCIP Barrier Island project. Because the sediment mounds are man-made, they contain discontinuous sandy layers atop the in-situ seafloor comprised mostly of sandy silts and clays. As a result, the mound's sandy veneer pinches off at the lateral margins of the mounds. This makes it difficult to design a borrow area that can be efficiently dredged near the margins without dredging up the poor sediments, or skipping large swaths because the deposits are too thin. Therefore, this area was not considered for a potential borrow area after the 2010 sampling event. However, with the potential need for additional sand, it was decided to investigate the area further. Additional vibracores were needed to determine the sand content and structure of the mounds to the west, adjacent to the pipelines, and further to the north of the 2010 vibracores. For the 2012 sampling event, fifteen (15) vibracores targeted the three major dredged sediment mounds in the area and the tip of the ebb-tidal shoal. The results correlated with the 2010 vibracores. That is, the other mounds also contain suitable sand in varying thicknesses deposited atop unsuitable in-situ material. Twenty-two (22) vibracores were also taken adjacent to the Pascagoula Bar Channel margins to determine if this material would be suitable for use. None of these vibracores

indicated the material would be suitable for use with this project because they are mostly clays, silts, and silty sands. Three borrow areas were delineated based on the combined results of the 2010 and 2012 sampling events. In 2013, USACE conducted another sampling event, with eleven (11) vibracores taken south of the 2012 samples on the dredge disposal mounds. The intent of these vibracores was to further expand the borrow area delineated following the 2012 sampling event.

Only the mounded areas are suitable for borrow material for this project. In general, vibracores that intersected the tops of the mounds recovered poorly graded, medium- to fine-grained, sand-sized quartz (SP) with very little fines and trace shell fragments throughout. Sand thicknesses on the mounds ranged from one foot to 11.8 ft, with an average thickness of 6.1 ft. D50 grain size for samples in the mounds ranged from 0.15 mm to 0.34 mm, with an average D50 of 0.28 mm. Percent fines ranged from 1.6% to 14.3%, with an average of 4.9%. Typical dry Munsell Color Value was 7, with a Munsell Color of Light Gray. Overburden was virtually non-existent on the tops of the mounds. Below the initial top sand layer, the sediments quickly grade to silty and clayey sands (SM and SC), usually underlain by intermittent layers of clay (CL and CH) and silt (ML and MH). Dry Munsell Color Value typically decreases with increasing depth. D50 grain size also typically decreases with depth. Dredge cut elevations should leave a buffer between the sand and the poorer sediments because the transition between the two occurs rapidly. In general, the sand deposits do grade finer with depth and dredge cuts should attempt to mine the full thickness with each pass to maximize mixing of the sands to create the largest composite grain size.

Vibracores paralleling the Pascagoula Bar Channel contained unsuitable sand for this project. The vibracores generally contained significant volumes of silt and clay in the northern half of the group, but did have a veneer of silty sand in the southern half of the group. For the vibracores in the south, the grain size of the sand is too small for use in this project. D50 ranges from 0.15 to 0.20 mm, with an average D50 of 0.17 mm. Percent fines ranges from 0.4% to 19.8%, with an average of 15.1%. Munsell Color Value ranges from 5 to 6, with an average of 5.05. Typical Munsell Color is Olive Gray. Based on this information, the areas paralleling the channel are not considered suitable for this project.

The layout of the 2010-2013 vibracores is shown in Figure 5.2.7.1. The table in Appendix I provides the coordinates of the vibracores, the Unified Soil Classification

System designation of the samples, the Munsell Color designations for wet and dry samples, and data from the laboratory gradation analyses. Drilling logs and full lab gradation information is included in Appendix I.

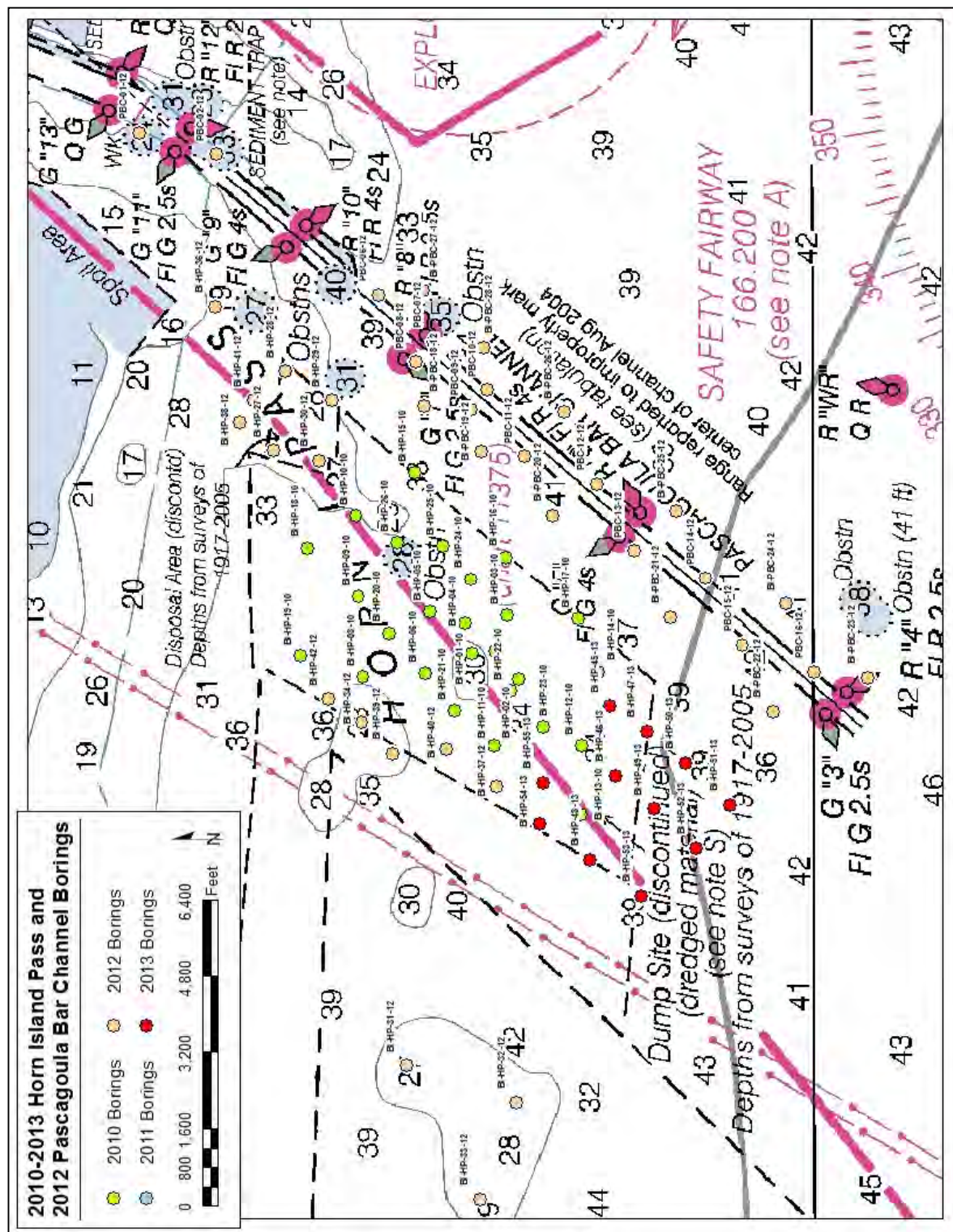


Figure 5.2.7.1 - General layout of the vibracores completed for the investigation of borrow material from Horn Island Pass area.

**5.2.8 DISPOSAL AREA 10 (DA-10) INVESTIGATION AREA**

Disposal Area 10 (DA-10) is a man-made island created from dredged material from the Pascagoula Bar Channel. It is located in Horn Island Pass, less than one mile northwest of the western tip of Petit Bois Island, MS. Sand placement in this area was initially intended to provide sediment to the littoral system. However, the sediment budget study (Byrnes) for the barrier islands has shown that its northern position in the pass prevents it from contributing any significant sediment quantities to the littoral system, resulting in little to no erosion of the deposited material over time and hence the accidental creation of a relatively stable island. Although not originally considered a viable option prior to the 2010 sampling event due to its location within the littoral system, DA-10 was added to the list of potential investigation sites for the 2011 sampling event following the completion of the sediment budget study by Byrnes. Hydrologic modeling of this area showed borrowing material would have minimal effects on wave action in the area.

DA-10 has good potential for a borrow source because of its location, material quality, and its minimal effect on wave action in the area. It would also take sand that is not actively moving in the littoral system and transport it downdrift. The area-weighted average D50 grain size is 0.32 mm and dry Munsell color is predominantly light gray with an average dry Munsell value of 7. There are approximately 5.1 million cubic yards available. The initial borrow area design called for 5.1 mcy of material to be removed. However, the presence of a wetland on the island prompted a new design to minimize the impacts to this area. The second design reduced the quantity of sand to be removed to 3.7 mcy. In 2013, the decision was made to not use DA-10 because NPS regulations regarding borrow areas within park boundaries would not allow this material to be used.

The layout of the vibracores completed for the investigation is shown in Figure 5.2.8.1. The table in Appendix H provides the coordinates of the vibracores, the Unified Soil Classification System designation of the sample, the Munsell Color designations for wet and dry samples, and data from the laboratory gradation analyses. Drilling logs and full lab gradation information are included in Appendix H.



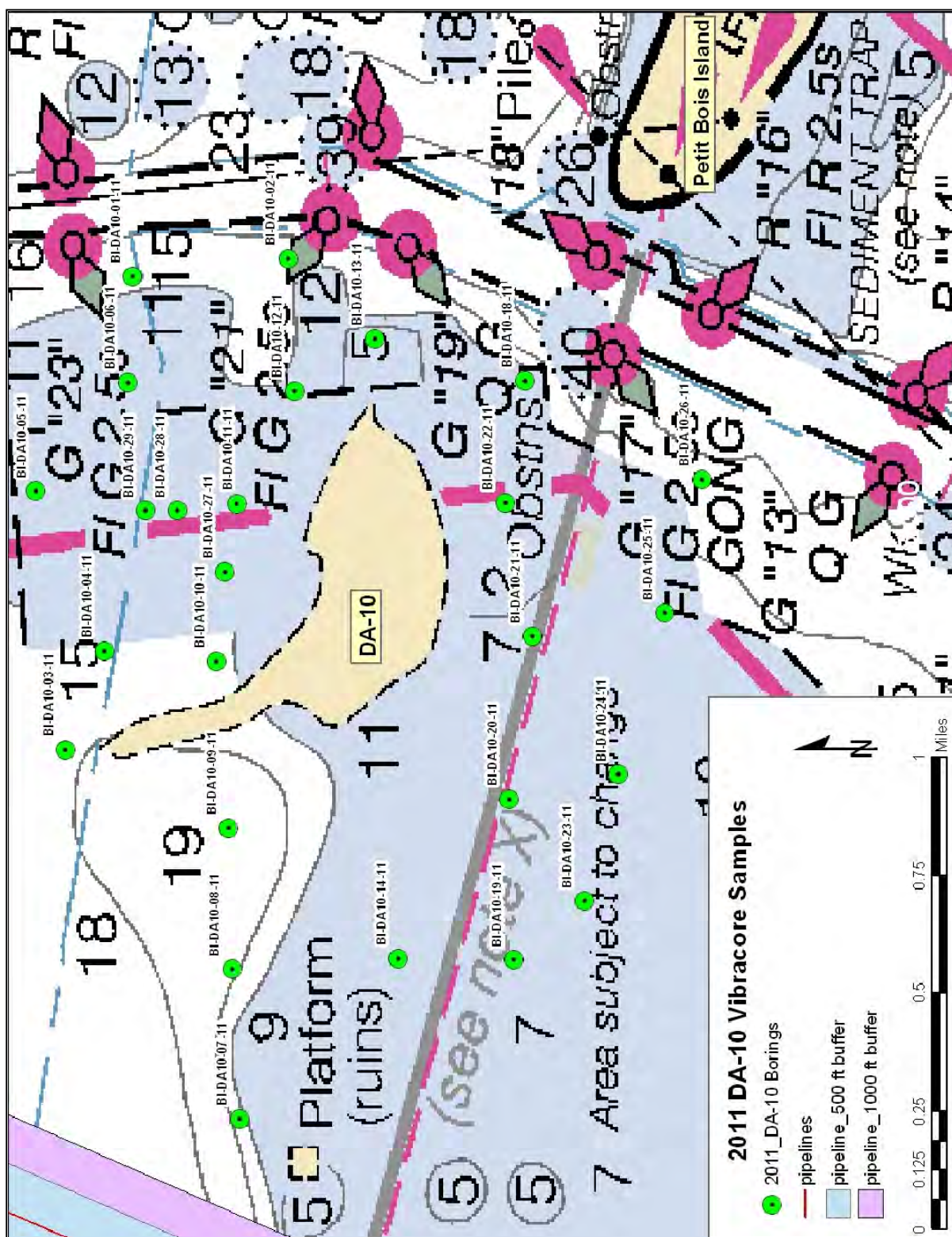


Figure 5.2.8.1 - Layout of the vibracores completed for the 2011 investigation for borrow material from Disposal Area 10.



**5.2.9 PETIT BOIS PASS- ALABAMA INVESTIGATION AREA**

Petit Bois Pass extends from Petit Bois Island, MS, eastward to Dauphin Island, AL. There is a natural gas pipeline running north-south through the eastern portion, and two pipelines running north-south through the western portion. The initial field interpretations of the 2010 USGS geophysical survey indicated that large deposits of sand were present south of the pass, mostly in the eastern portions in the form of shoals and infilled lowstand channels. Their initial volume estimate for these shoals was 56 million cubic meters of sediment, with >90% sand content (Twichell, 2011). These shoals are independent of the littoral processes affecting the movements of Petit Bois Island and the west end of Dauphin Island, and have remained relatively stable over the course of the last century. These shoals generally taper at the ends, with slope angles at the seaward tips up to 1.4° and flattening out with decreasing water depth. They do not appear to have a steeper shoreward or seaward side, interpreted as meaning they are not actively moving (Twichell, 2011). During the 2010 sampling event, seventeen (17) initial vibracores were completed and located very high quality sand in some areas. Then, an additional eighty-nine (89) vibracores were completed to fully outline the deposit. During the 2011 sampling event, seventeen (17) additional vibracores were completed to further delineate the sand deposits. Two potential borrow areas were identified. Petit Bois Pass-Alabama West borrow area is located approximately 3 miles east-southeast from the eastern tip of Petit Bois Island, MS, and 2.8 miles southwest from the western tip of Dauphin Island, AL. Petit Bois Pass- Alabama East borrow area is located approximately 2 miles south of the western tip of Dauphin Island.

A north/south-running natural gas pipeline bisected the Petit Bois Pass- Alabama West borrow area. The pipeline owners voiced concern about the possibility of damage to their pipeline in the future caused by the removal of borrow material on either side of it. Modeling was conducted by an independent third-party contractor, in conjunction with the pipeline company, to determine the long term effects of the borrow area excavations on the pipeline. The results of this modeling showed that given a proper buffer around the pipeline, the proposed borrow areas would have negligible effects on the pipeline. The borrow quantity for Petit Bois Pass- Alabama West was recomputed, with a one thousand-foot buffer added around the pipeline, to determine the loss of sand in the footprint of the pipeline. The pipeline and buffer footprint effectively prevents the removal of over one million cubic yards of material from the Petit Bois Pass- Alabama West borrow area.

Therefore, during the 2012 sampling event, seventy-eight (78) vibracores were taken around the perimeter of the existing borrow areas. The intent of the sampling was to determine if it was possible to expand the existing borrow area perimeters and maximize each area's potential yields in an attempt to recoup the losses due to the pipeline buffers.

Based on the vibracores from the 2010-2012 sampling events, the sand quality is very good in these areas (D50: ~0.32 mm, % Fines: <5%, Munsell Color Value: 6) with minimal to no overburden, particularly on the shoals. The Petit Bois Pass-Alabama East and West borrow areas were reconfigured to incorporate the new data from the 2012 vibracores and accommodate the pipeline buffer. The pipeline now serves as the arbitrary dividing line between the east and west sampling areas.

For Petit Bois Pass- Alabama West, the sand deposit is exposed within the perimeter of the proposed borrow area. The 2012 vibracores along the northern boundary contained suitable sand, but with some sand having a darker Munsell Value than desired. However, the ambient water depth ranges from 18 to 28 feet in this area which might be considered too close to the active littoral zone for significant expansion into this area (Figures 5.2.9.1 and 5.2.9.2). The sand body begins to be overlapped by clays and silts just south of the southern boundary and thick clay beds cover the majority of the area. Vibracores with suitable sand south of this borrow area appear to be on shoals only. Expansion to the west is limited by the pipeline and buried cable. Expansion to the east is limited by the natural gas pipeline.

Samples from suitable vibracores had a D50 range of 0.18 to 0.39 mm, with a weighted mean D50 of 0.30 mm. Percent fines ranged from 0.8% to 7.7%, with an average of 2.7%. Dry Munsell Color Value ranged from 4 to 8, with an average of 6. Typical dry Munsell Colors were White 2.5Y 8/1 (21%), Light Brownish Gray 2.5Y 6/2 (20%), and Light Gray 2.5Y 7/2 (17%). Overall, white and light gray were the two predominant colors at 25% and 29%, respectively.

For Petit Bois Pass- Alabama East, the sand deposit is exposed within the perimeter of the proposed borrow area, similar to Petit Bois Pass- Alabama West. The vibracores indicate that the sand body becomes overlapped by clays in the northeast, indicating the sand body is either buried deeper than is feasible for use or it terminates beneath the clay. In either case, further expansion of the borrow area in

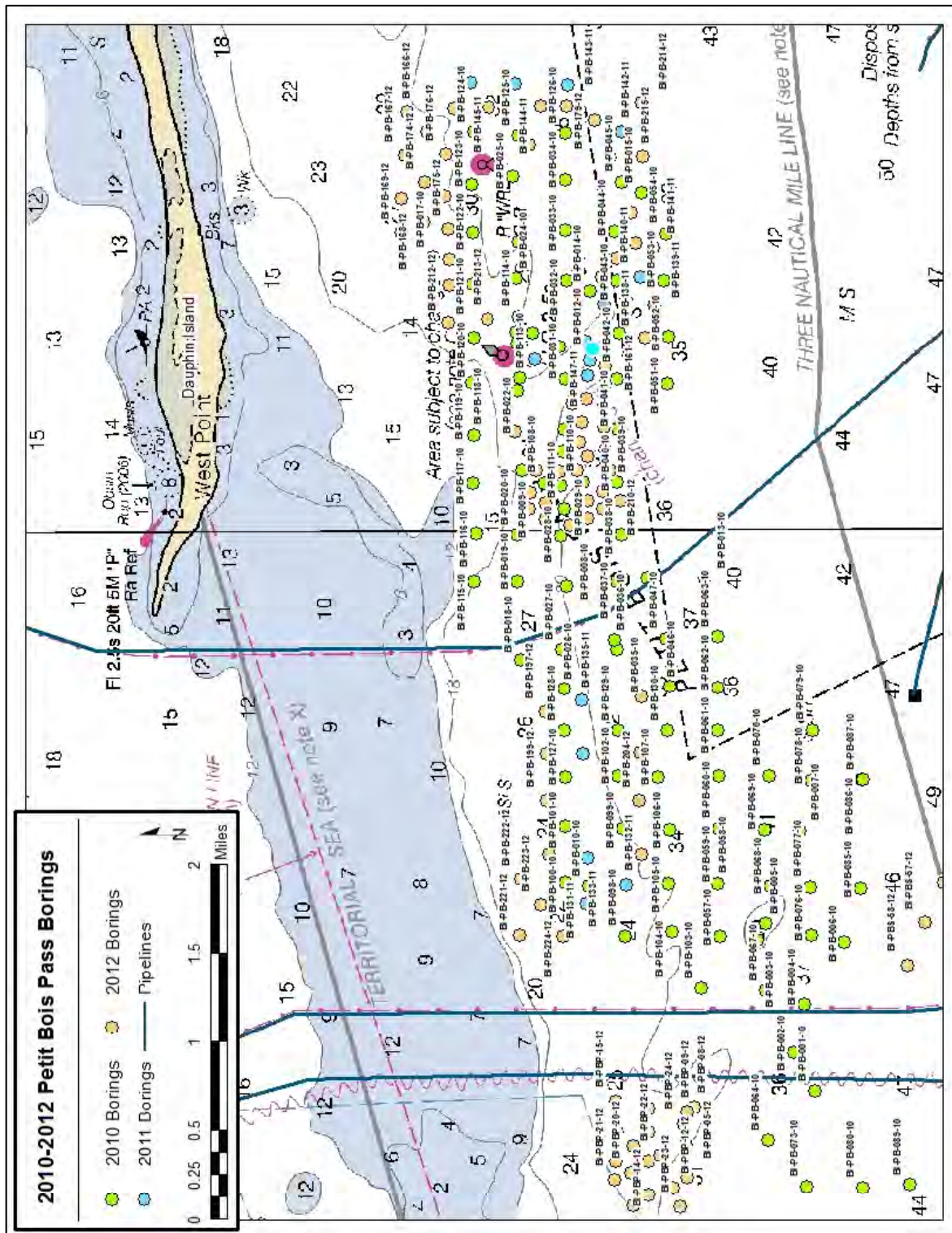
this direction is limited. Along the northwestern portion of the northern boundary, vibracores contained suitable sand. However, shallower water depths may prevent expansion in this direction. The eastern vibracores indicate that limited expansion is possible in this direction, because the sand begins to be overlapped by silts and clays further east. The vibracores in the southwest indicate the sand body beginning to be overlapped by clays and silts before being completely covered or terminating. The south central vibracores indicate that the sand body begins to become covered by overburden on the southwest and southeast sides of a shoal extending south. The surficial sand begins thinning out as well on the southeastern side of this shoal. Vibracores from the southeastern corner of the borrow area indicate that the borrow area can be expanded along the shoal which extends from this corner. Vibracores did not delineate the farthest extent of the sand in this direction. There are several shoals running northwest/southeast through the southern half of the sampling area that do contain sand. But, they appear to have thinner veneers of sand than desired. Also, the troughs between the shoals appear to have significant clay layers, making the dredging of this area difficult.

Samples from suitable vibracores had a D50 range of 0.21 to 0.45 mm, with a weighted mean D50 of 0.32 mm. Percent fines ranged from 0.5% to 17.8%, with an average of 4.1%. Dry Munsell Color Value ranged from 5 to 8.5, with an average of 6.8. Typical dry Munsell Colors were White 5Y 8/1 (16%), Light Gray 2.5Y 7/2 (13.2%), and Light Brownish Gray 2.5Y 6/2 (10%). Overall, light gray and white were the two predominant colors at 33% and 24%, respectively. The vibracores in the east that are “Borderline” for color have adequate grain size and are slightly silty. It is expected that if the sand in this area is used, many of the fines would wash out during dredging and placement, thereby lightening the overall color of the sand.

Vibracores from both borrow areas indicate that the grain size of the sand does grade slightly finer with depth. However, they also indicate that dredging should be able to occur in longer, shallower runs without having an issue with inadequate mixing of grain sizes prior to placement because the finer sediments are generally still within established tolerances.

A layout of the vibracores is shown in Figures 5.2.9.1, 5.2.9.2, and 5.2.9.3. The table in Appendix L provides the coordinates of the vibracores, the Unified Soil Classification System designation of the sample, the Munsell Color designations for

wet and dry samples, and data from the laboratory gradation analyses. Drilling logs and full lab gradation information is included in Appendix L.



**Figure 5.2.9.1 - Layout of the vibracores completed for the 2010-2012 investigation for borrow material from the Petit Bois Pass- Alabama area.**



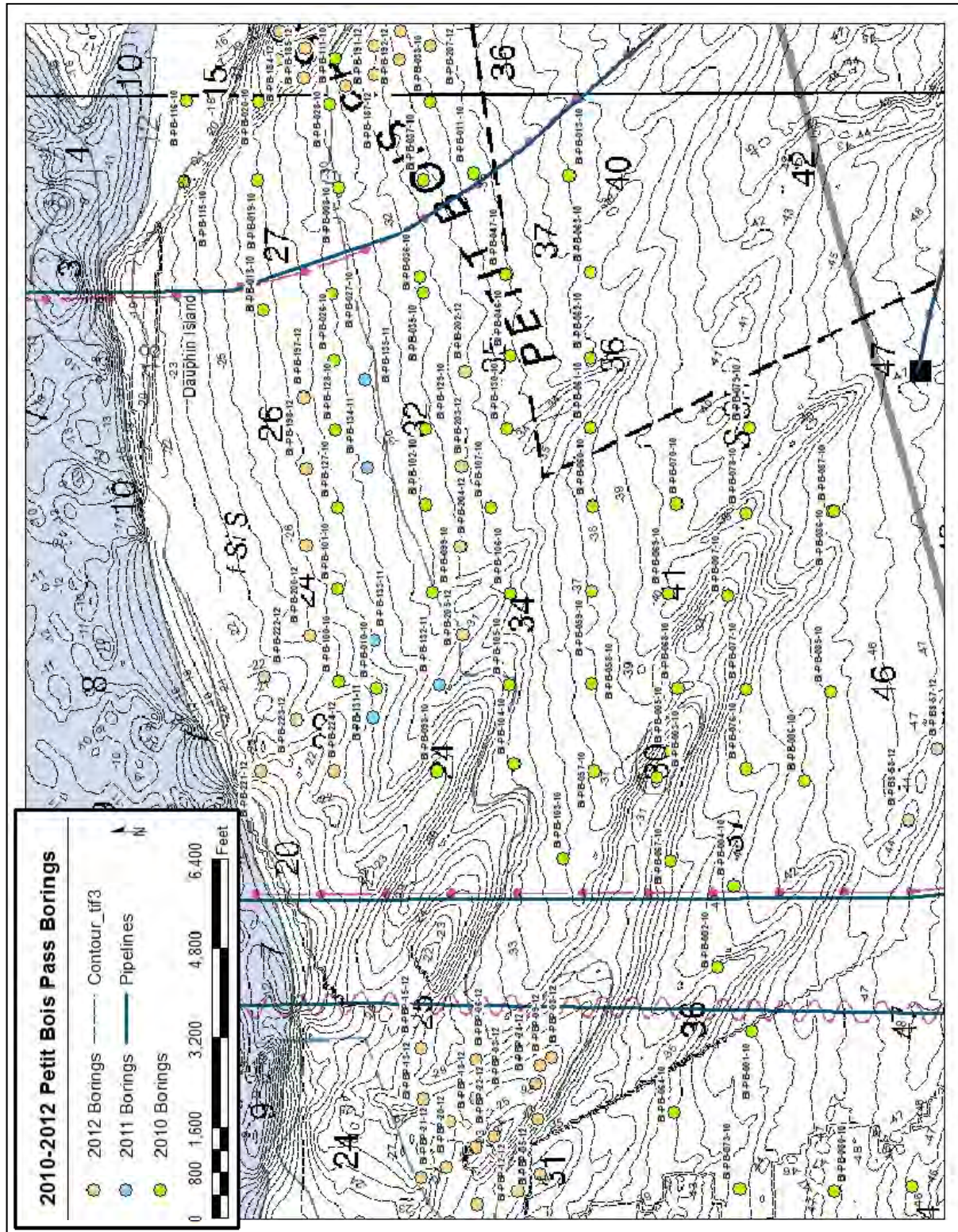
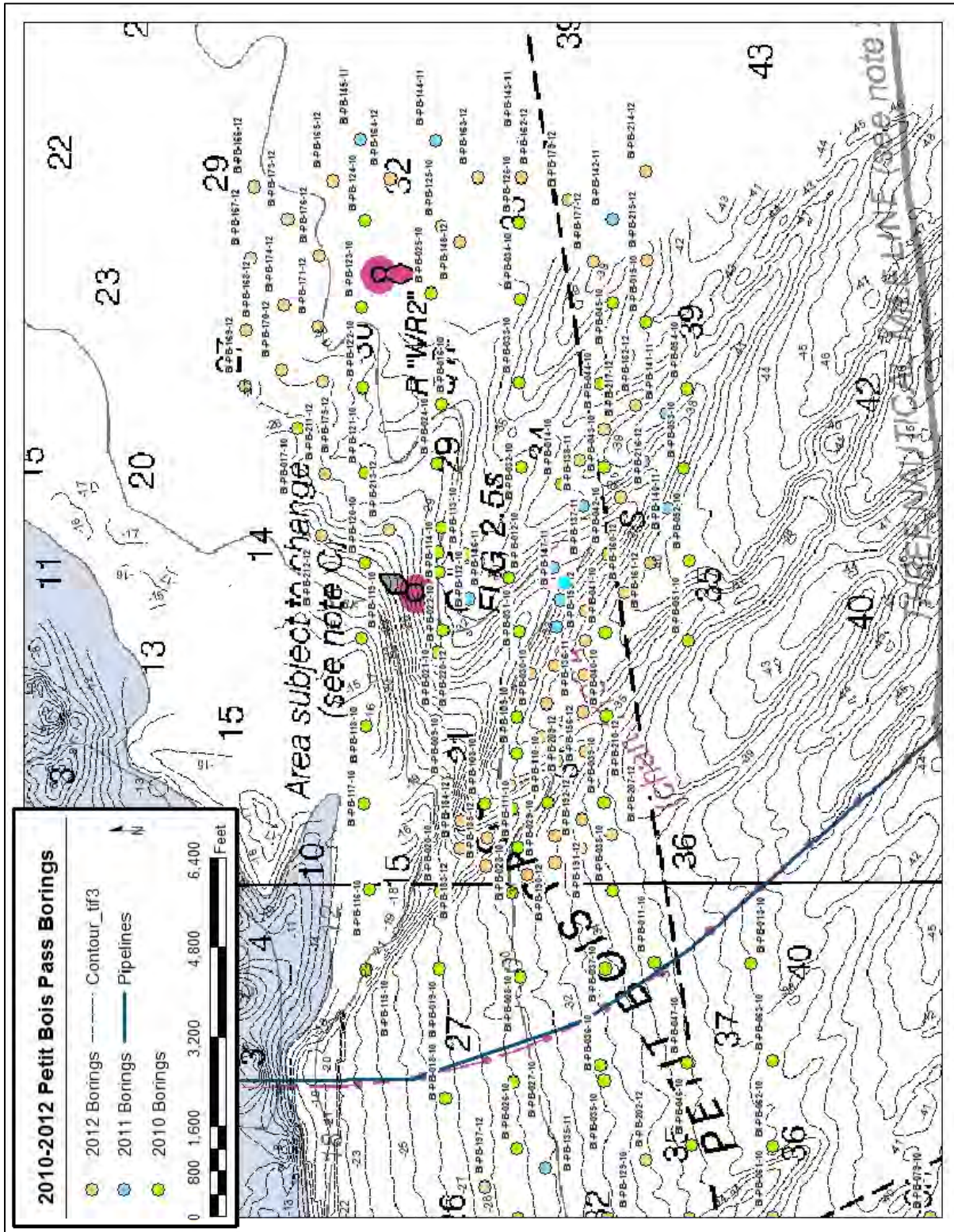


Figure 5.2.9.2 - Layout of the vibracores completed for the investigation for borrow material from the Petit Bois Pass- Alabama West area. Note the sizeable shoals in the west.





**Figure 5.2.9.3 – 2010-2012 Vibracores completed for the Petit Bois Pass-Alabama East area.**

**5.2.10 PETIT BOIS PASS-MISSISSIPPI INVESTIGATION AREA**

Petit Bois Pass- Mississippi is a sampling area located approximately 1.3 miles southeast of Petit Bois Island, in Mississippi state waters. A major shoal feature was identified in this area using bathymetry. It is approximately 2.8 miles long and runs northwest to southeast near the intersection of the NPS's Gulf Islands National Seashore boundary and a buried cable (shown on the map as a pipeline) running through Petit Bois Pass (Figure 5.2.10.1). The shoal is in ambient water depths ranging from 25 ft to 37 ft. Due to its proximity to the Pass, it was speculated that this shoal might have similar sediment characteristics to the sand found in the Petit Bois Pass- Alabama East and West borrow areas. The USGS used its geophysical survey data from the 2010 survey to assist in locating vibracores along its crest and delineate the shoal's lateral extents. Other vibracores were situated along the shoal margins to gain a better understanding of the shoal's structure and the surrounding sediments. Figure 5.2.10.1 shows the location of the sampling area and the vibracores taken there.

Sampling results indicate that the shoal crest has thick deposits of suitable sand in the northwest portion of the shoal, closer to Petit Bois Island. In general, vibracores that intersected the top of the shoal recovered poorly graded, medium- to fine-grained, sand-sized quartz (SP) with very little fines (< 5%) and trace shell fragments throughout. Cleaner sand (SP, SP-SM) thicknesses in the vibracores ranged from 2 feet to 15.2 feet, with an average thickness of 8.7 feet. Below the poorly graded sand (SP) layers, the sediments quickly grade to silty and clayey sands (SM and SC), usually underlain by intermittent layers of clay (CL/CH) and/or silt (ML/MH). Munsell Color Value typically decreases with increasing depth. D50 grain size also typically decreases with depth. Off the shoal, sand is typically only surficial, one to two feet thick, and is underlain by clays and silts. Overburden was virtually non-existent on the top of the shoal. Figure 5.2.10.2 is a Triangulated Irregular Network (TIN) map created in ArcMap using the sand thicknesses observed in the vibracores to create the isolines. It shows that the sand thins out abruptly further away from the crest of the shoal coinciding with the changing bathymetry. The USGS' geophysical data for this area also confirms that the sand thins out off the shoal. Borrow area design needs to focus on maximizing the cut into the crest of the shoal. The sand deposit is thickest and cleanest in this area, allowing for deeper dredge cuts. The southeast end of the shoal can also be mined.

The samples had a typical dry Munsell Color Value of 7 (58% of sample volume). Of the samples with suitable sand, the majority of sample volume (49% of sample volume) had a Munsell Color of 5Y 7/2 (LT Gray). 5Y 6/2 (LT Olive Gray) was the second most abundant color by volume. However, the percentage of light gray to white color was 71% for the entire sample volume. D50 grain size for samples in the shoal ranged from 0.13 mm to 0.48 mm, with a weighted mean D50 of 0.31 mm. Sand thicknesses within vibracores on the shoal ranged from 2 to 15.2 feet, with an average thickness of 8.7 feet. In several vibracores (BI-PBP-2-12, BI-PBP-6-12, BI-PBP-20-12, BI-PBP-21-12) the vibracore sampler could not penetrate the dense sand, making it difficult to assess the true thickness of the sand body from the vibracores. The penetrometer graphs in Appendix J attest to the difficulty the vibracorer had in penetrating these areas. There is also a slightly thicker mound on the southeast tip of the shoal with suitable sand, but then the sand thins out rather quickly moving away from the crest of the shoal to the northeast, east, south, and west. (Figure 5.2.10.2)

The more continuous nature of this shoal makes borrow area design and dredging less difficult than Horn Island Pass or Petit Bois Pass-OCS. Borrow areas should be constrained to the shoal to optimize sand recovery, while any dredging off the shoal will likely result in recovery of mostly poor material (SM, SC, CL, ML). The east side of the shoal, near vibracores BI-PBP-18-12, BI-PBP-13-12 and BI-PBP-06-12 should be dredged with cuts designed to maximize mixing of sediments. Other than the east side of the shoal, the grain size of the vibracores indicates that shallower cuts parallel with the long axis of the shoal would be acceptable to maintain the grain size of the placed material. The table in Appendix J contains a consolidated list of the vibracores and their respective samples. It includes select laboratory gradation data, the USCS classification, and the Munsell color classifications. Drilling logs and lab data are included in Appendix J.



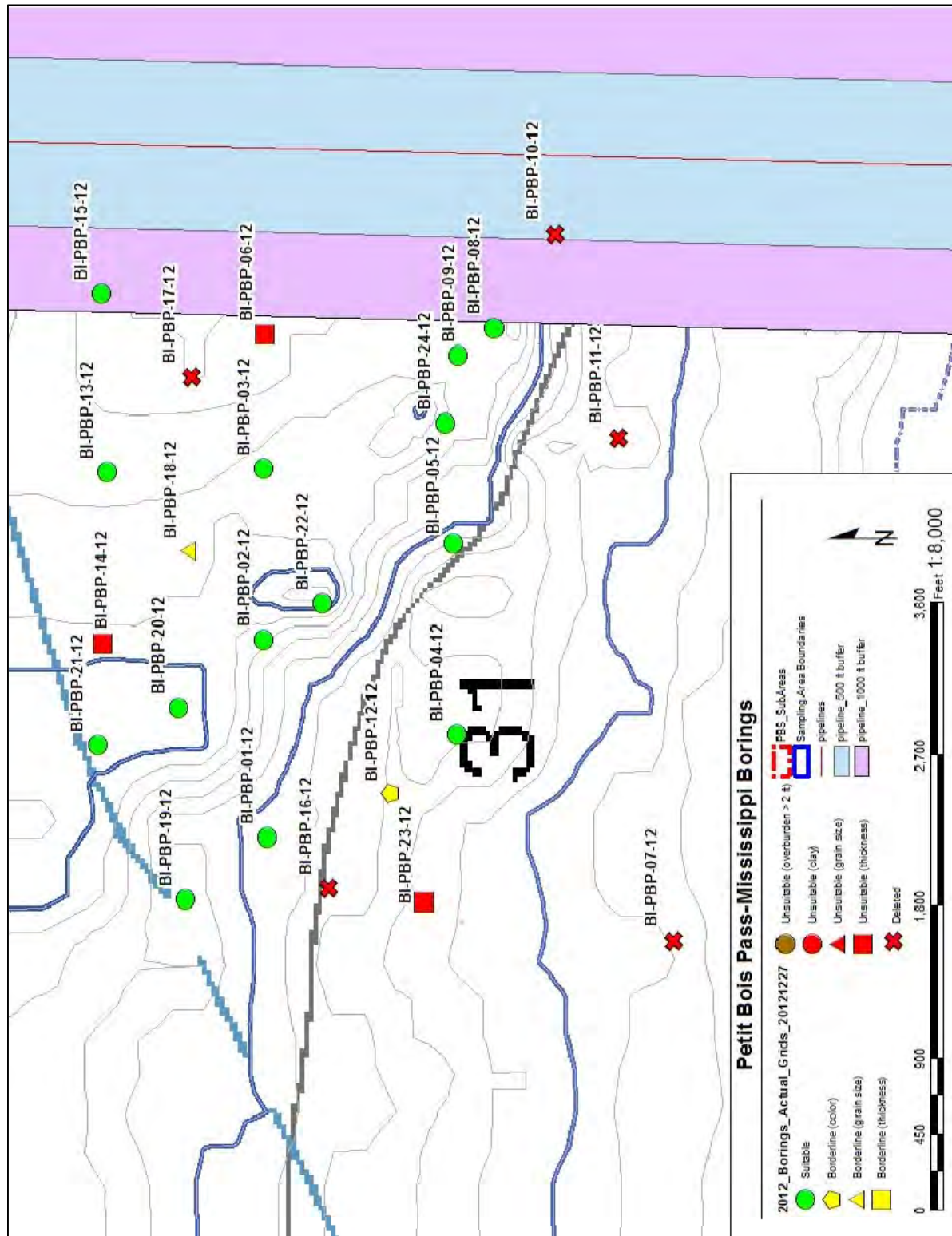


Figure 5.2.10.1 2012 Vibracores for Petit Bois Pass- Mississippi sampling area with bathymetric contours illustrating the main shoal in the area. The blue contours are at 5-ft intervals.

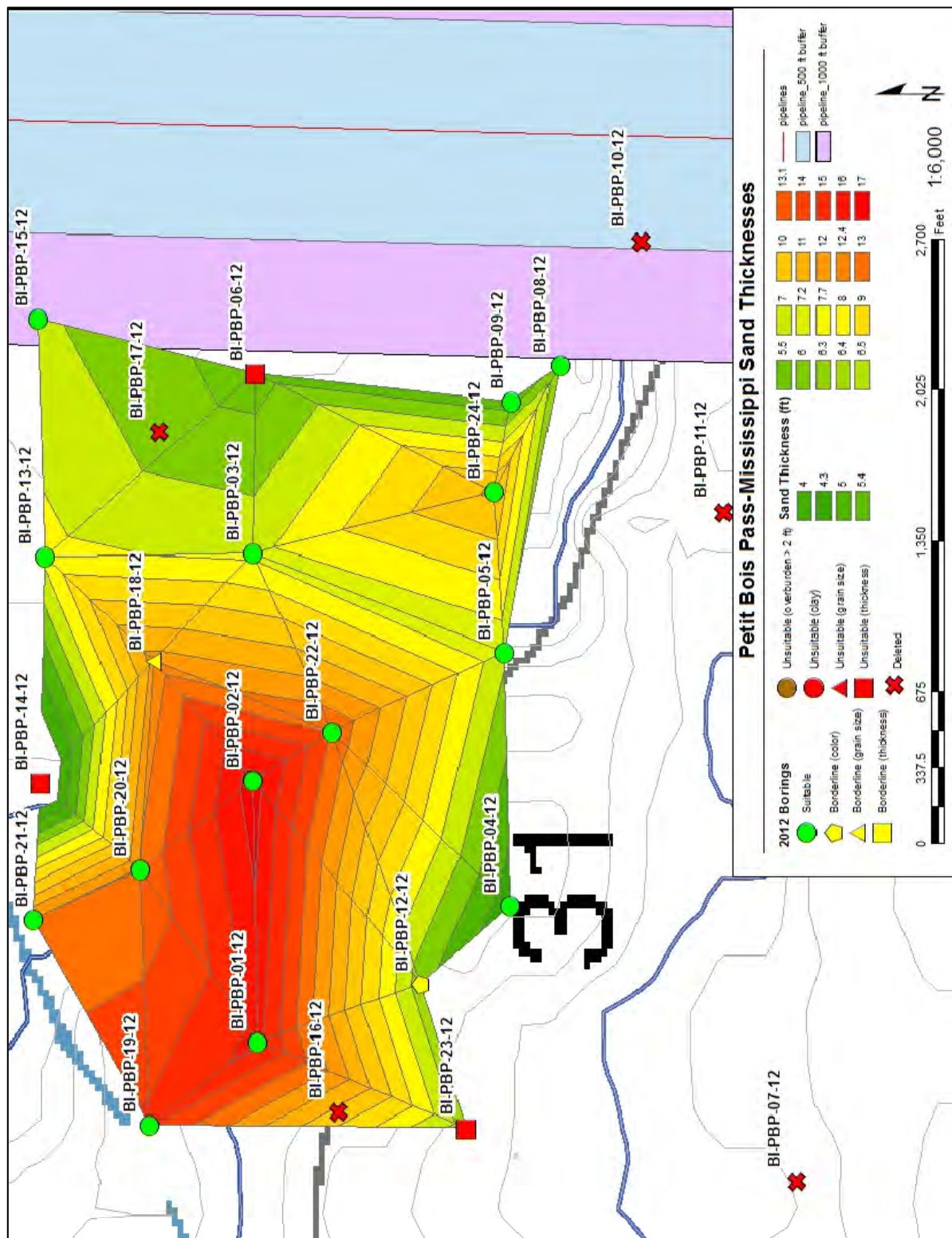


Figure 5.2.10.2 Map of sand thicknesses in the Petit Bois Pass- Mississippi sampling area.



**5.2.11 PETIT BOIS PASS- OUTER CONTINENTAL SHELF (OCS)  
INVESTIGATION AREA**

The Petit Bois Pass-Outer Continental Shelf (OCS) sampling area is located approximately 3 to 6 miles south of Petit Bois Island and Petit Bois Pass. It is divided by a pipeline and buried cable running north-south through the center of the area, and is bounded in the south by pipelines running east-west. The western area (PBP-OCS West) overlaps Mississippi and federal waters, while the eastern area (PBP-OCS East) is almost entirely in federal waters. Ambient water depths in these areas range from 40 to 68 feet (Figure 5.2.11.1). There are several shoals throughout the area. Two of the larger shoals intersect the pipeline in the southern half of the western area and extend into the eastern area. Other than the shoals, the seafloor is relatively flat in these areas, gently sloping to the southeast. The main shoals are generally oriented NW-SE with low relief in the intershoal areas.

The 2012 sampling event was limited in scope to the eastern two-thirds of PBP-OCS East due to a lack of geophysical data for PBP-OCS West. For the 2012 sampling event, one hundred (100) vibracores were cored in the PBP-OCS East area and only four (4) vibracores were cored in PBP-OCS West area. In August 2013, the USGS conducted a geophysical survey of PBP-OCS West and the unsurveyed portion of PBP-OCS East (Figure 4.2.1). It identified several large shoals that were then targeted during the 2013 sampling event. One hundred seventy-four (174) vibracores were taken in PBP-OCS West during the 2013 sampling event.

In PBP-OCS East, the more pronounced shoals are shorter, narrower, and more distributed throughout the area. Vibracores indicated that suitable thicknesses of acceptable borrow material are located along the crests of the shoals. Vibracores that are off the shoal crests indicate that the sediment typically does not meet the established standards from Section 3.0 for gradation or bedding thickness. These vibracores generally contained silty sand or a thin veneer of SP sand grading to silty sands and clays with increasing depth.

In PBP-OCS West, the results were similar to the eastern area in that the shoals tended to contain the largest concentrations of clean sand, while the off shoal areas tended to be silty sand to clay. One exception is the sandy fill deposit that extends from PBP-OCS West into PBP-OCS East, just north of large Shoal 3 (Figure 4.2.1.1) in PBP-OCS West. This deposit contains thick deposits of SP, but is covered

extensively by unsuitable overburden. There are small areas that have minimal overburden, which will be discussed further below.

Figure 5.2.11.1 shows the locations of PBP-OCS West and PBP-OCS East (solid blue outlines) and the 2012 and 2013 vibracore locations. The black dashed lines represent shoal outlines that were delineated by the USGS from their geophysical surveys. They illustrate the size and orientation of the shoals in each sampling area.

For the purposes of this report, PBP-OCS West and PBP-OCS East have been divided into smaller sub-areas because of their expansive sizes. The statistics presented are based on vibracore samples and are weighted by volume of borrow represented by samples.

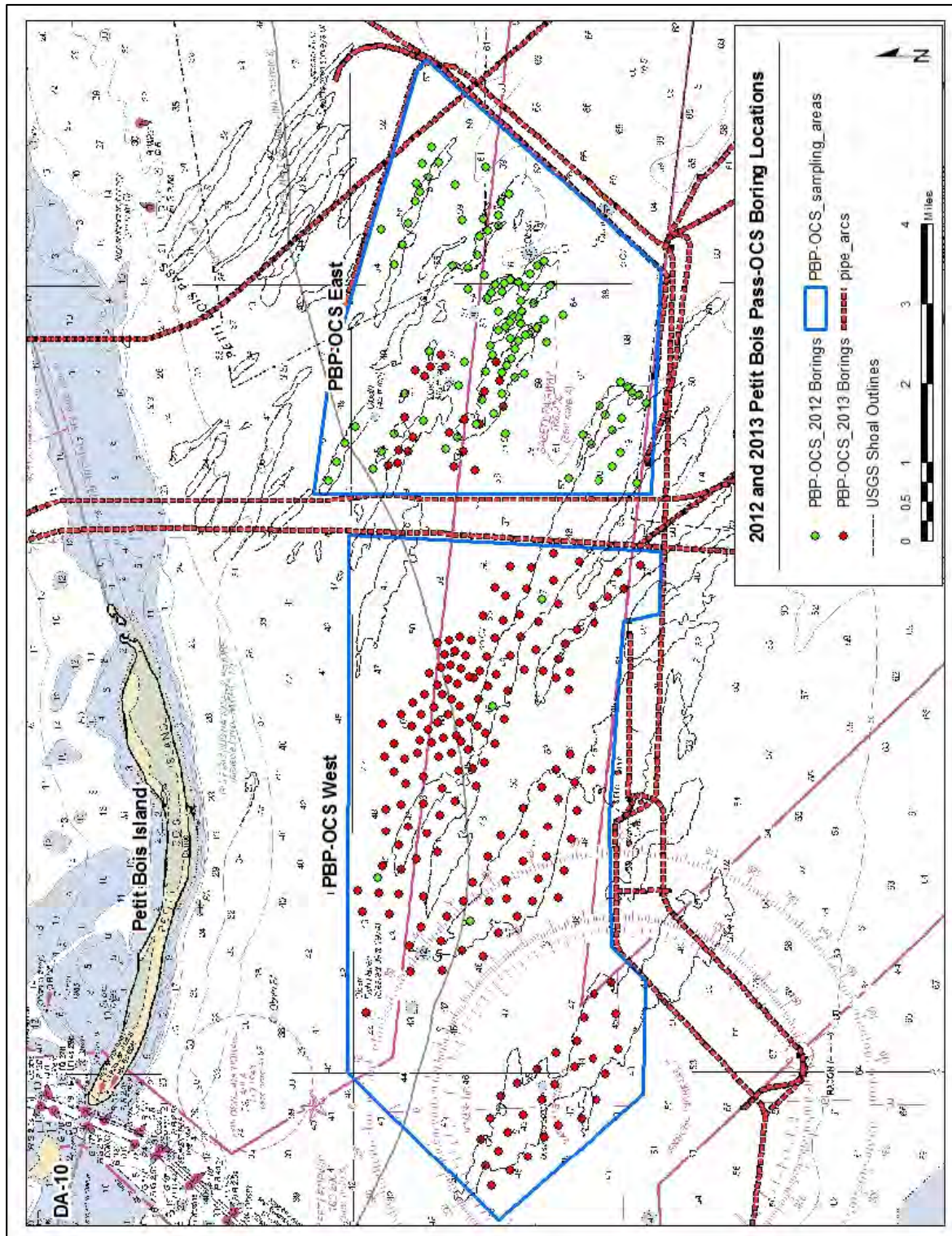


Figure 5.2.11.1 Petit Bois Pass-OCS sampling areas and vibracore locations.



## 5.2.11.1 PBP-OCS West Investigation Area

PBP-OCS West sampling area is approximately 4 miles south of Petit Bois Island. This sampling area is bounded by the north/south-running buried cable and pipeline to the east and the east/west-running pipelines to the south. This area contains three large shoals and a complex of smaller shoals in its southeast corner. Ambient water depths for the area range from 42 to 57 feet. Initially, the three major shoals were the focus of the 2013 sampling event because the geophysical survey data indicated they contained sandy substrates with minimal overburden. Table 4.2.1.1 contains a breakdown of the dimensions and textural characteristics of each shoal. The following sections discuss the results of the vibracore sampling during the geotechnical investigation.

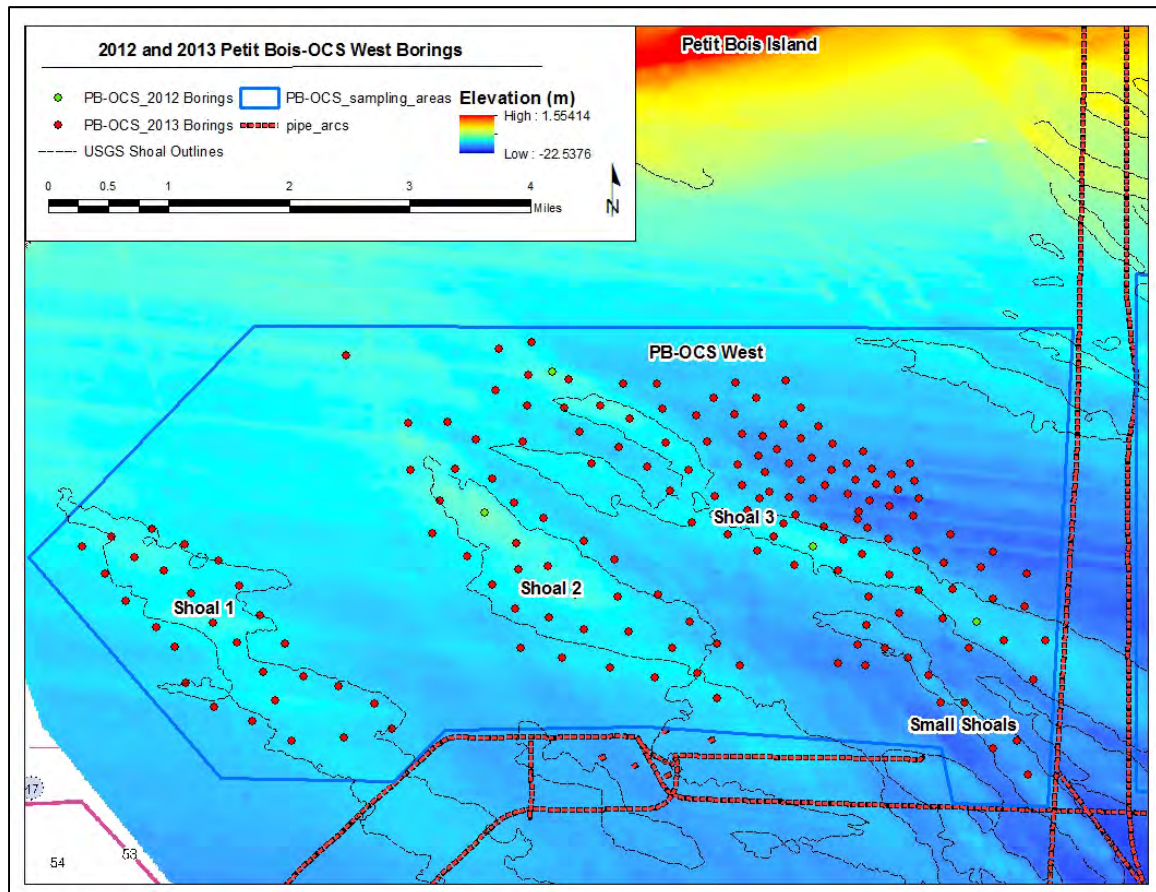


Figure 5.2.11.1.1 Petit Bois Pass-OCS West with major shoal outlines.

**Shoal 1:** Shoal 1 is a relatively low-relief feature (approximately 4-5 feet from shoal base to crest at the seaward end) located approximately 5.2 miles south of the western tip of Petit Bois Island (Figure 5.2.11.1.2). It is approximately 3.6 miles long, 0.7 miles wide at the northwest end, and 0.8 miles wide at the southeast end. Ambient water depths range from approximately 43 to 47 feet. The vibracores indicate that the shoal does contain significant sand deposits, ranging from 1.7 to 15.5 feet thick. However, composite D50 grain size for the vibracores in this area ranges from 0.14 mm to 0.25 mm, with an average of 0.18 mm. This grain size is too fine for the project and eliminates this area from further consideration as a borrow area.

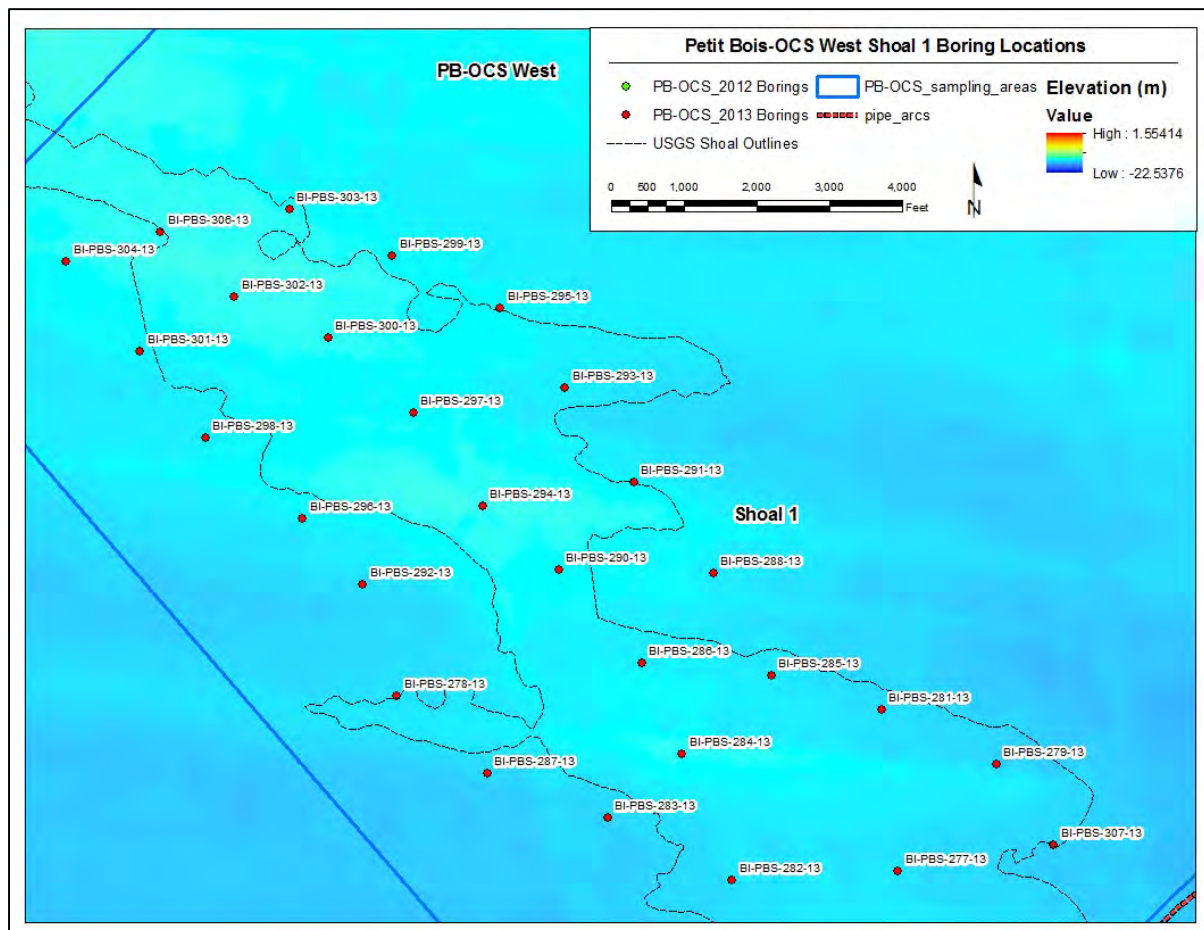
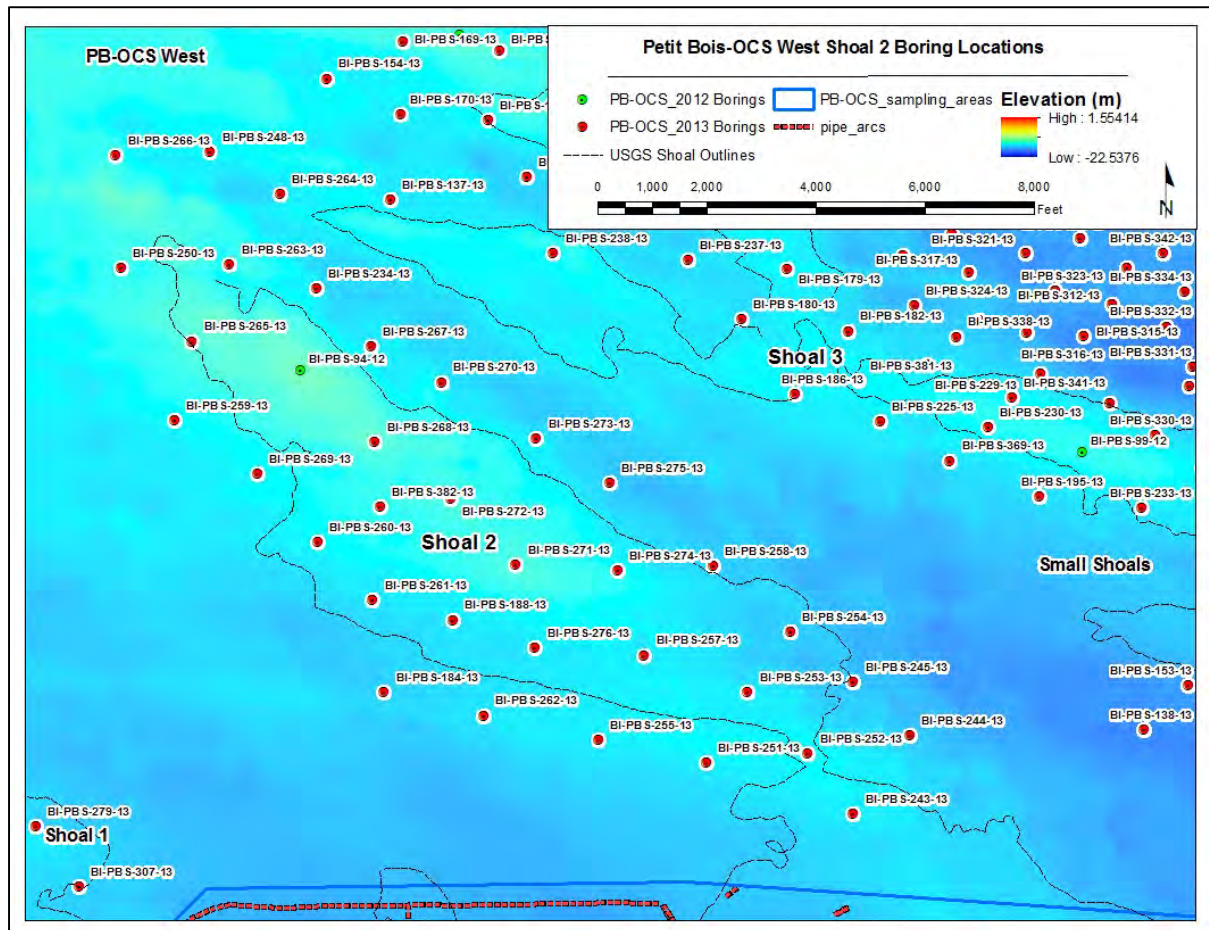


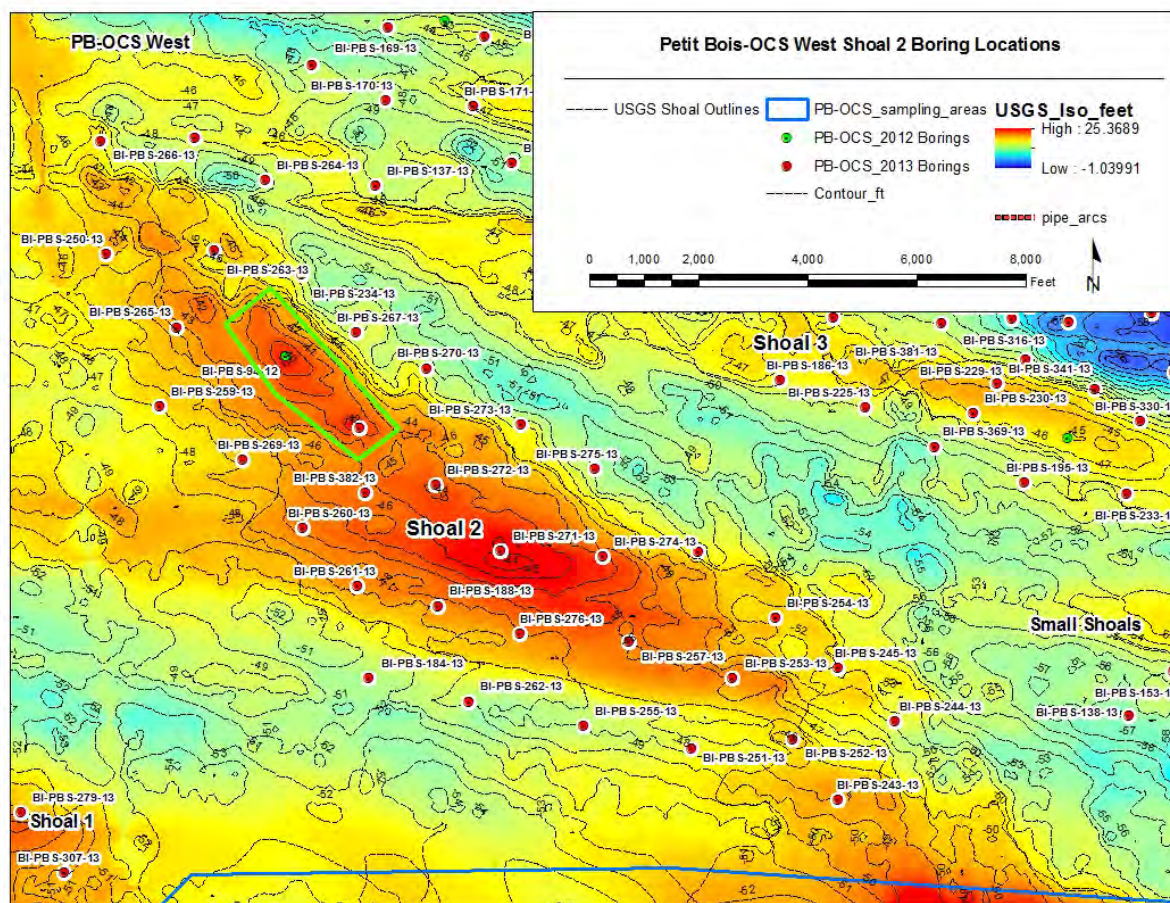
Figure 5.2.11.1.2 Petit Bois Pass-OCS West, Shoal 1 vibracores.



Shoal 2: Shoal 2 is located approximately 4 miles south of central Petit Bois Island and directly east of Shoal 1. It is approximately 3.8 miles long, 0.8 miles wide at the northwest end, and 0.7 miles wide at the southeast end. Its boundaries fluctuate throughout its length, making it appear to be composed of several smaller shoals. Ambient water depths in this area range from approximately 39 to 53 feet. It is slightly more pronounced bathymetrically than Shoal 1, ranging from 6 to 7 feet from shoal base to crest at the seaward end north of the pipeline. The shoreward face (northern side) has slightly steeper sides than the seaward face (southern side). The vibracores indicate that it has clean sand deposits with thicknesses ranging from 0.6 to 10.7 feet, and an average thickness of approximately 4 feet throughout the sampling area. The thickest exposed deposits are along the shoal crest. The composite D50 per vibracore ranged from 0.15 mm to 0.33 mm, with an average of 0.20 mm. The USGS's isopach for this area (Figure 4.2.2) does indicate that there is a thicker deposit of sand in the middle of the shoal. Two vibracores, BI-PBS-268-13 and BI-PBS-94-12, were sampled in this area and confirmed that the thickness and textural characteristics are adequate for dredging (Figure 5.2.11.1.4). A very small borrow area may be able to be designed using these vibracores as its center. D50 ranged from 0.25 to 0.26 mm and thickness ranged from approximately 8.3 to 10 feet. The area influenced by these two vibracores is approximately 85 acres, but could probably be expanded provided adequate mixing of dredged material is occurring to raise the composite grain size of the material. Cut thickness and area would need to conform to the bathymetry of the shoal. Sand deposits with suitable grain sizes surrounding these vibracores are typically only surficial and the sands tend to grade finer with depth. As a result, the cut depths required to get only the coarser sand may be too thin to be practical. Outside the two central vibracores, the majority of samples in this area indicate the sand is either too fine or too thinly-bedded for use with the project. Figure 5.2.11.1.4 outlines the location of these vibracores, which are underlain by the USGS's isopach for the shoal.



**Figure 5.2.11.1.3 Petit Bois Pass-OCS West, Shoal 2 vibracores.**



**Figure 5.2.11.1.4 Petit Bois Pass-OCS West, Shoal 2 with USGS Isopach showing potential borrow material vicinity vibracores BI-PBS-94-12 and BI-PBS-268-13.**

**Shoal 3:** Shoal 3 is located approximately 4 miles south of Petit Bois Island and less than 1 mile northeast of Shoal 2 (Figure 5.2.11.1.1). It is oriented northwest-southeast and is approximately 7 miles long, 0.9 miles wide at the northwest end, and 0.5 mile wide at the southeast end. It extends beyond the pipelines into the southwest corner of investigation area PBP-OCS East. It contains the greatest bathymetric relief of the three shoals within the sampling area, approximately 9 to 11 feet from shoal base to crest. Its landward face (north side) is steeper than the seaward face. It was initially sampled in 2012 in two locations, BI-PBS-99-12 and BI-PBS-101-12. Both vibracores indicated that the shoal has a veneer of poorly graded sand (SP) with trace shell hash underlain by silty sand that grades to clayey sand. Grain size typically grades finer with depth for the sands. The 2013 sampling event expanded on these vibracores to gain a better understanding of the shoal structure. Figure 5.2.11.1.5 shows the vibracores conducted on and around the shoal, with the majority of the shoal outlined with a pink polygon. Using the north-



south pipeline as a dividing line in the east, the western side of the shoal (in the PBP-OCS West investigation area) can be divided into three sub-sections based on its morphology.

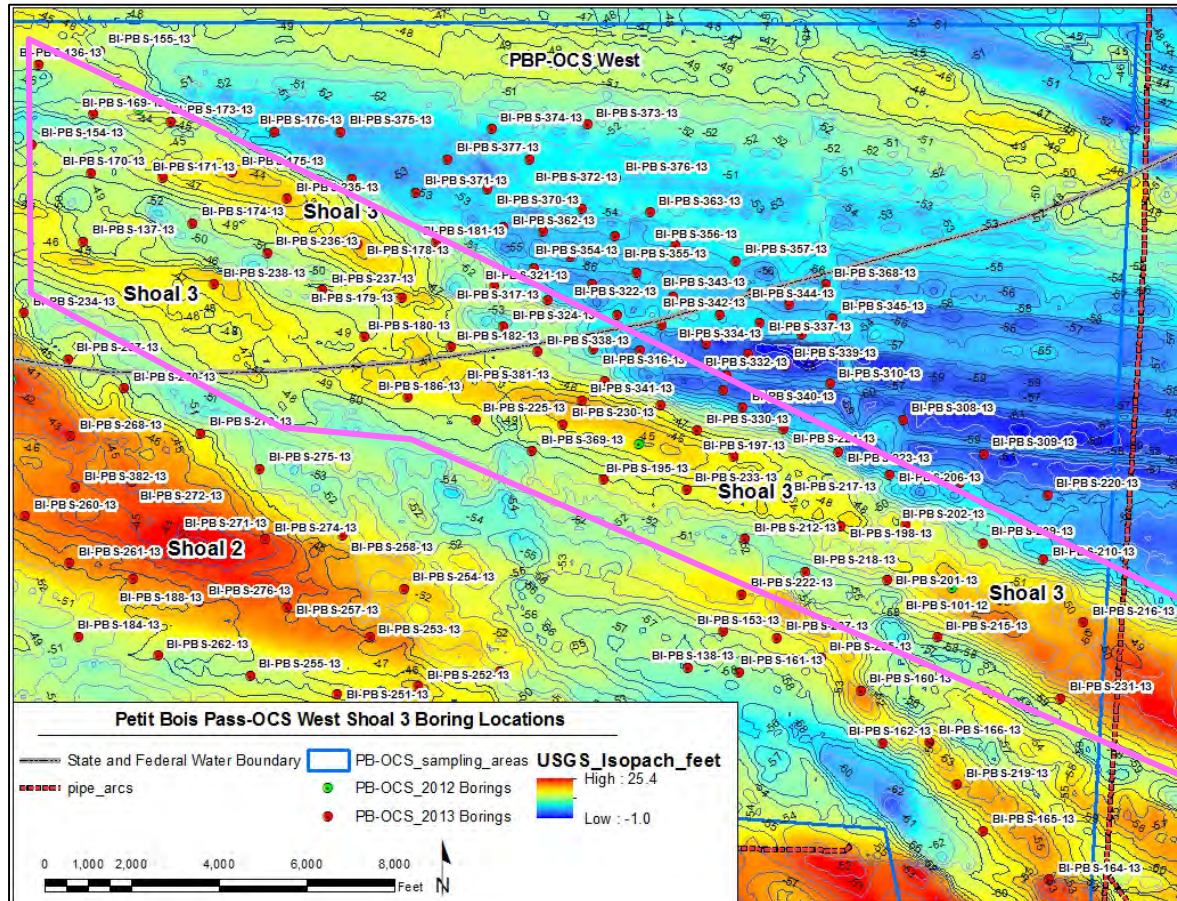
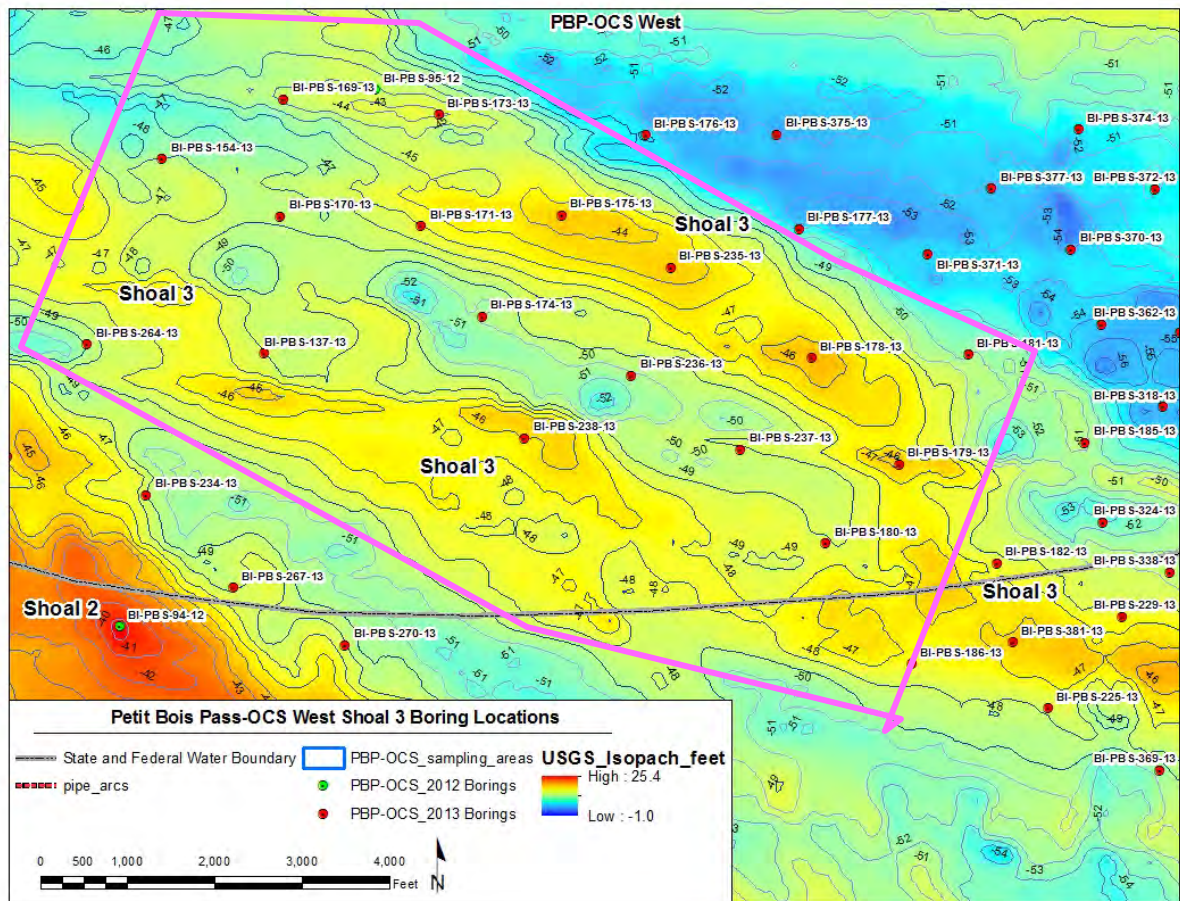


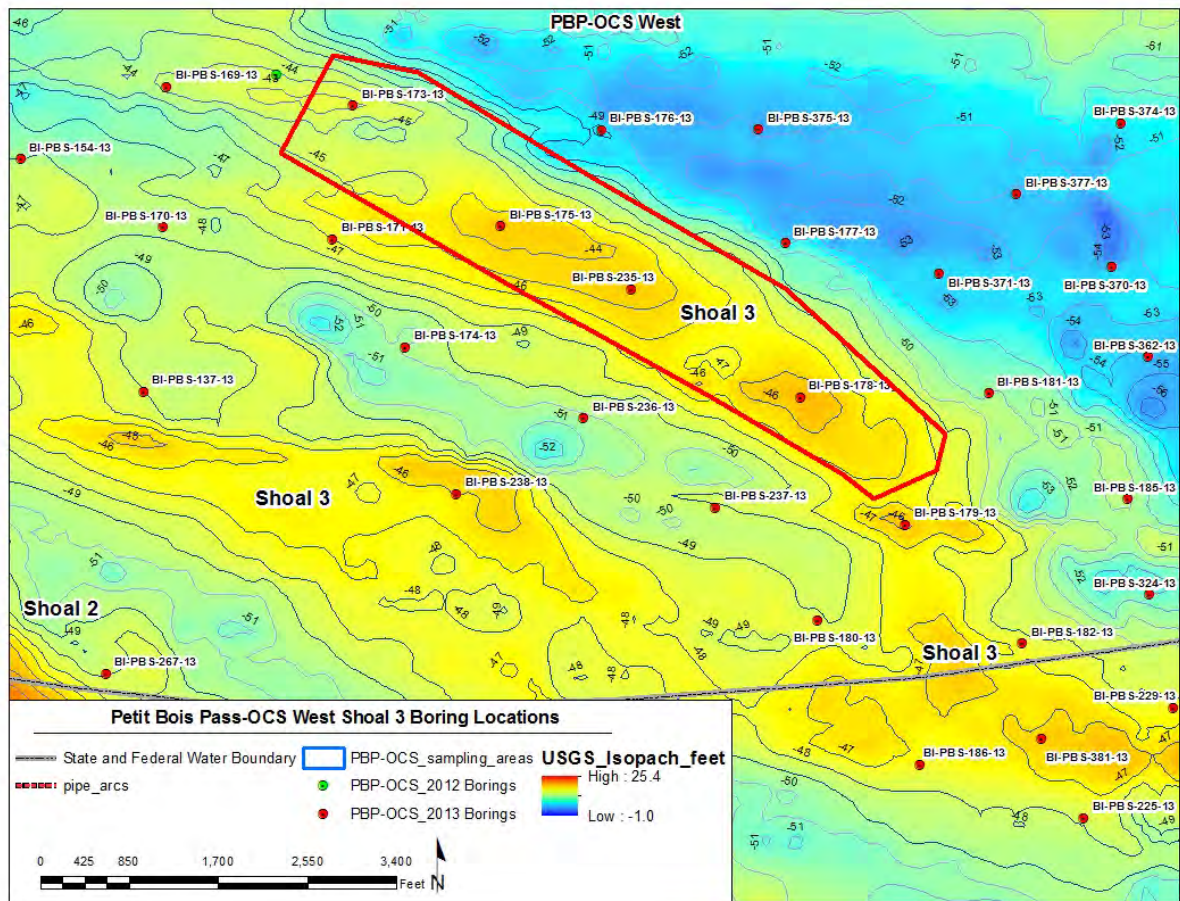
Figure 5.2.11.1.5 Petit Bois Pass-OCS West, Shoal 3 vibrocore locations.

Within the westernmost third (Figure 5.2.11.1.6), the shoal has a large trough dividing that section into northern and southern halves. Ambient water depths range from approximately 44 to 53 feet. Sampling in the northern half indicates that the shoal consists of a sandy deposit with adequate thickness and grain size for this project. The deposit spans the area from vibrocore BI-PBS-173-13 to BI-PBS-178-13 (Figure 5.2.11.1.7). Suitable sand thickness ranges from approximately 4.2 feet to 9.0 feet. The deposit is thickest at the shoal crest and tapers down at the side slopes according to the bathymetry and the USGS's isobath. Median grain size ranges from 0.26 to 0.28 mm within the vibrocores. Percent fines and color are also within acceptable limits.



**Figure 5.2.11.1.6 Western end of Petit Bois Pass-OCS West, Shoal 3 with USGS Isopach showing potential borrow material thicknesses.**





**Figure 5.2.11.1.7 Petit Bois Pass-OCS West, Shoal 3 (northwest side) suitable borings outlined in red.**

Suitable sand in the southern half is not as extensive. Vibracore BI-PBS-238-13 is located on the thickest portion of the southern half of the shoal and contains a 7.0 ft-thick layer of SP material. The grain size is borderline acceptable at 0.26 mm, but the color and percent fines are acceptable. The remainder of the vibracores along this portion of the shoal contain sand thicknesses ranging from less than a foot to 4.8 feet thick. However, grain size for these vibracores is too fine for use. This portion of the shoal is underlain by clay, typically at an elevation ranging from approximately -50 to -58 ft NAVD88. Geophysical data for the shoal does show that there is sandy material available, but the vibracore textural data along this portion of the shoal is too spread out to really determine whether this deposit contains suitable borrow material to make it feasible to mine.

The center area of the shoal contains more bathymetric relief than the northern third of the shoal. Figure 5.2.11.1.8 displays this portion of the shoal (pink line) with the

USGS isopach for the background. Ambient water depths range from approximately 45 to 56 feet. The isopach for the area (in feet) shows red where possible sand deposits are thickest and thins to blue. Greater sand thickness is evident on the shoal as anticipated, which correlates to the borings, but it is also thick off the northern side of the shoal (Figure 5.2.11.1.9) in the vicinity of borings BI-PBS-190-13 and BI-PBS-194-13. This thick deposit of sand, which extends to the north in this area, outlined in pink, was identified by the USGS's geophysical survey as being sandy fill in a relict Pleistocene distributary system. Ambient water depths range from approximately 50 to 59 feet. The strata consists of deposits of sand, silty sand, and clay in varying thicknesses and orientations. The clay stratum thickens to the south and west, terminating expansion in this area because, although the sand deposit on top of this clay has suitable characteristics, it thins out too much to be mined economically. Towards the north, the sand deposits become thicker and contain adequate grain size, percent fines, and color. There is a layer of overburden to the west and northwest that is too thick (>2 ft) to adequately mine the sand and still have composite textural characteristics that meet criteria (vic. BI-PBS-185-13). This overburden then thins out further north to expose an area with little overburden and adequate sand characteristics (vic. BI-PBS-361-13 to BI-PBS-334-13). Sampling indicates that the sandy deposit becomes finer grained towards the north and west, making expansion in this area not feasible due to grain size compatibility. Clay overburden thickens to the east and northeast, making it unfeasible to expand into this area. Based on these restrictions, the area directly adjacent to the shoal should be mineable, as well as the northwest-southeast sandy deposit located to the north of the shoal, extending from BI-PBS-361-13 to BI-PBS-334-13.

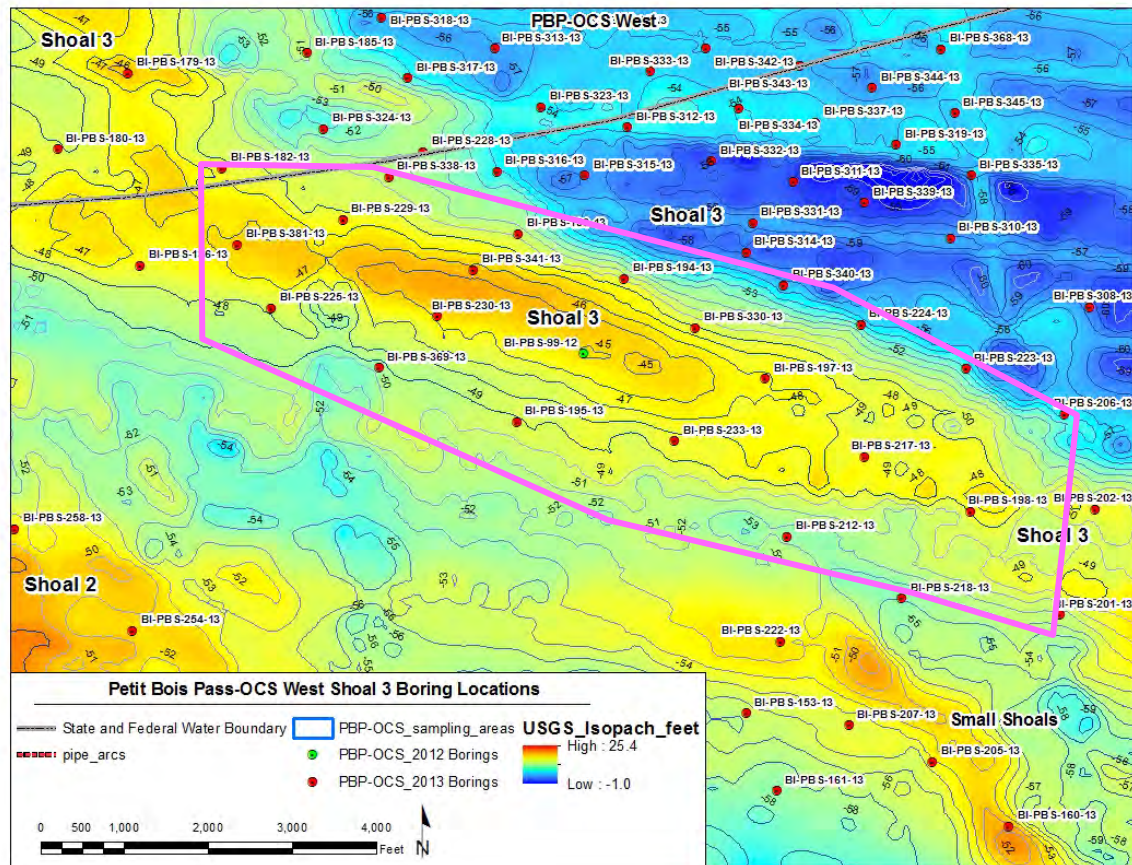
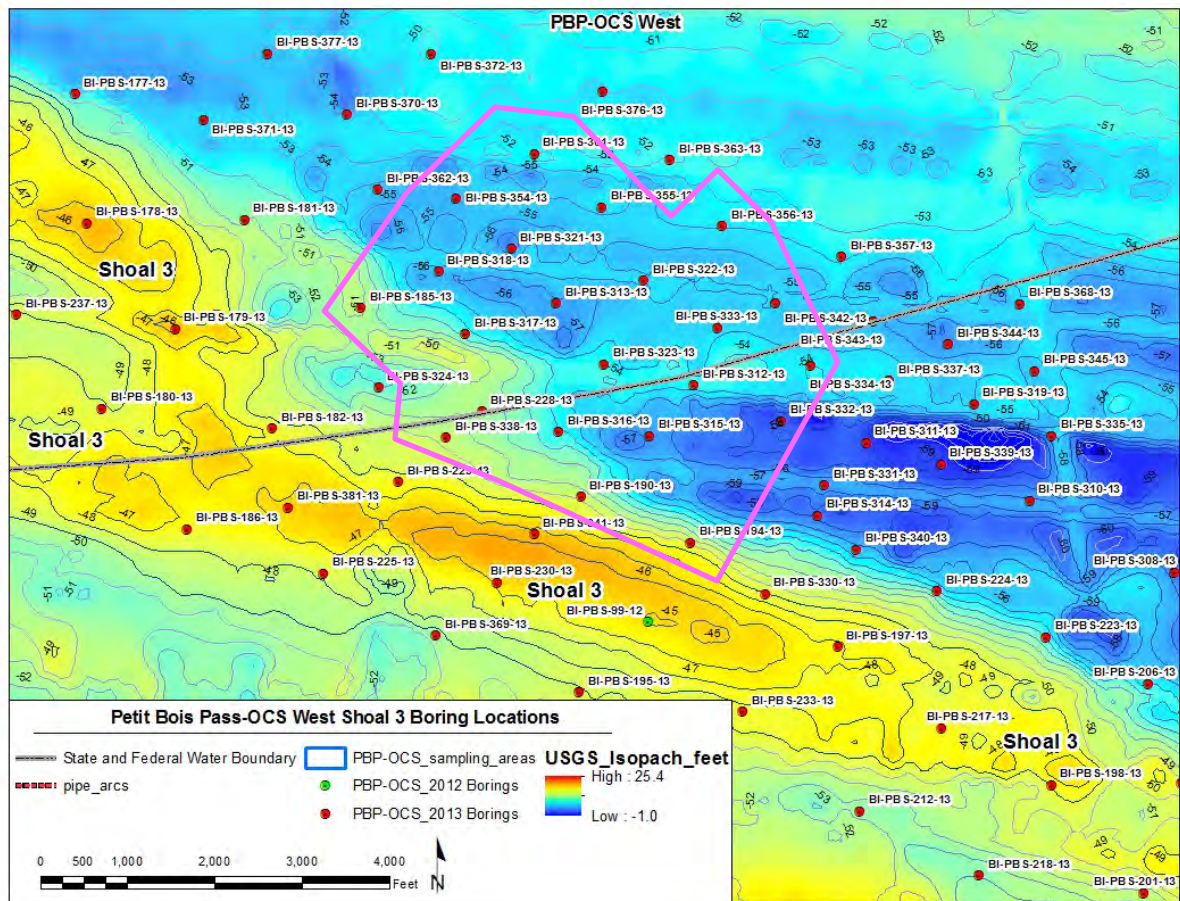


Figure 5.2.11.1.8 Central portion of Petit Bois Pass-OCS West, Shoal 3 with USGS Isopach showing potential borrow material thicknesses.





**Figure 5.2.11.1.9 Sandy fill area adjacent to central portion of Petit Bois Pass-OCS West, Shoal 3 with USGS Isopach showing potential borrow material thicknesses.**

The eastern portion of Shoal 3 extends past the pipelines and into the PBP-OCS East investigation area (Figure 5.2.11.1.10). The portion of the shoal immediately west of the pipelines was sampled in 2012 (BI-PBS-101-12) and appeared to contain an approximately 7.0 ft thick surficial deposit of sand over an equally thick deposit of clay. However, the 2013 sampling event has shown that the surficial sand deposit ranges from 1.2 ft to 7.7 ft. thick, depending on its location along the shoal. Ambient water depths range from approximately 48 to 57 feet. The thickest deposits are located along the crest of the shoal, tapering off to the sides. D50 grain size is coarsest along the crest of the shoal, ranging in the 0.28 to 0.31 mm size. Grain size typically decreases with depth of the deposit. Color and percent of fine sediments are also within suitable limits along the shoal crest. Unfortunately, the sand deposit is underlain by a clay deposit that is too thick (>2 ft) for deeper mining potential.



The easternmost portion of Shoal 3 is located approximately 6.1 miles southeast of the eastern tip of Petit Bois Island. It is bounded by pipelines to the west and south. Ambient water depths range from approximately 48 to 68 ft. Based on the vibracores, sand (SP) thicknesses on the shoal ranged from 1.2 to 11.3 ft, with an average thickness of 4.9 ft. Three vibracores along the crest of the thickest portion of the shoal contained sand thicknesses ranging from 8.1 to 11.3 feet, and a weighted average D50 of 0.27 mm. Their percent fines range from 1.3 to 3.0%. Its average dry Munsell Color Value is 6, with a typical dry Munsell color of light olive gray. It is slightly darker than preferred, but still acceptable sand. Borrow areas in both the eastern and western portions of this section of Shoal 3 are restricted to the shoal body, as vibracores indicate poor sediments outside of the shoal boundaries.

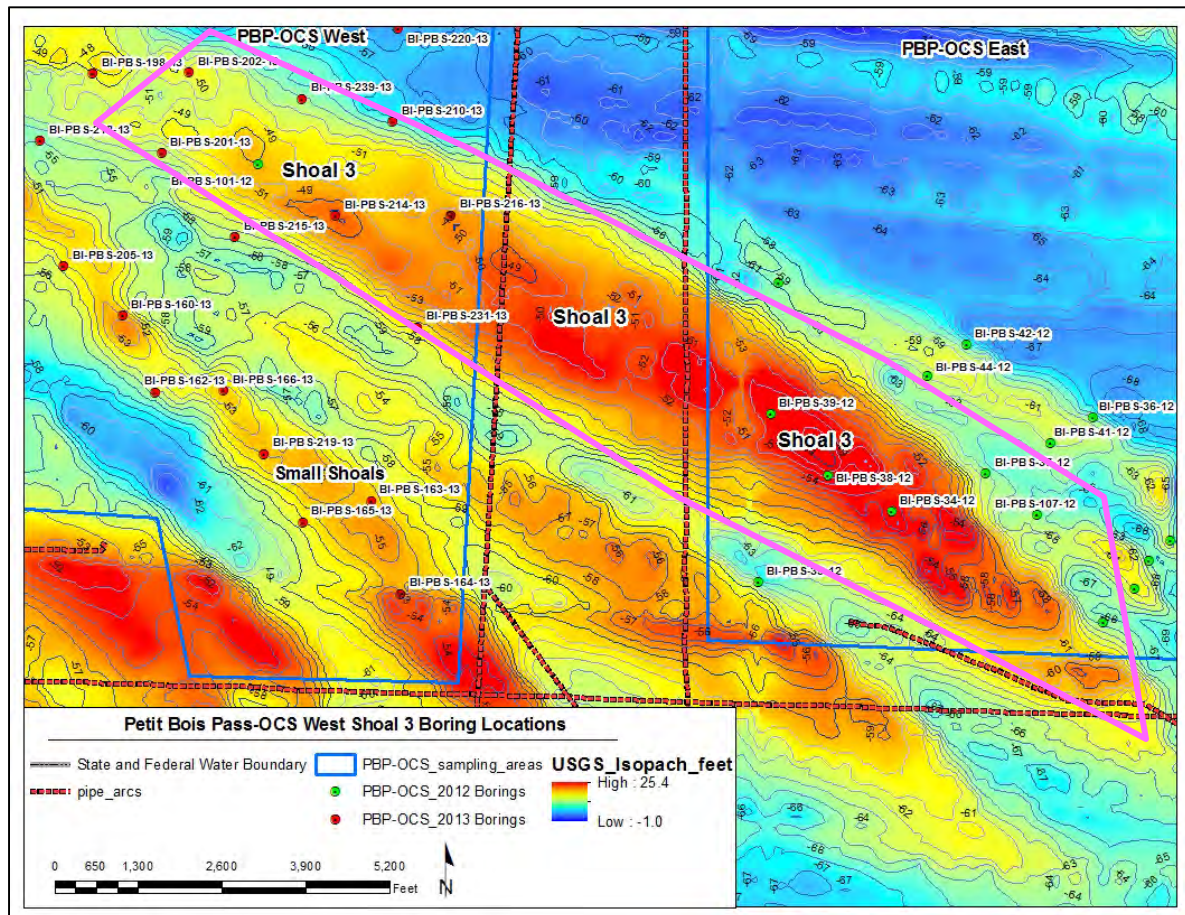


Figure 5.2.11.1.10 Eastern third of Petit Bois Pass-OCS West, Shoal 3 with USGS Isopach showing potential borrow material thicknesses. The shoal extends across two pipelines into PBP-OCS East investigation area.



## 5.2.11.2 PBP-OCS East Investigation Area

The PBP-OCS East investigation area is located approximately 5.5 miles south of the eastern tip of Petit Bois Island and immediately east of the two pipelines running north-south through Petit Bois Pass (Figure 5.2.11.2). This area is also bounded in the south and east by pipelines. The majority of this investigation area is located in Federal waters, with ambient water depths ranging from approximately 44 to 68 feet. There are numerous shoals located throughout the area, but the largest are located towards the center of the investigation area. Shoal 3 from the PBP-OCS West investigation area runs through the southwest corner of this investigation area. The remainder of the seafloor is relatively flat and has a gradual grade dipping to the southeast. Figure 5.2.11.2 shows the major shoals in the investigation area.

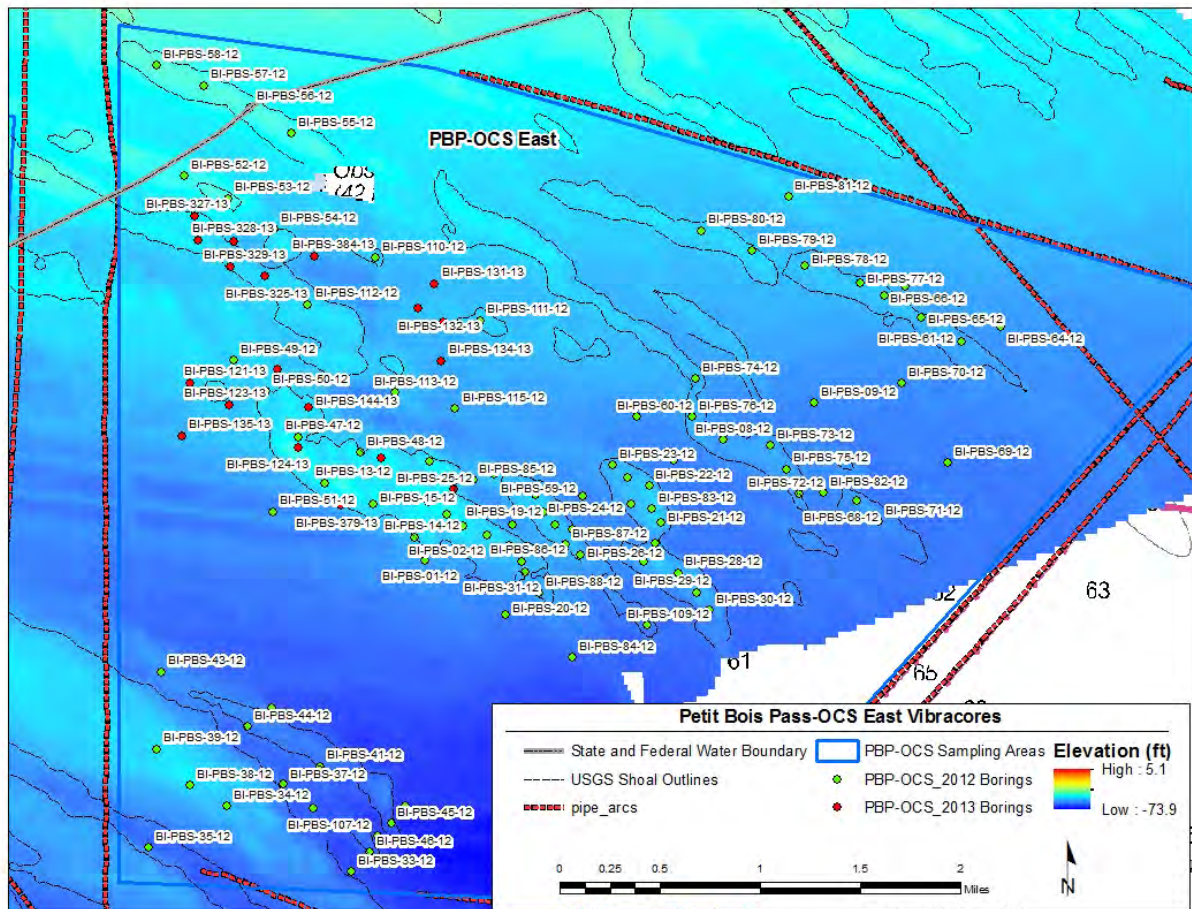


Figure 5.2.11.2 Petit Bois Pass-OCS East Investigation Area with vibracore locations.

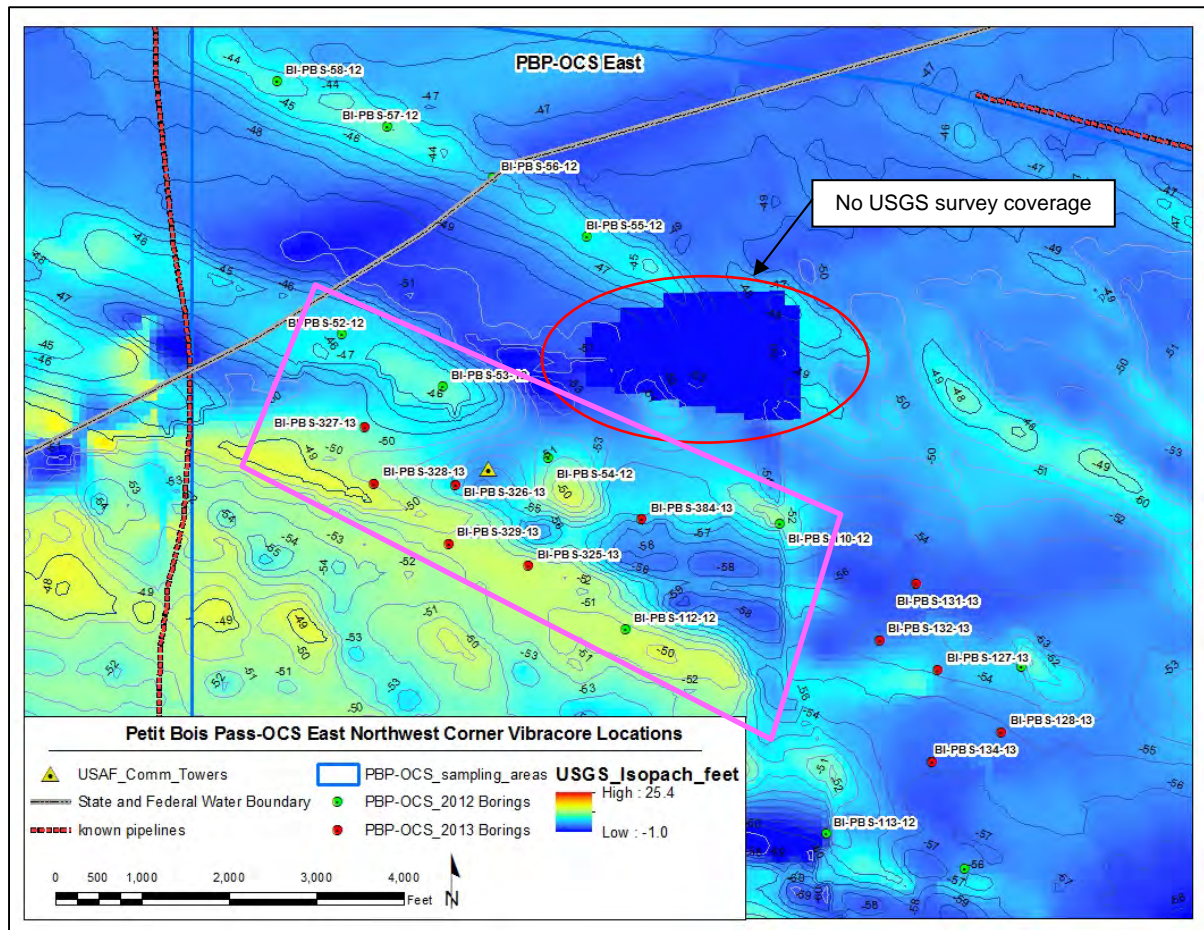
**5.2.11.2.1 PBP-OCS East, Northwest Corner**

The northwest corner of the PBP-OCS East Investigation Area is located approximately 4 miles southeast of the eastern tip of Petit Bois Island (Figure 5.2.11.2.1). Ambient water depths range from approximately 43 to 60 feet. Ten (10) vibracores were completed in this area in 2012 and an additional 16 vibracores in 2013. The intent of the sampling in this area was to investigate the smaller shoals indicated by the USGS' geophysical survey from 2010 and 2013. The background of the map in Figure 5.2.11.2.1 is the USGS' sand isopach for the area.

The four vibracores along the northernmost shoal (BI-PBP-OCS-55-12 through BI-PBP-OCS-58-12) contain a surficial layer of poorly graded sand (SP), underlain by clayey sand and then clay. Thickness of the SP layer ranges from 2.6 to 3.8 ft. D50 grain size ranges from 0.33-0.34 mm. Percent fines ranges from 1.4%-2.3%. Dry Munsell Color Value is 7 for all samples. Generally, grain size decreases with depth, while percent fines increases with depth. Color also typically becomes darker with depth. This area was not considered for further evaluation because the deposits are too thin for efficient dredging and they extend into Alabama state waters.

A larger shoal complex runs through the middle of the sampling area from the west just south of the shoal mentioned previously (pink outline in Figure 5.2.11.2.1). Three of the five 2012 vibracores contained suitable thicknesses of poorly graded sand ranging from 5.5 to 9.5 ft., and composite D50s of 0.33 mm, percent fines of less than 4% and typical dry Munsell Color of Light Gray with dry Munsell Value between 6 and 7. However, additional vibracores during the 2013 sampling event showed that the sediment along the shoal from BI-PBS-327-13 through BI-PBS-325-13 was too fine grained or too thinly bedded for use with the project. Vibracores directly east of this shoal indicate similar issues with fine grain size or thin bedding. Color is also darker in this area, with Munsell values hovering around 5 and 6.

A U.S. Air Force communications tower is located between BI-PBS-326-13 and BI-PBS-54-12. It requires a specific buffer to avoid accidental damage during construction and would affect borrow area perimeter shape.



**Figure 5.2.11.2.1** Completed vibracores for the northeast corner of the Petit Bois Pass-OCS East investigation area with USGS sand isopach as background. Note: there is a U.S. Air Force communications tower (yellow triangle) in the area that requires a buffer.

#### 5.2.11.2.2 PBP-OCS East, Central Shoal Complex

The PBP-OCS East central shoal complex is located approximately 5.7 miles southeast of the eastern tip of Petit Bois Pass-OCS Island. Ambient water depths range from 44 to 63 ft. There are three major northwest/southeast-running shoals displaying significant sandy substrate thicknesses in this area based on the USGS' geophysical survey. The off-shoal area consists of gently undulating seafloor dipping generally towards the southeast. Vibracores in this area primarily targeted the four shoals, with some taken off-shoal to determine if there are any significant buried paleo channels. Within the vibracores, grain size typically decreases with depth, while percent fines increases with depth. Also, color typically becomes darker with depth, usually as a consequence of increasing fines. Sand bed

thickness decreases considerably off the shoals. Figure 5.2.11.2.2 shows the vibracores taken in the area.

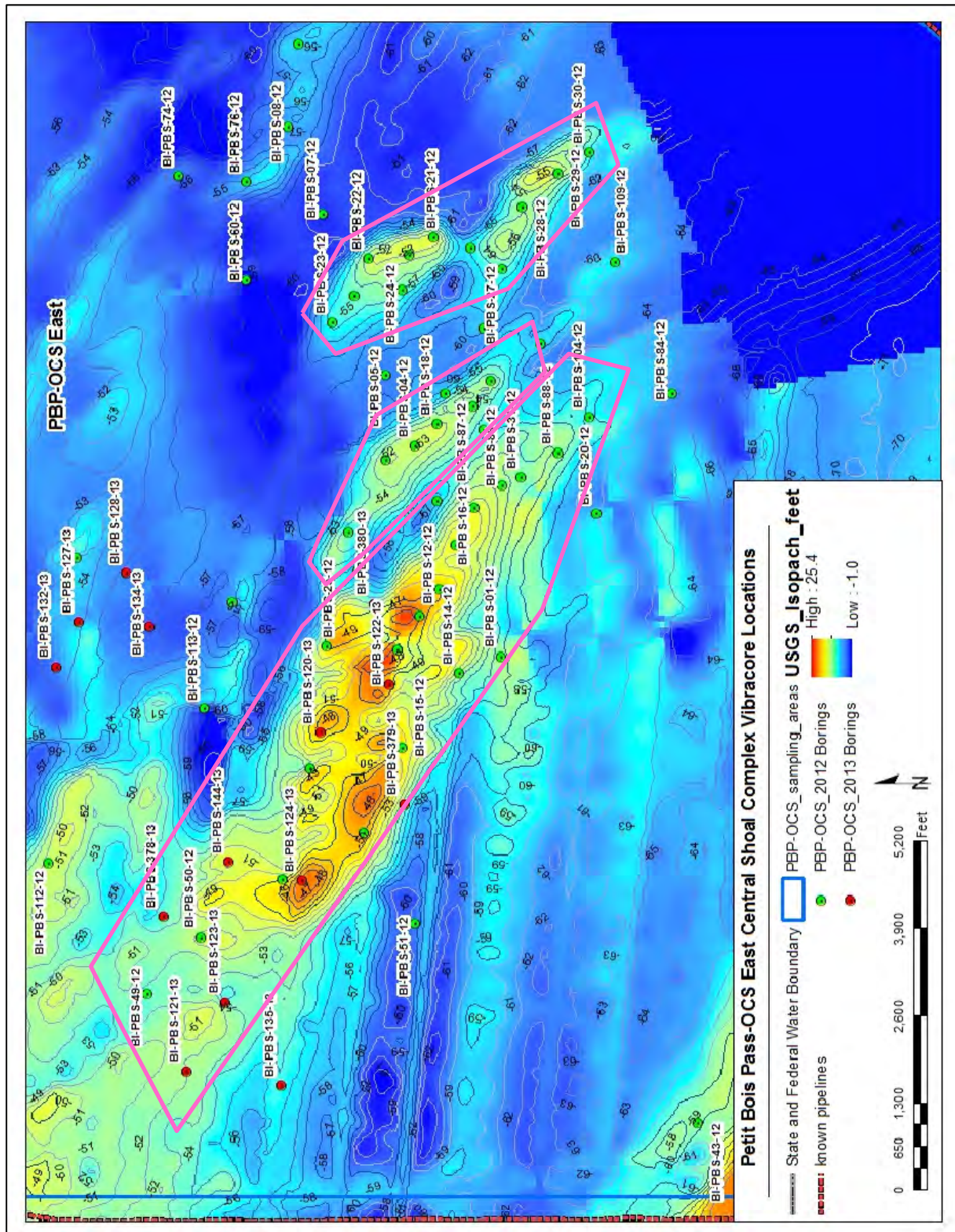
Starting with the western shoal, the vibracores contained a surficial layer of poorly graded sand (SP), with thicknesses ranging from 0.4 to 10.4 ft. with an average thickness of 5.1 ft. and composite D50 grain size ranges from 0.20 to 0.37, with an average D50 of 0.26 mm. Percent fines range from 1.2% to 14.5%, with an average of 4.7%. Dry Munsell Color Value ranges from 5 to 7.5, with a typical light gray color.

The middle shoal's vibracores contained SP thicknesses ranging from 1.0 to 8.6 ft with an average thickness of 4.7 ft. Composite D50 grain size ranges from 0.21 to 0.5 mm, with an average D50 of 0.30 mm. Percent fines range from 1.7 to 3.8% with an average of 2.5%. Dry Munsell Color Value ranges from 6 to 7, with a typical light gray color.

The eastern shoal's vibracores contained SP thicknesses ranging from 2.3 to 7.7 ft., with an average thickness of 4.9 ft. Composite D50 grain size ranges from 0.17 to 0.66 mm, with a weighted average D50 of 0.30 mm. Percent fines range from 2.2 to 14.9%, with an average of 5.4%. Dry Munsell Color Value ranges from 5 to 7, with a typical light gray to light olive gray color.

The thickest portions of sand correspond with the shoal crests. Off the shoals, the vibracores indicate a drastic reduction in the thickness of sandy deposits. This corresponds with the geophysical survey results from 2010 and 2013. Typically, D50 grain size also begins to grade smaller in the more southern shoals.





**Figure 5.2.11.2.2 Completed vibracores for the Petit Bois Pass-OCS East central shoal complex with bathymetric contours illustrating the main shoals in the area.**

## 5.2.11.2.3 PBP-OCS East, Eastern Shoals

The eastern shoals in PBP-OCS East are located approximately 5.9 miles south of the western tip of Dauphin Island. The majority of the area consists of gently sloping seafloor with a series of very small northeast-southwest oriented shoals. Of the 10 vibracores on and around the largest shoal, only two have a sand (SP) thickness greater than 4 ft (BI-PBS-76-12 and BI-PBS-68-12). Thicknesses range from 2.2 to 4.2 ft, with an average of 3.3 ft. D50 grain size ranges from 0.19 mm to 0.34 mm, with an average of 0.24 mm. Percent fines range from 2.7 to 13.3%, with an average of 8.2%. Dry Munsell color value ranges from 5 to 7 with a typical color of light gray to light olive gray.

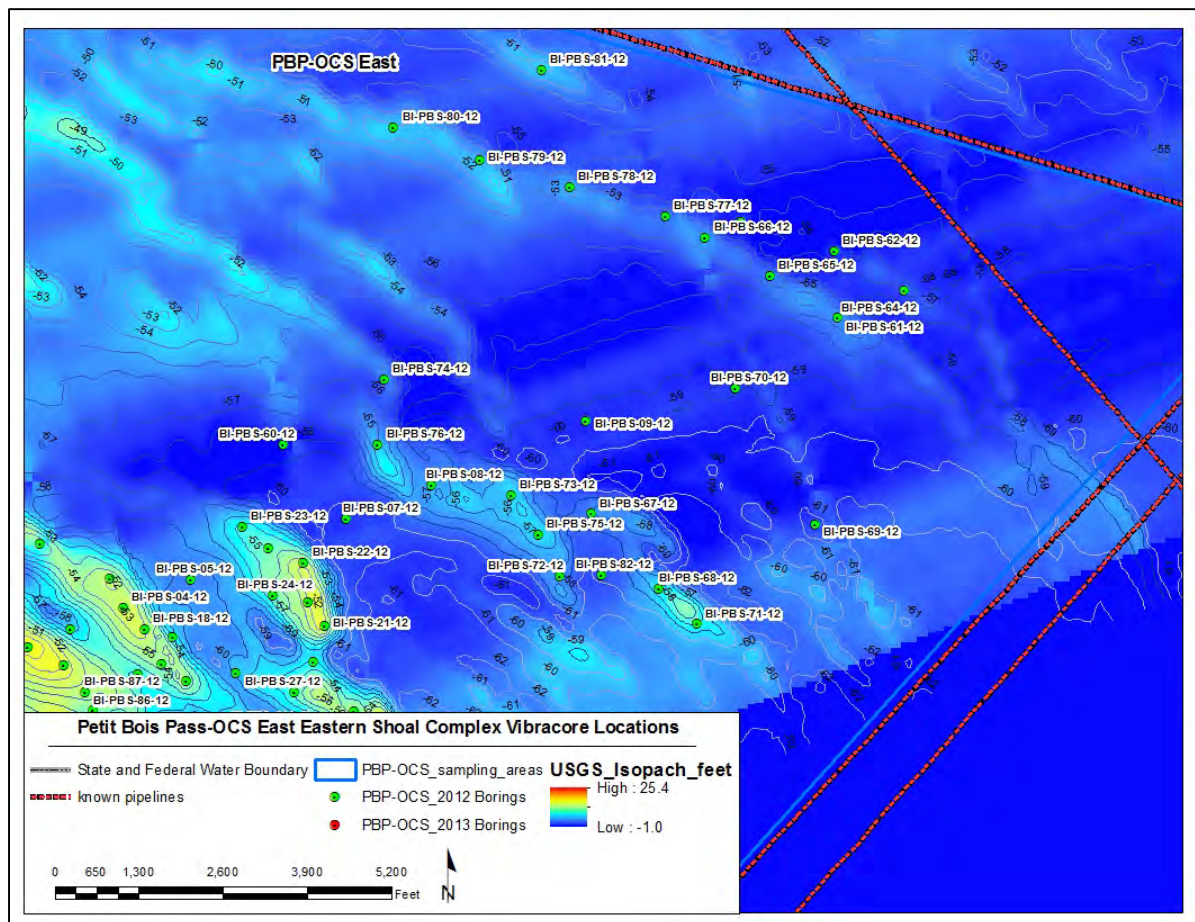


Figure 5.2.11.2.3 Completed vibracores for the Petit Bois Pass-OCS East eastern shoals investigation sub area with the USGS' isopach illustrating sandy substrate thicknesses.



There are no significant shoal features in the northeast section of PBP-OCS East, approximately 4.8 miles south of the western end of Dauphin Island. Ambient water depth ranges from 52 to 57 ft. Each of the vibracores in this area had a surficial layer of sand (SP), ranging in thickness from 0.8 to 3.2 ft. Within this veneer, D50 ranges from 0.18 mm to 0.32 mm, with an average D50 of 0.26 mm. Percent fines ranges from 1.6% to 11.6%, with an average of 5.1%. Its average dry Munsell Color Value is 6, with a typical color of light olive gray to light gray. Two vibracores, BI-PBS-62-12 and BI-PBS-63-12, had beach quality sand beneath silty and clayey sand layers. Unfortunately, these SM and SC layers are too thick (2.3 and 5.8 ft, respectively) for these to be considered feasible for borrow. In addition, the vibracores in the western half of this area were underlain by clay and silt, not sand. This area is not suitable for borrow material.

## 6.0 BORROW AREAS

Borrow area delineation is a complex task which requires balancing all available geological, hydrological, archaeological, and environmental constraints for a given site to maximize potential yields. It is an iterative process and is not necessarily linear, but the following descriptions outline the overall processes and tasks followed for the borrow area designs.

- Geophysical surveys are conducted to provide a large scale view of the geology in a particular study area and can identify potential sand bodies. They provide a subsurface view of a potential borrow area and can indicate the areal extent, thickness, and orientation of a sand deposit. They assist with identifying the horizontal and vertical boundaries of a delineated borrow site. They are somewhat limited in that they do not always “see” clay or silt layers and sediment sampling is necessary to physically validate their models.
- Vibracore samples are used to validate and improve the geophysical survey’s stratigraphic model and provide textural data (e.g. grain size, color, angularity, and fine sediment content) for the sediments in the different strata. They provide the ground-truth of what sediments are actually there and dictate if a sand body meets the established textural requirements for borrow material. They assist with data gaps when the geophysical survey cannot see certain strata due to the material type, e.g. clays, or subsurface gas (Figure 4.1.1.2).
- Bathymetric surveys provide the actual seafloor surface elevations for use in shaping the borrow area and determining dredge cut elevations and borrow quantities. These surveys are especially important for areas of varied relief, such as the area south of Petit Bois Island, where suitable sand deposits are contained mostly within the confines of shoals and the borrow area must conform to the shape and orientation of the shoal. The bathymetry also helps to understand the effects the borrow area’s side slopes will have on the areas adjacent to them.
- Archaeological surveys identify any potential objects of anthropogenic significance that must be avoided within the proposed borrow area. This can result in the borrow area either being reconfigured with a buffer around the object, or complete elimination of the site if the buffer proves too large for the area to be economically feasible to mine.
- Modeling is conducted on potential borrow sites that may potentially affect landforms or man-made structures post-dredging through wave-focusing or other altered hydrodynamic processes. The modeling gives an indication if the borrow area needs to be repositioned or reconfigured to reduce its influence.



- Thiessen polygon analysis is used to map each boring's influence on the sediment characteristics within the borrow area. This analysis gives the designer an idea of the shape needed to statistically maximize a particular boring's textural characteristics. This analysis technique works best on low relief areas. It does not do a good job accounting for inconsistent, undulating surfaces, like shoals, because the boring could be at the base of the feature and not have any effect on the top of the feature, even though the Thiessen polygon says that it should. However, this analysis technique offers a good starting point for determining borrow area shape in the absence of distinct geomorphic features that might otherwise dictate shape.
- Areal boundaries are drawn to best fit the extent of the suitable sand deposit, given the constraints identified by the geophysical survey, the vibracores, and the bathymetric and archaeological surveys. Subareas, or cells, are designed, as necessary, to optimize the dredgeable quantity within these boundaries by altering cut elevations to fit the deposit's orientation and thicknesses. Dredge equipment capabilities are another constraint that factors into the borrow area design. In particular, the bottom cut elevation needs to be adjusted to accommodate overdepth dredging caused by human error, environmental conditions, or mechanical limitations. Overdepth dredging can result in unsuitable material being dredged. Because of the difficulty in designing a borrow area on a convex surface such as a shoal, there are areas that are considered allowable dredge material, but not required for the project. The purpose of these allowable areas is to recognize that the material is suitable for the project, but that the difficulty in dredging it could increase project costs for the contractor. By making it optional, the contractor can decide if the cost is worth the effort to ensure the required quantities for the fill specifications are met. Several borrow areas have "Allowable" borrow cells. After the boundaries are established, volumes of the sand can be calculated for each area and subarea using software such as InRoads or ArcGIS. The textural characteristics of the sediment can then be calculated for each borrow area to ensure they meet the fill requirements established at the beginning of the investigation.

Using this process, USACE Mobile identified several potential borrow areas. The shape and dimensions of the borrow areas have been configured to maximize sand recovery while minimizing environmental impacts. Dredge equipment capabilities have also been considered in the designs. The following figures do not necessarily represent the final designs for the borrow areas, as future surveying or other pre-construction data may necessitate changes. Table 6.1 contains the current borrow area statistics.

Cat Island, Ship Island, DA-10, and Petit Bois Pass-AL East and West borrow areas have been modeled and their boundaries identified. Using their updated shapes and

projected dredging cut elevations, their projected volumes have been calculated using Bentley's InRoads software program. Area dimensions do not include the footprint of the estimated fall-in of the side slopes after dredging. Table 6.1 summarizes this information.

**SECTION 6****Offshore Sand Borrow Investigation, 2010-2014  
Identified Borrow Areas****Table 6.1 Borrow Area statistics**

<b><i>Borrow Area</i></b>	<b><i>Template Volume (mcy)<sup>2</sup></i></b>	<b><i>Area (Acres)<sup>3</sup></i></b>	<b><i>D50 (mm)</i></b>	<b><i>Percent Fines</i></b>	<b><i>Dry Munsell Value</i></b>
Petit Bois Pass-Alabama East	14.7	885	0.33	7	6
Petit Bois Pass-Alabama West	5.1	380	0.31	4	6
Petit Bois Pass-Mississippi	2.0	175	0.31	3	7
Petit Bois Pass-Outer Continental Shelf East	4.2	464	0.29	2	7
Petit Bois Pass-Outer Continental Shelf West	15.4	1,383	0.27	3.4	6
Horn Island Pass	4.9	612	0.28	4.4	7
Ship Island	2.7	183	0.21	6	7
Ship Island Pass <sup>1</sup>	0.45	20.9	0.48	< 1	6
Cat Island	4.3	429	0.20	5	6
Total	53.7				

<sup>1</sup>Ship Island Pass borrow material D50 and percent fines is derived from a proxy sample taken from the north shore of West Ship Island (see Section 5.2.4 Ship Island Pass for discussion).

<sup>2</sup>Borrow area template volume does not include estimated losses caused by dredging inefficiencies. Template volume includes the estimated required dredge volume and the estimated allowable dredge volume.

<sup>3</sup>Borrow area acreages are estimated based on cut bottom area and do not include side slopes.

## Cat Island

The design for the Cat Island borrow area been an iterative process due to wave and hydrodynamic modeling, coupled with expansion for additional material. Figure 6.1 shows the latest proposed borrow area. Its location is far enough offshore and its cut depth is relatively shallow to reduce significant wave focusing on the island. The new borrow area is separated into two cells with cut elevations of -18.5 feet NAVD88 (northeast half) and -19.5 feet NAVD88 (southwest half). Areally, it is approximately 1650 feet wide (northwest-southeast) by 10,100 feet long (northeast-southwest) and covers approximately 429 acres combined with an estimated volume of 4.3 mcy at an average cut depth of 5 feet. It has an average D50 of 0.20 mm and a dry Munsell value of 6. The average percentage of fines is expected to be 5%. Its grain size is finer than the original goal of 0.28 mm, but the close proximity to the island and the fact that the sand is being placed mostly on existing land rather than an open water cut, led to the design and use of this borrow area.

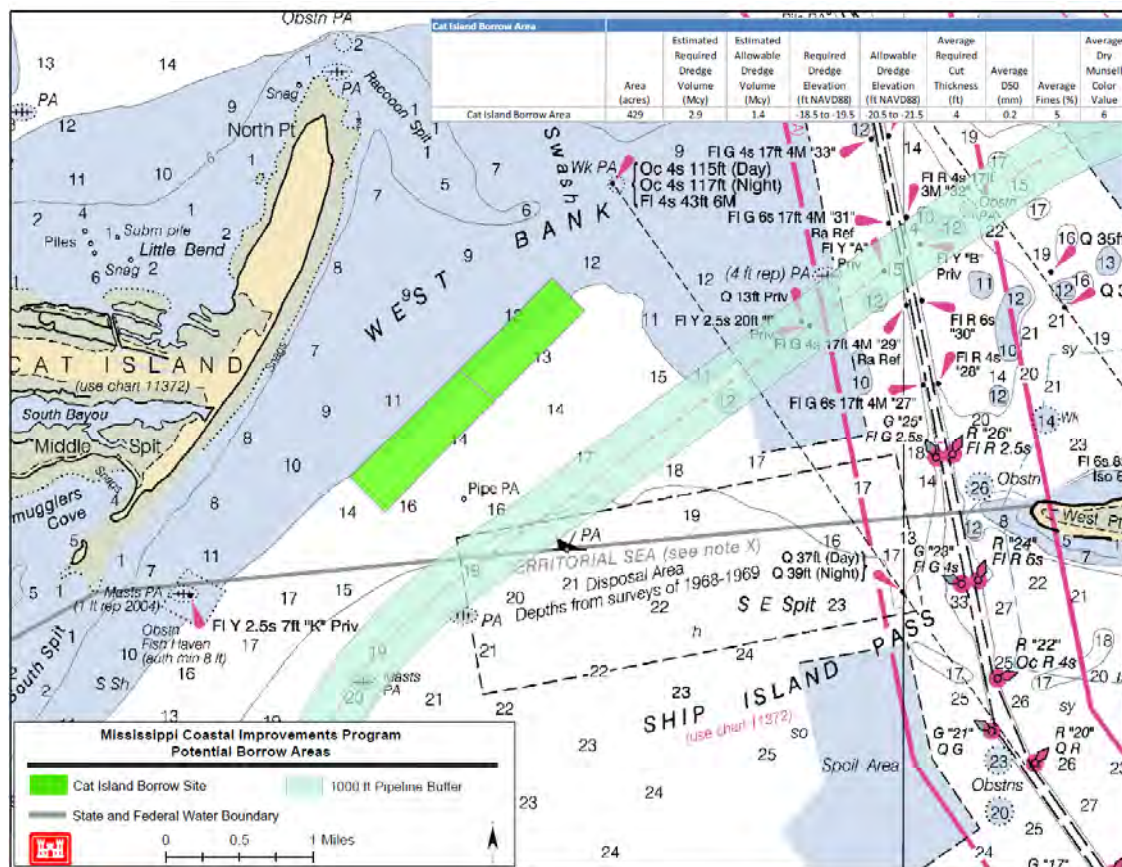


Figure 6.1 Cat Island Borrow Area



## Ship Island Pass

As discussed in Section 5.2.4, material for placement on the north shore of West Ship Island was identified at the western end of the island, in the vicinity of the old Gulfport navigation channel. Figure 6.2 shows the final location, orientation, and general shape of the borrow area used for the nourishment. The borrow area volume is estimated at approximately 450,000 cy with an area of approximately 20.9 acres. The proxy D50 grain size is 0.48 mm and the dry Munsell value is 6. The average percentage of fine material was approximately 1%.

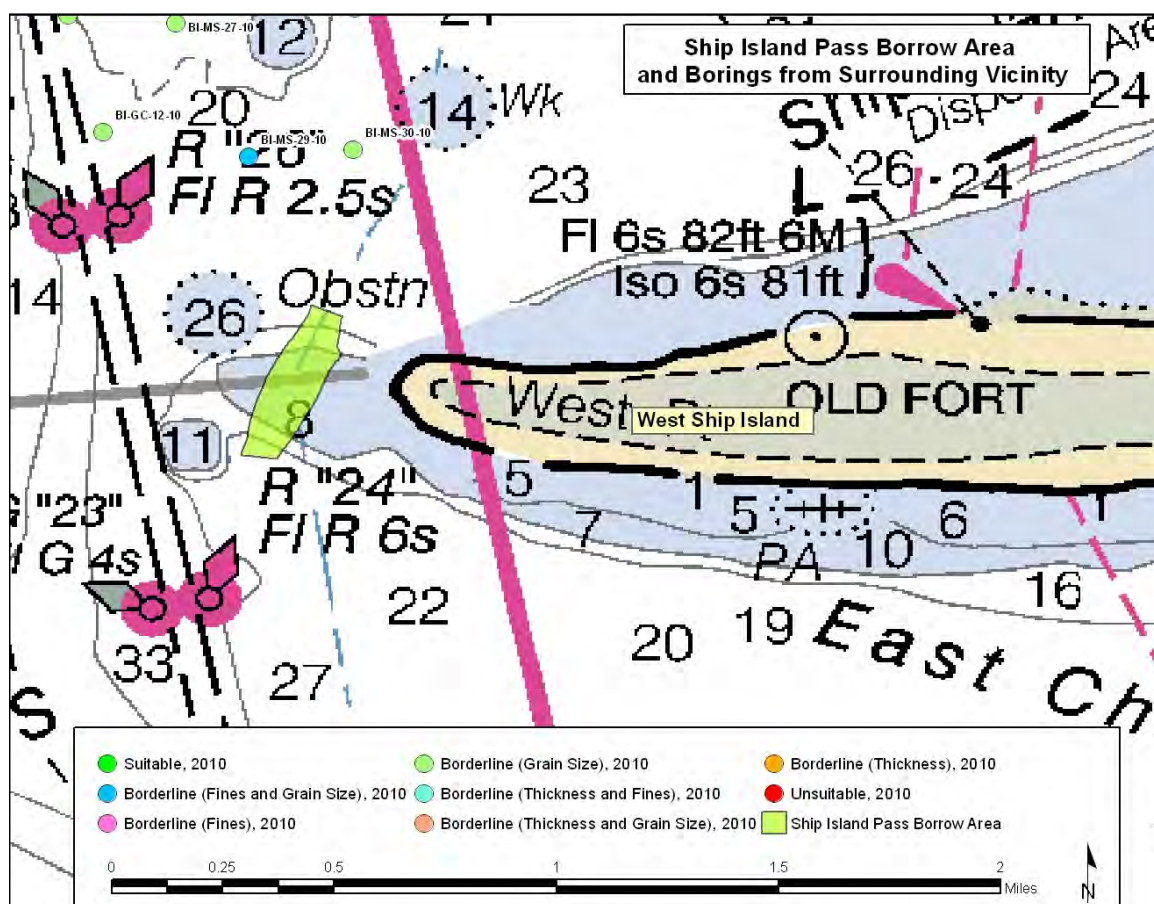


Figure 6.2 Ship Island Pass Borrow Area for north shore placement on West Ship Island

## Ship Island

A potential borrow area was identified south of Ship Island. It has fine grain sand-sized sediments and thus is limited in its use within this project. Figure 6.3 shows the location, shape, and orientation of the borrow area. Despite the relatively large

sand deposit identified by the USGS' geophysics and the USACE vibracores, hydrodynamic modeling has played a role in reducing the extent and depth of the borrow area to mitigate its effects on the wave climate approaching East and West Ship Island. It is approximately 600 feet wide (north-south direction) and 6,000 feet long (east-west direction) covering a total area of approximately 96 acres with an average cut thickness of approximately 8 feet. It has an estimated volume of 2.7 million cubic yards and average D50 grain size of 0.21 mm. Dry Munsell color is expected to range from light brownish gray to light gray with an average dry Munsell value of 7. The average percentage of fines is expected to be approximately 6%.

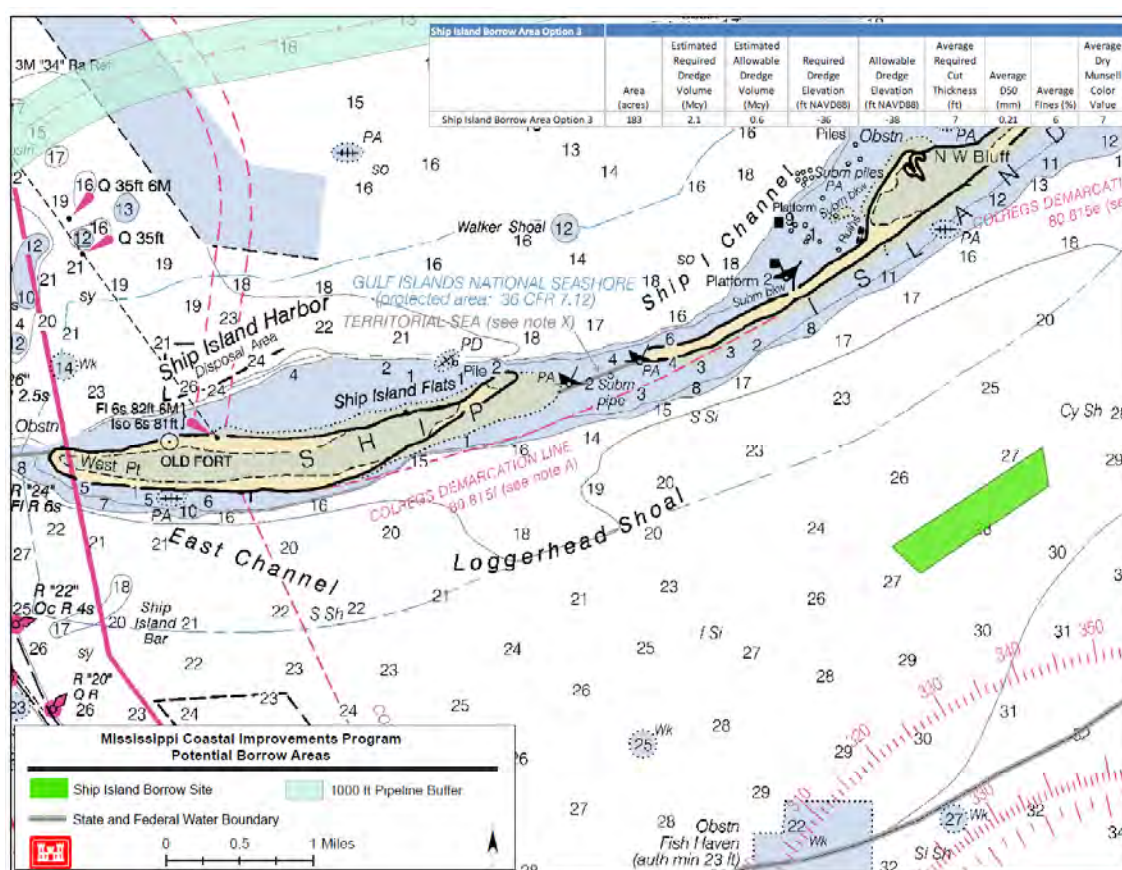


Figure 6.3 - Ship Island Borrow Area

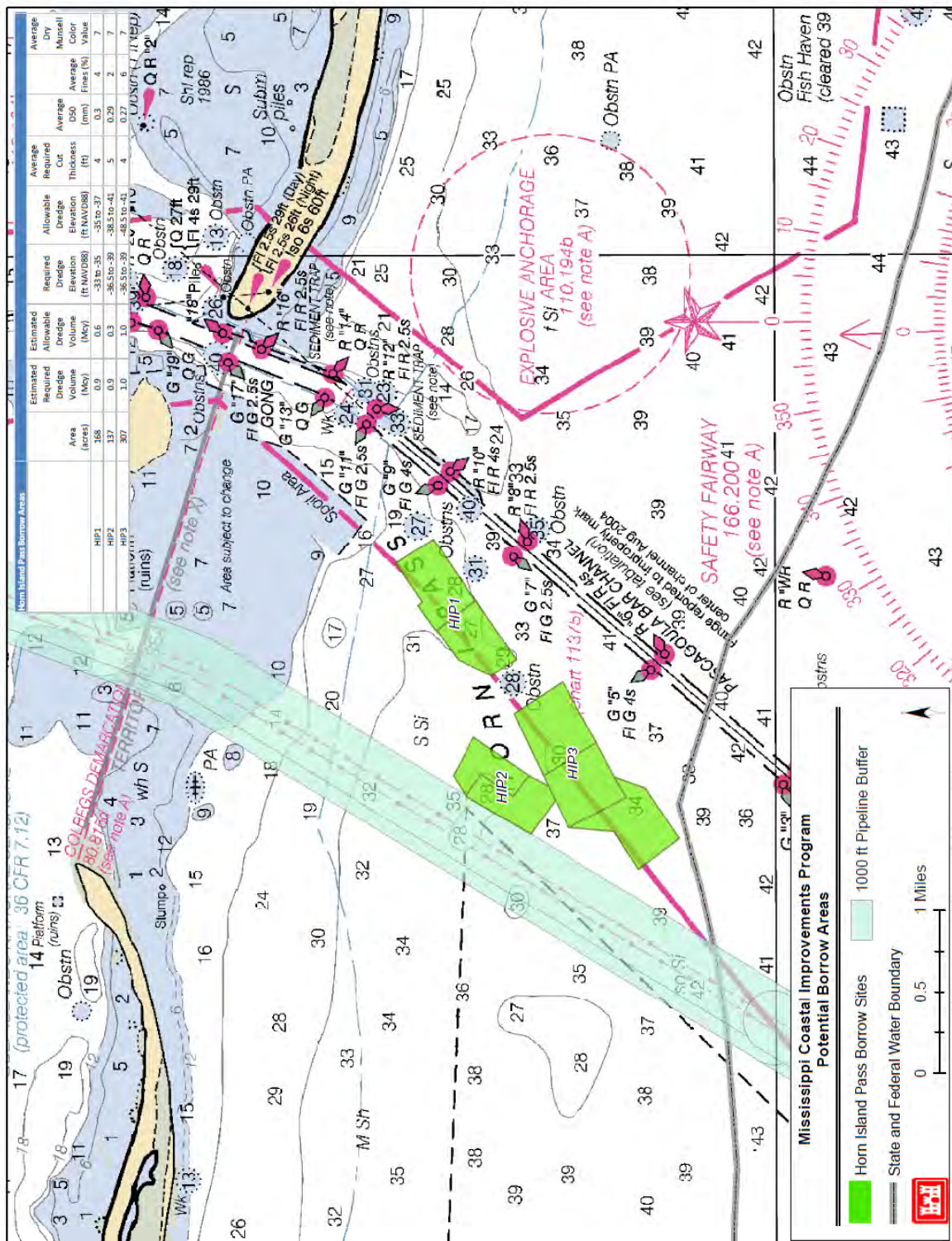
### Horn Island Pass

Three potential borrow areas have been identified within the Horn Island Pass sampling area that maximize use of the dredged sediment disposal mounds identified there (Figure 6.4). The borrow areas are located on top of the mounds,

which greatly influences their shape, size, and orientation. Because the mounded disposal sediments were mechanically placed on the seafloor, there is a fairly distinct transition between the sandy disposal sediments and the muddy in-situ sediments. The intent of the borrow area designs is to dredge down to this transition zone without dredging into the poor material. Each borrow area is split into different cells with cut elevations adjusted to the undulating bathymetry created by the mounds. Because of the difficulty in designing a borrow area on a convex surface, there is an area in HIP 3 that is considered allowable dredge material, but not required for the project. The purpose of this allowable area is to recognize that the material is suitable for the project, but that the difficulty in dredging it could increase project costs for the contractor. By making it optional, the contractor can decide if the cost is worth the effort to ensure the required quantities for the fill specifications are met.

The northernmost borrow area, HIP1, is divided into two cells with cut elevations of -33 (northern half) and -35 (southern half). The dimensions of the entire borrow area are roughly 4,700 feet long (northeast-southwest) by 1,600 feet wide (southeast-northwest). The combined area is approximately 168 acres, with an average cut depth of 4 feet. The total volume is estimated at 1.4 mcy of sand with an average D50 of 0.30 mm, fines content of 4%, and a Munsell Value of 7. The next borrow area, HIP 2, is located to the west of the southern tip of HIP 1. It contains two cells with cut elevations of -36.5 (northern half) and -39 (southern half), respectively. The dimensions of the entire borrow area are roughly 3,200 feet long (northeast-southwest) by 1,600 feet wide (southeast-northwest). The combined area is approximately 137 acres, with an average cut depth of 5 feet. The total volume is estimated at 1.3 mcy of sand with an average D50 of 0.29mm, fines content of 2%, and a dry Munsell Value of 7. The third borrow area, HIP 3, is located to the southwest of HIP 1 and south of HIP 2. It contains three cells with cut elevations of -36.5 (northern half) and -39 (southern half). The southwestern cell with cut elevation of -36.5 ft is allowable for the contractor, but not necessary. The dimensions of the entire borrow area are roughly 6,400 feet long (northeast-southwest) by 2,000 feet wide (southeast-northwest). The combined area is approximately 307 acres, with an average required cut thickness of 4 feet. The total volume is estimated at 1.2 mcy of sand with an average D50 of 0.27 mm, fines content of 6%, and a dry Munsell Value of 7.





### Figure 6.4 – Horn Island Pass Borrow Area



**Petit Bois Pass-Outer Continental Shelf West**

Six potential borrow areas were identified within the Petit Bois Pass-Outer Continental Shelf West sampling area (Figure 6.5). Because most of the suitable sand deposits are located within the confines of the shoals in the area, the borrow areas' shape, size, and orientation are highly dependent on the morphology of these shoals. There are also "Allowable" dredging cells within certain borrow areas that are the result of the deposit being too thinly bedded for a required cut, but thick enough for a contractor to dredge it, albeit most likely at a higher unit cost.

PBP-OCS West 1 is located approximately 4 miles south of Petit Bois Island on Shoal 2, described in Section 5.2.11.1. Because of the morphology of the shoal, the borrow area has one cell that is required dredging and a smaller southeastern cell that is "Allowable" dredging. The dimensions of the entire borrow area are roughly 8,800 feet long (northwest-southeast) by 2,100 feet wide (southwest-northeast). The combined area is approximately 419 acres, with an average required cut thickness of 5 feet. The total volume is estimated at 3.1 mcy of sand with an average D50 of 0.26 mm, fines content of 3%, and a dry Munsell Value of 6.

PBP-OCS West 2 is located approximately 2.7 miles south of Petit Bois Island on the western end of Shoal 3, described in Section 5.2.11.1. Because of the morphology of the shoal, there are three cells within the borrow area, and the northwestern and southeastern cells are "Allowable" for dredging. The dimensions of the entire borrow area are roughly 7,500 feet long (northwest-southeast) by 1,600 feet wide (southwest-northeast). The combined area is approximately 192 acres, with an average required cut thickness of 4 feet. The total volume is estimated at 1.6 mcy of sand with an average D50 of 0.28 mm, fines content of 5%, and a dry Munsell Value of 6.

PBP-OCS West 3 is located approximately 1.9 miles south of Petit Bois Island to the north of Shoal 3. This borrow area is relatively flat compared with the others in PBP-OCS West, but has a much thicker subbottom deposit of sand. Based on the deposit thicknesses, three cells were identified within the borrow area. The dimensions of the entire borrow area are roughly 7,000 feet long (northwest-southeast) by 2,100 feet wide (southwest-northeast). The combined area is approximately 275 acres, with an average required cut thickness of 9 feet. The total

volume is estimated at 5.5 mcy of sand with an average D50 of 0.26 mm, fines content of 3%, and a dry Munsell Value of 6.

PBP-OCS West 4 is located approximately 3.8 miles south of Petit Bois Island on the central portion of Shoal 3, described in Section 5.2.11.1. Because of the morphology of the shoal and the sediment deposit adjacent to it, there are two cells within the borrow area that target these features. The dimensions of the entire borrow area are roughly 5,500 feet long (northwest-southeast) by 1,650 feet wide (southwest-northeast). The combined area is approximately 195 acres, with an average required cut thickness of 8 feet. The total volume is estimated at 2.4 mcy of sand with an average D50 of 0.30 mm, fines content of 4%, and a dry Munsell Value of 6.

PBP-OCS West 5 is located approximately 5.2 miles south of Petit Bois Island on the eastern portion of Shoal 3 in the PBP-OCS West sampling area, described in Section 5.2.11.1. Because of the morphology of the shoal, there is one “Required” and one “Allowable” cell within the borrow area. The Allowable cell is located on the southeastern end of the borrow area. The dimensions of the entire borrow area are roughly 5,500 feet long (northwest-southeast) by 1,800 feet wide (southwest-northeast). The combined area is approximately 190 acres, with an average required cut thickness of 4 feet. The total volume is estimated at 1.3 mcy of sand with an average D50 of 0.28 mm, fines content of 4%, and a dry Munsell Value of 6.

PBP-OCS West 6 is located approximately 6.4 miles south of the eastern tip of Petit Bois Island on the eastern portion of Shoal 3 in the PBP-OCS East sampling area, described in Section 5.2.11.1. Because this portion of the shoal is relatively consistent in its thickness, there is only one dredge cell within this borrow area. The dimensions of the borrow area are roughly 3,600 feet long (northwest-southeast) by 1,590 feet wide (southwest-northeast). The area is approximately 146 acres, with an average cut thickness of 5 feet. The total volume is estimated at 1.5 mcy of sand with an average D50 of 0.29 mm, fines content of 2%, and a dry Munsell Value of 6.

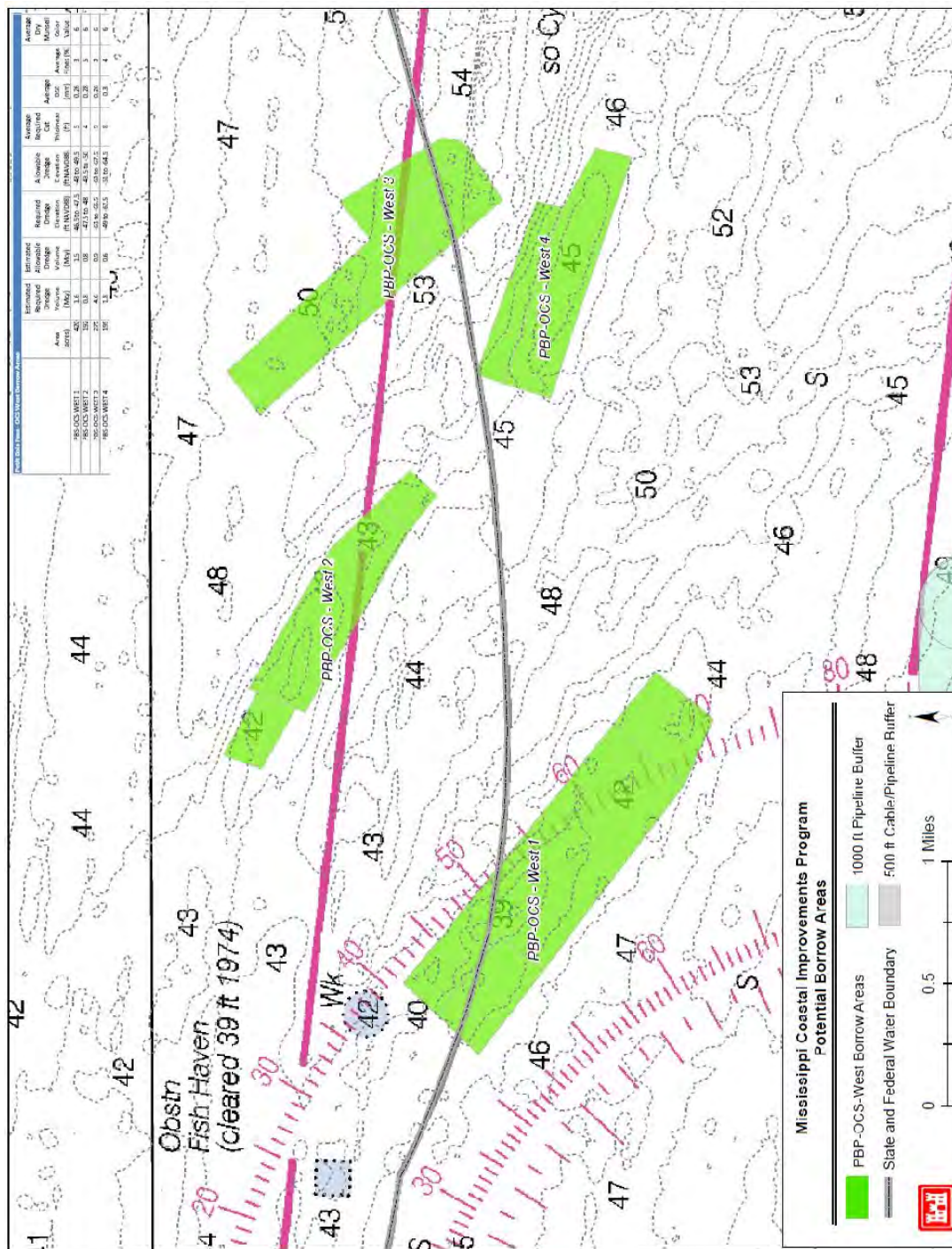


Figure 6.5 – Petit Bois Pass-OCS West Borrow Areas 1 thru 4

**Petit Bois Pass-Outer Continental Shelf East**

Five potential borrow areas were identified within the PBP-OCS East sampling area (Figure 6.6). Because most of the suitable sand deposits are located within the confines of the shoals in the area, the borrow areas' shape, size, and orientation are highly dependent on the morphology of these shoals. There are also "Allowable" dredging cells within certain borrow areas that are the result of the deposit being too thinly bedded for a required cut, but thick enough for a contractor to dredge it, albeit most likely at a higher unit cost.

PBP-OCS East 1 is located approximately 4 miles southeast of Petit Bois Island and 5.1 miles south-southwest of Dauphin Island, AL, in an area described in Section 5.2.11.2.1. Because of the morphology of the shoal, the borrow area has two dredge cells to maximize sediment recovery. The dimensions of the entire borrow area are roughly 2,850 feet long (northwest-southeast) by 710 feet wide (southwest-northeast). The combined area is approximately 51 acres, with an average required cut thickness of 5 feet. The total volume is estimated at 0.4 mcy of sand with an average D50 of 0.33 mm, fines content of 2%, and a dry Munsell Value of 7.

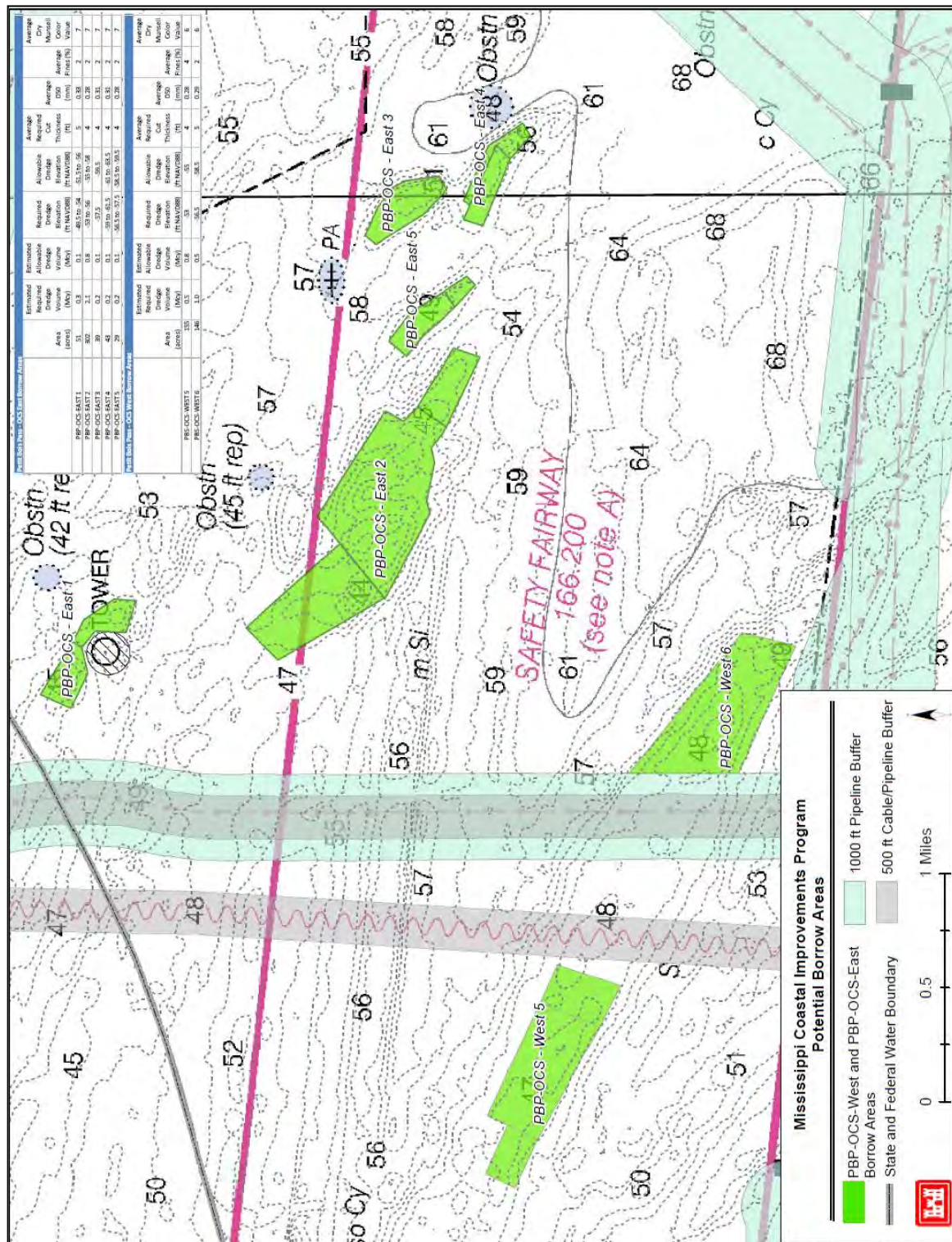
PBP-OCS East 2 is located approximately 5.5 miles south-southeast of Petit Bois Island and 6.3 miles south-southwest of Dauphin Island, AL, in an area described in Section 5.2.11.1. Because of the morphology of the shoal, there are three cells of different cut elevations within the borrow area to maximize sediment recovery. The dimensions of the entire borrow area are roughly 8,300 feet long (northwest-southeast) by 2,230 feet wide (southwest-northeast). The combined area is approximately 302 acres, with an average required cut thickness of 4 feet. The total volume is estimated at 2.9 mcy of sand with an average D50 of 0.28 mm, fines content of 2%, and a dry Munsell Value of 7.

PBP-OCS East 3 is located approximately 6.4 miles southwest of Petit Bois Island and 6.3 miles south-southwest of Dauphin Island, AL, in an area described in Section 5.2.11.2.3. This borrow area is located on top of a shoal and contains only one cut elevation. The dimensions of the entire borrow area are roughly 2,150 feet long (northwest-southeast) by 900 feet wide (southwest-northeast). The combined area is approximately 39 acres, with an average required cut thickness of 4 feet. The total volume is estimated at 0.3 mcy of sand with an average D50 of 0.31 mm, fines content of 2%, and a dry Munsell Value of 7.



PBP-OCS East 4 is located on a shoal approximately 6.8 miles southwest of Petit Bois Island and 6.8 miles south-southwest of Dauphin Island, AL, in an area described in Section 5.2.11.2.2. Because of the morphology of the shoal, there are two cells with different cut elevations within the borrow area that target the different thicknesses of the deposit. The dimensions of the entire borrow area are roughly 2,590 feet long (northwest-southeast) by 600 feet wide (southwest-northeast). The combined area is approximately 43 acres, with an average required cut thickness of 4 feet. The total volume is estimated at 0.3 mcy of sand with an average D50 of 0.31 mm, fines content of 2%, and a Munsell Value of 7.

PBP-OCS East 5 is located on a shoal approximately 6.2 miles southwest of Petit Bois Island and 6.5 miles south-southwest of Dauphin Island, AL, in an area described in Section 5.2.11.2.2. Because of the morphology of the shoal, there are two dredge cut elevations within the borrow area to maximize sediment recovery. The dimensions of the entire borrow area are roughly 2,330 feet long (northwest-southeast) by 590 feet wide (southwest-northeast). The combined area is approximately 29 acres, with an average required cut thickness of 4 feet. The total volume is estimated at 0.3 mcy of sand with an average D50 of 0.28 mm, fines content of 2%, and a dry Munsell Value of 7.



**Figure 6.6 – Petit Bois Pass-OCS West Borrow Areas 5 and 6, and PBP-OCS East Borrow Areas 1 thru 4.**

**Petit Bois Pass-MS**

The Petit Bois Pass-Mississippi borrow area is located approximately 1.4 miles southeast of the eastern end of Petit Bois Island (Figure 6.6). The borrow area covers the shoal described in Section 5.2.10. Because of the morphology of the shoal, there are five dredge cut elevations within the borrow area to maximize sediment recovery. The dimensions of the entire borrow area are roughly 3,500 feet long (northwest-southeast) by 2,370 feet wide (southwest-northeast). The combined area is approximately 175 acres, with an average required cut thickness of 6 feet. The total volume is estimated at 2.0 mcy of sand with an average D50 of 0.31 mm, fines content of 3%, and a dry Munsell Value of 7.

**Petit Bois Pass-AL West and East**

The Petit Bois Pass-AL borrow areas have been modified from their initial shapes to better fit the sand deposits and minimize wave refraction on Dauphin Island and surrounding pipelines (Figure 6.6).

PBP-AL East is located approximately 1.9 miles south of Dauphin Island, AL, in an area described in Section 5.2.9. There are five cells with different cut elevations targeting the different thicknesses of the deposit. The dimensions of the entire borrow area are roughly 1.9 miles long (west-east) by 5,750 feet wide (south-north). The combined area is approximately 885 acres, with an average required cut thickness of 7 feet. The total volume is estimated at 14.7 mcy of sand with an average D50 of 0.33 mm, fines content of 7%, and a dry Munsell Value of 6.

PBP-AL West is located on a shoal approximately 3 miles east-southeast of Petit Bois Island and 2.7 miles south-southwest of Dauphin Island, AL, in an area described in Section 5.2.9. There are three dredge cut elevations within the borrow area to maximize sediment recovery. The dimensions of the entire borrow area are roughly 6,800 feet long (west-east) by 2,450 feet wide (south-north). The combined area is approximately 380 acres, with an average required cut thickness of 6 feet. The total volume is estimated at 5.1 mcy of sand with an average D50 of 0.31 mm, fines content of 4%, and a dry Munsell Value of 6.

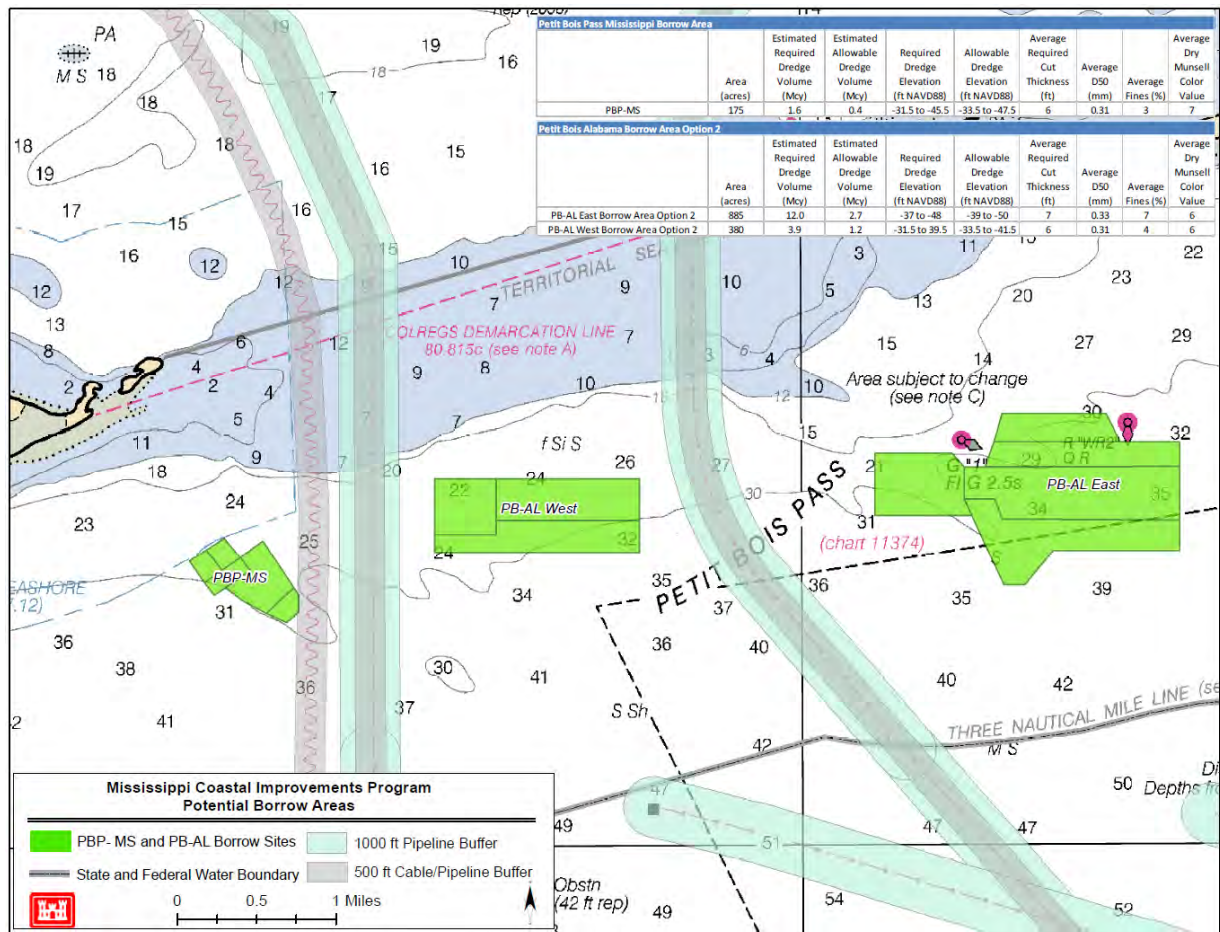


Figure 6.7 - Petit Bois Pass-AL Borrow Areas



## **7.0 CONCLUSION**

From 2006 through 2013, Mobile District conducted geotechnical investigations of the area surrounding the Mississippi Barrier Islands and south into Federally-controlled waters with the intent of identifying sediment characteristics of the islands and locating compatible sediment for nourishment projects on and around the islands.

Beginning in 2006, grab samples were taken on each island of the barrier island chain to identify each island's sediment characteristics in order to gain an understanding of the system as a whole. This information was critical to determining the type of sediment needed for island restoration projects in the area.

This was followed up with geophysical investigations conducted in conjunction with the USGS in 2010 and 2013 to identify offshore sand bodies that had the potential to be used as borrow sources.

Geotechnical investigations in 2010, 2011, 2012, and 2013 focused on potential sand deposits identified by the geophysical surveys and previous sampling events. Vibracoring was used to sample the sediments along the Mississippi barrier islands, specifically in Gulfport Channel, Mississippi Sound, adjacent to Cat Island, Ship Island Pass, south of Ship Island, Dog Keys Pass, Horn Island Pass, south of Petit Bois Island, and Petit Bois Pass. These vibracores assisted in refining the geophysical models to better locate sand sources and helped delineate potential borrow areas.

Potential borrow areas were identified and delineated in the investigation areas of Cat Island, Ship Island, DA-10, Petit Bois Pass-MS, Petit Bois Pass-OCS, and Petit Bois Pass-AL. A seventh borrow area, adjacent to West Ship Island, has already been utilized. These areas have undergone refinement through modeling and dredging industry input, but are still subject to change as new data becomes available (e.g. preconstruction surveys). Overall, approximately 24.9 mcy of suitable sand were identified for use in the barrier island projects.

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## **Appendix A**

### **Barrier Island Sampling Locations and Lab Results**

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A-3



2009-2011 Barrier Island Sampling Lab Results

USACE Sample #	Year	Depth (ft)	USCS	Diameter, mm						#200 %	Graphical Mean (mm)	Cu (D60/D10)	Cc (D30) <sup>2</sup> / (D10*D60)
				D85	D60	D50	D30	D15	D10				
CI-1	2009	Surface Grab	SP	0.40	0.35	0.33	0.29	0.27	0.26	0.2	0.33	1.3	1.0
CI-2	2009	Surface Grab	SP	0.39	0.33	0.31	0.28	0.24	0.21	0.2	0.31	1.6	1.1
ES-1	2009	Surface Grab	SP	0.39	0.34	0.32	0.28	0.25	0.23	0.2	0.32	1.5	1.0
ES-2	2009	Surface Grab	SP	0.40	0.34	0.32	0.28	0.25	0.22	0.1	0.33	1.5	1.0
ES-3	2009	Surface Grab	SP	0.40	0.34	0.32	0.29	0.26	0.23	0.3	0.33	1.5	1.0
HI-1	2009	Surface Grab	SP	0.70	0.56	0.51	0.42	0.34	0.32	0.4	0.52	1.8	1.0
HI-2	2009	Surface Grab	SP	0.52	0.38	0.35	0.31	0.28	0.27	0.0	0.38	1.4	1.0
HI-3	2009	Surface Grab	SP	0.47	0.36	0.34	0.30	0.27	0.26	0.0	0.36	1.4	1.0
HI-4	2009	Surface Grab	SP	0.41	0.35	0.33	0.29	0.26	0.24	0.2	0.33	1.4	1.0
HI-5	2009	Surface Grab	SP	0.40	0.34	0.33	0.29	0.26	0.25	0.3	0.33	1.4	1.0
PBI-1	2009	Surface Grab	SP	0.59	0.43	0.39	0.33	0.28	0.26	0.6	0.42	1.6	0.9
PBI-2	2009	Surface Grab	SP	0.43	0.36	0.34	0.30	0.27	0.26	0.4	0.35	1.4	1.0
PBI-3	2009	Surface Grab	SP	0.44	0.36	0.34	0.30	0.27	0.26	0.2	0.35	1.4	1.0
PBI-4	2009	Surface Grab	SP	0.50	0.39	0.36	0.31	0.28	0.27	0.8	0.38	1.5	1.0
S-1	2009	Surface Grab	SP	0.41	0.35	0.33	0.30	0.27	0.26	0.4	0.34	1.4	1.0
WSI-1	2009	Surface Grab	SP	0.69	0.53	0.47	0.37	0.30	0.26	0.0	0.49	2.0	1.0
WSI-2	2009	Surface Grab	SP	0.39	0.33	0.32	0.28	0.25	0.23	0.0	0.32	1.5	1.0
WSI-3	2009	Surface Grab	SP	0.49	0.36	0.34	0.30	0.26	0.25	0.2	0.36	1.5	1.0
WSI-4	2009	Surface Grab	SP	0.38	0.32	0.30	0.26	0.22	0.20	0.1	0.30	1.6	1.0
BI-HIB-10	2010	Composite	SP	0.38	0.31	0.28	0.23	0.18	0.16	0.6	0.28	1.9	1.1
BI-HIB-10-10	2010	Surface Grab	SP	0.44	0.35	0.33	0.28	0.24	0.21	0.6	0.34	1.6	1.1
BI-HIB-1-10	2010	Surface Grab	SP	0.48	0.37	0.34	0.28	0.24	0.22	1.0	0.35	1.6	1.0
BI-HIB-11-10	2010	Surface Grab	SP	0.39	0.31	0.28	0.22	0.14	0.11	1.0	0.27	2.7	1.4
BI-HIB-2-10	2010	Surface Grab	SP	0.66	0.47	0.43	0.34	0.28	0.26	0.3	0.45	1.8	0.9
BI-HIB-3-10	2010	Surface Grab	SP	0.69	0.53	0.48	0.39	0.33	0.30	0.2	0.50	1.8	1.0
BI-HIB-4-10	2010	Surface Grab	SP	0.69	0.53	0.48	0.39	0.33	0.30	0.3	0.50	1.7	1.0
BI-HIB-5-10	2010	Surface Grab	SP	0.61	0.44	0.40	0.33	0.29	0.27	0.2	0.43	1.6	0.9
BI-HIB-6-10	2010	Surface Grab	SP	0.49	0.36	0.34	0.29	0.25	0.23	0.3	0.36	1.6	1.0
BI-HIB-7-10	2010	Surface Grab	SP	0.50	0.38	0.35	0.30	0.26	0.23	0.2	0.37	1.6	1.0
BI-HIB-8-10	2010	Surface Grab	SP	0.42	0.34	0.32	0.28	0.21	0.18	0.2	0.32	2.0	1.3
BI-HIB-9-10	2010	Surface Grab	SP	0.41	0.34	0.31	0.27	0.20	0.17	0.5	0.31	2.0	1.3
BI-SIB-10	2010	Composite	SP	0.47	0.34	0.31	0.25	0.19	0.15	0.9	0.32	2.2	1.2
BI-SIB-10-10	2010	Surface Grab	SP	0.51	0.39	0.36	0.31	0.27	0.25	0.5	0.38	1.5	1.0
BI-SIB-1-10	2010	Surface Grab	SP	0.47	0.36	0.33	0.28	0.24	0.22	1.0	0.35	1.6	1.0
BI-SIB-11-10	2010	Surface Grab	SP	0.31	0.23	0.21	0.19	0.16	0.16	1.1	0.23	1.5	0.9
BI-SIB-2-10	2010	Surface Grab	SP	0.51	0.38	0.35	0.30	0.26	0.22	1.4	0.37	1.8	1.1
BI-SIB-3-10	2010	Surface Grab	SP	0.71	0.51	0.45	0.36	0.29	0.27	0.6	0.48	1.9	0.9
BI-SIB-4-10	2010	Surface Grab	SP	0.51	0.39	0.36	0.31	0.27	0.26	0.3	0.38	1.5	1.0
BI-SIB-5-10	2010	Surface Grab	SP	0.35	0.27	0.24	0.20	0.16	0.14	0.9	0.25	1.9	1.0
BI-SIB-6-10	2010	Surface Grab	SP	0.35	0.28	0.26	0.21	0.18	0.17	0.2	0.26	1.6	1.0
BI-SIB-7-10	2010	Surface Grab	SP	0.38	0.30	0.28	0.23	0.18	0.17	2.7	0.28	1.8	1.0
BI-SIB-8-10	2010	Surface Grab	SP	0.43	0.33	0.30	0.24	0.19	0.17	1.7	0.31	1.9	1.0
BI-SIB-9-10	2010	Surface Grab	SP	0.38	0.32	0.30	0.26	0.21	0.18	1.3	0.30	1.8	1.1
WSI-12-10-10 A	2010	1.0 - 2.0	SP	0.46	0.35	0.33	0.28	0.23	0.20	0.5	0.34	1.8	1.1
WSI-12-10-10 B	2010	2.0 - 3.0	SP	0.37	0.29	0.27	0.22	0.18	0.17	0.2	0.27	1.7	1.0
WSI-12-10-10 C	2010	3.0 - 4.0	SP	0.37	0.30	0.28	0.23	0.19	0.18	0.4	0.28	1.7	1.0
WSI-13-10-10 A	2010	1.0 - 2.0	SP	0.49	0.36	0.34	0.29	0.26	0.22	0.1	0.36	1.6	1.1
WSI-13-10-10 B	2010	2.0 - 3.0	SP	0.38	0.29	0.27	0.21	0.17	0.16	2.9	0.27	1.9	1.0
WSI-13-10-10 C	2010	3.0 - 4.0	SP	0.37	0.30	0.27	0.22	0.18	0.17	0.6	0.27	1.8	1.0
WSI-13-10-10 D	2010	4.0 - 5.0	SP	0.42	0.34	0.32	0.27	0.23	0.21	0.2	0.32	1.6	1.0
WSI-5-10-10 A	2010	0.0 - 1.5	SP	0.53	0.40	0.37	0.32	0.28	0.26	0.4	0.39	1.5	1.0
WSI-5-10-10 B	2010	1.5 - 3.0	SP	0.50	0.36	0.34	0.29	0.25	0.22	0.9	0.36	1.7	1.1
WSI-5-10-10 C	2010	3.0 - 4.5	SP	0.49	0.35	0.32	0.26	0.22	0.20	0.4	0.34	1.8	1.0
BI-DA-10-15-11	2011	Surface Grab	SP	0.66	0.44	0.39	0.32	0.28	0.26	1.0	0.44	1.7	0.9
BI-DA-10-16-11	2011	Surface Grab	SP	0.40	0.32	0.30	0.25	0.21	0.20	1.0	0.30	1.7	1.0
BI-DA-10-17-11	2011	Surface Grab	SP	0.42	0.35	0.32	0.28	0.25	0.22	1.2	0.33	1.6	1.1



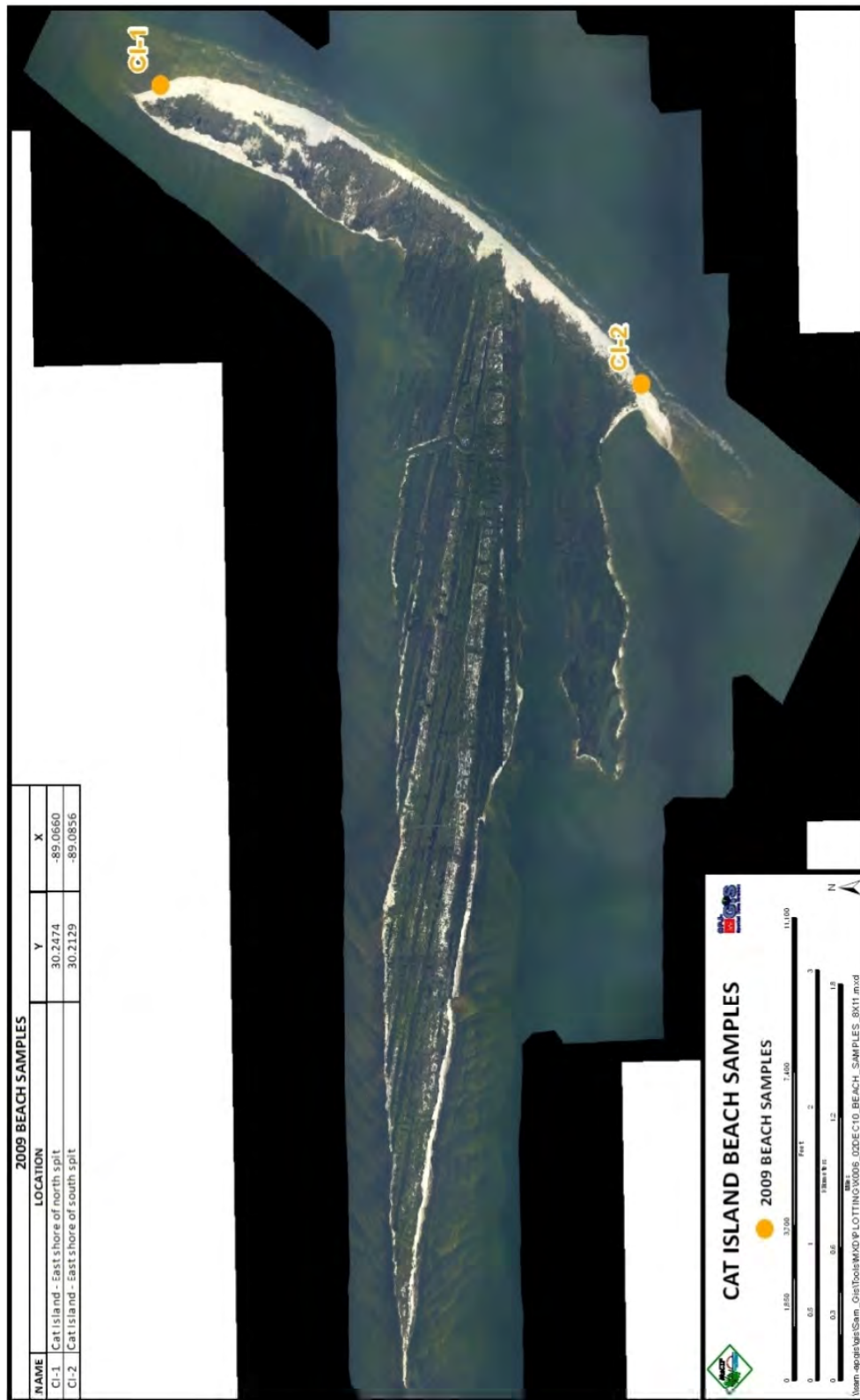
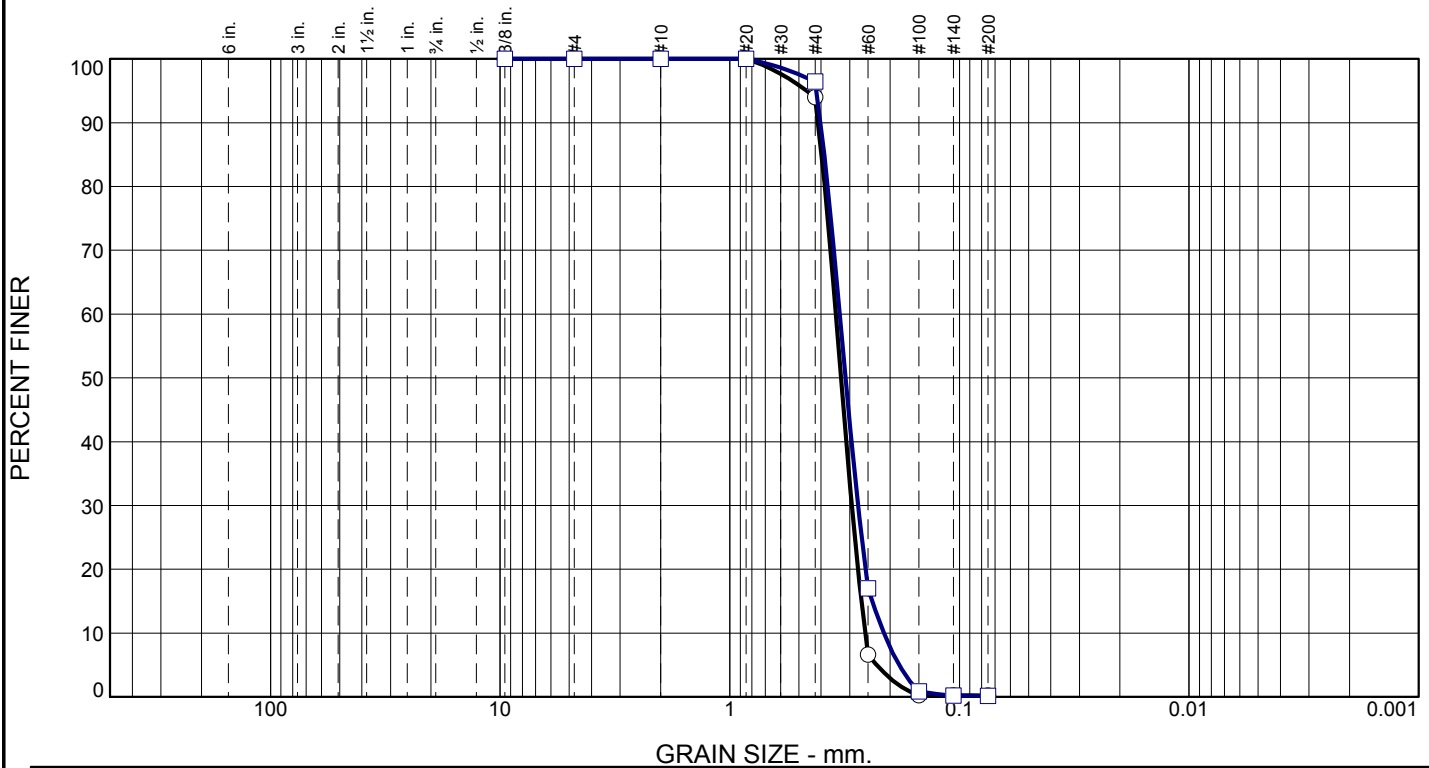


Figure 3.2.2.1.1 – Cat Island beach sampling locations, 2009

# Particle Size Distribution Report



	% +3"		% Gravel		% Sand			% Fines		
			Coarse	Fine	Coarse	Medium	Fine	Silt		Clay
○	0.0		0.0	0.0	0.0	6.0	93.8	0.2		
□	0.0		0.0	0.0	0.0	3.6	96.2	0.2		
×	LL	PL	D <sub>85</sub>	D <sub>60</sub>	D <sub>50</sub>	D <sub>30</sub>	D <sub>15</sub>	D <sub>10</sub>	C <sub>c</sub>	C <sub>u</sub>
○			0.3983	0.3451	0.3275	0.2939	0.2675	0.2576	0.97	1.34
□			0.3879	0.3318	0.3129	0.2764	0.2398	0.2130	1.08	1.56

Material Description	USCS	AASHTO
○ SAND, (SP), fine grained, white, dry	SP	
□ SAND, (SP), fine grained, white, dry	SP	

<b>Project No.</b> 0921230023 <b>Client:</b> U.S. Army Corps of Engineers <b>Project:</b> Mississippi Island ○ <b>Location:</b> Sample - CI-1 - East Shore Spill <b>Sample Number:</b> Lab # 4205 □ <b>Location:</b> Sample - CI-2 - East Shore South Spill <b>Sample Number:</b> Lab # 4205	<b>Remarks:</b> ○ Tested: 11/16/09 □ Tested: 11/16/09
<b>Thompson Engineering</b>  <b>Mobile, Alabama</b>	<b>Figure</b>

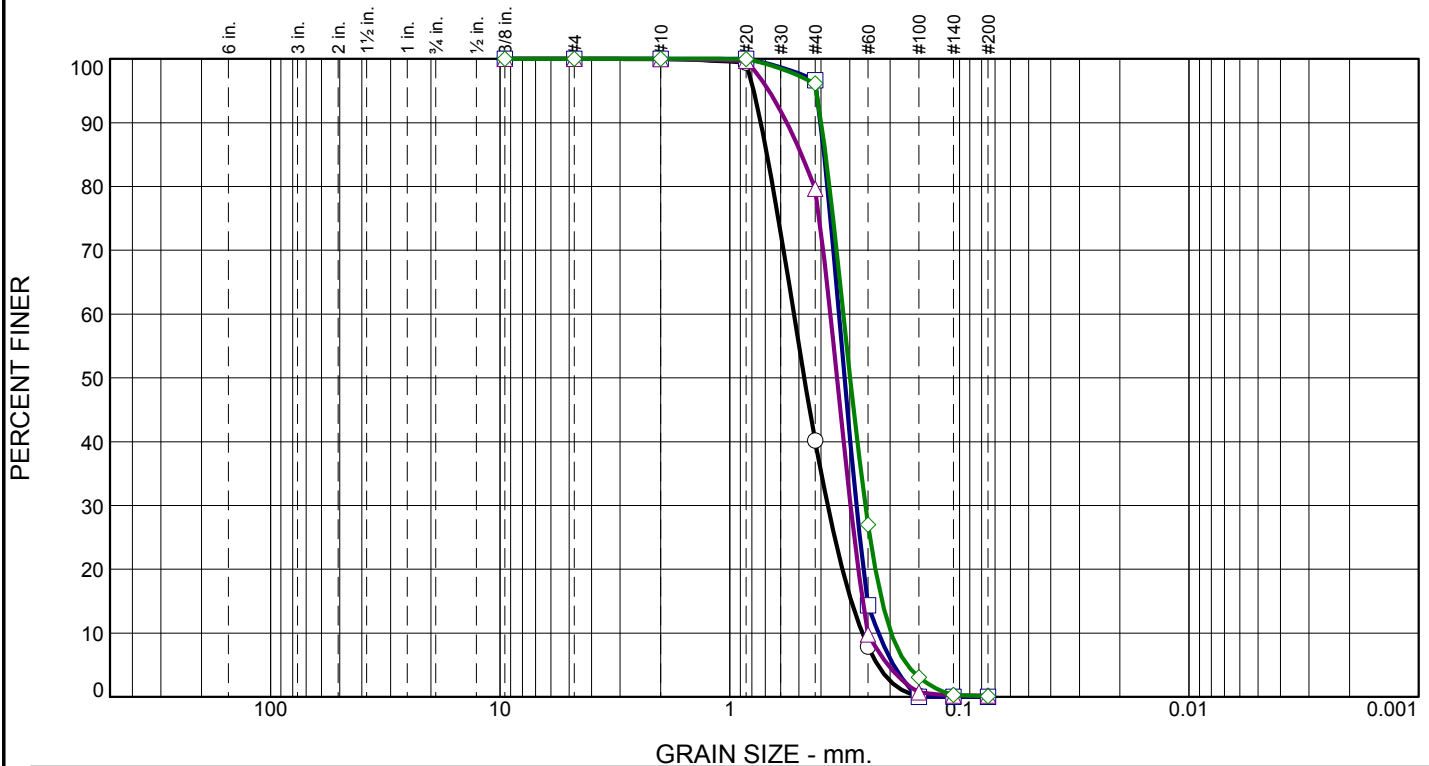
Tested By: J.Maddox-G.Fancher      Checked By: R.Byrd







# Particle Size Distribution Report



	% +3"		% Gravel		% Sand			% Fines		
			Coarse	Fine	Coarse	Medium	Fine	Silt		Clay
○	0.0		0.0	0.0	0.0	59.8	40.2	0.0		
□	0.0		0.0	0.0	0.0	3.3	96.7	0.0		
△	0.0		0.0	0.0	0.0	20.3	79.5	0.2		
◇	0.0		0.0	0.0	0.0	3.9	96.0	0.1		
×	LL	PL	D85	D60	D50	D30	D15	D10	Cc	Cu
○			0.6880	0.5253	0.4735	0.3747	0.2953	0.2648	1.01	1.98
□			0.3886	0.3343	0.3160	0.2807	0.2515	0.2251	1.05	1.49
△			0.4871	0.3649	0.3410	0.2975	0.2639	0.2507	0.97	1.46
◇			0.3830	0.3199	0.2988	0.2569	0.2171	0.1980	1.04	1.62

Material Description	USCS	AASHTO
○ Sand, (SP), fine grained, with trace organics, white, dry	SP	
□ SAND, (SP), fine grained, white, dry	SP	
△ SAND, (SP), fine grained, with trace shell, white, dry	SP	
◇ SAND, (SP), fine grained, white, dry	SP	

<b>Project No.</b> 0921230023 <b>Client:</b> U.S. Army Corps of Engineers <b>Project:</b> Mississippi Island ○ <b>Location:</b> Sample - WSI-1 - Dock <b>Sample Number:</b> Lab # 4205 □ <b>Location:</b> Sample - WSI-2 - South East <b>Sample Number:</b> Lab # 4205 △ <b>Location:</b> Sample - WSI-3 - East North <b>Sample Number:</b> Lab # 4205 ◇ <b>Location:</b> Sample - WSI-4 - East South <b>Sample Number:</b> Lab # 4205	<b>Remarks:</b> △ Tested: 11/16/09 ◇ Tested: 11/16/09
<b>Thompson Engineering</b> <b>Mobile, Alabama</b>	<b>Figure</b>

Tested By: J.Maddox-G.Fancher      Checked By: R.Byrd

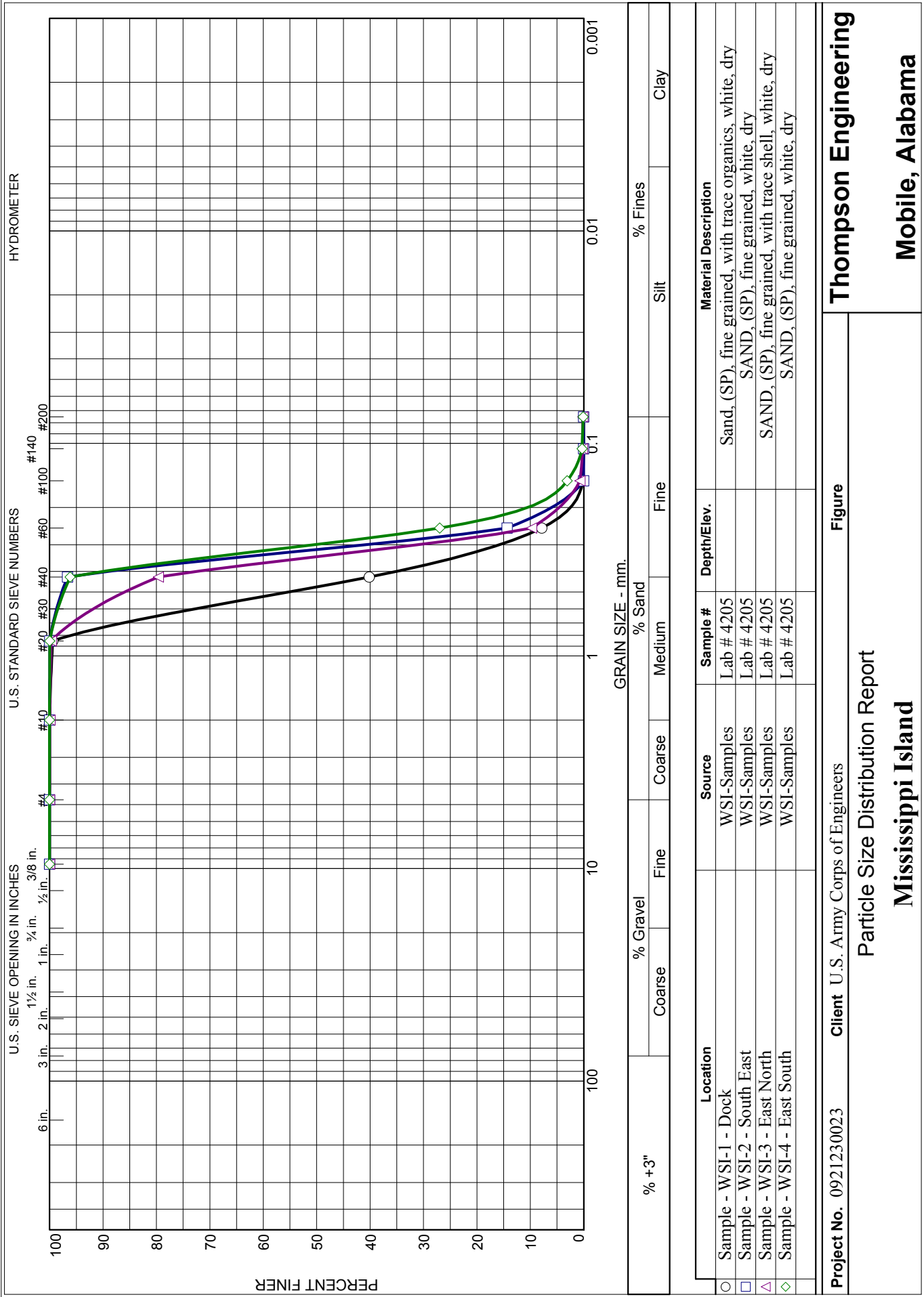
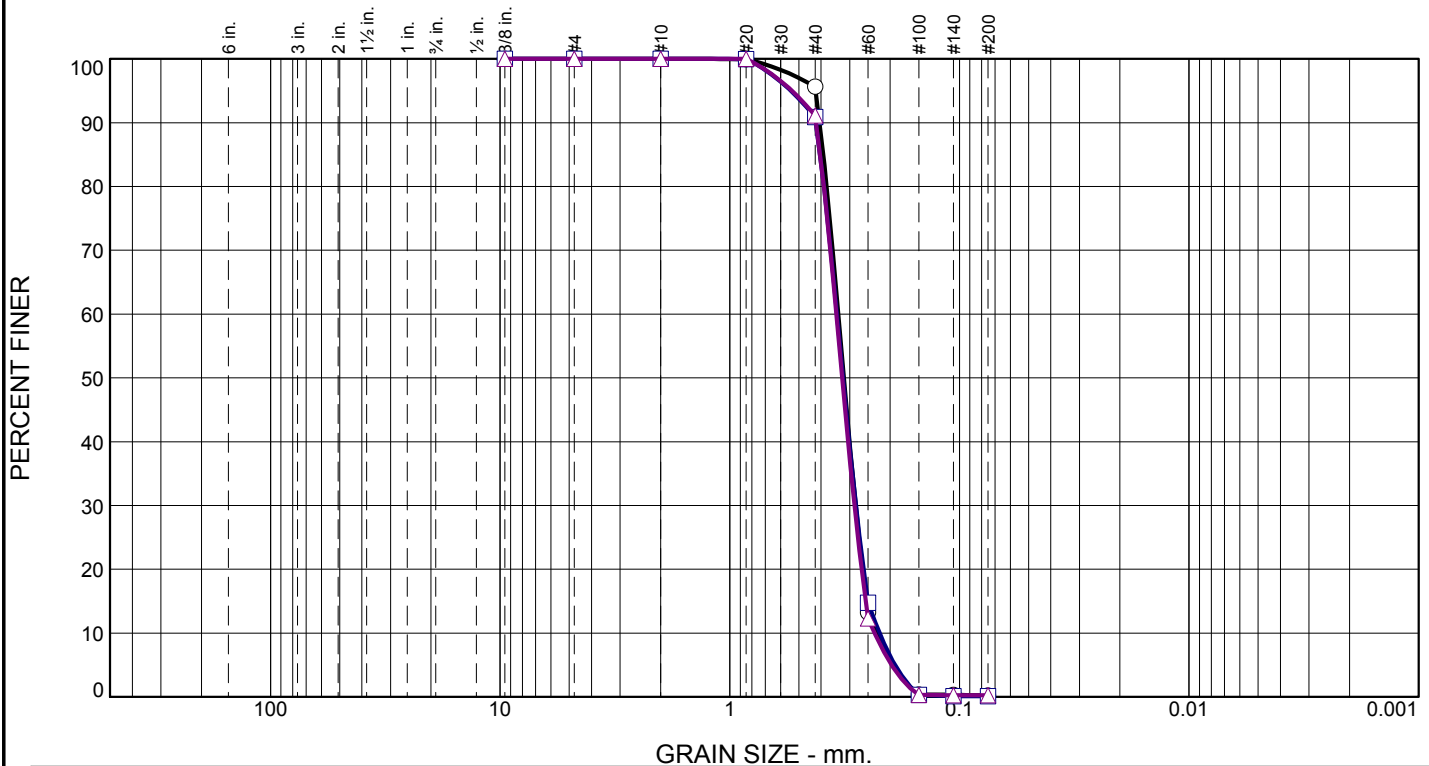




Figure 3.2.2.1.3 – East Ship Island beach sampling locations, 2006 and 2009. Samples 5, 6, and 7 correspond to ES-5-06, ES-6-06, and ES-7-06 in Table 3.2.1.1.

# Particle Size Distribution Report



	% +3"		% Gravel		% Sand			% Fines		
			Coarse	Fine	Coarse	Medium	Fine	Silt		Clay
○	0.0		0.0	0.0	0.0	4.3	95.5	0.2		
□	0.0		0.0	0.0	0.0	9.1	90.8	0.1		
△	0.0		0.0	0.0	0.0	8.8	90.9	0.3		
×	LL	PL	D85	D60	D50	D30	D15	D10	Cc	Cu
○			0.3915	0.3367	0.3183	0.2829	0.2539	0.2293	1.04	1.47
□			0.4040	0.3412	0.3209	0.2823	0.2507	0.2227	1.05	1.53
△			0.4040	0.3434	0.3237	0.2864	0.2563	0.2343	1.02	1.47

Material Description	USCS	AASHTO
○ SAND, (SP), fine grained, white, dry	SP	
□ SAND, (SP), fine grained, white, dry	SP	
△ SAND, (SP), fine grained, white, dry	SP	

<b>Project No.</b> 0921230023 <b>Client:</b> U.S. Army Corps of Engineers <b>Project:</b> Mississippi Island ○ <b>Location:</b> Sample - ES-1 - West End South <b>Sample Number:</b> Lab # 4205 □ <b>Location:</b> Sample - ES-2 - East North <b>Sample Number:</b> Lab # 4205 △ <b>Location:</b> Sample - ES-3 - East South <b>Sample Number:</b> Lab # 4205	<b>Remarks:</b> ○ Tested: 11/16/09 □ Tested: 11/16/09 △ Tested: 11/16/09
<b>Thompson Engineering</b>  <b>Mobile, Alabama</b>	<b>Figure</b>

Tested By: J.Maddox-G.Fancher      Checked By: R.Byrd



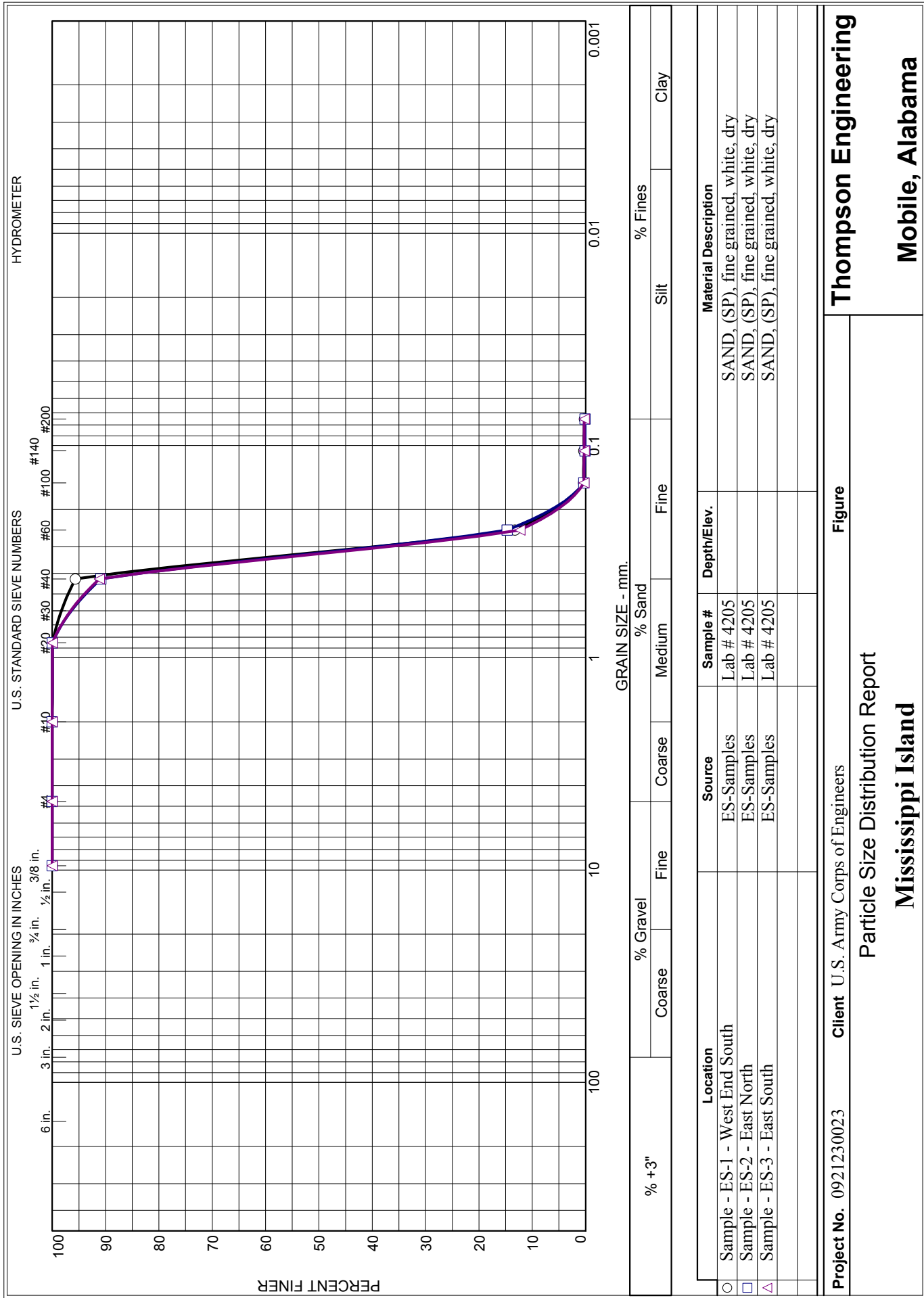
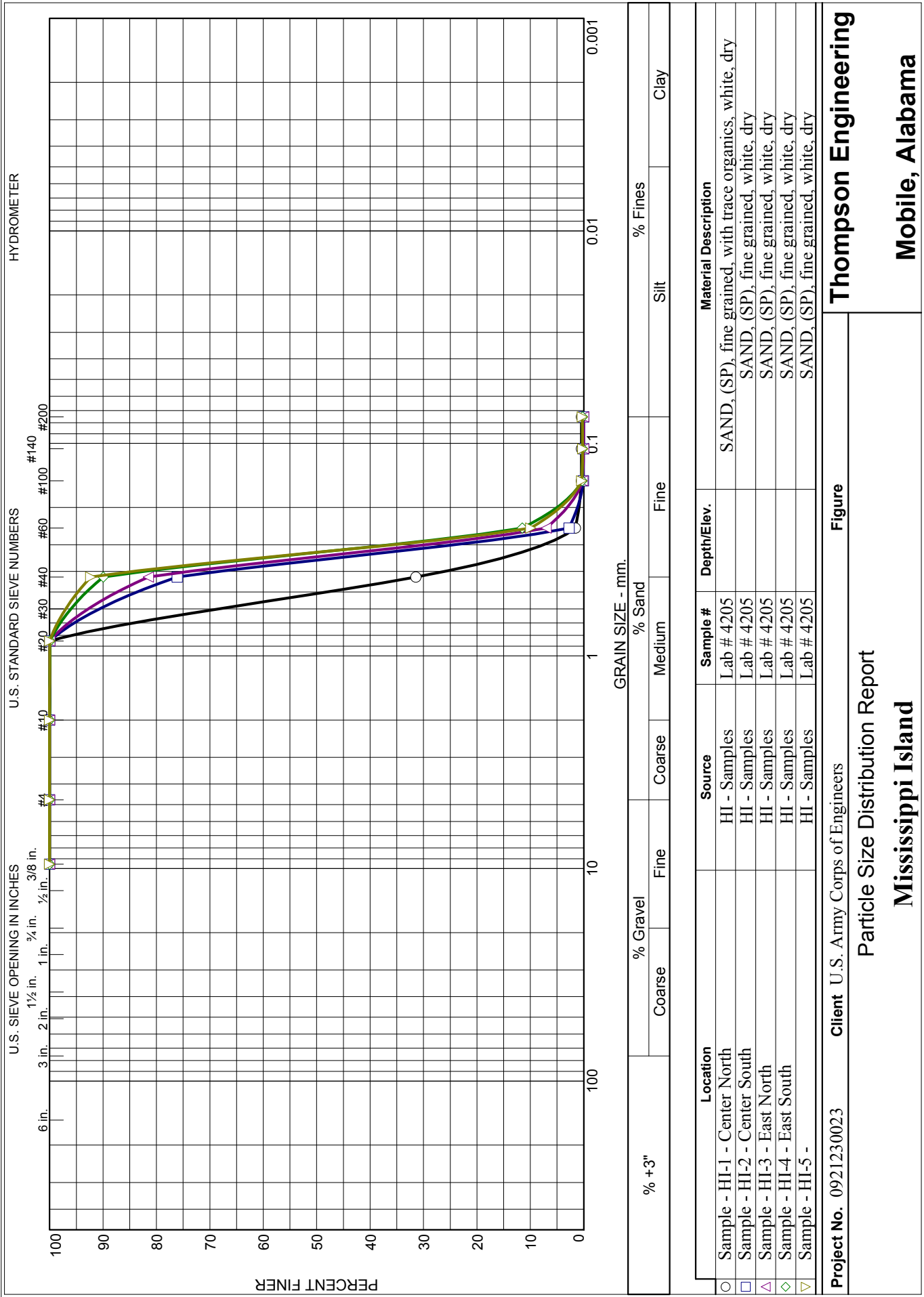
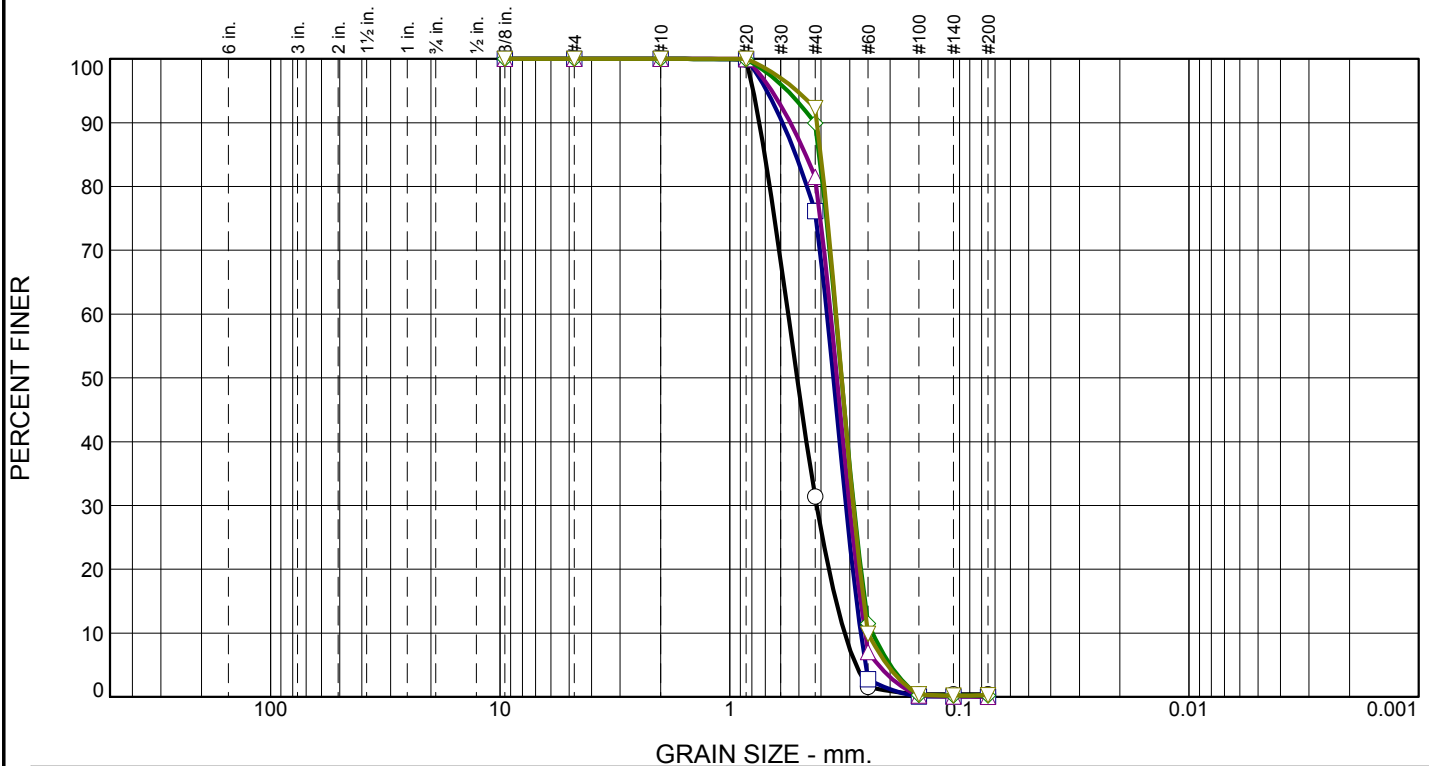




Figure 3.2.2.1.4 – Horn Island beach sampling locations, 2006 and 2009. Samples 1 and 2 correspond to HI-1-06 and HI-2-06 in Table 3.2.1.1.



# Particle Size Distribution Report



	% +3"		% Gravel		% Sand			% Fines		
			Coarse	Fine	Coarse	Medium	Fine	Silt		Clay
○	0.0		0.0	0.0	0.0	68.6	31.0	0.4		
□	0.0		0.0	0.0	0.0	23.9	76.1	0.0		
△	0.0		0.0	0.0	0.0	18.5	81.5	0.0		
◇	0.0		0.0	0.0	0.0	10.1	89.7	0.2		
▽	0.0		0.0	0.0	0.0	7.7	92.0	0.3		
×	LL	PL	D85	D60	D50	D30	D15	D10	Cc	Cu
○			0.7042	0.5566	0.5088	0.4185	0.3445	0.3158	1.00	1.76
□			0.5167	0.3775	0.3539	0.3117	0.2805	0.2692	0.96	1.40
△			0.4672	0.3636	0.3414	0.3007	0.2696	0.2578	0.96	1.41
◇			0.4078	0.3458	0.3259	0.2883	0.2582	0.2390	1.01	1.45
▽			0.4015	0.3443	0.3255	0.2898	0.2614	0.2502	0.98	1.38

Material Description	USCS	AASHTO
○ SAND, (SP), fine grained, with trace organics, white, dry	SP	
□ SAND, (SP), fine grained, white, dry	SP	
△ SAND, (SP), fine grained, white, dry	SP	
◇ SAND, (SP), fine grained, white, dry	SP	
▽ SAND, (SP), fine grained, white, dry	SP	

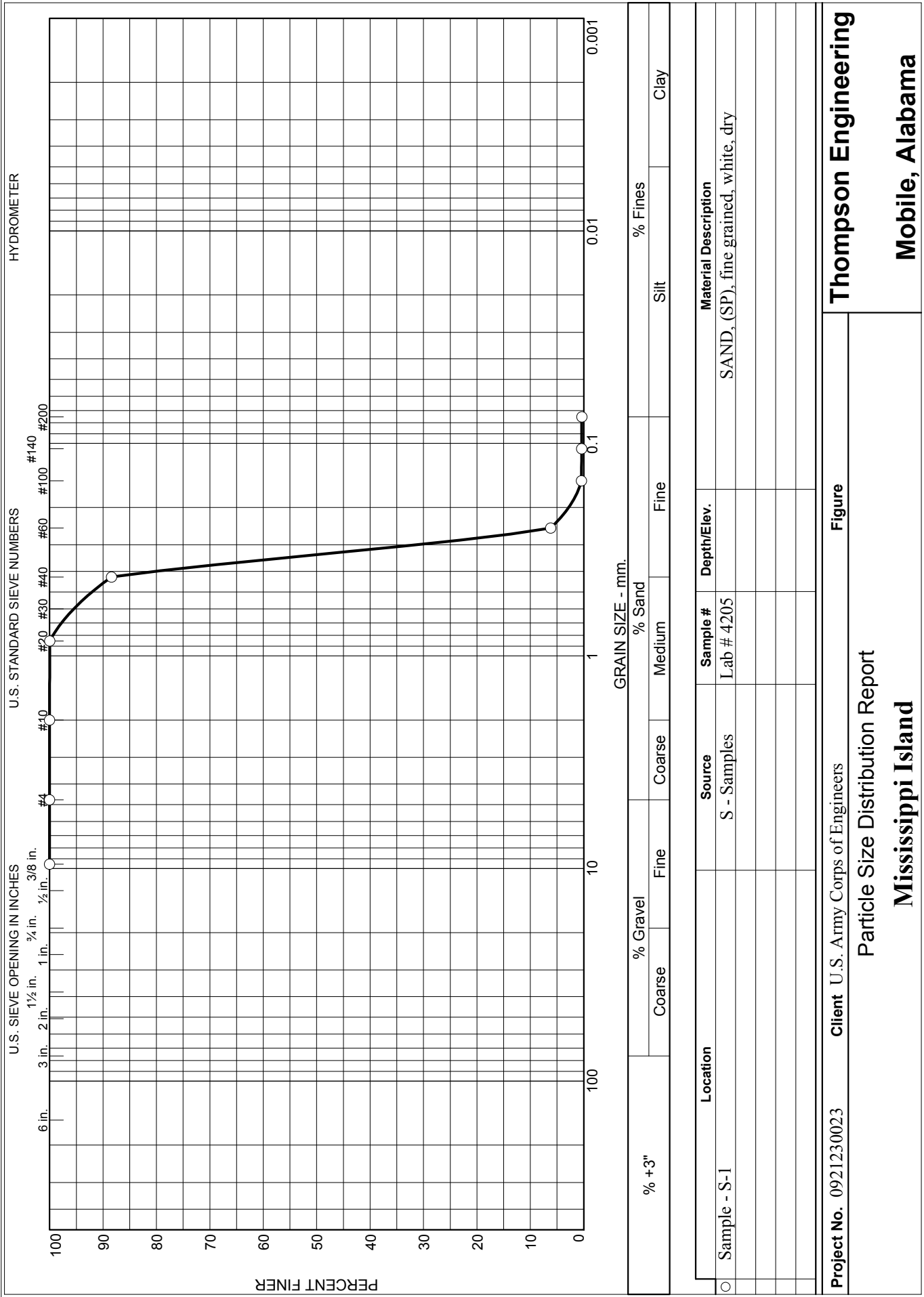
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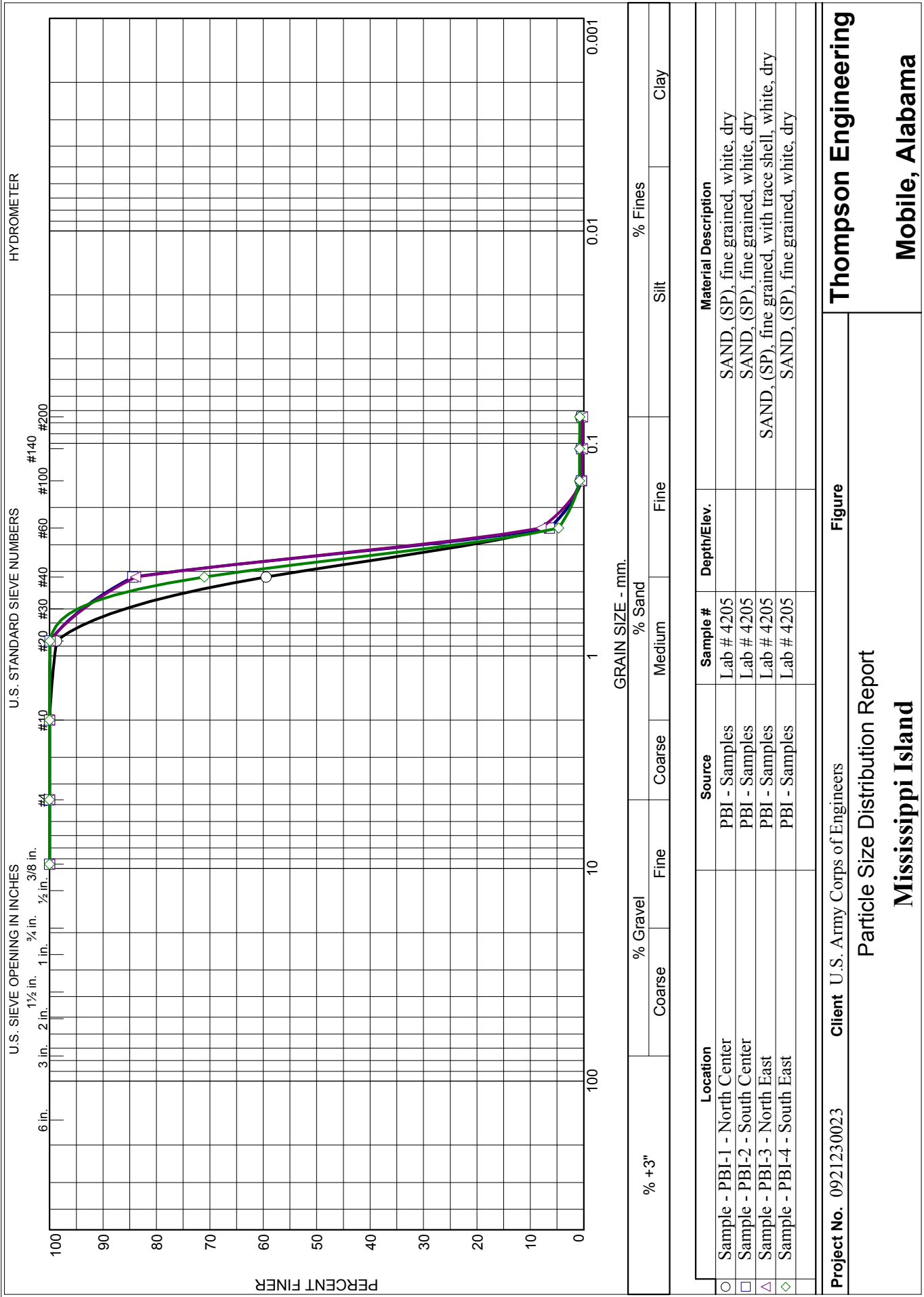
Tested By: J.Maddox-G.Fancher      Checked By: R.Byrd



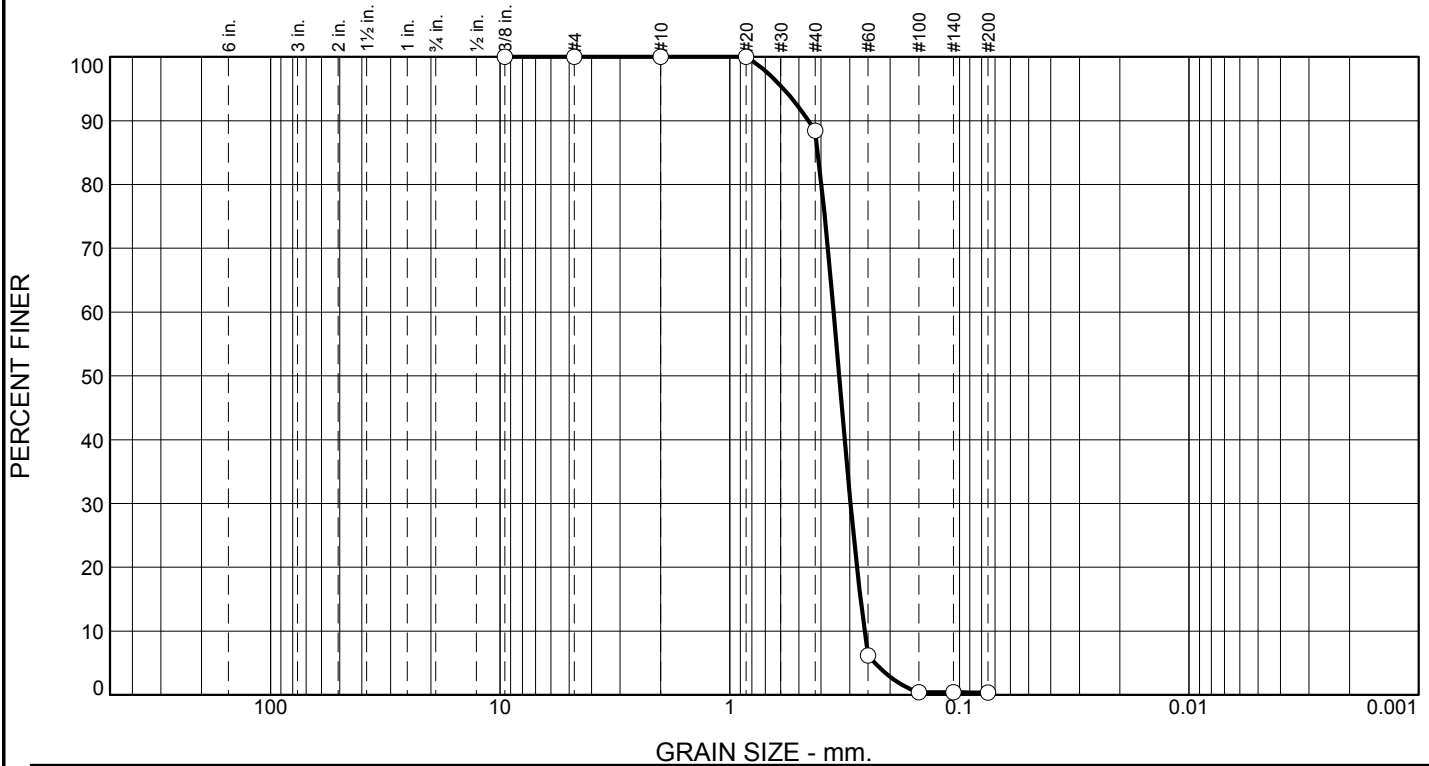
Figure 3.2.2.1.5 – Sand and Petit Bois Island beach sampling locations, 2006 and 2009. Samples 3 and 4 correspond to PB-3-06 and PB-4-06 in Table 3.2.1.1.







# Particle Size Distribution Report



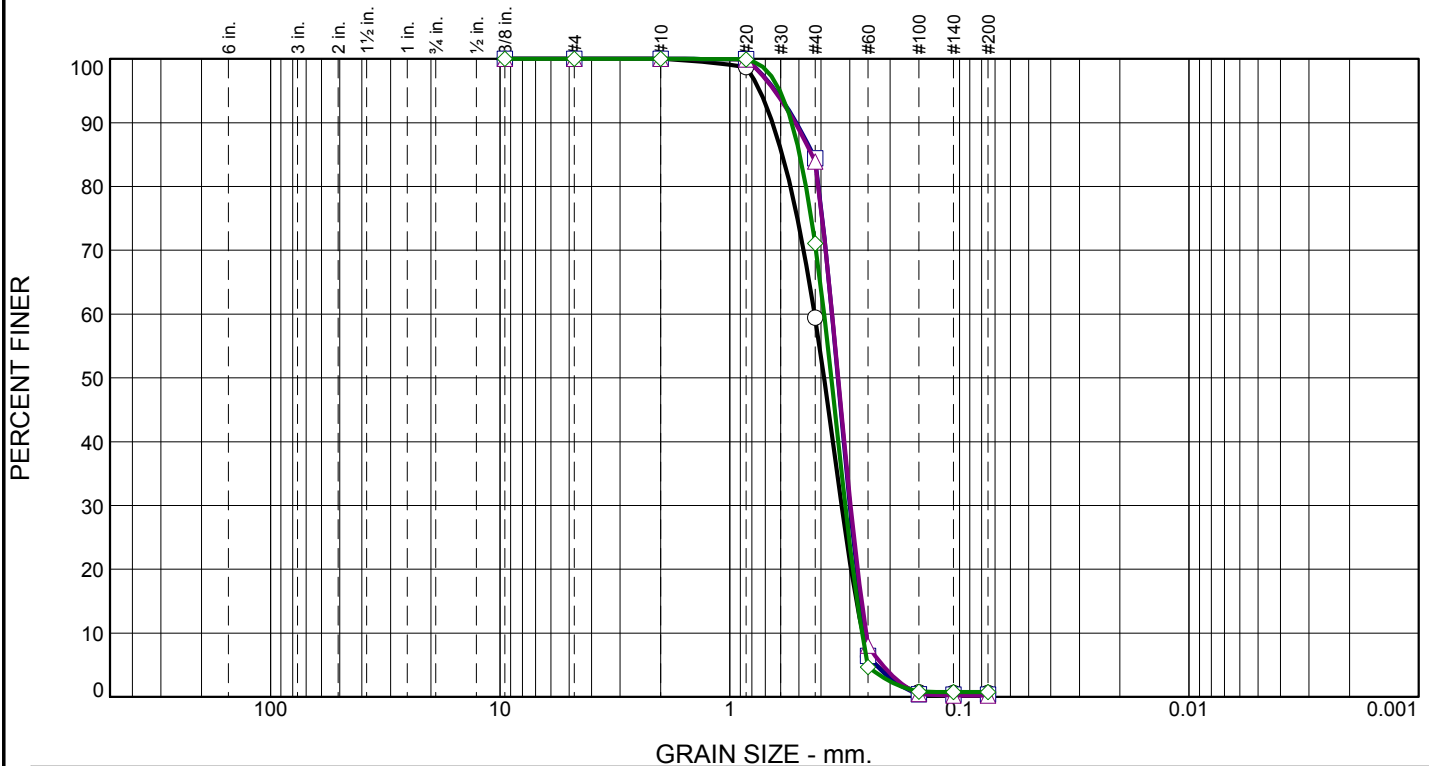
	% +3"		% Gravel		% Sand			% Fines		
			Coarse	Fine	Coarse	Medium	Fine	Silt		Clay
○	0.0		0.0	0.0	0.0	11.6	88.0	0.4		
×	LL	PL	D <sub>85</sub>	D <sub>60</sub>	D <sub>50</sub>	D <sub>30</sub>	D <sub>15</sub>	D <sub>10</sub>	C <sub>c</sub>	C <sub>u</sub>
○			0.4136	0.3530	0.3337	0.2976	0.2696	0.2591	0.97	1.36

Material Description	USCS	AASHTO
○ SAND, (SP), fine grained, white, dry	SP	

<b>Project No.</b> 0921230023 <b>Client:</b> U.S. Army Corps of Engineers <b>Project:</b> Mississippi Island <b>Location:</b> Sample - S-1 <b>Sample Number:</b> Lab # 4205	<b>Remarks:</b> ○ Tested: 11/16/09
<b>Thompson Engineering</b> <b>Mobile, Alabama</b>	<b>Figure</b>

Tested By: J.Maddox-G.Fancher      Checked By: R.Byrd

# Particle Size Distribution Report



	% +3"		% Gravel		% Sand			% Fines		
			Coarse	Fine	Coarse	Medium	Fine	Silt		Clay
○	0.0		0.0	0.0	0.0	40.5	58.9	0.6		
□	0.0		0.0	0.0	0.0	15.6	84.0	0.4		
△	0.0		0.0	0.0	0.0	16.1	83.7	0.2		
◇	0.0		0.0	0.0	0.0	28.9	70.3	0.8		
×	LL	PL	D85	D60	D50	D30	D15	D10	Cc	Cu
○			0.5905	0.4273	0.3888	0.3256	0.2808	0.2642	0.94	1.62
□			0.4328	0.3591	0.3382	0.2998	0.2702	0.2590	0.97	1.39
△			0.4392	0.3585	0.3371	0.2976	0.2669	0.2552	0.97	1.40
◇			0.4957	0.3885	0.3613	0.3138	0.2788	0.2659	0.95	1.46

Material Description	USCS	AASHTO
○ SAND, (SP), fine grained, white, dry	SP	
□ SAND, (SP), fine grained, white, dry	SP	
△ SAND, (SP), fine grained, with trace shell, white, dry	SP	
◇ SAND, (SP), fine grained, white, dry	SP	

<b>Project No.</b> 0921230023 <b>Client:</b> U.S. Army Corps of Engineers <b>Project:</b> Mississippi Island ○ <b>Location:</b> Sample - PBI-1 - North Center <b>Sample Number:</b> Lab # 4205 □ <b>Location:</b> Sample - PBI-2 - South Center <b>Sample Number:</b> Lab # 4205 △ <b>Location:</b> Sample - PBI-3 - North East <b>Sample Number:</b> Lab # 4205 ◇ <b>Location:</b> Sample - PBI-4 - South East <b>Sample Number:</b> Lab # 4205	<b>Remarks:</b> ○ Tested: 11/16/19 □ Tested: 11/16/09
<b>Thompson Engineering</b> <b>Mobile, Alabama</b>	<b>Figure</b>

Tested By: J.Maddox-G.Fancher      Checked By: R.Byrd

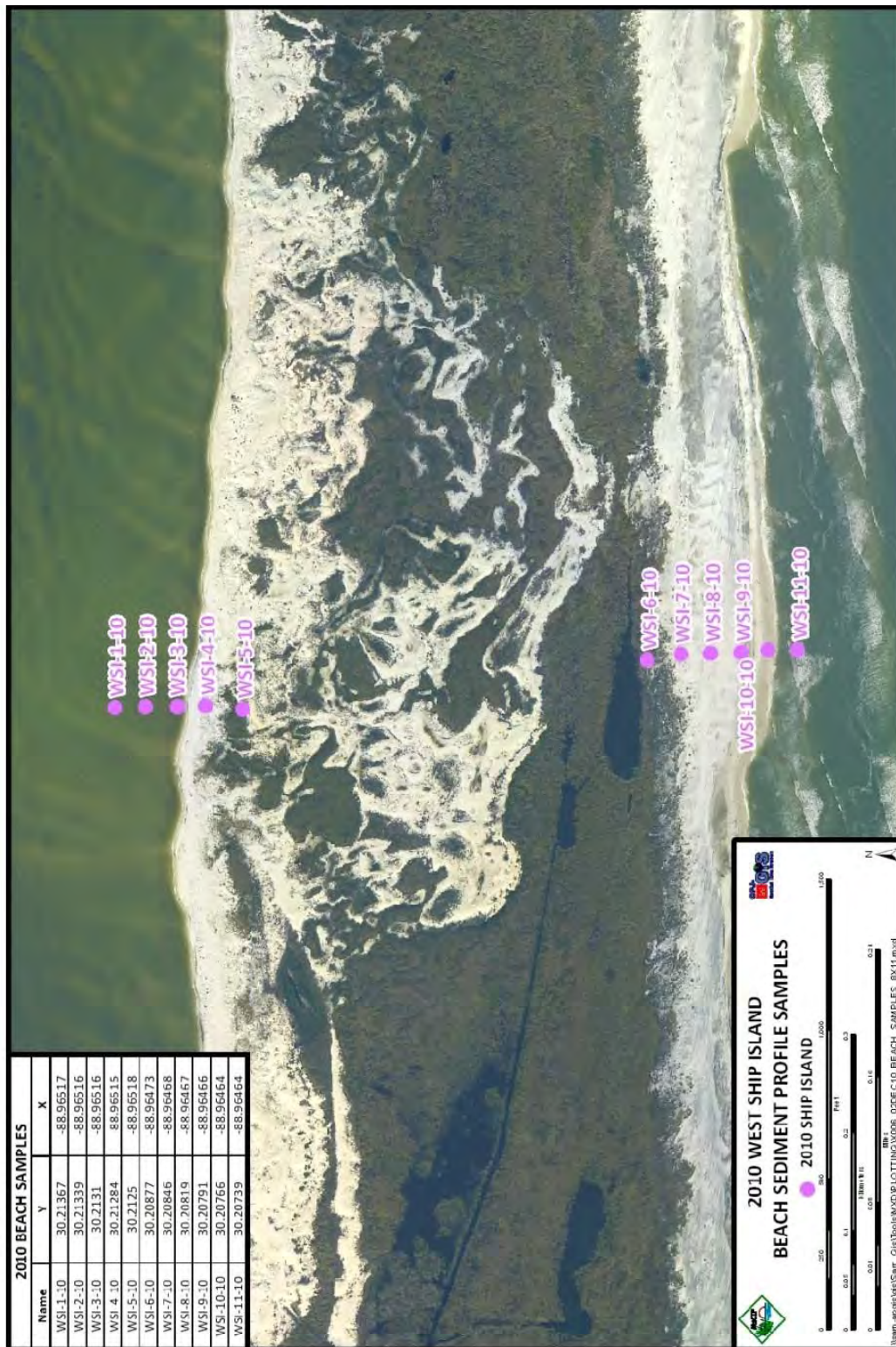
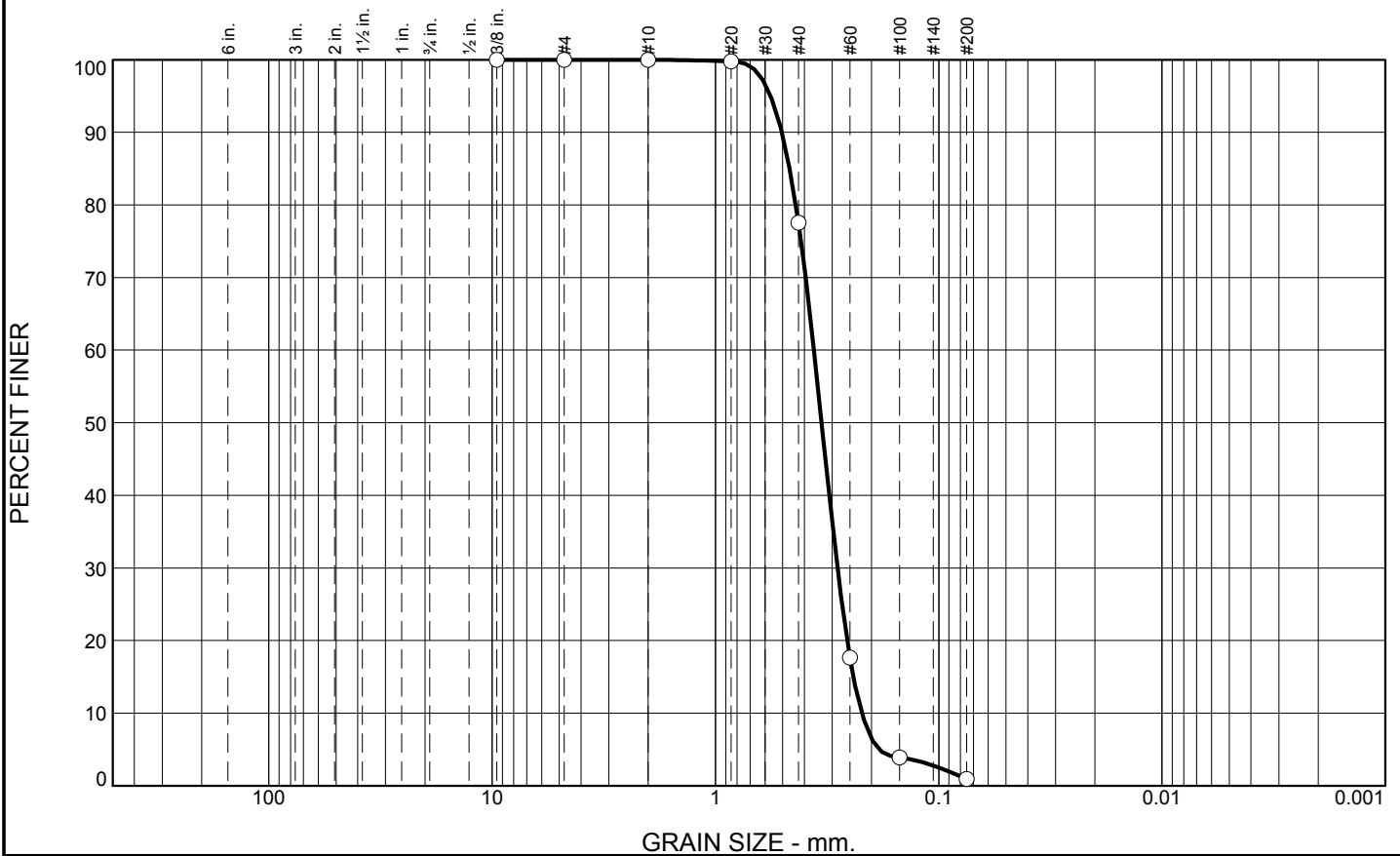


Figure 3.2.3.1 – Sampling locations for 2010 West Ship Island beach transect. These samples are labeled with the prefix BI-SIB in Table 3.2.3.1.



# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.0	0.0	22.4	76.6	1.0	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
.375	100.0		
#4	100.0		
#10	100.0		
#20	99.8		
#40	77.6		
#60	17.6		
#100	3.9		
#200	1.0		

\* (no specification provided)

**Material Description**  
SAND, (SP), medium to fine grained

**Atterberg Limits**  
 PL=      LL=      PI=

**Coefficients**  
 D<sub>90</sub>= 0.5040      D<sub>85</sub>= 0.4652      D<sub>60</sub>= 0.3626  
 D<sub>50</sub>= 0.3346      D<sub>30</sub>= 0.2838      D<sub>15</sub>= 0.2413  
 D<sub>10</sub>= 0.2211      C<sub>u</sub>= 1.64      C<sub>c</sub>= 1.00

**Classification**  
 USCS= SP      AASHTO=

**Remarks**  
 CADD CODE = CH10D965

**Location:** USACE Sample # BI-SIB-1-10  
**Sample Number:** TE Lab ID: 4607.01

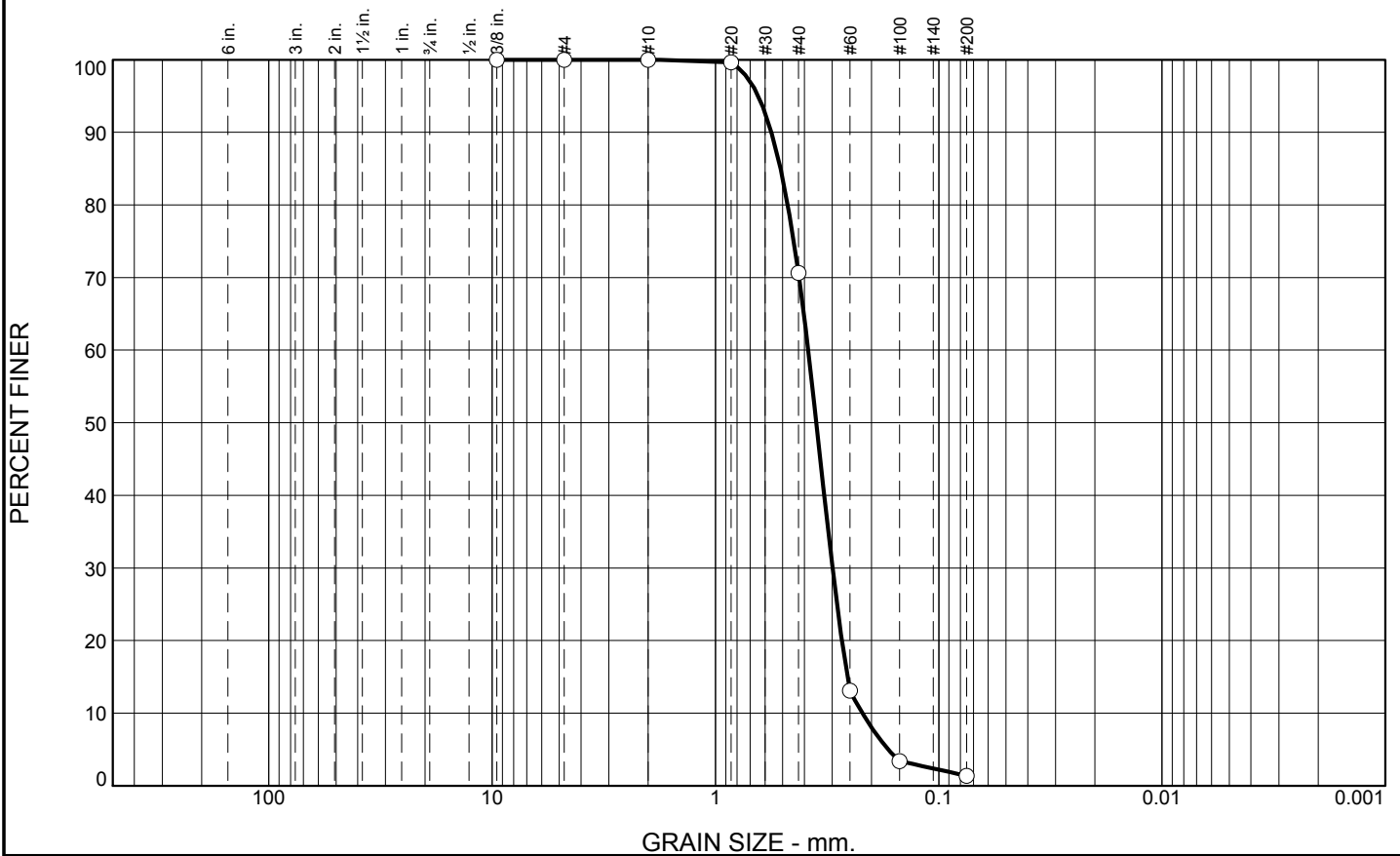
**Date:** 8/4/10

**Thompson Engineering**  
  
**Mobile, Alabama**

**Client:** US Army Corps of Engineers  
**Project:** Contract No. W91278-10-D-0026 - Task 03  
 Mississippi Barrier Island Restoration Project  
**Project No:** 10-2123-0009      **Report No.** Revised 8/18

**Tested By:** R.Martin      **Checked By:** R.Byrd

# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.0	0.0	29.4	69.2	1.4	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
.375	100.0		
#4	100.0		
#10	100.0		
#20	99.6		
#40	70.6		
#60	13.1		
#100	3.4		
#200	1.4		

\* (no specification provided)

<b><u>Material Description</u></b>		
SAND, (SP), medium to fine grained		
<b><u>Atterberg Limits</u></b>		
PL=	LL=	PI=
<b><u>Coefficients</u></b>		
D <sub>90</sub> = 0.5611	D <sub>85</sub> = 0.5107	D <sub>60</sub> = 0.3847
D <sub>50</sub> = 0.3535	D <sub>30</sub> = 0.2989	D <sub>15</sub> = 0.2563
D <sub>10</sub> = 0.2197	C <sub>u</sub> = 1.75	C <sub>c</sub> = 1.06
<b><u>Classification</u></b>		
USCS= SP	AASHTO=	
<b><u>Remarks</u></b>		
CADD CODE = CH10D965		

Location: USACE Sample # BI-SIB-2-10  
Sample Number: TE Lab ID: 4607.02

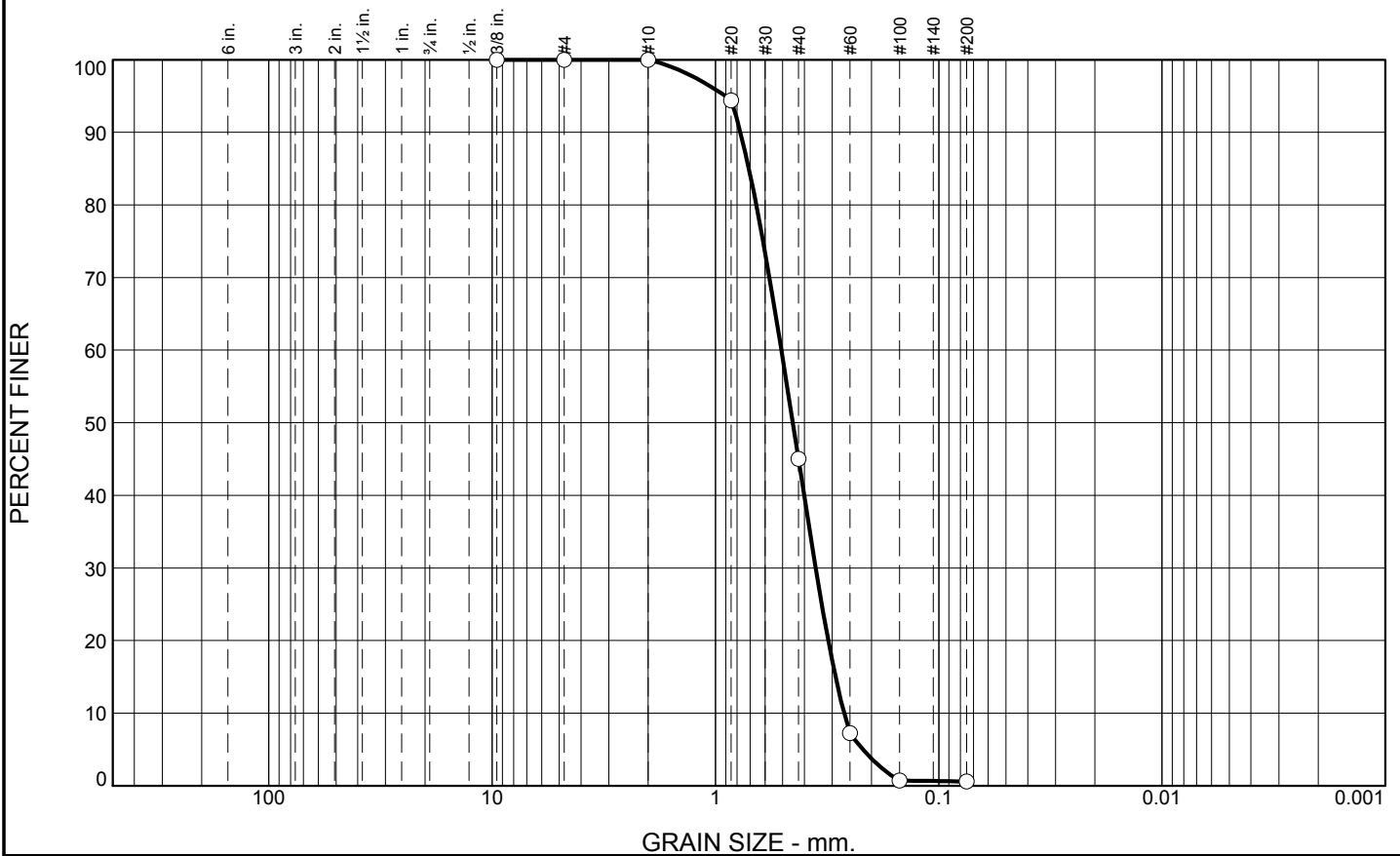
Date: 8/4/10

**Thompson Engineering**  
**Mobile, Alabama**

Client: US Army Corps of Engineers  
Project: Contract No. W91278-10-D-0026 - Task 03  
Mississippi Barrier Island Restoration Project  
Project No: 10-2123-0009  
Report No. Revised 8/18

Tested By: R.Martin Checked By: R.Byrd

# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.0	0.0	55.0	44.4	0.6	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
.375	100.0		
#4	100.0		
#10	100.0		
#20	94.4		
#40	45.0		
#60	7.2		
#100	0.7		
#200	0.6		

\* (no specification provided)

Material Description		
SAND, (SP), medium to fine grained		
<div> <div> <b>Atterberg Limits</b>            PL=      LL=      PI=         </div> <div> <b>Coefficients</b>            D<sub>90</sub>= 0.7735      D<sub>85</sub>= 0.7088      D<sub>60</sub>= 0.5066            D<sub>50</sub>= 0.4504      D<sub>30</sub>= 0.3559      D<sub>15</sub>= 0.2898            D<sub>10</sub>= 0.2655      C<sub>u</sub>= 1.91      C<sub>c</sub>= 0.94         </div> <div> <b>Classification</b>            USCS= SP      AASHTO=         </div> <div> <b>Remarks</b>            CADD CODE = CH10D965         </div> </div>		

Location: USACE Sample # BI-SIB-3-10  
Sample Number: TE Lab ID: 4607.03

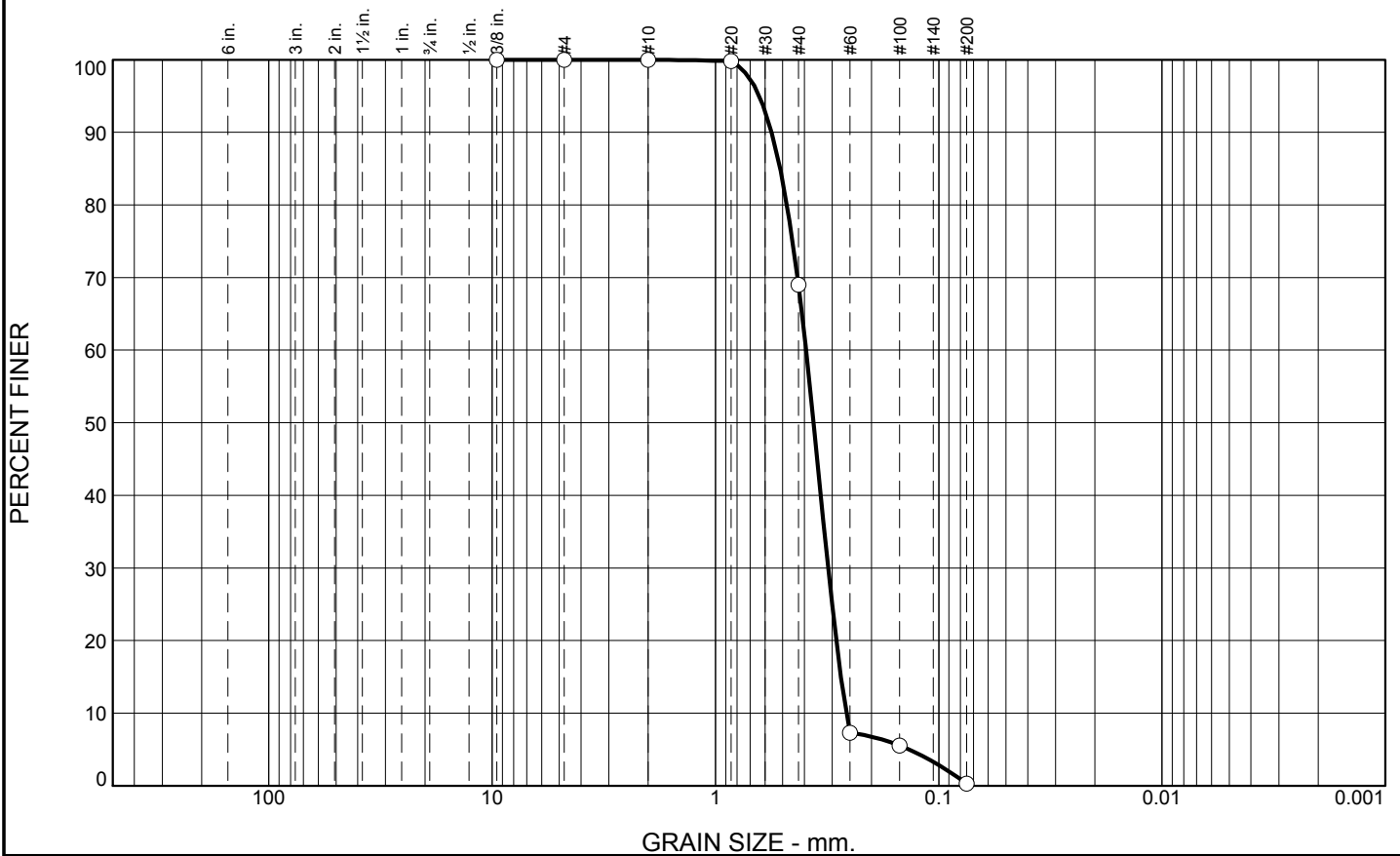
Date: 8/4/10

**Thompson Engineering**  
**Mobile, Alabama**

**Client:** US Army Corps of Engineers  
**Project:** Contract No. W91278-10-D-0026 - Task 03  
Mississippi Barrier Island Restoration Project  
**Project No:** 10-2123-0009      **Report No.** Revised 8/18

Tested By: R.Martin      Checked By: R.Byrd

# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.0	0.0	31.0	68.7	0.3	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
.375	100.0		
#4	100.0		
#10	100.0		
#20	99.8		
#40	69.0		
#60	7.3		
#100	5.5		
#200	0.3		

\* (no specification provided)

## Material Description

SAND, (SP), medium to fine grained, with trace organics

## Atterberg Limits

PL= LL= PI=

## Coefficients

D<sub>90</sub>= 0.5602 D<sub>85</sub>= 0.5129 D<sub>60</sub>= 0.3933  
D<sub>50</sub>= 0.3638 D<sub>30</sub>= 0.3126 D<sub>15</sub>= 0.2742  
D<sub>10</sub>= 0.2594 C<sub>u</sub>= 1.52 C<sub>c</sub>= 0.96

## Classification

USCS= SP AASHTO=

## Remarks

CADD CODE = CH10D965

Location: USACE Sample # BI-SIB-4-10  
Sample Number: TE Lab ID: 4607.04

Date: 8/4/10

**Thompson Engineering**

**Mobile, Alabama**

Client: US Army Corps of Engineers  
Project: Contract No. W91278-10-D-0026 - Task 03  
Mississippi Barrier Island Restoration Project

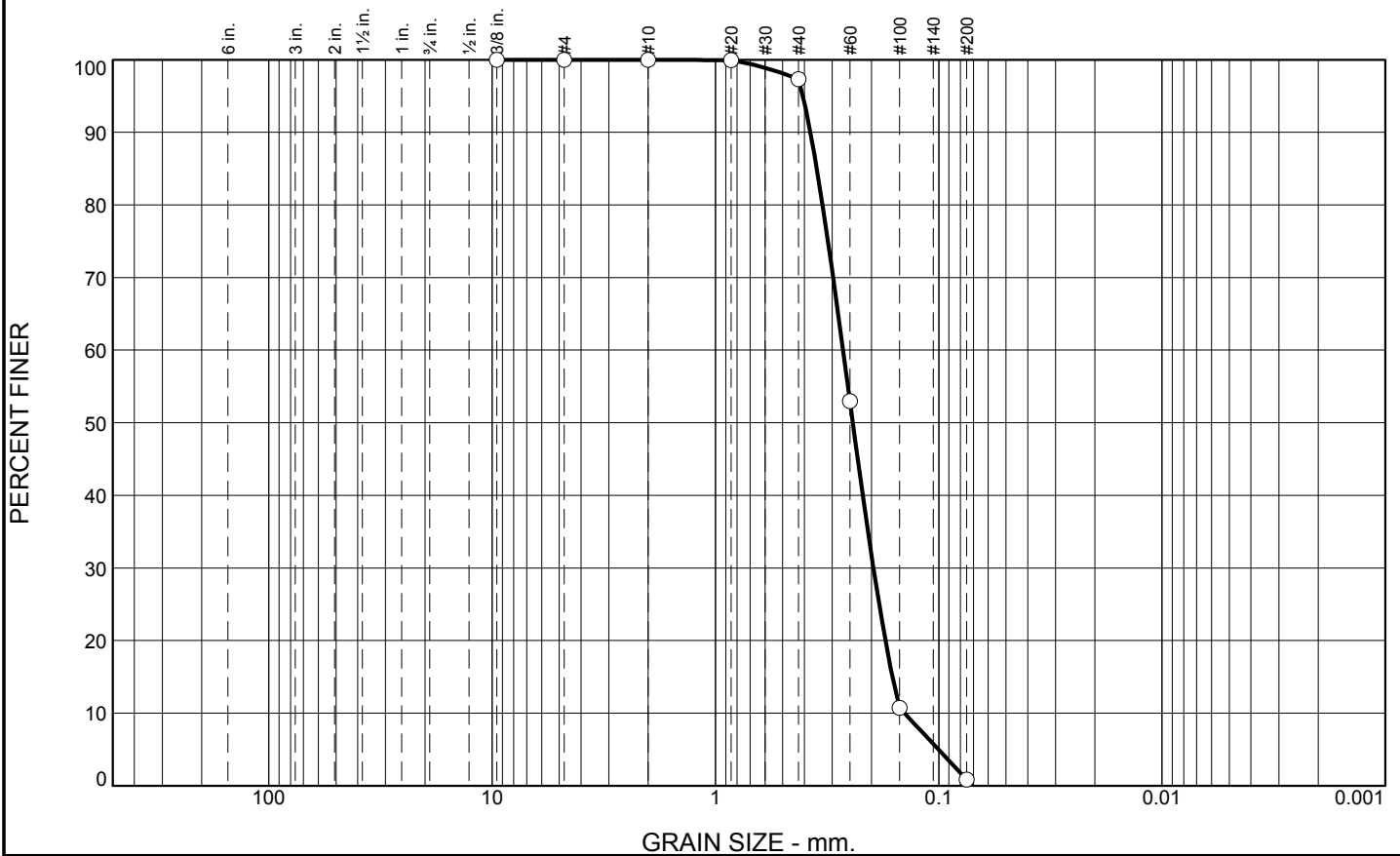
Project No: 10-2123-0009

Report No. Revised 8/18

Tested By: R.Martin

Checked By: R.Byrd

# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.0	0.0	2.7	96.4	0.9	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
.375	100.0		
#4	100.0		
#10	100.0		
#20	99.9		
#40	97.3		
#60	53.0		
#100	10.7		
#200	0.9		

\* (no specification provided)

<u><b>Material Description</b></u>		
SAND, (SP), fine grained		
<u><b>Atterberg Limits</b></u>		
PL=	LL=	PI=
<u><b>Coefficients</b></u>		
D <sub>90</sub> = 0.3759	D <sub>85</sub> = 0.3517	D <sub>60</sub> = 0.2683
D <sub>50</sub> = 0.2426	D <sub>30</sub> = 0.1962	D <sub>15</sub> = 0.1613
D <sub>10</sub> = 0.1425	C <sub>u</sub> = 1.88	C <sub>c</sub> = 1.01
<u><b>Classification</b></u>		
USCS= SP	AASHTO=	
<u><b>Remarks</b></u>		
CADD CODE = CH10D965		

Location: USACE Sample # BI-SIB-5-10  
Sample Number: TE Lab ID: 4607.05

Date: 8/4/10

**Thompson Engineering**  
**Mobile, Alabama**

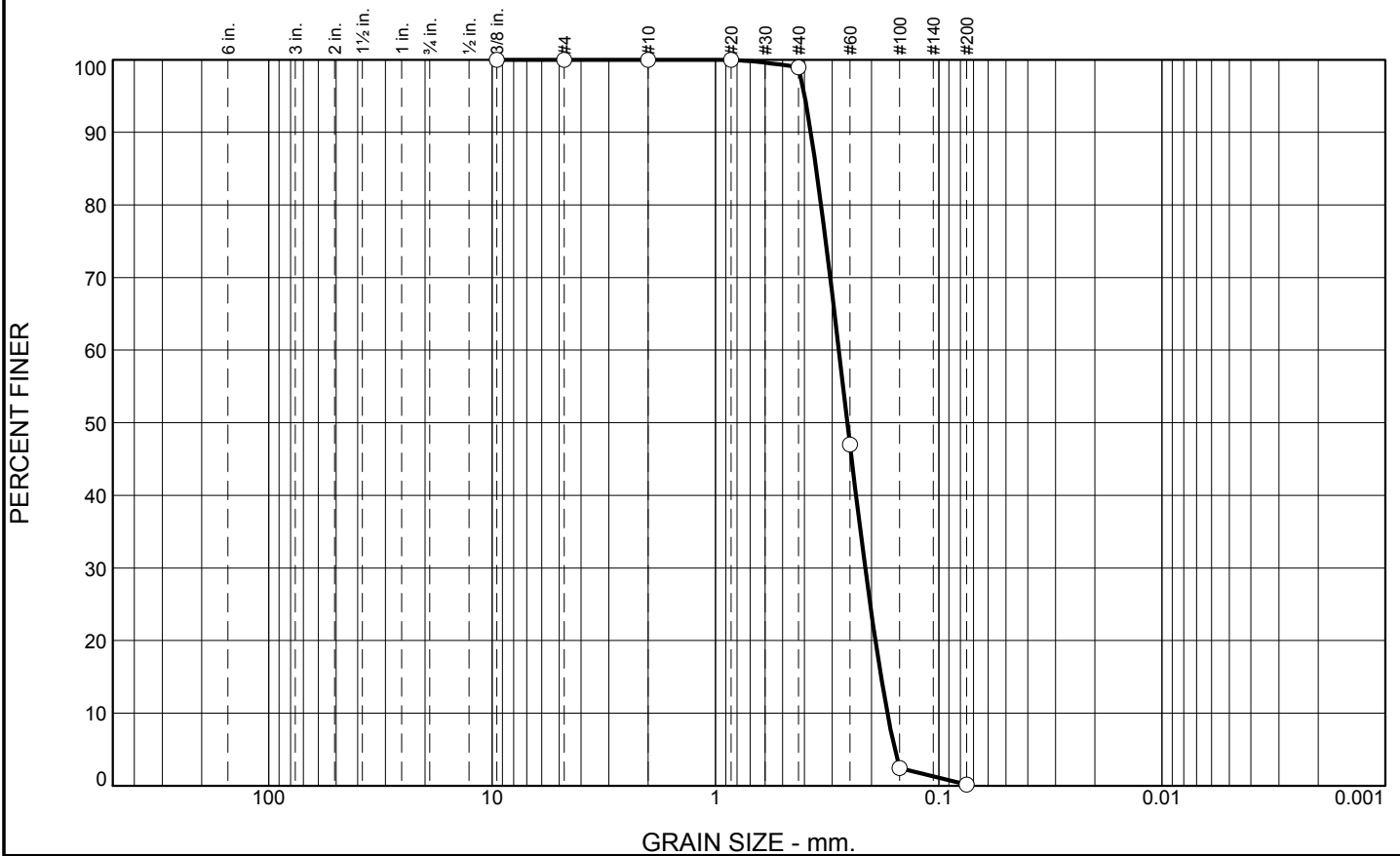
**Client:** US Army Corps of Engineers  
**Project:** Contract No. W91278-10-D-0026 - Task 03  
Mississippi Barrier Island Restoration Project  
**Project No:** 10-2123-0009  
**Report No.** Revised 8/18

Tested By: R.Martin

Checked By: R.Byrd



# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.0	0.0	1.0	98.8	0.2	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
.375	100.0		
#4	100.0		
#10	100.0		
#20	100.0		
#40	99.0		
#60	47.0		
#100	2.4		
#200	0.2		

\* (no specification provided)

Material Description		
SAND, (SP), fine grained		
<div> <div> <b>Atterberg Limits</b>            PL=      LL=      PI=         </div> <div> <b>Coefficients</b>            D<sub>90</sub>= 0.3744      D<sub>85</sub>= 0.3540      D<sub>60</sub>= 0.2801            D<sub>50</sub>= 0.2567      D<sub>30</sub>= 0.2134      D<sub>15</sub>= 0.1813            D<sub>10</sub>= 0.1699      C<sub>u</sub>= 1.65      C<sub>c</sub>= 0.96         </div> <div> <b>Classification</b>            USCS= SP      AASHTO=         </div> <div> <b>Remarks</b>            CADD CODE = CH10D965         </div> </div>		

Location: USACE Sample # BI-SIB-6-10  
Sample Number: TE Lab ID: 4607.06

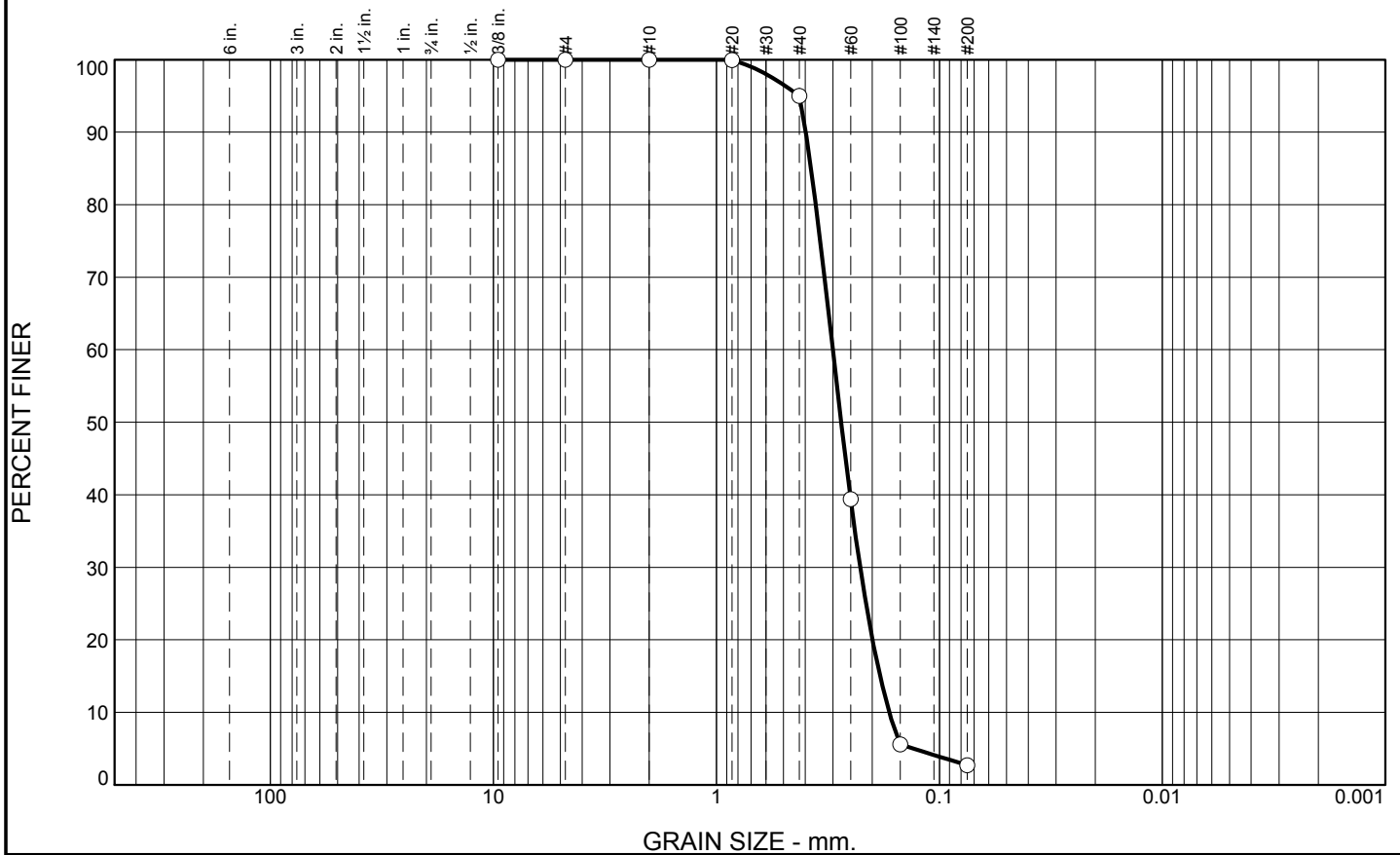
Date: 8/4/10

**Thompson Engineering**  
**Mobile, Alabama**

**Client:** US Army Corps of Engineers  
**Project:** Contract No. W91278-10-D-0026 - Task 03  
Mississippi Barrier Island Restoration Project  
**Project No:** 10-2123-0009      **Report No.** Revised 8/18

Tested By: R.Martin      Checked By: R.Byrd

# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.0	0.0	5.0	92.3	2.7	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
.375	100.0		
#4	100.0		
#10	100.0		
#20	100.0		
#40	95.0		
#60	39.4		
#100	5.6		
#200	2.7		

\* (no specification provided)

**Material Description**  
 SAND, (SP), fine grained

**Atterberg Limits**  
 PL=      LL=      PI=

**Coefficients**  
 D<sub>90</sub>= 0.3981      D<sub>85</sub>= 0.3768      D<sub>60</sub>= 0.3003  
 D<sub>50</sub>= 0.2756      D<sub>30</sub>= 0.2266      D<sub>15</sub>= 0.1846  
 D<sub>10</sub>= 0.1679      C<sub>u</sub>= 1.79      C<sub>c</sub>= 1.02

**Classification**  
 USCS= SP      AASHTO=

**Remarks**  
 CADD CODE = CH10D965

**Location:** USACE Sample # BI-SIB-7-10  
**Sample Number:** TE Lab ID: 4607.07

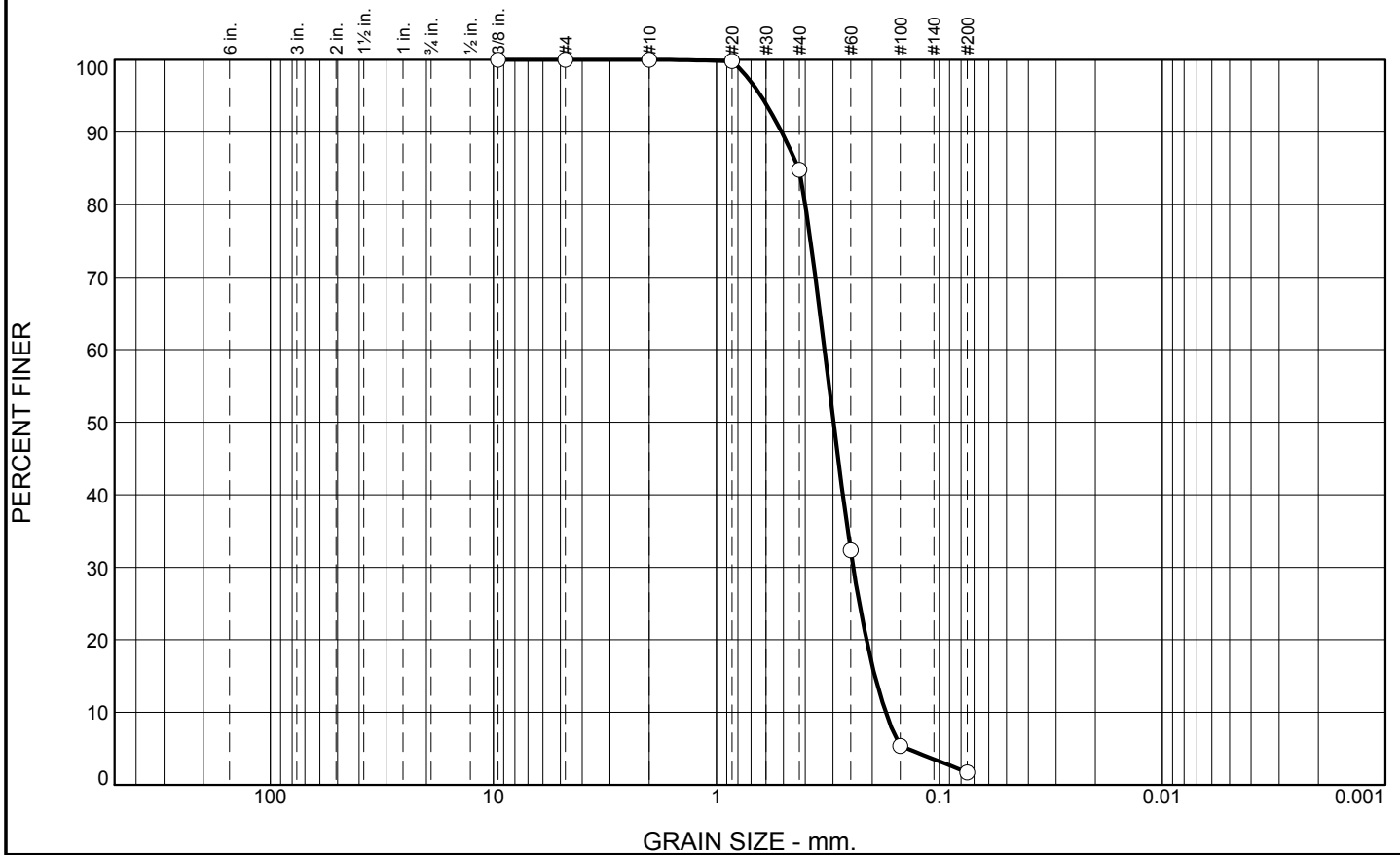
**Date:** 8/4/10

**Thompson Engineering**  
  
**Mobile, Alabama**

**Client:** US Army Corps of Engineers  
**Project:** Contract No. W91278-10-D-0026 - Task 03  
 Mississippi Barrier Island Restoration Project  
**Project No:** 10-2123-0009      **Report No.** Revised 8/18

**Tested By:** R.Martin      **Checked By:** R.Byrd

# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.0	0.0	15.2	83.1	1.7	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
.375	100.0		
#4	100.0		
#10	100.0		
#20	99.8		
#40	84.8		
#60	32.3		
#100	5.4		
#200	1.7		

\* (no specification provided)

<u><b>Material Description</b></u>		
SAND, (SP), medium to fine grained		
<u><b>Atterberg Limits</b></u>		
PL=	LL=	PI=
<u><b>Coefficients</b></u>		
D <sub>90</sub> = 0.5093	D <sub>85</sub> = 0.4276	D <sub>60</sub> = 0.3272
D <sub>50</sub> = 0.2983	D <sub>30</sub> = 0.2434	D <sub>15</sub> = 0.1947
D <sub>10</sub> = 0.1741	C <sub>u</sub> = 1.88	C <sub>c</sub> = 1.04
<u><b>Classification</b></u>		
USCS= SP	AASHTO=	
<u><b>Remarks</b></u>		
CADD CODE = CH10D965		

Location: USACE Sample # BI-SIB-8-10  
Sample Number: TE Lab ID: 4607.08

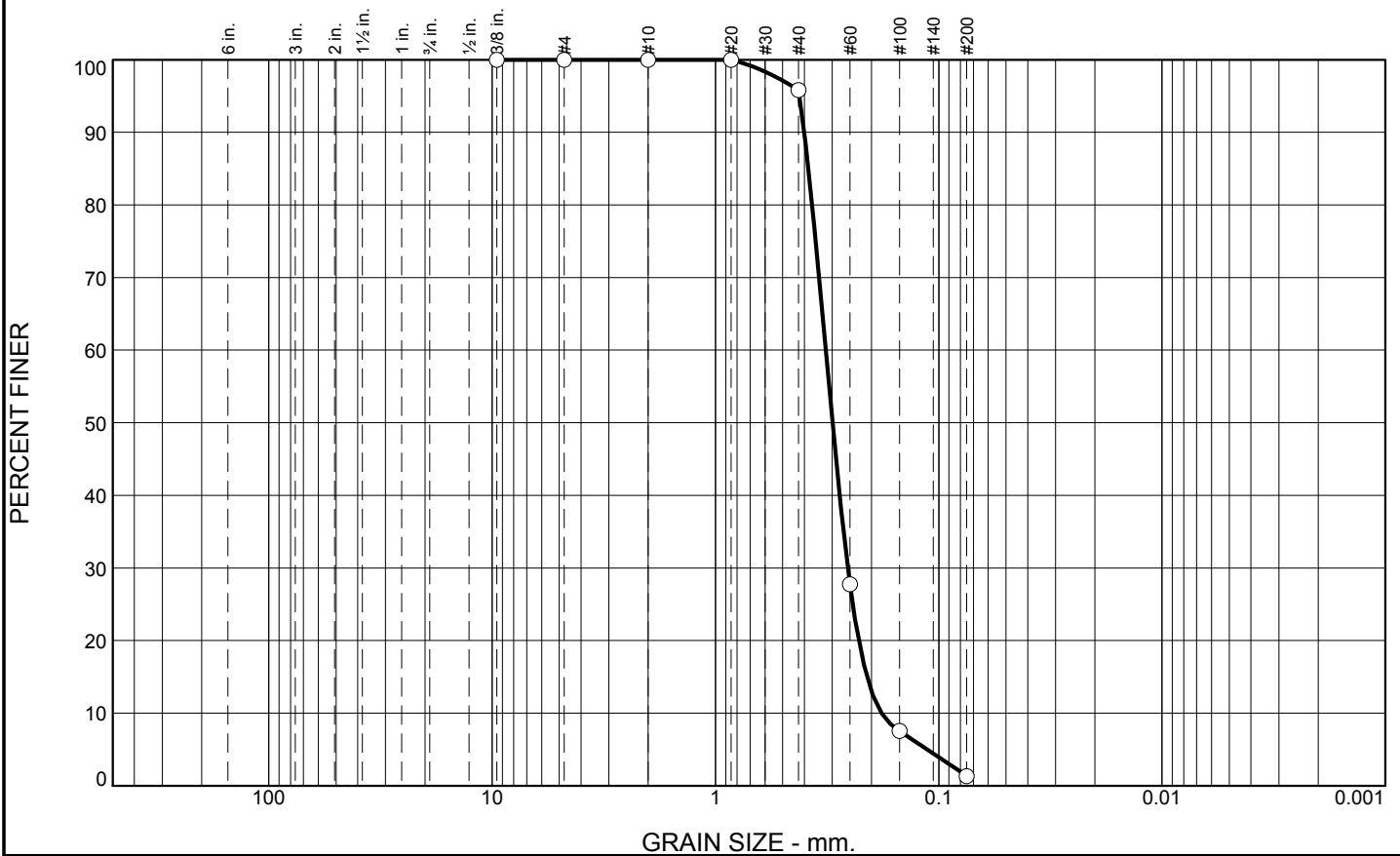
Date: 8/4/10

**Thompson Engineering**  
**Mobile, Alabama**

**Client:** US Army Corps of Engineers  
**Project:** Contract No. W91278-10-D-0026 - Task 03  
Mississippi Barrier Island Restoration Project  
**Project No:** 10-2123-0009  
**Report No.** Revised 8/18

Tested By: R.Martin Checked By: R.Byrd

# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.0	0.0	4.2	94.5	1.3	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
.375	100.0		
#4	100.0		
#10	100.0		
#20	100.0		
#40	95.8		
#60	27.8		
#100	7.6		
#200	1.3		

\* (no specification provided)

**Material Description**  
 SAND, (SP), fine grained

**Atterberg Limits**  
 PL=      LL=      PI=

**Coefficients**  
 D<sub>90</sub>= 0.4009      D<sub>85</sub>= 0.3840      D<sub>60</sub>= 0.3203  
 D<sub>50</sub>= 0.2988      D<sub>30</sub>= 0.2554      D<sub>15</sub>= 0.2097  
 D<sub>10</sub>= 0.1806      C<sub>u</sub>= 1.77      C<sub>c</sub>= 1.13

**Classification**  
 USCS= SP      AASHTO=

**Remarks**  
 CADD CODE = CH10D965

**Location:** USACE Sample # BI-SIB-9-10  
**Sample Number:** TE Lab ID: 4607.09

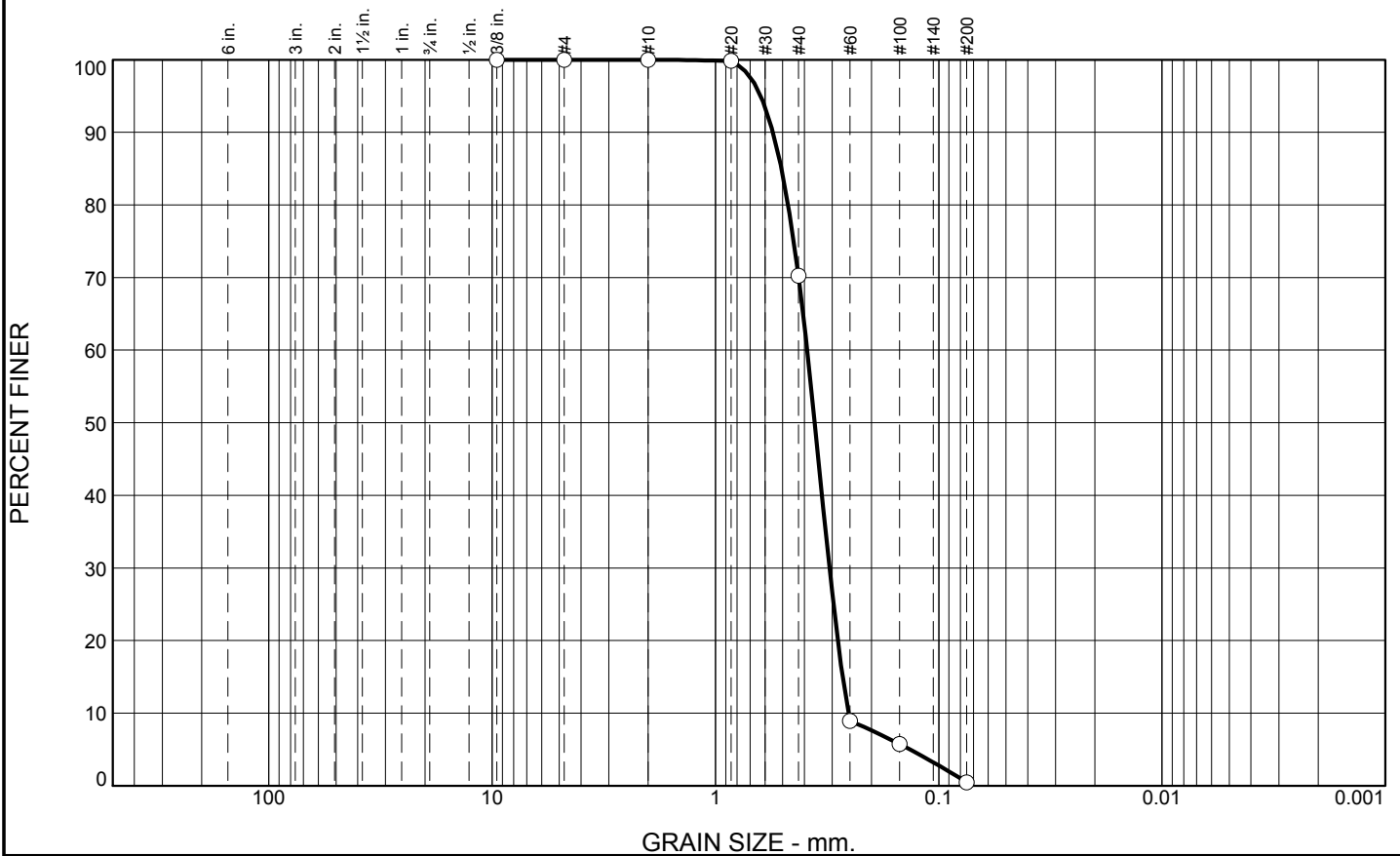
**Date:** 78/4/10

**Thompson Engineering**  
  
**Mobile, Alabama**

**Client:** US Army Corps of Engineers  
**Project:** Contract No. W91278-10-D-0026 - Task 03  
 Mississippi Barrier Island Restoration Project  
**Project No:** 10-2123-0009      **Report No.** Revised 8/18

**Tested By:** R.Martin      **Checked By:** R.Byrd

# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.0	0.0	29.8	69.7	0.5	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
.375	100.0		
#4	100.0		
#10	100.0		
#20	99.8		
#40	70.2		
#60	8.9		
#100	5.8		
#200	0.5		

\* (no specification provided)

<u><b>Material Description</b></u>		
SAND, (SP), medium to fine grained		
<u><b>Atterberg Limits</b></u>		
PL=	LL=	PI=
<u><b>Coefficients</b></u>		
D <sub>90</sub> = 0.5523	D <sub>85</sub> = 0.5060	D <sub>60</sub> = 0.3888
D <sub>50</sub> = 0.3596	D <sub>30</sub> = 0.3084	D <sub>15</sub> = 0.2694
D <sub>10</sub> = 0.2538	C <sub>u</sub> = 1.53	C <sub>c</sub> = 0.96
<u><b>Classification</b></u>		
USCS= SP	AASHTO=	
<u><b>Remarks</b></u>		
CADD CODE = CH10D965		

Location: USACE Sample # BI-SIB-10-10  
Sample Number: TE Lab ID: 4607.10

Date: 8/4/10

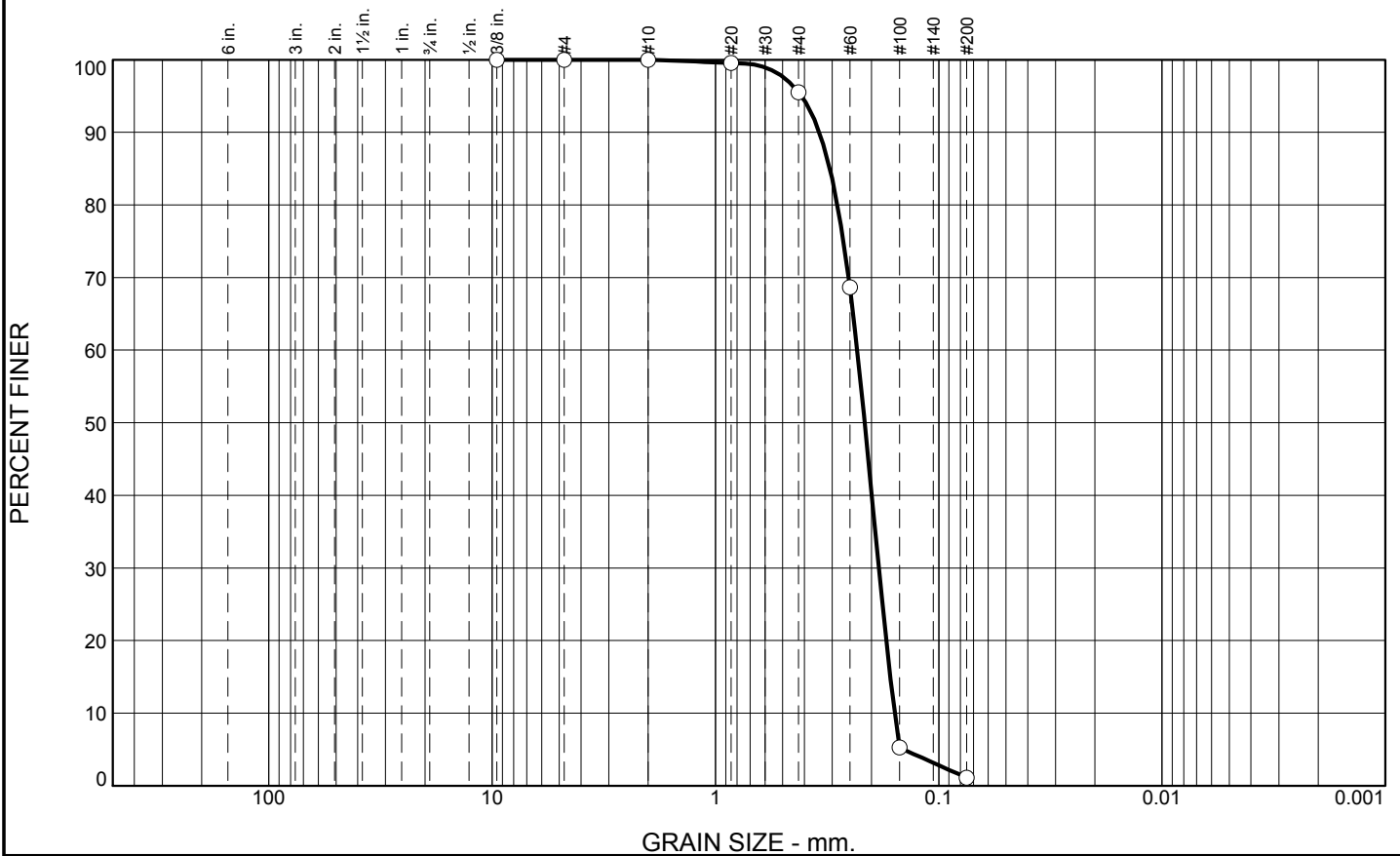
**Thompson Engineering**  
**Mobile, Alabama**

**Client:** US Army Corps of Engineers  
**Project:** Contract No. W91278-10-D-0026 - Task 03  
Mississippi Barrier Island Restoration Project  
**Project No:** 10-2123-0009  
**Report No.** Revised 8/18

Tested By: R.Martin Checked By: R.Byrd



# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.0	0.0	4.5	94.4	1.1	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
.375	100.0		
#4	100.0		
#10	100.0		
#20	99.6		
#40	95.5		
#60	68.7		
#100	5.3		
#200	1.1		

\* (no specification provided)

## Material Description

SAND, (SP), fine grained

## Atterberg Limits

PL=

LL=

PI=

## Coefficients

D<sub>90</sub>= 0.3422

D<sub>85</sub>= 0.3073

D<sub>60</sub>= 0.2319

D<sub>50</sub>= 0.2147

D<sub>30</sub>= 0.1856

D<sub>15</sub>= 0.1649

D<sub>10</sub>= 0.1576

C<sub>u</sub>= 1.47

C<sub>c</sub>= 0.94

## Classification

USCS= SP

AASHTO=

## Remarks

CADD CODE = CH10D965

Location: USACE Sample # BI-SIB-11-10  
Sample Number: TE Lab ID: 4607.11

Date: 8/4/10

**Thompson Engineering**

**Mobile, Alabama**

Client: US Army Corps of Engineers

Project: Contract No. W91278-10-D-0026 - Task 03  
Mississippi Barrier Island Restoration Project

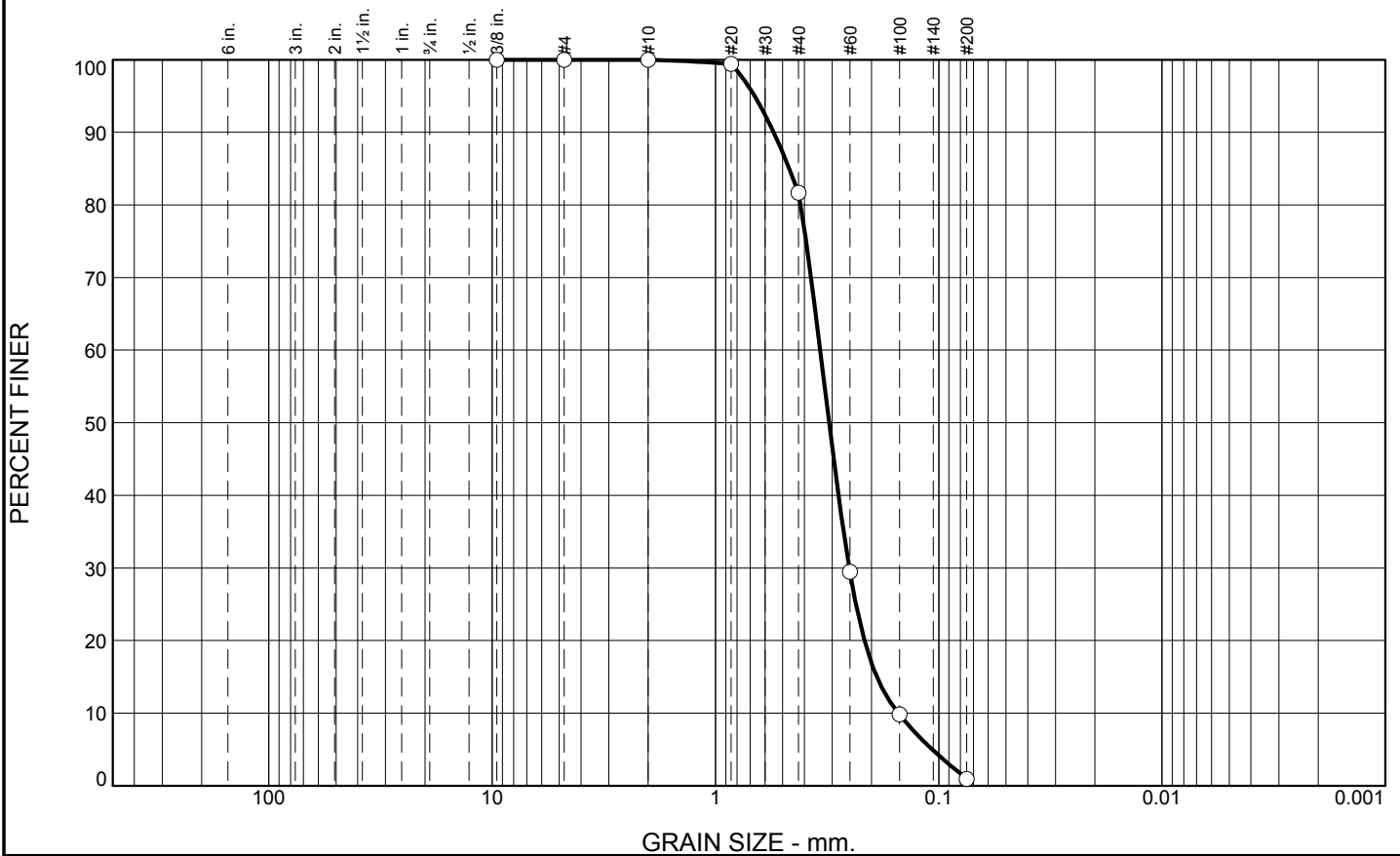
Project No: 10-2123-0009

Report No. Revised 8/18

Tested By: R.Martin

Checked By: R.Byrd

# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.0	0.0	18.3	80.8	0.9	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
.375	100.0		
#4	100.0		
#10	100.0		
#20	99.4		
#40	81.7		
#60	29.5		
#100	9.8		
#200	0.9		

\* (no specification provided)

<u><b>Material Description</b></u>		
SAND, (SP), medium to fine grained		
<u><b>Atterberg Limits</b></u>		
PL=	LL=	PI=
<u><b>Coefficients</b></u>		
D <sub>90</sub> = 0.5485	D <sub>85</sub> = 0.4670	D <sub>60</sub> = 0.3395
D <sub>50</sub> = 0.3095	D <sub>30</sub> = 0.2517	D <sub>15</sub> = 0.1896
D <sub>10</sub> = 0.1517	C <sub>u</sub> = 2.24	C <sub>c</sub> = 1.23
<u><b>Classification</b></u>		
USCS= SP	AASHTO=	
<u><b>Remarks</b></u>		
CADD CODE = CH10D965		

**Location:** USACE Sample # BI-SIB-10 - Composite Samples  
**Sample Number:** TE Lab ID: 4607.12

**Date:** 8/4/10

**Thompson Engineering**  
**Mobile, Alabama**

**Client:** US Army Corps of Engineers  
**Project:** Contract No. W91278-10-D-0026 - Task 03  
 Mississippi Barrier Island Restoration Project  
**Project No:** 10-2123-0009 **Report No.** Revised 8/18

**Tested By:** R.Martin **Checked By:** R.Byrd

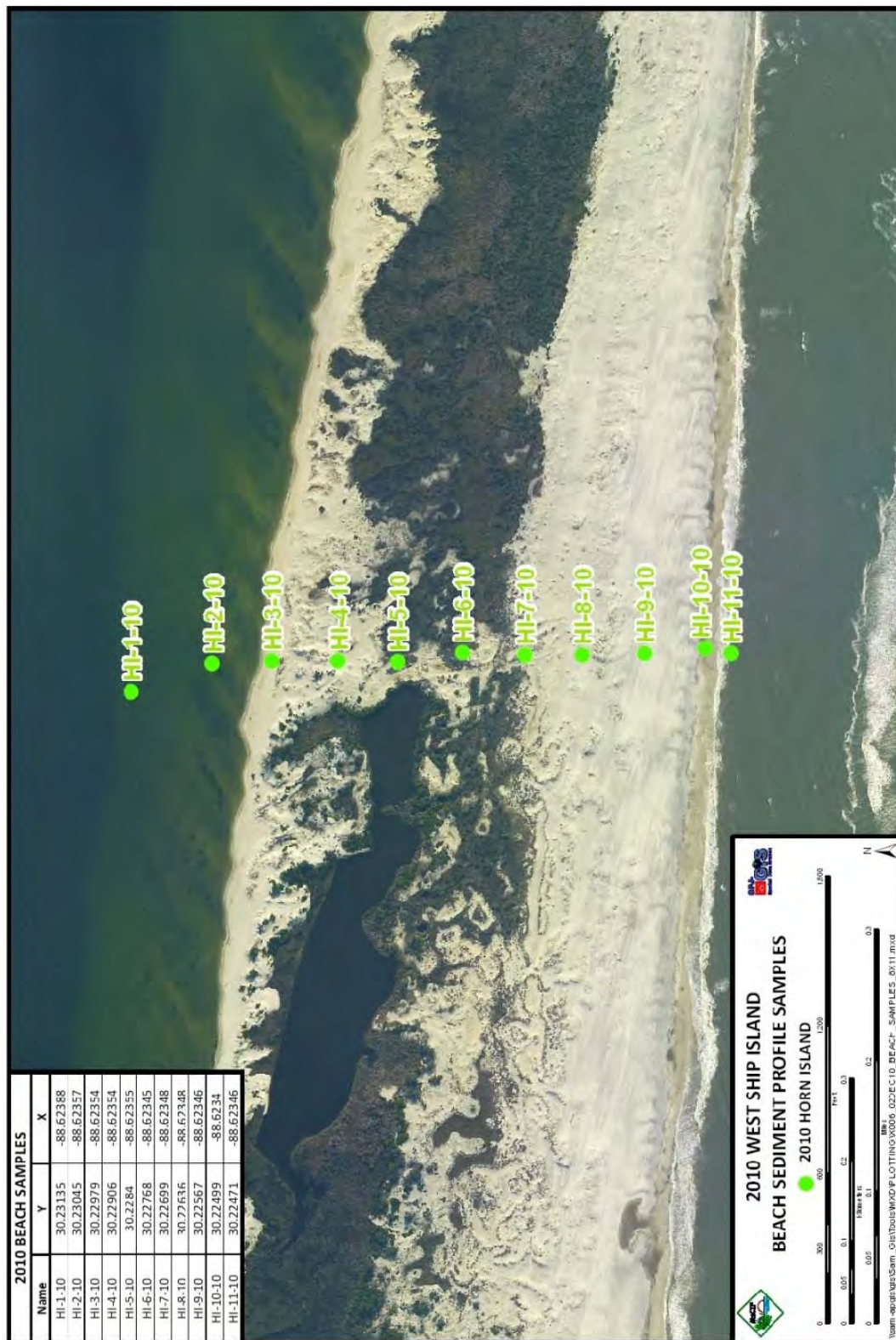
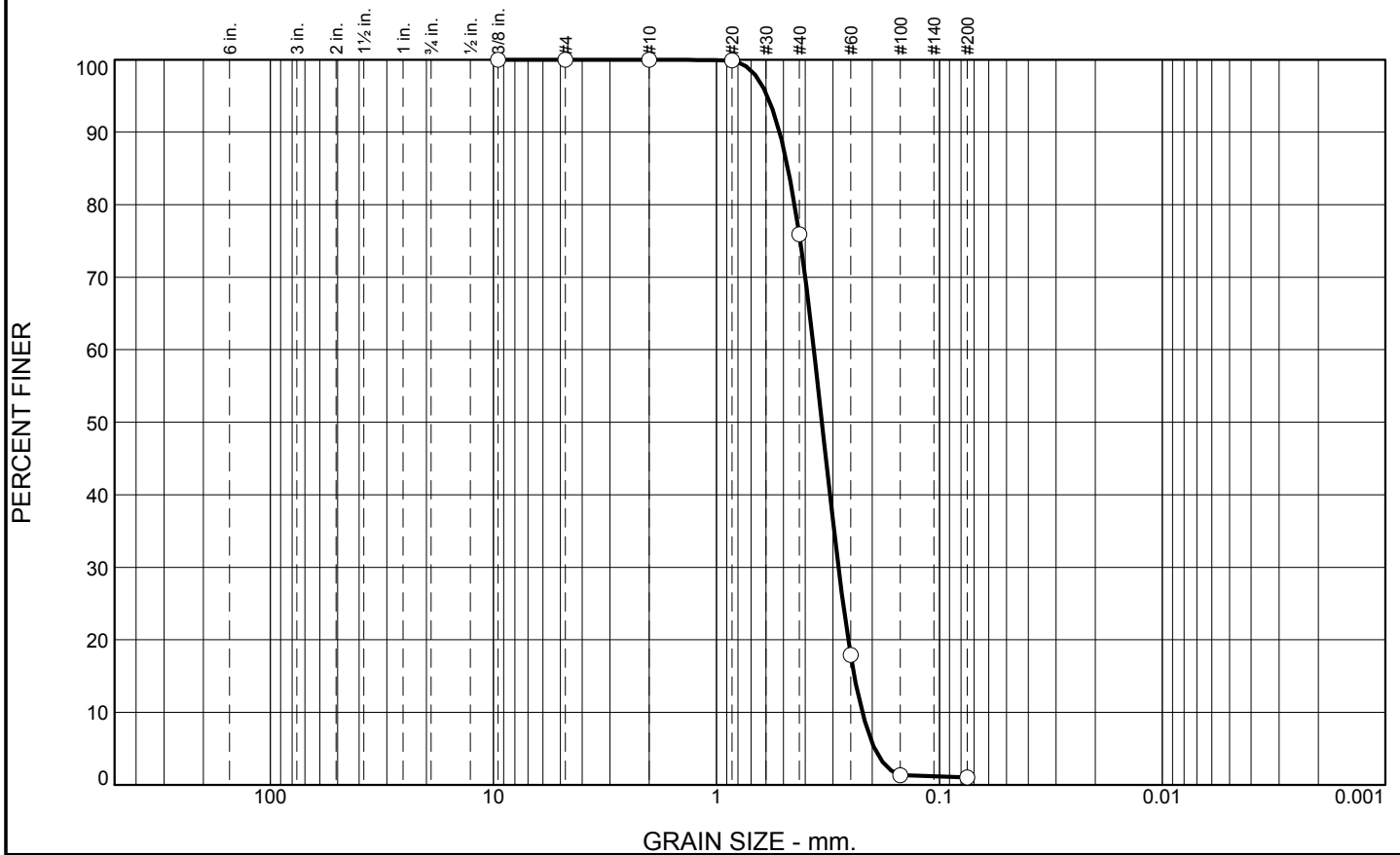


Figure 3.2.3.2 - Sampling locations for 2010 Horn Island beach transect. These samples are labeled with the prefix BI-HIB in Table 3.2.3.2.

# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.0	0.0	24.1	74.9	1.0	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
.375	100.0		
#4	100.0		
#10	100.0		
#20	99.9		
#40	75.9		
#60	17.9		
#100	1.3		
#200	1.0		

\* (no specification provided)

<u><b>Material Description</b></u>		
SAND, (SP), medium to fine grained		
<u><b>Atterberg Limits</b></u>		
PL=	LL=	PI=
<u><b>Coefficients</b></u>		
D <sub>90</sub> = 0.5205	D <sub>85</sub> = 0.4773	D <sub>60</sub> = 0.3657
D <sub>50</sub> = 0.3362	D <sub>30</sub> = 0.2834	D <sub>15</sub> = 0.2406
D <sub>10</sub> = 0.2217	C <sub>u</sub> = 1.65	C <sub>c</sub> = 0.99
<u><b>Classification</b></u>		
USCS= SP	AASHTO=	
<u><b>Remarks</b></u>		
CADD CODE = CH10D965		

Location: USACE Sample # BI-HIB-1-10  
Sample Number: TE Lab ID: 4607.13

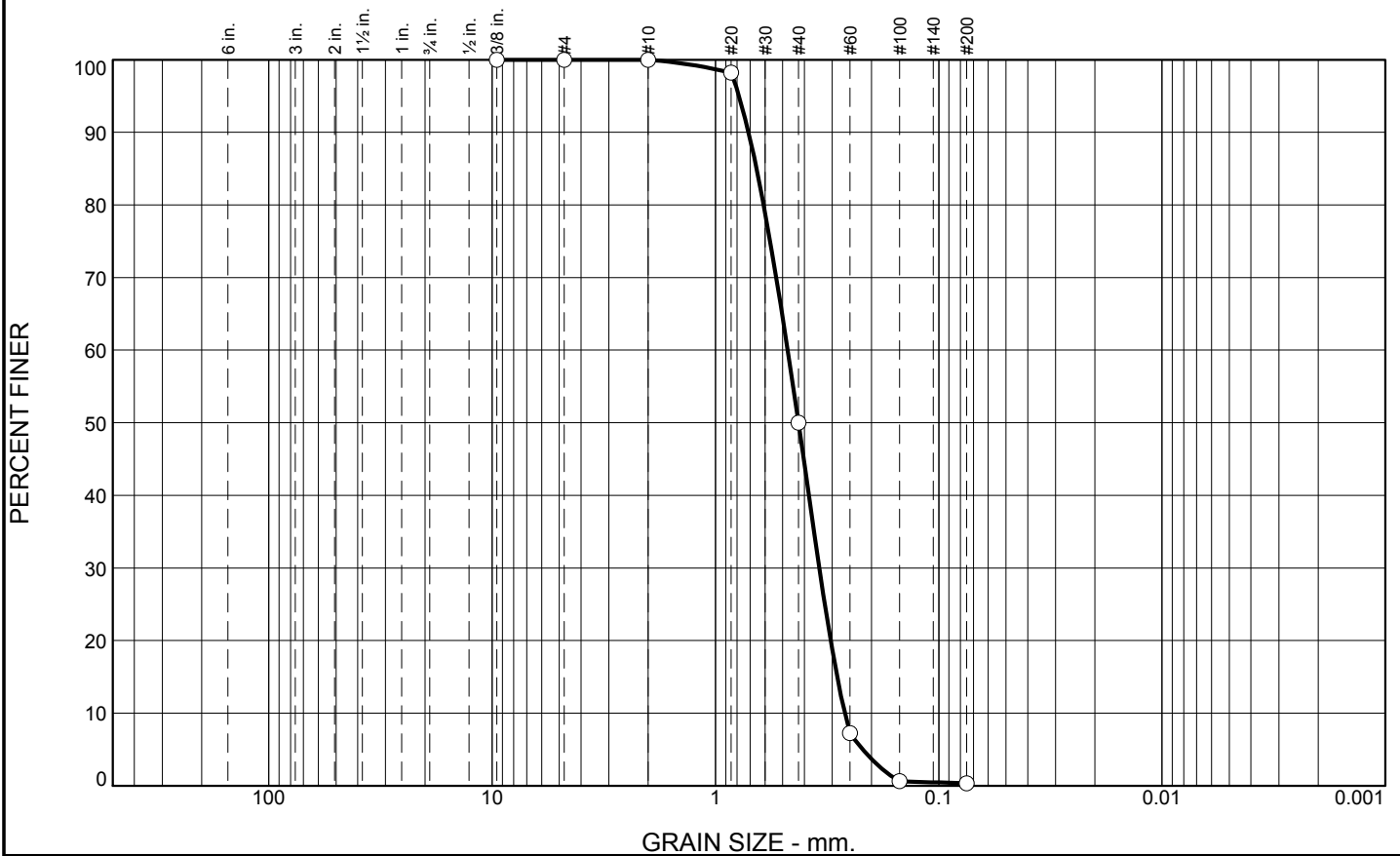
Date: 8/4/10

**Thompson Engineering**  
**Mobile, Alabama**

**Client:** US Army Corps of Engineers  
**Project:** Contract No. W91278-10-D-0026 - Task 03  
Mississippi Barrier Island Restoration Project  
**Project No:** 10-2123-0009  
**Report No.** Revised 8/18

Tested By: R.Martin Checked By: R.Byrd

# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.0	0.0	50.0	49.7	0.3	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
.375	100.0		
#4	100.0		
#10	100.0		
#20	98.2		
#40	50.0		
#60	7.3		
#100	0.6		
#200	0.3		

\* (no specification provided)

Material Description		
SAND, (SP), medium to fine grained		
<div> <div> <b>Atterberg Limits</b>            PL=      LL=      PI=         </div> <div> <b>Coefficients</b>            D<sub>90</sub>= 0.7112      D<sub>85</sub>= 0.6550      D<sub>60</sub>= 0.4746            D<sub>50</sub>= 0.4250      D<sub>30</sub>= 0.3427      D<sub>15</sub>= 0.2849            D<sub>10</sub>= 0.2635      C<sub>u</sub>= 1.80      C<sub>c</sub>= 0.94         </div> <div> <b>Classification</b>            USCS= SP      AASHTO=         </div> <div> <b>Remarks</b>            CADD CODE = CH10D965         </div> </div>		

Location: USACE Sample # BI-HIB-2-10  
Sample Number: TE Lab ID: 4607.14

Date: 8/4/10

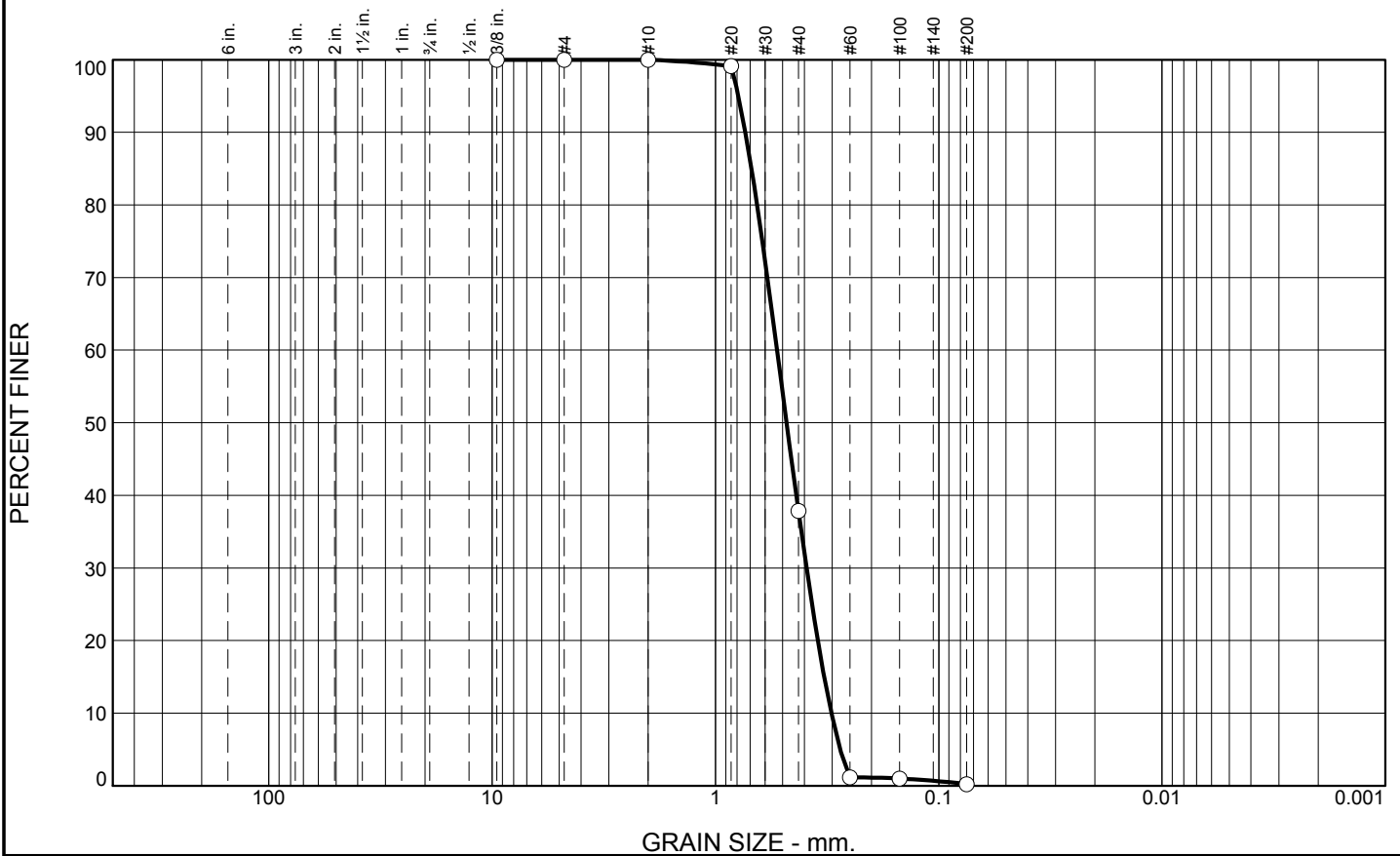
**Thompson Engineering**  
**Mobile, Alabama**

**Client:** US Army Corps of Engineers  
**Project:** Contract No. W91278-10-D-0026 - Task 03  
Mississippi Barrier Island Restoration Project  
**Project No:** 10-2123-0009      **Report No.** Revised 8/18

Tested By: R.Martin      Checked By: R.Byrd



# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.0	0.0	62.2	37.6	0.2	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
.375	100.0		
#4	100.0		
#10	100.0		
#20	99.1		
#40	37.8		
#60	1.2		
#100	1.0		
#200	0.2		

\* (no specification provided)

<u><b>Material Description</b></u>		
SAND, (SP), medium to fine grained		
<u><b>Atterberg Limits</b></u>		
PL=	LL=	PI=
<u><b>Coefficients</b></u>		
D <sub>90</sub> = 0.7353	D <sub>85</sub> = 0.6902	D <sub>60</sub> = 0.5296
D <sub>50</sub> = 0.4801	D <sub>30</sub> = 0.3911	D <sub>15</sub> = 0.3258
D <sub>10</sub> = 0.3024	C <sub>u</sub> = 1.75	C <sub>c</sub> = 0.96
<u><b>Classification</b></u>		
USCS= SP	AASHTO=	
<u><b>Remarks</b></u>		
CADD CODE = CH10D965		

Location: USACE Sample # BI-HIB-3-10  
Sample Number: TE Lab ID: 4607.15

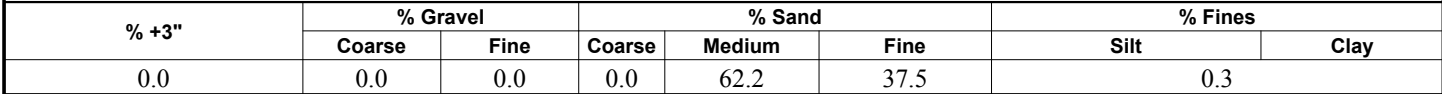
Date: 8/4/10

**Thompson Engineering**  
**Mobile, Alabama**

**Client:** US Army Corps of Engineers  
**Project:** Contract No. W91278-10-D-0026 - Task 03  
Mississippi Barrier Island Restoration Project  
**Project No:** 10-2123-0009  
**Report No.** Revised 8/18

Tested By: R.Martin Checked By: R.Byrd

**PERCENT FINER**

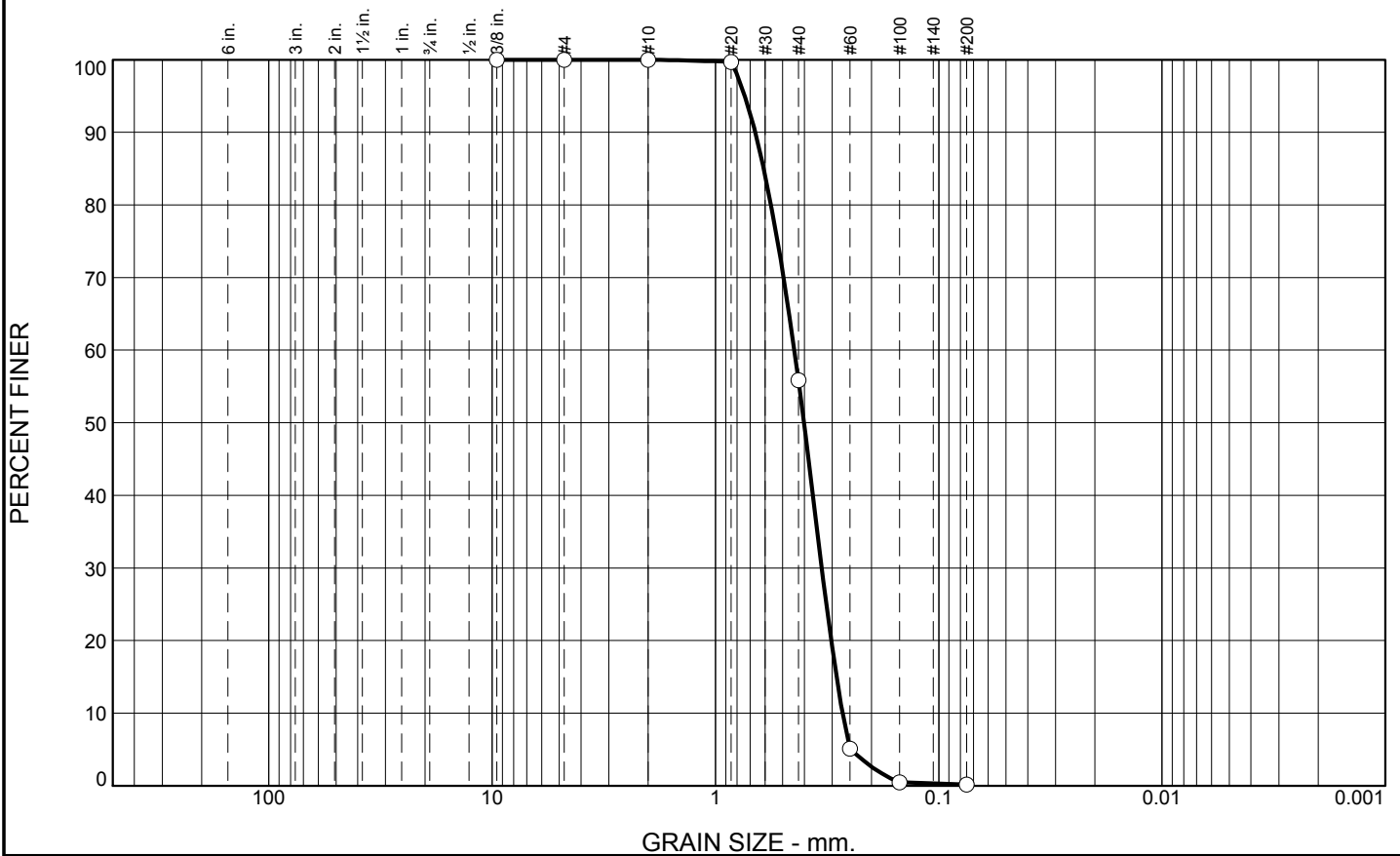


<u><b>Material Description</b></u>		
SAND, (SP), medium to fine grained		
<u><b>Atterberg Limits</b></u>		
PL=	LL=	PI=
<u><b>Coefficients</b></u>		
D <sub>90</sub> = 0.7302	D <sub>85</sub> = 0.6862	D <sub>60</sub> = 0.5284
D <sub>50</sub> = 0.4795	D <sub>30</sub> = 0.3914	D <sub>15</sub> = 0.3267
D <sub>10</sub> = 0.3035	C <sub>u</sub> = 1.74	C <sub>c</sub> = 0.96
<u><b>Classification</b></u>		
USCS= SP	AASHTO=	
<u><b>Remarks</b></u>		
CADD CODE = CH10D965		

**Client:** US Army Corps of Engineers  
**Project:** Contract No. W91278-10-D-0026 - Task 03  
 Mississippi Barrier Island Restoration Project  
**Project No:** 10-2123-0009 **Report No.** Revised 8/18

A-39

# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.0	0.0	44.2	55.6	0.2	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
.375	100.0		
#4	100.0		
#10	100.0		
#20	99.7		
#40	55.8		
#60	5.1		
#100	0.5		
#200	0.2		

\* (no specification provided)

Material Description		
SAND, (SP), medium to fine grained		
<div> <div> <b>Atterberg Limits</b>            PL=      LL=      PI=         </div> <div> <b>Coefficients</b>            D<sub>90</sub>= 0.6638      D<sub>85</sub>= 0.6081      D<sub>60</sub>= 0.4433            D<sub>50</sub>= 0.4018      D<sub>30</sub>= 0.3342      D<sub>15</sub>= 0.2868            D<sub>10</sub>= 0.2697      C<sub>u</sub>= 1.64      C<sub>c</sub>= 0.93         </div> <div> <b>Classification</b>            USCS= SP      AASHTO=         </div> <div> <b>Remarks</b>            CADD CODE = CH10D965         </div> </div>		

Location: USACE Sample # BI-HIB-5-10  
Sample Number: TE Lab ID: 4607.17

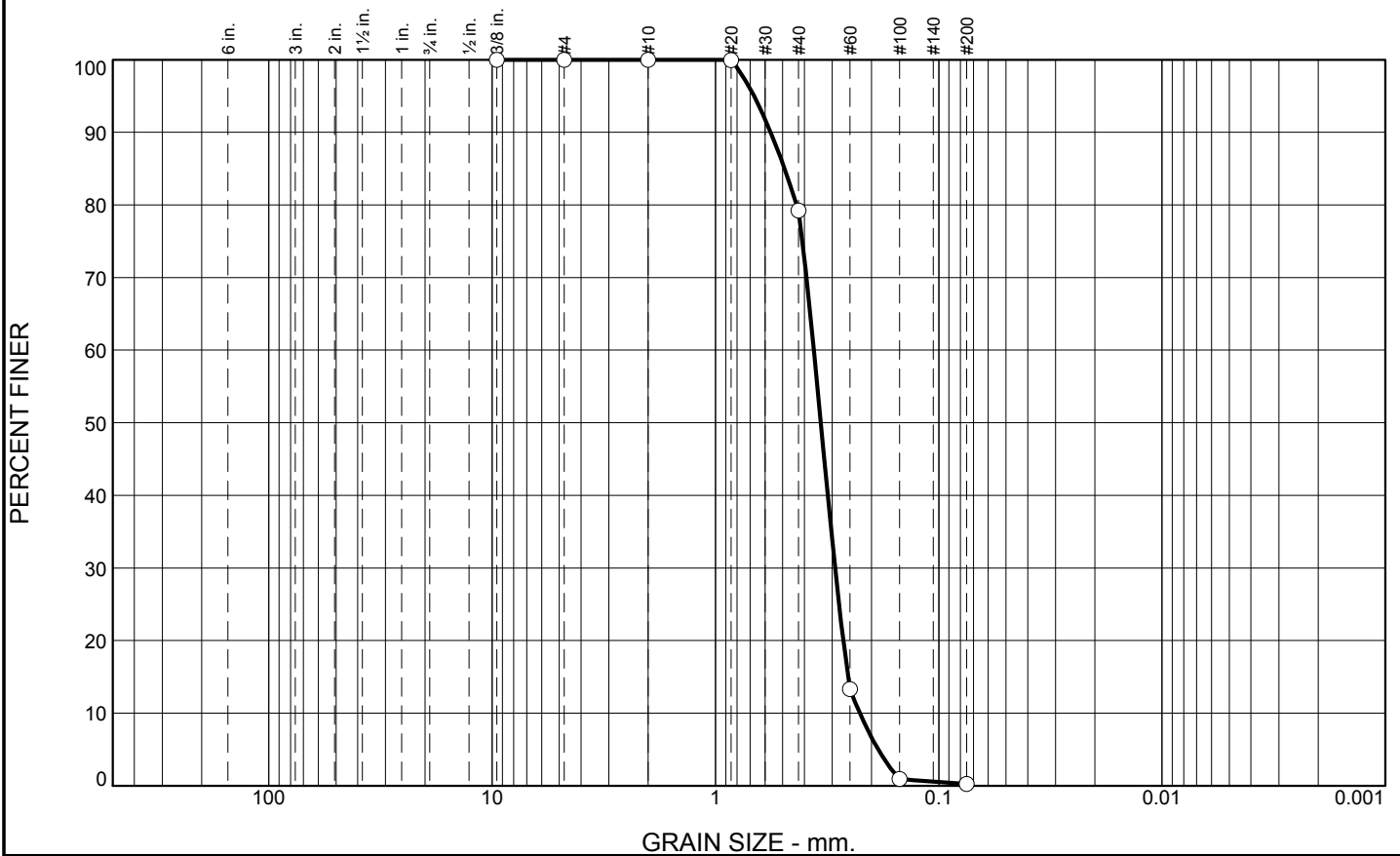
Date: 8/4/10

**Thompson Engineering**  
**Mobile, Alabama**

**Client:** US Army Corps of Engineers  
**Project:** Contract No. W91278-10-D-0026 - Task 03  
Mississippi Barrier Island Restoration Project  
**Project No:** 10-2123-0009      **Report No.** Revised 8/18

Tested By: R.Martin      Checked By: R.Byrd

# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.0	0.0	20.8	78.9	0.3	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
.375	100.0		
#4	100.0		
#10	100.0		
#20	100.0		
#40	79.2		
#60	13.3		
#100	0.9		
#200	0.3		

\* (no specification provided)

<u><b>Material Description</b></u>		
SAND, (SP), medium to fine grained, with trace organics		
<u><b>Atterberg Limits</b></u>		
PL=	LL=	PI=
<u><b>Coefficients</b></u>		
D <sub>90</sub> = 0.5655	D <sub>85</sub> = 0.4903	D <sub>60</sub> = 0.3626
D <sub>50</sub> = 0.3372	D <sub>30</sub> = 0.2912	D <sub>15</sub> = 0.2548
D <sub>10</sub> = 0.2255	C <sub>u</sub> = 1.61	C <sub>c</sub> = 1.04
<u><b>Classification</b></u>		
USCS= SP	AASHTO=	
<u><b>Remarks</b></u>		
CADD CODE = CH10D965		

Location: USACE Sample # BI-HIB-6-10  
Sample Number: TE Lab ID: 4607.18

Date: 8/4/10

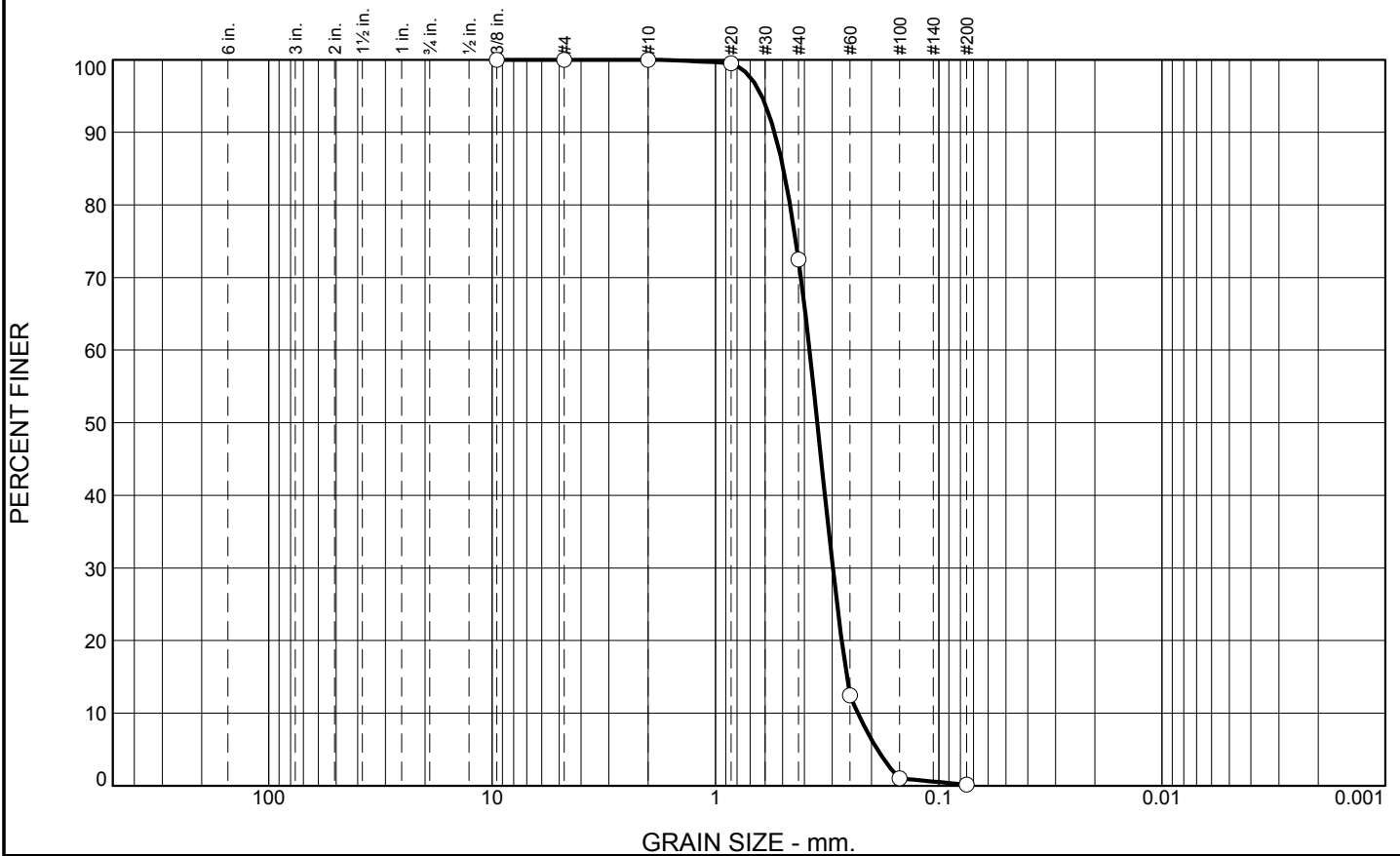
**Thompson Engineering**  
**Mobile, Alabama**

**Client:** US Army Corps of Engineers  
**Project:** Contract No. W91278-10-D-0026 - Task 03  
Mississippi Barrier Island Restoration Project  
**Project No:** 10-2123-0009  
**Report No.** Revised 8/18

Tested By: R.Martin

Checked By: R.Byrd

# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.0	0.0	27.5	72.3	0.2	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
.375	100.0		
#4	100.0		
#10	100.0		
#20	99.5		
#40	72.5		
#60	12.5		
#100	1.0		
#200	0.2		

\* (no specification provided)

## Material Description

SAND, (SP), medium to fine grained

## Atterberg Limits

PL=

LL=

PI=

## Coefficients

D<sub>90</sub>= 0.5429

D<sub>85</sub>= 0.4963

D<sub>60</sub>= 0.3794

D<sub>50</sub>= 0.3499

D<sub>30</sub>= 0.2978

D<sub>15</sub>= 0.2579

D<sub>10</sub>= 0.2302

C<sub>u</sub>= 1.65

C<sub>c</sub>= 1.02

## Classification

USCS= SP

AASHTO=

## Remarks

CADD CODE = CH10D965

Location: USACE Sample # BI-HIB-7-10  
Sample Number: TE Lab ID: 4607.19

Date: 8/4/10

**Thompson Engineering**

**Mobile, Alabama**

Client: US Army Corps of Engineers

Project: Contract No. W91278-10-D-0026 - Task 03  
Mississippi Barrier Island Restoration Project

Project No: 10-2123-0009

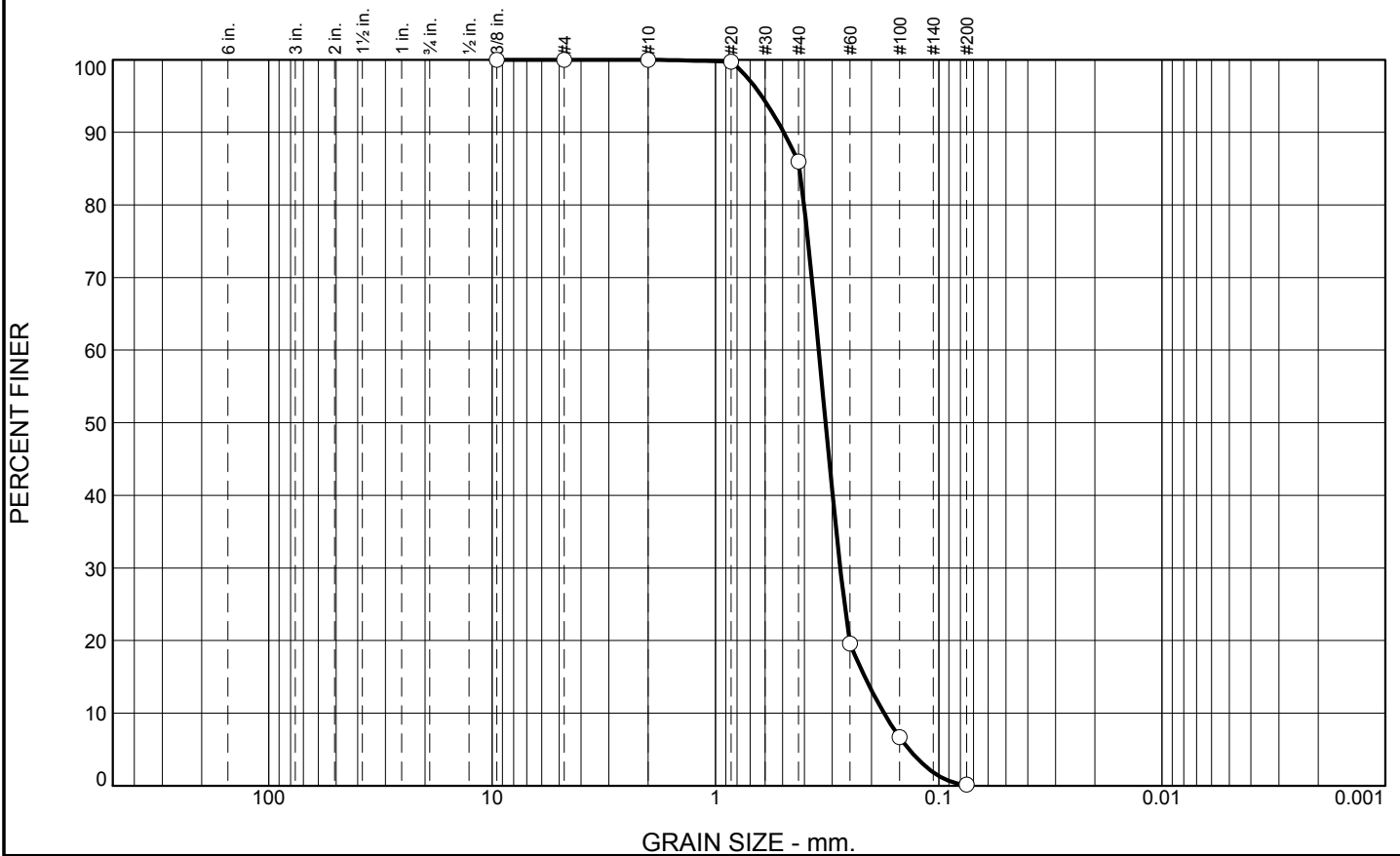
Report No. Revised 8/18

Tested By: R.Martin

Checked By: R.Byrd



# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.0	0.0	14.0	85.8	0.2	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
.375	100.0		
#4	100.0		
#10	100.0		
#20	99.7		
#40	86.0		
#60	19.6		
#100	6.7		
#200	0.2		

\* (no specification provided)

<u><b>Material Description</b></u>		
SAND, (SP), medium to fine grained		
<u><b>Atterberg Limits</b></u>		
PL=	LL=	PI=
<u><b>Coefficients</b></u>		
D <sub>90</sub> = 0.4946	D <sub>85</sub> = 0.4209	D <sub>60</sub> = 0.3445
D <sub>50</sub> = 0.3210	D <sub>30</sub> = 0.2761	D <sub>15</sub> = 0.2144
D <sub>10</sub> = 0.1759	C <sub>u</sub> = 1.96	C <sub>c</sub> = 1.26
<u><b>Classification</b></u>		
USCS= SP	AASHTO=	
<u><b>Remarks</b></u>		
CADD CODE = CH10D965		

Location: USACE Sample # BI-HIB-8-10  
Sample Number: TE Lab ID: 4607.20

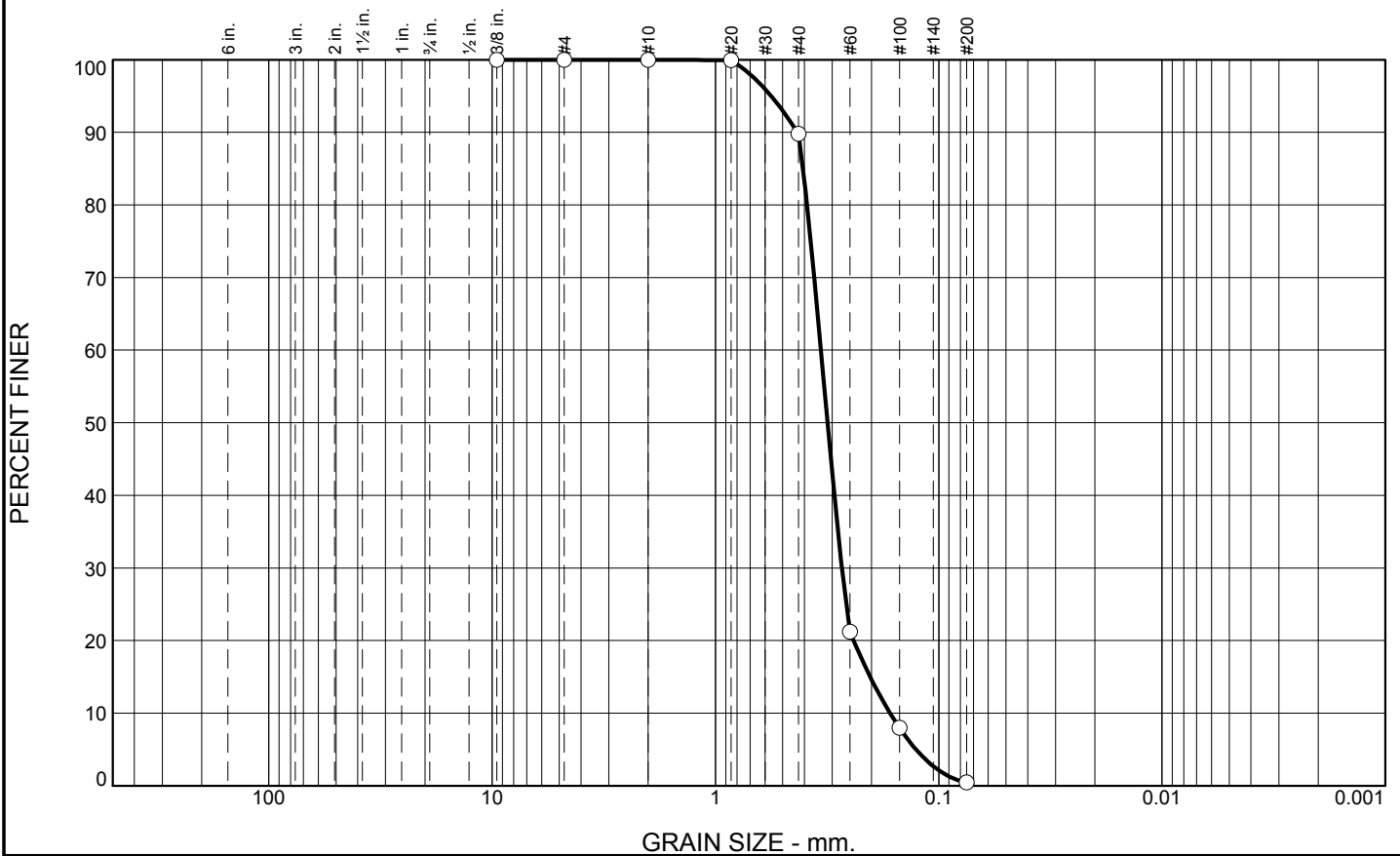
Date: 8/4/10

**Thompson Engineering**  
**Mobile, Alabama**

**Client:** US Army Corps of Engineers  
**Project:** Contract No. W91278-10-D-0026 - Task 03  
Mississippi Barrier Island Restoration Project  
**Project No:** 10-2123-0009  
**Report No.** Revised 8/18

Tested By: R.Martin Checked By: R.Byrd

# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.0	0.0	10.2	89.3	0.5	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
.375	100.0		
#4	100.0		
#10	100.0		
#20	99.9		
#40	89.8		
#60	21.2		
#100	8.0		
#200	0.5		

\* (no specification provided)

<u><b>Material Description</b></u>		
SAND, (SP), medium to fine grained		
<u><b>Atterberg Limits</b></u>		
PL=	LL=	PI=
<u><b>Coefficients</b></u>		
D <sub>90</sub> = 0.4288	D <sub>85</sub> = 0.4060	D <sub>60</sub> = 0.3369
D <sub>50</sub> = 0.3147	D <sub>30</sub> = 0.2715	D <sub>15</sub> = 0.2028
D <sub>10</sub> = 0.1655	C <sub>u</sub> = 2.04	C <sub>c</sub> = 1.32
<u><b>Classification</b></u>		
USCS= SP	AASHTO=	
<u><b>Remarks</b></u>		
CADD CODE = CH10D965		

Location: USACE Sample # BI-HIB-9-10  
Sample Number: TE Lab ID: 4607.21

Date: 8/4/10

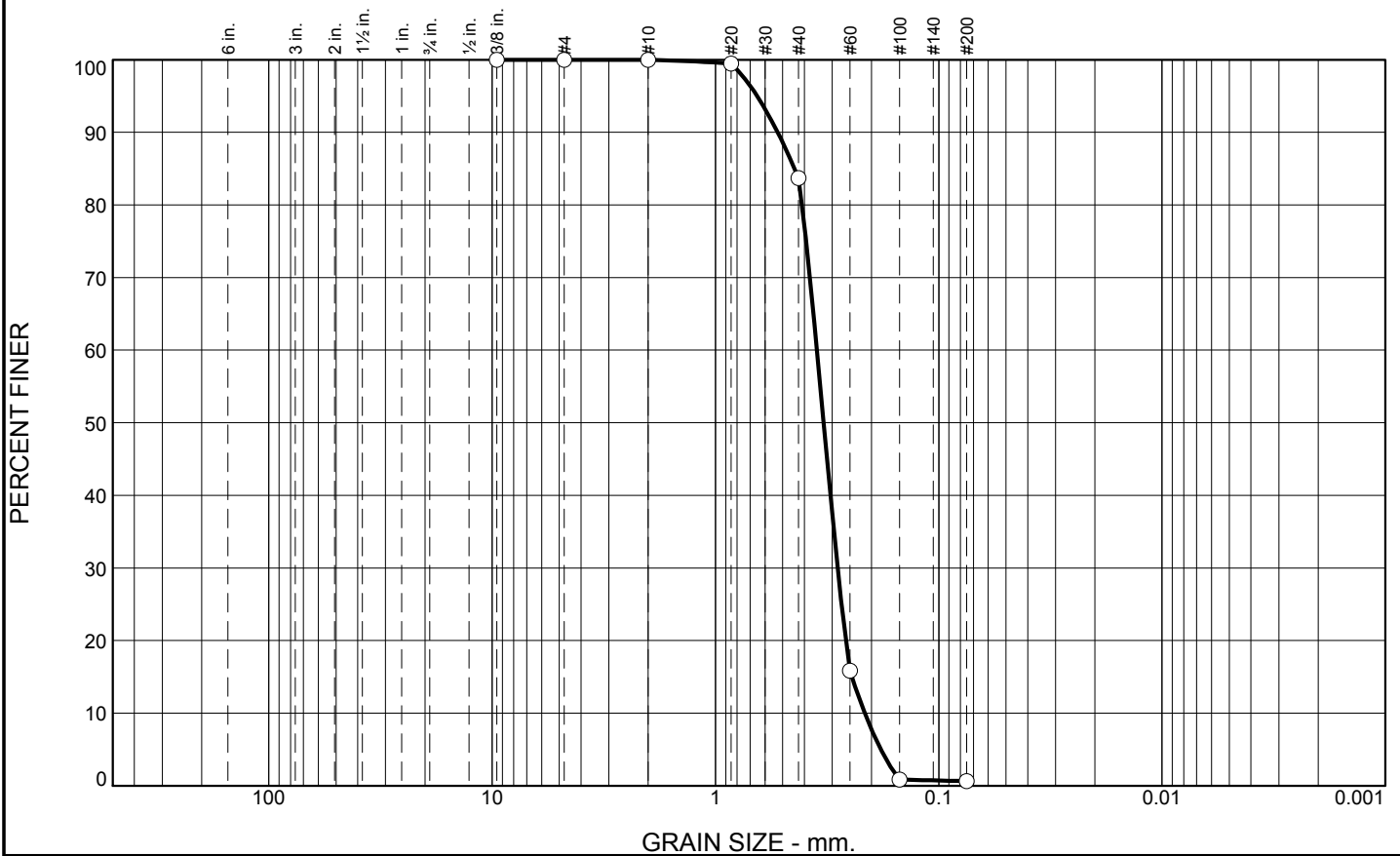
**Thompson Engineering**  
**Mobile, Alabama**

**Client:** US Army Corps of Engineers  
**Project:** Contract No. W91278-10-D-0026 - Task 03  
Mississippi Barrier Island Restoration Project  
**Project No:** 10-2123-0009  
**Report No.** Revised 8/18

Tested By: R.Martin

Checked By: R.Byrd

# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.0	0.0	16.3	83.1	0.6	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
.375	100.0		
#4	100.0		
#10	100.0		
#20	99.5		
#40	83.7		
#60	15.8		
#100	0.9		
#200	0.6		

\* (no specification provided)

**Material Description**  
SAND, (SP), medium to fine grained

**Atterberg Limits**  
 PL=      LL=      PI=

**Coefficients**  
 D<sub>90</sub>= 0.5260      D<sub>85</sub>= 0.4428      D<sub>60</sub>= 0.3512  
 D<sub>50</sub>= 0.3275      D<sub>30</sub>= 0.2835      D<sub>15</sub>= 0.2449  
 D<sub>10</sub>= 0.2143      C<sub>u</sub>= 1.64      C<sub>c</sub>= 1.07

**Classification**  
 USCS= SP      AASHTO=

**Remarks**  
 CADD CODE = CH10D965

**Location:** USACE Sample # BI-HIB-10-10  
**Sample Number:** TE Lab ID: 4607.22

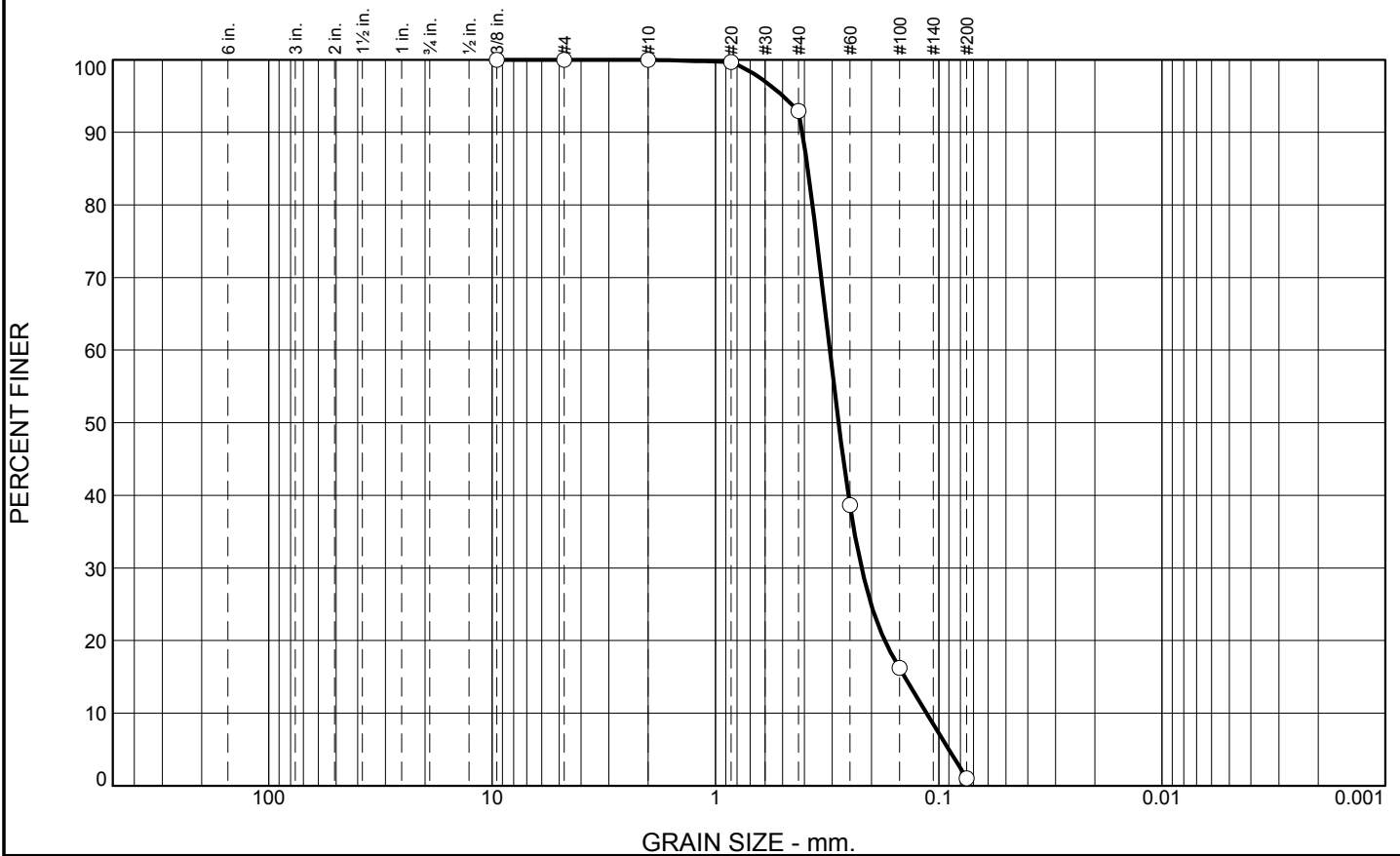
**Date:** 8/4/10

**Thompson Engineering**  
  
**Mobile, Alabama**

**Client:** US Army Corps of Engineers  
**Project:** Contract No. W91278-10-D-0026 - Task 03  
 Mississippi Barrier Island Restoration Project  
**Project No:** 10-2123-0009      **Report No.** Revised 8/18

**Tested By:** R.Martin      **Checked By:** R.Byrd

# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.0	0.0	7.1	91.9	1.0	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
.375	100.0		
#4	100.0		
#10	100.0		
#20	99.7		
#40	92.9		
#60	38.7		
#100	16.2		
#200	1.0		

\* (no specification provided)

## Material Description

SAND, (SP), fine grained

## Atterberg Limits

PL=

LL=

PI=

## Coefficients

D<sub>90</sub>= 0.4091

D<sub>85</sub>= 0.3867

D<sub>60</sub>= 0.3074

D<sub>50</sub>= 0.2809

D<sub>30</sub>= 0.2217

D<sub>15</sub>= 0.1421

D<sub>10</sub>= 0.1134

C<sub>u</sub>= 2.71

C<sub>c</sub>= 1.41

## Classification

USCS= SP

AASHTO=

## Remarks

CADD CODE = CH10D965

Location: USACE Sample # BI-HIB-11-10  
Sample Number: TE Lab ID: 4607.23

Date: 8/4/10

**Thompson Engineering**

**Mobile, Alabama**

Client: US Army Corps of Engineers

Project: Contract No. W91278-10-D-0026 - Task 03  
Mississippi Barrier Island Restoration Project

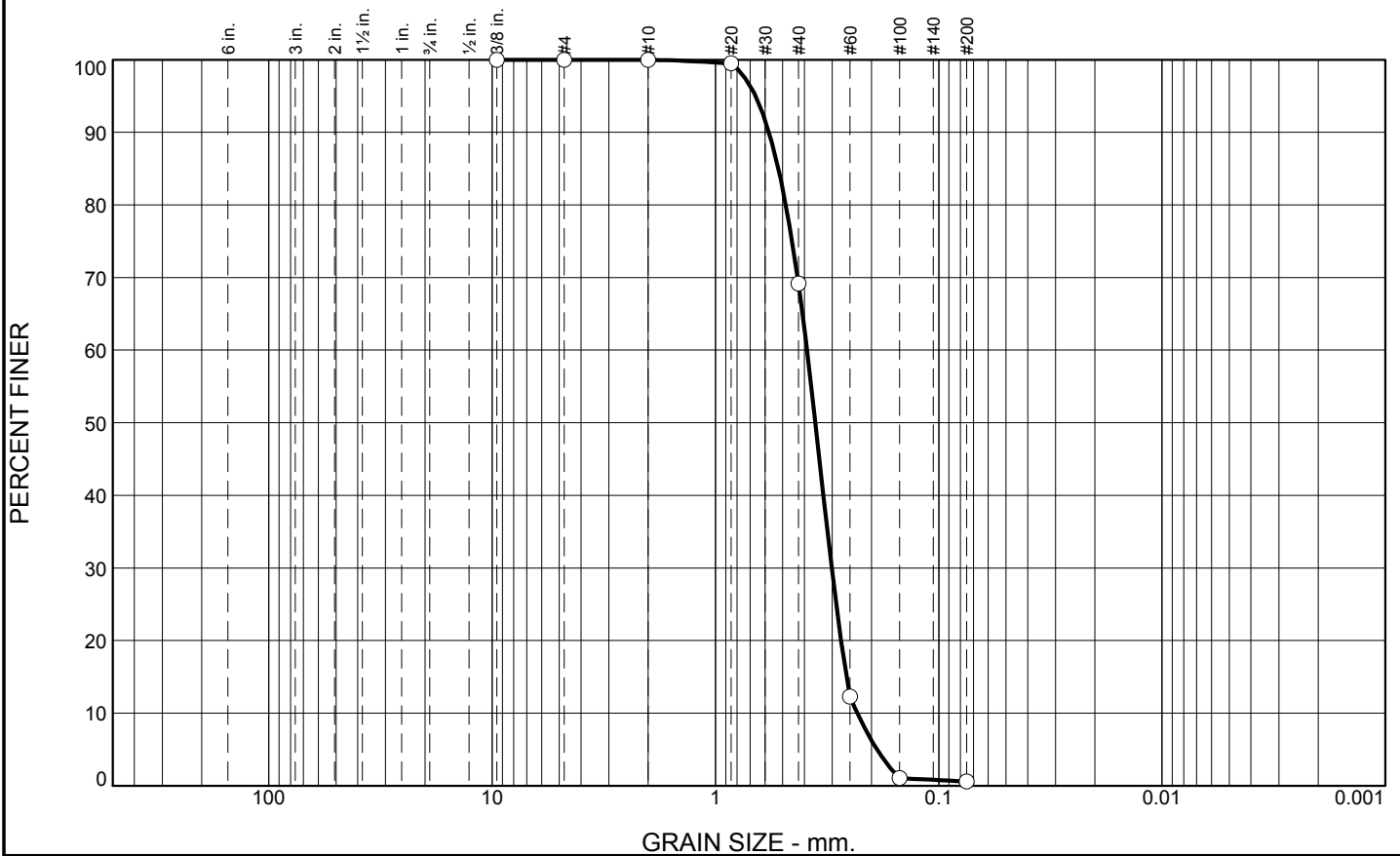
Project No: 10-2123-0009

Report No. Revised 8/18

Tested By: R.Martin

Checked By: R.Byrd

# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.0	0.0	30.8	68.6	0.6	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
.375	100.0		
#4	100.0		
#10	100.0		
#20	99.5		
#40	69.2		
#60	12.3		
#100	1.1		
#200	0.6		

\* (no specification provided)

## Material Description

SAND, (SP), fine grained

## Atterberg Limits

PL=

LL=

PI=

## Coefficients

D<sub>90</sub>= 0.5754

D<sub>85</sub>= 0.5221

D<sub>60</sub>= 0.3894

D<sub>50</sub>= 0.3571

D<sub>30</sub>= 0.3013

D<sub>15</sub>= 0.2589

D<sub>10</sub>= 0.2315

C<sub>u</sub>= 1.68

C<sub>c</sub>= 1.01

## Classification

USCS= SP

AASHTO=

## Remarks

CADD CODE = CH10D965

**Location:** USACE Sample # BI-HIB-10 - Composite Samples  
**Sample Number:** TE Lab ID: 4607.24

**Date:** 8/4/10

**Thompson Engineering**

**Mobile, Alabama**

**Client:** US Army Corps of Engineers

**Project:** Contract No. W91278-10-D-0026 - Task 03  
 Mississippi Barrier Island Restoration Project

**Project No:** 10-2123-0009

**Report No.** Revised 8/18

**Tested By:** R.Martin

**Checked By:** R.Byrd



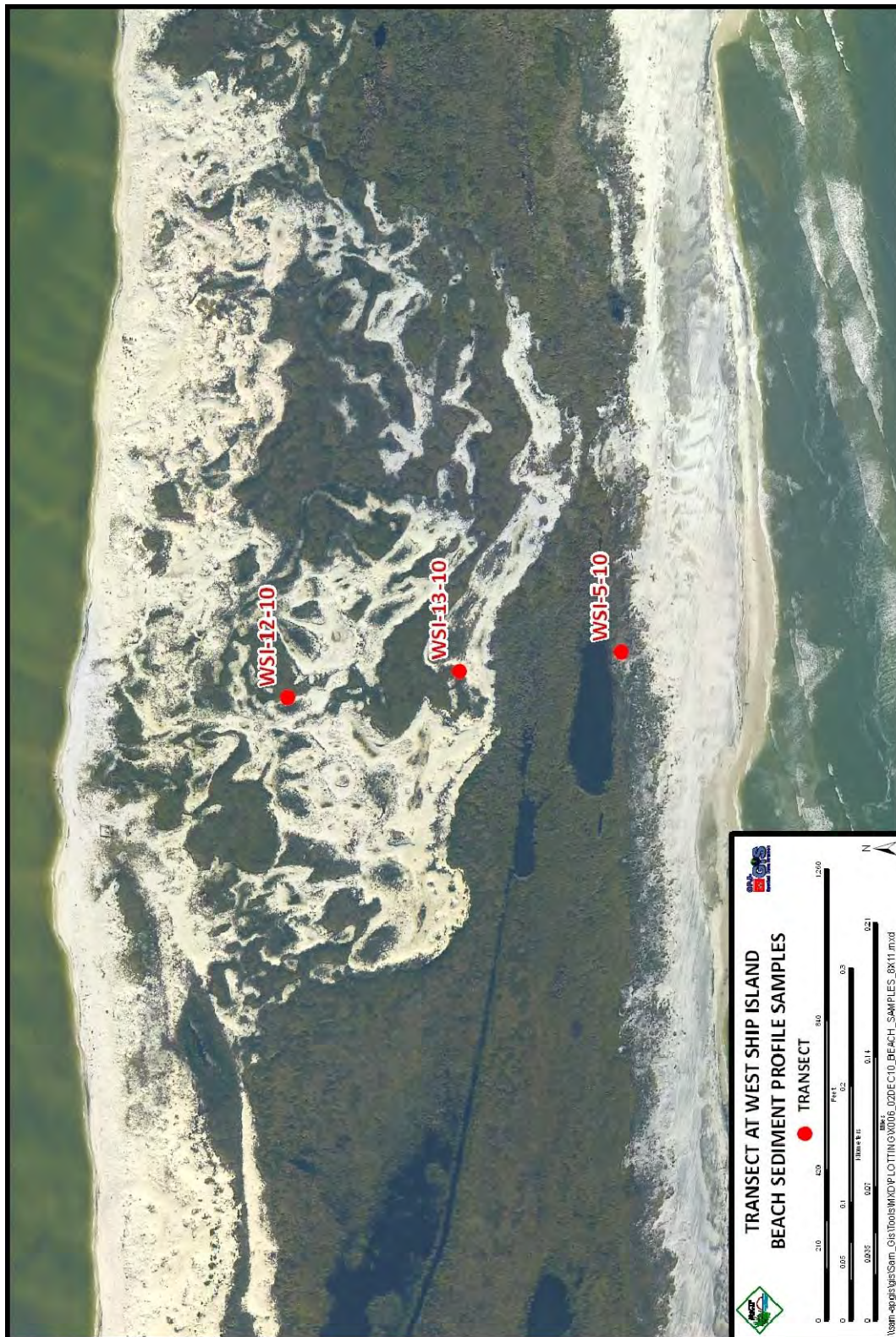
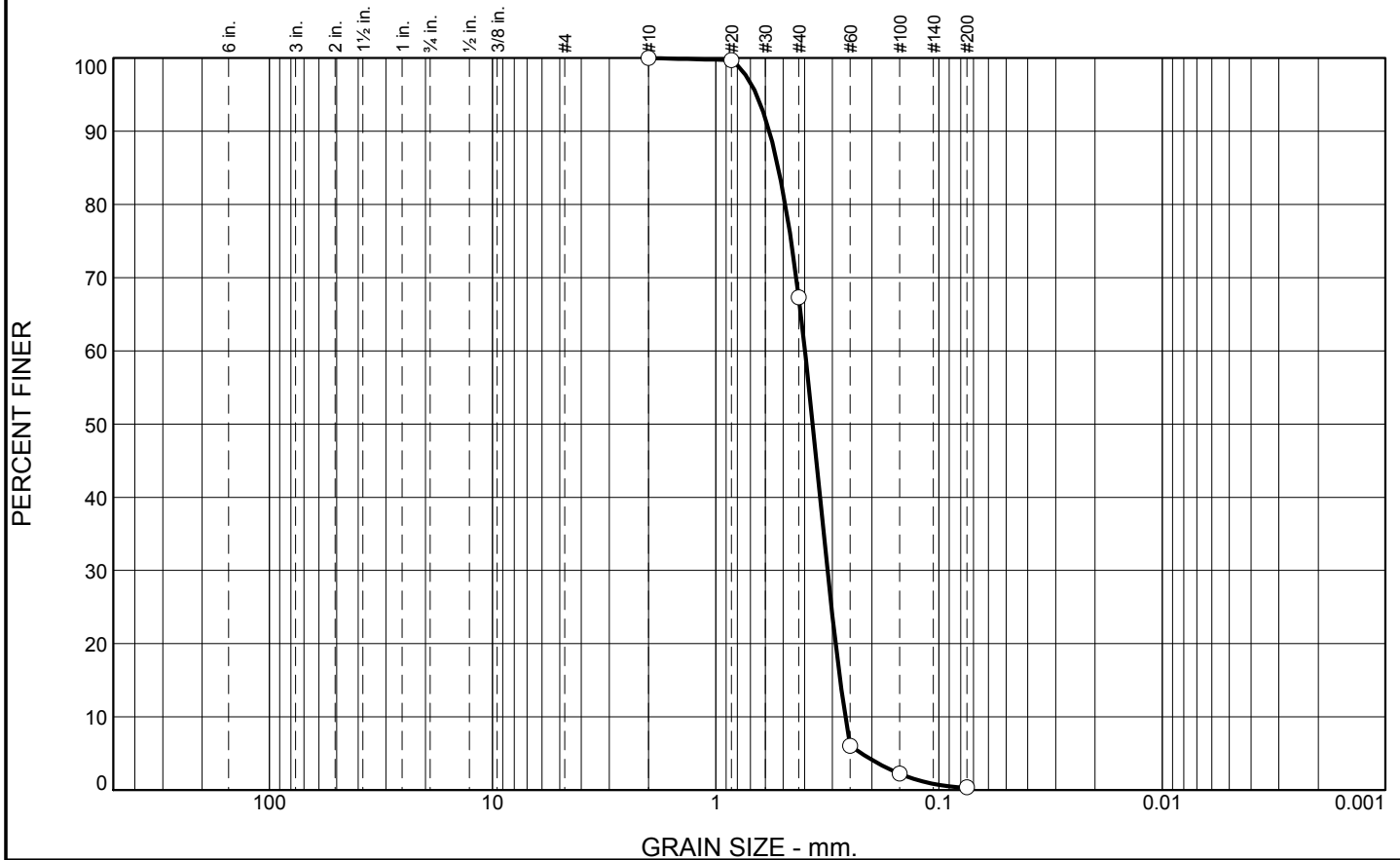


Figure 3.2.3.3 - Sampling locations for 2010 West Ship Island transect.

# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.0	0.0	32.7	66.9	0.4	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
#10	100.0		
#20	99.7		
#40	67.3		
#60	6.0		
#100	2.3		
#200	0.4		

\* (no specification provided)

**Material Description**  
 SAND, (SP), medium to fine grained

**Atterberg Limits**  
 PL=                      LL=                      PI=

**Coefficients**  
 D<sub>90</sub>= 0.5758      D<sub>85</sub>= 0.5253      D<sub>60</sub>= 0.3986  
 D<sub>50</sub>= 0.3681      D<sub>30</sub>= 0.3157      D<sub>15</sub>= 0.2774  
 D<sub>10</sub>= 0.2631      C<sub>u</sub>= 1.51              C<sub>c</sub>= 0.95

**Classification**  
 USCS= SP                      AASHTO=

**Remarks**

Location: USACE Sample # WSI-5-10-10 A  
 Sample Number: TE Lab ID: 4737.01

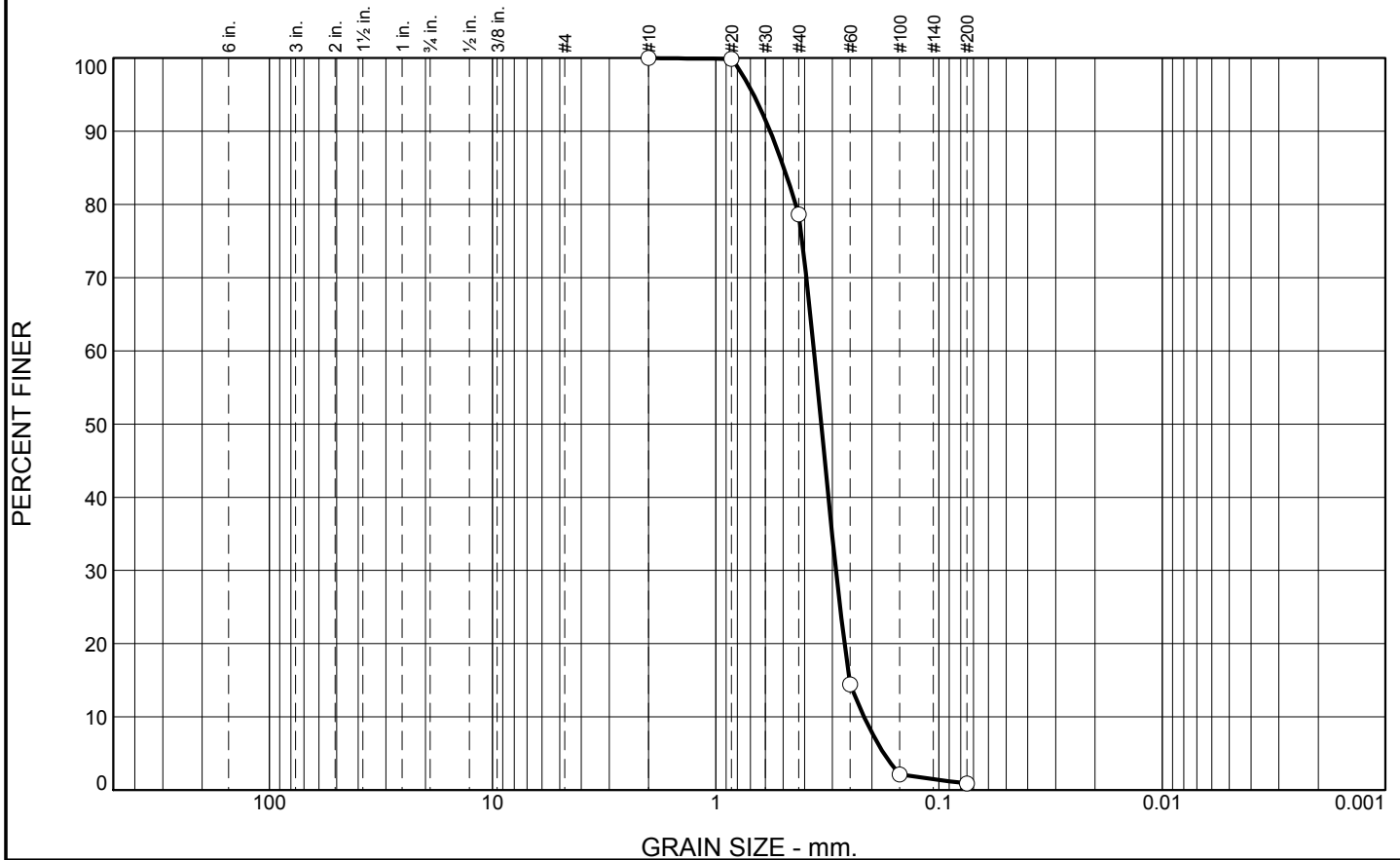
Depth: 0.0 - 1.5 (ft.)

Date: 10/14/10

**Thompson Engineering**  
  
**Mobile, Alabama**

**Client:** US Army Corps of Engineers  
**Project:** Contract No. W91278-10-D-0026 - Task 03  
 Mississippi Barrier Island Restoration Project  
**Project No:** 10-2123-0009      **Report No.**

# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.0	0.0	21.4	77.7	0.9	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
#10	100.0		
#20	99.9		
#40	78.6		
#60	14.5		
#100	2.1		
#200	0.9		

\* (no specification provided)

**Material Description**  
 SAND, (SP), medium to fine grained

**Atterberg Limits**  
 PL=      LL=      PI=

**Coefficients**  
 D<sub>90</sub>= 0.5710      D<sub>85</sub>= 0.4959      D<sub>60</sub>= 0.3630  
 D<sub>50</sub>= 0.3369      D<sub>30</sub>= 0.2896      D<sub>15</sub>= 0.2516  
 D<sub>10</sub>= 0.2165      C<sub>u</sub>= 1.68      C<sub>c</sub>= 1.07

**Classification**  
 USCS= SP      AASHTO=

**Remarks**

Location: USACE Sample # WSI-5-10-10 B  
 Sample Number: TE Lab ID: 4737.02

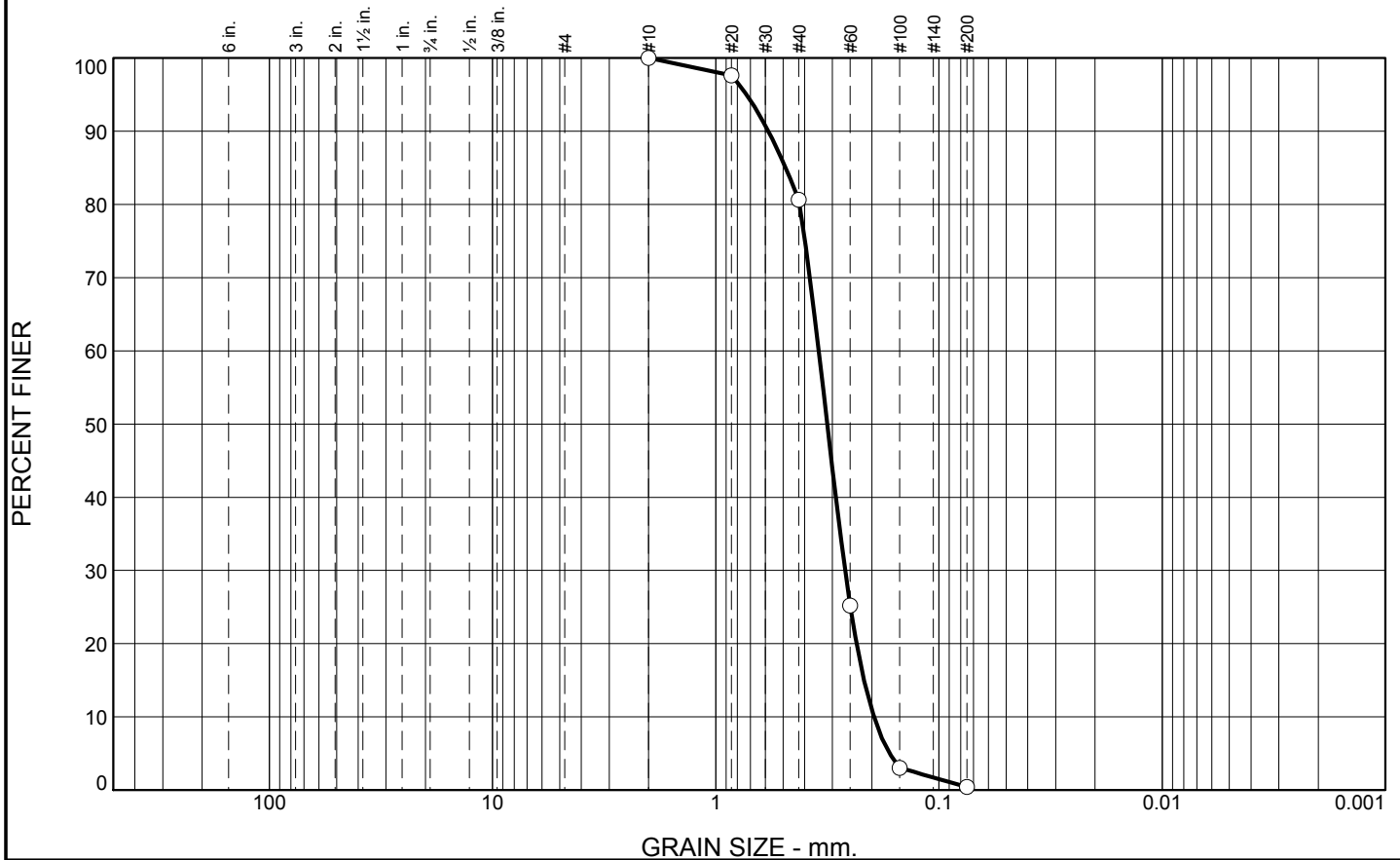
Depth: 1.5 - 3.0 (ft.)

Date: 10/14/10

**Thompson Engineering**  
**Mobile, Alabama**

**Client:** US Army Corps of Engineers  
**Project:** Contract No. W91278-10-D-0026 - Task 03  
 Mississippi Barrier Island Restoration Project  
**Project No:** 10-2123-0009      **Report No.**

# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.0	0.0	19.4	80.2	0.4	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
#10	100.0		
#20	97.6		
#40	80.6		
#60	25.2		
#100	3.0		
#200	0.4		

\* (no specification provided)

**Material Description**  
 SAND, (SP), medium to fine grained

**Atterberg Limits**  
 PL=      LL=      PI=

**Coefficients**  
 D<sub>90</sub>= 0.5820      D<sub>85</sub>= 0.4866      D<sub>60</sub>= 0.3457  
 D<sub>50</sub>= 0.3168      D<sub>30</sub>= 0.2634      D<sub>15</sub>= 0.2167  
 D<sub>10</sub>= 0.1956      C<sub>u</sub>= 1.77      C<sub>c</sub>= 1.03

**Classification**  
 USCS= SP      AASHTO=

**Remarks**

Location: USACE Sample # WSI-5-10-10 C  
 Sample Number: TE Lab ID: 4737.03

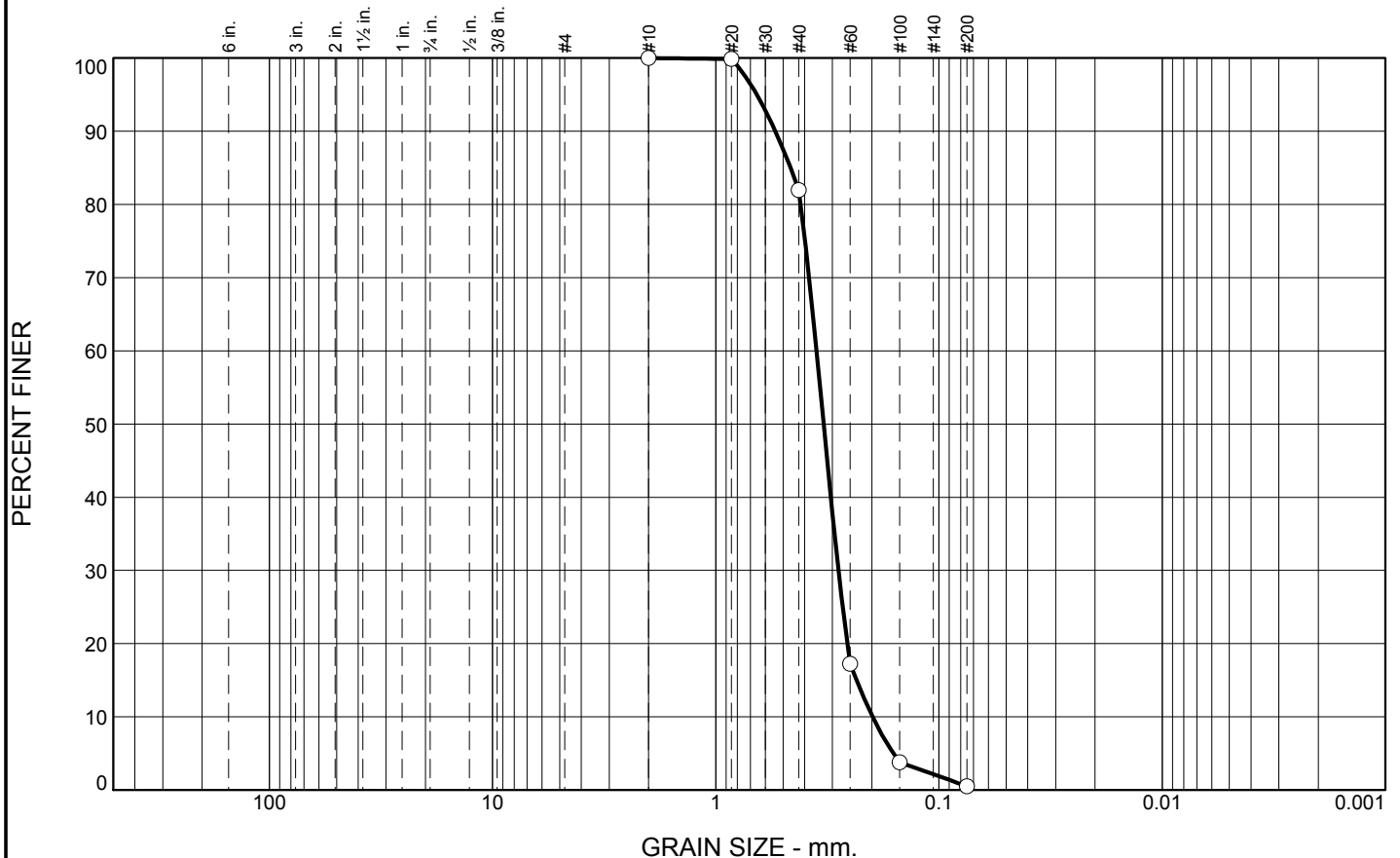
Depth: 3.0 - 4.5 (ft.)

Date: 10/14/10

**Thompson Engineering**  
**Mobile, Alabama**

**Client:** US Army Corps of Engineers  
**Project:** Contract No. W91278-10-D-0026 - Task 03  
 Mississippi Barrier Island Restoration Project  
**Project No:** 10-2123-0009      **Report No.**

# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.0	0.0	18.1	81.4	0.5	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
#10	100.0		
#20	99.9		
#40	81.9		
#60	17.3		
#100	3.8		
#200	0.5		

\* (no specification provided)

**Material Description**  
 SAND, (SP), medium to fine grained

**Atterberg Limits**  
 PL=                      LL=                      PI=

**Coefficients**  
 D<sub>90</sub>= 0.5411      D<sub>85</sub>= 0.4627      D<sub>60</sub>= 0.3537  
 D<sub>50</sub>= 0.3287      D<sub>30</sub>= 0.2823      D<sub>15</sub>= 0.2341  
 D<sub>10</sub>= 0.1983      C<sub>u</sub>= 1.78              C<sub>c</sub>= 1.14

**Classification**  
 USCS= SP                      AASHTO=

**Remarks**

Location: USACE Sample # WSI-12-10-10 A  
 Sample Number: TE Lab ID: 4737.04

Depth: 1.0 - 2.0 (ft.)

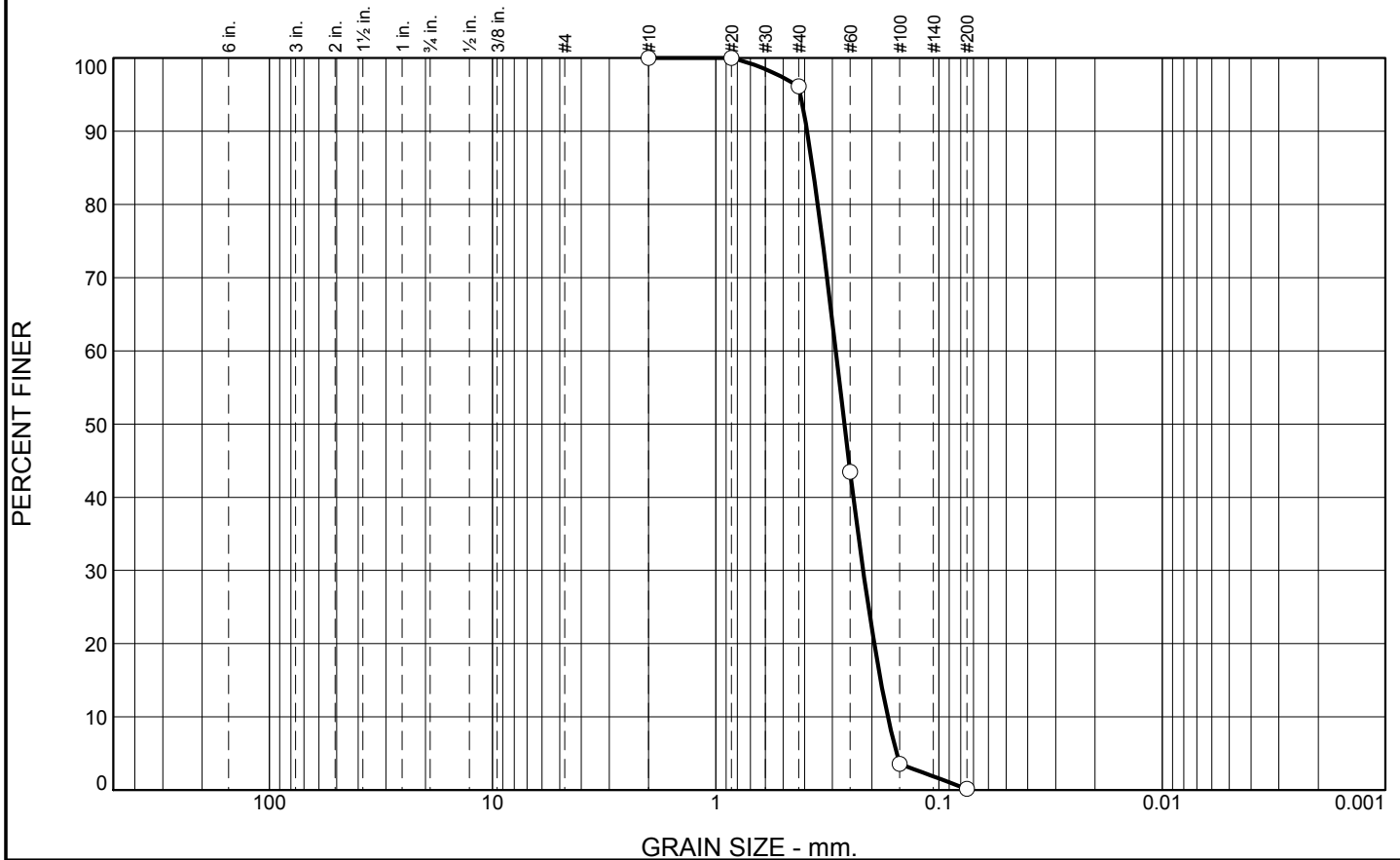
Date: 10/14/10

**Thompson Engineering**  
**Mobile, Alabama**

**Client:** US Army Corps of Engineers  
**Project:** Contract No. W91278-10-D-0026 - Task 03  
 Mississippi Barrier Island Restoration Project  
**Project No:** 10-2123-0009      **Report No.**



# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.0	0.0	3.9	95.9	0.2	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
#10	100.0		
#20	100.0		
#40	96.1		
#60	43.5		
#100	3.6		
#200	0.2		

\* (no specification provided)

**Material Description**  
 SAND, (SP), fine grained

**Atterberg Limits**  
 PL=      LL=      PI=

**Coefficients**  
 D<sub>90</sub>= 0.3899      D<sub>85</sub>= 0.3680      D<sub>60</sub>= 0.2901  
 D<sub>50</sub>= 0.2654      D<sub>30</sub>= 0.2187      D<sub>15</sub>= 0.1827  
 D<sub>10</sub>= 0.1696      C<sub>u</sub>= 1.71      C<sub>c</sub>= 0.97

**Classification**  
 USCS= SP      AASHTO=

**Remarks**

Location: USACE Sample # WSI-12-10-10 B  
 Sample Number: TE Lab ID: 4737.05

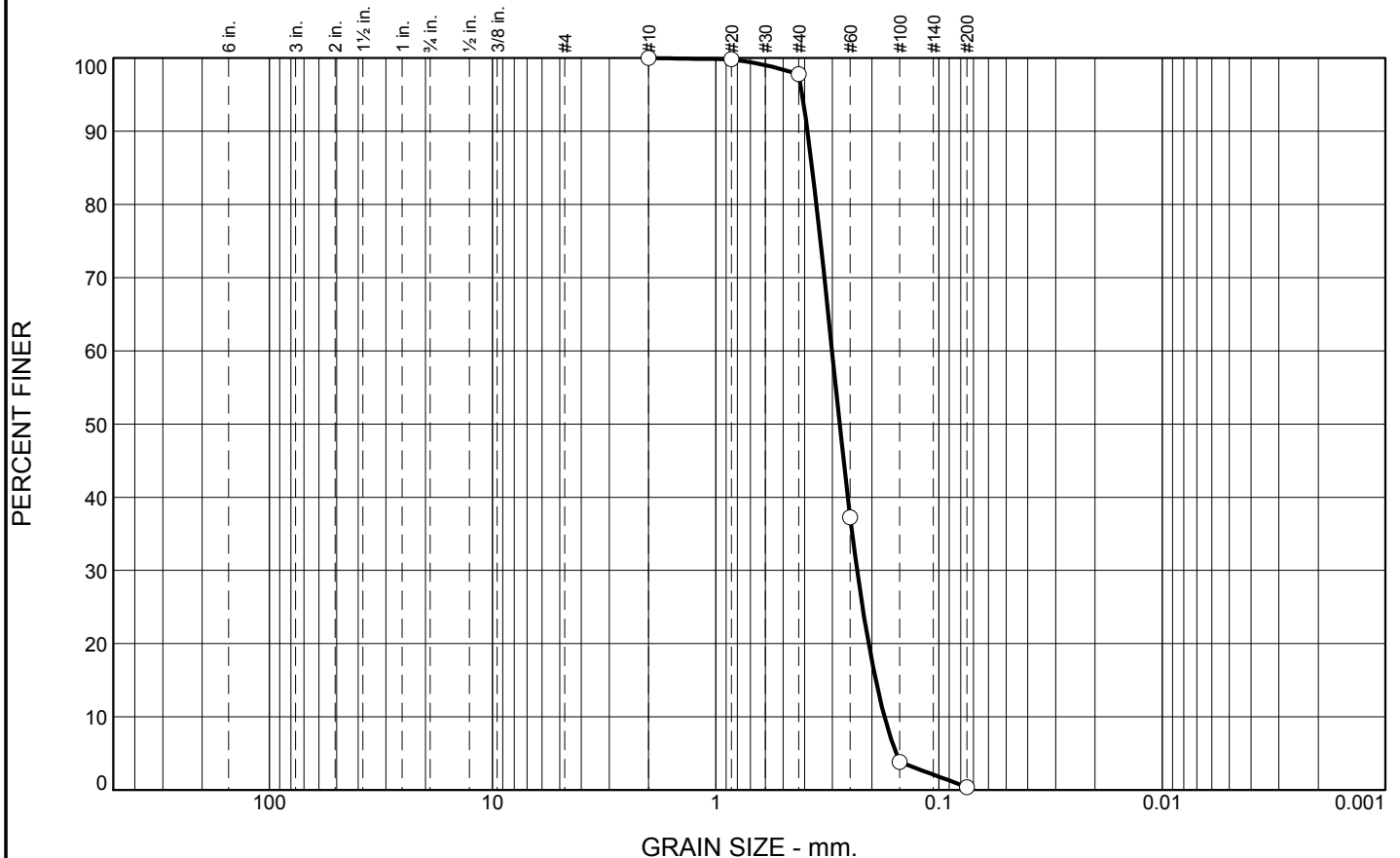
Depth: 2.0 - 3.0 (ft.)

Date: 10/14/10

**Thompson Engineering**  
**Mobile, Alabama**

**Client:** US Army Corps of Engineers  
**Project:** Contract No. W91278-10-D-0026 - Task 03  
 Mississippi Barrier Island Restoration Project  
**Project No:** 10-2123-0009      **Report No.**

# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.0	0.0	2.2	97.4	0.4	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
#10	100.0		
#20	99.8		
#40	97.8		
#60	37.3		
#100	3.8		
#200	0.4		

\* (no specification provided)

**Material Description**  
 SAND, (SP), fine grained

**Atterberg Limits**  
 PL=                      LL=                      PI=

**Coefficients**  
 D<sub>90</sub>= 0.3882      D<sub>85</sub>= 0.3700      D<sub>60</sub>= 0.3015  
 D<sub>50</sub>= 0.2786      D<sub>30</sub>= 0.2327      D<sub>15</sub>= 0.1920  
 D<sub>10</sub>= 0.1755      C<sub>u</sub>= 1.72              C<sub>c</sub>= 1.02

**Classification**  
 USCS= SP                      AASHTO=

**Remarks**

Location: USACE Sample # WSI-12-10-10 C  
 Sample Number: TE Lab ID: 4737.06

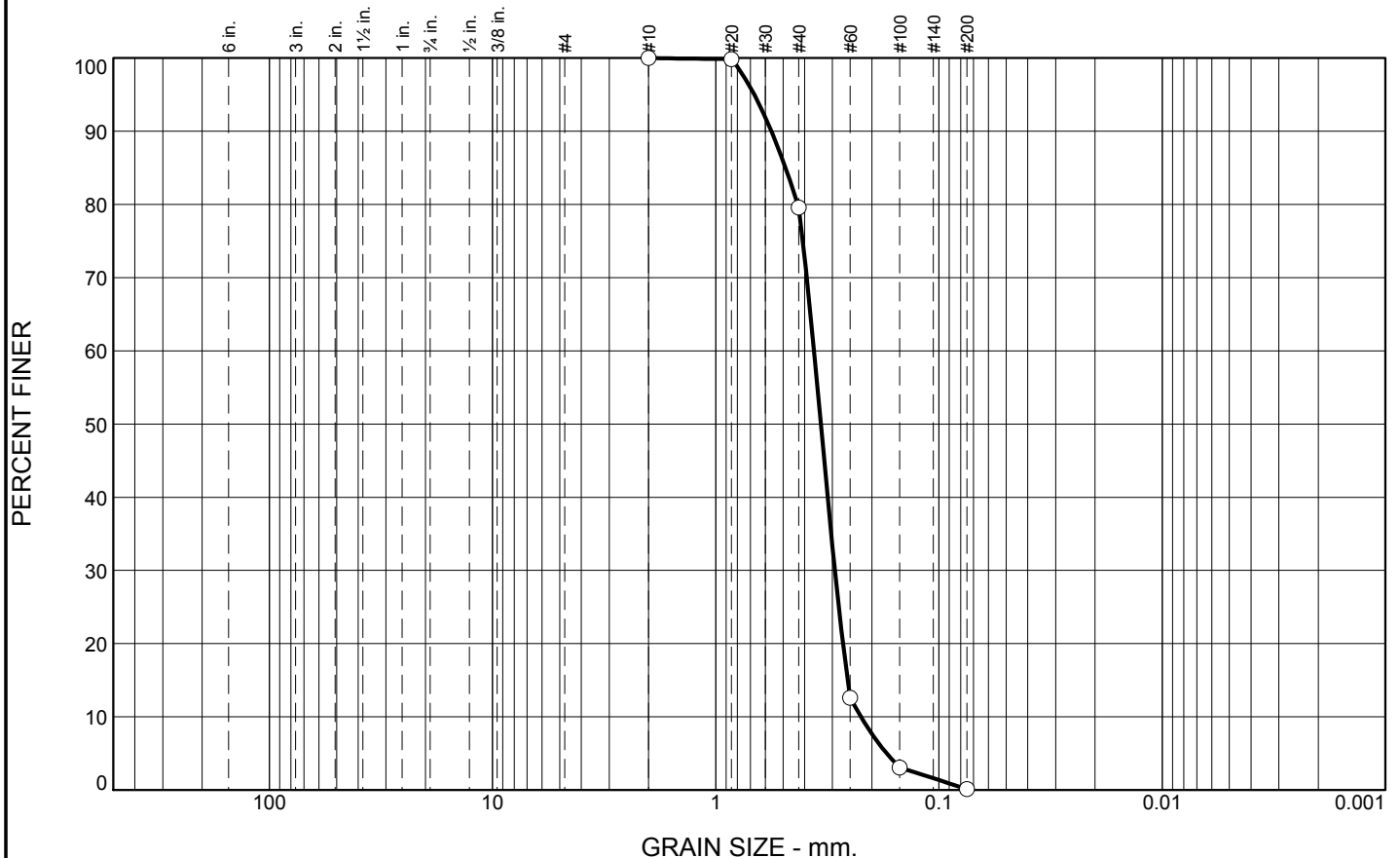
Depth: 3.0 - 4.0 (ft.)

Date: 10/14/10

**Thompson Engineering**  
**Mobile, Alabama**

**Client:** US Army Corps of Engineers  
**Project:** Contract No. W91278-10-D-0026 - Task 03  
 Mississippi Barrier Island Restoration Project  
**Project No:** 10-2123-0009      **Report No.**

# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.0	0.0	20.4	79.5	0.1	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
#10	100.0		
#20	99.9		
#40	79.6		
#60	12.6		
#100	3.1		
#200	0.1		

\* (no specification provided)

**Material Description**  
 SAND, (SP), medium to fine grained

**Atterberg Limits**  
 PL=      LL=      PI=

**Coefficients**  
 D<sub>90</sub>= 0.5635      D<sub>85</sub>= 0.4873      D<sub>60</sub>= 0.3629  
 D<sub>50</sub>= 0.3381      D<sub>30</sub>= 0.2929      D<sub>15</sub>= 0.2568  
 D<sub>10</sub>= 0.2237      C<sub>u</sub>= 1.62      C<sub>c</sub>= 1.06

**Classification**  
 USCS= SP      AASHTO=

**Remarks**

Location: USACE Sample # WSI-13-10-10 A  
 Sample Number: TE Lab ID: 4737.07

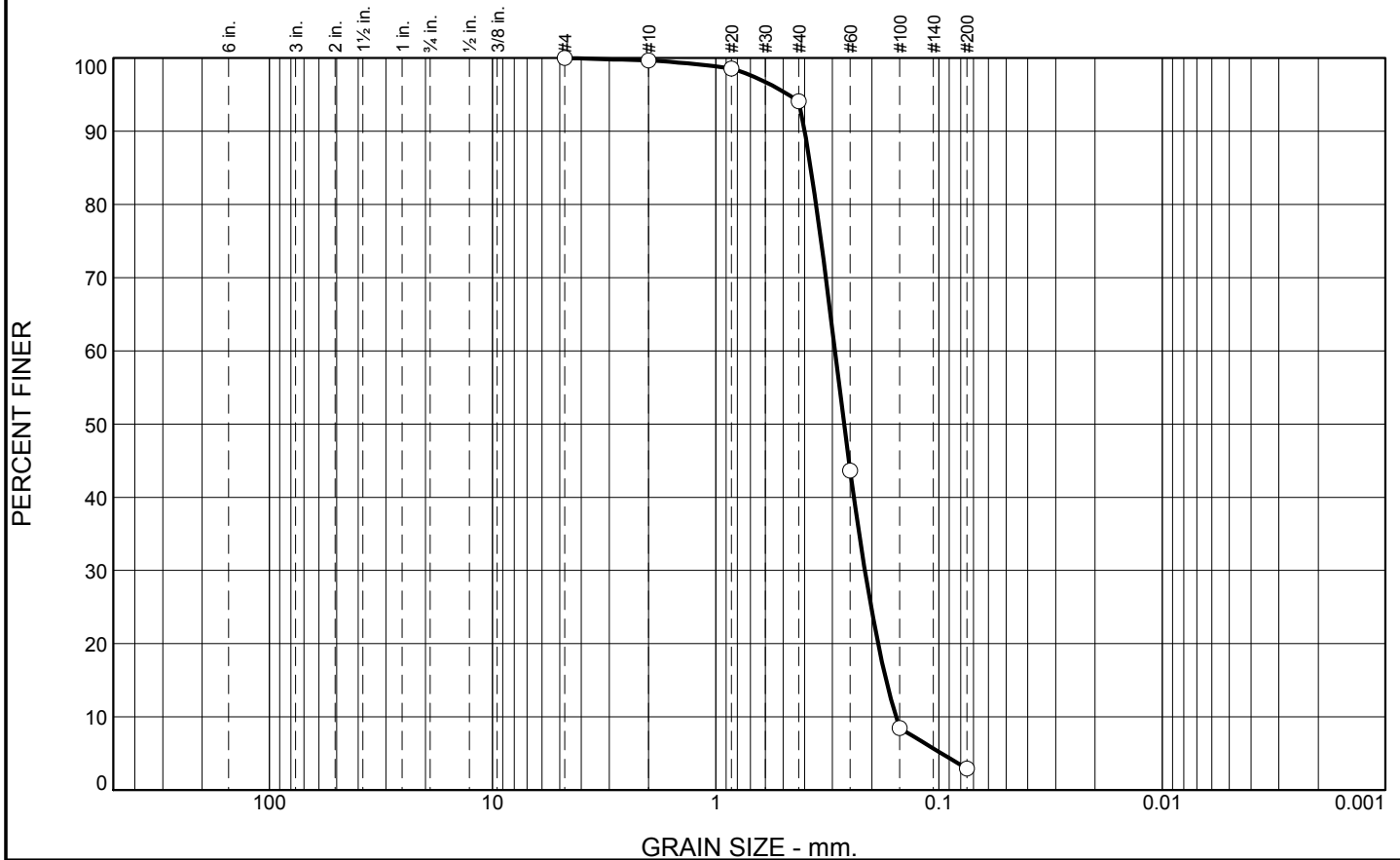
Depth: 1.0 - 2.0 (ft.)

Date: 10/14/10

**Thompson Engineering**  
**Mobile, Alabama**

**Client:** US Army Corps of Engineers  
**Project:** Contract No. W91278-10-D-0026 - Task 03  
 Mississippi Barrier Island Restoration Project  
**Project No:** 10-2123-0009      **Report No.**

# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.0	0.3	5.6	91.2	2.9	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
#4	100.0		
#10	99.7		
#20	98.6		
#40	94.1		
#60	43.7		
#100	8.5		
#200	2.9		

\* (no specification provided)

**Material Description**  
 SAND, (SP), fine grained

**Atterberg Limits**  
 PL=                      LL=                      PI=

**Coefficients**  
 D<sub>90</sub>= 0.3997      D<sub>85</sub>= 0.3755      D<sub>60</sub>= 0.2925  
 D<sub>50</sub>= 0.2661      D<sub>30</sub>= 0.2148      D<sub>15</sub>= 0.1726  
 D<sub>10</sub>= 0.1559      C<sub>u</sub>= 1.88              C<sub>c</sub>= 1.01

**Classification**  
 USCS= SP                      AASHTO=

**Remarks**

Location: USACE Sample # WSI-13-10-10 B  
 Sample Number: TE Lab ID: 4737.08

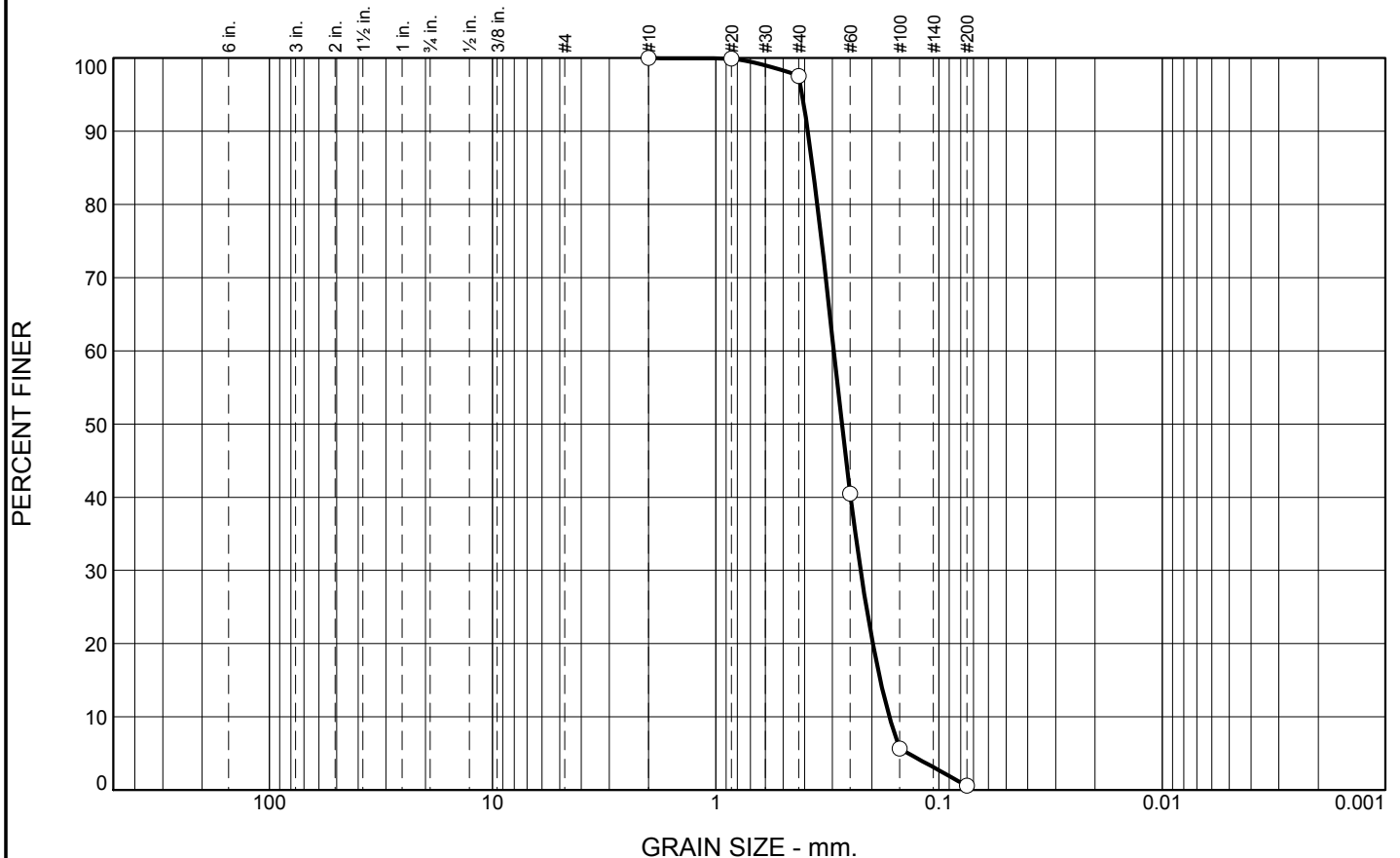
Depth: 2.0 - 3.0 (ft.)

Date: 10/14/10

**Thompson Engineering**  
  
**Mobile, Alabama**

**Client:** US Army Corps of Engineers  
**Project:** Contract No. W91278-10-D-0026 - Task 03  
 Mississippi Barrier Island Restoration Project  
**Project No:** 10-2123-0009      **Report No.**

# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.0	0.0	2.4	97.0	0.6	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
#10	100.0		
#20	99.9		
#40	97.6		
#60	40.5		
#100	5.6		
#200	0.6		

\* (no specification provided)

**Material Description**

SAND, (SP), fine grained

**Atterberg Limits**

PL=      LL=      PI=

**Coefficients**

D<sub>90</sub>= 0.3870      D<sub>85</sub>= 0.3677      D<sub>60</sub>= 0.2960  
D<sub>50</sub>= 0.2722      D<sub>30</sub>= 0.2245      D<sub>15</sub>= 0.1833  
D<sub>10</sub>= 0.1669      C<sub>u</sub>= 1.77      C<sub>c</sub>= 1.02

**Classification**

USCS= SP      AASHTO=

**Remarks**

Location: USACE Sample # WSI-13-10-10 C  
Sample Number: TE Lab ID: 4737.09

Depth: 3.0 - 4.0 (ft.)

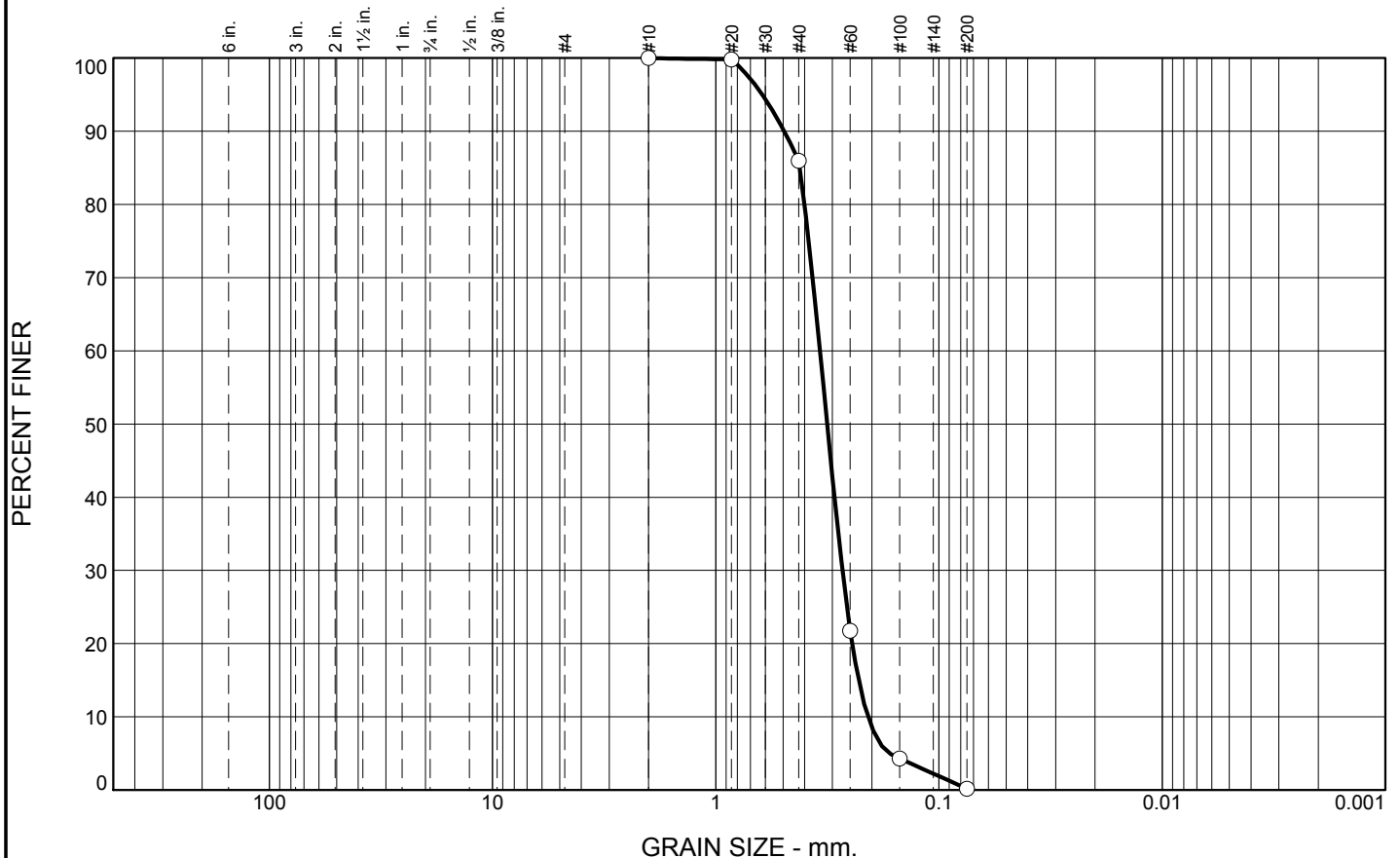
Date: 10/14/10

**Thompson Engineering**  
**Mobile, Alabama**

**Client:** US Army Corps of Engineers  
**Project:** Contract No. W91278-10-D-0026 - Task 03  
Mississippi Barrier Island Restoration Project  
**Project No:** 10-2123-0009      **Report No.**



# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.0	0.0	14.0	85.8	0.2	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
#10	100.0		
#20	99.8		
#40	86.0		
#60	21.7		
#100	4.3		
#200	0.2		

\* (no specification provided)

**Material Description**  
 SAND, (SP), medium to fine grained

**Atterberg Limits**  
 PL=      LL=      PI=

**Coefficients**  
 D<sub>90</sub>= 0.4939      D<sub>85</sub>= 0.4207      D<sub>60</sub>= 0.3413  
 D<sub>50</sub>= 0.3170      D<sub>30</sub>= 0.2708      D<sub>15</sub>= 0.2291  
 D<sub>10</sub>= 0.2082      C<sub>u</sub>= 1.64      C<sub>c</sub>= 1.03

**Classification**  
 USCS= SP      AASHTO=

**Remarks**

Location: USACE Sample # WSI-13-10-10 D  
 Sample Number: TE Lab ID: 4737.10

Depth: 4.0 - 5.0 (ft.)

Date: 10/14/10

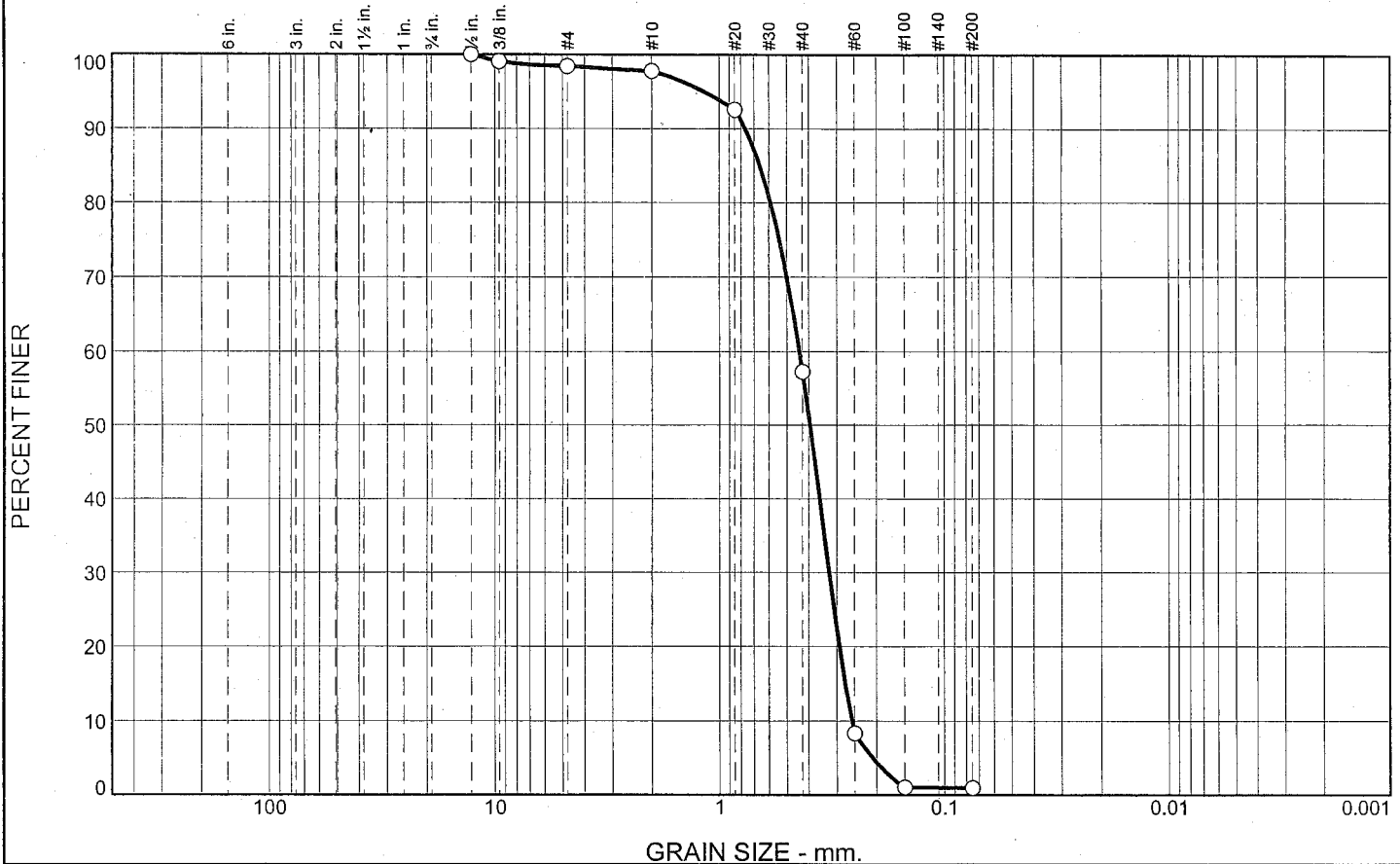
**Thompson Engineering**  
**Mobile, Alabama**

**Client:** US Army Corps of Engineers  
**Project:** Contract No. W91278-10-D-0026 - Task 03  
 Mississippi Barrier Island Restoration Project  
**Project No:** 10-2123-0009      **Report No.**



Figure 3.2.4.1 – Grab Sample locations for 2011 DA-10 sampling transect.

# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	1.6	0.6	40.5	56.3	1.0	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
.5	100.0		
.375	99.1		
#4	98.4		
#10	97.8		
#20	92.6		
#40	57.3		
#60	8.4		
#100	1.0		
#200	1.0		

\* (no specification provided)

**Material Description**  
Medium to fine SAND, with trace shell

**Atterberg Limits**  
PL=      LL=      PI=

**Coefficients**  
D<sub>90</sub>= 0.7646      D<sub>85</sub>= 0.6592      D<sub>60</sub>= 0.4383  
D<sub>50</sub>= 0.3937      D<sub>30</sub>= 0.3238      D<sub>15</sub>= 0.2751  
D<sub>10</sub>= 0.2567      C<sub>u</sub>= 1.71      C<sub>c</sub>= 0.93

**Classification**  
USCS= SP      AASHTO=

**Remarks**

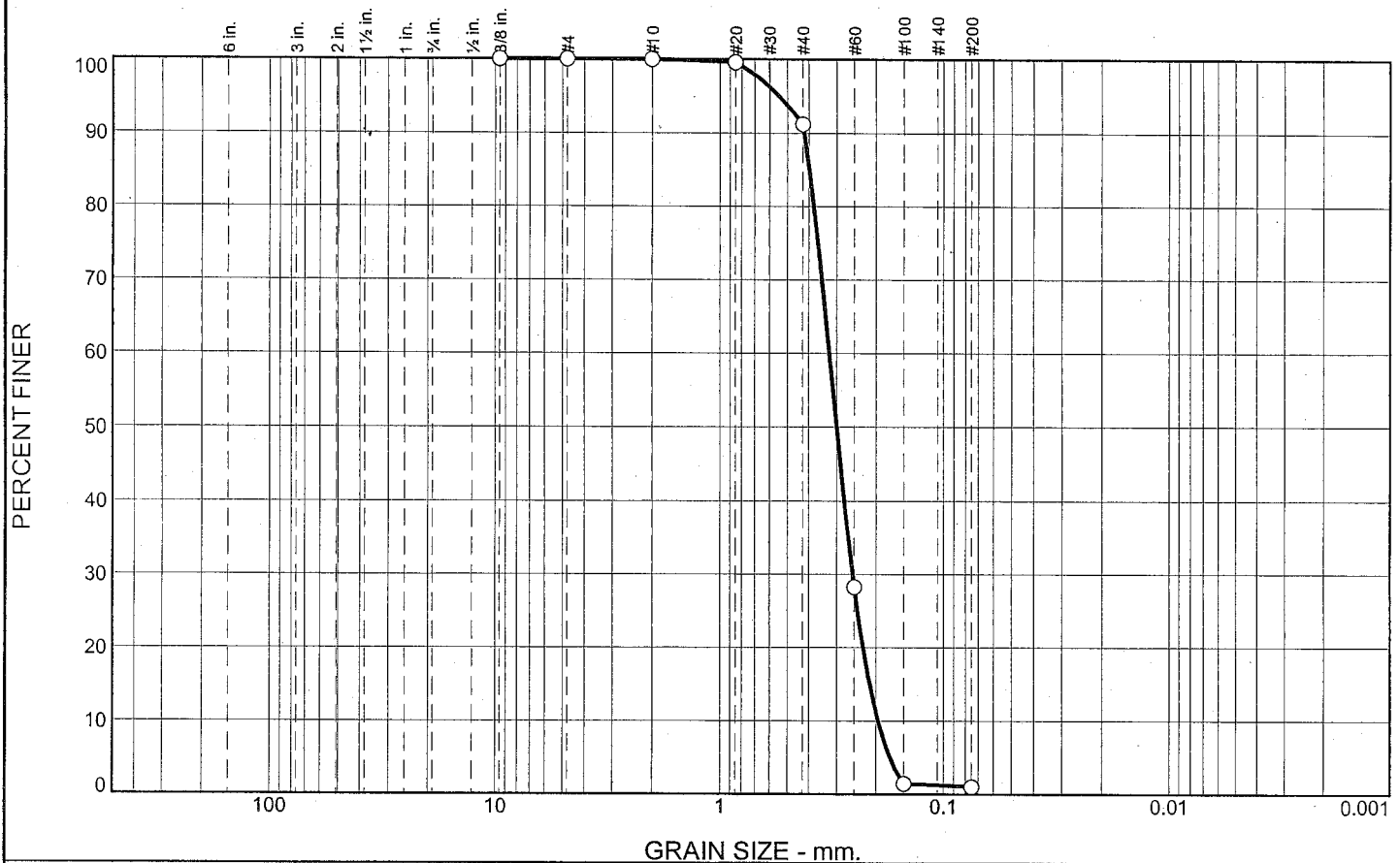
Location: BI-DA-10-15-11  
Sample Number: 4981.01

Date: 4/26/11

**Thompson Engineering**  
**Mobile, Alabama**

**Client:** US Army Corps of Engineers  
**Project:** Contract No. W91278-10-D-0026 - Task 03  
Mississippi Barrier Island Restoration Project  
**Project No:** 10-2123-0009      **Report No.**

# Particle Size Distribution Report



GRAIN SIZE - mm.

% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.0	0.0	8.8	90.2	1.0	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
.375	100.0		
#4	100.0		
#10	100.0		
#20	99.6		
#40	91.2		
#60	28.2		
#100	1.5		
#200	1.0		

\* (no specification provided)

**Material Description**

Fine SAND

**Atterberg Limits**

PL=      LL=      PI=

**Coefficients**

D<sub>90</sub>= 0.4188      D<sub>85</sub>= 0.3974      D<sub>60</sub>= 0.3233  
D<sub>50</sub>= 0.2998      D<sub>30</sub>= 0.2543      D<sub>15</sub>= 0.2135  
D<sub>10</sub>= 0.1959      C<sub>u</sub>= 1.65      C<sub>c</sub>= 1.02

**Classification**

USCS= SP      AASHTO=

**Remarks**

Location: BI-DA-10-16-11  
Sample Number: 4981.02

Date: 4/26/11

**Thompson Engineering**

**Mobile, Alabama**

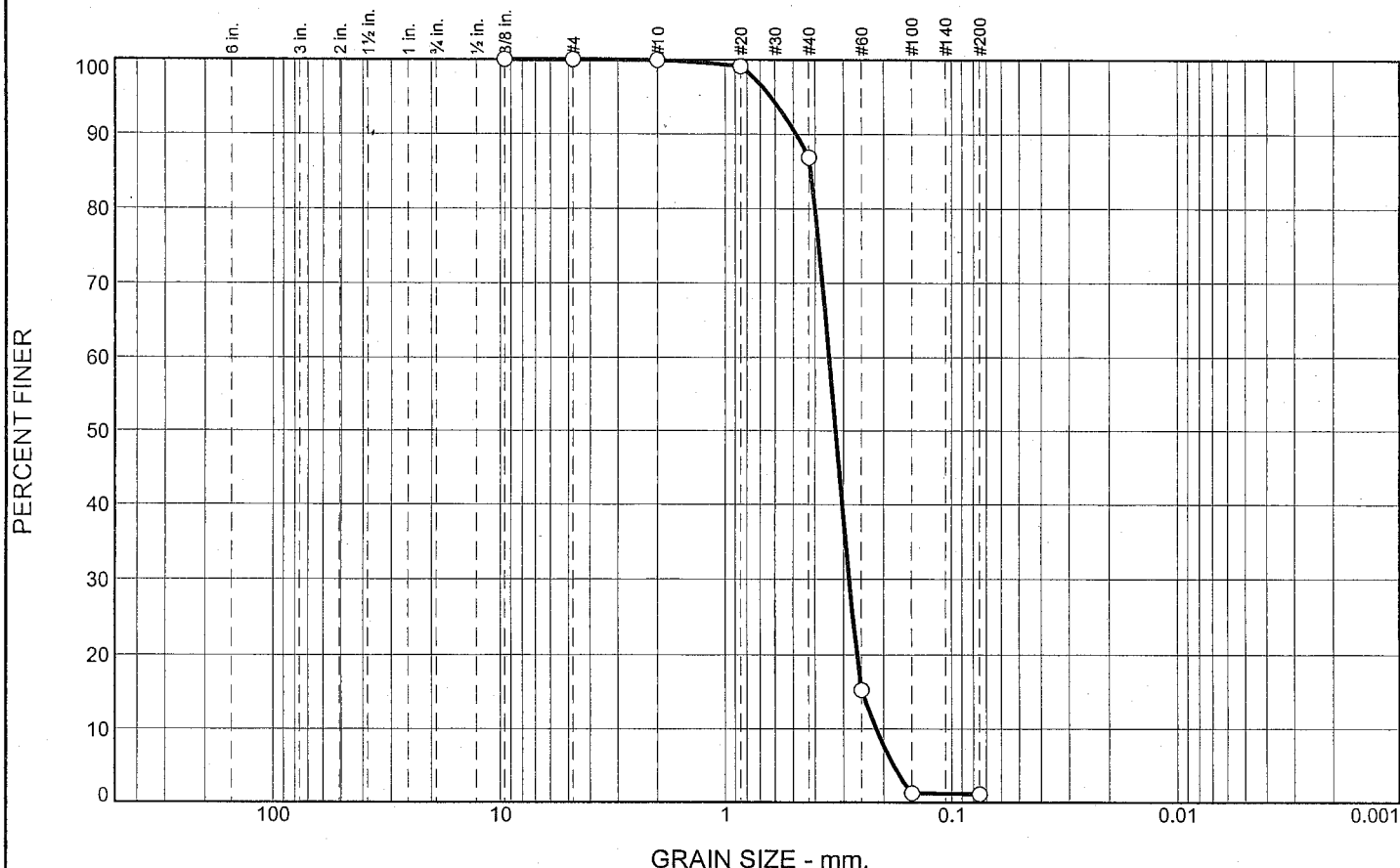
**Client:** US Army Corps of Engineers

**Project:** Contract No. W91278-10-D-0026 - Task 03  
Mississippi Barrier Island Restoration Project

**Project No:** 10-2123-0009

**Report No.**

# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.0	0.1	13.0	85.7	1.2	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
.375	100.0		
#4	100.0		
#10	99.9		
#20	99.1		
#40	86.9		
#60	15.3		
#100	1.3		
#200	1.2		

\* (no specification provided)

**Material Description**  
Medium to fine SAND

**Atterberg Limits**  
PL=      LL=      PI=

**Coefficients**  
D<sub>90</sub>= 0.4850      D<sub>85</sub>= 0.4175      D<sub>60</sub>= 0.3465  
D<sub>50</sub>= 0.3244      D<sub>30</sub>= 0.2831      D<sub>15</sub>= 0.2482  
D<sub>10</sub>= 0.2156      C<sub>u</sub>= 1.61      C<sub>c</sub>= 1.07

**Classification**  
USCS= SP      AASHTO=

**Remarks**

Location: BI-DA-10-17-11  
Sample Number: 4981.03

Date: 4/26/11

**Thompson Engineering**  
**Mobile, Alabama**

Client: US Army Corps of Engineers  
Project: Contract No. W91278-10-D-0026 - Task 03  
Mississippi Barrier Island Restoration Project  
Project No: 10-2123-0009      Report No.



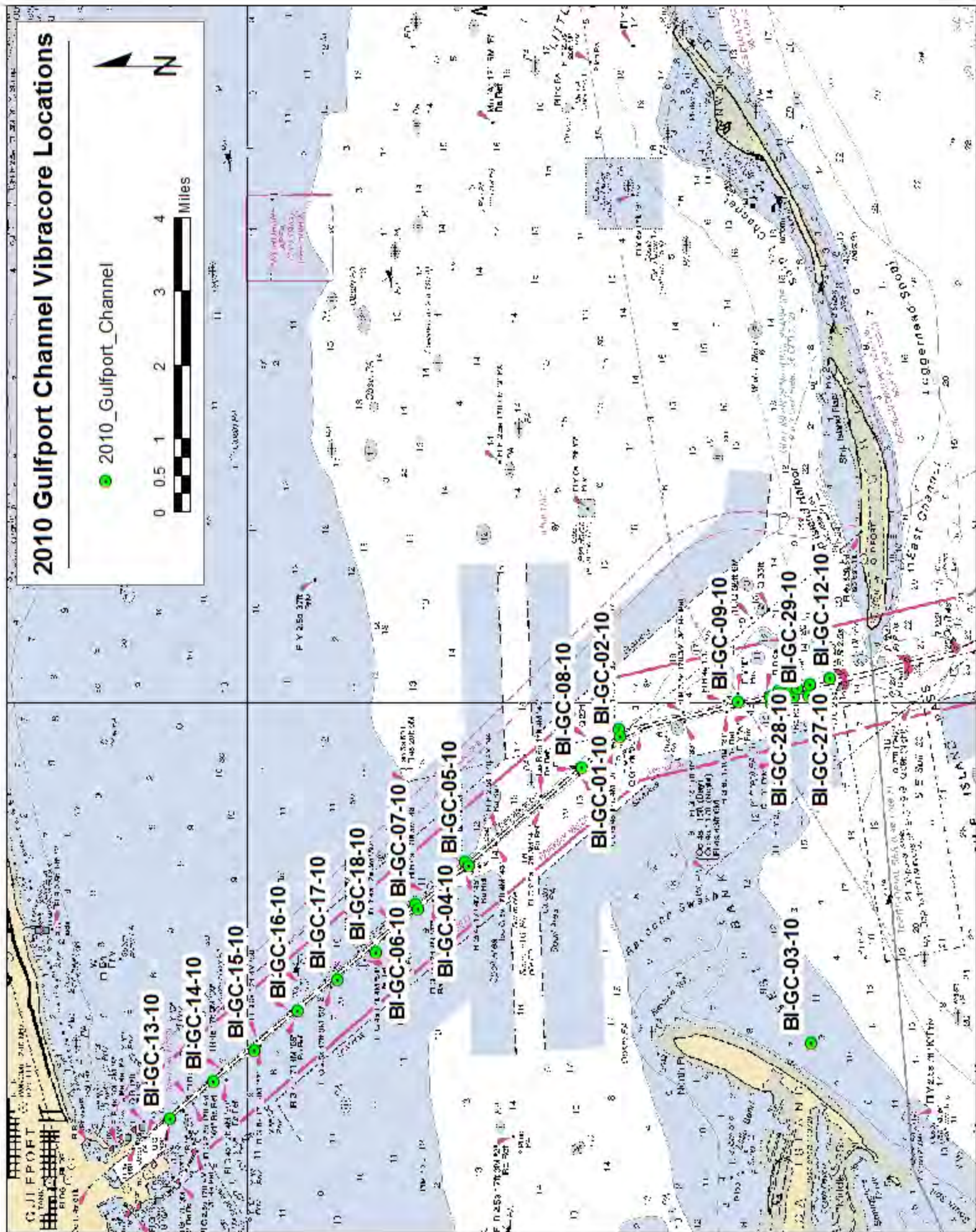
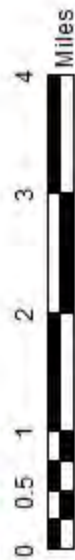
## **Appendix B**

### **Gulfport Channel Vibracores and Lab Results**

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# 2010 Gulfport Channel Vibracore Locations

● 2010\_Gulfport\_Channel



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Vibracore / Sample ID	Investigation Area	Sample Event	Date of Sample	Time_CST	Latitude	Longitude	Northing_Y	Easting_X	Sample Method	Water Depth (feet)	Boring Depth (feet below seafloor surface )	Sample Depth (Feet below seafloor surface)	Sample Thickness (feet)	Field USCS	Lab USCS	Angularity	Wet Munsell Color	Wet Munsell Color Code	Wet Munsell Value	Dry Munsell Color	Dry Munsell Color Code	Dry Munsell Value	CaCO3	D50 (mm)	Graphic Mean (mm)	% Fines	Cu (D60/D10)	Cc (D30)*2 / (D10*D60)	
BI-GC-1-10	GULFPORT CHANNEL	2010	6/22/2010	7:50 AM	30.26019	-89.00484	276494.27800	930103.49220	20-ft Vibracore	22.0	15.0	NO SAMPLE TAKEN		CL	NO SAMPLE TESTED														
BI-GC-2-10	GULFPORT CHANNEL	2010	5/7/2010	1:17 PM	30.25991	-89.00628	276393.13470	929648.71310	20-ft Vibracore	40.0	20.0	NO SAMPLE TAKEN		CL	NO SAMPLE TESTED														
BI-GC-3-10	GULFPORT CHANNEL	2010	5/21/2010	1:20 PM	30.27306	-89.01620	281180.50470	926524.54120	20-ft Vibracore	22.0	19.1																		
BI-GC-3-10A	GULFPORT CHANNEL	2010	5/21/2010	1:20 PM	30.27306	-89.01620	281180.50470	926524.54120	20-ft Vibracore	22.0	19.1	15.0 - 17.0	2.0	SM	SM	CLAY FINES	DK GRAYISH BROWN	10YR 4/2	4	BROWN	10YR 5/3	5	NO	0.11	#VALUE!	18.1	#VALUE!	#VALUE!	
BI-GC-3-10B	GULFPORT CHANNEL	2010	5/21/2010	1:20 PM	30.27306	-89.01620	281180.50470	926524.54120	20-ft Vibracore	22.0	19.1	17.0 - 19.0	2.0	SM	SM	SUBANGULAR TO ROUNDED	DK GRAYISH BROWN	2.5Y 4/2	4	DK GRAYISH BROWN	10YR 4/2	4	NO	0.10	#VALUE!	17.3	#VALUE!	#VALUE!	
BI-GC-4-10	GULFPORT CHANNEL	2010	6/22/2010	8:20 AM	30.29052	-89.03094	287538.26620	921882.60490	20-ft Vibracore	18.0	19.1	NO SAMPLE TAKEN		CL	NO SAMPLE TESTED														
BI-GC-5-10	GULFPORT CHANNEL	2010	5/7/2010	2:50 PM	30.28971	-89.03165	287244.07000	921658.00440	20-ft Vibracore	36.0	17.8	NO SAMPLE TAKEN		CL	NO SAMPLE TESTED														
BI-GC-6-10	GULFPORT CHANNEL	2010	6/22/2010	8:40 AM	30.30010	-89.03927	291027.06470	919259.85360	20-ft Vibracore	17.0	18.5	NO SAMPLE TAKEN		CL	NO SAMPLE TESTED														
BI-GC-7-10	GULFPORT CHANNEL	2010	5/7/2010	4:10 PM	30.29972	-89.04005	290889.31040	919013.44670	20-ft Vibracore	36.0	19.5	NO SAMPLE TAKEN		CL	NO SAMPLE TESTED														
BI-GC-8-10	GULFPORT CHANNEL	2010	5/7/2010	2:00 PM	30.26748	-89.01228	279149.16680	927758.77330	20-ft Vibracore	35.0	19.2																		
BI-GC-8-10A	GULFPORT CHANNEL	2010	5/7/2010	2:00 PM	30.26748	-89.01228	279149.16680	927758.77330	20-ft Vibracore	35.0	19.2	10.4 - 15.4	5.0	SP	SP-SM	SUBANGULAR TO ROUNDED	WHITE	WHITE PAGE 2.5Y/8	8	LT GRAY	10YR 7/1	7	NO	0.24	0.25	5.2	1.8	1.0	
BI-GC-8-10B	GULFPORT CHANNEL	2010	5/7/2010	2:00 PM	30.26748	-89.01228	279149.16680	927758.77330	20-ft Vibracore	35.0	19.2	15.4 - 19.2	3.8	SP	SP	SUBANGULAR TO ROUNDED	WHITE	WHITE PAGE 2.5Y/8.5	9	WHITE	WHITE PAGE 10YR 9/1	9	NO	0.29	0.29	1.7	1.7	1.1	
BI-GC-9-10	GULFPORT CHANNEL	2010	5/5/2010	9:45 AM	30.23676	-88.99945	267970.61810	931792.73060	20-ft Vibracore	19.5	19.5																		
BI-GC-9-10A	GULFPORT CHANNEL	2010	5/5/2010	9:45 AM	30.23676	-88.99945	267970.61810	931792.73060	20-ft Vibracore	19.5	19.5	0.0 - 5.0	5.0	SP	SP	SUBANGULAR TO ROUNDED	GRAY	5Y 5/1	5	GRAY	2.5Y 6/1	6	NO	0.19	0.20	2.9	1.9	1.0	
BI-GC-9-10B	GULFPORT CHANNEL	2010	5/5/2010	9:45 AM	30.23676	-88.99945	267970.61810	931792.73060	20-ft Vibracore	19.5	19.5	5.0 - 9.0	4.0	SP	SP-SM	SUBANGULAR TO ROUNDED	GRAY	5Y 5/1	5	LT. GRAY	5Y 7/1	7	NO	0.16	0.16	7.7	2.2	1.1	
BI-GC-9-10C	GULFPORT CHANNEL	2010	5/5/2010	9:45 AM	30.23676	-88.99945	267970.61810	931792.73060	20-ft Vibracore	19.5	19.5	9.1 - 10.0	0.9	CL	CL	SUBANGULAR TO ROUNDED	DK GRAY	5Y 4/1	4	GRAY	5Y 5/1	5	YES	0.00	#VALUE!	58.8	#VALUE!	#VALUE!	
BI-GC-9-10D	GULFPORT CHANNEL	2010	5/5/2010	9:45 AM	30.23676	-88.99945	267970.61810	931792.73060	20-ft Vibracore	19.5	19.5	10.0 - 14.0	4.0	SM	SP-SM	SUBANGULAR TO ROUNDED	GRAY	5Y 5/1	5	GRAY	5Y 6/1	6	YES	0.15	0.15	7.3	2.1	1.0	
BI-GC-10-10	GULFPORT CHANNEL	2010	5/5/2010	11:00 AM	30.23017	-88.99987	265574.13500	931656.59270	20-ft Vibracore	18.5	15.0																		
BI-GC-10-10A	GULFPORT CHANNEL	2010	5/5/2010	11:00 AM	30.23017	-88.99987	265574.13500	931656.59270	20-ft Vibracore	18.5	15.0	0.0 - 4.3	4.3	SP	SP-SM	SUBANGULAR TO ROUNDED	GRAY	5Y 5/1	5	GRAY	5Y 6/1	6	NO	0.18	0.19	7.0	1.8	1.1	
BI-GC-10-10B	GULFPORT CHANNEL	2010	5/5/2010	11:00 AM	30.23017	-88.99987	265574.13500	931656.59270	20-ft Vibracore	18.5	15.0	5.8 - 11.8	6.0	SP	SP	SUBANGULAR TO ROUNDED	GRAY	5Y 6/1	6	LT. GRAY	5Y 7/1	7	NO	0.19	0.19	4.8	2.3	1.4	
BI-GC-11-10	GULFPORT CHANNEL	2010	5/5/2010	12:22 PM	30.22261	-88.99595	262822.89760	932890.62850	20-ft Vibracore	21.0	19.5																		
BI-GC-11-10A	GULFPORT CHANNEL	2010	5/5/2010	12:22 PM	30.22261	-88.99595	262822.89760	932890.62850	20-ft Vibracore	21.0	19.5	0.0 - 5.0	5.0	SP	SP	SUBANGULAR TO ROUNDED	GRAY	5Y 6/1	6	LT. GRAY	5Y 7/1	7	NO	0.21	0.22	1.9	1.6	1.0	
BI-GC-11-10B	GULFPORT CHANNEL	2010	5/5/2010	12:22 PM	30.22261	-88.99595	262822.89760	932890.62850	20-ft Vibracore	21.0	19.5	5.0 - 10.0	5.0	SP	SP	SUBANGULAR TO ROUNDED	GRAY	5Y 5.5/1	6	LT. GRAY	5Y 7.5/1	8	NO	0.19	0.19	2.0	1.9	1.3	
BI-GC-11-10C	GULFPORT CHANNEL	2010	5/5/2010	12:22 PM	30.22261	-88.99595	262822.89760	932890.62850	20-ft Vibracore	21.0	19.5	10.0 - 15.0	5.0	SP	SP	SUBANGULAR TO ROUNDED	GRAY	5Y 5/1	5	LT. GRAY	5Y 7/1	7	NO	0.19	0.20	2.3	1.8	1.2	
BI-GC-12-10	GULFPORT CHANNEL	2010	5/5/2010	1:43 PM	30.21882	-88.99483	261444.03480	933242.40410	20-ft Vibracore	23.0	15.0																		
BI-GC-12-10-A	GULFPORT CHANNEL	2010	5/5/2010	1:43 PM	30.21882	-88.99483	261444.03480	933242.40410	20-ft Vibracore	23.0	15.0	0.0 - 5.0	5.0	SP	SP	SUBANGULAR TO ROUNDED	GRAY	5Y 6/1	6	LT. GRAY	2.5Y 7/1	7	NO	0.23	0.28	3.7	1.8	1.0	
BI-GC-12-10B	GULFPORT CHANNEL	2010	5/5/2010	1:43 PM	30.21882	-88.99483	261444.03480	933242.40410	20-ft Vibracore	23.0	15.0	5.0 - 10.0	5.0	SP	SP	SUBANGULAR TO ROUNDED	GRAY	5Y 5/1	5	GRAY	5Y 6.5/1	7	NO	0.17	0.18	3.6	1.9	1.1	
BI-GC-12-10C	GULFPORT CHANNEL	2010	5/5/2010	1:43 PM	30.21882	-88.99483	261444.03480	933242.40410	20-ft Vibracore	23.0	15.0	10.0 - 14.0	4.0	SP-SM	SP-SM	SUBANGULAR TO ROUNDED	GRAY	5Y 6/1	6	GRAY	2.5Y 6.5/1	7	NO	0.19	0.18	6.8	2.3	1.5	
BI-GC-13-10	GULFPORT CHANNEL	2010	5/7/2010	10:07 AM	30.34838	-89.08134	308612.54710	906021.60640	20-ft Vibracore	34.0	18.3	NO SAMPLE TAKEN		CL	NO SAMPLE TESTED														
BI-GC-14-10	GULFPORT CHANNEL	2010	5/7/2010	9:25 AM	30.33999	-89.07405	305556.22550	908314.61120	20-ft Vibracore	35.0	15.8	NO SAMPLE TAKEN		CL	NO SAMPLE TESTED														
BI-GC-15-10	GULFPORT CHANNEL	2010	5/7/2010	8:25 AM	30.33186	-89.06784	302595.31920	910267.48270	20-ft Vibracore	23.0	17.5	NO SAMPLE TAKEN		CL	NO SAMPLE TESTED														
BI-GC-16-10	GULFPORT CHANNEL	2010	5/7/2010	11:47 AM	30.32342	-89.06004	299520.77570	912722.11210	20-ft Vibracore	36.0	20.0	NO SAMPLE TAKEN		CL	NO SAMPLE TESTED														
BI-GC-17-10	GULFPORT CHANNEL	2010	5/8/2010	9:06 AM	30.31556	-89.05412	296658.49550	914584.36640	20-ft Vibracore	24.0	13.2																		
BI-GC-17-10 (CLAY LENS)	GULFPORT CHANNEL	2010	5/8/2010	9:06 AM	30.31556	-89.05412	296658.49550	914584.36640	20-ft Vibracore	24.0	13.2	0.0-10.7	10.7	CL	Not Tested	CLAY FINES	VERY DK GREEN GRAY	GLEY1 3/5GY	3	VERY DK GREEN GRAY	GLEY1 3/5GY	3							
BI-GC-17-10A	GULFPORT CHANNEL	2010	5/8/2010	9:06 AM	30.31556	-89.05412	296658.49550	914584.36640	20-ft Vibracore	24.0	13.2	10.7 - 13.2	2.5	SM	SP-SM	SUBANGULAR TO ROUNDED	GRAY	10YR 5/1	5	GRAY	10YR 5/1	5	NO	0.13	0.13	9.4	1.9	0.9	
BI-GC-18-10	GULFPORT CHANNEL	2010	5/8/2010	8:24 AM	30.30768	-89.04685	293788.23980	916872.91160	20-ft Vibracore	36.0	20.0																		
BI-GC-18-10A	GULFPORT CHANNEL	2010	5/8/2010	8:24 AM	30.30768	-89.04685	293788.23980	916872.91160	20-ft Vibracore	36.0	20.0	13.8- 19.0	5.2	SP	SP-SM	SUBANGULAR TO ROUNDED	DK GRAY	10YR 4/1	4	GRAY	10YR 6/1	6	NO	0.19	0.19	5.5	2.3	1.4	
BI-GC-19-10	GULFPORT CHANNEL	2010	5/21/2010	9:15 AM	30.22645	-88.99714	264219.98070	932516.79910	20-ft Vibracore	21.5	19.5																		
BI-GC-19-10A	GULFPORT CHANNEL	2010	5/21/2010	9:15 AM	30.22645	-88.99714	264219.98070	932516.79910	20-ft Vibracore	21.5	19.5	0.0 - 5.0	5.0	SP	SP	SUBANGULAR TO ROUNDED	LT BROWNISH GRAY	2.5Y 6/2	6	LT GRAY	2.5Y 7/2	7	NO	0.27	0.28	2.8	2.2	1.0	
BI-GC-19-10B	GULFPORT CHANNEL	2010	5/21/2010	9:15 AM	30.22645	-88.99714	264219.98070	932516.79910	20-ft Vibracore	21.5	19.5	5.0 - 10.0	5.0	SP	SP	SUBANGULAR TO ROUNDED	GRAY	2.5Y 6/1	6	LT GRAY	2.5Y 7/1	7	NO	0.28	0.28	2.3	2.6	1.2	
BI-GC-19-10C	GULFPORT CHANNEL	2010	5/21/2010	9:15 AM	30.22645	-88.99714	264219.98070	932516.79910	20-ft Vibracore	21.5	19.5	10.0 - 15.0	5.0	SP	SP	SUBANGULAR TO ROUNDED	GRAY	2.5Y 6/1	6	LT GRAY	2.5Y 7.5/1	8	NO	0.30	0.31	2.4	2.1	1.1	
BI-GC-19-10D	GULFPORT CHANNEL	2010	5/21/2010	9:15 AM	30.22645	-88.99714	264219.98070	932516.79910	20-ft Vibracore	21.5	19.5	15.0 - 19.0	4.0	SP	SP	SUBANGULAR TO ROUNDED	GRAY	5Y 6/1	6	LT GRAY	2.5Y 7/1	7	NO	0.25	0.25	3.6	2.7	1.2	
BI-GC-20-10	GULFPORT CHANNEL	2010	6/1/2010	12:00 PM	30.22853	-88.99733	264976.52890	932457.88350	20-ft Vibracore	20.0	19.5																		
BI-GC-20-10A	GULFPORT CHANNEL	2010	6/1/2010	12:00 PM	30.22853	-88.99733	264976.52890	932457.88350	20-ft Vibracore	20.0	19.5	5.0-9.0	4.0	SP	SP-SM	SUBANGULAR TO ROUNDED	GRAY	5Y 5/1	5	LT GRAY	2.5Y 7/2	7	NO	0.18	0.19	8.4	2.5	1.1	
BI-GC-20-10B	GULFPORT CHANNEL	2010	6/1/2010	12:00 PM	30.22853	-88.99733	264976.52890	932457.88350	20-ft Vibracore	20.0	19.5	9.0-13.0	4.0	SP	SP	SUBANGULAR TO ROUNDED	GRAY	5Y 5/1	5	LT GRAY	2.5Y 7/2	7	NO	0.17	0.19	3.6	2.3	1.0	
BI-GC-21-10	GULFPORT CHANNEL	2010	6/1/2010	11:26 AM	30.22879	-88.99724	265071.04570	932486.44280	20-ft Vibracore	20.0	16.7																		



Vibracore / Sample ID	Investigation Area	Sample Event	Date of Sample	Time_CST	Latitude	Longitude	Northing_Y	Easting_X	Sample Method	Water Depth (feet)	Boring Depth (feet below seafloor surface )	Sample Depth (Feet below seafloor surface)	Sample Thickness (feet)	Field USCS	Lab USCS	Angularity	Wet Munsell Color	Wet Munsell Color Code	Wet Munsell Value	Dry Munsell Color	Dry Munsell Color Code	Dry Munsell Value	CaCO3	D50 (mm)	Graphic Mean (mm)	% Fines	Cu (D60/D10)	Cc (D30)^2 / (D10*D60)
BI-GC-24-10	GULFPORT CHANNEL	2010	6/10/2010	12:45 PM	30.22847	-88.99781	264954.92660	932306.26200	20-ft Vibracore	34.0	13.6																	
BI-GC-24-10A	GULFPORT CHANNEL	2010	6/10/2010	12:45 PM	30.22847	-88.99781	264954.92660	932306.26200	20-ft Vibracore	34.0	13.6	5.4-9.5	4.1	SM	SM	CLAY FINES	DK GRAY	2.5Y 4/1	4	GRAYISH BROWN	2.5Y 5.5/2	6	NO	0.12	#VALUE!	18.8	#VALUE!	#VALUE!
BI-GC-25-10	GULFPORT CHANNEL	2010	6/10/2010	1:40 PM	30.22733	-88.99844	264540.61550	932106.69860	20-ft Vibracore	19.0	19.9																	
BI-GC-25-10A	GULFPORT CHANNEL	2010	6/10/2010	1:40 PM	30.22733	-88.99844	264540.61550	932106.69860	20-ft Vibracore	19.0	19.9	4.4-10.0	5.6	SM	SM	SUBANGULAR TO ROUNDED	DK GRAY	5Y 4/1	4	LT BROWNISH GRAY	2.5Y 6/2	6	YES	0.14	0.14	14.7	#VALUE!	#VALUE!
BI-GC-25-10B	GULFPORT CHANNEL	2010	6/10/2010	1:40 PM	30.22733	-88.99844	264540.61550	932106.69860	20-ft Vibracore	19.0	19.9	10.0-16.0	6.0	SP	SP	SUBANGULAR TO ROUNDED	GRAY	5Y 6/1	6	LT GRAY	2.5Y 7/1	7	YES	0.19	0.19	3.7	1.8	1.1
BI-GC-26-10	GULFPORT CHANNEL	2010	6/10/2010	1:15 PM	30.22664	-88.99749	264289.23980	932406.36210	20-ft Vibracore	43.0	16.3	NO SAMPLE TAKEN		CL	NO SAMPLE TESTED													
BI-GC-27-10	GULFPORT CHANNEL	2010	6/11/2010	10:20 AM	30.22578	-88.99845	263976.91060	932102.72260	20-ft Vibracore	21.0	16.9																	
BI-GC-27-10A	GULFPORT CHANNEL	2010	6/11/2010	10:20 AM	30.22578	-88.99845	263976.91060	932102.72260	20-ft Vibracore	21.0	16.9	0.0 - 6.0	6.0	SP	SP	SUBANGULAR TO ROUNDED	GRAY	5Y 6/1	6	LT GRAY	2.5Y 7/1	7	NO	0.24	0.28	3.1	2.5	1.1
BI-GC-27-10B	GULFPORT CHANNEL	2010	6/11/2010	10:20 AM	30.22578	-88.99845	263976.91060	932102.72260	20-ft Vibracore	21.0	16.9	6.0 - 11.8	5.8	SP	SP-SM	SUBANGULAR TO ROUNDED	GRAY	5Y 6/1	6	LT GRAY	5Y 7/1	7	NO	0.25	0.27	5.5	2.3	1.0
BI-GC-28-10	GULFPORT CHANNEL	2010	6/11/2010	9:50 AM	30.22504	-88.99672	263706.99640	932648.70700	20-ft Vibracore	20.0	19.3																	
BI-GC-28-10A	GULFPORT CHANNEL	2010	6/11/2010	9:50 AM	30.22504	-88.99672	263706.99640	932648.70700	20-ft Vibracore	20.0	19.3	0.0 - 5.0	5.0	SP	SP	SUBANGULAR TO ROUNDED	GRAY	5Y 6/1	6	LT GRAY	2.5Y 7/1	7	YES	0.25	0.26	2.3	2.0	1.0
BI-GC-28-10B	GULFPORT CHANNEL	2010	6/11/2010	9:50 AM	30.22504	-88.99672	263706.99640	932648.70700	20-ft Vibracore	20.0	19.3	5.0 - 10.0	5.0	SP	SP	SUBANGULAR TO ROUNDED	GRAY	5Y 6/1	6	LT GRAY	5Y 7/1	7	YES	0.22	0.23	1.5	2.1	1.2
BI-GC-28-10C	GULFPORT CHANNEL	2010	6/11/2010	9:50 AM	30.22504	-88.99672	263706.99640	932648.70700	20-ft Vibracore	20.0	19.3	10.0 - 15.0	5.0	SP	SP-SM	SUBANGULAR TO ROUNDED	GRAY	5Y 5/1	5	LT GRAY	2.5Y 7/1	7	YES	0.24	0.27	8.4	2.5	1.3
BI-GC-28-10D	GULFPORT CHANNEL	2010	6/11/2010	9:50 AM	30.22504	-88.99672	263706.99640	932648.70700	20-ft Vibracore	20.0	19.3	15.0 - 19.3	4.3	SP	SP-SM	SUBANGULAR TO ROUNDED	GRAY	5Y 6.5/1	7	LT GRAY	2.5Y 7/1	7	NO	0.20	0.21	6.4	2.3	1.4
BI-GC-29-10	GULFPORT CHANNEL	2010	6/11/2010	9:10 AM	30.22294	-88.99812	262943.89870	932205.44820	20-ft Vibracore	21.0	19.7																	
BI-GC-29-10A	GULFPORT CHANNEL	2010	6/11/2010	9:10 AM	30.22294	-88.99812	262943.89870	932205.44820	20-ft Vibracore	21.0	19.7	0.0 - 5.0	5.0	SP	SP	SUBANGULAR TO ROUNDED	GRAY	2.5Y 6/1	6	LT GRAY	5Y 7/1	7	YES	0.22	0.24	2.3	1.7	1.0
BI-GC-29-10B	GULFPORT CHANNEL	2010	6/11/2010	9:10 AM	30.22294	-88.99812	262943.89870	932205.44820	20-ft Vibracore	21.0	19.7	5.0 - 10.0	5.0	SP	SP	SUBANGULAR TO ROUNDED	GRAY	5Y 6/1	6	LT GRAY	5Y 7/1	7	YES	0.21	0.22	1.7	1.9	1.1
BI-GC-29-10C	GULFPORT CHANNEL	2010	6/11/2010	9:10 AM	30.22294	-88.99812	262943.89870	932205.44820	20-ft Vibracore	21.0	19.7	10.0 - 15.0	5.0	SP	SP-SM	SUBANGULAR TO ROUNDED	GRAY	2.5Y 5.5/1	6	LT GRAY	2.5Y 7/1	7	NO	0.21	0.22	6.9	2.0	1.3

Cu: Coefficient of Uniformity  
Cc: Coefficient of Curvature  
The "#Value!" error message indicates that data was not available for that calculation.

# Boring Designation BI-GC-01-10

DRILLING LOG		DIVISION South Atlantic		INSTALLATION Mobile District		SHEET 1 OF 1 SHEETS	
1. PROJECT MsCIP Barrier Island Restoration Gulfport Channel				9. SIZE AND TYPE OF BIT N/A			
2. BORING DESIGNATION BI-GC-01-10		LOCATION COORDINATES E = 930,103 N = 276,494		10. COORDINATE SYSTEM/DATUM State Plane, MSE (U.S. Ft.)		HORIZONTAL NAD83	
3. DRILLING AGENCY Corps of Engineers - CESAM		CONTRACTOR FILE NO.		11. MANUFACTURER'S DESIGNATION OF DRILL Vibracore		<input type="checkbox"/> AUTO HAMMER <input type="checkbox"/> MANUAL HAMMER	
4. NAME OF DRILLER Construction Solutions International, Inc.				12. TOTAL SAMPLES		DISTURBED 0	
5. DIRECTION OF BORING <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED		DEG. FROM VERTICAL		13. TOTAL NUMBER CORE BOXES		UNDISTURBED (UD) 0	
6. THICKNESS OF OVERBURDEN N/A		BEARING		14. WATER DEPTH 22 Ft.		15. DATE BORING 06-22-10	
7. DEPTH DRILLED INTO ROCK N/A				16. ELEVATION TOP OF BORING -20.2 Ft.		COMPLETED 06-22-10	
8. TOTAL DEPTH OF BORING 15.0 Ft.				17. TOTAL RECOVERY FOR BORING 100%		18. SIGNATURE AND TITLE OF INSPECTOR Marty Gates, Geologist	
ELEV.	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS	SAMPLE	LABORATORY RESULTS		
-20.2	0.0		CLAY, lean, dark gray (CL)				
				NS			
-35.2	15.0						
			NOTES:				
			1. Soils are field visually classified in accordance with the Unified Soils Classification System.				
			2. NS = Sample not submitted for laboratory analysis from this interval.				
			3. Seafloor elevation calculated using sampling vessel's fathometer water depth reading and applying NOAA tidal gauge data conversion factor.				

# Boring Designation BI-GC-02-10

DRILLING LOG		DIVISION South Atlantic		INSTALLATION Mobile District		SHEET 1 OF 2 SHEETS	
1. PROJECT MsCIP Barrier Island Restoration Gulfport Channel				9. SIZE AND TYPE OF BIT N/A			
2. BORING DESIGNATION BI-GC-02-10		LOCATION COORDINATES E = 929,649 N = 276,393		10. COORDINATE SYSTEM/DATUM State Plane, MSE (U.S. Ft.)		HORIZONTAL NAD83	
3. DRILLING AGENCY Corps of Engineers - CESAM		CONTRACTOR FILE NO.		11. MANUFACTURER'S DESIGNATION OF DRILL Vibracore		<input type="checkbox"/> AUTO HAMMER <input type="checkbox"/> MANUAL HAMMER	
4. NAME OF DRILLER Construction Solutions International, Inc.				12. TOTAL SAMPLES 0		DISTURBED 0	
5. DIRECTION OF BORING <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED		DEG. FROM VERTICAL		13. TOTAL NUMBER CORE BOXES			
		BEARING		14. WATER DEPTH 40 Ft.			
6. THICKNESS OF OVERBURDEN N/A				15. DATE BORING 05-07-10		STARTED 05-07-10	
7. DEPTH DRILLED INTO ROCK N/A				16. ELEVATION TOP OF BORING -39.6 Ft.			
8. TOTAL DEPTH OF BORING 20.0 Ft.				17. TOTAL RECOVERY FOR BORING 100%			
				18. SIGNATURE AND TITLE OF INSPECTOR Marty Gates, Geologist			
ELEV.	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS	SAMPLE	LABORATORY RESULTS		
-39.6	0.0		CLAY, lean, dark gray (CL)				
				NS			
-59.6	20.0						
			NOTES: 1. Soils are field visually classified in accordance with the Unified Soils Classification System. 2. NS = Sample not submitted for laboratory analysis from this interval. 3. Seafloor elevation calculated using sampling				

<b>DRILLING LOG (Cont. Sheet)</b>			<b>INSTALLATION</b> Mobile District		<b>SHEET 2</b> <b>OF 2 SHEETS</b>
<b>PROJECT</b> MsCIP Barrier Island Restoration			<b>COORDINATE SYSTEM/DATUM</b> State Plane, MSE (U.S. Ft.)	<b>HORIZONTAL</b> NAD83	<b>VERTICAL</b> NAVD88
<b>LOCATION COORDINATES</b> X = 929,649 Y = 276,393			<b>ELEVATION TOP OF BORING</b> -39.6 Ft.		
<b>ELEV.</b>	<b>DEPTH</b>	<b>LEGEND</b>	<b>CLASSIFICATION OF MATERIALS</b>	<b>SAMPLE</b>	<b>LABORATORY RESULTS</b>
			vessel's fathometer water depth reading and applying NOAA tidal gauge data conversion factor.		

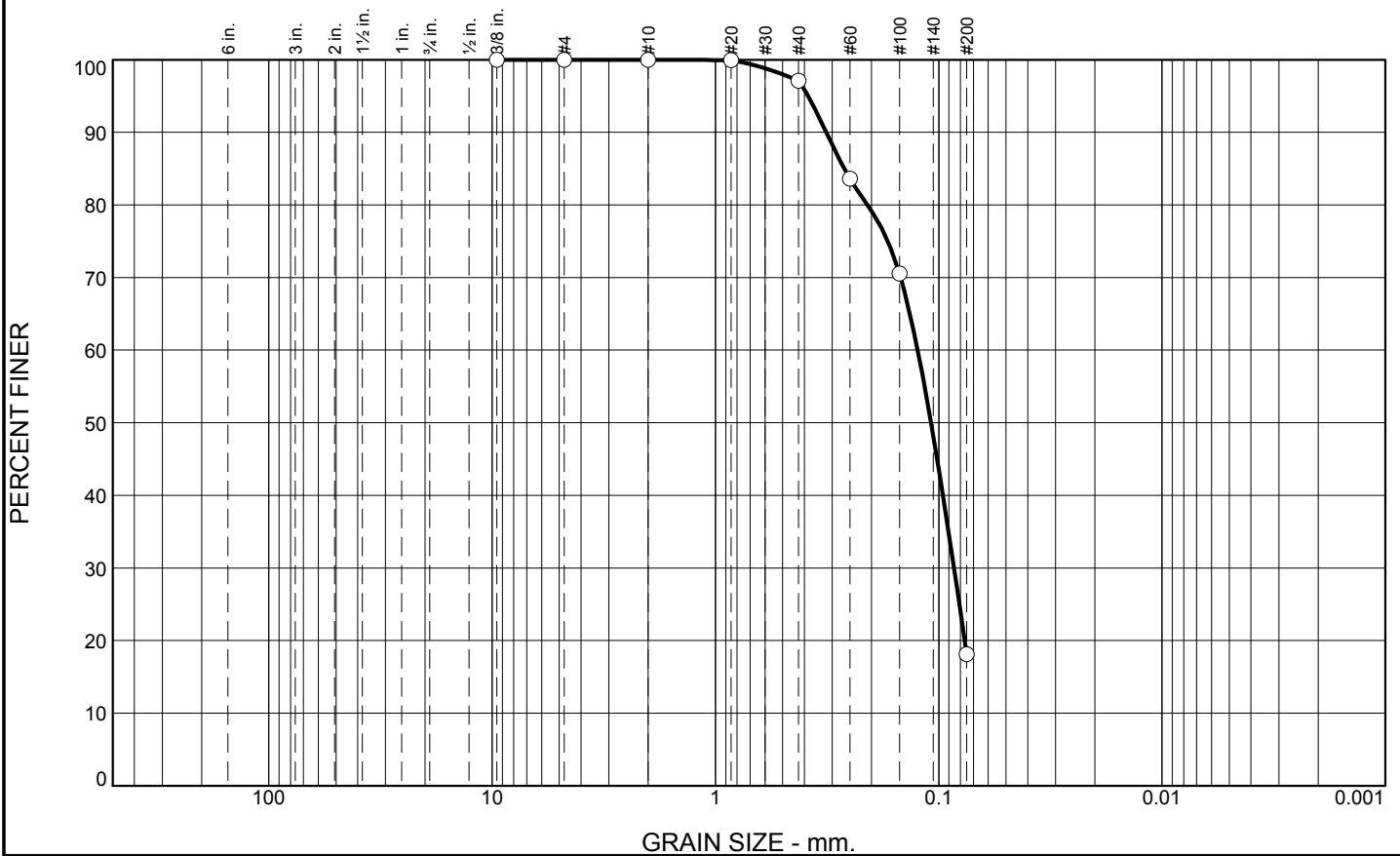
# Boring Designation BI-GC-03-10

DRILLING LOG		DIVISION South Atlantic		INSTALLATION Mobile District		SHEET 1 OF 2 SHEETS	
1. PROJECT MsCIP Barrier Island Restoration Gulfport Channel				9. SIZE AND TYPE OF BIT N/A			
2. BORING DESIGNATION BI-GC-03-10		LOCATION COORDINATES E = 926,525 N = 281,181		10. COORDINATE SYSTEM/DATUM State Plane, MSE (U.S. Ft.)		HORIZONTAL NAD83 VERTICAL NAVD88	
3. DRILLING AGENCY Corps of Engineers - CESAM		CONTRACTOR FILE NO.		11. MANUFACTURER'S DESIGNATION OF DRILL Vibrocure		<input type="checkbox"/> AUTO HAMMER <input type="checkbox"/> MANUAL HAMMER	
4. NAME OF DRILLER Construction Solutions International, Inc.				12. TOTAL SAMPLES 2		DISTURBED 0 UNDISTURBED (UD)	
5. DIRECTION OF BORING <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED		DEG. FROM VERTICAL		13. TOTAL NUMBER CORE BOXES			
		BEARING		14. WATER DEPTH 22 Ft.			
6. THICKNESS OF OVERBURDEN N/A				15. DATE BORING 05-21-10		STARTED 05-21-10 COMPLETED	
7. DEPTH DRILLED INTO ROCK N/A				16. ELEVATION TOP OF BORING -21.2 Ft.			
8. TOTAL DEPTH OF BORING 19.1 Ft.				17. TOTAL RECOVERY FOR BORING 100%			
				18. SIGNATURE AND TITLE OF INSPECTOR Mark Green, Geotechnical Engineer			
ELEV.	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS	SAMPLE	LABORATORY RESULTS		
-21.2	0.0		CLAY, lean, very soft, little fine-grained sand-sized quartz, greenish gray (CL)				
				NS			
-35.2	14.0		SAND, silty, mostly fine-grained sand-sized quartz, trace clay, lt. Green/gray (SM) At El. -36.2 Ft., mostly fine-grained sand-sized quartz, trace clay, trace organic matter, yellowish orange and brown mottled	A	Classification: SM Color: 10YR 5/3-brown D50: 0.1083 mm % Fines: 18.1		
-40.3	19.1		At El. -38.2 Ft., mostly fine-grained sand-sized quartz, trace clay, brown and dark gray	B	Classification: SM Color: 10YR 4/2-dark grayish brown D50: 0.0995 mm % Fines: 17.3		
			NOTES: 1. Soils are field visually classified in accordance with the Unified Soils Classification System. 2. NS = Sample not submitted for laboratory analysis from this interval. 3. Seafloor elevation calculated using sampling vessel's fathometer water depth reading and applying NOAA tidal gauge data conversion				



<b>DRILLING LOG (Cont. Sheet)</b>			<b>INSTALLATION</b> Mobile District		<b>SHEET 2</b> <b>OF 2 SHEETS</b>
<b>PROJECT</b> MsCIP Barrier Island Restoration			<b>COORDINATE SYSTEM/DATUM</b> State Plane, MSE (U.S. Ft.)	<b>HORIZONTAL</b> NAD83	<b>VERTICAL</b> NAVD88
<b>LOCATION COORDINATES</b> X = 926,525 Y = 281,181			<b>ELEVATION TOP OF BORING</b> -21.2 Ft.		
<b>ELEV.</b>	<b>DEPTH</b>	<b>LEGEND</b>	<b>CLASSIFICATION OF MATERIALS</b>	<b>SAMPLE</b>	<b>LABORATORY RESULTS</b>
			factor.		

# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.0	0.0	2.9	79.0	18.1	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
.375	100.0		
#4	100.0		
#10	100.0		
#20	99.9		
#40	97.1		
#60	83.6		
#100	70.5		
#200	18.1		

\* (no specification provided)

## Material Description

SILTY SAND, (SM), medium to fine grained, with clay pockets

## Atterberg Limits

PL= LL= PI=

## Coefficients

D<sub>90</sub>= 0.3188 D<sub>85</sub>= 0.2651 D<sub>60</sub>= 0.1243  
D<sub>50</sub>= 0.1083 D<sub>30</sub>= 0.0855 D<sub>15</sub>=  
D<sub>10</sub>= C<sub>u</sub>= C<sub>c</sub>=

## Classification

USCS= SM AASHTO=

## Remarks

CADD CODE = CH10D965

Location: USACE Sample # BI-GC-03-10A  
Sample Number: TE Lab ID: 4489.15

Depth: 15.0 - 17.0 (ft.)

Date: 5/30/10

**Thompson Engineering**

**Mobile, Alabama**

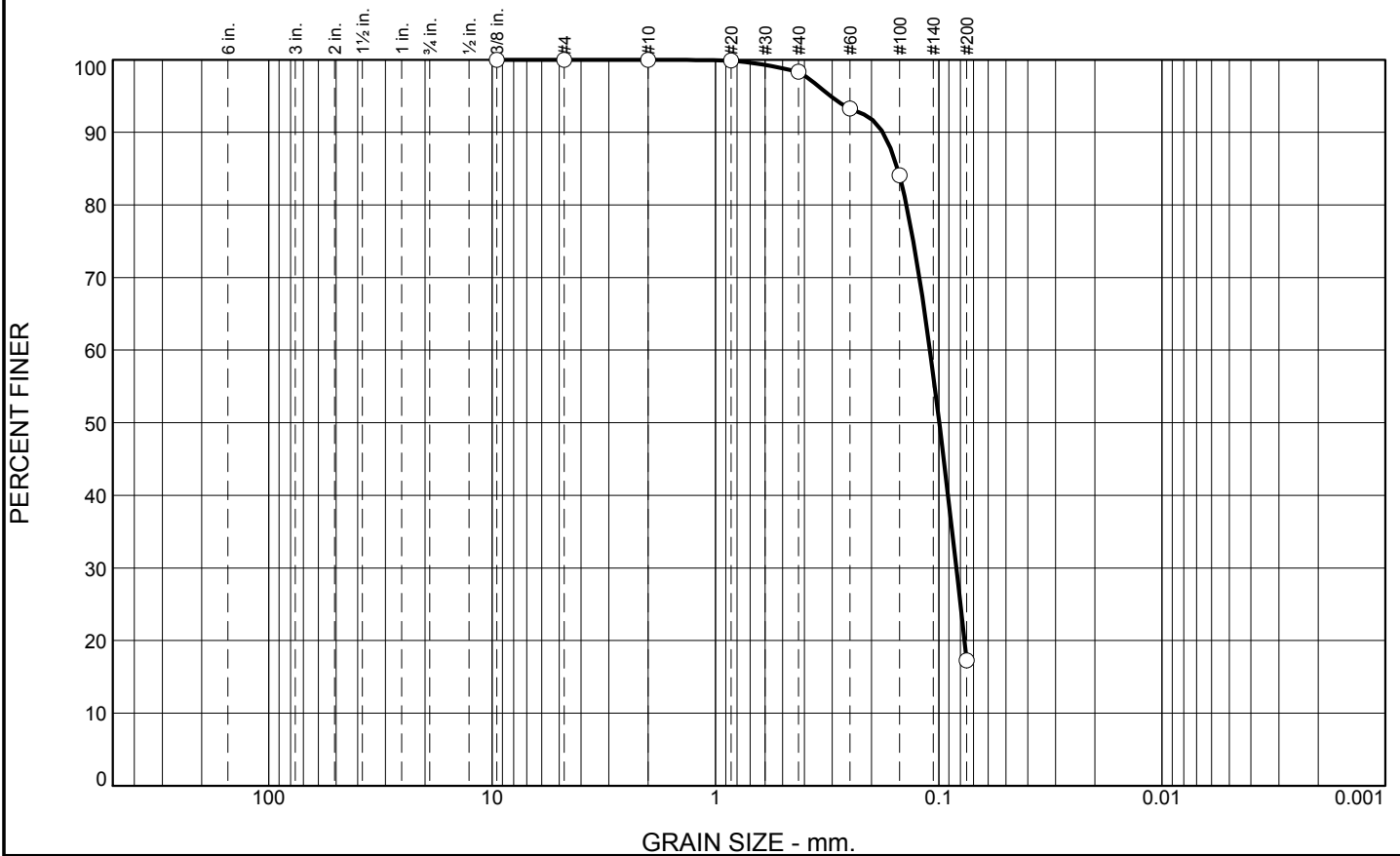
**Client:** US Army Corps of Engineers  
**Project:** Contract No. W91278-10-D-0026 - Task 03  
Mississippi Barrier Island Restoration Project  
**Project No:** 10-2123-0009

**Figure**

Tested By: G.Fancher

Checked By: R.Byrd

# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.0	0.0	1.7	81.0	17.3	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
.375	100.0		
#4	100.0		
#10	100.0		
#20	99.9		
#40	98.3		
#60	93.3		
#100	84.1		
#200	17.3		

\* (no specification provided)

## Material Description

SILTY SAND, (SM), medium to fine grained

## Atterberg Limits

PL=

LL=

PI=

## Coefficients

D<sub>90</sub>= 0.1780

D<sub>85</sub>= 0.1530

D<sub>60</sub>= 0.1096

D<sub>50</sub>= 0.0995

D<sub>30</sub>= 0.0835

D<sub>15</sub>=

D<sub>10</sub>=

C<sub>u</sub>=

C<sub>c</sub>=

## Classification

USCS= SM

AASHTO=

## Remarks

CADD CODE = CH10D965

Location: USACE Sample # BI-GC-03-10B  
Sample Number: TE Lab ID: 4489.16

Depth: 17.0 - 19.0 (ft.)

Date: 5/30/10

**Thompson Engineering**

**Mobile, Alabama**

Client: US Army Corps of Engineers

Project: Contract No. W91278-10-D-0026 - Task 03  
Mississippi Barrier Island Restoration Project

Project No: 10-2123-0009

Figure

Tested By: G.Fancher

Checked By: R.Byrd

# Boring Designation BI-GC-04-10

<b>DRILLING LOG</b>		<b>DIVISION</b> South Atlantic	<b>INSTALLATION</b> Mobile District	<b>SHEET 1</b> <b>OF 2 SHEETS</b>
<b>1. PROJECT</b> MsCIP Barrier Island Restoration Gulfport Channel			<b>9. SIZE AND TYPE OF BIT</b> N/A	
<b>2. BORING DESIGNATION</b> BI-GC-04-10			<b>10. COORDINATE SYSTEM/DATUM</b> State Plane, MSE (U.S. Ft.)	
<b>LOCATION COORDINATES</b> E = 921,883 N = 287,538			<b>HORIZONTAL</b> NAD83	
<b>3. DRILLING AGENCY</b> Corps of Engineers - CESAM			<b>11. MANUFACTURER'S DESIGNATION OF DRILL</b> Vibrocure	
<b>CONTRACTOR FILE NO.</b>			<input type="checkbox"/> <b>AUTO HAMMER</b> <input type="checkbox"/> <b>MANUAL HAMMER</b>	
<b>4. NAME OF DRILLER</b> Construction Solutions International, Inc.			<b>12. TOTAL SAMPLES</b> 0	
<b>5. DIRECTION OF BORING</b> <input checked="" type="checkbox"/> <b>VERTICAL</b> <input type="checkbox"/> <b>INCLINED</b>			<b>DISTURBED</b> 0	
<b>DEG. FROM VERTICAL</b>			<b>UNDISTURBED (UD)</b> 0	
<b>BEARING</b>			<b>13. TOTAL NUMBER CORE BOXES</b>	
<b>6. THICKNESS OF OVERBURDEN</b> N/A			<b>14. WATER DEPTH</b> 18 Ft.	
<b>7. DEPTH DRILLED INTO ROCK</b> N/A			<b>15. DATE BORING</b> 06-22-10	
<b>8. TOTAL DEPTH OF BORING</b> 19.1 Ft.			<b>STARTED</b> 06-22-10	
			<b>COMPLETED</b> 06-22-10	
			<b>16. ELEVATION TOP OF BORING</b> -16.2 Ft.	
			<b>17. TOTAL RECOVERY FOR BORING</b> 100%	
			<b>18. SIGNATURE AND TITLE OF INSPECTOR</b> Marty Gates, Geologist	

ELEV.	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS	SAMPLE	LABORATORY RESULTS
-16.2	0.0		CLAY, lean, dark gray (CL)		
-27.2	11.0		SAND, silty, mostly fine to medium-grained sand-sized quartz, some silt, gray (SM)	NS	
-35.3	19.1		NOTES: 1. Soils are field visually classified in accordance with the Unified Soils Classification System. 2. NS = Sample not submitted for laboratory analysis from this interval. 3. Seafloor elevation calculated using sampling vessel's fathometer water depth reading and applying NOAA tidal gauge data conversion		

<b>DRILLING LOG (Cont. Sheet)</b>			<b>INSTALLATION</b> Mobile District			<b>SHEET 2</b>	
						<b>OF 2 SHEETS</b>	
<b>PROJECT</b> MsCIP Barrier Island Restoration			<b>COORDINATE SYSTEM/DATUM</b> State Plane, MSE (U.S. Ft.)		<b>HORIZONTAL</b> NAD83	<b>VERTICAL</b> NAVD88	
<b>LOCATION COORDINATES</b> X = 921,883 Y = 287,538			<b>ELEVATION TOP OF BORING</b> -16.2 Ft.				
<b>ELEV.</b>	<b>DEPTH</b>	<b>LEGEND</b>	<b>CLASSIFICATION OF MATERIALS</b>	<b>SAMPLE</b>	<b>LABORATORY RESULTS</b>		
			factor.				



# Boring Designation BI-GC-05-10

DRILLING LOG		DIVISION South Atlantic		INSTALLATION Mobile District		SHEET 1 OF 1 SHEETS	
1. PROJECT MsCIP Barrier Island Restoration Gulfport Channel				9. SIZE AND TYPE OF BIT N/A			
2. BORING DESIGNATION BI-GC-05-10		LOCATION COORDINATES E = 921,658 N = 287,244		10. COORDINATE SYSTEM/DATUM State Plane, MSE (U.S. Ft.)		HORIZONTAL NAD83 VERTICAL NAVD88	
3. DRILLING AGENCY Corps of Engineers - CESAM		CONTRACTOR FILE NO.		11. MANUFACTURER'S DESIGNATION OF DRILL Vibracore		<input type="checkbox"/> AUTO HAMMER <input type="checkbox"/> MANUAL HAMMER	
4. NAME OF DRILLER Construction Solutions International, Inc.				12. TOTAL SAMPLES		DISTURBED 0 UNDISTURBED (UD) 0	
5. DIRECTION OF BORING <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED		DEG. FROM VERTICAL		BEARING		13. TOTAL NUMBER CORE BOXES	
6. THICKNESS OF OVERBURDEN N/A				14. WATER DEPTH 36 Ft.			
7. DEPTH DRILLED INTO ROCK N/A				15. DATE BORING		STARTED 05-07-10 COMPLETED 05-07-10	
8. TOTAL DEPTH OF BORING 17.8 Ft.				16. ELEVATION TOP OF BORING -35.6 Ft.			
				17. TOTAL RECOVERY FOR BORING 100%			
				18. SIGNATURE AND TITLE OF INSPECTOR Marty Gates, Geologist			
ELEV.	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS	SAMPLE	LABORATORY RESULTS		
-35.6	0.0		CLAY, lean, dark gray (CL)	NS			
-45.4	9.8		SAND, silty, mostly fine to medium-grained sand-sized quartz, some silt, some shell fragments, gray (SM)				
-50.8	15.2		CLAY, lean, dark gray (CL)				
-53.4	17.8						
			NOTES: 1. Soils are field visually classified in accordance with the Unified Soils Classification System. 2. NS = Sample not submitted for laboratory analysis from this interval. 3. Seafloor elevation calculated using sampling vessel's fathometer water depth reading and applying NOAA tidal gauge data conversion factor.				

# Boring Designation BI-GC-06-10

DRILLING LOG		DIVISION South Atlantic		INSTALLATION Mobile District		SHEET 1 OF 1 SHEETS	
1. PROJECT MsCIP Barrier Island Restoration Gulfport Channel				9. SIZE AND TYPE OF BIT N/A			
2. BORING DESIGNATION BI-GC-06-10		LOCATION COORDINATES E = 919,260 N = 291,027		10. COORDINATE SYSTEM/DATUM State Plane, MSE (U.S. Ft.)		HORIZONTAL NAD83	
3. DRILLING AGENCY Corps of Engineers - CESAM		CONTRACTOR FILE NO.		11. MANUFACTURER'S DESIGNATION OF DRILL Vibrocure		<input type="checkbox"/> AUTO HAMMER <input type="checkbox"/> MANUAL HAMMER	
4. NAME OF DRILLER Construction Solutions International, Inc.				12. TOTAL SAMPLES		DISTURBED 0	
5. DIRECTION OF BORING <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED		DEG. FROM VERTICAL		13. TOTAL NUMBER CORE BOXES		UNDISTURBED (UD) 0	
6. THICKNESS OF OVERBURDEN N/A		BEARING		14. WATER DEPTH 17 Ft.		15. DATE BORING 06-22-10	
7. DEPTH DRILLED INTO ROCK N/A				16. ELEVATION TOP OF BORING -15.2 Ft.		COMPLETED 06-22-10	
8. TOTAL DEPTH OF BORING 18.5 Ft.				17. TOTAL RECOVERY FOR BORING 100%		18. SIGNATURE AND TITLE OF INSPECTOR Marty Gates, Geologist	
ELEV.	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS	SAMPLE	LABORATORY RESULTS		
-15.2	0.0		CLAY, lean, dark gray (CL)				
-32.4	17.2			NS			
-33.7	18.5		SAND, silty, mostly fine to medium-grained sand-sized quartz, some silt, gray (SM)				
			NOTES: 1. Soils are field visually classified in accordance with the Unified Soils Classification System. 2. NS = Sample not submitted for laboratory analysis from this interval. 3. Seafloor elevation calculated using sampling vessel's fathometer water depth reading and applying NOAA tidal gauge data conversion factor.				

# Boring Designation BI-GC-07-10

DRILLING LOG		DIVISION South Atlantic		INSTALLATION Mobile District		SHEET 1 OF 2 SHEETS	
1. PROJECT MsCIP Barrier Island Restoration Gulfport Channel				9. SIZE AND TYPE OF BIT N/A			
2. BORING DESIGNATION BI-GC-07-10		LOCATION COORDINATES E = 919,013 N = 290,889		10. COORDINATE SYSTEM/DATUM State Plane, MSE (U.S. Ft.)		HORIZONTAL NAD83 VERTICAL NAVD88	
3. DRILLING AGENCY Corps of Engineers - CESAM		CONTRACTOR FILE NO.		11. MANUFACTURER'S DESIGNATION OF DRILL Vibrocure		<input type="checkbox"/> AUTO HAMMER <input type="checkbox"/> MANUAL HAMMER	
4. NAME OF DRILLER Construction Solutions International, Inc.				12. TOTAL SAMPLES 0		DISTURBED 0 UNDISTURBED (UD) 0	
5. DIRECTION OF BORING <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED		DEG. FROM VERTICAL		13. TOTAL NUMBER CORE BOXES			
		BEARING		14. WATER DEPTH 36 Ft.			
6. THICKNESS OF OVERBURDEN N/A				15. DATE BORING 05-07-10		STARTED 05-07-10 COMPLETED 05-07-10	
7. DEPTH DRILLED INTO ROCK N/A				16. ELEVATION TOP OF BORING -35.6 Ft.			
8. TOTAL DEPTH OF BORING 19.5 Ft.				17. TOTAL RECOVERY FOR BORING 100%			
				18. SIGNATURE AND TITLE OF INSPECTOR Marty Gates, Geologist			
ELEV.	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS	SAMPLE	LABORATORY RESULTS		
-35.6	0.0		CLAY, lean, dark gray (CL)				
				NS			
-55.1	19.5						
			NOTES: 1. Soils are field visually classified in accordance with the Unified Soils Classification System. 2. NS = Sample not submitted for laboratory analysis from this interval. 3. Seafloor elevation calculated using sampling vessel's fathometer water depth reading and				

<b>DRILLING LOG (Cont. Sheet)</b>			<b>INSTALLATION</b> Mobile District		<b>SHEET 2</b> <b>OF 2 SHEETS</b>
<b>PROJECT</b> MsCIP Barrier Island Restoration			<b>COORDINATE SYSTEM/DATUM</b> State Plane, MSE (U.S. Ft.)	<b>HORIZONTAL</b> NAD83	<b>VERTICAL</b> NAVD88
<b>LOCATION COORDINATES</b> X = 919,013 Y = 290,889			<b>ELEVATION TOP OF BORING</b> -35.6 Ft.		
ELEV.	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS	SAMPLE	LABORATORY RESULTS
			applying NOAA tidal gauge data conversion factor.		

# Boring Designation BI-GC-08-10

DRILLING LOG		DIVISION South Atlantic		INSTALLATION Mobile District		SHEET 1 OF 2 SHEETS	
1. PROJECT MsCIP Barrier Island Restoration Gulfport Channel				9. SIZE AND TYPE OF BIT N/A			
2. BORING DESIGNATION BI-GC-08-10		LOCATION COORDINATES E = 927,759 N = 279,149		10. COORDINATE SYSTEM/DATUM State Plane, MSE (U.S. Ft.)		HORIZONTAL NAD83 VERTICAL NAVD88	
3. DRILLING AGENCY Corps of Engineers - CESAM		CONTRACTOR FILE NO.		11. MANUFACTURER'S DESIGNATION OF DRILL Vibrocure		<input type="checkbox"/> AUTO HAMMER <input type="checkbox"/> MANUAL HAMMER	
4. NAME OF DRILLER Construction Solutions International, Inc.				12. TOTAL SAMPLES 2		DISTURBED 0 UNDISTURBED (UD)	
5. DIRECTION OF BORING <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED		DEG. FROM VERTICAL		13. TOTAL NUMBER CORE BOXES			
		BEARING		14. WATER DEPTH 35 Ft.			
6. THICKNESS OF OVERBURDEN N/A				15. DATE BORING 05-07-10		STARTED 05-07-10 COMPLETED 05-07-10	
7. DEPTH DRILLED INTO ROCK N/A				16. ELEVATION TOP OF BORING -34.6 Ft.			
8. TOTAL DEPTH OF BORING 19.2 Ft.				17. TOTAL RECOVERY FOR BORING 100%			
				18. SIGNATURE AND TITLE OF INSPECTOR Marty Gates, Geologist			

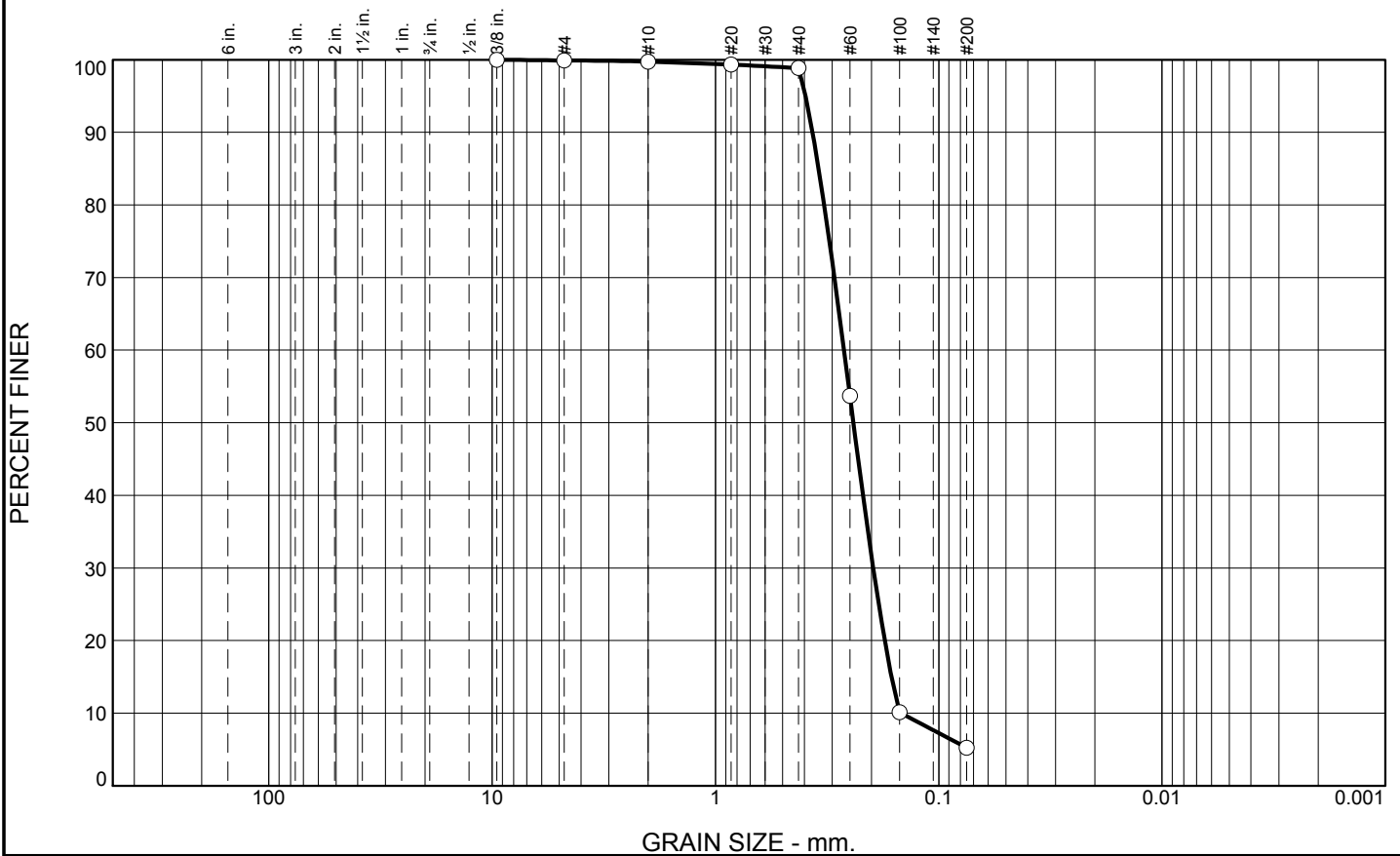
  

ELEV.	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS	SAMPLE	LABORATORY RESULTS
-34.6	0.0		CLAY, lean, dark gray (CL)	NS	
-44.4	9.8		SAND, silty, mostly fine to medium-grained sand-sized quartz, some silt, some shell fragments (SM)	A	Classification: SP-SM Color: 10YR 7/1-light gray D50: 0.2412 mm % Fines: 5.2
-45.5	10.9		SAND, poorly-graded, mostly fine to medium-grained sand-sized quartz, tan (SP)	B	Classification: SP Color: 10YR 9/1-white D50: 0.2889 mm % Fines: 1.7
-53.8	19.2		NOTES: 1. Soils are field visually classified in accordance with the Unified Soils Classification System. 2. NS = Sample not submitted for laboratory analysis from this interval. 3. Seafloor elevation calculated using sampling vessel's fathometer water depth reading and applying NOAA tidal gauge data conversion		



<b>DRILLING LOG (Cont. Sheet)</b>			<b>INSTALLATION</b> Mobile District			<b>SHEET 2</b> <b>OF 2 SHEETS</b>	
			<b>PROJECT</b> MsCIP Barrier Island Restoration		<b>COORDINATE SYSTEM/DATUM</b> State Plane, MSE (U.S. Ft.)		<b>HORIZONTAL</b> NAD83
<b>LOCATION COORDINATES</b> X = 927,759 Y = 279,149			<b>ELEVATION TOP OF BORING</b> -34.6 Ft.				
<b>ELEV.</b>	<b>DEPTH</b>	<b>LEGEND</b>	<b>CLASSIFICATION OF MATERIALS</b>	<b>SAMPLE</b>	<b>LABORATORY RESULTS</b>		
			factor.				

# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.1	0.2	0.9	93.6	5.2	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
.375	100.0		
#4	99.9		
#10	99.7		
#20	99.3		
#40	98.8		
#60	53.7		
#100	10.1		
#200	5.2		

\* (no specification provided)

Material Description		
SAND, (SP-SM), medium to fine grained		
<div> <div> Atterberg Limits </div> <div> PL= </div> <div> LL= </div> <div> PI= </div> </div>		
<div> <div> Coefficients </div> <div> D<sub>90</sub>= 0.3676 </div> <div> D<sub>50</sub>= 0.2412 </div> <div> D<sub>10</sub>= 0.1474 </div> <div> D<sub>85</sub>= 0.3450 </div> <div> D<sub>30</sub>= 0.1966 </div> <div> C<sub>u</sub>= 1.80 </div> <div> D<sub>60</sub>= 0.2657 </div> <div> D<sub>15</sub>= 0.1629 </div> <div> C<sub>c</sub>= 0.99 </div> </div>		
<div> <div> Classification </div> <div> USCS= SP-SM </div> <div> AASHTO= </div> </div>		
<div> <div> Remarks </div> <div> CADD CODE = CH10D965 </div> </div>		

Location: USACE Sample # BI-GC-8-10A  
Sample Number: TE Lab ID: 4461.08

Depth: 10.42 - 15.42 (ft)

Date: 5/13/10

**Thompson Engineering**  
**Mobile, Alabama**

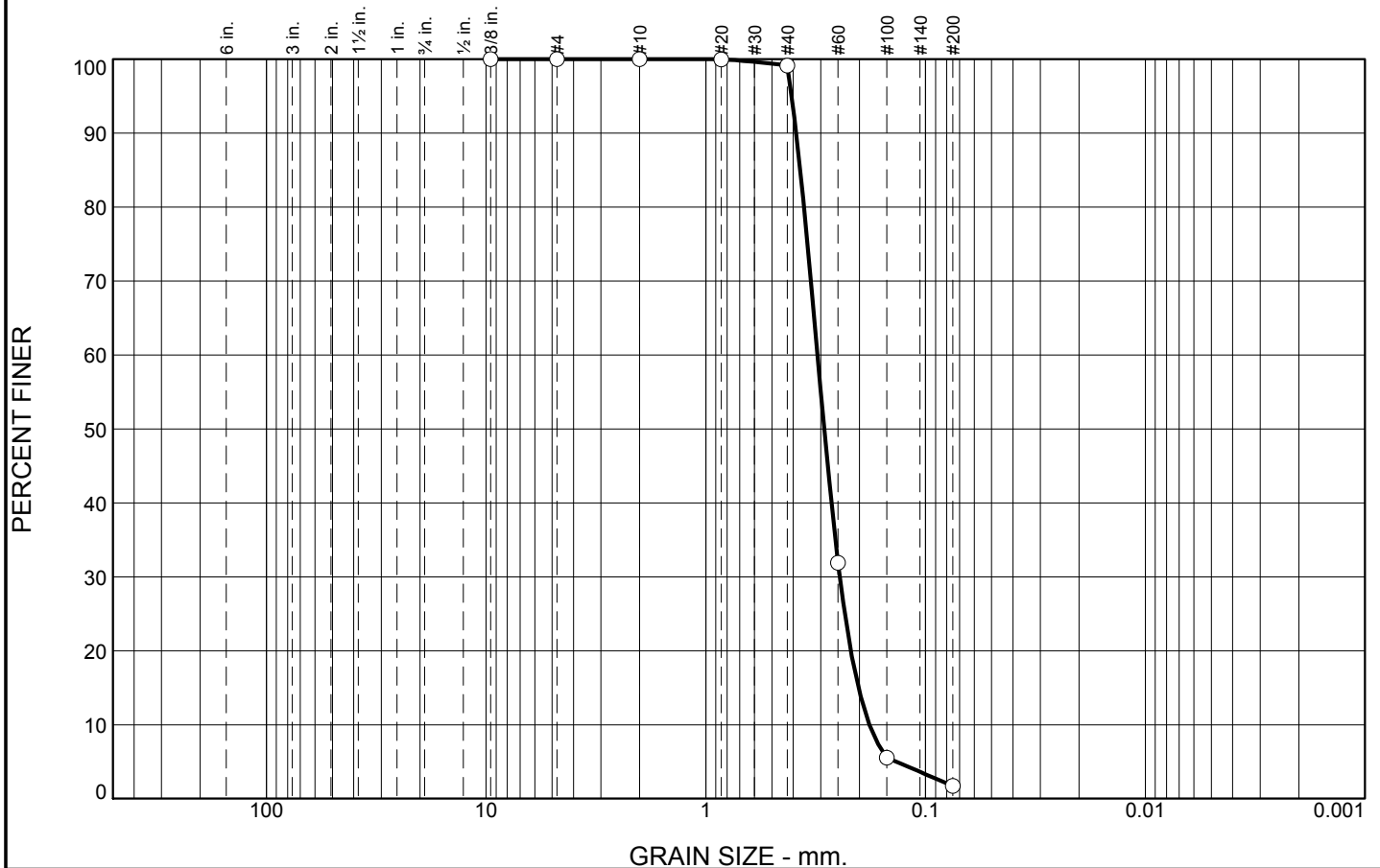
**Client:** US Army Corps of Engineers  
**Project:** Mississippi Barrier Island Restoration Project  
Contract No. W91278-10-D-0026 - Task 03  
**Project No:** 1021230009

**Figure**

Tested By: J.Maddox/L.Stokes

Checked By: R.Byrd

# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.0	0.0	0.9	97.4	1.7	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
.375	100.0		
#4	100.0		
#10	100.0		
#20	100.0		
#40	99.1		
#60	31.9		
#100	5.6		
#200	1.7		

\* (no specification provided)

**Material Description**  
 SAND, (SP), fine grained

**Atterberg Limits**  
 PL=                      LL=                      PI=

**Coefficients**  
 D<sub>90</sub>= 0.3877      D<sub>85</sub>= 0.3719      D<sub>60</sub>= 0.3100  
 D<sub>50</sub>= 0.2889      D<sub>30</sub>= 0.2456      D<sub>15</sub>= 0.2019  
 D<sub>10</sub>= 0.1801      C<sub>u</sub>= 1.72              C<sub>c</sub>= 1.08

**Classification**  
 USCS= SP                      AASHTO=

**Remarks**  
 CADD CODE = CH10D965

Location: USACE Sample # BI-GC-8-10B  
 Sample Number: TE Lab ID: 4461.09

Depth: 15.42 - 19.17 (ft)

Date:

**Thompson Engineering**  
**Mobile, Alabama**

**Client:** US Army Corps of Engineers  
**Project:** Mississippi Barrier Island Restoration Project  
 Contract No. W91278-10-D-0026 - Task 03  
**Project No:** 1021230009

**Figure**

# Boring Designation BI-GC-09-10

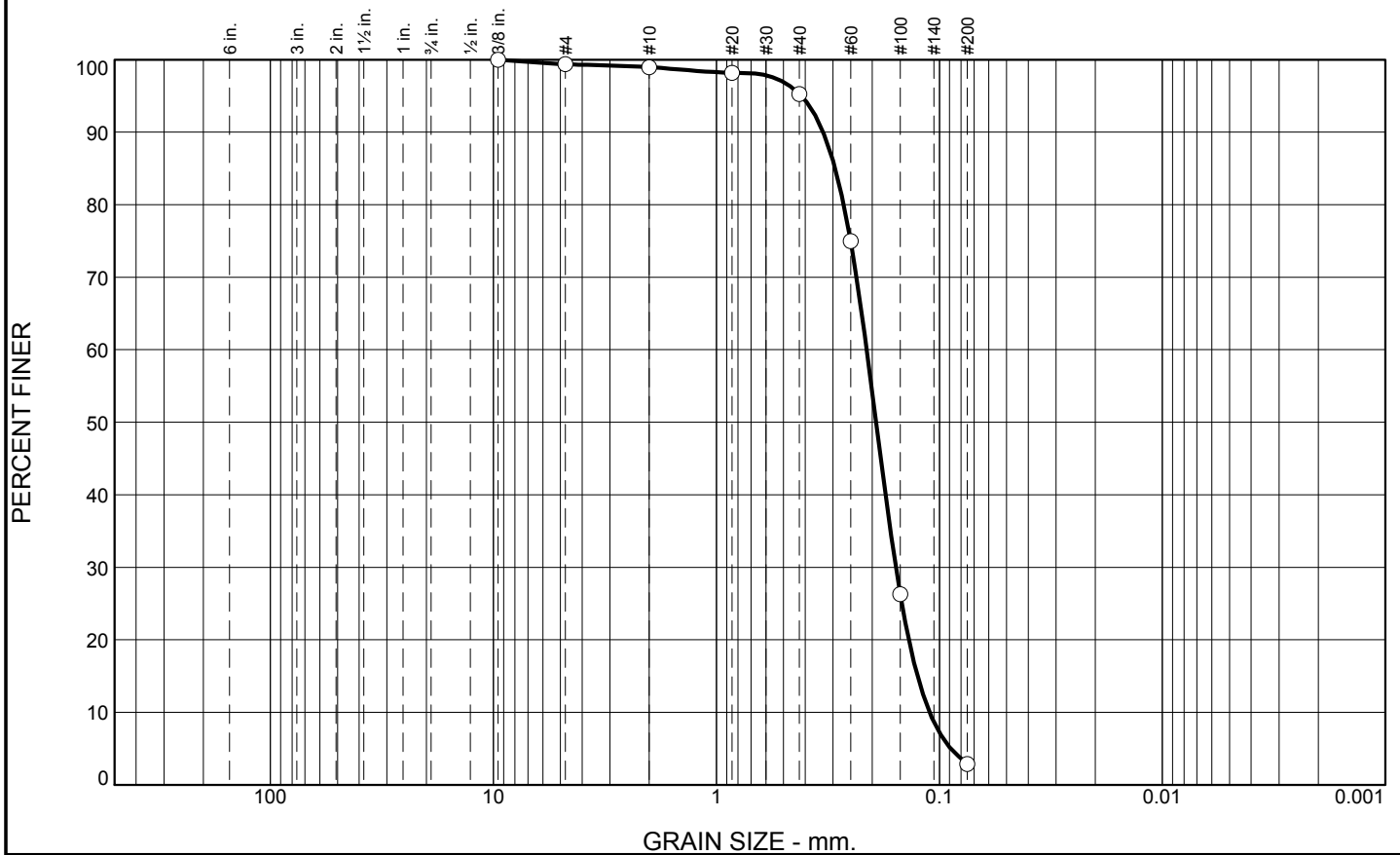
DRILLING LOG		DIVISION South Atlantic		INSTALLATION Mobile District		SHEET 1 OF 2 SHEETS	
1. PROJECT MsCIP Barrier Island Restoration Gulfport Channel				9. SIZE AND TYPE OF BIT N/A			
2. BORING DESIGNATION BI-GC-09-10		LOCATION COORDINATES E = 931,793 N = 267,971		10. COORDINATE SYSTEM/DATUM State Plane, MSE (U.S. Ft.)		HORIZONTAL NAD83 VERTICAL NAVD88	
3. DRILLING AGENCY Corps of Engineers - CESAM		CONTRACTOR FILE NO.		11. MANUFACTURER'S DESIGNATION OF DRILL Vibracore		<input type="checkbox"/> AUTO HAMMER <input type="checkbox"/> MANUAL HAMMER	
4. NAME OF DRILLER Construction Solutions International, Inc.				12. TOTAL SAMPLES 4		DISTURBED 0 UNDISTURBED (UD)	
5. DIRECTION OF BORING <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED		DEG. FROM VERTICAL		13. TOTAL NUMBER CORE BOXES			
		BEARING		14. WATER DEPTH 19.5 Ft.			
6. THICKNESS OF OVERBURDEN N/A				15. DATE BORING 05-05-10		STARTED 05-05-10 COMPLETED 05-05-10	
7. DEPTH DRILLED INTO ROCK N/A				16. ELEVATION TOP OF BORING -18.6 Ft.			
8. TOTAL DEPTH OF BORING 19.5 Ft.				17. TOTAL RECOVERY FOR BORING 100%			
				18. SIGNATURE AND TITLE OF INSPECTOR J. Krick, Geotechnical Engineer			

ELEV.	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS	SAMPLE	LABORATORY RESULTS
-18.6	0.0				
			SAND, poorly-graded, mostly fine-grained sand-sized quartz, trace shell fragments, gray (SP)	A	Classification: SP Color: 2.5Y 6/1-gray D50: 0.1923 mm % Fines: 2.9
				B	Classification: SP-SM Color: 5Y 7/1-light gray D50: 0.1612 mm % Fines: 7.7
-27.1	8.5			C	Classification: CL Color: 5Y 5/1-gray D50: mm % Fines: 58.8
			CLAY, fat, high plasticity, trace fine-grained sand-sized quartz, gray (CH)		
-29.6	11.0			D	Classification: SP-SM Color: 5Y 6/1-gray D50: 0.1477 mm % Fines: 7.3
			SAND, silty, some clay, gray (SM)		
-30.5	11.9			NS	
			SAND, clayey, mostly fine-grained sand-sized quartz, trace shell fragments, gray (SC)		
-36.6	18.0				
			CLAY, fat, little fine-grained sand-sized quartz, tan and gray (CH)		
-37.6	19.0				
-38.1	19.5				
			SAND, poorly-graded, mostly fine-grained sand-sized quartz, gray (SP)		
			NOTES: 1. Soils are field visually classified in accordance with the Unified Soils Classification System. 2. NS = Sample not submitted for laboratory analysis from this interval.		

<b>DRILLING LOG (Cont. Sheet)</b>			<b>INSTALLATION</b> Mobile District		<b>SHEET 2</b> <b>OF 2 SHEETS</b>
<b>PROJECT</b> MsCIP Barrier Island Restoration			<b>COORDINATE SYSTEM/DATUM</b> State Plane, MSE (U.S. Ft.)	<b>HORIZONTAL</b> NAD83	<b>VERTICAL</b> NAVD88
<b>LOCATION COORDINATES</b> X = 931,793 Y = 267,971			<b>ELEVATION TOP OF BORING</b> -18.6 Ft.		
<b>ELEV.</b>	<b>DEPTH</b>	<b>LEGEND</b>	<b>CLASSIFICATION OF MATERIALS</b>	<b>SAMPLE</b>	<b>LABORATORY RESULTS</b>
			3. Seafloor elevation calculated using sampling vessel's fathometer water depth reading and applying NOAA tidal gauge data conversion factor.		

# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.6	0.4	3.7	92.4	2.9	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
.375	100.0		
#4	99.4		
#10	99.0		
#20	98.2		
#40	95.3		
#60	75.0		
#100	26.3		
#200	2.9		

\* (no specification provided)

Material Description		
SAND, (SP), fine grained		
<div> <div> <b>Atterberg Limits</b>            PL=      LL=      PI=         </div> <div> <b>Coefficients</b>            D<sub>90</sub>= 0.3320      D<sub>85</sub>= 0.2933      D<sub>60</sub>= 0.2119            D<sub>50</sub>= 0.1923      D<sub>30</sub>= 0.1568      D<sub>15</sub>= 0.1254            D<sub>10</sub>= 0.1107      C<sub>u</sub>= 1.91      C<sub>c</sub>= 1.05         </div> <div> <b>Classification</b>            USCS= SP      AASHTO=         </div> <div> <b>Remarks</b>            CADD CODE = CH10D965         </div> </div>		

Location: USACE Sample # BI-GC-9-10A  
 Sample Number: TE Lab ID: 4461.04

Depth: 0.0 - 5.0 (ft)

Date: 5/13/10

**Thompson Engineering**  
  
**Mobile, Alabama**

**Client:** US Army Corps of Engineers  
**Project:** Mississippi Barrier Island Restoration Project  
 Contract No. W91278-10-D-0026 - Task 03  
**Project No:** 1021230009

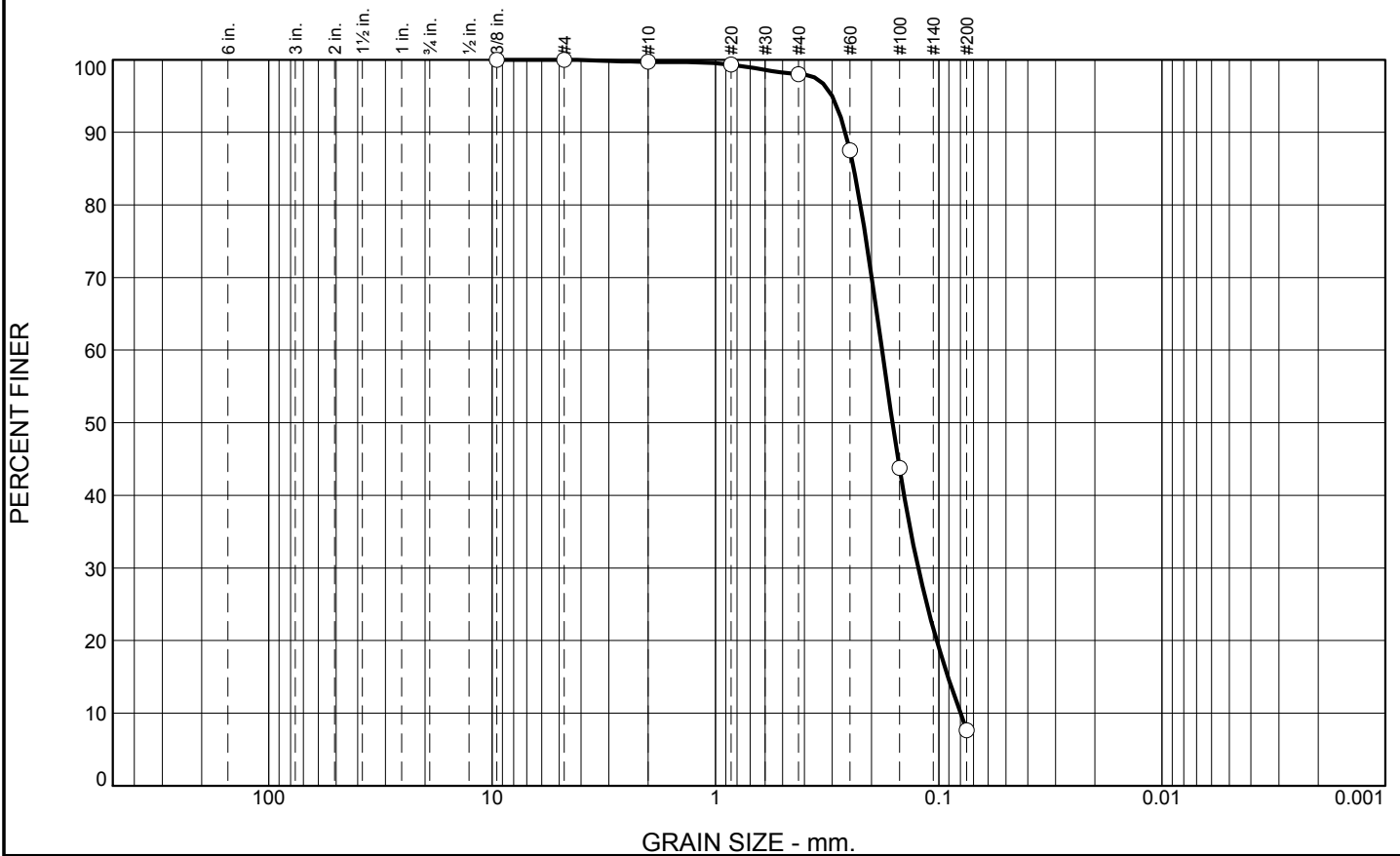
**Figure**

Tested By: J.Maddox/L.Stokes

Checked By: R.Byrd



# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.0	0.3	1.7	90.3	7.7	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
.375	100.0		
#4	100.0		
#10	99.7		
#20	99.3		
#40	98.0		
#60	87.5		
#100	43.8		
#200	7.7		

\* (no specification provided)

<u>Material Description</u>		
SAND, (SP-SM), fine grained		
<u>Atterberg Limits</u>		
PL=	LL=	PI=
<u>Coefficients</u>		
D <sub>90</sub> = 0.2617	D <sub>85</sub> = 0.2402	D <sub>60</sub> = 0.1795
D <sub>50</sub> = 0.1612	D <sub>30</sub> = 0.1235	D <sub>15</sub> = 0.0909
D <sub>10</sub> = 0.0799	C <sub>u</sub> = 2.25	C <sub>c</sub> = 1.06
<u>Classification</u>		
USCS= SP-SM	AASHTO=	
<u>Remarks</u>		
CADD CODE = CH10D965		

Location: USACE Sample # BI-GC-9-10B  
Sample Number: TE Lab ID: 4461.05

Depth: 5.0 - 9.0 (ft)

Date: 5/13/10

**Thompson Engineering**  
**Mobile, Alabama**

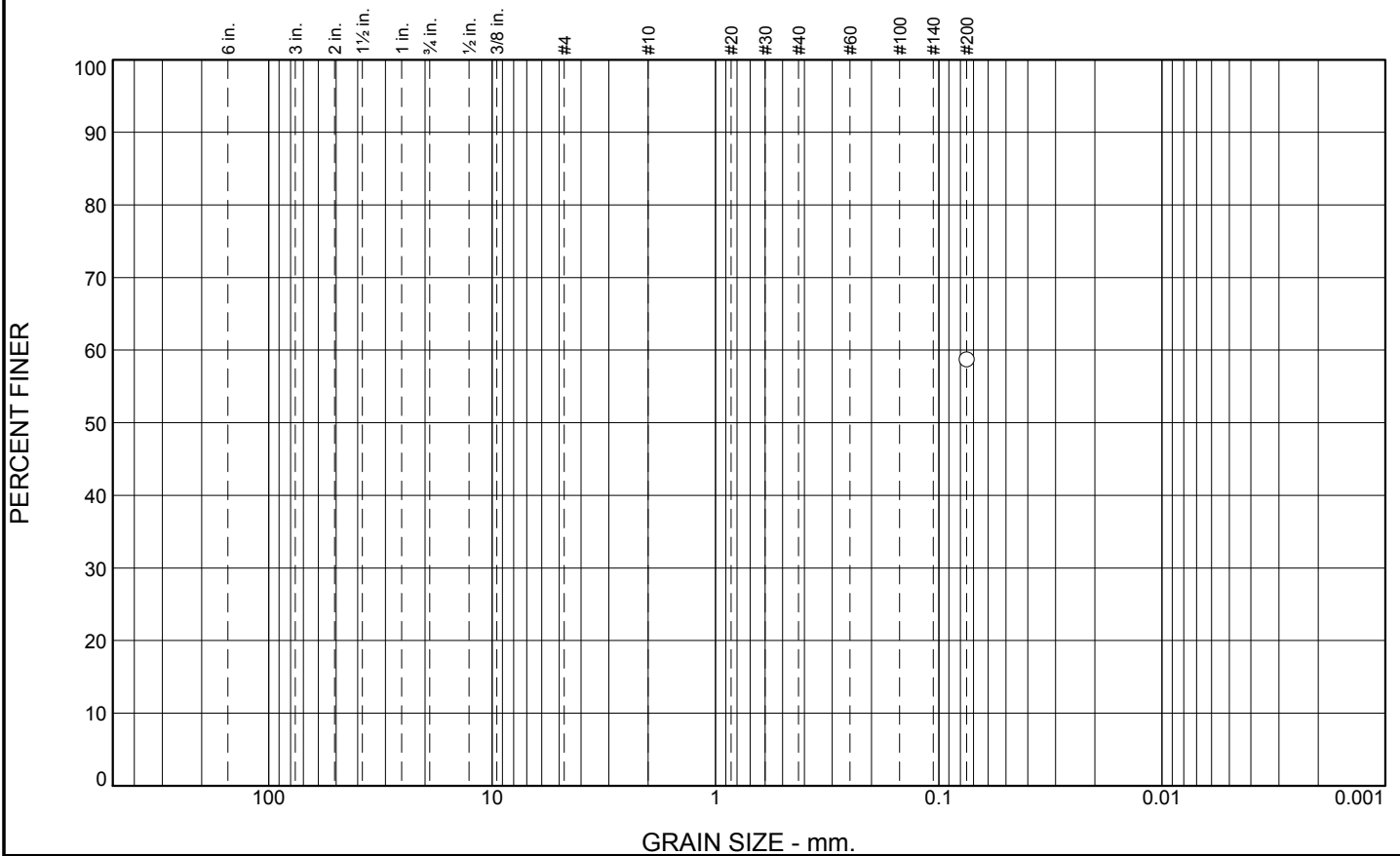
**Client:** US Army Corps of Engineers  
**Project:** Mississippi Barrier Island Restoration Project  
Contract No. W91278-10-D-0026 - Task 03  
**Project No:** 1021230009

**Figure**

Tested By: J.Maddox/L.Stokes

Checked By: R.Byrd

# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
						58.8	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
#200	58.8		

\* (no specification provided)

**Material Description**  
SANDY CLAY, (CL)

**Atterberg Limits**  
 PL=                      LL=                      PI=

**Coefficients**  
 D<sub>90</sub>=                      D<sub>85</sub>=                      D<sub>60</sub>=  
 D<sub>50</sub>=                      D<sub>30</sub>=                      D<sub>15</sub>=  
 D<sub>10</sub>=                      C<sub>u</sub>=                      C<sub>c</sub>=

**Classification**  
 USCS= CL                      AASHTO=

**Remarks**  
 CADD CODE = CH10D965

**Location:** USACE Sample # BI-GC-9-10C  
**Sample Number:** TE Lab ID: 4461.06

**Depth:** 9.08 - 10.0 (ft)

**Date:** 5/13/10

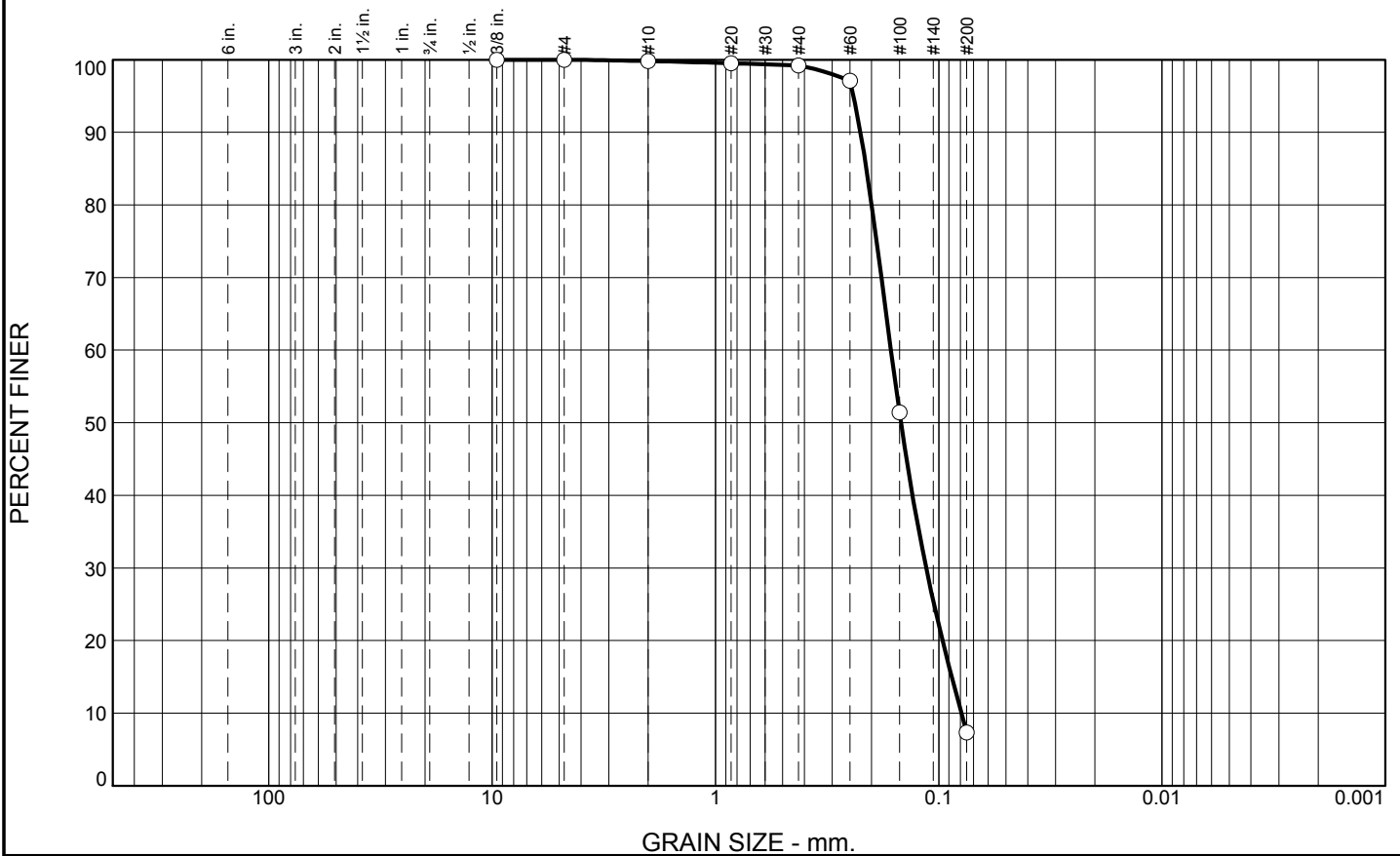
**Thompson Engineering**  
  
**Mobile, Alabama**

**Client:** US Army Corps of Engineers  
**Project:** Mississippi Barrier Island Restoration Project  
 Contract No. W91278-10-D-0026 - Task 03  
**Project No:** 1021230009

**Figure**

**Tested By:** J.Maddox/R.Byrd

# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.0	0.2	0.6	91.9	7.3	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
.375	100.0		
#4	100.0		
#10	99.8		
#20	99.5		
#40	99.2		
#60	97.1		
#100	51.4		
#200	7.3		

\* (no specification provided)

<u>Material Description</u>		
SAND, (SP-SM), fine grained		
<u>Atterberg Limits</u>		
PL=	LL=	PI=
<u>Coefficients</u>		
D <sub>90</sub> = 0.2241	D <sub>85</sub> = 0.2110	D <sub>60</sub> = 0.1638
D <sub>50</sub> = 0.1477	D <sub>30</sub> = 0.1139	D <sub>15</sub> = 0.0875
D <sub>10</sub> = 0.0792	C <sub>u</sub> = 2.07	C <sub>c</sub> = 1.00
<u>Classification</u>		
USCS= SP-SM	AASHTO=	
<u>Remarks</u>		
CADD CODE = CH10D965		

Location: USACE Sample # BI-GC-9-10D  
Sample Number: TE Lab ID: 4461.07

Depth: 10.0 - 14.0 (ft)

Date: 5/13/10

**Thompson Engineering**  
**Mobile, Alabama**

**Client:** US Army Corps of Engineers  
**Project:** Mississippi Barrier Island Restoration Project  
Contract No. W91278-10-D-0026 - Task 03  
**Project No:** 1021230009

**Figure**

Tested By: J.Maddox/L.Stokes

Checked By: R.Byrd

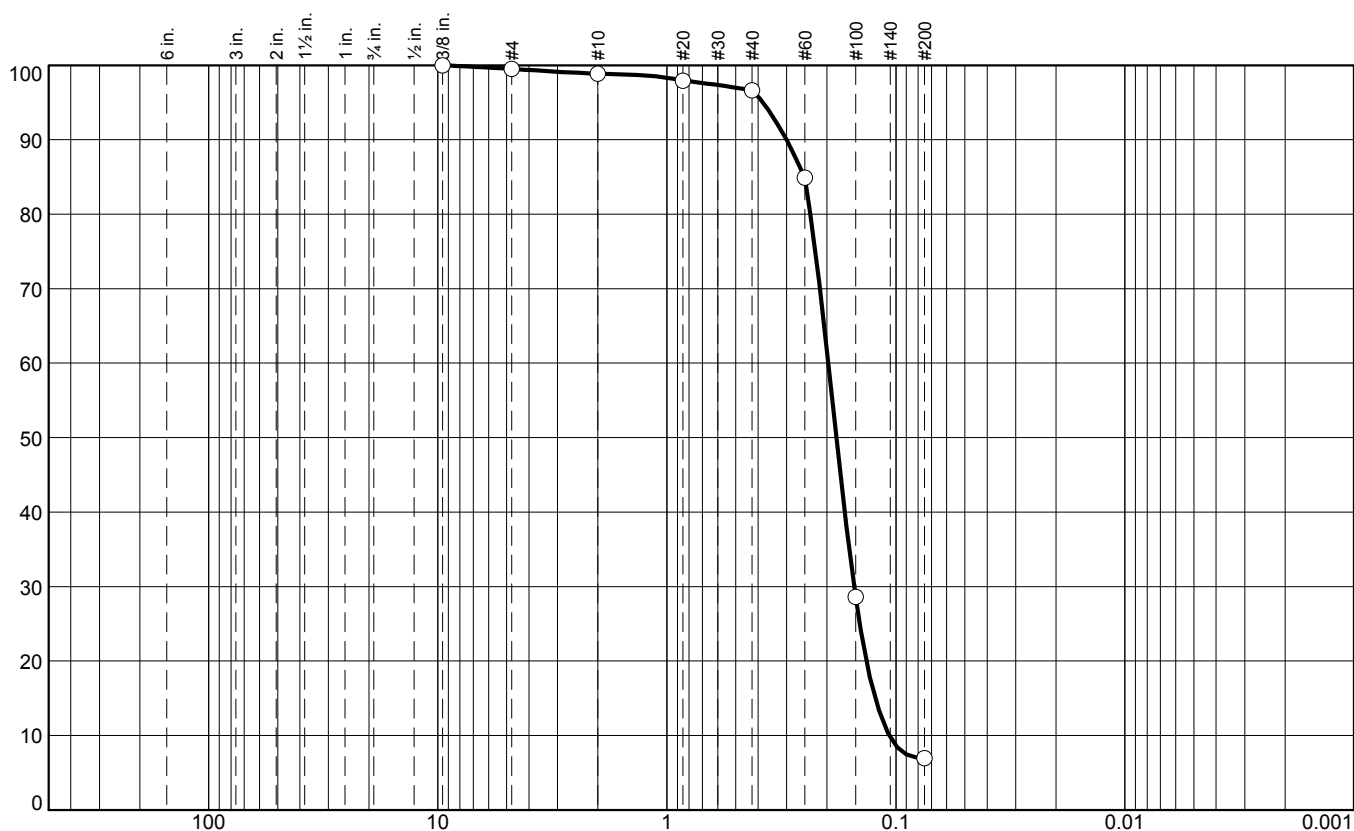
# Boring Designation BI-GC-10-10

DRILLING LOG		DIVISION South Atlantic		INSTALLATION Mobile District		SHEET 1 OF 1 SHEETS	
1. PROJECT MsCIP Barrier Island Restoration Gulfport Channel				9. SIZE AND TYPE OF BIT N/A			
2. BORING DESIGNATION BI-GC-10-10		LOCATION COORDINATES E = 931,657 N = 265,574		10. COORDINATE SYSTEM/DATUM State Plane, MSE (U.S. Ft.)		HORIZONTAL NAD83 VERTICAL NAVD88	
3. DRILLING AGENCY Corps of Engineers - CESAM		CONTRACTOR FILE NO.		11. MANUFACTURER'S DESIGNATION OF DRILL Vibrocure		<input type="checkbox"/> AUTO HAMMER <input type="checkbox"/> MANUAL HAMMER	
4. NAME OF DRILLER Construction Solutions International, Inc.				12. TOTAL SAMPLES 2		DISTURBED 2 UNDISTURBED (UD) 0	
5. DIRECTION OF BORING <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED		DEG. FROM VERTICAL		13. TOTAL NUMBER CORE BOXES			
		BEARING		14. WATER DEPTH 18.5 Ft.			
6. THICKNESS OF OVERBURDEN N/A				15. DATE BORING 05-05-10		STARTED 05-05-10 COMPLETED 05-05-10	
7. DEPTH DRILLED INTO ROCK N/A				16. ELEVATION TOP OF BORING -17.5 Ft.			
8. TOTAL DEPTH OF BORING 15.0 Ft.				17. TOTAL RECOVERY FOR BORING 100%			
				18. SIGNATURE AND TITLE OF INSPECTOR J. Krick, Geotechnical Engineer			

ELEV.	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS	SAMPLE	LABORATORY RESULTS
-17.5	0.0				
-21.9	4.4		SAND, poorly-graded, mostly fine to medium-grained sand-sized quartz, trace silt and shell fragments, gray (SP)	A	Classification: SP-SM Color: 5Y 6/1-gray D50: 0.1819 mm % Fines: 7
-22.7	5.2		CLAY, fat, high plasticity, trace sand and shell fragments, gray (CH)		
-23.0	5.5				
-23.4	5.9		SAND, silty, mostly fine-grained sand-sized quartz, little clay, trace shell fragments, gray (SM)	B	Classification: SP Color: 5Y 7/1-light gray D50: 0.1921 mm % Fines: 4.8
			CLAY, fat, high plasticity, trace sand and shell fragments, gray (CH)		
			SAND, poorly-graded, mostly fine to medium-grained sand-sized quartz, gray (SP)		
-29.4	11.9				
-29.7	12.2		CLAY, fat, high plasticity, trace fine-grained sand-sized quartz, gray (CH)	NS	
-32.5	15.0		SAND, silty, mostly fine-grained sand-sized quartz, with clay lenses (1/2 inch) every 0.5 ft. intervals, gray (SM)		
NOTES: 1. Soils are field visually classified in accordance with the Unified Soils Classification System. 2. NS = Sample not submitted for laboratory analysis from this interval. 3. Seafloor elevation calculated using sampling vessel's fathometer water depth reading and applying NOAA tidal gauge data conversion factor.					

## PERCENT FINER



GRAIN SIZE - mm.

% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.5	0.6	2.3	89.6	7.0	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
.375	100.0		
#4	99.5		
#10	98.9		
#20	97.9		
#40	96.6		
#60	84.9		
#100	28.6		
#200	7.0		

SAND, (SP-SM), fine grained

$$PL =$$

## Atterberg Limits

$$LL =$$
$$P| =$$

## Coefficients

$$D_{90} = 0.3003$$
$$D_{85} = 0.2509$$
$$D_{60} = 0.1973$$
$$D_{50} = 0.1819$$
$$D_{30}^{0.5} = 0.1522$$
$$D_{15}^{00} = 0.1231$$
$$D_{10}^{99} = 0.1069$$
$$C_U = 1.85$$
$$C_C \approx 1.10$$

## Classification

USCS= SP-SM

AASHTO=

### Remarks

CADD CODE = CH10D965

\* (no specification provided)

**Location:** USACE Sample # BI-GC-10-10A

**Sample Number:** TE Lab ID: 4461.10

**Depth:** 0.0 - 4.33 (ft)

**Date:** 5/13/10

# Thompson Engineering

## Mobile, Alabama

**Client:** US Army Corps of Engineers

**Project:** Mississippi Barrier Island Restoration Project

Contract No. W91278-10-D-0026 - Task 03

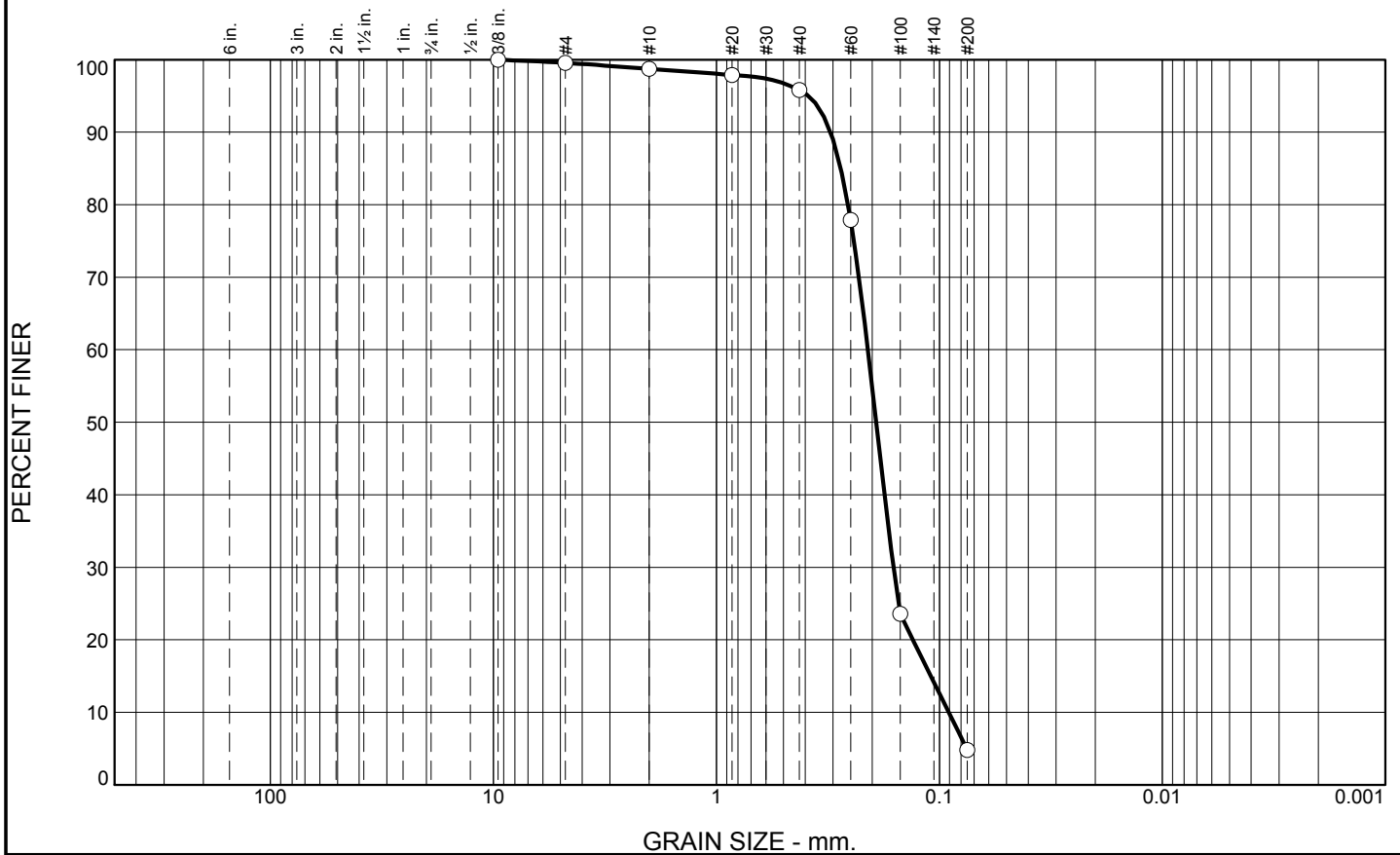
**Project No:** 1021230009

### Figure

**Tested By:** J.Maddox/L.Stokes

**Checked By:** R.Byrd

# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.4	0.9	2.9	91.0	4.8	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
.375	100.0		
#4	99.6		
#10	98.7		
#20	97.9		
#40	95.8		
#60	77.9		
#100	23.6		
#200	4.8		

\* (no specification provided)

Material Description		
SAND, (SP), fine grained		
<div> <div> Atterberg Limits </div> <div> PL= </div> <div> LL= </div> <div> PI= </div> </div>		
<div> <div> Coefficients </div> <div> D<sub>90</sub>= 0.3079 </div> <div> D<sub>50</sub>= 0.1921 </div> <div> D<sub>10</sub>= 0.0908 </div> <div> D<sub>85</sub>= 0.2769 </div> <div> D<sub>30</sub>= 0.1607 </div> <div> C<sub>u</sub>= 2.30 </div> <div> D<sub>60</sub>= 0.2094 </div> <div> D<sub>15</sub>= 0.1093 </div> <div> C<sub>c</sub>= 1.36 </div> </div>		
<div> <div> Classification </div> <div> USCS= SP </div> <div> AASHTO= </div> </div>		
<div> <div> Remarks </div> <div> CADD CODE = CH10D965 </div> </div>		

Location: USACE Sample # BI-GC-10-10B  
Sample Number: TE Lab ID: 4461.11

Depth: 5.75 - 11.75 (ft)

Date: 5/13/10

**Thompson Engineering**  
**Mobile, Alabama**

**Client:** US Army Corps of Engineers  
**Project:** Mississippi Barrier Island Restoration Project  
Contract No. W91278-10-D-0026 - Task 03  
**Project No:** 1021230009

**Figure**

Tested By: J.Maddox/L.Stokes



Checked By: R.Byrd



# Boring Designation BI-GC-11-10

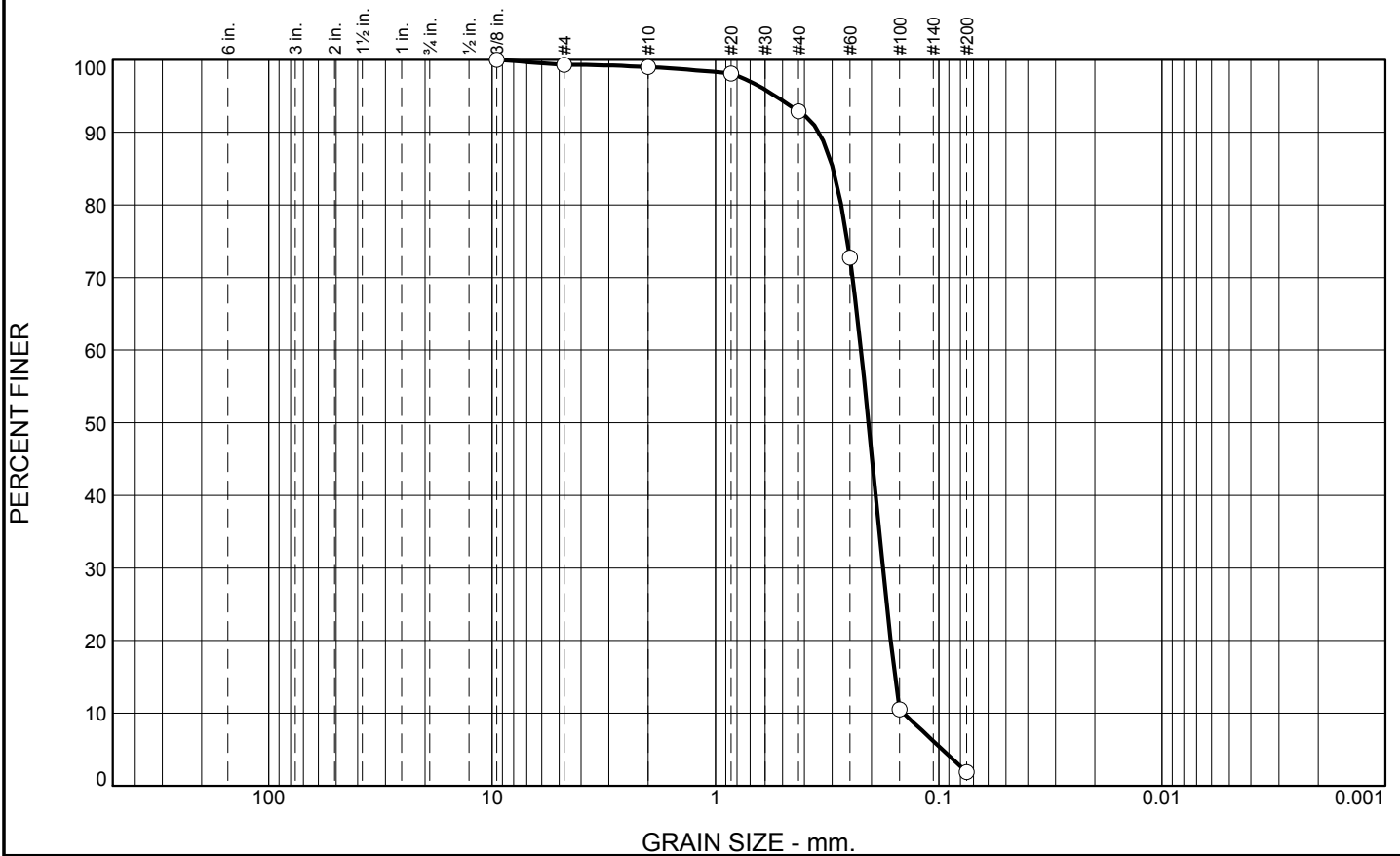
DRILLING LOG		DIVISION South Atlantic		INSTALLATION Mobile District		SHEET 1 OF 2 SHEETS	
1. PROJECT MsCIP Barrier Island Restoration Gulfport Channel				9. SIZE AND TYPE OF BIT N/A			
2. BORING DESIGNATION BI-GC-11-10		LOCATION COORDINATES E = 932,891 N = 262,823		10. COORDINATE SYSTEM/DATUM State Plane, MSE (U.S. Ft.)		HORIZONTAL NAD83 VERTICAL NAVD88	
3. DRILLING AGENCY Corps of Engineers - CESAM		CONTRACTOR FILE NO.		11. MANUFACTURER'S DESIGNATION OF DRILL Vibrocure		<input type="checkbox"/> AUTO HAMMER <input type="checkbox"/> MANUAL HAMMER	
4. NAME OF DRILLER Construction Solutions International, Inc.				12. TOTAL SAMPLES 3		DISTURBED 0 UNDISTURBED (UD)	
5. DIRECTION OF BORING <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED		DEG. FROM VERTICAL		13. TOTAL NUMBER CORE BOXES			
		BEARING		14. WATER DEPTH 21 Ft.			
6. THICKNESS OF OVERBURDEN N/A				15. DATE BORING 05-05-10		STARTED 05-05-10 COMPLETED 05-05-10	
7. DEPTH DRILLED INTO ROCK N/A				16. ELEVATION TOP OF BORING -20.0 Ft.			
8. TOTAL DEPTH OF BORING 19.5 Ft.				17. TOTAL RECOVERY FOR BORING 100%			
				18. SIGNATURE AND TITLE OF INSPECTOR J. Krick, Geotechnical Engineer			

ELEV.	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS	SAMPLE	LABORATORY RESULTS
-20.0	0.0				
		 SAND, poorly-graded, mostly fine to medium-grained sand-sized quartz, little shell fragments, gray (SP)		A	Classification: SP Color: 5Y 7/1-light gray D50: 0.2064 mm % Fines: 1.9
				B	Classification: SP Color: 5Y 2.5/1-black D50: 0.1909 mm % Fines: 2
				C	Classification: SP Color: 5Y 7.5/1-light gray D50: 0.1929 mm % Fines: 2.3
-35.4	15.4		At El. -34.2 Ft., woody material to El. -35.5 ft.		
-39.5	19.5	 CLAY, fat, high plasticity, trace fine-grained sand-sized quartz, gray (CH)		NS	
			NOTES:		
			1. Soils are field visually classified in accordance with the Unified Soils Classification System.		
			2. NS = Sample not submitted for laboratory analysis from this interval.		
			3. Seafloor elevation calculated using sampling vessel's fathometer water depth reading and		

<b>DRILLING LOG (Cont. Sheet)</b>			<b>INSTALLATION</b> Mobile District		<b>SHEET 2</b> <b>OF 2 SHEETS</b>
<b>PROJECT</b> MsCIP Barrier Island Restoration			<b>COORDINATE SYSTEM/DATUM</b> State Plane, MSE (U.S. Ft.)	<b>HORIZONTAL</b> NAD83	<b>VERTICAL</b> NAVD88
<b>LOCATION COORDINATES</b> X = 932,891 Y = 262,823			<b>ELEVATION TOP OF BORING</b> -20.0 Ft.		
<b>ELEV.</b>	<b>DEPTH</b>	<b>LEGEND</b>	<b>CLASSIFICATION OF MATERIALS</b>	<b>SAMPLE</b>	<b>LABORATORY RESULTS</b>
			applying NOAA tidal gauge data conversion factor.		

# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.7	0.3	6.1	91.0	1.9	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
.375	100.0		
#4	99.3		
#10	99.0		
#20	98.1		
#40	92.9		
#60	72.8		
#100	10.5		
#200	1.9		

\* (no specification provided)

Material Description		
SAND, (SP), fine grained		
<div> <div> <b>Atterberg Limits</b>            PL=      LL=      PI=         </div> <div> <b>Coefficients</b>            D<sub>90</sub>= 0.3440      D<sub>85</sub>= 0.2976      D<sub>60</sub>= 0.2229            D<sub>50</sub>= 0.2064      D<sub>30</sub>= 0.1779      D<sub>15</sub>= 0.1570            D<sub>10</sub>= 0.1438      C<sub>u</sub>= 1.55      C<sub>c</sub>= 0.99         </div> <div> <b>Classification</b>            USCS= SP      AASHTO=         </div> <div> <b>Remarks</b>            CADD CODE = CH10D965         </div> </div>		

Location: USACE Sample # BI-GC-11-10A  
Sample Number: TE Lab ID: 4461.01

Depth: 0.0 - 5.0 (ft)

Date: 5/13/10

**Thompson Engineering**  
**Mobile, Alabama**

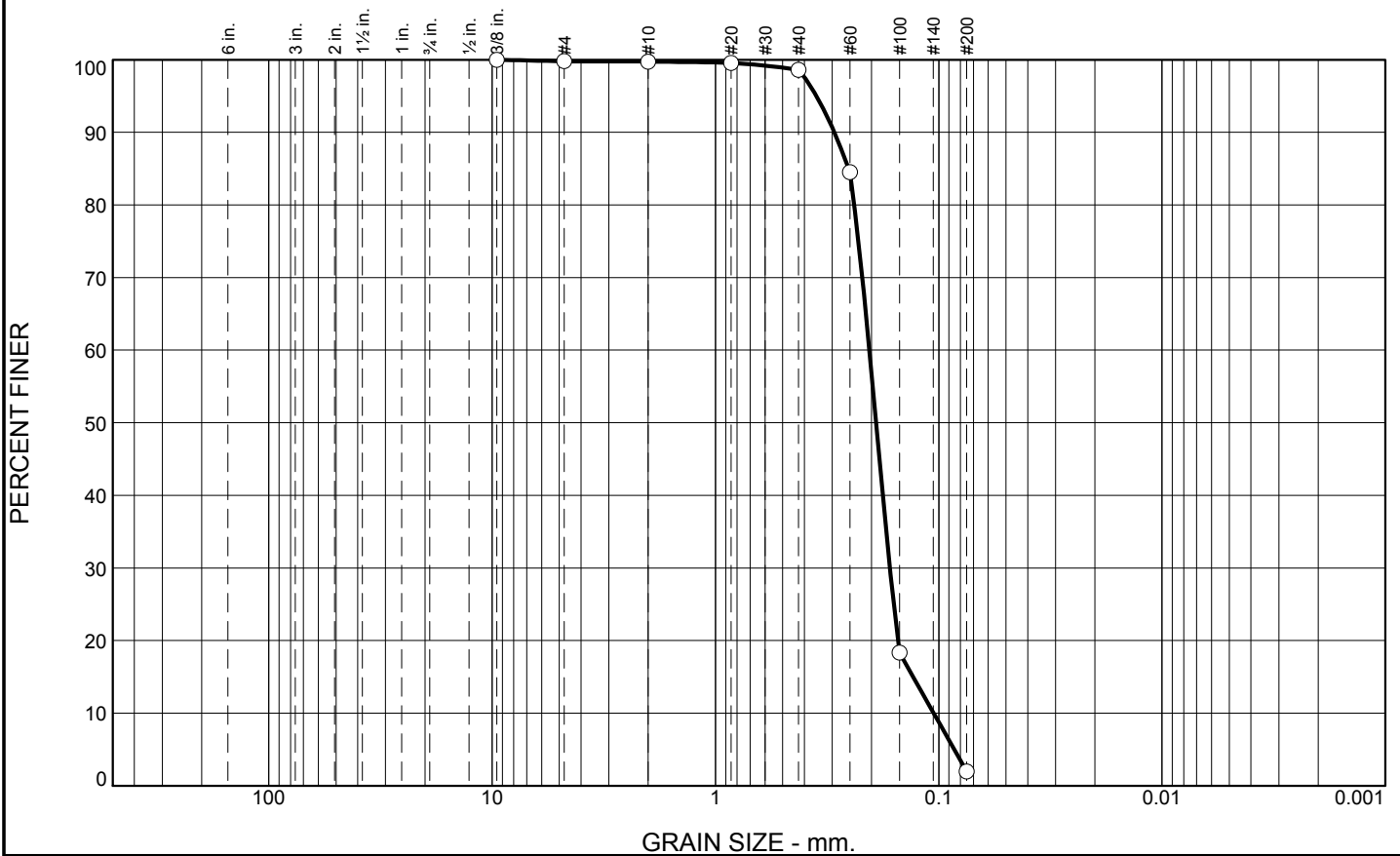
**Client:** US Army Corps of Engineers  
**Project:** Mississippi Barrier Island Restoration Project  
Contract No. W91278-10-D-0026 - Task 03  
**Project No:** 1021230009

**Figure**

Tested By: J.Maddox/L.Stokes

Checked By: R.Byrd

# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.2	0.1	1.1	96.6	2.0	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
.375	100.0		
#4	99.8		
#10	99.7		
#20	99.6		
#40	98.6		
#60	84.5		
#100	18.3		
#200	2.0		

\* (no specification provided)

Material Description		
SAND, (SP), fine grained		
<div> <div> <b>Atterberg Limits</b>            PL=      LL=      PI=         </div> <div> <b>Coefficients</b>            D<sub>90</sub>= 0.2934      D<sub>85</sub>= 0.2532      D<sub>60</sub>= 0.2046            D<sub>50</sub>= 0.1909      D<sub>30</sub>= 0.1655      D<sub>15</sub>= 0.1303            D<sub>10</sub>= 0.1054      C<sub>u</sub>= 1.94      C<sub>c</sub>= 1.27         </div> <div> <b>Classification</b>            USCS= SP      AASHTO=         </div> <div> <b>Remarks</b>            CADD CODE = CH10D965         </div> </div>		

**Location:** USACE Sample # BI-GC-11-10B  
**Sample Number:** TE Lab ID: 4461.02

**Depth:** 5.0 - 10.0 (ft)

**Date:** 5/13/10

**Thompson Engineering**  
  
**Mobile, Alabama**

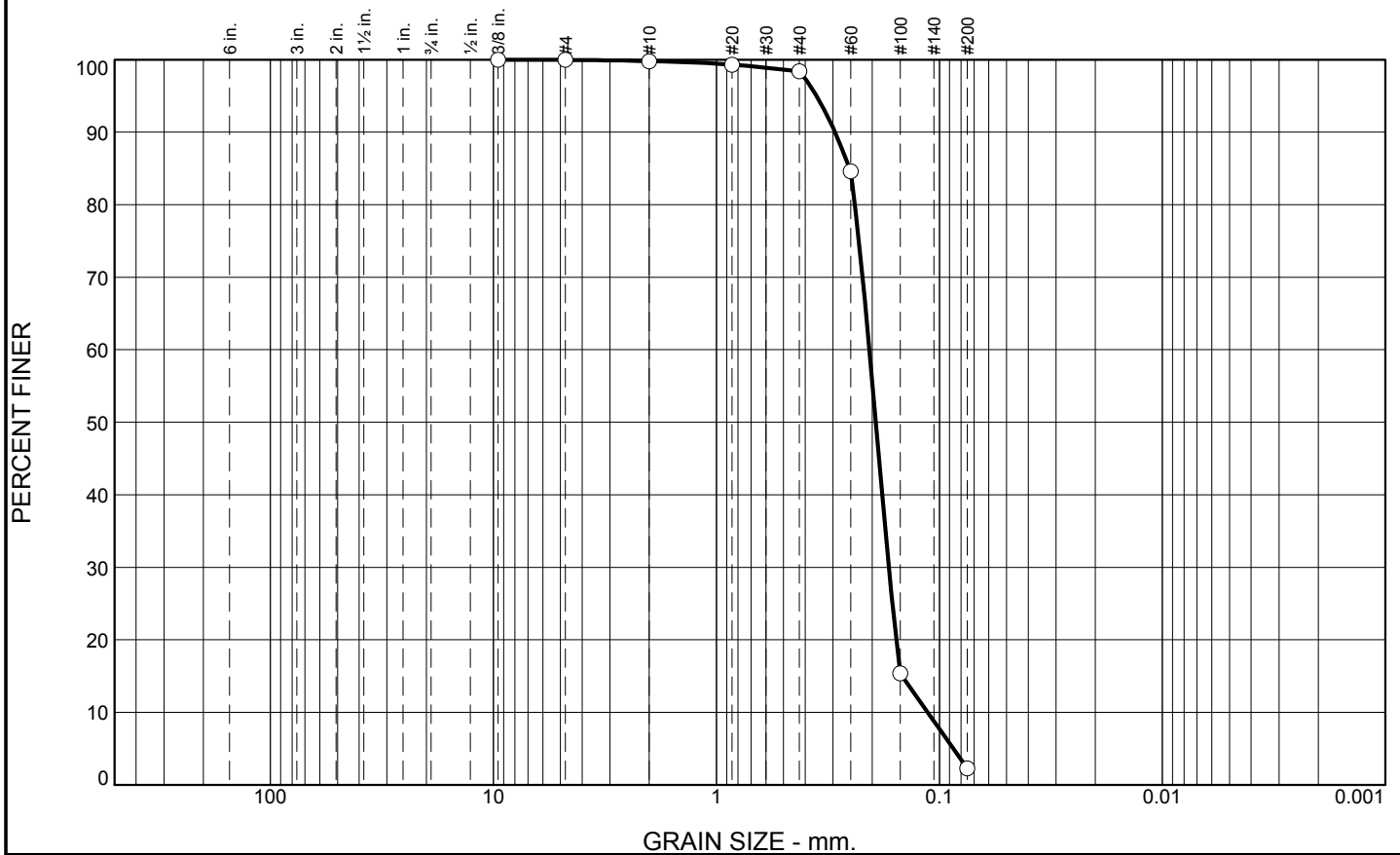
**Client:** US Army Corps of Engineers  
**Project:** Mississippi Barrier Island Restoration Project  
 Contract No. W91278-10-D-0026 - Task 03  
**Project No:** 1021230009

**Figure**

**Tested By:** J.Maddox/L.Stokes

**Checked By:** R.Byrd

# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.0	0.2	1.4	96.1	2.3	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
.375	100.0		
#4	100.0		
#10	99.8		
#20	99.3		
#40	98.4		
#60	84.6		
#100	15.4		
#200	2.3		

\* (no specification provided)

<u><b>Material Description</b></u>		
SAND, (SP), fine grained		
<u><b>Atterberg Limits</b></u>		
PL=	LL=	PI=
<u><b>Coefficients</b></u>		
D <sub>90</sub> = 0.2938	D <sub>85</sub> = 0.2526	D <sub>60</sub> = 0.2061
D <sub>50</sub> = 0.1929	D <sub>30</sub> = 0.1686	D <sub>15</sub> = 0.1471
D <sub>10</sub> = 0.1129	C <sub>u</sub> = 1.83	C <sub>c</sub> = 1.22
<u><b>Classification</b></u>		
USCS= SP	AASHTO=	
<u><b>Remarks</b></u>		
CADD CODE = CH10D965		

Location: USACE Sample # BI-GC-11-10C  
Sample Number: TE Lab ID: 4461.03

Depth: 10.0 - 15.0 (ft)

Date: 5/13/10

**Thompson Engineering**  
**Mobile, Alabama**

**Client:** US Army Corps of Engineers  
**Project:** Mississippi Barrier Island Restoration Project  
Contract No. W91278-10-D-0026 - Task 03  
**Project No:** 1021230009

**Figure**

Tested By: J.Maddox/L.Stokes

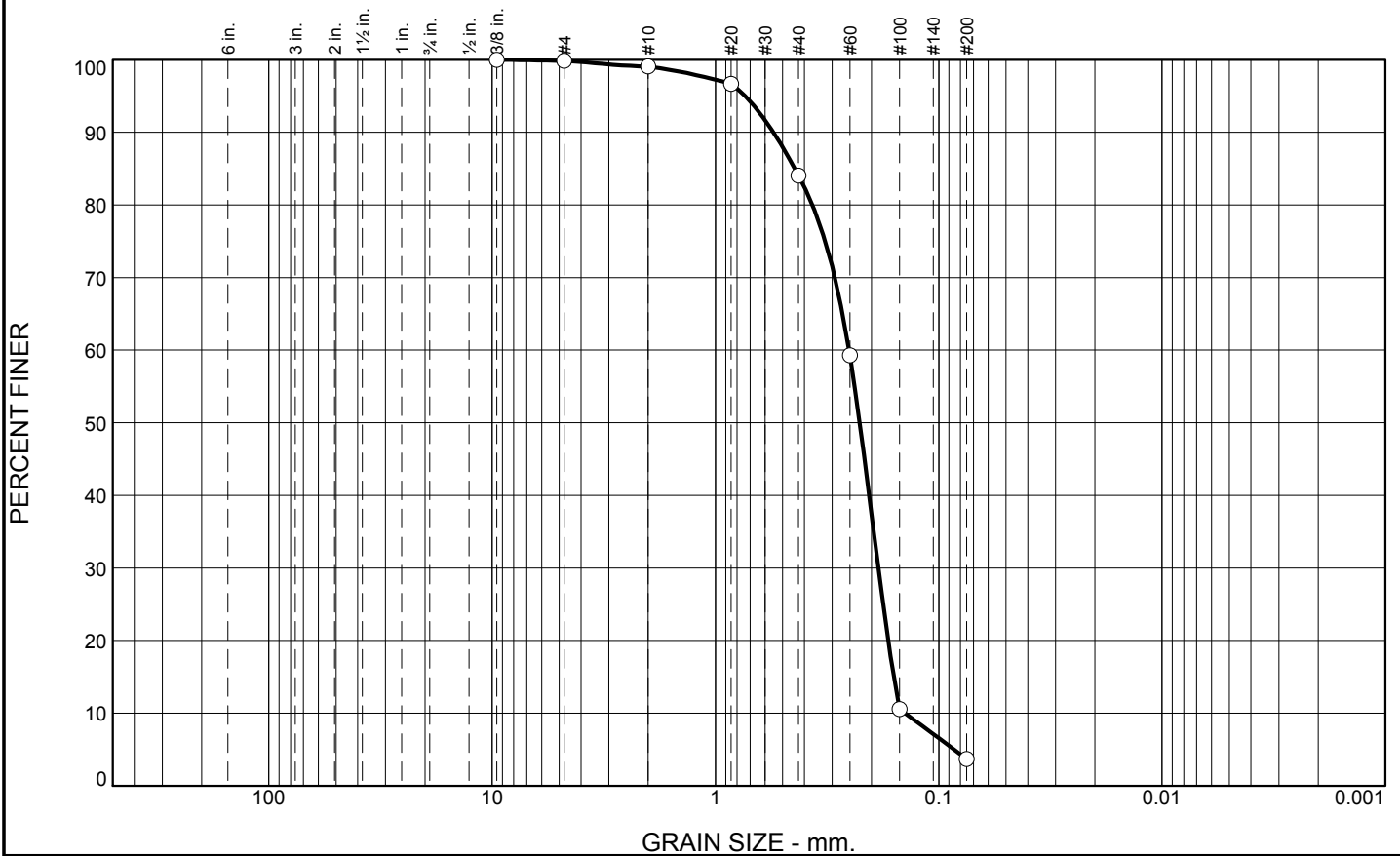
Checked By: R.Byrd

# Boring Designation BI-GC-12-10

DRILLING LOG		DIVISION South Atlantic		INSTALLATION Mobile District		SHEET 1 OF 1 SHEETS	
1. PROJECT MsCIP Barrier Island Restoration Gulfport Channel				9. SIZE AND TYPE OF BIT N/A			
2. BORING DESIGNATION BI-GC-12-10		LOCATION COORDINATES E = 933,242 N = 261,444		10. COORDINATE SYSTEM/DATUM State Plane, MSE (U.S. Ft.)		HORIZONTAL NAD83	
3. DRILLING AGENCY Corps of Engineers - CESAM		CONTRACTOR FILE NO.		11. MANUFACTURER'S DESIGNATION OF DRILL Vibrocure		<input type="checkbox"/> AUTO HAMMER <input type="checkbox"/> MANUAL HAMMER	
4. NAME OF DRILLER Construction Solutions International, Inc.				12. TOTAL SAMPLES 3		UNDISTURBED (UD) 0	
5. DIRECTION OF BORING <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED		DEG. FROM VERTICAL		13. TOTAL NUMBER CORE BOXES		14. WATER DEPTH 23 Ft.	
6. THICKNESS OF OVERBURDEN N/A		7. DEPTH DRILLED INTO ROCK N/A		15. DATE BORING 05-05-10		STARTED 05-05-10	
8. TOTAL DEPTH OF BORING 15.0 Ft.				16. ELEVATION TOP OF BORING -21.9 Ft.		17. TOTAL RECOVERY FOR BORING 100%	
				18. SIGNATURE AND TITLE OF INSPECTOR J. Krick, Geotechnical Engineer			
ELEV.	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS	SAMPLE	LABORATORY RESULTS		
-21.9	0.0						
			SAND, poorly-graded, mostly fine-grained sand-sized quartz, trace shell, gray (SP)	A	Classification: SP Color: 2.5Y 7/1-light gray D50: 0.226 mm % Fines: 3.7		
				B	Classification: SP Color: 5Y 6.5/1-gray D50: 0.1738 mm % Fines: 3.6		
				C	Classification: SP-SM Color: 2.5Y 6.5/1-gray D50: 0.1867 mm % Fines: 6.8		
-35.9	14.0						
-36.9	15.0		SAND, silty, mostly fine-grained sand-sized quartz, gray (SM)	NS			
			NOTES: 1. Soils are field visually classified in accordance with the Unified Soils Classification System. 2. NS = Sample not submitted for laboratory analysis from this interval. 3. Seafloor elevation calculated using sampling vessel's fathometer water depth reading and applying NOAA tidal gauge data conversion factor.				



# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.2	0.7	15.0	80.4	3.7	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
.375	100.0		
#4	99.8		
#10	99.1		
#20	96.7		
#40	84.1		
#60	59.3		
#100	10.6		
#200	3.7		

\* (no specification provided)

<u>Material Description</u>		
SAND, (SP), fine grained		
<u>Atterberg Limits</u>		
PL=	LL=	PI=
<u>Coefficients</u>		
D <sub>90</sub> = 0.5495	D <sub>85</sub> = 0.4410	D <sub>60</sub> = 0.2522
D <sub>50</sub> = 0.2260	D <sub>30</sub> = 0.1864	D <sub>15</sub> = 0.1591
D <sub>10</sub> = 0.1418	C <sub>u</sub> = 1.78	C <sub>c</sub> = 0.97
<u>Classification</u>		
USCS= SP	AASHTO=	
<u>Remarks</u>		
CADD CODE = CH10D965		

Location: USACE Sample # BI-GC-12-10A  
Sample Number: TE Lab ID: 4461.12

Depth: 0.0 - 5.0 (ft)

Date: 5/13/10

**Thompson Engineering**  
**Mobile, Alabama**

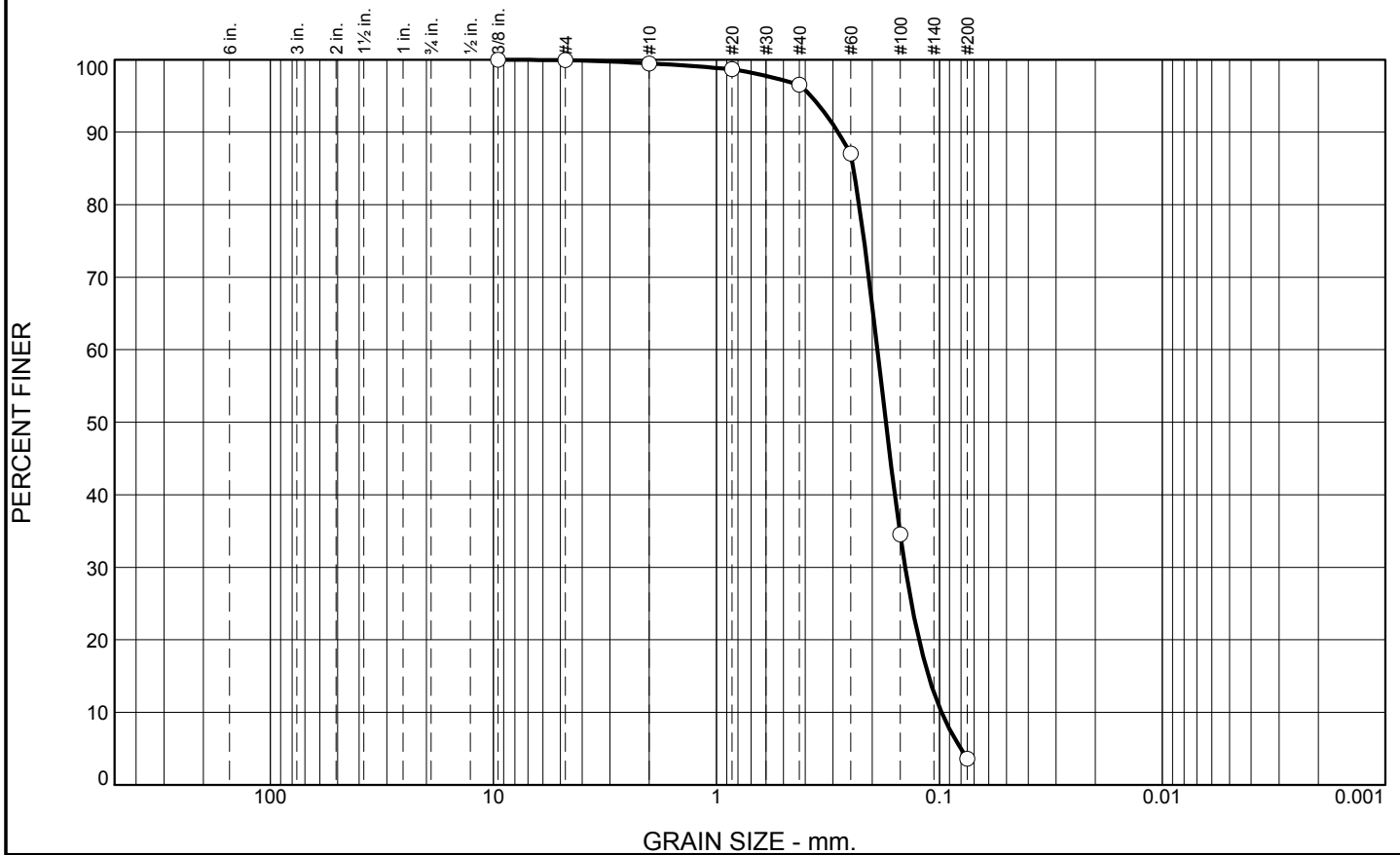
**Client:** US Army Corps of Engineers  
**Project:** Mississippi Barrier Island Restoration Project  
Contract No. W91278-10-D-0026 - Task 03  
**Project No:** 1021230009

**Figure**

Tested By: J.Maddox/L.Stokes

Checked By: R.Byrd

# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.1	0.4	3.0	92.9	3.6	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
.375	100.0		
#4	99.9		
#10	99.5		
#20	98.7		
#40	96.5		
#60	87.1		
#100	34.5		
#200	3.6		

\* (no specification provided)

Material Description		
SAND, (SP), fine grained		
<div> <div> Atterberg Limits </div> <div> PL= </div> <div> LL= </div> <div> PI= </div> </div>		
<div> <div> Coefficients </div> <div> D<sub>90</sub>= 0.2847 </div> <div> D<sub>50</sub>= 0.1738 </div> <div> D<sub>10</sub>= 0.0979 </div> <div> D<sub>85</sub>= 0.2431 </div> <div> D<sub>30</sub>= 0.1424 </div> <div> C<sub>u</sub>= 1.94 </div> <div> D<sub>60</sub>= 0.1897 </div> <div> D<sub>15</sub>= 0.1119 </div> <div> C<sub>c</sub>= 1.09 </div> </div>		
<div> <div> Classification </div> <div> USCS= SP </div> <div> AASHTO= </div> </div>		
<div> <div> Remarks </div> <div> CADD CODE = CH10D965 </div> </div>		

Location: USACE Sample # BI-GC-12-10B  
Sample Number: TE Lab ID: 4461.13

Depth: 5.0 - 10.0 (ft)

Date: 5/13/10

**Thompson Engineering**  
**Mobile, Alabama**

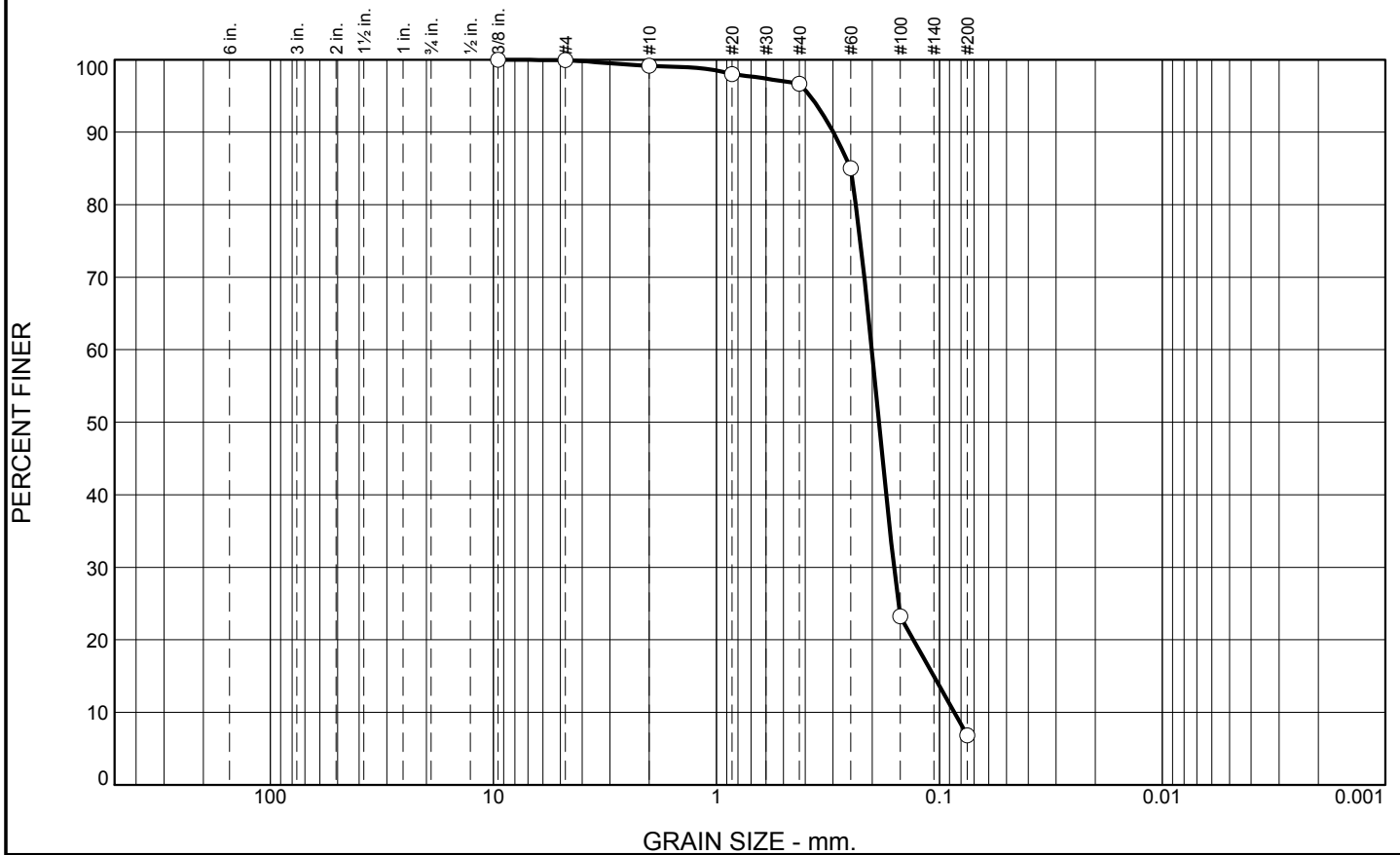
**Client:** US Army Corps of Engineers  
**Project:** Mississippi Barrier Island Restoration Project  
Contract No. W91278-10-D-0026 - Task 03  
**Project No:** 1021230009

**Figure**

Tested By: J.Maddox/L.Stokes

Checked By: R.Byrd

# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.1	0.8	2.4	89.9	6.8	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
.375	100.0		
#4	99.9		
#10	99.1		
#20	98.0		
#40	96.7		
#60	85.0		
#100	23.2		
#200	6.8		

\* (no specification provided)

<u>Material Description</u>		
SAND, (SP-SM), fine grained		
<u>Atterberg Limits</u>		
PL=	LL=	PI=
<u>Coefficients</u>		
D <sub>90</sub> = 0.2992	D <sub>85</sub> = 0.2499	D <sub>60</sub> = 0.2010
D <sub>50</sub> = 0.1867	D <sub>30</sub> = 0.1598	D <sub>15</sub> = 0.1059
D <sub>10</sub> = 0.0858	C <sub>u</sub> = 2.34	C <sub>c</sub> = 1.48
<u>Classification</u>		
USCS= SP-SM	AASHTO=	
<u>Remarks</u>		
CADD CODE = CH10D965		

Location: USACE Sample # BI-GC-12-10C  
Sample Number: TE Lab ID: 4461.14

Depth: 10.0 - 14.0 (ft)

Date: 5/13/10

**Thompson Engineering**  
**Mobile, Alabama**

**Client:** US Army Corps of Engineers  
**Project:** Mississippi Barrier Island Restoration Project  
Contract No. W91278-10-D-0026 - Task 03  
**Project No:** 1021230009

**Figure**

Tested By: J.Maddox/L.Stokes

Checked By: R.Byrd

# Boring Designation BI-GC-13-10

DRILLING LOG		DIVISION South Atlantic		INSTALLATION Mobile District		SHEET 1 OF 1 SHEETS	
1. PROJECT MsCIP Barrier Island Restoration Gulfport Channel				9. SIZE AND TYPE OF BIT N/A			
2. BORING DESIGNATION BI-GC-13-10		LOCATION COORDINATES E = 906,022 N = 308,613		10. COORDINATE SYSTEM/DATUM State Plane, MSE (U.S. Ft.)		HORIZONTAL NAD83 VERTICAL NAVD88	
3. DRILLING AGENCY Corps of Engineers - CESAM		CONTRACTOR FILE NO.		11. MANUFACTURER'S DESIGNATION OF DRILL Vibracore		<input type="checkbox"/> AUTO HAMMER <input type="checkbox"/> MANUAL HAMMER	
4. NAME OF DRILLER Construction Solutions International, Inc.				12. TOTAL SAMPLES 0		DISTURBED 0 UNDISTURBED (UD) 0	
5. DIRECTION OF BORING <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED		DEG. FROM VERTICAL		13. TOTAL NUMBER CORE BOXES			
		BEARING		14. WATER DEPTH 34 Ft.			
6. THICKNESS OF OVERBURDEN N/A				15. DATE BORING 05-07-10		STARTED 05-07-10 COMPLETED 05-07-10	
7. DEPTH DRILLED INTO ROCK N/A				16. ELEVATION TOP OF BORING -33.6 Ft.			
8. TOTAL DEPTH OF BORING 18.3 Ft.				17. TOTAL RECOVERY FOR BORING 100%			
				18. SIGNATURE AND TITLE OF INSPECTOR Marty Gates, Geologist			
ELEV.	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS	SAMPLE	LABORATORY RESULTS		
-33.6	0.0		CLAY, lean, dark gray (CL)	NS			
-45.6	12.0						
-48.4	14.8		SAND, poorly-graded, mostly fine to medium-grained sand-sized quartz, trace silt (SP) At El. -46.9 Ft., mostly coarse-grained sand-sized quartz, some fine gravel-sized quartz, trace clay				
-51.9	18.3		SAND, silty, mostly fine-grained sand-sized quartz, some silt (SM)				
			NOTES: 1. Soils are field visually classified in accordance with the Unified Soils Classification System. 2. NS = Sample not submitted for laboratory analysis from this interval. 3. Seafloor elevation calculated using sampling vessel's fathometer water depth reading and applying NOAA tidal gauge data conversion factor.				

# Boring Designation BI-GC-14-10

<b>DRILLING LOG</b>		<b>DIVISION</b> South Atlantic	<b>INSTALLATION</b> Mobile District	<b>SHEET 1</b> <b>OF 1 SHEETS</b>
<b>1. PROJECT</b> MsCIP Barrier Island Restoration Gulfport Channel		<b>9. SIZE AND TYPE OF BIT</b> N/A		
<b>2. BORING DESIGNATION</b> BI-GC-14-10		<b>10. COORDINATE SYSTEM/DATUM</b> State Plane, MSE (U.S. Ft.)		<b>11. MANUFACTURER'S DESIGNATION OF DRILL</b> Vibracore
<b>3. DRILLING AGENCY</b> Corps of Engineers - CESAM		<b>12. TOTAL SAMPLES</b> 0		<b>13. TOTAL NUMBER CORE BOXES</b> 0
<b>4. NAME OF DRILLER</b> Construction Solutions International, Inc.		<b>14. WATER DEPTH</b> 35 Ft.		<b>15. DATE BORING</b> 05-07-10
<b>5. DIRECTION OF BORING</b> <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED		<b>16. ELEVATION TOP OF BORING</b> -34.7 Ft.		<b>17. TOTAL RECOVERY FOR BORING</b> 100%
<b>6. THICKNESS OF OVERBURDEN</b> N/A		<b>18. SIGNATURE AND TITLE OF INSPECTOR</b> Marty Gates, Geologist		
<b>7. DEPTH DRILLED INTO ROCK</b> N/A				
<b>8. TOTAL DEPTH OF BORING</b> 15.8 Ft.				

ELEV.	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS	SAMPLE	LABORATORY RESULTS
-34.7	0.0		CLAY, lean, dark gray (CL)	NS	
-45.2	10.5		SAND, clayey, mostly fine-grained sand-sized quartz, some clay, little silt (SC)		
-48.7	14.0		SAND, silty, mostly fine-grained sand-sized quartz, some silt (SM)		
-50.5	15.8		NOTES: 1. Soils are field visually classified in accordance with the Unified Soils Classification System. 2. NS = Sample not submitted for laboratory analysis from this interval. 3. Seafloor elevation calculated using sampling vessel's fathometer water depth reading and applying NOAA tidal gauge data conversion factor.		

# Boring Designation BI-GC-15-10

DRILLING LOG		DIVISION South Atlantic		INSTALLATION Mobile District		SHEET 1 OF 1 SHEETS	
1. PROJECT MsCIP Barrier Island Restoration Gulfport Channel				9. SIZE AND TYPE OF BIT N/A			
2. BORING DESIGNATION BI-GC-15-10		LOCATION COORDINATES E = 910,267 N = 302,595		10. COORDINATE SYSTEM/DATUM State Plane, MSE (U.S. Ft.)		HORIZONTAL NAD83	
3. DRILLING AGENCY Corps of Engineers - CESAM		CONTRACTOR FILE NO.		11. MANUFACTURER'S DESIGNATION OF DRILL Vibrocure		<input type="checkbox"/> AUTO HAMMER <input type="checkbox"/> MANUAL HAMMER	
4. NAME OF DRILLER Construction Solutions International, Inc.				12. TOTAL SAMPLES		DISTURBED 0	
5. DIRECTION OF BORING <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED				13. TOTAL NUMBER CORE BOXES		UNDISTURBED (UD) 0	
6. THICKNESS OF OVERBURDEN N/A				14. WATER DEPTH		23 Ft.	
7. DEPTH DRILLED INTO ROCK N/A				15. DATE BORING		STARTED 05-07-10	
8. TOTAL DEPTH OF BORING 17.5 Ft.				16. ELEVATION TOP OF BORING		COMPLETED 05-07-10	
				17. TOTAL RECOVERY FOR BORING		100%	
				18. SIGNATURE AND TITLE OF INSPECTOR Marty Gates, Geologist			
ELEV.	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS	SAMPLE	LABORATORY RESULTS		
-22.7	0.0		CLAY, lean, dark gray (CL)				
				NS			
-40.2	17.5						
			NOTES: 1. Soils are field visually classified in accordance with the Unified Soils Classification System. 2. NS = Sample not submitted for laboratory analysis from this interval. 3. Seafloor elevation calculated using sampling vessel's fathometer water depth reading and applying NOAA tidal gauge data conversion factor.				



# Boring Designation BI-GC-16-10

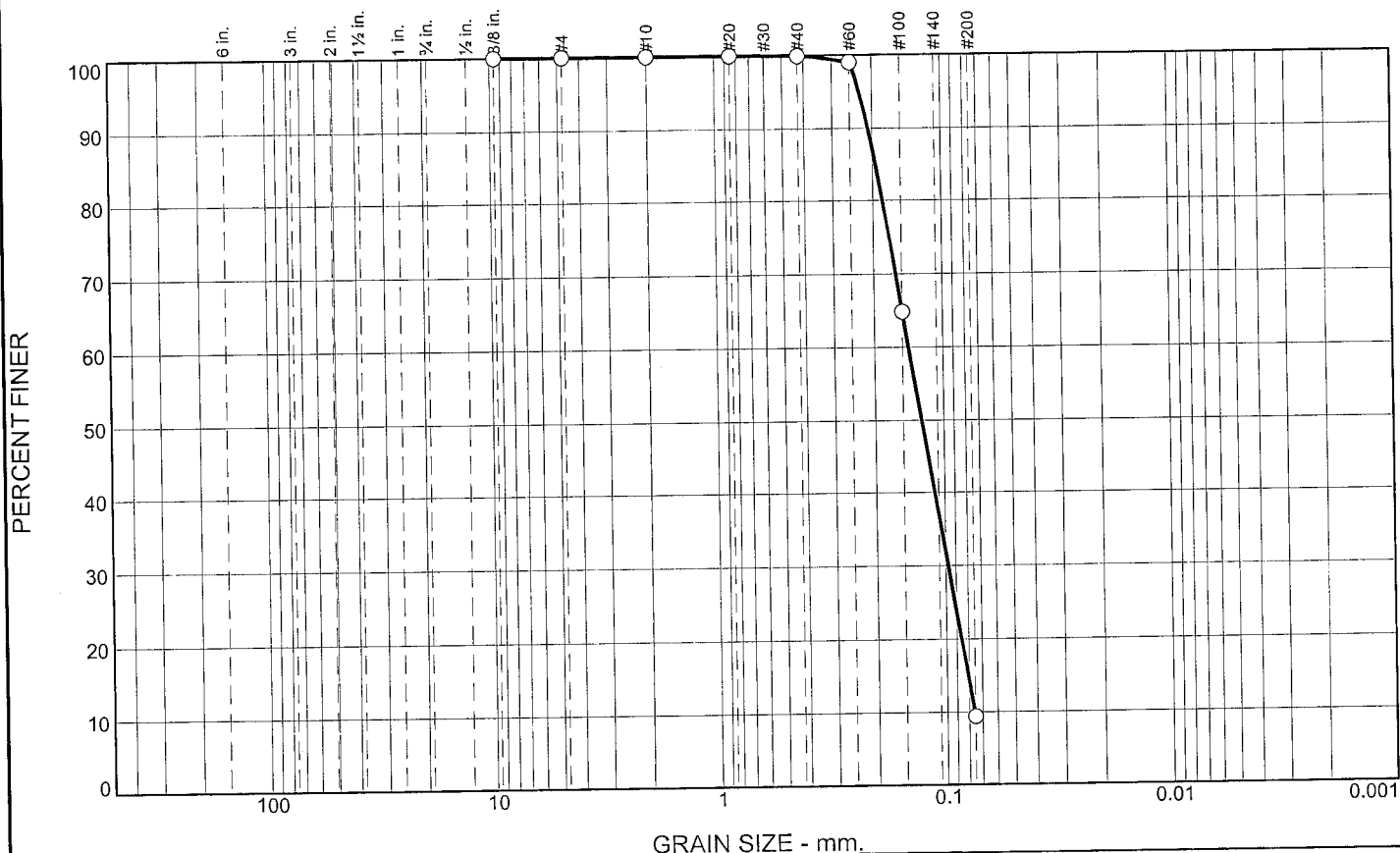
DRILLING LOG		DIVISION South Atlantic		INSTALLATION Mobile District		SHEET 1 OF 2 SHEETS	
1. PROJECT MsCIP Barrier Island Restoration Gulfport Channel				9. SIZE AND TYPE OF BIT N/A			
2. BORING DESIGNATION BI-GC-16-10		LOCATION COORDINATES E = 912,722 N = 299,521		10. COORDINATE SYSTEM/DATUM State Plane, MSE (U.S. Ft.)		HORIZONTAL NAD83	
3. DRILLING AGENCY Corps of Engineers - CESAM		CONTRACTOR FILE NO.		11. MANUFACTURER'S DESIGNATION OF DRILL Vibrocure		<input type="checkbox"/> AUTO HAMMER <input type="checkbox"/> MANUAL HAMMER	
4. NAME OF DRILLER Construction Solutions International, Inc.				12. TOTAL SAMPLES		DISTURBED 0	
5. DIRECTION OF BORING <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED				13. TOTAL NUMBER CORE BOXES		UNDISTURBED (UD) 0	
6. THICKNESS OF OVERBURDEN N/A				14. WATER DEPTH		36 Ft.	
7. DEPTH DRILLED INTO ROCK N/A				15. DATE BORING		STARTED 05-07-10	
8. TOTAL DEPTH OF BORING 20.0 Ft.				16. ELEVATION TOP OF BORING		COMPLETED 05-07-10	
				17. TOTAL RECOVERY FOR BORING		100%	
				18. SIGNATURE AND TITLE OF INSPECTOR Marty Gates, Geologist			
ELEV.	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS	SAMPLE	LABORATORY RESULTS		
-35.5	0.0		CLAY, lean, dark gray (CL)	NS			
-52.2	16.7						
-53.2	17.7		CLAY, organic-L, brown (OL)				
-55.5	20.0		SILT, inorganic-L, lt. gray (ML)				
NOTES: 1. Soils are field visually classified in accordance with the Unified Soils Classification System. 2. NS = Sample not submitted for laboratory analysis from this interval. 3. Seafloor elevation calculated using sampling							



# Boring Designation BI-GC-17-10

DRILLING LOG		DIVISION South Atlantic		INSTALLATION Mobile District		SHEET 1 OF 1 SHEETS	
1. PROJECT MsCIP Barrier Island Restoration Gulfport Channel				9. SIZE AND TYPE OF BIT N/A			
2. BORING DESIGNATION BI-GC-17-10		LOCATION COORDINATES E = 914,584 N = 296,658		10. COORDINATE SYSTEM/DATUM State Plane, MSE (U.S. Ft.)		HORIZONTAL NAD83 VERTICAL NAVD88	
3. DRILLING AGENCY Corps of Engineers - CESAM		CONTRACTOR FILE NO.		11. MANUFACTURER'S DESIGNATION OF DRILL Vibrocure		<input type="checkbox"/> AUTO HAMMER <input type="checkbox"/> MANUAL HAMMER	
4. NAME OF DRILLER Construction Solutions International, Inc.				12. TOTAL SAMPLES		DISTURBED 1 UNDISTURBED (UD) 0	
5. DIRECTION OF BORING <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED		DEG. FROM VERTICAL		13. TOTAL NUMBER CORE BOXES			
		BEARING		14. WATER DEPTH		24 Ft.	
6. THICKNESS OF OVERBURDEN N/A				15. DATE BORING		STARTED 05-08-10 COMPLETED 05-08-10	
7. DEPTH DRILLED INTO ROCK N/A				16. ELEVATION TOP OF BORING		-24.1 Ft.	
8. TOTAL DEPTH OF BORING 13.2 Ft.				17. TOTAL RECOVERY FOR BORING		100%	
				18. SIGNATURE AND TITLE OF INSPECTOR		Marty Gates, Geologist	
ELEV.	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS	SAMPLE	LABORATORY RESULTS		
-24.1	0.0		CLAY, lean, dark gray (CL)	NS			
-34.8	10.7						
-37.3	13.2		SAND, silty, mostly fine to medium-grained sand-sized quartz, some silt, little clay, trace organic matter (SM)	A	Classification: SP-SM Color: 10YR 5/1-gray D50: 0.125 mm % Fines: 9.4		
			NOTES: 1. Soils are field visually classified in accordance with the Unified Soils Classification System. 2. NS = Sample not submitted for laboratory analysis from this interval. 3. Seafloor elevation calculated using sampling vessel's fathometer water depth reading and applying NOAA tidal gauge data conversion factor.				

# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.0	0.0	0.1	90.5	9.4	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
.375	100.0		
#4	100.0		
#10	100.0		
#20	100.0		
#40	99.9		
#60	99.0		
#100	64.8		
#200	9.4		

\* (no specification provided)

**Material Description**  
SAND, (SP-SM), fine grained

**Atterberg Limits**  
PL= LL= PI=

**Coefficients**  
 $D_{90} = 0.2084$   $D_{85} = 0.1935$   $D_{60} = 0.1414$   
 $D_{50} = 0.1250$   $D_{30} = 0.0973$   $D_{15} = 0.0805$   
 $D_{10} = 0.0756$   $C_u = 1.87$   $C_c = 0.89$

**Classification**  
USCS= SP-SM AASHTO=

**Remarks**  
CADD CODE = CH10D965

Location: USACE Sample # BI-GC-17-10A  
Sample Number: TE Lab ID: 4473.12

Depth: 10.7 - 13.2 (ft)

Date: 5/17/10

**Thompson Engineering**  
**Mobile, Alabama**

Client: US Army Corps of Engineers  
Project: Contract No. W91278-10-D-0026 - Task 03  
Mississippi Barrier Island Restoration Project  
Project No: 10-2123-0009

Figure

Tested By: L.Stokes

Checked By: R.Byrd

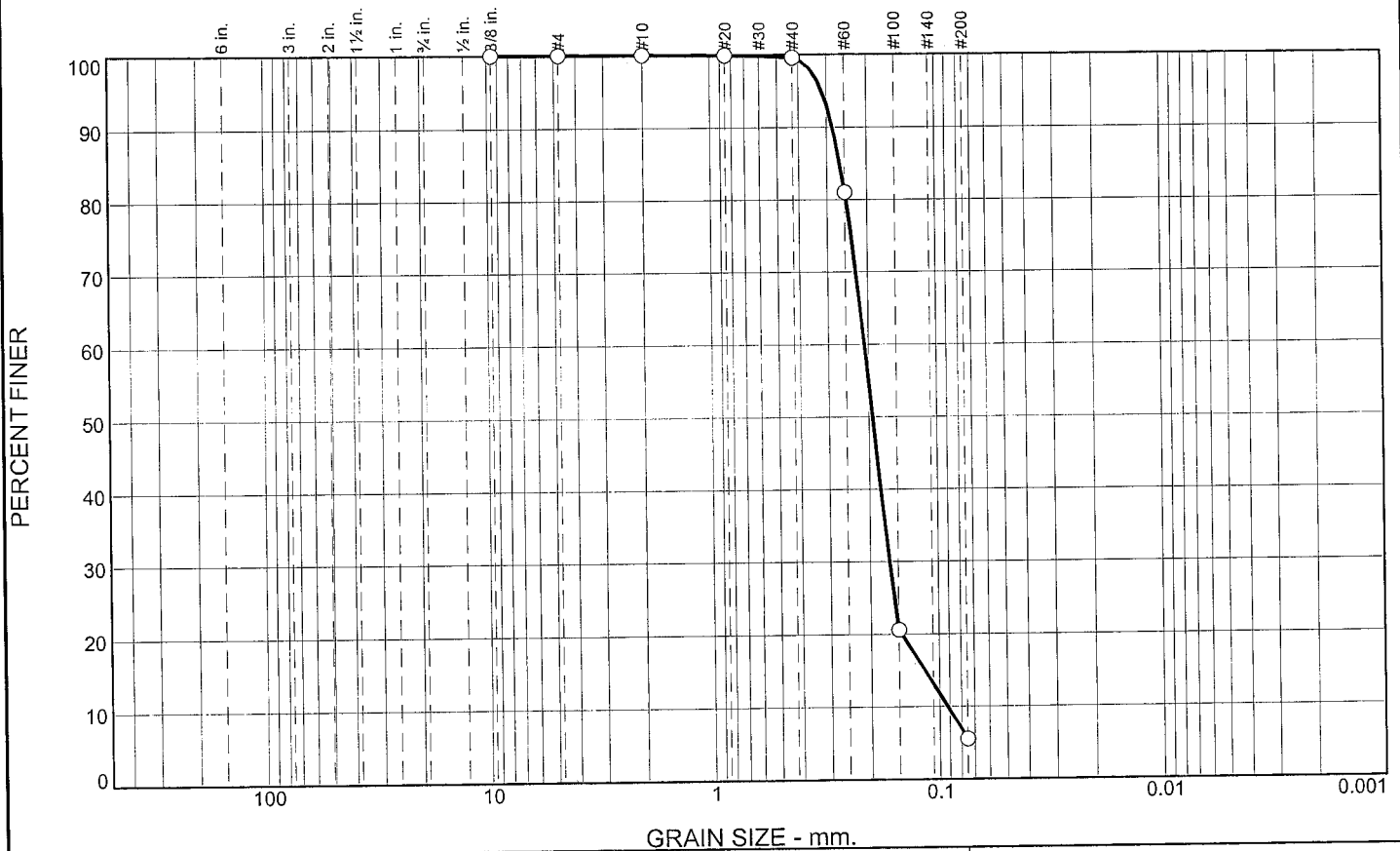
# Boring Designation BI-GC-18-10

DRILLING LOG		DIVISION South Atlantic		INSTALLATION Mobile District		SHEET 1 OF 2 SHEETS	
1. PROJECT MsCIP Barrier Island Restoration Gulfport Channel				9. SIZE AND TYPE OF BIT N/A			
2. BORING DESIGNATION BI-GC-18-10		LOCATION COORDINATES E = 916,873 N = 293,788		10. COORDINATE SYSTEM/DATUM State Plane, MSE (U.S. Ft.)		HORIZONTAL NAD83	
3. DRILLING AGENCY Corps of Engineers - CESAM		CONTRACTOR FILE NO.		11. MANUFACTURER'S DESIGNATION OF DRILL Vibracore		<input type="checkbox"/> AUTO HAMMER <input type="checkbox"/> MANUAL HAMMER	
4. NAME OF DRILLER Construction Solutions International, Inc.				12. TOTAL SAMPLES		DISTURBED 1	
5. DIRECTION OF BORING <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED				13. TOTAL NUMBER CORE BOXES		UNDISTURBED (UD) 0	
6. THICKNESS OF OVERBURDEN N/A				14. WATER DEPTH 36 Ft.		15. DATE BORING 05-08-10	
7. DEPTH DRILLED INTO ROCK N/A				16. ELEVATION TOP OF BORING -36.1 Ft.		COMPLETED 05-08-10	
8. TOTAL DEPTH OF BORING 20.0 Ft.				17. TOTAL RECOVERY FOR BORING 100%		18. SIGNATURE AND TITLE OF INSPECTOR Marty Gates, Geologist	
ELEV.	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS	SAMPLE	LABORATORY RESULTS		
-36.1	0.0		CLAY, lean, dark gray (CL)				
-49.9	13.8			NS			
-55.1	19.0		SAND, poorly-graded, mostly fine to medium-grained sand-sized quartz, little silt (SP)	A	Classification: SP-SM Color: 10YR 6/1-gray D50: 0.1924 mm % Fines: 5.5		
-56.1	20.0		SAND, silty, mostly fine to medium-grained sand-sized quartz, some silt, little clay (SM)	NS			
NOTES: 1. Soils are field visually classified in accordance with the Unified Soils Classification System. 2. NS = Sample not submitted for laboratory analysis from this interval.							

<b>DRILLING LOG (Cont. Sheet)</b>			<b>INSTALLATION</b> Mobile District		<b>SHEET 2</b> <b>OF 2 SHEETS</b>
<b>PROJECT</b> MsCIP Barrier Island Restoration			<b>COORDINATE SYSTEM/DATUM</b> State Plane, MSE (U.S. Ft.)	<b>HORIZONTAL</b> NAD83	<b>VERTICAL</b> NAVD88
<b>LOCATION COORDINATES</b> X = 916,873 Y = 293,788			<b>ELEVATION TOP OF BORING</b> -36.1 Ft.		
<b>ELEV.</b>	<b>DEPTH</b>	<b>LEGEND</b>	<b>CLASSIFICATION OF MATERIALS</b>	<b>SAMPLE</b>	<b>LABORATORY RESULTS</b>
			3. Seafloor elevation calculated using sampling vessel's fathometer water depth reading and applying NOAA tidal gauge data conversion factor.		



# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.0	0.0	0.4	94.1	5.5	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
.375	100.0		
#4	100.0		
#10	100.0		
#20	99.9		
#40	99.6		
#60	81.0		
#100	20.6		
#200	5.5		

\* (no specification provided)

**Material Description**  
SAND, (SP-SM), fine grained, trace shell

**Atterberg Limits**  
PL= LL= PI=

**Coefficients**  
 $D_{90} = 0.2823$   $D_{85} = 0.2621$   $D_{60} = 0.2077$   
 $D_{50} = 0.1924$   $D_{30} = 0.1641$   $D_{15} = 0.1160$   
 $D_{10} = 0.0921$   $C_u = 2.25$   $C_c = 1.41$

**Classification**  
USCS= SP-SM AASHTO=

**Remarks**  
CADD CODE = CH10D965

Location: USACE Sample # BI-GC-18-10A  
Sample Number: TE Lab ID: 4473.13

Depth: 13.8 19.0 (ft)

Date: 5/17/10

**Thompson Engineering**  
**Mobile, Alabama**

Client: US Army Corps of Engineers  
Project: Contract No. W91278-10-D-0026 - Task 03  
Mississippi Barrier Island Restoration Project  
Project No: 10-2123-0009

Figure

Tested By: L.Stokes Checked By: R.Byrd

# Boring Designation BI-GC-19-10

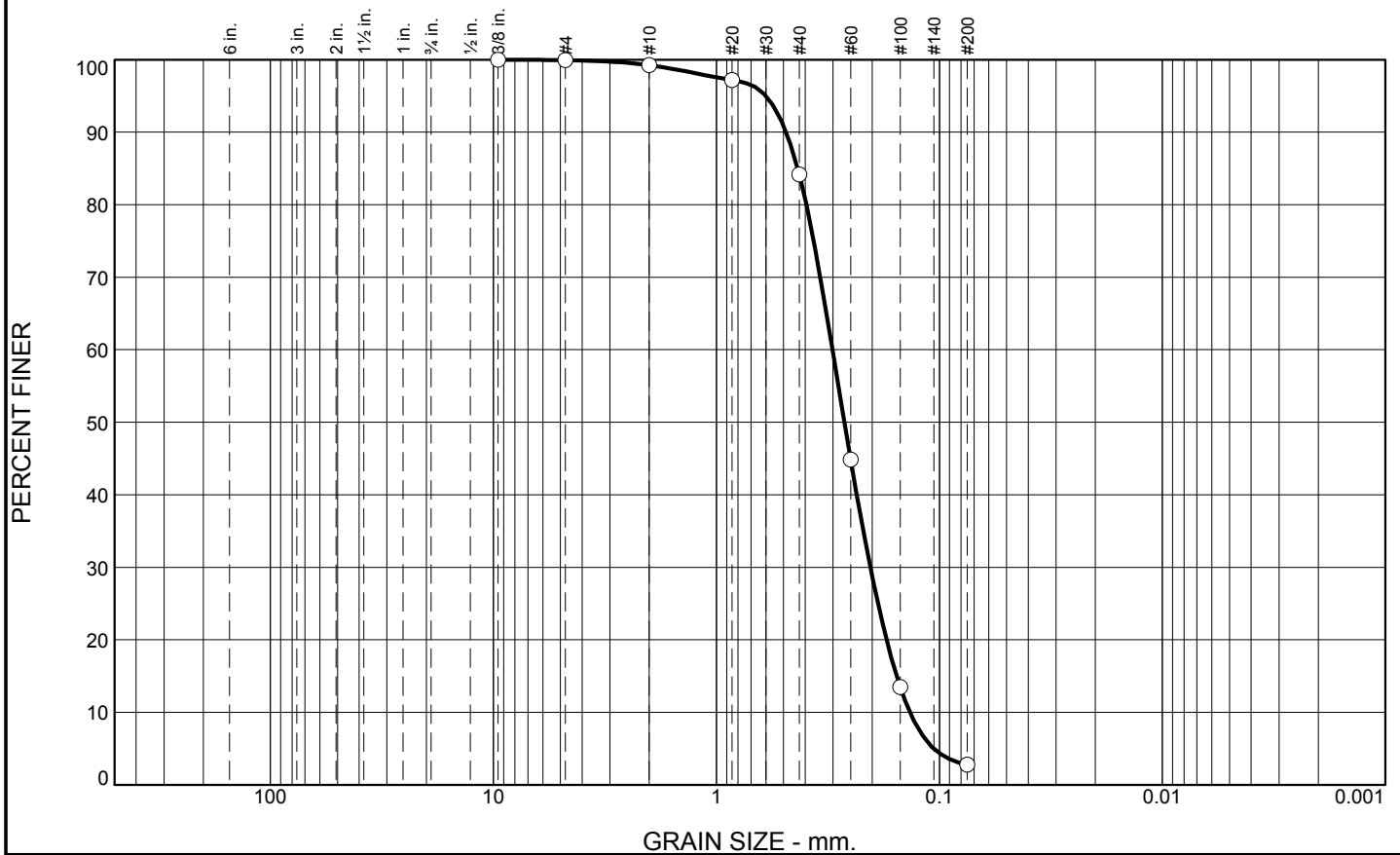
DRILLING LOG		DIVISION South Atlantic		INSTALLATION Mobile District		SHEET 1 OF 2 SHEETS	
1. PROJECT MsCIP Barrier Island Restoration Gulfport Channel				9. SIZE AND TYPE OF BIT N/A			
2. BORING DESIGNATION BI-GC-19-10		LOCATION COORDINATES E = 932,517 N = 264,220		10. COORDINATE SYSTEM/DATUM State Plane, MSE (U.S. Ft.)		HORIZONTAL NAD83 VERTICAL NAVD88	
3. DRILLING AGENCY Corps of Engineers - CESAM		CONTRACTOR FILE NO.		11. MANUFACTURER'S DESIGNATION OF DRILL Vibrocure		<input type="checkbox"/> AUTO HAMMER <input type="checkbox"/> MANUAL HAMMER	
4. NAME OF DRILLER Construction Solutions International, Inc.				12. TOTAL SAMPLES 4		DISTURBED 0 UNDISTURBED (UD)	
5. DIRECTION OF BORING <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED		DEG. FROM VERTICAL		13. TOTAL NUMBER CORE BOXES			
		BEARING		14. WATER DEPTH 21.5 Ft.			
6. THICKNESS OF OVERBURDEN N/A				15. DATE BORING 05-21-10		STARTED 05-21-10 COMPLETED	
7. DEPTH DRILLED INTO ROCK N/A				16. ELEVATION TOP OF BORING -20.5 Ft.			
8. TOTAL DEPTH OF BORING 19.5 Ft.				17. TOTAL RECOVERY FOR BORING 100%			
				18. SIGNATURE AND TITLE OF INSPECTOR Mark Green, Geotechnical Engineer			

ELEV.	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS	SAMPLE	LABORATORY RESULTS
-20.5	0.0				
			SAND, poorly-graded, mostly fine-grained sand-sized quartz, little shell fragments, trace silt, gray and greenish gray (SP)	A	Classification: SP Color: 2.5Y 7/2-light gray D50: 0.2667 mm % Fines: 2.8
-25.5	5.0		SAND, poorly-graded, mostly fine to medium-grained sand-sized quartz, trace silt, trace shell fragments, gray (SP)	B	Classification: SP Color: 2.5Y 7/1-light gray D50: 0.2753 mm % Fines: 2.3
-30.5	10.0		SAND, poorly-graded, mostly fine to medium-grained sand-sized quartz, lt. gray (SP)	C	Classification: SP Color: 2.5Y 7.5/1-light gray D50: 0.2955 mm % Fines: 2.4
-35.5	15.0		SAND, poorly-graded, mostly fine-grained sand-sized quartz, lt. gray to gray (SP)	D	Classification: SP Color: 2.5Y 7/1-light gray D50: 0.2526 mm % Fines: 3.6
-39.5	19.0		At El. -39.0 Ft., trace silt	NS	
-40.0	19.5		SAND, silty, with clay lenses (SM)		
NOTES: 1. Soils are field visually classified in accordance with the Unified Soils Classification System. 2. NS = Sample not submitted for laboratory analysis from this interval. 3. Seafloor elevation calculated using sampling					

<b>DRILLING LOG (Cont. Sheet)</b>			<b>INSTALLATION</b> Mobile District		<b>SHEET 2</b> <b>OF 2 SHEETS</b>
<b>PROJECT</b> MsCIP Barrier Island Restoration			<b>COORDINATE SYSTEM/DATUM</b> State Plane, MSE (U.S. Ft.)	<b>HORIZONTAL</b> NAD83	<b>VERTICAL</b> NAVD88
<b>LOCATION COORDINATES</b> X = 932,517 Y = 264,220			<b>ELEVATION TOP OF BORING</b> -20.5 Ft.		
<b>ELEV.</b>	<b>DEPTH</b>	<b>LEGEND</b>	<b>CLASSIFICATION OF MATERIALS</b>	<b>SAMPLE</b>	<b>LABORATORY RESULTS</b>
			vessel's fathometer water depth reading and applying NOAA tidal gauge data conversion factor.		

# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.1	0.7	15.0	81.4	2.8	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
.375	100.0		
#4	99.9		
#10	99.2		
#20	97.2		
#40	84.2		
#60	44.8		
#100	13.5		
#200	2.8		

\* (no specification provided)

<u><b>Material Description</b></u>		
SAND, (SP), medium to fine grained, with trace shell		
<u><b>Atterberg Limits</b></u>		
PL=	LL=	PI=
<u><b>Coefficients</b></u>		
D <sub>90</sub> = 0.4864	D <sub>85</sub> = 0.4319	D <sub>60</sub> = 0.3015
D <sub>50</sub> = 0.2667	D <sub>30</sub> = 0.2039	D <sub>15</sub> = 0.1556
D <sub>10</sub> = 0.1356	C <sub>u</sub> = 2.22	C <sub>c</sub> = 1.02
<u><b>Classification</b></u>		
USCS= SP	AASHTO=	
<u><b>Remarks</b></u>		
CADD CODE = CH10D965		

Location: USACE Sample # BI-GC-19-10A  
Sample Number: TE Lab ID: 4489.01

Depth: 0.0 - 5.0 (ft.)

Date: 5/28/10

**Thompson Engineering**  
**Mobile, Alabama**

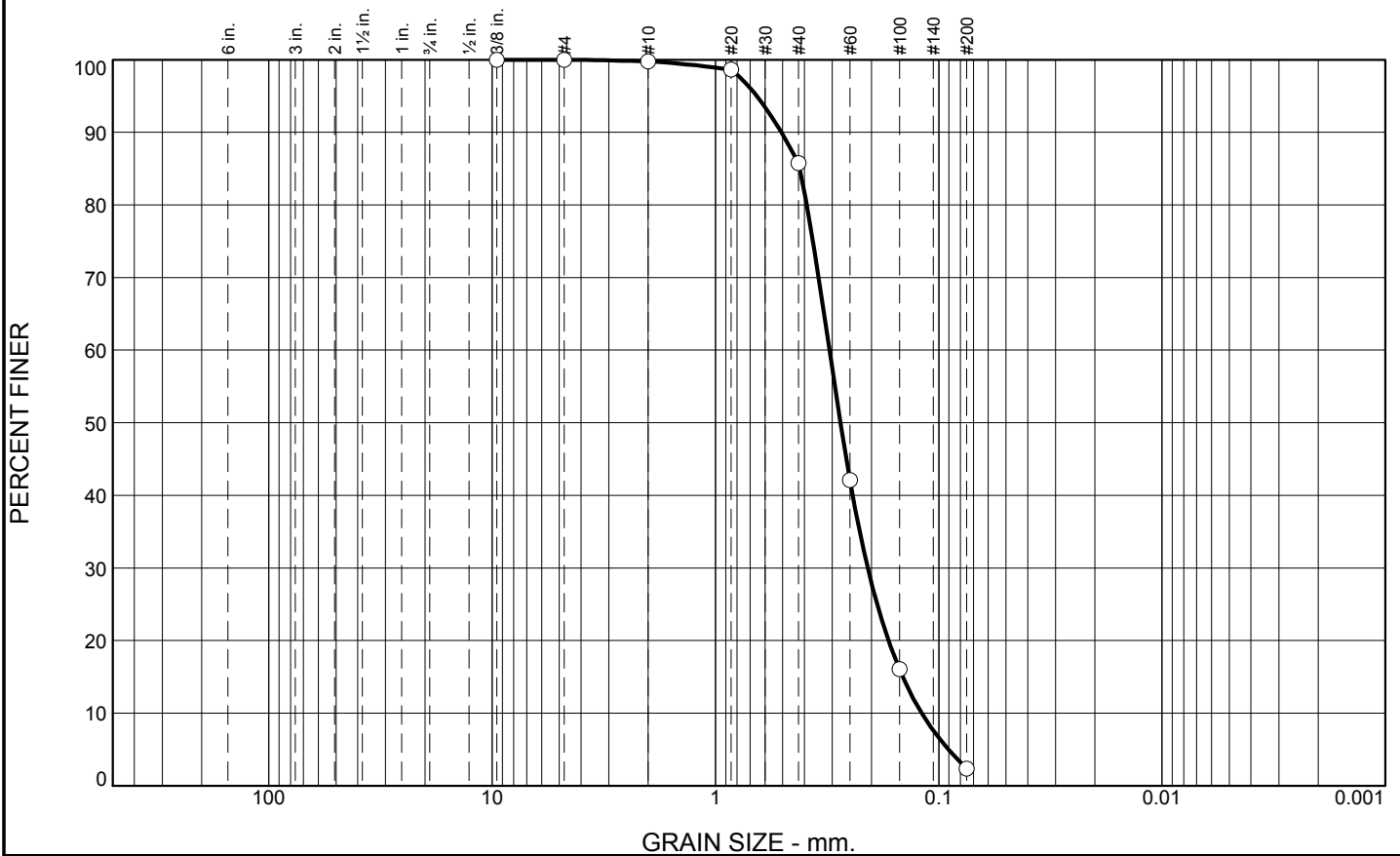
**Client:** US Army Corps of Engineers  
**Project:** Contract No. W91278-10-D-0026 - Task 03  
Mississippi Barrier Island Restoration Project  
**Project No:** 10-2123-0009

**Figure**

Tested By: G.Fancher

Checked By: R.Byrd

# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.0	0.2	14.1	83.4	2.3	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
.375	100.0		
#4	100.0		
#10	99.8		
#20	98.6		
#40	85.7		
#60	42.1		
#100	16.1		
#200	2.3		

\* (no specification provided)

**Material Description**  
SAND, (SP), medium to fine grained, with trace shell

**Atterberg Limits**  
 PL=                      LL=                      PI=

**Coefficients**  
 D<sub>90</sub>= 0.5061      D<sub>85</sub>= 0.4199      D<sub>60</sub>= 0.3083  
 D<sub>50</sub>= 0.2753      D<sub>30</sub>= 0.2081      D<sub>15</sub>= 0.1450  
 D<sub>10</sub>= 0.1193      C<sub>u</sub>= 2.58          C<sub>c</sub>= 1.18

**Classification**  
 USCS= SP                      AASHTO=

**Remarks**  
 CADD CODE = CH10B965

**Location:** USACE Sample # BI-GC-19-10B  
**Sample Number:** TE Lab ID: 4489.02

**Depth:** 5.0 - 10.0 (ft.)

**Date:** 5/28/10

**Thompson Engineering**  
  
**Mobile, Alabama**

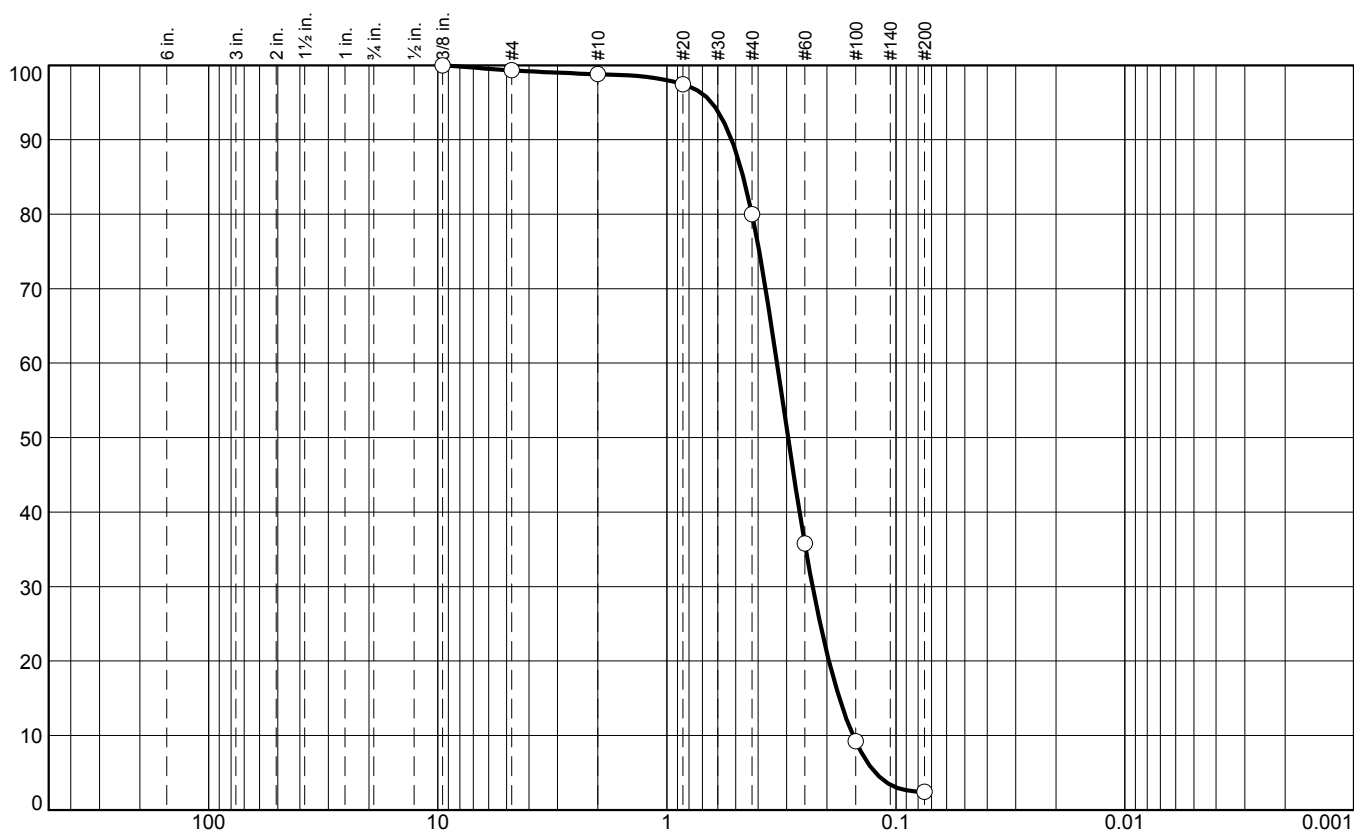
**Client:** US Army Corps of Engineers  
**Project:** Contract No. W91278-10-D-0026 - Task 03  
 Mississippi Barrier Island Restoration Project  
**Project No:** 10-2123-0009

**Figure**

**Tested By:** G.Fancher

**Checked By:** R.Byrd

## PERCENT FINER



GRAIN SIZE - mm.

% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.7	0.5	18.8	77.6	2.4	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
.375	100.0		
#4	99.3		
#10	98.8		
#20	97.4		
#40	80.0		
#60	35.8		
#100	9.2		
#200	2.4		

\* (no specification provided)

SAND, (SP), medium to fine grained, with trace shell

$$PL =$$

## Atterberg Limits

$$LL =$$
$$P| =$$

## Coefficients

$$D_{90} = 0.5212$$
$$D_{85} = 0.4637$$
$$D_{60} = 0.3303$$
$$D_{50} = 0.2955$$
$$D_{30}^{0.5} = 0.2311$$
$$D_{15}^{00} = 0.1764$$
$$D_{10} = 0.1539$$
$$C_U \equiv 2.15$$
$$C_c \equiv 1.05$$

## Classification

USCS= SP

AASHTO=

### Remarks

CADD CODE = CH10D965

**Location:** USACE Sample # BI-GC-19-10C  
**Sample Number:** TE Lab ID: 4489.03

**Depth:** 10.0 - 15.0 (ft.)

**Date:** 5/28/10

# Thompson Engineering

**Client:** US Army Corps of Engineers

**Project:** Contract No. W91278-10-D-0026 - Task 03  
Mississippi Barrier Island Restoration Project

## Mobile, Alabama

**Project No:** 10-2123-0009

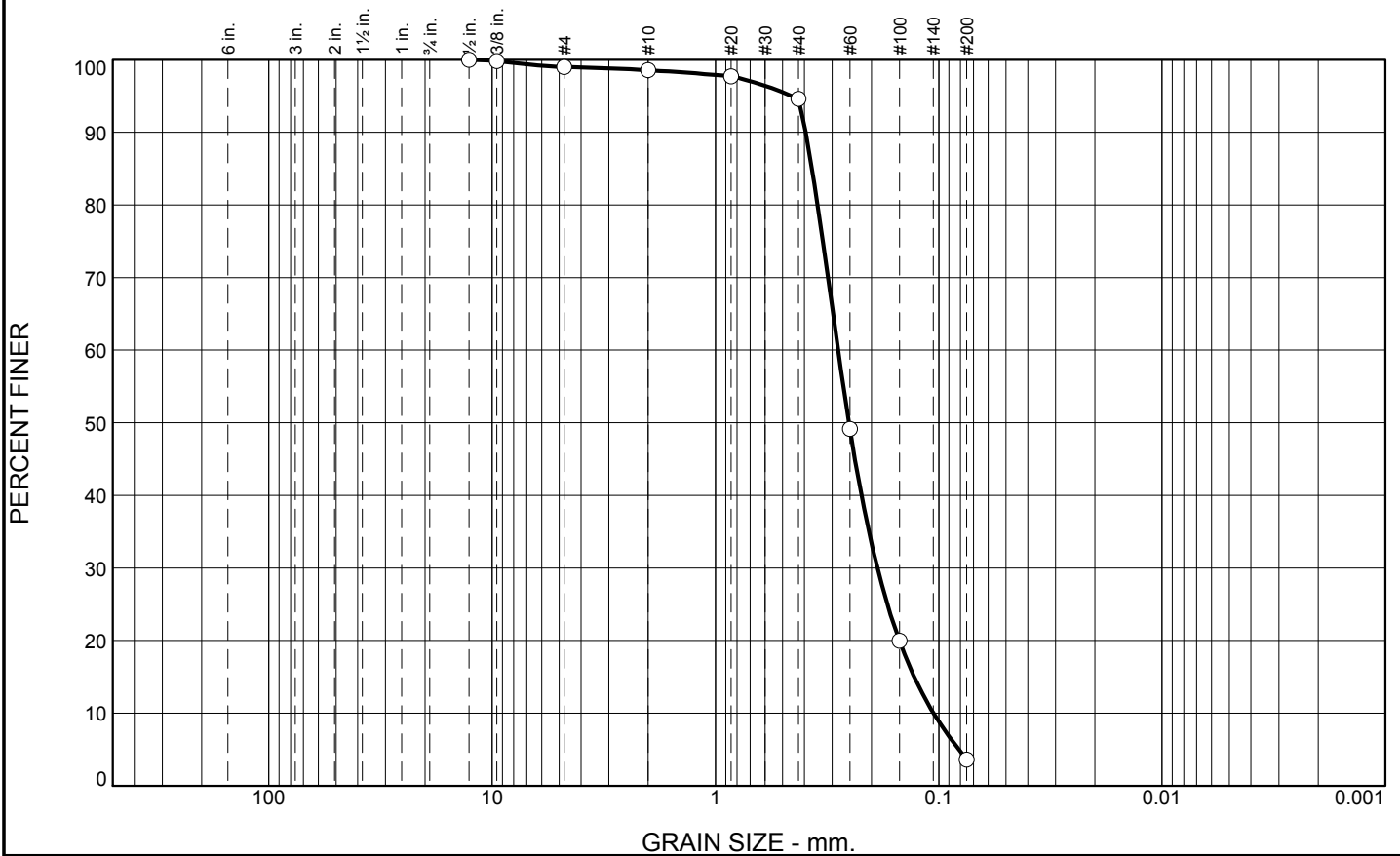
## Figure

**Tested By:** G.Fancher

**Checked By:** R.Byrd



# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	1.0	0.5	3.9	91.0	3.6	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
.500	100.0		
.375	99.8		
#4	99.0		
#10	98.5		
#20	97.7		
#40	94.6		
#60	49.1		
#100	20.0		
#200	3.6		

\* (no specification provided)

**Material Description**  
SAND, (SP), fine grained, with shell

**Atterberg Limits**  
 PL=      LL=      PI=

**Coefficients**  
 D<sub>90</sub>= 0.3949      D<sub>85</sub>= 0.3698      D<sub>60</sub>= 0.2820  
 D<sub>50</sub>= 0.2526      D<sub>30</sub>= 0.1883      D<sub>15</sub>= 0.1288  
 D<sub>10</sub>= 0.1056      C<sub>u</sub>= 2.67      C<sub>c</sub>= 1.19

**Classification**  
 USCS= SP      AASHTO=

**Remarks**  
 CADD CODE = CH10D965

**Location:** USACE Sample # BI-GC-19-10D  
**Sample Number:** TE Lab ID: 4489.04

**Depth:** 15.0 - 19.0 (ft.)

**Date:** 5/28/10

**Thompson Engineering**  
  
**Mobile, Alabama**

**Client:** US Army Corps of Engineers  
**Project:** Contract No. W91278-10-D-0026 - Task 03  
 Mississippi Barrier Island Restoration Project  
**Project No:** 10-2123-0009

**Figure**

**Tested By:** G.Fancher

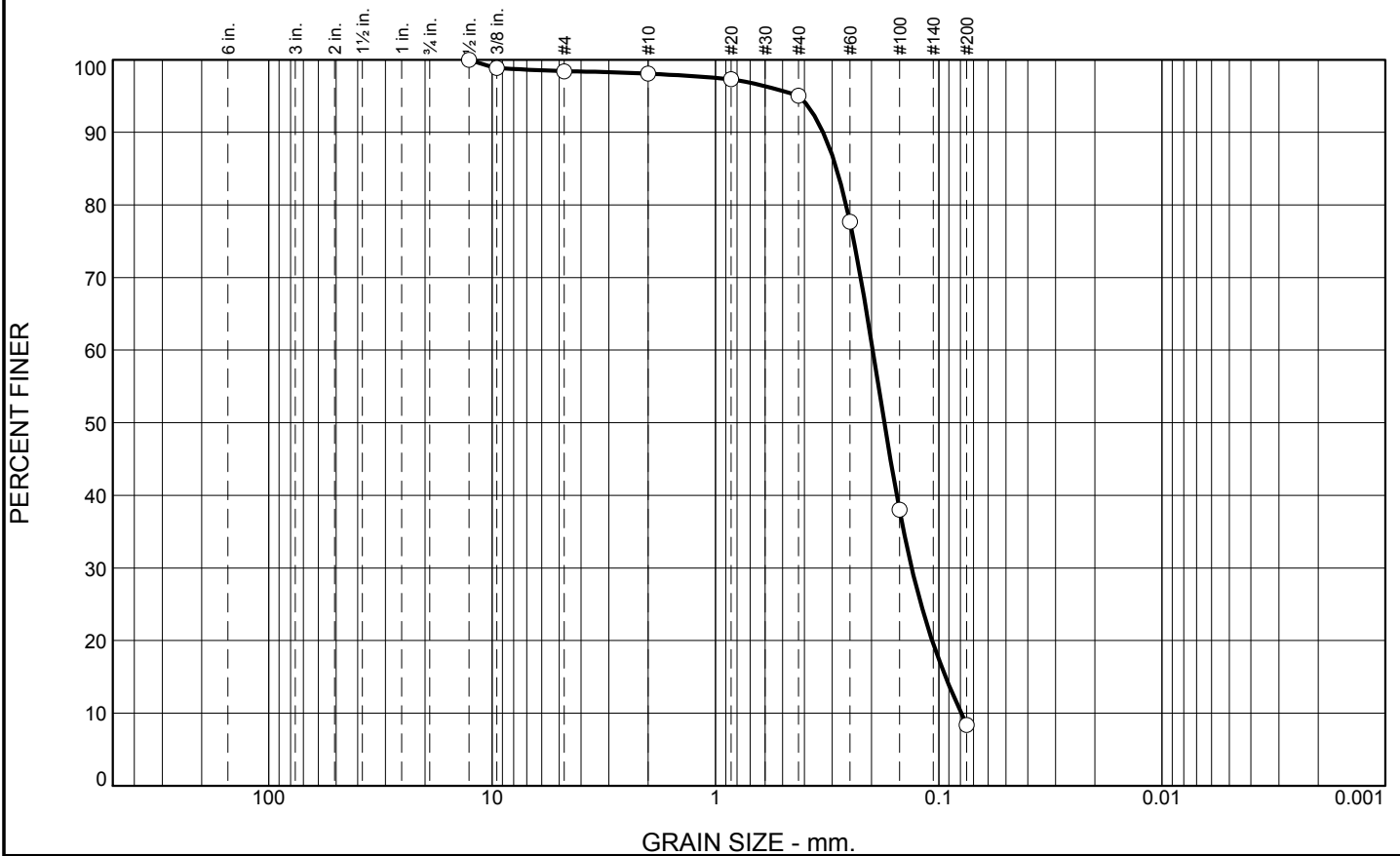
**Checked By:** R.Byrd

# Boring Designation BI-GC-20-10

DRILLING LOG		DIVISION South Atlantic		INSTALLATION Mobile District		SHEET 1 OF 2 SHEETS	
1. PROJECT MsCIP Barrier Island Restoration Gulfport Channel				9. SIZE AND TYPE OF BIT N/A			
2. BORING DESIGNATION BI-GC-20-10		LOCATION COORDINATES E = 932,458 N = 264,977		10. COORDINATE SYSTEM/DATUM State Plane, MSE (U.S. Ft.)		HORIZONTAL NAD83 VERTICAL NAVD88	
3. DRILLING AGENCY Corps of Engineers - CESAM		CONTRACTOR FILE NO.		11. MANUFACTURER'S DESIGNATION OF DRILL Vibracore		<input type="checkbox"/> AUTO HAMMER <input type="checkbox"/> MANUAL HAMMER	
4. NAME OF DRILLER Construction Solutions International, Inc.				12. TOTAL SAMPLES 2		DISTURBED 0 UNDISTURBED (UD)	
5. DIRECTION OF BORING <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED		DEG. FROM VERTICAL		13. TOTAL NUMBER CORE BOXES			
		BEARING		14. WATER DEPTH 20 Ft.			
6. THICKNESS OF OVERBURDEN N/A				15. DATE BORING 06-01-10		STARTED 06-01-10 COMPLETED 06-01-10	
7. DEPTH DRILLED INTO ROCK N/A				16. ELEVATION TOP OF BORING -18.7 Ft.			
8. TOTAL DEPTH OF BORING 19.5 Ft.				17. TOTAL RECOVERY FOR BORING 100%			
				18. SIGNATURE AND TITLE OF INSPECTOR Marty Gates, Geologist			
ELEV.	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS	SAMPLE	LABORATORY RESULTS		
-18.7	0.0		CLAY, lean, dark gray (CL)	NS			
-23.7	5.0		SAND, poorly-graded, mostly fine to medium-grained sand-sized quartz, little silt, trace shell fragments, lt. gray (SP)	A	Classification: SP-SM Color: 2.5Y 7/2-light gray D50: 0.1752 mm % Fines: 8.4		
-31.7	13.0			B	Classification: SP Color: 2.5Y 7/2-light gray D50: 0.1744 mm % Fines: 3.6		
-38.2	19.5		CLAY, lean, dark gray (CL)	NS			
			NOTES: 1. Soils are field visually classified in accordance with the Unified Soils Classification System. 2. NS = Sample not submitted for laboratory analysis from this interval. 3. Seafloor elevation calculated using sampling vessel's fathometer water depth reading and				

<b>DRILLING LOG (Cont. Sheet)</b>			<b>INSTALLATION</b> Mobile District		<b>SHEET 2</b> <b>OF 2 SHEETS</b>
<b>PROJECT</b> MsCIP Barrier Island Restoration			<b>COORDINATE SYSTEM/DATUM</b> State Plane, MSE (U.S. Ft.)	<b>HORIZONTAL</b> NAD83	<b>VERTICAL</b> NAVD88
<b>LOCATION COORDINATES</b> X = 932,458 Y = 264,977			<b>ELEVATION TOP OF BORING</b> -18.7 Ft.		
<b>ELEV.</b>	<b>DEPTH</b>	<b>LEGEND</b>	<b>CLASSIFICATION OF MATERIALS</b>	<b>SAMPLE</b>	<b>LABORATORY RESULTS</b>
			applying NOAA tidal gauge data conversion factor.		

# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	1.6	0.3	3.1	86.6	8.4	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
.500	100.0		
.375	98.9		
#4	98.4		
#10	98.1		
#20	97.3		
#40	95.0		
#60	77.7		
#100	38.0		
#200	8.4		

\* (no specification provided)

**Material Description**  
SAND, (SP-SM), fine grained

**Atterberg Limits**  
 PL=                      LL=                      PI=

**Coefficients**  
 D<sub>90</sub>= 0.3293      D<sub>85</sub>= 0.2870      D<sub>60</sub>= 0.1976  
 D<sub>50</sub>= 0.1752      D<sub>30</sub>= 0.1321      D<sub>15</sub>= 0.0932  
 D<sub>10</sub>= 0.0793      C<sub>u</sub>= 2.49              C<sub>c</sub>= 1.11

**Classification**  
 USCS= SP-SM                      AASHTO=

**Remarks**  
 CADD CODE = CH10D965

**Location:** USACE Sample # BI-GC-20-10A  
**Sample Number:** TE Lab ID: 4519.17

**Depth:** 5.0 - 9.0 (ft.)

**Date:** 6/12/10

**Thompson Engineering**  
  
**Mobile, Alabama**

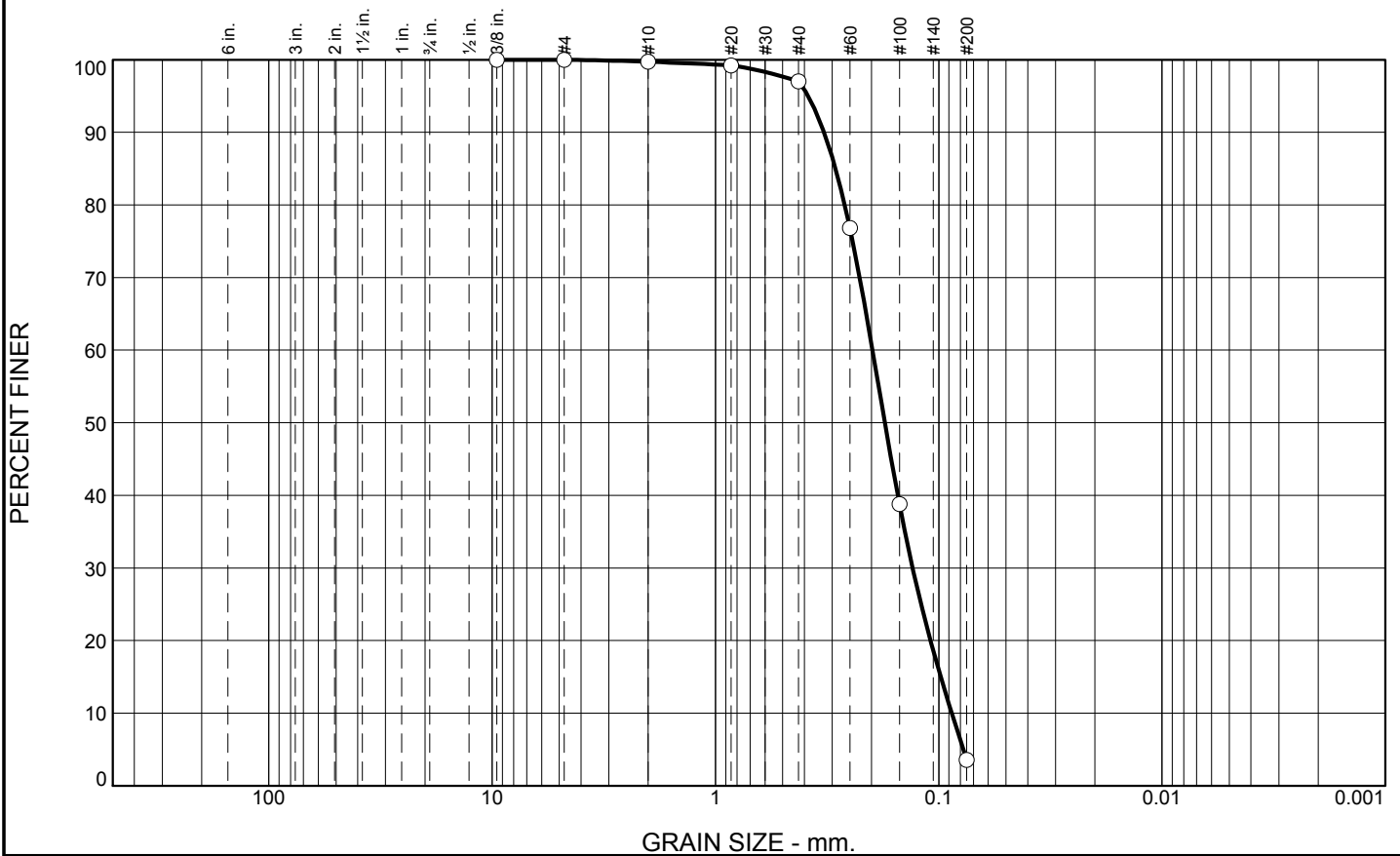
**Client:** US Army Corps of Engineers  
**Project:** Contract No. W91278-10-D-0026 - Task 03  
 Mississippi Barrier Island Restoration Project  
**Project No:** 10-2123-0009

**Figure**

**Tested By:** R.Martin

**Checked By:** R.Byrd

# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.0	0.3	2.7	93.4	3.6	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
.375	100.0		
#4	100.0		
#10	99.7		
#20	99.2		
#40	97.0		
#60	76.8		
#100	38.8		
#200	3.6		

\* (no specification provided)

Material Description		
SAND, (SP), fine grained		
<div> <div> Atterberg Limits </div> <div> PL= </div> <div> LL= </div> <div> PI= </div> </div>		
<div> <div> Coefficients </div> <div> D<sub>90</sub>= 0.3263 </div> <div> D<sub>50</sub>= 0.1744 </div> <div> D<sub>10</sub>= 0.0875 </div> <div> D<sub>85</sub>= 0.2899 </div> <div> D<sub>30</sub>= 0.1309 </div> <div> C<sub>u</sub>= 2.26 </div> <div> D<sub>60</sub>= 0.1981 </div> <div> D<sub>15</sub>= 0.0980 </div> <div> C<sub>c</sub>= 0.99 </div> </div>		
<div> <div> Classification </div> <div> USCS= SP </div> <div> AASHTO= </div> </div>		
<div> <div> Remarks </div> <div> CADD CODE = CH10D965 </div> </div>		

Location: USACE Sample # BI-GC-20-10B  
Sample Number: TE Lab ID: 4519.18

Depth: 9.0 - 13.0 (ft.)

Date: 6/12/10

**Thompson Engineering**  
**Mobile, Alabama**

**Client:** US Army Corps of Engineers  
**Project:** Contract No. W91278-10-D-0026 - Task 03  
Mississippi Barrier Island Restoration Project  
**Project No:** 10-2123-0009

**Figure**

Tested By: R.Martin

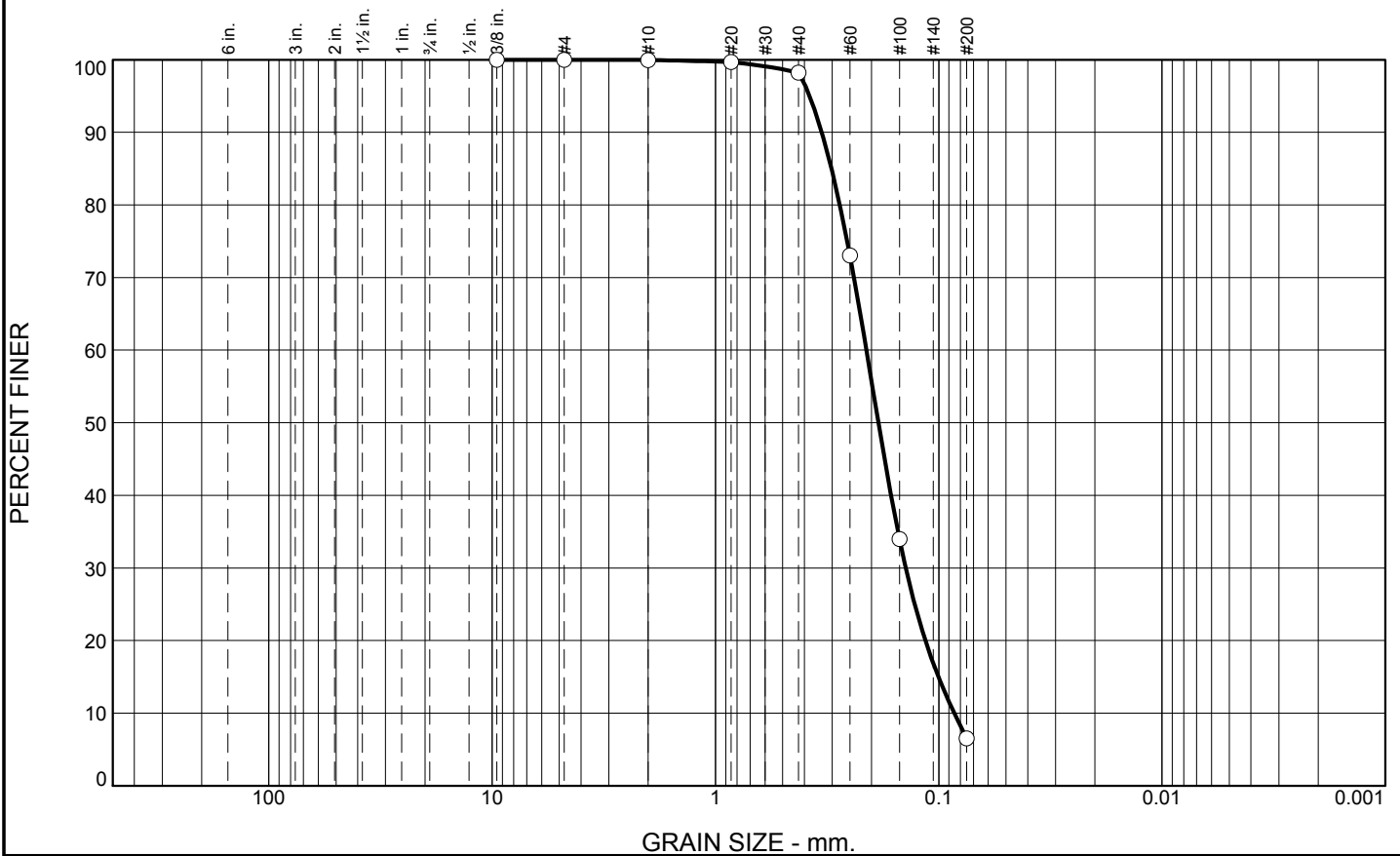
Checked By: R.Byrd

# Boring Designation BI-GC-21-10

DRILLING LOG		DIVISION South Atlantic		INSTALLATION Mobile District		SHEET 1 OF 1 SHEETS	
1. PROJECT MsCIP Barrier Island Restoration Gulfport Channel				9. SIZE AND TYPE OF BIT N/A			
2. BORING DESIGNATION BI-GC-21-10		LOCATION COORDINATES E = 932,486 N = 265,071		10. COORDINATE SYSTEM/DATUM State Plane, MSE (U.S. Ft.)		HORIZONTAL NAD83	
3. DRILLING AGENCY Corps of Engineers - CESAM		CONTRACTOR FILE NO.		11. MANUFACTURER'S DESIGNATION OF DRILL Vibrocure		<input type="checkbox"/> AUTO HAMMER <input type="checkbox"/> MANUAL HAMMER	
4. NAME OF DRILLER Construction Solutions International, Inc.				12. TOTAL SAMPLES 2		DISTURBED 0	
5. DIRECTION OF BORING <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED				13. TOTAL NUMBER CORE BOXES		14. WATER DEPTH 20 Ft.	
6. THICKNESS OF OVERBURDEN N/A				15. DATE BORING 06-01-10		STARTED 06-01-10	
7. DEPTH DRILLED INTO ROCK N/A				16. ELEVATION TOP OF BORING -18.8 Ft.		COMPLETED 06-01-10	
8. TOTAL DEPTH OF BORING 16.7 Ft.				17. TOTAL RECOVERY FOR BORING 100%			
				18. SIGNATURE AND TITLE OF INSPECTOR Marty Gates, Geologist			
ELEV.	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS	SAMPLE	LABORATORY RESULTS		
-18.8	0.0						
			CLAY, lean, dark gray (CL)	NS			
-21.8	3.0						
			SAND, silty, mostly fine to medium-grained sand-sized quartz, some silt, gray (SM)	A	Classification: SP-SM Color: 2.5Y 7/2-light gray D50: 0.1863 mm % Fines: 6.5		
-23.8	5.0						
			CLAY, lean, dark gray (CL)	NS			
-25.3	6.5						
			SAND, poorly-graded, mostly fine to medium-grained sand-sized quartz, little silt, trace shell fragments, lt. gray (SP)	B	Classification: SP-SM Color: 2.5Y 7/2-light gray D50: 0.1848 mm % Fines: 8.1		
-29.3	10.5						
			CLAY, lean, dark gray (CL)	NS			
-35.5	16.7						
			NOTES: 1. Soils are field visually classified in accordance with the Unified Soils Classification System. 2. NS = Sample not submitted for laboratory analysis from this interval. 3. Seafloor elevation calculated using sampling vessel's fathometer water depth reading and applying NOAA tidal gauge data conversion factor.				



# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.0	0.0	1.8	91.7	6.5	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
.375	100.0		
#4	100.0		
#10	100.0		
#20	99.7		
#40	98.2		
#60	73.0		
#100	34.0		
#200	6.5		

\* (no specification provided)

**Material Description**  
SAND, (SP-SM), fine grained

**Atterberg Limits**  
 PL=      LL=      PI=

**Coefficients**  
 D<sub>90</sub>= 0.3340      D<sub>85</sub>= 0.3022      D<sub>60</sub>= 0.2109  
 D<sub>50</sub>= 0.1863      D<sub>30</sub>= 0.1406      D<sub>15</sub>= 0.1004  
 D<sub>10</sub>= 0.0852      C<sub>u</sub>= 2.47      C<sub>c</sub>= 1.10

**Classification**  
 USCS= SP-SM      AASHTO=

**Remarks**  
 CADD CODE = CH10D965

**Location:** USACE Sample # BI-GC-21-10A  
**Sample Number:** TE Lab ID: 4519.15

**Depth:** 3.0 - 5.0 (ft.)

**Date:** 6/12/10

**Thompson Engineering**  
  
**Mobile, Alabama**

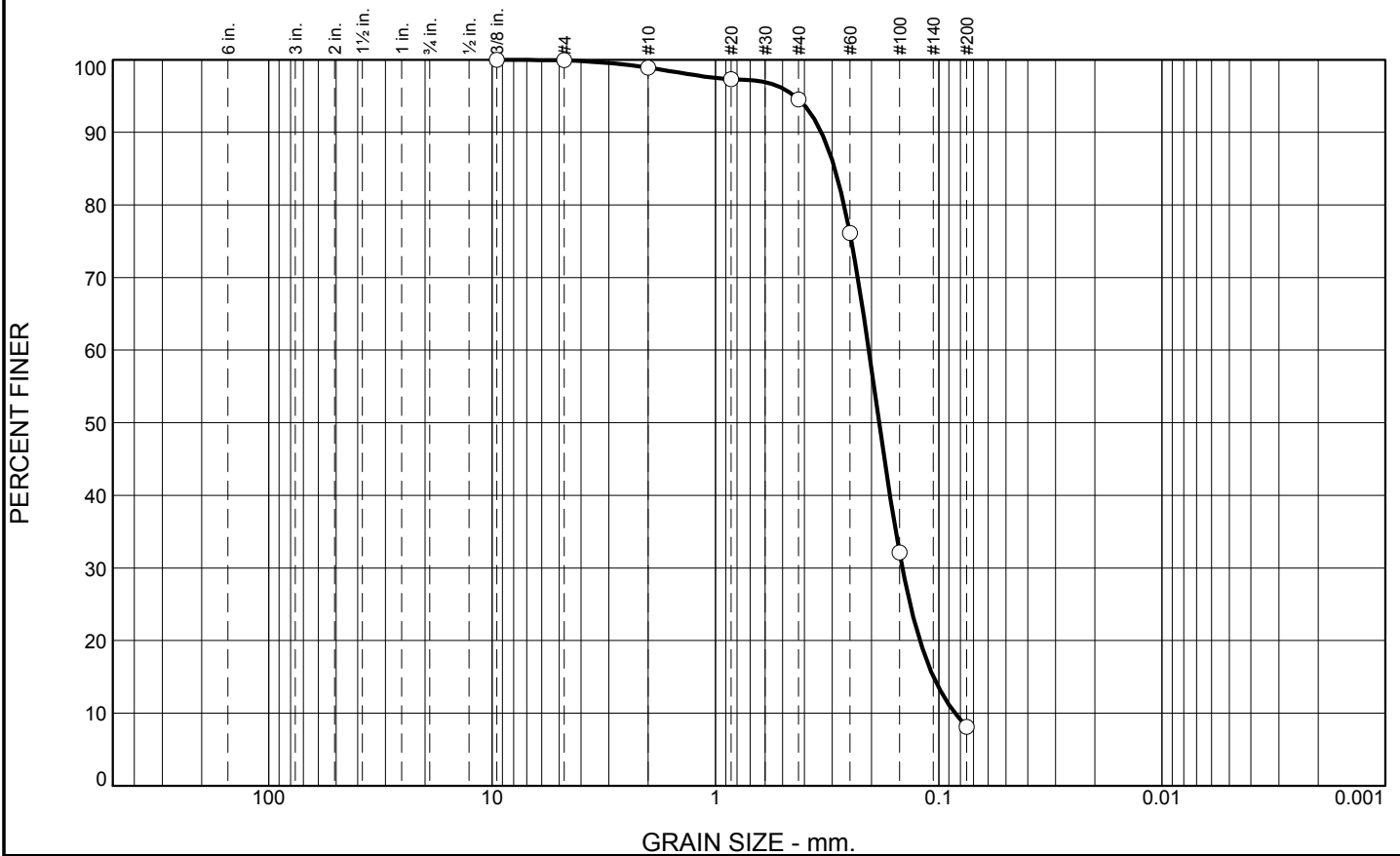
**Client:** US Army Corps of Engineers  
**Project:** Contract No. W91278-10-D-0026 - Task 03  
 Mississippi Barrier Island Restoration Project  
**Project No:** 10-2123-0009

**Figure**

**Tested By:** R.Martin

**Checked By:** R.Byrd

# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.1	1.0	4.4	86.4	8.1	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
.375	100.0		
#4	99.9		
#10	98.9		
#20	97.3		
#40	94.5		
#60	76.1		
#100	32.1		
#200	8.1		

\* (no specification provided)

<u>Material Description</u>		
SAND, (SP-SM), fine grained		
<u>Atterberg Limits</u>		
PL=	LL=	PI=
<u>Coefficients</u>		
D <sub>90</sub> = 0.3351	D <sub>85</sub> = 0.2921	D <sub>60</sub> = 0.2058
D <sub>50</sub> = 0.1848	D <sub>30</sub> = 0.1456	D <sub>15</sub> = 0.1056
D <sub>10</sub> = 0.0844	C <sub>u</sub> = 2.44	C <sub>c</sub> = 1.22
<u>Classification</u>		
USCS= SP-SM	AASHTO=	
<u>Remarks</u>		
CADD CODE = CH10D965		

Location: USACE Sample # BI-GC-21-10B  
Sample Number: TE Lab ID: 4519.16

Depth: 6.5 - 10.5 (ft.)

Date: 6/12/10

**Thompson Engineering**  
**Mobile, Alabama**

**Client:** US Army Corps of Engineers  
**Project:** Contract No. W91278-10-D-0026 - Task 03  
Mississippi Barrier Island Restoration Project  
**Project No:** 10-2123-0009

**Figure**

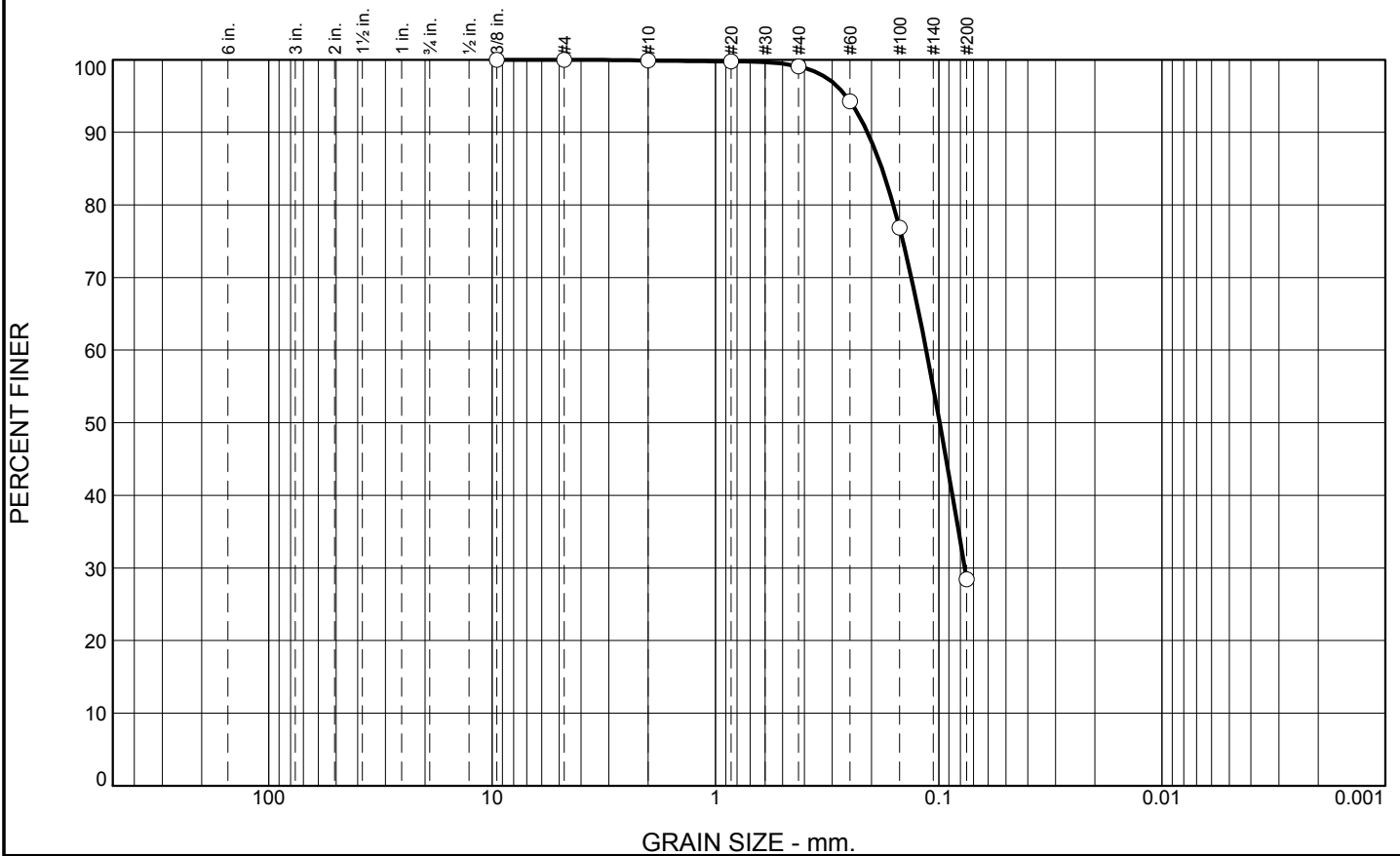
Tested By: R.Martin

Checked By: R.Byrd

# Boring Designation BI-GC-22-10

DRILLING LOG		DIVISION South Atlantic		INSTALLATION Mobile District		SHEET 1 OF 1 SHEETS	
1. PROJECT MsCIP Barrier Island Restoration Gulfport Channel				9. SIZE AND TYPE OF BIT N/A			
2. BORING DESIGNATION BI-GC-22-10		LOCATION COORDINATES E = 932,102 N = 265,712		10. COORDINATE SYSTEM/DATUM State Plane, MSE (U.S. Ft.)		HORIZONTAL NAD83 VERTICAL NAVD88	
3. DRILLING AGENCY Corps of Engineers - CESAM		CONTRACTOR FILE NO.		11. MANUFACTURER'S DESIGNATION OF DRILL Vibracore		<input type="checkbox"/> AUTO HAMMER <input type="checkbox"/> MANUAL HAMMER	
4. NAME OF DRILLER Construction Solutions International, Inc.				12. TOTAL SAMPLES 1		DISTURBED 1 UNDISTURBED (UD) 0	
5. DIRECTION OF BORING <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED		DEG. FROM VERTICAL		13. TOTAL NUMBER CORE BOXES			
		BEARING		14. WATER DEPTH 42 Ft.			
6. THICKNESS OF OVERBURDEN N/A				15. DATE BORING 06-10-10		STARTED 06-10-10 COMPLETED 06-10-10	
7. DEPTH DRILLED INTO ROCK N/A				16. ELEVATION TOP OF BORING -41.4 Ft.			
8. TOTAL DEPTH OF BORING 15.1 Ft.				17. TOTAL RECOVERY FOR BORING 100%			
				18. SIGNATURE AND TITLE OF INSPECTOR Marty Gates, Geologist			
ELEV.	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS	SAMPLE	LABORATORY RESULTS		
-41.4	0.0						
-43.9	2.5		CLAY, lean, dark gray (CL)	NS			
-48.4	7.0		SAND, silty, mostly fine to medium-grained sand-sized quartz, some silt, trace organic matter, lt. gray (SM)	A	Classification: SM Color: 2.5Y 5/2-grayish brown D50: 0.0991 mm % Fines: 28.4		
-56.5	15.1		CLAY, lean, dark gray (CL)	NS			
			NOTES:				
			1. Soils are field visually classified in accordance with the Unified Soils Classification System.				
			2. NS = Sample not submitted for laboratory analysis from this interval.				
			3. Seafloor elevation calculated using sampling vessel's fathometer water depth reading and applying NOAA tidal gauge data conversion factor.				

# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.0	0.1	0.8	70.7	28.4	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
.375	100.0		
#4	100.0		
#10	99.9		
#20	99.8		
#40	99.1		
#60	94.3		
#100	76.9		
#200	28.4		

\* (no specification provided)

<u>Material Description</u>		
SILTY SAND, (SM), fine grained		
<u>Atterberg Limits</u>		
PL=	LL=	PI=
<u>Coefficients</u>		
D <sub>90</sub> = 0.2086	D <sub>85</sub> = 0.1797	D <sub>60</sub> = 0.1138
D <sub>50</sub> = 0.0991	D <sub>30</sub> = 0.0765	D <sub>15</sub> =
D <sub>10</sub> =	C <sub>u</sub> =	C <sub>c</sub> =
<u>Classification</u>		
USCS= SM	AASHTO=	
<u>Remarks</u>		
CADD CODE = CH10D965		

Location: USACE Sample # BI-GC-22-10A  
Sample Number: TE Lab ID: 4538.36

Depth: 5.0 - 7.0 (ft.)

Date: 6/19/10

**Thompson Engineering**  
**Mobile, Alabama**

**Client:** US Army Corps of Engineers  
**Project:** Contract No. W91278-10-D-0026 - Task 03  
Mississippi Barrier Island Restoration Project  
**Project No:** 10-2123-0009

**Figure**

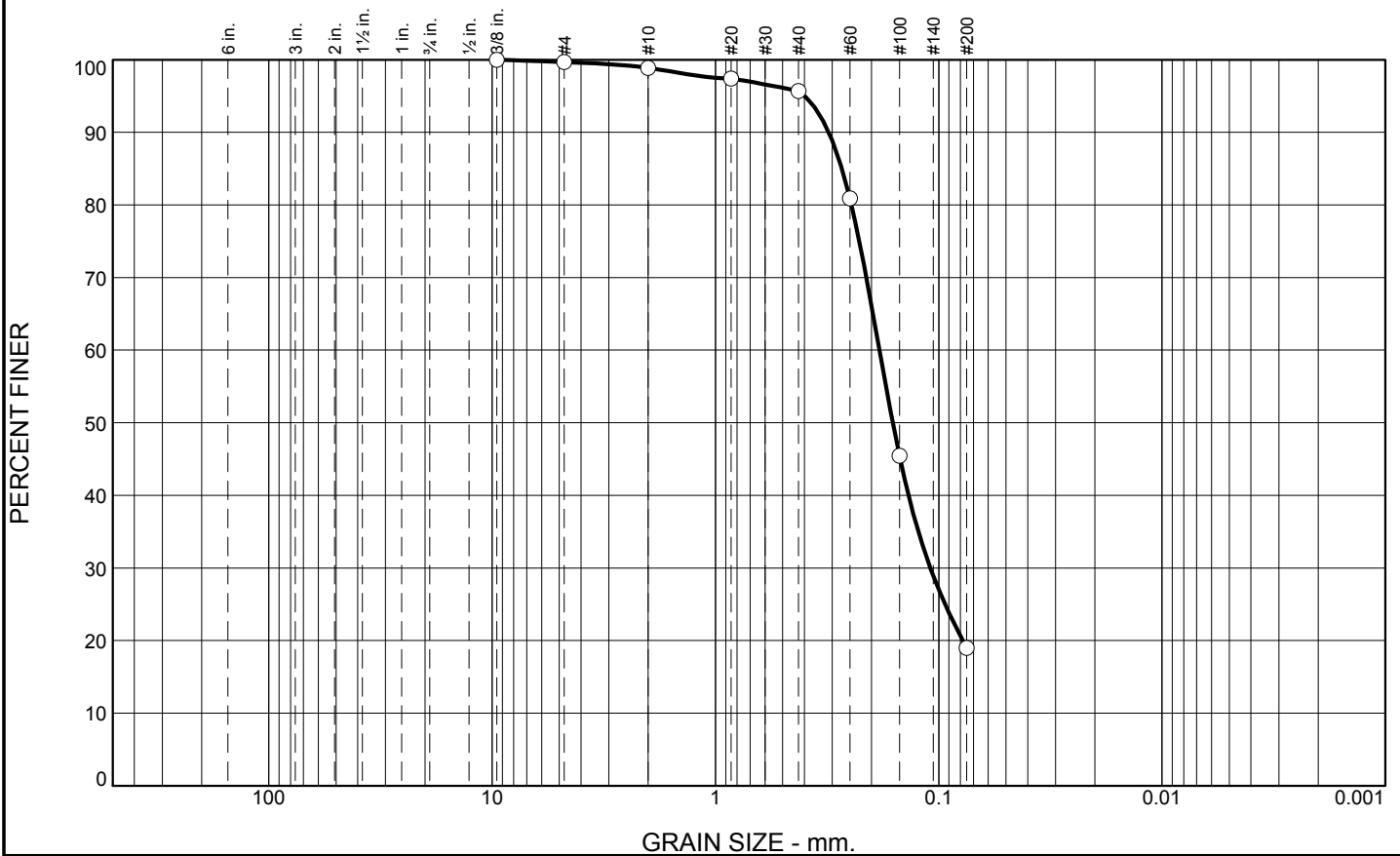
Tested By: R.Martin

Checked By: R.Byrd

# Boring Designation BI-GC-23-10

DRILLING LOG		DIVISION South Atlantic		INSTALLATION Mobile District		SHEET 1 OF 1 SHEETS	
1. PROJECT MsCIP Barrier Island Restoration Gulfport Channel				9. SIZE AND TYPE OF BIT N/A			
2. BORING DESIGNATION BI-GC-23-10		LOCATION COORDINATES E = 932,022 N = 265,043		10. COORDINATE SYSTEM/DATUM State Plane, MSE (U.S. Ft.)		HORIZONTAL NAD83	
3. DRILLING AGENCY Corps of Engineers - CESAM		CONTRACTOR FILE NO.		11. MANUFACTURER'S DESIGNATION OF DRILL Vibracore		<input type="checkbox"/> AUTO HAMMER <input type="checkbox"/> MANUAL HAMMER	
4. NAME OF DRILLER Construction Solutions International, Inc.				12. TOTAL SAMPLES 3		UNDISTURBED (UD) 0	
5. DIRECTION OF BORING <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED				13. TOTAL NUMBER CORE BOXES		14. WATER DEPTH 32 Ft.	
6. THICKNESS OF OVERBURDEN N/A				15. DATE BORING 06-10-10		COMPLETED 06-10-10	
7. DEPTH DRILLED INTO ROCK N/A				16. ELEVATION TOP OF BORING -31.3 Ft.		17. TOTAL RECOVERY FOR BORING 100%	
8. TOTAL DEPTH OF BORING 13.9 Ft.				18. SIGNATURE AND TITLE OF INSPECTOR Marty Gates, Geologist			
ELEV.	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS	SAMPLE	LABORATORY RESULTS		
-31.3	0.0						
			SAND, silty, mostly fine to medium-grained sand-sized quartz, some silt, trace shell fragments, gray (SM)  At El. -35.4 Ft., brown	A	Classification: SM Color: 2.5Y 5.5/2-brownish gray D50: 0.1607 mm % Fines: 19		
				B	Classification: SM Color: 2.5Y 6/2-light brownish gray D50: 0.1085 mm % Fines: 27.9		
-38.3	7.0						
			CLAY, lean, dark gray (CL)	NS			
-40.3	9.0						
			SAND, silty, mostly fine to medium-grained sand-sized quartz (SM)	C	Classification: SM Color: 2.5Y 6/2-light brownish gray D50: 0.0874 mm % Fines: 39.7		
-42.3	11.0						
			CLAY, lean, dark gray (CL)	NS			
-45.2	13.9						
NOTES: 1. Soils are field visually classified in accordance with the Unified Soils Classification System. 2. NS = Sample not submitted for laboratory analysis from this interval. 3. Seafloor elevation calculated using sampling vessel's fathometer water depth reading and applying NOAA tidal gauge data conversion factor.							

# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.3	0.8	3.2	76.7	19.0	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
.375	100.0		
#4	99.7		
#10	98.9		
#20	97.4		
#40	95.7		
#60	80.9		
#100	45.4		
#200	19.0		

\* (no specification provided)

**Material Description**  
SILTY SAND, (SM), fine grained

**Atterberg Limits**  
 PL=      LL=      PI=

**Coefficients**  
 D<sub>90</sub>= 0.3108      D<sub>85</sub>= 0.2714      D<sub>60</sub>= 0.1844  
 D<sub>50</sub>= 0.1607      D<sub>30</sub>= 0.1091      D<sub>15</sub>=  
 D<sub>10</sub>=      C<sub>u</sub>=      C<sub>c</sub>=

**Classification**  
 USCS= SM      AASHTO=

**Remarks**  
 CADD CODE = CH10D965

**Location:** USACE Sample # BI-GC-23-10A  
**Sample Number:** TE Lab ID: 4538.33

**Depth:** 0.0 - 4.1 (ft.)

**Date:** 6/19/10

**Thompson Engineering**  
  
**Mobile, Alabama**

**Client:** US Army Corps of Engineers  
**Project:** Contract No. W91278-10-D-0026 - Task 03  
 Mississippi Barrier Island Restoration Project  
**Project No:** 10-2123-0009

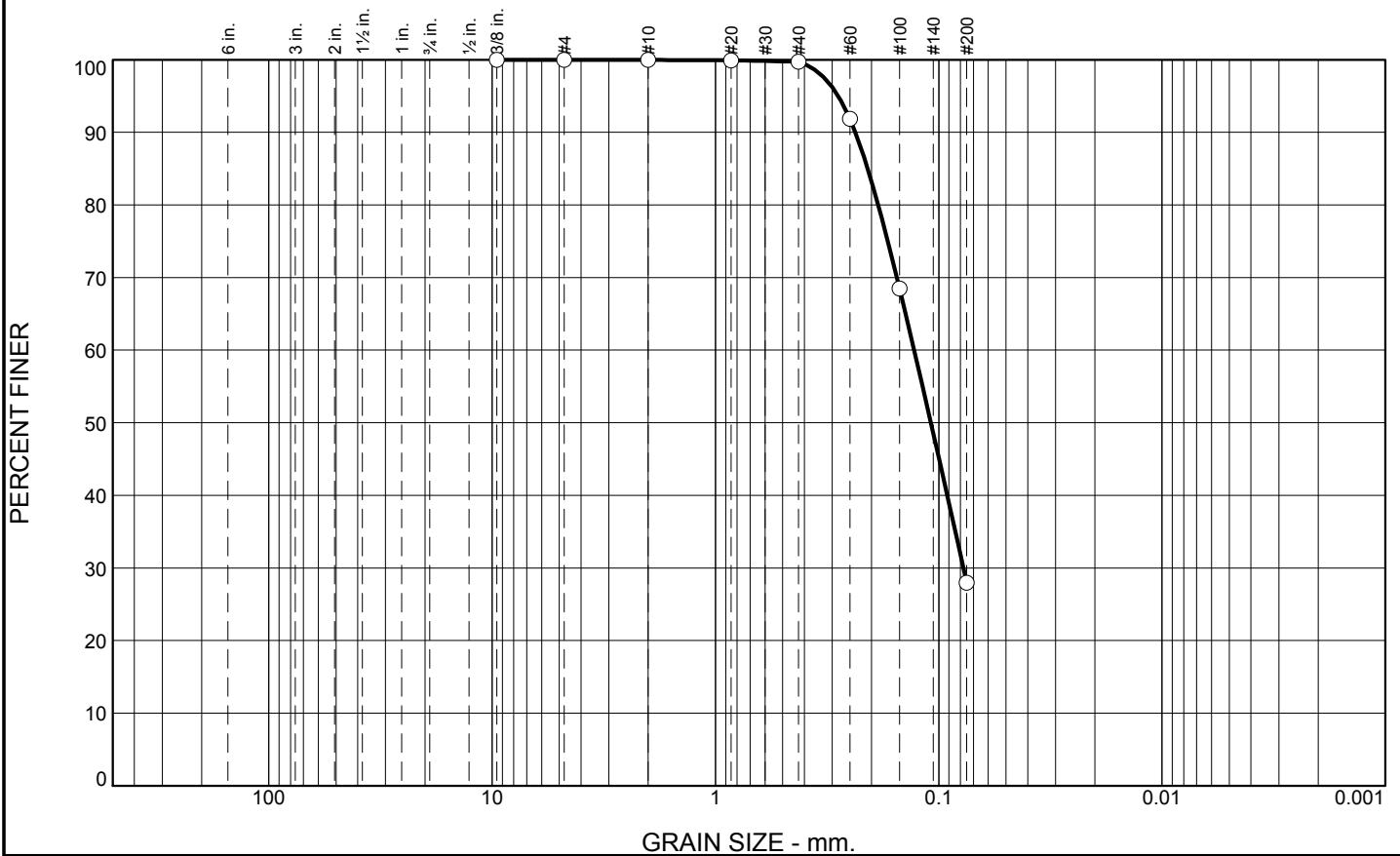
**Figure**

**Tested By:** R.Martin

**Checked By:** R.Byrd



# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.0	0.0	0.3	71.8	27.9	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
.375	100.0		
#4	100.0		
#10	100.0		
#20	99.9		
#40	99.7		
#60	91.8		
#100	68.5		
#200	27.9		

\* (no specification provided)

<u>Material Description</u>		
SILTY SAND, (SM), fine grained		
<u>Atterberg Limits</u>		
PL=	LL=	PI=
<u>Coefficients</u>		
D <sub>90</sub> = 0.2364	D <sub>85</sub> = 0.2082	D <sub>60</sub> = 0.1289
D <sub>50</sub> = 0.1085	D <sub>30</sub> = 0.0776	D <sub>15</sub> =
D <sub>10</sub> =	C <sub>u</sub> =	C <sub>c</sub> =
<u>Classification</u>		
USCS= SM	AASHTO=	
<u>Remarks</u>		
CADD CODE = CH10D965		

Location: USACE Sample # BI-GC-23-10B  
Sample Number: TE Lab ID: 4538.34

Depth: 4.1 - 7.0 (ft.)

Date: 6/19/10

**Thompson Engineering**  
**Mobile, Alabama**

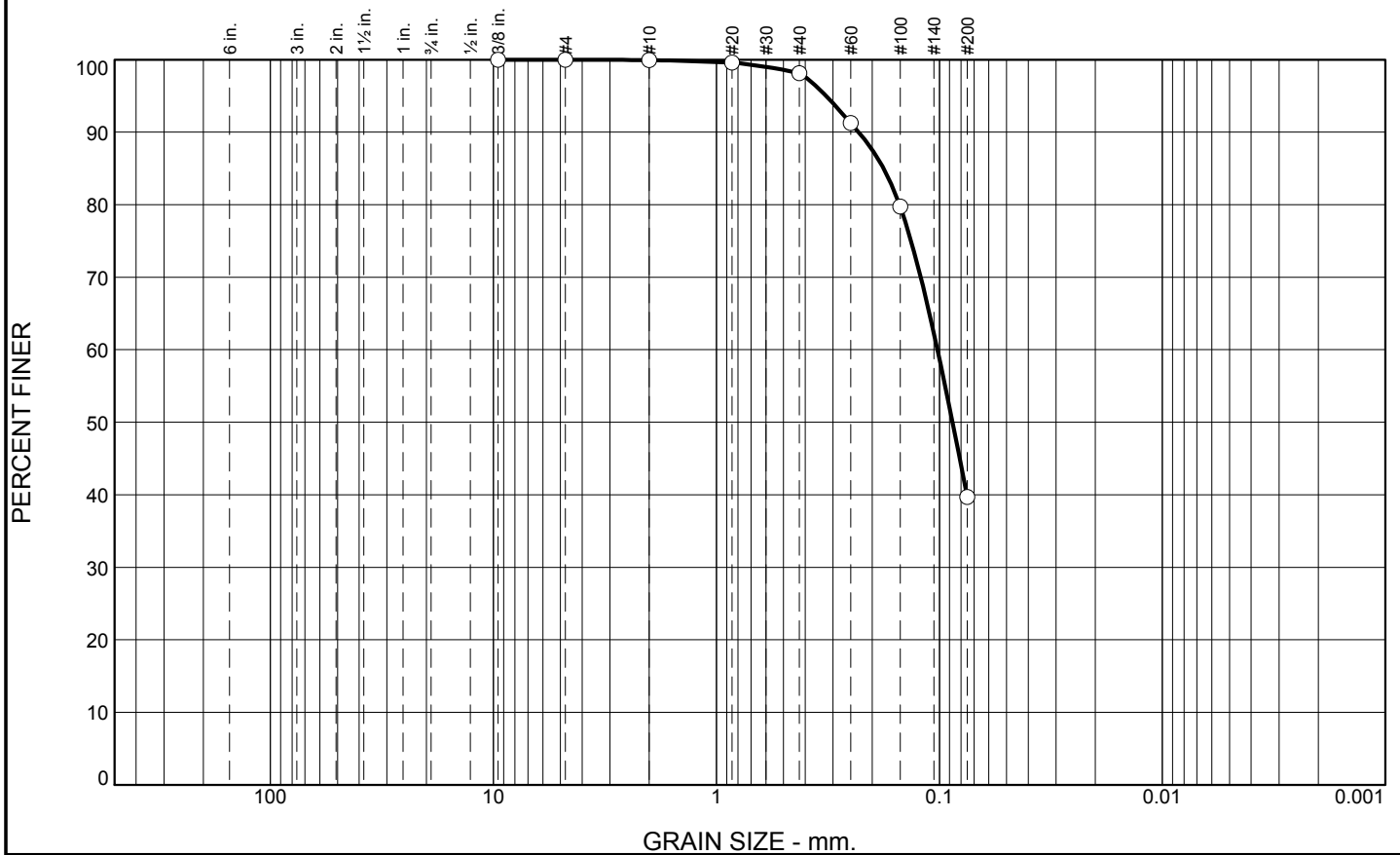
**Client:** US Army Corps of Engineers  
**Project:** Contract No. W91278-10-D-0026 - Task 03  
Mississippi Barrier Island Restoration Project  
**Project No:** 10-2123-0009

**Figure**

Tested By: R.Martin

Checked By: R.Byrd

# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.0	0.1	1.8	58.4	39.7	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
.375	100.0		
#4	100.0		
#10	99.9		
#20	99.6		
#40	98.1		
#60	91.2		
#100	79.8		
#200	39.7		

\* (no specification provided)

Material Description		
SILTY SAND, (SM), fine grained		
<div> <div> <b>Atterberg Limits</b>            PL=      LL=      PI=         </div> <div> <b>Coefficients</b>            D<sub>90</sub>= 0.2306      D<sub>85</sub>= 0.1779      D<sub>60</sub>= 0.1020            D<sub>50</sub>= 0.0874      D<sub>30</sub>=      D<sub>15</sub>=            D<sub>10</sub>=      C<sub>u</sub>=      C<sub>c</sub>=         </div> <div> <b>Classification</b>            USCS= SM      AASHTO=         </div> <div> <b>Remarks</b>            CADD CODE = CH10D965         </div> </div>		

Location: USACE Sample # BI-GC-23-10C  
Sample Number: TE Lab ID: 4538.35

Depth: 9.0 - 11.0 (ft.)

Date: 6/19/10

**Thompson Engineering**  
**Mobile, Alabama**

**Client:** US Army Corps of Engineers  
**Project:** Contract No. W91278-10-D-0026 - Task 03  
Mississippi Barrier Island Restoration Project  
**Project No:** 10-2123-0009

**Figure**

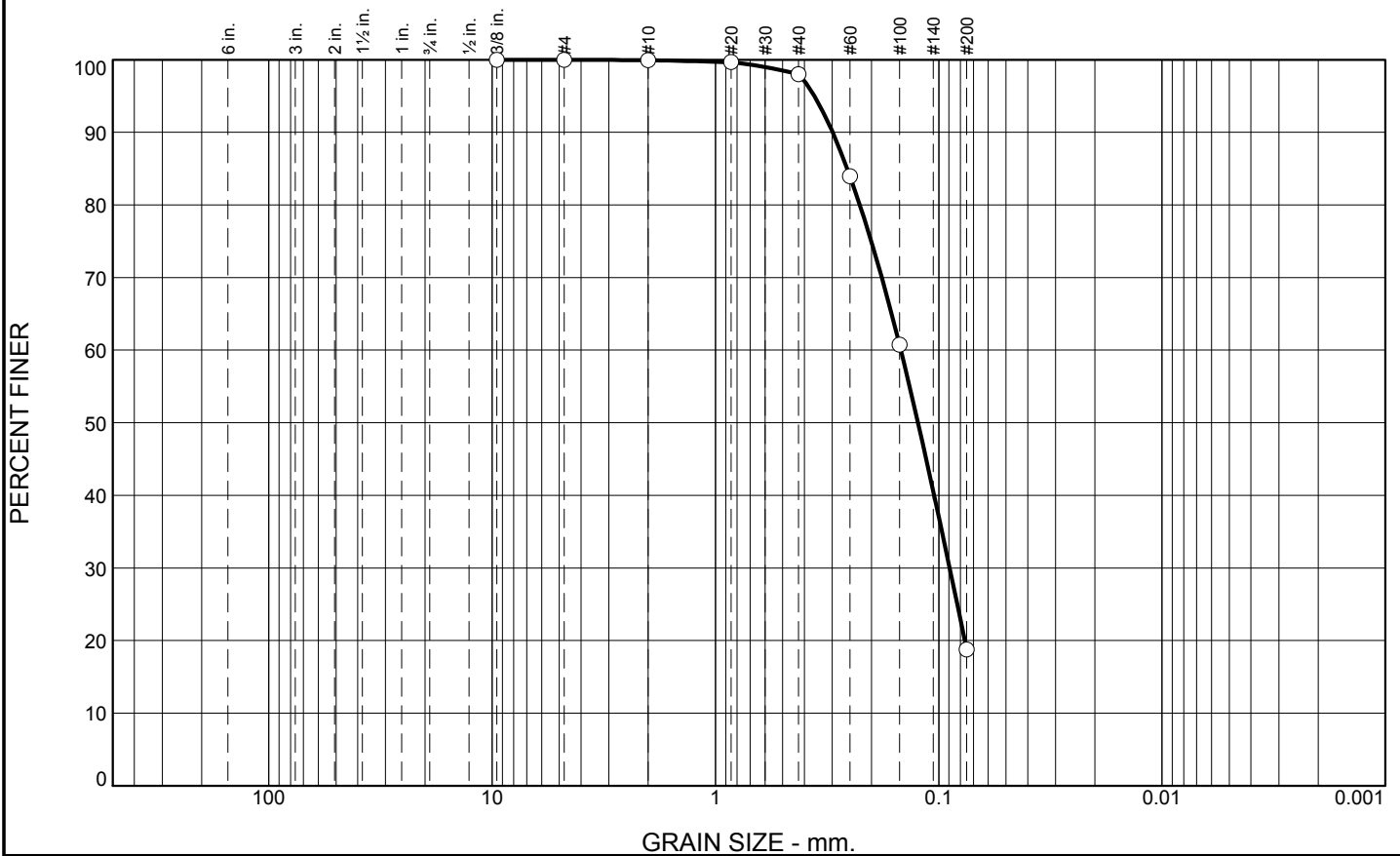
Tested By: R.Martin

Checked By: R.Byrd

# Boring Designation BI-GC-24-10

DRILLING LOG		DIVISION South Atlantic		INSTALLATION Mobile District		SHEET 1 OF 1 SHEETS	
1. PROJECT MsCIP Barrier Island Restoration Gulfport Channel				9. SIZE AND TYPE OF BIT N/A			
2. BORING DESIGNATION BI-GC-24-10		LOCATION COORDINATES E = 932,306 N = 264,955		10. COORDINATE SYSTEM/DATUM State Plane, MSE (U.S. Ft.)		HORIZONTAL NAD83 VERTICAL NAVD88	
3. DRILLING AGENCY Corps of Engineers - CESAM		CONTRACTOR FILE NO.		11. MANUFACTURER'S DESIGNATION OF DRILL Vibracore		<input type="checkbox"/> AUTO HAMMER <input type="checkbox"/> MANUAL HAMMER	
4. NAME OF DRILLER Construction Solutions International, Inc.				12. TOTAL SAMPLES		DISTURBED 1 UNDISTURBED (UD) 0	
5. DIRECTION OF BORING <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED		DEG. FROM VERTICAL		13. TOTAL NUMBER CORE BOXES			
		BEARING		14. WATER DEPTH 34 Ft.			
6. THICKNESS OF OVERBURDEN N/A				15. DATE BORING		STARTED 06-10-10 COMPLETED 06-10-10	
7. DEPTH DRILLED INTO ROCK N/A				16. ELEVATION TOP OF BORING -32.8 Ft.			
8. TOTAL DEPTH OF BORING 13.6 Ft.				17. TOTAL RECOVERY FOR BORING 100%			
				18. SIGNATURE AND TITLE OF INSPECTOR Marty Gates, Geologist			
ELEV.	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS	SAMPLE	LABORATORY RESULTS		
-32.8	0.0						
			CLAY, lean, dark gray (CL)	NS			
-38.2	5.4						
			SAND, silty, mostly fine to medium-grained sand-sized quartz, some silt, trace shell fragments, gray (SM)	A	Classification: SM Color: 2.5Y 5.5/2-brownish gray D50: 0.1239 mm % Fines: 18.8		
-42.3	9.5						
			CLAY, lean, dark gray (CL)	NS			
-46.4	13.6						
			NOTES: 1. Soils are field visually classified in accordance with the Unified Soils Classification System. 2. NS = Sample not submitted for laboratory analysis from this interval. 3. Seafloor elevation calculated using sampling vessel's fathometer water depth reading and applying NOAA tidal gauge data conversion factor.				

# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.0	0.1	1.9	79.2	18.8	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
.375	100.0		
#4	100.0		
#10	99.9		
#20	99.7		
#40	98.0		
#60	84.0		
#100	60.7		
#200	18.8		

\* (no specification provided)

Material Description		
SILTY SAND, (SM), fine grained		
<div> <div> <b>Atterberg Limits</b>            PL=      LL=      PI=         </div> <div> <b>Coefficients</b>            D<sub>90</sub>= 0.2986      D<sub>85</sub>= 0.2572      D<sub>60</sub>= 0.1479            D<sub>50</sub>= 0.1239      D<sub>30</sub>= 0.0894      D<sub>15</sub>=            D<sub>10</sub>=      C<sub>u</sub>=      C<sub>c</sub>=         </div> <div> <b>Classification</b>            USCS= SM      AASHTO=         </div> <div> <b>Remarks</b>            CADD CODE = CH10D965         </div> </div>		

Location: USACE Sample # BI-GC-24-10A  
Sample Number: TE Lab ID: 4538.30

Depth: 5.4 - 9.5 (ft.)

Date: 6/19/10

**Thompson Engineering**  
**Mobile, Alabama**

**Client:** US Army Corps of Engineers  
**Project:** Contract No. W91278-10-D-0026 - Task 03  
Mississippi Barrier Island Restoration Project  
**Project No:** 10-2123-0009

**Figure**

Tested By: R.Martin

Checked By: R.Byrd

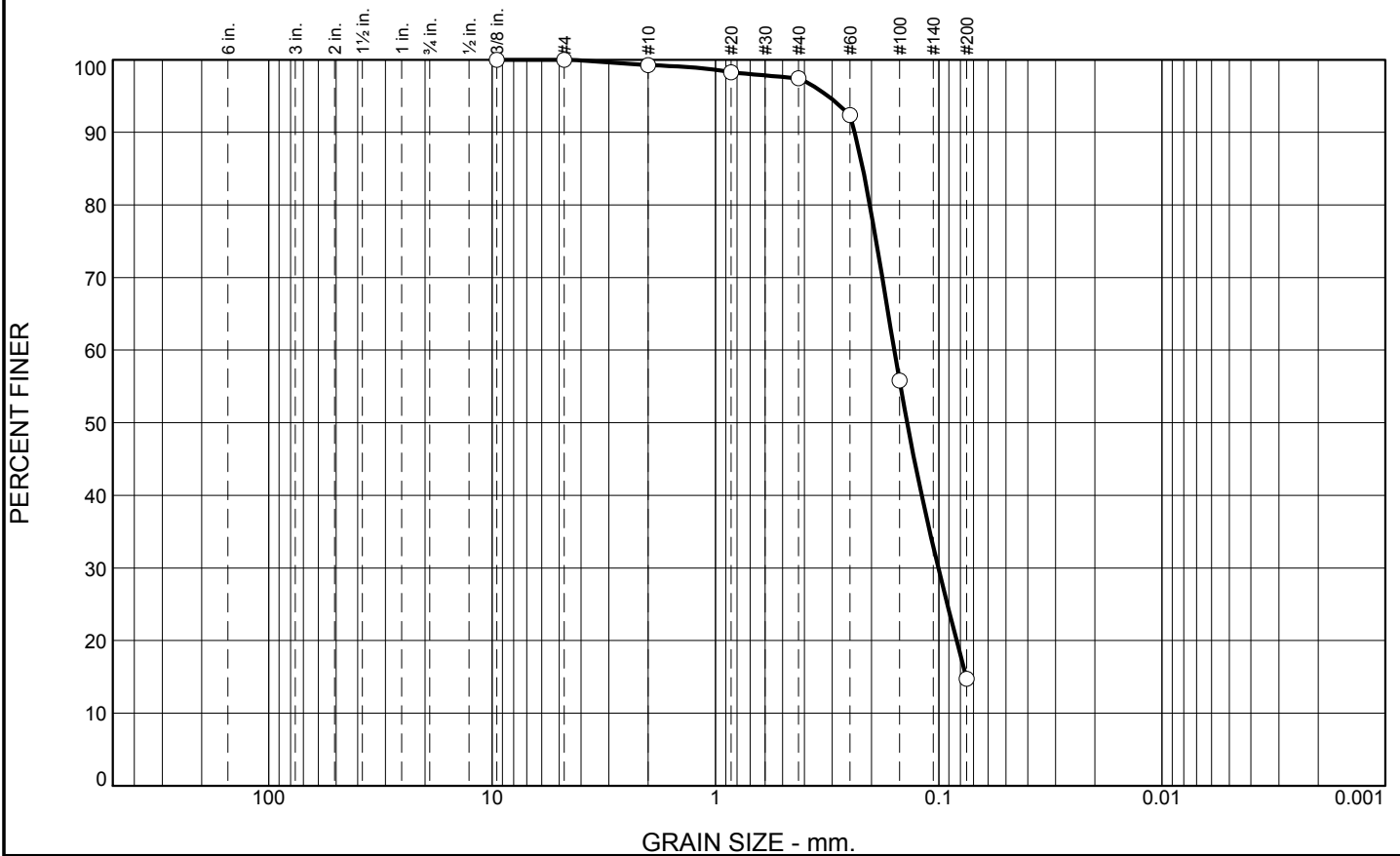
# Boring Designation BI-GC-25-10

DRILLING LOG		DIVISION South Atlantic		INSTALLATION Mobile District		SHEET 1 OF 2 SHEETS	
1. PROJECT MsCIP Barrier Island Restoration Gulfport Channel				9. SIZE AND TYPE OF BIT N/A			
2. BORING DESIGNATION BI-GC-25-10		LOCATION COORDINATES E = 932,107 N = 264,541		10. COORDINATE SYSTEM/DATUM State Plane, MSE (U.S. Ft.)		HORIZONTAL NAD83 VERTICAL NAVD88	
3. DRILLING AGENCY Corps of Engineers - CESAM		CONTRACTOR FILE NO.		11. MANUFACTURER'S DESIGNATION OF DRILL Vibracore		<input type="checkbox"/> AUTO HAMMER <input type="checkbox"/> MANUAL HAMMER	
4. NAME OF DRILLER Construction Solutions International, Inc.				12. TOTAL SAMPLES 2		DISTURBED 0 UNDISTURBED (UD)	
5. DIRECTION OF BORING <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED		DEG. FROM VERTICAL		13. TOTAL NUMBER CORE BOXES			
		BEARING		14. WATER DEPTH 19 Ft.			
6. THICKNESS OF OVERBURDEN N/A				15. DATE BORING 06-10-10		STARTED 06-10-10 COMPLETED 06-10-10	
7. DEPTH DRILLED INTO ROCK N/A				16. ELEVATION TOP OF BORING -18.0 Ft.			
8. TOTAL DEPTH OF BORING 19.9 Ft.				17. TOTAL RECOVERY FOR BORING 100%			
				18. SIGNATURE AND TITLE OF INSPECTOR Marty Gates, Geologist			
ELEV.	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS	SAMPLE	LABORATORY RESULTS		
-18.0	0.0						
			CLAY, lean, dark gray (CL)	NS			
-22.4	4.4						
			SAND, silty, mostly fine to medium-grained sand-sized quartz, some silt, trace shell fragments, gray (SM)	A	Classification: SM Color: 2.5Y 6/2-light brownish gray D50: 0.1386 mm % Fines: 14.7		
-28.0	10.0						
			SAND, poorly-graded, mostly fine to medium-grained sand-sized quartz, little silt, trace shell fragments, lt. gray (SP)	B	Classification: SP Color: 2.5Y 7/1-light gray D50: 0.1877 mm % Fines: 3.7		
-34.0	16.0						
			CLAY, lean, dark gray (CL)	NS			
-37.9	19.9						
			NOTES: 1. Soils are field visually classified in accordance with the Unified Soils Classification System. 2. NS = Sample not submitted for laboratory analysis from this interval. 3. Seafloor elevation calculated using sampling				

<b>DRILLING LOG (Cont. Sheet)</b>			<b>INSTALLATION</b> Mobile District		<b>SHEET 2</b> <b>OF 2 SHEETS</b>
<b>PROJECT</b> MsCIP Barrier Island Restoration			<b>COORDINATE SYSTEM/DATUM</b> State Plane, MSE (U.S. Ft.)	<b>HORIZONTAL</b> NAD83	<b>VERTICAL</b> NAVD88
<b>LOCATION COORDINATES</b> X = 932,107 Y = 264,541			<b>ELEVATION TOP OF BORING</b> -18.0 Ft.		
<b>ELEV.</b>	<b>DEPTH</b>	<b>LEGEND</b>	<b>CLASSIFICATION OF MATERIALS</b>	<b>SAMPLE</b>	<b>LABORATORY RESULTS</b>
			vessel's fathometer water depth reading and applying NOAA tidal gauge data conversion factor.		



# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.0	0.7	1.9	82.7	14.7	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
.375	100.0		
#4	100.0		
#10	99.3		
#20	98.2		
#40	97.4		
#60	92.4		
#100	55.8		
#200	14.7		

\* (no specification provided)

<u>Material Description</u>		
SILTY SAND, (SM), fine grained		
<u>Atterberg Limits</u>		
PL=	LL=	PI=
<u>Coefficients</u>		
D <sub>90</sub> = 0.2380	D <sub>85</sub> = 0.2188	D <sub>60</sub> = 0.1583
D <sub>50</sub> = 0.1386	D <sub>30</sub> = 0.1004	D <sub>15</sub> = 0.0754
D <sub>10</sub> =	C <sub>u</sub> =	C <sub>c</sub> =
<u>Classification</u>		
USCS= SM	AASHTO=	
<u>Remarks</u>		
CADD CODE = CH10D965		

Location: USACE Sample # BI-GC-25-10A  
Sample Number: TE Lab ID: 4538.31

Depth: 4.4 - 10.0 (ft.)

Date: 6/19/10

**Thompson Engineering**  
**Mobile, Alabama**

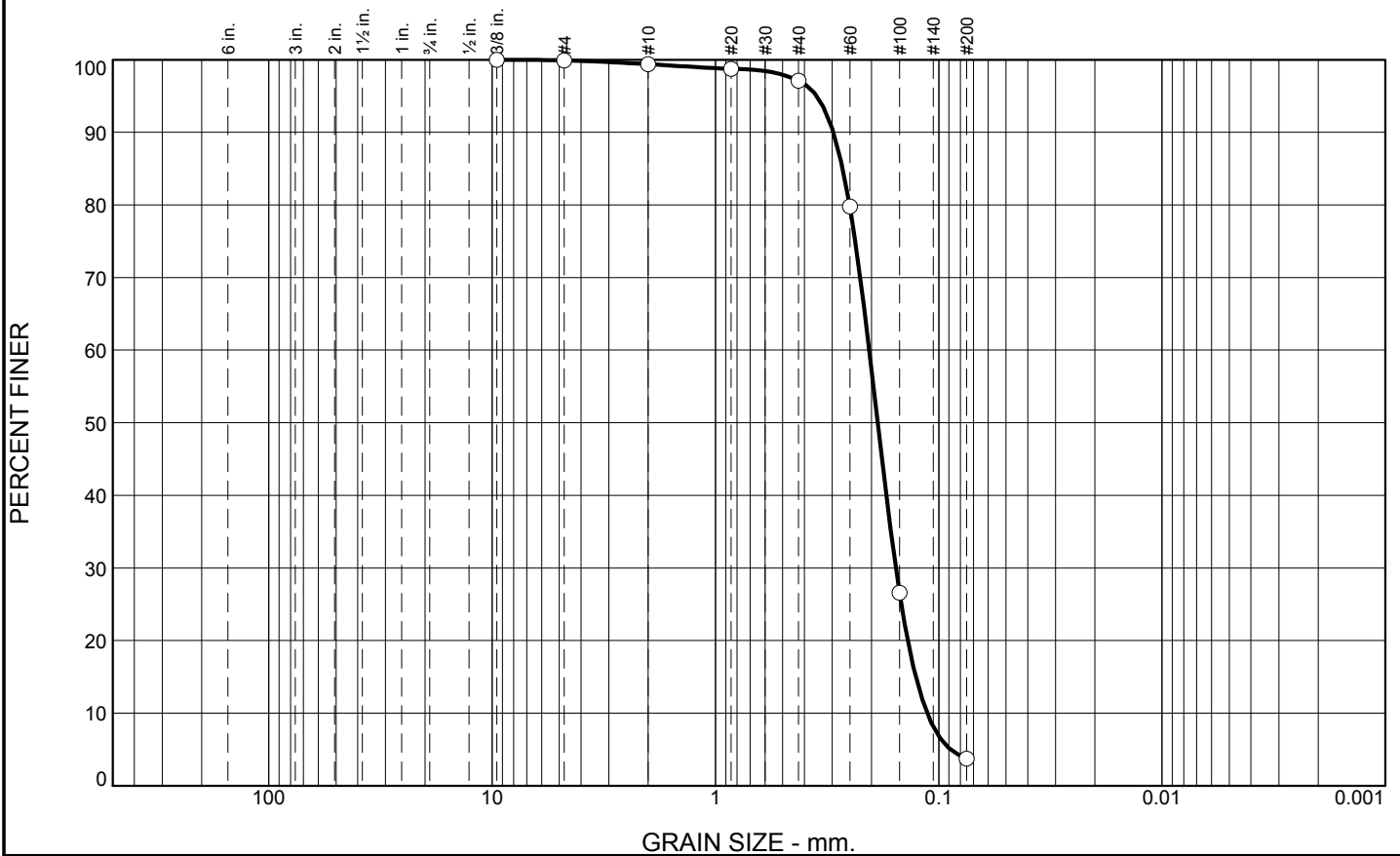
**Client:** US Army Corps of Engineers  
**Project:** Contract No. W91278-10-D-0026 - Task 03  
Mississippi Barrier Island Restoration Project  
**Project No:** 10-2123-0009

**Figure**

Tested By: R.Martin

Checked By: R.Byrd

# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.1	0.5	2.3	93.4	3.7	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
.375	100.0		
#4	99.9		
#10	99.4		
#20	98.8		
#40	97.1		
#60	79.8		
#100	26.6		
#200	3.7		

\* (no specification provided)

Material Description		
SAND, (SP), fine grained		
<div> <div> <b>Atterberg Limits</b>            PL=      LL=      PI=         </div> <div> <b>Coefficients</b>            D<sub>90</sub>= 0.2963      D<sub>85</sub>= 0.2692      D<sub>60</sub>= 0.2049            D<sub>50</sub>= 0.1877      D<sub>30</sub>= 0.1558      D<sub>15</sub>= 0.1267            D<sub>10</sub>= 0.1127      C<sub>u</sub>= 1.82      C<sub>c</sub>= 1.05         </div> <div> <b>Classification</b>            USCS= SP      AASHTO=         </div> <div> <b>Remarks</b>            CADD CODE = CH10D965         </div> </div>		

**Location:** USACE Sample # BI-GC-25-10B  
**Sample Number:** TE Lab ID: 4538.32

**Depth:** 10.0 - 16.0 (ft.)

**Date:** 6/19/10

**Thompson Engineering**  
  
**Mobile, Alabama**

**Client:** US Army Corps of Engineers  
**Project:** Contract No. W91278-10-D-0026 - Task 03  
 Mississippi Barrier Island Restoration Project  
**Project No:** 10-2123-0009

**Figure**

**Tested By:** R.Martin

**Checked By:** R.Byrd

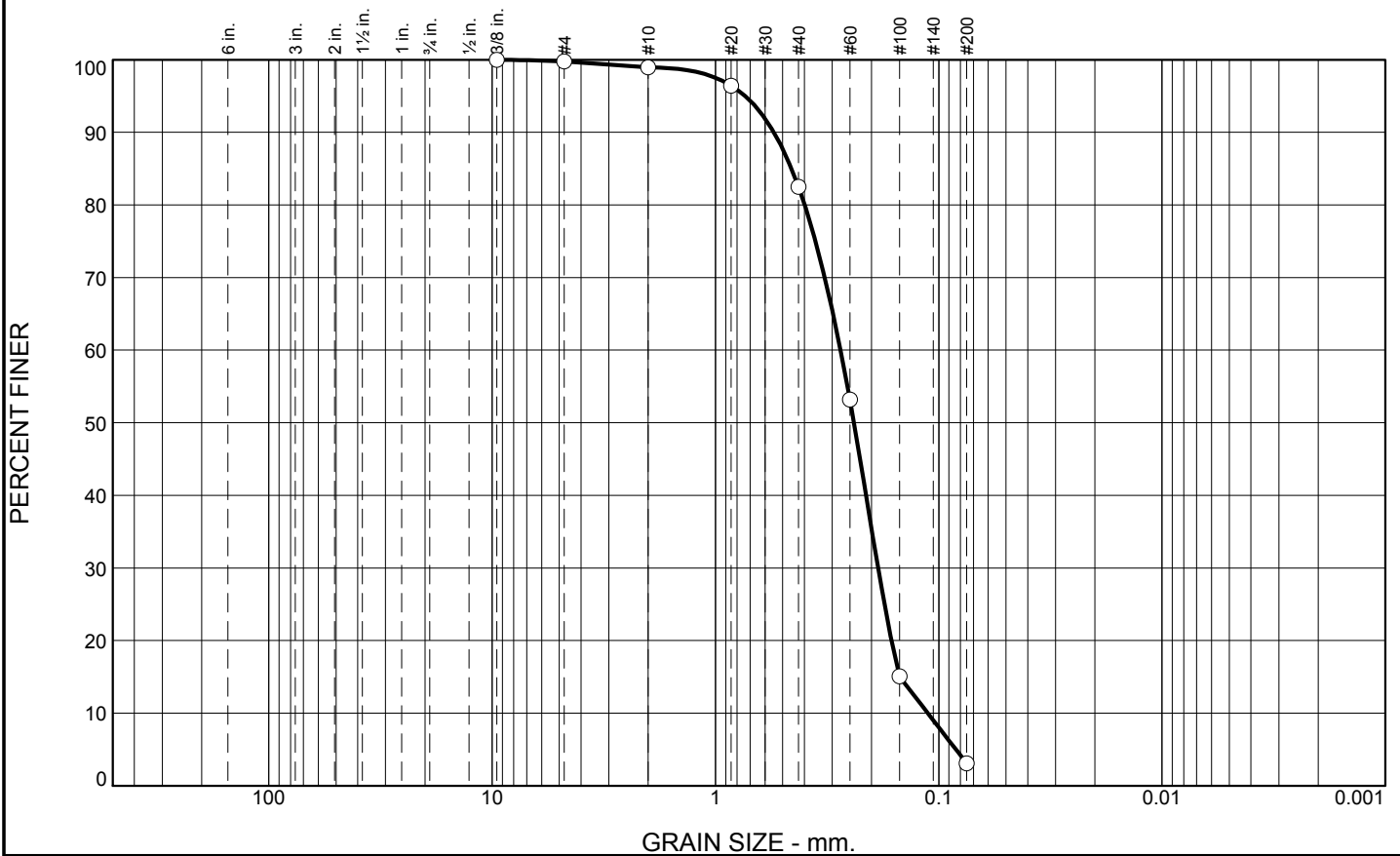
# Boring Designation BI-GC-26-10

DRILLING LOG		DIVISION South Atlantic		INSTALLATION Mobile District		SHEET 1 OF 1 SHEETS	
1. PROJECT MsCIP Barrier Island Restoration Gulfport Channel				9. SIZE AND TYPE OF BIT N/A			
2. BORING DESIGNATION BI-GC-26-10		LOCATION COORDINATES E = 932,406 N = 264,289		10. COORDINATE SYSTEM/DATUM State Plane, MSE (U.S. Ft.)		HORIZONTAL NAD83 VERTICAL NAVD88	
3. DRILLING AGENCY Corps of Engineers - CESAM		CONTRACTOR FILE NO.		11. MANUFACTURER'S DESIGNATION OF DRILL Vibracore		<input type="checkbox"/> AUTO HAMMER <input type="checkbox"/> MANUAL HAMMER	
4. NAME OF DRILLER Construction Solutions International, Inc.		12. TOTAL SAMPLES		DISTURBED 0		UNDISTURBED (UD) 0	
5. DIRECTION OF BORING <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED		DEG. FROM VERTICAL		BEARING		13. TOTAL NUMBER CORE BOXES	
6. THICKNESS OF OVERBURDEN N/A		14. WATER DEPTH 43 Ft.		15. DATE BORING 06-10-10		STARTED 06-10-10 COMPLETED 06-10-10	
7. DEPTH DRILLED INTO ROCK N/A		16. ELEVATION TOP OF BORING -41.9 Ft.		17. TOTAL RECOVERY FOR BORING 100%		18. SIGNATURE AND TITLE OF INSPECTOR Marty Gates, Geologist	
8. TOTAL DEPTH OF BORING 16.3 Ft.							
ELEV.	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS	SAMPLE	LABORATORY RESULTS		
-41.9	0.0		CLAY, lean, dark gray (CL)				
				NS			
-58.2	16.3						
			NOTES:				
			1. Soils are field visually classified in accordance with the Unified Soils Classification System.				
			2. NS = Sample not submitted for laboratory analysis from this interval.				
			3. Seafloor elevation calculated using sampling vessel's fathometer water depth reading and applying NOAA tidal gauge data conversion factor.				

# Boring Designation BI-GC-27-10

DRILLING LOG		DIVISION South Atlantic		INSTALLATION Mobile District		SHEET 1 OF 1 SHEETS	
1. PROJECT MsCIP Barrier Island Restoration Gulfport Channel				9. SIZE AND TYPE OF BIT N/A			
2. BORING DESIGNATION BI-GC-27-10		LOCATION COORDINATES E = 932,103 N = 263,977		10. COORDINATE SYSTEM/DATUM State Plane, MSE (U.S. Ft.)		HORIZONTAL NAD83 VERTICAL NAVD88	
3. DRILLING AGENCY Corps of Engineers - CESAM		CONTRACTOR FILE NO.		11. MANUFACTURER'S DESIGNATION OF DRILL Vibracore		<input type="checkbox"/> AUTO HAMMER <input type="checkbox"/> MANUAL HAMMER	
4. NAME OF DRILLER Construction Solutions International, Inc.				12. TOTAL SAMPLES 2		DISTURBED 0 UNDISTURBED (UD)	
5. DIRECTION OF BORING <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED		DEG. FROM VERTICAL		13. TOTAL NUMBER CORE BOXES			
		BEARING		14. WATER DEPTH 21 Ft.			
6. THICKNESS OF OVERBURDEN N/A				15. DATE BORING 06-11-10		STARTED 06-11-10 COMPLETED 06-11-10	
7. DEPTH DRILLED INTO ROCK N/A				16. ELEVATION TOP OF BORING -18.9 Ft.			
8. TOTAL DEPTH OF BORING 16.9 Ft.				17. TOTAL RECOVERY FOR BORING 100%			
				18. SIGNATURE AND TITLE OF INSPECTOR Marty Gates, Geologist			
ELEV.	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS	SAMPLE	LABORATORY RESULTS		
-18.9	0.0						
			SAND, poorly-graded, mostly fine to medium-grained sand-sized quartz, trace silt, trace shell fragments, lt. gray (SP)	A	Classification: SP Color: 2.5Y 7/1-light gray D50: 0.2398 mm % Fines: 3.1		
				B	Classification: SP-SM Color: 5Y 7/1-light gray D50: 0.2513 mm % Fines: 5.5		
-30.7	11.8		CLAY, lean, dark gray (CL)	NS			
-35.8	16.9						
			NOTES: 1. Soils are field visually classified in accordance with the Unified Soils Classification System. 2. NS = Sample not submitted for laboratory analysis from this interval. 3. Seafloor elevation calculated using sampling vessel's fathometer water depth reading and applying NOAA tidal gauge data conversion factor.				

# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.3	0.7	16.5	79.4	3.1	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
.375	100.0		
#4	99.7		
#10	99.0		
#20	96.4		
#40	82.5		
#60	53.2		
#100	15.1		
#200	3.1		

\* (no specification provided)

<u><b>Material Description</b></u>		
SAND, (SP), medium to fine grained		
<u><b>Atterberg Limits</b></u>		
PL=	LL=	PI=
<u><b>Coefficients</b></u>		
D <sub>90</sub> = 0.5474	D <sub>85</sub> = 0.4567	D <sub>60</sub> = 0.2752
D <sub>50</sub> = 0.2398	D <sub>30</sub> = 0.1869	D <sub>15</sub> = 0.1495
D <sub>10</sub> = 0.1120	C <sub>u</sub> = 2.46	C <sub>c</sub> = 1.13
<u><b>Classification</b></u>		
USCS= SP	AASHTO=	
<u><b>Remarks</b></u>		
CADD CODE = CH10D965		

Location: USACE Sample # BI-GC-27-10A  
Sample Number: TE Lab ID: 4538.44

Depth: 0.0 - 6.0 (ft.)

Date: 6/19/10

**Thompson Engineering**  
**Mobile, Alabama**

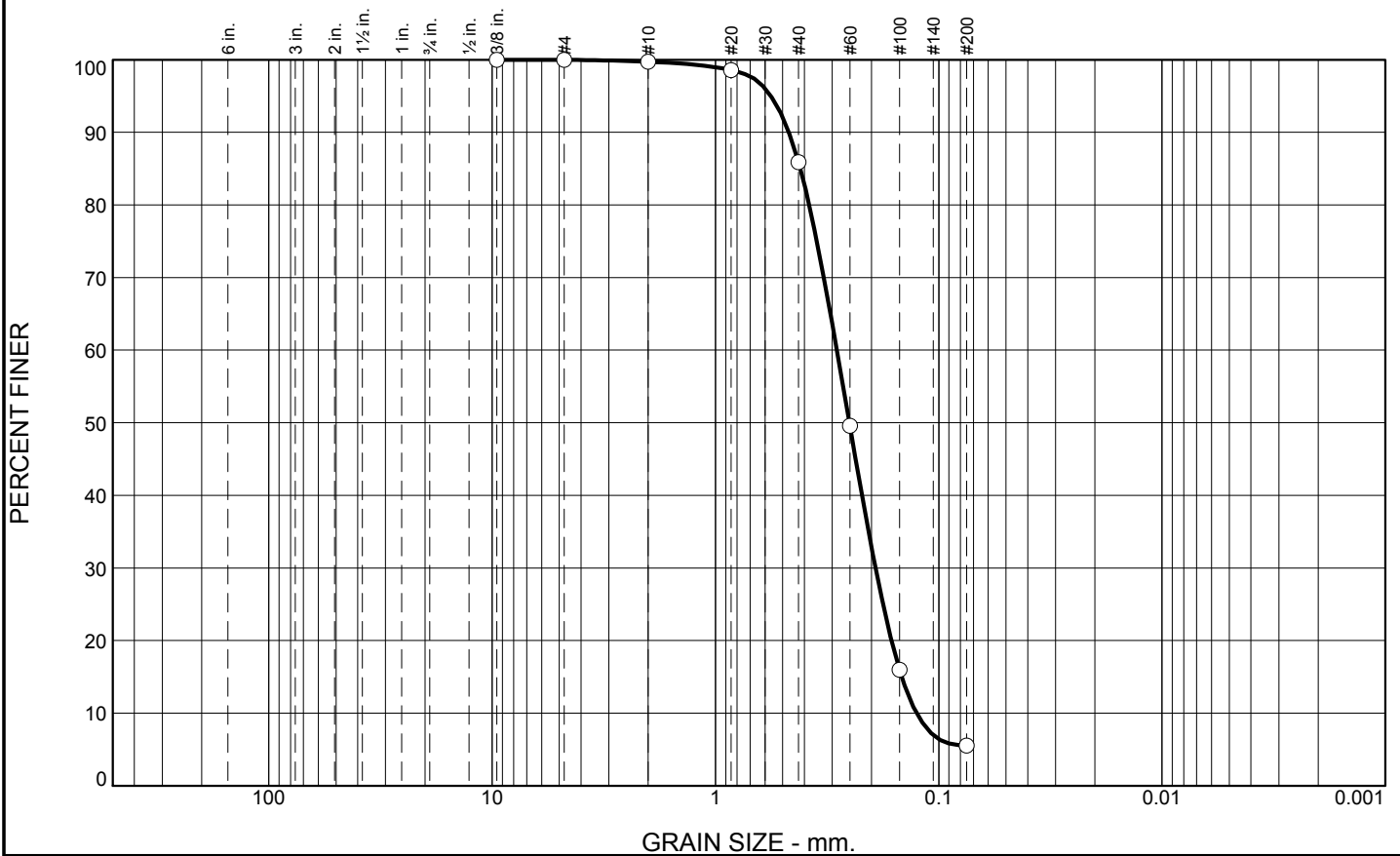
**Client:** US Army Corps of Engineers  
**Project:** Contract No. W91278-10-D-0026 - Task 03  
Mississippi Barrier Island Restoration Project  
**Project No:** 10-2123-0009

**Figure**

Tested By: R.Martin

Checked By: R.Byrd

# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.0	0.3	13.8	80.4	5.5	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
.375	100.0		
#4	100.0		
#10	99.7		
#20	98.6		
#40	85.9		
#60	49.6		
#100	16.0		
#200	5.5		

\* (no specification provided)

<u><b>Material Description</b></u>		
SAND, (SP-SM), medium to fine grained		
<u><b>Atterberg Limits</b></u>		
PL=	LL=	PI=
<u><b>Coefficients</b></u>		
D <sub>90</sub> = 0.4691	D <sub>85</sub> = 0.4172	D <sub>60</sub> = 0.2859
D <sub>50</sub> = 0.2513	D <sub>30</sub> = 0.1919	D <sub>15</sub> = 0.1466
D <sub>10</sub> = 0.1257	C <sub>u</sub> = 2.27	C <sub>c</sub> = 1.02
<u><b>Classification</b></u>		
USCS= SP-SM	AASHTO=	
<u><b>Remarks</b></u>		
CADD CODE = CH10D965		

Location: USACE Sample # BI-GC-27-10B  
Sample Number: TE Lab ID: 4538.45

Depth: 6.0 - 11.8 (ft.)

Date: 6/19/10

**Thompson Engineering**  
**Mobile, Alabama**

**Client:** US Army Corps of Engineers  
**Project:** Contract No. W91278-10-D-0026 - Task 03  
Mississippi Barrier Island Restoration Project  
**Project No:** 10-2123-0009

**Figure**

Tested By: R.Martin

Checked By: R.Byrd

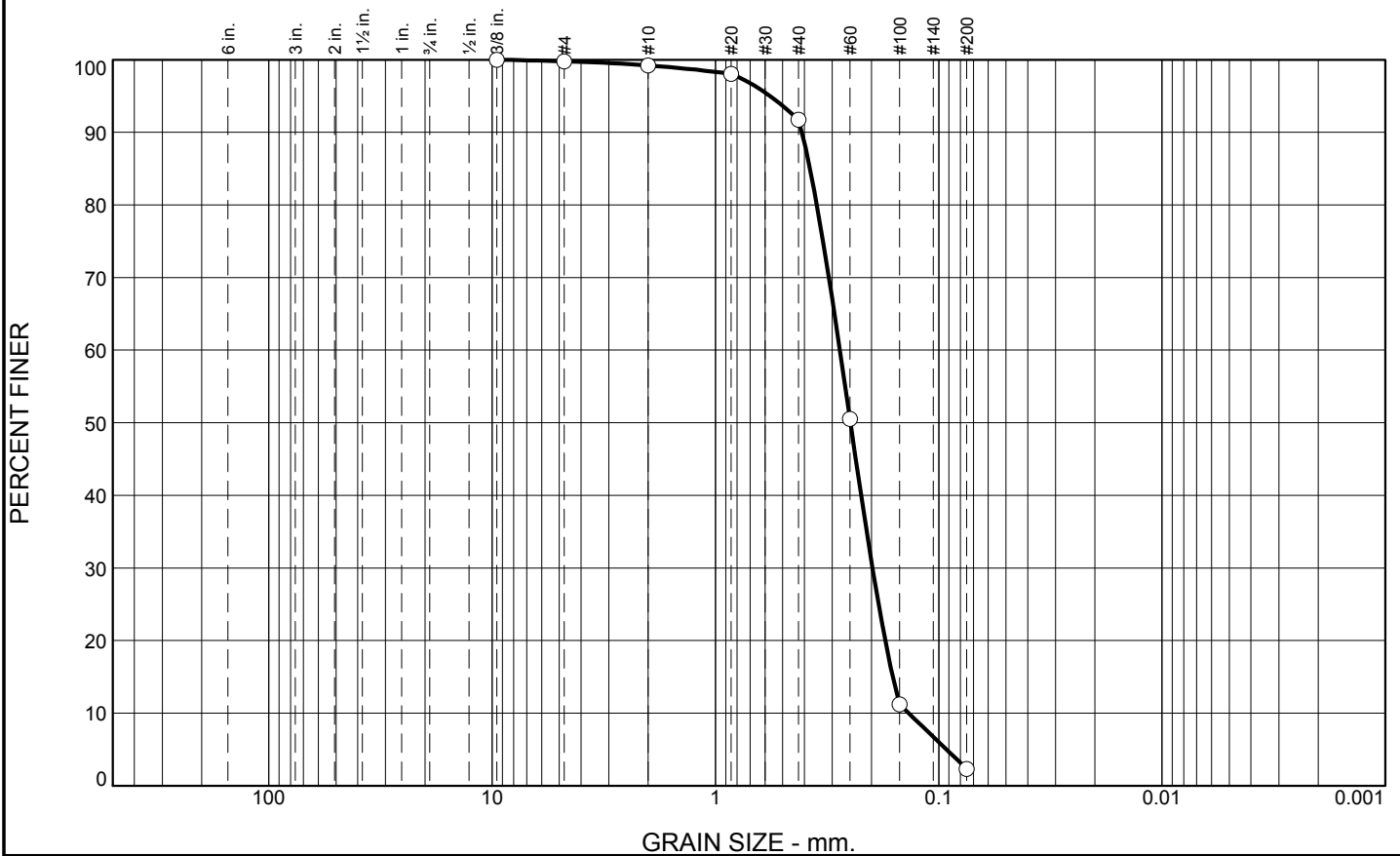
# Boring Designation BI-GC-28-10

DRILLING LOG		DIVISION South Atlantic		INSTALLATION Mobile District		SHEET 1 OF 2 SHEETS	
1. PROJECT MsCIP Barrier Island Restoration Gulfport Channel				9. SIZE AND TYPE OF BIT N/A			
2. BORING DESIGNATION BI-GC-28-10		LOCATION COORDINATES E = 932,649 N = 263,707		10. COORDINATE SYSTEM/DATUM State Plane, MSE (U.S. Ft.)		HORIZONTAL NAD83	
3. DRILLING AGENCY Corps of Engineers - CESAM		CONTRACTOR FILE NO.		11. MANUFACTURER'S DESIGNATION OF DRILL Vibracore		<input type="checkbox"/> AUTO HAMMER <input type="checkbox"/> MANUAL HAMMER	
4. NAME OF DRILLER Construction Solutions International, Inc.				12. TOTAL SAMPLES 4		DISTURBED 0	
5. DIRECTION OF BORING <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED		DEG. FROM VERTICAL		13. TOTAL NUMBER CORE BOXES			
		BEARING		14. WATER DEPTH 20 Ft.			
6. THICKNESS OF OVERBURDEN N/A				15. DATE BORING 06-11-10		COMPLETED 06-11-10	
7. DEPTH DRILLED INTO ROCK N/A				16. ELEVATION TOP OF BORING -17.8 Ft.			
8. TOTAL DEPTH OF BORING 19.3 Ft.				17. TOTAL RECOVERY FOR BORING 100%			
				18. SIGNATURE AND TITLE OF INSPECTOR Marty Gates, Geologist			
ELEV.	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS	SAMPLE	LABORATORY RESULTS		
-17.8	0.0						
			SAND, poorly-graded, mostly fine to medium-grained sand-sized quartz, trace silt, trace shell (SP)	A	Classification: SP Color: 2.5Y 7/1-light gray D50: 0.2485 mm % Fines: 2.3		
				B	Classification: SP Color: 5Y 7/1-light gray D50: 0.2168 mm % Fines: 1.5		
				C	Classification: SP-SM Color: 2.5Y 7/1-light gray D50: 0.2365 mm % Fines: 8.4		
				D	Classification: SP-SM Color: 2.5Y 7/1-light gray D50: 0.1994 mm % Fines: 6.4		
-37.1	19.3						
			NOTES: 1. Soils are field visually classified in accordance with the Unified Soils Classification System. 2. NS = Sample not submitted for laboratory analysis from this interval. 3. Seafloor elevation calculated using sampling vessel's fathometer water depth reading and applying NOAA tidal gauge data conversion				



<b>DRILLING LOG (Cont. Sheet)</b>			<b>INSTALLATION</b> Mobile District			<b>SHEET 2</b>	
						<b>OF 2 SHEETS</b>	
<b>PROJECT</b> MsCIP Barrier Island Restoration			<b>COORDINATE SYSTEM/DATUM</b> State Plane, MSE (U.S. Ft.)		<b>HORIZONTAL</b> NAD83	<b>VERTICAL</b> NAVD88	
<b>LOCATION COORDINATES</b> X = 932,649 Y = 263,707			<b>ELEVATION TOP OF BORING</b> -17.8 Ft.				
<b>ELEV.</b>	<b>DEPTH</b>	<b>LEGEND</b>	<b>CLASSIFICATION OF MATERIALS</b>	<b>SAMPLE</b>	<b>LABORATORY RESULTS</b>		
			factor.				

# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.2	0.6	7.5	89.4	2.3	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
.375	100.0		
#4	99.8		
#10	99.2		
#20	98.1		
#40	91.7		
#60	50.5		
#100	11.2		
#200	2.3		

\* (no specification provided)

<u><b>Material Description</b></u>		
SAND, (SP), fine grained		
<u><b>Atterberg Limits</b></u>		
PL=	LL=	PI=
<u><b>Coefficients</b></u>		
D <sub>90</sub> = 0.4106	D <sub>85</sub> = 0.3774	D <sub>60</sub> = 0.2772
D <sub>50</sub> = 0.2485	D <sub>30</sub> = 0.1981	D <sub>15</sub> = 0.1607
D <sub>10</sub> = 0.1364	C <sub>u</sub> = 2.03	C <sub>c</sub> = 1.04
<u><b>Classification</b></u>		
USCS= SP	AASHTO=	
<u><b>Remarks</b></u>		
CADD CODE = CH10D965		

Location: USACE Sample # BI-GC-28-10A  
Sample Number: TE Lab ID: 4538.40

Depth: 0.0 - 5.0 (ft.)

Date: 6/19/10

**Thompson Engineering**  
**Mobile, Alabama**

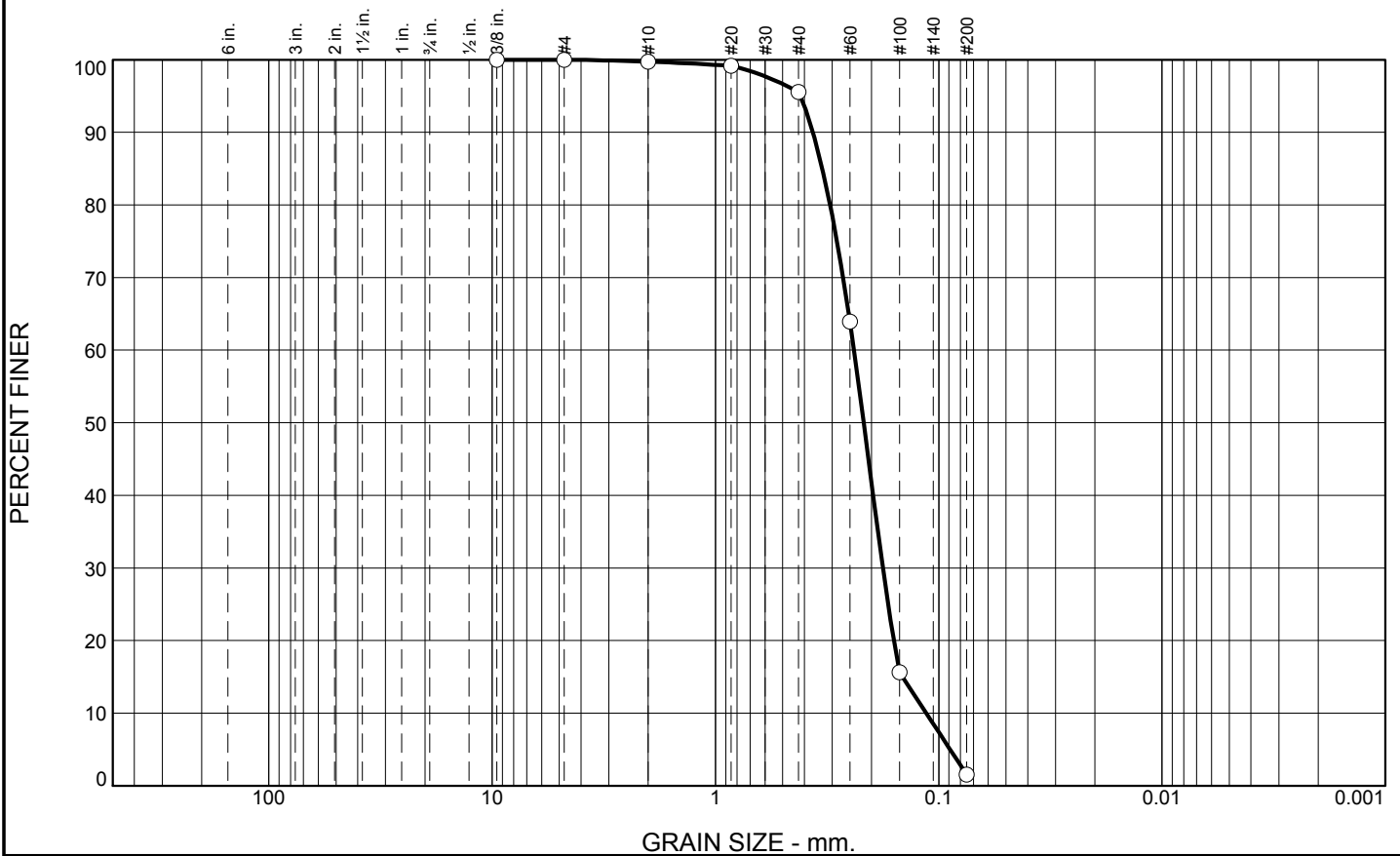
**Client:** US Army Corps of Engineers  
**Project:** Contract No. W91278-10-D-0026 - Task 03  
Mississippi Barrier Island Restoration Project  
**Project No:** 10-2123-0009

**Figure**

Tested By: R.Martin

Checked By: R.Byrd

# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.0	0.3	4.1	94.1	1.5	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
.375	100.0		
#4	100.0		
#10	99.7		
#20	99.2		
#40	95.6		
#60	63.9		
#100	15.6		
#200	1.5		

\* (no specification provided)

Material Description		
SAND, (SP), fine grained		
<div> <div> <b>Atterberg Limits</b>            PL=      LL=      PI=         </div> <div> <b>Coefficients</b>            D<sub>90</sub>= 0.3661      D<sub>85</sub>= 0.3322      D<sub>60</sub>= 0.2397            D<sub>50</sub>= 0.2168      D<sub>30</sub>= 0.1780      D<sub>15</sub>= 0.1454            D<sub>10</sub>= 0.1138      C<sub>u</sub>= 2.11      C<sub>c</sub>= 1.16         </div> <div> <b>Classification</b>            USCS= SP      AASHTO=         </div> <div> <b>Remarks</b>            CADD CODE = CH10D965         </div> </div>		

Location: USACE Sample # BI-GC-28-10B  
Sample Number: TE Lab ID: 4538.41

Depth: 5.0 - 10.0 (ft.)

Date: 6/19/10

**Thompson Engineering**  
  
**Mobile, Alabama**

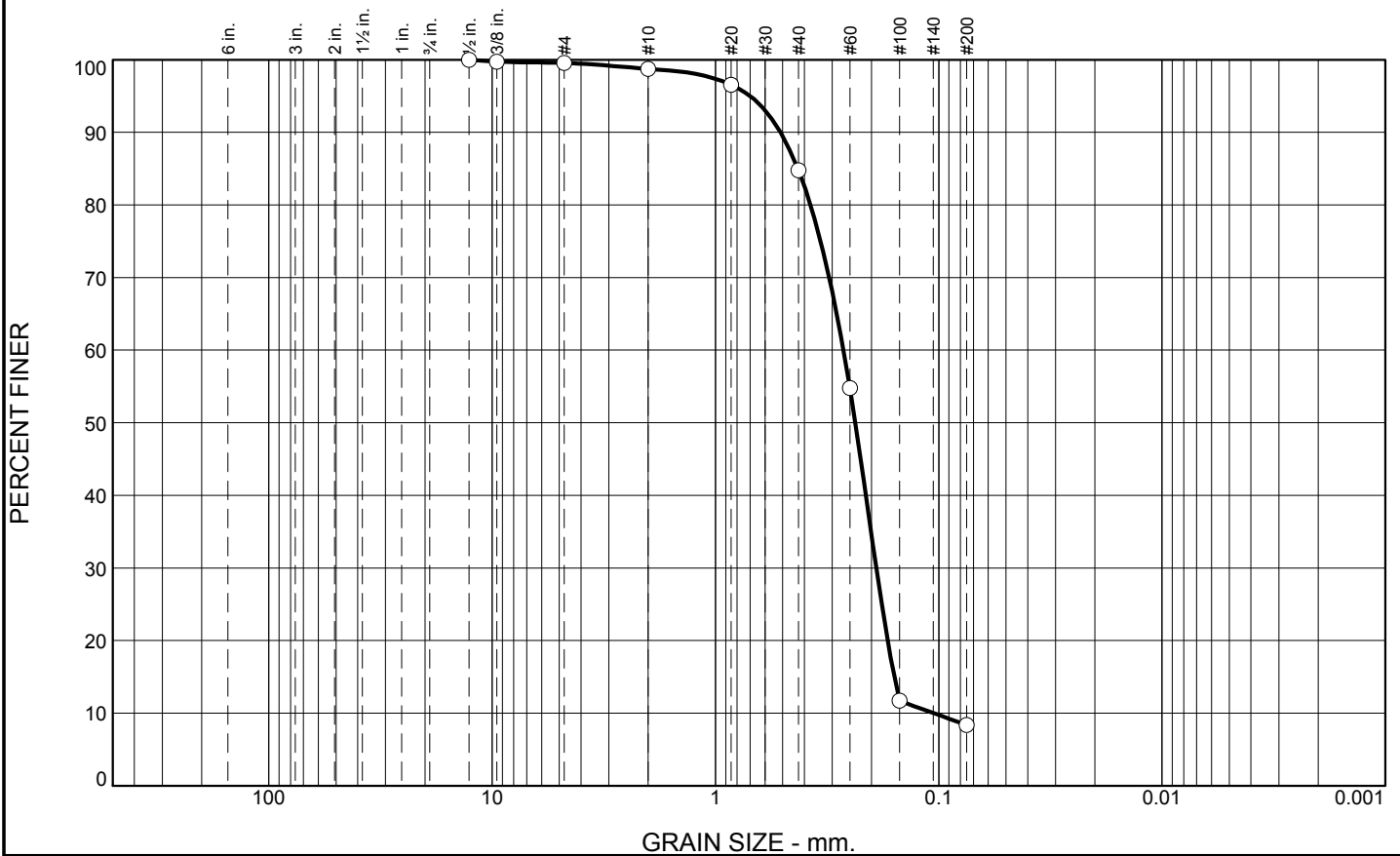
**Client:** US Army Corps of Engineers  
**Project:** Contract No. W91278-10-D-0026 - Task 03  
Mississippi Barrier Island Restoration Project  
**Project No:** 10-2123-0009

**Figure**

Tested By: R.Martin

Checked By: R.Byrd

# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.4	0.9	13.9	76.4	8.4	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
.500	100.0		
.375	99.7		
#4	99.6		
#10	98.7		
#20	96.5		
#40	84.8		
#60	54.8		
#100	11.7		
#200	8.4		

\* (no specification provided)

**Material Description**  
SAND, (SP-SM), medium to fine grained

**Atterberg Limits**  
 PL=      LL=      PI=

**Coefficients**  
 D<sub>90</sub>= 0.5114      D<sub>85</sub>= 0.4280      D<sub>60</sub>= 0.2670  
 D<sub>50</sub>= 0.2365      D<sub>30</sub>= 0.1904      D<sub>15</sub>= 0.1582  
 D<sub>10</sub>= 0.1053      C<sub>u</sub>= 2.53      C<sub>c</sub>= 1.29

**Classification**  
 USCS= SP-SM      AASHTO=

**Remarks**  
 CADD CODE = CH10D965

**Location:** USACE Sample # BI-GC-28-10C  
**Sample Number:** TE Lab ID: 4538.42

**Depth:** 10.0 - 15.0 (ft.)

**Date:** 6/19/10

**Thompson Engineering**  
  
**Mobile, Alabama**

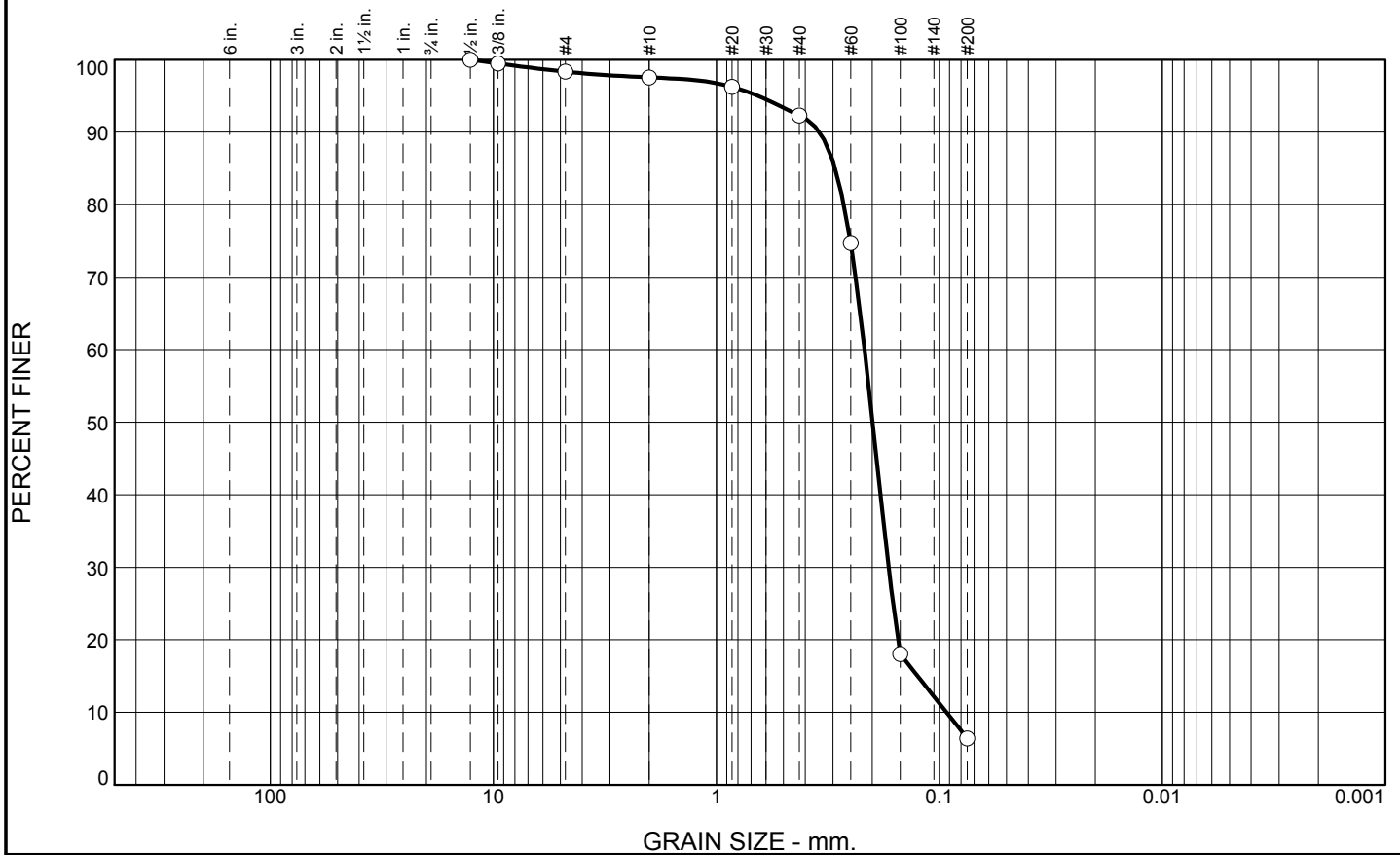
**Client:** US Army Corps of Engineers  
**Project:** Contract No. W91278-10-D-0026 - Task 03  
 Mississippi Barrier Island Restoration Project  
**Project No:** 10-2123-0009

**Figure**

**Tested By:** R.Martin

**Checked By:** R.Byrd

# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	1.7	0.8	5.2	85.9	6.4	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
.500	100.0		
.375	99.5		
#4	98.3		
#10	97.5		
#20	96.2		
#40	92.3		
#60	74.7		
#100	18.0		
#200	6.4		

\* (no specification provided)

**Material Description**  
 SAND, (SP-SM), fine grained, with trace shell

**Atterberg Limits**  
 PL=                      LL=                      PI=

**Coefficients**  
 D<sub>90</sub>= 0.3446      D<sub>85</sub>= 0.2933      D<sub>60</sub>= 0.2167  
 D<sub>50</sub>= 0.1994      D<sub>30</sub>= 0.1690      D<sub>15</sub>= 0.1252  
 D<sub>10</sub>= 0.0929      C<sub>u</sub>= 2.33              C<sub>c</sub>= 1.42

**Classification**  
 USCS= SP-SM                      AASHTO=

**Remarks**  
 CADD CODE = CH10D965

**Location:** USACE Sample # BI-GC-28-10D  
**Sample Number:** TE Lab ID: 4538.43

**Depth:** 15.0 - 19.3 (ft.)

**Date:** 6/19/10

**Thompson Engineering**  
  
**Mobile, Alabama**

**Client:** US Army Corps of Engineers  
**Project:** Contract No. W91278-10-D-0026 - Task 03  
 Mississippi Barrier Island Restoration Project  
**Project No:** 10-2123-0009

**Figure**

**Tested By:** R.Martin

**Checked By:** R.Byrd

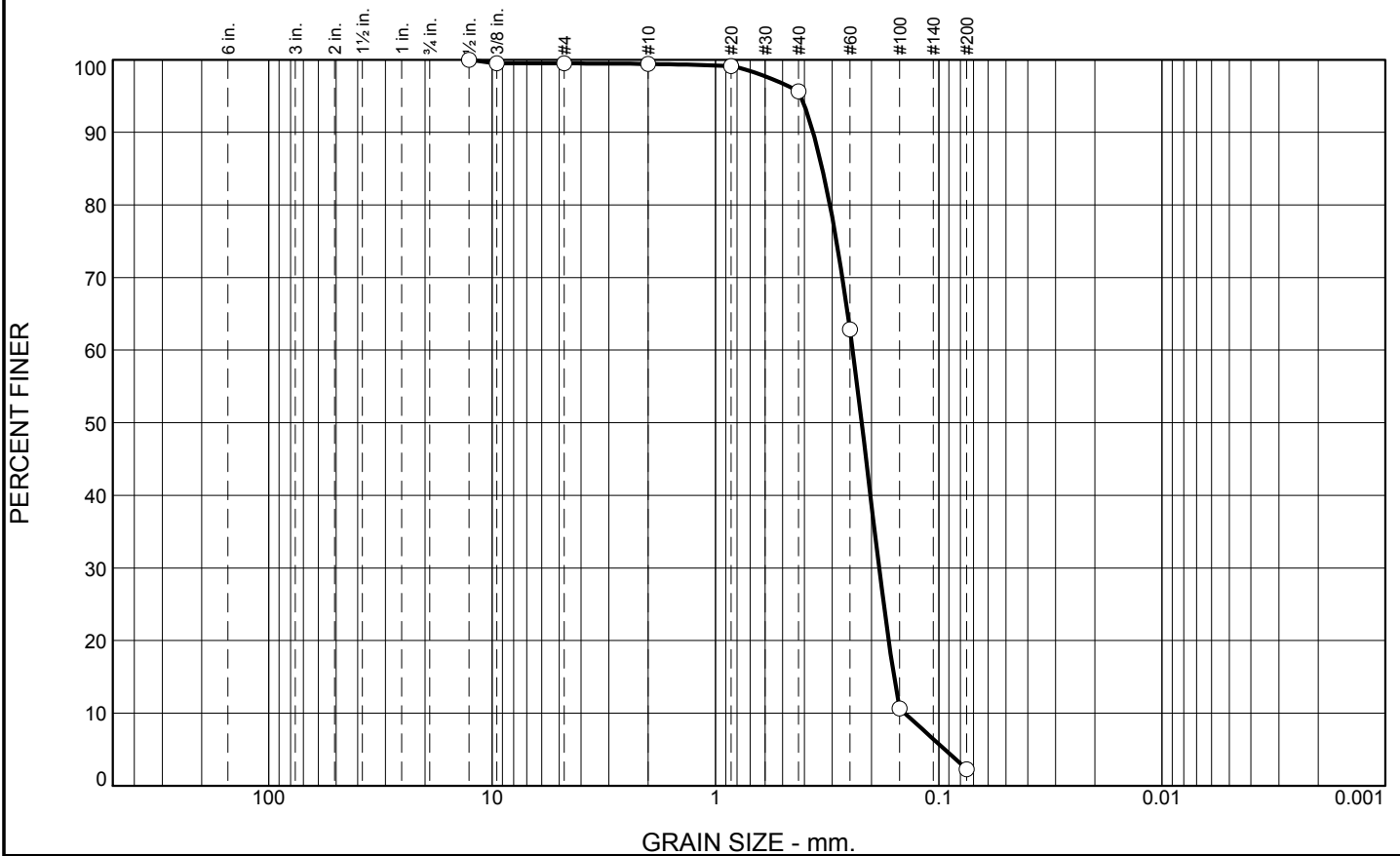
# Boring Designation BI-GC-29-10

DRILLING LOG		DIVISION South Atlantic		INSTALLATION Mobile District		SHEET 1 OF 2 SHEETS	
1. PROJECT MsCIP Barrier Island Restoration Gulfport Channel				9. SIZE AND TYPE OF BIT N/A			
2. BORING DESIGNATION BI-GC-29-10		LOCATION COORDINATES E = 932,205 N = 262,944		10. COORDINATE SYSTEM/DATUM State Plane, MSE (U.S. Ft.)		HORIZONTAL NAD83	
3. DRILLING AGENCY Corps of Engineers - CESAM		CONTRACTOR FILE NO.		11. MANUFACTURER'S DESIGNATION OF DRILL Vibracore		<input type="checkbox"/> AUTO HAMMER <input type="checkbox"/> MANUAL HAMMER	
4. NAME OF DRILLER Construction Solutions International, Inc.				12. TOTAL SAMPLES 3		UNDISTURBED (UD) 0	
5. DIRECTION OF BORING <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED		DEG. FROM VERTICAL		13. TOTAL NUMBER CORE BOXES		14. WATER DEPTH 21 Ft.	
6. THICKNESS OF OVERBURDEN N/A		7. DEPTH DRILLED INTO ROCK N/A		15. DATE BORING 06-11-10		COMPLETED 06-11-10	
8. TOTAL DEPTH OF BORING 19.7 Ft.				16. ELEVATION TOP OF BORING -18.7 Ft.		17. TOTAL RECOVERY FOR BORING 100%	
				18. SIGNATURE AND TITLE OF INSPECTOR Marty Gates, Geologist			
ELEV.	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS	SAMPLE	LABORATORY RESULTS		
-18.7	0.0						
			SAND, poorly-graded, mostly fine to medium-grained sand-sized quartz, trace silt, trace shell fragments, lt. gray (SP)	A	Classification: SP Color: 5Y 7/1-light gray D50: 0.2213 mm % Fines: 2.3		
				B	Classification: SP Color: 5Y 7/1-light gray D50: 0.21 mm % Fines: 1.7		
				C	Classification: SP-SM Color: 2.5Y 7/1-light gray D50: 0.2088 mm % Fines: 6.9		
-33.7	15.0						
			CLAY, lean, dark gray (CL)	NS			
-38.4	19.7						
			NOTES: 1. Soils are field visually classified in accordance with the Unified Soils Classification System. 2. NS = Sample not submitted for laboratory analysis from this interval. 3. Seafloor elevation calculated using sampling vessel's fathometer water depth reading and				

<b>DRILLING LOG (Cont. Sheet)</b>			<b>INSTALLATION</b> Mobile District			<b>SHEET 2</b>	
						<b>OF 2 SHEETS</b>	
<b>PROJECT</b> MsCIP Barrier Island Restoration			<b>COORDINATE SYSTEM/DATUM</b> State Plane, MSE (U.S. Ft.)		<b>HORIZONTAL</b> NAD83	<b>VERTICAL</b> NAVD88	
<b>LOCATION COORDINATES</b> X = 932,205 Y = 262,944			<b>ELEVATION TOP OF BORING</b> -18.7 Ft.				
<b>ELEV.</b>	<b>DEPTH</b>	<b>LEGEND</b>	<b>CLASSIFICATION OF MATERIALS</b>	<b>SAMPLE</b>	<b>LABORATORY RESULTS</b>		
			applying NOAA tidal gauge data conversion factor.				



# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.5	0.1	3.8	93.3	2.3	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
.500	100.0		
.375	99.5		
#4	99.5		
#10	99.4		
#20	99.1		
#40	95.6		
#60	62.9		
#100	10.6		
#200	2.3		

\* (no specification provided)

<u><b>Material Description</b></u>		
SAND, (SP), fine grained		
<u><b>Atterberg Limits</b></u>		
PL=	LL=	PI=
<u><b>Coefficients</b></u>		
D <sub>90</sub> = 0.3655	D <sub>85</sub> = 0.3322	D <sub>60</sub> = 0.2430
D <sub>50</sub> = 0.2213	D <sub>30</sub> = 0.1849	D <sub>15</sub> = 0.1586
D <sub>10</sub> = 0.1422	C <sub>u</sub> = 1.71	C <sub>c</sub> = 0.99
<u><b>Classification</b></u>		
USCS= SP	AASHTO=	
<u><b>Remarks</b></u>		
CADD CODE = CH10D965		

Location: USACE Sample # BI-GC-29-10A  
Sample Number: TE Lab ID: 4538.37

Depth: 0.0 - 5.0 (ft.)

Date: 6/19/10

**Thompson Engineering**  
**Mobile, Alabama**

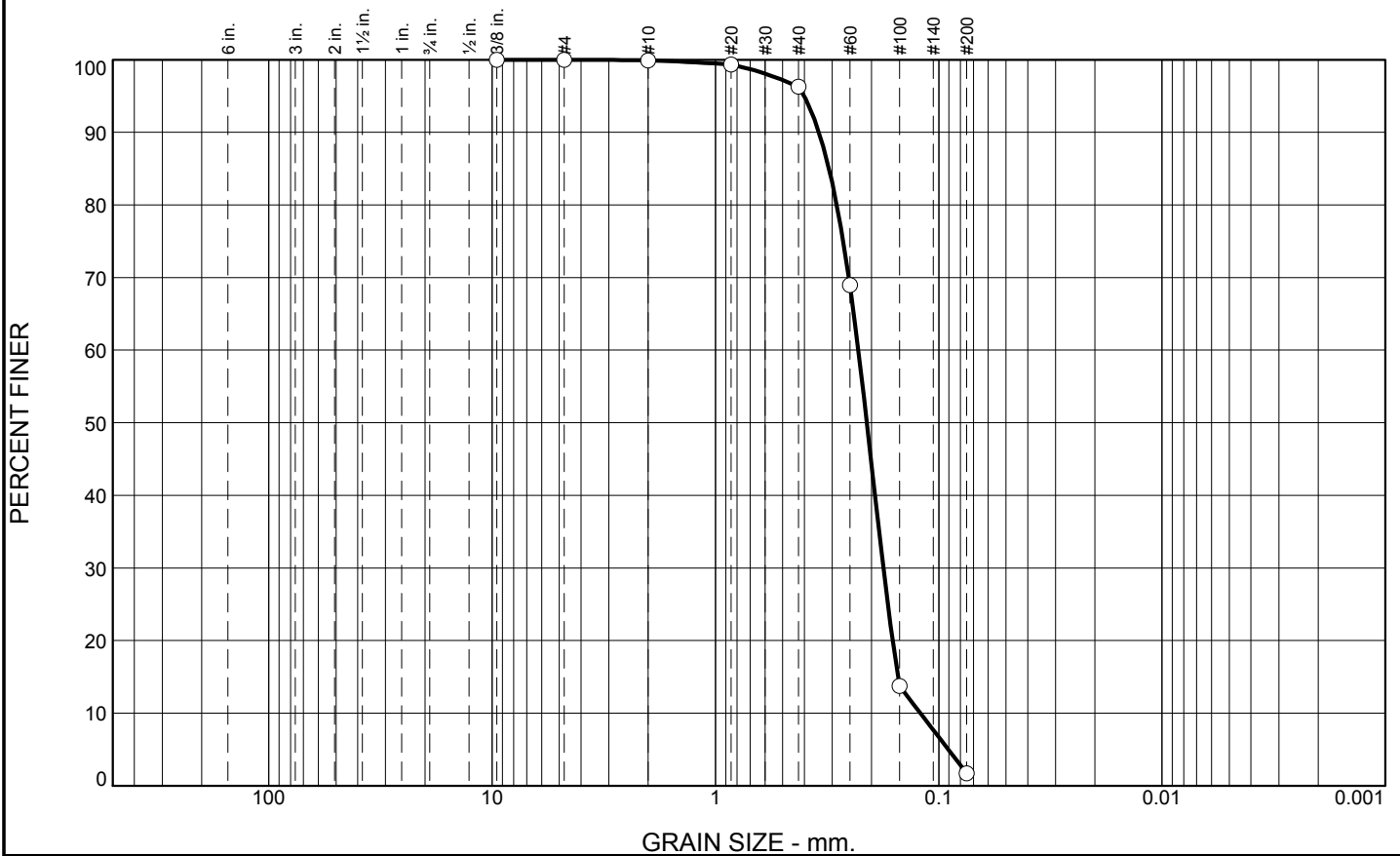
**Client:** US Army Corps of Engineers  
**Project:** Contract No. W91278-10-D-0026 - Task 03  
Mississippi Barrier Island Restoration Project  
**Project No:** 10-2123-0009

**Figure**

Tested By: R.Martin

Checked By: R.Byrd

# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.0	0.1	3.6	94.6	1.7	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
.375	100.0		
#4	100.0		
#10	99.9		
#20	99.3		
#40	96.3		
#60	69.0		
#100	13.8		
#200	1.7		

\* (no specification provided)

Material Description		
SAND, (SP), fine grained		
<div> <div> <b>Atterberg Limits</b>            LL=                       PI=         </div> <div> <b>Coefficients</b>            D<sub>90</sub>= 0.3438            D<sub>50</sub>= 0.2100            D<sub>10</sub>= 0.1208            C<sub>u</sub>= 1.90         </div> <div>           D<sub>85</sub>= 0.3100            D<sub>30</sub>= 0.1770            C<sub>c</sub>= 1.13         </div> <div> <b>Classification</b>            USCS= SP            AASHTO=         </div> </div>		
<b>Remarks</b> CADD CODE = CH10D965		

Location: USACE Sample # BI-GC-29-10B  
Sample Number: TE Lab ID: 4538.38

Depth: 5.0 - 10.0 (ft.)

Date: 6/19/10

**Thompson Engineering**  
**Mobile, Alabama**

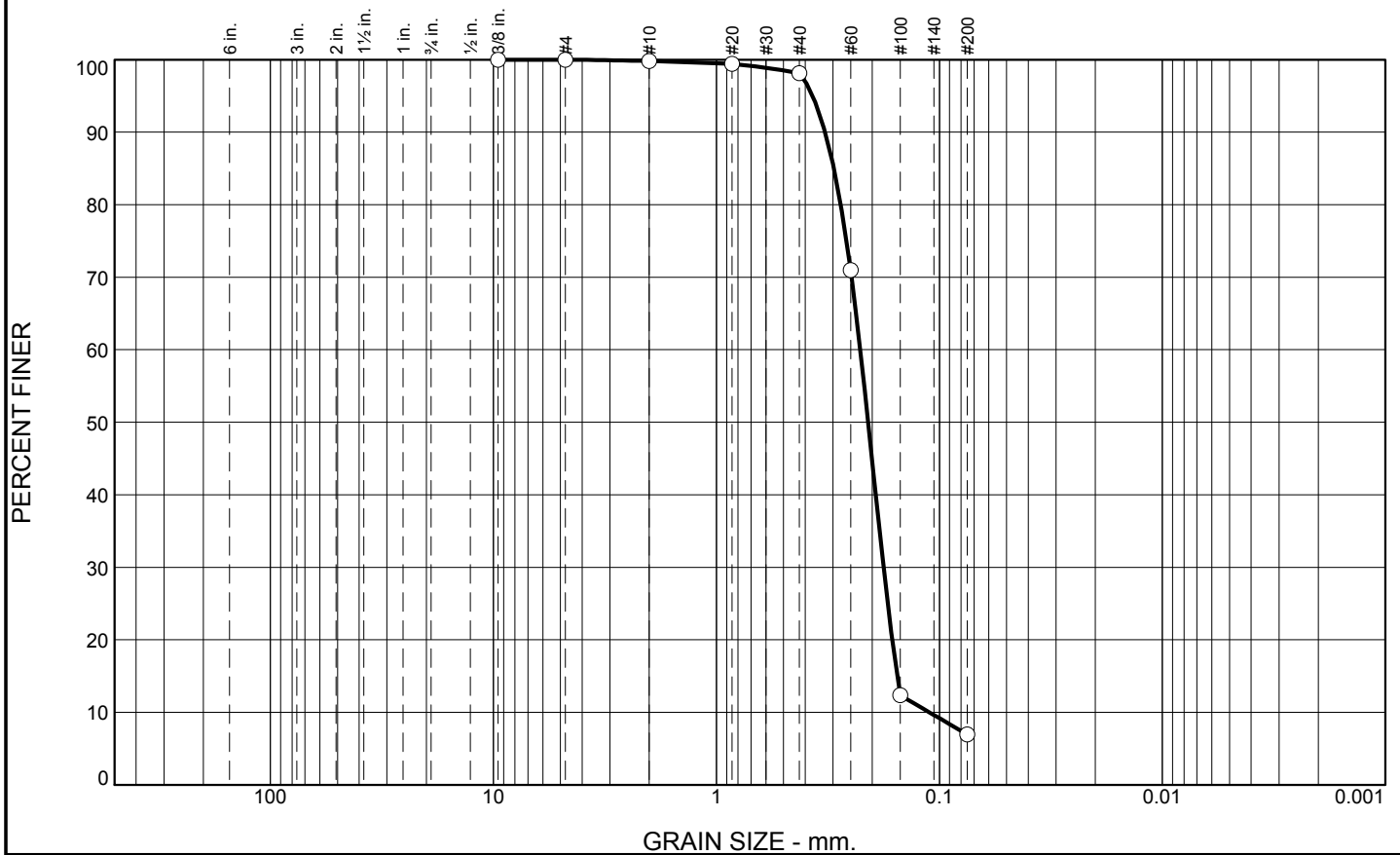
**Client:** US Army Corps of Engineers  
**Project:** Contract No. W91278-10-D-0026 - Task 03  
Mississippi Barrier Island Restoration Project  
**Project No:** 10-2123-0009

**Figure**

Tested By: R.Martin

Checked By: R.Byrd

# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.0	0.2	1.7	91.2	6.9	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
.375	100.0		
#4	100.0		
#10	99.8		
#20	99.4		
#40	98.1		
#60	71.0		
#100	12.4		
#200	6.9		

\* (no specification provided)

<u>Material Description</u>		
SAND, (SP-SM), fine grained		
<u>Atterberg Limits</u>		
PL=	LL=	PI=
<u>Coefficients</u>		
D <sub>90</sub> = 0.3252	D <sub>85</sub> = 0.2972	D <sub>60</sub> = 0.2264
D <sub>50</sub> = 0.2088	D <sub>30</sub> = 0.1780	D <sub>15</sub> = 0.1547
D <sub>10</sub> = 0.1109	C <sub>u</sub> = 2.04	C <sub>c</sub> = 1.26
<u>Classification</u>		
USCS= SP-SM	AASHTO=	
<u>Remarks</u>		
CADD CODE = CH10D965		

Location: USACE Sample # BI-GC-29-10C  
Sample Number: TE Lab ID: 4538.39

Depth: 10.0 - 15.0 (ft.)

Date: 6/19/10

**Thompson Engineering**  
**Mobile, Alabama**

**Client:** US Army Corps of Engineers  
**Project:** Contract No. W91278-10-D-0026 - Task 03  
Mississippi Barrier Island Restoration Project  
**Project No:** 10-2123-0009

**Figure**

Tested By: R.Martin

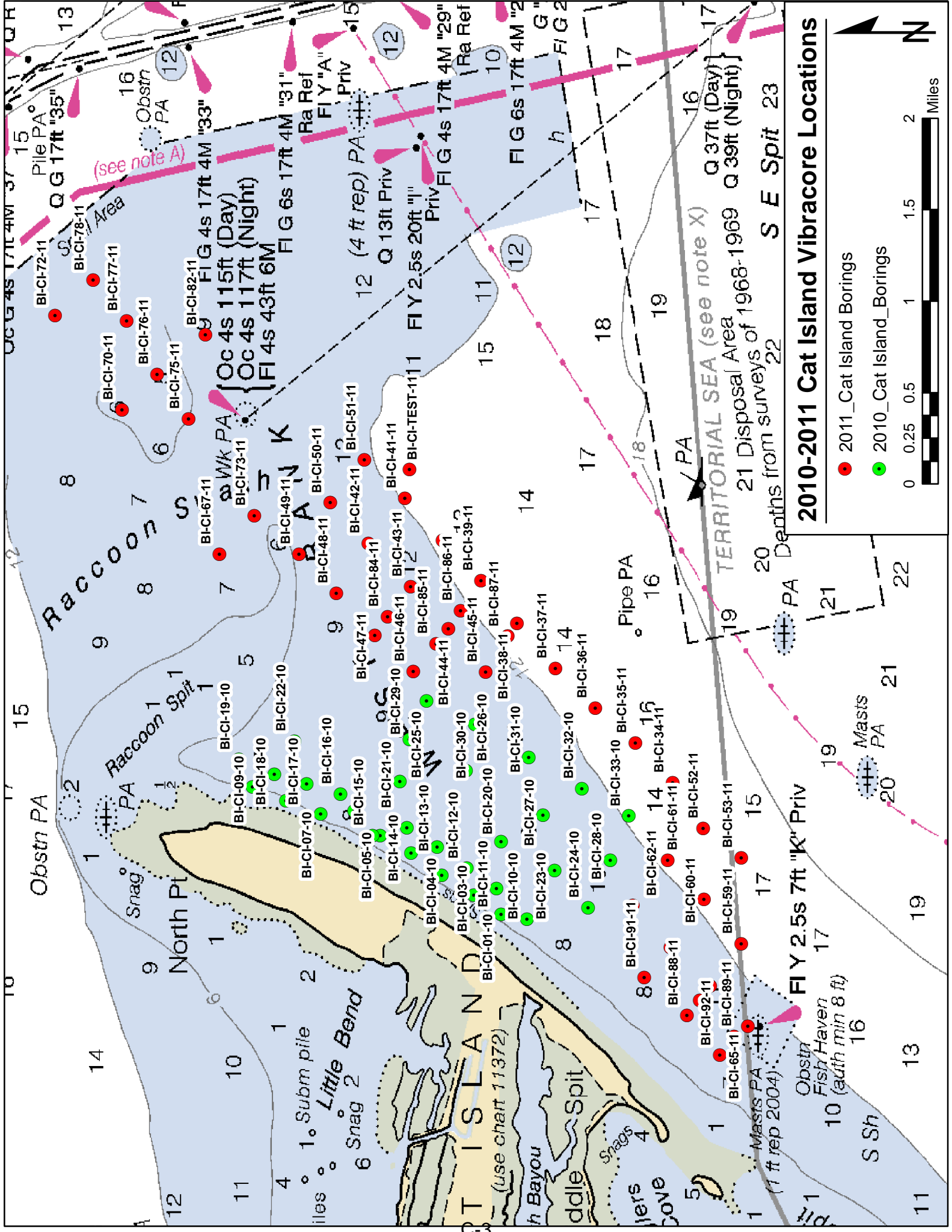
Checked By: R.Byrd

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## **Appendix C**

### **Cat Island Vibracores and Lab Results**

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Vibracore / Sample ID	Investigation Area	Sample Event	Date of Sample	Time_CST	Latitude	Longitude	Northing_Y	Easting_X	Sample Method	Water Depth (feet)	Boring Depth (feet below seafloor surface )	Sample Depth (Feet below seafloor surface)	Sample Thickness (feet)	Field USCS	Lab USCS	Angularity	Wet Munsell Color	Wet Munsell Color Code	Wet Munsell Value	Dry Munsell Color	Dry Munsell Color Code	Dry Munsell Value	CaCO3	D50 (mm)	Graphic Mean (mm)	% Fines	Cu (D60/D10)	Cc (D30)^2 / (D10*D60)
BI-CI-1-10	CAT ISLAND	2010	5/19/2010	10:02 AM	30.22249	-89.07220	262821.72640	908808.37100	20-ft Vibracore	9.5	15.1																	
BI-CI-1-10A	CAT ISLAND	2010	5/19/2010	10:02 AM	30.22249	-89.07220	262821.72640	908808.37100	20-ft Vibracore	9.5	15.1	0.0 - 5.0	5.0	SP	SP	SUBANGULAR TO ROUNDED	GRAYISH BROWN	2.5Y 5/2	5	LIGHT BROWNISH GRAY	2.5Y 6/2	6	NO	0.22	0.24	2.2	2.0	1.1
BI-CI-1-10B	CAT ISLAND	2010	5/19/2010	10:02 AM	30.22249	-89.07220	262821.72640	908808.37100	20-ft Vibracore	9.5	15.1	5.0 - 10.0	5.0	SP	SP	SUBANGULAR TO ROUNDED	DARK GRAYISH BROWN	2.5Y 4/2	4	LIGHT BROWNISH GRAY	2.5Y 6/2	6	NO	0.23	0.25	3.6	2.0	1.0
BI-CI-1-10C	CAT ISLAND	2010	5/19/2010	10:02 AM	30.22249	-89.07220	262821.72640	908808.37100	20-ft Vibracore	9.5	15.1	10.0 - 15.1	5.1	SP	SP-SM	SUBANGULAR TO ROUNDED	GRAY	2.5Y 5/1	5	GRAY	2.5Y 6/1	6	NO	0.20	0.22	5.1	2.9	0.9
BI-CI-2-10	CAT ISLAND	2010	5/19/2010	11:51 AM	30.22467	-89.07064	263613.52730	909302.72260	20-ft Vibracore	10.0	11.1																	
BI-CI-2-10A	CAT ISLAND	2010	5/19/2010	11:51 AM	30.22467	-89.07064	263613.52730	909302.72260	20-ft Vibracore	10.0	11.1	0.0 - 5.0	5.0	SP	SP	SUBANGULAR TO ROUNDED	DARK GRAYISH BROWN	2.5Y 4/2	4	LIGHT BROWNISH GRAY	2.5Y 6/2	6	NO	0.21	0.22	3.3	2.2	1.1
BI-CI-2-10B	CAT ISLAND	2010	5/19/2010	11:51 AM	30.22467	-89.07064	263613.52730	909302.72260	20-ft Vibracore	10.0	11.1	5.0 - 11.1	6.1	SP	SP-SM	SUBANGULAR TO ROUNDED	DARK GRAY	2.5Y 4/1	4	LIGHT GRAY	2.5Y 7/1	7	NO	0.18	0.18	5.7	2.2	1.1
BI-CI-3-10	CAT ISLAND	2010	5/19/2010	12:50 PM	30.22721	-89.06908	264536.26150	909797.32370	20-ft Vibracore	10.0	13.6																	
BI-CI-3-10A	CAT ISLAND	2010	5/19/2010	12:50 PM	30.22721	-89.06908	264536.26150	909797.32370	20-ft Vibracore	10.0	13.6	0.0 - 4.5	4.5	SP	SP	SUBANGULAR TO ROUNDED	DARK GRAYISH BROWN	2.5Y 4/2	4	GRAYISH BROWN	2.5Y 5/2	5	NO	0.21	0.22	4.9	2.0	1.0
BI-CI-3-10B	CAT ISLAND	2010	5/19/2010	12:50 PM	30.22721	-89.06908	264536.26150	909797.32370	20-ft Vibracore	10.0	13.6	4.5 - 9.0	4.5	SP	SP	SUBANGULAR TO ROUNDED	GRAY	2.5Y 6/1	6	LIGHT GRAY	2.5Y 6.5/1	7	NO	0.18	0.18	1.6	1.8	1.1
BI-CI-3-10C	CAT ISLAND	2010	5/19/2010	12:50 PM	30.22721	-89.06908	264536.26150	909797.32370	20-ft Vibracore	10.0	13.6	9.0 - 13.5	4.5	SP	SP-SM	SUBANGULAR TO ROUNDED	GRAY	2.5Y 5/1	5	LIGHT GRAY	2.5Y 6.5/1.5	7	NO	0.12	0.13	7.7	1.7	0.9
BI-CI-4-10	CAT ISLAND	2010	5/19/2010	1:48 PM	30.22964	-89.06734	265418.88040	910348.66300	20-ft Vibracore	10.0	11.0																	
BI-CI-4-10A	CAT ISLAND	2010	5/19/2010	1:48 PM	30.22964	-89.06734	265418.88040	910348.66300	20-ft Vibracore	10.0	11.0	0.0 - 5.5	5.5	SP	SP	SUBANGULAR TO ROUNDED	DARK GRAYISH BROWN	2.5Y 4/2	4	GRAYISH BROWN	2.5Y 5/2	5	NO	0.20	0.21	4.3	2.2	1.3
BI-CI-4-10B	CAT ISLAND	2010	5/19/2010	1:48 PM	30.22964	-89.06734	265418.88040	910348.66300	20-ft Vibracore	10.0	11.0	5.5 - 11.0	5.5	SP	SP	SUBANGULAR TO ROUNDED	GRAY	2.5Y 5/1	5	LIGHT GRAY	2.5Y 6.5/1	7	NO	0.16	0.17	7.2	2.2	1.0
BI-CI-5-10	CAT ISLAND	2010	5/19/2010	2:47 PM	30.23206	-89.06596	266298.10340	910786.27930	20-ft Vibracore	10.5	10.6																	
BI-CI-5-10A	CAT ISLAND	2010	5/19/2010	2:47 PM	30.23206	-89.06596	266298.10340	910786.27930	20-ft Vibracore	10.5	10.6	0.0 - 5.0	5.0	SP	SP	SUBANGULAR TO ROUNDED	DK GRAYISH BROWN	2.5Y 4/1.5	4	GRAYISH BROWN	2.5Y 5/2	5	NO	0.21	0.21	4.7	2.3	1.3
BI-CI-5-10B	CAT ISLAND	2010	5/19/2010	2:47 PM	30.23206	-89.06596	266298.10340	910786.27930	20-ft Vibracore	10.5	10.6	5.0 - 10.6	5.6	SP	SP-SM	SUBANGULAR TO ROUNDED	GRAY	5Y 5/1	5	LIGHT GRAY	2.5Y 7/1	7	NO	0.14	0.15	8.5	2.1	0.9
BI-CI-6-10	CAT ISLAND	2010	5/20/2010	1:32 PM	30.23415	-89.06401	267056.95050	911403.63370	20-ft Vibracore	11.0	13.2																	
BI-CI-6-10A	CAT ISLAND	2010	5/20/2010	1:32 PM	30.23415	-89.06401	267056.95050	911403.63370	20-ft Vibracore	11.0	13.2	0.0 - 3.0	3.0	SM	SP-SM	SUBANGULAR TO ROUNDED	DK GRAYISH BROWN	2.5Y 4/1.5	4	GRAYISH BROWN	2.5Y 5/2	5	NO	0.22	0.23	5.3	2.1	1.1
BI-CI-6-10B	CAT ISLAND	2010	5/20/2010	1:32 PM	30.23415	-89.06401	267056.95050	911403.63370	20-ft Vibracore	11.0	13.2	3.0 - 7.0	4.0	SP	SP	SUBANGULAR TO ROUNDED	VERY DARK GRAYISH BROWN	2.5Y 3/2	3	LIGHT BROWNISH GRAY	2.5Y 5.5/2	6	NO	0.19	0.21	3.1	2.1	1.1
BI-CI-6-10C	CAT ISLAND	2010	5/20/2010	1:32 PM	30.23415	-89.06401	267056.95050	911403.63370	20-ft Vibracore	11.0	13.2	7.0 - 12.0	5.0	SP	SP-SM	SUBANGULAR TO ROUNDED	GRAY	5Y 5.5/1	6	LIGHT GRAY	2.5Y 7/1	7	NO	0.18	0.19	5.4	2.2	1.1
BI-CI-7-10	CAT ISLAND	2010	5/20/2010	12:46 PM	30.23680	-89.06425	268020.86880	911329.79880	20-ft Vibracore	11.0	12.6																	
BI-CI-7-10A	CAT ISLAND	2010	5/20/2010	12:46 PM	30.23680	-89.06425	268020.86880	911329.79880	20-ft Vibracore	11.0	12.6	2.5 - 6.0	3.5	SP	SP	SUBANGULAR TO ROUNDED	DARK GRAYISH BROWN	2.5Y 4/2	4	LIGHT BROWNISH GRAY	2.5Y 6/2	6	NO	0.19	0.20	3.4	2.1	1.1
BI-CI-7-10B	CAT ISLAND	2010	5/20/2010	12:46 PM	30.23680	-89.06425	268020.86880	911329.79880	20-ft Vibracore	11.0	12.6	6.0 - 9.0	3.0	SP	SP	SUBANGULAR TO ROUNDED	GRAYISH BROWN	2.5Y 5/2	5	LIGHT GRAY	2.5Y 6.5/1.5	7	NO	0.19	0.20	1.0	2.0	1.2
BI-CI-7-10C	CAT ISLAND	2010	5/20/2010	12:46 PM	30.23680	-89.06425	268020.86880	911329.79880	20-ft Vibracore	11.0	12.6	9.0 - 12.6	3.6	SP	SP-SM	SUBANGULAR TO ROUNDED	GRAY	2.5Y 5/1	5	LIGHT GRAY	2.5Y 7/1	7	NO	0.17	0.18	6.6	2.3	1.1
BI-CI-8-10	CAT ISLAND	2010	5/20/2010	11:10 AM	30.23953	-89.06321	269013.06340	911660.22300	20-ft Vibracore	11.0	12.5																	
BI-CI-8-10A	CAT ISLAND	2010	5/20/2010	11:10 AM	30.23953	-89.06321	269013.06340	911660.22300	20-ft Vibracore	11.0	12.5	0.0 - 2.0	2.0	SM	SP-SM	SUBANGULAR TO ROUNDED	OLIVE GRAY	5Y 4/2	4	GRAYISH BROWN	2.5Y 5/2	5	NO	0.19	0.20	11.8	#VALUE!	#VALUE!
BI-CI-8-10B	CAT ISLAND	2010	5/20/2010	11:10 AM	30.23953	-89.06321	269013.06340	911660.22300	20-ft Vibracore	11.0	12.5	2.0 - 4.0	2.0	SP	SP-SM	SUBANGULAR TO ROUNDED	DARK GRAY	2.5Y 4/1	4	GRAY	2.5Y 5/1	5	NO	0.18	0.19	6.9	2.4	1.2
BI-CI-8-10C	CAT ISLAND	2010	5/20/2010	11:10 AM	30.23953	-89.06321	269013.06340	911660.22300	20-ft Vibracore	11.0	12.5	4.0 - 8.0	4.0	SP	SP	SUBANGULAR TO ROUNDED	GRAY	5Y 5/1	5	GRAY	2.5Y 6/1	6	NO	0.19	0.19	3.0	1.7	1.0
BI-CI-8-10D	CAT ISLAND	2010	5/20/2010	11:10 AM	30.23953	-89.06321	269013.06340	911660.22300	20-ft Vibracore	11.0	12.5	8.0 - 12.5	4.5	SP	SP	SUBANGULAR TO ROUNDED	GRAY	5Y 6/1	6	LIGHT GRAY	2.5Y 7/1	7	NO	0.19	0.20	3.9	1.7	1.0
BI-CI-9-10	CAT ISLAND	2010	5/20/2010	10:17 AM	30.24217	-89.06210	269972.48520	912012.66720	20-ft Vibracore	10.5	10.9																	
BI-CI-9-10A	CAT ISLAND	2010	5/20/2010	10:17 AM	30.24217	-89.06210	269972.48520	912012.66720	20-ft Vibracore	10.5	10.9	0.0 - 2.0	2.0	SM	SP-SM	SUBANGULAR TO ROUNDED	OLIVE GRAY	5Y 5/2	5	GRAYISH BROWN	2.5Y 5/2	5	NO	0.22	0.22	8.0	#VALUE!	#VALUE!
BI-CI-9-10B	CAT ISLAND	2010	5/20/2010	10:17 AM	30.24217	-89.06210	269972.48520	912012.66720	20-ft Vibracore	10.5	10.9	2.0 - 6.0	4.0	SP	SP-SM	SUBANGULAR TO ROUNDED	GRAYISH BROWN	2.5Y 5/2	5	LIGHT BROWNISH GRAY	2.5Y 6/2	6	NO	0.21	0.22	10.7	2.6	1.1
BI-CI-9-10C	CAT ISLAND	2010	5/20/2010	10:17 AM	30.24217	-89.06210	269972.48520	912012.66720	20-ft Vibracore	10.5	10.9	6.0 - 10.9	4.9	SP	SP	SUBANGULAR TO ROUNDED	GRAY	2.5Y 6/1	6	LIGHT GRAY	2.5Y 7/1	7	NO	0.17	0.18	6.0	2.2	1.0
BI-CI-10-10	CAT ISLAND	2010	5/19/2010	9:42 AM	30.22046	-89.07259	262083.70650	908683.64460	20-ft Vibracore	10.0	11.9																	
BI-CI-10-10A	CAT ISLAND	2010	5/19/2010	9:42 AM	30.22046	-89.07259	262083.70650	908683.64460	20-ft Vibracore	10.0	11.9	0.0 - 5.0	5.0	SP	SP	SUBANGULAR TO ROUNDED	DARK GRAYISH BROWN	2.5Y 4/2	4	GRAYISH BROWN	2.5Y 5/2	5	NO	0.25	0.25	4.6	2.2	1.1
BI-CI-10-10B	CAT ISLAND	2010	5/19/2010	9:42 AM	30.22046	-89.07259	262083.70650	908683.64460	20-ft Vibracore	10.0	11.9	5.0 - 11.9	6.9	SP	SP	SUBANGULAR TO ROUNDED	GRAY	2.5Y 6/1	6	LIGHT GRAY	2.5Y 7/1	7	NO	0.22	0.24	3.3	2.3	1.2
BI-CI-11-10	CAT ISLAND	2010	5/19/2010	10:47 AM	30.22286	-89.07017	262954.94980	909449.79080	20-ft Vibracore	11.0	14.4																	
BI-CI-11-10A	CAT ISLAND	2010	5/19/2010	10:47 AM	30.22286	-89.07017	262954.94980	909449.79080	20-ft Vibracore	11.0	14.4	0.0 - 5.0	5.0	SP	SP	SUBANGULAR TO ROUNDED	GRAYISH BROWN	2.5Y 5/2	5	LIGHT BROWNISH GRAY	2.5Y 6/2	6	NO	0.24	0.25	2.8	2.4	1.1
BI-CI-11-10B	CAT ISLAND	2010	5/19/2010	10:47 AM	30.22286	-89.07017	262954.94980	909449.79080	20-ft Vibracore	11.0	14.4	5.0 - 10.0	5.0	SP	SP	SUBANGULAR TO ROUNDED	GRAYISH BROWN	2.5Y 5/2	5	LIGHT BROWNISH GRAY	2.5Y 6/2	6	NO	0.21	0.23	2.6	2.5	1.0
BI-CI-11-10C	CAT ISLAND	2010	5/19/2010	10:47 AM	30.22286	-89.07017	262954.94980	909449.79080	20-ft Vibracore	11.0	14.4	10.0 - 14.4	4.4	SP	SP-SM	SUBANGULAR TO ROUNDED	GRAY	5Y 5/1	5	LIGHT GRAY	2.5Y 6.5/1	7	NO	0.14	0.16	8.6	2.1	0.8
BI-CI-12-10	CAT ISLAND	2010	5/19/2010	12:47 PM	30.22521	-89.06856	263808.55310	909960.04540	20-ft Vibracore	10.5	10.8																	
BI-CI-12-10A	CAT ISLAND	2010	5/19/2010	12:47 PM	30.22521	-89.06856	263808.55310	909960.04540	20-ft Vibracore	10.5	10.8	0.0 - 5.0	5.0	SP	SP	SUBANGULAR TO ROUNDED	GRAYISH BROWN	2.5Y 5/2	5	LIGHT GRAY	2.5Y 6.5/1	7	NO	0.22	0.23	3.2	2.2	1.0
BI-CI-12-10B	CAT ISLAND	2010	5/19/2010	12:47 PM	30.22																							

Vibracore / Sample ID	Investigation Area	Sample Event	Date of Sample	Time_CST	Latitude	Longitude	Northing_Y	Easting_X	Sample Method	Water Depth (feet)	Boring Depth (feet below seafloor surface )	Sample Depth (Feet below seafloor surface)	Sample Thickness (feet)	Field USCS	Lab USCS	Angularity	Wet Munsell Color	Wet Munsell Color Code	Wet Munsell Value	Dry Munsell Color	Dry Munsell Color Code	Dry Munsell Value	CaCO3	D50 (mm)	Graphic Mean (mm)	% Fines	Cu (D60/D10)	Cc (D30)^2 / (D10*D60)
BI-CI-16-10	CAT ISLAND	2010	5/20/2010	1:12 PM	30.23521	-89.06267	267441.60090	911827.57620	20-ft Vibracore	11.0	13.1																	
BI-CI-16-10A	CAT ISLAND	2010	5/20/2010	1:12 PM	30.23521	-89.06267	267441.60090	911827.57620	20-ft Vibracore	11.0	13.1	0.0 - 3.0	3.0	SP-SM	SP-SM	SUBANGULAR TO ROUNDED	GRAYISH BROWN	2.5Y 5/2	5	LIGHT OLIVE BROWN	2.5Y 5/3	5	NO	0.21	0.22	5.7	2.5	1.1
BI-CI-16-10B	CAT ISLAND	2010	5/20/2010	1:12 PM	30.23521	-89.06267	267441.60090	911827.57620	20-ft Vibracore	11.0	13.1	3.0 - 7.0	4.0	SP	SP	SUBANGULAR TO ROUNDED	DARK GRAYISH BROWN	2.5Y 4/2	4	LIGHT BROWNISH GRAY	2.5Y 6/2	6	NO	0.22	0.23	2.1	2.0	1.0
BI-CI-16-10C	CAT ISLAND	2010	5/20/2010	1:12 PM	30.23521	-89.06267	267441.60090	911827.57620	20-ft Vibracore	11.0	13.1	7.0 - 12.0	5.0	SP	SP	SUBANGULAR TO ROUNDED	DK GRAYISH BROWN	2.5Y 4/1.5	4	GRAY	2.5Y 6/1	6	NO	0.20	0.20	3.6	2.2	1.3
BI-CI-17-10	CAT ISLAND	2010	5/20/2010	11:38 AM	30.23788	-89.06188	268412.13720	912079.00210	20-ft Vibracore	11.0	11.1																	
BI-CI-17-10A	CAT ISLAND	2010	5/20/2010	11:38 AM	30.23788	-89.06188	268412.13720	912079.00210	20-ft Vibracore	11.0	11.1	0.0 - 3.0	3.0	SP	SP-SM	SUBANGULAR TO ROUNDED	GRAYISH BROWN	2.5Y 5/1.5	5	GRAYISH BROWN	2.5Y 5/2	5	NO	0.20	0.21	8.0	2.5	1.2
BI-CI-17-10B	CAT ISLAND	2010	5/20/2010	11:38 AM	30.23788	-89.06188	268412.13720	912079.00210	20-ft Vibracore	11.0	11.1	3.0 - 8.0	5.0	SP	SP	SUBANGULAR TO ROUNDED	LT BROWNISH GRAY	2.5Y 6/2	6	LIGHT BROWNISH GRAY	10YR 6.5/2	7	NO	0.20	0.20	2.7	2.1	1.3
BI-CI-17-10C	CAT ISLAND	2010	5/20/2010	11:38 AM	30.23788	-89.06188	268412.13720	912079.00210	20-ft Vibracore	11.0	11.1	8.0 - 11.1	3.1	SP	SP	SUBANGULAR TO ROUNDED	GRAY	2.5Y 5/1	5	LIGHT GRAY	2.5Y 7/1	7	NO	0.18	0.18	3.5	2.0	1.1
BI-CI-18-10	CAT ISLAND	2010	5/20/2010	10:43 AM	30.24044	-89.06111	269342.68290	912324.01920	20-ft Vibracore	10.5	10.6																	
BI-CI-18-10A	CAT ISLAND	2010	5/20/2010	10:43 AM	30.24044	-89.06111	269342.68290	912324.01920	20-ft Vibracore	10.5	10.6	0.0 - 3.0	3.0	SM	SP-SM	SUBANGULAR TO ROUNDED	OLIVE GRAY	5Y 4/2	4	GRAYISH BROWN	2.5Y 5/2	5	NO	0.22	0.22	9.4	3.2	1.6
BI-CI-18-10B	CAT ISLAND	2010	5/20/2010	10:43 AM	30.24044	-89.06111	269342.68290	912324.01920	20-ft Vibracore	10.5	10.6	3.0 - 8.0	5.0	SP	SP	SUBANGULAR TO ROUNDED	DARK GRAYISH BROWN	2.5Y 4/2	4	LIGHT BROWNISH GRAY	2.5Y 6/2	6	NO	0.20	0.21	3.2	2.0	1.2
BI-CI-18-10C	CAT ISLAND	2010	5/20/2010	10:43 AM	30.24044	-89.06111	269342.68290	912324.01920	20-ft Vibracore	10.5	10.6	8.0 - 10.6	2.6	SP	SP	SUBANGULAR TO ROUNDED	GRAY	5Y 5/1	5	LIGHT GRAY	2.5Y 7/1.5	7	NO	0.17	0.17	3.7	2.0	1.1
BI-CI-19-10	CAT ISLAND	2010	5/20/2010	9:42 AM	30.24325	-89.05994	270363.90000	912695.51160	20-ft Vibracore	10.0	11.5																	
BI-CI-19-10A	CAT ISLAND	2010	5/20/2010	9:42 AM	30.24325	-89.05994	270363.90000	912695.51160	20-ft Vibracore	10.0	11.5	0.0 - 2.0	2.0	SP-SM	SP-SM	SUBANGULAR TO ROUNDED	OLIVE GRAY	5Y 4/2	4	GRAYISH BROWN	2.5Y 5/2	5	NO	0.20	0.22	7.0	2.1	1.1
BI-CI-19-10B	CAT ISLAND	2010	5/20/2010	9:42 AM	30.24325	-89.05994	270363.90000	912695.51160	20-ft Vibracore	10.0	11.5	2.0 - 6.0	4.0	SP	SP-SM	SUBANGULAR TO ROUNDED	GRAYISH BROWN	2.5Y 5/2	5	LIGHT BROWNISH GRAY	2.5Y 6/2	6	NO	0.21	0.22	5.8	2.4	1.4
BI-CI-19-10C	CAT ISLAND	2010	5/20/2010	9:42 AM	30.24325	-89.05994	270363.90000	912695.51160	20-ft Vibracore	10.0	11.5	6.0 - 11.0	5.0	SP	SP	SUBANGULAR TO ROUNDED	GRAY	5Y 5/1	5	LIGHT GRAY	2.5Y 7/1	7	NO	0.18	0.18	3.3	2.0	1.1
BI-CI-20-10	CAT ISLAND	2010	5/21/2010	11:50 AM	30.22249	-89.06643	262817.94840	910630.72410	20-ft Vibracore	11.0	13.4																	
BI-CI-20-10A	CAT ISLAND	2010	5/21/2010	11:50 AM	30.22249	-89.06643	262817.94840	910630.72410	20-ft Vibracore	11.0	13.4	0.0 - 3.0	3.0	SP	SP	SUBANGULAR TO ROUNDED	GRAYISH BROWN	2.5Y 5/2	5	LIGHT BROWNISH GRAY	2.5Y 6/2	6	NO	0.26	0.27	3.3	2.3	1.1
BI-CI-20-10B	CAT ISLAND	2010	5/21/2010	11:50 AM	30.22249	-89.06643	262817.94840	910630.72410	20-ft Vibracore	11.0	13.4	3.0 - 8.0	5.0	SP	SP	SUBANGULAR TO ROUNDED	DARK GRAYISH BROWN	2.5Y 4/2	4	GRAYISH BROWN	2.5Y 5/2	5	NO	0.21	0.22	2.0	2.2	1.2
BI-CI-20-10C	CAT ISLAND	2010	5/21/2010	11:50 AM	30.22249	-89.06643	262817.94840	910630.72410	20-ft Vibracore	11.0	13.4	8.0 - 13.0	5.0	SP	SP-SM	SUBANGULAR TO ROUNDED	DARK GRAY	2.5Y 4/1	4	GRAY	2.5Y 6/1	6	NO	0.16	0.17	6.2	2.2	1.1
BI-CI-21-10	CAT ISLAND	2010	5/21/2010	11:20 AM	30.23053	-89.06167	265738.92210	912139.95250	20-ft Vibracore	11.0	10.4																	
BI-CI-21-10A	CAT ISLAND	2010	5/21/2010	11:20 AM	30.23053	-89.06167	265738.92210	912139.95250	20-ft Vibracore	11.0	10.4	0.0 - 2.0	2.0	SP	SP-SM	SUBANGULAR TO ROUNDED	GRAYISH BROWN	2.5Y 5/2	5	LIGHT BROWNISH GRAY	2.5Y 6/2	6	NO	0.23	0.25	5.5	2.3	1.2
BI-CI-21-10B	CAT ISLAND	2010	5/21/2010	11:20 AM	30.23053	-89.06167	265738.92210	912139.95250	20-ft Vibracore	11.0	10.4	3.0 - 5.0	2.0	SP	SP	SUBANGULAR TO ROUNDED	DARK GRAYISH BROWN	2.5Y 4/2	4	LIGHT GRAY	2.5Y 7/2	7	NO	0.21	0.22	2.7	2.3	1.2
BI-CI-21-10C	CAT ISLAND	2010	5/21/2010	11:20 AM	30.23053	-89.06167	265738.92210	912139.95250	20-ft Vibracore	11.0	10.4	5.0 - 9.0	4.0	SP	SP	SUBANGULAR TO ROUNDED	GRAY	2.5Y 5/1	5	LIGHT GRAY	2.5Y 7/1	7	NO	0.18	0.18	2.4	2.0	1.3
BI-CI-22-10	CAT ISLAND	2010	5/21/2010	11:00 AM	30.23886	-89.05849	268766.41380	913150.21230	20-ft Vibracore	10.0	11.0																	
BI-CI-22-10A	CAT ISLAND	2010	5/21/2010	11:00 AM	30.23886	-89.05849	268766.41380	913150.21230	20-ft Vibracore	10.0	11.0	0.0 - 4.0	4.0	SM	SP-SM	SUBANGULAR TO ROUNDED	OLIVE GRAY	5Y 4/2	4	LIGHT BROWNISH GRAY	2.5Y 6/2	6	NO	0.28	0.28	5.7	2.0	1.2
BI-CI-22-10B	CAT ISLAND	2010	5/21/2010	11:00 AM	30.23886	-89.05849	268766.41380	913150.21230	20-ft Vibracore	10.0	11.0	4.0 - 6.0	2.0	SP	SP	SUBANGULAR TO ROUNDED	GRAY	5Y 5/1	5	LIGHT BROWNISH GRAY	2.5Y 6/2	6	NO	0.18	0.19	2.7	2.1	1.1
BI-CI-22-10C	CAT ISLAND	2010	5/21/2010	11:00 AM	30.23886	-89.05849	268766.41380	913150.21230	20-ft Vibracore	10.0	11.0	6.0 - 11.0	5.0	SP	SP-SM	SUBANGULAR TO ROUNDED	DARK GRAYISH BROWN	2.5Y 4/2	4	GRAYISH BROWN	2.5Y 5/2	5	NO	0.22	0.22	5.5	2.7	1.1
BI-CI-23-10	CAT ISLAND	2010	8/21/2010	1:10 PM	30.21826	-89.06871	261281.04720	909907.44520	20-ft Vibracore	11.0	11.5																	
BI-CI-23-10A	CAT ISLAND	2010	8/21/2010	1:10 PM	30.21826	-89.06871	261281.04720	909907.44520	20-ft Vibracore	11.0	11.5	0.0 - 4.0	4.0	SP	SP	SUBANGULAR TO ROUNDED	OLIVE	5Y 4/3	4	LIGHT OLIVE GRAY	5Y 6/2	6	NO	0.24	0.26	2.9	1.7	0.9
BI-CI-23-10B	CAT ISLAND	2010	8/21/2010	1:10 PM	30.21826	-89.06871	261281.04720	909907.44520	20-ft Vibracore	11.0	11.5	4.0 - 8.0	4.0	SP	SP	SUBANGULAR TO ROUNDED	DARK GRAYISH BROWN	2.5Y 4/2	4	GRAY	2.5Y 6/1	6	NO	0.27	0.28	1.8	1.7	1.0
BI-CI-23-10C	CAT ISLAND	2010	8/21/2010	1:10 PM	30.21826	-89.06871	261281.04720	909907.44520	20-ft Vibracore	11.0	11.5	8.0 - 11.5	3.5	SP	SP-SM	SUBANGULAR TO ROUNDED	DARK GRAYISH BROWN	2.5Y 4/2	4	GRAY	2.5Y 6/1	6	NO	0.25	0.27	5.2	1.9	1.0
BI-CI-24-10	CAT ISLAND	2010	8/21/2010	12:30 PM	30.21563	-89.07166	260326.49730	908973.69730	20-ft Vibracore	11.3	13.0																	
BI-CI-24-10A	CAT ISLAND	2010	8/21/2010	12:30 PM	30.21563	-89.07166	260326.49730	908973.69730	20-ft Vibracore	11.3	13.0	0.0 - 4.0	4.0	SP	SP	SUBANGULAR TO ROUNDED	OLIVE GRAY	5Y 4/2	4	LIGHT OLIVE GRAY	5Y 6/2	6	NO	0.24	0.26	2.9	1.7	0.9
BI-CI-24-10B	CAT ISLAND	2010	8/21/2010	12:30 PM	30.21563	-89.07166	260326.49730	908973.69730	20-ft Vibracore	11.3	13.0	4.0 - 8.0	4.0	SP	SP	SUBANGULAR TO ROUNDED	GRAYISH BROWN	2.5Y 5/2	5	LIGHT GRAY	2.5Y 7/1	7	NO	0.28	0.29	1.8	1.8	1.0
BI-CI-24-10C	CAT ISLAND	2010	8/21/2010	12:30 PM	30.21563	-89.07166	260326.49730	908973.69730	20-ft Vibracore	11.3	13.0	8.0 - 11.8	3.8	SP	SP-SM	SUBANGULAR TO ROUNDED	DARK GRAYISH BROWN	2.5Y 4/2	4	LIGHT GRAY	2.5Y 7/1	7	YES	0.19	0.20	9.3	2.4	1.3
BI-CI-25-10	CAT ISLAND	2010	8/21/2010	11:50 AM	30.21386	-89.06791	259680.31740	910156.82490	20-ft Vibracore	13.0	13.0																	
BI-CI-25-10A	CAT ISLAND	2010	8/21/2010	11:50 AM	30.21386	-89.06791	259680.31740	910156.82490	20-ft Vibracore	13.0	13.0	0.0 - 4.0	4.0	SP	SP	SUBANGULAR TO ROUNDED	OLIVE BROWN	2.5Y 4/3	4	LIGHT BROWNISH GRAY	2.5Y 6/2	6	NO	0.21	0.22	3.6	1.5	0.9
BI-CI-25-10B	CAT ISLAND	2010	8/21/2010	11:50 AM	30.21386	-89.06791	259680.31740	910156.82490	20-ft Vibracore	13.0	13.0	4.0 - 8.0	4.0	SP	SP	SUBANGULAR TO ROUNDED	OLIVE GRAY	5Y 4/2	4	LIGHT OLIVE GRAY	5Y 6/2	6	NO	0.20	0.21	2.9	1.4	1.0
BI-CI-25-10C	CAT ISLAND	2010	8/21/2010	11:50 AM	30.21386	-89.06791	259680.31740	910156.82490	20-ft Vibracore	13.0	13.0	8.0 - 12.4	4.4	SP	SP	SUBANGULAR TO ROUNDED	DARK GRAYISH BROWN	2.5Y 4/2	4	GRAY	2.5Y 6/1	6	YES	0.18	0.17	4.9	2.1	1.4
BI-CI-26-10	CAT ISLAND	2010	8/21/2010	1:50 PM	30.21919	-89.06433	261616.43940	911291.53660	20-ft Vibracore	12.0	11.8																	
BI-CI-26-10A	CAT ISLAND	2010	8/21/2010	1:50 PM	30.21919	-89.06433	261616.43940	911291.53660	20-ft Vibracore	12.0	11.8	0.0 - 4.0	4.0	SP	SP	SUBANGULAR TO ROUNDED	OLIVE BROWN	2.5Y 4/3	4	LIGHT BROWNISH GRAY	2.5Y 6/2	6	NO	0.26	0.28	2.5	1.8	1.0
BI-CI-26-10B	CAT ISLAND	2010	8/21/2010	1:50 PM	30.21919	-89.06433	261616.43940	911291.53660	20-ft Vibracore	12.0	11.8	4.0 - 8.0	4.0	SP	SP	SUBANGULAR TO ROUNDED	DARK GRAYISH BROWN	2.5Y 4/2	4	LIGHT BROWN								

Vibracore / Sample ID	Investigation Area	Sample Event	Date of Sample	Time_CST	Latitude	Longitude	Northing_Y	Easting_X	Sample Method	Water Depth (feet)	Boring Depth (feet below seafloor surface )	Sample Depth (Feet below seafloor surface)	Sample Thickness (feet)	Field USCS	Lab USCS	Angularity	Wet Munsell Color	Wet Munsell Color Code	Wet Munsell Value	Dry Munsell Color	Dry Munsell Color Code	Dry Munsell Value	CaCO3	D50 (mm)	Graphic Mean (mm)	% Fines	Cu (D60/D10)	Cc (D30)*2 / (D10*D60)
BI-CI-30-10A	CAT ISLAND	2010	8/22/2010	8:10 AM	30.22459	-89.05715	263575.80220	913563.15000	20-ft Vibracore	13.3	7.9	0.0 - 2.0	2.0	SM	SP-SM	SUBANGULAR TO ROUNDED	DARK OLIVE GRAY	5Y 3/2	3	GRAYISH BROWN	2.5Y 5/2	5	NO	0.21	0.22	8.1	2.5	1.5
BI-CI-30-10B	CAT ISLAND	2010	8/22/2010	8:10 AM	30.22459	-89.05715	263575.80220	913563.15000	20-ft Vibracore	13.3	7.9	2.0 - 5.0	3.0	SP	SP	SUBANGULAR TO ROUNDED	GRAYISH BROWN	2.5Y 5/2	5	GRAY	5Y 5/1	5	NO	0.20	0.20	3.8	1.8	1.2
BI-CI-30-10C	CAT ISLAND	2010	8/22/2010	8:10 AM	30.22459	-89.05715	263575.80220	913563.15000	20-ft Vibracore	13.3	7.9	5.0 - 7.9	2.9	SP	SP	SUBANGULAR TO ROUNDED	DARK GRAYISH BROWN	2.5Y 4/2	4	GRAY	2.5Y 6/1	6	NO	0.19	0.18	3.6	2.0	1.3
BI-CI-31-10	CAT ISLAND	2010	8/22/2010	7:10 AM	30.22030	-89.05978	262017.24100	912729.42480	20-ft Vibracore	13.3	7.3																	
BI-CI-31-10A	CAT ISLAND	2010	8/23/2010	7:10 AM	30.22030	-89.05978	262017.24100	912729.42480	20-ft Vibracore	13.3	7.3	0.0 - 4.0	4.0	SP	SP	SUBANGULAR TO ROUNDED	DARK OLIVE GRAY	5Y 3/2	3	GRAY	5Y 6/1	6	NO	0.24	0.26	4.0	1.7	0.9
BI-CI-31-10B	CAT ISLAND	2010	8/24/2010	7:10 AM	30.22030	-89.05978	262017.24100	912729.42480	20-ft Vibracore	13.3	7.3	4.0 - 7.3	3.3	SP	SP	SUBANGULAR TO ROUNDED	DARK GRAYISH BROWN	2.5Y 4/2	4	GRAY	2.5Y 6/1	6	NO	0.23	0.26	3.9	2.0	1.0
BI-CI-32-10	CAT ISLAND	2010	8/21/2010	2:35 PM	30.21610	-89.06225	260491.32970	911946.23010	20-ft Vibracore	13.3	12.2																	
BI-CI-32-10A	CAT ISLAND	2010	8/21/2010	2:35 PM	30.21610	-89.06225	260491.32970	911946.23010	20-ft Vibracore	13.3	12.2	0.0 - 5.0	5.0	SP	SP	SUBANGULAR TO ROUNDED	OLIVE GRAY	5Y 4/2	4	LIGHT OLIVE GRAY	5Y 6/2	6	NO	0.25	0.27	2.8	1.7	0.9
BI-CI-32-10B	CAT ISLAND	2010	8/21/2010	2:35 PM	30.21610	-89.06225	260491.32970	911946.23010	20-ft Vibracore	13.3	12.2	5.0 - 8.3	3.3	SP	SP	SUBANGULAR TO ROUNDED	GRAY	5Y 5/1	5	LIGHT GRAY	5Y 7/1	7	NO	0.21	0.22	4.0	2.2	1.3
BI-CI-32-10C	CAT ISLAND	2010	8/21/2010	2:35 PM	30.21610	-89.06225	260491.32970	911946.23010	20-ft Vibracore	13.3	12.2	8.3 - 9.5	1.2	SP	SP-SM	SUBANGULAR TO ROUNDED	OLIVE GRAY	5Y 4/2	4	LIGHT OLIVE GRAY	5Y 6/2	6	YES	0.17	0.17	5.5	2.1	1.1
BI-CI-32-10D	CAT ISLAND	2010	8/21/2010	2:35 PM	30.21610	-89.06225	260491.32970	911946.23010	20-ft Vibracore	13.3	12.2	9.5 - 12.2	2.7	SM	SP-SM	SUBANGULAR TO ROUNDED	DARK GRAYISH BROWN	2.5Y 4/2	4	LIGHT BROWNISH GRAY	2.5Y 6/2	6	YES	0.17	0.17	6.6	2.1	1.2
BI-CI-33-10	CAT ISLAND	2010	8/21/2010	10:45 AM	30.21239	-89.06438	259143.42270	911270.72560	20-ft Vibracore	14.5	11.9																	
BI-CI-33-10A	CAT ISLAND	2010	8/21/2010	10:45 AM	30.21239	-89.06438	259143.42270	911270.72560	20-ft Vibracore	14.5	11.9	0.0 - 4.0	4.0	SP	SP	SUBANGULAR TO ROUNDED	DARK GRAYISH BROWN	2.5Y 4/2	4	GRAY	2.5Y 6/1	6	NO	0.20	0.21	3.8	1.7	1.1
BI-CI-33-10B	CAT ISLAND	2010	8/21/2010	10:45 AM	30.21239	-89.06438	259143.42270	911270.72560	20-ft Vibracore	14.5	11.9	4.0 - 8.0	4.0	SP	SP	SUBANGULAR TO ROUNDED	DARK GRAYISH BROWN	2.5Y 4/2	4	GRAY	2.5Y 6/1	6	NO	0.19	0.19	3.6	2.0	1.3
BI-CI-33-10C	CAT ISLAND	2010	8/21/2010	10:45 AM	30.21239	-89.06438	259143.42270	911270.72560	20-ft Vibracore	14.5	11.9	8.0 - 8.8	0.8	SP	SP	SUBANGULAR TO ROUNDED	DARK GRAYISH BROWN	2.5Y 4/2	4	GRAY	2.5Y 6/1	6	NO	0.18	0.17	4.6	2.1	1.4
BI-CI-34-11	CAT ISLAND	2011	6/27/2011	11:22 AM	30.20893	-89.06174	257883.39600	912102.08410	20-ft Vibracore	17.8	15.0	NO SAMPLE TAKEN		CL	NO SAMPLE TESTED													
BI-CI-35-11	CAT ISLAND	2011	6/27/2011	10:48 AM	30.21189	-89.05862	258957.93520	913089.74600	20-ft Vibracore	17.2	15.0																	
BI-CI-35-11A	CAT ISLAND	2011	6/27/2011	10:48 AM	30.21189	-89.05862	258957.93520	913089.74600	20-ft Vibracore	17.2	15.0	0.0 - 4.0	4.0	SP	SP	SUBANGULAR TO ROUNDED	GRAY	5Y 5/1	5	GRAY	5Y 6/1	6	NA	0.19	0.20	3.8	2.1	1.3
BI-CI-35-11B	CAT ISLAND	2011	6/27/2011	10:48 AM	30.21189	-89.05862	258957.93520	913089.74600	20-ft Vibracore	17.2	15.0	4.0 - 7.8	3.8	SP	SP	SUBANGULAR TO ROUNDED	GRAYISH BROWN	2.5Y 5/2	5	LIGHT GRAY	2.5Y 7/2	7	NA	0.19	0.20	2.8	1.8	1.2
BI-CI-36-11	CAT ISLAND	2011	6/24/2011	2:45 PM	30.21504	-89.05586	260101.82350	913963.77560	20-ft Vibracore	15.5	13.8																	
BI-CI-36-11A	CAT ISLAND	2011	6/24/2011	2:45 PM	30.21504	-89.05586	260101.82350	913963.77560	20-ft Vibracore	15.5	13.8	0.0 - 5.0	5.0	SP	SP	SUBANGULAR TO ROUNDED	OLIVE GRAY	5Y 5/2	5	LIGHT OLIVE GRAY	5Y 6/2	6	NA	0.19	0.20	4.0	2.2	1.3
BI-CI-36-11B	CAT ISLAND	2011	6/24/2011	2:45 PM	30.21504	-89.05586	260101.82350	913963.77560	20-ft Vibracore	15.5	13.8	5.0 - 10.0	5.0	SP	SP	SUBANGULAR TO ROUNDED	OLIVE GRAY	5Y 5/2	5	LIGHT GRAY	5Y 7/1	7	NA	0.18	0.18	3.4	1.8	1.1
BI-CI-36-11C	CAT ISLAND	2011	6/24/2011	2:45 PM	30.21504	-89.05586	260101.82350	913963.77560	20-ft Vibracore	15.5	13.8	10.0 - 12.3	2.3	SP	SP-SM	SUBANGULAR TO ROUNDED	OLIVE GRAY	5Y 5/2	5	GRAY	5Y 6/1	6	NA	0.16	0.16	8.2	2.2	1.2
BI-CI-37-11	CAT ISLAND	2011	6/24/2011	3:31 PM	30.21820	-89.05270	261249.12650	914964.09520	20-ft Vibracore	15.0	11.3																	
BI-CI-37-11A	CAT ISLAND	2011	6/24/2011	3:31 PM	30.21820	-89.05270	261249.12650	914964.09520	20-ft Vibracore	15.0	11.3	0.0 - 5.0	5.0	SM	SP	SUBANGULAR TO ROUNDED	OLIVE GRAY	5Y 4/2	4	LIGHT BROWNISH GRAY	2.5Y 6/2	6	NA	0.22	0.25	4.2	1.6	0.9
BI-CI-37-11B	CAT ISLAND	2011	6/24/2011	3:31 PM	30.21820	-89.05270	261249.12650	914964.09520	20-ft Vibracore	15.0	11.3	5.0 - 10.0	5.0	SP	SP	SUBANGULAR TO ROUNDED	OLIVE GRAY	5Y 5/2	5	LIGHT GRAY	5Y 7/1	7	NA	0.25	0.29	3.4	1.9	0.9
BI-CI-38-11	CAT ISLAND	2011	6/24/2011	4:06 PM	30.22127	-89.04916	262363.49820	916084.30660	20-ft Vibracore	14.0	13.1																	
BI-CI-38-11A	CAT ISLAND	2011	6/24/2011	4:06 PM	30.22127	-89.04916	262363.49820	916084.30660	20-ft Vibracore	14.0	13.1	0.0 - 4.8	4.8	SP	SP	SUBANGULAR TO ROUNDED	DARK GRAYISH BROWN	2.5Y 4/2	4	LIGHT BROWNISH GRAY	2.5Y 6/2	6	NA	0.21	0.23	4.4	2.1	1.2
BI-CI-38-11B	CAT ISLAND	2011	6/24/2011	4:06 PM	30.22127	-89.04916	262363.49820	916084.30660	20-ft Vibracore	14.0	13.1	5.6 - 10.5	4.9	SP	SP	SUBANGULAR TO ROUNDED	DARK GRAY	5Y 4/1	4	LIGHT GRAY	5Y 7/1	7	NA	0.19	0.19	3.6	1.9	1.3
BI-CI-39-11	CAT ISLAND	2011	6/25/2011	10:35 AM	30.22410	-89.04576	263390.70330	917160.07010	20-ft Vibracore	15.2	12.5																	
BI-CI-39-11A	CAT ISLAND	2011	6/25/2011	10:35 AM	30.22410	-89.04576	263390.70330	917160.07010	20-ft Vibracore	15.2	12.5	1.0 - 6.0	5.0	SP	SP-SM	SUBANGULAR TO ROUNDED	OLIVE GRAY	5Y 4/2	4	LIGHT OLIVE GRAY	5Y 6/2	6	NA	0.20	0.21	5.0	2.0	1.3
BI-CI-39-11B	CAT ISLAND	2011	6/25/2011	10:35 AM	30.22410	-89.04576	263390.70330	917160.07010	20-ft Vibracore	15.2	12.5	6.0 - 10.5	4.5	SP	SP	SUBANGULAR TO ROUNDED	DARK OLIVE GRAY	5Y 3/2	3	LIGHT OLIVE GRAY	5Y 6/2	6	NA	0.18	0.17	4.3	2.1	1.4
BI-CI-40-11	CAT ISLAND	2011	6/25/2011	10:05 AM	30.22714	-89.04259	264494.44790	918163.27440	20-ft Vibracore	15.0	14.6																	
BI-CI-40-11A	CAT ISLAND	2011	6/25/2011	10:05 AM	30.22714	-89.04259	264494.44790	918163.27440	20-ft Vibracore	15.0	14.6	2.0 - 7.0	5.0	SP	SP	SUBANGULAR TO ROUNDED	OLIVE GRAY	5Y 5/2	5	LIGHT GRAY	2.5Y 7/1	7	NA	0.21	0.22	3.1	1.6	1.0
BI-CI-41-11	CAT ISLAND	2011	6/25/2011	9:44 AM	30.23011	-89.03926	265572.67120	919216.90040	20-ft Vibracore	15.2	10.9																	
BI-CI-41-11A	CAT ISLAND	2011	6/25/2011	9:44 AM	30.23011	-89.03926	265572.67120	919216.90040	20-ft Vibracore	15.2	10.9	0.0 - 2.1	2.1	SM	SP-SM	SUBANGULAR TO ROUNDED	DARK OLIVE GRAY	5Y 3/2	3	OLIVE GRAY	5Y 4/2	4	NA	0.20	0.20	8.9	2.5	1.6
BI-CI-41-11B	CAT ISLAND	2011	6/25/2011	9:44 AM	30.23011	-89.03926	265572.67120	919216.90040	20-ft Vibracore	15.2	10.9	2.1 - 4.3	2.2	SM	SP	SUBANGULAR TO ROUNDED	DARK GRAYISH BROWN	2.5Y 4/2	4	GRAYISH BROWN	2.5Y 5/2	5	NA	0.22	0.23	3.9	1.5	0.9
BI-CI-41-11C	CAT ISLAND	2011	6/25/2011	9:44 AM	30.23011	-89.03926	265572.67120	919216.90040	20-ft Vibracore	15.2	10.9	4.3 - 10.9	6.6	SP	SP	SUBANGULAR TO ROUNDED	OLIVE BROWN	2.5Y 4/3	4	LIGHT GRAY	2.5Y 7/2	7	NA	0.21	0.22	3.1	1.6	1.0
BI-CI-42-11	CAT ISLAND	2011	6/24/2011	9:17 AM	30.23301	-89.04282	266629.40750	918094.56630	20-ft Vibracore	14.0	15.1																	
BI-CI-42-11A	CAT ISLAND	2011	6/24/2011	9:17 AM	30.23301	-89.04282	266629.40750	918094.56630	20-ft Vibracore	14.0	15.1	0.0 - 2.2	2.2	SM	SM	SUBANGULAR TO ROUNDED	VERY DARK GRAYISH BROWN	2.5Y 3/2	3	DARK GRAYISH BROWN	2.5Y 4/2	4	NA	0.19	0.18	13.6	#VALUE!	#VALUE!
BI-CI-42-11B	CAT ISLAND	2011	6/24/2011	9:17 AM	30.23301	-89.04282	266629.40750	918094.56630	20-ft Vibracore	14.0	15.1	2.2 - 3.3	1.1	SM	SP-SM	SUBANGULAR TO ROUNDED	DARK OLIVE GRAY	5Y 3/2	3	OLIVE GRAY	5Y 4/2	4	NA	0.20	0.19	10.6	#VALUE!	#VALUE!
BI-CI-42-11C	CAT ISLAND	2011	6/24/2011	9:17 AM	30.23301	-89.04282	266629.40750	918094.56630	20-ft Vibracore	14.0	15.1	3.3 - 7.7	4.4	SP	SP	SUBANGULAR TO ROUNDED	OLIVE GRAY	5Y 4/2	4	GRAY	5Y 6/1	6	NA	0.17	0.17	4.8	2.0	1.1
BI-CI-43-11	CAT ISLAND	2011	6/24/2011	12:15 PM	30.22966	-89.04625	265413.07570	917009.09770	20-ft Vibracore	13.5	17.2																	
BI-CI-43-11A	CAT ISLAND	2011	6/24/2011	12:15 PM	30.22966	-89.04625	265413.07570	917009.09770	20-ft Vibracore	13.5	17.2	0.0 - 4.5	4.5	SM	SP-SM	SUBANGULAR TO ROUNDED	DARK OLIVE GRAY	5Y 3/2	3	OLIVE GRAY	5Y 5/2	5	NA	0.20	0.20	7.0	2.5	1.5
BI-CI-43-11B	CAT ISLAND	2011	6/24/2011	12:15 PM																								

Vibracore / Sample ID	Investigation Area	Sample Event	Date of Sample	Time_CST	Latitude	Longitude	Northing_Y	Easting_X	Sample Method	Water Depth (feet)	Boring Depth (feet below seafloor surface )	Sample Depth (Feet below seafloor surface)	Sample Thickness (feet)	Field USCS	Lab USCS	Angularity	Wet Munsell Color	Wet Munsell Color Code	Wet Munsell Value	Dry Munsell Color	Dry Munsell Color Code	Dry Munsell Value	CaCO3	D50 (mm)	Graphic Mean (mm)	% Fines	Cu (D60/D10)	Cc (D30)*2 / (D10*D60)
BI-CI-46-11C	CAT ISLAND	2011	6/23/2011	2:48 PM	30.22945	-89.05294	265340.71690	914896.18610	20-ft Vibracore	12.5	18.0	9.0 - 13.4	4.4	SP	SP	SUBANGULAR TO ROUNDED	GRAYISH BROWN	2.5Y 5/2	5	LIGHT GRAY	2.5Y 7/1	7	NA	0.21	0.23	2.0	1.5	0.9
BI-CI-47-11	CAT ISLAND	2011	6/23/2011	2:15 PM	30.23249	-89.05011	266444.60360	915792.03450	20-ft Vibracore	12.0	14.8	NO SAMPLE TAKEN		CL	NO SAMPLE TESTED													
BI-CI-48-11	CAT ISLAND	2011	6/23/2011	1:40 PM	30.23553	-89.04676	267548.20450	916852.03900	20-ft Vibracore	12.0	17.0	NO SAMPLE TAKEN		CL	NO SAMPLE TESTED													
BI-CI-49-11	CAT ISLAND	2011	6/23/2011	1:03 PM	30.23849	-89.04367	268622.89370	917829.82180	20-ft Vibracore	9.3	9.3																	
BI-CI-49-11A	CAT ISLAND	2011	6/23/2011	1:03 PM	30.23849	-89.04367	268622.89370	917829.82180	20-ft Vibracore	9.3	9.3	0.0 - 4.4	4.4	SM	SP-SM	SUBANGULAR TO ROUNDED	DARK OLIVE GRAY	5Y 3/2	3	OLIVE GRAY	5Y 5/2	5	NA	0.24	0.28	8.5	3.0	1.4
BI-CI-49-11B	CAT ISLAND	2011	6/23/2011	1:03 PM	30.23849	-89.04367	268622.89370	917829.82180	20-ft Vibracore	9.3	9.3	4.4 - 9.3	4.9	SP	SP	SUBANGULAR TO ROUNDED	OLIVE GRAY	5Y 4/2	4	LIGHT OLIVE GRAY	5Y 6/2	6	NA	0.18	0.18	4.4	1.7	1.1
BI-CI-50-11	CAT ISLAND	2011	6/24/2011	8:40 AM	30.23602	-89.03962	267722.25130	919107.10610	20-ft Vibracore	14.0	13.9																	
BI-CI-50-11A	CAT ISLAND	2011	6/24/2011	8:40 AM	30.23602	-89.03962	267722.25130	919107.10610	20-ft Vibracore	14.0	13.9	0.0 - 1.5	1.5	SM	SP-SM	SUBANGULAR TO ROUNDED	DARK OLIVE GRAY	5Y 3/2	3	OLIVE GRAY	5Y 5/2	5	NA	0.20	0.20	10.4	#VALUE!	#VALUE!
BI-CI-50-11B	CAT ISLAND	2011	6/24/2011	8:40 AM	30.23602	-89.03962	267722.25130	919107.10610	20-ft Vibracore	14.0	13.9	2.0 - 4.0	2.0	SP	SP-SM	SUBANGULAR TO ROUNDED	DARK OLIVE BROWN	2.5Y 3/3	3	DARK OLIVE BROWN	2.5Y 3/3	3	NA	0.20	0.20	7.8	2.5	1.5
BI-CI-50-11C	CAT ISLAND	2011	6/24/2011	8:40 AM	30.23602	-89.03962	267722.25130	919107.10610	20-ft Vibracore	14.0	13.9	5.0 - 10.0	5.0	SP	SP	SUBANGULAR TO ROUNDED	DARK GRAYISH BROWN	2.5Y 4/2	4	LIGHT BROWNISH GRAY	2.5Y 6/2	6	NA	0.20	0.20	3.5	2.0	1.3
BI-CI-51-11	CAT ISLAND	2011	6/25/2011	8:21 AM	30.23331	-89.03622	266734.73610	920179.03090	20-ft Vibracore	15.0	14.6																	
BI-CI-51-11A	CAT ISLAND	2011	6/25/2011	8:21 AM	30.23331	-89.03622	266734.73610	920179.03090	20-ft Vibracore	15.0	14.6	0.0 - 1.7	1.7	SM	SM	SUBANGULAR TO ROUNDED	DARK OLIVE GRAY	5Y 3/2	3	OLIVE GRAY	5Y 5/2	5	NA	0.19	0.18	13.5	#VALUE!	#VALUE!
BI-CI-51-11B	CAT ISLAND	2011	6/25/2011	8:21 AM	30.23331	-89.03622	266734.73610	920179.03090	20-ft Vibracore	15.0	14.6	1.7 - 6.7	5.0	SP	SP	SUBANGULAR TO ROUNDED	OLIVE GRAY	5Y 4/2	4	LIGHT OLIVE GRAY	5Y 6/2	6	NA	0.19	0.18	4.2	2.1	1.4
BI-CI-51-11C	CAT ISLAND	2011	6/25/2011	8:21 AM	30.23331	-89.03622	266734.73610	920179.03090	20-ft Vibracore	15.0	14.6	6.7 - 12.6	5.9	SP	SP-SM	SUBANGULAR TO ROUNDED	DARK OLIVE GRAY	5Y 3/2	3	LIGHT BROWNISH GRAY	2.5Y 6/2	6	NA	0.18	0.18	7.0	1.9	1.1
BI-CI-52-11	CAT ISLAND	2011	6/27/2011	11:44 AM	30.20650	-89.06538	257001.97050	910950.49580	20-ft Vibracore	18.0	17.4	NO SAMPLE TAKEN		CL	NO SAMPLE TESTED													
BI-CI-53-11	CAT ISLAND	2011	6/28/2011	9:46 AM	30.20350	-89.06773	255912.44150	910205.92410	20-ft Vibracore	19.8	13.3	NO SAMPLE TAKEN		CL	NO SAMPLE TESTED													
BI-CI-59-11	CAT ISLAND	2011	6/28/2011	9:18 AM	30.20318	-89.07452	255800.54130	908060.76350	20-ft Vibracore	15.5	12.0	NO SAMPLE TAKEN		CL	NO SAMPLE TESTED													
BI-CI-60-11	CAT ISLAND	2011	6/28/2011	8:52 AM	30.20644	-89.07098	256983.79740	909181.50270	20-ft Vibracore	15.9	12.9																	
BI-CI-60-11A	CAT ISLAND	2011	6/28/2011	8:52 AM	30.20644	-89.07098	256983.79740	909181.50270	20-ft Vibracore	15.9	12.9	0.0 - 3.5	3.5	SP-SM	SP	SUBANGULAR TO ROUNDED	DARK GRAYISH BROWN	2.5Y 4/2	4	LIGHT BROWNISH GRAY	2.5Y 6/2	6	NA	0.22	0.24	4.8	1.6	0.9
BI-CI-60-11B	CAT ISLAND	2011	6/28/2011	8:52 AM	30.20644	-89.07098	256983.79740	909181.50270	20-ft Vibracore	15.9	12.9	3.5 - 7.5	4.0	SM	SP-SM	SUBANGULAR TO ROUNDED	DARK GRAYISH BROWN	2.5Y 4/2	4	LIGHT GRAY	2.5Y 7/2	7	NA	0.20	0.21	5.4	1.5	1.0
BI-CI-61-11	CAT ISLAND	2011	6/28/2011	12:30 PM	30.20931	-89.06792	258025.56420	910150.25700	20-ft Vibracore	14.6	12.4																	
BI-CI-61-11A	CAT ISLAND	2011	6/28/2011	12:30 PM	30.20931	-89.06792	258025.56420	910150.25700	20-ft Vibracore	14.6	12.4	0.0 - 4.0	4.0	SP	SP	SUBANGULAR TO ROUNDED	VERY DARK GRAYISH BROWN	2.5Y 3/2	3	GRAYISH BROWN	2.5Y 5/2	5	NA	0.21	0.22	4.8	1.7	1.1
BI-CI-61-11B	CAT ISLAND	2011	6/28/2011	12:30 PM	30.20931	-89.06792	258025.56420	910150.25700	20-ft Vibracore	14.6	12.4	4.0 - 7.2	3.2	SP	SP	SUBANGULAR TO ROUNDED	OLIVE GRAY	5Y 4/2	4	LIGHT BROWNISH GRAY	2.5Y 6/2	6	NA	0.19	0.20	3.3	1.9	1.3
BI-CI-62-11	CAT ISLAND	2011	6/28/2011	12:55 PM	30.21210	-89.07150	259042.58840	909021.54850	20-ft Vibracore	11.9	10.3																	
BI-CI-62-11A	CAT ISLAND	2011	6/28/2011	12:55 PM	30.21210	-89.07150	259042.58840	909021.54850	20-ft Vibracore	11.9	10.3	0.0 - 5.0	5.0	SP	SP	SUBANGULAR TO ROUNDED	DARK GRAYISH BROWN	2.5Y 4/2	4	GRAYISH BROWN	2.5Y 5/2	5	NA	0.23	0.25	1.6	1.6	0.9
BI-CI-62-11B	CAT ISLAND	2011	6/28/2011	12:55 PM	30.21210	-89.07150	259042.58840	909021.54850	20-ft Vibracore	11.9	10.3	5.0 - 10.0	5.0	SP	SP	SUBANGULAR TO ROUNDED	GRAYISH BROWN	2.5Y 5/2	5	LIGHT BROWNISH GRAY	2.5Y 6/2	6	NA	0.19	0.18	4.1	2.1	1.4
BI-CI-63-11	CAT ISLAND	2011	6/28/2011	1:47 PM	30.20911	-89.07479	257957.36350	907980.04460	20-ft Vibracore	11.8	12.3																	
BI-CI-63-11A	CAT ISLAND	2011	6/28/2011	1:47 PM	30.20911	-89.07479	257957.36350	907980.04460	20-ft Vibracore	11.8	12.3	0.0 - 4.0	4.0	SP	SP-SM	SUBANGULAR TO ROUNDED	DARK GRAYISH BROWN	2.5Y 4/2	4	GRAYISH BROWN	2.5Y 5/2	5	NA	0.40	0.42	7.8	2.6	1.2
BI-CI-63-11B	CAT ISLAND	2011	6/28/2011	1:47 PM	30.20911	-89.07479	257957.36350	907980.04460	20-ft Vibracore	11.8	12.3	4.0 - 8.2	4.2	SP	SP	SUBANGULAR TO ROUNDED	GRAYISH BROWN	2.5Y 5/2	5	LIGHT BROWNISH GRAY	2.5Y 6/2	6	NA	0.20	0.21	2.8	1.6	1.0
BI-CI-63-11C	CAT ISLAND	2011	6/28/2011	1:47 PM	30.20911	-89.07479	257957.36350	907980.04460	20-ft Vibracore	11.8	12.3	8.2 - 9.0	0.8	SP	SP-SM	SUBANGULAR TO ROUNDED	OLIVE GRAY	5Y 4/2	4	LIGHT BROWNISH GRAY	2.5Y 5.5/2	6	NA	0.16	0.16	8.2	2.2	1.1
BI-CI-64-11	CAT ISLAND	2011	6/28/2011	2:13 PM	30.20597	-89.07787	256817.47390	907004.69670	20-ft Vibracore	12.6	10.9	NO SAMPLE TAKEN		CL	NO SAMPLE TESTED													
BI-CI-65-11	CAT ISLAND	2011	6/28/2011	2:35 PM	30.20299	-89.08102	255735.84830	906007.30090	20-ft Vibracore	11.6	11.7	NO SAMPLE TAKEN		CL	NO SAMPLE TESTED													
BI-CI-67-11	CAT ISLAND	2011	6/23/2011	12:20 PM	30.24479	-89.04367	270914.10800	917834.05810	20-ft Vibracore	10.0	14.5																	
BI-CI-67-11A	CAT ISLAND	2011	6/23/2011	12:20 PM	30.24479	-89.04367	270914.10800	917834.05810	20-ft Vibracore	10.0	14.5	0.0 - 2.0	2.0	SP	SP	SUBANGULAR TO ROUNDED	LIGHT OLIVE GRAY	5Y 6/2	6	LIGHT OLIVE GRAY	5Y 6/2	6	NA	0.21	0.23	2.7	1.5	0.9
BI-CI-67-11B	CAT ISLAND	2011	6/23/2011	12:20 PM	30.24479	-89.04367	270914.10800	917834.05810	20-ft Vibracore	10.0	14.5	2.0 - 6.5	4.5	SM	SP-SM	SUBANGULAR TO ROUNDED	OLIVE GRAY	5Y 4/2	4	OLIVE GRAY	5Y 5/2	5	NA	0.20	0.20	9.4	2.7	1.7
BI-CI-67-11C	CAT ISLAND	2011	6/23/2011	12:20 PM	30.24479	-89.04367	270914.10800	917834.05810	20-ft Vibracore	10.0	14.5	6.5 - 11.5	5.0	SP	SP	SUBANGULAR TO ROUNDED	BLACK	2.5Y 2.5/1	3	GRAYISH BROWN	2.5Y 5/2	5	NA	0.20	0.22	3.0	2.0	1.2
BI-CI-67-11D	CAT ISLAND	2011	6/23/2011	12:20 PM	30.24479	-89.04367	270914.10800	917834.05810	20-ft Vibracore	10.0	14.5	11.5 - 14.5	3.0	SP	SP	SUBANGULAR TO ROUNDED	DARK GRAY	2.5Y 4/1	4	GRAY	2.5Y 6/1	6	NA	0.19	0.19	2.3	2.1	1.3
BI-CI-70-11	CAT ISLAND	2011	6/23/2011	9:47 AM	30.25251	-89.03226	273715.27550	921441.79960	20-ft Vibracore	9.0	11.4																	
BI-CI-70-11A	CAT ISLAND	2011	6/23/2011	9:47 AM	30.25251	-89.03226	273715.27550	921441.79960	20-ft Vibracore	9.0	11.4	0.0 - 2.9	2.9	SP	SP	SUBANGULAR TO ROUNDED	OLIVE GRAY	5Y 4/2	4	LIGHT BROWNISH GRAY	2.5Y 6/2	6	NA	0.20	0.21	1.7	1.4	1.0
BI-CI-70-11B	CAT ISLAND	2011	6/23/2011	9:47 AM	30.25251	-89.03226	273715.27550	921441.79960	20-ft Vibracore	9.0	11.4	2.9 - 6.0	3.1	SM	SP-SM	SUBANGULAR TO ROUNDED	DARK OLIVE GRAY	5Y 3/2	3	GRAYISH BROWN	2.5Y 5/2	5	NA	0.18	0.18	7.3	2.4	1.5
BI-CI-72-11	CAT ISLAND	2011	6/23/2011	8:53 AM	30.25780	-89.02479	275635.12290	923803.58700	20-ft Vibracore	12.5	13.0																	
BI-CI-72-11A	CAT ISLAND	2011	6/23/2011	8:53 AM	30.25780	-89.02479	275635.12290	923803.58700	20-ft Vibracore	12.5	13.0	0.0 - 2.9	2.9	SP	SP-SM	SUBANGULAR TO ROUNDED	OLIVE GRAY	5Y 4/2	4	OLIVE GRAY	5Y 5/2	5	NA	0.19	0.18	5.5	2.1	1.4
BI-CI-73-11	CAT ISLAND	2011	6/22/2011	8:46 AM	30.24203	-89.04061	269908.56410	918798.45730	20-ft Vibracore	10.0	15.0																	
BI-CI-73-11A	CAT ISLAND	2011	6/22/2011	8:46 AM	30.24203	-89.04061	269908.56410	918798.45730	20-ft Vibracore	10.0	15.0	0.0 - 2.6	2.6	SP	SP	SUBANGULAR TO ROUNDED	OLIVE GRAY	5Y 4/2	4	LIGHT OLIVE GRAY	5Y 6/2	6	NA	0.20	0.21	3.2	1.4	1.0
BI-CI-73-11B	CAT ISLAND	2011	6/22/2011	8:46 AM	30.24203	-89.04061	269908.56410	918798.45730	20-ft Vibracore	10.0	15.0	2.6 - 7.6	5.0	SM	SM	SUBANGULAR TO ROUNDED	VERY DARK GRAYISH BROWN											



Vibracore / Sample ID	Investigation Area	Sample Event	Date of Sample	Time_CST	Latitude	Longitude	Northing_Y	Easting_X	Sample Method	Water Depth (feet)	Boring Depth (feet below seafloor surface)	Sample Depth (Feet below seafloor surface)	Sample Thickness (feet)	Field USCS	Lab USCS	Angularity	Wet Munsell Color	Wet Munsell Color Code	Wet Munsell Value	Dry Munsell Color	Dry Munsell Color Code	Dry Munsell Value	CaCO3	D50 (mm)	Graphic Mean (mm)	% Fines	Cu (D60/D10)	Cc (D30)^2 / (D10*D60)	
BI-CI-76-11C	CAT ISLAND	2011	6/22/2011	2:30 PM	30.24972	-89.02946	272699.05830	922324.11080	20-ft Vibracore	8.5	11.6	9.0 - 11.6	2.6	SM	SP-SM	SUBANGULAR TO ROUNDED	VERY DARK GRAYISH BROWN	2.5Y 3/2	3	GRAYISH BROWN	2.5Y 5/2	5	NA	0.18	0.18	5.8	2.3	1.4	
BI-CI-77-11	CAT ISLAND	2011	6/22/2011	4:26 PM	30.25215	-89.02521	273580.52420	923667.51780	20-ft Vibracore	9.3	13.3																		
BI-CI-77-11A	CAT ISLAND	2011	6/22/2011	4:26 PM	30.25215	-89.02521	273580.52420	923667.51780	20-ft Vibracore	9.3	13.3	0.0 - 5.0	5.0	SP	SP	SUBANGULAR TO ROUNDED	GRAY	2.5Y 5/1	5	GRAY	5Y 6/1	6	NA	0.19	0.20	2.4	1.4	1.0	
BI-CI-78-11	CAT ISLAND	2011	6/22/2011	5:02 PM	30.25479	-89.02200	274538.95750	924682.62700	20-ft Vibracore	11.0	11.9																		
BI-CI-78-11A	CAT ISLAND	2011	6/22/2011	5:02 PM	30.25479	-89.02200	274538.95750	924682.62700	20-ft Vibracore	11.0	11.9	0.0 - 3.5	3.5	SP	SP	SUBANGULAR TO ROUNDED	DARK GRAYISH BROWN	2.5Y 4/2	4	GRAYISH BROWN	2.5Y 5/2	5	NA	0.18	0.18	4.1	2.0	1.4	
BI-CI-82-11	CAT ISLAND	2011	6/23/2011	10:30 AM	30.24591	-89.02634	271311.73330	923306.88370	20-ft Vibracore	11.5	16.1																		
BI-CI-82-11A	CAT ISLAND	2011	6/23/2011	10:30 AM	30.24591	-89.02634	271311.73330	923306.88370	20-ft Vibracore	11.5	16.1	0.0 - 3.0	3.0	SM	SP-SM	SUBANGULAR TO ROUNDED	DARK OLIVE GRAY	5Y 3/2	3	GRAYISH BROWN	2.5Y 5/2	5	NA	0.19	0.19	7.1	2.5	1.5	
BI-CI-82-11B	CAT ISLAND	2011	6/23/2011	10:30 AM	30.24591	-89.02634	271311.73330	923306.88370	20-ft Vibracore	11.5	16.1	6.5 - 11.5	5.0	SP	SP	SUBANGULAR TO ROUNDED	OLIVE GRAY	5Y 4/2	4	LIGHT BROWNISH GRAY	2.5Y 6/2	6	NA	0.20	0.20	4.3	2.2	1.3	
BI-CI-82-11C	CAT ISLAND	2011	6/23/2011	10:30 AM	30.24591	-89.02634	271311.73330	923306.88370	20-ft Vibracore	11.5	16.1	11.5 - 16.1	4.6	SP	SP	SUBANGULAR TO ROUNDED	GRAY	5Y 5/1	5	LIGHT GRAY	2.5Y 7/1	7	NA	0.18	0.18	2.8	2.0	1.3	
BI-CI-84-11	CAT ISLAND	2011	6/28/2011	3:43 PM	30.23149	-89.04862	266080.02600	916261.88880	20-ft Vibracore	12.3	11.0	NO SAMPLE TAKEN		CL	NO SAMPLE TESTED														
BI-CI-85-11	CAT ISLAND	2011	6/28/2011	3:25 PM	30.22764	-89.05079	264681.14470	915573.91980	20-ft Vibracore	13.0	11.8	NO SAMPLE TAKEN		CL	NO SAMPLE TESTED														
BI-CI-86-11	CAT ISLAND	2011	6/28/2011	3:06 PM	30.22569	-89.04816	263970.38340	916403.17660	20-ft Vibracore	14.6	6.9																		
BI-CI-86-11A	CAT ISLAND	2011	6/28/2011	3:06 PM	30.22569	-89.04816	263970.38340	916403.17660	20-ft Vibracore	14.6	6.9	0.0 - 3.0	3.0	SM	SP-SM	SUBANGULAR TO ROUNDED	BLACK	5Y 2.5/1	3	GRAY	5Y 6/1	6	NA	0.18	0.19	10.7	#VALUE!	#VALUE!	
BI-CI-86-11B	CAT ISLAND	2011	6/28/2011	3:06 PM	30.22569	-89.04816	263970.38340	916403.17660	20-ft Vibracore	14.6	6.9	3.0 - 6.9	3.9	SP	SP	SUBANGULAR TO ROUNDED	OLIVE GRAY	5Y 4/2	4	GRAYISH BROWN	2.5Y 5/2	5	NA	0.20	0.20	3.3	1.6	1.1	
BI-CI-87-11	CAT ISLAND	2011	6/28/2011	2:37 PM	30.22199	-89.05019	262625.96880	915759.49430	20-ft Vibracore	13.2	7.5																		
BI-CI-87-11A	CAT ISLAND	2011	6/28/2011	2:37 PM	30.22199	-89.05019	262625.96880	915759.49430	20-ft Vibracore	13.2	7.5	0.0 - 4.0	4.0	SP	SP	SUBANGULAR TO ROUNDED	OLIVE GRAY	5Y 4/2	4	LIGHT BROWNISH GRAY	2.5Y 6/2	6	NA	0.20	0.20	4.1	2.1	1.3	
BI-CI-87-11B	CAT ISLAND	2011	6/28/2011	2:37 PM	30.22199	-89.05019	262625.96880	915759.49430	20-ft Vibracore	13.2	7.5	4.0 - 7.5	3.5	SP	SP	SUBANGULAR TO ROUNDED	DARK GRAY	5Y 4/1	4	GRAY	2.5Y 6/1	6	NA	0.19	0.18	3.5	2.1	1.4	
BI-CI-88-11	CAT ISLAND	2011	6/28/2011	10:32 AM	30.20780	-89.08019	257484.59560	906273.28540	20-ft Vibracore	11.9	11.2																		
BI-CI-88-11A	CAT ISLAND	2011	6/28/2011	10:32 AM	30.20780	-89.08019	257484.59560	906273.28540	20-ft Vibracore	11.9	11.2	0.0 - 4.0	4.0	SP-SM	SP-SM	SUBANGULAR TO ROUNDED	OLIVE GRAY	5Y 4/2	4	GRAYISH BROWN	2.5Y 5/2	5	NA	0.23	0.24	8.5	2.4	1.3	
BI-CI-88-11B	CAT ISLAND	2011	6/28/2011	10:32 AM	30.20780	-89.08019	257484.59560	906273.28540	20-ft Vibracore	11.9	11.2	4.0 - 9.5	5.5	SP-SM	SP	SUBANGULAR TO ROUNDED	GRAY	2.5Y 5/1	5	LIGHT GRAY	2.5Y 7/1	7	NA	0.20	0.21	4.5	1.4	1.0	
BI-CI-89-11	CAT ISLAND	2011	6/28/2011	11:10 AM	30.20408	-89.08185	256132.83410	905745.97320	20-ft Vibracore	11.6	10.0	NO SAMPLE TAKEN		CL	NO SAMPLE TESTED														
BI-CI-90-11	CAT ISLAND	2011	6/28/2011	12:46 PM	30.20678	-89.07899	257112.81880	906651.54060	20-ft Vibracore	11.6	11.7	NO SAMPLE TAKEN		CL	NO SAMPLE TESTED														
BI-CI-91-11	CAT ISLAND	2011	6/28/2011	1:30 PM	30.21116	-89.07715	258704.50310	907236.17550	20-ft Vibracore	11.3	7.8																		
BI-CI-91-11A	CAT ISLAND	2011	6/28/2011	1:30 PM	30.21116	-89.07715	258704.50310	907236.17550	20-ft Vibracore	11.3	7.8	0.0 - 3.0	3.0	SP	SP-SM	SUBANGULAR TO ROUNDED	OLIVE GRAY	5Y 4/2	4	GRAYISH BROWN	2.5Y 5/2	5	NA	0.22	0.23	5.2	1.7	1.0	
BI-CI-91-11B	CAT ISLAND	2011	6/28/2011	1:30 PM	30.21116	-89.07715	258704.50310	907236.17550	20-ft Vibracore	11.3	7.8	3.0 - 6.0	3.0	SP	SP	SUBANGULAR TO ROUNDED	DARK GRAY	5Y 4/1	4	GRAY	5Y 6/1	6	NA	0.21	0.22	2.6	1.4	1.0	
BI-CI-91-11C	CAT ISLAND	2011	6/28/2011	1:30 PM	30.21116	-89.07715	258704.50310	907236.17550	20-ft Vibracore	11.3	7.8	6.0 - 7.8	1.8	SP	SP	SUBANGULAR TO ROUNDED	GRAY	5Y 5/1	5	LIGHT GRAY	2.5Y 7/1	7	NA	0.21	0.22	1.7	1.5	0.9	
BI-CI-92-11	CAT ISLAND	2011	6/28/2011	2:00 PM	30.20521	-89.08334	256544.82640	905276.19720	20-ft Vibracore	10.6	9.4	NO SAMPLE TAKEN		CL	NO SAMPLE TESTED														
BI-CI-TEST-11	CAT ISLAND	2011	6/22/2011	3:42 PM	30.22976	-89.03699	265444.09170	919933.55620	20-ft Vibracore	8.5	18.0																		
BI-CI-TEST-11A	CAT ISLAND	2011	6/22/2011	3:42 PM	30.22976	-89.03699	265444.09170	919933.55620	20-ft Vibracore	8.5	18.0	0.0 - 5.0	5.0	SP	SP	SUBANGULAR TO ROUNDED	NA	NA	NA	NA	NA	NA	NA	0.20	0.21	4.4	1.9	1.2	
BI-CI-TEST-11B	CAT ISLAND	2011	6/22/2011	3:42 PM	30.22976	-89.03699	265444.09170	919933.55620	20-ft Vibracore	8.5	18.0	5.0-10.0	5.0	SP	SP	SUBANGULAR TO ROUNDED	NA	NA	NA	NA	NA	NA	NA	0.20	0.21	3.2	1.4	1.0	

Cu: Coefficient of Uniformity  
Cc: Coefficient of Curvature  
The "#Value!" error message indicates that data was not available for that calculation.

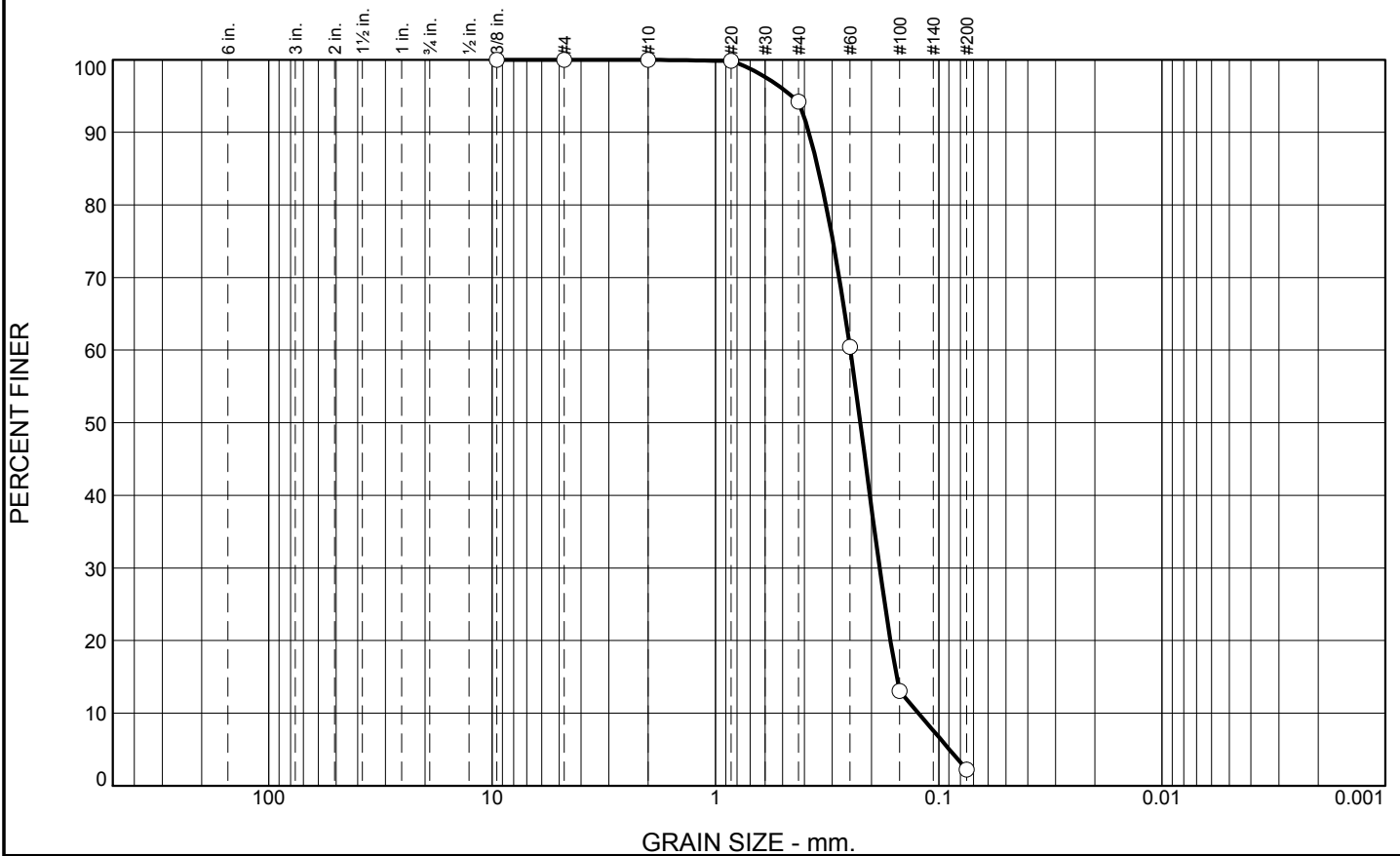
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# Boring Designation BI-CI-01-10

DRILLING LOG		DIVISION South Atlantic		INSTALLATION Mobile District		SHEET 1 OF 1 SHEETS	
1. PROJECT MsCIP Barrier Island Restoration Cat Island				9. SIZE AND TYPE OF BIT N/A			
2. BORING DESIGNATION BI-CI-01-10		LOCATION COORDINATES E = 908,808 N = 262,822		10. COORDINATE SYSTEM/DATUM State Plane, MSE (U.S. Ft.)		HORIZONTAL NAD83	
3. DRILLING AGENCY Corps of Engineers - CESAM		CONTRACTOR FILE NO.		11. MANUFACTURER'S DESIGNATION OF DRILL Vibrocure		<input type="checkbox"/> AUTO HAMMER <input type="checkbox"/> MANUAL HAMMER	
4. NAME OF DRILLER Construction Solutions International, Inc.				12. TOTAL SAMPLES 3		DISTURBED 0	
5. DIRECTION OF BORING <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED				13. TOTAL NUMBER CORE BOXES		14. WATER DEPTH 9.5 Ft.	
6. THICKNESS OF OVERBURDEN N/A				15. DATE BORING 05-19-10		STARTED 05-19-10	
7. DEPTH DRILLED INTO ROCK N/A				16. ELEVATION TOP OF BORING -8.6 Ft.		COMPLETED 05-19-10	
8. TOTAL DEPTH OF BORING 15.1 Ft.				17. TOTAL RECOVERY FOR BORING 100%		18. SIGNATURE AND TITLE OF INSPECTOR Marty Gates, Geologist	
ELEV.	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS	SAMPLE	LABORATORY RESULTS		
-8.6	0.0						
			SAND, poorly-graded, mostly fine to medium-grained sand-sized quartz, trace silt, lt. brown (SP)	A	Classification: SP Color: 2.5Y 6/2-light brownish gray D50: 0.2246 mm % Fines: 2.2		
				B	Classification: SP Color: 2.5Y 6/2-light brownish gray D50: 0.2306 mm % Fines: 3.6		
-19.6	11.0		SAND, poorly-graded, mostly fine to medium-grained sand-sized quartz, trace clay, trace shell fragments, lt. gray (SP)	C	Classification: SP-SM Color: 2.5Y 6/1-gray D50: 0.2049 mm % Fines: 5.1		
-22.6	14.0						
-23.7	15.1		SAND, poorly-graded, mostly fine to medium-grained sand-sized quartz, little clay, gray (SP)				
NOTES:							
1. Soils are field visually classified in accordance with the Unified Soils Classification System.							
2. NS = Sample not submitted for laboratory analysis from this interval.							
3. Seafloor elevation calculated using sampling vessel's fathometer water depth reading and applying NOAA tidal gauge data conversion factor.							

# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.0	0.0	5.8	92.0	2.2	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
.375	100.0		
#4	100.0		
#10	100.0		
#20	99.8		
#40	94.2		
#60	60.4		
#100	13.1		
#200	2.2		

\* (no specification provided)

## Material Description

SAND, (SP), fine grained

## Atterberg Limits

PL=

LL=

PI=

## Coefficients

D<sub>90</sub>= 0.3821

D<sub>85</sub>= 0.3468

D<sub>60</sub>= 0.2488

D<sub>50</sub>= 0.2246

D<sub>30</sub>= 0.1840

D<sub>15</sub>= 0.1543

D<sub>10</sub>= 0.1233

C<sub>u</sub>= 2.02

C<sub>c</sub>= 1.10

## Classification

USCS= SP

AASHTO=

## Remarks

CADD CODE = CH10D965

Location: USACE Sample # BI-CI-1-10A  
Sample Number: TE Lab ID: 4488.56

Depth: 0.0 - 5.0 (ft.)

Date: 5/27/10

**Thompson Engineering**

**Mobile, Alabama**

Client: US Army Corps of Engineers

Project: Contract No. W91278-10-D-0026 - Task 03  
Mississippi Barrier Island Restoration Project

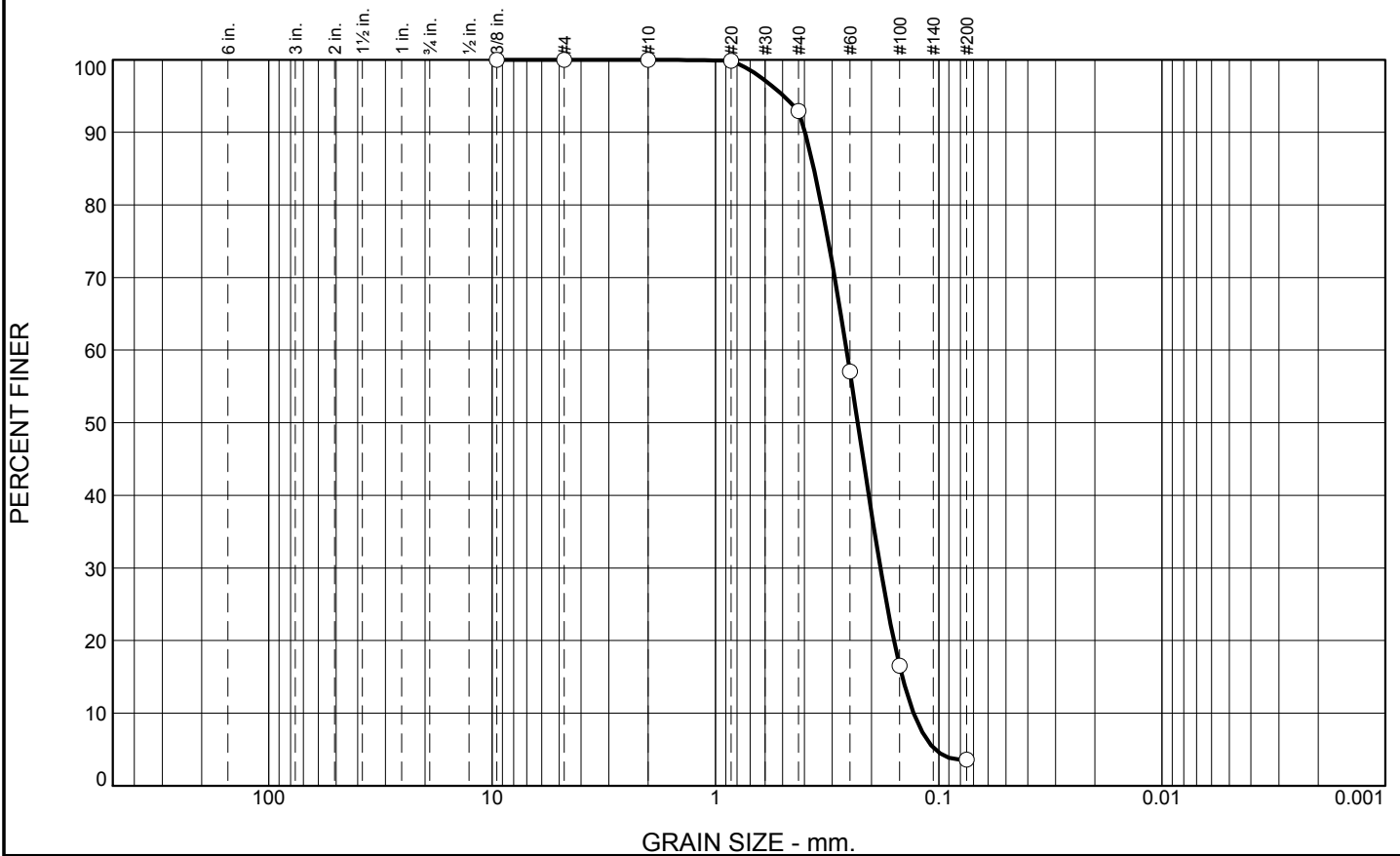
Project No: 10-2123-0009

Figure

Tested By: L.Stokes

Checked By: R.Byrd

# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.0	0.0	7.0	89.4	3.6	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
.375	100.0		
#4	100.0		
#10	100.0		
#20	99.9		
#40	93.0		
#60	57.1		
#100	16.5		
#200	3.6		

\* (no specification provided)

## Material Description

SAND, (SP), fine grained

## Atterberg Limits

PL=

LL=

PI=

## Coefficients

D<sub>90</sub>= 0.3977

D<sub>85</sub>= 0.3627

D<sub>60</sub>= 0.2587

D<sub>50</sub>= 0.2306

D<sub>30</sub>= 0.1825

D<sub>15</sub>= 0.1457

D<sub>10</sub>= 0.1295

C<sub>u</sub>= 2.00

C<sub>c</sub>= 0.99

## Classification

USCS= SP

AASHTO=

## Remarks

CADD CODE = CH10D965

Location: USACE Sample # BI-CI-1-10B  
Sample Number: TE Lab ID: 4488.57

Depth: 5.0 - 10.0 (ft.)

Date: 5/27/10

**Thompson Engineering**

**Mobile, Alabama**

Client: US Army Corps of Engineers

Project: Contract No. W91278-10-D-0026 - Task 03  
Mississippi Barrier Island Restoration Project

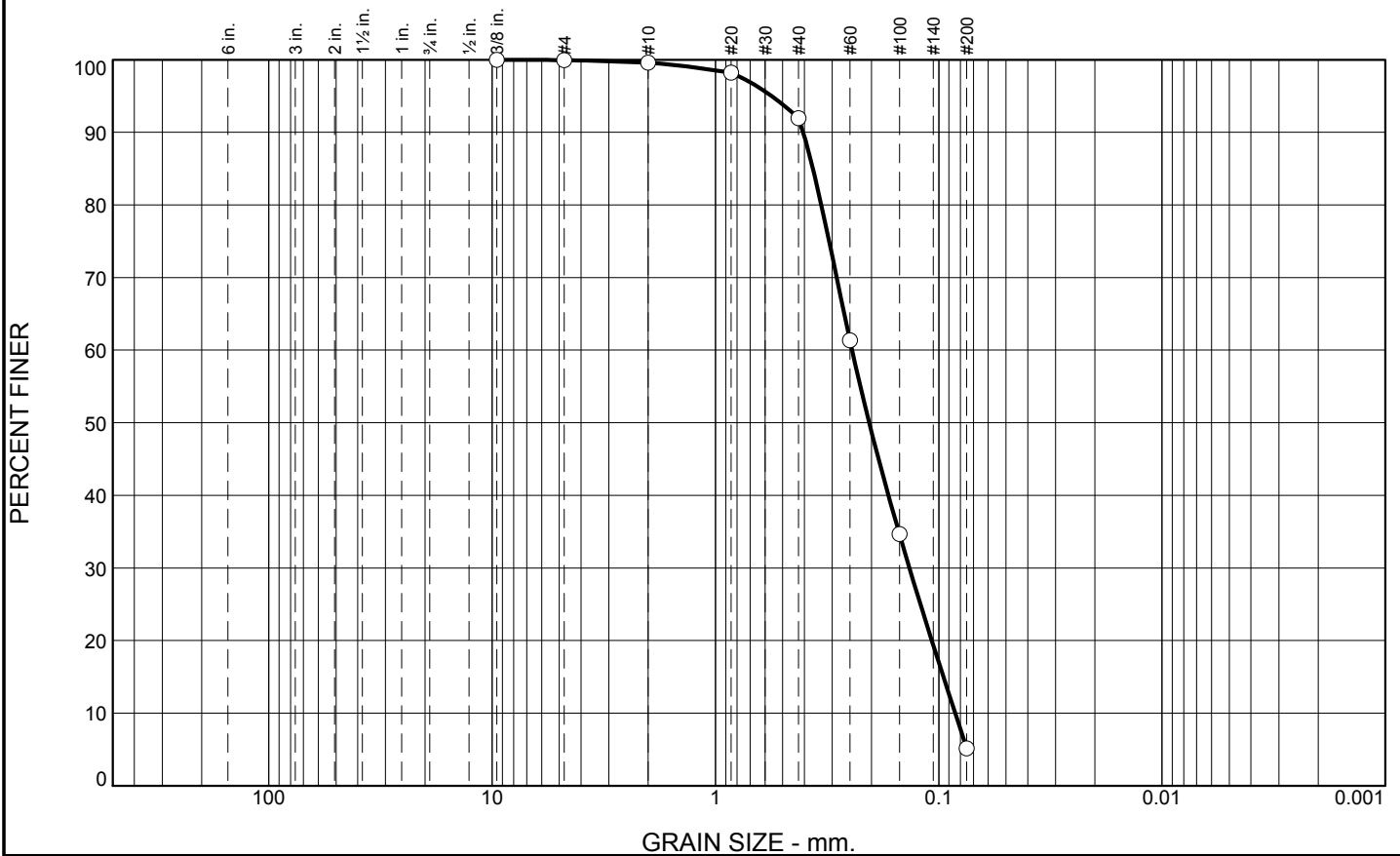
Project No: 10-2123-0009

Figure

Tested By: L.Stokes

Checked By: R.Byrd

# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.1	0.3	7.6	86.9	5.1	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
.375	100.0		
#4	99.9		
#10	99.6		
#20	98.2		
#40	92.0		
#60	61.4		
#100	34.7		
#200	5.1		

\* (no specification provided)

<u>Material Description</u>		
SAND, (SP-SM), fine grained		
<u>Atterberg Limits</u>		
PL=	LL=	PI=
<u>Coefficients</u>		
D <sub>90</sub> = 0.4052	D <sub>85</sub> = 0.3662	D <sub>60</sub> = 0.2444
D <sub>50</sub> = 0.2049	D <sub>30</sub> = 0.1353	D <sub>15</sub> = 0.0953
D <sub>10</sub> = 0.0845	C <sub>u</sub> = 2.89	C <sub>c</sub> = 0.89
<u>Classification</u>		
USCS= SP-SM	AASHTO=	
<u>Remarks</u>		
CADD CODE = CH10D965		

Location: USACE Sample # BI-CI-1-10C  
Sample Number: TE Lab ID: 4488.58

Depth: 10.0 - 15.1 (ft.)

Date: 5/27/10

**Thompson Engineering**  
**Mobile, Alabama**

**Client:** US Army Corps of Engineers  
**Project:** Contract No. W91278-10-D-0026 - Task 03  
Mississippi Barrier Island Restoration Project  
**Project No:** 10-2123-0009

**Figure**

Tested By: L.Stokes

Checked By: R.Byrd

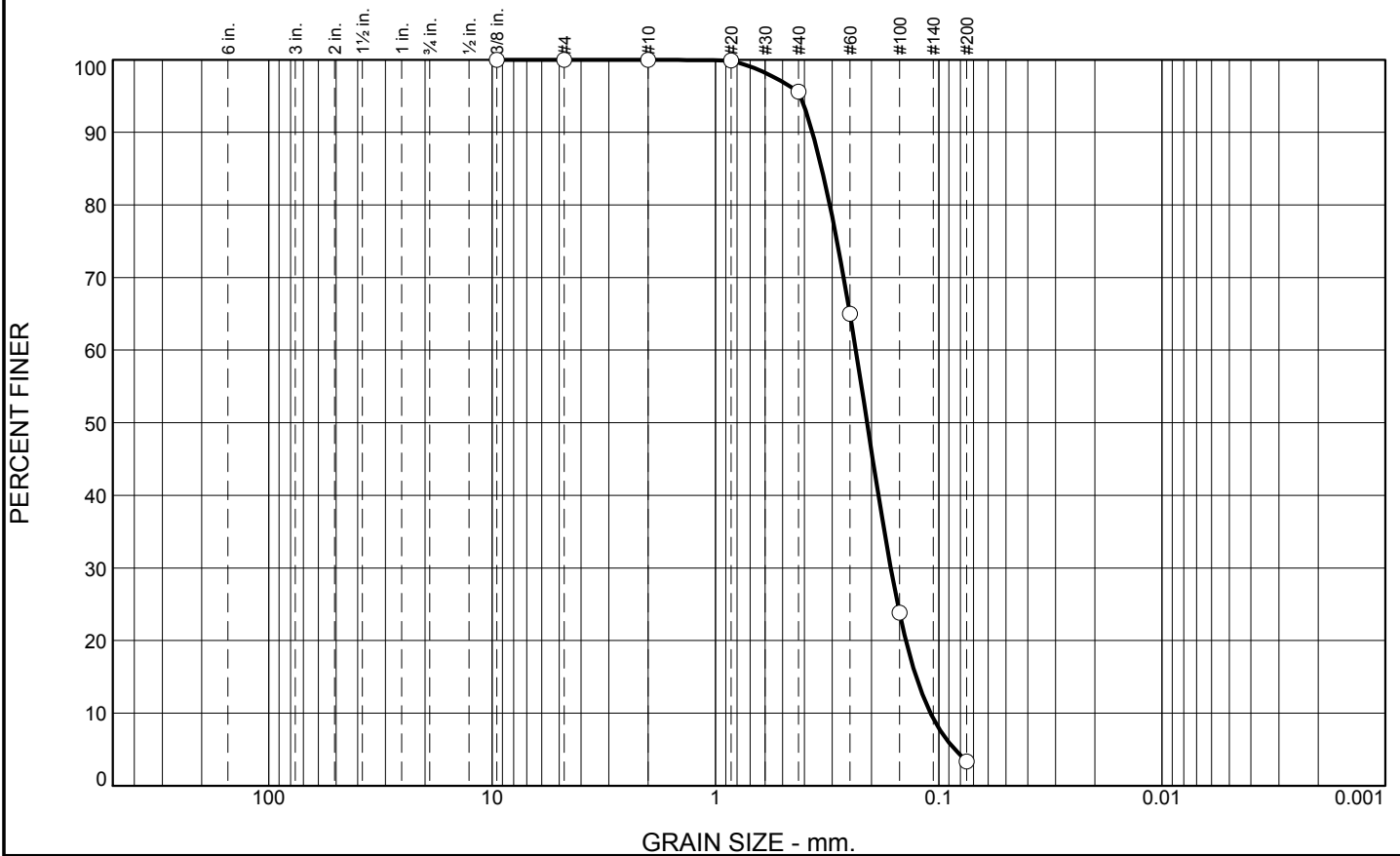
# Boring Designation BI-CI-02-10

DRILLING LOG		DIVISION South Atlantic		INSTALLATION Mobile District		SHEET 1 OF 1 SHEETS	
1. PROJECT MsCIP Barrier Island Restoration Cat Island				9. SIZE AND TYPE OF BIT N/A			
2. BORING DESIGNATION BI-CI-02-10		LOCATION COORDINATES E = 909,303 N = 263,614		10. COORDINATE SYSTEM/DATUM State Plane, MSE (U.S. Ft.)		HORIZONTAL NAD83 VERTICAL NAVD88	
3. DRILLING AGENCY Corps of Engineers - CESAM		CONTRACTOR FILE NO.		11. MANUFACTURER'S DESIGNATION OF DRILL Vibracore		<input type="checkbox"/> AUTO HAMMER <input type="checkbox"/> MANUAL HAMMER	
4. NAME OF DRILLER Construction Solutions International, Inc.				12. TOTAL SAMPLES 2		DISTURBED 0 UNDISTURBED (UD)	
5. DIRECTION OF BORING <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED		DEG. FROM VERTICAL		13. TOTAL NUMBER CORE BOXES			
		BEARING		14. WATER DEPTH 10 Ft.			
6. THICKNESS OF OVERBURDEN N/A				15. DATE BORING 05-19-10		STARTED 05-19-10 COMPLETED 05-19-10	
7. DEPTH DRILLED INTO ROCK N/A				16. ELEVATION TOP OF BORING -8.8 Ft.			
8. TOTAL DEPTH OF BORING 11.1 Ft.				17. TOTAL RECOVERY FOR BORING 100%			
				18. SIGNATURE AND TITLE OF INSPECTOR Marty Gates, Geologist			

ELEV.	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS	SAMPLE	LABORATORY RESULTS
-8.8	0.0				
			SAND, poorly-graded, mostly fine to medium-grained sand-sized quartz, trace silt, lt. brown (SP)	A	Classification: SP Color: 2.5Y 6/2-light brownish gray D50: 0.2094 mm % Fines: 3.3
-16.8	8.0		SAND, poorly-graded, mostly fine to medium-grained sand-sized quartz, trace clay, trace shell fragments, lt. gray (SP)	B	Classification: SP-SM Color: 2.5Y 7/1-light gray D50: 0.1761 mm % Fines: 5.7
-19.2	10.4				
-19.9	11.1		SAND, poorly-graded, mostly fine to medium-grained sand-sized quartz, little clay, trace shell fragments, gray (SP)		
			NOTES: 1. Soils are field visually classified in accordance with the Unified Soils Classification System. 2. NS = Sample not submitted for laboratory analysis from this interval. 3. Seafloor elevation calculated using sampling vessel's fathometer water depth reading and applying NOAA tidal gauge data conversion factor.		

# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.0	0.0	4.4	92.3	3.3	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
.375	100.0		
#4	100.0		
#10	100.0		
#20	99.9		
#40	95.6		
#60	65.0		
#100	23.8		
#200	3.3		

\* (no specification provided)

## Material Description

SAND, (SP), fine grained

## Atterberg Limits

PL=

LL=

PI=

## Coefficients

D<sub>90</sub>= 0.3682

D<sub>85</sub>= 0.3341

D<sub>60</sub>= 0.2353

D<sub>50</sub>= 0.2094

D<sub>30</sub>= 0.1642

D<sub>15</sub>= 0.1262

D<sub>10</sub>= 0.1089

C<sub>u</sub>= 2.16

C<sub>c</sub>= 1.05

## Classification

USCS= SP

AASHTO=

## Remarks

CADD CODE = CH10D965

Location: USACE Sample # BI-CI-2-10A  
Sample Number: TE Lab ID: 4488.62

Depth: 0.0 - 5.0 (ft.)

Date: 5/27/10

**Thompson Engineering**

**Mobile, Alabama**

Client: US Army Corps of Engineers

Project: Contract No. W91278-10-D-0026 - Task 03  
Mississippi Barrier Island Restoration Project

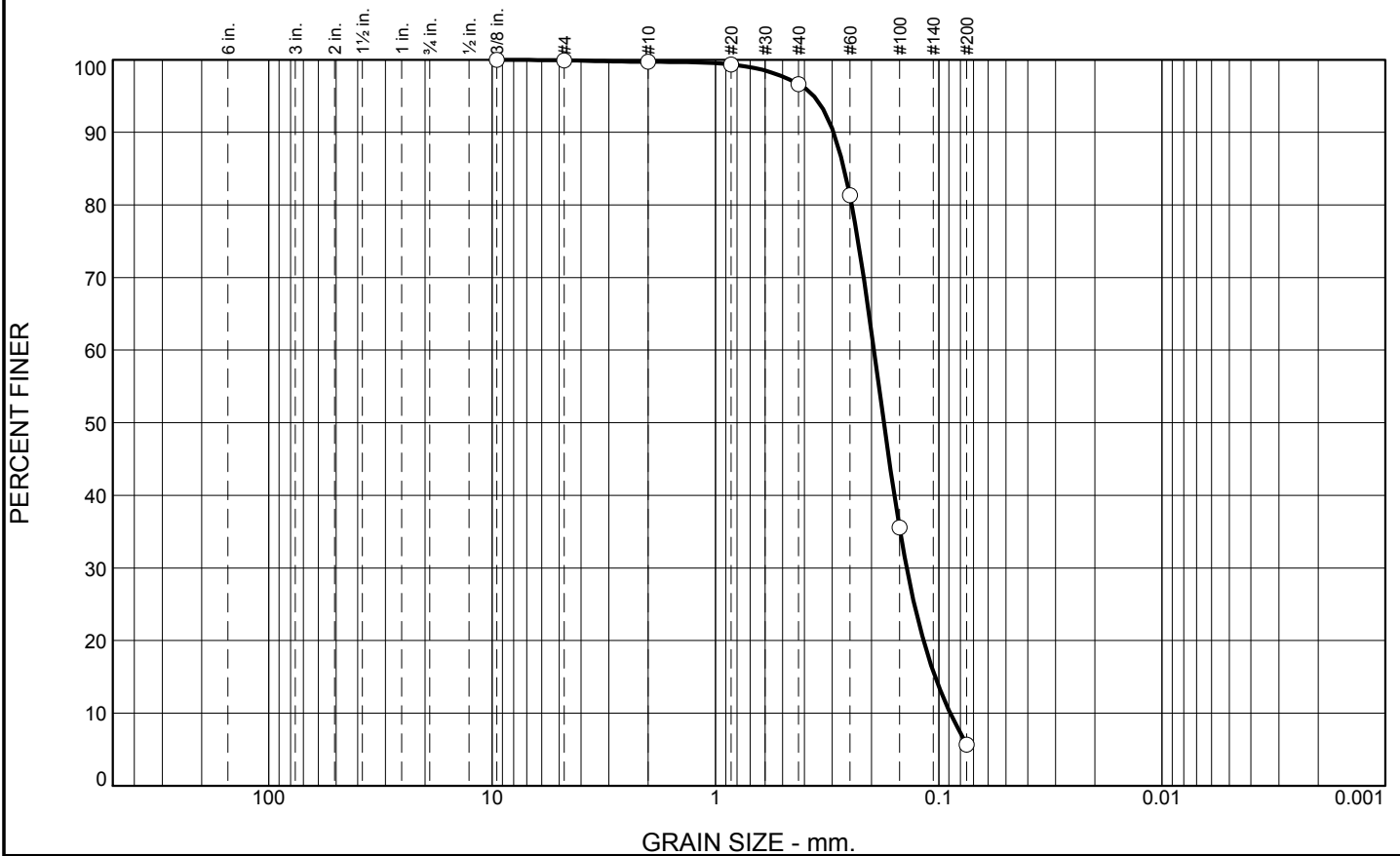
Project No: 10-2123-0009

Figure

Tested By: L.Stokes

Checked By: R.Byrd

# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.1	0.2	3.1	90.9	5.7	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
.375	100.0		
#4	99.9		
#10	99.7		
#20	99.3		
#40	96.6		
#60	81.3		
#100	35.6		
#200	5.7		

\* (no specification provided)

## Material Description

SAND, (SP-SM), fine grained

## Atterberg Limits

PL=

LL=

PI=

## Coefficients

D<sub>90</sub>= 0.2959

D<sub>85</sub>= 0.2653

D<sub>60</sub>= 0.1951

D<sub>50</sub>= 0.1761

D<sub>30</sub>= 0.1392

D<sub>15</sub>= 0.1039

D<sub>10</sub>= 0.0888

C<sub>u</sub>= 2.20

C<sub>c</sub>= 1.12

## Classification

USCS= SP-SM

AASHTO=

## Remarks

CADD CODE = CH10D965

Location: USACE Sample # BI-CI-2-10B  
Sample Number: TE Lab ID: 4488.63

Depth: 5.0 - 11.1 (ft.)

Date: 5/27/10

**Thompson Engineering**

**Mobile, Alabama**

Client: US Army Corps of Engineers

Project: Contract No. W91278-10-D-0026 - Task 03  
Mississippi Barrier Island Restoration Project

Project No: 10-2123-0009

Figure

Tested By: L.Stokes

Checked By: R.Byrd



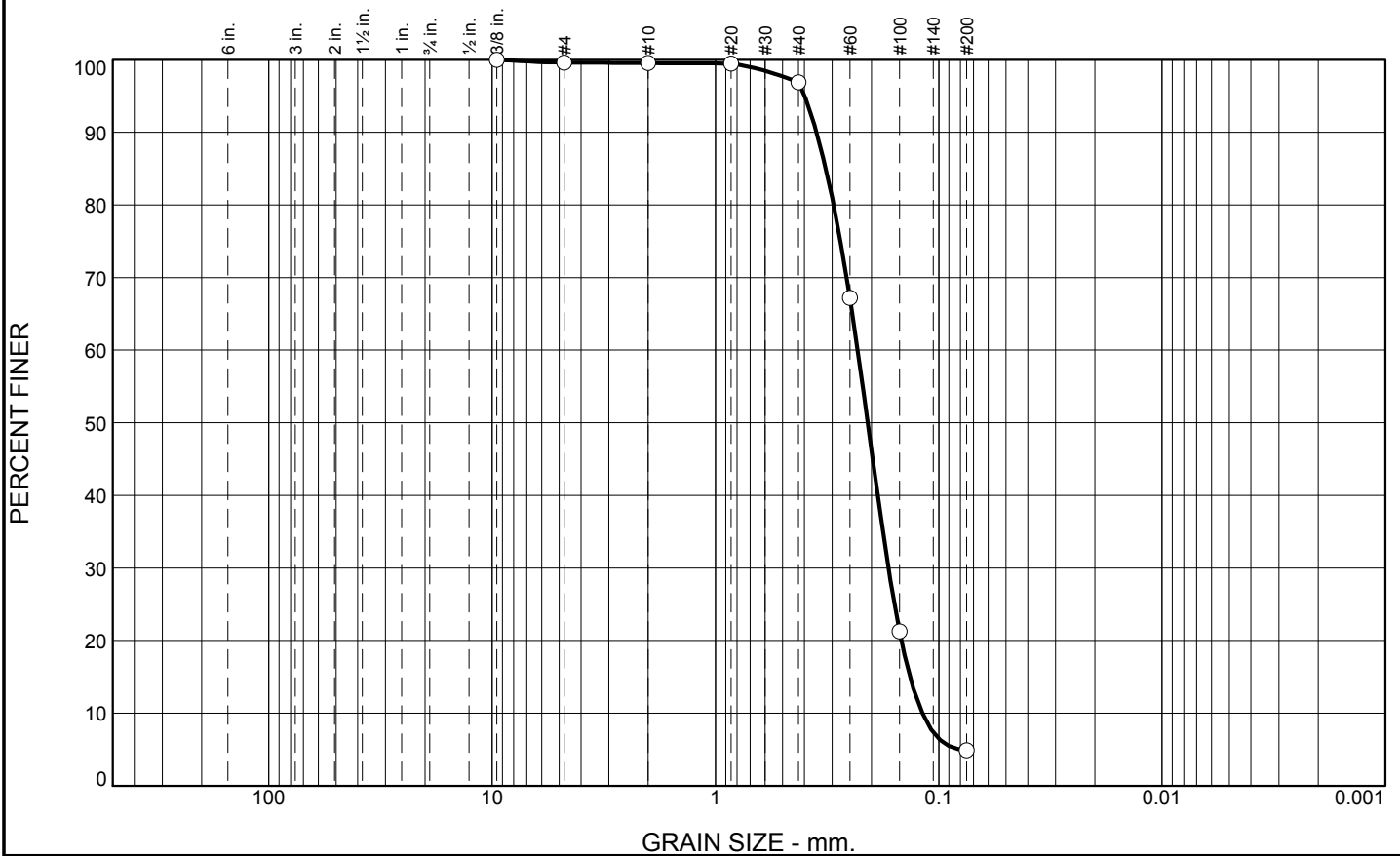
# Boring Designation BI-CI-03-10

DRILLING LOG		DIVISION South Atlantic		INSTALLATION Mobile District		SHEET 1 OF 1 SHEETS	
1. PROJECT MsCIP Barrier Island Restoration Cat Island				9. SIZE AND TYPE OF BIT N/A			
2. BORING DESIGNATION BI-CI-03-10		LOCATION COORDINATES E = 909,797 N = 264,536		10. COORDINATE SYSTEM/DATUM State Plane, MSE (U.S. Ft.)		HORIZONTAL NAD83 VERTICAL NAVD88	
3. DRILLING AGENCY Corps of Engineers - CESAM		CONTRACTOR FILE NO.		11. MANUFACTURER'S DESIGNATION OF DRILL Vibracore		<input type="checkbox"/> AUTO HAMMER <input type="checkbox"/> MANUAL HAMMER	
4. NAME OF DRILLER Construction Solutions International, Inc.				12. TOTAL SAMPLES 3		DISTURBED 0 UNDISTURBED (UD)	
5. DIRECTION OF BORING <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED		DEG. FROM VERTICAL		13. TOTAL NUMBER CORE BOXES			
		BEARING		14. WATER DEPTH 10 Ft.			
6. THICKNESS OF OVERBURDEN N/A				15. DATE BORING 05-19-10		STARTED 05-19-10 COMPLETED 05-19-10	
7. DEPTH DRILLED INTO ROCK N/A				16. ELEVATION TOP OF BORING -8.6 Ft.			
8. TOTAL DEPTH OF BORING 13.6 Ft.				17. TOTAL RECOVERY FOR BORING 100%			
				18. SIGNATURE AND TITLE OF INSPECTOR Marty Gates, Geologist			

ELEV.	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS	SAMPLE	LABORATORY RESULTS
-8.6	0.0				
			SAND, poorly-graded, mostly fine to medium-grained sand-sized quartz, trace silt, trace shell fragments, lt. brown (SP)	A	Classification: SP Color: 2.5Y 5/2-grayish brown D50: 0.208 mm % Fines: 4.9
				B	Classification: SP Color: 2.5Y 6.5/1-gray D50: 0.1782 mm % Fines: 1.6
-18.3	9.7				
-22.2	13.6				
			NOTES: 1. Soils are field visually classified in accordance with the Unified Soils Classification System. 2. NS = Sample not submitted for laboratory analysis from this interval. 3. Seafloor elevation calculated using sampling vessel's fathometer water depth reading and applying NOAA tidal gauge data conversion factor.		

# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.4	0.1	2.6	92.0	4.9	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
.375	100.0		
#4	99.6		
#10	99.5		
#20	99.5		
#40	96.9		
#60	67.2		
#100	21.3		
#200	4.9		

\* (no specification provided)

Material Description		
SAND, (SP), fine grained, with trace shell		
<div> <div> <b>Atterberg Limits</b>            PL=      LL=      PI=         </div> <div> <b>Coefficients</b>            D<sub>90</sub>= 0.3524      D<sub>85</sub>= 0.3203      D<sub>60</sub>= 0.2309            D<sub>50</sub>= 0.2080      D<sub>30</sub>= 0.1680      D<sub>15</sub>= 0.1346            D<sub>10</sub>= 0.1184      C<sub>u</sub>= 1.95      C<sub>c</sub>= 1.03         </div> <div> <b>Classification</b>            USCS= SP      AASHTO=         </div> <div> <b>Remarks</b>            CADD CODE = CH10D965         </div> </div>		

Location: USACE Sample # BI-CI-3-10A  
Sample Number: TE Lab ID: 4488.66

Depth: 0.0 - 4.5 (ft.)

Date: 5/27/10

**Thompson Engineering**  
**Mobile, Alabama**

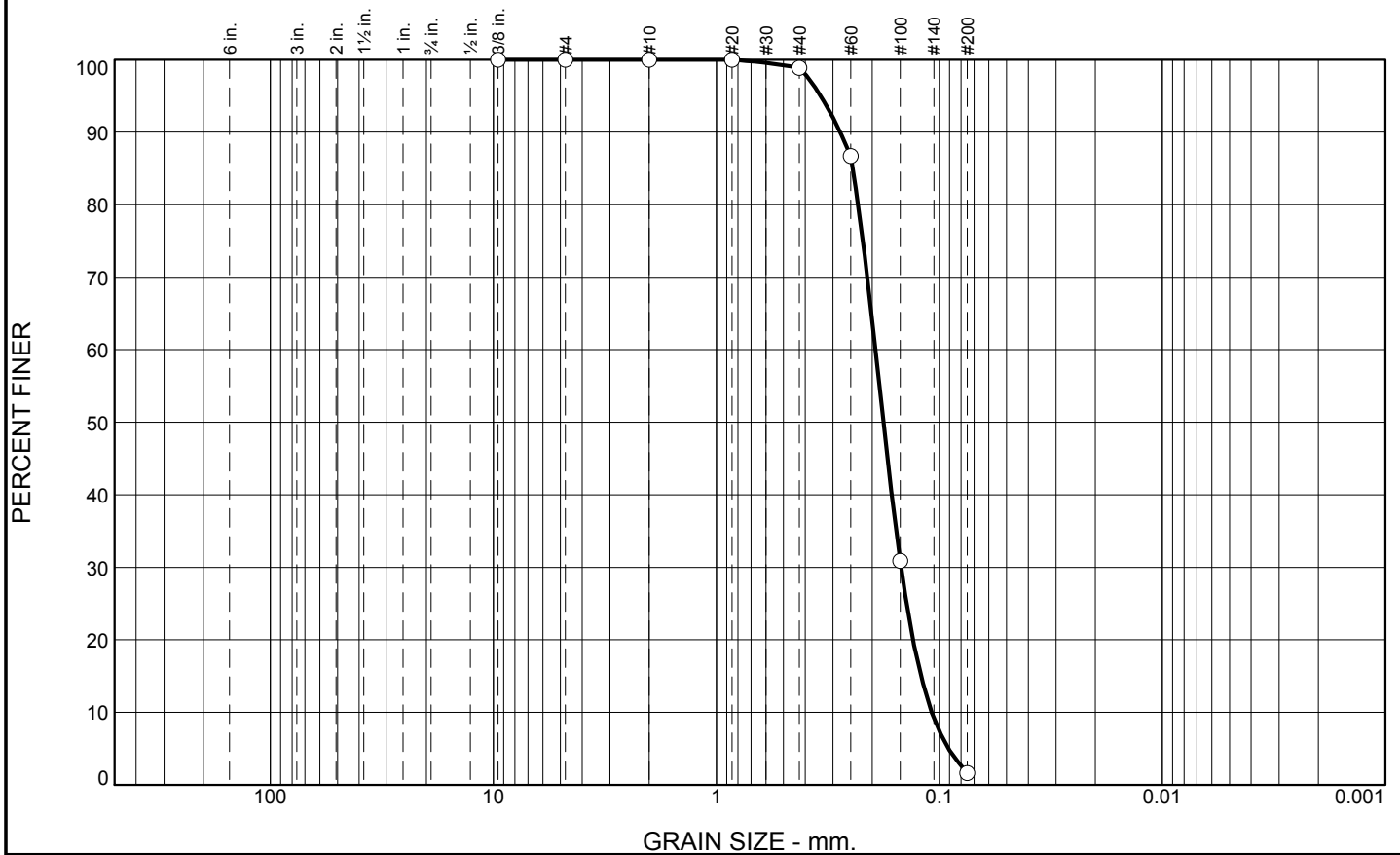
**Client:** US Army Corps of Engineers  
**Project:** Contract No. W91278-10-D-0026 - Task 03  
Mississippi Barrier Island Restoration Project  
**Project No:** 10-2123-0009

**Figure**

Tested By: L.Stokes

Checked By: R.Byrd

# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.0	0.0	1.1	97.3	1.6	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
.375	100.0		
#4	100.0		
#10	100.0		
#20	100.0		
#40	98.9		
#60	86.7		
#100	30.9		
#200	1.6		

\* (no specification provided)

Material Description		
SAND, (SP), fine grained		
<div> <div> <b>Atterberg Limits</b>            PL=      LL=      PI=         </div> <div> <b>Coefficients</b>            D<sub>90</sub>= 0.2786      D<sub>85</sub>= 0.2447      D<sub>60</sub>= 0.1936            D<sub>50</sub>= 0.1782      D<sub>30</sub>= 0.1486      D<sub>15</sub>= 0.1209            D<sub>10</sub>= 0.1083      C<sub>u</sub>= 1.79      C<sub>c</sub>= 1.05         </div> <div> <b>Classification</b>            USCS= SP      AASHTO=         </div> <div> <b>Remarks</b>            CADD CODE = CH10D965         </div> </div>		

Location: USACE Sample # BI-CI-3-10B  
Sample Number: TE Lab ID: 4488.67

Depth: 4.5 - 9.0 (ft.)

Date: 5/27/10

**Thompson Engineering**  
  
**Mobile, Alabama**

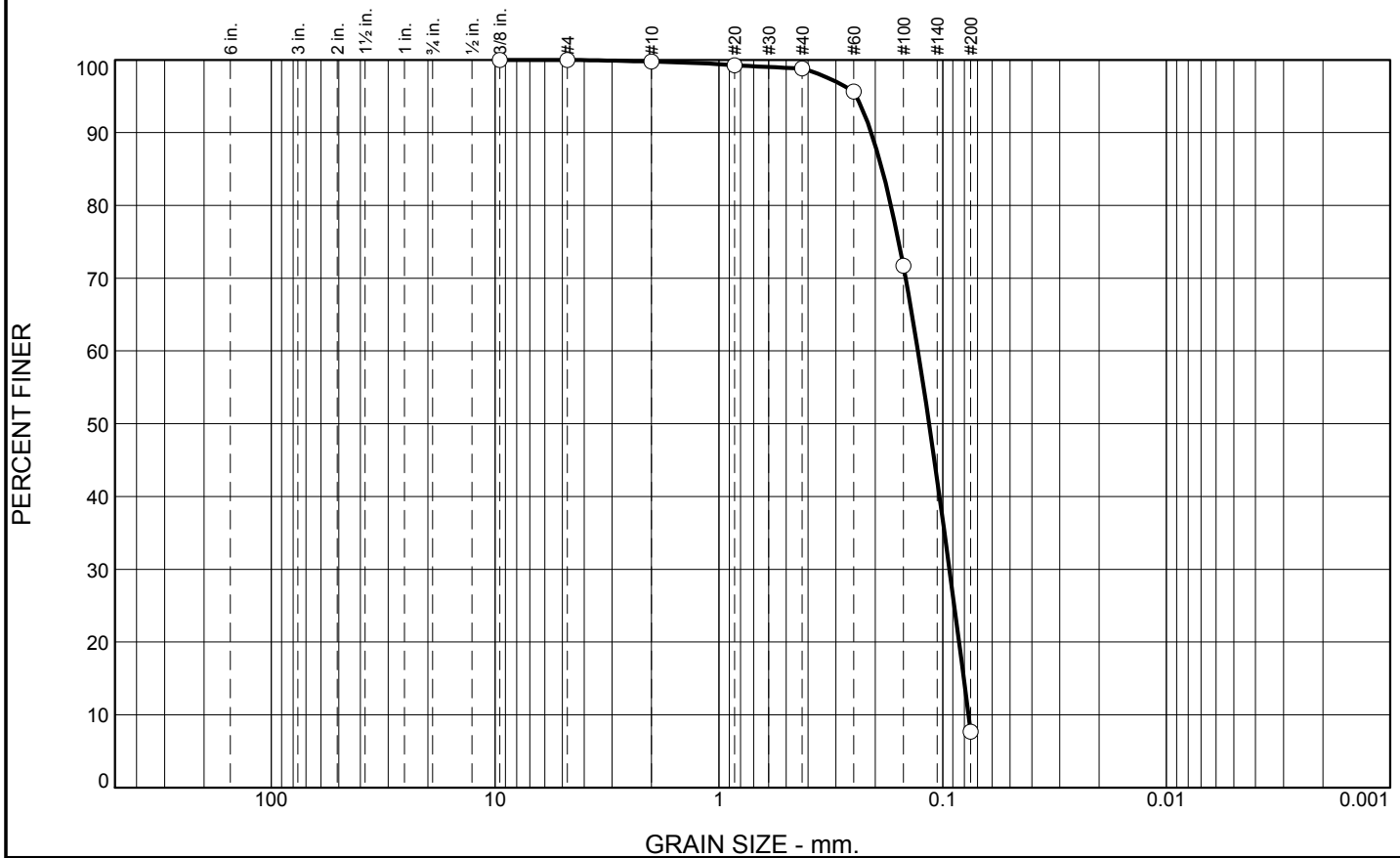
**Client:** US Army Corps of Engineers  
**Project:** Contract No. W91278-10-D-0026 - Task 03  
Mississippi Barrier Island Restoration Project  
**Project No:** 10-2123-0009

**Figure**

Tested By: L.Stokes

Checked By: R.Byrd

# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.0	0.2	1.0	91.1	7.7	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
.375	100.0		
#4	100.0		
#10	99.8		
#20	99.2		
#40	98.8		
#60	95.6		
#100	71.7		
#200	7.7		

\* (no specification provided)

## Material Description

SAND, (SP-SM), fine grained

## Atterberg Limits

PL=

LL=

PI=

## Coefficients

D<sub>90</sub>= 0.2087

D<sub>85</sub>= 0.1867

D<sub>60</sub>= 0.1289

D<sub>50</sub>= 0.1150

D<sub>30</sub>= 0.0933

D<sub>15</sub>= 0.0805

D<sub>10</sub>= 0.0767

C<sub>u</sub>= 1.68

C<sub>c</sub>= 0.88

## Classification

USCS= SP-SM

AASHTO=

## Remarks

CADD CODE = CH10D965

Location: USACE Sample # BI-CI-3-10C  
Sample Number: TE Lab ID: 4488.68

Depth: 9.0 - 13.5 (ft.)

Date: 5/27/10

**Thompson Engineering**

**Mobile, Alabama**

Client: US Army Corps of Engineers

Project: Contract No. W91278-10-D-0026 - Task 03  
Mississippi Barrier Island Restoration Project

Project No: 10-2123-0009

Figure

Tested By: L.Stokes

Checked By: R.Byrd

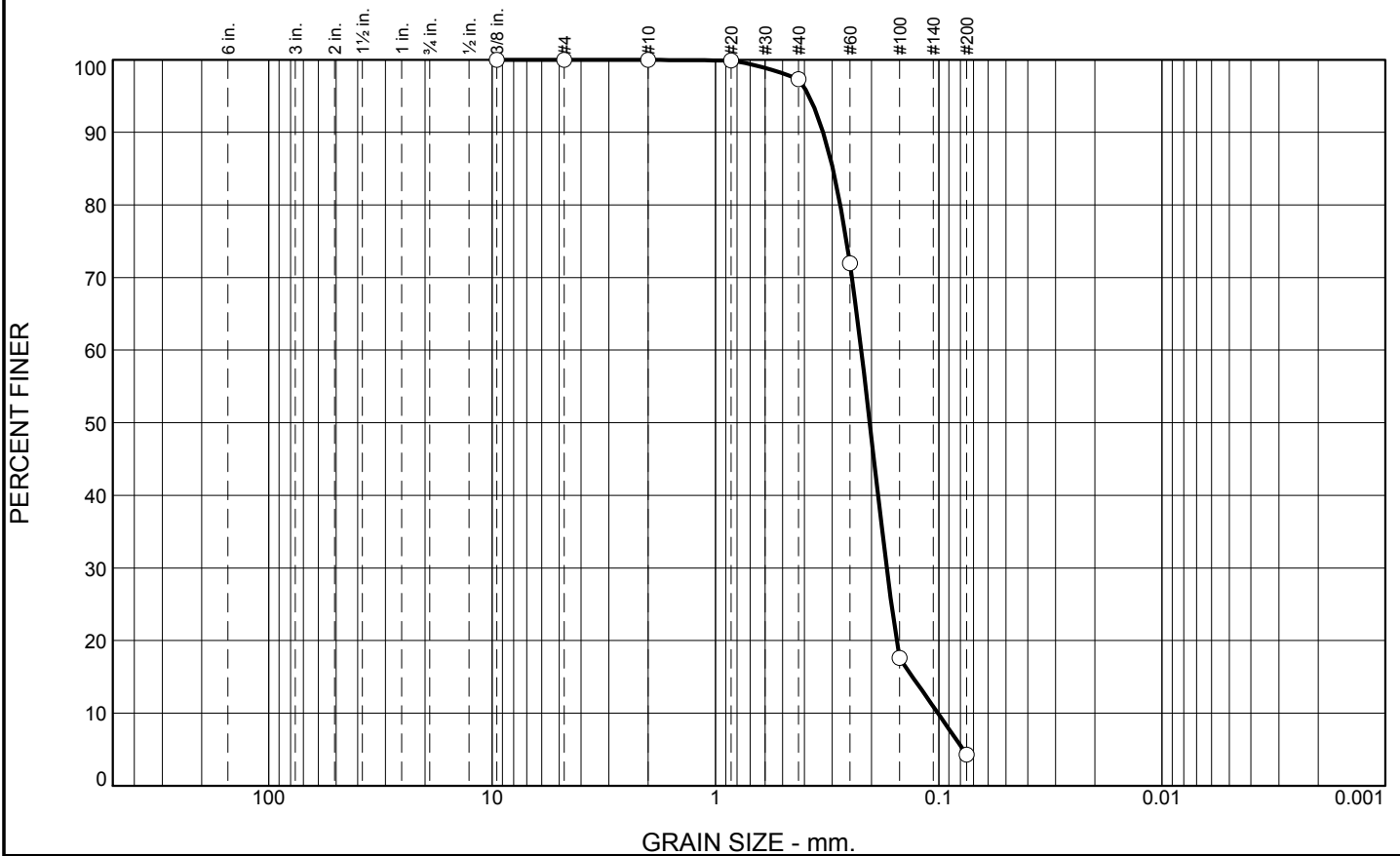
# Boring Designation BI-CI-04-10

DRILLING LOG		DIVISION South Atlantic		INSTALLATION Mobile District		SHEET 1 OF 1 SHEETS	
1. PROJECT MsCIP Barrier Island Restoration Cat Island				9. SIZE AND TYPE OF BIT N/A			
2. BORING DESIGNATION BI-CI-04-10		LOCATION COORDINATES E = 910,349 N = 265,419		10. COORDINATE SYSTEM/DATUM State Plane, MSE (U.S. Ft.)		HORIZONTAL NAD83	
3. DRILLING AGENCY Corps of Engineers - CESAM		CONTRACTOR FILE NO.		11. MANUFACTURER'S DESIGNATION OF DRILL Vibracore		<input type="checkbox"/> AUTO HAMMER <input type="checkbox"/> MANUAL HAMMER	
4. NAME OF DRILLER Construction Solutions International, Inc.				12. TOTAL SAMPLES 2		UNDISTURBED (UD) 0	
5. DIRECTION OF BORING <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED				13. TOTAL NUMBER CORE BOXES		14. WATER DEPTH 10 Ft.	
6. THICKNESS OF OVERBURDEN N/A				15. DATE BORING 05-19-10		COMPLETED 05-19-10	
7. DEPTH DRILLED INTO ROCK N/A				16. ELEVATION TOP OF BORING -8.6 Ft.		17. TOTAL RECOVERY FOR BORING 100%	
8. TOTAL DEPTH OF BORING 11.0 Ft.				18. SIGNATURE AND TITLE OF INSPECTOR Marty Gates, Geologist			

ELEV.	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS	SAMPLE	LABORATORY RESULTS
-8.6	0.0				
			SAND, poorly-graded, mostly fine to medium-grained sand-sized quartz, trace silt, trace shell fragments, lt. brown (SP)	A	Classification: SP Color: 2.5Y 5/2-grayish brown D50: 0.2038 mm % Fines: 4.3
-15.4	6.8		SAND, poorly-graded, mostly fine to medium-grained sand-sized quartz, trace clay, trace shell fragments, lt. gray (SP)	B	Classification: SP-SM Color: 2.5Y 6.5/1-gray D50: 0.161 mm % Fines: 7.2
-19.6	11.0		At El. -18.3 Ft., mostly fine to medium-grained sand-sized quartz, little clay, trace shell fragments, gray		
NOTES: 1. Soils are field visually classified in accordance with the Unified Soils Classification System. 2. NS = Sample not submitted for laboratory analysis from this interval. 3. Seafloor elevation calculated using sampling vessel's fathometer water depth reading and applying NOAA tidal gauge data conversion factor.					

# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.0	0.0	2.7	93.0	4.3	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
.375	100.0		
#4	100.0		
#10	100.0		
#20	99.9		
#40	97.3		
#60	72.0		
#100	17.6		
#200	4.3		

\* (no specification provided)

Material Description		
SAND, (SP), fine grained		
<div> <div> <b>Atterberg Limits</b>            PL=      LL=      PI=         </div> <div> <b>Coefficients</b>            D<sub>90</sub>= 0.3291      D<sub>85</sub>= 0.2980      D<sub>60</sub>= 0.2224            D<sub>50</sub>= 0.2038      D<sub>30</sub>= 0.1710      D<sub>15</sub>= 0.1310            D<sub>10</sub>= 0.1010      C<sub>u</sub>= 2.20      C<sub>c</sub>= 1.30         </div> <div> <b>Classification</b>            USCS= SP      AASHTO=         </div> <div> <b>Remarks</b>            CADD CODE = CH10D965         </div> </div>		

Location: USACE Sample # BI-CI-4-10A  
Sample Number: TE Lab ID: 4488.74

Depth: 0.0 - 5.5 (ft.)

Date: 5/27/10

**Thompson Engineering**  
**Mobile, Alabama**

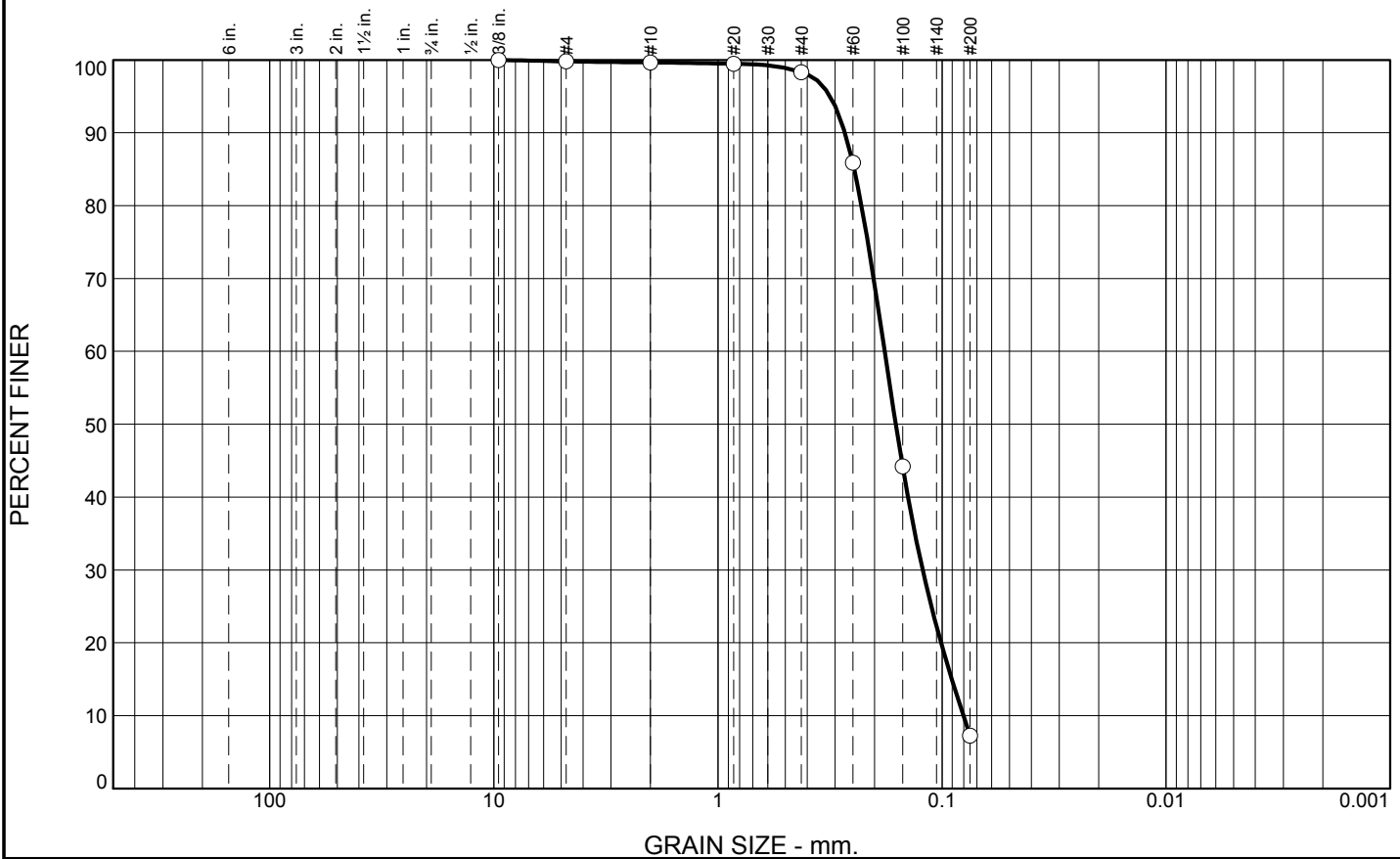
**Client:** US Army Corps of Engineers  
**Project:** Contract No. W91278-10-D-0026 - Task 03  
Mississippi Barrier Island Restoration Project  
**Project No:** 10-2123-0009

**Figure**

Tested By: L.Stokes

Checked By: R.Byrd

# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.2	0.1	1.4	91.1	7.2	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
.375	100.0		
#4	99.8		
#10	99.7		
#20	99.5		
#40	98.3		
#60	85.9		
#100	44.2		
#200	7.2		

\* (no specification provided)

## Material Description

SAND, (SP-SM), fine grained

## Atterberg Limits

PL=

LL=

PI=

## Coefficients

D<sub>90</sub>= 0.2711

D<sub>85</sub>= 0.2464

D<sub>60</sub>= 0.1803

D<sub>50</sub>= 0.1610

D<sub>30</sub>= 0.1220

D<sub>15</sub>= 0.0905

D<sub>10</sub>= 0.0803

C<sub>u</sub>= 2.25

C<sub>c</sub>= 1.03

## Classification

USCS= SP-SM

AASHTO=

## Remarks

CADD CODE = CH10D965

Location: USACE Sample # BI-CI-4-10B  
Sample Number: TE Lab ID: 4488.75

Depth: 5.5 - 11.0 (ft.)

Date: 5/27/10

**Thompson Engineering**

**Mobile, Alabama**

Client: US Army Corps of Engineers

Project: Contract No. W91278-10-D-0026 - Task 03  
Mississippi Barrier Island Restoration Project

Project No: 10-2123-0009

Figure

Tested By: L.Stokes

Checked By: R.Byrd



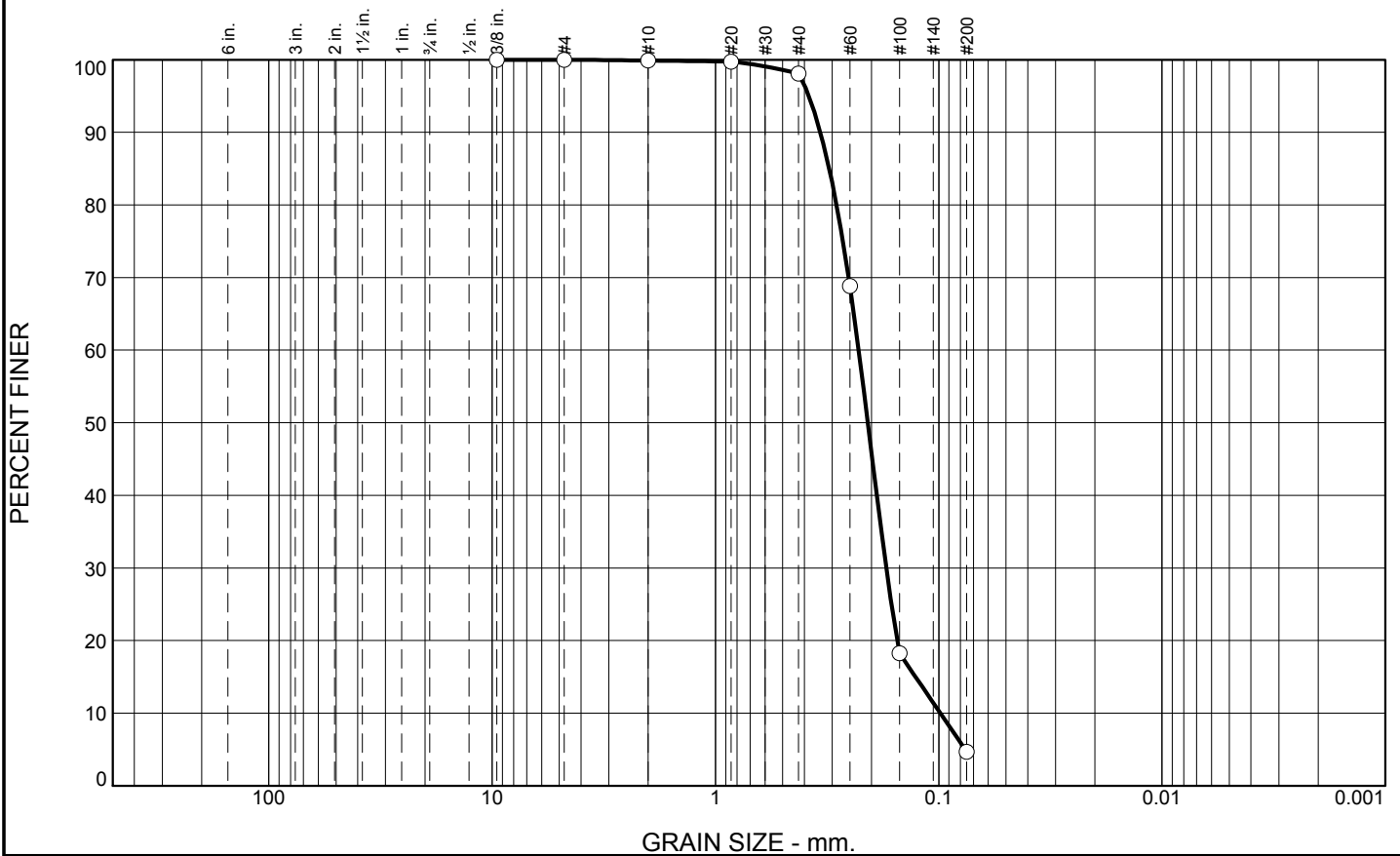
# Boring Designation BI-CI-05-10

DRILLING LOG		DIVISION South Atlantic		INSTALLATION Mobile District		SHEET 1 OF 1 SHEETS	
1. PROJECT MsCIP Barrier Island Restoration Cat Island				9. SIZE AND TYPE OF BIT N/A			
2. BORING DESIGNATION BI-CI-05-10		LOCATION COORDINATES E = 910,786 N = 266,298		10. COORDINATE SYSTEM/DATUM State Plane, MSE (U.S. Ft.)		HORIZONTAL NAD83 VERTICAL NAVD88	
3. DRILLING AGENCY Corps of Engineers - CESAM		CONTRACTOR FILE NO.		11. MANUFACTURER'S DESIGNATION OF DRILL Vibracore		<input type="checkbox"/> AUTO HAMMER <input type="checkbox"/> MANUAL HAMMER	
4. NAME OF DRILLER Construction Solutions International, Inc.				12. TOTAL SAMPLES 2		DISTURBED 2 UNDISTURBED (UD) 0	
5. DIRECTION OF BORING <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED		DEG. FROM VERTICAL		13. TOTAL NUMBER CORE BOXES			
		BEARING		14. WATER DEPTH 10.5 Ft.			
6. THICKNESS OF OVERBURDEN N/A				15. DATE BORING 05-19-10		STARTED 05-19-10 COMPLETED 05-19-10	
7. DEPTH DRILLED INTO ROCK N/A				16. ELEVATION TOP OF BORING -9.0 Ft.			
8. TOTAL DEPTH OF BORING 10.6 Ft.				17. TOTAL RECOVERY FOR BORING 100%			
				18. SIGNATURE AND TITLE OF INSPECTOR Marty Gates, Geologist			

ELEV.	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS	SAMPLE	LABORATORY RESULTS
-9.0	0.0				
			SAND, poorly-graded, mostly fine to medium-grained sand-sized quartz, trace silt, lt. brown (SP)	A	Classification: SP Color: 2.5Y 5/2-grayish brown D50: 0.2079 mm % Fines: 4.7
-16.9	7.9				
-18.0	9.0		SAND, poorly-graded, mostly fine to medium-grained sand-sized quartz, trace clay, trace shell fragments, lt. gray (SP)	B	Classification: SP-SM Color: 2.5Y 7/1-light gray D50: 0.1401 mm % Fines: 8.5
-19.6	10.6		SAND, poorly-graded, mostly fine to medium-grained sand-sized quartz, little clay, trace shell fragments, gray (SP)	NS	
NOTES: 1. Soils are field visually classified in accordance with the Unified Soils Classification System. 2. NS = Sample not submitted for laboratory analysis from this interval. 3. Seafloor elevation calculated using sampling vessel's fathometer water depth reading and applying NOAA tidal gauge data conversion factor.					

# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.0	0.1	1.8	93.4	4.7	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
.375	100.0		
#4	100.0		
#10	99.9		
#20	99.7		
#40	98.1		
#60	68.8		
#100	18.3		
#200	4.7		

\* (no specification provided)

Material Description		
SAND, (SP), fine grained		
<div> <div> <b>Atterberg Limits</b>            PL=      LL=      PI=         </div> <div> <b>Coefficients</b>            D<sub>90</sub>= 0.3388      D<sub>85</sub>= 0.3093      D<sub>60</sub>= 0.2284            D<sub>50</sub>= 0.2079      D<sub>30</sub>= 0.1718      D<sub>15</sub>= 0.1270            D<sub>10</sub>= 0.0984      C<sub>u</sub>= 2.32      C<sub>c</sub>= 1.31         </div> <div> <b>Classification</b>            USCS= SP      AASHTO=         </div> <div> <b>Remarks</b>            CADD CODE = CH10D965         </div> </div>		

Location: USACE Sample # BI-CI-5-10A  
Sample Number: TE Lab ID: 4488.76

Depth: 0.0 - 5.0 (ft.)

Date: 5/27/10

**Thompson Engineering**  
**Mobile, Alabama**

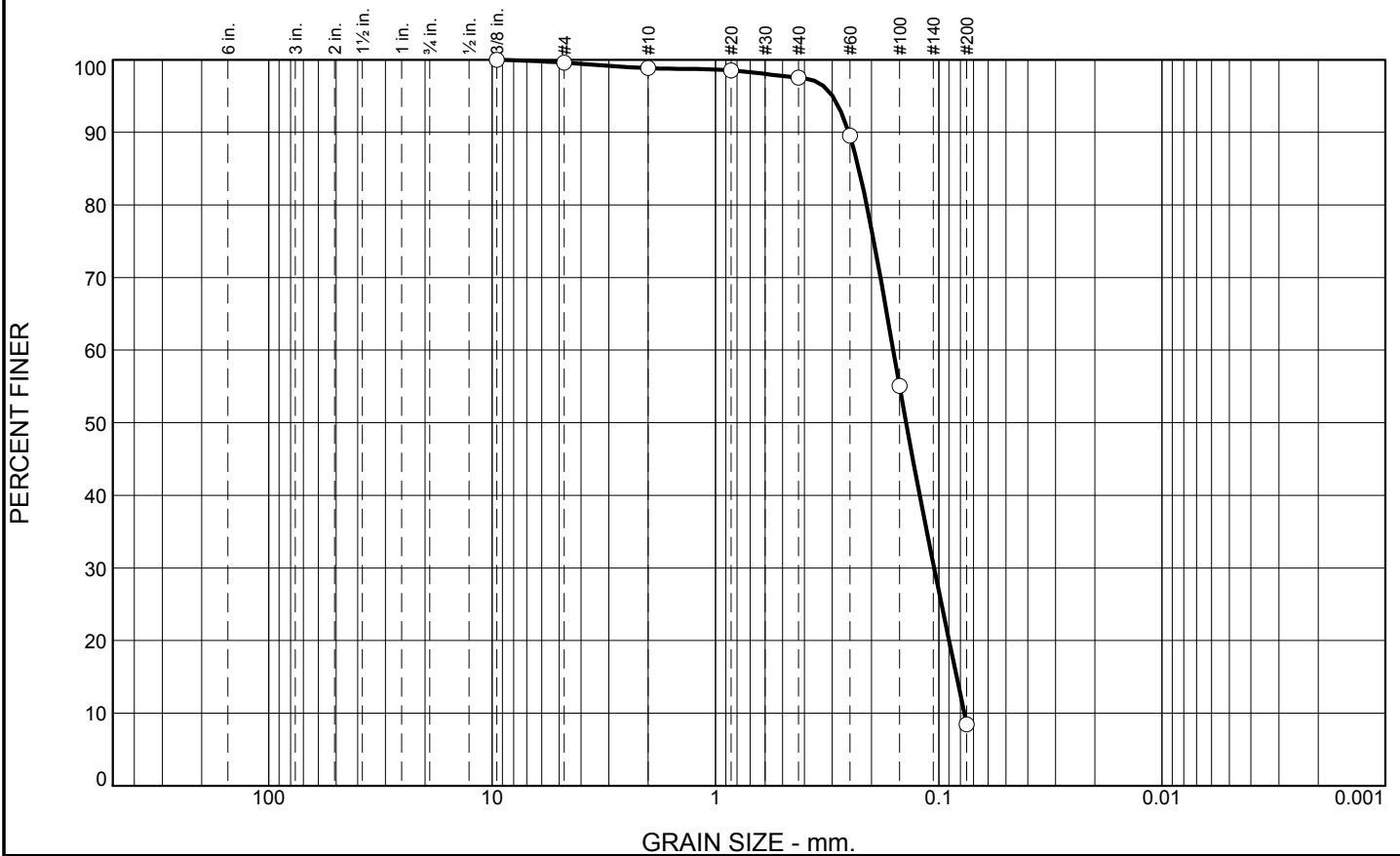
**Client:** US Army Corps of Engineers  
**Project:** Contract No. W91278-10-D-0026 - Task 03  
Mississippi Barrier Island Restoration Project  
**Project No:** 10-2123-0009

**Figure**

Tested By: L.Stokes

Checked By: R.Byrd

# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.4	0.8	1.3	89.0	8.5	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
.375	100.0		
#4	99.6		
#10	98.8		
#20	98.5		
#40	97.5		
#60	89.5		
#100	55.1		
#200	8.5		

\* (no specification provided)

## Material Description

SAND, (SP-SM), fine grained, with clay nodules

## Atterberg Limits

PL=

LL=

PI=

## Coefficients

D<sub>90</sub>= 0.2527

D<sub>85</sub>= 0.2282

D<sub>60</sub>= 0.1600

D<sub>50</sub>= 0.1401

D<sub>30</sub>= 0.1049

D<sub>15</sub>= 0.0832

D<sub>10</sub>= 0.0768

C<sub>u</sub>= 2.08

C<sub>c</sub>= 0.89

## Classification

USCS= SP-SM

AASHTO=

## Remarks

CADD CODE = CH10D965

Location: USACE Sample # BI-CI-5-10B  
Sample Number: TE Lab ID: 4488.77

Depth: 5.0 - 10.6 (ft.)

Date: 5/27/10

**Thompson Engineering**

**Mobile, Alabama**

Client: US Army Corps of Engineers

Project: Contract No. W91278-10-D-0026 - Task 03  
Mississippi Barrier Island Restoration Project

Project No: 10-2123-0009

Figure

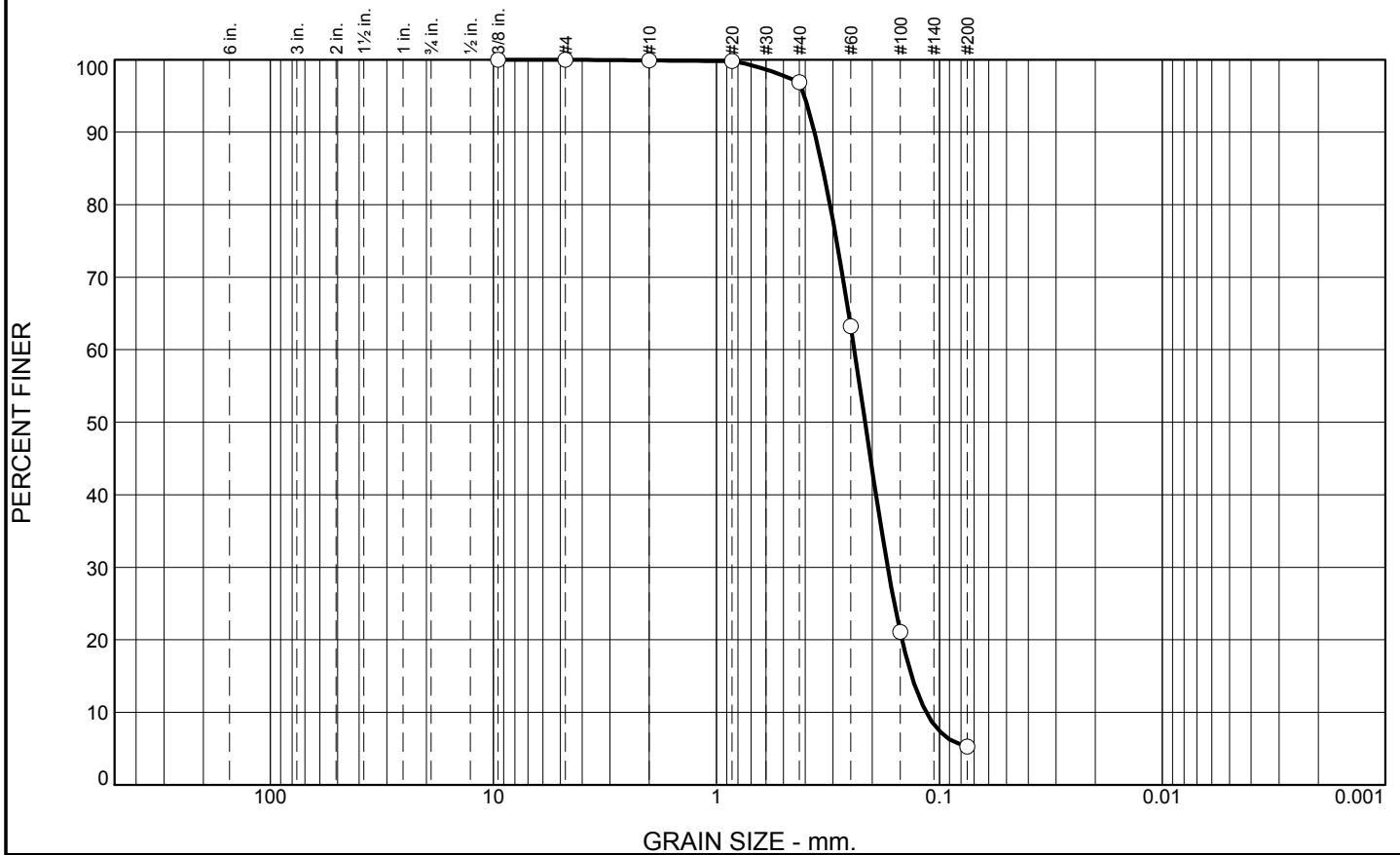
Tested By: L.Stokes

Checked By: R.Byrd

# Boring Designation BI-CI-06-10

DRILLING LOG		DIVISION South Atlantic		INSTALLATION Mobile District		SHEET 1 OF 1 SHEETS	
1. PROJECT MsCIP Barrier Island Restoration Cat Island				9. SIZE AND TYPE OF BIT N/A			
2. BORING DESIGNATION BI-CI-06-10		LOCATION COORDINATES E = 911,404 N = 267,057		10. COORDINATE SYSTEM/DATUM State Plane, MSE (U.S. Ft.)		HORIZONTAL NAD83 VERTICAL NAVD88	
3. DRILLING AGENCY Corps of Engineers - CESAM		CONTRACTOR FILE NO.		11. MANUFACTURER'S DESIGNATION OF DRILL Vibracore		<input type="checkbox"/> AUTO HAMMER <input type="checkbox"/> MANUAL HAMMER	
4. NAME OF DRILLER Construction Solutions International, Inc.				12. TOTAL SAMPLES 3		DISTURBED 3 UNDISTURBED (UD) 0	
5. DIRECTION OF BORING <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED		DEG. FROM VERTICAL		13. TOTAL NUMBER CORE BOXES			
		BEARING		14. WATER DEPTH 11 Ft.			
6. THICKNESS OF OVERBURDEN N/A				15. DATE BORING 05-20-10		STARTED 05-20-10 COMPLETED 05-20-10	
7. DEPTH DRILLED INTO ROCK N/A				16. ELEVATION TOP OF BORING -9.8 Ft.			
8. TOTAL DEPTH OF BORING 13.2 Ft.				17. TOTAL RECOVERY FOR BORING 100%			
				18. SIGNATURE AND TITLE OF INSPECTOR Mark Green, Geotechnical Engineer			
ELEV.	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS	SAMPLE	LABORATORY RESULTS		
-9.8	0.0						
			SAND, silty, mostly fine-grained sand-sized quartz, trace shell fragments, gray (SM)	A	Classification: SP-SM Color: 2.5Y 5/2-grayish brown D50: 0.2154 mm % Fines: 5.3		
-12.8	3.0		SAND, poorly-graded, mostly fine-grained sand-sized quartz, trace silt, trace shell fragments, gray and tan/brown (SP)	B	Classification: SP Color: 2.5Y 5.5/2-brownish gray D50: 0.193 mm % Fines: 3.1		
			At El. -16.8 Ft., mostly fine-grained sand-sized quartz, trace shell fragments, lt. gray to greenish gray	C	Classification: SP-SM Color: 2.5Y 7/1-light gray D50: 0.1824 mm % Fines: 5.4		
-21.8	12.0						
-23.0	13.2		SILT, inorganic-L, trace fine-grained sand-sized quartz, lt. green to gray (ML)	NS			
			NOTES: 1. Soils are field visually classified in accordance with the Unified Soils Classification System. 2. NS = Sample not submitted for laboratory analysis from this interval. 3. Seafloor elevation calculated using sampling vessel's fathometer water depth reading and applying NOAA tidal gauge data conversion factor.				

# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.0	0.1	3.0	91.6	5.3	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
.375	100.0		
#4	100.0		
#10	99.9		
#20	99.8		
#40	96.9		
#60	63.2		
#100	21.1		
#200	5.3		

\* (no specification provided)

Material Description		
SAND, (SP-SM), fine grained		
<div> <div> <b>Atterberg Limits</b>            PL=      LL=      PI=         </div> <div> <b>Coefficients</b>            D<sub>90</sub>= 0.3633      D<sub>85</sub>= 0.3334      D<sub>60</sub>= 0.2409            D<sub>50</sub>= 0.2154      D<sub>30</sub>= 0.1706      D<sub>15</sub>= 0.1331            D<sub>10</sub>= 0.1145      C<sub>u</sub>= 2.10      C<sub>c</sub>= 1.05         </div> <div> <b>Classification</b>            USCS= SP-SM      AASHTO=         </div> <div> <b>Remarks</b>            CADD CODE = CH10D965         </div> </div>		

Location: USACE Sample # BI-CI-6-10A  
Sample Number: TE Lab ID: 4488.102

Depth: 0.0 - 3.0 (ft.)

Date: 5/27/10

**Thompson Engineering**  
**Mobile, Alabama**

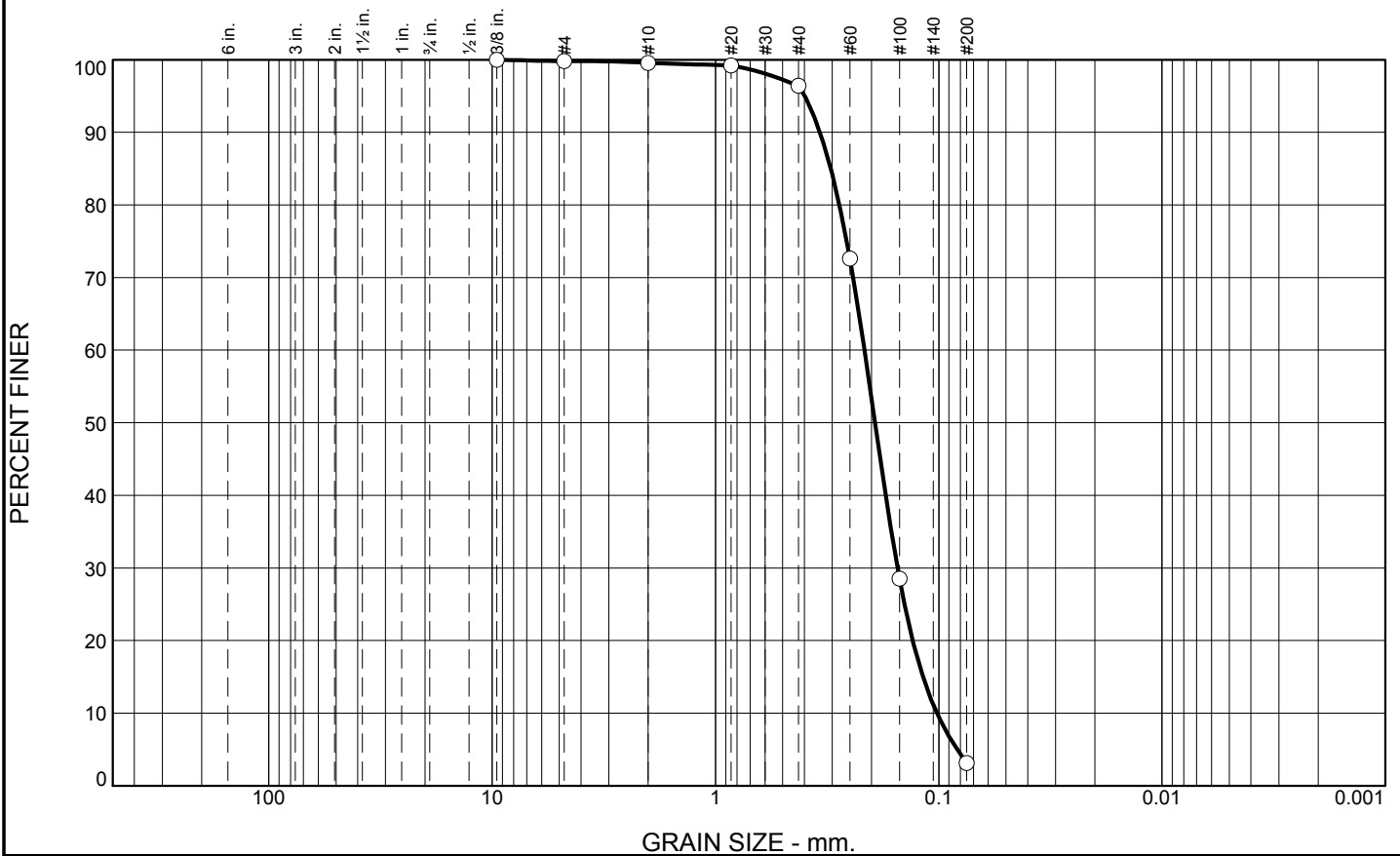
**Client:** US Army Corps of Engineers  
**Project:** Contract No. W91278-10-D-0026 - Task 03  
Mississippi Barrier Island Restoration Project  
**Project No:** 10-2123-0009

**Figure**

Tested By: L.Stokes

Checked By: R.Byrd

# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.2	0.3	3.1	93.3	3.1	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
.375	100.0		
#4	99.8		
#10	99.5		
#20	99.2		
#40	96.4		
#60	72.6		
#100	28.5		
#200	3.1		

\* (no specification provided)

Material Description		
SAND, (SP), fine grained		
<div> <div> Atterberg Limits </div> <div> PL= </div> <div> LL= </div> <div> PI= </div> </div>		
<div> <div> Coefficients </div> <div> D<sub>90</sub>= 0.3403 </div> <div> D<sub>50</sub>= 0.1930 </div> <div> D<sub>10</sub>= 0.1019 </div> <div> D<sub>85</sub>= 0.3044 </div> <div> D<sub>30</sub>= 0.1530 </div> <div> C<sub>u</sub>= 2.11 </div> <div> D<sub>60</sub>= 0.2152 </div> <div> D<sub>15</sub>= 0.1176 </div> <div> C<sub>c</sub>= 1.07 </div> </div>		
<div> <div> Classification </div> <div> USCS= SP </div> <div> AASHTO= </div> </div>		
<div> <div> Remarks </div> <div> CADD CODE = CH10D965 </div> </div>		

Location: USACE Sample # BI-CI-6-10B  
Sample Number: TE Lab ID: 4488.103

Depth: 3.0 - 7.0 (ft.)

Date: 5/27/10

**Thompson Engineering**  
**Mobile, Alabama**

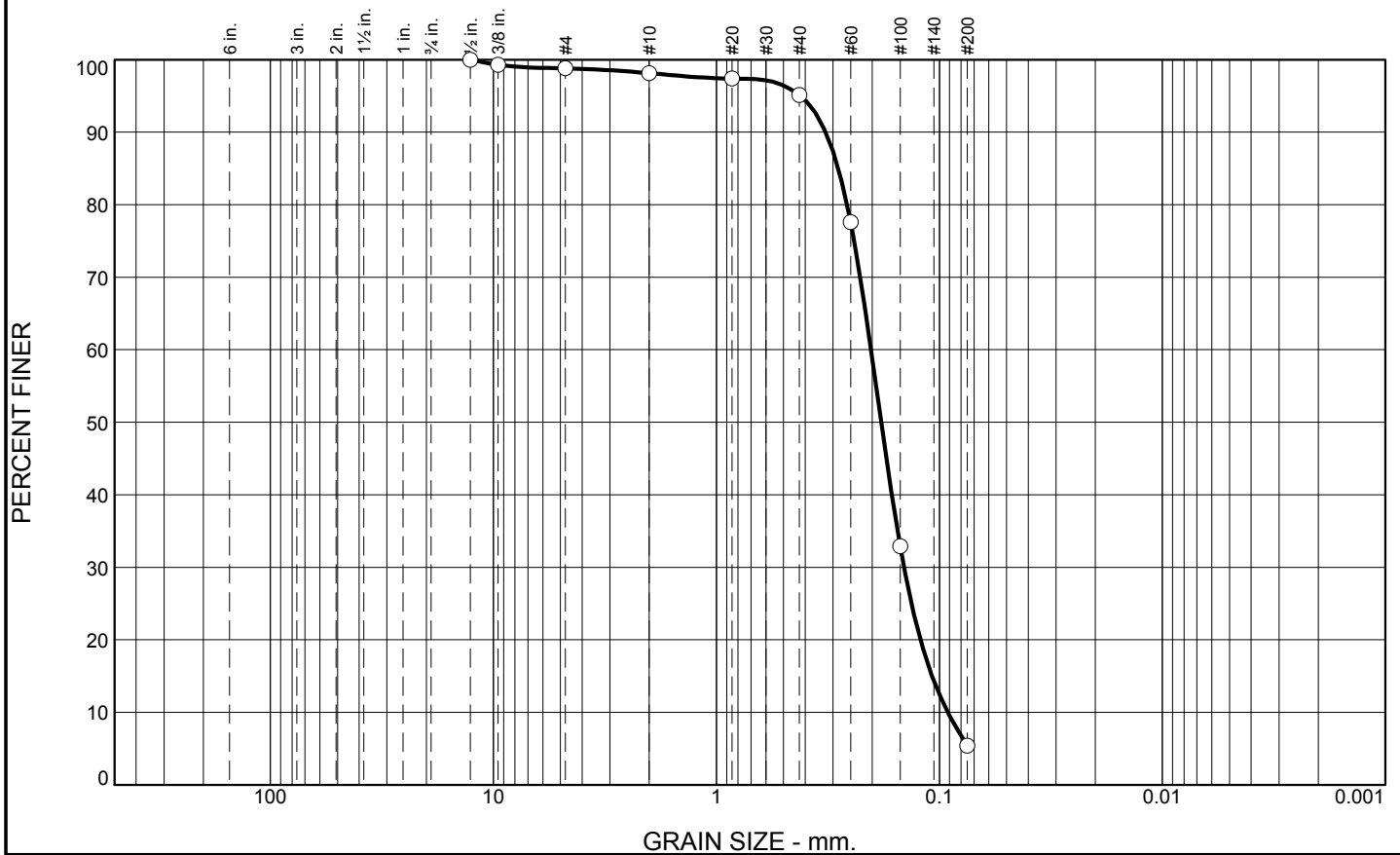
**Client:** US Army Corps of Engineers  
**Project:** Contract No. W91278-10-D-0026 - Task 03  
Mississippi Barrier Island Restoration Project  
**Project No:** 10-2123-0009

**Figure**

Tested By: L.Stokes

Checked By: R.Byrd

# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	1.2	0.7	3.0	89.7	5.4	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
.500	100.0		
.375	99.3		
#4	98.8		
#10	98.1		
#20	97.4		
#40	95.1		
#60	77.6		
#100	32.9		
#200	5.4		

\* (no specification provided)

**Material Description**  
SAND, (SP-SM), fine grained, with trace shell

**Atterberg Limits**  
 PL=      LL=      PI=

**Coefficients**  
 D<sub>90</sub>= 0.3234      D<sub>85</sub>= 0.2841      D<sub>60</sub>= 0.2027  
 D<sub>50</sub>= 0.1824      D<sub>30</sub>= 0.1442      D<sub>15</sub>= 0.1079  
 D<sub>10</sub>= 0.0917      C<sub>u</sub>= 2.21      C<sub>c</sub>= 1.12

**Classification**  
 USCS= SP-SM      AASHTO=

**Remarks**  
 CADD CODE = CH10D965

**Location:** USACE Sample # BI-CI-6-10C  
**Sample Number:** TE Lab ID: 4488.104

**Depth:** 7.0 - 12.0 (ft.)

**Date:** 5/27/10

**Thompson Engineering**  
  
**Mobile, Alabama**

**Client:** US Army Corps of Engineers  
**Project:** Contract No. W91278-10-D-0026 - Task 03  
 Mississippi Barrier Island Restoration Project  
**Project No:** 10-2123-0009

**Figure**

**Tested By:** L.Stokes

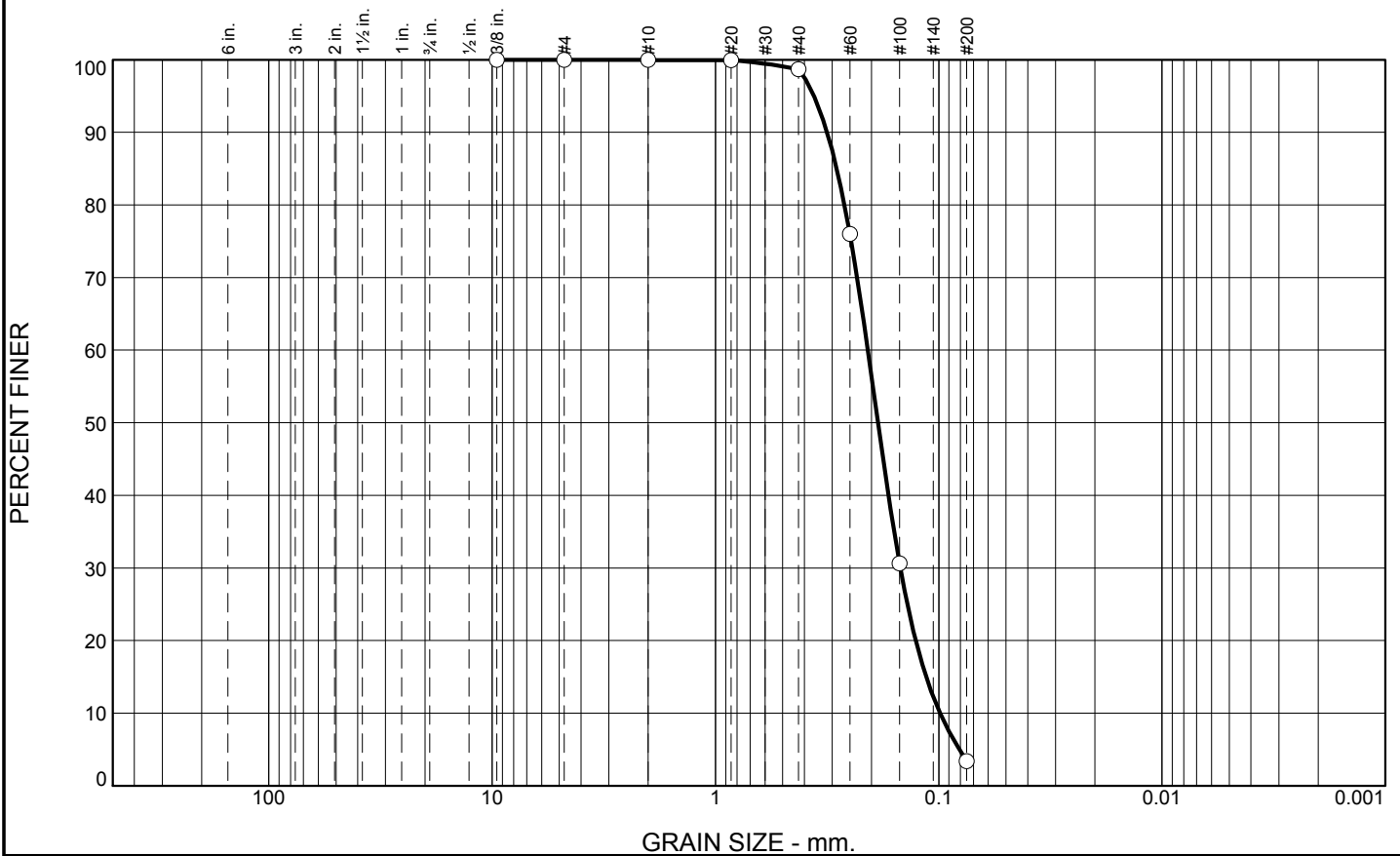
**Checked By:** R.Byrd



# Boring Designation BI-CI-07-10

DRILLING LOG		DIVISION South Atlantic		INSTALLATION Mobile District		SHEET 1 OF 1 SHEETS	
1. PROJECT MsCIP Barrier Island Restoration Cat Island				9. SIZE AND TYPE OF BIT N/A			
2. BORING DESIGNATION BI-CI-07-10		LOCATION COORDINATES E = 911,330 N = 268,021		10. COORDINATE SYSTEM/DATUM State Plane, MSE (U.S. Ft.)		HORIZONTAL NAD83 VERTICAL NAVD88	
3. DRILLING AGENCY Corps of Engineers - CESAM		CONTRACTOR FILE NO.		11. MANUFACTURER'S DESIGNATION OF DRILL Vibracore		<input type="checkbox"/> AUTO HAMMER <input type="checkbox"/> MANUAL HAMMER	
4. NAME OF DRILLER Construction Solutions International, Inc.				12. TOTAL SAMPLES 3		DISTURBED 3 UNDISTURBED (UD) 0	
5. DIRECTION OF BORING <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED		DEG. FROM VERTICAL		13. TOTAL NUMBER CORE BOXES			
		BEARING		14. WATER DEPTH 11 Ft.			
6. THICKNESS OF OVERBURDEN N/A				15. DATE BORING 05-20-10		STARTED 05-20-10 COMPLETED 05-20-10	
7. DEPTH DRILLED INTO ROCK N/A				16. ELEVATION TOP OF BORING -9.8 Ft.			
8. TOTAL DEPTH OF BORING 12.6 Ft.				17. TOTAL RECOVERY FOR BORING 100%			
				18. SIGNATURE AND TITLE OF INSPECTOR Mark Green, Geotechnical Engineer			
ELEV.	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS	SAMPLE	LABORATORY RESULTS		
-9.8	0.0						
-12.3	2.5		SAND, silty, mostly fine-grained sand-sized quartz, trace shell, dark gray and greenish gray (SM)	NS			
			SAND, poorly-graded, mostly fine-grained sand-sized quartz, trace silt, trace shell fragments, tan and gray (SP)	A	Classification: SP Color: 2.5Y 6/2-light brownish gray D50: 0.1871 mm % Fines: 3.4		
			At El. -15.8 Ft., mostly fine-grained sand-sized quartz, trace silt, trace shell fragments, tan, gray, and brown	B	Classification: SP Color: 2.5Y 6.5/1.5-light gray D50: 0.1949 mm % Fines: 1		
			At El. -18.8 Ft., mostly fine-grained sand-sized quartz, trace shell fragments, lt. gray	C	Classification: SP-SM Color: 2.5Y 7/1-light gray D50: 0.1709 mm % Fines: 6.6		
-22.4	12.6		NOTES: 1. Soils are field visually classified in accordance with the Unified Soils Classification System. 2. NS = Sample not submitted for laboratory analysis from this interval. 3. Seafloor elevation calculated using sampling vessel's fathometer water depth reading and applying NOAA tidal gauge data conversion factor.				

# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.0	0.0	1.3	95.3	3.4	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
.375	100.0		
#4	100.0		
#10	100.0		
#20	99.9		
#40	98.7		
#60	76.0		
#100	30.6		
#200	3.4		

\* (no specification provided)

Material Description		
SAND, (SP), fine grained		
<div> <div> <b>Atterberg Limits</b>            LL=                       PI=         </div> <div> <b>Coefficients</b>            D<sub>90</sub>= 0.3162            D<sub>50</sub>= 0.1871            D<sub>10</sub>= 0.0987         </div> <div>           D<sub>85</sub>= 0.2863            D<sub>30</sub>= 0.1487            C<sub>u</sub>= 2.11         </div> <div>           D<sub>60</sub>= 0.2078            D<sub>15</sub>= 0.1139            C<sub>c</sub>= 1.08         </div> </div>		
<b>Classification</b> USCS= SP      AASHTO=		
<b>Remarks</b> CADD CODE = CH10D965		

Location: USACE Sample # BI-CI-7-10A  
Sample Number: TE Lab ID: 4488.96

Depth: 2.5 - 6.0 (ft.)

Date: 5/27/10

**Thompson Engineering**  
  
**Mobile, Alabama**

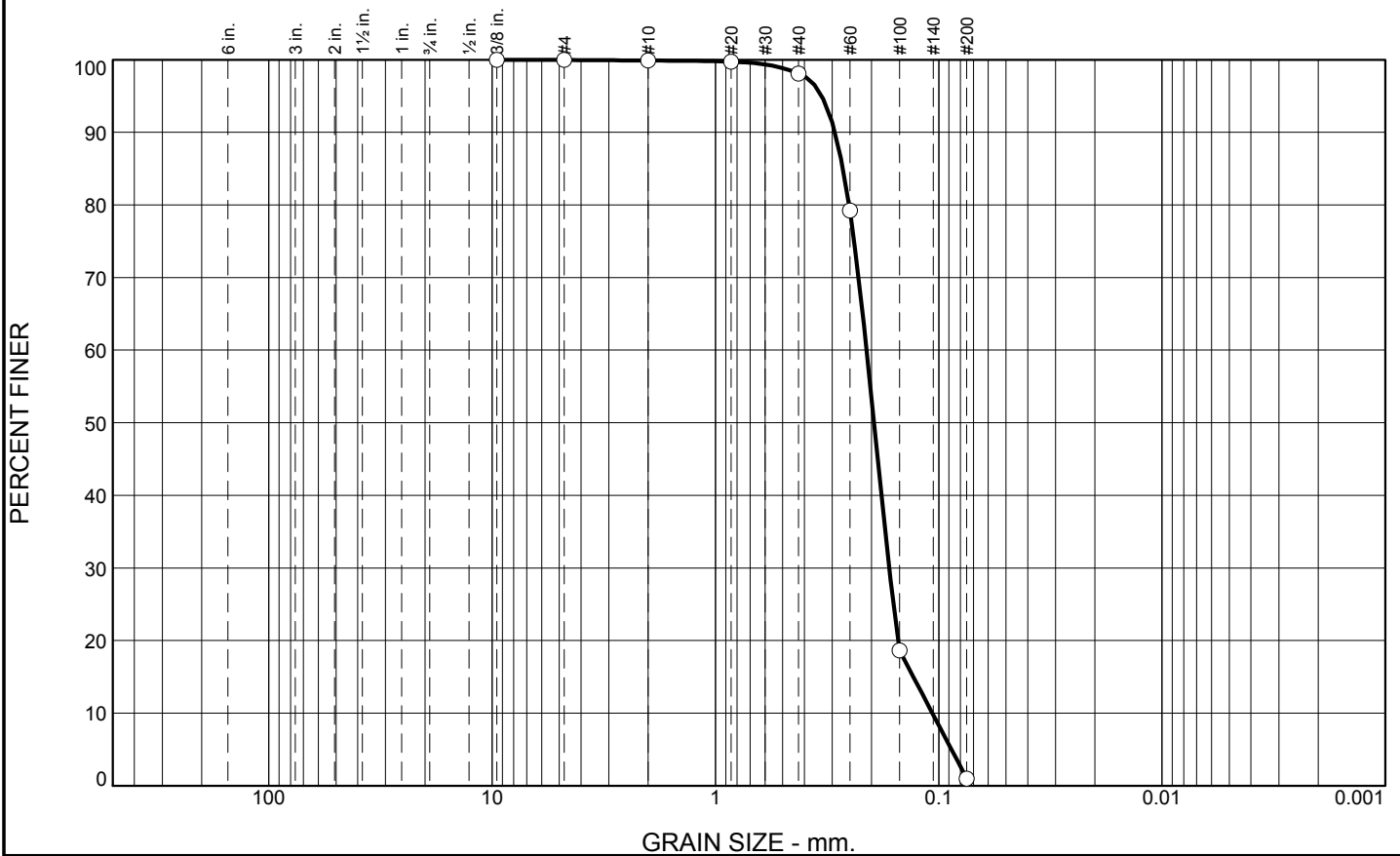
**Client:** US Army Corps of Engineers  
**Project:** Contract No. W91278-10-D-0026 - Task 03  
Mississippi Barrier Island Restoration Project  
**Project No:** 10-2123-0009

**Figure**

Tested By: L.Stokes

Checked By: R.Byrd

# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.0	0.1	1.8	97.1	1.0	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
.375	100.0		
#4	100.0		
#10	99.9		
#20	99.7		
#40	98.1		
#60	79.2		
#100	18.6		
#200	1.0		

\* (no specification provided)

## Material Description

SAND, (SP), fine grained

## Atterberg Limits

PL=

LL=

PI=

## Coefficients

D<sub>90</sub>= 0.2916

D<sub>85</sub>= 0.2684

D<sub>60</sub>= 0.2106

D<sub>50</sub>= 0.1949

D<sub>30</sub>= 0.1667

D<sub>15</sub>= 0.1300

D<sub>10</sub>= 0.1068

C<sub>u</sub>= 1.97

C<sub>c</sub>= 1.24

## Classification

USCS= SP

AASHTO=

## Remarks

CADD CODE = CH10D965

Location: USACE Sample # BI-CI-7-10B  
Sample Number: TE Lab ID: 4488.97

Depth: 6.0 - 9.0 (ft.)

Date: 5/27/10

**Thompson Engineering**

**Mobile, Alabama**

Client: US Army Corps of Engineers

Project: Contract No. W91278-10-D-0026 - Task 03  
Mississippi Barrier Island Restoration Project

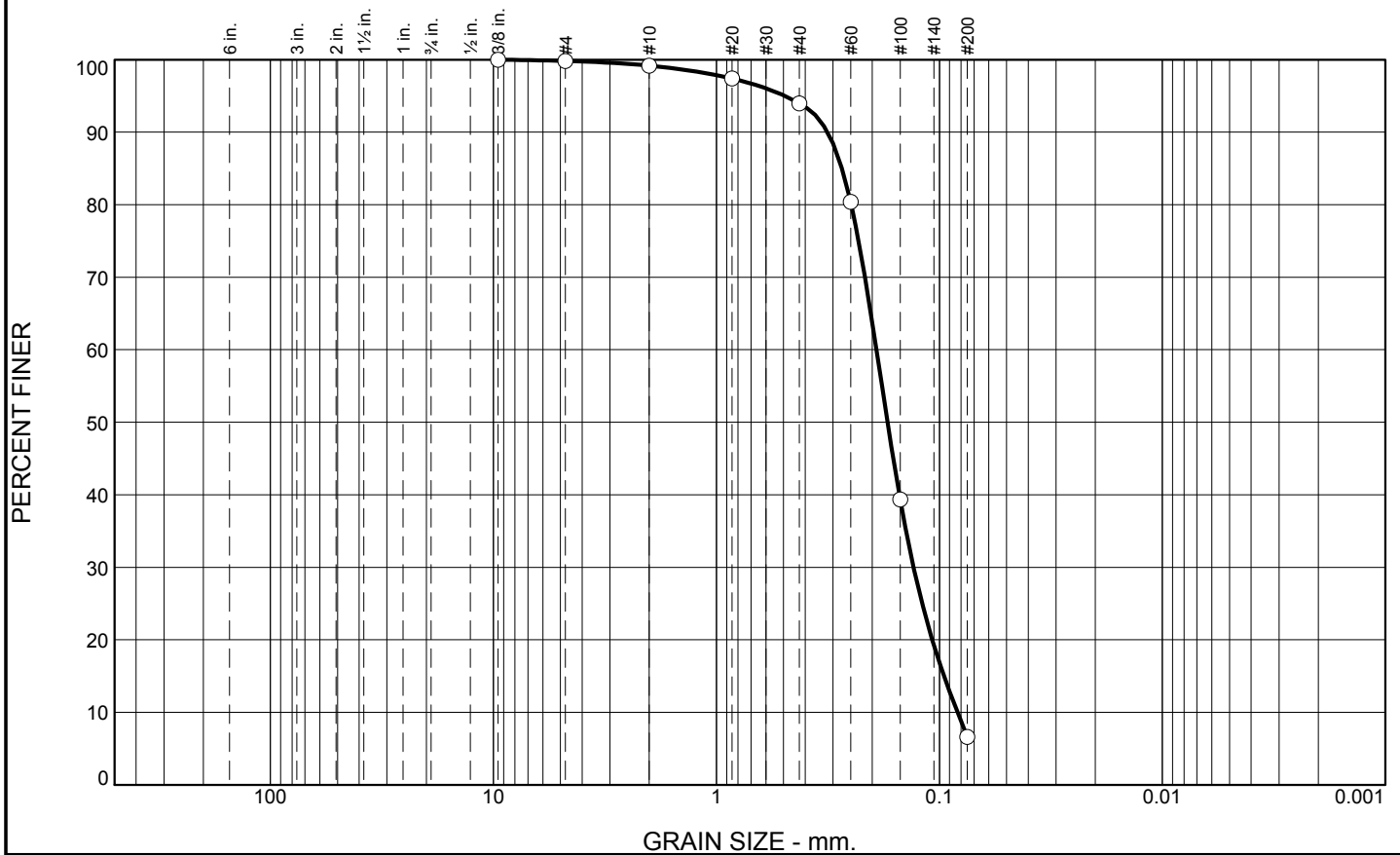
Project No: 10-2123-0009

Figure

Tested By: L.Stokes

Checked By: R.Byrd

# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.2	0.6	5.2	87.4	6.6	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
.375	100.0		
#4	99.8		
#10	99.2		
#20	97.4		
#40	94.0		
#60	80.4		
#100	39.4		
#200	6.6		

\* (no specification provided)

<u>Material Description</u>		
SAND, (SP-SM), fine grained		
<u>Atterberg Limits</u>		
PL=	LL=	PI=
<u>Coefficients</u>		
D <sub>90</sub> = 0.3173	D <sub>85</sub> = 0.2734	D <sub>60</sub> = 0.1916
D <sub>50</sub> = 0.1709	D <sub>30</sub> = 0.1306	D <sub>15</sub> = 0.0954
D <sub>10</sub> = 0.0830	C <sub>u</sub> = 2.31	C <sub>c</sub> = 1.07
<u>Classification</u>		
USCS= SP-SM	AASHTO=	
<u>Remarks</u>		
CADD CODE = CH10D965		

Location: USACE Sample # BI-CI-7-10C  
Sample Number: TE Lab ID: 4488.98

Depth: 9.0 - 12.6 (ft.)

Date: 5/27/10

**Thompson Engineering**  
**Mobile, Alabama**

**Client:** US Army Corps of Engineers  
**Project:** Contract No. W91278-10-D-0026 - Task 03  
Mississippi Barrier Island Restoration Project  
**Project No:** 10-2123-0009

**Figure**

Tested By: L.Stokes

Checked By: R.Byrd

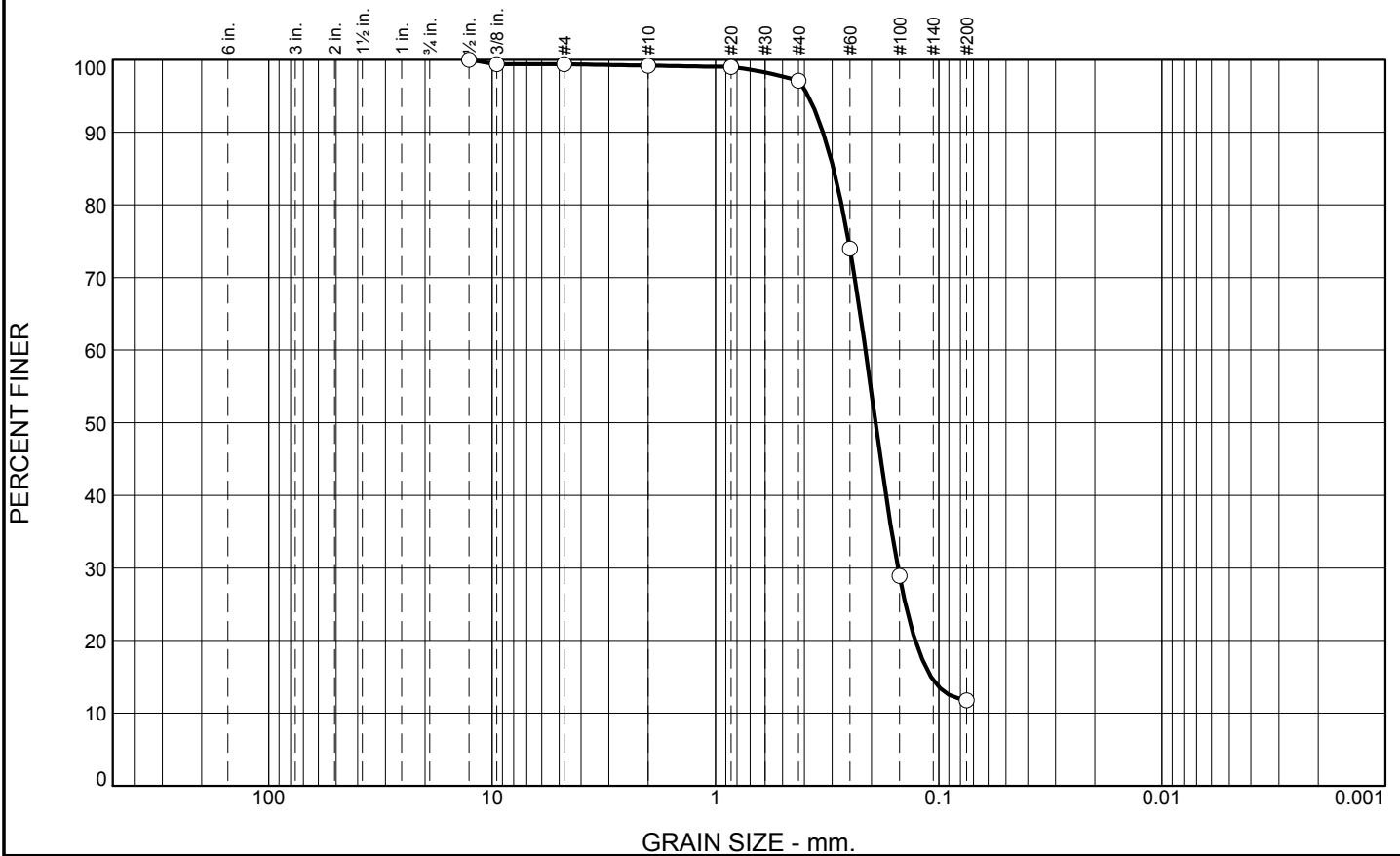
# Boring Designation BI-CI-08-10

DRILLING LOG		DIVISION South Atlantic		INSTALLATION Mobile District		SHEET 1 OF 1 SHEETS	
1. PROJECT MsCIP Barrier Island Restoration Cat Island				9. SIZE AND TYPE OF BIT N/A			
2. BORING DESIGNATION BI-CI-08-10		LOCATION COORDINATES E = 911,660 N = 269,013		10. COORDINATE SYSTEM/DATUM State Plane, MSE (U.S. Ft.)		HORIZONTAL NAD83 VERTICAL NAVD88	
3. DRILLING AGENCY Corps of Engineers - CESAM		CONTRACTOR FILE NO.		11. MANUFACTURER'S DESIGNATION OF DRILL Vibracore		<input type="checkbox"/> AUTO HAMMER <input type="checkbox"/> MANUAL HAMMER	
4. NAME OF DRILLER Construction Solutions International, Inc.				12. TOTAL SAMPLES 3		DISTURBED 3 UNDISTURBED (UD) 0	
5. DIRECTION OF BORING <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED		DEG. FROM VERTICAL		13. TOTAL NUMBER CORE BOXES			
		BEARING		14. WATER DEPTH 11 Ft.			
6. THICKNESS OF OVERBURDEN N/A				15. DATE BORING 05-20-10		STARTED 05-20-10 COMPLETED 05-20-10	
7. DEPTH DRILLED INTO ROCK N/A				16. ELEVATION TOP OF BORING -9.9 Ft.			
8. TOTAL DEPTH OF BORING 12.5 Ft.				17. TOTAL RECOVERY FOR BORING 100%			
				18. SIGNATURE AND TITLE OF INSPECTOR Mark Green, Geotechnical Engineer			

ELEV.	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS	SAMPLE	LABORATORY RESULTS
-9.9	0.0				
-11.9	2.0		SAND, silty, mostly fine-grained sand-sized quartz, trace shell fragments, trace clay, dark gray and greenish gray (SM)	A	Classification: SP-SM Color: 2.5Y 5/2-grayish brown D50: 0.1918 mm % Fines: 11.8
			SAND, poorly-graded, mostly fine-grained sand-sized quartz, some silt, trace shell fragments, gray and brown (SP)	B	Classification: SP-SM Color: 2.5Y 5/1-gray D50: 0.1845 mm % Fines: 6.9
				C	Classification: SP Color: 2.5Y 6/1-gray D50: 0.1879 mm % Fines: 3
				D	Classification: SP Color: 2.5Y 7/1-light gray D50: 0.1881 mm % Fines: 3.9
-22.4	12.5		At El. -21.9 Ft., trace of wood fragments, gray to lt. gray		
			NOTES: 1. Soils are field visually classified in accordance with the Unified Soils Classification System. 2. NS = Sample not submitted for laboratory analysis from this interval. 3. Seafloor elevation calculated using sampling vessel's fathometer water depth reading and applying NOAA tidal gauge data conversion factor.		

# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.6	0.2	2.1	85.3	11.8	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
.500	100.0		
.375	99.4		
#4	99.4		
#10	99.2		
#20	99.0		
#40	97.1		
#60	74.0		
#100	28.9		
#200	11.8		

\* (no specification provided)

Material Description		
SAND, (SP-SM), fine grained, with clay nodules and trace shell		
<div> <div> <b>Atterberg Limits</b>            PL=      LL=      PI=         </div> <div> <b>Coefficients</b>            D<sub>90</sub>= 0.3296      D<sub>85</sub>= 0.2961      D<sub>60</sub>= 0.2130            D<sub>50</sub>= 0.1918      D<sub>30</sub>= 0.1523      D<sub>15</sub>= 0.1082            D<sub>10</sub>=              C<sub>u</sub>=              C<sub>c</sub>=         </div> <div> <b>Classification</b>            USCS= SP-SM      AASHTO=         </div> <div> <b>Remarks</b>            CADD CODE = CH10D965         </div> </div>		

Location: USACE Sample # BI-CI-8-10A  
Sample Number: TE Lab ID: 4488.89

Depth: 0.0 - 2.0 (ft.)

Date: 5/27/10

**Thompson Engineering**  
**Mobile, Alabama**

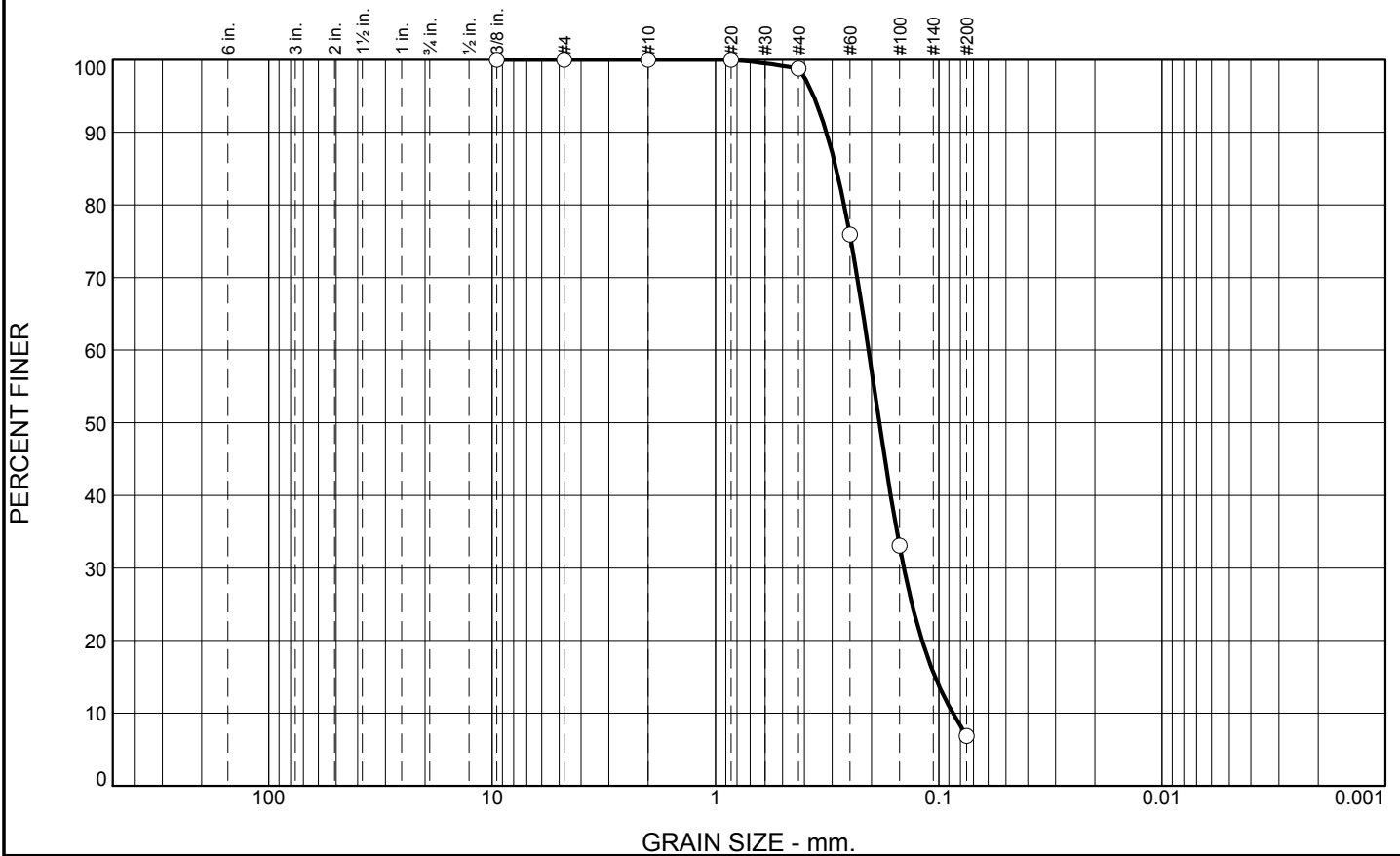
**Client:** US Army Corps of Engineers  
**Project:** Contract No. W91278-10-D-0026 - Task 03  
Mississippi Barrier Island Restoration Project  
**Project No:** 10-2123-0009

**Figure**

Tested By: L.Stokes

Checked By: R.Byrd

# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.0	0.0	1.2	91.9	6.9	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
.375	100.0		
#4	100.0		
#10	100.0		
#20	100.0		
#40	98.8		
#60	75.9		
#100	33.1		
#200	6.9		

\* (no specification provided)

<u>Material Description</u>		
SAND, (SP-SM), fine grained		
<u>Atterberg Limits</u>		
PL=	LL=	PI=
<u>Coefficients</u>		
D <sub>90</sub> = 0.3182	D <sub>85</sub> = 0.2879	D <sub>60</sub> = 0.2063
D <sub>50</sub> = 0.1845	D <sub>30</sub> = 0.1434	D <sub>15</sub> = 0.1039
D <sub>10</sub> = 0.0865	C <sub>u</sub> = 2.39	C <sub>c</sub> = 1.15
<u>Classification</u>		
USCS= SP-SM	AASHTO=	
<u>Remarks</u>		
CADD CODE = CH10D965		

Location: USACE Sample # BI-CI-8-10B  
Sample Number: TE Lab ID: 4488.90

Depth: 2.0 - 4.0 (ft.)

Date: 5/27/10

**Thompson Engineering**  
**Mobile, Alabama**

**Client:** US Army Corps of Engineers  
**Project:** Contract No. W91278-10-D-0026 - Task 03  
Mississippi Barrier Island Restoration Project  
**Project No:** 10-2123-0009

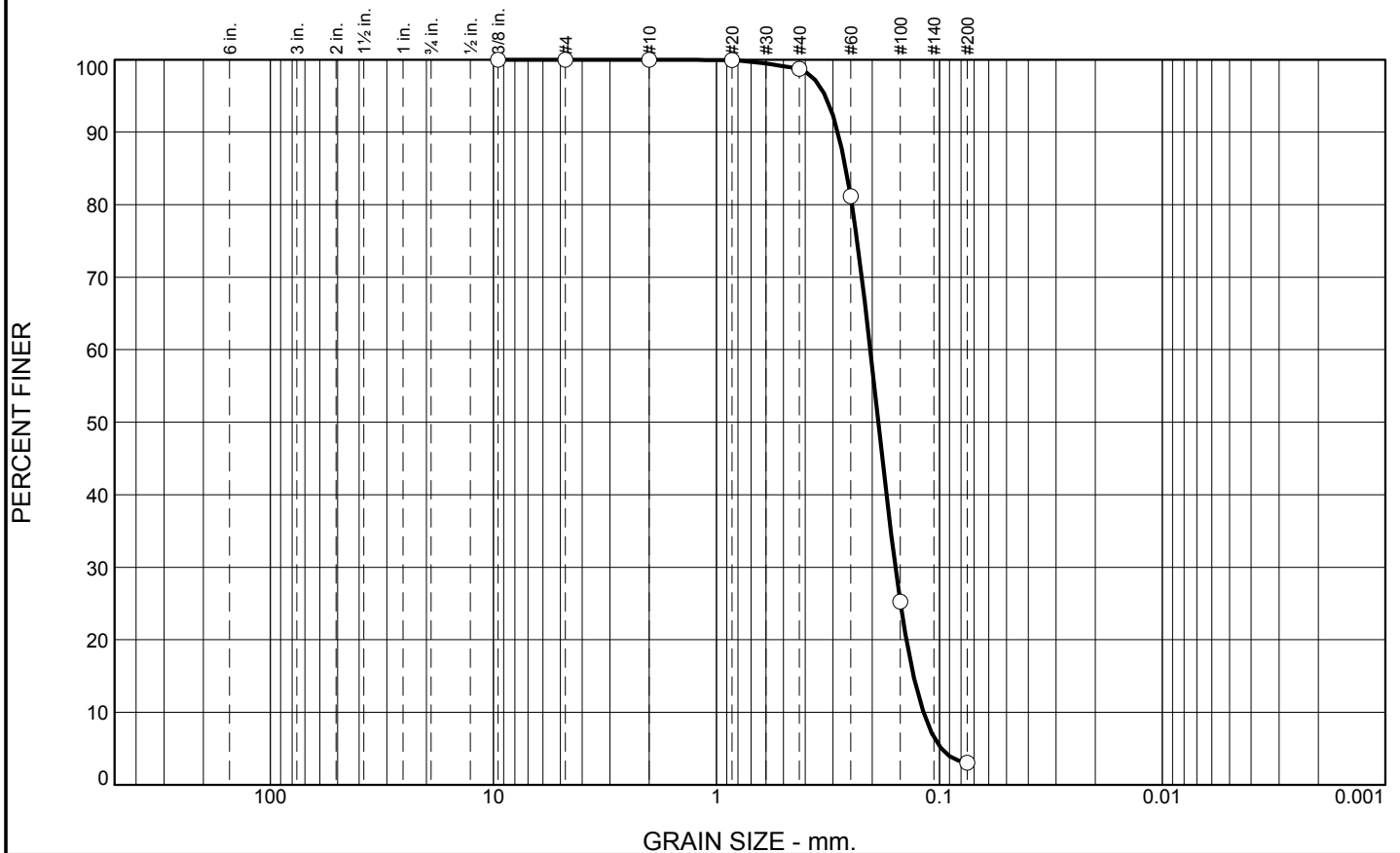
**Figure**

Tested By: L.Stokes

Checked By: R.Byrd



# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.0	0.0	1.3	95.7	3.0	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
.375	100.0		
#4	100.0		
#10	100.0		
#20	99.9		
#40	98.7		
#60	81.2		
#100	25.3		
#200	3.0		

\* (no specification provided)

## Material Description

SAND, (SP), fine grained

## Atterberg Limits

PL=

LL=

PI=

## Coefficients

D<sub>90</sub>= 0.2854

D<sub>85</sub>= 0.2628

D<sub>60</sub>= 0.2042

D<sub>50</sub>= 0.1879

D<sub>30</sub>= 0.1576

D<sub>15</sub>= 0.1305

D<sub>10</sub>= 0.1179

C<sub>u</sub>= 1.73

C<sub>c</sub>= 1.03

## Classification

USCS= SP

AASHTO=

## Remarks

CADD CODE = CH10D965

Location: USACE Sample # BI-CI-8-10C  
Sample Number: TE Lab ID: 4488.91

Depth: 4.0 - 8.0 (ft.)

Date: 5/27/10

**Thompson Engineering**

**Mobile, Alabama**

Client: US Army Corps of Engineers

Project: Contract No. W91278-10-D-0026 - Task 03  
Mississippi Barrier Island Restoration Project

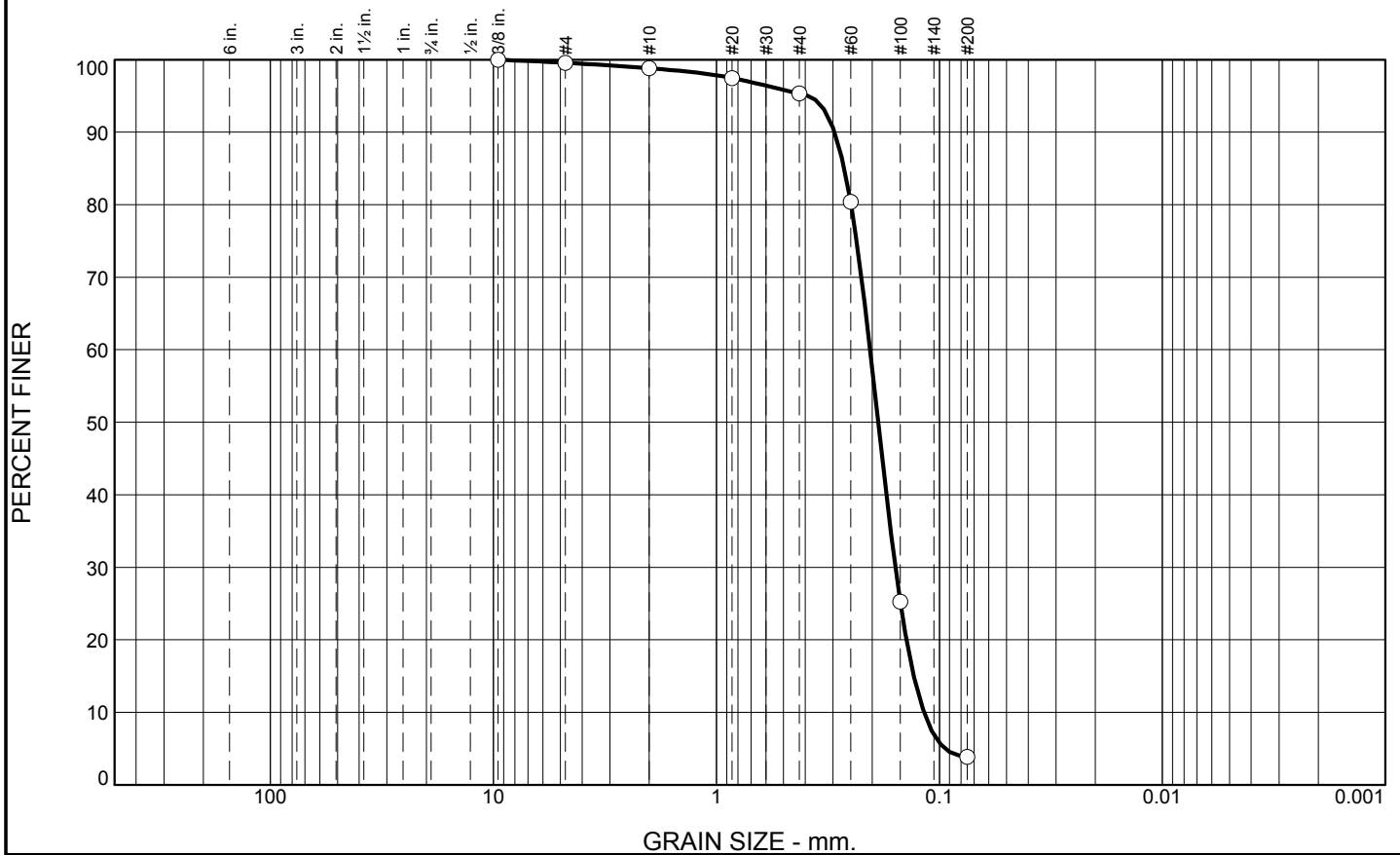
Project No: 10-2123-0009

Figure

Tested By: L.Stokes

Checked By: R.Byrd

# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.4	0.8	3.5	91.4	3.9	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
.375	100.0		
#4	99.6		
#10	98.8		
#20	97.5		
#40	95.3		
#60	80.4		
#100	25.3		
#200	3.9		

\* (no specification provided)

## Material Description

SAND, (SP), fine grained

## Atterberg Limits

PL=

LL=

PI=

## Coefficients

D<sub>90</sub>= 0.2952

D<sub>85</sub>= 0.2670

D<sub>60</sub>= 0.2047

D<sub>50</sub>= 0.1881

D<sub>30</sub>= 0.1576

D<sub>15</sub>= 0.1303

D<sub>10</sub>= 0.1172

C<sub>u</sub>= 1.75

C<sub>c</sub>= 1.04

## Classification

USCS= SP

AASHTO=

## Remarks

CADD CODE = CH10D965

Location: USACE Sample # BI-CI-8-10D  
Sample Number: TE Lab ID: 4488.92

Depth: 8.0 - 12.5 (ft.)

Date: 5/27/10

**Thompson Engineering**

**Mobile, Alabama**

Client: US Army Corps of Engineers

Project: Contract No. W91278-10-D-0026 - Task 03  
Mississippi Barrier Island Restoration Project

Project No: 10-2123-0009

Figure

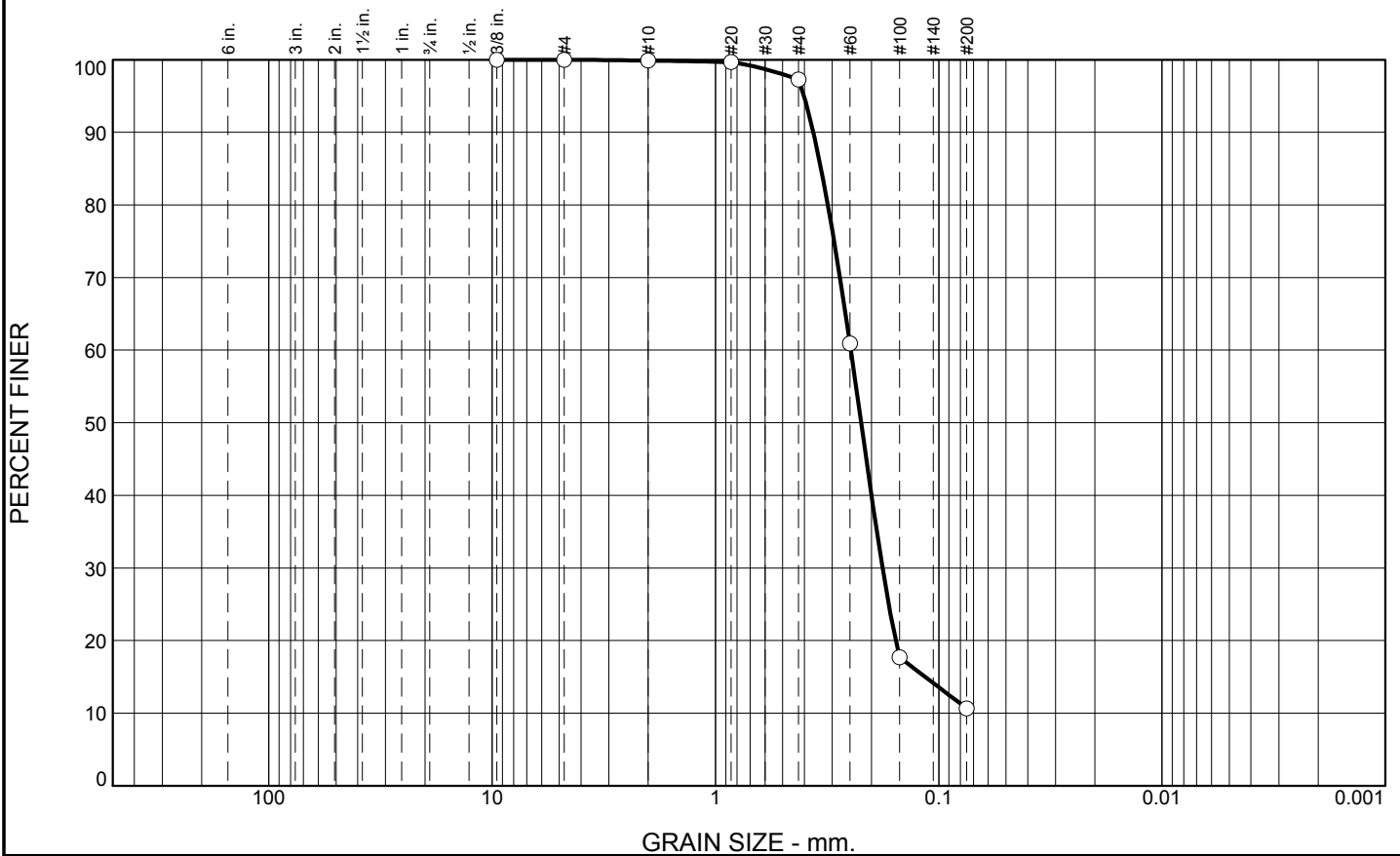
Tested By: L.Stokes

Checked By: R.Byrd

# Boring Designation BI-CI-09-10

DRILLING LOG		DIVISION South Atlantic		INSTALLATION Mobile District		SHEET 1 OF 1 SHEETS	
1. PROJECT MsCIP Barrier Island Restoration Cat Island				9. SIZE AND TYPE OF BIT N/A			
2. BORING DESIGNATION BI-CI-09-10		LOCATION COORDINATES E = 912,013 N = 269,972		10. COORDINATE SYSTEM/DATUM State Plane, MSE (U.S. Ft.)		HORIZONTAL NAD83 VERTICAL NAVD88	
3. DRILLING AGENCY Corps of Engineers - CESAM		CONTRACTOR FILE NO.		11. MANUFACTURER'S DESIGNATION OF DRILL Vibracore		<input type="checkbox"/> AUTO HAMMER <input type="checkbox"/> MANUAL HAMMER	
4. NAME OF DRILLER Construction Solutions International, Inc.				12. TOTAL SAMPLES 3		DISTURBED 3 UNDISTURBED (UD) 0	
5. DIRECTION OF BORING <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED		DEG. FROM VERTICAL		13. TOTAL NUMBER CORE BOXES			
		BEARING		14. WATER DEPTH 10.5 Ft.			
6. THICKNESS OF OVERBURDEN N/A				15. DATE BORING 05-20-10		STARTED 05-20-10 COMPLETED 05-20-10	
7. DEPTH DRILLED INTO ROCK N/A				16. ELEVATION TOP OF BORING -9.5 Ft.			
8. TOTAL DEPTH OF BORING 10.9 Ft.				17. TOTAL RECOVERY FOR BORING 100%			
				18. SIGNATURE AND TITLE OF INSPECTOR Mark Green, Geotechnical Engineer			
ELEV.	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS	SAMPLE	LABORATORY RESULTS		
-9.5	0.0						
-11.5	2.0		SAND, silty, mostly fine-grained sand-sized quartz, trace shell fragments, dark gray and greenish gray (SM)	A	Classification: SP-SM Color: 2.5Y 5/2-grayish brown D50: 0.2226 mm % Fines: 10.7		
			SAND, poorly-graded, mostly fine-grained sand-sized quartz, trace silt, trace shell fragments, gray and greenish gray (SP)	B	Classification: SP-SM Color: 2.5Y 6/2-light brownish gray D50: 0.2105 mm % Fines: 6		
			At El. -15.5 Ft., mostly fine-grained sand-sized quartz, trace shell fragments, lt. gray and gray	C	Classification: SP Color: 2.5Y 7/1-light gray D50: 0.1704 mm % Fines: 4.2		
-20.4	10.9						
			NOTES: 1. Soils are field visually classified in accordance with the Unified Soils Classification System. 2. NS = Sample not submitted for laboratory analysis from this interval. 3. Seafloor elevation calculated using sampling vessel's fathometer water depth reading and applying NOAA tidal gauge data conversion factor.				

# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.0	0.1	2.6	86.6	10.7	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
.375	100.0		
#4	100.0		
#10	99.9		
#20	99.7		
#40	97.3		
#60	60.9		
#100	17.7		
#200	10.7		

\* (no specification provided)

**Material Description**  
SAND, (SP-SM), fine grained

**Atterberg Limits**  
 PL=      LL=      PI=

**Coefficients**  
 D<sub>90</sub>= 0.3644      D<sub>85</sub>= 0.3365      D<sub>60</sub>= 0.2475  
 D<sub>50</sub>= 0.2226      D<sub>30</sub>= 0.1786      D<sub>15</sub>= 0.1150  
 D<sub>10</sub>=      C<sub>u</sub>=      C<sub>c</sub>=

**Classification**  
 USCS= SP-SM      AASHTO=

**Remarks**  
 CADD CODE = CH10D965

**Location:** USACE Sample # BI-CI-9-10A  
**Sample Number:** TE Lab ID: 4488.83

**Depth:** 0.0 - 2.0 (ft.)

**Date:** 5/27/10

**Thompson Engineering**  
  
**Mobile, Alabama**

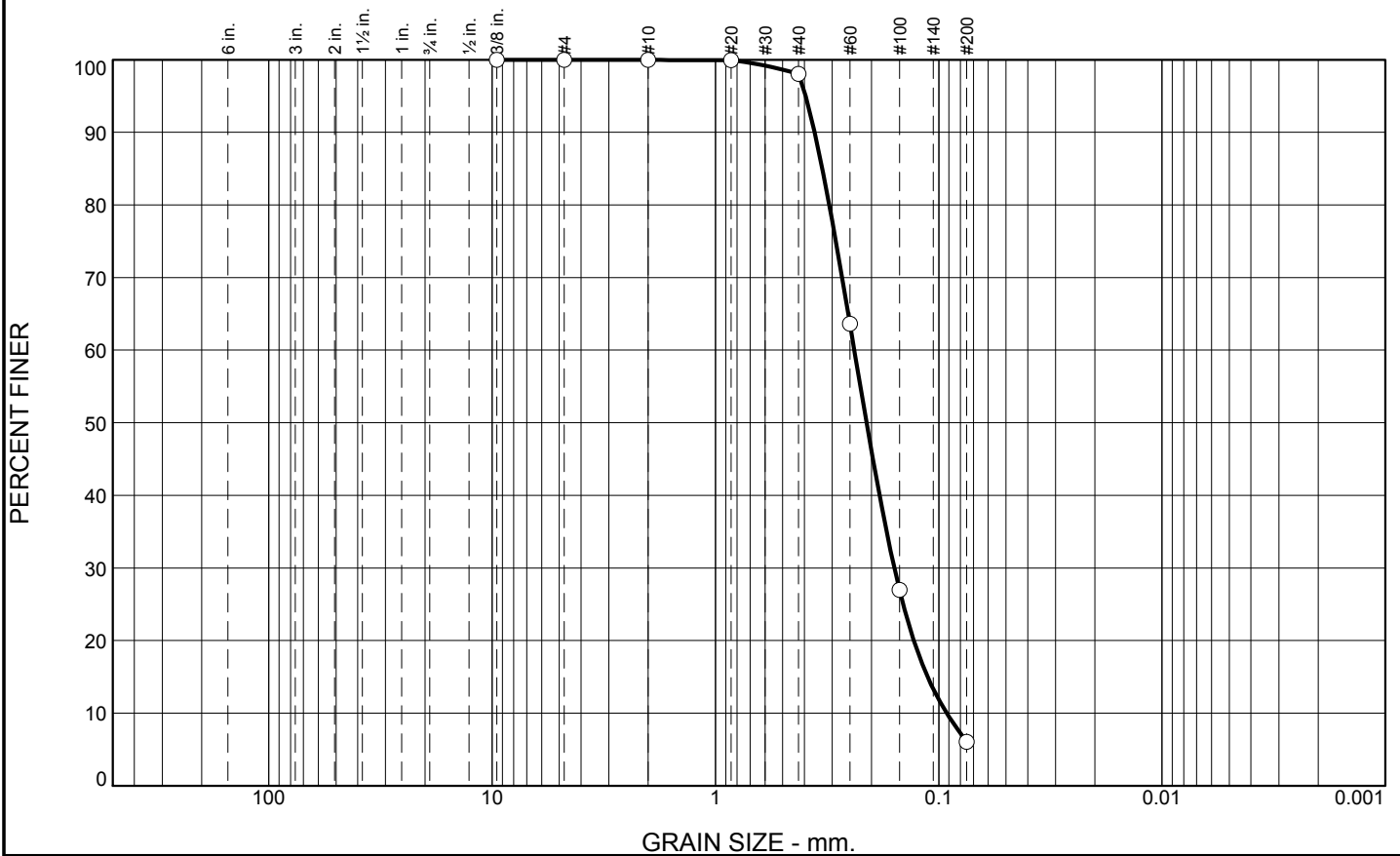
**Client:** US Army Corps of Engineers  
**Project:** Contract No. W91278-10-D-0026 - Task 03  
 Mississippi Barrier Island Restoration Project  
**Project No:** 10-2123-0009

**Figure**

**Tested By:** L.Stokes

**Checked By:** R.Byrd

# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.0	0.0	2.0	92.0	6.0	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
.375	100.0		
#4	100.0		
#10	100.0		
#20	99.9		
#40	98.0		
#60	63.6		
#100	27.0		
#200	6.0		

\* (no specification provided)

<u>Material Description</u>		
SAND, (SP-SM), fine grained		
<u>Atterberg Limits</u>		
PL=	LL=	PI=
<u>Coefficients</u>		
D <sub>90</sub> = 0.3596	D <sub>85</sub> = 0.3321	D <sub>60</sub> = 0.2389
D <sub>50</sub> = 0.2105	D <sub>30</sub> = 0.1582	D <sub>15</sub> = 0.1122
D <sub>10</sub> = 0.0922	C <sub>u</sub> = 2.59	C <sub>c</sub> = 1.14
<u>Classification</u>		
USCS= SP-SM	AASHTO=	
<u>Remarks</u>		
CADD CODE = CH10D965		

**Location:** USACE Sample # BI-CI-9-10B  
**Sample Number:** TE Lab ID: 4488.84

**Depth:** 2.0 - 6.0 (ft.)

**Date:** 5/27/10

**Thompson Engineering**  
**Mobile, Alabama**

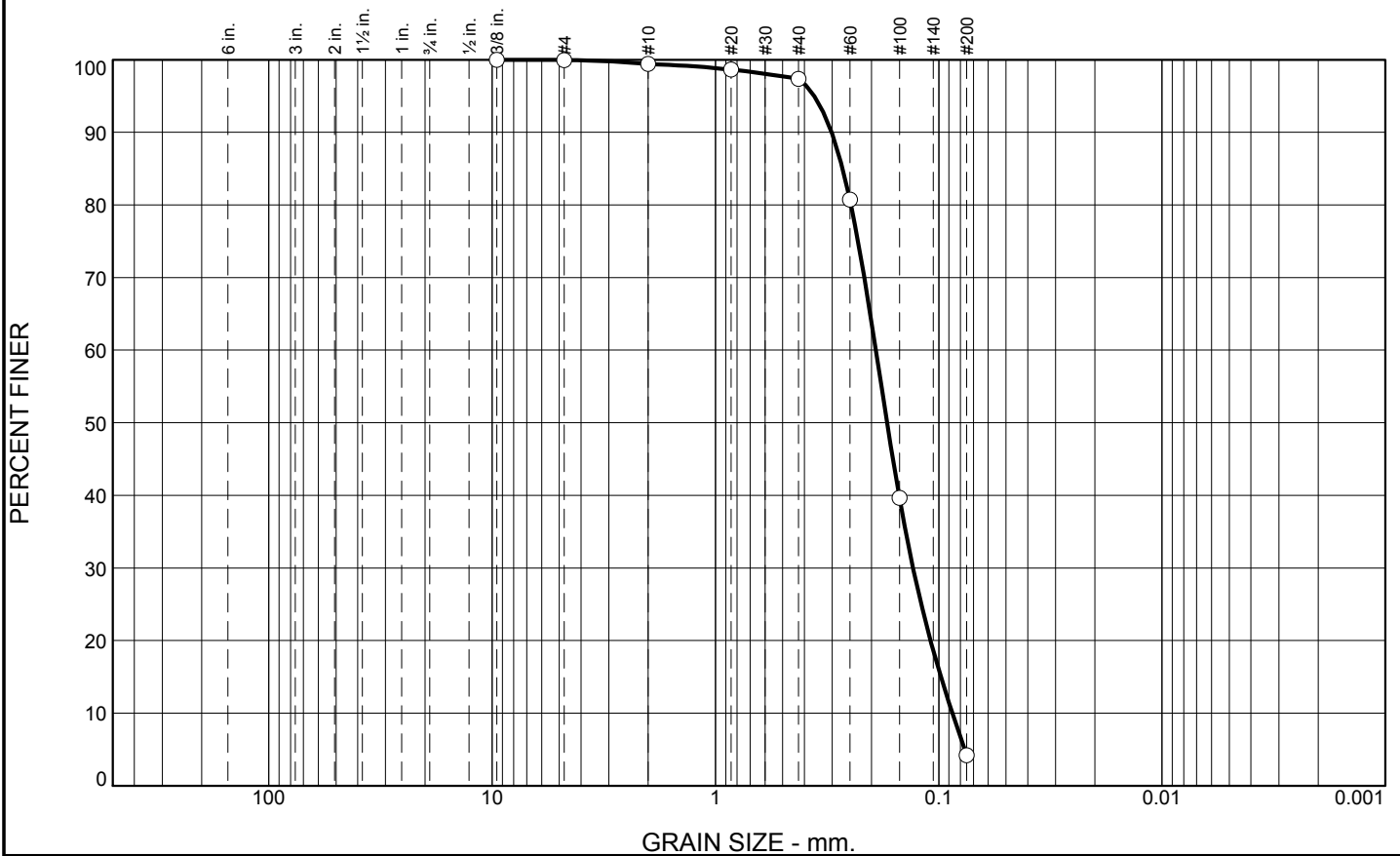
**Client:** US Army Corps of Engineers  
**Project:** Contract No. W91278-10-D-0026 - Task 03  
 Mississippi Barrier Island Restoration Project  
**Project No:** 10-2123-0009

**Figure**

**Tested By:** L.Stokes

**Checked By:** R.Byrd

# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.0	0.6	2.0	93.2	4.2	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
.375	100.0		
#4	100.0		
#10	99.4		
#20	98.6		
#40	97.4		
#60	80.7		
#100	39.6		
#200	4.2		

\* (no specification provided)

## Material Description

SAND, (SP), fine grained

## Atterberg Limits

PL=

LL=

PI=

## Coefficients

D<sub>90</sub>= 0.3017

D<sub>85</sub>= 0.2694

D<sub>60</sub>= 0.1914

D<sub>50</sub>= 0.1704

D<sub>30</sub>= 0.1304

D<sub>15</sub>= 0.0978

D<sub>10</sub>= 0.0869

C<sub>u</sub>= 2.20

C<sub>c</sub>= 1.02

## Classification

USCS= SP

AASHTO=

## Remarks

CADD CODE = CH10D965

Location: USACE Sample # BI-CI-9-10C  
Sample Number: TE Lab ID: 4488.85

Depth: 6.0 - 10.9 (ft.)

Date: 5/27/10

**Thompson Engineering**

**Mobile, Alabama**

Client: US Army Corps of Engineers

Project: Contract No. W91278-10-D-0026 - Task 03  
Mississippi Barrier Island Restoration Project

Project No: 10-2123-0009

Figure

Tested By: L.Stokes

Checked By: R.Byrd

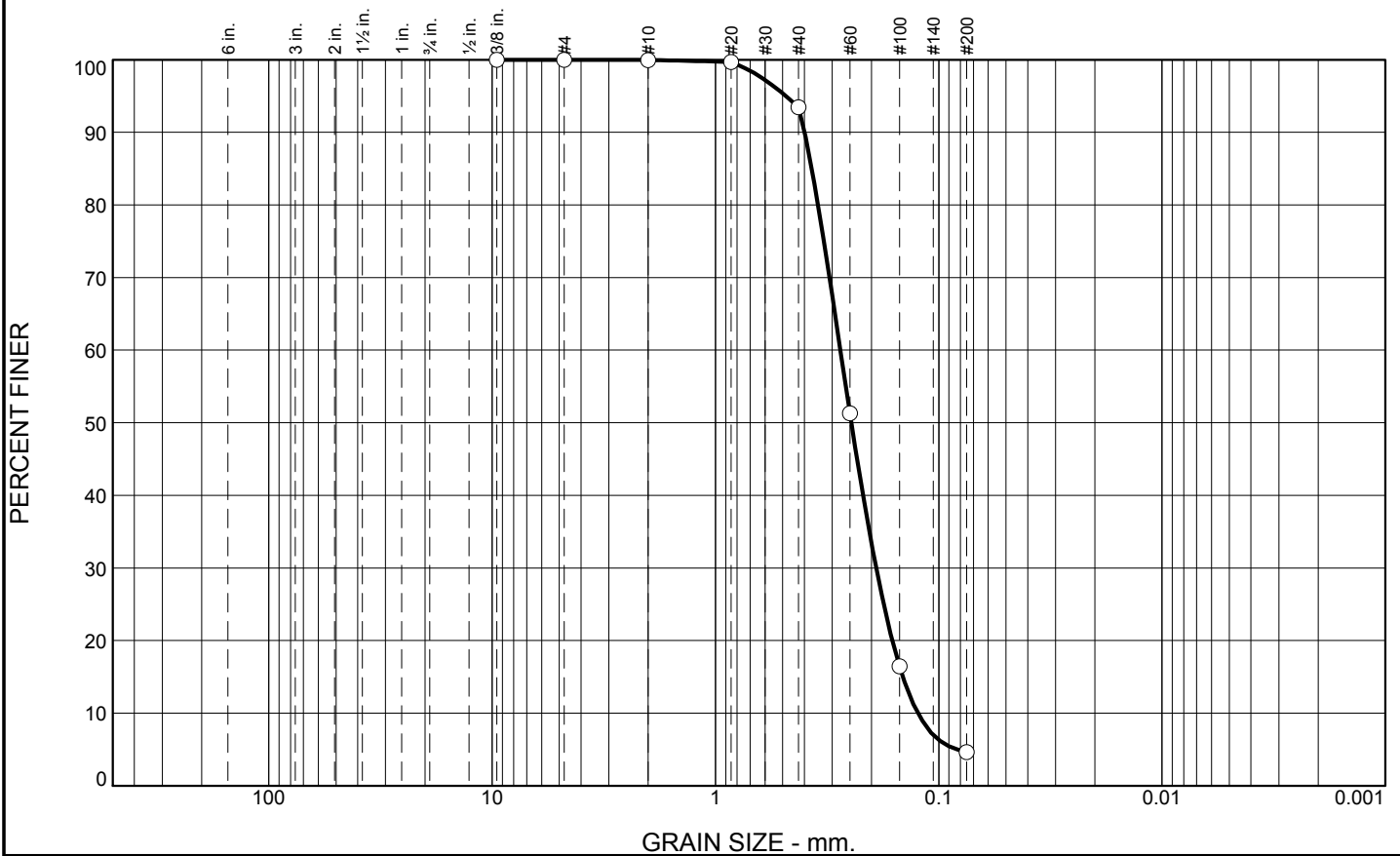
# Boring Designation BI-CI-10-10

DRILLING LOG		DIVISION South Atlantic		INSTALLATION Mobile District		SHEET 1 OF 1 SHEETS	
1. PROJECT MsCIP Barrier Island Restoration Cat Island				9. SIZE AND TYPE OF BIT N/A			
2. BORING DESIGNATION BI-CI-10-10		LOCATION COORDINATES E = 908,684 N = 262,084		10. COORDINATE SYSTEM/DATUM State Plane, MSE (U.S. Ft.)		HORIZONTAL NAD83 VERTICAL NAVD88	
3. DRILLING AGENCY Corps of Engineers - CESAM		CONTRACTOR FILE NO.		11. MANUFACTURER'S DESIGNATION OF DRILL Vibracore		<input type="checkbox"/> AUTO HAMMER <input type="checkbox"/> MANUAL HAMMER	
4. NAME OF DRILLER Construction Solutions International, Inc.				12. TOTAL SAMPLES 2		DISTURBED 2 UNDISTURBED (UD) 0	
5. DIRECTION OF BORING <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED		DEG. FROM VERTICAL		13. TOTAL NUMBER CORE BOXES			
		BEARING		14. WATER DEPTH 10 Ft.			
6. THICKNESS OF OVERBURDEN N/A				15. DATE BORING 05-19-10		STARTED 05-19-10 COMPLETED 05-19-10	
7. DEPTH DRILLED INTO ROCK N/A				16. ELEVATION TOP OF BORING -9.1 Ft.			
8. TOTAL DEPTH OF BORING 11.9 Ft.				17. TOTAL RECOVERY FOR BORING 100%			
				18. SIGNATURE AND TITLE OF INSPECTOR Marty Gates, Geologist			

ELEV.	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS	SAMPLE	LABORATORY RESULTS
-9.1	0.0				
			SAND, poorly-graded, mostly fine to medium-grained sand-sized quartz, trace silt, trace shell fragments, lt. gray (SP)	A	Classification: SP Color: 2.5Y 5/2-grayish brown D50: 0.2463 mm % Fines: 4.6
				B	Classification: SP Color: 2.5Y 7/1-light gray D50: 0.2187 mm % Fines: 3.3
-19.4	10.3				
-21.0	11.9		SAND, poorly-graded, mostly fine to medium-grained sand-sized quartz, trace clay, trace shell fragments, lt. gray (SP)		
			NOTES: 1. Soils are field visually classified in accordance with the Unified Soils Classification System. 2. NS = Sample not submitted for laboratory analysis from this interval. 3. Seafloor elevation calculated using sampling vessel's fathometer water depth reading and applying NOAA tidal gauge data conversion factor.		

# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.0	0.0	6.6	88.8	4.6	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
.375	100.0		
#4	100.0		
#10	100.0		
#20	99.7		
#40	93.4		
#60	51.3		
#100	16.4		
#200	4.6		

\* (no specification provided)

Material Description		
SAND, (SP), fine grained		
<div> <div> <b>Atterberg Limits</b>            PL=      LL=      PI=         </div> <div> <b>Coefficients</b>            D<sub>90</sub>= 0.3996      D<sub>85</sub>= 0.3708      D<sub>60</sub>= 0.2757            D<sub>50</sub>= 0.2463      D<sub>30</sub>= 0.1906      D<sub>15</sub>= 0.1450            D<sub>10</sub>= 0.1241      C<sub>u</sub>= 2.22      C<sub>c</sub>= 1.06         </div> <div> <b>Classification</b>            USCS= SP      AASHTO=         </div> <div> <b>Remarks</b>            CADD CODE = CH10D965         </div> </div>		

Location: USACE Sample # BI-CI-10-10A  
Sample Number: TE Lab ID: 4488.54

Depth: 0.0 - 5.0 (ft.)

Date: 5/27/10

**Thompson Engineering**  
**Mobile, Alabama**

**Client:** US Army Corps of Engineers  
**Project:** Contract No. W91278-10-D-0026 - Task 03  
Mississippi Barrier Island Restoration Project  
**Project No:** 10-2123-0009

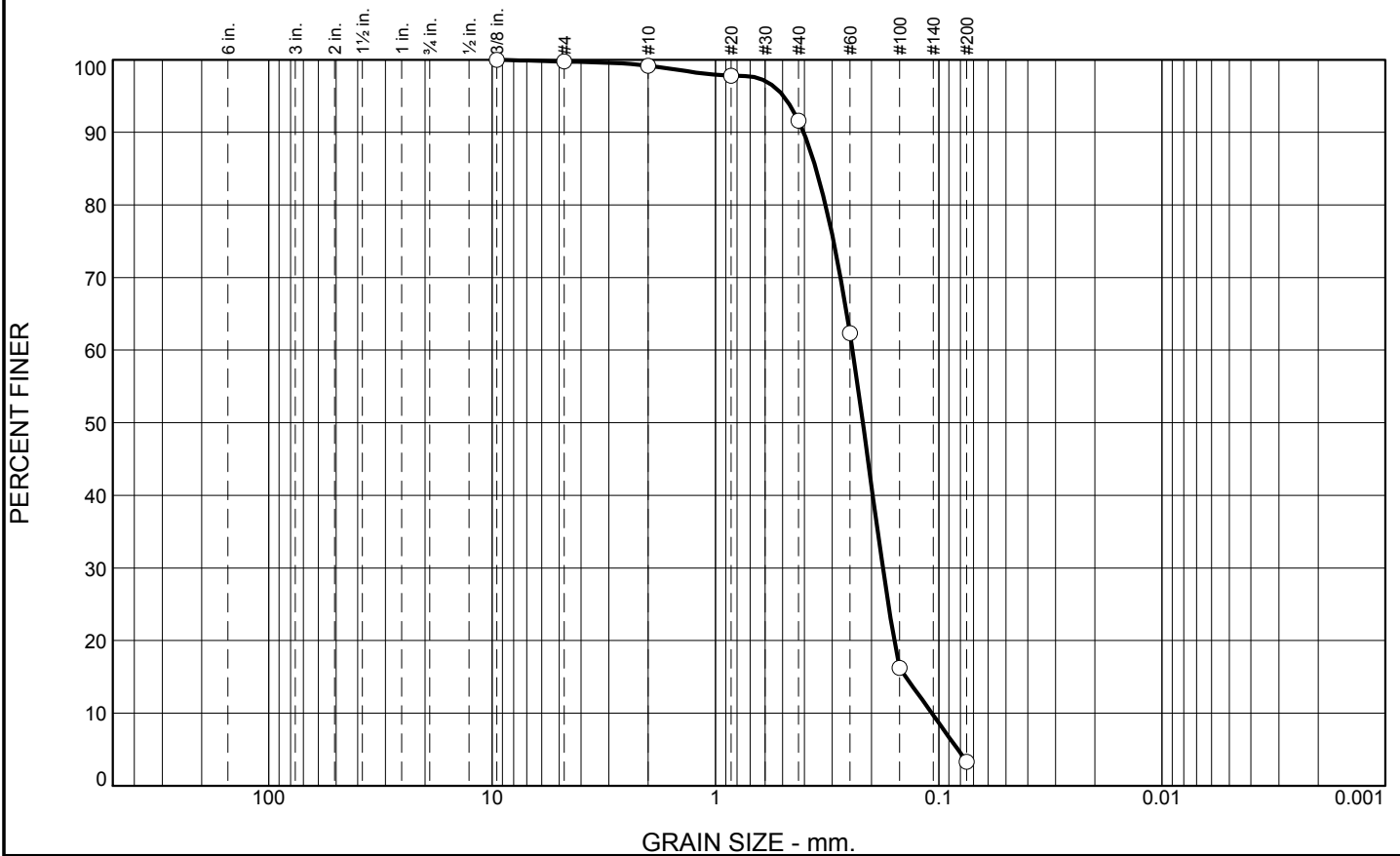
**Figure**

Tested By: L.Stokes

Checked By: R.Byrd



# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.2	0.6	7.6	88.3	3.3	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
.375	100.0		
#4	99.8		
#10	99.2		
#20	97.8		
#40	91.6		
#60	62.3		
#100	16.2		
#200	3.3		

\* (no specification provided)

Material Description		
SAND, (SP), fine grained		
<div> <div> <b>Atterberg Limits</b>            PL=      LL=      PI=         </div> <div> <b>Coefficients</b>            D<sub>90</sub>= 0.4034      D<sub>85</sub>= 0.3549      D<sub>60</sub>= 0.2434            D<sub>50</sub>= 0.2187      D<sub>30</sub>= 0.1779      D<sub>15</sub>= 0.1404            D<sub>10</sub>= 0.1074      C<sub>u</sub>= 2.27      C<sub>c</sub>= 1.21         </div> <div> <b>Classification</b>            USCS= SP      AASHTO=         </div> <div> <b>Remarks</b>            CADD CODE = Ch10D965         </div> </div>		

Location: USACE Sample # BI-CI-10-10B  
Sample Number: TE Lab ID: 4488.55

Depth: 5.0 - 11.9 (ft.)

Date: 5/27/10

**Thompson Engineering**  
**Mobile, Alabama**

**Client:** US Army Corps of Engineers  
**Project:** Contract No. W91278-10-D-0026 - Task 03  
Mississippi Barrier Island Restoration Project  
**Project No:** 10-2123-0009

**Figure**


Tested By: L.Stokes

Checked By: R.Byrd

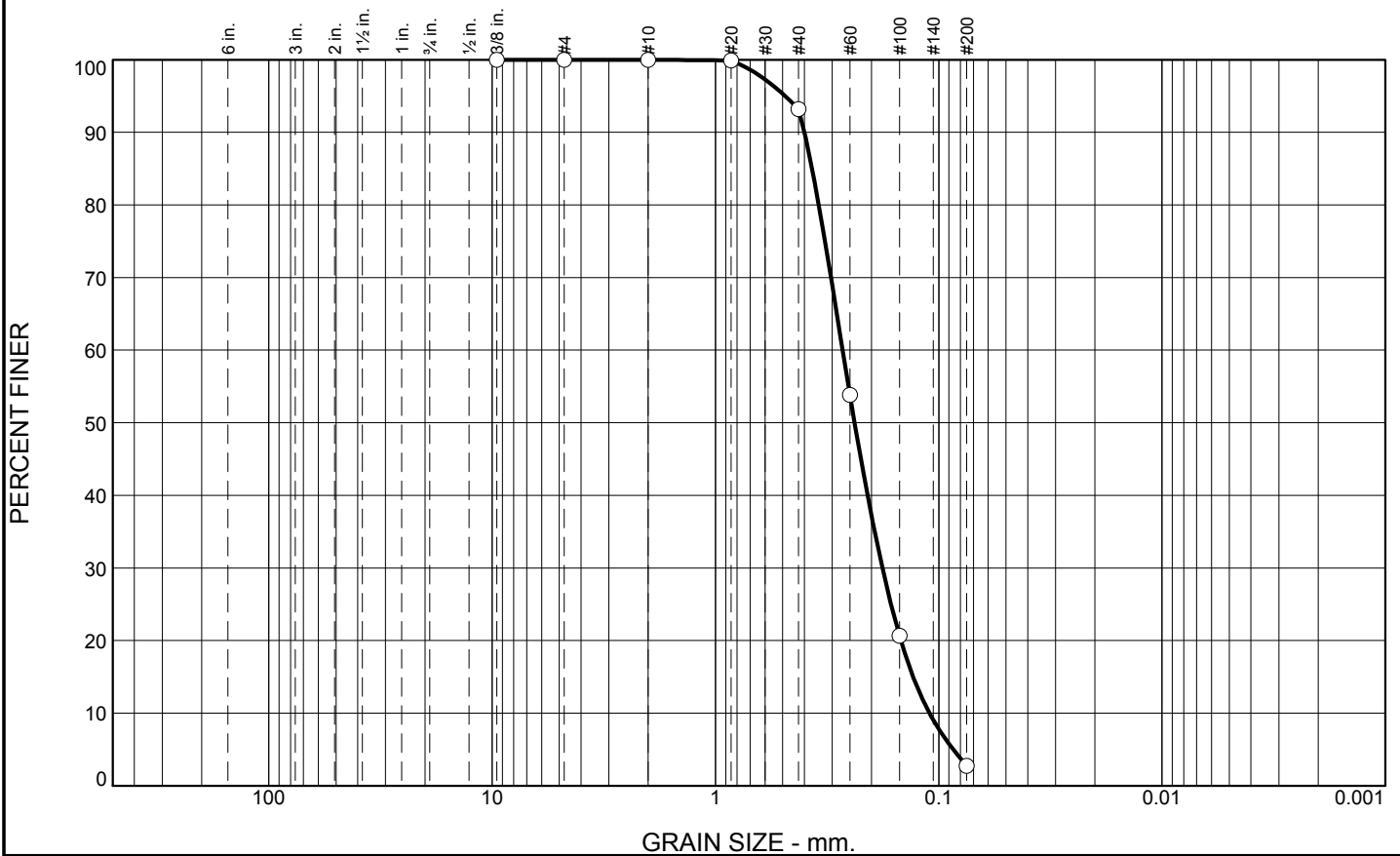
# Boring Designation BI-CI-11-10

DRILLING LOG		DIVISION South Atlantic		INSTALLATION Mobile District		SHEET 1 OF 1 SHEETS	
1. PROJECT MsCIP Barrier Island Restoration Cat Island				9. SIZE AND TYPE OF BIT N/A			
2. BORING DESIGNATION BI-CI-11-10		LOCATION COORDINATES E = 909,450 N = 262,955		10. COORDINATE SYSTEM/DATUM State Plane, MSE (U.S. Ft.)		HORIZONTAL NAD83 VERTICAL NAVD88	
3. DRILLING AGENCY Corps of Engineers - CESAM		CONTRACTOR FILE NO.		11. MANUFACTURER'S DESIGNATION OF DRILL Vibracore		<input type="checkbox"/> AUTO HAMMER <input type="checkbox"/> MANUAL HAMMER	
4. NAME OF DRILLER Construction Solutions International, Inc.				12. TOTAL SAMPLES 3		DISTURBED 0 UNDISTURBED (UD)	
5. DIRECTION OF BORING <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED		DEG. FROM VERTICAL		13. TOTAL NUMBER CORE BOXES			
		BEARING		14. WATER DEPTH 11 Ft.			
6. THICKNESS OF OVERBURDEN N/A				15. DATE BORING 05-19-10		STARTED 05-19-10 COMPLETED 05-19-10	
7. DEPTH DRILLED INTO ROCK N/A				16. ELEVATION TOP OF BORING -10.0 Ft.			
8. TOTAL DEPTH OF BORING 14.4 Ft.				17. TOTAL RECOVERY FOR BORING 100%			
				18. SIGNATURE AND TITLE OF INSPECTOR Marty Gates, Geologist			

ELEV.	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS	SAMPLE	LABORATORY RESULTS
-10.0	0.0				
			SAND, poorly-graded, mostly fine to medium-grained sand-sized quartz, trace silt, lt. brown (SP)	A	Classification: SP Color: 2.5Y 6/2-light brownish gray D50: 0.2382 mm % Fines: 2.8
				B	Classification: SP Color: 2.5Y 6/2-light brownish gray D50: 0.2124 mm % Fines: 2.6
				C	Classification: SP-SM Color: 2.5Y 6.5/1-gray D50: 0.1394 mm % Fines: 8.6
-19.1	9.1		SAND, poorly-graded, mostly fine to medium-grained sand-sized quartz, trace clay, trace shell fragments, lt. gray (SP)		
-24.4	14.4				
			NOTES: 1. Soils are field visually classified in accordance with the Unified Soils Classification System. 2. NS = Sample not submitted for laboratory analysis from this interval. 3. Seafloor elevation calculated using sampling vessel's fathometer water depth reading and applying NOAA tidal gauge data conversion factor.		

# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.0	0.0	6.8	90.4	2.8	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
.375	100.0		
#4	100.0		
#10	100.0		
#20	99.9		
#40	93.2		
#60	53.8		
#100	20.7		
#200	2.8		

\* (no specification provided)

## Material Description

SAND, (SP), fine grained

## Atterberg Limits

PL=

LL=

PI=

## Coefficients

D<sub>90</sub>= 0.3999

D<sub>85</sub>= 0.3694

D<sub>60</sub>= 0.2694

D<sub>50</sub>= 0.2382

D<sub>30</sub>= 0.1788

D<sub>15</sub>= 0.1303

D<sub>10</sub>= 0.1101

C<sub>u</sub>= 2.45

C<sub>c</sub>= 1.08

## Classification

USCS= SP

AASHTO=

## Remarks

CADD CODE = CH10D965

Location: USACE Sample # BI-CI-11-10A  
Sample Number: TE Lab ID: 4488.59

Depth: 0.0 - 5.0 (ft.)

Date: 5/27/10

**Thompson Engineering**

**Mobile, Alabama**

Client: US Army Corps of Engineers

Project: Contract No. W91278-10-D-0026 - Task 03  
Mississippi Barrier Island Restoration Project

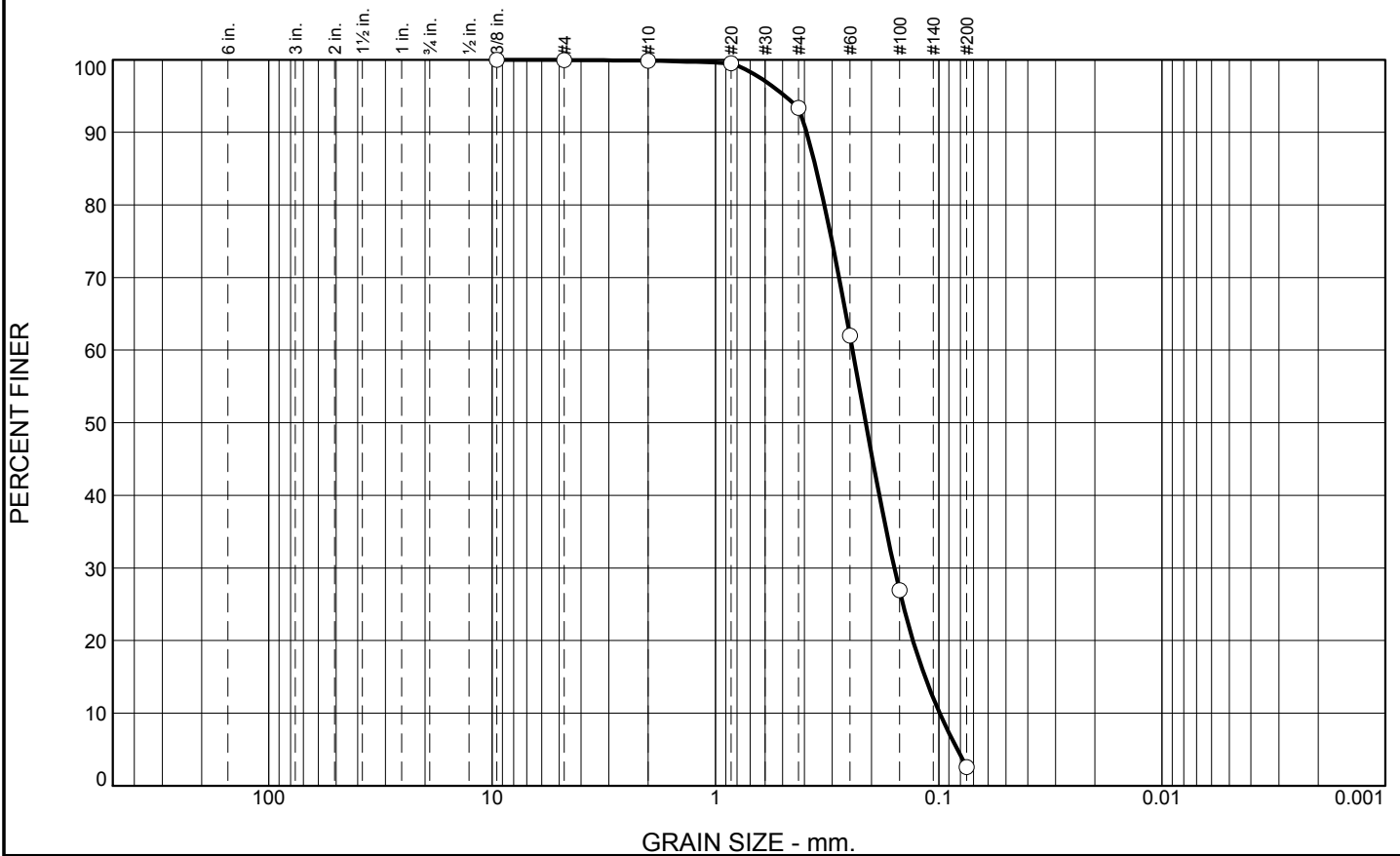
Project No: 10-2123-0009

Figure

Tested By: L.Stokes

Checked By: R.Byrd

# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.0	0.1	6.6	90.7	2.6	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
.375	100.0		
#4	100.0		
#10	99.9		
#20	99.5		
#40	93.3		
#60	62.0		
#100	26.9		
#200	2.6		

\* (no specification provided)

Material Description		
SAND, (SP), fine grained		
<div> <div> <b>Atterberg Limits</b>            LL=                       PI=         </div> <div> <b>Coefficients</b>            D<sub>90</sub>= 0.3914            D<sub>50</sub>= 0.2124            D<sub>10</sub>= 0.0991         </div> <div>           D<sub>85</sub>= 0.3543            D<sub>30</sub>= 0.1582            C<sub>u</sub>= 2.46         </div> <div>           D<sub>60</sub>= 0.2432            D<sub>15</sub>= 0.1152            C<sub>c</sub>= 1.04         </div> </div>		
<b>Classification</b> USCS= SP      AASHTO=		
<b>Remarks</b> CADD CODE = CH10D965		

Location: USACE Sample # BI-CI-11-10B  
Sample Number: TE Lab ID: 4488.60

Depth: 5.0 - 10.0 (ft.)

Date: 5/27/10

**Thompson Engineering**  
**Mobile, Alabama**

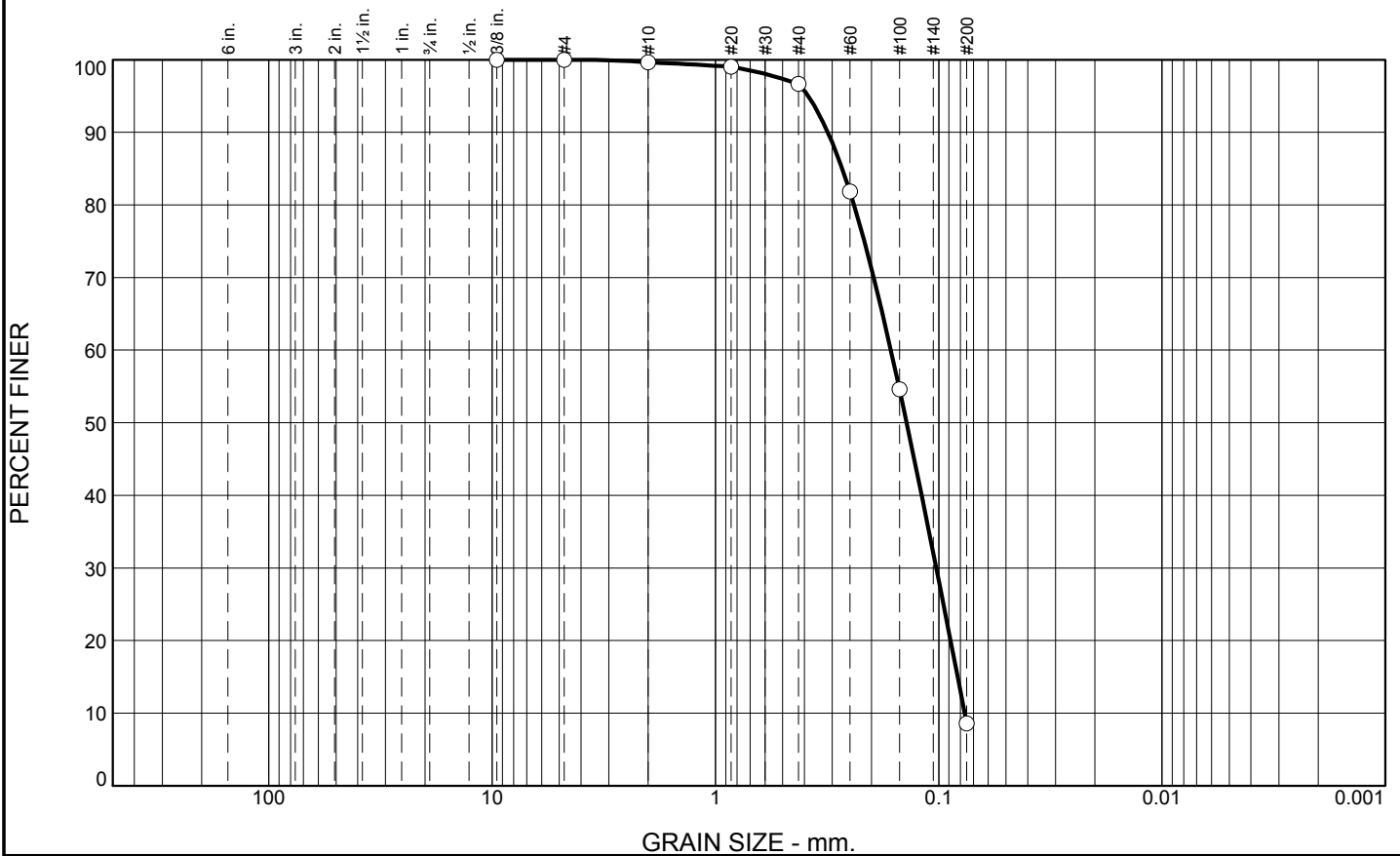
**Client:** US Army Corps of Engineers  
**Project:** Contract No. W91278-10-D-0026 - Task 03  
Mississippi Barrier Island Restoration Project  
**Project No:** 10-2123-0009

**Figure**

Tested By: L.Stokes

Checked By: R.Byrd

# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.0	0.4	2.9	88.1	8.6	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
.375	100.0		
#4	100.0		
#10	99.6		
#20	99.0		
#40	96.7		
#60	81.8		
#100	54.6		
#200	8.6		

\* (no specification provided)

## Material Description

SAND, (SP-SM), fine grained

## Atterberg Limits

PL=

LL=

PI=

## Coefficients

D<sub>90</sub>= 0.3137

D<sub>85</sub>= 0.2706

D<sub>60</sub>= 0.1640

D<sub>50</sub>= 0.1394

D<sub>30</sub>= 0.1026

D<sub>15</sub>= 0.0823

D<sub>10</sub>= 0.0766

C<sub>u</sub>= 2.14

C<sub>c</sub>= 0.84

## Classification

USCS= SP-SM

AASHTO=

## Remarks

CADD CODE = CH10D965

Location: USACE Sample # BI-CI-11-10C  
Sample Number: TE Lab ID: 4488.61

Depth: 10.0 - 14.4 (ft.)

Date: 5/27/10

**Thompson Engineering**

**Mobile, Alabama**

Client: US Army Corps of Engineers

Project: Contract No. W91278-10-D-0026 - Task 03  
Mississippi Barrier Island Restoration Project

Project No: 10-2123-0009

Figure

Tested By: L.Stokes

Checked By: R.Byrd

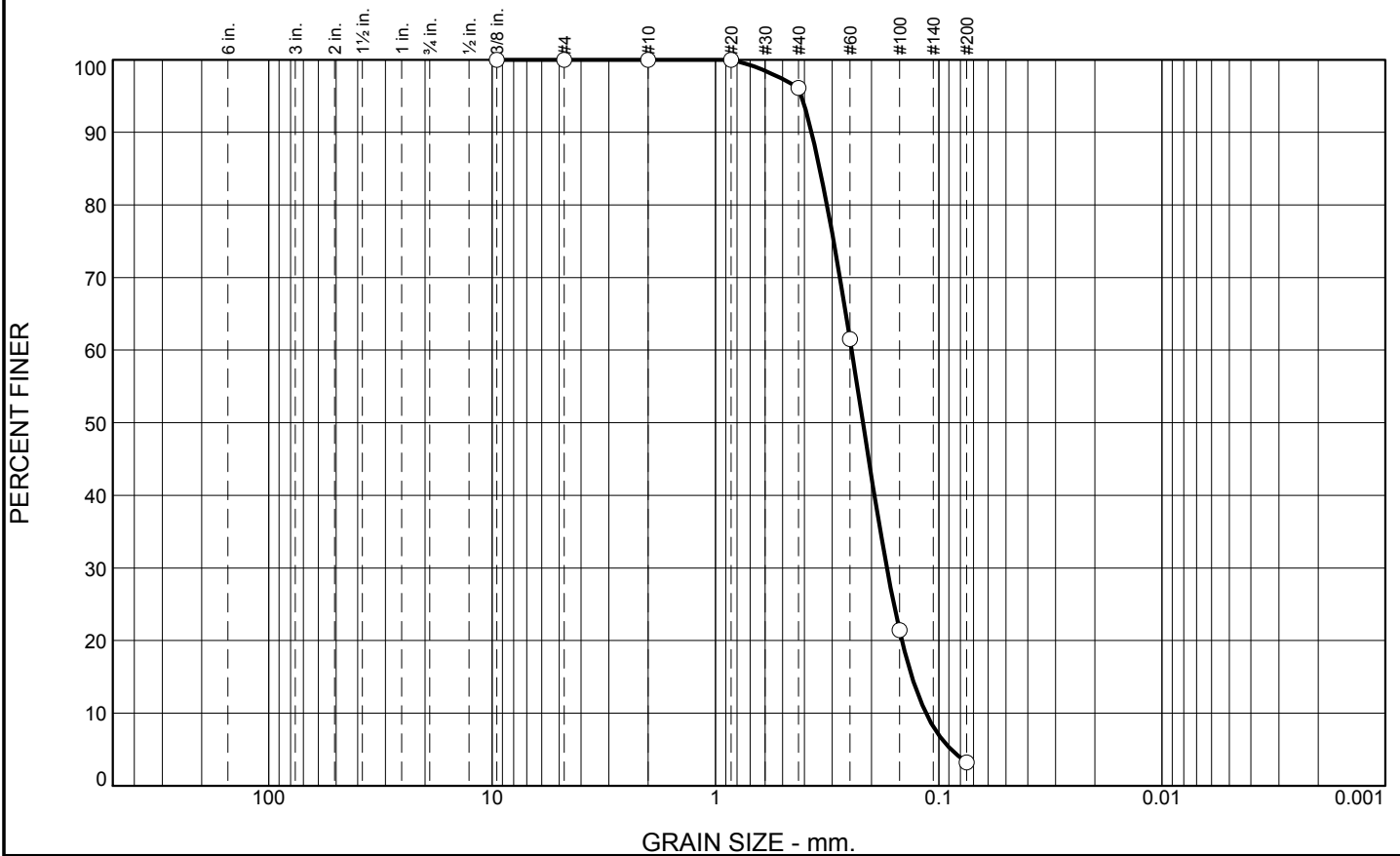
# Boring Designation BI-CI-12-10

DRILLING LOG		DIVISION South Atlantic		INSTALLATION Mobile District		SHEET 1 OF 1 SHEETS	
1. PROJECT MsCIP Barrier Island Restoration Cat Island				9. SIZE AND TYPE OF BIT N/A			
2. BORING DESIGNATION BI-CI-12-10		LOCATION COORDINATES E = 909,960 N = 263,809		10. COORDINATE SYSTEM/DATUM State Plane, MSE (U.S. Ft.)		HORIZONTAL NAD83 VERTICAL NAVD88	
3. DRILLING AGENCY Corps of Engineers - CESAM		CONTRACTOR FILE NO.		11. MANUFACTURER'S DESIGNATION OF DRILL Vibracore		<input type="checkbox"/> AUTO HAMMER <input type="checkbox"/> MANUAL HAMMER	
4. NAME OF DRILLER Construction Solutions International, Inc.				12. TOTAL SAMPLES 2		DISTURBED 0 UNDISTURBED (UD)	
5. DIRECTION OF BORING <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED		DEG. FROM VERTICAL		13. TOTAL NUMBER CORE BOXES			
		BEARING		14. WATER DEPTH 10.5 Ft.			
6. THICKNESS OF OVERBURDEN N/A				15. DATE BORING 05-19-10		STARTED 05-19-10 COMPLETED 05-19-10	
7. DEPTH DRILLED INTO ROCK N/A				16. ELEVATION TOP OF BORING -9.2 Ft.			
8. TOTAL DEPTH OF BORING 10.8 Ft.				17. TOTAL RECOVERY FOR BORING 100%			
				18. SIGNATURE AND TITLE OF INSPECTOR Marty Gates, Geologist			

ELEV.	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS	SAMPLE	LABORATORY RESULTS
-9.2	0.0				
			SAND, poorly-graded, mostly fine to medium-grained sand-sized quartz, trace silt, lt. brown (SP)	A	Classification: SP Color: 2.5Y 6.5/1-gray D50: 0.2185 mm % Fines: 3.2
-15.3	6.1		SAND, poorly-graded, mostly fine to medium-grained sand-sized quartz, trace clay, trace shell fragments, lt. gray (SP)	B	Classification: SP-SM Color: 2.5Y 6/1-gray D50: 0.1633 mm % Fines: 5.7
-19.0	9.8				
-20.0	10.8		SAND, poorly-graded, mostly fine to medium-grained sand-sized quartz, little clay, trace shell fragments, gray (SP)		
			NOTES: 1. Soils are field visually classified in accordance with the Unified Soils Classification System. 2. NS = Sample not submitted for laboratory analysis from this interval. 3. Seafloor elevation calculated using sampling vessel's fathometer water depth reading and applying NOAA tidal gauge data conversion factor.		

# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.0	0.0	3.9	92.9	3.2	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
.375	100.0		
#4	100.0		
#10	100.0		
#20	100.0		
#40	96.1		
#60	61.5		
#100	21.4		
#200	3.2		

\* (no specification provided)

Material Description		
SAND, (SP), fine grained		
<div> <div> <b>Atterberg Limits</b>            PL=      LL=      PI=         </div> <div> <b>Coefficients</b>            D<sub>90</sub>= 0.3715      D<sub>85</sub>= 0.3412      D<sub>60</sub>= 0.2455            D<sub>50</sub>= 0.2185      D<sub>30</sub>= 0.1708      D<sub>15</sub>= 0.1318            D<sub>10</sub>= 0.1141      C<sub>u</sub>= 2.15      C<sub>c</sub>= 1.04         </div> <div> <b>Classification</b>            USCS= SP      AASHTO=         </div> <div> <b>Remarks</b>            CADD CODE = CH10D965         </div> </div>		

Location: USACE Sample # BI-CI-12-10A  
Sample Number: TE Lab ID: 4488.64

Depth: 0.0 - 5.0 (ft.)

Date: 5/27/10

**Thompson Engineering**  
**Mobile, Alabama**

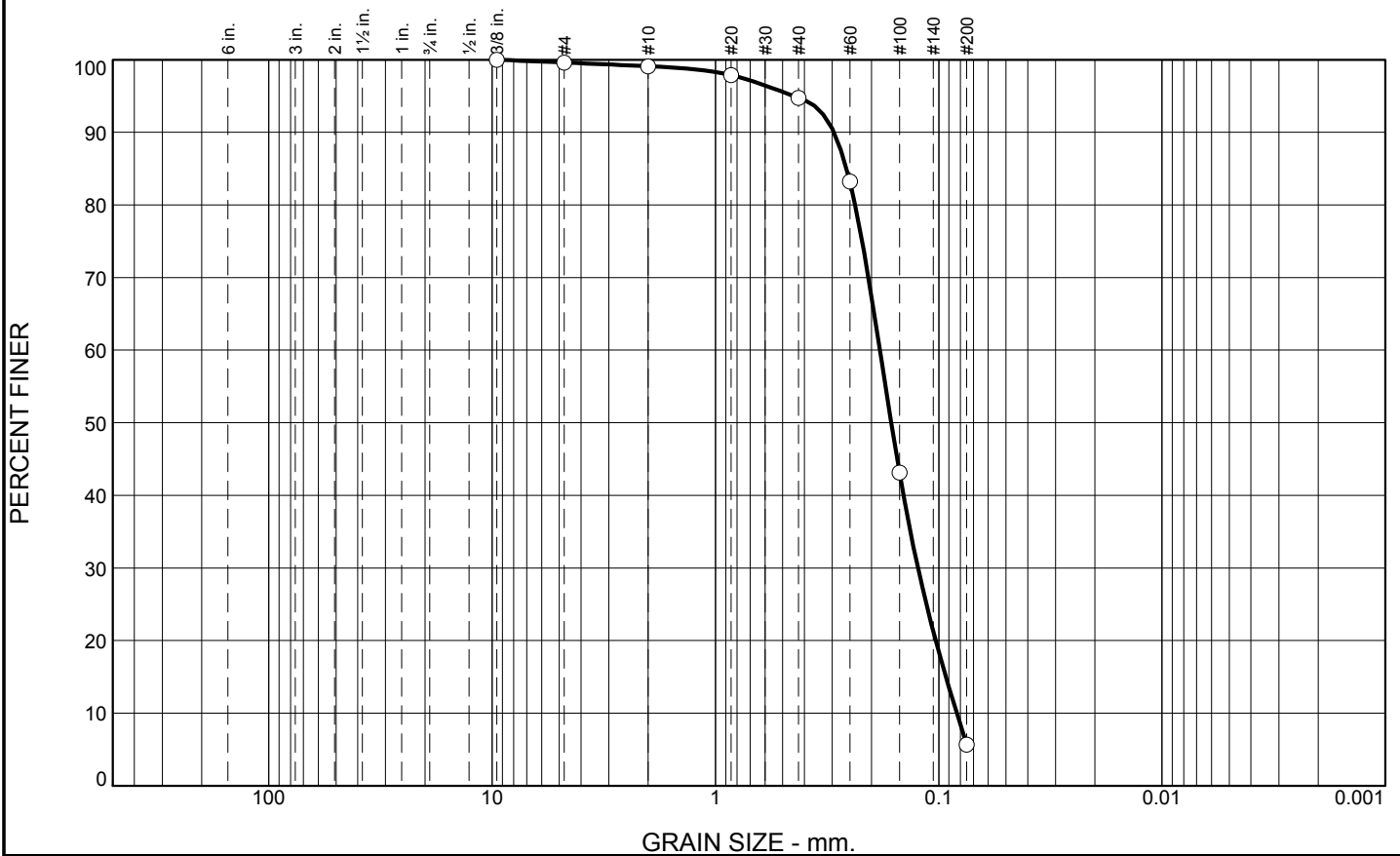
**Client:** US Army Corps of Engineers  
**Project:** Contract No. W91278-10-D-0026 - Task 03  
Mississippi Barrier Island Restoration Project  
**Project No:** 10-2123-0009

**Figure**

Tested By: L.Stokes

Checked By: R.Byrd

# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.4	0.5	4.4	89.0	5.7	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
.375	100.0		
#4	99.6		
#10	99.1		
#20	97.9		
#40	94.7		
#60	83.2		
#100	43.1		
#200	5.7		

\* (no specification provided)

**Material Description**  
SAND, (SP-SM), fine grained, with trace shell

**Atterberg Limits**  
 PL=      LL=      PI=

**Coefficients**  
 D<sub>90</sub>= 0.2948      D<sub>85</sub>= 0.2587      D<sub>60</sub>= 0.1835  
 D<sub>50</sub>= 0.1633      D<sub>30</sub>= 0.1239      D<sub>15</sub>= 0.0929  
 D<sub>10</sub>= 0.0830      C<sub>u</sub>= 2.21      C<sub>c</sub>= 1.01

**Classification**  
 USCS= SP-SM      AASHTO=

**Remarks**  
 CADD CODE = CH10D965

**Location:** USACE Sample # BI-CI-12-10B  
**Sample Number:** TE Lab ID: 4488.65

**Depth:** 5.0 - 10.8 (ft.)

**Date:** 5/27/10

**Thompson Engineering**  
  
**Mobile, Alabama**

**Client:** US Army Corps of Engineers  
**Project:** Contract No. W91278-10-D-0026 - Task 03  
 Mississippi Barrier Island Restoration Project  
**Project No:** 10-2123-0009

**Figure**

**Tested By:** L.Stokes

**Checked By:** R.Byrd



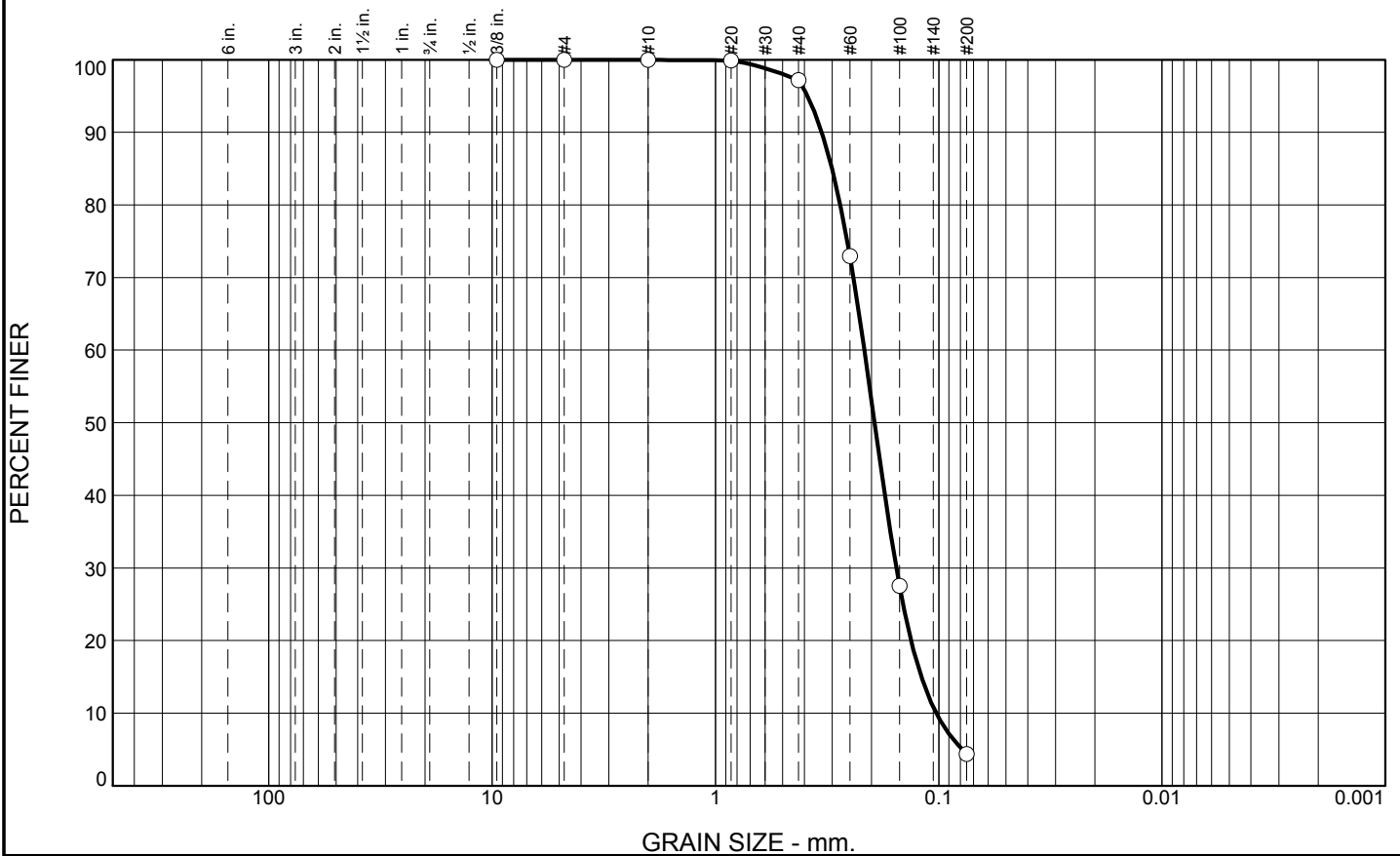
# Boring Designation BI-CI-13-10

DRILLING LOG		DIVISION South Atlantic		INSTALLATION Mobile District		SHEET 1 OF 1 SHEETS	
1. PROJECT MsCIP Barrier Island Restoration Cat Island				9. SIZE AND TYPE OF BIT N/A			
2. BORING DESIGNATION BI-CI-13-10		LOCATION COORDINATES E = 910,502 N = 264,658		10. COORDINATE SYSTEM/DATUM State Plane, MSE (U.S. Ft.)		HORIZONTAL NAD83	
3. DRILLING AGENCY Corps of Engineers - CESAM		CONTRACTOR FILE NO.		11. MANUFACTURER'S DESIGNATION OF DRILL Vibracore		<input type="checkbox"/> AUTO HAMMER <input type="checkbox"/> MANUAL HAMMER	
4. NAME OF DRILLER Construction Solutions International, Inc.				12. TOTAL SAMPLES 3		DISTURBED 0	
5. DIRECTION OF BORING <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED				13. TOTAL NUMBER CORE BOXES		14. WATER DEPTH 10.5 Ft.	
6. THICKNESS OF OVERBURDEN N/A				15. DATE BORING 05-19-10		STARTED 05-19-10	
7. DEPTH DRILLED INTO ROCK N/A				16. ELEVATION TOP OF BORING -9.1 Ft.		COMPLETED 05-19-10	
8. TOTAL DEPTH OF BORING 13.5 Ft.				17. TOTAL RECOVERY FOR BORING 100%		18. SIGNATURE AND TITLE OF INSPECTOR Marty Gates, Geologist	

ELEV.	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS	SAMPLE	LABORATORY RESULTS
-9.1	0.0				
			SAND, poorly-graded, mostly fine to medium-grained sand-sized quartz, trace silt, trace shell fragments, lt. brown (SP)	A	Classification: SP Color: 2.5Y 6/2-light brownish gray D50: 0.1939 mm % Fines: 4.4
				B	Classification: SP Color: 2.5Y 7/1-light gray D50: 0.1663 mm % Fines: 3.2
-19.6	10.5		SAND, poorly-graded, mostly fine to medium-grained sand-sized quartz, trace clay, trace shell fragments, lt. gray (SP)	C	Classification: SP-SM Color: 5Y 6/2-light olive gray D50: 0.1442 mm % Fines: 6.5
-21.9	12.8				
-22.6	13.5		SAND, poorly-graded, mostly fine to medium-grained sand-sized quartz, little clay, trace shell fragments, gray (SP)		
NOTES: 1. Soils are field visually classified in accordance with the Unified Soils Classification System. 2. NS = Sample not submitted for laboratory analysis from this interval. 3. Seafloor elevation calculated using sampling vessel's fathometer water depth reading and applying NOAA tidal gauge data conversion factor.					

# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.0	0.0	2.8	92.8	4.4	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
.375	100.0		
#4	100.0		
#10	100.0		
#20	99.9		
#40	97.2		
#60	73.0		
#100	27.5		
#200	4.4		

\* (no specification provided)

<u><b>Material Description</b></u>		
SAND, (SP), fine grained		
<u><b>Atterberg Limits</b></u>		
PL=	LL=	PI=
<u><b>Coefficients</b></u>		
D <sub>90</sub> = 0.3341	D <sub>85</sub> = 0.3006	D <sub>60</sub> = 0.2154
D <sub>50</sub> = 0.1939	D <sub>30</sub> = 0.1550	D <sub>15</sub> = 0.1197
D <sub>10</sub> = 0.1027	C <sub>u</sub> = 2.10	C <sub>c</sub> = 1.09
<u><b>Classification</b></u>		
USCS= SP	AASHTO=	
<u><b>Remarks</b></u>		
CADD CODE = CH10D965		

Location: USACE Sample # BI-CI-13-10A  
Sample Number: TE Lab ID: 4488.69

Depth: 0.0 - 4.5 (ft.)

Date: 5/27/10

**Thompson Engineering**  
**Mobile, Alabama**

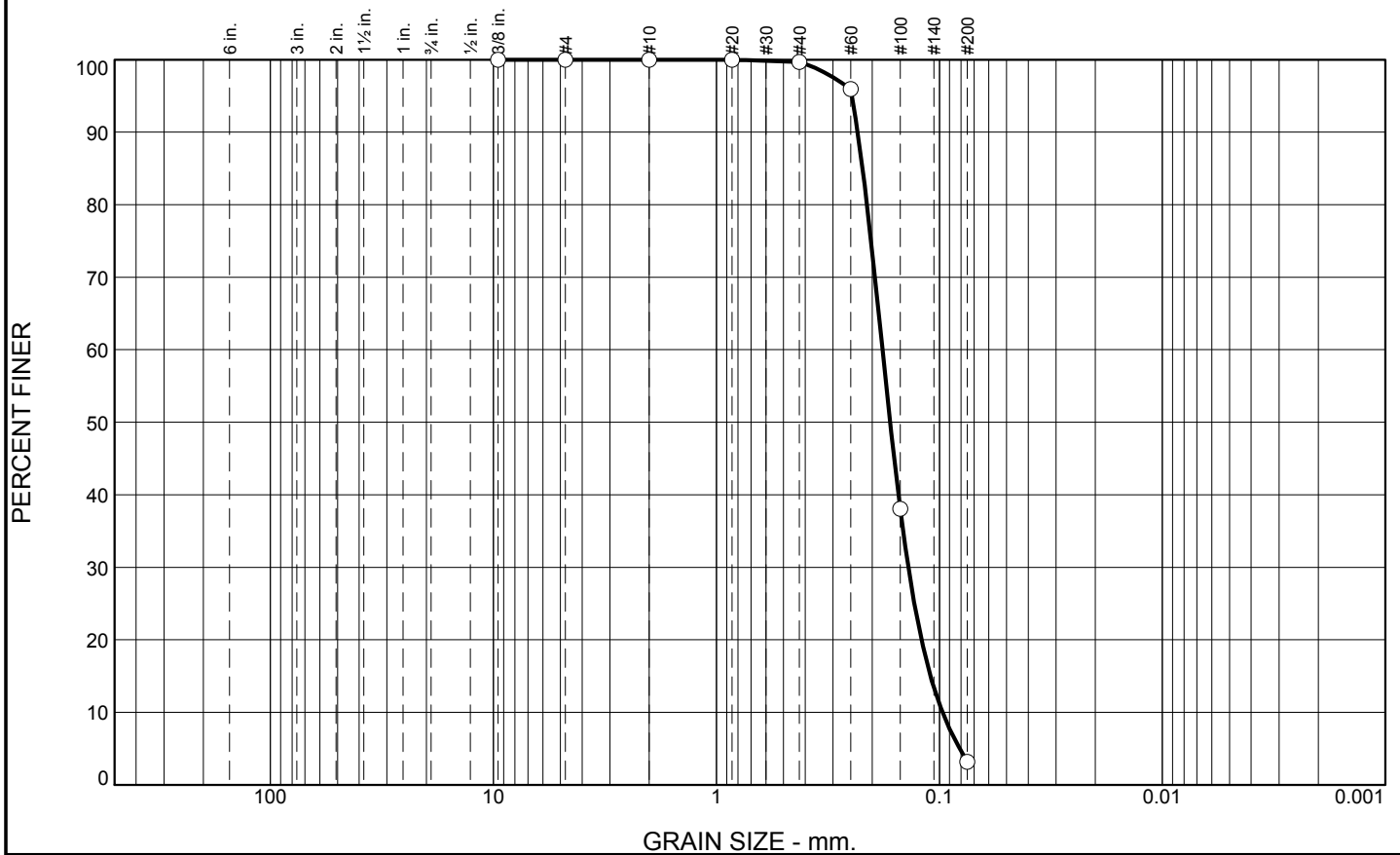
**Client:** US Army Corps of Engineers  
**Project:** Contract No. W91278-10-D-0026 - Task 03  
Mississippi Barrier Island Restoration Project  
**Project No:** 10-2123-0009

**Figure**

Tested By: L.Stokes

Checked By: R.Byrd

# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.0	0.0	0.3	96.5	3.2	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
.375	100.0		
#4	100.0		
#10	100.0		
#20	100.0		
#40	99.7		
#60	95.9		
#100	38.1		
#200	3.2		

\* (no specification provided)

Material Description		
SAND, (SP), fine grained		
<div> <div>PL=</div> <div> <u>Atterberg Limits</u>  LL= </div> <div>PI=</div> </div>		
<div> <div> D<sub>90</sub>= 0.2324  D<sub>50</sub>= 0.1663  D<sub>10</sub>= 0.0969 </div> <div> <u>Coefficients</u>  D<sub>85</sub>= 0.2211  D<sub>30</sub>= 0.1379  C<sub>u</sub>= 1.86 </div> <div> D<sub>60</sub>= 0.1800  D<sub>15</sub>= 0.1097  C<sub>c</sub>= 1.09 </div> </div>		
<div> <div>USCS= SP</div> <div> <u>Classification</u>  AASHTO= </div> </div>		
<div> <div> <u>Remarks</u>  CADD CODE = CH10D965 </div> </div>		

Location: USACE Sample # BI-CI-13-10B  
Sample Number: TE Lab ID: 4488.70

Depth: 4.5 - 9.0 (ft.)

Date: 5/27/10

**Thompson Engineering**  
**Mobile, Alabama**

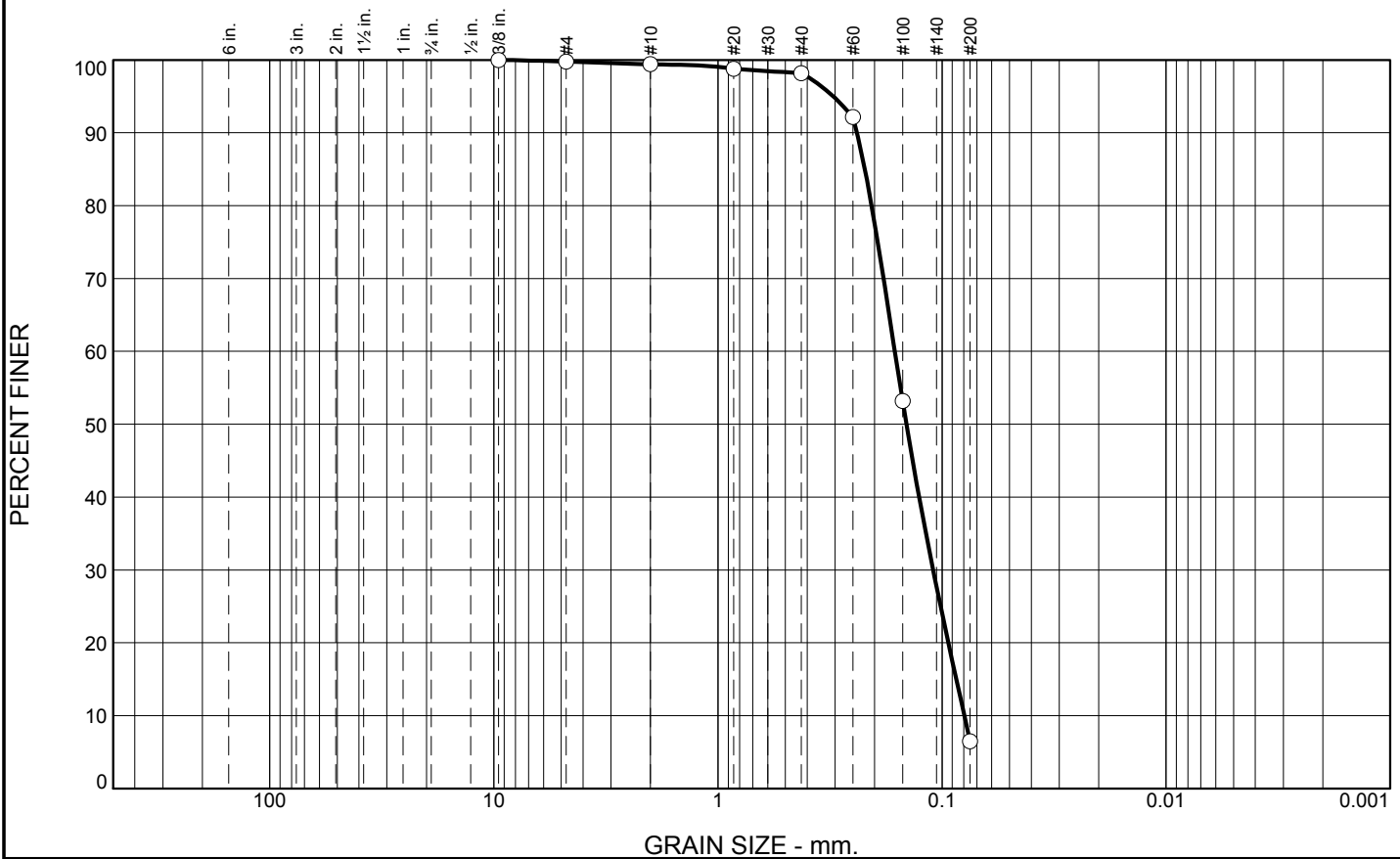
**Client:** US Army Corps of Engineers  
**Project:** Contract No. W91278-10-D-0026 - Task 03  
Mississippi Barrier Island Restoration Project  
**Project No:** 10-2123-0009

**Figure**

Tested By: L.Stokes

Checked By: R.Byrd

# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.2	0.4	1.2	91.7	6.5	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
.375	100.0		
#4	99.8		
#10	99.4		
#20	98.8		
#40	98.2		
#60	92.2		
#100	53.2		
#200	6.5		

\* (no specification provided)

**Material Description**  
SAND, (SP-SM), fine grained

**Atterberg Limits**  
 PL=      LL=      PI=

**Coefficients**  
 D<sub>90</sub>= 0.2396      D<sub>85</sub>= 0.2209      D<sub>60</sub>= 0.1625  
 D<sub>50</sub>= 0.1442      D<sub>30</sub>= 0.1096      D<sub>15</sub>= 0.0864  
 D<sub>10</sub>= 0.0795      C<sub>u</sub>= 2.04      C<sub>c</sub>= 0.93

**Classification**  
 USCS= SP-SM      AASHTO=

**Remarks**  
 CADD CODE = CH10D965

**Location:** USACE Sample # BI-CI-13-10C  
**Sample Number:** TE Lab ID: 4488.71

**Depth:** 9.0 - 13.5 (ft.)

**Date:** 5/27/10

**Thompson Engineering**  
  
**Mobile, Alabama**

**Client:** US Army Corps of Engineers  
**Project:** Contract No. W91278-10-D-0026 - Task 03  
 Mississippi Barrier Island Restoration Project  
**Project No:** 10-2123-0009

**Figure**

**Tested By:** L.Stokes

**Checked By:** R.Byrd

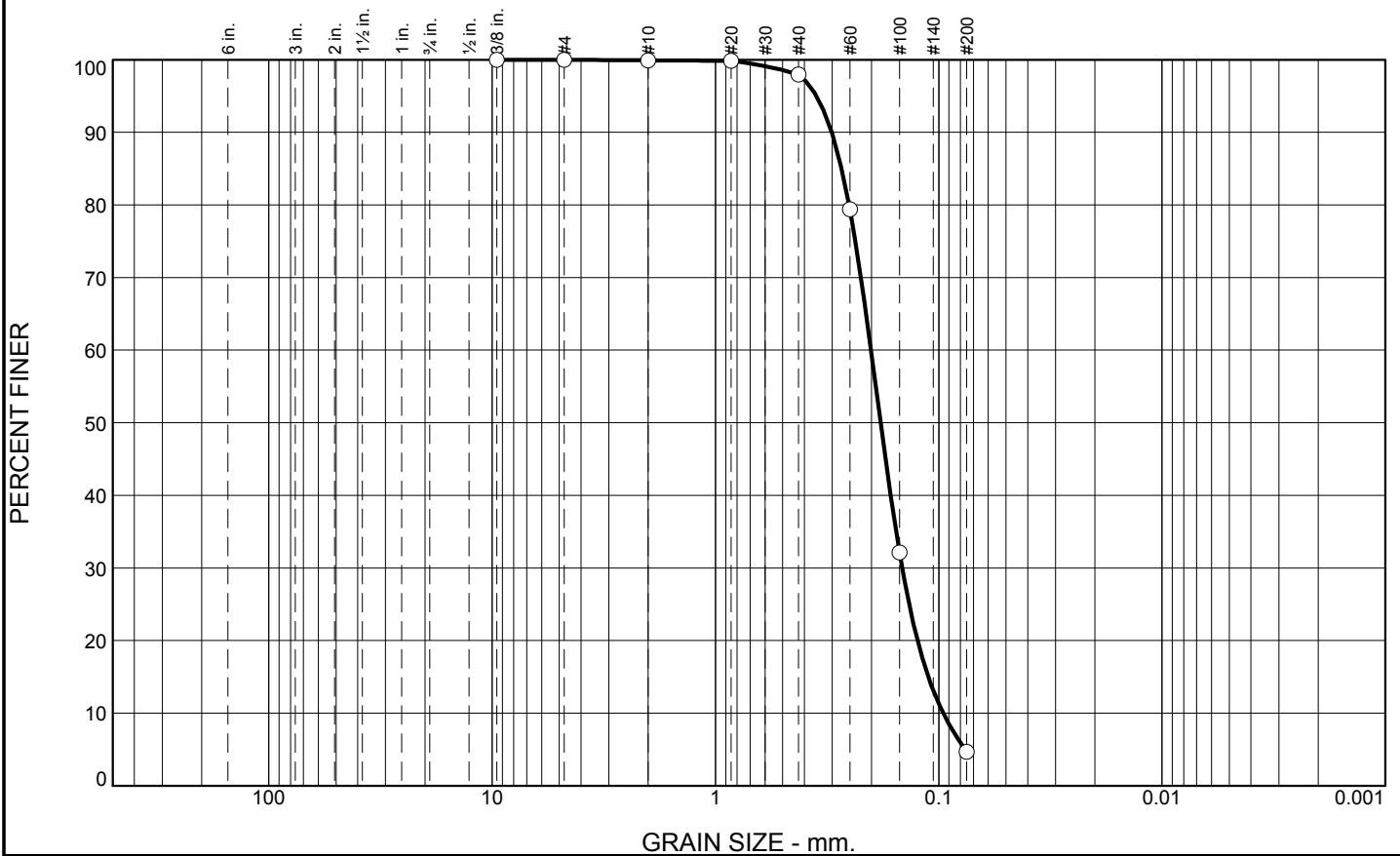
# Boring Designation BI-CI-14-10

DRILLING LOG		DIVISION South Atlantic		INSTALLATION Mobile District		SHEET 1 OF 1 SHEETS	
1. PROJECT MsCIP Barrier Island Restoration Cat Island				9. SIZE AND TYPE OF BIT N/A			
2. BORING DESIGNATION BI-CI-14-10		LOCATION COORDINATES E = 910,981 N = 265,534		10. COORDINATE SYSTEM/DATUM State Plane, MSE (U.S. Ft.)		HORIZONTAL NAD83 VERTICAL NAVD88	
3. DRILLING AGENCY Corps of Engineers - CESAM		CONTRACTOR FILE NO.		11. MANUFACTURER'S DESIGNATION OF DRILL Vibrocure		<input type="checkbox"/> AUTO HAMMER <input type="checkbox"/> MANUAL HAMMER	
4. NAME OF DRILLER Construction Solutions International, Inc.				12. TOTAL SAMPLES 2		DISTURBED 2 UNDISTURBED (UD) 0	
5. DIRECTION OF BORING <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED		DEG. FROM VERTICAL		13. TOTAL NUMBER CORE BOXES			
		BEARING		14. WATER DEPTH 10.5 Ft.			
6. THICKNESS OF OVERBURDEN N/A				15. DATE BORING 05-19-10		STARTED 05-19-10 COMPLETED 05-19-10	
7. DEPTH DRILLED INTO ROCK N/A				16. ELEVATION TOP OF BORING -9.1 Ft.			
8. TOTAL DEPTH OF BORING 11.0 Ft.				17. TOTAL RECOVERY FOR BORING 100%			
				18. SIGNATURE AND TITLE OF INSPECTOR Marty Gates, Geologist			

ELEV.	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS	SAMPLE	LABORATORY RESULTS
-9.1	0.0				
			SAND, poorly-graded, mostly fine to medium-grained sand-sized quartz, trace silt, lt. brown (SP)	A	Classification: SP Color: 2.5Y 6.5/1.5-light gray D50: 0.1821 mm % Fines: 4.7
				B	Classification: SP Color: 2.5Y 6/2-light brownish gray D50: 0.1832 mm % Fines: 4.7
-17.1	8.0		SAND, poorly-graded, mostly fine to medium-grained sand-sized quartz, trace clay, trace shell fragments, lt. gray (SP)		
-20.1	11.0				
			NOTES: 1. Soils are field visually classified in accordance with the Unified Soils Classification System. 2. NS = Sample not submitted for laboratory analysis from this interval. 3. Seafloor elevation calculated using sampling vessel's fathometer water depth reading and applying NOAA tidal gauge data conversion factor.		

# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.0	0.1	1.9	93.3	4.7	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
.375	100.0		
#4	100.0		
#10	99.9		
#20	99.9		
#40	98.0		
#60	79.4		
#100	32.1		
#200	4.7		

\* (no specification provided)

Material Description		
SAND, (SP), fine grained		
<div> <div> Atterberg Limits </div> <div> PL= </div> <div> LL= </div> <div> PI= </div> </div>		
<div> <div> Coefficients </div> <div> D<sub>90</sub>= 0.3014 </div> <div> D<sub>50</sub>= 0.1821 </div> <div> D<sub>10</sub>= 0.0956 </div> <div> D<sub>85</sub>= 0.2723 </div> <div> D<sub>30</sub>= 0.1459 </div> <div> C<sub>u</sub>= 2.11 </div> <div> D<sub>60</sub>= 0.2012 </div> <div> D<sub>15</sub>= 0.1114 </div> <div> C<sub>c</sub>= 1.11 </div> </div>		
<div> <div> Classification </div> <div> USCS= SP </div> <div> AASHTO= </div> </div>		
<div> <div> Remarks </div> <div> CADD CODE = CH10D965 </div> </div>		

Location: USACE Sample # BI-CI-14-10A  
Sample Number: TE Lab ID: 4488.72

Depth: 0.0 - 5.5 (ft.)

Date: 5/27/10

**Thompson Engineering**  
**Mobile, Alabama**

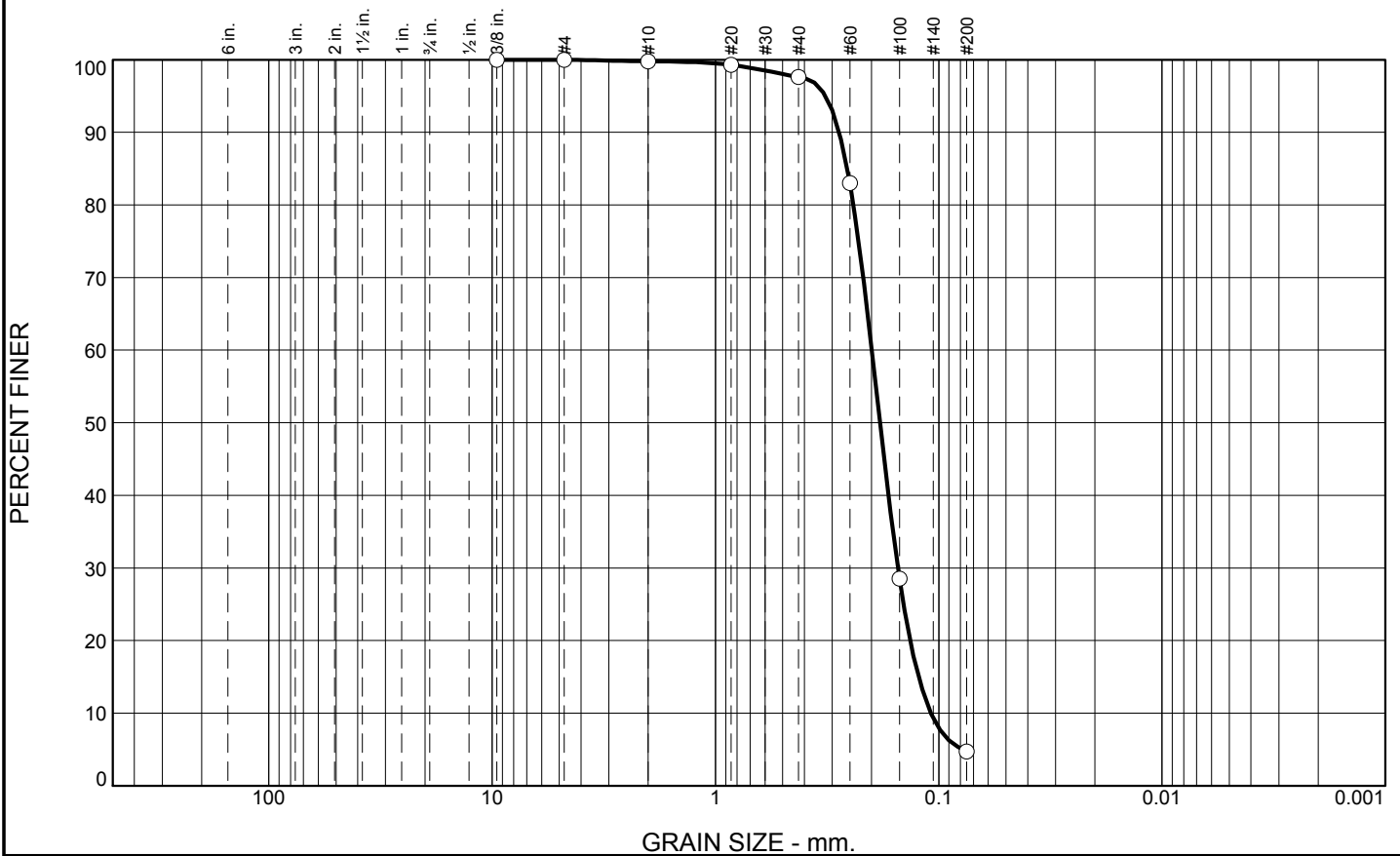
**Client:** US Army Corps of Engineers  
**Project:** Contract No. W91278-10-D-0026 - Task 03  
Mississippi Barrier Island Restoration Project  
**Project No:** 10-2123-0009

**Figure**

Tested By: L.Stokes

Checked By: R.Byrd

# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.0	0.2	2.2	92.9	4.7	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
.375	100.0		
#4	100.0		
#10	99.8		
#20	99.3		
#40	97.6		
#60	83.0		
#100	28.5		
#200	4.7		

\* (no specification provided)

Material Description		
SAND, (SP), fine grained		
<div> <div> <b>Atterberg Limits</b>            PL=      LL=      PI=         </div> <div> <b>Coefficients</b>            D<sub>90</sub>= 0.2791      D<sub>85</sub>= 0.2568      D<sub>60</sub>= 0.1995            D<sub>50</sub>= 0.1832      D<sub>30</sub>= 0.1524      D<sub>15</sub>= 0.1231            D<sub>10</sub>= 0.1084      C<sub>u</sub>= 1.84      C<sub>c</sub>= 1.07         </div> <div> <b>Classification</b>            USCS= SP      AASHTO=         </div> <div> <b>Remarks</b>            CADD CODE = CH10D965         </div> </div>		

Location: USACE Sample # BI-CI-14-10B  
Sample Number: TE Lab ID: 4488.73

Depth: 5.5 - 11.0 (ft.)

Date: 5/27/10

**Thompson Engineering**  
  
**Mobile, Alabama**

**Client:** US Army Corps of Engineers  
**Project:** Contract No. W91278-10-D-0026 - Task 03  
Mississippi Barrier Island Restoration Project  
**Project No:** 10-2123-0009

**Figure**

Tested By: L.Stokes

Checked By: R.Byrd

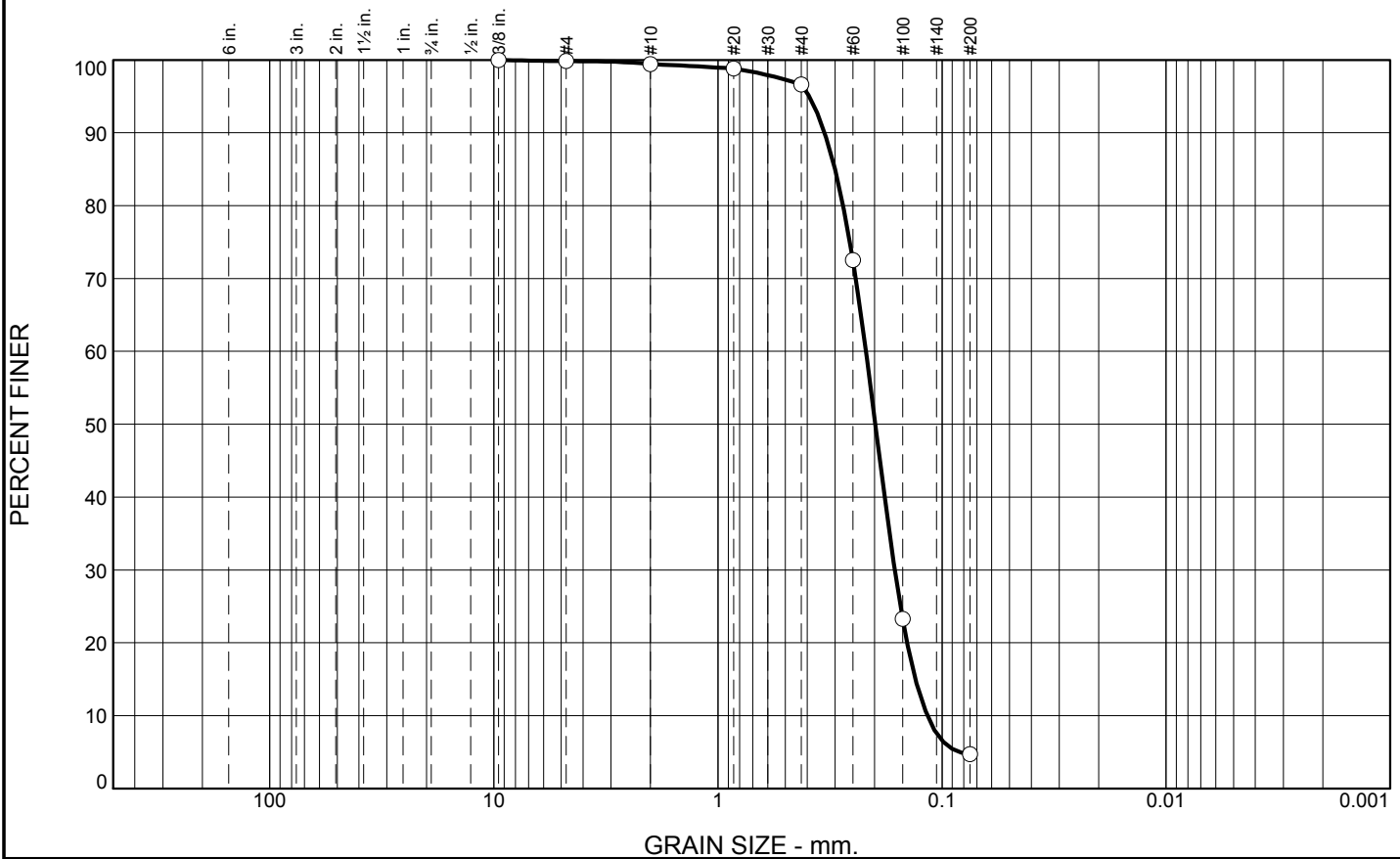
# Boring Designation BI-CI-15-10

<b>DRILLING LOG</b>		<b>DIVISION</b> South Atlantic	<b>INSTALLATION</b> Mobile District		<b>SHEET 1</b> <b>OF 1 SHEETS</b>
<b>1. PROJECT</b> MsCIP Barrier Island Restoration Cat Island			<b>9. SIZE AND TYPE OF BIT</b> N/A		
<b>2. BORING DESIGNATION</b> BI-CI-15-10		<b>LOCATION COORDINATES</b> E = 911,406 N = 266,526		<b>10. COORDINATE SYSTEM/DATUM</b> State Plane, MSE (U.S. Ft.)	<b>HORIZONTAL</b> NAD83 <b>VERTICAL</b> NAVD88
<b>3. DRILLING AGENCY</b> Corps of Engineers - CESAM		<b>CONTRACTOR FILE NO.</b>		<b>11. MANUFACTURER'S DESIGNATION OF DRILL</b> Vibracore <input type="checkbox"/> AUTO HAMMER <input type="checkbox"/> MANUAL HAMMER	
<b>4. NAME OF DRILLER</b> Construction Solutions International, Inc.		<b>12. TOTAL SAMPLES</b>		<b>DISTURBED</b> 2	<b>UNDISTURBED (UD)</b> 0
<b>5. DIRECTION OF BORING</b> <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED		<b>DEG. FROM VERTICAL</b>	<b>BEARING</b>	<b>13. TOTAL NUMBER CORE BOXES</b>	
<b>6. THICKNESS OF OVERBURDEN</b> N/A		<b>14. WATER DEPTH</b> 10.5 Ft.		<b>15. DATE BORING</b> <b>STARTED</b> 05-19-10 <b>COMPLETED</b> 05-19-10	
<b>7. DEPTH DRILLED INTO ROCK</b> N/A		<b>16. ELEVATION TOP OF BORING</b> -9.1 Ft.		<b>17. TOTAL RECOVERY FOR BORING</b> 100%	
<b>8. TOTAL DEPTH OF BORING</b> 9.0 Ft.		<b>18. SIGNATURE AND TITLE OF INSPECTOR</b> Marty Gates, Geologist			

ELEV.	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS	SAMPLE	LABORATORY RESULTS
-9.1	0.0				
-12.1	3.0		SAND, silty, mostly fine-grained sand-sized quartz, trace organic matter, brown (SM)	A	Classification: SP Color: 2.5Y 4.5/2- D50: 0.1985 mm % Fines: 4.7
-18.1	9.0		SAND, poorly-graded, mostly fine to medium-grained sand-sized quartz, trace silt, trace organic matter, lt. brown (SP)  At El. -16.1 Ft., mostly fine to medium-grained sand-sized quartz, trace clay, trace shell fragments, lt. gray	B	Classification: SP Color: 2.5Y 6/2-light brownish gray D50: 0.1599 mm % Fines: 4.8
			NOTES:  1. Soils are field visually classified in accordance with the Unified Soils Classification System.  2. NS = Sample not submitted for laboratory analysis from this interval.  3. Seafloor elevation calculated using sampling vessel's fathometer water depth reading and applying NOAA tidal gauge data conversion factor.		



# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.2	0.4	2.8	91.9	4.7	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
.375	100.0		
#4	99.8		
#10	99.4		
#20	98.8		
#40	96.6		
#60	72.5		
#100	23.3		
#200	4.7		

\* (no specification provided)

Material Description		
SAND, (SP), fine grained		
<div> <div> <b>Atterberg Limits</b>            PL=      LL=      PI=         </div> <div> <b>Coefficients</b>            D<sub>90</sub>= 0.3342      D<sub>85</sub>= 0.3002      D<sub>60</sub>= 0.2186            D<sub>50</sub>= 0.1985      D<sub>30</sub>= 0.1626      D<sub>15</sub>= 0.1315            D<sub>10</sub>= 0.1163      C<sub>u</sub>= 1.88      C<sub>c</sub>= 1.04         </div> <div> <b>Classification</b>            USCS= SP      AASHTO=         </div> <div> <b>Remarks</b>            CADD CODE = CH10D965         </div> </div>		

Location: USACE Sample # BI-CI-15-10A  
Sample Number: TE Lab ID: 4488.78

Depth: 0.0 - 5.0 (ft.)

Date: 5/27/10

**Thompson Engineering**  
**Mobile, Alabama**

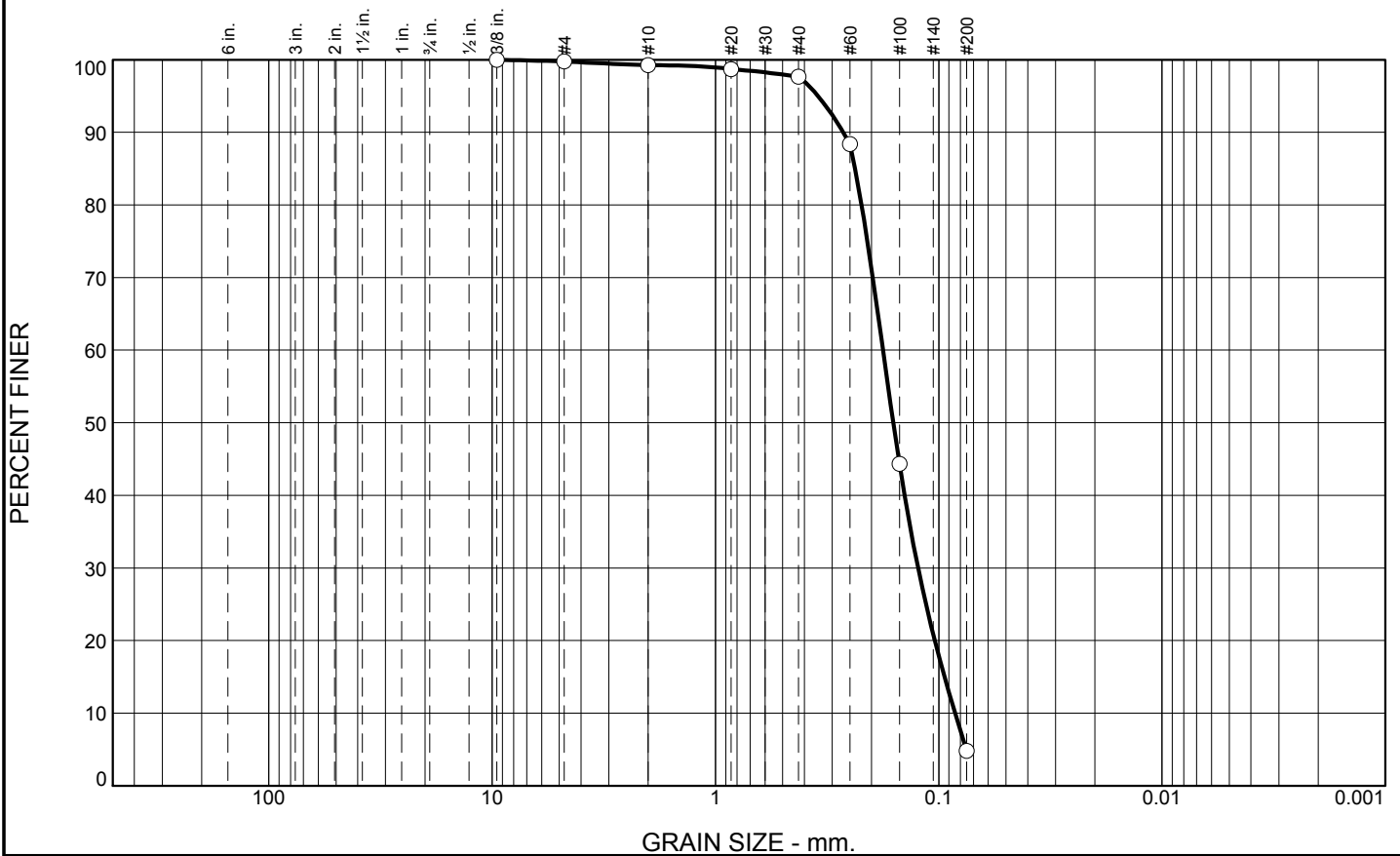
**Client:** US Army Corps of Engineers  
**Project:** Contract No. W91278-10-D-0026 - Task 03  
Mississippi Barrier Island Restoration Project  
**Project No:** 10-2123-0009

**Figure**

Tested By: L.Stokes

Checked By: R.Byrd

# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.3	0.4	1.6	92.9	4.8	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
.375	100.0		
#4	99.7		
#10	99.3		
#20	98.7		
#40	97.7		
#60	88.4		
#100	44.3		
#200	4.8		

\* (no specification provided)

Material Description		
SAND, (SP), fine grained		
<div> <div> <b>Atterberg Limits</b>            PL=      LL=      PI=         </div> <div> <b>Coefficients</b>            D<sub>90</sub>= 0.2678      D<sub>85</sub>= 0.2370      D<sub>60</sub>= 0.1778            D<sub>50</sub>= 0.1599      D<sub>30</sub>= 0.1238      D<sub>15</sub>= 0.0943            D<sub>10</sub>= 0.0845      C<sub>u</sub>= 2.10      C<sub>c</sub>= 1.02         </div> <div> <b>Classification</b>            USCS= SP      AASHTO=         </div> <div> <b>Remarks</b>            CADD CODE = CH10D965         </div> </div>		

Location: USACE Sample # BI-CI-15-10B  
 Sample Number: TE Lab ID: 4488.79

Depth: 5.0 - 9.0 (ft.)

Date: 5/27/10

**Thompson Engineering**  
  
**Mobile, Alabama**

**Client:** US Army Corps of Engineers  
**Project:** Contract No. W91278-10-D-0026 - Task 03  
 Mississippi Barrier Island Restoration Project  
**Project No:** 10-2123-0009

**Figure**

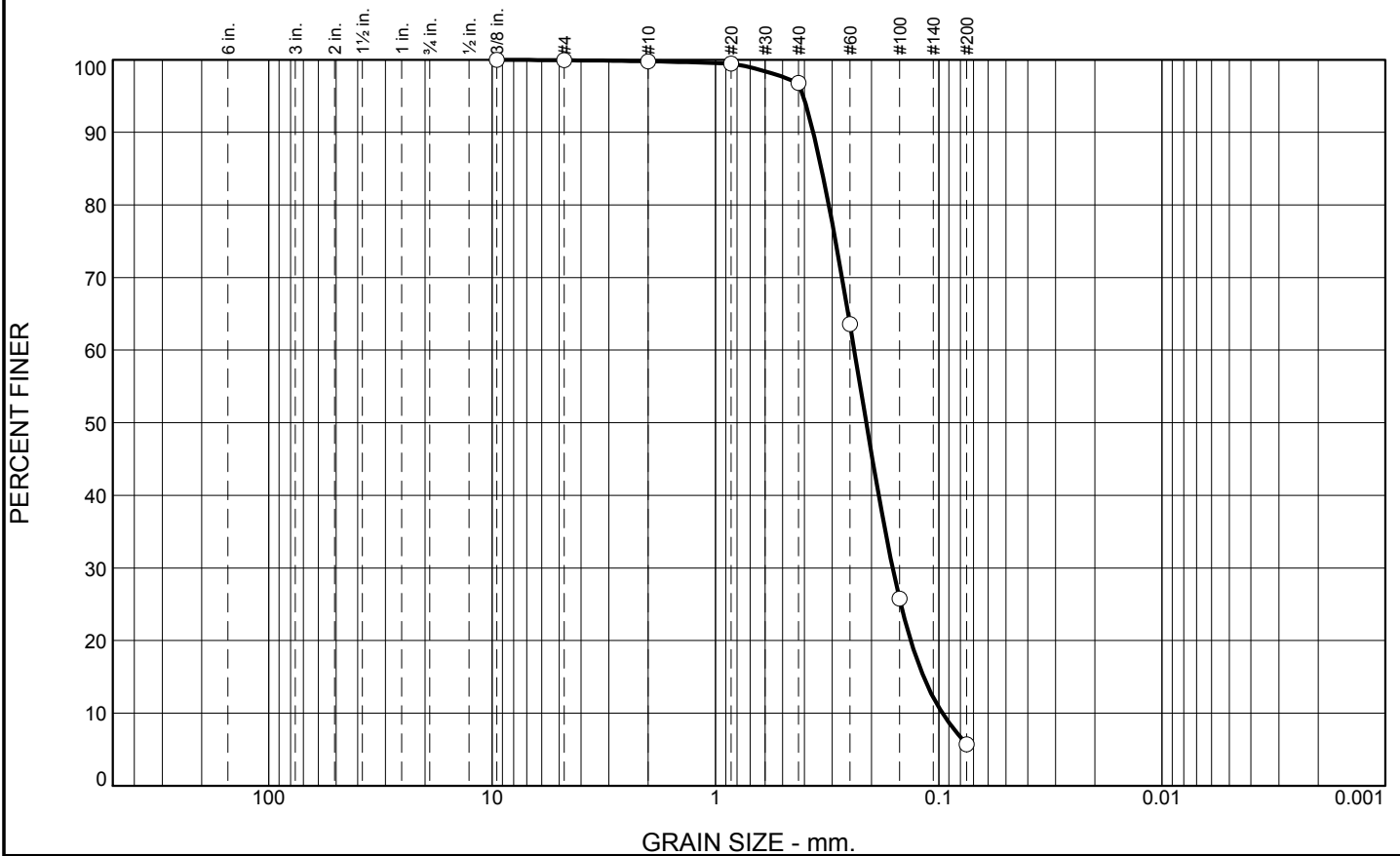
Tested By: L.Stokes

Checked By: R.Byrd

# Boring Designation BI-CI-16-10

DRILLING LOG		DIVISION South Atlantic		INSTALLATION Mobile District		SHEET 1 OF 1 SHEETS	
1. PROJECT MsCIP Barrier Island Restoration Cat Island				9. SIZE AND TYPE OF BIT N/A			
2. BORING DESIGNATION BI-CI-16-10		LOCATION COORDINATES E = 911,828 N = 267,442		10. COORDINATE SYSTEM/DATUM State Plane, MSE (U.S. Ft.)		HORIZONTAL NAD83 VERTICAL NAVD88	
3. DRILLING AGENCY Corps of Engineers - CESAM		CONTRACTOR FILE NO.		11. MANUFACTURER'S DESIGNATION OF DRILL Vibracore		<input type="checkbox"/> AUTO HAMMER <input type="checkbox"/> MANUAL HAMMER	
4. NAME OF DRILLER Construction Solutions International, Inc.				12. TOTAL SAMPLES 3		DISTURBED 3 UNDISTURBED (UD) 0	
5. DIRECTION OF BORING <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED		DEG. FROM VERTICAL		13. TOTAL NUMBER CORE BOXES			
		BEARING		14. WATER DEPTH 11 Ft.			
6. THICKNESS OF OVERBURDEN N/A				15. DATE BORING 05-20-10		STARTED 05-20-10 COMPLETED 05-20-10	
7. DEPTH DRILLED INTO ROCK N/A				16. ELEVATION TOP OF BORING -9.8 Ft.			
8. TOTAL DEPTH OF BORING 13.1 Ft.				17. TOTAL RECOVERY FOR BORING 100%			
				18. SIGNATURE AND TITLE OF INSPECTOR Mark Green, Geotechnical Engineer			
ELEV.	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS	SAMPLE	LABORATORY RESULTS		
-9.8	0.0						
-12.8	3.0		SAND, poorly-graded with silt, mostly fine-grained sand-sized quartz, trace shell, trace of clay lenses, dark gray and gray (SP-SM)	A	Classification: SP-SM Color: 2.5Y 5/3-light olive brown D50: 0.2112 mm % Fines: 5.7		
			SAND, poorly-graded, mostly fine-grained sand-sized quartz, trace shell fragments, trace silt, gray and tan (SP)	B	Classification: SP Color: 2.5Y 6/2-light brownish gray D50: 0.2192 mm % Fines: 2.1		
			At El. -16.8 Ft., mostly fine-grained sand-sized quartz, little shell fragments, gray to lt. gray	C	Classification: SP Color: 2.5Y 6/1-gray D50: 0.199 mm % Fines: 3.6		
-22.9	13.1			NS			
			NOTES: 1. Soils are field visually classified in accordance with the Unified Soils Classification System. 2. NS = Sample not submitted for laboratory analysis from this interval. 3. Seafloor elevation calculated using sampling vessel's fathometer water depth reading and applying NOAA tidal gauge data conversion factor.				

# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.1	0.1	3.0	91.1	5.7	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
.375	100.0		
#4	99.9		
#10	99.8		
#20	99.5		
#40	96.8		
#60	63.6		
#100	25.8		
#200	5.7		

\* (no specification provided)

Material Description		
SAND, (SP-SM), fine grained, with trace shell		
<div> <div> <b>Atterberg Limits</b>            PL=      LL=      PI=         </div> <div> <b>Coefficients</b>            D<sub>90</sub>= 0.3650      D<sub>85</sub>= 0.3352      D<sub>60</sub>= 0.2391            D<sub>50</sub>= 0.2112      D<sub>30</sub>= 0.1609      D<sub>15</sub>= 0.1169            D<sub>10</sub>= 0.0963      C<sub>u</sub>= 2.48      C<sub>c</sub>= 1.12         </div> <div> <b>Classification</b>            USCS= SP-SM      AASHTO=         </div> <div> <b>Remarks</b>            CADD CODE = CH10D965         </div> </div>		

Location: USACE Sample # BI-CI-16-10A  
Sample Number: TE Lab ID: 4488.99

Depth: 0.0 - 3.0 (ft.)

Date: 5/27/10

**Thompson Engineering**  
**Mobile, Alabama**

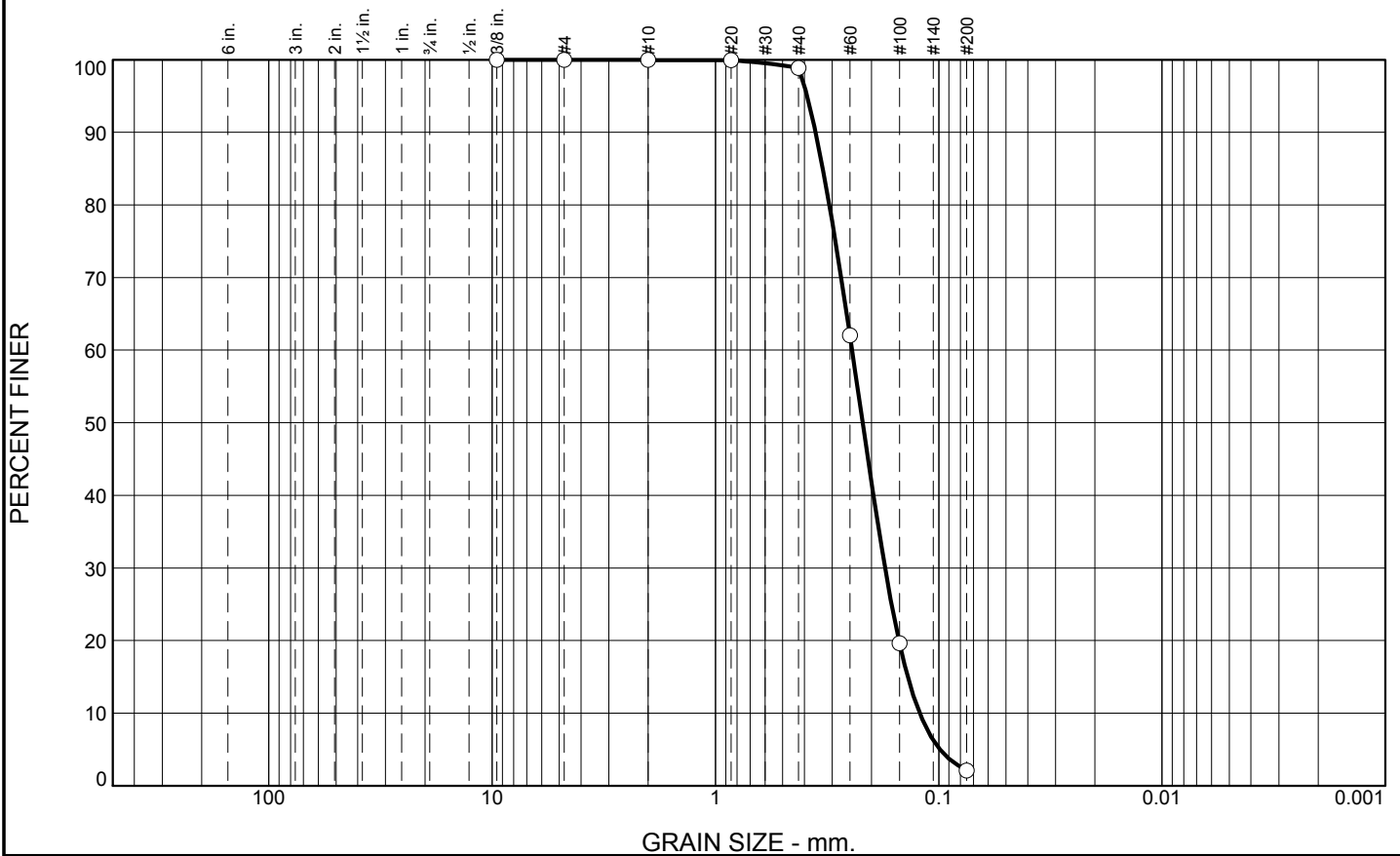
**Client:** US Army Corps of Engineers  
**Project:** Contract No. W91278-10-D-0026 - Task 03  
Mississippi Barrier Island Restoration Project  
**Project No:** 10-2123-0009

**Figure**

Tested By: L.Stokes

Checked By: R.Byrd

# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.0	0.0	1.1	96.8	2.1	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
.375	100.0		
#4	100.0		
#10	100.0		
#20	99.9		
#40	98.9		
#60	62.0		
#100	19.6		
#200	2.1		

\* (no specification provided)

**Material Description**  
SAND, (SP), fine grained

**Atterberg Limits**  
 PL=      LL=      PI=

**Coefficients**  
 D<sub>90</sub>= 0.3560      D<sub>85</sub>= 0.3304      D<sub>60</sub>= 0.2444  
 D<sub>50</sub>= 0.2192      D<sub>30</sub>= 0.1740      D<sub>15</sub>= 0.1377  
 D<sub>10</sub>= 0.1217      C<sub>u</sub>= 2.01      C<sub>c</sub>= 1.02

**Classification**  
 USCS= SP      AASHTO=

**Remarks**  
 CADD CODE = CH10D965

**Location:** USACE Sample # BI-CI-16-10B  
**Sample Number:** TE Lab ID: 4488.100

**Depth:** 3.0 - 7.0 (ft.)

**Date:** 5/27/10

**Thompson Engineering**  
  
**Mobile, Alabama**

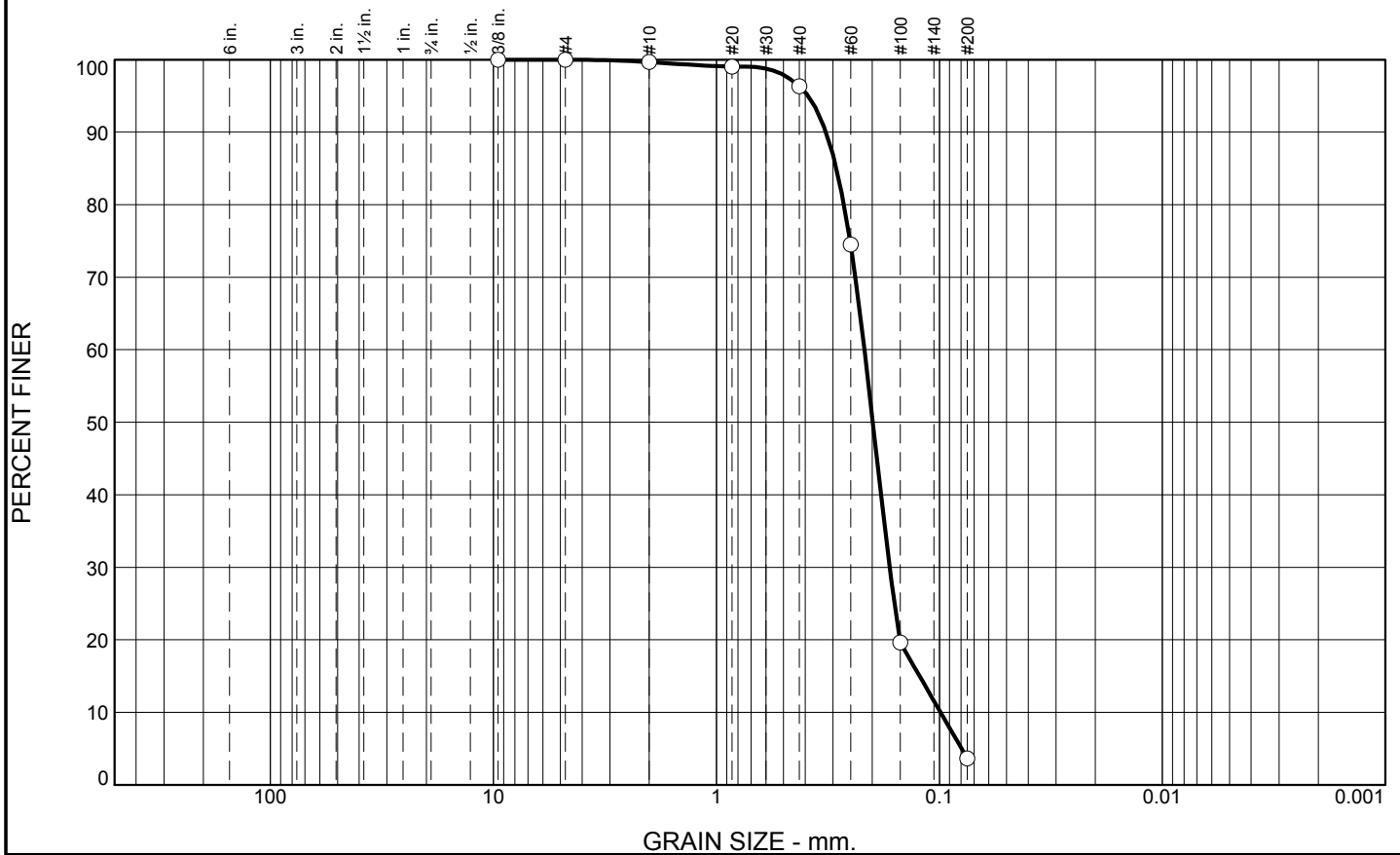
**Client:** US Army Corps of Engineers  
**Project:** Contract No. W91278-10-D-0026 - Task 03  
 Mississippi Barrier Island Restoration Project  
**Project No:** 10-2123-0009

**Figure**

**Tested By:** L.Stokes

**Checked By:** R.Byrd

# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.0	0.3	3.4	92.7	3.6	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
.375	100.0		
#4	100.0		
#10	99.7		
#20	99.1		
#40	96.3		
#60	74.5		
#100	19.6		
#200	3.6		

\* (no specification provided)

## Material Description

SAND, (SP), fine grained

## Atterberg Limits

PL=

LL=

PI=

## Coefficients

D<sub>90</sub>= 0.3223

D<sub>85</sub>= 0.2896

D<sub>60</sub>= 0.2169

D<sub>50</sub>= 0.1990

D<sub>30</sub>= 0.1671

D<sub>15</sub>= 0.1227

D<sub>10</sub>= 0.0988

C<sub>u</sub>= 2.19

C<sub>c</sub>= 1.30

## Classification

USCS= SP

AASHTO=

## Remarks

CADD CODE = CH10D965

Location: USACE Sample # BI-CI-16-10C  
Sample Number: TE Lab ID: 4488.101

Depth: 7.0 - 12.0 (ft.)

Date: 5/27/10

**Thompson Engineering**

**Mobile, Alabama**

Client: US Army Corps of Engineers

Project: Contract No. W91278-10-D-0026 - Task 03  
Mississippi Barrier Island Restoration Project

Project No: 10-2123-0009

Figure

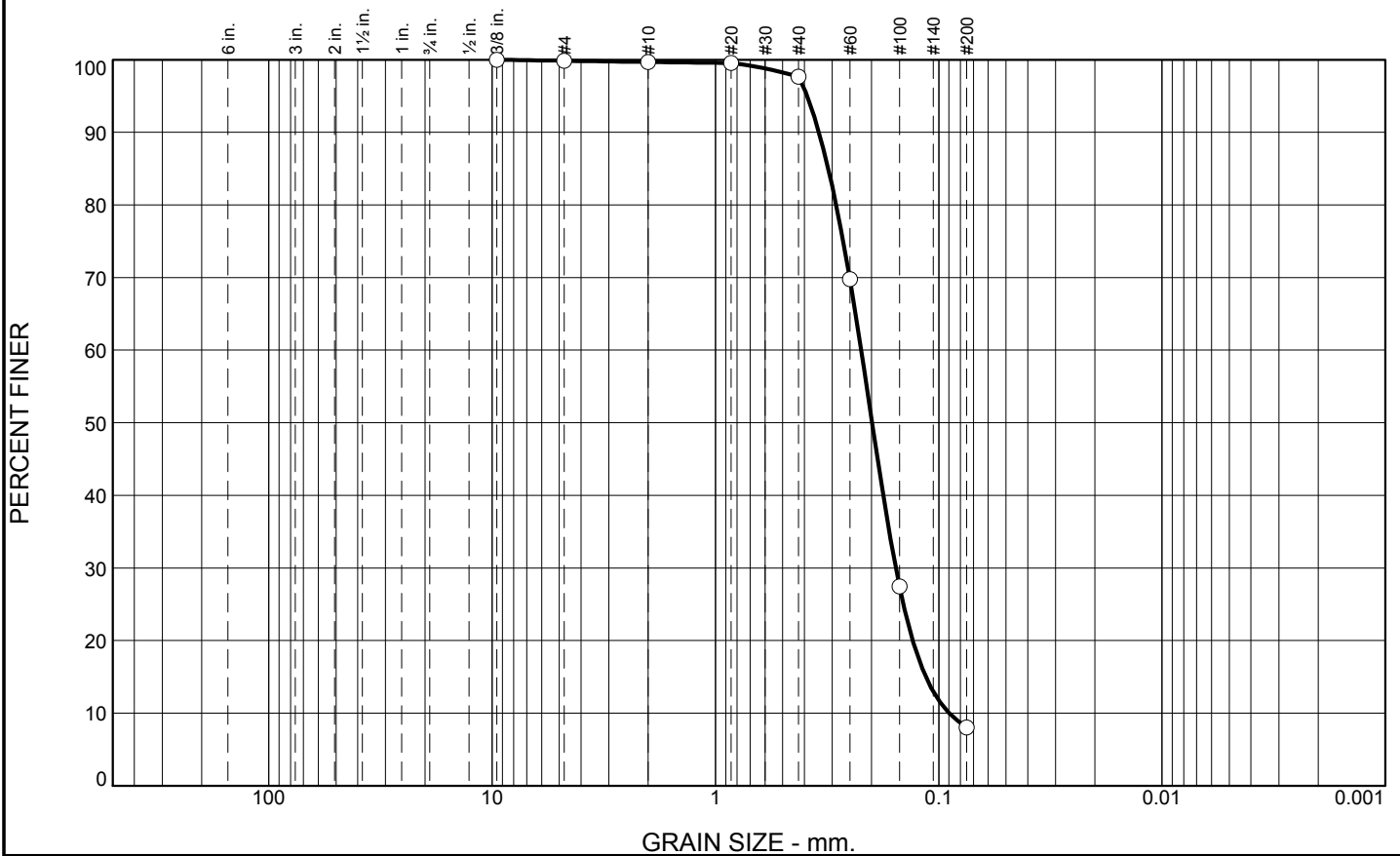
Tested By: L.Stokes

Checked By: R.Byrd

# Boring Designation BI-CI-17-10

DRILLING LOG		DIVISION South Atlantic		INSTALLATION Mobile District		SHEET 1 OF 1 SHEETS	
1. PROJECT MsCIP Barrier Island Restoration Cat Island				9. SIZE AND TYPE OF BIT N/A			
2. BORING DESIGNATION BI-CI-17-10		LOCATION COORDINATES E = 912,079 N = 268,412		10. COORDINATE SYSTEM/DATUM State Plane, MSE (U.S. Ft.)		HORIZONTAL NAD83 VERTICAL NAVD88	
3. DRILLING AGENCY Corps of Engineers - CESAM		CONTRACTOR FILE NO.		11. MANUFACTURER'S DESIGNATION OF DRILL Vibracore		<input type="checkbox"/> AUTO HAMMER <input type="checkbox"/> MANUAL HAMMER	
4. NAME OF DRILLER Construction Solutions International, Inc.				12. TOTAL SAMPLES 3		DISTURBED 0 UNDISTURBED (UD)	
5. DIRECTION OF BORING <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED		DEG. FROM VERTICAL		13. TOTAL NUMBER CORE BOXES			
		BEARING		14. WATER DEPTH 11 Ft.			
6. THICKNESS OF OVERBURDEN N/A				15. DATE BORING 05-20-10		STARTED 05-20-10 COMPLETED 05-20-10	
7. DEPTH DRILLED INTO ROCK N/A				16. ELEVATION TOP OF BORING -9.9 Ft.			
8. TOTAL DEPTH OF BORING 11.1 Ft.				17. TOTAL RECOVERY FOR BORING 100%			
				18. SIGNATURE AND TITLE OF INSPECTOR Mark Green, Geotechnical Engineer			
ELEV.	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS	SAMPLE	LABORATORY RESULTS		
-9.9	0.0						
-12.9	3.0		SAND, poorly-graded, mostly fine-grained sand-sized quartz, little silt, trace shell frags, greenish gray (SP)	A	Classification: SP-SM Color: 2.5Y 5/2-grayish brown D50: 0.1989 mm % Fines: 8		
-17.9	8.0		SAND, poorly-graded, mostly fine-grained sand-sized quartz, trace silt, trace shell fragments, greenish gray and tan (SP)	B	Classification: SP Color: 10YR 6.5/2- D50: 0.197 mm % Fines: 2.7		
-21.0	11.1		SAND, poorly-graded, mostly fine-grained sand-sized quartz, trace shell fragments, tan and gray (SP)	C	Classification: SP Color: 2.5Y 7/1-light gray D50: 0.1753 mm % Fines: 3.5		
			At El. -20.6 Ft., trace of organics (wood)				
			NOTES: 1. Soils are field visually classified in accordance with the Unified Soils Classification System. 2. NS = Sample not submitted for laboratory analysis from this interval. 3. Seafloor elevation calculated using sampling vessel's fathometer water depth reading and applying NOAA tidal gauge data conversion factor.				

# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.1	0.2	2.0	89.7	8.0	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
.375	100.0		
#4	99.9		
#10	99.7		
#20	99.6		
#40	97.7		
#60	69.8		
#100	27.4		
#200	8.0		

\* (no specification provided)

**Material Description**  
SAND, (SP-SM), fine grained

**Atterberg Limits**  
 PL=      LL=      PI=

**Coefficients**  
 D<sub>90</sub>= 0.3438      D<sub>85</sub>= 0.3124      D<sub>60</sub>= 0.2226  
 D<sub>50</sub>= 0.1989      D<sub>30</sub>= 0.1558      D<sub>15</sub>= 0.1143  
 D<sub>10</sub>= 0.0897      C<sub>u</sub>= 2.48      C<sub>c</sub>= 1.22

**Classification**  
 USCS= SP-SM      AASHTO=

**Remarks**  
 CADD CODE = CH10D965

**Location:** USACE Sample # BI-CI-17-10A  
**Sample Number:** TE Lab ID: 4488.93

**Depth:** 0.0 - 3.0 (ft.)

**Date:** 5/27/10

**Thompson Engineering**  
  
**Mobile, Alabama**

**Client:** US Army Corps of Engineers  
**Project:** Contract No. W91278-10-D-0026 - Task 03  
 Mississippi Barrier Island Restoration Project  
**Project No:** 10-2123-0009

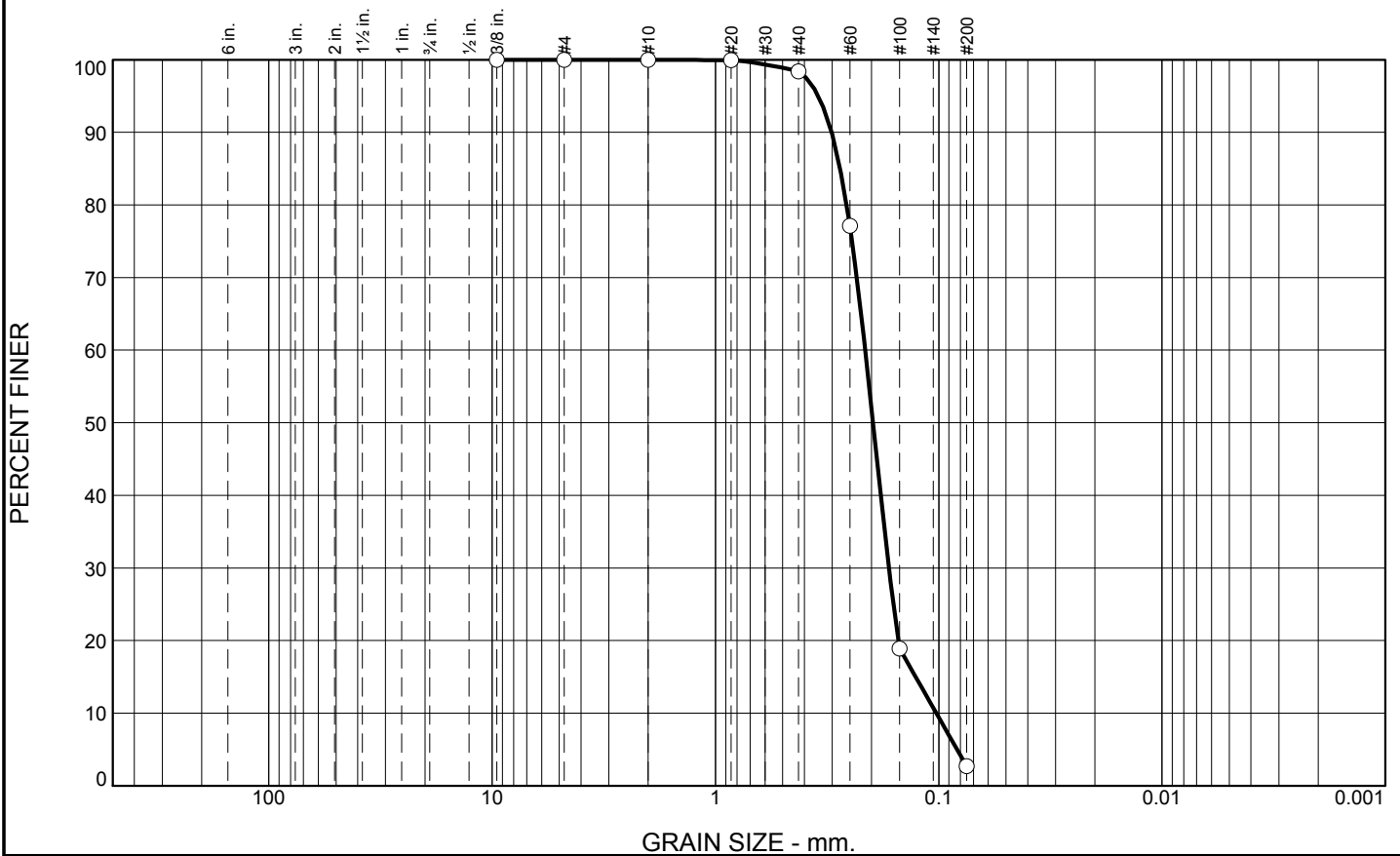
**Figure**

**Tested By:** L.Stokes

**Checked By:** R.Byrd



# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.0	0.0	1.6	95.7	2.7	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
.375	100.0		
#4	100.0		
#10	100.0		
#20	100.0		
#40	98.4		
#60	77.1		
#100	18.9		
#200	2.7		

\* (no specification provided)

Material Description		
SAND, (SP), fine grained		
<div> <div> <b>Atterberg Limits</b>            PL=      LL=      PI=         </div> <div> <b>Coefficients</b>            D<sub>90</sub>= 0.3018      D<sub>85</sub>= 0.2764      D<sub>60</sub>= 0.2136            D<sub>50</sub>= 0.1970      D<sub>30</sub>= 0.1672      D<sub>15</sub>= 0.1269            D<sub>10</sub>= 0.1025      C<sub>u</sub>= 2.08      C<sub>c</sub>= 1.28         </div> <div> <b>Classification</b>            USCS= SP      AASHTO=         </div> <div> <b>Remarks</b>            CADD-CODE = CH10D965         </div> </div>		

Location: USACE Sample # BI-CI-17-10B  
Sample Number: TE Lab ID: 4488.94

Depth: 3.0 -8.0 (ft.)

Date: 5/27/10

**Thompson Engineering**  
**Mobile, Alabama**

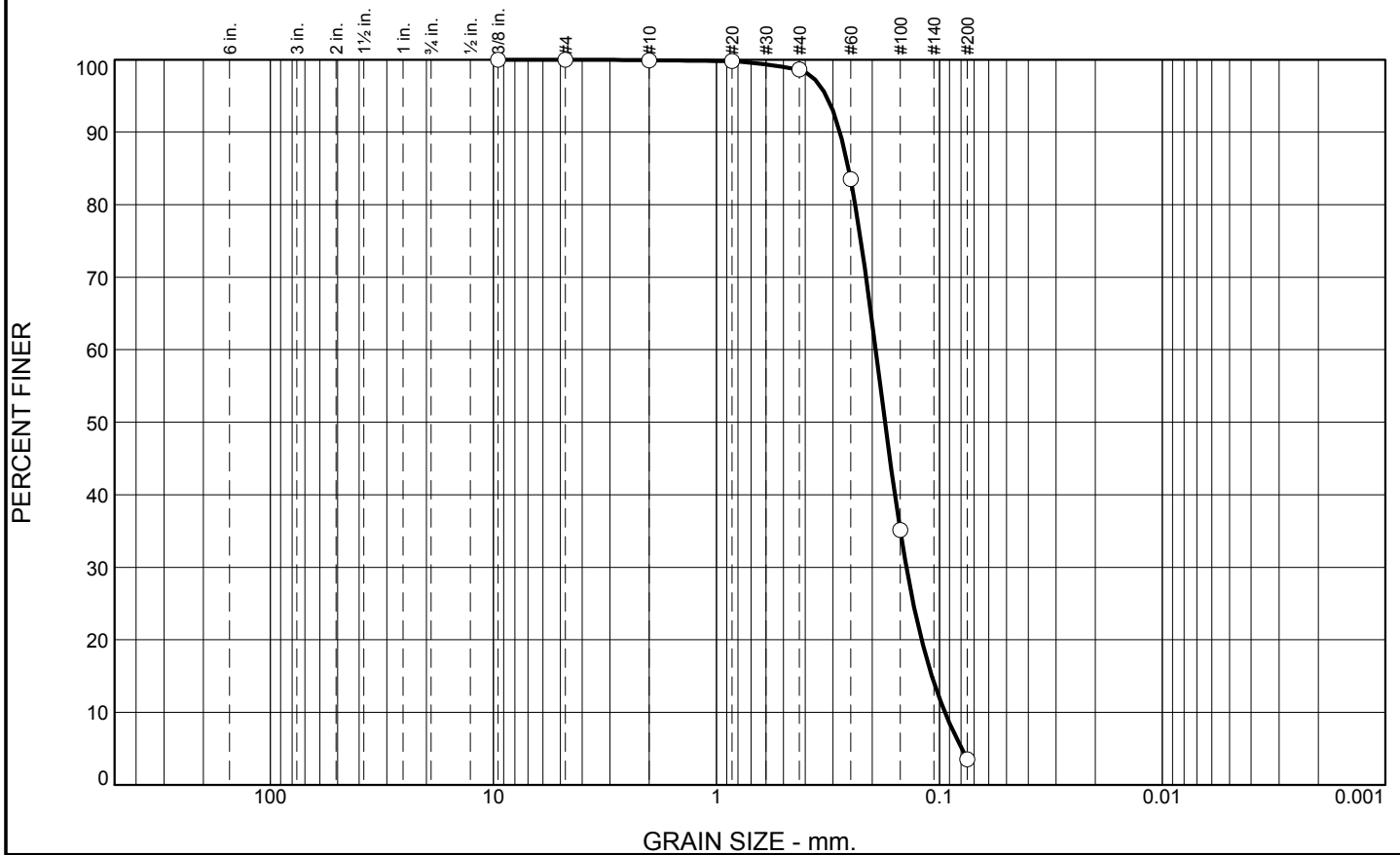
**Client:** US Army Corps of Engineers  
**Project:** Contract No. W91278-10-D-0026 - Task 03  
Mississippi Barrier Island Restoration Project  
**Project No:** 10-2123-0009

**Figure**

Tested By: L.Stokes

Checked By: R.Byrd

# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.0	0.1	1.3	95.1	3.5	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
.375	100.0		
#4	100.0		
#10	99.9		
#20	99.8		
#40	98.6		
#60	83.5		
#100	35.1		
#200	3.5		

\* (no specification provided)

Material Description		
SAND, (SP), fine grained		
<div> <div> <b>Atterberg Limits</b>            PL=      LL=      PI=         </div> <div> <b>Coefficients</b>            D<sub>90</sub>= 0.2793      D<sub>85</sub>= 0.2555      D<sub>60</sub>= 0.1932            D<sub>50</sub>= 0.1753      D<sub>30</sub>= 0.1407      D<sub>15</sub>= 0.1081            D<sub>10</sub>= 0.0945      C<sub>u</sub>= 2.04      C<sub>c</sub>= 1.08         </div> <div> <b>Classification</b>            USCS= SP      AASHTO=         </div> <div> <b>Remarks</b>            CADD CODE = CH10D965         </div> </div>		

Location: USACE Sample # BI-CI-17-10C  
Sample Number: TE Lab ID: 4488.95

Depth: 8.0 - 11.1 (ft.)

Date: 5/27/10

**Thompson Engineering**  
**Mobile, Alabama**

**Client:** US Army Corps of Engineers  
**Project:** Contract No. W91278-10-D-0026 - Task 03  
Mississippi Barrier Island Restoration Project  
**Project No:** 10-2123-0009

**Figure**

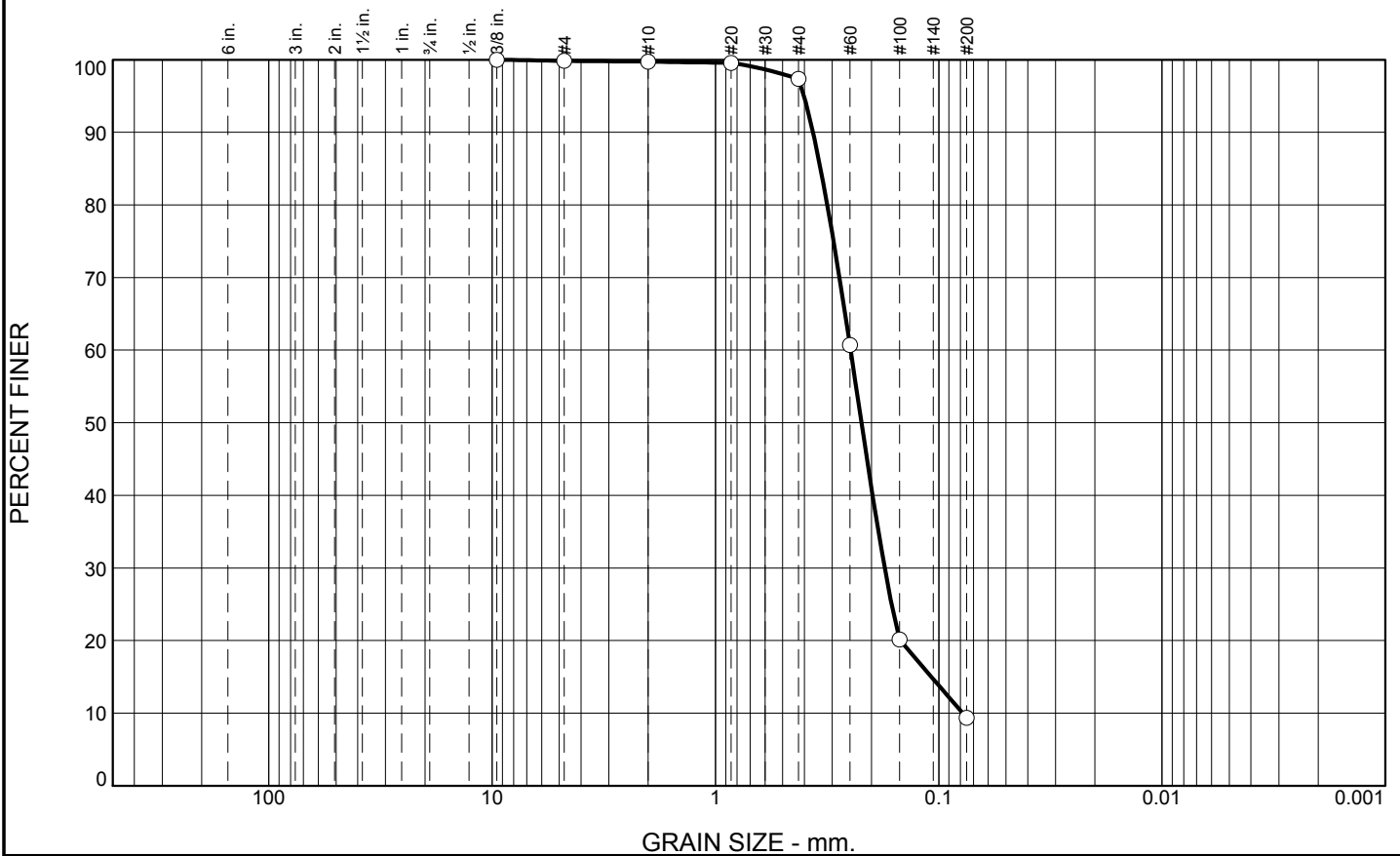
Tested By: L.Stokes

Checked By: R.Byrd

# Boring Designation BI-CI-18-10

DRILLING LOG		DIVISION South Atlantic		INSTALLATION Mobile District		SHEET 1 OF 1 SHEETS	
1. PROJECT MsCIP Barrier Island Restoration Cat Island				9. SIZE AND TYPE OF BIT N/A			
2. BORING DESIGNATION BI-CI-18-10		LOCATION COORDINATES E = 912,324 N = 269,343		10. COORDINATE SYSTEM/DATUM State Plane, MSE (U.S. Ft.)		HORIZONTAL NAD83 VERTICAL NAVD88	
3. DRILLING AGENCY Corps of Engineers - CESAM		CONTRACTOR FILE NO.		11. MANUFACTURER'S DESIGNATION OF DRILL Vibrocure		<input type="checkbox"/> AUTO HAMMER <input type="checkbox"/> MANUAL HAMMER	
4. NAME OF DRILLER Construction Solutions International, Inc.				12. TOTAL SAMPLES 3		DISTURBED 3 UNDISTURBED (UD) 0	
5. DIRECTION OF BORING <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED		DEG. FROM VERTICAL		13. TOTAL NUMBER CORE BOXES			
		BEARING		14. WATER DEPTH 10.5 Ft.			
6. THICKNESS OF OVERBURDEN N/A				15. DATE BORING 05-20-10		STARTED 05-20-10 COMPLETED 05-20-10	
7. DEPTH DRILLED INTO ROCK N/A				16. ELEVATION TOP OF BORING -9.5 Ft.			
8. TOTAL DEPTH OF BORING 10.6 Ft.				17. TOTAL RECOVERY FOR BORING 100%			
				18. SIGNATURE AND TITLE OF INSPECTOR Mark Green, Geotechnical Engineer			
ELEV.	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS	SAMPLE	LABORATORY RESULTS		
-9.5	0.0						
-12.5	3.0		SAND, silty, mostly fine-grained sand-sized quartz, trace shell fragments, dark gray and greenish gray (SM)	A	Classification: SP-SM Color: 2.5Y 5/2-grayish brown D50: 0.2218 mm % Fines: 9.4		
			SAND, poorly-graded, mostly fine-grained sand-sized quartz, trace shell fragments, trace silt, gray (SP)	B	Classification: SP Color: 2.5Y 6/2-light brownish gray D50: 0.2017 mm % Fines: 3.2		
-20.1	10.6		At El. -17.5 Ft., mostly fine-grained sand-sized quartz, trace shell fragments, trace silt, lenses of organic stained fines, gray and brown	C	Classification: SP Color: 2.5Y 7/1.5- D50: 0.1698 mm % Fines: 3.7		
			NOTES: 1. Soils are field visually classified in accordance with the Unified Soils Classification System. 2. NS = Sample not submitted for laboratory analysis from this interval. 3. Seafloor elevation calculated using sampling vessel's fathometer water depth reading and applying NOAA tidal gauge data conversion factor.				

# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.2	0.1	2.4	87.9	9.4	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
.375	100.0		
#4	99.8		
#10	99.7		
#20	99.6		
#40	97.3		
#60	60.7		
#100	20.1		
#200	9.4		

\* (no specification provided)

Material Description		
SAND, (SP-SM), fine grained, with trace shell		
<div> <div> <b>Atterberg Limits</b>            PL=      LL=      PI=         </div> <div> <b>Coefficients</b>            D<sub>90</sub>= 0.3657      D<sub>85</sub>= 0.3382      D<sub>60</sub>= 0.2481            D<sub>50</sub>= 0.2218      D<sub>30</sub>= 0.1747      D<sub>15</sub>= 0.1079            D<sub>10</sub>= 0.0782      C<sub>u</sub>= 3.17      C<sub>c</sub>= 1.57         </div> <div> <b>Classification</b>            USCS= SP-SM      AASHTO=         </div> <div> <b>Remarks</b>            CADD CODE = CH10D965         </div> </div>		

Location: USACE Sample # BI-CI-18-10A  
Sample Number: TE Lab ID: 4488.86

Depth: 0.0 - 3.0 (ft.)

Date: 5/27/10

**Thompson Engineering**  
**Mobile, Alabama**

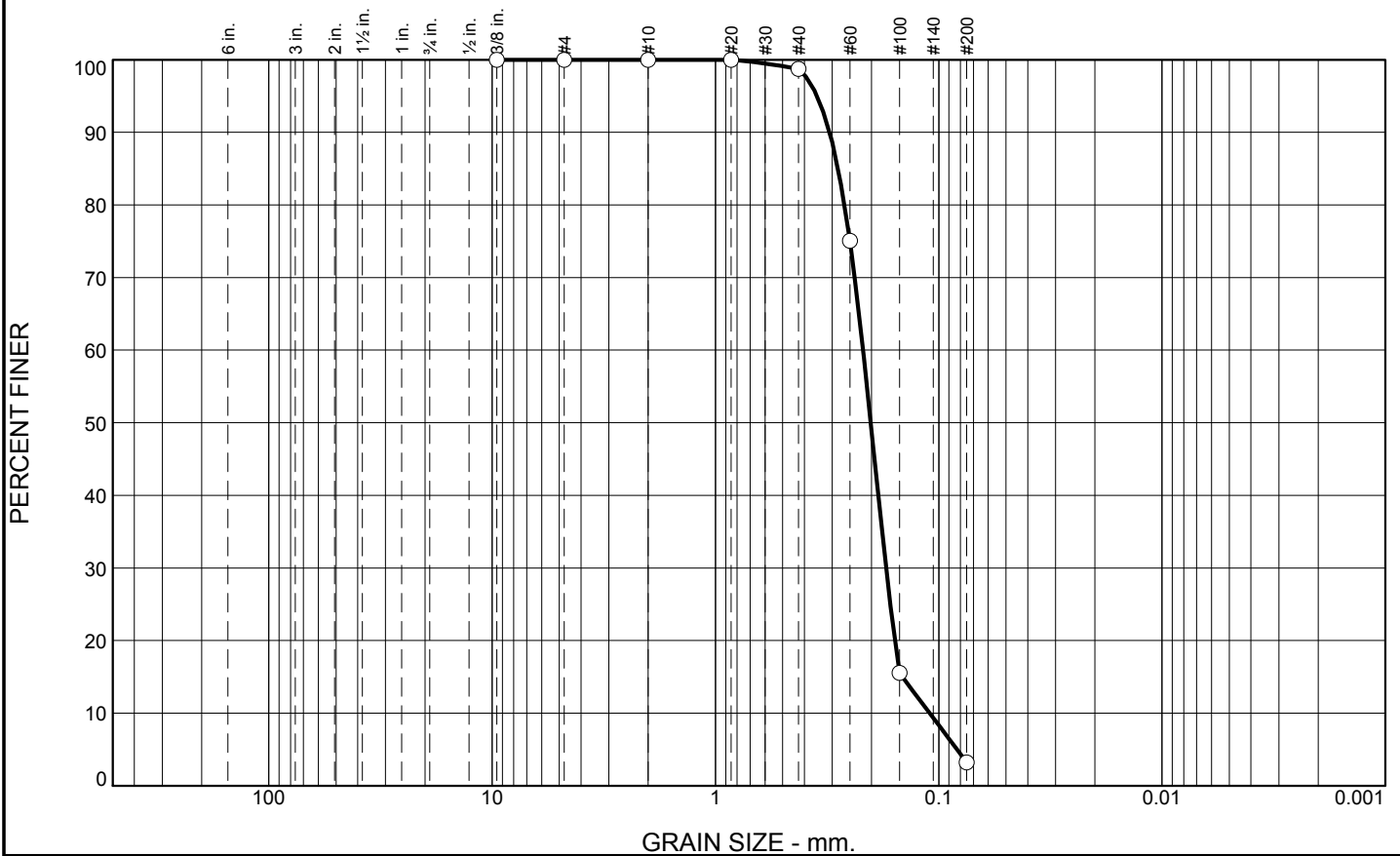
**Client:** US Army Corps of Engineers  
**Project:** Contract No. W91278-10-D-0026 - Task 03  
Mississippi Barrier Island Restoration Project  
**Project No:** 10-2123-0009

**Figure**

Tested By: L.Stokes

Checked By: R.Byrd

# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.0	0.0	1.3	95.5	3.2	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
.375	100.0		
#4	100.0		
#10	100.0		
#20	100.0		
#40	98.7		
#60	75.1		
#100	15.5		
#200	3.2		

\* (no specification provided)

<u><b>Material Description</b></u>		
SAND, (SP), fine grained		
<u><b>Atterberg Limits</b></u>		
PL=	LL=	PI=
<u><b>Coefficients</b></u>		
D <sub>90</sub> = 0.3081	D <sub>85</sub> = 0.2825	D <sub>60</sub> = 0.2183
D <sub>50</sub> = 0.2017	D <sub>30</sub> = 0.1721	D <sub>15</sub> = 0.1455
D <sub>10</sub> = 0.1098	C <sub>u</sub> = 1.99	C <sub>c</sub> = 1.24
<u><b>Classification</b></u>		
USCS= SP	AASHTO=	
<u><b>Remarks</b></u>		
CADD CODE = CH10D965		

Location: USACE Sample # BI-CI-18-10B  
Sample Number: TE Lab ID: 4488.87

Depth: 3.0 - 8.0 (ft.)

Date: 5/27/10

**Thompson Engineering**  
**Mobile, Alabama**

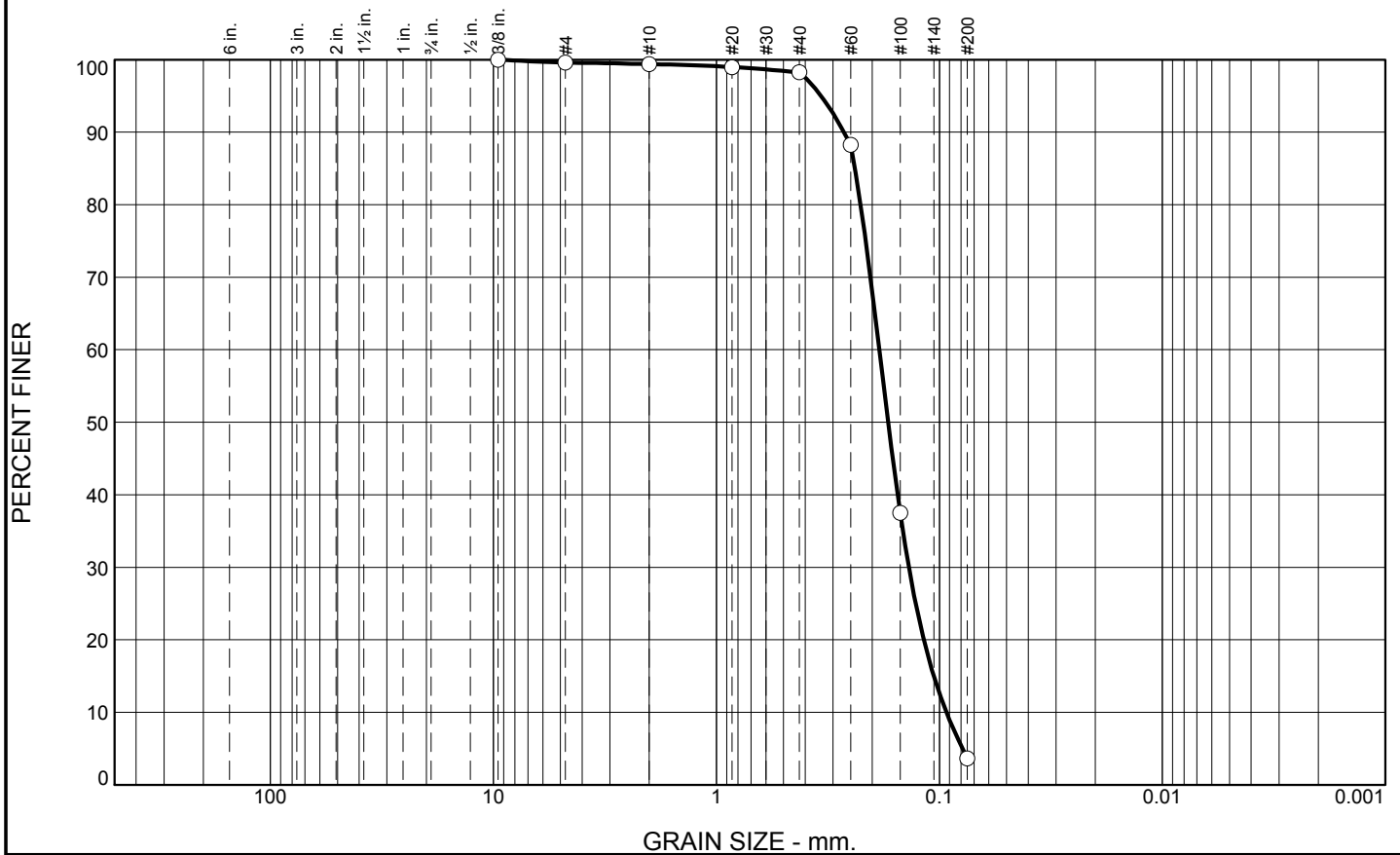
**Client:** US Army Corps of Engineers  
**Project:** Contract No. W91278-10-D-0026 - Task 03  
Mississippi Barrier Island Restoration Project  
**Project No:** 10-2123-0009

**Figure**

Tested By: L.Stokes

Checked By: R.Byrd

# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.4	0.2	1.1	94.6	3.7	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
.375	100.0		
#4	99.6		
#10	99.4		
#20	99.0		
#40	98.3		
#60	88.2		
#100	37.5		
#200	3.7		

\* (no specification provided)

Material Description		
SAND, (SP), fine grained		
<div> <div> Atterberg Limits </div> <div> PL= </div> <div> LL= </div> <div> PI= </div> </div>		
<div> <div> Coefficients </div> <div> D<sub>90</sub>= 0.2679 </div> <div> D<sub>50</sub>= 0.1698 </div> <div> D<sub>10</sub>= 0.0930 </div> <div> D<sub>85</sub>= 0.2392 </div> <div> D<sub>30</sub>= 0.1371 </div> <div> C<sub>u</sub>= 2.00 </div> <div> D<sub>60</sub>= 0.1860 </div> <div> D<sub>15</sub>= 0.1060 </div> <div> C<sub>c</sub>= 1.09 </div> </div>		
<div> <div> Classification </div> <div> USCS= SP </div> <div> AASHTO= </div> </div>		
<div> <div> Remarks </div> <div> CADD CODE = CH10D965 </div> </div>		

Location: USACE Sample # BI-CI-18-10C  
Sample Number: TE Lab ID: 4488.88

Depth: 8.0 - 10.6 (ft.)

Date: 5/27/10

**Thompson Engineering**  
**Mobile, Alabama**

**Client:** US Army Corps of Engineers  
**Project:** Contract No. W91278-10-D-0026 - Task 03  
Mississippi Barrier Island Restoration Project  
**Project No:** 10-2123-0009

**Figure**

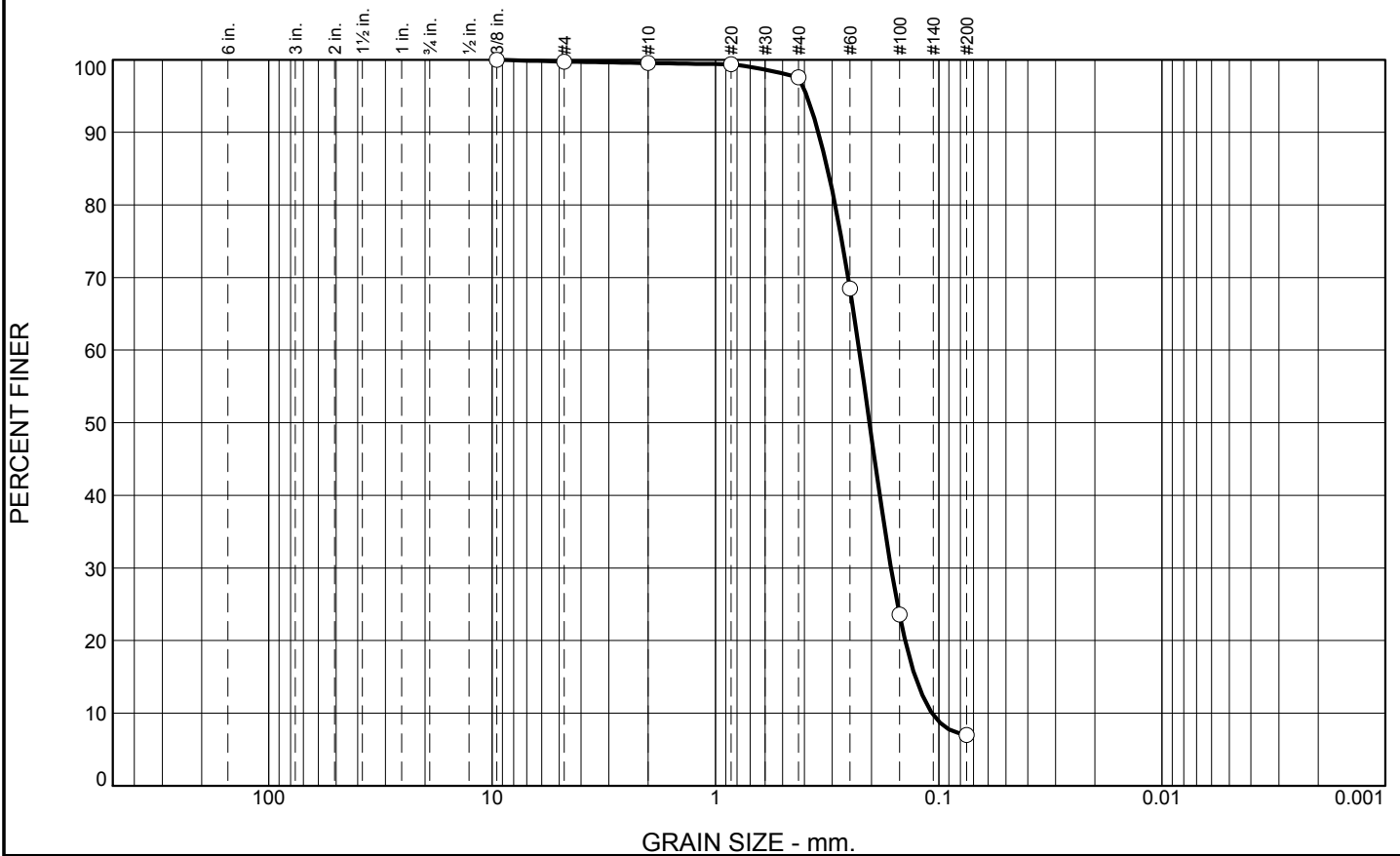
Tested By: L.Stokes

Checked By: R.Byrd

# Boring Designation BI-CI-19-10

DRILLING LOG		DIVISION South Atlantic		INSTALLATION Mobile District		SHEET 1 OF 1 SHEETS	
1. PROJECT MsCIP Barrier Island Restoration Cat Island				9. SIZE AND TYPE OF BIT N/A			
2. BORING DESIGNATION BI-CI-19-10		LOCATION COORDINATES E = 912,696 N = 270,364		10. COORDINATE SYSTEM/DATUM State Plane, MSE (U.S. Ft.)		HORIZONTAL NAD83 VERTICAL NAVD88	
3. DRILLING AGENCY Corps of Engineers - CESAM		CONTRACTOR FILE NO.		11. MANUFACTURER'S DESIGNATION OF DRILL Vibracore		<input type="checkbox"/> AUTO HAMMER <input type="checkbox"/> MANUAL HAMMER	
4. NAME OF DRILLER Construction Solutions International, Inc.				12. TOTAL SAMPLES 3		DISTURBED 3 UNDISTURBED (UD) 0	
5. DIRECTION OF BORING <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED		DEG. FROM VERTICAL		13. TOTAL NUMBER CORE BOXES			
		BEARING		14. WATER DEPTH 10 Ft.			
6. THICKNESS OF OVERBURDEN N/A				15. DATE BORING 05-20-10		STARTED 05-20-10 COMPLETED 05-20-10	
7. DEPTH DRILLED INTO ROCK N/A				16. ELEVATION TOP OF BORING -9.0 Ft.			
8. TOTAL DEPTH OF BORING 11.5 Ft.				17. TOTAL RECOVERY FOR BORING 100%			
				18. SIGNATURE AND TITLE OF INSPECTOR Mark Green, Geotechnical Engineer			
ELEV.	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS	SAMPLE	LABORATORY RESULTS		
-9.0	0.0						
-11.0	2.0		SAND, poorly-graded with silt, mostly fine-grained sand-sized quartz, trace shell fragments, trace organic matter, dark gray to greenish gray (SP-SM)	A	Classification: SP-SM Color: 2.5Y 5/2-grayish brown D50: 0.2044 mm % Fines: 7		
			SAND, poorly-graded, mostly fine-grained sand-sized quartz, trace shell fragments, trace silt, greenish gray (SP)	B	Classification: SP-SM Color: 2.5Y 6/2-light brownish gray D50: 0.2103 mm % Fines: 5.8		
			At El. -15.0 Ft., mostly fine-grained sand-sized quartz, trace shell fragments, trace silt, lt. greenish gray	C	Classification: SP Color: 2.5Y 7/1-light gray D50: 0.1799 mm % Fines: 3.3		
-20.0	11.0						
-20.5	11.5		SAND, clayey, gray (SC)	NS			
			NOTES: 1. Soils are field visually classified in accordance with the Unified Soils Classification System. 2. NS = Sample not submitted for laboratory analysis from this interval. 3. Seafloor elevation calculated using sampling vessel's fathometer water depth reading and applying NOAA tidal gauge data conversion factor.				

# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.3	0.2	1.9	90.6	7.0	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
.375	100.0		
#4	99.7		
#10	99.5		
#20	99.4		
#40	97.6		
#60	68.5		
#100	23.6		
#200	7.0		

\* (no specification provided)

**Material Description**  
SAND, (SP-SM), fine grained

**Atterberg Limits**  
 PL=      LL=      PI=

**Coefficients**  
 D<sub>90</sub>= 0.3460      D<sub>85</sub>= 0.3150      D<sub>60</sub>= 0.2272  
 D<sub>50</sub>= 0.2044      D<sub>30</sub>= 0.1637      D<sub>15</sub>= 0.1274  
 D<sub>10</sub>= 0.1073      C<sub>u</sub>= 2.12      C<sub>c</sub>= 1.10

**Classification**  
 USCS= SP-SM      AASHTO=

**Remarks**  
 CADD CODE = CH10D965

**Location:** USACE Sample # BI-CI-19-10A  
**Sample Number:** TE Lab ID: 4488.80

**Depth:** 0.0 - 2.0 (ft.)

**Date:** 5/27/10

**Thompson Engineering**  
  
**Mobile, Alabama**

**Client:** US Army Corps of Engineers  
**Project:** Contract No. W91278-10-D-0026 - Task 03  
 Mississippi Barrier Island Restoration Project  
**Project No:** 10-2123-0009

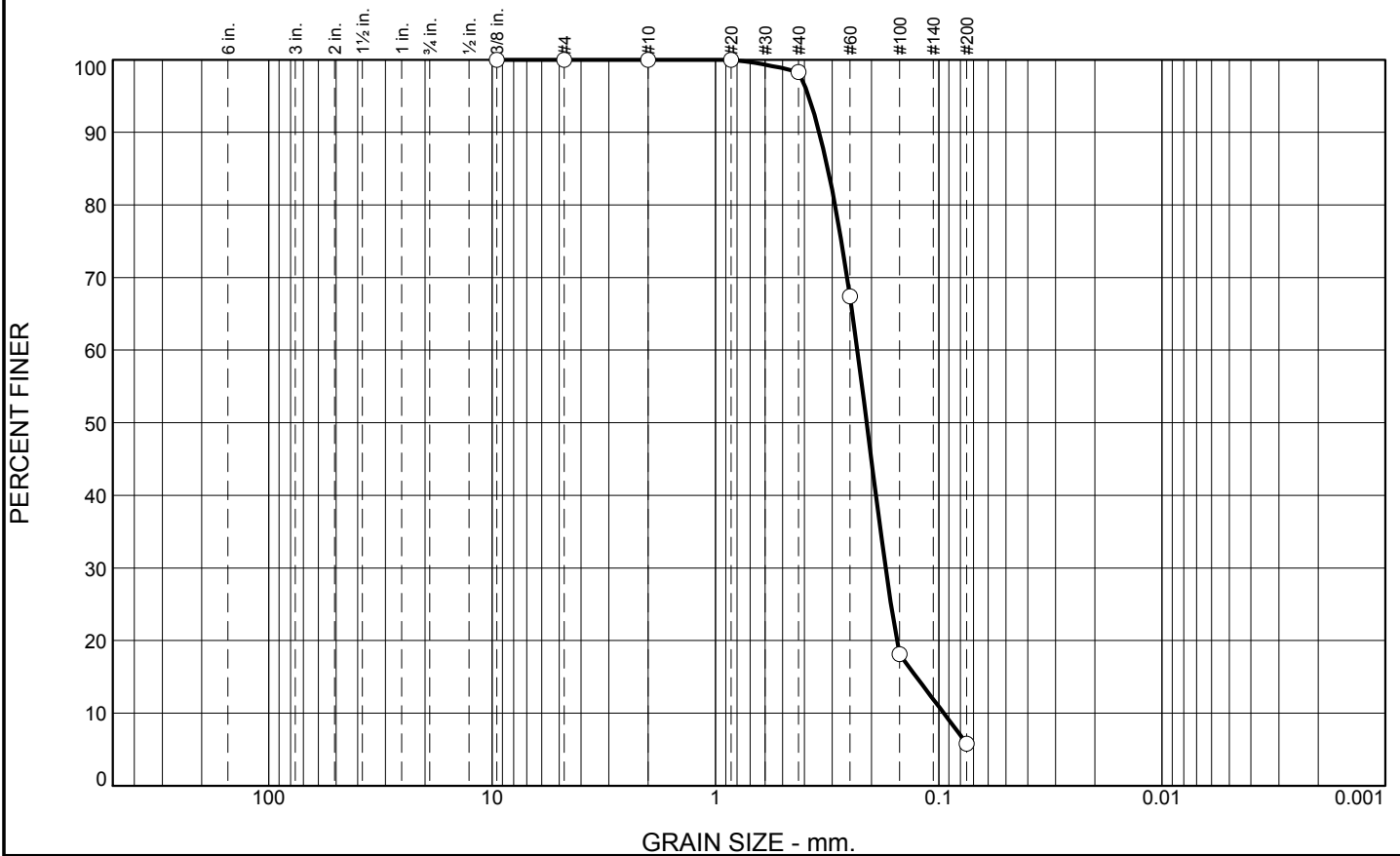
**Figure**

**Tested By:** L.Stokes

**Checked By:** R.Byrd



# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.0	0.0	1.7	92.5	5.8	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
.375	100.0		
#4	100.0		
#10	100.0		
#20	100.0		
#40	98.3		
#60	67.4		
#100	18.1		
#200	5.8		

\* (no specification provided)

<u>Material Description</u>		
SAND, (SP-SM), fine grained		
<u>Atterberg Limits</u>		
PL=	LL=	PI=
<u>Coefficients</u>		
D <sub>90</sub> = 0.3428	D <sub>85</sub> = 0.3139	D <sub>60</sub> = 0.2316
D <sub>50</sub> = 0.2103	D <sub>30</sub> = 0.1730	D <sub>15</sub> = 0.1259
D <sub>10</sub> = 0.0950	C <sub>u</sub> = 2.44	C <sub>c</sub> = 1.36
<u>Classification</u>		
USCS= SP-SM	AASHTO=	
<u>Remarks</u>		
CADD CODE = CH10D965		

Location: USACE Sample # BI-CI-19-10B  
Sample Number: TE Lab ID: 4488.81

Depth: 2.0 - 6.0 (ft.)

Date: 5/27/10

**Thompson Engineering**  
**Mobile, Alabama**

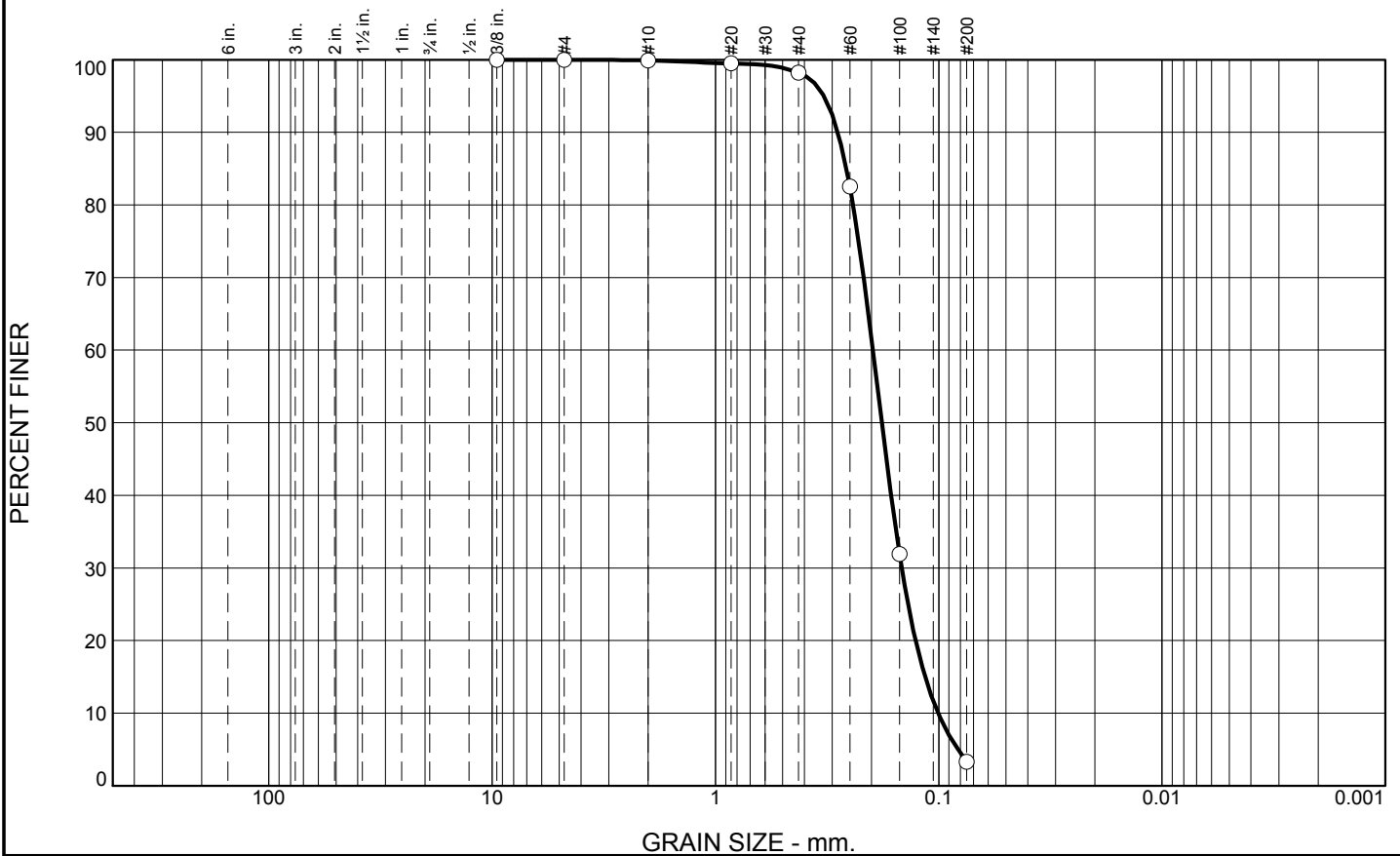
**Client:** US Army Corps of Engineers  
**Project:** Contract No. W91278-10-D-0026 - Task 03  
Mississippi Barrier Island Restoration Project  
**Project No:** 10-2123-0009

**Figure**

Tested By: L.Stokes

Checked By: R.Byrd

# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.0	0.1	1.7	94.9	3.3	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
.375	100.0		
#4	100.0		
#10	99.9		
#20	99.5		
#40	98.2		
#60	82.5		
#100	31.9		
#200	3.3		

\* (no specification provided)

Material Description		
SAND, (SP), fine grained		
<div> <div> Atterberg Limits </div> <div> PL= </div> <div> LL= </div> <div> PI= </div> </div>		
<div> <div> Coefficients </div> <div> D<sub>90</sub>= 0.2831 </div> <div> D<sub>50</sub>= 0.1799 </div> <div> D<sub>10</sub>= 0.1007 </div> <div> D<sub>85</sub>= 0.2590 </div> <div> D<sub>30</sub>= 0.1466 </div> <div> C<sub>u</sub>= 1.96 </div> <div> D<sub>60</sub>= 0.1972 </div> <div> D<sub>15</sub>= 0.1151 </div> <div> C<sub>c</sub>= 1.08 </div> </div>		
<div> <div> Classification </div> <div> USCS= SP </div> <div> AASHTO= </div> </div>		
<div> <div> Remarks </div> <div> CADD CODE = CH10D965 </div> </div>		

Location: USACE Sample # BI-CI-19-10C  
Sample Number: TE Lab ID: 4488.82

Depth: 6.0 - 11.0 (ft.)

Date: 5/27/10

**Thompson Engineering**  
**Mobile, Alabama**

**Client:** US Army Corps of Engineers  
**Project:** Contract No. W91278-10-D-0026 - Task 03  
Mississippi Barrier Island Restoration Project  
**Project No:** 10-2123-0009

**Figure**

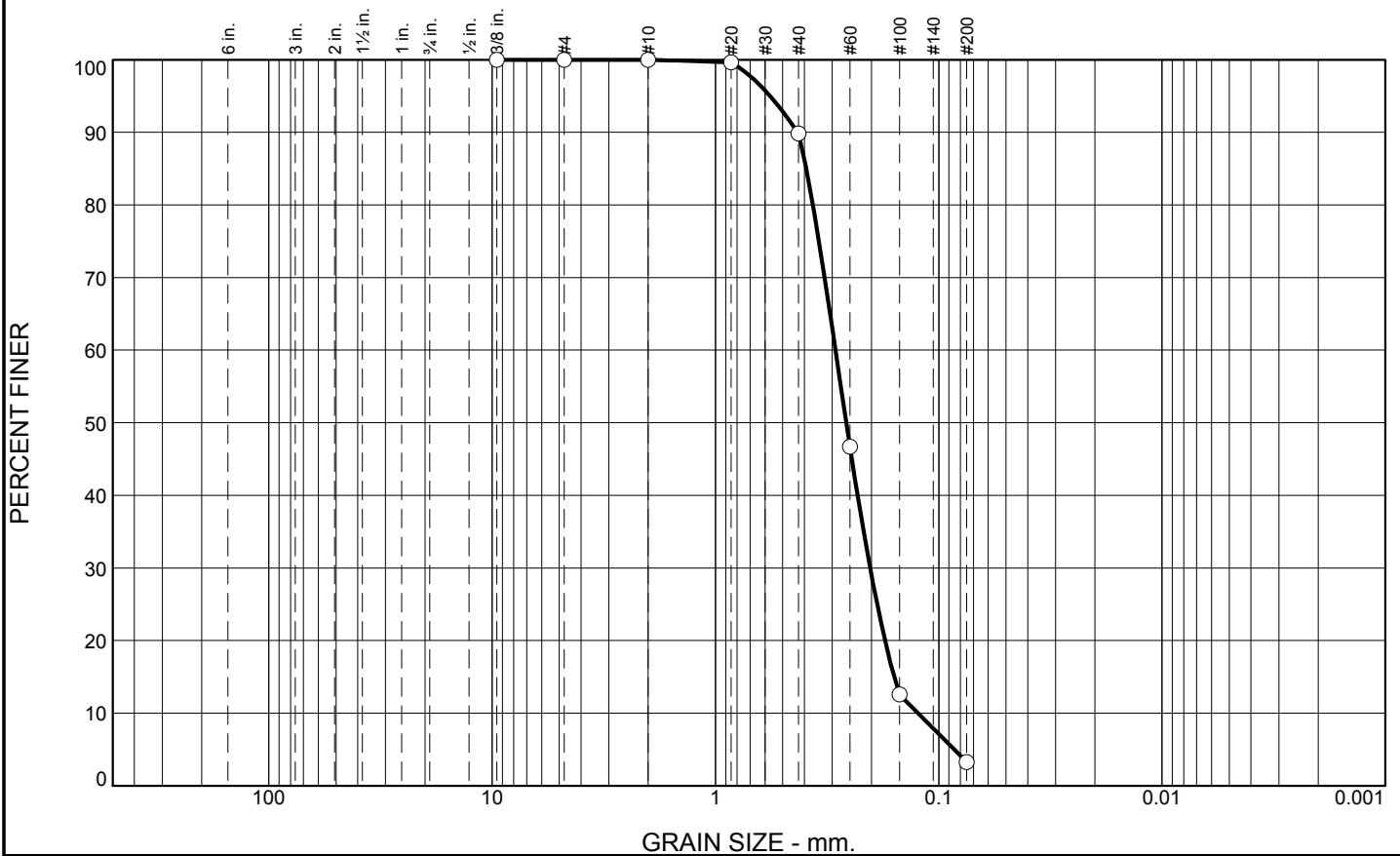
Tested By: L.Stokes

Checked By: R.Byrd

# Boring Designation BI-CI-20-10

DRILLING LOG		DIVISION South Atlantic		INSTALLATION Mobile District		SHEET 1 OF 1 SHEETS	
1. PROJECT MsCIP Barrier Island Restoration Cat Island				9. SIZE AND TYPE OF BIT N/A			
2. BORING DESIGNATION BI-CI-20-10		LOCATION COORDINATES E = 910,631 N = 262,818		10. COORDINATE SYSTEM/DATUM State Plane, MSE (U.S. Ft.)		HORIZONTAL NAD83 VERTICAL NAVD88	
3. DRILLING AGENCY Corps of Engineers - CESAM		CONTRACTOR FILE NO.		11. MANUFACTURER'S DESIGNATION OF DRILL Vibrocure		<input type="checkbox"/> AUTO HAMMER <input type="checkbox"/> MANUAL HAMMER	
4. NAME OF DRILLER Construction Solutions International, Inc.				12. TOTAL SAMPLES 3		DISTURBED 3 UNDISTURBED (UD) 0	
5. DIRECTION OF BORING <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED		DEG. FROM VERTICAL		13. TOTAL NUMBER CORE BOXES			
		BEARING		14. WATER DEPTH 11 Ft.			
6. THICKNESS OF OVERBURDEN N/A				15. DATE BORING 05-21-10		STARTED 05-21-10 COMPLETED 05-21-10	
7. DEPTH DRILLED INTO ROCK N/A				16. ELEVATION TOP OF BORING -10.1 Ft.			
8. TOTAL DEPTH OF BORING 13.4 Ft.				17. TOTAL RECOVERY FOR BORING 100%			
				18. SIGNATURE AND TITLE OF INSPECTOR Mark Green, Geotechnical Engineer			
ELEV.	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS	SAMPLE	LABORATORY RESULTS		
-10.1	0.0						
-13.1	3.0		SAND, poorly-graded, mostly fine-grained sand-sized quartz, trace silt, trace shell fragments, greenish gray (SP)	A	Classification: SP Color: 2.5Y 6/2-light brownish gray D50: 0.2595 mm % Fines: 3.3		
-18.1	8.0		SAND, poorly-graded, mostly fine-grained sand-sized quartz, trace silt, trace shell fragments, gray and tan (SP)	B	Classification: SP Color: 2.5Y 5/2-grayish brown D50: 0.2053 mm % Fines: 2		
-23.1	13.0		SAND, poorly-graded, mostly fine-grained sand-sized quartz, trace clay, trace shell fragments, greenish gray to gray (SP)	C	Classification: SP-SM Color: 2.5Y 6/1-gray D50: 0.164 mm % Fines: 6.2		
-23.5	13.4		SAND, silty, greenish gray (SM)	NS			
			NOTES: 1. Soils are field visually classified in accordance with the Unified Soils Classification System. 2. NS = Sample not submitted for laboratory analysis from this interval. 3. Seafloor elevation calculated using sampling vessel's fathometer water depth reading and applying NOAA tidal gauge data conversion factor.				

# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.0	0.0	10.2	86.5	3.3	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
.375	100.0		
#4	100.0		
#10	100.0		
#20	99.6		
#40	89.8		
#60	46.7		
#100	12.6		
#200	3.3		

\* (no specification provided)

<u><b>Material Description</b></u>		
SAND, (SP), medium to fine grained		
<u><b>Atterberg Limits</b></u>		
PL=	LL=	PI=
<u><b>Coefficients</b></u>		
D <sub>90</sub> = 0.4286	D <sub>85</sub> = 0.3927	D <sub>60</sub> = 0.2899
D <sub>50</sub> = 0.2595	D <sub>30</sub> = 0.2029	D <sub>15</sub> = 0.1584
D <sub>10</sub> = 0.1238	C <sub>u</sub> = 2.34	C <sub>c</sub> = 1.15
<u><b>Classification</b></u>		
USCS= SP	AASHTO=	
<u><b>Remarks</b></u>		
CADD CODE = CH10D965		

Location: USACE Sample # BI-CI-20-10A  
Sample Number: TE Lab ID: 4489.11

Depth: 0.0 - 3.0 (ft.)

Date: 5/30/10

**Thompson Engineering**  
**Mobile, Alabama**

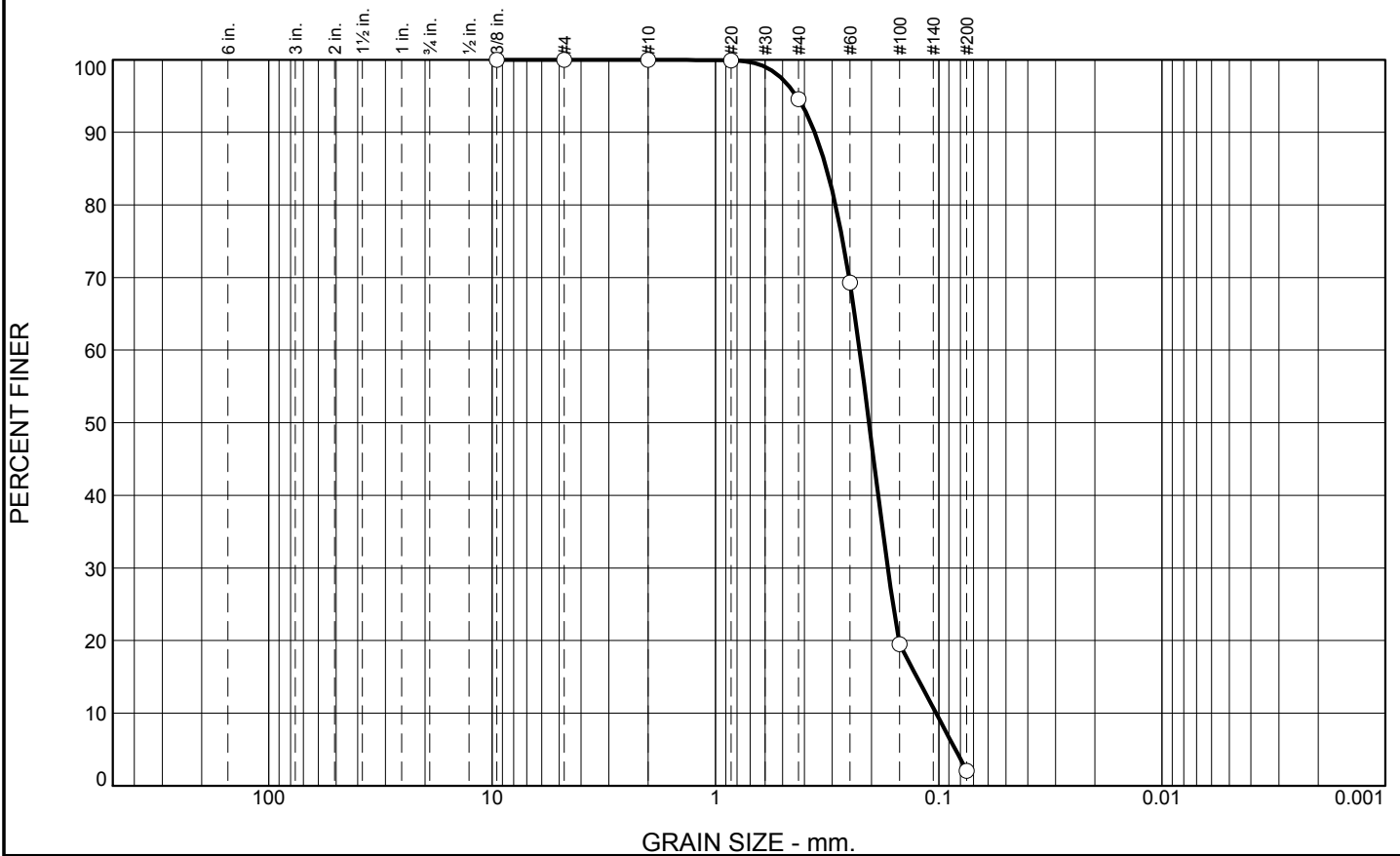
**Client:** US Army Corps of Engineers  
**Project:** Contract No. W91278-10-D-0026 - Task 03  
Mississippi Barrier Island Restoration Project  
**Project No:** 10-2123-0009

**Figure**

Tested By: G.Fancher

Checked By: R.Byrd

# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.0	0.0	5.4	92.6	2.0	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
.375	100.0		
#4	100.0		
#10	100.0		
#20	99.9		
#40	94.6		
#60	69.3		
#100	19.5		
#200	2.0		

\* (no specification provided)

## Material Description

SAND, (SP), fine grained

## Atterberg Limits

PL=

LL=

PI=

## Coefficients

D<sub>90</sub>= 0.3594

D<sub>85</sub>= 0.3180

D<sub>60</sub>= 0.2262

D<sub>50</sub>= 0.2053

D<sub>30</sub>= 0.1692

D<sub>15</sub>= 0.1254

D<sub>10</sub>= 0.1028

C<sub>u</sub>= 2.20

C<sub>c</sub>= 1.23

## Classification

USCS= SP

AASHTO=

## Remarks

CADD CODE = CH10D965

Location: USACE Sample # BI-CI-20-10B  
Sample Number: TE Lab ID: 4489.12

Depth: 3.0 - 8.0 (ft.)

Date: 5/30/10

**Thompson Engineering**

**Mobile, Alabama**

Client: US Army Corps of Engineers

Project: Contract No. W91278-10-D-0026 - Task 03  
Mississippi Barrier Island Restoration Project

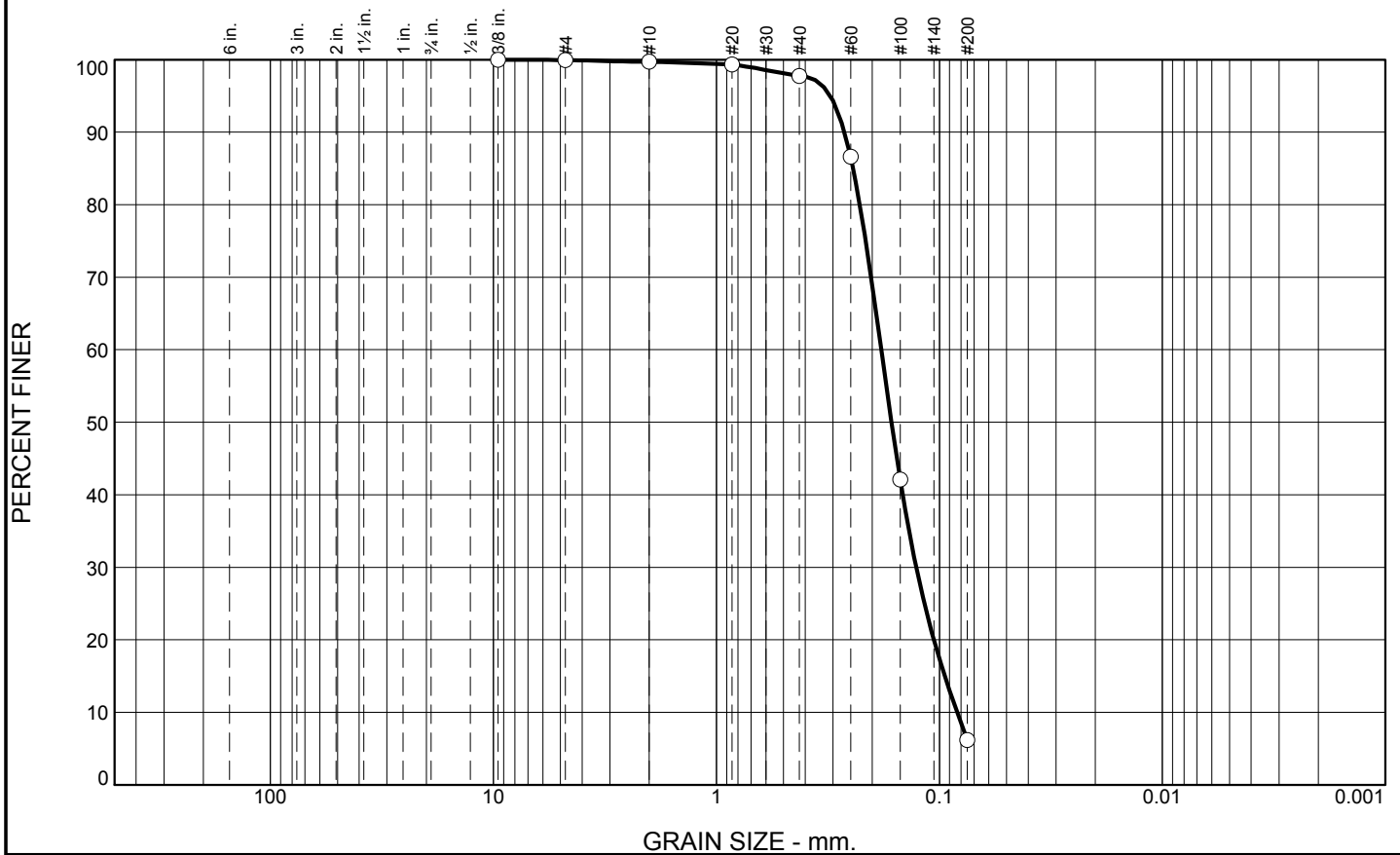
Project No: 10-2123-0009

Figure

Tested By: G.Fancher

Checked By: R.Byrd

# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.1	0.2	1.9	91.6	6.2	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
.375	100.0		
#4	99.9		
#10	99.7		
#20	99.3		
#40	97.8		
#60	86.6		
#100	42.1		
#200	6.2		

\* (no specification provided)

**Material Description**  
SAND, (SP-SM), fine grained

**Atterberg Limits**  
 PL=      LL=      PI=

**Coefficients**  
 D<sub>90</sub>= 0.2664      D<sub>85</sub>= 0.2438      D<sub>60</sub>= 0.1823  
 D<sub>50</sub>= 0.1640      D<sub>30</sub>= 0.1270      D<sub>15</sub>= 0.0946  
 D<sub>10</sub>= 0.0833      C<sub>u</sub>= 2.19      C<sub>c</sub>= 1.06

**Classification**  
 USCS= SP-SM      AASHTO=

**Remarks**  
 CADD CODE = CH10D965

**Location:** USACE Sample # BI-CI-20-10C  
**Sample Number:** TE Lab ID: 4489.13

**Depth:** 8.0 - 13.0 (ft.)

**Date:** 5/30/10

**Thompson Engineering**  
  
**Mobile, Alabama**

**Client:** US Army Corps of Engineers  
**Project:** Contract No. W91278-10-D-0026 - Task 03  
 Mississippi Barrier Island Restoration Project  
**Project No:** 10-2123-0009

**Figure**

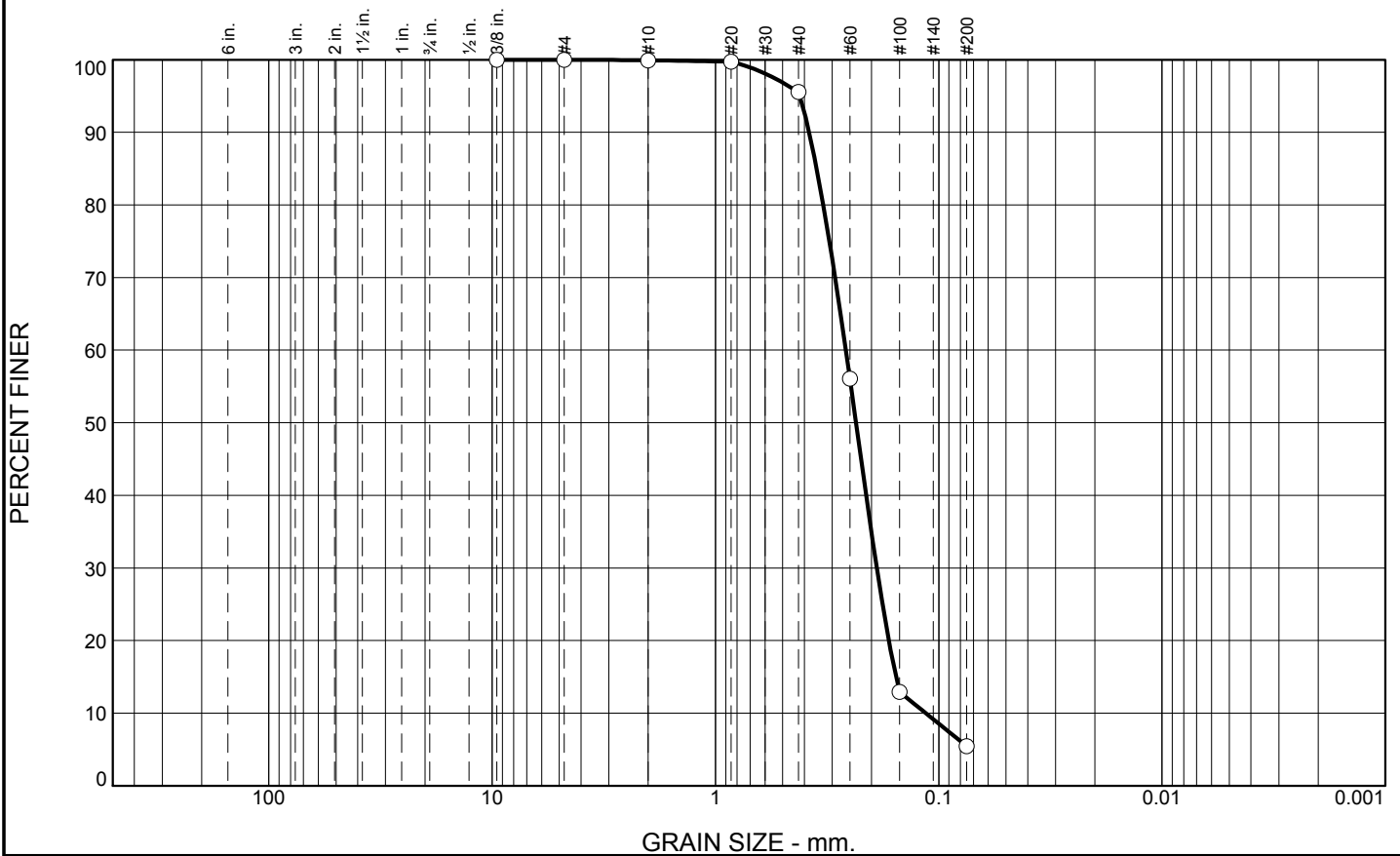
**Tested By:** G.Fancher

**Checked By:** R.Byrd

# Boring Designation BI-CI-21-10

DRILLING LOG		DIVISION South Atlantic		INSTALLATION Mobile District		SHEET 1 OF 1 SHEETS	
1. PROJECT MsCIP Barrier Island Restoration Cat Island				9. SIZE AND TYPE OF BIT N/A			
2. BORING DESIGNATION BI-CI-21-10		LOCATION COORDINATES E = 912,140 N = 265,739		10. COORDINATE SYSTEM/DATUM State Plane, MSE (U.S. Ft.)		HORIZONTAL NAD83 VERTICAL NAVD88	
3. DRILLING AGENCY Corps of Engineers - CESAM		CONTRACTOR FILE NO.		11. MANUFACTURER'S DESIGNATION OF DRILL Vibracore		<input type="checkbox"/> AUTO HAMMER <input type="checkbox"/> MANUAL HAMMER	
4. NAME OF DRILLER Construction Solutions International, Inc.				12. TOTAL SAMPLES 3		DISTURBED 3 UNDISTURBED (UD) 0	
5. DIRECTION OF BORING <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED		DEG. FROM VERTICAL		13. TOTAL NUMBER CORE BOXES			
		BEARING		14. WATER DEPTH 11 Ft.			
6. THICKNESS OF OVERBURDEN N/A				15. DATE BORING 05-21-10		STARTED 05-21-10 COMPLETED 05-21-10	
7. DEPTH DRILLED INTO ROCK N/A				16. ELEVATION TOP OF BORING -10.1 Ft.			
8. TOTAL DEPTH OF BORING 10.4 Ft.				17. TOTAL RECOVERY FOR BORING 100%			
				18. SIGNATURE AND TITLE OF INSPECTOR Mark Green, Geotechnical Engineer			
ELEV.	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS	SAMPLE	LABORATORY RESULTS		
-10.1	0.0						
-12.1	2.0		SAND, poorly-graded, mostly fine-grained sand-sized quartz, trace shell fragments, trace of clay lenses, greenish gray (SP)	A	Classification: SP-SM Color: - D50: 0.2347 mm % Fines: 5.5		
-13.1	3.0		CLAY, lean, trace fine-grained sand-sized quartz, gray and brown (CL)	NS			
-19.1	9.0		SAND, poorly-graded, mostly fine-grained sand-sized quartz, trace silt, trace shell fragments, greenish gray (SP) At El. -15.1 Ft., mostly fine-grained sand-sized quartz, trace shell fragments, trace silt, gray	B	Classification: SP Color: - D50: 0.213 mm % Fines: 2.7		
				C	Classification: SP Color: - D50: 0.1826 mm % Fines: 2.4		
-20.5	10.4		SAND, silty, mostly fine-grained sand-sized quartz, trace clay, dark gray (SM)	NS			
			NOTES: 1. Soils are field visually classified in accordance with the Unified Soils Classification System. 2. NS = Sample not submitted for laboratory analysis from this interval. 3. Seafloor elevation calculated using sampling vessel's fathometer water depth reading and applying NOAA tidal gauge data conversion factor.				

# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.0	0.1	4.4	90.0	5.5	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
.375	100.0		
#4	100.0		
#10	99.9		
#20	99.7		
#40	95.5		
#60	56.1		
#100	12.9		
#200	5.5		

\* (no specification provided)

<u>Material Description</u>		
SAND, (SP-SM), fine grained		
<u>Atterberg Limits</u>		
PL=	LL=	PI=
<u>Coefficients</u>		
D <sub>90</sub> = 0.3808	D <sub>85</sub> = 0.3521	D <sub>60</sub> = 0.2607
D <sub>50</sub> = 0.2347	D <sub>30</sub> = 0.1895	D <sub>15</sub> = 0.1555
D <sub>10</sub> = 0.1144	C <sub>u</sub> = 2.28	C <sub>c</sub> = 1.20
<u>Classification</u>		
USCS= SP-SM	AASHTO=	
<u>Remarks</u>		
CADD CODE = CH10D965		

Location: USACE Sample # BI-CI-21-10A  
Sample Number: TE Lab ID: 4489.08

Depth: 0.0 - 2.0 (ft.)

Date: 5/28/10

**Thompson Engineering**  
**Mobile, Alabama**

**Client:** US Army Corps of Engineers  
**Project:** Contract No. W91278-10-D-0026 - Task 03  
Mississippi Barrier Island Restoration Project  
**Project No:** 10-2123-0009

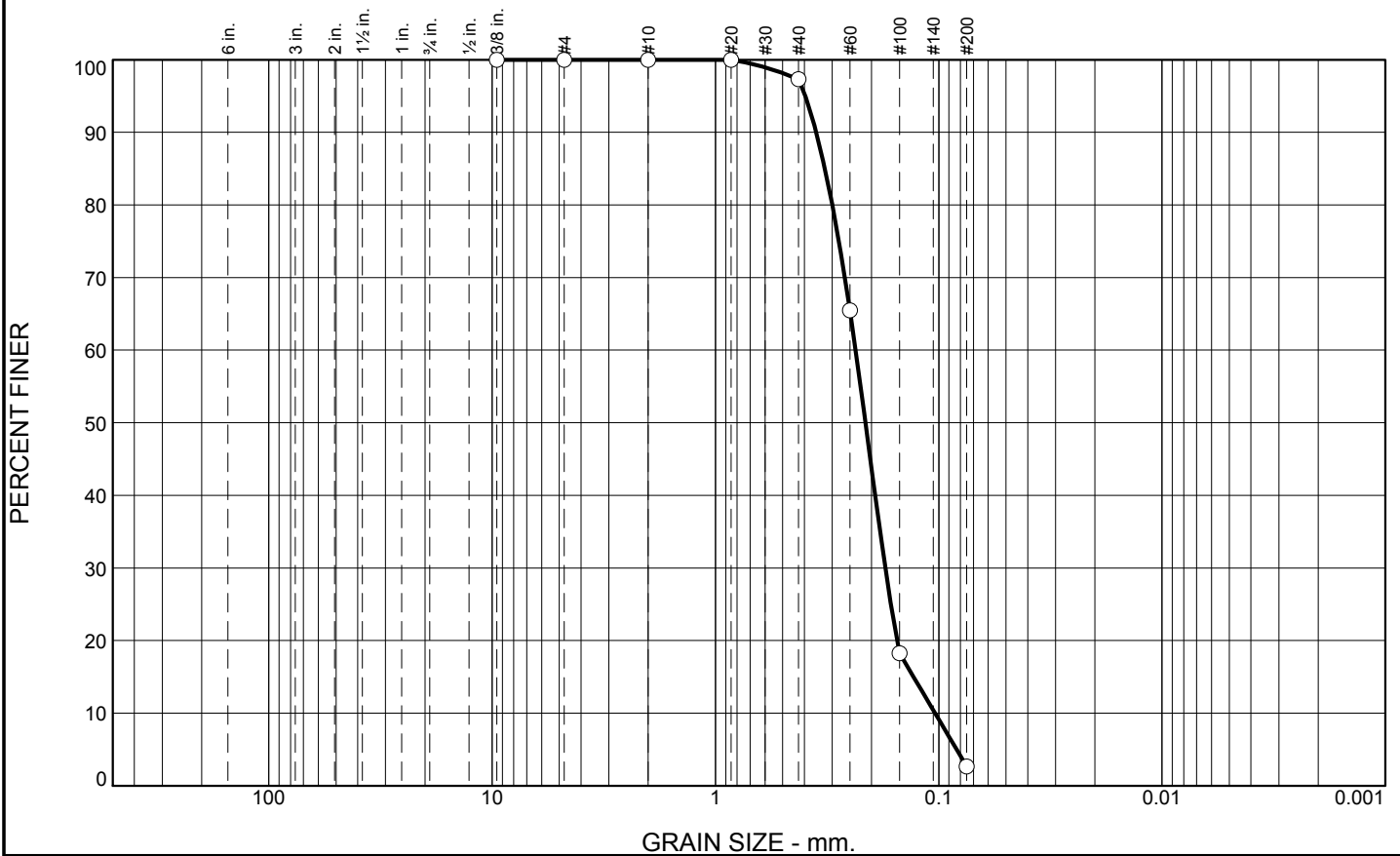
**Figure**

Tested By: G.Fancher

Checked By: R.Byrd



# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.0	0.0	2.7	94.6	2.7	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
.375	100.0		
#4	100.0		
#10	100.0		
#20	100.0		
#40	97.3		
#60	65.5		
#100	18.3		
#200	2.7		

\* (no specification provided)

<u><b>Material Description</b></u>		
SAND, (SP), fine grained		
<u><b>Atterberg Limits</b></u>		
PL=	LL=	PI=
<u><b>Coefficients</b></u>		
D <sub>90</sub> = 0.3538	D <sub>85</sub> = 0.3235	D <sub>60</sub> = 0.2357
D <sub>50</sub> = 0.2130	D <sub>30</sub> = 0.1735	D <sub>15</sub> = 0.1297
D <sub>10</sub> = 0.1039	C <sub>u</sub> = 2.27	C <sub>c</sub> = 1.23
<u><b>Classification</b></u>		
USCS= SP	AASHTO=	
<u><b>Remarks</b></u>		
CADD CODE = CH10D965		

Location: USACE Sample # BI-CI-21-10B  
Sample Number: TE Lab ID: 4489.09

Depth: 3.0 - 5.0 (ft.)

Date: 5/28/10

**Thompson Engineering**  
**Mobile, Alabama**

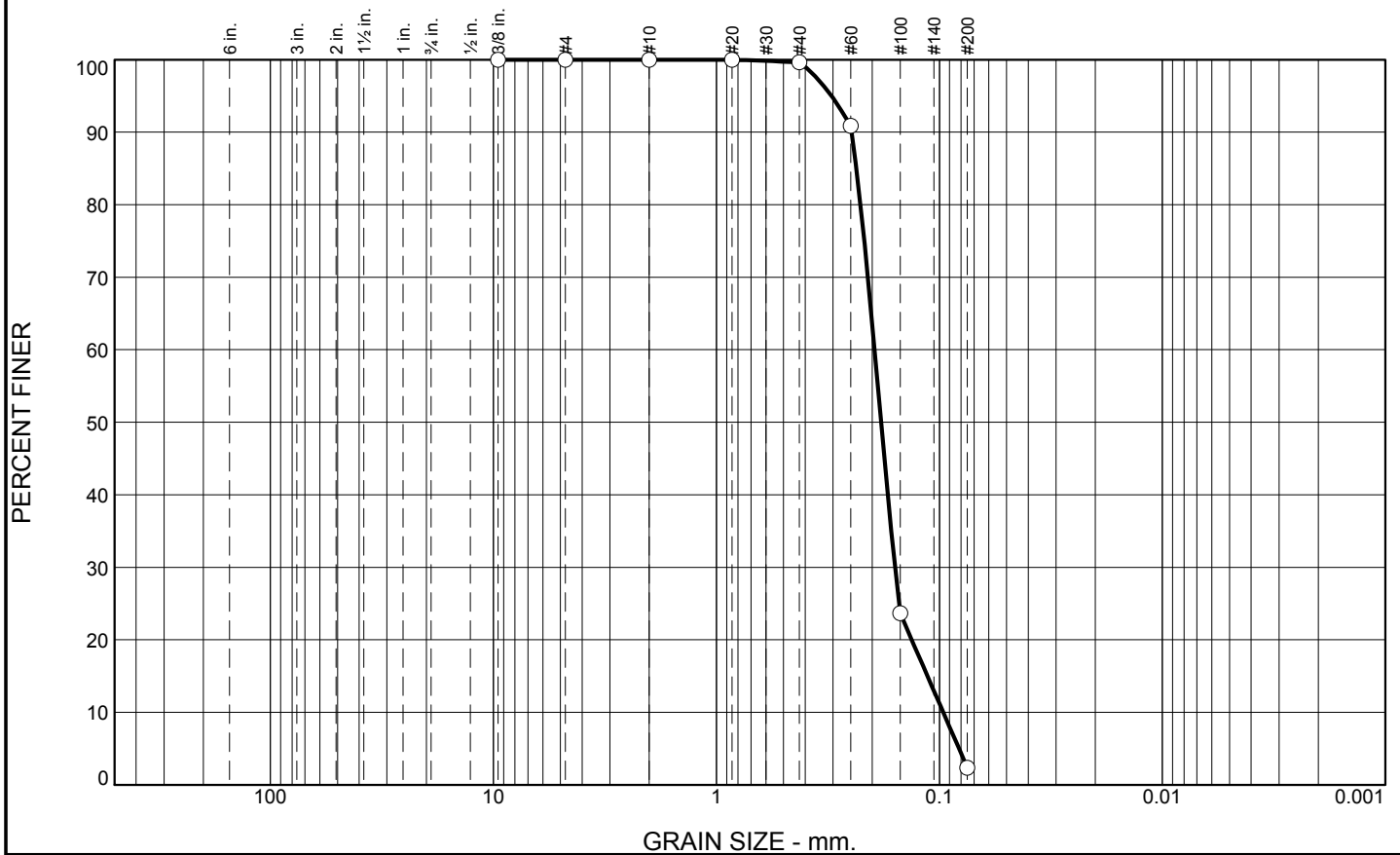
**Client:** US Army Corps of Engineers  
**Project:** Contract No. W91278-10-D-0026 - Task 03  
Mississippi Barrier Island Restoration Project  
**Project No:** 10-2123-0009

**Figure**

Tested By: G.Fancher

Checked By: R.Byrd

# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.0	0.0	0.4	97.2	2.4	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
.375	100.0		
#4	100.0		
#10	100.0		
#20	100.0		
#40	99.6		
#60	90.9		
#100	23.7		
#200	2.4		

\* (no specification provided)

Material Description		
SAND, (SP), fine grained		
<div> <div>PL=</div> <div> <div>Atterberg Limits</div> <div>LL=</div> <div>PI=</div> </div> </div>		
<div> <div> <div>D<sub>90</sub>= 0.2476</div> <div>D<sub>50</sub>= 0.1826</div> <div>D<sub>10</sub>= 0.0962</div> </div> <div> <div>Coefficients</div> <div> <div>D<sub>85</sub>= 0.2356</div> <div>D<sub>30</sub>= 0.1582</div> <div>C<sub>u</sub>= 2.03</div> </div> </div> <div> <div>D<sub>60</sub>= 0.1954</div> <div>D<sub>15</sub>= 0.1132</div> <div>C<sub>c</sub>= 1.33</div> </div> </div>		
<div> <div>USCS= SP</div> <div> <div>Classification</div> <div>AASHTO=</div> </div> </div>		
<div> <div>Remarks</div> <div>CADD CODE = CH10D965</div> </div>		

Location: USACE Sample # BI-CI-21-10C  
Sample Number: TE Lab ID: 4489.10

Depth: 5.0 - 9.0 (ft.)

Date: 5/30/10

**Thompson Engineering**  
**Mobile, Alabama**

**Client:** US Army Corps of Engineers  
**Project:** Contract No. W91278-10-D-0026 - Task 03  
Mississippi Barrier Island Restoration Project  
**Project No:** 10-2123-0009

**Figure**

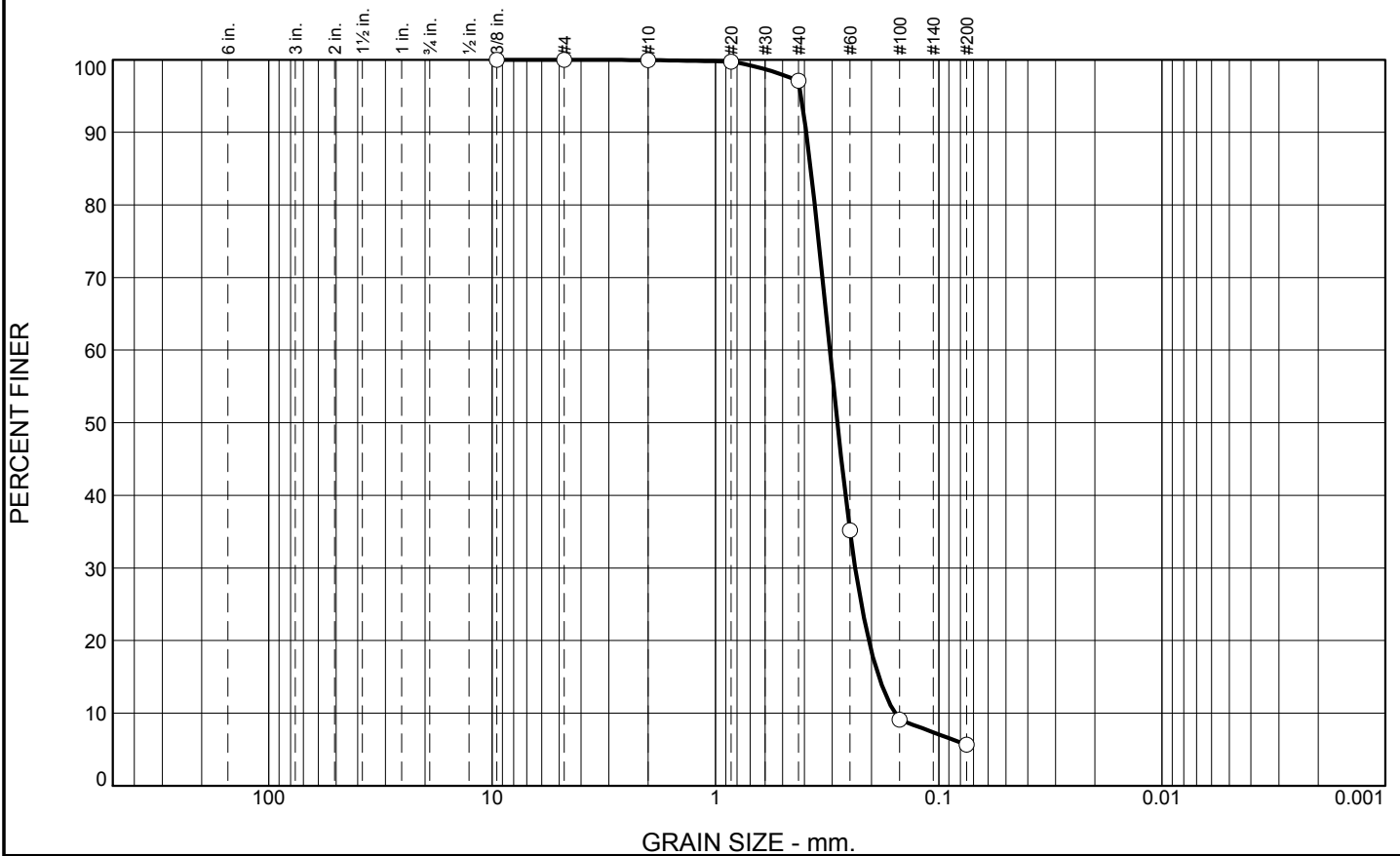
Tested By: G.Fancher

Checked By: R.Byrd

# Boring Designation BI-CI-22-10

DRILLING LOG		DIVISION South Atlantic		INSTALLATION Mobile District		SHEET 1 OF 1 SHEETS	
1. PROJECT MsCIP Barrier Island Restoration Cat Island				9. SIZE AND TYPE OF BIT N/A			
2. BORING DESIGNATION BI-CI-22-10		LOCATION COORDINATES E = 913,150 N = 268,766		10. COORDINATE SYSTEM/DATUM State Plane, MSE (U.S. Ft.)		HORIZONTAL NAD83	
3. DRILLING AGENCY Corps of Engineers - CESAM		CONTRACTOR FILE NO.		11. MANUFACTURER'S DESIGNATION OF DRILL Vibracore		<input type="checkbox"/> AUTO HAMMER <input type="checkbox"/> MANUAL HAMMER	
4. NAME OF DRILLER Construction Solutions International, Inc.				12. TOTAL SAMPLES 3		UNDISTURBED (UD) 0	
5. DIRECTION OF BORING <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED				13. TOTAL NUMBER CORE BOXES		14. WATER DEPTH 10 Ft.	
6. THICKNESS OF OVERBURDEN N/A				15. DATE BORING 05-21-10		COMPLETED 05-21-10	
7. DEPTH DRILLED INTO ROCK N/A				16. ELEVATION TOP OF BORING -9.0 Ft.		17. TOTAL RECOVERY FOR BORING 100%	
8. TOTAL DEPTH OF BORING 11.0 Ft.				18. SIGNATURE AND TITLE OF INSPECTOR Mark Green, Geotechnical Engineer			
ELEV.	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS	SAMPLE	LABORATORY RESULTS		
-9.0	0.0						
-13.0	4.0		SAND, silty, mostly Geotechnical Engineer fine-grained sand-sized 0 quartz NS = Sample not submitted for laboratory analysis from this interval, trace shell fragments, trace organic matter, dark gray to gray (SM)	A	Classification: SP-SM Color: 2.5Y 6/2-light brownish gray D50: 0.2843 mm % Fines: 5.7		
-20.0	11.0		SAND, poorly-graded, mostly fine-grained sand-sized quartz, trace silt, trace shell fragments, trace organic matter, dark gray and brownish tan (SP) At El. -15.0 Ft., mostly fine-grained sand-sized quartz, trace silt, trace shell fragments, gray and lt. gray	B	Classification: SP Color: 2.5Y 6/2-light brownish gray D50: 0.1783 mm % Fines: 2.7		
				C	Classification: SP-SM Color: 2.5Y 5/2-grayish brown D50: 0.2164 mm % Fines: 5.5		
			NOTES: 1. Soils are field visually classified in accordance with the Unified Soils Classification System. 2. NS = Sample not submitted for laboratory analysis from this interval. 3. Seafloor elevation calculated using sampling vessel's fathometer water depth reading and applying NOAA tidal gauge data conversion factor.				

# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.0	0.1	2.8	91.4	5.7	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
.375	100.0		
#4	100.0		
#10	99.9		
#20	99.7		
#40	97.1		
#60	35.2		
#100	9.1		
#200	5.7		

\* (no specification provided)

Material Description		
SAND, (SP-SM), fine grained, with trace shell		
<div> <div> <b>Atterberg Limits</b>            PL=      LL=      PI=         </div> <div> <b>Coefficients</b>            D<sub>90</sub>= 0.3927      D<sub>85</sub>= 0.3748      D<sub>60</sub>= 0.3072            D<sub>50</sub>= 0.2843      D<sub>30</sub>= 0.2366      D<sub>15</sub>= 0.1856            D<sub>10</sub>= 0.1570      C<sub>u</sub>= 1.96      C<sub>c</sub>= 1.16         </div> <div> <b>Classification</b>            USCS= SP-SM      AASHTO=         </div> <div> <b>Remarks</b>            CADD CODE = CH10D965         </div> </div>		

Location: USACE Sample # BI-CI-22-10A  
Sample Number: TE Lab ID: 4489.05

Depth: 0.0 - 4.0 (ft.)

Date: 5/28/10

**Thompson Engineering**  
  
**Mobile, Alabama**

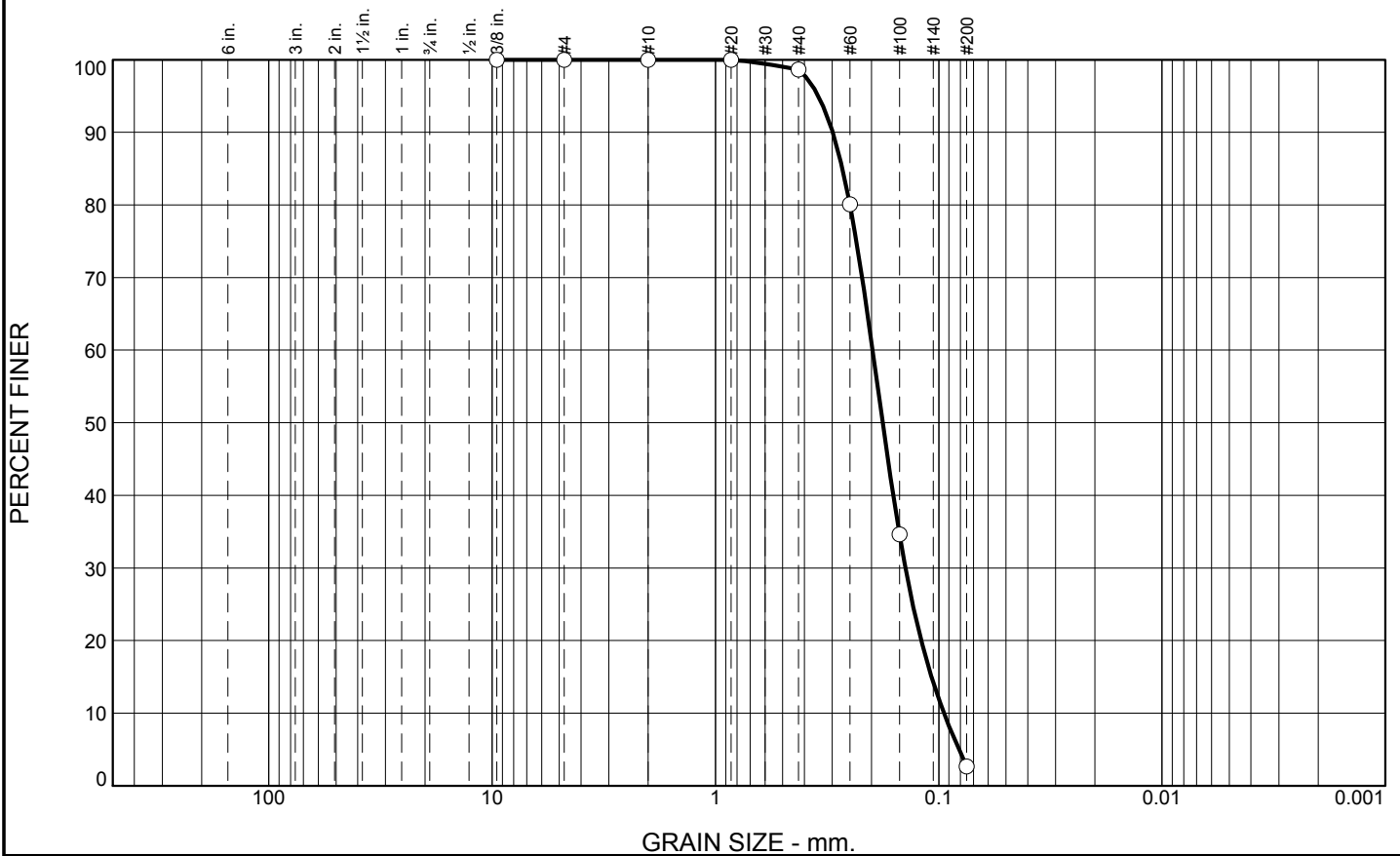
**Client:** US Army Corps of Engineers  
**Project:** Contract No. W91278-10-D-0026 - Task 03  
Mississippi Barrier Island Restoration Project  
**Project No:** 10-2123-0009

**Figure**

Tested By: G.Fancher

Checked By: R.Byrd

# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.0	0.0	1.4	95.9	2.7	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
.375	100.0		
#4	100.0		
#10	100.0		
#20	100.0		
#40	98.6		
#60	80.1		
#100	34.6		
#200	2.7		

\* (no specification provided)

Material Description		
SAND, (SP), fine grained		
<div> <div> <b>Atterberg Limits</b>            PL=      LL=      PI=         </div> <div> <b>Coefficients</b>            D<sub>90</sub>= 0.2984      D<sub>85</sub>= 0.2700      D<sub>60</sub>= 0.1979            D<sub>50</sub>= 0.1783      D<sub>30</sub>= 0.1410      D<sub>15</sub>= 0.1078            D<sub>10</sub>= 0.0948      C<sub>u</sub>= 2.09      C<sub>c</sub>= 1.06         </div> <div> <b>Classification</b>            USCS= SP      AASHTO=         </div> <div> <b>Remarks</b>            CADD CODE = CH10D965         </div> </div>		

Location: USACE Sample # BI-CI-22-10B  
Sample Number: TE Lab ID: 4489.06

Depth: 4.0 - 6.0 (ft.)

Date: 5/28/10

**Thompson Engineering**  
**Mobile, Alabama**

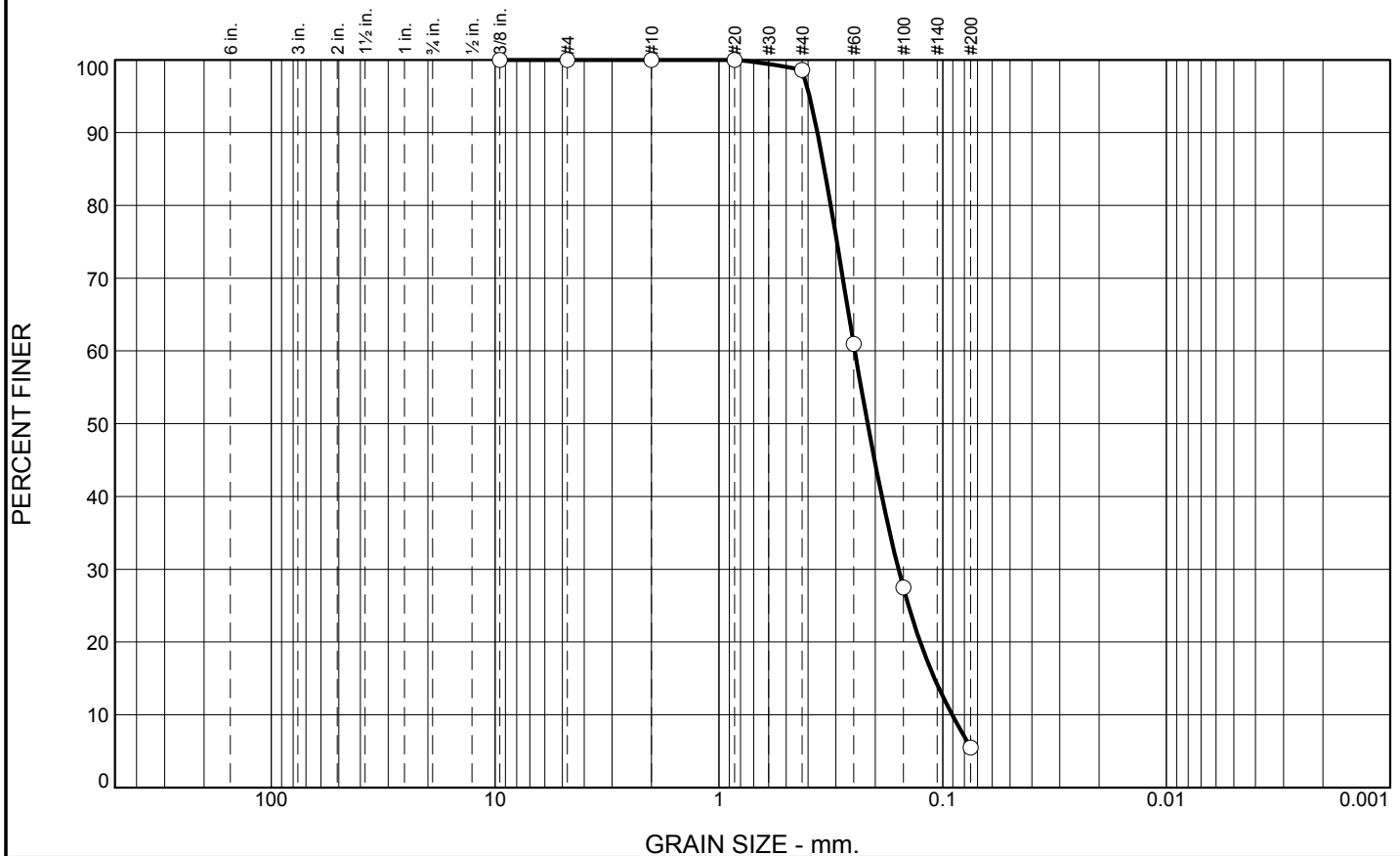
**Client:** US Army Corps of Engineers  
**Project:** Contract No. W91278-10-D-0026 - Task 03  
Mississippi Barrier Island Restoration Project  
**Project No:** 10-2123-0009

**Figure**

Tested By: G.Fancher

Checked By: R.Byrd

# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.0	0.0	1.4	93.1	5.5	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
.375	100.0		
#4	100.0		
#10	100.0		
#20	100.0		
#40	98.6		
#60	61.0		
#100	27.5		
#200	5.5		

\* (no specification provided)

<u><b>Material Description</b></u>		
SAND, (SP-SM), fine grained		
<u><b>Atterberg Limits</b></u>		
PL=	LL=	PI=
<u><b>Coefficients</b></u>		
D <sub>90</sub> = 0.3628	D <sub>85</sub> = 0.3377	D <sub>60</sub> = 0.2469
D <sub>50</sub> = 0.2164	D <sub>30</sub> = 0.1576	D <sub>15</sub> = 0.1088
D <sub>10</sub> = 0.0907	C <sub>u</sub> = 2.72	C <sub>c</sub> = 1.11
<u><b>Classification</b></u>		
USCS= SP-SM	AASHTO=	
<u><b>Remarks</b></u>		
CADD CODE = CH10D965		

**Location:** USACE Sample # BI-CI-22-10C  
**Sample Number:** TE Lab ID: 4489.07

**Depth:** 6.0 - 11.0 (ft.)

**Date:** 5/28/10

**Thompson Engineering**  
**Mobile, Alabama**

**Client:** US Army Corps of Engineers  
**Project:** Contract No. W91278-10-D-0026 - Task 03  
 Mississippi Barrier Island Restoration Project  
**Project No:** 10-2123-0009

**Figure**

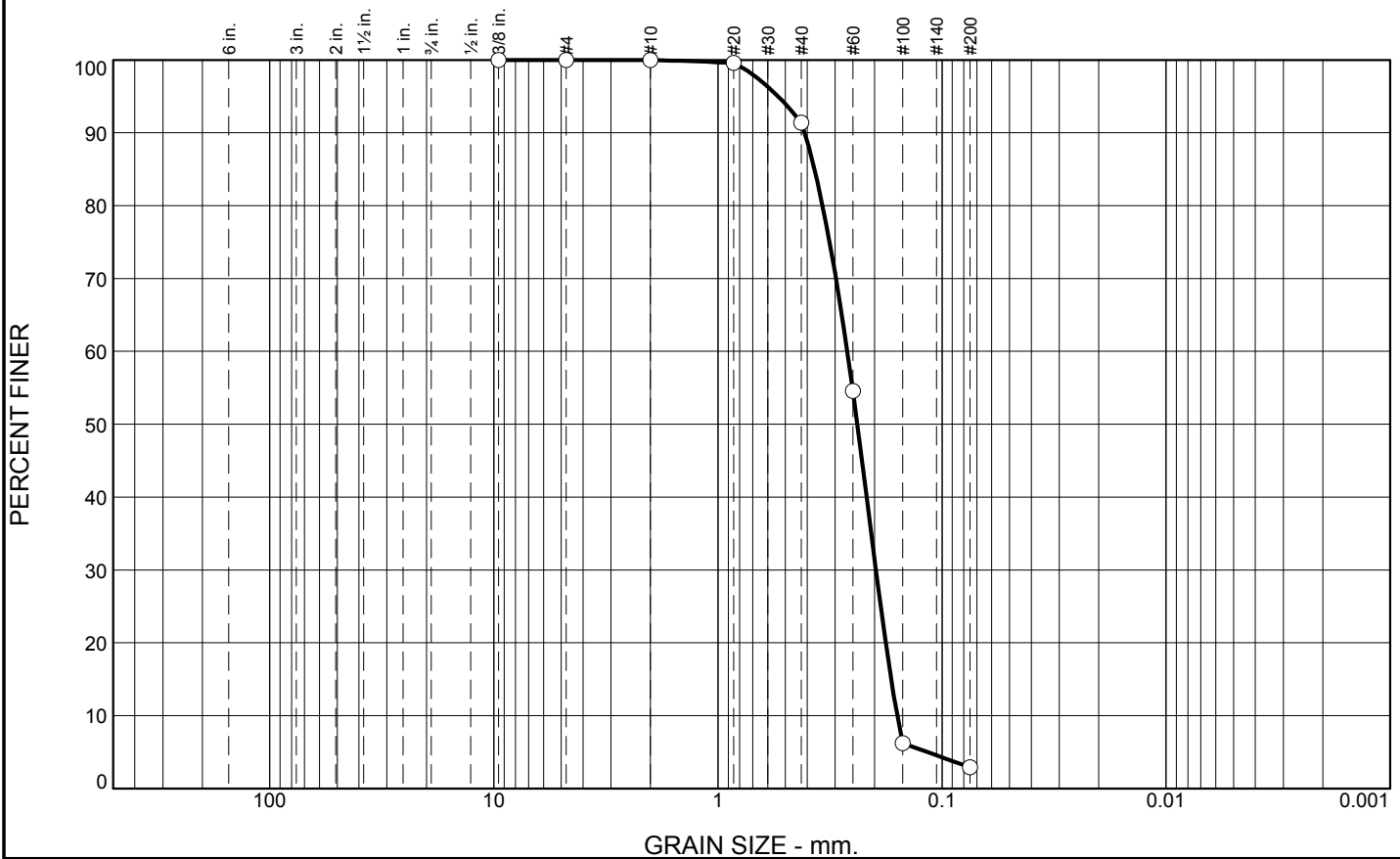
**Tested By:** G.Fancher

**Checked By:** R.Byrd

# Boring Designation BI-CI-23-10

DRILLING LOG		DIVISION South Atlantic		INSTALLATION Mobile District		SHEET 1 OF 1 SHEETS	
1. PROJECT MsCIP Barrier Island Restoration Cat Island				9. SIZE AND TYPE OF BIT N/A			
2. BORING DESIGNATION BI-CI-23-10		LOCATION COORDINATES E = 909,907 N = 261,281		10. COORDINATE SYSTEM/DATUM State Plane, MSE (U.S. Ft.)		HORIZONTAL NAD83	
3. DRILLING AGENCY Corps of Engineers - CESAM		CONTRACTOR FILE NO.		11. MANUFACTURER'S DESIGNATION OF DRILL Vibracore		<input type="checkbox"/> AUTO HAMMER <input type="checkbox"/> MANUAL HAMMER	
4. NAME OF DRILLER Construction Solutions International, Inc.				12. TOTAL SAMPLES 3		DISTURBED 0	
5. DIRECTION OF BORING <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED				13. TOTAL NUMBER CORE BOXES		14. WATER DEPTH 11 Ft.	
6. THICKNESS OF OVERBURDEN N/A				15. DATE BORING 08-21-10		STARTED 08-21-10	
7. DEPTH DRILLED INTO ROCK N/A				16. ELEVATION TOP OF BORING -10.4 Ft.		COMPLETED 08-21-10	
8. TOTAL DEPTH OF BORING 11.5 Ft.				17. TOTAL RECOVERY FOR BORING 100%		18. SIGNATURE AND TITLE OF INSPECTOR Mark Green, Geotechnical Engineer	
ELEV.	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS	SAMPLE	LABORATORY RESULTS		
-10.4	0.0						
			SAND, poorly-graded, mostly fine-grained sand-sized quartz, trace silt, trace shell fragments, dark gray (SP)	A	Classification: SP Color: 5Y 6/2-light olive gray D50: 0.2389 mm % Fines: 2.9		
				B	Classification: SP Color: 2.5Y 6/1-gray D50: 0.2681 mm % Fines: 1.8		
			At El. -18.4 Ft., lt. brown and gray At El. -19.0 Ft., little silt	C	Classification: SP-SM Color: 2.5Y 6/1-gray D50: 0.2531 mm % Fines: 5.2		
-21.9	11.5						
			NOTES: 1. Soils are field visually classified in accordance with the Unified Soils Classification System. 2. NS = Sample not submitted for laboratory analysis from this interval. 3. Seafloor elevation calculated using sampling vessel's fathometer water depth reading and applying NOAA tidal gauge data conversion factor.				

# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.0	0.0	8.6	88.5	2.9	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
.375	100.0		
#4	100.0		
#10	100.0		
#20	99.6		
#40	91.4		
#60	54.6		
#100	6.2		
#200	2.9		

\* (no specification provided)

## Material Description

SAND, (SP), fine grained

## Atterberg Limits

PL=

LL=

PI=

## Coefficients

D<sub>90</sub>= 0.4107

D<sub>85</sub>= 0.3710

D<sub>60</sub>= 0.2647

D<sub>50</sub>= 0.2389

D<sub>30</sub>= 0.1974

D<sub>15</sub>= 0.1688

D<sub>10</sub>= 0.1586

C<sub>u</sub>= 1.67

C<sub>c</sub>= 0.93

## Classification

USCS= SP

AASHTO=

## Remarks

CADD CODE = CH10D965

Location: USACE Sample # BI-CI-23-10A  
Sample Number: TE Lab ID: 4660.07

Depth: 0.0 - 4.0 (ft.)

Date: 9/1/10

**Thompson Engineering**

**Mobile, Alabama**

Client: US Army Corps of Engineers

Project: Contract No. W91278-10-D-0026 - Task 03  
Mississippi Barrier Island Restoration Project

Project No: 10-2123-0009

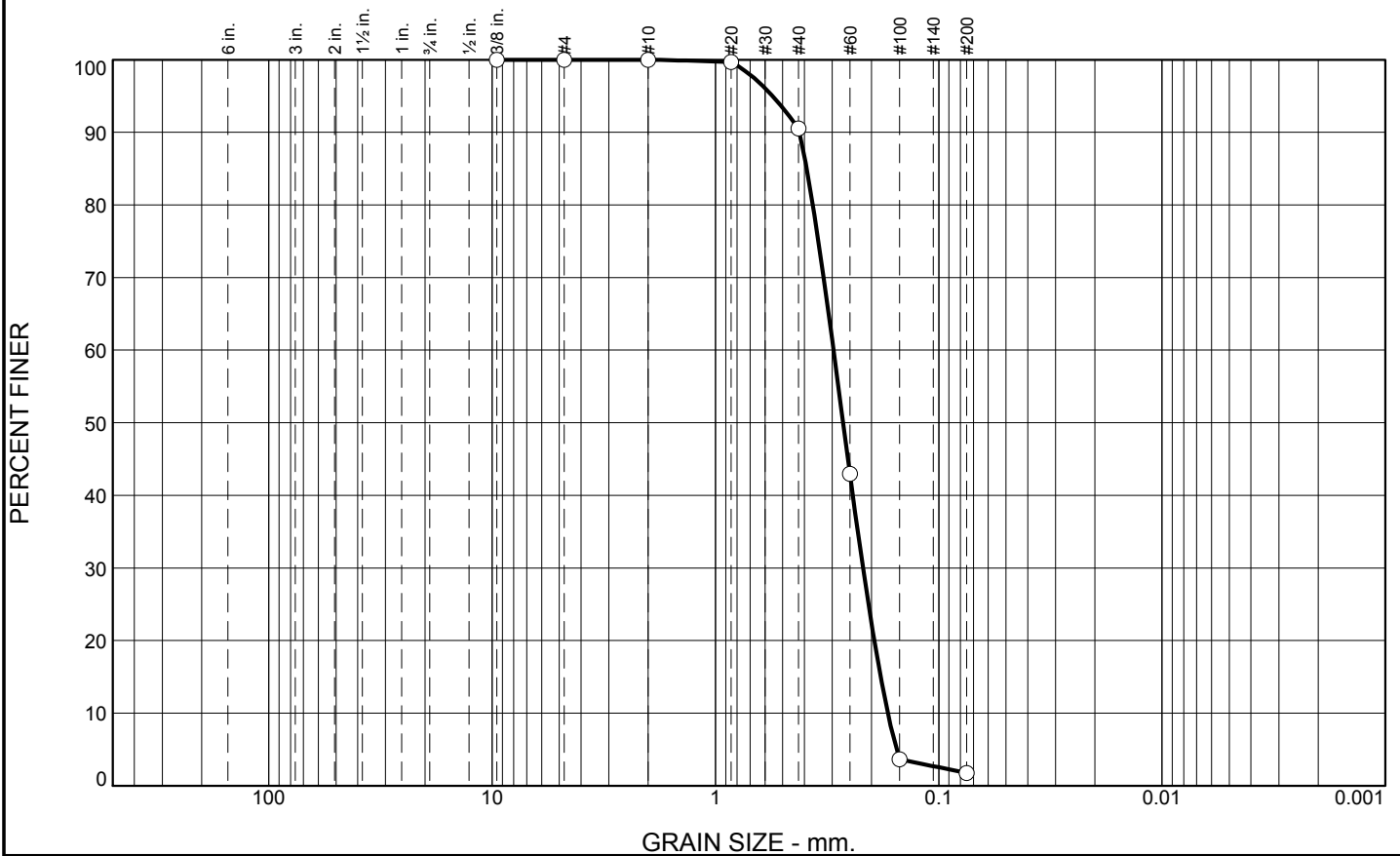
Report No.

Tested By: G.Fancher

Checked By: R.Byrd



# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.0	0.0	9.5	88.7	1.8	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
.375	100.0		
#4	100.0		
#10	100.0		
#20	99.7		
#40	90.5		
#60	43.0		
#100	3.6		
#200	1.8		

\* (no specification provided)

## Material Description

SAND, (SP), fine grained

## Atterberg Limits

PL=

LL=

PI=

## Coefficients

D<sub>90</sub>= 0.4212

D<sub>85</sub>= 0.3907

D<sub>60</sub>= 0.2958

D<sub>50</sub>= 0.2681

D<sub>30</sub>= 0.2184

D<sub>15</sub>= 0.1821

D<sub>10</sub>= 0.1691

C<sub>u</sub>= 1.75

C<sub>c</sub>= 0.95

## Classification

USCS= SP

AASHTO=

## Remarks

CADD CODE = CH10D965

Location: USACE Sample # BI-CI-23-10B  
Sample Number: TE Lab ID: 4660.08

Depth: 4.0 - 8.0 (ft.)

Date: 9/1/10

**Thompson Engineering**

**Mobile, Alabama**

Client: US Army Corps of Engineers

Project: Contract No. W91278-10-D-0026 - Task 03  
Mississippi Barrier Island Restoration Project

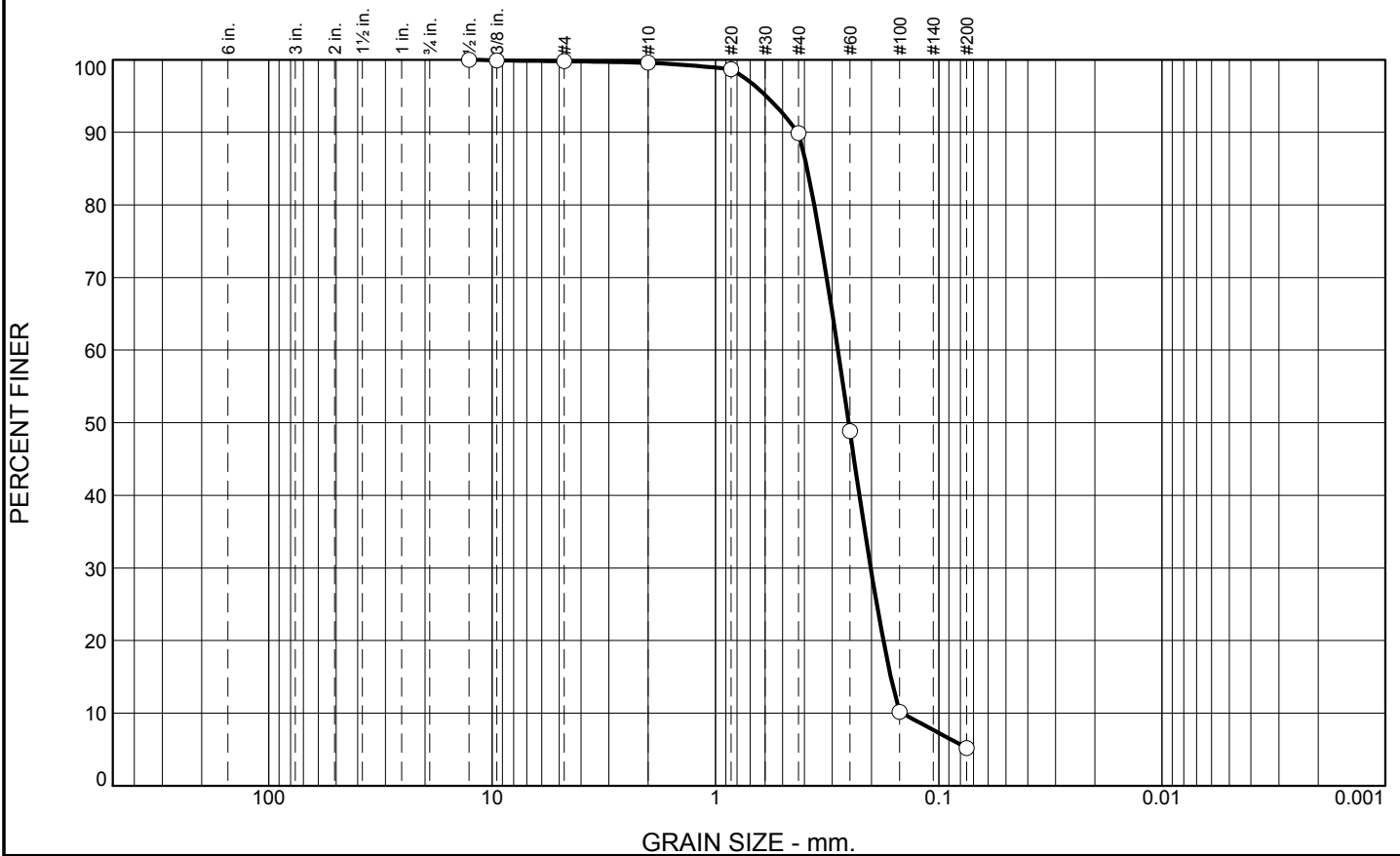
Project No: 10-2123-0009

Report No.

Tested By: G.Fancher

Checked By: R.Byrd

# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.2	0.2	9.7	84.7	5.2	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
.500	100.0		
.375	99.9		
#4	99.8		
#10	99.6		
#20	98.7		
#40	89.9		
#60	48.9		
#100	10.2		
#200	5.2		

\* (no specification provided)

**Material Description**  
SAND, (SP-SM), fine grained

**Atterberg Limits**  
 PL=      LL=      PI=

**Coefficients**  
 D<sub>90</sub>= 0.4276      D<sub>85</sub>= 0.3892      D<sub>60</sub>= 0.2828  
 D<sub>50</sub>= 0.2531      D<sub>30</sub>= 0.2018      D<sub>15</sub>= 0.1641  
 D<sub>10</sub>= 0.1461      C<sub>u</sub>= 1.94      C<sub>c</sub>= 0.99

**Classification**  
 USCS= SP-SM      AASHTO=

**Remarks**  
 CADD CODE = CH10D965

**Location:** USACE Sample # BI-CI-23-10C  
**Sample Number:** TE Lab ID: 4660.09

**Depth:** 8.0 - 11.5 (ft.)

**Date:** 9/1/10

**Thompson Engineering**  
  
**Mobile, Alabama**

**Client:** US Army Corps of Engineers  
**Project:** Contract No. W91278-10-D-0026 - Task 03  
 Mississippi Barrier Island Restoration Project  
**Project No:** 10-2123-0009      **Report No.**

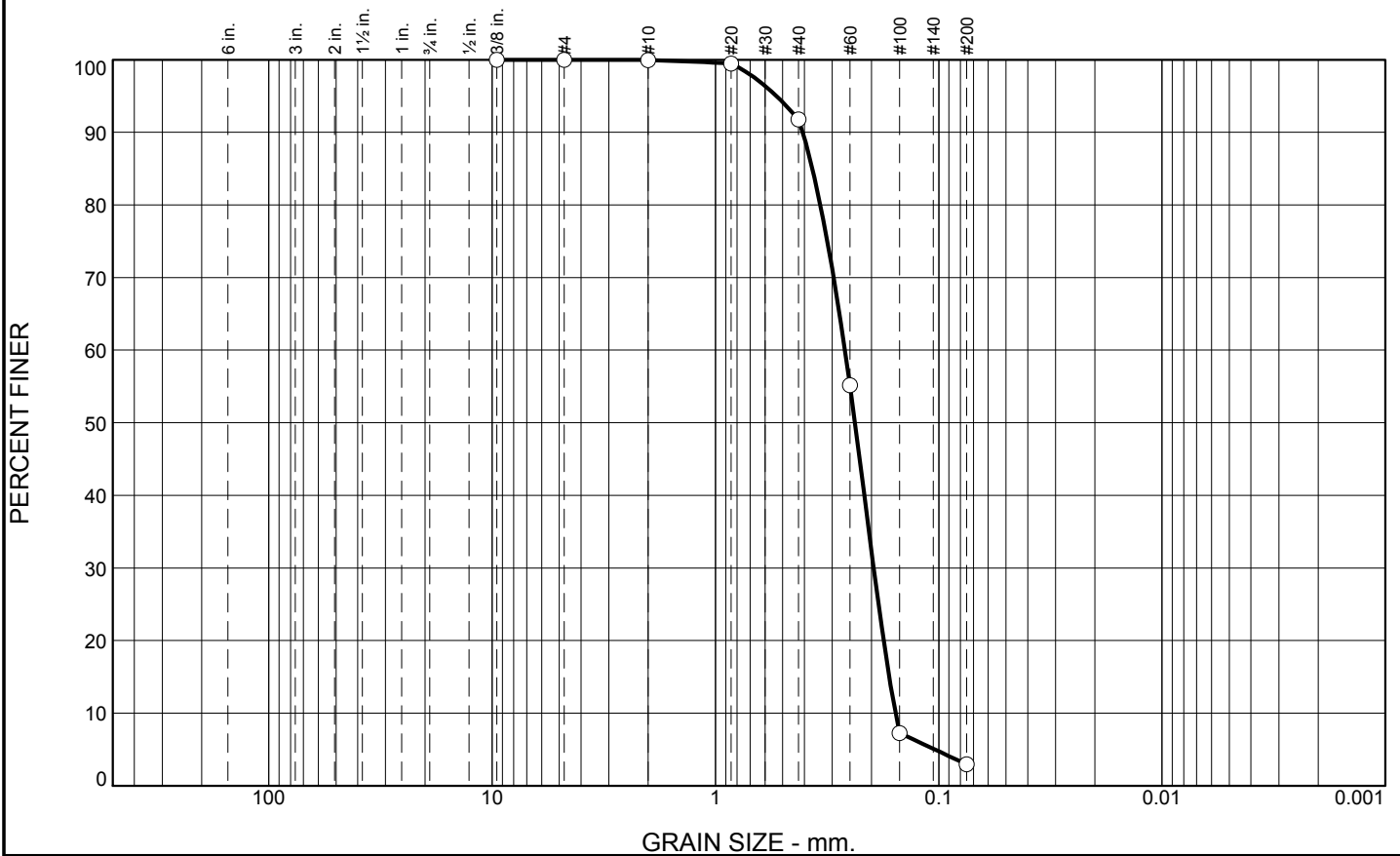
**Tested By:** G.Fancher

**Checked By:** R.Byrd

# Boring Designation BI-CI-24-10

DRILLING LOG		DIVISION South Atlantic		INSTALLATION Mobile District		SHEET 1 OF 1 SHEETS	
1. PROJECT MsCIP Barrier Island Restoration Cat Island				9. SIZE AND TYPE OF BIT N/A			
2. BORING DESIGNATION BI-CI-24-10		LOCATION COORDINATES E = 908,974 N = 260,326		10. COORDINATE SYSTEM/DATUM State Plane, MSE (U.S. Ft.)		HORIZONTAL NAD83	
3. DRILLING AGENCY Corps of Engineers - CESAM		CONTRACTOR FILE NO.		11. MANUFACTURER'S DESIGNATION OF DRILL Vibrocure		<input type="checkbox"/> AUTO HAMMER <input type="checkbox"/> MANUAL HAMMER	
4. NAME OF DRILLER Construction Solutions International, Inc.				12. TOTAL SAMPLES 3		UNDISTURBED (UD) 0	
5. DIRECTION OF BORING <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED				13. TOTAL NUMBER CORE BOXES		14. WATER DEPTH 11.3 Ft.	
6. THICKNESS OF OVERBURDEN N/A				15. DATE BORING 08-21-10		STARTED 08-21-10	
7. DEPTH DRILLED INTO ROCK N/A				16. ELEVATION TOP OF BORING -10.5 Ft.		COMPLETED 08-21-10	
8. TOTAL DEPTH OF BORING 13.0 Ft.				17. TOTAL RECOVERY FOR BORING 100%		18. SIGNATURE AND TITLE OF INSPECTOR Mark Green, Geotechnical Engineer	
ELEV.	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS	SAMPLE	LABORATORY RESULTS		
-10.5	0.0						
			SAND, poorly-graded, mostly fine-grained sand-sized quartz, trace shell fragments, trace of sea grass from 0-2 ft., lt. gray and gray (SP)	A	Classification: SP Color: 5Y 6/2-light olive gray D50: 0.2373 mm % Fines: 2.9		
				B	Classification: SP Color: 2.5Y 7/1-light gray D50: 0.2849 mm % Fines: 1.8		
				C	Classification: SP-SM Color: 2.5Y 7/1-light gray D50: 0.1913 mm % Fines: 9.3		
-22.5	12.0						
-23.5	13.0		SAND, silty, mostly fine-grained sand-sized quartz, some silt, trace shell fragments, dark gray (SM)	NS			
			NOTES: 1. Soils are field visually classified in accordance with the Unified Soils Classification System. 2. NS = Sample not submitted for laboratory analysis from this interval. 3. Seafloor elevation calculated using sampling vessel's fathometer water depth reading and applying NOAA tidal gauge data conversion factor.				

# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.0	0.0	8.2	88.9	2.9	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
.375	100.0		
#4	100.0		
#10	100.0		
#20	99.5		
#40	91.8		
#60	55.2		
#100	7.3		
#200	2.9		

\* (no specification provided)

## Material Description

SAND, (SP), fine grained

## Atterberg Limits

PL=

LL=

PI=

## Coefficients

D<sub>90</sub>= 0.4072

D<sub>85</sub>= 0.3682

D<sub>60</sub>= 0.2630

D<sub>50</sub>= 0.2373

D<sub>30</sub>= 0.1957

D<sub>15</sub>= 0.1668

D<sub>10</sub>= 0.1563

C<sub>u</sub>= 1.68

C<sub>c</sub>= 0.93

## Classification

USCS= SP

AASHTO=

## Remarks

CADD CODE = CH10D965

Location: USACE Sample # BI-CI-24-10A  
Sample Number: TE Lab ID: 4660.10

Depth: 0.0 - 4.0 (ft.)

Date: 9/1/10

**Thompson Engineering**

**Mobile, Alabama**

Client: US Army Corps of Engineers

Project: Contract No. W91278-10-D-0026 - Task 03  
Mississippi Barrier Island Restoration Project

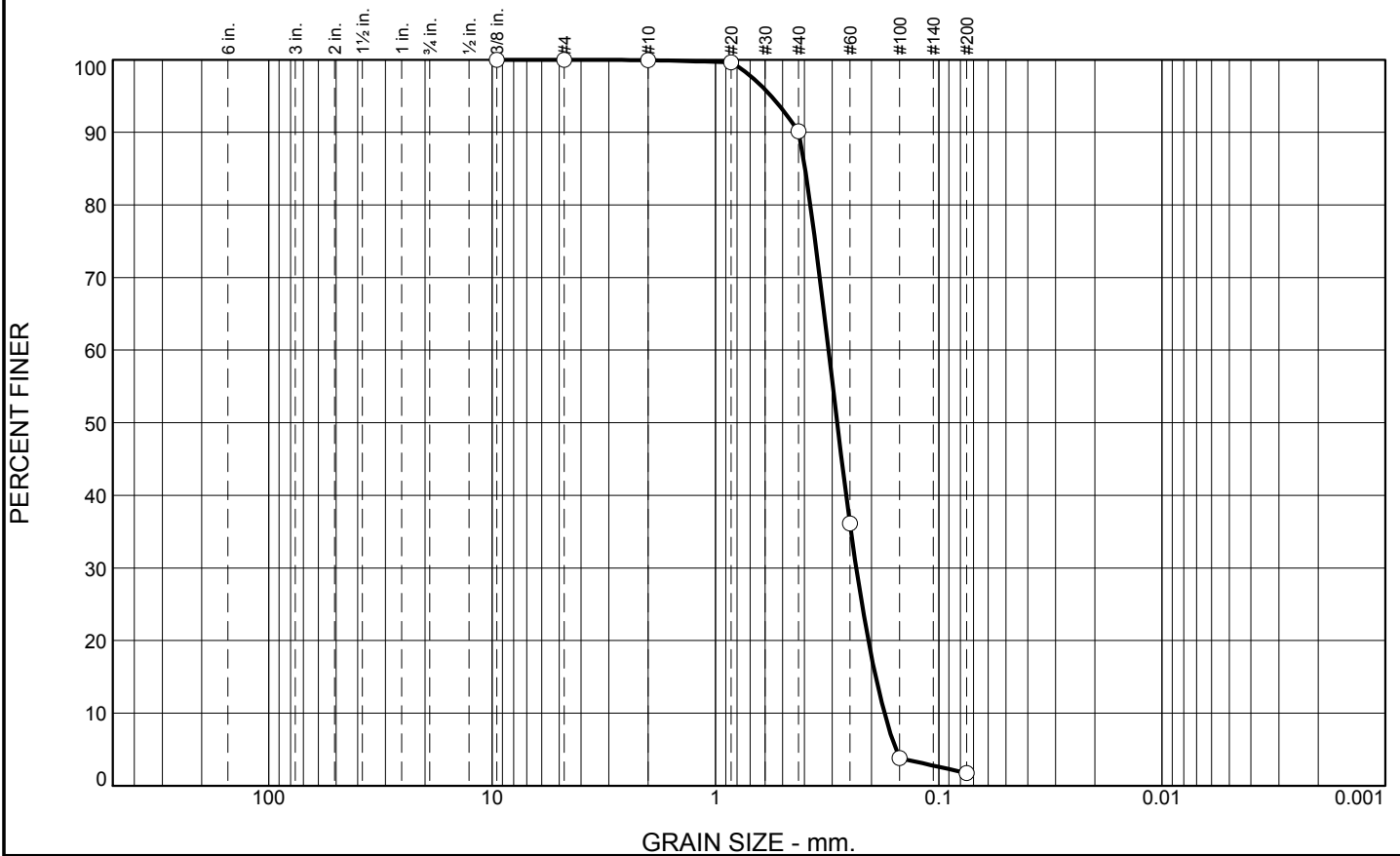
Project No: 10-2123-0009

Report No.

Tested By: G.Fancher

Checked By: R.Byrd

# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.0	0.1	9.7	88.4	1.8	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
.375	100.0		
#4	100.0		
#10	99.9		
#20	99.6		
#40	90.2		
#60	36.1		
#100	3.8		
#200	1.8		

\* (no specification provided)

**Material Description**  
SAND, (SP), fine grained

**Atterberg Limits**  
 PL=      LL=      PI=

**Coefficients**  
 D<sub>90</sub>= 0.4241      D<sub>85</sub>= 0.3976      D<sub>60</sub>= 0.3114  
 D<sub>50</sub>= 0.2849      D<sub>30</sub>= 0.2341      D<sub>15</sub>= 0.1917  
 D<sub>10</sub>= 0.1751      C<sub>u</sub>= 1.78      C<sub>c</sub>= 1.01

**Classification**  
 USCS= SP      AASHTO=

**Remarks**  
 CADD CODE = CH10D965

**Location:** USACE Sample # BI-CI-24-10B  
**Sample Number:** TE Lab ID: 4660.11

**Depth:** 4.0 - 8.0 (ft.)

**Date:** 9/01/10

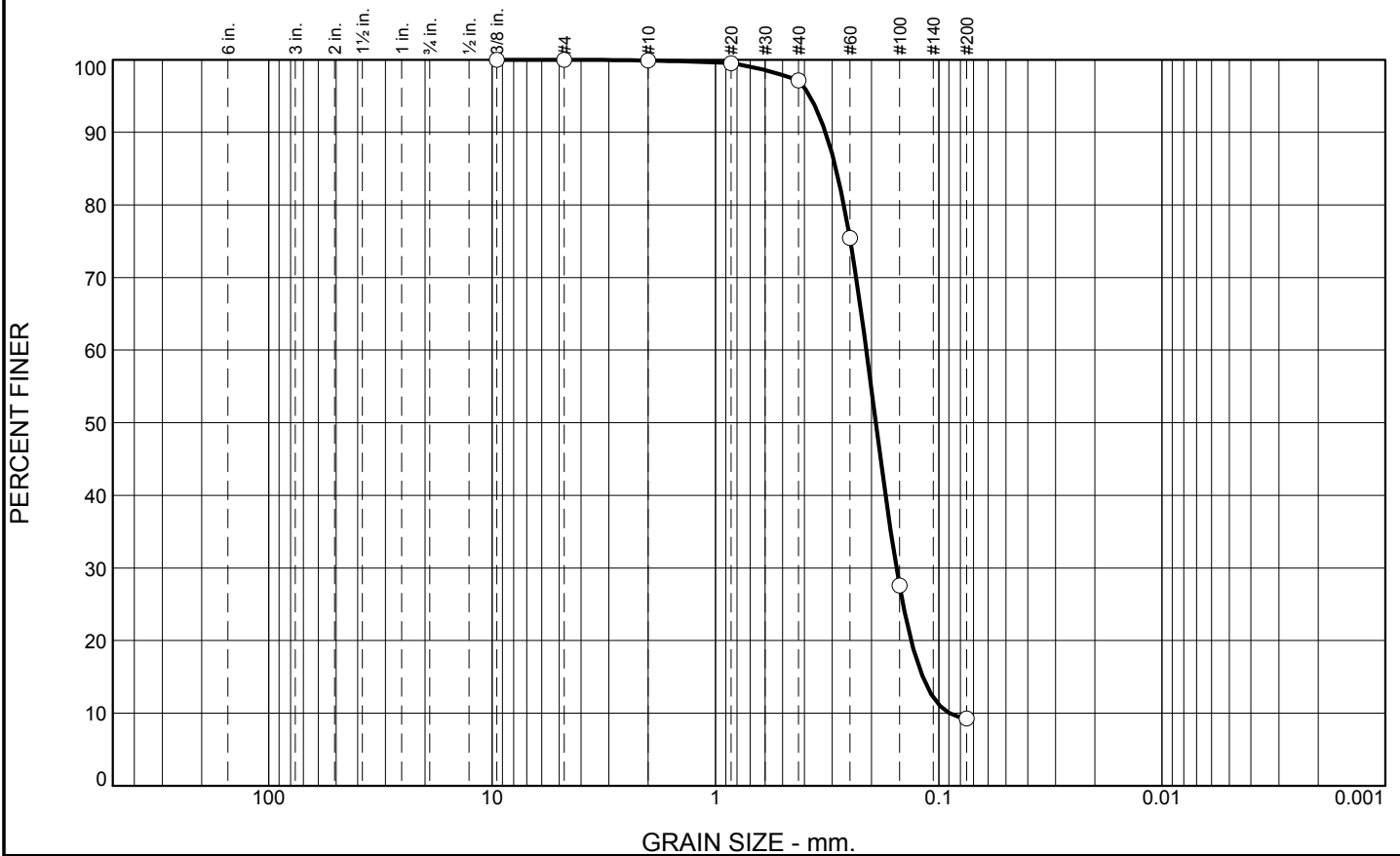
**Thompson Engineering**  
  
**Mobile, Alabama**

**Client:** US Army Corps of Engineers  
**Project:** Contract No. W91278-10-D-0026 - Task 03  
 Mississippi Barrier Island Restoration Project  
**Project No:** 10-2123-0009      **Report No.**

**Tested By:** G.Fancher

**Checked By:** R.Byrd

# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.0	0.1	2.8	87.8	9.3	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
.375	100.0		
#4	100.0		
#10	99.9		
#20	99.5		
#40	97.1		
#60	75.5		
#100	27.6		
#200	9.3		

\* (no specification provided)

**Material Description**  
 SAND, (SP-SM), fine grained

**Atterberg Limits**  
 PL=      LL=      PI=

**Coefficients**  
 D<sub>90</sub>= 0.3212      D<sub>85</sub>= 0.2886      D<sub>60</sub>= 0.2111  
 D<sub>50</sub>= 0.1913      D<sub>30</sub>= 0.1548      D<sub>15</sub>= 0.1180  
 D<sub>10</sub>= 0.0897      C<sub>u</sub>= 2.35      C<sub>c</sub>= 1.26

**Classification**  
 USCS= SP-SM      AASHTO=

**Remarks**  
 CADD CODE = CH10D965

**Location:** USACE Sample # BI-CI-24-10C  
**Sample Number:** TE Lab ID: 4660.12

**Depth:** 8.0 - 11.8 (ft.)

**Date:** 9/1/10

**Thompson Engineering**  
  
**Mobile, Alabama**

**Client:** US Army Corps of Engineers  
**Project:** Contract No. W91278-10-D-0026 - Task 03  
 Mississippi Barrier Island Restoration Project  
**Project No:** 10-2123-0009

**Report No.**

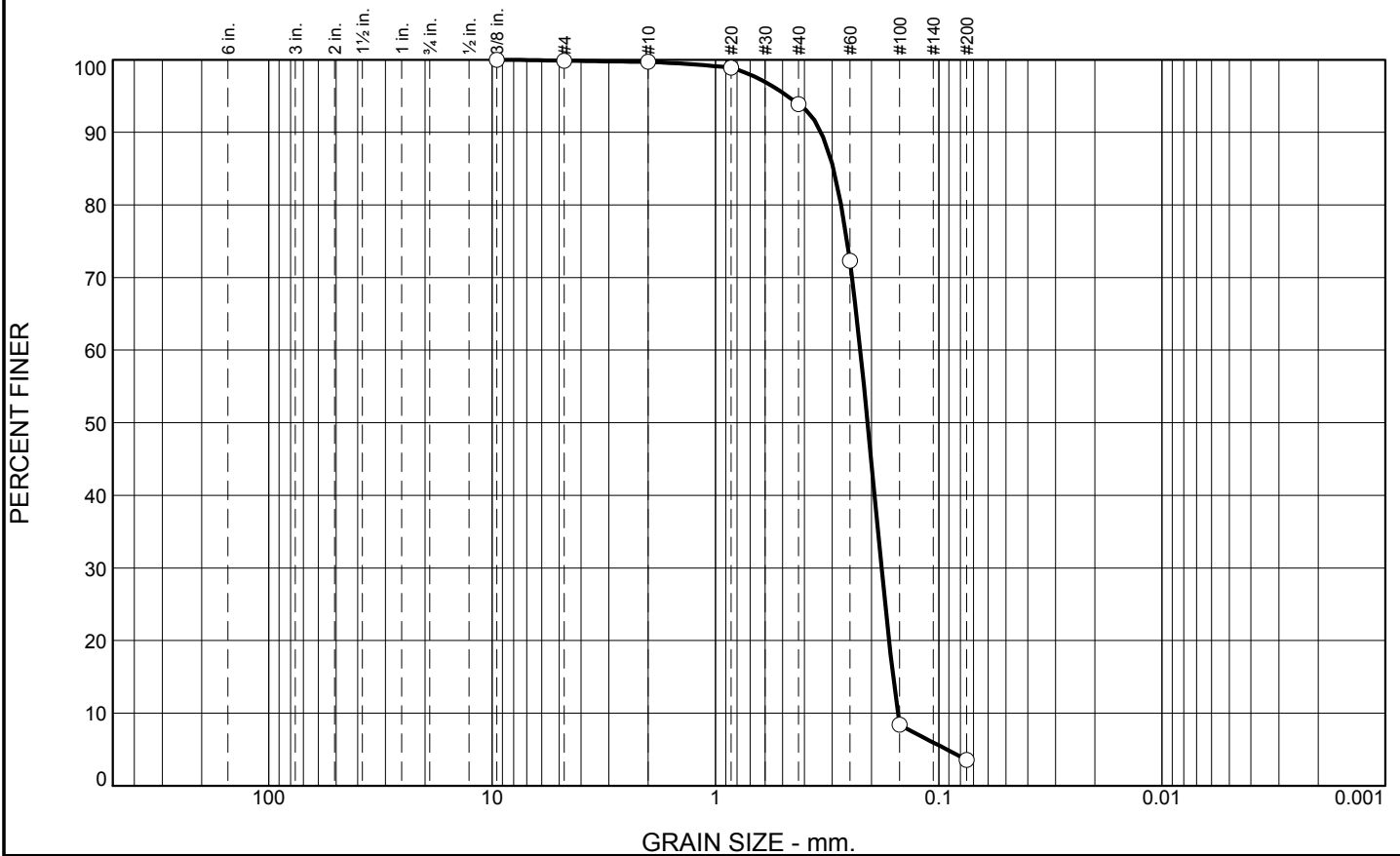
**Tested By:** G.Fancher

**Checked By:** R.Byrd

# Boring Designation BI-CI-25-10

DRILLING LOG		DIVISION South Atlantic		INSTALLATION Mobile District		SHEET 1 OF 1 SHEETS	
1. PROJECT MsCIP Barrier Island Restoration Cat Island				9. SIZE AND TYPE OF BIT N/A			
2. BORING DESIGNATION BI-CI-25-10		LOCATION COORDINATES E = 910,157 N = 259,680		10. COORDINATE SYSTEM/DATUM State Plane, MSE (U.S. Ft.)		HORIZONTAL NAD83 VERTICAL NAVD88	
3. DRILLING AGENCY Corps of Engineers - CESAM		CONTRACTOR FILE NO.		11. MANUFACTURER'S DESIGNATION OF DRILL Vibrocure		<input type="checkbox"/> AUTO HAMMER <input type="checkbox"/> MANUAL HAMMER	
4. NAME OF DRILLER Construction Solutions International, Inc.				12. TOTAL SAMPLES 3		DISTURBED 3 UNDISTURBED (UD) 0	
5. DIRECTION OF BORING <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED		DEG. FROM VERTICAL		13. TOTAL NUMBER CORE BOXES			
		BEARING		14. WATER DEPTH 13 Ft.			
6. THICKNESS OF OVERBURDEN N/A				15. DATE BORING 08-21-10		STARTED 08-21-10 COMPLETED 08-21-10	
7. DEPTH DRILLED INTO ROCK N/A				16. ELEVATION TOP OF BORING -12.2 Ft.			
8. TOTAL DEPTH OF BORING 13.0 Ft.				17. TOTAL RECOVERY FOR BORING 100%			
				18. SIGNATURE AND TITLE OF INSPECTOR Mark Green, Geotechnical Engineer			
ELEV.	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS	SAMPLE	LABORATORY RESULTS		
-12.2	0.0						
			SAND, poorly-graded, mostly fine-grained sand-sized quartz, little shell fragments (SP)	A	Classification: SP Color: 2.5Y 6/2-light brownish gray D50: 0.2084 mm % Fines: 3.6		
				B	Classification: SP Color: 5Y 6/2-light olive gray D50: 0.2002 mm % Fines: 2.9		
				C	Classification: SP-SM Color: 2.5Y 6/1-gray D50: 0.1789 mm % Fines: 4.9		
-24.6	12.4						
-25.2	13.0		SAND, clayey, mostly fine-grained sand-sized quartz, some clay, trace shell fragments, dark gray (SC)	NS			
			NOTES: 1. Soils are field visually classified in accordance with the Unified Soils Classification System. 2. NS = Sample not submitted for laboratory analysis from this interval. 3. Seafloor elevation calculated using sampling vessel's fathometer water depth reading and applying NOAA tidal gauge data conversion factor.				

# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.1	0.2	5.8	90.3	3.6	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
.375	100.0		
#4	99.9		
#10	99.7		
#20	98.9		
#40	93.9		
#60	72.3		
#100	8.4		
#200	3.6		

\* (no specification provided)

**Material Description**  
SAND, (SP), fine grained

**Atterberg Limits**  
 PL=      LL=      PI=

**Coefficients**  
 D<sub>90</sub>= 0.3362      D<sub>85</sub>= 0.2964      D<sub>60</sub>= 0.2246  
 D<sub>50</sub>= 0.2084      D<sub>30</sub>= 0.1804      D<sub>15</sub>= 0.1600  
 D<sub>10</sub>= 0.1526      C<sub>u</sub>= 1.47      C<sub>c</sub>= 0.95

**Classification**  
 USCS= SP      AASHTO=

**Remarks**  
 CADD CODE = CH10D965

**Location:** USACE Sample # BI-CI-25-10A  
**Sample Number:** TE Lab ID: 4660.04

**Depth:** 0.0 - 4.0 (ft.)

**Date:** 9/1/10

**Thompson Engineering**  
  
**Mobile, Alabama**

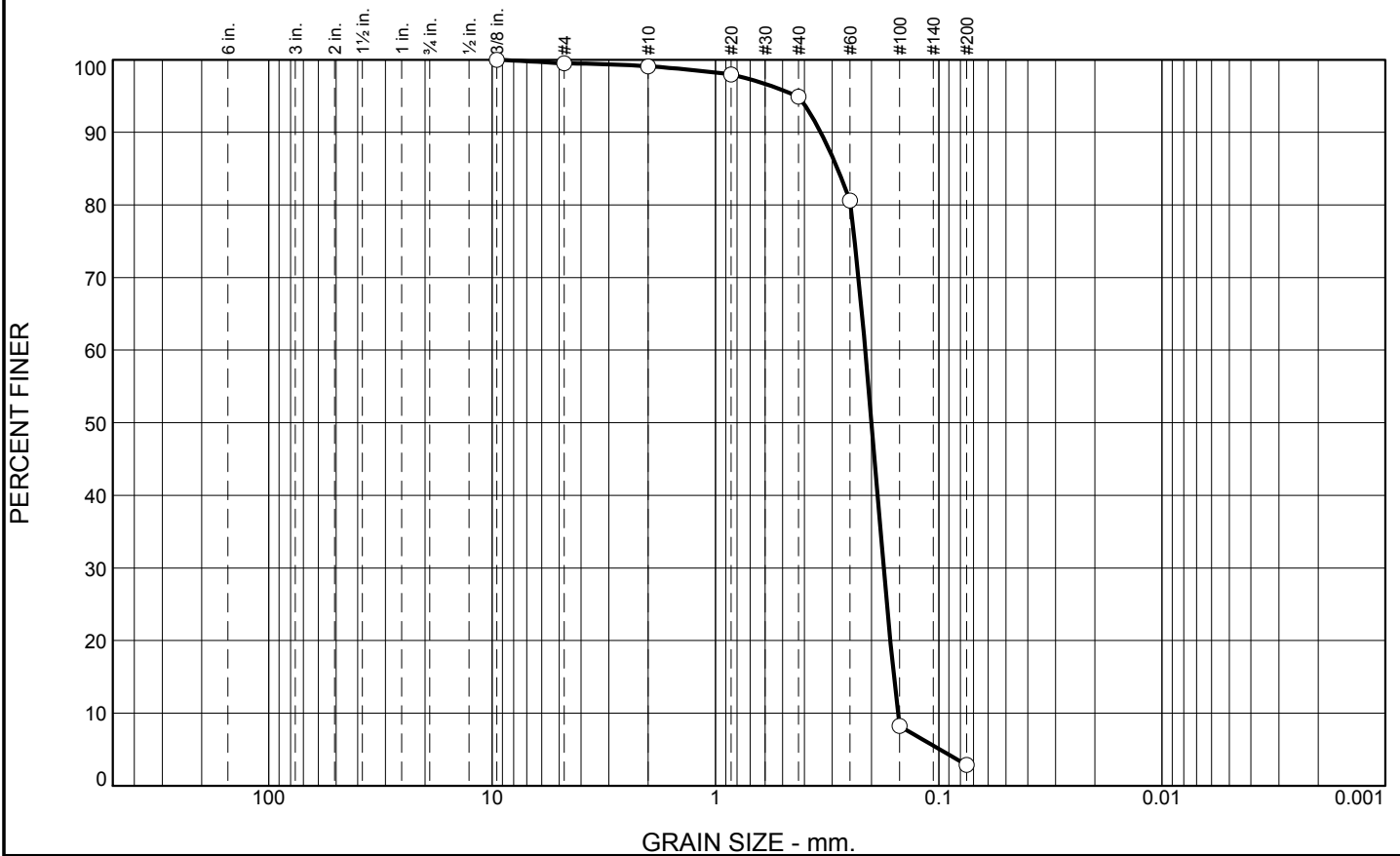
**Client:** US Army Corps of Engineers  
**Project:** Contract No. W91278-10-D-0026 - Task 03  
 Mississippi Barrier Island Restoration Project  
**Project No:** 10-2123-0009      **Report No.**

**Tested By:** G.Fancher

**Checked By:** R.Byrd



# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.5	0.4	4.2	92.0	2.9	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
.375	100.0		
#4	99.5		
#10	99.1		
#20	98.0		
#40	94.9		
#60	80.6		
#100	8.2		
#200	2.9		

\* (no specification provided)

**Material Description**  
SAND, (SP), fine grained

**Atterberg Limits**  
 PL=      LL=      PI=

**Coefficients**  
 D<sub>90</sub>= 0.3379      D<sub>85</sub>= 0.2841      D<sub>60</sub>= 0.2134  
 D<sub>50</sub>= 0.2002      D<sub>30</sub>= 0.1765      D<sub>15</sub>= 0.1588  
 D<sub>10</sub>= 0.1524      C<sub>u</sub>= 1.40      C<sub>c</sub>= 0.96

**Classification**  
 USCS= SP      AASHTO=

**Remarks**  
 CADD CODE = CH10D965

**Location:** USACE Sample # BI-CI-25-10B  
**Sample Number:** TE Lab ID: 4660.05

**Depth:** 4.0 - 8.0 (ft.)

**Date:** 9/1/10

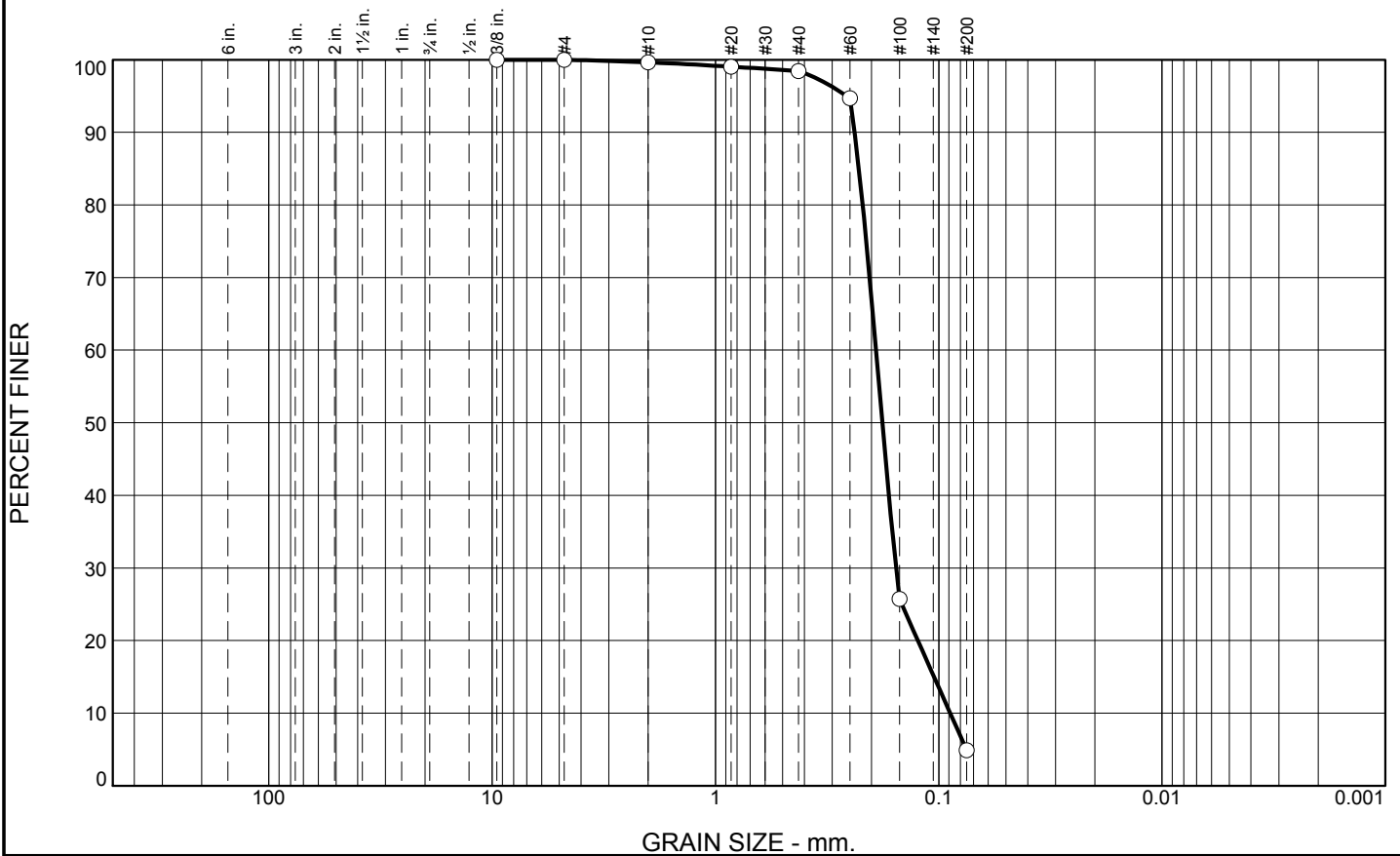
**Thompson Engineering**  
  
**Mobile, Alabama**

**Client:** US Army Corps of Engineers  
**Project:** Contract No. W91278-10-D-0026 - Task 03  
 Mississippi Barrier Island Restoration Project  
**Project No:** 10-2123-0009      **Report No.**

**Tested By:** G.Fancher

**Checked By:** R.Byrd

# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.0	0.4	1.2	93.5	4.9	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
.375	100.0		
#4	100.0		
#10	99.6		
#20	99.0		
#40	98.4		
#60	94.7		
#100	25.7		
#200	4.9		

\* (no specification provided)

**Material Description**  
SAND, (SP), fine grained

**Atterberg Limits**  
 PL=      LL=      PI=

**Coefficients**  
 D<sub>90</sub>= 0.2380      D<sub>85</sub>= 0.2278      D<sub>60</sub>= 0.1910  
 D<sub>50</sub>= 0.1789      D<sub>30</sub>= 0.1554      D<sub>15</sub>= 0.1050  
 D<sub>10</sub>= 0.0889      C<sub>u</sub>= 2.15      C<sub>c</sub>= 1.42

**Classification**  
 USCS= SP      AASHTO=

**Remarks**  
 CADD CODE = CH10D965

**Location:** USACE Sample # BI-CI-25-10C  
**Sample Number:** TE Lab ID: 4660.06

**Depth:** 8.0 - 12.4 (ft.)

**Date:** 9/1/10

**Thompson Engineering**  
  
**Mobile, Alabama**

**Client:** US Army Corps of Engineers  
**Project:** Contract No. W91278-10-D-0026 - Task 03  
 Mississippi Barrier Island Restoration Project  
**Project No:** 10-2123-0009

**Report No.**

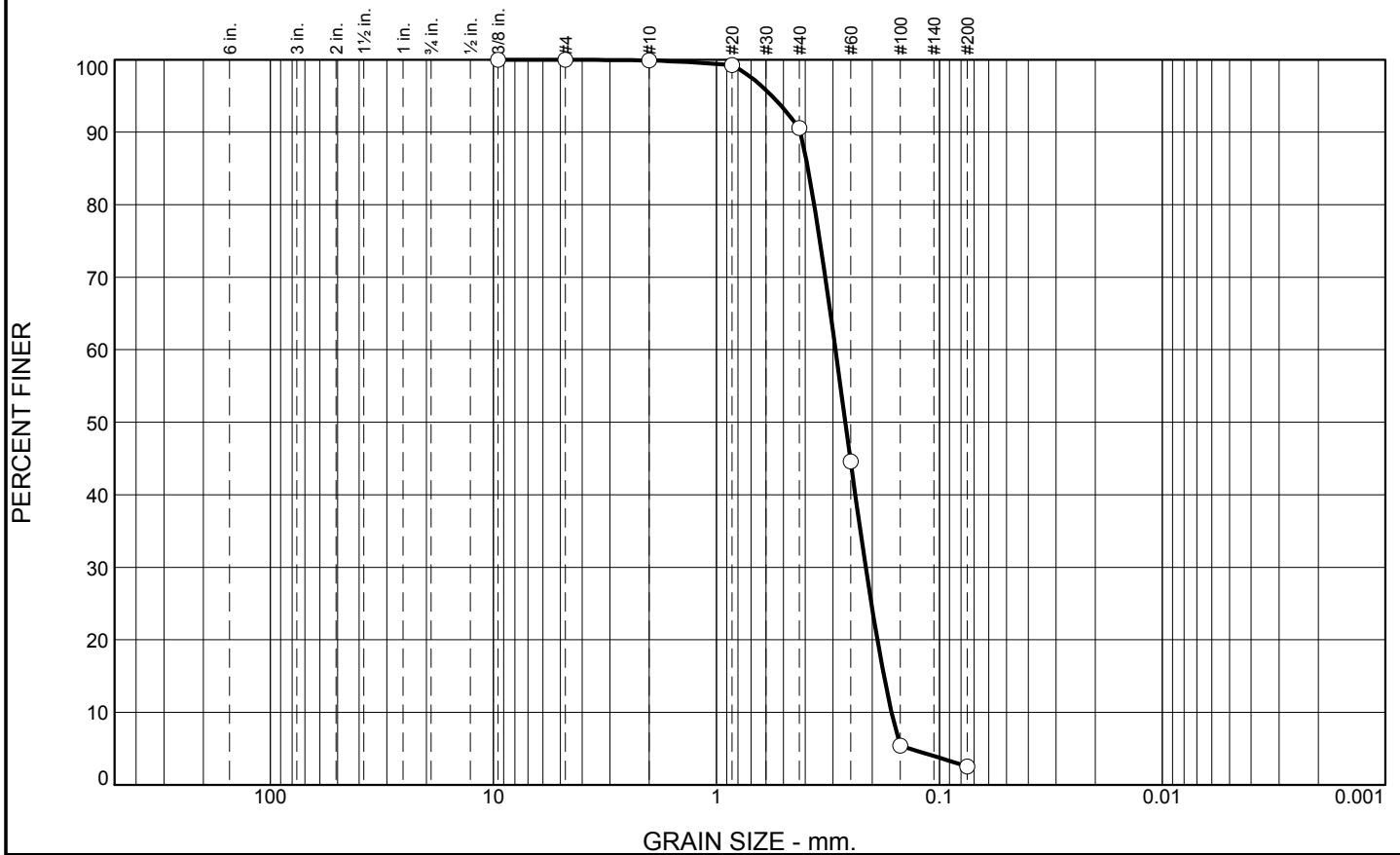
**Tested By:** G.Fancher

**Checked By:** R.Byrd

# Boring Designation BI-CI-26-10

DRILLING LOG		DIVISION South Atlantic		INSTALLATION Mobile District		SHEET 1 OF 1 SHEETS	
1. PROJECT MsCIP Barrier Island Restoration Cat Island				9. SIZE AND TYPE OF BIT N/A			
2. BORING DESIGNATION BI-CI-26-10		LOCATION COORDINATES E = 911,292 N = 261,616		10. COORDINATE SYSTEM/DATUM State Plane, MSE (U.S. Ft.)		HORIZONTAL NAD83	
3. DRILLING AGENCY Corps of Engineers - CESAM		CONTRACTOR FILE NO.		11. MANUFACTURER'S DESIGNATION OF DRILL Vibracore		<input type="checkbox"/> AUTO HAMMER <input type="checkbox"/> MANUAL HAMMER	
4. NAME OF DRILLER Construction Solutions International, Inc.				12. TOTAL SAMPLES 3		UNDISTURBED (UD) 0	
5. DIRECTION OF BORING <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED		DEG. FROM VERTICAL		13. TOTAL NUMBER CORE BOXES			
		BEARING		14. WATER DEPTH 12 Ft.			
6. THICKNESS OF OVERBURDEN N/A				15. DATE BORING 08-21-10		COMPLETED 08-21-10	
7. DEPTH DRILLED INTO ROCK N/A				16. ELEVATION TOP OF BORING -11.6 Ft.			
8. TOTAL DEPTH OF BORING 11.8 Ft.				17. TOTAL RECOVERY FOR BORING 100%			
				18. SIGNATURE AND TITLE OF INSPECTOR Mark Green, Geotechnical Engineer			
ELEV.	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS	SAMPLE	LABORATORY RESULTS		
-11.6	0.0						
			SAND, poorly-graded, mostly fine-grained sand-sized quartz, trace shell fragments, trace silt, w/ traces of dark gray lenses of silt, lt. gray (SP)	A	Classification: SP Color: 2.5Y 6/2-light brownish gray D50: 0.2642 mm % Fines: 2.5		
				B	Classification: SP Color: 2.5Y 6/2-light brownish gray D50: 0.2753 mm % Fines: 2.6		
				C	Classification: SP Color: 2.5Y 6/1-gray D50: 0.275 mm % Fines: 3.2		
-23.4	11.8						
			NOTES: 1. Soils are field visually classified in accordance with the Unified Soils Classification System. 2. NS = Sample not submitted for laboratory analysis from this interval. 3. Seafloor elevation calculated using sampling vessel's fathometer water depth reading and applying NOAA tidal gauge data conversion factor.				

# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.0	0.1	9.3	88.1	2.5	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
.375	100.0		
#4	100.0		
#10	99.9		
#20	99.3		
#40	90.6		
#60	44.6		
#100	5.4		
#200	2.5		

\* (no specification provided)

**Material Description**  
SAND, (SP), fine grained

**Atterberg Limits**  
 PL=      LL=      PI=

**Coefficients**  
 D<sub>90</sub>= 0.4207      D<sub>85</sub>= 0.3892      D<sub>60</sub>= 0.2923  
 D<sub>50</sub>= 0.2642      D<sub>30</sub>= 0.2140      D<sub>15</sub>= 0.1773  
 D<sub>10</sub>= 0.1640      C<sub>u</sub>= 1.78      C<sub>c</sub>= 0.96

**Classification**  
 USCS= SP      AASHTO=

**Remarks**  
 CADD CODE = CH10D965

**Location:** USACE Sample # BI-CI-26-10A  
**Sample Number:** TE Lab ID: 4660.13

**Depth:** 0.0 - 4.0 (ft.)

**Date:** 9/1/10

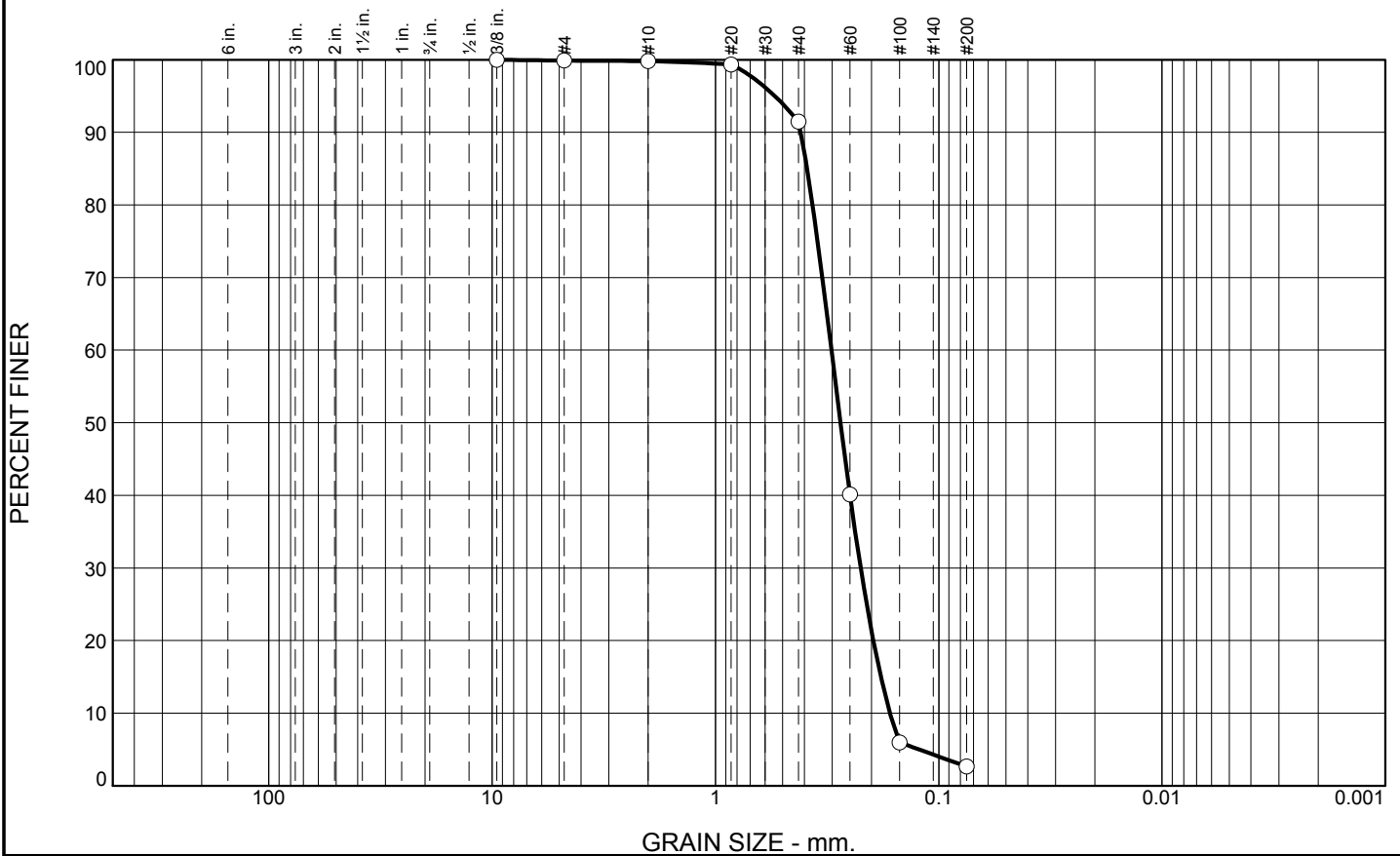
**Thompson Engineering**  
  
**Mobile, Alabama**

**Client:** US Army Corps of Engineers  
**Project:** Contract No. W91278-10-D-0026 - Task 03  
 Mississippi Barrier Island Restoration Project  
**Project No:** 10-2123-0009      **Report No.**

**Tested By:** G.Fancher

**Checked By:** R.Byrd

# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.1	0.1	8.3	88.9	2.6	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
.375	100.0		
#4	99.9		
#10	99.8		
#20	99.3		
#40	91.5		
#60	40.1		
#100	6.0		
#200	2.6		

\* (no specification provided)

Material Description		
SAND, (SP), fine grained		
<div> <div> Atterberg Limits </div> <div> PL= </div> <div> LL= </div> <div> PI= </div> </div>		
<div> <div> Coefficients </div> <div> D<sub>90</sub>= 0.4156 </div> <div> D<sub>50</sub>= 0.2753 </div> <div> D<sub>10</sub>= 0.1654 </div> <div> D<sub>85</sub>= 0.3891 </div> <div> D<sub>30</sub>= 0.2237 </div> <div> C<sub>u</sub>= 1.83 </div> <div> D<sub>60</sub>= 0.3022 </div> <div> D<sub>15</sub>= 0.1817 </div> <div> C<sub>c</sub>= 1.00 </div> </div>		
<div> <div> Classification </div> <div> USCS= SP </div> <div> AASHTO= </div> </div>		
<div> <div> Remarks </div> <div> CADD CODE = CH10D965 </div> </div>		

Location: USACE Sample # BI-CI-26-10B  
Sample Number: TE Lab ID: 4660.14

Depth: 4.0 - 8.0 (ft.)

Date: 9/1/10

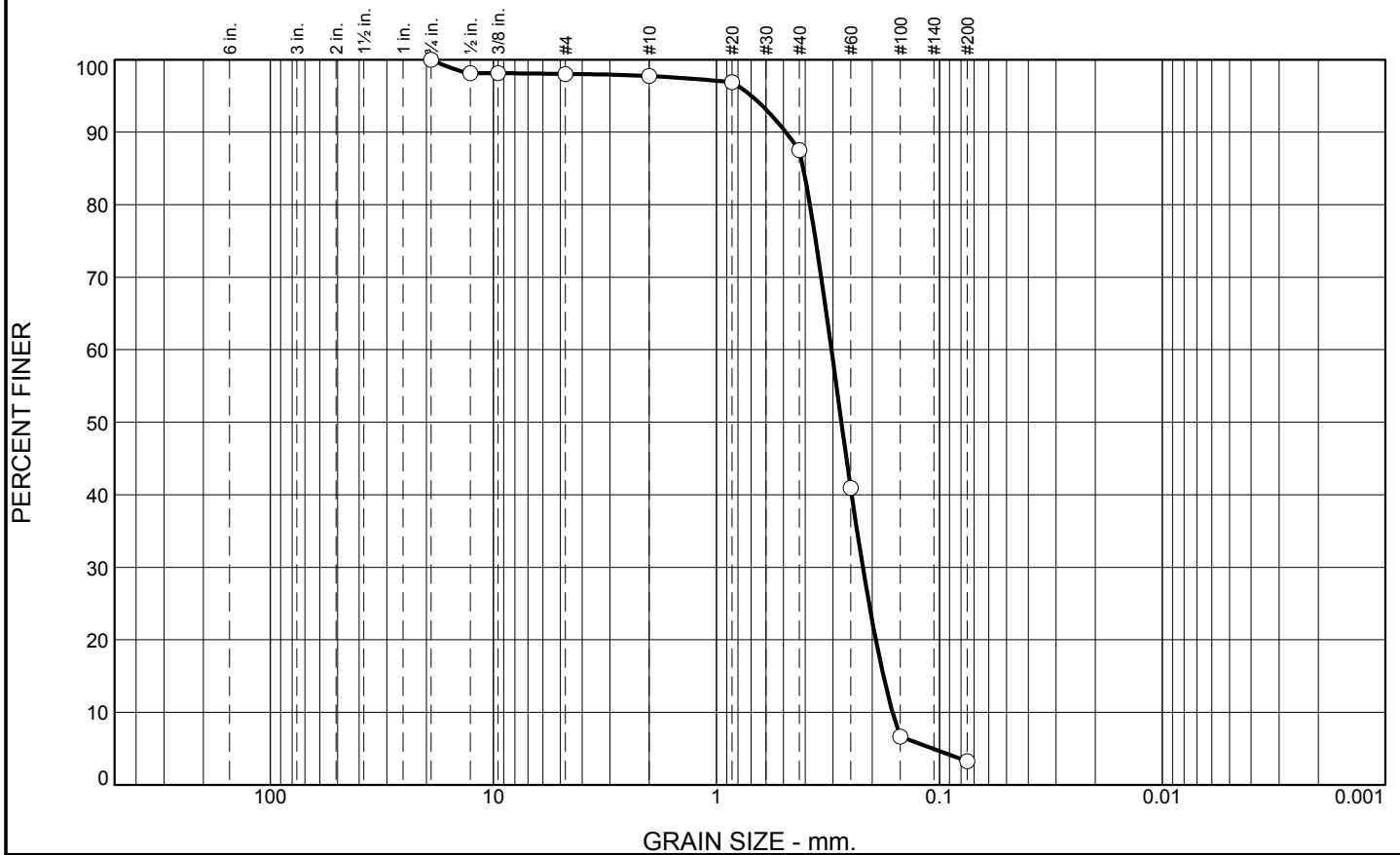
**Thompson Engineering**  
**Mobile, Alabama**

**Client:** US Army Corps of Engineers  
**Project:** Contract No. W91278-10-D-0026 - Task 03  
Mississippi Barrier Island Restoration Project  
**Project No:** 10-2123-0009  
**Report No.**

Tested By: G.Fancher

Checked By: R.Byrd

# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	2.0	0.3	10.2	84.3	3.2	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
.750	100.0		
.500	98.1		
.375	98.1		
#4	98.0		
#10	97.7		
#20	96.9		
#40	87.5		
#60	40.9		
#100	6.7		
#200	3.2		

\* (no specification provided)

<u><b>Material Description</b></u>		
SAND, (SP), medium to fine grained, with trace shell		
<u><b>Atterberg Limits</b></u>		
PL=	LL=	PI=
<u><b>Coefficients</b></u>		
D <sub>90</sub> = 0.4879	D <sub>85</sub> = 0.4082	D <sub>60</sub> = 0.3047
D <sub>50</sub> = 0.2750	D <sub>30</sub> = 0.2204	D <sub>15</sub> = 0.1783
D <sub>10</sub> = 0.1623	C <sub>u</sub> = 1.88	C <sub>c</sub> = 0.98
<u><b>Classification</b></u>		
USCS= SP	AASHTO=	
<u><b>Remarks</b></u>		
CADD CODE = CH10D965		

Location: USACE Sample # BI-CI-26-10C  
Sample Number: TE Lab ID: 4660.15

Depth: 8.0 - 11.8 (ft.)

Date: 9/1/10

**Thompson Engineering**  
**Mobile, Alabama**

**Client:** US Army Corps of Engineers  
**Project:** Contract No. W91278-10-D-0026 - Task 03  
Mississippi Barrier Island Restoration Project  
**Project No:** 10-2123-0009

**Report No.**

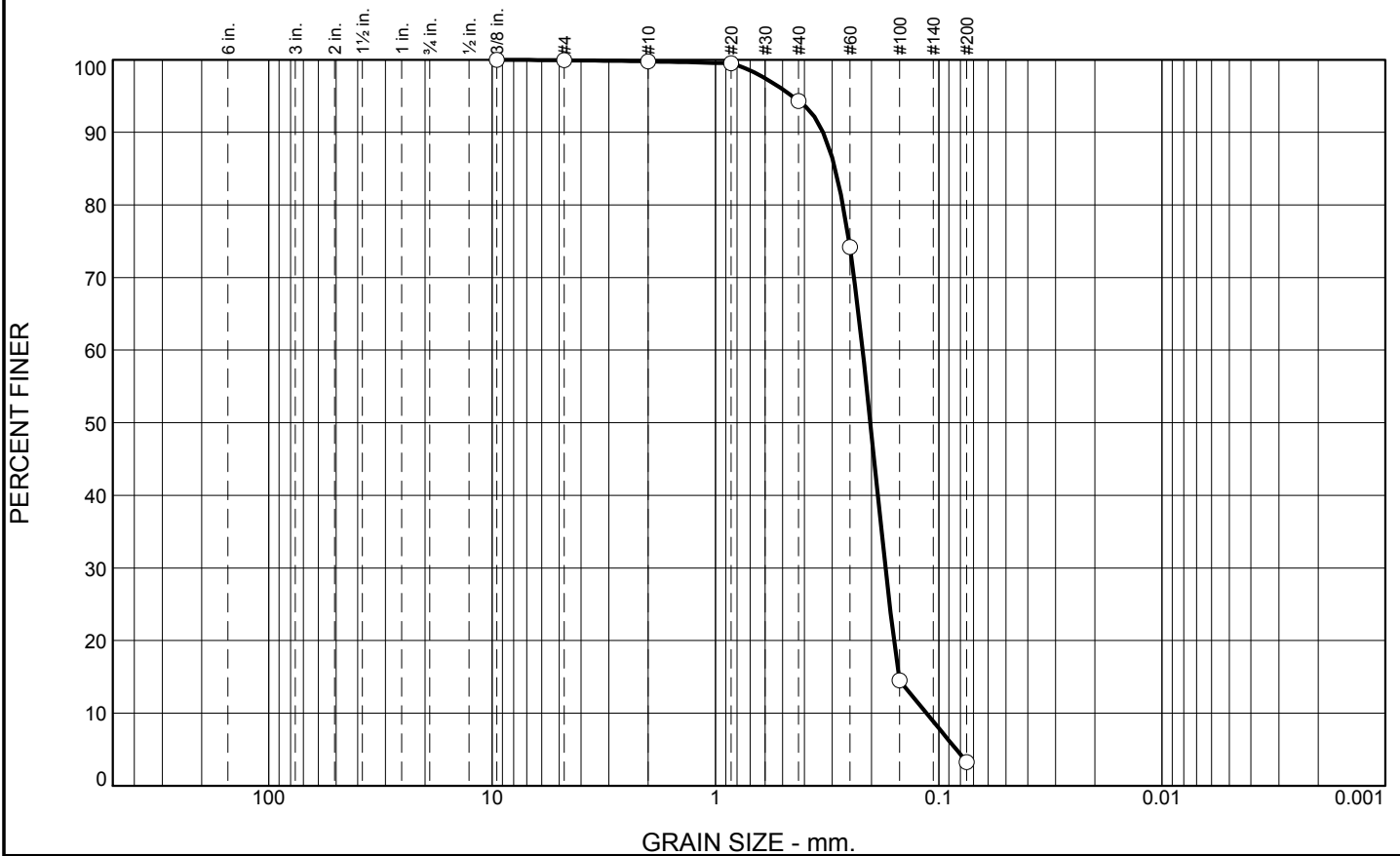
Tested By: G.Fancher

Checked By: R.Byrd

# Boring Designation BI-CI-27-10

DRILLING LOG		DIVISION South Atlantic		INSTALLATION Mobile District		SHEET 1 OF 1 SHEETS	
1. PROJECT MsCIP Barrier Island Restoration Cat Island				9. SIZE AND TYPE OF BIT N/A			
2. BORING DESIGNATION BI-CI-27-10		LOCATION COORDINATES E = 912,398 N = 263,829		10. COORDINATE SYSTEM/DATUM State Plane, MSE (U.S. Ft.)		HORIZONTAL NAD83 VERTICAL NAVD88	
3. DRILLING AGENCY Corps of Engineers - CESAM		CONTRACTOR FILE NO.		11. MANUFACTURER'S DESIGNATION OF DRILL Vibracore		<input type="checkbox"/> AUTO HAMMER <input type="checkbox"/> MANUAL HAMMER	
4. NAME OF DRILLER Construction Solutions International, Inc.				12. TOTAL SAMPLES 2		DISTURBED 0 UNDISTURBED (UD)	
5. DIRECTION OF BORING <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED		DEG. FROM VERTICAL		13. TOTAL NUMBER CORE BOXES			
		BEARING		14. WATER DEPTH 12 Ft.			
6. THICKNESS OF OVERBURDEN N/A				15. DATE BORING 08-22-10		STARTED 08-22-10 COMPLETED 08-22-10	
7. DEPTH DRILLED INTO ROCK N/A				16. ELEVATION TOP OF BORING -11.3 Ft.			
8. TOTAL DEPTH OF BORING 8.3 Ft.				17. TOTAL RECOVERY FOR BORING 100%			
				18. SIGNATURE AND TITLE OF INSPECTOR Mark Green, Geotechnical Engineer			
ELEV.	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS	SAMPLE	LABORATORY RESULTS		
-11.3	0.0						
			SAND, poorly-graded, mostly fine-grained sand-sized quartz, trace shell fragments, trace of silt 5 - 6 ft. (SP)	A	Classification: SP Color: 2.5Y 5/2-grayish brown D50: 0.2025 mm % Fines: 3.3		
				B	Classification: SP-SM Color: 2.5Y 6/1-gray D50: 0.1844 mm % Fines: 6.2		
-19.6	8.3						
			NOTES:  1. Soils are field visually classified in accordance with the Unified Soils Classification System.  2. NS = Sample not submitted for laboratory analysis from this interval.  3. Seafloor elevation calculated using sampling vessel's fathometer water depth reading and applying NOAA tidal gauge data conversion factor.				

# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.1	0.1	5.5	91.0	3.3	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
.375	100.0		
#4	99.9		
#10	99.8		
#20	99.5		
#40	94.3		
#60	74.2		
#100	14.5		
#200	3.3		

\* (no specification provided)

**Material Description**  
SAND, (SP), fine grained

**Atterberg Limits**  
 PL=      LL=      PI=

**Coefficients**  
 D<sub>90</sub>= 0.3293      D<sub>85</sub>= 0.2910      D<sub>60</sub>= 0.2193  
 D<sub>50</sub>= 0.2025      D<sub>30</sub>= 0.1732      D<sub>15</sub>= 0.1508  
 D<sub>10</sub>= 0.1135      C<sub>u</sub>= 1.93      C<sub>c</sub>= 1.21

**Classification**  
 USCS= SP      AASHTO=

**Remarks**  
 CADD CODE = CH10D965

**Location:** USACE Sample # BI-CI-27-10A  
**Sample Number:** TE Lab ID: 4660.24

**Depth:** 0.0 - 4.0 (ft.)

**Date:** 9/1/10

**Thompson Engineering**  
  
**Mobile, Alabama**

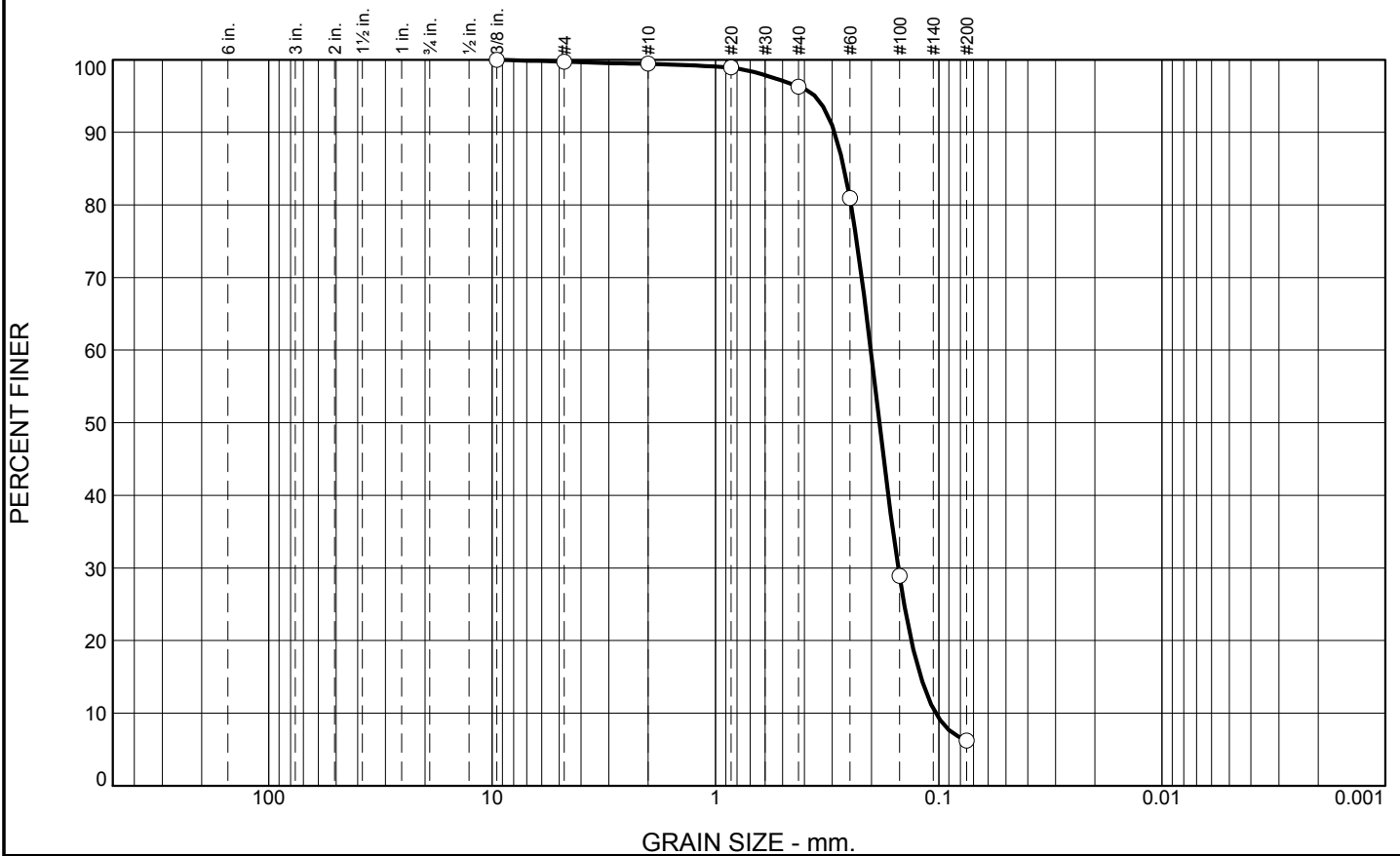
**Client:** US Army Corps of Engineers  
**Project:** Contract No. W91278-10-D-0026 - Task 03  
 Mississippi Barrier Island Restoration Project  
**Project No:** 10-2123-0009      **Report No.**

**Tested By:** G.Fancher

**Checked By:** R.Byrd



# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.3	0.3	3.1	90.1	6.2	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
.375	100.0		
#4	99.7		
#10	99.4		
#20	99.0		
#40	96.3		
#60	80.9		
#100	28.9		
#200	6.2		

\* (no specification provided)

**Material Description**  
SAND, (SP-SM), fine grained

**Atterberg Limits**  
 PL=      LL=      PI=

**Coefficients**  
 D<sub>90</sub>= 0.2929      D<sub>85</sub>= 0.2652      D<sub>60</sub>= 0.2016  
 D<sub>50</sub>= 0.1844      D<sub>30</sub>= 0.1519      D<sub>15</sub>= 0.1203  
 D<sub>10</sub>= 0.1032      C<sub>u</sub>= 1.95      C<sub>c</sub>= 1.11

**Classification**  
 USCS= SP-SM      AASHTO=

**Remarks**  
 CADD CODE = CH10D965

**Location:** USACE Sample # BI-CI-27-10B  
**Sample Number:** TE Lab ID: 4660.25

**Depth:** 4.0 - 8.3 (ft.)

**Date:** 9/1/10


**Thompson Engineering**  
  
**Mobile, Alabama**

**Client:** US Army Corps of Engineers  
**Project:** Contract No. W91278-10-D-0026 - Task 03  
 Mississippi Barrier Island Restoration Project  
**Project No:** 10-2123-0009      **Report No.**

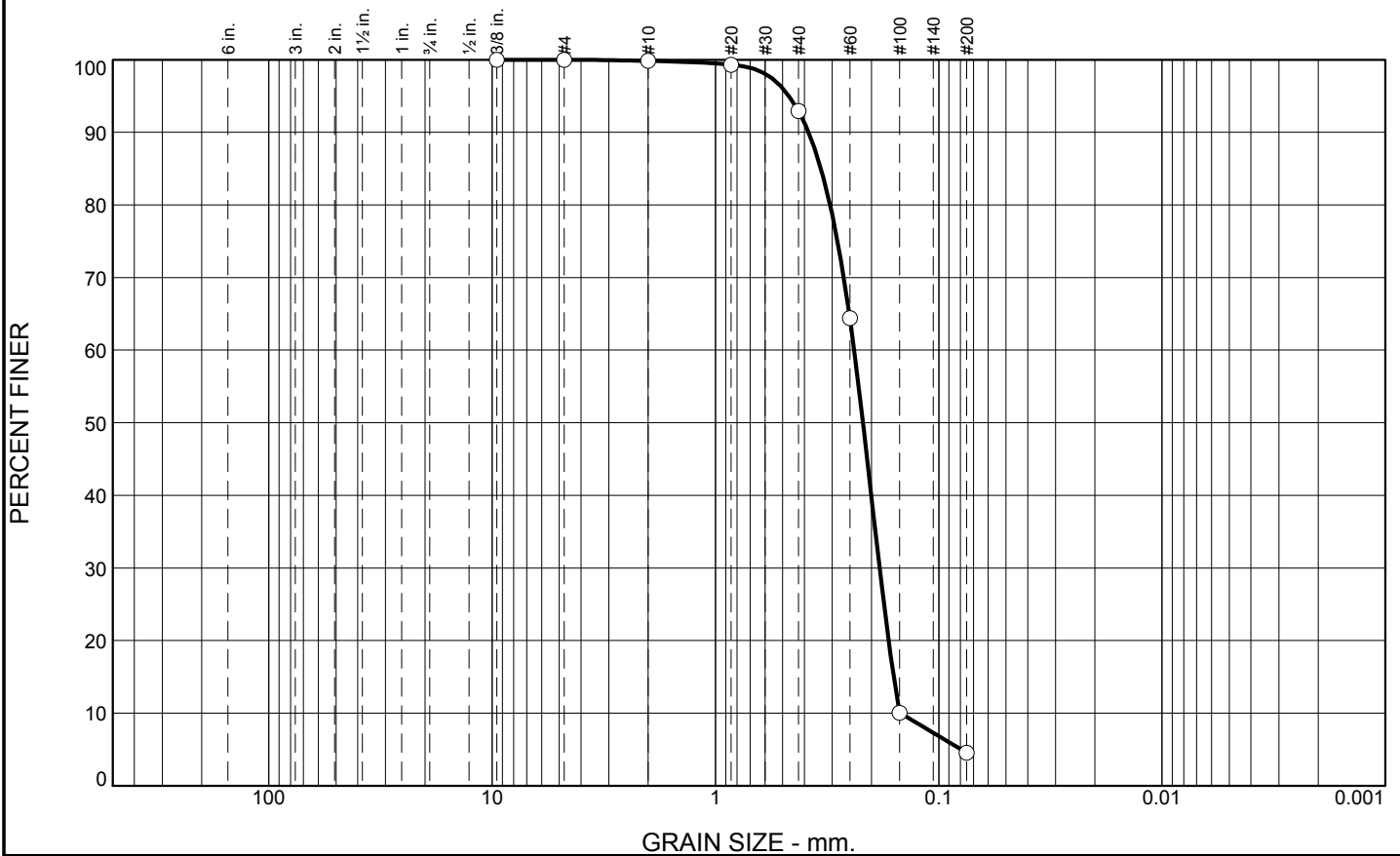
**Tested By:** G.Fancher

**Checked By:** R.Byrd

# Boring Designation BI-CI-28-10

DRILLING LOG		DIVISION South Atlantic		INSTALLATION Mobile District		SHEET 1 OF 1 SHEETS	
1. PROJECT MsCIP Barrier Island Restoration Cat Island				9. SIZE AND TYPE OF BIT N/A			
2. BORING DESIGNATION BI-CI-28-10		LOCATION COORDINATES E = 913,188 N = 265,460		10. COORDINATE SYSTEM/DATUM State Plane, MSE (U.S. Ft.)		HORIZONTAL NAD83	
3. DRILLING AGENCY Corps of Engineers - CESAM		CONTRACTOR FILE NO.		11. MANUFACTURER'S DESIGNATION OF DRILL Vibrocure		<input type="checkbox"/> AUTO HAMMER <input type="checkbox"/> MANUAL HAMMER	
4. NAME OF DRILLER Construction Solutions International, Inc.				12. TOTAL SAMPLES 2		UNDISTURBED (UD) 0	
5. DIRECTION OF BORING <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED				13. TOTAL NUMBER CORE BOXES		14. WATER DEPTH 11.5 Ft.	
6. THICKNESS OF OVERBURDEN N/A				15. DATE BORING 08-22-10		STARTED 08-22-10	
7. DEPTH DRILLED INTO ROCK N/A				16. ELEVATION TOP OF BORING -10.6 Ft.		COMPLETED 08-22-10	
8. TOTAL DEPTH OF BORING 8.3 Ft.				17. TOTAL RECOVERY FOR BORING 100%			
				18. SIGNATURE AND TITLE OF INSPECTOR Mark Green, Geotechnical Engineer			
ELEV.	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS	SAMPLE	LABORATORY RESULTS		
-10.6	0.0						
-14.6	4.0		SAND, poorly-graded, mostly fine-grained sand-sized quartz, trace silt, trace shell fragments, trace of sea grass, dark gray (SP)	A	Classification: SP Color: 5Y 5/1-gray D50: 0.2185 mm % Fines: 4.6		
-18.9	8.3		SAND, poorly-graded, mostly fine-grained sand-sized quartz, lt. gray (SP)	B	Classification: SP-SM Color: 2.5Y 6/1-gray D50: 0.185 mm % Fines: 5.5		
			NOTES: 1. Soils are field visually classified in accordance with the Unified Soils Classification System. 2. NS = Sample not submitted for laboratory analysis from this interval. 3. Seafloor elevation calculated using sampling vessel's fathometer water depth reading and applying NOAA tidal gauge data conversion factor.				

# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.0	0.2	6.9	88.3	4.6	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
.375	100.0		
#4	100.0		
#10	99.8		
#20	99.3		
#40	92.9		
#60	64.4		
#100	10.1		
#200	4.6		

\* (no specification provided)

**Material Description**  
SAND, (SP), fine grained

**Atterberg Limits**  
 PL=      LL=      PI=

**Coefficients**  
 D<sub>90</sub>= 0.3830      D<sub>85</sub>= 0.3369      D<sub>60</sub>= 0.2393  
 D<sub>50</sub>= 0.2185      D<sub>30</sub>= 0.1840      D<sub>15</sub>= 0.1592  
 D<sub>10</sub>= 0.1488      C<sub>u</sub>= 1.61      C<sub>c</sub>= 0.95

**Classification**  
 USCS= SP      AASHTO=

**Remarks**  
 CADD CODE = CH10D965

**Location:** USACE Sample # BI-CI-28-10A  
**Sample Number:** TE Lab ID: 4660.20

**Depth:** 0.0 - 4.0 (ft.)

**Date:** 9/1/10

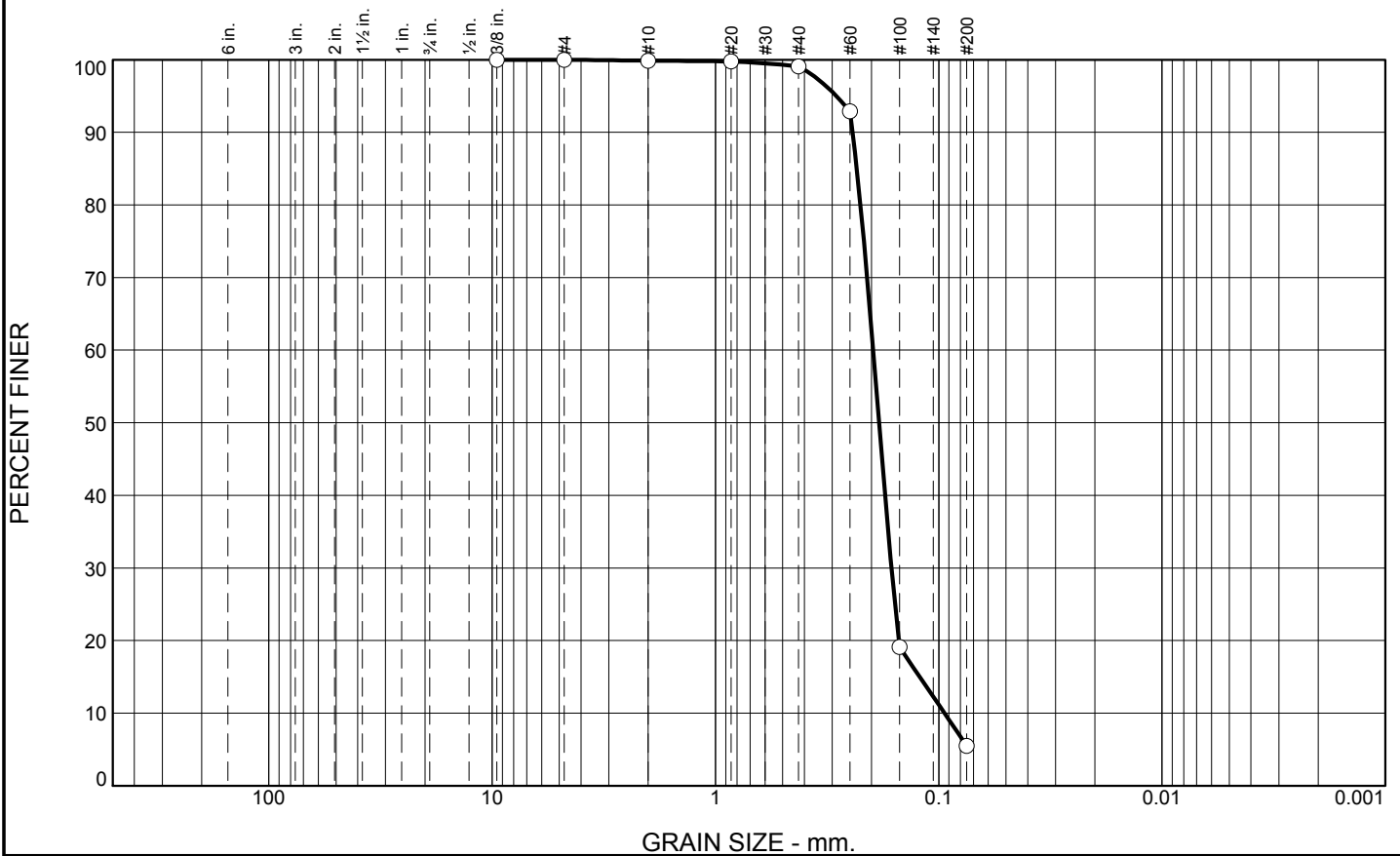
**Thompson Engineering**  
  
**Mobile, Alabama**

**Client:** US Army Corps of Engineers  
**Project:** Contract No. W91278-10-D-0026 - Task 03  
 Mississippi Barrier Island Restoration Project  
**Project No:** 10-2123-0009      **Report No.**

**Tested By:** G.Fancher

**Checked By:** R.Byrd

# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.0	0.1	0.8	93.6	5.5	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
.375	100.0		
#4	100.0		
#10	99.9		
#20	99.8		
#40	99.1		
#60	92.9		
#100	19.1		
#200	5.5		

\* (no specification provided)

<u>Material Description</u>		
SAND, (SP-SM), fine grained		
<u>Atterberg Limits</u>		
PL=	LL=	PI=
<u>Coefficients</u>		
D <sub>90</sub> = 0.2429	D <sub>85</sub> = 0.2327	D <sub>60</sub> = 0.1967
D <sub>50</sub> = 0.1850	D <sub>30</sub> = 0.1629	D <sub>15</sub> = 0.1216
D <sub>10</sub> = 0.0943	C <sub>u</sub> = 2.08	C <sub>c</sub> = 1.43
<u>Classification</u>		
USCS= SP-SM	AASHTO=	
<u>Remarks</u>		
CADD CODE = CH10D965		

Location: USACE Sample # BI-CI-28-10B  
Sample Number: TE Lab ID: 4660.21

Depth: 4.0 - 8.3 (ft.)

Date: 9/1/10

**Thompson Engineering**  
**Mobile, Alabama**

**Client:** US Army Corps of Engineers  
**Project:** Contract No. W91278-10-D-0026 - Task 03  
Mississippi Barrier Island Restoration Project  
**Project No:** 10-2123-0009  
**Report No.**

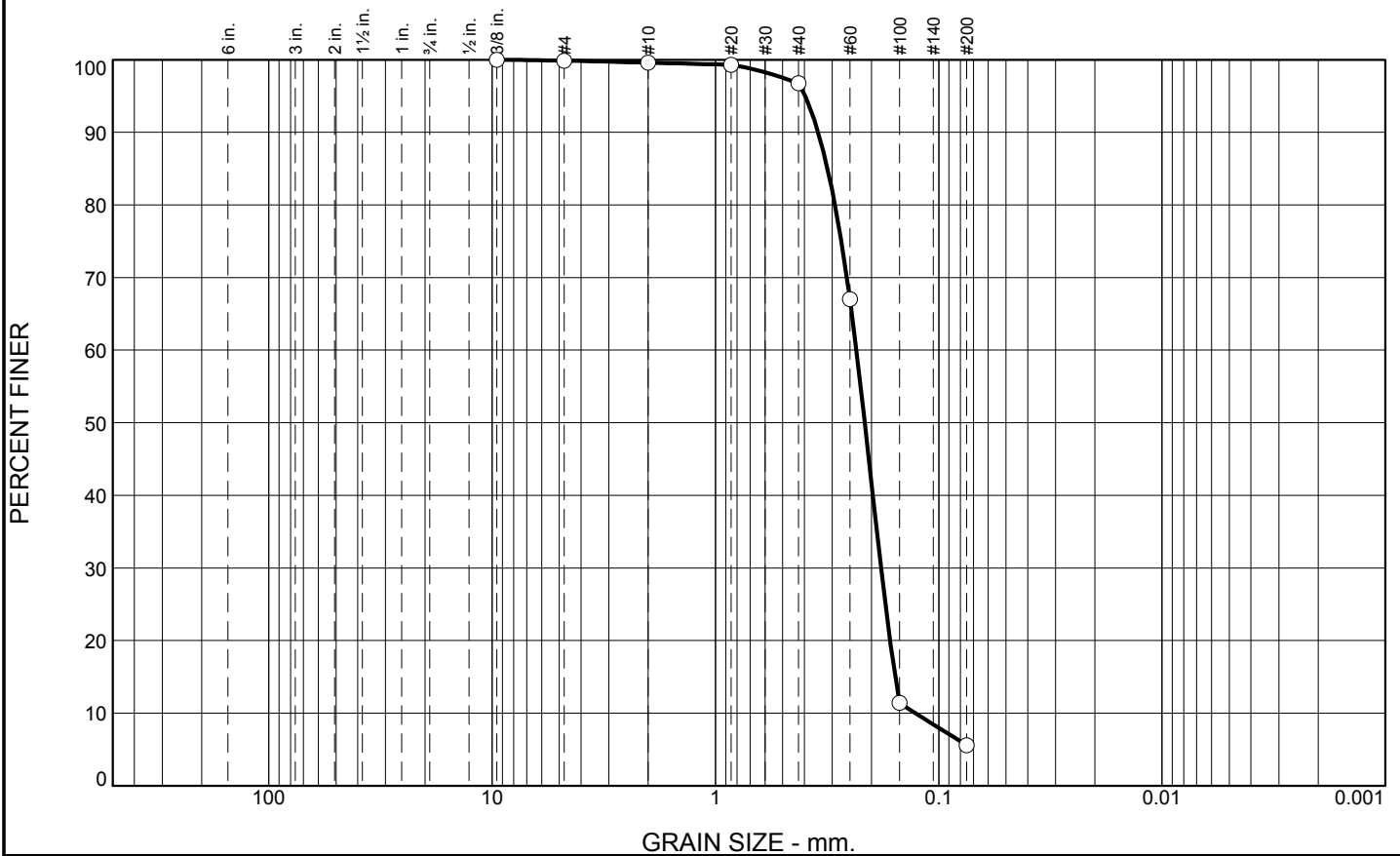
Tested By: G.Fancher

Checked By: R.Byrd

# Boring Designation BI-CI-29-10

DRILLING LOG		DIVISION South Atlantic		INSTALLATION Mobile District		SHEET 1 OF 1 SHEETS	
1. PROJECT MsCIP Barrier Island Restoration Cat Island				9. SIZE AND TYPE OF BIT N/A			
2. BORING DESIGNATION BI-CI-29-10		LOCATION COORDINATES E = 914,147 N = 264,968		10. COORDINATE SYSTEM/DATUM State Plane, MSE (U.S. Ft.)		HORIZONTAL NAD83 VERTICAL NAVD88	
3. DRILLING AGENCY Corps of Engineers - CESAM		CONTRACTOR FILE NO.		11. MANUFACTURER'S DESIGNATION OF DRILL Vibracore		<input type="checkbox"/> AUTO HAMMER <input type="checkbox"/> MANUAL HAMMER	
4. NAME OF DRILLER Construction Solutions International, Inc.				12. TOTAL SAMPLES 2		DISTURBED 2 UNDISTURBED (UD) 0	
5. DIRECTION OF BORING <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED		DEG. FROM VERTICAL		13. TOTAL NUMBER CORE BOXES			
		BEARING		14. WATER DEPTH 13 Ft.			
6. THICKNESS OF OVERBURDEN N/A				15. DATE BORING 08-22-10		STARTED 08-22-10 COMPLETED 08-22-10	
7. DEPTH DRILLED INTO ROCK N/A				16. ELEVATION TOP OF BORING -12.1 Ft.			
8. TOTAL DEPTH OF BORING 6.7 Ft.				17. TOTAL RECOVERY FOR BORING 100%			
				18. SIGNATURE AND TITLE OF INSPECTOR Mark Green, Geotechnical Engineer			
ELEV.	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS	SAMPLE	LABORATORY RESULTS		
-12.1	0.0						
-14.1	2.0		SAND, silty, mostly fine-grained sand-sized quartz, some silt, trace shell fragments, dark gray and gray (SM)	A	Classification: SP-SM    Color: 5Y 5/2-olive gray D50: 0.2145 mm    % Fines: 5.6		
-18.8	6.7		SAND, poorly-graded, mostly fine-grained sand-sized quartz, trace silt (SP)	B	Classification: SP    Color: 5Y 5/2-olive gray D50: 0.191 mm    % Fines: 4.2		
			NOTES: 1. Soils are field visually classified in accordance with the Unified Soils Classification System. 2. NS = Sample not submitted for laboratory analysis from this interval. 3. Seafloor elevation calculated using sampling vessel's fathometer water depth reading and applying NOAA tidal gauge data conversion factor.				

# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.1	0.3	2.8	91.2	5.6	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
.375	100.0		
#4	99.9		
#10	99.6		
#20	99.3		
#40	96.8		
#60	67.0		
#100	11.4		
#200	5.6		

\* (no specification provided)

**Material Description**  
SAND, (SP-SM), fine grained

**Atterberg Limits**  
 PL=      LL=      PI=

**Coefficients**  
 D<sub>90</sub>= 0.3465      D<sub>85</sub>= 0.3146      D<sub>60</sub>= 0.2339  
 D<sub>50</sub>= 0.2145      D<sub>30</sub>= 0.1813      D<sub>15</sub>= 0.1567  
 D<sub>10</sub>= 0.1270      C<sub>u</sub>= 1.84      C<sub>c</sub>= 1.11

**Classification**  
 USCS= SP-SM      AASHTO=

**Remarks**  
 CADD CODE = CH10D965

**Location:** USACE Sample # BI-CI-29-10A  
**Sample Number:** TE Lab ID: 4660.22

**Depth:** 0.0 - 2.0 (ft.)

**Date:** 9/1/10

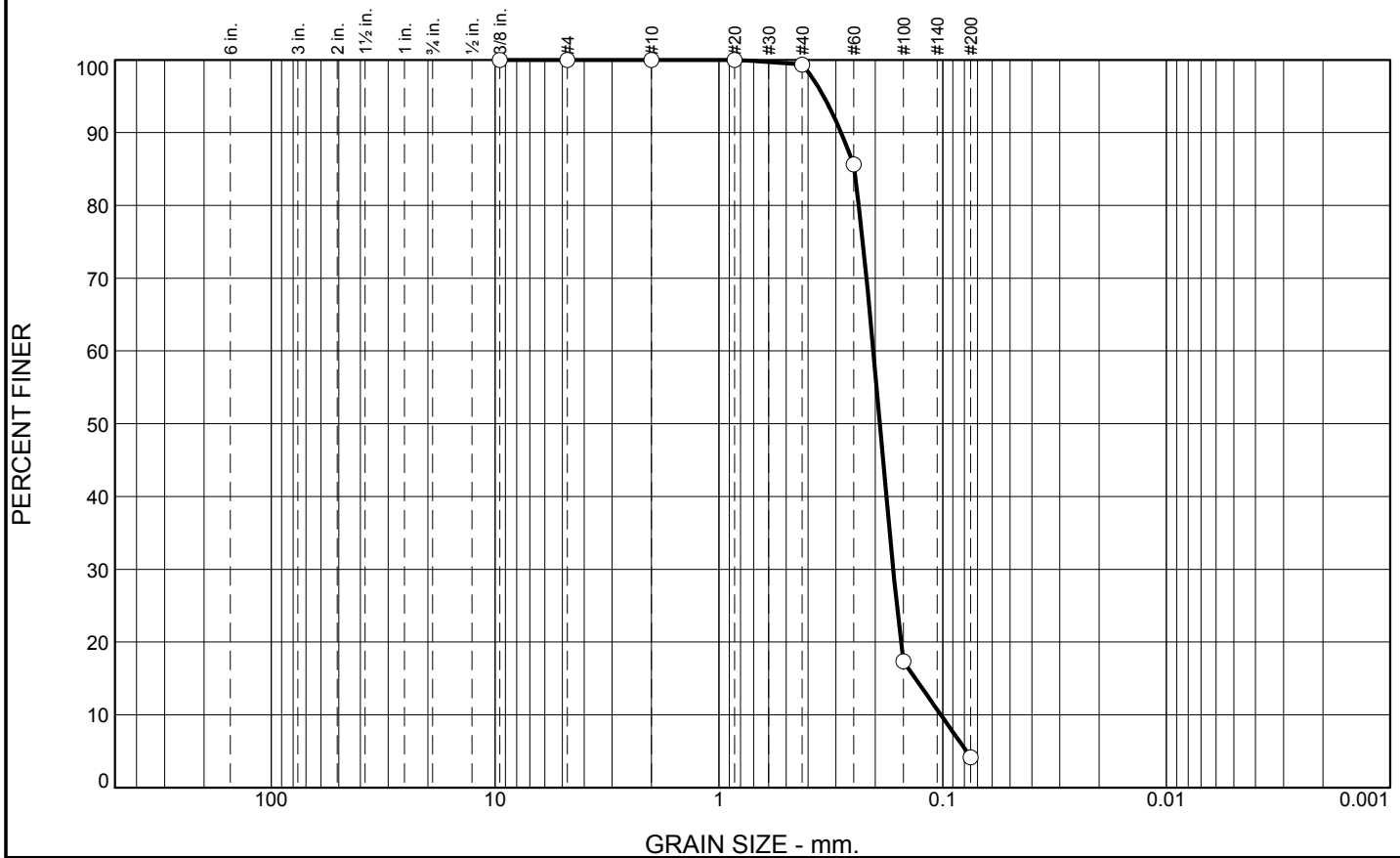
**Thompson Engineering**  
  
**Mobile, Alabama**

**Client:** US Army Corps of Engineers  
**Project:** Contract No. W91278-10-D-0026 - Task 03  
 Mississippi Barrier Island Restoration Project  
**Project No:** 10-2123-0009      **Report No.**

**Tested By:** G.Fancher

**Checked By:** R.Byrd

# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.0	0.0	0.7	95.1	4.2	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
.375	100.0		
#4	100.0		
#10	100.0		
#20	100.0		
#40	99.3		
#60	85.6		
#100	17.4		
#200	4.2		

\* (no specification provided)

Material Description		
SAND, (SP), fine grained		
<div> <div> <b>Atterberg Limits</b>            PL=      LL=      PI=         </div> <div> <b>Coefficients</b>            D<sub>90</sub>= 0.2842      D<sub>85</sub>= 0.2484      D<sub>60</sub>= 0.2042            D<sub>50</sub>= 0.1910      D<sub>30</sub>= 0.1664      D<sub>15</sub>= 0.1325            D<sub>10</sub>= 0.1019      C<sub>u</sub>= 2.00      C<sub>c</sub>= 1.33         </div> <div> <b>Classification</b>            USCS= SP      AASHTO=         </div> <div> <b>Remarks</b>            CADD CODE = CH10D965         </div> </div>		

**Location:** USACE Sample # BI-CI-29-10B  
**Sample Number:** TE Lab ID: 4660.23

**Depth:** 2.0 - 6.7 (ft.)

**Date:** 9/1/10

**Thompson Engineering**  
  
**Mobile, Alabama**

**Client:** US Army Corps of Engineers  
**Project:** Contract No. W91278-10-D-0026 - Task 03  
 Mississippi Barrier Island Restoration Project  
**Project No:** 10-2123-0009  
**Report No.**

**Tested By:** G.Fancher

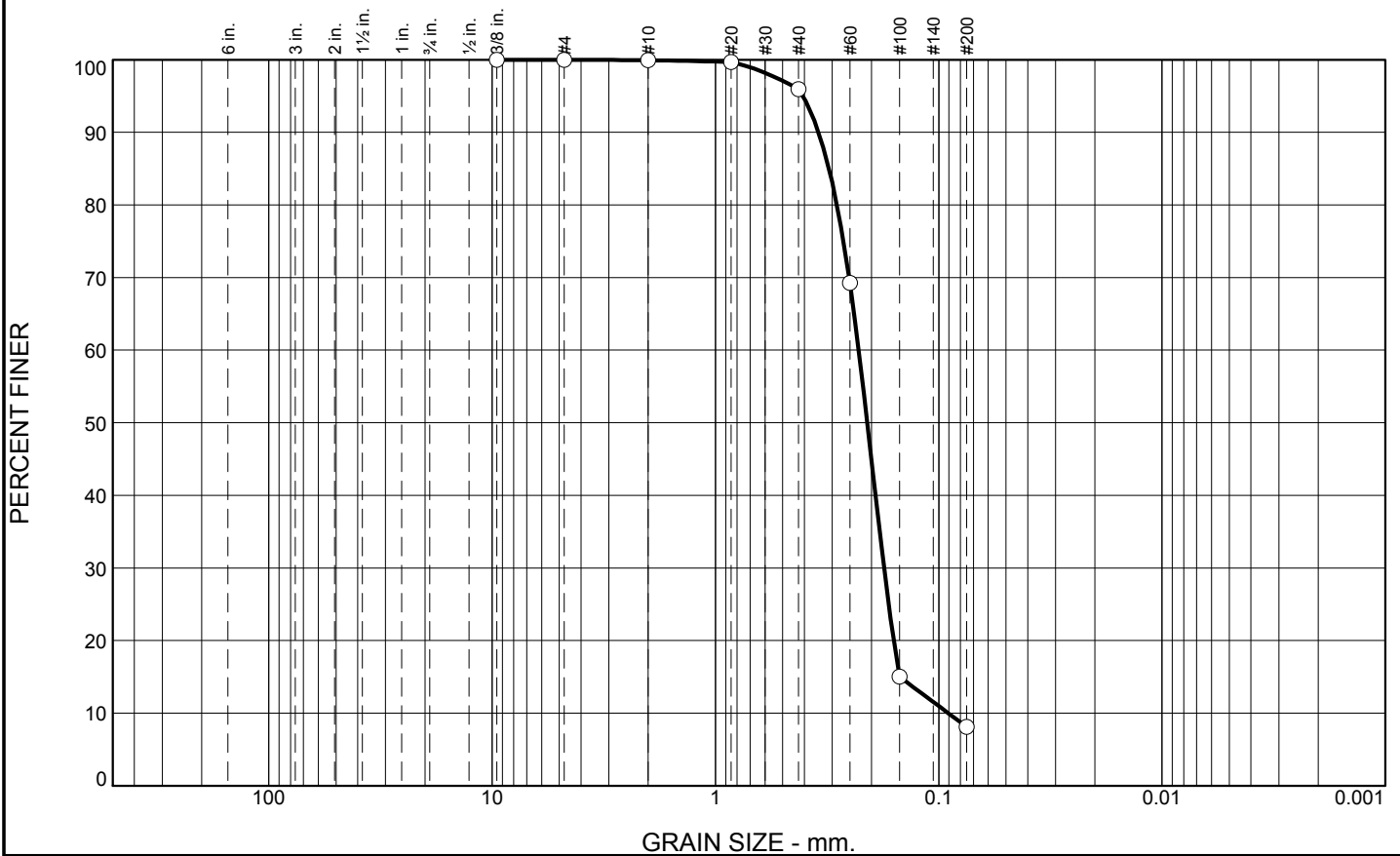
**Checked By:** R.Byrd

# Boring Designation BI-CI-30-10

DRILLING LOG		DIVISION South Atlantic		INSTALLATION Mobile District		SHEET 1 OF 1 SHEETS	
1. PROJECT MsCIP Barrier Island Restoration Cat Island				9. SIZE AND TYPE OF BIT N/A			
2. BORING DESIGNATION BI-CI-30-10		LOCATION COORDINATES E = 913,563 N = 263,576		10. COORDINATE SYSTEM/DATUM State Plane, MSE (U.S. Ft.)		HORIZONTAL NAD83	
3. DRILLING AGENCY Corps of Engineers - CESAM		CONTRACTOR FILE NO.		11. MANUFACTURER'S DESIGNATION OF DRILL Vibrocure		<input type="checkbox"/> AUTO HAMMER <input type="checkbox"/> MANUAL HAMMER	
4. NAME OF DRILLER Construction Solutions International, Inc.				12. TOTAL SAMPLES 3		DISTURBED 0	
5. DIRECTION OF BORING <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED				13. TOTAL NUMBER CORE BOXES		14. WATER DEPTH 13.3 Ft.	
6. THICKNESS OF OVERBURDEN N/A				15. DATE BORING 08-22-10		STARTED 08-22-10	
7. DEPTH DRILLED INTO ROCK N/A				16. ELEVATION TOP OF BORING -12.5 Ft.		COMPLETED 08-22-10	
8. TOTAL DEPTH OF BORING 7.9 Ft.				17. TOTAL RECOVERY FOR BORING 100%		18. SIGNATURE AND TITLE OF INSPECTOR Mark Green, Geotechnical Engineer	
ELEV.	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS	SAMPLE	LABORATORY RESULTS		
-12.5	0.0						
-14.5	2.0		SAND, silty, mostly fine-grained sand-sized quartz, some silt, trace shell fragments, dark gray and gray (SM)	A	Classification: SP-SM Color: 5Y 3/2-dark olive gray D50: 0.2091 mm % Fines: 8.1		
			SAND, poorly-graded, mostly fine-grained sand-sized quartz, trace silt (SP)	B	Classification: SP Color: 5Y 5/1-gray D50: 0.1971 mm % Fines: 3.8		
-20.4	7.9			C	Classification: SP Color: 2.5Y 6/1-gray D50: 0.1858 mm % Fines: 3.6		
NOTES:  1. Soils are field visually classified in accordance with the Unified Soils Classification System.  2. NS = Sample not submitted for laboratory analysis from this interval.  3. Seafloor elevation calculated using sampling vessel's fathometer water depth reading and applying NOAA tidal gauge data conversion factor.							



# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.0	0.1	4.0	87.8	8.1	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
.375	100.0		
#4	100.0		
#10	99.9		
#20	99.7		
#40	95.9		
#60	69.3		
#100	15.0		
#200	8.1		

\* (no specification provided)

**Material Description**  
SAND, (SP-SM), fine grained

**Atterberg Limits**  
 PL=      LL=      PI=

**Coefficients**  
 D<sub>90</sub>= 0.3453      D<sub>85</sub>= 0.3101      D<sub>60</sub>= 0.2283  
 D<sub>50</sub>= 0.2091      D<sub>30</sub>= 0.1758      D<sub>15</sub>= 0.1496  
 D<sub>10</sub>= 0.0907      C<sub>u</sub>= 2.52      C<sub>c</sub>= 1.49

**Classification**  
 USCS= SP-SM      AASHTO=

**Remarks**  
 CADD CODE = CH10D965

**Location:** USACE Sample # BI-CI-30-10A  
**Sample Number:** TE Lab ID: 4660.26

**Depth:** 0.0 - 2.0 (ft.)

**Date:** 9/1/10

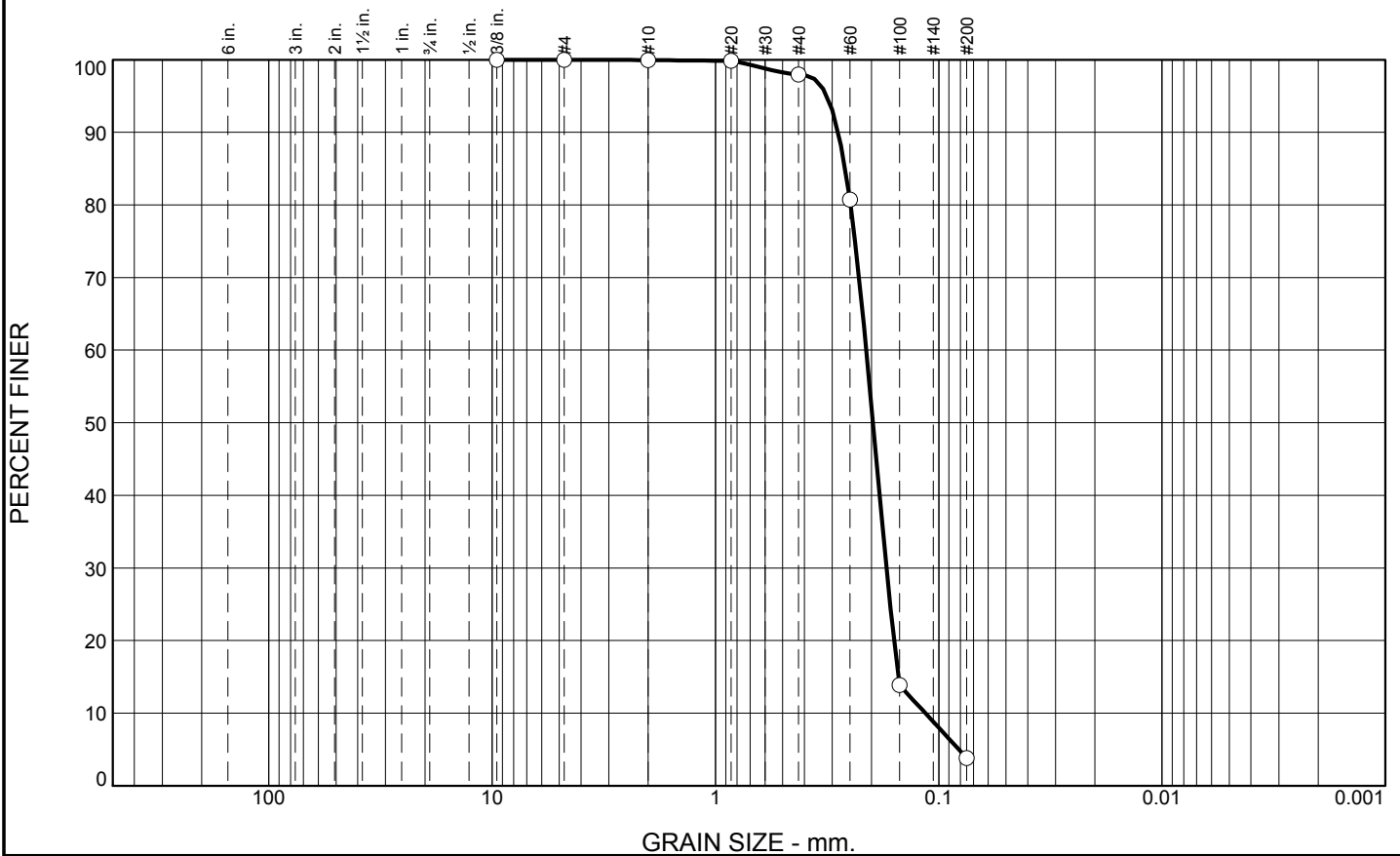
**Thompson Engineering**  
  
**Mobile, Alabama**

**Client:** US Army Corps of Engineers  
**Project:** Contract No. W91278-10-D-0026 - Task 03  
 Mississippi Barrier Island Restoration Project  
**Project No:** 10-2123-0009      **Report No.**

**Tested By:** G.Fancher

**Checked By:** R.Byrd

# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.0	0.1	1.9	94.2	3.8	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
.375	100.0		
#4	100.0		
#10	99.9		
#20	99.8		
#40	98.0		
#60	80.7		
#100	13.9		
#200	3.8		

\* (no specification provided)

## Material Description

SAND, (SP), fine grained

## Atterberg Limits

PL=

LL=

PI=

## Coefficients

D<sub>90</sub>= 0.2819

D<sub>85</sub>= 0.2623

D<sub>60</sub>= 0.2112

D<sub>50</sub>= 0.1971

D<sub>30</sub>= 0.1715

D<sub>15</sub>= 0.1517

D<sub>10</sub>= 0.1149

C<sub>u</sub>= 1.84

C<sub>c</sub>= 1.21

## Classification

USCS= SP

AASHTO=

## Remarks

CADD CODE = CH10D965

Location: USACE Sample # BI-CI-30-10B  
Sample Number: TE Lab ID: 4660.27

Depth: 2.0 - 5.0 (ft.)

Date: 9/1/10

**Thompson Engineering**

**Mobile, Alabama**

Client: US Army Corps of Engineers

Project: Contract No. W91278-10-D-0026 - Task 03  
Mississippi Barrier Island Restoration Project

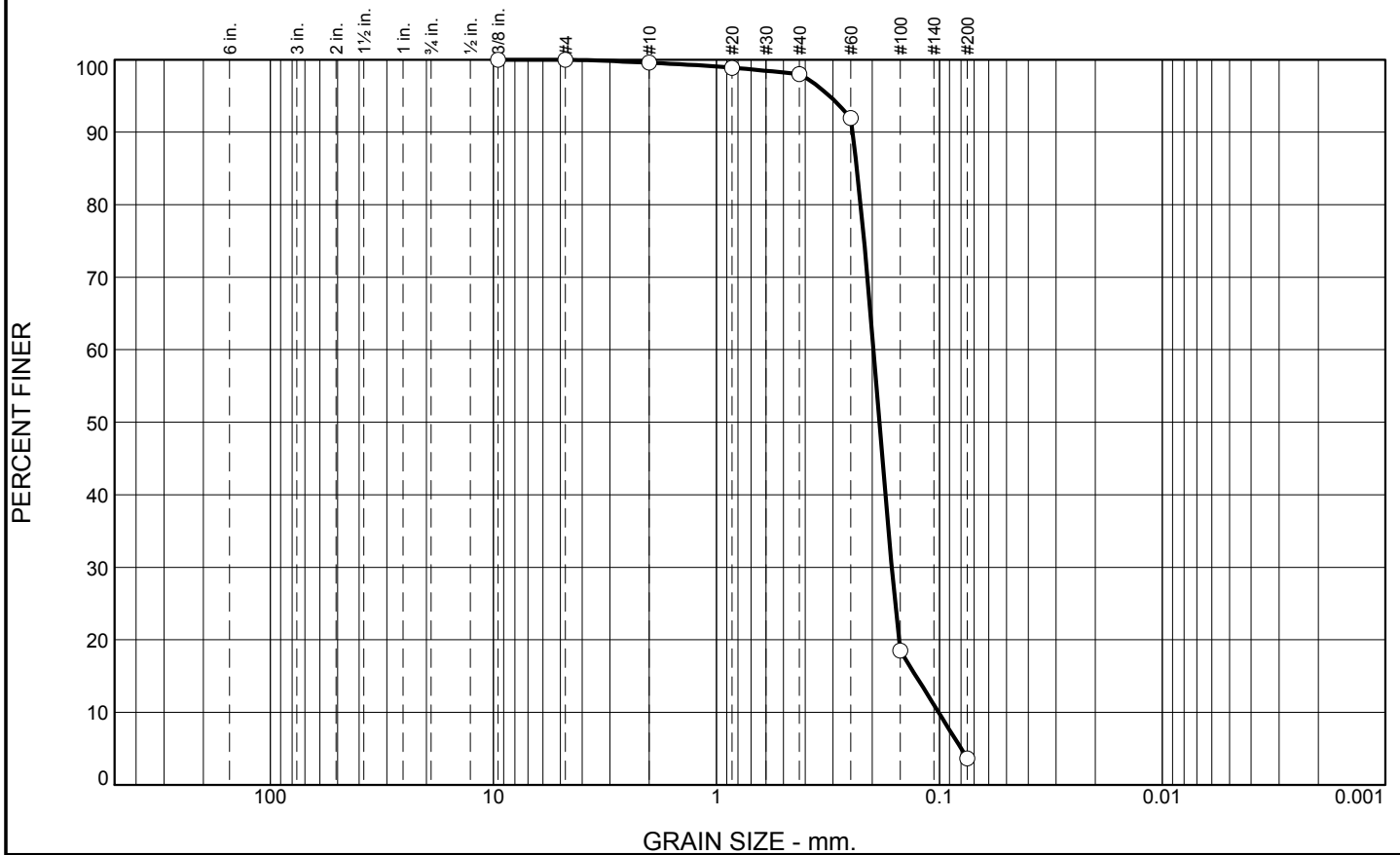
Project No: 10-2123-0009

Report No.

Tested By: G.Fancher

Checked By: R.Byrd

# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.0	0.4	1.6	94.4	3.6	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
.375	100.0		
#4	100.0		
#10	99.6		
#20	98.9		
#40	98.0		
#60	91.9		
#100	18.5		
#200	3.6		

\* (no specification provided)

<u>Material Description</u>		
SAND, (SP), fine grained		
<u>Atterberg Limits</u>		
PL=	LL=	PI=
<u>Coefficients</u>		
D <sub>90</sub> = 0.2451	D <sub>85</sub> = 0.2344	D <sub>60</sub> = 0.1975
D <sub>50</sub> = 0.1858	D <sub>30</sub> = 0.1636	D <sub>15</sub> = 0.1273
D <sub>10</sub> = 0.1009	C <sub>u</sub> = 1.96	C <sub>c</sub> = 1.34
<u>Classification</u>		
USCS= SP	AASHTO=	
<u>Remarks</u>		
CADD CODE = CH10D965		

Location: USACE Sample # BI-CI-30-10C  
Sample Number: TE Lab ID: 4660.28

Depth: 5.0 - 7.9 (ft.)

Date: 9/1/10

**Thompson Engineering**  
**Mobile, Alabama**

**Client:** US Army Corps of Engineers  
**Project:** Contract No. W91278-10-D-0026 - Task 03  
Mississippi Barrier Island Restoration Project  
**Project No:** 10-2123-0009  
**Report No.**

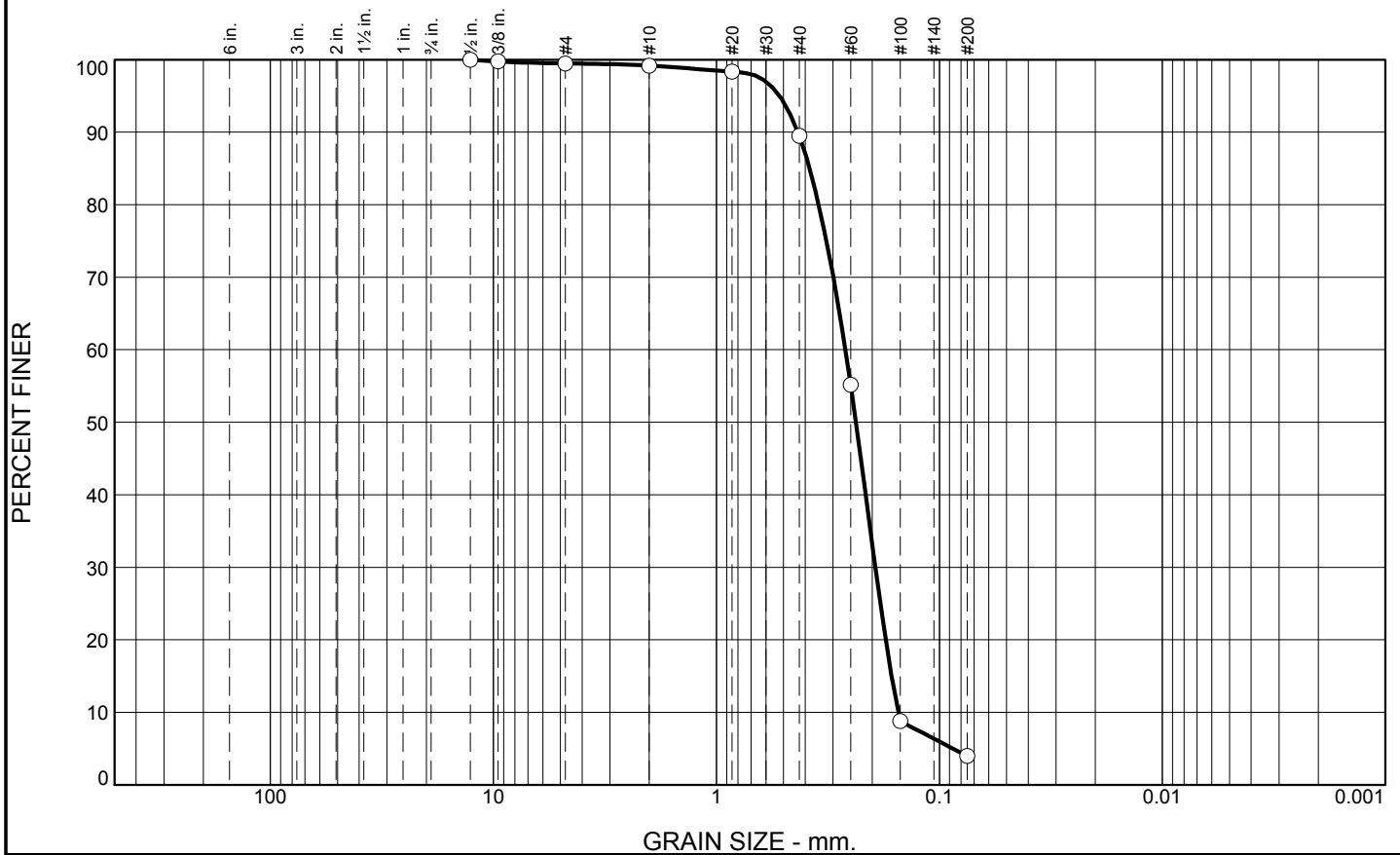
Tested By: G.Fancher

Checked By: R.Byrd

# Boring Designation BI-CI-31-10

DRILLING LOG		DIVISION South Atlantic		INSTALLATION Mobile District		SHEET 1 OF 1 SHEETS	
1. PROJECT MsCIP Barrier Island Restoration Cat Island				9. SIZE AND TYPE OF BIT N/A			
2. BORING DESIGNATION BI-CI-31-10		LOCATION COORDINATES E = 912,729 N = 262,017		10. COORDINATE SYSTEM/DATUM State Plane, MSE (U.S. Ft.)		HORIZONTAL NAD83 VERTICAL NAVD88	
3. DRILLING AGENCY Corps of Engineers - CESAM		CONTRACTOR FILE NO.		11. MANUFACTURER'S DESIGNATION OF DRILL Vibracore		<input type="checkbox"/> AUTO HAMMER <input type="checkbox"/> MANUAL HAMMER	
4. NAME OF DRILLER Construction Solutions International, Inc.				12. TOTAL SAMPLES 2		DISTURBED 0 UNDISTURBED (UD)	
5. DIRECTION OF BORING <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED		DEG. FROM VERTICAL		13. TOTAL NUMBER CORE BOXES			
		BEARING		14. WATER DEPTH 13.3 Ft.			
6. THICKNESS OF OVERBURDEN N/A				15. DATE BORING 08-22-10		STARTED 08-22-10 COMPLETED 08-22-10	
7. DEPTH DRILLED INTO ROCK N/A				16. ELEVATION TOP OF BORING -12.6 Ft.			
8. TOTAL DEPTH OF BORING 7.3 Ft.				17. TOTAL RECOVERY FOR BORING 100%			
				18. SIGNATURE AND TITLE OF INSPECTOR Mark Green, Geotechnical Engineer			
ELEV.	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS	SAMPLE	LABORATORY RESULTS		
-12.6	0.0						
			SAND, poorly-graded, mostly fine-grained sand-sized quartz, trace wood debris, trace shell fragments, w/ silty sand lenses, lt. gray and gray (SP)	A	Classification: SP Color: 5Y 6/1-gray D50: 0.2368 mm % Fines: 4		
				B	Classification: SP Color: 2.5Y 6/1-gray D50: 0.2315 mm % Fines: 3.9		
-19.9	7.3						
			NOTES: 1. Soils are field visually classified in accordance with the Unified Soils Classification System. 2. NS = Sample not submitted for laboratory analysis from this interval. 3. Seafloor elevation calculated using sampling vessel's fathometer water depth reading and applying NOAA tidal gauge data conversion factor.				

# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.5	0.3	9.7	85.5	4.0	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
.500	100.0		
.375	99.7		
#4	99.5		
#10	99.2		
#20	98.3		
#40	89.5		
#60	55.2		
#100	8.8		
#200	4.0		

\* (no specification provided)

## Material Description

SAND, (SP), fine grained

## Atterberg Limits

PL=

LL=

PI=

## Coefficients

D<sub>90</sub>= 0.4311

D<sub>85</sub>= 0.3823

D<sub>60</sub>= 0.2638

D<sub>50</sub>= 0.2368

D<sub>30</sub>= 0.1938

D<sub>15</sub>= 0.1640

D<sub>10</sub>= 0.1529

C<sub>u</sub>= 1.72

C<sub>c</sub>= 0.93

## Classification

USCS= SP

AASHTO=

## Remarks

CADD CODE = CH10D965

Location: USACE Sample # BI-CI-31-10A  
Sample Number: TE Lab ID: 4660.29

Depth: 0.0 - 4.0 (ft.)

Date: 9/1/10

**Thompson Engineering**

**Mobile, Alabama**

Client: US Army Corps of Engineers

Project: Contract No. W91278-10-D-0026 - Task 03  
Mississippi Barrier Island Restoration Project

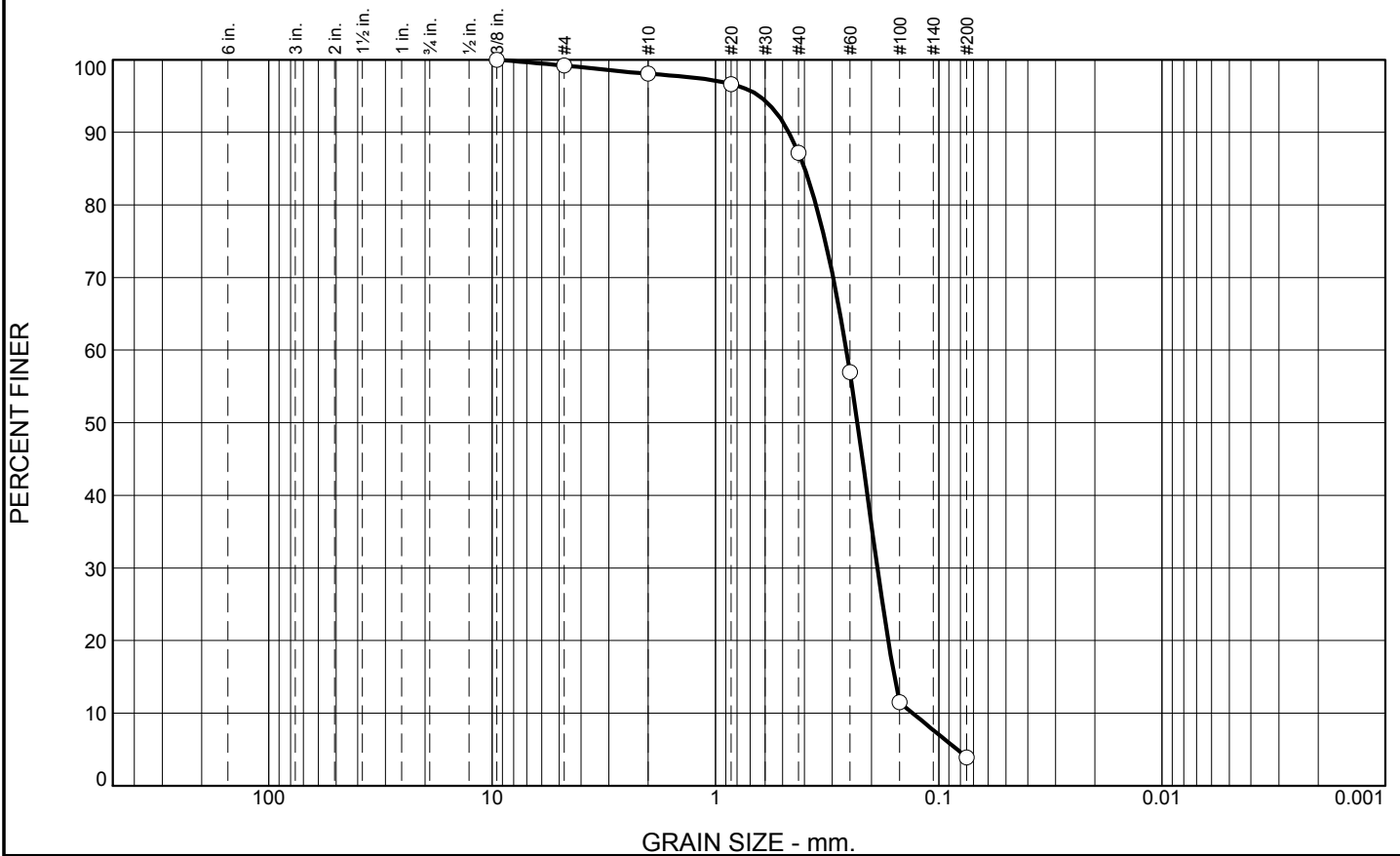
Project No: 10-2123-0009

Report No.

Tested By: G.Fancher

Checked By: R.Byrd

# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.8	1.1	10.9	83.3	3.9	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
.375	100.0		
#4	99.2		
#10	98.1		
#20	96.6		
#40	87.2		
#60	57.0		
#100	11.5		
#200	3.9		

\* (no specification provided)

**Material Description**  
SAND, (SP), medium to fine grained

**Atterberg Limits**  
 PL=      LL=      PI=

**Coefficients**  
 D<sub>90</sub>= 0.4691      D<sub>85</sub>= 0.3990      D<sub>60</sub>= 0.2592  
 D<sub>50</sub>= 0.2315      D<sub>30</sub>= 0.1883      D<sub>15</sub>= 0.1580  
 D<sub>10</sub>= 0.1309      C<sub>u</sub>= 1.98      C<sub>c</sub>= 1.05

**Classification**  
 USCS= SP      AASHTO=

**Remarks**  
 CADD CODE = CH10D965

**Location:** USACE Sample # BI-CI-31-10B  
**Sample Number:** TE Lab ID: 4660.30

**Depth:** 4.0 - 7.3 (ft.)

**Date:** 9/1/10

**Thompson Engineering**  
  
**Mobile, Alabama**

**Client:** US Army Corps of Engineers  
**Project:** Contract No. W91278-10-D-0026 - Task 03  
 Mississippi Barrier Island Restoration Project  
**Project No:** 10-2123-0009      **Report No.**

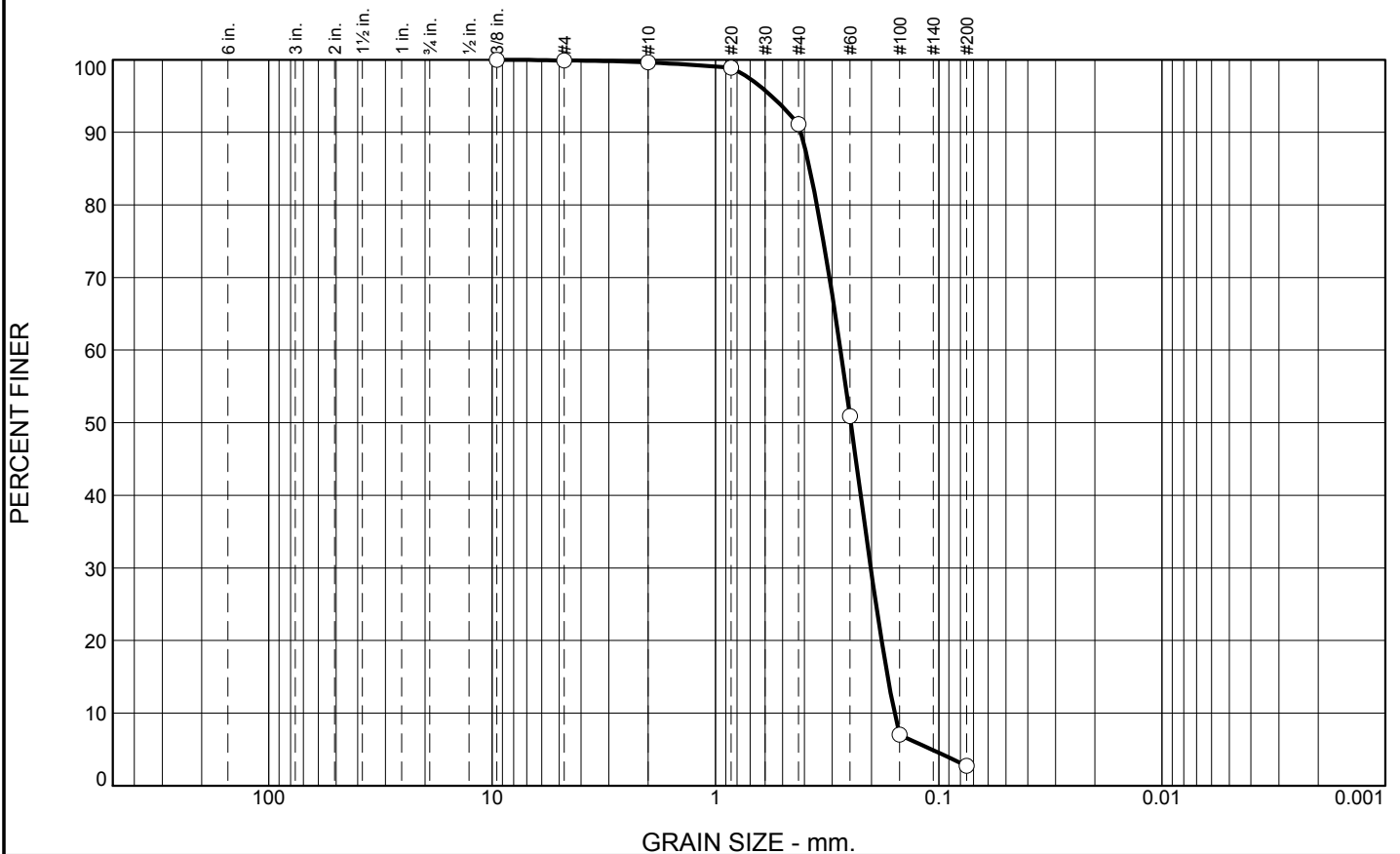
**Tested By:** G.Fancher

**Checked By:** R.Byrd

# Boring Designation BI-CI-32-10

DRILLING LOG		DIVISION South Atlantic		INSTALLATION Mobile District		SHEET 1 OF 1 SHEETS	
1. PROJECT MsCIP Barrier Island Restoration Cat Island				9. SIZE AND TYPE OF BIT N/A			
2. BORING DESIGNATION BI-CI-32-10		LOCATION COORDINATES E = 911,946 N = 260,491		10. COORDINATE SYSTEM/DATUM State Plane, MSE (U.S. Ft.)		HORIZONTAL NAD83 VERTICAL NAVD88	
3. DRILLING AGENCY Corps of Engineers - CESAM		CONTRACTOR FILE NO.		11. MANUFACTURER'S DESIGNATION OF DRILL Vibracore		<input type="checkbox"/> AUTO HAMMER <input type="checkbox"/> MANUAL HAMMER	
4. NAME OF DRILLER Construction Solutions International, Inc.				12. TOTAL SAMPLES 4		DISTURBED 4 UNDISTURBED (UD) 0	
5. DIRECTION OF BORING <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED		DEG. FROM VERTICAL		13. TOTAL NUMBER CORE BOXES			
		BEARING		14. WATER DEPTH 13.3 Ft.			
6. THICKNESS OF OVERBURDEN N/A				15. DATE BORING 08-21-10		STARTED 08-21-10 COMPLETED 08-21-10	
7. DEPTH DRILLED INTO ROCK N/A				16. ELEVATION TOP OF BORING -13.1 Ft.			
8. TOTAL DEPTH OF BORING 12.2 Ft.				17. TOTAL RECOVERY FOR BORING 100%			
				18. SIGNATURE AND TITLE OF INSPECTOR Mark Green, Geotechnical Engineer			
ELEV.	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS	SAMPLE	LABORATORY RESULTS		
-13.1	0.0						
			SAND, poorly-graded, mostly fine-grained sand-sized quartz, trace silt, trace shell fragments, lt. gray and gray (SP)	A	Classification: SP Color: 5Y 6/2-light olive gray D50: 0.2477 mm % Fines: 2.8		
				B	Classification: SP Color: 5Y 7/1-light gray D50: 0.2094 mm % Fines: 4		
			At El. -21.4 Ft., little silt	C	Classification: SP-SM Color: 5Y 6/2-light olive gray D50: 0.169 mm % Fines: 5.5		
-22.6	9.5						
			SAND, silty, mostly fine-grained sand-sized quartz, some silt, trace shell fragments, gray (SM)	D	Classification: SP-SM Color: 2.5Y 6/2-light brownish gray D50: 0.1695 mm % Fines: 6.6		
-25.3	12.2						
			NOTES: 1. Soils are field visually classified in accordance with the Unified Soils Classification System. 2. NS = Sample not submitted for laboratory analysis from this interval. 3. Seafloor elevation calculated using sampling vessel's fathometer water depth reading and applying NOAA tidal gauge data conversion factor.				

# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.1	0.3	8.5	88.3	2.8	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
.375	100.0		
#4	99.9		
#10	99.6		
#20	98.9		
#40	91.1		
#60	50.9		
#100	7.0		
#200	2.8		

\* (no specification provided)

<u><b>Material Description</b></u>		
SAND, (SP), fine grained		
<u><b>Atterberg Limits</b></u>		
PL=	LL=	PI=
<u><b>Coefficients</b></u>		
D <sub>90</sub> = 0.4149	D <sub>85</sub> = 0.3789	D <sub>60</sub> = 0.2753
D <sub>50</sub> = 0.2477	D <sub>30</sub> = 0.2016	D <sub>15</sub> = 0.1694
D <sub>10</sub> = 0.1577	C <sub>u</sub> = 1.75	C <sub>c</sub> = 0.94
<u><b>Classification</b></u>		
USCS= SP	AASHTO=	
<u><b>Remarks</b></u>		
CADD CODE = CH10D965		

Location: USACE Sample # BI-CI-32-10A  
Sample Number: TE Lab ID: 4660.16

Depth: 0.0 - 5.0 (ft.)

Date: 9/1/10

**Thompson Engineering**  
**Mobile, Alabama**

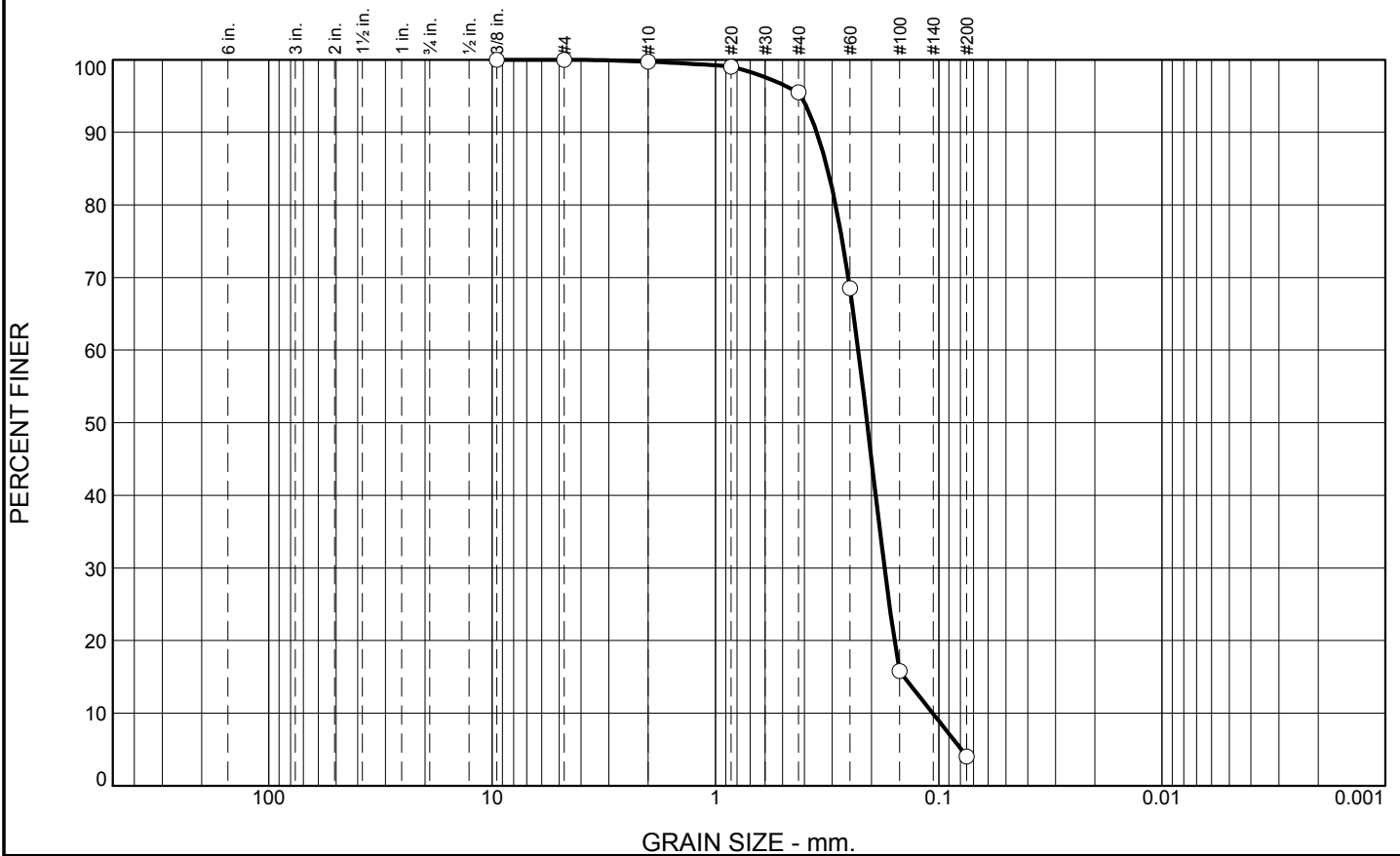
**Client:** US Army Corps of Engineers  
**Project:** Contract No. W91278-10-D-0026 - Task 03  
Mississippi Barrier Island Restoration Project  
**Project No:** 10-2123-0009  
**Report No.**

Tested By: G.Fancher

Checked By: R.Byrd



# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.0	0.3	4.2	91.5	4.0	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
.375	100.0		
#4	100.0		
#10	99.7		
#20	99.1		
#40	95.5		
#60	68.5		
#100	15.8		
#200	4.0		

\* (no specification provided)

**Material Description**  
SAND, (SP), fine grained

**Atterberg Limits**  
 PL=      LL=      PI=

**Coefficients**  
 D<sub>90</sub>= 0.3516      D<sub>85</sub>= 0.3150      D<sub>60</sub>= 0.2294  
 D<sub>50</sub>= 0.2094      D<sub>30</sub>= 0.1749      D<sub>15</sub>= 0.1432  
 D<sub>10</sub>= 0.1066      C<sub>u</sub>= 2.15      C<sub>c</sub>= 1.25

**Classification**  
 USCS= SP      AASHTO=

**Remarks**  
 CADD CODE = CH10D965

**Location:** USACE Sample # BI-CI-32-10B  
**Sample Number:** TE Lab ID: 4660.17

**Depth:** 5.0 - 8.3 (ft.)

**Date:** 9/1/10

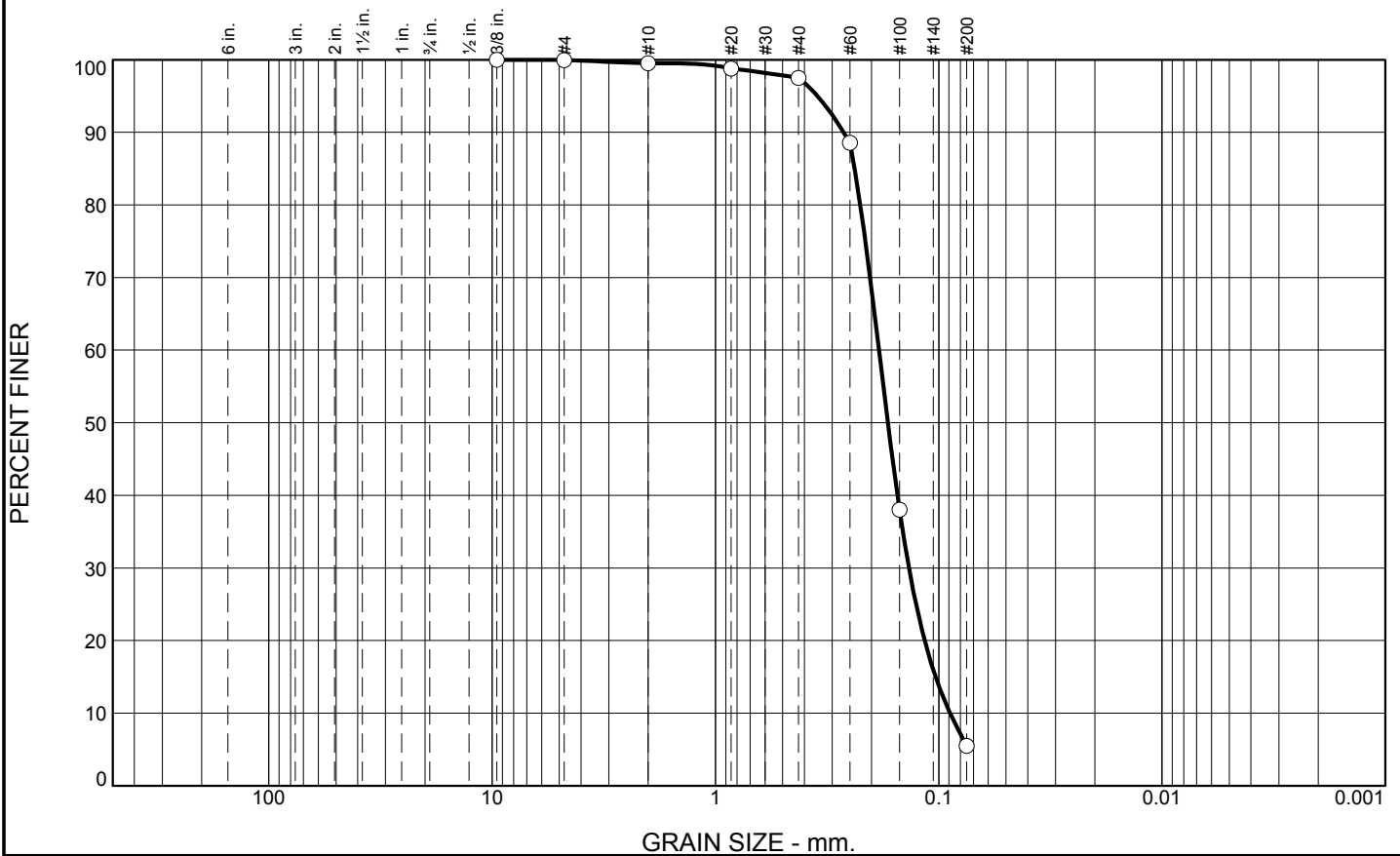
**Thompson Engineering**  
  
**Mobile, Alabama**

**Client:** US Army Corps of Engineers  
**Project:** Contract No. W91278-10-D-0026 - Task 03  
 Mississippi Barrier Island Restoration Project  
**Project No:** 10-2123-0009      **Report No.**

**Tested By:** G.Fancher

**Checked By:** R.Byrd

# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.0	0.5	2.0	92.0	5.5	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
.375	100.0		
#4	100.0		
#10	99.5		
#20	98.8		
#40	97.5		
#60	88.6		
#100	38.0		
#200	5.5		

\* (no specification provided)

**Material Description**  
SAND, (SP-SM), fine grained

**Atterberg Limits**  
 PL=      LL=      PI=

**Coefficients**  
 D<sub>90</sub>= 0.2665      D<sub>85</sub>= 0.2380      D<sub>60</sub>= 0.1852  
 D<sub>50</sub>= 0.1690      D<sub>30</sub>= 0.1360      D<sub>15</sub>= 0.1034  
 D<sub>10</sub>= 0.0890      C<sub>u</sub>= 2.08      C<sub>c</sub>= 1.12

**Classification**  
 USCS= SP-SM      AASHTO=

**Remarks**  
 CADD CODE = CH10D965

**Location:** USACE Sample # BI-CI-32-10C  
**Sample Number:** TE Lab ID: 4660.18

**Depth:** 8.3 - 9.5 (ft.)

**Date:** 9/1/10

**Thompson Engineering**  
  
**Mobile, Alabama**

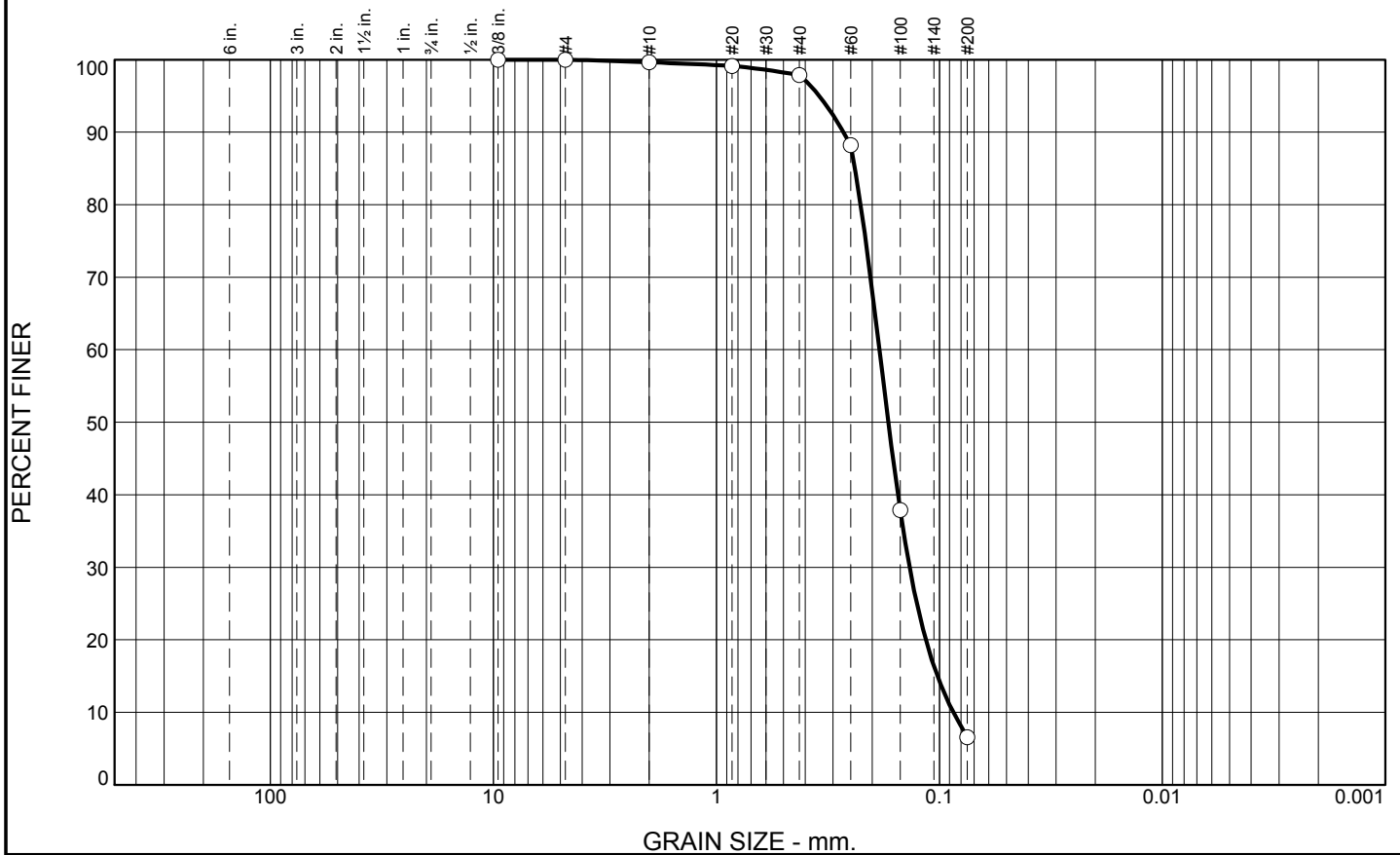
**Client:** US Army Corps of Engineers  
**Project:** Contract No. W91278-10-D-0026 - Task 03  
 Mississippi Barrier Island Restoration Project  
**Project No:** 10-2123-0009

**Report No.**

**Tested By:** G.Fancher

**Checked By:** R.Byrd

# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.0	0.4	1.7	91.3	6.6	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
.375	100.0		
#4	100.0		
#10	99.6		
#20	99.1		
#40	97.9		
#60	88.2		
#100	37.9		
#200	6.6		

\* (no specification provided)

## Material Description

SAND, (SP-SM), fine grained

## Atterberg Limits

PL=

LL=

PI=

## Coefficients

D<sub>90</sub>= 0.2693

D<sub>85</sub>= 0.2392

D<sub>60</sub>= 0.1858

D<sub>50</sub>= 0.1695

D<sub>30</sub>= 0.1361

D<sub>15</sub>= 0.1022

D<sub>10</sub>= 0.0866

C<sub>u</sub>= 2.15

C<sub>c</sub>= 1.15

## Classification

USCS= SP-SM

AASHTO=

## Remarks

CADD CODE = CH10D965

Location: USACE Sample # BI-CI-32-10D  
Sample Number: TE Lab ID: 4660.19

Depth: 9.5 - 12.2 (ft.)

Date: 9/1/10

**Thompson Engineering**

**Mobile, Alabama**

Client: US Army Corps of Engineers

Project: Contract No. W91278-10-D-0026 - Task 03  
Mississippi Barrier Island Restoration Project

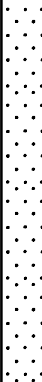

Project No: 10-2123-0009

Report No.

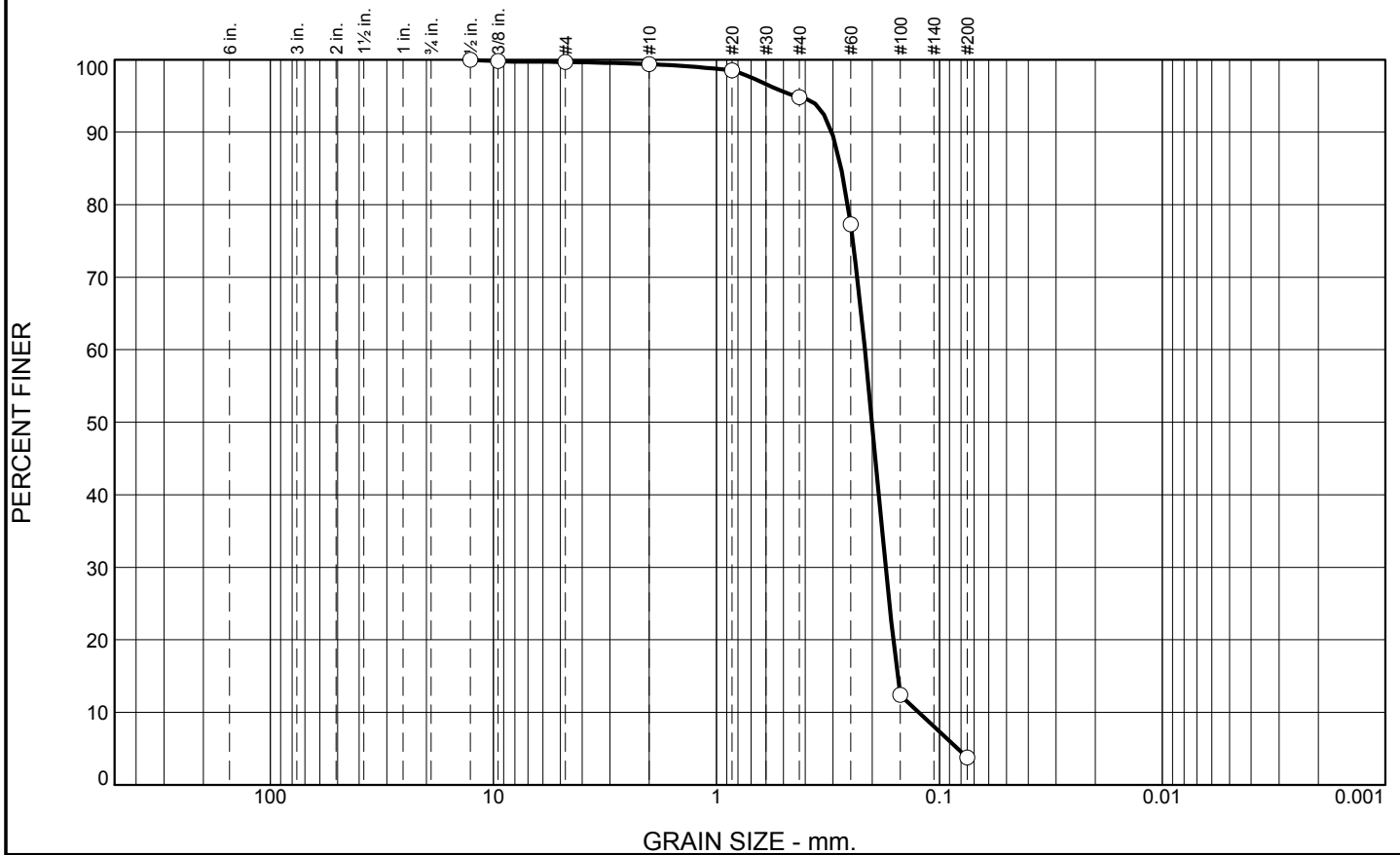
Tested By: G.Fancher

Checked By: R.Byrd

# Boring Designation BI-CI-33-10

DRILLING LOG		DIVISION South Atlantic		INSTALLATION Mobile District		SHEET 1 OF 1 SHEETS	
1. PROJECT MsCIP Barrier Island Restoration Cat Island				9. SIZE AND TYPE OF BIT N/A			
2. BORING DESIGNATION BI-CI-33-10		LOCATION COORDINATES E = 911,271 N = 259,143		10. COORDINATE SYSTEM/DATUM State Plane, MSE (U.S. Ft.)		HORIZONTAL NAD83 VERTICAL NAVD88	
3. DRILLING AGENCY Corps of Engineers - CESAM		CONTRACTOR FILE NO.		11. MANUFACTURER'S DESIGNATION OF DRILL Vibracore		<input type="checkbox"/> AUTO HAMMER <input type="checkbox"/> MANUAL HAMMER	
4. NAME OF DRILLER Construction Solutions International, Inc.				12. TOTAL SAMPLES 3		DISTURBED 3 UNDISTURBED (UD) 0	
5. DIRECTION OF BORING <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED		DEG. FROM VERTICAL		13. TOTAL NUMBER CORE BOXES			
		BEARING		14. WATER DEPTH 14.5 Ft.			
6. THICKNESS OF OVERBURDEN N/A				15. DATE BORING 08-21-10		STARTED 08-21-10 COMPLETED 08-21-10	
7. DEPTH DRILLED INTO ROCK N/A				16. ELEVATION TOP OF BORING -13.6 Ft.			
8. TOTAL DEPTH OF BORING 11.9 Ft.				17. TOTAL RECOVERY FOR BORING 100%			
				18. SIGNATURE AND TITLE OF INSPECTOR Mark Green, Geotechnical Engineer			
ELEV.	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS	SAMPLE	LABORATORY RESULTS		
-13.6	0.0						
			SAND, poorly-graded, mostly fine-grained sand-sized quartz, trace shell fragments, lt. gray (SP)	A	Classification: SP Color: 2.5Y 6/1-gray D50: 0.2008 mm % Fines: 3.8		
	B			Classification: SP Color: 2.5Y 6/1-gray D50: 0.1903 mm % Fines: 3.6			
-22.4	8.8			C	Classification: SP Color: 2.5Y 6/1-gray D50: 0.181 mm % Fines: 4.6		
			CLAY, fat, some fine-grained sand-sized quartz, trace shell fragments, greenish gray - green (CH)	NS			
-25.5	11.9						
			NOTES:  1. Soils are field visually classified in accordance with the Unified Soils Classification System.  2. NS = Sample not submitted for laboratory analysis from this interval.  3. Seafloor elevation calculated using sampling vessel's fathometer water depth reading and applying NOAA tidal gauge data conversion factor.				

# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.3	0.3	4.6	91.0	3.8	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
.500	100.0		
.375	99.8		
#4	99.7		
#10	99.4		
#20	98.5		
#40	94.8		
#60	77.3		
#100	12.4		
#200	3.8		

\* (no specification provided)

<u><b>Material Description</b></u>		
SAND, (SP), fine grained		
<u><b>Atterberg Limits</b></u>		
PL=	LL=	PI=
<u><b>Coefficients</b></u>		
D <sub>90</sub> = 0.3039	D <sub>85</sub> = 0.2755	D <sub>60</sub> = 0.2158
D <sub>50</sub> = 0.2008	D <sub>30</sub> = 0.1741	D <sub>15</sub> = 0.1539
D <sub>10</sub> = 0.1238	C <sub>u</sub> = 1.74	C <sub>c</sub> = 1.13
<u><b>Classification</b></u>		
USCS= SP	AASHTO=	
<u><b>Remarks</b></u>		
CADD CODE = CH10D965		

Location: USACE Sample # BI-CI-33-10A  
Sample Number: TE Lab ID: 4660.01

Depth: 0.0 - 4.0 (ft.)

Date: 9/1/10

**Thompson Engineering**  
**Mobile, Alabama**

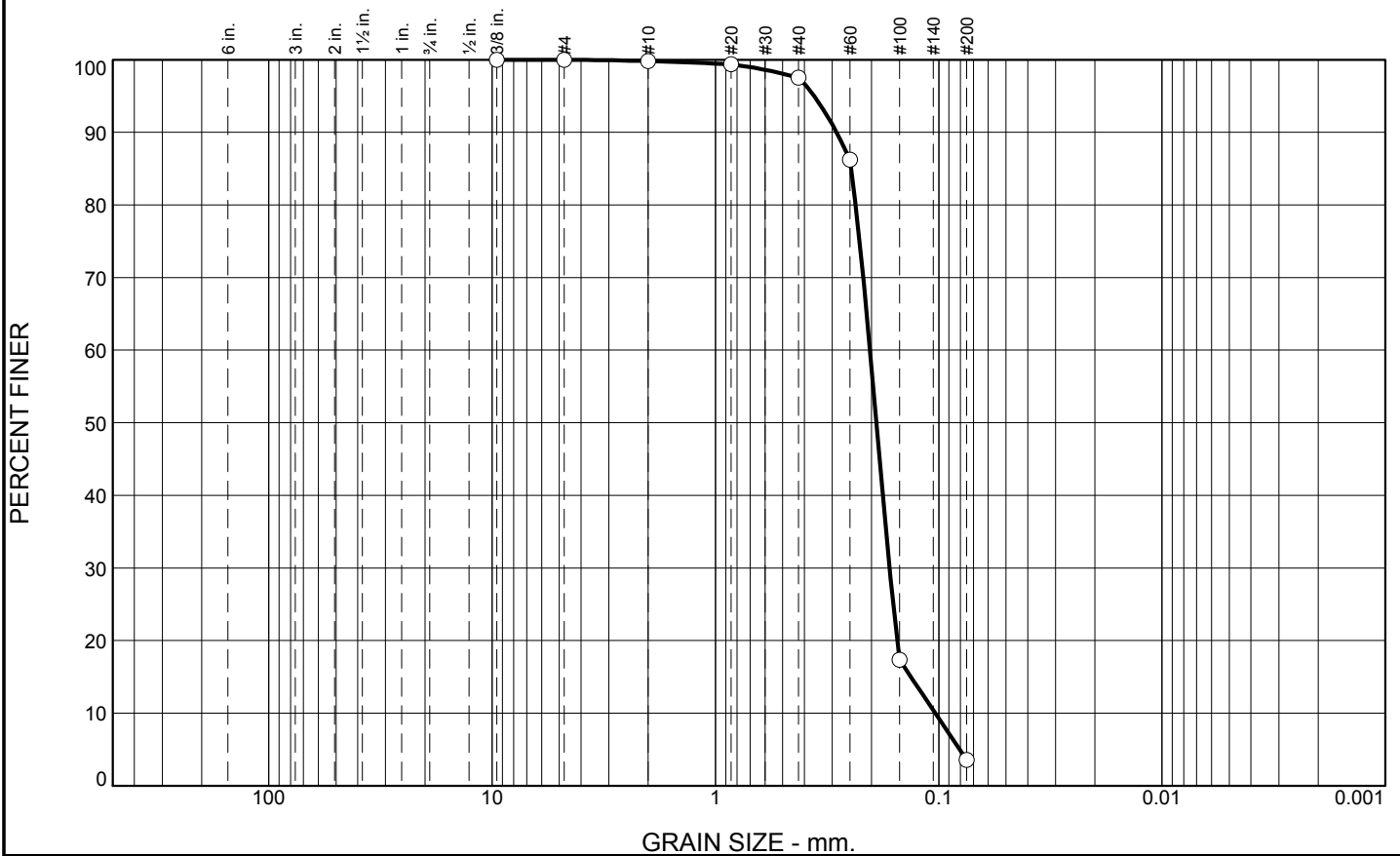
**Client:** US Army Corps of Engineers  
**Project:** Contract No. W91278-10-D-0026 - Task 03  
Mississippi Barrier Island Restoration Project  
**Project No:** 10-2123-0009

**Report No.**

Tested By: G.Fancher

Checked By: R.Byrd

# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.0	0.2	2.3	93.9	3.6	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
.375	100.0		
#4	100.0		
#10	99.8		
#20	99.4		
#40	97.5		
#60	86.2		
#100	17.3		
#200	3.6		

\* (no specification provided)

**Material Description**  
SAND, (SP), fine grained

**Atterberg Limits**  
 PL=      LL=      PI=

**Coefficients**  
 D<sub>90</sub>= 0.2869      D<sub>85</sub>= 0.2468      D<sub>60</sub>= 0.2033  
 D<sub>50</sub>= 0.1903      D<sub>30</sub>= 0.1661      D<sub>15</sub>= 0.1333  
 D<sub>10</sub>= 0.1037      C<sub>u</sub>= 1.96      C<sub>c</sub>= 1.31

**Classification**  
 USCS= SP      AASHTO=

**Remarks**  
 CADD CODE = CH10D965

**Location:** USACE Sample # BI-CI-33-10B  
**Sample Number:** TE Lab ID: 4660.02

**Depth:** 4.0 - 8.0 (ft.)

**Date:** 9/1/10

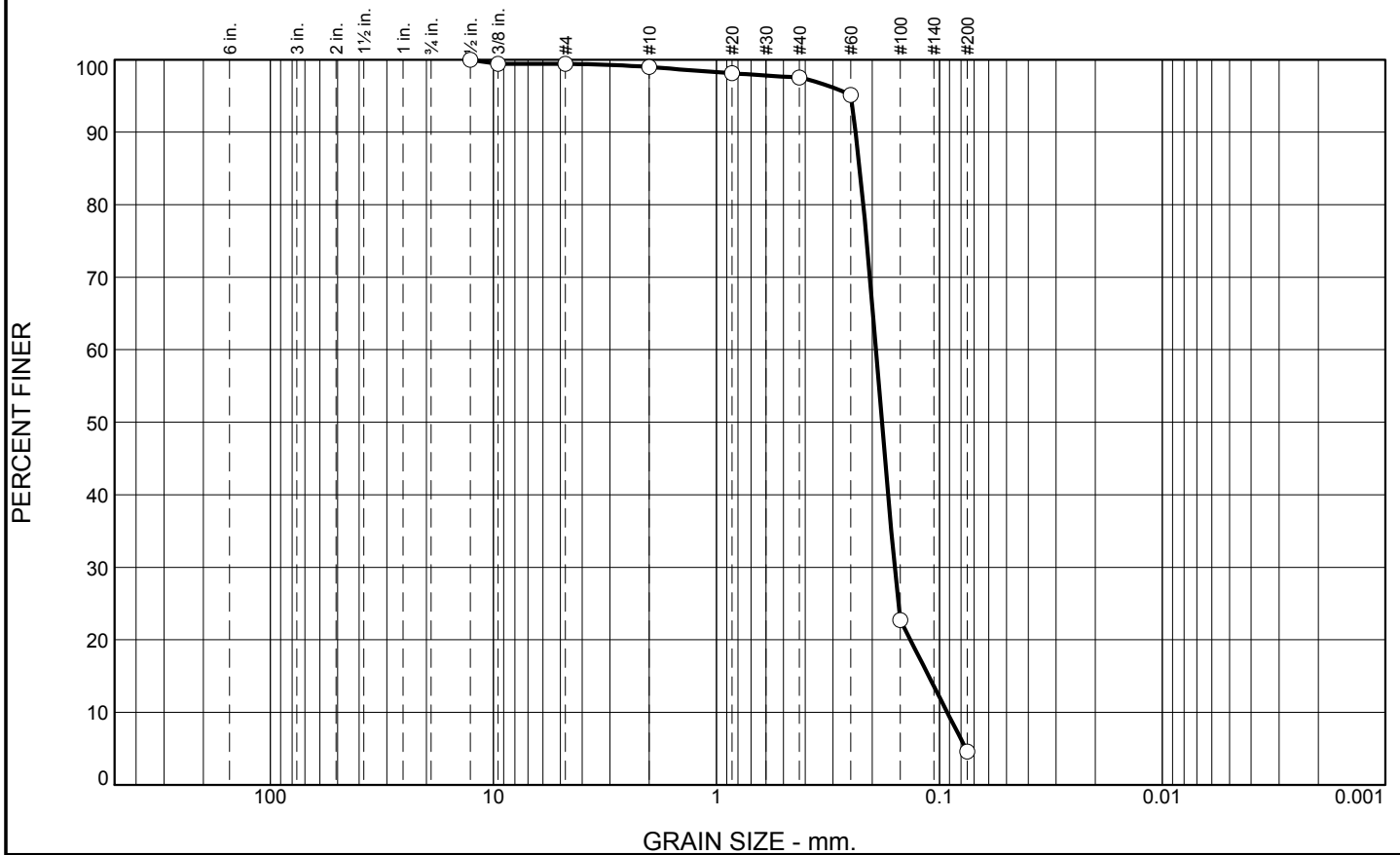
**Thompson Engineering**  
  
**Mobile, Alabama**

**Client:** US Army Corps of Engineers  
**Project:** Contract No. W91278-10-D-0026 - Task 03  
 Mississippi Barrier Island Restoration Project  
**Project No:** 10-2123-0009      **Report No.**

**Tested By:** G.Fancher

**Checked By:** R.Byrd

# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.6	0.4	1.5	92.9	4.6	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
.500	100.0		
.375	99.4		
#4	99.4		
#10	99.0		
#20	98.1		
#40	97.5		
#60	95.1		
#100	22.7		
#200	4.6		

\* (no specification provided)

**Material Description**  
SAND, (SP), fine grained

**Atterberg Limits**  
 PL=      LL=      PI=

**Coefficients**  
 D<sub>90</sub>= 0.2374      D<sub>85</sub>= 0.2277      D<sub>60</sub>= 0.1925  
 D<sub>50</sub>= 0.1810      D<sub>30</sub>= 0.1587      D<sub>15</sub>= 0.1116  
 D<sub>10</sub>= 0.0922      C<sub>u</sub>= 2.09      C<sub>c</sub>= 1.42

**Classification**  
 USCS= SP      AASHTO=

**Remarks**  
 CADD CODE = CH10D965

**Location:** USACE Sample # BI-CI-33-10C  
**Sample Number:** TE Lab ID: 4660.03

**Depth:** 8.0 - 8.8 (ft.)

**Date:** 9/1/10

**Thompson Engineering**  
  
**Mobile, Alabama**

**Client:** US Army Corps of Engineers  
**Project:** Contract No. W91278-10-D-0026 - Task 03  
 Mississippi Barrier Island Restoration Project  
**Project No:** 10-2123-0009      **Report No.**

**Tested By:** G.Fancher

**Checked By:** R.Byrd

# Boring Designation BI-CI-34-11

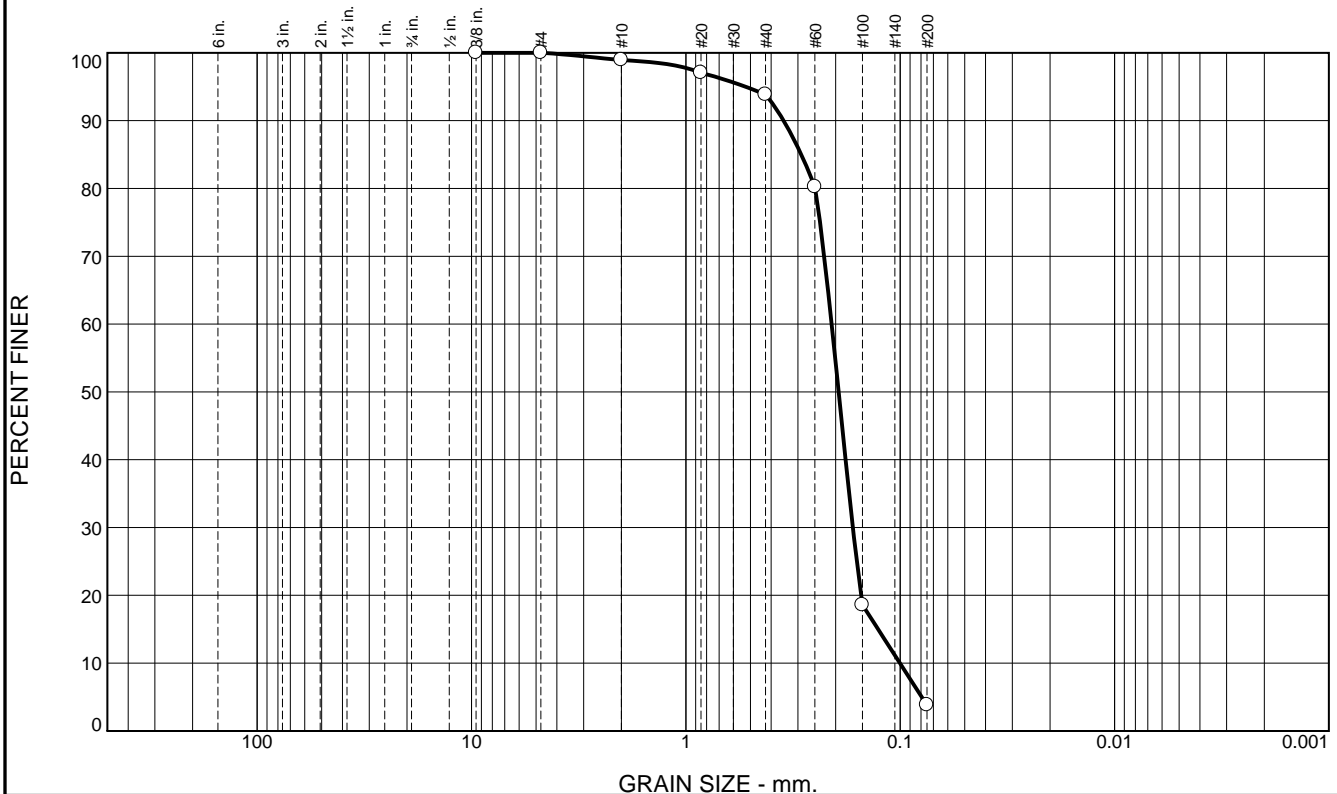
DRILLING LOG		DIVISION South Atlantic		INSTALLATION Mobile District		SHEET 1 OF 1 SHEETS	
1. PROJECT MsCIP Barrier Island Restoration Cat Island				9. SIZE AND TYPE OF BIT N/A			
2. BORING DESIGNATION BI-CI-34-11		LOCATION COORDINATES E = 912,102 N = 257,883		10. COORDINATE SYSTEM/DATUM State Plane, MSE (U.S. Ft.)		HORIZONTAL NAD83 VERTICAL NAVD88	
3. DRILLING AGENCY Corps of Engineers - CESAM		CONTRACTOR FILE NO.		11. MANUFACTURER'S DESIGNATION OF DRILL Vibracore		<input type="checkbox"/> AUTO HAMMER <input type="checkbox"/> MANUAL HAMMER	
4. NAME OF DRILLER Construction Solutions International, Inc.				12. TOTAL SAMPLES		DISTURBED 0 UNDISTURBED (UD) 0	
5. DIRECTION OF BORING <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED		DEG. FROM VERTICAL		13. TOTAL NUMBER CORE BOXES			
		BEARING		14. WATER DEPTH 17.8 Ft.			
6. THICKNESS OF OVERBURDEN N/A				15. DATE BORING		STARTED 06-27-11 COMPLETED 06-27-11	
7. DEPTH DRILLED INTO ROCK N/A				16. ELEVATION TOP OF BORING -16.4 Ft.			
8. TOTAL DEPTH OF BORING 15.0 Ft.				17. TOTAL RECOVERY FOR BORING 100%			
				18. SIGNATURE AND TITLE OF INSPECTOR Michele Johnson, Geologist			
ELEV.	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS	SAMPLE	LABORATORY RESULTS		
-16.4	0.0						
-19.1	2.7		CLAY, lean, trace shell fragments, dark gray (CL)				
-22.3	5.9		SAND, poorly-graded, some clay, gray (SP)				
-31.4	15.0		CLAY, lean, trace sand, gray (CL) At El. -25.6 Ft., trace shell fragments, gray	NS			
			NOTES: 1. Soils are field visually classified in accordance with the Unified Soils Classification System. 2. NS = Sample not submitted for laboratory analysis from this interval. 3. Seafloor elevation calculated using sampling vessel's fathometer water depth reading and applying NOAA tidal gauge data conversion factor.				



# Boring Designation BI-CI-35-11

DRILLING LOG		DIVISION South Atlantic		INSTALLATION Mobile District		SHEET 1 OF 1 SHEETS	
1. PROJECT MsCIP Barrier Island Restoration Cat Island				9. SIZE AND TYPE OF BIT N/A			
2. BORING DESIGNATION BI-CI-35-11		LOCATION COORDINATES E = 913,090 N = 258,958		10. COORDINATE SYSTEM/DATUM State Plane, MSE (U.S. Ft.)		HORIZONTAL NAD83 VERTICAL NAVD88	
3. DRILLING AGENCY Corps of Engineers - CESAM		CONTRACTOR FILE NO.		11. MANUFACTURER'S DESIGNATION OF DRILL Vibracore		<input type="checkbox"/> AUTO HAMMER <input type="checkbox"/> MANUAL HAMMER	
4. NAME OF DRILLER Construction Solutions International, Inc.				12. TOTAL SAMPLES 2		DISTURBED 2 UNDISTURBED (UD) 0	
5. DIRECTION OF BORING <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED		DEG. FROM VERTICAL		BEARING		13. TOTAL NUMBER CORE BOXES	
6. THICKNESS OF OVERBURDEN N/A		7. DEPTH DRILLED INTO ROCK N/A		8. TOTAL DEPTH OF BORING 15.0 Ft.		14. WATER DEPTH 17.2 Ft.	
						15. DATE BORING 06-27-11	
						16. ELEVATION TOP OF BORING -16.3 Ft.	
						17. TOTAL RECOVERY FOR BORING 100%	
						18. SIGNATURE AND TITLE OF INSPECTOR Michele Johnson, Geologist	
ELEV.	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS	SAMPLE	LABORATORY RESULTS		
-16.3	0.0						
			SAND, poorly-graded, mostly medium-grained sand-sized quartz, trace shell fragments, gray (SP)	A	Classification: SP Color: 5Y 6/1-gray D50: 0.1936 mm % Fines: 3.8		
-21.1	4.8		SAND, poorly-graded, mostly medium-grained sand-sized quartz, trace organic matter, gray (SP)	B	Classification: SP Color: 2.5Y 5/2-grayish brown D50: 0.1943 mm % Fines: 2.8		
-24.8	8.5		SAND, silty, trace fine-grained shell fragments, trace shell fragments, dark gray (SM)	NS			
-27.6	11.3		CLAY, lean, trace shell fragments, dark gray (CL)				
-31.3	15.0						
			NOTES: 1. Soils are field visually classified in accordance with the Unified Soils Classification System. 2. NS = Sample not submitted for laboratory analysis from this interval. 3. Seafloor elevation determined from USACE hydrographic survey completed 2010.				

# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.0	1.0	5.1	90.1	3.8	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
.375	100.0		
#4	100.0		
#10	99.0		
#20	97.0		
#40	93.9		
#60	80.2		
#100	18.6		
#200	3.8		

\* (no specification provided)

<u>Material Description</u>		
SAND (SP), fine grained		
PL=	<u>Atterberg Limits</u> LL=	PI=
<u>Coefficients</u>		
D <sub>90</sub> = 0.3501	D <sub>85</sub> = 0.2897	D <sub>60</sub> = 0.2087
D <sub>50</sub> = 0.1936	D <sub>30</sub> = 0.1663	D <sub>15</sub> = 0.1269
D <sub>10</sub> = 0.1003	C <sub>u</sub> = 2.08	C <sub>c</sub> = 1.32
<u>Classification</u>		
USCS= SP	AASHTO=	
<u>Remarks</u>		

Location: USACE Sample # BI-CI-35A-11  
Sample Number: TE Lab ID: 5054.81

Depth: 0.0 - 4.0 (ft)

Date: 7/18/11

**Thompson Engineering**

**Mobile, Alabama**

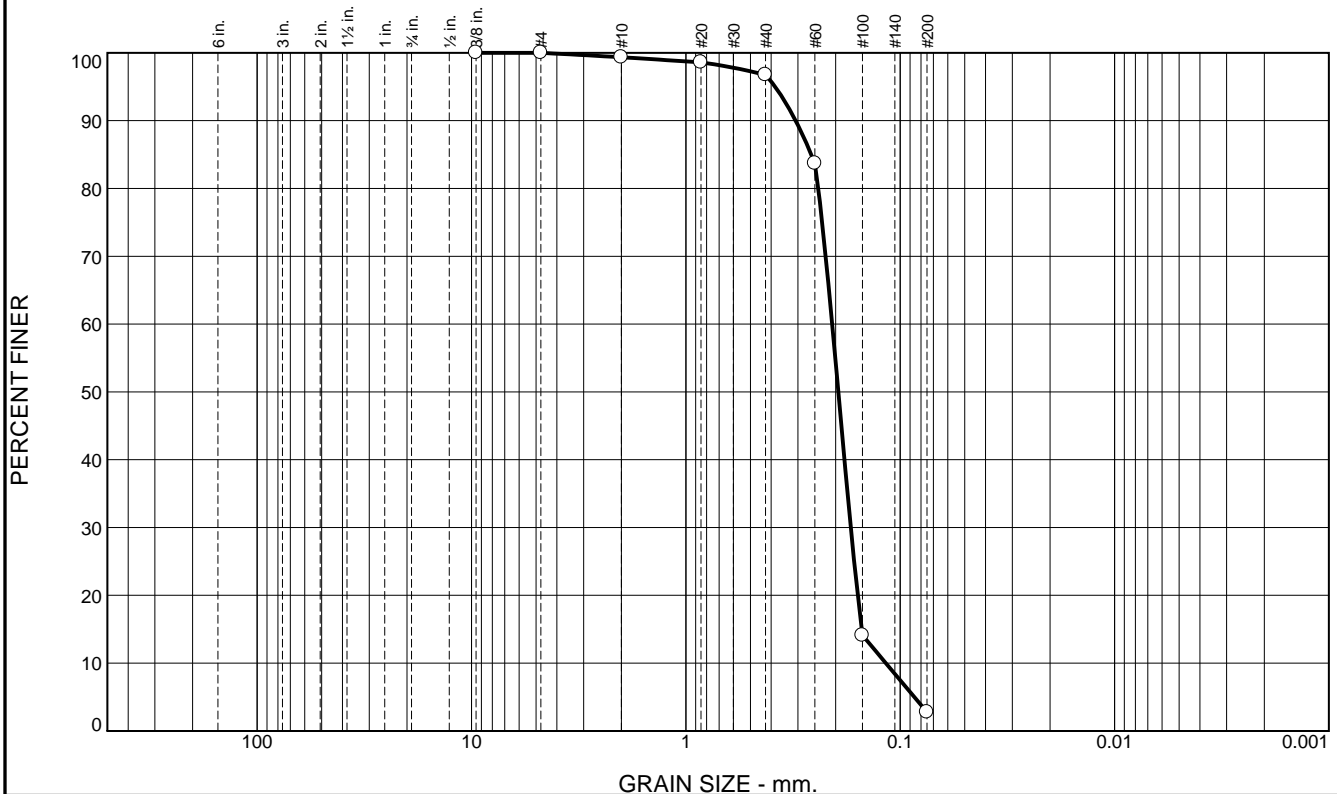
Client: US Army Corps of Engineers

Project: Contract No. W91278-10-D-0026 - Task 009  
Mississippi Barrier Island Restoration Project

Project No: 11-2116-0057

Figure

# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.0	0.7	2.6	93.9	2.8	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
.375	100.0		
#4	100.0		
#10	99.3		
#20	98.6		
#40	96.7		
#60	83.7		
#100	14.1		
#200	2.8		

\* (no specification provided)

Material Description		
SAND (SP), fine grained		
<div> <div> <b>Atterberg Limits</b>            PL=      LL=      PI=         </div> <div> <b>Coefficients</b>            D<sub>90</sub>= 0.3077      D<sub>85</sub>= 0.2600      D<sub>60</sub>= 0.2075            D<sub>50</sub>= 0.1943      D<sub>30</sub>= 0.1701      D<sub>15</sub>= 0.1513            D<sub>10</sub>= 0.1167      C<sub>u</sub>= 1.78      C<sub>c</sub>= 1.19         </div> <div> <b>Classification</b>            USCS= SP      AASHTO=         </div> <div> <b>Remarks</b> </div> </div>		

Location: USACE Sample # BI-CI-35B-11  
Sample Number: TE Lab ID: 5054.82

Depth: 4.0 - 8.5 (ft)

Date: 7/18/11

**Thompson Engineering**

**Mobile, Alabama**

**Client:** US Army Corps of Engineers

**Project:** Contract No. W91278-10-D-0026 - Task 009  
Mississippi Barrier Island Restoration Project

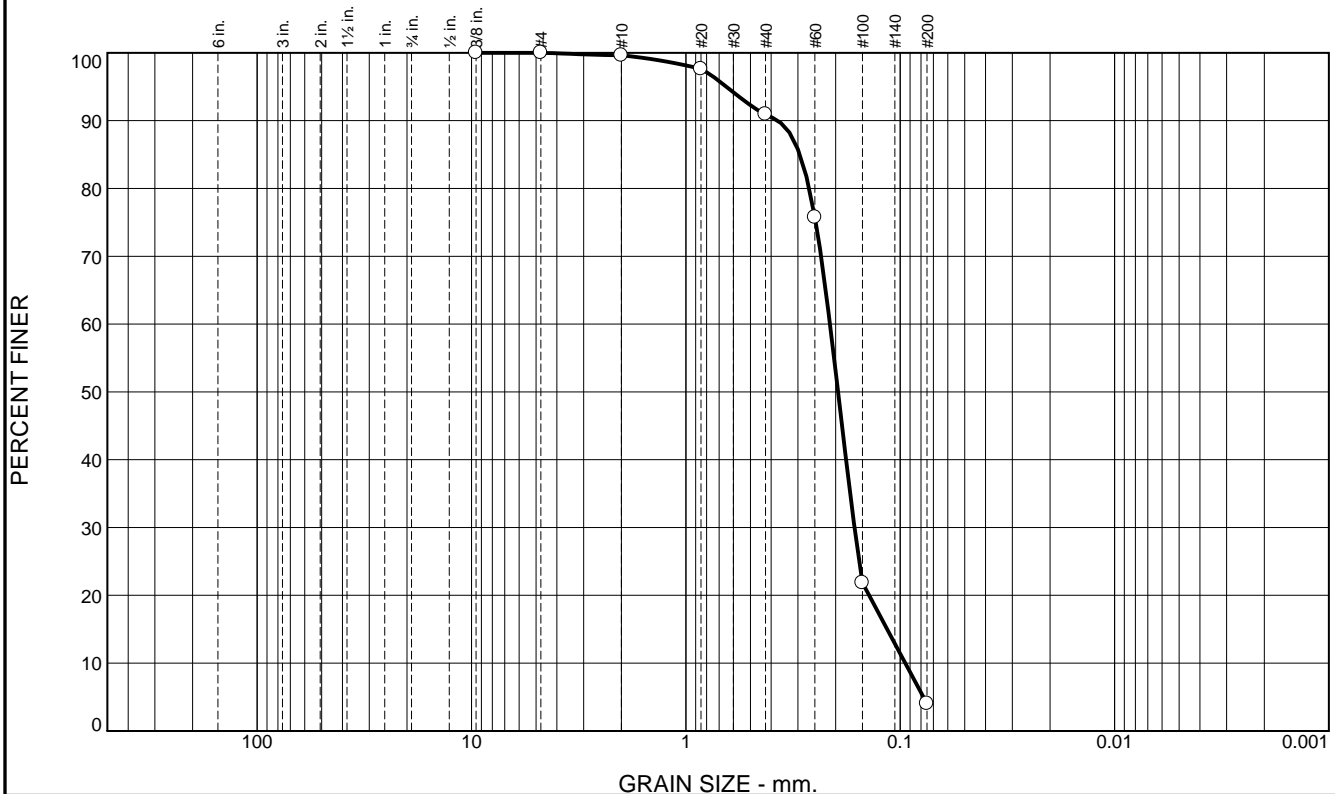
**Project No:** 11-2116-0057

**Figure**

# Boring Designation BI-CI-36-11

DRILLING LOG		DIVISION South Atlantic		INSTALLATION Mobile District		SHEET 1 OF 1 SHEETS	
1. PROJECT MsCIP Barrier Island Restoration Cat Island				9. SIZE AND TYPE OF BIT N/A			
2. BORING DESIGNATION BI-CI-36-11		LOCATION COORDINATES E = 913,964 N = 260,102		10. COORDINATE SYSTEM/DATUM State Plane, MSE (U.S. Ft.)		HORIZONTAL NAD83 VERTICAL NAVD88	
3. DRILLING AGENCY Corps of Engineers - CESAM		CONTRACTOR FILE NO.		11. MANUFACTURER'S DESIGNATION OF DRILL Vibracore		<input type="checkbox"/> AUTO HAMMER <input type="checkbox"/> MANUAL HAMMER	
4. NAME OF DRILLER Construction Solutions International, Inc.				12. TOTAL SAMPLES 3		DISTURBED 0 UNDISTURBED (UD)	
5. DIRECTION OF BORING <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED		DEG. FROM VERTICAL		13. TOTAL NUMBER CORE BOXES			
		BEARING		14. WATER DEPTH 15.5 Ft.			
6. THICKNESS OF OVERBURDEN N/A				15. DATE BORING 06-24-11		STARTED 06-24-11 COMPLETED 06-24-11	
7. DEPTH DRILLED INTO ROCK N/A				16. ELEVATION TOP OF BORING -15.7 Ft.			
8. TOTAL DEPTH OF BORING 13.8 Ft.				17. TOTAL RECOVERY FOR BORING 100%			
				18. SIGNATURE AND TITLE OF INSPECTOR Rhonda Capes, Geologist			
ELEV.	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS	SAMPLE	LABORATORY RESULTS		
-15.7	0.0						
			SAND, poorly-graded, mostly fine-grained sand-sized quartz, trace shell fragments, lt. gray (SP)	A	Classification: SP Color: 5Y 5/2-olive gray D50: 0.1949 mm % Fines: 4		
				B	Classification: SP Color: 5Y 5/2-olive gray D50: 0.1764 mm % Fines: 3.4		
				C	Classification: SP-SM Color: 5Y 5/2-olive gray D50: 0.1619 mm % Fines: 8.2		
-28.0	12.3						
-29.5	13.8		SAND, silty, mostly fine-grained sand-sized quartz, some silt, trace clay, dark gray (SM)	NS			
			NOTES: 1. Soils are field visually classified in accordance with the Unified Soils Classification System. 2. NS = Sample not submitted for laboratory analysis from this interval. 3. Seafloor elevation determined from USACE hydrographic survey completed 2010.				

# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.0	0.4	8.7	86.9	4.0	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
.375	100.0		
#4	100.0		
#10	99.6		
#20	97.6		
#40	90.9		
#60	75.7		
#100	21.8		
#200	4.0		

\* (no specification provided)

<u>Material Description</u>		
SAND (SP), fine grained		
<u>Atterberg Limits</u>		
PL=	LL=	PI=
<u>Coefficients</u>		
D <sub>90</sub> = 0.3730	D <sub>85</sub> = 0.2940	D <sub>60</sub> = 0.2126
D <sub>50</sub> = 0.1949	D <sub>30</sub> = 0.1634	D <sub>15</sub> = 0.1150
D <sub>10</sub> = 0.0947	C <sub>u</sub> = 2.24	C <sub>c</sub> = 1.33
<u>Classification</u>		
USCS= SP	AASHTO=	
<u>Remarks</u>		

Location: USACE Sample # BI-CI-36A-11  
Sample Number: TE Lab ID: 5054.56

Depth: 0.0 - 5.0 (ft)

Date: 7/18/11

**Thompson Engineering**

**Mobile, Alabama**

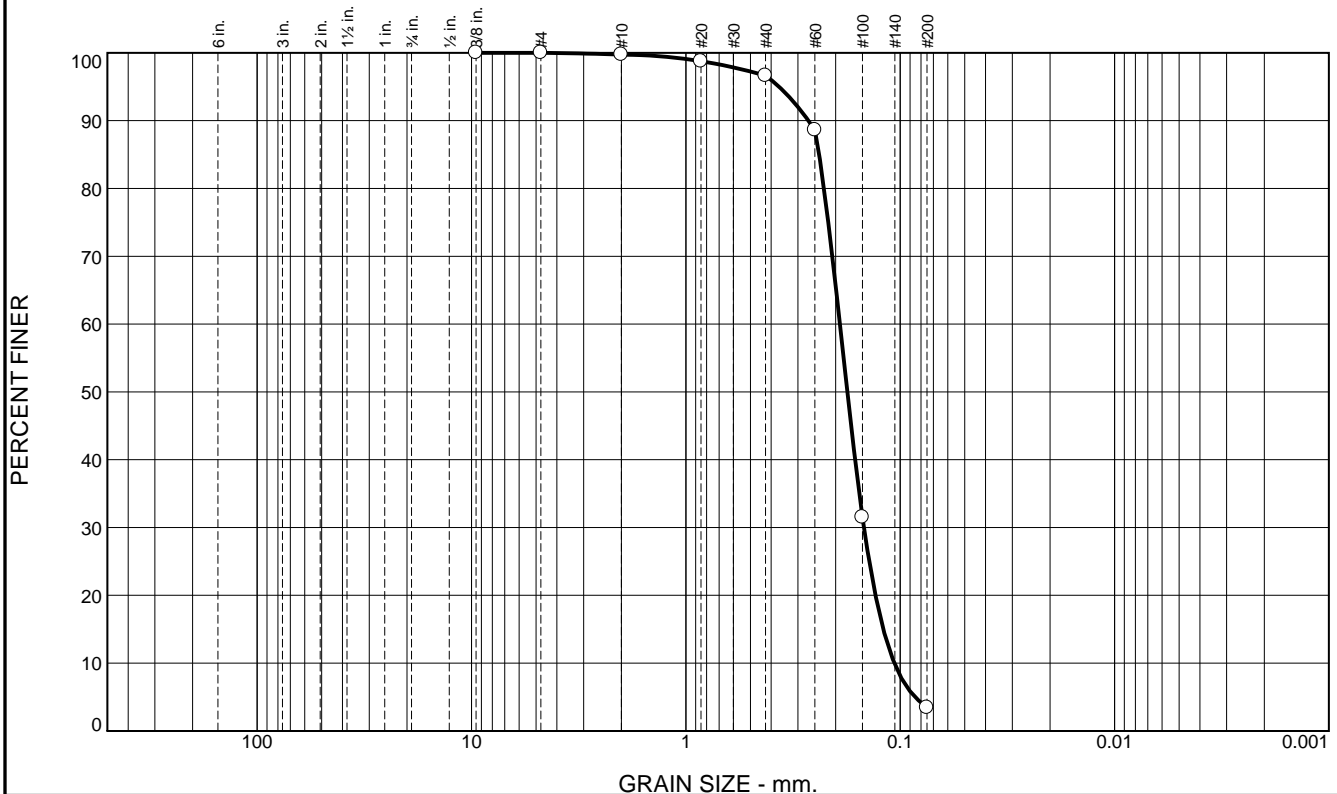
**Client:** US Army Corps of Engineers

**Project:** Contract No. W91278-10-D-0026 - Task 009  
Mississippi Barrier Island Restoration Project

**Project No:** 11-2116-0057

**Figure**

# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.0	0.3	3.1	93.2	3.4	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
.375	100.0		
#4	100.0		
#10	99.7		
#20	98.8		
#40	96.6		
#60	88.6		
#100	31.5		
#200	3.4		

<u>Material Description</u>		
SAND (SP), fine grained		
<u>Atterberg Limits</u>		
PL=	LL=	PI=
<u>Coefficients</u>		
D <sub>90</sub> = 0.2683	D <sub>85</sub> = 0.2390	D <sub>60</sub> = 0.1910
D <sub>50</sub> = 0.1764	D <sub>30</sub> = 0.1477	D <sub>15</sub> = 0.1199
D <sub>10</sub> = 0.1065	C <sub>u</sub> = 1.79	C <sub>c</sub> = 1.07
<u>Classification</u>		
USCS= SP	AASHTO=	
<u>Remarks</u>		

\* (no specification provided)

Location: USACE Sample # BI-CI-36B-11  
Sample Number: TE Lab ID: 5054.57

Depth: 5.0 - 10.0 (ft)

Date: 7/18/11

**Thompson Engineering**

**Mobile, Alabama**

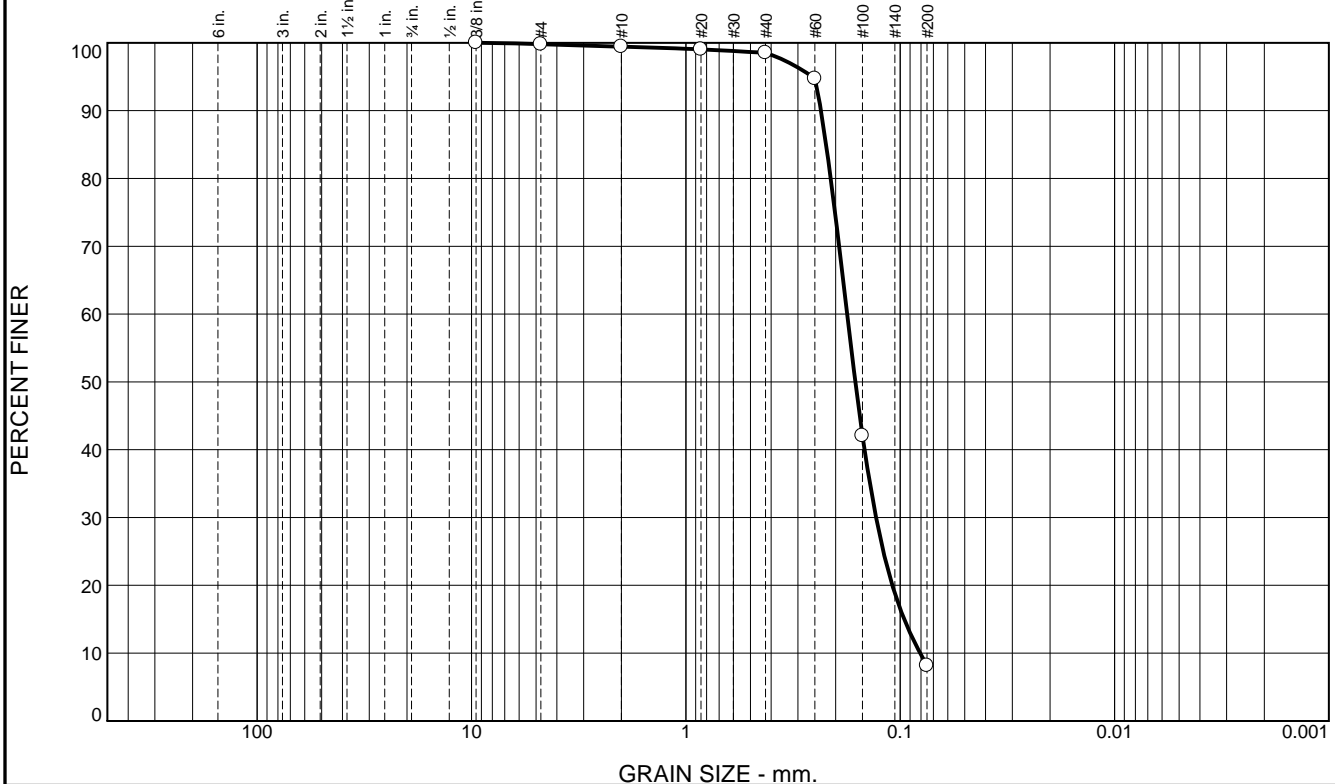
**Client:** US Army Corps of Engineers

**Project:** Contract No. W91278-10-D-0026 - Task 009  
Mississippi Barrier Island Restoration Project

**Project No:** 11-2116-0057

**Figure**

# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.2	0.4	0.9	90.3	8.2	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
.375	100.0		
#4	99.8		
#10	99.4		
#20	99.0		
#40	98.5		
#60	94.7		
#100	42.1		
#200	8.2		

\* (no specification provided)

<u>Material Description</u>		
Slightly silty SAND (SP-SM), fine grained		
<u>Atterberg Limits</u>		
PL=	LL=	PI=
<u>Coefficients</u>		
D <sub>90</sub> = 0.2343	D <sub>85</sub> = 0.2215	D <sub>60</sub> = 0.1768
D <sub>50</sub> = 0.1619	D <sub>30</sub> = 0.1297	D <sub>15</sub> = 0.0958
D <sub>10</sub> = 0.0807	C <sub>u</sub> = 2.19	C <sub>c</sub> = 1.18
<u>Classification</u>		
USCS= SP-SM	AASHTO=	
<u>Remarks</u>		

Location: USACE Sample # BI-CI-36C-11  
Sample Number: TE Lab ID: 5054.58

Depth: 10.0 - 12.3 (ft)

Date: 7/18/11

**Thompson Engineering**

**Mobile, Alabama**

**Client:** US Army Corps of Engineers

**Project:** Contract No. W91278-10-D-0026 - Task 009  
Mississippi Barrier Island Restoration Project

**Project No:** 11-2116-0057

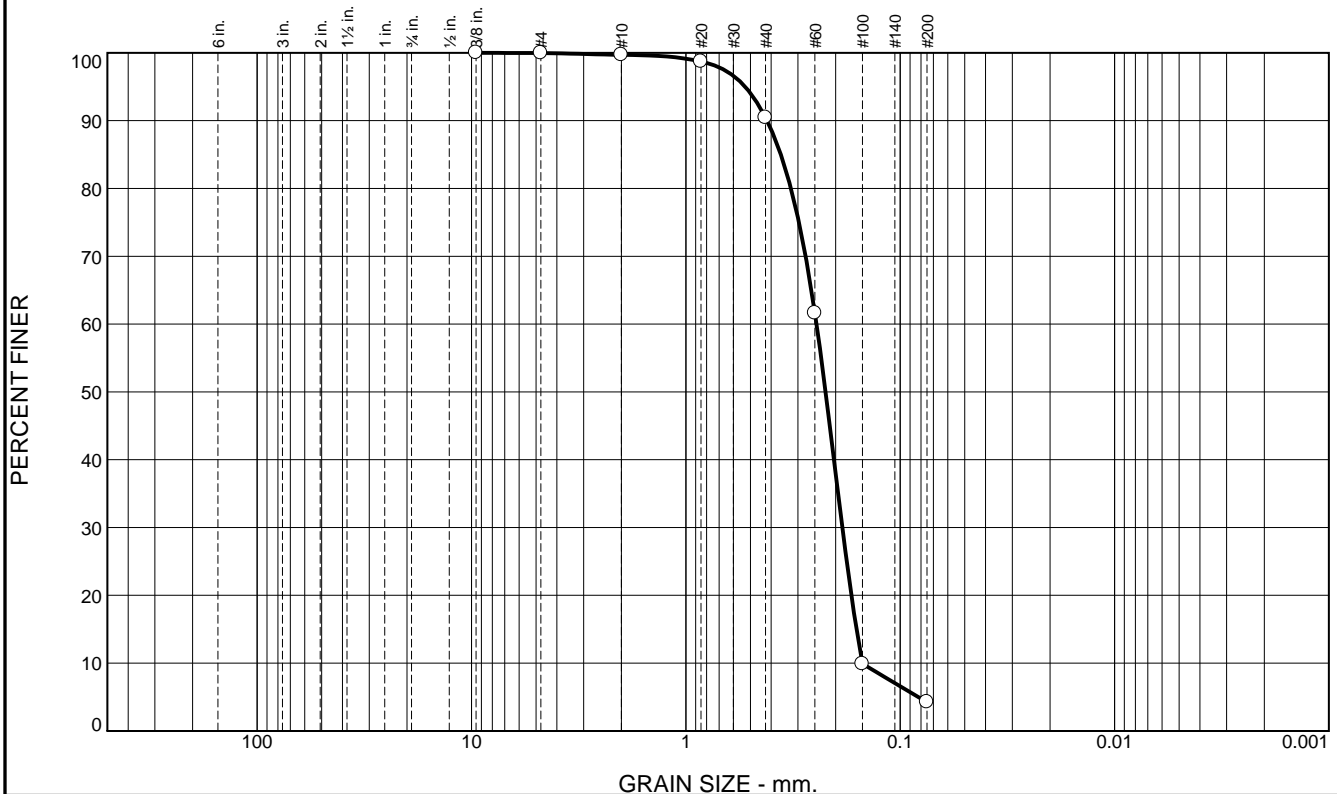
**Figure**

# Boring Designation BI-CI-37-11

DRILLING LOG		DIVISION South Atlantic		INSTALLATION Mobile District		SHEET 1 OF 1 SHEETS	
1. PROJECT MsCIP Barrier Island Restoration Cat Island				9. SIZE AND TYPE OF BIT N/A			
2. BORING DESIGNATION BI-CI-37-11		LOCATION COORDINATES E = 914,964 N = 261,249		10. COORDINATE SYSTEM/DATUM State Plane, MSE (U.S. Ft.)		HORIZONTAL NAD83	
3. DRILLING AGENCY Corps of Engineers - CESAM		CONTRACTOR FILE NO.		11. MANUFACTURER'S DESIGNATION OF DRILL Vibracore		<input type="checkbox"/> AUTO HAMMER <input type="checkbox"/> MANUAL HAMMER	
4. NAME OF DRILLER Construction Solutions International, Inc.				12. TOTAL SAMPLES 2		UNDISTURBED (UD) 0	
5. DIRECTION OF BORING <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED		DEG. FROM VERTICAL		13. TOTAL NUMBER CORE BOXES		14. WATER DEPTH 15 Ft.	
6. THICKNESS OF OVERBURDEN N/A		7. DEPTH DRILLED INTO ROCK N/A		15. DATE BORING 06-24-11		COMPLETED 06-24-11	
8. TOTAL DEPTH OF BORING 11.3 Ft.				16. ELEVATION TOP OF BORING -15.0 Ft.		17. TOTAL RECOVERY FOR BORING 100%	
				18. SIGNATURE AND TITLE OF INSPECTOR Rhonda Capes, Geologist			
ELEV.	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS	SAMPLE	LABORATORY RESULTS		
-15.0	0.0						
-16.6	1.6		SAND, silty, mostly fine-grained sand-sized quartz, little silt, trace shell fragments, gray (SM)	A	Classification: SP Color: 5Y 4/2-olive gray D50: 0.2229 mm % Fines: 4.2		
			SAND, poorly-graded, mostly fine-grained sand-sized quartz, gray (SP)	B	Classification: SP Color: 5Y 5/2-olive gray D50: 0.2549 mm % Fines: 3.4		
			At El. -23.5 Ft., thin layer of clay	NS			
-26.3	11.3		NOTES: 1. Soils are field visually classified in accordance with the Unified Soils Classification System. 2. NS = Sample not submitted for laboratory analysis from this interval. 3. Seafloor elevation determined from USACE hydrographic survey completed 2010.				



# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.0	0.3	9.3	86.2	4.2	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
.375	100.0		
#4	100.0		
#10	99.7		
#20	98.7		
#40	90.4		
#60	61.6		
#100	9.9		
#200	4.2		

\* (no specification provided)

Material Description		
SAND (SP), fine grained		
PL=	Atterberg Limits LL=	PI=
D <sub>90</sub> = 0.4182	Coefficients D <sub>85</sub> = 0.3606	D <sub>60</sub> = 0.2457
D <sub>50</sub> = 0.2229	D <sub>30</sub> = 0.1861	D <sub>15</sub> = 0.1600
D <sub>10</sub> = 0.1502	C <sub>u</sub> = 1.64	C <sub>c</sub> = 0.94
USCS= SP	Classification AASHTO=	
Remarks		

Location: USACE Sample # BI-CI-37A-11  
Sample Number: TE Lab ID: 5054.59

Depth: 0.0 - 5.0 (ft)

Date: 7/18/11

**Thompson Engineering**

**Mobile, Alabama**

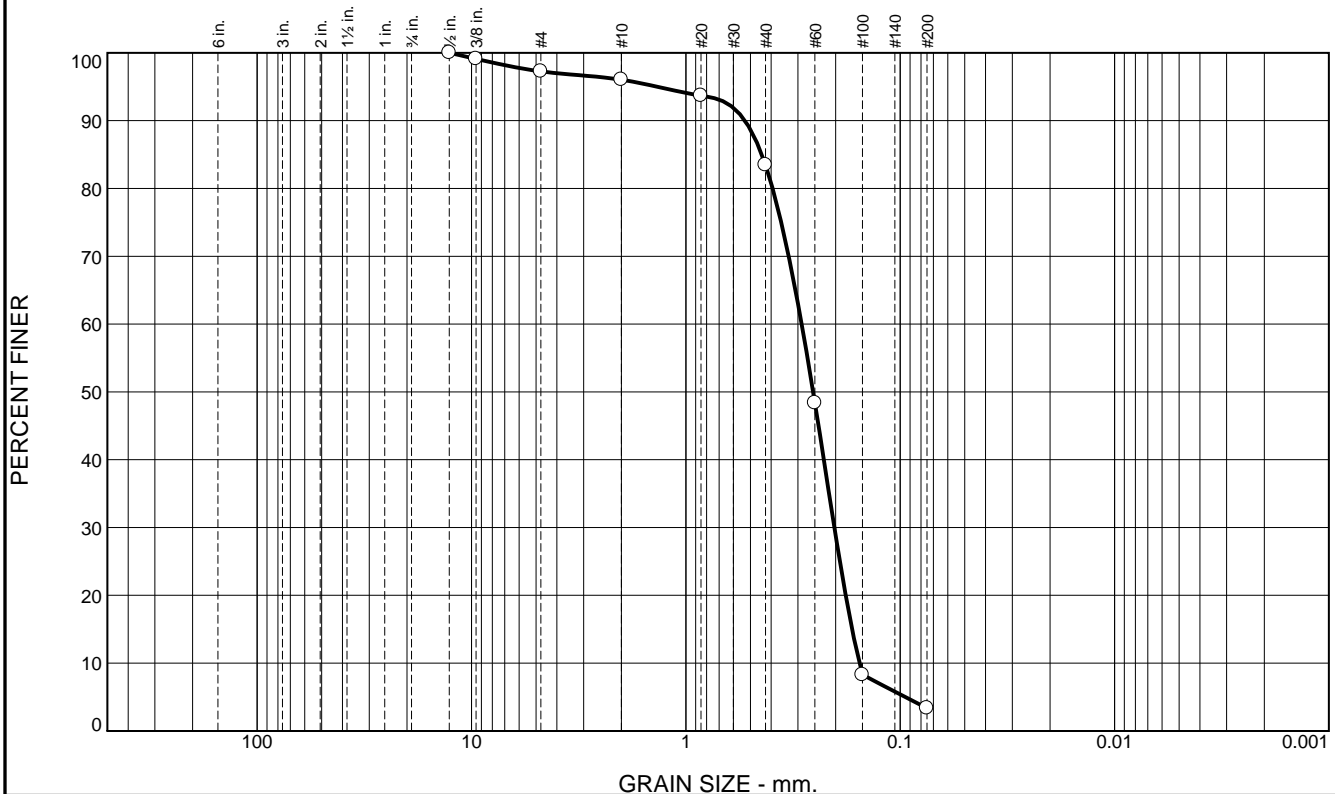
Client: US Army Corps of Engineers

Project: Contract No. W91278-10-D-0026 - Task 009  
Mississippi Barrier Island Restoration Project

Project No: 11-2116-0057

Figure

# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	2.7	1.3	12.5	80.1	3.4	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
.5	100.0		
.375	99.1		
#4	97.3		
#10	96.0		
#20	93.7		
#40	83.5		
#60	48.4		
#100	8.3		
#200	3.4		

\* (no specification provided)

Material Description		
SAND (SP), medium to fine grained		
<div> <div> <b>Atterberg Limits</b>            PL=      LL=      PI=         </div> <div> <b>Coefficients</b>            D<sub>90</sub>= 0.5298    D<sub>85</sub>= 0.4423    D<sub>60</sub>= 0.2884            D<sub>50</sub>= 0.2549    D<sub>30</sub>= 0.2028    D<sub>15</sub>= 0.1677            D<sub>10</sub>= 0.1549    C<sub>u</sub>= 1.86      C<sub>c</sub>= 0.92         </div> <div> <b>Classification</b>            USCS= SP      AASHTO=         </div> <div> <b>Remarks</b> </div> </div>		

Location: USACE Sample # BI-CI-37B-11  
Sample Number: TE Lab ID: 5054.60

Depth: 5.0 - 10.0 (ft)

Date: 7/18/11

**Thompson Engineering**

**Mobile, Alabama**

**Client:** US Army Corps of Engineers

**Project:** Contract No. W91278-10-D-0026 - Task 009  
Mississippi Barrier Island Restoration Project

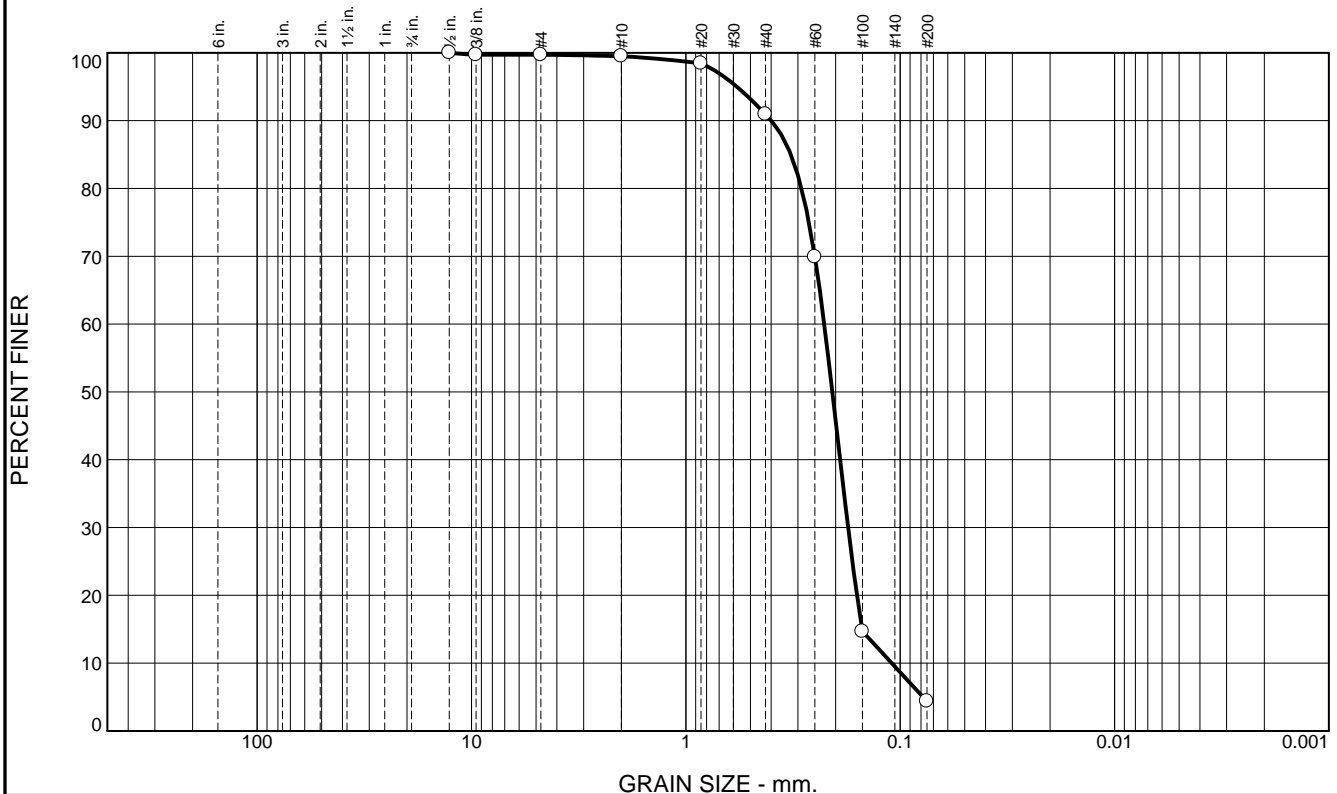
**Project No:** 11-2116-0057

**Figure**

# Boring Designation BI-CI-38-11

DRILLING LOG		DIVISION South Atlantic		INSTALLATION Mobile District		SHEET 1 OF 1 SHEETS	
1. PROJECT MsCIP Barrier Island Restoration Cat Island				9. SIZE AND TYPE OF BIT N/A			
2. BORING DESIGNATION BI-CI-38-11		LOCATION COORDINATES E = 916,084 N = 262,363		10. COORDINATE SYSTEM/DATUM State Plane, MSE (U.S. Ft.)		HORIZONTAL NAD83	
3. DRILLING AGENCY Corps of Engineers - CESAM		CONTRACTOR FILE NO.		11. MANUFACTURER'S DESIGNATION OF DRILL Vibracore		<input type="checkbox"/> AUTO HAMMER <input type="checkbox"/> MANUAL HAMMER	
4. NAME OF DRILLER Construction Solutions International, Inc.				12. TOTAL SAMPLES 2		DISTURBED 0	
5. DIRECTION OF BORING <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED				13. TOTAL NUMBER CORE BOXES		14. WATER DEPTH 14 Ft.	
6. THICKNESS OF OVERBURDEN N/A				15. DATE BORING 06-24-11		STARTED 06-24-11	
7. DEPTH DRILLED INTO ROCK N/A				16. ELEVATION TOP OF BORING -14.7 Ft.		COMPLETED 06-24-11	
8. TOTAL DEPTH OF BORING 13.1 Ft.				17. TOTAL RECOVERY FOR BORING 100%			
				18. SIGNATURE AND TITLE OF INSPECTOR Rhonda Capes, Geologist			
ELEV.	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS	SAMPLE	LABORATORY RESULTS		
-14.7	0.0						
			SAND, poorly-graded, mostly fine-grained sand-sized quartz, lt. gray (SP)	A	Classification: SP Color: 2.5Y 6/2-light brownish gray D50: 0.2072 mm % Fines: 4.4		
-19.5	4.8						
-20.3	5.6		CLAY, lean, dark gray (CL)	NS			
			SAND, poorly-graded, mostly fine-grained sand-sized quartz, lt. gray (SP)	B	Classification: SP Color: 5Y 4/1-dark gray D50: 0.1886 mm % Fines: 3.6		
-25.2	10.5						
			SAND, clayey, mostly fine-grained sand-sized quartz, some clay, dark gray (SC)	NS			
-27.8	13.1						
			NOTES: 1. Soils are field visually classified in accordance with the Unified Soils Classification System. 2. NS = Sample not submitted for laboratory analysis from this interval. 3. Seafloor elevation determined from USACE hydrographic survey completed 2010.				

# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.3	0.2	8.6	86.5	4.4	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
.5	100.0		
.375	99.7		
#4	99.7		
#10	99.5		
#20	98.4		
#40	90.9		
#60	69.9		
#100	14.7		
#200	4.4		

\* (no specification provided)

**Material Description**  
SAND (SP), fine grained

**Atterberg Limits**  
PL=      LL=      PI=

**Coefficients**  
D<sub>90</sub>= 0.4000      D<sub>85</sub>= 0.3237      D<sub>60</sub>= 0.2262  
D<sub>50</sub>= 0.2072      D<sub>30</sub>= 0.1750      D<sub>15</sub>= 0.1506  
D<sub>10</sub>= 0.1095      C<sub>u</sub>= 2.06      C<sub>c</sub>= 1.24

**Classification**  
USCS= SP      AASHTO=

**Remarks**

Location: USACE Sample # BI-CI-38A-11  
Sample Number: TE Lab ID: 5054.61

Depth: 0.0 - 4.8 (ft)

Date: 7/18/11

**Thompson Engineering**

**Mobile, Alabama**

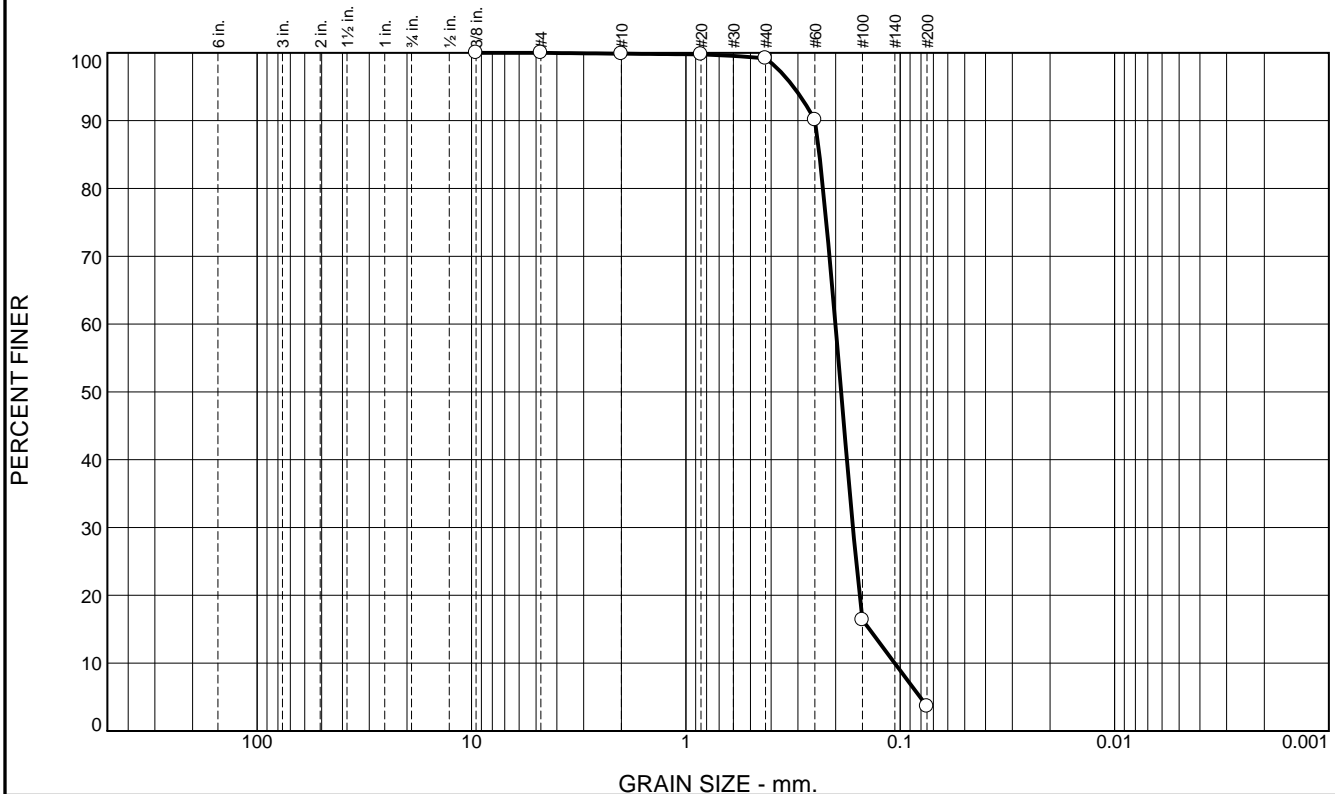
**Client:** US Army Corps of Engineers

**Project:** Contract No. W91278-10-D-0026 - Task 009  
Mississippi Barrier Island Restoration Project

**Project No:** 11-2116-0057

**Figure**

# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.0	0.1	0.7	95.6	3.6	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
.375	100.0		
#4	100.0		
#10	99.9		
#20	99.8		
#40	99.2		
#60	90.1		
#100	16.4		
#200	3.6		

\* (no specification provided)

Material Description		
SAND (SP), fine grained		
PL=	Atterberg Limits LL=	PI=
D <sub>90</sub> = 0.2497	Coefficients D <sub>85</sub> = 0.2384	D <sub>60</sub> = 0.2005
D <sub>50</sub> = 0.1886	D <sub>30</sub> = 0.1662	D <sub>15</sub> = 0.1393
D <sub>10</sub> = 0.1061	C <sub>u</sub> = 1.89	C <sub>c</sub> = 1.30
USCS= SP	Classification AASHTO=	
Remarks		

Location: USACE Sample # BI-CI-38B-11  
Sample Number: TE Lab ID: 5054.62

Depth: 5.6 - 10.5 (ft)

Date: 7/18/11

**Thompson Engineering**

**Mobile, Alabama**

Client: US Army Corps of Engineers

Project: Contract No. W91278-10-D-0026 - Task 009  
Mississippi Barrier Island Restoration Project

Project No: 11-2116-0057

Figure

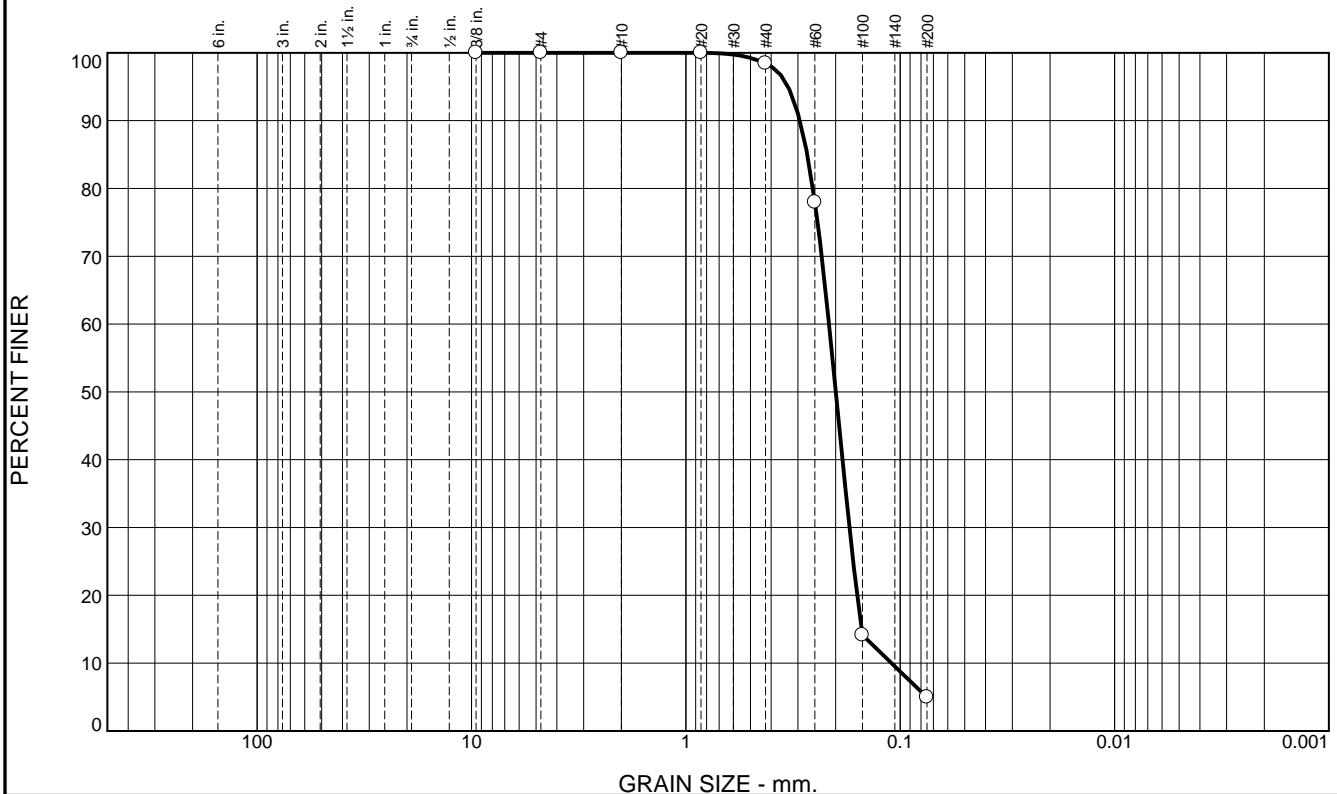
# Boring Designation BI-CI-39-11

DRILLING LOG		DIVISION South Atlantic		INSTALLATION Mobile District		SHEET 1 OF 1 SHEETS	
1. PROJECT MsCIP Barrier Island Restoration Cat Island				9. SIZE AND TYPE OF BIT N/A			
2. BORING DESIGNATION BI-CI-39-11		LOCATION COORDINATES E = 917,160 N = 263,391		10. COORDINATE SYSTEM/DATUM State Plane, MSE (U.S. Ft.)		HORIZONTAL NAD83	
3. DRILLING AGENCY Corps of Engineers - CESAM		CONTRACTOR FILE NO.		11. MANUFACTURER'S DESIGNATION OF DRILL Vibrocure		<input type="checkbox"/> AUTO HAMMER <input type="checkbox"/> MANUAL HAMMER	
4. NAME OF DRILLER Construction Solutions International, Inc.				12. TOTAL SAMPLES 2		UNDISTURBED (UD) 0	
5. DIRECTION OF BORING <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED				13. TOTAL NUMBER CORE BOXES		14. WATER DEPTH 15.2 Ft.	
6. THICKNESS OF OVERBURDEN N/A				15. DATE BORING 06-25-11		COMPLETED 06-25-11	
7. DEPTH DRILLED INTO ROCK N/A				16. ELEVATION TOP OF BORING -14.7 Ft.		17. TOTAL RECOVERY FOR BORING 100%	
8. TOTAL DEPTH OF BORING 12.5 Ft.				18. SIGNATURE AND TITLE OF INSPECTOR Rhonda Capes, Geologist			

ELEV.	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS	SAMPLE	LABORATORY RESULTS
-14.7	0.0				
-15.7	1.0		SAND, silty, mostly fine-grained sand-sized quartz, little silt, dark gray (SM)	NS	
			SAND, poorly-graded, mostly fine-grained sand-sized quartz, lt. gray (SP)	A	Classification: SP-SM Color: 5Y 4/2-olive gray D50: 0.1997 mm % Fines: 5
			At El. -22.5 Ft., mostly fine-grained sand-sized quartz, some shell fragments, lt. gray	B	Classification: SP Color: 5Y 3/2-dark olive gray D50: 0.1802 mm % Fines: 4.3
-25.2	10.5				
-27.2	12.5		SAND, clayey, mostly fine-grained sand-sized quartz, some clay, dark gray (SC)	NS	
NOTES: 1. Soils are field visually classified in accordance with the Unified Soils Classification System. 2. NS = Sample not submitted for laboratory analysis from this interval. 3. Seafloor elevation determined from USACE hydrographic survey completed 2010.					

# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.0	0.0	1.6	93.4	5.0	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
.375	100.0		
#4	100.0		
#10	100.0		
#20	100.0		
#40	98.4		
#60	78.0		
#100	14.1		
#200	5.0		

<u><b>Material Description</b></u>		
Slightly silty SAND (SP-SM), fine grained		
<u><b>Atterberg Limits</b></u>		
PL=	LL=	PI=
<u><b>Coefficients</b></u>		
D <sub>90</sub> = 0.2940	D <sub>85</sub> = 0.2714	D <sub>60</sub> = 0.2148
D <sub>50</sub> = 0.1997	D <sub>30</sub> = 0.1725	D <sub>15</sub> = 0.1514
D <sub>10</sub> = 0.1098	C <sub>u</sub> = 1.96	C <sub>c</sub> = 1.26
<u><b>Classification</b></u>		
USCS= SP-SM	AASHTO=	
<u><b>Remarks</b></u>		

\* (no specification provided)

Location: USACE Sample # BI-CI-39A-11  
Sample Number: TE Lab ID: 5054.72

Depth: 1.0 - 6.0 (ft)

Date: 7/18/11

**Thompson Engineering**

**Mobile, Alabama**

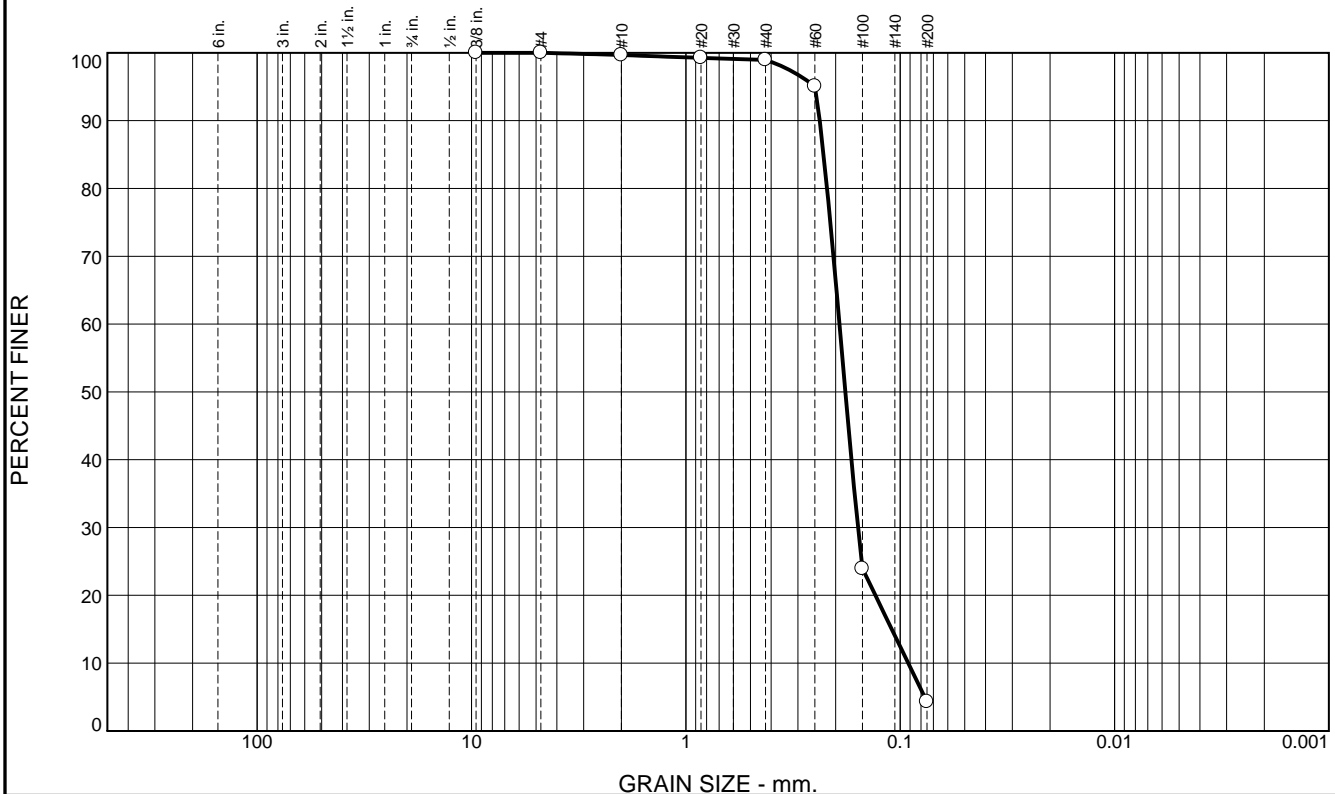
**Client:** US Army Corps of Engineers

**Project:** Contract No. W91278-10-D-0026 - Task 009  
Mississippi Barrier Island Restoration Project

**Project No:** 11-2116-0057

**Figure**

# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.0	0.3	0.7	94.7	4.3	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
.375	100.0		
#4	100.0		
#10	99.7		
#20	99.3		
#40	99.0		
#60	95.1		
#100	23.9		
#200	4.3		

\* (no specification provided)

Material Description		
SAND (SP), fine grained		
PL=	Atterberg Limits LL=	PI=
D <sub>90</sub> = 0.2375	Coefficients D <sub>85</sub> = 0.2277	D <sub>60</sub> = 0.1919
D <sub>50</sub> = 0.1802	D <sub>30</sub> = 0.1574	D <sub>15</sub> = 0.1094
D <sub>10</sub> = 0.0917	C <sub>u</sub> = 2.09	C <sub>c</sub> = 1.41
USCS= SP	Classification AASHTO=	
Remarks		

Location: USACE Sample # BI-CI-39B-11  
Sample Number: TE Lab ID: 5054.73

Depth: 6.0 - 10.5 (ft)

Date: 7/18/11

**Thompson Engineering**

**Mobile, Alabama**

Client: US Army Corps of Engineers

Project: Contract No. W91278-10-D-0026 - Task 009  
Mississippi Barrier Island Restoration Project

Project No: 11-2116-0057

Figure



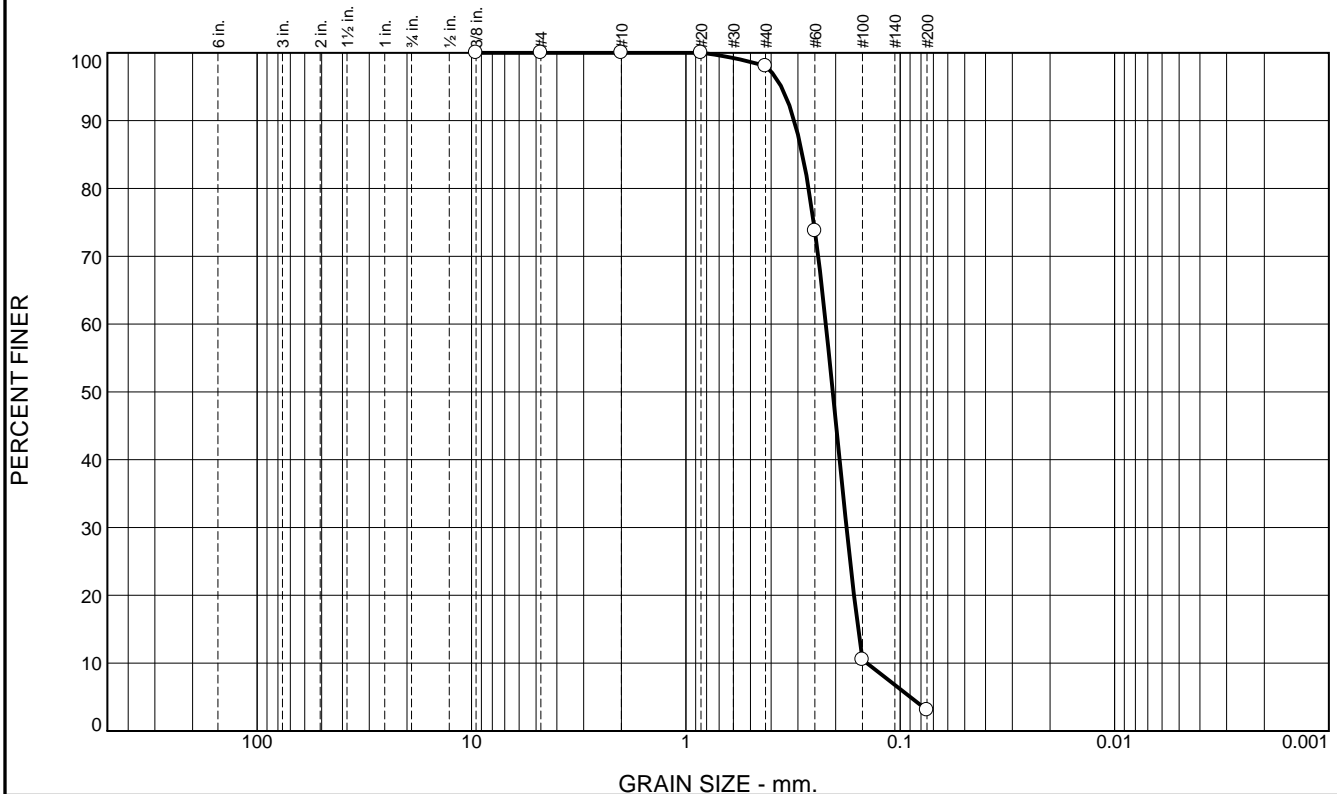
# Boring Designation BI-CI-40-11

DRILLING LOG		DIVISION South Atlantic		INSTALLATION Mobile District		SHEET 1 OF 1 SHEETS	
1. PROJECT MsCIP Barrier Island Restoration Cat Island				9. SIZE AND TYPE OF BIT N/A			
2. BORING DESIGNATION BI-CI-40-11		LOCATION COORDINATES E = 918,163 N = 264,494		10. COORDINATE SYSTEM/DATUM State Plane, MSE (U.S. Ft.)		HORIZONTAL NAD83	
3. DRILLING AGENCY Corps of Engineers - CESAM		CONTRACTOR FILE NO.		11. MANUFACTURER'S DESIGNATION OF DRILL Vibrocure		<input type="checkbox"/> AUTO HAMMER <input type="checkbox"/> MANUAL HAMMER	
4. NAME OF DRILLER Construction Solutions International, Inc.				12. TOTAL SAMPLES		DISTURBED 1	
5. DIRECTION OF BORING <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED				13. TOTAL NUMBER CORE BOXES		UNDISTURBED (UD) 0	
6. THICKNESS OF OVERBURDEN N/A				14. WATER DEPTH		15 Ft.	
7. DEPTH DRILLED INTO ROCK N/A				15. DATE BORING		STARTED 06-25-11	
8. TOTAL DEPTH OF BORING 14.6 Ft.				16. ELEVATION TOP OF BORING		COMPLETED 06-25-11	
				17. TOTAL RECOVERY FOR BORING		100%	
				18. SIGNATURE AND TITLE OF INSPECTOR Rhonda Capes, Geologist			

ELEV.	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS	SAMPLE	LABORATORY RESULTS
-14.4	0.0				
-16.1	1.7		SAND, silty, mostly fine-grained sand-sized quartz, little silt, gray and brown (SM)	NS	
			SAND, poorly-graded, mostly fine-grained sand-sized quartz, lt. gray (SP)	A	Classification: SP Color: 2.5Y 7/1-light gray D50: 0.2062 mm % Fines: 3.1
-23.6	9.2				
-25.3	10.9		SAND, silty, mostly fine-grained sand-sized quartz, some silt, little clay, gray (SM)	NS	
-26.5	12.1		SAND, clayey, mostly fine-grained sand-sized quartz, some clay, dark gray (SC)		
-29.0	14.6		SAND, silty, mostly fine-grained sand-sized quartz, some silt, gray (SM)		
NOTES: 1. Soils are field visually classified in accordance with the Unified Soils Classification System. 2. NS = Sample not submitted for laboratory analysis from this interval. 3. Seafloor elevation determined from USACE hydrographic survey completed 2010.					

# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.0	0.0	2.0	94.9	3.1	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
.375	100.0		
#4	100.0		
#10	100.0		
#20	100.0		
#40	98.0		
#60	73.7		
#100	10.5		
#200	3.1		

\* (no specification provided)

Material Description		
SAND (SP), fine grained		
PL=	Atterberg Limits LL=	PI=
D <sub>90</sub> = 0.3123	Coefficients D <sub>85</sub> = 0.2860	D <sub>60</sub> = 0.2223
D <sub>50</sub> = 0.2062	D <sub>30</sub> = 0.1780	D <sub>15</sub> = 0.1570
D <sub>10</sub> = 0.1431	C <sub>u</sub> = 1.55	C <sub>c</sub> = 1.00
USCS= SP	Classification AASHTO=	
Remarks		

Location: USACE Sample # BI-CI-40A-11  
Sample Number: TE Lab ID: 5054.74

Depth: 2.0 - 7.0 (ft)

Date: 7/18/11

**Thompson Engineering**

**Mobile, Alabama**

Client: US Army Corps of Engineers

Project: Contract No. W91278-10-D-0026 - Task 009  
Mississippi Barrier Island Restoration Project

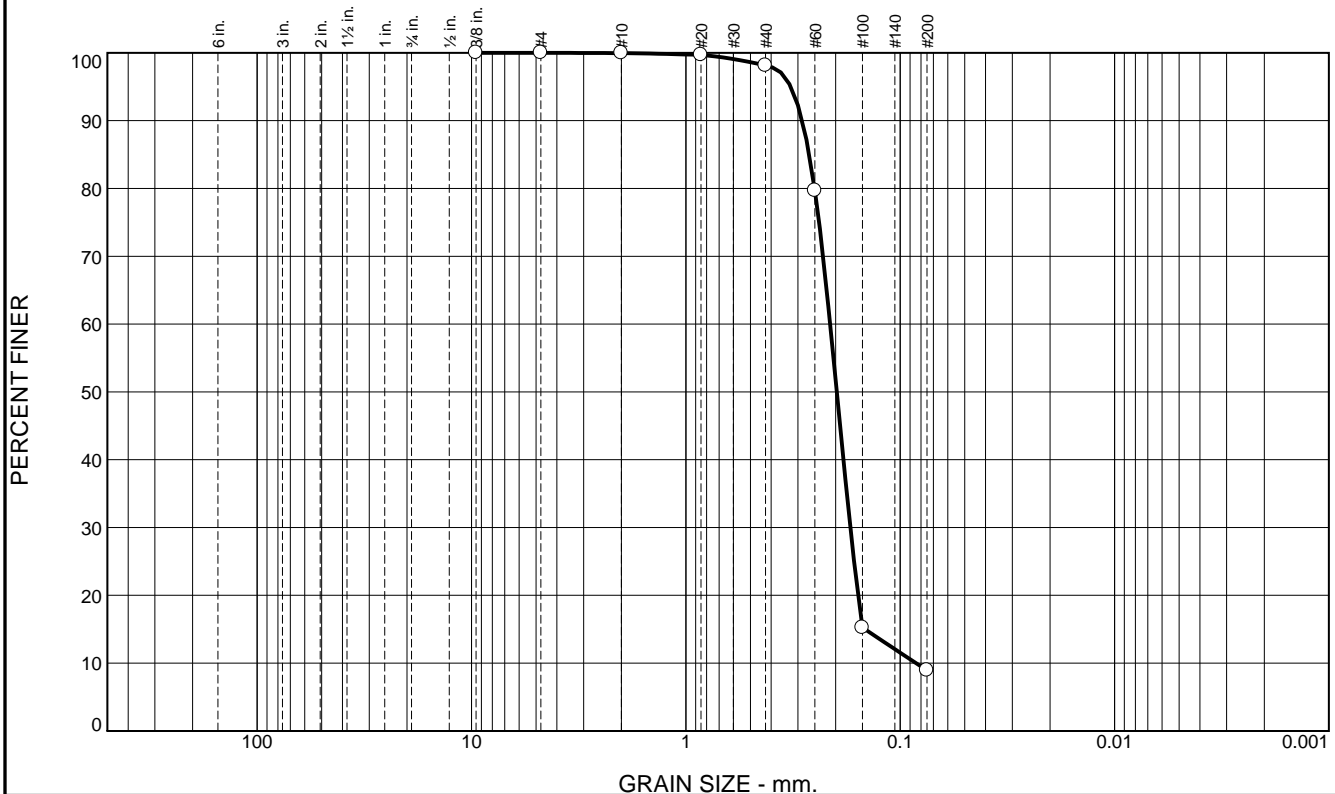
Project No: 11-2116-0057

Figure

# Boring Designation BI-CI-41-11

DRILLING LOG		DIVISION South Atlantic		INSTALLATION Mobile District		SHEET 1 OF 1 SHEETS	
1. PROJECT MsCIP Barrier Island Restoration Cat Island				9. SIZE AND TYPE OF BIT N/A			
2. BORING DESIGNATION BI-CI-41-11		LOCATION COORDINATES E = 919,217 N = 265,573		10. COORDINATE SYSTEM/DATUM State Plane, MSE (U.S. Ft.)		HORIZONTAL NAD83	
3. DRILLING AGENCY Corps of Engineers - CESAM		CONTRACTOR FILE NO.		11. MANUFACTURER'S DESIGNATION OF DRILL Vibracore		<input type="checkbox"/> AUTO HAMMER <input type="checkbox"/> MANUAL HAMMER	
4. NAME OF DRILLER Construction Solutions International, Inc.				12. TOTAL SAMPLES 3		UNDISTURBED (UD) 0	
5. DIRECTION OF BORING <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED				13. TOTAL NUMBER CORE BOXES		14. WATER DEPTH 15.2 Ft.	
6. THICKNESS OF OVERBURDEN N/A				15. DATE BORING 06-25-11		COMPLETED 06-25-11	
7. DEPTH DRILLED INTO ROCK N/A				16. ELEVATION TOP OF BORING -14.5 Ft.		17. TOTAL RECOVERY FOR BORING 100%	
8. TOTAL DEPTH OF BORING 10.9 Ft.				18. SIGNATURE AND TITLE OF INSPECTOR Rhonda Capes, Geologist			
ELEV.	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS	SAMPLE	LABORATORY RESULTS		
-14.5	0.0						
-16.6	2.1		SAND, silty, mostly fine-grained sand-sized quartz, some silt, trace clay, gray (SM)	A	Classification: SP-SM Color: 5Y 3/2-dark olive gray D50: 0.1975 mm % Fines: 8.9		
-18.8	4.3		SAND, silty, mostly fine-grained sand-sized quartz, some silt, gray (SM)	B	Classification: SP Color: 2.5Y 4/2-dark grayish brown D50: 0.2158 mm % Fines: 3.9		
			SAND, poorly-graded, mostly fine-grained sand-sized quartz, trace shell fragments, lt. gray (SP)	C	Classification: SP Color: 2.5Y 4/3-olive brown D50: 0.2118 mm % Fines: 3.1		
-25.4	10.9		NS				
NOTES: 1. Soils are field visually classified in accordance with the Unified Soils Classification System. 2. NS = Sample not submitted for laboratory analysis from this interval. 3. Seafloor elevation determined from USACE hydrographic survey completed 2010.							

# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.0	0.0	1.9	89.2	8.9	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
.375	100.0		
#4	100.0		
#10	100.0		
#20	99.7		
#40	98.1		
#60	79.7		
#100	15.2		
#200	8.9		

\* (no specification provided)

<u>Material Description</u>		
Slightly silty SAND (SP-SM), fine grained		
<u>Atterberg Limits</u>		
PL=	LL=	PI=
<u>Coefficients</u>		
D <sub>90</sub> = 0.2868	D <sub>85</sub> = 0.2658	D <sub>60</sub> = 0.2122
D <sub>50</sub> = 0.1975	D <sub>30</sub> = 0.1708	D <sub>15</sub> = 0.1463
D <sub>10</sub> = 0.0844	C <sub>u</sub> = 2.51	C <sub>c</sub> = 1.63
<u>Classification</u>		
USCS= SP-SM	AASHTO=	
<u>Remarks</u>		

Location: USACE Sample # BI-CI-41A-11  
Sample Number: TE Lab ID: 5054.75

Depth: 0.0 - 2.1 (ft)

Date: 7/18/11

**Thompson Engineering**

**Mobile, Alabama**

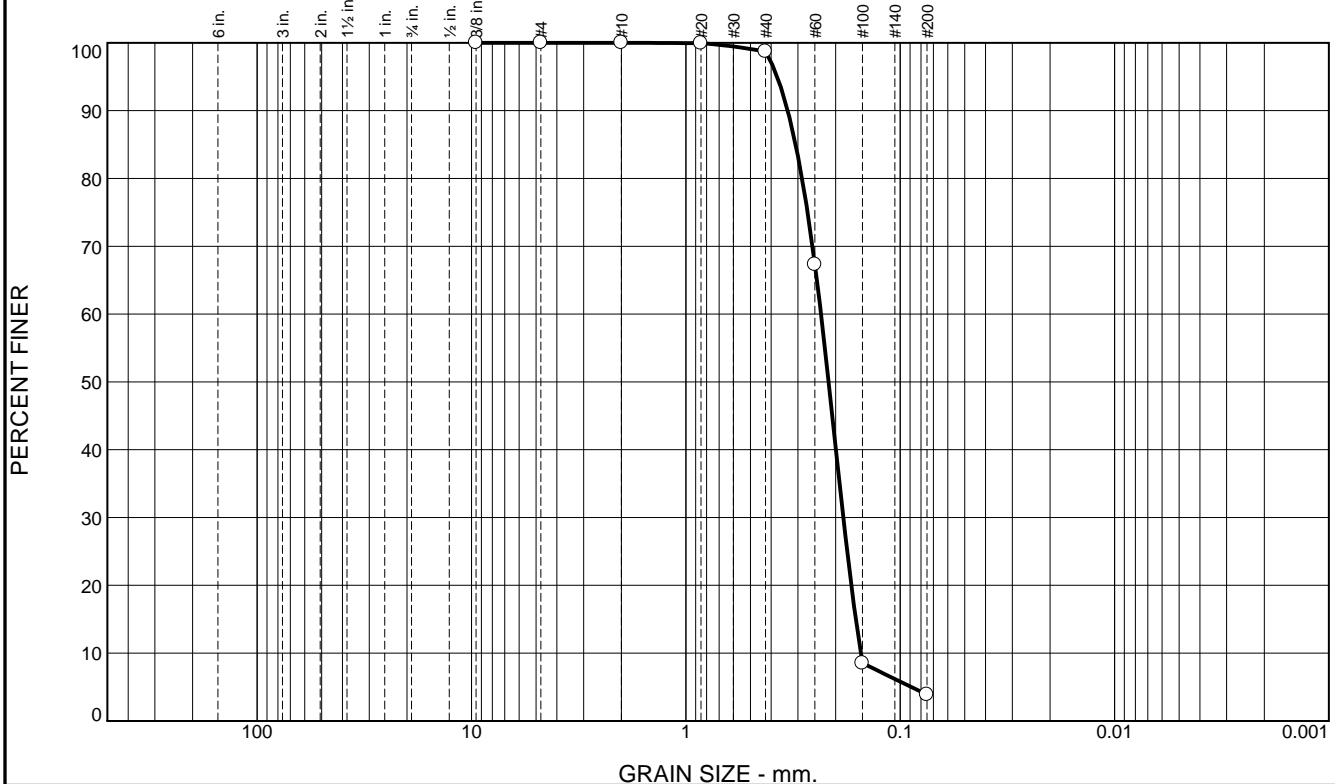
Client: US Army Corps of Engineers

Project: Contract No. W91278-10-D-0026 - Task 009  
Mississippi Barrier Island Restoration Project

Project No: 11-2116-0057

Figure

# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.0	0.0	1.3	94.8	3.9	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
.375	100.0		
#4	100.0		
#10	100.0		
#20	100.0		
#40	98.7		
#60	67.3		
#100	8.5		
#200	3.9		

\* (no specification provided)

Material Description		
SAND (SP), fine grained		
PL=	Atterberg Limits LL=	PI=
D <sub>90</sub> = 0.3349	Coefficients D <sub>85</sub> = 0.3078	D <sub>60</sub> = 0.2342
D <sub>50</sub> = 0.2158	D <sub>30</sub> = 0.1842	D <sub>15</sub> = 0.1612
D <sub>10</sub> = 0.1527	C <sub>u</sub> = 1.53	C <sub>c</sub> = 0.95
USCS= SP	Classification AASHTO=	
Remarks		

Location: USACE Sample # BI-CI-41B-11  
Sample Number: TE Lab ID: 5054.76

Depth: 2.1 - 4.3 (ft)

Date: 7/18/11

**Thompson Engineering**

**Mobile, Alabama**

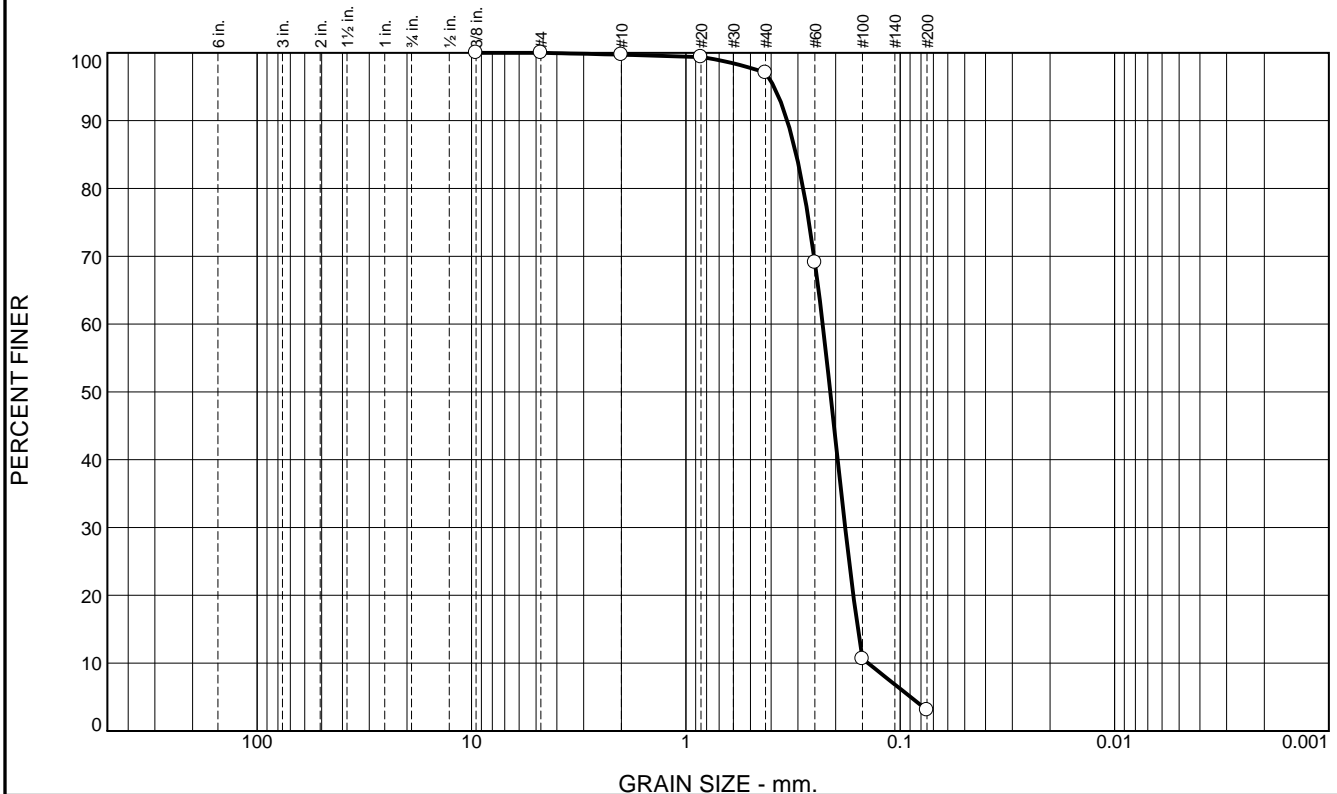
Client: US Army Corps of Engineers

Project: Contract No. W91278-10-D-0026 - Task 009  
Mississippi Barrier Island Restoration Project

Project No: 11-2116-0057

Figure

# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.0	0.3	2.6	94.0	3.1	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
.375	100.0		
#4	100.0		
#10	99.7		
#20	99.4		
#40	97.1		
#60	69.1		
#100	10.6		
#200	3.1		

\* (no specification provided)

Material Description		
SAND (SP), fine grained		
PL=	Atterberg Limits LL=	PI=
D <sub>90</sub> = 0.3366	Coefficients D <sub>85</sub> = 0.3056	D <sub>60</sub> = 0.2300
D <sub>50</sub> = 0.2118	D <sub>30</sub> = 0.1806	D <sub>15</sub> = 0.1575
D <sub>10</sub> = 0.1414	C <sub>u</sub> = 1.63	C <sub>c</sub> = 1.00
USCS= SP	Classification AASHTO=	
Remarks		

Location: USACE Sample # BI-CI-41C-11  
Sample Number: TE Lab ID: 5054.77

Depth: 4.3 - 9.3 (ft)

Date: 7/18/11

**Thompson Engineering**

**Mobile, Alabama**

Client: US Army Corps of Engineers

Project: Contract No. W91278-10-D-0026 - Task 009  
Mississippi Barrier Island Restoration Project

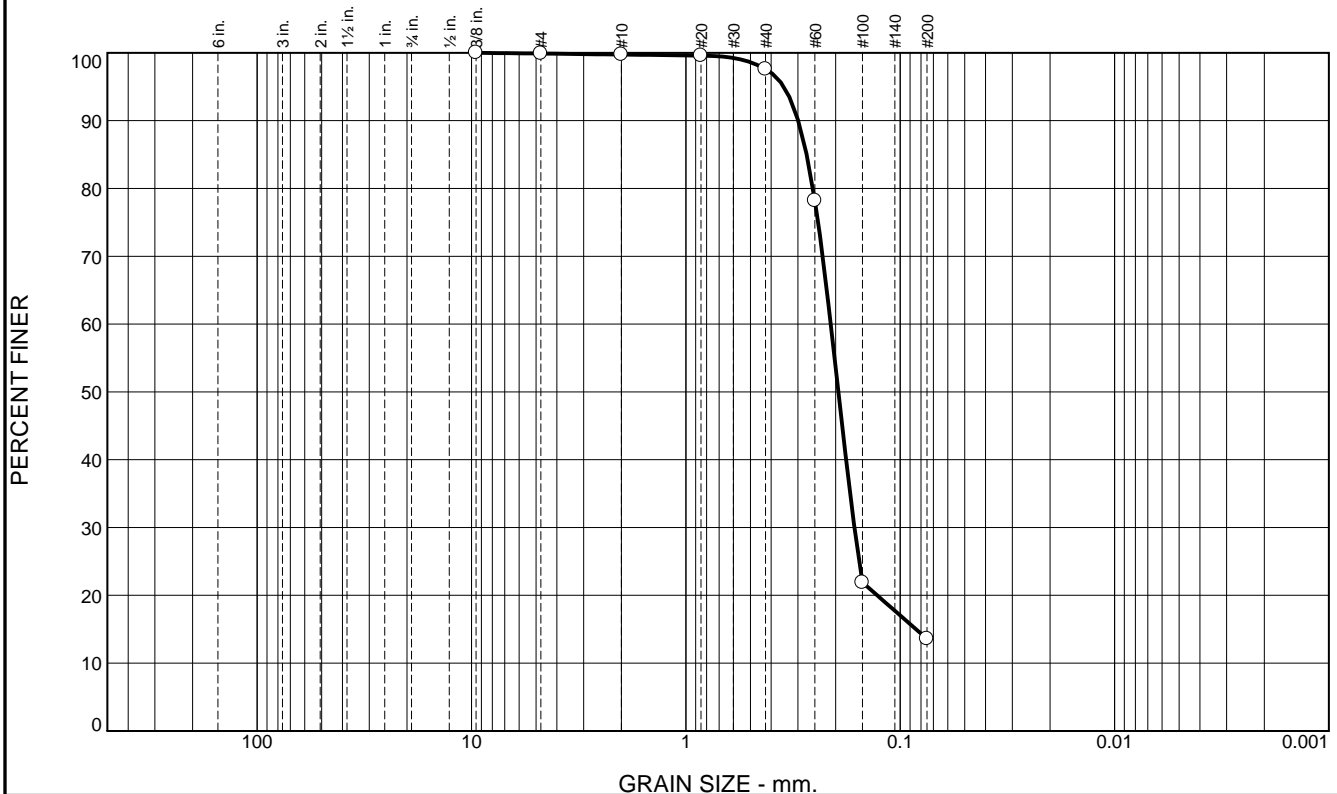
Project No: 11-2116-0057

Figure

# Boring Designation BI-CI-42-11

DRILLING LOG		DIVISION South Atlantic		INSTALLATION Mobile District		SHEET 1 OF 1 SHEETS	
1. PROJECT MsCIP Barrier Island Restoration Cat Island				9. SIZE AND TYPE OF BIT N/A			
2. BORING DESIGNATION BI-CI-42-11		LOCATION COORDINATES E = 918,095 N = 266,629		10. COORDINATE SYSTEM/DATUM State Plane, MSE (U.S. Ft.)		HORIZONTAL NAD83 VERTICAL NAVD88	
3. DRILLING AGENCY Corps of Engineers - CESAM		CONTRACTOR FILE NO.		11. MANUFACTURER'S DESIGNATION OF DRILL Vibrocure		<input type="checkbox"/> AUTO HAMMER <input type="checkbox"/> MANUAL HAMMER	
4. NAME OF DRILLER Construction Solutions International, Inc.				12. TOTAL SAMPLES 3		DISTURBED 3 UNDISTURBED (UD) 0	
5. DIRECTION OF BORING <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED		DEG. FROM VERTICAL		13. TOTAL NUMBER CORE BOXES			
		BEARING		14. WATER DEPTH 14 Ft.			
6. THICKNESS OF OVERBURDEN N/A				15. DATE BORING 06-24-11		STARTED 06-24-11 COMPLETED 06-24-11	
7. DEPTH DRILLED INTO ROCK N/A				16. ELEVATION TOP OF BORING -13.2 Ft.			
8. TOTAL DEPTH OF BORING 15.1 Ft.				17. TOTAL RECOVERY FOR BORING 100%			
				18. SIGNATURE AND TITLE OF INSPECTOR Rhonda Capes, Geologist			
ELEV.	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS	SAMPLE	LABORATORY RESULTS		
-13.2	0.0						
-15.4	2.2		SAND, silty, mostly fine-grained sand-sized quartz, some silt, little clay, gray (SM)	A	Classification: SM Color: 2.5Y 4/2-dark grayish brown D50: 0.1942 mm % Fines: 13.6		
-16.5	3.3		SAND, silty, mostly fine-grained sand-sized quartz, some silt, gray (SM)	B	Classification: SP-SM Color: 5Y 3/2-dark olive gray D50: 0.1952 mm % Fines: 10.6		
-20.9	7.7		SAND, poorly-graded, mostly fine-grained sand-sized quartz, gray (SP) At El. -18.4 Ft., mostly fine-grained sand-sized quartz, lt. gray	C	Classification: SP Color: 5Y 4/2-olive gray D50: 0.172 mm % Fines: 4.8		
-22.2	9.0		CLAY, lean, dark gray (CL)	NS			
-25.2	12.0	SAND, silty, mostly fine-grained sand-sized quartz, some silt, trace clay, gray (SM)					
-28.3	15.1	SAND, poorly-graded, mostly medium-grained sand-sized quartz, little shell fragments, lt. gray (SP) At El. -26.7 Ft., mostly fine-grained sand-sized quartz, lt. gray					
			NOTES: 1. Soils are field visually classified in accordance with the Unified Soils Classification System. 2. NS = Sample not submitted for laboratory analysis from this interval. 3. Seafloor elevation calculated using sampling vessel's fathometer water depth reading and applying NOAA tidal gauge data conversion factor.				

# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.1	0.2	2.1	84.0	13.6	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
.375	100.0		
#4	99.9		
#10	99.7		
#20	99.6		
#40	97.6		
#60	78.2		
#100	21.9		
#200	13.6		

\* (no specification provided)

**Material Description**  
Silty SAND (SM), fine grained

**Atterberg Limits**  
 PL=      LL=      PI=

**Coefficients**  
 D<sub>90</sub>= 0.2994      D<sub>85</sub>= 0.2734      D<sub>60</sub>= 0.2108  
 D<sub>50</sub>= 0.1942      D<sub>30</sub>= 0.1635      D<sub>15</sub>= 0.0843  
 D<sub>10</sub>=              C<sub>u</sub>=              C<sub>c</sub>=

**Classification**  
 USCS= SM      AASHTO=

**Remarks**

Location: USACE Sample # BI-CI-42A-11  
 Sample Number: TE Lab ID: 5054.63

Depth: 0.0 - 2.2 (ft)

Date: 7/18/11

**Thompson Engineering**

**Mobile, Alabama**

**Client:** US Army Corps of Engineers

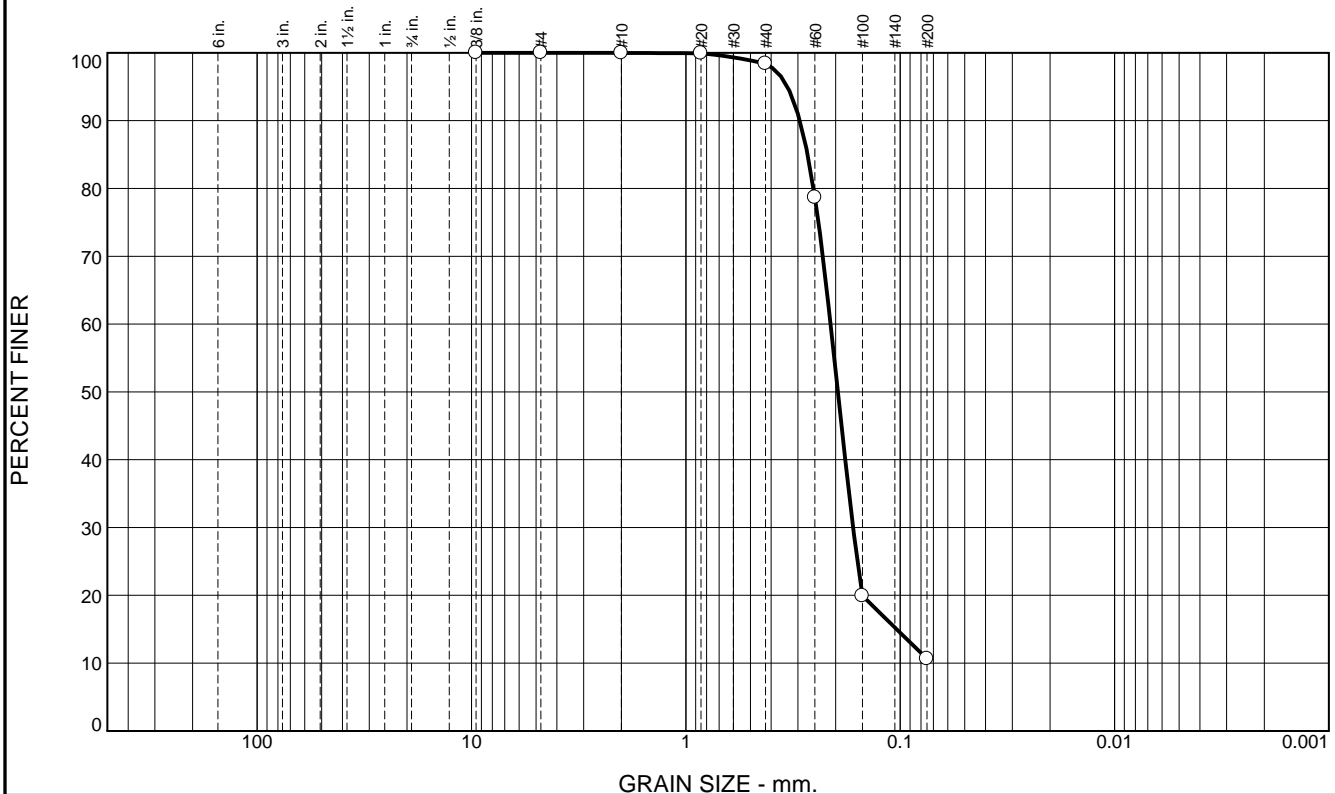
**Project:** Contract No. W91278-10-D-0026 - Task 009  
 Mississippi Barrier Island Restoration Project

**Project No:** 11-2116-0057

**Figure**



# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.0	0.0	1.6	87.8	10.6	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
.375	100.0		
#4	100.0		
#10	100.0		
#20	99.9		
#40	98.4		
#60	78.7		
#100	19.9		
#200	10.6		

<u>Material Description</u>		
Slightly silty SAND (SP-SM), fine grained		
<u>Atterberg Limits</u>		
PL=	LL=	PI=
<u>Coefficients</u>		
D <sub>90</sub> = 0.2941	D <sub>85</sub> = 0.2705	D <sub>60</sub> = 0.2112
D <sub>50</sub> = 0.1952	D <sub>30</sub> = 0.1659	D <sub>15</sub> = 0.1039
D <sub>10</sub> =	C <sub>u</sub> =	C <sub>c</sub> =
<u>Classification</u>		
USCS= SP-SM	AASHTO=	
<u>Remarks</u>		

\* (no specification provided)

Location: USACE Sample # BI-CI-42B-11  
Sample Number: TE Lab ID: 5054.64

Depth: 2.2 - 3.3 (ft)

Date: 7/18/11

**Thompson Engineering**

**Mobile, Alabama**

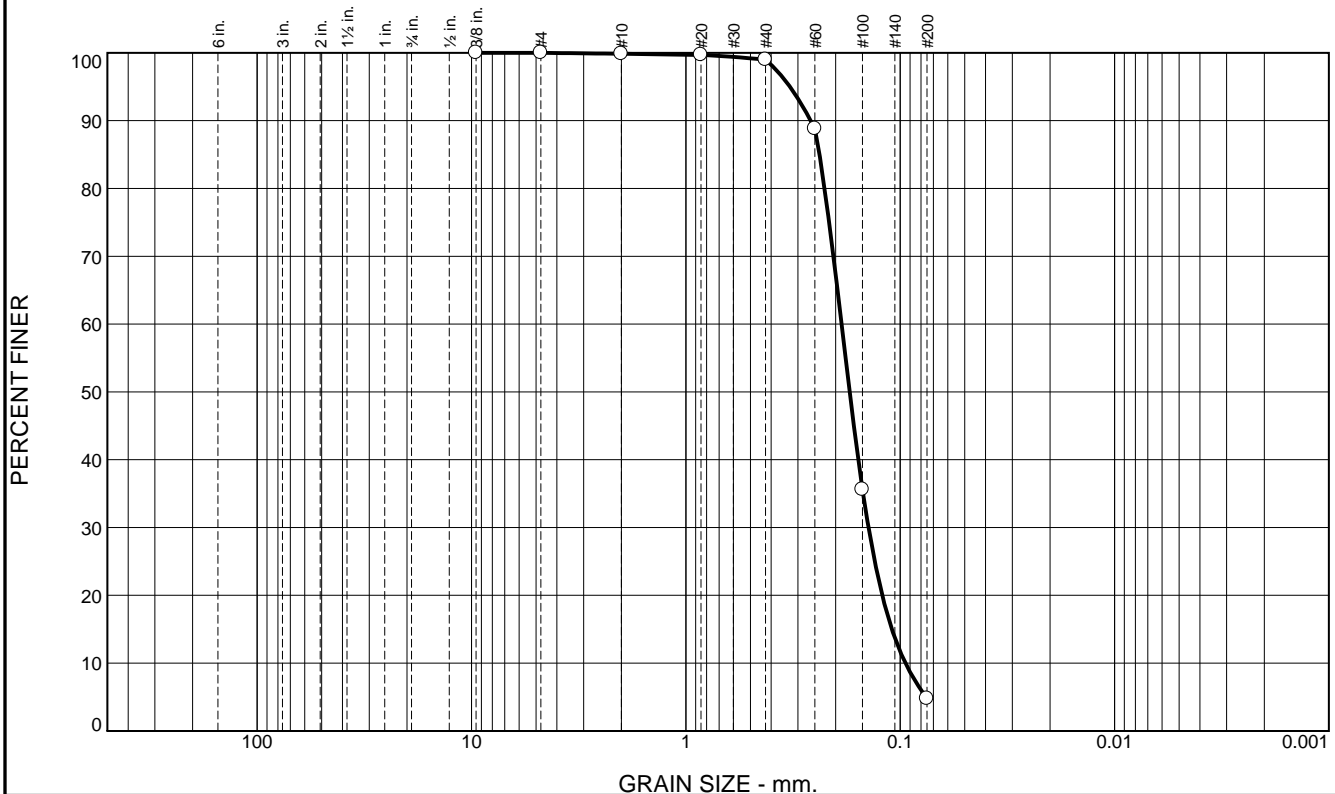
**Client:** US Army Corps of Engineers

**Project:** Contract No. W91278-10-D-0026 - Task 009  
Mississippi Barrier Island Restoration Project

**Project No:** 11-2116-0057

**Figure**

# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.0	0.1	0.9	94.2	4.8	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
.375	100.0		
#4	100.0		
#10	99.9		
#20	99.7		
#40	99.0		
#60	88.8		
#100	35.6		
#200	4.8		

\* (no specification provided)

Material Description		
SAND (SP), fine grained		
PL=	Atterberg Limits LL=	PI=
D <sub>90</sub> = 0.2616	Coefficients D <sub>85</sub> = 0.2381	D <sub>60</sub> = 0.1876
D <sub>50</sub> = 0.1720	D <sub>30</sub> = 0.1407	D <sub>15</sub> = 0.1094
D <sub>10</sub> = 0.0946	C <sub>u</sub> = 1.98	C <sub>c</sub> = 1.12
USCS= SP	Classification AASHTO=	
Remarks		

Location: USACE Sample # BI-CI-42C-11  
Sample Number: TE Lab ID: 5054.65

Depth: 3.3 - 7.7 (ft)

Date: 7/18/11

**Thompson Engineering**

**Mobile, Alabama**

Client: US Army Corps of Engineers

Project: Contract No. W91278-10-D-0026 - Task 009  
Mississippi Barrier Island Restoration Project

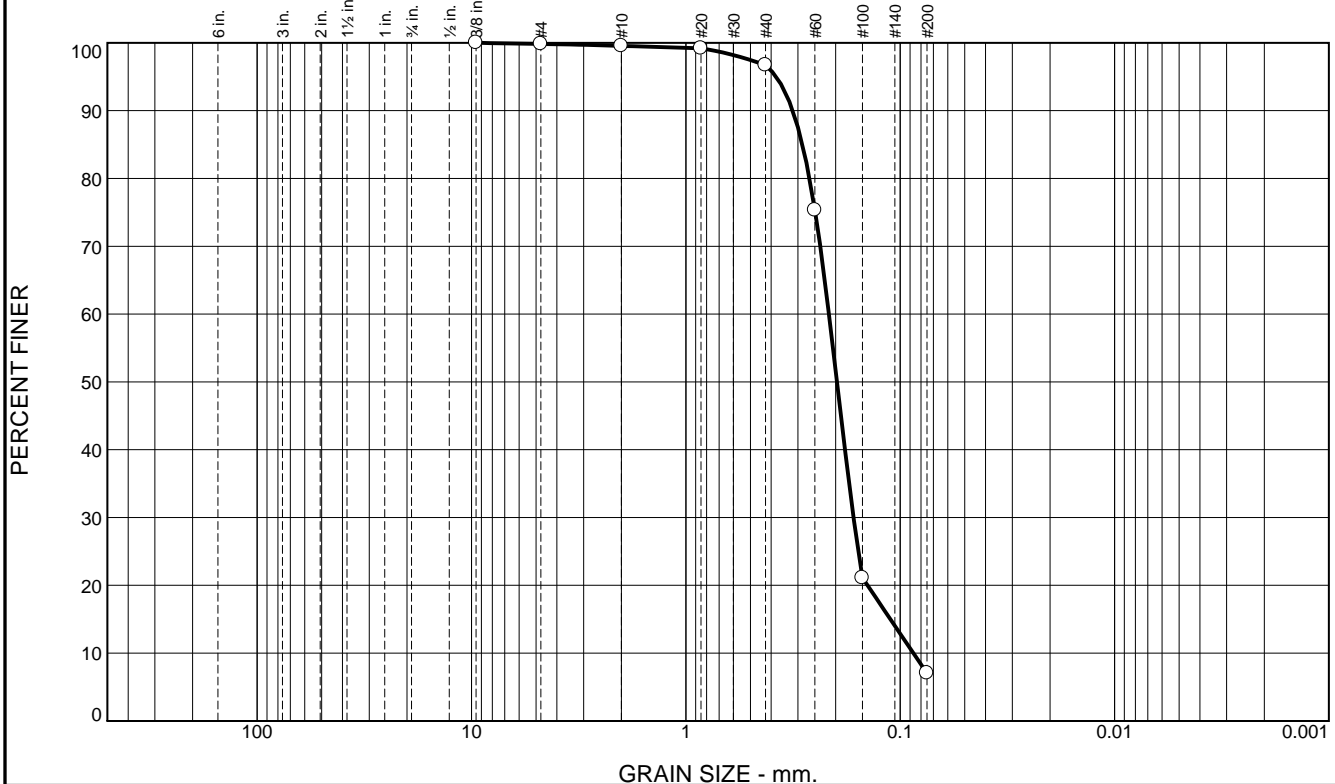
Project No: 11-2116-0057

Figure

# Boring Designation BI-CI-43-11

DRILLING LOG		DIVISION South Atlantic		INSTALLATION Mobile District		SHEET 1 OF 1 SHEETS	
1. PROJECT MsCIP Barrier Island Restoration Cat Island				9. SIZE AND TYPE OF BIT N/A			
2. BORING DESIGNATION BI-CI-43-11		LOCATION COORDINATES E = 917,009 N = 265,413		10. COORDINATE SYSTEM/DATUM State Plane, MSE (U.S. Ft.)		HORIZONTAL NAD83	
3. DRILLING AGENCY Corps of Engineers - CESAM		CONTRACTOR FILE NO.		11. MANUFACTURER'S DESIGNATION OF DRILL Vibrocure		<input type="checkbox"/> AUTO HAMMER <input type="checkbox"/> MANUAL HAMMER	
4. NAME OF DRILLER Construction Solutions International, Inc.				12. TOTAL SAMPLES 3		DISTURBED 0	
5. DIRECTION OF BORING <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED				13. TOTAL NUMBER CORE BOXES		14. WATER DEPTH 13.5 Ft.	
6. THICKNESS OF OVERBURDEN N/A				15. DATE BORING 06-24-11		STARTED 06-24-11	
7. DEPTH DRILLED INTO ROCK N/A				16. ELEVATION TOP OF BORING -13.0 Ft.		COMPLETED 06-24-11	
8. TOTAL DEPTH OF BORING 17.2 Ft.				17. TOTAL RECOVERY FOR BORING 100%		18. SIGNATURE AND TITLE OF INSPECTOR Rhonda Capes, Geologist	
ELEV.	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS	SAMPLE	LABORATORY RESULTS		
-13.0	0.0						
-17.5	4.5		SAND, silty, mostly fine-grained sand-sized quartz, some silt, dark gray (SM)	A	Classification: SP-SM Color: 5Y 3/2-dark olive gray D50: 0.1972 mm % Fines: 7		
-26.9	13.9		SAND, poorly-graded, mostly fine-grained sand-sized quartz, lt. gray (SP)	B	Classification: SP Color: 5Y 5/1-gray D50: 0.2126 mm % Fines: 2.2		
-27.9	14.9		CLAY, lean, dark gray (CL)	NS			
-30.2	17.2		SAND, clayey, mostly fine-grained sand-sized quartz, some clay, dark gray (SC)				
NOTES: 1. Soils are field visually classified in accordance with the Unified Soils Classification System. 2. NS = Sample not submitted for laboratory analysis from this interval. 3. Seafloor elevation calculated using sampling vessel's fathometer water depth reading and applying NOAA tidal gauge data conversion factor.							

# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.2	0.3	2.8	89.7	7.0	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
.375	100.0		
#4	99.8		
#10	99.5		
#20	99.2		
#40	96.7		
#60	75.3		
#100	21.1		
#200	7.0		

<u>Material Description</u>		
Slightly silty SAND (SP-SM), fine grained		
<u>Atterberg Limits</u>		
PL=	LL=	PI=
<u>Coefficients</u>		
D <sub>90</sub> = 0.3174	D <sub>85</sub> = 0.2861	D <sub>60</sub> = 0.2150
D <sub>50</sub> = 0.1972	D <sub>30</sub> = 0.1651	D <sub>15</sub> = 0.1111
D <sub>10</sub> = 0.0868	C <sub>u</sub> = 2.48	C <sub>c</sub> = 1.46
<u>Classification</u>		
USCS= SP-SM	AASHTO=	
<u>Remarks</u>		

\* (no specification provided)

Location: USACE Sample # BI-CI-43A-11  
Sample Number: TE Lab ID: 5054.66

Depth: 0.0 - 4.5 (ft)

Date: 7/18/11

**Thompson Engineering**

**Mobile, Alabama**

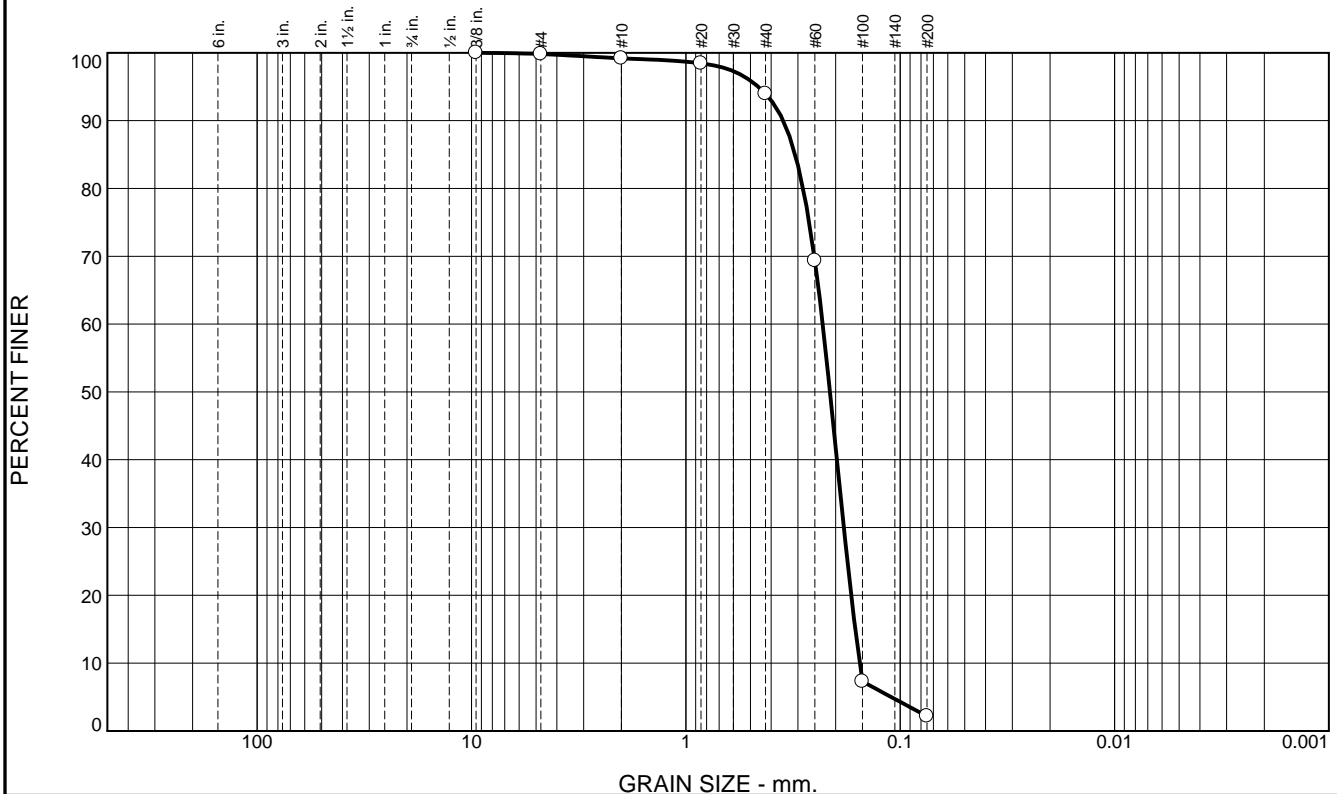
**Client:** US Army Corps of Engineers

**Project:** Contract No. W91278-10-D-0026 - Task 009  
Mississippi Barrier Island Restoration Project

**Project No:** 11-2116-0057

**Figure**

# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.2	0.6	5.3	91.7	2.2	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
.375	100.0		
#4	99.8		
#10	99.2		
#20	98.4		
#40	93.9		
#60	69.3		
#100	7.3		
#200	2.2		

\* (no specification provided)

**Material Description**  
SAND (SP), fine grained

**Atterberg Limits**  
 PL=                      LL=                      PI=

**Coefficients**  
 D<sub>90</sub>= 0.3513      D<sub>85</sub>= 0.3092      D<sub>60</sub>= 0.2300  
 D<sub>50</sub>= 0.2126      D<sub>30</sub>= 0.1832      D<sub>15</sub>= 0.1621  
 D<sub>10</sub>= 0.1545      C<sub>u</sub>= 1.49              C<sub>c</sub>= 0.94

**Classification**  
 USCS= SP                      AASHTO=

**Remarks**

Location: USACE Sample # BI-CI-43B-11  
 Sample Number: TE Lab ID: 5054.67

Depth: 4.5 - 9.5 (ft)

Date: 7/18/11

**Thompson Engineering**

**Mobile, Alabama**

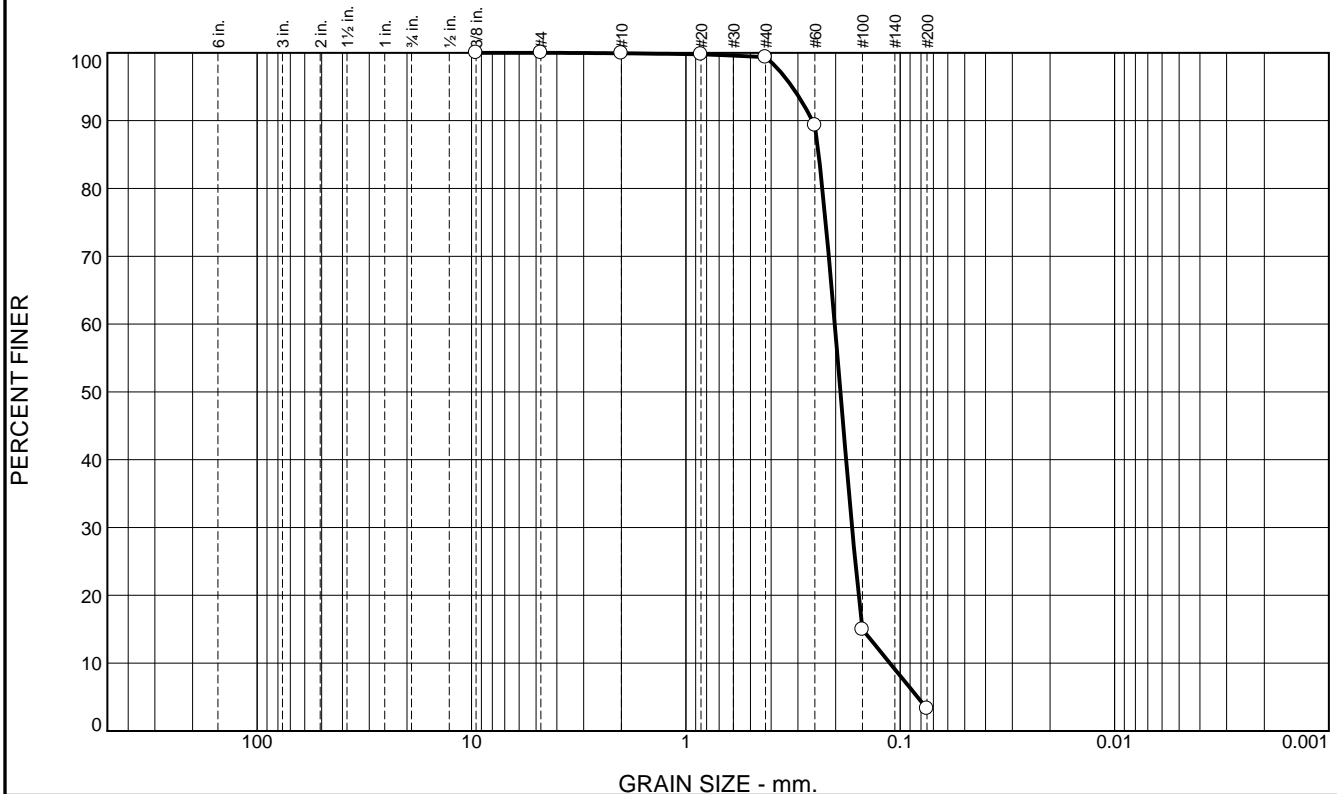
**Client:** US Army Corps of Engineers

**Project:** Contract No. W91278-10-D-0026 - Task 009  
 Mississippi Barrier Island Restoration Project

**Project No:** 11-2116-0057

**Figure**

# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.0	0.1	0.5	96.1	3.3	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
.375	100.0		
#4	100.0		
#10	99.9		
#20	99.8		
#40	99.4		
#60	89.3		
#100	15.0		
#200	3.3		

\* (no specification provided)

Material Description		
SAND (SP), fine grained		
PL=	Atterberg Limits LL=	PI=
D <sub>90</sub> = 0.2567	Coefficients D <sub>85</sub> = 0.2403	D <sub>60</sub> = 0.2019
D <sub>50</sub> = 0.1900	D <sub>30</sub> = 0.1677	D <sub>15</sub> = 0.1501
D <sub>10</sub> = 0.1117	C <sub>u</sub> = 1.81	C <sub>c</sub> = 1.25
USCS= SP	Classification AASHTO=	
Remarks		

Location: USACE Sample # BI-CI-43C-11  
Sample Number: TE Lab ID: 5054.68

Depth: 9.5 - 13.9 (ft)

Date: 7/18/11

**Thompson Engineering**

**Mobile, Alabama**

Client: US Army Corps of Engineers

Project: Contract No. W91278-10-D-0026 - Task 009  
Mississippi Barrier Island Restoration Project

Project No: 11-2116-0057

Figure

# Boring Designation BI-CI-44-11

DRILLING LOG		DIVISION South Atlantic		INSTALLATION Mobile District		SHEET 1 OF 1 SHEETS	
1. PROJECT MsCIP Barrier Island Restoration Cat Island				9. SIZE AND TYPE OF BIT N/A			
2. BORING DESIGNATION BI-CI-44-11		LOCATION COORDINATES E = 915,946 N = 264,331		10. COORDINATE SYSTEM/DATUM State Plane, MSE (U.S. Ft.)		HORIZONTAL NAD83 VERTICAL NAVD88	
3. DRILLING AGENCY Corps of Engineers - CESAM		CONTRACTOR FILE NO.		11. MANUFACTURER'S DESIGNATION OF DRILL Vibrocure		<input type="checkbox"/> AUTO HAMMER <input type="checkbox"/> MANUAL HAMMER	
4. NAME OF DRILLER Construction Solutions International, Inc.				12. TOTAL SAMPLES		DISTURBED UNDISTURBED (UD)	
5. DIRECTION OF BORING <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED				13. TOTAL NUMBER CORE BOXES		0	
6. THICKNESS OF OVERBURDEN N/A				14. WATER DEPTH 13.5 Ft.		15. DATE BORING STARTED 06-24-11 COMPLETED 06-24-11	
7. DEPTH DRILLED INTO ROCK N/A				16. ELEVATION TOP OF BORING -13.2 Ft.		17. TOTAL RECOVERY FOR BORING 100%	
8. TOTAL DEPTH OF BORING 12.0 Ft.				18. SIGNATURE AND TITLE OF INSPECTOR Rhonda Capes, Geologist			

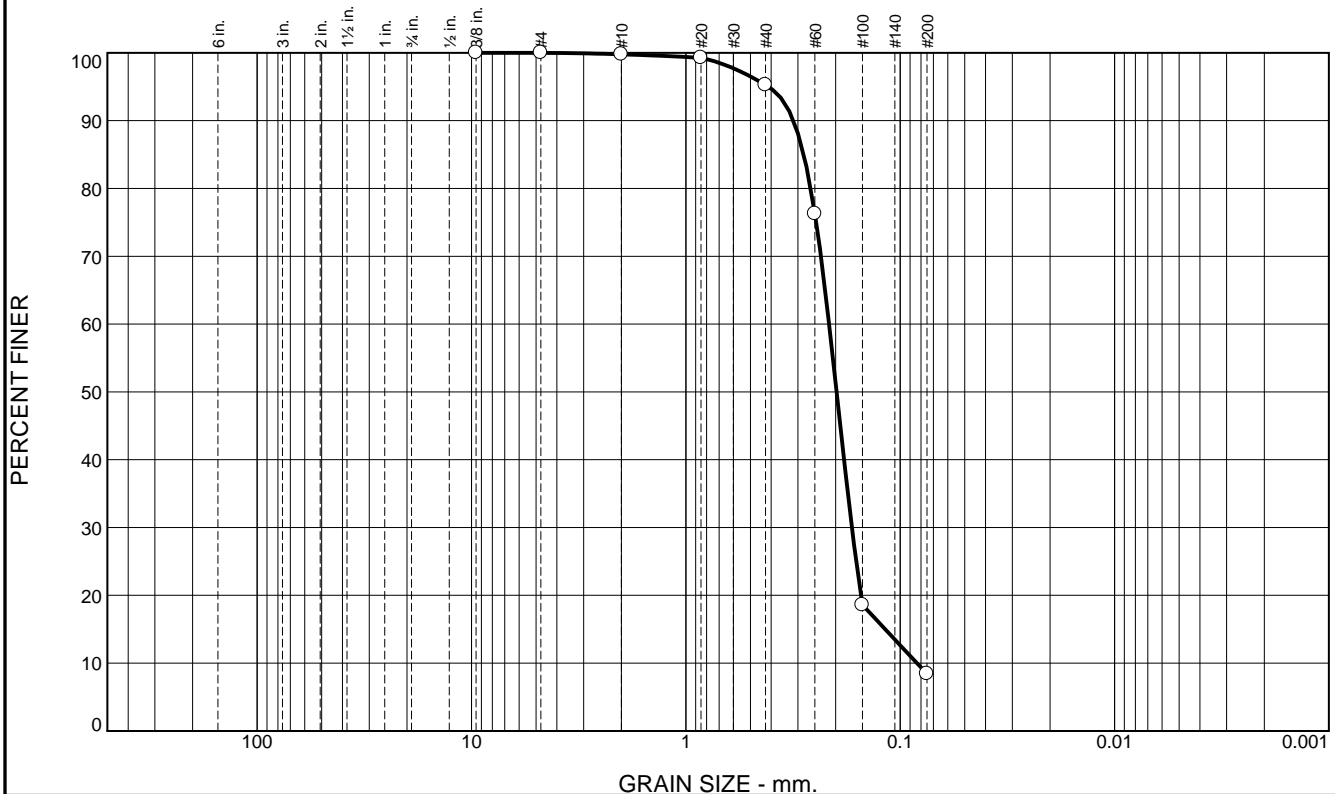
ELEV.	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS	SAMPLE	LABORATORY RESULTS
-13.2	0.0				
-14.2	1.0		SAND, clayey, mostly fine-grained sand-sized quartz, some clay, dark gray (SC)		
			CLAY, lean, dark gray (CL)		
-16.3	3.1				
			SAND, silty, mostly fine-grained sand-sized quartz, some silt, gray (SM)		
-18.2	5.0				
			SAND, poorly-graded, mostly fine-grained sand-sized quartz, lt. gray (SP)	NS	
-22.5	9.3				
-23.7	10.5		CLAY, lean, dark gray (CL)		
-24.7	11.5		SAND, poorly-graded, mostly fine to medium-grained sand-sized quartz, trace silt, gray (SP)		
-25.2	12.0		SAND, clayey, mostly fine-grained sand-sized quartz, gray (SC)		
			NOTES: 1. Soils are field visually classified in accordance with the Unified Soils Classification System. 2. NS = Sample not submitted for laboratory analysis from this interval. 3. Seafloor elevation calculated using sampling vessel's fathometer water depth reading and applying NOAA tidal gauge data conversion factor.		

# Boring Designation BI-CI-45-11

DRILLING LOG		DIVISION South Atlantic		INSTALLATION Mobile District		SHEET 1 OF 1 SHEETS	
1. PROJECT MsCIP Barrier Island Restoration Cat Island				9. SIZE AND TYPE OF BIT N/A			
2. BORING DESIGNATION BI-CI-45-11		LOCATION COORDINATES E = 914,870 N = 263,257		10. COORDINATE SYSTEM/DATUM State Plane, MSE (U.S. Ft.)		HORIZONTAL NAD83 VERTICAL NAVD88	
3. DRILLING AGENCY Corps of Engineers - CESAM		CONTRACTOR FILE NO.		11. MANUFACTURER'S DESIGNATION OF DRILL Vibracore		<input type="checkbox"/> AUTO HAMMER <input type="checkbox"/> MANUAL HAMMER	
4. NAME OF DRILLER Construction Solutions International, Inc.				12. TOTAL SAMPLES 3		DISTURBED 3 UNDISTURBED (UD) 0	
5. DIRECTION OF BORING <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED		DEG. FROM VERTICAL		13. TOTAL NUMBER CORE BOXES			
		BEARING		14. WATER DEPTH 13.6 Ft.			
6. THICKNESS OF OVERBURDEN N/A				15. DATE BORING 06-24-11		STARTED 06-24-11 COMPLETED 06-24-11	
7. DEPTH DRILLED INTO ROCK N/A				16. ELEVATION TOP OF BORING -13.5 Ft.			
8. TOTAL DEPTH OF BORING 12.4 Ft.				17. TOTAL RECOVERY FOR BORING 100%			
				18. SIGNATURE AND TITLE OF INSPECTOR Rhonda Capes, Geologist			
ELEV.	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS	SAMPLE	LABORATORY RESULTS		
-13.5	0.0						
-15.5	2.0		SAND, silty, mostly fine-grained sand-sized quartz, trace clay, gray (SM)	A	Classification: SP-SM Color: 5Y 3/2-dark olive gray D50: 0.198 mm % Fines: 8.4		
			SAND, poorly-graded, mostly fine-grained sand-sized quartz, trace silt, lt. gray (SP)	B	Classification: SP Color: 5Y 5/1-gray D50: 0.1915 mm % Fines: 4.1		
				C	Classification: SP-SM Color: 5Y 5/1-gray D50: 0.1771 mm % Fines: 6.4		
-25.9	12.4						
			NOTES: 1. Soils are field visually classified in accordance with the Unified Soils Classification System. 2. NS = Sample not submitted for laboratory analysis from this interval. 3. Seafloor elevation calculated using sampling vessel's fathometer water depth reading and applying NOAA tidal gauge data conversion factor.				



# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.0	0.2	4.5	86.9	8.4	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
.375	100.0		
#4	100.0		
#10	99.8		
#20	99.3		
#40	95.3		
#60	76.3		
#100	18.6		
#200	8.4		

\* (no specification provided)

<u>Material Description</u>		
Slightly silty SAND (SP-SM), fine grained		
<u>Atterberg Limits</u>		
PL=	LL=	PI=
<u>Coefficients</u>		
D <sub>90</sub> = 0.3150	D <sub>85</sub> = 0.2821	D <sub>60</sub> = 0.2146
D <sub>50</sub> = 0.1980	D <sub>30</sub> = 0.1680	D <sub>15</sub> = 0.1175
D <sub>10</sub> = 0.0835	C <sub>u</sub> = 2.57	C <sub>c</sub> = 1.57
<u>Classification</u>		
USCS= SP-SM	AASHTO=	
<u>Remarks</u>		

Location: USACE Sample # BI-CI-45A-11  
Sample Number: TE Lab ID: 5054.69

Depth: 0.0 - 2.0 (ft)

Date: 7/18/11

**Thompson Engineering**

**Mobile, Alabama**

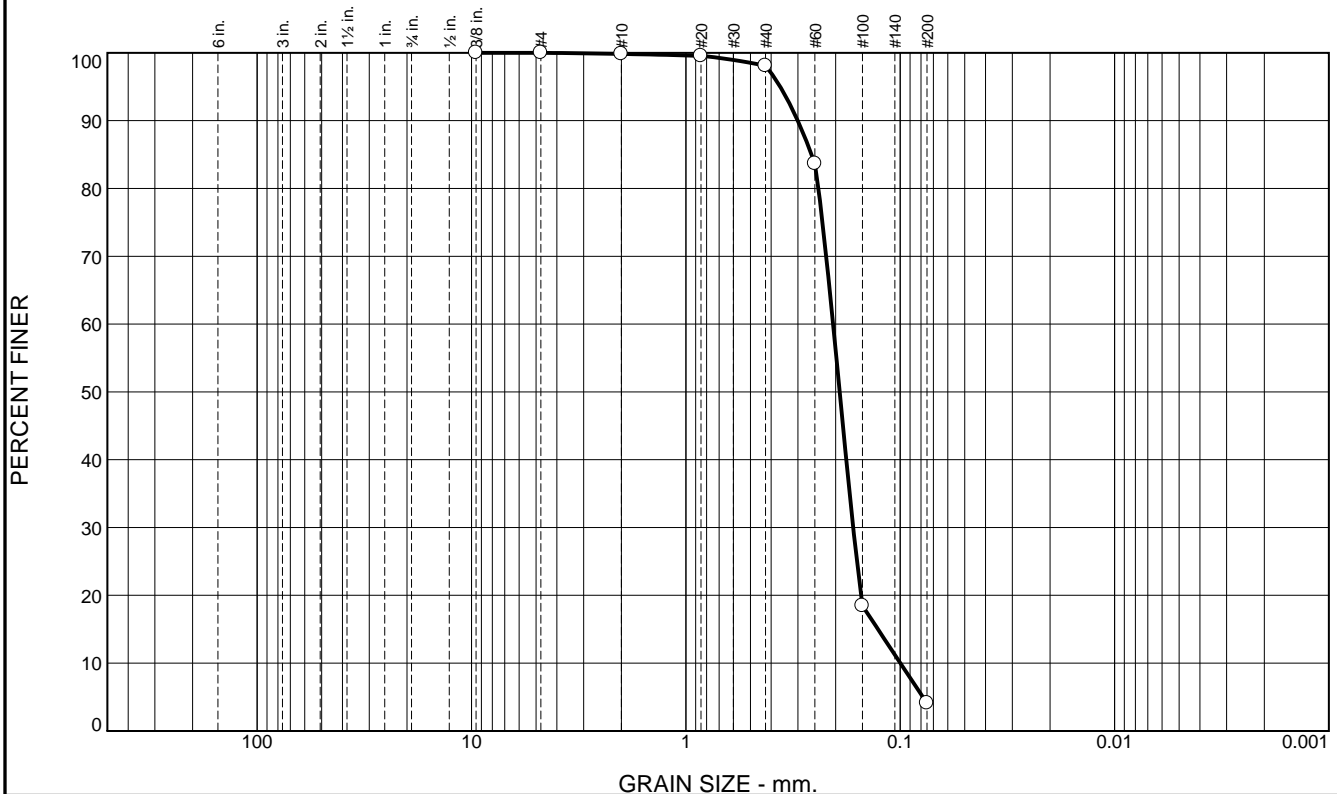
**Client:** US Army Corps of Engineers

**Project:** Contract No. W91278-10-D-0026 - Task 009  
Mississippi Barrier Island Restoration Project

**Project No:** 11-2116-0057

**Figure**

# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.0	0.2	1.7	94.0	4.1	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
.375	100.0		
#4	100.0		
#10	99.8		
#20	99.6		
#40	98.1		
#60	83.7		
#100	18.4		
#200	4.1		

\* (no specification provided)

Material Description		
SAND (SP), fine grained		
PL=	Atterberg Limits LL=	PI=
D <sub>90</sub> = 0.3009	Coefficients D <sub>85</sub> = 0.2592	D <sub>60</sub> = 0.2055
D <sub>50</sub> = 0.1915	D <sub>30</sub> = 0.1657	D <sub>15</sub> = 0.1270
D <sub>10</sub> = 0.0998	C <sub>u</sub> = 2.06	C <sub>c</sub> = 1.34
USCS= SP	Classification AASHTO=	
Remarks		

Location: USACE Sample # BI-CI-45B-11  
Sample Number: TE Lab ID: 5054.70

Depth: 2.0 - 7.0 (ft)

Date: 7/18/11

**Thompson Engineering**

**Mobile, Alabama**

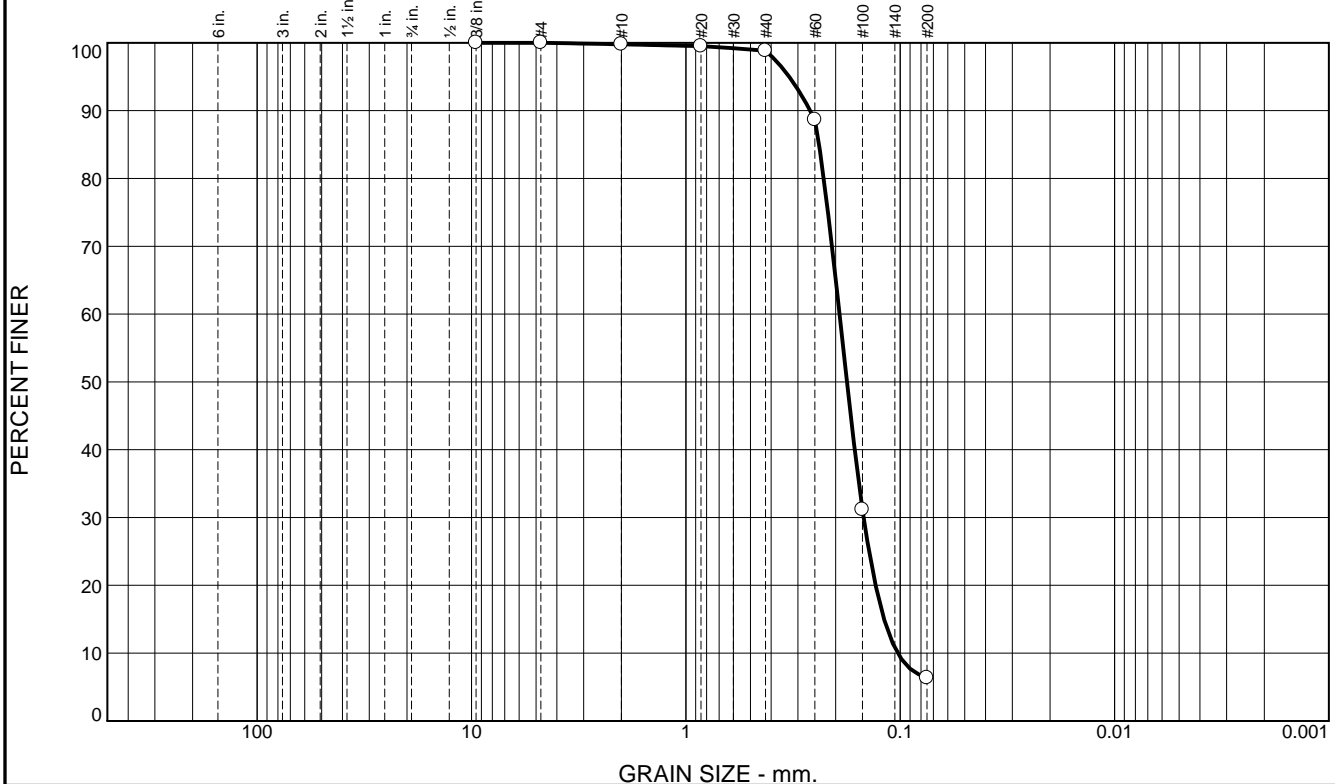
Client: US Army Corps of Engineers

Project: Contract No. W91278-10-D-0026 - Task 009  
Mississippi Barrier Island Restoration Project

Project No: 11-2116-0057

Figure

# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.0	0.2	1.0	92.4	6.4	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
.375	100.0		
#4	100.0		
#10	99.8		
#20	99.5		
#40	98.8		
#60	88.7		
#100	31.2		
#200	6.4		

\* (no specification provided)

**Material Description**  
Slightly silty SAND (SP-SM), fine grained

**Atterberg Limits**  
 PL=                      LL=                      PI=

**Coefficients**  
 D<sub>90</sub>= 0.2631      D<sub>85</sub>= 0.2393      D<sub>60</sub>= 0.1918  
 D<sub>50</sub>= 0.1771      D<sub>30</sub>= 0.1482      D<sub>15</sub>= 0.1189  
 D<sub>10</sub>= 0.1027      C<sub>u</sub>= 1.87              C<sub>c</sub>= 1.11

**Classification**  
 USCS= SP-SM                      AASHTO=

**Remarks**

Location: USACE Sample # BI-CI-45C-11  
 Sample Number: TE Lab ID: 5054.71

Depth: 7.0 - 12.0 (ft)

Date: 7/18/11

**Thompson Engineering**

**Mobile, Alabama**

**Client:** US Army Corps of Engineers

**Project:** Contract No. W91278-10-D-0026 - Task 009  
 Mississippi Barrier Island Restoration Project

**Project No:** 11-2116-0057

**Figure**

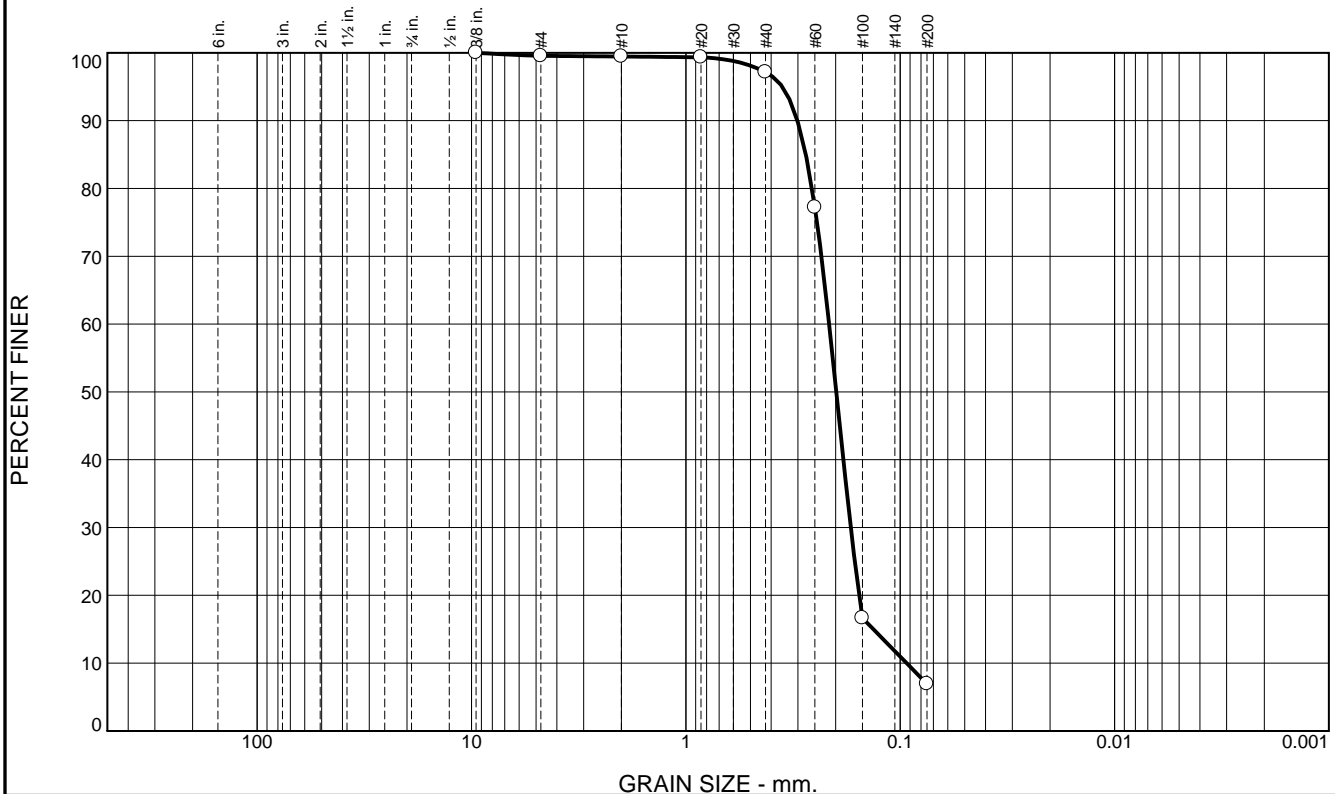
# Boring Designation BI-CI-46-11

DRILLING LOG		DIVISION South Atlantic		INSTALLATION Mobile District		SHEET 1 OF 1 SHEETS	
1. PROJECT MsCIP Barrier Island Restoration Cat Island				9. SIZE AND TYPE OF BIT N/A			
2. BORING DESIGNATION BI-CI-46-11		LOCATION COORDINATES E = 914,896 N = 265,341		10. COORDINATE SYSTEM/DATUM State Plane, MSE (U.S. Ft.)		HORIZONTAL NAD83 VERTICAL NAVD88	
3. DRILLING AGENCY Corps of Engineers - CESAM		CONTRACTOR FILE NO.		11. MANUFACTURER'S DESIGNATION OF DRILL Vibracore		<input type="checkbox"/> AUTO HAMMER <input type="checkbox"/> MANUAL HAMMER	
4. NAME OF DRILLER Construction Solutions International, Inc.				12. TOTAL SAMPLES 3		DISTURBED 0 UNDISTURBED (UD)	
5. DIRECTION OF BORING <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED		DEG. FROM VERTICAL		13. TOTAL NUMBER CORE BOXES			
		BEARING		14. WATER DEPTH 12.5 Ft.			
6. THICKNESS OF OVERBURDEN N/A				15. DATE BORING 06-23-11		STARTED 06-23-11 COMPLETED 06-23-11	
7. DEPTH DRILLED INTO ROCK N/A				16. ELEVATION TOP OF BORING -12.3 Ft.			
8. TOTAL DEPTH OF BORING 18.0 Ft.				17. TOTAL RECOVERY FOR BORING 100%			
				18. SIGNATURE AND TITLE OF INSPECTOR Rhonda Capes, Geologist			

ELEV.	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS	SAMPLE	LABORATORY RESULTS
-12.3	0.0				
			SAND, silty, mostly fine-grained sand-sized quartz, some silt, gray (SM)	A	Classification: SP-SM Color: 5Y 3/2-dark olive gray D50: 0.1986 mm % Fines: 6.9
-16.3	4.0		SAND, poorly-graded, mostly fine-grained sand-sized quartz, lt. gray (SP)	B	Classification: SP Color: 5Y 4/1-dark gray D50: 0.2257 mm % Fines: 2.1
			At El. -20.0 Ft., mostly medium-grained sand-sized quartz, trace shell fragments, lt. gray	C	Classification: SP Color: 2.5Y 7/1-light gray D50: 0.2114 mm % Fines: 2
-25.7	13.4		CLAY, lean, trace shell fragments, trace fine-grained sand, dark gray (CL)	NS	
-30.3	18.0				
			NOTES: 1. Soils are field visually classified in accordance with the Unified Soils Classification System. 2. NS = Sample not submitted for laboratory analysis from this interval. 3. Seafloor elevation calculated using sampling vessel's fathometer water depth reading and applying NOAA tidal gauge data conversion factor.		

# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.4	0.1	2.4	90.2	6.9	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
.375	100.0		
#4	99.6		
#10	99.5		
#20	99.3		
#40	97.1		
#60	77.2		
#100	16.6		
#200	6.9		

\* (no specification provided)

<u>Material Description</u>		
Slightly silty SAND (SP-SM), fine grained		
<u>Atterberg Limits</u>		
PL=	LL=	PI=
<u>Coefficients</u>		
D <sub>90</sub> = 0.3019	D <sub>85</sub> = 0.2758	D <sub>60</sub> = 0.2145
D <sub>50</sub> = 0.1986	D <sub>30</sub> = 0.1700	D <sub>15</sub> = 0.1334
D <sub>10</sub> = 0.0933	C <sub>u</sub> = 2.30	C <sub>c</sub> = 1.44
<u>Classification</u>		
USCS= SP-SM	AASHTO=	
<u>Remarks</u>		

Location: USACE Sample # BI-CI-46A-11  
Sample Number: TE Lab ID: 5054.38

Depth: 0.0 - 4.0 (ft)

Date: 7/18/11

**Thompson Engineering**

**Mobile, Alabama**

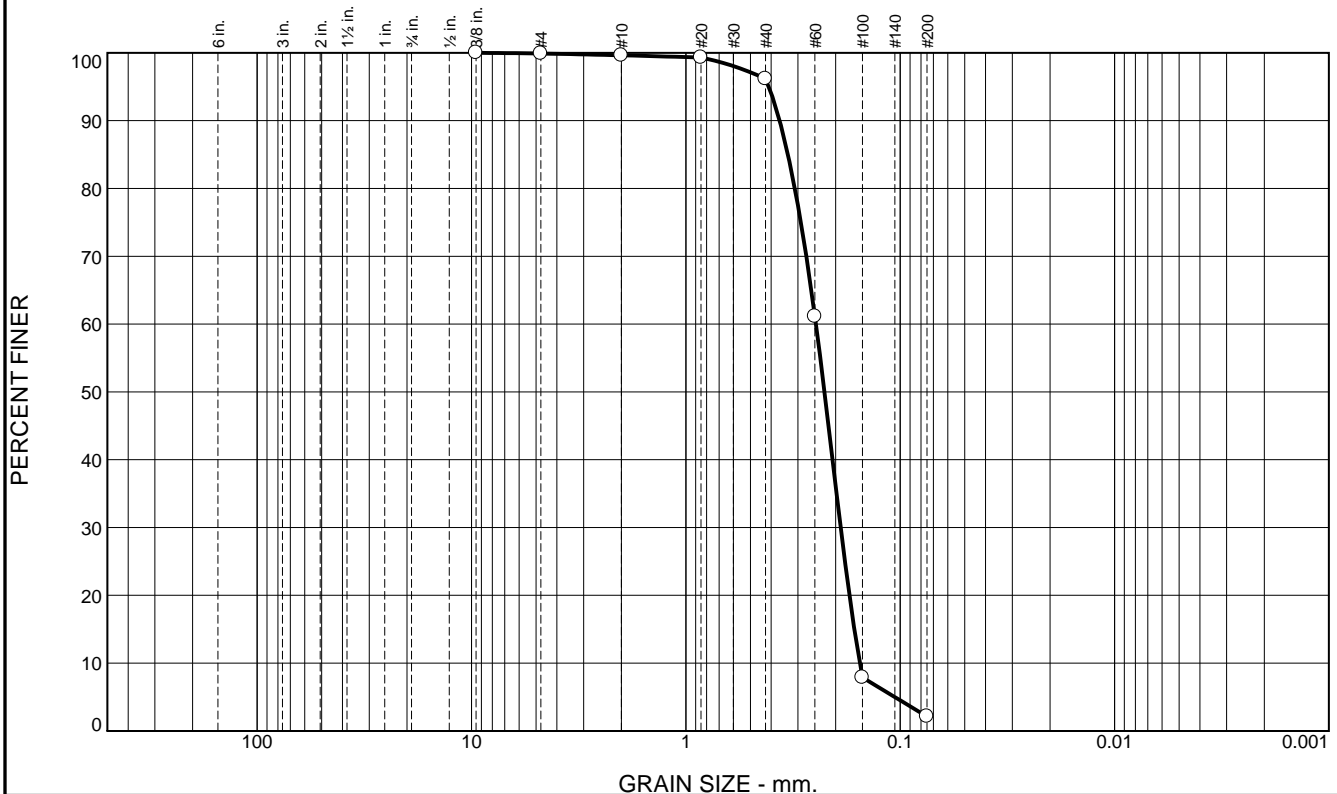
Client: US Army Corps of Engineers

Project: Contract No. W91278-10-D-0026 - Task 009  
Mississippi Barrier Island Restoration Project

Project No: 11-2116-0057

Figure

# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.1	0.3	3.4	94.1	2.1	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
.375	100.0		
#4	99.9		
#10	99.6		
#20	99.3		
#40	96.2		
#60	61.1		
#100	7.9		
#200	2.1		

\* (no specification provided)

Material Description		
SAND (SP), fine grained		
PL=	Atterberg Limits LL=	PI=
D <sub>90</sub> = 0.3653	Coefficients D <sub>85</sub> = 0.3343	D <sub>60</sub> = 0.2473
D <sub>50</sub> = 0.2257	D <sub>30</sub> = 0.1895	D <sub>15</sub> = 0.1637
D <sub>10</sub> = 0.1543	C <sub>u</sub> = 1.60	C <sub>c</sub> = 0.94
USCS= SP	Classification AASHTO=	
Remarks		

Location: USACE Sample # BI-CI-46B-11  
Sample Number: TE Lab ID: 5054.39

Depth: 4.0 - 9.0 (ft)

Date: 7/18/11

**Thompson Engineering**

**Mobile, Alabama**

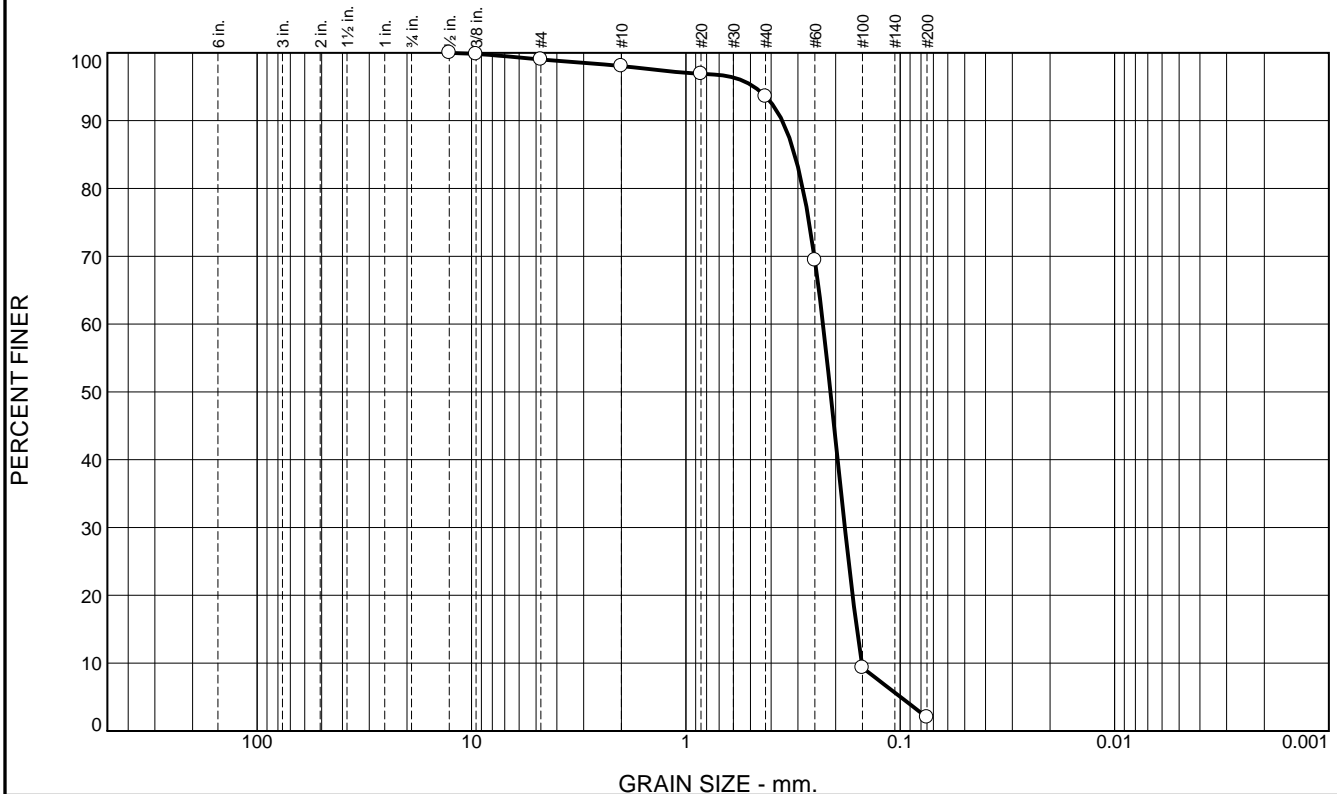
Client: US Army Corps of Engineers

Project: Contract No. W91278-10-D-0026 - Task 009  
Mississippi Barrier Island Restoration Project

Project No: 11-2116-0057

Figure

# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	1.0	1.0	4.4	91.6	2.0	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
.5	100.0		
.375	99.8		
#4	99.0		
#10	98.0		
#20	96.9		
#40	93.6		
#60	69.4		
#100	9.3		
#200	2.0		

\* (no specification provided)

**Material Description**  
SAND (SP), fine grained

**Atterberg Limits**  
PL=      LL=      PI=

**Coefficients**  
D<sub>90</sub>= 0.3550      D<sub>85</sub>= 0.3109      D<sub>60</sub>= 0.2293  
D<sub>50</sub>= 0.2114      D<sub>30</sub>= 0.1812      D<sub>15</sub>= 0.1593  
D<sub>10</sub>= 0.1512      C<sub>u</sub>= 1.52      C<sub>c</sub>= 0.95

**Classification**  
USCS= SP      AASHTO=

**Remarks**

Location: USACE Sample # BI-CI-46C-11  
Sample Number: TE Lab ID: 5054.40

Depth: 9.0 - 13.4 (ft)

Date: 7/18/11

**Thompson Engineering**

**Mobile, Alabama**

**Client:** US Army Corps of Engineers

**Project:** Contract No. W91278-10-D-0026 - Task 009  
Mississippi Barrier Island Restoration Project

**Project No:** 11-2116-0057

**Figure**

# Boring Designation BI-CI-47-11

DRILLING LOG		DIVISION South Atlantic		INSTALLATION Mobile District		SHEET 1 OF 1 SHEETS	
1. PROJECT MsCIP Barrier Island Restoration Cat Island				9. SIZE AND TYPE OF BIT N/A			
2. BORING DESIGNATION BI-CI-47-11		LOCATION COORDINATES E = 915,792 N = 266,445		10. COORDINATE SYSTEM/DATUM State Plane, MSE (U.S. Ft.)		HORIZONTAL NAD83 VERTICAL NAVD88	
3. DRILLING AGENCY Corps of Engineers - CESAM		CONTRACTOR FILE NO.		11. MANUFACTURER'S DESIGNATION OF DRILL Vibrocure		<input type="checkbox"/> AUTO HAMMER <input type="checkbox"/> MANUAL HAMMER	
4. NAME OF DRILLER Construction Solutions International, Inc.				12. TOTAL SAMPLES		DISTURBED UNDISTURBED (UD) 0	
5. DIRECTION OF BORING <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED		DEG. FROM VERTICAL		13. TOTAL NUMBER CORE BOXES			
		BEARING		14. WATER DEPTH 12 Ft.			
6. THICKNESS OF OVERBURDEN N/A				15. DATE BORING 06-23-11		STARTED COMPLETED 06-23-11	
7. DEPTH DRILLED INTO ROCK N/A				16. ELEVATION TOP OF BORING -11.9 Ft.			
8. TOTAL DEPTH OF BORING 14.8 Ft.				17. TOTAL RECOVERY FOR BORING 100%			
				18. SIGNATURE AND TITLE OF INSPECTOR Rhonda Capes, Geologist			
ELEV.	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS	SAMPLE	LABORATORY RESULTS		
-11.9	0.0						
			SAND, silty, mostly fine-grained sand-sized quartz, some clay, trace shell fragments, dark gray (SM)				
-15.4	3.5						
			SAND, poorly-graded, mostly fine-grained sand-sized quartz, lt. gray (SP)				
-19.6	7.7						
-19.9	8.0		CLAY, lean, dark gray (CL)	NS			
-21.7	9.8		SAND, poorly-graded, mostly fine-grained sand-sized quartz, lt. gray (SP)				
-22.1	10.2		CLAY, lean, dark gray (CL)				
			SAND, poorly-graded, mostly fine to medium-grained sand-sized quartz, trace shell fragments, gray (SP)				
-25.5	13.6						
-26.7	14.8		CLAY, lean, dark gray (CL)				
			NOTES: 1. Soils are field visually classified in accordance with the Unified Soils Classification System. 2. NS = Sample not submitted for laboratory analysis from this interval. 3. Seafloor elevation calculated using sampling vessel's fathometer water depth reading and applying NOAA tidal gauge data conversion factor.				



# Boring Designation BI-CI-48-11

<b>DRILLING LOG</b>		<b>DIVISION</b> South Atlantic	<b>INSTALLATION</b> Mobile District		<b>SHEET 1</b> <b>OF 1 SHEETS</b>
<b>1. PROJECT</b> MsCIP Barrier Island Restoration Cat Island			<b>9. SIZE AND TYPE OF BIT</b> N/A		
<b>2. BORING DESIGNATION</b> BI-CI-48-11		<b>LOCATION COORDINATES</b> E = 916,852 N = 267,548		<b>10. COORDINATE SYSTEM/DATUM</b> State Plane, MSE (U.S. Ft.)	<b>HORIZONTAL</b> NAD83 <b>VERTICAL</b> NAVD88
<b>3. DRILLING AGENCY</b> Corps of Engineers - CESAM		<b>CONTRACTOR FILE NO.</b>		<b>11. MANUFACTURER'S DESIGNATION OF DRILL</b> Vibrocure <input type="checkbox"/> AUTO HAMMER <input type="checkbox"/> MANUAL HAMMER	
<b>4. NAME OF DRILLER</b> Construction Solutions International, Inc.		<b>12. TOTAL SAMPLES</b>		<b>DISTURBED</b> 0	<b>UNDISTURBED (UD)</b> 0
<b>5. DIRECTION OF BORING</b> <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED		<b>DEG. FROM VERTICAL</b>	<b>BEARING</b>	<b>13. TOTAL NUMBER CORE BOXES</b>	
<b>6. THICKNESS OF OVERBURDEN</b> N/A		<b>14. WATER DEPTH</b> 12 Ft.		<b>15. DATE BORING</b> <b>STARTED</b> 06-23-11 <b>COMPLETED</b> 06-23-11	
<b>7. DEPTH DRILLED INTO ROCK</b> N/A		<b>16. ELEVATION TOP OF BORING</b> -11.8 Ft.		<b>17. TOTAL RECOVERY FOR BORING</b> 100%	
<b>8. TOTAL DEPTH OF BORING</b> 17.0 Ft.		<b>18. SIGNATURE AND TITLE OF INSPECTOR</b> Rhonda Capes, Geologist			

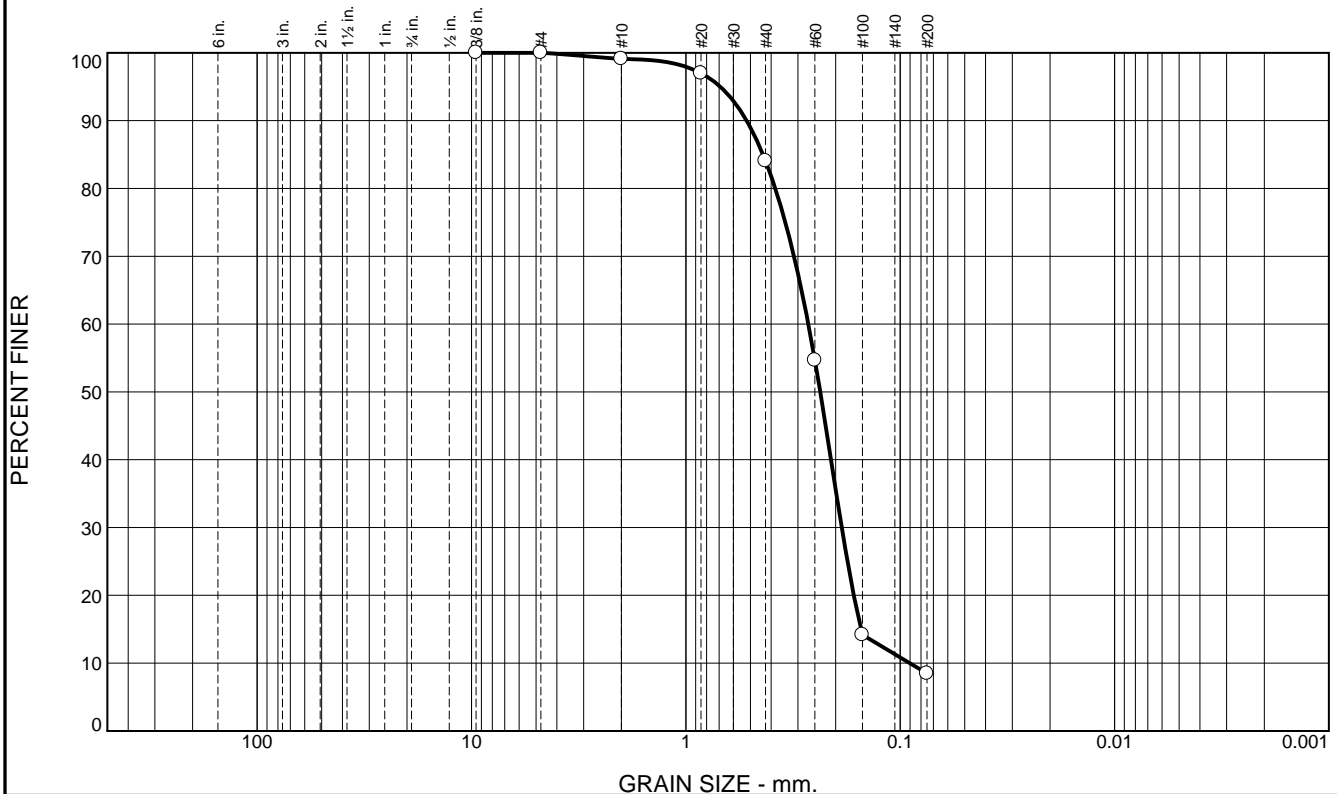
ELEV.	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS	SAMPLE	LABORATORY RESULTS
-11.8	0.0				
-12.1	0.3				
			SAND, poorly-graded, mostly fine-grained sand-sized quartz, lt. gray (SP)		
			SAND, clayey, mostly fine-grained sand-sized quartz, some clay, gray (SC)		
-16.3	4.5				
-17.8	6.0		CLAY, lean, dark gray (CL)		
			SAND, silty, mostly fine-grained sand-sized quartz, some silt, dark gray (SM)		
-21.8	10.0			NS	
			SAND, poorly-graded, mostly fine to medium-grained sand-sized quartz, lt. gray (SP)		
			At El. -24.8 Ft., mostly fine to medium-grained sand-sized quartz, trace shell fragments, lt. gray		
-28.8	17.0				
			NOTES: 1. Soils are field visually classified in accordance with the Unified Soils Classification System. 2. NS = Sample not submitted for laboratory analysis from this interval. 3. Seafloor elevation calculated using sampling vessel's fathometer water depth reading and applying NOAA tidal gauge data conversion factor.		

# Boring Designation BI-CI-49-11

<b>DRILLING LOG</b>		<b>DIVISION</b> South Atlantic	<b>INSTALLATION</b> Mobile District	<b>SHEET 1</b> <b>OF 1 SHEETS</b>
<b>1. PROJECT</b> MsCIP Barrier Island Restoration Cat Island		<b>9. SIZE AND TYPE OF BIT</b> N/A		
<b>2. BORING DESIGNATION</b> BI-CI-49-11		<b>10. COORDINATE SYSTEM/DATUM</b> State Plane, MSE (U.S. Ft.)		<b>HORIZONTAL</b> NAD83
<b>3. DRILLING AGENCY</b> Corps of Engineers - CESAM		<b>11. MANUFACTURER'S DESIGNATION OF DRILL</b> Vibracore		<b>VERTICAL</b> NAVD88
<b>4. NAME OF DRILLER</b> Construction Solutions International, Inc.		<b>12. TOTAL SAMPLES</b> 2		
<b>5. DIRECTION OF BORING</b> <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED		<b>13. TOTAL NUMBER CORE BOXES</b> 0		
<b>6. THICKNESS OF OVERBURDEN</b> N/A		<b>14. WATER DEPTH</b> 9.3 Ft.		
<b>7. DEPTH DRILLED INTO ROCK</b> N/A		<b>15. DATE BORING</b> 06-23-11		
<b>8. TOTAL DEPTH OF BORING</b> 9.3 Ft.		<b>16. ELEVATION TOP OF BORING</b> -8.2 Ft.		
		<b>17. TOTAL RECOVERY FOR BORING</b> 100%		
		<b>18. SIGNATURE AND TITLE OF INSPECTOR</b> Rhonda Capes, Geologist		

ELEV.	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS	SAMPLE	LABORATORY RESULTS
-8.2	0.0				
-9.2	1.0		SAND, poorly-graded, mostly fine-grained sand-sized quartz, gray (SP)	A	Classification: SP-SM Color: 5Y 3/2-dark olive gray D50: 0.2361 mm % Fines: 8.5
-12.6	4.4		SAND, silty, mostly fine-grained sand-sized quartz, little silt, gray (SM)		
-17.5	9.3		SAND, poorly-graded, mostly fine-grained sand-sized quartz, lt. gray (SP)	B	Classification: SP Color: 5Y 4/2-olive gray D50: 0.1799 mm % Fines: 4.4
NOTES: 1. Soils are field visually classified in accordance with the Unified Soils Classification System. 2. NS = Sample not submitted for laboratory analysis from this interval. 3. Seafloor elevation calculated using sampling vessel's fathometer water depth reading and applying NOAA tidal gauge data conversion factor.					

# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.0	0.9	15.0	75.6	8.5	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
.375	100.0		
#4	100.0		
#10	99.1		
#20	97.0		
#40	84.1		
#60	54.7		
#100	14.2		
#200	8.5		

\* (no specification provided)

## Material Description

Slightly silty SAND (SP-SM), medium to fine grained

## Atterberg Limits

PL=

LL=

PI=

## Coefficients

D<sub>90</sub>= 0.5202

D<sub>85</sub>= 0.4367

D<sub>60</sub>= 0.2684

D<sub>50</sub>= 0.2361

D<sub>30</sub>= 0.1873

D<sub>15</sub>= 0.1523

D<sub>10</sub>= 0.0902

C<sub>u</sub>= 2.97

C<sub>c</sub>= 1.45

## Classification

USCS= SP-SM

AASHTO=

## Remarks

Location: USACE Sample # BI-CI-49A-11  
Sample Number: TE Lab ID: 5054.41

Depth: 0.0 - 4.4 (ft)

Date: 7/18/11

**Thompson Engineering**

**Mobile, Alabama**

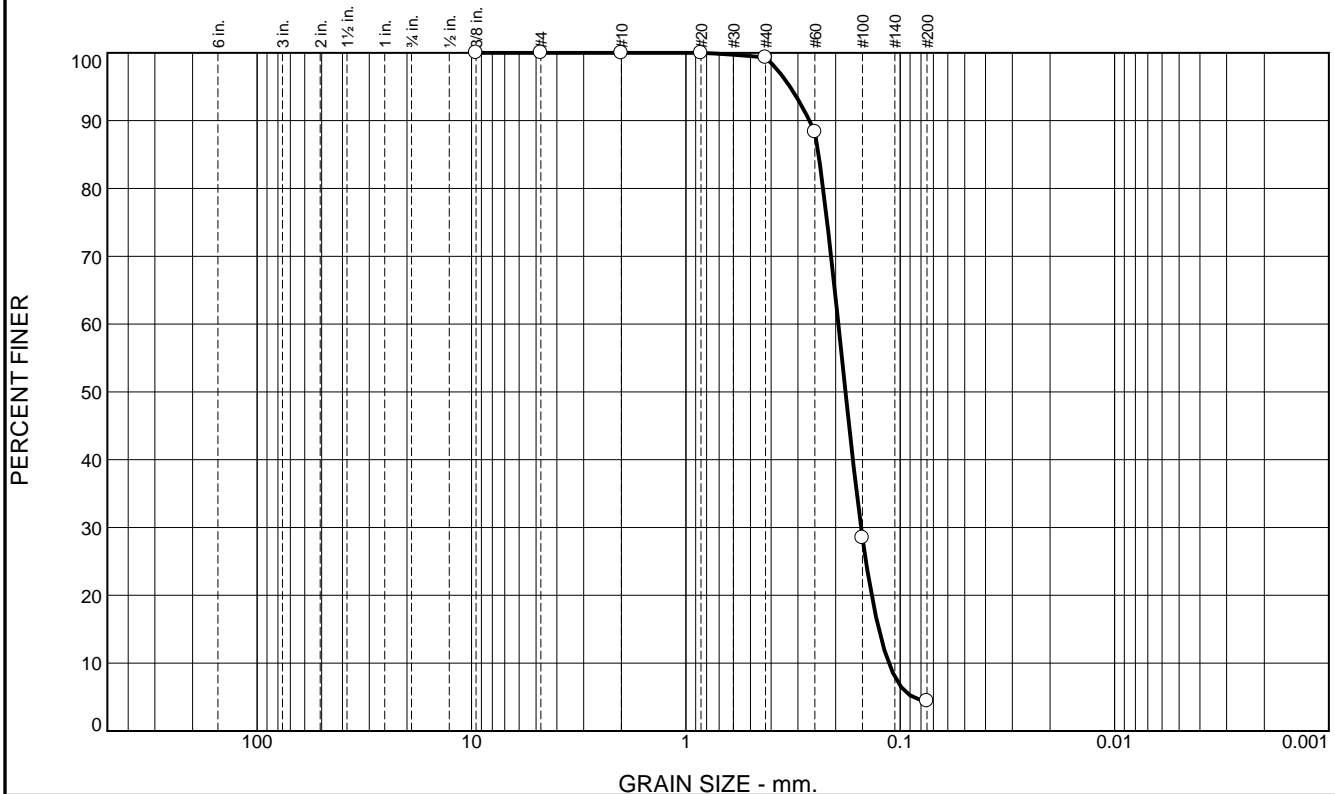
Client: US Army Corps of Engineers

Project: Contract No. W91278-10-D-0026 - Task 009  
Mississippi Barrier Island Restoration Project

Project No: 11-2116-0057

Figure

# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.0	0.0	0.7	94.9	4.4	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
.375	100.0		
#4	100.0		
#10	100.0		
#20	100.0		
#40	99.3		
#60	88.3		
#100	28.5		
#200	4.4		

\* (no specification provided)

Material Description		
SAND (SP), fine grained		
<div> <div> <b>Atterberg Limits</b>            PL=      LL=      PI=         </div> <div> <b>Coefficients</b>            D<sub>90</sub>= 0.2652    D<sub>85</sub>= 0.2406    D<sub>60</sub>= 0.1942            D<sub>50</sub>= 0.1799    D<sub>30</sub>= 0.1523    D<sub>15</sub>= 0.1259            D<sub>10</sub>= 0.1130    C<sub>u</sub>= 1.72      C<sub>c</sub>= 1.06         </div> <div> <b>Classification</b>            USCS= SP      AASHTO=         </div> <div> <b>Remarks</b> </div> </div>		

Location: USACE Sample # BI-CI-49B-11  
Sample Number: TE Lab ID: 5054.42

Depth: 4.4 - 9.3 (ft)

Date: 7/18/11

**Thompson Engineering**

**Mobile, Alabama**

**Client:** US Army Corps of Engineers

**Project:** Contract No. W91278-10-D-0026 - Task 009  
Mississippi Barrier Island Restoration Project

**Project No:** 11-2116-0057

**Figure**

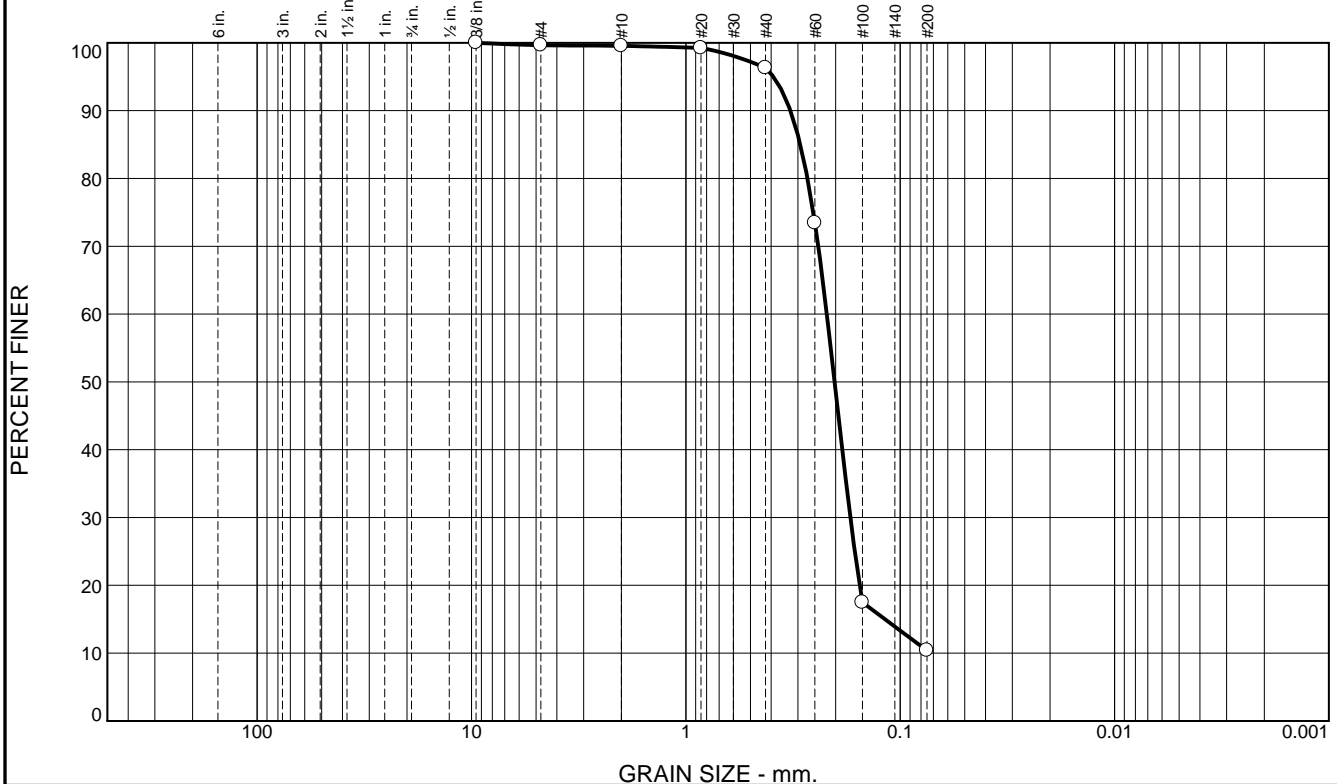
# Boring Designation BI-CI-50-11

DRILLING LOG		DIVISION South Atlantic		INSTALLATION Mobile District		SHEET 1 OF 1 SHEETS	
1. PROJECT MsCIP Barrier Island Restoration Cat Island				9. SIZE AND TYPE OF BIT N/A			
2. BORING DESIGNATION BI-CI-50-11		LOCATION COORDINATES E = 919,107 N = 267,722		10. COORDINATE SYSTEM/DATUM State Plane, MSE (U.S. Ft.)		HORIZONTAL NAD83 VERTICAL NAVD88	
3. DRILLING AGENCY Corps of Engineers - CESAM		CONTRACTOR FILE NO.		11. MANUFACTURER'S DESIGNATION OF DRILL Vibracore		<input type="checkbox"/> AUTO HAMMER <input type="checkbox"/> MANUAL HAMMER	
4. NAME OF DRILLER Construction Solutions International, Inc.				12. TOTAL SAMPLES 3		DISTURBED 3 UNDISTURBED (UD) 0	
5. DIRECTION OF BORING <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED		DEG. FROM VERTICAL		13. TOTAL NUMBER CORE BOXES			
		BEARING		14. WATER DEPTH 14 Ft.			
6. THICKNESS OF OVERBURDEN N/A				15. DATE BORING 06-24-11		STARTED 06-24-11 COMPLETED 06-24-11	
7. DEPTH DRILLED INTO ROCK N/A				16. ELEVATION TOP OF BORING -13.2 Ft.			
8. TOTAL DEPTH OF BORING 13.9 Ft.				17. TOTAL RECOVERY FOR BORING 100%			
				18. SIGNATURE AND TITLE OF INSPECTOR Rhonda Capes, Geologist			

ELEV.	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS	SAMPLE	LABORATORY RESULTS
-13.2	0.0				
-15.2	2.0		SAND, silty, mostly fine-grained sand-sized quartz, some silt, little clay, dark gray (SM)	A	Classification: SP-SM Color: 5Y 3/2-dark olive gray D50: 0.2023 mm % Fines: 10.4
				NS	
			SAND, poorly-graded, mostly fine-grained sand-sized quartz, trace silt, gray (SP)	B	Classification: SP-SM Color: 2.5Y 3/3-dark olive brown D50: 0.1975 mm % Fines: 7.8
			At El. -17.2 Ft., mostly fine-grained sand-sized quartz, lt. gray	NS	
				C	Classification: SP Color: 2.5Y 4/2-dark grayish brown D50: 0.195 mm % Fines: 3.5
-23.2	10.0				
			SAND, silty, mostly fine-grained sand-sized quartz, little silt, gray (SM)	NS	
-26.6	13.4				
-27.1	13.9		At El. -26.2 Ft., mostly fine-grained sand-sized quartz, some silt, gray		
			CLAY, lean, trace clay, dark gray (CL)		
NOTES: 1. Soils are field visually classified in accordance with the Unified Soils Classification System. 2. NS = Sample not submitted for laboratory analysis from this interval. 3. Seafloor elevation calculated using sampling vessel's fathometer water depth reading and applying NOAA tidal gauge data conversion factor.					

# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.3	0.2	3.2	85.9	10.4	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
.375	100.0		
#4	99.7		
#10	99.5		
#20	99.2		
#40	96.3		
#60	73.4		
#100	17.5		
#200	10.4		

\* (no specification provided)

<u>Material Description</u>		
Slightly silty SAND (SP-SM), fine grained		
<u>Atterberg Limits</u>		
PL=	LL=	PI=
<u>Coefficients</u>		
D <sub>90</sub> = 0.3253	D <sub>85</sub> = 0.2927	D <sub>60</sub> = 0.2200
D <sub>50</sub> = 0.2023	D <sub>30</sub> = 0.1708	D <sub>15</sub> = 0.1178
D <sub>10</sub> =	C <sub>u</sub> =	C <sub>c</sub> =
<u>Classification</u>		
USCS= SP-SM	AASHTO=	
<u>Remarks</u>		

Location: USACE Sample # BI-CI-50A-11  
Sample Number: TE Lab ID: 5054.53

Depth: 0.0 - 1.5 (ft)

Date: 7/18/11

**Thompson Engineering**

**Mobile, Alabama**

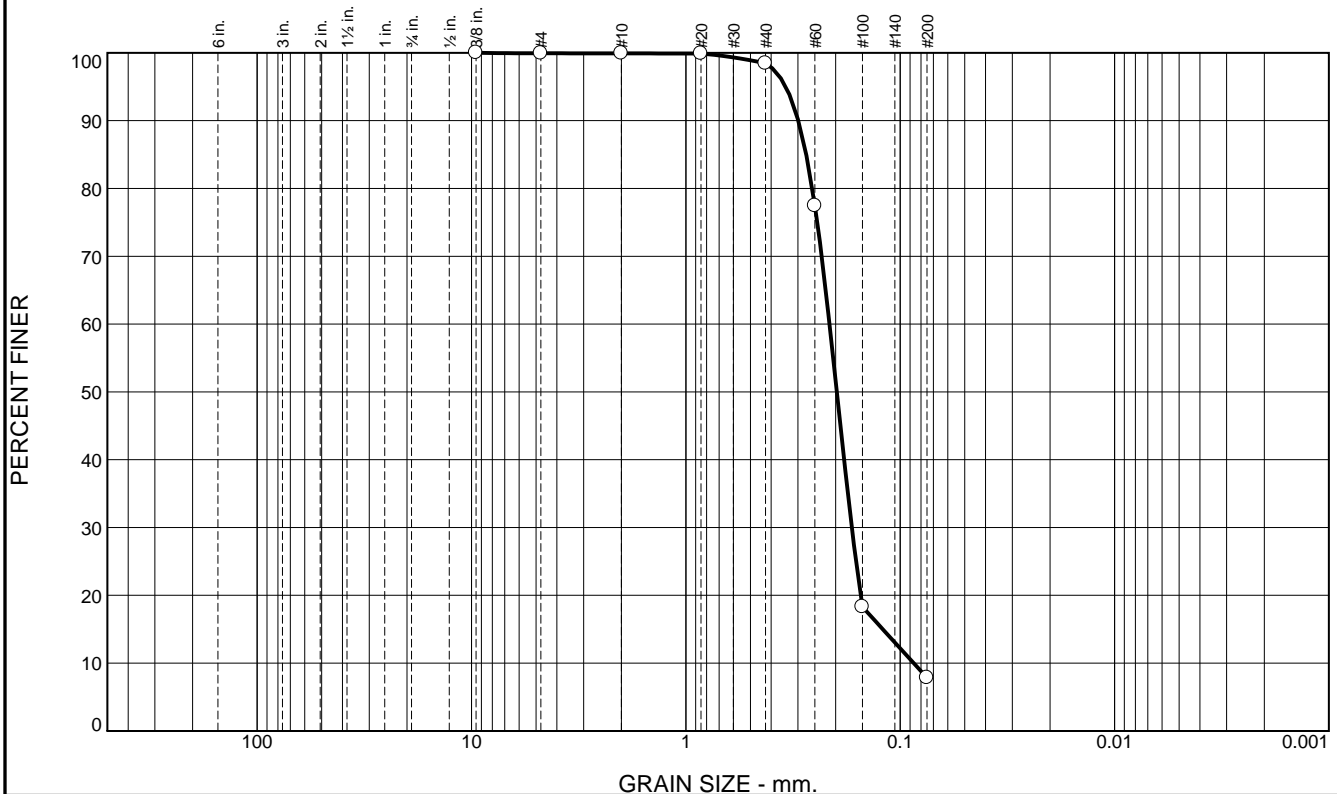
**Client:** US Army Corps of Engineers

**Project:** Contract No. W91278-10-D-0026 - Task 009  
Mississippi Barrier Island Restoration Project

**Project No:** 11-2116-0057

**Figure**

# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.1	0.0	1.4	90.7	7.8	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
.375	100.0		
#4	99.9		
#10	99.9		
#20	99.9		
#40	98.5		
#60	77.4		
#100	18.3		
#200	7.8		

\* (no specification provided)

<u>Material Description</u>		
Slightly silty SAND (SP-SM), fine grained		
<u>Atterberg Limits</u>		
PL=	LL=	PI=
<u>Coefficients</u>		
D <sub>90</sub> = 0.2991	D <sub>85</sub> = 0.2746	D <sub>60</sub> = 0.2137
D <sub>50</sub> = 0.1975	D <sub>30</sub> = 0.1682	D <sub>15</sub> = 0.1206
D <sub>10</sub> = 0.0865	C <sub>u</sub> = 2.47	C <sub>c</sub> = 1.53
<u>Classification</u>		
USCS= SP-SM	AASHTO=	
<u>Remarks</u>		

Location: USACE Sample # BI-CI-50B-11  
Sample Number: TE Lab ID: 5054.54

Depth: 2.0 - 4.0 (ft)

Date: 7/18/11

**Thompson Engineering**

**Mobile, Alabama**

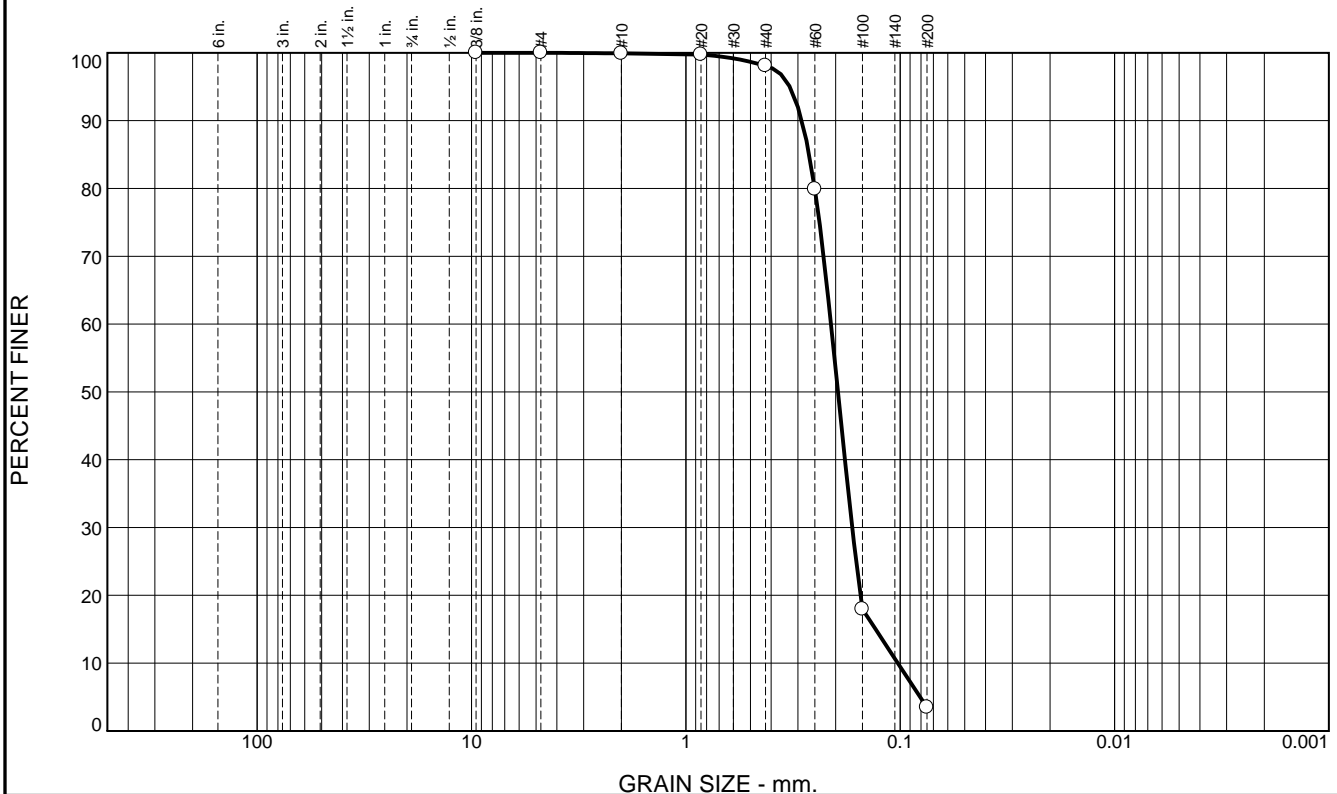
**Client:** US Army Corps of Engineers

**Project:** Contract No. W91278-10-D-0026 - Task 009  
Mississippi Barrier Island Restoration Project

**Project No:** 11-2116-0057

**Figure**

# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.0	0.1	1.8	94.6	3.5	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
.375	100.0		
#4	100.0		
#10	99.9		
#20	99.7		
#40	98.1		
#60	79.9		
#100	17.9		
#200	3.5		

\* (no specification provided)

**Material Description**  
SAND (SP), fine grained

**Atterberg Limits**  
 PL=      LL=      PI=

**Coefficients**  
 D<sub>90</sub>= 0.2879      D<sub>85</sub>= 0.2659      D<sub>60</sub>= 0.2102  
 D<sub>50</sub>= 0.1950      D<sub>30</sub>= 0.1674      D<sub>15</sub>= 0.1304  
 D<sub>10</sub>= 0.1026      C<sub>u</sub>= 2.05      C<sub>c</sub>= 1.30

**Classification**  
 USCS= SP      AASHTO=

**Remarks**

Location: USACE Sample # BI-CI-50C-11  
 Sample Number: TE Lab ID: 5054.55

Depth: 5.0 - 10.0 (ft)

Date: 7/18/11

**Thompson Engineering**

**Mobile, Alabama**

**Client:** US Army Corps of Engineers

**Project:** Contract No. W91278-10-D-0026 - Task 009  
 Mississippi Barrier Island Restoration Project

**Project No:** 11-2116-0057

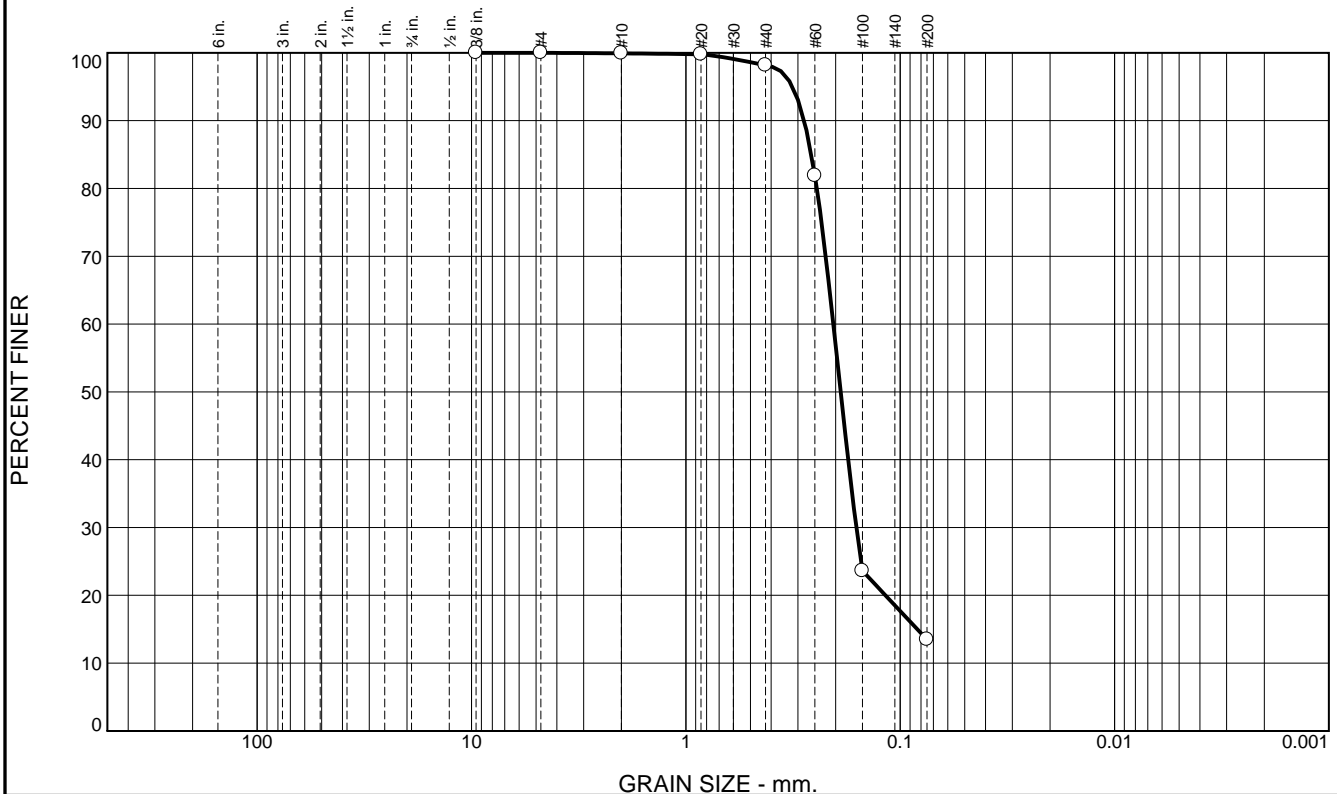
**Figure**



# Boring Designation BI-CI-51-11

DRILLING LOG		DIVISION South Atlantic		INSTALLATION Mobile District		SHEET 1 OF 1 SHEETS	
1. PROJECT MsCIP Barrier Island Restoration Cat Island				9. SIZE AND TYPE OF BIT N/A			
2. BORING DESIGNATION BI-CI-51-11		LOCATION COORDINATES E = 920,179 N = 266,735		10. COORDINATE SYSTEM/DATUM State Plane, MSE (U.S. Ft.)		HORIZONTAL NAD83	
3. DRILLING AGENCY Corps of Engineers - CESAM		CONTRACTOR FILE NO.		11. MANUFACTURER'S DESIGNATION OF DRILL Vibrocure		<input type="checkbox"/> AUTO HAMMER <input type="checkbox"/> MANUAL HAMMER	
4. NAME OF DRILLER Construction Solutions International, Inc.				12. TOTAL SAMPLES 3		UNDISTURBED (UD) 0	
5. DIRECTION OF BORING <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED		DEG. FROM VERTICAL		13. TOTAL NUMBER CORE BOXES			
		BEARING		14. WATER DEPTH 15 Ft.			
6. THICKNESS OF OVERBURDEN N/A				15. DATE BORING 06-25-11		COMPLETED 06-25-11	
7. DEPTH DRILLED INTO ROCK N/A				16. ELEVATION TOP OF BORING -14.4 Ft.			
8. TOTAL DEPTH OF BORING 14.6 Ft.				17. TOTAL RECOVERY FOR BORING 100%			
				18. SIGNATURE AND TITLE OF INSPECTOR Rhonda Capes, Geologist			
ELEV.	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS	SAMPLE	LABORATORY RESULTS		
-14.4	0.0						
-16.1	1.7		SAND, silty, mostly fine-grained sand-sized quartz, trace clay, gray (SM)	A	Classification: SM Color: 5Y 3/2-dark olive gray D50: 0.1895 mm % Fines: 13.5		
			SAND, poorly-graded, mostly fine-grained sand-sized quartz, trace silt, gray (SP)	B	Classification: SP Color: 5Y 4/2-olive gray D50: 0.1854 mm % Fines: 4.2		
				C	Classification: SP-SM Color: 2.5Y 6/2-light brownish gray D50: 0.1752 mm % Fines: 7		
-27.0	12.6						
-29.0	14.6		SAND, silty, mostly fine-grained sand-sized quartz, some silt, little clay, gray (SM)	NS			
			NOTES: 1. Soils are field visually classified in accordance with the Unified Soils Classification System. 2. NS = Sample not submitted for laboratory analysis from this interval. 3. Seafloor elevation determined from USACE hydrographic survey completed 2010.				

# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.0	0.1	1.7	84.7	13.5	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
.375	100.0		
#4	100.0		
#10	99.9		
#20	99.8		
#40	98.2		
#60	81.9		
#100	23.6		
#200	13.5		

\* (no specification provided)

**Material Description**  
Silty SAND (SM), fine grained

**Atterberg Limits**  
 PL=      LL=      PI=

**Coefficients**  
 D<sub>90</sub>= 0.2808      D<sub>85</sub>= 0.2598      D<sub>60</sub>= 0.2050  
 D<sub>50</sub>= 0.1895      D<sub>30</sub>= 0.1602      D<sub>15</sub>= 0.0832  
 D<sub>10</sub>=              C<sub>u</sub>=              C<sub>c</sub>=

**Classification**  
 USCS= SM      AASHTO=

**Remarks**

Location: USACE Sample # BI-CI-51A-11  
 Sample Number: TE Lab ID: 5054.78

Depth: 0.0 - 1.7 (ft)

Date: 7/18/11

**Thompson Engineering**

**Mobile, Alabama**

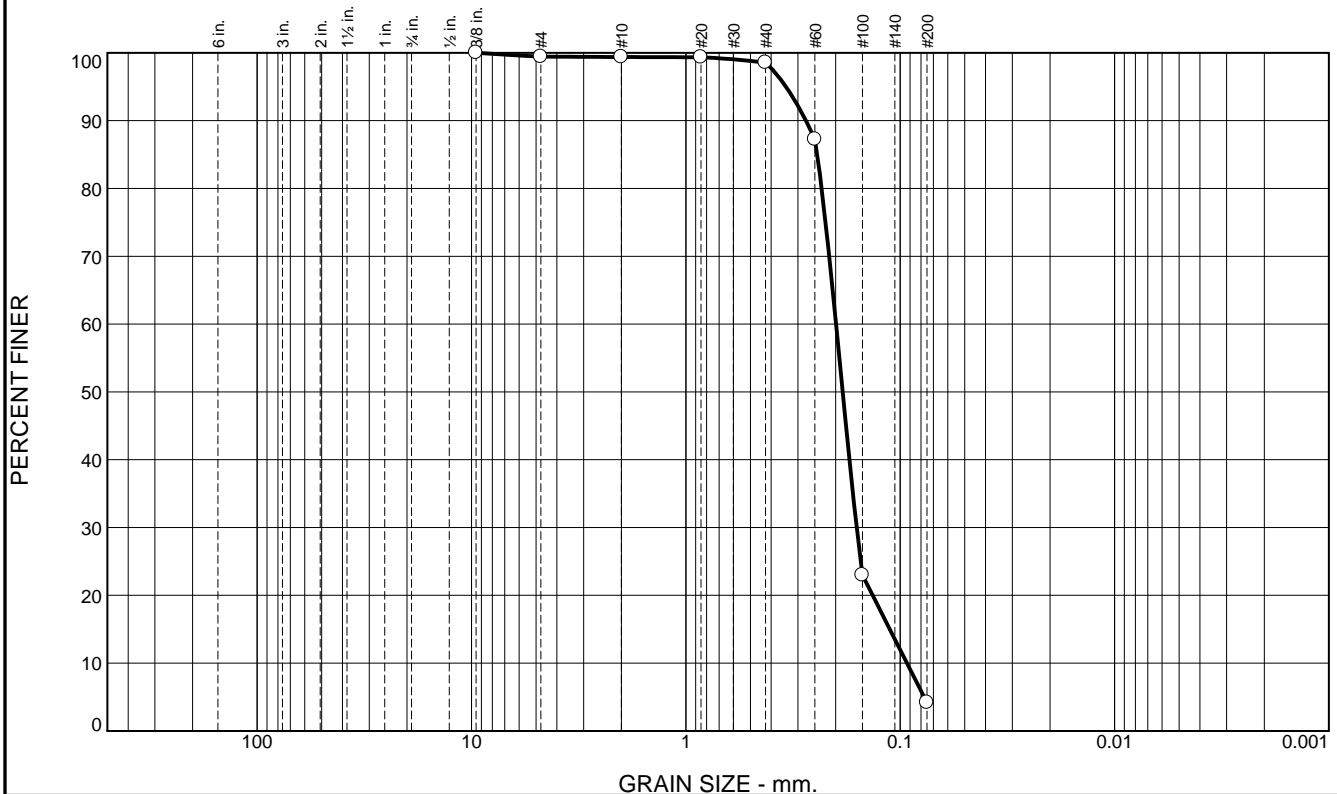
**Client:** US Army Corps of Engineers

**Project:** Contract No. W91278-10-D-0026 - Task 009  
 Mississippi Barrier Island Restoration Project

**Project No:** 11-2116-0057

**Figure**

# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.6	0.0	0.8	94.4	4.2	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
.375	100.0		
#4	99.4		
#10	99.4		
#20	99.3		
#40	98.6		
#60	87.2		
#100	23.0		
#200	4.2		

\* (no specification provided)

Material Description		
SAND (SP), fine grained		
<div> <div> <b>Atterberg Limits</b>            PL=      LL=      PI=         </div> <div> <b>Coefficients</b>            D<sub>90</sub>= 0.2754    D<sub>85</sub>= 0.2440    D<sub>60</sub>= 0.1991            D<sub>50</sub>= 0.1854    D<sub>30</sub>= 0.1597    D<sub>15</sub>= 0.1118            D<sub>10</sub>= 0.0930    C<sub>u</sub>= 2.14      C<sub>c</sub>= 1.38         </div> <div> <b>Classification</b>            USCS= SP      AASHTO=         </div> <div> <b>Remarks</b> </div> </div>		

Location: USACE Sample # BI-CI-51B-11  
Sample Number: TE Lab ID: 5054.79

Depth: 1.7 - 6.7 (ft)

Date: 7/18/11

**Thompson Engineering**

**Mobile, Alabama**

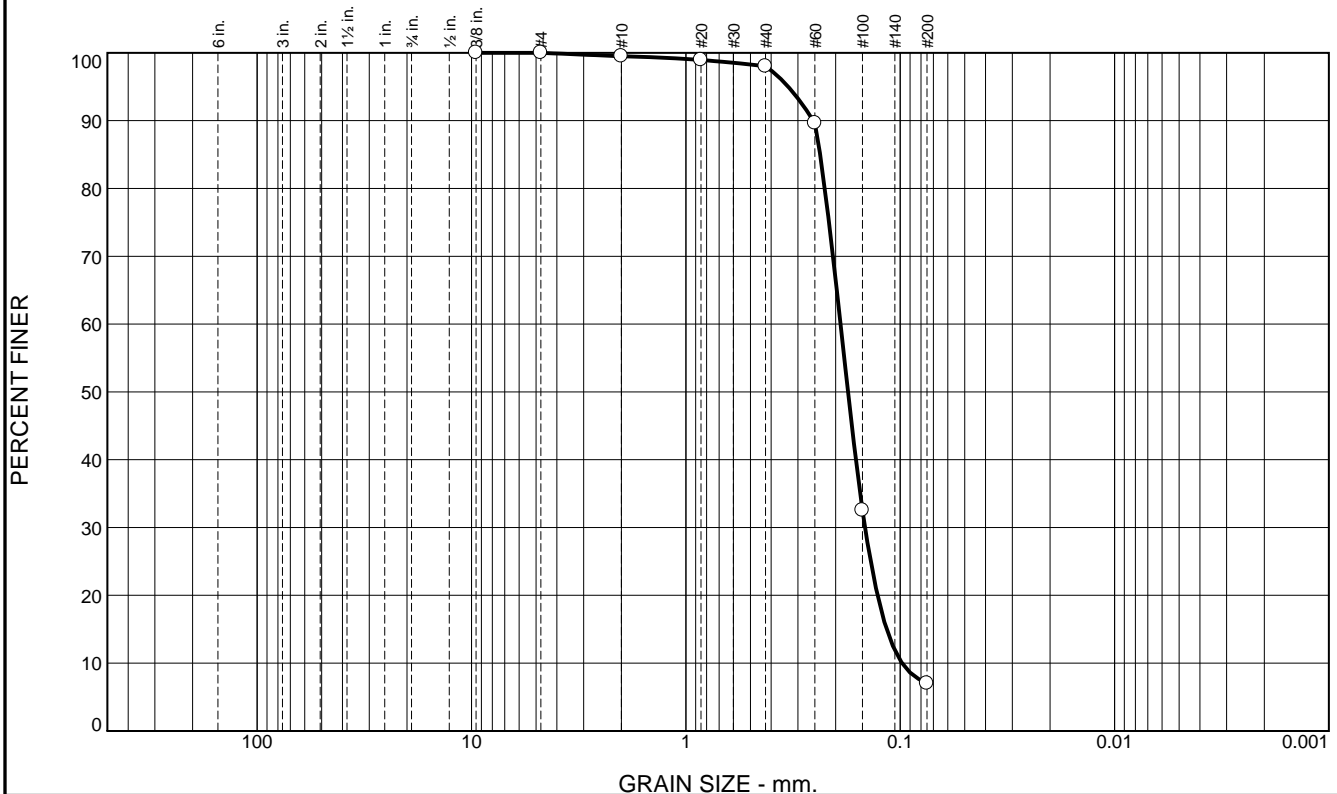
**Client:** US Army Corps of Engineers

**Project:** Contract No. W91278-10-D-0026 - Task 009  
Mississippi Barrier Island Restoration Project

**Project No:** 11-2116-0057

**Figure**

# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.0	0.5	1.5	91.0	7.0	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
.375	100.0		
#4	100.0		
#10	99.5		
#20	98.9		
#40	98.0		
#60	89.6		
#100	32.5		
#200	7.0		

\* (no specification provided)

<u>Material Description</u>		
Slightly silty SAND (SP-SM), fine grained		
<u>Atterberg Limits</u>		
PL=	LL=	PI=
<u>Coefficients</u>		
D <sub>90</sub> = 0.2543	D <sub>85</sub> = 0.2365	D <sub>60</sub> = 0.1897
D <sub>50</sub> = 0.1752	D <sub>30</sub> = 0.1460	D <sub>15</sub> = 0.1157
D <sub>10</sub> = 0.0980	C <sub>u</sub> = 1.94	C <sub>c</sub> = 1.15
<u>Classification</u>		
USCS= SP-SM	AASHTO=	
<u>Remarks</u>		

Location: USACE Sample # BI-CI-51C-11  
Sample Number: TE Lab ID: 5054.80

Depth: 6.7 - 11.7 (ft)

Date: 7/18/11

**Thompson Engineering**

**Mobile, Alabama**

Client: US Army Corps of Engineers

Project: Contract No. W91278-10-D-0026 - Task 009  
Mississippi Barrier Island Restoration Project

Project No: 11-2116-0057

Figure

# Boring Designation BI-CI-52-11

DRILLING LOG		DIVISION South Atlantic		INSTALLATION Mobile District		SHEET 1 OF 1 SHEETS	
1. PROJECT MsCIP Barrier Island Restoration Cat Island				9. SIZE AND TYPE OF BIT N/A			
2. BORING DESIGNATION BI-CI-52-11		LOCATION COORDINATES E = 910,950 N = 257,002		10. COORDINATE SYSTEM/DATUM State Plane, MSE (U.S. Ft.)		HORIZONTAL NAD83 VERTICAL NAVD88	
3. DRILLING AGENCY Corps of Engineers - CESAM		CONTRACTOR FILE NO.		11. MANUFACTURER'S DESIGNATION OF DRILL Vibrocure		<input type="checkbox"/> AUTO HAMMER <input type="checkbox"/> MANUAL HAMMER	
4. NAME OF DRILLER Construction Solutions International, Inc				12. TOTAL SAMPLES		DISTURBED UNDISTURBED (UD) 0	
5. DIRECTION OF BORING <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED		DEG. FROM VERTICAL		13. TOTAL NUMBER CORE BOXES			
		BEARING		14. WATER DEPTH 18 Ft.			
6. THICKNESS OF OVERBURDEN N/A				15. DATE BORING 06-27-11		STARTED COMPLETED 06-27-11	
7. DEPTH DRILLED INTO ROCK N/A				16. ELEVATION TOP OF BORING -16.6 Ft.			
8. TOTAL DEPTH OF BORING 17.4 Ft.				17. TOTAL RECOVERY FOR BORING 100%			
				18. SIGNATURE AND TITLE OF INSPECTOR Michele Johnson, Geologist			
ELEV.	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS	SAMPLE	LABORATORY RESULTS		
-16.6	0.0						
			CLAY, lean, little fine-grained sand, dark gray (CL)				
-22.0	5.4						
-23.5	6.9		SAND, silty, some fine-grained sand, dark gray (SM)				
			CLAY, lean, little fine-grained sand, dark gray (CL)	NS			
-31.8	15.2						
-34.0	17.4		SAND, silty, some sand, trace shell fragments, dark gray (SM)				
			NOTES: 1. Soils are field visually classified in accordance with the Unified Soils Classification System. 2. NS = Sample not submitted for laboratory analysis from this interval. 3. Seafloor elevation calculated using sampling vessel's fathometer water depth reading and applying NOAA tidal gauge data conversion factor.				

# Boring Designation BI-CI-53-11

DRILLING LOG		DIVISION South Atlantic		INSTALLATION Mobile District		SHEET 1 OF 1 SHEETS	
1. PROJECT MsCIP Barrier Island Restoration Cat Island				9. SIZE AND TYPE OF BIT N/A			
2. BORING DESIGNATION BI-CI-53-11		LOCATION COORDINATES E = 910,206 N = 255,912		10. COORDINATE SYSTEM/DATUM State Plane, MSE (U.S. Ft.)		HORIZONTAL NAD83	
3. DRILLING AGENCY Corps of Engineers - CESAM		CONTRACTOR FILE NO.		11. MANUFACTURER'S DESIGNATION OF DRILL Vibracore		<input type="checkbox"/> AUTO HAMMER <input type="checkbox"/> MANUAL HAMMER	
4. NAME OF DRILLER Construction Solutions International, Inc				12. TOTAL SAMPLES		DISTURBED 0	
5. DIRECTION OF BORING <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED		DEG. FROM VERTICAL		13. TOTAL NUMBER CORE BOXES			
		BEARING		14. WATER DEPTH 19.8 Ft.			
6. THICKNESS OF OVERBURDEN N/A				15. DATE BORING 06-28-11		COMPLETED 06-28-11	
7. DEPTH DRILLED INTO ROCK N/A				16. ELEVATION TOP OF BORING -17.8 Ft.			
8. TOTAL DEPTH OF BORING 13.3 Ft.				17. TOTAL RECOVERY FOR BORING 100%			
				18. SIGNATURE AND TITLE OF INSPECTOR Michele Johnson, Geologist			
ELEV.	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS	SAMPLE	LABORATORY RESULTS		
-17.8	0.0		CLAY, fat, discontinue sand, dark gray (CH)	NS			
-29.4	11.6		CLAY, lean, trace sand, dark gray (CL)				
-31.1	13.3		NOTES: 1. Soils are field visually classified in accordance with the Unified Soils Classification System. 2. NS = Sample not submitted for laboratory analysis from this interval. 3. Seafloor elevation calculated using sampling vessel's fathometer water depth reading and applying NOAA tidal gauge data conversion factor.				

# Boring Designation BI-CI-59-11

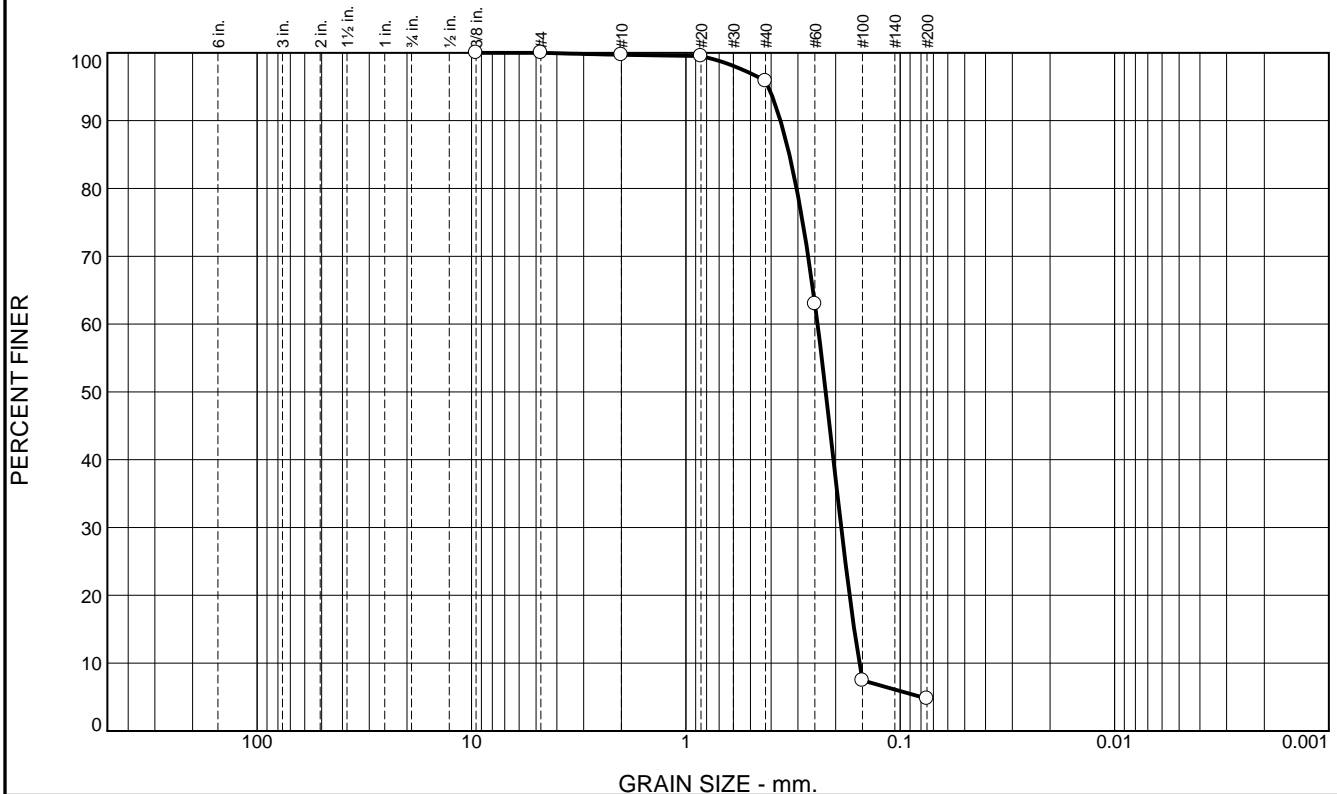
DRILLING LOG		DIVISION South Atlantic		INSTALLATION Mobile District		SHEET 1 OF 1 SHEETS	
1. PROJECT MsCIP Barrier Island Restoration Cat Island				9. SIZE AND TYPE OF BIT N/A			
2. BORING DESIGNATION BI-CI-59-11		LOCATION COORDINATES E = 908,061 N = 255,801		10. COORDINATE SYSTEM/DATUM State Plane, MSE (U.S. Ft.)		HORIZONTAL NAD83	
3. DRILLING AGENCY Corps of Engineers - CESAM		CONTRACTOR FILE NO.		11. MANUFACTURER'S DESIGNATION OF DRILL Vibracore		<input type="checkbox"/> AUTO HAMMER <input type="checkbox"/> MANUAL HAMMER	
4. NAME OF DRILLER Construction Solutions International, Inc				12. TOTAL SAMPLES		DISTURBED 0	
5. DIRECTION OF BORING <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED				13. TOTAL NUMBER CORE BOXES		14. WATER DEPTH 15.5 Ft.	
6. THICKNESS OF OVERBURDEN N/A				15. DATE BORING		STARTED 06-28-11	
7. DEPTH DRILLED INTO ROCK N/A				16. ELEVATION TOP OF BORING -13.5 Ft.		COMPLETED 06-28-11	
8. TOTAL DEPTH OF BORING 12.0 Ft.				17. TOTAL RECOVERY FOR BORING 100%		18. SIGNATURE AND TITLE OF INSPECTOR Michele Johnson, Geologist	
ELEV.	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS	SAMPLE	LABORATORY RESULTS		
-13.5	0.0						
-14.9	1.4		CLAY, lean, some fine-grained sand, dark gray (CL)				
			CLAY, fat, dark gray (CH)				
			At El. -20.6 Ft., trace shell fragments, dark gray	NS			
-25.5	12.0						
NOTES:							
1. Soils are field visually classified in accordance with the Unified Soils Classification System.							
2. NS = Sample not submitted for laboratory analysis from this interval.							
3. Seafloor elevation calculated using sampling vessel's fathometer water depth reading and applying NOAA tidal gauge data conversion factor.							

# Boring Designation BI-CI-60-11

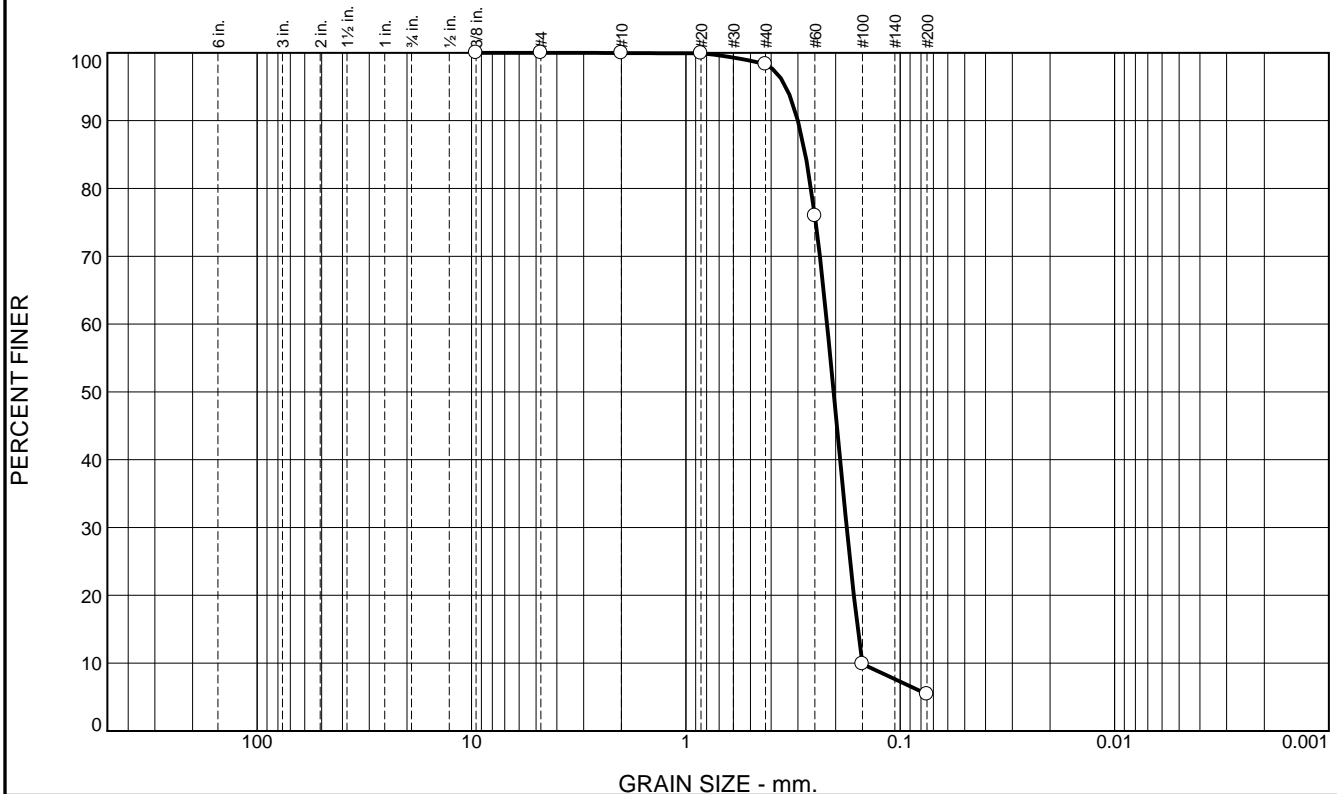
DRILLING LOG		DIVISION South Atlantic		INSTALLATION Mobile District		SHEET 1 OF 1 SHEETS	
1. PROJECT MsCIP Barrier Island Restoration Cat Island				9. SIZE AND TYPE OF BIT N/A			
2. BORING DESIGNATION BI-CI-60-11		LOCATION COORDINATES E = 909,182 N = 256,984		10. COORDINATE SYSTEM/DATUM State Plane, MSE (U.S. Ft.)		HORIZONTAL NAD83 VERTICAL NAVD88	
3. DRILLING AGENCY Corps of Engineers - CESAM		CONTRACTOR FILE NO.		11. MANUFACTURER'S DESIGNATION OF DRILL Vibrocure		<input type="checkbox"/> AUTO HAMMER <input type="checkbox"/> MANUAL HAMMER	
4. NAME OF DRILLER Construction Solutions International, Inc				12. TOTAL SAMPLES 2		DISTURBED 2 UNDISTURBED (UD) 0	
5. DIRECTION OF BORING <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED		DEG. FROM VERTICAL		BEARING		13. TOTAL NUMBER CORE BOXES	
6. THICKNESS OF OVERBURDEN N/A				14. WATER DEPTH 15.9 Ft.			
7. DEPTH DRILLED INTO ROCK N/A				15. DATE BORING 06-28-11		STARTED 06-28-11 COMPLETED 06-28-11	
8. TOTAL DEPTH OF BORING 12.9 Ft.				16. ELEVATION TOP OF BORING -13.9 Ft.			
				17. TOTAL RECOVERY FOR BORING 100%			
				18. SIGNATURE AND TITLE OF INSPECTOR Michele Johnson, Geologist			
ELEV.	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS	SAMPLE	LABORATORY RESULTS		
-13.9	0.0						
			SAND, poorly-graded with silt, some sand, trace shell fragments, gray (SP-SM)	A	Classification: SP Color: 2.5Y 4/2-dark grayish brown D50: 0.2226 mm % Fines: 4.8		
-17.4	3.5						
			SAND, silty, some fine-grained silt, gray (SM)	B	Classification: SP-SM Color: 2.5Y 7/2-light gray D50: 0.2043 mm % Fines: 5.4		
				NS			
-26.8	12.9						
			NOTES: 1. Soils are field visually classified in accordance with the Unified Soils Classification System. 2. NS = Sample not submitted for laboratory analysis from this interval. 3. Seafloor elevation calculated using sampling vessel's fathometer water depth reading and applying NOAA tidal gauge data conversion factor.				



# Particle Size Distribution Report



# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.0	0.0	1.7	92.9	5.4	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
.375	100.0		
#4	100.0		
#10	100.0		
#20	99.9		
#40	98.3		
#60	76.0		
#100	9.9		
#200	5.4		

**Material Description**  
Slightly silty SAND (SP-SM), fine grained

**Atterberg Limits**  
 PL=                      LL=                      PI=

**Coefficients**  
 D<sub>90</sub>= 0.3004      D<sub>85</sub>= 0.2771      D<sub>60</sub>= 0.2194  
 D<sub>50</sub>= 0.2043      D<sub>30</sub>= 0.1776      D<sub>15</sub>= 0.1577  
 D<sub>10</sub>= 0.1502      C<sub>u</sub>= 1.46              C<sub>c</sub>= 0.96

**Classification**  
 USCS= SP-SM                      AASHTO=

**Remarks**

\* (no specification provided)

Location: USACE Sample # **BI-CI-66B-11**  
 Sample Number: TE Lab ID: 5054.93

Depth: 3.5 - 7.6 (ft)      **Should be BI-CI-60B-11**

Date: 7/18/11

**Thompson Engineering**  
  
**Mobile, Alabama**

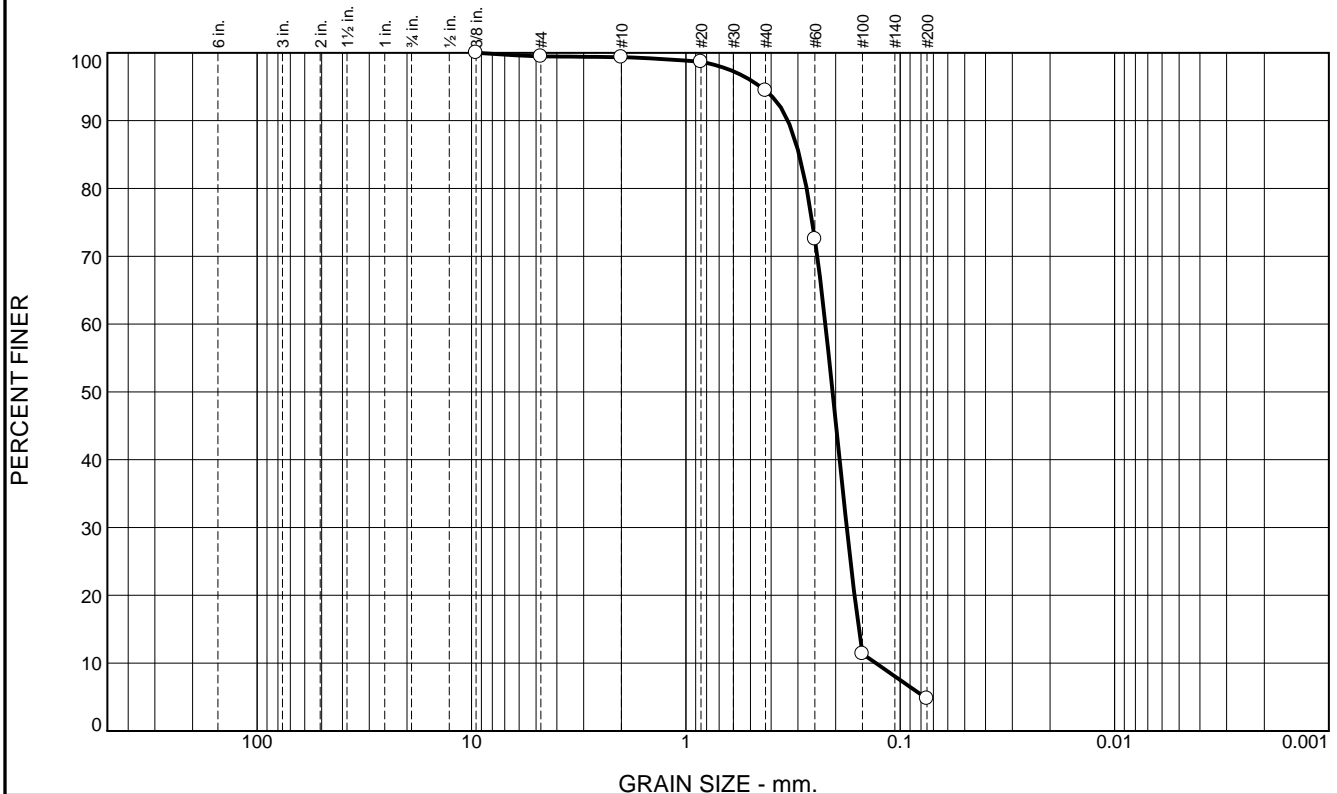
**Client:** US Army Corps of Engineers  
**Project:** Contract No. W91278-10-D-0026 - Task 009  
 Mississippi Barrier Island Restoration Project  
**Project No:** 11-2116-0057

**Figure**

# Boring Designation BI-CI-61-11

DRILLING LOG		DIVISION South Atlantic		INSTALLATION Mobile District		SHEET 1 OF 1 SHEETS	
1. PROJECT MsCIP Barrier Island Restoration Cat Island				9. SIZE AND TYPE OF BIT N/A			
2. BORING DESIGNATION BI-CI-61-11		LOCATION COORDINATES E = 910,150 N = 258,026		10. COORDINATE SYSTEM/DATUM State Plane, MSE (U.S. Ft.)		HORIZONTAL NAD83 VERTICAL NAVD88	
3. DRILLING AGENCY Corps of Engineers - CESAM		CONTRACTOR FILE NO.		11. MANUFACTURER'S DESIGNATION OF DRILL Vibracore		<input type="checkbox"/> AUTO HAMMER <input type="checkbox"/> MANUAL HAMMER	
4. NAME OF DRILLER Construction Solutions International, Inc				12. TOTAL SAMPLES 2		DISTURBED 2 UNDISTURBED (UD) 0	
5. DIRECTION OF BORING <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED		DEG. FROM VERTICAL		13. TOTAL NUMBER CORE BOXES			
		BEARING		14. WATER DEPTH 14.6 Ft.			
6. THICKNESS OF OVERBURDEN N/A				15. DATE BORING 06-28-11		STARTED 06-28-11 COMPLETED 06-28-11	
7. DEPTH DRILLED INTO ROCK N/A				16. ELEVATION TOP OF BORING -13.4 Ft.			
8. TOTAL DEPTH OF BORING 12.4 Ft.				17. TOTAL RECOVERY FOR BORING 100%			
				18. SIGNATURE AND TITLE OF INSPECTOR Michele Johnson, Geologist			
ELEV.	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS	SAMPLE	LABORATORY RESULTS		
-13.4	0.0						
			SAND, poorly-graded, trace shell fragments, gray (SP)	A	Classification: SP Color: 2.5Y 5/2-grayish brown D50: 0.2066 mm % Fines: 4.8		
			At El. -17.4 Ft., trace shell fragments, gray	B	Classification: SP Color: 2.5Y 6/2-light brownish gray D50: 0.1925 mm % Fines: 3.3		
				NS			
-25.8	12.4						
			NOTES:				
			1. Soils are field visually classified in accordance with the Unified Soils Classification System.				
			2. NS = Sample not submitted for laboratory analysis from this interval.				
			3. Seafloor elevation calculated using sampling vessel's fathometer water depth reading and applying NOAA tidal gauge data conversion factor.				

# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.5	0.1	5.0	89.6	4.8	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
.375	100.0		
#4	99.5		
#10	99.4		
#20	98.7		
#40	94.4		
#60	72.5		
#100	11.4		
#200	4.8		

\* (no specification provided)

**Material Description**  
SAND (SP), fine grained

**Atterberg Limits**  
 PL=      LL=      PI=

**Coefficients**  
 D<sub>90</sub>= 0.3345      D<sub>85</sub>= 0.2963      D<sub>60</sub>= 0.2234  
 D<sub>50</sub>= 0.2066      D<sub>30</sub>= 0.1775      D<sub>15</sub>= 0.1559  
 D<sub>10</sub>= 0.1299      C<sub>u</sub>= 1.72      C<sub>c</sub>= 1.09

**Classification**  
 USCS= SP      AASHTO=

**Remarks**

Location: USACE Sample # BI-CI-61A-11  
 Sample Number: TE Lab ID: 5054.85

Depth: 0.0 - 4.0 (ft)

Date: 7/18/11

**Thompson Engineering**

**Mobile, Alabama**

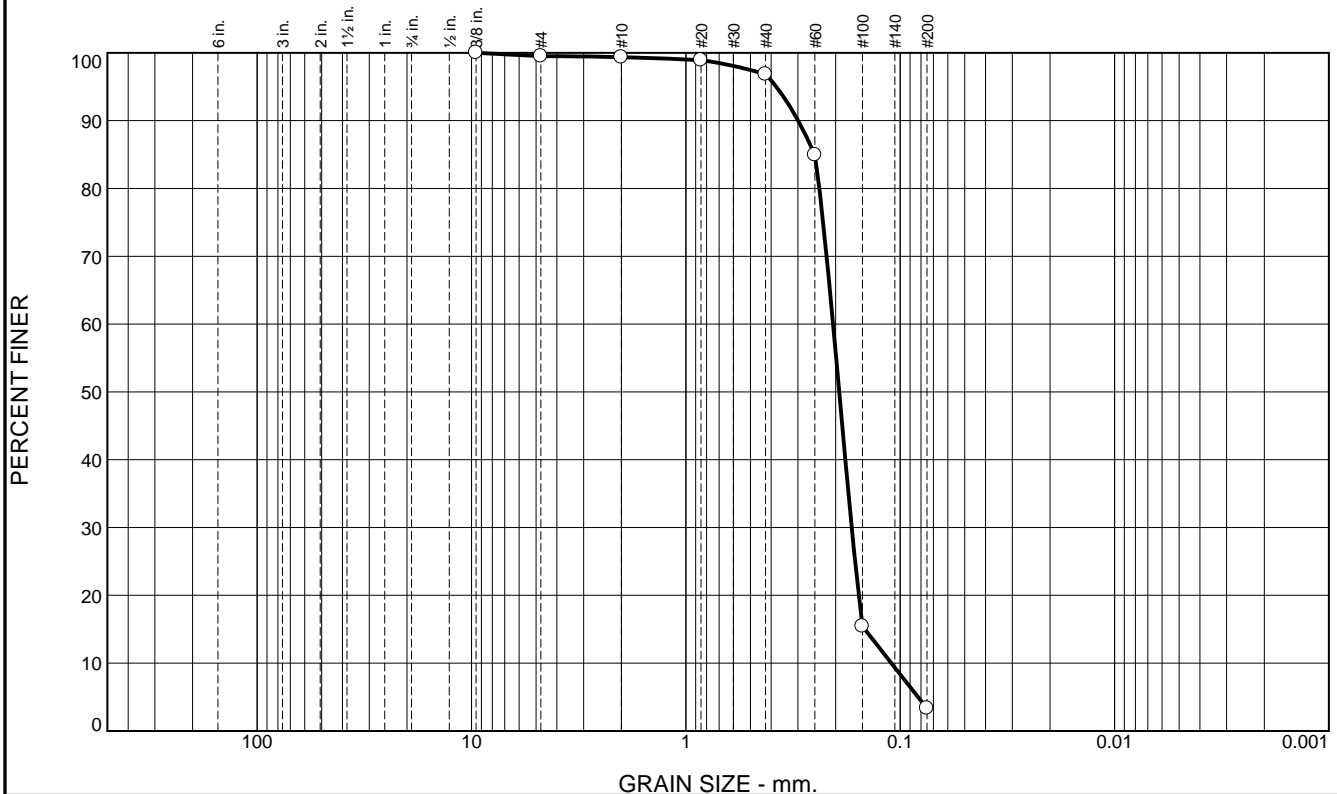
**Client:** US Army Corps of Engineers

**Project:** Contract No. W91278-10-D-0026 - Task 009  
 Mississippi Barrier Island Restoration Project

**Project No:** 11-2116-0057

**Figure**

# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.5	0.1	2.6	93.5	3.3	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
.375	100.0		
#4	99.5		
#10	99.4		
#20	98.9		
#40	96.8		
#60	84.9		
#100	15.4		
#200	3.3		

\* (no specification provided)

Material Description		
SAND (SP), fine grained		
<div> <div> Atterberg Limits </div> <div> PL= </div> <div> LL= </div> <div> PI= </div> </div>		
<div> <div> Coefficients </div> <div> D<sub>90</sub>= 0.2996 </div> <div> D<sub>50</sub>= 0.1925 </div> <div> D<sub>10</sub>= 0.1100 </div> </div>		
<div> <div> Classification </div> <div> USCS= SP </div> <div> AASHTO= </div> </div>		
<div> <div> Remarks </div> </div>		

Location: USACE Sample # BI-CI-61B-11  
Sample Number: TE Lab ID: 5054.86

Depth: 4.0 - 7.1 (ft)

Date: 7/18/11

**Thompson Engineering**

**Mobile, Alabama**

**Client:** US Army Corps of Engineers

**Project:** Contract No. W91278-10-D-0026 - Task 009  
Mississippi Barrier Island Restoration Project

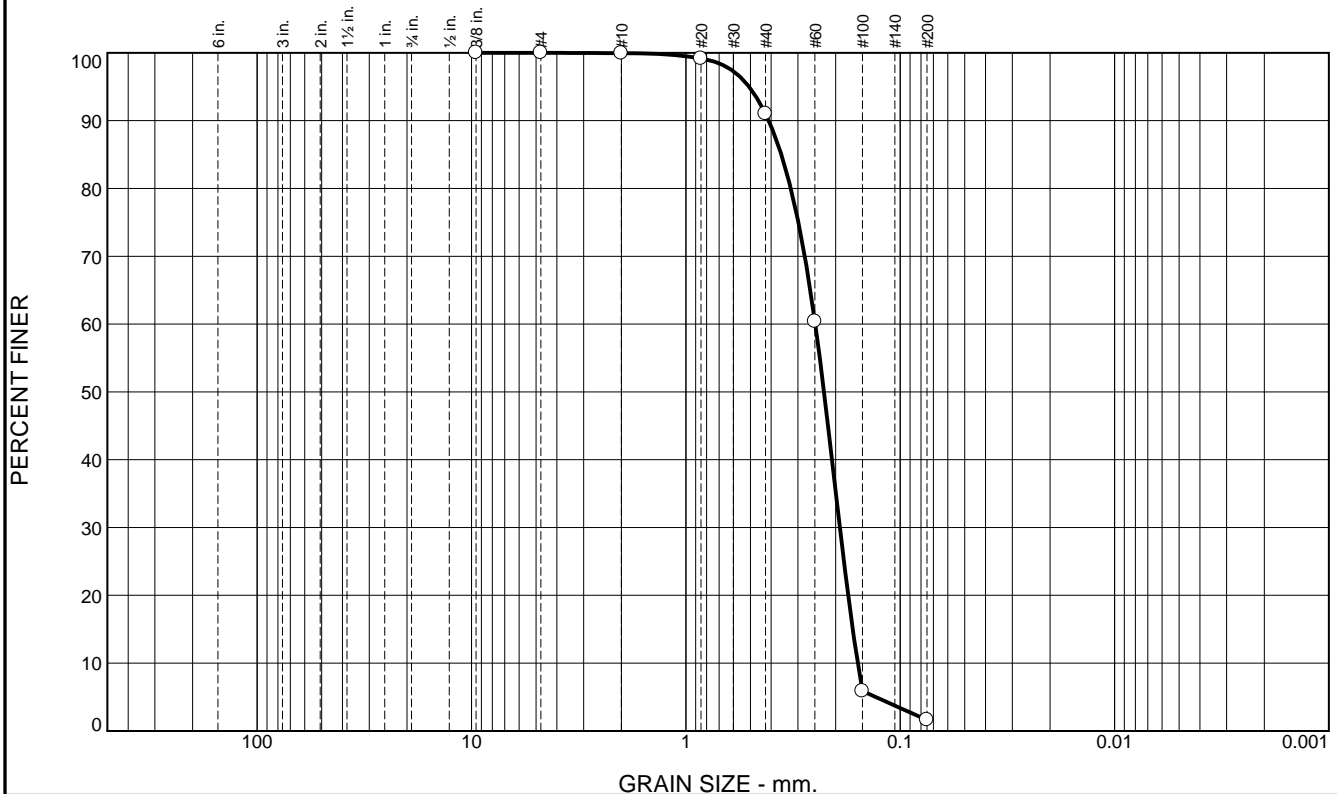
**Project No:** 11-2116-0057

**Figure**

# Boring Designation BI-CI-62-11

DRILLING LOG		DIVISION South Atlantic		INSTALLATION Mobile District		SHEET 1 OF 1 SHEETS	
1. PROJECT MsCIP Barrier Island Restoration Cat Island				9. SIZE AND TYPE OF BIT N/A			
2. BORING DESIGNATION BI-CI-62-11		LOCATION COORDINATES E = 909,022 N = 259,043		10. COORDINATE SYSTEM/DATUM State Plane, MSE (U.S. Ft.)		HORIZONTAL NAD83 VERTICAL NAVD88	
3. DRILLING AGENCY Corps of Engineers - CESAM		CONTRACTOR FILE NO.		11. MANUFACTURER'S DESIGNATION OF DRILL Vibracore		<input type="checkbox"/> AUTO HAMMER <input type="checkbox"/> MANUAL HAMMER	
4. NAME OF DRILLER Construction Solutions International, Inc				12. TOTAL SAMPLES 2		DISTURBED 0 UNDISTURBED (UD)	
5. DIRECTION OF BORING <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED		DEG. FROM VERTICAL		13. TOTAL NUMBER CORE BOXES			
		BEARING		14. WATER DEPTH 11.9 Ft.			
6. THICKNESS OF OVERBURDEN N/A				15. DATE BORING 06-28-11		STARTED 06-28-11 COMPLETED 06-28-11	
7. DEPTH DRILLED INTO ROCK N/A				16. ELEVATION TOP OF BORING -10.8 Ft.			
8. TOTAL DEPTH OF BORING 10.3 Ft.				17. TOTAL RECOVERY FOR BORING 100%			
				18. SIGNATURE AND TITLE OF INSPECTOR Michele Johnson, Geologist			
ELEV.	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS	SAMPLE	LABORATORY RESULTS		
-10.8	0.0						
			SAND, poorly-graded, trace shell fragments, gray (SP)	A	Classification: SP Color: 2.5Y 5/2-grayish brown D50: 0.2268 mm % Fines: 1.6		
			At El. -15.8 Ft., trace shell fragments, gray	B	Classification: SP Color: 2.5Y 6/2-light brownish gray D50: 0.1865 mm % Fines: 4.1		
-21.1	10.3						
			NOTES: 1. Soils are field visually classified in accordance with the Unified Soils Classification System. 2. NS = Sample not submitted for laboratory analysis from this interval. 3. Seafloor elevation calculated using sampling vessel's fathometer water depth reading and applying NOAA tidal gauge data conversion factor.				

# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.0	0.1	8.9	89.4	1.6	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
.375	100.0		
#4	100.0		
#10	99.9		
#20	99.2		
#40	91.0		
#60	60.4		
#100	5.9		
#200	1.6		

\* (no specification provided)

**Material Description**  
SAND (SP), fine grained

**Atterberg Limits**  
 PL=                      LL=                      PI=

**Coefficients**  
 D<sub>90</sub>= 0.4108      D<sub>85</sub>= 0.3586      D<sub>60</sub>= 0.2491  
 D<sub>50</sub>= 0.2268      D<sub>30</sub>= 0.1911      D<sub>15</sub>= 0.1666  
 D<sub>10</sub>= 0.1579      C<sub>u</sub>= 1.58              C<sub>c</sub>= 0.93

**Classification**  
 USCS= SP                      AASHTO=

**Remarks**

Location: USACE Sample # BI-CI-62A-11  
 Sample Number: TE Lab ID: 5054.87

Depth: 0.0 - 5.0 (ft)

Date: 7/18/11

**Thompson Engineering**

**Mobile, Alabama**

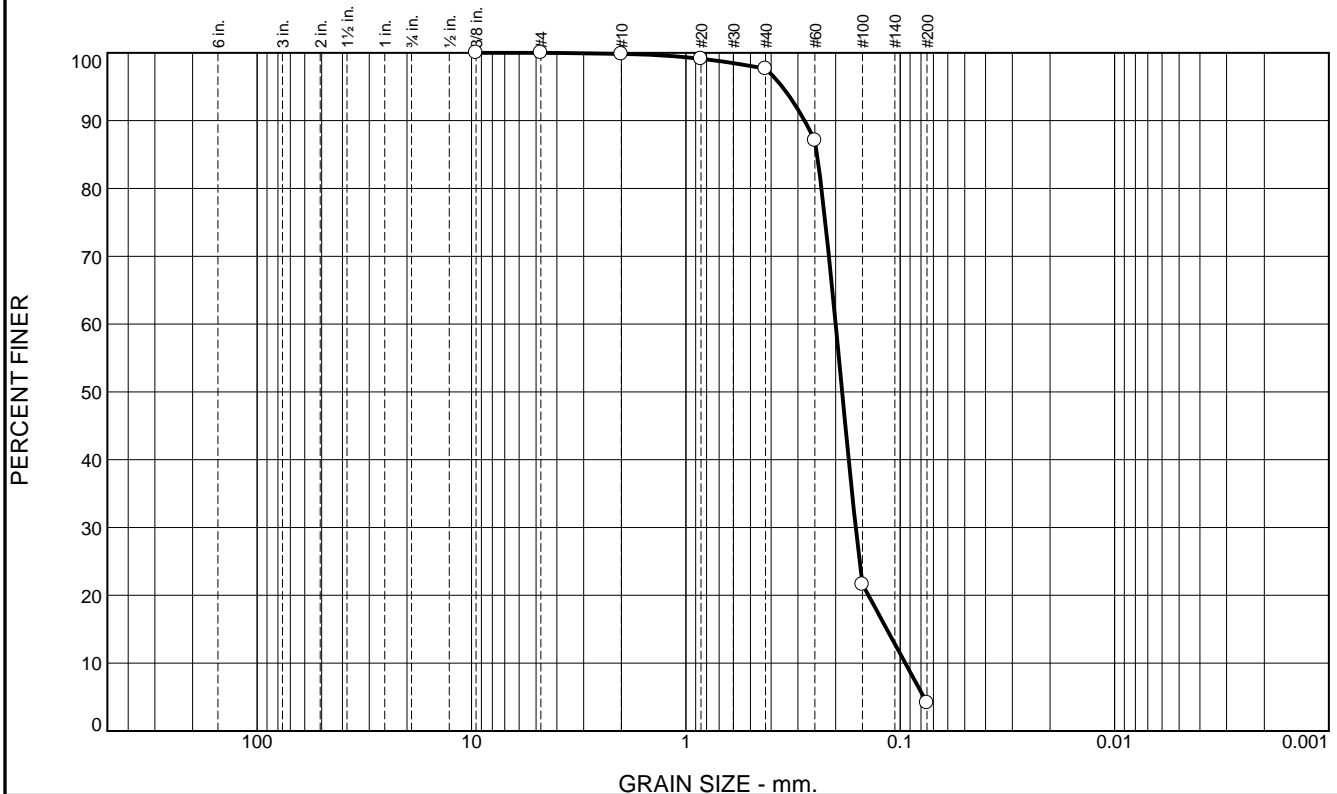
**Client:** US Army Corps of Engineers

**Project:** Contract No. W91278-10-D-0026 - Task 009  
 Mississippi Barrier Island Restoration Project

**Project No:** 11-2116-0057

**Figure**

# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.0	0.2	2.1	93.6	4.1	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
.375	100.0		
#4	100.0		
#10	99.8		
#20	99.1		
#40	97.7		
#60	87.1		
#100	21.6		
#200	4.1		

\* (no specification provided)

Material Description		
SAND (SP), fine grained		
PL=	Atterberg Limits LL=	PI=
D <sub>90</sub> = 0.2796	Coefficients D <sub>85</sub> = 0.2444	D <sub>60</sub> = 0.1999
D <sub>50</sub> = 0.1865	D <sub>30</sub> = 0.1613	D <sub>15</sub> = 0.1154
D <sub>10</sub> = 0.0947	C <sub>u</sub> = 2.11	C <sub>c</sub> = 1.37
USCS= SP	Classification AASHTO=	
Remarks		

Location: USACE Sample # BI-CI-62B-11  
Sample Number: TE Lab ID: 5054.88

Depth: 5.0 - 10.0 (ft)

Date: 7/18/11

**Thompson Engineering**

**Mobile, Alabama**

Client: US Army Corps of Engineers

Project: Contract No. W91278-10-D-0026 - Task 009  
Mississippi Barrier Island Restoration Project

Project No: 11-2116-0057

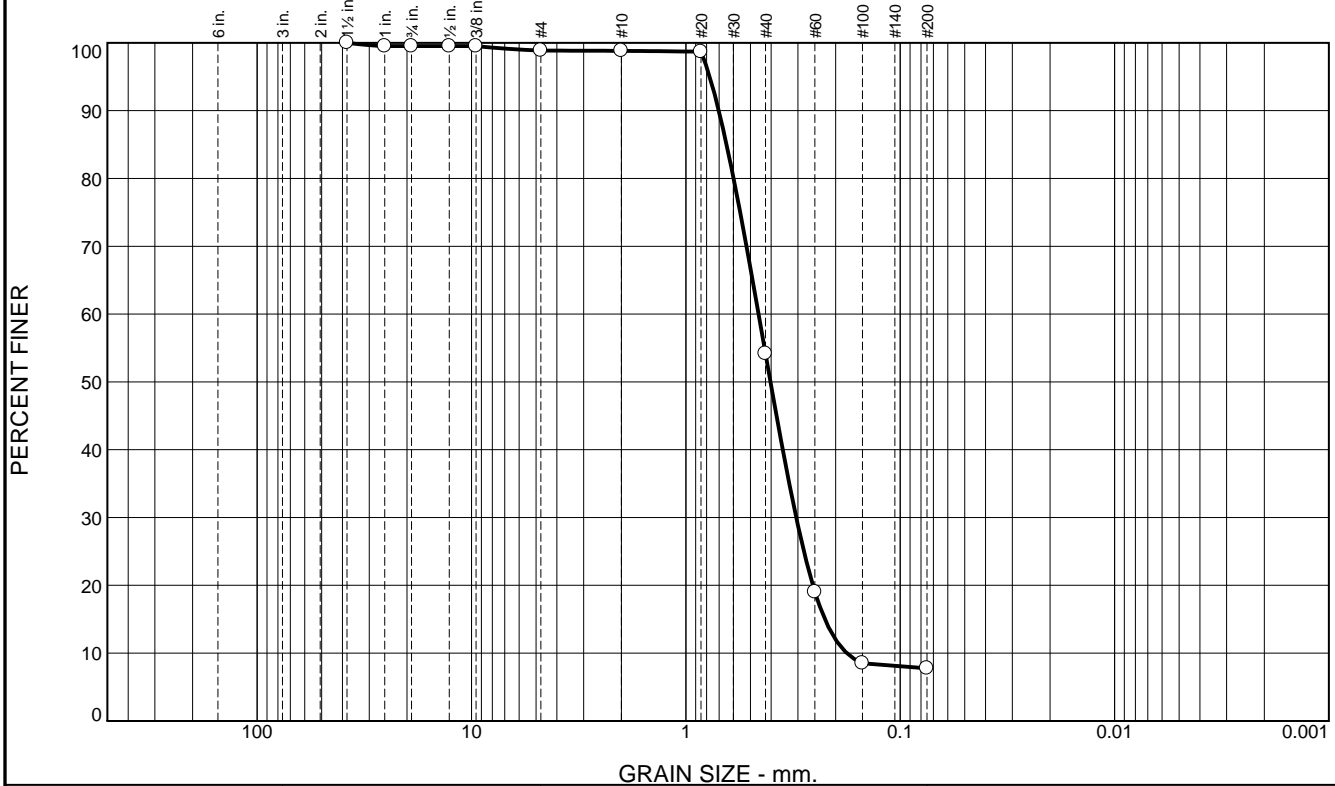
Figure



# Boring Designation BI-CI-63-11

DRILLING LOG		DIVISION South Atlantic		INSTALLATION Mobile District		SHEET 1 OF 1 SHEETS	
1. PROJECT MsCIP Barrier Island Restoration Cat Island				9. SIZE AND TYPE OF BIT N/A			
2. BORING DESIGNATION BI-CI-63-11		LOCATION COORDINATES E = 907,980 N = 257,957		10. COORDINATE SYSTEM/DATUM State Plane, MSE (U.S. Ft.)		HORIZONTAL NAD83 VERTICAL NAVD88	
3. DRILLING AGENCY Corps of Engineers - CESAM		CONTRACTOR FILE NO.		11. MANUFACTURER'S DESIGNATION OF DRILL Vibracore		<input type="checkbox"/> AUTO HAMMER <input type="checkbox"/> MANUAL HAMMER	
4. NAME OF DRILLER Construction Solutions International, Inc				12. TOTAL SAMPLES 3		DISTURBED 3 UNDISTURBED (UD) 0	
5. DIRECTION OF BORING <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED		DEG. FROM VERTICAL		13. TOTAL NUMBER CORE BOXES			
		BEARING		14. WATER DEPTH 11.8 Ft.			
6. THICKNESS OF OVERBURDEN N/A				15. DATE BORING 06-28-11		STARTED 06-28-11 COMPLETED 06-28-11	
7. DEPTH DRILLED INTO ROCK N/A				16. ELEVATION TOP OF BORING -11.4 Ft.			
8. TOTAL DEPTH OF BORING 12.3 Ft.				17. TOTAL RECOVERY FOR BORING 100%			
				18. SIGNATURE AND TITLE OF INSPECTOR Michele Johnson, Geologist			
ELEV.	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS	SAMPLE	LABORATORY RESULTS		
-11.4	0.0						
			SAND, poorly-graded, trace shell fragments, gray (SP)	A	Classification: SP-SM Color: 2.5Y 5/2-grayish brown D50: 0.403 mm % Fines: 7.8		
			At El. -15.4 Ft., trace shell fragments, lt. gray	B	Classification: SP Color: 2.5Y 6/2-light brownish gray D50: 0.203 mm % Fines: 2.8		
				C	Classification: SP-SM Color: 2.5Y 5.5/2-brownish gray D50: 0.1592 mm % Fines: 8.2		
				NS			
-23.7	12.3						
			NOTES:				
			1. Soils are field visually classified in accordance with the Unified Soils Classification System.				
			2. NS = Sample not submitted for laboratory analysis from this interval.				
			3. Seafloor elevation calculated using sampling vessel's fathometer water depth reading and applying NOAA tidal gauge data conversion factor.				

# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.5	0.6	0.1	44.7	46.3	7.8	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
1.5	100.0		
1	99.5		
.75	99.5		
.5	99.5		
.375	99.5		
#4	98.9		
#10	98.8		
#20	98.7		
#40	54.1		
#60	19.0		
#100	8.5		
#200	7.8		

\* (no specification provided)

## Material Description

Slightly silty SAND (SP-SM), medium to fine grained

## Atterberg Limits

PL=

LL=

PI=

## Coefficients

D<sub>90</sub>= 0.7020

D<sub>85</sub>= 0.6456

D<sub>60</sub>= 0.4579

D<sub>50</sub>= 0.4030

D<sub>30</sub>= 0.3058

D<sub>15</sub>= 0.2247

D<sub>10</sub>= 0.1774

C<sub>u</sub>= 2.58

C<sub>c</sub>= 1.15

## Classification

USCS= SP-SM

AASHTO=

## Remarks

Location: USACE Sample # BI-CI-63A-11  
Sample Number: TE Lab ID: 5054.89

Depth: 0.0 - 4.0 (ft)

Date: 7/18/11

**Thompson Engineering**

**Mobile, Alabama**

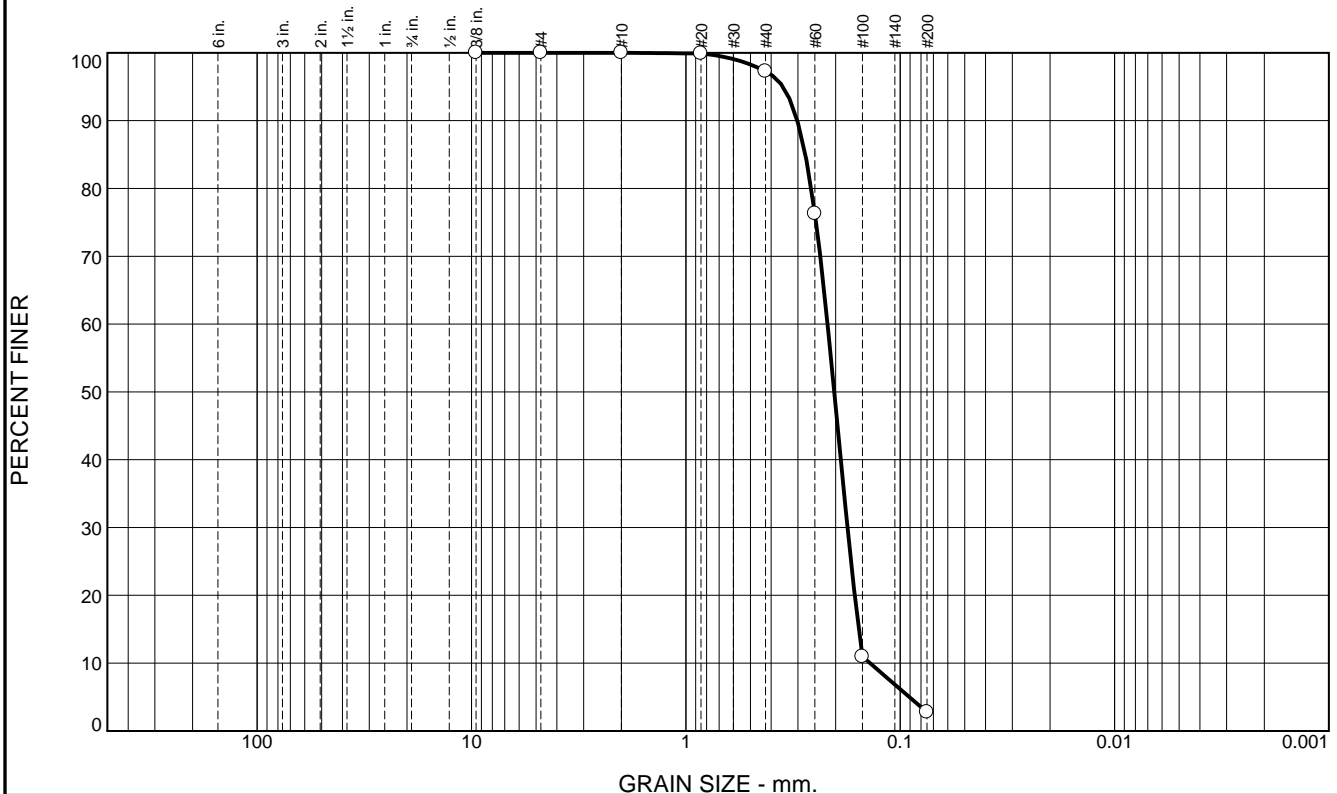
Client: US Army Corps of Engineers

Project: Contract No. W91278-10-D-0026 - Task 009  
Mississippi Barrier Island Restoration Project

Project No: 11-2116-0057

Figure

# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.0	0.0	2.7	94.5	2.8	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
.375	100.0		
#4	100.0		
#10	100.0		
#20	99.9		
#40	97.3		
#60	76.3		
#100	11.0		
#200	2.8		

\* (no specification provided)

**Material Description**  
SAND (SP), fine grained

**Atterberg Limits**  
 PL=      LL=      PI=

**Coefficients**  
 D<sub>90</sub>= 0.3023      D<sub>85</sub>= 0.2772      D<sub>60</sub>= 0.2182  
 D<sub>50</sub>= 0.2030      D<sub>30</sub>= 0.1762      D<sub>15</sub>= 0.1561  
 D<sub>10</sub>= 0.1383      C<sub>u</sub>= 1.58      C<sub>c</sub>= 1.03

**Classification**  
 USCS= SP      AASHTO=

**Remarks**

Location: USACE Sample # BI-CI-63B-11  
 Sample Number: TE Lab ID: 5054.90

Depth: 4.0 - 8.2 (ft)

Date: 7/18/11

**Thompson Engineering**

**Mobile, Alabama**

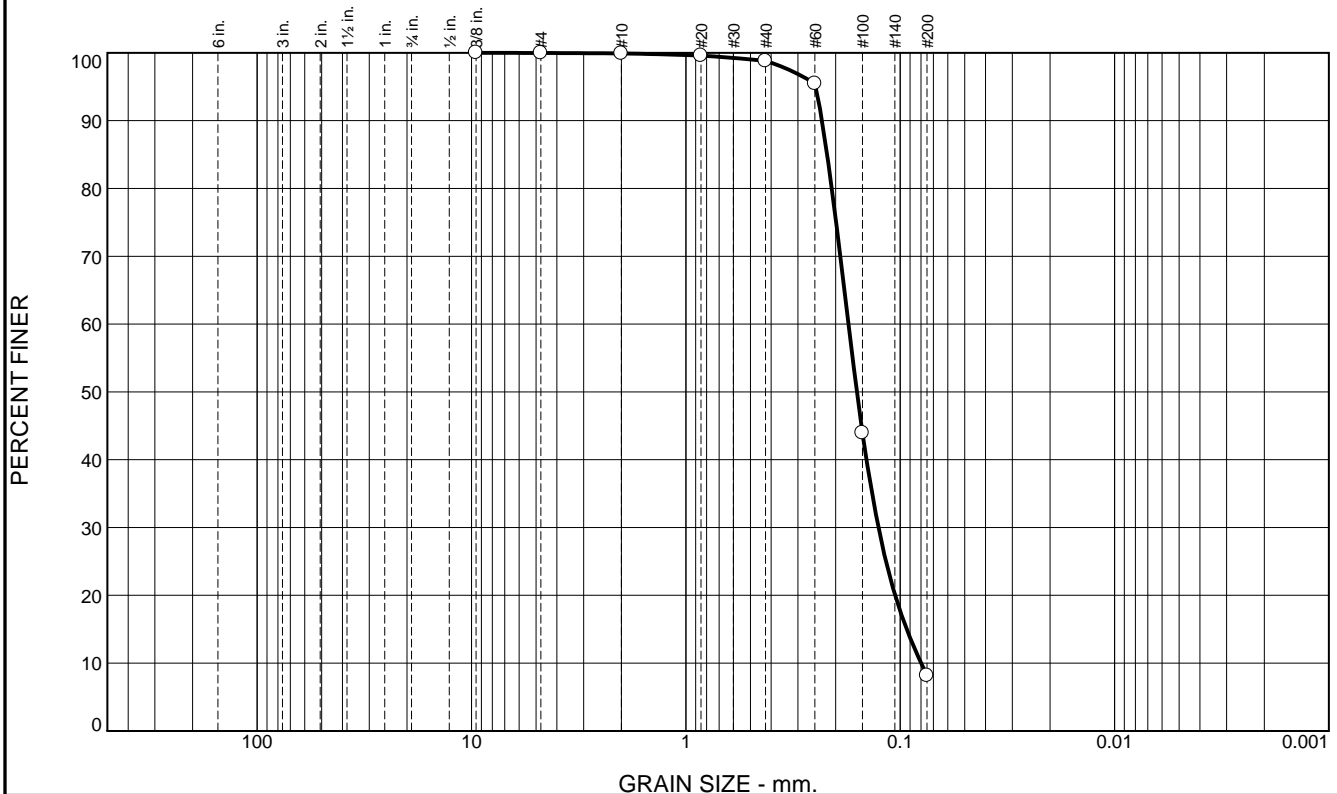
**Client:** US Army Corps of Engineers

**Project:** Contract No. W91278-10-D-0026 - Task 009  
 Mississippi Barrier Island Restoration Project

**Project No:** 11-2116-0057

**Figure**

# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.0	0.1	1.1	90.6	8.2	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
.375	100.0		
#4	100.0		
#10	99.9		
#20	99.6		
#40	98.8		
#60	95.5		
#100	43.9		
#200	8.2		

\* (no specification provided)

## Material Description

Slightly silty SAND (SP-SM), medium to fine grained

## Atterberg Limits

PL= LL= PI=

## Coefficients

D<sub>90</sub>= 0.2317 D<sub>85</sub>= 0.2191 D<sub>60</sub>= 0.1743  
D<sub>50</sub>= 0.1592 D<sub>30</sub>= 0.1264 D<sub>15</sub>= 0.0933  
D<sub>10</sub>= 0.0798 C<sub>u</sub>= 2.18 C<sub>c</sub>= 1.15

## Classification

USCS= SP-SM AASHTO=

## Remarks

Location: USACE Sample # BI-CI-63C-11  
Sample Number: TE Lab ID: 5054.91

Depth: 8.2 - 9.0 (ft)

Date: 7/18/11

**Thompson Engineering**

**Mobile, Alabama**

Client: US Army Corps of Engineers

Project: Contract No. W91278-10-D-0026 - Task 009  
Mississippi Barrier Island Restoration Project



Project No: 11-2116-0057

Figure

# Boring Designation BI-CI-64-11

DRILLING LOG		DIVISION South Atlantic		INSTALLATION Mobile District		SHEET 1 OF 1 SHEETS	
1. PROJECT MsCIP Barrier Island Restoration Cat Island				9. SIZE AND TYPE OF BIT N/A			
2. BORING DESIGNATION BI-CI-64-11		LOCATION COORDINATES E = 907,005 N = 256,817		10. COORDINATE SYSTEM/DATUM State Plane, MSE (U.S. Ft.)		HORIZONTAL NAD83	
3. DRILLING AGENCY Corps of Engineers - CESAM		CONTRACTOR FILE NO.		11. MANUFACTURER'S DESIGNATION OF DRILL Vibracore		<input type="checkbox"/> AUTO HAMMER <input type="checkbox"/> MANUAL HAMMER	
4. NAME OF DRILLER Construction Solutions International, Inc				12. TOTAL SAMPLES		DISTURBED 0	
5. DIRECTION OF BORING <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED				13. TOTAL NUMBER CORE BOXES		14. WATER DEPTH 12.6 Ft.	
6. THICKNESS OF OVERBURDEN N/A				15. DATE BORING		STARTED 06-28-11	
7. DEPTH DRILLED INTO ROCK N/A				16. ELEVATION TOP OF BORING -11.9 Ft.		COMPLETED 06-28-11	
8. TOTAL DEPTH OF BORING 10.9 Ft.				17. TOTAL RECOVERY FOR BORING 100%			
				18. SIGNATURE AND TITLE OF INSPECTOR Michele Johnson, Geologist			
ELEV.	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS	SAMPLE	LABORATORY RESULTS		
-11.9	0.0		CLAY, lean, dark gray (CL)	NS			
-20.2	8.3						
-20.7	8.8		SAND, poorly-graded, mostly medium-grained sand-sized quartz, gray (SP)				
-22.8	10.9		CLAY, fat, dark gray (CH)				
NOTES: 1. Soils are field visually classified in accordance with the Unified Soils Classification System. 2. NS = Sample not submitted for laboratory analysis from this interval. 3. Seafloor elevation calculated using sampling vessel's fathometer water depth reading and applying NOAA tidal gauge data conversion factor.							

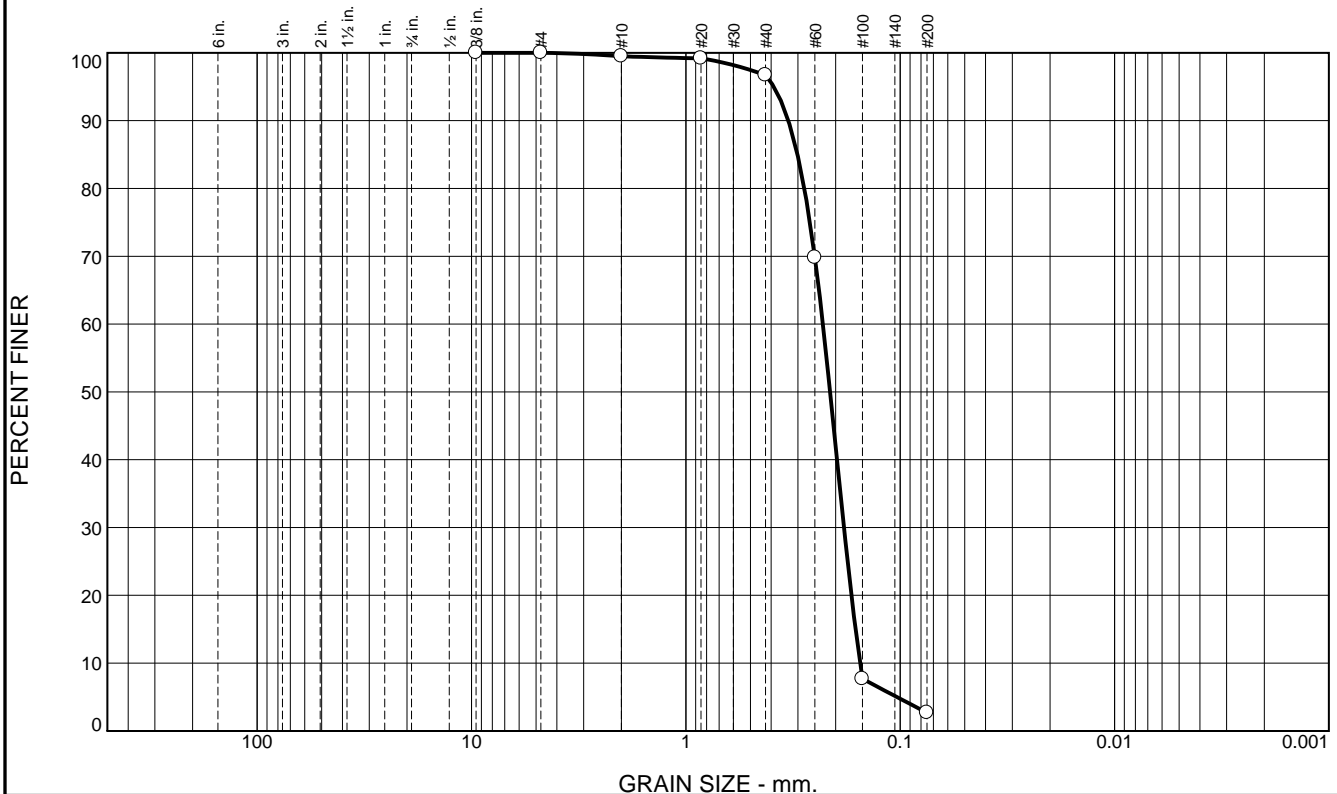
# Boring Designation BI-CI-65-11

DRILLING LOG		DIVISION South Atlantic		INSTALLATION Mobile District		SHEET 1 OF 1 SHEETS	
1. PROJECT MsCIP Barrier Island Restoration Cat Island				9. SIZE AND TYPE OF BIT N/A			
2. BORING DESIGNATION BI-CI-65-11		LOCATION COORDINATES E = 906,007 N = 255,736		10. COORDINATE SYSTEM/DATUM State Plane, MSE (U.S. Ft.)		HORIZONTAL NAD83 VERTICAL NAVD88	
3. DRILLING AGENCY Corps of Engineers - CESAM		CONTRACTOR FILE NO.		11. MANUFACTURER'S DESIGNATION OF DRILL Vibracore		<input type="checkbox"/> AUTO HAMMER <input type="checkbox"/> MANUAL HAMMER	
4. NAME OF DRILLER Construction Solutions International, Inc				12. TOTAL SAMPLES		DISTURBED UNDISTURBED (UD) 0	
5. DIRECTION OF BORING <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED		DEG. FROM VERTICAL		13. TOTAL NUMBER CORE BOXES			
		BEARING		14. WATER DEPTH 11.6 Ft.			
6. THICKNESS OF OVERBURDEN N/A				15. DATE BORING 06-28-11		STARTED COMPLETED 06-28-11	
7. DEPTH DRILLED INTO ROCK N/A				16. ELEVATION TOP OF BORING -11.0 Ft.			
8. TOTAL DEPTH OF BORING 11.7 Ft.				17. TOTAL RECOVERY FOR BORING 100%			
				18. SIGNATURE AND TITLE OF INSPECTOR Michele Johnson, Geologist			
ELEV.	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS	SAMPLE	LABORATORY RESULTS		
-11.0	0.0						
-13.0	2.0		CLAY, lean, dark gray (CL)	NS			
			CLAY, fat, dark gray (CH)				
-22.7	11.7						
			NOTES: 1. Soils are field visually classified in accordance with the Unified Soils Classification System. 2. NS = Sample not submitted for laboratory analysis from this interval. 3. Seafloor elevation calculated using sampling vessel's fathometer water depth reading and applying NOAA tidal gauge data conversion factor.				

# Boring Designation BI-CI-67-11

DRILLING LOG		DIVISION South Atlantic		INSTALLATION Mobile District		SHEET 1 OF 1 SHEETS	
1. PROJECT MsCIP Barrier Island Restoration Cat Island				9. SIZE AND TYPE OF BIT N/A			
2. BORING DESIGNATION BI-CI-67-11		LOCATION COORDINATES E = 917,834 N = 270,914		10. COORDINATE SYSTEM/DATUM State Plane, MSE (U.S. Ft.)		HORIZONTAL NAD83	
3. DRILLING AGENCY Corps of Engineers - CESAM		CONTRACTOR FILE NO.		11. MANUFACTURER'S DESIGNATION OF DRILL Vibracore		<input type="checkbox"/> AUTO HAMMER <input type="checkbox"/> MANUAL HAMMER	
4. NAME OF DRILLER Construction Solutions International, Inc.				12. TOTAL SAMPLES 4		DISTURBED 4	
5. DIRECTION OF BORING <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED				13. TOTAL NUMBER CORE BOXES		UNDISTURBED (UD) 0	
6. THICKNESS OF OVERBURDEN N/A				14. WATER DEPTH 10 Ft.		15. DATE BORING 06-23-11	
7. DEPTH DRILLED INTO ROCK N/A				16. ELEVATION TOP OF BORING -9.6 Ft.		COMPLETED 06-23-11	
8. TOTAL DEPTH OF BORING 14.5 Ft.				17. TOTAL RECOVERY FOR BORING 100%		18. SIGNATURE AND TITLE OF INSPECTOR Rhonda Capes, Geologist	
ELEV.	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS	SAMPLE	LABORATORY RESULTS		
-9.6	0.0						
-11.6	2.0		SAND, poorly-graded, mostly fine-grained sand-sized quartz, trace shell fragments, gray and black (SP)	A	Classification: SP Color: 5Y 6/2-light olive gray D50: 0.2123 mm % Fines: 2.7		
-16.1	6.5		SAND, silty, mostly fine-grained sand-sized quartz, trace silt, gray (SM)	B	Classification: SP-SM Color: 5Y 4/2-olive gray D50: 0.1999 mm % Fines: 9.4		
-24.1	14.5		SAND, poorly-graded, mostly fine to medium-grained sand-sized quartz, some shell fragments, gray (SP) At El. -18.6 Ft., mostly fine-grained sand-sized quartz, lt. gray	C	Classification: SP Color: 2.5Y 5/2-grayish brown D50: 0.204 mm % Fines: 3		
				D	Classification: SP Color: 2.5Y 6/1-gray D50: 0.193 mm % Fines: 2.3		
			NOTES: 1. Soils are field visually classified in accordance with the Unified Soils Classification System. 2. NS = Sample not submitted for laboratory analysis from this interval. 3. Seafloor elevation calculated using sampling vessel's fathometer water depth reading and applying NOAA tidal gauge data conversion factor.				

# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.0	0.5	2.8	94.0	2.7	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
.375	100.0		
#4	100.0		
#10	99.5		
#20	99.2		
#40	96.7		
#60	69.8		
#100	7.7		
#200	2.7		

\* (no specification provided)

<u>Material Description</u>		
SAND (SP), fine grained		
<u>Atterberg Limits</u>		
PL=	LL=	PI=
<u>Coefficients</u>		
D <sub>90</sub> = 0.3327	D <sub>85</sub> = 0.3016	D <sub>60</sub> = 0.2295
D <sub>50</sub> = 0.2123	D <sub>30</sub> = 0.1829	D <sub>15</sub> = 0.1616
D <sub>10</sub> = 0.1539	C <sub>u</sub> = 1.49	C <sub>c</sub> = 0.95
<u>Classification</u>		
USCS= SP	AASHTO=	
<u>Remarks</u>		

Location: USACE Sample # BI-CI-67A-11  
Sample Number: TE Lab ID: 5054.43

Depth: 0.0 - 2.0 (ft)

Date: 7/18/11

**Thompson Engineering**

**Mobile, Alabama**

Client: US Army Corps of Engineers

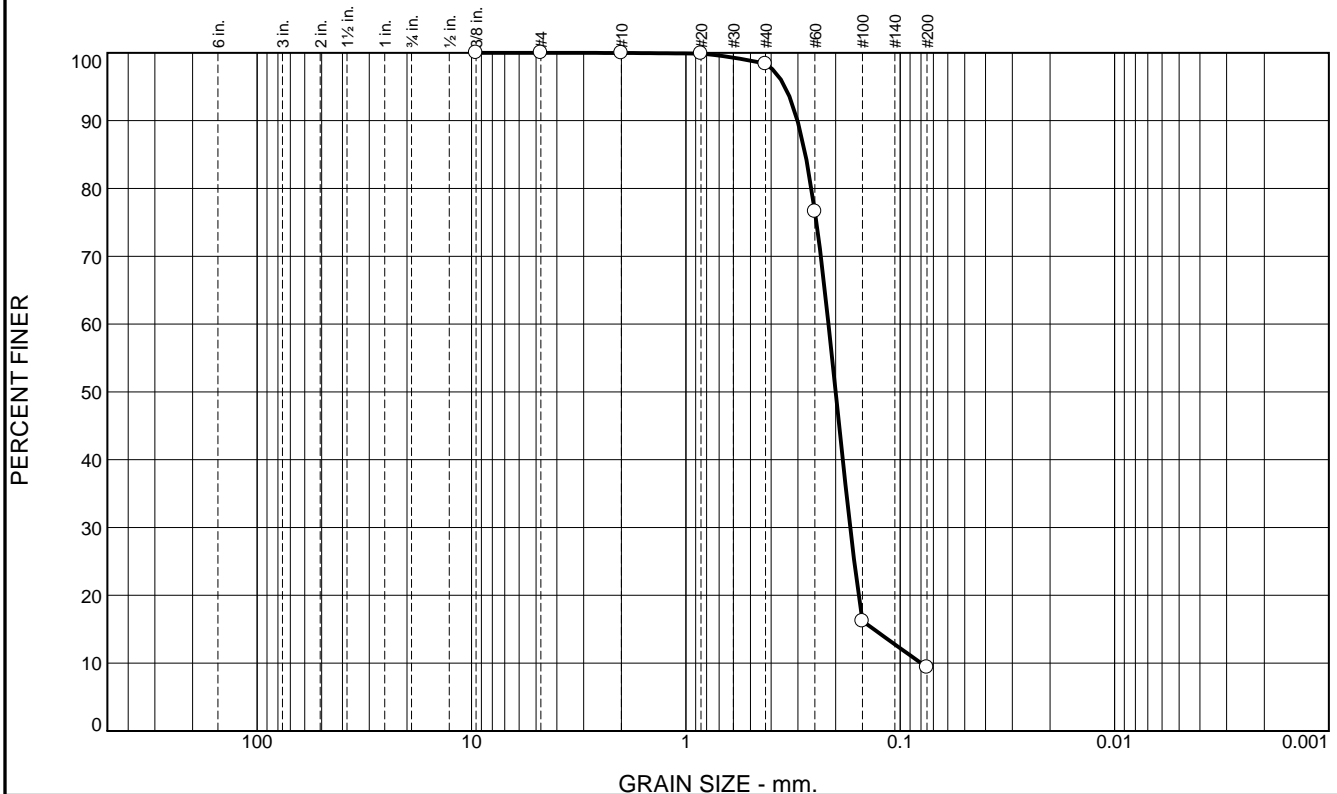
Project: Contract No. W91278-10-D-0026 - Task 009  
Mississippi Barrier Island Restoration Project

Project No: 11-2116-0057

Figure



# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.0	0.0	1.6	89.0	9.4	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
.375	100.0		
#4	100.0		
#10	100.0		
#20	99.9		
#40	98.4		
#60	76.6		
#100	16.2		
#200	9.4		

\* (no specification provided)

<u>Material Description</u>		
Slightly silty SAND (SP-SM), fine grained		
<u>Atterberg Limits</u>		
PL=	LL=	PI=
<u>Coefficients</u>		
D <sub>90</sub> = 0.3017	D <sub>85</sub> = 0.2770	D <sub>60</sub> = 0.2160
D <sub>50</sub> = 0.1999	D <sub>30</sub> = 0.1711	D <sub>15</sub> = 0.1329
D <sub>10</sub> = 0.0800	C <sub>u</sub> = 2.70	C <sub>c</sub> = 1.69
<u>Classification</u>		
USCS= SP-SM	AASHTO=	
<u>Remarks</u>		

Location: USACE Sample # BI-CI-67B-11  
Sample Number: TE Lab ID: 5054.44

Depth: 2.0 - 6.5 (ft)

Date: 7/18/11

**Thompson Engineering**

**Mobile, Alabama**

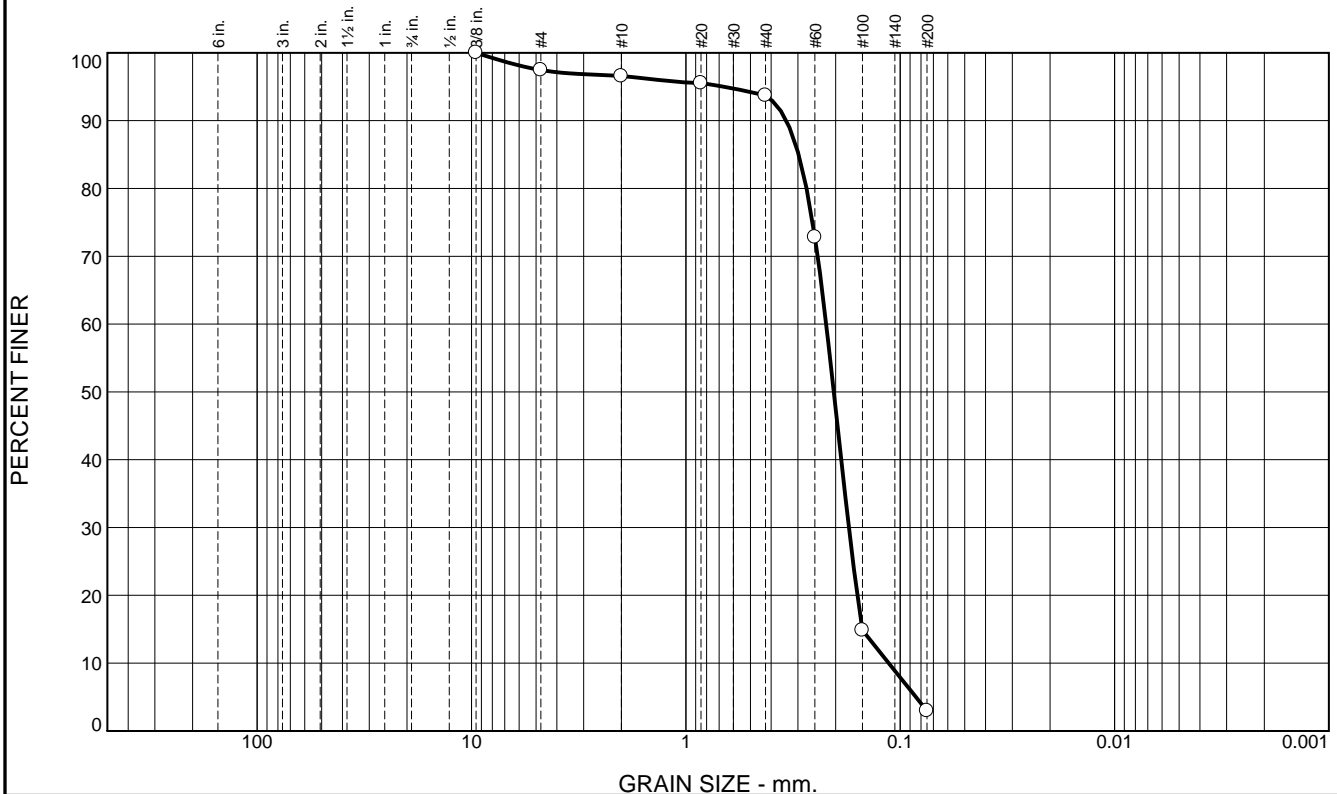
**Client:** US Army Corps of Engineers

**Project:** Contract No. W91278-10-D-0026 - Task 009  
Mississippi Barrier Island Restoration Project

**Project No:** 11-2116-0057

**Figure**

# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	2.5	0.9	2.9	90.7	3.0	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
.375	100.0		
#4	97.5		
#10	96.6		
#20	95.5		
#40	93.7		
#60	72.8		
#100	14.8		
#200	3.0		

\* (no specification provided)

Material Description		
SAND (SP), fine grained		
<div> <div> <b>Atterberg Limits</b>            PL=      LL=      PI=         </div> <div> <b>Coefficients</b>            D<sub>90</sub>= 0.3399      D<sub>85</sub>= 0.2980      D<sub>60</sub>= 0.2214            D<sub>50</sub>= 0.2040      D<sub>30</sub>= 0.1735      D<sub>15</sub>= 0.1503            D<sub>10</sub>= 0.1131      C<sub>u</sub>= 1.96      C<sub>c</sub>= 1.20         </div> <div> <b>Classification</b>            USCS= SP      AASHTO=         </div> <div> <b>Remarks</b> </div> </div>		

Location: USACE Sample # BI-CI-67C-11  
Sample Number: TE Lab ID: 5054.45

Depth: 6.5 - 11.5 (ft)

Date: 7/18/11

**Thompson Engineering**

**Mobile, Alabama**

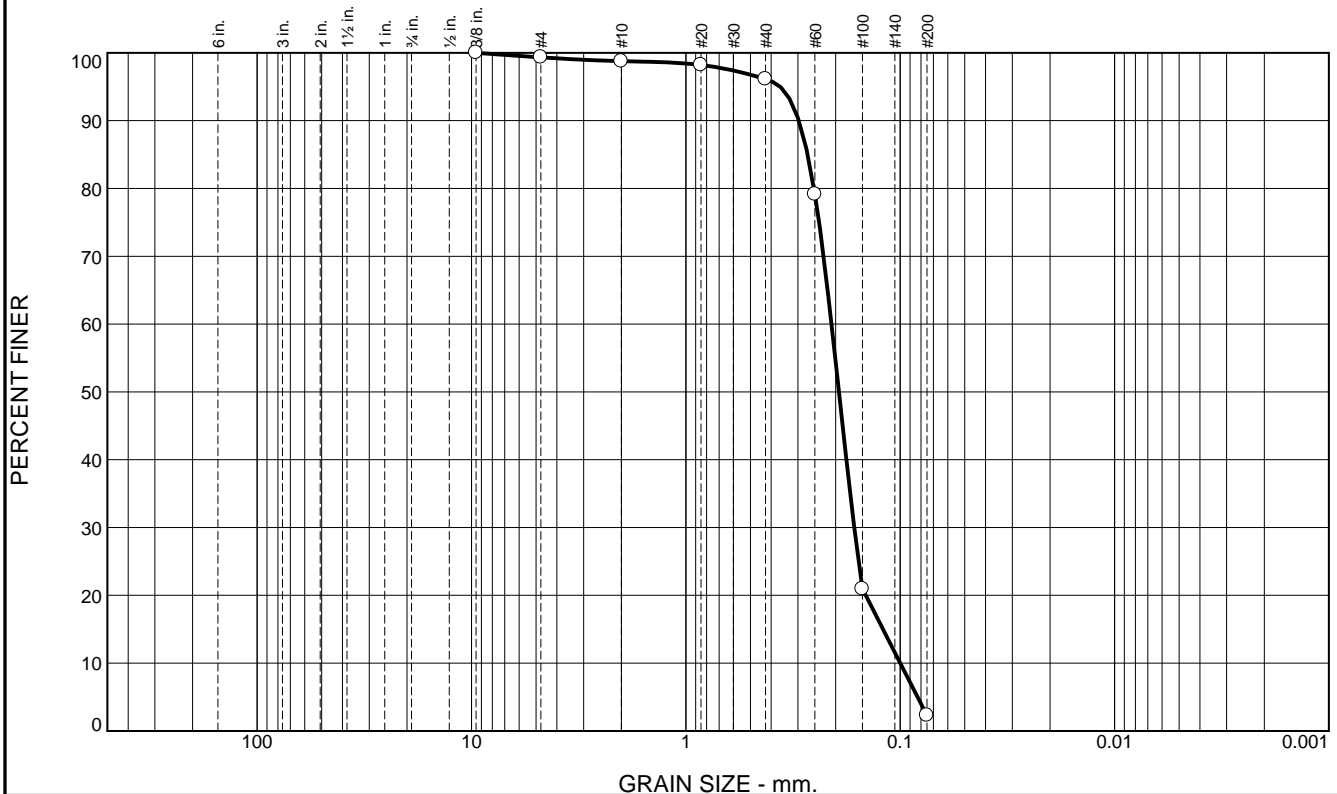
**Client:** US Army Corps of Engineers

**Project:** Contract No. W91278-10-D-0026 - Task 009  
Mississippi Barrier Island Restoration Project

**Project No:** 11-2116-0057

**Figure**

# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.7	0.5	2.7	93.8	2.3	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
.375	100.0		
#4	99.3		
#10	98.8		
#20	98.2		
#40	96.1		
#60	79.1		
#100	20.9		
#200	2.3		

\* (no specification provided)

<u>Material Description</u>		
SAND (SP), fine grained		
<u>Atterberg Limits</u>		
PL=	LL=	PI=
<u>Coefficients</u>		
D <sub>90</sub> = 0.2974	D <sub>85</sub> = 0.2704	D <sub>60</sub> = 0.2091
D <sub>50</sub> = 0.1930	D <sub>30</sub> = 0.1638	D <sub>15</sub> = 0.1203
D <sub>10</sub> = 0.0999	C <sub>u</sub> = 2.09	C <sub>c</sub> = 1.28
<u>Classification</u>		
USCS= SP	AASHTO=	
<u>Remarks</u>		

Location: USACE Sample # BI-CI-67D-11  
Sample Number: TE Lab ID: 5054.46

Depth: 11.5 - 14.5 (ft)

Date: 7/18/11

**Thompson Engineering**

**Mobile, Alabama**

**Client:** US Army Corps of Engineers

**Project:** Contract No. W91278-10-D-0026 - Task 009  
Mississippi Barrier Island Restoration Project

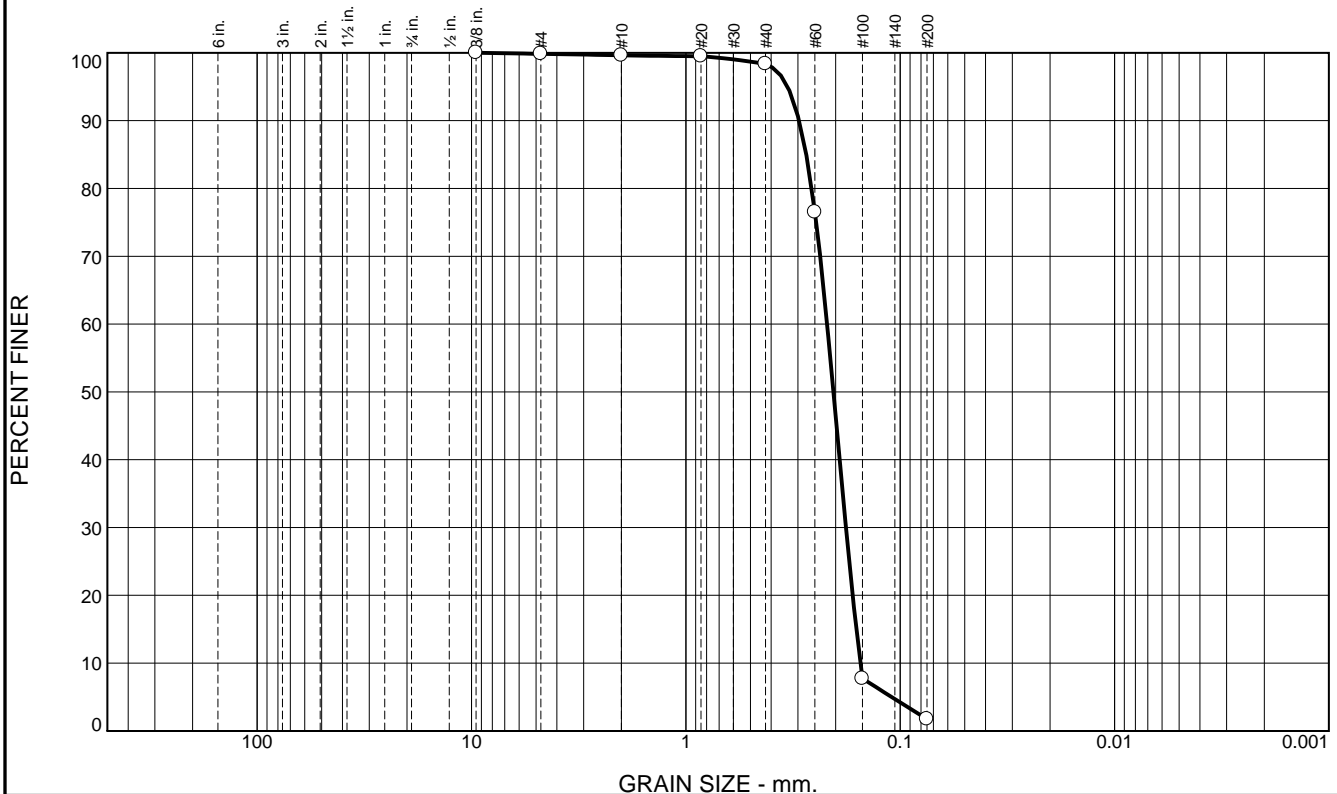
**Project No:** 11-2116-0057

**Figure**

# Boring Designation BI-CI-70-11

DRILLING LOG		DIVISION South Atlantic		INSTALLATION Mobile District		SHEET 1 OF 1 SHEETS	
1. PROJECT MsCIP Barrier Island Restoration Cat Island				9. SIZE AND TYPE OF BIT N/A			
2. BORING DESIGNATION BI-CI-70-11		LOCATION COORDINATES E = 921,442 N = 273,715		10. COORDINATE SYSTEM/DATUM State Plane, MSE (U.S. Ft.)		HORIZONTAL NAD83 VERTICAL NAVD88	
3. DRILLING AGENCY Corps of Engineers - CESAM		CONTRACTOR FILE NO.		11. MANUFACTURER'S DESIGNATION OF DRILL Vibrocure		<input type="checkbox"/> AUTO HAMMER <input type="checkbox"/> MANUAL HAMMER	
4. NAME OF DRILLER Construction Solutions International, Inc.				12. TOTAL SAMPLES 2		DISTURBED 2 UNDISTURBED (UD) 0	
5. DIRECTION OF BORING <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED		DEG. FROM VERTICAL		13. TOTAL NUMBER CORE BOXES			
		BEARING		14. WATER DEPTH 9 Ft.			
6. THICKNESS OF OVERBURDEN N/A				15. DATE BORING 06-23-11		STARTED 06-23-11 COMPLETED 06-23-11	
7. DEPTH DRILLED INTO ROCK N/A				16. ELEVATION TOP OF BORING -8.1 Ft.			
8. TOTAL DEPTH OF BORING 11.4 Ft.				17. TOTAL RECOVERY FOR BORING 100%			
				18. SIGNATURE AND TITLE OF INSPECTOR Rhonda Capes, Geologist			
ELEV.	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS	SAMPLE	LABORATORY RESULTS		
-8.1	0.0						
-11.0	2.9		SAND, poorly-graded, mostly fine-grained sand-sized quartz, trace shell fragments, lt. gray (SP)	A	Classification: SP Color: 2.5Y 6/2-light brownish gray D50: 0.2047 mm % Fines: 1.7		
-14.1	6.0		SAND, silty, mostly fine-grained sand-sized quartz, little silt, gray (SM)	B	Classification: SP-SM Color: 2.5Y 5/2-grayish brown D50: 0.1829 mm % Fines: 7.3		
-16.1	8.0		CLAY, lean, gray (CL)	NS			
-19.5	11.4		SAND, silty, mostly fine-grained sand-sized quartz, some silt, gray (SM)				
			NOTES: 1. Soils are field visually classified in accordance with the Unified Soils Classification System. 2. NS = Sample not submitted for laboratory analysis from this interval. 3. Seafloor elevation calculated using sampling vessel's fathometer water depth reading and applying NOAA tidal gauge data conversion factor.				

# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.2	0.2	1.2	96.7	1.7	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
.375	100.0		
#4	99.8		
#10	99.6		
#20	99.5		
#40	98.4		
#60	76.5		
#100	7.7		
#200	1.7		

\* (no specification provided)

Material Description		
SAND (SP), fine grained		
<div> <div> <b>Atterberg Limits</b>            PL=      LL=      PI=         </div> <div> <b>Coefficients</b>            D<sub>90</sub>= 0.2966      D<sub>85</sub>= 0.2745      D<sub>60</sub>= 0.2193            D<sub>50</sub>= 0.2047      D<sub>30</sub>= 0.1791      D<sub>15</sub>= 0.1602            D<sub>10</sub>= 0.1534      C<sub>u</sub>= 1.43      C<sub>c</sub>= 0.95         </div> <div> <b>Classification</b>            USCS= SP      AASHTO=         </div> <div> <b>Remarks</b> </div> </div>		

Location: USACE Sample # BI-CI-70A-11  
Sample Number: TE Lab ID: 5054.47

Depth: 0.0 - 2.9 (ft)

Date: 7/18/11

**Thompson Engineering**

**Mobile, Alabama**

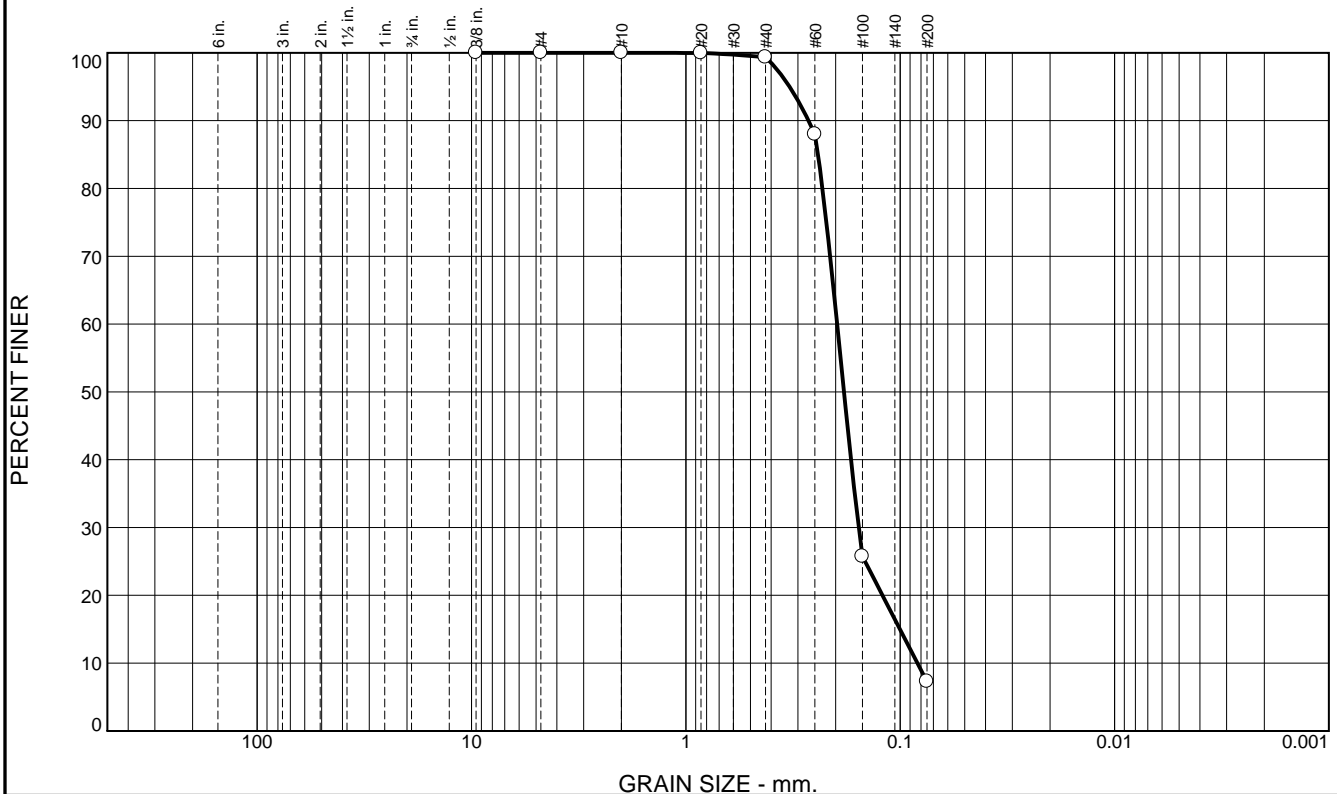
**Client:** US Army Corps of Engineers

**Project:** Contract No. W91278-10-D-0026 - Task 009  
Mississippi Barrier Island Restoration Project

**Project No:** 11-2116-0057

**Figure**

# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.0	0.0	0.7	92.0	7.3	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
.375	100.0		
#4	100.0		
#10	100.0		
#20	100.0		
#40	99.3		
#60	88.0		
#100	25.7		
#200	7.3		

\* (no specification provided)

<u>Material Description</u>		
Slightly silty SAND (SP-SM), fine grained		
<u>Atterberg Limits</u>		
PL=	LL=	PI=
<u>Coefficients</u>		
D <sub>90</sub> = 0.2678	D <sub>85</sub> = 0.2419	D <sub>60</sub> = 0.1968
D <sub>50</sub> = 0.1829	D <sub>30</sub> = 0.1562	D <sub>15</sub> = 0.1003
D <sub>10</sub> = 0.0831	C <sub>u</sub> = 2.37	C <sub>c</sub> = 1.49
<u>Classification</u>		
USCS= SP-SM	AASHTO=	
<u>Remarks</u>		

Location: USACE Sample # BI-CI-70B-11  
Sample Number: TE Lab ID: 5054.48

Depth: 2.9 - 6.0 (ft)

Date: 7/18/11

**Thompson Engineering**

**Mobile, Alabama**

Client: US Army Corps of Engineers

Project: Contract No. W91278-10-D-0026 - Task 009  
Mississippi Barrier Island Restoration Project

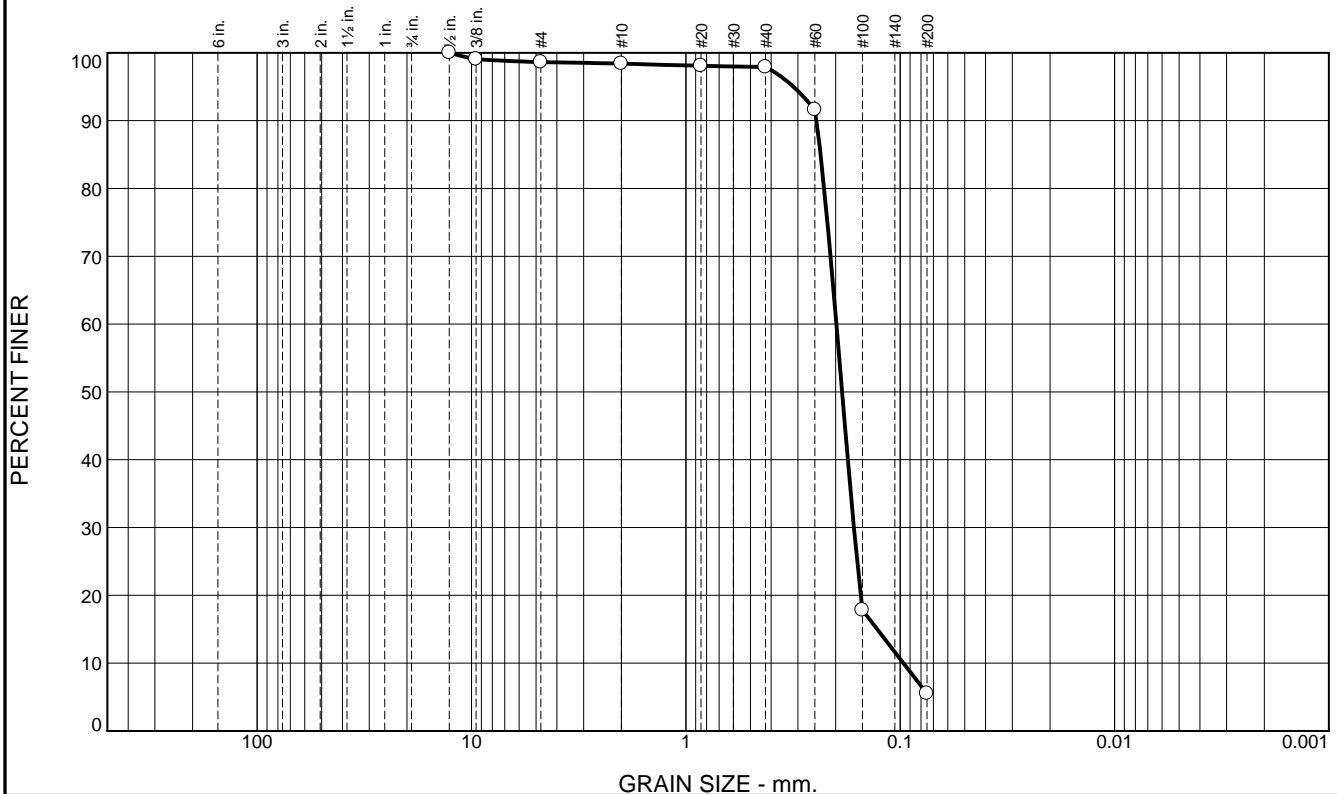
Project No: 11-2116-0057

Figure

# Boring Designation BI-CI-72-11

DRILLING LOG		DIVISION South Atlantic		INSTALLATION Mobile District		SHEET 1 OF 1 SHEETS	
1. PROJECT MsCIP Barrier Island Restoration Cat Island				9. SIZE AND TYPE OF BIT N/A			
2. BORING DESIGNATION BI-CI-72-11		LOCATION COORDINATES E = 923,804 N = 275,635		10. COORDINATE SYSTEM/DATUM State Plane, MSE (U.S. Ft.)		HORIZONTAL NAD83 VERTICAL NAVD88	
3. DRILLING AGENCY Corps of Engineers - CESAM		CONTRACTOR FILE NO.		11. MANUFACTURER'S DESIGNATION OF DRILL Vibracore		<input type="checkbox"/> AUTO HAMMER <input type="checkbox"/> MANUAL HAMMER	
4. NAME OF DRILLER Construction Solutions International, Inc.				12. TOTAL SAMPLES		DISTURBED 1 UNDISTURBED (UD) 0	
5. DIRECTION OF BORING <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED		DEG. FROM VERTICAL		13. TOTAL NUMBER CORE BOXES			
		BEARING		14. WATER DEPTH 12.5 Ft.			
6. THICKNESS OF OVERBURDEN N/A				15. DATE BORING		STARTED 06-23-11 COMPLETED 06-23-11	
7. DEPTH DRILLED INTO ROCK N/A				16. ELEVATION TOP OF BORING -11.5 Ft.			
8. TOTAL DEPTH OF BORING 13.0 Ft.				17. TOTAL RECOVERY FOR BORING 100%			
				18. SIGNATURE AND TITLE OF INSPECTOR Rhonda Capes, Geologist			
ELEV.	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS	SAMPLE	LABORATORY RESULTS		
-11.5	0.0						
-14.4	2.9		SAND, poorly-graded, mostly fine-grained sand-sized quartz, trace shell fragments, gray (SP)	A	Classification: SP-SM Color: 5Y 5/2-olive gray D50: 0.1866 mm % Fines: 5.5		
-24.5	13.0		CLAY, lean, dark gray (CL)	NS			
			NOTES: 1. Soils are field visually classified in accordance with the Unified Soils Classification System. 2. NS = Sample not submitted for laboratory analysis from this interval. 3. Seafloor elevation calculated using sampling vessel's fathometer water depth reading and applying NOAA tidal gauge data conversion factor.				

# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	1.4	0.2	0.5	92.4	5.5	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
.5	100.0		
.375	99.1		
#4	98.6		
#10	98.4		
#20	98.1		
#40	97.9		
#60	91.6		
#100	17.8		
#200	5.5		

\* (no specification provided)

<u>Material Description</u>		
Slightly silty SAND (SP-SM), fine grained		
<u>Atterberg Limits</u>		
PL=	LL=	PI=
<u>Coefficients</u>		
D <sub>90</sub> = 0.2460	D <sub>85</sub> = 0.2352	D <sub>60</sub> = 0.1983
D <sub>50</sub> = 0.1866	D <sub>30</sub> = 0.1645	D <sub>15</sub> = 0.1281
D <sub>10</sub> = 0.0966	C <sub>u</sub> = 2.05	C <sub>c</sub> = 1.41
<u>Classification</u>		
USCS= SP-SM	AASHTO=	
<u>Remarks</u>		

Location: USACE Sample # BI-CI-72A-11  
Sample Number: TE Lab ID: 5054.49

Depth: 0.0 - 2.9 (ft)

Date: 7/18/11

**Thompson Engineering**

**Mobile, Alabama**

Client: US Army Corps of Engineers

Project: Contract No. W91278-10-D-0026 - Task 009  
Mississippi Barrier Island Restoration Project

Project No: 11-2116-0057

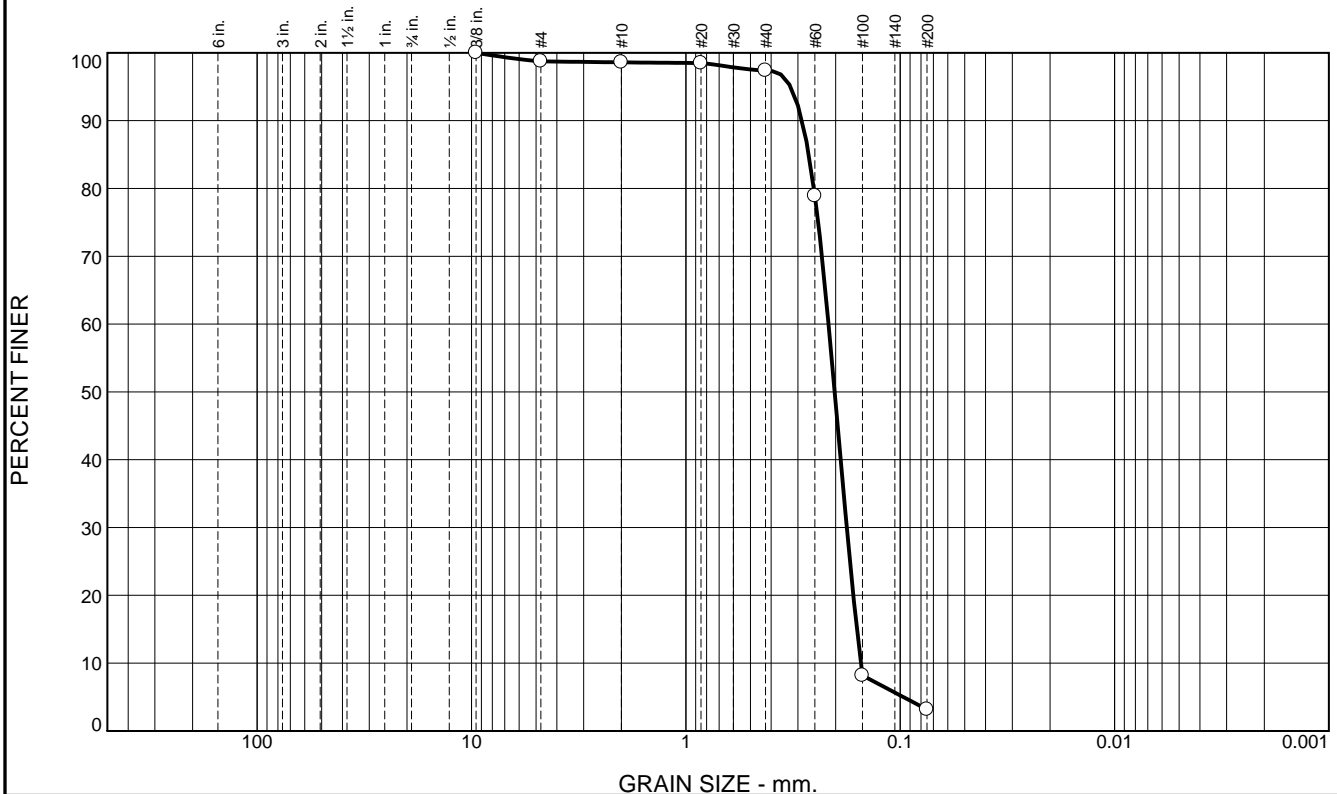
Figure



# Boring Designation BI-CI-73-11

DRILLING LOG		DIVISION South Atlantic		INSTALLATION Mobile District		SHEET 1 OF 1 SHEETS	
1. PROJECT MsCIP Barrier Island Restoration Cat Island				9. SIZE AND TYPE OF BIT N/A			
2. BORING DESIGNATION BI-CI-73-11		LOCATION COORDINATES E = 918,798 N = 269,909		10. COORDINATE SYSTEM/DATUM State Plane, MSE (U.S. Ft.)		HORIZONTAL NAD83 VERTICAL NAVD88	
3. DRILLING AGENCY Corps of Engineers - CESAM		CONTRACTOR FILE NO.		11. MANUFACTURER'S DESIGNATION OF DRILL Vibrocure		<input type="checkbox"/> AUTO HAMMER <input type="checkbox"/> MANUAL HAMMER	
4. NAME OF DRILLER Construction Solutions International, Inc.				12. TOTAL SAMPLES 3		DISTURBED 3 UNDISTURBED (UD) 0	
5. DIRECTION OF BORING <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED		DEG. FROM VERTICAL		13. TOTAL NUMBER CORE BOXES			
		BEARING		14. WATER DEPTH 10 Ft.			
6. THICKNESS OF OVERBURDEN N/A				15. DATE BORING 06-22-11		STARTED 06-22-11 COMPLETED 06-22-11	
7. DEPTH DRILLED INTO ROCK N/A				16. ELEVATION TOP OF BORING -8.8 Ft.			
8. TOTAL DEPTH OF BORING 15.0 Ft.				17. TOTAL RECOVERY FOR BORING 100%			
				18. SIGNATURE AND TITLE OF INSPECTOR Rhonda Capes, Geologist			
ELEV.	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS	SAMPLE	LABORATORY RESULTS		
-8.8	0.0						
-11.4	2.6		SAND, poorly-graded, mostly fine-grained sand-sized quartz, gray (SP)	A	Classification: SP Color: 5Y 4/2-olive gray D50: 0.2021 mm % Fines: 3.2		
			SAND, silty, mostly fine-grained sand-sized quartz, some silt, gray (SM)	B	Classification: SM Color: 2.5Y 4/2-dark grayish brown D50: 0.2044 mm % Fines: 14.1		
				C	Classification: SP-SM Color: 2.5Y 5/2-grayish brown D50: 0.2022 mm % Fines: 8.3		
				NS			
-23.8	15.0						
			NOTES: 1. Soils are field visually classified in accordance with the Unified Soils Classification System. 2. NS = Sample not submitted for laboratory analysis from this interval. 3. Seafloor elevation calculated using sampling vessel's fathometer water depth reading and applying NOAA tidal gauge data conversion factor.				

# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	1.3	0.1	1.2	94.2	3.2	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
.375	100.0		
#4	98.7		
#10	98.6		
#20	98.5		
#40	97.4		
#60	78.9		
#100	8.2		
#200	3.2		

\* (no specification provided)

<u>Material Description</u>		
SAND (SP), fine grained		
<u>Atterberg Limits</u>		
PL=	LL=	PI=
<u>Coefficients</u>		
D <sub>90</sub> = 0.2873	D <sub>85</sub> = 0.2670	D <sub>60</sub> = 0.2159
D <sub>50</sub> = 0.2021	D <sub>30</sub> = 0.1775	D <sub>15</sub> = 0.1593
D <sub>10</sub> = 0.1526	C <sub>u</sub> = 1.41	C <sub>c</sub> = 0.96
<u>Classification</u>		
USCS= SP	AASHTO=	
<u>Remarks</u>		

Location: USACE Sample # BI-CI-73A-11  
Sample Number: TE Lab ID: 5054.26

Depth: 0.0 -2.6 (ft)

Date: 7/18/11

**Thompson Engineering**

**Mobile, Alabama**

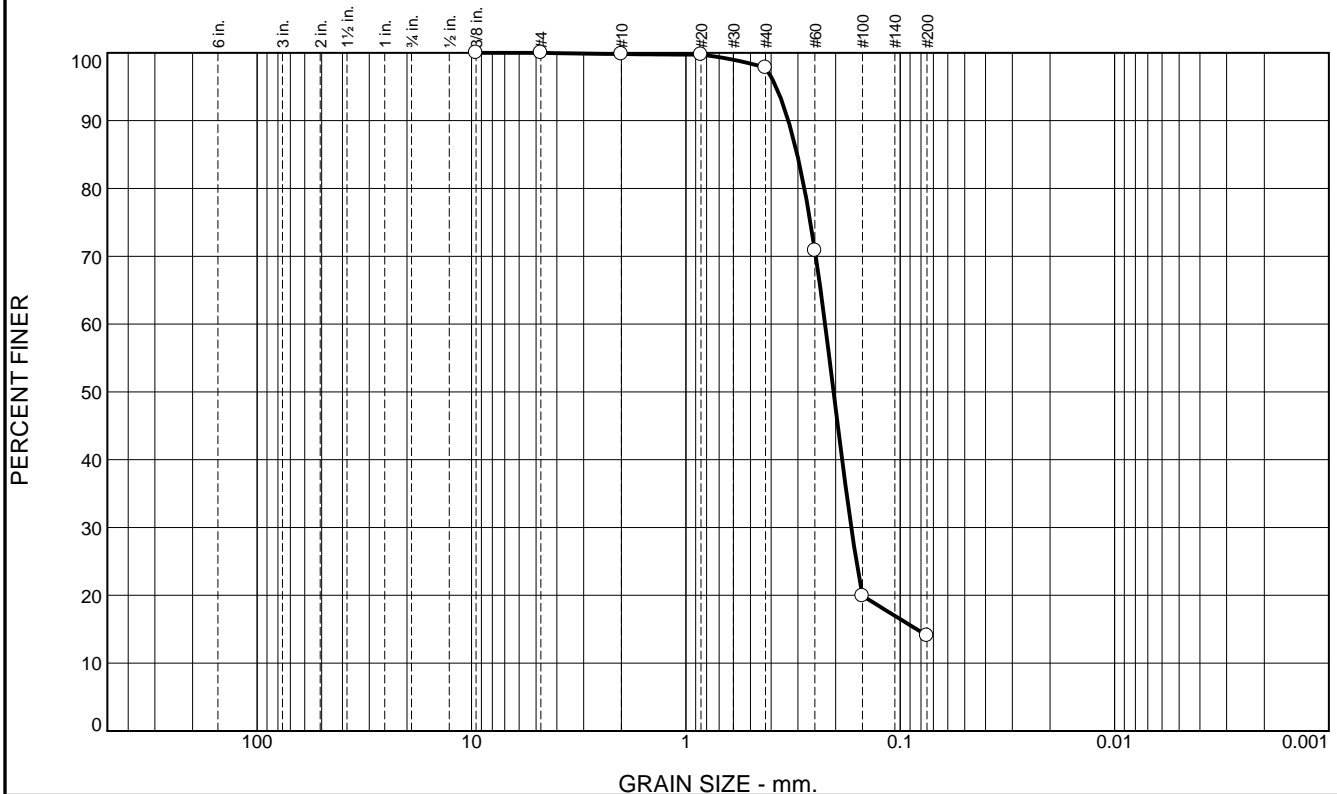
**Client:** US Army Corps of Engineers

**Project:** Contract No. W91278-10-D-0026 - Task 009  
Mississippi Barrier Island Restoration Project

**Project No:** 11-2116-0057

**Figure**

# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.0	0.2	2.0	83.7	14.1	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
.375	100.0		
#4	100.0		
#10	99.8		
#20	99.7		
#40	97.8		
#60	70.8		
#100	19.9		
#200	14.1		

\* (no specification provided)

**Material Description**  
Silty SAND (SM), fine grained

**Atterberg Limits**  
 PL=                      LL=                      PI=

**Coefficients**  
 D<sub>90</sub>= 0.3327      D<sub>85</sub>= 0.3024      D<sub>60</sub>= 0.2241  
 D<sub>50</sub>= 0.2044      D<sub>30</sub>= 0.1691      D<sub>15</sub>= 0.0838  
 D<sub>10</sub>=                      C<sub>u</sub>=                      C<sub>c</sub>=

**Classification**  
 USCS= SM                      AASHTO=

**Remarks**

Location: USACE Sample # BI-CI-73B-11  
 Sample Number: TE Lab ID: 5054.27

Depth: 2.6 - 7.6 (ft)

Date: 7/18/11

**Thompson Engineering**

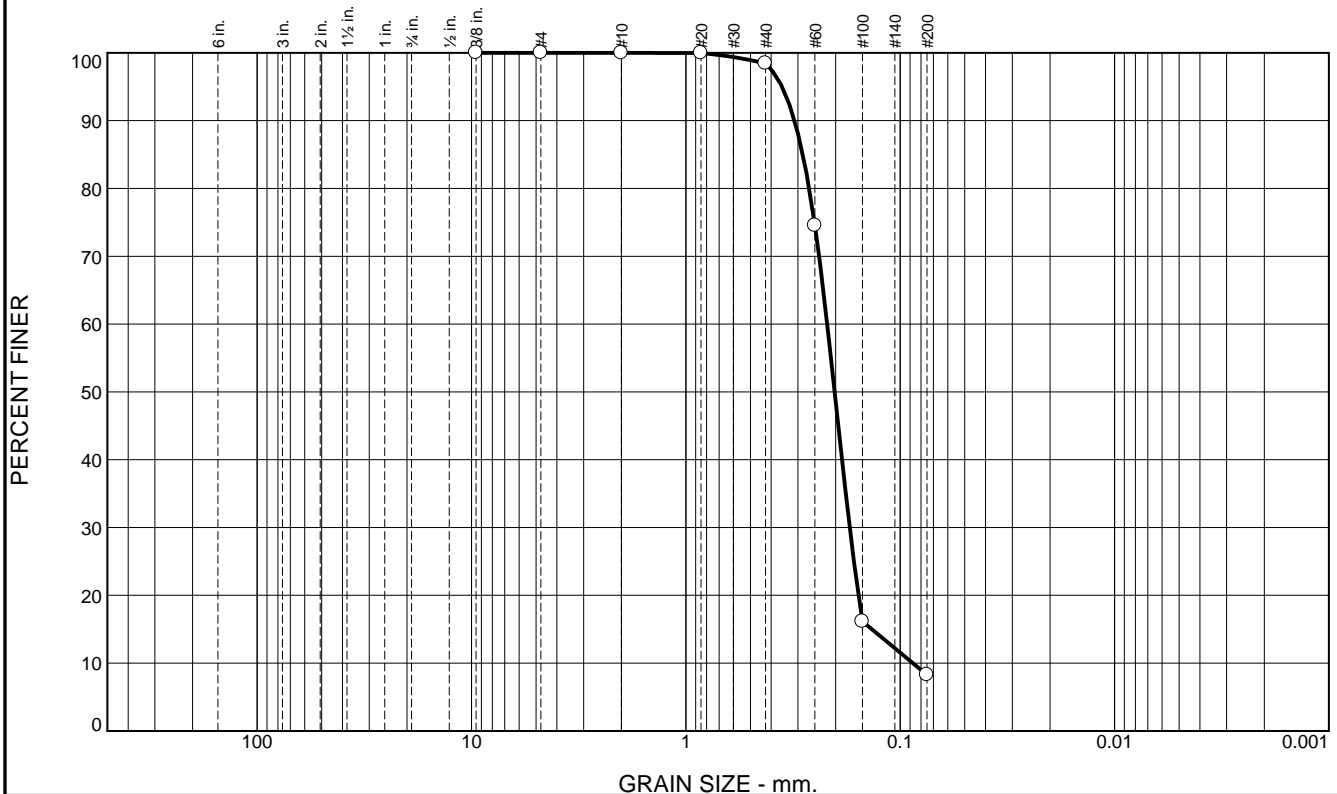
**Mobile, Alabama**

**Client:** US Army Corps of Engineers  
**Project:** Contract No. W91278-10-D-0026 - Task 009  
 Mississippi Barrier Island Restoration Project

**Project No:** 11-2116-0057

**Figure**

# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.0	0.0	1.6	90.1	8.3	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
.375	100.0		
#4	100.0		
#10	100.0		
#20	100.0		
#40	98.4		
#60	74.5		
#100	16.1		
#200	8.3		

\* (no specification provided)

<u>Material Description</u>		
Slightly silty SAND (SP-SM), fine grained		
<u>Atterberg Limits</u>		
PL=	LL=	PI=
<u>Coefficients</u>		
D <sub>90</sub> = 0.3114	D <sub>85</sub> = 0.2849	D <sub>60</sub> = 0.2191
D <sub>50</sub> = 0.2022	D <sub>30</sub> = 0.1720	D <sub>15</sub> = 0.1356
D <sub>10</sub> = 0.0873	C <sub>u</sub> = 2.51	C <sub>c</sub> = 1.55
<u>Classification</u>		
USCS= SP-SM	AASHTO=	
<u>Remarks</u>		

Location: USACE Sample # BI-CI-73C-11  
Sample Number: TE Lab ID: 5054.28

Depth: 7.6 - 10.0 (ft)

Date: 7/18/11

**Thompson Engineering**

**Mobile, Alabama**

Client: US Army Corps of Engineers

Project: Contract No. W91278-10-D-0026 - Task 009  
Mississippi Barrier Island Restoration Project

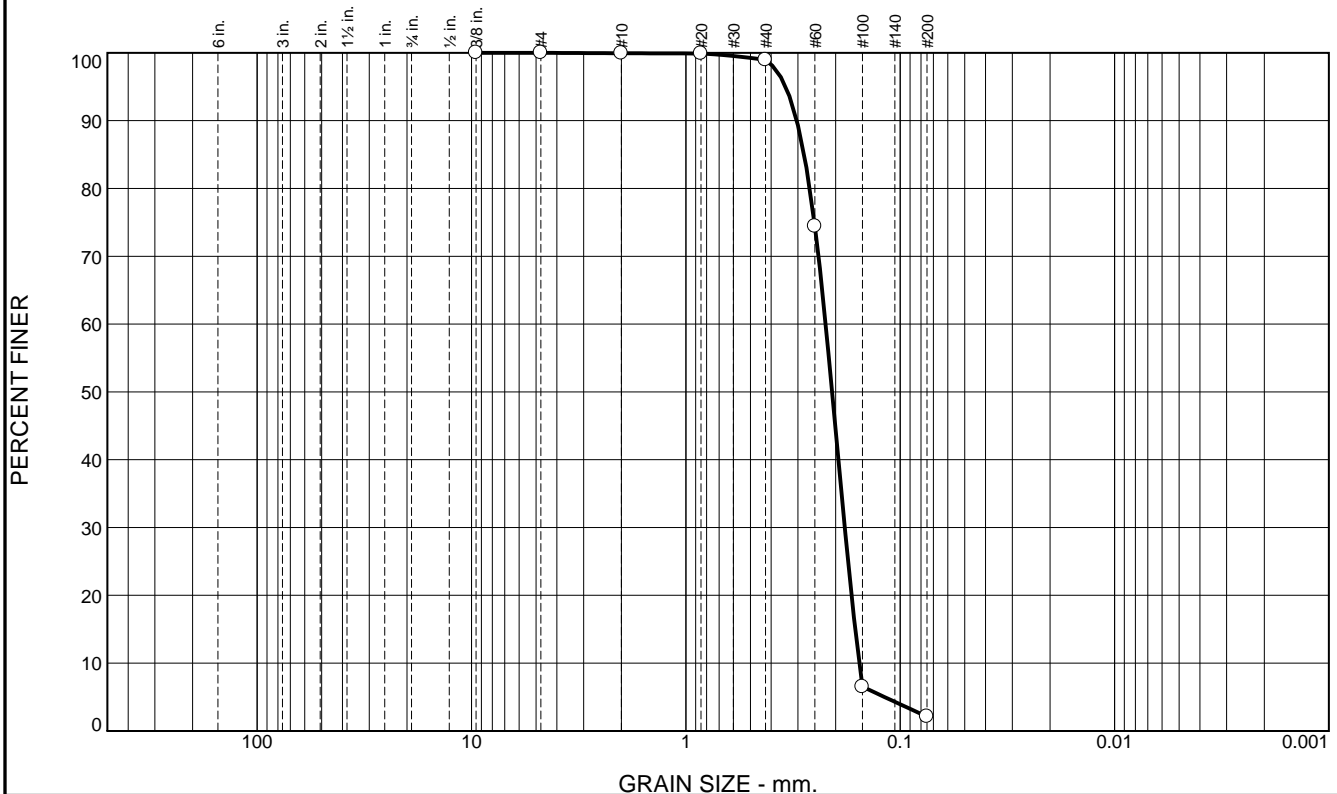
Project No: 11-2116-0057

Figure

# Boring Designation BI-CI-75-11

DRILLING LOG		DIVISION South Atlantic		INSTALLATION Mobile District		SHEET 1 OF 1 SHEETS	
1. PROJECT MsCIP Barrier Island Restoration Cat Island				9. SIZE AND TYPE OF BIT N/A			
2. BORING DESIGNATION BI-CI-75-11		LOCATION COORDINATES E = 921,214 N = 271,799		10. COORDINATE SYSTEM/DATUM State Plane, MSE (U.S. Ft.)		HORIZONTAL NAD83	
3. DRILLING AGENCY Corps of Engineers - CESAM		CONTRACTOR FILE NO.		11. MANUFACTURER'S DESIGNATION OF DRILL Vibrocure		<input type="checkbox"/> AUTO HAMMER <input type="checkbox"/> MANUAL HAMMER	
4. NAME OF DRILLER Construction Solutions International, Inc.				12. TOTAL SAMPLES 4		UNDISTURBED (UD) 0	
5. DIRECTION OF BORING <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED				13. TOTAL NUMBER CORE BOXES		14. WATER DEPTH 9.5 Ft.	
6. THICKNESS OF OVERBURDEN N/A				15. DATE BORING 06-22-11		COMPLETED 06-22-11	
7. DEPTH DRILLED INTO ROCK N/A				16. ELEVATION TOP OF BORING -8.8 Ft.		17. TOTAL RECOVERY FOR BORING 100%	
8. TOTAL DEPTH OF BORING 15.9 Ft.				18. SIGNATURE AND TITLE OF INSPECTOR Rhonda Capes, Geologist			
ELEV.	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS	SAMPLE	LABORATORY RESULTS		
-8.8	0.0						
-11.8	3.0		SAND, poorly-graded, mostly fine-grained sand-sized quartz, gray (SP)	A	Classification: SP Color: 2.5Y 6/2-light brownish gray D50: 0.2077 mm % Fines: 2.1		
-16.8	8.0			B	Classification: SP-SM Color: 2.5Y 4/4-olive brown D50: 0.2007 mm % Fines: 10		
-24.7	15.9		SAND, silty, mostly fine-grained sand-sized quartz, some silt, some clay, dark gray (SM)	C	Classification: SM Color: 2.5Y 4/2-dark grayish brown D50: 0.1729 mm % Fines: 13.2		
				D	Classification: SP-SM Color: 2.5Y 5/2-grayish brown D50: 0.1821 mm % Fines: 7.7		
			NOTES:				
			1. Soils are field visually classified in accordance with the Unified Soils Classification System.				
			2. NS = Sample not submitted for laboratory analysis from this interval.				
			3. Seafloor elevation calculated using sampling vessel's fathometer water depth reading and applying NOAA tidal gauge data conversion factor.				

# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.0	0.1	0.9	96.9	2.1	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
.375	100.0		
#4	100.0		
#10	99.9		
#20	99.9		
#40	99.0		
#60	74.4		
#100	6.5		
#200	2.1		

\* (no specification provided)

Material Description		
SAND (SP), fine grained		
<div> <div>PL=</div> <div> <div>Atterberg Limits</div> <div>LL=</div> <div>PI=</div> </div> </div>		
<div> <div> <div>D<sub>90</sub>= 0.3039</div> <div>D<sub>50</sub>= 0.2077</div> <div>D<sub>10</sub>= 0.1552</div> </div> <div> <div>Coefficients</div> <div>D<sub>85</sub>= 0.2810</div> <div>D<sub>30</sub>= 0.1813</div> <div>C<sub>u</sub>= 1.44</div> </div> <div> <div>D<sub>60</sub>= 0.2228</div> <div>D<sub>15</sub>= 0.1621</div> <div>C<sub>c</sub>= 0.95</div> </div> </div>		
<div> <div>USCS= SP</div> <div> <div>Classification</div> <div>AASHTO=</div> </div> </div>		
<div> <div>Remarks</div> </div>		

Location: USACE Sample # BI-CI-75A-11  
Sample Number: TE Lab ID: 5054.29

Depth: 0.0 - 3.0 (ft)

Date: 7/18/11

**Thompson Engineering**

**Mobile, Alabama**

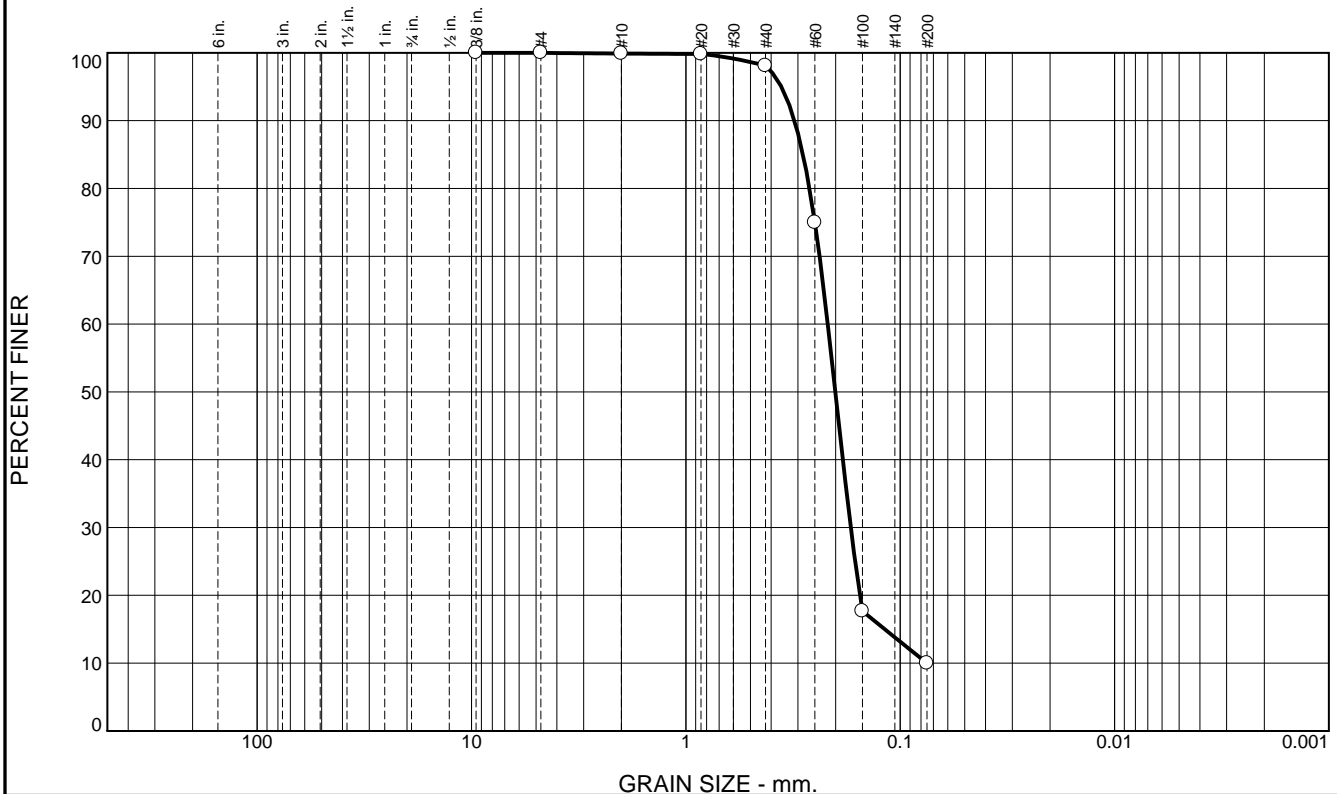
Client: US Army Corps of Engineers

Project: Contract No. W91278-10-D-0026 - Task 009  
Mississippi Barrier Island Restoration Project

Project No: 11-2116-0057

Figure

# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.0	0.1	1.8	88.1	10.0	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
.375	100.0		
#4	100.0		
#10	99.9		
#20	99.8		
#40	98.1		
#60	75.0		
#100	17.7		
#200	10.0		

\* (no specification provided)

<u>Material Description</u>		
Slightly silty SAND (SP-SM), fine grained		
<u>Atterberg Limits</u>		
PL=	LL=	PI=
<u>Coefficients</u>		
D <sub>90</sub> = 0.3115	D <sub>85</sub> = 0.2842	D <sub>60</sub> = 0.2178
D <sub>50</sub> = 0.2007	D <sub>30</sub> = 0.1700	D <sub>15</sub> = 0.1180
D <sub>10</sub> = 0.0751	C <sub>u</sub> = 2.90	C <sub>c</sub> = 1.77
<u>Classification</u>		
USCS= SP-SM	AASHTO=	
<u>Remarks</u>		

Location: USACE Sample # BI-CI-75B-11  
Sample Number: TE Lab ID: 5054.30

Depth: 3.0 - 8.0 (ft)

Date: 7/18/11

**Thompson Engineering**

**Mobile, Alabama**

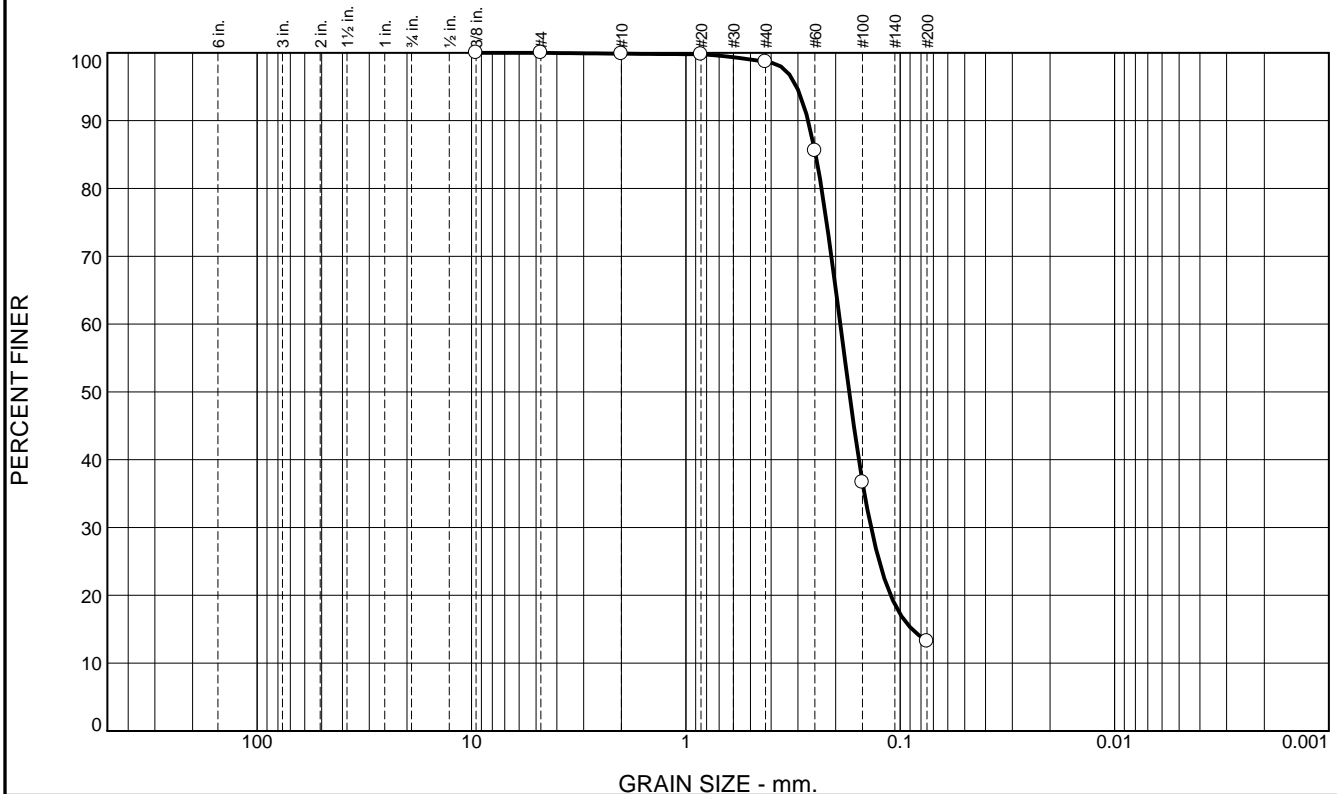
**Client:** US Army Corps of Engineers

**Project:** Contract No. W91278-10-D-0026 - Task 009  
Mississippi Barrier Island Restoration Project

**Project No:** 11-2116-0057

**Figure**

# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.0	0.1	1.2	85.5	13.2	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
.375	100.0		
#4	100.0		
#10	99.9		
#20	99.8		
#40	98.7		
#60	85.6		
#100	36.7		
#200	13.2		

\* (no specification provided)

<u>Material Description</u>		
Silty SAND (SM), fine grained		
<u>Atterberg Limits</u>		
PL=	LL=	PI=
<u>Coefficients</u>		
D <sub>90</sub> = 0.2688	D <sub>85</sub> = 0.2480	D <sub>60</sub> = 0.1902
D <sub>50</sub> = 0.1729	D <sub>30</sub> = 0.1369	D <sub>15</sub> = 0.0881
D <sub>10</sub> =	C <sub>u</sub> =	C <sub>c</sub> =
<u>Classification</u>		
USCS= SM	AASHTO=	
<u>Remarks</u>		

Location: USACE Sample # BI-CI-75C-11  
Sample Number: TE Lab ID: 5054.31

Depth: 8.0 - 13.0 (ft)

Date: 7/18/11

**Thompson Engineering**

**Mobile, Alabama**

**Client:** US Army Corps of Engineers

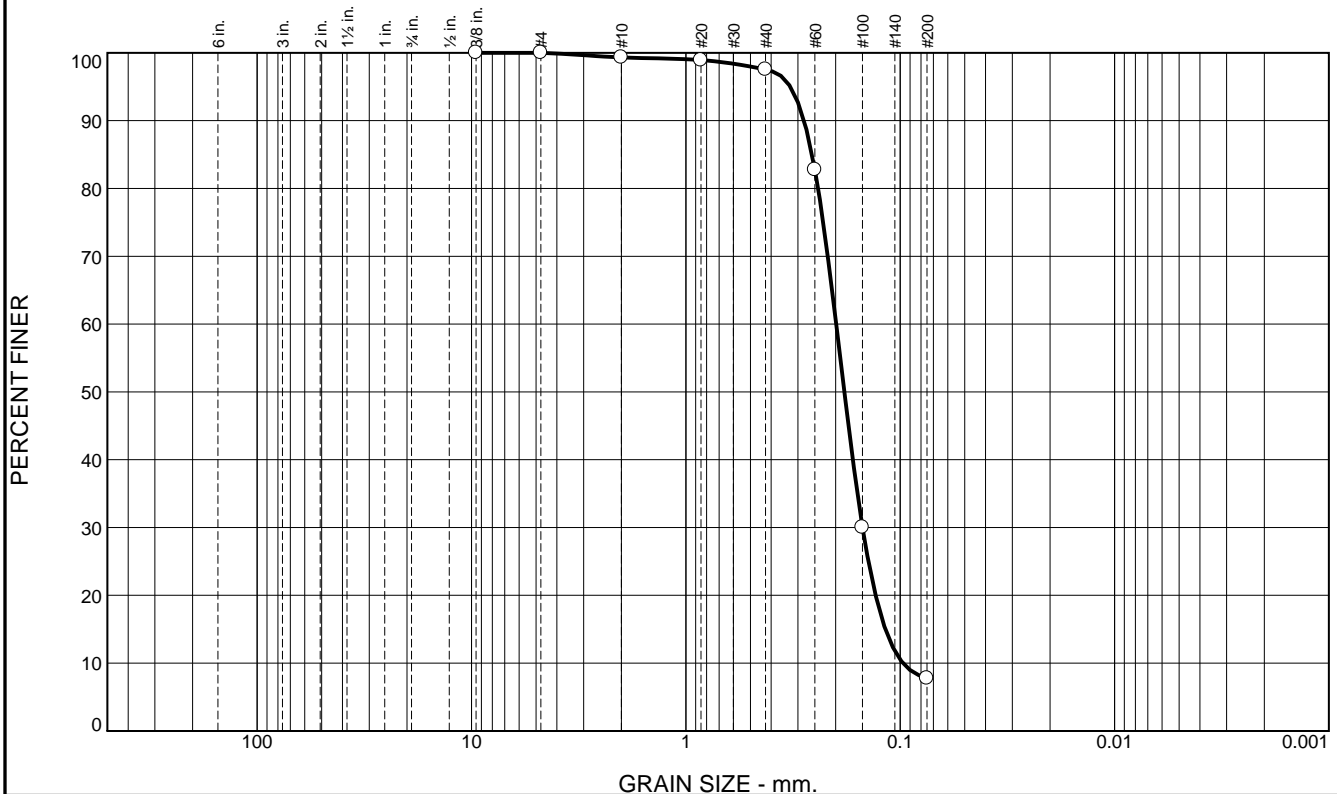
**Project:** Contract No. W91278-10-D-0026 - Task 009  
Mississippi Barrier Island Restoration Project

**Project No:** 11-2116-0057

**Figure**



# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.0	0.7	1.8	89.8	7.7	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
.375	100.0		
#4	100.0		
#10	99.3		
#20	98.9		
#40	97.5		
#60	82.8		
#100	30.0		
#200	7.7		

\* (no specification provided)

<u>Material Description</u>		
Slightly silty SAND (SP-SM), fine grained		
<u>Atterberg Limits</u>		
PL=	LL=	PI=
<u>Coefficients</u>		
D <sub>90</sub> = 0.2812	D <sub>85</sub> = 0.2579	D <sub>60</sub> = 0.1988
D <sub>50</sub> = 0.1821	D <sub>30</sub> = 0.1500	D <sub>15</sub> = 0.1172
D <sub>10</sub> = 0.0971	C <sub>u</sub> = 2.05	C <sub>c</sub> = 1.16
<u>Classification</u>		
USCS= SP-SM	AASHTO=	
<u>Remarks</u>		

Location: USACE Sample # BI-CI-75D-11  
Sample Number: TE Lab ID: 5054.32

Depth: 13.0 - 15.9 (ft)

Date: 7/18/11

**Thompson Engineering**

**Mobile, Alabama**

Client: US Army Corps of Engineers

Project: Contract No. W91278-10-D-0026 - Task 009  
Mississippi Barrier Island Restoration Project

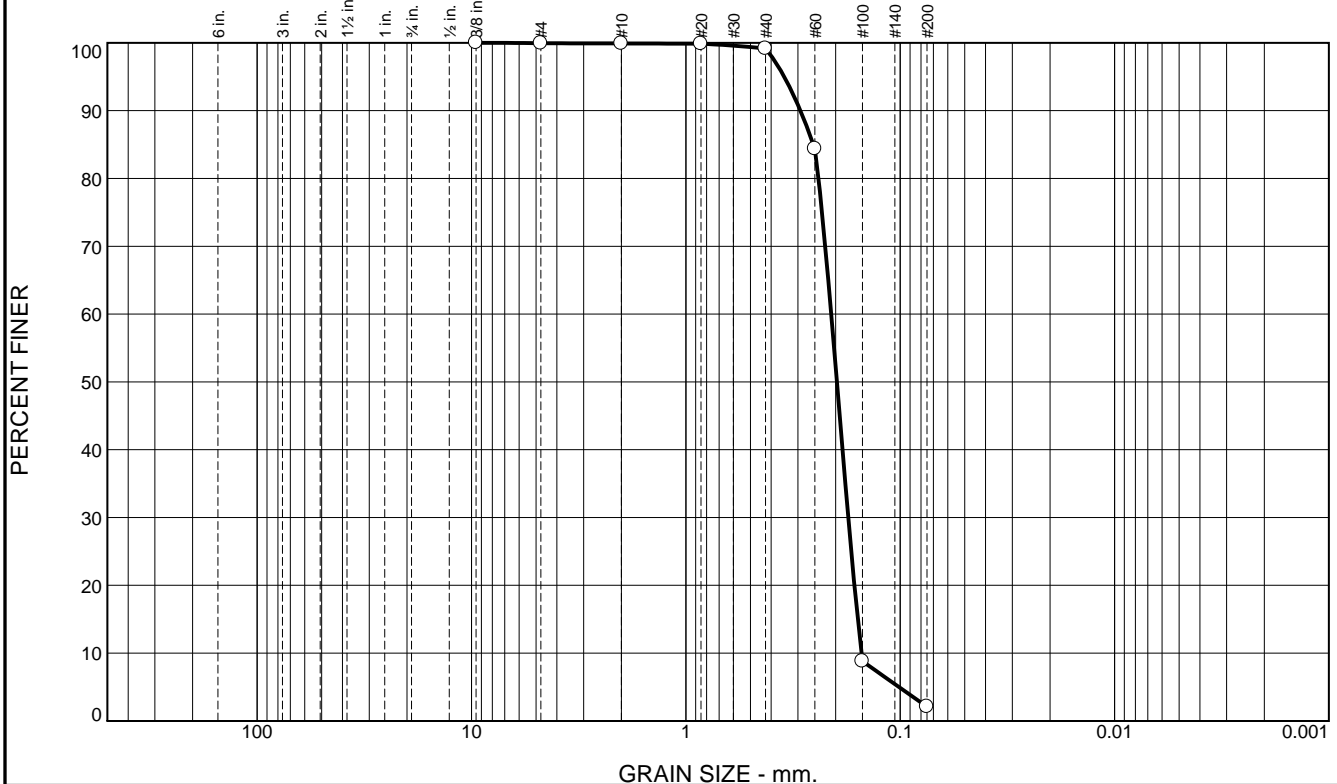
Project No: 11-2116-0057

Figure

# Boring Designation BI-CI-76-11

DRILLING LOG		DIVISION South Atlantic		INSTALLATION Mobile District		SHEET 1 OF 1 SHEETS	
1. PROJECT MsCIP Barrier Island Restoration Cat Island				9. SIZE AND TYPE OF BIT N/A			
2. BORING DESIGNATION BI-CI-76-11		LOCATION COORDINATES E = 922,324 N = 272,699		10. COORDINATE SYSTEM/DATUM State Plane, MSE (U.S. Ft.)		HORIZONTAL NAD83 VERTICAL NAVD88	
3. DRILLING AGENCY Corps of Engineers - CESAM		CONTRACTOR FILE NO.		11. MANUFACTURER'S DESIGNATION OF DRILL Vibracore		<input type="checkbox"/> AUTO HAMMER <input type="checkbox"/> MANUAL HAMMER	
4. NAME OF DRILLER Construction Solutions International, Inc.				12. TOTAL SAMPLES 3		DISTURBED 3 UNDISTURBED (UD) 0	
5. DIRECTION OF BORING <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED		DEG. FROM VERTICAL		13. TOTAL NUMBER CORE BOXES			
		BEARING		14. WATER DEPTH 8.5 Ft.			
6. THICKNESS OF OVERBURDEN N/A				15. DATE BORING 06-22-11		STARTED 06-22-11 COMPLETED 06-22-11	
7. DEPTH DRILLED INTO ROCK N/A				16. ELEVATION TOP OF BORING -7.8 Ft.			
8. TOTAL DEPTH OF BORING 11.6 Ft.				17. TOTAL RECOVERY FOR BORING 100%			
				18. SIGNATURE AND TITLE OF INSPECTOR Rhonda Capes, Geologist			
ELEV.	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS	SAMPLE	LABORATORY RESULTS		
-7.8	0.0						
-10.0	2.2		SAND, poorly-graded, mostly fine-grained sand-sized quartz, gray (SP)	A	Classification: SP Color: 2.5Y 7/2-light gray D50: 0.1973 mm % Fines: 2.1		
			SAND, silty, mostly fine-grained sand-sized quartz, some silt, gray (SM)	B	Classification: SM Color: 2.5Y 5/2-grayish brown D50: 0.1764 mm % Fines: 12.1		
			At El. -15.2 Ft., mostly fine-grained sand-sized quartz, some silt, trace clay, gray	NS			
			At El. -16.8 Ft., mostly fine-grained sand-sized quartz, some silt, gray	C	Classification: SP-SM Color: 2.5Y 5/2-grayish brown D50: 0.1837 mm % Fines: 5.8		
-19.4	11.6						
			NOTES: 1. Soils are field visually classified in accordance with the Unified Soils Classification System. 2. NS = Sample not submitted for laboratory analysis from this interval. 3. Seafloor elevation calculated using sampling vessel's fathometer water depth reading and applying NOAA tidal gauge data conversion factor.				

# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.1	0.0	0.7	97.1	2.1	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
.375	100.0		
#4	99.9		
#10	99.9		
#20	99.9		
#40	99.2		
#60	84.3		
#100	8.8		
#200	2.1		

\* (no specification provided)

Material Description		
SAND (SP), fine grained		
PL=	Atterberg Limits LL=	PI=
D <sub>90</sub> = 0.2924	Coefficients D <sub>85</sub> = 0.2542	D <sub>60</sub> = 0.2096
D <sub>50</sub> = 0.1973	D <sub>30</sub> = 0.1747	D <sub>15</sub> = 0.1578
D <sub>10</sub> = 0.1516	C <sub>u</sub> = 1.38	C <sub>c</sub> = 0.96
USCS= SP	Classification AASHTO=	
Remarks		

Location: USACE Sample # BI-CI-76A-11  
Sample Number: TE Lab ID: 5054.33

Depth: 0.0 - 2.2 (ft)

Date: 7/18/11

**Thompson Engineering**

**Mobile, Alabama**

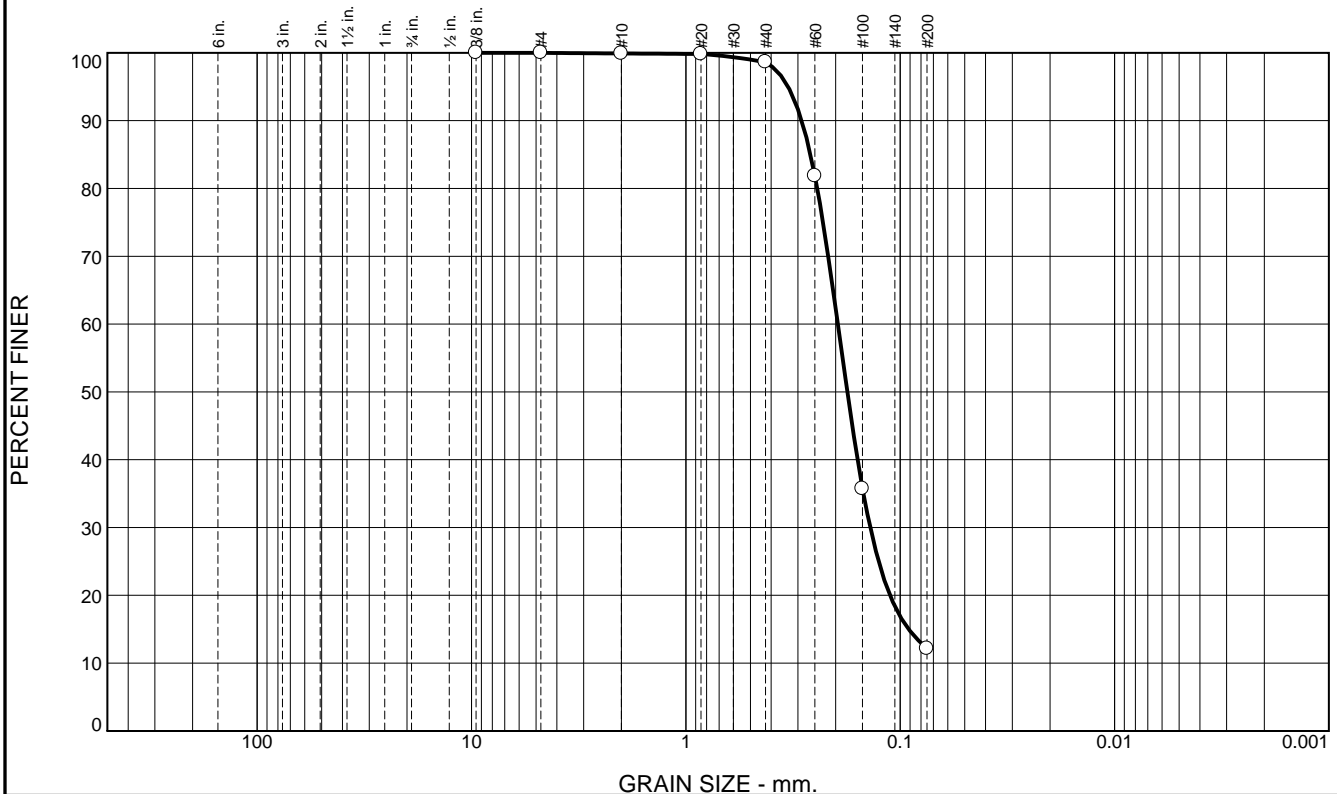
Client: US Army Corps of Engineers

Project: Contract No. W91278-10-D-0026 - Task 009  
Mississippi Barrier Island Restoration Project

Project No: 11-2116-0057

Figure

# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.0	0.1	1.3	86.5	12.1	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
.375	100.0		
#4	100.0		
#10	99.9		
#20	99.8		
#40	98.6		
#60	81.9		
#100	35.7		
#200	12.1		

\* (no specification provided)

<u>Material Description</u>		
Silty SAND (SM), fine grained		
<u>Atterberg Limits</u>		
PL=	LL=	PI=
<u>Coefficients</u>		
D <sub>90</sub> = 0.2883	D <sub>85</sub> = 0.2622	D <sub>60</sub> = 0.1953
D <sub>50</sub> = 0.1764	D <sub>30</sub> = 0.1381	D <sub>15</sub> = 0.0913
D <sub>10</sub> =	C <sub>u</sub> =	C <sub>c</sub> =
<u>Classification</u>		
USCS= SM	AASHTO=	
<u>Remarks</u>		

Location: USACE Sample # BI-CI-76B-11  
Sample Number: TE Lab ID: 5054.34

Depth: 2.2 - 7.2 (ft)

Date: 7/18/11

**Thompson Engineering**

**Mobile, Alabama**

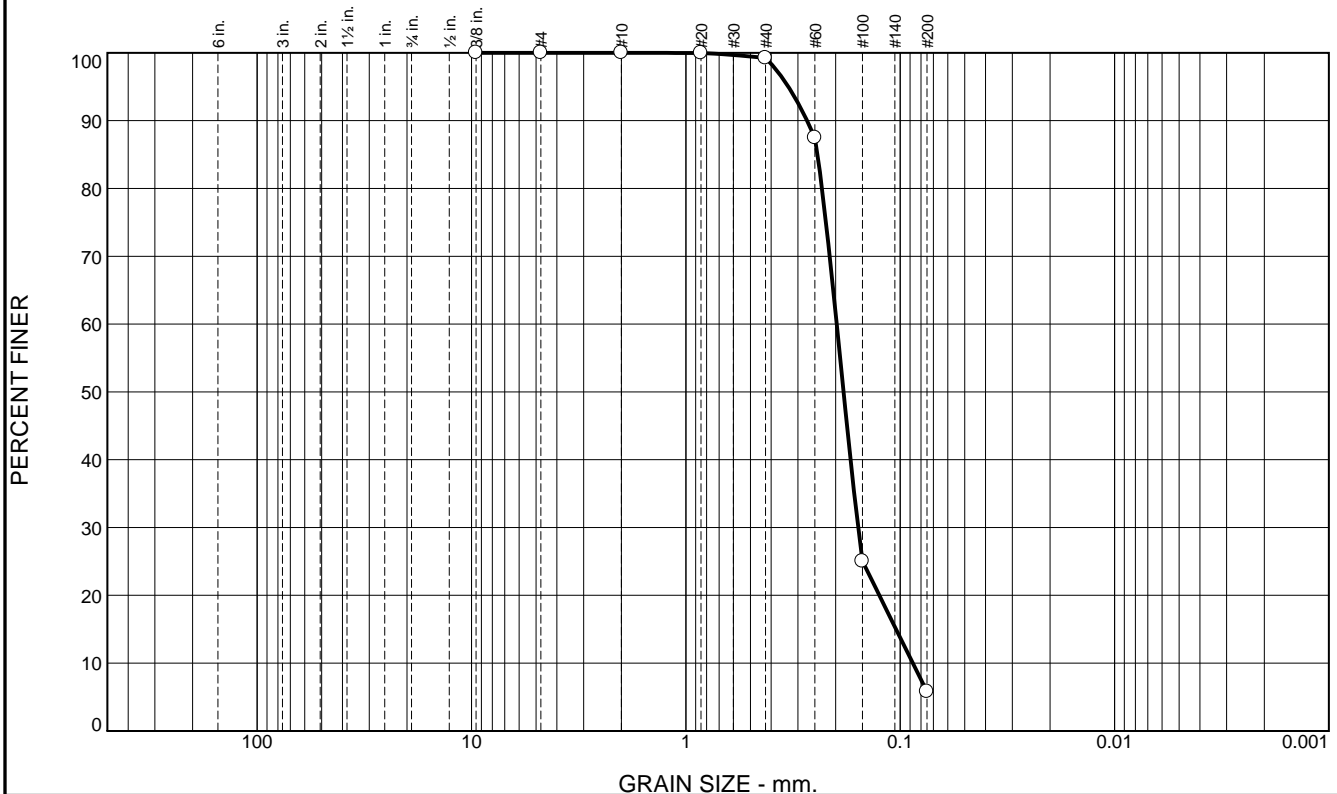
Client: US Army Corps of Engineers

Project: Contract No. W91278-10-D-0026 - Task 009  
Mississippi Barrier Island Restoration Project

Project No: 11-2116-0057

Figure

# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.0	0.0	0.8	93.4	5.8	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
.375	100.0		
#4	100.0		
#10	100.0		
#20	100.0		
#40	99.2		
#60	87.5		
#100	25.0		
#200	5.8		

\* (no specification provided)

<u>Material Description</u>		
Slightly silty SAND (SP-SM), fine grained		
<u>Atterberg Limits</u>		
PL=	LL=	PI=
<u>Coefficients</u>		
D <sub>90</sub> = 0.2721	D <sub>85</sub> = 0.2433	D <sub>60</sub> = 0.1977
D <sub>50</sub> = 0.1837	D <sub>30</sub> = 0.1571	D <sub>15</sub> = 0.1045
D <sub>10</sub> = 0.0873	C <sub>u</sub> = 2.26	C <sub>c</sub> = 1.43
<u>Classification</u>		
USCS= SP-SM	AASHTO=	
<u>Remarks</u>		

Location: USACE Sample # BI-CI-76C-11  
Sample Number: TE Lab ID: 5054.35

Depth: 9.0 - 11.6 (ft)

Date: 7/18/11

**Thompson Engineering**

**Mobile, Alabama**

**Client:** US Army Corps of Engineers

**Project:** Contract No. W91278-10-D-0026 - Task 009  
Mississippi Barrier Island Restoration Project

**Project No:** 11-2116-0057

**Figure**

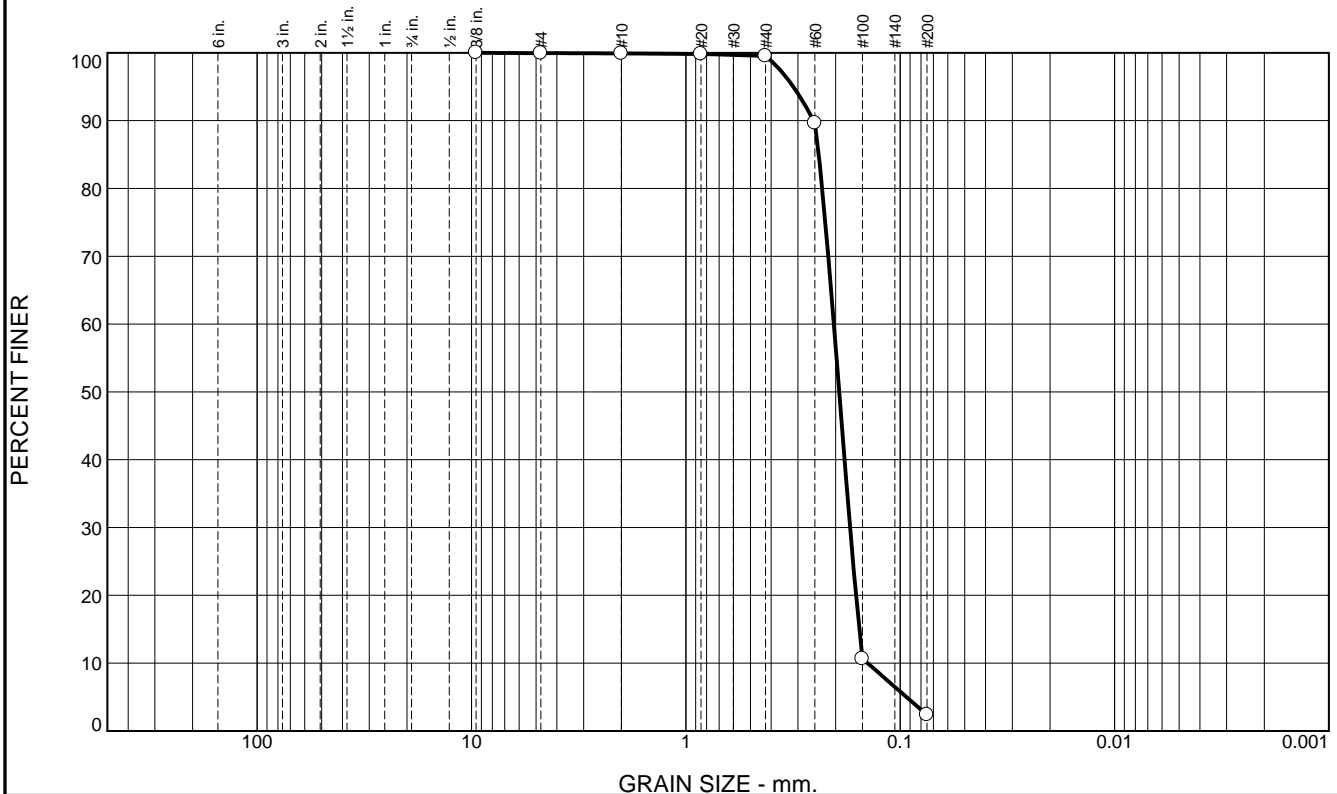
# Boring Designation BI-CI-77-11

DRILLING LOG		DIVISION South Atlantic		INSTALLATION Mobile District		SHEET 1 OF 1 SHEETS	
1. PROJECT MsCIP Barrier Island Restoration Cat Island				9. SIZE AND TYPE OF BIT N/A			
2. BORING DESIGNATION BI-CI-77-11		LOCATION COORDINATES E = 923,668 N = 273,581		10. COORDINATE SYSTEM/DATUM State Plane, MSE (U.S. Ft.)		HORIZONTAL NAD83 VERTICAL NAVD88	
3. DRILLING AGENCY Corps of Engineers - CESAM		CONTRACTOR FILE NO.		11. MANUFACTURER'S DESIGNATION OF DRILL Vibracore		<input type="checkbox"/> AUTO HAMMER <input type="checkbox"/> MANUAL HAMMER	
4. NAME OF DRILLER Construction Solutions International, Inc.				12. TOTAL SAMPLES 1		DISTURBED 1 UNDISTURBED (UD) 0	
5. DIRECTION OF BORING <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED		DEG. FROM VERTICAL		13. TOTAL NUMBER CORE BOXES			
		BEARING		14. WATER DEPTH 9.3 Ft.			
6. THICKNESS OF OVERBURDEN N/A				15. DATE BORING 06-22-11		STARTED 06-22-11 COMPLETED 06-22-11	
7. DEPTH DRILLED INTO ROCK N/A				16. ELEVATION TOP OF BORING -8.6 Ft.			
8. TOTAL DEPTH OF BORING 13.3 Ft.				17. TOTAL RECOVERY FOR BORING 100%			
				18. SIGNATURE AND TITLE OF INSPECTOR Rhonda Capes, Geologist			

ELEV.	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS	SAMPLE	LABORATORY RESULTS
-8.6	0.0				
			SAND, poorly-graded, mostly fine-grained sand-sized quartz, gray (SP)	A	Classification: SP Color: 5Y 6/1-gray D50: 0.1924 mm % Fines: 2.4
-13.6	5.0				
-14.6	6.0		SAND, silty, mostly fine-grained sand-sized quartz, some silt, gray (SM)		
			CLAY, lean, dark gray (CL)	NS	
-21.9	13.3				
NOTES: 1. Soils are field visually classified in accordance with the Unified Soils Classification System. 2. NS = Sample not submitted for laboratory analysis from this interval. 3. Seafloor elevation calculated using sampling vessel's fathometer water depth reading and applying NOAA tidal gauge data conversion factor.					

# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.0	0.1	0.4	97.1	2.4	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
.375	100.0		
#4	100.0		
#10	99.9		
#20	99.8		
#40	99.5		
#60	89.6		
#100	10.6		
#200	2.4		

\* (no specification provided)

<u>Material Description</u>		
SAND (SP), fine grained		
PL=	<u>Atterberg Limits</u> LL=	PI=
<u>Coefficients</u>		
D <sub>90</sub> = 0.2535	D <sub>85</sub> = 0.2401	D <sub>60</sub> = 0.2038
D <sub>50</sub> = 0.1924	D <sub>30</sub> = 0.1714	D <sub>15</sub> = 0.1552
D <sub>10</sub> = 0.1421	C <sub>u</sub> = 1.43	C <sub>c</sub> = 1.01
<u>Classification</u>		
USCS= SP	AASHTO=	
<u>Remarks</u>		

Location: USACE Sample # BI-CI-77A-11  
Sample Number: TE Lab ID: 5054.36

Depth: 0.0 - 5.0 (ft)

Date: 7/18/11

**Thompson Engineering**

**Mobile, Alabama**

Client: US Army Corps of Engineers

Project: Contract No. W91278-10-D-0026 - Task 009  
Mississippi Barrier Island Restoration Project

Project No: 11-2116-0057

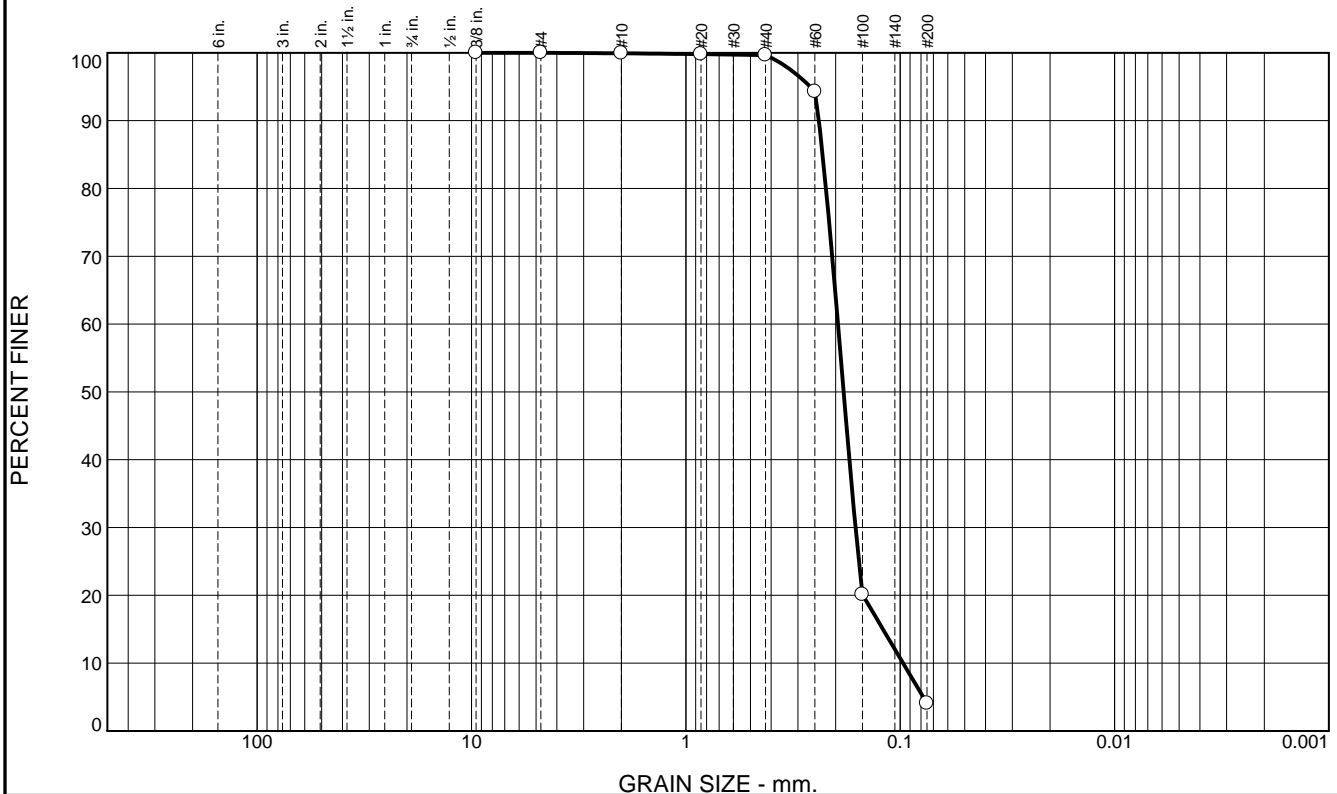
Figure

# Boring Designation BI-CI-78-11

DRILLING LOG		DIVISION South Atlantic		INSTALLATION Mobile District		SHEET 1 OF 1 SHEETS	
1. PROJECT MsCIP Barrier Island Restoration Cat Island				9. SIZE AND TYPE OF BIT N/A			
2. BORING DESIGNATION BI-CI-78-11		LOCATION COORDINATES E = 924,683 N = 274,539		10. COORDINATE SYSTEM/DATUM State Plane, MSE (U.S. Ft.)		HORIZONTAL NAD83 VERTICAL NAVD88	
3. DRILLING AGENCY Corps of Engineers - CESAM		CONTRACTOR FILE NO.		11. MANUFACTURER'S DESIGNATION OF DRILL Vibracore		<input type="checkbox"/> AUTO HAMMER <input type="checkbox"/> MANUAL HAMMER	
4. NAME OF DRILLER Construction Solutions International, Inc.				12. TOTAL SAMPLES 1		DISTURBED 1 UNDISTURBED (UD) 0	
5. DIRECTION OF BORING <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED		DEG. FROM VERTICAL		13. TOTAL NUMBER CORE BOXES			
		BEARING		14. WATER DEPTH 11 Ft.			
6. THICKNESS OF OVERBURDEN N/A				15. DATE BORING 06-22-11		STARTED 06-22-11 COMPLETED 06-22-11	
7. DEPTH DRILLED INTO ROCK N/A				16. ELEVATION TOP OF BORING -10.3 Ft.			
8. TOTAL DEPTH OF BORING 11.9 Ft.				17. TOTAL RECOVERY FOR BORING 100%			
				18. SIGNATURE AND TITLE OF INSPECTOR Rhonda Capes, Geologist			
ELEV.	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS	SAMPLE	LABORATORY RESULTS		
-10.3	0.0						
-12.3	2.0		SAND, poorly-graded, mostly fine-grained sand-sized quartz, gray (SP)	A	Classification: SP Color: 2.5Y 5/2-grayish brown D50: 0.1836 mm % Fines: 4.1		
-13.8	3.5		SAND, silty, mostly fine-grained sand-sized quartz, some silt, lt. gray (SM)				
			CLAY, lean, dark gray (CL)	NS			
-22.2	11.9						
			NOTES: 1. Soils are field visually classified in accordance with the Unified Soils Classification System. 2. NS = Sample not submitted for laboratory analysis from this interval. 3. Seafloor elevation calculated using sampling vessel's fathometer water depth reading and applying NOAA tidal gauge data conversion factor.				



# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.0	0.1	0.2	95.6	4.1	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
.375	100.0		
#4	100.0		
#10	99.9		
#20	99.8		
#40	99.7		
#60	94.3		
#100	20.1		
#200	4.1		

\* (no specification provided)

Material Description		
SAND (SP), fine grained		
<div> <div> <b>Atterberg Limits</b> </div> <div>           PL=      LL=      PI=         </div> </div>		
<div> <div> <b>Coefficients</b> </div> <div>           D<sub>90</sub>= 0.2398      D<sub>85</sub>= 0.2301      D<sub>60</sub>= 0.1950            D<sub>50</sub>= 0.1836      D<sub>30</sub>= 0.1617      D<sub>15</sub>= 0.1204            D<sub>10</sub>= 0.0969      C<sub>u</sub>= 2.01      C<sub>c</sub>= 1.38         </div> </div>		
<div> <div> <b>Classification</b> </div> <div>           USCS= SP      AASHTO=         </div> </div>		
<div> <b>Remarks</b> </div>		

Location: USACE Sample # BI-CI-78A-11  
Sample Number: TE Lab ID: 5054.37

Depth: 0.0 - 3.5 (ft)

Date: 7/18/11

**Thompson Engineering**

**Mobile, Alabama**

**Client:** US Army Corps of Engineers

**Project:** Contract No. W91278-10-D-0026 - Task 009  
Mississippi Barrier Island Restoration Project

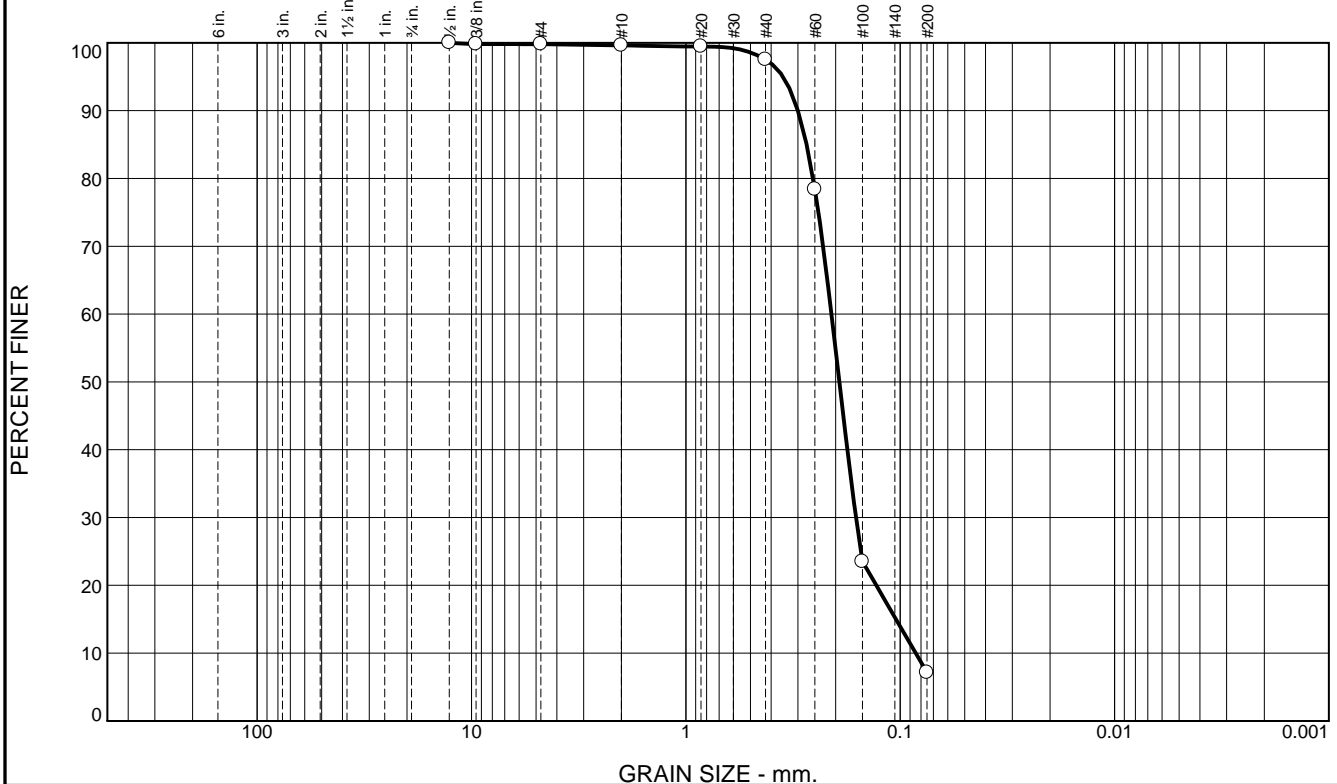
**Project No:** 11-2116-0057

**Figure**

# Boring Designation BI-CI-82-11

DRILLING LOG		DIVISION South Atlantic		INSTALLATION Mobile District		SHEET 1 OF 1 SHEETS	
1. PROJECT MsCIP Barrier Island Restoration Cat Island				9. SIZE AND TYPE OF BIT N/A			
2. BORING DESIGNATION BI-CI-82-11		LOCATION COORDINATES E = 923,307 N = 271,312		10. COORDINATE SYSTEM/DATUM State Plane, MSE (U.S. Ft.)		HORIZONTAL NAD83 VERTICAL NAVD88	
3. DRILLING AGENCY Corps of Engineers - CESAM		CONTRACTOR FILE NO.		11. MANUFACTURER'S DESIGNATION OF DRILL Vibracore		<input type="checkbox"/> AUTO HAMMER <input type="checkbox"/> MANUAL HAMMER	
4. NAME OF DRILLER Construction Solutions International, Inc.				12. TOTAL SAMPLES 3		DISTURBED 3 UNDISTURBED (UD) 0	
5. DIRECTION OF BORING <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED		DEG. FROM VERTICAL		BEARING		13. TOTAL NUMBER CORE BOXES	
6. THICKNESS OF OVERBURDEN N/A		7. DEPTH DRILLED INTO ROCK N/A		8. TOTAL DEPTH OF BORING 16.1 Ft.		14. WATER DEPTH 11.5 Ft.	
						15. DATE BORING 06-23-11	
						16. ELEVATION TOP OF BORING -10.8 Ft.	
						17. TOTAL RECOVERY FOR BORING 100%	
						18. SIGNATURE AND TITLE OF INSPECTOR Rhonda Capes, Geologist	
ELEV.	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS	SAMPLE	LABORATORY RESULTS		
-10.8	0.0						
-13.8	3.0		SAND, silty, mostly fine-grained sand-sized quartz, some silt, gray (SM)	A	Classification: SP-SM Color: 2.5Y 5/2-grayish brown D50: 0.1921 mm % Fines: 7.1		
-17.2	6.4		CLAY, lean, dark gray (CL)	NS			
-26.9	16.1		SAND, poorly-graded, mostly fine-grained sand-sized quartz, lt. gray (SP)	B	Classification: SP Color: 2.5Y 6/2-light brownish gray D50: 0.1954 mm % Fines: 4.3		
				C	Classification: SP Color: 2.5Y 7/1-light gray D50: 0.1828 mm % Fines: 2.8		
			NOTES: 1. Soils are field visually classified in accordance with the Unified Soils Classification System. 2. NS = Sample not submitted for laboratory analysis from this interval. 3. Seafloor elevation calculated using sampling vessel's fathometer water depth reading and applying NOAA tidal gauge data conversion factor.				

# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.2	0.2	2.1	90.4	7.1	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
.5	100.0		
.375	99.8		
#4	99.8		
#10	99.6		
#20	99.5		
#40	97.5		
#60	78.4		
#100	23.5		
#200	7.1		

\* (no specification provided)

<u>Material Description</u>		
Slightly silty SAND (SP-SM), fine grained		
<u>Atterberg Limits</u>		
PL=	LL=	PI=
<u>Coefficients</u>		
D <sub>90</sub> = 0.3005	D <sub>85</sub> = 0.2735	D <sub>60</sub> = 0.2092
D <sub>50</sub> = 0.1921	D <sub>30</sub> = 0.1608	D <sub>15</sub> = 0.1046
D <sub>10</sub> = 0.0846	C <sub>u</sub> = 2.47	C <sub>c</sub> = 1.46
<u>Classification</u>		
USCS= SP-SM	AASHTO=	
<u>Remarks</u>		

Location: USACE Sample # BI-CI-82A-11  
Sample Number: TE Lab ID: 5054.50

Depth: 0.0 - 3.0 (ft)

Date: 7/18/11

**Thompson Engineering**

**Mobile, Alabama**

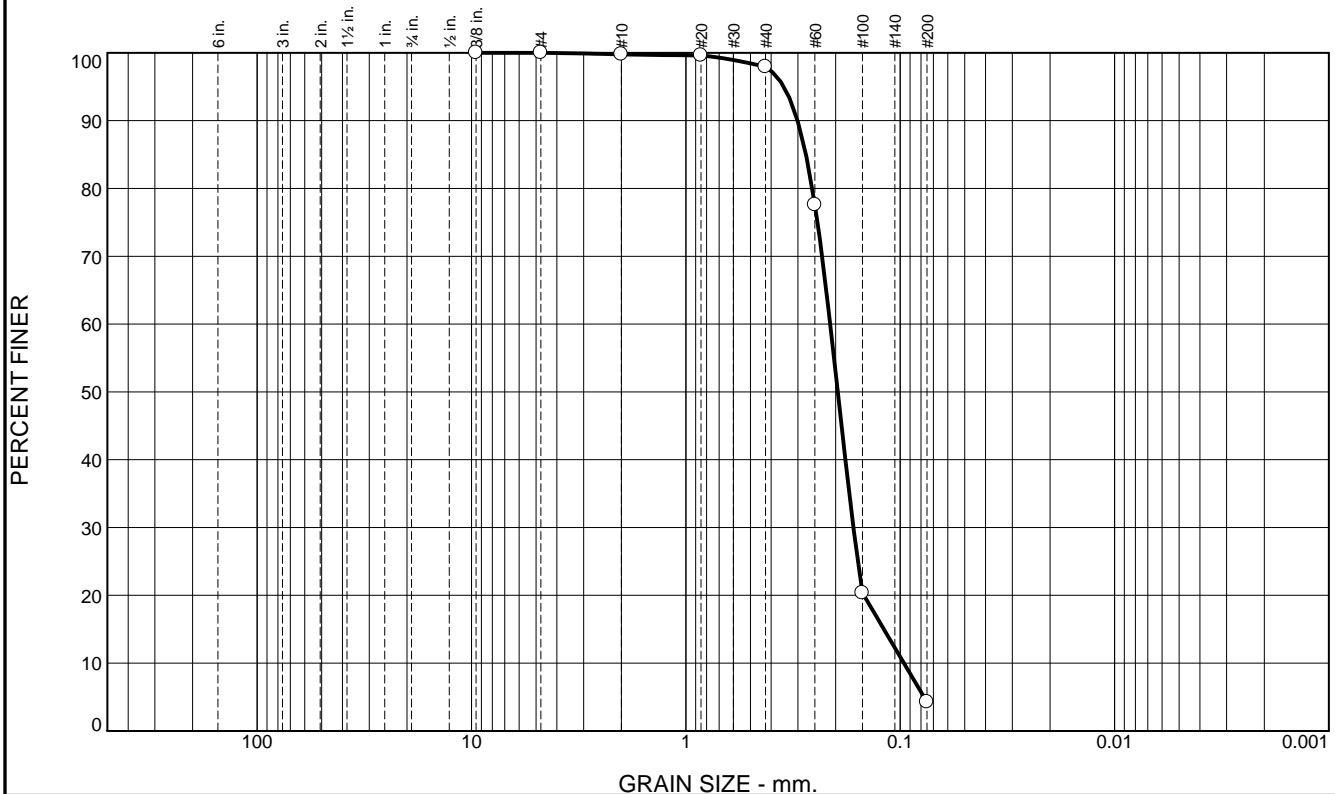
**Client:** US Army Corps of Engineers

**Project:** Contract No. W91278-10-D-0026 - Task 009  
Mississippi Barrier Island Restoration Project

**Project No:** 11-2116-0057

**Figure**

# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.0	0.2	1.9	93.6	4.3	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
.375	100.0		
#4	100.0		
#10	99.8		
#20	99.6		
#40	97.9		
#60	77.6		
#100	20.3		
#200	4.3		

\* (no specification provided)

Material Description		
SAND (SP), fine grained		
PL=	Atterberg Limits LL=	PI=
D <sub>90</sub> = 0.3014	Coefficients D <sub>85</sub> = 0.2754	D <sub>60</sub> = 0.2121
D <sub>50</sub> = 0.1954	D <sub>30</sub> = 0.1653	D <sub>15</sub> = 0.1192
D <sub>10</sub> = 0.0961	C <sub>u</sub> = 2.21	C <sub>c</sub> = 1.34
USCS= SP	Classification AASHTO=	
Remarks		

Location: USACE Sample # BI-CI-82B-11  
Sample Number: TE Lab ID: 5054.51

Depth: 6.5 - 11.5 (ft)

Date: 7/18/11

**Thompson Engineering**

**Mobile, Alabama**

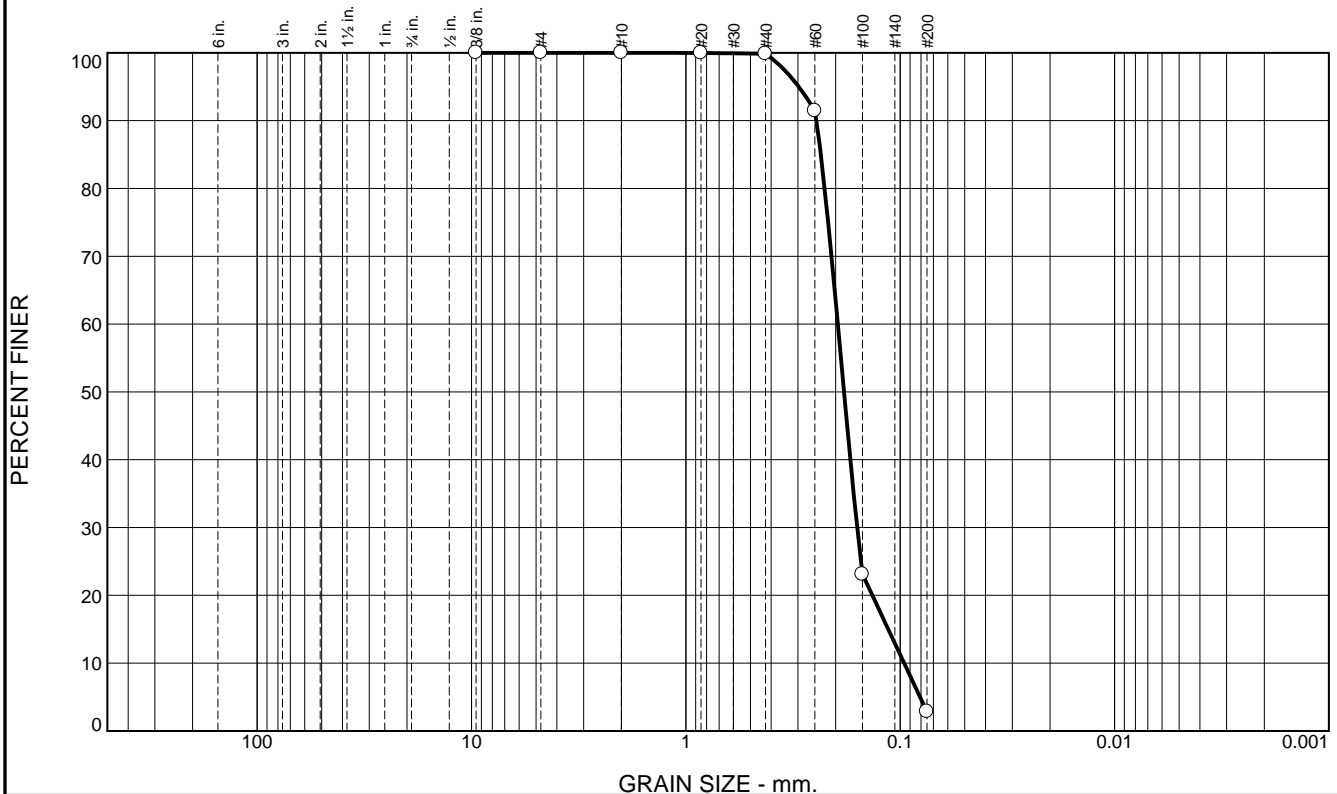
Client: US Army Corps of Engineers

Project: Contract No. W91278-10-D-0026 - Task 009  
Mississippi Barrier Island Restoration Project

Project No: 11-2116-0057

Figure

# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.0	0.0	0.2	97.0	2.8	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
.375	100.0		
#4	100.0		
#10	100.0		
#20	100.0		
#40	99.8		
#60	91.5		
#100	23.1		
#200	2.8		

\* (no specification provided)

Material Description		
SAND (SP), fine grained		
<div> <div> <b>Atterberg Limits</b> </div> <div>           PL=      LL=      PI=         </div> </div>		
<div> <div> <b>Coefficients</b> </div> <div>           D<sub>90</sub>= 0.2461      D<sub>85</sub>= 0.2346      D<sub>60</sub>= 0.1953            D<sub>50</sub>= 0.1828      D<sub>30</sub>= 0.1588      D<sub>15</sub>= 0.1137            D<sub>10</sub>= 0.0958      C<sub>u</sub>= 2.04      C<sub>c</sub>= 1.35         </div> </div>		
<div> <div> <b>Classification</b> </div> <div>           USCS= SP      AASHTO=         </div> </div>		
<div> <div> <b>Remarks</b> </div> </div>		

Location: USACE Sample # BI-CI-82C-11  
Sample Number: TE Lab ID: 5054.52

Depth: 11.5 - 16.1 (ft)

Date: 7/18/11

**Thompson Engineering**

**Mobile, Alabama**

Client: US Army Corps of Engineers

Project: Contract No. W91278-10-D-0026 - Task 009  
Mississippi Barrier Island Restoration Project

Project No: 11-2116-0057

Figure

# Boring Designation BI-CI-84-11

DRILLING LOG		DIVISION South Atlantic		INSTALLATION Mobile District		SHEET 1 OF 1 SHEETS	
1. PROJECT MsCIP Barrier Island Restoration Cat Island				9. SIZE AND TYPE OF BIT N/A			
2. BORING DESIGNATION BI-CI-84-11		LOCATION COORDINATES E = 916,262 N = 266,080		10. COORDINATE SYSTEM/DATUM State Plane, MSE (U.S. Ft.)		HORIZONTAL NAD83	
3. DRILLING AGENCY Corps of Engineers - CESAM		CONTRACTOR FILE NO.		11. MANUFACTURER'S DESIGNATION OF DRILL Vibracore		<input type="checkbox"/> AUTO HAMMER <input type="checkbox"/> MANUAL HAMMER	
4. NAME OF DRILLER Construction Solutions International, Inc.				12. TOTAL SAMPLES		DISTURBED 0	
5. DIRECTION OF BORING <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED				13. TOTAL NUMBER CORE BOXES		14. WATER DEPTH 12.3 Ft.	
6. THICKNESS OF OVERBURDEN N/A				15. DATE BORING		STARTED 06-28-11	
7. DEPTH DRILLED INTO ROCK N/A				16. ELEVATION TOP OF BORING -12.0 Ft.		COMPLETED 06-28-11	
8. TOTAL DEPTH OF BORING 11.0 Ft.				17. TOTAL RECOVERY FOR BORING 100%		18. SIGNATURE AND TITLE OF INSPECTOR Michele Johnson, Geologist	
ELEV.	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS	SAMPLE	LABORATORY RESULTS		
-12.0	0.0						
-15.3	3.3		SAND, silty, some sand, trace shell fragments, dark gray (SM)	NS			
-20.3	8.3		SAND, poorly-graded, mostly fine to medium-grained sand-sized quartz, gray (SP)				
-23.0	11.0		CLAY, lean, dark gray (CL)				
NOTES: 1. Soils are field visually classified in accordance with the Unified Soils Classification System. 2. NS = Sample not submitted for laboratory analysis from this interval. 3. Seafloor elevation calculated using sampling vessel's fathometer water depth reading and applying NOAA tidal gauge data conversion factor.							

# Boring Designation BI-CI-85-11

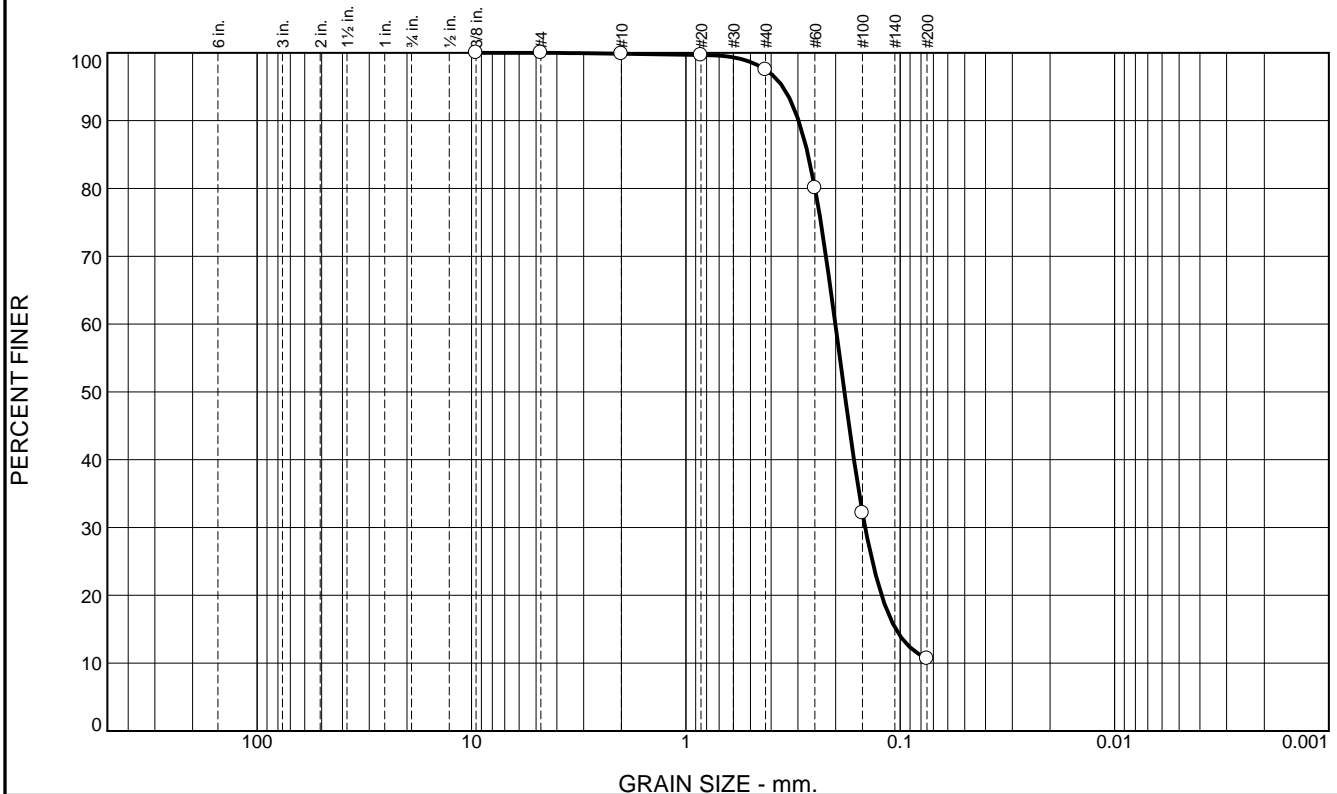
DRILLING LOG		DIVISION South Atlantic		INSTALLATION Mobile District		SHEET 1 OF 1 SHEETS	
1. PROJECT MsCIP Barrier Island Restoration Cat Island				9. SIZE AND TYPE OF BIT N/A			
2. BORING DESIGNATION BI-CI-85-11		LOCATION COORDINATES E = 915,574 N = 264,681		10. COORDINATE SYSTEM/DATUM State Plane, MSE (U.S. Ft.)		HORIZONTAL NAD83 VERTICAL NAVD88	
3. DRILLING AGENCY Corps of Engineers - CESAM		CONTRACTOR FILE NO.		11. MANUFACTURER'S DESIGNATION OF DRILL Vibracore		<input type="checkbox"/> AUTO HAMMER <input type="checkbox"/> MANUAL HAMMER	
4. NAME OF DRILLER Construction Solutions International, Inc.				12. TOTAL SAMPLES		DISTURBED UNDISTURBED (UD) 0	
5. DIRECTION OF BORING <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED		DEG. FROM VERTICAL		BEARING		13. TOTAL NUMBER CORE BOXES	
6. THICKNESS OF OVERBURDEN N/A				14. WATER DEPTH 13 Ft.			
7. DEPTH DRILLED INTO ROCK N/A				15. DATE BORING 06-28-11		STARTED COMPLETED 06-28-11	
8. TOTAL DEPTH OF BORING 11.8 Ft.				16. ELEVATION TOP OF BORING -12.5 Ft.			
				17. TOTAL RECOVERY FOR BORING 100%			
				18. SIGNATURE AND TITLE OF INSPECTOR Michele Johnson, Geologist			
ELEV.	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS	SAMPLE	LABORATORY RESULTS		
-12.5	0.0						
-14.4	1.9		SAND, silty, some fine-grained sand-sized sand, dark gray (SM)				
-19.4	6.9		CLAY, lean, dark gray (CL)	NS			
-21.4	8.9		CLAY, fat, dark gray (CH)				
-24.3	11.8		SAND, poorly-graded, mostly medium-grained sand-sized quartz, trace shell fragments, gray (SP)				
NOTES: 1. Soils are field visually classified in accordance with the Unified Soils Classification System. 2. NS = Sample not submitted for laboratory analysis from this interval. 3. Seafloor elevation calculated using sampling vessel's fathometer water depth reading and applying NOAA tidal gauge data conversion factor.							

# Boring Designation BI-CI-86-11

DRILLING LOG		DIVISION South Atlantic		INSTALLATION Mobile District		SHEET 1 OF 1 SHEETS	
1. PROJECT MsCIP Barrier Island Restoration Cat Island				9. SIZE AND TYPE OF BIT N/A			
2. BORING DESIGNATION BI-CI-86-11		LOCATION COORDINATES E = 916,403 N = 263,970		10. COORDINATE SYSTEM/DATUM State Plane, MSE (U.S. Ft.)		HORIZONTAL NAD83	
3. DRILLING AGENCY Corps of Engineers - CESAM		CONTRACTOR FILE NO.		11. MANUFACTURER'S DESIGNATION OF DRILL Vibrocure		<input type="checkbox"/> AUTO HAMMER <input type="checkbox"/> MANUAL HAMMER	
4. NAME OF DRILLER Construction Solutions International, Inc.				12. TOTAL SAMPLES 2		DISTURBED 0	
5. DIRECTION OF BORING <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED		DEG. FROM VERTICAL		13. TOTAL NUMBER CORE BOXES			
		BEARING		14. WATER DEPTH 14.6 Ft.			
6. THICKNESS OF OVERBURDEN N/A				15. DATE BORING 06-28-11		COMPLETED 06-28-11	
7. DEPTH DRILLED INTO ROCK N/A				16. ELEVATION TOP OF BORING -14.0 Ft.			
8. TOTAL DEPTH OF BORING 6.9 Ft.				17. TOTAL RECOVERY FOR BORING 100%			
				18. SIGNATURE AND TITLE OF INSPECTOR Michele Johnson, Geologist			
ELEV.	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS	SAMPLE	LABORATORY RESULTS		
-14.0	0.0						
-17.0	3.0		SAND, silty, trace shell fragments, dark gray (SM)	A	Classification: SP-SM    Color: 5Y 6/1-gray D50: 0.182 mm    % Fines: 10.7		
-20.9	6.9		SAND, poorly-graded, trace shell fragments, gray (SP)	B	Classification: SP    Color: 2.5Y 5/2-grayish brown D50: 0.196 mm    % Fines: 3.3		
			NOTES:  1. Soils are field visually classified in accordance with the Unified Soils Classification System.  2. NS = Sample not submitted for laboratory analysis from this interval.  3. Seafloor elevation determined from USACE hydrographic survey completed 2010.				



# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.0	0.1	2.4	86.8	10.7	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
.375	100.0		
#4	100.0		
#10	99.9		
#20	99.7		
#40	97.5		
#60	80.1		
#100	32.2		
#200	10.7		

<u>Material Description</u>		
Slightly silty SAND (SP-SM), fine grained		
<u>Atterberg Limits</u>		
PL=	LL=	PI=
<u>Coefficients</u>		
D <sub>90</sub> = 0.2980	D <sub>85</sub> = 0.2693	D <sub>60</sub> = 0.2006
D <sub>50</sub> = 0.1820	D <sub>30</sub> = 0.1458	D <sub>15</sub> = 0.1048
D <sub>10</sub> =	C <sub>u</sub> =	C <sub>c</sub> =
<u>Classification</u>		
USCS= SP-SM	AASHTO=	
<u>Remarks</u>		

\* (no specification provided)

Location: USACE Sample # BI-CI-86A-11  
Sample Number: TE Lab ID: 5054.101

Depth: 0.0 - 3.0 (ft)

Date: 7/18/11

**Thompson Engineering**

**Mobile, Alabama**

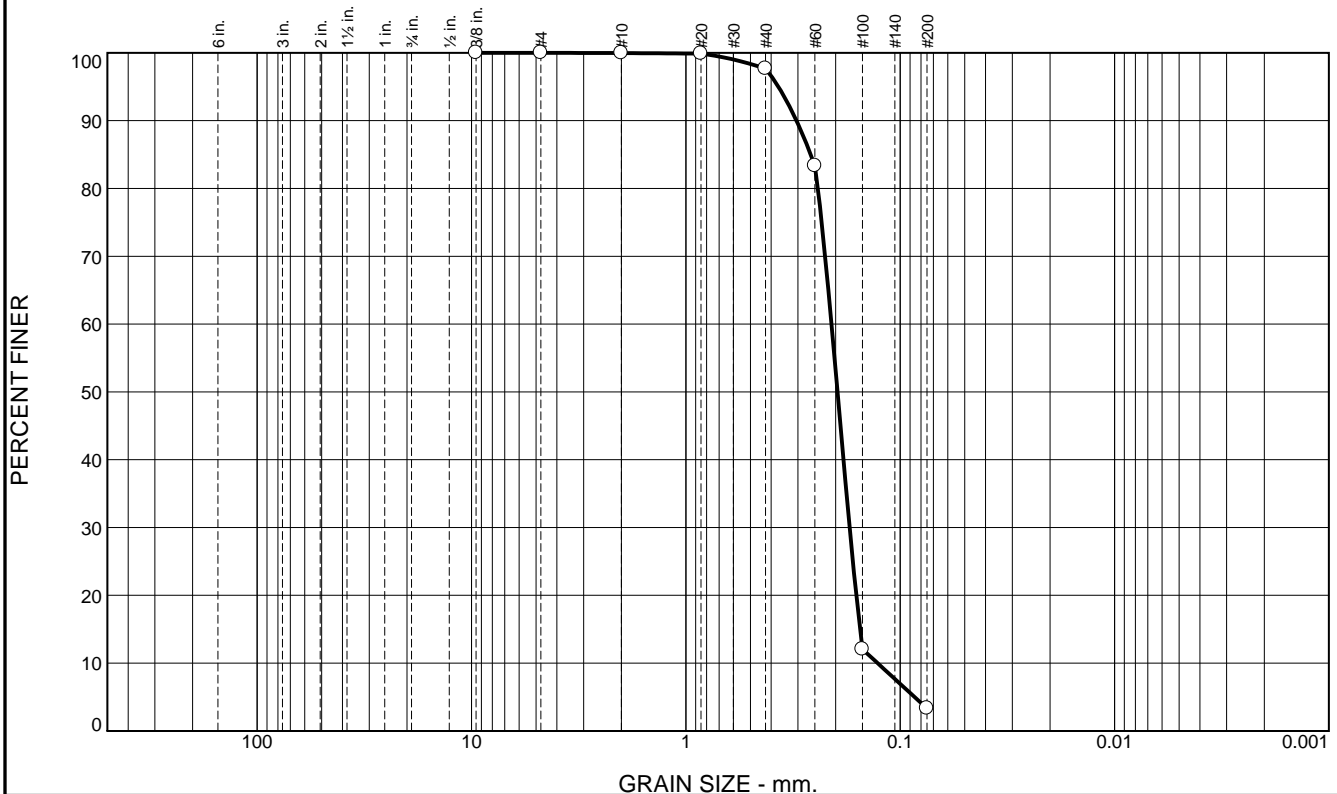
**Client:** US Army Corps of Engineers

**Project:** Contract No. W91278-10-D-0026 - Task 009  
Mississippi Barrier Island Restoration Project

**Project No:** 11-2116-0057

**Figure**

# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.0	0.0	2.3	94.4	3.3	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
.375	100.0		
#4	100.0		
#10	100.0		
#20	99.9		
#40	97.7		
#60	83.3		
#100	12.0		
#200	3.3		

\* (no specification provided)

**Material Description**  
SAND (SP), fine grained

**Atterberg Limits**  
 PL=      LL=      PI=

**Coefficients**  
 D<sub>90</sub>= 0.3050      D<sub>85</sub>= 0.2616      D<sub>60</sub>= 0.2090  
 D<sub>50</sub>= 0.1960      D<sub>30</sub>= 0.1722      D<sub>15</sub>= 0.1540  
 D<sub>10</sub>= 0.1275      C<sub>u</sub>= 1.64      C<sub>c</sub>= 1.11

**Classification**  
 USCS= SP      AASHTO=

**Remarks**

Location: USACE Sample # BI-CI-86B-11  
 Sample Number: TE Lab ID: 5054.102

Depth: 3.0 - 6.9 (ft)

Date: 7/18/11

**Thompson Engineering**

**Mobile, Alabama**

**Client:** US Army Corps of Engineers

**Project:** Contract No. W91278-10-D-0026 - Task 009  
 Mississippi Barrier Island Restoration Project

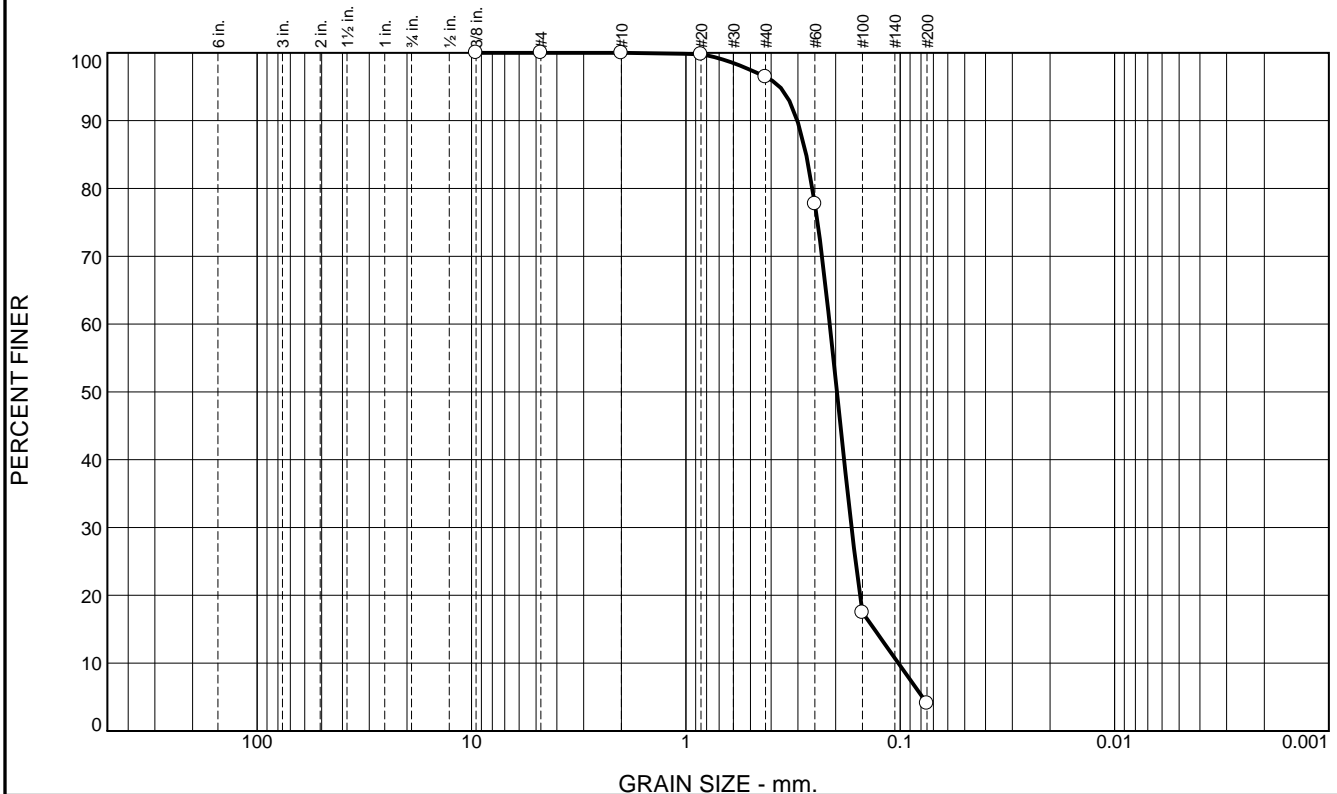
**Project No:** 11-2116-0057

**Figure**

# Boring Designation BI-CI-87-11

DRILLING LOG		DIVISION South Atlantic		INSTALLATION Mobile District		SHEET 1 OF 1 SHEETS	
1. PROJECT MsCIP Barrier Island Restoration Cat Island				9. SIZE AND TYPE OF BIT N/A			
2. BORING DESIGNATION BI-CI-87-11		LOCATION COORDINATES E = 915,759 N = 262,626		10. COORDINATE SYSTEM/DATUM State Plane, MSE (U.S. Ft.)		HORIZONTAL NAD83	
3. DRILLING AGENCY Corps of Engineers - CESAM		CONTRACTOR FILE NO.		11. MANUFACTURER'S DESIGNATION OF DRILL Vibrocure		<input type="checkbox"/> AUTO HAMMER <input type="checkbox"/> MANUAL HAMMER	
4. NAME OF DRILLER Construction Solutions International, Inc.				12. TOTAL SAMPLES 2		DISTURBED 0	
5. DIRECTION OF BORING <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED				13. TOTAL NUMBER CORE BOXES		14. WATER DEPTH 13.2 Ft.	
6. THICKNESS OF OVERBURDEN N/A				15. DATE BORING 06-28-11		STARTED 06-28-11	
7. DEPTH DRILLED INTO ROCK N/A				16. ELEVATION TOP OF BORING -14.4 Ft.		COMPLETED 06-28-11	
8. TOTAL DEPTH OF BORING 7.5 Ft.				17. TOTAL RECOVERY FOR BORING 100%		18. SIGNATURE AND TITLE OF INSPECTOR Michele Johnson, Geologist	
ELEV.	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS	SAMPLE	LABORATORY RESULTS		
-14.4	0.0						
			SAND, poorly-graded, mostly medium-grained sand-sized quartz, some shell fragments, dark gray (SP)	A	Classification: SP Color: 2.5Y 6/2-light brownish gray D50: 0.1972 mm % Fines: 4.1		
			At El. -18.4 Ft., trace shell fragments, gray	B	Classification: SP Color: 2.5Y 6/1-gray D50: 0.1859 mm % Fines: 3.5		
-21.9	7.5						
			NOTES: 1. Soils are field visually classified in accordance with the Unified Soils Classification System. 2. NS = Sample not submitted for laboratory analysis from this interval. 3. Seafloor elevation determined from USACE hydrographic survey completed 2010.				

# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.0	0.0	3.6	92.3	4.1	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
.375	100.0		
#4	100.0		
#10	100.0		
#20	99.8		
#40	96.4		
#60	77.7		
#100	17.5		
#200	4.1		

<u>Material Description</u>		
SAND (SP), fine grained		
<u>Atterberg Limits</u>		
PL=	LL=	PI=
<u>Coefficients</u>		
D <sub>90</sub> = 0.3021	D <sub>85</sub> = 0.2748	D <sub>60</sub> = 0.2131
D <sub>50</sub> = 0.1972	D <sub>30</sub> = 0.1687	D <sub>15</sub> = 0.1321
D <sub>10</sub> = 0.1020	C <sub>u</sub> = 2.09	C <sub>c</sub> = 1.31
<u>Classification</u>		
USCS= SP	AASHTO=	
<u>Remarks</u>		

\* (no specification provided)

Location: USACE Sample # BI-CI-87A-11  
Sample Number: TE Lab ID: 5054.99

Depth: 0.0 - 4.0 (ft)

Date: 7/18/11

**Thompson Engineering**

**Mobile, Alabama**

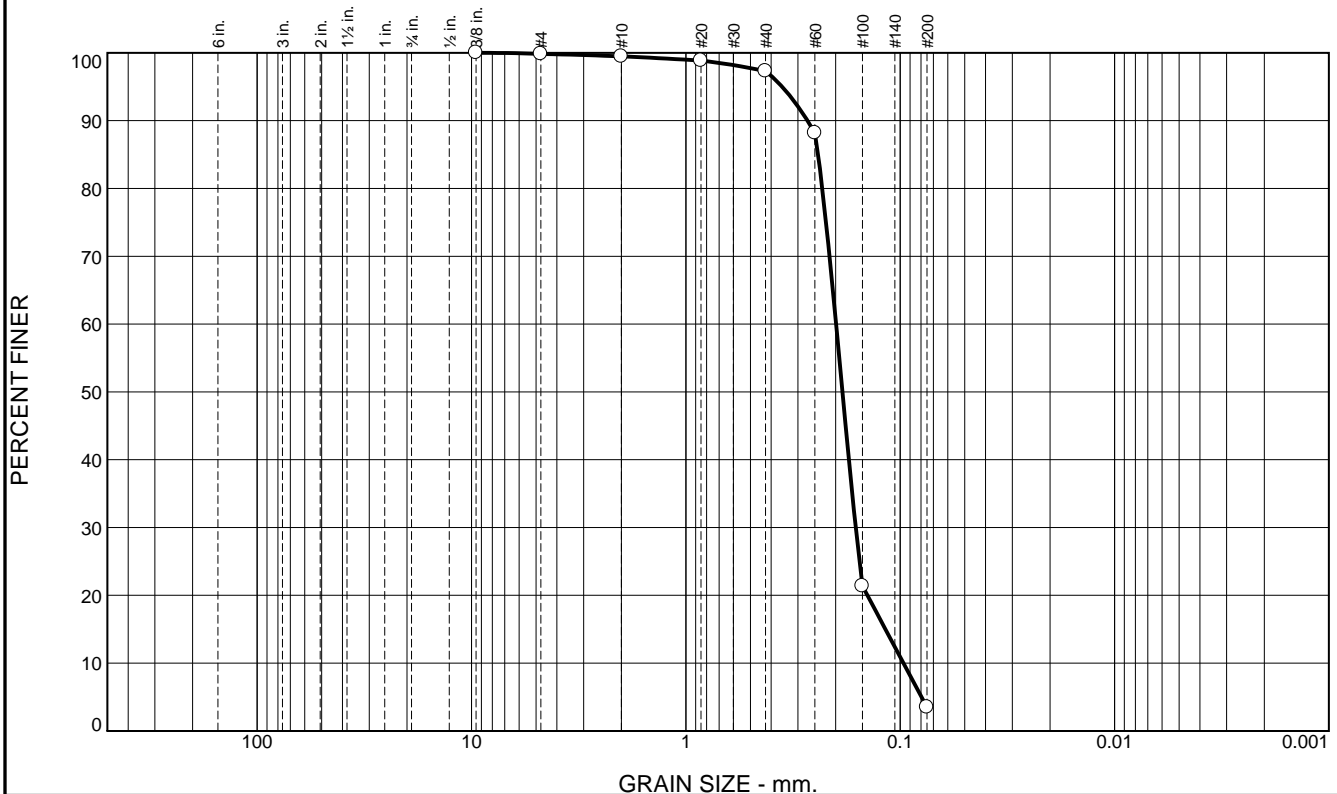
**Client:** US Army Corps of Engineers

**Project:** Contract No. W91278-10-D-0026 - Task 009  
Mississippi Barrier Island Restoration Project

**Project No:** 11-2116-0057

**Figure**

# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.2	0.3	2.2	93.8	3.5	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
.375	100.0		
#4	99.8		
#10	99.5		
#20	98.9		
#40	97.3		
#60	88.2		
#100	21.4		
#200	3.5		

\* (no specification provided)

Material Description		
SAND (SP), fine grained		
PL=	Atterberg Limits LL=	PI=
D <sub>90</sub> = 0.2709	Coefficients D <sub>85</sub> = 0.2417	D <sub>60</sub> = 0.1990
D <sub>50</sub> = 0.1859	D <sub>30</sub> = 0.1613	D <sub>15</sub> = 0.1172
D <sub>10</sub> = 0.0965	C <sub>u</sub> = 2.06	C <sub>c</sub> = 1.35
USCS= SP	Classification AASHTO=	
Remarks		

Location: USACE Sample # BI-CI-87B-11  
Sample Number: TE Lab ID: 5054.100

Depth: 4.0 - 7.5 (ft)

Date: 7/18/11

**Thompson Engineering**

**Mobile, Alabama**

Client: US Army Corps of Engineers

Project: Contract No. W91278-10-D-0026 - Task 009  
Mississippi Barrier Island Restoration Project

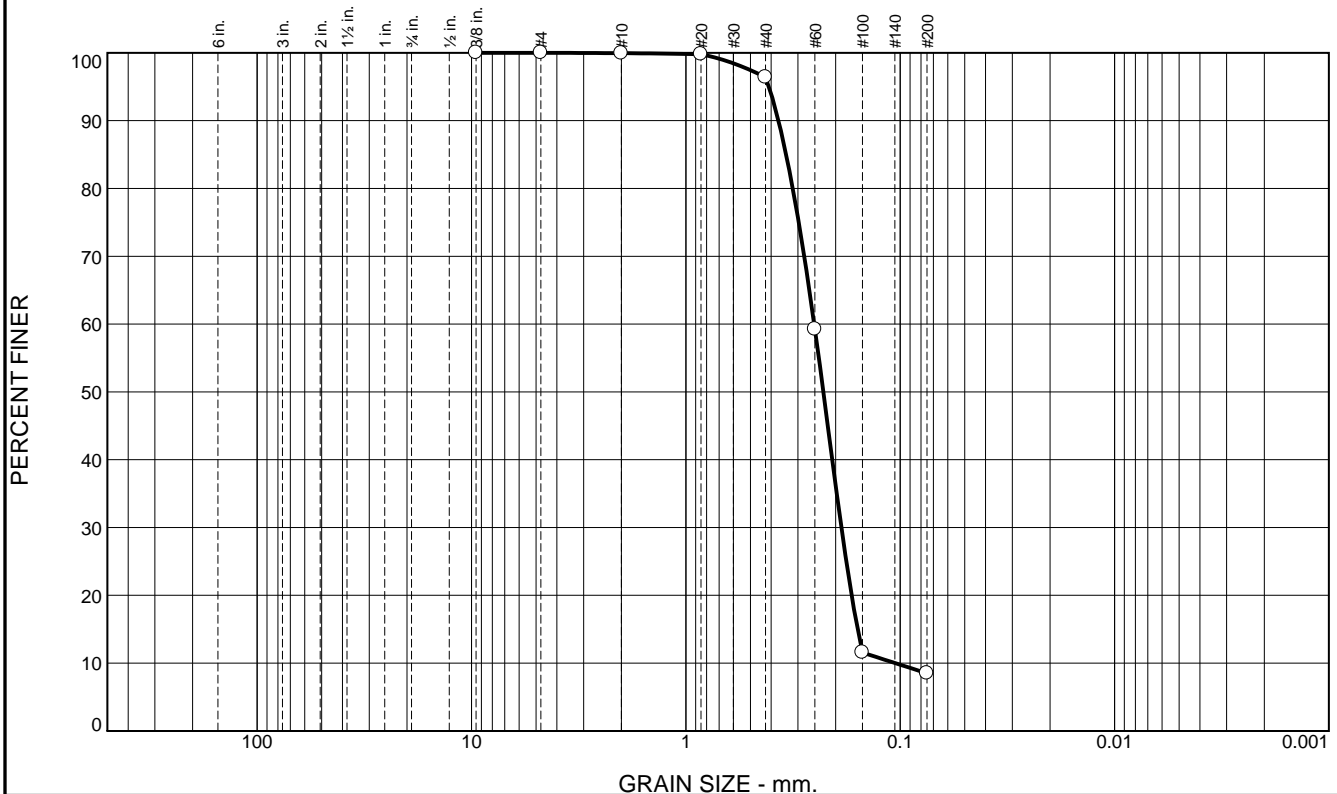
Project No: 11-2116-0057

Figure

# Boring Designation BI-CI-88-11

DRILLING LOG		DIVISION South Atlantic		INSTALLATION Mobile District		SHEET 1 OF 1 SHEETS	
1. PROJECT MsCIP Barrier Island Restoration Cat Island				9. SIZE AND TYPE OF BIT N/A			
2. BORING DESIGNATION BI-CI-88-11		LOCATION COORDINATES E = 906,273 N = 257,485		10. COORDINATE SYSTEM/DATUM State Plane, MSE (U.S. Ft.)		HORIZONTAL NAD83	
3. DRILLING AGENCY Corps of Engineers - CESAM		CONTRACTOR FILE NO.		11. MANUFACTURER'S DESIGNATION OF DRILL Vibracore		<input type="checkbox"/> AUTO HAMMER <input type="checkbox"/> MANUAL HAMMER	
4. NAME OF DRILLER Construction Solutions International, Inc.				12. TOTAL SAMPLES 2		UNDISTURBED (UD) 0	
5. DIRECTION OF BORING <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED				13. TOTAL NUMBER CORE BOXES		14. WATER DEPTH 11.9 Ft.	
6. THICKNESS OF OVERBURDEN N/A				15. DATE BORING 06-28-11		COMPLETED 06-28-11	
7. DEPTH DRILLED INTO ROCK N/A				16. ELEVATION TOP OF BORING -10.1 Ft.		17. TOTAL RECOVERY FOR BORING 100%	
8. TOTAL DEPTH OF BORING 11.2 Ft.				18. SIGNATURE AND TITLE OF INSPECTOR Michele Johnson, Geologist			
ELEV.	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS	SAMPLE	LABORATORY RESULTS		
-10.1	0.0		SAND, poorly-graded with silt, trace organic matter, trace shell fragments, gray (SP-SM)	A	Classification: SP-SM Color: 2.5Y 5/2-grayish brown D50: 0.2283 mm % Fines: 8.5		
			At El. -14.1 Ft., trace manufactured debris, gray	B	Classification: SP Color: 2.5Y 7/1-light gray D50: 0.2044 mm % Fines: 4.5		
-21.3	11.2			NS			
NOTES: 1. Soils are field visually classified in accordance with the Unified Soils Classification System. 2. NS = Sample not submitted for laboratory analysis from this interval. 3. Seafloor elevation calculated using sampling vessel's fathometer water depth reading and applying NOAA tidal gauge data conversion factor.							

# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.0	0.0	3.6	87.9	8.5	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
.375	100.0		
#4	100.0		
#10	100.0		
#20	99.8		
#40	96.4		
#60	59.2		
#100	11.6		
#200	8.5		

\* (no specification provided)

<u>Material Description</u>		
Slightly silty SAND (SP-SM), fine grained		
<u>Atterberg Limits</u>		
PL=	LL=	PI=
<u>Coefficients</u>		
D <sub>90</sub> = 0.3698	D <sub>85</sub> = 0.3406	D <sub>60</sub> = 0.2519
D <sub>50</sub> = 0.2283	D <sub>30</sub> = 0.1880	D <sub>15</sub> = 0.1580
D <sub>10</sub> = 0.1054	C <sub>u</sub> = 2.39	C <sub>c</sub> = 1.33
<u>Classification</u>		
USCS= SP-SM	AASHTO=	
<u>Remarks</u>		

Location: USACE Sample # BI-CI-88A-11  
Sample Number: TE Lab ID: 5054.94

Depth: 0.0 - 4.0 (ft)

Date: 7/18/11

**Thompson Engineering**

**Mobile, Alabama**

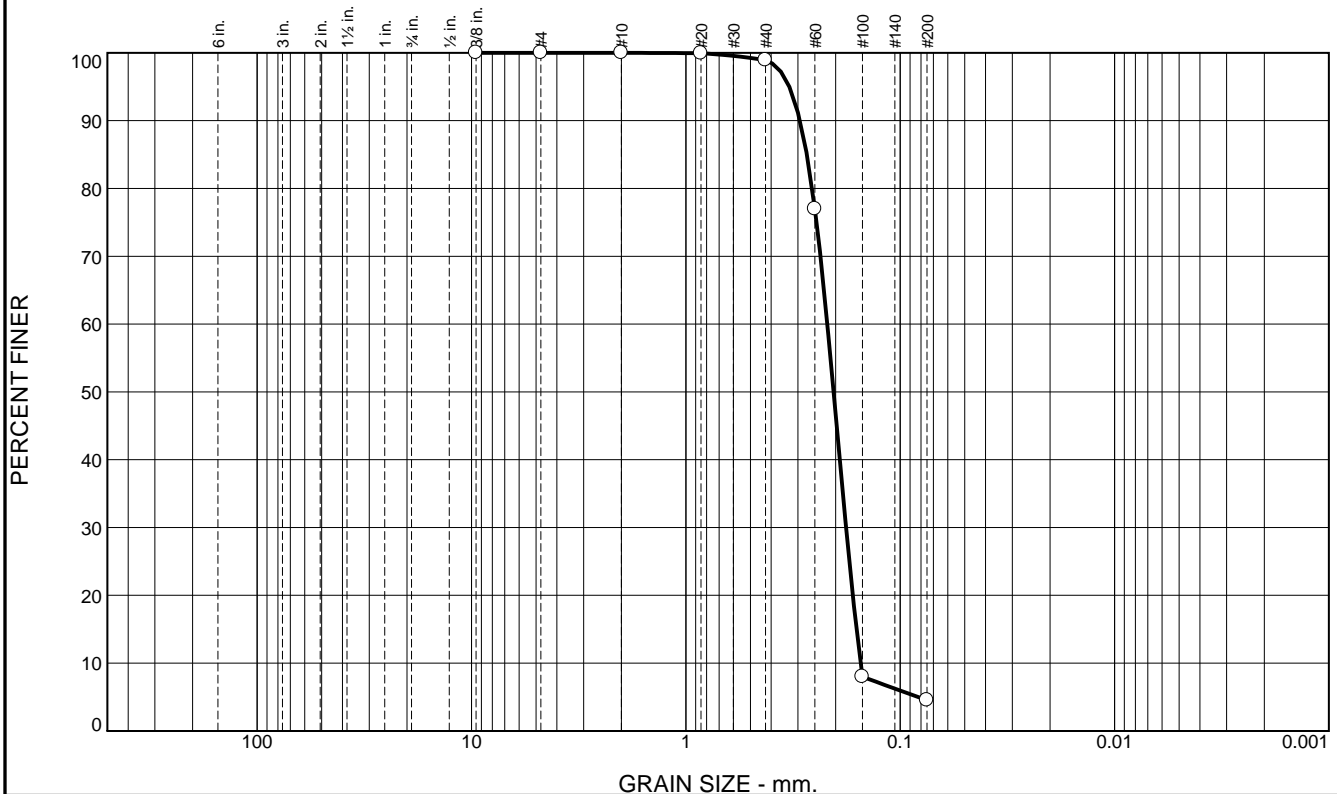
Client: US Army Corps of Engineers

Project: Contract No. W91278-10-D-0026 - Task 009  
Mississippi Barrier Island Restoration Project

Project No: 11-2116-0057

Figure

# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.0	0.0	1.1	94.4	4.5	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
.375	100.0		
#4	100.0		
#10	100.0		
#20	99.9		
#40	98.9		
#60	77.0		
#100	8.0		
#200	4.5		

\* (no specification provided)

Material Description		
SAND (SP), fine grained		
PL=	Atterberg Limits LL=	PI=
D <sub>90</sub> = 0.2937	Coefficients D <sub>85</sub> = 0.2727	D <sub>60</sub> = 0.2188
D <sub>50</sub> = 0.2044	D <sub>30</sub> = 0.1788	D <sub>15</sub> = 0.1599
D <sub>10</sub> = 0.1530	C <sub>u</sub> = 1.43	C <sub>c</sub> = 0.96
USCS= SP	Classification AASHTO=	
Remarks		

Location: USACE Sample # BI-CI-88B-11  
Sample Number: TE Lab ID: 5054.95

Depth: 4.0 - 9.5 (ft)

Date: 7/18/11

**Thompson Engineering**

**Mobile, Alabama**

Client: US Army Corps of Engineers

Project: Contract No. W91278-10-D-0026 - Task 009  
Mississippi Barrier Island Restoration Project

Project No: 11-2116-0057

Figure



# Boring Designation BI-CI-89-11

DRILLING LOG		DIVISION South Atlantic		INSTALLATION Mobile District		SHEET 1 OF 1 SHEETS	
1. PROJECT MsCIP Barrier Island Restoration Cat Island				9. SIZE AND TYPE OF BIT N/A			
2. BORING DESIGNATION BI-CI-89-11		LOCATION COORDINATES E = 905,746 N = 256,133		10. COORDINATE SYSTEM/DATUM State Plane, MSE (U.S. Ft.)		HORIZONTAL NAD83	
3. DRILLING AGENCY Corps of Engineers - CESAM		CONTRACTOR FILE NO.		11. MANUFACTURER'S DESIGNATION OF DRILL Vibracore		<input type="checkbox"/> AUTO HAMMER <input type="checkbox"/> MANUAL HAMMER	
4. NAME OF DRILLER Construction Solutions International, Inc.				12. TOTAL SAMPLES		DISTURBED 0	
5. DIRECTION OF BORING <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED				13. TOTAL NUMBER CORE BOXES		14. WATER DEPTH 11.6 Ft.	
6. THICKNESS OF OVERBURDEN N/A				15. DATE BORING		STARTED 06-28-11	
7. DEPTH DRILLED INTO ROCK N/A				16. ELEVATION TOP OF BORING -9.9 Ft.		COMPLETED 06-28-11	
8. TOTAL DEPTH OF BORING 10.0 Ft.				17. TOTAL RECOVERY FOR BORING 100%		18. SIGNATURE AND TITLE OF INSPECTOR Michele Johnson, Geologist	
ELEV.	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS	SAMPLE	LABORATORY RESULTS		
-9.9	0.0						
-11.5	1.6		SAND, silty, trace shell fragments, gray (SM)	NS			
-13.6	3.7		SAND, clayey, some fine-grained silt, some clay, gray (SC)				
-19.9	10.0		CLAY, lean, mostly clay, dark gray (CL)				
NOTES: 1. Soils are field visually classified in accordance with the Unified Soils Classification System. 2. NS = Sample not submitted for laboratory analysis from this interval. 3. Seafloor elevation calculated using sampling vessel's fathometer water depth reading and applying NOAA tidal gauge data conversion factor.							

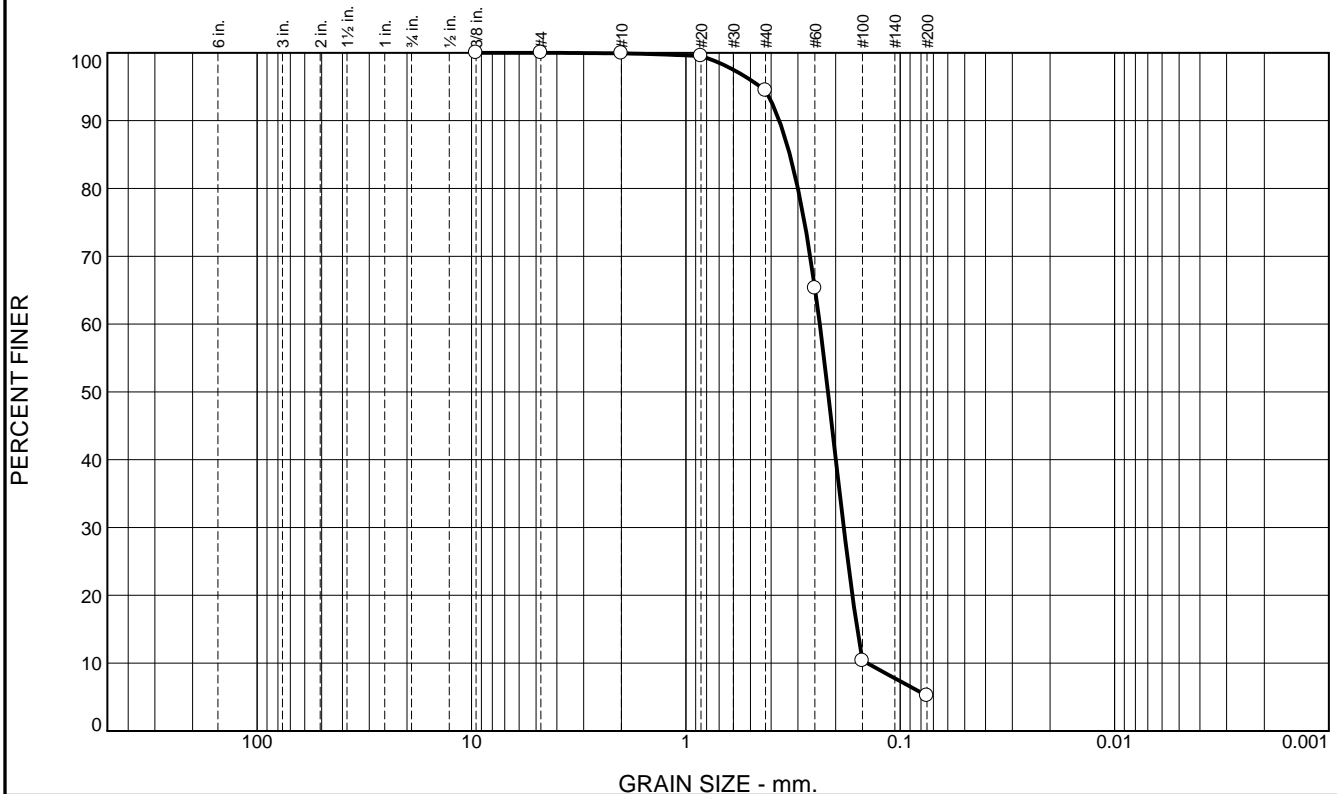
# Boring Designation BI-CI-90-11

DRILLING LOG		DIVISION South Atlantic		INSTALLATION Mobile District		SHEET 1 OF 1 SHEETS	
1. PROJECT MsCIP Barrier Island Restoration Cat Island				9. SIZE AND TYPE OF BIT N/A			
2. BORING DESIGNATION BI-CI-90-11		LOCATION COORDINATES E = 906,652 N = 257,113		10. COORDINATE SYSTEM/DATUM State Plane, MSE (U.S. Ft.)		HORIZONTAL NAD83 VERTICAL NAVD88	
3. DRILLING AGENCY Corps of Engineers - CESAM		CONTRACTOR FILE NO.		11. MANUFACTURER'S DESIGNATION OF DRILL Vibracore		<input type="checkbox"/> AUTO HAMMER <input type="checkbox"/> MANUAL HAMMER	
4. NAME OF DRILLER Construction Solutions International, Inc.				12. TOTAL SAMPLES		DISTURBED UNDISTURBED (UD)	
5. DIRECTION OF BORING <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED		DEG. FROM VERTICAL		13. TOTAL NUMBER CORE BOXES		0	
6. THICKNESS OF OVERBURDEN N/A		BEARING		14. WATER DEPTH 11.6 Ft.		15. DATE BORING STARTED 06-28-11 COMPLETED 06-28-11	
7. DEPTH DRILLED INTO ROCK N/A		16. ELEVATION TOP OF BORING -10.3 Ft.		17. TOTAL RECOVERY FOR BORING 100%		18. SIGNATURE AND TITLE OF INSPECTOR Michele Johnson, Geologist	
8. TOTAL DEPTH OF BORING 11.7 Ft.							
ELEV.	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS	SAMPLE	LABORATORY RESULTS		
-10.3	0.0						
-11.0	0.7		CLAY, lean, dark gray (CL)				
-12.5	2.2		CLAY, fat, dark gray (CH)				
-13.3	3.0		CLAY, lean, dark gray (CL)				
			CLAY, fat, dark gray (CH)	NS			
-22.0	11.7						
NOTES:							
1. Soils are field visually classified in accordance with the Unified Soils Classification System.							
2. NS = Sample not submitted for laboratory analysis from this interval.							
3. Seafloor elevation calculated using sampling vessel's fathometer water depth reading and applying NOAA tidal gauge data conversion factor.							

# Boring Designation BI-CI-91-11

DRILLING LOG		DIVISION South Atlantic		INSTALLATION Mobile District		SHEET 1 OF 1 SHEETS	
1. PROJECT MsCIP Barrier Island Restoration Cat Island				9. SIZE AND TYPE OF BIT N/A			
2. BORING DESIGNATION BI-CI-91-11		LOCATION COORDINATES E = 907,236 N = 258,705		10. COORDINATE SYSTEM/DATUM State Plane, MSE (U.S. Ft.)		HORIZONTAL NAD83	
3. DRILLING AGENCY Corps of Engineers - CESAM		CONTRACTOR FILE NO.		11. MANUFACTURER'S DESIGNATION OF DRILL Vibrocure		<input type="checkbox"/> AUTO HAMMER <input type="checkbox"/> MANUAL HAMMER	
4. NAME OF DRILLER Construction Solutions International, Inc.				12. TOTAL SAMPLES 3		DISTURBED 0	
5. DIRECTION OF BORING <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED		DEG. FROM VERTICAL		13. TOTAL NUMBER CORE BOXES			
		BEARING		14. WATER DEPTH 11.3 Ft.			
6. THICKNESS OF OVERBURDEN N/A				15. DATE BORING 06-28-11		COMPLETED 06-28-11	
7. DEPTH DRILLED INTO ROCK N/A				16. ELEVATION TOP OF BORING -10.3 Ft.			
8. TOTAL DEPTH OF BORING 7.8 Ft.				17. TOTAL RECOVERY FOR BORING 100%			
				18. SIGNATURE AND TITLE OF INSPECTOR Michele Johnson, Geologist			
ELEV.	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS	SAMPLE	LABORATORY RESULTS		
-10.3	0.0						
			SAND, poorly-graded, mostly medium-grained sand-sized quartz, gray (SP)  At El. -13.3 Ft., trace shell fragments, gray	A	Classification: SP-SM Color: 2.5Y 5/2-grayish brown D50: 0.2172 mm % Fines: 5.2		
				B	Classification: SP Color: 2.5Y 6/1-gray D50: 0.2064 mm % Fines: 2.6		
-16.3	6.0						
-18.1	7.8		SAND, silty, trace shell fragments, dark gray (SM)	C	Classification: SP Color: 2.5Y 7/1-light gray D50: 0.2099 mm % Fines: 1.7		
NOTES: 1. Soils are field visually classified in accordance with the Unified Soils Classification System. 2. NS = Sample not submitted for laboratory analysis from this interval. 3. Seafloor elevation calculated using sampling vessel's fathometer water depth reading and applying NOAA tidal gauge data conversion factor.							

# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.0	0.1	5.5	89.2	5.2	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
.375	100.0		
#4	100.0		
#10	99.9		
#20	99.5		
#40	94.4		
#60	65.3		
#100	10.4		
#200	5.2		

\* (no specification provided)

**Material Description**  
Slightly silty SAND (SP-SM), fine grained

**Atterberg Limits**  
 PL=      LL=      PI=

**Coefficients**  
 D<sub>90</sub>= 0.3667      D<sub>85</sub>= 0.3274      D<sub>60</sub>= 0.2374  
 D<sub>50</sub>= 0.2172      D<sub>30</sub>= 0.1833      D<sub>15</sub>= 0.1586  
 D<sub>10</sub>= 0.1429      C<sub>u</sub>= 1.66      C<sub>c</sub>= 0.99

**Classification**  
 USCS= SP-SM      AASHTO=

**Remarks**

Location: USACE Sample # BI-CI-91A-11  
 Sample Number: TE Lab ID: 5054.96

Depth: 0.0 - 3.0 (ft)

Date: 7/18/11

**Thompson Engineering**

**Mobile, Alabama**

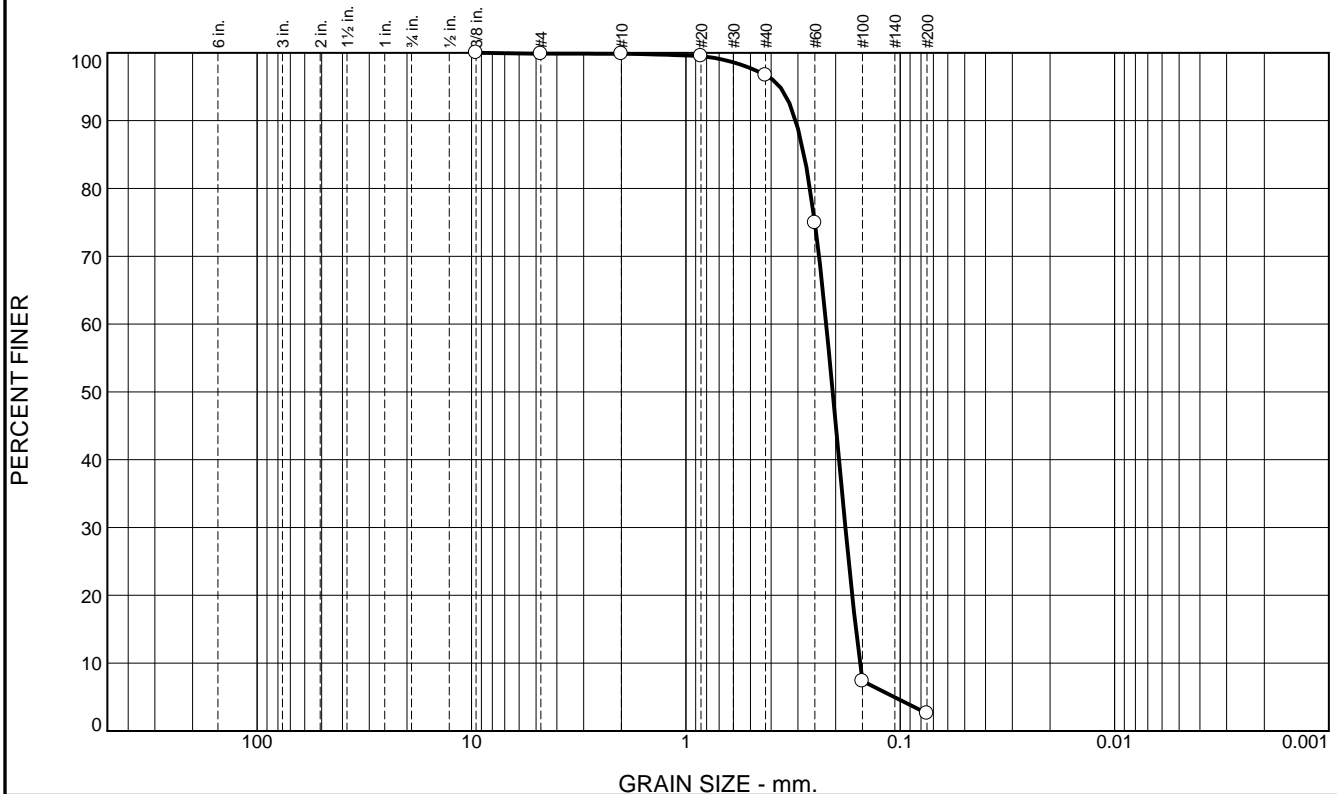
**Client:** US Army Corps of Engineers

**Project:** Contract No. W91278-10-D-0026 - Task 009  
 Mississippi Barrier Island Restoration Project

**Project No:** 11-2116-0057

**Figure**

# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.1	0.0	3.2	94.1	2.6	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
.375	100.0		
#4	99.9		
#10	99.9		
#20	99.5		
#40	96.7		
#60	74.9		
#100	7.3		
#200	2.6		

\* (no specification provided)

**Material Description**  
SAND (SP), fine grained

**Atterberg Limits**  
 PL=      LL=      PI=

**Coefficients**  
 D<sub>90</sub>= 0.3076      D<sub>85</sub>= 0.2813      D<sub>60</sub>= 0.2214  
 D<sub>50</sub>= 0.2064      D<sub>30</sub>= 0.1801      D<sub>15</sub>= 0.1609  
 D<sub>10</sub>= 0.1540      C<sub>u</sub>= 1.44      C<sub>c</sub>= 0.95

**Classification**  
 USCS= SP      AASHTO=

**Remarks**

Location: USACE Sample # BI-CI-91B-11  
 Sample Number: TE Lab ID: 5054.97

Depth: 3.0 - 6.0 (ft)

Date: 7/18/11

**Thompson Engineering**

**Mobile, Alabama**

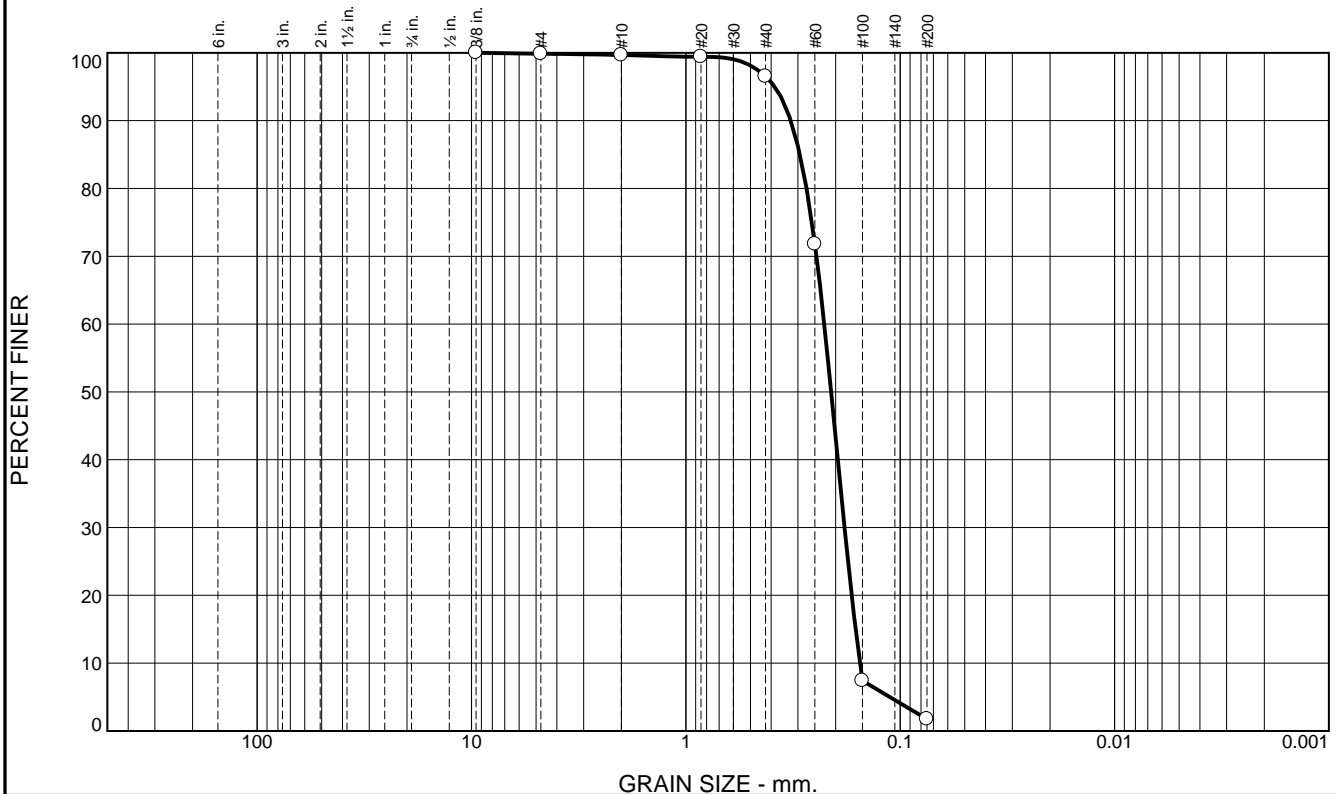
**Client:** US Army Corps of Engineers

**Project:** Contract No. W91278-10-D-0026 - Task 009  
 Mississippi Barrier Island Restoration Project

**Project No:** 11-2116-0057

**Figure**

# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.1	0.2	3.2	94.8	1.7	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
.375	100.0		
#4	99.9		
#10	99.7		
#20	99.4		
#40	96.5		
#60	71.8		
#100	7.4		
#200	1.7		

\* (no specification provided)

<u>Material Description</u>		
SAND (SP), fine grained		
<u>Atterberg Limits</u>		
PL=	LL=	PI=
<u>Coefficients</u>		
D <sub>90</sub> = 0.3241	D <sub>85</sub> = 0.2939	D <sub>60</sub> = 0.2261
D <sub>50</sub> = 0.2099	D <sub>30</sub> = 0.1818	D <sub>15</sub> = 0.1615
D <sub>10</sub> = 0.1541	C <sub>u</sub> = 1.47	C <sub>c</sub> = 0.95
<u>Classification</u>		
USCS= SP	AASHTO=	
<u>Remarks</u>		

Location: USACE Sample # BI-CI-91C-11  
Sample Number: TE Lab ID: 5054.98

Depth: 6.0 - 7.8 (ft)

Date: 7/18/11

**Thompson Engineering**

**Mobile, Alabama**

Client: US Army Corps of Engineers

Project: Contract No. W91278-10-D-0026 - Task 009  
Mississippi Barrier Island Restoration Project

Project No: 11-2116-0057

Figure

# Boring Designation BI-CI-92-11

DRILLING LOG		DIVISION South Atlantic		INSTALLATION Mobile District		SHEET 1 OF 1 SHEETS	
1. PROJECT MsCIP Barrier Island Restoration Cat Island				9. SIZE AND TYPE OF BIT N/A			
2. BORING DESIGNATION BI-CI-92-11		LOCATION COORDINATES E = 905,276 N = 256,545		10. COORDINATE SYSTEM/DATUM State Plane, MSE (U.S. Ft.)		HORIZONTAL NAD83 VERTICAL NAVD88	
3. DRILLING AGENCY Corps of Engineers - CESAM		CONTRACTOR FILE NO.		11. MANUFACTURER'S DESIGNATION OF DRILL Vibracore		<input type="checkbox"/> AUTO HAMMER <input type="checkbox"/> MANUAL HAMMER	
4. NAME OF DRILLER Construction Solutions International, Inc.				12. TOTAL SAMPLES		DISTURBED 0 UNDISTURBED (UD)	
5. DIRECTION OF BORING <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED		DEG. FROM VERTICAL		13. TOTAL NUMBER CORE BOXES			
		BEARING		14. WATER DEPTH 10.6 Ft.			
6. THICKNESS OF OVERBURDEN N/A				15. DATE BORING 06-28-11		STARTED 06-28-11 COMPLETED 06-28-11	
7. DEPTH DRILLED INTO ROCK N/A				16. ELEVATION TOP OF BORING -9.7 Ft.			
8. TOTAL DEPTH OF BORING 9.4 Ft.				17. TOTAL RECOVERY FOR BORING 100%			
				18. SIGNATURE AND TITLE OF INSPECTOR Michele Johnson, Geologist			
ELEV.	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS	SAMPLE	LABORATORY RESULTS		
-9.7	0.0						
-10.1	0.4		SAND, silty, trace fine-grained sand-sized organic matter, trace organic matter, gray (SM)				
			CLAY, lean, some fine-grained sand, dark gray (CL)				
-13.2	3.5						
			CLAY, fat, dark gray (CH)	NS			
-19.1	9.4						
			NOTES:				
			1. Soils are field visually classified in accordance with the Unified Soils Classification System.				
			2. NS = Sample not submitted for laboratory analysis from this interval.				
			3. Seafloor elevation calculated using sampling vessel's fathometer water depth reading and applying NOAA tidal gauge data conversion factor.				

# Boring Designation BI-CI-TEST-11

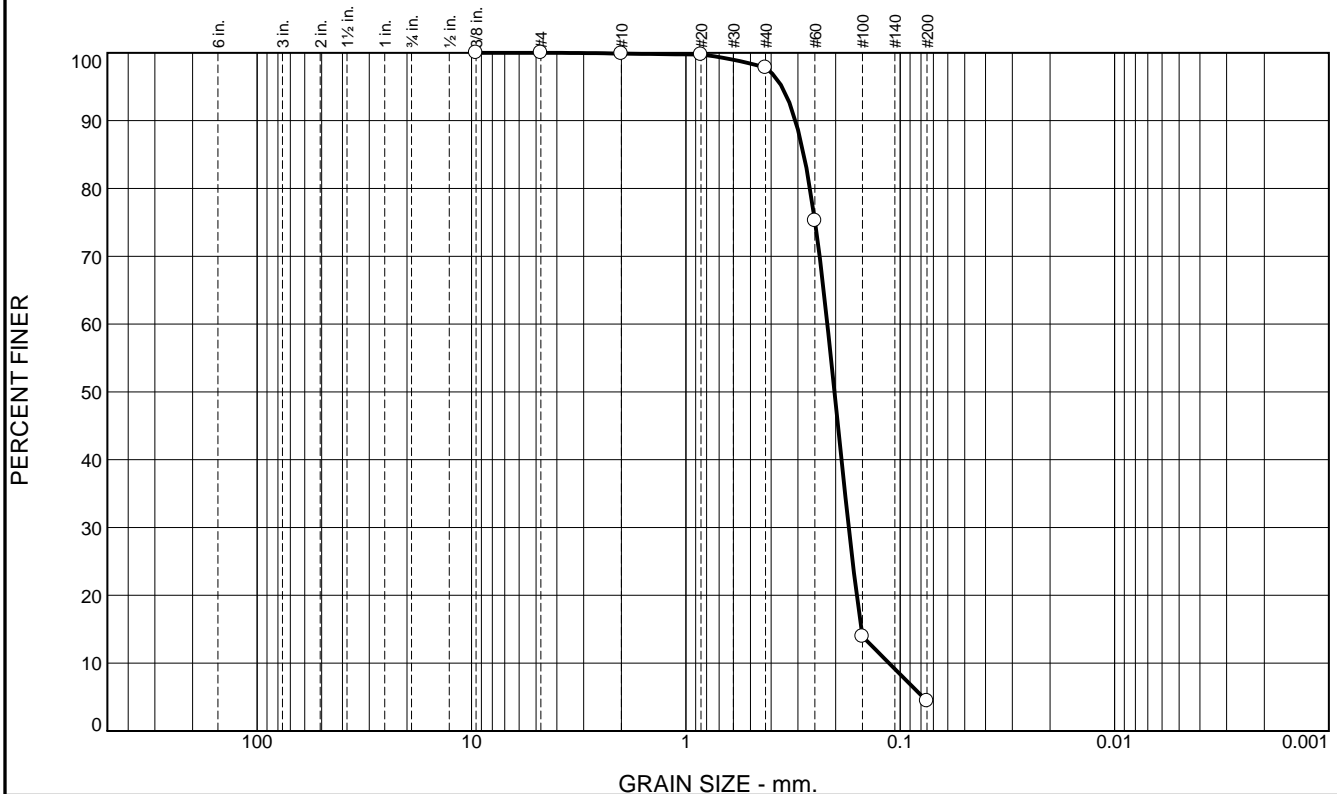
DRILLING LOG		DIVISION South Atlantic		INSTALLATION Mobile District		SHEET 1 OF 1 SHEETS	
1. PROJECT MsCIP Barrier Island Restoration Cat Island				9. SIZE AND TYPE OF BIT N/A			
2. BORING DESIGNATION BI-CI-TEST-11		LOCATION COORDINATES E = 919,934 N = 265,444		10. COORDINATE SYSTEM/DATUM State Plane, MSE (U.S. Ft.)		HORIZONTAL NAD83 VERTICAL NAVD88	
3. DRILLING AGENCY Corps of Engineers - CESAM		CONTRACTOR FILE NO.		11. MANUFACTURER'S DESIGNATION OF DRILL Vibrocure		<input type="checkbox"/> AUTO HAMMER <input type="checkbox"/> MANUAL HAMMER	
4. NAME OF DRILLER Construction Solutions International, Inc.				12. TOTAL SAMPLES 2		DISTURBED 2 UNDISTURBED (UD) 0	
5. DIRECTION OF BORING <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED		DEG. FROM VERTICAL		13. TOTAL NUMBER CORE BOXES			
		BEARING		14. WATER DEPTH 8.5 Ft.			
6. THICKNESS OF OVERBURDEN N/A				15. DATE BORING 06-22-11		STARTED 06-22-11 COMPLETED 06-22-11	
7. DEPTH DRILLED INTO ROCK N/A				16. ELEVATION TOP OF BORING -8.5 Ft.			
8. TOTAL DEPTH OF BORING 18.0 Ft.				17. TOTAL RECOVERY FOR BORING 100%			
				18. SIGNATURE AND TITLE OF INSPECTOR Rhonda Capes, Geologist			

ELEV.	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS	SAMPLE	LABORATORY RESULTS
-8.5	0.0				
			SAND, poorly-graded, mostly fine-grained sand-sized quartz, lt. gray (SP)	A	Classification: SP Color: - D50: 0.2025 mm % Fines: 4.4
			At El. -17.5 Ft., trace shell fragments	B	Classification: SP Color: - D50: 0.2035 mm % Fines: 3.2
				NS	
-26.5	18.0				
			NOTES: 1. Soils are field visually classified in accordance with the Unified Soils Classification System. 2. NS = Sample not submitted for laboratory analysis from this interval. 3. Seafloor elevation calculated using sampling vessel's fathometer water depth reading and applying NOAA tidal gauge data conversion factor.		



# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.0	0.1	2.1	93.4	4.4	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
.375	100.0		
#4	100.0		
#10	99.9		
#20	99.7		
#40	97.8		
#60	75.2		
#100	13.9		
#200	4.4		

\* (no specification provided)

Material Description		
SAND (SP), fine grained		
PL=	Atterberg Limits LL=	PI=
D <sub>90</sub> = 0.3083	Coefficients D <sub>85</sub> = 0.2819	D <sub>60</sub> = 0.2187
D <sub>50</sub> = 0.2025	D <sub>30</sub> = 0.1738	D <sub>15</sub> = 0.1518
D <sub>10</sub> = 0.1127	C <sub>u</sub> = 1.94	C <sub>c</sub> = 1.23
USCS= SP	Classification AASHTO=	
Remarks		

Location: USACE Sample # BI-CI-TESTA-11  
Sample Number: TE Lab ID: 5054.24

Depth: 0.0 - 5.0 (ft)

Date: 7/18/11

**Thompson Engineering**

**Mobile, Alabama**

Client: US Army Corps of Engineers

Project: Contract No. W91278-10-D-0026 - Task 009  
Mississippi Barrier Island Restoration Project

Project No: 11-2116-0057

Figure

## PERCENT FINER



<b><u>Material Description</u></b>		
SAND (SP), fine grained		
<b><u>Atterberg Limits</u></b>		
PL=	LL=	PI=
<b><u>Coefficients</u></b>		
D <sub>90</sub> = 0.2955	D <sub>85</sub> = 0.2735	D <sub>60</sub> = 0.2181
D <sub>50</sub> = 0.2035	D <sub>30</sub> = 0.1775	D <sub>15</sub> = 0.1581
D <sub>10</sub> = 0.1510	C <sub>u</sub> = 1.44	C <sub>c</sub> = 0.96
<b><u>Classification</u></b>		
USCS= SP	AASHTO=	
<b><u>Remarks</u></b>		

## **Appendix D**

### **Mississippi Sound Vibracores and Lab Results**

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Vibrator / Sample ID	Investigation Area	Sample Event	Date of Sample	Time_CST	Latitude	Longitude	Northing_Y	Easting_X	Sample Method	Water Depth (feet)	Boring Depth (feet below seafloor surface)	Sample Depth (feet below seafloor surface)	Sample Thickness (feet)	Field USCS	Lab USCS	Angularity	Wet Munsell Color	Wet Munsell Color Code	Wet Munsell Value	Dry Munsell Color	Dry Munsell Color Code	Dry Munsell Value	CaCO3	D50 (mm)	Graphic Mean (mm)	% Fines	Cu (D60/D10)	Cc (D30)*2 / (D10*D60)	
BI-MS-1-10	MISSISSIPPI SOUND	2010	5/6/2010	11:00 AM	30.24085	-88.99857	269457.68180	932072.78270	20-ft Vibracore	16.7	14.2																		
BI-MS-1-10A	MISSISSIPPI SOUND	2010	5/6/2010	11:00 AM	30.24085	-88.99857	269457.68180	932072.78270	20-ft Vibracore	16.7	14.2	0.0 - 2.0	2.0	SP	SM		VERY DK GRAY	10YR 3/1	3		GRAYISH BROWN	10YR 5/2	5	NO	0.19	0.20	13.5	#VALUE!	#VALUE!
BI-MS-1-10B	MISSISSIPPI SOUND	2010	5/6/2010	11:00 AM	30.24085	-88.99857	269457.68180	932072.78270	20-ft Vibracore	16.7	14.2	2.0 - 7.0	5.0	SP	SP	SUBANGULAR TO ROUNDED	GRAY	10YR 5/1	5		GRAY	2.5Y 6/1	6	YES	0.16	0.17	4.8	2.1	1.0
BI-MS-1-10C	MISSISSIPPI SOUND	2010	5/6/2010	11:00 AM	30.24085	-88.99857	269457.68180	932072.78270	20-ft Vibracore	16.7	14.2	7.0 - 10.7	3.7	SP	SP-SM	SUBANGULAR TO ROUNDED	GRAY	10YR 5/1	5		LT GRAY	2.5Y 7/1	7	YES	0.19	0.18	5.7	2.3	1.4
BI-MS-2-10	MISSISSIPPI SOUND	2010	5/6/2010	12:15 PM	30.24549	-88.99913	271145.43480	931898.40930	20-ft Vibracore	18.0	16.1																		
BI-MS-2-10A	MISSISSIPPI SOUND	2010	5/6/2010	12:15 PM	30.24549	-88.99913	271145.43480	931898.40930	20-ft Vibracore	18.0	16.1	0.0 - 2.0	2.0	SM	SM		VERY DK GRAY	10YR 3/1	3		GRAYISH BROWN	10YR 5/2	5	NO	0.21	#VALUE!	15.1	#VALUE!	#VALUE!
BI-MS-2-10B	MISSISSIPPI SOUND	2010	5/6/2010	12:15 PM	30.24549	-88.99913	271145.43480	931898.40930	20-ft Vibracore	18.0	16.1	2.0 - 7.0	5.0	SP	SP	SUBANGULAR TO ROUNDED	GRAY	10YR 6/1	6		GRAY	10YR 6/1	6	NO	0.18	0.19	3.7	1.8	1.0
BI-MS-2-10C	MISSISSIPPI SOUND	2010	5/6/2010	12:15 PM	30.24549	-88.99913	271145.43480	931898.40930	20-ft Vibracore	18.0	16.1	7.0 - 12.0	5.0	SP	SP-SM	SUBANGULAR TO ROUNDED	GRAY	10YR 5/1	5		GRAY	10YR 5/1	5	NO	0.17	0.17	5.8	2.1	1.1
BI-MS-3-10	MISSISSIPPI SOUND	2010	5/6/2010	1:00 PM	30.24822	-88.99974	272138.57520	931707.24930	20-ft Vibracore	19.0	16.2																		
BI-MS-3-10A	MISSISSIPPI SOUND	2010	5/6/2010	1:00 PM	30.24822	-88.99974	272138.57520	931707.24930	20-ft Vibracore	19.0	16.2	0.0 - 5.5	5.5	SP	SP-SM		DK GRAY	10YR 4/1	4		GRAY	10YR 5/1	5	NO	0.18	0.17	6.6	2.3	1.4
BI-MS-3-10B	MISSISSIPPI SOUND	2010	5/6/2010	1:00 PM	30.24822	-88.99974	272138.57520	931707.24930	20-ft Vibracore	19.0	16.2	5.58 - 12.0	6.0	SP	SP-SM		DK GRAY	10YR 4/1	4		GRAY	10YR 5/1	5	NO	0.19	0.18	7.9	2.4	1.6
BI-MS-04-10	MISSISSIPPI SOUND	2010	5/21/2010	12:44 PM	30.25146	-88.99975	273316.91860	931705.81600	20-ft Vibracore	22.0	12.1																		
BI-MS-04-10A	MISSISSIPPI SOUND	2010	5/21/2010	12:44 PM	30.25146	-88.99975	273316.91860	931705.81600	20-ft Vibracore	22.0	12.1	10.5 - 12.1	1.6	SM	SM	SUBANGULAR TO ROUNDED	LT BROWNISH GRAY	2.5Y 6/2	6		LT GRAY	10YR 7/2	7	NO	0.11	#VALUE!	18.2	#VALUE!	#VALUE!
BI-MS-5-10	MISSISSIPPI SOUND	2010	5/8/2010	2:09 PM	30.25402	-89.00066	274248.37370	931419.86320	20-ft Vibracore	21.0	10.8	NO SAMPLE TAKEN		CL	NO SAMPLE TESTED														
BI-MS-6-10	MISSISSIPPI SOUND	2010	5/10/2010	9:41 AM	30.24532	-89.03575	271102.32380	920335.22690	20-ft Vibracore	9.0	14.3																		
BI-MS-6-10A	MISSISSIPPI SOUND	2010	5/10/2010	9:41 AM	30.24532	-89.03575	271102.32380	920335.22690	20-ft Vibracore	9.0	14.3	0.0 - 3.0	3.0	SP	SP	ANGULAR TO SUBANGULAR	GRAY	10YR 6/1	6		GRAY	10YR 6/1	6	NO	0.20	0.20	2.2	1.4	1.0
BI-MS-6-10B	MISSISSIPPI SOUND	2010	5/10/2010	9:41 AM	30.24532	-89.03575	271102.32380	920335.22690	20-ft Vibracore	9.0	14.3	3.0 - 10.5	7.5	SM	SM		GRAY	10YR 5/1	5		GRAY	10YR 5/1	5	NO	0.19	#VALUE!	15.7	#VALUE!	#VALUE!
BI-MS-6-10C	MISSISSIPPI SOUND	2010	5/10/2010	9:41 AM	30.24532	-89.03575	271102.32380	920335.22690	20-ft Vibracore	9.0	14.3	10.5 - 14.3	3.8	SP	SP-SM	ANGULAR TO SUBANGULAR	GRAY	10YR 6/1	6		GRAY	10YR 6/1	6	YES	0.19	0.20	5.3	1.9	1.1
BI-MS-7-10	MISSISSIPPI SOUND	2010	5/8/2010	12:31 PM	30.23904	-89.03667	268818.90160	920040.64620	20-ft Vibracore	12.0	14.5																		
BI-MS-7-10A	MISSISSIPPI SOUND	2010	5/8/2010	12:31 PM	30.23904	-89.03667	268818.90160	920040.64620	20-ft Vibracore	12.0	14.5	0.0 - 5.0	5.0	SM	SM		DK GRAY	10YR 4/1	4		DK GRAY	10YR 4/1	4	NO	0.19	#VALUE!	20.0	#VALUE!	#VALUE!
BI-MS-7-10B	MISSISSIPPI SOUND	2010	5/8/2010	12:31 PM	30.23904	-89.03667	268818.90160	920040.64620	20-ft Vibracore	12.0	14.5	5.0 - 10.0	5.0	SP	SP	SUBANGULAR TO ROUNDED	GRAY	10YR 6/1	6		GRAY	10YR 6/1	6	NO	0.20	0.20	3.9	2.0	1.3
BI-MS-7-10C	MISSISSIPPI SOUND	2010	5/8/2010	12:31 PM	30.23904	-89.03667	268818.90160	920040.64620	20-ft Vibracore	12.0	14.5	10.0 - 14.0	4.0	SP	SP-SM	SUBANGULAR TO ROUNDED	GRAY	10YR 6/1	6		GRAY	10YR 6/1	6	NO	0.12	0.18	8.1	1.9	0.8
BI-MS-8-10	MISSISSIPPI SOUND	2010	5/8/2010	1:14 PM	30.23090	-89.03573	265857.98170	920332.21270	20-ft Vibracore	14.0	17.1																		
BI-MS-8-10A	MISSISSIPPI SOUND	2010	5/8/2010	1:14 PM	30.23090	-89.03573	265857.98170	920332.21270	20-ft Vibracore	14.0	17.1	1.5 - 6.5	5.0	SP	SP	SUBANGULAR TO ROUNDED	GRAY	10YR 5/1	5		GRAY	10YR 5/1	5	NO	0.21	0.22	4.6	2.1	1.3
BI-MS-8-10B	MISSISSIPPI SOUND	2010	5/8/2010	1:14 PM	30.23090	-89.03573	265857.98170	920332.21270	20-ft Vibracore	14.0	17.1	6.5 - 11.5	5.0	SP	SP	SUBANGULAR TO ROUNDED	GRAY	10YR 6/1	6		GRAY	10YR 6/1	6	NO	0.20	0.21	3.5	1.7	1.1
BI-MS-9-10	MISSISSIPPI SOUND	2010	5/6/2010	1:43 PM	30.25179	-89.02062	273447.18160	925116.53570	20-ft Vibracore	8.0	14.6																		
BI-MS-9-10A	MISSISSIPPI SOUND	2010	5/6/2010	1:43 PM	30.25179	-89.02062	273447.18160	925116.53570	20-ft Vibracore	8.0	14.6	0.0 - 5.0	5.0	SP	SP	SUBANGULAR TO ROUNDED	GRAY	10YR 5/1	5		GRAY	10YR 5/1	5	NO	0.18	0.18	3.9	2.1	1.4
BI-MS-10-10	MISSISSIPPI SOUND	2010	5/8/2010	11:31 AM	30.24269	-89.01910	270136.86230	925591.05270	20-ft Vibracore	12.0	15.7																		
BI-MS-10-10A	MISSISSIPPI SOUND	2010	5/8/2010	11:31 AM	30.24269	-89.01910	270136.86230	925591.05270	20-ft Vibracore	12.0	15.7	0.0 - 3.0	3.0	SM	SM		DK GRAY	10YR 4/1	4		DK GRAY	10YR 4/1	4	NO	0.18	0.18	14.0	#VALUE!	#VALUE!
BI-MS-10-10B	MISSISSIPPI SOUND	2010	5/8/2010	11:31 AM	30.24269	-89.01910	270136.86230	925591.05270	20-ft Vibracore	12.0	15.7	4.2 - 8.0	3.8	SM	SP-SM		DK GRAY	10YR 4/1	4		DK GRAY	10YR 4/1	4	NO	0.17	0.17	11.9	#VALUE!	#VALUE!
BI-MS-10-10C	MISSISSIPPI SOUND	2010	5/8/2010	11:31 AM	30.24269	-89.01910	270136.86230	925591.05270	20-ft Vibracore	12.0	15.7	8.0 - 15.7	7.7	SP	SP-SM	SUBANGULAR TO ROUNDED	GRAY	10YR 6/1	6		GRAY	10YR 6/1	6	NO	0.18	0.19	6.1	2.0	1.1
BI-MS-11-10	MISSISSIPPI SOUND	2010	5/5/2010	3:06 PM	30.22879	-89.00516	265074.73510	929985.21470	20-ft Vibracore	17.0	11.6																		
BI-MS-11-10A	MISSISSIPPI SOUND	2010	5/5/2010	3:06 PM	30.22879	-89.00516	265074.73510	929985.21470	20-ft Vibracore	17.0	11.6	0.0 - 4.08	4.1	SP	SP-SM		DK GRAY	10YR 6/1	6		DK GRAYISH BROWN	10YR 4/2	4	NO	0.19	0.19	10.1	#VALUE!	#VALUE!
BI-MS-12-10	MISSISSIPPI SOUND	2010	5/5/2010	3:55 PM	30.23237	-88.99186	266370.62630	934187.32290	20-ft Vibracore	19.0	13.9																		
BI-MS-12-10A	MISSISSIPPI SOUND	2010	5/5/2010	3:55 PM	30.23237	-88.99186	266370.62630	934187.32290	20-ft Vibracore	19.0	13.9	0.0 - 3.0	3.0	SM	SM		DK GRAY	10YR 4/1	4		DK GRAY	10YR 4/1	4	NO	0.12	#VALUE!	18.4	#VALUE!	#VALUE!
BI-MS-12-10B	MISSISSIPPI SOUND	2010	5/5/2010	3:55 PM	30.23237	-88.99186	266370.62630	934187.32290	20-ft Vibracore	19.0	13.9	4.0 - 6.7	3.7	SM	SM		DK GRAY	10YR 4/1	4		DK GRAY	10YR 4/1	4	NO	0.15	#VALUE!	26.4	#VALUE!	#VALUE!
BI-MS-12-10C	MISSISSIPPI SOUND	2010	5/5/2010	3:55 PM	30.23237	-88.99186	266370.62630	934187.32290	20-ft Vibracore	19.0	13.9	6.7 - 11.5	4.8	SP	SM		DK GRAY	10YR 4/1	4		DK GRAY	10YR 4/1	4	YES	0.15	0.16	14.3	#VALUE!	#VALUE!
BI-MS-13-10	MISSISSIPPI SOUND	2010	5/6/2010	9:25 AM	30.23244	-88.98853	266394.63460	935238.97190	20-ft Vibracore	17.0	13.6																		
BI-MS-13-10A	MISSISSIPPI SOUND	2010	5/6/2010	9:25 AM	30.23244	-88.98853	266394.63460	935238.97190	20-ft Vibracore	17.0	13.6	0.0 - 4.5	4.5	SP	SP-SM	SUBANGULAR TO ROUNDED	GRAY	10YR 6/1	6		GRAY	10YR 6/1	6	NO	0.19	0.19	7.4	2.0	1.1
BI-MS-13-10B	MISSISSIPPI SOUND	2010	5/6/2010	9:25 AM	30.23244	-88.98853	266394.63460	935238.97190	20-ft Vibracore	17.0	13.6	4.5 - 9.5	5.0	SP	SM		DK GRAY	10YR 4/1	4		GRAY	10YR 5/1	5	YES	0.14	#VALUE!	23.0	#VALUE!	#VALUE!
BI-MS-13-10C	MISSISSIPPI SOUND	2010	5/6/2010	9:25 AM	30.23244	-88.98853	266394.63460	935238.97190	20-ft Vibracore	17.0	13.6	9.5 - 13.5	4.0	SP	SP-SM	SUBANGULAR TO ROUNDED	GRAY	10YR 5/1	5		GRAYISH BROWN	10YR 5/2	5	NO	0.12	0.13	13.3	#VALUE!	#VALUE!
BI-MS-14-10	MISSISSIPPI SOUND	2010	5/6/2010	10:15 AM	30.23248	-88.98380	266407.17570	936732.72450	20-ft Vibracore	24.5	19.5																		
BI-MS-14-10A	MISSISSIPPI SOUND	2010	5/6/2010	10:15 AM	30.23248	-88.98380	266407.17570	936732.72450	20-ft Vibracore	24.5	19.5	13.0 - 17.7	4.7	SP	SP-SM	SUBANGULAR TO ROUNDED	GRAY	10YR 5/1	5		GRAY	10YR 5/1	5	YES	0.20	0.21	10.1	#VALUE!	#VALUE!
BI-MS-15-10	MISSISSIPPI SOUND	2010	5/11/2010	11:44 AM	30.23248	-88.97948	266405.39770	938096.97920	20-ft Vibracore	21.0	20.0	NO SAMPLE TAKEN		CL	NO SAMPLE TESTED														
BI-MS-16-10	MISSISSIPPI SOUND	2010	5/11/2010	12:07 PM	30.23312	-88.97308	266635.61630	940118.38280	20-ft Vibracore	20.0	20.0																		
BI-MS-16-10A	MISSISSIPPI SOUND	2010	5/11/2010	12:07 PM																									

Cu: Coefficient of Uniformity

Cc: Coefficient of Curvature

The "#Value!" error message indicates that data was not available for that calculation.

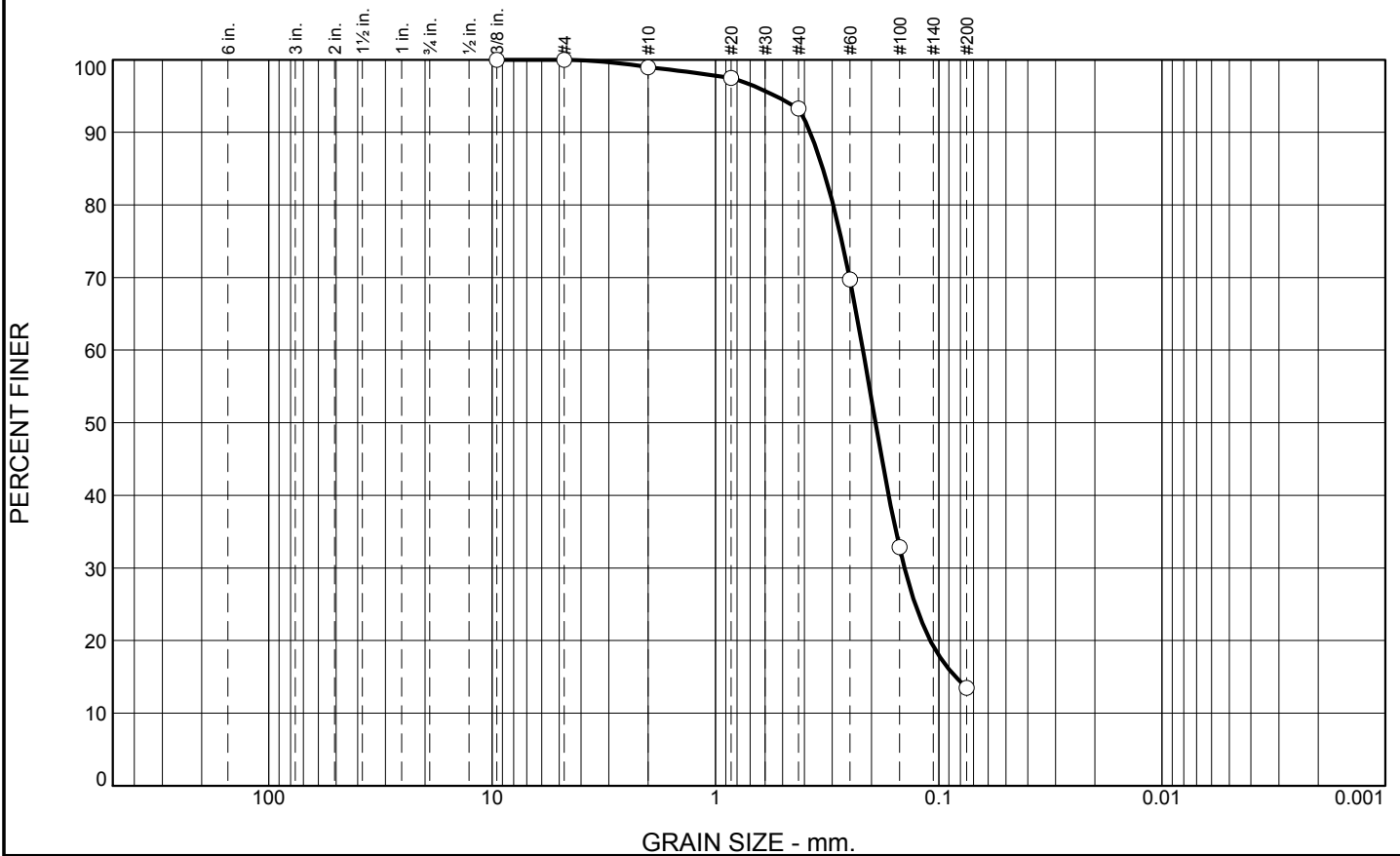
Vibracore / Sample ID	Investigation Area	Sample Event	Date of Sample	Time_CST	Latitude	Longitude	Northing_Y	Easting_X	Sample Method	Water Depth (feet)	Boring Depth (feet below seafloor surface)	Sample Depth (Feet below seafloor surface)	Sample Thickness (feet)	Field USCS	Lab USCS	Angularity	Wet Munsell Color	Wet Munsell Color Code	Wet Munsell Value	Dry Munsell Color	Dry Munsell Color Code	Dry Munsell Value	CaCO3	D50 (mm)	Graphic Mean (mm)	% Fines	Cu (D60/D10)	Cc (D30)^2 / (D10*D60)
BI-MS-21-10A	MISSISSIPPI SOUND	2010	5/14/2010	9:40 AM	30.23678	-88.99010	267973.70230	934745.34070	20-ft Vibracore	21.0	12.8	0.0 - 5.0	5.0	SP	SP	SUBANGULAR TO ROUNDED	GRAY	5Y 5/1	5	GRAY	2.5Y 6/1	6	NO	0.17	0.17	3.6	2.0	1.1
BI-MS-21-10B	MISSISSIPPI SOUND	2010	5/14/2010	9:40 AM	30.23678	-88.99010	267973.70230	934745.34070	20-ft Vibracore	21.0	12.8	5.0 - 9.5	4.5	SP	SP-SM	SUBANGULAR TO ROUNDED	GRAY	5Y 5/1	5	GRAY	2.5Y 6/1	6	NO	0.15	0.15	5.6	2.0	1.0
BI-MS-22-10	MISSISSIPPI SOUND	2010	5/13/2010	1:28 PM	30.23381	-88.99444	266895.47540	933373.30000	20-ft Vibracore	19.0	11.4																	
BI-MS-22-10A	MISSISSIPPI SOUND	2010	5/13/2010	1:28 PM	30.23381	-88.99444	266895.47540	933373.30000	20-ft Vibracore	19.0	11.4	0.0 - 5.0	5.0	SP	SP-SM	SUBANGULAR TO ROUNDED	DK GRAY	2.5Y 4/1	4	OLIVE GRAY	5Y 5/2	5	NO	0.17	0.18	6.1	2.3	1.1
BI-MS-22-10B	MISSISSIPPI SOUND	2010	5/13/2010	1:28 PM	30.23381	-88.99444	266895.47540	933373.30000	20-ft Vibracore	19.0	11.4	5.0 - 10.0	5.0	SP	SP	SUBANGULAR TO ROUNDED	GRAY	2.5Y 5/1	5	LT GRAY	5Y 7/1	7	NO	0.20	0.21	3.2	2.2	1.3
BI-MS-23-10	MISSISSIPPI SOUND	2010	5/14/2010	10:16 AM	30.23419	-88.98959	267031.53930	934905.09800	20-ft Vibracore	22.0	16.6																	
BI-MS-23-10A	MISSISSIPPI SOUND	2010	5/14/2010	10:16 AM	30.23419	-88.98959	267031.53930	934905.09800	20-ft Vibracore	22.0	16.6	0.0 - 5.0	5.0	SP	SP	SUBANGULAR TO ROUNDED	DK GRAY	2.5Y 4/1	4	GRAY	5Y 6/1	6	NO	0.19	0.20	3.8	1.9	1.1
BI-MS-23-10B	MISSISSIPPI SOUND	2010	5/14/2010	10:16 AM	30.23419	-88.98959	267031.53930	934905.09800	20-ft Vibracore	22.0	16.6	5.0 - 10.0	5.0	SP	SP	SUBANGULAR TO ROUNDED	DK GRAY	2.5Y 4/1	4	GRAY	5Y 6/1	6	NO	0.18	0.19	3.7	1.9	1.1
BI-MS-23-10C	MISSISSIPPI SOUND	2010	5/14/2010	10:16 AM	30.23419	-88.98959	267031.53930	934905.09800	20-ft Vibracore	22.0	16.6	10.0 - 16.3	6.3	SP	SP-SM	SUBANGULAR TO ROUNDED	GRAY	2.5Y 5/1	5	GRAY	5Y 6/1	6	NO	0.18	0.18	6.8	1.9	1.1
BI-MS-24-10	MISSISSIPPI SOUND	2010	5/15/2010	10:06 AM	30.24077	-88.99658	269427.67980	932701.12940	20-ft Vibracore	19.0	15.5																	
BI-MS-24-10A	MISSISSIPPI SOUND	2010	5/15/2010	10:06 AM	30.24077	-88.99658	269427.67980	932701.12940	20-ft Vibracore	19.0	15.5	0.0 - 5.0	5.0	SM	SP-SM		DK GRAY	2.5Y 4/1	4	GRAY	5Y 6/1	6	NO	0.16	0.16	10.7	#VALUE!	#VALUE!
BI-MS-24-10B	MISSISSIPPI SOUND	2010	5/15/2010	10:06 AM	30.24077	-88.99658	269427.67980	932701.12940	20-ft Vibracore	19.0	15.5	5.0 - 10.0	5.0	SP	SP-SM	SUBANGULAR TO ROUNDED	DK GRAY	2.5Y 4/1	4	GRAY	5Y 6/1	6	YES	0.14	0.15	6.0	2.0	0.9
BI-MS-24-10C	MISSISSIPPI SOUND	2010	5/15/2010	10:06 AM	30.24077	-88.99658	269427.67980	932701.12940	20-ft Vibracore	19.0	15.5	10.0 - 13.7	3.7	SP	SP-SM	SUBANGULAR TO ROUNDED	GRAY	2.5Y 5/1	5	GRAY	2.5Y 6/1	6	NO	0.16	0.16	5.6	2.0	1.1
BI-MS-25-10	MISSISSIPPI SOUND	2010	5/18/2010	9:36 AM	30.22699	-88.99223	264414.17140	934067.74490	20-ft Vibracore	23.0	18.9																	
BI-MS-25-10A	MISSISSIPPI SOUND	2010	5/18/2010	9:36 AM	30.22699	-88.99223	264414.17140	934067.74490	20-ft Vibracore	23.0	18.9	0.0 - 5.0	5.0	SP	SP	ANGULAR TO SUBANGULAR	GRAY	2.5Y 5/1	5	GRAY	5Y 6/1	6	NO	0.25	0.30	3.7	2.6	1.1
BI-MS-25-10B	MISSISSIPPI SOUND	2010	5/18/2010	9:36 AM	30.22699	-88.99223	264414.17140	934067.74490	20-ft Vibracore	23.0	18.9	5.0 - 10.4	5.4	SP	SP	SUBANGULAR TO ROUNDED	GRAY	2.5Y 5/1	5	LT GRAY	2.5Y 7/1	7	NO	0.21	0.24	3.8	1.9	1.0
BI-MS-25-10C	MISSISSIPPI SOUND	2010	5/18/2010	9:36 AM	30.22699	-88.99223	264414.17140	934067.74490	20-ft Vibracore	23.0	18.9	10.4 - 13.5	3.1	SM	SP-SM	SUBANGULAR TO ROUNDED	GRAY	2.5Y 5/1	5	LT GRAY	2.5Y 7/1	7	NO	0.20	0.20	6.2	2.5	1.4
BI-MS-25-10D	MISSISSIPPI SOUND	2010	5/18/2010	9:36 AM	30.22699	-88.99223	264414.17140	934067.74490	20-ft Vibracore	23.0	18.9	13.5 - 18.9	5.4	ML	SM		VERY DK GRAY	2.5Y 3/1	3	GRAY	5Y 5/1	5	NO	0.09	#VALUE!	38.0	#VALUE!	#VALUE!
BI-MS-26-10	MISSISSIPPI SOUND	2010	5/14/2010	11:02 AM	30.22774	-88.98778	264684.99930	935473.50200	20-ft Vibracore	21.0	19.3																	
BI-MS-26-10A	MISSISSIPPI SOUND	2010	5/14/2010	11:02 AM	30.22774	-88.98778	264684.99930	935473.50200	20-ft Vibracore	21.0	19.3	0.0 - 5.0	5.0	SP	SP	SUBANGULAR TO ROUNDED	DK GRAYISH BROWN	2.5Y 4/2	4	LT BROWNISH GRAY	2.5Y 6/2	6	NO	0.24	0.26	3.2	2.4	1.0
BI-MS-26-10B	MISSISSIPPI SOUND	2010	5/14/2010	11:02 AM	30.22774	-88.98778	264684.99930	935473.50200	20-ft Vibracore	21.0	19.3	5.0 - 10.0	5.0	SP	SP	SUBANGULAR TO ROUNDED	GRAY	2.5Y 5/1	5	GRAY	5Y 6/1	6	NO	0.20	0.22	2.6	2.1	1.0
BI-MS-26-10C	MISSISSIPPI SOUND	2010	5/14/2010	11:02 AM	30.22774	-88.98778	264684.99930	935473.50200	20-ft Vibracore	21.0	19.3	15.0 - 19.3	4.3	SP	SP	SUBANGULAR TO ROUNDED	GRAY	2.5Y 5/1	5	LT GRAY	2.5Y 7/1	7	NO	0.19	0.20	2.7	1.7	1.0
BI-MS-26-10D	MISSISSIPPI SOUND	2010	5/14/2010	11:02 AM	30.22774	-88.98778	264684.99930	935473.50200	20-ft Vibracore	21.0	19.3	10.0 - 15.0	5.0	SP	SP-SM	SUBANGULAR TO ROUNDED	GRAY	2.5Y 5/1	5	LT GRAY	2.5Y 7/1	7	NO	0.19	0.21	5.9	2.0	1.1
BI-MS-27-10	MISSISSIPPI SOUND	2010	5/18/2010	10:00 AM	30.22235	-88.99146	262726.34200	934308.57980	20-ft Vibracore	22.5	14.7																	
BI-MS-27-10A	MISSISSIPPI SOUND	2010	5/18/2010	10:00 AM	30.22235	-88.99146	262726.34200	934308.57980	20-ft Vibracore	22.5	14.7	0.0 - 5.0	5.0	SP	SP	SUBANGULAR TO ROUNDED	GRAY	2.5Y 5/1	5	LT GRAY	2.5Y 7/1	7	NO	0.23	0.24	2.3	2.2	1.0
BI-MS-27-10B	MISSISSIPPI SOUND	2010	5/18/2010	10:00 AM	30.22235	-88.99146	262726.34200	934308.57980	20-ft Vibracore	22.5	14.7	5.0 - 10.0	5.0	SP	SP	SUBANGULAR TO ROUNDED	GRAY	2.5Y 5/1	5	LT GRAY	2.5Y 7/1	7	NO	0.26	0.26	1.7	2.3	1.2
BI-MS-27-10C	MISSISSIPPI SOUND	2010	5/18/2010	10:00 AM	30.22235	-88.99146	262726.34200	934308.57980	20-ft Vibracore	22.5	14.7	10.0 - 13.1	3.1	SP	SP	SUBANGULAR TO ROUNDED	GRAY	2.5Y 5/1	5	LT GRAY	5Y 7/1	7	NO	0.20	0.21	4.0	2.0	1.1
BI-MS-27-10D	MISSISSIPPI SOUND	2010	5/18/2010	10:00 AM	30.22235	-88.99146	262726.34200	934308.57980	20-ft Vibracore	22.5	14.7	13.1 - 14.7	1.6	SM	SM		VERY DK GRAY	2.5Y 3/1	3	GRAYISH BROWN	2.5Y 5/2	5	NO	0.10	#VALUE!	27.5	#VALUE!	#VALUE!
BI-MS-28-10	MISSISSIPPI SOUND	2010	5/14/2010	12:54 PM	30.22283	-88.98662	262898.81890	935837.44240	20-ft Vibracore	25.0	19.0																	
BI-MS-28-10A	MISSISSIPPI SOUND	2010	5/14/2010	12:54 PM	30.22283	-88.98662	262898.81890	935837.44240	20-ft Vibracore	25.0	19.0	0.0 - 5.0	5.0	SP	SP	ANGULAR TO SUBANGULAR	GRAYISH BROWN	2.5Y 5/2	5	GRAY	5Y 6/1	6	NO	0.24	0.25	4.1	2.2	1.0
BI-MS-28-10B	MISSISSIPPI SOUND	2010	5/14/2010	12:54 PM	30.22283	-88.98662	262898.81890	935837.44240	20-ft Vibracore	25.0	19.0	5.0 - 10.0	5.0	SP	SP	SUBANGULAR TO ROUNDED	GRAY	2.5Y 5/1	5	LT GRAY	5Y 7/1	7	NO	0.24	0.25	2.5	2.2	1.0
BI-MS-28-10C	MISSISSIPPI SOUND	2010	5/14/2010	12:54 PM	30.22283	-88.98662	262898.81890	935837.44240	20-ft Vibracore	25.0	19.0	10.0 - 15.0	5.0	SP	SP	SUBANGULAR TO ROUNDED	GRAY	2.5Y 5/1	5	LT GRAY	5Y 7/1	7	NO	0.26	0.28	3.0	2.3	1.0
BI-MS-28-10D	MISSISSIPPI SOUND	2010	5/14/2010	12:54 PM	30.22283	-88.98662	262898.81890	935837.44240	20-ft Vibracore	25.0	19.0	15.0 - 19.0	4.0	SP	SP-SM	SUBANGULAR TO ROUNDED	GRAY	2.5Y 5/1	5	LT GRAY	5Y 7/1	7	NO	0.20	0.21	5.7	2.3	1.1
BI-MS-29-10	MISSISSIPPI SOUND	2010	5/18/2010	10:30 AM	30.21802	-88.99009	261150.99580	934739.10130	20-ft Vibracore	24.0	15.2																	
BI-MS-29-10A	MISSISSIPPI SOUND	2010	5/18/2010	10:30 AM	30.21802	-88.99009	261150.99580	934739.10130	20-ft Vibracore	24.0	15.2	0.0 - 4.0	4.0	SP	SP	ANGULAR TO SUBANGULAR	GRAY	2.5Y 6/1	6	LT GRAY	5Y 7/1	7	NO	0.25	0.28	3.3	2.3	1.0
BI-MS-29-10B	MISSISSIPPI SOUND	2010	5/18/2010	10:30 AM	30.21802	-88.99009	261150.99580	934739.10130	20-ft Vibracore	24.0	15.2	4.0 - 6.0	2.0	SM	SM		VERY DK GRAY	2.5Y 3/1	3	GRAY	5Y 5/1	5	YES	0.10	#VALUE!	33.3	#VALUE!	#VALUE!
BI-MS-29-10C	MISSISSIPPI SOUND	2010	5/18/2010	10:30 AM	30.21802	-88.99009	261150.99580	934739.10130	20-ft Vibracore	24.0	15.2	6.0 - 10.6	4.6	SP	SP	SUBANGULAR TO ROUNDED	GRAY	5Y 6/1	6	LT GRAY	2.5Y 7/1	7	NO	0.18	0.18	3.8	1.9	1.1
BI-MS-29-10D	MISSISSIPPI SOUND	2010	5/18/2010	10:30 AM	30.21802	-88.99009	261150.99580	934739.10130	20-ft Vibracore	24.0	15.2	10.6 - 15.2	4.6	SM	SP-SM	ANGULAR TO SUBANGULAR	DK GRAY	5Y 4/1	4	GRAY	5Y 6/1	6	YES	0.21	0.25	8.1	2.9	1.2
BI-MS-30-10	MISSISSIPPI SOUND	2010	5/18/2010	11:41 AM	30.21823	-88.98669	261225.90650	935813.08040	20-ft Vibracore	27.0	19.1																	
BI-MS-30-10A	MISSISSIPPI SOUND	2010	5/18/2010	11:41 AM	30.21823	-88.98669	261225.90650	935813.08040	20-ft Vibracore	27.0	19.1	0.0 - 4.5	4.5	SM	SM		DK GRAY	5Y 4/1	4	GRAYISH BROWN	2.5Y 5/2	5	NO	0.16	#VALUE!	17.4	#VALUE!	#VALUE!
BI-MS-30-10B	MISSISSIPPI SOUND	2010	5/18/2010	11:41 AM	30.21823	-88.98669	261225.90650	935813.08040	20-ft Vibracore	27.0	19.1	4.5 - 10.0	5.5	SM	SP-SM	SUBANGULAR TO ROUNDED	GRAY	5Y 5/1	5	LT GRAY	2.5Y 7/1	7	NO	0.16	0.17	7.2	2.2	0.9
BI-MS-30-10C	MISSISSIPPI SOUND	2010	5/18/2010	11:41 AM	30.21823	-88.98669	261225.90650	935813.08040	20-ft Vibracore	27.0	19.1	10.0 - 15.5	5.5	SP	SP-SM	SUBANGULAR TO ROUNDED	GRAY	5Y 6/1	6	LT GRAY	2.5Y 7/1	7	NO	0.25	0.27	7.0	2.8	1.2
BI-MS-30-10D	MISSISSIPPI SOUND	2010	5/18/2010	11:41 AM	30.21823	-88.98669	261225.90650	935813.08040	20-ft Vibracore	27.0	19.1	15.5 - 19.1	3.6	SM	SP-SM		VERY DK GRAY	5Y 3/1	3	VERY DK GRAY	5Y 3/1	3	NO	0.17	#VALUE!			



# Boring Designation BI-MS-01-10

DRILLING LOG		DIVISION South Atlantic		INSTALLATION Mobile District		SHEET 1 OF 1 SHEETS	
1. PROJECT MsCIP Barrier Island Restoration Mississippi Sound				9. SIZE AND TYPE OF BIT N/A			
2. BORING DESIGNATION BI-MS-01-10		LOCATION COORDINATES E = 932,073 N = 269,458		10. COORDINATE SYSTEM/DATUM State Plane, MSE (U.S. Ft.)		HORIZONTAL NAD83 VERTICAL NAVD88	
3. DRILLING AGENCY Corps of Engineers - CESAM		CONTRACTOR FILE NO.		11. MANUFACTURER'S DESIGNATION OF DRILL Vibracore		<input type="checkbox"/> AUTO HAMMER <input type="checkbox"/> MANUAL HAMMER	
4. NAME OF DRILLER Construction Solutions International, Inc.				12. TOTAL SAMPLES 3		DISTURBED 3 UNDISTURBED (UD) 0	
5. DIRECTION OF BORING <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED		DEG. FROM VERTICAL		13. TOTAL NUMBER CORE BOXES			
		BEARING		14. WATER DEPTH 16.7 Ft.			
6. THICKNESS OF OVERBURDEN N/A				15. DATE BORING 05-06-10		STARTED 05-06-10 COMPLETED 05-06-10	
7. DEPTH DRILLED INTO ROCK N/A				16. ELEVATION TOP OF BORING -16.1 Ft.			
8. TOTAL DEPTH OF BORING 14.2 Ft.				17. TOTAL RECOVERY FOR BORING 100%			
				18. SIGNATURE AND TITLE OF INSPECTOR J. Krick, Geotechnical Engineer			
ELEV.	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS	SAMPLE	LABORATORY RESULTS		
-16.1	0.0						
			SAND, poorly-graded, mostly fine to medium-grained sand-sized quartz, little silt, trace shell fragments, gray (SP) At El. -18.1 Ft., discontinue silt	A	Classification: SM Color: 10YR 5/2-grayish brown D50: 0.192 mm % Fines: 13.5		
				B	Classification: SP Color: 2.5Y 6.5/1-gray D50: 0.163 mm % Fines: 4.8		
				C	Classification: SP-SM Color: 2.5Y 7/1-light gray D50: 0.1876 mm % Fines: 5.7		
-26.9	10.8						
			SAND, silty, mostly fine-grained sand-sized quartz (SM)	NS			
-30.3	14.2						
			NOTES: 1. Soils are field visually classified in accordance with the Unified Soils Classification System. 2. NS = Sample not submitted for laboratory analysis from this interval. 3. Seafloor elevation calculated using sampling vessel's fathometer water depth reading and applying NOAA tidal gauge data conversion factor.				

# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.0	1.0	5.7	79.8	13.5	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
.375	100.0		
#4	100.0		
#10	99.0		
#20	97.5		
#40	93.3		
#60	69.7		
#100	32.8		
#200	13.5		

\* (no specification provided)

## Material Description

SILTY SAND, (SM), fine grained, with trace shell and clay pockets

## Atterberg Limits

PL=

LL=

PI=

## Coefficients

D<sub>90</sub>= 0.3770

D<sub>85</sub>= 0.3300

D<sub>60</sub>= 0.2186

D<sub>50</sub>= 0.1920

D<sub>30</sub>= 0.1424

D<sub>15</sub>= 0.0840

D<sub>10</sub>=

C<sub>u</sub>=

C<sub>c</sub>=

## Classification

USCS= SM

AASHTO=

## Remarks

CADD CODE = CH10D965

Location: USACE Sample # BI-MS-1-10A  
Sample Number: TE Lab ID: 4461.15

Depth: 0.0 - 2.0 (ft)

Date: 5/13/10

**Thompson Engineering**

**Mobile, Alabama**

Client: US Army Corps of Engineers

Project: Mississippi Barrier Island Restoration Project  
Contract No. W91278-10-D-0026 - Task 03

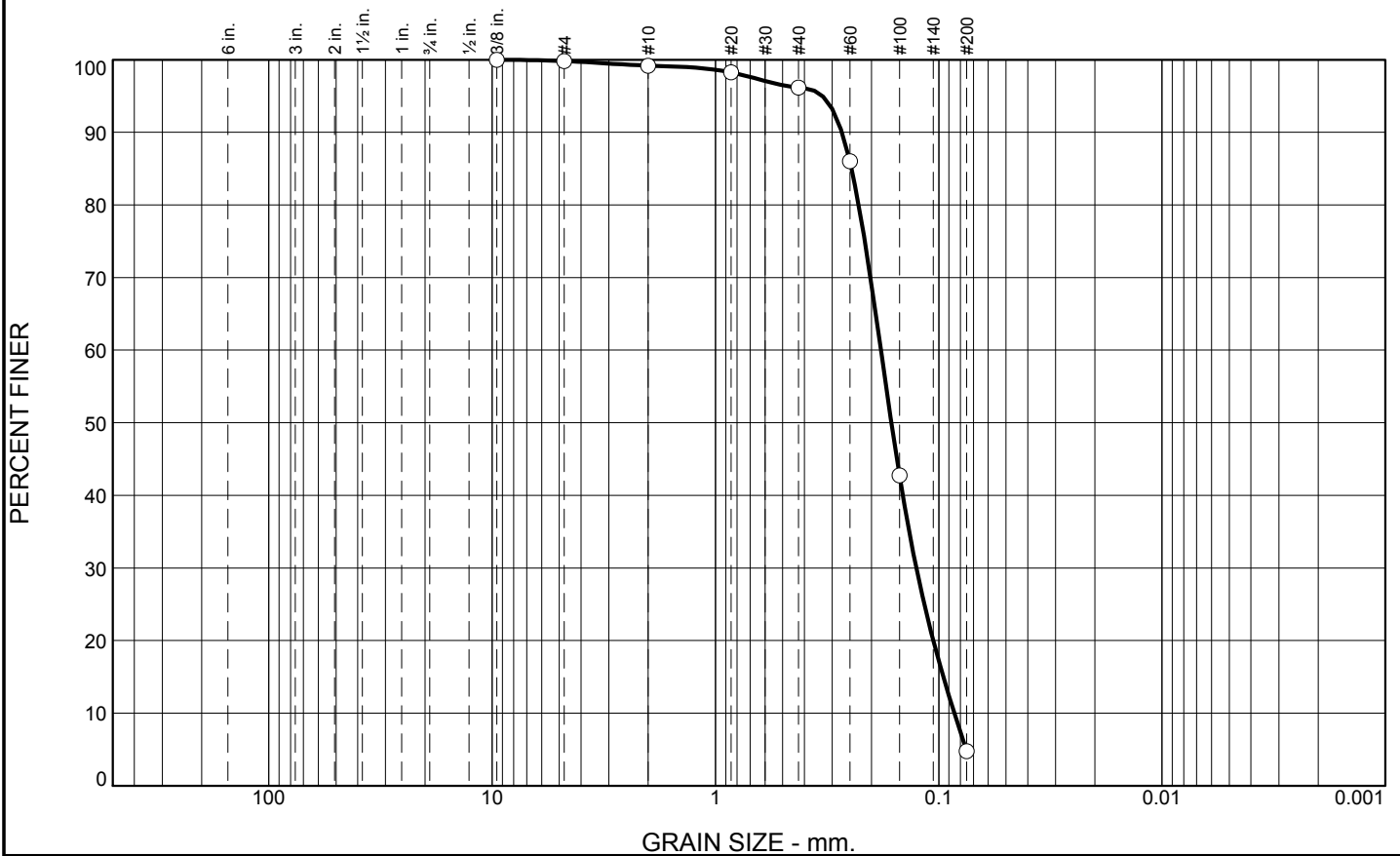
Project No: 1021230009

Figure

Tested By: J.Maddox/L.Stokes

Checked By: R.Byrd

# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.2	0.6	3.1	91.3	4.8	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
.375	100.0		
#4	99.8		
#10	99.2		
#20	98.3		
#40	96.1		
#60	86.0		
#100	42.7		
#200	4.8		

\* (no specification provided)

<u><b>Material Description</b></u>		
SAND, (SP), fine grained		
<u><b>Atterberg Limits</b></u>		
PL=	LL=	PI=
<u><b>Coefficients</b></u>		
D <sub>90</sub> = 0.2713	D <sub>85</sub> = 0.2458	D <sub>60</sub> = 0.1816
D <sub>50</sub> = 0.1630	D <sub>30</sub> = 0.1260	D <sub>15</sub> = 0.0955
D <sub>10</sub> = 0.0852	C <sub>u</sub> = 2.13	C <sub>c</sub> = 1.03
<u><b>Classification</b></u>		
USCS= SP	AASHTO=	
<u><b>Remarks</b></u>		
CADD CODE = CH10D965		

Location: USACE Sample # BI-MS-1-10B  
Sample Number: TE Lab ID: 4461.16

Depth: 2.0 -7.0 (ft)

Date: 5/13/10

**Thompson Engineering**  
**Mobile, Alabama**

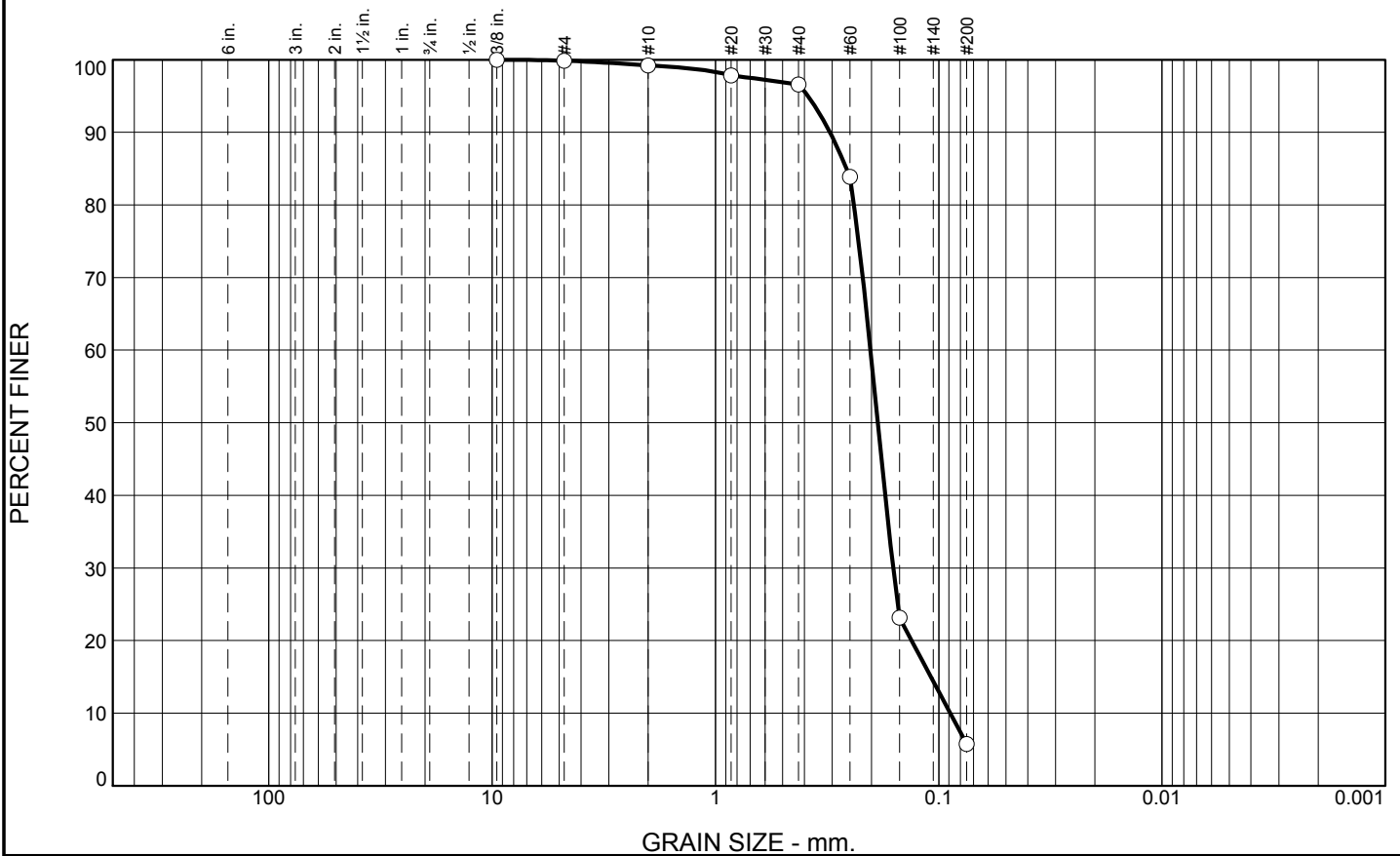
**Client:** US Army Corps of Engineers  
**Project:** Mississippi Barrier Island Restoration Project  
Contract No. W91278-10-D-0026 - Task 03  
**Project No:** 1021230009

**Figure**

Tested By: J.Maddox/L.Stokes

Checked By: R.Byrd

# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.1	0.7	2.6	90.9	5.7	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
.375	100.0		
#4	99.9		
#10	99.2		
#20	97.8		
#40	96.6		
#60	83.9		
#100	23.1		
#200	5.7		

\* (no specification provided)

**Material Description**  
SAND, (SP-SM), fine grained

**Atterberg Limits**  
 PL=      LL=      PI=

**Coefficients**  
 D<sub>90</sub>= 0.3071      D<sub>85</sub>= 0.2588      D<sub>60</sub>= 0.2022  
 D<sub>50</sub>= 0.1876      D<sub>30</sub>= 0.1601      D<sub>15</sub>= 0.1085  
 D<sub>10</sub>= 0.0889      C<sub>u</sub>= 2.28      C<sub>c</sub>= 1.43

**Classification**  
 USCS= SP-SM      AASHTO=

**Remarks**  
 CADD CODE = CH10D965

**Location:** USACE Sample # BI-MS-1-10C  
**Sample Number:** TE Lab ID: 4461.17

**Depth:** 7.0 - 10.67 (ft)

**Date:** 5/13/10

**Thompson Engineering**  
  
**Mobile, Alabama**

**Client:** US Army Corps of Engineers  
**Project:** Mississippi Barrier Island Restoration Project  
 Contract No. W91278-10-D-0026 - Task 03  
**Project No:** 1021230009

**Figure**

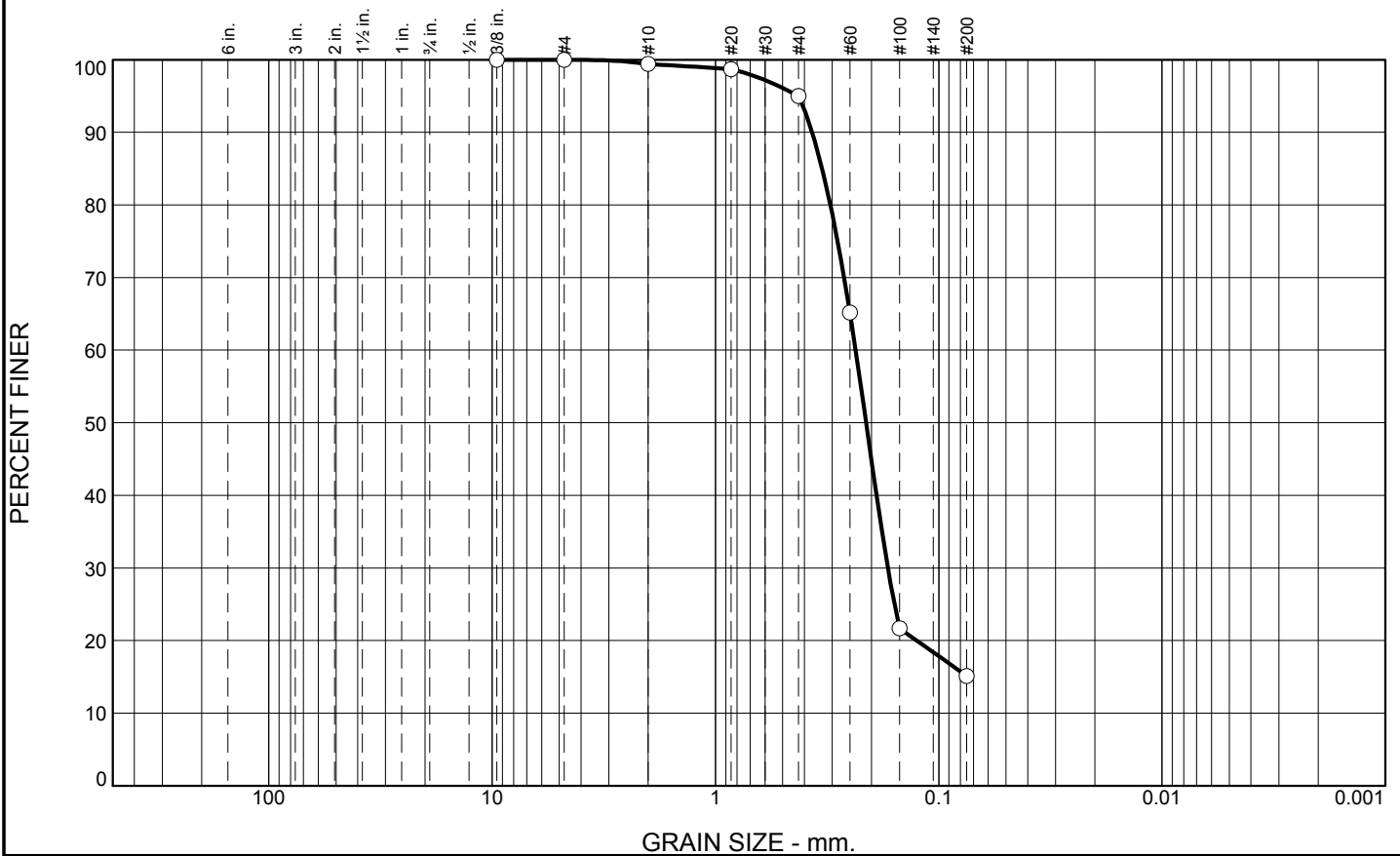
**Tested By:** J.Maddox/L.Stokes

**Checked By:** R.Byrd

# Boring Designation BI-MS-02-10

DRILLING LOG		DIVISION South Atlantic		INSTALLATION Mobile District		SHEET 1 OF 1 SHEETS	
1. PROJECT MsCIP Barrier Island Restoration Mississippi Sound				9. SIZE AND TYPE OF BIT N/A			
2. BORING DESIGNATION BI-MS-02-10		LOCATION COORDINATES E = 931,898 N = 271,145		10. COORDINATE SYSTEM/DATUM State Plane, MSE (U.S. Ft.)		HORIZONTAL NAD83 VERTICAL NAVD88	
3. DRILLING AGENCY Corps of Engineers - CESAM		CONTRACTOR FILE NO.		11. MANUFACTURER'S DESIGNATION OF DRILL Vibracore		<input type="checkbox"/> AUTO HAMMER <input type="checkbox"/> MANUAL HAMMER	
4. NAME OF DRILLER Construction Solutions International, Inc.				12. TOTAL SAMPLES 3		DISTURBED 0 UNDISTURBED (UD)	
5. DIRECTION OF BORING <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED		DEG. FROM VERTICAL		13. TOTAL NUMBER CORE BOXES			
		BEARING		14. WATER DEPTH 18 Ft.			
6. THICKNESS OF OVERBURDEN N/A				15. DATE BORING 05-06-10		STARTED 05-06-10 COMPLETED 05-06-10	
7. DEPTH DRILLED INTO ROCK N/A				16. ELEVATION TOP OF BORING -17.4 Ft.			
8. TOTAL DEPTH OF BORING 16.1 Ft.				17. TOTAL RECOVERY FOR BORING 100%			
				18. SIGNATURE AND TITLE OF INSPECTOR J. Krick, Geotechnical Engineer			
ELEV.	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS	SAMPLE	LABORATORY RESULTS		
-17.4	0.0						
-19.4	2.0		SAND, silty, mostly fine-grained sand-sized quartz, trace shell fragments, gray (SM)	A	Classification: SM Color: 10YR 5/2-grayish brown D50: 0.2115 mm % Fines: 15.1		
			SAND, poorly-graded, mostly fine to medium-grained sand-sized quartz, trace silt, trace shell fragments, gray (SP)	B	Classification: SP Color: 10YR 6/1-gray D50: 0.1841 mm % Fines: 3.7		
				C	Classification: SP-SM Color: 10YR 5/1-gray D50: 0.1717 mm % Fines: 5.8		
-29.4	12.0						
			SAND, silty, mostly fine-grained sand-sized quartz (SM)	NS			
-33.5	16.1						
			NOTES: 1. Soils are field visually classified in accordance with the Unified Soils Classification System. 2. NS = Sample not submitted for laboratory analysis from this interval. 3. Seafloor elevation calculated using sampling vessel's fathometer water depth reading and applying NOAA tidal gauge data conversion factor.				

# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.0	0.6	4.4	79.9	15.1	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
.375	100.0		
#4	100.0		
#10	99.4		
#20	98.7		
#40	95.0		
#60	65.2		
#100	21.7		
#200	15.1		

\* (no specification provided)

<u><b>Material Description</b></u>		
SILTY SAND, (SM), fine grained, with clay pockets		
<u><b>Atterberg Limits</b></u>		
PL=	LL=	PI=
<u><b>Coefficients</b></u>		
D <sub>90</sub> = 0.3691	D <sub>85</sub> = 0.3329	D <sub>60</sub> = 0.2356
D <sub>50</sub> = 0.2115	D <sub>30</sub> = 0.1691	D <sub>15</sub> =
D <sub>10</sub> =	C <sub>u</sub> =	C <sub>c</sub> =
<u><b>Classification</b></u>		
USCS= SM	AASHTO=	
<u><b>Remarks</b></u>		
CADD CODE = CH10D965		

Location: USACE Sample # BI-MS-2-10A  
Sample Number: TE Lab ID: 4461.18

Depth: 0.0 - 2.0 (ft)

Date: 5/13/10

**Thompson Engineering**  
**Mobile, Alabama**

**Client:** US Army Corps of Engineers  
**Project:** Mississippi Barrier Island Restoration Project  
Contract No. W91278-10-D-0026 - Task 03  
**Project No:** 1021230009

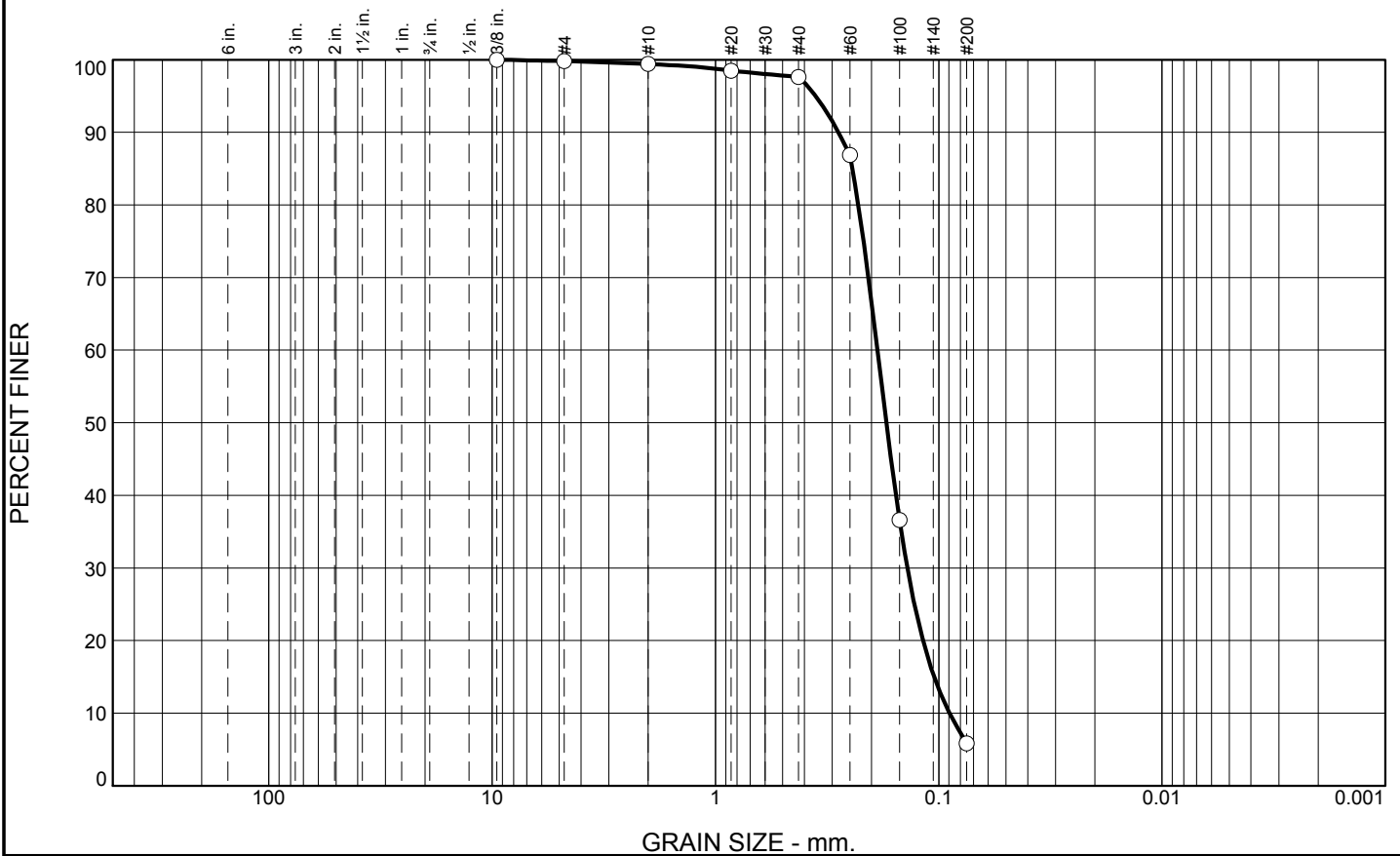
**Figure**

Tested By: J.Maddox/L.Stokes

Checked By: R.Byrd



# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.2	0.4	1.8	91.8	5.8	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
.375	100.0		
#4	99.8		
#10	99.4		
#20	98.5		
#40	97.6		
#60	86.9		
#100	36.6		
#200	5.8		

\* (no specification provided)

<u><b>Material Description</b></u>		
SAND, (SP-SM), fine grained		
<u><b>Atterberg Limits</b></u>		
PL=	LL=	PI=
<u><b>Coefficients</b></u>		
D <sub>90</sub> = 0.2812	D <sub>85</sub> = 0.2436	D <sub>60</sub> = 0.1882
D <sub>50</sub> = 0.1717	D <sub>30</sub> = 0.1383	D <sub>15</sub> = 0.1049
D <sub>10</sub> = 0.0895	C <sub>u</sub> = 2.10	C <sub>c</sub> = 1.14
<u><b>Classification</b></u>		
USCS= SP-SM	AASHTO=	
<u><b>Remarks</b></u>		
CADD CODE = CH10D965		

Location: USACE Sample # BI-MS-2-10C  
Sample Number: TE Lab ID: 4461.20

Depth: 7.0 - 12.0 (ft)

Date: 5/13/10

**Thompson Engineering**  
**Mobile, Alabama**

**Client:** US Army Corps of Engineers  
**Project:** Mississippi Barrier Island Restoration Project  
Contract No. W91278-10-D-0026 - Task 03  
**Project No:** 1021230009

**Figure**

Tested By: J.Maddox/L.Stokes

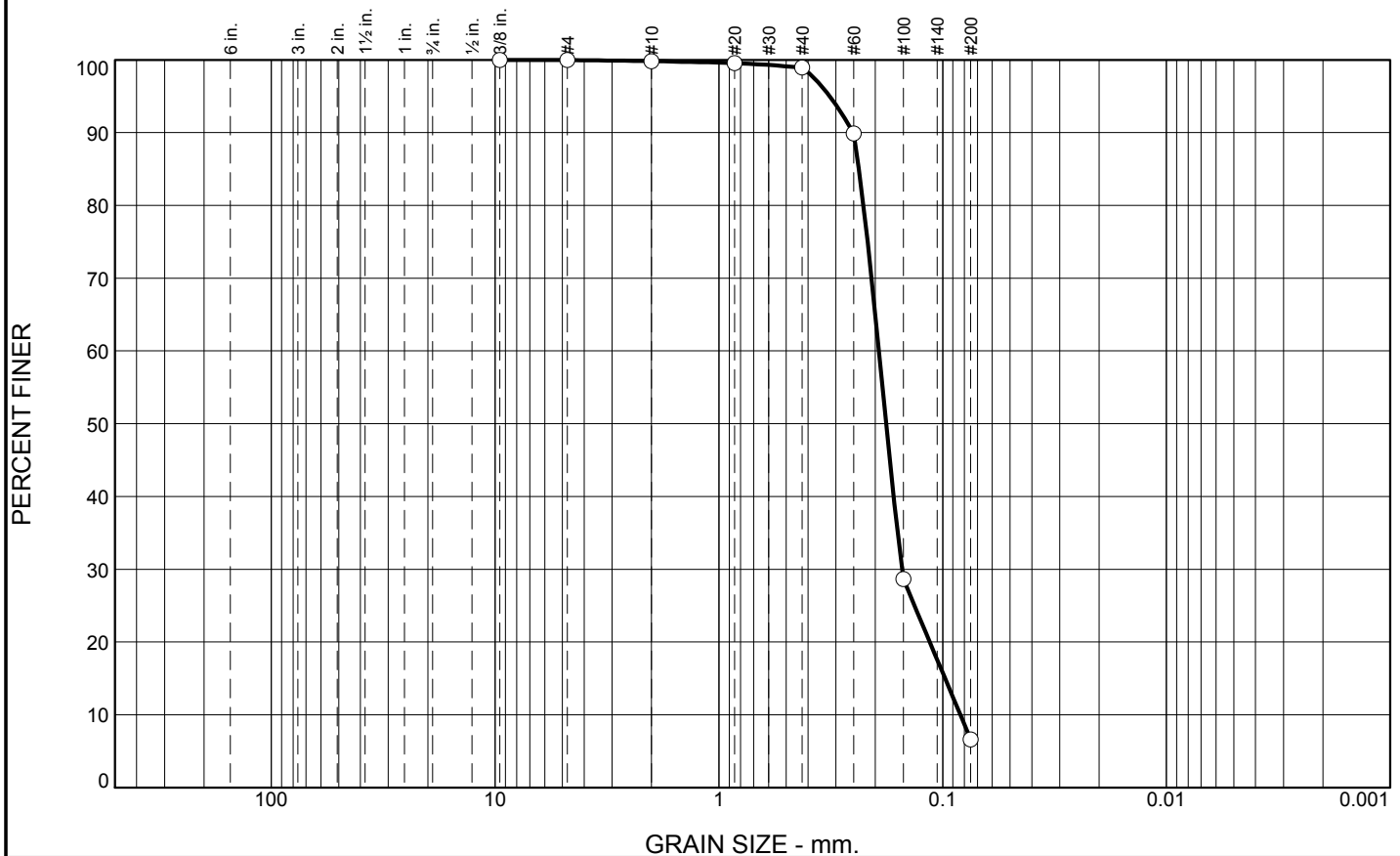
Checked By: R.Byrd



# Boring Designation BI-MS-03-10

DRILLING LOG		DIVISION South Atlantic		INSTALLATION Mobile District		SHEET 1 OF 1 SHEETS	
1. PROJECT MsCIP Barrier Island Restoration Mississippi Sound				9. SIZE AND TYPE OF BIT N/A			
2. BORING DESIGNATION BI-MS-03-10		LOCATION COORDINATES E = 931,707 N = 272,139		10. COORDINATE SYSTEM/DATUM State Plane, MSE (U.S. Ft.)		HORIZONTAL NAD83 VERTICAL NAVD88	
3. DRILLING AGENCY Corps of Engineers - CESAM		CONTRACTOR FILE NO.		11. MANUFACTURER'S DESIGNATION OF DRILL Vibracore		<input type="checkbox"/> AUTO HAMMER <input type="checkbox"/> MANUAL HAMMER	
4. NAME OF DRILLER Construction Solutions International, Inc.				12. TOTAL SAMPLES 2		DISTURBED 0 UNDISTURBED (UD)	
5. DIRECTION OF BORING <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED		DEG. FROM VERTICAL		13. TOTAL NUMBER CORE BOXES			
		BEARING		14. WATER DEPTH 19 Ft.			
6. THICKNESS OF OVERBURDEN N/A				15. DATE BORING 05-06-10		STARTED 05-06-10 COMPLETED 05-06-10	
7. DEPTH DRILLED INTO ROCK N/A				16. ELEVATION TOP OF BORING -18.3 Ft.			
8. TOTAL DEPTH OF BORING 16.2 Ft.				17. TOTAL RECOVERY FOR BORING 100%			
				18. SIGNATURE AND TITLE OF INSPECTOR J. Krick, Geotechnical Engineer			
ELEV.	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS	SAMPLE	LABORATORY RESULTS		
-18.3	0.0						
			SAND, poorly-graded, mostly fine-grained sand-sized quartz, trace silt, trace shell fragments, gray (SP)	A	Classification: SP-SM Color: 10YR 5/1-gray D50: 0.179 mm % Fines: 6.6		
-23.9	5.6						
-25.0	6.7		SAND, silty, mostly fine-grained sand-sized quartz, gray (SM)	NS			
			SAND, poorly-graded, mostly fine to medium-grained sand-sized quartz, little silt, trace shell fragments, gray (SP)	B	Classification: SP-SM Color: 10YR 5/1-gray D50: 0.1856 mm % Fines: 7.9		
-30.3	12.0						
-32.5	14.2		SAND, silty, mostly fine-grained sand-sized quartz, dark gray (SM)	NS			
-34.5	16.2		SAND, poorly-graded, mostly fine to medium-grained sand-sized quartz, little silt, gray and tan (SP)				
			NOTES: 1. Soils are field visually classified in accordance with the Unified Soils Classification System. 2. NS = Sample not submitted for laboratory analysis from this interval. 3. Seafloor elevation calculated using sampling vessel's fathometer water depth reading and applying NOAA tidal gauge data conversion factor.				

# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.0	0.2	0.9	92.3	6.6	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
.375	100.0		
#4	100.0		
#10	99.8		
#20	99.6		
#40	98.9		
#60	89.9		
#100	28.7		
#200	6.6		

\* (no specification provided)

**Material Description**  
SAND, (SP-SM), fine grained

**Atterberg Limits**  
 PL=      LL=      PI=

**Coefficients**  
 D<sub>90</sub>= 0.2512      D<sub>85</sub>= 0.2368      D<sub>60</sub>= 0.1928  
 D<sub>50</sub>= 0.1790      D<sub>30</sub>= 0.1520      D<sub>15</sub>= 0.0976  
 D<sub>10</sub>= 0.0834      C<sub>u</sub>= 2.31      C<sub>c</sub>= 1.44

**Classification**  
 USCS= SP-SM      AASHTO=

**Remarks**  
 CADD CODE = CH10D965

**Location:** USACE Sample # BI-MS-3-10A  
**Sample Number:** TE Lab ID: 4461.21

**Depth:** 0.0 - 5.5 (ft)

**Date:** 5/13/10

**Thompson Engineering**  
  
**Mobile, Alabama**

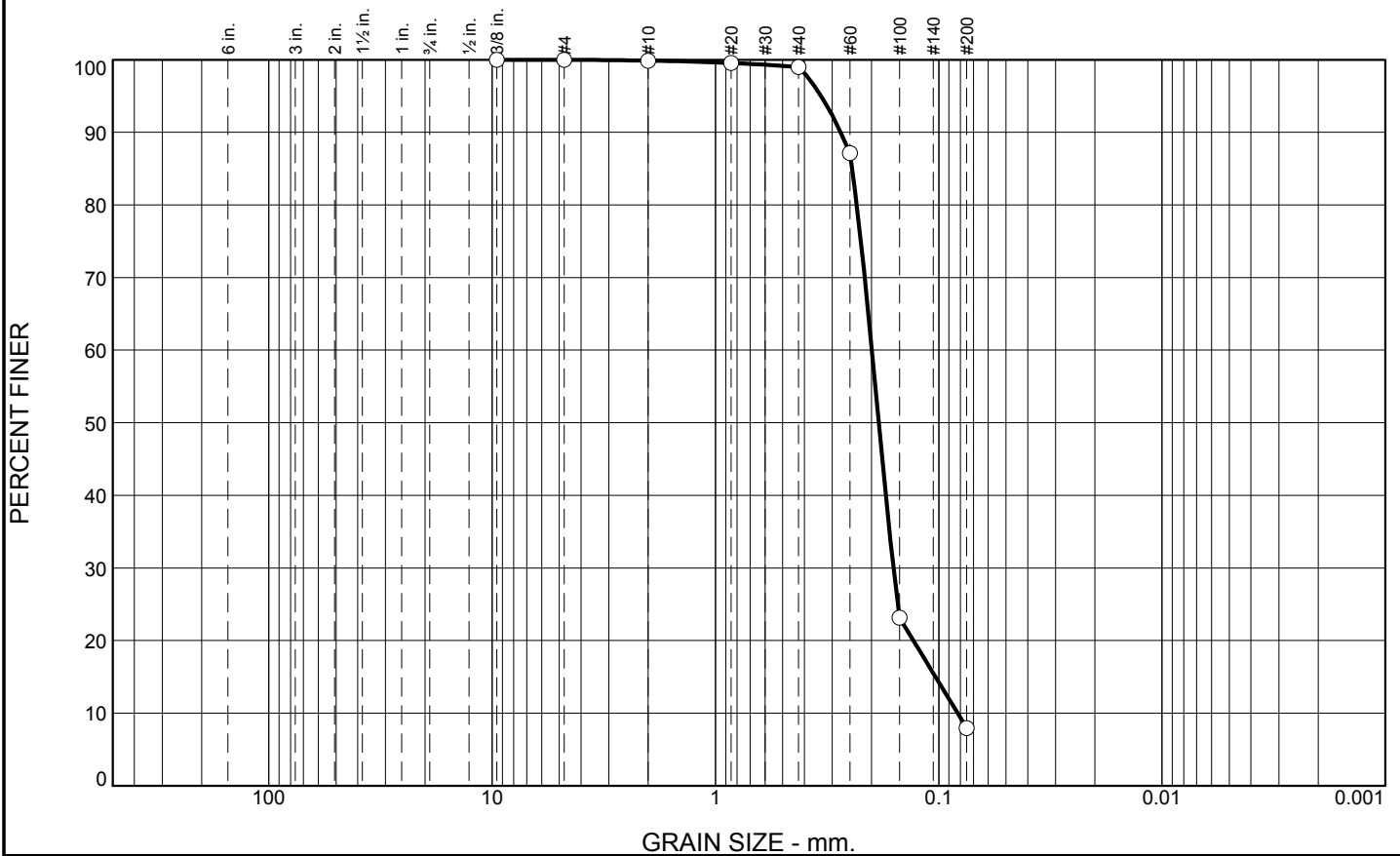
**Client:** US Army Corps of Engineers  
**Project:** Mississippi Barrier Island Restoration Project  
 Contract No. W91278-10-D-0026 - Task 03  
**Project No:** 1021230009

**Figure**

**Tested By:** J.Maddox/L.Stokes

**Checked By:** R.Byrd

# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.0	0.1	0.9	91.1	7.9	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
.375	100.0		
#4	100.0		
#10	99.9		
#20	99.6		
#40	99.0		
#60	87.1		
#100	23.2		
#200	7.9		

\* (no specification provided)

<u>Material Description</u>		
SAND, (SP-SM), fine grained		
<u>Atterberg Limits</u>		
PL=	LL=	PI=
<u>Coefficients</u>		
D <sub>90</sub> = 0.2749	D <sub>85</sub> = 0.2443	D <sub>60</sub> = 0.1993
D <sub>50</sub> = 0.1856	D <sub>30</sub> = 0.1596	D <sub>15</sub> = 0.1034
D <sub>10</sub> = 0.0823	C <sub>u</sub> = 2.42	C <sub>c</sub> = 1.55
<u>Classification</u>		
USCS= SP-SM	AASHTO=	
<u>Remarks</u>		
CADD CODE = CH10D965		

**Location:** USACE Sample # BI-MS-3-10B  
**Sample Number:** TE Lab ID: 4461.22

**Depth:** 6.58 - 12.0 (ft)

**Date:** 5/13/10

**Thompson Engineering**  
**Mobile, Alabama**

**Client:** US Army Corps of Engineers  
**Project:** Mississippi Barrier Island Restoration Project  
 Contract No. W91278-10-D-0026 - Task 03  
**Project No:** 1021230009

**Figure**

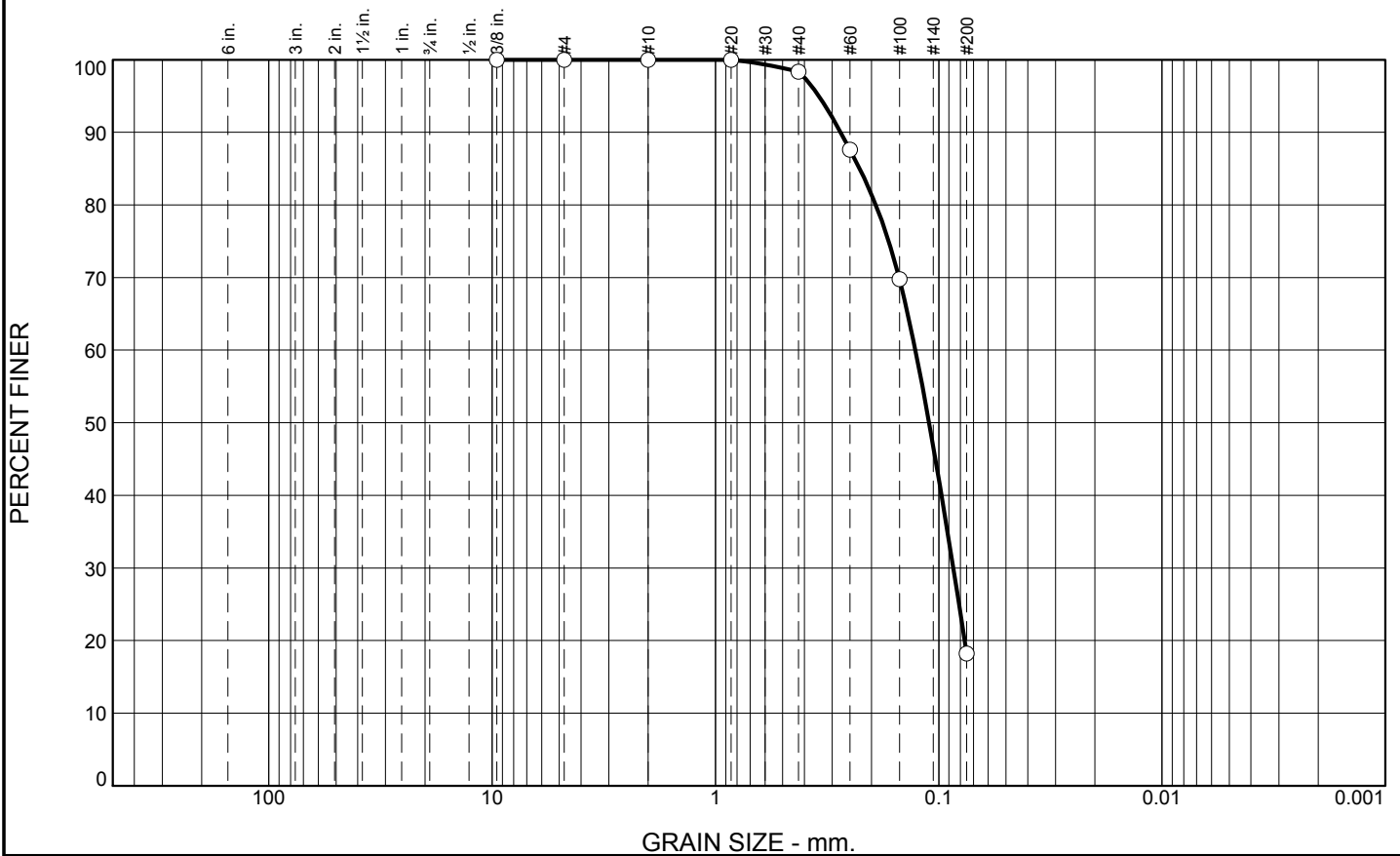
**Tested By:** J.Maddox/L.Stokes

**Checked By:** R.Byrd

# Boring Designation BI-MS-04-10

DRILLING LOG		DIVISION South Atlantic		INSTALLATION Mobile District		SHEET 1 OF 1 SHEETS	
1. PROJECT MsCIP Barrier Island Restoration Mississippi Sound				9. SIZE AND TYPE OF BIT N/A			
2. BORING DESIGNATION BI-MS-04-10		LOCATION COORDINATES E = 931,706 N = 273,317		10. COORDINATE SYSTEM/DATUM State Plane, MSE (U.S. Ft.)		HORIZONTAL NAD83 VERTICAL NAVD88	
3. DRILLING AGENCY Corps of Engineers - CESAM		CONTRACTOR FILE NO.		11. MANUFACTURER'S DESIGNATION OF DRILL Vibrocure		<input type="checkbox"/> AUTO HAMMER <input type="checkbox"/> MANUAL HAMMER	
4. NAME OF DRILLER Construction Solutions International, Inc.				12. TOTAL SAMPLES		DISTURBED 1 UNDISTURBED (UD) 0	
5. DIRECTION OF BORING <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED		DEG. FROM VERTICAL		13. TOTAL NUMBER CORE BOXES			
		BEARING		14. WATER DEPTH 22 Ft.			
6. THICKNESS OF OVERBURDEN N/A				15. DATE BORING		STARTED 05-21-10 COMPLETED 05-21-10	
7. DEPTH DRILLED INTO ROCK N/A				16. ELEVATION TOP OF BORING -21.2 Ft.			
8. TOTAL DEPTH OF BORING 12.1 Ft.				17. TOTAL RECOVERY FOR BORING 100%			
				18. SIGNATURE AND TITLE OF INSPECTOR Mark Green, Geotechnical Engineer			
ELEV.	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS	SAMPLE	LABORATORY RESULTS		
-21.2	0.0		CLAY, lean, very soft, trace fine-grained sand-sized quartz (CL)				
				NS			
-31.7	10.5		SAND, silty, mostly fine-grained sand-sized quartz, trace clay, trace organic matter, Lt. gray, tan, and orange, mottled (SM)	A	Classification: SM Color: - D50: 0.1105 mm % Fines: 18.2		
-33.3	12.1		NOTES: 1. Soils are field visually classified in accordance with the Unified Soils Classification System. 2. NS = Sample not submitted for laboratory analysis from this interval. 3. Seafloor elevation calculated using sampling vessel's fathometer water depth reading and applying NOAA tidal gauge data conversion factor.				

# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.0	0.0	1.6	80.2	18.2	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
.375	100.0		
#4	100.0		
#10	100.0		
#20	100.0		
#40	98.4		
#60	87.6		
#100	69.8		
#200	18.2		

\* (no specification provided)

<u>Material Description</u>		
SILTY SAND, (SM), fine grained		
<u>Atterberg Limits</u>		
PL=	LL=	PI=
<u>Coefficients</u>		
D <sub>90</sub> = 0.2751	D <sub>85</sub> = 0.2262	D <sub>60</sub> = 0.1273
D <sub>50</sub> = 0.1105	D <sub>30</sub> = 0.0861	D <sub>15</sub> =
D <sub>10</sub> =	C <sub>u</sub> =	C <sub>c</sub> =
<u>Classification</u>		
USCS= SM	AASHTO=	
<u>Remarks</u>		
CADD CODE = CH10D965		

Location: USACE Sample # BI-MS-04-10A  
Sample Number: TE Lab ID: 4489.14

Depth: 10.5 - 12.1 (ft.)

Date: 5/30/10

**Thompson Engineering**  
**Mobile, Alabama**

**Client:** US Army Corps of Engineers  
**Project:** Contract No. W91278-10-D-0026 - Task 03  
Mississippi Barrier Island Restoration Project  
**Project No:** 10-2123-0009

**Figure**

Tested By: G.Fancher

Checked By: R.Byrd

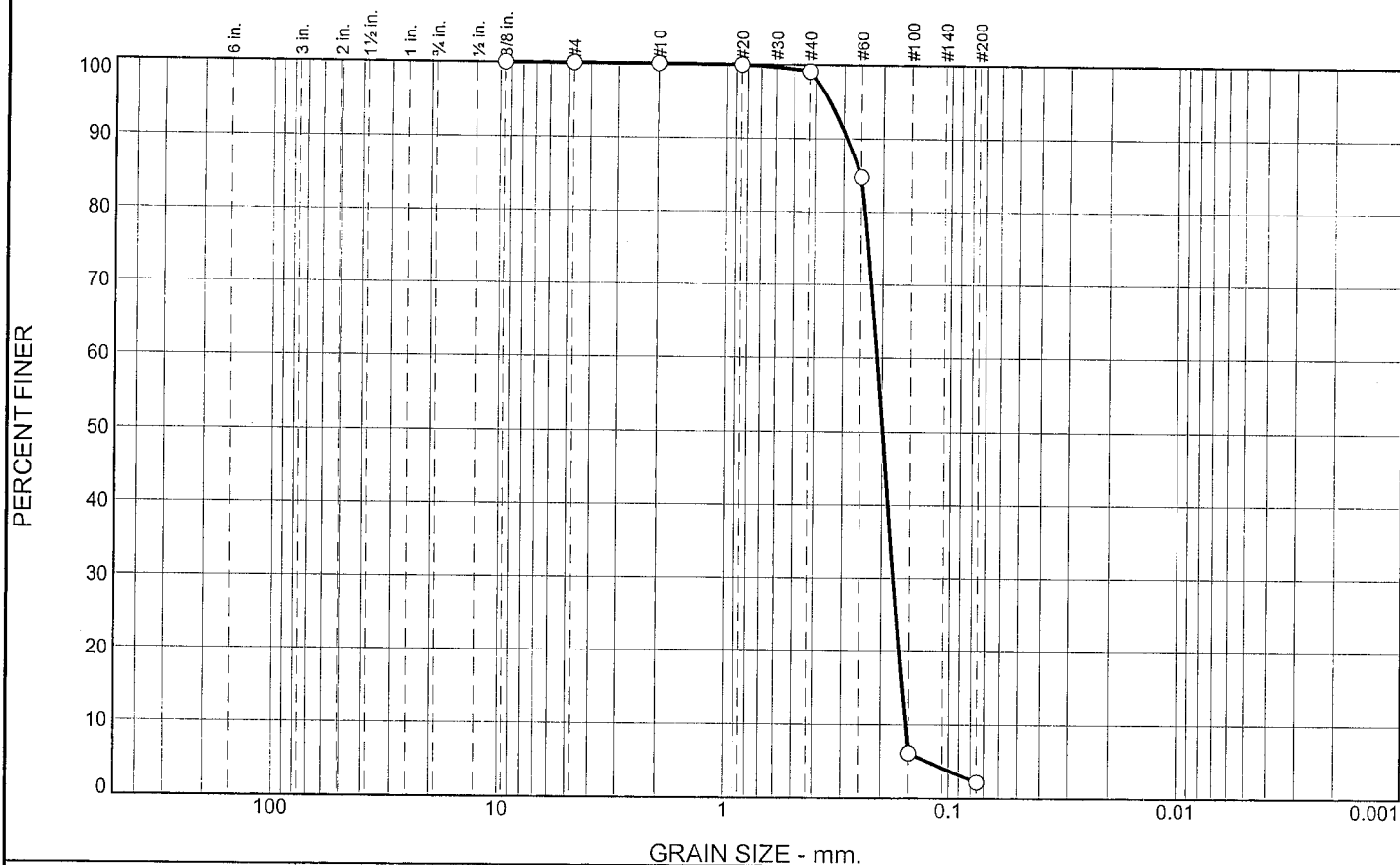
# Boring Designation BI-MS-05-10

DRILLING LOG		DIVISION South Atlantic		INSTALLATION Mobile District		SHEET 1 OF 1 SHEETS	
1. PROJECT MsCIP Barrier Island Restoration Mississippi Sound				9. SIZE AND TYPE OF BIT N/A			
2. BORING DESIGNATION BI-MS-05-10		LOCATION COORDINATES E = 931,420 N = 274,248		10. COORDINATE SYSTEM/DATUM State Plane, MSE (U.S. Ft.)		HORIZONTAL NAD83 VERTICAL NAVD88	
3. DRILLING AGENCY Corps of Engineers - CESAM		CONTRACTOR FILE NO.		11. MANUFACTURER'S DESIGNATION OF DRILL Vibracore		<input type="checkbox"/> AUTO HAMMER <input type="checkbox"/> MANUAL HAMMER	
4. NAME OF DRILLER Construction Solutions International, Inc.				12. TOTAL SAMPLES		DISTURBED 0 UNDISTURBED (UD) 0	
5. DIRECTION OF BORING <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED		DEG. FROM VERTICAL		13. TOTAL NUMBER CORE BOXES			
		BEARING		14. WATER DEPTH 21 Ft.			
6. THICKNESS OF OVERBURDEN N/A				15. DATE BORING		STARTED 05-08-10 COMPLETED 05-08-10	
7. DEPTH DRILLED INTO ROCK N/A				16. ELEVATION TOP OF BORING -21.4 Ft.			
8. TOTAL DEPTH OF BORING 10.8 Ft.				17. TOTAL RECOVERY FOR BORING 100%			
				18. SIGNATURE AND TITLE OF INSPECTOR Marty Gates, Geologist			
ELEV.	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS	SAMPLE	LABORATORY RESULTS		
-21.4	0.0		CLAY, lean (CL)				
-31.3	9.9			NS			
-32.2	10.8		SAND, silty, mostly fine to medium-grained sand-sized quartz, some silt (SM)				
			NOTES: 1. Soils are field visually classified in accordance with the Unified Soils Classification System. 2. NS = Sample not submitted for laboratory analysis from this interval. 3. Seafloor elevation calculated using sampling vessel's fathometer water depth reading and applying NOAA tidal gauge data conversion factor.				

# Boring Designation BI-MS-06-10

DRILLING LOG		DIVISION South Atlantic		INSTALLATION Mobile District		SHEET 1 OF 1 SHEETS	
1. PROJECT MsCIP Barrier Island Restoration Mississippi Sound				9. SIZE AND TYPE OF BIT N/A			
2. BORING DESIGNATION BI-MS-06-10		LOCATION COORDINATES E = 920,335 N = 271,102		10. COORDINATE SYSTEM/DATUM State Plane, MSE (U.S. Ft.)		HORIZONTAL NAD83 VERTICAL NAVD88	
3. DRILLING AGENCY Corps of Engineers - CESAM		CONTRACTOR FILE NO.		11. MANUFACTURER'S DESIGNATION OF DRILL Vibracore		<input type="checkbox"/> AUTO HAMMER <input type="checkbox"/> MANUAL HAMMER	
4. NAME OF DRILLER Construction Solutions International, Inc.				12. TOTAL SAMPLES 3		DISTURBED 3 UNDISTURBED (UD) 0	
5. DIRECTION OF BORING <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED		DEG. FROM VERTICAL		13. TOTAL NUMBER CORE BOXES			
		BEARING		14. WATER DEPTH 9 Ft.			
6. THICKNESS OF OVERBURDEN N/A				15. DATE BORING 05-10-10		STARTED 05-10-10 COMPLETED 05-10-10	
7. DEPTH DRILLED INTO ROCK N/A				16. ELEVATION TOP OF BORING -8.1 Ft.			
8. TOTAL DEPTH OF BORING 14.3 Ft.				17. TOTAL RECOVERY FOR BORING 100%			
				18. SIGNATURE AND TITLE OF INSPECTOR Marty Gates, Geologist			
ELEV.	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS	SAMPLE	LABORATORY RESULTS		
-8.1	0.0						
-11.1	3.0		SAND, poorly-graded, mostly fine to medium-grained sand-sized quartz, little silt, little shell fragments, lt. gray (SP)	A	Classification: SP Color: 10YR 6/1-gray D50: 0.1984 mm % Fines: 2.2		
-18.6	10.5		SAND, silty, mostly fine to medium-grained sand-sized quartz, some silt, little shell fragments, gray (SM)	B	Classification: SM Color: 10YR 5/1-gray D50: 0.1871 mm % Fines: 15.7		
-22.4	14.3		SAND, poorly-graded, mostly fine to medium-grained sand-sized quartz, little shell fragments, trace silt, lt. gray (SP)	C	Classification: SP-SM Color: 10YR 6/1-gray D50: 0.1872 mm % Fines: 5.3		
			NOTES: 1. Soils are field visually classified in accordance with the Unified Soils Classification System. 2. NS = Sample not submitted for laboratory analysis from this interval. 3. Seafloor elevation calculated using sampling vessel's fathometer water depth reading and applying NOAA tidal gauge data conversion factor.	NS			

# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.0	0.0	0.9	96.9	2.2	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
.375	100.0		
#4	100.0		
#10	100.0		
#20	99.9		
#40	99.1		
#60	84.8		
#100	6.2		
#200	2.2		

\* (no specification provided)

**Material Description**  
SAND, (SP), fine grained

**Atterberg Limits**  
 PL=      LL=      PI=

**Coefficients**  
 D<sub>90</sub>= 0.2903      D<sub>85</sub>= 0.2516      D<sub>60</sub>= 0.2103  
 D<sub>50</sub>= 0.1984      D<sub>30</sub>= 0.1767      D<sub>15</sub>= 0.1605  
 D<sub>10</sub>= 0.1547      C<sub>u</sub>= 1.36      C<sub>c</sub>= 0.96

**Classification**  
 USCS= SP      AASHTO=

**Remarks**  
 CADD CODE = CH10D965

Location: USACE Sample # BI-MS-6-10A  
 Sample Number: TE Lab ID: 4473.01

Depth: 0.0 - 3.0 (ft)

Date: 5/17/10

**Thompson Engineering**

**Mobile, Alabama**

Client: US Army Corps of Engineers

Project: Contract No. W91278-10-D-0026 - Task 03  
 Mississippi Barrier Island Restoration Project

Project No: 10-2123-0009

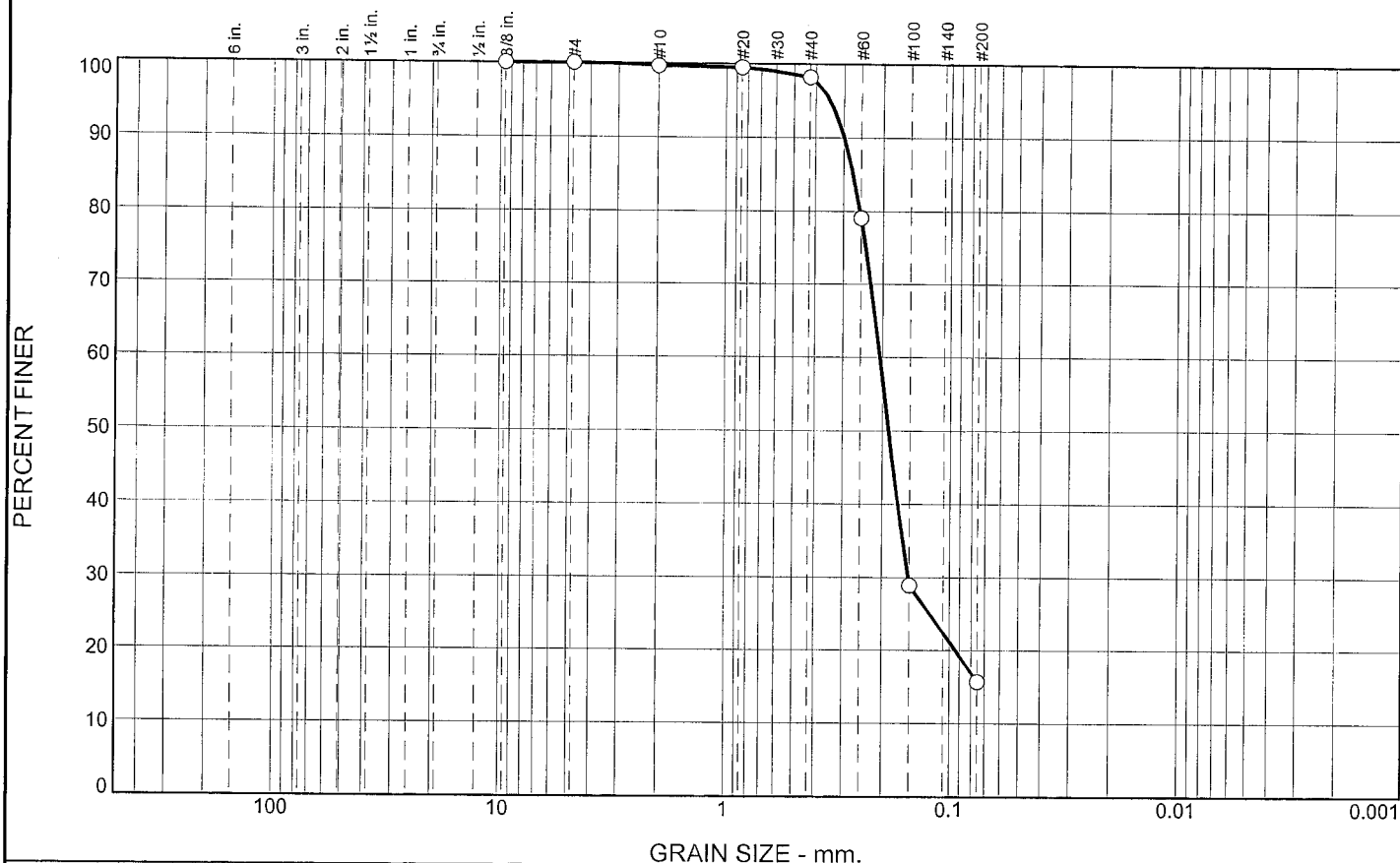
Figure

Tested By: L.Stokes

Checked By: R.Byrd



# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.0	0.3	1.5	82.5	15.7	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
.375	100.0		
#4	100.0		
#10	99.7		
#20	99.5		
#40	98.2		
#60	79.1		
#100	28.9		
#200	15.7		

\* (no specification provided)

## Material Description

SILTY SAND, (SM), fine grained, with trace shell

## Atterberg Limits

PL=

LL=

PI=

## Coefficients

D<sub>90</sub>= 0.2987

D<sub>85</sub>= 0.2718

D<sub>60</sub>= 0.2052

D<sub>50</sub>= 0.1871

D<sub>30</sub>= 0.1521

D<sub>15</sub>=

D<sub>10</sub>=

C<sub>u</sub>=

C<sub>c</sub>=

## Classification

USCS= SM

AASHTO=

## Remarks

CADD CODE = CH10D965

Location: USACE Sample # BI-MS-6-10B

Sample Number: TE Lab ID: 4473.02

Depth: 3.0 - 10.5 (ft)

Date: 5/17/10

**Thompson Engineering**

**Mobile, Alabama**

Client: US Army Corps of Engineers

Project: Contract No. W91278-10-D-0026 - Task 03  
Mississippi Barrier Island Restoration Project

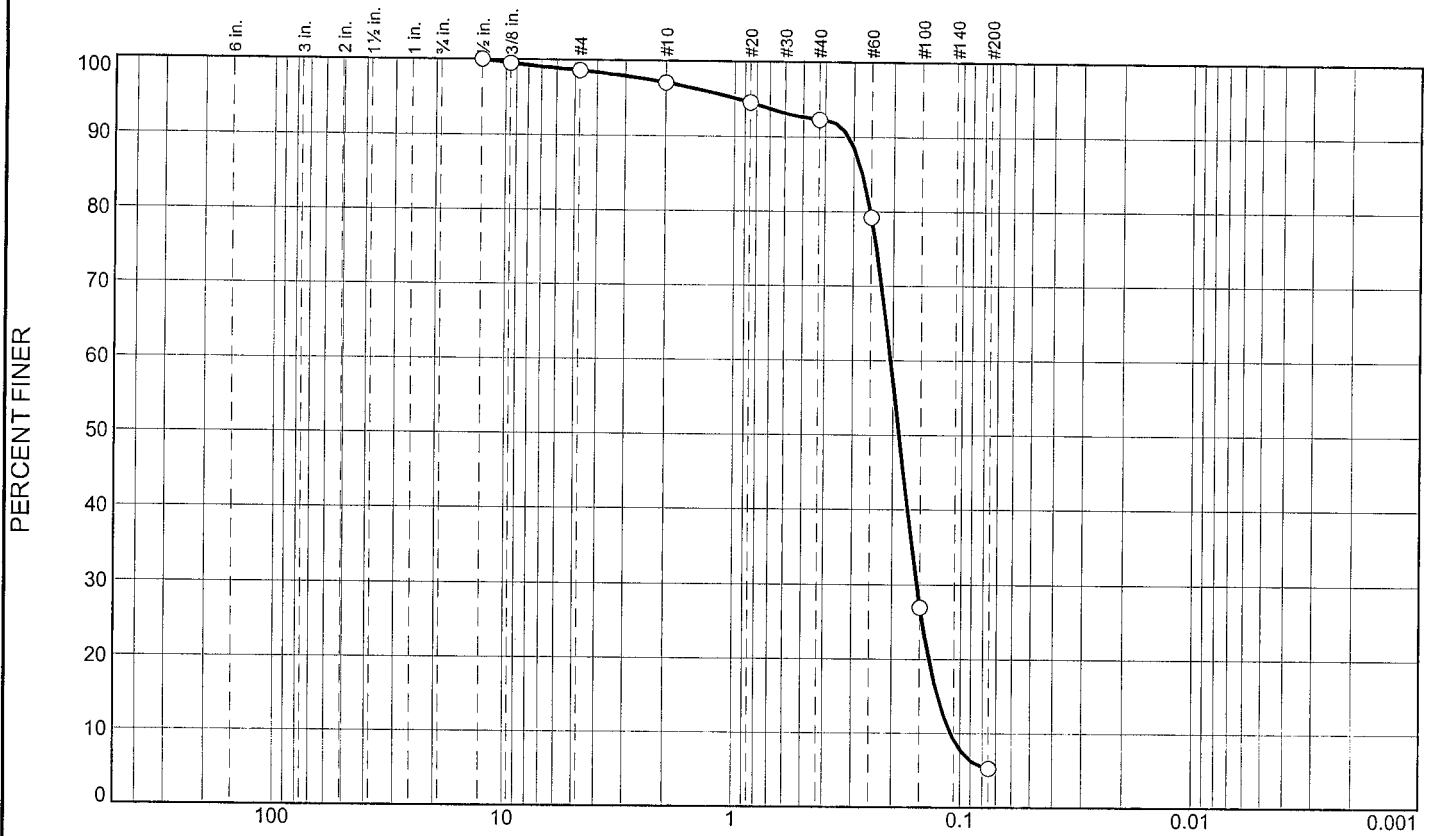
Project No: 10-2123-0009

Figure

Tested By: L.Stokes

Checked By: R.Byrd

# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	1.4	1.5	4.8	87.0	5.3	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
.500	100.0		
.375	99.5		
#4	98.6		
#10	97.1		
#20	94.5		
#40	92.3		
#60	79.2		
#100	27.0		
#200	5.3		

\* (no specification provided)

**Material Description**  
SAND, (SP-SM), fine grained, with shell

**Atterberg Limits**  
PL=      LL=      PI=

**Coefficients**  
D<sub>90</sub>= 0.3167      D<sub>85</sub>= 0.2746      D<sub>60</sub>= 0.2045  
D<sub>50</sub>= 0.1872      D<sub>30</sub>= 0.1551      D<sub>15</sub>= 0.1253  
D<sub>10</sub>= 0.1101      C<sub>u</sub>= 1.86      C<sub>c</sub>= 1.07

**Classification**  
USCS= SP-SM      AASHTO=

**Remarks**  
CADD CODE = CH10D965

Location: USACE Sample # BI-MS-6-10C  
Sample Number: TE Lab ID: 4473.03

Depth: 10.5 - 14.3 (ft)

Date: 5/17/10

**Thompson Engineering**  
**Mobile, Alabama**

Client: US Army Corps of Engineers  
Project: Contract No. W91278-10-D-0026 - Task 03  
Mississippi Barrier Island Restoration Project  
Project No: 10-2123-0009

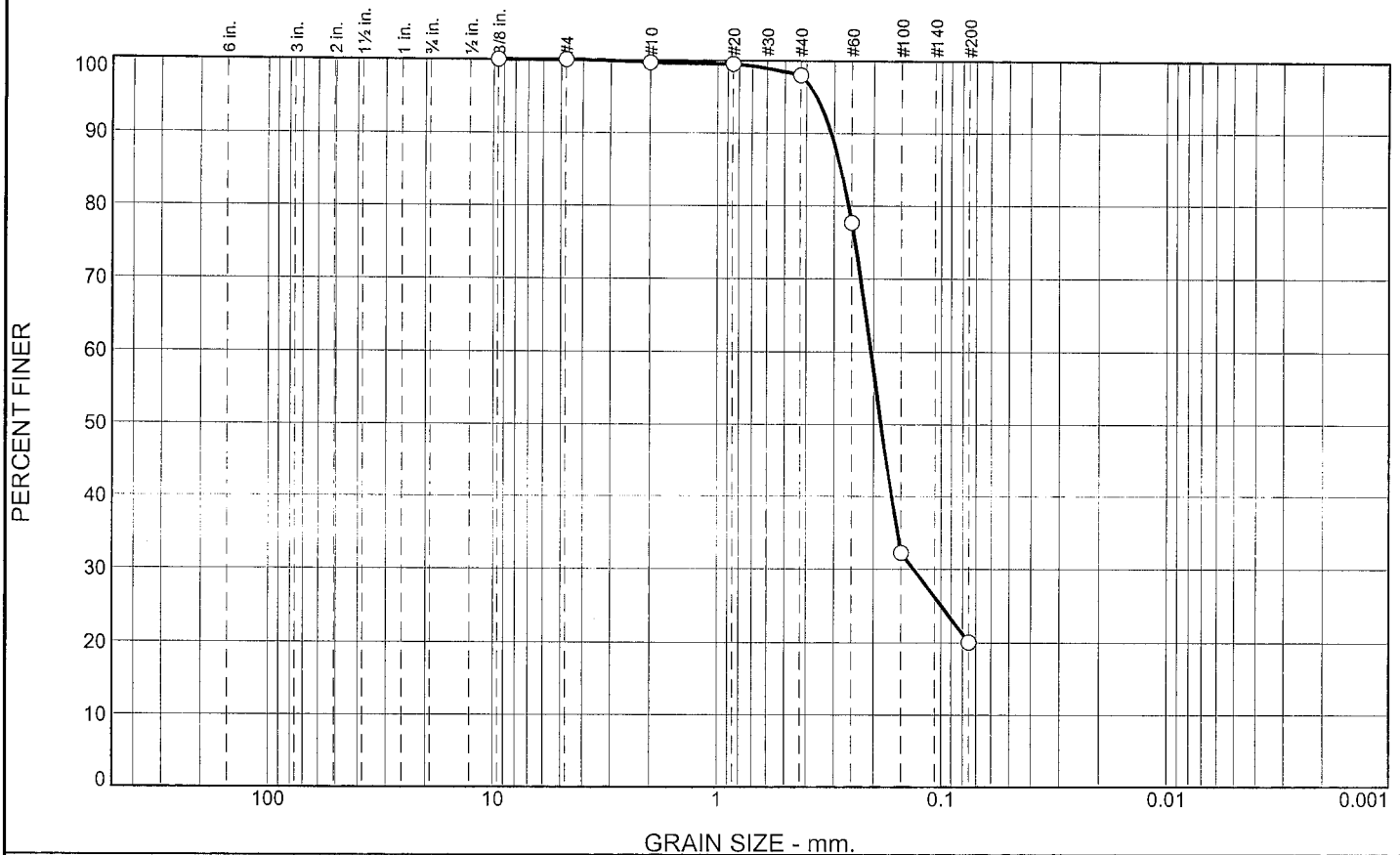
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Tested By: L.Stokes      Checked By: R.Byrd

# Boring Designation BI-MS-07-10

DRILLING LOG		DIVISION South Atlantic		INSTALLATION Mobile District		SHEET 1 OF 1 SHEETS	
1. PROJECT MsCIP Barrier Island Restoration Mississippi Sound				9. SIZE AND TYPE OF BIT N/A			
2. BORING DESIGNATION BI-MS-07-10		LOCATION COORDINATES E = 920,041 N = 268,819		10. COORDINATE SYSTEM/DATUM State Plane, MSE (U.S. Ft.)		HORIZONTAL NAD83	
3. DRILLING AGENCY Corps of Engineers - CESAM		CONTRACTOR FILE NO.		11. MANUFACTURER'S DESIGNATION OF DRILL Vibracore		<input type="checkbox"/> AUTO HAMMER <input type="checkbox"/> MANUAL HAMMER	
4. NAME OF DRILLER Construction Solutions International, Inc.				12. TOTAL SAMPLES 3		DISTURBED 0	
5. DIRECTION OF BORING <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED				13. TOTAL NUMBER CORE BOXES		14. WATER DEPTH 12 Ft.	
6. THICKNESS OF OVERBURDEN N/A				15. DATE BORING 05-08-10		STARTED 05-08-10	
7. DEPTH DRILLED INTO ROCK N/A				16. ELEVATION TOP OF BORING -12.3 Ft.		COMPLETED 05-08-10	
8. TOTAL DEPTH OF BORING 14.5 Ft.				17. TOTAL RECOVERY FOR BORING 100%		18. SIGNATURE AND TITLE OF INSPECTOR Marty Gates, Geologist	
ELEV.	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS	SAMPLE	LABORATORY RESULTS		
-12.3	0.0						
			SAND, silty, mostly fine to medium-grained sand-sized quartz, some silt, trace shell fragments, brown (SM)	A	Classification: SM Color: 10YR 4/1-dark gray D50: 0.185 mm % Fines: 20		
-17.3	5.0						
			SAND, poorly-graded, mostly fine to medium-grained sand-sized quartz, trace shell fragments, tan and lt. gray (SP)	B	Classification: SP Color: 10YR 6/1-gray D50: 0.1976 mm % Fines: 3.9		
				C	Classification: SP-SM Color: 10YR 6/1-gray D50: 0.1216 mm % Fines: 8.1		
-26.8	14.5						
			NOTES: 1. Soils are field visually classified in accordance with the Unified Soils Classification System. 2. NS = Sample not submitted for laboratory analysis from this interval. 3. Seafloor elevation calculated using sampling vessel's fathometer water depth reading and applying NOAA tidal gauge data conversion factor.				

# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.0	0.3	1.7	78.0	20.0	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
.375	100.0		
#4	100.0		
#10	99.7		
#20	99.5		
#40	98.0		
#60	77.6		
#100	32.2		
#200	20.0		

\* (no specification provided)

**Material Description**  
SILTY SAND, (SM), fine grained, with trace shell

**Atterberg Limits**  
 PL=      LL=      PI=

**Coefficients**  
 D<sub>90</sub>= 0.3094      D<sub>85</sub>= 0.2795      D<sub>60</sub>= 0.2050  
 D<sub>50</sub>= 0.1850      D<sub>30</sub>= 0.1322      D<sub>15</sub>=  
 D<sub>10</sub>=      C<sub>u</sub>=      C<sub>c</sub>=

**Classification**  
 USCS= SM      AASHTO=

**Remarks**  
 CADD CODE = CH10D965

Location: USACE Sample # BI-MS-7-10A  
 Sample Number: TE Lab ID: 4473.04

Depth: 0.0 - 5.0 (ft)

Date: 5/17/10

**Thompson Engineering**  
  
**Mobile, Alabama**

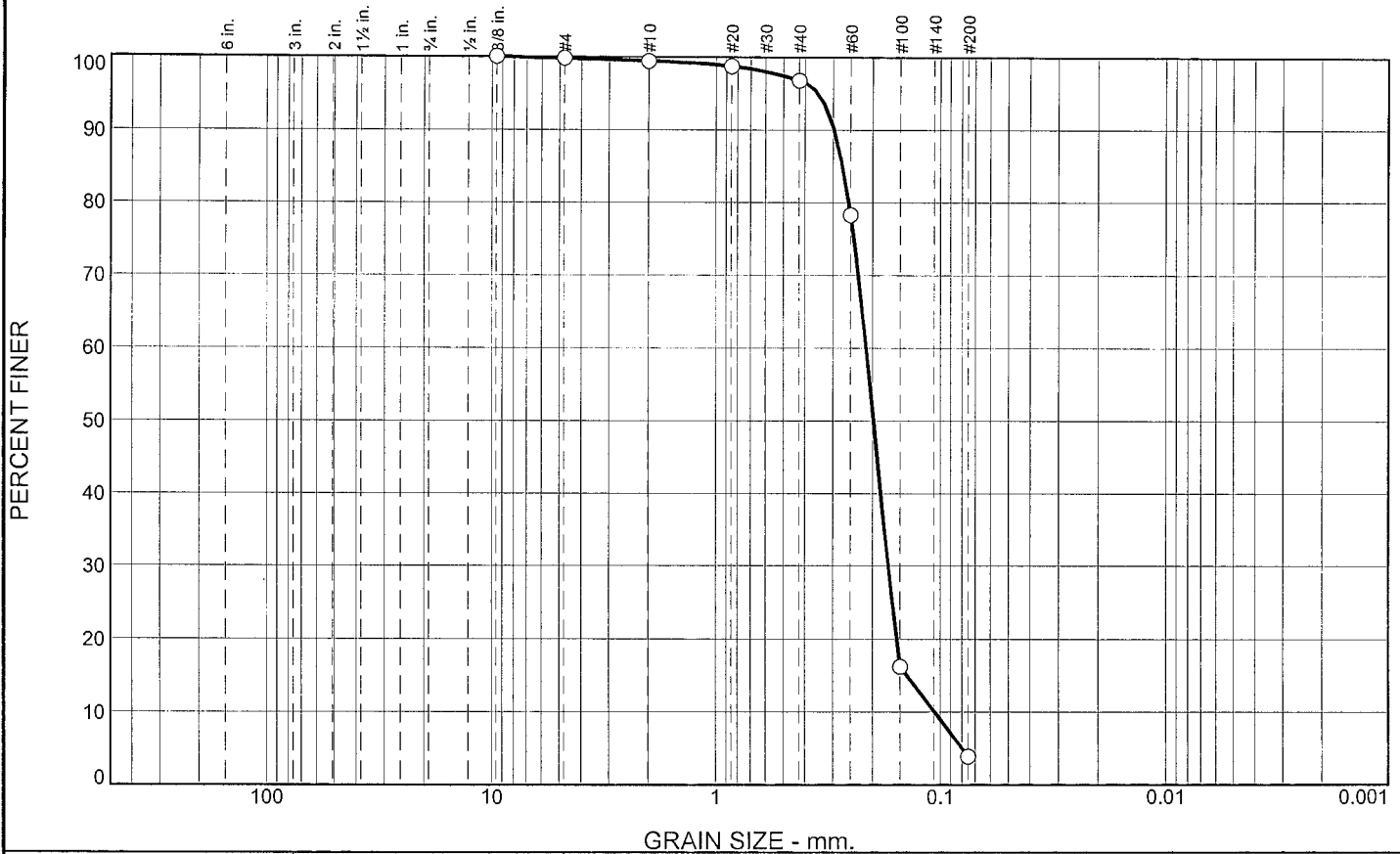
**Client:** US Army Corps of Engineers  
**Project:** Contract No. W91278-10-D-0026 - Task 03  
 Mississippi Barrier Island Restoration Project  
**Project No:** 10-2123-0009

**Figure**

Tested By: L.Stokes

Checked By: R.Byrd

# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.2	0.4	2.6	92.9	3.9	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
.375	100.0		
#4	99.8		
#10	99.4		
#20	98.7		
#40	96.8		
#60	78.3		
#100	16.2		
#200	3.9		

\* (no specification provided)

## Material Description

SAND, (SP), fine grained, with shell

## Atterberg Limits

PL=

LL=

PI=

## Coefficients

D<sub>90</sub>= 0.2969

D<sub>85</sub>= 0.2719

D<sub>60</sub>= 0.2131

D<sub>50</sub>= 0.1976

D<sub>30</sub>= 0.1699

D<sub>15</sub>= 0.1401

D<sub>10</sub>= 0.1056

C<sub>u</sub>= 2.02

C<sub>c</sub>= 1.28

## Classification

USCS= SP

AASHTO=

## Remarks

CADD CODE = CH10D965

Location: USACE Sample # BI-MS-7-10B  
Sample Number: TE Lab ID: 4473.05

Depth: 5.0 - 10.0 (ft)

Date: 5/17/10

**Thompson Engineering**

**Mobile, Alabama**

Client: US Army Corps of Engineers

Project: Contract No. W91278-10-D-0026 - Task 03  
Mississippi Barrier Island Restoration Project

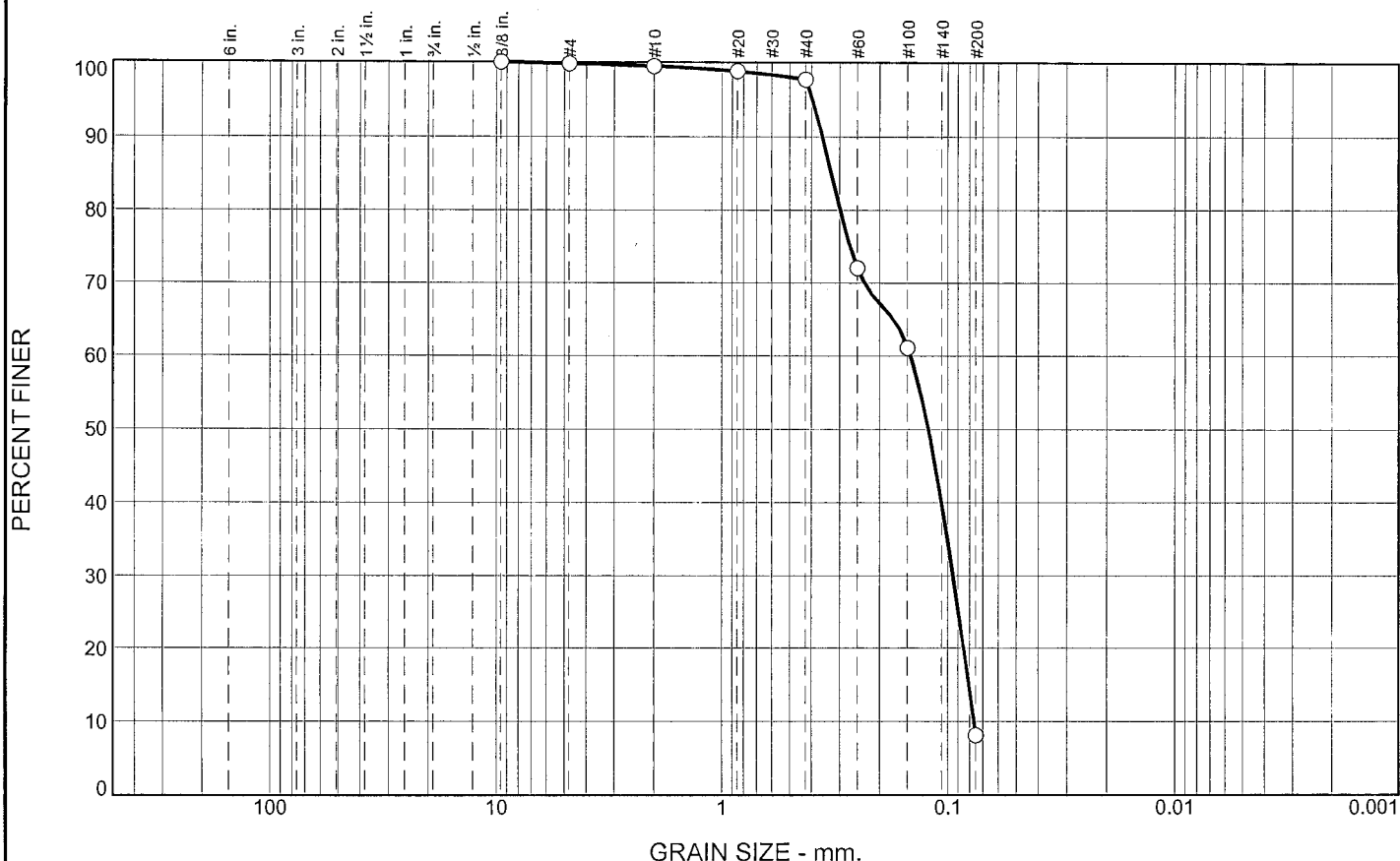
Project No: 10-2123-0009

Figure

Tested By: L.Stokes

Checked By: R.Byrd

# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.2	0.4	1.7	89.6	8.1	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
.375	100.0		
#4	99.8		
#10	99.4		
#20	98.8		
#40	97.7		
#60	72.0		
#100	61.1		
#200	8.1		

\* (no specification provided)

## Material Description

SAND, (SP-SM), fine grained, with shell

## Atterberg Limits

PL= LL= PI=

## Coefficients

D<sub>90</sub>= 0.3581 D<sub>85</sub>= 0.3268 D<sub>60</sub>= 0.1458  
D<sub>50</sub>= 0.1216 D<sub>30</sub>= 0.0946 D<sub>15</sub>= 0.0806  
D<sub>10</sub>= 0.0765 C<sub>u</sub>= 1.91 C<sub>c</sub>= 0.80

## Classification

USCS= SP-SM AASHTO=

## Remarks

CADD CODE = CH10D965

Location: USACE Sample # BI-MS-7-10C  
Sample Number: TE Lab ID: 4473.06

Depth: 10.0 - 14.0 (ft)

Date: 5/17/10

**Thompson Engineering**

**Mobile, Alabama**

Client: US Army Corps of Engineers

Project: Contract No. W91278-10-D-0026 - Task 03  
Mississippi Barrier Island Restoration Project

Project No: 10-2123-0009

Figure

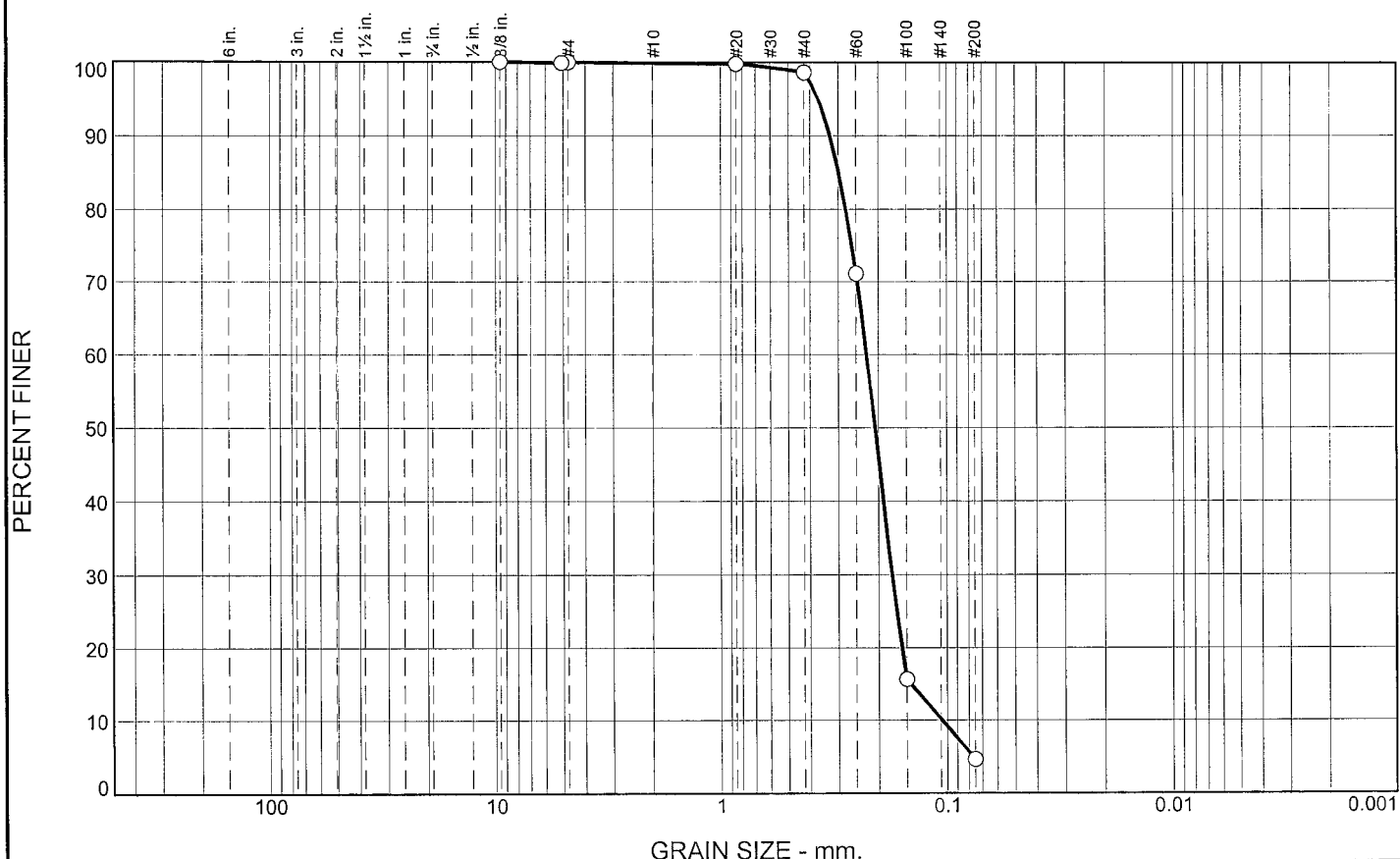
Tested By: L.Stokes

Checked By: R.Byrd

# Boring Designation BI-MS-08-10

DRILLING LOG		DIVISION South Atlantic		INSTALLATION Mobile District		SHEET 1 OF 1 SHEETS	
1. PROJECT MsCIP Barrier Island Restoration Mississippi Sound				9. SIZE AND TYPE OF BIT N/A			
2. BORING DESIGNATION BI-MS-08-10		LOCATION COORDINATES E = 920,332 N = 265,858		10. COORDINATE SYSTEM/DATUM State Plane, MSE (U.S. Ft.)		HORIZONTAL NAD83 VERTICAL NAVD88	
3. DRILLING AGENCY Corps of Engineers - CESAM		CONTRACTOR FILE NO.		11. MANUFACTURER'S DESIGNATION OF DRILL Vibrocure		<input type="checkbox"/> AUTO HAMMER <input type="checkbox"/> MANUAL HAMMER	
4. NAME OF DRILLER Construction Solutions International, Inc.				12. TOTAL SAMPLES 2		DISTURBED 2 UNDISTURBED (UD) 0	
5. DIRECTION OF BORING <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED		DEG. FROM VERTICAL		13. TOTAL NUMBER CORE BOXES			
		BEARING		14. WATER DEPTH 14 Ft.			
6. THICKNESS OF OVERBURDEN N/A				15. DATE BORING 05-08-10		STARTED 05-08-10 COMPLETED 05-08-10	
7. DEPTH DRILLED INTO ROCK N/A				16. ELEVATION TOP OF BORING -14.3 Ft.			
8. TOTAL DEPTH OF BORING 17.1 Ft.				17. TOTAL RECOVERY FOR BORING 100%			
				18. SIGNATURE AND TITLE OF INSPECTOR Marty Gates, Geologist			
ELEV.	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS	SAMPLE	LABORATORY RESULTS		
-14.3	0.0						
-15.8	1.5		SAND, silty, mostly fine to medium-grained sand-sized quartz, some silt, some shell fragments, gray (SM)	NS			
			SAND, poorly-graded, mostly fine to medium-grained sand-sized quartz, little silt, little shell fragments, lt. gray and tan (SP)	A	Classification: SP Color: 10YR 5/1-gray D50: 0.2066 mm % Fines: 4.6		
				B	Classification: SP Color: 10YR 6/1-gray D50: 0.2027 mm % Fines: 3.5		
-25.8	11.5						
			CLAY, lean, trace fine to medium-grained sand-sized quartz, dark gray (CL)	NS			
-29.3	15.0						
			SAND, poorly-graded, mostly fine to medium-grained sand-sized quartz, little clay, little shell fragments, gray (SP)				
-31.4	17.1						
			NOTES: 1. Soils are field visually classified in accordance with the Unified Soils Classification System. 2. NS = Sample not submitted for laboratory analysis from this interval. 3. Seafloor elevation calculated using sampling vessel's fathometer water depth reading and applying NOAA tidal gauge data conversion factor.				

# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.0	0.1	1.3	94.0	4.6	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
.375	100.0		
0.20	99.9		
#4	100.0		
#20	99.7		
#40	98.6		
#60	71.1		
#100	15.6		
#200	4.6		

\* (no specification provided)

<u>Material Description</u>		
SAND, (SP), fine grained, trace shell		
<u>Atterberg Limits</u>		
PL=	LL=	PI=
<u>Coefficients</u>		
D <sub>90</sub> = 0.3262	D <sub>85</sub> = 0.2982	D <sub>60</sub> = 0.2251
D <sub>50</sub> = 0.2066	D <sub>30</sub> = 0.1741	D <sub>15</sub> = 0.1441
D <sub>10</sub> = 0.1052	C <sub>u</sub> = 2.14	C <sub>c</sub> = 1.28
<u>Classification</u>		
USCS= SP	AASHTO=	
<u>Remarks</u>		
CADD CODE = CH10D965		

Location: USACE Sample # BI-MS-8-10A  
Sample Number: TE Lab ID: 4473.07

Depth: 1.5 - 6.5 (ft)

Date: 5/17/10

**Thompson Engineering**  
**Mobile, Alabama**

Client: US Army Corps of Engineers  
Project: Contract No. W91278-10-D-0026 - Task 03  
Mississippi Barrier Island Restoration Project  
Project No: 10-2123-0009

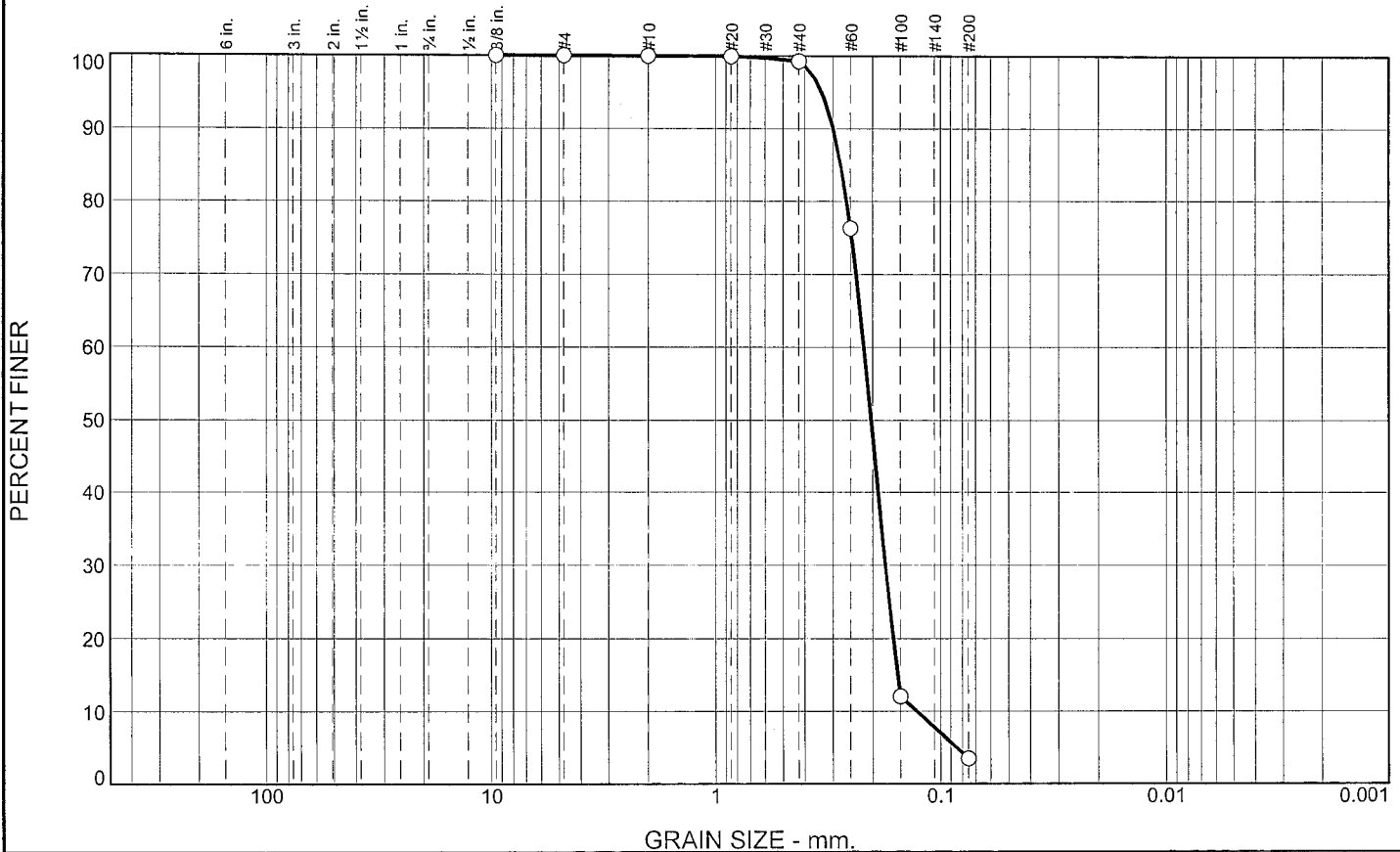
Figure

Tested By: L.Stokes

Checked By: R.Byrd



# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.0	0.0	0.7	95.8	3.5	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
.375	100.0		
#4	100.0		
#10	100.0		
#20	99.9		
#40	99.3		
#60	76.3		
#100	12.1		
#200	3.5		

\* (no specification provided)

**Material Description**  
SAND, (SP), fine grained, trace shell

**Atterberg Limits**  
PL= LL= PI=

**Coefficients**  
D<sub>90</sub>= 0.2988 D<sub>85</sub>= 0.2763 D<sub>60</sub>= 0.2181  
D<sub>50</sub>= 0.2027 D<sub>30</sub>= 0.1753 D<sub>15</sub>= 0.1546  
D<sub>10</sub>= 0.1271 C<sub>u</sub>= 1.72 C<sub>c</sub>= 1.11

**Classification**  
USCS= SP AASHTO=

**Remarks**  
CADD CODE = CH10D965

Location: USACE Sample # BI-MS-8-10B  
Sample Number: TE Lab ID: 4473.08

Depth: 6.5 - 11.5 (ft)

Date: 5/17/10

**Thompson Engineering**  
**Mobile, Alabama**

Client: US Army Corps of Engineers  
Project: Contract No. W91278-10-D-0026 - Task 03  
Mississippi Barrier Island Restoration Project  
Project No: 10-2123-0009

Figure

Tested By: L.Stokes

Checked By: R.Byrd

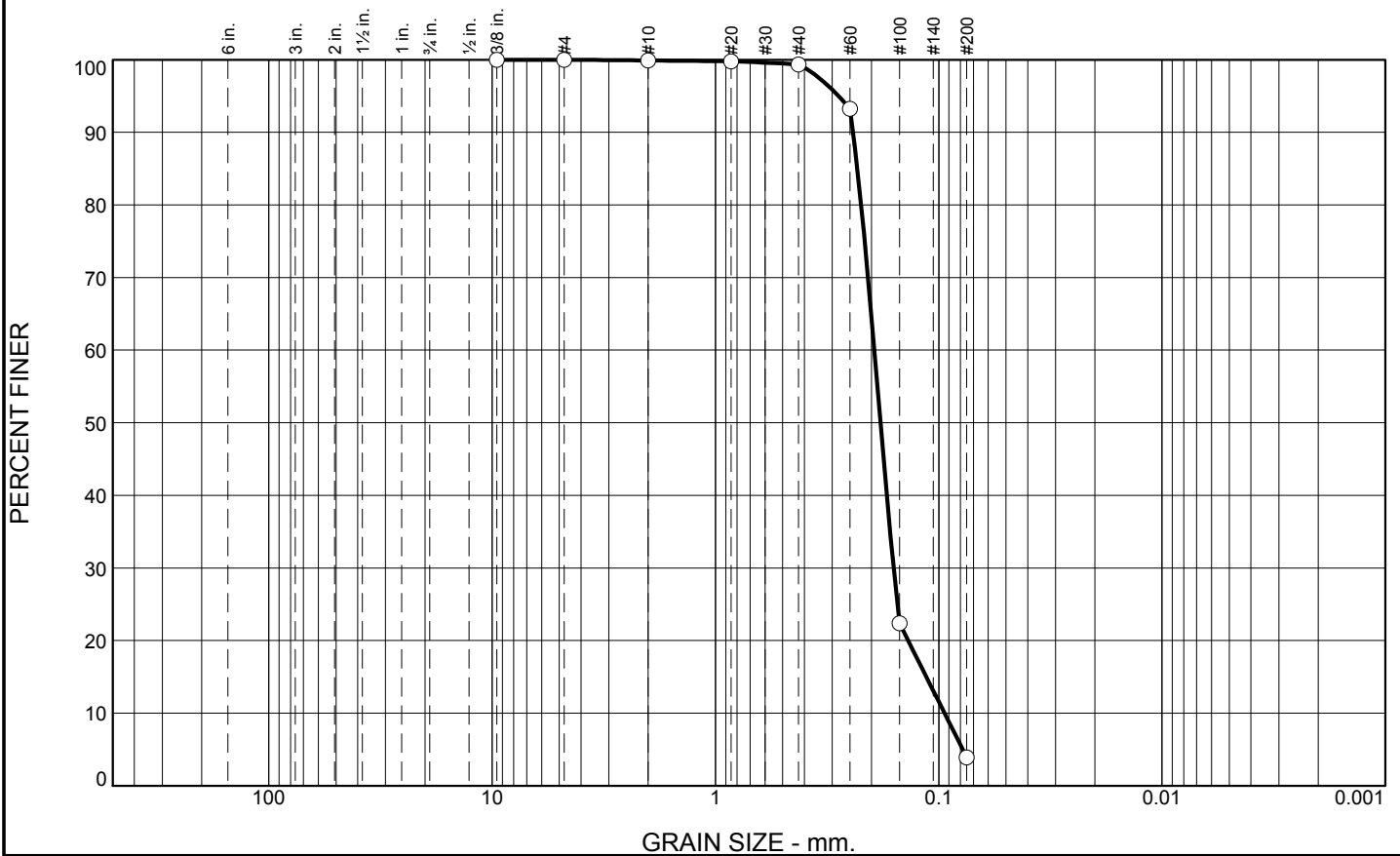
# Boring Designation BI-MS-09-10

DRILLING LOG		DIVISION South Atlantic		INSTALLATION Mobile District		SHEET 1 OF 1 SHEETS	
1. PROJECT MsCIP Barrier Island Restoration Mississippi Sound				9. SIZE AND TYPE OF BIT N/A			
2. BORING DESIGNATION BI-MS-09-10		LOCATION COORDINATES E = 925,117 N = 273,447		10. COORDINATE SYSTEM/DATUM State Plane, MSE (U.S. Ft.)		HORIZONTAL NAD83 VERTICAL NAVD88	
3. DRILLING AGENCY Corps of Engineers - CESAM		CONTRACTOR FILE NO.		11. MANUFACTURER'S DESIGNATION OF DRILL Vibracore		<input type="checkbox"/> AUTO HAMMER <input type="checkbox"/> MANUAL HAMMER	
4. NAME OF DRILLER Construction Solutions International, Inc.				12. TOTAL SAMPLES		DISTURBED 1 UNDISTURBED (UD) 0	
5. DIRECTION OF BORING <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED		DEG. FROM VERTICAL		13. TOTAL NUMBER CORE BOXES			
		BEARING		14. WATER DEPTH 8 Ft.			
6. THICKNESS OF OVERBURDEN N/A				15. DATE BORING		STARTED 05-06-10 COMPLETED 05-06-10	
7. DEPTH DRILLED INTO ROCK N/A				16. ELEVATION TOP OF BORING -7.3 Ft.			
8. TOTAL DEPTH OF BORING 14.6 Ft.				17. TOTAL RECOVERY FOR BORING 100%			
				18. SIGNATURE AND TITLE OF INSPECTOR J. Krick, Geotechnical Engineer			

ELEV.	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS	SAMPLE	LABORATORY RESULTS
-7.3	0.0				
			SAND, poorly-graded, mostly fine to medium-grained sand-sized quartz, trace silt, trace shell fragments, gray (SP)	A	Classification: SP Color: 10YR 5/1-gray D50: 0.1824 mm % Fines: 3.9
-12.3	5.0		SAND, silty, mostly fine-grained sand-sized quartz, gray (SM)		
-16.3	9.0		CLAY, lean, dark gray (CL)	NS	
-20.8	13.5		SAND, silty, mostly fine-grained sand-sized quartz, trace shell fragments, gray (SM)		
-21.9	14.6				
			NOTES: 1. Soils are field visually classified in accordance with the Unified Soils Classification System. 2. NS = Sample not submitted for laboratory analysis from this interval. 3. Seafloor elevation calculated using sampling vessel's fathometer water depth reading and applying NOAA tidal gauge data conversion factor.		

# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.0	0.1	0.5	95.5	3.9	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
.375	100.0		
#4	100.0		
#10	99.9		
#20	99.8		
#40	99.4		
#60	93.2		
#100	22.4		
#200	3.9		

\* (no specification provided)

<u><b>Material Description</b></u>		
SAND, (SP), fine grained		
<u><b>Atterberg Limits</b></u>		
PL=	LL=	PI=
<u><b>Coefficients</b></u>		
D <sub>90</sub> = 0.2418	D <sub>85</sub> = 0.2314	D <sub>60</sub> = 0.1944
D <sub>50</sub> = 0.1824	D <sub>30</sub> = 0.1594	D <sub>15</sub> = 0.1137
D <sub>10</sub> = 0.0942	C <sub>u</sub> = 2.06	C <sub>c</sub> = 1.39
<u><b>Classification</b></u>		
USCS= SP	AASHTO=	
<u><b>Remarks</b></u>		
CADD CODE = CH10D965		

Location: USACE Sample # BI-MS-9-10A  
Sample Number: TE Lab ID: 4461.23

Depth: 0.0 - 5.0 (ft)

Date: 5/13/10

**Thompson Engineering**  
**Mobile, Alabama**

**Client:** US Army Corps of Engineers  
**Project:** Mississippi Barrier Island Restoration Project  
Contract No. W91278-10-D-0026 - Task 03  
**Project No:** 1021230009

**Figure**

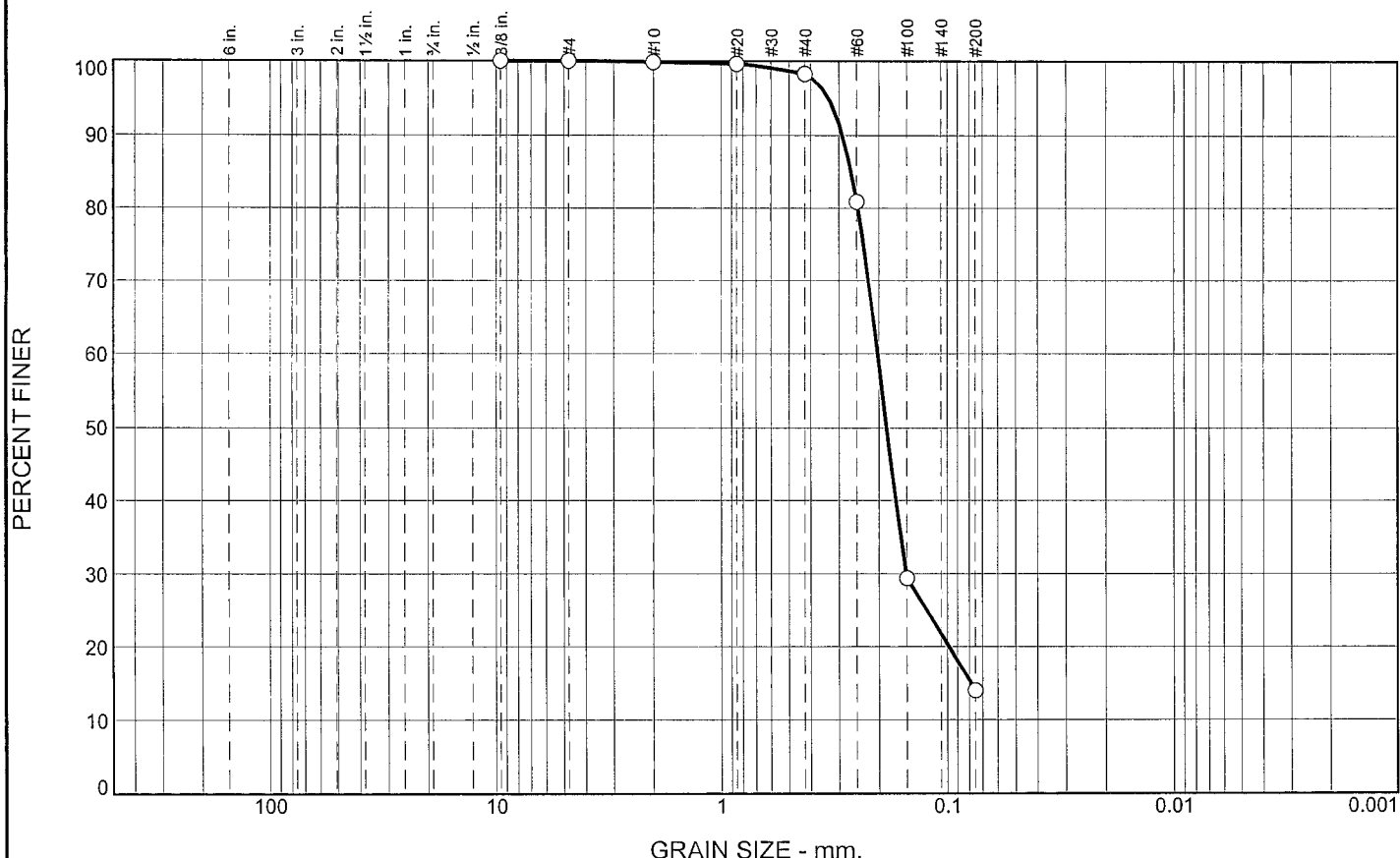
Tested By: J.Maddox/L.Stokes

Checked By: R.Byrd

# Boring Designation BI-MS-10-10

DRILLING LOG		DIVISION South Atlantic		INSTALLATION Mobile District		SHEET 1 OF 1 SHEETS	
1. PROJECT MsCIP Barrier Island Restoration Mississippi Sound				9. SIZE AND TYPE OF BIT N/A			
2. BORING DESIGNATION BI-MS-10-10		LOCATION COORDINATES E = 925,591 N = 270,137		10. COORDINATE SYSTEM/DATUM State Plane, MSE (U.S. Ft.)		HORIZONTAL NAD83	
3. DRILLING AGENCY Corps of Engineers - CESAM		CONTRACTOR FILE NO.		11. MANUFACTURER'S DESIGNATION OF DRILL Vibrocure		<input type="checkbox"/> AUTO HAMMER <input type="checkbox"/> MANUAL HAMMER	
4. NAME OF DRILLER Construction Solutions International, Inc.				12. TOTAL SAMPLES 3		UNDISTURBED (UD) 0	
5. DIRECTION OF BORING <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED		DEG. FROM VERTICAL		13. TOTAL NUMBER CORE BOXES			
		BEARING		14. WATER DEPTH 12 Ft.			
6. THICKNESS OF OVERBURDEN N/A				15. DATE BORING 05-08-10		COMPLETED 05-08-10	
7. DEPTH DRILLED INTO ROCK N/A				16. ELEVATION TOP OF BORING -12.1 Ft.			
8. TOTAL DEPTH OF BORING 15.7 Ft.				17. TOTAL RECOVERY FOR BORING 100%			
				18. SIGNATURE AND TITLE OF INSPECTOR Marty Gates, Geologist			
ELEV.	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS	SAMPLE	LABORATORY RESULTS		
-12.1	0.0						
-15.1	3.0		SAND, silty, mostly fine to medium-grained sand-sized quartz, some silt, trace shell fragments, gray (SM)	A	Classification: SM Color: 10YR 4/1-dark gray D50: 0.1849 mm % Fines: 14		
-16.3	4.2		SILT, inorganic-L, trace fine to medium-grained sand-sized quartz, gray (ML)	NS			
-20.1	8.0		SAND, silty, mostly fine to medium-grained sand-sized quartz, some silt, gray (SM)	B	Classification: SP-SM Color: 10YR 4/1-dark gray D50: 0.1711 mm % Fines: 11.9		
-27.8	15.7		SAND, poorly-graded, mostly fine to medium-grained sand-sized quartz, little silt, lt. gray (SP)	C	Classification: SP-SM Color: 10YR 6/1-gray D50: 0.184 mm % Fines: 6.1		
			NOTES: 1. Soils are field visually classified in accordance with the Unified Soils Classification System. 2. NS = Sample not submitted for laboratory analysis from this interval. 3. Seafloor elevation calculated using sampling vessel's fathometer water depth reading and applying NOAA tidal gauge data conversion factor.				

# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.0	0.2	1.5	84.3	14.0	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
.375	100.0		
#4	100.0		
#10	99.8		
#20	99.6		
#40	98.3		
#60	80.8		
#100	29.3		
#200	14.0		

\* (no specification provided)

**Material Description**  
SILTY SAND, (SM), fine grained, with trace shell

**Atterberg Limits**  
 PL=                      LL=                      PI=

**Coefficients**  
 D<sub>90</sub>= 0.2896      D<sub>85</sub>= 0.2649      D<sub>60</sub>= 0.2023  
 D<sub>50</sub>= 0.1849      D<sub>30</sub>= 0.1512      D<sub>15</sub>= 0.0786  
 D<sub>10</sub>=                      C<sub>u</sub>=                      C<sub>c</sub>=

**Classification**  
 USCS= SM                      AASHTO=

**Remarks**  
 CADD CODE = CH10D965

Location: USACE Sample # BI-MS-10-10A  
 Sample Number: TE Lab ID: 4473.09

Depth: 0.0 - 3.0 (ft)

Date: 5/17/10

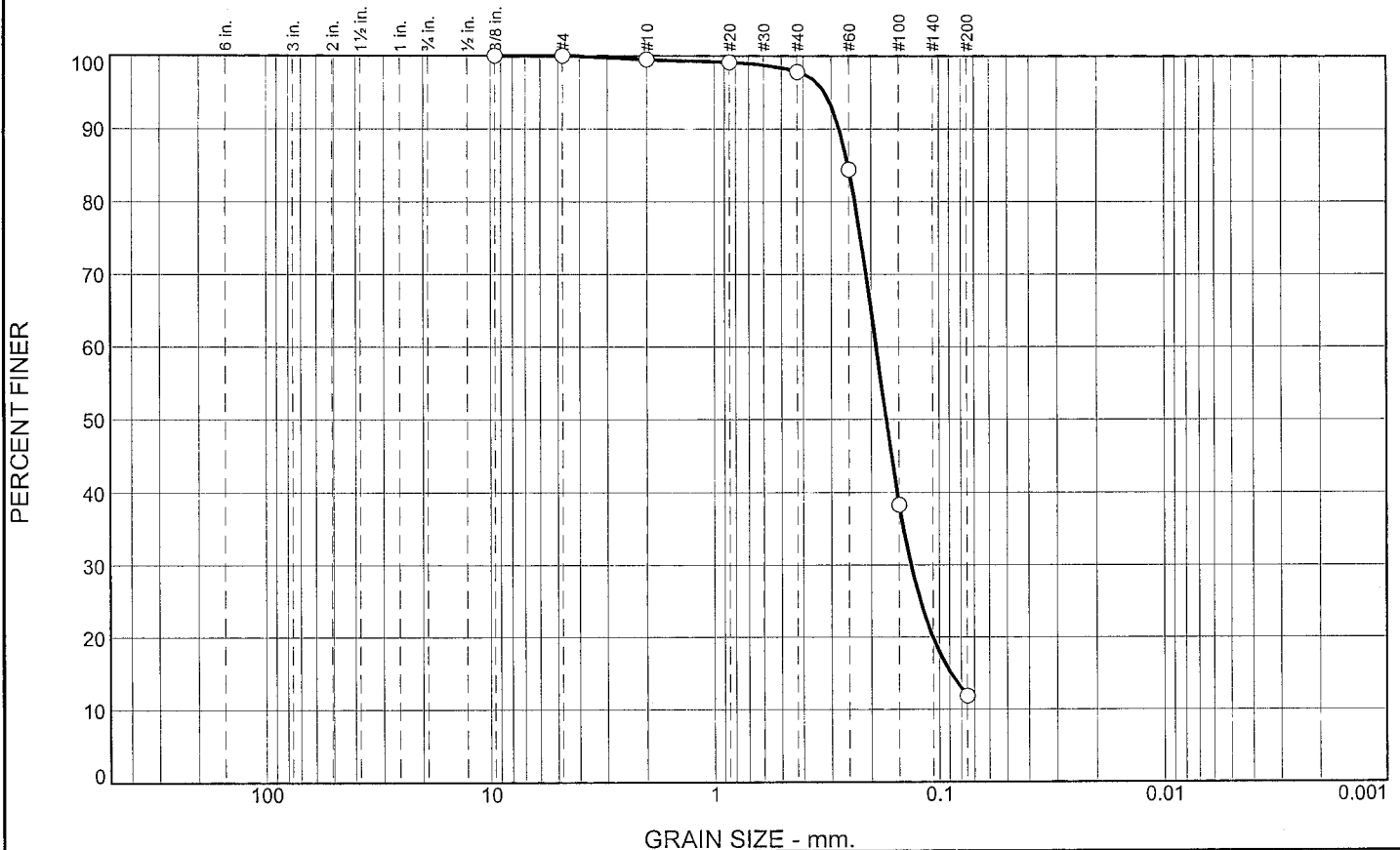
**Thompson Engineering**  
  
**Mobile, Alabama**

Client: US Army Corps of Engineers  
 Project: Contract No. W91278-10-D-0026 - Task 03  
 Mississippi Barrier Island Restoration Project  
 Project No: 10-2123-0009

Figure

Tested By: L.Stokes                      Checked By: R.Byrd

# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.0	0.5	1.7	85.9	11.9	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
.375	100.0		
#4	100.0		
#10	99.5		
#20	99.1		
#40	97.8		
#60	84.4		
#100	38.3		
#200	11.9		

\* (no specification provided)

**Material Description**  
SAND, (SP-SM), fine grained, with trace shell

**Atterberg Limits**  
 PL=                      LL=                      PI=

**Coefficients**  
 D<sub>90</sub>= 0.2764      D<sub>85</sub>= 0.2522      D<sub>60</sub>= 0.1895  
 D<sub>50</sub>= 0.1711      D<sub>30</sub>= 0.1331      D<sub>15</sub>= 0.0887  
 D<sub>10</sub>=                      C<sub>u</sub>=                      C<sub>c</sub>=

**Classification**  
 USCS= SP-SM                      AASHTO=

**Remarks**  
 CADD CODE = CH10D965

Location: USACE Sample # BI-MS-10-10B  
 Sample Number: TE Lab ID: 4473.10

Depth: 4.2 - 8.0 (ft)

Date: 5/17/10

**Thompson Engineering**  
  
**Mobile, Alabama**

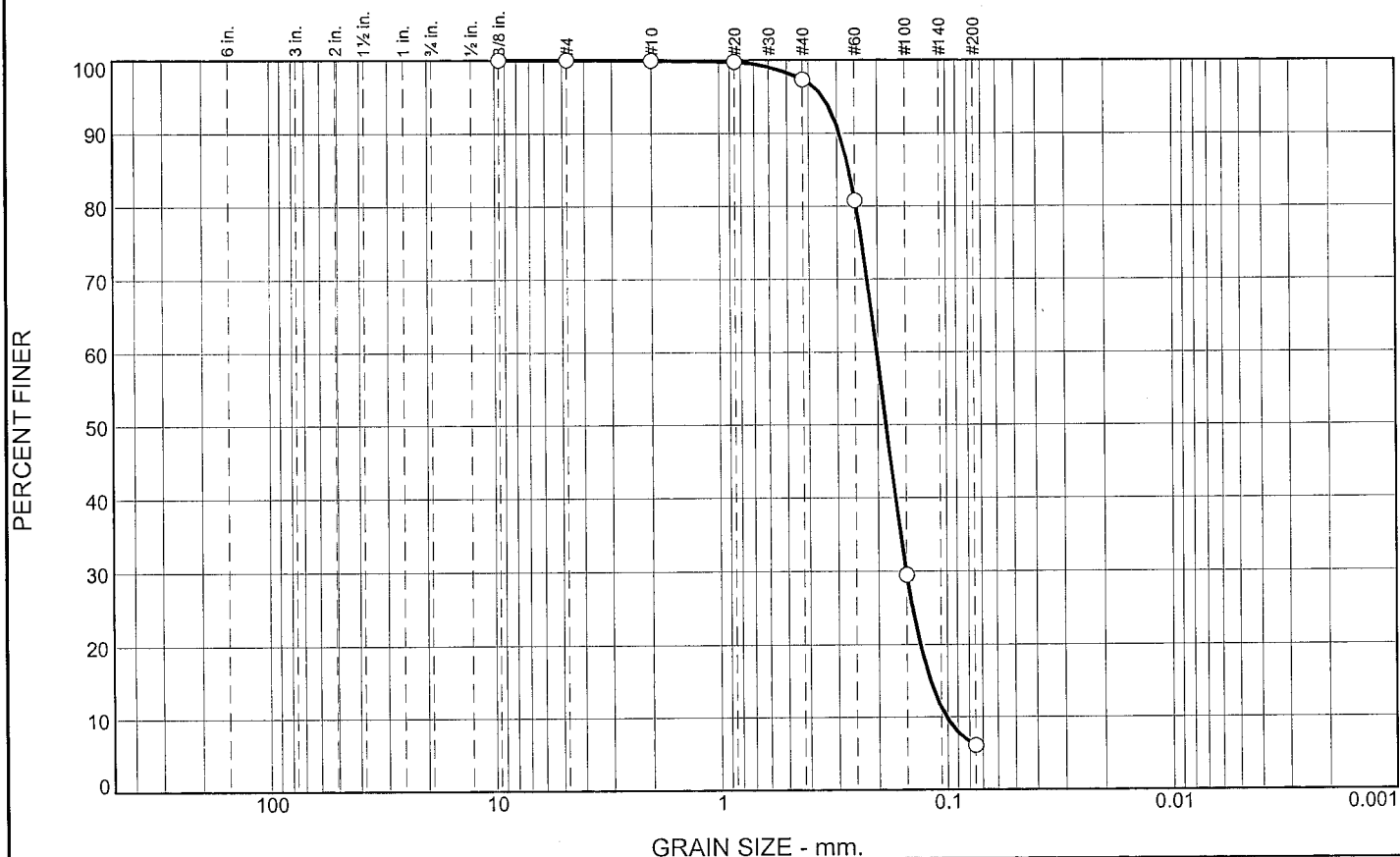
Client: US Army Corps of Engineers  
 Project: Contract No. W91278-10-D-0026 - Task 03  
 Mississippi Barrier Island Restoration Project  
 Project No: 10-2123-0009

Figure

Tested By: L.Stokes

Checked By: R.Byrd

# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.0	0.1	2.6	91.2	6.1	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
.375	100.0		
#4	100.0		
#10	99.9		
#20	99.7		
#40	97.3		
#60	80.7		
#100	29.5		
#200	6.1		

\* (no specification provided)

**Material Description**  
SAND, (SP-SM), fine grained, with trace shell

**Atterberg Limits**  
 PL=                      LL=                      PI=

**Coefficients**  
 D<sub>90</sub>= 0.2928      D<sub>85</sub>= 0.2659      D<sub>60</sub>= 0.2015  
 D<sub>50</sub>= 0.1840      D<sub>30</sub>= 0.1509      D<sub>15</sub>= 0.1185  
 D<sub>10</sub>= 0.1010      C<sub>u</sub>= 2.00              C<sub>c</sub>= 1.12

**Classification**  
 USCS= SP-SM                      AASHTO=

**Remarks**  
 CADD CODE = CH10D965

Location: USACE Sample # BI-MS-10-10C  
 Sample Number: TE Lab ID: 4473.11

Depth: 8.0 - 15.7 (ft)

Date: 5/17/10

**Thompson Engineering**  
  
**Mobile, Alabama**

Client: US Army Corps of Engineers  
 Project: Contract No. W91278-10-D-0026 - Task 03  
 Mississippi Barrier Island Restoration Project  
 Project No: 10-2123-0009

Figure

Tested By: L.Stokes

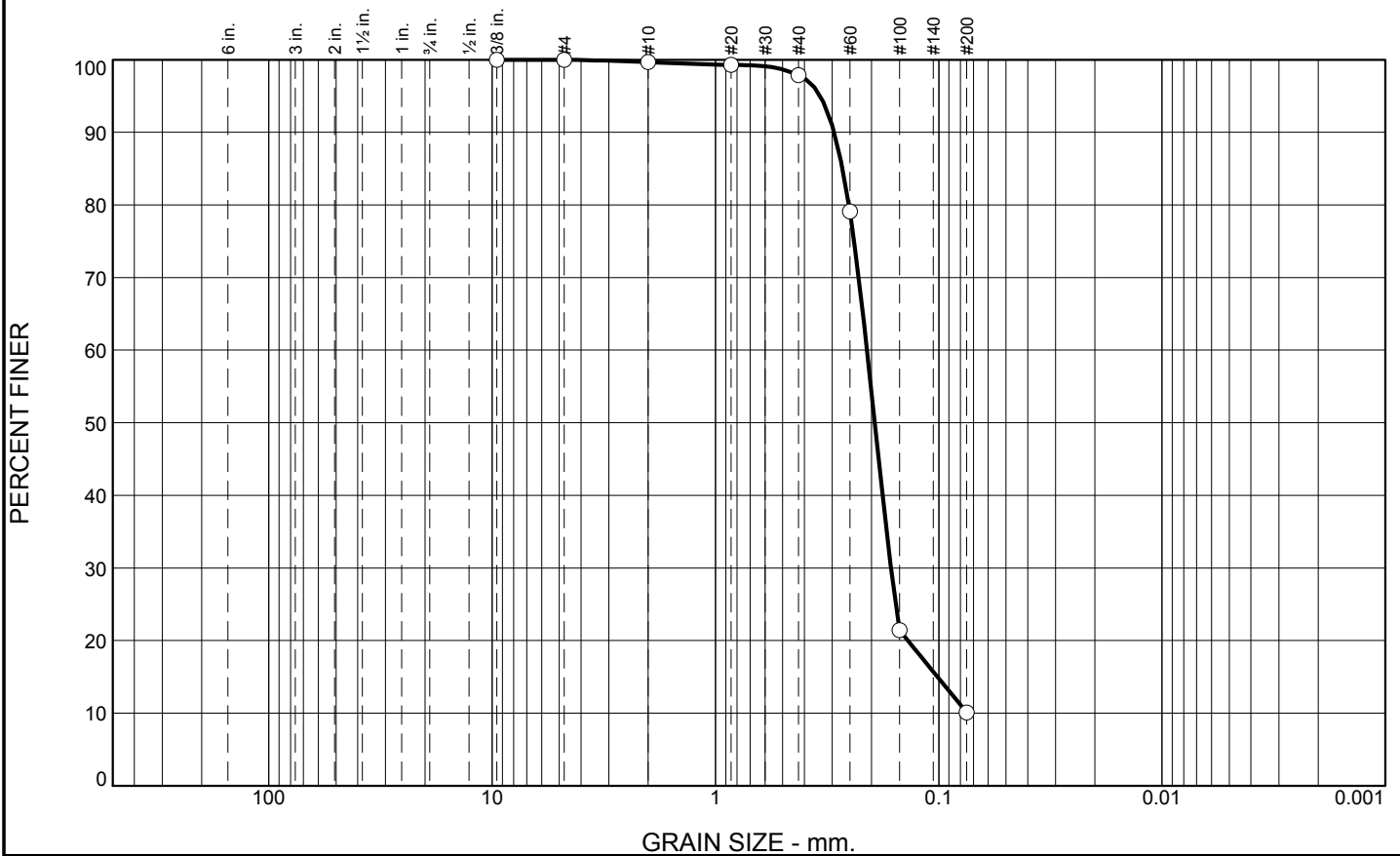
Checked By: R.Byrd

# Boring Designation BI-MS-11-10

DRILLING LOG		DIVISION South Atlantic		INSTALLATION Mobile District		SHEET 1 OF 1 SHEETS	
1. PROJECT MsCIP Barrier Island Restoration Mississippi Sound				9. SIZE AND TYPE OF BIT N/A			
2. BORING DESIGNATION BI-MS-11-10		LOCATION COORDINATES E = 929,985 N = 265,075		10. COORDINATE SYSTEM/DATUM State Plane, MSE (U.S. Ft.)		HORIZONTAL NAD83 VERTICAL NAVD88	
3. DRILLING AGENCY Corps of Engineers - CESAM		CONTRACTOR FILE NO.		11. MANUFACTURER'S DESIGNATION OF DRILL Vibrocure		<input type="checkbox"/> AUTO HAMMER <input type="checkbox"/> MANUAL HAMMER	
4. NAME OF DRILLER Construction Solutions International, Inc.				12. TOTAL SAMPLES 1		DISTURBED 1 UNDISTURBED (UD) 0	
5. DIRECTION OF BORING <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED		DEG. FROM VERTICAL		13. TOTAL NUMBER CORE BOXES			
		BEARING		14. WATER DEPTH 17 Ft.			
6. THICKNESS OF OVERBURDEN N/A				15. DATE BORING 05-05-10		STARTED 05-05-10 COMPLETED 05-05-10	
7. DEPTH DRILLED INTO ROCK N/A				16. ELEVATION TOP OF BORING -15.9 Ft.			
8. TOTAL DEPTH OF BORING 11.6 Ft.				17. TOTAL RECOVERY FOR BORING 100%			
				18. SIGNATURE AND TITLE OF INSPECTOR J. Krick, Geotechnical Engineer			
ELEV.	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS	SAMPLE	LABORATORY RESULTS		
-15.9	0.0						
			SAND, poorly-graded, mostly fine to medium-grained sand-sized quartz, some silt, trace shell fragments, gray (SP)	A	Classification: SP-SM Color: 10YR 4/2-dark grayish brown D50: 0.1935 mm % Fines: 10.1		
-20.2	4.3						
-20.6	4.6		SAND, silty, mostly fine-grained sand-sized quartz, some silt, gray (SM)				
			SAND, clayey, mostly fine-grained sand-sized quartz, gray (SC)	NS			
-27.5	11.6						
NOTES:							
1. Soils are field visually classified in accordance with the Unified Soils Classification System.							
2. NS = Sample not submitted for laboratory analysis from this interval.							
3. Seafloor elevation calculated using sampling vessel's fathometer water depth reading and applying NOAA tidal gauge data conversion factor.							



# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.0	0.3	1.8	87.8	10.1	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
.375	100.0		
#4	100.0		
#10	99.7		
#20	99.3		
#40	97.9		
#60	79.1		
#100	21.4		
#200	10.1		

\* (no specification provided)

**Material Description**  
SAND, (SP-SM), fine grained, with trace shell

**Atterberg Limits**  
 PL=      LL=      PI=

**Coefficients**  
 D<sub>90</sub>= 0.2940      D<sub>85</sub>= 0.2696      D<sub>60</sub>= 0.2097  
 D<sub>50</sub>= 0.1935      D<sub>30</sub>= 0.1637      D<sub>15</sub>= 0.1013  
 D<sub>10</sub>=              C<sub>u</sub>=              C<sub>c</sub>=

**Classification**  
 USCS= SP-SM      AASHTO=

**Remarks**  
 CADD CODE = CH10D965

**Location:** USACE Sample # BI-MS-11-10A  
**Sample Number:** TE Lab ID: 4461.24

**Depth:** 0.0 - 4.08 (ft)

**Date:** 5/13/10

**Thompson Engineering**  
  
**Mobile, Alabama**

**Client:** US Army Corps of Engineers  
**Project:** Mississippi Barrier Island Restoration Project  
 Contract No. W91278-10-D-0026 - Task 03  
**Project No:** 1021230009

**Figure**

**Tested By:** J.Maddox/L.Stokes

**Checked By:** R.Byrd

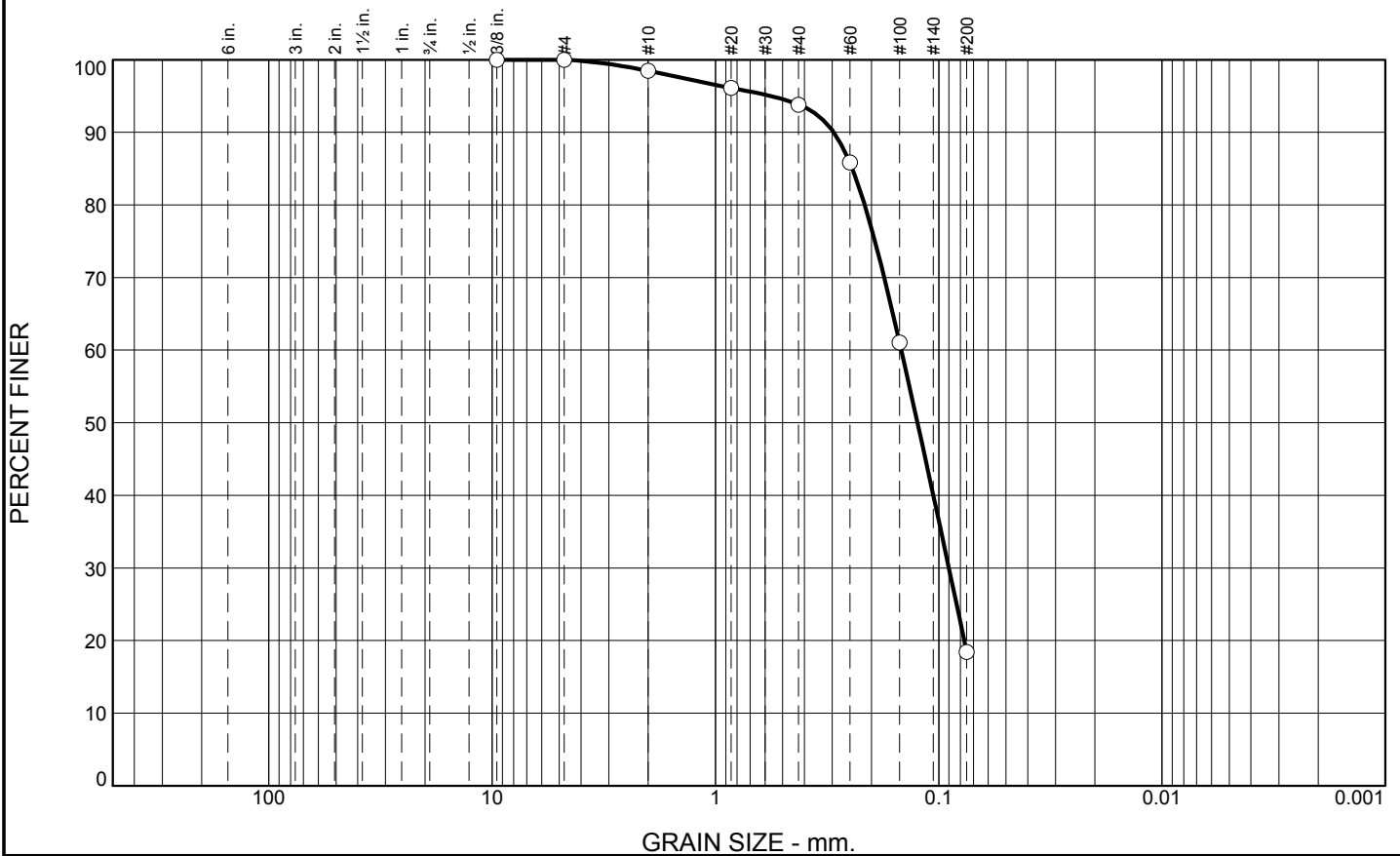
# Boring Designation BI-MS-12-10

DRILLING LOG		DIVISION South Atlantic		INSTALLATION Mobile District		SHEET 1 OF 1 SHEETS	
1. PROJECT MsCIP Barrier Island Restoration Mississippi Sound				9. SIZE AND TYPE OF BIT N/A			
2. BORING DESIGNATION BI-MS-12-10		LOCATION COORDINATES E = 934,187 N = 266,371		10. COORDINATE SYSTEM/DATUM State Plane, MSE (U.S. Ft.)		HORIZONTAL NAD83 VERTICAL NAVD88	
3. DRILLING AGENCY Corps of Engineers - CESAM		CONTRACTOR FILE NO.		11. MANUFACTURER'S DESIGNATION OF DRILL Vibracore		<input type="checkbox"/> AUTO HAMMER <input type="checkbox"/> MANUAL HAMMER	
4. NAME OF DRILLER Construction Solutions International, Inc.				12. TOTAL SAMPLES 3		DISTURBED 0 UNDISTURBED (UD)	
5. DIRECTION OF BORING <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED		DEG. FROM VERTICAL		13. TOTAL NUMBER CORE BOXES			
		BEARING		14. WATER DEPTH 19 Ft.			
6. THICKNESS OF OVERBURDEN N/A				15. DATE BORING 05-05-10		STARTED 05-05-10 COMPLETED 05-05-10	
7. DEPTH DRILLED INTO ROCK N/A				16. ELEVATION TOP OF BORING -17.9 Ft.			
8. TOTAL DEPTH OF BORING 13.9 Ft.				17. TOTAL RECOVERY FOR BORING 100%			
				18. SIGNATURE AND TITLE OF INSPECTOR J. Krick, Geotechnical Engineer			

ELEV.	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS	SAMPLE	LABORATORY RESULTS
-17.9	0.0				
			SAND, silty, mostly fine-grained sand-sized quartz, with lenses of fat clay, gray (SM)	A	Classification: SM Color: 10YR 4/1-dark gray D50: 0.1246 mm % Fines: 18.4
				B	Classification: SM Color: 10YR 4/1-dark gray D50: 0.1525 mm % Fines: 26.4
-24.7	6.8				
			SAND, poorly-graded, mostly fine to medium-grained sand-sized quartz, little silt, gray (SP)	C	Classification: SM Color: 10YR 4/1-dark gray D50: 0.1492 mm % Fines: 14.3
-30.6	12.7			NS	
-30.8	12.9		SAND, clayey, mostly fine-grained sand-sized quartz, gray (SC)		
-31.8	13.9		SAND, silty, mostly fine-grained sand-sized quartz, gray (SM)		
NOTES: 1. Soils are field visually classified in accordance with the Unified Soils Classification System. 2. NS = Sample not submitted for laboratory analysis from this interval. 3. Seafloor elevation calculated using sampling vessel's fathometer water depth reading and applying NOAA tidal gauge data conversion factor.					

# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.0	1.5	4.7	75.4	18.4	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
.375	100.0		
#4	100.0		
#10	98.5		
#20	96.1		
#40	93.8		
#60	85.8		
#100	61.1		
#200	18.4		

\* (no specification provided)

**Material Description**  
SILTY SAND, (SM), fine grained, with clay pockets

**Atterberg Limits**  
 PL=      LL=      PI=

**Coefficients**  
 D<sub>90</sub>= 0.2952      D<sub>85</sub>= 0.2438      D<sub>60</sub>= 0.1473  
 D<sub>50</sub>= 0.1246      D<sub>30</sub>= 0.0901      D<sub>15</sub>=  
 D<sub>10</sub>=      C<sub>u</sub>=      C<sub>c</sub>=

**Classification**  
 USCS= SM      AASHTO=

**Remarks**  
 CADD CODE = CH10D965

**Location:** USACE Sample # BI-MS-12-10A  
**Sample Number:** TE Lab ID: 4461.25

**Depth:** 0.0 - 3.0 (ft)

**Date:** 5/13/10

**Thompson Engineering**  
  
**Mobile, Alabama**

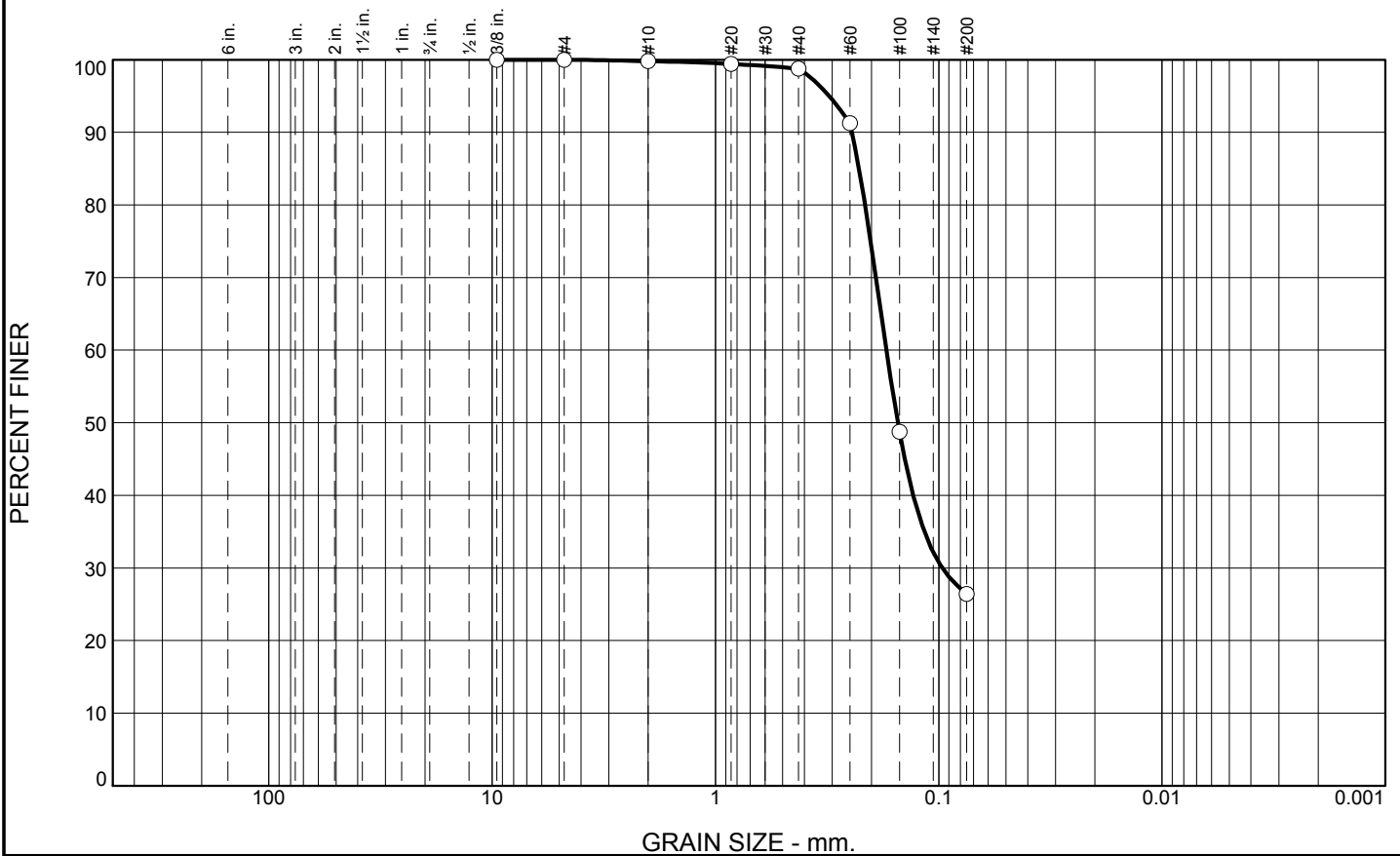
**Client:** US Army Corps of Engineers  
**Project:** Mississippi Barrier Island Restoration Project  
 Contract No. W91278-10-D-0026 - Task 03  
**Project No:** 1021230009

**Figure**

**Tested By:** J.Maddox/L.Stokes

**Checked By:** R.Byrd

# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.0	0.2	1.0	72.4	26.4	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
.375	100.0		
#4	100.0		
#10	99.8		
#20	99.4		
#40	98.8		
#60	91.3		
#100	48.8		
#200	26.4		

\* (no specification provided)

## Material Description

SILTY SAND, (SM), fine grained, with clay pockets

## Atterberg Limits

PL=

LL=

PI=

## Coefficients

D<sub>90</sub>= 0.2447

D<sub>85</sub>= 0.2276

D<sub>60</sub>= 0.1716

D<sub>50</sub>= 0.1525

D<sub>30</sub>= 0.0964

D<sub>15</sub>=

D<sub>10</sub>=

C<sub>u</sub>=

C<sub>c</sub>=

## Classification

USCS= SM

AASHTO=

## Remarks

CADD CODE = CH10D965

Location: USACE Sample # BI-MS-12-10B  
Sample Number: TE Lab ID: 4461.26

Depth: 4.0 - 6.67 (ft)

Date: 5/13/10

**Thompson Engineering**

**Mobile, Alabama**

Client: US Army Corps of Engineers

Project: Mississippi Barrier Island Restoration Project  
Contract No. W91278-10-D-0026 - Task 03

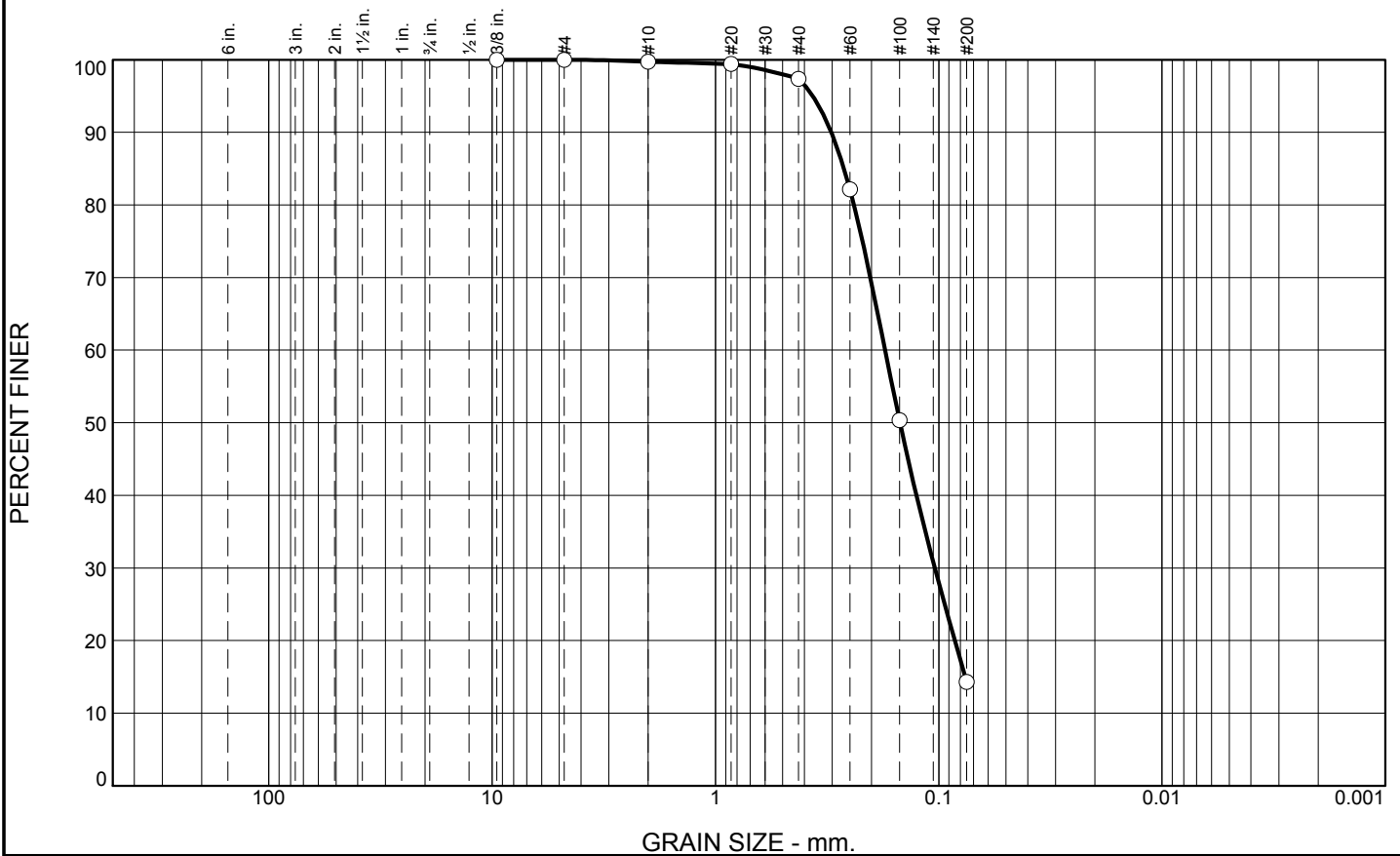
Project No: 1021230009

Figure

Tested By: J.Maddox/L.Stokes

Checked By: R.Byrd

# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.0	0.3	2.3	83.1	14.3	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
.375	100.0		
#4	100.0		
#10	99.7		
#20	99.4		
#40	97.4		
#60	82.2		
#100	50.3		
#200	14.3		

\* (no specification provided)

## Material Description

SILTY SAND, (SM), fine grained, with clay nodules

## Atterberg Limits

PL=

LL=

PI=

## Coefficients

D<sub>90</sub>= 0.3027

D<sub>85</sub>= 0.2657

D<sub>60</sub>= 0.1740

D<sub>50</sub>= 0.1492

D<sub>30</sub>= 0.1041

D<sub>15</sub>= 0.0762

D<sub>10</sub>=

C<sub>u</sub>=

C<sub>c</sub>=

## Classification

USCS= SM

AASHTO=

## Remarks

CADD CODE = CH10D965

Location: USACE Sample # BI-MS-12-10C  
Sample Number: TE Lab ID: 4461.27

Depth: 6.67- 11.47 (ft)

Date: 5/13/10

**Thompson Engineering**

**Mobile, Alabama**

Client: US Army Corps of Engineers

Project: Mississippi Barrier Island Restoration Project  
Contract No. W91278-10-D-0026 - Task 03

Project No: 1021230009

Figure

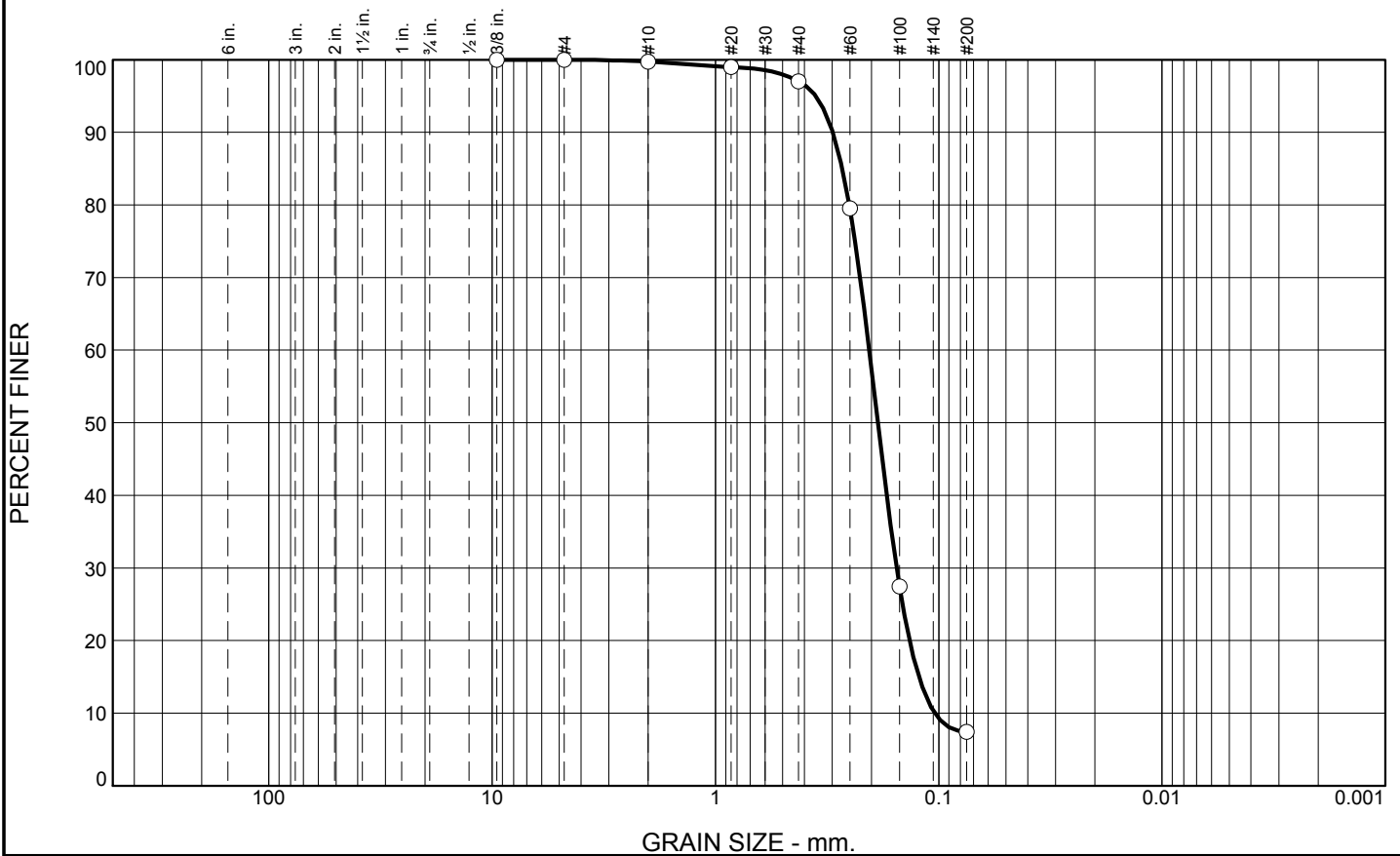
Tested By: J.Maddox/L.Stokes

Checked By: R.Byrd

# Boring Designation BI-MS-13-10

DRILLING LOG		DIVISION South Atlantic		INSTALLATION Mobile District		SHEET 1 OF 1 SHEETS	
1. PROJECT MsCIP Barrier Island Restoration Mississippi Sound				9. SIZE AND TYPE OF BIT N/A			
2. BORING DESIGNATION BI-MS-13-10		LOCATION COORDINATES E = 935,239 N = 266,395		10. COORDINATE SYSTEM/DATUM State Plane, MSE (U.S. Ft.)		HORIZONTAL NAD83 VERTICAL NAVD88	
3. DRILLING AGENCY Corps of Engineers - CESAM		CONTRACTOR FILE NO.		11. MANUFACTURER'S DESIGNATION OF DRILL Vibracore		<input type="checkbox"/> AUTO HAMMER <input type="checkbox"/> MANUAL HAMMER	
4. NAME OF DRILLER Construction Solutions International, Inc.				12. TOTAL SAMPLES 3		DISTURBED 0 UNDISTURBED (UD)	
5. DIRECTION OF BORING <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED		DEG. FROM VERTICAL		13. TOTAL NUMBER CORE BOXES			
		BEARING		14. WATER DEPTH 17 Ft.			
6. THICKNESS OF OVERBURDEN N/A				15. DATE BORING 05-06-10		STARTED 05-06-10 COMPLETED 05-06-10	
7. DEPTH DRILLED INTO ROCK N/A				16. ELEVATION TOP OF BORING -16.6 Ft.			
8. TOTAL DEPTH OF BORING 13.6 Ft.				17. TOTAL RECOVERY FOR BORING 100%			
				18. SIGNATURE AND TITLE OF INSPECTOR J. Krick, Geotechnical Engineer			
ELEV.	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS	SAMPLE	LABORATORY RESULTS		
-16.6	0.0						
-20.2	3.6		SAND, poorly-graded, mostly fine to medium-grained sand-sized quartz, trace shell fragments, gray (SP)  SAND, poorly-graded, mostly fine to medium-grained sand-sized quartz, trace shell fragments, trace silt, gray (SP) SAND, poorly-graded, mostly fine-grained sand-sized quartz, trace silt, gray (SP)	A	Classification: SP-SM Color: 10YR 6/1-gray D50: 0.1873 mm % Fines: 7.4		
-21.2	4.6			B	Classification: SM Color: 10YR 5/1-gray D50: 0.1408 mm % Fines: 23		
-30.2	13.6			C	Classification: SP-SM Color: 10YR 5/2-grayish brown D50: 0.1248 mm % Fines: 13.3		
			NOTES:				
			1. Soils are field visually classified in accordance with the Unified Soils Classification System.				
			2. NS = Sample not submitted for laboratory analysis from this interval.				
			3. Seafloor elevation calculated using sampling vessel's fathometer water depth reading and applying NOAA tidal gauge data conversion factor.				

# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.0	0.3	2.7	89.6	7.4	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
.375	100.0		
#4	100.0		
#10	99.7		
#20	99.0		
#40	97.0		
#60	79.5		
#100	27.4		
#200	7.4		

\* (no specification provided)

## Material Description

SAND, (SP-SM), fine grained

## Atterberg Limits

PL=

LL=

PI=

## Coefficients

D<sub>90</sub>= 0.2983

D<sub>85</sub>= 0.2704

D<sub>60</sub>= 0.2048

D<sub>50</sub>= 0.1873

D<sub>30</sub>= 0.1545

D<sub>15</sub>= 0.1227

D<sub>10</sub>= 0.1043

C<sub>u</sub>= 1.96

C<sub>c</sub>= 1.12

## Classification

USCS= SP-SM

AASHTO=

## Remarks

CADD CODE = CH10D965

Location: USACE Sample # BI-MS-13-10A  
Sample Number: TE Lab ID: 4461.28

Depth: 0.0 - 4.5 (ft)

Date: 5/13/10

**Thompson Engineering**

**Mobile, Alabama**

Client: US Army Corps of Engineers

Project: Mississippi Barrier Island Restoration Project  
Contract No. W91278-10-D-0026 - Task 03

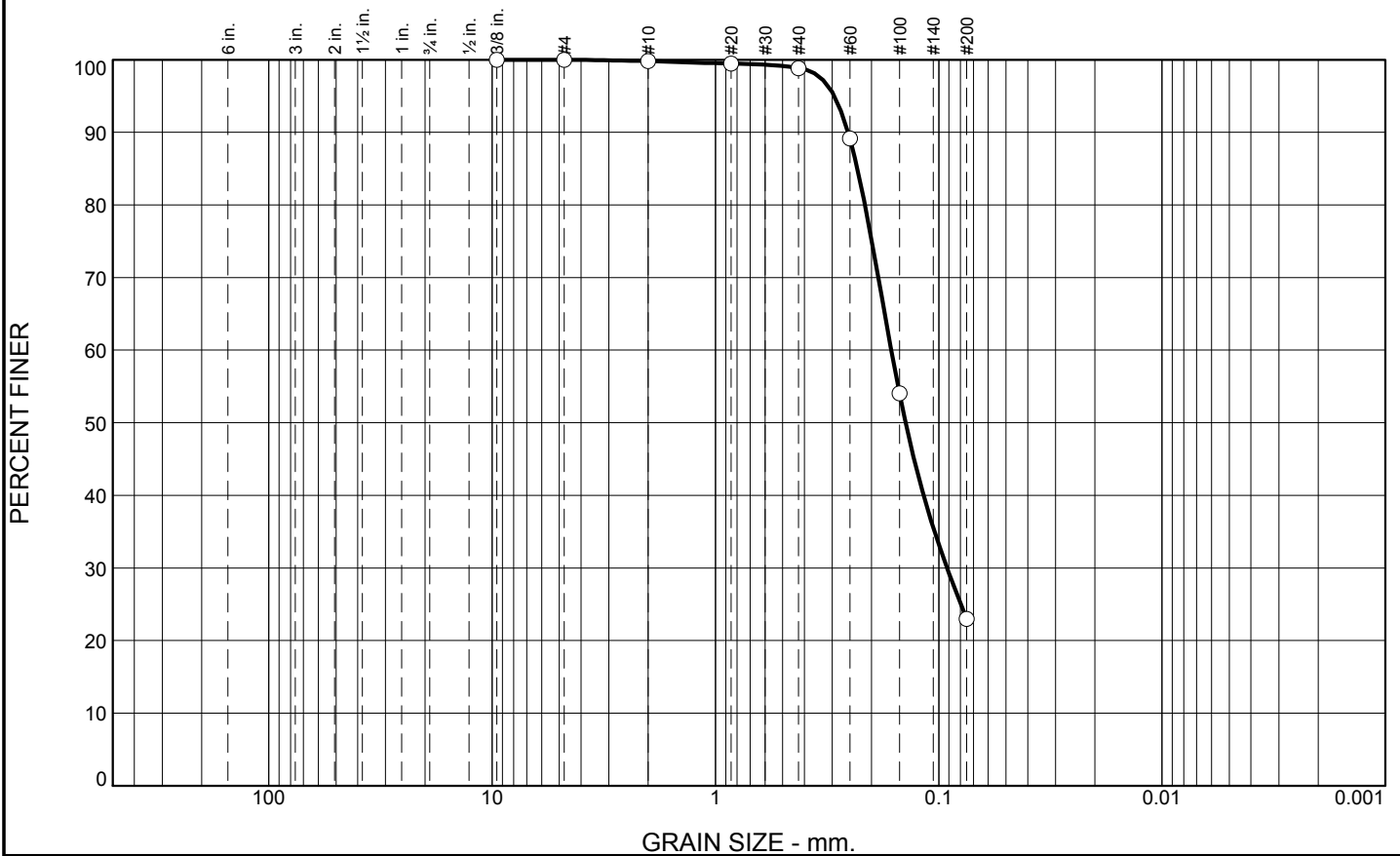
Project No: 1021230009

Figure

Tested By: J.Maddox/L.Stokes

Checked By: R.Byrd

# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.0	0.2	1.0	75.8	23.0	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
.375	100.0		
#4	100.0		
#10	99.8		
#20	99.5		
#40	98.8		
#60	89.2		
#100	54.0		
#200	23.0		

\* (no specification provided)

**Material Description**  
SILTY SAND, (SM), fine grained, with clay nodules

**Atterberg Limits**  
 PL=                      LL=                      PI=

**Coefficients**  
 D<sub>90</sub>= 0.2544      D<sub>85</sub>= 0.2315      D<sub>60</sub>= 0.1633  
 D<sub>50</sub>= 0.1408      D<sub>30</sub>= 0.0918      D<sub>15</sub>=  
 D<sub>10</sub>=                      C<sub>u</sub>=                      C<sub>c</sub>=

**Classification**  
 USCS= SM                      AASHTO=

**Remarks**  
 CADD CODE = CH10D965

**Location:** USACE Sample # BI-MS-13-10B  
**Sample Number:** TE Lab ID: 4461.29

**Depth:** 4.5 - 9.5 (ft)

**Date:** 5/13/10

**Thompson Engineering**  
  
**Mobile, Alabama**

**Client:** US Army Corps of Engineers  
**Project:** Mississippi Barrier Island Restoration Project  
 Contract No. W91278-10-D-0026 - Task 03  
**Project No:** 1021230009

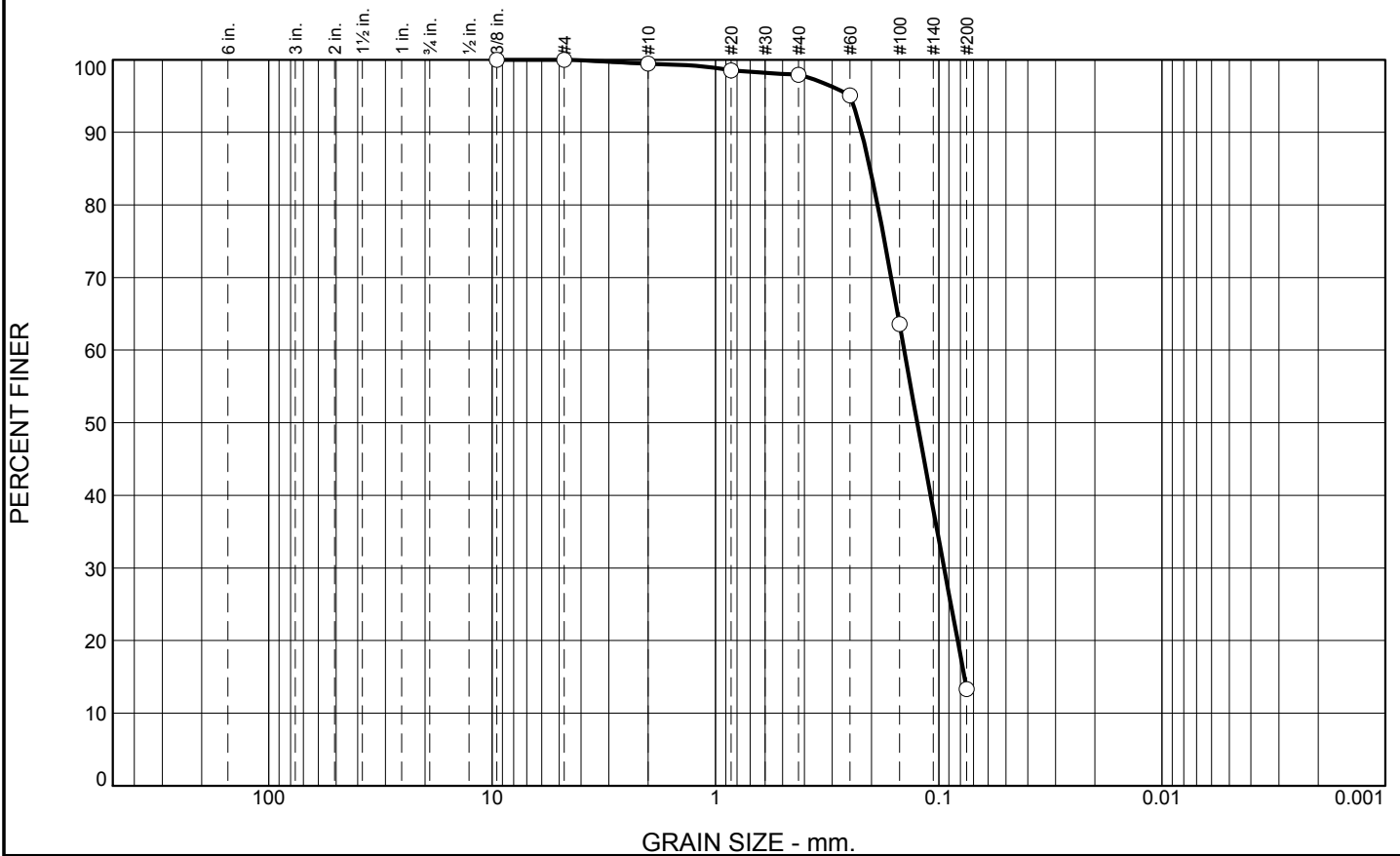
**Figure**

**Tested By:** J.Maddox/L.Stokes

**Checked By:** R.Byrd



# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.0	0.6	1.5	84.6	13.3	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
.375	100.0		
#4	100.0		
#10	99.4		
#20	98.5		
#40	97.9		
#60	95.1		
#100	63.6		
#200	13.3		

\* (no specification provided)

## Material Description

SILTY SAND, (SM), fine grained, with clay nodules and trace shell

## Atterberg Limits

PL=

LL=

PI=

## Coefficients

D<sub>90</sub>= 0.2219

D<sub>85</sub>= 0.2031

D<sub>60</sub>= 0.1429

D<sub>50</sub>= 0.1248

D<sub>30</sub>= 0.0947

D<sub>15</sub>= 0.0768

D<sub>10</sub>=

C<sub>u</sub>=

C<sub>c</sub>=

## Classification

USCS= SM

AASHTO=

## Remarks

CADD CODE = CH10D965

Location: USACE Sample # BI-MS-13-10C  
Sample Number: TE Lab ID: 4461.30

Depth: 9.5 - 13.5 (ft)

Date: 5/13/10

**Thompson Engineering**

**Mobile, Alabama**

Client: US Army Corps of Engineers

Project: Mississippi Barrier Island Restoration Project  
Contract No. W91278-10-D-0026 - Task 03

Project No: 1021230009

Figure

Tested By: J.Maddox/L.Stokes

Checked By: R.Byrd

# Boring Designation BI-MS-14-10

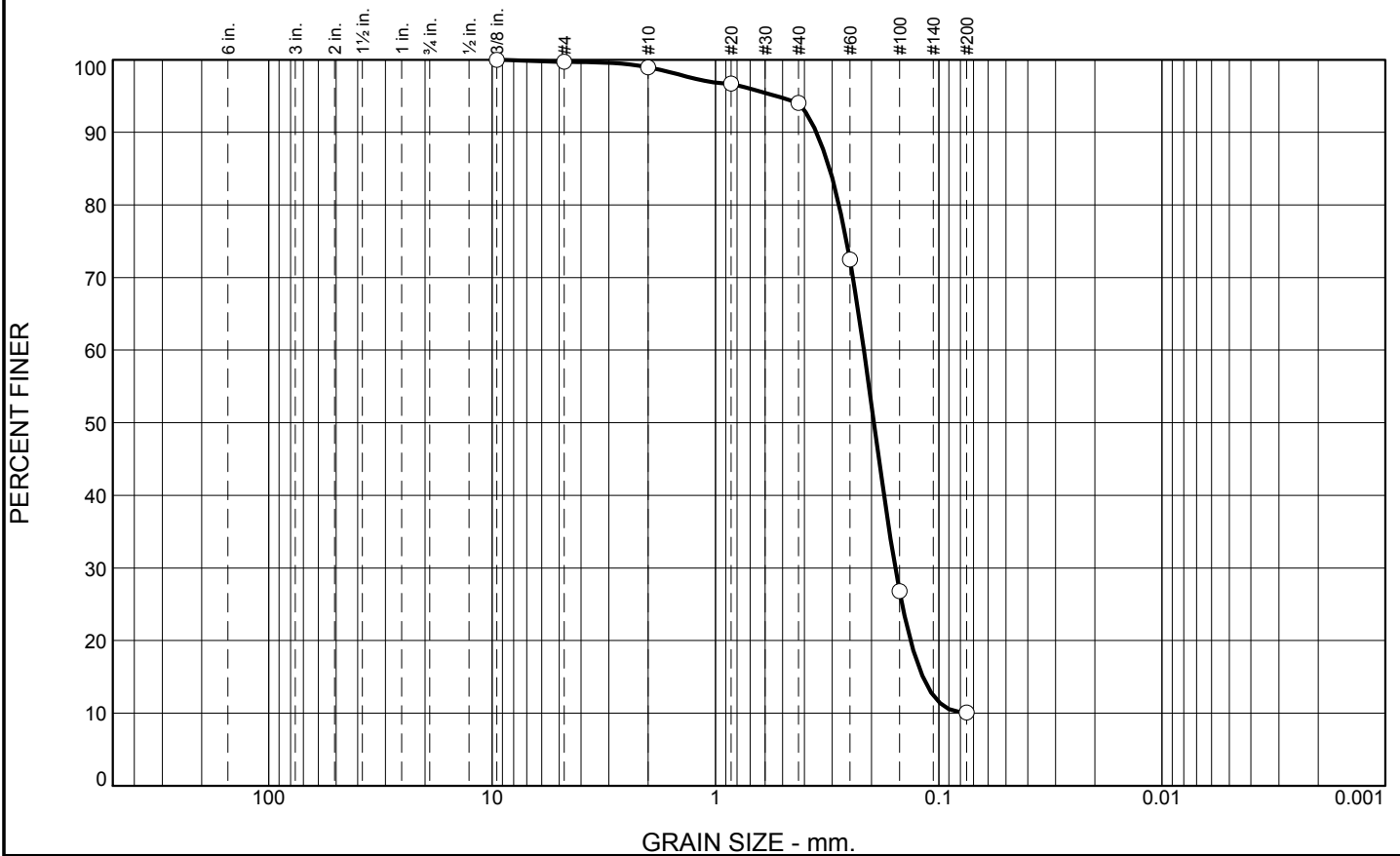
DRILLING LOG		DIVISION South Atlantic		INSTALLATION Mobile District		SHEET 1 OF 2 SHEETS	
1. PROJECT MsCIP Barrier Island Restoration Mississippi Sound				9. SIZE AND TYPE OF BIT N/A			
2. BORING DESIGNATION BI-MS-14-10		LOCATION COORDINATES E = 936,733 N = 266,407		10. COORDINATE SYSTEM/DATUM State Plane, MSE (U.S. Ft.)		HORIZONTAL NAD83	
3. DRILLING AGENCY Corps of Engineers - CESAM		CONTRACTOR FILE NO.		11. MANUFACTURER'S DESIGNATION OF DRILL Vibracore		<input type="checkbox"/> AUTO HAMMER <input type="checkbox"/> MANUAL HAMMER	
4. NAME OF DRILLER Construction Solutions International, Inc.				12. TOTAL SAMPLES		DISTURBED 1	
5. DIRECTION OF BORING <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED		DEG. FROM VERTICAL		BEARING		UNDISTURBED (UD) 0	
6. THICKNESS OF OVERBURDEN N/A				13. TOTAL NUMBER CORE BOXES			
7. DEPTH DRILLED INTO ROCK N/A				14. WATER DEPTH 24.5 Ft.			
8. TOTAL DEPTH OF BORING 19.5 Ft.				15. DATE BORING		STARTED 05-06-10	
				COMPLETED 05-06-10			
				16. ELEVATION TOP OF BORING -24.0 Ft.			
				17. TOTAL RECOVERY FOR BORING 100%			
				18. SIGNATURE AND TITLE OF INSPECTOR J. Krick, Geotechnical Engineer			

ELEV.	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS	SAMPLE	LABORATORY RESULTS
-24.0	0.0		CLAY, lean, dark gray (CL)	NS	
-37.0	13.0		SAND, poorly-graded, mostly fine to medium-grained sand-sized quartz, trace silt, trace shell fragments, gray (SP)	A	Classification: SP-SM Color: 10YR 5/1-gray D50: 0.1951 mm % Fines: 10.1
-42.0	18.0		SAND, silty, mostly fine-grained sand-sized quartz, little clay (SM)	NS	
-43.5	19.5		NOTES: 1. Soils are field visually classified in accordance with the Unified Soils Classification System. 2. NS = Sample not submitted for laboratory analysis from this interval. 3. Seafloor elevation calculated using sampling vessel's fathometer water depth reading and		



# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.3	0.7	5.0	83.9	10.1	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
.375	100.0		
#4	99.7		
#10	99.0		
#20	96.7		
#40	94.0		
#60	72.5		
#100	26.8		
#200	10.1		

\* (no specification provided)

**Material Description**  
SAND, (SP-SM), fine grained, with clay nodules

**Atterberg Limits**  
 PL=      LL=      PI=

**Coefficients**  
 D<sub>90</sub>= 0.3531      D<sub>85</sub>= 0.3082      D<sub>60</sub>= 0.2165  
 D<sub>50</sub>= 0.1951      D<sub>30</sub>= 0.1566      D<sub>15</sub>= 0.1178  
 D<sub>10</sub>=      C<sub>u</sub>=      C<sub>c</sub>=

**Classification**  
 USCS= SP-SM      AASHTO=

**Remarks**  
 CADD CODE = CH10D965

**Location:** USACE Sample # BI-MS-14-10A  
**Sample Number:** TE Lab ID: 4461.31

**Depth:** 13.0 - 17.67 (ft)

**Date:** 5/13/10

**Thompson Engineering**  
  
**Mobile, Alabama**

**Client:** US Army Corps of Engineers  
**Project:** Mississippi Barrier Island Restoration Project  
 Contract No. W91278-10-D-0026 - Task 03  
**Project No:** 1021230009

**Figure**

**Tested By:** J.Maddox/L.Stokes

**Checked By:** R.Byrd

# Boring Designation BI-MS-15-10

DRILLING LOG		DIVISION South Atlantic		INSTALLATION Mobile District		SHEET 1 OF 2 SHEETS	
1. PROJECT MsCIP Barrier Island Restoration Mississippi Sound				9. SIZE AND TYPE OF BIT N/A			
2. BORING DESIGNATION BI-MS-15-10		LOCATION COORDINATES E = 938,097 N = 266,405		10. COORDINATE SYSTEM/DATUM State Plane, MSE (U.S. Ft.)		HORIZONTAL NAD83	
3. DRILLING AGENCY Corps of Engineers - CESAM		CONTRACTOR FILE NO.		11. MANUFACTURER'S DESIGNATION OF DRILL Vibracore		<input type="checkbox"/> AUTO HAMMER <input type="checkbox"/> MANUAL HAMMER	
4. NAME OF DRILLER Construction Solutions International, Inc.				12. TOTAL SAMPLES		DISTURBED 0	
5. DIRECTION OF BORING <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED		DEG. FROM VERTICAL		13. TOTAL NUMBER CORE BOXES		UNDISTURBED (UD) 0	
6. THICKNESS OF OVERBURDEN N/A		BEARING		14. WATER DEPTH 21 Ft.			
7. DEPTH DRILLED INTO ROCK N/A				15. DATE BORING		STARTED 05-11-10	
8. TOTAL DEPTH OF BORING 20.0 Ft.				16. ELEVATION TOP OF BORING -20.0 Ft.		COMPLETED 05-11-10	
				17. TOTAL RECOVERY FOR BORING 100%			
				18. SIGNATURE AND TITLE OF INSPECTOR Marty Gates, Geologist			

ELEV.	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS	SAMPLE	LABORATORY RESULTS
-20.0	0.0				
			CLAY, lean, dark gray (CL)		
-25.0	5.0				
			SAND, silty, mostly fine to medium-grained sand-sized quartz, some silt, little clay, trace organic matter, gray (SM)		
-27.5	7.5				
			CLAY, lean, dark gray (CL)		
-31.0	11.0			NS	
-32.0	12.0		SAND, poorly-graded, mostly fine to medium-grained sand-sized quartz, little silt, lt. gray (SP)		
			CLAY, lean, dark gray (CL)		
-37.5	17.5				
			SAND, silty, mostly fine to medium-grained sand-sized quartz, some silt, little clay, lt. gray (SM)		
-40.0	20.0				
			NOTES: 1. Soils are field visually classified in accordance with the Unified Soils Classification System. 2. NS = Sample not submitted for laboratory analysis from this interval. 3. Seafloor elevation calculated using sampling		

<b>DRILLING LOG (Cont. Sheet)</b>			<b>INSTALLATION</b> Mobile District		<b>SHEET 2</b> <b>OF 2 SHEETS</b>
<b>PROJECT</b> MsCIP Barrier Island Restoration			<b>COORDINATE SYSTEM/DATUM</b> State Plane, MSE (U.S. Ft.)	<b>HORIZONTAL</b> NAD83	<b>VERTICAL</b> NAVD88
<b>LOCATION COORDINATES</b> X = 938,097 Y = 266,405			<b>ELEVATION TOP OF BORING</b> -20.0 Ft.		
<b>ELEV.</b>	<b>DEPTH</b>	<b>LEGEND</b>	<b>CLASSIFICATION OF MATERIALS</b>	<b>SAMPLE</b>	<b>LABORATORY RESULTS</b>
			vessel's fathometer water depth reading and applying NOAA tidal gauge data conversion factor.		

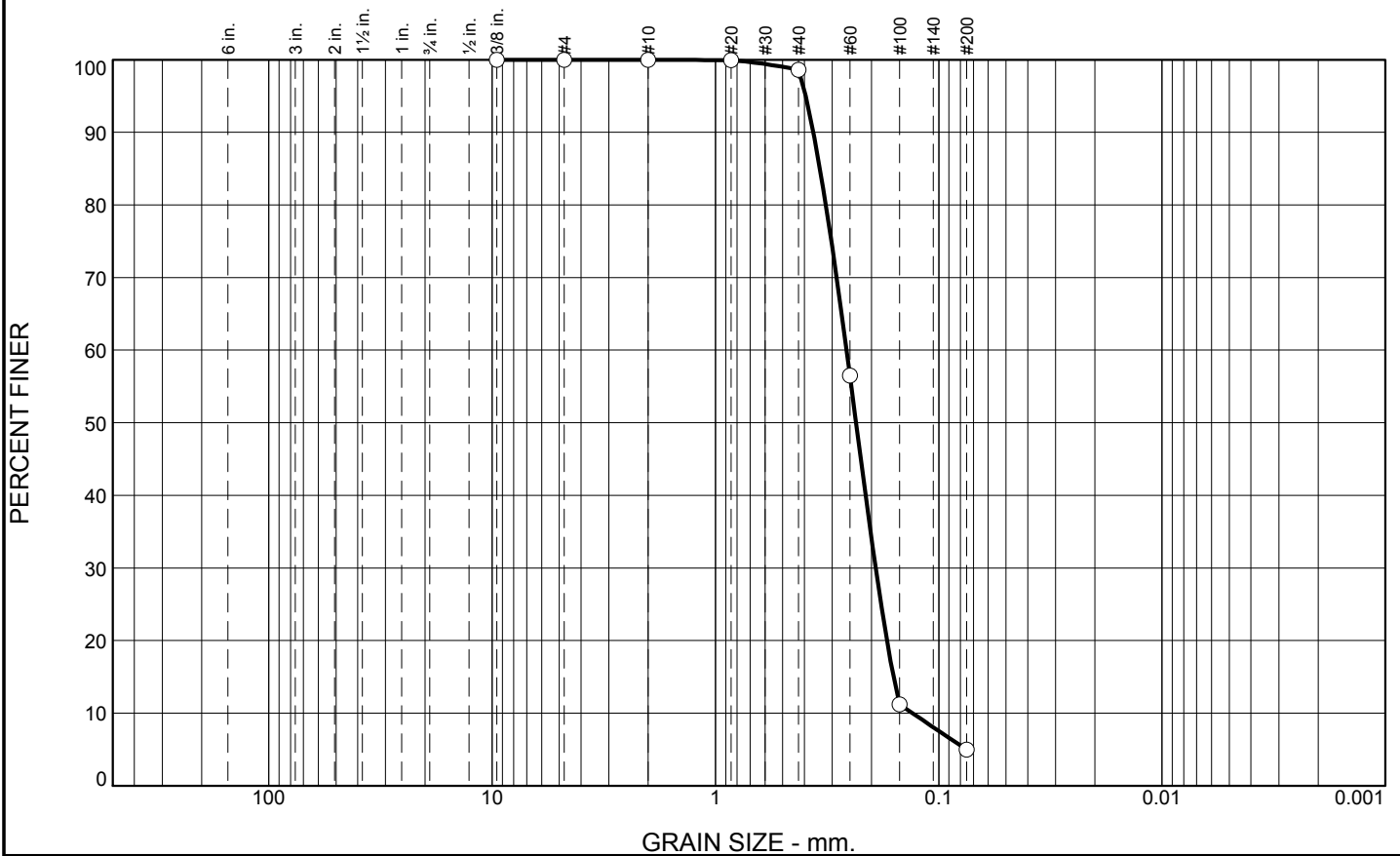
# Boring Designation BI-MS-16-10

DRILLING LOG		DIVISION South Atlantic		INSTALLATION Mobile District		SHEET 1 OF 2 SHEETS	
1. PROJECT MsCIP Barrier Island Restoration Mississippi Sound				9. SIZE AND TYPE OF BIT N/A			
2. BORING DESIGNATION BI-MS-16-10		LOCATION COORDINATES E = 940,118 N = 266,636		10. COORDINATE SYSTEM/DATUM State Plane, MSE (U.S. Ft.)		HORIZONTAL NAD83	
3. DRILLING AGENCY Corps of Engineers - CESAM		CONTRACTOR FILE NO.		11. MANUFACTURER'S DESIGNATION OF DRILL Vibracore		<input type="checkbox"/> AUTO HAMMER <input type="checkbox"/> MANUAL HAMMER	
4. NAME OF DRILLER Construction Solutions International, Inc.				12. TOTAL SAMPLES		DISTURBED 1	
5. DIRECTION OF BORING <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED				13. TOTAL NUMBER CORE BOXES		UNDISTURBED (UD) 0	
6. THICKNESS OF OVERBURDEN N/A				14. WATER DEPTH		20 Ft.	
7. DEPTH DRILLED INTO ROCK N/A				15. DATE BORING		STARTED 05-11-10	
8. TOTAL DEPTH OF BORING 20.0 Ft.				16. ELEVATION TOP OF BORING -19.0 Ft.		COMPLETED 05-11-10	
				17. TOTAL RECOVERY FOR BORING 100%			
				18. SIGNATURE AND TITLE OF INSPECTOR Marty Gates, Geologist			
ELEV.	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS	SAMPLE	LABORATORY RESULTS		
-19.0	0.0						
			CLAY, lean, dark gray (CL)	NS			
-23.3	4.3						
			SAND, poorly-graded, mostly fine to medium-grained sand-sized quartz, little silt, trace shell fragments, lt. gray (SP)	A	Classification: SP-SM Color: 2.5Y 6/2-light brownish gray D50: 0.2346 mm % Fines: 5		
-27.2	8.2						
-28.5	9.5		CLAY, lean, dark gray (CL)				
			SAND, poorly-graded, mostly fine to medium-grained sand-sized quartz, little clay, trace silt, lt. gray (SP)				
-31.0	12.0						
			CLAY, lean, dark gray (CL)	NS			
-35.6	16.6						
			SAND, poorly-graded, mostly fine to medium-grained sand-sized quartz, trace silt (SP)				
-39.0	20.0						
NOTES: 1. Soils are field visually classified in accordance with the Unified Soils Classification System. 2. NS = Sample not submitted for laboratory analysis from this interval. 3. Seafloor elevation calculated using sampling							





# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.0	0.0	1.4	93.6	5.0	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
.375	100.0		
#4	100.0		
#10	100.0		
#20	99.9		
#40	98.6		
#60	56.5		
#100	11.2		
#200	5.0		

\* (no specification provided)

<u><b>Material Description</b></u>		
Sand, (SP-SM), fine grained		
<u><b>Atterberg Limits</b></u>		
PL=	LL=	PI=
<u><b>Coefficients</b></u>		
D <sub>90</sub> = 0.3644	D <sub>85</sub> = 0.3404	D <sub>60</sub> = 0.2588
D <sub>50</sub> = 0.2346	D <sub>30</sub> = 0.1917	D <sub>15</sub> = 0.1595
D <sub>10</sub> = 0.1313	C <sub>u</sub> = 1.97	C <sub>c</sub> = 1.08
<u><b>Classification</b></u>		
USCS= SP-SM	AASHTO=	
<u><b>Remarks</b></u>		
CADD CODE = CH10D965		

Location: USACE Sample # BI-MS-16-10A  
Sample Number: TE Lab ID: 4488.01

Depth: 4.3 - 8.2 (ft.)

Date: 5/27/10

**Thompson Engineering**  
**Mobile, Alabama**

**Client:** US Army Corps of Engineers  
**Project:** Contract No. W91278-10-D-0026 - Task 03  
Mississippi Barrier Island Restoration Project  
**Project No:** 10-2123-0009

**Figure**

Tested By: L.Stokes

Checked By: R.Byrd

# Boring Designation BI-MS-17-10

DRILLING LOG		DIVISION South Atlantic		INSTALLATION Mobile District		SHEET 1 OF 1 SHEETS	
1. PROJECT MsCIP Barrier Island Restoration Mississippi Sound				9. SIZE AND TYPE OF BIT N/A			
2. BORING DESIGNATION BI-MS-17-10		LOCATION COORDINATES E = 931,388 N = 275,983		10. COORDINATE SYSTEM/DATUM State Plane, MSE (U.S. Ft.)		HORIZONTAL NAD83 VERTICAL NAVD88	
3. DRILLING AGENCY Corps of Engineers - CESAM		CONTRACTOR FILE NO.		11. MANUFACTURER'S DESIGNATION OF DRILL Vibracore		<input type="checkbox"/> AUTO HAMMER <input type="checkbox"/> MANUAL HAMMER	
4. NAME OF DRILLER Construction Solutions International, Inc.				12. TOTAL SAMPLES		DISTURBED 0 UNDISTURBED (UD) 0	
5. DIRECTION OF BORING <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED		DEG. FROM VERTICAL		13. TOTAL NUMBER CORE BOXES			
		BEARING		14. WATER DEPTH 21 Ft.			
6. THICKNESS OF OVERBURDEN N/A				15. DATE BORING		STARTED 05-13-10 COMPLETED 05-13-10	
7. DEPTH DRILLED INTO ROCK N/A				16. ELEVATION TOP OF BORING -19.2 Ft.			
8. TOTAL DEPTH OF BORING 15.2 Ft.				17. TOTAL RECOVERY FOR BORING 100%			
				18. SIGNATURE AND TITLE OF INSPECTOR Marty Gates, Geologist			

ELEV.	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS	SAMPLE	LABORATORY RESULTS
-19.2	0.0				
			CLAY, lean, dark gray (CL)		
				NS	
-31.2	12.0				
-32.8	13.6		SAND, clayey, mostly fine to medium-grained sand-sized quartz, gray (SC)		
-34.4	15.2		SAND, poorly-graded, mostly fine to medium-grained sand-sized quartz, trace silt, lt. gray (SP)		
			NOTES: 1. Soils are field visually classified in accordance with the Unified Soils Classification System. 2. NS = Sample not submitted for laboratory analysis from this interval. 3. Seafloor elevation calculated using sampling vessel's fathometer water depth reading and applying NOAA tidal gauge data conversion factor.		

# Boring Designation BI-MS-18-10

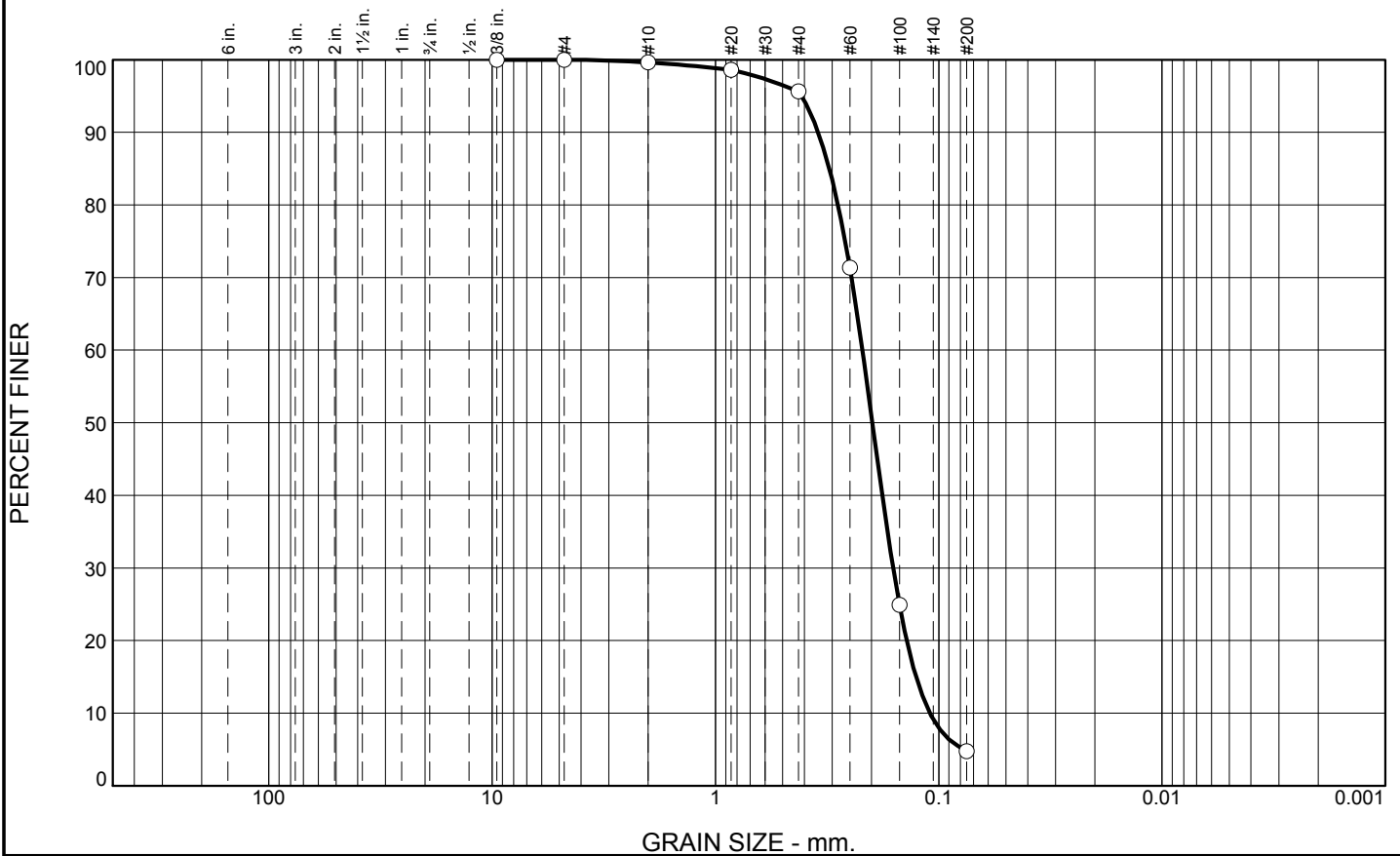
DRILLING LOG		DIVISION South Atlantic		INSTALLATION Mobile District		SHEET 1 OF 2 SHEETS	
1. PROJECT MsCIP Barrier Island Restoration Mississippi Sound				9. SIZE AND TYPE OF BIT N/A			
2. BORING DESIGNATION BI-MS-18-10		LOCATION COORDINATES E = 932,674 N = 270,457		10. COORDINATE SYSTEM/DATUM State Plane, MSE (U.S. Ft.)		HORIZONTAL NAD83 VERTICAL NAVD88	
3. DRILLING AGENCY Corps of Engineers - CESAM		CONTRACTOR FILE NO.		11. MANUFACTURER'S DESIGNATION OF DRILL Vibracore		<input type="checkbox"/> AUTO HAMMER <input type="checkbox"/> MANUAL HAMMER	
4. NAME OF DRILLER Construction Solutions International, Inc.				12. TOTAL SAMPLES 3		DISTURBED 3 UNDISTURBED (UD) 0	
5. DIRECTION OF BORING <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED		DEG. FROM VERTICAL		13. TOTAL NUMBER CORE BOXES			
		BEARING		14. WATER DEPTH 20 Ft.			
6. THICKNESS OF OVERBURDEN N/A				15. DATE BORING 05-13-10		STARTED 05-13-10 COMPLETED 05-13-10	
7. DEPTH DRILLED INTO ROCK N/A				16. ELEVATION TOP OF BORING -18.3 Ft.			
8. TOTAL DEPTH OF BORING 17.5 Ft.				17. TOTAL RECOVERY FOR BORING 100%			
				18. SIGNATURE AND TITLE OF INSPECTOR Marty Gates, Geologist			

ELEV.	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS	SAMPLE	LABORATORY RESULTS
-18.3	0.0				
-19.8	1.5		SAND, silty, mostly fine to medium-grained sand-sized quartz, some silt, trace shell fragments, gray (SM)	NS	
			SAND, poorly-graded, mostly fine to medium-grained sand-sized quartz, trace silt, trace shell fragments, lt. gray (SP)	A	Classification: SP Color: 5Y 7/1-light gray D50: 0.1983 mm % Fines: 4.8
				B	Classification: SP Color: 5Y 7/1-light gray D50: 0.1864 mm % Fines: 2.4
				C	Classification: SP Color: 5Y 6/1-gray D50: 0.1694 mm % Fines: 4
-32.8	14.5				
-35.3	17.0		CLAY, lean, dark gray (CL)	NS	
-35.8	17.5		SAND, silty, mostly fine to medium-grained sand-sized quartz, some silt, trace shell fragments, lt. gray (SM)		
			NOTES: 1. Soils are field visually classified in accordance with the Unified Soils Classification System. 2. NS = Sample not submitted for laboratory analysis from this interval. 3. Seafloor elevation calculated using sampling vessel's fathometer water depth reading and applying NOAA tidal gauge data conversion		

<b>DRILLING LOG (Cont. Sheet)</b>			<b>INSTALLATION</b> Mobile District		<b>SHEET 2</b>
					<b>OF 2 SHEETS</b>
<b>PROJECT</b> MsCIP Barrier Island Restoration			<b>COORDINATE SYSTEM/DATUM</b> State Plane, MSE (U.S. Ft.)	<b>HORIZONTAL</b> NAD83	<b>VERTICAL</b> NAVD88
<b>LOCATION COORDINATES</b> X = 932,674 Y = 270,457			<b>ELEVATION TOP OF BORING</b> -18.3 Ft.		
ELEV.	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS	SAMPLE	LABORATORY RESULTS
			factor.		

# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.0	0.4	4.0	90.8	4.8	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
.375	100.0		
#4	100.0		
#10	99.6		
#20	98.6		
#40	95.6		
#60	71.4		
#100	24.9		
#200	4.8		

\* (no specification provided)

## Material Description

SAND, (SP), fine grained

## Atterberg Limits

PL=

LL=

PI=

## Coefficients

D<sub>90</sub>= 0.3466

D<sub>85</sub>= 0.3090

D<sub>60</sub>= 0.2198

D<sub>50</sub>= 0.1983

D<sub>30</sub>= 0.1601

D<sub>15</sub>= 0.1263

D<sub>10</sub>= 0.1095

C<sub>u</sub>= 2.01

C<sub>c</sub>= 1.06

## Classification

USCS= SP

AASHTO=

## Remarks

CADD CODE = CH10D965

Location: USACE Sample # BI-MS-18-10A  
Sample Number: TE Lab ID: 4488.02

Depth: 1.5 - 6.5 (ft.)

Date: 5/27/10

**Thompson Engineering**

**Mobile, Alabama**

Client: US Army Corps of Engineers

Project: Contract No. W91278-10-D-0026 - Task 03  
Mississippi Barrier Island Restoration Project

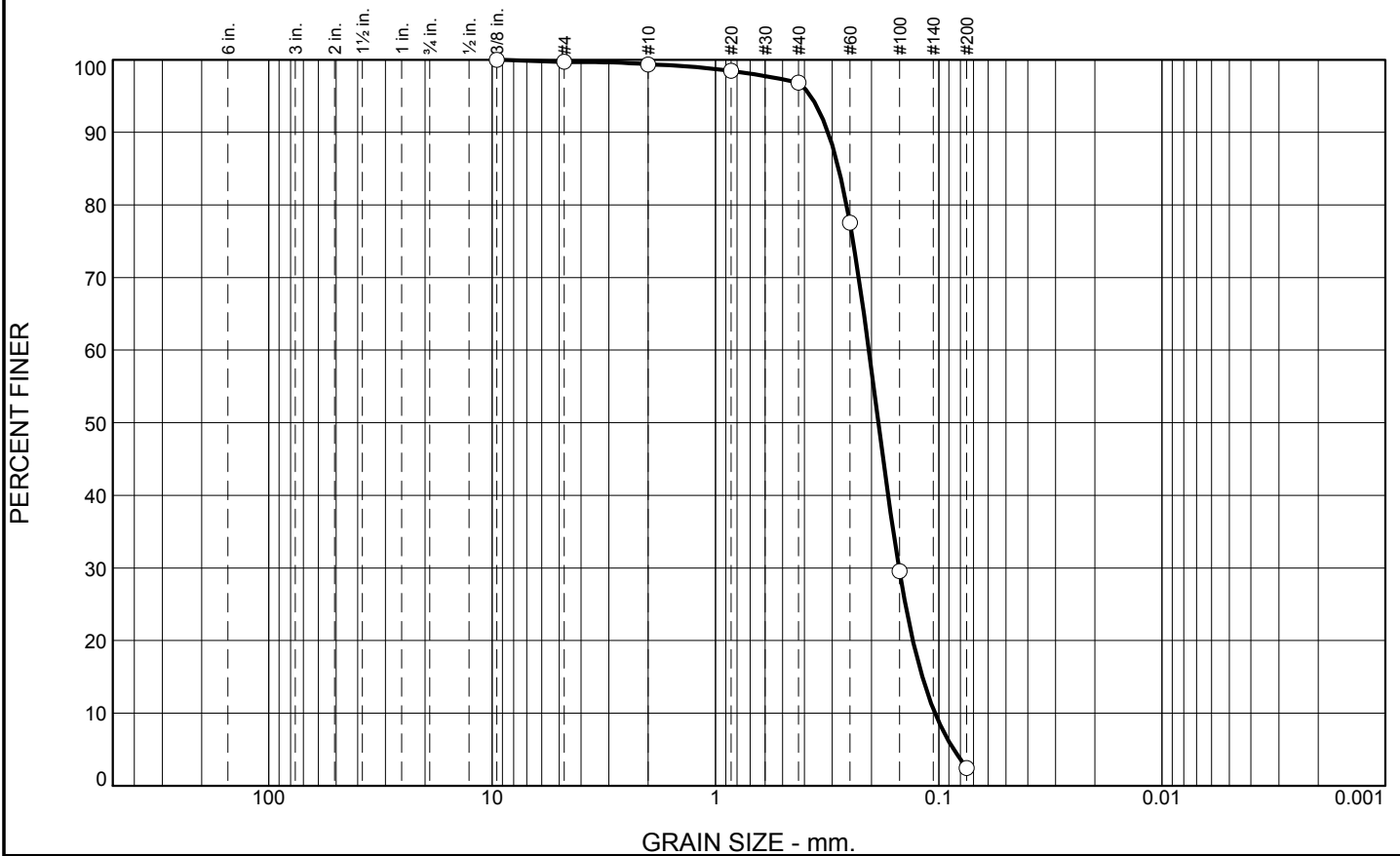
Project No: 10-2123-0009

Figure

Tested By: L.Stokes

Checked By: R.Byrd

# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.3	0.4	2.5	94.4	2.4	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
.375	100.0		
#4	99.7		
#10	99.3		
#20	98.5		
#40	96.8		
#60	77.5		
#100	29.6		
#200	2.4		

\* (no specification provided)

Material Description		
SAND, (SP), fine grained		
<div> <div> <b>Atterberg Limits</b>            PL=      LL=      PI=         </div> <div> <b>Coefficients</b>            D<sub>90</sub>= 0.3131      D<sub>85</sub>= 0.2807      D<sub>60</sub>= 0.2057            D<sub>50</sub>= 0.1864      D<sub>30</sub>= 0.1508      D<sub>15</sub>= 0.1185            D<sub>10</sub>= 0.1041      C<sub>u</sub>= 1.98      C<sub>c</sub>= 1.06         </div> <div> <b>Classification</b>            USCS= SP      AASHTO=         </div> <div> <b>Remarks</b>            CADD CODE = CH10D965         </div> </div>		

Location: USACE Sample # BI-MS-18-10B  
Sample Number: TE Lab ID: 4488.03

Depth: 6.5 - 11.5 (ft.)

Date: 5/27/10

**Thompson Engineering**  
**Mobile, Alabama**

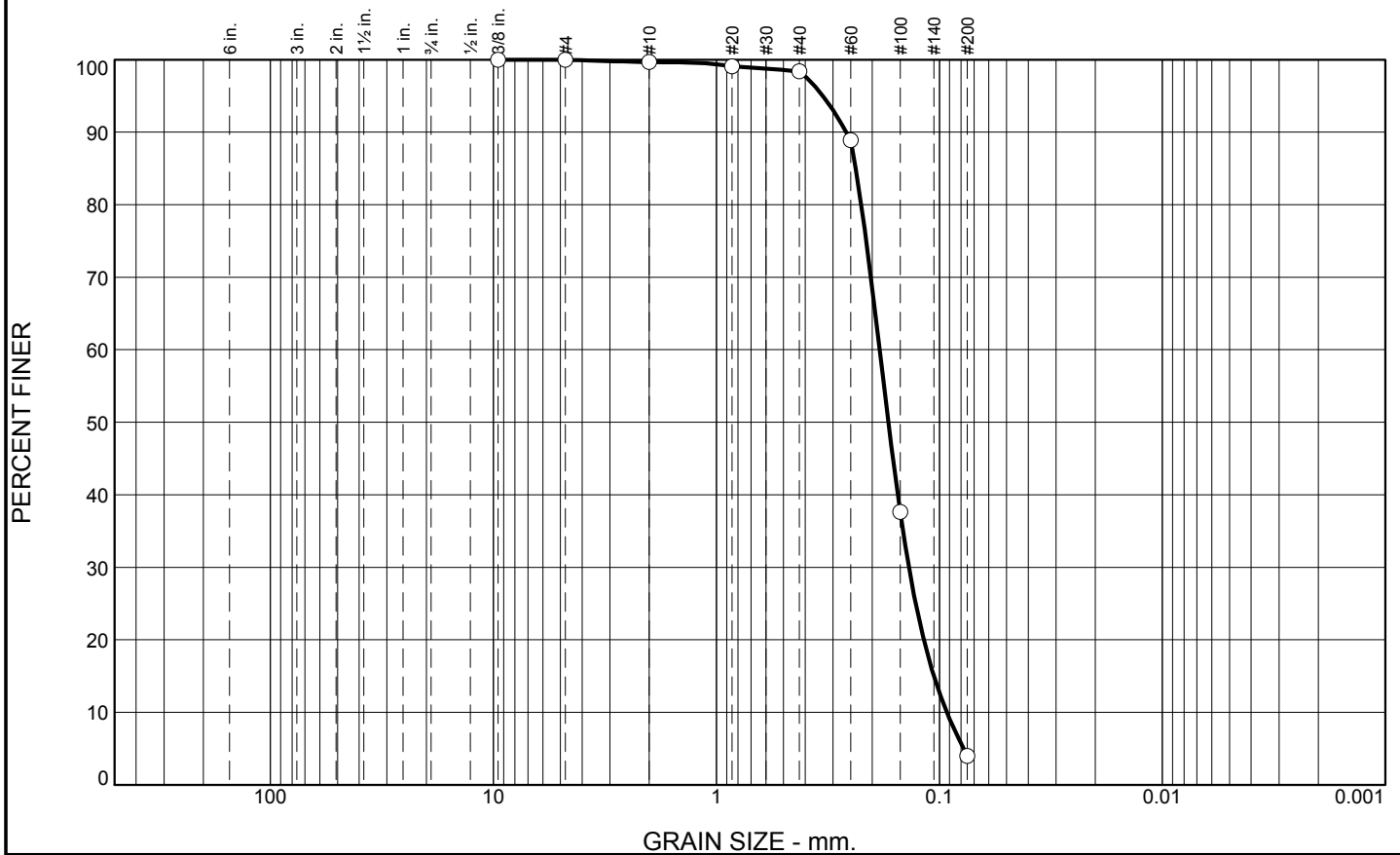
**Client:** US Army Corps of Engineers  
**Project:** Contract No. W91278-10-D-0026 - Task 03  
Mississippi Barrier Island Restoration Project  
**Project No:** 10-2123-0009

**Figure**

Tested By: L.Stokes

Checked By: R.Byrd

# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.0	0.3	1.3	94.4	4.0	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
.375	100.0		
#4	100.0		
#10	99.7		
#20	99.1		
#40	98.4		
#60	88.9		
#100	37.6		
#200	4.0		

\* (no specification provided)

## Material Description

SAND, (SP), fine grained

## Atterberg Limits

PL=

LL=

PI=

## Coefficients

D<sub>90</sub>= 0.2615

D<sub>85</sub>= 0.2373

D<sub>60</sub>= 0.1854

D<sub>50</sub>= 0.1694

D<sub>30</sub>= 0.1370

D<sub>15</sub>= 0.1059

D<sub>10</sub>= 0.0926

C<sub>u</sub>= 2.00

C<sub>c</sub>= 1.09

## Classification

USCS= SP

AASHTO=

## Remarks

CADD CODE = CH10D965

Location: USACE Sample # BI-MS-18-10C  
Sample Number: TE Lab ID: 4488.04

Depth: 11.5 - 14.5 (ft.)

Date: 5/27/10

**Thompson Engineering**

**Mobile, Alabama**

Client: US Army Corps of Engineers

Project: Contract No. W91278-10-D-0026 - Task 03  
Mississippi Barrier Island Restoration Project

Project No: 10-2123-0009

Figure

Tested By: L.Stokes

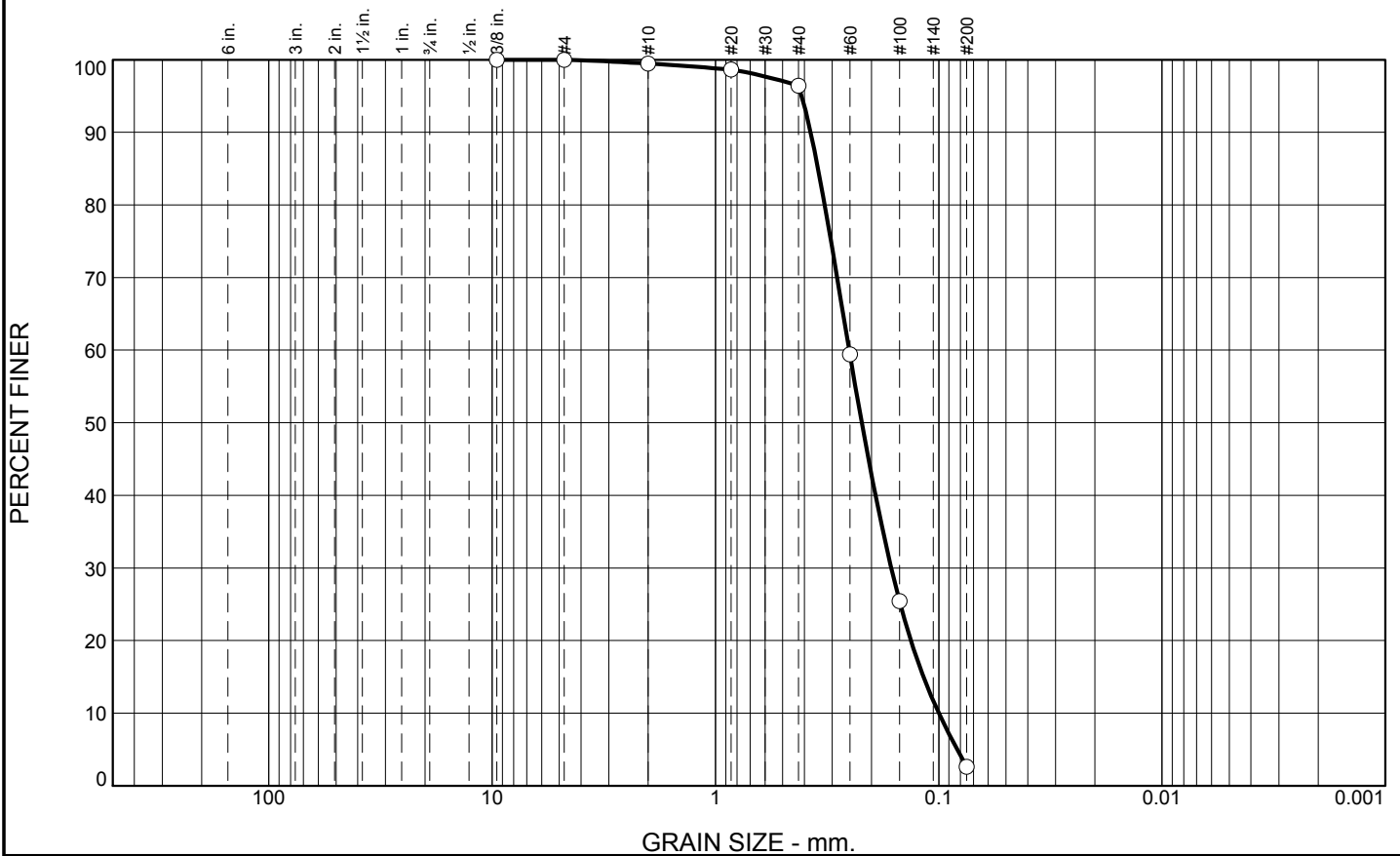
Checked By: R.Byrd

# Boring Designation BI-MS-19-10

DRILLING LOG		DIVISION South Atlantic		INSTALLATION Mobile District		SHEET 1 OF 1 SHEETS	
1. PROJECT MsCIP Barrier Island Restoration Mississippi Sound				9. SIZE AND TYPE OF BIT N/A			
2. BORING DESIGNATION BI-MS-19-10		LOCATION COORDINATES E = 933,640 N = 270,066		10. COORDINATE SYSTEM/DATUM State Plane, MSE (U.S. Ft.)		HORIZONTAL NAD83	
3. DRILLING AGENCY Corps of Engineers - CESAM		CONTRACTOR FILE NO.		11. MANUFACTURER'S DESIGNATION OF DRILL Vibrocure		<input type="checkbox"/> AUTO HAMMER <input type="checkbox"/> MANUAL HAMMER	
4. NAME OF DRILLER Construction Solutions International, Inc.				12. TOTAL SAMPLES 2		DISTURBED 0	
5. DIRECTION OF BORING <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED		DEG. FROM VERTICAL		13. TOTAL NUMBER CORE BOXES			
		BEARING		14. WATER DEPTH 23 Ft.			
6. THICKNESS OF OVERBURDEN N/A				15. DATE BORING 05-14-10		COMPLETED 05-14-10	
7. DEPTH DRILLED INTO ROCK N/A				16. ELEVATION TOP OF BORING -21.9 Ft.			
8. TOTAL DEPTH OF BORING 17.6 Ft.				17. TOTAL RECOVERY FOR BORING 100%			
				18. SIGNATURE AND TITLE OF INSPECTOR Marty Gates, Geologist			
ELEV.	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS	SAMPLE	LABORATORY RESULTS		
-21.9	0.0						
-24.9	3.0		SAND, silty, mostly Geologist fine to medium-grained sand-sized 0 quartz NS = Sample not submitted for laboratory analysis from this interval, some silt, trace shell fragments, gray (SM)	NS			
-35.4	13.5		SAND, poorly-graded, mostly fine to medium-grained sand-sized quartz, trace silt, trace shell fragments, lt. gray (SP)	A	Classification: SP Color: 2.5Y 7/1-light gray D50: 0.2212 mm % Fines: 2.6		
-38.2	16.3		CLAY, lean, dark gray (CL)	NS			
-39.5	17.6		SILT, inorganic-L, brown (ML)				
			NOTES: 1. Soils are field visually classified in accordance with the Unified Soils Classification System. 2. NS = Sample not submitted for laboratory analysis from this interval. 3. Seafloor elevation calculated using sampling vessel's fathometer water depth reading and applying NOAA tidal gauge data conversion factor.				



# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.0	0.5	3.1	93.8	2.6	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
.375	100.0		
#4	100.0		
#10	99.5		
#20	98.6		
#40	96.4		
#60	59.4		
#100	25.4		
#200	2.6		

\* (no specification provided)

<u><b>Material Description</b></u>		
SAND, (SP), fine grained		
<u><b>Atterberg Limits</b></u>		
PL=	LL=	PI=
<u><b>Coefficients</b></u>		
D <sub>90</sub> = 0.3749	D <sub>85</sub> = 0.3471	D <sub>60</sub> = 0.2519
D <sub>50</sub> = 0.2212	D <sub>30</sub> = 0.1633	D <sub>15</sub> = 0.1171
D <sub>10</sub> = 0.0999	C <sub>u</sub> = 2.52	C <sub>c</sub> = 1.06
<u><b>Classification</b></u>		
USCS= SP	AASHTO=	
<u><b>Remarks</b></u>		
CADD CODE = CH10D965		

Location: USACE Sample # BI-MS-19-10A  
Sample Number: TE Lab ID: 4488.19

Depth: 3.0 - 8.0 (ft.)

Date: 5/27/10

**Thompson Engineering**  
**Mobile, Alabama**

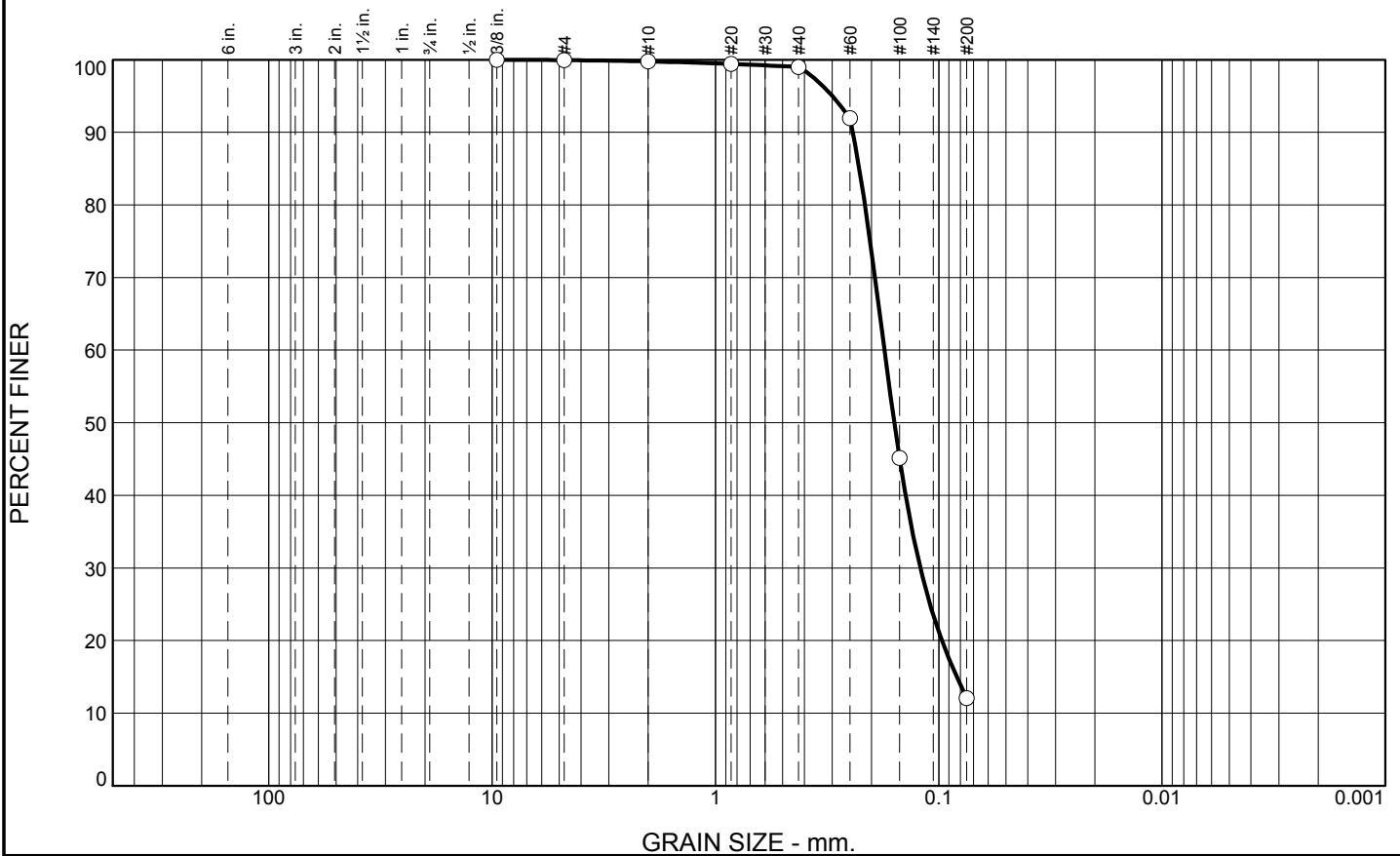
**Client:** US Army Corps of Engineers  
**Project:** Contract No. W91278-10-D-0026 - Task 03  
Mississippi Barrier Island Restoration Project  
**Project No:** 10-2123-0009

**Figure**

Tested By: L.Stokes

Checked By: R.Byrd

# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.1	0.1	0.8	86.9	12.1	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
.375	100.0		
#4	99.9		
#10	99.8		
#20	99.4		
#40	99.0		
#60	91.9		
#100	45.2		
#200	12.1		

\* (no specification provided)

**Material Description**  
SILTY SAND, (SM), fine grained

**Atterberg Limits**  
 PL=      LL=      PI=

**Coefficients**  
 D<sub>90</sub>= 0.2424      D<sub>85</sub>= 0.2267      D<sub>60</sub>= 0.1751  
 D<sub>50</sub>= 0.1582      D<sub>30</sub>= 0.1209      D<sub>15</sub>= 0.0830  
 D<sub>10</sub>=      C<sub>u</sub>=      C<sub>c</sub>=

**Classification**  
 USCS= SM      AASHTO=

**Remarks**  
 CADD CODE = CH10D965

**Location:** USACE Sample # BI-MS-19-10B  
**Sample Number:** TE Lab ID: 4488.20

**Depth:** 8.0 - 13.5 (ft.)

**Date:** 5/27/10

**Thompson Engineering**  
  
**Mobile, Alabama**

**Client:** US Army Corps of Engineers  
**Project:** Contract No. W91278-10-D-0026 - Task 03  
 Mississippi Barrier Island Restoration Project  
**Project No:** 10-2123-0009

**Figure**

**Tested By:** L.Stokes

**Checked By:** R.Byrd

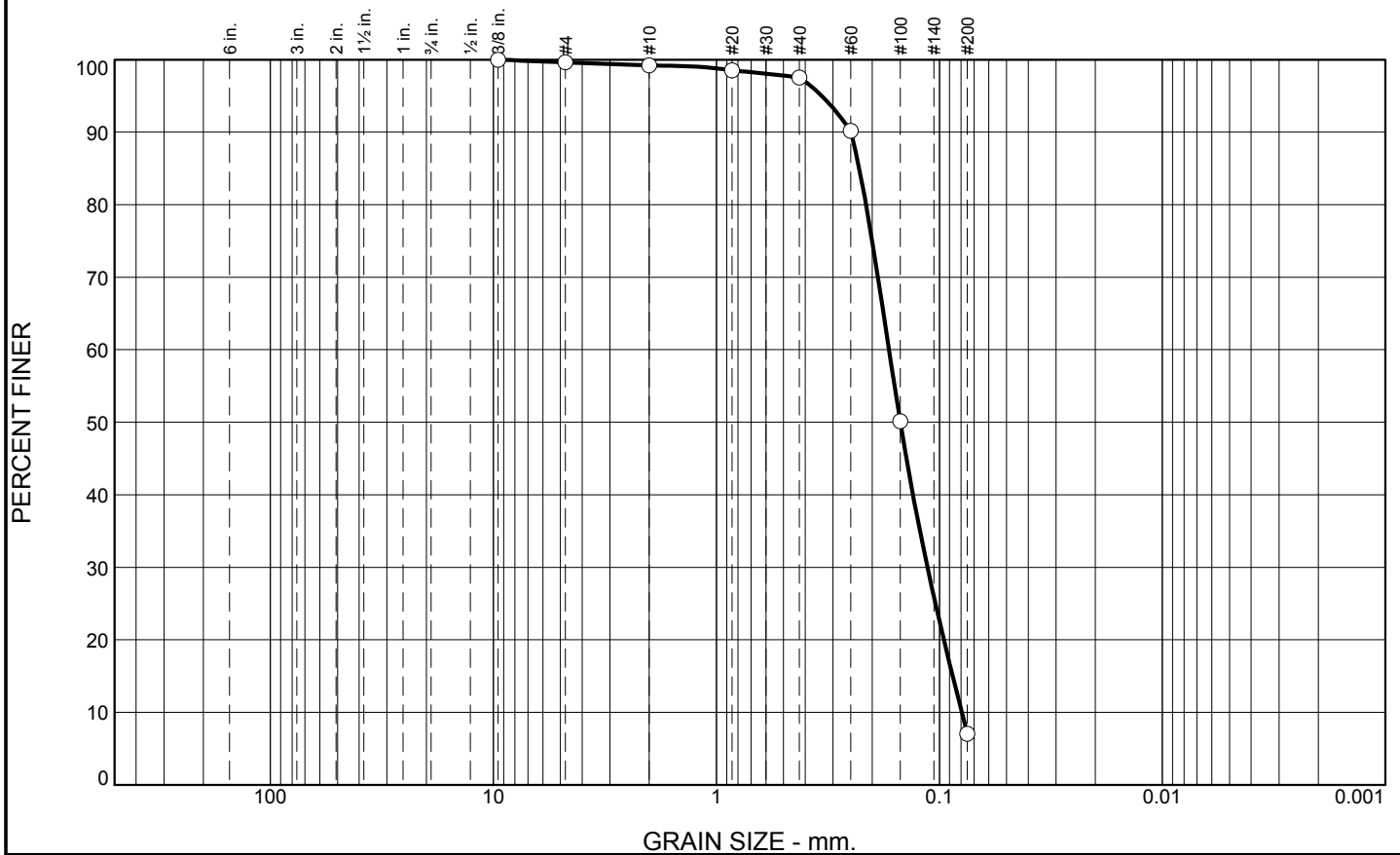
# Boring Designation BI-MS-20-10

DRILLING LOG		DIVISION South Atlantic		INSTALLATION Mobile District		SHEET 1 OF 1 SHEETS	
1. PROJECT MsCIP Barrier Island Restoration Mississippi Sound				9. SIZE AND TYPE OF BIT N/A			
2. BORING DESIGNATION BI-MS-20-10		LOCATION COORDINATES E = 933,226 N = 267,896		10. COORDINATE SYSTEM/DATUM State Plane, MSE (U.S. Ft.)		HORIZONTAL NAD83 VERTICAL NAVD88	
3. DRILLING AGENCY Corps of Engineers - CESAM		CONTRACTOR FILE NO.		11. MANUFACTURER'S DESIGNATION OF DRILL Vibrocure		<input type="checkbox"/> AUTO HAMMER <input type="checkbox"/> MANUAL HAMMER	
4. NAME OF DRILLER Construction Solutions International, Inc.				12. TOTAL SAMPLES 3		DISTURBED 0 UNDISTURBED (UD)	
5. DIRECTION OF BORING <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED		DEG. FROM VERTICAL		13. TOTAL NUMBER CORE BOXES			
		BEARING		14. WATER DEPTH 21 Ft.			
6. THICKNESS OF OVERBURDEN N/A				15. DATE BORING 05-13-10		STARTED 05-13-10 COMPLETED 05-13-10	
7. DEPTH DRILLED INTO ROCK N/A				16. ELEVATION TOP OF BORING -19.6 Ft.			
8. TOTAL DEPTH OF BORING 16.6 Ft.				17. TOTAL RECOVERY FOR BORING 100%			
				18. SIGNATURE AND TITLE OF INSPECTOR Marty Gates, Geologist			

ELEV.	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS	SAMPLE	LABORATORY RESULTS
-19.6	0.0				
-20.6	1.0		SAND, silty, mostly fine to medium-grained sand-sized quartz, some silt, trace shell fragments, gray (SM)	A	Classification: SP-SM Color: 2.5Y 7/1-light gray D50: 0.1497 mm % Fines: 7
-24.6	5.0		SAND, poorly-graded, mostly fine to medium-grained sand-sized quartz, trace silt, trace shell fragments, lt. gray (SP)		
-26.0	6.4		CLAY, lean, dark gray (CL)	NS	
-33.8	14.2		SAND, poorly-graded, mostly fine to medium-grained sand-sized quartz, trace silt, trace shell fragments, lt. gray (SP)	B	Classification: SP Color: 2.5Y 6.5/1-gray D50: 0.1636 mm % Fines: 4.1
-35.4	15.8		CLAY, lean, dark gray (CL)	C	Classification: SP Color: 2.5Y 6/1-gray D50: 0.1693 mm % Fines: 3.8
-36.2	16.6		SAND, silty, mostly fine to medium-grained sand-sized quartz, some silt, trace shell fragments (SM)	NS	
NOTES: 1. Soils are field visually classified in accordance with the Unified Soils Classification System. 2. NS = Sample not submitted for laboratory analysis from this interval. 3. Seafloor elevation calculated using sampling vessel's fathometer water depth reading and applying NOAA tidal gauge data conversion factor.					

# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.4	0.4	1.7	90.5	7.0	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
.375	100.0		
#4	99.6		
#10	99.2		
#20	98.5		
#40	97.5		
#60	90.2		
#100	50.2		
#200	7.0		

\* (no specification provided)

Material Description		
SAND, (SP-SM), fine grained		
<div> <div> <b>Atterberg Limits</b>            PL=      LL=      PI=         </div> <div> <b>Coefficients</b>            D<sub>90</sub>= 0.2492      D<sub>85</sub>= 0.2288      D<sub>60</sub>= 0.1683            D<sub>50</sub>= 0.1497      D<sub>30</sub>= 0.1131      D<sub>15</sub>= 0.0872            D<sub>10</sub>= 0.0794      C<sub>u</sub>= 2.12      C<sub>c</sub>= 0.96         </div> <div> <b>Classification</b>            USCS= SP-SM      AASHTO=         </div> <div> <b>Remarks</b>            CADD CODE = CH10D965         </div> </div>		

Location: USACE Sample # BI-MS-20-10A  
Sample Number: TE Lab ID: 4488.05

Depth: 0.0 - 5.0 (ft.)

Date: 5/27/10

**Thompson Engineering**  
**Mobile, Alabama**

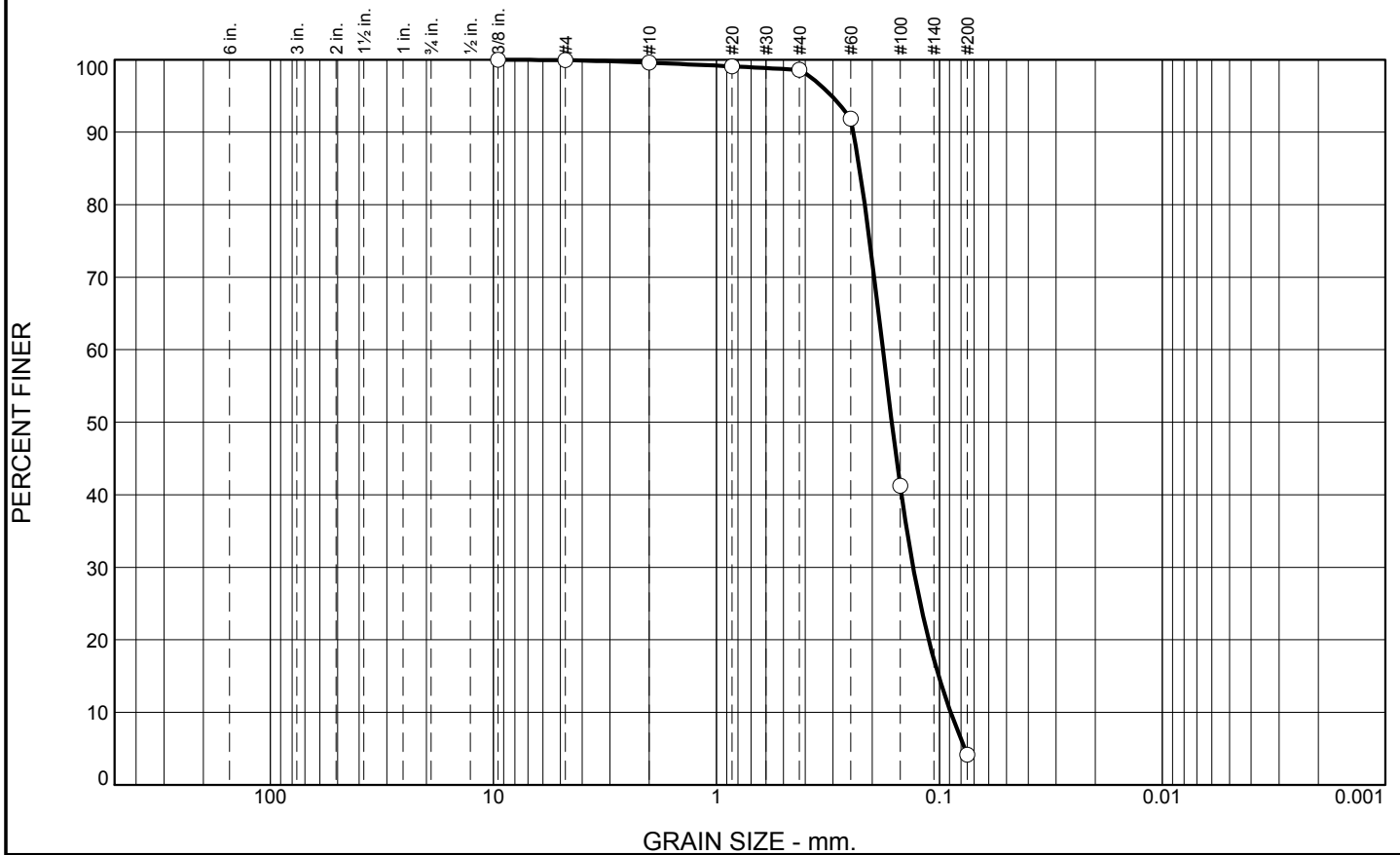
**Client:** US Army Corps of Engineers  
**Project:** Contract No. W91278-10-D-0026 - Task 03  
Mississippi Barrier Island Restoration Project  
**Project No:** 10-2123-0009

**Figure**

Tested By: L.Stokes

Checked By: R.Byrd

# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.1	0.3	1.0	94.5	4.1	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
.375	100.0		
#4	99.9		
#10	99.6		
#20	99.1		
#40	98.6		
#60	91.9		
#100	41.2		
#200	4.1		

\* (no specification provided)

<u><b>Material Description</b></u>		
SAND, (SP), fine grained		
<u><b>Atterberg Limits</b></u>		
PL=	LL=	PI=
<u><b>Coefficients</b></u>		
D <sub>90</sub> = 0.2431	D <sub>85</sub> = 0.2282	D <sub>60</sub> = 0.1792
D <sub>50</sub> = 0.1636	D <sub>30</sub> = 0.1311	D <sub>15</sub> = 0.1008
D <sub>10</sub> = 0.0890	C <sub>u</sub> = 2.01	C <sub>c</sub> = 1.08
<u><b>Classification</b></u>		
USCS= SP	AASHTO=	
<u><b>Remarks</b></u>		
CADD CODE = CH10D965		

Location: USACE Sample # BI-MS-20-10B  
Sample Number: TE Lab ID: 4488.06

Depth: 6.4 - 11.4 (ft.)

Date: 5/27/10

**Thompson Engineering**  
**Mobile, Alabama**

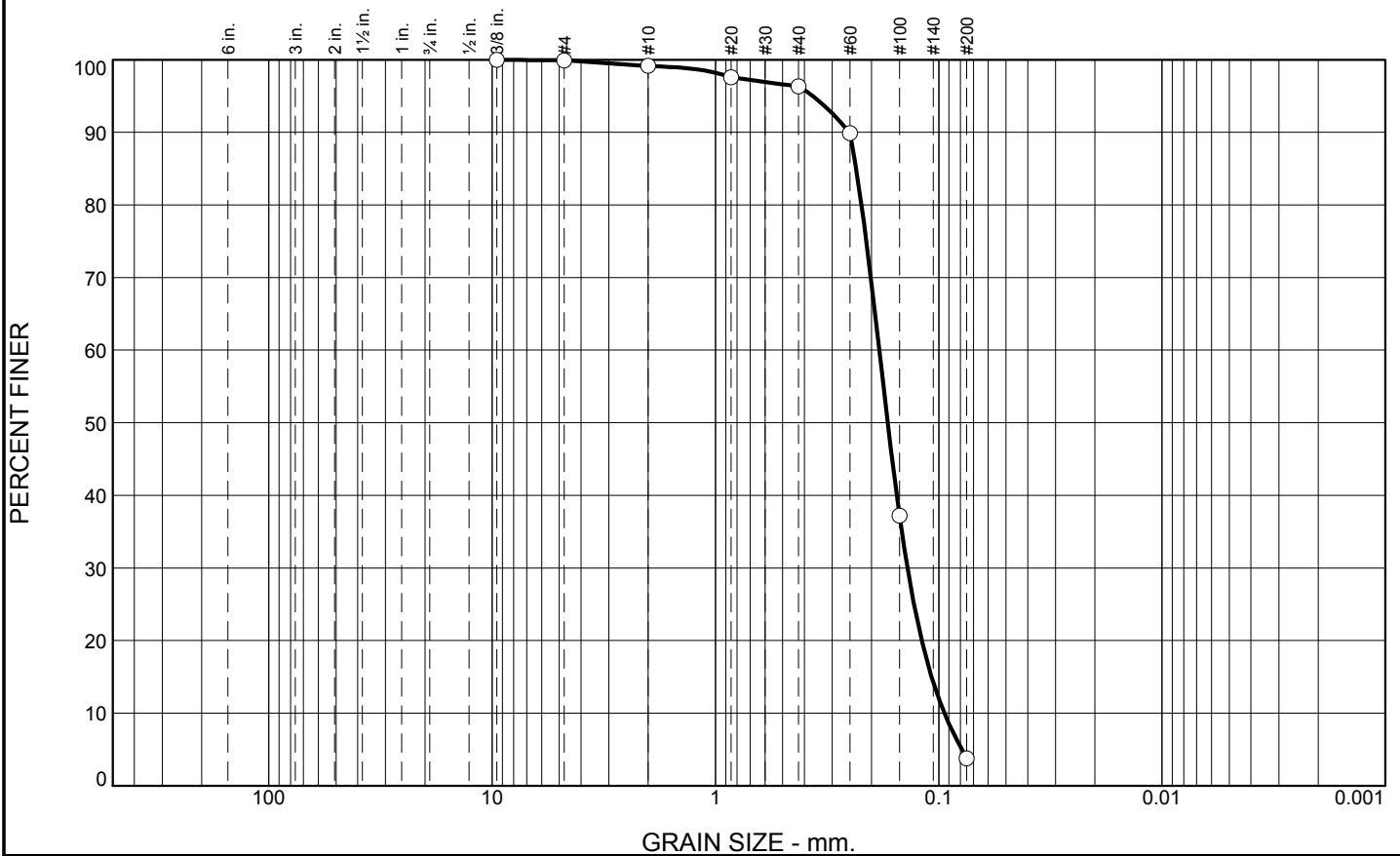
**Client:** US Army Corps of Engineers  
**Project:** Contract No. W91278-10-D-0026 - Task 03  
Mississippi Barrier Island Restoration Project  
**Project No:** 10-2123-0009

**Figure**

Tested By: L.Stokes

Checked By: R.Byrd

# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.1	0.7	2.9	92.5	3.8	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
.375	100.0		
#4	99.9		
#10	99.2		
#20	97.6		
#40	96.3		
#60	89.9		
#100	37.2		
#200	3.8		

\* (no specification provided)

Material Description		
SAND, (SP), fine grained		
<div> <div> <b>Atterberg Limits</b>            PL=      LL=      PI=         </div> <div> <b>Coefficients</b>            D<sub>90</sub>= 0.2517      D<sub>85</sub>= 0.2343      D<sub>60</sub>= 0.1846            D<sub>50</sub>= 0.1693      D<sub>30</sub>= 0.1381      D<sub>15</sub>= 0.1078            D<sub>10</sub>= 0.0944      C<sub>u</sub>= 1.96      C<sub>c</sub>= 1.09         </div> <div> <b>Classification</b>            USCS= SP      AASHTO=         </div> <div> <b>Remarks</b>            CADD CODE = CH10D965         </div> </div>		

Location: USACE Sample # BI-MS-20-10C  
Sample Number: TE Lab ID: 4488.07

Depth: 11.4 - 14.2 (ft.)

Date: 5/27/10

**Thompson Engineering**  
**Mobile, Alabama**

**Client:** US Army Corps of Engineers  
**Project:** Contract No. W91278-10-D-0026 - Task 03  
Mississippi Barrier Island Restoration Project  
**Project No:** 10-2123-0009

**Figure**

Tested By: L.Stokes

Checked By: R.Byrd

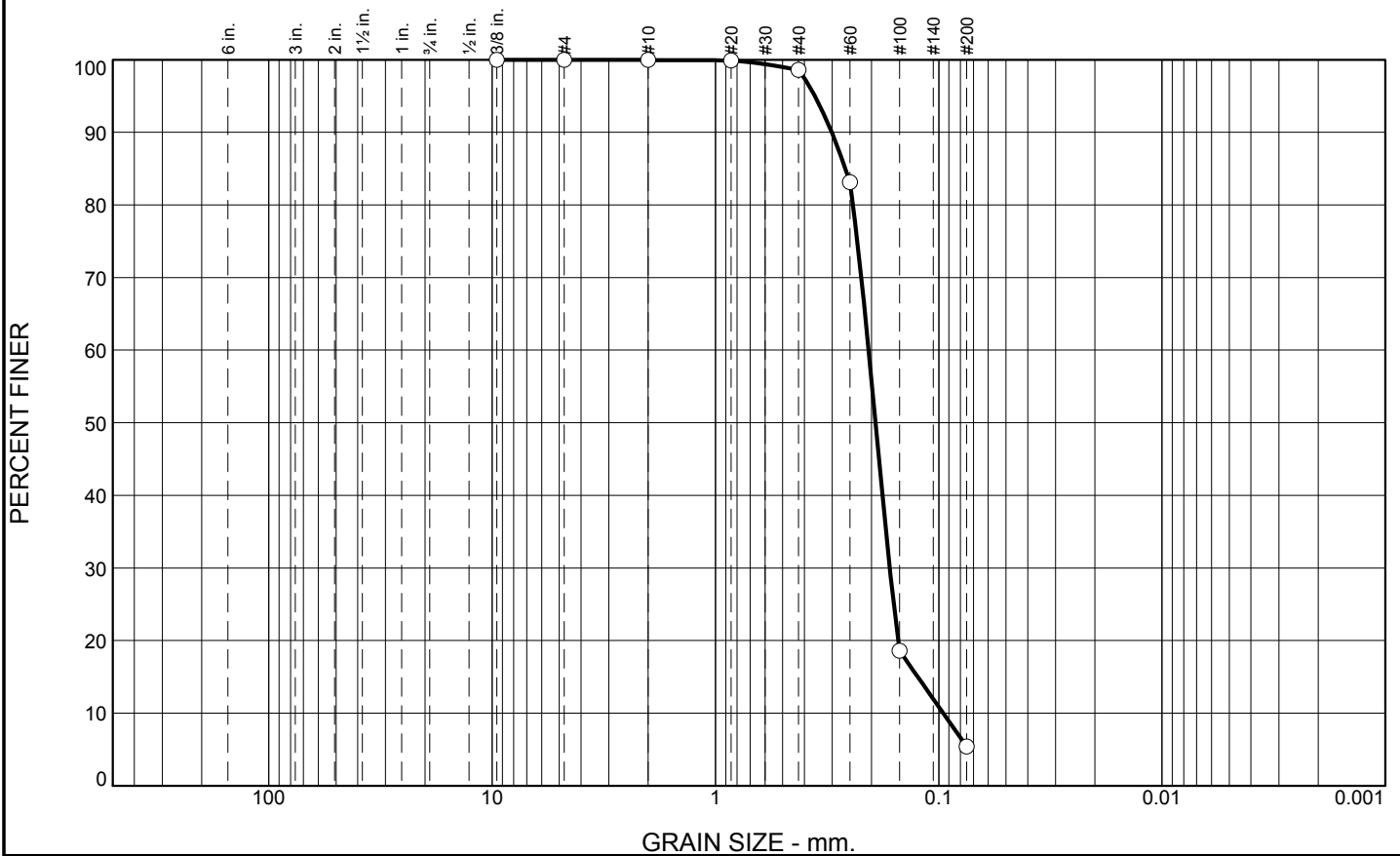
# Boring Designation BI-MS-21-10

DRILLING LOG		DIVISION South Atlantic		INSTALLATION Mobile District		SHEET 1 OF 1 SHEETS	
1. PROJECT MsCIP Barrier Island Restoration Mississippi Sound				9. SIZE AND TYPE OF BIT N/A			
2. BORING DESIGNATION BI-MS-21-10		LOCATION COORDINATES E = 934,745 N = 267,974		10. COORDINATE SYSTEM/DATUM State Plane, MSE (U.S. Ft.)		HORIZONTAL NAD83 VERTICAL NAVD88	
3. DRILLING AGENCY Corps of Engineers - CESAM		CONTRACTOR FILE NO.		11. MANUFACTURER'S DESIGNATION OF DRILL Vibracore		<input type="checkbox"/> AUTO HAMMER <input type="checkbox"/> MANUAL HAMMER	
4. NAME OF DRILLER Construction Solutions International, Inc.				12. TOTAL SAMPLES 2		DISTURBED 2 UNDISTURBED (UD) 0	
5. DIRECTION OF BORING <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED		DEG. FROM VERTICAL		13. TOTAL NUMBER CORE BOXES			
		BEARING		14. WATER DEPTH 21 Ft.			
6. THICKNESS OF OVERBURDEN N/A				15. DATE BORING 05-14-10		STARTED 05-14-10 COMPLETED 05-14-10	
7. DEPTH DRILLED INTO ROCK N/A				16. ELEVATION TOP OF BORING -19.3 Ft.			
8. TOTAL DEPTH OF BORING 12.8 Ft.				17. TOTAL RECOVERY FOR BORING 100%			
				18. SIGNATURE AND TITLE OF INSPECTOR Marty Gates, Geologist			

ELEV.	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS	SAMPLE	LABORATORY RESULTS
-19.3	0.0				
			SAND, poorly-graded, mostly fine to medium-grained sand-sized quartz, trace silt, trace shell fragments, lt. gray (SP)	A	Classification: SP Color: 2.5Y 6/1-gray D50: 0.1678 mm % Fines: 3.6
				B	Classification: SP-SM Color: 2.5Y 6/1-gray D50: 0.1481 mm % Fines: 5.6
-28.8	9.5		CLAY, lean, dark gray (CL)	NS	
-30.3	11.0				
-32.1	12.8		SAND, silty, mostly fine to medium-grained sand-sized quartz, some silt, brown (SM)		
			NOTES: 1. Soils are field visually classified in accordance with the Unified Soils Classification System. 2. NS = Sample not submitted for laboratory analysis from this interval. 3. Seafloor elevation calculated using sampling vessel's fathometer water depth reading and applying NOAA tidal gauge data conversion factor.		

# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.0	0.0	1.4	93.2	5.4	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
.375	100.0		
#4	100.0		
#10	100.0		
#20	99.9		
#40	98.6		
#60	83.1		
#100	18.6		
#200	5.4		

\* (no specification provided)

<u>Material Description</u>		
SAND, (SP-SM), fine grained		
<u>Atterberg Limits</u>		
PL=	LL=	PI=
<u>Coefficients</u>		
D <sub>90</sub> = 0.3014	D <sub>85</sub> = 0.2620	D <sub>60</sub> = 0.2061
D <sub>50</sub> = 0.1920	D <sub>30</sub> = 0.1658	D <sub>15</sub> = 0.1242
D <sub>10</sub> = 0.0955	C <sub>u</sub> = 2.16	C <sub>c</sub> = 1.40
<u>Classification</u>		
USCS= SP-SM	AASHTO=	
<u>Remarks</u>		
CADD CODE = CH10D965		

**Location:** USACE Sample # BI-SP-21-10A  
**Sample Number:** TE Lab ID: 4461.32

**Depth:** 0.0 - 5.0 (ft)

**Date:** 5/13/10

**Thompson Engineering**  
**Mobile, Alabama**

**Client:** US Army Corps of Engineers  
**Project:** Mississippi Barrier Island Restoration Project  
 Contract No. W91278-10-D-0026 - Task 03  
**Project No:** 1021230009

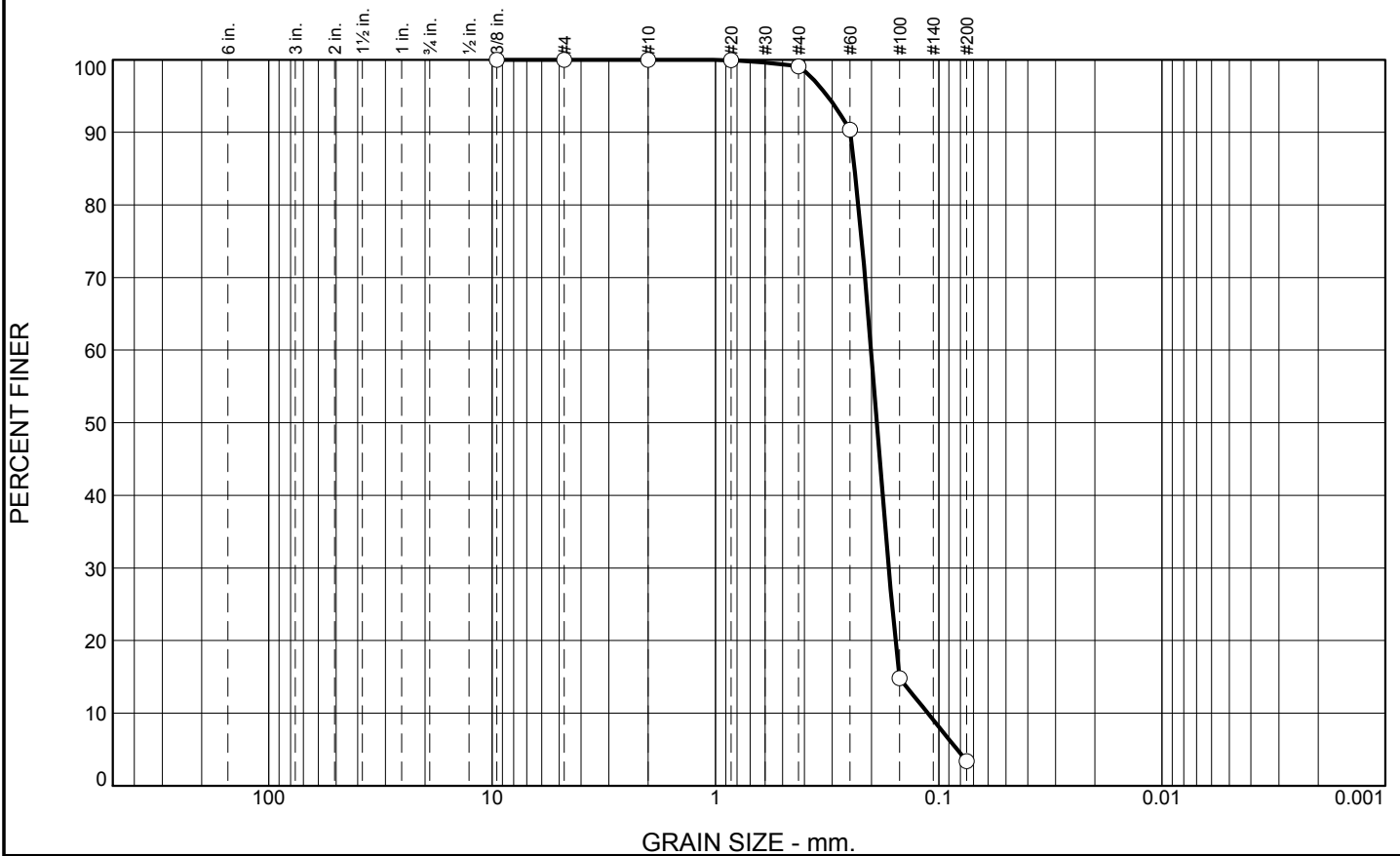
**Figure**

**Tested By:** J.Maddox/L.Stokes

**Checked By:** R.Byrd



# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.0	0.0	0.9	95.7	3.4	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
.375	100.0		
#4	100.0		
#10	100.0		
#20	99.9		
#40	99.1		
#60	90.3		
#100	14.8		
#200	3.4		

\* (no specification provided)

## Material Description

SAND, (SP), fine grained

## Atterberg Limits

PL=

LL=

PI=

## Coefficients

D<sub>90</sub>= 0.2492

D<sub>85</sub>= 0.2382

D<sub>60</sub>= 0.2011

D<sub>50</sub>= 0.1894

D<sub>30</sub>= 0.1675

D<sub>15</sub>= 0.1502

D<sub>10</sub>= 0.1120

C<sub>u</sub>= 1.80

C<sub>c</sub>= 1.25

## Classification

USCS= SP

AASHTO=

## Remarks

CADD CODE = CH10D965

Location: USACE Sample # BI-SP-21-10B  
Sample Number: TE Lab ID: 4461.33

Depth: 5.0 - 10.0 (ft)

Date: 5/13/10

**Thompson Engineering**

**Mobile, Alabama**

Client: US Army Corps of Engineers

Project: Mississippi Barrier Island Restoration Project  
Contract No. W91278-10-D-0026 - Task 03

Project No: 1021230009

Figure

Tested By: J.Maddox/L.Stokes

Checked By: R.Byrd

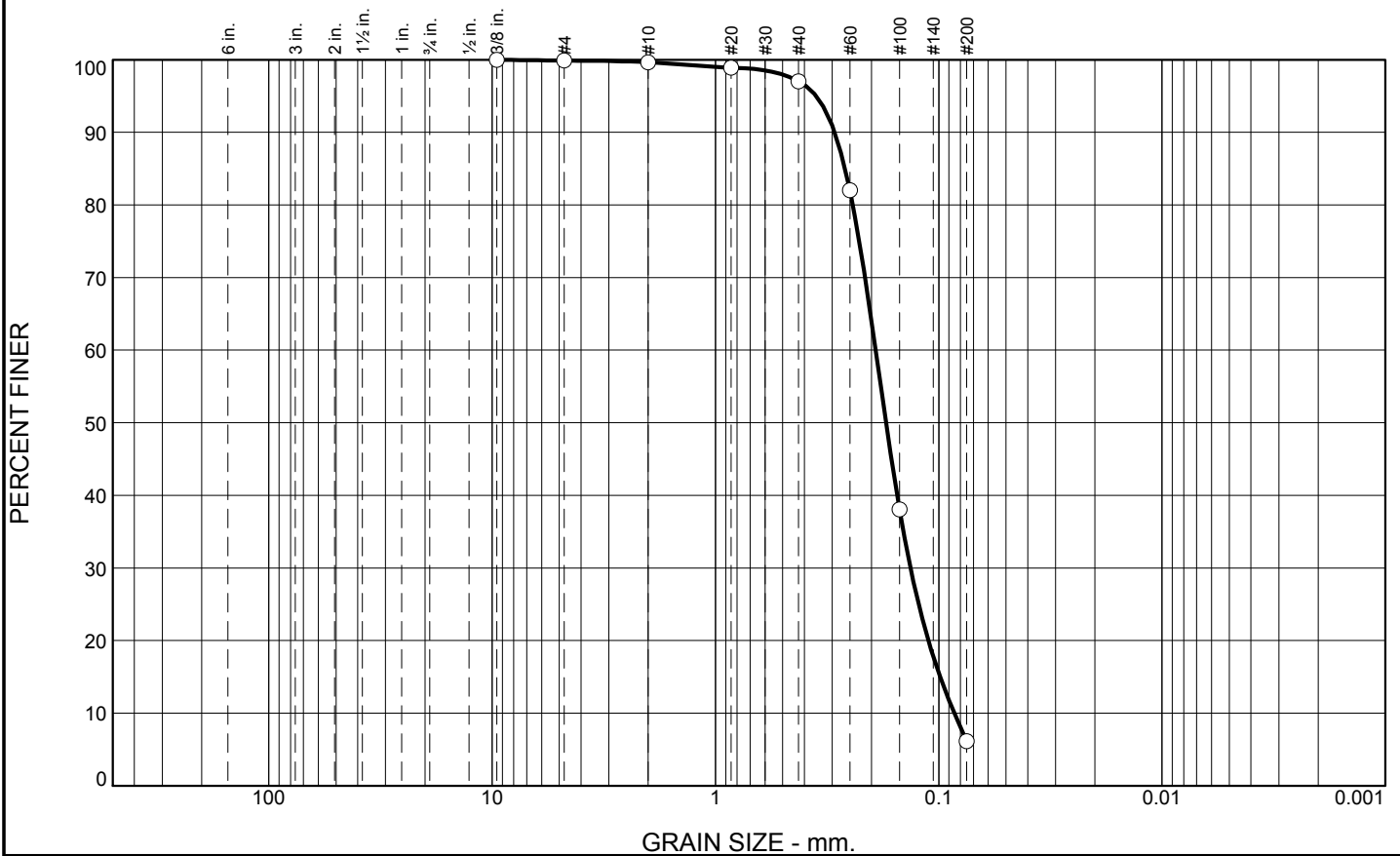
# Boring Designation BI-MS-22-10

DRILLING LOG		DIVISION South Atlantic		INSTALLATION Mobile District		SHEET 1 OF 1 SHEETS	
1. PROJECT MsCIP Barrier Island Restoration Mississippi Sound				9. SIZE AND TYPE OF BIT N/A			
2. BORING DESIGNATION BI-MS-22-10		LOCATION COORDINATES E = 933,373 N = 266,895		10. COORDINATE SYSTEM/DATUM State Plane, MSE (U.S. Ft.)		HORIZONTAL NAD83 VERTICAL NAVD88	
3. DRILLING AGENCY Corps of Engineers - CESAM		CONTRACTOR FILE NO.		11. MANUFACTURER'S DESIGNATION OF DRILL Vibracore		<input type="checkbox"/> AUTO HAMMER <input type="checkbox"/> MANUAL HAMMER	
4. NAME OF DRILLER Construction Solutions International, Inc.				12. TOTAL SAMPLES 2		DISTURBED 2 UNDISTURBED (UD) 0	
5. DIRECTION OF BORING <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED		DEG. FROM VERTICAL		13. TOTAL NUMBER CORE BOXES			
		BEARING		14. WATER DEPTH 19 Ft.			
6. THICKNESS OF OVERBURDEN N/A				15. DATE BORING 05-13-10		STARTED 05-13-10 COMPLETED 05-13-10	
7. DEPTH DRILLED INTO ROCK N/A				16. ELEVATION TOP OF BORING -17.7 Ft.			
8. TOTAL DEPTH OF BORING 11.4 Ft.				17. TOTAL RECOVERY FOR BORING 100%			
				18. SIGNATURE AND TITLE OF INSPECTOR Marty Gates, Geologist			

ELEV.	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS	SAMPLE	LABORATORY RESULTS
-17.7	0.0				
-18.7	1.0		SAND, silty, mostly fine to medium-grained sand-sized quartz, some silt, gray (SM)	A	Classification: SP-SM Color: 5Y 5/2-olive gray D50: 0.1722 mm % Fines: 6.1
			SAND, poorly-graded, mostly fine to medium-grained sand-sized quartz, trace silt, trace shell fragments, lt. gray (SP)	B	Classification: SP Color: 5Y 7/1-light gray D50: 0.2009 mm % Fines: 3.2
-27.9	10.2				
-28.7	11.0		SAND, silty, mostly fine to medium-grained sand-sized quartz, some silt, trace shell fragments, gray (SM)	NS	
-29.1	11.4		SAND, poorly-graded, mostly fine to medium-grained sand-sized quartz, trace shell fragments, lt. gray (SP)		
NOTES: 1. Soils are field visually classified in accordance with the Unified Soils Classification System. 2. NS = Sample not submitted for laboratory analysis from this interval. 3. Seafloor elevation calculated using sampling vessel's fathometer water depth reading and applying NOAA tidal gauge data conversion factor.					

# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.1	0.2	2.7	90.9	6.1	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
.375	100.0		
#4	99.9		
#10	99.7		
#20	98.9		
#40	97.0		
#60	82.0		
#100	38.1		
#200	6.1		

\* (no specification provided)

## Material Description

SAND, (SP-SM)

## Atterberg Limits

PL=

LL=

PI=

## Coefficients

D<sub>90</sub>= 0.2925

D<sub>85</sub>= 0.2627

D<sub>60</sub>= 0.1917

D<sub>50</sub>= 0.1722

D<sub>30</sub>= 0.1339

D<sub>15</sub>= 0.0987

D<sub>10</sub>= 0.0852

C<sub>u</sub>= 2.25

C<sub>c</sub>= 1.10

## Classification

USCS= SP-SM

AASHTO=

## Remarks

CADD CODE = CH10D965

Location: USACE Sample # BI-MS-22-10A  
Sample Number: TE Lab ID: 4488.08

Depth: 0.0 - 5.0 (ft.)

Date: 5/27/10

**Thompson Engineering**

**Mobile, Alabama**

Client: US Army Corps of Engineers

Project: Contract No. W91278-10-D-0026 - Task 03  
Mississippi Barrier Island Restoration Project

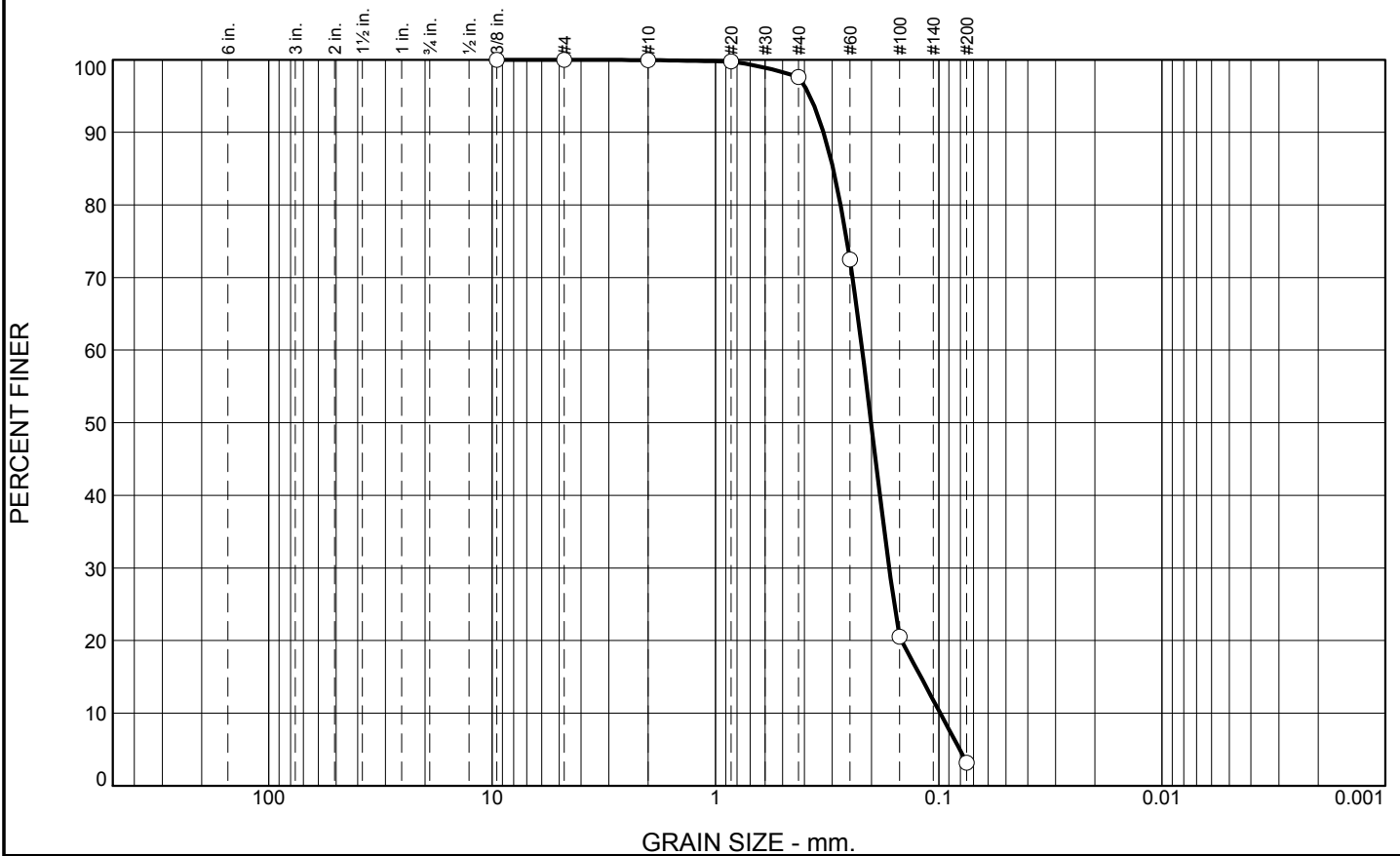
Project No: 10-2123-0009

Figure

Tested By: L.Stokes

Checked By: R.Byrd

# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.0	0.1	2.3	94.4	3.2	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
.375	100.0		
#4	100.0		
#10	99.9		
#20	99.7		
#40	97.6		
#60	72.5		
#100	20.5		
#200	3.2		

\* (no specification provided)

Material Description		
SAND, (SP), fine grained		
<div> <div> <b>Atterberg Limits</b>            PL=      LL=      PI=         </div> <div> <b>Coefficients</b>            D<sub>90</sub>= 0.3280    D<sub>85</sub>= 0.2972    D<sub>60</sub>= 0.2202            D<sub>50</sub>= 0.2009    D<sub>30</sub>= 0.1668    D<sub>15</sub>= 0.1203            D<sub>10</sub>= 0.0985    C<sub>u</sub>= 2.24      C<sub>c</sub>= 1.28         </div> <div> <b>Classification</b>            USCS= SP      AASHTO=         </div> <div> <b>Remarks</b>            CADD CODE = CH10D965         </div> </div>		

Location: USACE Sample # BI-MS-22-10B  
Sample Number: TE Lab ID: 4488.09

Depth: 5.0 - 10.0 (ft.)

Date: 5/27/10

**Thompson Engineering**  
**Mobile, Alabama**

**Client:** US Army Corps of Engineers  
**Project:** Contract No. W91278-10-D-0026 - Task 03  
Mississippi Barrier Island Restoration Project  
**Project No:** 10-2123-0009

**Figure**

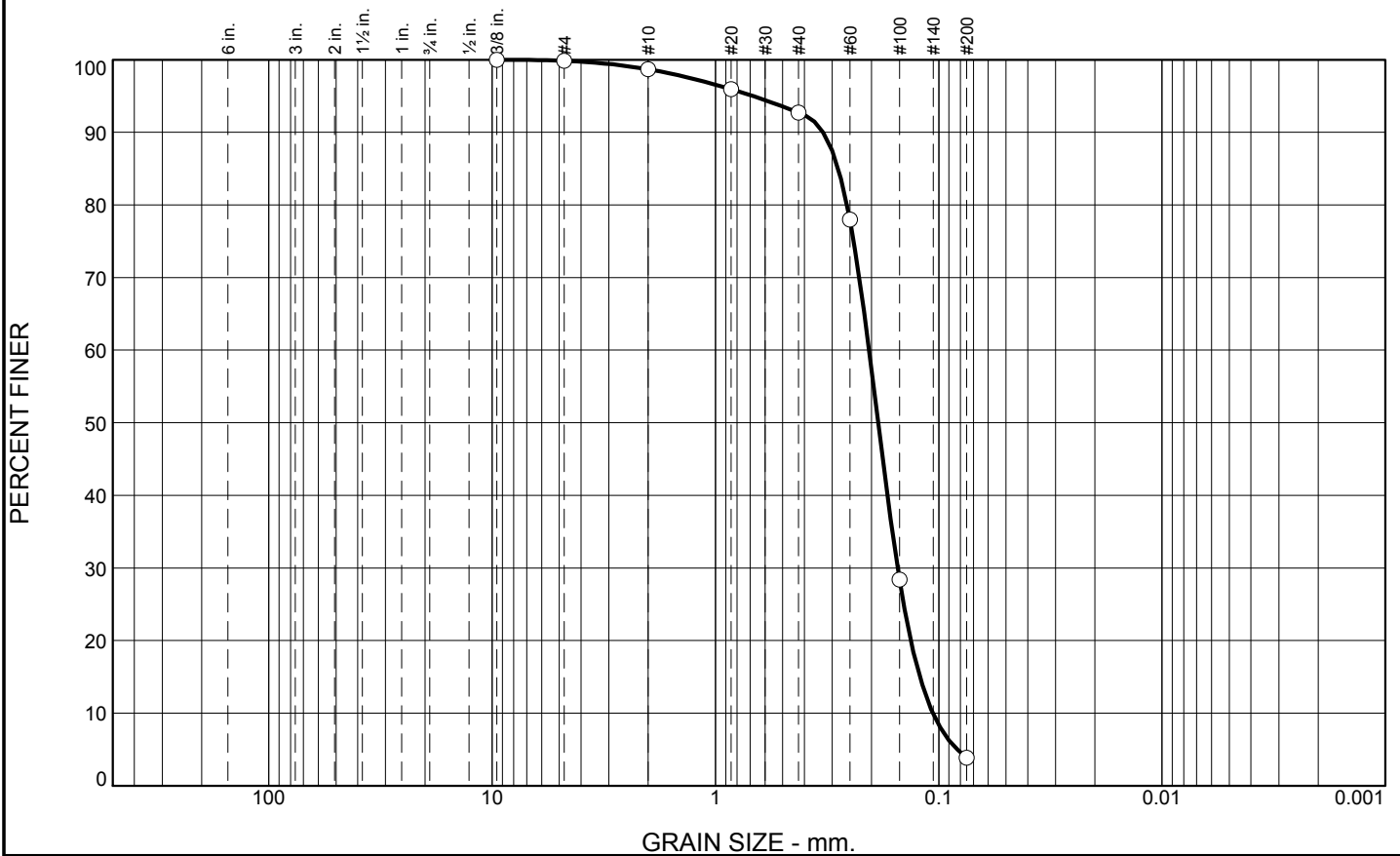
Tested By: L.Stokes

Checked By: R.Byrd

# Boring Designation BI-MS-23-10

DRILLING LOG		DIVISION South Atlantic		INSTALLATION Mobile District		SHEET 1 OF 1 SHEETS	
1. PROJECT MsCIP Barrier Island Restoration Mississippi Sound				9. SIZE AND TYPE OF BIT N/A			
2. BORING DESIGNATION BI-MS-23-10		LOCATION COORDINATES E = 934,905 N = 267,032		10. COORDINATE SYSTEM/DATUM State Plane, MSE (U.S. Ft.)		HORIZONTAL NAD83	
3. DRILLING AGENCY Corps of Engineers - CESAM		CONTRACTOR FILE NO.		11. MANUFACTURER'S DESIGNATION OF DRILL Vibracore		<input type="checkbox"/> AUTO HAMMER <input type="checkbox"/> MANUAL HAMMER	
4. NAME OF DRILLER Construction Solutions International, Inc.				12. TOTAL SAMPLES 3		DISTURBED 0	
5. DIRECTION OF BORING <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED		DEG. FROM VERTICAL		13. TOTAL NUMBER CORE BOXES			
		BEARING		14. WATER DEPTH 22 Ft.			
6. THICKNESS OF OVERBURDEN N/A				15. DATE BORING 05-14-10		COMPLETED 05-14-10	
7. DEPTH DRILLED INTO ROCK N/A				16. ELEVATION TOP OF BORING -20.2 Ft.			
8. TOTAL DEPTH OF BORING 16.6 Ft.				17. TOTAL RECOVERY FOR BORING 100%			
				18. SIGNATURE AND TITLE OF INSPECTOR Marty Gates, Geologist			
ELEV.	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS	SAMPLE	LABORATORY RESULTS		
-20.2	0.0						
			SAND, poorly-graded, mostly fine to medium-grained sand-sized quartz, trace silt, trace shell fragments, lt. gray (SP)	A	Classification: SP Color: 5Y 6/1-gray D50: 0.1867 mm % Fines: 3.8		
				B	Classification: SP Color: 5Y 6/1-gray D50: 0.1827 mm % Fines: 3.7		
				C	Classification: SP-SM Color: 5Y 6/1-gray D50: 0.1797 mm % Fines: 6.8		
-36.4	16.2						
-36.8	16.6			NS			
			SAND, clayey, mostly fine to medium-grained sand-sized quartz, some clay, trace shell fragments, gray (SC)  NOTES: 1. Soils are field visually classified in accordance with the Unified Soils Classification System. 2. NS = Sample not submitted for laboratory analysis from this interval. 3. Seafloor elevation calculated using sampling vessel's fathometer water depth reading and applying NOAA tidal gauge data conversion factor.				

# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.1	1.2	6.0	88.9	3.8	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
.375	100.0		
#4	99.9		
#10	98.7		
#20	95.9		
#40	92.7		
#60	78.0		
#100	28.4		
#200	3.8		

\* (no specification provided)

Material Description		
SAND, (SP), fine grained		
<div> <div> <b>Atterberg Limits</b>            PL=      LL=      PI=         </div> <div> <b>Coefficients</b>            D<sub>90</sub>= 0.3292      D<sub>85</sub>= 0.2821      D<sub>60</sub>= 0.2052            D<sub>50</sub>= 0.1867      D<sub>30</sub>= 0.1528      D<sub>15</sub>= 0.1215            D<sub>10</sub>= 0.1063      C<sub>u</sub>= 1.93      C<sub>c</sub>= 1.07         </div> <div> <b>Classification</b>            USCS= SP      AASHTO=         </div> <div> <b>Remarks</b>            CADD CODE = CH10D965         </div> </div>		

Location: USACE Sample # BI-MS-23-10A  
Sample Number: TE Lab ID: 4488.12

Depth: 0.0 - 5.0 (ft.)

Date: 5/27/10

**Thompson Engineering**  
**Mobile, Alabama**

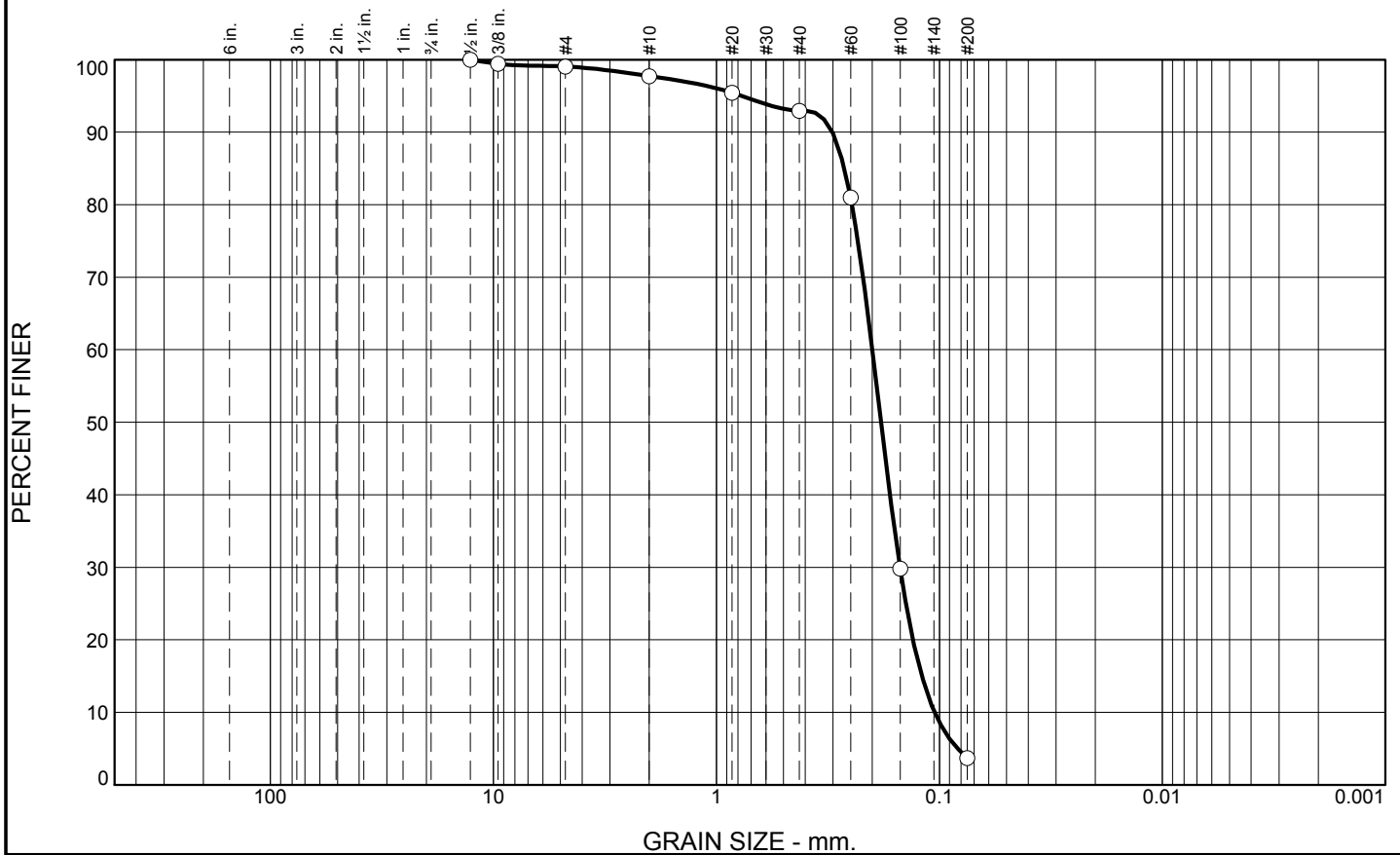
**Client:** US Army Corps of Engineers  
**Project:** Contract No. W91278-10-D-0026 - Task 03  
Mississippi Barrier Island Restoration Project  
**Project No:** 10-2123-0009

**Figure**

Tested By: L.Stokes

Checked By: R.Byrd

# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.9	1.4	4.7	89.3	3.7	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
.500	100.0		
.375	99.4		
#4	99.1		
#10	97.7		
#20	95.4		
#40	93.0		
#60	81.0		
#100	29.8		
#200	3.7		

\* (no specification provided)

**Material Description**  
SAND, (SP), fine grained

**Atterberg Limits**  
 PL=      LL=      PI=

**Coefficients**  
 D<sub>90</sub>= 0.3021      D<sub>85</sub>= 0.2666      D<sub>60</sub>= 0.2000  
 D<sub>50</sub>= 0.1827      D<sub>30</sub>= 0.1504      D<sub>15</sub>= 0.1198  
 D<sub>10</sub>= 0.1051      C<sub>u</sub>= 1.90      C<sub>c</sub>= 1.08

**Classification**  
 USCS= SP      AASHTO=

**Remarks**  
 CADD CODE = CH10D965

**Location:** USACE Sample # BI-MS-23-10B  
**Sample Number:** TE Lab ID: 4488.13

**Depth:** 5.0 - 10.0 (ft.)

**Date:** 5/27/10

**Thompson Engineering**  
  
**Mobile, Alabama**

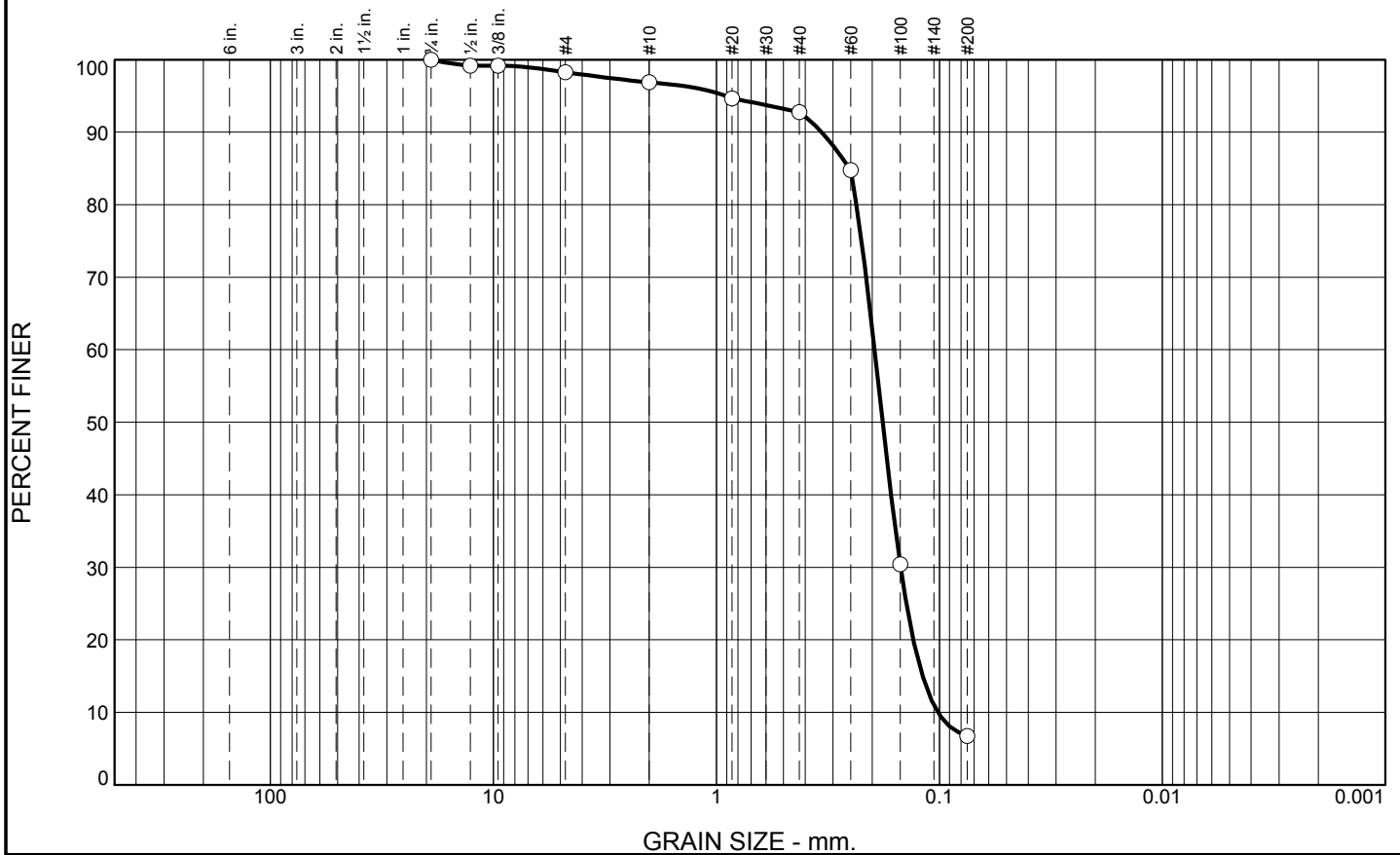
**Client:** US Army Corps of Engineers  
**Project:** Contract No. W91278-10-D-0026 - Task 03  
 Mississippi Barrier Island Restoration Project  
**Project No:** 10-2123-0009

**Figure**

**Tested By:** L.Stokes

**Checked By:** R.Byrd

# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	1.7	1.4	4.1	86.0	6.8	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
.750	100.0		
.500	99.2		
.375	99.2		
#4	98.3		
#10	96.9		
#20	94.7		
#40	92.8		
#60	84.8		
#100	30.4		
#200	6.8		

\* (no specification provided)

**Material Description**  
SAND, (SP-SM), fine grained, with trace shell

**Atterberg Limits**  
 PL=      LL=      PI=

**Coefficients**  
 D<sub>90</sub>= 0.3378      D<sub>85</sub>= 0.2530      D<sub>60</sub>= 0.1954  
 D<sub>50</sub>= 0.1797      D<sub>30</sub>= 0.1494      D<sub>15</sub>= 0.1189  
 D<sub>10</sub>= 0.1017      C<sub>u</sub>= 1.92      C<sub>c</sub>= 1.12

**Classification**  
 USCS= SP-SM      AASHTO=

**Remarks**  
 CADD CODE = CH10D965

**Location:** USACE Sample # BI-MS-23-10C  
**Sample Number:** TE Lab ID: 4488.14

**Depth:** 10.0 - 16.3 (ft.)

**Date:** 5/27/10

**Thompson Engineering**  
  
**Mobile, Alabama**

**Client:** US Army Corps of Engineers  
**Project:** Contract No. W91278-10-D-0026 - Task 03  
 Mississippi Barrier Island Restoration Project  
**Project No:** 10-2123-0009

**Figure**

**Tested By:** L.Stokes

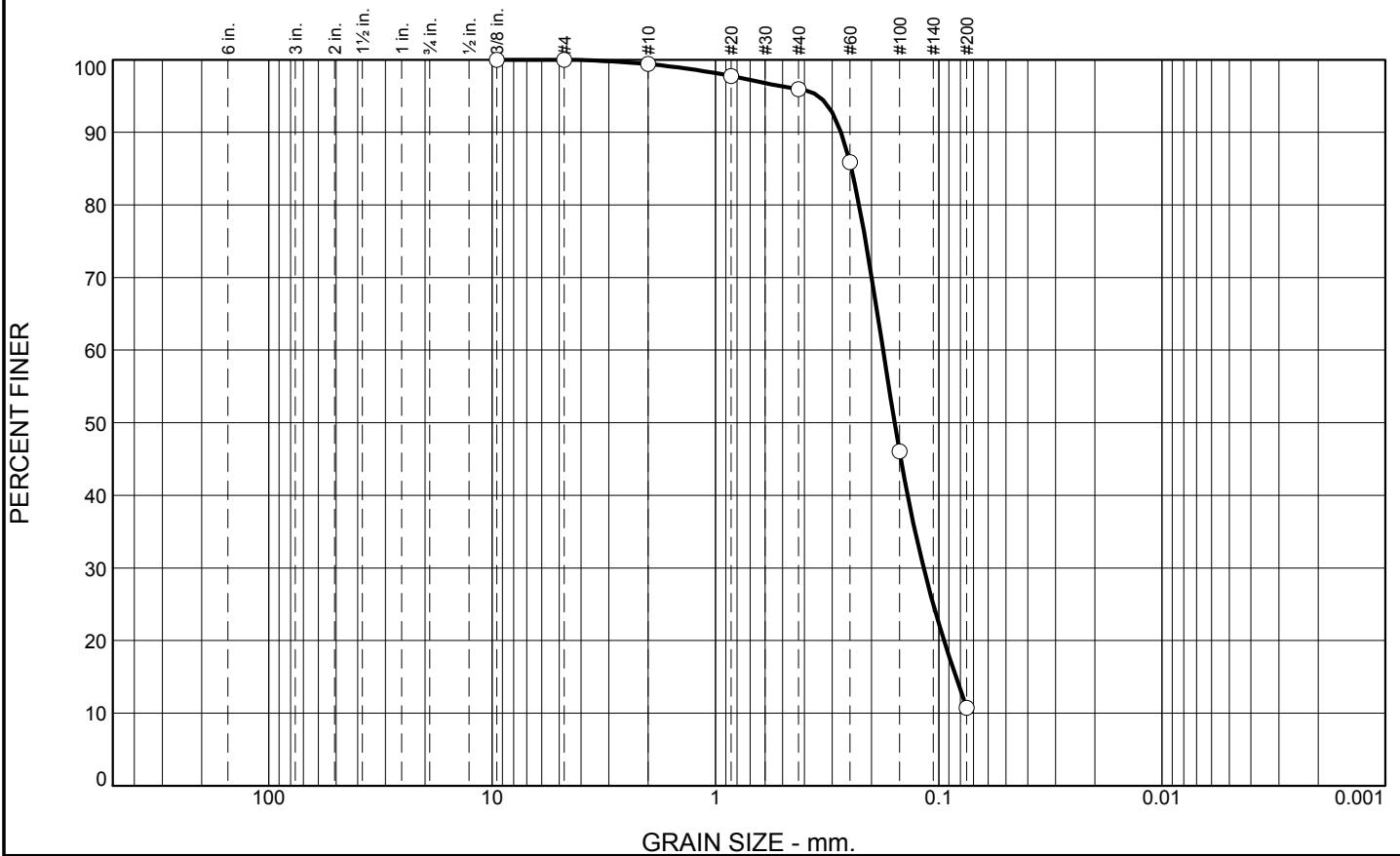
**Checked By:** R.Byrd



# Boring Designation BI-MS-24-10

DRILLING LOG		DIVISION South Atlantic		INSTALLATION Mobile District		SHEET 1 OF 1 SHEETS	
1. PROJECT MsCIP Barrier Island Restoration Mississippi Sound				9. SIZE AND TYPE OF BIT N/A			
2. BORING DESIGNATION BI-MS-24-10		LOCATION COORDINATES E = 932,701 N = 269,428		10. COORDINATE SYSTEM/DATUM State Plane, MSE (U.S. Ft.)		HORIZONTAL NAD83 VERTICAL NAVD88	
3. DRILLING AGENCY Corps of Engineers - CESAM		CONTRACTOR FILE NO.		11. MANUFACTURER'S DESIGNATION OF DRILL Vibrocure		<input type="checkbox"/> AUTO HAMMER <input type="checkbox"/> MANUAL HAMMER	
4. NAME OF DRILLER Construction Solutions International, Inc.				12. TOTAL SAMPLES 3		DISTURBED 0 UNDISTURBED (UD)	
5. DIRECTION OF BORING <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED		DEG. FROM VERTICAL		13. TOTAL NUMBER CORE BOXES			
		BEARING		14. WATER DEPTH 19 Ft.			
6. THICKNESS OF OVERBURDEN N/A				15. DATE BORING 05-15-10		STARTED 05-15-10 COMPLETED 05-15-10	
7. DEPTH DRILLED INTO ROCK N/A				16. ELEVATION TOP OF BORING -17.0 Ft.			
8. TOTAL DEPTH OF BORING 15.5 Ft.				17. TOTAL RECOVERY FOR BORING 100%			
				18. SIGNATURE AND TITLE OF INSPECTOR Marty Gates, Geologist			
ELEV.	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS	SAMPLE	LABORATORY RESULTS		
-17.0	0.0						
-19.3	2.3		SAND, silty, mostly fine to medium-grained sand-sized quartz, some silt, trace shell fragments, gray (SM)	A	Classification: SP-SM Color: 5Y 6/1-gray D50: 0.1577 mm % Fines: 10.7		
			SAND, poorly-graded, mostly fine to medium-grained sand-sized quartz, trace silt, trace shell fragments, lt. gray (SP)	B	Classification: SP-SM Color: 5Y 6/1-gray D50: 0.1382 mm % Fines: 6		
				C	Classification: SP-SM Color: 2.5Y 6/1-gray D50: 0.1569 mm % Fines: 5.6		
-30.7	13.7						
-32.5	15.5		CLAY, lean, dark gray (CL)	NS			
			NOTES: 1. Soils are field visually classified in accordance with the Unified Soils Classification System. 2. NS = Sample not submitted for laboratory analysis from this interval. 3. Seafloor elevation calculated using sampling vessel's fathometer water depth reading and applying NOAA tidal gauge data conversion factor.				

# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.0	0.6	3.5	85.2	10.7	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
.375	100.0		
#4	100.0		
#10	99.4		
#20	97.8		
#40	95.9		
#60	85.9		
#100	46.0		
#200	10.7		

\* (no specification provided)

**Material Description**  
SAND, (SP-SM), fine grained

**Atterberg Limits**  
 PL=      LL=      PI=

**Coefficients**  
 D<sub>90</sub>= 0.2740      D<sub>85</sub>= 0.2461      D<sub>60</sub>= 0.1776  
 D<sub>50</sub>= 0.1577      D<sub>30</sub>= 0.1168      D<sub>15</sub>= 0.0838  
 D<sub>10</sub>=      C<sub>u</sub>=      C<sub>c</sub>=

**Classification**  
 USCS= SP-SM      AASHTO=

**Remarks**  
 CADD CODE = CH10D965

**Location:** USACE Sample # BI-MS-24-10A  
**Sample Number:** TE Lab ID: 4488.21

**Depth:** 0.0 - 5.0 (ft.)

**Date:** 5/27/10

**Thompson Engineering**  
  
**Mobile, Alabama**

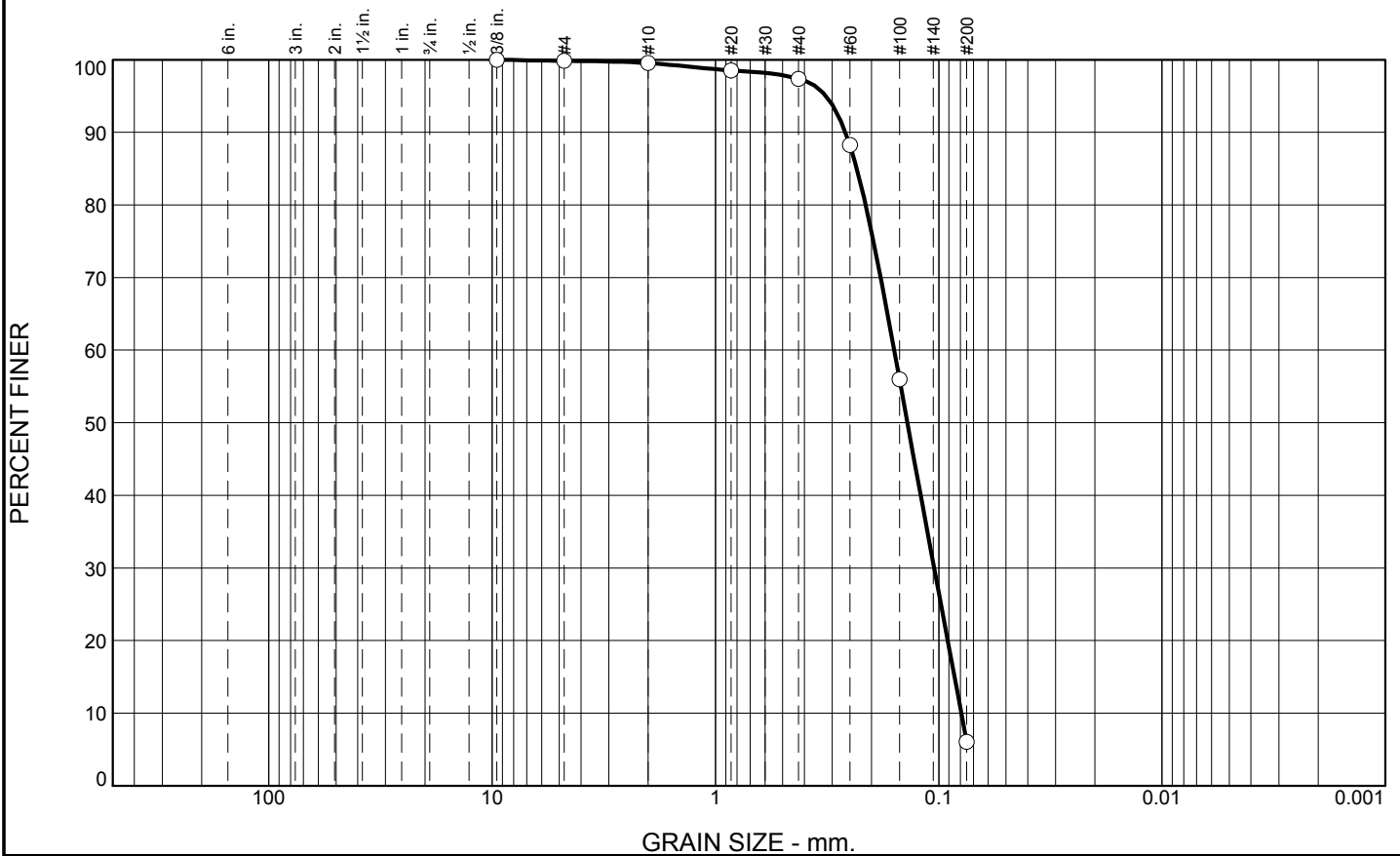
**Client:** US Army Corps of Engineers  
**Project:** Contract No. W91278-10-D-0026 - Task 03  
 Mississippi Barrier Island Restoration Project  
**Project No:** 10-2123-0009

**Figure**

**Tested By:** L.Stokes

**Checked By:** R.Byrd

# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.2	0.3	2.1	91.4	6.0	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
.375	100.0		
#4	99.8		
#10	99.5		
#20	98.5		
#40	97.4		
#60	88.3		
#100	56.0		
#200	6.0		

\* (no specification provided)

**Material Description**  
SAND, (SP-SM), fine grained

**Atterberg Limits**  
 PL=      LL=      PI=

**Coefficients**  
 D<sub>90</sub>= 0.2616      D<sub>85</sub>= 0.2328      D<sub>60</sub>= 0.1585  
 D<sub>50</sub>= 0.1382      D<sub>30</sub>= 0.1049      D<sub>15</sub>= 0.0850  
 D<sub>10</sub>= 0.0793      C<sub>u</sub>= 2.00      C<sub>c</sub>= 0.88

**Classification**  
 USCS= SP-SM      AASHTO=

**Remarks**  
 CADD CODE = CH10D965

**Location:** USACE Sample # BI-MS-24-10B  
**Sample Number:** TE Lab ID: 4488.22

**Depth:** 5.0 - 10.0 (ft.)

**Date:** 5/27/10

**Thompson Engineering**  
  
**Mobile, Alabama**

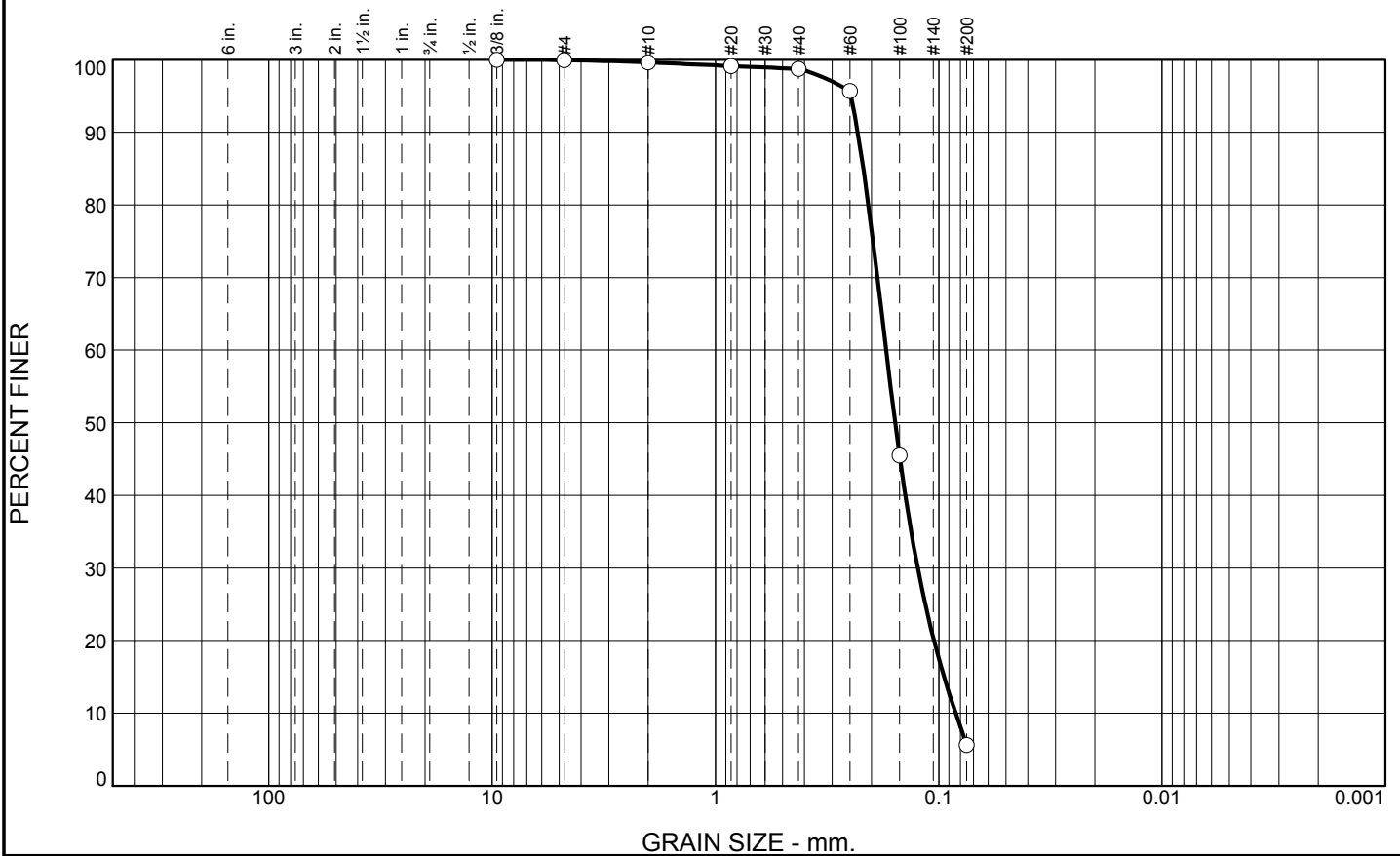
**Client:** US Army Corps of Engineers  
**Project:** Contract No. W91278-10-D-0026 - Task 03  
 Mississippi Barrier Island Restoration Project  
**Project No:** 10-2123-0009

**Figure**

**Tested By:** L.Stokes

**Checked By:** R.Byrd

# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.1	0.3	0.9	93.1	5.6	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
.375	100.0		
#4	99.9		
#10	99.6		
#20	99.1		
#40	98.7		
#60	95.7		
#100	45.5		
#200	5.6		

\* (no specification provided)

<u>Material Description</u>		
SAND, (SP-SM), fine grained		
<u>Atterberg Limits</u>		
PL=	LL=	PI=
<u>Coefficients</u>		
D <sub>90</sub> = 0.2304	D <sub>85</sub> = 0.2176	D <sub>60</sub> = 0.1721
D <sub>50</sub> = 0.1569	D <sub>30</sub> = 0.1242	D <sub>15</sub> = 0.0947
D <sub>10</sub> = 0.0840	C <sub>u</sub> = 2.05	C <sub>c</sub> = 1.07
<u>Classification</u>		
USCS= SP-SM	AASHTO=	
<u>Remarks</u>		
CADD CODE = CH10D965		

Location: USACE Sample # BI-MS-24-10C  
Sample Number: TE Lab ID: 4488.23

Depth: 10.0 - 13.7 (ft.)

Date: 5/27/10

**Thompson Engineering**  
**Mobile, Alabama**

**Client:** US Army Corps of Engineers  
**Project:** Contract No. W91278-10-D-0026 - Task 03  
Mississippi Barrier Island Restoration Project  
**Project No:** 10-2123-0009

**Figure**

Tested By: L.Stokes

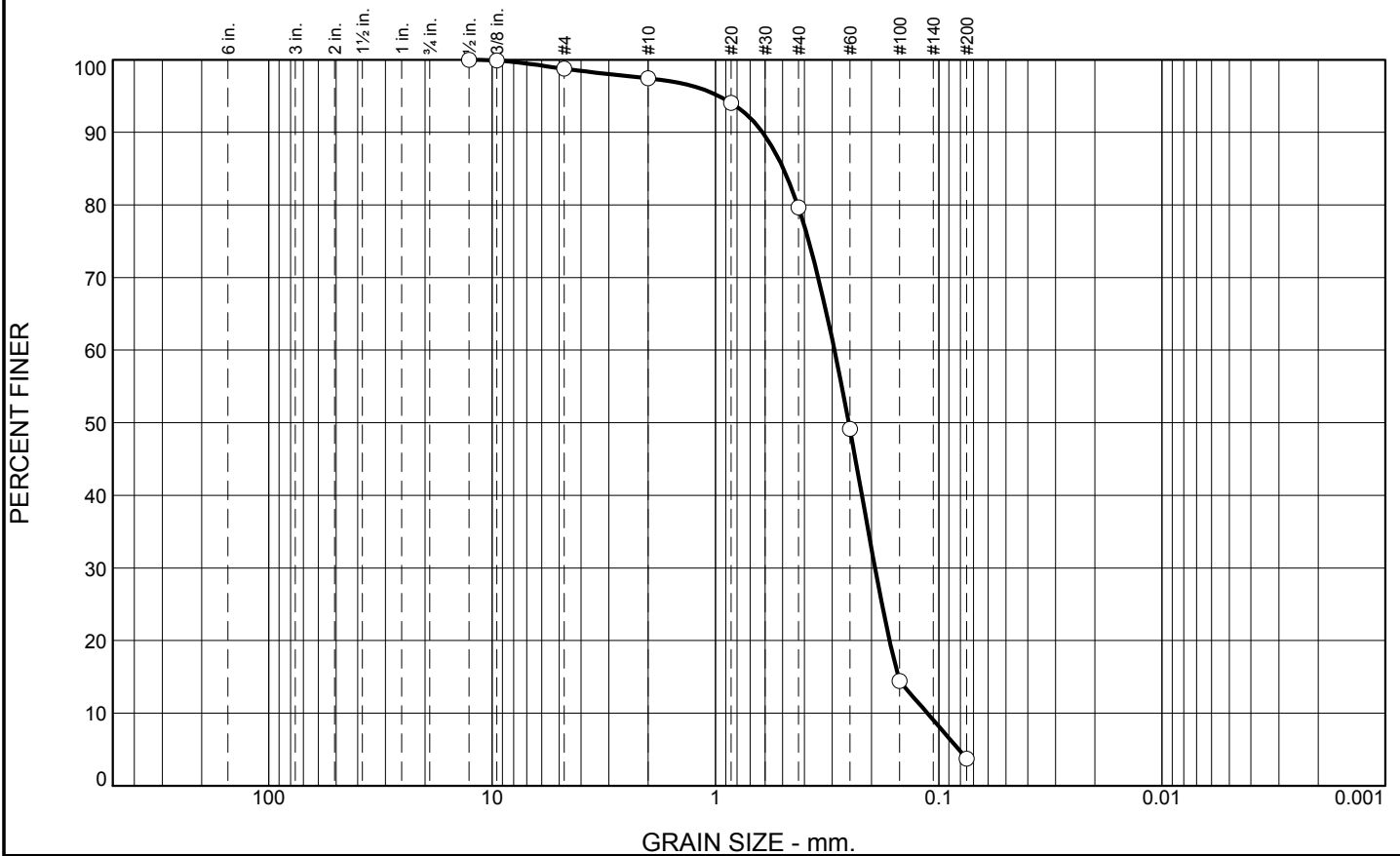
Checked By: R.Byrd

# Boring Designation BI-MS-25-10

DRILLING LOG		DIVISION South Atlantic		INSTALLATION Mobile District		SHEET 1 OF 2 SHEETS	
1. PROJECT MsCIP Barrier Island Restoration Mississippi Sound				9. SIZE AND TYPE OF BIT N/A			
2. BORING DESIGNATION BI-MS-25-10		LOCATION COORDINATES E = 934,068 N = 264,414		10. COORDINATE SYSTEM/DATUM State Plane, MSE (U.S. Ft.)		HORIZONTAL NAD83 VERTICAL NAVD88	
3. DRILLING AGENCY Corps of Engineers - CESAM		CONTRACTOR FILE NO.		11. MANUFACTURER'S DESIGNATION OF DRILL Vibrocure		<input type="checkbox"/> AUTO HAMMER <input type="checkbox"/> MANUAL HAMMER	
4. NAME OF DRILLER Construction Solutions International, Inc.				12. TOTAL SAMPLES 4		DISTURBED 0 UNDISTURBED (UD)	
5. DIRECTION OF BORING <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED		DEG. FROM VERTICAL		13. TOTAL NUMBER CORE BOXES			
		BEARING		14. WATER DEPTH 23 Ft.			
6. THICKNESS OF OVERBURDEN N/A				15. DATE BORING 05-18-10		STARTED 05-18-10 COMPLETED 05-18-10	
7. DEPTH DRILLED INTO ROCK N/A				16. ELEVATION TOP OF BORING -22.2 Ft.			
8. TOTAL DEPTH OF BORING 18.9 Ft.				17. TOTAL RECOVERY FOR BORING 100%			
				18. SIGNATURE AND TITLE OF INSPECTOR Ed Herman, Geologist			
ELEV.	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS	SAMPLE	LABORATORY RESULTS		
-22.2	0.0						
			SAND, poorly-graded, mostly medium-grained sand-sized quartz, some shell fragments, gray (SP)	A	Classification: SP Color: 5Y 6/1-gray D50: 0.2529 mm % Fines: 3.7		
				B	Classification: SP Color: 2.5Y 7/1-light gray D50: 0.2133 mm % Fines: 3.8		
-32.6	10.4		SAND, silty, mostly medium-grained sand-sized quartz, some shell fragments, gray (SM)	C	Classification: SP-SM Color: 2.5Y 7/1-light gray D50: 0.196 mm % Fines: 6.2		
-35.6	13.4		SILT, inorganic-L, some medium-grained sand-sized quartz, with clay zones, dark gray (ML)	D	Classification: SM Color: 5Y 5/1-gray D50: 0.0947 mm % Fines: 38		
-41.1	18.9						
			NOTES: 1. Soils are field visually classified in accordance with the Unified Soils Classification System. 2. NS = Sample not submitted for laboratory analysis from this interval. 3. Seafloor elevation calculated using sampling vessel's fathometer water depth reading and applying NOAA tidal gauge data conversion				

**SAM FORM 1836 - MsCIP** Lat = 30.22699° Long = -88.99223°  
MAY 2010

# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	1.2	1.4	17.8	75.9	3.7	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
.500	100.0		
.375	99.9		
#4	98.8		
#10	97.4		
#20	94.0		
#40	79.6		
#60	49.2		
#100	14.4		
#200	3.7		

\* (no specification provided)

<u><b>Material Description</b></u>		
SAND, (SP), fine grained, with trace shell		
<u><b>Atterberg Limits</b></u>		
PL=	LL=	PI=
<u><b>Coefficients</b></u>		
D <sub>90</sub> = 0.6151	D <sub>85</sub> = 0.4964	D <sub>60</sub> = 0.2929
D <sub>50</sub> = 0.2529	D <sub>30</sub> = 0.1930	D <sub>15</sub> = 0.1518
D <sub>10</sub> = 0.1125	C <sub>u</sub> = 2.60	C <sub>c</sub> = 1.13
<u><b>Classification</b></u>		
USCS= SP	AASHTO=	
<u><b>Remarks</b></u>		
CADD CODE = CH10D965		

Location: USACE Sample # BI-MS-25-10A  
Sample Number: TE Lab ID: 4488.24

Depth: 0.0 - 5.0 (ft.)

Date: 5/27/10

**Thompson Engineering**  
**Mobile, Alabama**

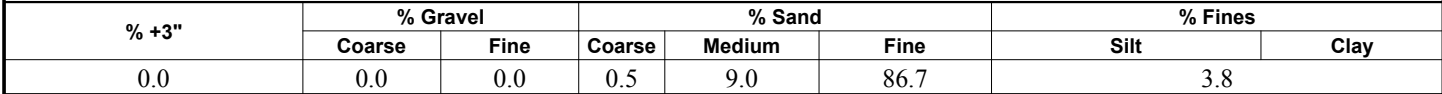
**Client:** US Army Corps of Engineers  
**Project:** Contract No. W91278-10-D-0026 - Task 03  
Mississippi Barrier Island Restoration Project  
**Project No:** 10-2123-0009

**Figure**

Tested By: L.Stokes

Checked By: R.Byrd

**PERCENT FINER**

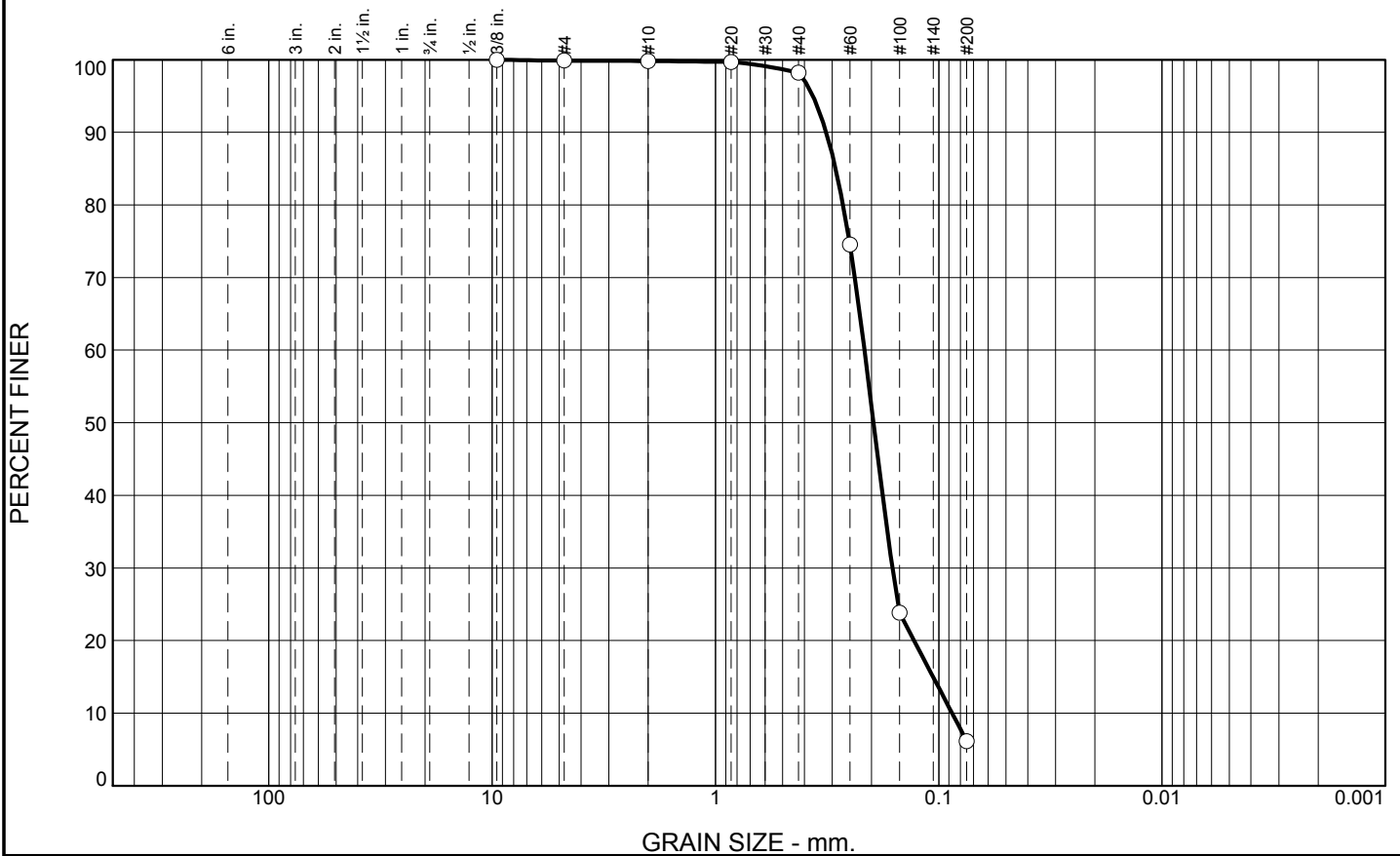


<b><u>Material Description</u></b>		
SAND, (SP), fine grained, with trace shell		
<b><u>Atterberg Limits</u></b>		
PL=	LL=	PI=
<b><u>Coefficients</u></b>		
D <sub>90</sub> = 0.4166	D <sub>85</sub> = 0.3590	D <sub>60</sub> = 0.2384
D <sub>50</sub> = 0.2133	D <sub>30</sub> = 0.1715	D <sub>15</sub> = 0.1384
D <sub>10</sub> = 0.1231	C <sub>u</sub> = 1.94	C <sub>c</sub> = 1.00
<b><u>Classification</u></b>		
USCS= SP	AASHTO=	
<b><u>Remarks</u></b>		
CADD CODE = CH10D965		

D-86



# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.1	0.1	1.6	92.0	6.2	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
.375	100.0		
#4	99.9		
#10	99.8		
#20	99.7		
#40	98.2		
#60	74.5		
#100	23.8		
#200	6.2		

\* (no specification provided)

**Material Description**  
SAND, (SP-SM), fine grained

**Atterberg Limits**  
 PL=      LL=      PI=

**Coefficients**  
 D<sub>90</sub>= 0.3188      D<sub>85</sub>= 0.2894      D<sub>60</sub>= 0.2151  
 D<sub>50</sub>= 0.1960      D<sub>30</sub>= 0.1613      D<sub>15</sub>= 0.1061  
 D<sub>10</sub>= 0.0872      C<sub>u</sub>= 2.47      C<sub>c</sub>= 1.39

**Classification**  
 USCS= SP-SM      AASHTO=

**Remarks**  
 CADD CODE = CH10D965

**Location:** USACE Sample # BI-MS-25-10C  
**Sample Number:** TE Lab ID: 4488.26

**Depth:** 10.4 - 13.5 (ft.)

**Date:** 5/27/10

**Thompson Engineering**  
  
**Mobile, Alabama**

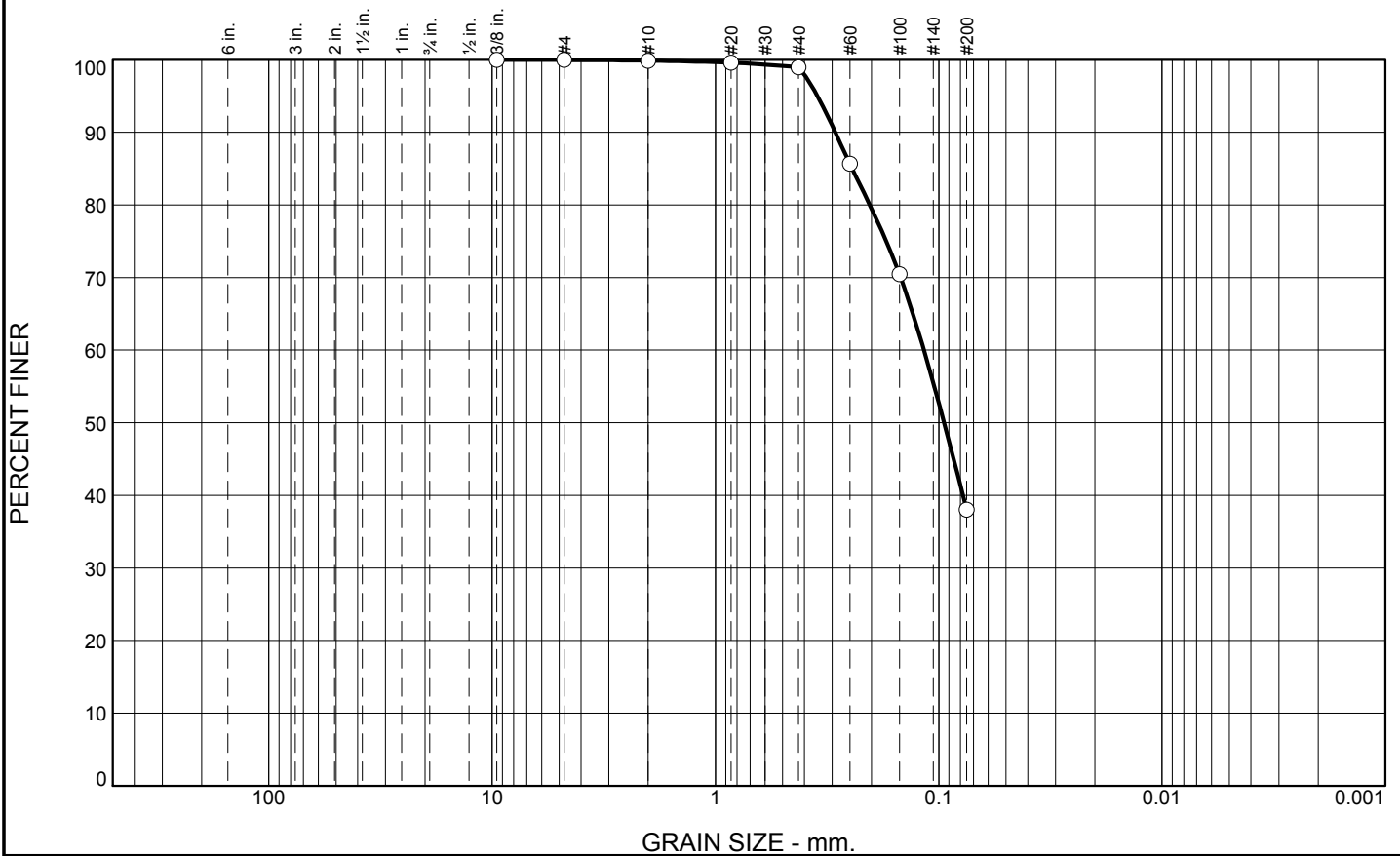
**Client:** US Army Corps of Engineers  
**Project:** Contract No. W91278-10-D-0026 - Task 03  
 Mississippi Barrier Island Restoration Project  
**Project No:** 10-2123-0009

**Figure**

**Tested By:** L.Stokes

**Checked By:** R.Byrd

# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.0	0.1	0.9	61.0	38.0	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
.375	100.0		
#4	100.0		
#10	99.9		
#20	99.6		
#40	99.0		
#60	85.7		
#100	70.4		
#200	38.0		

\* (no specification provided)

**Material Description**  
SILTY SAND, (SM), fine grained, with clay nodules

**Atterberg Limits**  
 PL=      LL=      PI=

**Coefficients**  
 D<sub>90</sub>= 0.2904      D<sub>85</sub>= 0.2441      D<sub>60</sub>= 0.1165  
 D<sub>50</sub>= 0.0947      D<sub>30</sub>=      D<sub>15</sub>=  
 D<sub>10</sub>=      C<sub>u</sub>=      C<sub>c</sub>=

**Classification**  
 USCS= SM      AASHTO=

**Remarks**  
 CADD CODE = CH10D965

**Location:** USACE Sample # BI-MS-25-10D  
**Sample Number:** TE Lab ID: 4488.27

**Depth:** 13.5 - 18.9 (ft.)

**Date:** 5/27/10

**Thompson Engineering**  
  
**Mobile, Alabama**

**Client:** US Army Corps of Engineers  
**Project:** Contract No. W91278-10-D-0026 - Task 03  
 Mississippi Barrier Island Restoration Project  
**Project No:** 10-2123-0009

**Figure**

**Tested By:** L.Stokes

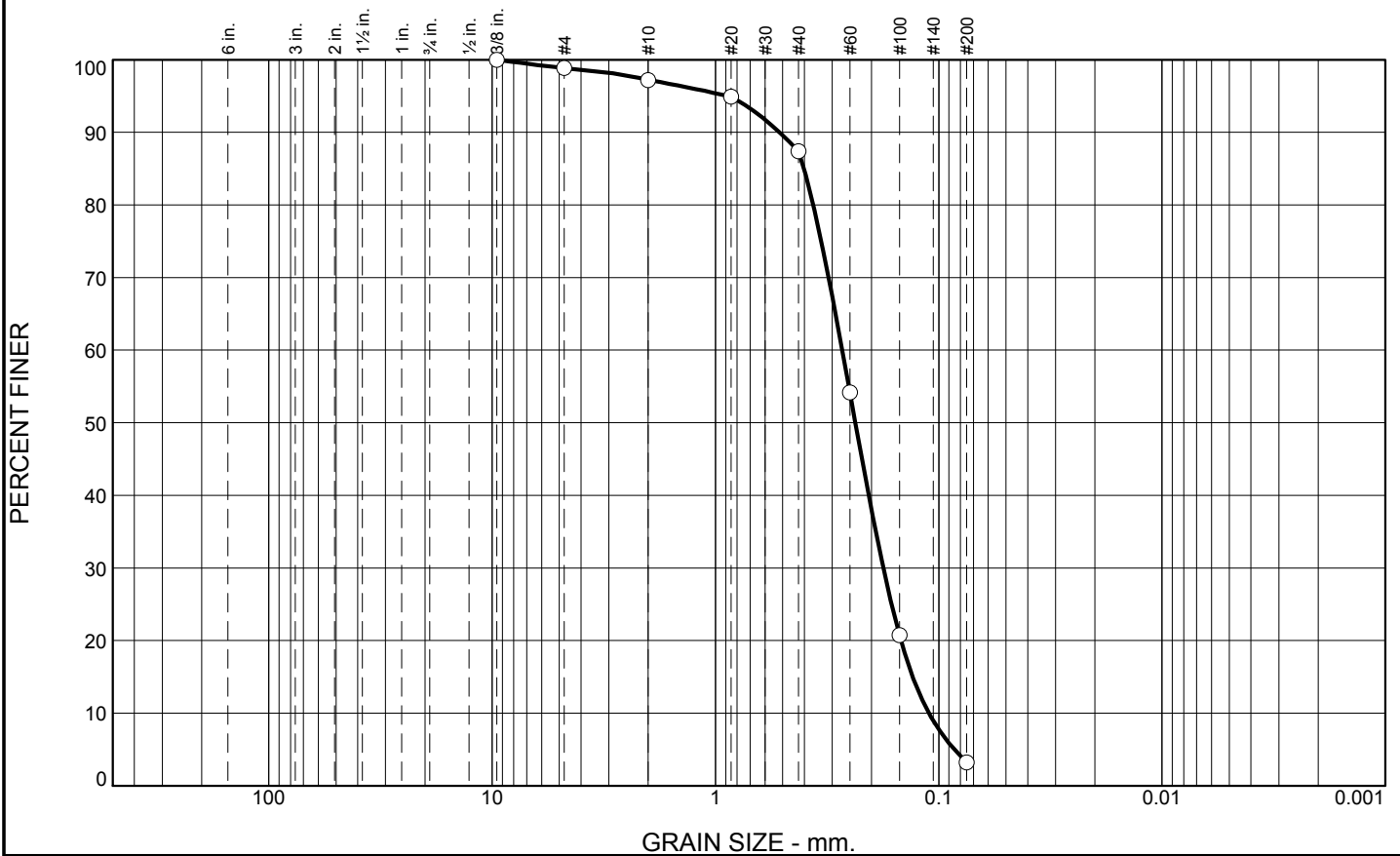
**Checked By:** R.Byrd

# Boring Designation BI-MS-26-10

DRILLING LOG		DIVISION South Atlantic		INSTALLATION Mobile District		SHEET 1 OF 2 SHEETS	
1. PROJECT MsCIP Barrier Island Restoration Mississippi Sound				9. SIZE AND TYPE OF BIT N/A			
2. BORING DESIGNATION BI-MS-26-10		LOCATION COORDINATES E = 935,474 N = 264,685		10. COORDINATE SYSTEM/DATUM State Plane, MSE (U.S. Ft.)		HORIZONTAL NAD83	
3. DRILLING AGENCY Corps of Engineers - CESAM		CONTRACTOR FILE NO.		11. MANUFACTURER'S DESIGNATION OF DRILL Vibracore		<input type="checkbox"/> AUTO HAMMER <input type="checkbox"/> MANUAL HAMMER	
4. NAME OF DRILLER Construction Solutions International, Inc.				12. TOTAL SAMPLES 3		DISTURBED 0	
5. DIRECTION OF BORING <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED		DEG. FROM VERTICAL		13. TOTAL NUMBER CORE BOXES			
		BEARING		14. WATER DEPTH 21 Ft.			
6. THICKNESS OF OVERBURDEN N/A				15. DATE BORING 05-14-10		STARTED 05-14-10	
7. DEPTH DRILLED INTO ROCK N/A				16. ELEVATION TOP OF BORING -19.2 Ft.			
8. TOTAL DEPTH OF BORING 19.3 Ft.				17. TOTAL RECOVERY FOR BORING 100%			
				18. SIGNATURE AND TITLE OF INSPECTOR Marty Gates, Geologist			
ELEV.	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS	SAMPLE	LABORATORY RESULTS		
-19.2	0.0						
			SAND, poorly-graded, mostly fine to medium-grained sand-sized quartz, trace clay, trace shell fragments, lt. gray (SP)	A	Classification: SP Color: 2.5Y 6/2-light brownish gray D50: 0.2363 mm % Fines: 3.2		
				B	Classification: SP Color: 5Y 6/1-gray D50: 0.2042 mm % Fines: 2.6		
				C	Classification: SP Color: 2.5Y 7/1-light gray D50: 0.1934 mm % Fines: 2.7		
				D	Classification: SP-SM Color: 2.5Y 7/1-light gray D50: 0.191 mm % Fines: 5.9		
-38.5	19.3						
			NOTES: 1. Soils are field visually classified in accordance with the Unified Soils Classification System. 2. NS = Sample not submitted for laboratory analysis from this interval. 3. Seafloor elevation calculated using sampling vessel's fathometer water depth reading and applying NOAA tidal gauge data conversion				

<b>DRILLING LOG (Cont. Sheet)</b>			<b>INSTALLATION</b> Mobile District			<b>SHEET 2</b>	
						<b>OF 2 SHEETS</b>	
<b>PROJECT</b> MsCIP Barrier Island Restoration			<b>COORDINATE SYSTEM/DATUM</b> State Plane, MSE (U.S. Ft.)		<b>HORIZONTAL</b> NAD83	<b>VERTICAL</b> NAVD88	
<b>LOCATION COORDINATES</b> X = 935,474 Y = 264,685			<b>ELEVATION TOP OF BORING</b> -19.2 Ft.				
<b>ELEV.</b>	<b>DEPTH</b>	<b>LEGEND</b>	<b>CLASSIFICATION OF MATERIALS</b>	<b>SAMPLE</b>	<b>LABORATORY RESULTS</b>		
			factor.				

# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	1.2	1.6	9.8	84.2	3.2	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
.375	100.0		
#4	98.8		
#10	97.2		
#20	94.9		
#40	87.4		
#60	54.2		
#100	20.7		
#200	3.2		

\* (no specification provided)

<u><b>Material Description</b></u>		
SAND, (SP), fine grained, with trace shell		
<u><b>Atterberg Limits</b></u>		
PL=	LL=	PI=
<u><b>Coefficients</b></u>		
D <sub>90</sub> = 0.5164	D <sub>85</sub> = 0.4021	D <sub>60</sub> = 0.2706
D <sub>50</sub> = 0.2363	D <sub>30</sub> = 0.1771	D <sub>15</sub> = 0.1308
D <sub>10</sub> = 0.1107	C <sub>u</sub> = 2.44	C <sub>c</sub> = 1.05
<u><b>Classification</b></u>		
USCS= SP	AASHTO=	
<u><b>Remarks</b></u>		
CADD CODE = CH10D965		

Location: USACE Sample # BI-MS-26-10A  
Sample Number: TE Lab ID: 4488.105

Depth: 0.0 - 5.0 (ft.)

Date: 5/27/10

**Thompson Engineering**  
**Mobile, Alabama**

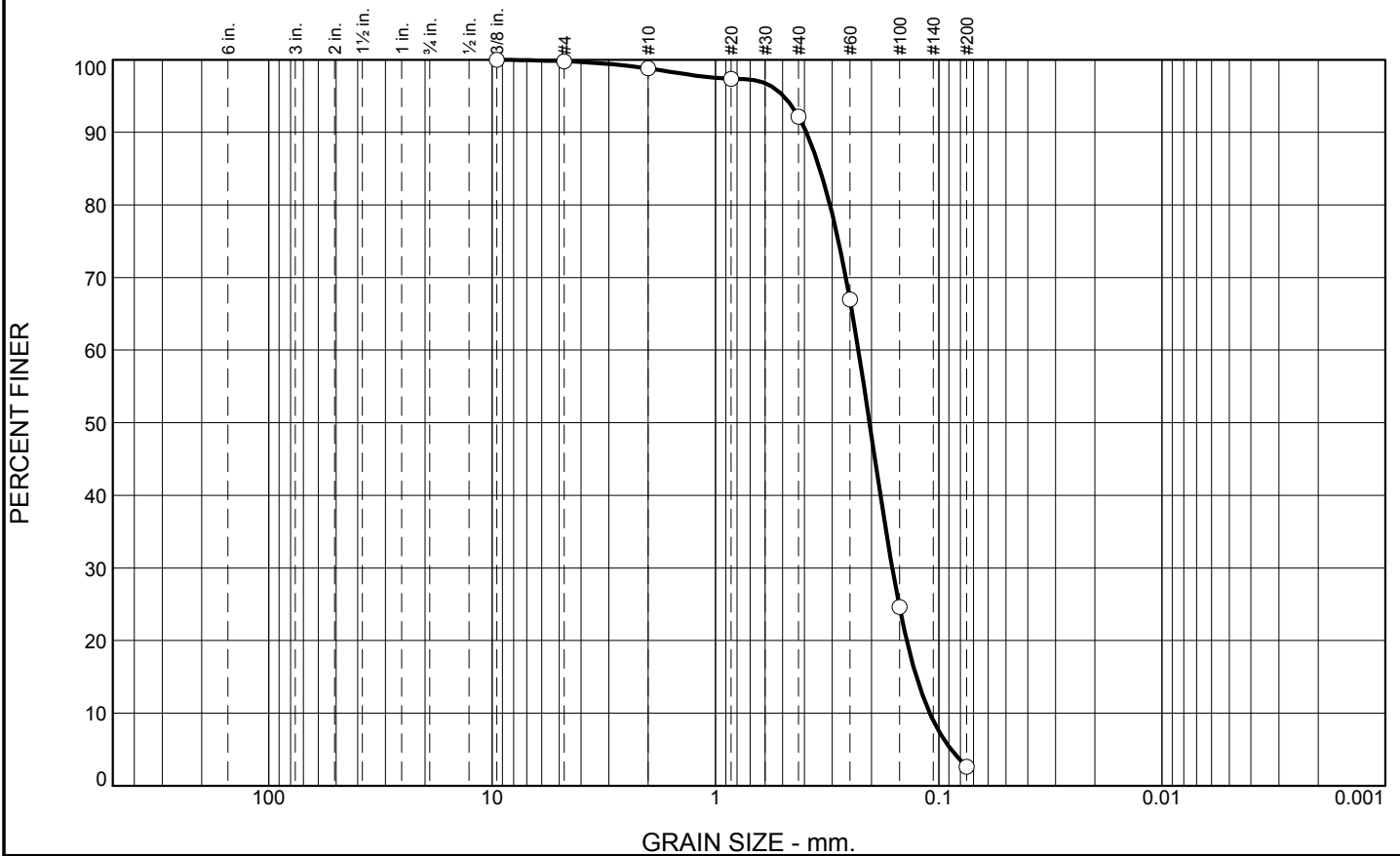
**Client:** US Army Corps of Engineers  
**Project:** Contract No. W91278-10-D-0026 - Task 03  
Mississippi Barrier Island Restoration Project  
**Project No:** 10-2123-0009

**Figure**

Tested By: L.Stokes

Checked By: R.Byrd

# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.2	1.0	6.6	89.6	2.6	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
.375	100.0		
#4	99.8		
#10	98.8		
#20	97.4		
#40	92.2		
#60	67.0		
#100	24.6		
#200	2.6		

\* (no specification provided)

<u><b>Material Description</b></u>		
SAND, (SP), fine grained, with trace shell		
<u><b>Atterberg Limits</b></u>		
PL=	LL=	PI=
<u><b>Coefficients</b></u>		
D <sub>90</sub> = 0.3923	D <sub>85</sub> = 0.3412	D <sub>60</sub> = 0.2291
D <sub>50</sub> = 0.2042	D <sub>30</sub> = 0.1616	D <sub>15</sub> = 0.1259
D <sub>10</sub> = 0.1098	C <sub>u</sub> = 2.09	C <sub>c</sub> = 1.04
<u><b>Classification</b></u>		
USCS= SP	AASHTO=	
<u><b>Remarks</b></u>		
CADD CODE = CH10D965		

Location: USACE Sample # BI-MS-26-10B  
Sample Number: TE Lab ID: 4488.106

Depth: 5.0 - 10.0 (ft.)

Date: 5/27/10

**Thompson Engineering**  
**Mobile, Alabama**

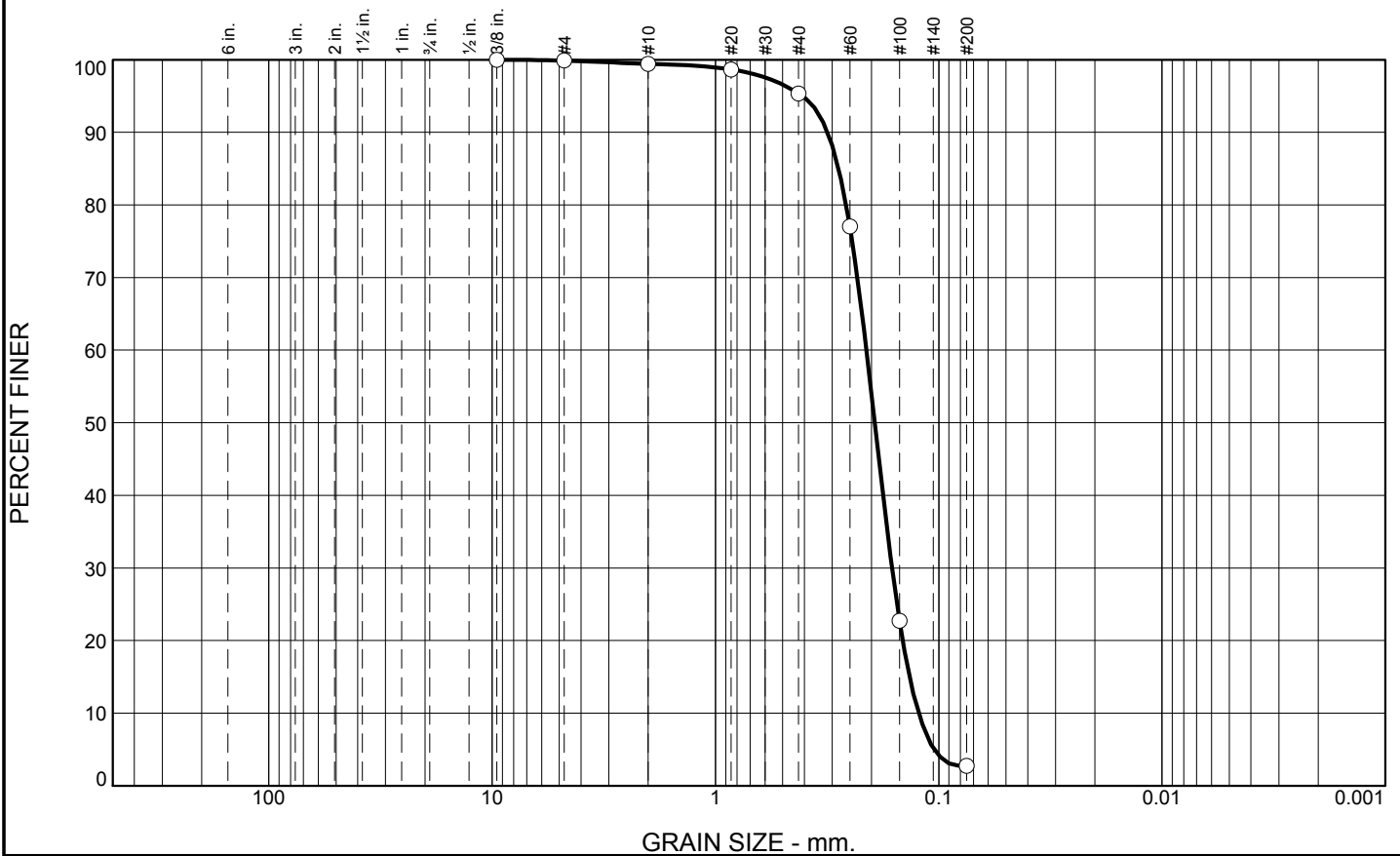
**Client:** US Army Corps of Engineers  
**Project:** Contract No. W91278-10-D-0026 - Task 03  
Mississippi Barrier Island Restoration Project  
**Project No:** 10-2123-0009

**Figure**

Tested By: L.Stokes

Checked By: R.Byrd

# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.1	0.5	4.0	92.7	2.7	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
.375	100.0		
#4	99.9		
#10	99.4		
#20	98.7		
#40	95.4		
#60	77.1		
#100	22.7		
#200	2.7		

\* (no specification provided)

**Material Description**  
SAND, (SP), fine grained, with trace shell

**Atterberg Limits**  
 PL=                      LL=                      PI=

**Coefficients**  
 D<sub>90</sub>= 0.3146      D<sub>85</sub>= 0.2809      D<sub>60</sub>= 0.2109  
 D<sub>50</sub>= 0.1934      D<sub>30</sub>= 0.1620      D<sub>15</sub>= 0.1352  
 D<sub>10</sub>= 0.1230      C<sub>u</sub>= 1.71              C<sub>c</sub>= 1.01

**Classification**  
 USCS= SP                      AASHTO=

**Remarks**  
 CADD CODE = CH10D965

**Location:** USACE Sample # BI-MS-26-10C  
**Sample Number:** TE Lab ID: 4488.107

**Depth:** 10.0 - 15.0 (ft.)

**Date:** 5/27/10

**Thompson Engineering**  
  
**Mobile, Alabama**

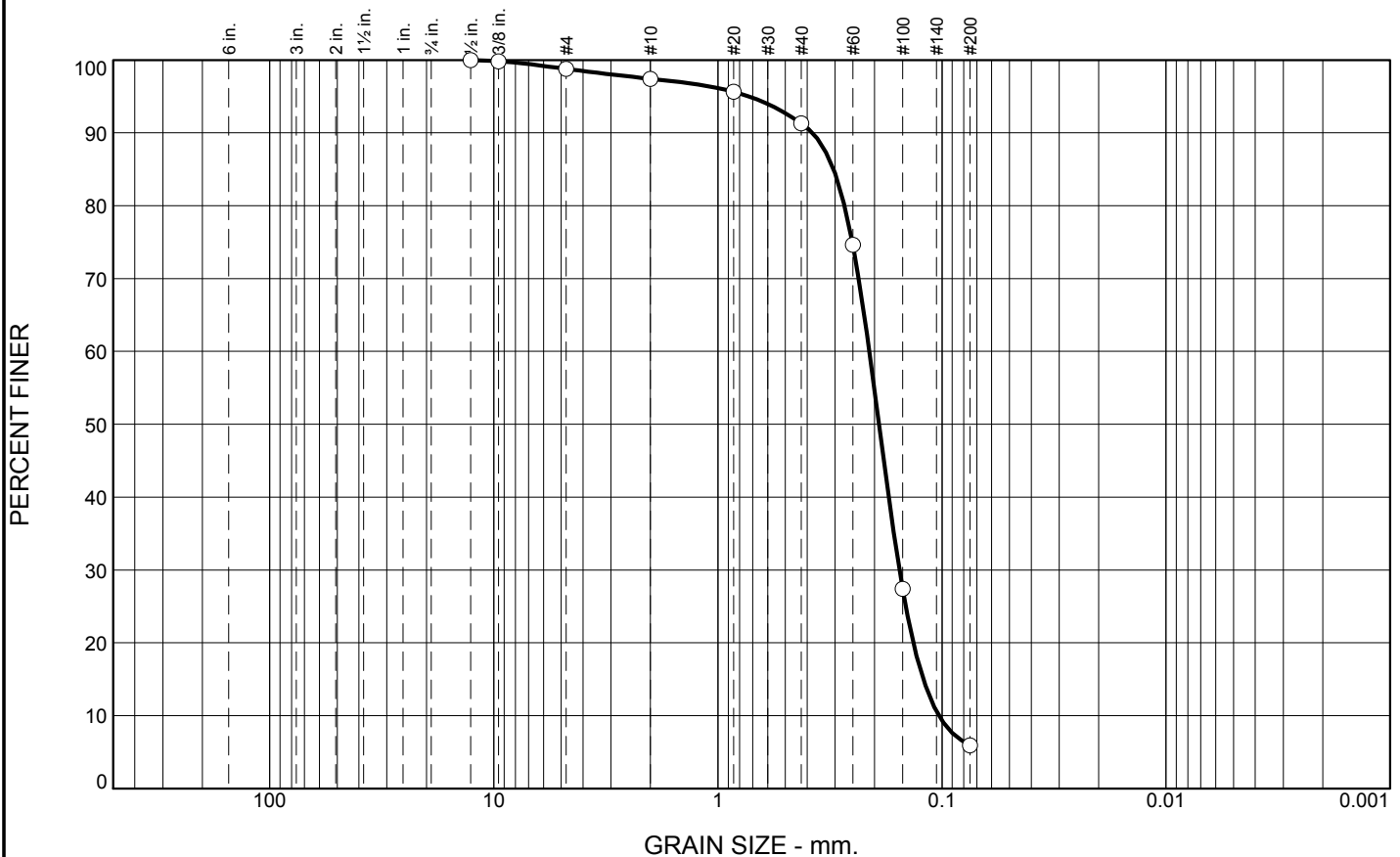
**Client:** US Army Corps of Engineers  
**Project:** Contract No. W91278-10-D-0026 - Task 03  
 Mississippi Barrier Island Restoration Project  
**Project No:** 10-2123-0009

**Figure**

**Tested By:** L.Stokes

**Checked By:** R.Byrd

# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	1.2	1.4	6.1	85.4	5.9	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
.500	100.0		
.375	99.8		
#4	98.8		
#10	97.4		
#20	95.6		
#40	91.3		
#60	74.6		
#100	27.4		
#200	5.9		

\* (no specification provided)

<u><b>Material Description</b></u>		
SAND, (SP-SM), fine grained, with trace shell		
<u><b>Atterberg Limits</b></u>		
PL=	LL=	PI=
<u><b>Coefficients</b></u>		
D <sub>90</sub> = 0.3788	D <sub>85</sub> = 0.3048	D <sub>60</sub> = 0.2111
D <sub>50</sub> = 0.1910	D <sub>30</sub> = 0.1549	D <sub>15</sub> = 0.1212
D <sub>10</sub> = 0.1033	C <sub>u</sub> = 2.04	C <sub>c</sub> = 1.10
<u><b>Classification</b></u>		
USCS= SP-SM	AASHTO=	
<u><b>Remarks</b></u>		
CADD CODE = CH10D965		

Mislabeled. Should be sample BI-MS-26-10D

Location: USACE Sample # **BI-MS-26-10B**  
Sample Number: TE Lab ID: 4488.108

Depth: 15.0 - 19.3 (ft.)

Date: 5/27/10

**Thompson Engineering**  
**Mobile, Alabama**

**Client:** US Army Corps of Engineers  
**Project:** Contract No. W91278-10-D-0026 - Task 03  
Mississippi Barrier Island Restoration Project  
**Project No:** 10-2123-0009

**Figure**

Tested By: L.Stokes

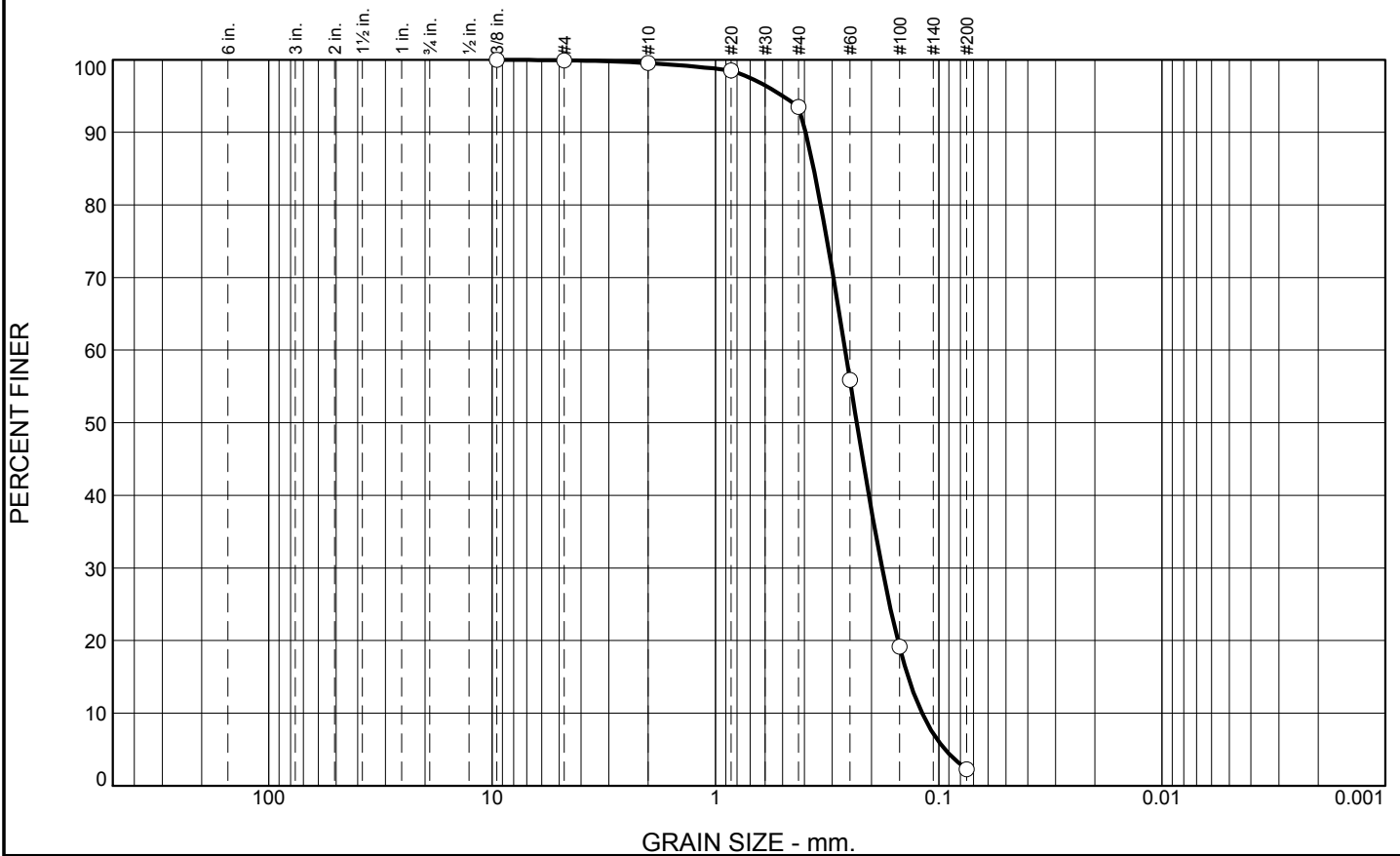
Checked By: R.Byrd



# Boring Designation BI-MS-27-10

DRILLING LOG		DIVISION South Atlantic		INSTALLATION Mobile District		SHEET 1 OF 1 SHEETS	
1. PROJECT MsCIP Barrier Island Restoration Mississippi Sound				9. SIZE AND TYPE OF BIT N/A			
2. BORING DESIGNATION BI-MS-27-10		LOCATION COORDINATES E = 934,309 N = 262,726		10. COORDINATE SYSTEM/DATUM State Plane, MSE (U.S. Ft.)		HORIZONTAL NAD83 VERTICAL NAVD88	
3. DRILLING AGENCY Corps of Engineers - CESAM		CONTRACTOR FILE NO.		11. MANUFACTURER'S DESIGNATION OF DRILL Vibracore		<input type="checkbox"/> AUTO HAMMER <input type="checkbox"/> MANUAL HAMMER	
4. NAME OF DRILLER Construction Solutions International, Inc.				12. TOTAL SAMPLES 4		DISTURBED 0 UNDISTURBED (UD)	
5. DIRECTION OF BORING <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED		DEG. FROM VERTICAL		13. TOTAL NUMBER CORE BOXES			
		BEARING		14. WATER DEPTH 22.5 Ft.			
6. THICKNESS OF OVERBURDEN N/A				15. DATE BORING 05-18-10		STARTED 05-18-10 COMPLETED 05-18-10	
7. DEPTH DRILLED INTO ROCK N/A				16. ELEVATION TOP OF BORING -21.6 Ft.			
8. TOTAL DEPTH OF BORING 14.7 Ft.				17. TOTAL RECOVERY FOR BORING 100%			
				18. SIGNATURE AND TITLE OF INSPECTOR Ed Herman, Geologist			
ELEV.	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS	SAMPLE	LABORATORY RESULTS		
-21.6	0.0						
			SAND, poorly-graded, little silt, little shell fragments, gray (SP)	A	Classification: SP Color: 2.5Y 7/1-light gray D50: 0.2328 mm % Fines: 2.3		
			At El. -26.6 Ft., some shell fragments, gray	B	Classification: SP Color: 2.5Y 7/1-light gray D50: 0.2597 mm % Fines: 1.7		
			At El. -31.6 Ft., little silt, little shell fragments, gray	C	Classification: SP Color: 5Y 7/1-light gray D50: 0.1973 mm % Fines: 4		
-34.7	13.1						
-36.3	14.7		SAND, silty, with clay zones, dark gray (SM)	D	Classification: SM Color: 2.5Y 5/2-grayish brown D50: 0.1044 mm % Fines: 27.5		
			NOTES: 1. Soils are field visually classified in accordance with the Unified Soils Classification System. 2. NS = Sample not submitted for laboratory analysis from this interval. 3. Seafloor elevation calculated using sampling vessel's fathometer water depth reading and applying NOAA tidal gauge data conversion factor.				

# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.1	0.4	6.0	91.2	2.3	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
.375	100.0		
#4	99.9		
#10	99.5		
#20	98.5		
#40	93.5		
#60	55.9		
#100	19.1		
#200	2.3		

\* (no specification provided)

<u>Material Description</u>		
SAND, (SP), fine grained		
<u>Atterberg Limits</u>		
PL=	LL=	PI=
<u>Coefficients</u>		
D <sub>90</sub> = 0.3952	D <sub>85</sub> = 0.3632	D <sub>60</sub> = 0.2625
D <sub>50</sub> = 0.2328	D <sub>30</sub> = 0.1794	D <sub>15</sub> = 0.1371
D <sub>10</sub> = 0.1188	C <sub>u</sub> = 2.21	C <sub>c</sub> = 1.03
<u>Classification</u>		
USCS= SP	AASHTO=	
<u>Remarks</u>		
CADD CODE = CH10D965		

Location: USACE Sample # BI-MS-27-10A  
Sample Number: TE Lab ID: 4488.28

Depth: 0.0 - 5.0 (ft.)

Date: 5/27/10

**Thompson Engineering**  
**Mobile, Alabama**

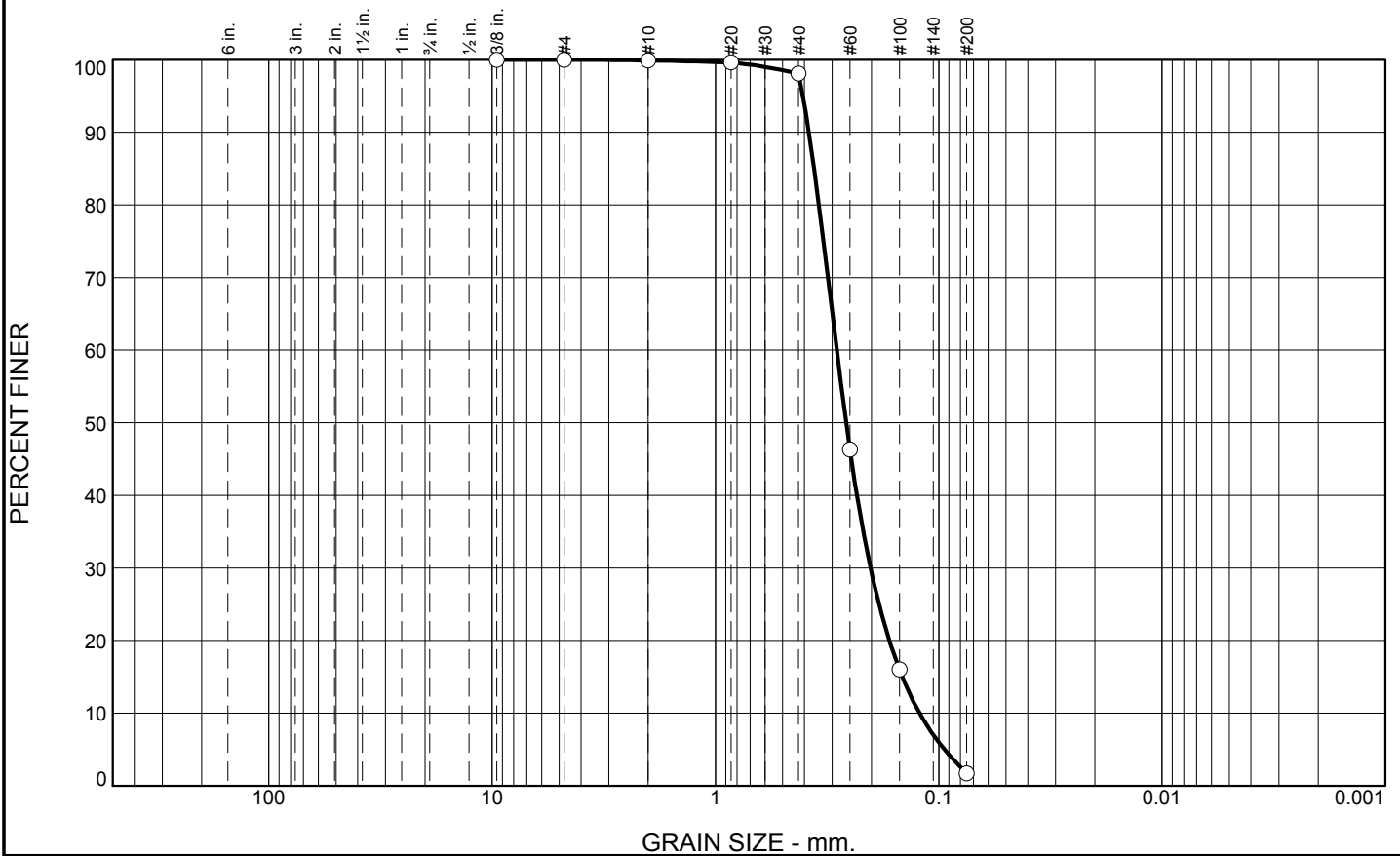
**Client:** US Army Corps of Engineers  
**Project:** Contract No. W91278-10-D-0026 - Task 03  
Mississippi Barrier Island Restoration Project  
**Project No:** 10-2123-0009

**Figure**

Tested By: L.Stokes

Checked By: R.Byrd

# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.0	0.1	1.8	96.4	1.7	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
.375	100.0		
#4	100.0		
#10	99.9		
#20	99.6		
#40	98.1		
#60	46.3		
#100	16.0		
#200	1.7		

\* (no specification provided)

Material Description		
SAND, (SP), fine grained		
<div> <div> Atterberg Limits </div> <div> PL= </div> <div> LL= </div> <div> PI= </div> </div>		
<div> <div> Coefficients </div> <div> D<sub>90</sub>= 0.3817 </div> <div> D<sub>50</sub>= 0.2597 </div> <div> D<sub>10</sub>= 0.1219 </div> <div> D<sub>85</sub>= 0.3616 </div> <div> D<sub>30</sub>= 0.2022 </div> <div> C<sub>u</sub>= 2.34 </div> <div> D<sub>60</sub>= 0.2859 </div> <div> D<sub>15</sub>= 0.1456 </div> <div> C<sub>c</sub>= 1.17 </div> </div>		
<div> <div> Classification </div> <div> USCS= SP </div> <div> AASHTO= </div> </div>		
<div> <div> Remarks </div> <div> CADD CODE = CH10D965 </div> </div>		

Location: USACE Sample # BI-MS-27-10B  
Sample Number: TE Lab ID: 4488.29

Depth: 5.0 - 10.0 (ft.)

Date: 5/27/10

**Thompson Engineering**  
**Mobile, Alabama**

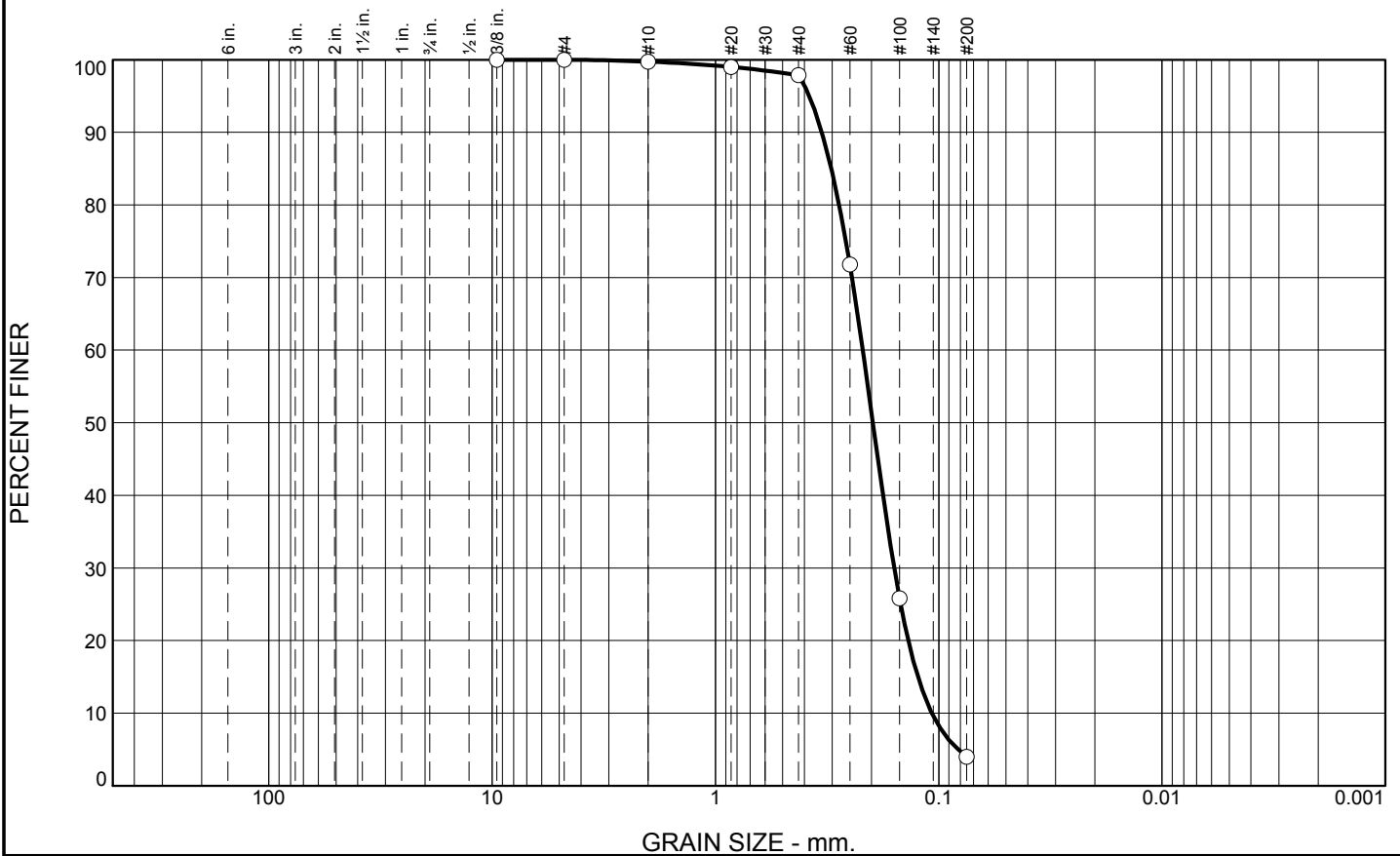
**Client:** US Army Corps of Engineers  
**Project:** Contract No. W91278-10-D-0026 - Task 03  
Mississippi Barrier Island Restoration Project  
**Project No:** 10-2123-0009

**Figure**

Tested By: L.Stokes

Checked By: R.Byrd

# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.0	0.3	1.8	93.9	4.0	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
.375	100.0		
#4	100.0		
#10	99.7		
#20	99.0		
#40	97.9		
#60	71.8		
#100	25.8		
#200	4.0		

\* (no specification provided)

Material Description		
SAND, (SP), fine grained		
<div> <div> <b>Atterberg Limits</b>            PL=      LL=      PI=         </div> <div> <b>Coefficients</b>            D<sub>90</sub>= 0.3338      D<sub>85</sub>= 0.3027      D<sub>60</sub>= 0.2189            D<sub>50</sub>= 0.1973      D<sub>30</sub>= 0.1584      D<sub>15</sub>= 0.1239            D<sub>10</sub>= 0.1074      C<sub>u</sub>= 2.04      C<sub>c</sub>= 1.07         </div> <div> <b>Classification</b>            USCS= SP      AASHTO=         </div> <div> <b>Remarks</b>            CADD CODE = CH10D965         </div> </div>		

Location: USACE Sample # BI-MS-27-10C  
 Sample Number: TE Lab ID: 4488.30

Depth: 10.0 - 13.1 (ft.)

Date: 5/27/10

**Thompson Engineering**  
  
**Mobile, Alabama**

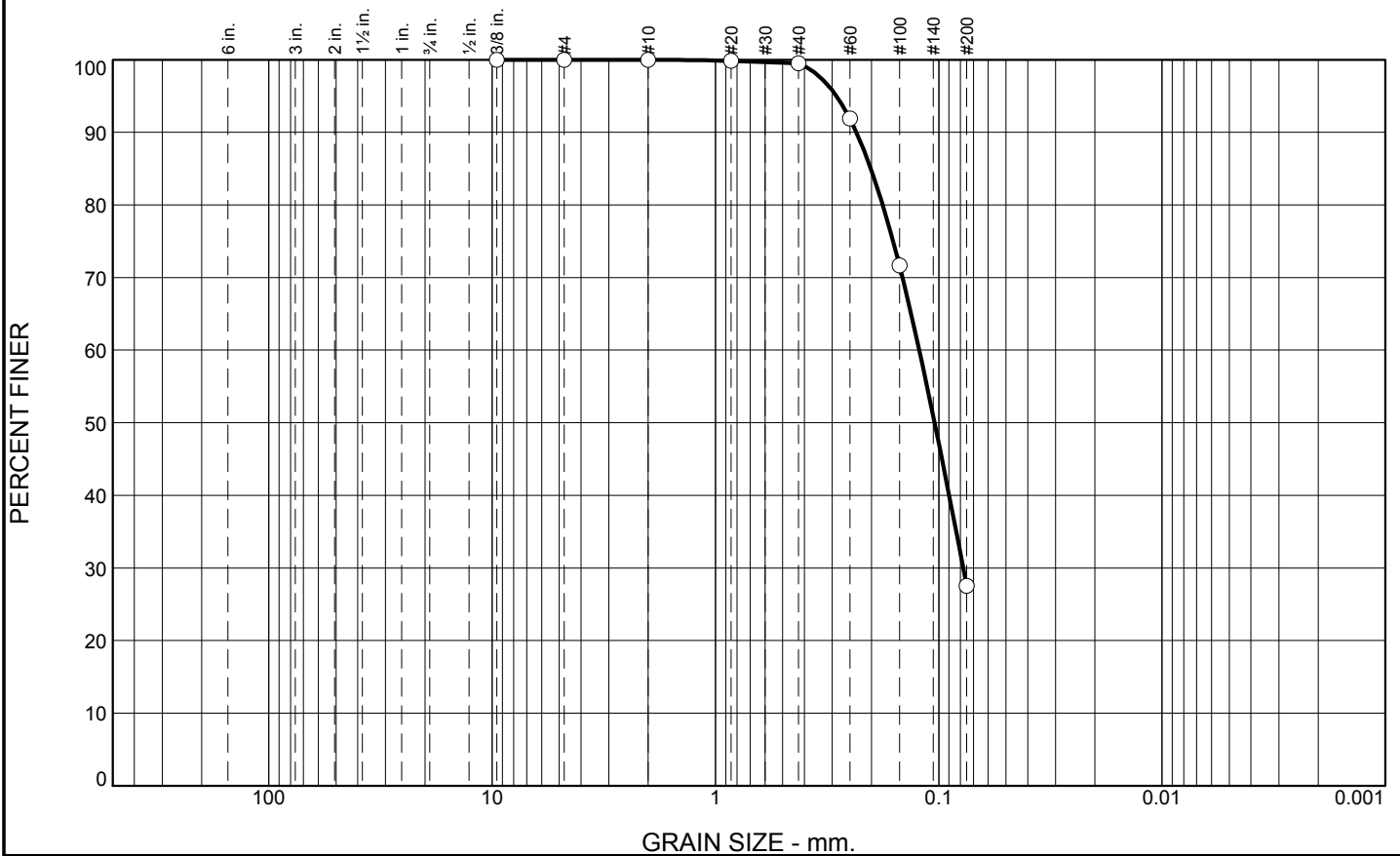
**Client:** US Army Corps of Engineers  
**Project:** Contract No. W91278-10-D-0026 - Task 03  
 Mississippi Barrier Island Restoration Project  
**Project No:** 10-2123-0009

**Figure**

Tested By: L.Stokes

Checked By: R.Byrd

# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.0	0.0	0.5	72.0	27.5	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
.375	100.0		
#4	100.0		
#10	100.0		
#20	99.8		
#40	99.5		
#60	91.9		
#100	71.6		
#200	27.5		

\* (no specification provided)

## Material Description

SILTY SAND, (SM), fine grained, with clay nodules

## Atterberg Limits

PL=

LL=

PI=

## Coefficients

D<sub>90</sub>= 0.2337

D<sub>85</sub>= 0.2016

D<sub>60</sub>= 0.1223

D<sub>50</sub>= 0.1044

D<sub>30</sub>= 0.0777

D<sub>15</sub>=

D<sub>10</sub>=

C<sub>u</sub>=

C<sub>c</sub>=

## Classification

USCS= SM

AASHTO=

## Remarks

CADD CODE = CH10D965

Location: USACE Sample # BI-MS-27-10D  
Sample Number: TE Lab ID: 4488.31

Depth: 13.1 - 14.7 (ft.)

Date: 5/27/10

**Thompson Engineering**

**Mobile, Alabama**

Client: US Army Corps of Engineers

Project: Contract No. W91278-10-D-0026 - Task 03  
Mississippi Barrier Island Restoration Project

Project No: 10-2123-0009

Figure

Tested By: L.Stokes

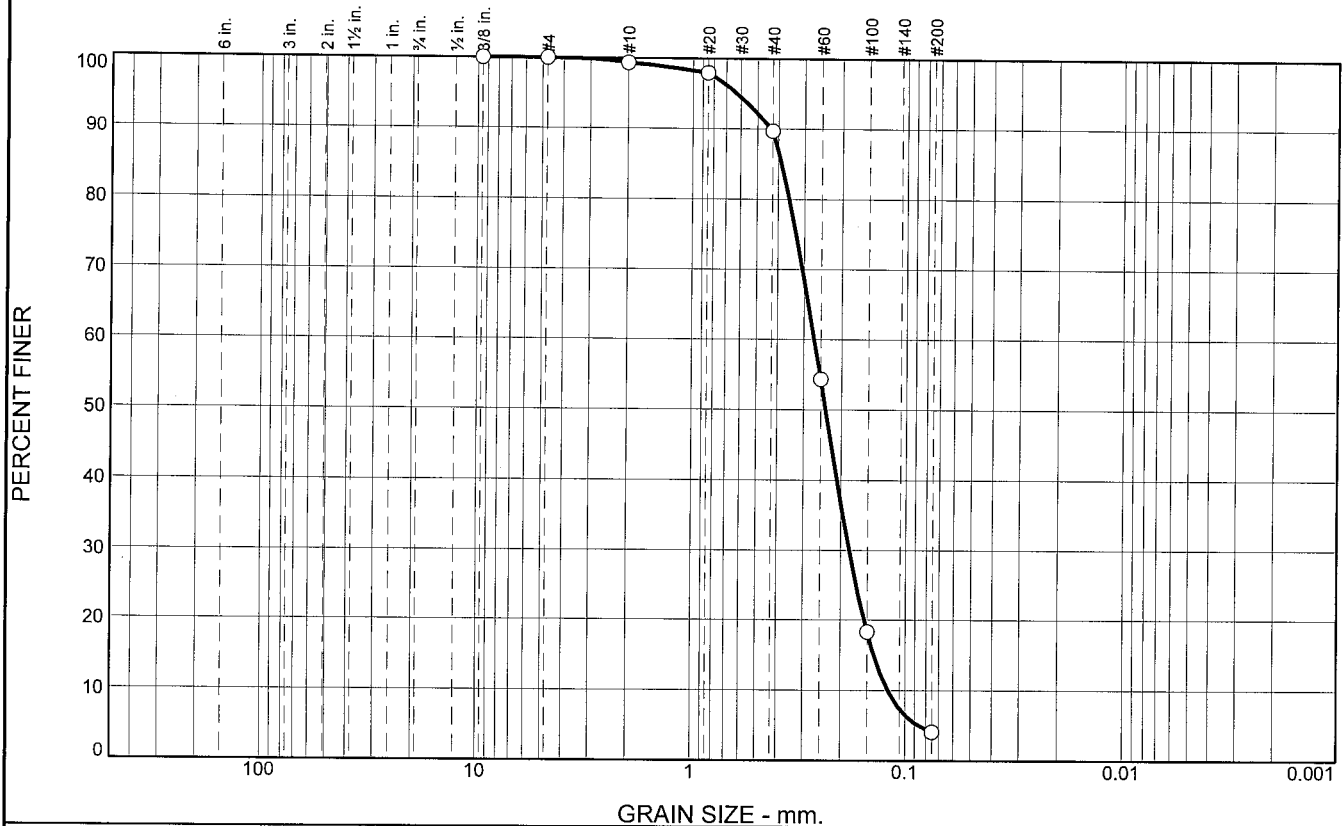
Checked By: R.Byrd

# Boring Designation BI-MS-28-10

DRILLING LOG		DIVISION South Atlantic		INSTALLATION Mobile District		SHEET 1 OF 2 SHEETS	
1. PROJECT MsCIP Barrier Island Restoration Mississippi Sound				9. SIZE AND TYPE OF BIT N/A			
2. BORING DESIGNATION BI-MS-28-10		LOCATION COORDINATES E = 935,837 N = 262,899		10. COORDINATE SYSTEM/DATUM State Plane, MSE (U.S. Ft.)		HORIZONTAL NAD83	
3. DRILLING AGENCY Corps of Engineers - CESAM		CONTRACTOR FILE NO.		11. MANUFACTURER'S DESIGNATION OF DRILL Vibrocure		<input type="checkbox"/> AUTO HAMMER <input type="checkbox"/> MANUAL HAMMER	
4. NAME OF DRILLER Construction Solutions International, Inc.				12. TOTAL SAMPLES 4		DISTURBED 0	
5. DIRECTION OF BORING <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED				13. TOTAL NUMBER CORE BOXES		14. WATER DEPTH 25 Ft.	
6. THICKNESS OF OVERBURDEN N/A				15. DATE BORING 05-14-10		STARTED 05-14-10	
7. DEPTH DRILLED INTO ROCK N/A				16. ELEVATION TOP OF BORING -23.5 Ft.		COMPLETED 05-14-10	
8. TOTAL DEPTH OF BORING 19.0 Ft.				17. TOTAL RECOVERY FOR BORING 100%		18. SIGNATURE AND TITLE OF INSPECTOR Marty Gates, Geologist	
ELEV.	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS	SAMPLE	LABORATORY RESULTS		
-23.5	0.0						
			SAND, poorly-graded, mostly fine to medium-grained sand-sized quartz, trace clay, trace shell fragments, lt. gray (SP)	A	Classification: SP Color: 5Y 6/1-gray D50: 0.237 mm % Fines: 4.1		
				B	Classification: SP Color: 5Y 7/1-light gray D50: 0.2412 mm % Fines: 2.5		
				C	Classification: SP Color: 5Y 7/1-light gray D50: 0.2564 mm % Fines: 3		
				D	Classification: SP-SM Color: 5Y 7/1-light gray D50: 0.2016 mm % Fines: 5.7		
-42.5	19.0						
			NOTES: 1. Soils are field visually classified in accordance with the Unified Soils Classification System. 2. NS = Sample not submitted for laboratory analysis from this interval. 3. Seafloor elevation calculated using sampling vessel's fathometer water depth reading and applying NOAA tidal gauge data conversion				

<b>DRILLING LOG (Cont. Sheet)</b>			<b>INSTALLATION</b> Mobile District			<b>SHEET 2</b>	
						<b>OF 2 SHEETS</b>	
<b>PROJECT</b> MsCIP Barrier Island Restoration			<b>COORDINATE SYSTEM/DATUM</b> State Plane, MSE (U.S. Ft.)		<b>HORIZONTAL</b> NAD83	<b>VERTICAL</b> NAVD88	
<b>LOCATION COORDINATES</b> X = 935,837 Y = 262,899			<b>ELEVATION TOP OF BORING</b> -23.5 Ft.				
<b>ELEV.</b>	<b>DEPTH</b>	<b>LEGEND</b>	<b>CLASSIFICATION OF MATERIALS</b>	<b>SAMPLE</b>	<b>LABORATORY RESULTS</b>		
			factor.				

# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.0	0.7	9.6	85.6	4.1	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
.375	100.0		
#4	100.0		
#10	99.3		
#20	98.0		
#40	89.7		
#60	54.3		
#100	18.3		
#200	4.1		

\* (no specification provided)

**Material Description**  
SAND, (SP), fine grained

**Atterberg Limits**  
PL=      LL=      PI=

**Coefficients**  
D<sub>90</sub>= 0.4337      D<sub>85</sub>= 0.3858      D<sub>60</sub>= 0.2686  
D<sub>50</sub>= 0.2370      D<sub>30</sub>= 0.1822      D<sub>15</sub>= 0.1395  
D<sub>10</sub>= 0.1200      C<sub>u</sub>= 2.24      C<sub>c</sub>= 1.03

**Classification**  
USCS= SP      AASHTO=

**Remarks**  
CADD CODE = CH10D965

Location: USACE Sample # BI-MS-28-10A  
Sample Number: TE Lab ID: 4488.15

Depth: 0.0 - 5.0 (ft.)

Date: 5/27/10

**Thompson Engineering**

**Mobile, Alabama**

Client: US Army Corps of Engineers

Project: Contract No. W91278-10-D-0026 - Task 03  
Mississippi Barrier Island Restoration Project

Project No: 10-2123-0009

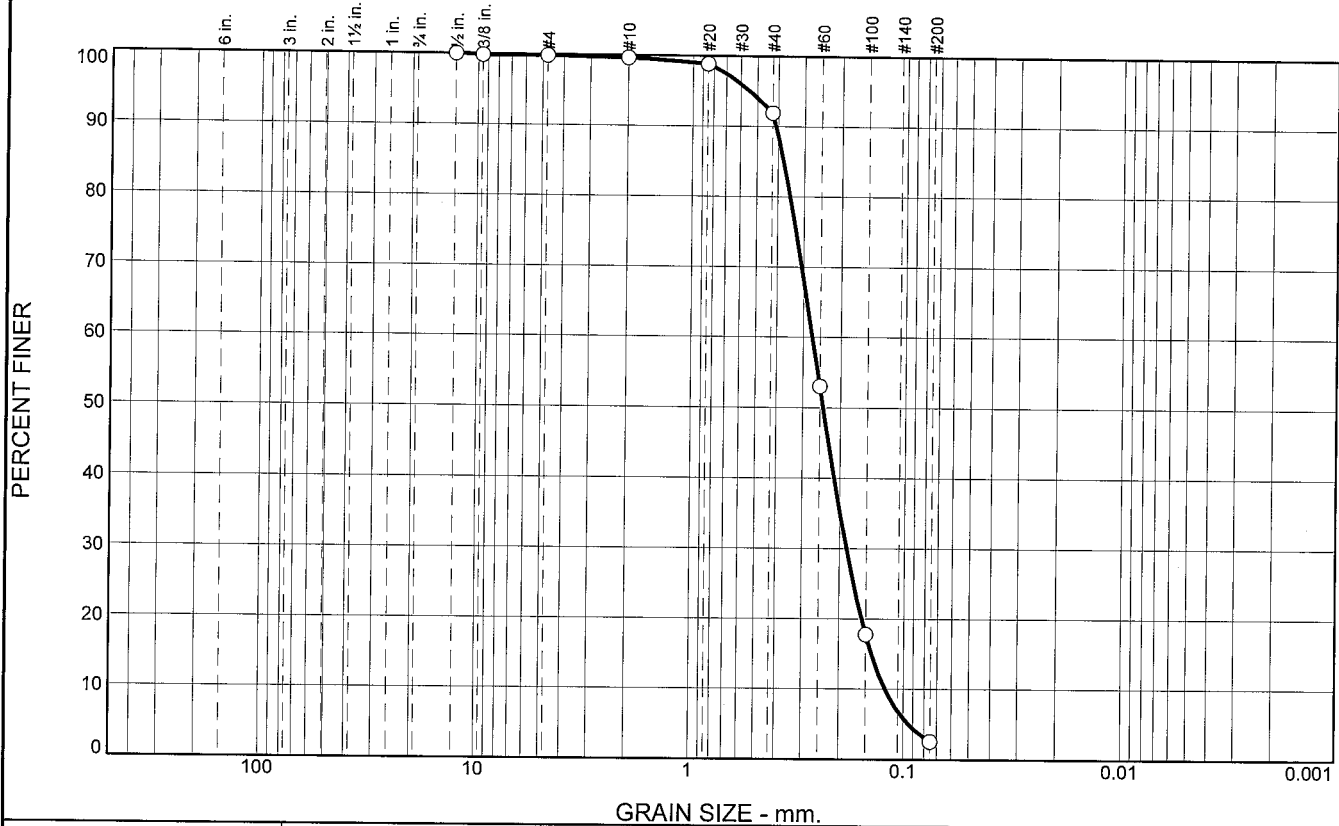
Figure

Tested By: L.Stokes

Checked By: R.Byrd



# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.2	0.2	7.7	89.4	2.5	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
.500	100.0		
.375	99.8		
#4	99.8		
#10	99.6		
#20	98.8		
#40	91.9		
#60	53.0		
#100	17.8		
#200	2.5		

\* (no specification provided)

**Material Description**  
SAND, (SP), fine grained

**Atterberg Limits**  
PL=      LL=      PI=

**Coefficients**  
D<sub>90</sub>= 0.4090      D<sub>85</sub>= 0.3755      D<sub>60</sub>= 0.2719  
D<sub>50</sub>= 0.2412      D<sub>30</sub>= 0.1851      D<sub>15</sub>= 0.1408  
D<sub>10</sub>= 0.1216      C<sub>u</sub>= 2.24      C<sub>c</sub>= 1.04

**Classification**  
USCS= SP      AASHTO=

**Remarks**  
CADD CODE = CH10D965

Location: USACE Sample # BI-MS-28-10B  
Sample Number: TE Lab ID: 4488.16

Depth: 5.0 - 10.0 (ft.)

Date: 5/27/10

**Thompson Engineering**

**Mobile, Alabama**

Client: US Army Corps of Engineers

Project: Contract No. W91278-10-D-0026 - Task 03  
Mississippi Barrier Island Restoration Project

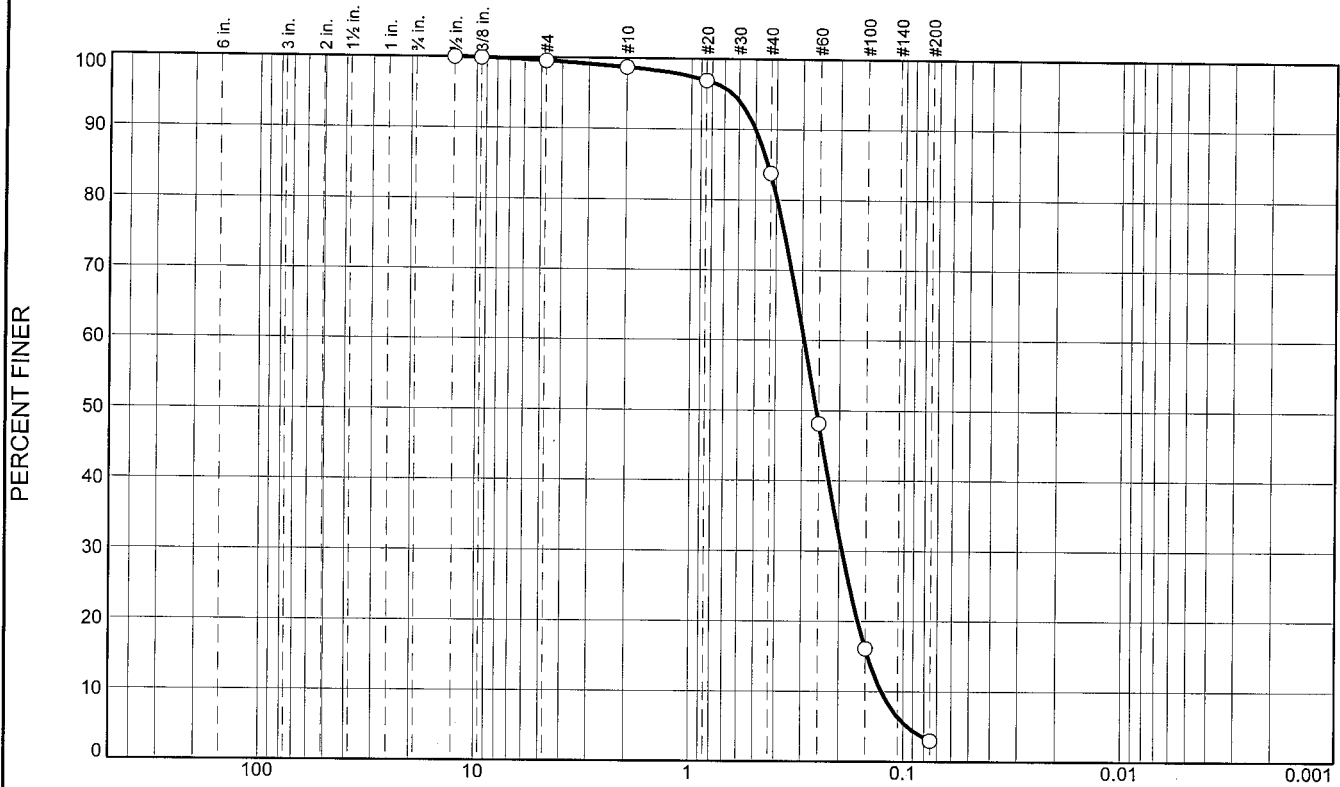
Project No: 10-2123-0009

Figure

Tested By: L.Stokes

Checked By: R.Byrd

# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.5	0.8	15.0	80.7	3.0	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
.500	100.0		
.375	99.9		
#4	99.5		
#10	98.7		
#20	96.9		
#40	83.7		
#60	48.1		
#100	16.1		
#200	3.0		

\* (no specification provided)

**Material Description**  
SAND, (SP), fine grained

**Atterberg Limits**  
PL=      LL=      PI=

**Coefficients**  
D<sub>90</sub>= 0.5007      D<sub>85</sub>= 0.4370      D<sub>60</sub>= 0.2930  
D<sub>50</sub>= 0.2564      D<sub>30</sub>= 0.1934      D<sub>15</sub>= 0.1461  
D<sub>10</sub>= 0.1259      C<sub>u</sub>= 2.33      C<sub>c</sub>= 1.01

**Classification**  
USCS= SP      AASHTO=

**Remarks**  
CADD CODE = CH10D965

Location: USACE Sample # BI-MS-28-10C  
Sample Number: TE Lab ID: 4488.17

Depth: 10.0 - 15.0 (ft.)

Date: 5/24/10

**Thompson Engineering**

**Mobile, Alabama**

Client: US Army Corps of Engineers

Project: Contract No. W91278-10-D-0026 - Task 03  
Mississippi Barrier Island Restoration Project

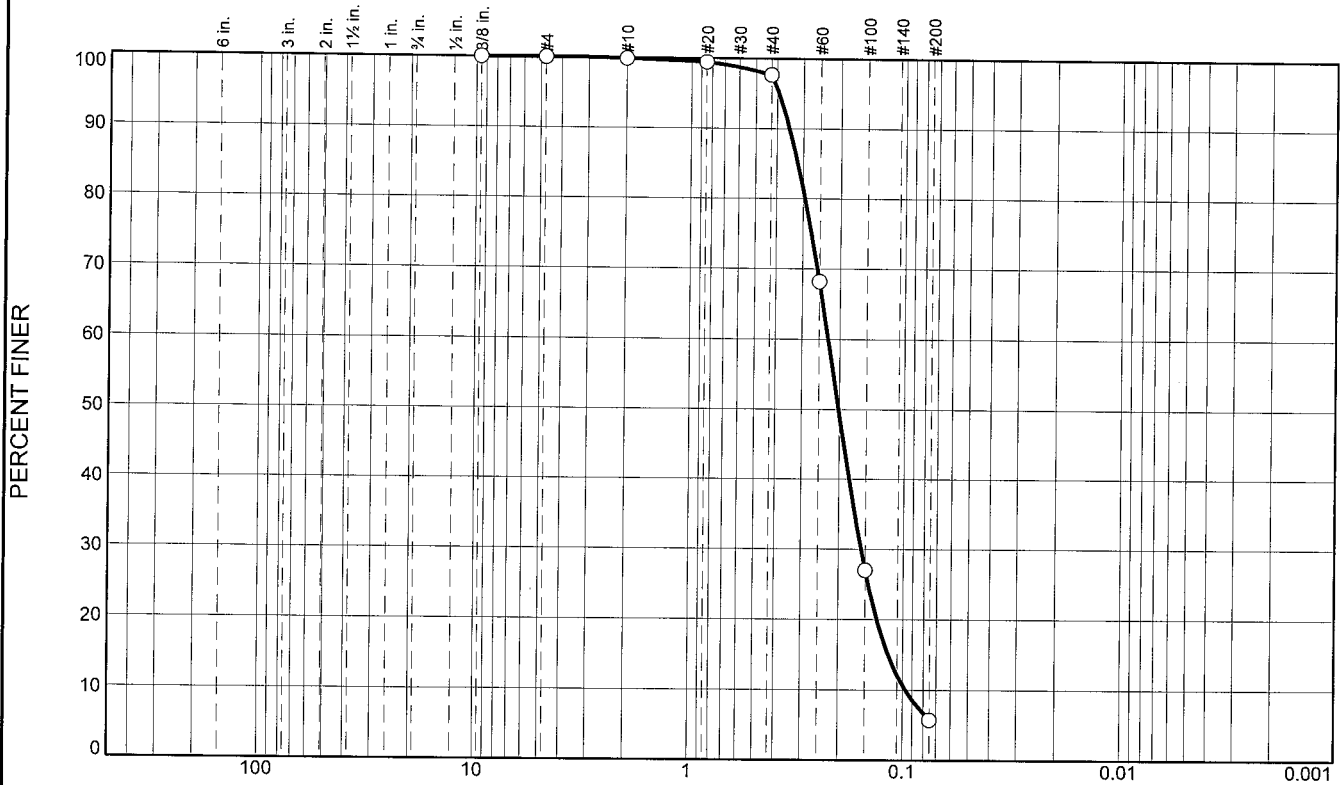
Project No: 10-2123-0009

Figure

Tested By: L. Stokes

Checked By: R.Byrd

# Particle Size Distribution Report



GRAIN SIZE - mm.

% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.0	0.2	2.1	92.0	5.7	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
.375	100.0		
#4	100.0		
#10	99.8		
#20	99.4		
#40	97.7		
#60	68.2		
#100	27.0		
#200	5.7		

\* (no specification provided)

## Material Description

SAND, (SP-SM), fine grained

## Atterberg Limits

PL=

LL=

PI=

## Coefficients

D<sub>90</sub>= 0.3490

D<sub>85</sub>= 0.3182

D<sub>60</sub>= 0.2264

D<sub>50</sub>= 0.2016

D<sub>30</sub>= 0.1570

D<sub>15</sub>= 0.1166

D<sub>10</sub>= 0.0969

C<sub>u</sub>= 2.34

C<sub>c</sub>= 1.12

## Classification

USCS= SP-SM

AASHTO=

## Remarks

CADD CODE = CH10D965

Location: USACE Sample # BI-MS-28-10D  
Sample Number: TE Lab ID: 4488.18

Depth: 15.0 - 19.0 (ft.)

Date: 5/27/10

**Thompson Engineering**

**Mobile, Alabama**

Client: US Army Corps of Engineers

Project: Contract No. W91278-10-D-0026 - Task 03  
Mississippi Barrier Island Restoration Project

Project No: 10-2123-0009

Figure

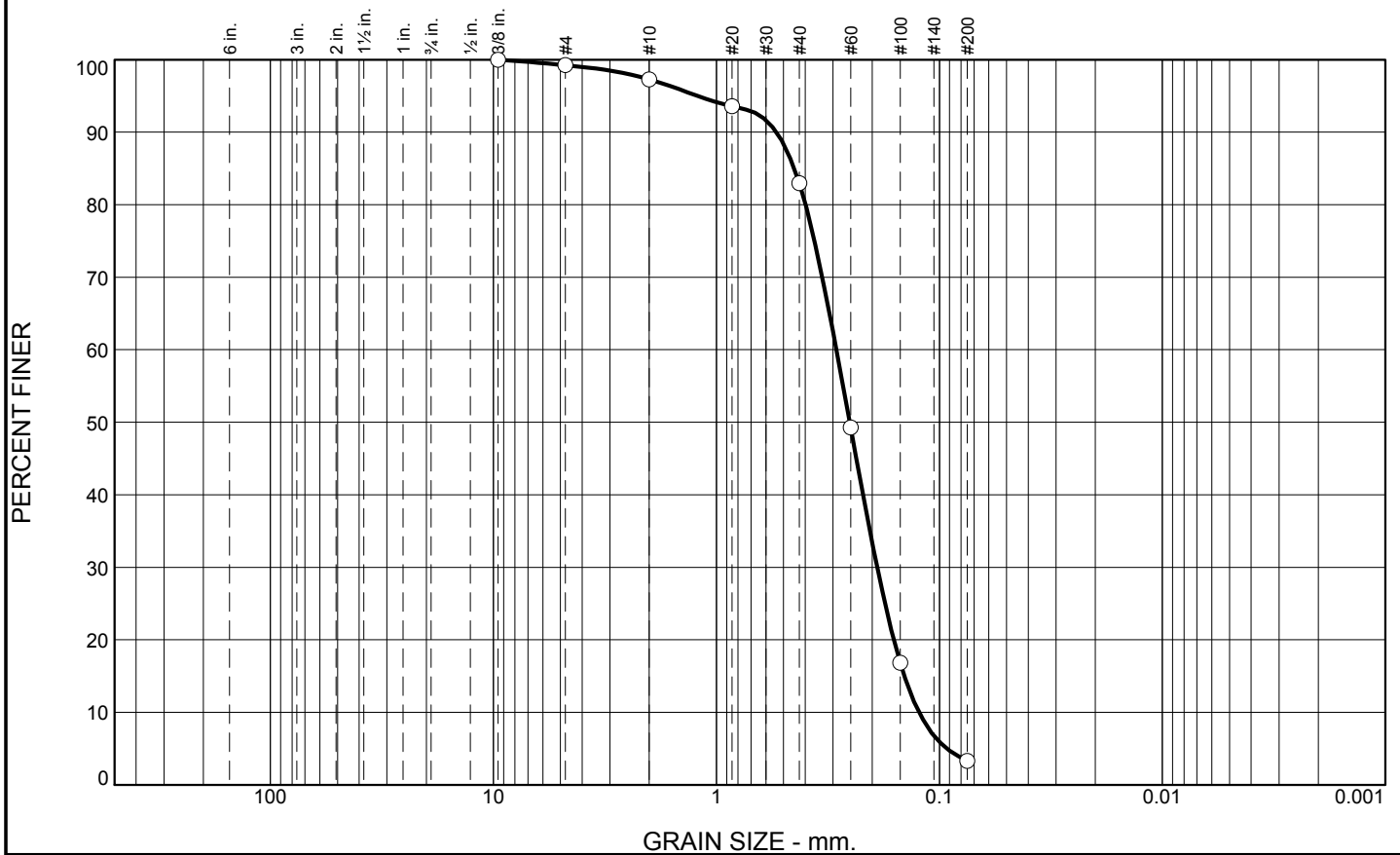
Tested By: L. Stokes

Checked By: R.Byrd

# Boring Designation BI-MS-29-10

DRILLING LOG		DIVISION South Atlantic		INSTALLATION Mobile District		SHEET 1 OF 1 SHEETS	
1. PROJECT MsCIP Barrier Island Restoration Mississippi Sound				9. SIZE AND TYPE OF BIT N/A			
2. BORING DESIGNATION BI-MS-29-10		LOCATION COORDINATES E = 934,739 N = 261,151		10. COORDINATE SYSTEM/DATUM State Plane, MSE (U.S. Ft.)		HORIZONTAL NAD83	
3. DRILLING AGENCY Corps of Engineers - CESAM		CONTRACTOR FILE NO.		11. MANUFACTURER'S DESIGNATION OF DRILL Vibracore		<input type="checkbox"/> AUTO HAMMER <input type="checkbox"/> MANUAL HAMMER	
4. NAME OF DRILLER Construction Solutions International, Inc.				12. TOTAL SAMPLES 4		UNDISTURBED (UD) 0	
5. DIRECTION OF BORING <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED		DEG. FROM VERTICAL		13. TOTAL NUMBER CORE BOXES			
		BEARING		14. WATER DEPTH 24 Ft.			
6. THICKNESS OF OVERBURDEN N/A				15. DATE BORING 05-18-10		COMPLETED 05-18-10	
7. DEPTH DRILLED INTO ROCK N/A				16. ELEVATION TOP OF BORING -22.9 Ft.			
8. TOTAL DEPTH OF BORING 15.2 Ft.				17. TOTAL RECOVERY FOR BORING 100%			
				18. SIGNATURE AND TITLE OF INSPECTOR Ed Herman, Geologist			
ELEV.	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS	SAMPLE	LABORATORY RESULTS		
-22.9	0.0						
			SAND, poorly-graded, mostly medium-grained sand-sized quartz, some shell fragments, gray (SP)	A	Classification: SP Color: 5Y 7/1-light gray D50: 0.2525 mm % Fines: 3.3		
-26.9	4.0						
			SAND, silty, mostly fine-grained sand-sized quartz, with clay layers, dark gray (SM)	B	Classification: SM Color: 5Y 5/1-gray D50: 0.095 mm % Fines: 33.3		
-28.9	6.0						
			SAND, poorly-graded, mostly medium-grained sand-sized quartz, some shell fragments, gray (SP)	C	Classification: SP Color: 2.5Y 7/1-light gray D50: 0.179 mm % Fines: 3.8		
-33.5	10.6						
			SAND, silty, mostly medium-grained sand-sized quartz, some shell fragments, dark gray (SM)	D	Classification: SP-SM Color: 5Y 6/1-gray D50: 0.2116 mm % Fines: 8.1		
-38.1	15.2						
			NOTES: 1. Soils are field visually classified in accordance with the Unified Soils Classification System. 2. NS = Sample not submitted for laboratory analysis from this interval. 3. Seafloor elevation calculated using sampling vessel's fathometer water depth reading and applying NOAA tidal gauge data conversion factor.				

# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.8	1.9	14.3	79.7	3.3	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
.375	100.0		
#4	99.2		
#10	97.3		
#20	93.6		
#40	83.0		
#60	49.3		
#100	16.8		
#200	3.3		

\* (no specification provided)

<u>Material Description</u>		
SAND, (SP), fine grained		
<u>Atterberg Limits</u>		
PL=	LL=	PI=
<u>Coefficients</u>		
D <sub>90</sub> = 0.5380	D <sub>85</sub> = 0.4477	D <sub>60</sub> = 0.2896
D <sub>50</sub> = 0.2525	D <sub>30</sub> = 0.1901	D <sub>15</sub> = 0.1436
D <sub>10</sub> = 0.1234	C <sub>u</sub> = 2.35	C <sub>c</sub> = 1.01
<u>Classification</u>		
USCS= SP	AASHTO=	
<u>Remarks</u>		
CADD CODE = CH10D965		

Location: USACE Sample # BI-MS-29-10A  
Sample Number: TE Lab ID: 4488.32

Depth: 0.0 - 4.0 (ft.)

Date: 5/27/10

**Thompson Engineering**  
**Mobile, Alabama**

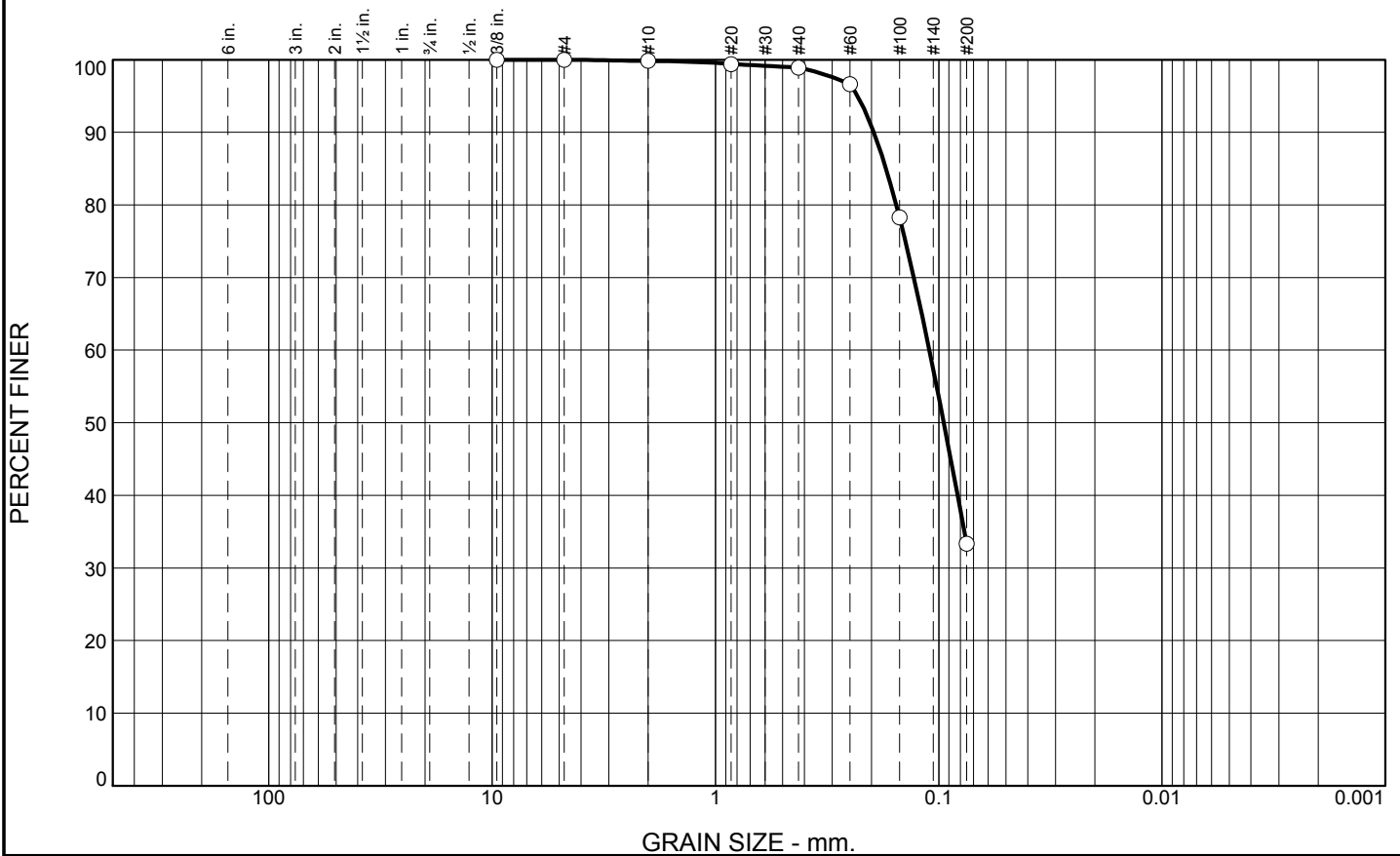
**Client:** US Army Corps of Engineers  
**Project:** Contract No. W91278-10-D-0026 - Task 03  
Mississippi Barrier Island Restoration Project  
**Project No:** 10-2123-0009

**Figure**

Tested By: L.Stokes

Checked By: R.Byrd

# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.0	0.2	0.9	65.6	33.3	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
.375	100.0		
#4	100.0		
#10	99.8		
#20	99.4		
#40	98.9		
#60	96.6		
#100	78.3		
#200	33.3		

\* (no specification provided)

**Material Description**  
SILTY SAND, (SM), fine grained

**Atterberg Limits**  
 PL=      LL=      PI=

**Coefficients**  
 D<sub>90</sub>= 0.1954      D<sub>85</sub>= 0.1724      D<sub>60</sub>= 0.1102  
 D<sub>50</sub>= 0.0950      D<sub>30</sub>=      D<sub>15</sub>=  
 D<sub>10</sub>=      C<sub>u</sub>=      C<sub>c</sub>=

**Classification**  
 USCS= SM      AASHTO=

**Remarks**  
 CADD CODE = CH10D965

**Location:** USACE Sample # BI-MS-29-10B  
**Sample Number:** TE Lab ID: 4488.33

**Depth:** 4.0 - 6.0 (ft.)

**Date:** 5/27/10

**Thompson Engineering**  
  
**Mobile, Alabama**

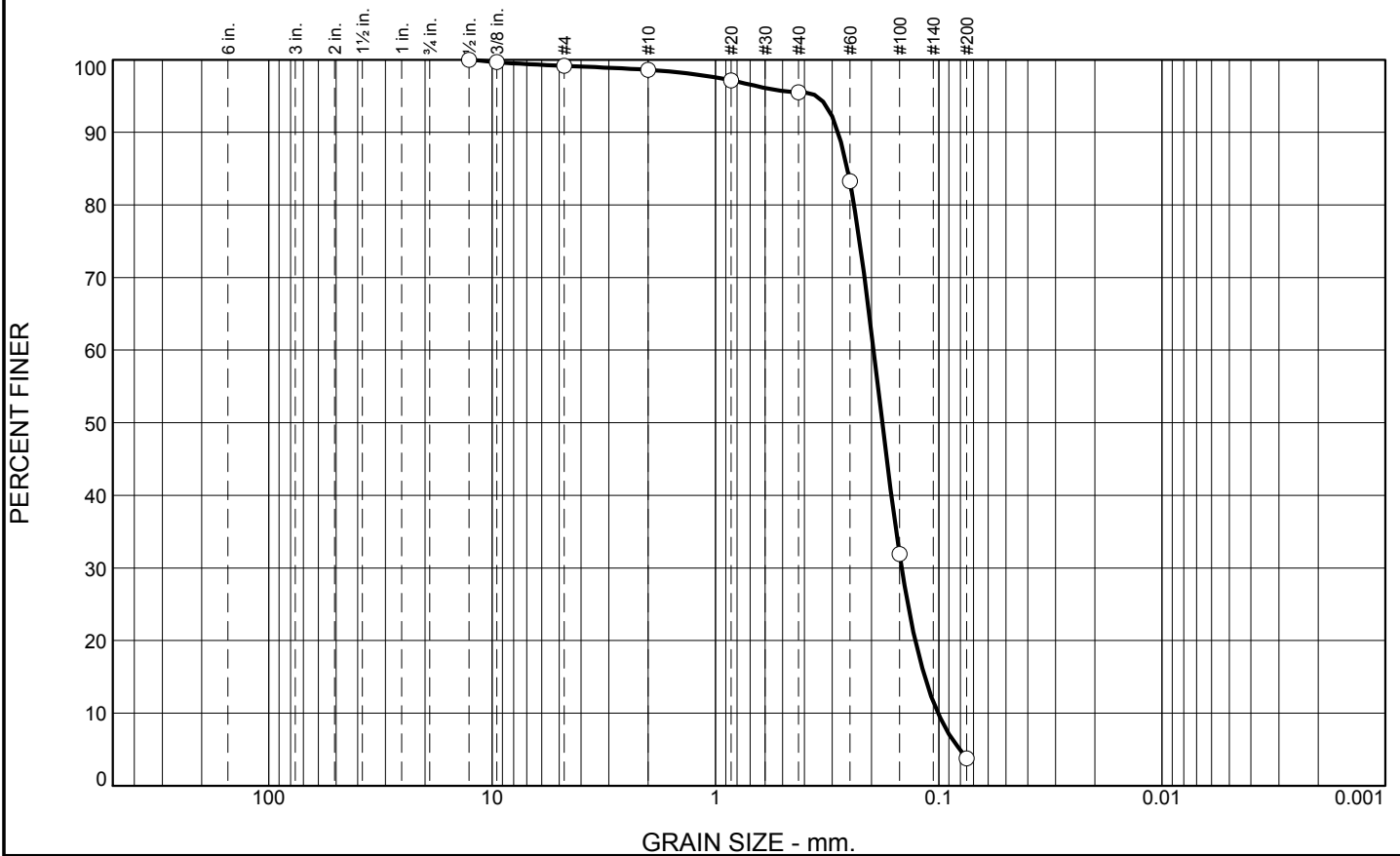
**Client:** US Army Corps of Engineers  
**Project:** Contract No. W91278-10-D-0026 - Task 03  
 Mississippi Barrier Island Restoration Project  
**Project No:** 10-2123-0009

**Figure**

**Tested By:** L.Stokes

**Checked By:** R.Byrd

# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.9	0.5	3.1	91.7	3.8	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
.500	100.0		
.375	99.7		
#4	99.1		
#10	98.6		
#20	97.2		
#40	95.5		
#60	83.3		
#100	31.9		
#200	3.8		

\* (no specification provided)

Material Description		
SAND, (SP), fine grained, with trace shell		
<div> <div> <b>Atterberg Limits</b>            PL=      LL=      PI=         </div> <div> <b>Coefficients</b>            D<sub>90</sub>= 0.2821      D<sub>85</sub>= 0.2565      D<sub>60</sub>= 0.1959            D<sub>50</sub>= 0.1790      D<sub>30</sub>= 0.1467      D<sub>15</sub>= 0.1156            D<sub>10</sub>= 0.1008      C<sub>u</sub>= 1.94      C<sub>c</sub>= 1.09         </div> <div> <b>Classification</b>            USCS= SP      AASHTO=         </div> <div> <b>Remarks</b>            CADD CODE = CH10D965         </div> </div>		

Location: USACE Sample # BI-MS-29-10C  
Sample Number: TE Lab ID: 4488.34

Depth: 6.0 - 10.6 (ft.)

Date: 5/27/10

**Thompson Engineering**  
**Mobile, Alabama**

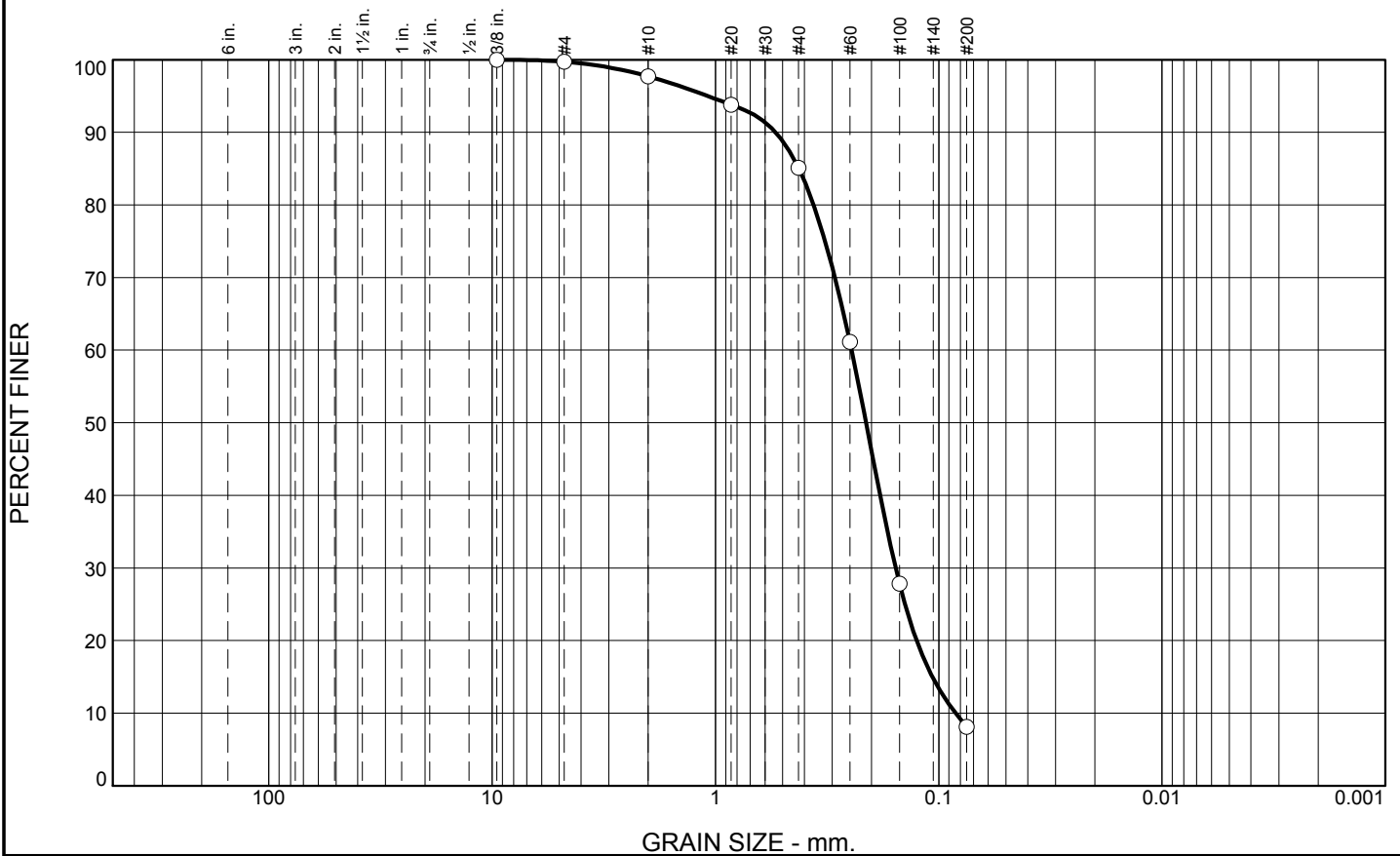
**Client:** US Army Corps of Engineers  
**Project:** Contract No. W91278-10-D-0026 - Task 03  
Mississippi Barrier Island Restoration Project  
**Project No:** 10-2123-0009

**Figure**

Tested By: L.Stokes

Checked By: R.Byrd

# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.3	2.0	12.6	77.0	8.1	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
.375	100.0		
#4	99.7		
#10	97.7		
#20	93.8		
#40	85.1		
#60	61.1		
#100	27.8		
#200	8.1		

\* (no specification provided)

<u><b>Material Description</b></u>		
SAND, (SP-SM), fine grained, with trace shell		
<u><b>Atterberg Limits</b></u>		
PL=	LL=	PI=
<u><b>Coefficients</b></u>		
D <sub>90</sub> = 0.5375	D <sub>85</sub> = 0.4234	D <sub>60</sub> = 0.2456
D <sub>50</sub> = 0.2116	D <sub>30</sub> = 0.1560	D <sub>15</sub> = 0.1069
D <sub>10</sub> = 0.0840	C <sub>u</sub> = 2.92	C <sub>c</sub> = 1.18
<u><b>Classification</b></u>		
USCS= SP-SM	AASHTO=	
<u><b>Remarks</b></u>		
CADD CODE = CH10D965		

Location: USACE Sample # BI-MS-29-10D  
Sample Number: TE Lab ID: 4488.35

Depth: 10.6 - 15.2 (ft.)

Date: 5/27/10

**Thompson Engineering**  
**Mobile, Alabama**

**Client:** US Army Corps of Engineers  
**Project:** Contract No. W91278-10-D-0026 - Task 03  
Mississippi Barrier Island Restoration Project  
**Project No:** 10-2123-0009

**Figure**

Tested By: L.Stokes

Checked By: R.Byrd



# Boring Designation BI-MS-30-10

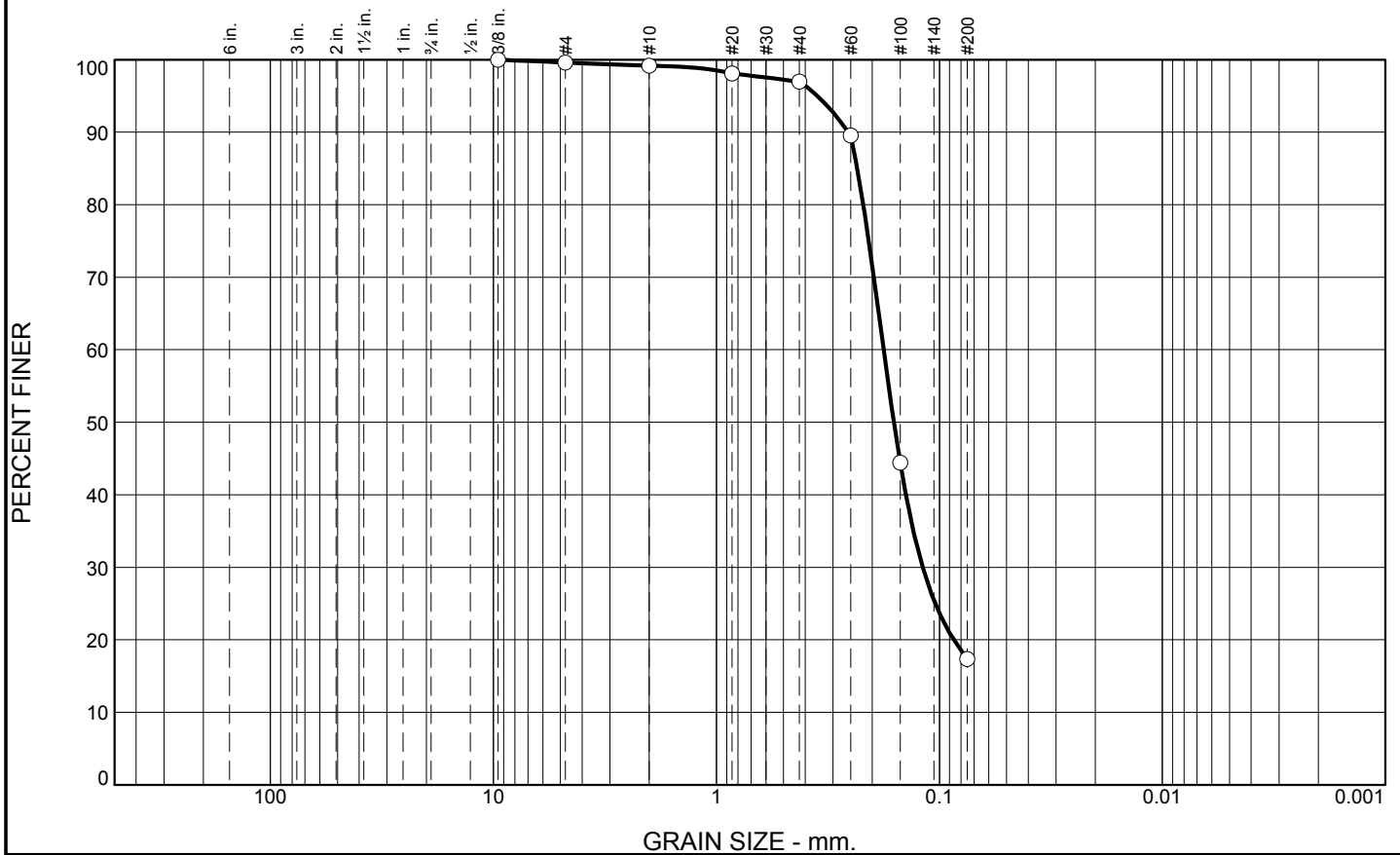
DRILLING LOG		DIVISION South Atlantic		INSTALLATION Mobile District		SHEET 1 OF 2 SHEETS	
1. PROJECT MsCIP Barrier Island Restoration Mississippi Sound				9. SIZE AND TYPE OF BIT N/A			
2. BORING DESIGNATION BI-MS-30-10		LOCATION COORDINATES E = 935,813 N = 261,226		10. COORDINATE SYSTEM/DATUM State Plane, MSE (U.S. Ft.)		HORIZONTAL NAD83 VERTICAL NAVD88	
3. DRILLING AGENCY Corps of Engineers - CESAM		CONTRACTOR FILE NO.		11. MANUFACTURER'S DESIGNATION OF DRILL Vibrocure		<input type="checkbox"/> AUTO HAMMER <input type="checkbox"/> MANUAL HAMMER	
4. NAME OF DRILLER Construction Solutions International, Inc.				12. TOTAL SAMPLES 4		DISTURBED 0 UNDISTURBED (UD)	
5. DIRECTION OF BORING <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED		DEG. FROM VERTICAL		13. TOTAL NUMBER CORE BOXES			
		BEARING		14. WATER DEPTH 27 Ft.			
6. THICKNESS OF OVERBURDEN N/A				15. DATE BORING 05-18-10		STARTED 05-18-10 COMPLETED 05-18-10	
7. DEPTH DRILLED INTO ROCK N/A				16. ELEVATION TOP OF BORING -25.7 Ft.			
8. TOTAL DEPTH OF BORING 19.1 Ft.				17. TOTAL RECOVERY FOR BORING 100%			
				18. SIGNATURE AND TITLE OF INSPECTOR Ed Herman, Geologist			

ELEV.	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS	SAMPLE	LABORATORY RESULTS
-25.7	0.0				
			SAND, silty, mostly fine-grained sand-sized quartz, some shell fragments, with clay lenses, dark gray (SM)	A	Classification: SM Color: 2.5Y 5/2-grayish brown D50: 0.1601 mm % Fines: 17.4
-30.2	4.5		SAND, silty, mostly fine-grained sand-sized quartz, with clay lenses, gray (SM)	B	Classification: SP-SM Color: 2.5Y 7/1-light gray D50: 0.155 mm % Fines: 7.2
-35.7	10.0		SAND, poorly-graded, mostly fine-grained sand-sized quartz, some shell fragments, gray (SP)	C	Classification: SP-SM Color: 2.5Y 7/1-light gray D50: 0.2532 mm % Fines: 7
-41.2	15.5		SAND, silty, mostly fine-grained sand-sized quartz, with clay lenses, dark gray (SM)	D	Classification: SP-SM Color: 5Y 3/1-very dark gray D50: 0.1651 mm % Fines: 20.1
-44.8	19.1		NOTES: 1. Soils are field visually classified in accordance with the Unified Soils Classification System. 2. NS = Sample not submitted for laboratory analysis from this interval. 3. Seafloor elevation calculated using sampling vessel's fathometer water depth reading and applying NOAA tidal gauge data conversion		

<b>DRILLING LOG (Cont. Sheet)</b>			<b>INSTALLATION</b> Mobile District		<b>SHEET 2</b>
					<b>OF 2 SHEETS</b>
<b>PROJECT</b> MsCIP Barrier Island Restoration			<b>COORDINATE SYSTEM/DATUM</b> State Plane, MSE (U.S. Ft.)	<b>HORIZONTAL</b> NAD83	<b>VERTICAL</b> NAVD88
<b>LOCATION COORDINATES</b> X = 935,813 Y = 261,226			<b>ELEVATION TOP OF BORING</b> -25.7 Ft.		
ELEV.	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS	SAMPLE	LABORATORY RESULTS
			factor.		

# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.4	0.4	2.2	79.6	17.4	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
.375	100.0		
#4	99.6		
#10	99.2		
#20	98.1		
#40	97.0		
#60	89.5		
#100	44.4		
#200	17.4		

\* (no specification provided)

<u>Material Description</u>		
SILTY SAND, (SM), medium to fine grained, with clay pockets		
<u>Atterberg Limits</u>		
PL=	LL=	PI=
<u>Coefficients</u>		
D <sub>90</sub> = 0.2560	D <sub>85</sub> = 0.2335	D <sub>60</sub> = 0.1778
D <sub>50</sub> = 0.1601	D <sub>30</sub> = 0.1188	D <sub>15</sub> =
D <sub>10</sub> =	C <sub>u</sub> =	C <sub>c</sub> =
<u>Classification</u>		
USCS= SM	AASHTO=	
<u>Remarks</u>		
CADD CODE = CH10D965		

Location: USACE Sample # BI-MS-30-10A  
Sample Number: TE Lab ID: 4488.36

Depth: 0.0 - 4.5 (ft.)

Date: 5/27/10

**Thompson Engineering**  
**Mobile, Alabama**

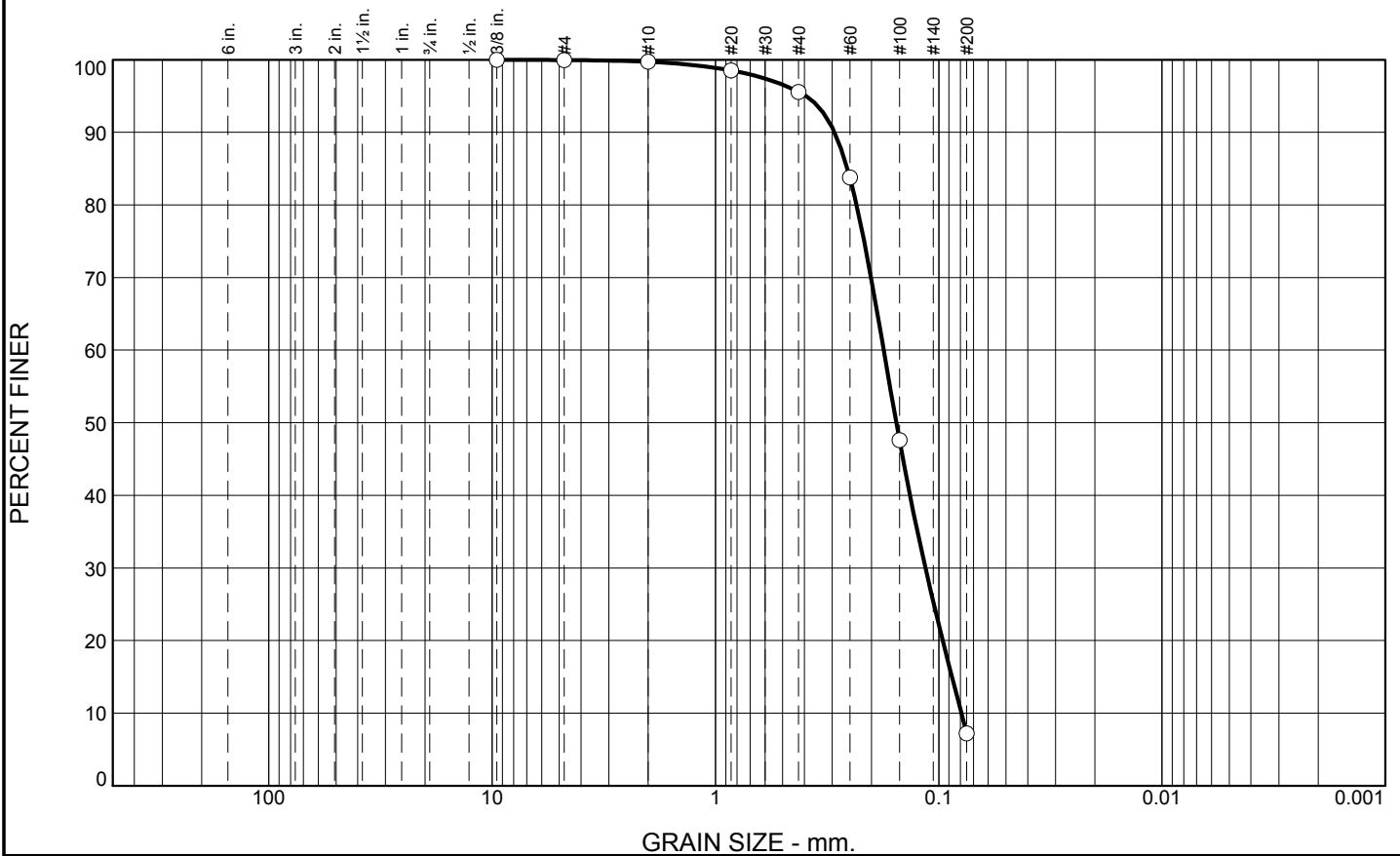
**Client:** US Army Corps of Engineers  
**Project:** Contract No. W91278-10-D-0026 - Task 03  
Mississippi Barrier Island Restoration Project  
**Project No:** 10-2123-0009

**Figure**

Tested By: L.Stokes

Checked By: R.Byrd

# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.1	0.2	4.1	88.4	7.2	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
.375	100.0		
#4	99.9		
#10	99.7		
#20	98.5		
#40	95.6		
#60	83.8		
#100	47.6		
#200	7.2		

\* (no specification provided)

## Material Description

SAND, (SP-SM), fine grained, with clay nodules and trace shell

## Atterberg Limits

PL=

LL=

PI=

## Coefficients

D<sub>90</sub>= 0.2928

D<sub>85</sub>= 0.2563

D<sub>60</sub>= 0.1765

D<sub>50</sub>= 0.1550

D<sub>30</sub>= 0.1147

D<sub>15</sub>= 0.0873

D<sub>10</sub>= 0.0792

C<sub>u</sub>= 2.23

C<sub>c</sub>= 0.94

## Classification

USCS= SP-SM

AASHTO=

## Remarks

CADD CODE = CH10D965

Location: USACE Sample # BI-MS-30-10B  
Sample Number: TE Lab ID: 4488.37

Depth: 4.5 - 10.0 (ft.)

Date: 5/27/10

**Thompson Engineering**

**Mobile, Alabama**

Client: US Army Corps of Engineers

Project: Contract No. W91278-10-D-0026 - Task 03  
Mississippi Barrier Island Restoration Project

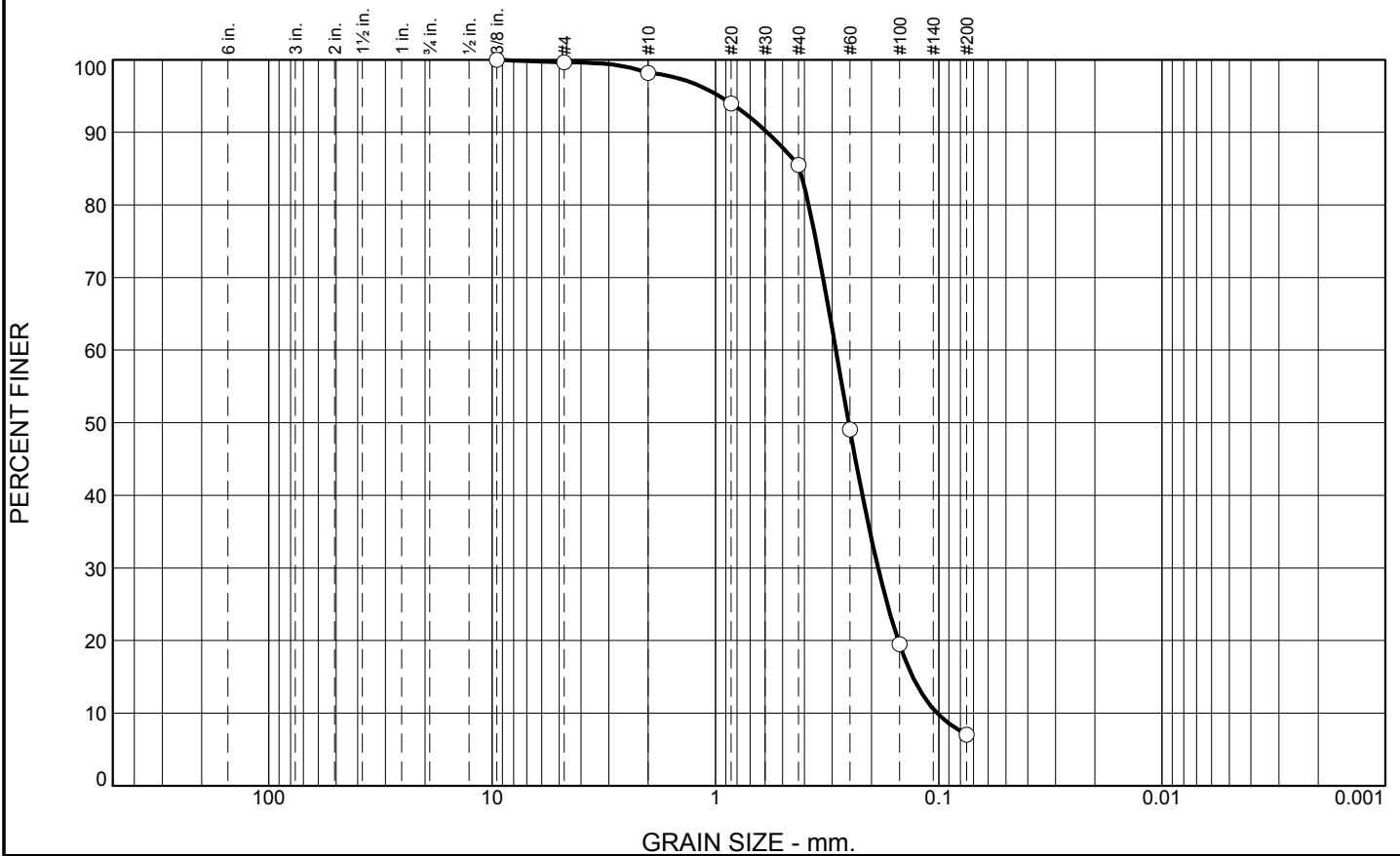
Project No: 10-2123-0009

Figure

Tested By: L.Stokes

Checked By: R.Byrd

# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.3	1.5	12.7	78.5	7.0	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
.375	100.0		
#4	99.7		
#10	98.2		
#20	94.0		
#40	85.5		
#60	49.1		
#100	19.5		
#200	7.0		

\* (no specification provided)

## Material Description

SAND, (SP-SM), medium to fine grained, with trace shell

## Atterberg Limits

PL=

LL=

PI=

## Coefficients

D<sub>90</sub>= 0.5862

D<sub>85</sub>= 0.4204

D<sub>60</sub>= 0.2887

D<sub>50</sub>= 0.2532

D<sub>30</sub>= 0.1869

D<sub>15</sub>= 0.1307

D<sub>10</sub>= 0.1017

C<sub>u</sub>= 2.84

C<sub>c</sub>= 1.19

## Classification

USCS= SP-SM

AASHTO=

## Remarks

CADD CODE = CH10D965

Location: USACE Sample # BI-MS-30-10C  
Sample Number: TE Lab ID: 4488.38

Depth: 10.0 - 15.5 (ft.)

Date: 5/27/10

**Thompson Engineering**

**Mobile, Alabama**

Client: US Army Corps of Engineers

Project: Contract No. W91278-10-D-0026 - Task 03  
Mississippi Barrier Island Restoration Project

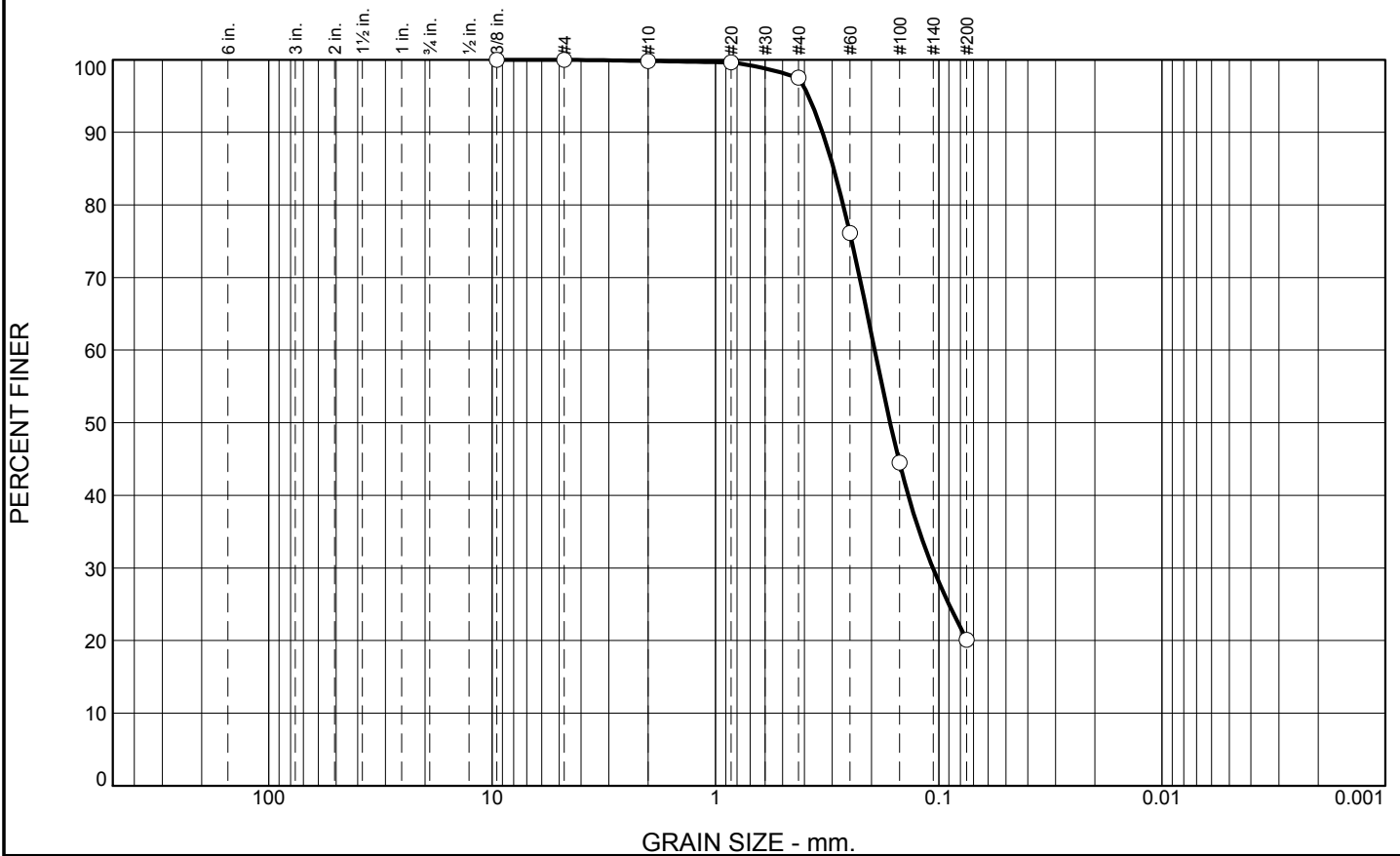
Project No: 10-2123-0009

Figure

Tested By: L.Stokes

Checked By: R.Byrd

# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.0	0.2	2.3	77.4	20.1	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
.375	100.0		
#4	100.0		
#10	99.8		
#20	99.6		
#40	97.5		
#60	76.1		
#100	44.5		
#200	20.1		

\* (no specification provided)

Material Description		
SAND, (SP-SM), medium to fine grained, with clay nodules		
<div> <div> <b>Atterberg Limits</b>            PL=      LL=      PI=         </div> <div> <b>Coefficients</b>            D<sub>90</sub>= 0.3314      D<sub>85</sub>= 0.2955      D<sub>60</sub>= 0.1936            D<sub>50</sub>= 0.1651      D<sub>30</sub>= 0.1063      D<sub>15</sub>=            D<sub>10</sub>=      C<sub>u</sub>=      C<sub>c</sub>=         </div> <div> <b>Classification</b>            USCS= SP-SM      AASHTO=         </div> <div> <b>Remarks</b>            CADD CODE = CH10D965         </div> </div>		

Location: USACE Sample # BI-MS-30-10D  
Sample Number: TE Lab ID: 4488.39

Depth: 15.5 - 19.1 (ft.)

Date: 5/27/10

**Thompson Engineering**  
**Mobile, Alabama**

**Client:** US Army Corps of Engineers  
**Project:** Contract No. W91278-10-D-0026 - Task 03  
Mississippi Barrier Island Restoration Project  
**Project No:** 10-2123-0009

**Figure**

Tested By: L.Stokes

Checked By: R.Byrd

## **Appendix E**

### **Ship Island Pass Vibracores and Lab Results**

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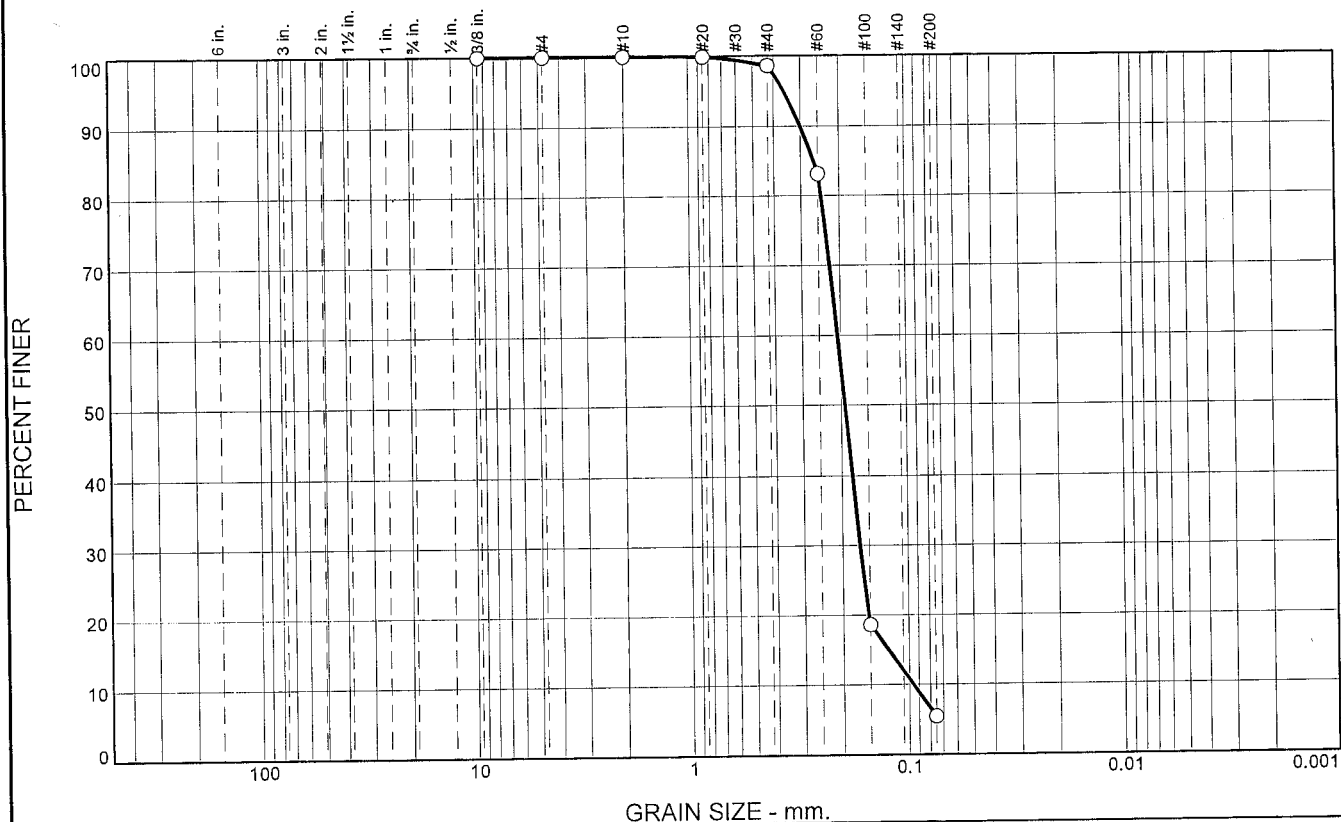
Vibracore / Sample ID	Investigation Area	Sample Event	Date of Sample	Time_CST	Latitude	Longitude	Northing_Y	Easting_X	Sample Method	Water Depth (feet)	Boring Depth (feet below seafloor surface)	Sample Depth (Feet below seafloor surface)	Sample Thickness (feet)	Field USCS	Lab USCS	Angularity	Wet Munsell Color	Wet Munsell Color Code	Wet Munsell Value	Dry Munsell Color	Dry Munsell Color Code	Dry Munsell Value	CaCO3	D50 (mm)	Graphic Mean (mm)	% Fines	Cu (D60/D10)	Cc (D30)*2 / (D10*D60)	
BI-SP-21-10	SHIP ISLAND PASS	2010	5/6/2010	2:45 PM	30.22499	-89.04251	263712.48100	918187.10270	20-ft Vibracore	15.6	13.2																		
BI-SP-21-10A	SHIP ISLAND PASS	2010	5/6/2010	2:45 PM	30.22499	-89.04251	263712.48100	918187.10270	20-ft Vibracore	15.6	13.2	0.0 - 5.0	5.0	SP	SP-SM	SUBANGULAR TO ROUNDED	GRAY	10YR 5/1	5	GRAY	10YR 5/1	5	NO	0.19	0.19	5.4	2.2	1.4	
BI-SP-21-10B	SHIP ISLAND PASS	2010	5/6/2010	2:45 PM	30.22499	-89.04251	263712.48100	918187.10270	20-ft Vibracore	15.6	13.2	5.0 - 10.0	5.0	SP	SP	SUBANGULAR TO ROUNDED	GRAY	10YR 6/1	6	GRAY	10YR 6/1	6	NO	0.19	0.19	3.4	1.8	1.2	
BI-SP-22-10	SHIP ISLAND PASS	2010	5/18/2010	2:28 PM	30.21275	-89.04214	259260.77990	918295.79260	20-ft Vibracore	20.0	18.2																		
BI-SP-22-10A	SHIP ISLAND PASS	2010	5/18/2010	2:28 PM	30.21275	-89.04214	259260.77990	918295.79260	20-ft Vibracore	20.0	18.2	0.0 - 6.3	6.3	CH	CL	CLAY FINES	VERY DK GRAY	5Y 3/1	3	GRAY	2.5Y 5/1	5	NO	-	#VALUE!	95.3	#VALUE!	#VALUE!	
BI-SP-22-10B	SHIP ISLAND PASS	2010	5/18/2010	2:28 PM	30.21275	-89.04214	259260.77990	918295.79260	20-ft Vibracore	20.0	18.2	6.3 - 12.5	6.2	SC	SM	SUBANGULAR TO ROUNDED	OLIVE GRAY	5Y 4/2	4	LT BROWNISH GRAY	2.5Y 6/2	6	YES	0.09	#VALUE!	21.9	#VALUE!	#VALUE!	
BI-SP-22-10C	SHIP ISLAND PASS	2010	5/18/2010	2:28 PM	30.21275	-89.04214	259260.77990	918295.79260	20-ft Vibracore	20.0	18.2	12.5 - 18.2	5.7	SC	SM	CLAY FINES	DK OLIVE GRAY	5Y 3/2	3	GRAYISH BROWN	2.5Y 5/2	5	YES	0.08	#VALUE!	48.8	#VALUE!	#VALUE!	
BI-SP-23-10	SHIP ISLAND PASS	2010	5/18/2010	1:58 PM	30.21513	-89.02116	260114.80320	924924.02940	20-ft Vibracore	21.0	14.9																		
BI-SP-23-10A	SHIP ISLAND PASS	2010	5/18/2010	1:58 PM	30.21513	-89.02116	260114.80320	924924.02940	20-ft Vibracore	21.0	14.9	0.0 - 5.0	5.0	CH	CL	CLAY FINES	VERY DK GRAY	5Y 3/1	3	GRAYISH BROWN	2.5Y 5/2	5	NO	-	#VALUE!	88.7	#VALUE!	#VALUE!	
BI-SP-23-10B	SHIP ISLAND PASS	2010	5/18/2010	1:58 PM	30.21513	-89.02116	260114.80320	924924.02940	20-ft Vibracore	21.0	14.9	5.0 - 9.5	4.5	SM	SP-SM	SUBANGULAR TO ROUNDED	OLIVE GRAY	5Y 4/2	4	LT BROWNISH GRAY	2.5Y 6/1	6	NO	0.13	0.14	11.9	#VALUE!	#VALUE!	
BI-SP-23-10C	SHIP ISLAND PASS	2010	5/18/2010	1:58 PM	30.21513	-89.02116	260114.80320	924924.02940	20-ft Vibracore	21.0	14.9	9.5 - 14.9	5.4	SC	SM	CLAY FINES	DK OLIVE GRAY	5Y 3/2	3	GRAYISH BROWN	2.5Y 5/2	5	YES	0.09	#VALUE!	36.9	#VALUE!	#VALUE!	
BI-SP-24-10	SHIP ISLAND PASS	2010	5/18/2010	3:14 PM	30.22068	-89.01957	262132.42010	925429.54160	20-ft Vibracore	18.0	14.6																		
BI-SP-24-10A	SHIP ISLAND PASS	2010	5/18/2010	3:14 PM	30.22068	-89.01957	262132.42010	925429.54160	20-ft Vibracore	18.0	14.6	0.0 - 5.0	5.0	SP	SP	SUBANGULAR TO ROUNDED	OLIVE GRAY	5Y 5/2	5	LT GRAY	2.5Y 7/2	7	NO	0.19	0.21	3.8	2.4	1.0	
BI-SP-24-10B	SHIP ISLAND PASS	2010	5/18/2010	3:14 PM	30.22068	-89.01957	262132.42010	925429.54160	20-ft Vibracore	18.0	14.6	5.0 - 11.1	6.1	SP	SP	SUBANGULAR TO ROUNDED	OLIVE GRAY	5Y 5/2	5	LT GRAY	2.5Y 7/2	7	NO	0.20	0.21	4.0	2.2	1.3	
BI-SP-24-10C	SHIP ISLAND PASS	2010	5/18/2010	3:14 PM	30.22068	-89.01957	262132.42010	925429.54160	20-ft Vibracore	18.0	14.6	11.1 - 14.6	0.0	SC	SM	CLAY FINES	VERY DK GRAY	5Y 3/1	3	GRAYISH BROWN	2.5Y 5/2	5	YES	0.08	#VALUE!	48.8	#VALUE!	#VALUE!	
BI-SP-25-10	SHIP ISLAND PASS	2010	6/15/2010	8:20 AM	30.17198	-88.99827	244410.73810	932131.23890	20-ft Vibracore	25.5	13.9	NO SAMPLE TAKEN		CL	NO SAMPLE TESTED														
BI-SP-26-10	SHIP ISLAND PASS	2010	6/15/2010	8:50 AM	30.15056	-88.97627	236611.33160	939073.31880	20-ft Vibracore	26.0	12.9	NO SAMPLE TAKEN		CL	NO SAMPLE TESTED														
BI-SP-27-10	SHIP ISLAND PASS	2010	5/18/2010	1:05 PM	30.21290	-89.00952	259297.91280	928599.33120	20-ft Vibracore	17.0	13.7																		
BI-SP-27-10A	SHIP ISLAND PASS	2010	5/18/2010	1:05 PM	30.21290	-89.00952	259297.91280	928599.33120	20-ft Vibracore	17.0	13.7	0.0 - 5.5	5.5	SP	SP	SUBANGULAR TO ROUNDED	GRAY	5Y 5/1	5	LT GRAY	2.5Y 7/1	7	YES	0.20	0.22	3.6	2.6	1.0	
BI-SP-27-10B	SHIP ISLAND PASS	2010	5/18/2010	1:05 PM	30.21290	-89.00952	259297.91280	928599.33120	20-ft Vibracore	17.0	13.7	5.5 - 13.7	8.2	CH	CL	CLAY FINES	VERY DK GRAY	5Y 3/1	3	GRAYISH BROWN	2.5Y 5/2	5	YES	-	#VALUE!	70.8	#VALUE!	#VALUE!	
BI-SP-28-10	SHIP ISLAND PASS	2010	5/18/2010	12:40 PM	30.20001	-89.00292	254606.88080	930677.04240	20-ft Vibracore	19.0	16.5																		
BI-SP-28-10A	SHIP ISLAND PASS	2010	5/18/2010	12:40 PM	30.20001	-89.00292	254606.88080	930677.04240	20-ft Vibracore	19.0	16.5	0.0 - 4.3	4.3	SP	SP	SUBANGULAR TO ROUNDED	GRAY	5Y 5/1	5	LT GRAY	2.5Y 7/1	7	YES	0.20	0.21	4.2	2.4	1.1	
BI-SP-28-10B	SHIP ISLAND PASS	2010	5/18/2010	12:40 PM	30.20001	-89.00292	254606.88080	930677.04240	20-ft Vibracore	19.0	16.5	4.3 - 9.0	4.7	SP	SP	SUBANGULAR TO ROUNDED	GRAY	5Y 5/1	5	LT GRAY	2.5Y 7/2	7	NO	0.26	0.27	3.8	2.0	1.0	
BI-SP-28-10C	SHIP ISLAND PASS	2010	5/18/2010	12:40 PM	30.20001	-89.00292	254606.88080	930677.04240	20-ft Vibracore	19.0	16.5	9.0 - 16.5	7.5	CH	CL	CLAY FINES	VERY DK GRAY	5Y 3/1	3	GRAYISH BROWN	2.5Y 5/2	5	YES	-	#VALUE!	77.5	#VALUE!	#VALUE!	
BI-SP-29-10	SHIP ISLAND PASS	2010	6/17/2010	8:15 AM	30.20991	-89.02098	258216.28450	924977.75470	20-ft Vibracore	20.0	19.7	NO SAMPLE TAKEN		CL	NO SAMPLE TESTED														
BI-SP-30-10	SHIP ISLAND PASS	2010	6/17/2010	8:55 AM	30.19953	-89.03090	254446.55900	921837.75400	20-ft Vibracore	22.0	12.8	NO SAMPLE TAKEN		CL	NO SAMPLE TESTED														

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# Boring Designation BI-SP-21-10

DRILLING LOG		DIVISION South Atlantic		INSTALLATION Mobile District		SHEET 1 OF 1 SHEETS	
1. PROJECT MsCIP Barrier Island Restoration Ship Island Pass				9. SIZE AND TYPE OF BIT N/A			
2. BORING DESIGNATION BI-SP-21-10		LOCATION COORDINATES E = 918,187 N = 263,712		10. COORDINATE SYSTEM/DATUM State Plane, MSE (U.S. Ft.)		HORIZONTAL NAD83 VERTICAL NAVD88	
3. DRILLING AGENCY Corps of Engineers - CESAM		CONTRACTOR FILE NO.		11. MANUFACTURER'S DESIGNATION OF DRILL Vibracore		<input type="checkbox"/> AUTO HAMMER <input type="checkbox"/> MANUAL HAMMER	
4. NAME OF DRILLER Construction Solutions International, Inc.				12. TOTAL SAMPLES 2		DISTURBED 0 UNDISTURBED (UD)	
5. DIRECTION OF BORING <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED		DEG. FROM VERTICAL		13. TOTAL NUMBER CORE BOXES			
		BEARING		14. WATER DEPTH 15.6 Ft.			
6. THICKNESS OF OVERBURDEN N/A				15. DATE BORING 05-06-10		STARTED 05-06-10 COMPLETED	
7. DEPTH DRILLED INTO ROCK N/A				16. ELEVATION TOP OF BORING -14.9 Ft.			
8. TOTAL DEPTH OF BORING 13.2 Ft.				17. TOTAL RECOVERY FOR BORING 100%			
				18. SIGNATURE AND TITLE OF INSPECTOR J. Krick, Geotechnical Engineer			
ELEV.	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS	SAMPLE	LABORATORY RESULTS		
-14.9	0.0						
			SAND, poorly-graded, mostly fine to medium-grained sand-sized quartz, trace shell fragments, gray (SP)	A	Classification: SP Color: 10YR 5/1-gray D50: 0.192 mm % Fines: 5.4		
				B	Classification: SP Color: 10YR 6/1-gray D50: 0.1894 mm % Fines: 3.4		
-24.9	10.0		SAND, poorly-graded, mostly fine to medium-grained sand-sized quartz, some silt, trace shell fragments, gray (SP)	NS			
-28.1	13.2						
			NOTES: 1. Soils are field visually classified in accordance with the Unified Soils Classification System. 2. NS = Sample not submitted for laboratory analysis from this interval. 3. Seafloor elevation calculated using sampling vessel's fathometer water depth reading and applying NOAA tidal gauge data conversion factor.				

# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.0	0.0	1.4	93.2	5.4	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
.375	100.0		
#4	100.0		
#10	100.0		
#20	99.9		
#40	98.6		
#60	83.1		
#100	18.6		
#200	5.4		

\* (no specification provided)

<u><b>Material Description</b></u>		
SAND, (SP-SM), fine grained		
<u><b>Atterberg Limits</b></u>		
PL=	LL=	PI=
<u><b>Coefficients</b></u>		
D <sub>90</sub> = 0.3014	D <sub>85</sub> = 0.2620	D <sub>60</sub> = 0.2061
D <sub>50</sub> = 0.1920	D <sub>30</sub> = 0.1658	D <sub>15</sub> = 0.1242
D <sub>10</sub> = 0.0955	C <sub>u</sub> = 2.16	C <sub>c</sub> = 1.40
<u><b>Classification</b></u>		
USCS= SP-SM	AASHTO=	
<u><b>Remarks</b></u>		
CADD CODE = CH10D965		

Location: USACE Sample # BI-SP-21-10A  
Sample Number: TE Lab ID: 4461.32

Depth: 0.0 - 5.0 (ft)

Date: 5/13/10

**Thompson Engineering**

**Mobile, Alabama**

Client: US Army Corps of Engineers

Project: Mississippi Barrier Island Restoration Project  
Contract No. W91278-10-D-0026 - Task 03

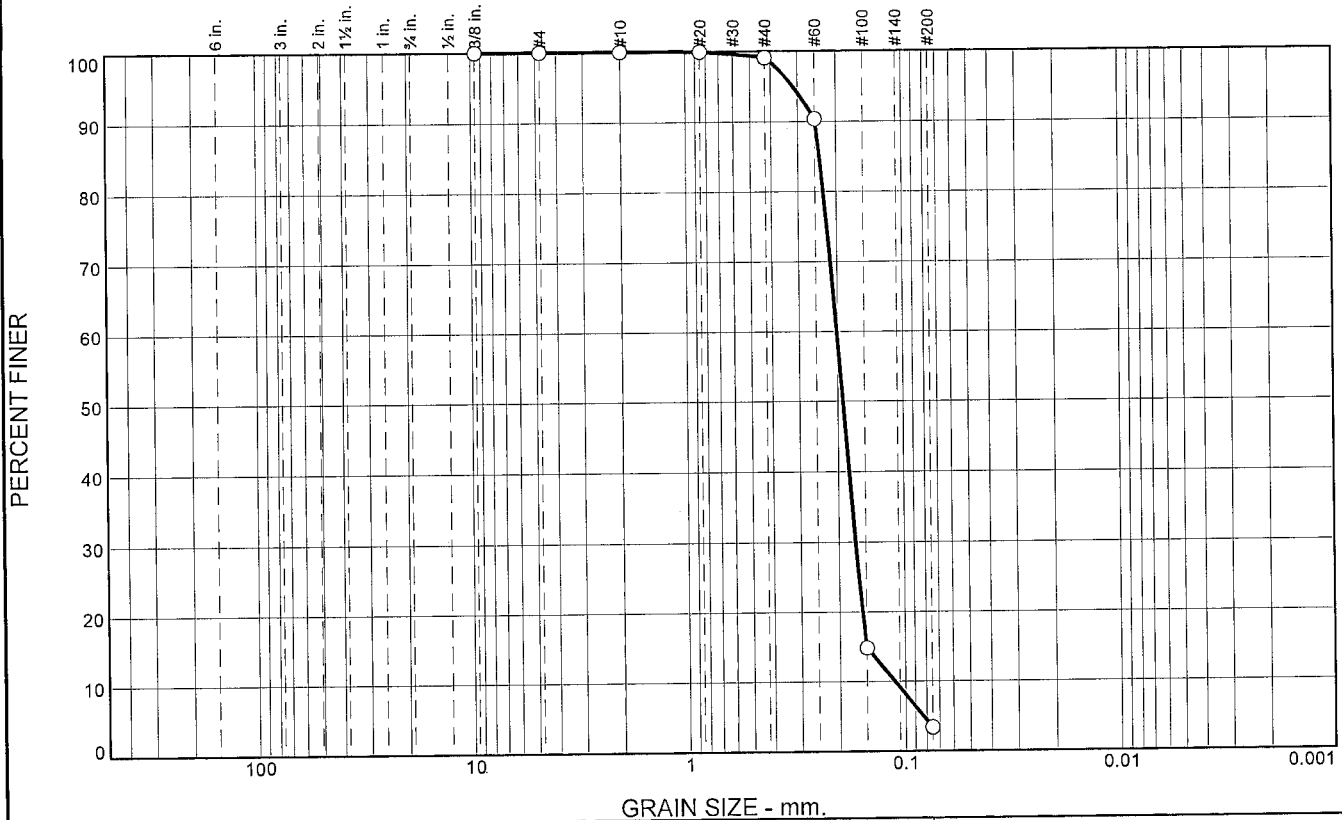
Project No: 1021230009

Figure

Tested By: J.Maddox/L.Stokes

Checked By: R.Byrd

# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.0	0.0	0.9	95.7	3.4	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
.375	100.0		
#4	100.0		
#10	100.0		
#20	99.9		
#40	99.1		
#60	90.3		
#100	14.8		
#200	3.4		

\* (no specification provided)

**Material Description**  
SAND, (SP), fine grained

**Atterberg Limits**  
 PL=      LL=      PI=

**Coefficients**  
 D<sub>90</sub>= 0.2492      D<sub>85</sub>= 0.2382      D<sub>60</sub>= 0.2011  
 D<sub>50</sub>= 0.1894      D<sub>30</sub>= 0.1675      D<sub>15</sub>= 0.1502  
 D<sub>10</sub>= 0.1120      C<sub>u</sub>= 1.80      C<sub>c</sub>= 1.25

**Classification**  
 USCS= SP      AASHTO=

**Remarks**  
 CADD CODE = CH10D965

Location: USACE Sample # BI-SP-21-10B  
 Sample Number: TE Lab ID: 4461.33

Depth: 5.0 - 10.0 (ft)

Date: 5/13/10

**Thompson Engineering**

**Mobile, Alabama**

Client: US Army Corps of Engineers

Project: Mississippi Barrier Island Restoration Project  
 Contract No. W91278-10-D-0026 - Task 03



Project No: 1021230009

Figure

Tested By: J.Maddox/L.Stokes

Checked By: R.Byrd

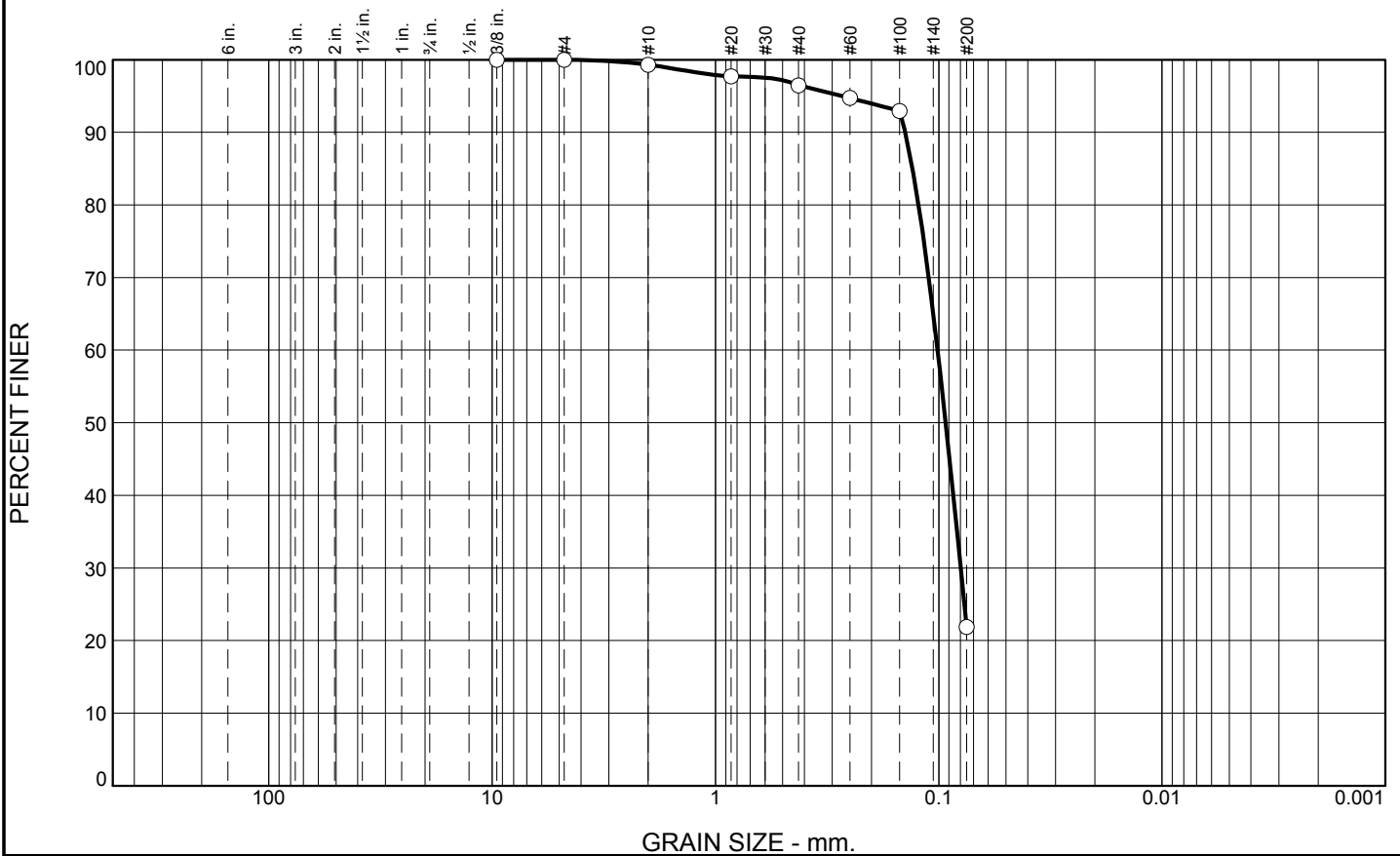
# Boring Designation BI-SP-22-10

DRILLING LOG		DIVISION South Atlantic		INSTALLATION Mobile District		SHEET 1 OF 1 SHEETS	
1. PROJECT MsCIP Barrier Island Restoration Ship Island Pass				9. SIZE AND TYPE OF BIT N/A			
2. BORING DESIGNATION BI-SP-22-10		LOCATION COORDINATES E = 918,296 N = 259,261		10. COORDINATE SYSTEM/DATUM State Plane, MSE (U.S. Ft.)		HORIZONTAL NAD83 VERTICAL NAVD88	
3. DRILLING AGENCY Corps of Engineers - CESAM		CONTRACTOR FILE NO.		11. MANUFACTURER'S DESIGNATION OF DRILL Vibracore		<input type="checkbox"/> AUTO HAMMER <input type="checkbox"/> MANUAL HAMMER	
4. NAME OF DRILLER Construction Solutions International, Inc.				12. TOTAL SAMPLES 3		DISTURBED 0 UNDISTURBED (UD)	
5. DIRECTION OF BORING <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED		DEG. FROM VERTICAL		13. TOTAL NUMBER CORE BOXES			
		BEARING		14. WATER DEPTH 20 Ft.			
6. THICKNESS OF OVERBURDEN N/A				15. DATE BORING 05-18-10		STARTED 05-18-10 COMPLETED 05-18-10	
7. DEPTH DRILLED INTO ROCK N/A				16. ELEVATION TOP OF BORING -18.5 Ft.			
8. TOTAL DEPTH OF BORING 18.2 Ft.				17. TOTAL RECOVERY FOR BORING 100%			
				18. SIGNATURE AND TITLE OF INSPECTOR Ed Herman, Geologist			
ELEV.	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS	SAMPLE	LABORATORY RESULTS		
-18.5	0.0						
			CLAY, fat, dark gray (CH)	A	Classification: CL    Color: 2.5Y 5/1-gray D50: mm    % Fines: 95.3		
-24.8	6.3						
			SAND, clayey, mostly fine to medium-grained sand-sized quartz, dark gray (SC)	B	Classification: SM    Color: 2.5Y 6/2-light brownish gray D50: 0.0932 mm    % Fines: 21.9		
				C	Classification: SM    Color: 2.5Y 5/2-grayish brown D50: 0.0762 mm    % Fines: 48.8		
-36.7	18.2						
			NOTES: 1. Soils are field visually classified in accordance with the Unified Soils Classification System. 2. NS = Sample not submitted for laboratory analysis from this interval. 3. Seafloor elevation calculated using sampling vessel's fathometer water depth reading and applying NOAA tidal gauge data conversion factor.				





# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.0	0.7	2.8	74.6	21.9	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
.375	100.0		
#4	100.0		
#10	99.3		
#20	97.7		
#40	96.5		
#60	94.7		
#100	92.9		
#200	21.9		

\* (no specification provided)

## Material Description

SILTY SAND, (SM), fine grained, with trace shell

## Atterberg Limits

PL=

LL=

PI=

## Coefficients

D<sub>90</sub>= 0.1414

D<sub>85</sub>= 0.1310

D<sub>60</sub>= 0.1013

D<sub>50</sub>= 0.0932

D<sub>30</sub>= 0.0798

D<sub>15</sub>=

D<sub>10</sub>=

C<sub>u</sub>=

C<sub>c</sub>=

## Classification

USCS= SM

AASHTO=

## Remarks

CADD CODE = CH10D965

Location: USACE Sample # BI-SP-22-10B  
Sample Number: TE Lab ID: 4488.49

Depth: 6.3 - 12.5 (ft.)

Date: 5/27/10

**Thompson Engineering**

**Mobile, Alabama**

Client: US Army Corps of Engineers

Project: Contract No. W91278-10-D-0026 - Task 03  
Mississippi Barrier Island Restoration Project

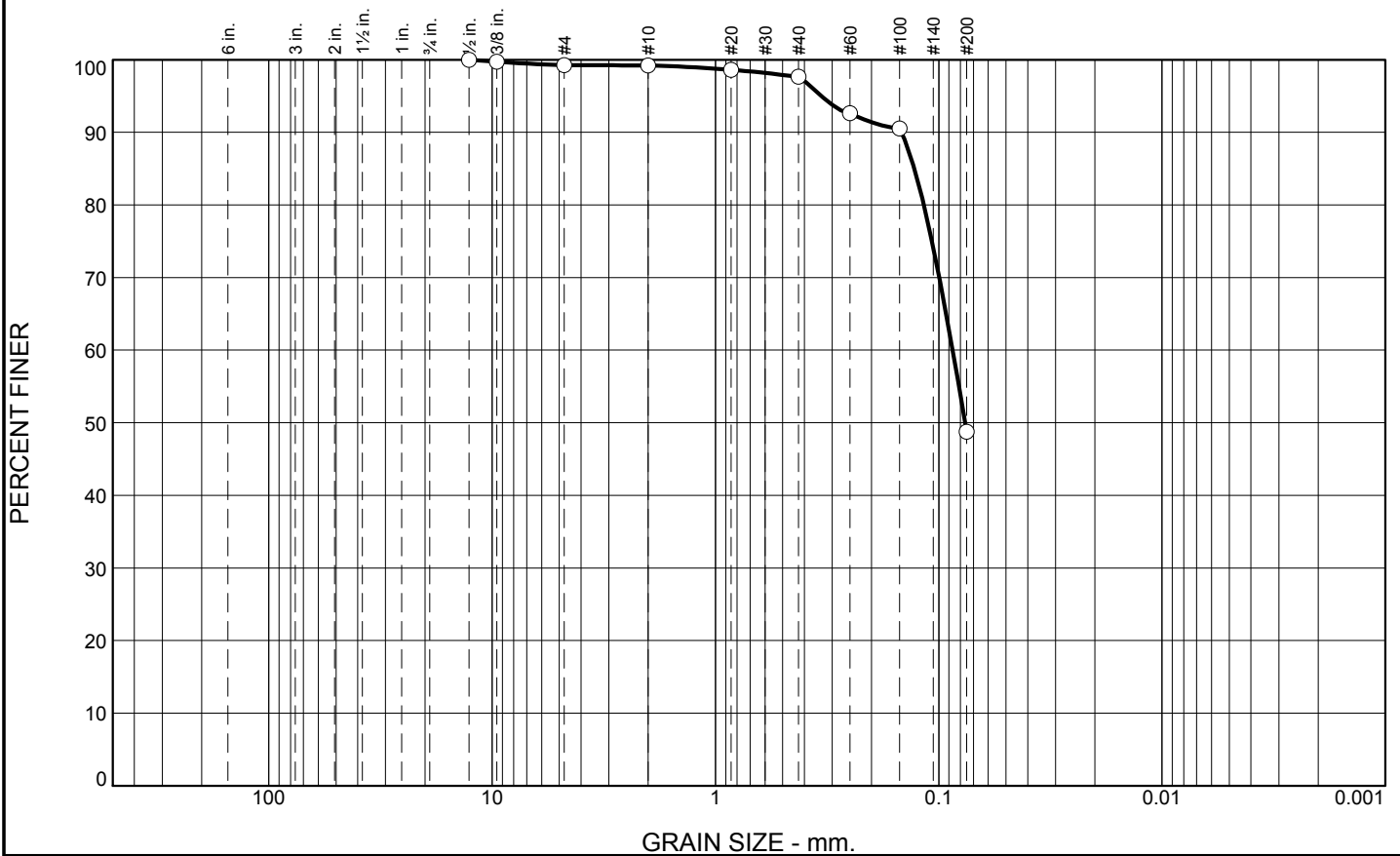
Project No: 10-2123-0009

Figure

Tested By: L.Stokes

Checked By: R.Byrd

# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.7	0.1	1.6	48.8	48.8	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
.500	100.0		
.375	99.7		
#4	99.3		
#10	99.2		
#20	98.6		
#40	97.6		
#60	92.6		
#100	90.5		
#200	48.8		

\* (no specification provided)

## Material Description

SILTY SAND, (SM), fine grained, with trace shell and clay nodules

## Atterberg Limits

PL=

LL=

PI=

## Coefficients

D<sub>90</sub>= 0.1470

D<sub>50</sub>= 0.0762

D<sub>10</sub>=

D<sub>85</sub>= 0.1286

D<sub>30</sub>=

C<sub>u</sub>=

D<sub>60</sub>= 0.0867

D<sub>15</sub>=

C<sub>c</sub>=

## Classification

USCS= SM

AASHTO=

## Remarks

CADD CODE = CH10D965

Location: USACE Sample # BI-SP-22-10C  
Sample Number: TE Lab ID: 4488.50

Depth: 12.5 - 18.2 (ft.)

Date: 5/27/10

**Thompson Engineering**

**Mobile, Alabama**

Client: US Army Corps of Engineers

Project: Contract No. W91278-10-D-0026 - Task 03  
Mississippi Barrier Island Restoration Project

Project No: 10-2123-0009

Figure

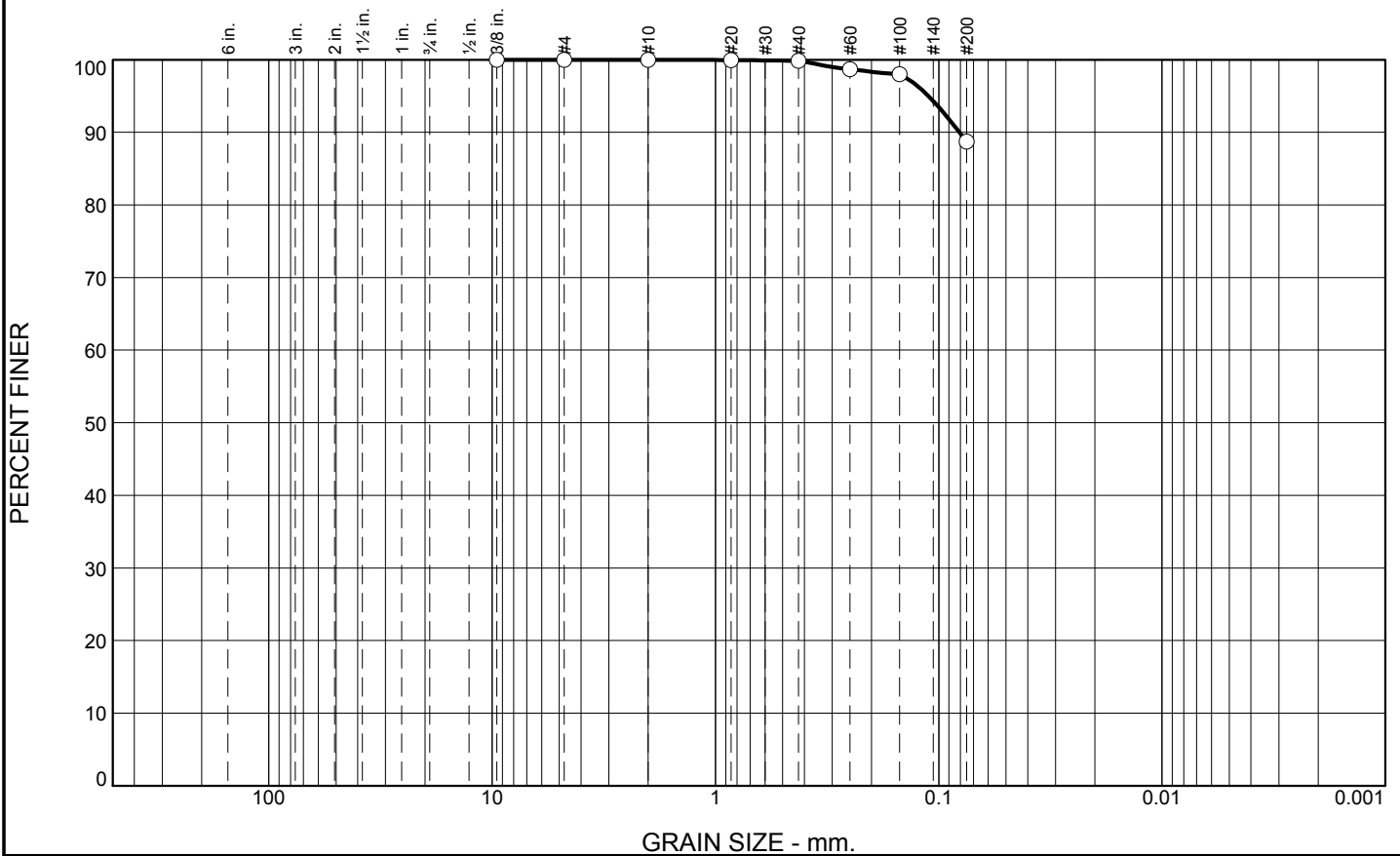
Tested By: L.Stokes

Checked By: R.Byrd

# Boring Designation BI-SP-23-10

DRILLING LOG		DIVISION South Atlantic		INSTALLATION Mobile District		SHEET 1 OF 1 SHEETS	
1. PROJECT MsCIP Barrier Island Restoration Ship Island Pass				9. SIZE AND TYPE OF BIT N/A			
2. BORING DESIGNATION BI-SP-23-10		LOCATION COORDINATES E = 924,924 N = 260,115		10. COORDINATE SYSTEM/DATUM State Plane, MSE (U.S. Ft.)		HORIZONTAL NAD83	
3. DRILLING AGENCY Corps of Engineers - CESAM		CONTRACTOR FILE NO.		11. MANUFACTURER'S DESIGNATION OF DRILL Vibracore		<input type="checkbox"/> AUTO HAMMER <input type="checkbox"/> MANUAL HAMMER	
4. NAME OF DRILLER Construction Solutions International, Inc.				12. TOTAL SAMPLES 3		UNDISTURBED (UD) 0	
5. DIRECTION OF BORING <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED				13. TOTAL NUMBER CORE BOXES		14. WATER DEPTH 21 Ft.	
6. THICKNESS OF OVERBURDEN N/A				15. DATE BORING 05-18-10		COMPLETED 05-18-10	
7. DEPTH DRILLED INTO ROCK N/A				16. ELEVATION TOP OF BORING -19.5 Ft.		17. TOTAL RECOVERY FOR BORING 100%	
8. TOTAL DEPTH OF BORING 14.9 Ft.				18. SIGNATURE AND TITLE OF INSPECTOR Ed Herman, Geologist			
ELEV.	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS	SAMPLE	LABORATORY RESULTS		
-19.5	0.0						
			CLAY, fat, dark gray (CH)	A	Classification: CL Color: 2.5Y 5/2-grayish brown D50: mm % Fines: 88.7		
-24.5	5.0						
			SAND, silty, mostly fine-grained sand-sized quartz, little shell fragments, dark gray (SM)	B	Classification: SP-SM Color: 2.5Y 61/- D50: 0.1275 mm % Fines: 11.9		
-29.0	9.5						
			SAND, clayey, mostly fine-grained sand-sized quartz, dark gray (SC)	C	Classification: SM Color: 2.5Y 5/2-grayish brown D50: 0.0943 mm % Fines: 36.9		
-34.4	14.9						
			NOTES: 1. Soils are field visually classified in accordance with the Unified Soils Classification System. 2. NS = Sample not submitted for laboratory analysis from this interval. 3. Seafloor elevation calculated using sampling vessel's fathometer water depth reading and applying NOAA tidal gauge data conversion factor.				

# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.0	0.0	0.1	11.2	88.7	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
.375	100.0		
#4	100.0		
#10	100.0		
#20	100.0		
#40	99.9		
#60	98.7		
#100	98.0		
#200	88.7		

\* (no specification provided)

**Material Description**  
CLAY, (CL)

**Atterberg Limits**  
 PL=      LL=      PI=

**Coefficients**  
 D<sub>90</sub>= 0.0808      D<sub>85</sub>=      D<sub>60</sub>=  
 D<sub>50</sub>=      D<sub>30</sub>=      D<sub>15</sub>=  
 D<sub>10</sub>=      C<sub>u</sub>=      C<sub>c</sub>=

**Classification**  
 USCS= CL      AASHTO=

**Remarks**  
 CADD CODE = CH10D965

**Location:** USACE Sample # BI-SP-23-10A  
**Sample Number:** TE Lab ID: 4488.45

**Depth:** 0.0 - 5.0 (ft.)

**Date:** 5/27/10

**Thompson Engineering**  
  
**Mobile, Alabama**

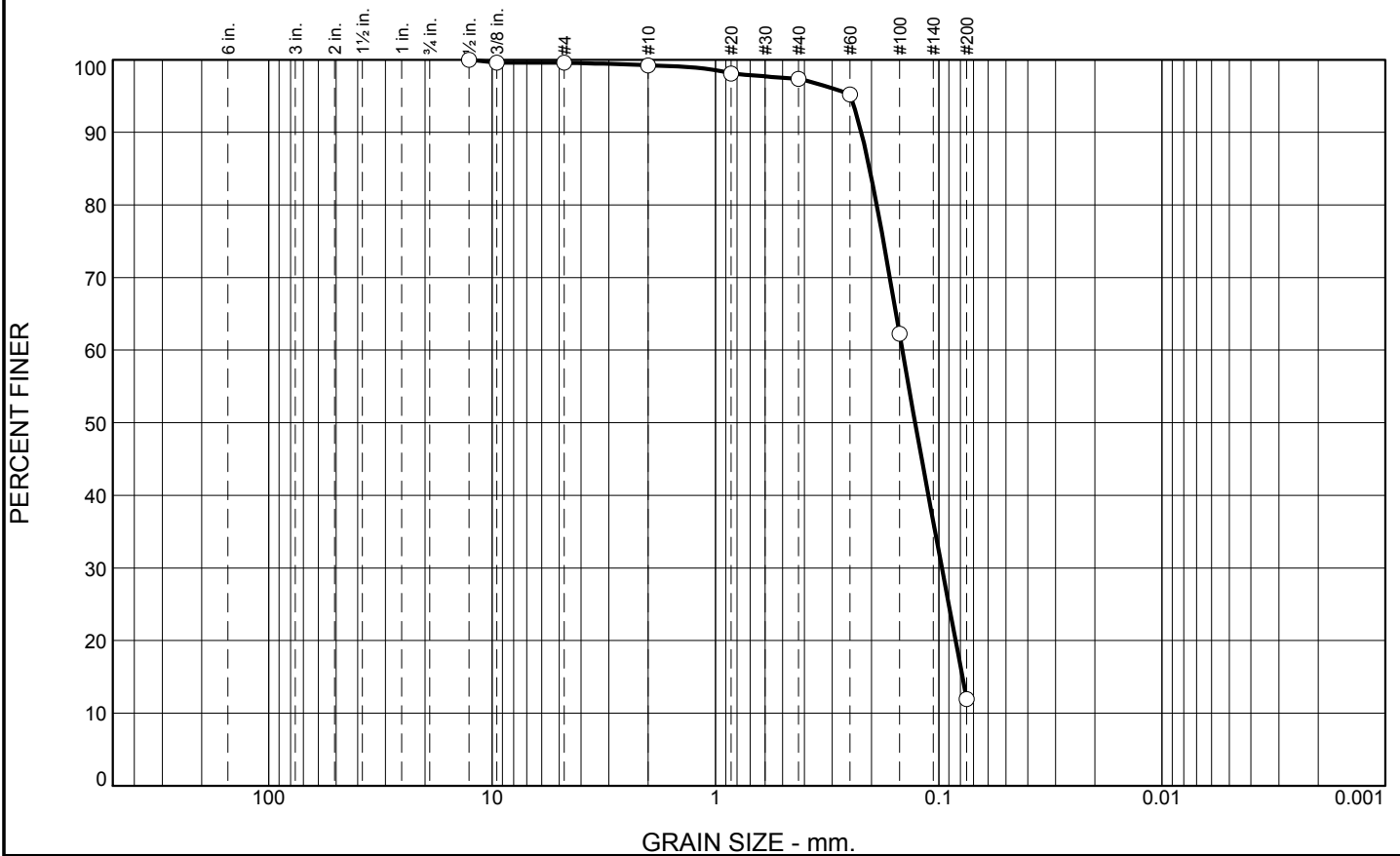
**Client:** US Army Corps of Engineers  
**Project:** Contract No. W91278-10-D-0026 - Task 03  
 Mississippi Barrier Island Restoration Project  
**Project No:** 10-2123-0009

**Figure**

**Tested By:** L.Stokes

**Checked By:** R.Byrd

# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.4	0.4	1.9	85.4	11.9	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
.500	100.0		
.375	99.6		
#4	99.6		
#10	99.2		
#20	98.1		
#40	97.3		
#60	95.2		
#100	62.3		
#200	11.9		

\* (no specification provided)

**Material Description**  
SAND, (SP-SM), medium to fine grained, with trace shell

**Atterberg Limits**  
 PL=                      LL=                      PI=

**Coefficients**  
 D<sub>90</sub>= 0.2223      D<sub>85</sub>= 0.2042      D<sub>60</sub>= 0.1456  
 D<sub>50</sub>= 0.1275      D<sub>30</sub>= 0.0968      D<sub>15</sub>= 0.0783  
 D<sub>10</sub>=                      C<sub>u</sub>=                      C<sub>c</sub>=

**Classification**  
 USCS= SP-SM                      AASHTO=

**Remarks**  
 CADD CODE = CH10D965

**Location:** USACE Sample # BI-SP-23-10B  
**Sample Number:** TE Lab ID: 4488.46

**Depth:** 5.0 - 9.5 (ft.)

**Date:** 5/27/10

**Thompson Engineering**  
  
**Mobile, Alabama**

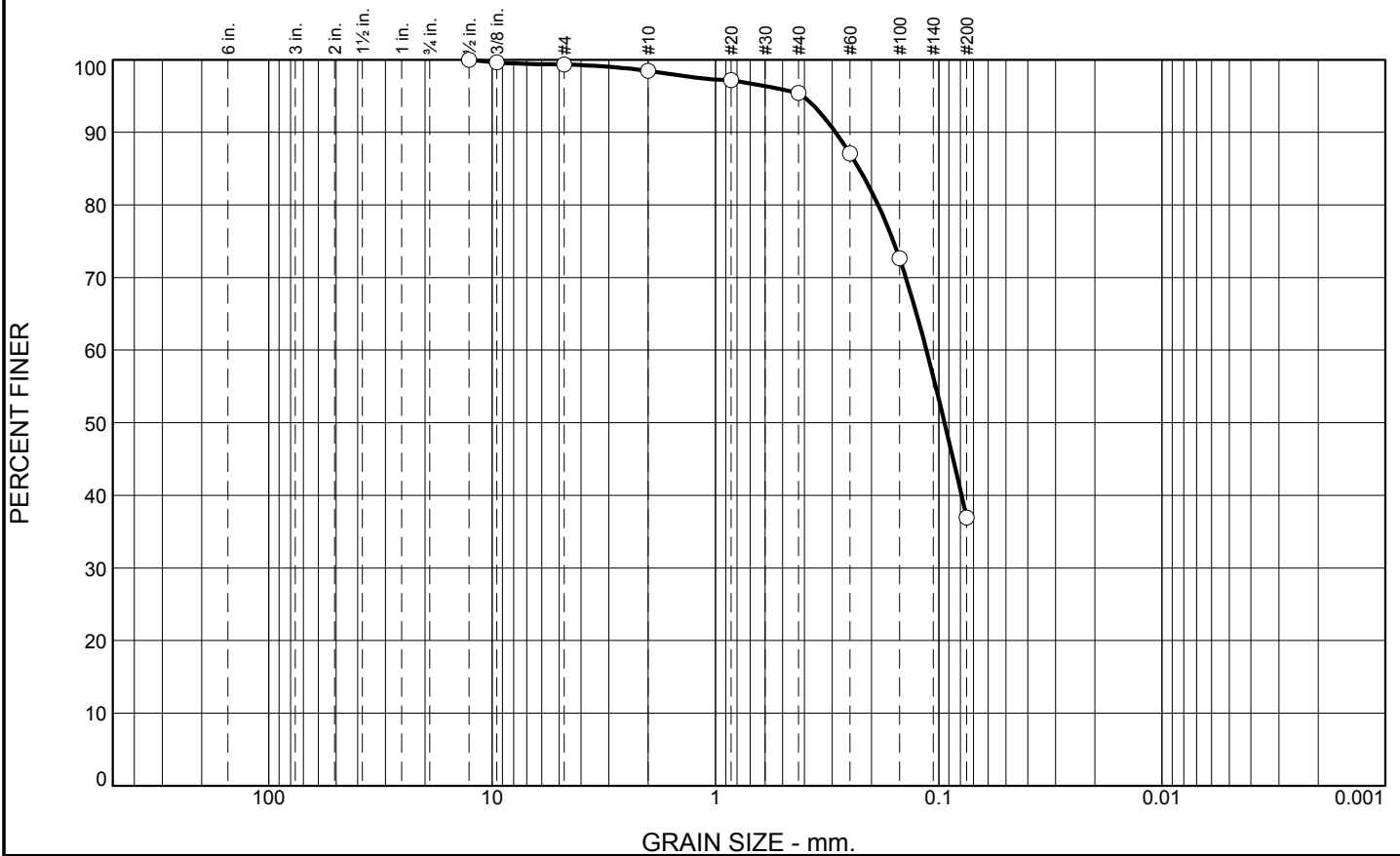
**Client:** US Army Corps of Engineers  
**Project:** Contract No. W91278-10-D-0026 - Task 03  
 Mississippi Barrier Island Restoration Project  
**Project No:** 10-2123-0009

**Figure**

**Tested By:** L.Stokes

**Checked By:** R.Byrd

# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.7	0.8	3.1	58.5	36.9	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
.500	100.0		
.375	99.6		
#4	99.3		
#10	98.5		
#20	97.2		
#40	95.4		
#60	87.1		
#100	72.6		
#200	36.9		

\* (no specification provided)

## Material Description

SILTY SAND, (SM), medium to fine grained, with trace shell and clay nodules

## Atterberg Limits

PL=

LL=

PI=

## Coefficients

D<sub>90</sub>= 0.2895

D<sub>85</sub>= 0.2273

D<sub>60</sub>= 0.1136

D<sub>50</sub>= 0.0943

D<sub>30</sub>=

D<sub>15</sub>=

D<sub>10</sub>=

C<sub>u</sub>=

C<sub>c</sub>=

## Classification

USCS= SM

AASHTO=

## Remarks

CADD CODE = CH10D965

Location: USACE Sample # BI-SP-23-10C  
Sample Number: TE Lab ID: 4488.47

Depth: 9.5 - 14.9 (ft.)

Date: 5/27/10

**Thompson Engineering**

**Mobile, Alabama**

Client: US Army Corps of Engineers

Project: Contract No. W91278-10-D-0026 - Task 03  
Mississippi Barrier Island Restoration Project

Project No: 10-2123-0009

Figure

Tested By: L.Stokes

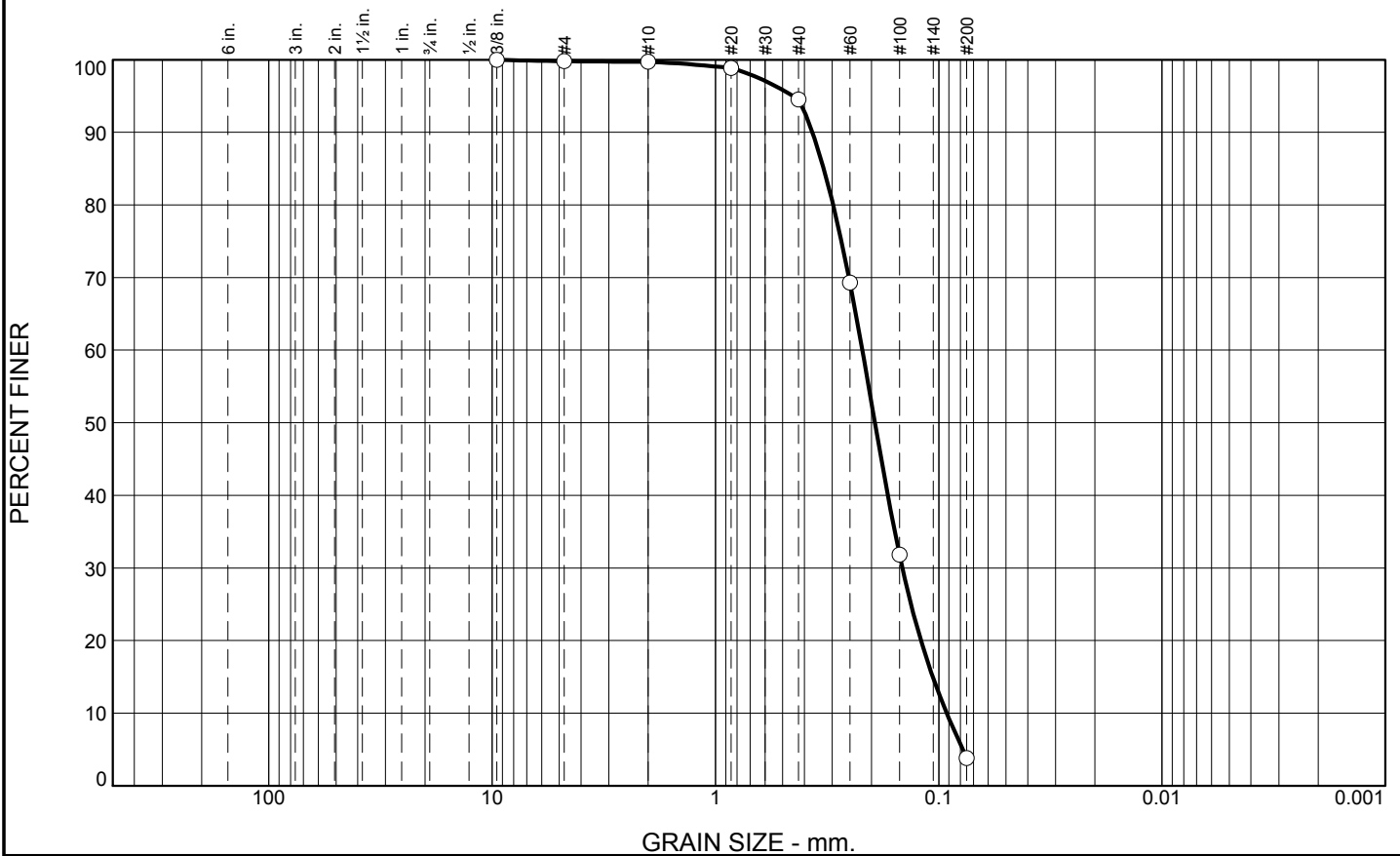
Checked By: R.Byrd

# Boring Designation BI-SP-24-10

DRILLING LOG		DIVISION South Atlantic		INSTALLATION Mobile District		SHEET 1 OF 1 SHEETS	
1. PROJECT MsCIP Barrier Island Restoration Ship Island Pass				9. SIZE AND TYPE OF BIT N/A			
2. BORING DESIGNATION BI-SP-24-10		LOCATION COORDINATES E = 925,430 N = 262,132		10. COORDINATE SYSTEM/DATUM State Plane, MSE (U.S. Ft.)		HORIZONTAL NAD83	
3. DRILLING AGENCY Corps of Engineers - CESAM		CONTRACTOR FILE NO.		11. MANUFACTURER'S DESIGNATION OF DRILL Vibracore		<input type="checkbox"/> AUTO HAMMER <input type="checkbox"/> MANUAL HAMMER	
4. NAME OF DRILLER Construction Solutions International, Inc.				12. TOTAL SAMPLES 3		DISTURBED 0	
5. DIRECTION OF BORING <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED				13. TOTAL NUMBER CORE BOXES		14. WATER DEPTH 18 Ft.	
6. THICKNESS OF OVERBURDEN N/A				15. DATE BORING 05-18-10		STARTED 05-18-10	
7. DEPTH DRILLED INTO ROCK N/A				16. ELEVATION TOP OF BORING -16.6 Ft.		COMPLETED 05-18-10	
8. TOTAL DEPTH OF BORING 14.6 Ft.				17. TOTAL RECOVERY FOR BORING 100%			
				18. SIGNATURE AND TITLE OF INSPECTOR Ed Herman, Geologist			
ELEV.	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS	SAMPLE	LABORATORY RESULTS		
-16.6	0.0						
			SAND, poorly-graded, mostly medium-grained sand-sized quartz, some shell fragments, gray (SP)	A	Classification: SP Color: 2.5Y 7/2-light gray D50: 0.1931 mm % Fines: 3.8		
				B	Classification: SP Color: 2.5Y 7/2-light gray D50: 0.1992 mm % Fines: 4		
-27.7	11.1						
			SAND, clayey, mostly fine-grained sand-sized quartz, with clay zones, dark gray (SC)	C	Classification: SM Color: 2.5Y 5/2-grayish brown D50: 0.0763 mm % Fines: 48.8		
-31.2	14.6						
			NOTES: 1. Soils are field visually classified in accordance with the Unified Soils Classification System. 2. NS = Sample not submitted for laboratory analysis from this interval. 3. Seafloor elevation calculated using sampling vessel's fathometer water depth reading and applying NOAA tidal gauge data conversion factor.				



# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.2	0.1	5.2	90.7	3.8	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
.375	100.0		
#4	99.8		
#10	99.7		
#20	98.9		
#40	94.5		
#60	69.3		
#100	31.8		
#200	3.8		

\* (no specification provided)

Material Description		
SAND, (SP). fine grained		
<div> <div> <b>Atterberg Limits</b>            LL=                       PI=         </div> <div> <b>Coefficients</b>            D<sub>90</sub>= 0.3680            D<sub>50</sub>= 0.1931            D<sub>10</sub>= 0.0921         </div> <div>           D<sub>85</sub>= 0.3272            D<sub>30</sub>= 0.1456            C<sub>u</sub>= 2.39         </div> <div>           D<sub>60</sub>= 0.2199            D<sub>15</sub>= 0.1064            C<sub>c</sub>= 1.05         </div> </div>		
<b>Classification</b> USCS= SP      AASHTO=		
<b>Remarks</b> CADD CODE = CH10D965		

Location: USACE Sample # BI-SP-24-10A  
 Sample Number: TE Lab ID: 4488.51

Depth: 0.0 - 5.0 (ft.)

Date: 5/27/10

**Thompson Engineering**  
  
**Mobile, Alabama**

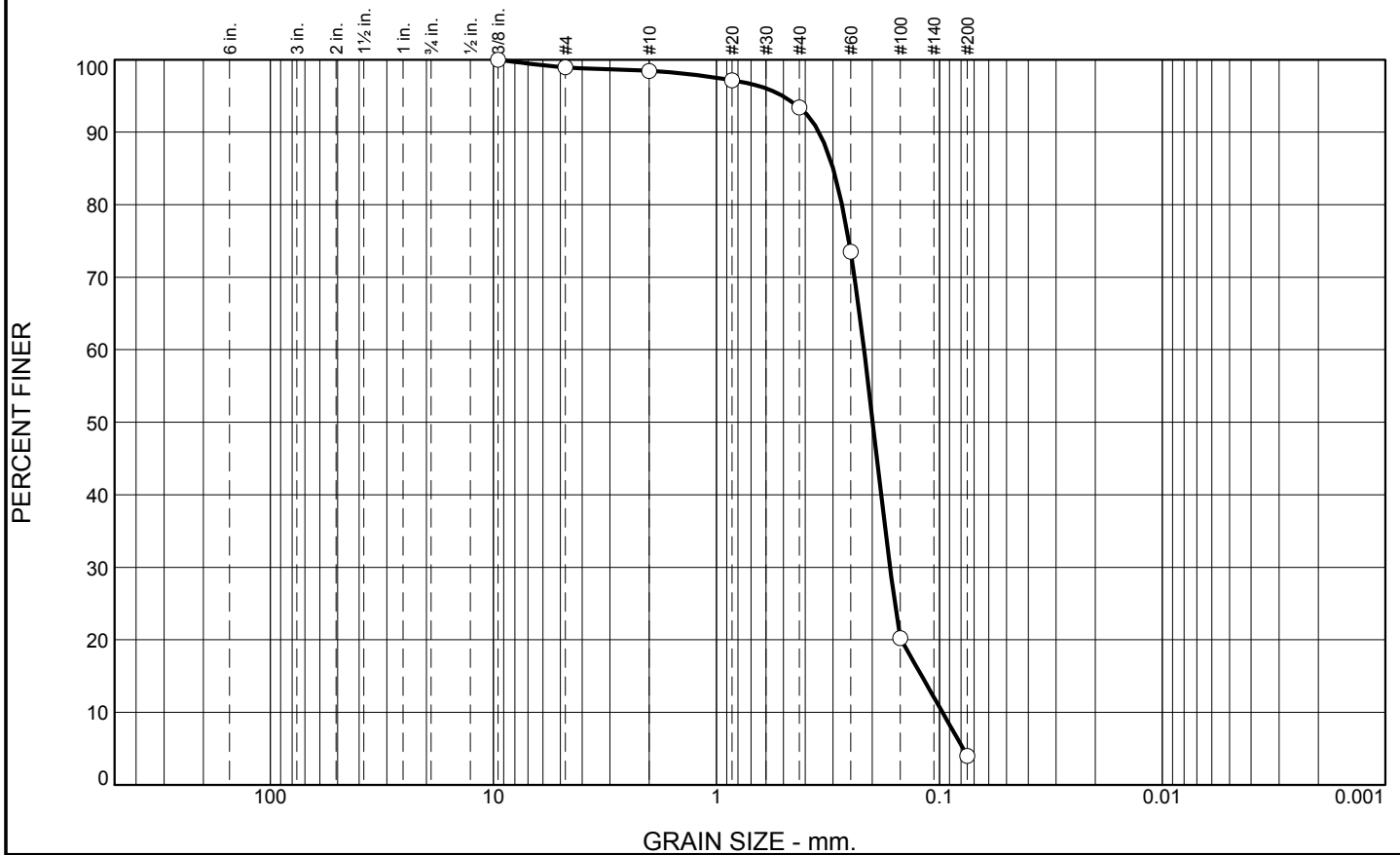
**Client:** US Army Corps of Engineers  
**Project:** Contract No. W91278-10-D-0026 - Task 03  
 Mississippi Barrier Island Restoration Project  
**Project No:** 10-2123-0009

**Figure**

Tested By: L.Stokes

Checked By: R.Byrd

# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	1.1	0.5	5.0	89.4	4.0	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
.375	100.0		
#4	98.9		
#10	98.4		
#20	97.1		
#40	93.4		
#60	73.5		
#100	20.2		
#200	4.0		

\* (no specification provided)

<u><b>Material Description</b></u>		
SAND, (SP), fine grained, with trace shell		
<u><b>Atterberg Limits</b></u>		
PL=	LL=	PI=
<u><b>Coefficients</b></u>		
D <sub>90</sub> = 0.3466	D <sub>85</sub> = 0.2998	D <sub>60</sub> = 0.2177
D <sub>50</sub> = 0.1992	D <sub>30</sub> = 0.1665	D <sub>15</sub> = 0.1200
D <sub>10</sub> = 0.0969	C <sub>u</sub> = 2.25	C <sub>c</sub> = 1.31
<u><b>Classification</b></u>		
USCS= SP	AASHTO=	
<u><b>Remarks</b></u>		
CADD CODE = CH10D965		

Location: USACE Sample # BI-SP-24-10B  
Sample Number: TE Lab ID: 4488.52

Depth: 5.0 - 11.1 (ft.)

Date: 5/27/10

**Thompson Engineering**  
**Mobile, Alabama**

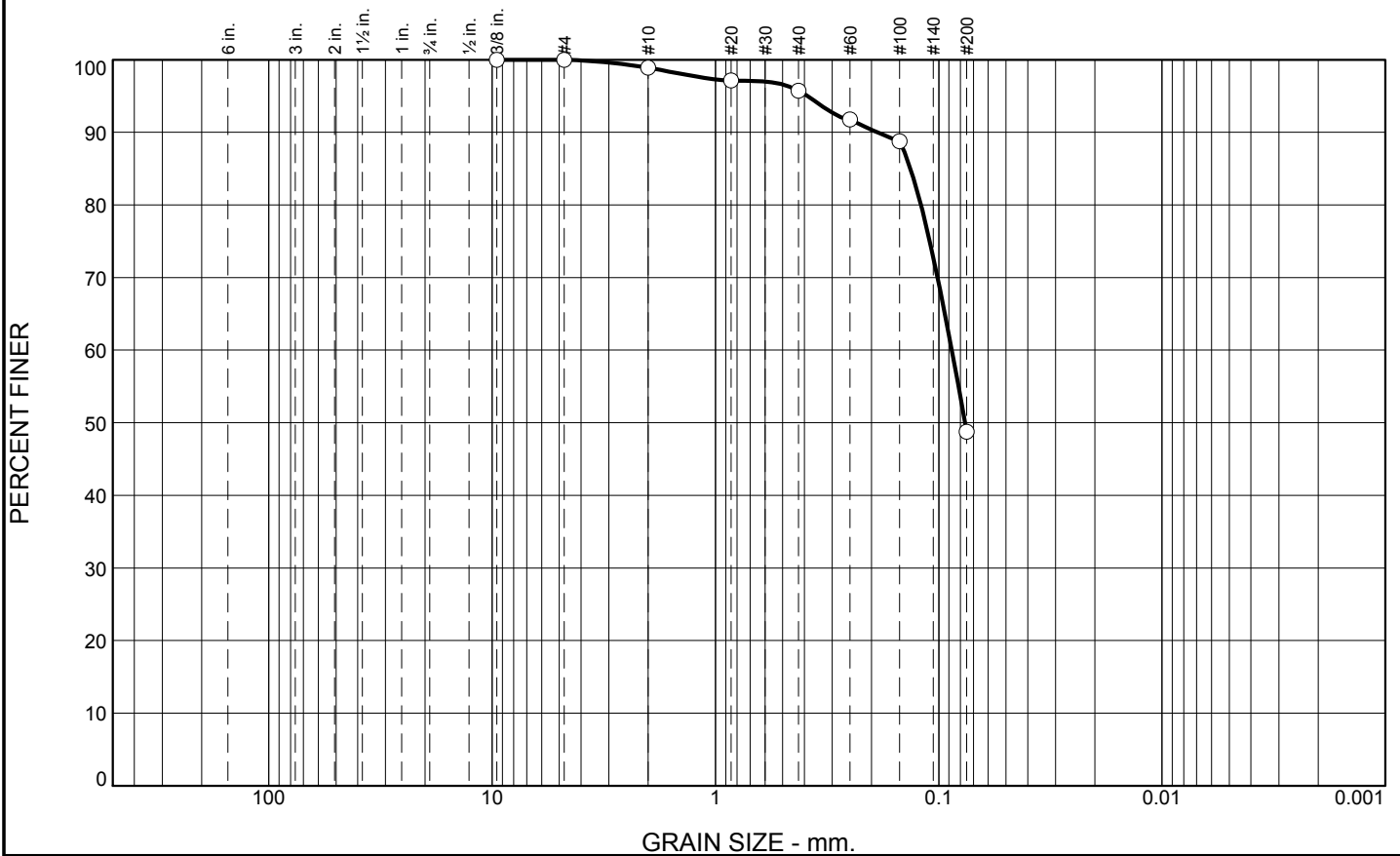
**Client:** US Army Corps of Engineers  
**Project:** Contract No. W91278-10-D-0026 - Task 03  
Mississippi Barrier Island Restoration Project  
**Project No:** 10-2123-0009

**Figure**

Tested By: L.Stokes

Checked By: R.Byrd

# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.0	1.1	3.2	46.9	48.8	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
.375	100.0		
#4	100.0		
#10	98.9		
#20	97.1		
#40	95.7		
#60	91.8		
#100	88.8		
#200	48.8		

\* (no specification provided)

**Material Description**  
SILTY SAND, (SM), fine grained, with clay nodules

**Atterberg Limits**  
 PL=      LL=      PI=

**Coefficients**  
 D<sub>90</sub>= 0.1883      D<sub>85</sub>= 0.1339      D<sub>60</sub>= 0.0875  
 D<sub>50</sub>= 0.0763      D<sub>30</sub>=      D<sub>15</sub>=  
 D<sub>10</sub>=      C<sub>u</sub>=      C<sub>c</sub>=

**Classification**  
 USCS= SM      AASHTO=

**Remarks**  
 CADD CODE = CH10D965

**Location:** USACE Sample # BI-SP-24-10C  
**Sample Number:** TE Lab ID: 4488.53

**Depth:** 11.1 - 14.6 (ft.)

**Date:** 5/27/10

**Thompson Engineering**  
  
**Mobile, Alabama**

**Client:** US Army Corps of Engineers  
**Project:** Contract No. W91278-10-D-0026 - Task 03  
 Mississippi Barrier Island Restoration Project  
**Project No:** 10-2123-0009

**Figure**

**Tested By:** L.Stokes

**Checked By:** R.Byrd

# Boring Designation BI-SP-25-10

DRILLING LOG		DIVISION South Atlantic		INSTALLATION Mobile District		SHEET 1 OF 1 SHEETS	
1. PROJECT MsCIP Barrier Island Restoration Ship Island Pass				9. SIZE AND TYPE OF BIT N/A			
2. BORING DESIGNATION BI-SP-25-10		LOCATION COORDINATES E = 932,131 N = 244,411		10. COORDINATE SYSTEM/DATUM State Plane, MSE (U.S. Ft.)		HORIZONTAL NAD83	
3. DRILLING AGENCY Corps of Engineers - CESAM		CONTRACTOR FILE NO.		11. MANUFACTURER'S DESIGNATION OF DRILL Vibracore		<input type="checkbox"/> AUTO HAMMER <input type="checkbox"/> MANUAL HAMMER	
4. NAME OF DRILLER Construction Solutions International, Inc.				12. TOTAL SAMPLES 0		DISTURBED 0	
5. DIRECTION OF BORING <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED		DEG. FROM VERTICAL		13. TOTAL NUMBER CORE BOXES			
		BEARING		14. WATER DEPTH 25.5 Ft.			
6. THICKNESS OF OVERBURDEN N/A				15. DATE BORING 06-15-10		COMPLETED 06-15-10	
7. DEPTH DRILLED INTO ROCK N/A				16. ELEVATION TOP OF BORING -24.4 Ft.			
8. TOTAL DEPTH OF BORING 13.9 Ft.				17. TOTAL RECOVERY FOR BORING 100%			
				18. SIGNATURE AND TITLE OF INSPECTOR Marty Gates, Geologist			
ELEV.	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS	SAMPLE	LABORATORY RESULTS		
-24.4	0.0						
-25.7	1.3		SAND, poorly-graded, mostly fine to medium-grained sand-sized quartz, trace silt, trace shell fragments, lt. gray (SP)				
-27.2	2.8		CLAY, lean, dark gray (CL)				
-27.8	3.4		SAND, silty, mostly fine to medium-grained sand-sized quartz, some silt, trace shell fragments, gray (SM)				
			CLAY, lean, dark gray (CL)	NS			
-38.3	13.9						
			NOTES: 1. Soils are field visually classified in accordance with the Unified Soils Classification System. 2. NS = Sample not submitted for laboratory analysis from this interval. 3. Seafloor elevation calculated using sampling vessel's fathometer water depth reading and applying NOAA tidal gauge data conversion factor.				

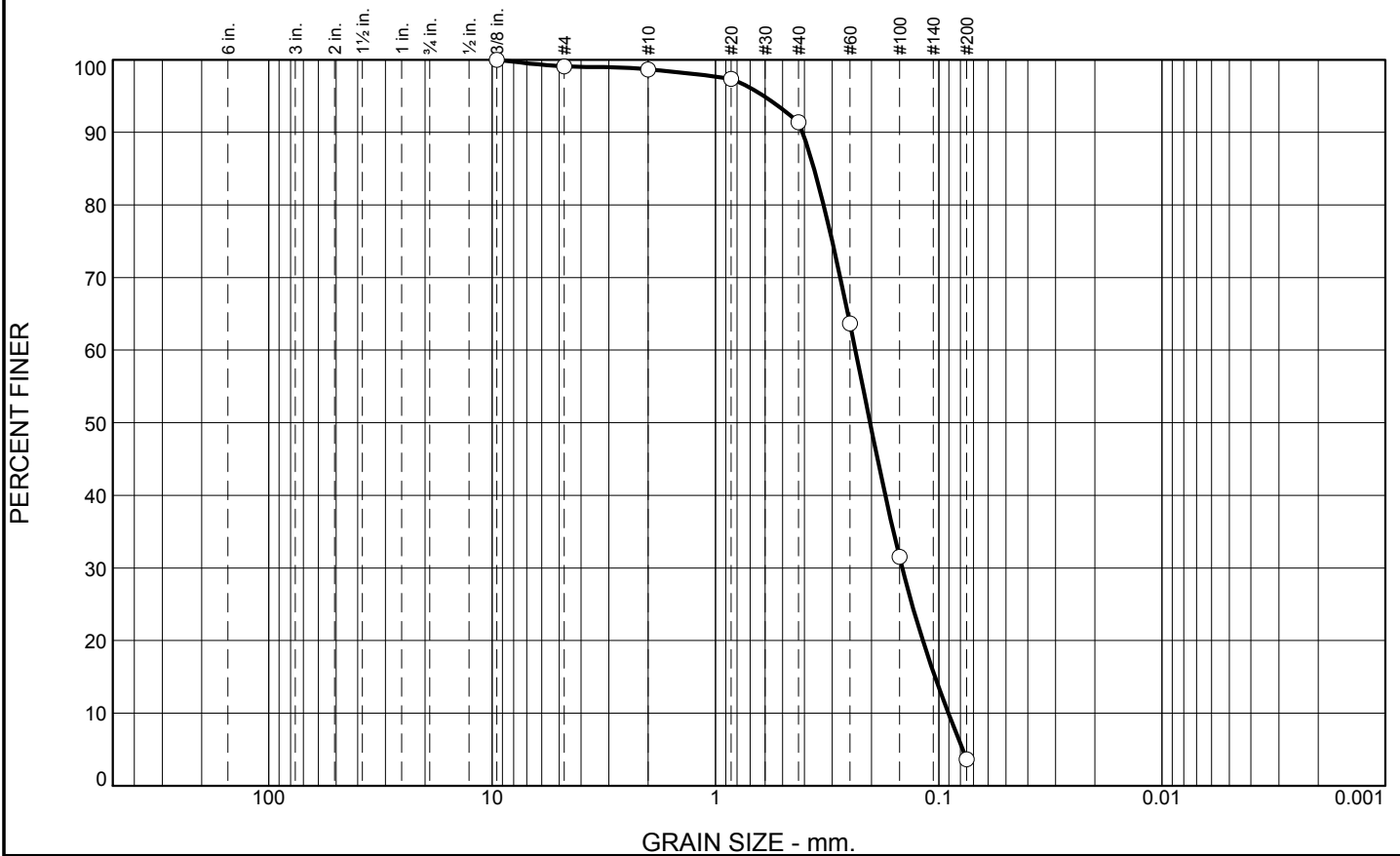
# Boring Designation BI-SP-26-10

DRILLING LOG		DIVISION South Atlantic		INSTALLATION Mobile District		SHEET 1 OF 1 SHEETS	
1. PROJECT MsCIP Barrier Island Restoration Ship Island Pass				9. SIZE AND TYPE OF BIT N/A			
2. BORING DESIGNATION BI-SP-26-10		LOCATION COORDINATES E = 939,073 N = 236,611		10. COORDINATE SYSTEM/DATUM State Plane, MSE (U.S. Ft.)		HORIZONTAL NAD83 VERTICAL NAVD88	
3. DRILLING AGENCY Corps of Engineers - CESAM		CONTRACTOR FILE NO.		11. MANUFACTURER'S DESIGNATION OF DRILL Vibracore		<input type="checkbox"/> AUTO HAMMER <input type="checkbox"/> MANUAL HAMMER	
4. NAME OF DRILLER Construction Solutions International, Inc.				12. TOTAL SAMPLES		DISTURBED 0 UNDISTURBED (UD) 0	
5. DIRECTION OF BORING <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED		DEG. FROM VERTICAL		BEARING		13. TOTAL NUMBER CORE BOXES	
6. THICKNESS OF OVERBURDEN N/A				14. WATER DEPTH 26 Ft.			
7. DEPTH DRILLED INTO ROCK N/A				15. DATE BORING		STARTED 06-15-10 COMPLETED 06-15-10	
8. TOTAL DEPTH OF BORING 12.9 Ft.				16. ELEVATION TOP OF BORING -24.9 Ft.			
				17. TOTAL RECOVERY FOR BORING 100%			
				18. SIGNATURE AND TITLE OF INSPECTOR Marty Gates, Geologist			
ELEV.	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS	SAMPLE	LABORATORY RESULTS		
-24.9	0.0		CLAY, lean, dark gray (CL)	NS			
-37.8	12.9		NOTES: 1. Soils are field visually classified in accordance with the Unified Soils Classification System. 2. NS = Sample not submitted for laboratory analysis from this interval. 3. Seafloor elevation calculated using sampling vessel's fathometer water depth reading and applying NOAA tidal gauge data conversion factor.				

# Boring Designation BI-SP-27-10

DRILLING LOG		DIVISION South Atlantic		INSTALLATION Mobile District		SHEET 1 OF 1 SHEETS	
1. PROJECT MsCIP Barrier Island Restoration Ship Island Pass				9. SIZE AND TYPE OF BIT N/A			
2. BORING DESIGNATION BI-SP-27-10		LOCATION COORDINATES E = 928,599 N = 259,298		10. COORDINATE SYSTEM/DATUM State Plane, MSE (U.S. Ft.)		HORIZONTAL NAD83 VERTICAL NAVD88	
3. DRILLING AGENCY Corps of Engineers - CESAM		CONTRACTOR FILE NO.		11. MANUFACTURER'S DESIGNATION OF DRILL Vibrocure		<input type="checkbox"/> AUTO HAMMER <input type="checkbox"/> MANUAL HAMMER	
4. NAME OF DRILLER Construction Solutions International, Inc.				12. TOTAL SAMPLES 2		DISTURBED 0 UNDISTURBED (UD)	
5. DIRECTION OF BORING <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED		DEG. FROM VERTICAL		13. TOTAL NUMBER CORE BOXES			
		BEARING		14. WATER DEPTH 17 Ft.			
6. THICKNESS OF OVERBURDEN N/A				15. DATE BORING 05-18-10		STARTED 05-18-10 COMPLETED 05-18-10	
7. DEPTH DRILLED INTO ROCK N/A				16. ELEVATION TOP OF BORING -15.5 Ft.			
8. TOTAL DEPTH OF BORING 13.7 Ft.				17. TOTAL RECOVERY FOR BORING 100%			
				18. SIGNATURE AND TITLE OF INSPECTOR Ed Herman, Geologist			
ELEV.	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS	SAMPLE	LABORATORY RESULTS		
-15.5	0.0						
			SAND, poorly-graded, mostly medium-grained sand-sized quartz, some shell fragments, occasional clay balls, gray (SP)	A	Classification: SP Color: 2.5Y 7/1-light gray D50: 0.203 mm % Fines: 3.6		
-21.0	5.5						
			CLAY, fat, dark gray (CH)	B	Classification: CL Color: 2.5Y 5/2-grayish brown D50: mm % Fines: 70.8		
-29.2	13.7						
			NOTES: 1. Soils are field visually classified in accordance with the Unified Soils Classification System. 2. NS = Sample not submitted for laboratory analysis from this interval. 3. Seafloor elevation calculated using sampling vessel's fathometer water depth reading and applying NOAA tidal gauge data conversion factor.				

# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.9	0.5	7.2	87.8	3.6	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
.375	100.0		
#4	99.1		
#10	98.6		
#20	97.4		
#40	91.4		
#60	63.7		
#100	31.5		
#200	3.6		

\* (no specification provided)

Material Description		
SAND, (SP), fine grained, with trace shell		
<div> <div> <b>Atterberg Limits</b>            PL=      LL=      PI=         </div> <div> <b>Coefficients</b>            D<sub>90</sub>= 0.4082      D<sub>85</sub>= 0.3618      D<sub>60</sub>= 0.2363            D<sub>50</sub>= 0.2030      D<sub>30</sub>= 0.1458      D<sub>15</sub>= 0.1040            D<sub>10</sub>= 0.0905      C<sub>u</sub>= 2.61      C<sub>c</sub>= 0.99         </div> <div> <b>Classification</b>            USCS= SP      AASHTO=         </div> <div> <b>Remarks</b>            CADD CODE = CH10D965         </div> </div>		

Location: USACE Sample # BI-SP-27-10A  
Sample Number: TE Lab ID: 4488.43

Depth: 0.0 - 5.5 (ft.)

Date: 5/27/10

**Thompson Engineering**  
**Mobile, Alabama**

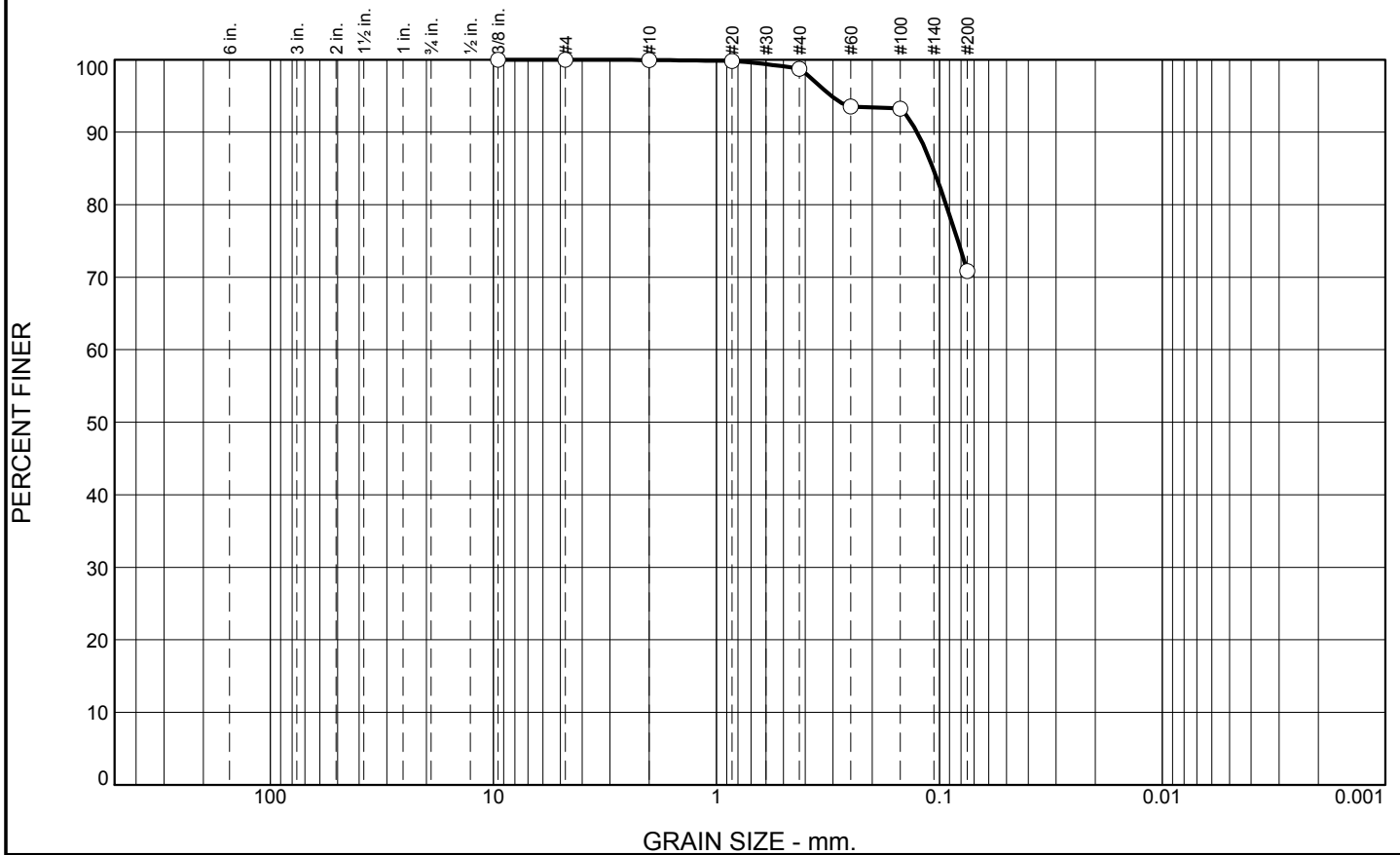
**Client:** US Army Corps of Engineers  
**Project:** Contract No. W91278-10-D-0026 - Task 03  
Mississippi Barrier Island Restoration Project  
**Project No:** 10-2123-0009

**Figure**

Tested By: L.Stokes

Checked By: R.Byrd

# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.0	0.0	1.3	27.9	70.8	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
.375	100.0		
#4	100.0		
#10	100.0		
#20	99.8		
#40	98.7		
#60	93.5		
#100	93.3		
#200	70.8		

\* (no specification provided)

## Material Description

CLAY, (CL)

## Atterberg Limits

PL=

LL=

PI=

## Coefficients

D<sub>90</sub>= 0.1259

D<sub>85</sub>= 0.1067

D<sub>60</sub>=

D<sub>50</sub>=

D<sub>30</sub>=

D<sub>15</sub>=

D<sub>10</sub>=

C<sub>u</sub>=

C<sub>c</sub>=

## Classification

USCS= CL

AASHTO=

## Remarks

CADD CODE = CH10D965

Location: USACE Sample # BI-SP-27-10B  
Sample Number: TE Lab ID: 4488.44

Depth: 5.5 - 13.7 (ft.)

Date: 5/27/10

**Thompson Engineering**

**Mobile, Alabama**

**Client:** US Army Corps of Engineers

**Project:** Contract No. W91278-10-D-0026 - Task 03  
Mississippi Barrier Island Restoration Project

**Project No:** 10-2123-0009

**Figure**

Tested By: L.Stokes

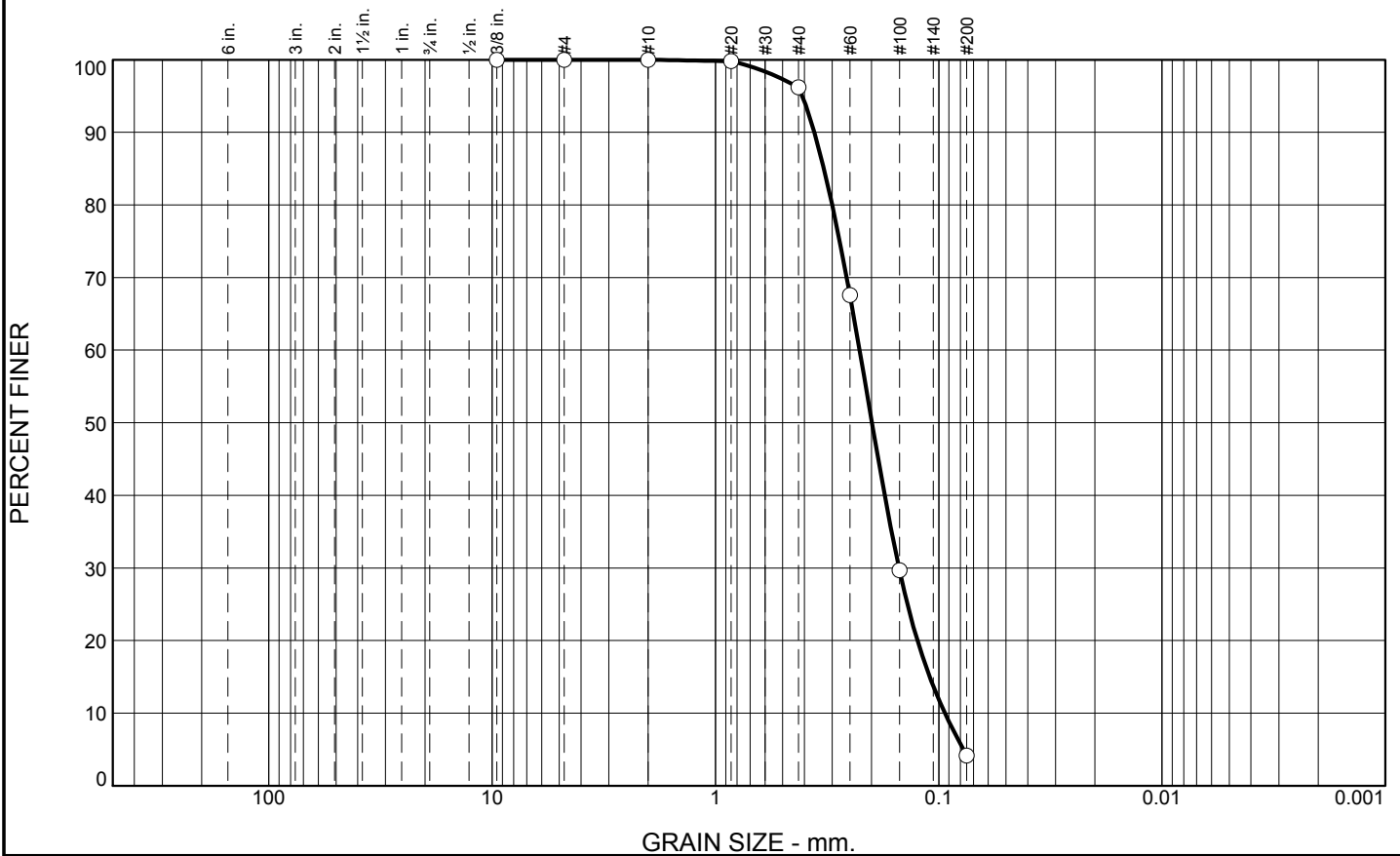
Checked By: R.Byrd



# Boring Designation BI-SP-28-10

DRILLING LOG		DIVISION South Atlantic		INSTALLATION Mobile District		SHEET 1 OF 1 SHEETS	
1. PROJECT MsCIP Barrier Island Restoration Ship Island Pass				9. SIZE AND TYPE OF BIT N/A			
2. BORING DESIGNATION BI-SP-28-10		LOCATION COORDINATES E = 930,677 N = 254,607		10. COORDINATE SYSTEM/DATUM State Plane, MSE (U.S. Ft.)		HORIZONTAL NAD83 VERTICAL NAVD88	
3. DRILLING AGENCY Corps of Engineers - CESAM		CONTRACTOR FILE NO.		11. MANUFACTURER'S DESIGNATION OF DRILL Vibrocure		<input type="checkbox"/> AUTO HAMMER <input type="checkbox"/> MANUAL HAMMER	
4. NAME OF DRILLER Construction Solutions International, Inc.				12. TOTAL SAMPLES 3		DISTURBED 3 UNDISTURBED (UD) 0	
5. DIRECTION OF BORING <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED		DEG. FROM VERTICAL		13. TOTAL NUMBER CORE BOXES			
		BEARING		14. WATER DEPTH 19 Ft.			
6. THICKNESS OF OVERBURDEN N/A				15. DATE BORING 05-18-10		STARTED 05-18-10 COMPLETED 05-18-10	
7. DEPTH DRILLED INTO ROCK N/A				16. ELEVATION TOP OF BORING -17.6 Ft.			
8. TOTAL DEPTH OF BORING 16.5 Ft.				17. TOTAL RECOVERY FOR BORING 100%			
				18. SIGNATURE AND TITLE OF INSPECTOR Ed Herman, Geologist			
ELEV.	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS	SAMPLE	LABORATORY RESULTS		
-17.6	0.0						
-21.9	4.3		SAND, poorly-graded, mostly fine to medium-grained sand-sized quartz, some shell fragments, gray (SP)	A	Classification: SP Color: 2.5Y 7/1-light gray D50: 0.1991 mm % Fines: 4.2		
-26.6	9.0		SAND, poorly-graded, mostly fine to medium-grained sand-sized quartz, some shell fragments, gray (SP)	B	Classification: SP Color: 2.5Y 7/2-light gray D50: 0.2619 mm % Fines: 3.8		
-34.1	16.5		CLAY, fat, occasional sand, dark gray (CH)	C	Classification: CL Color: 2.5Y 5/2-grayish brown D50: mm % Fines: 77.5		
			NOTES: 1. Soils are field visually classified in accordance with the Unified Soils Classification System. 2. NS = Sample not submitted for laboratory analysis from this interval. 3. Seafloor elevation calculated using sampling vessel's fathometer water depth reading and applying NOAA tidal gauge data conversion factor.				

# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.0	0.0	3.8	92.0	4.2	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
.375	100.0		
#4	100.0		
#10	100.0		
#20	99.8		
#40	96.2		
#60	67.6		
#100	29.7		
#200	4.2		

\* (no specification provided)

Material Description		
SAND, (SP), fine grained		
<div> <div> <b>Atterberg Limits</b>            PL=      LL=      PI=         </div> <div> <b>Coefficients</b>            D<sub>90</sub>= 0.3608      D<sub>85</sub>= 0.3269      D<sub>60</sub>= 0.2262            D<sub>50</sub>= 0.1991      D<sub>30</sub>= 0.1507      D<sub>15</sub>= 0.1099            D<sub>10</sub>= 0.0939      C<sub>u</sub>= 2.41      C<sub>c</sub>= 1.07         </div> <div> <b>Classification</b>            USCS= SP      AASHTO=         </div> <div> <b>Remarks</b>            CADD CODE = CH10D965         </div> </div>		

Location: USACE Sample # BI-SP-28-10A  
Sample Number: TE Lab ID: 4488.40

Depth: 0.0 - 4.3 (ft.)

Date: 5/27/10

**Thompson Engineering**  
**Mobile, Alabama**

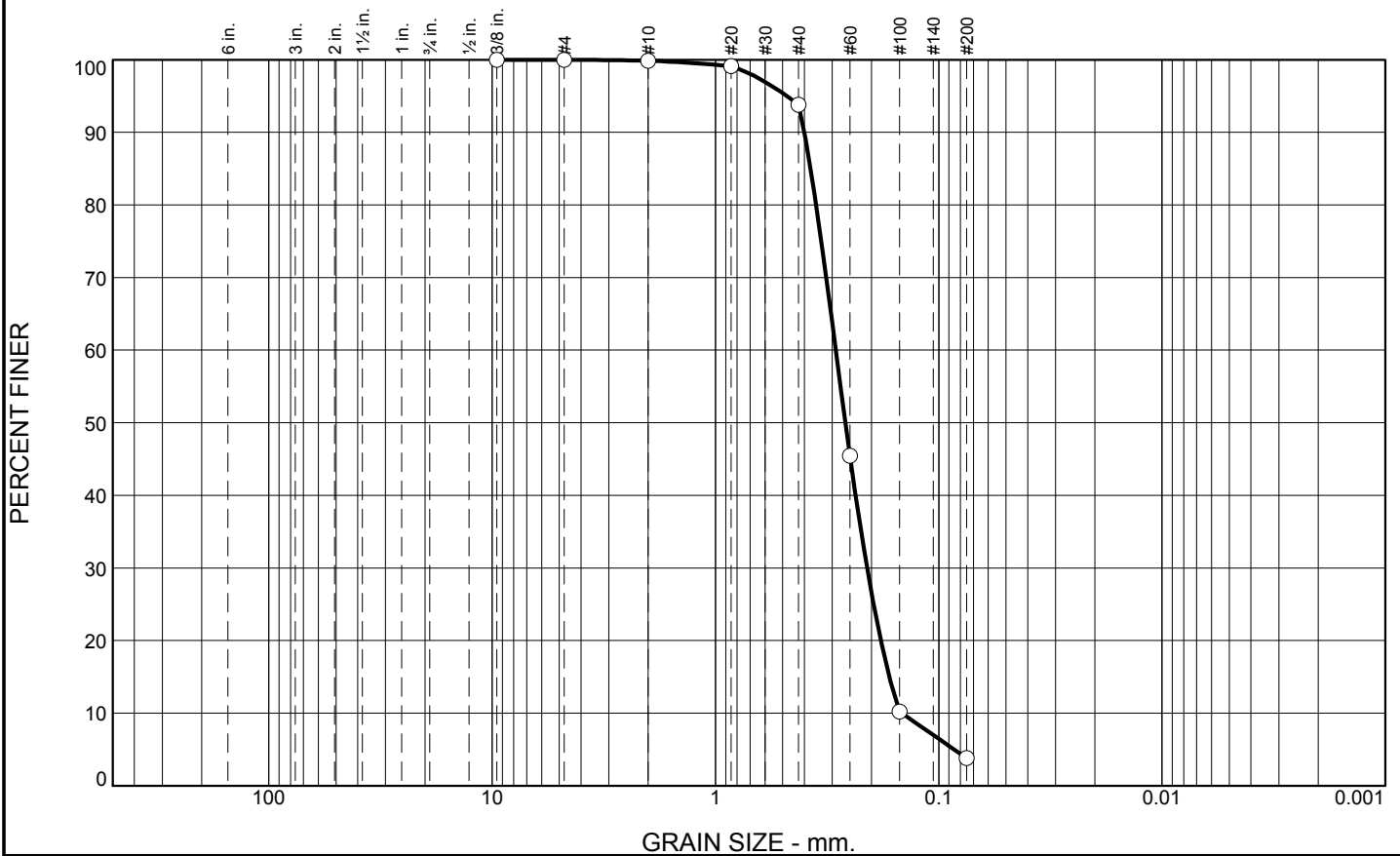
**Client:** US Army Corps of Engineers  
**Project:** Contract No. W91278-10-D-0026 - Task 03  
Mississippi Barrier Island Restoration Project  
**Project No:** 10-2123-0009

**Figure**

Tested By: L.Stokes

Checked By: R.Byrd

# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.0	0.1	6.1	90.0	3.8	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
.375	100.0		
#4	100.0		
#10	99.9		
#20	99.1		
#40	93.8		
#60	45.5		
#100	10.2		
#200	3.8		

\* (no specification provided)

<u><b>Material Description</b></u>		
SAND, (SP), fine grained, with clay nodules		
<u><b>Atterberg Limits</b></u>		
PL=	LL=	PI=
<u><b>Coefficients</b></u>		
D <sub>90</sub> = 0.4007	D <sub>85</sub> = 0.3753	D <sub>60</sub> = 0.2891
D <sub>50</sub> = 0.2619	D <sub>30</sub> = 0.2094	D <sub>15</sub> = 0.1665
D <sub>10</sub> = 0.1466	C <sub>u</sub> = 1.97	C <sub>c</sub> = 1.03
<u><b>Classification</b></u>		
USCS= SP	AASHTO=	
<u><b>Remarks</b></u>		
CADD CODE = CH10D965		

Location: USACE Sample # BI-SP-28-10B  
Sample Number: TE Lab ID: 4488.41

Depth: 4.3 - 9.0 (ft.)

Date: 5/27/10

**Thompson Engineering**  
**Mobile, Alabama**

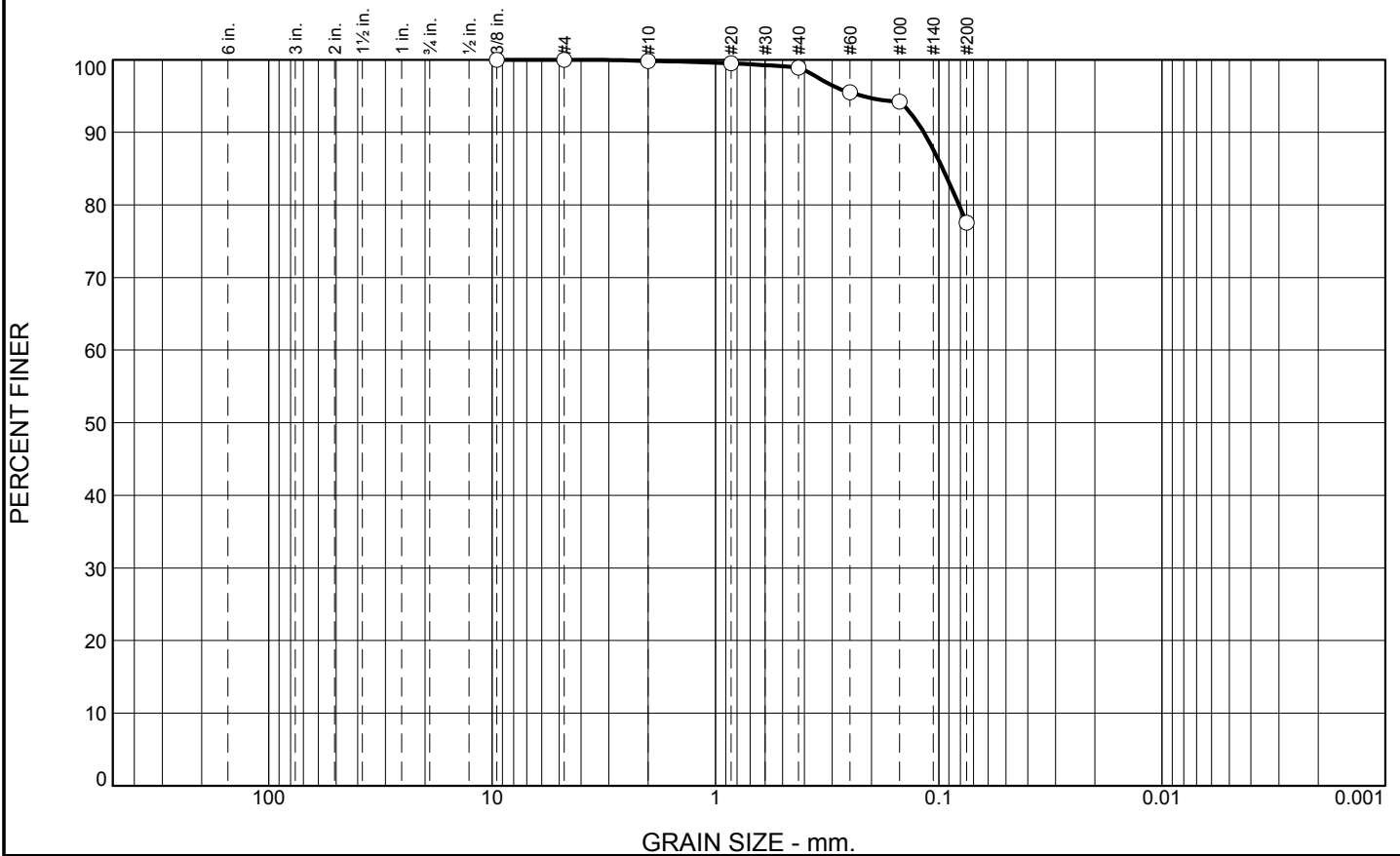
**Client:** US Army Corps of Engineers  
**Project:** Contract No. W91278-10-D-0026 - Task 03  
Mississippi Barrier Island Restoration Project  
**Project No:** 10-2123-0009

**Figure**

Tested By: L.Stokes

Checked By: R.Byrd

# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.0	0.2	0.9	21.4	77.5	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
.375	100.0		
#4	100.0		
#10	99.8		
#20	99.5		
#40	98.9		
#60	95.5		
#100	94.2		
#200	77.5		

\* (no specification provided)

**Material Description**  
CLAY, (CL)

**Atterberg Limits**  
 PL=      LL=      PI=

**Coefficients**  
 D<sub>90</sub>= 0.1167      D<sub>85</sub>= 0.0961      D<sub>60</sub>=  
 D<sub>50</sub>=      D<sub>30</sub>=      D<sub>15</sub>=  
 D<sub>10</sub>=      C<sub>u</sub>=      C<sub>c</sub>=

**Classification**  
 USCS= CL      AASHTO=

**Remarks**  
 CADD CODE = CH10D965

**Location:** USACE Sample # BI-SP-28-10C  
**Sample Number:** TE Lab ID: 4488.42

**Depth:** 9.0 - 16.5 (ft.)

**Date:** 5/27/10

**Thompson Engineering**  
  
**Mobile, Alabama**

**Client:** US Army Corps of Engineers  
**Project:** Contract No. W91278-10-D-0026 - Task 03  
 Mississippi Barrier Island Restoration Project  
**Project No:** 10-2123-0009

**Figure**

**Tested By:** L.Stokes

**Checked By:** R.Byrd

# Boring Designation BI-SP-29-10

DRILLING LOG		DIVISION South Atlantic		INSTALLATION Mobile District		SHEET 1 OF 2 SHEETS	
1. PROJECT MsCIP Barrier Island Restoration Ship Island Pass				9. SIZE AND TYPE OF BIT N/A			
2. BORING DESIGNATION BI-SP-29-10		LOCATION COORDINATES E = 924,978 N = 258,216		10. COORDINATE SYSTEM/DATUM State Plane, MSE (U.S. Ft.)		HORIZONTAL NAD83 VERTICAL NAVD88	
3. DRILLING AGENCY Corps of Engineers - CESAM		CONTRACTOR FILE NO.		11. MANUFACTURER'S DESIGNATION OF DRILL Vibracore		<input type="checkbox"/> AUTO HAMMER <input type="checkbox"/> MANUAL HAMMER	
4. NAME OF DRILLER Construction Solutions International, Inc.				12. TOTAL SAMPLES		DISTURBED UNDISTURBED (UD) 0	
5. DIRECTION OF BORING <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED		DEG. FROM VERTICAL		13. TOTAL NUMBER CORE BOXES			
		BEARING		14. WATER DEPTH 20 Ft.			
6. THICKNESS OF OVERBURDEN N/A				15. DATE BORING		STARTED 06-17-10 COMPLETED 06-17-10	
7. DEPTH DRILLED INTO ROCK N/A				16. ELEVATION TOP OF BORING -19.3 Ft.			
8. TOTAL DEPTH OF BORING 19.7 Ft.				17. TOTAL RECOVERY FOR BORING 100%			
				18. SIGNATURE AND TITLE OF INSPECTOR Brad Johnson, Geologist			
ELEV.	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS	SAMPLE	LABORATORY RESULTS		
-19.3	0.0		CLAY, lean, dark gray (CL)				
			At El. -29.4 Ft., trace silt, dark gray	NS			
			At El. -34.6 Ft., trace fine-grained sand-sized quartz, trace silt, gray				
-37.7	18.4						
-39.0	19.7		SAND, poorly-graded, mostly fine-grained sand-sized quartz (SP)				
			NOTES: 1. Soils are field visually classified in accordance with the Unified Soils Classification System. 2. NS = Sample not submitted for laboratory analysis from this interval. 3. Seafloor elevation calculated using sampling vessel's fathometer water depth reading and				

<b>DRILLING LOG (Cont. Sheet)</b>			<b>INSTALLATION</b> Mobile District		<b>SHEET 2</b> <b>OF 2 SHEETS</b>
<b>PROJECT</b> MsCIP Barrier Island Restoration			<b>COORDINATE SYSTEM/DATUM</b> State Plane, MSE (U.S. Ft.)	<b>HORIZONTAL</b> NAD83	<b>VERTICAL</b> NAVD88
<b>LOCATION COORDINATES</b> X = 924,978 Y = 258,216			<b>ELEVATION TOP OF BORING</b> -19.3 Ft.		
<b>ELEV.</b>	<b>DEPTH</b>	<b>LEGEND</b>	<b>CLASSIFICATION OF MATERIALS</b>	<b>SAMPLE</b>	<b>LABORATORY RESULTS</b>
			applying NOAA tidal gauge data conversion factor.		

# Boring Designation BI-SP-30-10

DRILLING LOG		DIVISION South Atlantic		INSTALLATION Mobile District		SHEET 1 OF 1 SHEETS	
1. PROJECT MsCIP Barrier Island Restoration Ship Island Pass				9. SIZE AND TYPE OF BIT N/A			
2. BORING DESIGNATION BI-SP-30-10		LOCATION COORDINATES E = 921,838 N = 254,447		10. COORDINATE SYSTEM/DATUM State Plane, MSE (U.S. Ft.)		HORIZONTAL NAD83 VERTICAL NAVD88	
3. DRILLING AGENCY Corps of Engineers - CESAM		CONTRACTOR FILE NO.		11. MANUFACTURER'S DESIGNATION OF DRILL Vibracore		<input type="checkbox"/> AUTO HAMMER <input type="checkbox"/> MANUAL HAMMER	
4. NAME OF DRILLER Construction Solutions International, Inc.				12. TOTAL SAMPLES		DISTURBED UNDISTURBED (UD) 0	
5. DIRECTION OF BORING <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED		DEG. FROM VERTICAL		13. TOTAL NUMBER CORE BOXES			
		BEARING		14. WATER DEPTH 22 Ft.			
6. THICKNESS OF OVERBURDEN N/A				15. DATE BORING 06-17-10		STARTED COMPLETED 06-17-10	
7. DEPTH DRILLED INTO ROCK N/A				16. ELEVATION TOP OF BORING -21.4 Ft.			
8. TOTAL DEPTH OF BORING 12.8 Ft.				17. TOTAL RECOVERY FOR BORING 100%			
				18. SIGNATURE AND TITLE OF INSPECTOR Brad Johnson, Geologist			
ELEV.	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS	SAMPLE	LABORATORY RESULTS		
-21.4	0.0		CLAY, lean, some fine-grained sand-sized quartz, some silt, dark gray (CL)	NS			
-32.6	11.2						
-34.2	12.8		SAND, silty, some fine-grained sand-sized quartz, some silt, gray (SM)				
			NOTES: 1. Soils are field visually classified in accordance with the Unified Soils Classification System. 2. NS = Sample not submitted for laboratory analysis from this interval. 3. Seafloor elevation calculated using sampling vessel's fathometer water depth reading and applying NOAA tidal gauge data conversion factor.				

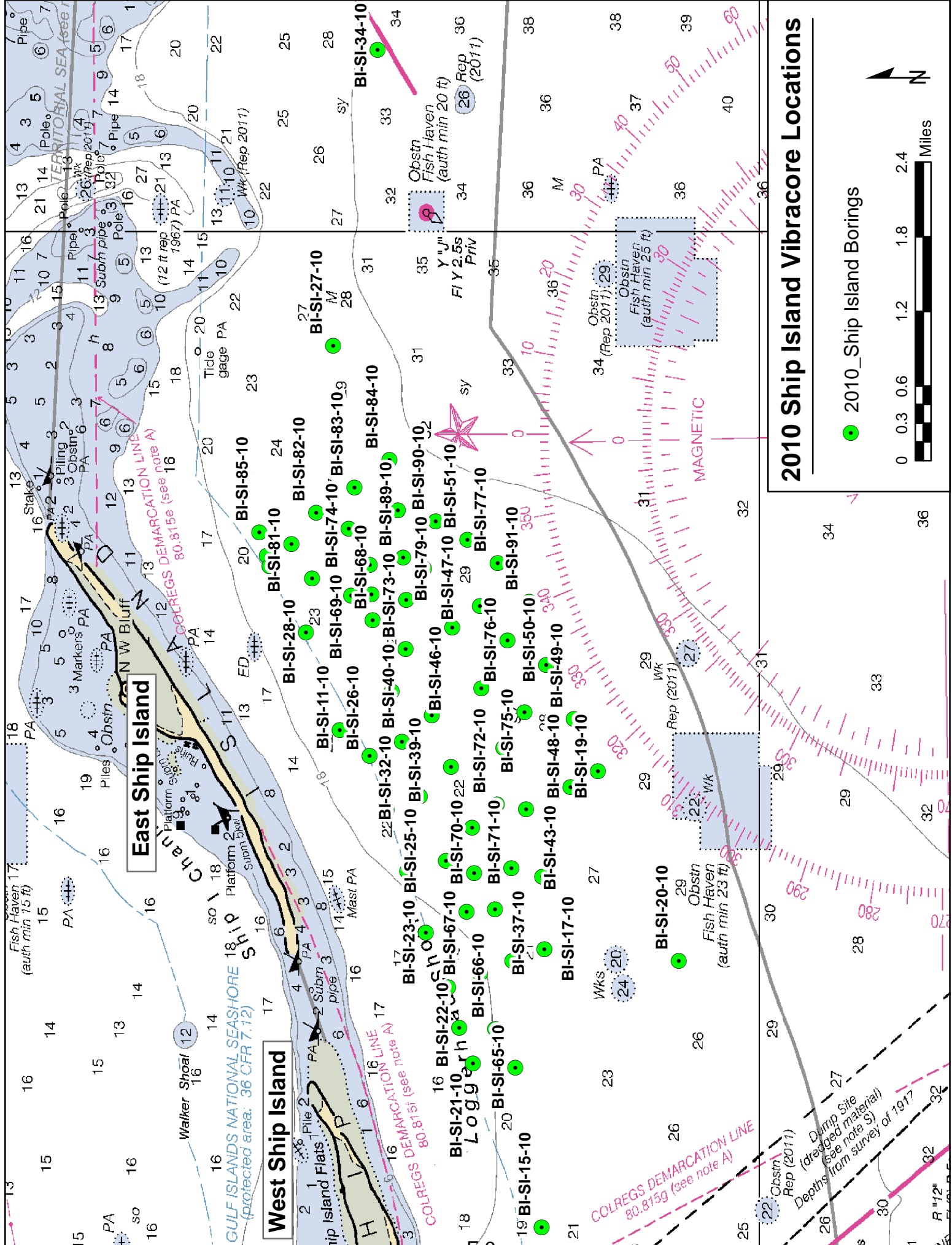
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## **Appendix F**

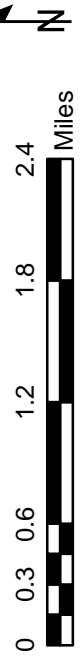
### **Ship Island Vibracores and Lab Results**

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# 2010 Ship Island Vibracore Locations

● 2010\_Ship Island Borings



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Vibracore / Sample ID	Investigation Area	Sample Event	Date of Sample	Time_CST	Latitude	Longitude	Northing_Y	Easting_X	Sample Method	Water Depth (feet)	Boring Depth (feet below seafloor surface )	Sample Depth (Feet below seafloor surface)	Sample Thickness (feet)	Field USCS	Lab USCS	Angularity	Wet Munsell Color	Wet Munsell Color Code	Wet Munsell Value	Dry Munsell Color	Dry Munsell Color Code	Dry Munsell Value	CaCO3	D50 (mm)	Graphic Mean (mm)	% Fines	Cu (D60/D10)	Cc (D30)^2 / (D10*D60)	
BI-SI-10-10	SHIP ISLAND	2010	6/1/2010	3:10 PM	30.20275	-88.92101	255574.14680	956553.44900	20-ft Vibracore	23.0	17.9																		
BI-SI-10-10A	SHIP ISLAND	2010	6/1/2010	3:10 PM	30.20275	-88.92101	255574.14680	956553.44900	20-ft Vibracore	23.0	17.9	0.0 - 2.0	2.0	SP	SP	SUBANGULAR TO ROUNDED	OLIVE GRAY	5Y 5/2	5	LT GRAY	2.5Y 7/2	7	NO	0.19	0.19	2.5	2.2	1.3	
BI-SI-10-10B	SHIP ISLAND	2010	6/1/2010	3:10 PM	30.20275	-88.92101	255574.14680	956553.44900	20-ft Vibracore	23.0	17.9	2.0 - 4.4	2.4	SM	SM	SUBANGULAR TO ROUNDED	DK OLIVE GRAY	5Y 4/2	4	LT OLIVE GRAY	5Y 6/2	6	YES	0.15	#VALUE!	21.0	#VALUE!	#VALUE!	
BI-SI-10-10C	SHIP ISLAND	2010	6/1/2010	3:10 PM	30.20275	-88.92101	255574.14680	956553.44900	20-ft Vibracore	23.0	17.9	4.4 - 11.0	6.6	SP	SP-SM	SUBANGULAR TO ROUNDED	GRAY	5Y 5/1	5	LT GRAY	2.5Y 7/2	7	NO	0.18	0.19	5.2	1.8	1.1	
BI-SI-11-10	SHIP ISLAND	2010	6/1/2010	4:35 PM	30.21540	-88.89114	260168.69620	965991.54640	20-ft Vibracore	29.0	16.7																		
BI-SI-11-10A	SHIP ISLAND	2010	6/1/2010	4:35 PM	30.21540	-88.89114	260168.69620	965991.54640	20-ft Vibracore	29.0	16.7	0.0 - 5.0	5.0	SM	SM	SUBANGULAR TO ROUNDED	DK OLIVE GRAY	5Y 4/2	4	LT OLIVE GRAY	5Y 6/2	6	YES	0.19	0.19	12.5	#VALUE!	#VALUE!	
BI-SI-11-10B	SHIP ISLAND	2010	6/1/2010	4:35 PM	30.21540	-88.89114	260168.69620	965991.54640	20-ft Vibracore	29.0	16.7	5.0 - 11.5	6.5	SP-SM	SP-SM	SUBANGULAR TO ROUNDED	OLIVE GRAY	5Y 5/2	5	LT BROWNISH GRAY	2.5Y 6/2	6	NO	0.17	0.18	6.4	2.3	1.1	
BI-SI-12-10	SHIP ISLAND	2010	6/1/2010	4:00 PM	30.19998	-88.90254	254562.73070	962387.40450	20-ft Vibracore	29.0	19.7																		
BI-SI-12-10A	SHIP ISLAND	2010	6/1/2010	4:00 PM	30.19998	-88.90254	254562.73070	962387.40450	20-ft Vibracore	29.0	19.7	0.0 - 4.7	4.7	SP	SP	SUBANGULAR TO ROUNDED	GRAY	5Y 5/1	5	LT GRAY	2.5Y 7/1	7	NO	0.19	0.20	3.2	1.8	1.0	
BI-SI-12-10B	SHIP ISLAND	2010	6/1/2010	4:00 PM	30.19998	-88.90254	254562.73070	962387.40450	20-ft Vibracore	29.0	19.7	4.7 - 8.5	3.8	SM	SP-SM	SUBANGULAR TO ROUNDED	OLIVE GRAY	5Y 5/2	5	LT BROWNISH GRAY	2.5Y 6/2	6	NO	0.16	0.16	10.3	#VALUE!	#VALUE!	
BI-SI-13-10	SHIP ISLAND	2010	6/1/2010	5:00 PM	30.21170	-88.87539	258820.89070	970965.74680	20-ft Vibracore	31.0	18.9																		
BI-SI-13-10A	SHIP ISLAND	2010	6/1/2010	5:00 PM	30.21170	-88.87539	258820.89070	970965.74680	20-ft Vibracore	31.0	18.9	0.0 - 5.0	5.0	SP	SP	SUBANGULAR TO ROUNDED	GRAY	5Y 6/1	6	LT GRAY	2.5Y 7/1	7	NO	0.25	0.26	2.3	2.1	1.0	
BI-SI-13-10B	SHIP ISLAND	2010	6/1/2010	5:00 PM	30.21170	-88.87539	258820.89070	970965.74680	20-ft Vibracore	31.0	18.9	5.0 - 10.0	5.0	SP	SP	SUBANGULAR TO ROUNDED	GRAY	5Y 6/1	6	LT GRAY	2.5Y 7/1	7	NO	0.20	0.22	2.3	1.9	1.0	
BI-SI-13-10C	SHIP ISLAND	2010	6/1/2010	5:00 PM	30.21170	-88.87539	258820.89070	970965.74680	20-ft Vibracore	31.0	18.9	10.0 - 13.2	3.2	SP	SP-SM	SUBANGULAR TO ROUNDED	GRAY	5Y 5/1	5	LT GRAY	5Y 7/2	7	NO	0.17	0.17	5.9	2.1	1.1	
BI-SI-14-10	SHIP ISLAND	2010	6/8/2010	12:45 PM	30.19906	-88.87673	254224.11370	970540.73520	20-ft Vibracore	30.0	19.5																		
BI-SI-14-10A	SHIP ISLAND	2010	6/8/2010	12:45 PM	30.19906	-88.87673	254224.11370	970540.73520	20-ft Vibracore	30.0	19.5	0.0 - 4.0	4.0	SP	SP-SM	SUBANGULAR TO ROUNDED	GRAY	5Y 6/1	6	LT GRAY	5Y 7/1	7	NO	0.22	0.24	6.5	2.3	1.3	
BI-SI-14-10B	SHIP ISLAND	2010	6/8/2010	12:45 PM	30.19906	-88.87673	254224.11370	970540.73520	20-ft Vibracore	30.0	19.5	4.0 - 8.0	4.0	SP	SP-SM	SUBANGULAR TO ROUNDED	GRAY	5Y 6/1	6	LT GRAY	2.5Y 7/1	7	NO	0.18	0.18	6.3	2.3	1.4	
BI-SI-14-10C	SHIP ISLAND	2010	6/8/2010	12:45 PM	30.19906	-88.87673	254224.11370	970540.73520	20-ft Vibracore	30.0	19.5	8.0 - 12.0	4.0	SM	SM	SUBANGULAR TO ROUNDED	GRAYISH BROWN	2.5Y 5/2	5	LT BROWNISH GRAY	2.5Y 6/2	6	NO	0.15	0.15	13.9	#VALUE!	#VALUE!	
BI-SI-14-10D	SHIP ISLAND	2010	6/8/2010	12:45 PM	30.19906	-88.87673	254224.11370	970540.73520	20-ft Vibracore	30.0	19.5	12.0 - 16.5	4.5	SM	SM	SUBANGULAR TO ROUNDED	DK GRAY	5Y 4/1	4	GRAYISH BROWN	2.5Y 5/2	5	YES	0.16	#VALUE!	19.8	#VALUE!	#VALUE!	
BI-SI-15-10	SHIP ISLAND	2010	6/1/2010	2:27 PM	30.19191	-88.94900	251639.73230	947707.56190	20-ft Vibracore	28.0	16.5	NO SAMPLE TAKEN		CL	NO SAMPLE TESTED														
BI-SI-16-10	SHIP ISLAND	2010	6/1/2010	1:20 PM	30.18987	-88.96874	250904.69420	941470.23920	20-ft Vibracore	25.0	15.3	NO SAMPLE TAKEN		CL	NO SAMPLE TESTED														
BI-SI-17-10	SHIP ISLAND	2010	6/1/2010	8:50 AM	30.19159	-88.91666	251514.43170	957924.62040	20-ft Vibracore	28.0	19.7	NO SAMPLE TAKEN		CL	NO SAMPLE TESTED														
BI-SI-18-10	SHIP ISLAND	2010	6/15/2010	9:45 AM	30.17764	-88.95805	246453.02260	944842.72380	20-ft Vibracore	28.0	15.5	NO SAMPLE TAKEN		CL	NO SAMPLE TESTED														
BI-SI-19-10	SHIP ISLAND	2010	6/8/2010	2:05 PM	30.18535	-88.89590	249240.86450	964482.07910	20-ft Vibracore	30.0	19.5	NO SAMPLE TAKEN		CL	NO SAMPLE TESTED														
BI-SI-20-10	SHIP ISLAND	2010	6/8/2010	2:50 PM	30.17595	-88.91795	245826.76780	957512.84740	20-ft Vibracore	29.0	19.1	NO SAMPLE TAKEN		CL	NO SAMPLE TESTED														
BI-SI-21-10	SHIP ISLAND	2010	6/9/2010	8:00 AM	30.19969	-88.92995	254463.56590	953728.40950	20-ft Vibracore	21.0	14.3																		
BI-SI-21-10A	SHIP ISLAND	2010	6/9/2010	8:00 AM	30.19969	-88.92995	254463.56590	953728.40950	20-ft Vibracore	21.0	14.3	0.0 - 4.0	4.0	SP	SP-SM	SUBANGULAR TO ROUNDED	GRAY	5Y 5.5/1	6	LT BROWNISH GRAY	2.5Y 6/2	6	NO	0.20	0.22	7.3	2.6	1.2	
BI-SI-21-10B	SHIP ISLAND	2010	6/9/2010	8:00 AM	30.19969	-88.92995	254463.56590	953728.40950	20-ft Vibracore	21.0	14.3	4.0 - 8.3	4.3	SP	SP-SM	SUBANGULAR TO ROUNDED	LT GRAY	5Y 7/1	7	LT GRAY	2.5Y 7/1	7	NO	0.28	0.27	6.5	2.9	1.4	
BI-AI-21-10C	SHIP ISLAND	2010	6/9/2010	8:00 AM	30.19969	-88.92995	254463.56590	953728.40950	20-ft Vibracore	21.0	14.3	8.3 - 11.2	2.9	SM	SM	CLAY FINES	OLIVE GRAY	5Y 4/2	4	GRAYISH BROWN	2.5Y 5/2	5	NO	0.16	#VALUE!	29.6	#VALUE!	#VALUE!	
BI-SI-22-10	SHIP ISLAND	2010	6/9/2010	8:40 AM	30.20147	-88.92578	255109.82580	955046.25520	20-ft Vibracore	21.0	13.9																		
BI-SI-22-10A	SHIP ISLAND	2010	6/9/2010	8:40 AM	30.20147	-88.92578	255109.82580	955046.25520	20-ft Vibracore	21.0	13.9	0.0 - 4.0	4.0	SP	SP-SM	SUBANGULAR TO ROUNDED	GRAY	5Y 6/1	6	LT GRAY	2.5Y 7/1	7	NO	0.22	0.23	6.8	2.3	1.3	
BI-S-22-10B	SHIP ISLAND	2010	6/9/2010	8:40 AM	30.20147	-88.92578	255109.82580	955046.25520	20-ft Vibracore	21.0	13.9	4.0 - 8.0	8.0	SP	SP-SM	SUBANGULAR TO ROUNDED	DK GRAY	5Y 4.5/1	5	LT BROWNISH GRAY	2.5Y 6/2	6	NO	0.19	0.19	9.4	2.6	1.7	
BI-SI-22-10C	SHIP ISLAND	2010	6/9/2010	8:40 AM	30.20147	-88.92578	255109.82580	955046.25520	20-ft Vibracore	21.0	13.9	8.0 - 9.6	1.6	SM	SM	CLAY FINES	DK GRAY	5Y 4/1	4	GRAYISH BROWN	2.5Y 5/2	5	NO	0.17	#VALUE!	23.7	#VALUE!	#VALUE!	
BI-SI-23-10	SHIP ISLAND	2010	6/9/2010	9:05 AM	30.20538	-88.91467	256529.14370	958556.90210	20-ft Vibracore	21.0	14.0																		
BI-SI-23-10A	SHIP ISLAND	2010	6/9/2010	9:05 AM	30.20538	-88.91467	256529.14370	958556.90210	20-ft Vibracore	21.0	14.0	0.0 - 2.4	2.4	SP	SP-SM	SUBANGULAR TO ROUNDED	GRAY	5Y 5.5/1	6	LT GRAY	2.5Y 7/1	7	NO	0.22	0.23	5.5	1.6	1.0	
BI-SI-23-10B	SHIP ISLAND	2010	6/9/2010	9:05 AM	30.20538	-88.91467	256529.14370	958556.90210	20-ft Vibracore	21.0	14.0	2.4 - 5.6	3.2	SM	SM	SUBANGULAR TO ROUNDED	GRAYISH BROWN	2.5Y 5/2	5	LT BROWNISH GRAY	2.5Y 6/2	6	NO	0.18	#VALUE!	15.1	#VALUE!	#VALUE!	
BI-SI-24-10	SHIP ISLAND	2010	6/9/2010	9:35 AM	30.20754	-88.90753	257313.15620	960812.83910	20-ft Vibracore	23.0	7.7																		
BI-SI-24-10A	SHIP ISLAND	2010	6/9/2010	9:35 AM	30.20754	-88.90753	257313.15620	960812.83910	20-ft Vibracore	23.0	7.7	0.0 - 4.0	4.0	SP	SP-SM	SUBANGULAR TO ROUNDED	GRAY	5Y 5/1	5	LT BROWNISH GRAY	2.5Y 6/2	6	NO	0.20	0.22	5.7	1.9	1.2	
BI-SI-24-10B	SHIP ISLAND	2010	6/9/2010	9:35 AM	30.20754	-88.90753	257313.15620	960812.83910	20-ft Vibracore	23.0	7.7	4.0 - 7.7	3.7	SP	SP-SM	SUBANGULAR TO ROUNDED	GRAY	5Y 6/1	6	LT GRAY	2.5Y 7/1	7	NO	0.22	0.23	7.5	2.7	1.4	
BI-SI-25-10	SHIP ISLAND	2010	6/9/2010	10:35 AM	30.20993	-88.90041	258180.96090	963062.40940	20-ft Vibracore	22.0	10.4																		
BI-SI-25-10A	SHIP ISLAND	2010	6/9/2010	10:35 AM	30.20993	-88.90041	258180.96090	963062.40940	20-ft Vibracore	22.0	10.4	0.0 - 3.5	3.5	SP	SP	SUBANGULAR TO ROUNDED	GRAYISH BROWN	2.5Y 5/2	5	LT GRAY	2.5Y 7/1	7	NO	0.22	0.24	3.9	2.2	1.2	
BI-SI-25-10B	SHIP ISLAND	2010	6/9/2010	10:35 AM	30.20993	-88.90041	258180.96090	963062.40940	20-ft Vibracore	22.0	10.4	3.5 - 7.0	3.5	SP	SP	SUBANGULAR TO ROUNDED	GRAY	2.5Y 6/1	6	LT GRAY	2.5Y 7/1	7	NO	0.19	0.20	4.5	1.9	1.3	
BI-SI-25-10C	SHIP ISLAND	2010	6/9/2010	10:35 AM	30.20993	-88.90041	258180.96090	963062.40940	20-ft Vibracore	22.0	10.4	7.0 - 8.3	1.3	SM	SM	SUBANGULAR TO ROUNDED	DK GRAY	5Y 4/1	4	LT BROWNISH GRAY	2.5Y 6/2	6	NO	0.16	0.15	14.1	#VALUE!	#VALUE!	
BI-SI-26-10	SHIP ISLAND	2010	6/9/2010	11:00 AM	30.21192	-88.89412	258903.57250	965049.62630	20-ft Vibracore	26.0	16.2																		
BI-SI-26-10A	SHIP ISLAND	2010	6/9/2010	11:00 AM	30.21192	-88.89412	258903.57250	965049.62630	20-ft Vibracore	26.0	16.2	0.0 - 6.0	6.0	SP	SP	SUBANGULAR TO ROUNDED	GRAYISH BROWN	2.5Y 5/2	5	LT GRAY	2.5Y 7/1								

Vibracore / Sample ID	Investigation Area	Sample Event	Date of Sample	Time_CST	Latitude	Longitude	Northing_Y	Easting_X	Sample Method	Water Depth (feet)	Boring Depth (feet below seafloor surface)	Sample Depth (Feet below seafloor surface)	Sample Thickness (feet)	Field USCS	Lab USCS	Angularity	Wet Munsell Color	Wet Munsell Color Code	Wet Munsell Value	Dry Munsell Color	Dry Munsell Color Code	Dry Munsell Value	CaCO3	D50 (mm)	Graphic Mean (mm)	% Fines	Cu (D60/D10)	Cc (D30)*2 / (D10*D60)
BI-SI-28-10C	SHIP ISLAND	2010	6/9/2010	1:15 PM	30.21930	-88.87977	261585.41310	969583.38270	20-ft Vibracore	25.0	17.9	5.1 - 10.0	4.9	SP	SM	SUBANGULAR TO ROUNDED	GRAY	2.5Y 6/1	6	LT GRAY	2.5Y 7/1	7	YES	0.21	0.22	12.2	#VALUE!	#VALUE!
BI-SI-28-10D	SHIP ISLAND	2010	6/9/2010	1:15 PM	30.21930	-88.87977	261585.41310	969583.38270	20-ft Vibracore	25.0	17.9	10.0 - 14.0	4.0	SP	SP-SM	SUBANGULAR TO ROUNDED	GRAY	5Y 5/1	5	LT GRAY	5Y 7/1	7	NO	0.24	0.26	8.6	2.9	1.5
BI-SI-29-10	SHIP ISLAND	2010	6/12/2010	8:40 AM	30.19908	-88.91947	254239.06440	957038.91690	20-ft Vibracore	23.0	14.2																	
BI-SI-29-10A	SHIP ISLAND	2010	6/12/2010	8:40 AM	30.19908	-88.91947	254239.06440	957038.91690	20-ft Vibracore	23.0	14.2	0.0 - 4.0	4.0	SP	SP	SUBANGULAR TO ROUNDED	GRAY	5Y 5/1	5	LT BROWNISH GRAY	2.5Y 6/2	6	NO	0.21	0.22	2.8	2.0	1.0
BI-SI-29-10B	SHIP ISLAND	2010	6/12/2010	8:40 AM	30.19908	-88.91947	254239.06440	957038.91690	20-ft Vibracore	23.0	14.2	4.0 - 8.5	4.5	SM	SM	SUBANGULAR TO ROUNDED	DK OLIVE GRAY	5Y 3/2	3	GRAYISH BROWN	2.5Y 5/2	5	NO	0.15	#VALUE!	20.0	#VALUE!	#VALUE!
BI-SI-30-10	SHIP ISLAND	2010	6/12/2010	9:00 AM	30.20303	-88.90634	255672.70870	961187.68370	20-ft Vibracore	25.0	19.8																	
BI-SI-30-10A	SHIP ISLAND	2010	6/12/2010	9:00 AM	30.20303	-88.90634	255672.70870	961187.68370	20-ft Vibracore	25.0	19.8	0.0 - 5.0	5.0	SP	SP-SM	SUBANGULAR TO ROUNDED	GRAY	5Y 5/1	5	LT BROWNISH GRAY	2.5Y 6/2	6	NO	0.18	0.19	5.6	2.1	1.1
BI-SI-30-10B	SHIP ISLAND	2010	6/12/2010	9:00 AM	30.20303	-88.90634	255672.70870	961187.68370	20-ft Vibracore	25.0	19.8	5.0 - 10.0	5.0	SP	SP-SM	SUBANGULAR TO ROUNDED	GRAY	5Y 5/1	5	LT GRAY	2.5Y 7/1	7	NO	0.21	0.23	5.9	2.1	1.1
BI-SI-30-10C	SHIP ISLAND	2010	6/12/2010	9:00 AM	30.20303	-88.90634	255672.70870	961187.68370	20-ft Vibracore	25.0	19.8	10.0 - 13.0	3.0	SM	SM	SUBANGULAR TO ROUNDED	DK GRAY	5Y 4/1	4	LT BROWNISH GRAY	2.5Y 6/2	6	NO	0.15	#VALUE!	15.6	#VALUE!	#VALUE!
BI-SI-31-10	SHIP ISLAND	2010	6/12/2010	9:50 AM	30.20604	-88.89898	256765.97530	963513.28980	20-ft Vibracore	26.0	17.1																	
BI-SI-31-10A	SHIP ISLAND	2010	6/12/2010	9:50 AM	30.20604	-88.89898	256765.97530	963513.28980	20-ft Vibracore	26.0	17.1	0.0 - 5.0	5.0	SP	SP-SM	SUBANGULAR TO ROUNDED	GRAY	5Y 6/1	6	LT GRAY	2.5Y 7/1	7	NO	0.21	0.23	7.3	2.3	1.1
BI-SI-31-10B	SHIP ISLAND	2010	6/12/2010	9:50 AM	30.20604	-88.89898	256765.97530	963513.28980	20-ft Vibracore	26.0	17.1	5.0 - 10.5	5.5	SP	SP	SUBANGULAR TO ROUNDED	GRAY	2.5Y 6/1	6	LT GRAY	2.5Y 7/1	7	NO	0.19	0.20	4.1	1.9	1.0
BI-SI-31-10C	SHIP ISLAND	2010	6/12/2010	9:50 AM	30.20604	-88.89898	256765.97530	963513.28980	20-ft Vibracore	26.0	17.1	10.5 - 13.5	3.0	SM	SM	SUBANGULAR TO ROUNDED	GRAY	5Y 5/1	5	LT BROWNISH GRAY	2.5Y 6/2	6	NO	0.13	0.13	13.5	#VALUE!	#VALUE!
BI-SI-32-10	SHIP ISLAND	2010	6/12/2010	10:10 AM	30.20814	-88.89248	257528.58200	965566.93070	20-ft Vibracore	28.0	18.9																	
BI-SI-32-10A	SHIP ISLAND	2010	6/12/2010	10:10 AM	30.20814	-88.89248	257528.58200	965566.93070	20-ft Vibracore	28.0	18.9	0.0 - 5.0	5.0	SP	SP	SUBANGULAR TO ROUNDED	GRAY	5Y 6/1	6	LT GRAY	2.5Y 7/2	7	NO	0.21	0.23	3.3	2.1	1.0
BI-SI-32-10B	SHIP ISLAND	2010	6/12/2010	10:10 AM	30.20814	-88.89248	257528.58200	965566.93070	20-ft Vibracore	28.0	18.9	5.0 - 10.0	5.0	SP	SP	SUBANGULAR TO ROUNDED	GRAY	5Y 5/1	5	LT GRAY	2.5Y 7/1	7	NO	0.16	0.17	4.6	2.1	1.0
BI-SI-32-10C	SHIP ISLAND	2010	6/12/2010	10:10 AM	30.20814	-88.89248	257528.58200	965566.93070	20-ft Vibracore	28.0	18.9	10.0 - 15.3	5.3	SP	SP-SM	SUBANGULAR TO ROUNDED	GRAY	5Y 5/1	5	LT GRAY	5Y 7/1	7	NO	0.15	0.15	7.1	2.1	1.0
BI-SI-32-10D	SHIP ISLAND	2010	6/12/2010	10:10 AM	30.20814	-88.89248	257528.58200	965566.93070	20-ft Vibracore	28.0	18.9	15.3 - 18.9	3.6	SM	SM	CLAY FINES	DK GRAY	5Y 4/1	4	LT BROWNISH GRAY	2.5Y 6/2	6	YES	0.16	0.18	12.9	#VALUE!	#VALUE!
BI-SI-33-10	SHIP ISLAND	2010	6/9/2010	3:05 PM	30.20933	-88.88662	257960.44960	967418.17250	20-ft Vibracore	26.0	13.3																	
BI-SI-33-10A	SHIP ISLAND	2010	6/9/2010	3:05 PM	30.20933	-88.88662	257960.44960	967418.17250	20-ft Vibracore	26.0	13.3	0.0 - 4.7	4.7	SP	SP-SM	SUBANGULAR TO ROUNDED	GRAY	5Y 5/1	5	LT GRAY	5Y 7/1	7	NO	0.22	0.23	5.5	2.3	1.1
BI-SI-33-10B	SHIP ISLAND	2010	6/9/2010	3:05 PM	30.20933	-88.88662	257960.44960	967418.17250	20-ft Vibracore	26.0	13.3	4.7 - 9.4	4.7	SP	SP	SUBANGULAR TO ROUNDED	GRAY	2.5Y 6/1	6	LT GRAY	2.5Y 7/1	7	NO	0.16	0.16	4.8	2.1	1.0
BI-SI-33-10C	SHIP ISLAND	2010	6/9/2010	3:05 PM	30.20933	-88.88662	257960.44960	967418.17250	20-ft Vibracore	26.0	13.3	9.4 - 13.3	3.9	SM	SM	SUBANGULAR TO ROUNDED	VERY DK GRAY	5Y 3/1	3	DK GRAYISH BROWN	2.5Y 4/2	4	NO	0.16	0.17	12.6	#VALUE!	#VALUE!
BI-SI-34-10	SHIP ISLAND	2010	6/9/2010	2:13 PM	30.21101	-88.81200	258568.12810	990988.51240	20-ft Vibracore	27.0	14.2																	
BI-SI-34-10A	SHIP ISLAND	2010	6/9/2010	2:13 PM	30.21101	-88.81200	258568.12810	990988.51240	20-ft Vibracore	27.0	14.2	0.0 - 3.6	3.6	SM	SM	SUBANGULAR TO ROUNDED	GRAY	5Y 5/1	5	LT BROWNISH GRAY	2.5Y 6/2	6	NO	0.20	#VALUE!	15.8	#VALUE!	#VALUE!
BI-SI-34-10B	SHIP ISLAND	2010	6/9/2010	2:13 PM	30.21101	-88.81200	258568.12810	990988.51240	20-ft Vibracore	27.0	14.2	3.6 - 8.0	4.4	SP	SP-SM	SUBANGULAR TO ROUNDED	GRAY	5Y 6/1	6	LT GRAY	2.5Y 7/1	7	NO	0.20	0.19	9.2	2.7	1.6
BI-SI-34-10C	SHIP ISLAND	2010	6/9/2010	2:13 PM	30.21101	-88.81200	258568.12810	990988.51240	20-ft Vibracore	27.0	14.2	8.0 - 13.0	5.0	SP	SP	SUBANGULAR TO ROUNDED	GRAY	5Y 6/1	6	LT GRAY	2.5Y 7/1	7	NO	0.19	0.18	4.8	2.2	1.4
BI-SI-35-10	SHIP ISLAND	2010	6/9/2010	1:42 PM	30.21406	-88.87554	259679.19790	970918.68510	20-ft Vibracore	27.0	16.0																	
BI-SI-35-10A	SHIP ISLAND	2010	6/9/2010	1:42 PM	30.21406	-88.87554	259679.19790	970918.68510	20-ft Vibracore	27.0	16.0	0.6 - 5.0	4.4	SP	SP-SM	SUBANGULAR TO ROUNDED	GRAY	2.5Y 6/1	6	LT GRAY	5Y 7/1	7	NO	0.24	0.26	10.5	#VALUE!	#VALUE!
BI-SI-35-10B	SHIP ISLAND	2010	6/9/2010	1:42 PM	30.21406	-88.87554	259679.19790	970918.68510	20-ft Vibracore	27.0	16.0	5.0 - 10.0	5.0	SP	SP-SM	SUBANGULAR TO ROUNDED	GRAY	5Y 6/1	6	LT GRAY	2.5Y 7/1	7	NO	0.24	0.26	8.1	2.8	1.4
BI-SI-35-10C	SHIP ISLAND	2010	6/9/2010	1:42 PM	30.21406	-88.87554	259679.19790	970918.68510	20-ft Vibracore	27.0	16.0	10.0 - 13.4	3.4	SP	SP-SM	SUBANGULAR TO ROUNDED	GRAY	5Y 6/1	6	LT GRAY	2.5Y 7/1	7	NO	0.21	0.23	9.5	2.6	1.3
BI-SI-36-10	SHIP ISLAND	2010	6/12/2010	8:15 AM	30.19534	-88.91796	252878.53860	957514.92450	20-ft Vibracore	26.0	16.8																	
BI-SI-36-10A	SHIP ISLAND	2010	6/12/2010	8:15 AM	30.19534	-88.91796	252878.53860	957514.92450	20-ft Vibracore	26.0	16.8	0.0 - 3.5	3.5	SM	SP-SM	SUBANGULAR TO ROUNDED	GRAY	5Y 5/1	5	LT BROWNISH GRAY	2.5Y 6/2	6	NO	0.17	0.17	9.7	2.4	1.3
BI-SI-37-10	SHIP ISLAND	2010	6/14/2010	10:20 AM	30.19732	-88.91199	253597.27590	959401.45200	20-ft Vibracore	26.0	17.0																	
BI-SI-37-10A	SHIP ISLAND	2010	6/14/2010	10:20 AM	30.19732	-88.91199	253597.27590	959401.45200	20-ft Vibracore	26.0	17.0	0.0 - 5.7	5.7	SM	SM	SUBANGULAR TO ROUNDED	DK GRAY	5Y 4/1	4	GRAY	2.5Y 5/1	5	NO	0.17	#VALUE!	19.7	#VALUE!	#VALUE!
BI-SI-38-10	SHIP ISLAND	2010	6/14/2010	11:00 AM	30.20245	-88.89542	255459.72760	964637.12420	20-ft Vibracore	27.0	15.5																	
BI-SI-38-10A	SHIP ISLAND	2010	6/14/2010	11:00 AM	30.20245	-88.89542	255459.72760	964637.12420	20-ft Vibracore	27.0	15.5	0.0 - 2.0	2.0	SM	SP-SM	SUBANGULAR TO ROUNDED	GRAYISH BROWN	2.5Y 5/2	5	LT BROWNISH GRAY	2.5Y 6/2	6	NO	0.18	0.18	5.8	2.2	1.5
BI-SI-38-10B	SHIP ISLAND	2010	6/14/2010	11:00 AM	30.20245	-88.89542	255459.72760	964637.12420	20-ft Vibracore	27.0	15.5	4.5 - 9.5	5.0	SP	SP-SM	SUBANGULAR TO ROUNDED	LT BROWNISH GRAY	2.5Y 6/2	6	LT GRAY	2.5Y 7/1	7	NO	0.19	0.20	5.3	2.1	1.4
BI-SI-38-10C	SHIP ISLAND	2010	6/14/2010	11:00 AM	30.20245	-88.89542	255459.72760	964637.12420	20-ft Vibracore	27.0	15.5	9.5 - 12.8	3.3	SP	SP-SM	SUBANGULAR TO ROUNDED	GRAYISH BROWN	2.5Y 5/2	5	LT BROWNISH GRAY	2.5Y 6/2	6	NO	0.17	0.16	9.1	2.2	1.3
BI-SI-38-10D	SHIP ISLAND	2010	6/14/2010	11:00 AM	30.20245	-88.89542	255459.72760	964637.12420	20-ft Vibracore	27.0	15.5	12.8 - 15.9	3.1	SM	SM	SUBANGULAR TO ROUNDED	DK GRAY	2.5Y 4/1	4	DK GRAYISH BROWN	2.5Y 4/2	4	YES	0.15	#VALUE!	25.5	#VALUE!	#VALUE!
BI-SI-39-10	SHIP ISLAND	2010	6/14/2010	12:00 PM	30.20470	-88.88942	256277.02780	966532.89830	20-ft Vibracore	28.0	15.6																	
BI-SI-39-10A	SHIP ISLAND	2010	6/14/2010	12:00 PM	30.20470	-88.88942	256277.02780	966532.89830	20-ft Vibracore	28.0	15.6	0.0 - 6.0	6.0	SP	SP-SM	SUBANGULAR TO ROUNDED	GRAY	2.5Y 6/1	6	LT GRAY	2.5Y 7/1	7	NO	0.20	0.21	6.0	2.2	1.4
BI-SI-39-10B	SHIP ISLAND	2010	6/14/2010	12:00 PM	30.20470	-88.88942	256277.02780	966532.89830	20-ft Vibracore	28.0	15.6	6.0 - 12.0	6.0	SP	SP-SM	SUBANGULAR TO ROUNDED	LT BROWNISH GRAY	2.5Y 6/2	6	LT BROWNISH GRAY	2.5Y 6/2	6	NO	0.18	0.17	8.9	2.5	1.5
BI-SI-39-10C	SHIP ISLAND	2010	6/14/2010	12:00 PM	30.20470	-88.88942	256277.02780	966532.89830	20-ft Vibracore	28.0	15.6	12.0 - 15.6	3.6	SM	SP-SM	SUBANGULAR TO ROUNDED	DK GRAYISH BROWN	2.5Y 4/2	4	LT BROWNISH GRAY	2.5Y 6/2	6	YES	0.20	0.20	11.4	#VALUE!	#VALUE!
BI-SI-40-10	SHIP ISLAND	2010	6/14/2010	12:20 PM	30.20777	-88.81680	257389.54690	989472.51820	20-ft Vibracore	30.0	17.1																	
BI-SI-40-10A	SHIP ISLAND	2010																										

Vibracore / Sample ID	Investigation Area	Sample Event	Date of Sample	Time_CST	Latitude	Longitude	Northing_Y	Easting_X	Sample Method	Water Depth (feet)	Boring Depth (feet below seafloor surface )	Sample Depth (Feet below seafloor surface)	Sample Thickness (feet)	Field USCS	Lab USCS	Angularity	Wet Munsell Color	Wet Munsell Color Code	Wet Munsell Value	Dry Munsell Color	Dry Munsell Color Code	Dry Munsell Value	CaCO3	D50 (mm)	Graphic Mean (mm)	% Fines	Cu (D60/D10)	Cc (D30)*2 / (D10*D60)
BI-SI-44-10B	SHIP ISLAND	2010	6/14/2010	4:10 PM	30.19637	-88.89318	253248.16620	965343.56760	20-ft Vibracore	29.0	15.4	4.0 - 8.5	4.5	SP	SP	SUBANGULAR TO ROUNDED	LT BROWNISH GRAY	2.5Y 6/2	6	LT GRAY	2.5Y 7/1	7	NO	0.22	0.23	3.9	1.6	1.0
BI-SI-44-10C	SHIP ISLAND	2010	6/14/2010	4:10 PM	30.19637	-88.89318	253248.16620	965343.56760	20-ft Vibracore	29.0	15.4	12.0 - 15.4	3.4	SM	SM	SUBANGULAR TO ROUNDED	DK GRAYISH BROWN	2.5Y 4/2	4	GRAYISH BROWN	2.5Y 5/2	5	NO	0.21	0.23	12.0	#VALUE!	#VALUE!
BI-SI-45-10	SHIP ISLAND	2010	6/14/2010	3:40 PM	30.19892	-88.88628	254174.47410	967523.80940	20-ft Vibracore	30.0	15.9																	
BI-SI-45-10A	SHIP ISLAND	2010	6/14/2010	3:40 PM	30.19892	-88.88628	254174.47410	967523.80940	20-ft Vibracore	30.0	15.9	0.0 - 5.0	5.0	SP	SP-SM	SUBANGULAR TO ROUNDED	GRAY	5Y 6/1	6	LT GRAY	2.5Y 7/1	7	NO	0.21	0.22	6.6	2.1	1.3
BI-SI-45-10B	SHIP ISLAND	2010	6/14/2010	3:40 PM	30.19892	-88.88628	254174.47410	967523.80940	20-ft Vibracore	30.0	15.9	5.0 - 9.4	4.4	SP	SP-SM	SUBANGULAR TO ROUNDED	GRAYISH BROWN	2.5Y 5/2	5	GRAYISH BROWN	2.5Y 5/2	5	NO	0.19	0.19	7.5	2.4	1.5
BI-SI-45-10C	SHIP ISLAND	2010	6/14/2010	3:40 PM	30.19892	-88.88628	254174.47410	967523.80940	20-ft Vibracore	30.0	15.9	11.5 - 15.9	4.4	SM	SM	SUBANGULAR TO ROUNDED	DK GRAY	2.5Y 4/1	4	GRAYISH BROWN	2.5Y 5/2	5	NO	0.19	#VALUE!	15.7	#VALUE!	#VALUE!
BI-SI-46-10	SHIP ISLAND	2010	6/14/2010	2:00 PM	30.20233	-88.87922	255413.66010	969754.60840	20-ft Vibracore	31.0	15.4																	
BI-SI-46-10A	SHIP ISLAND	2010	6/14/2010	2:00 PM	30.20233	-88.87922	255413.66010	969754.60840	20-ft Vibracore	31.0	15.4	0.0 - 5.0	5.0	SP	SP	SUBANGULAR TO ROUNDED	LT BROWNISH GRAY	2.5Y 6/2	6	LT GRAY	2.5Y 7/1	7	NO	0.23	0.24	4.9	1.7	1.0
BI-SI-46-10B	SHIP ISLAND	2010	6/14/2010	2:00 PM	30.20233	-88.87922	255413.66010	969754.60840	20-ft Vibracore	31.0	15.4	5.0 - 11.4	6.4	SP	SP-SM	SUBANGULAR TO ROUNDED	GRAYISH BROWN	2.5Y 5/2	5	LT GRAY	2.5Y 7/1	7	NO	0.19	0.19	8.1	2.6	1.5
BI-SI-46-10C	SHIP ISLAND	2010	6/14/2010	2:00 PM	30.20233	-88.87922	255413.66010	969754.60840	20-ft Vibracore	31.0	15.4	11.4 - 15.4	4.0	SM	SM	SUBANGULAR TO ROUNDED	DK GRAYISH BROWN	2.5Y 4/2	4	GRAYISH BROWN	2.5Y 5/2	5	NO	0.19	#VALUE!	16.0	#VALUE!	#VALUE!
BI-SI-47-10	SHIP ISLAND	2010	6/14/2010	1:30 PM	30.20559	-88.87237	256598.45520	971918.89910	20-ft Vibracore	31.0	15.6																	
BI-SI-47-10A	SHIP ISLAND	2010	6/14/2010	1:30 PM	30.20559	-88.87237	256598.45520	971918.89910	20-ft Vibracore	31.0	15.6	0.7 - 5.0	4.3	SP	SP-SM	SUBANGULAR TO ROUNDED	LT BROWNISH GRAY	2.5Y 6/2	6	LT GRAY	2.5Y 7/1	7	NO	0.27	0.27	6.4	1.9	1.0
BI-SI-47-10B	SHIP ISLAND	2010	6/14/2010	1:30 PM	30.20559	-88.87237	256598.45520	971918.89910	20-ft Vibracore	31.0	15.6	5.0 - 9.7	4.7	SP	SP-SM	SUBANGULAR TO ROUNDED	GRAYISH BROWN	2.5Y 5/2	5	LY GRAY	2.5Y 7/1	7	NO	0.20	0.20	6.8	2.4	1.5
BI-SI-48-10	SHIP ISLAND	2010	6/14/2010	10:35 AM	30.18855	-88.89783	250404.98260	963872.95470	20-ft Vibracore	31.0	19.5	NO SAMPLE TAKEN		CL	NO SAMPLE TESTED													
BI-SI-49-10	SHIP ISLAND	2010		11:00 AM	30.18820	-88.88981	250276.34930	966406.72690	20-ft Vibracore	32.0	19.5	NO SAMPLE TAKEN		CL	NO SAMPLE TESTED													
BI-SI-50-10	SHIP ISLAND	2010	6/15/2010	11:50 AM	30.19141	-88.88363	251442.84980	968359.75560	20-ft Vibracore	32.0	16.9																	
BI-SI-50-10A	SHIP ISLAND	2010	6/15/2010	11:50 AM	30.19141	-88.88363	251442.84980	968359.75560	20-ft Vibracore	32.0	16.9	3.7 - 9.8	6.1	SM	SM	SUBANGULAR TO ROUNDED	GRAYISH BROWN	2.5Y 5/2	5	LT BROWNISH GRAY	2.5Y 6/2	6	NO	0.18	#VALUE!	15.7	#VALUE!	#VALUE!
BI-SI-51-10	SHIP ISLAND	2010	6/15/2010	12:25 PM	30.20059	-88.86903	254779.70160	972973.38550	20-ft Vibracore	33.0	18.2																	
BI-SI-51-10A	SHIP ISLAND	2010	6/15/2010	12:25 PM	30.20059	-88.86903	254779.70160	972973.38550	20-ft Vibracore	33.0	18.2	1.8 - 5.0	3.2	SM	SP-SM	SUBANGULAR TO ROUNDED	DK GRAYISH BROWN	2.5Y 4/2	4	LT BROWNISH GRAY	2.5Y 6/2	6	NO	0.19	0.20	5.7	1.7	1.2
BI-SI-51-10B	SHIP ISLAND	2010	6/15/2010	12:25 PM	30.20059	-88.86903	254779.70160	972973.38550	20-ft Vibracore	33.0	18.2	5.0 - 10.4	5.4	SM	SM	SUBANGULAR TO ROUNDED	DK GRAYISH BROWN	2.5Y 4/2	4	LT BROWNISH GRAY	2.5Y 6/2	6	NO	0.17	#VALUE!	15.5	#VALUE!	#VALUE!
BI-SI-62-10	SHIP ISLAND	2010	6/15/2010	2:20 PM	30.22386	-88.87085	263242.76650	972401.23400	20-ft Vibracore	24.0	12.6																	
BI-SI-62-10A	SHIP ISLAND	2010	6/15/2010	2:20 PM	30.22386	-88.87085	263242.76650	972401.23400	20-ft Vibracore	24.0	12.6	0.0 - 2.0	2.0	SM	SP-SM	SUBANGULAR TO ROUNDED	GRAYISH BROWN	2.5Y 5/2	5	LT BROWNISH GRAY	2.5Y 6/2	6	YES	0.25	0.25	9.6	3.4	1.8
BI-SI-62-10B	SHIP ISLAND	2010	6/15/2010	2:20 PM	30.22386	-88.87085	263242.76650	972401.23400	20-ft Vibracore	24.0	12.6	2.0 - 7.0	5.0	SP	SP-SM	SUBANGULAR TO ROUNDED	LT GRAY	2.5Y 7/1	7	LT GRAY	2.5Y 7/1	7	NO	0.27	0.27	5.2	1.9	1.1
BI-SI-62-10C	SHIP ISLAND	2010	6/15/2010	2:20 PM	30.22386	-88.87085	263242.76650	972401.23400	20-ft Vibracore	24.0	12.6	7.0 - 12.6	5.6	SP	SP	SUBANGULAR TO ROUNDED	LT GRAY	2.5Y 7/1	7	WHITE	2.5Y 8/1	8	NO	0.30	0.30	3.7	1.7	1.1
BI-SI-65-10	SHIP ISLAND	2010	6/17/2010	10:20 AM	30.19500	-88.93044	252758.03180	953572.16250	20-ft Vibracore	21.0	10.9																	
BI-SI-65-10A	SHIP ISLAND	2010	6/17/2010	10:20 AM	30.19500	-88.93044	252758.03180	953572.16250	20-ft Vibracore	21.0	10.9	0.0 - 6.1	6.1	SM	SM	SUBANGULAR TO ROUNDED	DK GRAY	2.5Y 4/1	4	GRAYISH BROWN	2.5Y 5/2	5	YES	0.21	0.21	12.7	#VALUE!	#VALUE!
BI-SI-66-10	SHIP ISLAND	2010	6/17/2010	10:40 AM	30.19732	-88.92593	253600.58610	954997.64350	20-ft Vibracore	21.0	17.7																	
BI-SI-66-10A	SHIP ISLAND	2010	6/17/2010	10:40 AM	30.19732	-88.92593	253600.58610	954997.64350	20-ft Vibracore	21.0	17.7	0.0 - 5.0	5.0	SP	SP	SUBANGULAR TO ROUNDED	GRAYISH BROWN	2.5Y 5/2	5	LT GRAY	2.5Y 7/2	7	NO	0.24	0.25	3.5	1.7	0.9
BI-SI-66-10B	SHIP ISLAND	2010	6/17/2010	10:40 AM	30.19732	-88.92593	253600.58610	954997.64350	20-ft Vibracore	21.0	17.7	5.0 - 8.6	3.6	SP	SP	SUBANGULAR TO ROUNDED	GRAYISH BROWN	2.5Y 5/2	5	LT GRAY	2.5Y 7/2	7	NO	0.26	0.27	4.4	1.8	1.0
BI-SI-67-10	SHIP ISLAND	2010	6/17/2010	11:55 AM	30.20066	-88.91232	254812.04390	959298.04350	20-ft Vibracore	21.0	14.1																	
BI-SI-67-10A	SHIP ISLAND	2010	6/17/2010	11:55 AM	30.20066	-88.91232	254812.04390	959298.04350	20-ft Vibracore	21.0	14.1	0.0 - 3.7	3.7	SP	SP	SUBANGULAR TO ROUNDED	GRAYISH BROWN	2.5Y 5/2	5	LT GRAY	2.5Y 7/2	7	NO	0.26	0.26	4.7	1.8	1.0
BI-SI-68-10	SHIP ISLAND	2010	6/16/2010	1:05 PM	30.21160	-88.87840	258784.88630	970014.97690	20-ft Vibracore	29.0	15.5																	
BI-SI-68-10A	SHIP ISLAND	2010	6/16/2010	1:05 PM	30.21160	-88.87840	258784.88630	970014.97690	20-ft Vibracore	29.0	15.5	0.0 - 4.0	4.0	SP	SP	SUBANGULAR TO ROUNDED	GRAYISH BROWN	2.5Y 5/2	5	LT GRAY	2.5Y 7/2	7	NO	0.30	0.30	4.1	1.8	1.1
BI-SI-68-10B	SHIP ISLAND	2010	6/16/2010	1:05 PM	30.21160	-88.87840	258784.88630	970014.97690	20-ft Vibracore	29.0	15.5	4.0 - 8.0	4.0	SP	SP	SUBANGULAR TO ROUNDED	LT BROWNISH GRAY	2.5Y 6/2	6	LT GRAY	2.5Y 7/2	7	NO	0.29	0.29	3.3	1.9	1.1
BI-SI-68-10C	SHIP ISLAND	2010	6/16/2010	1:05 PM	30.21160	-88.87840	258784.88630	970014.97690	20-ft Vibracore	29.0	15.5	8.0 - 12.2	4.2	SP	SP	SUBANGULAR TO ROUNDED	GRAYISH BROWN	2.5Y 5/2	5	LT GRAY	2.5Y 7/2	7	NO	0.22	0.23	3.9	2.4	1.2
BI-SI-69-10	SHIP ISLAND	2010	6/16/2010	12:20 PM	30.21860	-88.87349	261330.08100	971566.77650	20-ft Vibracore	26.0	18.2																	
BI-SI-69-10A	SHIP ISLAND	2010	6/16/2010	12:20 PM	30.21860	-88.87349	261330.08100	971566.77650	20-ft Vibracore	26.0	18.2	1.4 - 5.4	4.0	SP	SP	SUBANGULAR TO ROUNDED	LT GRAY	2.5Y 7/1	7	LT GRAY	2.5Y 7/1	7	NO	0.20	0.21	4.1	1.9	1.2
BI-SI-69-10B	SHIP ISLAND	2010	6/16/2010	12:20 PM	30.21860	-88.87349	261330.08100	971566.77650	20-ft Vibracore	26.0	18.2	5.4 - 9.4	4.0	SP	SM	SUBANGULAR TO ROUNDED	LT GRAY	2.5Y 7/1	7	LT GRAY	2.5Y 7/1	7	NO	0.19	#VALUE!	21.4	#VALUE!	#VALUE!
BI-SI-69-10C	SHIP ISLAND	2010	6/16/2010	12:20 PM	30.21860	-88.87349	261330.08100	971566.77650	20-ft Vibracore	26.0	18.2	9.4 - 13.3	3.9	SP	SP	SUBANGULAR TO ROUNDED	LT GRAY	2.5Y 7/1	7	LT GRAY	2.5Y 7/1	7	NO	0.19	0.19	4.7	2.1	1.4
BI-SI-70-10	SHIP ISLAND	2010	6/17/2010	12:25 PM	30.19978	-88.90777	254491.03620	960735.18370	20-ft Vibracore	21.0	15.4																	
BI-SI-70-10A	SHIP ISLAND	2010	6/17/2010	12:25 PM	30.19978	-88.90777	254491.03620	960735.18370	20-ft Vibracore	21.0	15.4	0.0 - 4.5	4.5	SP	SP	SUBANGULAR TO ROUNDED	GRAYISH BROWN	2.5Y 5/2	5	LT GRAY	2.5Y 7/1	7	NO	0.18	0.18	3.9	2.1	1.4
BI-SI-71-10	SHIP ISLAND	2010	6/17/2010	1:16 PM	30.19547	-88.90723	252923.45870	960904.75490	20-ft Vibracore	27.0	17.5	NO SAMPLE TAKEN		CL	NO SAMPLE TESTED													
BI-SI-72-10	SHIP ISLAND	2010	6/17/2010	1:50 PM	30.19716	-88.89977	253536.62830	963261.85790	20-ft Vibracore	26.0	17.5																	
BI-SI-72-10A	SHIP ISLAND	2010	6/17/2010	1:50 PM	30.19716	-88.89977	253536.62830	963261.85790	20-ft Vibracore	26.0	17.5	10.4 - 12.5	2.1	SP	SM	SUBANGULAR TO ROUNDED	DK GRAYISH BROWN	2.5Y 4/2	4	LT BROWNISH GRAY	2.5Y 6/2	6	NO	0.16	#VALUE!	15.3	#VALUE!	#VALUE!
BI-SI-72-10B	SHIP ISLAND	2010	6/17/2010	1:50 PM	30.19716	-88.89977	253536.6																					



Vibracore / Sample ID	Investigation Area	Sample Event	Date of Sample	Time_CST	Latitude	Longitude	Northing_Y	Easting_X	Sample Method	Water Depth (feet)	Boring Depth (feet below seafloor surface)	Sample Depth (Feet below seafloor surface)	Sample Thickness (feet)	Field USCS	Lab USCS	Angularity	Wet Munsell Color	Wet Munsell Color Code	Wet Munsell Value	Dry Munsell Color	Dry Munsell Color Code	Dry Munsell Value	CaCO3	D50 (mm)	Graphic Mean (mm)	% Fines	Cu (D60/D10)	Cc (D30)*2 / (D10*D60)
BI-SI-75-10B	SHIP ISLAND	2010	6/17/2010	2:15 PM	30.19397	-88.88910	252374.67750	966632.07190	20-ft Vibracore	30.0	18.7	15.9 - 18.7	2.8	SM	SM	SUBANGULAR TO ROUNDED	DK GRAY	2.5Y 4/1	4	GRAYISH BROWN	2.5Y 5/2	5	YES	0.17	0.18	12.5	#VALUE!	#VALUE!
BI-SI-75-10C	SHIP ISLAND	2010	6/17/2010	2:15 PM	30.19397	-88.88910	252374.67750	966632.07190	20-ft Vibracore	30.0	18.7	5.5 - 11.0	5.5	SP	SP	SUBANGULAR TO ROUNDED	GRAYISH BROWN	2.5Y 5/2	5	LT GRAY	2.5Y 7/1	7	NO	0.17	0.17	4.9	1.9	1.1
BI-SI-76-10	SHIP ISLAND	2010	6/16/2010	4:09 PM	30.19591	-88.88074	253079.02280	969273.47540	20-ft Vibracore	31.0	16.2																	
BI-SI-76-10A	SHIP ISLAND	2010	6/16/2010	4:09 PM	30.19591	-88.88074	253079.02280	969273.47540	20-ft Vibracore	31.0	16.2	0.7 - 6.0	5.3	SP	SP	SUBANGULAR TO ROUNDED	GRAY	2.5Y 6/1	6	LT GRAY	2/5Y 7/1	7	NO	0.22	0.24	3.3	1.6	0.9
BI-SI-76-10B	SHIP ISLAND	2010	6/16/2010	4:09 PM	30.19591	-88.88074	253079.02280	969273.47540	20-ft Vibracore	31.0	16.2	6.0 - 11.2	5.2	SP	SM	SUBANGULAR TO ROUNDED	GRAYISH BROWN	2.5Y 5/2	5	LT GRAY	2.5Y 7/1	7	NO	0.16	#VALUE!	24.1	#VALUE!	#VALUE!
BI-SI-77-10	SHIP ISLAND	2010	6/16/2010	3:35 PM	30.19704	-88.87171	253488.90840	972126.33560	20-ft Vibracore	32.5	16.1																	
BI-SI-77-10A	SHIP ISLAND	2010	6/16/2010	3:35 PM	30.19704	-88.87171	253488.90840	972126.33560	20-ft Vibracore	32.5	16.1	2.3 - 8.6	6.3	SP	SP-SM	SUBANGULAR TO ROUNDED	GRAYISH BROWN	2.5Y 5/2	5	LT BROWNISH GRAY	2.5Y 6/2	6	NO	0.15	0.15	10.7	#VALUE!	#VALUE!
BI-SI-77-10B	SHIP ISLAND	2010	6/16/2010	3:35 PM	30.19704	-88.87171	253488.90840	972126.33560	20-ft Vibracore	32.5	16.1	12.2 - 16.1	3.9	SP	SP-SM	SUBANGULAR TO ROUNDED	GRAYISH BROWN	2.5Y 5/2	5	LT BROWNISH GRAY	2.5Y 6/2	6	YES	0.25	0.26	6.9	2.9	1.4
BI-SI-79-10	SHIP ISLAND	2010	6/16/2010	10:40 AM	30.20866	-88.86558	257714.28680	974064.07520	20-ft Vibracore	31.0	11.3																	
BI-SI-79-10A	SHIP ISLAND	2010	6/16/2010	10:40 AM	30.20866	-88.86558	257714.28680	974064.07520	20-ft Vibracore	31.0	11.3	1.3 - 4.4	3.1	SP	SP-SM	SUBANGULAR TO ROUNDED	DK GRAYISH BROWN	2.5Y 4/2	4	LT BROWNISH GRAY	2.5Y 6/2	6	NO	0.18	0.18	9.3	2.2	1.3
BI-SI-79-10B	SHIP ISLAND	2010	6/16/2010	10:40 AM	30.20866	-88.86558	257714.28680	974064.07520	20-ft Vibracore	31.0	11.3	4.4 - 8.9	4.5	SM	SM	SUBANGULAR TO ROUNDED	DK GRAYISH BROWN	2.5Y 4/2	4	GRAYISH BROWN	2.5Y 5/2	5	YES	0.14	#VALUE!	26.6	#VALUE!	#VALUE!
BI-SI-80-10	SHIP ISLAND	2010	6/22/2010	2:10 PM	30.22362	-88.87210	263155.61500	972006.42080	20-ft Vibracore	24.0	20.0																	
BI-SI-80-10A	SHIP ISLAND	2010	6/22/2010	2:10 PM	30.22362	-88.87210	263155.61500	972006.42080	20-ft Vibracore	24.0	20.0	2.8 - 7.8	5.0	SP	SP	SUBANGULAR TO ROUNDED	GRAYISH BROWN	2.5Y 5/2	5	LT GRAY	2.5Y 7/2	7	NO	0.22	0.24	4.7	1.6	1.0
BI-SI-80-10B	SHIP ISLAND	2010	6/22/2010	2:10 PM	30.22362	-88.87210	263155.61500	972006.42080	20-ft Vibracore	24.0	20.0	7.8 - 12.8	5.0	SP	SP-SM	SUBANGULAR TO ROUNDED	GRAYISH BROWN	2.5Y 5/2	5	LT GRAY	2.5Y 7/2	7	NO	0.20	0.20	5.4	2.0	1.3
BI-SI-80-10C	SHIP ISLAND	2010	6/22/2010	2:10 PM	30.22362	-88.87210	263155.61500	972006.42080	20-ft Vibracore	24.0	20.0	12.8 - 15.2	2.4	SP	SP-SM	SUBANGULAR TO ROUNDED	GRAY	2.5Y 5/1	5	LT GRAY	2.5Y 7/1	7	NO	0.19	0.19	5.5	2.0	1.4
BI-SI-81-10	SHIP ISLAND	2010	6/22/2010	1:40 PM	30.22103	-88.86949	262213.40590	972830.43140	20-ft Vibracore	26.0	18.1																	
BI-SI-81-10A	SHIP ISLAND	2010	6/22/2010	1:40 PM	30.22103	-88.86949	262213.40590	972830.43140	20-ft Vibracore	26.0	18.1	2.3 - 7.3	5.0	SP-SM	SP-SM	SUBANGULAR TO ROUNDED	GRAYISH BROWN	2.5Y 5/2	5	LT GRAY	2.5Y 7/2	7	YES	0.20	0.20	10.6	#VALUE!	#VALUE!
BI-SI-81-10B	SHIP ISLAND	2010	6/22/2010	1:40 PM	30.22103	-88.86949	262213.40590	972830.43140	20-ft Vibracore	26.0	18.1	7.3 - 13.3	6.0	SP-SM	SP-SM	SUBANGULAR TO ROUNDED	GRAY	2.5Y 5/1	5	LT GRAY	2.5Y 7/1	7	NO	0.19	0.18	9.7	2.6	1.7
BI-SI-82-10	SHIP ISLAND	2010	6/22/2010	1:20 PM	30.21817	-88.86584	261172.92650	973982.93500	20-ft Vibracore	27.0	19.1																	
BI-SI-82-10A	SHIP ISLAND	2010	6/22/2010	1:20 PM	30.21817	-88.86584	261172.92650	973982.93500	20-ft Vibracore	27.0	19.1	2.0 - 8.4	6.4	SP	SP-SM	SUBANGULAR TO ROUNDED	GRAYISH BROWN	2.5Y 5/2	5	LT BROWNISH GRAY	2.5Y 6/2	6	NO	0.18	0.18	5.9	2.2	1.5
BI-SI-82-10B	SHIP ISLAND	2010	6/22/2010	1:20 PM	30.21817	-88.86584	261172.92650	973982.93500	20-ft Vibracore	27.0	19.1	8.4 - 13.3	4.9	SM	SM	SUBANGULAR TO ROUNDED	DK GRAYISH BROWN	2.5Y 4/2	4	LT BROWNISH GRAY	2.5Y 6/2	6	NO	0.16	#VALUE!	22.7	#VALUE!	#VALUE!
BI-SI-83-10	SHIP ISLAND	2010	6/22/2010	12:55 PM	30.21373	-88.86298	259557.93100	974885.83100	20-ft Vibracore	29.0	18.7																	
BI-SI-83-10A	SHIP ISLAND	2010	6/22/2010	12:55 PM	30.21373	-88.86298	259557.93100	974885.83100	20-ft Vibracore	29.0	18.7	1.5 - 5.0	3.5	SM	SM	SUBANGULAR TO ROUNDED	DK GRAYISH BROWN	2.5Y 4/2	4	LT BROWNISH GRAY	2.5Y 6/2	6	NO	0.18	0.18	12.1	#DIV/0!	#DIV/0!
BI-SI-84-10	SHIP ISLAND	2010	6/21/2010	1:00 PM	30.20967	-88.85976	258081.13180	975902.55460	20-ft Vibracore	30.0	19.3	NO SAMPLE TAKEN		CL	NO SAMPLE TESTED													
BI-SI-85-10	SHIP ISLAND	2010	6/22/2010	2:40 PM	30.22480	-88.86817	263584.35920	973247.75430	20-ft Vibracore	24.0	16.1																	
BI-SI-85-10A	SHIP ISLAND	2010	6/22/2010	2:40 PM	30.22480	-88.86817	263584.35920	973247.75430	20-ft Vibracore	24.0	16.1	0.0 - 1.5	1.5	SM	SM	SUBANGULAR TO ROUNDED	DK GRAY	7.5YR 4/1	4	GRAY	2.5Y 5/1	5	YES	0.15	#VALUE!	16.7	#VALUE!	#VALUE!
BI-SI-85-10B	SHIP ISLAND	2010	6/22/2010	2:40 PM	30.22480	-88.86817	263584.35920	973247.75430	20-ft Vibracore	24.0	16.1	5.4 - 10.9	5.5	SM	SM	SUBANGULAR TO ROUNDED	VERY DK GRAY	7.5YR 3/1	3	GRAYISH BROWN	2.5Y 5/2	5	YES	0.18	0.17	12.9	#VALUE!	#VALUE!
BI-SI-89-10	SHIP ISLAND	2010	6/21/2010	12:10 PM	30.20807	-88.87110	257500.25050	972320.37230	20-ft Vibracore	27.0	19.3																	
BI-SI-89-10A	SHIP ISLAND	2010	6/21/2010	12:10 PM	30.20807	-88.87110	257500.25050	972320.37230	20-ft Vibracore	27.0	19.3	0.0 - 5.0	5.0	SP	SP	SUBANGULAR TO ROUNDED	GRAYISH BROWN	2.5Y 5/2	5	LT GRAY	2.5Y 7/1	7	YES	0.20	0.21	2.8	1.5	1.0
BI-SI-89-10B	SHIP ISLAND	2010	6/21/2010	12:10 PM	30.20807	-88.87110	257500.25050	972320.37230	20-ft Vibracore	27.0	19.3	5.0 - 10.0	5.0	SP	SP	SUBANGULAR TO ROUNDED	GRAY	2.5Y 5/1	5	LT GRAY	2.5Y 7/1	7	YES	0.19	0.20	3.7	1.9	1.3
BI-SI-89-10C	SHIP ISLAND	2010	6/21/2010	12:10 PM	30.20807	-88.87110	257500.25050	972320.37230	20-ft Vibracore	27.0	19.3	10.0 - 13.5	3.5	SP	SP	SUBANGULAR TO ROUNDED	GRAYISH BROWN	2.5Y 5/2	5	LT BROWNISH GRAY	2.5Y 6/2	6	NO	0.18	0.18	4.7	2.1	1.4
BI-SI-89-10D	SHIP ISLAND	2010	6/21/2010	12:10 PM	30.20807	-88.87110	257500.25050	972320.37230	20-ft Vibracore	27.0	19.3	13.5 - 18.3	4.8	SM	SM	SUBANGULAR TO ROUNDED	DK GRAYISH BROWN	2.5Y 4/2	4	OLIVE BROWN	2.5Y 4/3	4	YES	0.17	#VALUE!	20.3	#VALUE!	#VALUE!
BI-SI-90-10	SHIP ISLAND	2010	6/21/2010	12:37 PM	30.20428	-88.86686	256121.47780	973659.28580	20-ft Vibracore	30.0	12.7																	
BI-SI-90-10A	SHIP ISLAND	2010	6/21/2010	12:37 PM	30.20428	-88.86686	256121.47780	973659.28580	20-ft Vibracore	30.0	12.7	1.6 - 4.9	3.3	SM	SP-SM	SUBANGULAR TO ROUNDED	GRAYISH BROWN	2.5Y 5/2	5	LT BROWNISH GRAY	2.5Y 6/2	6	NO	0.17	0.16	9.9	2.5	1.4
BI-SI-91-10	SHIP ISLAND	2010	6/17/2010	2:42 PM	30.19342	-88.87624	252172.89350	970694.75650	20-ft Vibracore	32.0	15.7																	
BI-SI-91-10A	SHIP ISLAND	2010	6/17/2010	2:42 PM	30.19342	-88.87624	252172.89350	970694.75650	20-ft Vibracore	32.0	15.7	2.9 - 5.9	3.0	SC	SP-SM	SUBANGULAR TO ROUNDED	GRAYISH BROWN	2.5Y 5/2	5	LT BROWNISH GRAY	2.5Y 6/2	6	NO	0.17	0.17	6.2	1.9	1.1
BI-SI-91-10B	SHIP ISLAND	2010	6/17/2010	2:42 PM	30.19342	-88.87624	252172.89350	970694.75650	20-ft Vibracore	32.0	15.7	5.9 - 11.7	5.8	SC	SP-SM	SUBANGULAR TO ROUNDED	DK GRAYISH BROWN	2.5Y 4/2	4	LT BROWNISH GRAY	2.5Y 6/2	6	NO	0.15	0.15	7.3	2.1	1.0
BI-SI-91-10C	SHIP ISLAND	2010	6/17/2010	2:42 PM	30.19342	-88.87624	252172.89350	9706947																				

Cu: Coefficient of Uniformity

Cc: Coefficient of Curvature

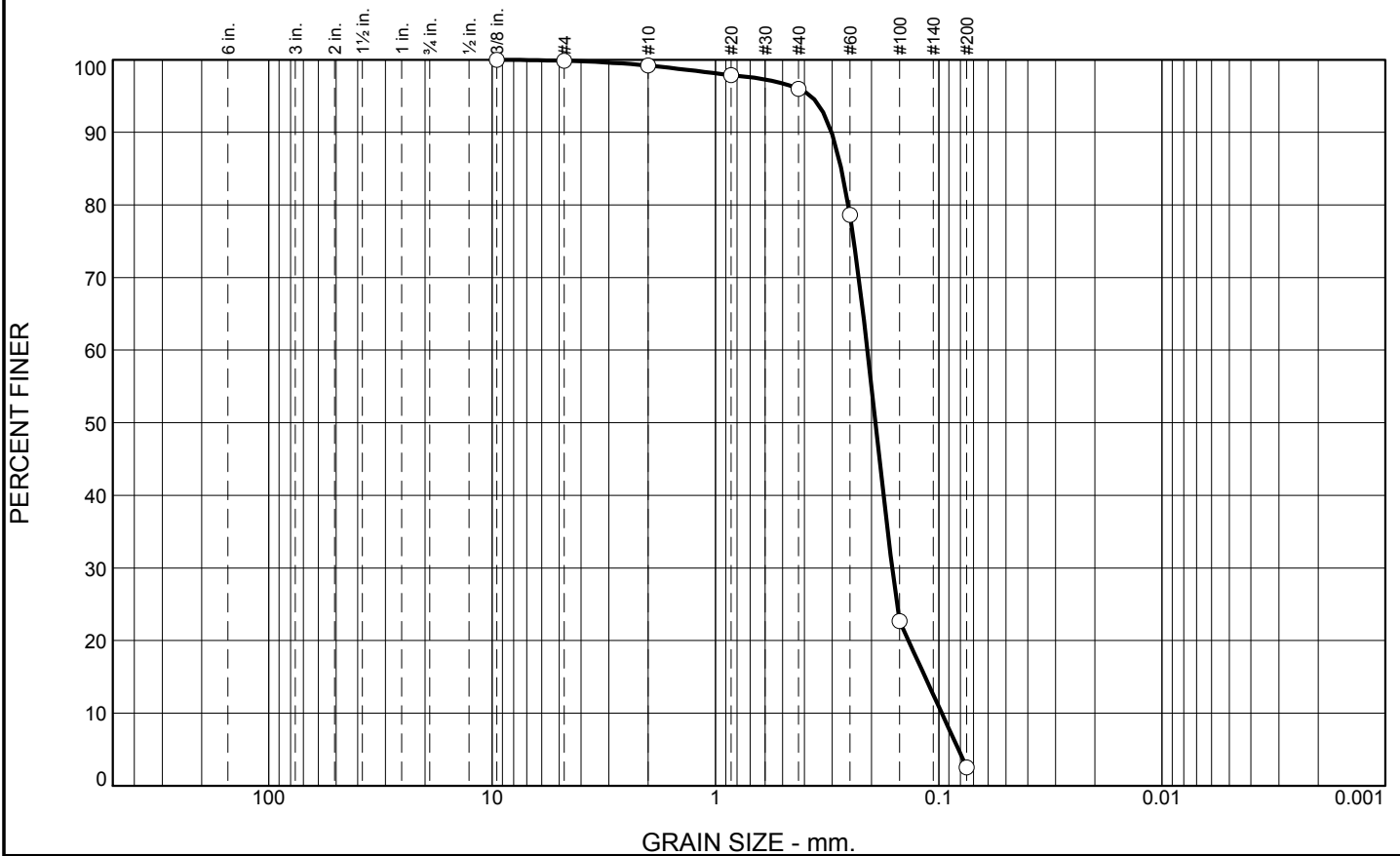
The "#Value!" error message indicates that data was not available for that calculation.



# Boring Designation BI-SI-10-10

DRILLING LOG		DIVISION South Atlantic		INSTALLATION Mobile District		SHEET 1 OF 1 SHEETS	
1. PROJECT MsCIP Barrier Island Restoration Ship Island				9. SIZE AND TYPE OF BIT N/A			
2. BORING DESIGNATION BI-SI-10-10		LOCATION COORDINATES E = 956,553 N = 255,574		10. COORDINATE SYSTEM/DATUM State Plane, MSE (U.S. Ft.)		HORIZONTAL NAD83	
3. DRILLING AGENCY Corps of Engineers - CESAM		CONTRACTOR FILE NO.		11. MANUFACTURER'S DESIGNATION OF DRILL Vibrocure		<input type="checkbox"/> AUTO HAMMER <input type="checkbox"/> MANUAL HAMMER	
4. NAME OF DRILLER Construction Solutions International, Inc.				12. TOTAL SAMPLES		DISTURBED 3	
5. DIRECTION OF BORING <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED				13. TOTAL NUMBER CORE BOXES		UNDISTURBED (UD) 0	
6. THICKNESS OF OVERBURDEN N/A				14. WATER DEPTH		23 Ft.	
7. DEPTH DRILLED INTO ROCK N/A				15. DATE BORING		STARTED 06-01-10	
8. TOTAL DEPTH OF BORING 17.9 Ft.				16. ELEVATION TOP OF BORING		COMPLETED 06-01-10	
				17. TOTAL RECOVERY FOR BORING		100%	
				18. SIGNATURE AND TITLE OF INSPECTOR		Marty Gates, Geologist	
ELEV.	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS	SAMPLE	LABORATORY RESULTS		
-21.7	0.0						
-23.7	2.0		SAND, poorly-graded, mostly fine to medium-grained sand-sized quartz, little silt, trace shell fragments, lt. gray (SP)	A	Classification: SP Color: 2.5Y 7/2-light gray D50: 0.192 mm % Fines: 2.5		
-26.1	4.4		SAND, silty, mostly fine to medium-grained sand-sized quartz, some silt, trace shell fragments, gray (SM)	B	Classification: SM Color: 5Y 6/2-light olive gray D50: 0.1477 mm % Fines: 21		
-32.7	11.0		SAND, poorly-graded, mostly fine to medium-grained sand-sized quartz, little silt, trace shell fragments, lt. gray (SP)	C	Classification: SP-SM Color: 2.5Y 7/2-light gray D50: 0.1847 mm % Fines: 5.2		
-39.6	17.9		CLAY, lean, dark gray (CL)	NS			
			NOTES: 1. Soils are field visually classified in accordance with the Unified Soils Classification System. 2. NS = Sample not submitted for laboratory analysis from this interval. 3. Seafloor elevation calculated using sampling vessel's fathometer water depth reading and applying NOAA tidal gauge data conversion factor.				

# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.1	0.7	3.2	93.5	2.5	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
.375	100.0		
#4	99.9		
#10	99.2		
#20	97.9		
#40	96.0		
#60	78.6		
#100	22.7		
#200	2.5		

\* (no specification provided)

<u><b>Material Description</b></u>		
SAND, (SP), fine grained		
<u><b>Atterberg Limits</b></u>		
PL=	LL=	PI=
<u><b>Coefficients</b></u>		
D <sub>90</sub> = 0.3021	D <sub>85</sub> = 0.2731	D <sub>60</sub> = 0.2088
D <sub>50</sub> = 0.1920	D <sub>30</sub> = 0.1616	D <sub>15</sub> = 0.1152
D <sub>10</sub> = 0.0969	C <sub>u</sub> = 2.15	C <sub>c</sub> = 1.29
<u><b>Classification</b></u>		
USCS= SP	AASHTO=	
<u><b>Remarks</b></u>		
CADD CODE = CH10D965		

Location: USACE Sample # BI-SI-10-10A  
Sample Number: TE Lab ID: 4519.19

Depth: 0.0 - 2.0 (ft.)

Date: 6/12/10

**Thompson Engineering**  
**Mobile, Alabama**

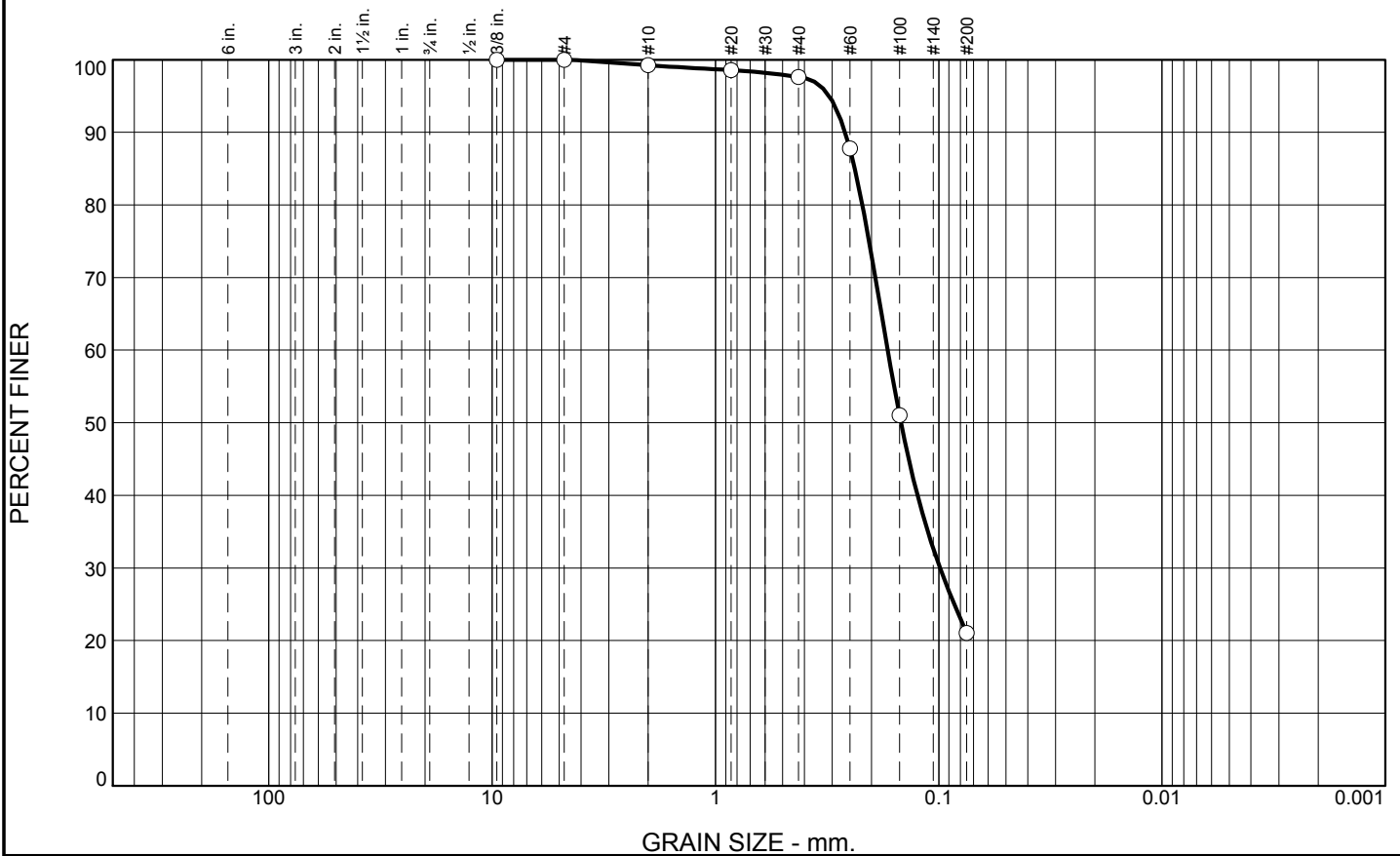
**Client:** US Army Corps of Engineers  
**Project:** Contract No. W91278-10-D-0026 - Task 03  
Mississippi Barrier Island Restoration Project  
**Project No:** 10-2123-0009

**Figure**

Tested By: R.Martin

Checked By: R.Byrd

# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.0	0.8	1.6	76.6	21.0	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
.375	100.0		
#4	100.0		
#10	99.2		
#20	98.6		
#40	97.6		
#60	87.8		
#100	51.0		
#200	21.0		

\* (no specification provided)

**Material Description**  
SILTY SAND, (SM), fine grained

**Atterberg Limits**  
 PL=      LL=      PI=

**Coefficients**  
 D<sub>90</sub>= 0.2623      D<sub>85</sub>= 0.2377      D<sub>60</sub>= 0.1694  
 D<sub>50</sub>= 0.1477      D<sub>30</sub>= 0.0987      D<sub>15</sub>=  
 D<sub>10</sub>=      C<sub>u</sub>=      C<sub>c</sub>=

**Classification**  
 USCS= SM      AASHTO=

**Remarks**  
 CADD CODE = CH10D965

**Location:** USACE Sample # BI-SI-10-10B  
**Sample Number:** TE Lab ID: 4519.20

**Depth:** 2.0 - 4.4 (ft.)

**Date:** 6/12/10

**Thompson Engineering**  
  
**Mobile, Alabama**

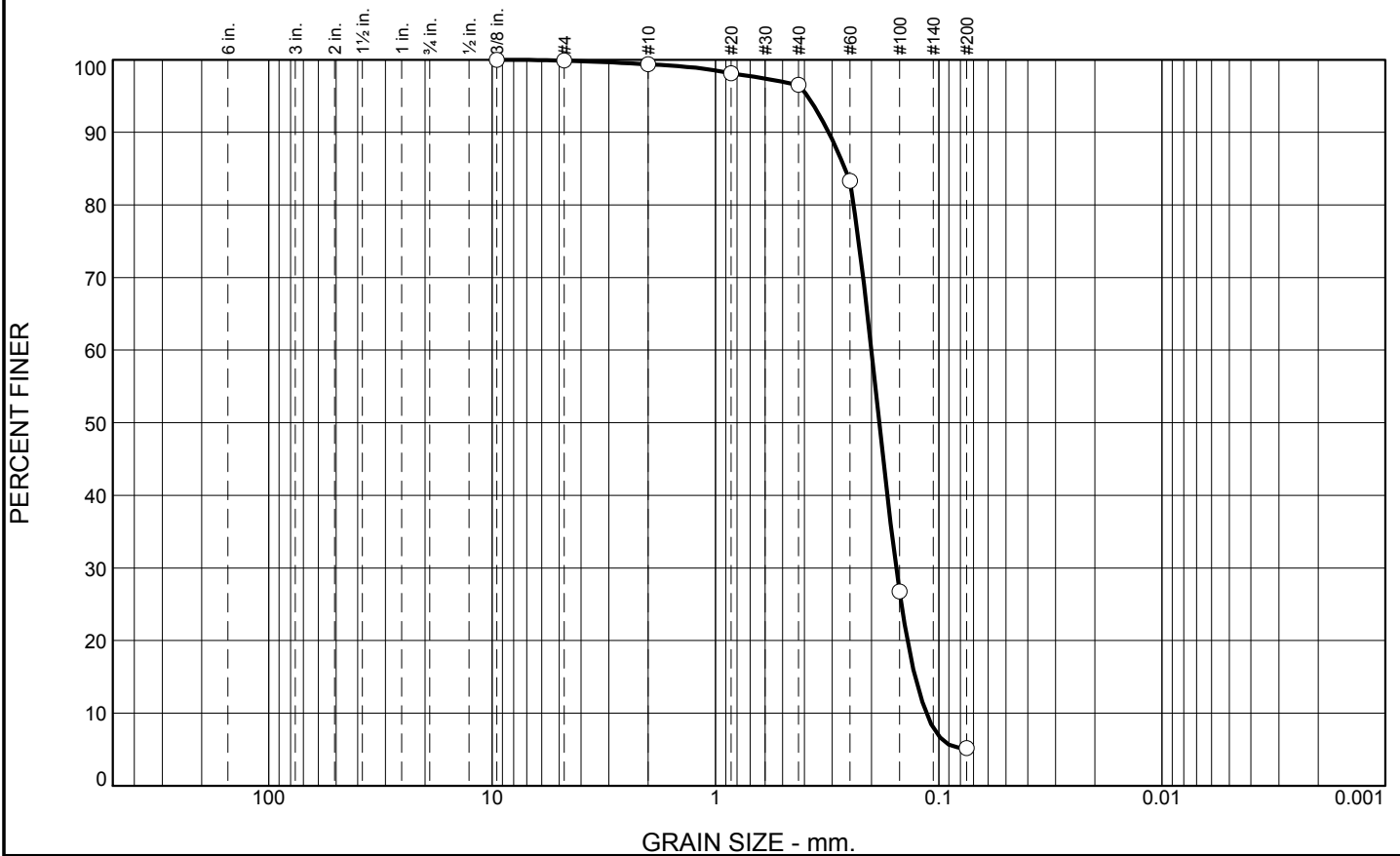
**Client:** US Army Corps of Engineers  
**Project:** Contract No. W91278-10-D-0026 - Task 03  
 Mississippi Barrier Island Restoration Project  
**Project No:** 10-2123-0009

**Figure**

**Tested By:** R.Martin

**Checked By:** R.Byrd

# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.1	0.5	2.9	91.3	5.2	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
.375	100.0		
#4	99.9		
#10	99.4		
#20	98.1		
#40	96.5		
#60	83.3		
#100	26.8		
#200	5.2		

\* (no specification provided)

## Material Description

SAND, (SP-SM), fine grained

## Atterberg Limits

PL=

LL=

PI=

## Coefficients

D<sub>90</sub>= 0.3110

D<sub>85</sub>= 0.2630

D<sub>60</sub>= 0.2003

D<sub>50</sub>= 0.1847

D<sub>30</sub>= 0.1551

D<sub>15</sub>= 0.1275

D<sub>10</sub>= 0.1137

C<sub>u</sub>= 1.76

C<sub>c</sub>= 1.06

## Classification

USCS= SP-SM

AASHTO=

## Remarks

CADD CODE = CH10D965

Location: USACE Sample # BI-SI-10-10C  
Sample Number: TE Lab ID: 4519.21

Depth: 4.4 - 11.0 (ft.)

Date: 6/12/10

**Thompson Engineering**

**Mobile, Alabama**

Client: US Army Corps of Engineers

Project: Contract No. W91278-10-D-0026 - Task 03  
Mississippi Barrier Island Restoration Project

Project No: 10-2123-0009

Figure

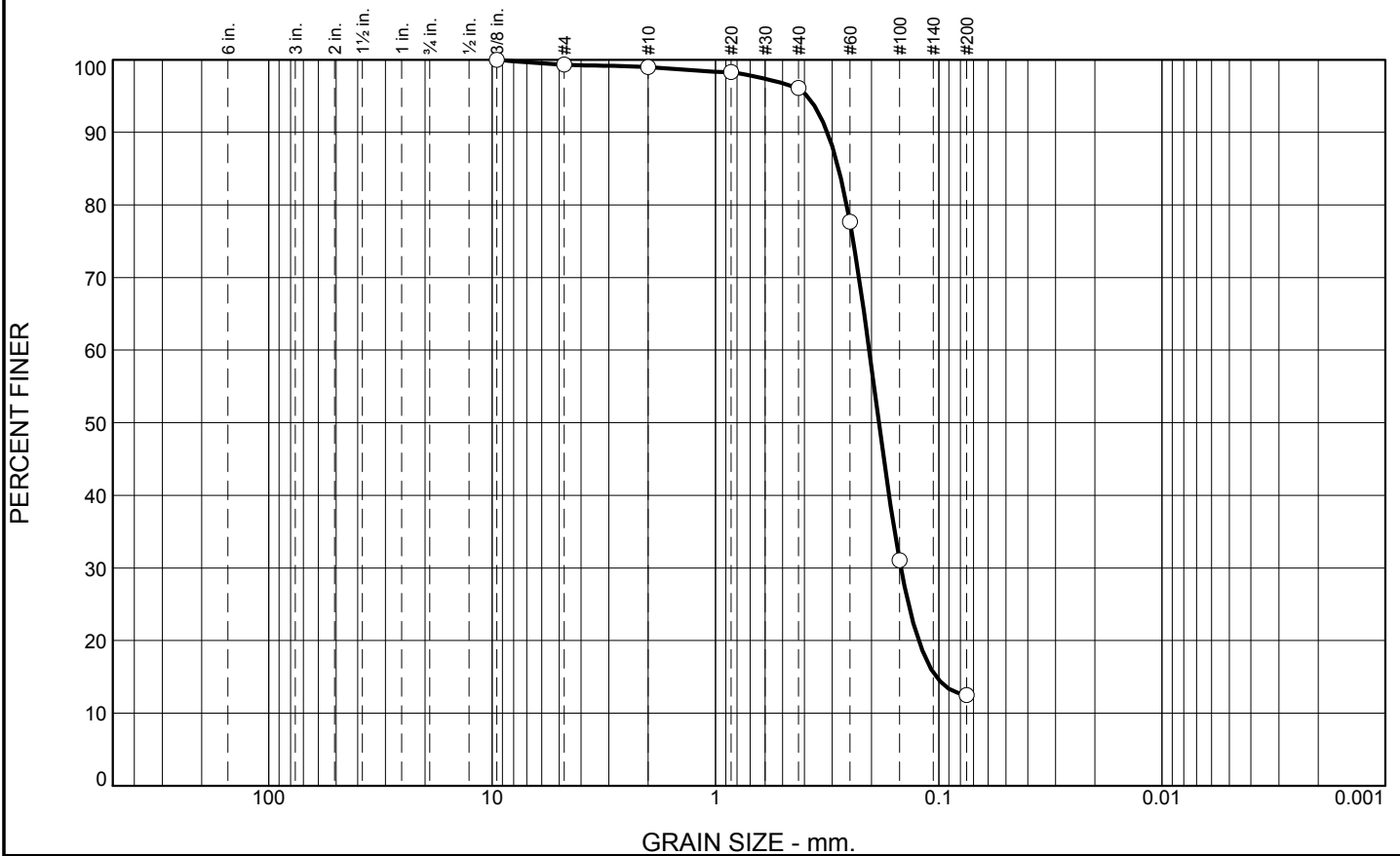
Tested By: R.Martin

Checked By: R.Byrd

# Boring Designation BI-SI-11-10

DRILLING LOG		DIVISION South Atlantic		INSTALLATION Mobile District		SHEET 1 OF 1 SHEETS	
1. PROJECT MsCIP Barrier Island Restoration Ship Island				9. SIZE AND TYPE OF BIT N/A			
2. BORING DESIGNATION BI-SI-11-10		LOCATION COORDINATES E = 965,992 N = 260,169		10. COORDINATE SYSTEM/DATUM State Plane, MSE (U.S. Ft.)		HORIZONTAL NAD83 VERTICAL NAVD88	
3. DRILLING AGENCY Corps of Engineers - CESAM		CONTRACTOR FILE NO.		11. MANUFACTURER'S DESIGNATION OF DRILL Vibrocure		<input type="checkbox"/> AUTO HAMMER <input type="checkbox"/> MANUAL HAMMER	
4. NAME OF DRILLER Construction Solutions International, Inc.				12. TOTAL SAMPLES 2		DISTURBED 2 UNDISTURBED (UD) 0	
5. DIRECTION OF BORING <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED		DEG. FROM VERTICAL		13. TOTAL NUMBER CORE BOXES			
		BEARING		14. WATER DEPTH 29 Ft.			
6. THICKNESS OF OVERBURDEN N/A				15. DATE BORING 06-01-10		STARTED 06-01-10 COMPLETED 06-01-10	
7. DEPTH DRILLED INTO ROCK N/A				16. ELEVATION TOP OF BORING -28.0 Ft.			
8. TOTAL DEPTH OF BORING 16.7 Ft.				17. TOTAL RECOVERY FOR BORING 100%			
				18. SIGNATURE AND TITLE OF INSPECTOR Marty Gates, Geologist			
ELEV.	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS	SAMPLE	LABORATORY RESULTS		
-28.0	0.0						
			SAND, poorly-graded, mostly fine to medium-grained sand-sized quartz, little silt, trace shell fragments, lt. gray (SP)	A	Classification: SM Color: 5Y 6/2-light olive gray D50: 0.1853 mm % Fines: 12.5		
				B	Classification: SP-SM Color: 2.5Y 6/2-light brownish gray D50: 0.1726 mm % Fines: 6.4		
-39.5	11.5						
-40.5	12.5		CLAY, lean, dark gray (CL)				
-41.0	13.0						
			SAND, poorly-graded, mostly fine to medium-grained sand-sized quartz, little silt, trace shell fragments, lt. gray (SP)	NS			
			CLAY, lean, dark gray (CL)				
-44.7	16.7						
			NOTES: 1. Soils are field visually classified in accordance with the Unified Soils Classification System. 2. NS = Sample not submitted for laboratory analysis from this interval. 3. Seafloor elevation calculated using sampling vessel's fathometer water depth reading and applying NOAA tidal gauge data conversion factor.				

# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.7	0.3	2.9	83.6	12.5	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
.375	100.0		
#4	99.3		
#10	99.0		
#20	98.3		
#40	96.1		
#60	77.7		
#100	31.1		
#200	12.5		

\* (no specification provided)

<u>Material Description</u>		
SILTY SAND, (SM), fine grained		
<u>Atterberg Limits</u>		
PL=	LL=	PI=
<u>Coefficients</u>		
D <sub>90</sub> = 0.3153	D <sub>85</sub> = 0.2809	D <sub>60</sub> = 0.2049
D <sub>50</sub> = 0.1853	D <sub>30</sub> = 0.1478	D <sub>15</sub> = 0.1026
D <sub>10</sub> =	C <sub>u</sub> =	C <sub>c</sub> =
<u>Classification</u>		
USCS= SM	AASHTO=	
<u>Remarks</u>		
CADD CODE = CH10D965		

Location: USACE Sample # BI-SI-11-10A  
Sample Number: TE Lab ID: 4519.13

Depth: 0.0 - 5.0 (ft.)

Date: 6/12/10

**Thompson Engineering**  
**Mobile, Alabama**

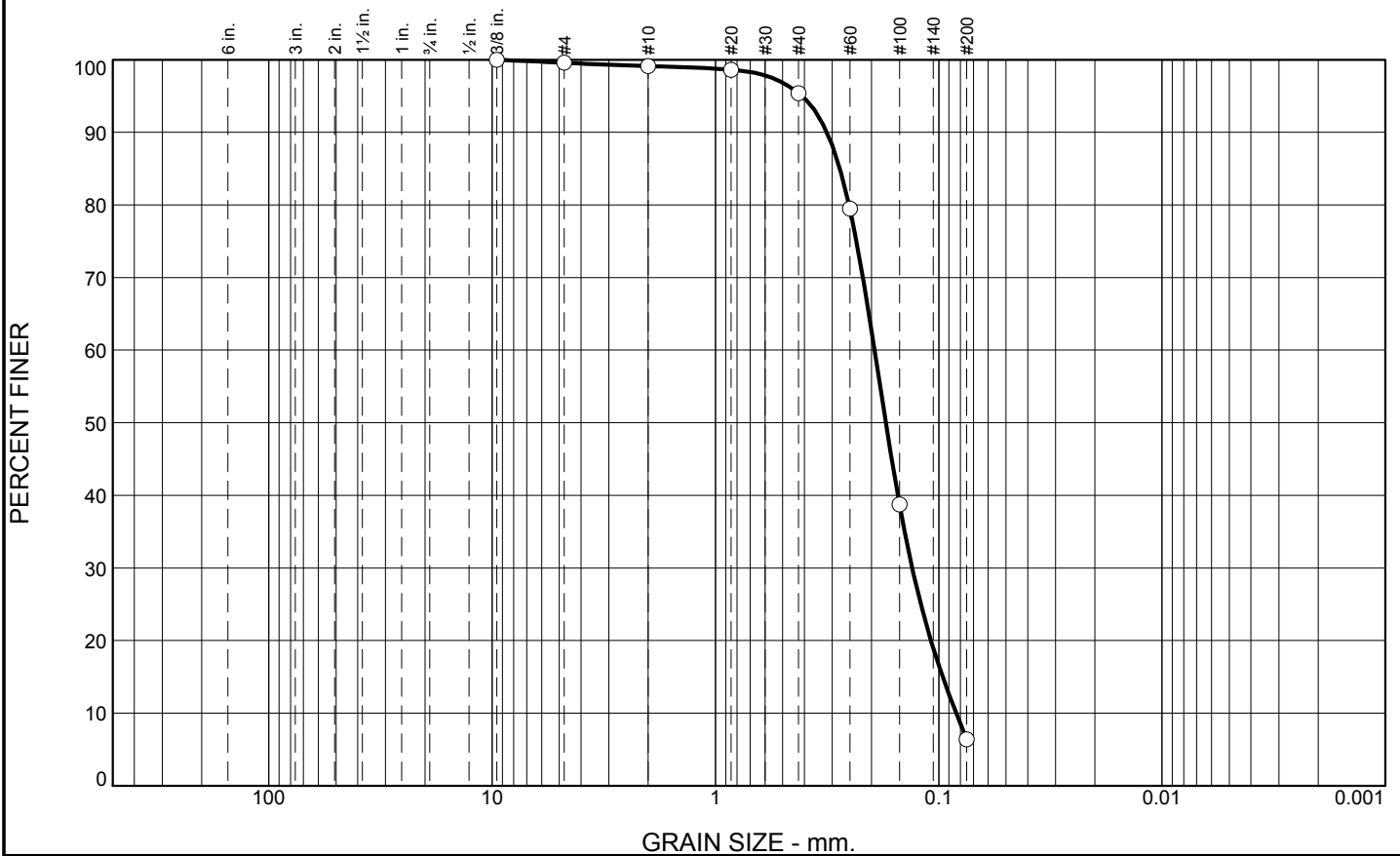
**Client:** US Army Corps of Engineers  
**Project:** Contract No. W91278-10-D-0026 - Task 03  
Mississippi Barrier Island Restoration Project  
**Project No:** 10-2123-0009

**Figure**

Tested By: R.Martin

Checked By: R.Byrd

# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.4	0.5	3.7	89.0	6.4	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
.375	100.0		
#4	99.6		
#10	99.1		
#20	98.6		
#40	95.4		
#60	79.5		
#100	38.7		
#200	6.4		

\* (no specification provided)

**Material Description**  
SAND, (SP-SM), fine grained

**Atterberg Limits**  
 PL=      LL=      PI=

**Coefficients**  
 D<sub>90</sub>= 0.3167      D<sub>85</sub>= 0.2771      D<sub>60</sub>= 0.1939  
 D<sub>50</sub>= 0.1726      D<sub>30</sub>= 0.1315      D<sub>15</sub>= 0.0960  
 D<sub>10</sub>= 0.0836      C<sub>u</sub>= 2.32      C<sub>c</sub>= 1.07

**Classification**  
 USCS= SP-SM      AASHTO=

**Remarks**  
 CADD CODE = CH10D965

**Location:** USACE Sample # BI-SI-11-10B  
**Sample Number:** TE Lab ID: 4519.14

**Depth:** 5.0 - 11.5 (ft.)

**Date:** 6/12/10

**Thompson Engineering**  
  
**Mobile, Alabama**

**Client:** US Army Corps of Engineers  
**Project:** Contract No. W91278-10-D-0026 - Task 03  
 Mississippi Barrier Island Restoration Project  
**Project No:** 10-2123-0009

**Figure**

**Tested By:** R.Martin

**Checked By:** R.Byrd

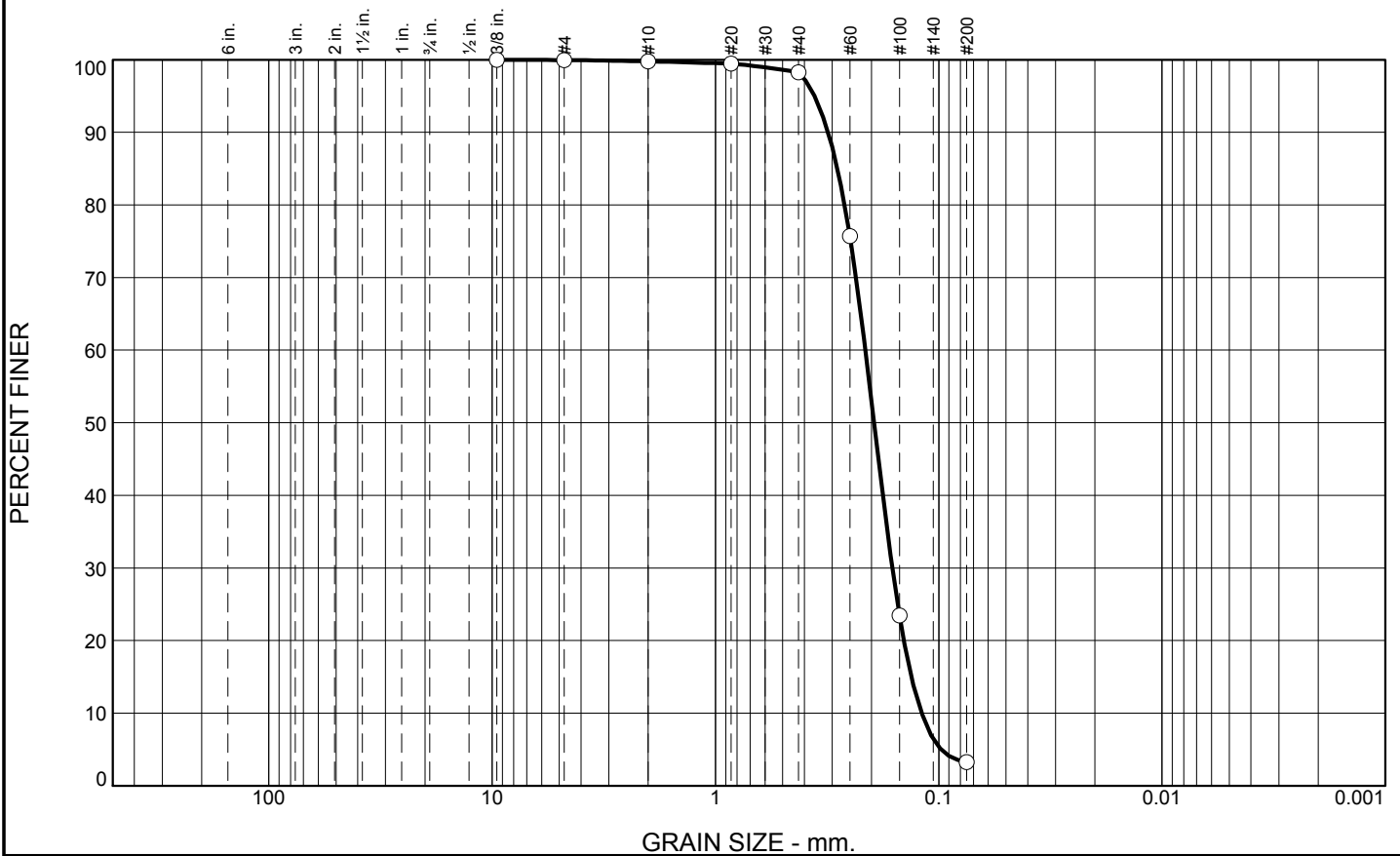
# Boring Designation BI-SI-12-10

DRILLING LOG		DIVISION South Atlantic		INSTALLATION Mobile District		SHEET 1 OF 2 SHEETS	
1. PROJECT MsCIP Barrier Island Restoration Ship Island				9. SIZE AND TYPE OF BIT N/A			
2. BORING DESIGNATION BI-SI-12-10		LOCATION COORDINATES E = 962,387 N = 254,563		10. COORDINATE SYSTEM/DATUM State Plane, MSE (U.S. Ft.)		HORIZONTAL NAD83 VERTICAL NAVD88	
3. DRILLING AGENCY Corps of Engineers - CESAM		CONTRACTOR FILE NO.		11. MANUFACTURER'S DESIGNATION OF DRILL Vibracore		<input type="checkbox"/> AUTO HAMMER <input type="checkbox"/> MANUAL HAMMER	
4. NAME OF DRILLER Construction Solutions International, Inc.				12. TOTAL SAMPLES 2		DISTURBED 2 UNDISTURBED (UD) 0	
5. DIRECTION OF BORING <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED		DEG. FROM VERTICAL		13. TOTAL NUMBER CORE BOXES			
		BEARING		14. WATER DEPTH 29 Ft.			
6. THICKNESS OF OVERBURDEN N/A				15. DATE BORING 06-01-10		STARTED 06-01-10 COMPLETED 06-01-10	
7. DEPTH DRILLED INTO ROCK N/A				16. ELEVATION TOP OF BORING -27.8 Ft.			
8. TOTAL DEPTH OF BORING 19.7 Ft.				17. TOTAL RECOVERY FOR BORING 100%			
				18. SIGNATURE AND TITLE OF INSPECTOR Marty Gates, Geologist			
ELEV.	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS	SAMPLE	LABORATORY RESULTS		
-27.8	0.0						
			SAND, poorly-graded, mostly fine to medium-grained sand-sized quartz, trace silt, trace shell fragments, lt. gray (SP)	A	Classification: SP Color: 2.5Y 7/1-light gray D50: 0.1948 mm % Fines: 3.2		
-32.5	4.7						
			SAND, silty, mostly fine to medium-grained sand-sized quartz, some silt, gray (SM)	B	Classification: SP-SM Color: 2.5Y 6/2-light brownish gray D50: 0.1609 mm % Fines: 10.3		
-36.1	8.3						
			CLAY, lean, dark gray (CL)	NS			
-41.8	14.0						
-42.8	15.0		SAND, silty, mostly fine to medium-grained sand-sized quartz, some silt, gray (SM)				
			CLAY, lean, dark gray (CL)				
-47.5	19.7						
			NOTES: 1. Soils are field visually classified in accordance with the Unified Soils Classification System. 2. NS = Sample not submitted for laboratory analysis from this interval. 3. Seafloor elevation calculated using sampling vessel's fathometer water depth reading and				



<b>DRILLING LOG (Cont. Sheet)</b>			<b>INSTALLATION</b> Mobile District		<b>SHEET 2</b> <b>OF 2 SHEETS</b>
<b>PROJECT</b> MsCIP Barrier Island Restoration			<b>COORDINATE SYSTEM/DATUM</b> State Plane, MSE (U.S. Ft.)	<b>HORIZONTAL</b> NAD83	<b>VERTICAL</b> NAVD88
<b>LOCATION COORDINATES</b> X = 962,387 Y = 254,563			<b>ELEVATION TOP OF BORING</b> -27.8 Ft.		
<b>ELEV.</b>	<b>DEPTH</b>	<b>LEGEND</b>	<b>CLASSIFICATION OF MATERIALS</b>	<b>SAMPLE</b>	<b>LABORATORY RESULTS</b>
			applying NOAA tidal gauge data conversion factor.		

# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.1	0.1	1.5	95.1	3.2	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
.375	100.0		
#4	99.9		
#10	99.8		
#20	99.5		
#40	98.3		
#60	75.7		
#100	23.4		
#200	3.2		

\* (no specification provided)

## Material Description

SAND, (SP), fine grained

## Atterberg Limits

PL=

LL=

PI=

## Coefficients

D<sub>90</sub>= 0.3127

D<sub>85</sub>= 0.2843

D<sub>60</sub>= 0.2132

D<sub>50</sub>= 0.1948

D<sub>30</sub>= 0.1614

D<sub>15</sub>= 0.1326

D<sub>10</sub>= 0.1192

C<sub>u</sub>= 1.79

C<sub>c</sub>= 1.03

## Classification

USCS= SP

AASHTO=

## Remarks

CADD CODE = CH10D965

Location: USACE Sample # BI-SI-12-10A  
Sample Number: TE Lab ID: 4519.01

Depth: 0.0 - 4.7 (ft.)

Date: 6/12/10

**Thompson Engineering**

**Mobile, Alabama**

Client: US Army Corps of Engineers

Project: Contract No. W91278-10-D-0026 - Task 03  
Mississippi Barrier Island Restoration Project

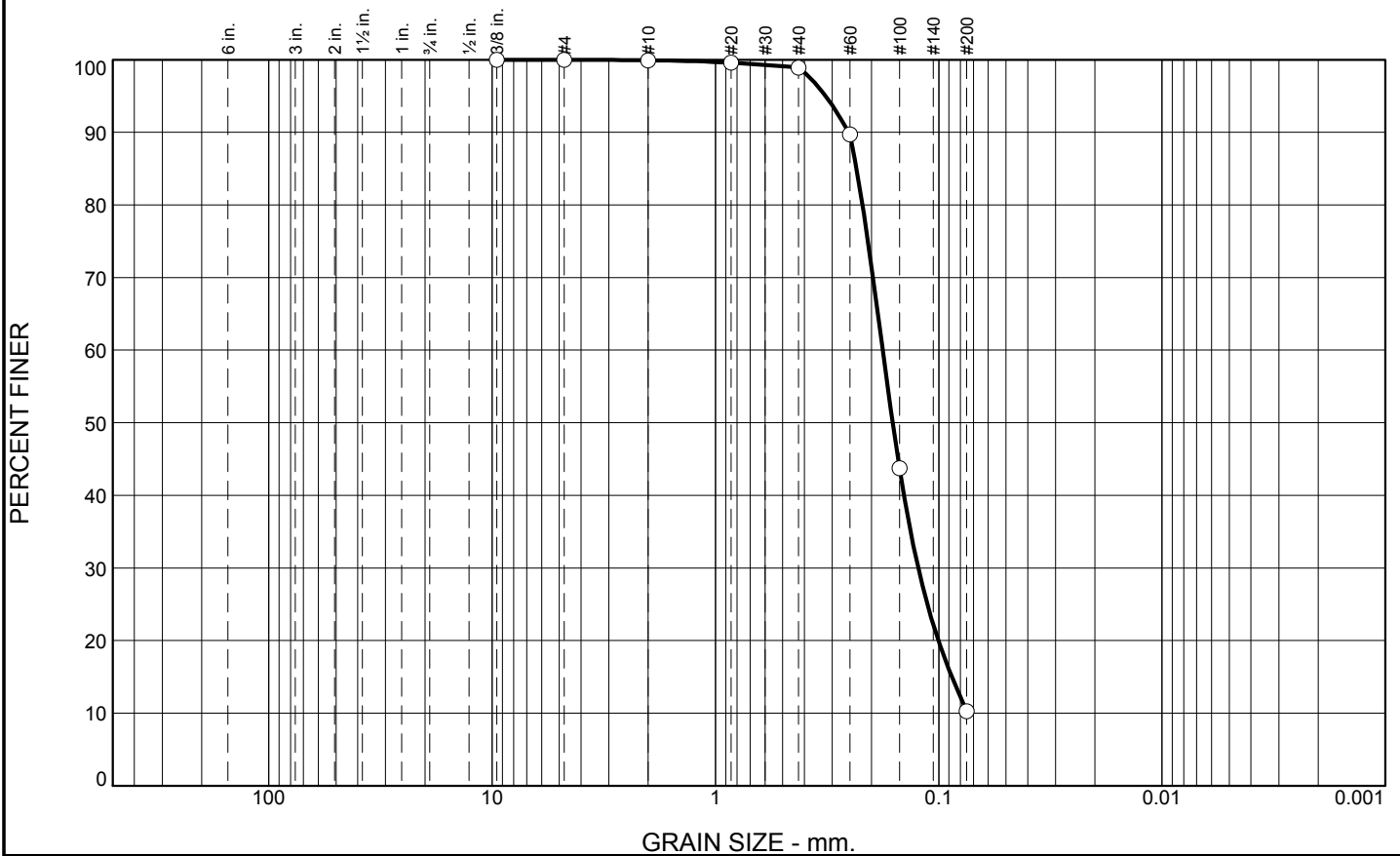
Project No: 10-2123-0009

Figure

Tested By: R.Martin

Checked By: R.Byrd

# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.0	0.1	1.0	88.6	10.3	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
.375	100.0		
#4	100.0		
#10	99.9		
#20	99.6		
#40	98.9		
#60	89.7		
#100	43.7		
#200	10.3		

\* (no specification provided)

**Material Description**  
 SAND, (SP-SM), fine grained

**Atterberg Limits**  
 PL=      LL=      PI=

**Coefficients**  
 D<sub>90</sub>= 0.2531      D<sub>85</sub>= 0.2334      D<sub>60</sub>= 0.1783  
 D<sub>50</sub>= 0.1609      D<sub>30</sub>= 0.1236      D<sub>15</sub>= 0.0874  
 D<sub>10</sub>=      C<sub>u</sub>=      C<sub>c</sub>=

**Classification**  
 USCS= SP-SM      AASHTO=

**Remarks**  
 CADD CODE = CH10D965

**Location:** USACE Sample # BI-SI-12-10B  
**Sample Number:** TE Lab ID: 4519.02

**Depth:** 4.7 - 8.5 (ft.)

**Date:** 6/12/10

**Thompson Engineering**  
  
**Mobile, Alabama**

**Client:** US Army Corps of Engineers  
**Project:** Contract No. W91278-10-D-0026 - Task 03  
 Mississippi Barrier Island Restoration Project  
**Project No:** 10-2123-0009

**Figure**

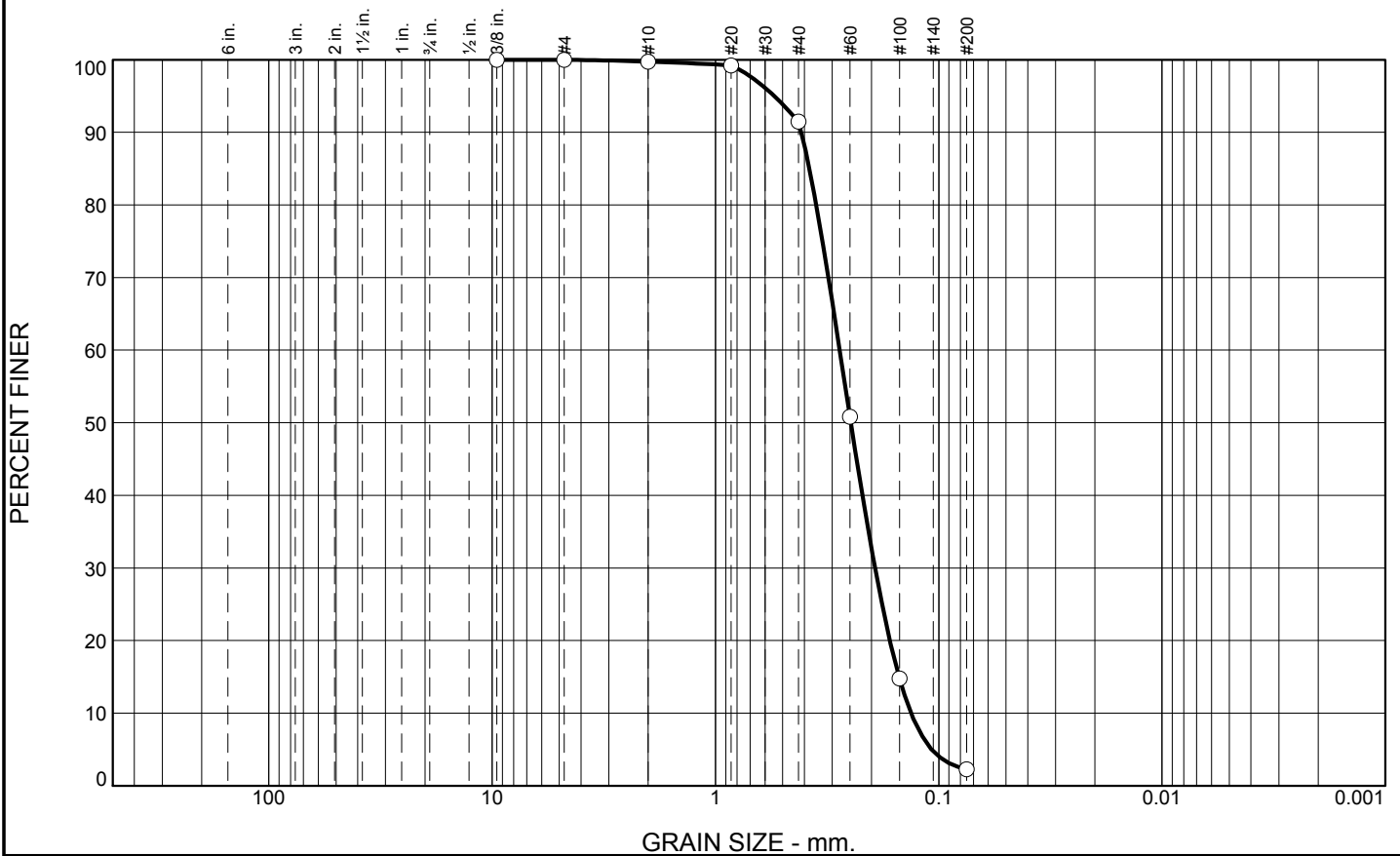
**Tested By:** R.Martin

**Checked By:** R.Byrd

# Boring Designation BI-SI-13-10

DRILLING LOG		DIVISION South Atlantic		INSTALLATION Mobile District		SHEET 1 OF 1 SHEETS	
1. PROJECT MsCIP Barrier Island Restoration Ship Island				9. SIZE AND TYPE OF BIT N/A			
2. BORING DESIGNATION BI-SI-13-10		LOCATION COORDINATES E = 970,966 N = 258,821		10. COORDINATE SYSTEM/DATUM State Plane, MSE (U.S. Ft.)		HORIZONTAL NAD83	
3. DRILLING AGENCY Corps of Engineers - CESAM		CONTRACTOR FILE NO.		11. MANUFACTURER'S DESIGNATION OF DRILL Vibracore		<input type="checkbox"/> AUTO HAMMER <input type="checkbox"/> MANUAL HAMMER	
4. NAME OF DRILLER Construction Solutions International, Inc.				12. TOTAL SAMPLES 3		DISTURBED 0	
5. DIRECTION OF BORING <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED		DEG. FROM VERTICAL		13. TOTAL NUMBER CORE BOXES			
		BEARING		14. WATER DEPTH 31 Ft.			
6. THICKNESS OF OVERBURDEN N/A				15. DATE BORING 06-01-10		COMPLETED 06-01-10	
7. DEPTH DRILLED INTO ROCK N/A				16. ELEVATION TOP OF BORING -28.5 Ft.			
8. TOTAL DEPTH OF BORING 18.9 Ft.				17. TOTAL RECOVERY FOR BORING 100%			
				18. SIGNATURE AND TITLE OF INSPECTOR Marty Gates, Geologist			
ELEV.	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS	SAMPLE	LABORATORY RESULTS		
-28.5	0.0						
			SAND, poorly-graded, mostly fine to medium-grained sand-sized quartz, little silt, trace shell fragments, lt. gray (SP)	A	Classification: SP Color: 2.5Y 7/1-light gray D50: 0.2476 mm % Fines: 2.3		
				B	Classification: SP Color: 2.5Y 7/1-light gray D50: 0.2046 mm % Fines: 2.3		
				C	Classification: SP-SM Color: 5Y 7/2-light gray D50: 0.165 mm % Fines: 5.9		
-41.7	13.2						
			CLAY, lean, dark gray (CL)	NS			
-47.4	18.9						
			NOTES:				
			1. Soils are field visually classified in accordance with the Unified Soils Classification System.				
			2. NS = Sample not submitted for laboratory analysis from this interval.				
			3. Seafloor elevation determined from USACE hydrographic survey completed 2010.				

# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.0	0.3	8.2	89.2	2.3	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
.375	100.0		
#4	100.0		
#10	99.7		
#20	99.2		
#40	91.5		
#60	50.8		
#100	14.8		
#200	2.3		

\* (no specification provided)

**Material Description**  
SAND, (SP), fine grained

**Atterberg Limits**  
 PL=      LL=      PI=

**Coefficients**  
 D<sub>90</sub>= 0.4131      D<sub>85</sub>= 0.3799      D<sub>60</sub>= 0.2777  
 D<sub>50</sub>= 0.2476      D<sub>30</sub>= 0.1929      D<sub>15</sub>= 0.1507  
 D<sub>10</sub>= 0.1330      C<sub>u</sub>= 2.09      C<sub>c</sub>= 1.01

**Classification**  
 USCS= SP      AASHTO=

**Remarks**  
 CADD CODE = CH10D965

**Location:** USACE Sample # BI-SI-13-10A  
**Sample Number:** TE Lab ID: 4519.10

**Depth:** 0.0 - 5.0 (ft.)

**Date:** 6/12/10

**Thompson Engineering**  
  
**Mobile, Alabama**

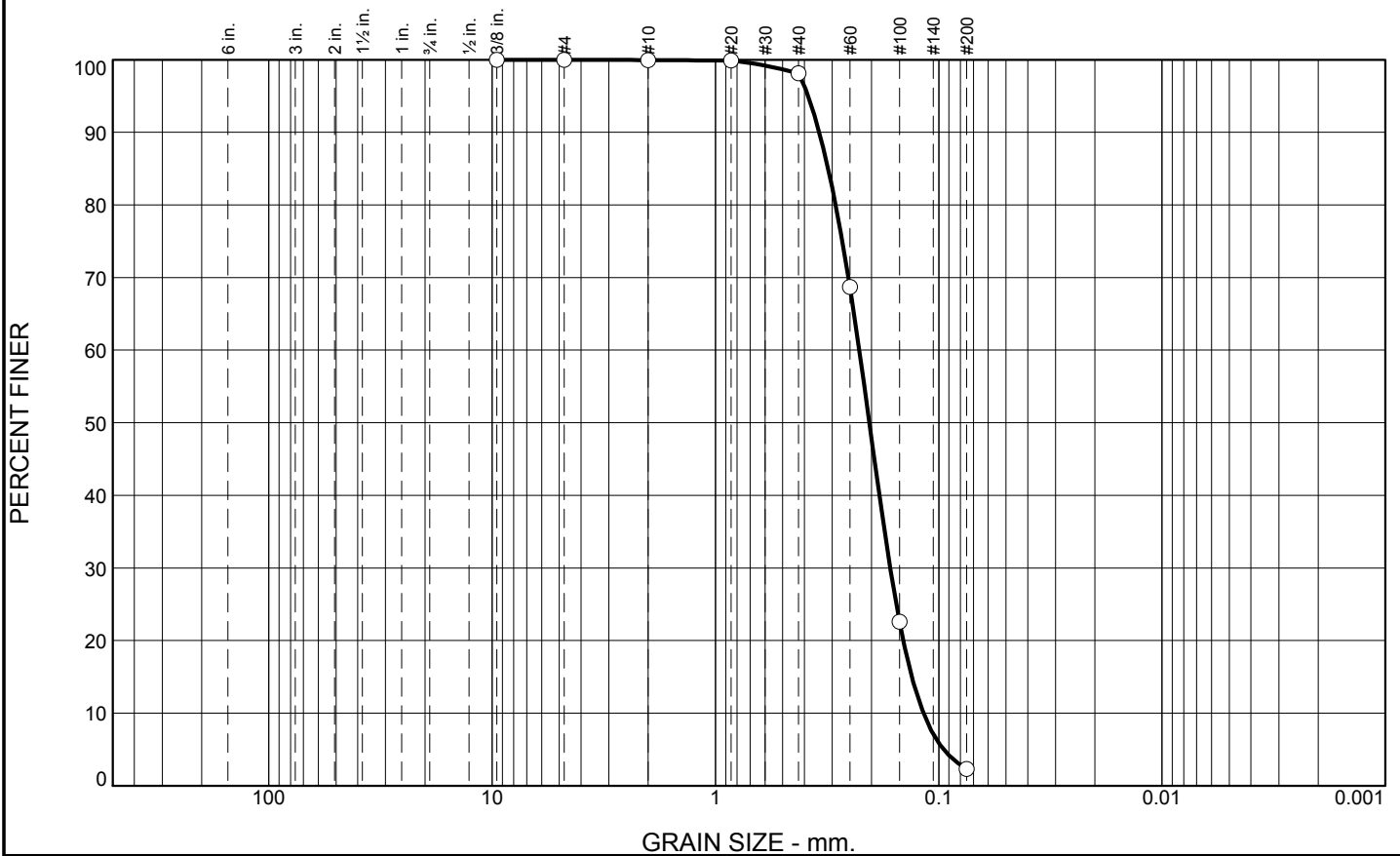
**Client:** US Army Corps of Engineers  
**Project:** Contract No. W91278-10-D-0026 - Task 03  
 Mississippi Barrier Island Restoration Project  
**Project No:** 10-2123-0009

**Figure**

**Tested By:** R.Martin

**Checked By:** R.Byrd

# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.0	0.1	1.8	95.8	2.3	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
.375	100.0		
#4	100.0		
#10	99.9		
#20	99.9		
#40	98.1		
#60	68.7		
#100	22.6		
#200	2.3		

\* (no specification provided)

## Material Description

SAND, (SP), fine grained

## Atterberg Limits

PL=

LL=

PI=

## Coefficients

D<sub>90</sub>= 0.3426

D<sub>85</sub>= 0.3127

D<sub>60</sub>= 0.2270

D<sub>50</sub>= 0.2046

D<sub>30</sub>= 0.1650

D<sub>15</sub>= 0.1320

D<sub>10</sub>= 0.1170

C<sub>u</sub>= 1.94

C<sub>c</sub>= 1.02

## Classification

USCS= SP

AASHTO=

## Remarks

CADD CODE = CH10D965

Location: USACE Sample # BI-SI-13-10B  
Sample Number: TE Lab ID: 4519.11

Depth: 5.0 - 10.0 (ft.)

Date: 6/12/10

**Thompson Engineering**

**Mobile, Alabama**

Client: US Army Corps of Engineers

Project: Contract No. W91278-10-D-0026 - Task 03  
Mississippi Barrier Island Restoration Project

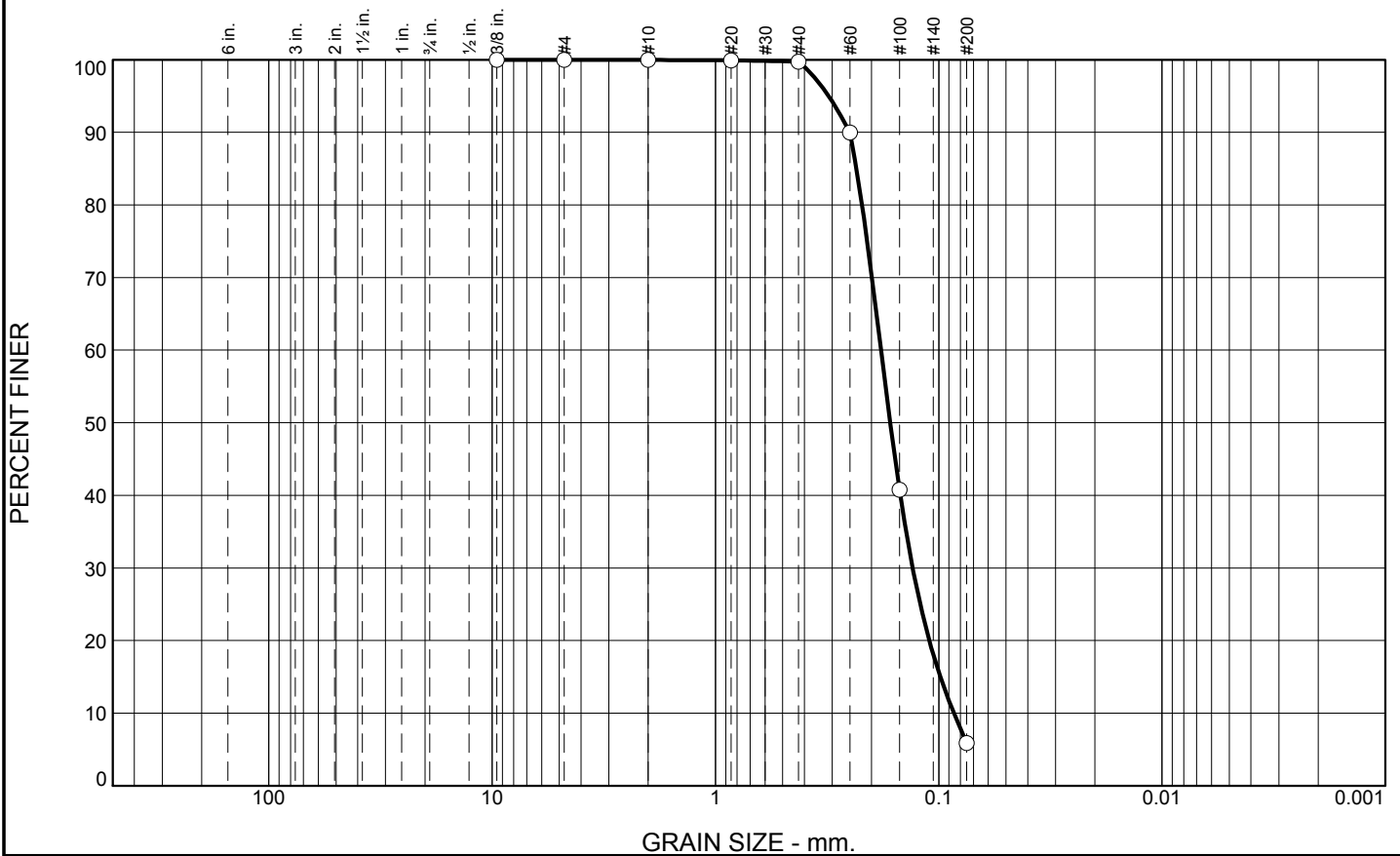
Project No: 10-2123-0009

Figure

Tested By: R.Martin

Checked By: R.Byrd

# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.0	0.0	0.3	93.8	5.9	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
.375	100.0		
#4	100.0		
#10	100.0		
#20	99.9		
#40	99.7		
#60	90.0		
#100	40.8		
#200	5.9		

\* (no specification provided)

## Material Description

SAND, (SP-SM), fine grained

## Atterberg Limits

PL=

LL=

PI=

## Coefficients

D<sub>90</sub>= 0.2503

D<sub>85</sub>= 0.2336

D<sub>60</sub>= 0.1814

D<sub>50</sub>= 0.1650

D<sub>30</sub>= 0.1309

D<sub>15</sub>= 0.0984

D<sub>10</sub>= 0.0856

C<sub>u</sub>= 2.12

C<sub>c</sub>= 1.10

## Classification

USCS= SP-SM

AASHTO=

## Remarks

CADD CODE = CH10D965

Location: USACE Sample # BI-SI-13-10C  
Sample Number: TE Lab ID: 4519.12

Depth: 10.0 - 13.2 (ft.)

Date: 6/12/10

**Thompson Engineering**

**Mobile, Alabama**

Client: US Army Corps of Engineers

Project: Contract No. W91278-10-D-0026 - Task 03  
Mississippi Barrier Island Restoration Project

Project No: 10-2123-0009

Figure

Tested By: R.Martin

Checked By: R.Byrd

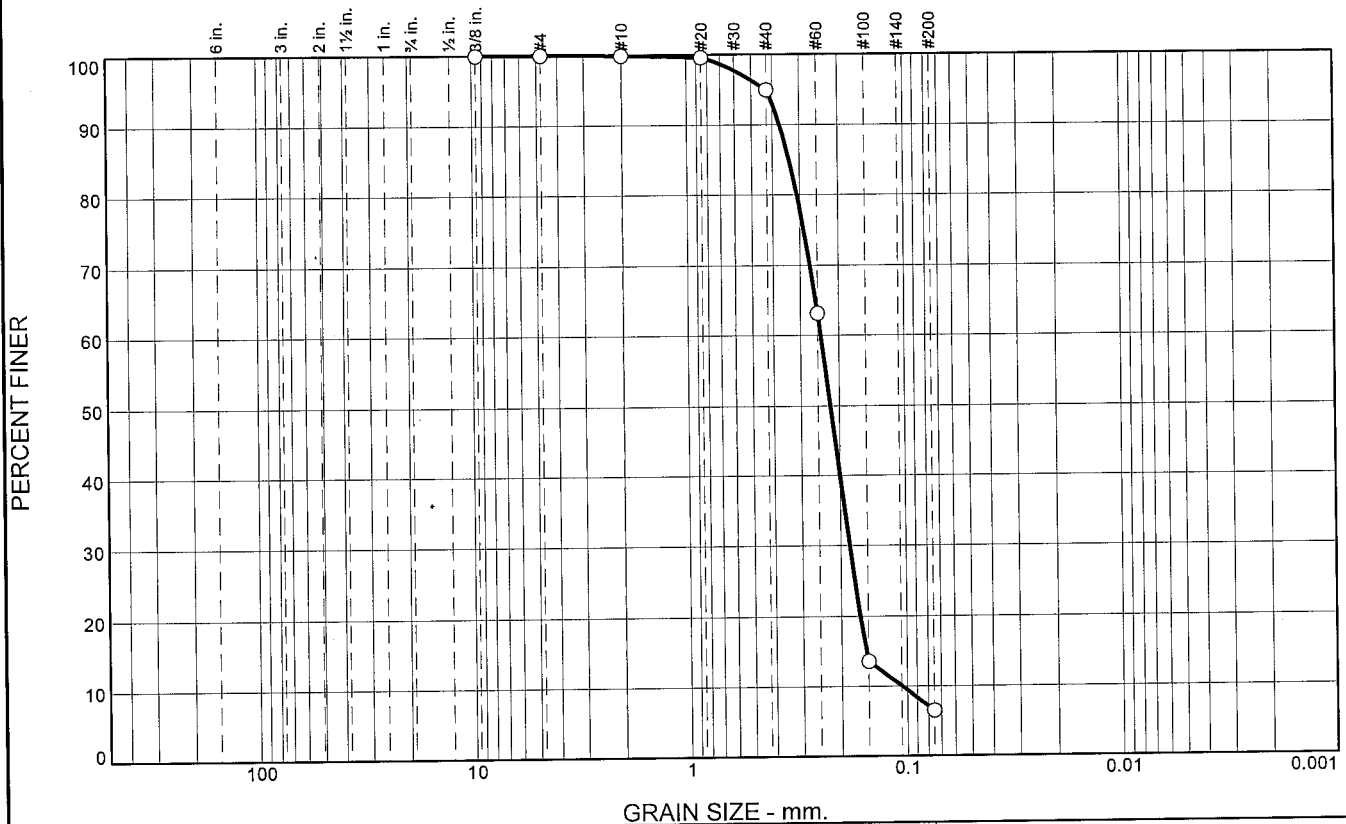
# Boring Designation BI-SI-14-10

DRILLING LOG		DIVISION South Atlantic		INSTALLATION Mobile District		SHEET 1 OF 2 SHEETS	
1. PROJECT MsCIP Barrier Island Restoration Ship Island				9. SIZE AND TYPE OF BIT N/A			
2. BORING DESIGNATION BI-SI-14-10		LOCATION COORDINATES E = 970,541 N = 254,224		10. COORDINATE SYSTEM/DATUM State Plane, MSE (U.S. Ft.)		HORIZONTAL NAD83 VERTICAL NAVD88	
3. DRILLING AGENCY Corps of Engineers - CESAM		CONTRACTOR FILE NO.		11. MANUFACTURER'S DESIGNATION OF DRILL Vibrocure		<input type="checkbox"/> AUTO HAMMER <input type="checkbox"/> MANUAL HAMMER	
4. NAME OF DRILLER Construction Solutions International, Inc.				12. TOTAL SAMPLES 4		DISTURBED 4 UNDISTURBED (UD) 0	
5. DIRECTION OF BORING <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED		DEG. FROM VERTICAL		13. TOTAL NUMBER CORE BOXES			
		BEARING		14. WATER DEPTH 30 Ft.			
6. THICKNESS OF OVERBURDEN N/A				15. DATE BORING 06-08-10		STARTED 06-08-10 COMPLETED 06-08-10	
7. DEPTH DRILLED INTO ROCK N/A				16. ELEVATION TOP OF BORING -29.0 Ft.			
8. TOTAL DEPTH OF BORING 19.5 Ft.				17. TOTAL RECOVERY FOR BORING 100%			
				18. SIGNATURE AND TITLE OF INSPECTOR Marty Gates, Geologist			
ELEV.	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS	SAMPLE	LABORATORY RESULTS		
-29.0	0.0						
			SAND, poorly-graded, mostly fine to medium-grained sand-sized quartz, trace silt, trace shell fragments, lt. gray (SP)	A	Classification: SP-SM Color: 5Y 7/1-light gray D50: 0.2196 mm % Fines: 6.5		
				B	Classification: SP-SM Color: 2.5Y 7/1-light gray D50: 0.1838 mm % Fines: 6.3		
-37.0	8.0						
			SAND, silty, some silt, trace shell fragments, gray (SM)	C	Classification: SM Color: 2.5Y 6/2-light brownish gray D50: 0.1542 mm % Fines: 13.9		
				D	Classification: SM Color: 2.5Y 5/2-grayish brown D50: 0.1646 mm % Fines: 19.8		
-45.5	16.5						
			CLAY, lean, dark gray (CL)	NS			
-48.5	19.5						
			NOTES: 1. Soils are field visually classified in accordance with the Unified Soils Classification System. 2. NS = Sample not submitted for laboratory analysis from this interval. 3. Seafloor elevation calculated using sampling vessel's fathometer water depth reading and				



<b>DRILLING LOG (Cont. Sheet)</b>			<b>INSTALLATION</b> Mobile District		<b>SHEET 2</b> <b>OF 2 SHEETS</b>
<b>PROJECT</b> MsCIP Barrier Island Restoration			<b>COORDINATE SYSTEM/DATUM</b> State Plane, MSE (U.S. Ft.)	<b>HORIZONTAL</b> NAD83	<b>VERTICAL</b> NAVD88
<b>LOCATION COORDINATES</b> X = 970,541 Y = 254,224			<b>ELEVATION TOP OF BORING</b> -29.0 Ft.		
ELEV.	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS	SAMPLE	LABORATORY RESULTS
			applying NOAA tidal gauge data conversion factor.		

# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.0	0.1	4.9	88.5	6.5	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
.375	100.0		
#4	100.0		
#10	99.9		
#20	99.6		
#40	95.0		
#60	63.1		
#100	13.6		
#200	6.5		

\* (no specification provided)

## Material Description

SAND, (SP-SM), fine grained

## Atterberg Limits

PL=

LL=

PI=

## Coefficients

D<sub>90</sub>= 0.3709

D<sub>85</sub>= 0.3355

D<sub>60</sub>= 0.2420

D<sub>50</sub>= 0.2196

D<sub>30</sub>= 0.1816

D<sub>15</sub>= 0.1531

D<sub>10</sub>= 0.1056

C<sub>u</sub>= 2.29

C<sub>c</sub>= 1.29

## Classification

USCS= SP-SM

AASHTO=

## Remarks

CADD CODE =CH10D965

Location: USACE Sample # BI-SI-14-10A  
Sample Number: TE Lab ID: 4538.04

Depth: 0.0 - 4.0 (ft.)

Date: 6/19/10

**Thompson Engineering**

**Mobile, Alabama**

Client: US Army Corps of Engineers

Project: Contract No. W91278-10-D-0026 - Task 03  
Mississippi Barrier Island Restoration Project

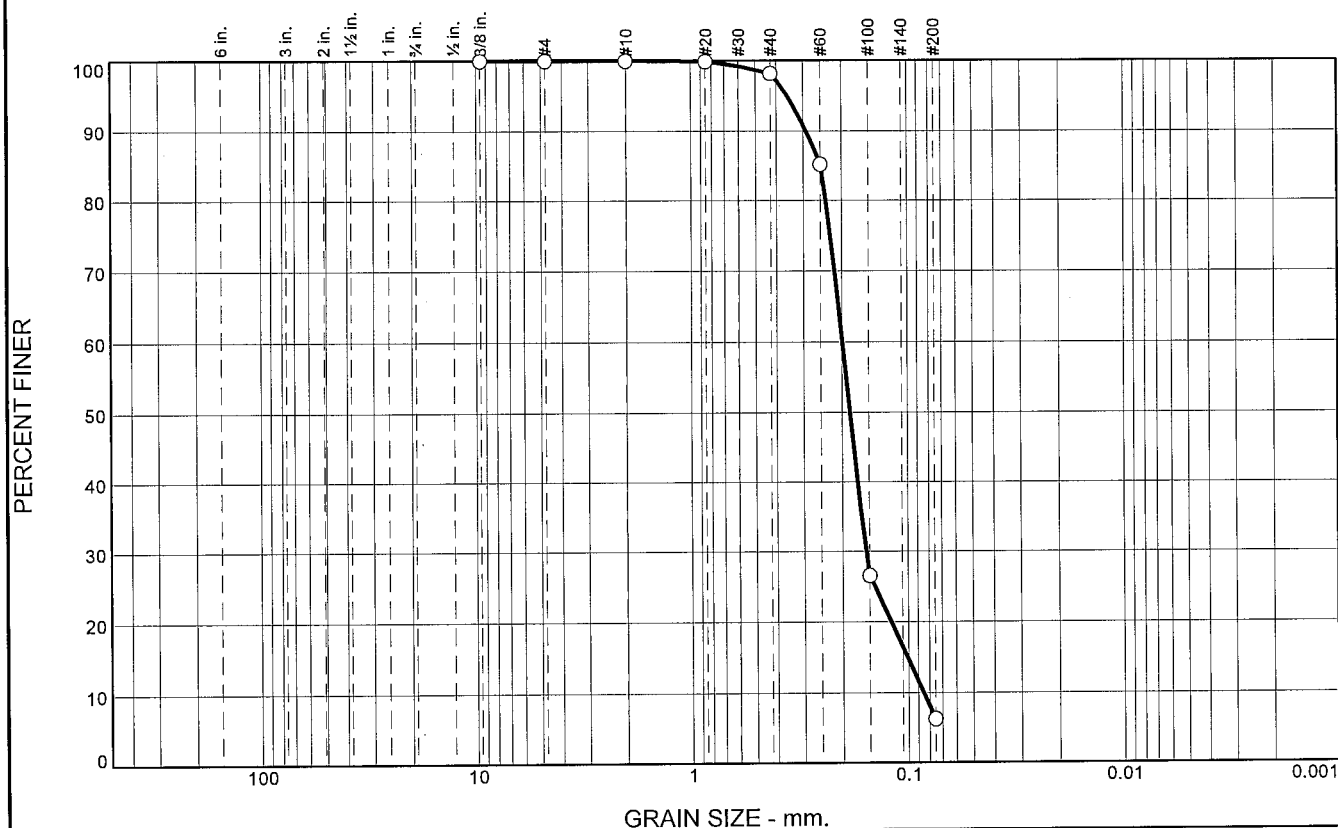
Project No: 10-2123-0009

Figure

Tested By: G.Fancher

Checked By: R.Byrd

# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.0	0.0	1.8	91.9	6.3	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
.375	100.0		
#4	100.0		
#10	100.0		
#20	99.9		
#40	98.2		
#60	85.1		
#100	26.6		
#200	6.3		

\* (no specification provided)

**Material Description**  
SAND, (SP-SM), fine grained

**Atterberg Limits**  
 PL=                      LL=                      PI=

**Coefficients**  
 D<sub>90</sub>= 0.2918      D<sub>85</sub>= 0.2496      D<sub>60</sub>= 0.1988  
 D<sub>50</sub>= 0.1838      D<sub>30</sub>= 0.1553      D<sub>15</sub>= 0.1011  
 D<sub>10</sub>= 0.0852      C<sub>u</sub>= 2.33              C<sub>c</sub>= 1.42

**Classification**  
 USCS= SP-SM                      AASHTO=

**Remarks**  
 CADD CODE = CH10D965

Location: USACE Sample # BI-SI-14-10B  
 Sample Number: TE Lab ID: 4538.05

Depth: 4.0 - 8.0 (ft.)

Date: 6/19/10

**Thompson Engineering**

**Mobile, Alabama**

Client: US Army Corps of Engineers

Project: Contract No. W91278-10-D-0026 - Task 03  
 Mississippi Barrier Island Restoration Project

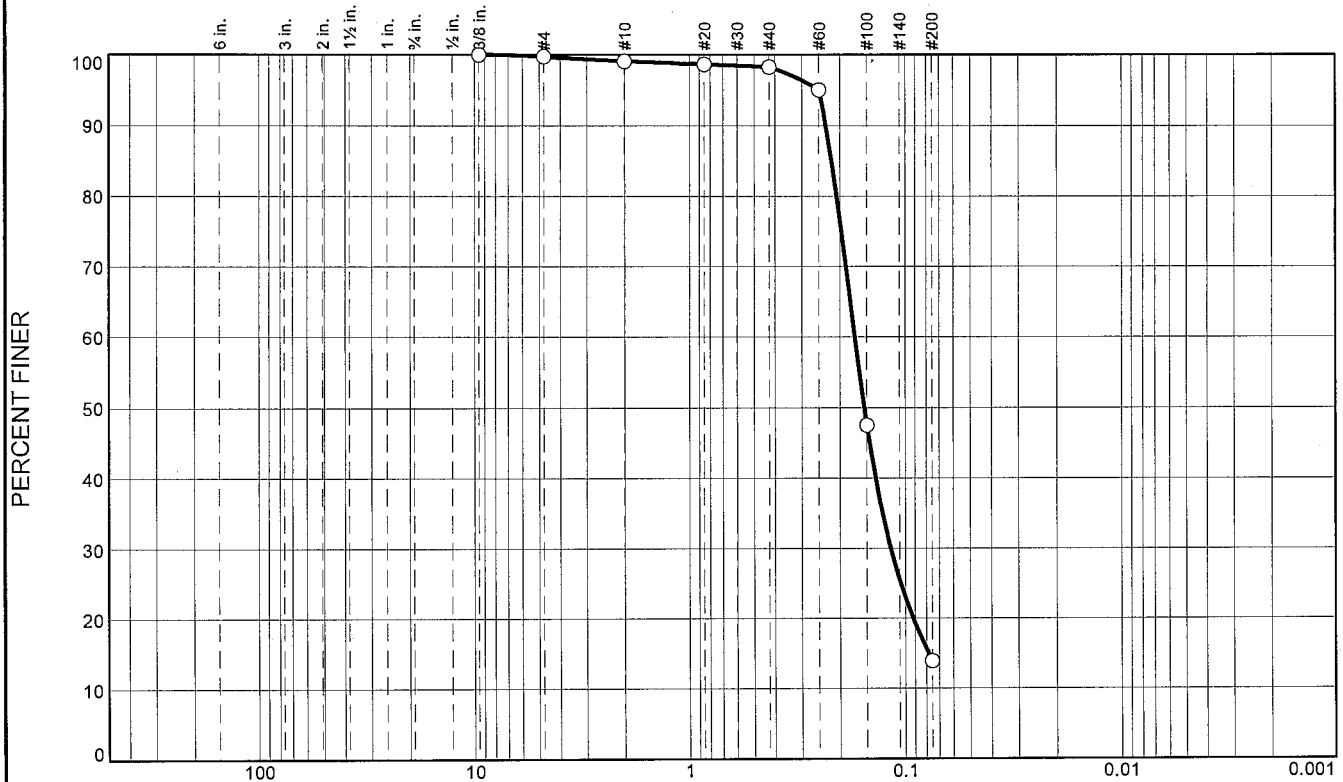
Project No: 10-2123-0009

Figure

Tested By: G.Fancher

Checked By: R.Byrd

# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.3	0.6	0.8	84.4	13.9	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
.375	100.0		
#4	99.7		
#10	99.1		
#20	98.7		
#40	98.3		
#60	95.0		
#100	47.5		
#200	13.9		

\* (no specification provided)

**Material Description**  
SILTY SAND, (SM), fine grained

**Atterberg Limits**  
 PL=      LL=      PI=

**Coefficients**  
 D<sub>90</sub>= 0.2317      D<sub>85</sub>= 0.2182      D<sub>60</sub>= 0.1704  
 D<sub>50</sub>= 0.1542      D<sub>30</sub>= 0.1168      D<sub>15</sub>= 0.0781  
 D<sub>10</sub>=      C<sub>u</sub>=      C<sub>c</sub>=

**Classification**  
 USCS= SM      AASHTO=

**Remarks**  
 CADD CODE = CH10D965

Location: USACE Sample # BI-SI-14-10C  
 Sample Number: TE Lab ID: 4538.72

Depth: 8.0 - 12.0 (ft.)

Date: 6/26/10

**Thompson Engineering**  
  
**Mobile, Alabama**

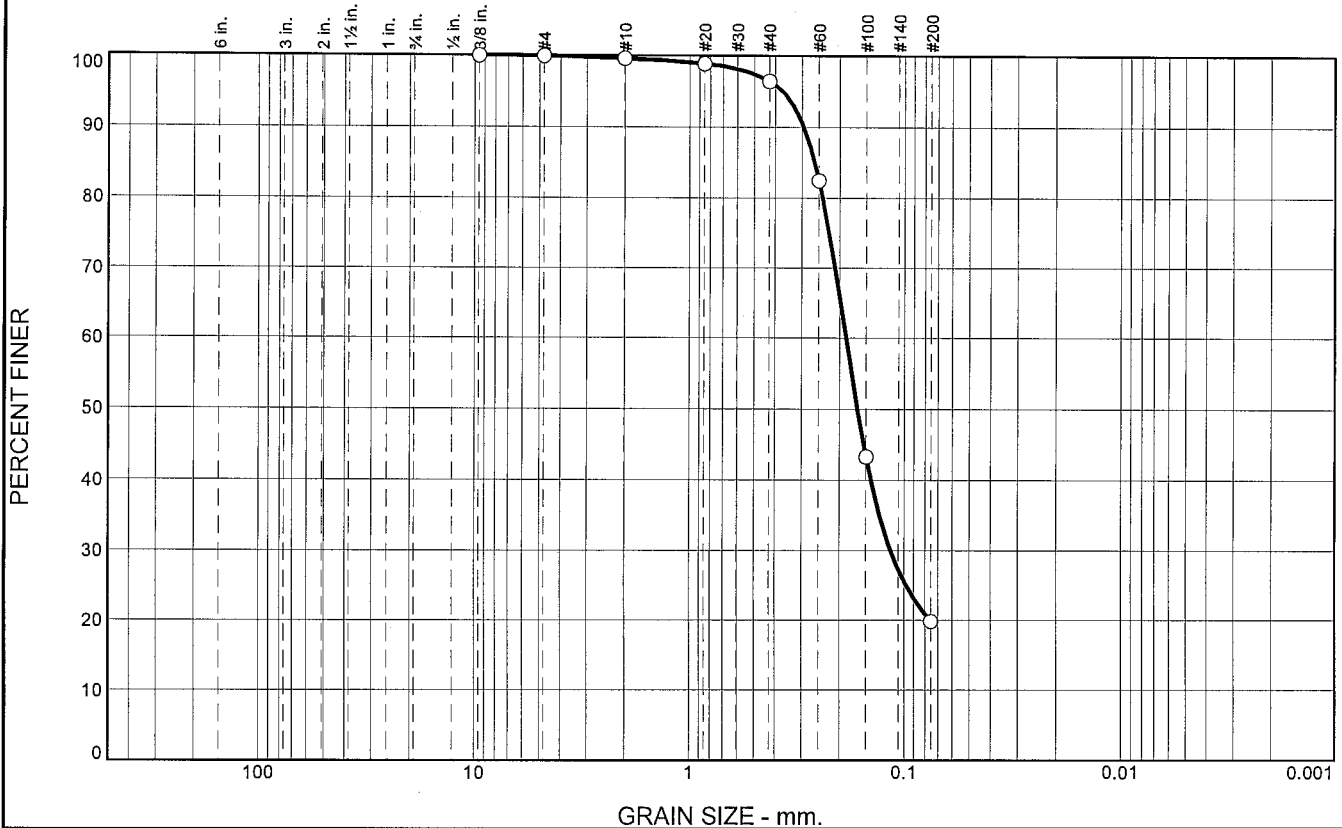
Client: US Army Corps of Engineers  
 Project: Contract No. W91278-10-D-0026 - Task 03  
 Mississippi Barrier Island Restoration Project  
 Project No: 10-2123-0009

Figure

Tested By: R.Martin

Checked By: R.Byrd

# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.1	0.3	3.2	76.6	19.8	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
.375	100.0		
#4	99.9		
#10	99.6		
#20	98.9		
#40	96.4		
#60	82.5		
#100	43.2		
#200	19.8		

\* (no specification provided)

## Material Description

SILTY SAND, (SM), fine grained

## Atterberg Limits

PL=

LL=

PI=

## Coefficients

D<sub>90</sub>= 0.2946

D<sub>85</sub>= 0.2617

D<sub>60</sub>= 0.1860

D<sub>50</sub>= 0.1646

D<sub>30</sub>= 0.1156

D<sub>15</sub>=

D<sub>10</sub>=

C<sub>u</sub>=

C<sub>c</sub>=

## Classification

USCS= SM

AASHTO=

## Remarks

CADD CODE = CH10D965

Location: USACE Sample # BI-SI-14-10D  
Sample Number: TE Lab ID: 4538.73

Depth: 12.0 - 16.5 (ft.)

Date: 6/26/10

**Thompson Engineering**

**Mobile, Alabama**

Client: US Army Corps of Engineers

Project: Contract No. W91278-10-D-0026 - Task 03  
Mississippi Barrier Island Restoration Project

Project No: 10-2123-0009

Figure

Tested By: R.Martin

Checked By: R.Byrd

# Boring Designation BI-SI-15-10

DRILLING LOG		DIVISION South Atlantic		INSTALLATION Mobile District		SHEET 1 OF 1 SHEETS	
1. PROJECT MsCIP Barrier Island Restoration Ship Island				9. SIZE AND TYPE OF BIT N/A			
2. BORING DESIGNATION BI-SI-15-10		LOCATION COORDINATES E = 947,708 N = 251,640		10. COORDINATE SYSTEM/DATUM State Plane, MSE (U.S. Ft.)		HORIZONTAL NAD83	
3. DRILLING AGENCY Corps of Engineers - CESAM		CONTRACTOR FILE NO.		11. MANUFACTURER'S DESIGNATION OF DRILL Vibrocure		<input type="checkbox"/> AUTO HAMMER <input type="checkbox"/> MANUAL HAMMER	
4. NAME OF DRILLER Construction Solutions International, Inc.				12. TOTAL SAMPLES		DISTURBED 0	
5. DIRECTION OF BORING <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED				13. TOTAL NUMBER CORE BOXES		UNDISTURBED (UD) 0	
6. THICKNESS OF OVERBURDEN N/A				14. WATER DEPTH		28 Ft.	
7. DEPTH DRILLED INTO ROCK N/A				15. DATE BORING		STARTED 06-01-10	
8. TOTAL DEPTH OF BORING 16.5 Ft.				16. ELEVATION TOP OF BORING		COMPLETED 06-01-10	
				17. TOTAL RECOVERY FOR BORING		100%	
				18. SIGNATURE AND TITLE OF INSPECTOR		Marty Gates, Geologist	
ELEV.	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS	SAMPLE	LABORATORY RESULTS		
-26.6	0.0		CLAY, lean, dark gray (CL)				
				NS			
-43.1	16.5		NOTES: 1. Soils are field visually classified in accordance with the Unified Soils Classification System. 2. NS = Sample not submitted for laboratory analysis from this interval. 3. Seafloor elevation calculated using sampling vessel's fathometer water depth reading and applying NOAA tidal gauge data conversion factor.				

# Boring Designation BI-SI-16-10

DRILLING LOG		DIVISION South Atlantic		INSTALLATION Mobile District		SHEET 1 OF 1 SHEETS	
1. PROJECT MsCIP Barrier Island Restoration Ship Island				9. SIZE AND TYPE OF BIT N/A			
2. BORING DESIGNATION BI-SI-16-10		LOCATION COORDINATES E = 941,470 N = 250,905		10. COORDINATE SYSTEM/DATUM State Plane, MSE (U.S. Ft.)		HORIZONTAL NAD83 VERTICAL NAVD88	
3. DRILLING AGENCY Corps of Engineers - CESAM		CONTRACTOR FILE NO.		11. MANUFACTURER'S DESIGNATION OF DRILL Vibracore		<input type="checkbox"/> AUTO HAMMER <input type="checkbox"/> MANUAL HAMMER	
4. NAME OF DRILLER Construction Solutions International, Inc.				12. TOTAL SAMPLES		DISTURBED 0 UNDISTURBED (UD) 0	
5. DIRECTION OF BORING <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED		DEG. FROM VERTICAL		13. TOTAL NUMBER CORE BOXES			
		BEARING		14. WATER DEPTH 25 Ft.			
6. THICKNESS OF OVERBURDEN N/A				15. DATE BORING		STARTED 06-01-10 COMPLETED 06-01-10	
7. DEPTH DRILLED INTO ROCK N/A				16. ELEVATION TOP OF BORING -23.5 Ft.			
8. TOTAL DEPTH OF BORING 15.3 Ft.				17. TOTAL RECOVERY FOR BORING 100%			
				18. SIGNATURE AND TITLE OF INSPECTOR Marty Gates, Geologist			
ELEV.	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS	SAMPLE	LABORATORY RESULTS		
-23.5	0.0		CLAY, lean, dark gray (CL)				
				NS			
-38.8	15.3		NOTES: 1. Soils are field visually classified in accordance with the Unified Soils Classification System. 2. NS = Sample not submitted for laboratory analysis from this interval. 3. Seafloor elevation calculated using sampling vessel's fathometer water depth reading and applying NOAA tidal gauge data conversion factor.				

# Boring Designation BI-SI-17-10

DRILLING LOG		DIVISION South Atlantic		INSTALLATION Mobile District		SHEET 1 OF 2 SHEETS	
1. PROJECT MsCIP Barrier Island Restoration Ship Island				9. SIZE AND TYPE OF BIT N/A			
2. BORING DESIGNATION BI-SI-17-10		LOCATION COORDINATES E = 957,925 N = 251,514		10. COORDINATE SYSTEM/DATUM State Plane, MSE (U.S. Ft.)		HORIZONTAL NAD83 VERTICAL NAVD88	
3. DRILLING AGENCY Corps of Engineers - CESAM		CONTRACTOR FILE NO.		11. MANUFACTURER'S DESIGNATION OF DRILL Vibracore		<input type="checkbox"/> AUTO HAMMER <input type="checkbox"/> MANUAL HAMMER	
4. NAME OF DRILLER Construction Solutions International, Inc.				12. TOTAL SAMPLES		DISTURBED UNDISTURBED (UD) 0	
5. DIRECTION OF BORING <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED		DEG. FROM VERTICAL		BEARING		13. TOTAL NUMBER CORE BOXES	
6. THICKNESS OF OVERBURDEN N/A				14. WATER DEPTH 28 Ft.			
7. DEPTH DRILLED INTO ROCK N/A				15. DATE BORING 06-01-10		STARTED COMPLETED 06-01-10	
8. TOTAL DEPTH OF BORING 19.7 Ft.				16. ELEVATION TOP OF BORING -27.2 Ft.			
				17. TOTAL RECOVERY FOR BORING 100%			
				18. SIGNATURE AND TITLE OF INSPECTOR Marty Gates, Geologist			
ELEV.	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS	SAMPLE	LABORATORY RESULTS		
-27.2	0.0		CLAY, lean, dark gray (CL)				
				NS			
-46.9	19.7						
			NOTES: 1. Soils are field visually classified in accordance with the Unified Soils Classification System. 2. NS = Sample not submitted for laboratory analysis from this interval. 3. Seafloor elevation calculated using sampling vessel's fathometer water depth reading and				



<b>DRILLING LOG (Cont. Sheet)</b>			<b>INSTALLATION</b> Mobile District		<b>SHEET 2</b> <b>OF 2 SHEETS</b>
<b>PROJECT</b> MsCIP Barrier Island Restoration			<b>COORDINATE SYSTEM/DATUM</b> State Plane, MSE (U.S. Ft.)	<b>HORIZONTAL</b> NAD83	<b>VERTICAL</b> NAVD88
<b>LOCATION COORDINATES</b> X = 957,925 Y = 251,514			<b>ELEVATION TOP OF BORING</b> -27.2 Ft.		
<b>ELEV.</b>	<b>DEPTH</b>	<b>LEGEND</b>	<b>CLASSIFICATION OF MATERIALS</b>	<b>SAMPLE</b>	<b>LABORATORY RESULTS</b>
			applying NOAA tidal gauge data conversion factor.		

# Boring Designation BI-SI-18-10

DRILLING LOG		DIVISION South Atlantic		INSTALLATION Mobile District		SHEET 1 OF 1 SHEETS	
1. PROJECT MsCIP Barrier Island Restoration Ship Island				9. SIZE AND TYPE OF BIT N/A			
2. BORING DESIGNATION BI-SI-18-10		LOCATION COORDINATES E = 944,843 N = 246,453		10. COORDINATE SYSTEM/DATUM State Plane, MSE (U.S. Ft.)		HORIZONTAL NAD83 VERTICAL NAVD88	
3. DRILLING AGENCY Corps of Engineers - CESAM		CONTRACTOR FILE NO.		11. MANUFACTURER'S DESIGNATION OF DRILL Vibracore		<input type="checkbox"/> AUTO HAMMER <input type="checkbox"/> MANUAL HAMMER	
4. NAME OF DRILLER Construction Solutions International, Inc.				12. TOTAL SAMPLES		DISTURBED UNDISTURBED (UD) 0	
5. DIRECTION OF BORING <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED		DEG. FROM VERTICAL		13. TOTAL NUMBER CORE BOXES			
		BEARING		14. WATER DEPTH 28 Ft.			
6. THICKNESS OF OVERBURDEN N/A				15. DATE BORING		STARTED 06-15-10 COMPLETED 06-15-10	
7. DEPTH DRILLED INTO ROCK N/A				16. ELEVATION TOP OF BORING -27.2 Ft.			
8. TOTAL DEPTH OF BORING 15.5 Ft.				17. TOTAL RECOVERY FOR BORING 100%			
				18. SIGNATURE AND TITLE OF INSPECTOR Marty Gates, Geologist			
ELEV.	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS	SAMPLE	LABORATORY RESULTS		
-27.2	0.0		CLAY, lean, dark gray (CL)				
				NS			
-42.7	15.5		NOTES: 1. Soils are field visually classified in accordance with the Unified Soils Classification System. 2. NS = Sample not submitted for laboratory analysis from this interval. 3. Seafloor elevation calculated using sampling vessel's fathometer water depth reading and applying NOAA tidal gauge data conversion factor.				

# Boring Designation BI-SI-19-10

DRILLING LOG		DIVISION South Atlantic		INSTALLATION Mobile District		SHEET 1 OF 2 SHEETS	
1. PROJECT MsCIP Barrier Island Restoration Ship Island				9. SIZE AND TYPE OF BIT N/A			
2. BORING DESIGNATION BI-SI-19-10		LOCATION COORDINATES E = 964,482 N = 249,241		10. COORDINATE SYSTEM/DATUM State Plane, MSE (U.S. Ft.)		HORIZONTAL NAD83 VERTICAL NAVD88	
3. DRILLING AGENCY Corps of Engineers - CESAM		CONTRACTOR FILE NO.		11. MANUFACTURER'S DESIGNATION OF DRILL Vibracore		<input type="checkbox"/> AUTO HAMMER <input type="checkbox"/> MANUAL HAMMER	
4. NAME OF DRILLER Construction Solutions International, Inc.				12. TOTAL SAMPLES		DISTURBED UNDISTURBED (UD) 0	
5. DIRECTION OF BORING <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED		DEG. FROM VERTICAL		13. TOTAL NUMBER CORE BOXES			
		BEARING		14. WATER DEPTH 30 Ft.			
6. THICKNESS OF OVERBURDEN N/A				15. DATE BORING 06-08-10		STARTED COMPLETED 06-08-10	
7. DEPTH DRILLED INTO ROCK N/A				16. ELEVATION TOP OF BORING -29.4 Ft.			
8. TOTAL DEPTH OF BORING 19.5 Ft.				17. TOTAL RECOVERY FOR BORING 100%			
				18. SIGNATURE AND TITLE OF INSPECTOR Marty Gates, Geologist			
ELEV.	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS	SAMPLE	LABORATORY RESULTS		
-29.4	0.0		CLAY, lean, dark gray (CL)				
				NS			
-48.9	19.5		NOTES: 1. Soils are field visually classified in accordance with the Unified Soils Classification System. 2. NS = Sample not submitted for laboratory analysis from this interval. 3. Seafloor elevation calculated using sampling vessel's fathometer water depth reading and				

<b>DRILLING LOG (Cont. Sheet)</b>			<b>INSTALLATION</b> Mobile District		<b>SHEET 2</b> <b>OF 2 SHEETS</b>
<b>PROJECT</b> MsCIP Barrier Island Restoration			<b>COORDINATE SYSTEM/DATUM</b> State Plane, MSE (U.S. Ft.)	<b>HORIZONTAL</b> NAD83	<b>VERTICAL</b> NAVD88
<b>LOCATION COORDINATES</b> X = 964,482 Y = 249,241			<b>ELEVATION TOP OF BORING</b> -29.4 Ft.		
<b>ELEV.</b>	<b>DEPTH</b>	<b>LEGEND</b>	<b>CLASSIFICATION OF MATERIALS</b>	<b>SAMPLE</b>	<b>LABORATORY RESULTS</b>
			applying NOAA tidal gauge data conversion factor.		

# Boring Designation BI-SI-20-10

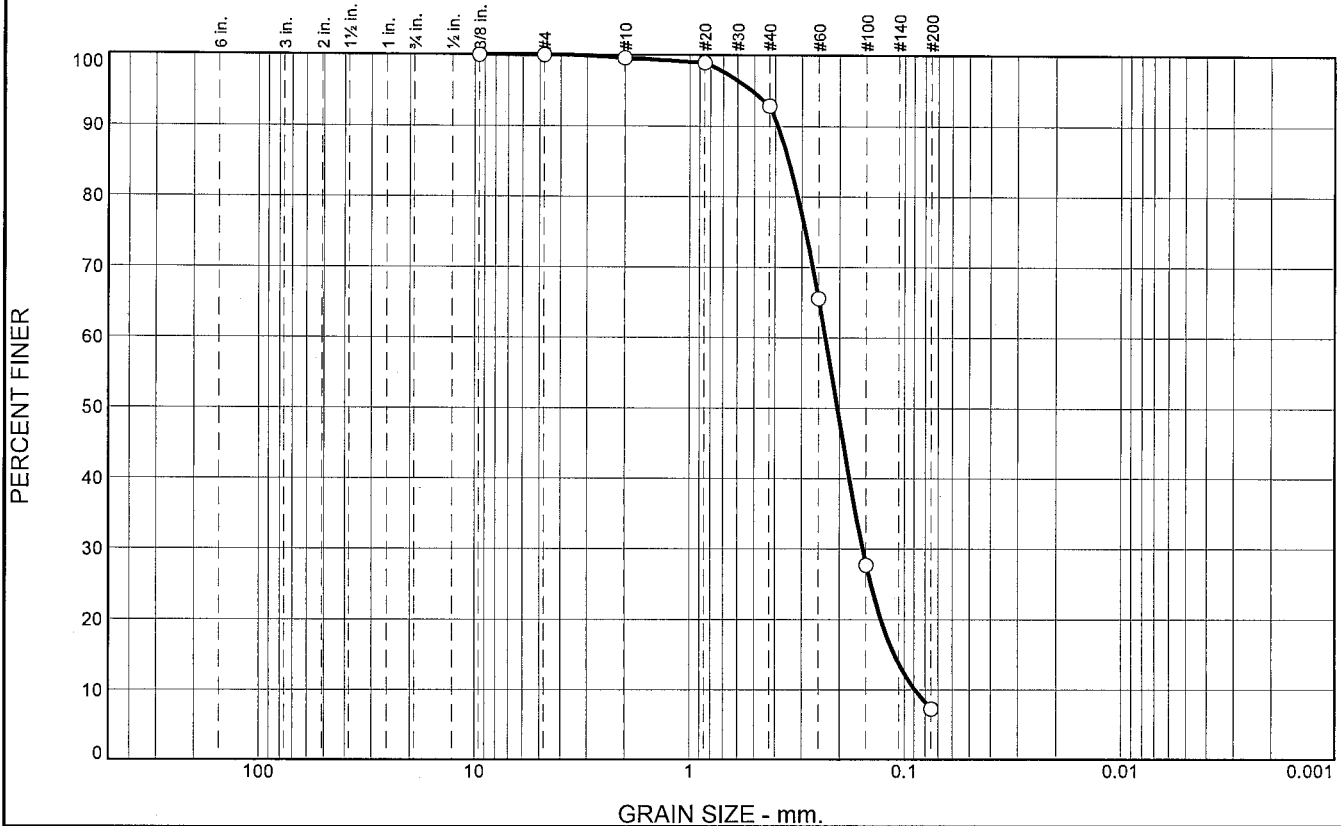
DRILLING LOG		DIVISION South Atlantic		INSTALLATION Mobile District		SHEET 1 OF 2 SHEETS	
1. PROJECT MsCIP Barrier Island Restoration Ship Island				9. SIZE AND TYPE OF BIT N/A			
2. BORING DESIGNATION BI-SI-20-10		LOCATION COORDINATES E = 957,513 N = 245,827		10. COORDINATE SYSTEM/DATUM State Plane, MSE (U.S. Ft.)		HORIZONTAL NAD83	
3. DRILLING AGENCY Corps of Engineers - CESAM		CONTRACTOR FILE NO.		11. MANUFACTURER'S DESIGNATION OF DRILL Vibrocure		<input type="checkbox"/> AUTO HAMMER <input type="checkbox"/> MANUAL HAMMER	
4. NAME OF DRILLER Construction Solutions International, Inc.				12. TOTAL SAMPLES		DISTURBED 0	
5. DIRECTION OF BORING <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED				13. TOTAL NUMBER CORE BOXES		14. WATER DEPTH 29 Ft.	
6. THICKNESS OF OVERBURDEN N/A				15. DATE BORING		STARTED 06-08-10	
7. DEPTH DRILLED INTO ROCK N/A				16. ELEVATION TOP OF BORING -28.6 Ft.		COMPLETED 06-08-10	
8. TOTAL DEPTH OF BORING 19.1 Ft.				17. TOTAL RECOVERY FOR BORING 100%		18. SIGNATURE AND TITLE OF INSPECTOR Marty Gates, Geologist	
ELEV.	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS	SAMPLE	LABORATORY RESULTS		
-28.6	0.0		CLAY, lean, dark gray (CL)				
				NS			
-47.7	19.1		NOTES: 1. Soils are field visually classified in accordance with the Unified Soils Classification System. 2. NS = Sample not submitted for laboratory analysis from this interval. 3. Seafloor elevation calculated using sampling vessel's fathometer water depth reading and applying NOAA tidal gauge data conversion				

<b>DRILLING LOG (Cont. Sheet)</b>			<b>INSTALLATION</b> Mobile District		<b>SHEET 2</b> <b>OF 2 SHEETS</b>
<b>PROJECT</b> MsCIP Barrier Island Restoration			<b>COORDINATE SYSTEM/DATUM</b> State Plane, MSE (U.S. Ft.)	<b>HORIZONTAL</b> NAD83	<b>VERTICAL</b> NAVD88
<b>LOCATION COORDINATES</b> X = 957,513 Y = 245,827			<b>ELEVATION TOP OF BORING</b> -28.6 Ft.		
<b>ELEV.</b>	<b>DEPTH</b>	<b>LEGEND</b>	<b>CLASSIFICATION OF MATERIALS</b>	<b>SAMPLE</b>	<b>LABORATORY RESULTS</b>
			factor.		

# Boring Designation BI-SI-21-10

DRILLING LOG		DIVISION South Atlantic		INSTALLATION Mobile District		SHEET 1 OF 1 SHEETS	
1. PROJECT MsCIP Barrier Island Restoration Ship Island				9. SIZE AND TYPE OF BIT N/A			
2. BORING DESIGNATION BI-SI-21-10		LOCATION COORDINATES E = 953,728 N = 254,464		10. COORDINATE SYSTEM/DATUM State Plane, MSE (U.S. Ft.)		HORIZONTAL NAD83 VERTICAL NAVD88	
3. DRILLING AGENCY Corps of Engineers - CESAM		CONTRACTOR FILE NO.		11. MANUFACTURER'S DESIGNATION OF DRILL Vibrocure		<input type="checkbox"/> AUTO HAMMER <input type="checkbox"/> MANUAL HAMMER	
4. NAME OF DRILLER Construction Solutions International, Inc.				12. TOTAL SAMPLES 3		DISTURBED 3 UNDISTURBED (UD) 0	
5. DIRECTION OF BORING <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED		DEG. FROM VERTICAL		13. TOTAL NUMBER CORE BOXES			
		BEARING		14. WATER DEPTH 21 Ft.			
6. THICKNESS OF OVERBURDEN N/A				15. DATE BORING 06-09-10		STARTED 06-09-10 COMPLETED 06-09-10	
7. DEPTH DRILLED INTO ROCK N/A				16. ELEVATION TOP OF BORING -19.2 Ft.			
8. TOTAL DEPTH OF BORING 14.3 Ft.				17. TOTAL RECOVERY FOR BORING 100%			
				18. SIGNATURE AND TITLE OF INSPECTOR Marty Gates, Geologist			
ELEV.	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS	SAMPLE	LABORATORY RESULTS		
-19.2	0.0						
			SAND, poorly-graded, mostly fine to medium-grained sand-sized quartz, trace silt, trace shell fragments, lt. gray (SP)	A	Classification: SP-SM Color: 2.5Y 6/2-light brownish gray D50: 0.2043 mm % Fines: 7.3		
				B	Classification: SP-SM Color: 2.5Y 7/1-light gray D50: 0.2756 mm % Fines: 6.5		
-27.5	8.3						
			SAND, silty, mostly fine to medium-grained sand-sized quartz, some silt, trace shell fragments, gray (SM)	C	Classification: SM Color: 2.5Y 5/2-grayish brown D50: 0.1631 mm % Fines: 29.6		
-30.4	11.2						
			CLAY, lean, dark gray (CL)	NS			
-33.5	14.3						
			NOTES: 1. Soils are field visually classified in accordance with the Unified Soils Classification System. 2. NS = Sample not submitted for laboratory analysis from this interval. 3. Seafloor elevation calculated using sampling vessel's fathometer water depth reading and applying NOAA tidal gauge data conversion factor.				

# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.0	0.5	6.6	85.6	7.3	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
.375	100.0		
#4	100.0		
#10	99.5		
#20	98.9		
#40	92.9		
#60	65.6		
#100	27.7		
#200	7.3		

\* (no specification provided)

<b><u>Material Description</u></b>		
SAND, (SP-SM), fine grained		
<b><u>Atterberg Limits</u></b>		
PL=	LL=	PI=
<b><u>Coefficients</u></b>		
D <sub>90</sub> = 0.3894	D <sub>85</sub> = 0.3457	D <sub>60</sub> = 0.2321
D <sub>50</sub> = 0.2043	D <sub>30</sub> = 0.1557	D <sub>15</sub> = 0.1113
D <sub>10</sub> = 0.0892	C <sub>u</sub> = 2.60	C <sub>c</sub> = 1.17
<b><u>Classification</u></b>		
USCS= SP-SM	AASHTO=	
<b><u>Remarks</u></b>		
CADD CODE = CH10D965		

Location: USACE Sample # BI-SI-21-10A  
Sample Number: TE Lab ID: 4538.06

Depth: 0.0 - 4.0 (ft.)

Date: 6/19/10

**Thompson Engineering**  
**Mobile, Alabama**

Client: US Army Corps of Engineers  
Project: Contract No. W91278-10-D-0026 - Task 03  
Mississippi Barrier Island Restoration Project  
Project No: 10-2123-0009

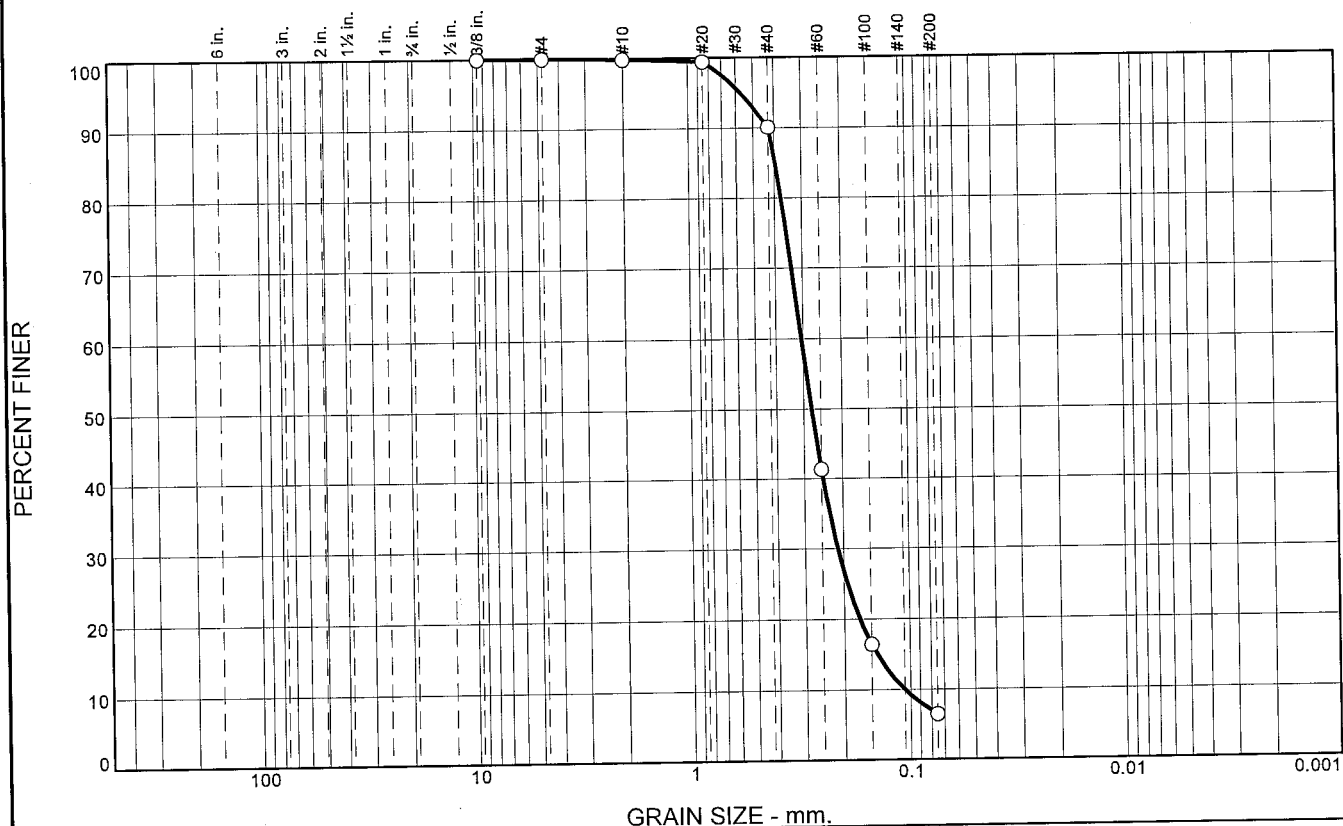
Figure

Tested By: G.Fancher

Checked By: R.Byrd



# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.0	0.2	9.8	83.5	6.5	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
.375	100.0		
#4	100.0		
#10	99.8		
#20	99.4		
#40	90.0		
#60	41.3		
#100	16.4		
#200	6.5		

\* (no specification provided)

## Material Description

SAND, (SP-SM), fine grained, with clay nodules

## Atterberg Limits

PL=

LL=

PI=

## Coefficients

D<sub>90</sub>= 0.4247  
D<sub>50</sub>= 0.2756  
D<sub>10</sub>= 0.1061

D<sub>85</sub>= 0.3965  
D<sub>30</sub>= 0.2125  
C<sub>u</sub>= 2.87

D<sub>60</sub>= 0.3048  
D<sub>15</sub>= 0.1414  
C<sub>c</sub>= 1.40

## Classification

USCS= SP-SM

AASHTO=

## Remarks

CADD CODE = CH10D965

Location: USACE Sample # BI-SI-21-10B  
Sample Number: TE Lab ID: 4538.07

Depth: 4.0 - 8.3 (ft.)

Date: 6/19/10

**Thompson Engineering**

**Mobile, Alabama**

Client: US Army Corps of Engineers

Project: Contract No. W91278-10-D-0026 - Task 03  
Mississippi Barrier Island Restoration Project

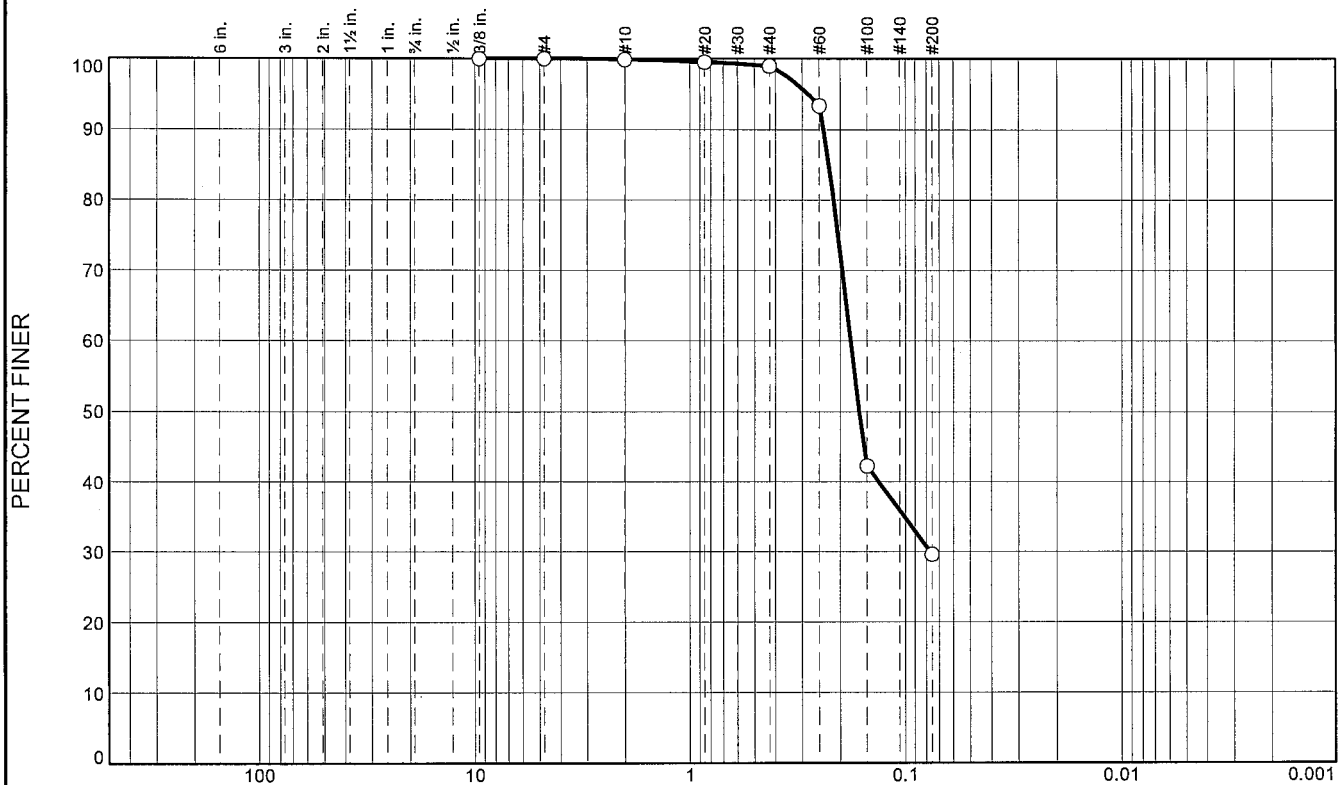
Project No: 10-2123-0009

Figure

Tested By: G.Fancher

Checked By: R.Byrd

# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.0	0.1	0.9	69.4	29.6	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
.375	100.0		
#4	100.0		
#10	99.9		
#20	99.5		
#40	99.0		
#60	93.4		
#100	42.3		
#200	29.6		

\* (no specification provided)

## Material Description

SILTY SAND, (SM), fine grained

## Atterberg Limits

PL=

LL=

PI=

## Coefficients

D<sub>90</sub>= 0.2387

D<sub>85</sub>= 0.2254

D<sub>60</sub>= 0.1791

D<sub>50</sub>= 0.1631

D<sub>30</sub>= 0.0768

D<sub>15</sub>=

D<sub>10</sub>=

C<sub>u</sub>=

C<sub>c</sub>=

## Classification

USCS= SM

AASHTO=

## Remarks

CADD CODE = CH10D965

Location: USACE Sample # BI-SI-21-10C  
Sample Number: TE Lab ID: 4538.74

Depth: 8.3 - 11.2 (ft.)

Date: 6/26/10

**Thompson Engineering**

**Mobile, Alabama**

Client: US Army Corps of Engineers

Project: Contract No. W91278-10-D-0026 - Task 03  
Mississippi Barrier Island Restoration Project

Project No: 10-2123-0009

Figure

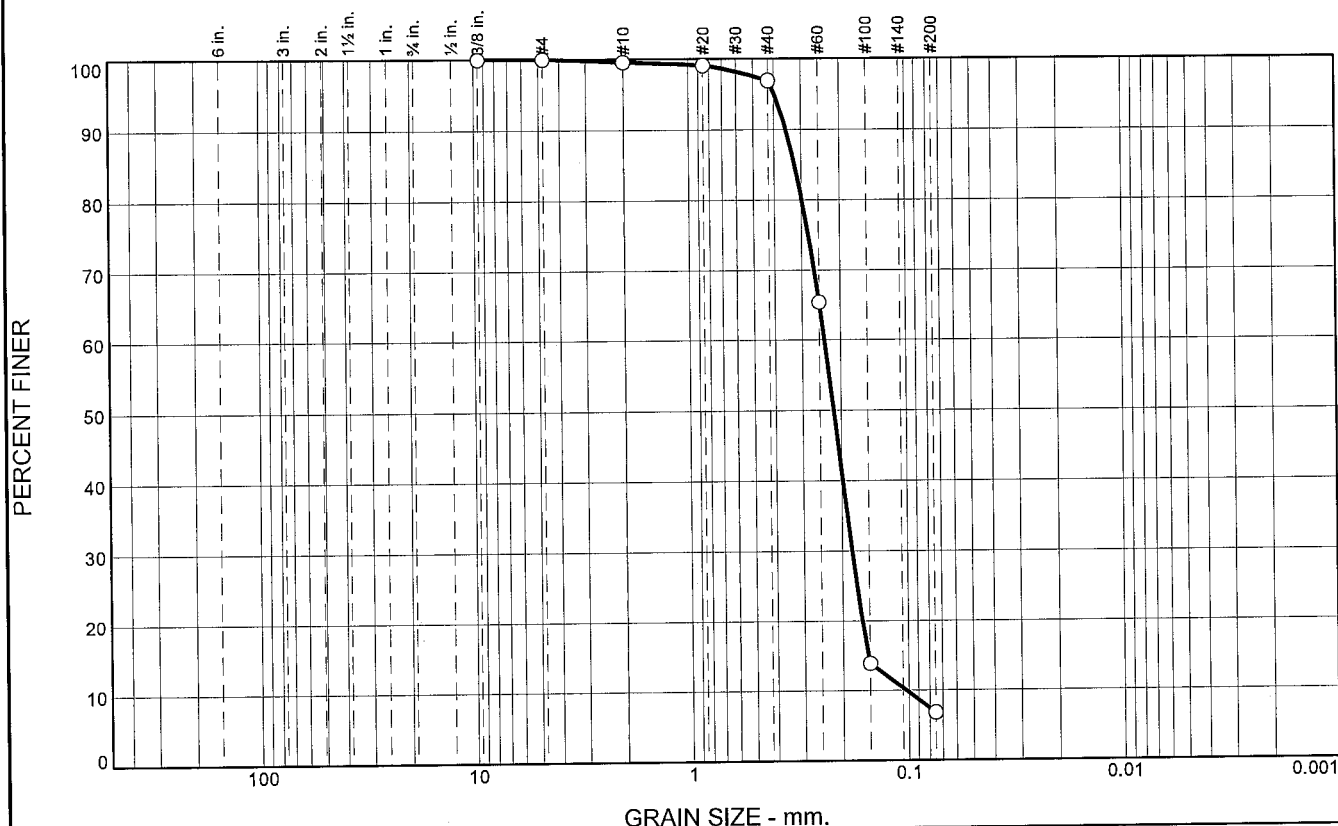
Tested By: R.Martin

Checked By: R.Byrd

# Boring Designation BI-SI-22-10

DRILLING LOG		DIVISION South Atlantic		INSTALLATION Mobile District		SHEET 1 OF 1 SHEETS	
1. PROJECT MsCIP Barrier Island Restoration Ship Island				9. SIZE AND TYPE OF BIT N/A			
2. BORING DESIGNATION BI-SI-22-10		LOCATION COORDINATES E = 955,046 N = 255,110		10. COORDINATE SYSTEM/DATUM State Plane, MSE (U.S. Ft.)		HORIZONTAL NAD83	
3. DRILLING AGENCY Corps of Engineers - CESAM		CONTRACTOR FILE NO.		11. MANUFACTURER'S DESIGNATION OF DRILL Vibracore		<input type="checkbox"/> AUTO HAMMER <input type="checkbox"/> MANUAL HAMMER	
4. NAME OF DRILLER Construction Solutions International, Inc.				12. TOTAL SAMPLES 3		DISTURBED 0	
5. DIRECTION OF BORING <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED				13. TOTAL NUMBER CORE BOXES		14. WATER DEPTH 21 Ft.	
6. THICKNESS OF OVERBURDEN N/A				15. DATE BORING 06-09-10		STARTED 06-09-10	
7. DEPTH DRILLED INTO ROCK N/A				16. ELEVATION TOP OF BORING -19.2 Ft.		COMPLETED 06-09-10	
8. TOTAL DEPTH OF BORING 13.9 Ft.				17. TOTAL RECOVERY FOR BORING 100%		18. SIGNATURE AND TITLE OF INSPECTOR Marty Gates, Geologist	
ELEV.	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS	SAMPLE	LABORATORY RESULTS		
-19.2	0.0						
			SAND, poorly-graded, mostly fine to medium-grained sand-sized quartz, trace silt, trace shell fragments, lt. gray (SP)	A	Classification: SP-SM Color: 2.5Y 7/1-light gray D50: 0.216 mm % Fines: 6.8		
				B	Classification: SP-SM Color: 2.5Y 6/2-light brownish gray D50: 0.1913 mm % Fines: 9.4		
-27.2	8.0						
-28.8	9.6		SAND, silty, mostly fine to medium-grained sand-sized quartz, some silt, trace shell fragments, gray (SM)	C	Classification: SM Color: 2.5Y 5/2-grayish brown D50: 0.1741 mm % Fines: 23.7		
			CLAY, lean, dark gray (CL)	NS			
-33.1	13.9						
			NOTES: 1. Soils are field visually classified in accordance with the Unified Soils Classification System. 2. NS = Sample not submitted for laboratory analysis from this interval. 3. Seafloor elevation calculated using sampling vessel's fathometer water depth reading and applying NOAA tidal gauge data conversion factor.				

# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.0	0.4	2.7	90.1	6.8	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
.375	100.0		
#4	100.0		
#10	99.6		
#20	99.1		
#40	96.9		
#60	65.4		
#100	13.8		
#200	6.8		

\* (no specification provided)

## Material Description

SAND, (SP-SM), fine grained

## Atterberg Limits

PL=

LL=

PI=

## Coefficients

D<sub>90</sub>= 0.3526

D<sub>85</sub>= 0.3216

D<sub>60</sub>= 0.2370

D<sub>50</sub>= 0.2160

D<sub>30</sub>= 0.1799

D<sub>15</sub>= 0.1525

D<sub>10</sub>= 0.1028

C<sub>u</sub>= 2.31

C<sub>c</sub>= 1.33

## Classification

USCS= SP-SM

AASHTO=

## Remarks

CADD CODE = CH10D965

Location: USACE Sample # BI-SI-22-10A  
Sample Number: TE Lab ID: 4538.21

Depth: 0.0 - 4.0 (ft.)

Date: 6/19/10

**Thompson Engineering**

**Mobile, Alabama**

Client: US Army Corps of Engineers

Project: Contract No. W91278-10-D-0026 - Task 03  
Mississippi Barrier Island Restoration Project

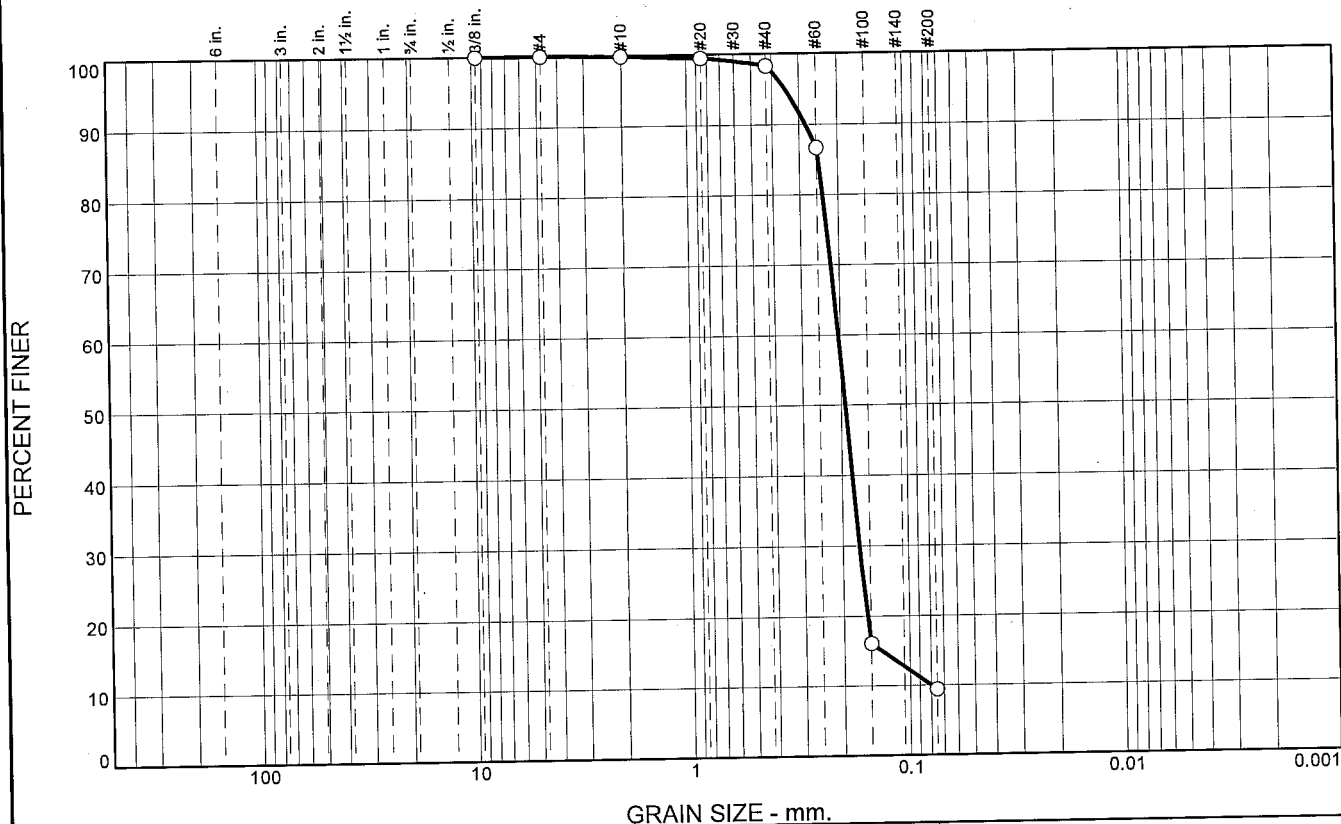
Project No: 10-2123-0009

Figure

Tested By: G.Fancher

Checked By: R.Byrd

# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.0	0.2	1.5	88.9	9.4	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
.375	100.0		
#4	100.0		
#10	99.8		
#20	99.5		
#40	98.3		
#60	86.6		
#100	16.1		
#200	9.4		

\* (no specification provided)

## Material Description

SAND, (SP-SM), fine grained, with clay pockets

## Atterberg Limits

PL= LL= PI=

## Coefficients

D<sub>90</sub>= 0.2810 D<sub>85</sub>= 0.2460 D<sub>60</sub>= 0.2040  
D<sub>50</sub>= 0.1913 D<sub>30</sub>= 0.1677 D<sub>15</sub>= 0.1343  
D<sub>10</sub>= 0.0800 C<sub>u</sub>= 2.55 C<sub>c</sub>= 1.72

## Classification

USCS= SP-SM AASHTO=

## Remarks

CADD CODE = CH10D965

Location: USACE Sample # BI-SI-22-10B  
Sample Number: TE Lab ID: 4538.22

Depth: 4.0 - 8.0 (ft.)

Date: 6/19/10

**Thompson Engineering**

**Mobile, Alabama**

Client: US Army Corps of Engineers

Project: Contract No. W91278-10-D-0026 - Task 03  
Mississippi Barrier Island Restoration Project

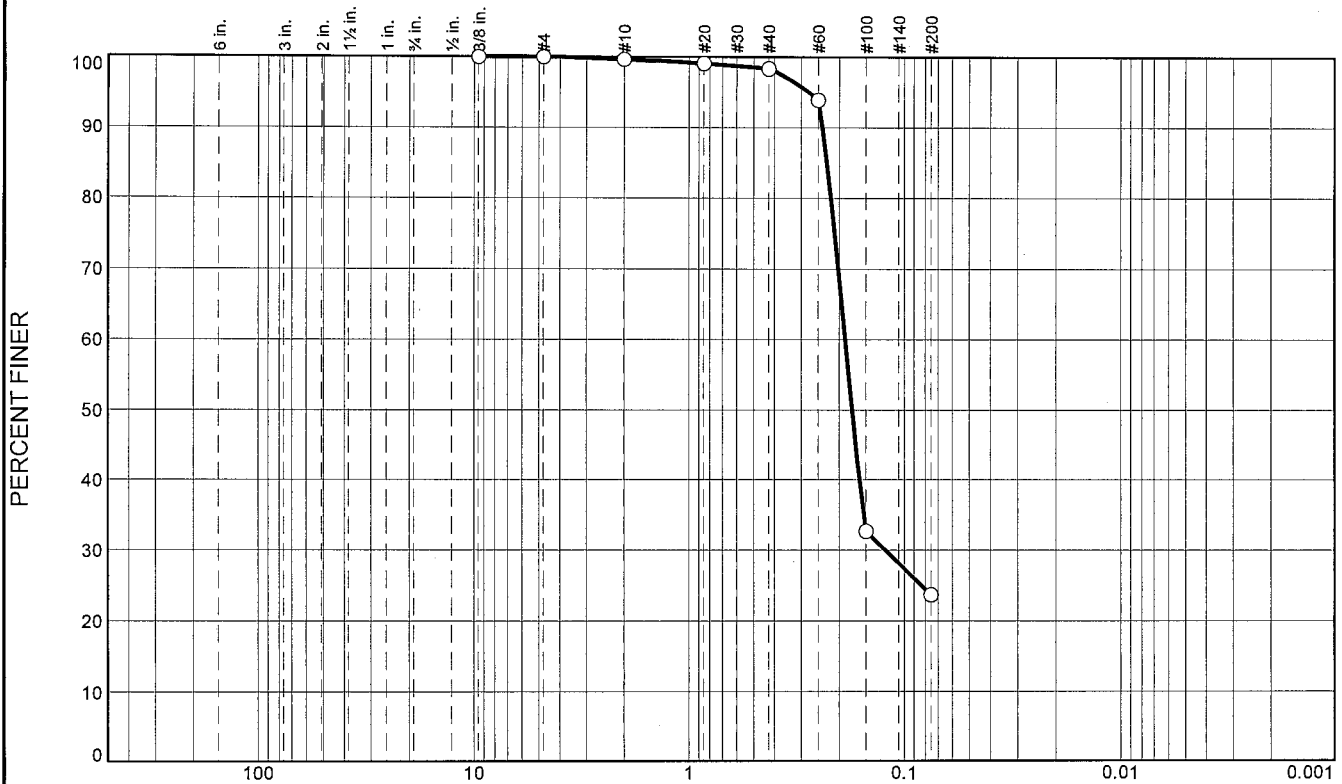
Project No: 10-2123-0009

Figure

Tested By: G.Fancher

Checked By: R.Byrd

# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.0	0.4	1.2	74.7	23.7	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
.375	100.0		
#4	100.0		
#10	99.6		
#20	99.1		
#40	98.4		
#60	93.9		
#100	32.6		
#200	23.7		

\* (no specification provided)

## Material Description

SILTY SAND, (SM), fine grained

## Atterberg Limits

PL= LL= PI=

## Coefficients

D<sub>90</sub>= 0.2390 D<sub>85</sub>= 0.2277 D<sub>60</sub>= 0.1875  
D<sub>50</sub>= 0.1741 D<sub>30</sub>= 0.1223 D<sub>15</sub>=  
D<sub>10</sub>= C<sub>u</sub>= C<sub>c</sub>=

## Classification

USCS= SM AASHTO=

## Remarks

CADD CODE = CH10D965

Location: USACE Sample # BI-SI-22-10C  
Sample Number: TE Lab ID: 4538.75

Depth: 8.0 - 9.6 (ft.)

Date: 6/26/10

**Thompson Engineering**

**Mobile, Alabama**

Client: US Army Corps of Engineers

Project: Contract No. W91278-10-D-0026 - Task 03  
Mississippi Barrier Island Restoration Project

Project No: 10-2123-0009

Figure

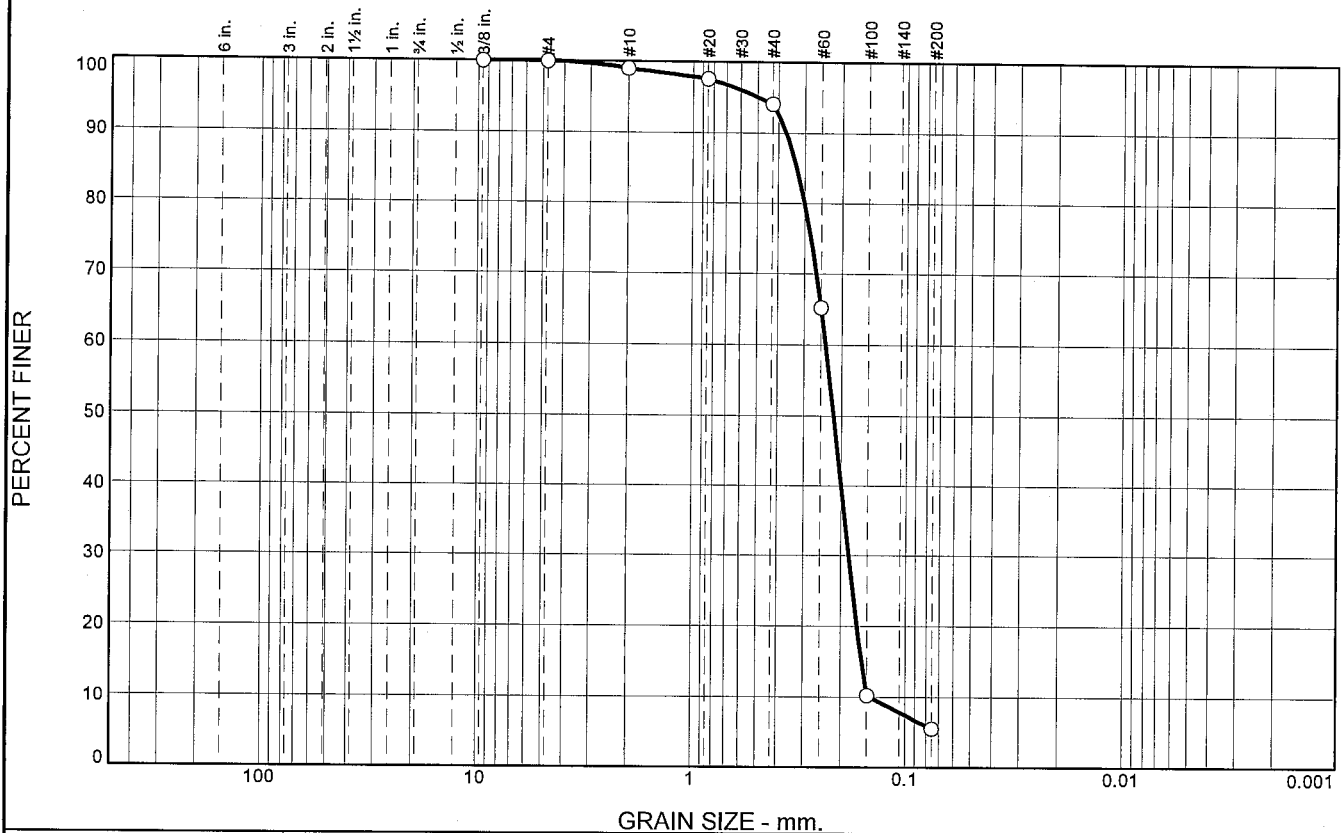
Tested By: R.Martin

Checked By: R.Byrd

# Boring Designation BI-SI-23-10

DRILLING LOG		DIVISION South Atlantic		INSTALLATION Mobile District		SHEET 1 OF 1 SHEETS	
1. PROJECT MsCIP Barrier Island Restoration Ship Island				9. SIZE AND TYPE OF BIT N/A			
2. BORING DESIGNATION BI-SI-23-10		LOCATION COORDINATES E = 958,557 N = 256,529		10. COORDINATE SYSTEM/DATUM State Plane, MSE (U.S. Ft.)		HORIZONTAL NAD83	
3. DRILLING AGENCY Corps of Engineers - CESAM		CONTRACTOR FILE NO.		11. MANUFACTURER'S DESIGNATION OF DRILL Vibracore		<input type="checkbox"/> AUTO HAMMER <input type="checkbox"/> MANUAL HAMMER	
4. NAME OF DRILLER Construction Solutions International, Inc.				12. TOTAL SAMPLES 2		DISTURBED 0	
5. DIRECTION OF BORING <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED				13. TOTAL NUMBER CORE BOXES		14. WATER DEPTH 21 Ft.	
6. THICKNESS OF OVERBURDEN N/A				15. DATE BORING 06-09-10		STARTED 06-09-10	
7. DEPTH DRILLED INTO ROCK N/A				16. ELEVATION TOP OF BORING -19.2 Ft.		COMPLETED 06-09-10	
8. TOTAL DEPTH OF BORING 14.0 Ft.				17. TOTAL RECOVERY FOR BORING 100%		18. SIGNATURE AND TITLE OF INSPECTOR Marty Gates, Geologist	
ELEV.	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS	SAMPLE	LABORATORY RESULTS		
-19.2	0.0						
-21.6	2.4		SAND, poorly-graded, mostly fine to medium-grained sand-sized quartz, trace silt, trace shell fragments, lt. gray (SP)	A	Classification: SP-SM Color: 2.5Y 5/2-grayish brown D50: 0.2174 mm % Fines: 5.5		
-25.0	5.8		SAND, silty, mostly fine to medium-grained sand-sized quartz, some silt, trace shell fragments, gray (SM)	B	Classification: SM Color: 2.5Y 6/2-light brownish gray D50: 0.1837 mm % Fines: 15.1		
-33.2	14.0		CLAY, lean, dark gray (CL)	NS			
NOTES: 1. Soils are field visually classified in accordance with the Unified Soils Classification System. 2. NS = Sample not submitted for laboratory analysis from this interval. 3. Seafloor elevation calculated using sampling vessel's fathometer water depth reading and applying NOAA tidal gauge data conversion factor.							

# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.0	1.0	4.9	88.6	5.5	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
.375	100.0		
#4	100.0		
#10	99.0		
#20	97.6		
#40	94.1		
#60	65.2		
#100	10.2		
#200	5.5		

\* (no specification provided)

## Material Description

SAND, (SP-SM), fine grained

## Atterberg Limits

PL=

LL=

PI=

## Coefficients

D<sub>90</sub>= 0.3685

D<sub>85</sub>= 0.3281

D<sub>60</sub>= 0.2376

D<sub>50</sub>= 0.2174

D<sub>30</sub>= 0.1836

D<sub>15</sub>= 0.1589

D<sub>10</sub>= 0.1456

C<sub>u</sub>= 1.63

C<sub>c</sub>= 0.97

## Classification

USCS= SP-SM

AASHTO=

## Remarks

CADD CODE = CH10D965

Location: USACE Sample # BI-SI-23-10A  
Sample Number: TE Lab ID: 4538.23

Depth: 0.0 - 2.4 (ft.)

Date: 6/19/10

**Thompson Engineering**

**Mobile, Alabama**

Client: US Army Corps of Engineers

Project: Contract No. W91278-10-D-0026 - Task 03  
Mississippi Barrier Island Restoration Project

Project No: 10-2123-0009

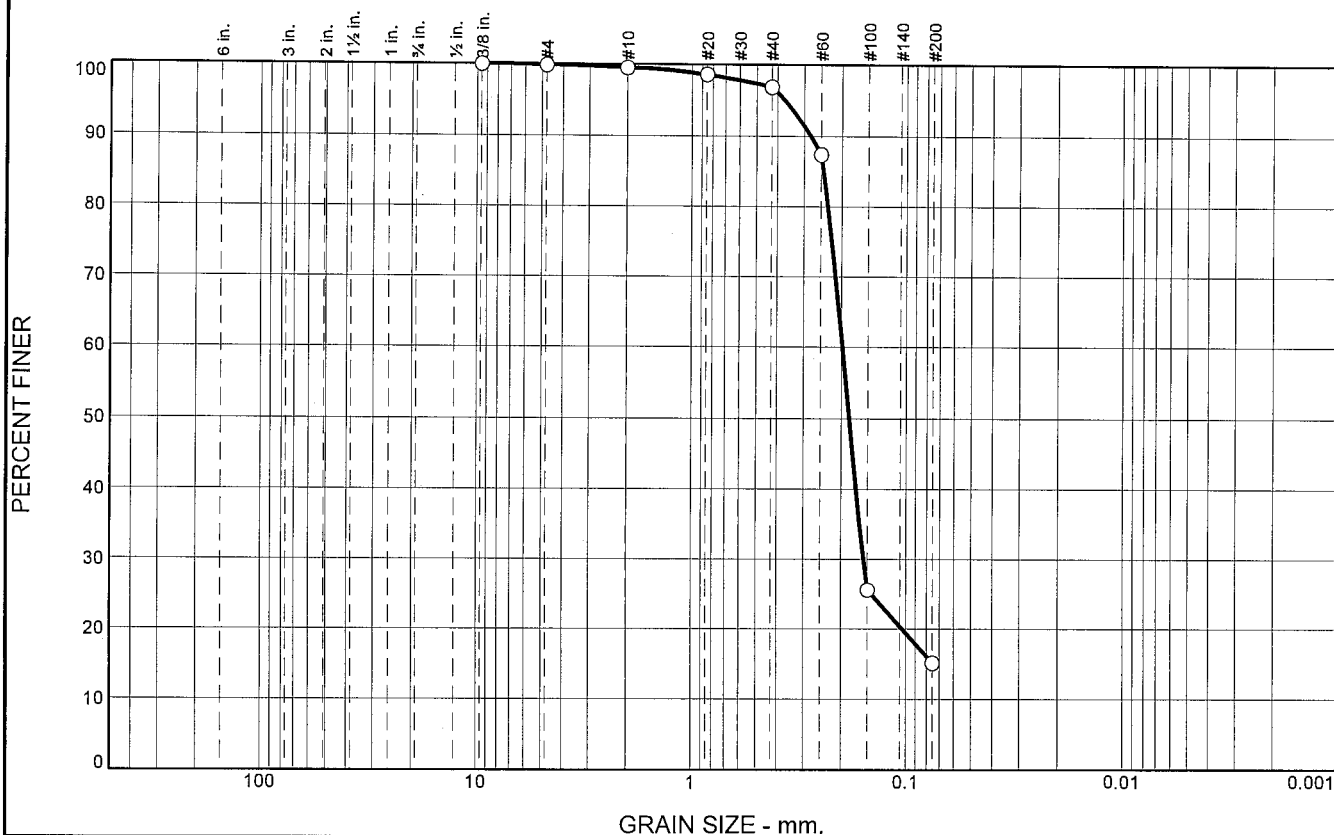
Figure

Tested By: G.Fancher

Checked By: R.Byrd



# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.1	0.4	2.6	81.8	15.1	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
.375	100.0		
#4	99.9		
#10	99.5		
#20	98.6		
#40	96.9		
#60	87.4		
#100	25.6		
#200	15.1		

\* (no specification provided)

## Material Description

SILTY SAND, (SM), fine grained

## Atterberg Limits

PL=

LL=

PI=

## Coefficients

D<sub>90</sub>= 0.2798

D<sub>85</sub>= 0.2433

D<sub>60</sub>= 0.1976

D<sub>50</sub>= 0.1837

D<sub>30</sub>= 0.1566

D<sub>15</sub>=

D<sub>10</sub>=

C<sub>u</sub>=

C<sub>c</sub>=

## Classification

USCS= SM

AASHTO=

## Remarks

CADD CODE = CH10D965

Location: USACE Sample # BI-SI-23-10B  
Sample Number: TE Lab ID: 4538.76

Depth: 2.4 - 5.6 (ft.)

Date: 6/26/10

**Thompson Engineering**

**Mobile, Alabama**

Client: US Army Corps of Engineers

Project: Contract No. W91278-10-D-0026 - Task 03  
Mississippi Barrier Island Restoration Project

Project No: 10-2123-0009

Figure

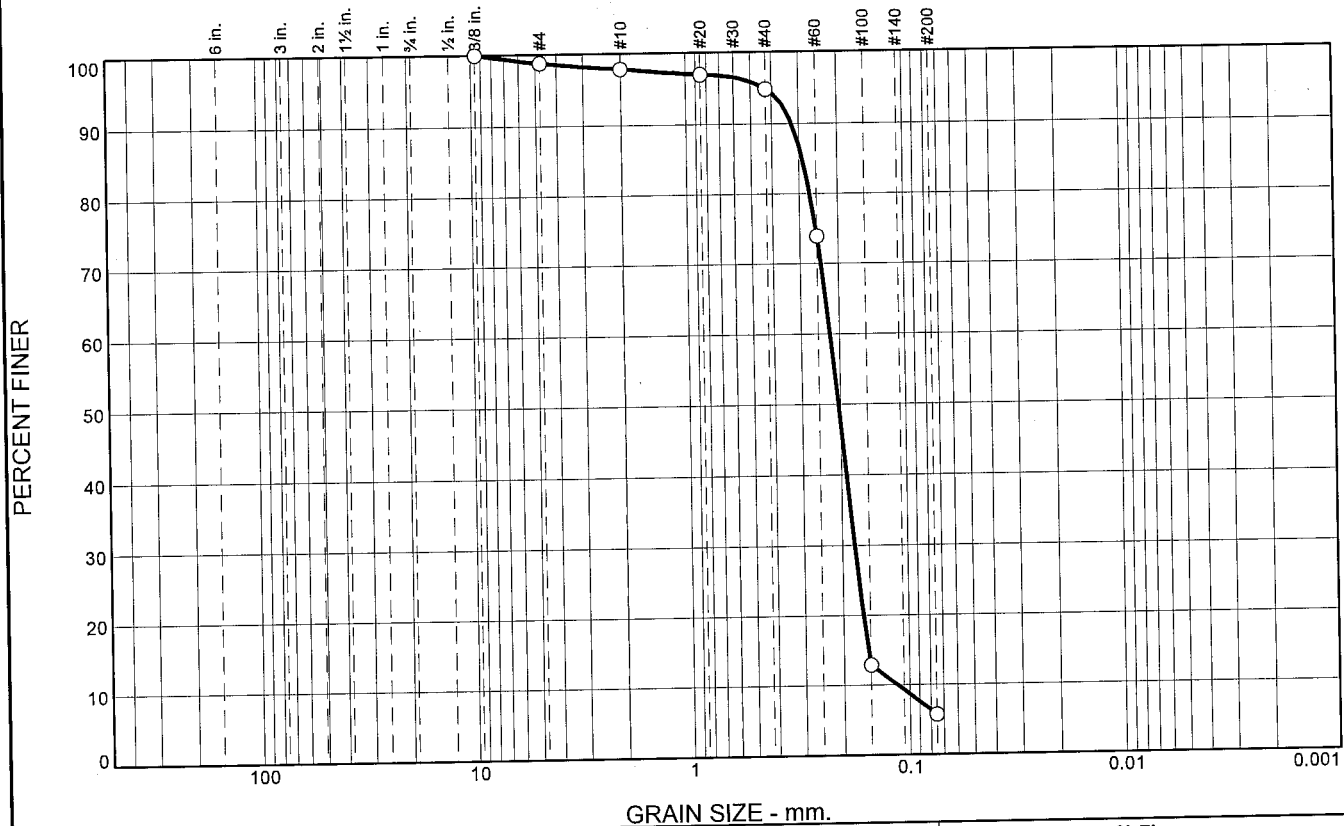
Tested By: R.Martin

Checked By: R.Byrd

# Boring Designation BI-SI-24-10

DRILLING LOG		DIVISION South Atlantic		INSTALLATION Mobile District		SHEET 1 OF 1 SHEETS	
1. PROJECT MsCIP Barrier Island Restoration Ship Island				9. SIZE AND TYPE OF BIT N/A			
2. BORING DESIGNATION BI-SI-24-10		LOCATION COORDINATES E = 960,813 N = 257,313		10. COORDINATE SYSTEM/DATUM State Plane, MSE (U.S. Ft.)		HORIZONTAL NAD83 VERTICAL NAVD88	
3. DRILLING AGENCY Corps of Engineers - CESAM		CONTRACTOR FILE NO.		11. MANUFACTURER'S DESIGNATION OF DRILL Vibracore		<input type="checkbox"/> AUTO HAMMER <input type="checkbox"/> MANUAL HAMMER	
4. NAME OF DRILLER Construction Solutions International, Inc.				12. TOTAL SAMPLES 2		DISTURBED 2 UNDISTURBED (UD) 0	
5. DIRECTION OF BORING <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED		DEG. FROM VERTICAL		13. TOTAL NUMBER CORE BOXES			
		BEARING		14. WATER DEPTH 23 Ft.			
6. THICKNESS OF OVERBURDEN N/A				15. DATE BORING 06-09-10		STARTED 06-09-10 COMPLETED 06-09-10	
7. DEPTH DRILLED INTO ROCK N/A				16. ELEVATION TOP OF BORING -21.2 Ft.			
8. TOTAL DEPTH OF BORING 7.7 Ft.				17. TOTAL RECOVERY FOR BORING 100%			
				18. SIGNATURE AND TITLE OF INSPECTOR Marty Gates, Geologist			
ELEV.	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS	SAMPLE	LABORATORY RESULTS		
-21.2	0.0						
			SAND, poorly-graded, mostly fine to medium-grained sand-sized quartz, trace silt, trace shell fragments, lt. gray (SP)	A	Classification: SP-SM Color: 2.5Y 6/2-light brownish gray D50: 0.2043 mm % Fines: 5.7		
				B	Classification: SP-SM Color: 2.5Y 7/1-light gray D50: 0.2187 mm % Fines: 7.5		
-28.9	7.7						
			NOTES: 1. Soils are field visually classified in accordance with the Unified Soils Classification System. 2. NS = Sample not submitted for laboratory analysis from this interval. 3. Seafloor elevation calculated using sampling vessel's fathometer water depth reading and applying NOAA tidal gauge data conversion factor.				

# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	1.2	1.0	3.0	89.1	5.7	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
.375	100.0		
#4	98.8		
#10	97.8		
#20	96.9		
#40	94.8		
#60	73.9		
#100	12.9		
#200	5.7		

\* (no specification provided)

**Material Description**  
SAND, (SP-SM), fine grained, with trace shell

**Atterberg Limits**  
PL=      LL=      PI=

**Coefficients**  
D<sub>90</sub>= 0.3241      D<sub>85</sub>= 0.2897      D<sub>60</sub>= 0.2207  
D<sub>50</sub>= 0.2043      D<sub>30</sub>= 0.1754      D<sub>15</sub>= 0.1535  
D<sub>10</sub>= 0.1136      C<sub>u</sub>= 1.94      C<sub>c</sub>= 1.23

**Classification**  
USCS= SP-SM      AASHTO=

**Remarks**  
CADD CODE = CH10D965

Location: USACE Sample # BI-SI-24-10A  
Sample Number: TE Lab ID: 4538.24

Depth: 0.0 - 4.0 (ft.)

Date: 6/19/10

**Thompson Engineering**  
**Mobile, Alabama**

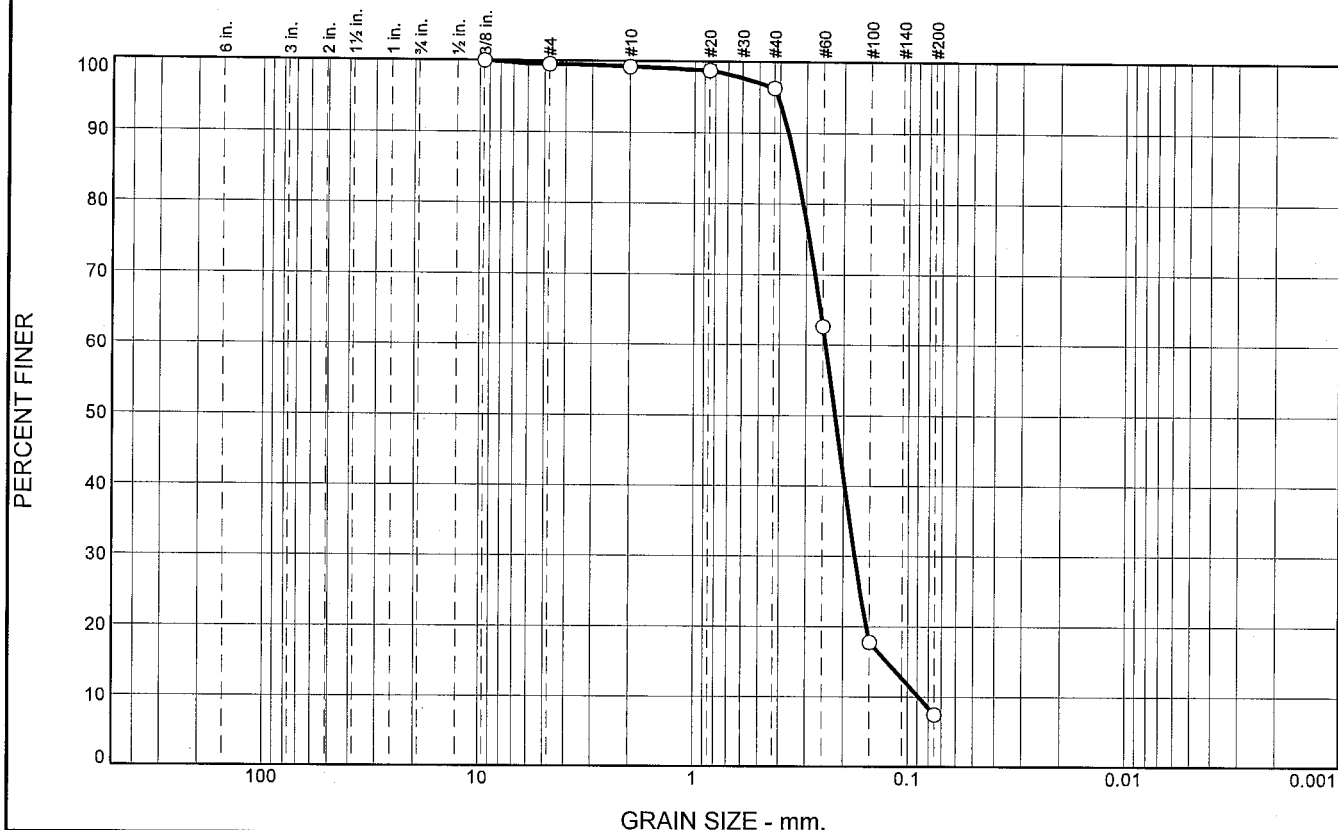
Client: US Army Corps of Engineers  
Project: Contract No. W91278-10-D-0026 - Task 03  
Mississippi Barrier Island Restoration Project  
Project No: 10-2123-0009

Figure

Tested By: G.Fancher

Checked By: R.Byrd

# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.5	0.3	2.9	88.8	7.5	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
.375	100.0		
#4	99.5		
#10	99.2		
#20	98.7		
#40	96.3		
#60	62.6		
#100	17.8		
#200	7.5		

\* (no specification provided)

## Material Description

SAND, (SP-SM), fine grained

## Atterberg Limits

PL=

LL=

PI=

## Coefficients

D<sub>90</sub>= 0.3654

D<sub>85</sub>= 0.3345

D<sub>60</sub>= 0.2429

D<sub>50</sub>= 0.2187

D<sub>30</sub>= 0.1766

D<sub>15</sub>= 0.1245

D<sub>10</sub>= 0.0889

C<sub>u</sub>= 2.73

C<sub>c</sub>= 1.44

## Classification

USCS= SP-SM

AASHTO=

## Remarks

CADD CODE = CH10D965

Location: USACE Sample # BI-SI-24-10B  
Sample Number: TE Lab ID: 4538.25

Depth: 4.0 - 7.7 (ft.)

Date: 6/19/10

**Thompson Engineering**

**Mobile, Alabama**

Client: US Army Corps of Engineers

Project: Contract No. W91278-10-D-0026 - Task 03  
Mississippi Barrier Island Restoration Project

Project No: 10-2123-0009

Figure

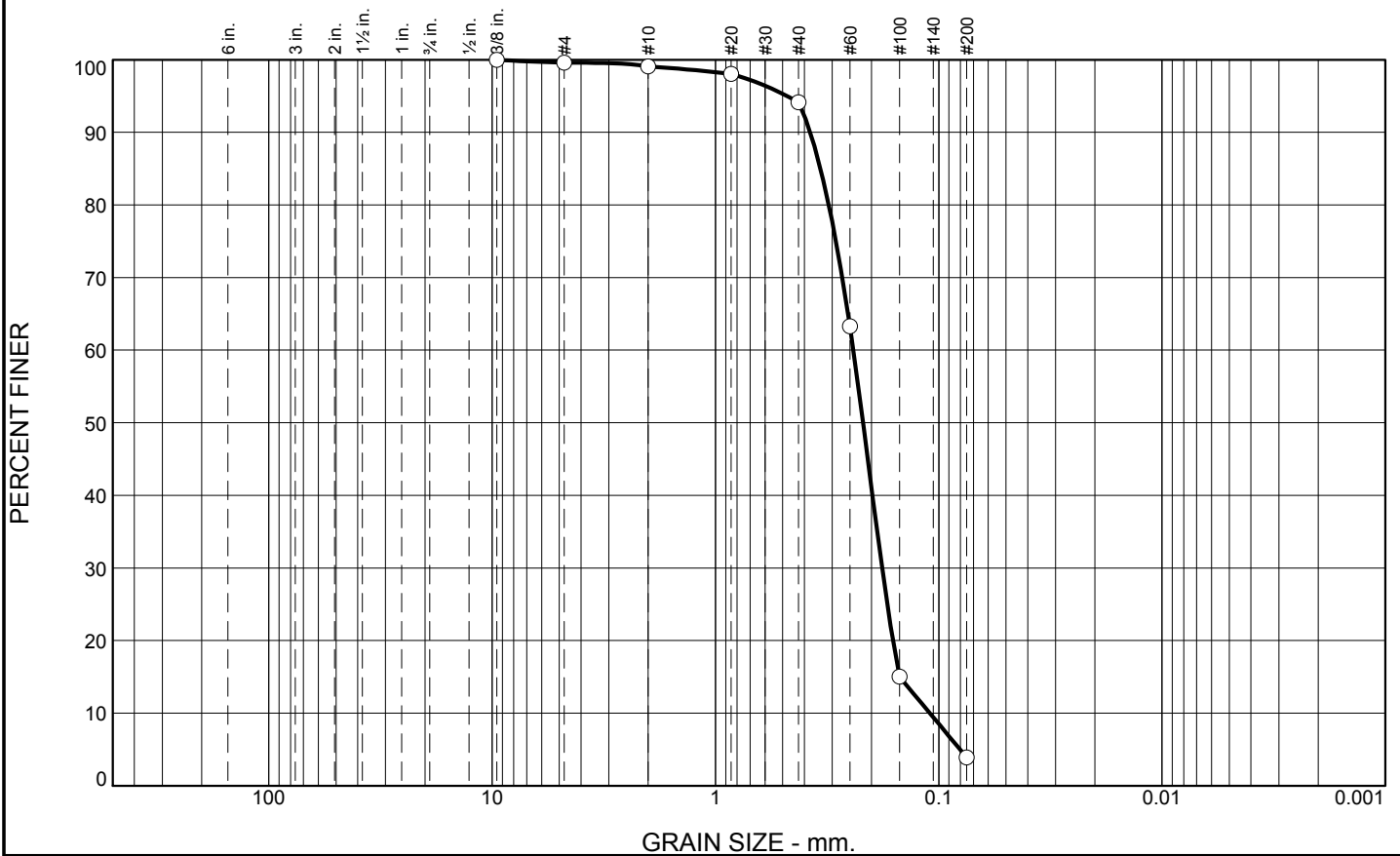
Tested By: G.Fancher

Checked By: R.Byrd

# Boring Designation BI-SI-25-10

DRILLING LOG		DIVISION South Atlantic		INSTALLATION Mobile District		SHEET 1 OF 1 SHEETS	
1. PROJECT MsCIP Barrier Island Restoration Ship Island				9. SIZE AND TYPE OF BIT N/A			
2. BORING DESIGNATION BI-SI-25-10		LOCATION COORDINATES E = 963,062 N = 258,181		10. COORDINATE SYSTEM/DATUM State Plane, MSE (U.S. Ft.)		HORIZONTAL NAD83 VERTICAL NAVD88	
3. DRILLING AGENCY Corps of Engineers - CESAM		CONTRACTOR FILE NO.		11. MANUFACTURER'S DESIGNATION OF DRILL Vibracore		<input type="checkbox"/> AUTO HAMMER <input type="checkbox"/> MANUAL HAMMER	
4. NAME OF DRILLER Construction Solutions International, Inc.				12. TOTAL SAMPLES 3		DISTURBED 3 UNDISTURBED (UD) 0	
5. DIRECTION OF BORING <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED		DEG. FROM VERTICAL		13. TOTAL NUMBER CORE BOXES			
		BEARING		14. WATER DEPTH 22 Ft.			
6. THICKNESS OF OVERBURDEN N/A				15. DATE BORING 06-09-10		STARTED 06-09-10 COMPLETED 06-09-10	
7. DEPTH DRILLED INTO ROCK N/A				16. ELEVATION TOP OF BORING -20.2 Ft.			
8. TOTAL DEPTH OF BORING 10.4 Ft.				17. TOTAL RECOVERY FOR BORING 100%			
				18. SIGNATURE AND TITLE OF INSPECTOR Marty Gates, Geologist			
ELEV.	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS	SAMPLE	LABORATORY RESULTS		
-20.2	0.0						
			SAND, poorly-graded, mostly fine to medium-grained sand-sized quartz, trace silt, trace shell fragments, lt. gray (SP)	A	Classification: SP Color: 2.5Y 6/2-light brownish gray D50: 0.2183 mm % Fines: 3.9		
				B	Classification: SP Color: 2.5Y 6/2-light brownish gray D50: 0.1942 mm % Fines: 4.5		
-27.2	7.0						
-28.5	8.3		SAND, silty, mostly fine to medium-grained sand-sized quartz, some silt, trace shell fragments, gray (SM)	C	Classification: SM Color: 2.5Y 6/2-light brownish gray D50: 0.1592 mm % Fines: 14.1		
				NS			
-30.6	10.4		CLAY, lean, dark gray (CL)				
			NOTES: 1. Soils are field visually classified in accordance with the Unified Soils Classification System. 2. NS = Sample not submitted for laboratory analysis from this interval. 3. Seafloor elevation calculated using sampling vessel's fathometer water depth reading and applying NOAA tidal gauge data conversion factor.				

# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.4	0.5	4.9	90.3	3.9	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
.375	100.0		
#4	99.6		
#10	99.1		
#20	98.0		
#40	94.2		
#60	63.3		
#100	15.0		
#200	3.9		

\* (no specification provided)

**Material Description**  
SAND, (SP), fine grained

**Atterberg Limits**  
 PL=      LL=      PI=

**Coefficients**  
 D<sub>90</sub>= 0.3766      D<sub>85</sub>= 0.3386      D<sub>60</sub>= 0.2414  
 D<sub>50</sub>= 0.2183      D<sub>30</sub>= 0.1793      D<sub>15</sub>= 0.1499  
 D<sub>10</sub>= 0.1097      C<sub>u</sub>= 2.20      C<sub>c</sub>= 1.21

**Classification**  
 USCS= SP      AASHTO=

**Remarks**  
 CADD CODE = CH10D965

**Location:** USACE Sample # BI-SI-25-10A  
**Sample Number:** TE Lab ID: 4538.77

**Depth:** 0.0 -3.5 (ft.)

**Date:** 6/26/10

**Thompson Engineering**  
  
**Mobile, Alabama**

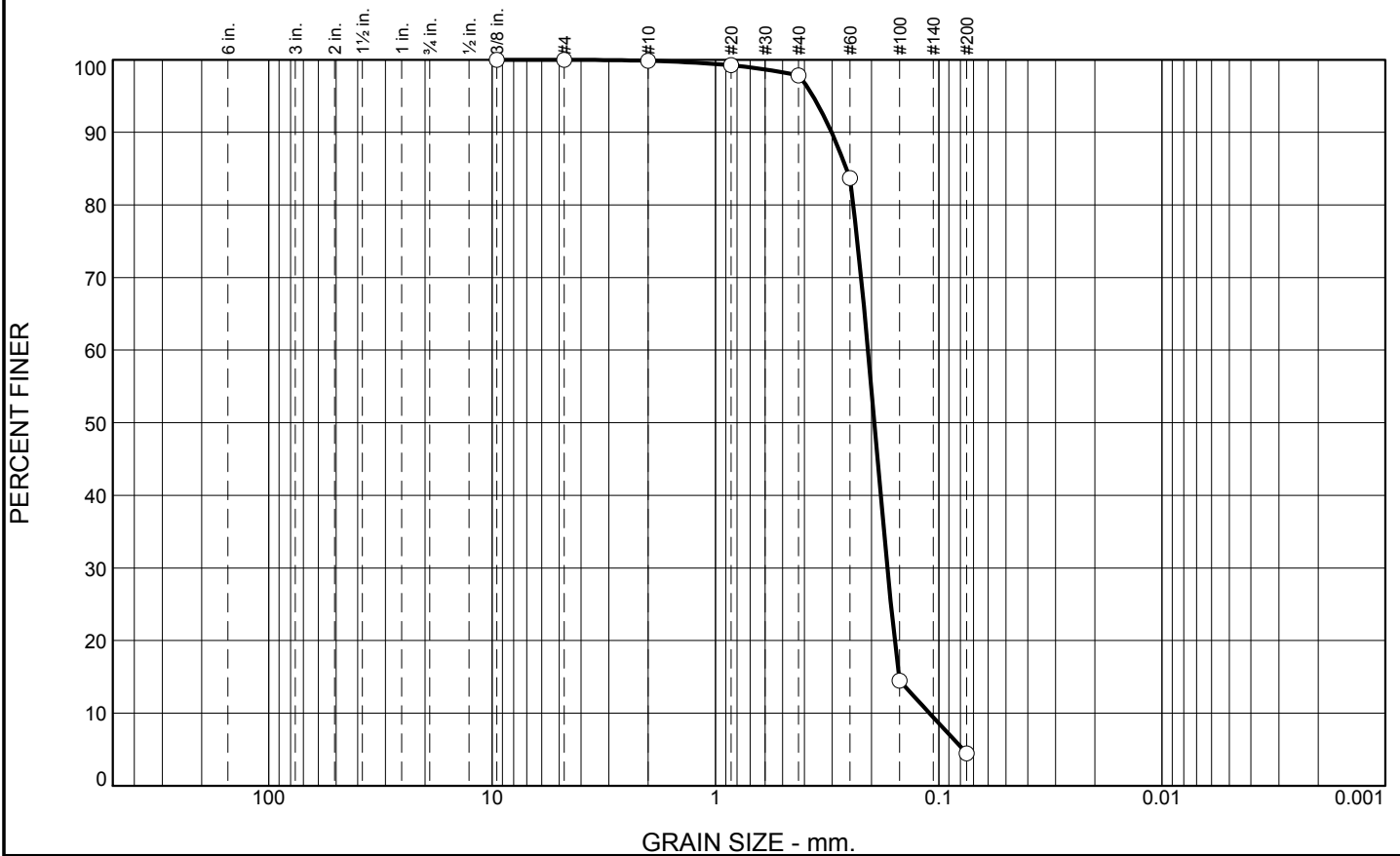
**Client:** US Army Corps of Engineers  
**Project:** Contract No. W91278-10-D-0026 - Task 03  
 Mississippi Barrier Island Restoration Project  
**Project No:** 10-2123-0009

**Figure**

**Tested By:** R.Martin

**Checked By:** R.Byrd

# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.0	0.1	2.1	93.3	4.5	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
.375	100.0		
#4	100.0		
#10	99.9		
#20	99.3		
#40	97.8		
#60	83.7		
#100	14.5		
#200	4.5		

\* (no specification provided)

Material Description		
SAND, (SP), fine grained		
<div> <div> <b>Atterberg Limits</b>            PL=      LL=      PI=         </div> <div> <b>Coefficients</b>            D<sub>90</sub>= 0.3017    D<sub>85</sub>= 0.2591    D<sub>60</sub>= 0.2076            D<sub>50</sub>= 0.1942    D<sub>30</sub>= 0.1699    D<sub>15</sub>= 0.1507            D<sub>10</sub>= 0.1100    C<sub>u</sub>= 1.89      C<sub>c</sub>= 1.26         </div> <div> <b>Classification</b>            USCS= SP      AASHTO=         </div> <div> <b>Remarks</b>            CADD CODE = CH10D965         </div> </div>		

Location: USACE Sample # BI-SI-25-10B  
Sample Number: TE Lab ID: 4538.78

Depth: 3.5 - 7.0 (ft.)

Date: 6/26/10

**Thompson Engineering**  
**Mobile, Alabama**

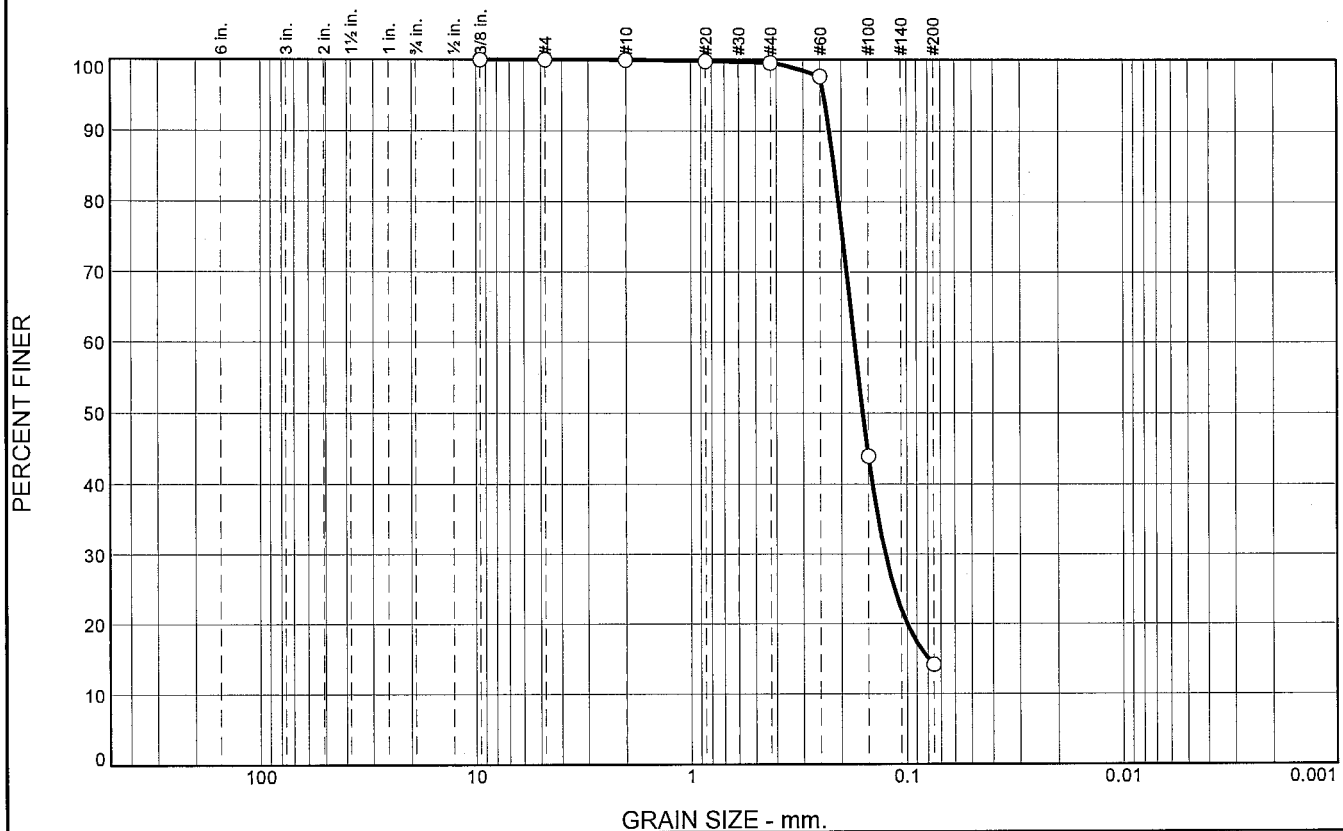
**Client:** US Army Corps of Engineers  
**Project:** Contract No. W91278-10-D-0026 - Task 03  
Mississippi Barrier Island Restoration Project  
**Project No:** 10-2123-0009

**Figure**

Tested By: R.Martin

Checked By: R.Byrd

# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.0	0.1	0.3	85.5	14.1	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
.375	100.0		
#4	100.0		
#10	99.9		
#20	99.8		
#40	99.6		
#60	97.7		
#100	43.9		
#200	14.1		

\* (no specification provided)

**Material Description**  
SILTY SAND, (SM), fine grained, with clay pockets

**Atterberg Limits**  
 PL=      LL=      PI=

**Coefficients**  
 D<sub>90</sub>= 0.2266      D<sub>85</sub>= 0.2154      D<sub>60</sub>= 0.1737  
 D<sub>50</sub>= 0.1592      D<sub>30</sub>= 0.1255      D<sub>15</sub>= 0.0793  
 D<sub>10</sub>=              C<sub>u</sub>=              C<sub>c</sub>=

**Classification**  
 USCS= SM      AASHTO=

**Remarks**  
 CADD CODE = CH10D965

Location: USACE Sample # BI-SI-25-10C  
 Sample Number: TE Lab ID: 4538.26

Depth: 7.0 - 8.3 (ft.)

Date: 6/19/10

**Thompson Engineering**  
  
**Mobile, Alabama**

Client: US Army Corps of Engineers  
 Project: Contract No. W91278-10-D-0026 - Task 03  
 Mississippi Barrier Island Restoration Project  
 Project No: 10-2123-0009

Figure

Tested By: G.Fancher

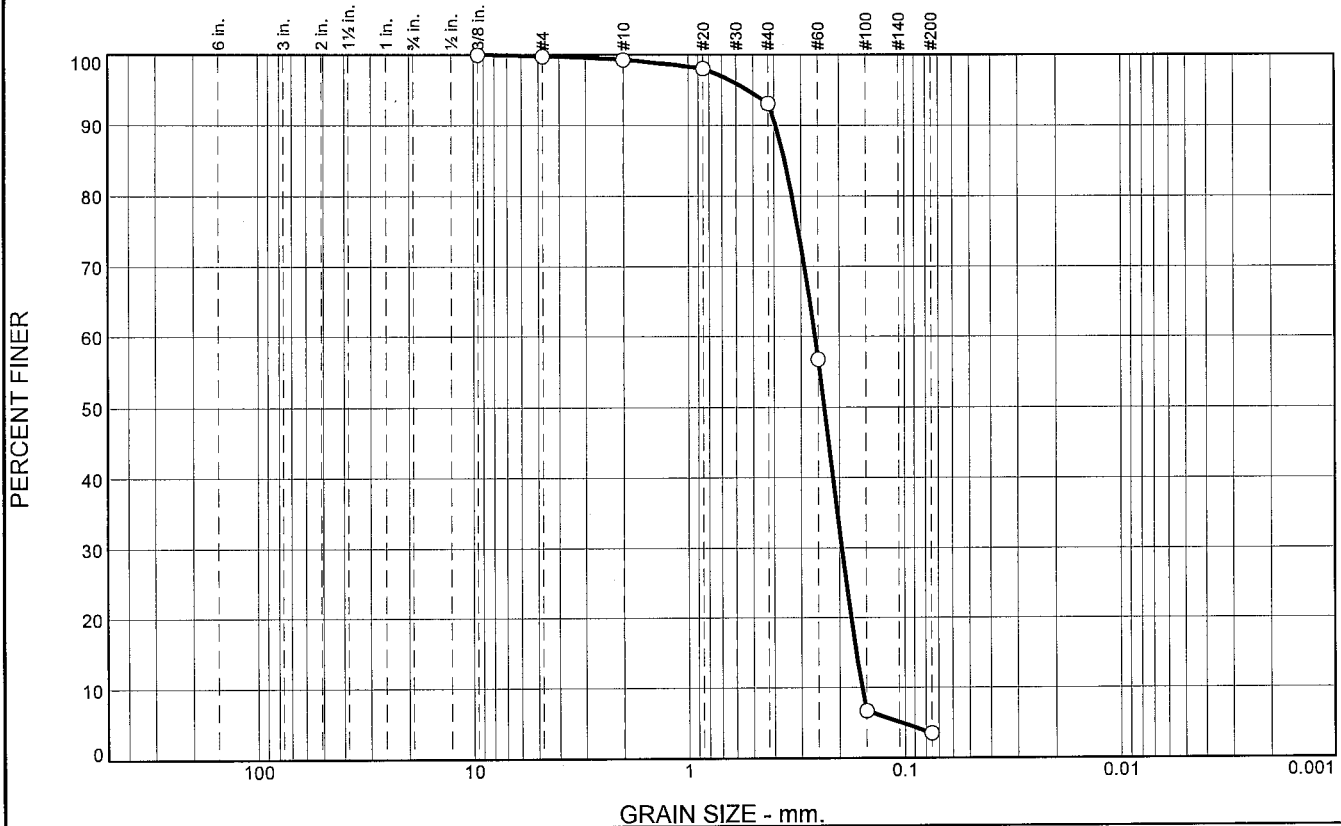
Checked By: R.Byrd



# Boring Designation BI-SI-26-10

DRILLING LOG		DIVISION South Atlantic		INSTALLATION Mobile District		SHEET 1 OF 1 SHEETS	
1. PROJECT MsCIP Barrier Island Restoration Ship Island				9. SIZE AND TYPE OF BIT N/A			
2. BORING DESIGNATION BI-SI-26-10		LOCATION COORDINATES E = 965,050 N = 258,904		10. COORDINATE SYSTEM/DATUM State Plane, MSE (U.S. Ft.)		HORIZONTAL NAD83	
3. DRILLING AGENCY Corps of Engineers - CESAM		CONTRACTOR FILE NO.		11. MANUFACTURER'S DESIGNATION OF DRILL Vibracore		<input type="checkbox"/> AUTO HAMMER <input type="checkbox"/> MANUAL HAMMER	
4. NAME OF DRILLER Construction Solutions International, Inc.				12. TOTAL SAMPLES 3		UNDISTURBED (UD) 0	
5. DIRECTION OF BORING <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED				13. TOTAL NUMBER CORE BOXES		14. WATER DEPTH 26 Ft.	
6. THICKNESS OF OVERBURDEN N/A				15. DATE BORING 06-09-10		STARTED 06-09-10	
7. DEPTH DRILLED INTO ROCK N/A				16. ELEVATION TOP OF BORING -24.3 Ft.		COMPLETED 06-09-10	
8. TOTAL DEPTH OF BORING 16.2 Ft.				17. TOTAL RECOVERY FOR BORING 100%		18. SIGNATURE AND TITLE OF INSPECTOR Marty Gates, Geologist	
ELEV.	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS	SAMPLE	LABORATORY RESULTS		
-24.3	0.0						
			SAND, poorly-graded, mostly fine to medium-grained sand-sized quartz, little silt, trace shell fragments, lt. gray (SP)	A	Classification: SP Color: 2.5Y 7/1-light gray D50: 0.2343 mm % Fines: 3.5		
				B	Classification: SP-SM Color: 2.5Y 7/1-light gray D50: 0.1792 mm % Fines: 7.4		
-36.3	12.0						
			SAND, silty, mostly fine to medium-grained sand-sized quartz, some silt, trace shell fragments (SM)	C	Classification: SM Color: 2.5Y 5/2-grayish brown D50: 0.1856 mm % Fines: 21.5		
-40.5	16.2						
			NOTES:  1. Soils are field visually classified in accordance with the Unified Soils Classification System.  2. NS = Sample not submitted for laboratory analysis from this interval.  3. Seafloor elevation calculated using sampling vessel's fathometer water depth reading and applying NOAA tidal gauge data conversion factor.				

# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.2	0.5	6.2	89.6	3.5	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
.375	100.0		
#4	99.8		
#10	99.3		
#20	98.0		
#40	93.1		
#60	56.7		
#100	6.7		
#200	3.5		

\* (no specification provided)

**Material Description**  
SAND, (SP), fine grained

**Atterberg Limits**  
PL=      LL=      PI=

**Coefficients**  
D<sub>90</sub>= 0.3933      D<sub>85</sub>= 0.3570      D<sub>60</sub>= 0.2585  
D<sub>50</sub>= 0.2343      D<sub>30</sub>= 0.1948      D<sub>15</sub>= 0.1672  
D<sub>10</sub>= 0.1573      C<sub>u</sub>= 1.64      C<sub>c</sub>= 0.93

**Classification**  
USCS= SP      AASHTO=

**Remarks**  
CADD CODE = CH10D965

Location: USACE Sample # BI-SI-26-10A  
Sample Number: TE Lab ID: 4538.79

Depth: 0.0 - 6.0 (ft.)

Date: 6/26/10

**Thompson Engineering**

**Mobile, Alabama**

Client: US Army Corps of Engineers

Project: Contract No. W91278-10-D-0026 - Task 03  
Mississippi Barrier Island Restoration Project

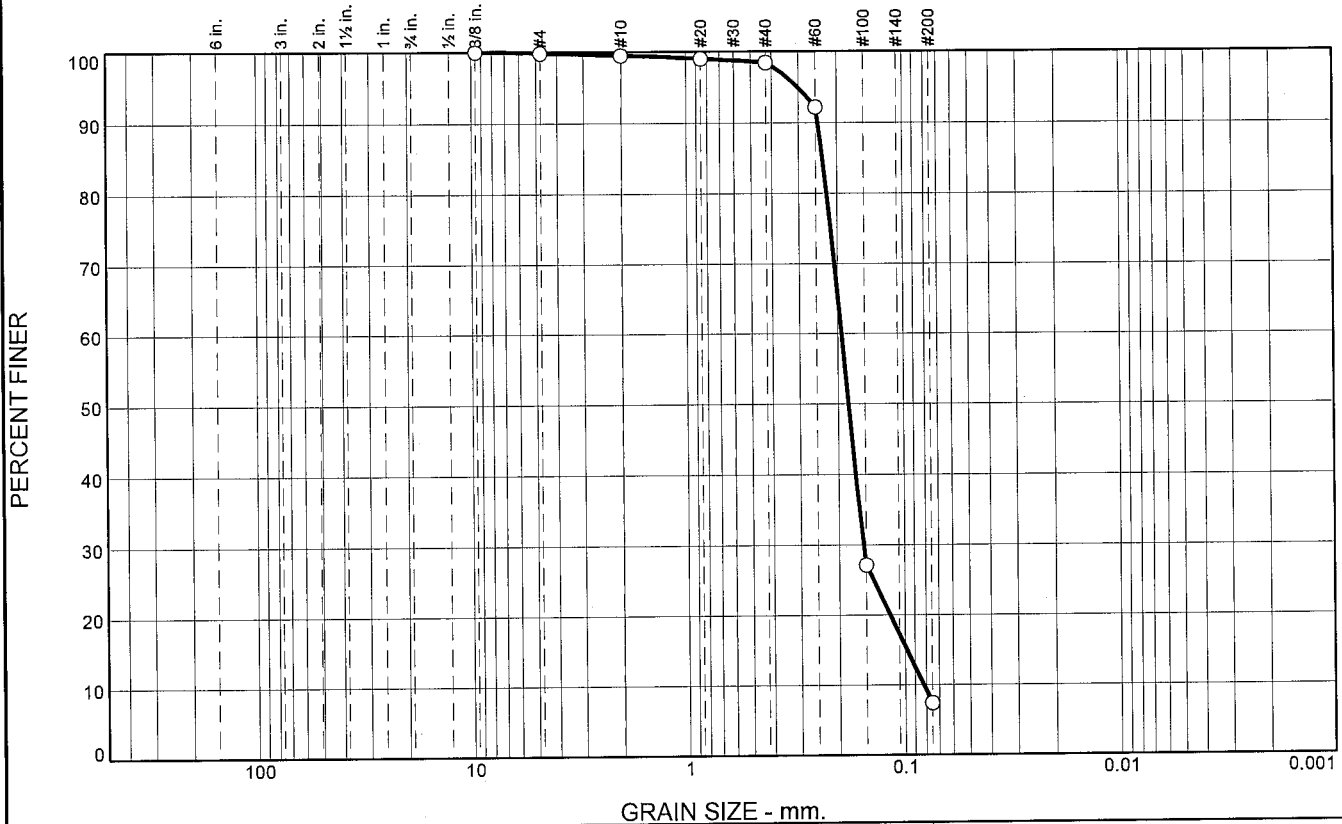
Project No: 10-2123-0009

Figure

Tested By: R.Martin

Checked By: R.Byrd

# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.2	0.3	1.1	91.0	7.4	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
.375	100.0		
#4	99.8		
#10	99.5		
#20	99.0		
#40	98.4		
#60	92.2		
#100	27.1		
#200	7.4		

\* (no specification provided)

**Material Description**  
SAND, (SP-SM), fine grained

**Atterberg Limits**  
PL=      LL=      PI=

**Coefficients**  
D<sub>90</sub>= 0.2439      D<sub>85</sub>= 0.2322      D<sub>60</sub>= 0.1921  
D<sub>50</sub>= 0.1792      D<sub>30</sub>= 0.1540      D<sub>15</sub>= 0.0980  
D<sub>10</sub>= 0.0822      C<sub>u</sub>= 2.34      C<sub>c</sub>= 1.50

**Classification**  
USCS= SP-SM      AASHTO=

**Remarks**  
CADD CODE = CH10D965

Location: USACE Sample # BI-SI-26-10B  
Sample Number: TE Lab ID: 4538.80

Depth: 6.0 - 12.0 (ft.)

Date: 6/26/10

**Thompson Engineering**  
**Mobile, Alabama**

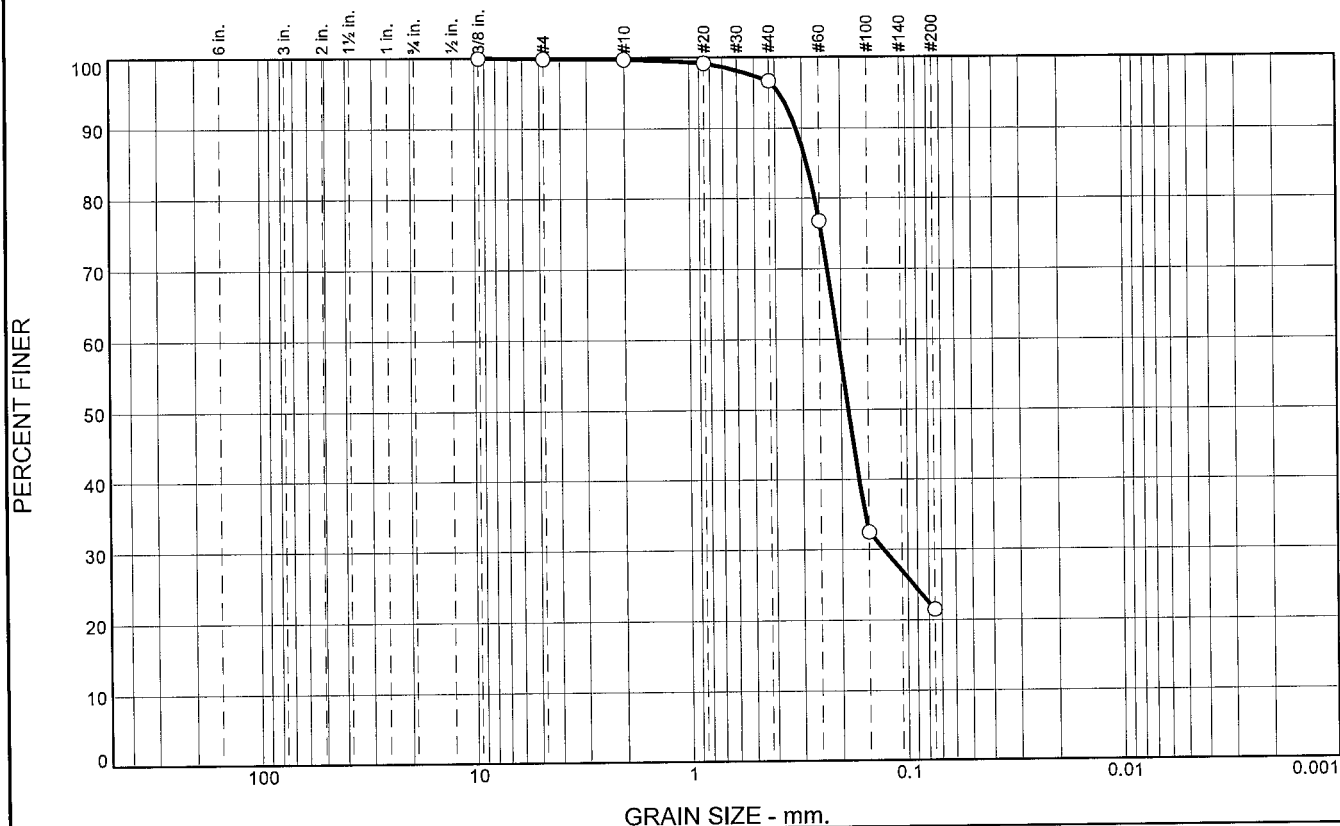
Client: US Army Corps of Engineers  
Project: Contract No. W91278-10-D-0026 - Task 03  
Mississippi Barrier Island Restoration Project  
Project No: 10-2123-0009

Figure

Tested By: R.Martin

Checked By: R.Byrd

# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.1	0.1	3.1	75.2	21.5	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
.375	100.0		
#4	99.9		
#10	99.8		
#20	99.2		
#40	96.7		
#60	76.7		
#100	32.4		
#200	21.5		

\* (no specification provided)

**Material Description**  
SILTY SAND, (SM), fine grained

**Atterberg Limits**  
PL=      LL=      PI=

**Coefficients**  
D<sub>90</sub>= 0.3194      D<sub>85</sub>= 0.2853      D<sub>60</sub>= 0.2062  
D<sub>50</sub>= 0.1856      D<sub>30</sub>= 0.1286      D<sub>15</sub>=  
D<sub>10</sub>=      C<sub>u</sub>=      C<sub>c</sub>=

**Classification**  
USCS= SM      AASHTO=

**Remarks**  
CADD CODE = CH10D965

Location: USACE Sample # BI-SI-26-10C  
Sample Number: TE Lab ID: 4538.81

Depth: 12.0 - 16.2 (ft.)

Date: 6/26/10

**Thompson Engineering**  
**Mobile, Alabama**

Client: US Army Corps of Engineers  
Project: Contract No. W91278-10-D-0026 - Task 03  
Mississippi Barrier Island Restoration Project  
Project No: 10-2123-0009

Figure

Tested By: R.Martin

Checked By: R.Byrd

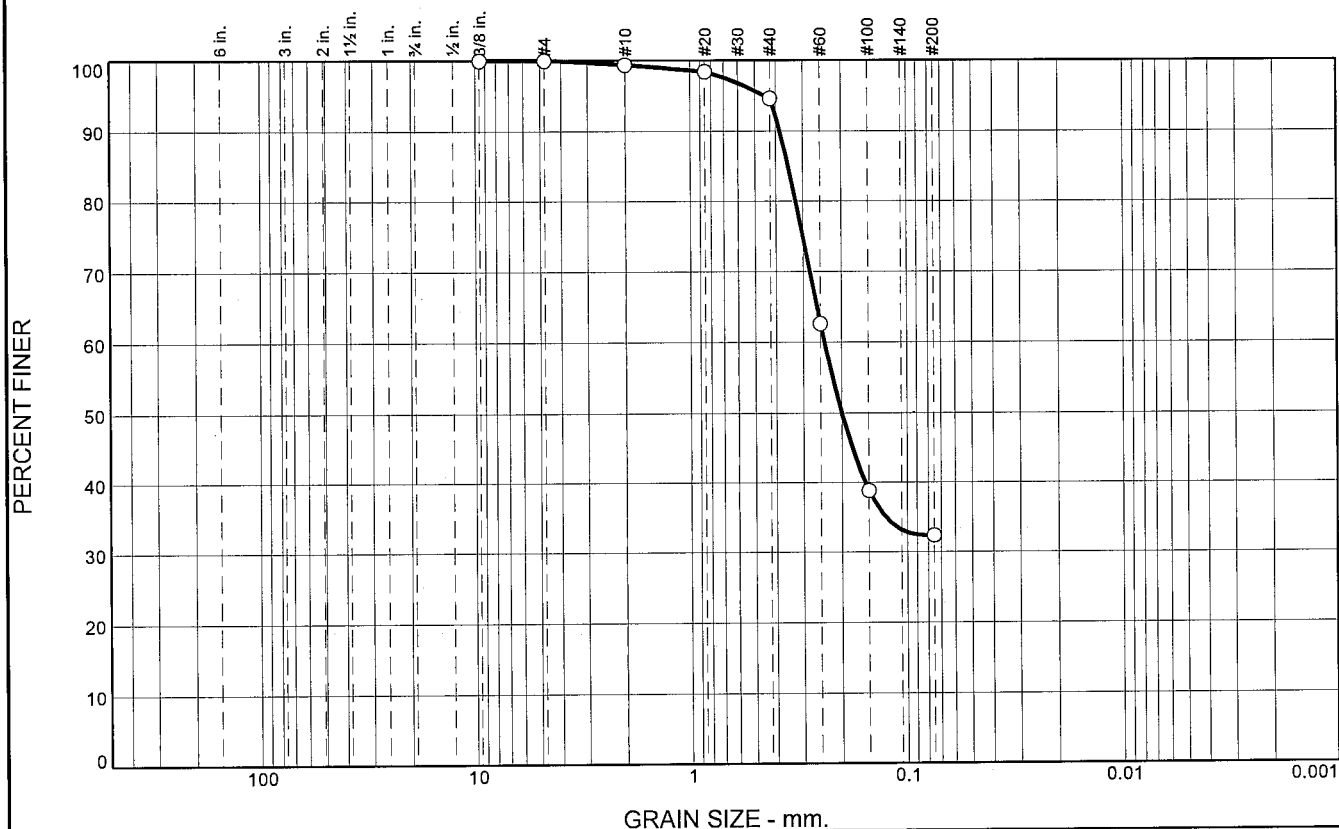
# Boring Designation BI-SI-27-10

DRILLING LOG		DIVISION South Atlantic		INSTALLATION Mobile District		SHEET 1 OF 1 SHEETS	
1. PROJECT MsCIP Barrier Island Restoration Ship Island				9. SIZE AND TYPE OF BIT N/A			
2. BORING DESIGNATION BI-SI-27-10		LOCATION COORDINATES E = 980,123 N = 260,448		10. COORDINATE SYSTEM/DATUM State Plane, MSE (U.S. Ft.)		HORIZONTAL NAD83 VERTICAL NAVD88	
3. DRILLING AGENCY Corps of Engineers - CESAM		CONTRACTOR FILE NO.		11. MANUFACTURER'S DESIGNATION OF DRILL Vibracore		<input type="checkbox"/> AUTO HAMMER <input type="checkbox"/> MANUAL HAMMER	
4. NAME OF DRILLER Construction Solutions International, Inc.				12. TOTAL SAMPLES 3		DISTURBED 3 UNDISTURBED (UD) 0	
5. DIRECTION OF BORING <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED		DEG. FROM VERTICAL		13. TOTAL NUMBER CORE BOXES			
		BEARING		14. WATER DEPTH 26 Ft.			
6. THICKNESS OF OVERBURDEN N/A				15. DATE BORING 06-09-10		STARTED 06-09-10 COMPLETED 06-09-10	
7. DEPTH DRILLED INTO ROCK N/A				16. ELEVATION TOP OF BORING -24.7 Ft.			
8. TOTAL DEPTH OF BORING 14.7 Ft.				17. TOTAL RECOVERY FOR BORING 100%			
				18. SIGNATURE AND TITLE OF INSPECTOR Marty Gates, Geologist			

ELEV.	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS	SAMPLE	LABORATORY RESULTS
-24.7	0.0				
-25.9	1.2		SAND, silty, mostly fine to medium-grained sand-sized quartz, some silt, trace shell fragments, gray (SM)	A	Classification: SM Color: 2.5Y 5/2-grayish brown D50: 0.2002 mm % Fines: 32.3
			SAND, poorly-graded, mostly fine to medium-grained sand-sized quartz, little silt, trace shell fragments, lt. gray (SP)	B	Classification: SP-SM Color: 2.5Y 6/2-light brownish gray D50: 0.2039 mm % Fines: 11.3
-31.3	6.6		CLAY, lean, dark gray (CL)	NS	
-33.0	8.3				
			SAND, poorly-graded, mostly fine to medium-grained sand-sized quartz, little silt, trace shell fragments, lt. gray (SP)	C	Classification: SP-SM Color: 2.5Y 6/2-light brownish gray D50: 0.2659 mm % Fines: 10
-36.4	11.7		CLAY, lean, dark gray (CL)	NS	
-39.4	14.7				
			NOTES: 1. Soils are field visually classified in accordance with the Unified Soils Classification System. 2. NS = Sample not submitted for laboratory analysis from this interval. 3. Seafloor elevation calculated using sampling vessel's fathometer water depth reading and applying NOAA tidal gauge data conversion factor.		

# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.0	0.6	4.8	62.3	32.3	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
.375	100.0		
#4	100.0		
#10	99.4		
#20	98.4		
#40	94.6		
#60	62.6		
#100	38.8		
#200	32.3		

\* (no specification provided)

## Material Description

SILTY SAND, (SM), fine grained

## Atterberg Limits

PL= LL= PI=

## Coefficients

D<sub>90</sub>= 0.3837 D<sub>85</sub>= 0.3512 D<sub>60</sub>= 0.2399  
D<sub>50</sub>= 0.2002 D<sub>30</sub>= C<sub>u</sub>=  
D<sub>10</sub>= C<sub>c</sub>=

## Classification

USCS= SM AASHTO=

## Remarks

CADD CODE = CH10D965

Location: USACE Sample # BI-SI-27-10A  
Sample Number: TE Lab ID: 4538.08

Depth: 0.0 - 1.2 (ft.)

Date: 6/19/10

**Thompson Engineering**

**Mobile, Alabama**

Client: US Army Corps of Engineers

Project: Contract No. W91278-10-D-0026 - Task 03  
Mississippi Barrier Island Restoration Project

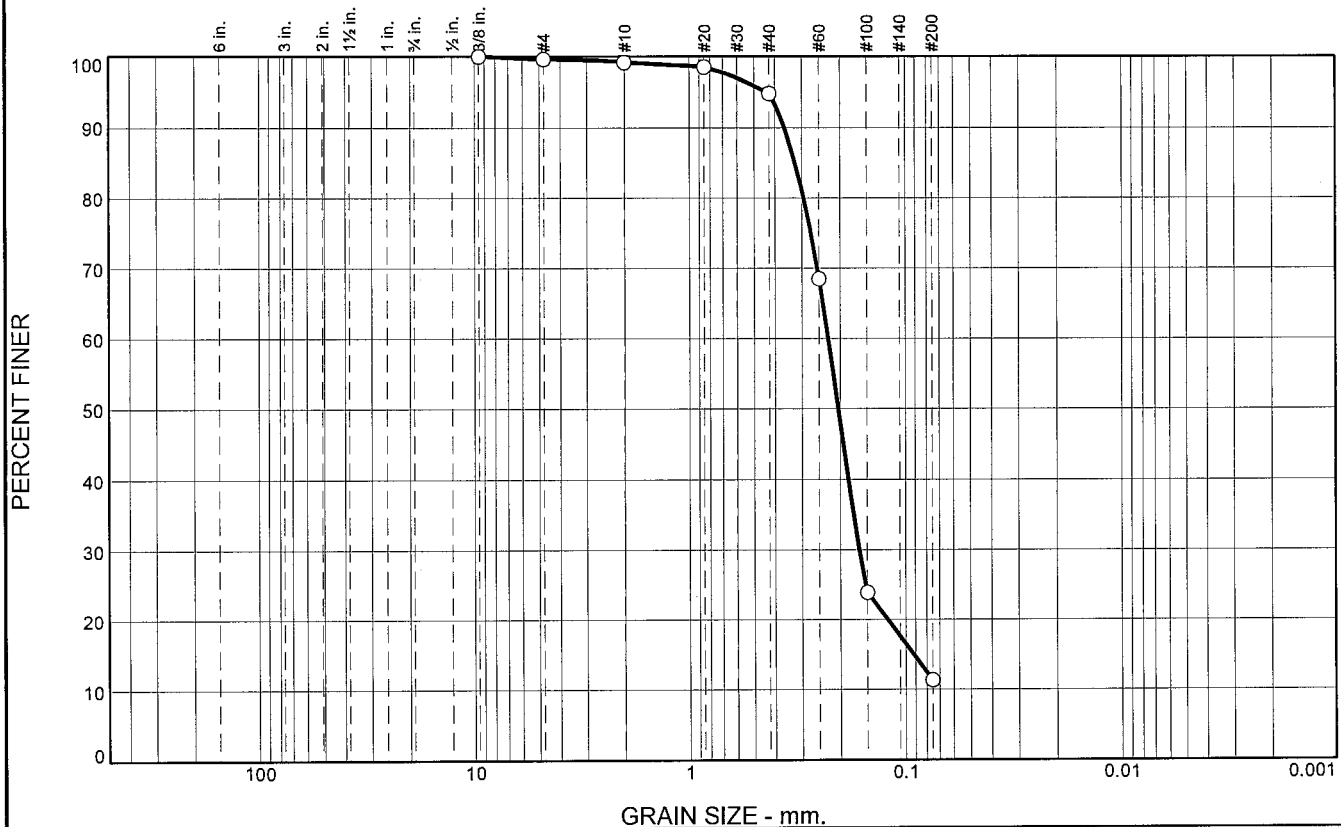
Project No: 10-2123-0009

Figure

Tested By: G.Fancher

Checked By: R.Byrd

# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.4	0.4	4.4	83.5	11.3	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
.375	100.0		
#4	99.6		
#10	99.2		
#20	98.5		
#40	94.8		
#60	68.4		
#100	23.9		
#200	11.3		

\* (no specification provided)

## Material Description

SAND, (SP-SM), fine grained, with clay pockets

## Atterberg Limits

PL= LL= PI=

## Coefficients

D<sub>90</sub>= 0.3621 D<sub>85</sub>= 0.3228 D<sub>60</sub>= 0.2268  
D<sub>50</sub>= 0.2039 D<sub>30</sub>= 0.1632 D<sub>15</sub>= 0.0919  
D<sub>10</sub>= C<sub>u</sub>= C<sub>c</sub>=

## Classification

USCS= SP-SM AASHTO=

## Remarks

CADD CODE = CH10D965

Location: USACE Sample # BI-SI-27-10B  
Sample Number: TE Lab ID: 4538.09

Depth: 1.2 - 6.6 (ft.)

Date: 6/19/10

**Thompson Engineering**

**Mobile, Alabama**

Client: US Army Corps of Engineers

Project: Contract No. W91278-10-D-0026 - Task 03  
Mississippi Barrier Island Restoration Project

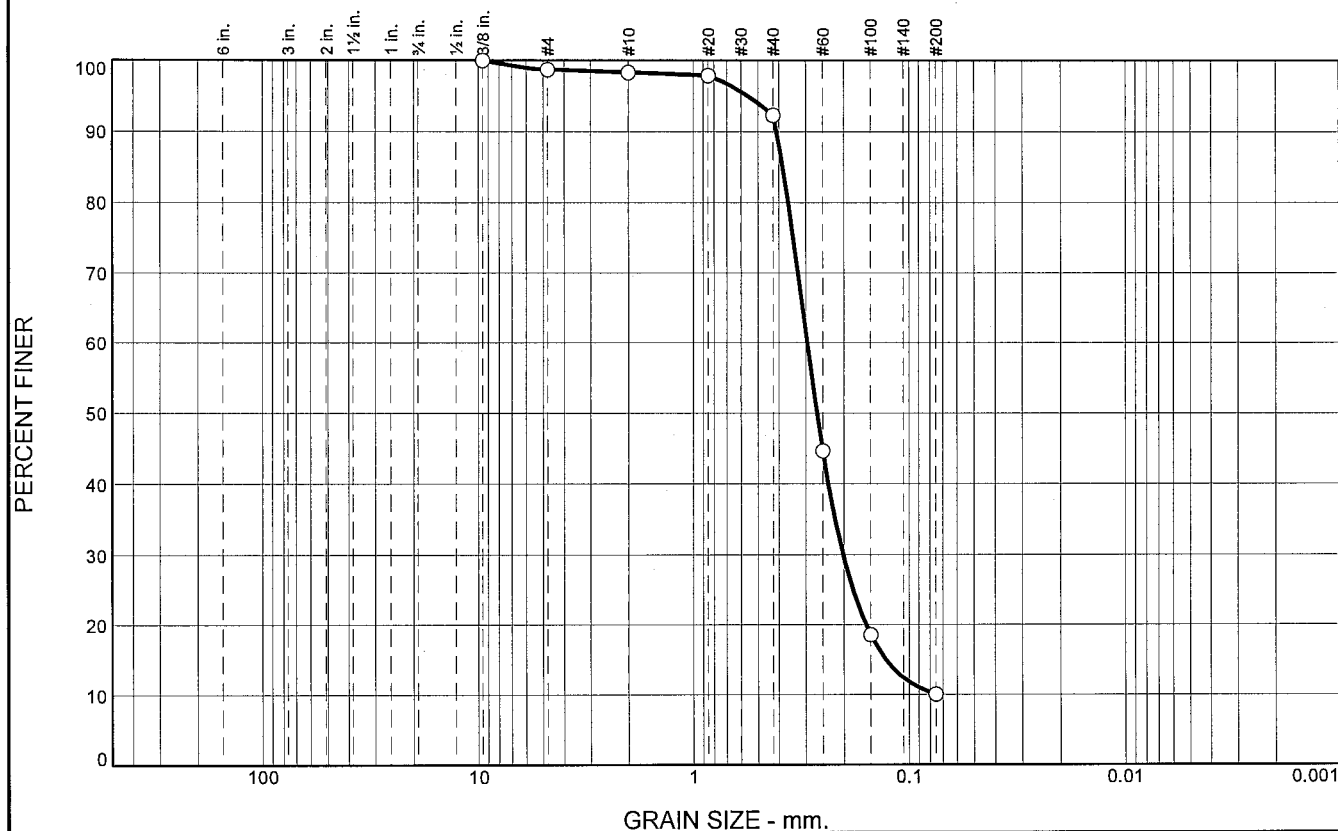
Project No: 10-2123-0009

Figure

Tested By: G.Fancher

Checked By: R.Byrd

# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	1.3	0.4	6.0	82.3	10.0	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
.375	100.0		
#4	98.7		
#10	98.3		
#20	97.9		
#40	92.3		
#60	44.6		
#100	18.5		
#200	10.0		

\* (no specification provided)

**Material Description**  
SAND, (SP-SM), fine grained

**Atterberg Limits**  
 PL=      LL=      PI=

**Coefficients**  
 D<sub>90</sub>= 0.4101      D<sub>85</sub>= 0.3838      D<sub>60</sub>= 0.2950  
 D<sub>50</sub>= 0.2659      D<sub>30</sub>= 0.2017      D<sub>15</sub>= 0.1279  
 D<sub>10</sub>=      C<sub>u</sub>=      C<sub>c</sub>=

**Classification**  
 USCS= SP-SM      AASHTO=

**Remarks**  
 CADD CODE = CH10D965

Location: USACE Sample # BI-SI-27-10C  
 Sample Number: TE Lab ID: 4538.10

Depth: 8.3 - 11.7 (ft.)

Date: 6/19/10

**Thompson Engineering**

**Mobile, Alabama**

Client: US Army Corps of Engineers

Project: Contract No. W91278-10-D-0026 - Task 03  
 Mississippi Barrier Island Restoration Project

Project No: 10-2123-0009

Figure

Tested By: G.Fancher

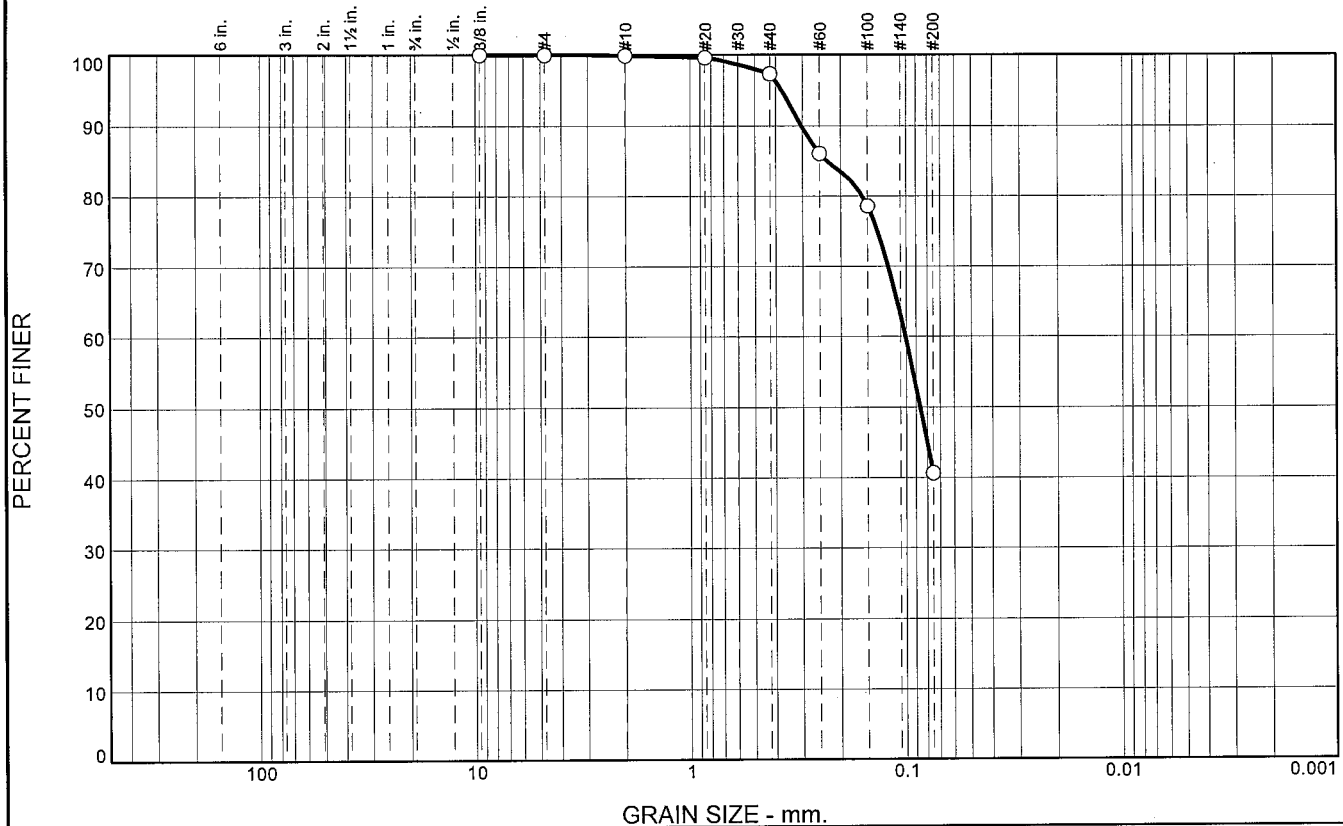
Checked By: R.Byrd



# Boring Designation BI-SI-28-10

DRILLING LOG		DIVISION South Atlantic		INSTALLATION Mobile District		SHEET 1 OF 1 SHEETS	
1. PROJECT MsCIP Barrier Island Restoration Ship Island				9. SIZE AND TYPE OF BIT N/A			
2. BORING DESIGNATION BI-SI-28-10		LOCATION COORDINATES E = 969,583 N = 261,585		10. COORDINATE SYSTEM/DATUM State Plane, MSE (U.S. Ft.)		HORIZONTAL NAD83	
3. DRILLING AGENCY Corps of Engineers - CESAM		CONTRACTOR FILE NO.		11. MANUFACTURER'S DESIGNATION OF DRILL Vibrocure		<input type="checkbox"/> AUTO HAMMER <input type="checkbox"/> MANUAL HAMMER	
4. NAME OF DRILLER Construction Solutions International, Inc.				12. TOTAL SAMPLES		DISTURBED 4	
5. DIRECTION OF BORING <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED				13. TOTAL NUMBER CORE BOXES		UNDISTURBED (UD) 0	
6. THICKNESS OF OVERBURDEN N/A				14. WATER DEPTH		25 Ft.	
7. DEPTH DRILLED INTO ROCK N/A				15. DATE BORING		STARTED 06-09-10	
8. TOTAL DEPTH OF BORING 17.9 Ft.				16. ELEVATION TOP OF BORING		COMPLETED 06-09-10	
				17. TOTAL RECOVERY FOR BORING		100%	
				18. SIGNATURE AND TITLE OF INSPECTOR Marty Gates, Geologist			
ELEV.	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS	SAMPLE	LABORATORY RESULTS		
-23.9	0.0						
			SAND, silty, mostly fine to medium-grained sand-sized quartz, some silt, trace shell fragments, gray (SM)	A	Classification: SM Color: 2.5Y 4/2-dark grayish brown D50: 0.0862 mm % Fines: 40.6		
				B	Classification: SP-SM Color: 2.5Y 6/2-light brownish gray D50: 0.2735 mm % Fines: 10.8		
-29.0	5.1		SAND, poorly-graded, mostly fine to medium-grained sand-sized quartz, trace silt, trace shell fragments, lt. gray (SP)	C	Classification: SM Color: 2.5Y 7/1-light gray D50: 0.2149 mm % Fines: 12.2		
				D	Classification: SP-SM Color: 5Y 7/1-light gray D50: 0.243 mm % Fines: 8.6		
-37.9	14.0		CLAY, lean, dark gray (CL)	NS			
-41.8	17.9						
			NOTES:				
			1. Soils are field visually classified in accordance with the Unified Soils Classification System.				
			2. NS = Sample not submitted for laboratory analysis from this interval.				
			3. Seafloor elevation calculated using sampling vessel's fathometer water depth reading and applying NOAA tidal gauge data conversion factor.				

# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.0	0.1	2.6	56.7	40.6	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
.375	100.0		
#4	100.0		
#10	99.9		
#20	99.6		
#40	97.3		
#60	86.1		
#100	78.5		
#200	40.6		

\* (no specification provided)

## Material Description

SILTY SAND, (SM), fine grained, with clay pockets

## Atterberg Limits

PL=

LL=

PI=

## Coefficients

D<sub>90</sub>= 0.3039

D<sub>85</sub>= 0.2314

D<sub>60</sub>= 0.1009

D<sub>50</sub>= 0.0862

D<sub>30</sub>=

D<sub>15</sub>=

D<sub>10</sub>=

C<sub>u</sub>=

C<sub>c</sub>=

## Classification

USCS= SM

AASHTO=

## Remarks

CADD CODE = CH10D965

Location: USACE Sample # BI-SI-28-10A  
Sample Number: TE Lab ID: 4538.11

Depth: 0.0 - 1.3 (ft.)

Date: 6/19/10

**Thompson Engineering**

**Mobile, Alabama**

Client: US Army Corps of Engineers

Project: Contract No. W91278-10-D-0026 - Task 03  
Mississippi Barrier Island Restoration Project

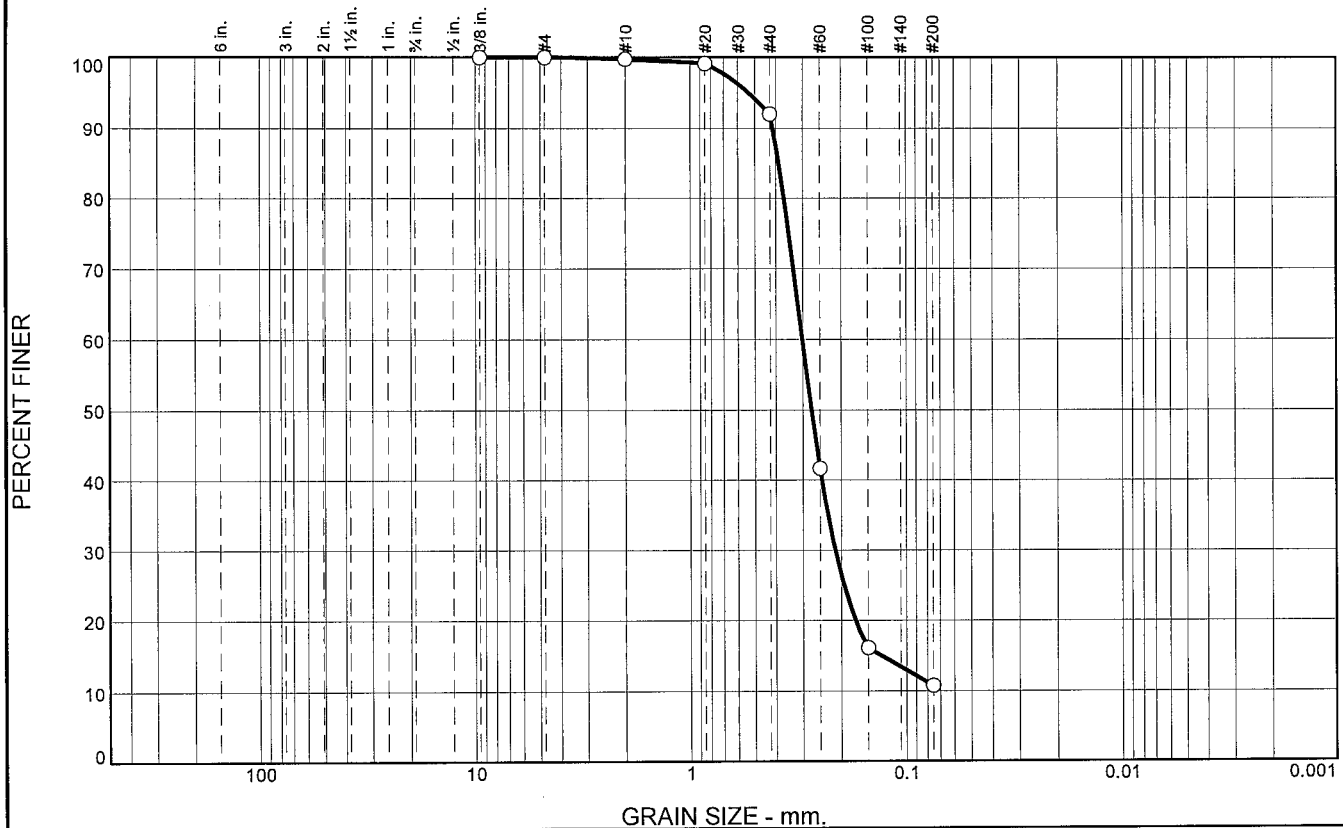
Project No: 10-2123-0009

Figure

Tested By: G.Fancher

Checked By: R.Byrd

# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.0	0.3	7.6	81.3	10.8	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
.375	100.0		
#4	100.0		
#10	99.7		
#20	99.1		
#40	92.1		
#60	41.6		
#100	16.1		
#200	10.8		

\* (no specification provided)

## Material Description

SAND, (SP-SM), fine grained

## Atterberg Limits

PL= LL= PI=

## Coefficients

D<sub>90</sub>= 0.4125 D<sub>85</sub>= 0.3873 D<sub>60</sub>= 0.3015  
D<sub>50</sub>= 0.2735 D<sub>30</sub>= 0.2132 D<sub>15</sub>= 0.1301  
C<sub>u</sub>= C<sub>c</sub>=

## Classification

USCS= SP-SM AASHTO=

## Remarks

CADD CODE = CH10D965

Location: USACE Sample # BI-SI-28-10B  
Sample Number: TE Lab ID: 4538.12

Depth: 1.3 - 5.1 (ft.)

Date: 6/19/10

**Thompson Engineering**

**Mobile, Alabama**

Client: US Army Corps of Engineers

Project: Contract No. W91278-10-D-0026 - Task 03  
Mississippi Barrier Island Restoration Project

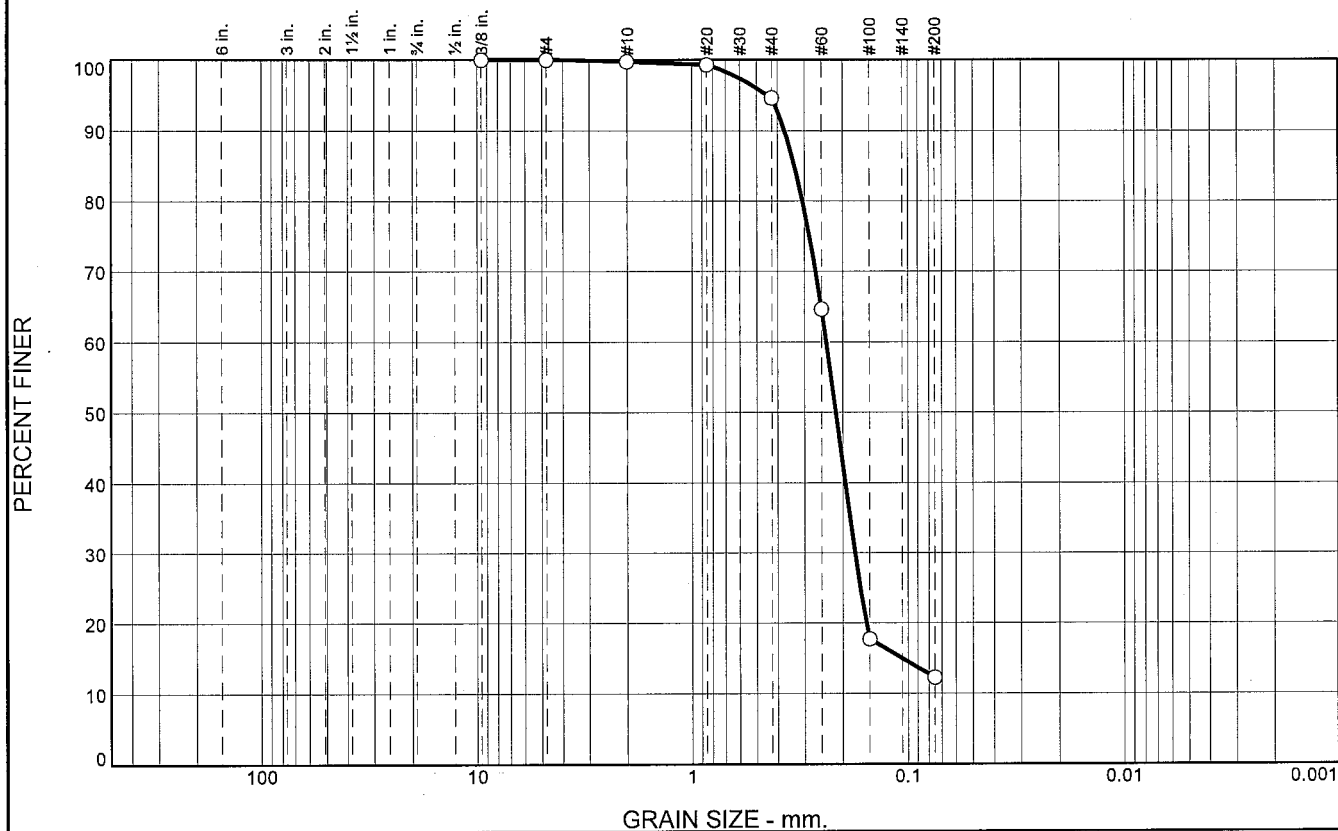
Project No: 10-2123-0009

Figure

Tested By: G.Fancher

Checked By: R.Byrd

# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.0	0.3	5.1	82.4	12.2	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
.375	100.0		
#4	100.0		
#10	99.7		
#20	99.3		
#40	94.6		
#60	64.6		
#100	17.7		
#200	12.2		

\* (no specification provided)

## Material Description

SILTY SAND, (SM), fine grained, with clay pockets

## Atterberg Limits

PL=

LL=

PI=

## Coefficients

D<sub>90</sub>= 0.3716

D<sub>85</sub>= 0.3340

D<sub>60</sub>= 0.2378

D<sub>50</sub>= 0.2149

D<sub>30</sub>= 0.1754

D<sub>15</sub>= 0.1066

D<sub>10</sub>=

C<sub>u</sub>=

C<sub>c</sub>=

## Classification

USCS= SM

AASHTO=

## Remarks

CADD CODE = CH10D965

Location: USACE Sample # BI-SI-28-10C  
Sample Number: TE Lab ID: 4538.13

Depth: 5.1 - 10.0 (ft.)

Date: 6/19/10

**Thompson Engineering**

**Mobile, Alabama**

Client: US Army Corps of Engineers

Project: Contract No. W91278-10-D-0026 - Task 03  
Mississippi Barrier Island Restoration Project

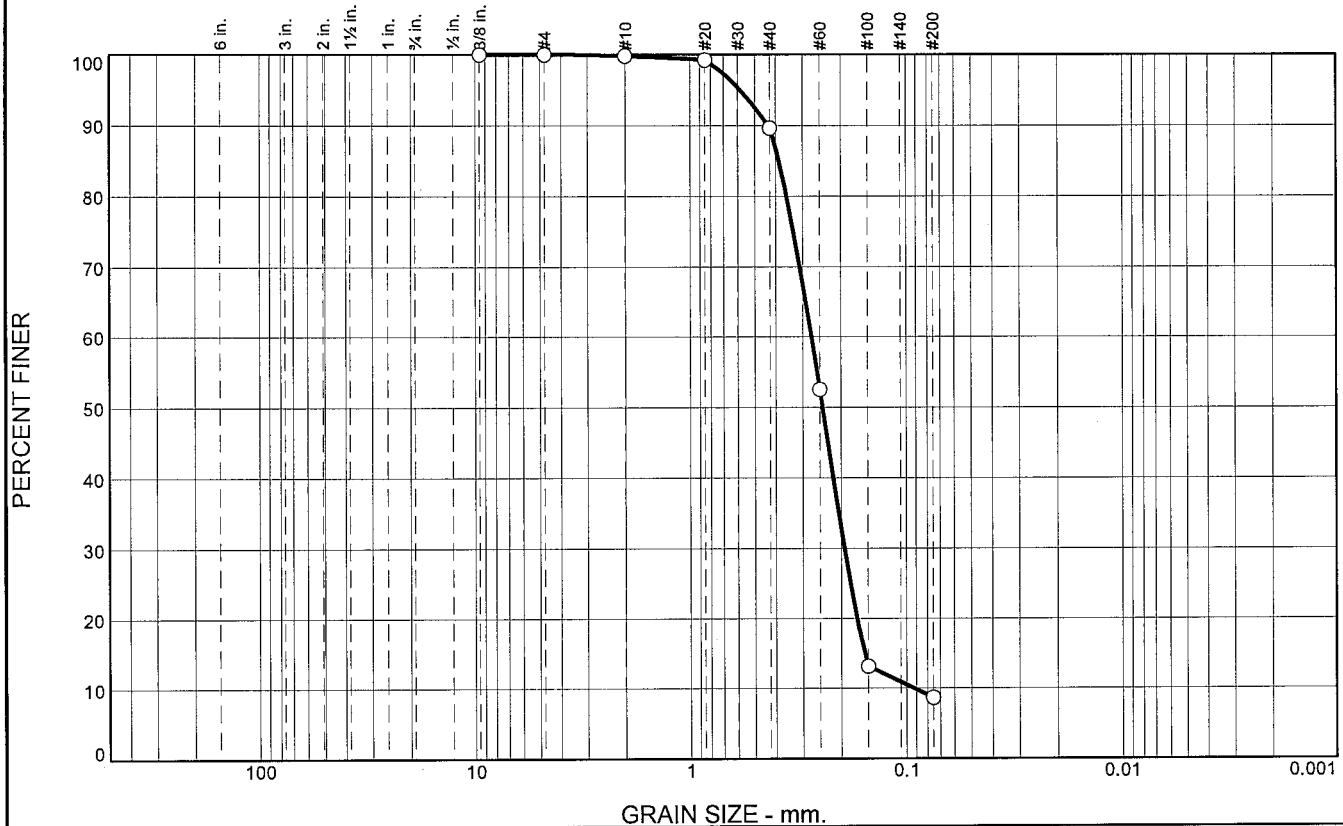
Project No: 10-2123-0009

Figure

Tested By: G.Fancher

Checked By: R.Byrd

# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.0	0.2	10.2	81.0	8.6	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
.375	100.0		
#4	100.0		
#10	99.8		
#20	99.2		
#40	89.6		
#60	52.5		
#100	13.1		
#200	8.6		

\* (no specification provided)

## Material Description

SAND, (SP-SM), medium to fine grained

## Atterberg Limits

PL= LL= PI=

## Coefficients

D<sub>90</sub>= 0.4330 D<sub>85</sub>= 0.3872 D<sub>60</sub>= 0.2729  
D<sub>50</sub>= 0.2430 D<sub>30</sub>= 0.1929 D<sub>15</sub>= 0.1555  
C<sub>u</sub>= 2.95 C<sub>c</sub>= 1.47

## Classification

USCS= SP-SM AASHTO=

## Remarks

CADD CODE = CH10D965

Location: USACE Sample # BI-SI-28-10D  
Sample Number: TE Lab ID: 4538.14

Depth: 10.0 - 14.0 (ft.)

Date: 6/19/10

**Thompson Engineering**

**Mobile, Alabama**

Client: US Army Corps of Engineers

Project: Contract No. W91278-10-D-0026 - Task 03  
Mississippi Barrier Island Restoration Project

Project No: 10-2123-0009

Figure

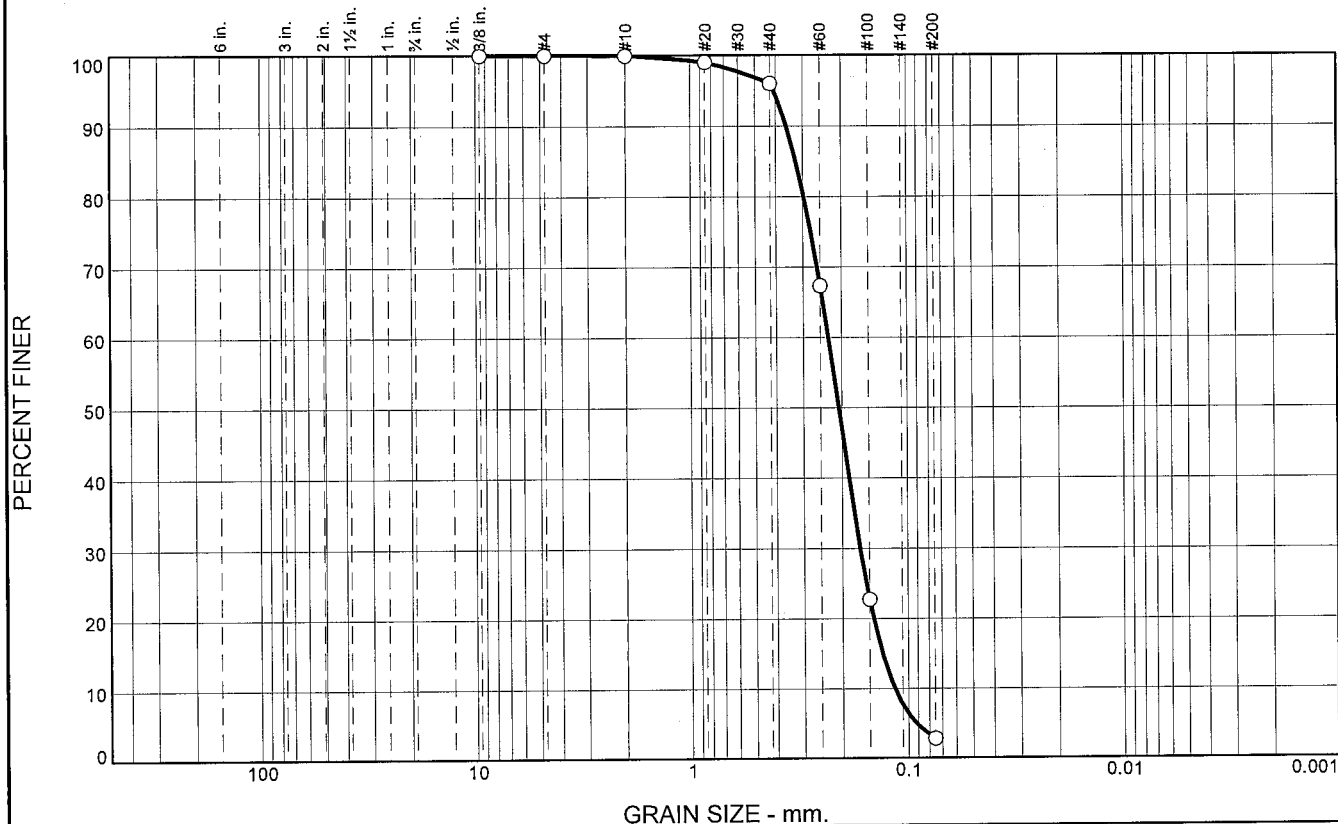
Tested By: G.Fancher

Checked By: R.Byrd

# Boring Designation BI-SI-29-10

DRILLING LOG		DIVISION South Atlantic		INSTALLATION Mobile District		SHEET 1 OF 1 SHEETS	
1. PROJECT MsCIP Barrier Island Restoration Ship Island				9. SIZE AND TYPE OF BIT N/A			
2. BORING DESIGNATION BI-SI-29-10		LOCATION COORDINATES E = 957,039 N = 254,239		10. COORDINATE SYSTEM/DATUM State Plane, MSE (U.S. Ft.)		HORIZONTAL NAD83	
3. DRILLING AGENCY Corps of Engineers - CESAM		CONTRACTOR FILE NO.		11. MANUFACTURER'S DESIGNATION OF DRILL Vibracore		<input type="checkbox"/> AUTO HAMMER <input type="checkbox"/> MANUAL HAMMER	
4. NAME OF DRILLER Construction Solutions International, Inc.				12. TOTAL SAMPLES 2		UNDISTURBED (UD) 0	
5. DIRECTION OF BORING <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED				13. TOTAL NUMBER CORE BOXES		14. WATER DEPTH 23 Ft.	
6. THICKNESS OF OVERBURDEN N/A				15. DATE BORING 06-12-10		COMPLETED 06-12-10	
7. DEPTH DRILLED INTO ROCK N/A				16. ELEVATION TOP OF BORING -20.8 Ft.		17. TOTAL RECOVERY FOR BORING 100%	
8. TOTAL DEPTH OF BORING 14.2 Ft.				18. SIGNATURE AND TITLE OF INSPECTOR Marty Gates, Geologist			
ELEV.	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS	SAMPLE	LABORATORY RESULTS		
-20.8	0.0						
-24.8	4.0		SAND, poorly-graded, mostly fine to medium-grained sand-sized quartz, trace silt, trace shell fragments, lt. gray (SP)	A	Classification: SP Color: 2.5Y 6/2-light brownish gray D50: 0.2063 mm % Fines: 2.8		
-29.3	8.5		SAND, silty, mostly fine to medium-grained sand-sized quartz, some silt, trace shell fragments, gray (SM)	B	Classification: SM Color: 2.5Y 5/2-grayish brown D50: 0.1523 mm % Fines: 20		
-35.0	14.2		CLAY, lean, dark gray (CL)	NS			
NOTES: 1. Soils are field visually classified in accordance with the Unified Soils Classification System. 2. NS = Sample not submitted for laboratory analysis from this interval. 3. Seafloor elevation calculated using sampling vessel's fathometer water depth reading and applying NOAA tidal gauge data conversion factor.							

# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.0	0.1	3.9	93.2	2.8	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
.375	100.0		
#4	100.0		
#10	99.9		
#20	99.0		
#40	96.0		
#60	67.3		
#100	22.7		
#200	2.8		

\* (no specification provided)

## Material Description

SAND, (SP), fine grained

## Atterberg Limits

PL=

LL=

PI=

## Coefficients

D<sub>90</sub>= 0.3580

D<sub>85</sub>= 0.3234

D<sub>60</sub>= 0.2298

D<sub>50</sub>= 0.2063

D<sub>30</sub>= 0.1652

D<sub>15</sub>= 0.1310

D<sub>10</sub>= 0.1153

C<sub>u</sub>= 1.99

C<sub>c</sub>= 1.03

## Classification

USCS= SP

AASHTO=

## Remarks

CADD CODE = CH10D965

Location: USACE Sample # BI-SI-29-10A  
Sample Number: TE Lab ID: 4538.46

Depth: 0.0 - 4.0 (ft.)

Date: 6/19/10

**Thompson Engineering**

**Mobile, Alabama**

Client: US Army Corps of Engineers

Project: Contract No. W91278-10-D-0026 - Task 03  
Mississippi Barrier Island Restoration Project

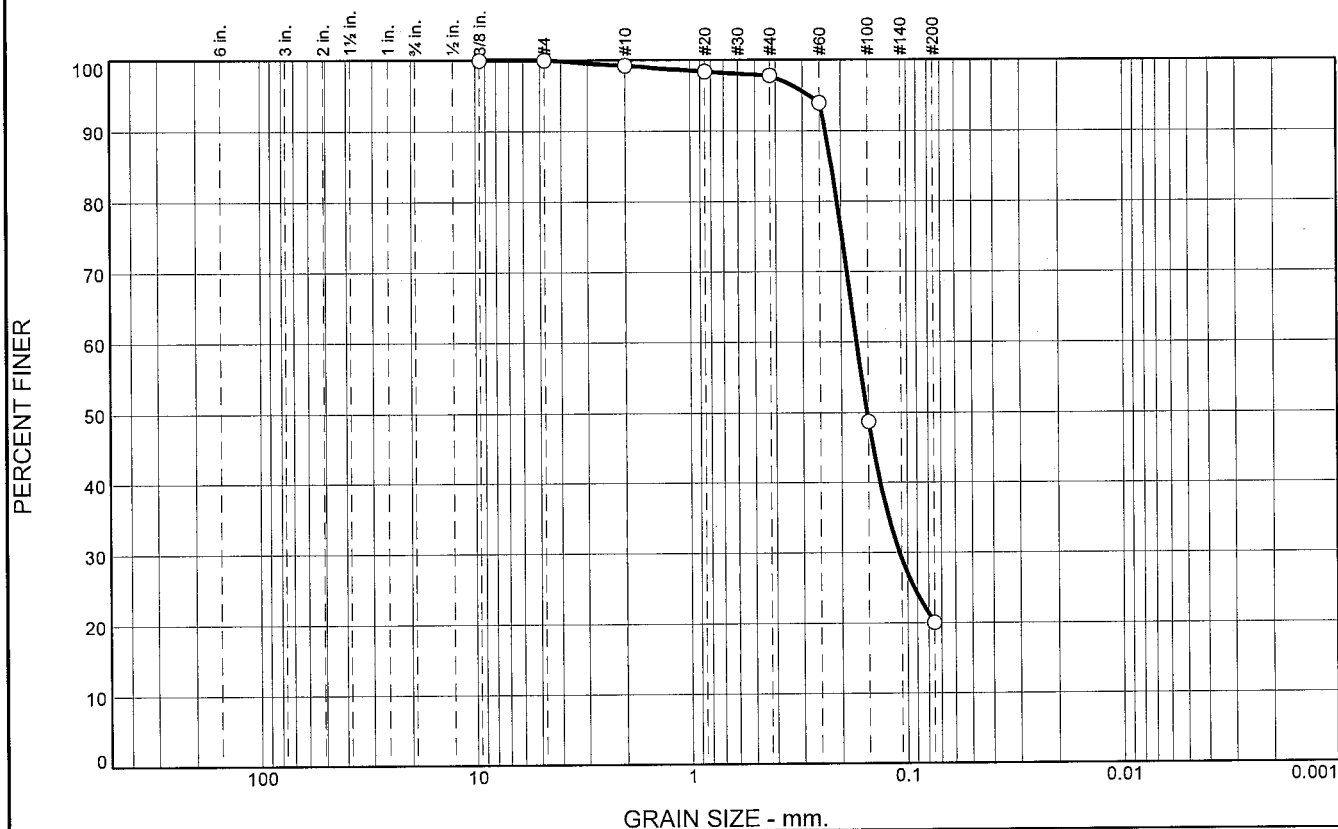
Project No: 10-2123-0009

Figure

Tested By: R.Martin

Checked By: R.Byrd

# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.0	0.8	1.4	77.8	20.0	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
.375	100.0		
#4	100.0		
#10	99.2		
#20	98.4		
#40	97.8		
#60	94.0		
#100	48.7		
#200	20.0		

\* (no specification provided)

## Material Description

SILTY SAND, (SM), medium to fine grained

## Atterberg Limits

PL= LL= PI=

## Coefficients

D<sub>90</sub>= 0.2347 D<sub>85</sub>= 0.2200 D<sub>60</sub>= 0.1697  
D<sub>50</sub>= 0.1523 D<sub>30</sub>= 0.1090 D<sub>15</sub>=  
D<sub>10</sub>= C<sub>u</sub>= C<sub>c</sub>=

## Classification

USCS= SM AASHTO=

## Remarks

CADD CODE = CH10D965

Location: USACE Sample # BI-SI-29-10B  
Sample Number: TE Lab ID: 4538.47

Depth: 4.0 - 8.5 (ft.)

Date: 6/19/10

**Thompson Engineering**

**Mobile, Alabama**

Client: US Army Corps of Engineers

Project: Contract No. W91278-10-D-0026 - Task 03  
Mississippi Barrier Island Restoration Project

Project No: 10-2123-0009

Figure

Tested By: R.Martin

Checked By: R.Byrd



# Boring Designation BI-SI-30-10

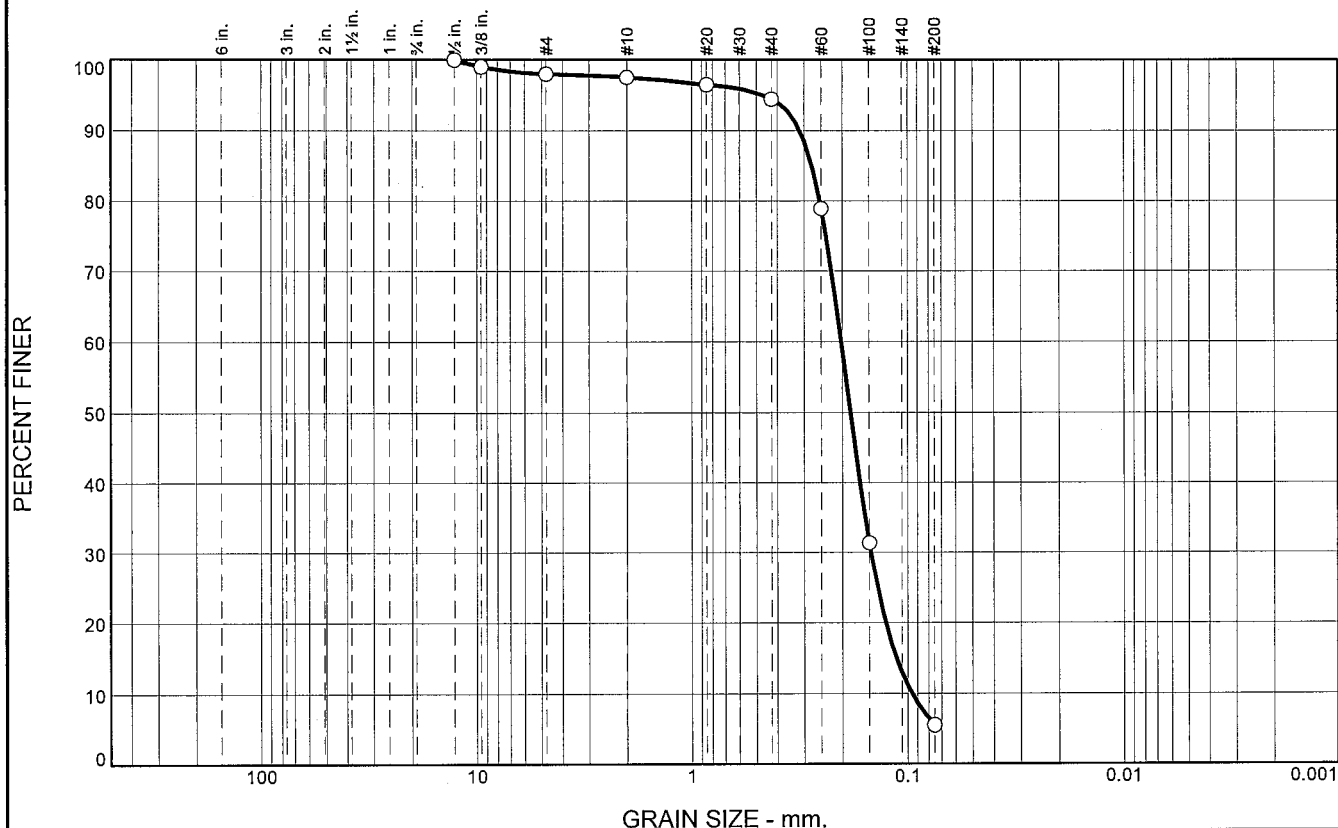
DRILLING LOG		DIVISION South Atlantic		INSTALLATION Mobile District		SHEET 1 OF 2 SHEETS	
1. PROJECT MsCIP Barrier Island Restoration Ship Island				9. SIZE AND TYPE OF BIT N/A			
2. BORING DESIGNATION BI-SI-30-10		LOCATION COORDINATES E = 961,188 N = 255,673		10. COORDINATE SYSTEM/DATUM State Plane, MSE (U.S. Ft.)		HORIZONTAL NAD83	
3. DRILLING AGENCY Corps of Engineers - CESAM		CONTRACTOR FILE NO.		11. MANUFACTURER'S DESIGNATION OF DRILL Vibracore		<input type="checkbox"/> AUTO HAMMER <input type="checkbox"/> MANUAL HAMMER	
4. NAME OF DRILLER Construction Solutions International, Inc.				12. TOTAL SAMPLES 3		DISTURBED 0	
5. DIRECTION OF BORING <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED				13. TOTAL NUMBER CORE BOXES		14. WATER DEPTH 25 Ft.	
6. THICKNESS OF OVERBURDEN N/A				15. DATE BORING 06-12-10		STARTED 06-12-10	
7. DEPTH DRILLED INTO ROCK N/A				16. ELEVATION TOP OF BORING -22.8 Ft.		COMPLETED 06-12-10	
8. TOTAL DEPTH OF BORING 19.8 Ft.				17. TOTAL RECOVERY FOR BORING 100%		18. SIGNATURE AND TITLE OF INSPECTOR Marty Gates, Geologist	

ELEV.	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS	SAMPLE	LABORATORY RESULTS
-22.8	0.0				
			SAND, poorly-graded, mostly fine to medium-grained sand-sized quartz, trace silt, trace shell fragments, lt. gray (SP)	A	Classification: SP-SM    Color: 2.5Y 6/2-light brownish gray D50: 0.183 mm    % Fines: 5.6
				B	Classification: SP-SM    Color: 2.5Y 7/1-light gray D50: 0.2146 mm    % Fines: 5.9
-32.8	10.0				
-34.1	11.3		SAND, silty, mostly fine to medium-grained sand-sized quartz, some silt, trace shell fragments, gray (SM)  CLAY, lean, dark gray (CL)	C	Classification: SM    Color: 2.5Y 7/1-light gray D50: 0.1547 mm    % Fines: 15.6
				NS	
-42.6	19.8				
NOTES: 1. Soils are field visually classified in accordance with the Unified Soils Classification System. 2. NS = Sample not submitted for laboratory analysis from this interval. 3. Seafloor elevation calculated using sampling vessel's fathometer water depth reading and					

<b>DRILLING LOG (Cont. Sheet)</b>			<b>INSTALLATION</b> Mobile District		<b>SHEET 2</b> <b>OF 2 SHEETS</b>
<b>PROJECT</b> MsCIP Barrier Island Restoration			<b>COORDINATE SYSTEM/DATUM</b> State Plane, MSE (U.S. Ft.)	<b>HORIZONTAL</b> NAD83	<b>VERTICAL</b> NAVD88
<b>LOCATION COORDINATES</b> X = 961,188 Y = 255,673			<b>ELEVATION TOP OF BORING</b> -22.8 Ft.		
<b>ELEV.</b>	<b>DEPTH</b>	<b>LEGEND</b>	<b>CLASSIFICATION OF MATERIALS</b>	<b>SAMPLE</b>	<b>LABORATORY RESULTS</b>
			applying NOAA tidal gauge data conversion factor.		

# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	2.0	0.5	3.1	88.8	5.6	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
.500	100.0		
.375	99.0		
#4	98.0		
#10	97.5		
#20	96.5		
#40	94.4		
#60	78.9		
#100	31.4		
#200	5.6		

\* (no specification provided)

## Material Description

SAND, (SP-SM), fine grained, with trace shell

## Atterberg Limits

PL=

LL=

PI=

## Coefficients

D<sub>90</sub>= 0.3151

D<sub>85</sub>= 0.2769

D<sub>60</sub>= 0.2019

D<sub>50</sub>= 0.1830

D<sub>30</sub>= 0.1474

D<sub>15</sub>= 0.1128

D<sub>10</sub>= 0.0956

C<sub>u</sub>= 2.11

C<sub>c</sub>= 1.13

## Classification

USCS= SP-SM

AASHTO=

## Remarks

CADD CODE = CH10D965

Location: USACE Sample # BI-SI-30-10A  
Sample Number: TE Lab ID: 4538.49

Depth: 0.0 - 5.0 (ft.)

Date: 6/19/10

**Thompson Engineering**

**Mobile, Alabama**

Client: US Army Corps of Engineers

Project: Contract No. W91278-10-D-0026 - Task 03  
Mississippi Barrier Island Restoration Project

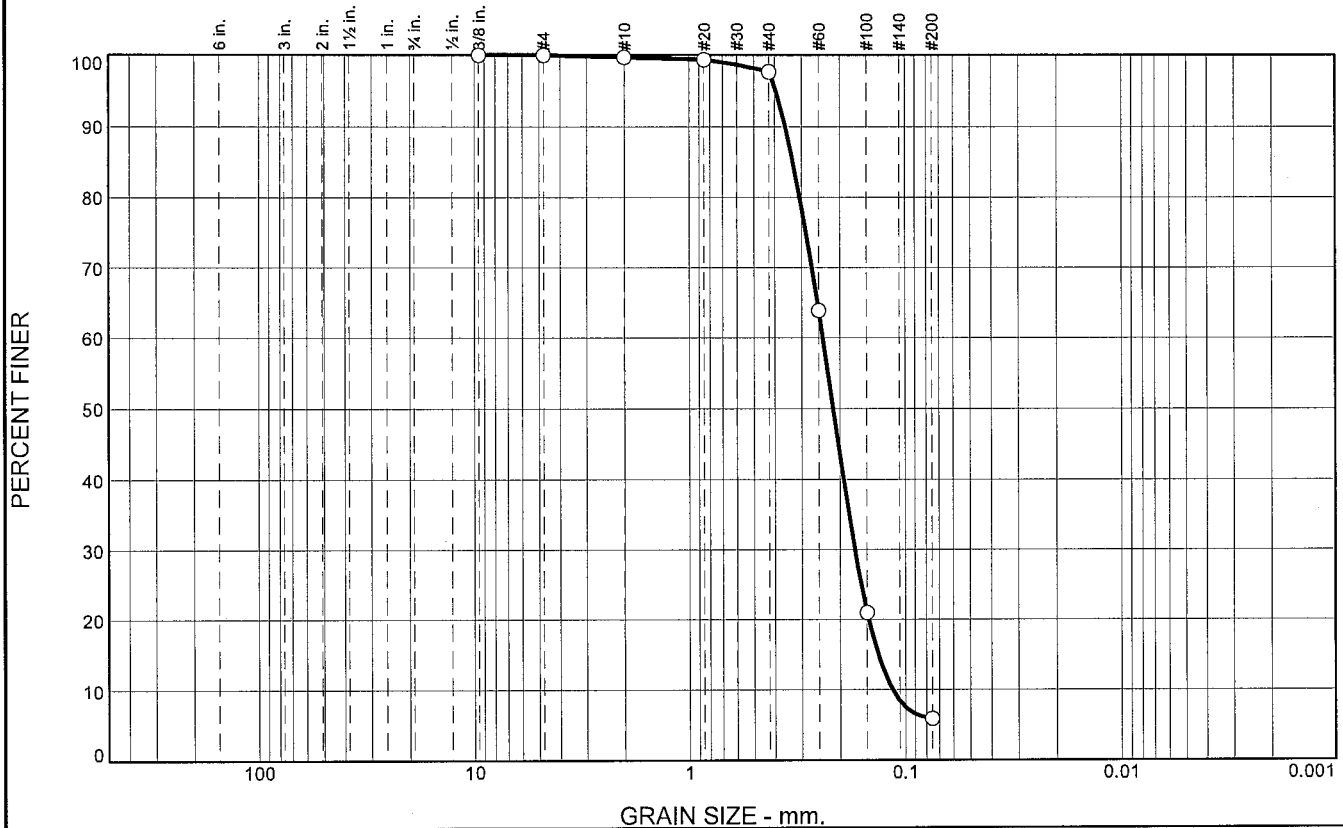
Project No: 10-2123-0009

Figure

Tested By: R.Martin

Checked By: R.Byrd

# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.0	0.3	2.1	91.7	5.9	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
.375	100.0		
#4	100.0		
#10	99.7		
#20	99.3		
#40	97.6		
#60	63.8		
#100	20.9		
#200	5.9		

\* (no specification provided)

<u><b>Material Description</b></u>		
SAND, (SP-SM), fine grained		
<u><b>Atterberg Limits</b></u>		
PL=	LL=	PI=
<u><b>Coefficients</b></u>		
D <sub>90</sub> = 0.3576	D <sub>85</sub> = 0.3290	D <sub>60</sub> = 0.2395
D <sub>50</sub> = 0.2146	D <sub>30</sub> = 0.1706	D <sub>15</sub> = 0.1336
D <sub>10</sub> = 0.1149	C <sub>u</sub> = 2.08	C <sub>c</sub> = 1.06
<u><b>Classification</b></u>		
USCS= SP-SM	AASHTO=	
<u><b>Remarks</b></u>		
CADD CODE = CH10D965		

Location: USACE Sample # BI-SI-30-10B  
Sample Number: TE Lab ID: 4538.50

Depth: 5.0 - 10.0 (ft.)

Date: 6/19/10

**Thompson Engineering**  
**Mobile, Alabama**

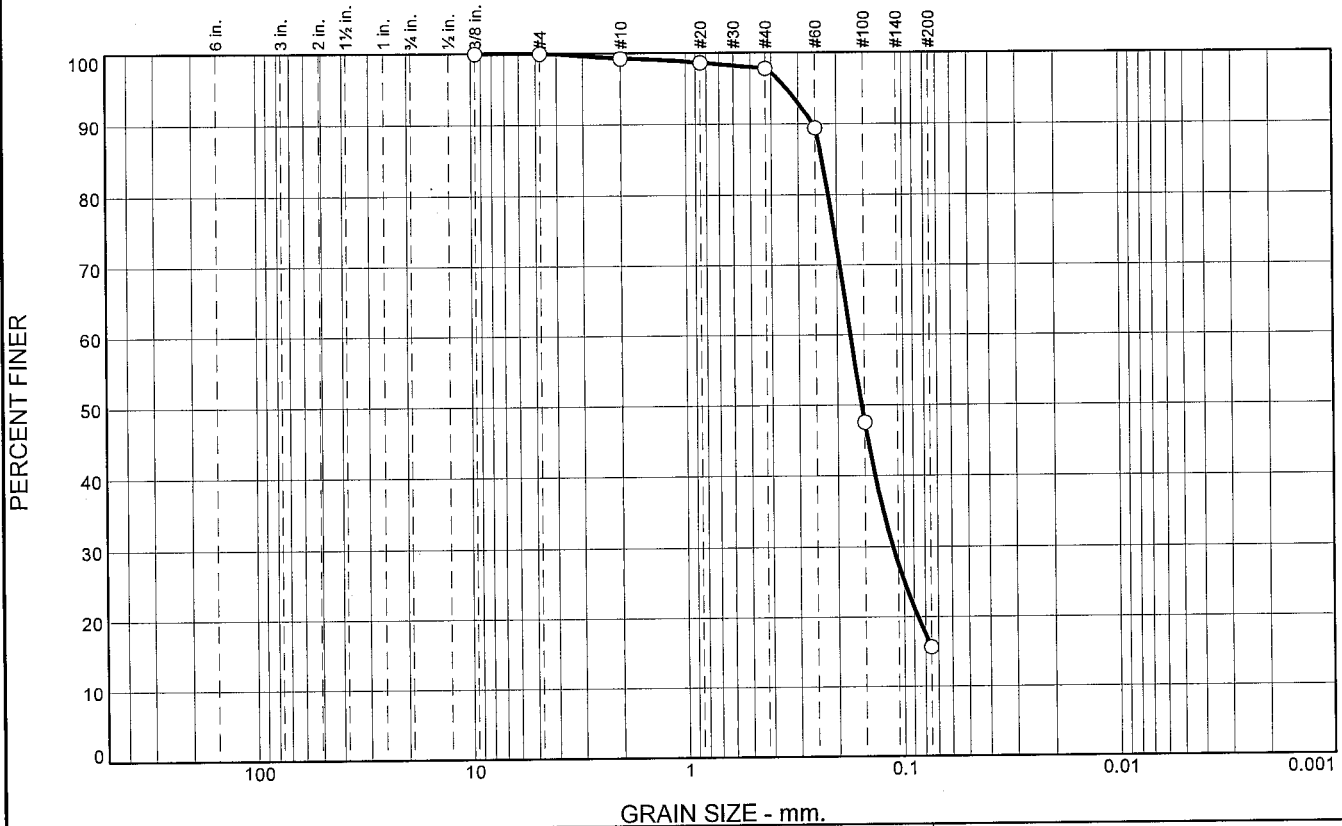
Client: US Army Corps of Engineers  
Project: Contract No. W91278-10-D-0026 - Task 03  
Mississippi Barrier Island Restoration Project  
Project No: 10-2123-0009

Figure

Tested By: R.Martin

Checked By: R.Byrd

# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.0	0.7	1.5	82.2	15.6	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
.375	100.0		
#4	100.0		
#10	99.3		
#20	98.6		
#40	97.8		
#60	89.4		
#100	47.5		
#200	15.6		

\* (no specification provided)

## Material Description

SILTY SAND, (SM), fine grained

## Atterberg Limits

PL=

LL=

PI=

## Coefficients

D<sub>90</sub>= 0.2574

D<sub>85</sub>= 0.2331

D<sub>60</sub>= 0.1736

D<sub>50</sub>= 0.1547

D<sub>30</sub>= 0.1124

D<sub>15</sub>=

D<sub>10</sub>=

C<sub>u</sub>=

C<sub>c</sub>=

## Classification

USCS= SM

AASHTO=

## Remarks

CADD CODE = CH10D965

Location: USACE Sample # BI-SI-30-10C  
Sample Number: TE Lab ID: 4538.51

Depth: 10.0 - 13.0 (ft.)

Date: 6/19/10

**Thompson Engineering**

**Mobile, Alabama**

Client: US Army Corps of Engineers

Project: Contract No. W91278-10-D-0026 - Task 03  
Mississippi Barrier Island Restoration Project

Project No: 10-2123-0009

Figure

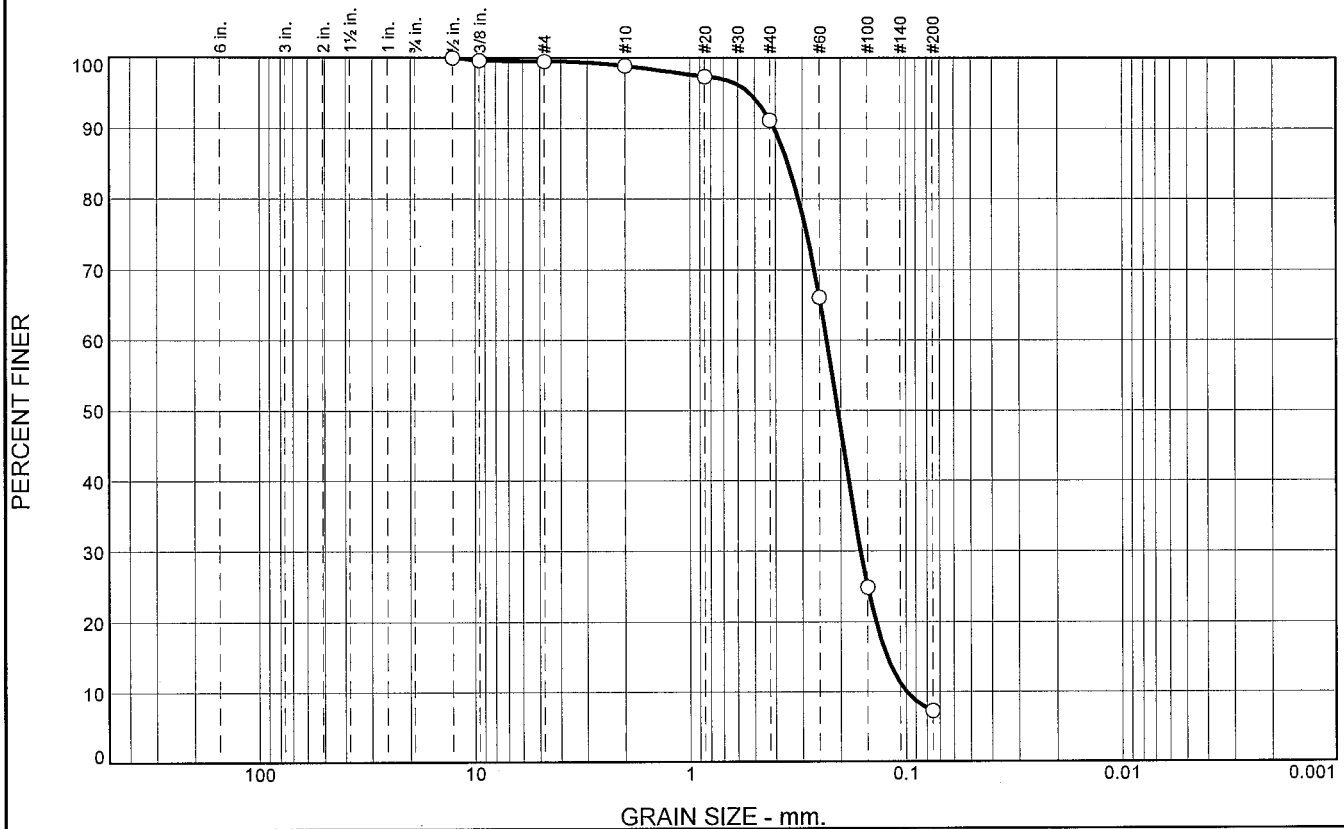
Tested By: R.Martin

Checked By: R.Byrd

# Boring Designation BI-SI-31-10

DRILLING LOG		DIVISION South Atlantic		INSTALLATION Mobile District		SHEET 1 OF 1 SHEETS	
1. PROJECT MsCIP Barrier Island Restoration Ship Island				9. SIZE AND TYPE OF BIT N/A			
2. BORING DESIGNATION BI-SI-31-10		LOCATION COORDINATES E = 963,513 N = 256,766		10. COORDINATE SYSTEM/DATUM State Plane, MSE (U.S. Ft.)		HORIZONTAL NAD83 VERTICAL NAVD88	
3. DRILLING AGENCY Corps of Engineers - CESAM		CONTRACTOR FILE NO.		11. MANUFACTURER'S DESIGNATION OF DRILL Vibrocure		<input type="checkbox"/> AUTO HAMMER <input type="checkbox"/> MANUAL HAMMER	
4. NAME OF DRILLER Construction Solutions International, Inc.				12. TOTAL SAMPLES 3		DISTURBED 3 UNDISTURBED (UD) 0	
5. DIRECTION OF BORING <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED		DEG. FROM VERTICAL		13. TOTAL NUMBER CORE BOXES			
		BEARING		14. WATER DEPTH 26 Ft.			
6. THICKNESS OF OVERBURDEN N/A				15. DATE BORING 06-12-10		STARTED 06-12-10 COMPLETED 06-12-10	
7. DEPTH DRILLED INTO ROCK N/A				16. ELEVATION TOP OF BORING -23.7 Ft.			
8. TOTAL DEPTH OF BORING 17.1 Ft.				17. TOTAL RECOVERY FOR BORING 100%			
				18. SIGNATURE AND TITLE OF INSPECTOR Marty Gates, Geologist			
ELEV.	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS	SAMPLE	LABORATORY RESULTS		
-23.7	0.0						
			SAND, poorly-graded, mostly fine to medium-grained sand-sized quartz, trace silt, trace shell fragments, lt. gray (SP)	A	Classification: SP-SM Color: 2.5Y 7/1-light gray D50: 0.2057 mm % Fines: 7.3		
				B	Classification: SP Color: 2.5Y 7/1-light gray D50: 0.1912 mm % Fines: 4.1		
-34.2	10.5						
			SAND, silty, mostly fine to medium-grained sand-sized quartz, some silt, trace shell fragments, gray (SM)	C	Classification: SM Color: 2.5Y 6/2-light brownish gray D50: 0.1271 mm % Fines: 13.5		
-37.2	13.5						
			CLAY, lean, dark gray (CL)	NS			
-40.8	17.1						
			NOTES: 1. Soils are field visually classified in accordance with the Unified Soils Classification System. 2. NS = Sample not submitted for laboratory analysis from this interval. 3. Seafloor elevation calculated using sampling vessel's fathometer water depth reading and applying NOAA tidal gauge data conversion factor.				

# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.6	0.6	7.6	83.9	7.3	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
.500	100.0		
.375	99.6		
#4	99.4		
#10	98.8		
#20	97.3		
#40	91.2		
#60	66.1		
#100	24.9		
#200	7.3		

\* (no specification provided)

**Material Description**  
SAND, (SP-SM), fine grained

**Atterberg Limits**  
PL=      LL=      PI=

**Coefficients**  
D<sub>90</sub>= 0.4064      D<sub>85</sub>= 0.3502      D<sub>60</sub>= 0.2313  
D<sub>50</sub>= 0.2057      D<sub>30</sub>= 0.1617      D<sub>15</sub>= 0.1221  
D<sub>10</sub>= 0.0995      C<sub>u</sub>= 2.32      C<sub>c</sub>= 1.14

**Classification**  
USCS= SP-SM      AASHTO=

**Remarks**  
CADD CODE = CH10D965

Location: USACE Sample # BI-SI-31-10A  
Sample Number: TE Lab ID: 4538.52

Depth: 0.0 - 5.0 (ft.)

Date: 6/19/10

**Thompson Engineering**

**Mobile, Alabama**

Client: US Army Corps of Engineers

Project: Contract No. W91278-10-D-0026 - Task 03  
Mississippi Barrier Island Restoration Project

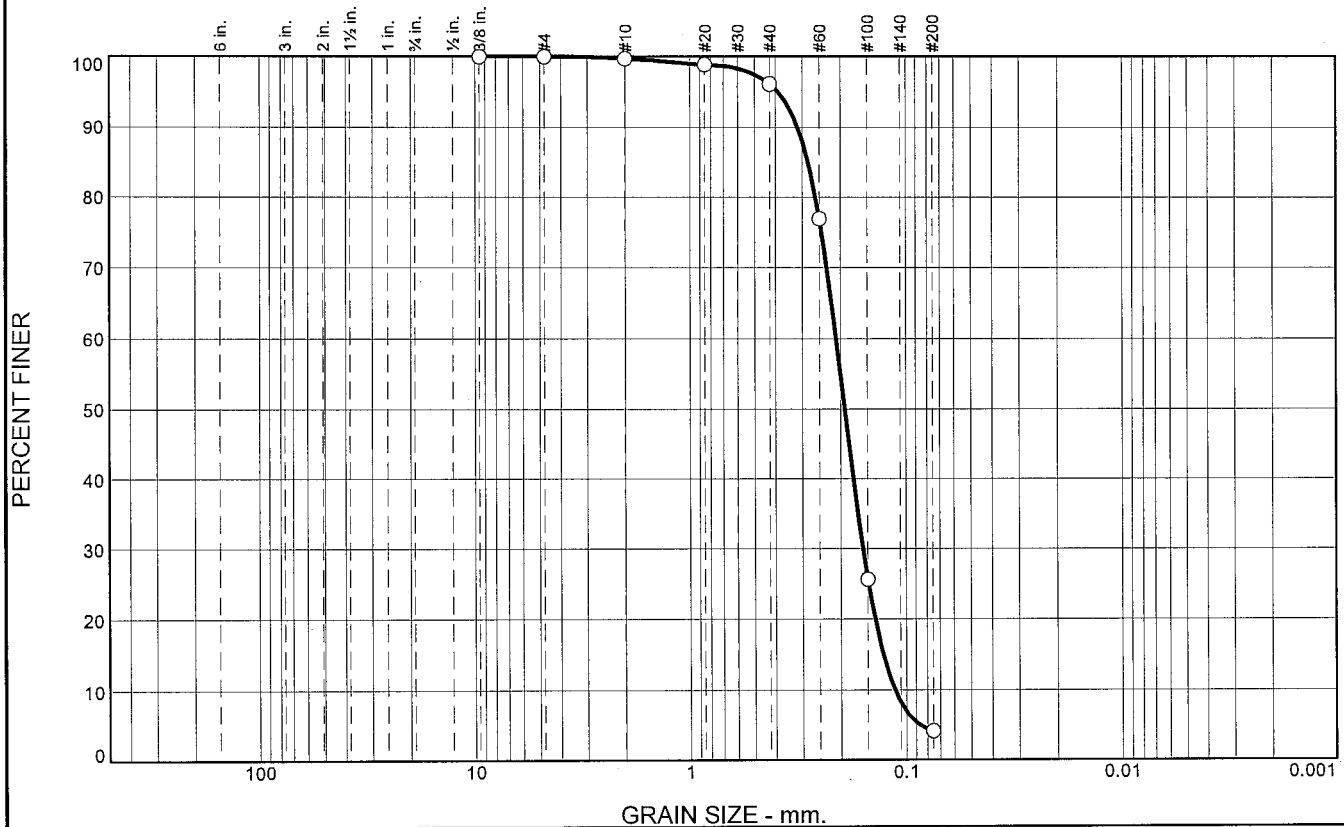
Project No: 10-2123-0009

Figure

Tested By: R.Martin

Checked By: R.Byrd

# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.0	0.3	3.5	92.1	4.1	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
.375	100.0		
#4	100.0		
#10	99.7		
#20	98.8		
#40	96.2		
#60	76.9		
#100	25.6		
#200	4.1		

\* (no specification provided)

## Material Description

SAND, (SP), fine grained

## Atterberg Limits

PL=

LL=

PI=

## Coefficients

D<sub>90</sub>= 0.3154

D<sub>85</sub>= 0.2823

D<sub>60</sub>= 0.2096

D<sub>50</sub>= 0.1912

D<sub>30</sub>= 0.1577

D<sub>15</sub>= 0.1277

D<sub>10</sub>= 0.1131

C<sub>u</sub>= 1.85

C<sub>c</sub>= 1.05

## Classification

USCS= SP

AASHTO=

## Remarks

CADD CODE = CH10D965

Location: USACE Sample # BI-SI-31-10B  
Sample Number: TE Lab ID: 4538.53

Depth: 5.0 - 10.5 (ft.)

Date: 6/19/10

**Thompson Engineering**

**Mobile, Alabama**

Client: US Army Corps of Engineers

Project: Contract No. W91278-10-D-0026 - Task 03  
Mississippi Barrier Island Restoration Project

Project No: 10-2123-0009

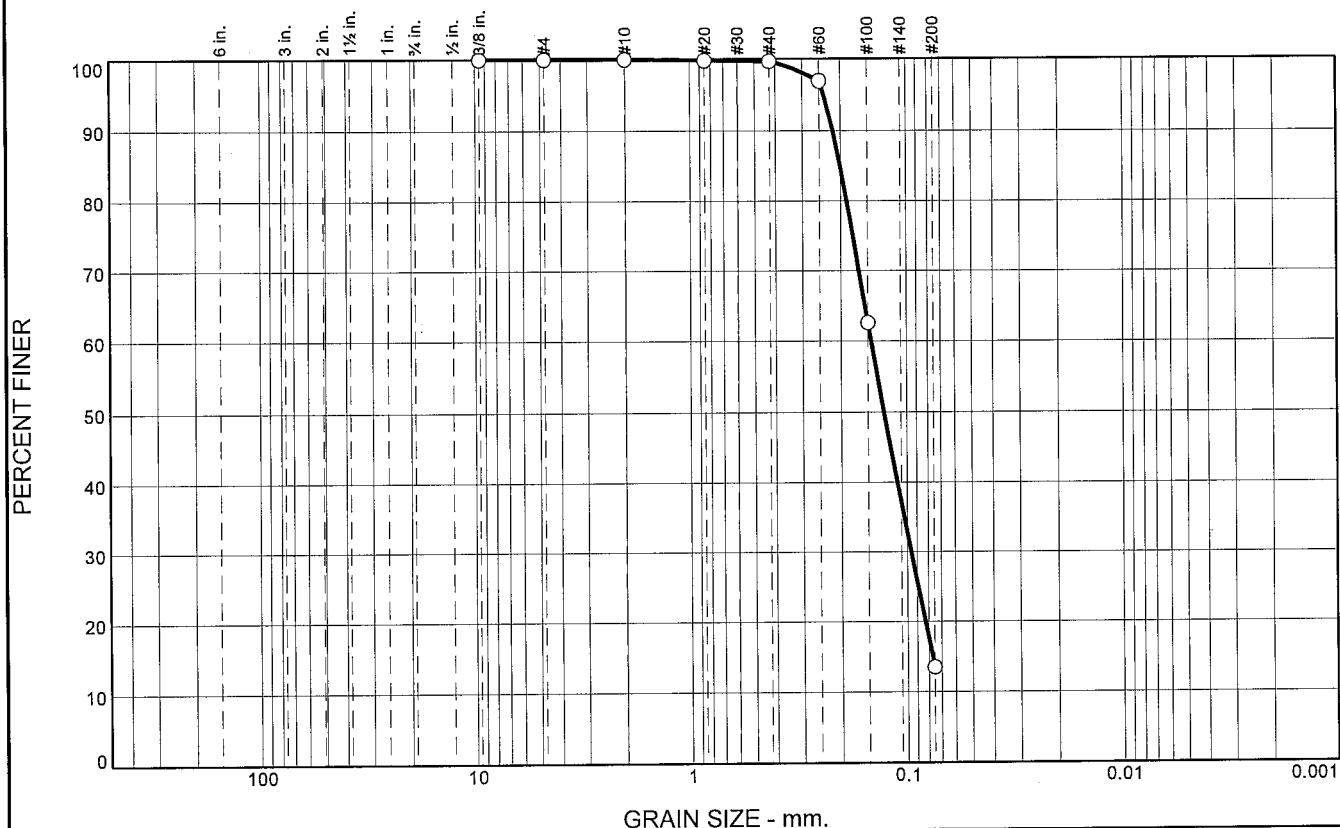
Figure

Tested By: R.Martin

Checked By: R.Byrd



# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.0	0.0	0.3	86.2	13.5	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
.375	100.0		
#4	100.0		
#10	100.0		
#20	99.8		
#40	99.7		
#60	97.0		
#100	62.6		
#200	13.5		

\* (no specification provided)

**Material Description**  
SILTY SAND, (SM), fine grained

**Atterberg Limits**  
PL=      LL=      PI=

**Coefficients**  
D<sub>90</sub>= 0.2170      D<sub>85</sub>= 0.2008      D<sub>60</sub>= 0.1451  
D<sub>50</sub>= 0.1271      D<sub>30</sub>= 0.0958      D<sub>15</sub>= 0.0767  
D<sub>10</sub>=      C<sub>u</sub>=      C<sub>c</sub>=

**Classification**  
USCS= SM      AASHTO=

**Remarks**  
CADD CODE = CH10D965

Location: USACE Sample # BI-SI-31-10C  
Sample Number: TE Lab ID: 4538.54

Depth: 10.5 - 13.5 (ft.)

Date: 6/19/10

**Thompson Engineering**

**Mobile, Alabama**

Client: US Army Corps of Engineers

Project: Contract No. W91278-10-D-0026 - Task 03  
Mississippi Barrier Island Restoration Project

Project No: 10-2123-0009

Figure

Tested By: R.Martin

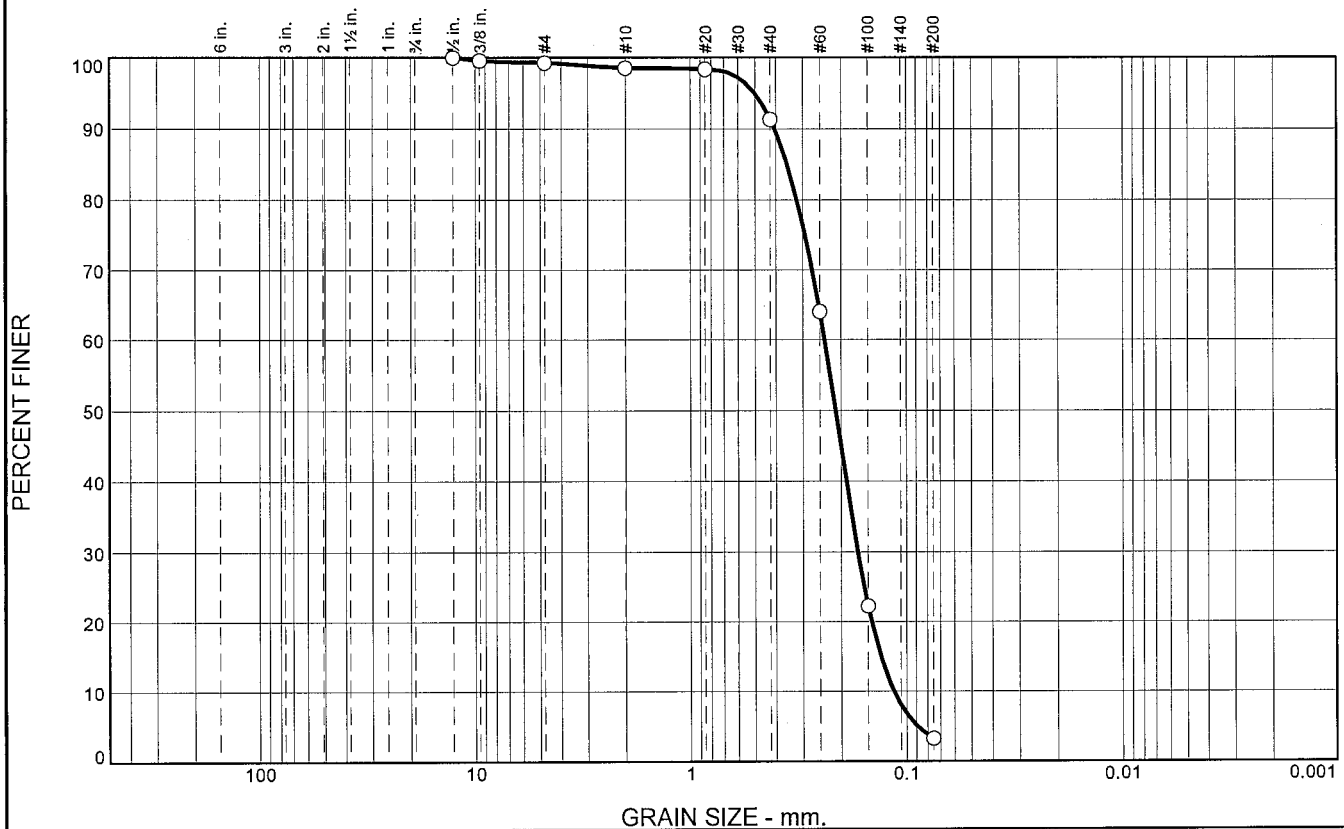
Checked By: R.Byrd

# Boring Designation BI-SI-32-10

DRILLING LOG		DIVISION South Atlantic		INSTALLATION Mobile District		SHEET 1 OF 2 SHEETS	
1. PROJECT MsCIP Barrier Island Restoration Ship Island				9. SIZE AND TYPE OF BIT N/A			
2. BORING DESIGNATION BI-SI-32-10		LOCATION COORDINATES E = 965,567 N = 257,529		10. COORDINATE SYSTEM/DATUM State Plane, MSE (U.S. Ft.)		HORIZONTAL NAD83 VERTICAL NAVD88	
3. DRILLING AGENCY Corps of Engineers - CESAM		CONTRACTOR FILE NO.		11. MANUFACTURER'S DESIGNATION OF DRILL Vibracore		<input type="checkbox"/> AUTO HAMMER <input type="checkbox"/> MANUAL HAMMER	
4. NAME OF DRILLER Construction Solutions International, Inc.				12. TOTAL SAMPLES 4		DISTURBED 0 UNDISTURBED (UD)	
5. DIRECTION OF BORING <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED		DEG. FROM VERTICAL		13. TOTAL NUMBER CORE BOXES			
		BEARING		14. WATER DEPTH 28 Ft.			
6. THICKNESS OF OVERBURDEN N/A				15. DATE BORING 06-12-10		STARTED 06-12-10 COMPLETED 06-12-10	
7. DEPTH DRILLED INTO ROCK N/A				16. ELEVATION TOP OF BORING -25.7 Ft.			
8. TOTAL DEPTH OF BORING 18.9 Ft.				17. TOTAL RECOVERY FOR BORING 100%			
				18. SIGNATURE AND TITLE OF INSPECTOR Marty Gates, Geologist			
ELEV.	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS	SAMPLE	LABORATORY RESULTS		
-25.7	0.0						
			SAND, poorly-graded, mostly fine to medium-grained sand-sized quartz, trace silt, trace wood debris, trace shell fragments, lt. gray (SP)	A	Classification: SP Color: 2.5Y 7/2-light gray D50: 0.2115 mm % Fines: 3.3		
				B	Classification: SP Color: 2.5Y 7/1-light gray D50: 0.1631 mm % Fines: 4.6		
				C	Classification: SP-SM Color: 5Y 7/1-light gray D50: 0.1496 mm % Fines: 7.1		
-41.0	15.3						
			SAND, silty, mostly fine to medium-grained sand-sized quartz, some silt, trace shell fragments, gray (SM)	D	Classification: SM Color: 2.5Y 6/2-light brownish gray D50: 0.1601 mm % Fines: 12.9		
-44.6	18.9						
			NOTES:				
			1. Soils are field visually classified in accordance with the Unified Soils Classification System.				
			2. NS = Sample not submitted for laboratory analysis from this interval.				
			3. Seafloor elevation calculated using sampling vessel's fathometer water depth reading and applying NOAA tidal gauge data conversion				

<b>DRILLING LOG (Cont. Sheet)</b>			<b>INSTALLATION</b> Mobile District		<b>SHEET 2</b> <b>OF 2 SHEETS</b>
<b>PROJECT</b> MsCIP Barrier Island Restoration			<b>COORDINATE SYSTEM/DATUM</b> State Plane, MSE (U.S. Ft.)	<b>HORIZONTAL</b> NAD83	<b>VERTICAL</b> NAVD88
<b>LOCATION COORDINATES</b> X = 965,567 Y = 257,529			<b>ELEVATION TOP OF BORING</b> -25.7 Ft.		
<b>ELEV.</b>	<b>DEPTH</b>	<b>LEGEND</b>	<b>CLASSIFICATION OF MATERIALS</b>	<b>SAMPLE</b>	<b>LABORATORY RESULTS</b>
			factor.		

# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.8	0.7	7.2	88.0	3.3	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
.500	100.0		
.375	99.5		
#4	99.2		
#10	98.5		
#20	98.4		
#40	91.3		
#60	64.0		
#100	22.2		
#200	3.3		

\* (no specification provided)

**Material Description**  
SAND, (SP), fine grained

**Atterberg Limits**  
 PL=                      LL=                      PI=

**Coefficients**  
 D<sub>90</sub>= 0.4071      D<sub>85</sub>= 0.3560      D<sub>60</sub>= 0.2378  
 D<sub>50</sub>= 0.2115      D<sub>30</sub>= 0.1672      D<sub>15</sub>= 0.1312  
 D<sub>10</sub>= 0.1145      C<sub>u</sub>= 2.08              C<sub>c</sub>= 1.03

**Classification**  
 USCS= SP                      AASHTO=

**Remarks**  
 CADD CODE = CH10D965

Location: USACE Sample # BI-SI-32-10A  
 Sample Number: TE Lab ID: 4538.55

Depth: 0.0 - 5.0 (ft.)

Date: 6/19/10

**Thompson Engineering**

**Mobile, Alabama**

Client: US Army Corps of Engineers

Project: Contract No. W91278-10-D-0026 - Task 03  
 Mississippi Barrier Island Restoration Project

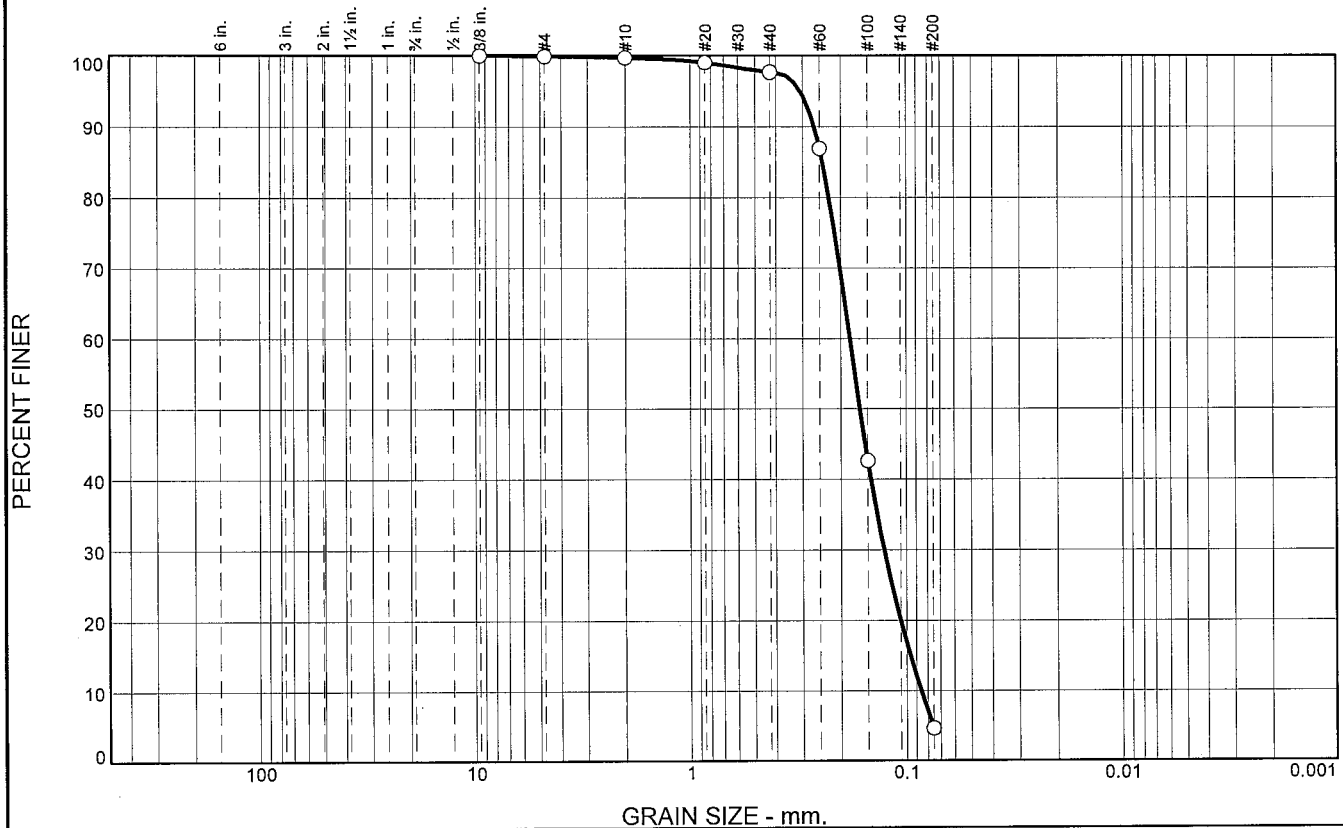
Project No: 10-2123-0009

Figure

Tested By: R.Martin

Checked By: R.Byrd

# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.1	0.2	2.0	93.1	4.6	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
.375	100.0		
#4	99.9		
#10	99.7		
#20	99.0		
#40	97.7		
#60	86.9		
#100	42.6		
#200	4.6		

\* (no specification provided)

**Material Description**  
SAND, (SP), fine grained

**Atterberg Limits**  
 PL=      LL=      PI=

**Coefficients**  
 D<sub>90</sub>= 0.2652      D<sub>85</sub>= 0.2427      D<sub>60</sub>= 0.1812  
 D<sub>50</sub>= 0.1631      D<sub>30</sub>= 0.1265      D<sub>15</sub>= 0.0960  
 D<sub>10</sub>= 0.0856      C<sub>u</sub>= 2.12      C<sub>c</sub>= 1.03

**Classification**  
 USCS= SP      AASHTO=

**Remarks**  
 CADD CODE = CH10D965

Location: USACE Sample # BI-SI-32-10B  
 Sample Number: TE Lab ID: 4538.56

Depth: 5.0 - 10.0 (ft.)

Date: 6/19/10

**Thompson Engineering**

**Mobile, Alabama**

Client: US Army Corps of Engineers

Project: Contract No. W91278-10-D-0026 - Task 03  
 Mississippi Barrier Island Restoration Project

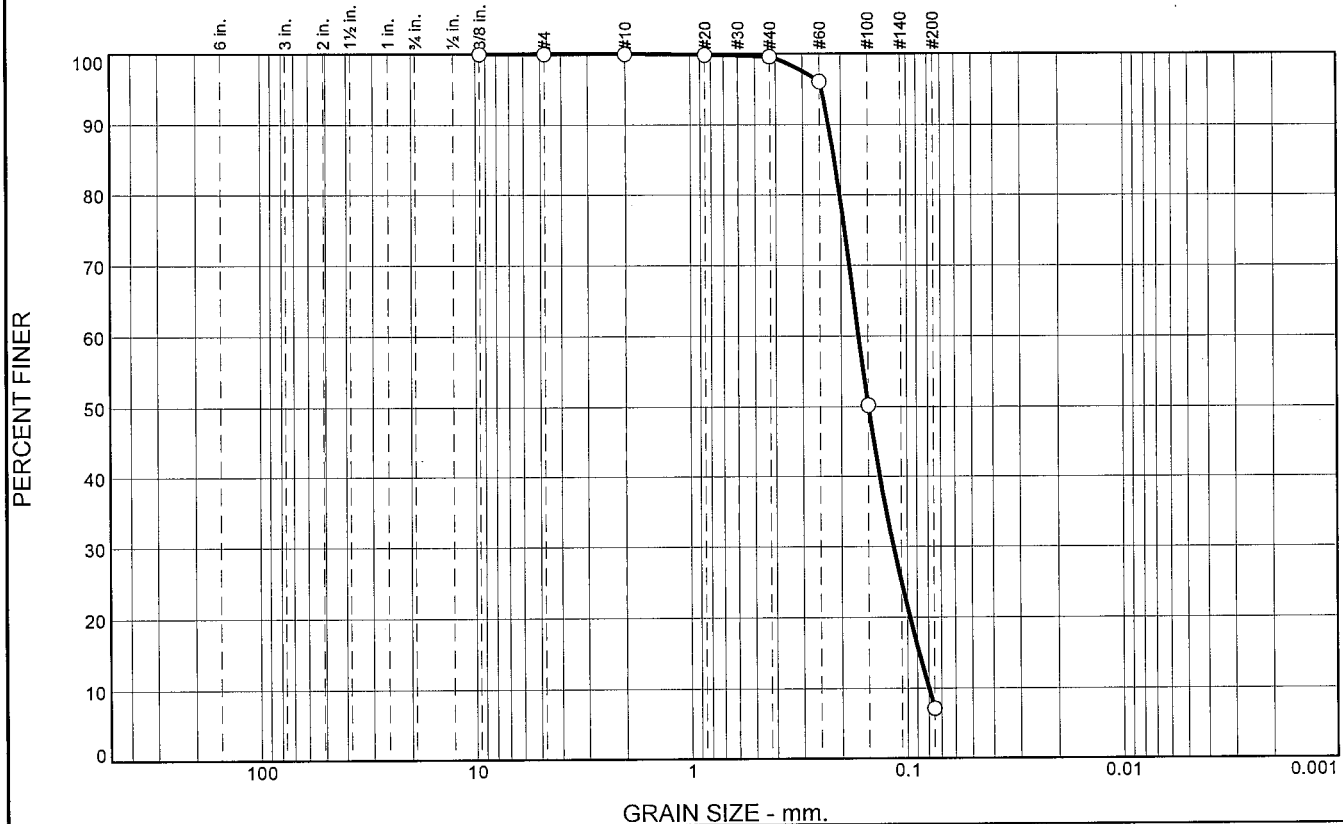
Project No: 10-2123-0009

Figure

Tested By: R.Martin

Checked By: R.Byrd

# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.0	0.0	0.4	92.5	7.1	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
.375	100.0		
#4	100.0		
#10	100.0		
#20	99.9		
#40	99.6		
#60	96.1		
#100	50.2		
#200	7.1		

\* (no specification provided)

## Material Description

SAND, (SP-SM), fine grained

## Atterberg Limits

PL= LL= PI=

## Coefficients

D<sub>90</sub>= 0.2275 D<sub>85</sub>= 0.2139 D<sub>60</sub>= 0.1659  
D<sub>50</sub>= 0.1496 D<sub>30</sub>= 0.1154 D<sub>15</sub>= 0.0883  
D<sub>10</sub>= 0.0797 C<sub>u</sub>= 2.08 C<sub>c</sub>= 1.01

## Classification

USCS= SP-SM AASHTO=

## Remarks

CADD CODE = CH10D965

Location: USACE Sample # BI-SI-32-10C  
Sample Number: TE Lab ID: 4538.57

Depth: 10.0 - 15.3 (ft.)

Date: 6/19/10

**Thompson Engineering**

**Mobile, Alabama**

Client: US Army Corps of Engineers

Project: Contract No. W91278-10-D-0026 - Task 03  
Mississippi Barrier Island Restoration Project

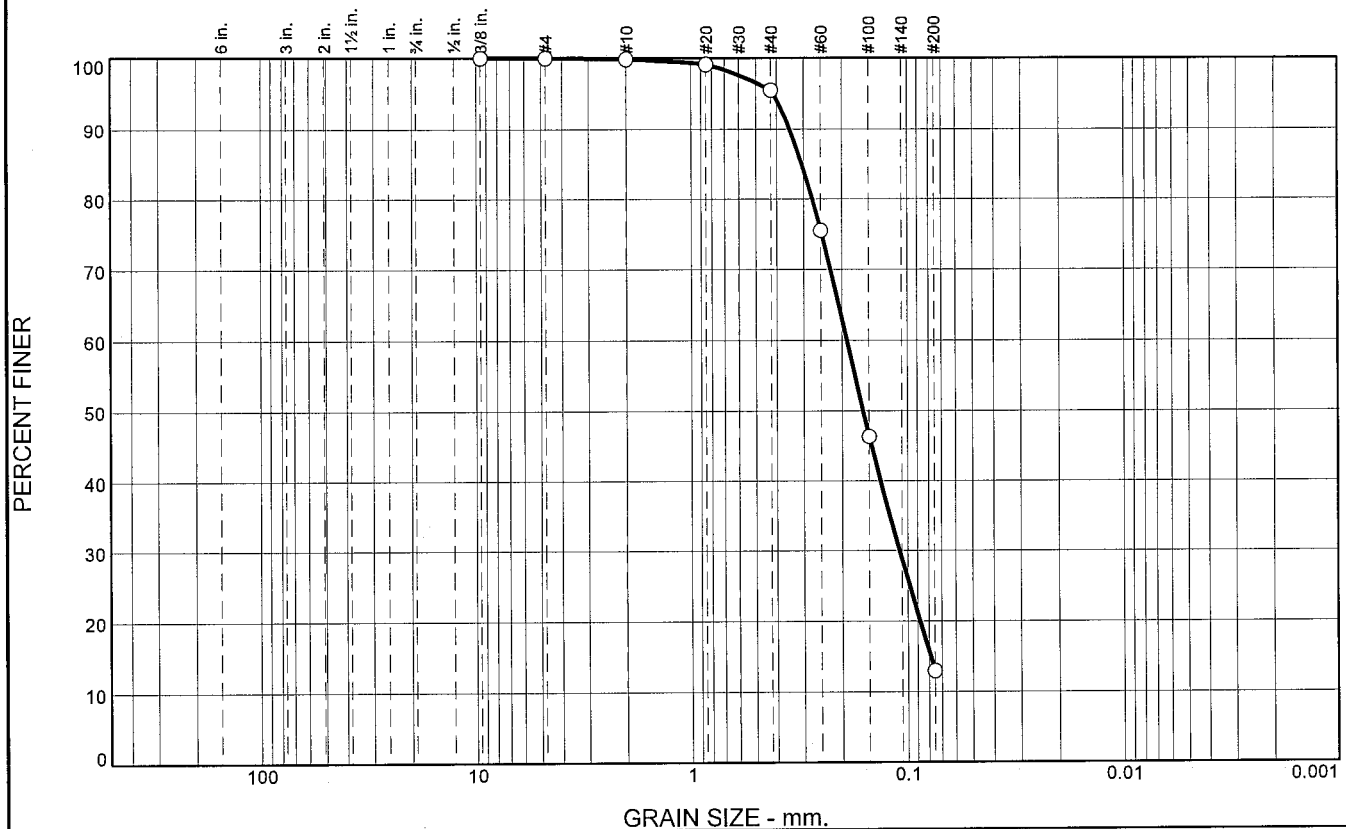
Project No: 10-2123-0009

Figure

Tested By: R.Martin

Checked By: R.Byrd

# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.0	0.2	4.3	82.6	12.9	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
.375	100.0		
#4	100.0		
#10	99.8		
#20	95.5		
#40	75.5		
#60	46.3		
#100	12.9		
#200	12.9		

\* (no specification provided)

**Material Description**  
SILTY SAND, (SM), fine grained

**Atterberg Limits**  
PL=      LL=      PI=

**Coefficients**  
D<sub>90</sub>= 0.3485      D<sub>85</sub>= 0.3058      D<sub>60</sub>= 0.1900  
D<sub>50</sub>= 0.1601      D<sub>30</sub>= 0.1090      D<sub>15</sub>= 0.0786  
D<sub>10</sub>=      C<sub>u</sub>=      C<sub>c</sub>=

**Classification**  
USCS= SM      AASHTO=

**Remarks**  
CADD CODE = CH10D965

Location: USACE Sample # BI-SI-32-10D  
Sample Number: TE Lab ID: 4538.58

Depth: 15.3 - 18.9 (ft.)

Date: 6/19/10

**Thompson Engineering**

**Mobile, Alabama**

Client: US Army Corps of Engineers

Project: Contract No. W91278-10-D-0026 - Task 03  
Mississippi Barrier Island Restoration Project

Project No: 10-2123-0009

Figure

Tested By: R.Martin

Checked By: R.Byrd

# Boring Designation BI-SI-33-10

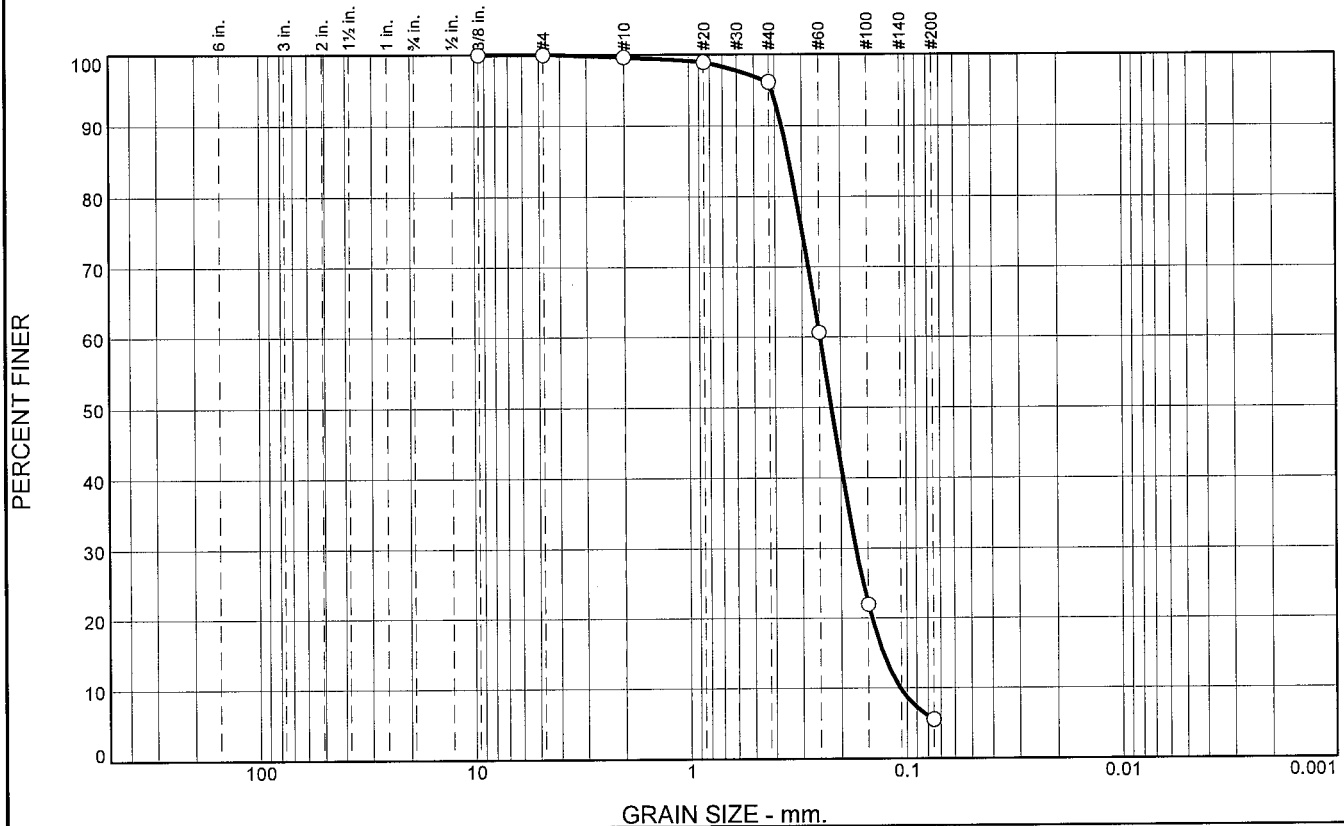
DRILLING LOG		DIVISION South Atlantic		INSTALLATION Mobile District		SHEET 1 OF 1 SHEETS	
1. PROJECT MsCIP Barrier Island Restoration Ship Island				9. SIZE AND TYPE OF BIT N/A			
2. BORING DESIGNATION BI-SI-33-10		LOCATION COORDINATES E = 967,418 N = 257,960		10. COORDINATE SYSTEM/DATUM State Plane, MSE (U.S. Ft.)		HORIZONTAL NAD83 VERTICAL NAVD88	
3. DRILLING AGENCY Corps of Engineers - CESAM		CONTRACTOR FILE NO.		11. MANUFACTURER'S DESIGNATION OF DRILL Vibracore		<input type="checkbox"/> AUTO HAMMER <input type="checkbox"/> MANUAL HAMMER	
4. NAME OF DRILLER Construction Solutions International, Inc.				12. TOTAL SAMPLES 3		DISTURBED 0 UNDISTURBED (UD)	
5. DIRECTION OF BORING <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED		DEG. FROM VERTICAL		13. TOTAL NUMBER CORE BOXES			
		BEARING		14. WATER DEPTH 26 Ft.			
6. THICKNESS OF OVERBURDEN N/A				15. DATE BORING 06-09-10		STARTED 06-09-10 COMPLETED 06-09-10	
7. DEPTH DRILLED INTO ROCK N/A				16. ELEVATION TOP OF BORING -27.3 Ft.			
8. TOTAL DEPTH OF BORING 13.3 Ft.				17. TOTAL RECOVERY FOR BORING 100%			
				18. SIGNATURE AND TITLE OF INSPECTOR Marty Gates, Geologist			

ELEV.	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS	SAMPLE	LABORATORY RESULTS
-27.3	0.0				
			SAND, poorly-graded, mostly fine to medium-grained sand-sized quartz, trace silt, trace shell fragments, lt. gray (SP)	A	Classification: SP-SM Color: 5Y 7/1-light gray D50: 0.2204 mm % Fines: 5.5
				B	Classification: SP Color: 2.5Y 7/1-light gray D50: 0.1598 mm % Fines: 4.8
-36.7	9.4		SAND, silty, mostly fine to medium-grained sand-sized quartz, some silt, trace shell fragments, gray (SM)	C	Classification: SM Color: 2.5Y 4/2-dark grayish brown D50: 0.1591 mm % Fines: 12.6
-40.6	13.3				
			NOTES: 1. Soils are field visually classified in accordance with the Unified Soils Classification System. 2. NS = Sample not submitted for laboratory analysis from this interval. 3. Seafloor elevation determined from USACE hydrographic survey completed 2010.		



# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.0	0.4	3.4	90.7	5.5	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
.375	100.0		
#4	100.0		
#10	99.6		
#20	98.9		
#40	96.2		
#60	60.6		
#100	21.9		
#200	5.5		

\* (no specification provided)

## Material Description

SAND, (SP-SM), fine grained

## Atterberg Limits

PL= LL= PI=

## Coefficients

D<sub>90</sub>= 0.3725 D<sub>85</sub>= 0.3431 D<sub>60</sub>= 0.2481  
D<sub>50</sub>= 0.2204 D<sub>30</sub>= 0.1707 D<sub>15</sub>= 0.1285  
D<sub>10</sub>= 0.1075 C<sub>u</sub>= 2.31 C<sub>c</sub>= 1.09

## Classification

USCS= SP-SM AASHTO=

## Remarks

CADD CODE = CH10D965

Location: USACE Sample # BI-SI-33-10A  
Sample Number: TE Lab ID: 4538.27

Depth: 0.0 - 4.7 (ft.)

Date: 6/19/10

**Thompson Engineering**

**Mobile, Alabama**

Client: US Army Corps of Engineers

Project: Contract No. W91278-10-D-0026 - Task 03  
Mississippi Barrier Island Restoration Project

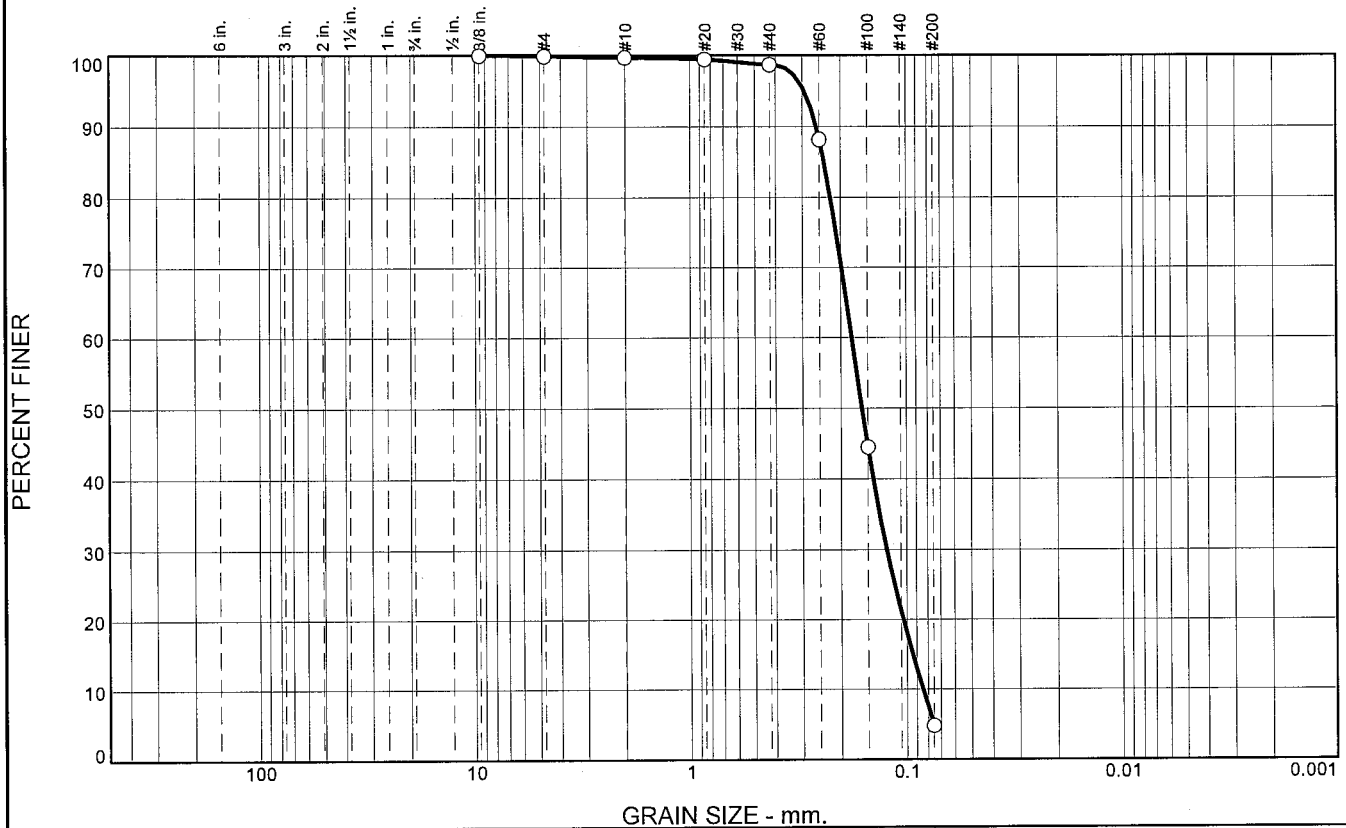
Project No: 10-2123-0009

Figure

Tested By: R.Martin

Checked By: R.Byrd

# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.1	0.2	1.0	93.9	4.8	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
.375	100.0		
#4	99.9		
#10	99.7		
#20	99.4		
#40	98.7		
#60	88.2		
#100	44.5		
#200	4.8		

\* (no specification provided)

**Material Description**  
SAND, (SP), fine grained

**Atterberg Limits**  
PL=      LL=      PI=

**Coefficients**  
D<sub>90</sub>= 0.2586      D<sub>85</sub>= 0.2379      D<sub>60</sub>= 0.1779  
D<sub>50</sub>= 0.1598      D<sub>30</sub>= 0.1233      D<sub>15</sub>= 0.0940  
D<sub>10</sub>= 0.0844      C<sub>u</sub>= 2.11      C<sub>c</sub>= 1.01

**Classification**  
USCS= SP      AASHTO=

**Remarks**  
CADD CODE = CH10D965

Location: USACE Sample # BI-SI-33-10B  
Sample Number: TE Lab ID: 4538.28

Depth: 4.7 - 9.4 (ft.)

Date: 6/19/10

**Thompson Engineering**

**Mobile, Alabama**

Client: US Army Corps of Engineers

Project: Contract No. W91278-10-D-0026 - Task 03  
Mississippi Barrier Island Restoration Project

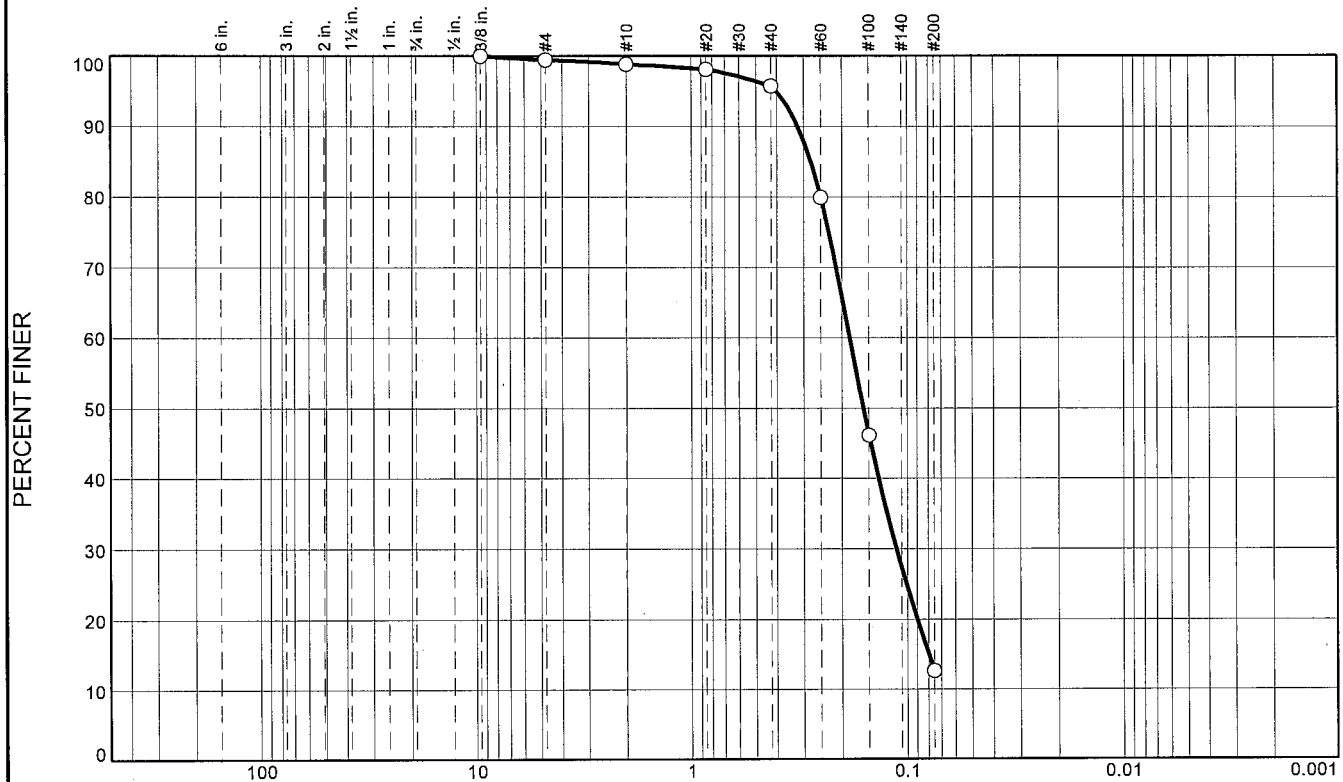
Project No: 10-2123-0009

Figure

Tested By: R.Martin

Checked By: R.Byrd

# Particle Size Distribution Report



GRAIN SIZE - mm.

% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.6	0.6	3.1	83.1	12.6	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
.375	100.0		
#4	99.4		
#10	98.8		
#20	98.1		
#40	95.7		
#60	79.9		
#100	46.1		
#200	12.6		

\* (no specification provided)

## Material Description

SILTY SAND, (SM), fine grained

## Atterberg Limits

PL= LL= PI=

## Coefficients

D<sub>90</sub>= 0.3201 D<sub>85</sub>= 0.2782 D<sub>60</sub>= 0.1837  
D<sub>50</sub>= 0.1591 D<sub>30</sub>= 0.1122 D<sub>15</sub>= 0.0796  
D<sub>10</sub>= C<sub>u</sub>= C<sub>c</sub>=

## Classification

USCS= SM AASHTO=

## Remarks

CADD CODE = CH10D965

Location: USACE Sample # BI-SI-33-10C  
Sample Number: TE Lab ID: 4538.29

Depth: 9.4 - 13.3 (ft.)

Date: 6/19/10

**Thompson Engineering**

**Mobile, Alabama**

Client: US Army Corps of Engineers

Project: Contract No. W91278-10-D-0026 - Task 03  
Mississippi Barrier Island Restoration Project

Project No: 10-2123-0009

Figure

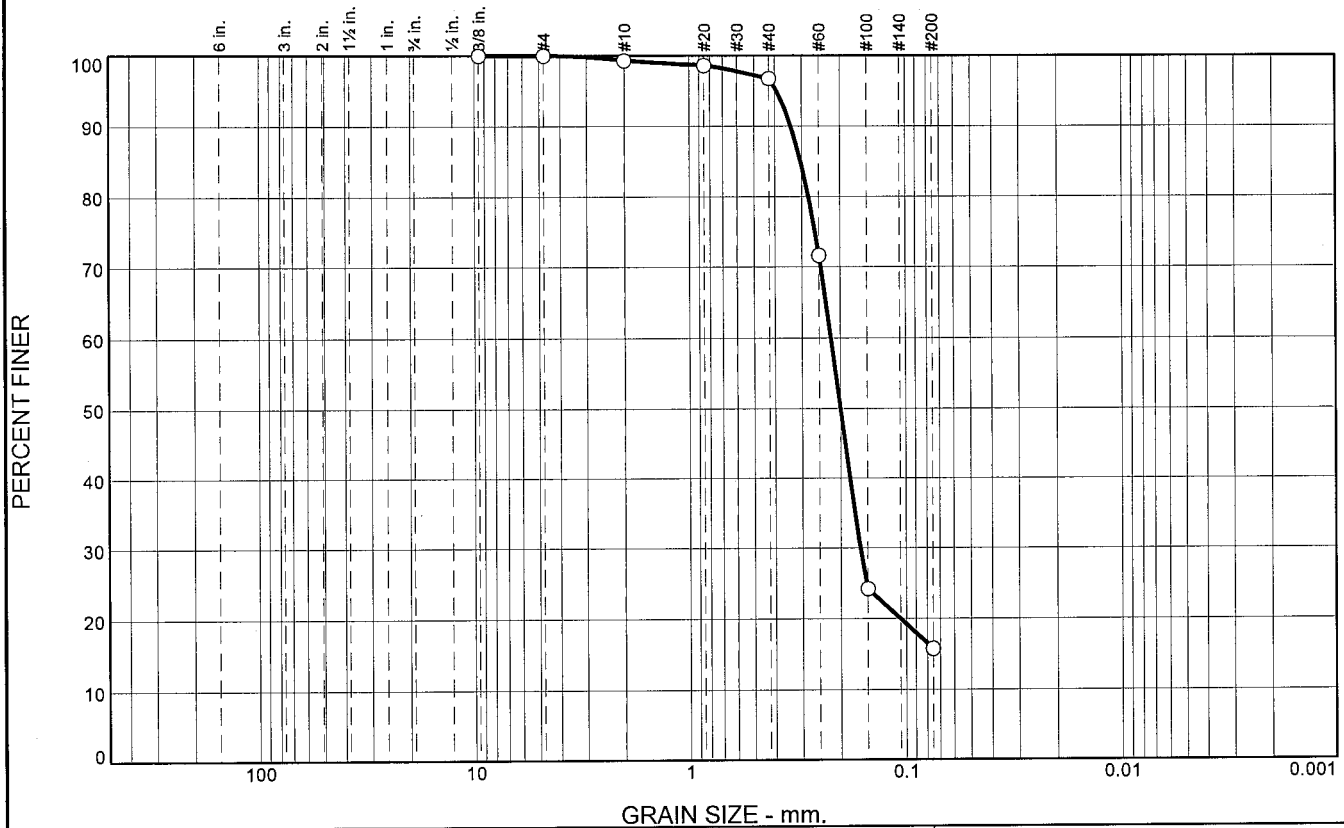
Tested By: R.Martin

Checked By: R.Byrd

# Boring Designation BI-SI-34-10

DRILLING LOG		DIVISION South Atlantic		INSTALLATION Mobile District		SHEET 1 OF 1 SHEETS	
1. PROJECT MsCIP Barrier Island Restoration Ship Island				9. SIZE AND TYPE OF BIT N/A			
2. BORING DESIGNATION BI-SI-34-10		LOCATION COORDINATES E = 990,989 N = 258,568		10. COORDINATE SYSTEM/DATUM State Plane, MSE (U.S. Ft.)		HORIZONTAL NAD83 VERTICAL NAVD88	
3. DRILLING AGENCY Corps of Engineers - CESAM		CONTRACTOR FILE NO.		11. MANUFACTURER'S DESIGNATION OF DRILL Vibracore		<input type="checkbox"/> AUTO HAMMER <input type="checkbox"/> MANUAL HAMMER	
4. NAME OF DRILLER Construction Solutions International, Inc.				12. TOTAL SAMPLES 3		DISTURBED 3 UNDISTURBED (UD) 0	
5. DIRECTION OF BORING <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED		DEG. FROM VERTICAL		13. TOTAL NUMBER CORE BOXES			
		BEARING		14. WATER DEPTH 27 Ft.			
6. THICKNESS OF OVERBURDEN N/A				15. DATE BORING 06-09-10		STARTED 06-09-10 COMPLETED 06-09-10	
7. DEPTH DRILLED INTO ROCK N/A				16. ELEVATION TOP OF BORING -26.3 Ft.			
8. TOTAL DEPTH OF BORING 14.2 Ft.				17. TOTAL RECOVERY FOR BORING 100%			
				18. SIGNATURE AND TITLE OF INSPECTOR Marty Gates, Geologist			
ELEV.	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS	SAMPLE	LABORATORY RESULTS		
-26.3	0.0						
			SAND, silty, mostly fine to medium-grained sand-sized quartz, some silt, trace shell fragments, gray (SM)	A	Classification: SM Color: 2.5Y 6/2-light brownish gray D50: 0.1999 mm % Fines: 15.8		
-29.9	3.6						
			SAND, poorly-graded, mostly fine to medium-grained sand-sized quartz, trace silt, trace shell fragments, lt. gray (SP)	B	Classification: SP-SM Color: 2.5Y 7/1-light gray D50: 0.1952 mm % Fines: 9.2		
				C	Classification: SP Color: 2.5Y 7/1-light gray D50: 0.1871 mm % Fines: 4.8		
-39.3	13.0						
-40.5	14.2		CLAY, lean, dark gray (CL)	NS			
			NOTES: 1. Soils are field visually classified in accordance with the Unified Soils Classification System. 2. NS = Sample not submitted for laboratory analysis from this interval. 3. Seafloor elevation calculated using sampling vessel's fathometer water depth reading and applying NOAA tidal gauge data conversion factor.				

# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.0	0.7	2.5	81.0	15.8	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
.375	100.0		
#4	100.0		
#10	99.3		
#20	98.6		
#40	96.8		
#60	71.6		
#100	24.2		
#200	15.8		

\* (no specification provided)

## Material Description

SILTY SAND, (SM), fine grained, with clay pockets

## Atterberg Limits

PL= LL= PI=

## Coefficients

D<sub>90</sub>= 0.3374 D<sub>85</sub>= 0.3038 D<sub>60</sub>= 0.2206  
D<sub>50</sub>= 0.1999 D<sub>30</sub>= 0.1621 D<sub>15</sub>=  
D<sub>10</sub>= C<sub>u</sub>= C<sub>c</sub>=

## Classification

USCS= SM AASHTO=

## Remarks

CADD CODE = CH10D965

Location: USACE Sample # BI-SI-34-10A  
Sample Number: TE Lab ID: 4538.18

Depth: 0.0 - 3.6 (ft.)

Date: 6/19/10

**Thompson Engineering**

**Mobile, Alabama**

Client: US Army Corps of Engineers

Project: Contract No. W91278-10-D-0026 - Task 03  
Mississippi Barrier Island Restoration Project

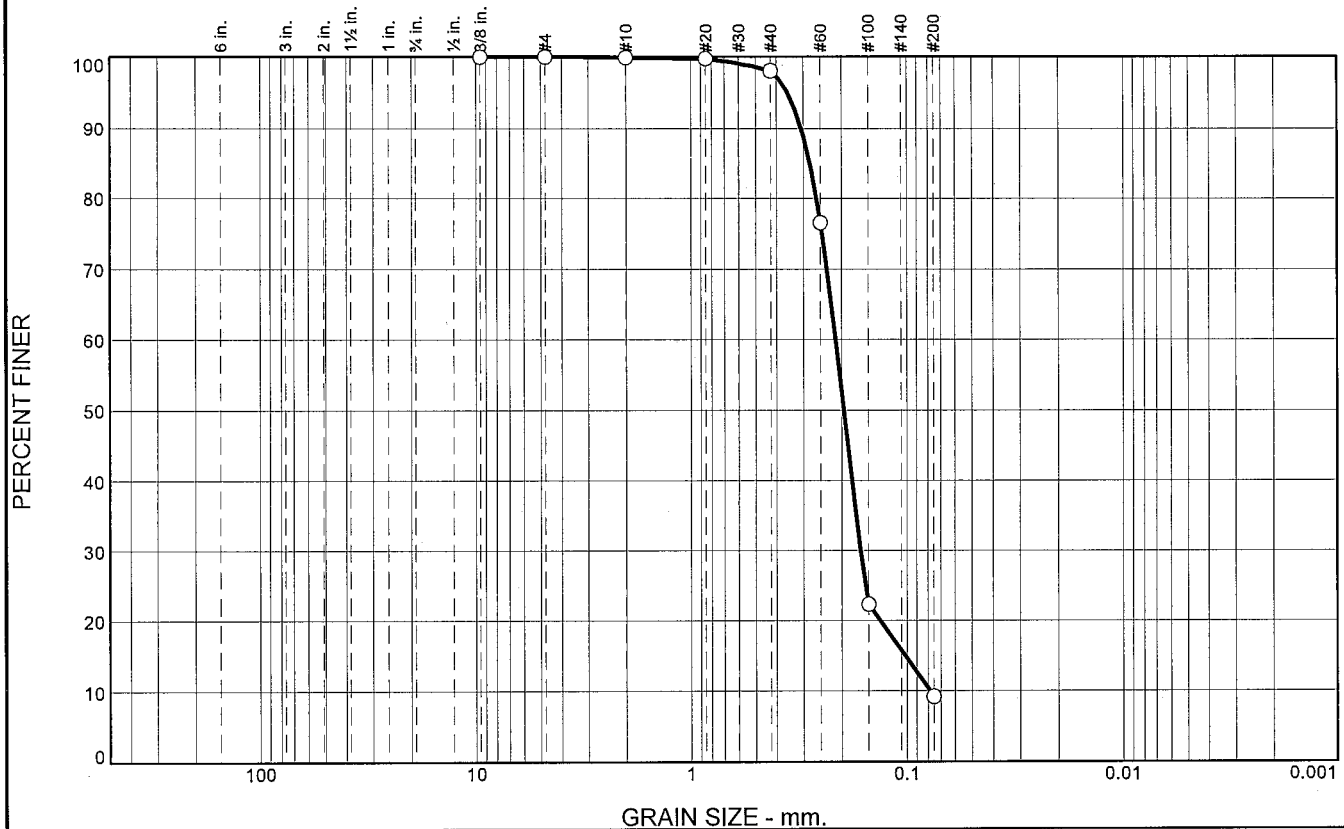
Project No: 10-2123-0009

Figure

Tested By: G.Fancher

Checked By: R.Byrd

# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.0	0.1	1.8	88.9	9.2	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
.375	100.0		
#4	100.0		
#10	99.9		
#20	99.7		
#40	98.1		
#60	76.6		
#100	22.3		
#200	9.2		

\* (no specification provided)

<u><b>Material Description</b></u>		
SAND, (SP-SM), fine grained		
<u><b>Atterberg Limits</b></u>		
PL=	LL=	PI=
<u><b>Coefficients</b></u>		
D <sub>90</sub> = 0.3074	D <sub>85</sub> = 0.2799	D <sub>60</sub> = 0.2128
D <sub>50</sub> = 0.1952	D <sub>30</sub> = 0.1632	D <sub>15</sub> = 0.1019
D <sub>10</sub> = 0.0782	C <sub>u</sub> = 2.72	C <sub>c</sub> = 1.60
<u><b>Classification</b></u>		
USCS= SP-SM	AASHTO=	
<u><b>Remarks</b></u>		
CADD CODE = CH10D965		

Location: USACE Sample # BI-SI-34-10B  
Sample Number: TE Lab ID: 4538.19

Depth: 3.6 - 8.0 (ft.)

Date: 6/19/10

**Thompson Engineering**

**Mobile, Alabama**

Client: US Army Corps of Engineers

Project: Contract No. W91278-10-D-0026 - Task 03

Mississippi Barrier Island Restoration Project

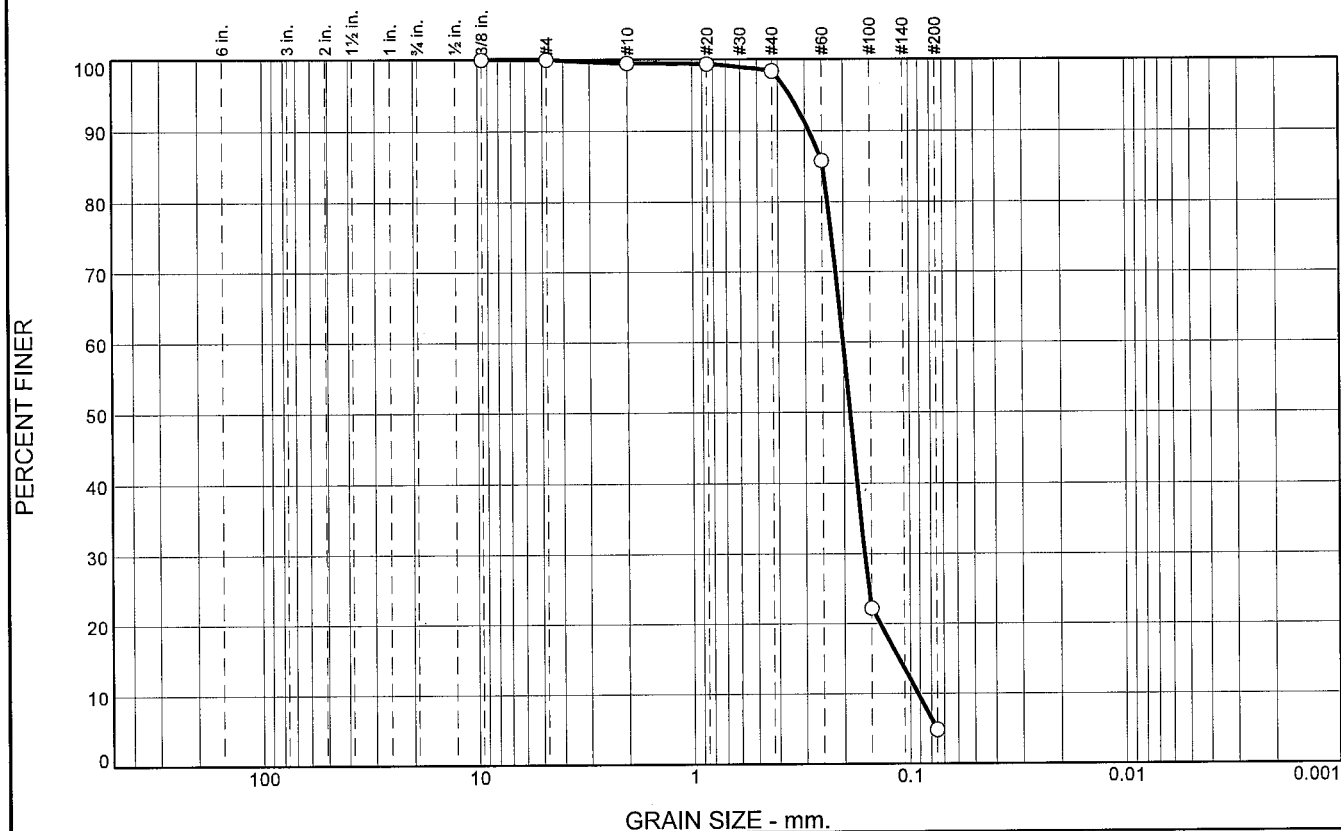
Project No: 10-2123-0009

Figure

Tested By: G.Fancher

Checked By: R.Byrd

# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.0	0.5	1.2	93.5	4.8	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
.375	100.0		
#4	100.0		
#10	99.5		
#20	99.3		
#40	98.3		
#60	85.8		
#100	22.2		
#200	4.8		

\* (no specification provided)

## Material Description

SAND, (SP), fine grained

## Atterberg Limits

PL=

LL=

PI=

## Coefficients

D<sub>90</sub>= 0.2869

D<sub>85</sub>= 0.2479

D<sub>60</sub>= 0.2011

D<sub>50</sub>= 0.1871

D<sub>30</sub>= 0.1609

D<sub>15</sub>= 0.1126

D<sub>10</sub>= 0.0922

C<sub>u</sub>= 2.18

C<sub>c</sub>= 1.40

## Classification

USCS= SP

AASHTO=

## Remarks

CADD CODE = CH10D965

Location: USACE Sample # BI-SI-34-10C  
Sample Number: TE Lab ID: 4538.20

Depth: 8.0 - 13.0 (ft.)

Date: 6/19/10

**Thompson Engineering**

**Mobile, Alabama**

Client: US Army Corps of Engineers

Project: Contract No. W91278-10-D-0026 - Task 03  
Mississippi Barrier Island Restoration Project

Project No: 10-2123-0009

Figure

Tested By: G.Fancher

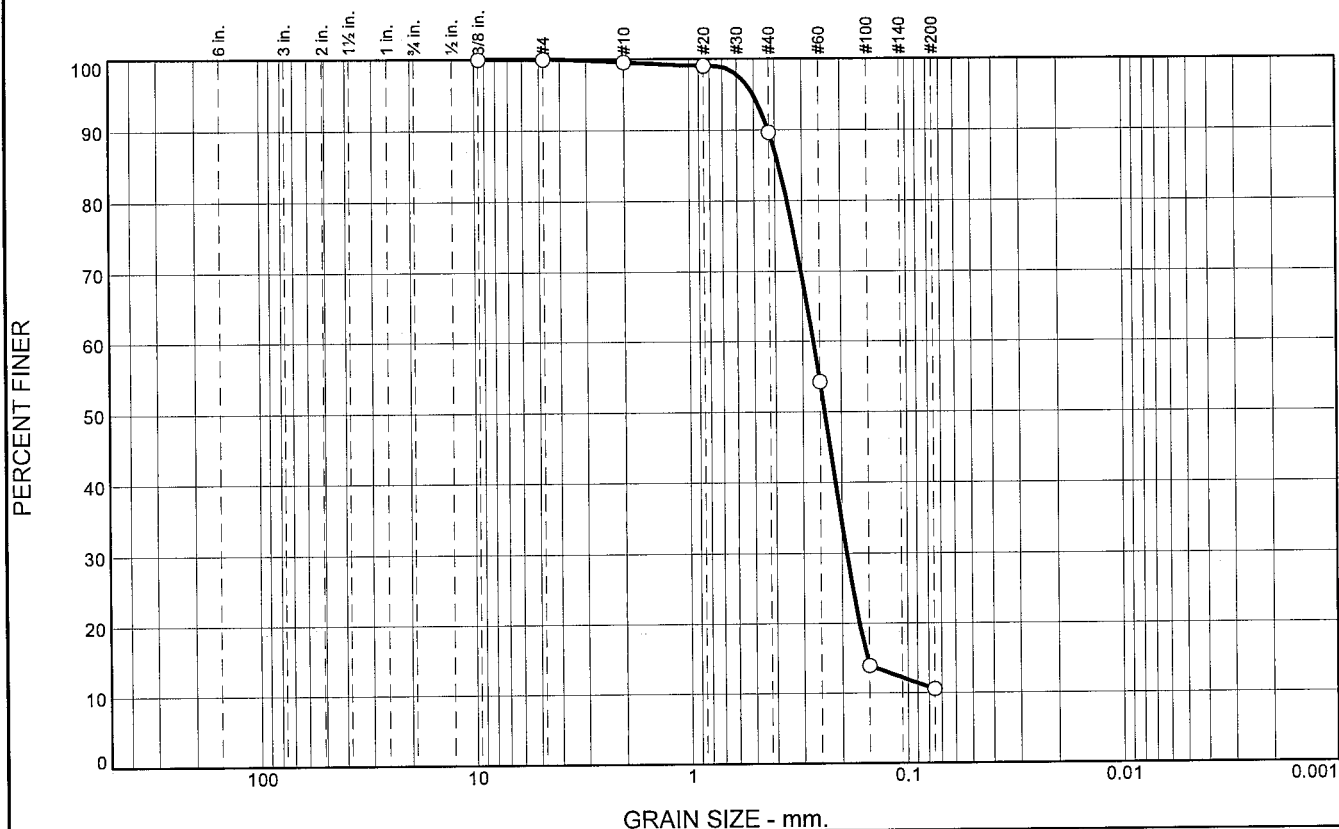
Checked By: R.Byrd

# Boring Designation BI-SI-35-10

DRILLING LOG		DIVISION South Atlantic		INSTALLATION Mobile District		SHEET 1 OF 1 SHEETS	
1. PROJECT MsCIP Barrier Island Restoration Ship Island				9. SIZE AND TYPE OF BIT N/A			
2. BORING DESIGNATION BI-SI-35-10		LOCATION COORDINATES E = 970,919 N = 259,679		10. COORDINATE SYSTEM/DATUM State Plane, MSE (U.S. Ft.)		HORIZONTAL NAD83 VERTICAL NAVD88	
3. DRILLING AGENCY Corps of Engineers - CESAM		CONTRACTOR FILE NO.		11. MANUFACTURER'S DESIGNATION OF DRILL Vibracore		<input type="checkbox"/> AUTO HAMMER <input type="checkbox"/> MANUAL HAMMER	
4. NAME OF DRILLER Construction Solutions International, Inc.				12. TOTAL SAMPLES 3		DISTURBED 0 UNDISTURBED (UD)	
5. DIRECTION OF BORING <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED		DEG. FROM VERTICAL		13. TOTAL NUMBER CORE BOXES			
		BEARING		14. WATER DEPTH 27 Ft.			
6. THICKNESS OF OVERBURDEN N/A				15. DATE BORING 06-09-10		STARTED 06-09-10 COMPLETED 06-09-10	
7. DEPTH DRILLED INTO ROCK N/A				16. ELEVATION TOP OF BORING -28.0 Ft.			
8. TOTAL DEPTH OF BORING 16.0 Ft.				17. TOTAL RECOVERY FOR BORING 100%			
				18. SIGNATURE AND TITLE OF INSPECTOR Marty Gates, Geologist			
ELEV.	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS	SAMPLE	LABORATORY RESULTS		
-28.0	0.0						
-28.6	0.6			NS			
			SAND, silty, mostly fine to medium-grained sand-sized quartz, some silt, trace shell fragments, gray (SM)				
			SAND, poorly-graded, mostly fine to medium-grained sand-sized quartz, trace silt, trace shell fragments (SP)	A	Classification: SP-SM Color: 5Y 7/1-light gray D50: 0.2383 mm % Fines: 10.5		
				B	Classification: SP-SM Color: 2.5Y 7/1-light gray D50: 0.2374 mm % Fines: 8.1		
				C	Classification: SP-SM Color: 2.5Y 7/1-light gray D50: 0.2054 mm % Fines: 9.5		
-41.4	13.4						
			CLAY, lean, dark gray (CL)	NS			
-44.0	16.0						
			NOTES: 1. Soils are field visually classified in accordance with the Unified Soils Classification System. 2. NS = Sample not submitted for laboratory analysis from this interval. 3. Seafloor elevation determined from USACE hydrographic survey completed 2010.				



# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.0	0.4	9.9	79.2	10.5	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
.375	100.0		
#4	100.0		
#10	99.6		
#20	99.1		
#40	89.7		
#60	54.2		
#100	13.9		
#200	10.5		

\* (no specification provided)

## Material Description

SAND, (SP-SM), fine grained, with clay nodules

## Atterberg Limits

PL= LL= PI=

## Coefficients

D<sub>90</sub>= 0.4283 D<sub>85</sub>= 0.3845 D<sub>60</sub>= 0.2677  
D<sub>50</sub>= 0.2383 D<sub>30</sub>= 0.1897 D<sub>15</sub>= 0.1531  
C<sub>u</sub>= C<sub>c</sub>=

## Classification

USCS= SP-SM AASHTO=

## Remarks

CADD CODE = CH10D965

Location: USACE Sample # BI-SI-35-10A  
Sample Number: TE Lab ID: 4538.15

Depth: 0.6 - 5.0 (ft.)

Date: 6/19/10

**Thompson Engineering**

**Mobile, Alabama**

Client: US Army Corps of Engineers

Project: Contract No. W91278-10-D-0026 - Task 03  
Mississippi Barrier Island Restoration Project

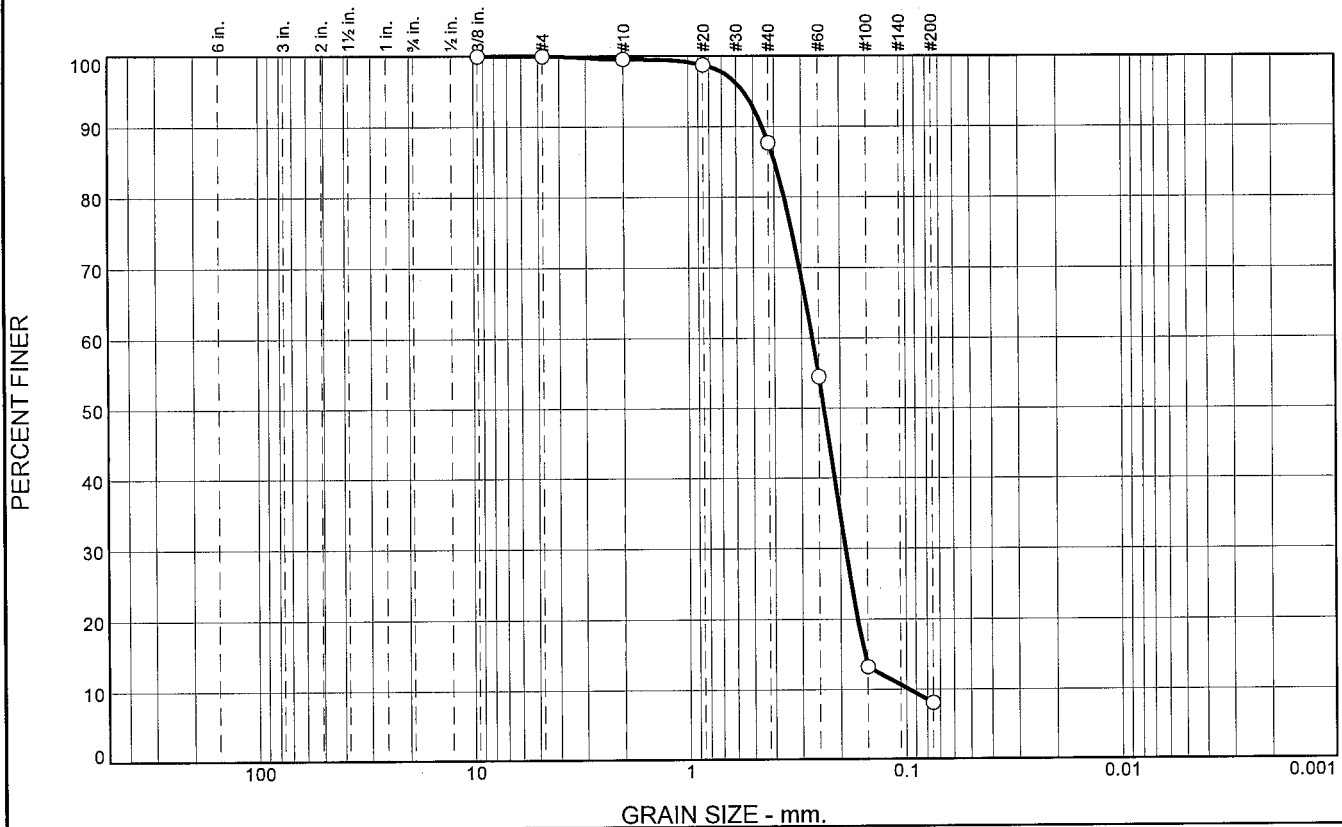
Project No: 10-2123-0009

Figure

Tested By: G.Fancher

Checked By: R.Byrd

# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.0	0.5	11.8	79.6	8.1	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
.375	100.0		
#4	100.0		
#10	99.5		
#20	98.7		
#40	87.7		
#60	54.5		
#100	13.2		
#200	8.1		

\* (no specification provided)

## Material Description

SAND, (SP-SM), medium to fine grained

## Atterberg Limits

PL= LL= PI=

## Coefficients

D<sub>90</sub>= 0.4535 D<sub>85</sub>= 0.3988 D<sub>60</sub>= 0.2675  
D<sub>50</sub>= 0.2374 D<sub>30</sub>= 0.1895 D<sub>15</sub>= 0.1547  
D<sub>10</sub>= 0.0971 C<sub>u</sub>= 2.75 C<sub>c</sub>= 1.38

## Classification

USCS= SP-SM AASHTO=

## Remarks

CADD CODE = CH10D965

Location: USACE Sample # BI-SI-35-10B  
Sample Number: TE Lab ID: 4538.16

Depth: 5.0 - 10.0 (ft.)

Date: 6/19/10

**Thompson Engineering**

**Mobile, Alabama**

Client: US Army Corps of Engineers

Project: Contract No. W91278-10-D-0026 - Task 03  
Mississippi Barrier Island Restoration Project

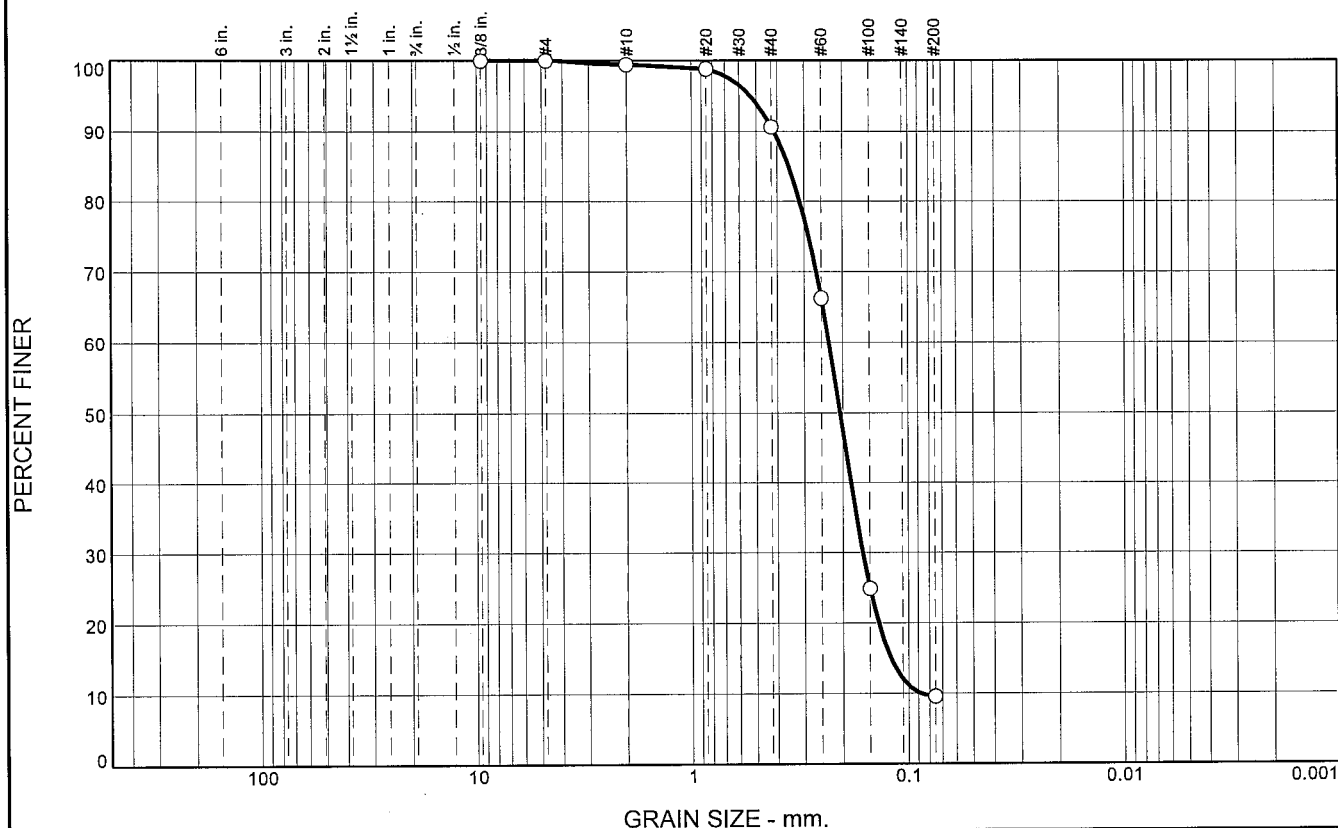
Project No: 10-2123-0009

Figure

Tested By: G.Fancher

Checked By: R.Byrd

# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.0	0.6	8.8	81.1	9.5	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
.375	100.0		
#4	100.0		
#10	99.4		
#20	98.8		
#40	90.6		
#60	66.2		
#100	24.9		
#200	9.5		

\* (no specification provided)

## Material Description

SAND, (SP-SM), fine grained

## Atterberg Limits

PL= LL= PI=

## Coefficients

D<sub>90</sub>= 0.4148 D<sub>85</sub>= 0.3540 D<sub>60</sub>= 0.2308  
D<sub>50</sub>= 0.2054 D<sub>30</sub>= 0.1617 D<sub>15</sub>= 0.1208  
D<sub>10</sub>= 0.0878 C<sub>u</sub>= 2.63 C<sub>c</sub>= 1.29

## Classification

USCS= SP-SM AASHTO=

## Remarks

CADD CODE = CH10D965

Location: USACE Sample # BI-SI-35-10C  
Sample Number: TE Lab ID: 4538.17

Depth: 10.0 - 13.4 (ft.)

Date: 6/19/10

**Thompson Engineering**

**Mobile, Alabama**

Client: US Army Corps of Engineers

Project: Contract No. W91278-10-D-0026 - Task 03  
Mississippi Barrier Island Restoration Project

Project No: 10-2123-0009

Figure

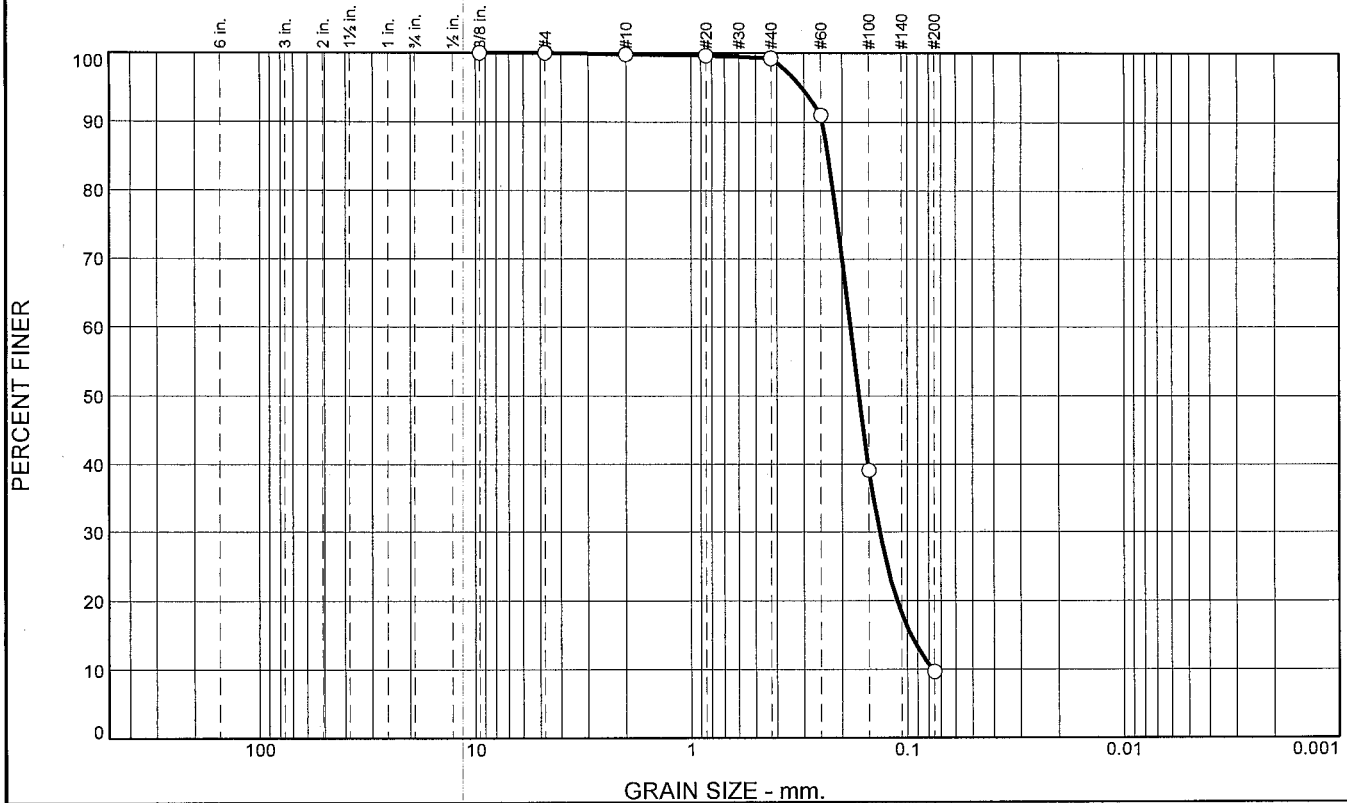
Tested By: G.Fancher

Checked By: R.Byrd

# Boring Designation BI-SI-36-10

DRILLING LOG		DIVISION South Atlantic		INSTALLATION Mobile District		SHEET 1 OF 1 SHEETS	
1. PROJECT MsCIP Barrier Island Restoration Ship Island				9. SIZE AND TYPE OF BIT N/A			
2. BORING DESIGNATION BI-SI-36-10		LOCATION COORDINATES E = 957,515 N = 252,879		10. COORDINATE SYSTEM/DATUM State Plane, MSE (U.S. Ft.)		HORIZONTAL NAD83	
3. DRILLING AGENCY Corps of Engineers - CESAM		CONTRACTOR FILE NO.		11. MANUFACTURER'S DESIGNATION OF DRILL Vibrocure		<input type="checkbox"/> AUTO HAMMER <input type="checkbox"/> MANUAL HAMMER	
4. NAME OF DRILLER Construction Solutions International, Inc.				12. TOTAL SAMPLES		DISTURBED 1	
5. DIRECTION OF BORING <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED				13. TOTAL NUMBER CORE BOXES		UNDISTURBED (UD) 0	
6. THICKNESS OF OVERBURDEN N/A				14. WATER DEPTH		26 Ft.	
7. DEPTH DRILLED INTO ROCK N/A				15. DATE BORING		STARTED 06-12-10	
8. TOTAL DEPTH OF BORING 16.8 Ft.				16. ELEVATION TOP OF BORING		COMPLETED 06-12-10	
				17. TOTAL RECOVERY FOR BORING		100%	
				18. SIGNATURE AND TITLE OF INSPECTOR		Marty Gates, Geologist	
ELEV.	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS	SAMPLE	LABORATORY RESULTS		
-23.9	0.0						
			SAND, silty, mostly fine to medium-grained sand-sized quartz, some silt, trace shell fragments, gray (SM)	A	Classification: SP-SM Color: 2.5Y 6/2-light brownish gray D50: 0.1671 mm % Fines: 9.7		
-27.4	3.5						
			CLAY, lean, dark gray (CL)	NS			
-40.7	16.8						
			NOTES: 1. Soils are field visually classified in accordance with the Unified Soils Classification System. 2. NS = Sample not submitted for laboratory analysis from this interval. 3. Seafloor elevation calculated using sampling vessel's fathometer water depth reading and applying NOAA tidal gauge data conversion factor.				

# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.0	0.2	0.5	89.6	9.7	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
.375	100.0		
#4	100.0		
#10	99.8		
#20	99.6		
#40	99.3		
#60	91.0		
#100	39.1		
#200	9.7		

\* (no specification provided)

<u><b>Material Description</b></u>		
SAND, (SP-SM), fine grained		
<u><b>Atterberg Limits</b></u>		
PL=	LL=	PI=
<u><b>Coefficients</b></u>		
D <sub>90</sub> = 0.2465	D <sub>85</sub> = 0.2316	D <sub>60</sub> = 0.1827
D <sub>50</sub> = 0.1671	D <sub>30</sub> = 0.1340	D <sub>15</sub> = 0.0966
D <sub>10</sub> = 0.0765	C <sub>u</sub> = 2.39	C <sub>c</sub> = 1.28
<u><b>Classification</b></u>		
USCS= SP-SM	AASHTO=	
<u><b>Remarks</b></u>		
CADD CODE = CH10D965		

Location: USACE Sample # BI-SI-36-10A  
 Sample Number: TE Lab ID: 4538.48

Depth: 0.0 - 3.5 (ft.)

Date: 6/19/10

**Thompson Engineering**  
**Mobile, Alabama**

Client: US Army Corps of Engineers  
 Project: Contract No. W91278-10-D-0026 - Task 03  
 Mississippi Barrier Island Restoration Project  
 Project No: 10-2123-0009

Report No.

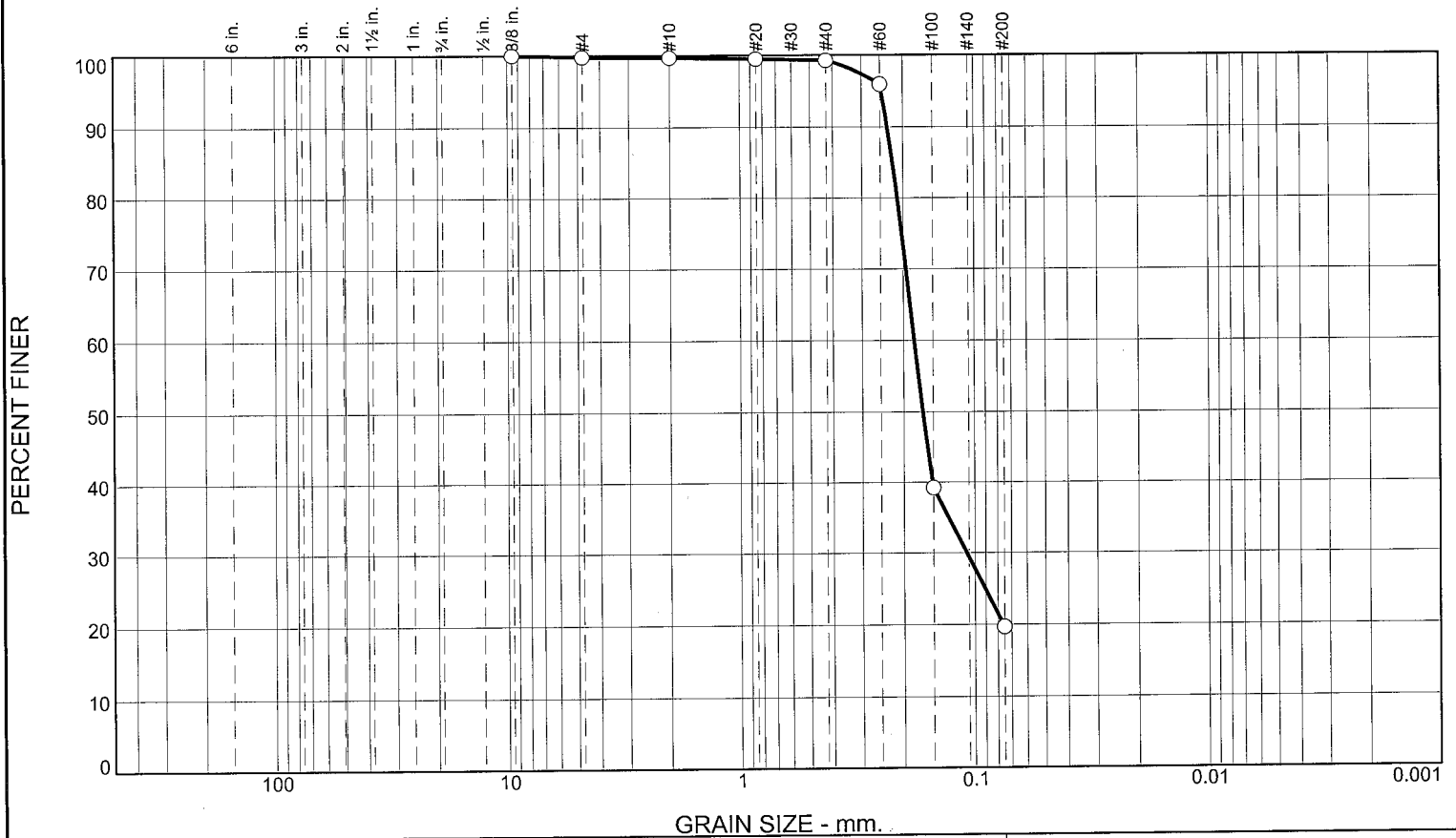
Tested By: R.Martin

Checked By: R.Byrd

# Boring Designation BI-SI-37-10

DRILLING LOG		DIVISION South Atlantic		INSTALLATION Mobile District		SHEET 1 OF 1 SHEETS	
1. PROJECT MsCIP Barrier Island Restoration Ship Island				9. SIZE AND TYPE OF BIT N/A			
2. BORING DESIGNATION BI-SI-37-10		LOCATION COORDINATES E = 959,401 N = 253,597		10. COORDINATE SYSTEM/DATUM State Plane, MSE (U.S. Ft.)		HORIZONTAL NAD83 VERTICAL NAVD88	
3. DRILLING AGENCY Corps of Engineers - CESAM		CONTRACTOR FILE NO.		11. MANUFACTURER'S DESIGNATION OF DRILL Vibrocure		<input type="checkbox"/> AUTO HAMMER <input type="checkbox"/> MANUAL HAMMER	
4. NAME OF DRILLER Construction Solutions International, Inc.				12. TOTAL SAMPLES		DISTURBED 1 UNDISTURBED (UD) 0	
5. DIRECTION OF BORING <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED		DEG. FROM VERTICAL		13. TOTAL NUMBER CORE BOXES			
		BEARING		14. WATER DEPTH 26 Ft.			
6. THICKNESS OF OVERBURDEN N/A				15. DATE BORING		STARTED 06-14-10 COMPLETED 06-14-10	
7. DEPTH DRILLED INTO ROCK N/A				16. ELEVATION TOP OF BORING -24.0 Ft.			
8. TOTAL DEPTH OF BORING 17.0 Ft.				17. TOTAL RECOVERY FOR BORING 100%			
				18. SIGNATURE AND TITLE OF INSPECTOR Marty Gates, Geologist			
ELEV.	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS	SAMPLE	LABORATORY RESULTS		
-24.0	0.0						
			SAND, silty, mostly fine to medium-grained sand-sized quartz, some silt, trace shell fragments, gray (SM)	A	Classification: SM Color: 2.5Y 5/1-gray D50: 0.1658 mm % Fines: 19.7		
-29.7	5.7						
			CLAY, lean, dark gray (CL)	NS			
-41.0	17.0						
			NOTES: 1. Soils are field visually classified in accordance with the Unified Soils Classification System. 2. NS = Sample not submitted for laboratory analysis from this interval. 3. Seafloor elevation calculated using sampling vessel's fathometer water depth reading and applying NOAA tidal gauge data conversion factor.				

# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.2	0.1	0.5	79.5	19.7	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
.375	100.0		
#4	99.8		
#10	99.7		
#20	99.5		
#40	99.2		
#60	95.9		
#100	39.2		
#200	19.7		

\* (no specification provided)

**Material Description**  
SILTY SAND, (SM), fine grained, with clay nodules

**Atterberg Limits**  
 PL=      LL=      PI=

**Coefficients**  
 D<sub>90</sub>= 0.2326      D<sub>85</sub>= 0.2213      D<sub>60</sub>= 0.1800  
 D<sub>50</sub>= 0.1658      D<sub>30</sub>= 0.1082      D<sub>15</sub>=  
 D<sub>10</sub>=      C<sub>u</sub>=      C<sub>c</sub>=

**Classification**  
 USCS= SM      AASHTO=

**Remarks**  
 CADD CODE = CH10D965

Location: USACE Sample # BI-SI-37-10A  
 Sample Number: TE Lab ID: 4549.01

Depth: 0.0 - 5.7 (ft.)

Date: 6/26/10

**Thompson Engineering**

**Mobile, Alabama**

Client: US Army Corps of Engineers

Project: Contract No. W91278-10-D-0026 - Task 03  
 Mississippi Barrier Island Restoration Project

Project No: 10-2123-0009

Figure

Tested By: G.Fancher

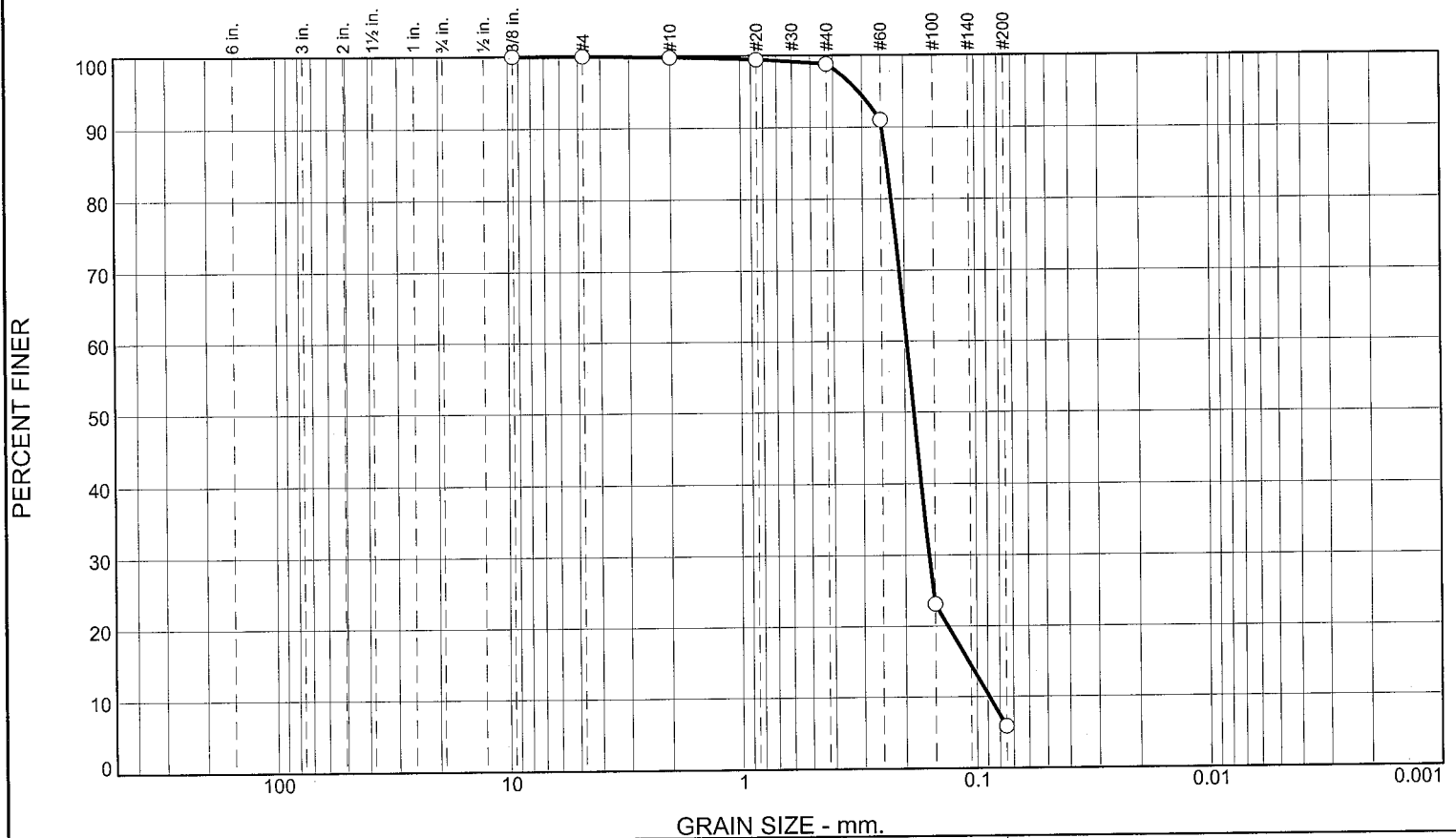
Checked By: R.Byrd

# Boring Designation BI-SI-38-10

DRILLING LOG		DIVISION South Atlantic		INSTALLATION Mobile District		SHEET 1 OF 1 SHEETS	
1. PROJECT MsCIP Barrier Island Restoration Ship Island				9. SIZE AND TYPE OF BIT N/A			
2. BORING DESIGNATION BI-SI-38-10		LOCATION COORDINATES E = 964,637 N = 255,460		10. COORDINATE SYSTEM/DATUM State Plane, MSE (U.S. Ft.)		HORIZONTAL NAD83 VERTICAL NAVD88	
3. DRILLING AGENCY Corps of Engineers - CESAM		CONTRACTOR FILE NO.		11. MANUFACTURER'S DESIGNATION OF DRILL Vibrocure		<input type="checkbox"/> AUTO HAMMER <input type="checkbox"/> MANUAL HAMMER	
4. NAME OF DRILLER Construction Solutions International, Inc.				12. TOTAL SAMPLES 4		DISTURBED 0 UNDISTURBED (UD)	
5. DIRECTION OF BORING <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED		DEG. FROM VERTICAL		13. TOTAL NUMBER CORE BOXES			
		BEARING		14. WATER DEPTH 27 Ft.			
6. THICKNESS OF OVERBURDEN N/A				15. DATE BORING 06-14-10		STARTED 06-14-10 COMPLETED 06-14-10	
7. DEPTH DRILLED INTO ROCK N/A				16. ELEVATION TOP OF BORING -24.8 Ft.			
8. TOTAL DEPTH OF BORING 15.5 Ft.				17. TOTAL RECOVERY FOR BORING 100%			
				18. SIGNATURE AND TITLE OF INSPECTOR Marty Gates, Geologist			
ELEV.	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS	SAMPLE	LABORATORY RESULTS		
-24.8	0.0						
-26.8	2.0		SAND, silty, mostly fine to medium-grained sand-sized quartz, some silt, trace shell fragments, gray (SM)	A	Classification: SP-SM Color: 2.5Y 6/2-light brownish gray D50: 0.1831 mm % Fines: 5.8		
-29.3	4.5		CLAY, lean, dark gray (CL)	NS			
-37.6	12.8		SAND, poorly-graded, mostly fine to medium-grained sand-sized quartz, trace silt, trace shell fragments, lt. gray (SP)	B	Classification: SP-SM Color: 2.5Y 7/1-light gray D50: 0.1926 mm % Fines: 5.3		
-40.3	15.5		SAND, silty, mostly fine to medium-grained sand-sized quartz, some silt, trace shell fragments, gray (SM)	C	Classification: SP-SM Color: 2.5Y 6/2-light brownish gray D50: 0.1673 mm % Fines: 9.1		
			NOTES: 1. Soils are field visually classified in accordance with the Unified Soils Classification System. 2. NS = Sample not submitted for laboratory analysis from this interval. 3. Seafloor elevation calculated using sampling vessel's fathometer water depth reading and applying NOAA tidal gauge data conversion factor.	D	Classification: SM Color: 2.5Y 4/2-dark grayish brown D50: 0.1499 mm % Fines: 25.5		



# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.0	0.2	1.0	93.0	5.8	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
.375	100.0		
#4	100.0		
#10	99.8		
#20	99.4		
#40	98.8		
#60	91.0		
#100	23.1		
#200	5.8		

\* (no specification provided)

**Material Description**  
SAND, (SP-SM), medium to fine grained

**Atterberg Limits**  
PL= LL= PI=

**Coefficients**  
 D<sub>90</sub>= 0.2472 D<sub>85</sub>= 0.2355 D<sub>60</sub>= 0.1957  
 D<sub>50</sub>= 0.1831 D<sub>30</sub>= 0.1590 D<sub>15</sub>= 0.1083  
 D<sub>10</sub>= 0.0886 C<sub>u</sub>= 2.21 C<sub>c</sub>= 1.46

**Classification**  
USCS= SP-SM AASHTO=

**Remarks**  
CADD CODE = CH10D965

Location: USACE Sample # BI-SI-38-10A  
Sample Number: TE Lab ID: 4549.02

Depth: 0.0 - 2.0 (ft.)

Date: 6/26/10

**Thompson Engineering**

**Mobile, Alabama**

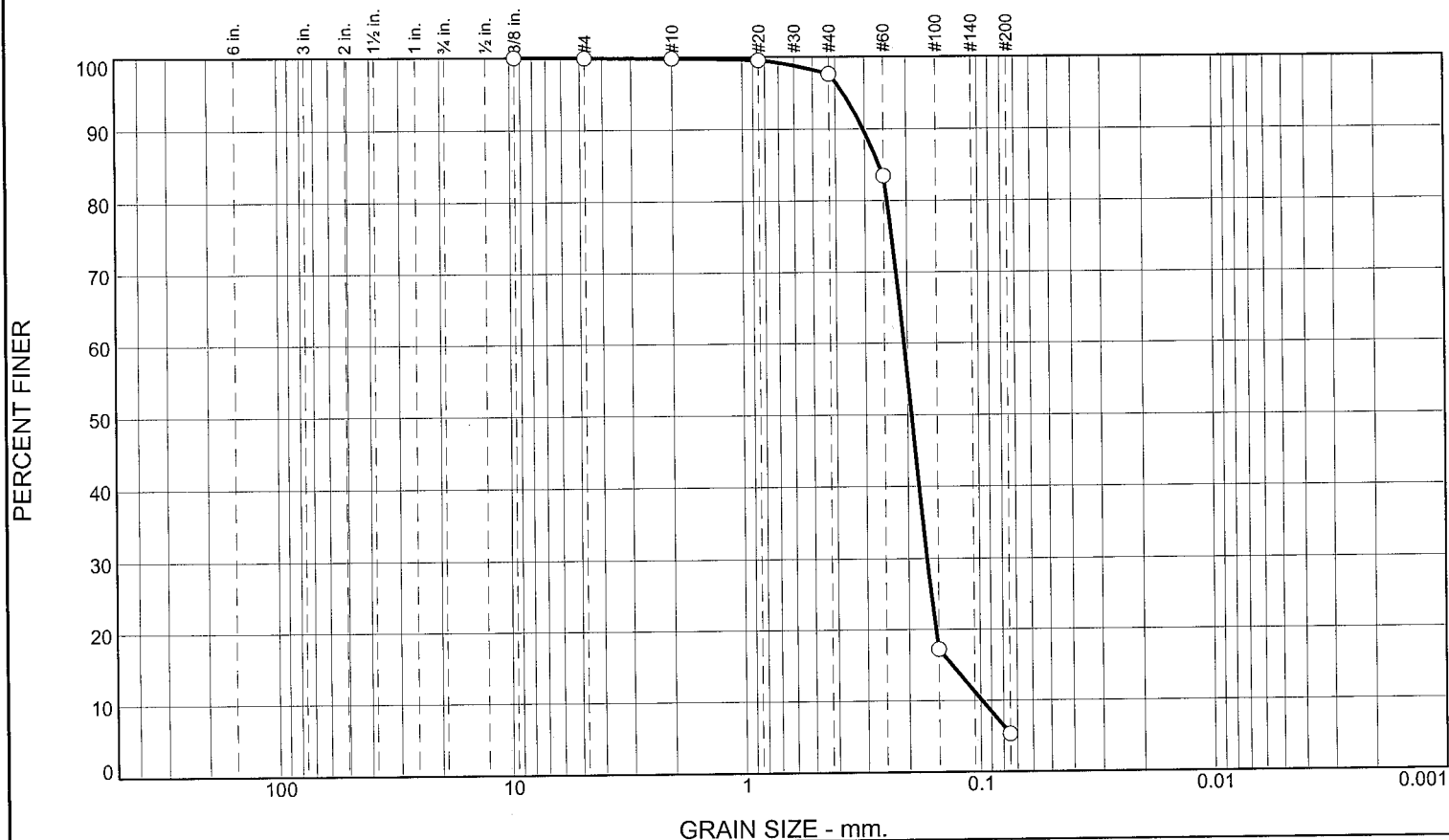
Client: US Army Corps of Engineers  
Project: Contract No. W91278-10-D-0026 - Task 03  
Mississippi Barrier Island Restoration Project  
Project No: 10-2123-0009

Figure

Tested By: G.Fancher

Checked By: R.Byrd

# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.1	0.1	2.2	92.3	5.3	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
.375	100.0		
#4	99.9		
#10	99.8		
#20	99.6		
#40	97.6		
#60	83.4		
#100	17.2		
#200	5.3		

\* (no specification provided)

## Material Description

SAND, (SP-SM), fine grained

## Atterberg Limits

PL=

LL=

PI=

## Coefficients

D<sub>90</sub>= 0.3046

D<sub>85</sub>= 0.2610

D<sub>60</sub>= 0.2064

D<sub>50</sub>= 0.1926

D<sub>30</sub>= 0.1672

D<sub>15</sub>= 0.1320

D<sub>10</sub>= 0.0987

C<sub>u</sub>= 2.09

C<sub>c</sub>= 1.37

## Classification

USCS= SP-SM

AASHTO=

## Remarks

CADD CODE = CH10D965

Location: USACE Sample # BI-SI-38-10B  
Sample Number: TE Lab ID: 4549.03

Depth: 4.5 - 9.5 (ft.)

Date: 6/26/10

**Thompson Engineering**

**Mobile, Alabama**

Client: US Army Corps of Engineers

Project: Contract No. W91278-10-D-0026 - Task 03  
Mississippi Barrier Island Restoration Project

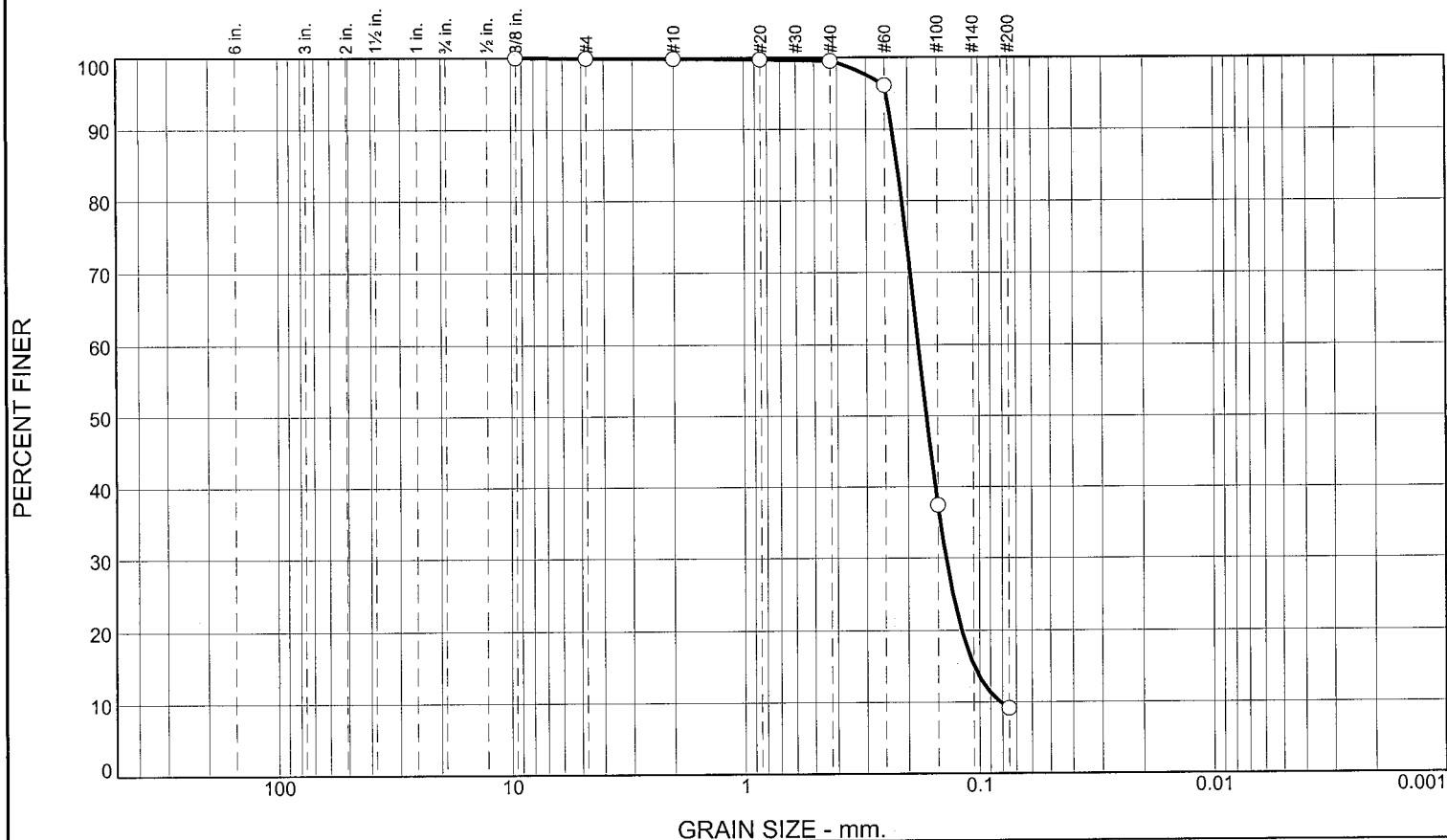
Project No: 10-2123-0009

Figure

Tested By: G.Fancher

Checked By: R.Byrd

# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.1	0.1	0.3	90.4	9.1	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
.375	100.0		
#4	99.9		
#10	99.8		
#20	99.7		
#40	99.5		
#60	96.1		
#100	37.5		
#200	9.1		

\* (no specification provided)

**Material Description**  
SAND, (SP-SM), fine grained

**Atterberg Limits**  
PL=      LL=      PI=

**Coefficients**  
D<sub>90</sub>= 0.2322      D<sub>85</sub>= 0.2212      D<sub>60</sub>= 0.1809  
D<sub>50</sub>= 0.1673      D<sub>30</sub>= 0.1384      D<sub>15</sub>= 0.1054  
D<sub>10</sub>= 0.0816      C<sub>u</sub>= 2.22      C<sub>c</sub>= 1.30

**Classification**  
USCS= SP-SM      AASHTO=

**Remarks**  
CADD CODE = CH10D965

Location: USACE Sample # BI-SI-38-10C  
Sample Number: TE Lab ID: 4549.04

Depth: 9.5 - 12.8 (ft.)

Date: 6/26/10

**Thompson Engineering**

**Mobile, Alabama**

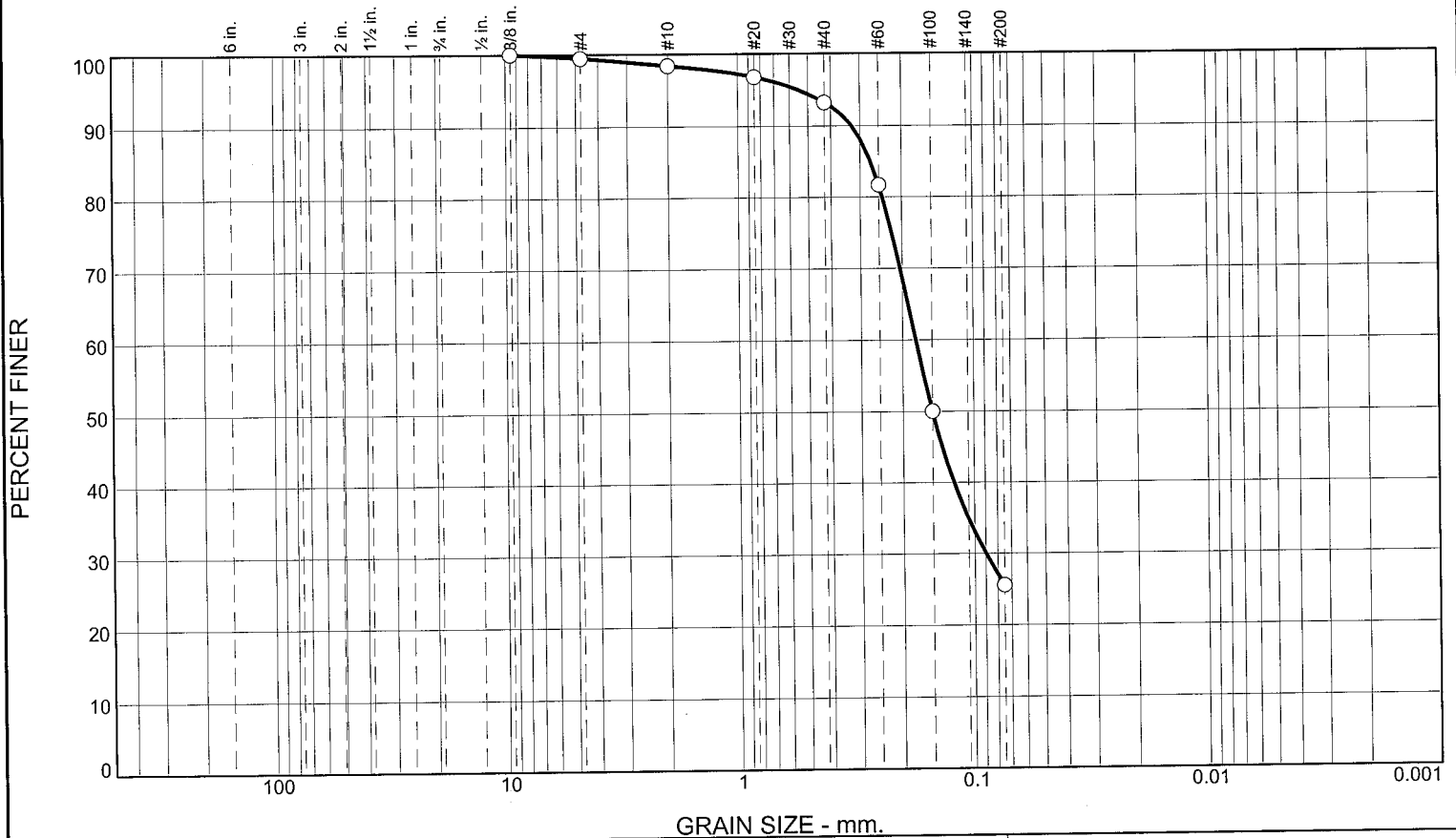
Client: US Army Corps of Engineers  
Project: Contract No. W91278-10-D-0026 - Task 03  
Mississippi Barrier Island Restoration Project  
Project No: 10-2123-0009

Figure

Tested By: G.Fancher

Checked By: R.Byrd

# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.5	1.1	5.1	67.8	25.5	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
.375	100.0		
#4	99.5		
#10	98.4		
#20	96.8		
#40	93.3		
#60	81.7		
#100	50.0		
#200	25.5		

**Material Description**  
SILTY SAND, (SM), medium to fine grained, with clay nodules

**Atterberg Limits**  
 PL=      LL=      PI=

**Coefficients**  
 D<sub>90</sub>= 0.3252      D<sub>85</sub>= 0.2707      D<sub>60</sub>= 0.1757  
 D<sub>50</sub>= 0.1499      D<sub>30</sub>= 0.0896      D<sub>15</sub>=  
 D<sub>10</sub>=      C<sub>u</sub>=      C<sub>c</sub>=

**Classification**  
 USCS= SM      AASHTO=

**Remarks**  
 CADD CODE = CH10D965

\* (no specification provided)

Location: USACE Sample # BI-SI-38-10D  
 Sample Number: TE Lab ID: 4549.05

Depth: 12.8 - 15.9 (ft.)

Date: 6/26/10

**Thompson Engineering**

**Mobile, Alabama**

Client: US Army Corps of Engineers  
 Project: Contract No. W91278-10-D-0026 - Task 03  
 Mississippi Barrier Island Restoration Project  
 Project No: 10-2123-0009

Figure

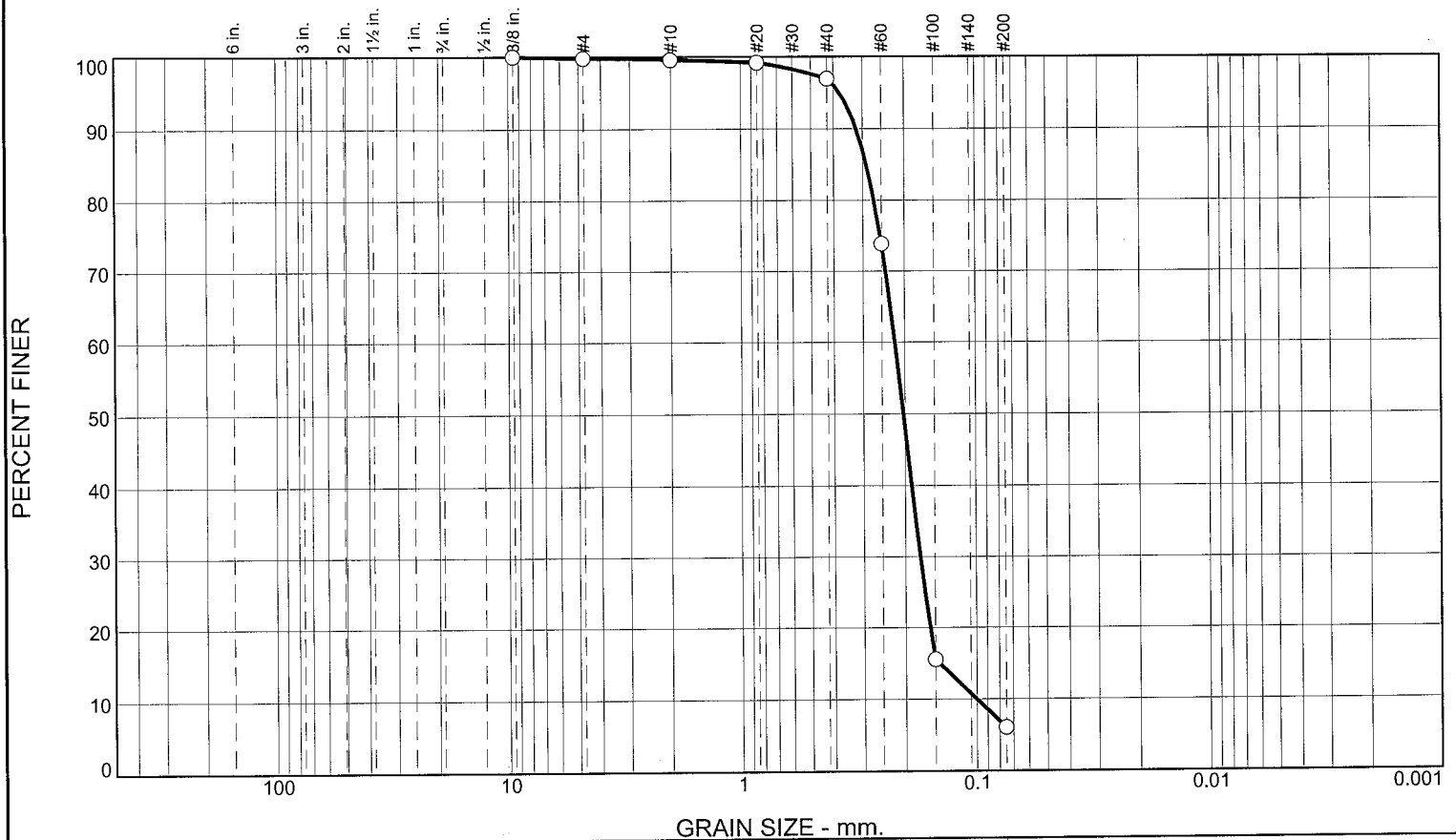
Tested By: G.Fancher

Checked By: R.Byrd

# Boring Designation BI-SI-39-10

DRILLING LOG		DIVISION South Atlantic		INSTALLATION Mobile District		SHEET 1 OF 1 SHEETS	
1. PROJECT MsCIP Barrier Island Restoration Ship Island				9. SIZE AND TYPE OF BIT N/A			
2. BORING DESIGNATION BI-SI-39-10		LOCATION COORDINATES E = 966,533 N = 256,277		10. COORDINATE SYSTEM/DATUM State Plane, MSE (U.S. Ft.)		HORIZONTAL NAD83	
3. DRILLING AGENCY Corps of Engineers - CESAM		CONTRACTOR FILE NO.		11. MANUFACTURER'S DESIGNATION OF DRILL Vibrocure		<input type="checkbox"/> AUTO HAMMER <input type="checkbox"/> MANUAL HAMMER	
4. NAME OF DRILLER Construction Solutions International, Inc.				12. TOTAL SAMPLES 3		UNDISTURBED (UD) 0	
5. DIRECTION OF BORING <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED				13. TOTAL NUMBER CORE BOXES		14. WATER DEPTH 28 Ft.	
6. THICKNESS OF OVERBURDEN N/A				15. DATE BORING 06-14-10		STARTED 06-14-10	
7. DEPTH DRILLED INTO ROCK N/A				16. ELEVATION TOP OF BORING -27.2 Ft.		COMPLETED 06-14-10	
8. TOTAL DEPTH OF BORING 15.6 Ft.				17. TOTAL RECOVERY FOR BORING 100%		18. SIGNATURE AND TITLE OF INSPECTOR Marty Gates, Geologist	
ELEV.	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS	SAMPLE	LABORATORY RESULTS		
-27.2	0.0						
			SAND, poorly-graded, mostly fine to medium-grained sand-sized quartz, trace silt, trace shell fragments, lt. gray (SP)	A	Classification: SP-SM Color: 2.5Y 7/1-light gray D50: 0.203 mm % Fines: 6		
				B	Classification: SP-SM Color: 2.5Y 6/2-light brownish gray D50: 0.1798 mm % Fines: 8.9		
-39.2	12.0		SAND, silty, mostly fine to medium-grained sand-sized quartz, some silt, trace shell fragments, gray (SM)	C	Classification: SP-SM Color: 2.5Y 6/2-light brownish gray D50: 0.1994 mm % Fines: 11.4		
-42.8	15.6		NOTES: 1. Soils are field visually classified in accordance with the Unified Soils Classification System. 2. NS = Sample not submitted for laboratory analysis from this interval. 3. Seafloor elevation determined from USACE hydrographic survey completed 2010.				

# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.2	0.2	2.6	91.0	6.0	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
.375	100.0		
#4	99.8		
#10	99.6		
#20	99.2		
#40	97.0		
#60	73.8		
#100	15.5		
#200	6.0		

\* (no specification provided)

**Material Description**  
SAND, (SP-SM), fine grained

**Atterberg Limits**  
 PL=      LL=      PI=

**Coefficients**  
 D<sub>90</sub>= 0.3190      D<sub>85</sub>= 0.2891      D<sub>60</sub>= 0.2201  
 D<sub>50</sub>= 0.2030      D<sub>30</sub>= 0.1727      D<sub>15</sub>= 0.1444  
 D<sub>10</sub>= 0.1003      C<sub>u</sub>= 2.19      C<sub>c</sub>= 1.35

**Classification**  
 USCS= SP-SM      AASHTO=

**Remarks**  
 CADD CODE = CH10D965

Location: USACE Sample # BI-SI-39-10A  
 Sample Number: TE Lab ID: 4549.06

Depth: 0.0 - 6.0 (ft.)

Date: 6/26/10

**Thompson Engineering**

**Mobile, Alabama**

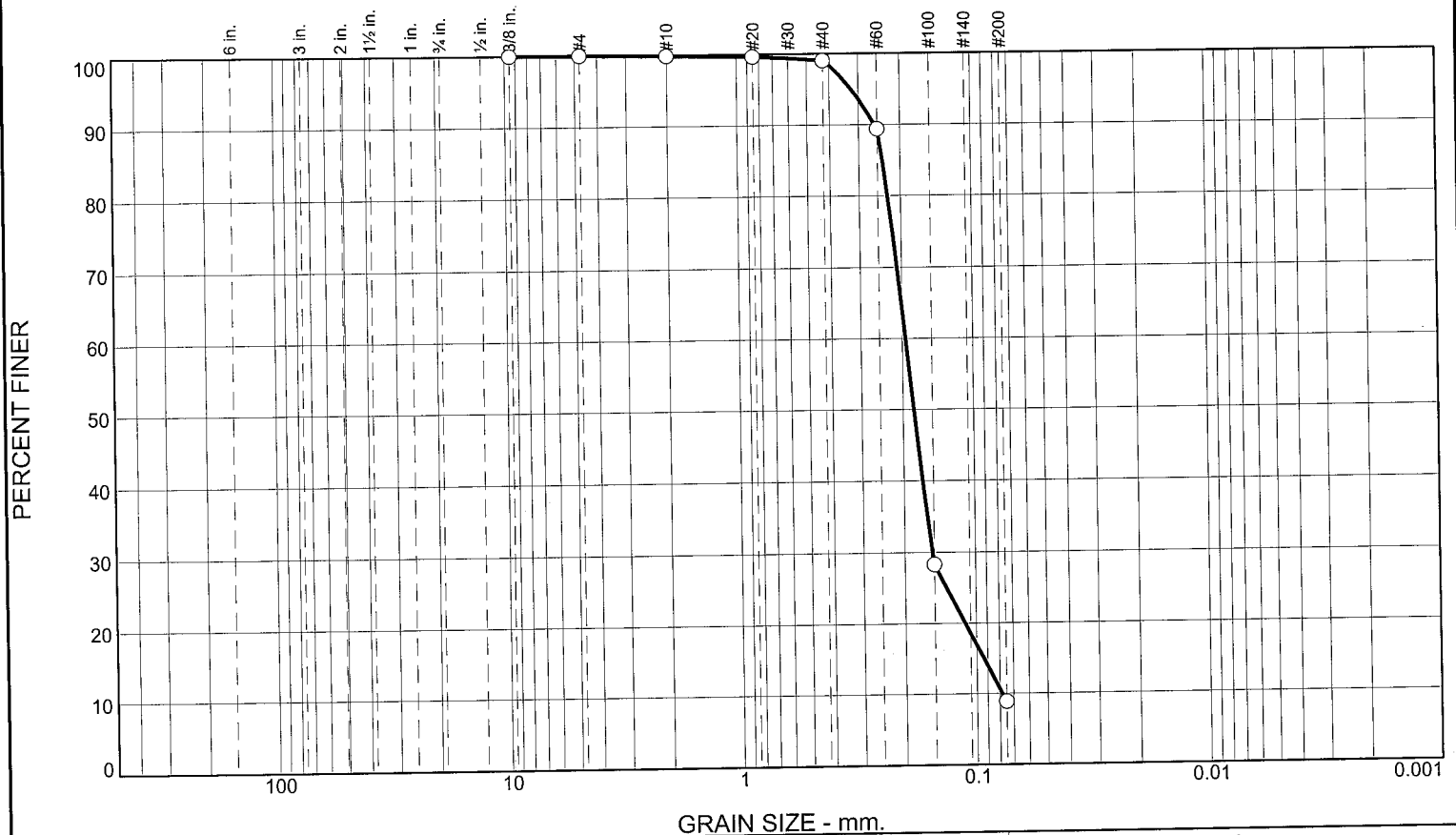
Client: US Army Corps of Engineers  
 Project: Contract No. W91278-10-D-0026 - Task 03  
 Mississippi Barrier Island Restoration Project  
 Project No: 10-2123-0009

Figure

Tested By: G.Fancher

Checked By: R.Byrd

# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.0	0.2	0.8	90.1	8.9	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
.375	100.0		
#4	100.0		
#10	99.8		
#20	99.6		
#40	99.0		
#60	89.4		
#100	28.3		
#200	8.9		

\* (no specification provided)

**Material Description**  
SAND, (SP-SM), fine grained

**Atterberg Limits**  
 PL=      LL=      PI=

**Coefficients**  
 D<sub>90</sub>= 0.2563      D<sub>85</sub>= 0.2382      D<sub>60</sub>= 0.1937  
 D<sub>50</sub>= 0.1798      D<sub>30</sub>= 0.1525      D<sub>15</sub>= 0.0934  
 D<sub>10</sub>= 0.0781      C<sub>u</sub>= 2.48      C<sub>c</sub>= 1.54

**Classification**  
 USCS= SP-SM      AASHTO=

**Remarks**  
 CADD CODE = CH10D965

Location: USACE Sample # BI-SI-39-10B  
 Sample Number: TE Lab ID: 4549.07

Depth: 6.0 - 12.0 (ft.)

Date: 6/26/10

**Thompson Engineering**

**Mobile, Alabama**

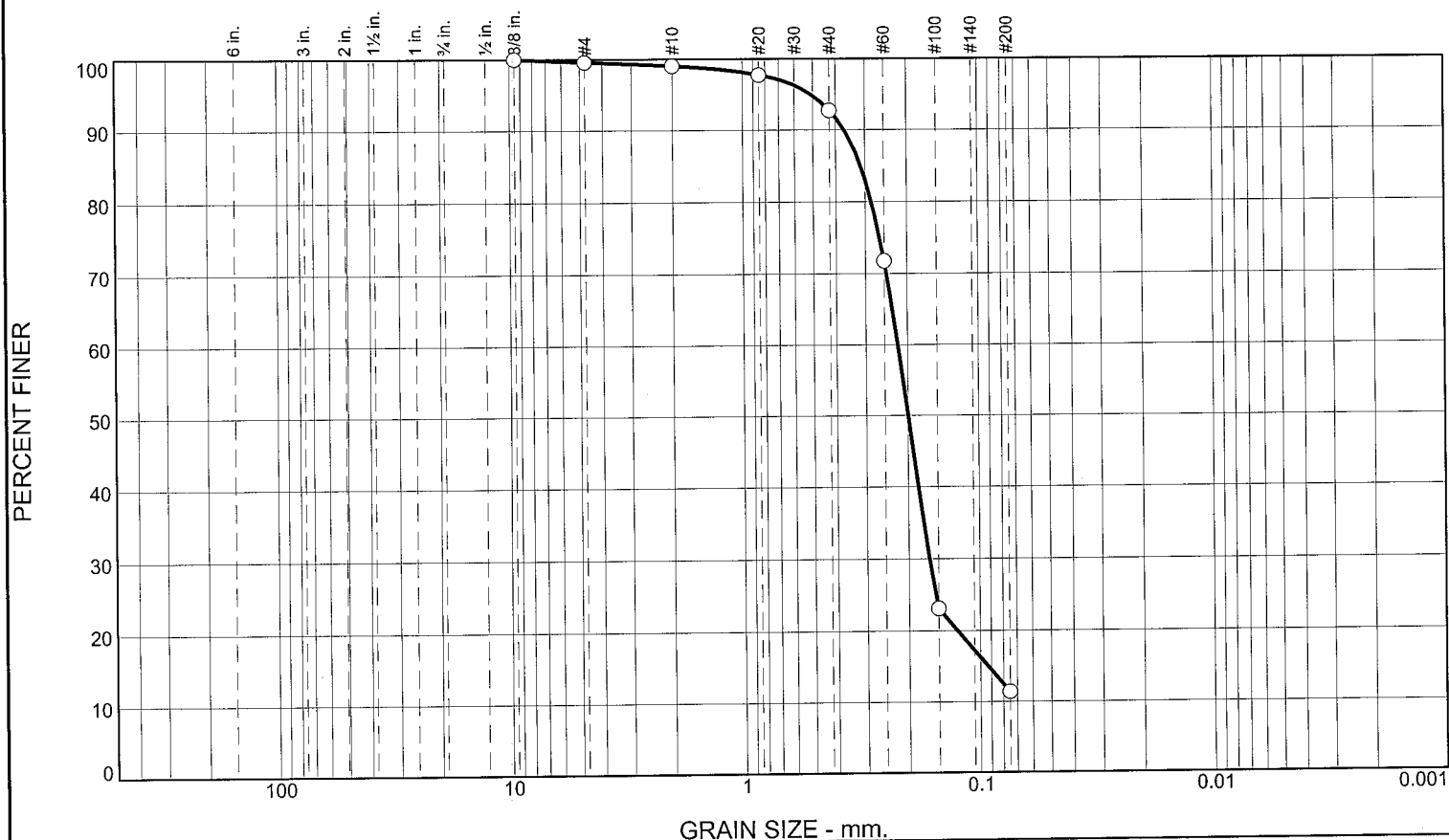
Client: US Army Corps of Engineers  
 Project: Contract No. W91278-10-D-0026 - Task 03  
 Mississippi Barrier Island Restoration Project  
 Project No: 10-2123-0009

Figure

Tested By: G.Fancher

Checked By: R.Byrd

# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.4	0.6	6.3	81.3	11.4	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
.375	100.0		
#4	99.6		
#10	99.0		
#20	97.7		
#40	92.7		
#60	71.7		
#100	23.1		
#200	11.4		

\* (no specification provided)

**Material Description**  
SAND, (SP-SM), fine grained

**Atterberg Limits**  
 PL=      LL=      PI=

**Coefficients**  
 D<sub>90</sub>= 0.3677      D<sub>85</sub>= 0.3133      D<sub>60</sub>= 0.2197  
 D<sub>50</sub>= 0.1994      D<sub>30</sub>= 0.1633      D<sub>15</sub>= 0.0928  
 D<sub>10</sub>=      C<sub>u</sub>=      C<sub>c</sub>=

**Classification**  
 USCS= SP-SM      AASHTO=

**Remarks**  
 CADD CODE = CH10D965

Location: USACE Sample # BI-SI-39-10C  
 Sample Number: TE Lab ID: 4549.08

Depth: 12.0 - 15.6 (ft.)

Date: 6/26/10

**Thompson Engineering**

**Mobile, Alabama**

**Client:** US Army Corps of Engineers  
**Project:** Contract No. W91278-10-D-0026 - Task 03  
 Mississippi Barrier Island Restoration Project

**Project No:** 10-2123-0009

**Figure**

Tested By: G.Fancher

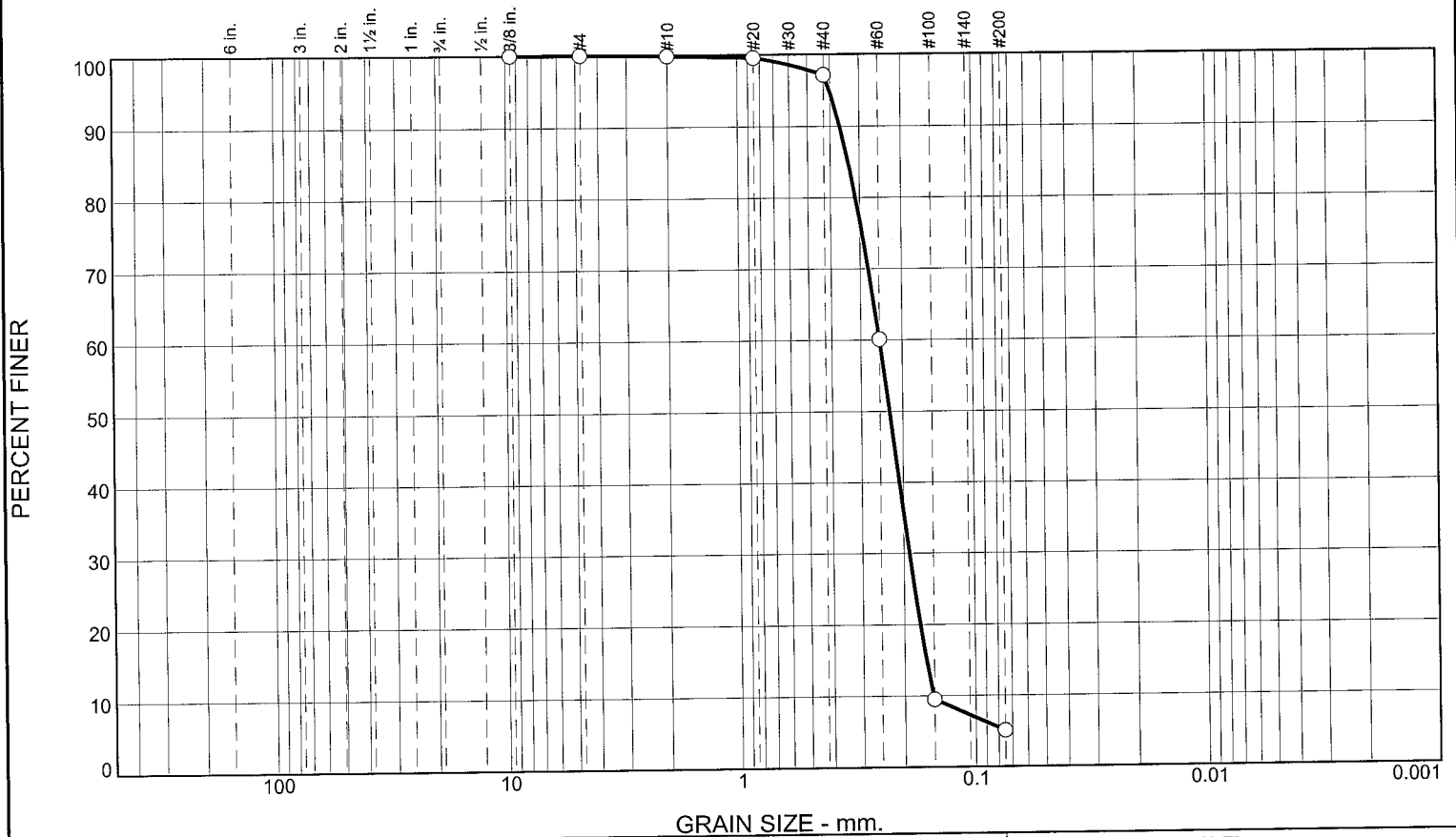
Checked By: R.Byrd



# Boring Designation BI-SI-40-10

DRILLING LOG		DIVISION South Atlantic		INSTALLATION Mobile District		SHEET 1 OF 1 SHEETS	
1. PROJECT MsCIP Barrier Island Restoration Ship Island				9. SIZE AND TYPE OF BIT N/A			
2. BORING DESIGNATION BI-SI-40-10		LOCATION COORDINATES E = 989,473 N = 257,390		10. COORDINATE SYSTEM/DATUM State Plane, MSE (U.S. Ft.)		HORIZONTAL NAD83	
3. DRILLING AGENCY Corps of Engineers - CESAM		CONTRACTOR FILE NO.		11. MANUFACTURER'S DESIGNATION OF DRILL Vibrocure		<input type="checkbox"/> AUTO HAMMER <input type="checkbox"/> MANUAL HAMMER	
4. NAME OF DRILLER Construction Solutions International, Inc.				12. TOTAL SAMPLES 3		DISTURBED 0	
5. DIRECTION OF BORING <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED				13. TOTAL NUMBER CORE BOXES		14. WATER DEPTH 30 Ft.	
6. THICKNESS OF OVERBURDEN N/A				15. DATE BORING 06-14-10		STARTED 06-14-10	
7. DEPTH DRILLED INTO ROCK N/A				16. ELEVATION TOP OF BORING -28.2 Ft.		COMPLETED 06-14-10	
8. TOTAL DEPTH OF BORING 17.1 Ft.				17. TOTAL RECOVERY FOR BORING 100%		18. SIGNATURE AND TITLE OF INSPECTOR Marty Gates, Geologist	
ELEV.	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS	SAMPLE	LABORATORY RESULTS		
-28.2	0.0						
			SAND, poorly-graded, mostly fine to medium-grained sand-sized quartz, trace silt, trace shell fragments, lt. gray (SP)	A	Classification: SP-SM Color: 2.5Y 7/2-light gray D50: 0.2273 mm % Fines: 5.1		
				B	Classification: SP-SM Color: 2.5Y 7/2-light gray D50: 0.1872 mm % Fines: 6.8		
-41.4	13.2						
			SAND, silty, mostly fine to medium-grained sand-sized quartz, some silt, trace shell fragments, gray (SM)	C	Classification: SP-SM Color: 2.5Y 5/2- D50: 0.2159 mm % Fines: 10.5		
-45.3	17.1						
			NOTES: 1. Soils are field visually classified in accordance with the Unified Soils Classification System. 2. NS = Sample not submitted for laboratory analysis from this interval. 3. Seafloor elevation determined from USACE hydrographic survey completed 2010.				

# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.0	0.1	2.8	92.0	5.1	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
.375	100.0		
#4	100.0		
#10	99.9		
#20	99.5		
#40	97.1		
#60	60.1		
#100	9.5		
#200	5.1		

\* (no specification provided)

**Material Description**  
SAND, (SP-SM), fine grained

**Atterberg Limits**  
 PL=                      LL=                      PI=

**Coefficients**  
 D<sub>90</sub>= 0.3633      D<sub>85</sub>= 0.3350      D<sub>60</sub>= 0.2498  
 D<sub>50</sub>= 0.2273      D<sub>30</sub>= 0.1893      D<sub>15</sub>= 0.1616  
 D<sub>10</sub>= 0.1512      C<sub>u</sub>= 1.65              C<sub>c</sub>= 0.95

**Classification**  
 USCS= SP-SM                      AASHTO=

**Remarks**  
 CADD CODE = CH10D965

Location: USACE Sample # BI-SI-40-10A  
 Sample Number: TE Lab ID: 4549.09

Depth: 0.0 - 6.5 (ft.)

Date: 6/26/10

**Thompson Engineering**

**Mobile, Alabama**

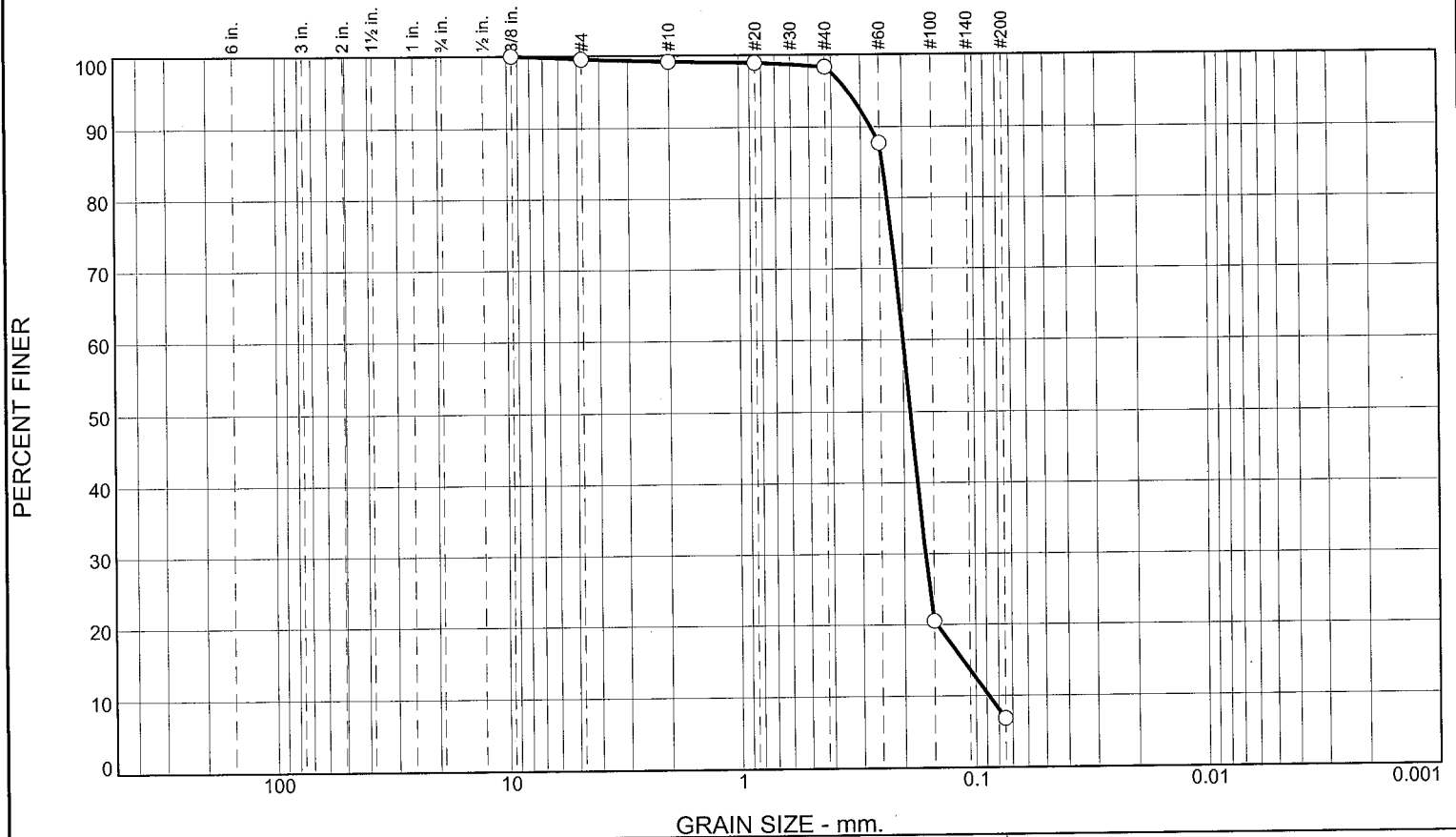
**Client:** US Army Corps of Engineers  
**Project:** Contract No. W91278-10-D-0026 - Task 03  
 Mississippi Barrier Island Restoration Project  
**Project No:** 10-2123-0009

**Figure**

Tested By: G.Fancher

Checked By: R.Byrd

# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.5	0.3	0.9	91.5	6.8	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
.375	100.0		
#4	99.5		
#10	99.2		
#20	98.9		
#40	98.3		
#60	87.8		
#100	20.5		
#200	6.8		

\* (no specification provided)

**Material Description**  
SAND, (SP-SM), fine grained

**Atterberg Limits**  
PL=      LL=      PI=

**Coefficients**  
D<sub>90</sub>= 0.2718      D<sub>85</sub>= 0.2430      D<sub>60</sub>= 0.2003  
D<sub>50</sub>= 0.1872      D<sub>30</sub>= 0.1626      D<sub>15</sub>= 0.1136  
D<sub>10</sub>= 0.0881      C<sub>u</sub>= 2.27      C<sub>c</sub>= 1.50

**Classification**  
USCS= SP-SM      AASHTO=

**Remarks**  
CADD CODE = CH10D965

Location: USACE Sample # BI-SI-40-10B  
Sample Number: TE Lab ID: 4549.10

Depth: 6.5 - 13.2 (ft.)

Date: 6/26/10

**Thompson Engineering**

**Mobile, Alabama**

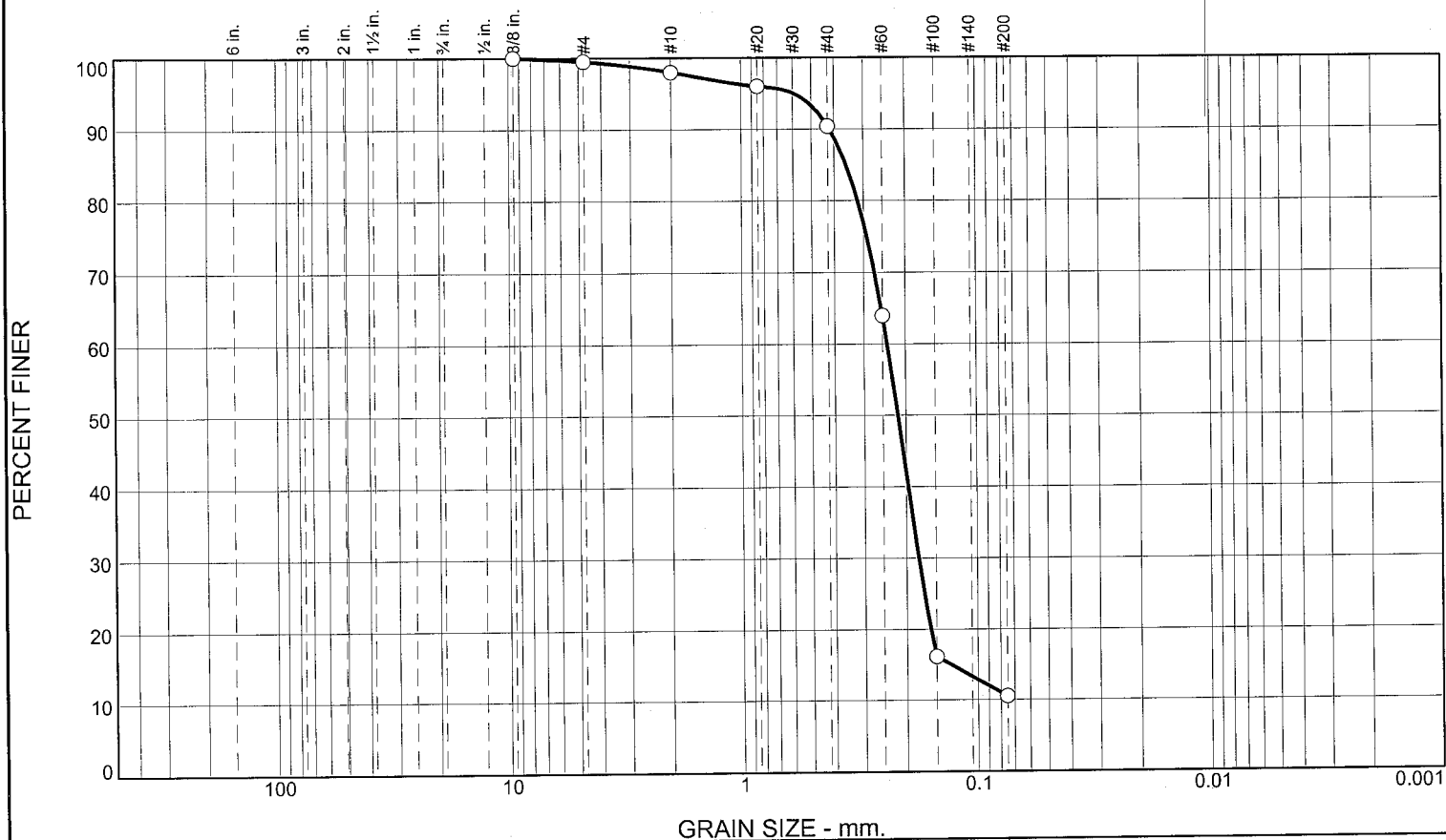
Client: US Army Corps of Engineers  
Project: Contract No. W91278-10-D-0026 - Task 03  
Mississippi Barrier Island Restoration Project  
Project No: 10-2123-0009

Figure

Tested By: G.Fancher

Checked By: R.Byrd

# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.5	1.5	7.6	79.9	10.5	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
.375	100.0		
#4	99.5		
#10	98.0		
#20	96.0		
#40	90.4		
#60	64.0		
#100	16.2		
#200	10.5		

\* (no specification provided)

**Material Description**  
SAND, (SP-SM), medium to fine grained

**Atterberg Limits**  
 PL=                      LL=                      PI=

**Coefficients**  
 D<sub>90</sub>= 0.4179                      D<sub>85</sub>= 0.3550                      D<sub>60</sub>= 0.2391  
 D<sub>50</sub>= 0.2159                      D<sub>30</sub>= 0.1773                      D<sub>15</sub>= 0.1301  
 D<sub>10</sub>=                                      C<sub>u</sub>=                                      C<sub>c</sub>=

**Classification**  
 USCS= SP-SM                      AASHTO=

**Remarks**  
 CADD CODE = CH10D965

Location: USACE Sample # BI-SI-40-10C  
 Sample Number: TE Lab ID: 4549.11

Depth: 13.2 - 17.1 (ft.)

Date: 6/26/10

**Thompson Engineering**

**Mobile, Alabama**

Client: US Army Corps of Engineers  
 Project: Contract No. W91278-10-D-0026 - Task 03  
 Mississippi Barrier Island Restoration Project  
 Project No: 10-2123-0009

Figure

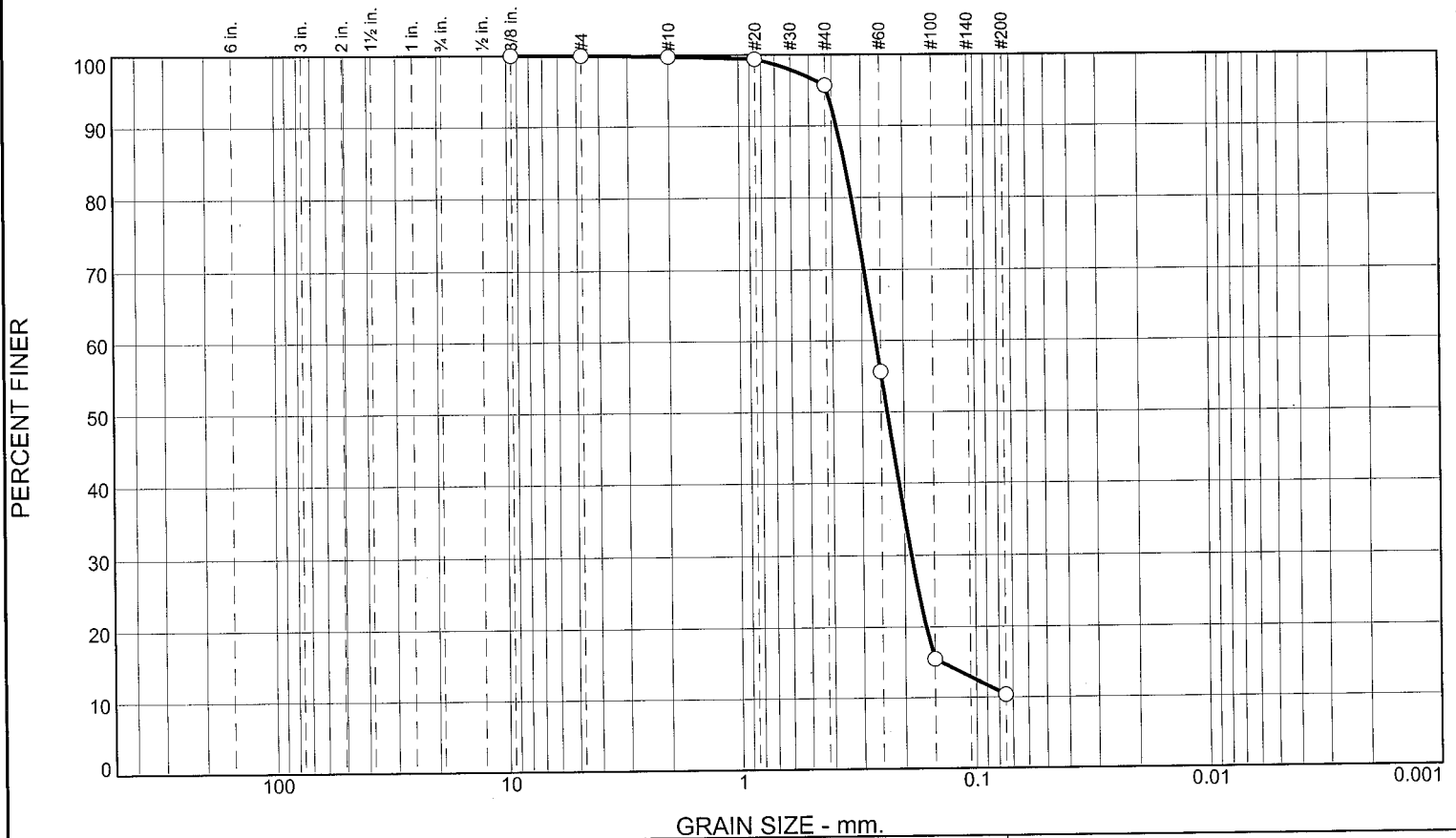
Tested By: G.Fancher

Checked By: R.Byrd

# Boring Designation BI-SI-41-10

DRILLING LOG		DIVISION South Atlantic		INSTALLATION Mobile District		SHEET 1 OF 1 SHEETS	
1. PROJECT MsCIP Barrier Island Restoration Ship Island				9. SIZE AND TYPE OF BIT N/A			
2. BORING DESIGNATION BI-SI-41-10		LOCATION COORDINATES E = 972,059 N = 258,893		10. COORDINATE SYSTEM/DATUM State Plane, MSE (U.S. Ft.)		HORIZONTAL NAD83 VERTICAL NAVD88	
3. DRILLING AGENCY Corps of Engineers - CESAM		CONTRACTOR FILE NO.		11. MANUFACTURER'S DESIGNATION OF DRILL Vibracore		<input type="checkbox"/> AUTO HAMMER <input type="checkbox"/> MANUAL HAMMER	
4. NAME OF DRILLER Construction Solutions International, Inc.				12. TOTAL SAMPLES 2		DISTURBED 2 UNDISTURBED (UD) 0	
5. DIRECTION OF BORING <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED		DEG. FROM VERTICAL		13. TOTAL NUMBER CORE BOXES			
		BEARING		14. WATER DEPTH 30 Ft.			
6. THICKNESS OF OVERBURDEN N/A				15. DATE BORING 06-14-10		STARTED 06-14-10 COMPLETED 06-14-10	
7. DEPTH DRILLED INTO ROCK N/A				16. ELEVATION TOP OF BORING -28.9 Ft.			
8. TOTAL DEPTH OF BORING 16.7 Ft.				17. TOTAL RECOVERY FOR BORING 100%			
				18. SIGNATURE AND TITLE OF INSPECTOR Marty Gates, Geologist			
ELEV.	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS	SAMPLE	LABORATORY RESULTS		
-28.9	0.0						
			SAND, poorly-graded, mostly fine to medium-grained sand-sized quartz, trace silt, trace shell fragments, lt. gray (SP)	A	Classification: SP-SM Color: 2.5Y 7/1-light gray D50: 0.2353 mm % Fines: 10.4		
				B	Classification: SP-SM Color: 2.5Y 7/1-light gray D50: 0.2164 mm % Fines: 6		
-40.3	11.4						
			CLAY, lean, dark gray (CL)	NS			
-45.6	16.7						
			NOTES: 1. Soils are field visually classified in accordance with the Unified Soils Classification System. 2. NS = Sample not submitted for laboratory analysis from this interval. 3. Seafloor elevation determined from USACE hydrographic survey completed 2010.				

# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.0	0.2	4.1	85.3	10.4	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
.375	100.0		
#4	100.0		
#10	99.8		
#20	99.4		
#40	95.7		
#60	55.6		
#100	15.4		
#200	10.4		

\* (no specification provided)

**Material Description**  
SAND, (SP-SM), fine grained

**Atterberg Limits**  
 PL=                      LL=                      PI=

**Coefficients**  
 D<sub>90</sub>= 0.3810      D<sub>85</sub>= 0.3532      D<sub>60</sub>= 0.2621  
 D<sub>50</sub>= 0.2353      D<sub>30</sub>= 0.1873      D<sub>15</sub>= 0.1413  
 D<sub>10</sub>=                      C<sub>u</sub>=                      C<sub>c</sub>=

**Classification**  
 USCS= SP-SM                      AASHTO=

**Remarks**  
 CADD CODE = CH10D965

Location: USACE Sample # BI-SI-41-10A  
 Sample Number: TE Lab ID: 4549.12

Depth: 0.0 - 5.0 (ft.)

Date: 6/26/10

**Thompson Engineering**

**Mobile, Alabama**

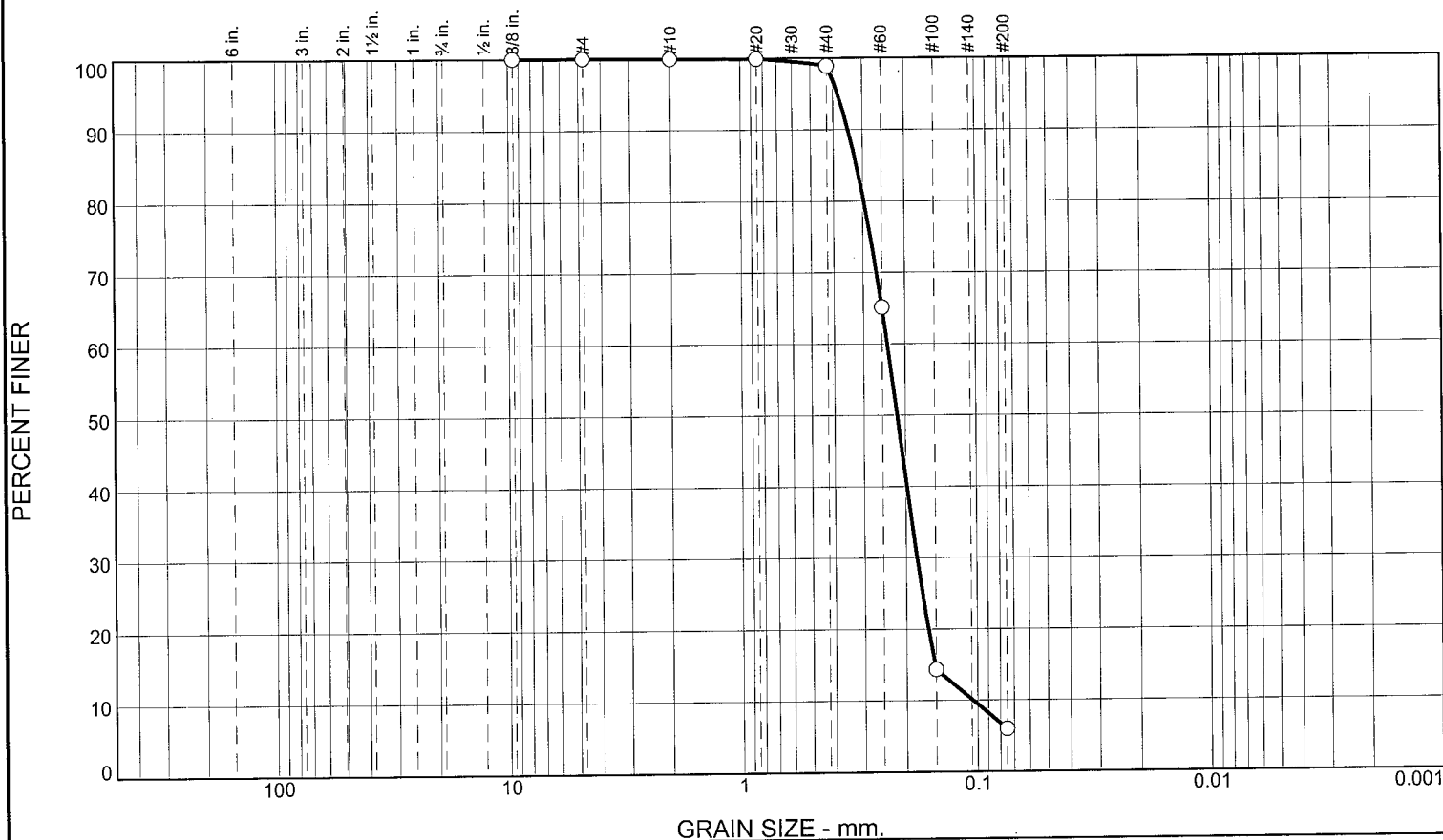
Client: US Army Corps of Engineers  
 Project: Contract No. W91278-10-D-0026 - Task 03  
 Mississippi Barrier Island Restoration Project  
 Project No: 10-2123-0009

Figure

Tested By: G.Fancher

Checked By: R.Byrd

# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.0	0.1	1.0	92.9	6.0	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
.375	100.0		
#4	100.0		
#10	99.9		
#20	99.9		
#40	98.9		
#60	65.1		
#100	14.4		
#200	6.0		

\* (no specification provided)

**Material Description**  
SAND, (SP-SM), fine grained

**Atterberg Limits**  
 PL=      LL=      PI=

**Coefficients**  
 D<sub>90</sub>= 0.3449      D<sub>85</sub>= 0.3180      D<sub>60</sub>= 0.2376  
 D<sub>50</sub>= 0.2164      D<sub>30</sub>= 0.1796      D<sub>15</sub>= 0.1514  
 D<sub>10</sub>= 0.1047      C<sub>u</sub>= 2.27      C<sub>c</sub>= 1.30

**Classification**  
 USCS= SP-SM      AASHTO=

**Remarks**  
 CADD CODE = CH10D965

Location: USACE Sample # BI-SI-41-10B  
 Sample Number: TE Lab ID: 4549.13

Depth: 5.0 - 11.4 (ft.)

Date: 6/26/10

**Thompson Engineering**

**Mobile, Alabama**

Client: US Army Corps of Engineers  
 Project: Contract No. W91278-10-D-0026 - Task 03  
 Mississippi Barrier Island Restoration Project  
 Project No: 10-2123-0009

Figure

Tested By: G.Fancher

Checked By: R.Byrd

# Boring Designation BI-SI-42-10

DRILLING LOG		DIVISION South Atlantic		INSTALLATION Mobile District		SHEET 1 OF 2 SHEETS	
1. PROJECT MsCIP Barrier Island Restoration Ship Island				9. SIZE AND TYPE OF BIT N/A			
2. BORING DESIGNATION BI-SI-42-10		LOCATION COORDINATES E = 960,604 N = 251,607		10. COORDINATE SYSTEM/DATUM State Plane, MSE (U.S. Ft.)		HORIZONTAL NAD83 VERTICAL NAVD88	
3. DRILLING AGENCY Corps of Engineers - CESAM		CONTRACTOR FILE NO.		11. MANUFACTURER'S DESIGNATION OF DRILL Vibrocure		<input type="checkbox"/> AUTO HAMMER <input type="checkbox"/> MANUAL HAMMER	
4. NAME OF DRILLER Construction Solutions International, Inc.				12. TOTAL SAMPLES 0		DISTURBED 0 UNDISTURBED (UD) 0	
5. DIRECTION OF BORING <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED		DEG. FROM VERTICAL		13. TOTAL NUMBER CORE BOXES			
		BEARING		14. WATER DEPTH 27 Ft.			
6. THICKNESS OF OVERBURDEN N/A				15. DATE BORING 06-08-10		STARTED 06-08-10 COMPLETED 06-08-10	
7. DEPTH DRILLED INTO ROCK N/A				16. ELEVATION TOP OF BORING -26.8 Ft.			
8. TOTAL DEPTH OF BORING 20.0 Ft.				17. TOTAL RECOVERY FOR BORING 100%			
				18. SIGNATURE AND TITLE OF INSPECTOR Marty Gates, Geologist			
ELEV.	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS	SAMPLE	LABORATORY RESULTS		
-26.8	0.0		CLAY, lean, dark gray (CL)				
-41.0	14.2			NS			
-46.8	20.0		SAND, silty, mostly fine to medium-grained sand-sized quartz, some silt, trace shell fragments, gray (SM)				
			NOTES: 1. Soils are field visually classified in accordance with the Unified Soils Classification System. 2. NS = Sample not submitted for laboratory analysis from this interval. 3. Seafloor elevation calculated using sampling				



<b>DRILLING LOG (Cont. Sheet)</b>			<b>INSTALLATION</b> Mobile District		<b>SHEET 2</b> <b>OF 2 SHEETS</b>
<b>PROJECT</b> MsCIP Barrier Island Restoration			<b>COORDINATE SYSTEM/DATUM</b> State Plane, MSE (U.S. Ft.)	<b>HORIZONTAL</b> NAD83	<b>VERTICAL</b> NAVD88
<b>LOCATION COORDINATES</b> X = 960,604 Y = 251,607			<b>ELEVATION TOP OF BORING</b> -26.8 Ft.		
<b>ELEV.</b>	<b>DEPTH</b>	<b>LEGEND</b>	<b>CLASSIFICATION OF MATERIALS</b>	<b>SAMPLE</b>	<b>LABORATORY RESULTS</b>
			vessel's fathometer water depth reading and applying NOAA tidal gauge data conversion factor.		

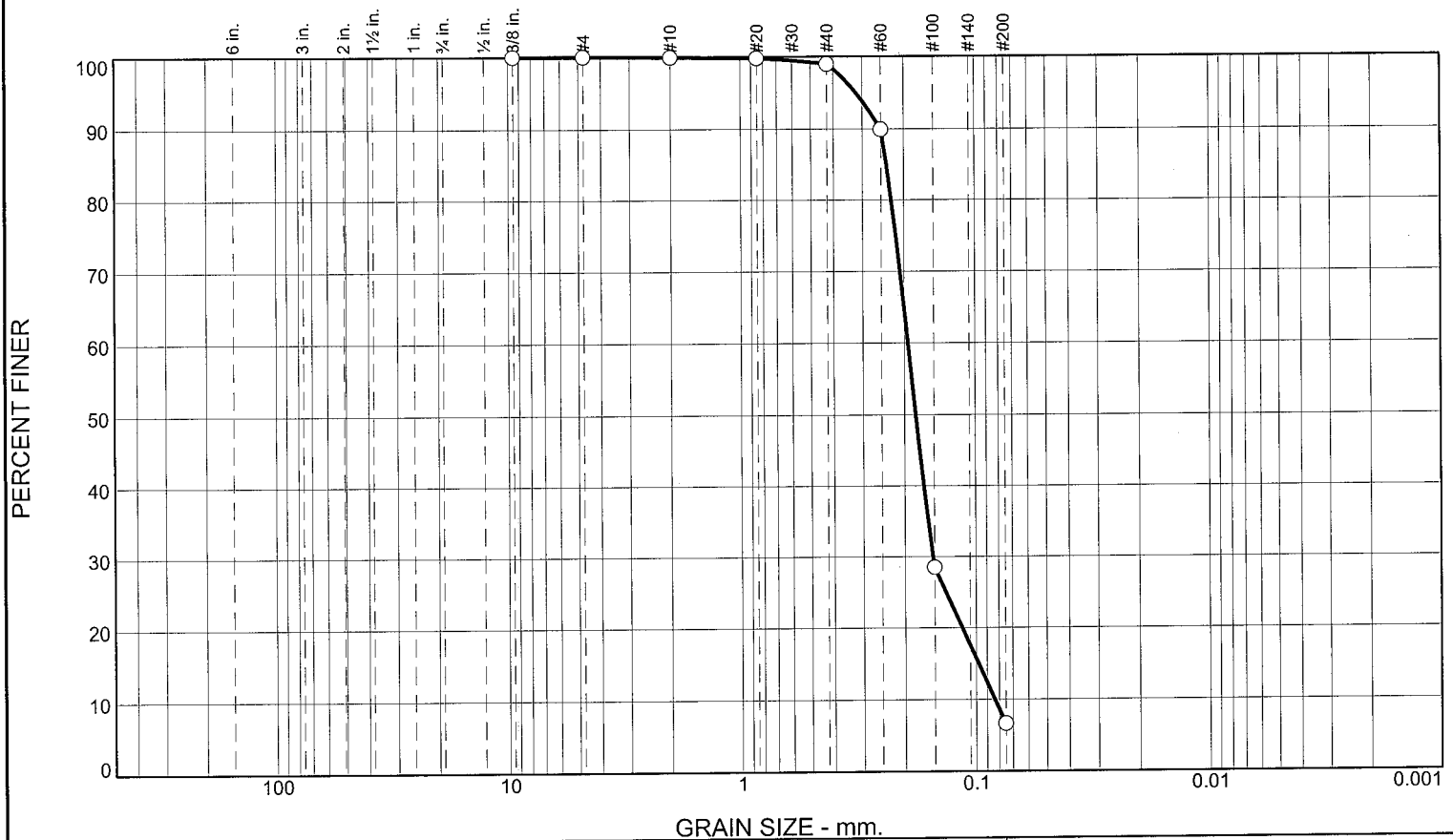
# Boring Designation BI-SI-43-10

DRILLING LOG		DIVISION South Atlantic		INSTALLATION Mobile District		SHEET 1 OF 1 SHEETS	
1. PROJECT MsCIP Barrier Island Restoration Ship Island				9. SIZE AND TYPE OF BIT N/A			
2. BORING DESIGNATION BI-SI-43-10		LOCATION COORDINATES E = 963,078 N = 252,282		10. COORDINATE SYSTEM/DATUM State Plane, MSE (U.S. Ft.)		HORIZONTAL NAD83	
3. DRILLING AGENCY Corps of Engineers - CESAM		CONTRACTOR FILE NO.		11. MANUFACTURER'S DESIGNATION OF DRILL Vibrocure		<input type="checkbox"/> AUTO HAMMER <input type="checkbox"/> MANUAL HAMMER	
4. NAME OF DRILLER Construction Solutions International, Inc.				12. TOTAL SAMPLES 0		DISTURBED 0	
5. DIRECTION OF BORING <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED		DEG. FROM VERTICAL		13. TOTAL NUMBER CORE BOXES			
		BEARING		14. WATER DEPTH 28.5 Ft.			
6. THICKNESS OF OVERBURDEN N/A				15. DATE BORING 06-14-10		STARTED 06-14-10	
7. DEPTH DRILLED INTO ROCK N/A				16. ELEVATION TOP OF BORING -27.2 Ft.			
8. TOTAL DEPTH OF BORING 18.2 Ft.				17. TOTAL RECOVERY FOR BORING 100%			
				18. SIGNATURE AND TITLE OF INSPECTOR Marty Gates, Geologist			
ELEV.	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS	SAMPLE	LABORATORY RESULTS		
-27.2	0.0		CLAY, lean, dark gray (CL)	NS			
-42.4	15.2						
-45.4	18.2		SAND, silty, mostly fine to medium-grained sand-sized quartz, some silt, trace shell fragments, gray (SM)				
			NOTES: 1. Soils are field visually classified in accordance with the Unified Soils Classification System. 2. NS = Sample not submitted for laboratory analysis from this interval. 3. Seafloor elevation calculated using sampling vessel's fathometer water depth reading and applying NOAA tidal gauge data conversion factor.				

# Boring Designation BI-SI-44-10

DRILLING LOG		DIVISION South Atlantic		INSTALLATION Mobile District		SHEET 1 OF 1 SHEETS	
1. PROJECT MsCIP Barrier Island Restoration Ship Island				9. SIZE AND TYPE OF BIT N/A			
2. BORING DESIGNATION BI-SI-44-10		LOCATION COORDINATES E = 965,344 N = 253,248		10. COORDINATE SYSTEM/DATUM State Plane, MSE (U.S. Ft.)		HORIZONTAL NAD83	
3. DRILLING AGENCY Corps of Engineers - CESAM		CONTRACTOR FILE NO.		11. MANUFACTURER'S DESIGNATION OF DRILL Vibracore		<input type="checkbox"/> AUTO HAMMER <input type="checkbox"/> MANUAL HAMMER	
4. NAME OF DRILLER Construction Solutions International, Inc.				12. TOTAL SAMPLES 3		UNDISTURBED (UD) 0	
5. DIRECTION OF BORING <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED				13. TOTAL NUMBER CORE BOXES		14. WATER DEPTH 29 Ft.	
6. THICKNESS OF OVERBURDEN N/A				15. DATE BORING 06-14-10		STARTED 06-14-10	
7. DEPTH DRILLED INTO ROCK N/A				16. ELEVATION TOP OF BORING -27.6 Ft.		COMPLETED 06-14-10	
8. TOTAL DEPTH OF BORING 15.4 Ft.				17. TOTAL RECOVERY FOR BORING 100%			
				18. SIGNATURE AND TITLE OF INSPECTOR Marty Gates, Geologist			
ELEV.	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS	SAMPLE	LABORATORY RESULTS		
-27.6	0.0						
			SAND, poorly-graded, mostly fine to medium-grained sand-sized quartz, trace silt, trace shell fragments, lt. gray (SP)	A	Classification: SP-SM Color: 2.5Y 6/2-light brownish gray D50: 0.1791 mm % Fines: 6.7		
				B	Classification: SP Color: 2.5Y 7/1-light gray D50: 0.2159 mm % Fines: 3.9		
-36.1	8.5						
			CLAY, lean, dark gray (CL)	NS			
-39.6	12.0						
			SAND, silty, mostly fine to medium-grained sand-sized quartz, some silt, trace shell fragments, gray (SM)	C	Classification: SM Color: 2.5Y 5/2-grayish brown D50: 0.2105 mm % Fines: 12		
-43.0	15.4						
			NOTES: 1. Soils are field visually classified in accordance with the Unified Soils Classification System. 2. NS = Sample not submitted for laboratory analysis from this interval. 3. Seafloor elevation calculated using sampling vessel's fathometer water depth reading and applying NOAA tidal gauge data conversion factor.				

# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.0	0.1	0.9	92.3	6.7	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
.375	100.0		
#4	100.0		
#10	99.9		
#20	99.8		
#40	99.0		
#60	89.9		
#100	28.5		
#200	6.7		

**Material Description**  
SAND, (SP-SM), fine grained

**Atterberg Limits**  
PL=      LL=      PI=

**Coefficients**  
 D<sub>90</sub>= 0.2509      D<sub>85</sub>= 0.2368      D<sub>60</sub>= 0.1929  
 D<sub>50</sub>= 0.1791      D<sub>30</sub>= 0.1522      D<sub>15</sub>= 0.0977  
 D<sub>10</sub>= 0.0834      C<sub>u</sub>= 2.31      C<sub>c</sub>= 1.44

**Classification**  
USCS= SP-SM      AASHTO=

**Remarks**  
CADD CODE = CH10D965

\* (no specification provided)

Location: USACE Sample # BI-SI-44-10A  
Sample Number: TE Lab ID: 4549.22

Depth: 0.0 - 4.0 (ft.)

Date: 6/26/10

**Thompson Engineering**  
**Mobile, Alabama**

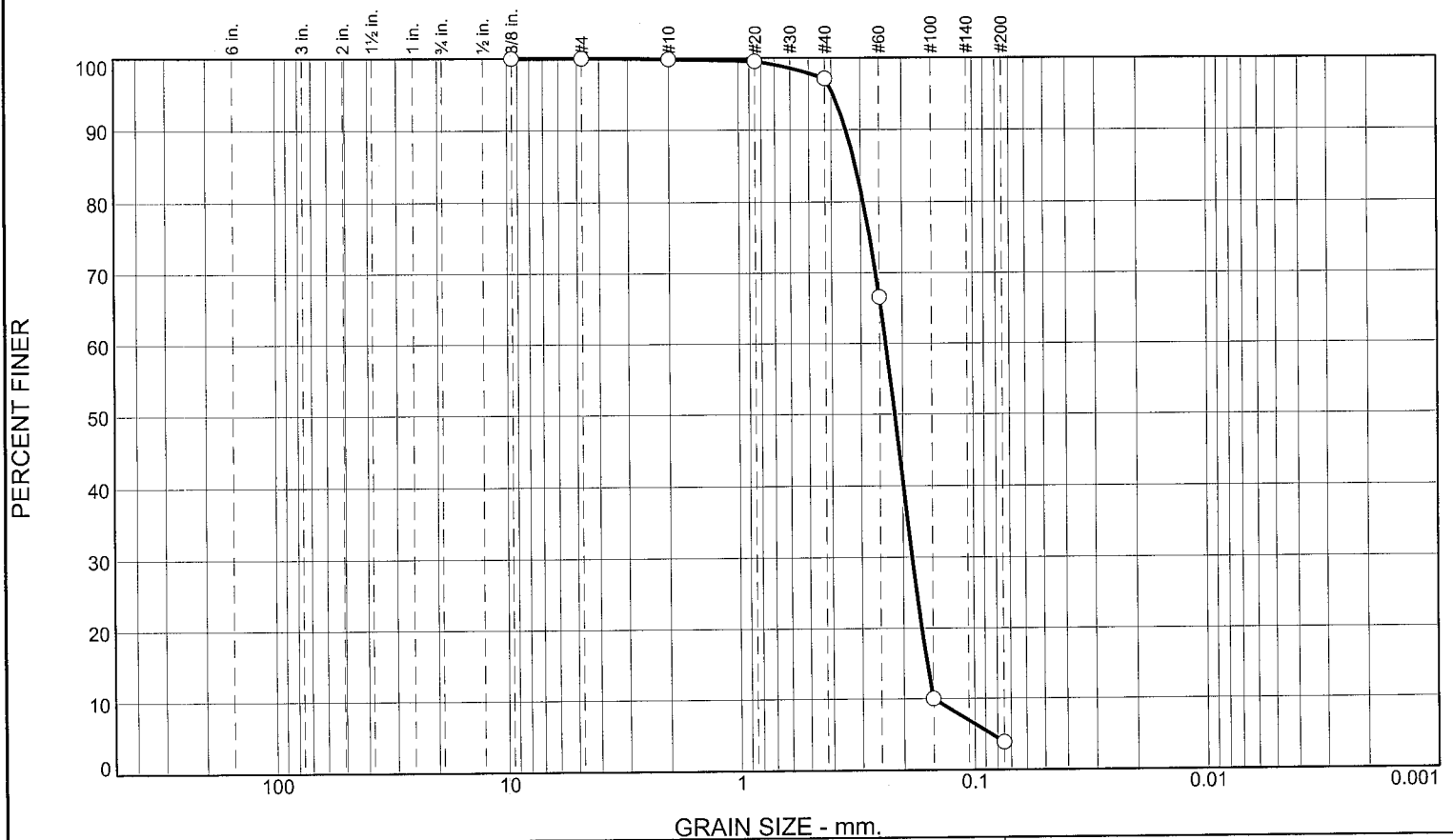
Client: US Army Corps of Engineers  
Project: Contract No. W91278-10-D-0026 - Task 03  
Mississippi Barrier Island Restoration Project  
Project No: 10-2123-0009

Figure

Tested By: G.Fancher

Checked By: R.Byrd

# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.0	0.1	2.8	93.2	3.9	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
.375	100.0		
#4	100.0		
#10	99.9		
#20	99.6		
#40	97.1		
#60	66.6		
#100	10.0		
#200	3.9		

\* (no specification provided)

**Material Description**  
SAND, (SP), fine grained

**Atterberg Limits**  
 PL=                      LL=                      PI=

**Coefficients**  
 D<sub>90</sub>= 0.3454      D<sub>85</sub>= 0.3146      D<sub>60</sub>= 0.2351  
 D<sub>50</sub>= 0.2159      D<sub>30</sub>= 0.1830      D<sub>15</sub>= 0.1590  
 D<sub>10</sub>= 0.1497      C<sub>u</sub>= 1.57              C<sub>c</sub>= 0.95

**Classification**  
 USCS= SP                      AASHTO=

**Remarks**  
 CADD CODE = CH10D965

Location: USACE Sample # BI-SI-44-10B  
 Sample Number: TE Lab ID: 4549.23

Depth: 4.0 - 8.5 (ft.)

Date: 6/26/10

**Thompson Engineering**

**Mobile, Alabama**

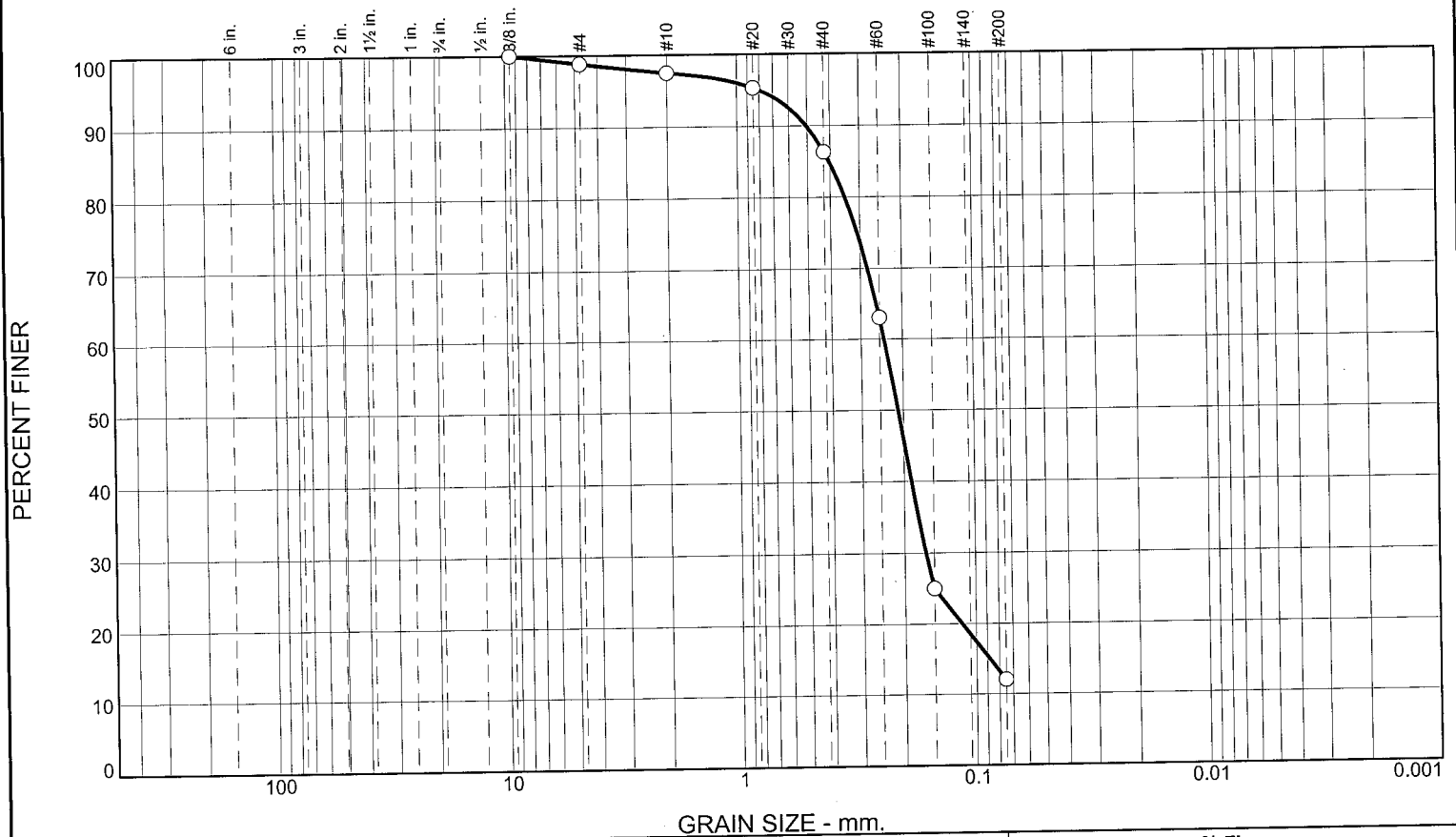
**Client:** US Army Corps of Engineers  
**Project:** Contract No. W91278-10-D-0026 - Task 03  
 Mississippi Barrier Island Restoration Project  
**Project No:** 10-2123-0009

**Figure**

Tested By: G.Fancher

Checked By: R.Byrd

# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	1.2	1.3	11.2	74.3	12.0	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
.375	100.0		
#4	98.8		
#10	97.5		
#20	95.3		
#40	86.3		
#60	63.0		
#100	25.0		
#200	12.0		

\* (no specification provided)

**Material Description**  
SILTY SAND, (SM), medium to fine grained, with trace gravel

**Atterberg Limits**  
 PL=      LL=      PI=

**Coefficients**  
 D<sub>90</sub>= 0.5048      D<sub>85</sub>= 0.4039      D<sub>60</sub>= 0.2395  
 D<sub>50</sub>= 0.2105      D<sub>30</sub>= 0.1625      D<sub>15</sub>= 0.0879  
 D<sub>10</sub>=      C<sub>u</sub>=      C<sub>c</sub>=

**Classification**  
 USCS= SM      AASHTO=

**Remarks**  
 CADD CODE = CH10D965

Location: USACE Sample # BI-SI-44-10C  
 Sample Number: TE Lab ID: 4549.24

Depth: 12.0 - 15.4 (ft.)

Date: 6/26/10

**Thompson Engineering**

**Mobile, Alabama**

Client: US Army Corps of Engineers  
 Project: Contract No. W91278-10-D-0026 - Task 03  
 Mississippi Barrier Island Restoration Project  
 Project No: 10-2123-0009

Figure

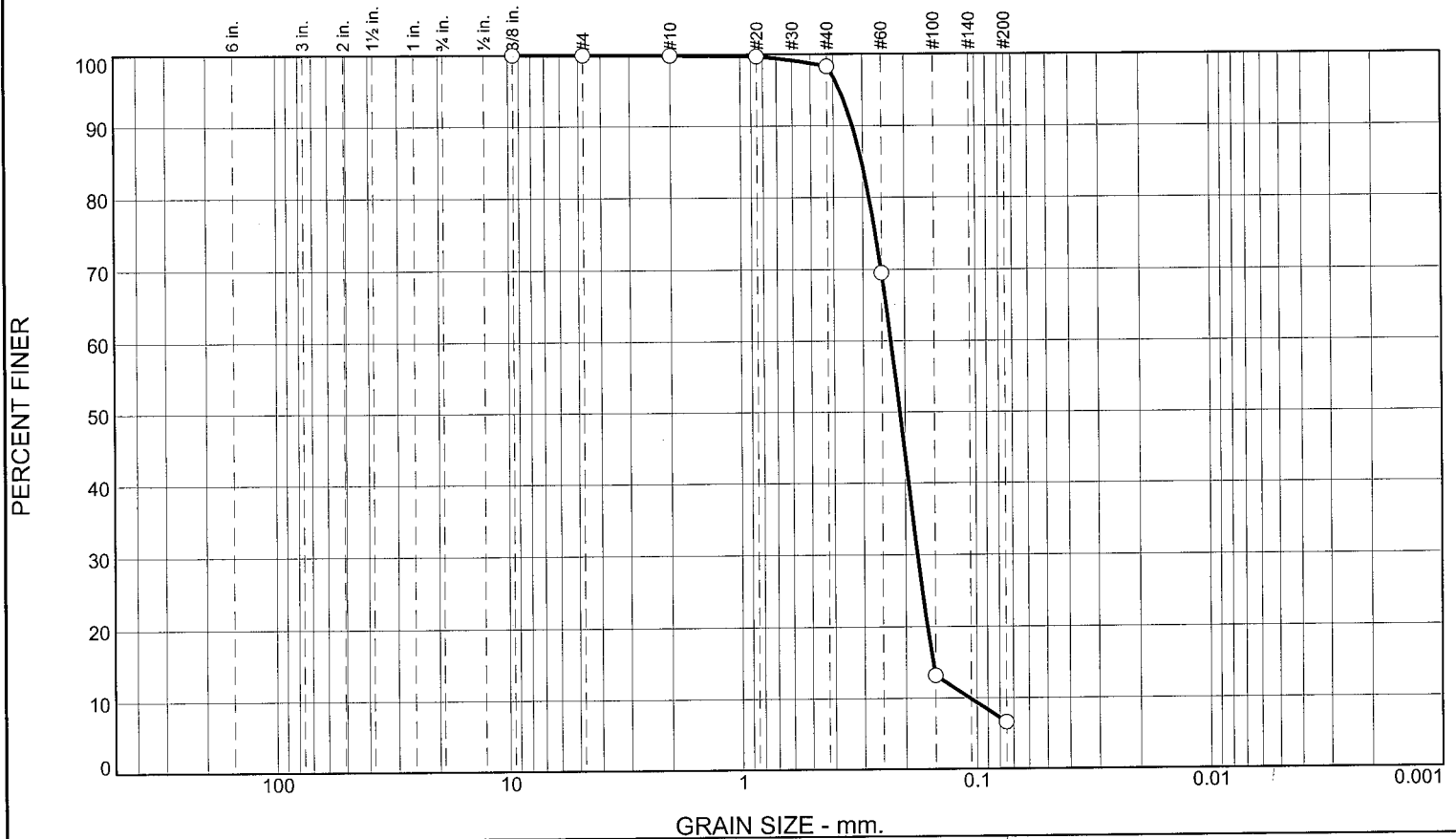
Tested By: G.Fancher

Checked By: R.Byrd

# Boring Designation BI-SI-45-10

DRILLING LOG		DIVISION South Atlantic		INSTALLATION Mobile District		SHEET 1 OF 1 SHEETS	
1. PROJECT MsCIP Barrier Island Restoration Ship Island				9. SIZE AND TYPE OF BIT N/A			
2. BORING DESIGNATION BI-SI-45-10		LOCATION COORDINATES E = 967,524 N = 254,174		10. COORDINATE SYSTEM/DATUM State Plane, MSE (U.S. Ft.)		HORIZONTAL NAD83 VERTICAL NAVD88	
3. DRILLING AGENCY Corps of Engineers - CESAM		CONTRACTOR FILE NO.		11. MANUFACTURER'S DESIGNATION OF DRILL Vibracore		<input type="checkbox"/> AUTO HAMMER <input type="checkbox"/> MANUAL HAMMER	
4. NAME OF DRILLER Construction Solutions International, Inc.				12. TOTAL SAMPLES 3		DISTURBED 0 UNDISTURBED (UD)	
5. DIRECTION OF BORING <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED		DEG. FROM VERTICAL		13. TOTAL NUMBER CORE BOXES			
		BEARING		14. WATER DEPTH 30 Ft.			
6. THICKNESS OF OVERBURDEN N/A				15. DATE BORING 06-14-10		STARTED 06-14-10 COMPLETED 06-14-10	
7. DEPTH DRILLED INTO ROCK N/A				16. ELEVATION TOP OF BORING -28.9 Ft.			
8. TOTAL DEPTH OF BORING 15.9 Ft.				17. TOTAL RECOVERY FOR BORING 100%			
				18. SIGNATURE AND TITLE OF INSPECTOR Marty Gates, Geologist			
ELEV.	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS	SAMPLE	LABORATORY RESULTS		
-28.9	0.0						
			SAND, poorly-graded, mostly fine to medium-grained sand-sized quartz, trace silt, trace shell fragments, lt. gray (SP)	A	Classification: SP-SM Color: 2.5Y 7/1-light gray D50: 0.2102 mm % Fines: 6.6		
				B	Classification: SP-SM Color: 2.5Y 5/2-grayish brown D50: 0.1895 mm % Fines: 7.5		
-38.3	9.4						
			CLAY, lean, dark gray (CL)	NS			
-40.4	11.5						
			SAND, silty, mostly fine to medium-grained sand-sized quartz, some silt, trace shell fragments, gray (SM)	C	Classification: SM Color: 2.5Y 5/2-grayish brown D50: 0.1884 mm % Fines: 15.7		
-44.8	15.9						
			NOTES: 1. Soils are field visually classified in accordance with the Unified Soils Classification System. 2. NS = Sample not submitted for laboratory analysis from this interval. 3. Seafloor elevation determined from USACE hydrographic survey completed 2010.				

# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.0	0.1	1.6	91.7	6.6	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
.375	100.0		
#4	100.0		
#10	99.9		
#20	99.7		
#40	98.3		
#60	69.5		
#100	13.2		
#200	6.6		

\* (no specification provided)

<b>Material Description</b>		
SAND, (SP-SM), fine grained		
<b>Atterberg Limits</b>		
PL=	LL=	PI=
<b>Coefficients</b>		
D <sub>90</sub> = 0.3314	D <sub>85</sub> = 0.3030	D <sub>60</sub> = 0.2288
D <sub>50</sub> = 0.2102	D <sub>30</sub> = 0.1779	D <sub>15</sub> = 0.1533
D <sub>10</sub> = 0.1072	C <sub>u</sub> = 2.13	C <sub>c</sub> = 1.29
<b>Classification</b>		
USCS= SP-SM	AASHTO=	
<b>Remarks</b>		
CADD CODE = CH10D965		

Location: USACE Sample # BI-SI-45-10A  
Sample Number: TE Lab ID: 4549.19

Depth: 0.0 - 5.0 (ft.)

Date: 6/26/10

**Thompson Engineering**

**Mobile, Alabama**

Client: US Army Corps of Engineers  
Project: Contract No. W91278-10-D-0026 - Task 03  
Mississippi Barrier Island Restoration Project  
Project No: 10-2123-0009

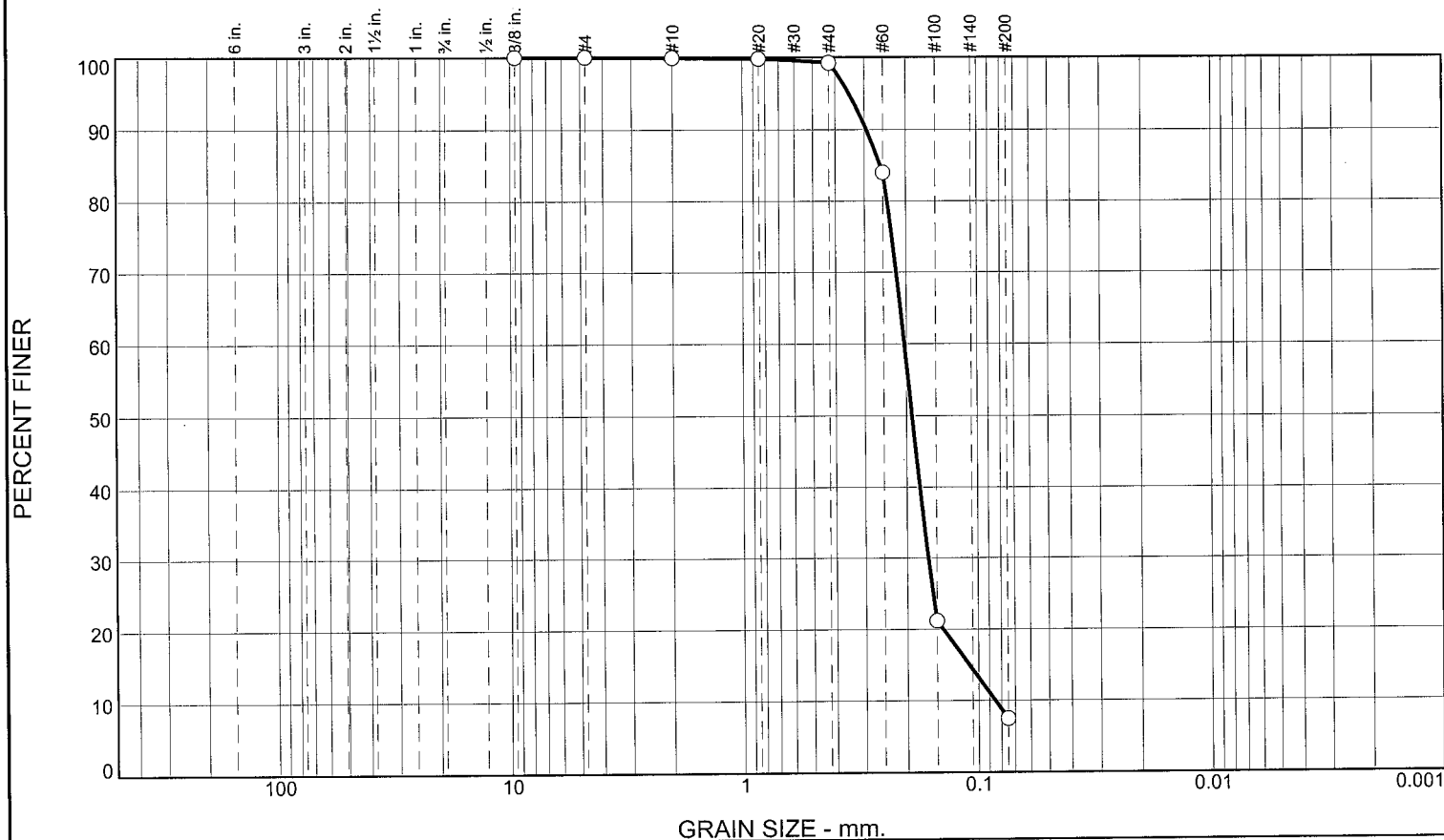
Figure

Tested By: G.Fancher

Checked By: R.Byrd



# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.0	0.1	0.7	91.7	7.5	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
.375	100.0		
#4	100.0		
#10	99.9		
#20	99.8		
#40	99.2		
#60	84.0		
#100	21.2		
#200	7.5		

\* (no specification provided)

**Material Description**  
SAND, (SP-SM), medium to fine grained

**Atterberg Limits**  
 PL=                      LL=                      PI=

**Coefficients**  
 D<sub>90</sub>= 0.2937                      D<sub>85</sub>= 0.2561                      D<sub>60</sub>= 0.2038  
 D<sub>50</sub>= 0.1895                      D<sub>30</sub>= 0.1627                      D<sub>15</sub>= 0.1096  
 D<sub>10</sub>= 0.0851                      C<sub>u</sub>= 2.40                      C<sub>c</sub>= 1.53

**Classification**  
 USCS= SP-SM                      AASHTO=

**Remarks**  
 CADD CODE = CH10D965

Location: USACE Sample # BI-SI-45-10B  
 Sample Number: TE Lab ID: 4549.20

Depth: 5.0 - 9.4 (ft.)

Date: 6/26/10

**Thompson Engineering**

**Mobile, Alabama**

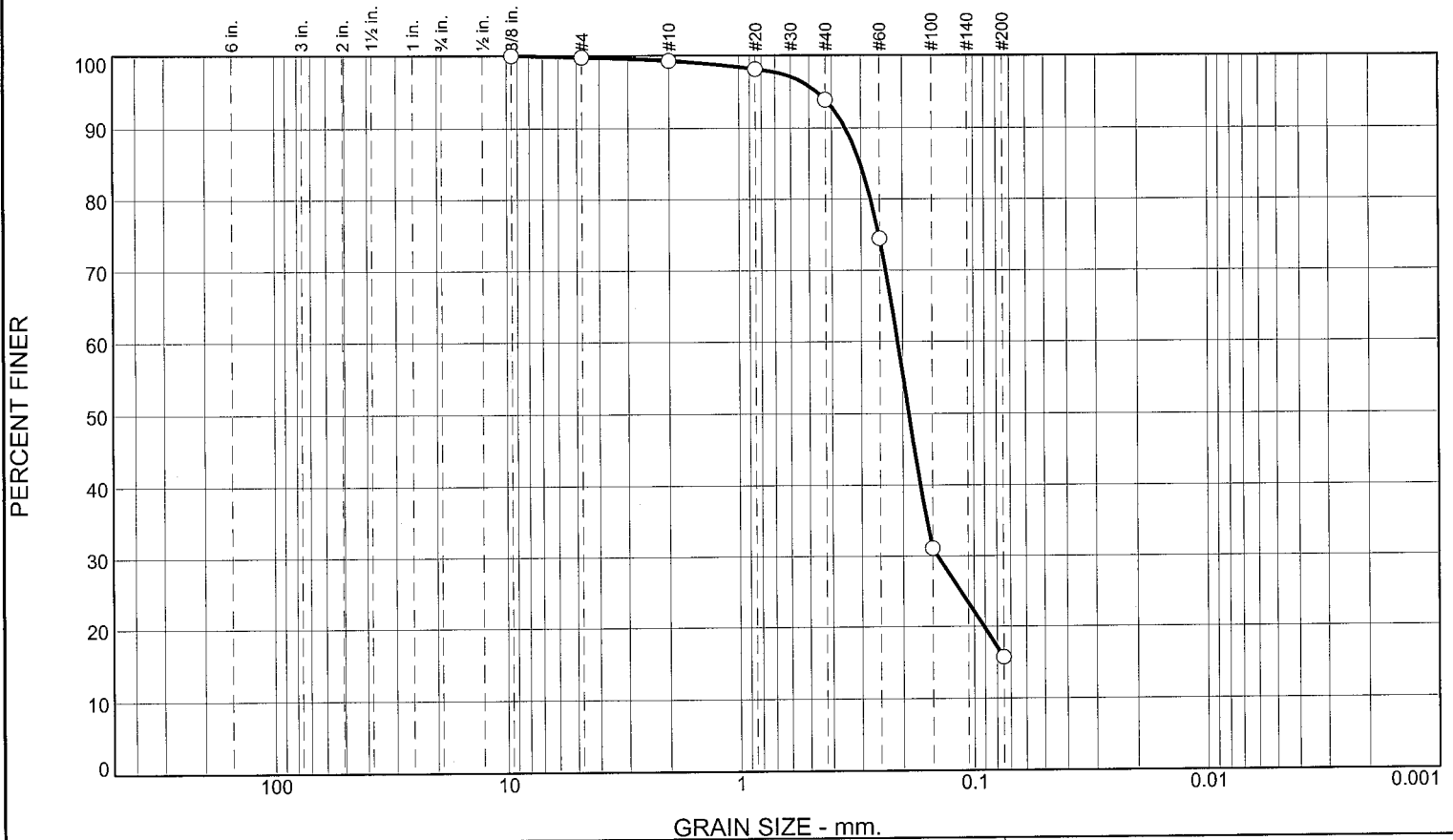
**Client:** US Army Corps of Engineers  
**Project:** Contract No. W91278-10-D-0026 - Task 03  
 Mississippi Barrier Island Restoration Project  
**Project No:** 10-2123-0009

**Figure**

Tested By: G.Fancher

Checked By: R.Byrd

# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.2	0.5	5.5	78.1	15.7	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
.375	100.0		
#4	99.8		
#10	99.3		
#20	98.1		
#40	93.8		
#60	74.5		
#100	31.1		
#200	15.7		

\* (no specification provided)

**Material Description**  
SILTY SAND, (SM), medium to fine grained

**Atterberg Limits**  
 PL=      LL=      PI=

**Coefficients**  
 D<sub>90</sub>= 0.3494      D<sub>85</sub>= 0.3016      D<sub>60</sub>= 0.2099  
 D<sub>50</sub>= 0.1884      D<sub>30</sub>= 0.1427      D<sub>15</sub>=  
 D<sub>10</sub>=      C<sub>u</sub>=      C<sub>c</sub>=

**Classification**  
 USCS= SM      AASHTO=

**Remarks**  
 CADD CODE = CH10D965

Location: USACE Sample # BI-SI-45-10C  
 Sample Number: TE Lab ID: 4549.21

Depth: 11.5 - 15.9 (ft.)

Date: 6/26/10

**Thompson Engineering**

**Mobile, Alabama**

Client: US Army Corps of Engineers  
 Project: Contract No. W91278-10-D-0026 - Task 03  
 Mississippi Barrier Island Restoration Project  
 Project No: 10-2123-0009

Figure

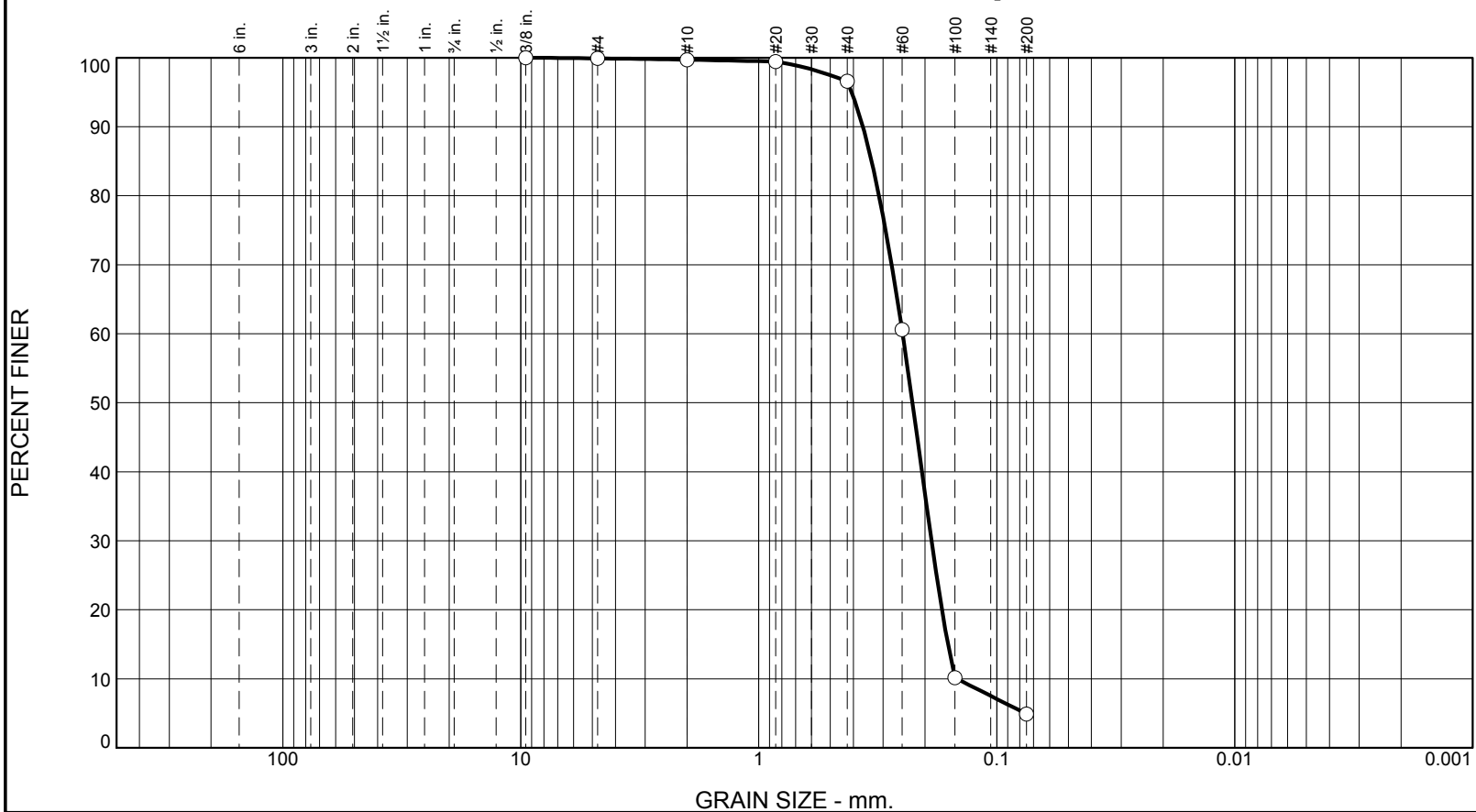
Tested By: G.Fancher

Checked By: R.Byrd

# Boring Designation BI-SI-46-10

DRILLING LOG		DIVISION South Atlantic		INSTALLATION Mobile District		SHEET 1 OF 1 SHEETS	
1. PROJECT MsCIP Barrier Island Restoration Ship Island				9. SIZE AND TYPE OF BIT N/A			
2. BORING DESIGNATION BI-SI-46-10		LOCATION COORDINATES E = 969,755 N = 255,414		10. COORDINATE SYSTEM/DATUM State Plane, MSE (U.S. Ft.)		HORIZONTAL NAD83 VERTICAL NAVD88	
3. DRILLING AGENCY Corps of Engineers - CESAM		CONTRACTOR FILE NO.		11. MANUFACTURER'S DESIGNATION OF DRILL Vibracore		<input type="checkbox"/> AUTO HAMMER <input type="checkbox"/> MANUAL HAMMER	
4. NAME OF DRILLER Construction Solutions International, Inc.				12. TOTAL SAMPLES 3		DISTURBED 3 UNDISTURBED (UD) 0	
5. DIRECTION OF BORING <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED		DEG. FROM VERTICAL		13. TOTAL NUMBER CORE BOXES			
		BEARING		14. WATER DEPTH 31 Ft.			
6. THICKNESS OF OVERBURDEN N/A				15. DATE BORING 06-14-10		STARTED 06-14-10 COMPLETED 06-14-10	
7. DEPTH DRILLED INTO ROCK N/A				16. ELEVATION TOP OF BORING -29.7 Ft.			
8. TOTAL DEPTH OF BORING 15.4 Ft.				17. TOTAL RECOVERY FOR BORING 100%			
				18. SIGNATURE AND TITLE OF INSPECTOR Marty Gates, Geologist			
ELEV.	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS	SAMPLE	LABORATORY RESULTS		
-29.7	0.0						
			SAND, poorly-graded, mostly fine to medium-grained sand-sized quartz, trace silt, trace shell fragments, lt. gray (SP)	A	Classification: SP Color: 2.5Y 7/1-light gray D50: 0.226 mm % Fines: 4.9		
				B	Classification: SP-SM Color: 2.5Y 7/1-light gray D50: 0.1903 mm % Fines: 8.1		
-41.1	11.4						
			SAND, silty, mostly fine to medium-grained sand-sized quartz, some silt, trace shell fragments, gray (SM)	C	Classification: SM Color: 2.5Y 5/2-grayish brown D50: 0.1904 mm % Fines: 16		
-45.1	15.4						
			NOTES: 1. Soils are field visually classified in accordance with the Unified Soils Classification System. 2. NS = Sample not submitted for laboratory analysis from this interval. 3. Seafloor elevation determined from USACE hydrographic survey completed 2010.				

# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.1	0.2	3.1	91.7	4.9	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
.375	100.0		
#4	99.9		
#10	99.7		
#20	99.4		
#40	96.6		
#60	60.6		
#100	10.2		
#200	4.9		

\* (no specification provided)

**Material Description**  
SAND, (SP), fine grained

**Atterberg Limits**  
 PL=      LL=      PI=

**Coefficients**  
 D<sub>90</sub>= 0.3651      D<sub>85</sub>= 0.3355      D<sub>60</sub>= 0.2485  
 D<sub>50</sub>= 0.2260      D<sub>30</sub>= 0.1879      D<sub>15</sub>= 0.1602  
 D<sub>10</sub>= 0.1470      C<sub>u</sub>= 1.69      C<sub>c</sub>= 0.97

**Classification**  
 USCS= SP      AASHTO=

**Remarks**  
 CADD CODE = CH10D965

Location: USACE Sample # BI-SI-46-10A  
 Sample Number: TE Lab ID: 4549.16

Depth: 0.0 - 5.0 (FT.)

Date: 6/26/10

**Thompson Engineering**

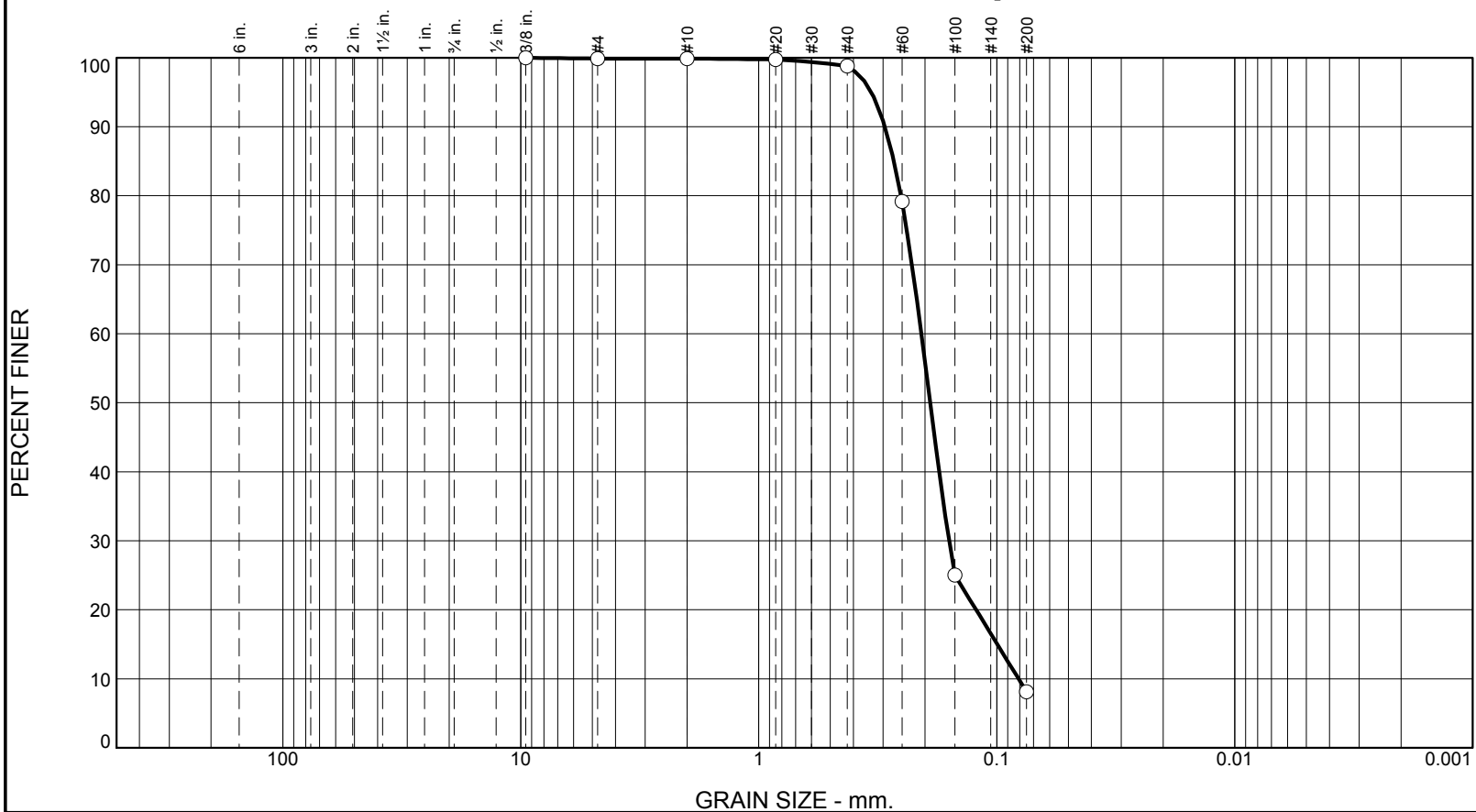
**Mobile, Alabama**

**Client:** US Army Corps of Engineers  
**Project:** Contract No. W91278-10-D-0026 - Task 03  
 Mississippi Barrier Island Restoration Project  
**Project No:** 10-2123-0009

**Figure**

Tested By: G.Fancher      Checked By: R.Byrd

# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.1	0.0	1.1	90.7	8.1	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
.375	100.0		
#4	99.9		
#10	99.9		
#20	99.7		
#40	98.8		
#60	79.2		
#100	25.0		
#200	8.1		

\* (no specification provided)

<b>Material Description</b>		
SAND, (SP-SM), medium to fine grained		
<b>Atterberg Limits</b>		
PL=	LL=	PI=
<b>Coefficients</b>		
D <sub>90</sub> = 0.2947	D <sub>85</sub> = 0.2701	D <sub>60</sub> = 0.2074
D <sub>50</sub> = 0.1903	D <sub>30</sub> = 0.1585	D <sub>15</sub> = 0.0995
D <sub>10</sub> = 0.0810	C <sub>u</sub> = 2.56	C <sub>c</sub> = 1.50
<b>Classification</b>		
USCS= SP-SM	AASHTO=	
<b>Remarks</b>		
CADD CODE = CH10D965		

Location: USACE Sample # BI-SI-46-10B  
Sample Number: TE Lab ID: 4549.17

Depth: 5.0 - 11.4 (ft.)

Date: 6/26/10

**Thompson Engineering**

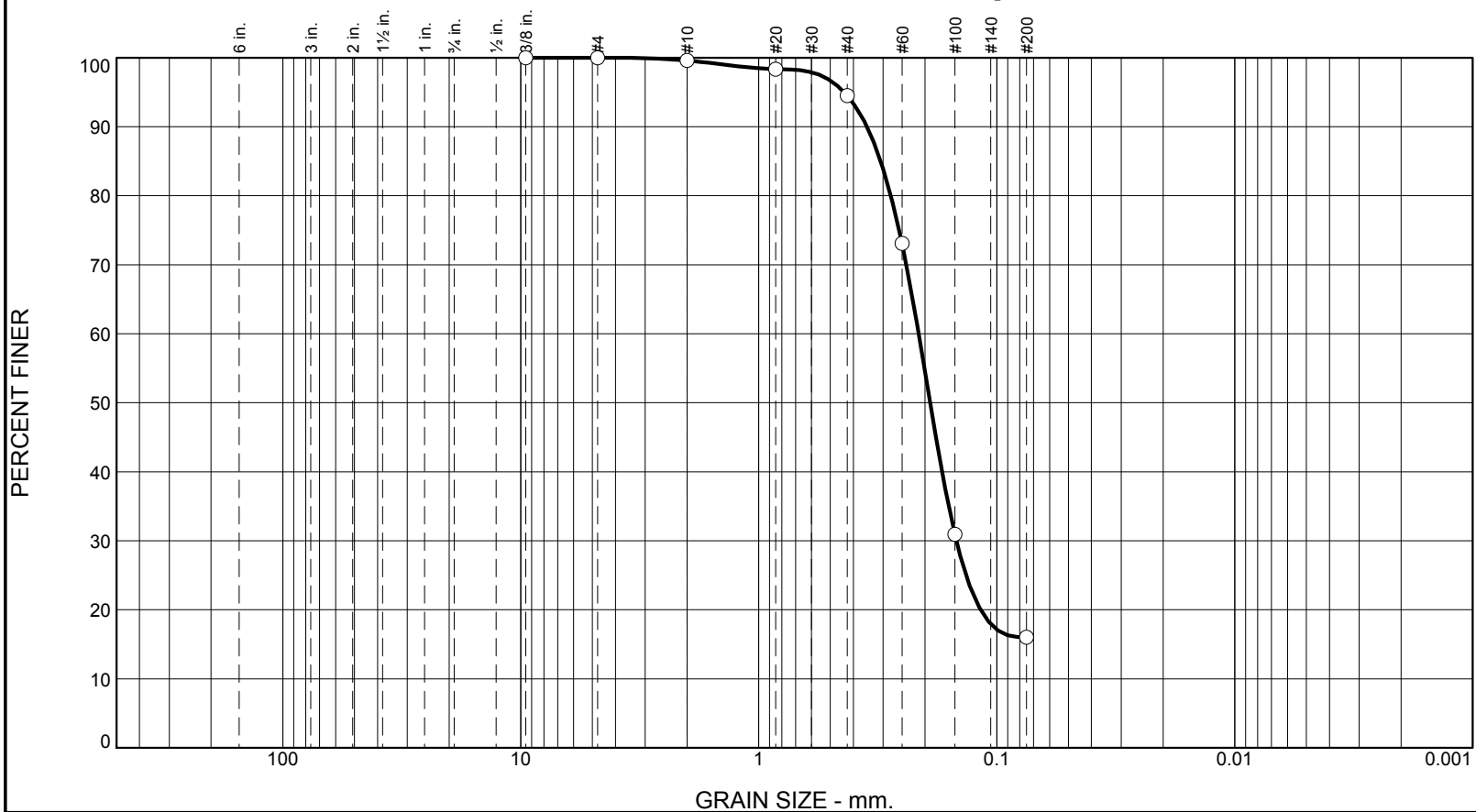
**Mobile, Alabama**

**Client:** US Army Corps of Engineers  
**Project:** Contract No. W91278-10-D-0026 - Task 03  
Mississippi Barrier Island Restoration Project  
**Project No:** 10-2123-0009

**Figure**

Tested By: G.Fancher Checked By: R.Byrd

# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.0	0.4	5.1	78.5	16.0	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
.375	100.0		
#4	100.0		
#10	99.6		
#20	98.4		
#40	94.5		
#60	73.1		
#100	30.9		
#200	16.0		

\* (no specification provided)

<b>Material Description</b>		
SILTY SAND, (SM), medium to fine grained		
<b>Atterberg Limits</b>		
PL=	LL=	PI=
<b>Coefficients</b>		
D <sub>90</sub> = 0.3509	D <sub>85</sub> = 0.3072	D <sub>60</sub> = 0.2129
D <sub>50</sub> = 0.1904	D <sub>30</sub> = 0.1478	D <sub>15</sub> =
D <sub>10</sub> =	C <sub>u</sub> =	C <sub>c</sub> =
<b>Classification</b>		
USCS= SM	AASHTO=	
<b>Remarks</b>		
CADD CODE = CH10D965		

Location: USACE Sample # BI-SI-46-10C  
Sample Number: TE Lab ID: 4549.18

Depth: 11.4 - 15.4 (ft.)

Date: 6/26/10

**Thompson Engineering**

**Mobile, Alabama**

**Client:** US Army Corps of Engineers  
**Project:** Contract No. W91278-10-D-0026 - Task 03  
Mississippi Barrier Island Restoration Project  
**Project No:** 10-2123-0009

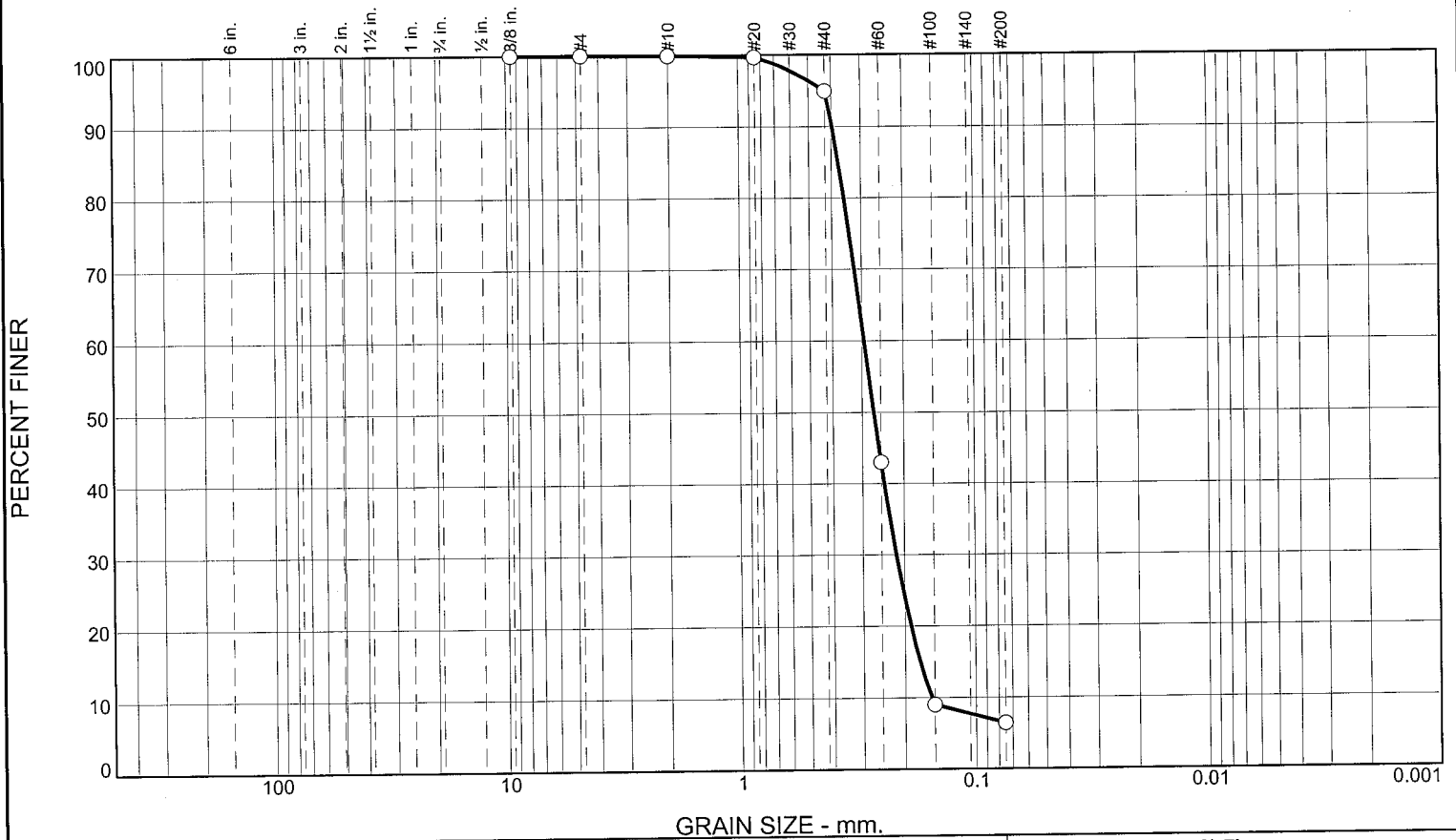
**Figure**

Tested By: G.Fancher Checked By: R.Byrd

# Boring Designation BI-SI-47-10

DRILLING LOG		DIVISION South Atlantic		INSTALLATION Mobile District		SHEET 1 OF 1 SHEETS	
1. PROJECT MsCIP Barrier Island Restoration Ship Island				9. SIZE AND TYPE OF BIT N/A			
2. BORING DESIGNATION BI-SI-47-10		LOCATION COORDINATES E = 971,919 N = 256,598		10. COORDINATE SYSTEM/DATUM State Plane, MSE (U.S. Ft.)		HORIZONTAL NAD83	
3. DRILLING AGENCY Corps of Engineers - CESAM		CONTRACTOR FILE NO.		11. MANUFACTURER'S DESIGNATION OF DRILL Vibracore		<input type="checkbox"/> AUTO HAMMER <input type="checkbox"/> MANUAL HAMMER	
4. NAME OF DRILLER Construction Solutions International, Inc.				12. TOTAL SAMPLES 2		DISTURBED 0	
5. DIRECTION OF BORING <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED		DEG. FROM VERTICAL		13. TOTAL NUMBER CORE BOXES			
		BEARING		14. WATER DEPTH 31 Ft.			
6. THICKNESS OF OVERBURDEN N/A				15. DATE BORING 06-14-10		COMPLETED 06-14-10	
7. DEPTH DRILLED INTO ROCK N/A				16. ELEVATION TOP OF BORING -30.3 Ft.			
8. TOTAL DEPTH OF BORING 15.6 Ft.				17. TOTAL RECOVERY FOR BORING 100%			
				18. SIGNATURE AND TITLE OF INSPECTOR Marty Gates, Geologist			
ELEV.	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS	SAMPLE	LABORATORY RESULTS		
-30.3	0.0						
-31.0	0.7		CLAY, lean, dark gray (CL)	NS			
			SAND, poorly-graded, mostly fine to medium-grained sand-sized quartz, trace silt, trace shell fragments, lt. gray (SP)	A	Classification: SP-SM    Color: 2.5Y 7/1-light gray D50: 0.2676 mm    % Fines: 6.4		
				B	Classification: SP-SM    Color: 2.5Y 7/1-light gray D50: 0.1967 mm    % Fines: 6.8		
-40.0	9.7		CLAY, lean, dark gray (CL)	NS			
-45.9	15.6						
			NOTES: 1. Soils are field visually classified in accordance with the Unified Soils Classification System. 2. NS = Sample not submitted for laboratory analysis from this interval. 3. Seafloor elevation determined from USACE hydrographic survey completed 2010.				

# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.0	0.1	5.0	88.5	6.4	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
.375	100.0		
#4	100.0		
#10	99.9		
#20	99.7		
#40	94.9		
#60	43.0		
#100	9.0		
#200	6.4		

\* (no specification provided)

## Material Description

SAND, (SP-SM), fine grained

PL=      **Atterberg Limits**      LL=      PI=

**Coefficients**

D <sub>90</sub> = 0.3963	D <sub>85</sub> = 0.3736	D <sub>60</sub> = 0.2935
D <sub>50</sub> = 0.2676	D <sub>30</sub> = 0.2163	D <sub>15</sub> = 0.1725
D <sub>10</sub> = 0.1542	C <sub>u</sub> = 1.90	C <sub>c</sub> = 1.03

**Classification**

USCS= SP-SM      AASHTO=

**Remarks**

CADD CODE = CH10D965

Location: USACE Sample # BI-SI-47-10A  
Sample Number: TE Lab ID: 4549.14

Depth: 0.7 - 5.0 (ft.)

Date: 6/26/10

**Thompson Engineering**

**Mobile, Alabama**

**Client:** US Army Corps of Engineers  
**Project:** Contract No. W91278-10-D-0026 - Task 03  
Mississippi Barrier Island Restoration Project  
**Project No:** 10-2123-0009

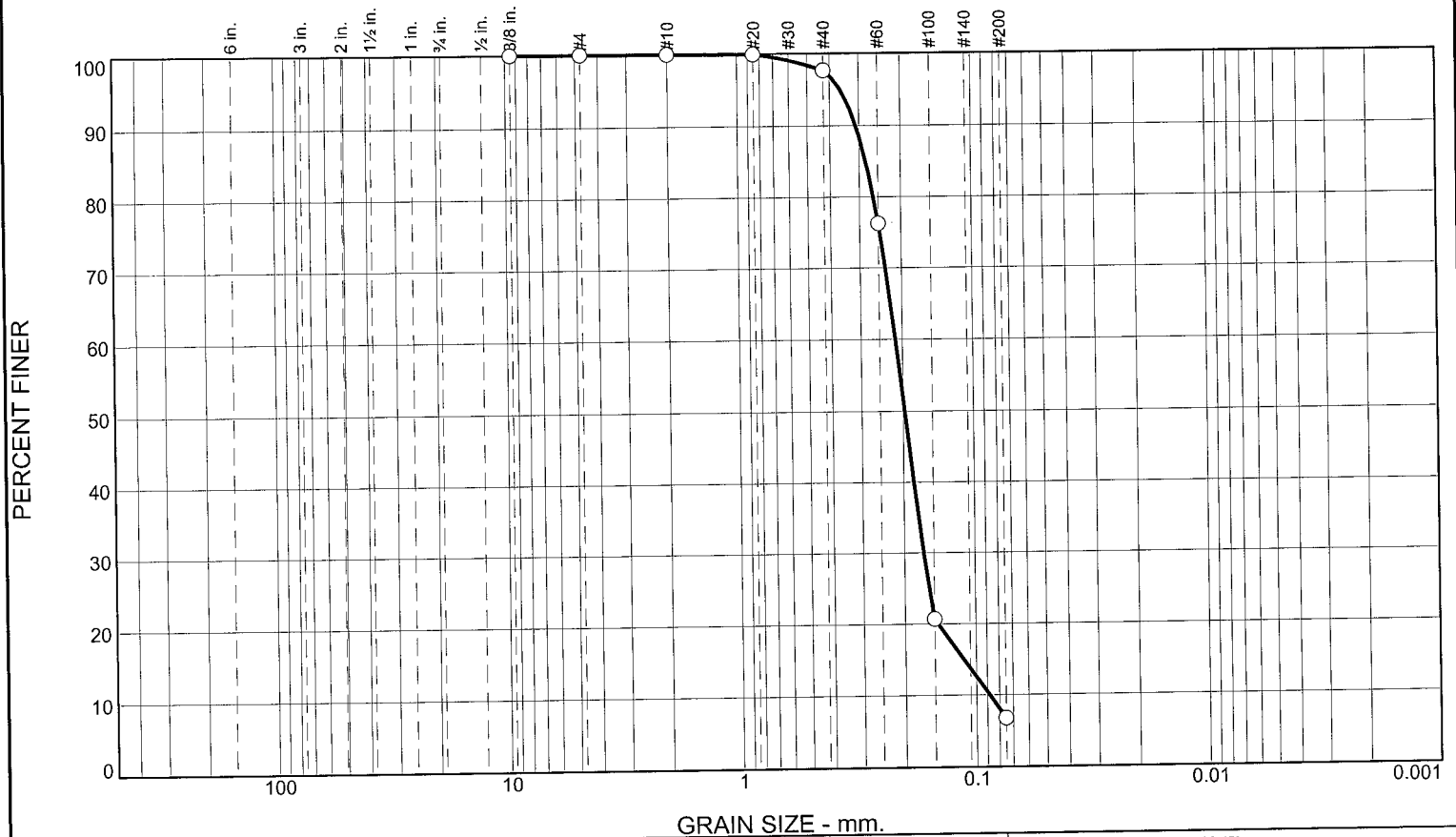
**Figure**

Tested By: G.Fancher

Checked By: R.Byrd



# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.0	0.0	2.4	90.8	6.8	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
.375	100.0		
#4	100.0		
#10	100.0		
#20	99.9		
#40	97.6		
#60	76.3		
#100	20.7		
#200	6.8		

\* (no specification provided)

## Material Description

SAND, (SP-SM), fine grained

PL=      **Atterberg Limits**      LL=      PI=

**Coefficients**

D <sub>90</sub> = 0.3093	D <sub>85</sub> = 0.2811	D <sub>60</sub> = 0.2140
D <sub>50</sub> = 0.1967	D <sub>30</sub> = 0.1654	D <sub>15</sub> = 0.1129
D <sub>10</sub> = 0.0880	C <sub>u</sub> = 2.43	C <sub>c</sub> = 1.45

**Classification**

USCS= SP-SM      AASHTO=

**Remarks**

CADD CODE = CH10D965

Location: USACE Sample # BI-SI-47-10B  
Sample Number: TE Lab ID: 4549.15

Depth: 5.0 - 9.7 (ft.)

Date: 6/26/10

**Thompson Engineering**

**Mobile, Alabama**

Client: US Army Corps of Engineers  
Project: Contract No. W91278-10-D-0026 - Task 03  
Mississippi Barrier Island Restoration Project

Project No: 10-2123-0009

Figure

Tested By: G.Fancher

Checked By: R.Byrd

# Boring Designation BI-SI-48-10

DRILLING LOG		DIVISION South Atlantic		INSTALLATION Mobile District		SHEET 1 OF 2 SHEETS	
1. PROJECT MsCIP Barrier Island Restoration Ship Island				9. SIZE AND TYPE OF BIT N/A			
2. BORING DESIGNATION BI-SI-48-10		LOCATION COORDINATES E = 963,873 N = 250,405		10. COORDINATE SYSTEM/DATUM State Plane, MSE (U.S. Ft.)		HORIZONTAL NAD83 VERTICAL NAVD88	
3. DRILLING AGENCY Corps of Engineers - CESAM		CONTRACTOR FILE NO.		11. MANUFACTURER'S DESIGNATION OF DRILL Vibrocure		<input type="checkbox"/> AUTO HAMMER <input type="checkbox"/> MANUAL HAMMER	
4. NAME OF DRILLER Construction Solutions International, Inc.				12. TOTAL SAMPLES		DISTURBED UNDISTURBED (UD) 0	
5. DIRECTION OF BORING <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED		DEG. FROM VERTICAL		BEARING		13. TOTAL NUMBER CORE BOXES	
6. THICKNESS OF OVERBURDEN N/A				14. WATER DEPTH 31 Ft.			
7. DEPTH DRILLED INTO ROCK N/A				15. DATE BORING 06-15-10		STARTED COMPLETED 06-15-10	
8. TOTAL DEPTH OF BORING 19.5 Ft.				16. ELEVATION TOP OF BORING -29.1 Ft.			
				17. TOTAL RECOVERY FOR BORING 100%			
				18. SIGNATURE AND TITLE OF INSPECTOR Marty Gates, Geologist			
ELEV.	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS	SAMPLE	LABORATORY RESULTS		
-29.1	0.0		CLAY, lean, dark gray (CL)				
-46.5	17.4			NS			
-48.6	19.5		SAND, silty, mostly fine to medium-grained sand-sized quartz, some silt, trace shell fragments, gray (SM)				
			NOTES: 1. Soils are field visually classified in accordance with the Unified Soils Classification System. 2. NS = Sample not submitted for laboratory analysis from this interval. 3. Seafloor elevation calculated using sampling vessel's fathometer water depth reading and				

<b>DRILLING LOG (Cont. Sheet)</b>			<b>INSTALLATION</b> Mobile District		<b>SHEET 2</b> <b>OF 2 SHEETS</b>
<b>PROJECT</b> MsCIP Barrier Island Restoration			<b>COORDINATE SYSTEM/DATUM</b> State Plane, MSE (U.S. Ft.)	<b>HORIZONTAL</b> NAD83	<b>VERTICAL</b> NAVD88
<b>LOCATION COORDINATES</b> X = 963,873 Y = 250,405			<b>ELEVATION TOP OF BORING</b> -29.1 Ft.		
<b>ELEV.</b>	<b>DEPTH</b>	<b>LEGEND</b>	<b>CLASSIFICATION OF MATERIALS</b>	<b>SAMPLE</b>	<b>LABORATORY RESULTS</b>
			applying NOAA tidal gauge data conversion factor.		

# Boring Designation BI-SI-49-10

DRILLING LOG		DIVISION South Atlantic		INSTALLATION Mobile District		SHEET 1 OF 2 SHEETS	
1. PROJECT MsCIP Barrier Island Restoration Ship Island				9. SIZE AND TYPE OF BIT N/A			
2. BORING DESIGNATION BI-SI-49-10		LOCATION COORDINATES E = 966,407 N = 250,276		10. COORDINATE SYSTEM/DATUM State Plane, MSE (U.S. Ft.)		HORIZONTAL NAD83	
3. DRILLING AGENCY Corps of Engineers - CESAM		CONTRACTOR FILE NO.		11. MANUFACTURER'S DESIGNATION OF DRILL Vibrocure		<input type="checkbox"/> AUTO HAMMER <input type="checkbox"/> MANUAL HAMMER	
4. NAME OF DRILLER Construction Solutions International, Inc.				12. TOTAL SAMPLES		DISTURBED 0	
5. DIRECTION OF BORING <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED				13. TOTAL NUMBER CORE BOXES		UNDISTURBED (UD) 0	
6. THICKNESS OF OVERBURDEN N/A				14. WATER DEPTH 32 Ft.		15. DATE BORING 06-15-10	
7. DEPTH DRILLED INTO ROCK N/A				16. ELEVATION TOP OF BORING -29.9 Ft.		COMPLETED 06-15-10	
8. TOTAL DEPTH OF BORING 19.5 Ft.				17. TOTAL RECOVERY FOR BORING 100%		18. SIGNATURE AND TITLE OF INSPECTOR Marty Gates, Geologist	
ELEV.	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS	SAMPLE	LABORATORY RESULTS		
-29.9	0.0		CLAY, lean, dark gray (CL)	NS			
-47.2	17.3						
-49.4	19.5		SAND, silty, mostly fine to medium-grained sand-sized quartz, some silt, trace shell fragments, gray (SM)				
			NOTES: 1. Soils are field visually classified in accordance with the Unified Soils Classification System. 2. NS = Sample not submitted for laboratory analysis from this interval. 3. Seafloor elevation calculated using sampling vessel's fathometer water depth reading and				

<b>DRILLING LOG (Cont. Sheet)</b>			<b>INSTALLATION</b> Mobile District		<b>SHEET 2</b> <b>OF 2 SHEETS</b>
<b>PROJECT</b> MsCIP Barrier Island Restoration			<b>COORDINATE SYSTEM/DATUM</b> State Plane, MSE (U.S. Ft.)	<b>HORIZONTAL</b> NAD83	<b>VERTICAL</b> NAVD88
<b>LOCATION COORDINATES</b> X = 966,407 Y = 250,276			<b>ELEVATION TOP OF BORING</b> -29.9 Ft.		
<b>ELEV.</b>	<b>DEPTH</b>	<b>LEGEND</b>	<b>CLASSIFICATION OF MATERIALS</b>	<b>SAMPLE</b>	<b>LABORATORY RESULTS</b>
			applying NOAA tidal gauge data conversion factor.		

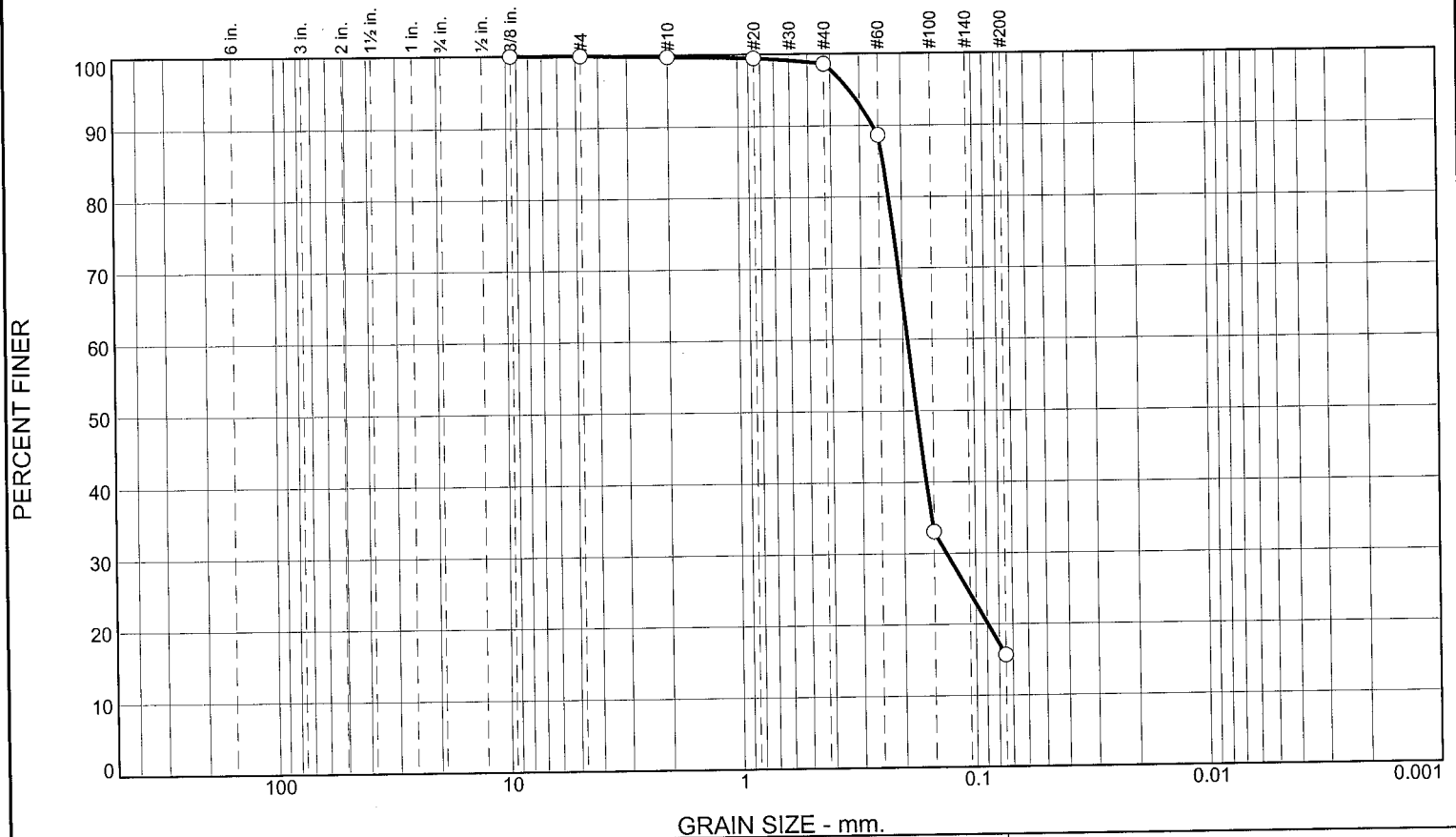
# Boring Designation BI-SI-50-10

DRILLING LOG		DIVISION South Atlantic		INSTALLATION Mobile District		SHEET 1 OF 1 SHEETS	
1. PROJECT MsCIP Barrier Island Restoration Ship Island				9. SIZE AND TYPE OF BIT N/A			
2. BORING DESIGNATION BI-SI-50-10		LOCATION COORDINATES E = 968,360 N = 251,443		10. COORDINATE SYSTEM/DATUM State Plane, MSE (U.S. Ft.)		HORIZONTAL NAD83 VERTICAL NAVD88	
3. DRILLING AGENCY Corps of Engineers - CESAM		CONTRACTOR FILE NO.		11. MANUFACTURER'S DESIGNATION OF DRILL Vibrocure		<input type="checkbox"/> AUTO HAMMER <input type="checkbox"/> MANUAL HAMMER	
4. NAME OF DRILLER Construction Solutions International, Inc.				12. TOTAL SAMPLES		DISTURBED 1 UNDISTURBED (UD) 0	
5. DIRECTION OF BORING <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED		DEG. FROM VERTICAL		13. TOTAL NUMBER CORE BOXES			
		BEARING		14. WATER DEPTH 32 Ft.			
6. THICKNESS OF OVERBURDEN N/A				15. DATE BORING		STARTED 06-15-10 COMPLETED 06-15-10	
7. DEPTH DRILLED INTO ROCK N/A				16. ELEVATION TOP OF BORING -29.8 Ft.			
8. TOTAL DEPTH OF BORING 16.9 Ft.				17. TOTAL RECOVERY FOR BORING 100%			
				18. SIGNATURE AND TITLE OF INSPECTOR Marty Gates, Geologist			

ELEV.	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS	SAMPLE	LABORATORY RESULTS
-29.8	0.0				
			CLAY, lean, dark gray (CL)	NS	
-33.5	3.7				
			SAND, silty, mostly fine to medium-grained sand-sized quartz, some silt, trace shell fragments, gray (SM)	A	Classification: SM Color: 2.5Y 6/2-light brownish gray D50: 0.1757 mm % Fines: 15.7
-39.6	9.8				
			CLAY, lean, dark gray (CL)	NS	
-43.8	14.0				
			SAND, silty, mostly fine to medium-grained sand-sized quartz, some silt, trace shell fragments, gray (SM)		
-46.7	16.9		At El. -45.8 Ft., mostly medium-grained sand-sized quartz, some silt, trace shell fragments, brown		
			NOTES: 1. Soils are field visually classified in accordance with the Unified Soils Classification System. 2. NS = Sample not submitted for laboratory analysis from this interval. 3. Seafloor elevation calculated using sampling vessel's fathometer water depth reading and applying NOAA tidal gauge data conversion factor.		

# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.0	0.3	1.1	82.9	15.7	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
.375	100.0		
#4	100.0		
#10	99.7		
#20	99.5		
#40	98.6		
#60	88.7		
#100	33.1		
#200	15.7		

\* (no specification provided)

**Material Description**  
SILTY SAND, (SM), medium to fine grained

**Atterberg Limits**  
 PL=      LL=      PI=

**Coefficients**  
 D<sub>90</sub>= 0.2635      D<sub>85</sub>= 0.2392      D<sub>60</sub>= 0.1908  
 D<sub>50</sub>= 0.1757      D<sub>30</sub>= 0.1327      D<sub>15</sub>=  
 D<sub>10</sub>=      C<sub>u</sub>=      C<sub>c</sub>=

**Classification**  
 USCS= SM      AASHTO=

**Remarks**  
 CADD CODE = CH10D965

Location: USACE Sample # BI-SI-50-10A  
 Sample Number: TE Lab ID: 4549.25

Depth: 3.7 - 9.8 (ft.)

Date: 6/26/10

**Thompson Engineering**

**Mobile, Alabama**

Client: US Army Corps of Engineers  
 Project: Contract No. W91278-10-D-0026 - Task 03  
 Mississippi Barrier Island Restoration Project  
 Project No: 10-2123-0009

Figure

Tested By: G.Fancher

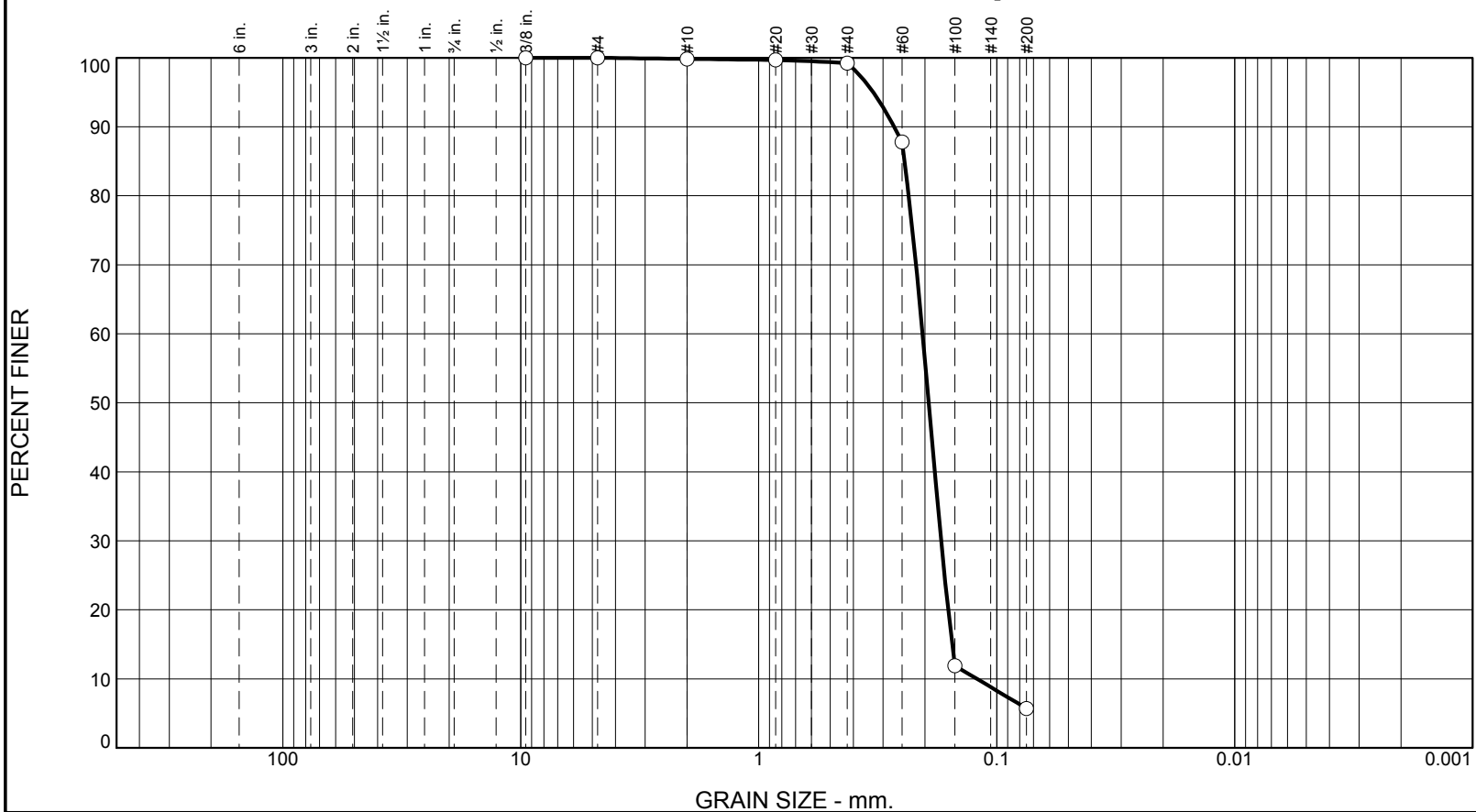
Checked By: R.Byrd

# Boring Designation BI-SI-51-10

DRILLING LOG		DIVISION South Atlantic		INSTALLATION Mobile District		SHEET 1 OF 1 SHEETS	
1. PROJECT MsCIP Barrier Island Restoration Ship Island				9. SIZE AND TYPE OF BIT N/A			
2. BORING DESIGNATION BI-SI-51-10		LOCATION COORDINATES E = 972,973 N = 254,780		10. COORDINATE SYSTEM/DATUM State Plane, MSE (U.S. Ft.)		HORIZONTAL NAD83 VERTICAL NAVD88	
3. DRILLING AGENCY Corps of Engineers - CESAM		CONTRACTOR FILE NO.		11. MANUFACTURER'S DESIGNATION OF DRILL Vibrocure		<input type="checkbox"/> AUTO HAMMER <input type="checkbox"/> MANUAL HAMMER	
4. NAME OF DRILLER Construction Solutions International, Inc.				12. TOTAL SAMPLES 2		DISTURBED 2 UNDISTURBED (UD) 0	
5. DIRECTION OF BORING <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED		DEG. FROM VERTICAL		13. TOTAL NUMBER CORE BOXES			
		BEARING		14. WATER DEPTH 33 Ft.			
6. THICKNESS OF OVERBURDEN N/A				15. DATE BORING 06-15-10		STARTED 06-15-10 COMPLETED 06-15-10	
7. DEPTH DRILLED INTO ROCK N/A				16. ELEVATION TOP OF BORING -30.8 Ft.			
8. TOTAL DEPTH OF BORING 18.2 Ft.				17. TOTAL RECOVERY FOR BORING 100%			
				18. SIGNATURE AND TITLE OF INSPECTOR Marty Gates, Geologist			
ELEV.	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS	SAMPLE	LABORATORY RESULTS		
-30.8	0.0						
-32.6	1.8		CLAY, lean, dark gray (CL)	NS			
			SAND, silty, mostly fine to medium-grained sand-sized quartz, some silt, trace shell fragments, lt. gray (SM)	A	Classification: SP-SM Color: 2.5Y 6/2-light brownish gray D50: 0.1931 mm % Fines: 5.7		
				B	Classification: SM Color: 2.5Y 6/2-light brownish gray D50: 0.174 mm % Fines: 15.5		
-41.2	10.4		CLAY, lean, dark gray (CL)	NS			
-47.0	16.2						
-49.0	18.2		SAND, silty, mostly fine to medium-grained sand-sized quartz, some silt, trace shell fragments, brown (SM)				
			NOTES: 1. Soils are field visually classified in accordance with the Unified Soils Classification System. 2. NS = Sample not submitted for laboratory analysis from this interval. 3. Seafloor elevation calculated using sampling vessel's fathometer water depth reading and applying NOAA tidal gauge data conversion factor.				



# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.0	0.2	0.6	93.5	5.7	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
.375	100.0		
#4	100.0		
#10	99.8		
#20	99.7		
#40	99.2		
#60	87.8		
#100	11.9		
#200	5.7		

\* (no specification provided)

**Material Description**  
 SAND, (SP-SM), fine grained

**Atterberg Limits**  
 PL=                      LL=                      PI=

**Coefficients**  
 D<sub>90</sub>= 0.2694                      D<sub>85</sub>= 0.2437                      D<sub>60</sub>= 0.2050  
 D<sub>50</sub>= 0.1931                      D<sub>30</sub>= 0.1710                      D<sub>15</sub>= 0.1539  
 D<sub>10</sub>= 0.1212                      C<sub>u</sub>= 1.69                      C<sub>c</sub>= 1.18

**Classification**  
 USCS= SP-SM                      AASHTO=

**Remarks**  
 CADD CODE = CH10D965

Location: USACE Sample # BI-SI-51-10A  
 Sample Number: TE Lab ID: 4549.26

Depth: 1.8 - 5.0 (ft.)

Date: 6/26/10

**Thompson Engineering**

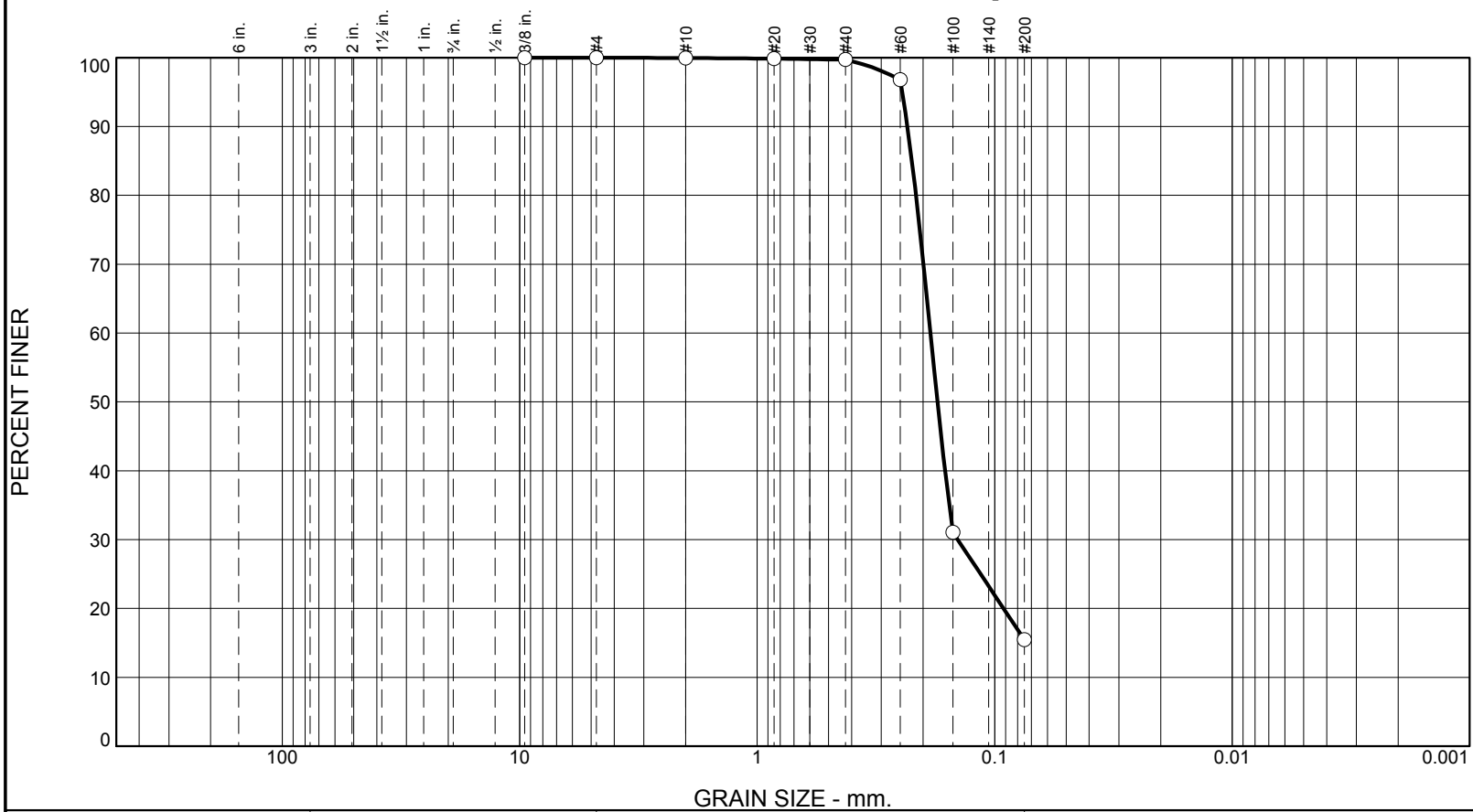
**Mobile, Alabama**

**Client:** US Army Corps of Engineers  
**Project:** Contract No. W91278-10-D-0026 - Task 03  
 Mississippi Barrier Island Restoration Project  
**Project No:** 10-2123-0009

**Figure**

Tested By: G.Fancher                      Checked By: R.Byrd

# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.0	0.1	0.2	84.2	15.5	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
.375	100.0		
#4	100.0		
#10	99.9		
#20	99.9		
#40	99.7		
#60	96.8		
#100	31.1		
#200	15.5		

\* (no specification provided)

Material Description		
SILTY SAND, (SM), fine grained, with clay pockets		
<div> <div> Atterberg Limits </div> <div> PL= </div> <div> LL= </div> <div> PI= </div> </div>		
<div> <div> Coefficients </div> <div> D<sub>90</sub>= 0.2328 </div> <div> D<sub>50</sub>= 0.1740 </div> <div> D<sub>10</sub>= </div> <div> D<sub>85</sub>= 0.2230 </div> <div> D<sub>30</sub>= 0.1431 </div> <div> C<sub>u</sub>= </div> <div> D<sub>60</sub>= 0.1864 </div> <div> D<sub>15</sub>= </div> <div> C<sub>c</sub>= </div> </div>		
<div> <div> Classification </div> <div> USCS= SM </div> <div> AASHTO= </div> </div>		
<div> <div> Remarks </div> <div> CADD CODE = CH10D965 </div> </div>		

Location: USACE Sample # BI-SI-51-10B  
Sample Number: TE Lab ID: 4549.27

Depth: 5.0 - 10.4 (ft.)

Date: 6/26/10

**Thompson Engineering**

**Mobile, Alabama**

**Client:** US Army Corps of Engineers  
**Project:** Contract No. W91278-10-D-0026 - Task 03  
Mississippi Barrier Island Restoration Project  
**Project No:** 10-2123-0009

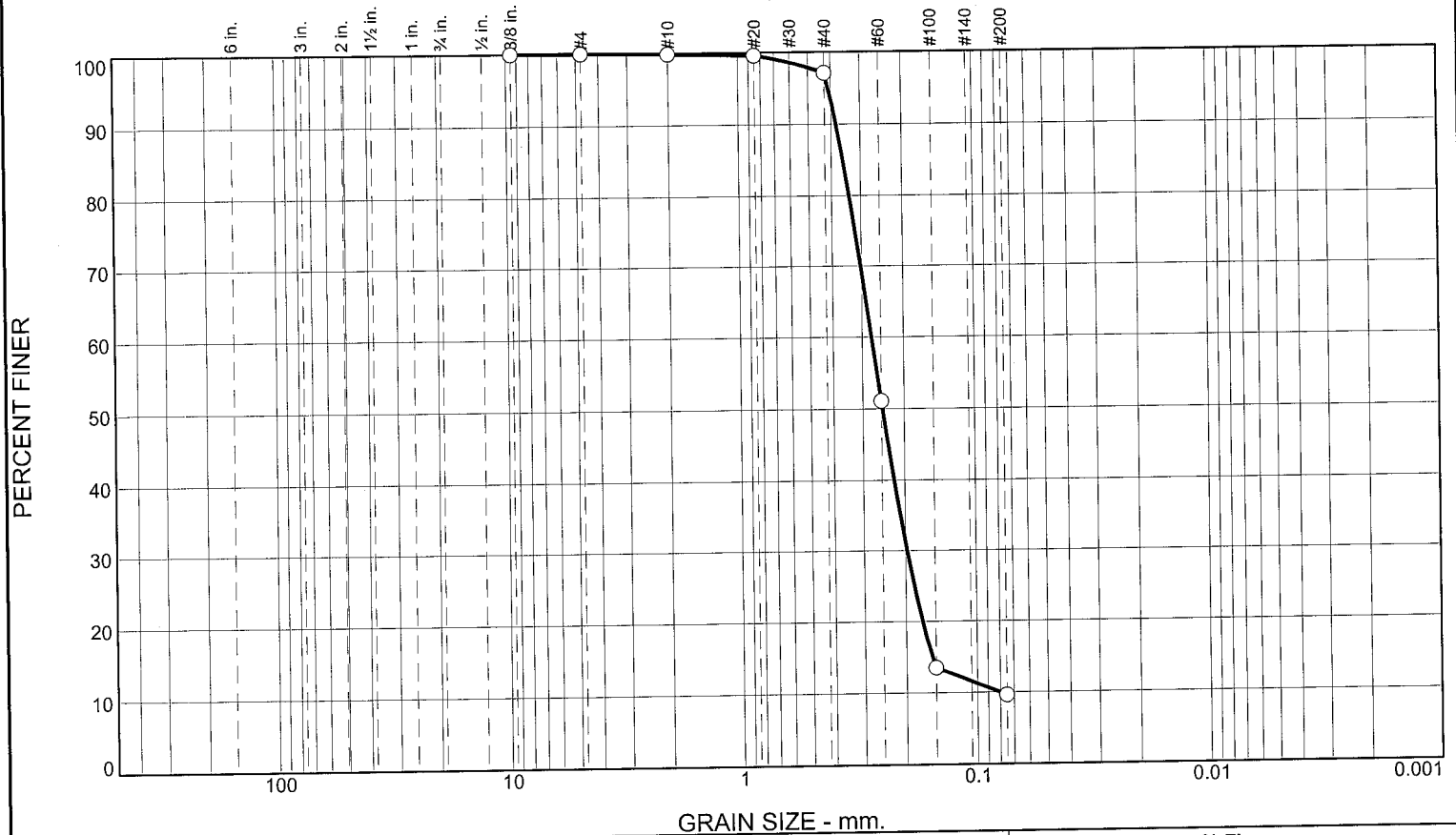
**Figure**

Tested By: G.Fancher Checked By: R.Byrd

# Boring Designation BI-SI-62-10

DRILLING LOG		DIVISION South Atlantic		INSTALLATION Mobile District		SHEET 1 OF 1 SHEETS	
1. PROJECT MsCIP Barrier Island Restoration Ship Island				9. SIZE AND TYPE OF BIT N/A			
2. BORING DESIGNATION BI-SI-62-10		LOCATION COORDINATES E = 972,401 N = 263,243		10. COORDINATE SYSTEM/DATUM State Plane, MSE (U.S. Ft.)		HORIZONTAL NAD83 VERTICAL NAVD88	
3. DRILLING AGENCY Corps of Engineers - CESAM		CONTRACTOR FILE NO.		11. MANUFACTURER'S DESIGNATION OF DRILL Vibracore		<input type="checkbox"/> AUTO HAMMER <input type="checkbox"/> MANUAL HAMMER	
4. NAME OF DRILLER Construction Solutions International, Inc.				12. TOTAL SAMPLES 3		DISTURBED 3 UNDISTURBED (UD) 0	
5. DIRECTION OF BORING <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED		DEG. FROM VERTICAL		13. TOTAL NUMBER CORE BOXES			
		BEARING		14. WATER DEPTH 24 Ft.			
6. THICKNESS OF OVERBURDEN N/A				15. DATE BORING 06-16-10		STARTED 06-16-10 COMPLETED 06-16-10	
7. DEPTH DRILLED INTO ROCK N/A				16. ELEVATION TOP OF BORING -22.3 Ft.			
8. TOTAL DEPTH OF BORING 12.6 Ft.				17. TOTAL RECOVERY FOR BORING 100%			
				18. SIGNATURE AND TITLE OF INSPECTOR Brad Johnson, Geologist			
ELEV.	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS	SAMPLE	LABORATORY RESULTS		
-22.3	0.0						
-24.3	2.0		SAND, silty, mostly fine-grained sand-sized quartz, some silt, lt. gray (SM)	A	Classification: SP-SM Color: 2.5Y 6/2-light brownish gray D50: 0.2472 mm % Fines: 9.6		
			SAND, poorly-graded, mostly fine to medium-grained sand-sized quartz, lt. gray (SP)	B	Classification: SP-SM Color: 2.5Y 7/1-light gray D50: 0.2734 mm % Fines: 5.2		
				C	Classification: SP Color: 2.5Y 8/1-white D50: 0.2996 mm % Fines: 3.7		
-34.9	12.6						
			NOTES: 1. Soils are field visually classified in accordance with the Unified Soils Classification System. 2. NS = Sample not submitted for laboratory analysis from this interval. 3. Seafloor elevation calculated using sampling vessel's fathometer water depth reading and applying NOAA tidal gauge data conversion factor.				

# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.0	0.2	2.7	87.5	9.6	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
.375	100.0		
#4	100.0		
#10	99.8		
#20	99.6		
#40	97.1		
#60	51.1		
#100	13.5		
#200	9.6		

\* (no specification provided)

Location: USACE Sample # BI-SI-62-10A  
Sample Number: TE Lab ID: 4549.36

Depth: 0.0 - 2.0 (ft.)

Date: 6/26/10

**Thompson Engineering**

**Mobile, Alabama**

Client: US Army Corps of Engineers

Project: Contract No. W91278-10-D-0026 - Task 03  
Mississippi Barrier Island Restoration Project

Project No: 10-2123-0009

Figure

## Material Description

SAND, (SP-SM), fine grained

## Atterberg Limits

PL=

LL=

PI=

## Coefficients

D<sub>90</sub>= 0.3797

D<sub>85</sub>= 0.3563

D<sub>60</sub>= 0.2736

D<sub>50</sub>= 0.2472

D<sub>30</sub>= 0.1968

D<sub>15</sub>= 0.1552

D<sub>10</sub>= 0.0804

C<sub>u</sub>= 3.41

C<sub>c</sub>= 1.76

## Classification

USCS= SP-SM

AASHTO=

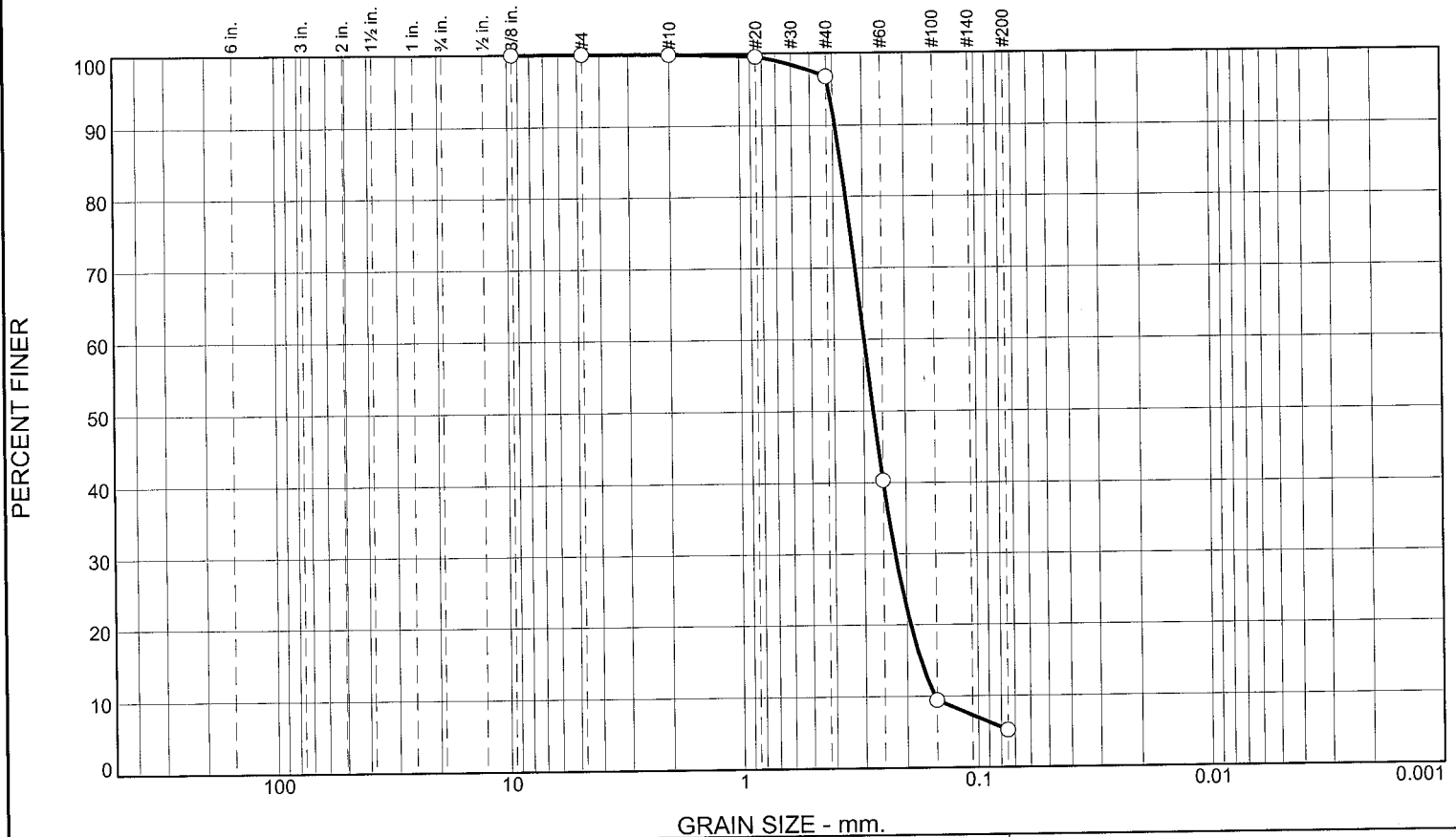
## Remarks

CADD CODE = CH10D965

Tested By: G.Fancher

Checked By: R.Byrd

# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.0	0.1	3.1	91.6	5.2	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
.375	100.0		
#4	100.0		
#10	99.9		
#20	99.5		
#40	96.8		
#60	40.4		
#100	9.4		
#200	5.2		

\* (no specification provided)

**Material Description**  
SAND, (SP-SM), fine grained

**Atterberg Limits**  
 PL=      LL=      PI=

**Coefficients**  
 D<sub>90</sub>= 0.3905      D<sub>85</sub>= 0.3708      D<sub>60</sub>= 0.2978  
 D<sub>50</sub>= 0.2734      D<sub>30</sub>= 0.2228      D<sub>15</sub>= 0.1748  
 D<sub>10</sub>= 0.1529      C<sub>u</sub>= 1.95      C<sub>c</sub>= 1.09

**Classification**  
 USCS= SP-SM      AASHTO=

**Remarks**  
 CADD CODE = CH10D965

Location: USACE Sample # BI-SI-62-10B  
 Sample Number: TE Lab ID: 4549.37

Depth: 2.0 - 7.0 (ft.)

Date: 6/26/10

**Thompson Engineering**

**Mobile, Alabama**

Client: US Army Corps of Engineers

Project: Contract No. W91278-10-D-0026 - Task 03  
 Mississippi Barrier Island Restoration Project

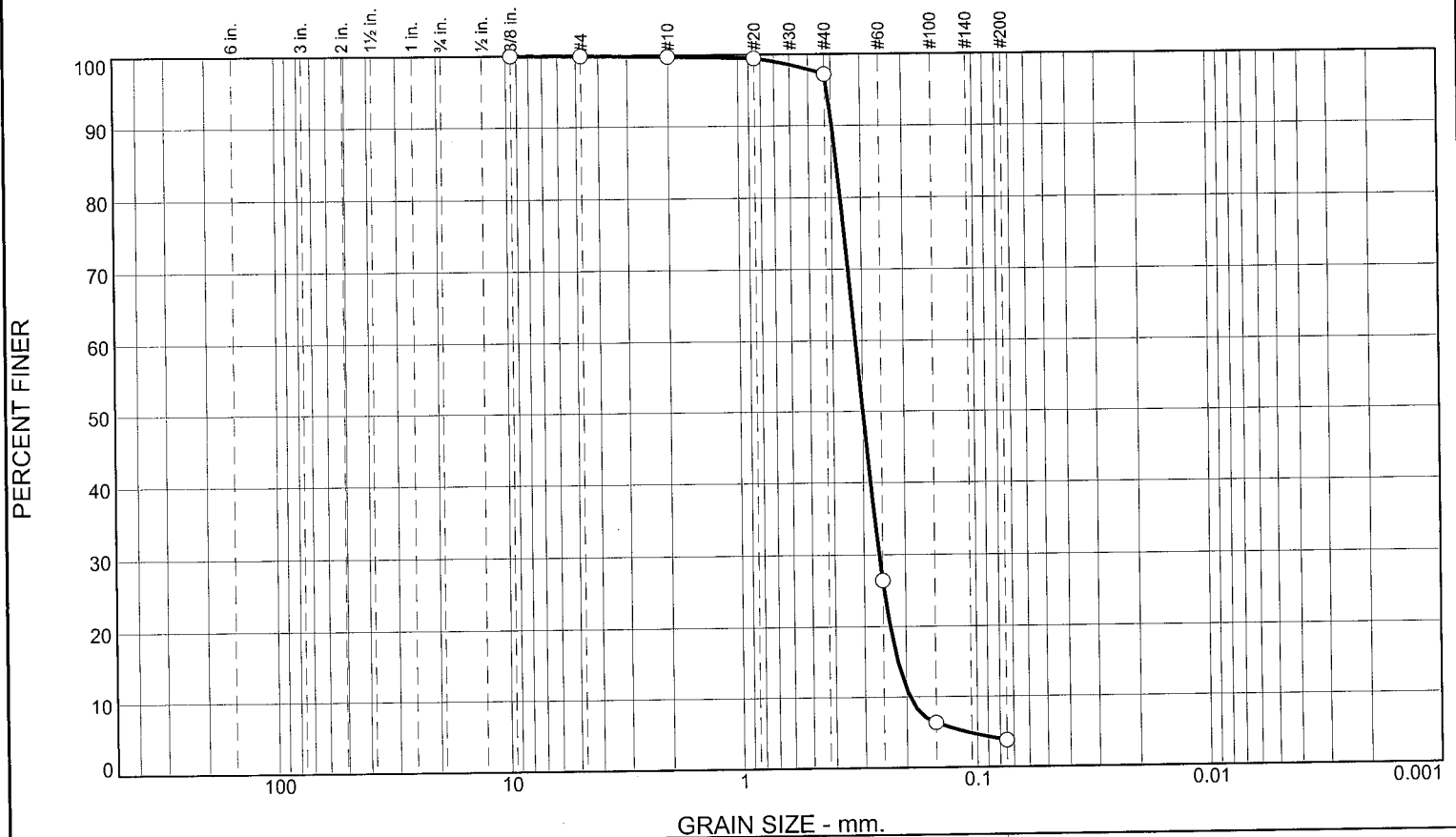
Project No: 10-2123-0009

Figure

Tested By: G.Fancher

Checked By: R.Byrd

# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.1	0.1	2.6	93.5	3.7	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
.375	100.0		
#4	99.9		
#10	99.8		
#20	99.5		
#40	97.2		
#60	26.4		
#100	6.3		
#200	3.7		

\* (no specification provided)

**Material Description**  
SAND, (SP), fine grained

**Atterberg Limits**  
 PL=      LL=      PI=

**Coefficients**  
 D<sub>90</sub>= 0.3967      D<sub>85</sub>= 0.3809      D<sub>60</sub>= 0.3202  
 D<sub>50</sub>= 0.2996      D<sub>30</sub>= 0.2583      D<sub>15</sub>= 0.2167  
 D<sub>10</sub>= 0.1933      C<sub>u</sub>= 1.66      C<sub>c</sub>= 1.08

**Classification**  
 USCS= SP      AASHTO=

**Remarks**  
 CADD CODE = CH10D965

Location: USACE Sample # BI-SI-62-10C  
 Sample Number: TE Lab ID: 4549.38

Depth: 7.0 - 12.6 (ft.)

Date: 6/26/10

**Thompson Engineering**

**Mobile, Alabama**

Client: US Army Corps of Engineers  
 Project: Contract No. W91278-10-D-0026 - Task 03  
 Mississippi Barrier Island Restoration Project  
 Project No: 10-2123-0009

Figure

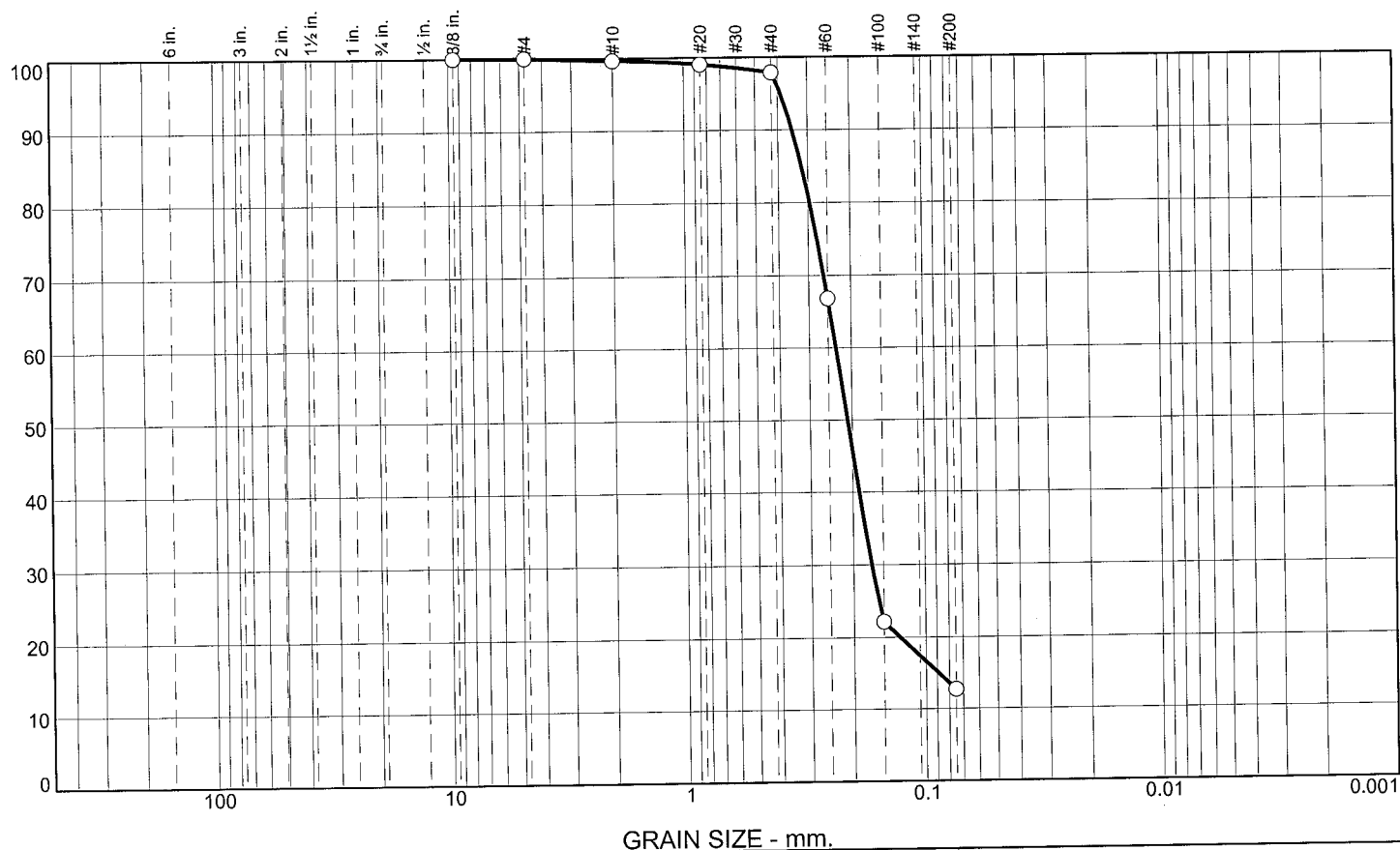
Tested By: G.Fancher

Checked By: R.Byrd

# Boring Designation BI-SI-65-10

DRILLING LOG		DIVISION South Atlantic		INSTALLATION Mobile District		SHEET 1 OF 1 SHEETS	
1. PROJECT MsCIP Barrier Island Restoration Ship Island				9. SIZE AND TYPE OF BIT N/A			
2. BORING DESIGNATION BI-SI-65-10		LOCATION COORDINATES E = 953,572 N = 252,758		10. COORDINATE SYSTEM/DATUM State Plane, MSE (U.S. Ft.)		HORIZONTAL NAD83 VERTICAL NAVD88	
3. DRILLING AGENCY Corps of Engineers - CESAM		CONTRACTOR FILE NO.		11. MANUFACTURER'S DESIGNATION OF DRILL Vibracore		<input type="checkbox"/> AUTO HAMMER <input type="checkbox"/> MANUAL HAMMER	
4. NAME OF DRILLER Construction Solutions International, Inc.				12. TOTAL SAMPLES 1		DISTURBED 1 UNDISTURBED (UD) 0	
5. DIRECTION OF BORING <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED		DEG. FROM VERTICAL		13. TOTAL NUMBER CORE BOXES			
		BEARING		14. WATER DEPTH 21 Ft.			
6. THICKNESS OF OVERBURDEN N/A				15. DATE BORING 06-17-10		STARTED 06-17-10 COMPLETED 06-17-10	
7. DEPTH DRILLED INTO ROCK N/A				16. ELEVATION TOP OF BORING -20.0 Ft.			
8. TOTAL DEPTH OF BORING 10.9 Ft.				17. TOTAL RECOVERY FOR BORING 100%			
				18. SIGNATURE AND TITLE OF INSPECTOR Brad Johnson, Geologist			
ELEV.	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS	SAMPLE	LABORATORY RESULTS		
-20.0	0.0						
			SAND, silty, mostly fine-grained sand-sized quartz, some silt, trace shell fragments, gray (SM)	A	Classification: SM Color: 2.5Y 5/2-grayish brown D50: 0.2089 mm % Fines: 12.7		
-26.1	6.1						
			CLAY, lean, some silt, dark gray (CL)	NS			
-30.9	10.9						
			NOTES: 1. Soils are field visually classified in accordance with the Unified Soils Classification System. 2. NS = Sample not submitted for laboratory analysis from this interval. 3. Seafloor elevation calculated using sampling vessel's fathometer water depth reading and applying NOAA tidal gauge data conversion factor.				

**PERCENT FINER**



GRAIN SIZE - mm.							
% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.0	0.4	1.7	85.2	12.7	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
.375	100.0		
#4	100.0		
#10	99.6		
#20	99.1		
#40	97.9		
#60	66.8		
#100	22.1		
#200	12.7		

\* (no specification provided)

### Material Description

SILTY SAND, (SM), medium to fine grained, with clay nodules

PL= Atterberg Limits PI=

	<b>Coefficients</b>	
D <sub>90</sub> = 0.3481	D <sub>85</sub> = 0.3187	D <sub>60</sub> = 0.2319
D <sub>50</sub> = 0.2089	D <sub>30</sub> = 0.1675	D <sub>15</sub> = 0.0889
D <sub>10</sub> =	C <sub>u</sub> =	C <sub>c</sub> =

USCS= SM                      Classification  
AASHTO=

### Remarks

CADD CODE = CH10D965

**Location:** USACE Sample # BI-SI-65-10A  
**Sample Number:** TE Lab ID: 4549.39

**Depth:** 0.0 - 6.1 (ft.)

**Date:** 6/26/10

## Thompson Engineering

## Mobile, Alabama

**Client:** US Army Corps of Engineers

**Project:** Contract No. W91278-10-D-0026 - Task 03  
Mississippi Barrier Island Restoration Project

**Project No:** 10-2123-0009

### Figure

**Tested By:** G.Fancher

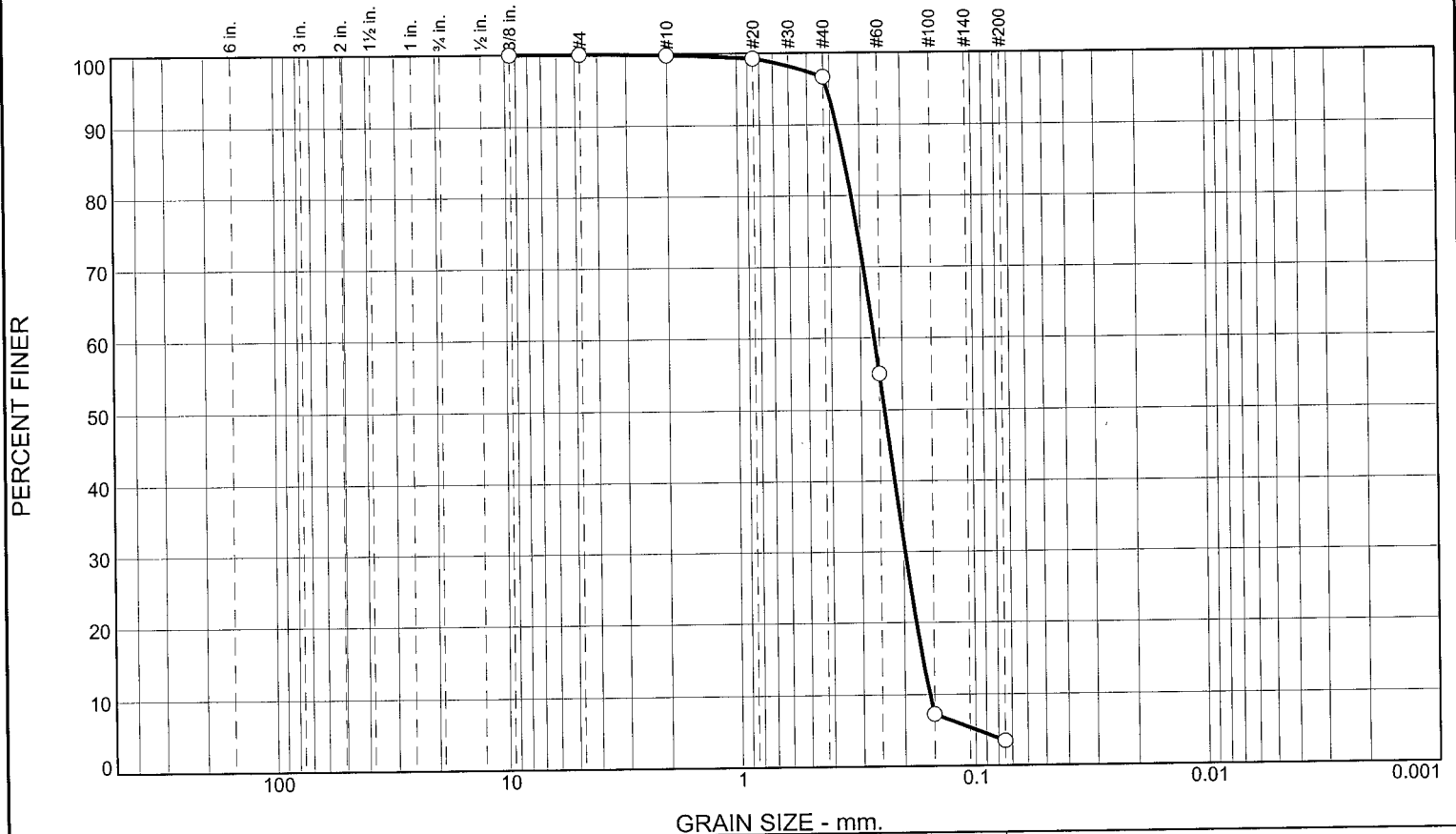
**Checked By:** R.Byrd



# Boring Designation BI-SI-66-10

DRILLING LOG		DIVISION South Atlantic		INSTALLATION Mobile District		SHEET 1 OF 1 SHEETS	
1. PROJECT MsCIP Barrier Island Restoration Ship Island				9. SIZE AND TYPE OF BIT N/A			
2. BORING DESIGNATION BI-SI-66-10		LOCATION COORDINATES E = 954,998 N = 253,601		10. COORDINATE SYSTEM/DATUM State Plane, MSE (U.S. Ft.)		HORIZONTAL NAD83	
3. DRILLING AGENCY Corps of Engineers - CESAM		CONTRACTOR FILE NO.		11. MANUFACTURER'S DESIGNATION OF DRILL Vibrocure		<input type="checkbox"/> AUTO HAMMER <input type="checkbox"/> MANUAL HAMMER	
4. NAME OF DRILLER Construction Solutions International, Inc.				12. TOTAL SAMPLES 2		DISTURBED 0	
5. DIRECTION OF BORING <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED				13. TOTAL NUMBER CORE BOXES		14. WATER DEPTH 21 Ft.	
6. THICKNESS OF OVERBURDEN N/A				15. DATE BORING 06-17-10		STARTED 06-17-10	
7. DEPTH DRILLED INTO ROCK N/A				16. ELEVATION TOP OF BORING -20.0 Ft.		COMPLETED 06-17-10	
8. TOTAL DEPTH OF BORING 17.7 Ft.				17. TOTAL RECOVERY FOR BORING 100%		18. SIGNATURE AND TITLE OF INSPECTOR Brad Johnson, Geologist	
ELEV.	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS	SAMPLE	LABORATORY RESULTS		
-20.0	0.0						
			SAND, poorly-graded, mostly fine to medium-grained sand-sized quartz, little shell fragments, lt. gray (SP)	A	Classification: SP Color: 2.5Y 7/2-light gray D50: 0.2383 mm % Fines: 3.5		
				B	Classification: SP Color: 2.5Y 7/2-light gray D50: 0.2635 mm % Fines: 4.4		
-28.6	8.6						
			SAND, clayey, some silt, some sand (SC)				
-33.2	13.2			NS			
			CLAY, lean (CL)				
-37.7	17.7						
			NOTES: 1. Soils are field visually classified in accordance with the Unified Soils Classification System. 2. NS = Sample not submitted for laboratory analysis from this interval. 3. Seafloor elevation calculated using sampling vessel's fathometer water depth reading and applying NOAA tidal gauge data conversion factor.				

# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.0	0.2	3.1	93.2	3.5	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
.375	100.0		
#4	100.0		
#10	99.8		
#20	99.3		
#40	96.7		
#60	55.0		
#100	7.3		
#200	3.5		

\* (no specification provided)

**Material Description**  
SAND, (SP), fine grained

PL=      **Atterberg Limits**      LL=      PI=

**Coefficients**  
D<sub>90</sub>= 0.3741      D<sub>85</sub>= 0.3477      D<sub>60</sub>= 0.2624  
D<sub>50</sub>= 0.2383      D<sub>30</sub>= 0.1970      D<sub>15</sub>= 0.1674  
D<sub>10</sub>= 0.1566      C<sub>u</sub>= 1.68      C<sub>c</sub>= 0.95

**Classification**  
USCS= SP      AASHTO=

**Remarks**  
CADD CODE = CH10D965

Location: USACE Sample # BI-SI-66-10A  
Sample Number: TE Lab ID: 4549.40

Depth: 0.0 - 5.0 (ft.)

Date: 6/26/10

**Thompson Engineering**

**Mobile, Alabama**

Client: US Army Corps of Engineers  
Project: Contract No. W91278-10-D-0026 - Task 03  
Mississippi Barrier Island Restoration Project

Project No: 10-2123-0009

Figure

Tested By: G.Fancher

Checked By: R.Byrd

**PERCENT FINER**



PERCENT FINER

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
.375	100.0		
#4	100.0		
#10	99.9		
#20	99.3		
#40	97.0		
#60	44.4		
#100	7.9		
#200	4.4		

\* (no specification provided)

**Location:** USACE Sample # BI-SI-66-10B  
**Sample Number:** TE Lab ID: 4549.41

**Depth: 5.0 - 8.6 (ft.)**

**Date:** 6/26/10

# Thompson Engineering

## Mobile, Alabama

**Client:** US Army Corps of Engineers

**Project:** Contract No. W91278-10-D-0026 - Task 03  
Mississippi Barrier Island Restoration Project

**Project No:** 10-2123-0009

### Figure

**Tested By:** G.Fancher

**Checked By:** R.Byrd

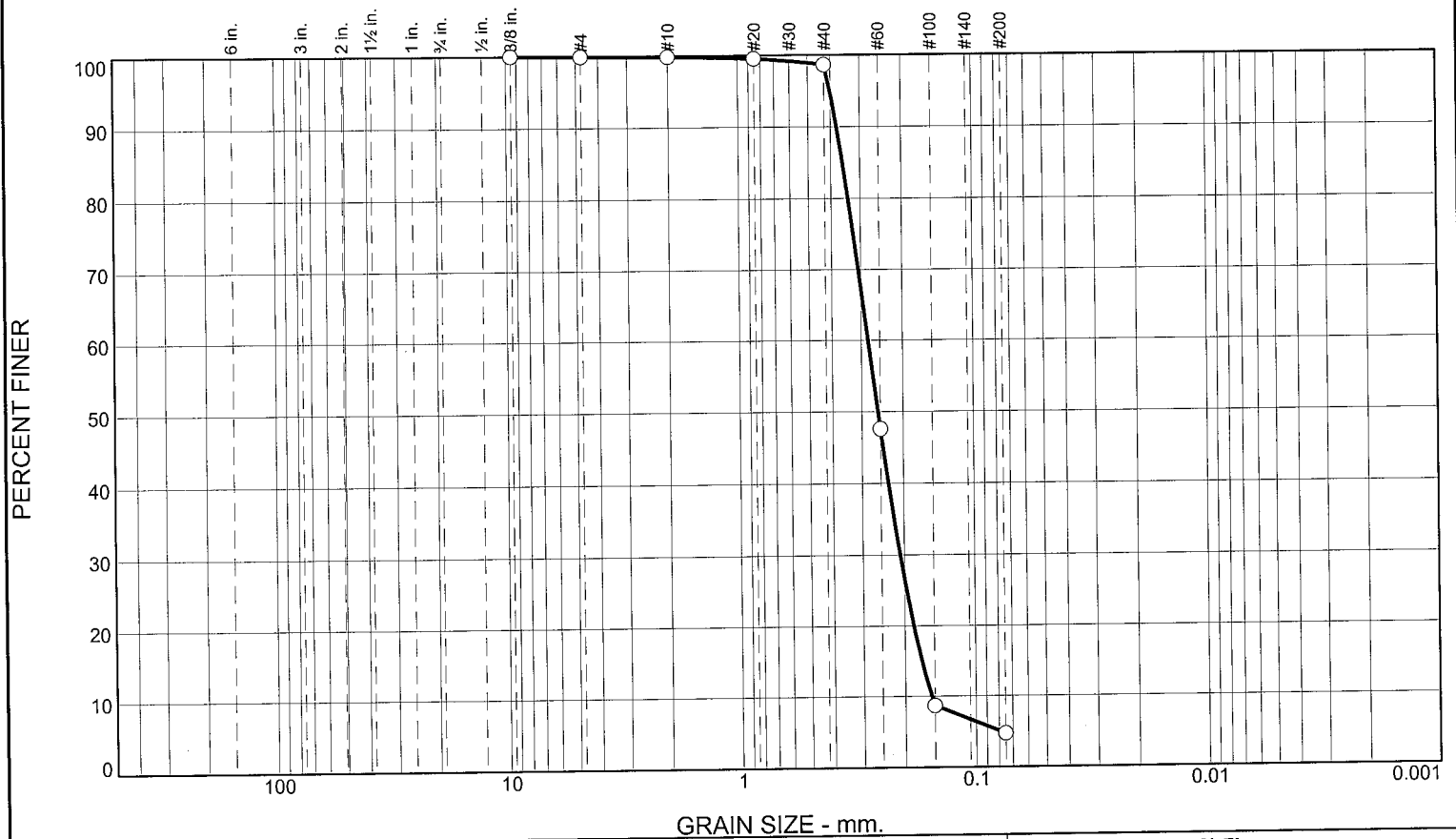
# Boring Designation BI-SI-67-10

DRILLING LOG		DIVISION South Atlantic		INSTALLATION Mobile District		SHEET 1 OF 1 SHEETS	
1. PROJECT MsCIP Barrier Island Restoration Ship Island				9. SIZE AND TYPE OF BIT N/A			
2. BORING DESIGNATION BI-SI-67-10		LOCATION COORDINATES E = 959,298 N = 254,812		10. COORDINATE SYSTEM/DATUM State Plane, MSE (U.S. Ft.)		HORIZONTAL NAD83	
3. DRILLING AGENCY Corps of Engineers - CESAM		CONTRACTOR FILE NO.		11. MANUFACTURER'S DESIGNATION OF DRILL Vibrocure		<input type="checkbox"/> AUTO HAMMER <input type="checkbox"/> MANUAL HAMMER	
4. NAME OF DRILLER Construction Solutions International, Inc.				12. TOTAL SAMPLES		DISTURBED 1	
5. DIRECTION OF BORING <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED				13. TOTAL NUMBER CORE BOXES		UNDISTURBED (UD) 0	
6. THICKNESS OF OVERBURDEN N/A				14. WATER DEPTH		21 Ft.	
7. DEPTH DRILLED INTO ROCK N/A				15. DATE BORING		STARTED 06-17-10	
8. TOTAL DEPTH OF BORING 14.1 Ft.				16. ELEVATION TOP OF BORING		COMPLETED 06-17-10	
				17. TOTAL RECOVERY FOR BORING		100%	
				18. SIGNATURE AND TITLE OF INSPECTOR		Brad Johnson, Geologist	

ELEV.	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS	SAMPLE	LABORATORY RESULTS
-19.7	0.0				
			SAND, poorly-graded, mostly fine-grained sand-sized quartz, gray (SP)	A	Classification: SP Color: 2.5Y 7/2-light gray D50: 0.2558 mm % Fines: 4.7
-23.4	3.7				
-24.3	4.6		CLAY, lean, some sand, dark gray (CL)		
			SILT, inorganic-L, some sand, dark gray (ML)		
-25.9	6.2				
			CLAY, lean, dark gray (CL)	NS	
-33.8	14.1				
			NOTES: 1. Soils are field visually classified in accordance with the Unified Soils Classification System. 2. NS = Sample not submitted for laboratory analysis from this interval. 3. Seafloor elevation calculated using sampling vessel's fathometer water depth reading and applying NOAA tidal gauge data conversion factor.		

# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.1	0.1	1.2	93.9	4.7	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
.375	100.0		
#4	99.9		
#10	99.8		
#20	99.5		
#40	98.6		
#60	47.6		
#100	8.7		
#200	4.7		

\* (no specification provided)

**Material Description**  
SAND, (SP), fine grained

**Atterberg Limits**  
PL=      LL=      PI=

**Coefficients**  
 D<sub>90</sub>= 0.3764      D<sub>85</sub>= 0.3558      D<sub>60</sub>= 0.2804  
 D<sub>50</sub>= 0.2558      D<sub>30</sub>= 0.2080      D<sub>15</sub>= 0.1697  
 D<sub>10</sub>= 0.1545      C<sub>u</sub>= 1.81      C<sub>c</sub>= 1.00

**Classification**  
USCS= SP      AASHTO=

**Remarks**  
CADD CODE = CH10D965

Location: USACE Sample # BI-SI-67-10A  
Sample Number: TE Lab ID: 4549.42

Depth: 0.0 - 3.7 (ft.)

Date: 6/26/10

**Thompson Engineering**

**Mobile, Alabama**

Client: US Army Corps of Engineers  
Project: Contract No. W91278-10-D-0026 - Task 03  
Mississippi Barrier Island Restoration Project  
Project No: 10-2123-0009

Figure

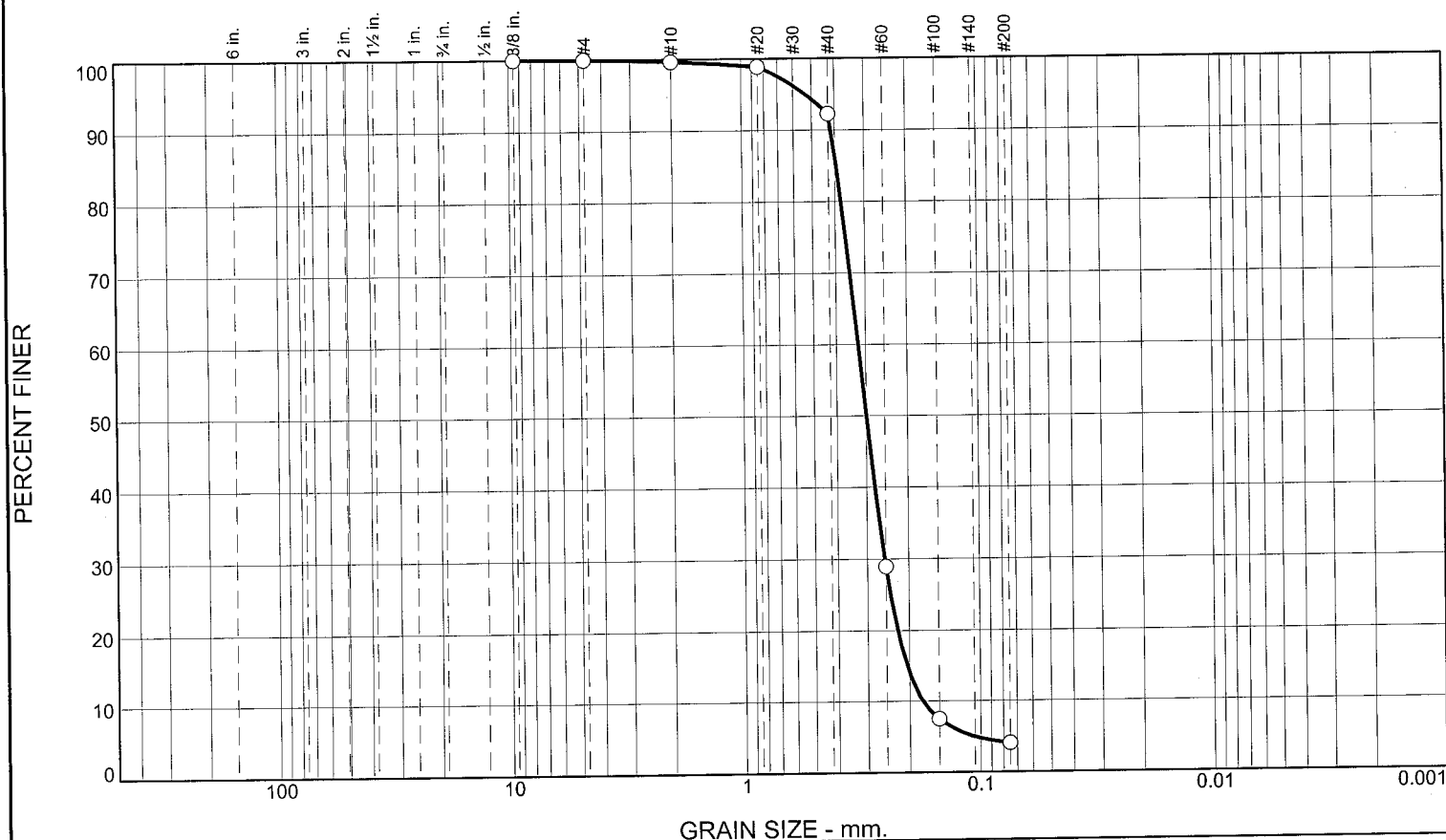
Tested By: G.Fancher

Checked By: R.Byrd

# Boring Designation BI-SI-68-10

DRILLING LOG		DIVISION South Atlantic		INSTALLATION Mobile District		SHEET 1 OF 1 SHEETS	
1. PROJECT MsCIP Barrier Island Restoration Ship Island				9. SIZE AND TYPE OF BIT N/A			
2. BORING DESIGNATION BI-SI-68-10		LOCATION COORDINATES E = 970,015 N = 258,785		10. COORDINATE SYSTEM/DATUM State Plane, MSE (U.S. Ft.)		HORIZONTAL NAD83 VERTICAL NAVD88	
3. DRILLING AGENCY Corps of Engineers - CESAM		CONTRACTOR FILE NO.		11. MANUFACTURER'S DESIGNATION OF DRILL Vibrocure		<input type="checkbox"/> AUTO HAMMER <input type="checkbox"/> MANUAL HAMMER	
4. NAME OF DRILLER Construction Solutions International, Inc.				12. TOTAL SAMPLES 3		DISTURBED 3 UNDISTURBED (UD) 0	
5. DIRECTION OF BORING <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED		DEG. FROM VERTICAL		13. TOTAL NUMBER CORE BOXES			
		BEARING		14. WATER DEPTH 29 Ft.			
6. THICKNESS OF OVERBURDEN N/A				15. DATE BORING 06-16-10		STARTED 06-16-10 COMPLETED 06-16-10	
7. DEPTH DRILLED INTO ROCK N/A				16. ELEVATION TOP OF BORING -28.2 Ft.			
8. TOTAL DEPTH OF BORING 15.5 Ft.				17. TOTAL RECOVERY FOR BORING 100%			
				18. SIGNATURE AND TITLE OF INSPECTOR Brad Johnson, Geologist			
ELEV.	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS	SAMPLE	LABORATORY RESULTS		
-28.2	0.0						
			SAND, poorly-graded, mostly fine to medium-grained sand-sized quartz, little shell fragments, lt. gray (SP)	A	Classification: SP Color: 2.5Y 7/2-light gray D50: 0.2992 mm % Fines: 4.1		
				B	Classification: SP Color: 2.5Y 7/2-light gray D50: 0.2942 mm % Fines: 3.3		
				C	Classification: SP Color: 2.5Y 7/2-light gray D50: 0.2232 mm % Fines: 3.9		
-40.4	12.2						
			SAND, clayey, dark gray (SC)	NS			
-43.7	15.5						
			NOTES: 1. Soils are field visually classified in accordance with the Unified Soils Classification System. 2. NS = Sample not submitted for laboratory analysis from this interval. 3. Seafloor elevation determined from USACE hydrographic survey completed 2010.				

# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.0	0.4	7.4	88.1	4.1	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
.375	100.0		
#4	100.0		
#10	99.6		
#20	98.9		
#40	92.2		
#60	28.9		
#100	7.5		
#200	4.1		

\* (no specification provided)

**Material Description**  
SAND, (SP), fine grained

**Atterberg Limits**  
 PL=      LL=      PI=

**Coefficients**  
 D<sub>90</sub>= 0.4144      D<sub>85</sub>= 0.3941      D<sub>60</sub>= 0.3225  
 D<sub>50</sub>= 0.2992      D<sub>30</sub>= 0.2527      D<sub>15</sub>= 0.2045  
 D<sub>10</sub>= 0.1760      C<sub>u</sub>= 1.83      C<sub>c</sub>= 1.13

**Classification**  
 USCS= SP      AASHTO=

**Remarks**  
 CADD CODE = CH10D965

Location: USACE Sample # BI-SI-68-10A  
 Sample Number: TE Lab ID: 4549.43

Depth: 0.0 - 4.0 (ft.)

Date: 6/26/10

**Thompson Engineering**

**Mobile, Alabama**

Client: US Army Corps of Engineers

Project: Contract No. W91278-10-D-0026 - Task 03  
 Mississippi Barrier Island Restoration Project

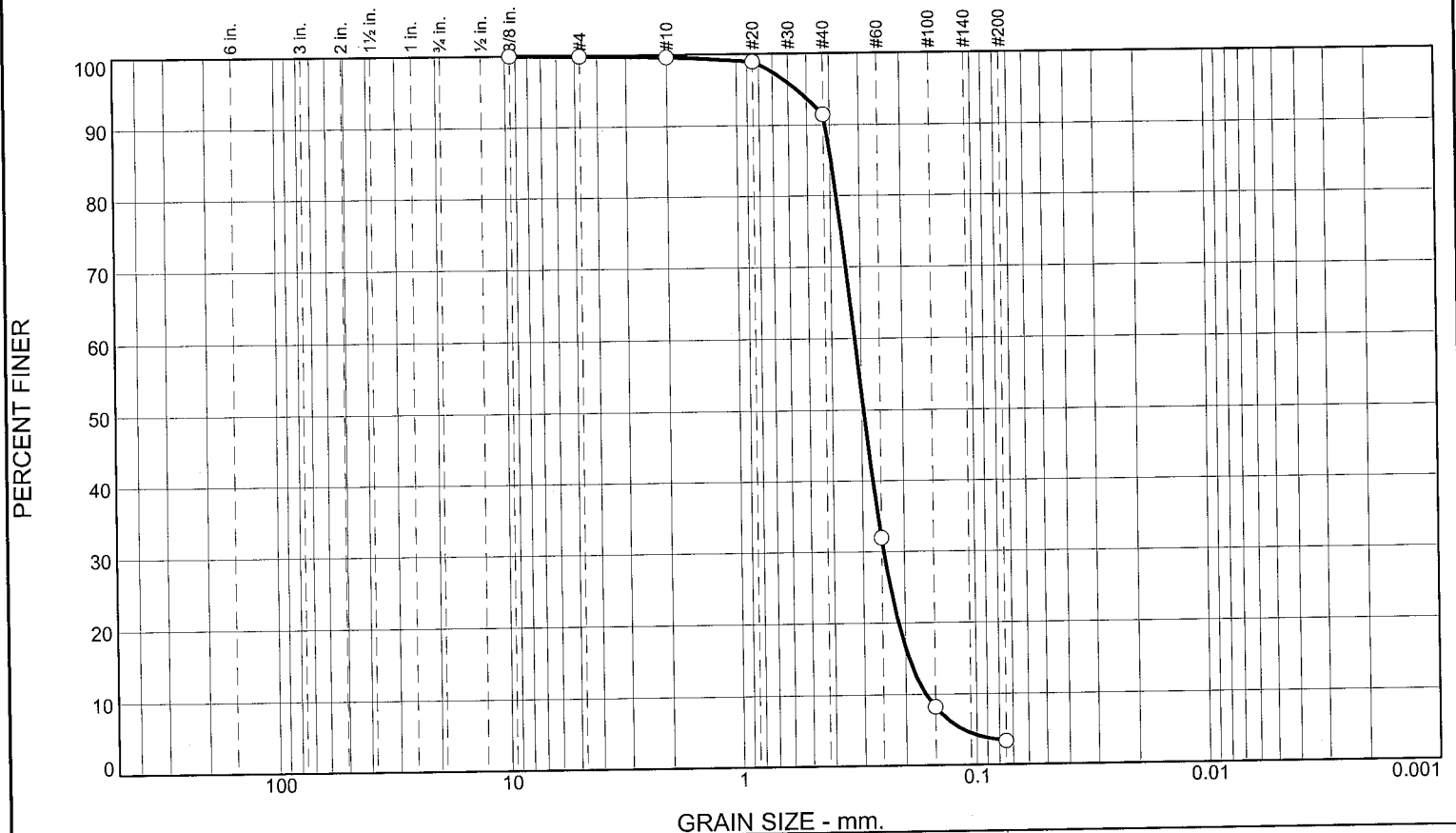
Project No: 10-2123-0009

Figure

Tested By: G.Fancher

Checked By: R.Byrd

# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.1	0.3	8.2	88.1	3.3	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
.375	100.0		
#4	99.9		
#10	99.6		
#20	98.9		
#40	91.4		
#60	31.9		
#100	8.2		
#200	3.3		

\* (no specification provided)

**Material Description**  
SAND, (SP), fine grained

**Atterberg Limits**  
PL= LL= PI=

**Coefficients**  
D<sub>90</sub>= 0.4175 D<sub>85</sub>= 0.3953 D<sub>60</sub>= 0.3189  
D<sub>50</sub>= 0.2942 D<sub>30</sub>= 0.2448 D<sub>15</sub>= 0.1931  
D<sub>10</sub>= 0.1644 C<sub>u</sub>= 1.94 C<sub>c</sub>= 1.14

**Classification**  
USCS= SP AASHTO=

**Remarks**  
CADD CODE = CH10D965

Location: USACE Sample # BI-SI-68-10B  
Sample Number: TE Lab ID: 4549.44

Depth: 4.0 - 8.0 (ft.)

Date: 6/26/10

**Thompson Engineering**

**Mobile, Alabama**

Client: US Army Corps of Engineers  
Project: Contract No. W91278-10-D-0026 - Task 03  
Mississippi Barrier Island Restoration Project  
Project No: 10-2123-0009

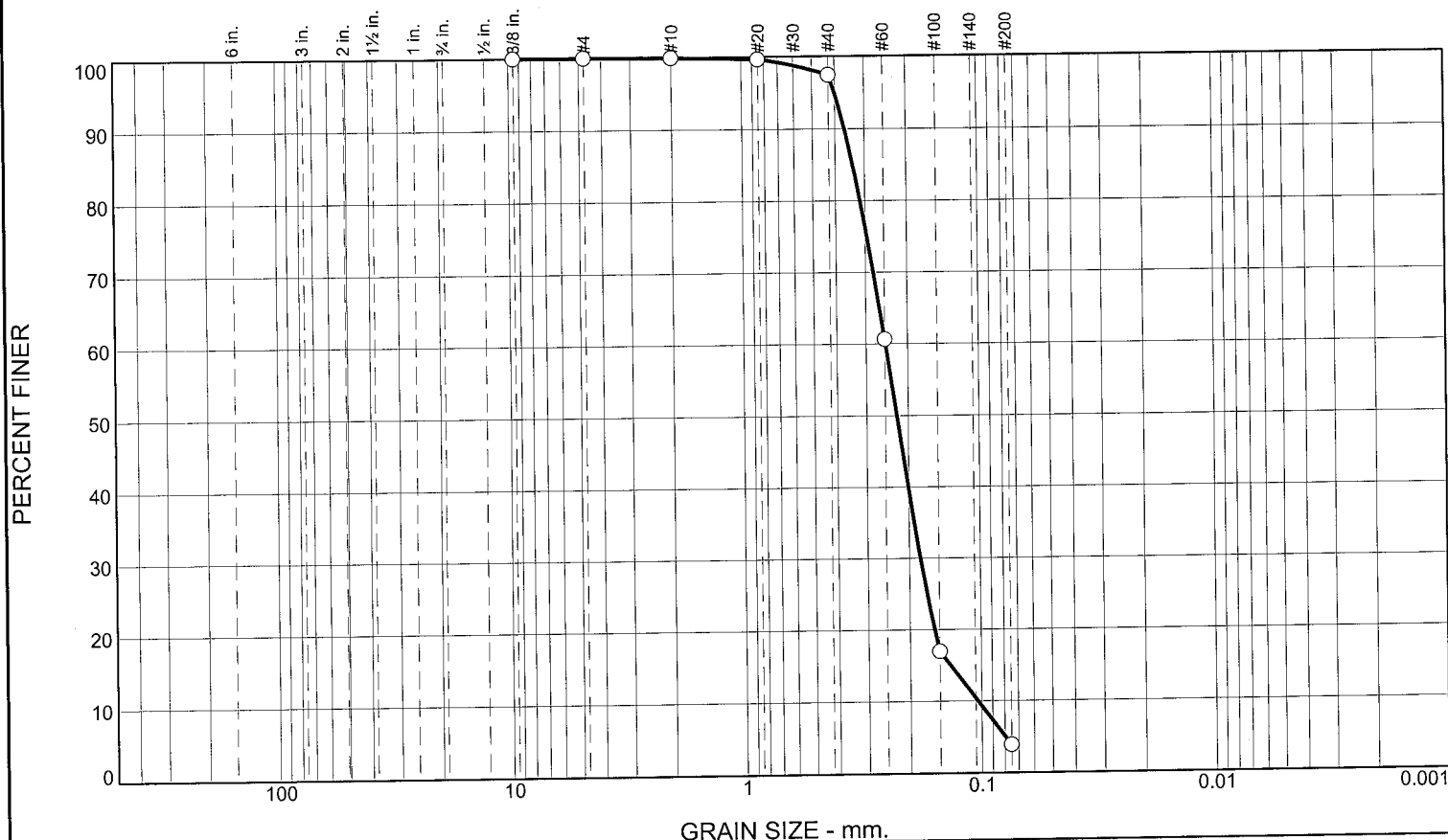
Figure

Tested By: G.Fancher

Checked By: R.Byrd



# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.0	0.1	2.5	93.5	3.9	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
.375	100.0		
#4	100.0		
#10	99.9		
#20	99.6		
#40	97.4		
#60	60.6		
#100	17.0		
#200	3.9		

\* (no specification provided)

**Material Description**  
SAND, (SP), fine grained

**Atterberg Limits**  
PL=      LL=      PI=

**Coefficients**  
D<sub>90</sub>= 0.3642      D<sub>85</sub>= 0.3367      D<sub>60</sub>= 0.2483  
D<sub>50</sub>= 0.2232      D<sub>30</sub>= 0.1793      D<sub>15</sub>= 0.1353  
D<sub>10</sub>= 0.1037      C<sub>u</sub>= 2.39      C<sub>c</sub>= 1.25

**Classification**  
USCS= SP      AASHTO=

**Remarks**  
CADD CODE = CH10D965

Location: USACE Sample # BI-SI-68-10C  
Sample Number: TE Lab ID: 4549.45

Depth: 8.0 - 12.2 (ft.)

Date: 6/26/10

**Thompson Engineering**

**Mobile, Alabama**

Client: US Army Corps of Engineers

Project: Contract No. W91278-10-D-0026 - Task 03  
Mississippi Barrier Island Restoration Project




Project No: 10-2123-0009

Figure

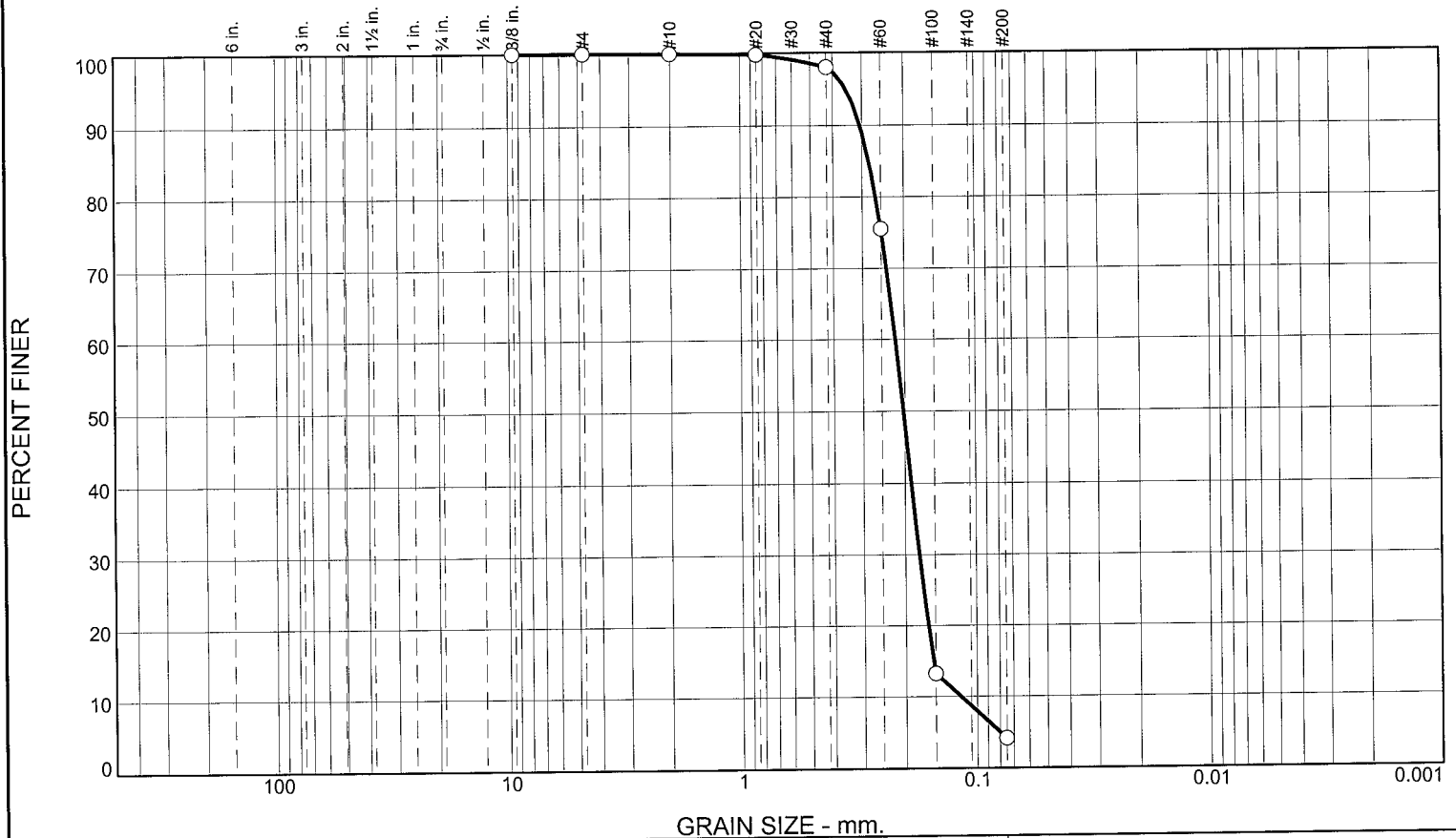
Tested By: G.Fancher

Checked By: R.Byrd

# Boring Designation BI-SI-69-10

DRILLING LOG		DIVISION South Atlantic		INSTALLATION Mobile District		SHEET 1 OF 1 SHEETS	
1. PROJECT MsCIP Barrier Island Restoration Ship Island				9. SIZE AND TYPE OF BIT N/A			
2. BORING DESIGNATION BI-SI-69-10		LOCATION COORDINATES E = 971,567 N = 261,330		10. COORDINATE SYSTEM/DATUM State Plane, MSE (U.S. Ft.)		HORIZONTAL NAD83 VERTICAL NAVD88	
3. DRILLING AGENCY Corps of Engineers - CESAM		CONTRACTOR FILE NO.		11. MANUFACTURER'S DESIGNATION OF DRILL Vibracore		<input type="checkbox"/> AUTO HAMMER <input type="checkbox"/> MANUAL HAMMER	
4. NAME OF DRILLER Construction Solutions International, Inc.				12. TOTAL SAMPLES 3		DISTURBED 0 UNDISTURBED (UD)	
5. DIRECTION OF BORING <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED		DEG. FROM VERTICAL		13. TOTAL NUMBER CORE BOXES			
		BEARING		14. WATER DEPTH 26 Ft.			
6. THICKNESS OF OVERBURDEN N/A				15. DATE BORING 06-16-10		STARTED 06-16-10 COMPLETED 06-16-10	
7. DEPTH DRILLED INTO ROCK N/A				16. ELEVATION TOP OF BORING -26.5 Ft.			
8. TOTAL DEPTH OF BORING 18.2 Ft.				17. TOTAL RECOVERY FOR BORING 100%			
				18. SIGNATURE AND TITLE OF INSPECTOR Brad Johnson, Geologist			
ELEV.	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS	SAMPLE	LABORATORY RESULTS		
-26.5	0.0						
-27.9	1.4		SAND, clayey, dark gray (SC)	NS			
			SAND, poorly-graded, mostly fine to medium-grained sand-sized quartz, lt. gray (SP)	A	Classification: SP Color: 2.5Y 7/1-light gray D50: 0.2027 mm % Fines: 4.1		
				B	Classification: SM Color: 2.5Y 7/1-light gray D50: 0.1891 mm % Fines: 21.4		
				C	Classification: SP Color: 2.5Y 7/1-light gray D50: 0.1907 mm % Fines: 4.7		
-39.8	13.3		SAND, clayey, dark gray (SC)	NS			
-44.7	18.2						
			NOTES: 1. Soils are field visually classified in accordance with the Unified Soils Classification System. 2. NS = Sample not submitted for laboratory analysis from this interval. 3. Seafloor elevation determined from USACE hydrographic survey completed 2010.				

# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.0	0.1	1.9	93.9	4.1	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
.375	100.0		
#4	100.0		
#10	99.9		
#20	99.8		
#40	98.0		
#60	75.5		
#100	13.2		
#200	4.1		

\* (no specification provided)

**Material Description**  
SAND, (SP), fine grained

**Atterberg Limits**  
 PL=      LL=      PI=

**Coefficients**  
 D<sub>90</sub>= 0.3060      D<sub>85</sub>= 0.2804      D<sub>60</sub>= 0.2186  
 D<sub>50</sub>= 0.2027      D<sub>30</sub>= 0.1744      D<sub>15</sub>= 0.1529  
 D<sub>10</sub>= 0.1174      C<sub>u</sub>= 1.86      C<sub>c</sub>= 1.19

**Classification**  
 USCS= SP      AASHTO=

**Remarks**  
 CADD CODE = CH10D965

Location: USACE Sample # BI-SI-69-10A  
 Sample Number: TE Lab ID: 4549.46

Depth: 1.4 - 5.4 (ft.)

Date: 6/26/10

**Thompson Engineering**

**Mobile, Alabama**

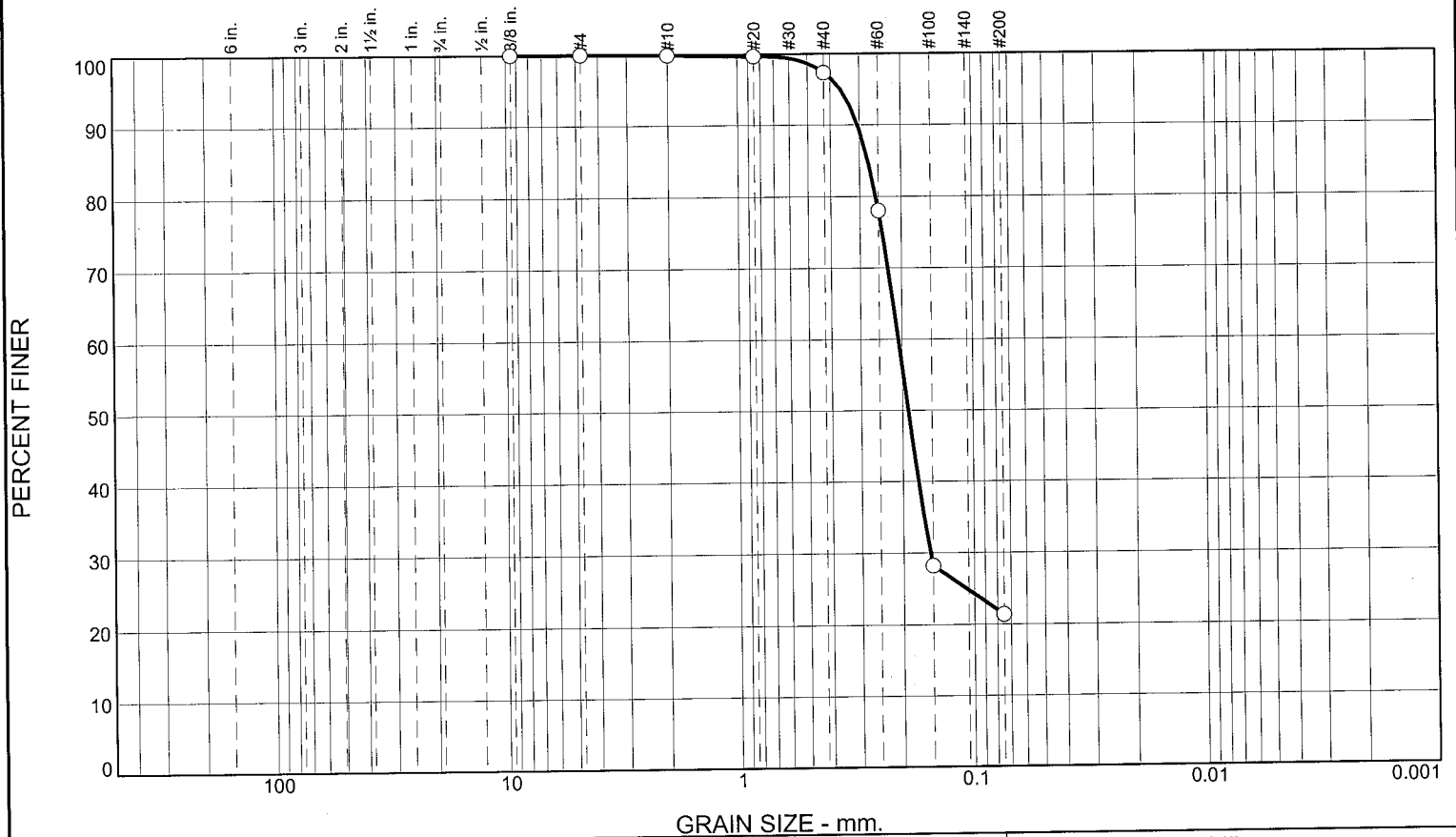
Client: US Army Corps of Engineers  
 Project: Contract No. W91278-10-D-0026 - Task 03  
 Mississippi Barrier Island Restoration Project  
 Project No: 10-2123-0009

**Figure**

Tested By: G.Fancher

Checked By: R.Byrd

# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.0	0.1	2.5	76.0	21.4	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
.375	100.0		
#4	100.0		
#10	99.9		
#20	99.7		
#40	97.4		
#60	78.0		
#100	28.2		
#200	21.4		

\* (no specification provided)

**Material Description**  
SILTY SAND, (SM), fine grained

**Atterberg Limits**  
 PL=      LL=      PI=

**Coefficients**  
 D<sub>90</sub>= 0.3055      D<sub>85</sub>= 0.2764      D<sub>60</sub>= 0.2074  
 D<sub>50</sub>= 0.1891      D<sub>30</sub>= 0.1537      D<sub>15</sub>=  
 D<sub>10</sub>=      C<sub>u</sub>=      C<sub>c</sub>=

**Classification**  
 USCS= SM      AASHTO=

**Remarks**  
 CADD CODE = CH10D965

Location: USACE Sample # BI-SI-69-10B  
 Sample Number: TE Lab ID: 4549.47

Depth: 5.4 - 9.4 (ft.)

Date: 6/26/10

**Thompson Engineering**

**Mobile, Alabama**

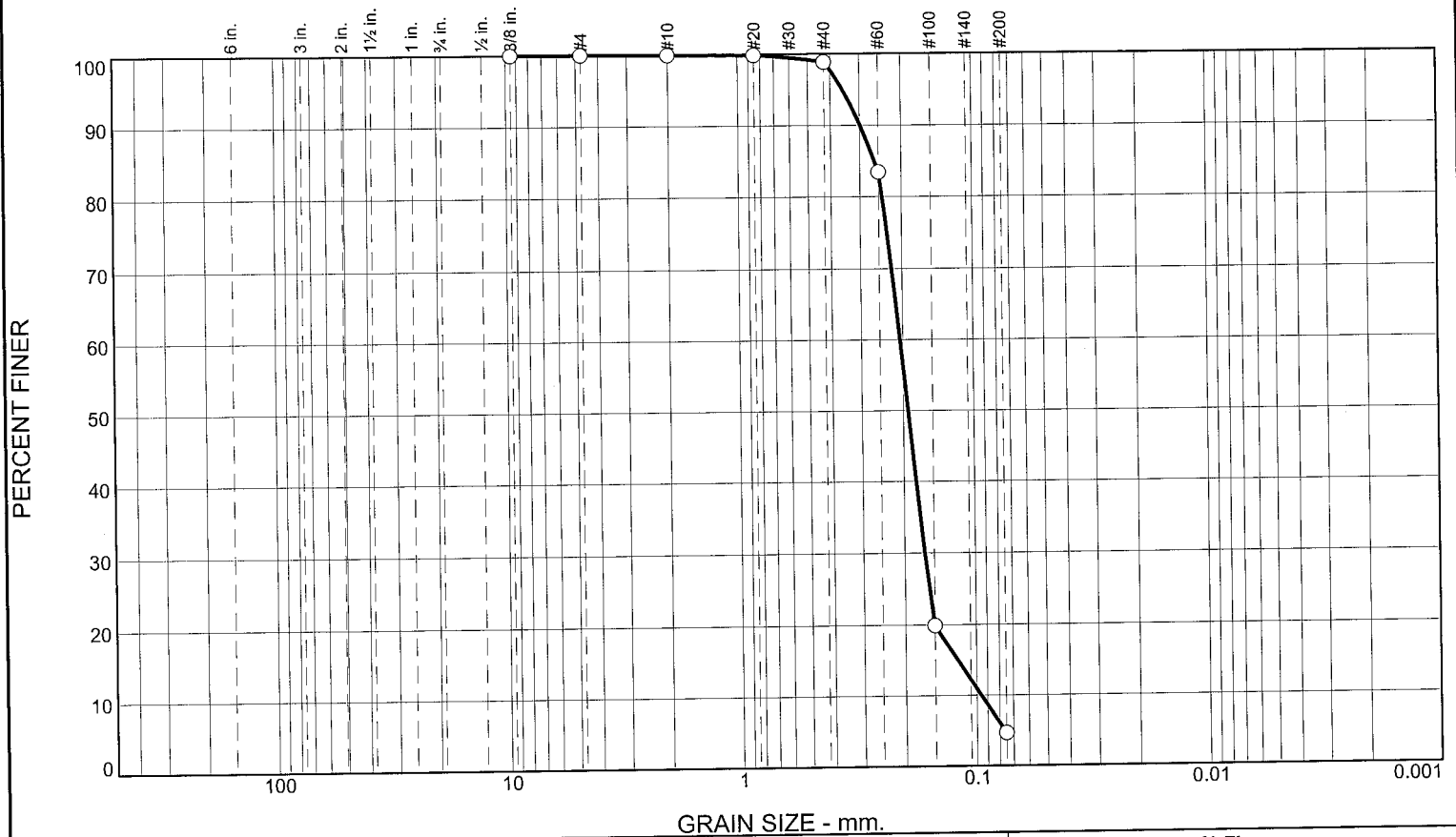
Client: US Army Corps of Engineers  
 Project: Contract No. W91278-10-D-0026 - Task 03  
 Mississippi Barrier Island Restoration Project  
 Project No: 10-2123-0009

Figure

Tested By: G.Fancher

Checked By: R.Byrd

# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.0	0.1	1.0	94.2	4.7	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
.375	100.0		
#4	100.0		
#10	99.9		
#20	99.9		
#40	98.9		
#60	83.4		
#100	19.9		
#200	4.7		

\* (no specification provided)

**Material Description**  
SAND, (SP), fine grained

**Atterberg Limits**  
 PL=      LL=      PI=

**Coefficients**  
 D<sub>90</sub>= 0.2985      D<sub>85</sub>= 0.2599      D<sub>60</sub>= 0.2051  
 D<sub>50</sub>= 0.1907      D<sub>30</sub>= 0.1642      D<sub>15</sub>= 0.1201  
 D<sub>10</sub>= 0.0956      C<sub>u</sub>= 2.14      C<sub>c</sub>= 1.38

**Classification**  
 USCS= SP      AASHTO=

**Remarks**  
 CADD CODE = CH10D965

Location: USACE Sample # BI-SI-69-10C  
 Sample Number: TE Lab ID: 4549.48

Depth: 9.4 13.3 (ft.)

Date: 6/26/10

**Thompson Engineering**

**Mobile, Alabama**

Client: US Army Corps of Engineers  
 Project: Contract No. W91278-10-D-0026 - Task 03  
 Mississippi Barrier Island Restoration Project  
 Project No: 10-2123-0009

Figure

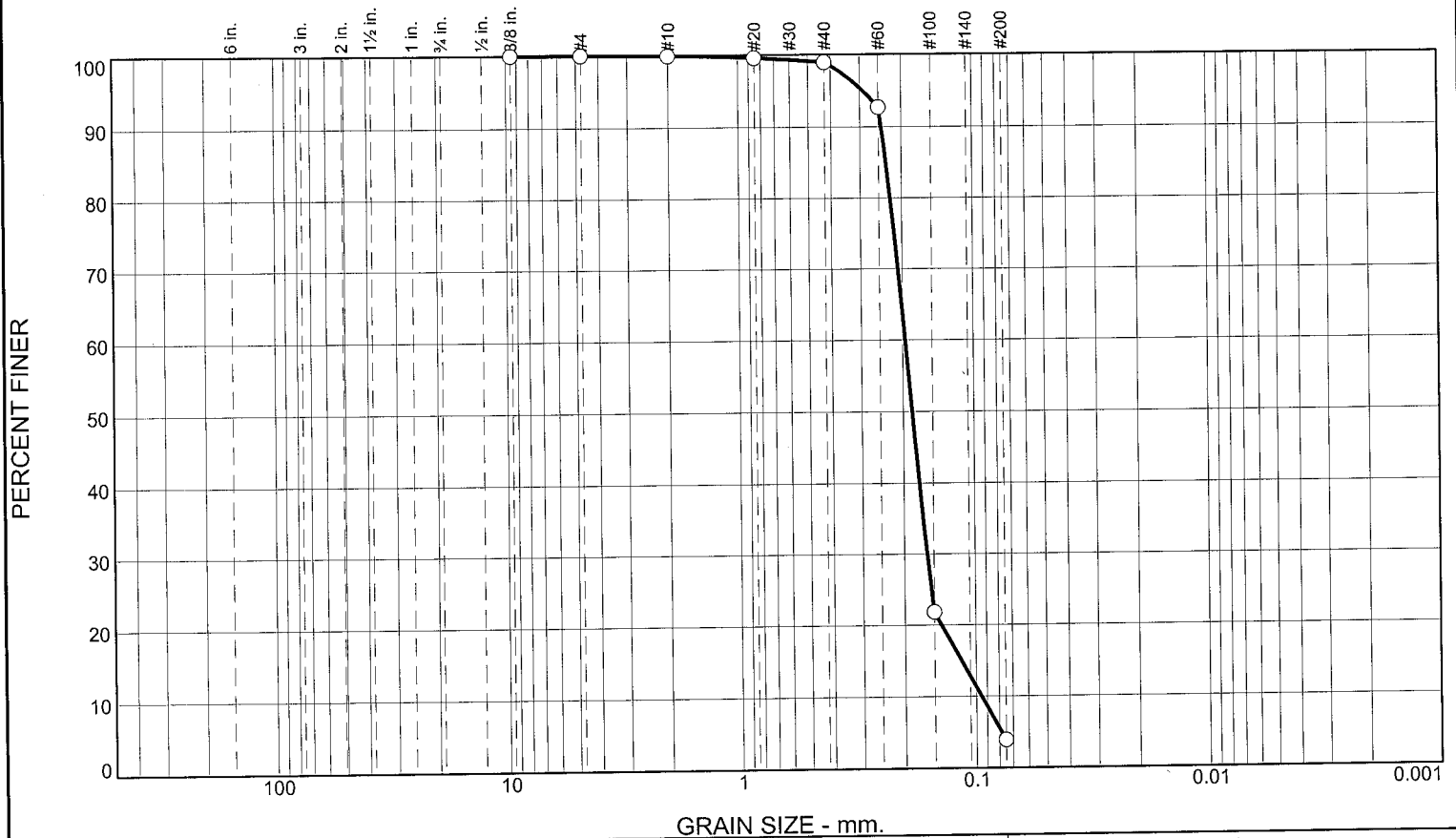
Tested By: G.Fancher

Checked By: R.Byrd

# Boring Designation BI-SI-70-10

DRILLING LOG		DIVISION South Atlantic		INSTALLATION Mobile District		SHEET 1 OF 1 SHEETS	
1. PROJECT MsCIP Barrier Island Restoration Ship Island				9. SIZE AND TYPE OF BIT N/A			
2. BORING DESIGNATION BI-SI-70-10		LOCATION COORDINATES E = 960,735 N = 254,491		10. COORDINATE SYSTEM/DATUM State Plane, MSE (U.S. Ft.)		HORIZONTAL NAD83 VERTICAL NAVD88	
3. DRILLING AGENCY Corps of Engineers - CESAM		CONTRACTOR FILE NO.		11. MANUFACTURER'S DESIGNATION OF DRILL Vibrocure		<input type="checkbox"/> AUTO HAMMER <input type="checkbox"/> MANUAL HAMMER	
4. NAME OF DRILLER Construction Solutions International, Inc.				12. TOTAL SAMPLES 1		DISTURBED 1 UNDISTURBED (UD) 0	
5. DIRECTION OF BORING <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED		DEG. FROM VERTICAL		13. TOTAL NUMBER CORE BOXES			
		BEARING		14. WATER DEPTH 21 Ft.			
6. THICKNESS OF OVERBURDEN N/A				15. DATE BORING 06-17-10		STARTED 06-17-10 COMPLETED 06-17-10	
7. DEPTH DRILLED INTO ROCK N/A				16. ELEVATION TOP OF BORING -19.7 Ft.			
8. TOTAL DEPTH OF BORING 15.4 Ft.				17. TOTAL RECOVERY FOR BORING 100%			
				18. SIGNATURE AND TITLE OF INSPECTOR Brad Johnson, Geologist			
ELEV.	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS	SAMPLE	LABORATORY RESULTS		
-19.7	0.0						
-24.2	4.5		SAND, poorly-graded, mostly fine to medium-grained sand-sized quartz, trace shell fragments, lt. gray (SP)	A	Classification: SP Color: 2.5Y 7/1-light gray D50: 0.1831 mm % Fines: 3.9		
-35.1	15.4		CLAY, lean, some sand, dark gray (CL)	NS			
			NOTES: 1. Soils are field visually classified in accordance with the Unified Soils Classification System. 2. NS = Sample not submitted for laboratory analysis from this interval. 3. Seafloor elevation calculated using sampling vessel's fathometer water depth reading and applying NOAA tidal gauge data conversion factor.				

# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.0	0.1	1.0	95.0	3.9	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
.375	100.0		
#4	100.0		
#10	99.9		
#20	99.6		
#40	98.9		
#60	92.7		
#100	21.8		
#200	3.9		

\* (no specification provided)

## Material Description

SAND, (SP), fine grained

## Atterberg Limits

PL=

LL=

PI=

## Coefficients

D<sub>90</sub>= 0.2431

D<sub>85</sub>= 0.2325

D<sub>60</sub>= 0.1951

D<sub>50</sub>= 0.1831

D<sub>30</sub>= 0.1601

D<sub>15</sub>= 0.1152

D<sub>10</sub>= 0.0950

C<sub>u</sub>= 2.05

C<sub>c</sub>= 1.38

## Classification

USCS= SP

AASHTO=

## Remarks

CADD CODE = CH10D965

Location: USACE Sample # BI-SI-70-10A  
Sample Number: TE Lab ID: 4549.49

Depth: 0.0 - 4.5 (ft.)

Date: 6/26/10

**Thompson Engineering**

**Mobile, Alabama**

Client: US Army Corps of Engineers

Project: Contract No. W91278-10-D-0026 - Task 03  
Mississippi Barrier Island Restoration Project

Project No: 10-2123-0009

Figure

Tested By: G.Fancher

Checked By: R.Byrd

# Boring Designation BI-SI-71-10

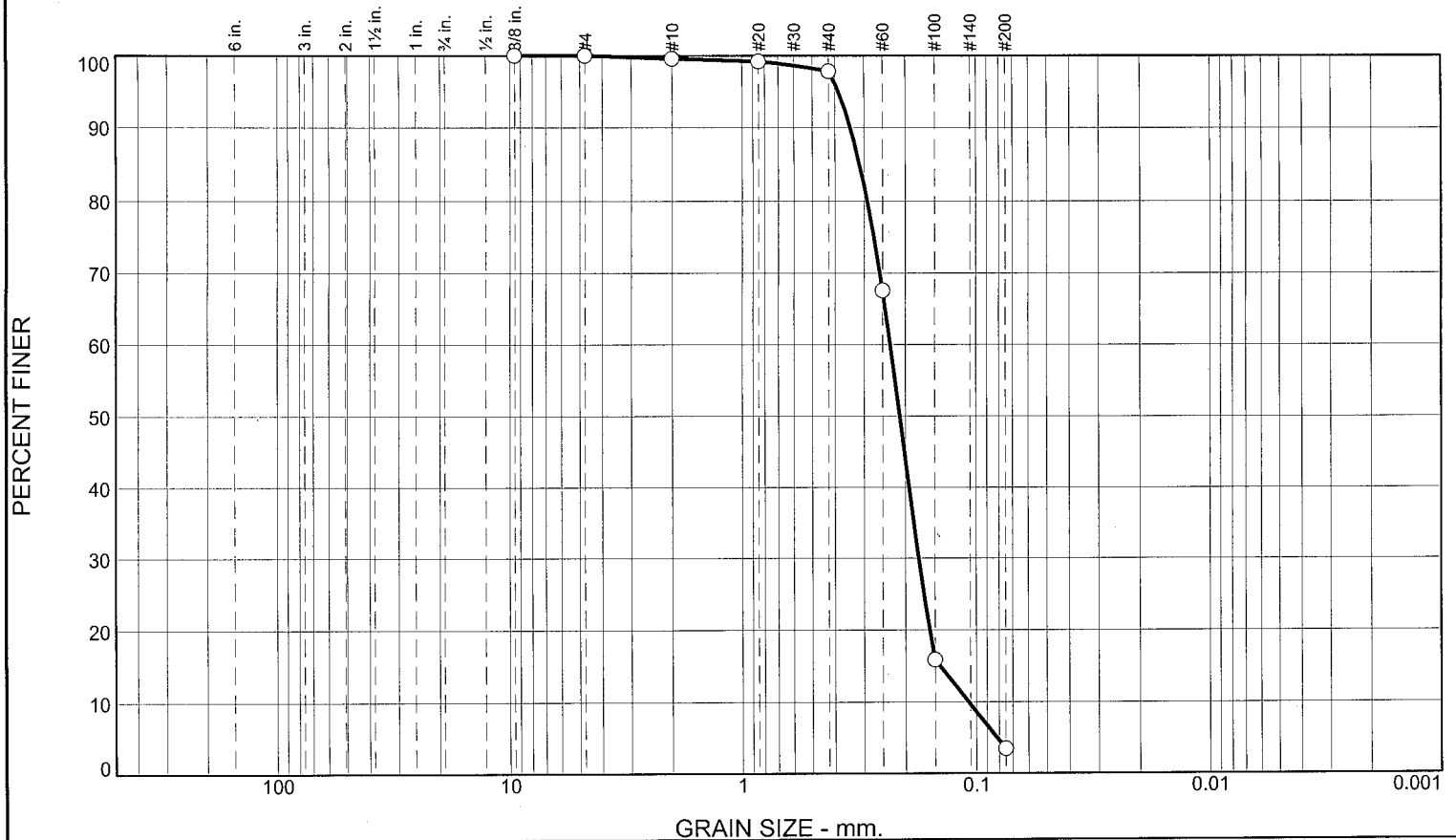
DRILLING LOG		DIVISION South Atlantic		INSTALLATION Mobile District		SHEET 1 OF 1 SHEETS	
1. PROJECT MsCIP Barrier Island Restoration Ship Island				9. SIZE AND TYPE OF BIT N/A			
2. BORING DESIGNATION BI-SI-71-10		LOCATION COORDINATES E = 960,905 N = 252,923		10. COORDINATE SYSTEM/DATUM State Plane, MSE (U.S. Ft.)		HORIZONTAL NAD83 VERTICAL NAVD88	
3. DRILLING AGENCY Corps of Engineers - CESAM		CONTRACTOR FILE NO.		11. MANUFACTURER'S DESIGNATION OF DRILL Vibrocure		<input type="checkbox"/> AUTO HAMMER <input type="checkbox"/> MANUAL HAMMER	
4. NAME OF DRILLER Construction Solutions International, Inc.				12. TOTAL SAMPLES 0		DISTURBED 0 UNDISTURBED (UD) 0	
5. DIRECTION OF BORING <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED		DEG. FROM VERTICAL		13. TOTAL NUMBER CORE BOXES			
		BEARING		14. WATER DEPTH 27 Ft.			
6. THICKNESS OF OVERBURDEN N/A				15. DATE BORING 06-17-10		STARTED 06-17-10 COMPLETED 06-17-10	
7. DEPTH DRILLED INTO ROCK N/A				16. ELEVATION TOP OF BORING -25.6 Ft.			
8. TOTAL DEPTH OF BORING 17.5 Ft.				17. TOTAL RECOVERY FOR BORING 100%			
				18. SIGNATURE AND TITLE OF INSPECTOR Brad Johnson, Geologist			
ELEV.	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS	SAMPLE	LABORATORY RESULTS		
-25.6	0.0		SAND, silty, mostly fine-grained sand-sized quartz, some clay, dark gray (SM)				
-31.0	5.4		CLAY, lean, sand layers (CL)	NS			
-43.1	17.5		NOTES: 1. Soils are field visually classified in accordance with the Unified Soils Classification System. 2. NS = Sample not submitted for laboratory analysis from this interval. 3. Seafloor elevation calculated using sampling vessel's fathometer water depth reading and applying NOAA tidal gauge data conversion factor.				



# Boring Designation BI-SI-72-10

DRILLING LOG		DIVISION South Atlantic		INSTALLATION Mobile District		SHEET 1 OF 1 SHEETS	
1. PROJECT MsCIP Barrier Island Restoration Ship Island				9. SIZE AND TYPE OF BIT N/A			
2. BORING DESIGNATION BI-SI-72-10		LOCATION COORDINATES E = 963,262 N = 253,537		10. COORDINATE SYSTEM/DATUM State Plane, MSE (U.S. Ft.)		HORIZONTAL NAD83	
3. DRILLING AGENCY Corps of Engineers - CESAM		CONTRACTOR FILE NO.		11. MANUFACTURER'S DESIGNATION OF DRILL Vibrocure		<input type="checkbox"/> AUTO HAMMER <input type="checkbox"/> MANUAL HAMMER	
4. NAME OF DRILLER Construction Solutions International, Inc.				12. TOTAL SAMPLES 2		UNDISTURBED (UD) 0	
5. DIRECTION OF BORING <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED				13. TOTAL NUMBER CORE BOXES		14. WATER DEPTH 26 Ft.	
6. THICKNESS OF OVERBURDEN N/A				15. DATE BORING 06-17-10		COMPLETED 06-17-10	
7. DEPTH DRILLED INTO ROCK N/A				16. ELEVATION TOP OF BORING -24.5 Ft.		17. TOTAL RECOVERY FOR BORING 100%	
8. TOTAL DEPTH OF BORING 17.5 Ft.				18. SIGNATURE AND TITLE OF INSPECTOR Brad Johnson, Geologist			
ELEV.	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS	SAMPLE	LABORATORY RESULTS		
-24.5	0.0						
-31.2	6.7		SAND, poorly-graded, mostly fine-grained sand-sized quartz, trace shell fragments, lt. gray (SP)	A	Classification: SM Color: 2.5Y 6/2-light brownish gray D50: 0.2112 mm % Fines: 3.5		
-34.9	10.4		CLAY, lean, some sand, dark gray (CL)	NS			
-42.0	17.5		SAND, silty, mostly fine-grained sand-sized quartz, some silt, some clay, dark gray (SM)	B	Classification: SP Color: 2.5Y 7/1-light gray D50: 0.1573 mm % Fines: 15.3		
			NOTES: 1. Soils are field visually classified in accordance with the Unified Soils Classification System. 2. NS = Sample not submitted for laboratory analysis from this interval. 3. Seafloor elevation calculated using sampling vessel's fathometer water depth reading and applying NOAA tidal gauge data conversion factor.				

# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.0	0.4	1.8	94.3	3.5	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
.375	100.0		
#4	100.0		
#10	99.6		
#20	99.2		
#40	97.8		
#60	67.6		
#100	15.9		
#200	3.5		

**Material Description**  
SAND, (SP), fine grained

**Atterberg Limits**  
PL=      LL=      PI=

**Coefficients**  
D<sub>90</sub>= 0.3426      D<sub>85</sub>= 0.3129      D<sub>60</sub>= 0.2317  
D<sub>50</sub>= 0.2112      D<sub>30</sub>= 0.1756      D<sub>15</sub>= 0.1428  
D<sub>10</sub>= 0.1080      C<sub>u</sub>= 2.15      C<sub>c</sub>= 1.23

**Classification**  
USCS= SP      AASHTO=

**Remarks**  
CADD CODE = CH10D965

\* (no specification provided)

Location: USACE Sample # BI-SI-72-10B  
Sample Number: TE Lab ID: 4549.51

Depth: 0.0 - 6.7 (ft.)

Date: 6/26/10

Mislabeled; should be BI-SI-72-10A

**Thompson Engineering**

**Mobile, Alabama**

Client: US Army Corps of Engineers

Project: Contract No. W91278-10-D-0026 - Task 03  
Mississippi Barrier Island Restoration Project

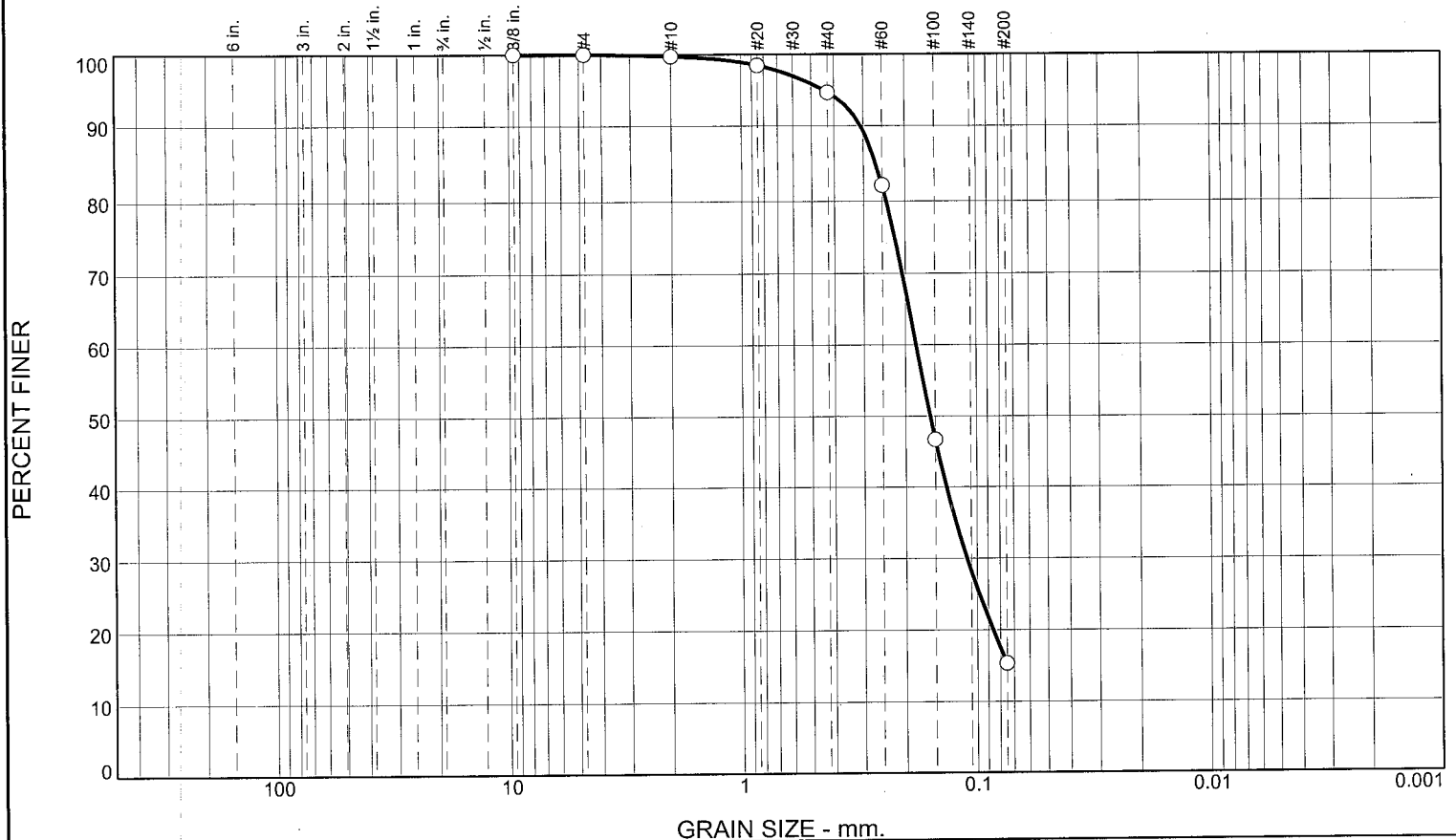
Project No: 10-2123-0009

Figure

Tested By: G.Fancher

Checked By: R.Byrd

# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.0	0.3	5.0	79.4	15.3	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
.375	100.0		
#4	100.0		
#10	99.7		
#20	98.5		
#40	94.7		
#60	82.2		
#100	46.7		
#200	15.3		

\* (no specification provided)

**Material Description**  
SILTY SAND, (SM), fine grained

**Atterberg Limits**  
 PL=      LL=      PI=

**Coefficients**  
 D<sub>90</sub>= 0.3076      D<sub>85</sub>= 0.2651      D<sub>60</sub>= 0.1801  
 D<sub>50</sub>= 0.1573      D<sub>30</sub>= 0.1104      D<sub>15</sub>=  
 D<sub>10</sub>=      C<sub>u</sub>=      C<sub>c</sub>=

**Classification**  
 USCS= SM      AASHTO=

**Remarks**  
 CADD CODE = CH10D965

Mislabeled; should be BI-SI-72-10B

Location: USACE Sample # BI-SI-72-10A  
 Sample Number: TE Lab ID: 4549.50

Depth: 10.4 - 12.5 (ft.)

Date: 6/26/10

**Thompson Engineering**

**Mobile, Alabama**

**Client:** US Army Corps of Engineers  
**Project:** Contract No. W91278-10-D-0026 - Task 03  
 Mississippi Barrier Island Restoration Project  
**Project No:** 10-2123-0009

**Figure**

Tested By: G.Fancher

Checked By: R.Byrd

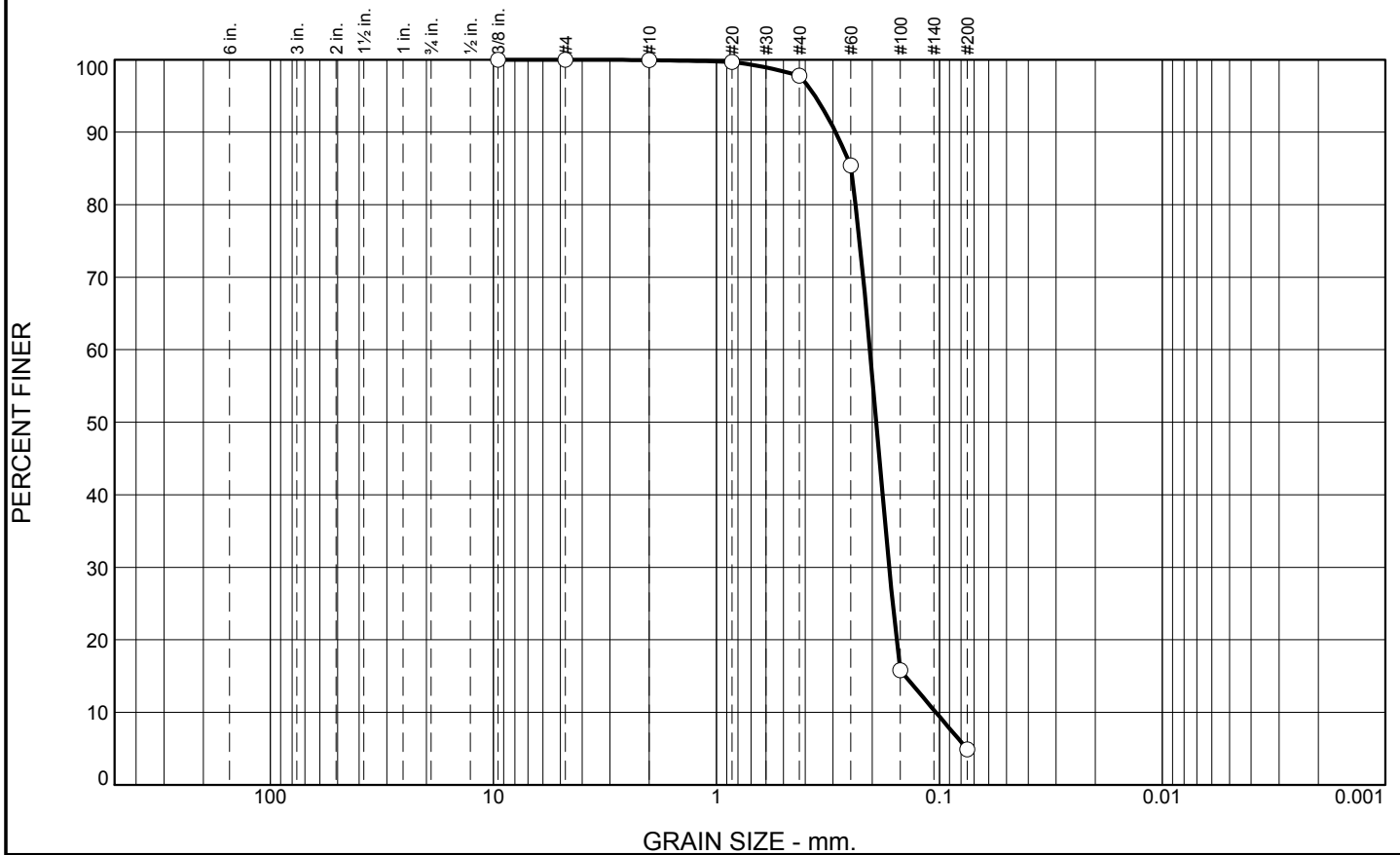
# Boring Designation BI-SI-73-10

DRILLING LOG		DIVISION South Atlantic		INSTALLATION Mobile District		SHEET 1 OF 1 SHEETS	
1. PROJECT MsCIP Barrier Island Restoration Ship Island				9. SIZE AND TYPE OF BIT N/A			
2. BORING DESIGNATION BI-SI-73-10		LOCATION COORDINATES E = 970,779 N = 257,363		10. COORDINATE SYSTEM/DATUM State Plane, MSE (U.S. Ft.)		HORIZONTAL NAD83 VERTICAL NAVD88	
3. DRILLING AGENCY Corps of Engineers - CESAM		CONTRACTOR FILE NO.		11. MANUFACTURER'S DESIGNATION OF DRILL Vibrocure		<input type="checkbox"/> AUTO HAMMER <input type="checkbox"/> MANUAL HAMMER	
4. NAME OF DRILLER Construction Solutions International, Inc.				12. TOTAL SAMPLES 3		DISTURBED 0 UNDISTURBED (UD)	
5. DIRECTION OF BORING <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED		DEG. FROM VERTICAL		13. TOTAL NUMBER CORE BOXES			
		BEARING		14. WATER DEPTH 27 Ft.			
6. THICKNESS OF OVERBURDEN N/A				15. DATE BORING 06-21-10		STARTED 06-21-10 COMPLETED 06-21-10	
7. DEPTH DRILLED INTO ROCK N/A				16. ELEVATION TOP OF BORING -29.3 Ft.			
8. TOTAL DEPTH OF BORING 17.4 Ft.				17. TOTAL RECOVERY FOR BORING 100%			
				18. SIGNATURE AND TITLE OF INSPECTOR Marty Gates, Geologist			

ELEV.	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS	SAMPLE	LABORATORY RESULTS
-29.3	0.0				
-29.6	0.3		CLAY, lean, dark gray (CL)	NS	
			SAND, poorly-graded, mostly fine to medium-grained sand-sized quartz, trace silt, trace shell fragments, lt. gray (SP)	A	Classification: SP Color: 2.5Y 7/2-light gray D50: 0.192 mm % Fines: 4.9
				B	Classification: SP Color: 2.5Y 7/1-light gray D50: 0.1835 mm % Fines: 4.4
-40.6	11.3		SAND, silty, mostly fine to medium-grained sand-sized quartz, some silt, gray (SM)	C	Classification: SM Color: 2.5Y 4/3-olive brown D50: 0.1636 mm % Fines: 19.1
-44.2	14.9		CLAY, lean, trace wood debris, dark gray (CL)	NS	
-46.7	17.4				
NOTES: 1. Soils are field visually classified in accordance with the Unified Soils Classification System. 2. NS = Sample not submitted for laboratory analysis from this interval. 3. Seafloor elevation determined from USACE hydrographic survey completed 2010.					

# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.0	0.1	2.1	92.9	4.9	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
.375	100.0		
#4	100.0		
#10	99.9		
#20	99.7		
#40	97.8		
#60	85.4		
#100	15.8		
#200	4.9		

\* (no specification provided)

<u><b>Material Description</b></u>		
SAND, (SP), fine grained		
<u><b>Atterberg Limits</b></u>		
PL=	LL=	PI=
<u><b>Coefficients</b></u>		
D <sub>90</sub> = 0.2918	D <sub>85</sub> = 0.2489	D <sub>60</sub> = 0.2050
D <sub>50</sub> = 0.1920	D <sub>30</sub> = 0.1680	D <sub>15</sub> = 0.1424
D <sub>10</sub> = 0.1037	C <sub>u</sub> = 1.98	C <sub>c</sub> = 1.33
<u><b>Classification</b></u>		
USCS= SP	AASHTO=	
<u><b>Remarks</b></u>		
CADD CODE = CH10D965		

Location: USACE Sample # BI-SI-73-10A  
Sample Number: TE Lab ID: 4557.01

Depth: 0.3 - 5.3 (ft.)

Date: 7/3/10

**Thompson Engineering**  
**Mobile, Alabama**

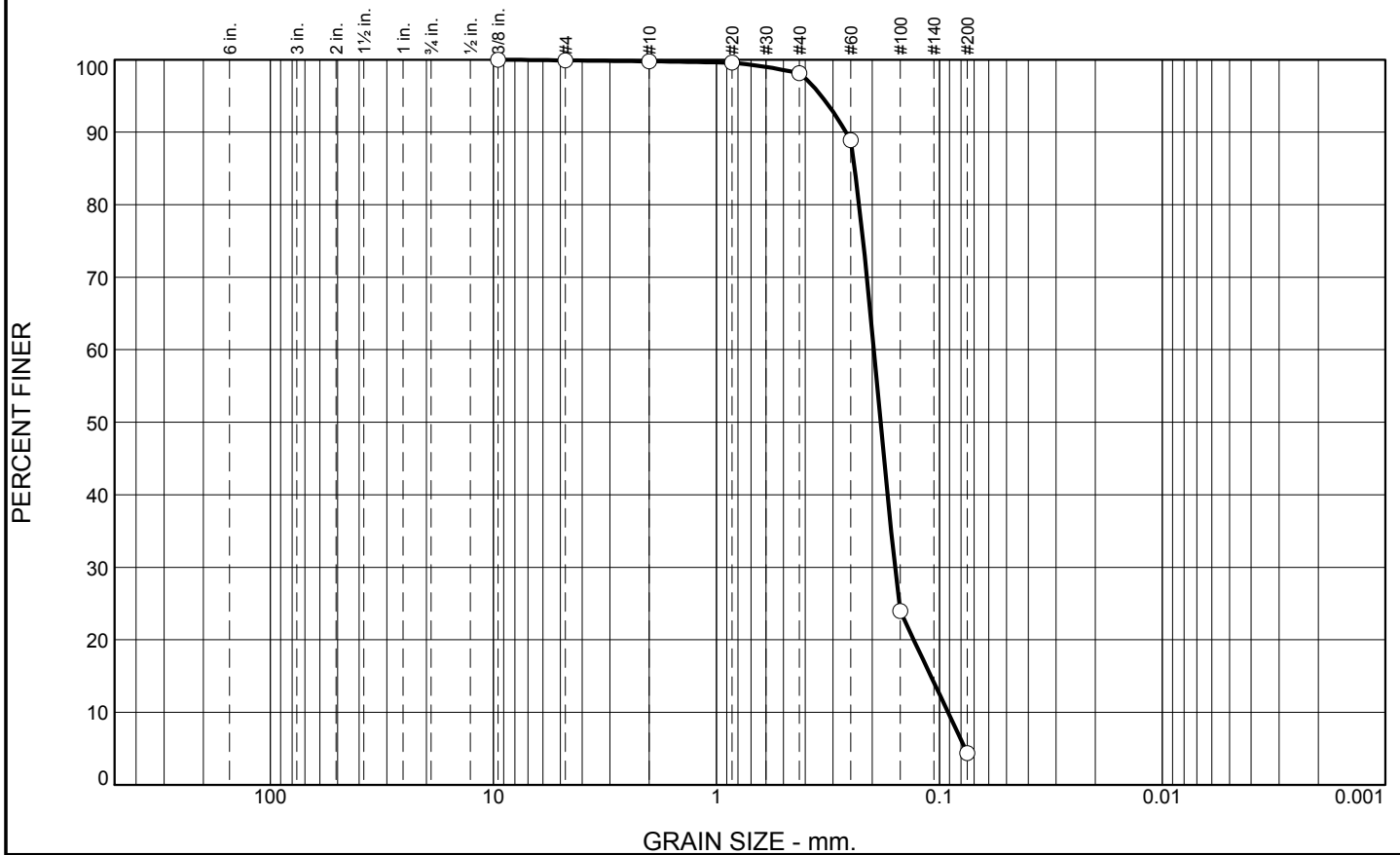
**Client:** US Army Corps of Engineers  
**Project:** Contract No. W91278-10-D-0026 - Task 03  
Mississippi Barrier Island Restoration Project  
**Project No:** 10-2123-0009

**Figure**

Tested By: G.Fancher

Checked By: R.Byrd

# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.1	0.1	1.7	93.7	4.4	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
.375	100.0		
#4	99.9		
#10	99.8		
#20	99.6		
#40	98.1		
#60	88.9		
#100	24.0		
#200	4.4		

\* (no specification provided)

<u><b>Material Description</b></u>		
SAND, (SP), fine grained		
<u><b>Atterberg Limits</b></u>		
PL=	LL=	PI=
<u><b>Coefficients</b></u>		
D <sub>90</sub> = 0.2623	D <sub>85</sub> = 0.2398	D <sub>60</sub> = 0.1968
D <sub>50</sub> = 0.1835	D <sub>30</sub> = 0.1582	D <sub>15</sub> = 0.1092
D <sub>10</sub> = 0.0915	C <sub>u</sub> = 2.15	C <sub>c</sub> = 1.39
<u><b>Classification</b></u>		
USCS= SP	AASHTO=	
<u><b>Remarks</b></u>		
CADD CODE = CH10D965		

**Location:** USACE Sample # BI-SI-73-10B  
**Sample Number:** TE Lab ID: 4557.02

**Depth:** 5.3 - 11.3 (ft.)

**Date:** 7/3/10

**Thompson Engineering**  
**Mobile, Alabama**

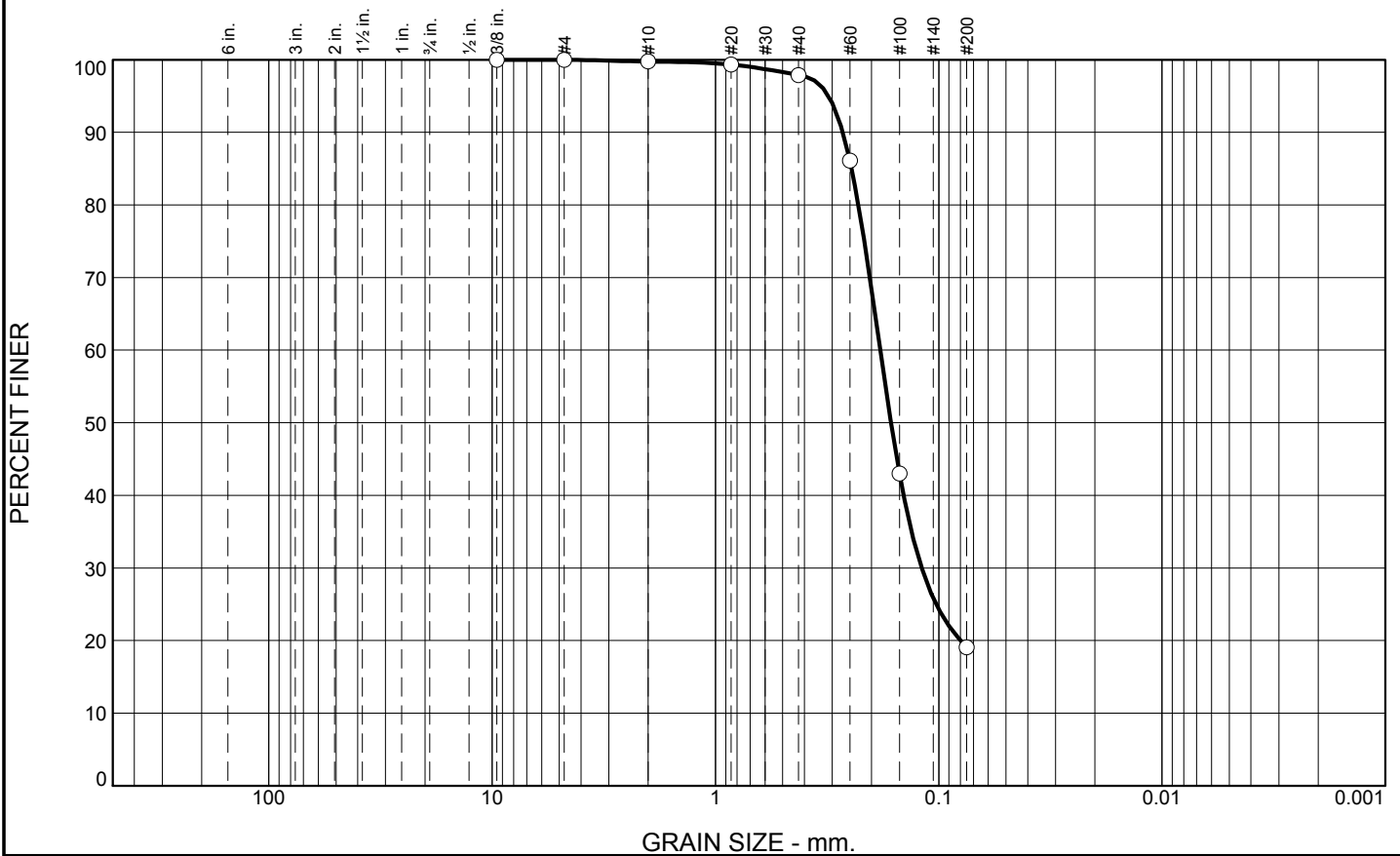
**Client:** US Army Corps of Engineers  
**Project:** Contract No. W91278-10-D-0026 - Task 03  
 Mississippi Barrier Island Restoration Project  
**Project No:** 10-2123-0009

**Figure**

**Tested By:** G.Fancher

**Checked By:** R.Byrd

# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.0	0.2	1.9	78.8	19.1	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
.375	100.0		
#4	100.0		
#10	99.8		
#20	99.3		
#40	97.9		
#60	86.1		
#100	43.0		
#200	19.1		

\* (no specification provided)

<u>Material Description</u>		
SILTY SAND, (SM), fine grained, with clay pockets		
<u>Atterberg Limits</u>		
PL=	LL=	PI=
<u>Coefficients</u>		
D <sub>90</sub> = 0.2687	D <sub>85</sub> = 0.2456	D <sub>60</sub> = 0.1828
D <sub>50</sub> = 0.1636	D <sub>30</sub> = 0.1192	D <sub>15</sub> =
D <sub>10</sub> =	C <sub>u</sub> =	C <sub>c</sub> =
<u>Classification</u>		
USCS= SM	AASHTO=	
<u>Remarks</u>		
CADD CODE = CH10D965		

Location: USACE Sample # BI-SI-73-10C  
Sample Number: TE Lab ID: 4557.03

Depth: 11.3 - 14.9 (ft.)

Date: 7/3/10

**Thompson Engineering**  
**Mobile, Alabama**

**Client:** US Army Corps of Engineers  
**Project:** Contract No. W91278-10-D-0026 - Task 03  
Mississippi Barrier Island Restoration Project  
**Project No:** 10-2123-0009

**Figure**

Tested By: G.Fancher

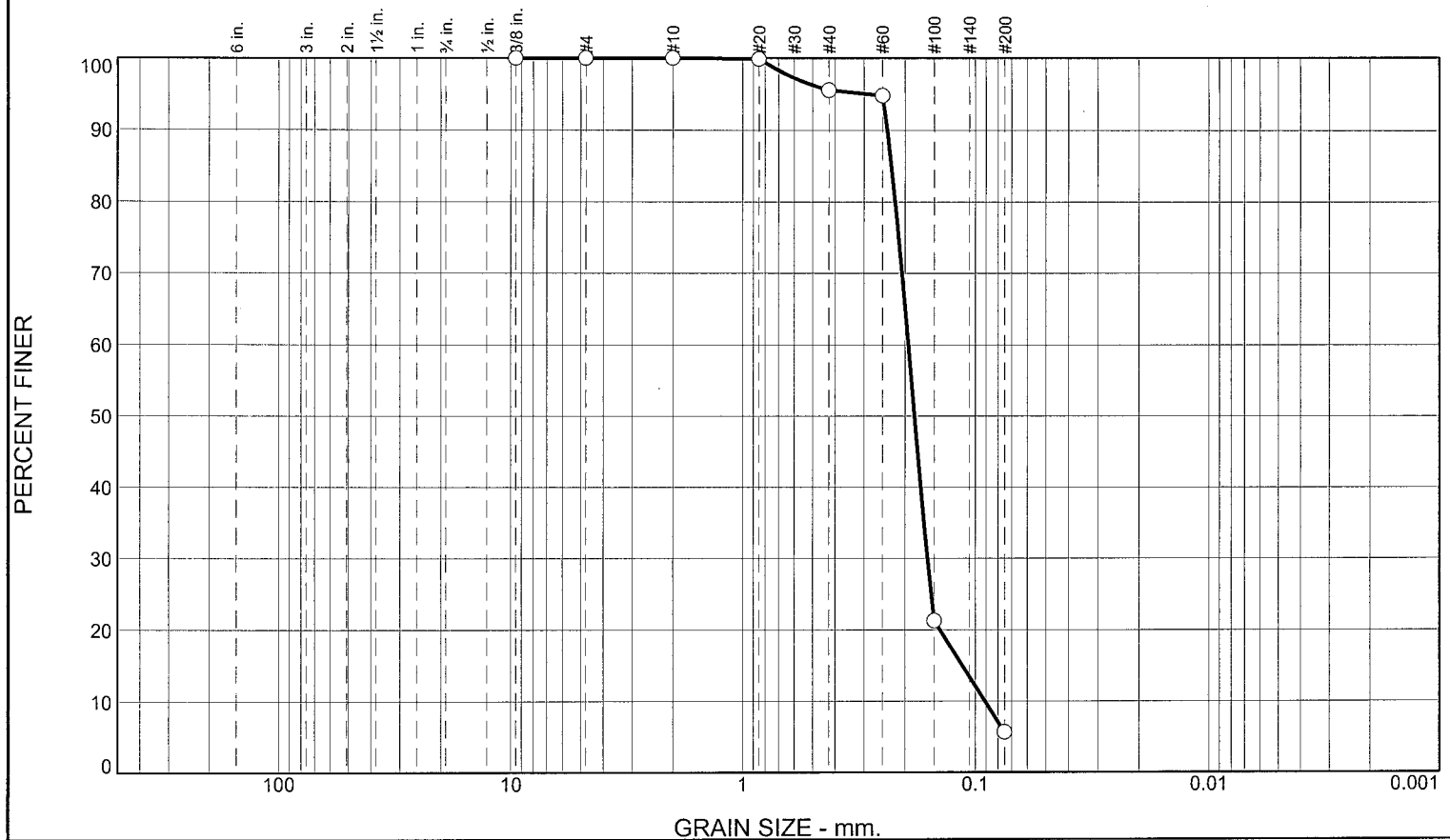
Checked By: R.Byrd

# Boring Designation BI-SI-74-10

DRILLING LOG		DIVISION South Atlantic		INSTALLATION Mobile District		SHEET 1 OF 1 SHEETS	
1. PROJECT MsCIP Barrier Island Restoration Ship Island				9. SIZE AND TYPE OF BIT N/A			
2. BORING DESIGNATION BI-SI-74-10		LOCATION COORDINATES E = 973,379 N = 259,795		10. COORDINATE SYSTEM/DATUM State Plane, MSE (U.S. Ft.)		HORIZONTAL NAD83 VERTICAL NAVD88	
3. DRILLING AGENCY Corps of Engineers - CESAM		CONTRACTOR FILE NO.		11. MANUFACTURER'S DESIGNATION OF DRILL Vibrocure		<input type="checkbox"/> AUTO HAMMER <input type="checkbox"/> MANUAL HAMMER	
4. NAME OF DRILLER Construction Solutions International, Inc.				12. TOTAL SAMPLES 2		DISTURBED 2 UNDISTURBED (UD) 0	
5. DIRECTION OF BORING <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED		DEG. FROM VERTICAL		13. TOTAL NUMBER CORE BOXES			
		BEARING		14. WATER DEPTH 30 Ft.			
6. THICKNESS OF OVERBURDEN N/A				15. DATE BORING 06-16-10		STARTED 06-16-10 COMPLETED 06-16-10	
7. DEPTH DRILLED INTO ROCK N/A				16. ELEVATION TOP OF BORING -28.3 Ft.			
8. TOTAL DEPTH OF BORING 17.0 Ft.				17. TOTAL RECOVERY FOR BORING 100%			
				18. SIGNATURE AND TITLE OF INSPECTOR Brad Johnson, Geologist			
ELEV.	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS	SAMPLE	LABORATORY RESULTS		
-28.3	0.0						
-29.6	1.3		CLAY, lean, trace sand, gray (CL)	NS			
			SAND, poorly-graded, mostly fine to medium-grained sand-sized quartz, lt. gray (SP)	A	Classification: SP-SM Color: 2.5Y 7/1-light gray D50: 0.1821 mm % Fines: 5.7		
				B	Classification: SP-SM Color: 2.5Y 7/1-light gray D50: 0.1775 mm % Fines: 6.1		
-40.3	12.0		CLAY, lean, trace sand, trace silt, dark gray (CL)	NS			
-45.3	17.0						
			NOTES: 1. Soils are field visually classified in accordance with the Unified Soils Classification System. 2. NS = Sample not submitted for laboratory analysis from this interval. 3. Seafloor elevation calculated using sampling vessel's fathometer water depth reading and applying NOAA tidal gauge data conversion factor.				



# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.0	0.0	4.4	89.9	5.7	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
.375	100.0		
#4	100.0		
#10	100.0		
#20	99.9		
#40	95.6		
#60	94.8		
#100	21.3		
#200	5.7		

\* (no specification provided)

<u>Material Description</u>		
SAND, (SP-SM), fine grained		
<u>Atterberg Limits</u>		
PL=	LL=	PI=
<u>Coefficients</u>		
D <sub>90</sub> = 0.2381	D <sub>85</sub> = 0.2284	D <sub>60</sub> = 0.1934
D <sub>50</sub> = 0.1821	D <sub>30</sub> = 0.1603	D <sub>15</sub> = 0.1135
D <sub>10</sub> = 0.0909	C <sub>u</sub> = 2.13	C <sub>c</sub> = 1.46
<u>Classification</u>		
USCS= SP-SM	AASHTO=	
<u>Remarks</u>		
CADD CODE = CH10D965		

Location: USACE Sample # BI-SI-74-10A  
Sample Number: TE Lab ID: 4549.52

Depth: 1.3 - 6.3 (ft.)

Date: 6/26/10

**Thompson Engineering**

**Mobile, Alabama**

Client: US Army Corps of Engineers

Project: Contract No. W91278-10-D-0026 - Task 03  
Mississippi Barrier Island Restoration Project

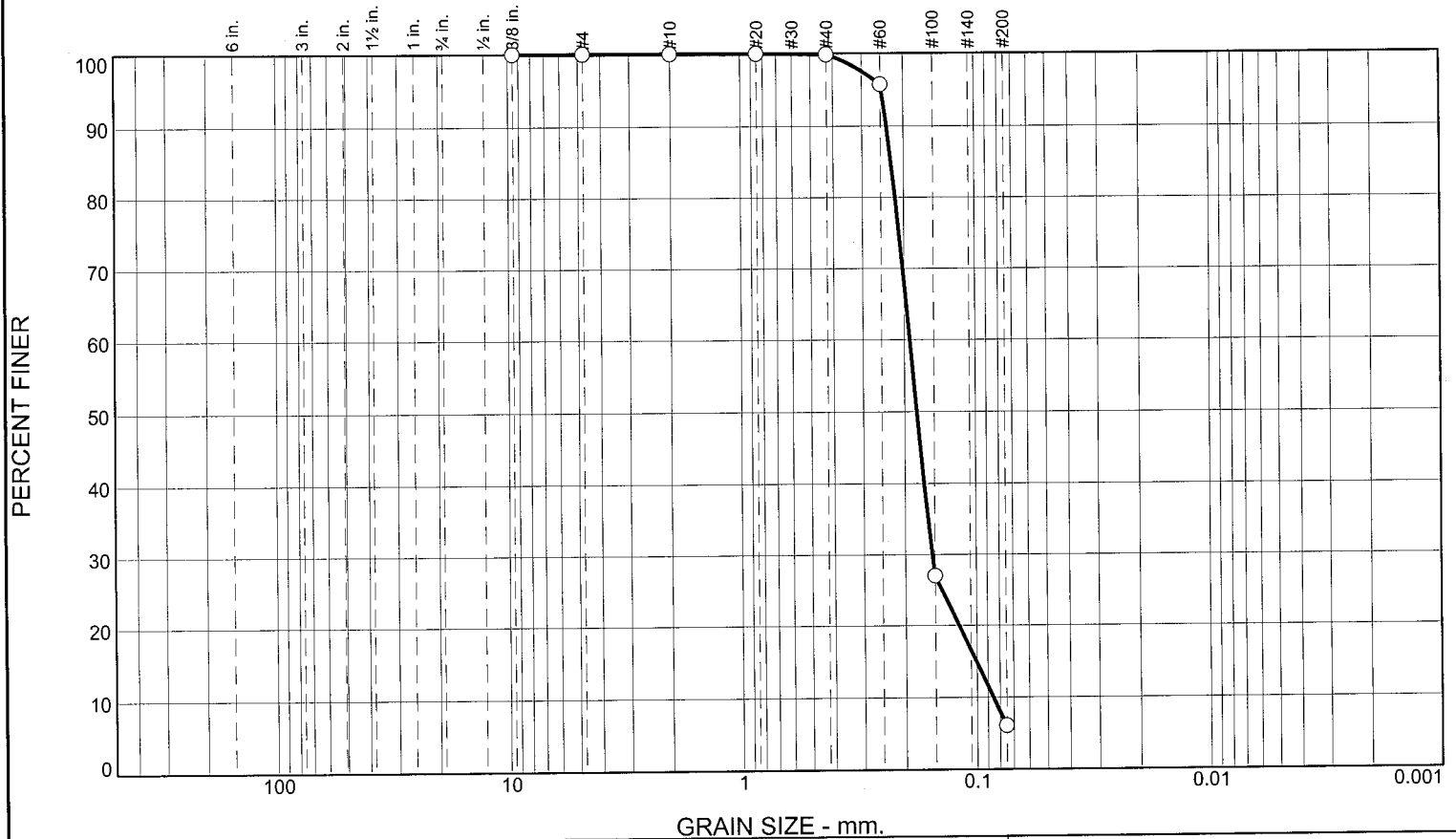
Project No: 10-2123-0009

Figure

Tested By: G.Fancher

Checked By: R.Byrd

# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.0	0.0	0.2	93.7	6.1	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
.375	100.0		
#4	100.0		
#10	100.0		
#20	100.0		
#40	99.8		
#60	95.8		
#100	27.0		
#200	6.1		

\* (no specification provided)

Location: USACE Sample # BI-SI-74-10B  
Sample Number: TE Lab ID: 4549.53

Depth: 6.3 - 12.0 (ft.)

Date: 6/26/10

**Thompson Engineering**

**Mobile, Alabama**

Client: US Army Corps of Engineers

Project: Contract No. W91278-10-D-0026 - Task 03  
Mississippi Barrier Island Restoration Project

Project No: 10-2123-0009

Figure

## Material Description

SAND, (SP-SM), fine grained

## Atterberg Limits

PL=

LL=

PI=

## Coefficients

D<sub>90</sub>= 0.2356

D<sub>85</sub>= 0.2258

D<sub>60</sub>= 0.1895

D<sub>50</sub>= 0.1775

D<sub>30</sub>= 0.1538

D<sub>15</sub>= 0.1007

D<sub>10</sub>= 0.0853

C<sub>u</sub>= 2.22

C<sub>c</sub>= 1.46

## Classification

USCS= SP-SM

AASHTO=

## Remarks

CADD CODE = CH10D965

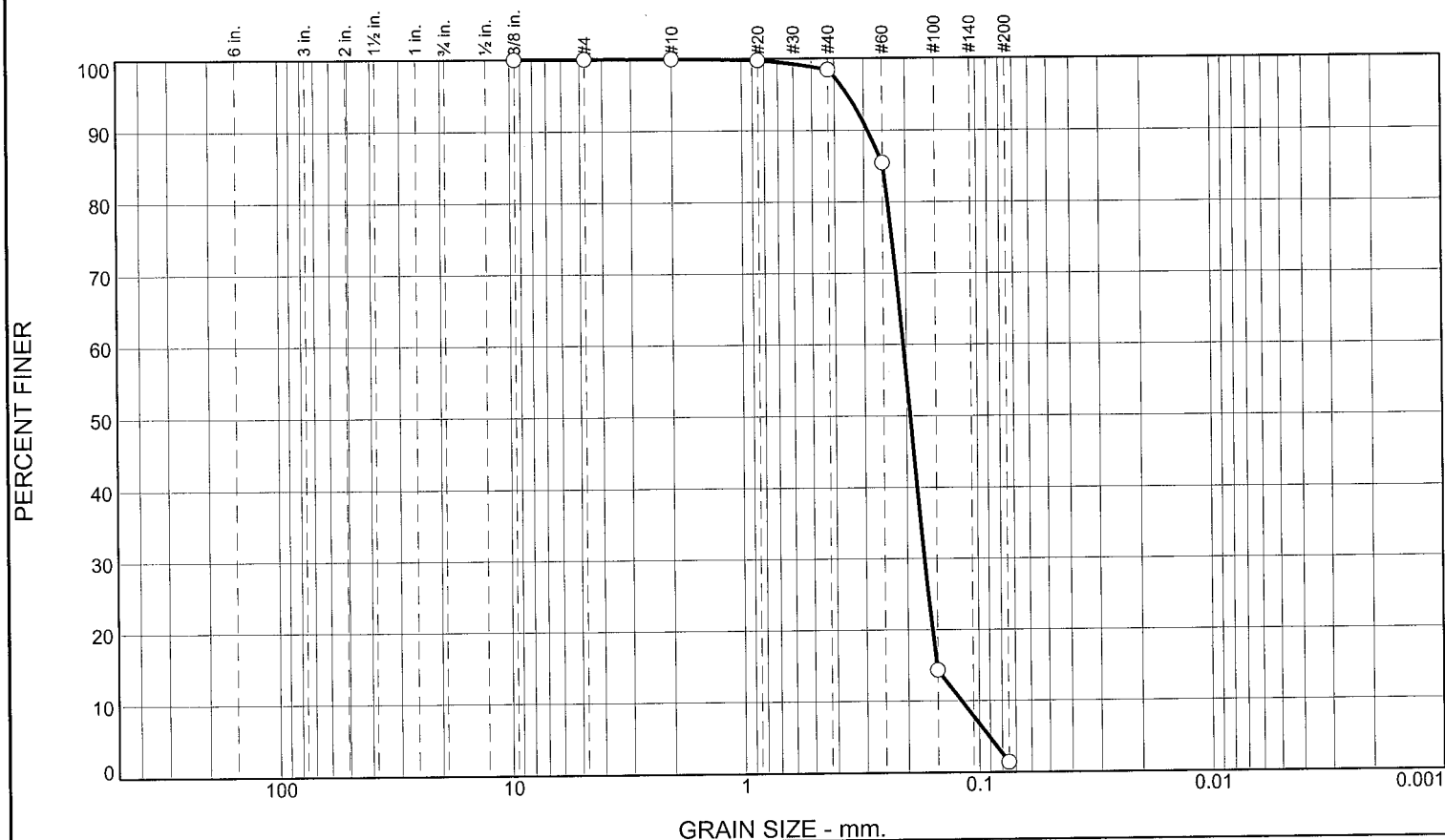
Tested By: G.Fancher

Checked By: R.Byrd

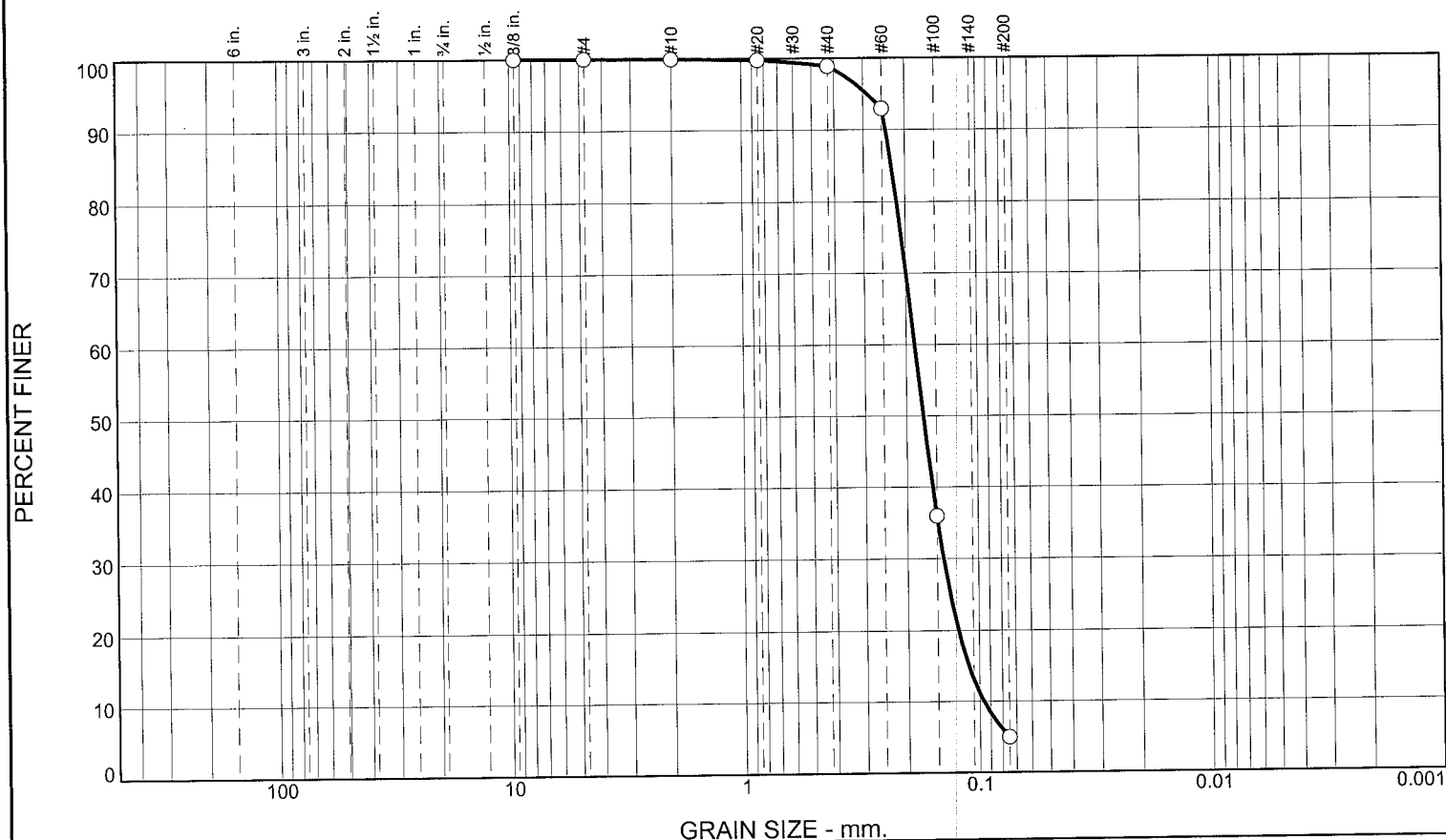
# Boring Designation BI-SI-75-10

DRILLING LOG		DIVISION South Atlantic		INSTALLATION Mobile District		SHEET 1 OF 1 SHEETS	
1. PROJECT MsCIP Barrier Island Restoration Ship Island				9. SIZE AND TYPE OF BIT N/A			
2. BORING DESIGNATION BI-SI-75-10		LOCATION COORDINATES E = 966,632 N = 252,375		10. COORDINATE SYSTEM/DATUM State Plane, MSE (U.S. Ft.)		HORIZONTAL NAD83 VERTICAL NAVD88	
3. DRILLING AGENCY Corps of Engineers - CESAM		CONTRACTOR FILE NO.		11. MANUFACTURER'S DESIGNATION OF DRILL Vibrocure		<input type="checkbox"/> AUTO HAMMER <input type="checkbox"/> MANUAL HAMMER	
4. NAME OF DRILLER Construction Solutions International, Inc.				12. TOTAL SAMPLES 3		DISTURBED 0 UNDISTURBED (UD)	
5. DIRECTION OF BORING <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED		DEG. FROM VERTICAL		13. TOTAL NUMBER CORE BOXES			
		BEARING		14. WATER DEPTH 30 Ft.			
6. THICKNESS OF OVERBURDEN N/A				15. DATE BORING 06-17-10		STARTED 06-17-10 COMPLETED 06-17-10	
7. DEPTH DRILLED INTO ROCK N/A				16. ELEVATION TOP OF BORING -28.5 Ft.			
8. TOTAL DEPTH OF BORING 18.7 Ft.				17. TOTAL RECOVERY FOR BORING 100%			
				18. SIGNATURE AND TITLE OF INSPECTOR Brad Johnson, Geologist			
ELEV.	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS	SAMPLE	LABORATORY RESULTS		
-28.5	0.0						
			SAND, poorly-graded, mostly fine-grained sand-sized quartz, trace shell fragments, lt. gray (SP)	A	Classification: SP Color: 2.5Y 7/1-light gray D50: 0.1929 mm % Fines: 1.4		
				B	Classification: SP Color: 2.5Y 5/2-grayish brown D50: 0.1698 mm % Fines: 4.9		
-39.5	11.0						
-41.2	12.7		SILT, inorganic-L, gray (ML)				
			CLAY, lean, dark gray (CL)	NS			
-44.4	15.9						
			SAND, silty (SM)	C	Classification: SM Color: 2.5Y 7/1-light gray D50: 0.1746 mm % Fines: 12.5		
-47.2	18.7						
			NOTES: 1. Soils are field visually classified in accordance with the Unified Soils Classification System. 2. NS = Sample not submitted for laboratory analysis from this interval. 3. Seafloor elevation calculated using sampling vessel's fathometer water depth reading and applying NOAA tidal gauge data conversion factor.				

# Particle Size Distribution Report



# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.0	0.1	1.0	94.0	4.9	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
.375	100.0		
#4	100.0		
#10	99.9		
#20	99.7		
#40	98.9		
#60	92.9		
#100	36.0		
#200	4.9		

Material Description		
SAND, (SP), fine grained		
PL=		
LL=		
PI=		
Coefficients		
D <sub>90</sub> = 0.2407	D <sub>85</sub> = 0.2279	D <sub>60</sub> = 0.1840
D <sub>50</sub> = 0.1698	D <sub>30</sub> = 0.1407	D <sub>15</sub> = 0.1109
D <sub>10</sub> = 0.0962	C <sub>u</sub> = 1.91	C <sub>c</sub> = 1.12
Classification		
USCS= SP		
AASHTO=		
Remarks		
CADD CODE = CH10D965		

\* (no specification provided)

Location: USACE Sample # BI-SI-75-10C  
Sample Number: TE Lab ID: 4549.56

Depth: 5.5 - 11.0 (ft.)

Mislabeled; should be BI-SI-75-10B

Date: 6/26/10

**Thompson Engineering**

**Mobile, Alabama**

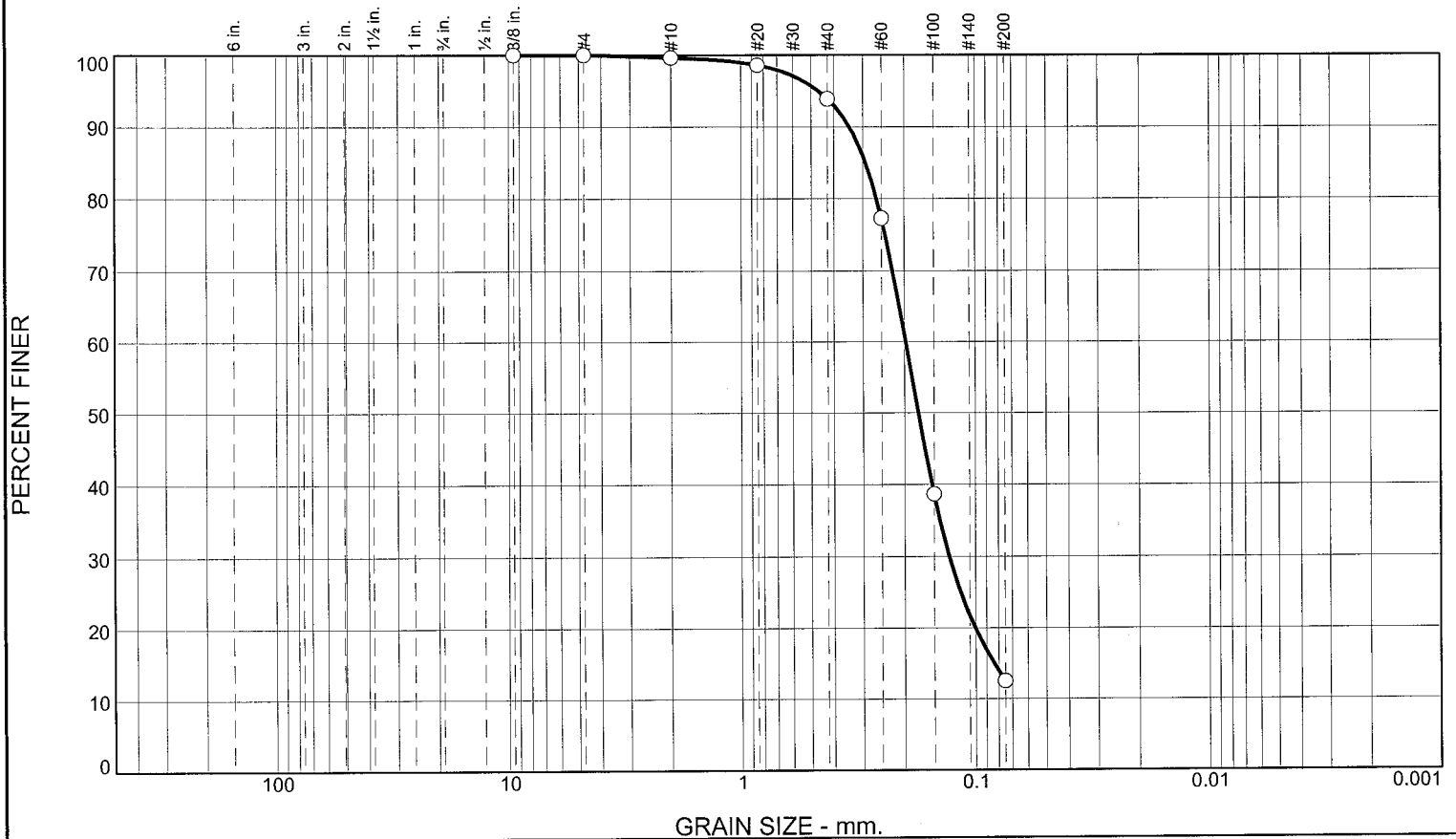
Client: US Army Corps of Engineers  
Project: Contract No. W91278-10-D-0026 - Task 03  
Mississippi Barrier Island Restoration Project  
Project No: 10-2123-0009

Figure

Tested By: G.Fancher

Checked By: R.Byrd

# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.0	0.4	5.8	81.3	12.5	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
.375	100.0		
#4	100.0		
#10	99.6		
#20	98.6		
#40	93.8		
#60	77.3		
#100	38.7		
#200	12.5		

**Material Description**  
SILTY SAND, (SM), fine grained

**Atterberg Limits**  
 PL=      LL=      PI=

**Coefficients**  
 D<sub>90</sub>= 0.3424      D<sub>85</sub>= 0.2920      D<sub>60</sub>= 0.1974  
 D<sub>50</sub>= 0.1746      D<sub>30</sub>= 0.1293      D<sub>15</sub>= 0.0834  
 D<sub>10</sub>=      C<sub>u</sub>=      C<sub>c</sub>=

**Classification**  
 USCS= SM      AASHTO=

**Remarks**  
 CADD CODE = CH10D965

\* (no specification provided)

Location: USACE Sample # BI-SI-75-10B  
 Sample Number: TE Lab ID: 4549.55

Depth: 15.9 - 18.7 (ft.)

Date: 6/26/10

Mislabeled; should be BI-SI-75-10C

**Thompson Engineering**

**Mobile, Alabama**

**Client:** US Army Corps of Engineers  
**Project:** Contract No. W91278-10-D-0026 - Task 03  
 Mississippi Barrier Island Restoration Project  
**Project No:** 10-2123-0009

**Figure**

Tested By: G.Fancher

Checked By: R.Byrd

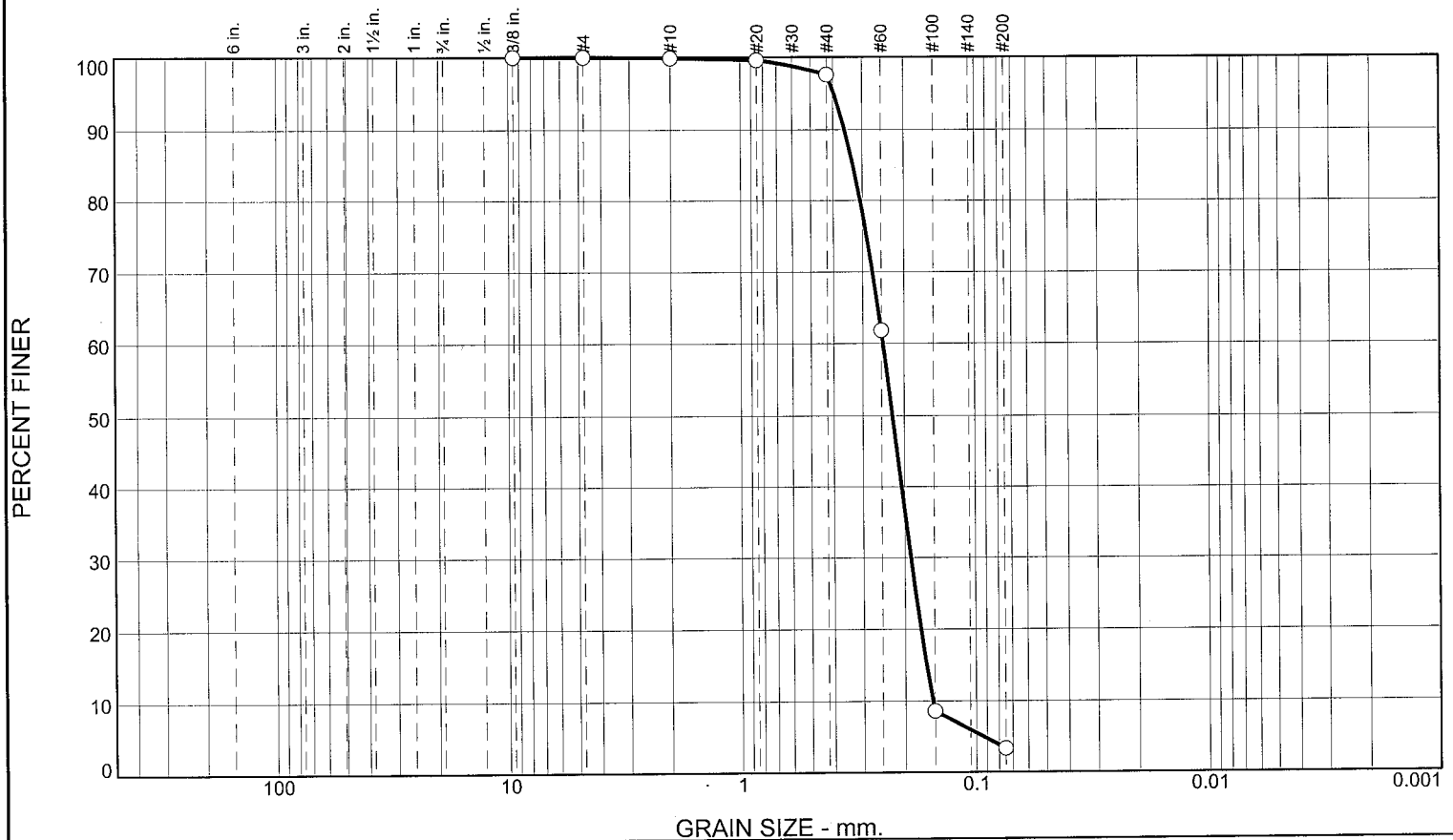
# Boring Designation BI-SI-76-10

DRILLING LOG		DIVISION South Atlantic		INSTALLATION Mobile District		SHEET 1 OF 1 SHEETS	
1. PROJECT MsCIP Barrier Island Restoration Ship Island				9. SIZE AND TYPE OF BIT N/A			
2. BORING DESIGNATION BI-SI-76-10		LOCATION COORDINATES E = 969,273 N = 253,079		10. COORDINATE SYSTEM/DATUM State Plane, MSE (U.S. Ft.)		HORIZONTAL NAD83	
3. DRILLING AGENCY Corps of Engineers - CESAM		CONTRACTOR FILE NO.		11. MANUFACTURER'S DESIGNATION OF DRILL Vibrocure		<input type="checkbox"/> AUTO HAMMER <input type="checkbox"/> MANUAL HAMMER	
4. NAME OF DRILLER Construction Solutions International, Inc.				12. TOTAL SAMPLES 2		DISTURBED 0	
5. DIRECTION OF BORING <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED				13. TOTAL NUMBER CORE BOXES		14. WATER DEPTH 31 Ft.	
6. THICKNESS OF OVERBURDEN N/A				15. DATE BORING 06-16-10		STARTED 06-16-10	
7. DEPTH DRILLED INTO ROCK N/A				16. ELEVATION TOP OF BORING -29.7 Ft.		COMPLETED 06-16-10	
8. TOTAL DEPTH OF BORING 16.2 Ft.				17. TOTAL RECOVERY FOR BORING 100%		18. SIGNATURE AND TITLE OF INSPECTOR Brad Johnson, Geologist	

ELEV.	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS	SAMPLE	LABORATORY RESULTS
-29.7	0.0				
-30.4	0.7		SAND, clayey, mostly fine-grained sand-sized quartz, some clay, some silt, lt. gray (SC)		
			SAND, poorly-graded, mostly fine-grained sand-sized quartz, lt. gray (SP)	A	Classification: SP Color: 2/5Y 7/1- D50: 0.2245 mm % Fines: 3.3
				B	Classification: SM Color: 2.5Y 7/1-light gray D50: 0.1591 mm % Fines: 24.1
-40.9	11.2		CLAY, lean, some sand, some silt, dark gray (CL)		
-44.0	14.3			NS	
-45.9	16.2		SAND, poorly-graded, mostly fine to medium-grained sand-sized quartz, trace shell fragments, dark gray (SP)		
NOTES: 1. Soils are field visually classified in accordance with the Unified Soils Classification System. 2. NS = Sample not submitted for laboratory analysis from this interval. 3. Seafloor elevation calculated using sampling vessel's fathometer water depth reading and applying NOAA tidal gauge data conversion factor.					

# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.0	0.1	2.3	94.3	3.3	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
.375	100.0		
#4	100.0		
#10	99.9		
#20	99.6		
#40	97.6		
#60	61.8		
#100	8.6		
#200	3.3		

\* (no specification provided)

**Material Description**

SAND, (SP), fine grained

**Atterberg Limits**

PL=      LL=      PI=

**Coefficients**

D<sub>90</sub>= 0.3565      D<sub>85</sub>= 0.3284      D<sub>60</sub>= 0.2457  
D<sub>50</sub>= 0.2245      D<sub>30</sub>= 0.1885      D<sub>15</sub>= 0.1625  
D<sub>10</sub>= 0.1529      C<sub>u</sub>= 1.61      C<sub>c</sub>= 0.95

**Classification**

USCS= SP      AASHTO=

**Remarks**

CADD CODE = CH10D965

Location: USACE Sample # BI-SI-76-10A  
Sample Number: TE Lab ID: 4549.57

Depth: 0.7 - 6.0 (ft.)

Date: 6/26/10

**Thompson Engineering**

**Mobile, Alabama**

**Client:** US Army Corps of Engineers  
**Project:** Contract No. W91278-10-D-0026 - Task 03  
Mississippi Barrier Island Restoration Project  
**Project No:** 10-2123-0009

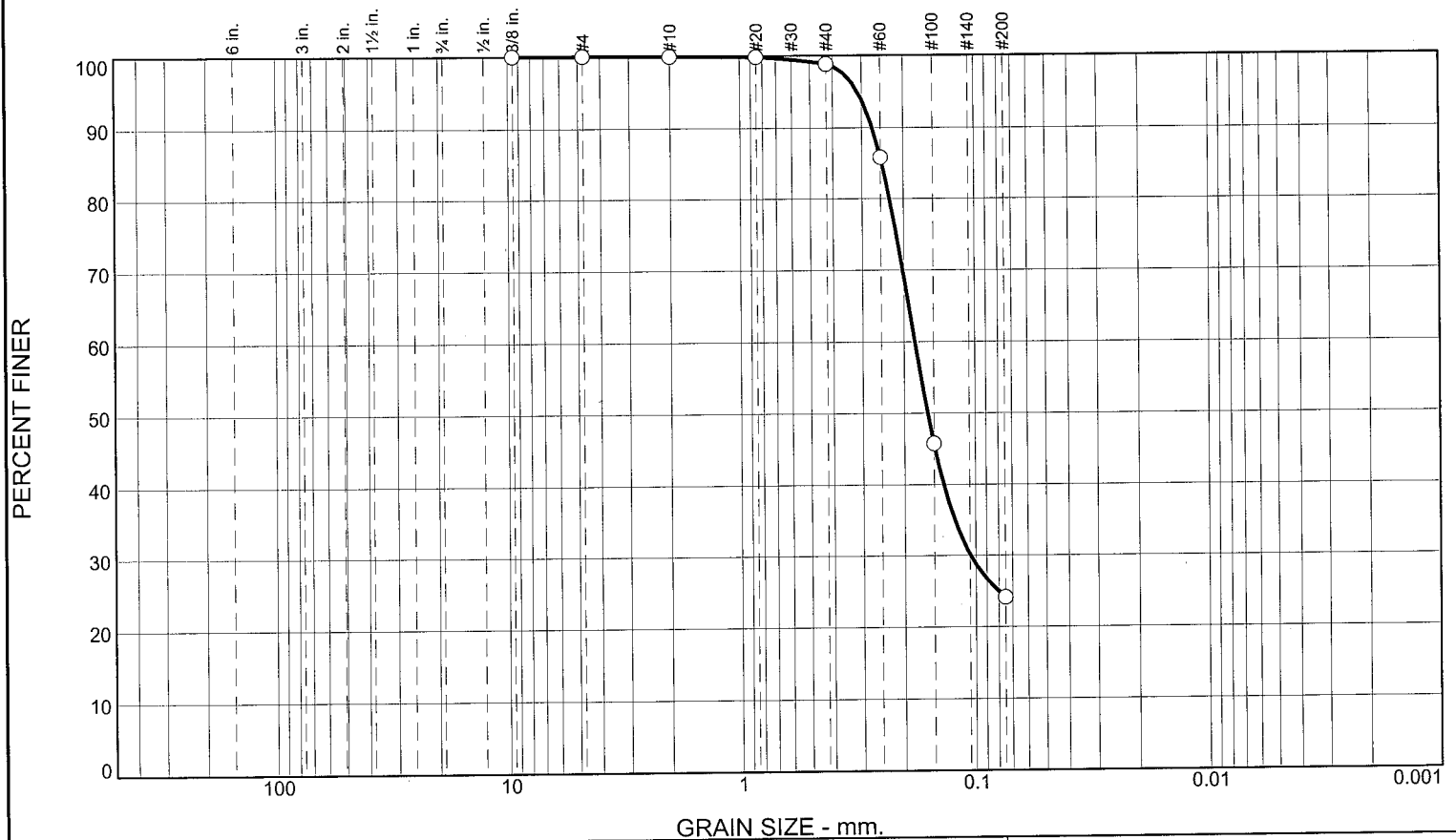
**Figure**

Tested By: G.Fancher

Checked By: R.Byrd



# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.0	0.1	1.1	74.7	24.1	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
.375	100.0		
#4	100.0		
#10	99.9		
#20	99.8		
#40	98.8		
#60	85.9		
#100	45.8		
#200	24.1		

\* (no specification provided)

**Material Description**  
SILTY SAND, (SM), fine grained

**Atterberg Limits**  
 PL=      LL=      PI=

**Coefficients**  
 D<sub>90</sub>= 0.2706      D<sub>85</sub>= 0.2465      D<sub>60</sub>= 0.1799  
 D<sub>50</sub>= 0.1591      D<sub>30</sub>= 0.1053      D<sub>15</sub>=  
 D<sub>10</sub>=      C<sub>u</sub>=      C<sub>c</sub>=

**Classification**  
 USCS= SM      AASHTO=

**Remarks**  
 CADD CODE = CH10D965

Location: USACE Sample # BI-SI-76-10B  
 Sample Number: TE Lab ID: 4549.58

Depth: 6.0 - 11.2 (ft.)

Date: 6/26/10

**Thompson Engineering**

**Mobile, Alabama**

Client: US Army Corps of Engineers  
 Project: Contract No. W91278-10-D-0026 - Task 03  
 Mississippi Barrier Island Restoration Project  
 Project No: 10-2123-0009

Figure

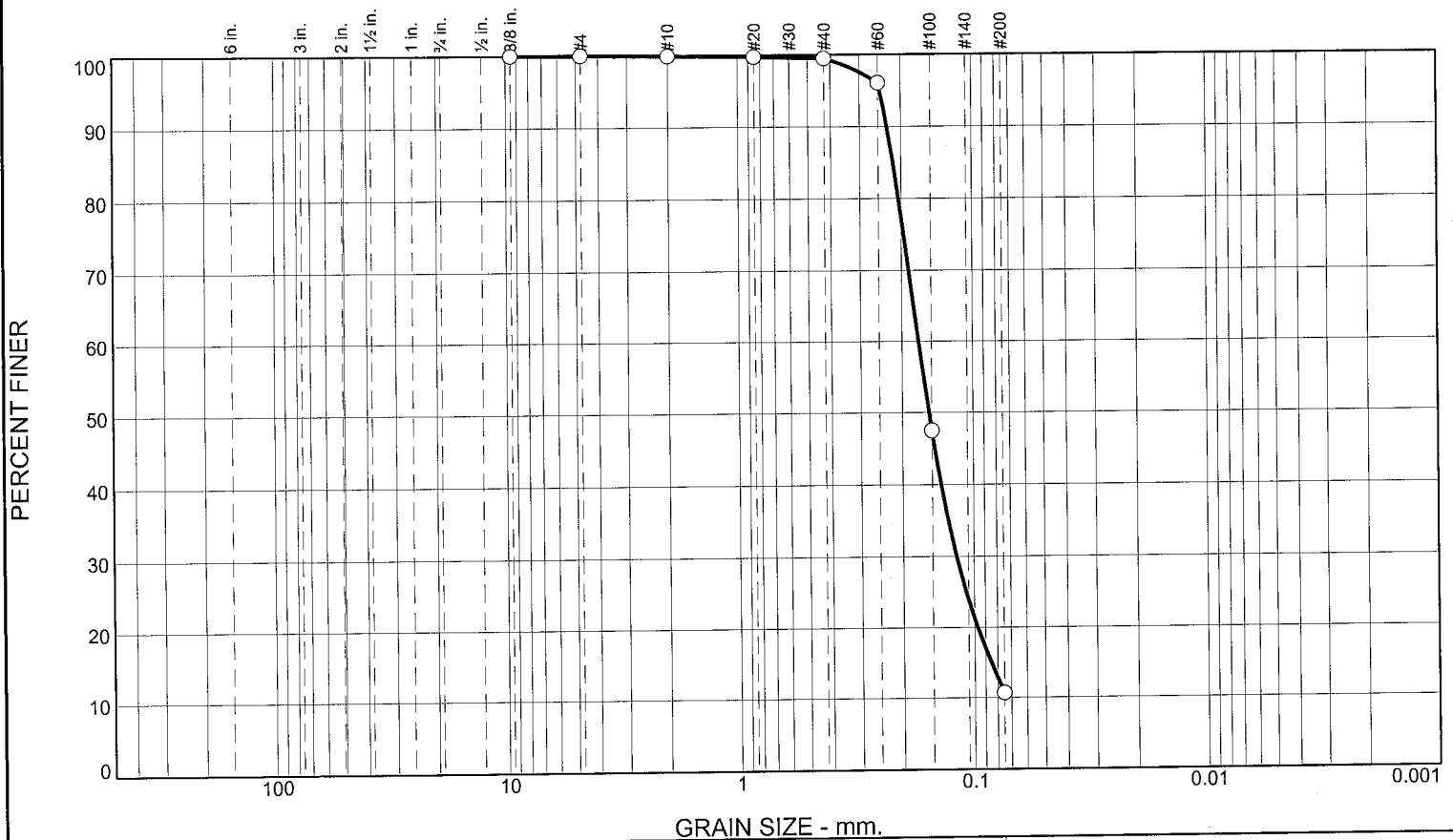
Tested By: G.Fancher

Checked By: R.Byrd

# Boring Designation BI-SI-77-10

DRILLING LOG		DIVISION South Atlantic		INSTALLATION Mobile District		SHEET 1 OF 1 SHEETS	
1. PROJECT MsCIP Barrier Island Restoration Ship Island				9. SIZE AND TYPE OF BIT N/A			
2. BORING DESIGNATION BI-SI-77-10		LOCATION COORDINATES E = 972,126 N = 253,489		10. COORDINATE SYSTEM/DATUM State Plane, MSE (U.S. Ft.)		HORIZONTAL NAD83 VERTICAL NAVD88	
3. DRILLING AGENCY Corps of Engineers - CESAM		CONTRACTOR FILE NO.		11. MANUFACTURER'S DESIGNATION OF DRILL Vibracore		<input type="checkbox"/> AUTO HAMMER <input type="checkbox"/> MANUAL HAMMER	
4. NAME OF DRILLER Construction Solutions International, Inc.				12. TOTAL SAMPLES 2		DISTURBED 2 UNDISTURBED (UD) 0	
5. DIRECTION OF BORING <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED		DEG. FROM VERTICAL		13. TOTAL NUMBER CORE BOXES			
		BEARING		14. WATER DEPTH 32.5 Ft.			
6. THICKNESS OF OVERBURDEN N/A				15. DATE BORING 06-16-10		STARTED 06-16-10 COMPLETED 06-16-10	
7. DEPTH DRILLED INTO ROCK N/A				16. ELEVATION TOP OF BORING -31.0 Ft.			
8. TOTAL DEPTH OF BORING 16.1 Ft.				17. TOTAL RECOVERY FOR BORING 100%			
				18. SIGNATURE AND TITLE OF INSPECTOR Brad Johnson, Geologist			
ELEV.	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS	SAMPLE	LABORATORY RESULTS		
-31.0	0.0						
-33.3	2.3		CLAY, lean, trace sand, trace silt, dark gray (CL)	NS			
-39.6	8.6		SAND, poorly-graded, mostly fine-grained sand-sized quartz, trace silt, lt. gray (SP)	A	Classification: SP-SM Color: 2.5Y 6/2-light brownish gray D50: 0.154 mm % Fines: 10.7		
-43.2	12.2		CLAY, lean, some sand, dark gray (CL)	NS			
-47.1	16.1		SAND, poorly-graded, mostly medium-grained sand-sized quartz, trace shell fragments (SP)	B	Classification: SP-SM Color: 2.5Y 6/2-light brownish gray D50: 0.2548 mm % Fines: 6.9		
			NOTES: 1. Soils are field visually classified in accordance with the Unified Soils Classification System. 2. NS = Sample not submitted for laboratory analysis from this interval. 3. Seafloor elevation calculated using sampling vessel's fathometer water depth reading and applying NOAA tidal gauge data conversion factor.				

# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.0	0.1	0.4	88.8	10.7	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
.375	100.0		
#4	100.0		
#10	99.9		
#20	99.7		
#40	99.5		
#60	96.0		
#100	47.5		
#200	10.7		

\* (no specification provided)

<b>Material Description</b>		
SAND, (SP-SM), fine grained		
<b>Atterberg Limits</b>		
PL=	LL=	PI=
<b>Coefficients</b>		
D <sub>90</sub> = 0.2291	D <sub>85</sub> = 0.2161	D <sub>60</sub> = 0.1698
D <sub>50</sub> = 0.1540	D <sub>30</sub> = 0.1187	D <sub>15</sub> = 0.0851
D <sub>10</sub> =	C <sub>u</sub> =	C <sub>c</sub> =
<b>Classification</b>		
USCS= SP-SM	AASHTO=	
<b>Remarks</b>		
CADD CODE = CH10D965		

Location: USACE Sample # BI-SI-77-10A  
Sample Number: TE Lab ID: 4549.59

Depth: 2.3 - 8.6 (ft.)

Date: 6/26/10

**Thompson Engineering**

**Mobile, Alabama**

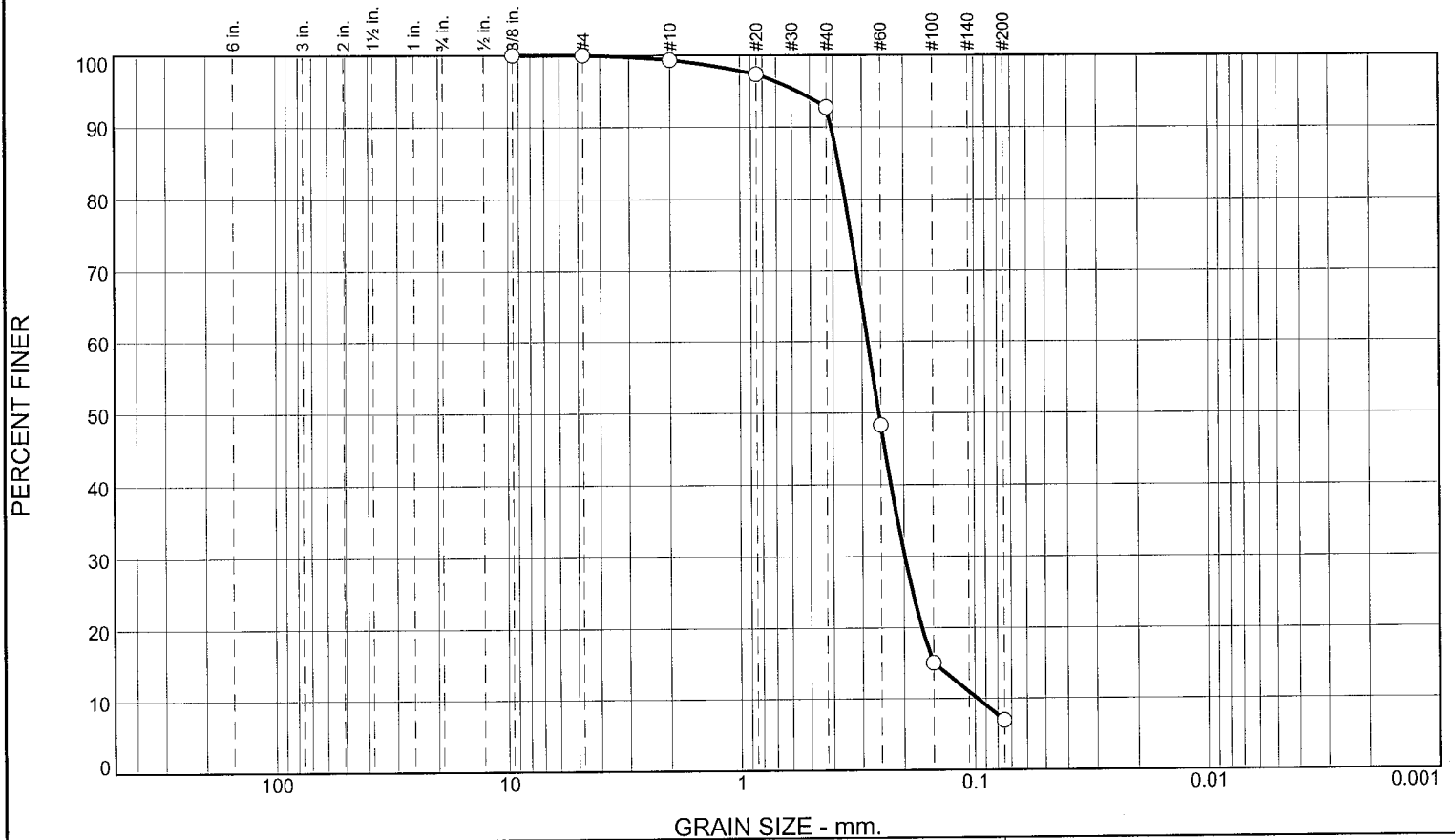
Client: US Army Corps of Engineers  
Project: Contract No. W91278-10-D-0026 - Task 03  
Mississippi Barrier Island Restoration Project  
Project No: 10-2123-0009

Figure

Tested By: G.Fancher

Checked By: R.Byrd

# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.0	0.7	6.6	85.8	6.9	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
.375	100.0		
#4	100.0		
#10	99.3		
#20	97.4		
#40	92.7		
#60	48.3		
#100	15.0		
#200	6.9		

**Material Description**  
SAND, (SP-SM), fine grained

**Atterberg Limits**  
 PL=      LL=      PI=

**Coefficients**  
 D<sub>90</sub>= 0.4052      D<sub>85</sub>= 0.3766      D<sub>60</sub>= 0.2838  
 D<sub>50</sub>= 0.2548      D<sub>30</sub>= 0.1982      D<sub>15</sub>= 0.1496  
 D<sub>10</sub>= 0.0975      C<sub>u</sub>= 2.91      C<sub>c</sub>= 1.42

**Classification**  
 USCS= SP-SM      AASHTO=

**Remarks**  
 CADD CODE = CH10D965

\* (no specification provided)

Location: USACE Sample # BI-SI-77-10B  
 Sample Number: TE Lab ID: 4549.60

Depth: 12.2 - 16.1 (ft.)

Date: 6/26/10

**Thompson Engineering**

**Mobile, Alabama**

Client: US Army Corps of Engineers  
 Project: Contract No. W91278-10-D-0026 - Task 03  
 Mississippi Barrier Island Restoration Project  
 Project No: 10-2123-0009

Figure

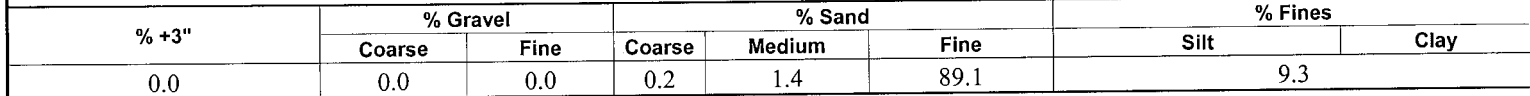
Tested By: G.Fancher

Checked By: R.Byrd

# Boring Designation BI-SI-79-10

DRILLING LOG		DIVISION South Atlantic		INSTALLATION Mobile District		SHEET 1 OF 1 SHEETS	
1. PROJECT MsCIP Barrier Island Restoration Ship Island				9. SIZE AND TYPE OF BIT N/A			
2. BORING DESIGNATION BI-SI-79-10		LOCATION COORDINATES E = 974,064 N = 257,714		10. COORDINATE SYSTEM/DATUM State Plane, MSE (U.S. Ft.)		HORIZONTAL NAD83	
3. DRILLING AGENCY Corps of Engineers - CESAM		CONTRACTOR FILE NO.		11. MANUFACTURER'S DESIGNATION OF DRILL Vibracore		<input type="checkbox"/> AUTO HAMMER <input type="checkbox"/> MANUAL HAMMER	
4. NAME OF DRILLER Construction Solutions International, Inc.				12. TOTAL SAMPLES 2		DISTURBED 0	
5. DIRECTION OF BORING <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED		DEG. FROM VERTICAL		13. TOTAL NUMBER CORE BOXES			
		BEARING		14. WATER DEPTH 31 Ft.			
6. THICKNESS OF OVERBURDEN N/A				15. DATE BORING 06-16-10		COMPLETED 06-16-10	
7. DEPTH DRILLED INTO ROCK N/A				16. ELEVATION TOP OF BORING -29.5 Ft.			
8. TOTAL DEPTH OF BORING 11.3 Ft.				17. TOTAL RECOVERY FOR BORING 100%			
				18. SIGNATURE AND TITLE OF INSPECTOR Brad Johnson, Geologist			
ELEV.	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS	SAMPLE	LABORATORY RESULTS		
-29.5	0.0						
-30.8	1.3		CLAY, lean, dark gray (CL)	NS			
-33.9	4.4		SAND, poorly-graded, mostly fine to medium-grained sand-sized quartz, little silt, lt. gray (SP)	A	Classification: SP-SM Color: 2.5Y 6/2-light brownish gray D50: 0.1757 mm % Fines: 9.3		
-38.4	8.9		SAND, silty, mostly fine to medium-grained sand-sized quartz, some silt, trace shell fragments, gray (SM)	B	Classification: SM Color: 2.5Y 5/2-grayish brown D50: 0.1408 mm % Fines: 26.6		
-40.8	11.3		CLAY, lean, dark gray (CL)	NS			
NOTES:							
1. Soils are field visually classified in accordance with the Unified Soils Classification System.							
2. NS = Sample not submitted for laboratory analysis from this interval.							
3. Seafloor elevation calculated using sampling vessel's fathometer water depth reading and applying NOAA tidal gauge data conversion factor.							

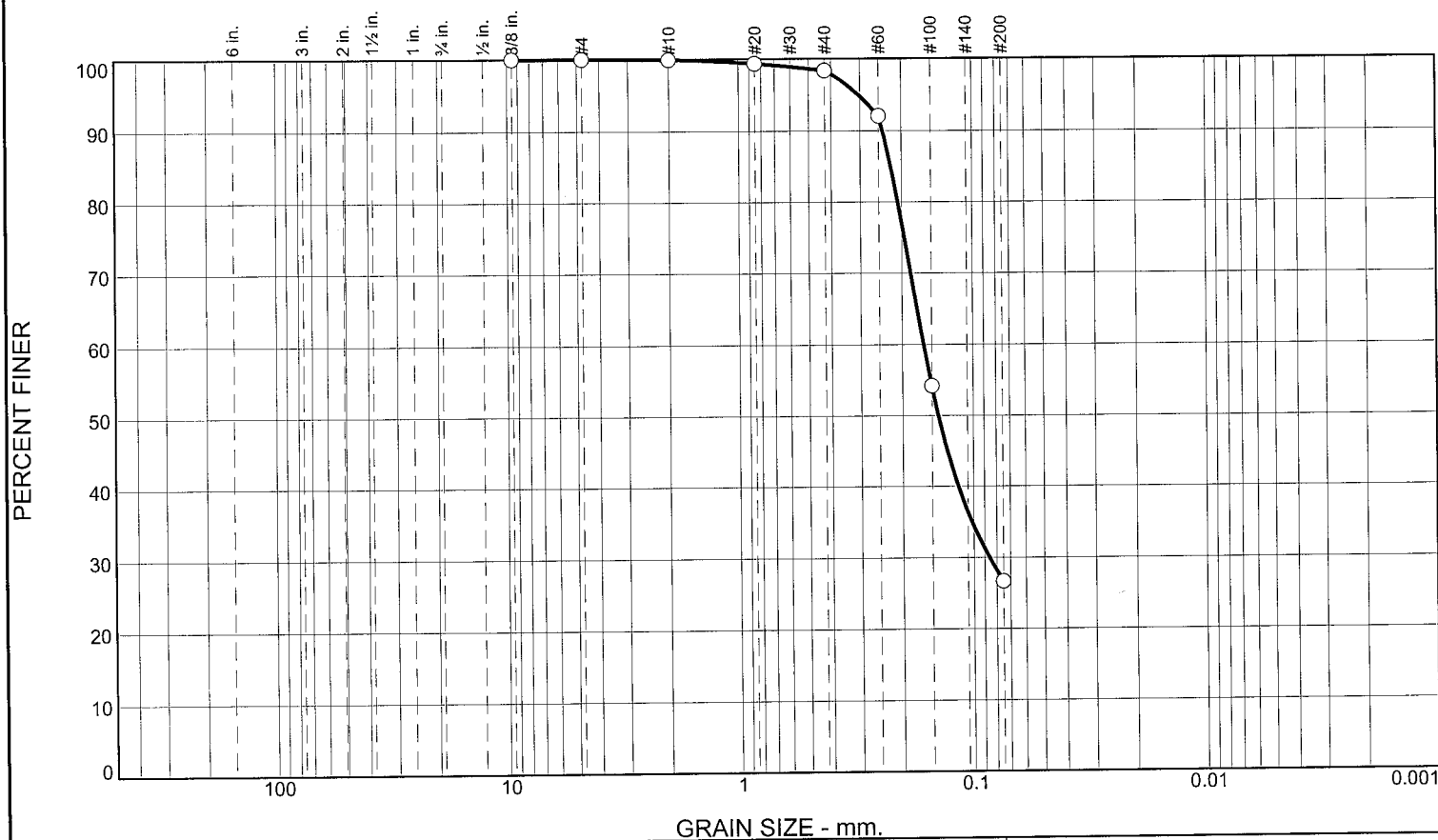
PERCENT FINER



<u>Material Description</u>		
SAND, (SP-SM), fine grained		
<u>Atterberg Limits</u>		
PL=	LL=	PI=
<u>Coefficients</u>		
D <sub>90</sub> = 0.2642	D <sub>85</sub> = 0.2392	D <sub>60</sub> = 0.1907
D <sub>50</sub> = 0.1757	D <sub>30</sub> = 0.1456	D <sub>15</sub> = 0.1125
D <sub>10</sub> = 0.0863	C <sub>u</sub> = 2.21	C <sub>c</sub> = 1.29
<u>Classification</u>		
USCS= SP-SM	AASHTO=	
<u>Remarks</u>		
CADD CODE = CH10D965		

F-190

# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.0	0.1	1.5	71.8	26.6	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
.375	100.0		
#4	100.0		
#10	99.9		
#20	99.3		
#40	98.4		
#60	92.1		
#100	54.2		
#200	26.6		

\* (no specification provided)

**Material Description**  
SILTY SAND, (SM), fine grained

**Atterberg Limits**  
 PL=      LL=      PI=

**Coefficients**  
 D<sub>90</sub>= 0.2404      D<sub>85</sub>= 0.2221      D<sub>60</sub>= 0.1622  
 D<sub>50</sub>= 0.1408      D<sub>30</sub>= 0.0858      D<sub>15</sub>=  
 D<sub>10</sub>=      C<sub>u</sub>=      C<sub>c</sub>=

**Classification**  
 USCS= SM      AASHTO=

**Remarks**  
 CADD CODE = CH10D965

Location: USACE Sample # BI-SI-79-10B  
 Sample Number: TE Lab ID: 4549.62

Depth: 4.4 - 8.9 (ft.)

Date: 6/26/10

**Thompson Engineering**

**Mobile, Alabama**

**Client:** US Army Corps of Engineers  
**Project:** Contract No. W91278-10-D-0026 - Task 03  
 Mississippi Barrier Island Restoration Project  
**Project No:** 10-2123-0009

**Figure**

Tested By: G.Fancher

Checked By: R.Byrd

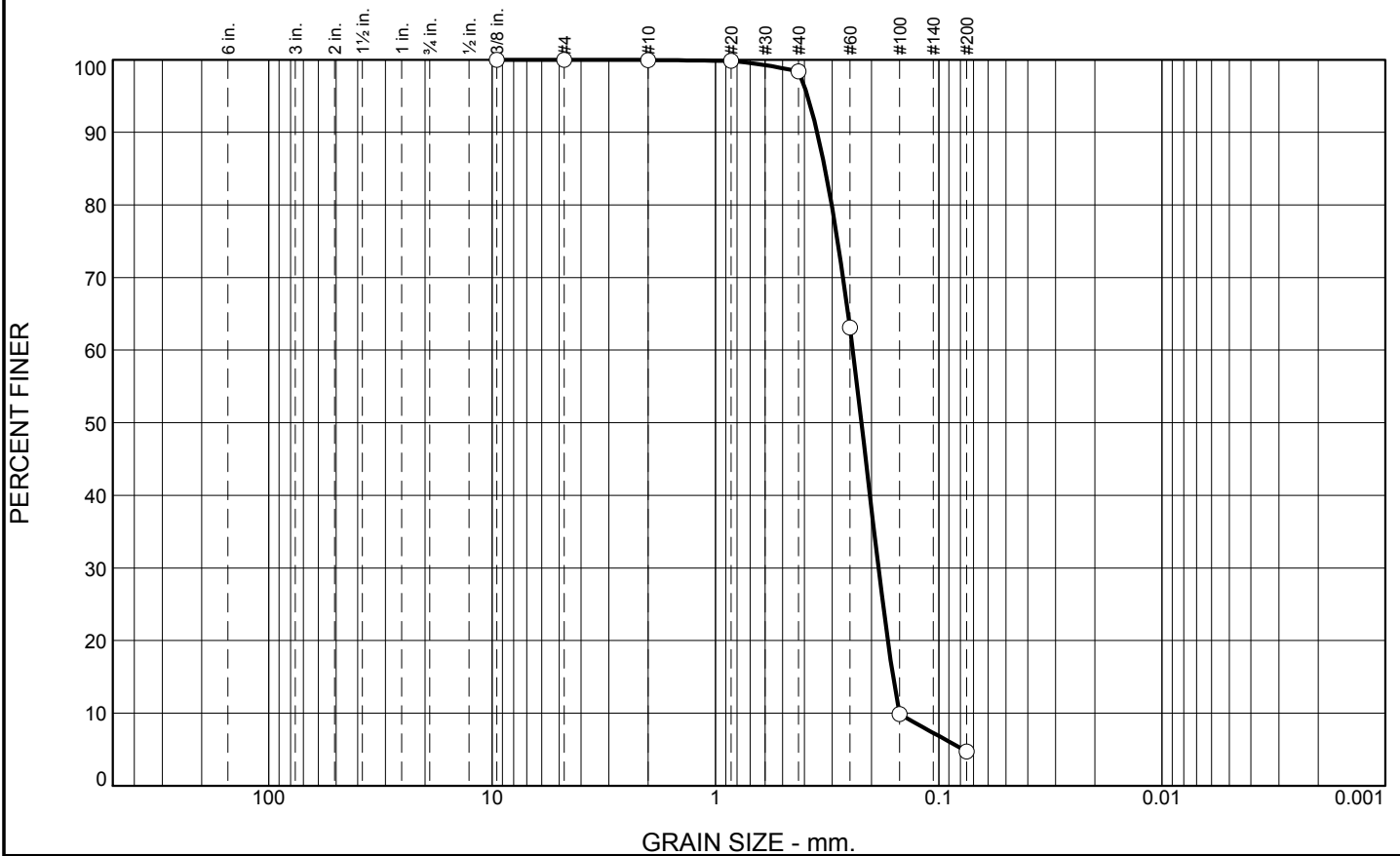
# Boring Designation BI-SI-80-10

DRILLING LOG		DIVISION South Atlantic		INSTALLATION Mobile District		SHEET 1 OF 2 SHEETS	
1. PROJECT MsCIP Barrier Island Restoration Ship Island				9. SIZE AND TYPE OF BIT N/A			
2. BORING DESIGNATION BI-SI-80-10		LOCATION COORDINATES E = 972,006 N = 263,156		10. COORDINATE SYSTEM/DATUM State Plane, MSE (U.S. Ft.)		HORIZONTAL NAD83 VERTICAL NAVD88	
3. DRILLING AGENCY Corps of Engineers - CESAM		CONTRACTOR FILE NO.		11. MANUFACTURER'S DESIGNATION OF DRILL Vibracore		<input type="checkbox"/> AUTO HAMMER <input type="checkbox"/> MANUAL HAMMER	
4. NAME OF DRILLER Construction Solutions International, Inc.				12. TOTAL SAMPLES 3		DISTURBED 0 UNDISTURBED (UD)	
5. DIRECTION OF BORING <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED		DEG. FROM VERTICAL		13. TOTAL NUMBER CORE BOXES			
		BEARING		14. WATER DEPTH 24 Ft.			
6. THICKNESS OF OVERBURDEN N/A				15. DATE BORING 06-22-10		STARTED 06-22-10 COMPLETED 06-22-10	
7. DEPTH DRILLED INTO ROCK N/A				16. ELEVATION TOP OF BORING -23.2 Ft.			
8. TOTAL DEPTH OF BORING 20.0 Ft.				17. TOTAL RECOVERY FOR BORING 100%			
				18. SIGNATURE AND TITLE OF INSPECTOR Marty Gates, Geologist			
ELEV.	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS	SAMPLE	LABORATORY RESULTS		
-23.2	0.0						
			CLAY, lean, dark gray (CL)	NS			
-26.0	2.8						
			SAND, poorly-graded, mostly fine to medium-grained sand-sized quartz, trace silt, lt. gray (SP)	A	Classification: SP Color: 2.5Y 7/2-light gray D50: 0.2219 mm % Fines: 4.7		
				B	Classification: SP-SM Color: 2.5Y 7/2-light gray D50: 0.1965 mm % Fines: 5.4		
				C	Classification: SP-SM Color: 2.5Y 7/1-light gray D50: 0.1902 mm % Fines: 5.5		
-38.4	15.2						
			CLAY, lean, dark gray (CL)	NS			
-43.2	20.0						
			NOTES: 1. Soils are field visually classified in accordance with the Unified Soils Classification System. 2. NS = Sample not submitted for laboratory analysis from this interval. 3. Seafloor elevation calculated using sampling				



<b>DRILLING LOG (Cont. Sheet)</b>			<b>INSTALLATION</b> Mobile District		<b>SHEET 2</b> <b>OF 2 SHEETS</b>
<b>PROJECT</b> MsCIP Barrier Island Restoration			<b>COORDINATE SYSTEM/DATUM</b> State Plane, MSE (U.S. Ft.)	<b>HORIZONTAL</b> NAD83	<b>VERTICAL</b> NAVD88
<b>LOCATION COORDINATES</b> X = 972,006 Y = 263,156			<b>ELEVATION TOP OF BORING</b> -23.2 Ft.		
<b>ELEV.</b>	<b>DEPTH</b>	<b>LEGEND</b>	<b>CLASSIFICATION OF MATERIALS</b>	<b>SAMPLE</b>	<b>LABORATORY RESULTS</b>
			vessel's fathometer water depth reading and applying NOAA tidal gauge data conversion factor.		

# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.0	0.0	1.6	93.7	4.7	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
.375	100.0		
#4	100.0		
#10	100.0		
#20	99.8		
#40	98.4		
#60	63.1		
#100	9.9		
#200	4.7		

\* (no specification provided)

<u><b>Material Description</b></u>		
SAND, (SP), fine grained		
<u><b>Atterberg Limits</b></u>		
PL=	LL=	PI=
<u><b>Coefficients</b></u>		
D <sub>90</sub> = 0.3502	D <sub>85</sub> = 0.3231	D <sub>60</sub> = 0.2427
D <sub>50</sub> = 0.2219	D <sub>30</sub> = 0.1862	D <sub>15</sub> = 0.1602
D <sub>10</sub> = 0.1503	C <sub>u</sub> = 1.62	C <sub>c</sub> = 0.95
<u><b>Classification</b></u>		
USCS= SP	AASHTO=	
<u><b>Remarks</b></u>		
CADD CODE = CH10D965		

Location: USACE Sample # BI-SI-80-10A  
Sample Number: TE Lab ID: 4557.14

Depth: 2.8 - 7.8 (ft.)

Date: 7/3/10

**Thompson Engineering**  
**Mobile, Alabama**

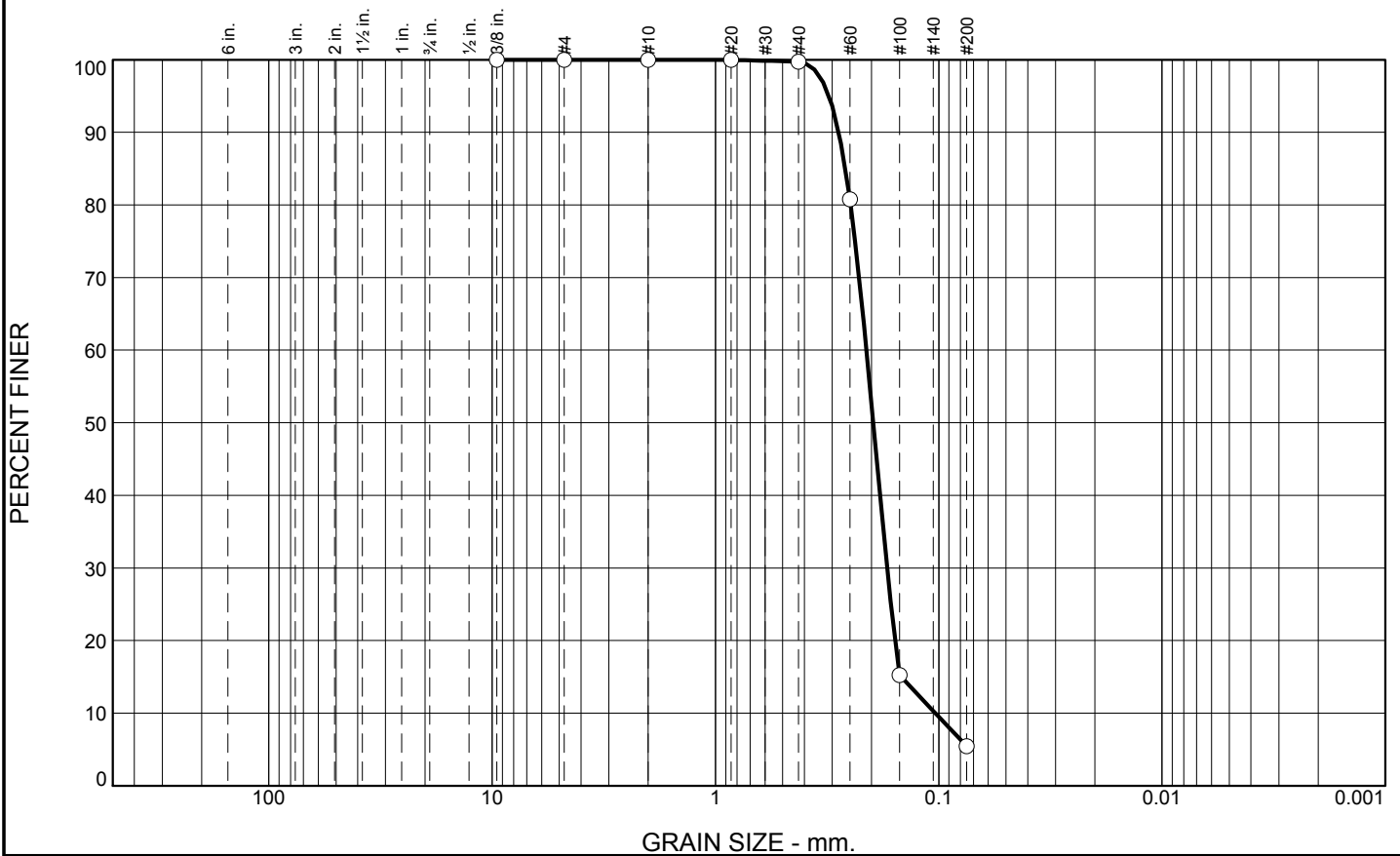
**Client:** US Army Corps of Engineers  
**Project:** Contract No. W91278-10-D-0026 - Task 03  
Mississippi Barrier Island Restoration Project  
**Project No:** 10-2123-0009

**Figure**

Tested By: G.Fancher

Checked By: R.Byrd

# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.0	0.0	0.3	94.3	5.4	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
.375	100.0		
#4	100.0		
#10	100.0		
#20	100.0		
#40	99.7		
#60	80.8		
#100	15.2		
#200	5.4		

\* (no specification provided)

Material Description		
SAND, (SP-SM), fine grained		
<div> <div> <b>Atterberg Limits</b>            PL=      LL=      PI=         </div> <div> <b>Coefficients</b>            D<sub>90</sub>= 0.2805      D<sub>85</sub>= 0.2618      D<sub>60</sub>= 0.2109            D<sub>50</sub>= 0.1965      D<sub>30</sub>= 0.1703      D<sub>15</sub>= 0.1474            D<sub>10</sub>= 0.1036      C<sub>u</sub>= 2.04      C<sub>c</sub>= 1.33         </div> <div> <b>Classification</b>            USCS= SP-SM      AASHTO=         </div> <div> <b>Remarks</b>            CADD CODE = CH10D965         </div> </div>		

Location: USACE Sample # BI-SI-80-10B  
Sample Number: TE Lab ID: 4557.15

Depth: 7.8 - 12.8 (ft.)

Date: 7/3/10

**Thompson Engineering**  
**Mobile, Alabama**

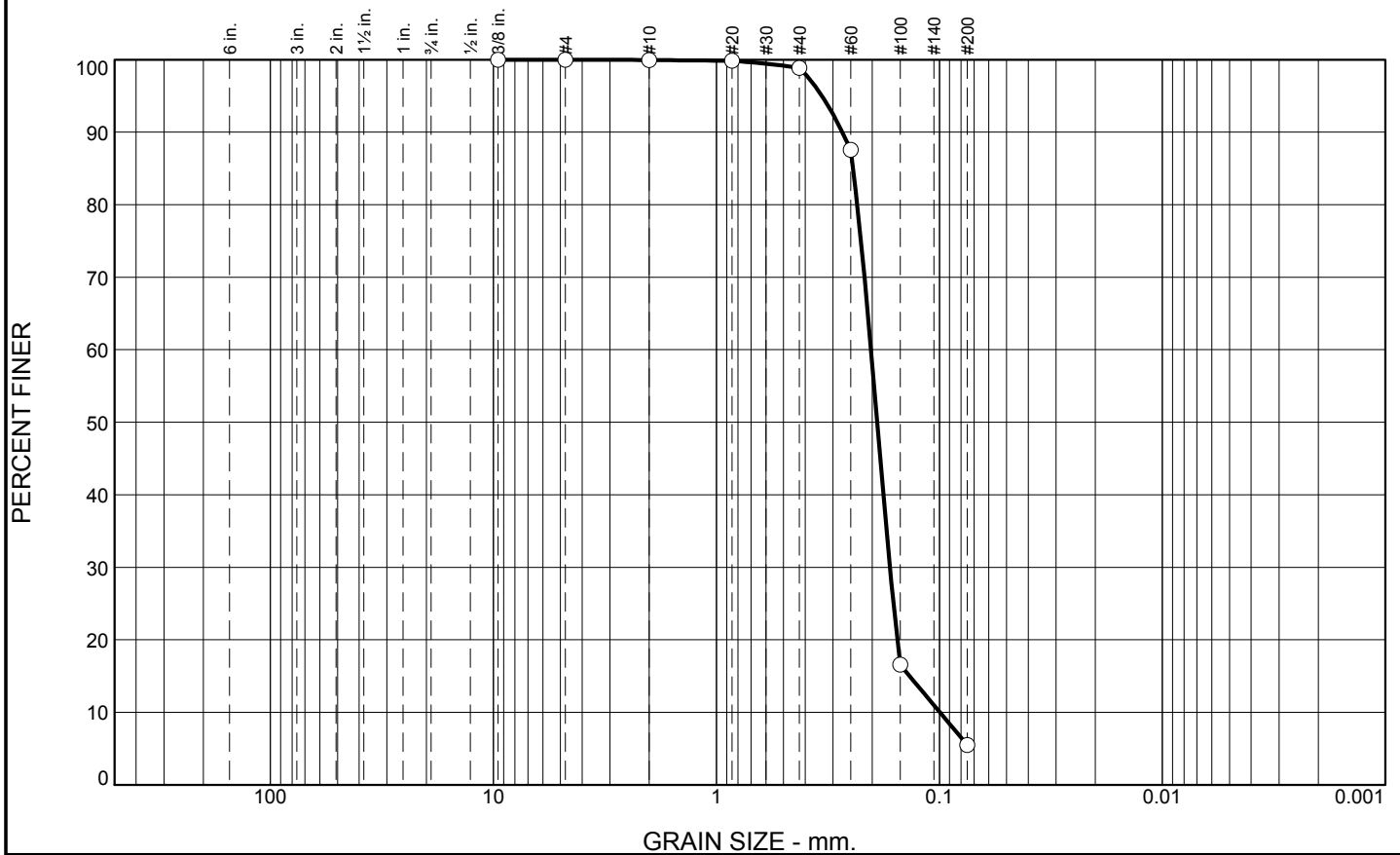
**Client:** US Army Corps of Engineers  
**Project:** Contract No. W91278-10-D-0026 - Task 03  
Mississippi Barrier Island Restoration Project  
**Project No:** 10-2123-0009

**Figure**

Tested By: G.Fancher

Checked By: R.Byrd

# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.0	0.1	1.0	93.4	5.5	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
.375	100.0		
#4	100.0		
#10	99.9		
#20	99.8		
#40	98.9		
#60	87.6		
#100	16.6		
#200	5.5		

\* (no specification provided)

<u>Material Description</u>		
SAND, (SP-SM), fine grained		
<u>Atterberg Limits</u>		
PL=	LL=	PI=
<u>Coefficients</u>		
D <sub>90</sub> = 0.2723	D <sub>85</sub> = 0.2438	D <sub>60</sub> = 0.2027
D <sub>50</sub> = 0.1902	D <sub>30</sub> = 0.1667	D <sub>15</sub> = 0.1360
D <sub>10</sub> = 0.0995	C <sub>u</sub> = 2.04	C <sub>c</sub> = 1.38
<u>Classification</u>		
USCS= SP-SM	AASHTO=	
<u>Remarks</u>		
CADD CODE = CH10D965		

Location: USACE Sample # BI-SI-80-10C  
Sample Number: TE Lab ID: 4557.16

Depth: 12.8 - 15.2 (ft.)

Date: 7/3/10

**Thompson Engineering**  
**Mobile, Alabama**

**Client:** US Army Corps of Engineers  
**Project:** Contract No. W91278-10-D-0026 - Task 03  
Mississippi Barrier Island Restoration Project  
**Project No:** 10-2123-0009

**Figure**

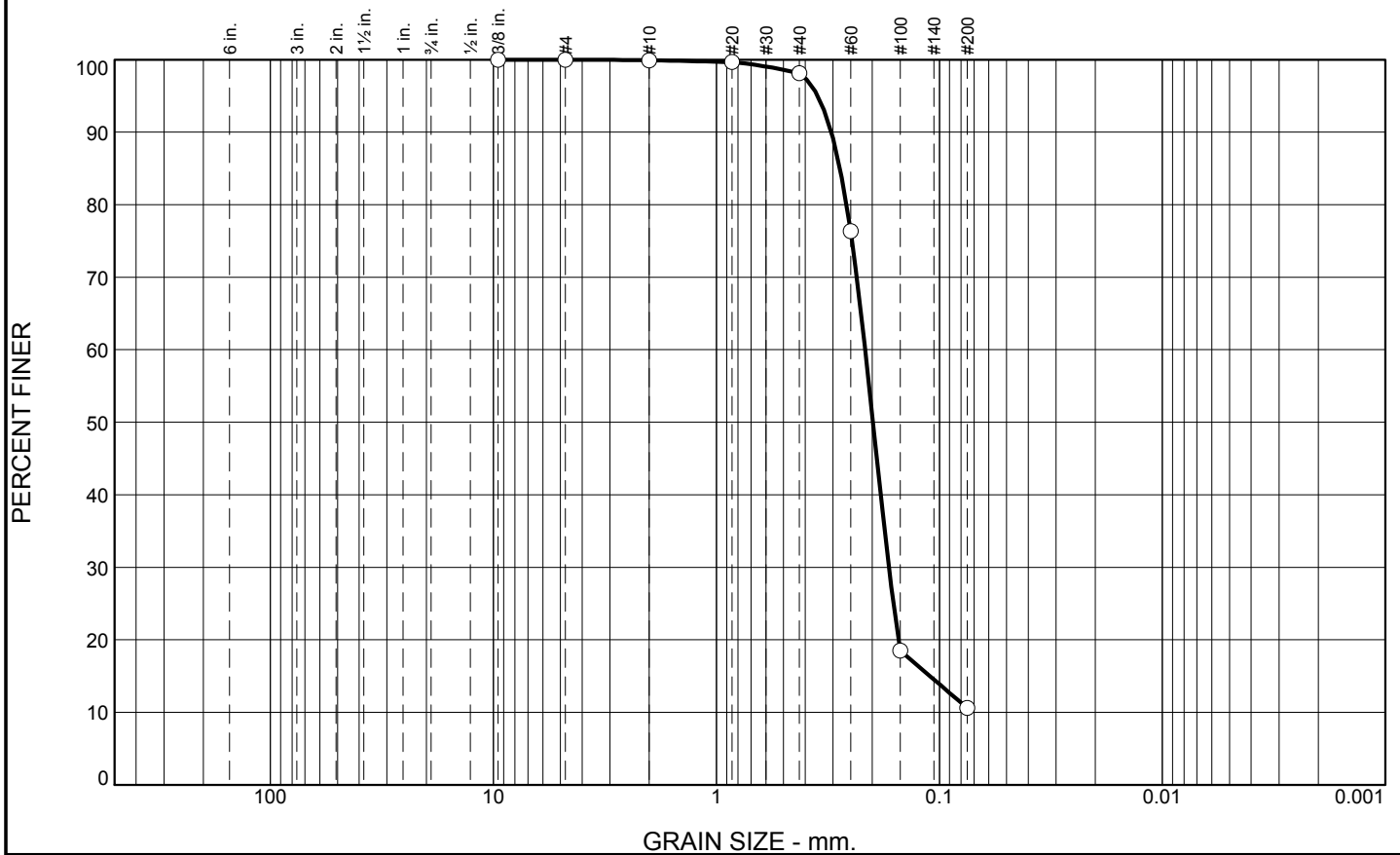
Tested By: G.Fancher

Checked By: R.Byrd

# Boring Designation BI-SI-81-10

DRILLING LOG		DIVISION South Atlantic		INSTALLATION Mobile District		SHEET 1 OF 1 SHEETS	
1. PROJECT MsCIP Barrier Island Restoration Ship Island				9. SIZE AND TYPE OF BIT N/A			
2. BORING DESIGNATION BI-SI-81-10		LOCATION COORDINATES E = 972,830 N = 262,213		10. COORDINATE SYSTEM/DATUM State Plane, MSE (U.S. Ft.)		HORIZONTAL NAD83 VERTICAL NAVD88	
3. DRILLING AGENCY Corps of Engineers - CESAM		CONTRACTOR FILE NO.		11. MANUFACTURER'S DESIGNATION OF DRILL Vibrocure		<input type="checkbox"/> AUTO HAMMER <input type="checkbox"/> MANUAL HAMMER	
4. NAME OF DRILLER Construction Solutions International, Inc.				12. TOTAL SAMPLES 2		DISTURBED 2 UNDISTURBED (UD) 0	
5. DIRECTION OF BORING <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED		DEG. FROM VERTICAL		13. TOTAL NUMBER CORE BOXES			
		BEARING		14. WATER DEPTH 26 Ft.			
6. THICKNESS OF OVERBURDEN N/A				15. DATE BORING 06-22-10		STARTED 06-22-10 COMPLETED 06-22-10	
7. DEPTH DRILLED INTO ROCK N/A				16. ELEVATION TOP OF BORING -25.2 Ft.			
8. TOTAL DEPTH OF BORING 18.1 Ft.				17. TOTAL RECOVERY FOR BORING 100%			
				18. SIGNATURE AND TITLE OF INSPECTOR Marty Gates, Geologist			
ELEV.	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS	SAMPLE	LABORATORY RESULTS		
-25.2	0.0						
			CLAY, lean, dark gray (CL)	NS			
-27.5	2.3						
			SAND, poorly-graded, mostly fine to medium-grained sand-sized quartz, trace silt, lt. gray (SP)	A	Classification: SP-SM Color: 2.5Y 7/2-light gray D50: 0.1986 mm % Fines: 10.6		
				B	Classification: SP-SM Color: 2.5Y 7/1-light gray D50: 0.1859 mm % Fines: 9.7		
-38.5	13.3						
			CLAY, lean, dark gray (CL)	NS			
-43.3	18.1						
			NOTES: 1. Soils are field visually classified in accordance with the Unified Soils Classification System. 2. NS = Sample not submitted for laboratory analysis from this interval. 3. Seafloor elevation calculated using sampling vessel's fathometer water depth reading and applying NOAA tidal gauge data conversion factor.				

# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.0	0.1	1.8	87.5	10.6	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
.375	100.0		
#4	100.0		
#10	99.9		
#20	99.7		
#40	98.1		
#60	76.3		
#100	18.5		
#200	10.6		

\* (no specification provided)

**Material Description**  
SAND, (SP-SM), fine grained

**Atterberg Limits**  
 PL=      LL=      PI=

**Coefficients**  
 D<sub>90</sub>= 0.3051      D<sub>85</sub>= 0.2791      D<sub>60</sub>= 0.2153  
 D<sub>50</sub>= 0.1986      D<sub>30</sub>= 0.1685      D<sub>15</sub>= 0.1104  
 D<sub>10</sub>=      C<sub>u</sub>=      C<sub>c</sub>=

**Classification**  
 USCS= SP-SM      AASHTO=

**Remarks**  
 CADD CODE = CH10D965

**Location:** USACE Sample # BI-SI-81-10A  
**Sample Number:** TE Lab ID: 4557.12

**Depth:** 2.3 - 7.3 (ft.)

**Date:** 7/3/10

**Thompson Engineering**  
  
**Mobile, Alabama**

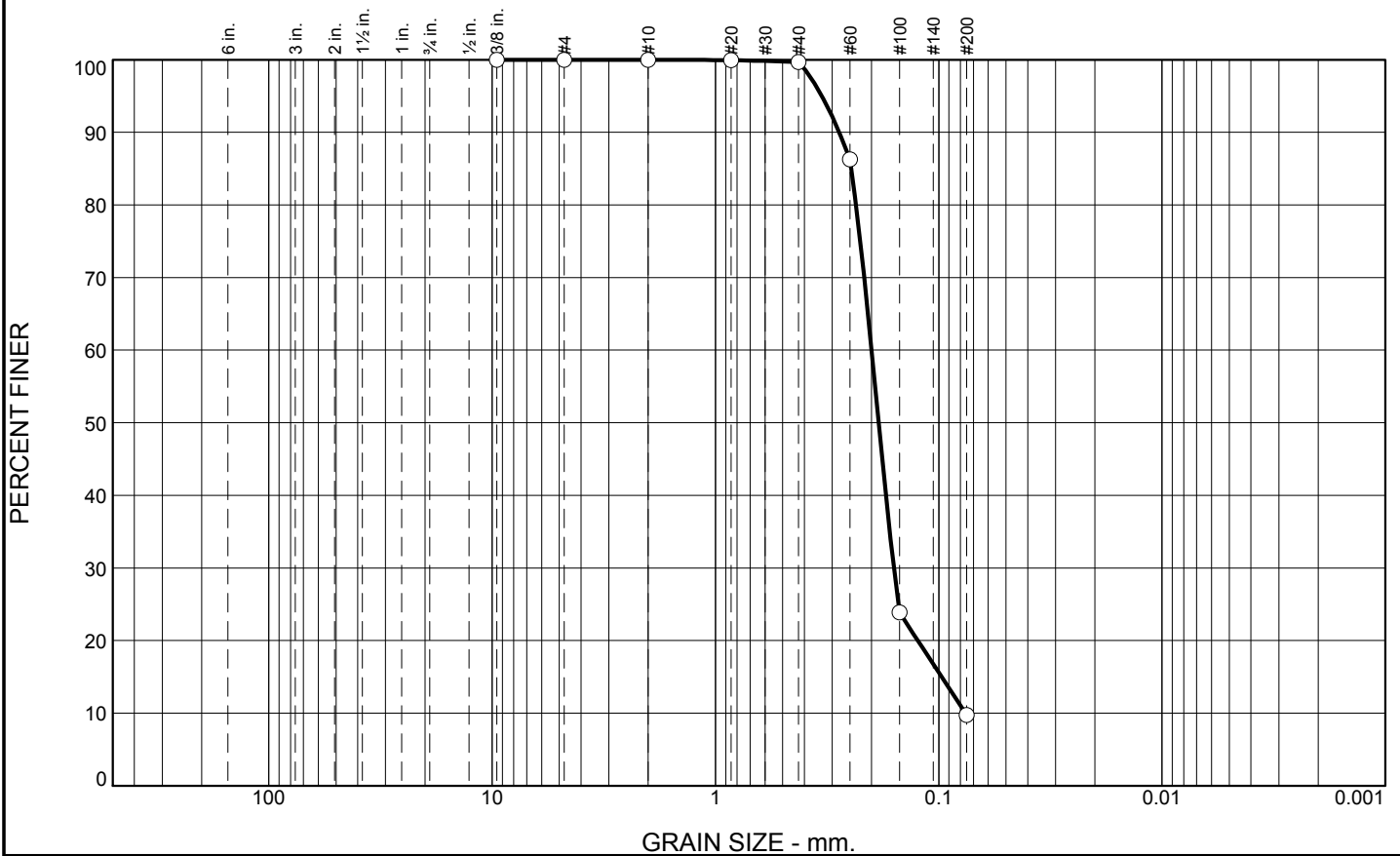
**Client:** US Army Corps of Engineers  
**Project:** Contract No. W91278-10-D-0026 - Task 03  
 Mississippi Barrier Island Restoration Project  
**Project No:** 10-2123-0009

**Figure**

**Tested By:** G.Fancher

**Checked By:** R.Byrd

# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.0	0.0	0.3	90.0	9.7	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
.375	100.0		
#4	100.0		
#10	100.0		
#20	99.9		
#40	99.7		
#60	86.3		
#100	23.9		
#200	9.7		

\* (no specification provided)

Material Description		
SAND, (SP-SM), fine grained		
<div> <div> <b>Atterberg Limits</b>            PL=      LL=      PI=         </div> <div> <b>Coefficients</b>            D<sub>90</sub>= 0.2790      D<sub>85</sub>= 0.2465      D<sub>60</sub>= 0.1999            D<sub>50</sub>= 0.1859      D<sub>30</sub>= 0.1590      D<sub>15</sub>= 0.0971            D<sub>10</sub>= 0.0760      C<sub>u</sub>= 2.63      C<sub>c</sub>= 1.66         </div> <div> <b>Classification</b>            USCS= SP-SM      AASHTO=         </div> <div> <b>Remarks</b>            CADD CODE = CH10D965         </div> </div>		

Location: USACE Sample # BI-SI-81-10B  
Sample Number: TE Lab ID: 4557.13

Depth: 7.3 - 13.3 (ft.)

Date: 7/3/10

**Thompson Engineering**  
**Mobile, Alabama**

**Client:** US Army Corps of Engineers  
**Project:** Contract No. W91278-10-D-0026 - Task 03  
Mississippi Barrier Island Restoration Project  
**Project No:** 10-2123-0009

**Figure**

Tested By: G.Fancher

Checked By: R.Byrd

# Boring Designation BI-SI-82-10

DRILLING LOG		DIVISION South Atlantic		INSTALLATION Mobile District		SHEET 1 OF 2 SHEETS	
1. PROJECT MsCIP Barrier Island Restoration Ship Island				9. SIZE AND TYPE OF BIT N/A			
2. BORING DESIGNATION BI-SI-82-10		LOCATION COORDINATES E = 973,983 N = 261,173		10. COORDINATE SYSTEM/DATUM State Plane, MSE (U.S. Ft.)		HORIZONTAL NAD83 VERTICAL NAVD88	
3. DRILLING AGENCY Corps of Engineers - CESAM		CONTRACTOR FILE NO.		11. MANUFACTURER'S DESIGNATION OF DRILL Vibrocure		<input type="checkbox"/> AUTO HAMMER <input type="checkbox"/> MANUAL HAMMER	
4. NAME OF DRILLER Construction Solutions International, Inc.				12. TOTAL SAMPLES 2		DISTURBED 2 UNDISTURBED (UD) 0	
5. DIRECTION OF BORING <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED		DEG. FROM VERTICAL		13. TOTAL NUMBER CORE BOXES			
		BEARING		14. WATER DEPTH 27 Ft.			
6. THICKNESS OF OVERBURDEN N/A				15. DATE BORING 06-22-10		STARTED 06-22-10 COMPLETED 06-22-10	
7. DEPTH DRILLED INTO ROCK N/A				16. ELEVATION TOP OF BORING -26.0 Ft.			
8. TOTAL DEPTH OF BORING 19.1 Ft.				17. TOTAL RECOVERY FOR BORING 100%			
				18. SIGNATURE AND TITLE OF INSPECTOR Marty Gates, Geologist			

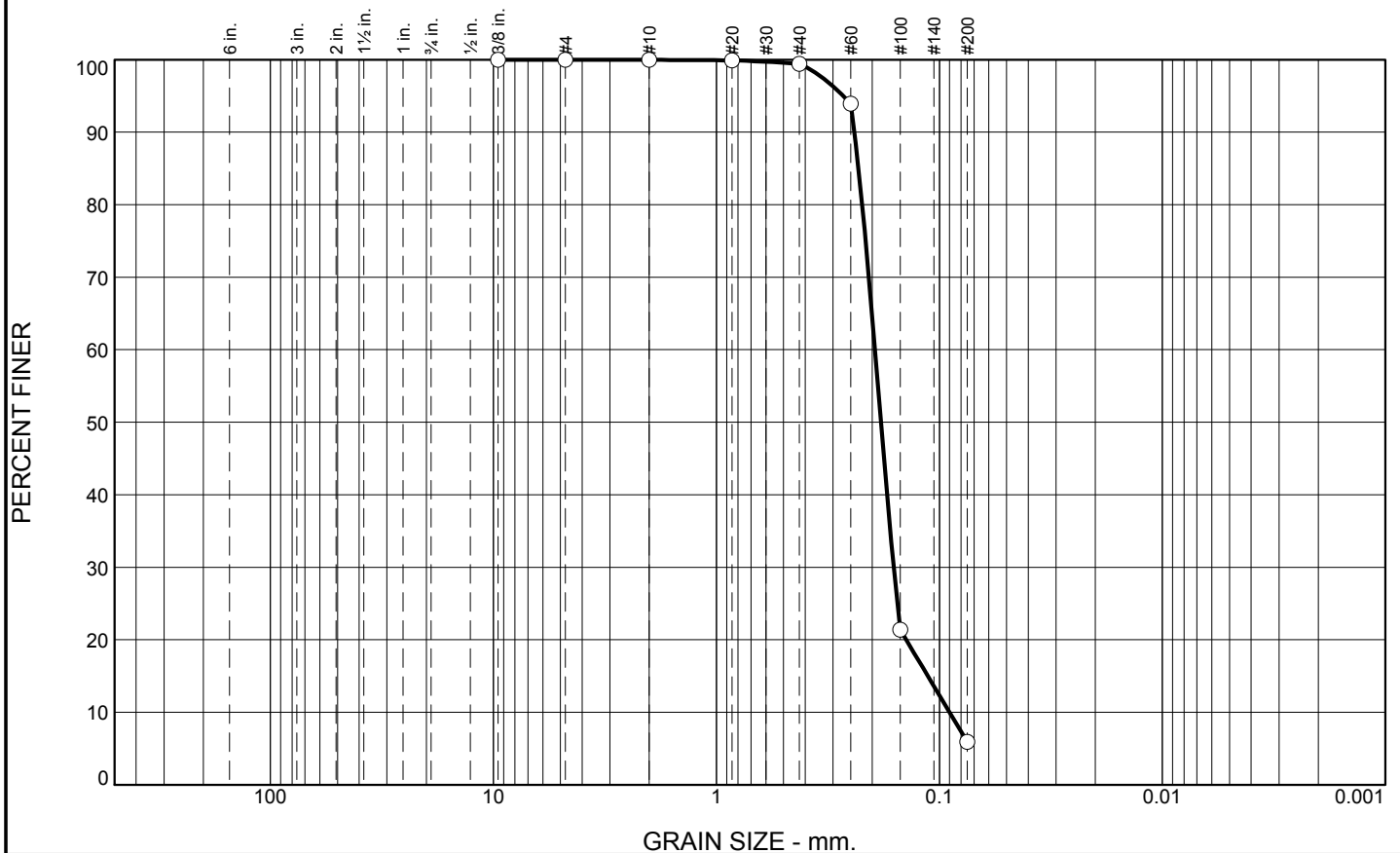
  

ELEV.	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS	SAMPLE	LABORATORY RESULTS
-26.0	0.0				
-28.0	2.0		CLAY, lean, dark gray (CL)	NS	
-34.4	8.4		SAND, poorly-graded, mostly fine to medium-grained sand-sized quartz, little silt, lt. gray (SP)	A	Classification: SP-SM Color: 2.5Y 6/2-light brownish gray D50: 0.1829 mm % Fines: 5.9
-39.3	13.3		SAND, silty, mostly fine to medium-grained sand-sized quartz, some silt, lt. gray (SM)	B	Classification: SM Color: 2.5Y 6/2-light brownish gray D50: 0.162 mm % Fines: 22.7
-45.1	19.1		CLAY, lean, dark gray (CL)	NS	
			NOTES: 1. Soils are field visually classified in accordance with the Unified Soils Classification System. 2. NS = Sample not submitted for laboratory analysis from this interval. 3. Seafloor elevation calculated using sampling vessel's fathometer water depth reading and applying NOAA tidal gauge data conversion		



<b>DRILLING LOG (Cont. Sheet)</b>			<b>INSTALLATION</b> Mobile District		<b>SHEET 2</b> <b>OF 2 SHEETS</b>
<b>PROJECT</b> MsCIP Barrier Island Restoration			<b>COORDINATE SYSTEM/DATUM</b> State Plane, MSE (U.S. Ft.)	<b>HORIZONTAL</b> NAD83	<b>VERTICAL</b> NAVD88
<b>LOCATION COORDINATES</b> X = 973,983 Y = 261,173			<b>ELEVATION TOP OF BORING</b> -26.0 Ft.		
<b>ELEV.</b>	<b>DEPTH</b>	<b>LEGEND</b>	<b>CLASSIFICATION OF MATERIALS</b>	<b>SAMPLE</b>	<b>LABORATORY RESULTS</b>
			factor.		

# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.0	0.0	0.6	93.5	5.9	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
.375	100.0		
#4	100.0		
#10	100.0		
#20	99.9		
#40	99.4		
#60	93.9		
#100	21.4		
#200	5.9		

\* (no specification provided)

<u>Material Description</u>		
SAND, (SP-SM), fine grained		
<u>Atterberg Limits</u>		
PL=	LL=	PI=
<u>Coefficients</u>		
D <sub>90</sub> = 0.2404	D <sub>85</sub> = 0.2304	D <sub>60</sub> = 0.1946
D <sub>50</sub> = 0.1829	D <sub>30</sub> = 0.1604	D <sub>15</sub> = 0.1127
D <sub>10</sub> = 0.0901	C <sub>u</sub> = 2.16	C <sub>c</sub> = 1.47
<u>Classification</u>		
USCS= SP-SM	AASHTO=	
<u>Remarks</u>		
CADD CODE = CH10D965		

Location: USACE Sample # BI-SI-82-10A  
Sample Number: TE Lab ID: 4557.10

Depth: 2.0 - 8.4 (ft.)

Date: 7/3/10

**Thompson Engineering**  
**Mobile, Alabama**

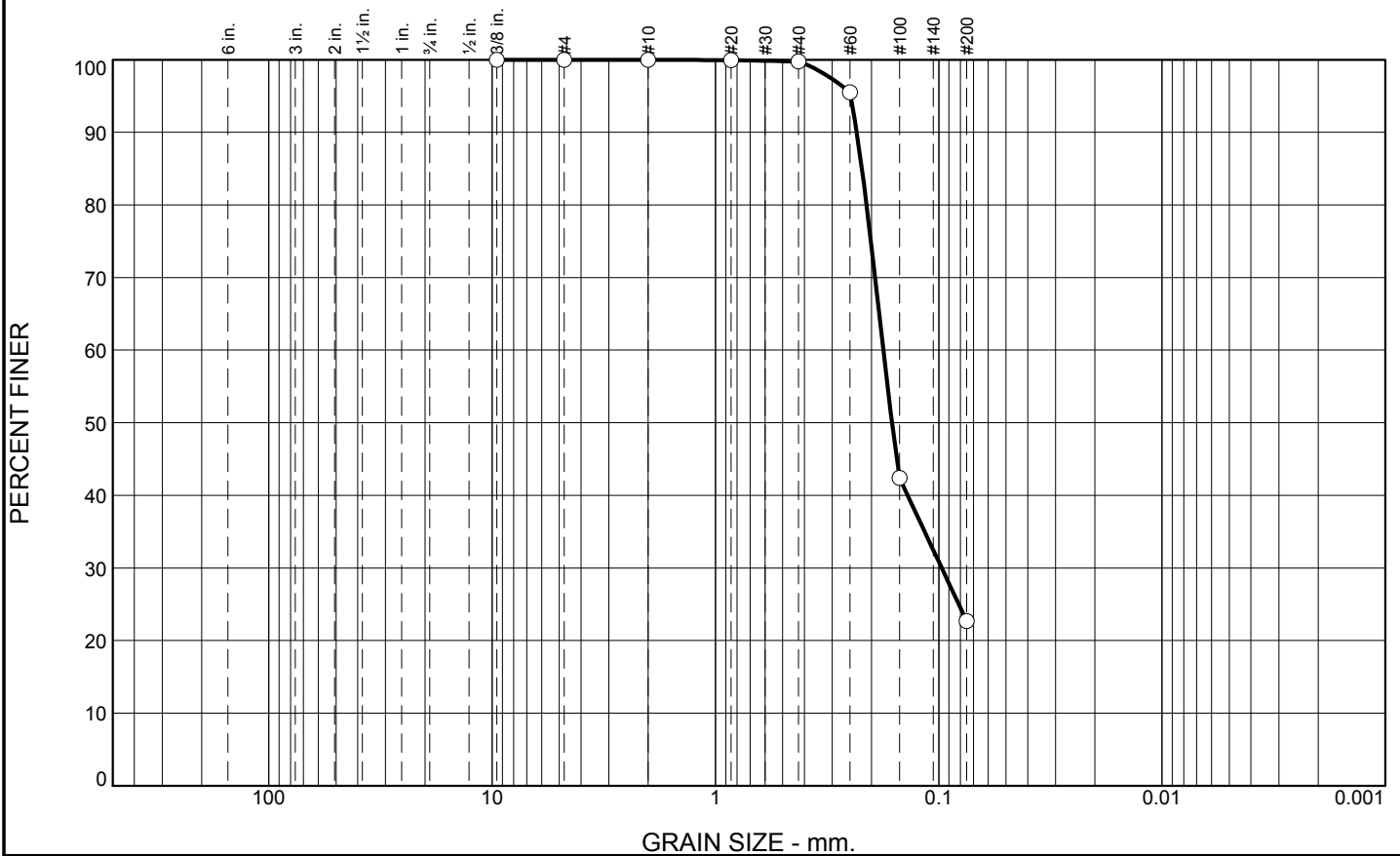
**Client:** US Army Corps of Engineers  
**Project:** Contract No. W91278-10-D-0026 - Task 03  
Mississippi Barrier Island Restoration Project  
**Project No:** 10-2123-0009

**Figure**

Tested By: G.Fancher

Checked By: R.Byrd

# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.0	0.0	0.2	77.1	22.7	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
.375	100.0		
#4	100.0		
#10	100.0		
#20	99.9		
#40	99.8		
#60	95.5		
#100	42.4		
#200	22.7		

\* (no specification provided)

## Material Description

SILTY SAND, (SM), fine grained, with clay pockets

## Atterberg Limits

PL=

LL=

PI=

## Coefficients

D<sub>90</sub>= 0.2328

D<sub>85</sub>= 0.2208

D<sub>60</sub>= 0.1771

D<sub>50</sub>= 0.1620

D<sub>30</sub>= 0.0970

D<sub>15</sub>=

D<sub>10</sub>=

C<sub>u</sub>=

C<sub>c</sub>=

## Classification

USCS= SM

AASHTO=

## Remarks

CADD CODE = CH10D965

Location: USACE Sample # BI-SI-82-10B  
Sample Number: TE Lab ID: 4557.11

Depth: 8.4 - 13.3 (ft.)

Date: 7/3/10

**Thompson Engineering**

**Mobile, Alabama**

Client: US Army Corps of Engineers

Project: Contract No. W91278-10-D-0026 - Task 03  
Mississippi Barrier Island Restoration Project

Project No: 10-2123-0009

Figure

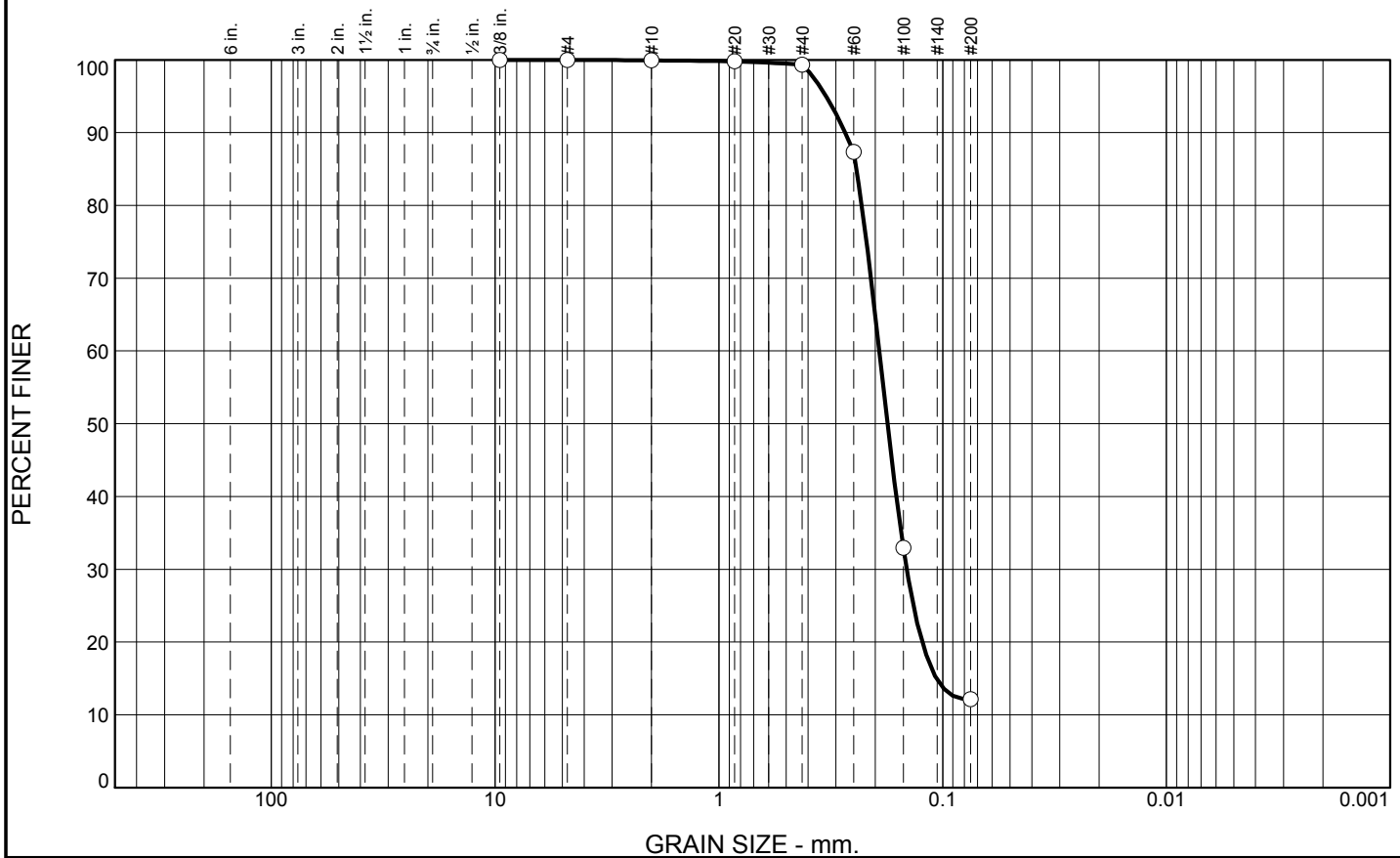
Tested By: G.Fancher

Checked By: R.Byrd

# Boring Designation BI-SI-83-10

DRILLING LOG		DIVISION South Atlantic		INSTALLATION Mobile District		SHEET 1 OF 1 SHEETS	
1. PROJECT MsCIP Barrier Island Restoration Ship Island				9. SIZE AND TYPE OF BIT N/A			
2. BORING DESIGNATION BI-SI-83-10		LOCATION COORDINATES E = 974,886 N = 259,558		10. COORDINATE SYSTEM/DATUM State Plane, MSE (U.S. Ft.)		HORIZONTAL NAD83 VERTICAL NAVD88	
3. DRILLING AGENCY Corps of Engineers - CESAM		CONTRACTOR FILE NO.		11. MANUFACTURER'S DESIGNATION OF DRILL Vibrocure		<input type="checkbox"/> AUTO HAMMER <input type="checkbox"/> MANUAL HAMMER	
4. NAME OF DRILLER Construction Solutions International, Inc.				12. TOTAL SAMPLES		DISTURBED 1 UNDISTURBED (UD) 0	
5. DIRECTION OF BORING <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED		DEG. FROM VERTICAL		13. TOTAL NUMBER CORE BOXES			
		BEARING		14. WATER DEPTH 29 Ft.			
6. THICKNESS OF OVERBURDEN N/A				15. DATE BORING		STARTED 06-22-10 COMPLETED 06-22-10	
7. DEPTH DRILLED INTO ROCK N/A				16. ELEVATION TOP OF BORING -28.0 Ft.			
8. TOTAL DEPTH OF BORING 18.7 Ft.				17. TOTAL RECOVERY FOR BORING 100%			
				18. SIGNATURE AND TITLE OF INSPECTOR Marty Gates, Geologist			
ELEV.	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS	SAMPLE	LABORATORY RESULTS		
-28.0	0.0						
-29.5	1.5		CLAY, lean, dark gray (CL)	NS			
-33.0	5.0		SAND, silty, mostly fine to medium-grained sand-sized quartz, some silt, gray (SM)	A	Classification: SM Color: 2.5Y 6/2-light brownish gray D50: 0.1764 mm % Fines: 12.1		
-46.7	18.7		CLAY, lean, dark gray (CL)	NS			
			NOTES:				
			1. Soils are field visually classified in accordance with the Unified Soils Classification System.				
			2. NS = Sample not submitted for laboratory analysis from this interval.				
			3. Seafloor elevation calculated using sampling vessel's fathometer water depth reading and applying NOAA tidal gauge data conversion factor.				

# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.0	0.1	0.6	87.2	12.1	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
.375	100.0		
#4	100.0		
#10	99.9		
#20	99.8		
#40	99.3		
#60	87.3		
#100	33.0		
#200	12.1		

\* (no specification provided)

<u>Material Description</u>		
SILTY SAND, (SM), fine grained		
<u>Atterberg Limits</u>		
PL=	LL=	PI=
<u>Coefficients</u>		
D <sub>90</sub> = 0.2728	D <sub>85</sub> = 0.2428	D <sub>60</sub> = 0.1920
D <sub>50</sub> = 0.1764	D <sub>30</sub> = 0.1448	D <sub>15</sub> = 0.1066
D <sub>10</sub> =	C <sub>u</sub> =	C <sub>c</sub> =
<u>Classification</u>		
USCS= SM	AASHTO=	
<u>Remarks</u>		
CADD CODE = CH10D965		

**Location:** USACE Sample # BI-SI-83-10A  
**Sample Number:** TE Lab ID: 4557.09

**Depth:** 1.5 - 5.0 (ft.)

**Date:** 7/3/10

**Thompson Engineering**  
**Mobile, Alabama**

**Client:** US Army Corps of Engineers  
**Project:** Contract No. W91278-10-D-0026 - Task 03  
 Mississippi Barrier Island Restoration Project  
**Project No:** 10-2123-0009

**Figure**

**Tested By:** G.Fancher

**Checked By:** R.Byrd

# Boring Designation BI-SI-84-10

DRILLING LOG		DIVISION South Atlantic		INSTALLATION Mobile District		SHEET 1 OF 2 SHEETS	
1. PROJECT MsCIP Barrier Island Restoration Ship Island				9. SIZE AND TYPE OF BIT N/A			
2. BORING DESIGNATION BI-SI-84-10		LOCATION COORDINATES E = 975,903 N = 258,081		10. COORDINATE SYSTEM/DATUM State Plane, MSE (U.S. Ft.)		HORIZONTAL NAD83 VERTICAL NAVD88	
3. DRILLING AGENCY Corps of Engineers - CESAM		CONTRACTOR FILE NO.		11. MANUFACTURER'S DESIGNATION OF DRILL Vibrocure		<input type="checkbox"/> AUTO HAMMER <input type="checkbox"/> MANUAL HAMMER	
4. NAME OF DRILLER Construction Solutions International, Inc.				12. TOTAL SAMPLES		DISTURBED 0 UNDISTURBED (UD) 0	
5. DIRECTION OF BORING <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED		DEG. FROM VERTICAL		13. TOTAL NUMBER CORE BOXES			
		BEARING		14. WATER DEPTH 30 Ft.			
6. THICKNESS OF OVERBURDEN N/A				15. DATE BORING		STARTED 06-21-10 COMPLETED 06-21-10	
7. DEPTH DRILLED INTO ROCK N/A				16. ELEVATION TOP OF BORING -29.5 Ft.			
8. TOTAL DEPTH OF BORING 19.3 Ft.				17. TOTAL RECOVERY FOR BORING 100%			
				18. SIGNATURE AND TITLE OF INSPECTOR Marty Gates, Geologist			
ELEV.	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS	SAMPLE	LABORATORY RESULTS		
-29.5	0.0		CLAY, lean, dark gray (CL)	NS			
-46.5	17.0						
-48.8	19.3		SAND, silty, mostly fine to medium-grained sand-sized quartz, some silt, trace shell fragments, gray (SM)				
			NOTES: 1. Soils are field visually classified in accordance with the Unified Soils Classification System. 2. NS = Sample not submitted for laboratory analysis from this interval. 3. Seafloor elevation calculated using sampling vessel's fathometer water depth reading and applying NOAA tidal gauge data conversion				

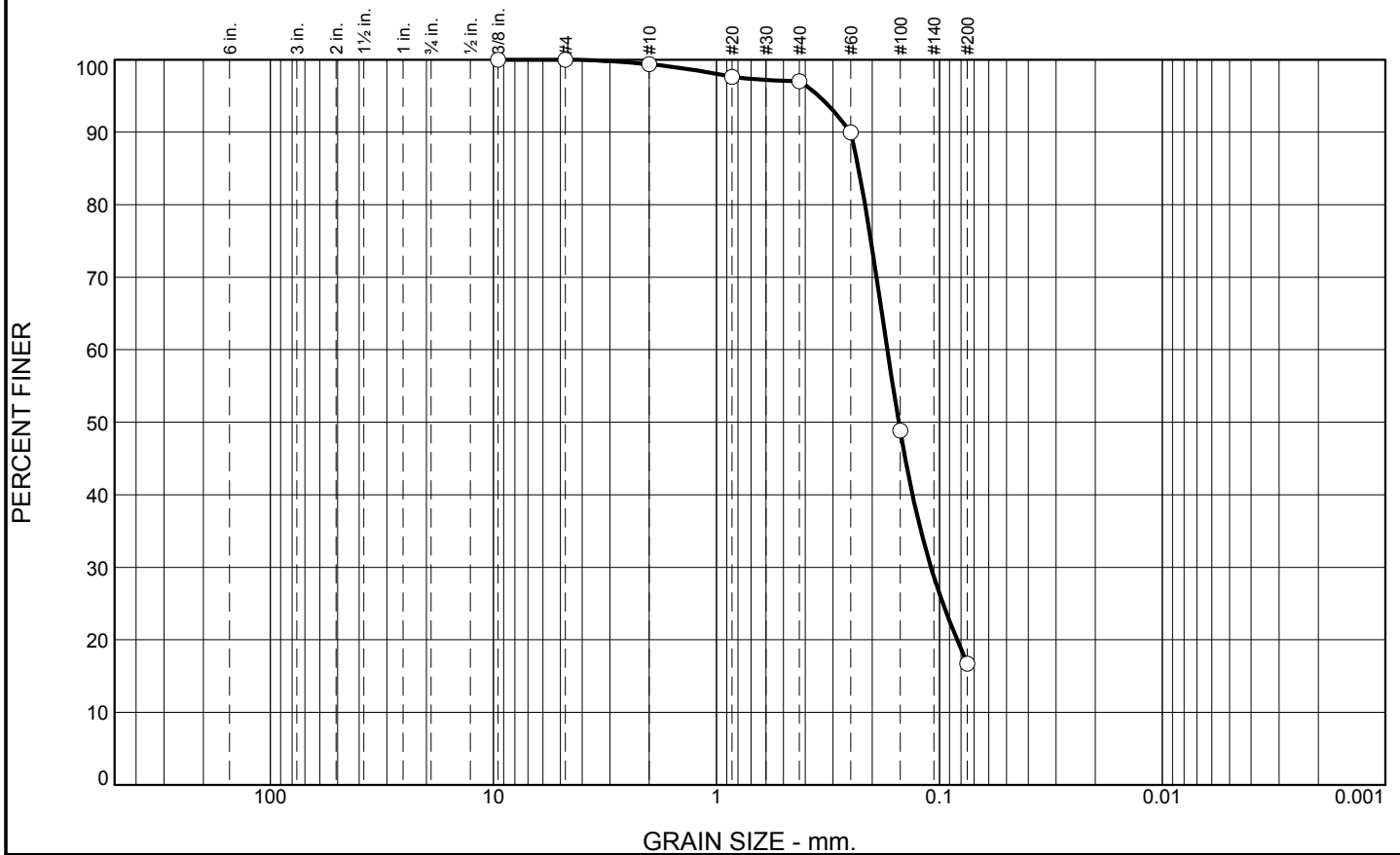
<b>DRILLING LOG (Cont. Sheet)</b>			<b>INSTALLATION</b> Mobile District		<b>SHEET 2</b> <b>OF 2 SHEETS</b>
<b>PROJECT</b> MsCIP Barrier Island Restoration			<b>COORDINATE SYSTEM/DATUM</b> State Plane, MSE (U.S. Ft.)	<b>HORIZONTAL</b> NAD83	<b>VERTICAL</b> NAVD88
<b>LOCATION COORDINATES</b> X = 975,903 Y = 258,081			<b>ELEVATION TOP OF BORING</b> -29.5 Ft.		
<b>ELEV.</b>	<b>DEPTH</b>	<b>LEGEND</b>	<b>CLASSIFICATION OF MATERIALS</b>	<b>SAMPLE</b>	<b>LABORATORY RESULTS</b>
			factor.		

# Boring Designation BI-SI-85-10

DRILLING LOG		DIVISION South Atlantic		INSTALLATION Mobile District		SHEET 1 OF 1 SHEETS	
1. PROJECT MsCIP Barrier Island Restoration Ship Island				9. SIZE AND TYPE OF BIT N/A			
2. BORING DESIGNATION BI-SI-85-10		LOCATION COORDINATES E = 973,248 N = 263,584		10. COORDINATE SYSTEM/DATUM State Plane, MSE (U.S. Ft.)		HORIZONTAL NAD83 VERTICAL NAVD88	
3. DRILLING AGENCY Corps of Engineers - CESAM		CONTRACTOR FILE NO.		11. MANUFACTURER'S DESIGNATION OF DRILL Vibracore		<input type="checkbox"/> AUTO HAMMER <input type="checkbox"/> MANUAL HAMMER	
4. NAME OF DRILLER Construction Solutions International, Inc.				12. TOTAL SAMPLES 2		DISTURBED 2 UNDISTURBED (UD) 0	
5. DIRECTION OF BORING <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED		DEG. FROM VERTICAL		13. TOTAL NUMBER CORE BOXES			
		BEARING		14. WATER DEPTH 24 Ft.			
6. THICKNESS OF OVERBURDEN N/A				15. DATE BORING 06-22-10		STARTED 06-22-10 COMPLETED 06-22-10	
7. DEPTH DRILLED INTO ROCK N/A				16. ELEVATION TOP OF BORING -23.4 Ft.			
8. TOTAL DEPTH OF BORING 16.1 Ft.				17. TOTAL RECOVERY FOR BORING 100%			
				18. SIGNATURE AND TITLE OF INSPECTOR Marty Gates, Geologist			
ELEV.	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS	SAMPLE	LABORATORY RESULTS		
-23.4	0.0						
-24.9	1.5		SAND, silty, mostly medium-grained sand-sized quartz, some silt, trace shell fragments, gray (SM)	A	Classification: SM Color: 2.5Y 5/1-gray D50: 0.1522 mm % Fines: 16.7		
-28.8	5.4		CLAY, lean, dark gray (CL)	NS			
-34.3	10.9		SAND, silty, mostly fine to medium-grained sand-sized quartz, some silt, gray (SM)	B	Classification: SM Color: 2.5Y 5/2-grayish brown D50: 0.1807 mm % Fines: 12.9		
-39.5	16.1		CLAY, lean, dark gray (CL)	NS			
			NOTES: 1. Soils are field visually classified in accordance with the Unified Soils Classification System. 2. NS = Sample not submitted for laboratory analysis from this interval. 3. Seafloor elevation calculated using sampling vessel's fathometer water depth reading and applying NOAA tidal gauge data conversion factor.				



# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.0	0.6	2.4	80.3	16.7	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
.375	100.0		
#4	100.0		
#10	99.4		
#20	97.6		
#40	97.0		
#60	90.0		
#100	48.9		
#200	16.7		

\* (no specification provided)

## Material Description

SILTY SAND, (SM), fine grained, with clay nodules

## Atterberg Limits

PL=

LL=

PI=

## Coefficients

D<sub>90</sub>= 0.2506

D<sub>85</sub>= 0.2305

D<sub>60</sub>= 0.1712

D<sub>50</sub>= 0.1522

D<sub>30</sub>= 0.1091

D<sub>15</sub>=

D<sub>10</sub>=

C<sub>u</sub>=

C<sub>c</sub>=

## Classification

USCS= SM

AASHTO=

## Remarks

CADD CODE = CH10D965

Location: USACE Sample # BI-SI-85-10A  
Sample Number: TE Lab ID: 4557.17

Depth: 0.0 - 1.5 (ft.)

Date: 7/3/10

**Thompson Engineering**

**Mobile, Alabama**

Client: US Army Corps of Engineers

Project: Contract No. W91278-10-D-0026 - Task 03  
Mississippi Barrier Island Restoration Project

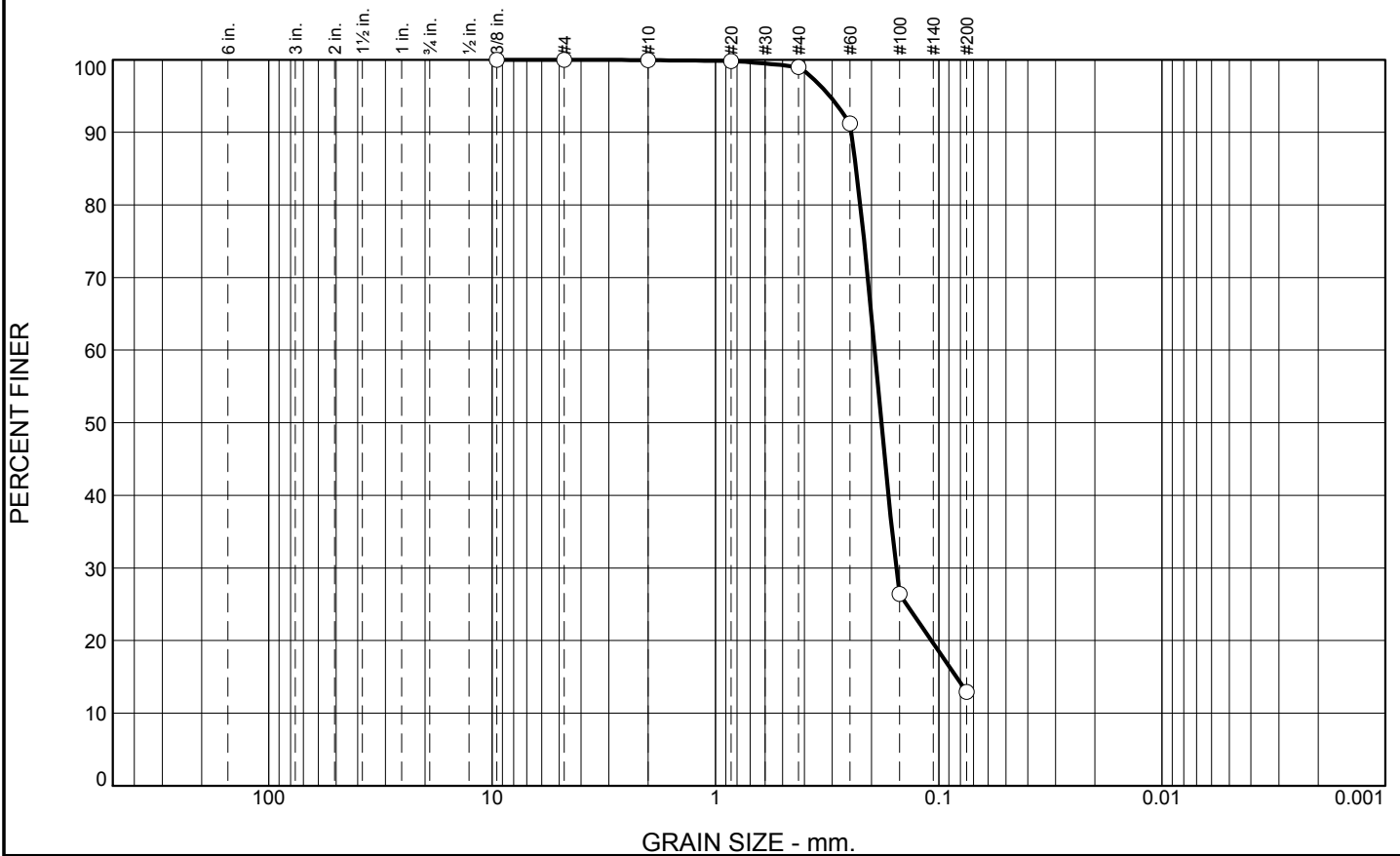
Project No: 10-2123-0009

Figure

Tested By: G.Fancher

Checked By: R.Byrd

# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.0	0.1	0.9	86.1	12.9	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
.375	100.0		
#4	100.0		
#10	99.9		
#20	99.8		
#40	99.0		
#60	91.2		
#100	26.4		
#200	12.9		

\* (no specification provided)

<u>Material Description</u>		
SILTY SAND, (SM), fine grained		
<u>Atterberg Limits</u>		
PL=	LL=	PI=
<u>Coefficients</u>		
D <sub>90</sub> = 0.2465	D <sub>85</sub> = 0.2345	D <sub>60</sub> = 0.1937
D <sub>50</sub> = 0.1807	D <sub>30</sub> = 0.1551	D <sub>15</sub> = 0.0835
D <sub>10</sub> =	C <sub>u</sub> =	C <sub>c</sub> =
<u>Classification</u>		
USCS= SM	AASHTO=	
<u>Remarks</u>		
CADD CODE = CH10D965		

Location: USACE Sample # BI-SI-85-10B  
Sample Number: TE Lab ID: 4557.18

Depth: 5.4 - 10.9 (ft.)

Date: 7/3/10

**Thompson Engineering**  
**Mobile, Alabama**

**Client:** US Army Corps of Engineers  
**Project:** Contract No. W91278-10-D-0026 - Task 03  
Mississippi Barrier Island Restoration Project  
**Project No:** 10-2123-0009

**Figure**

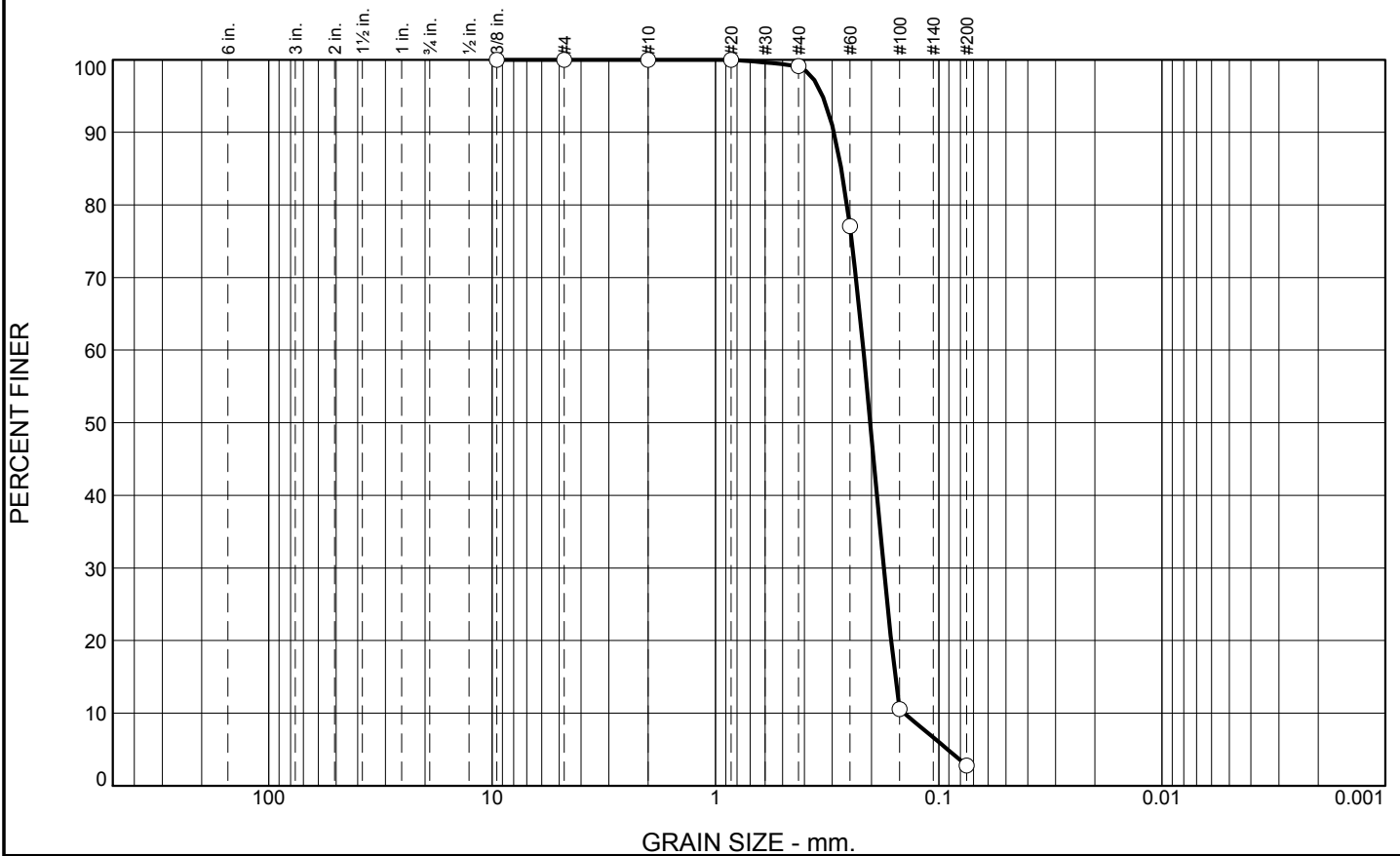
Tested By: G.Fancher

Checked By: R.Byrd

# Boring Designation BI-SI-89-10

DRILLING LOG		DIVISION South Atlantic		INSTALLATION Mobile District		SHEET 1 OF 1 SHEETS	
1. PROJECT MsCIP Barrier Island Restoration Ship Island				9. SIZE AND TYPE OF BIT N/A			
2. BORING DESIGNATION BI-SI-89-10		LOCATION COORDINATES E = 972,320 N = 257,500		10. COORDINATE SYSTEM/DATUM State Plane, MSE (U.S. Ft.)		HORIZONTAL NAD83 VERTICAL NAVD88	
3. DRILLING AGENCY Corps of Engineers - CESAM		CONTRACTOR FILE NO.		11. MANUFACTURER'S DESIGNATION OF DRILL Vibracore		<input type="checkbox"/> AUTO HAMMER <input type="checkbox"/> MANUAL HAMMER	
4. NAME OF DRILLER Construction Solutions International, Inc.				12. TOTAL SAMPLES 4		DISTURBED 0 UNDISTURBED (UD)	
5. DIRECTION OF BORING <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED		DEG. FROM VERTICAL		13. TOTAL NUMBER CORE BOXES			
		BEARING		14. WATER DEPTH 27 Ft.			
6. THICKNESS OF OVERBURDEN N/A				15. DATE BORING 06-21-10		STARTED 06-21-10 COMPLETED 06-21-10	
7. DEPTH DRILLED INTO ROCK N/A				16. ELEVATION TOP OF BORING -30.0 Ft.			
8. TOTAL DEPTH OF BORING 19.3 Ft.				17. TOTAL RECOVERY FOR BORING 100%			
				18. SIGNATURE AND TITLE OF INSPECTOR Marty Gates, Geologist			
ELEV.	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS	SAMPLE	LABORATORY RESULTS		
-30.0	0.0						
			SAND, poorly-graded, mostly fine to medium-grained sand-sized quartz, trace silt, trace wood debris, trace silt, lt. gray (SP)	A	Classification: SP Color: 2.5Y 7/1-light gray D50: 0.2027 mm % Fines: 2.8		
				B	Classification: SP Color: 2.5Y 7/1-light gray D50: 0.1924 mm % Fines: 3.7		
				C	Classification: SP Color: 2.5Y 6/2-light brownish gray D50: 0.1844 mm % Fines: 4.7		
-43.5	13.5						
			SAND, silty, mostly fine to medium-grained sand-sized quartz, some silt, trace shell fragments, gray (SM)	D	Classification: SM Color: 2.5Y 4/3-olive brown D50: 0.1732 mm % Fines: 20.3		
-48.3	18.3						
-49.3	19.3		CLAY, lean, dark gray (CL)	NS			
			NOTES:				
			1. Soils are field visually classified in accordance with the Unified Soils Classification System.				
			2. NS = Sample not submitted for laboratory analysis from this interval.				
			3. Seafloor elevation determined from USACE hydrographic survey completed 2010.				

# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.0	0.0	0.9	96.3	2.8	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
.375	100.0		
#4	100.0		
#10	100.0		
#20	100.0		
#40	99.1		
#60	77.1		
#100	10.6		
#200	2.8		

\* (no specification provided)

Material Description		
SAND, (SP), fine grained		
<div> <div> <b>Atterberg Limits</b>            PL=      LL=      PI=         </div> <div> <b>Coefficients</b>            D<sub>90</sub>= 0.2947      D<sub>85</sub>= 0.2731      D<sub>60</sub>= 0.2176            D<sub>50</sub>= 0.2027      D<sub>30</sub>= 0.1764      D<sub>15</sub>= 0.1566            D<sub>10</sub>= 0.1427      C<sub>u</sub>= 1.52      C<sub>c</sub>= 1.00         </div> <div> <b>Classification</b>            USCS= SP      AASHTO=         </div> <div> <b>Remarks</b>            CADD CODE = CH10D965         </div> </div>		

Location: USACE Sample # BI-SI-89-10A  
Sample Number: TE Lab ID: 4557.04

Depth: 0.0 - 5.0 (ft.)

Date: 7/3/10

**Thompson Engineering**  
**Mobile, Alabama**

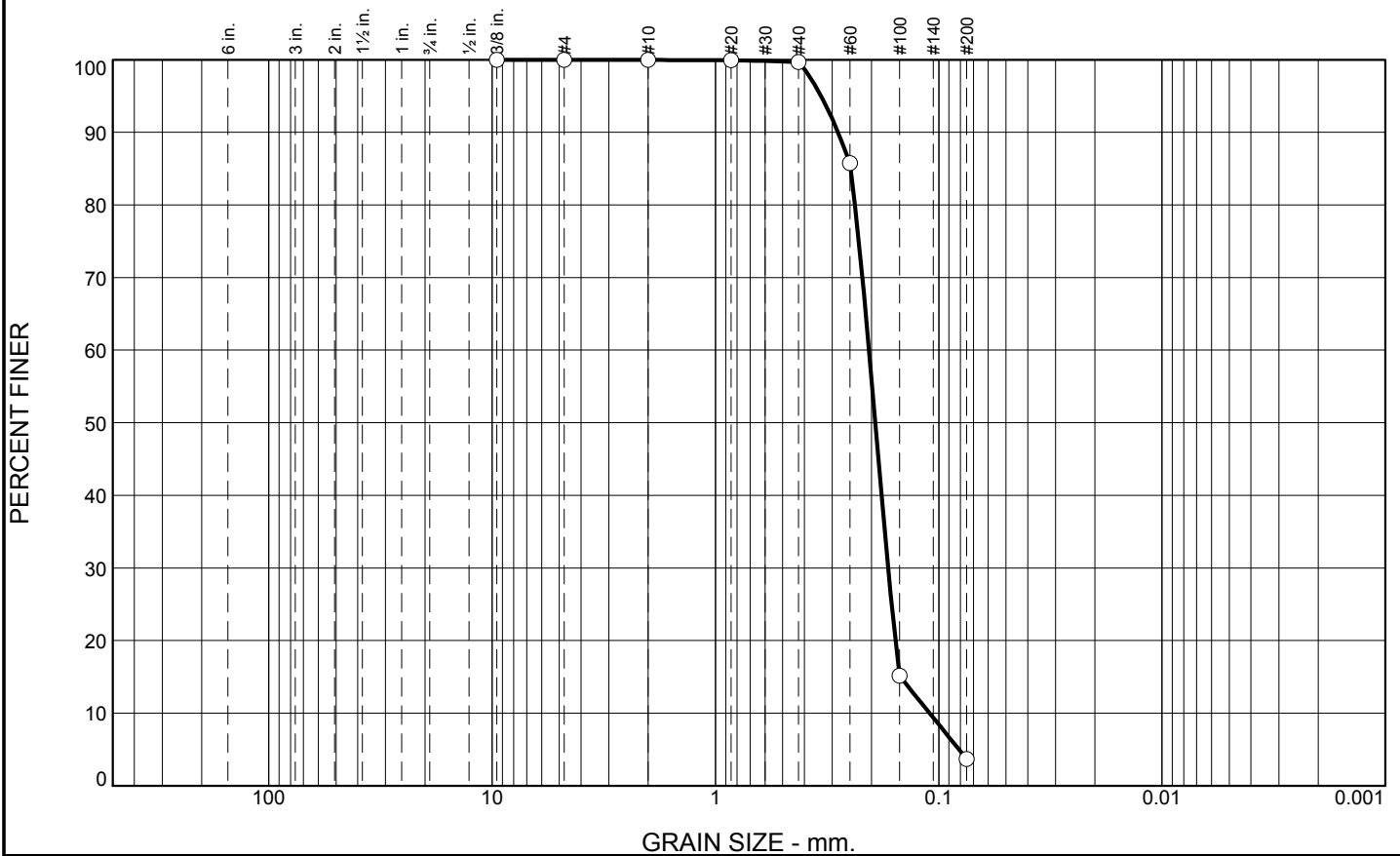
**Client:** US Army Corps of Engineers  
**Project:** Contract No. W91278-10-D-0026 - Task 03  
Mississippi Barrier Island Restoration Project  
**Project No:** 10-2123-0009

**Figure**

Tested By: G.Fancher

Checked By: R.Byrd

# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.0	0.0	0.3	96.0	3.7	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
.375	100.0		
#4	100.0		
#10	100.0		
#20	99.9		
#40	99.7		
#60	85.7		
#100	15.2		
#200	3.7		

\* (no specification provided)

## Material Description

SAND, (SP), fine grained

## Atterberg Limits

PL=

LL=

PI=

## Coefficients

D<sub>90</sub>= 0.2824

D<sub>85</sub>= 0.2482

D<sub>60</sub>= 0.2053

D<sub>50</sub>= 0.1924

D<sub>30</sub>= 0.1686

D<sub>15</sub>= 0.1486

D<sub>10</sub>= 0.1099

C<sub>u</sub>= 1.87

C<sub>c</sub>= 1.26

## Classification

USCS= SP

AASHTO=

## Remarks

CADD CODE = CH10D965

**Location:** USACE Sample # BI-SI-89-10B  
**Sample Number:** TE Lab ID: 4557.05

**Depth:** 5.0 - 10.0 (ft.)

**Date:** 7/3/10

**Thompson Engineering**

**Mobile, Alabama**

**Client:** US Army Corps of Engineers

**Project:** Contract No. W91278-10-D-0026 - Task 03  
Mississippi Barrier Island Restoration Project

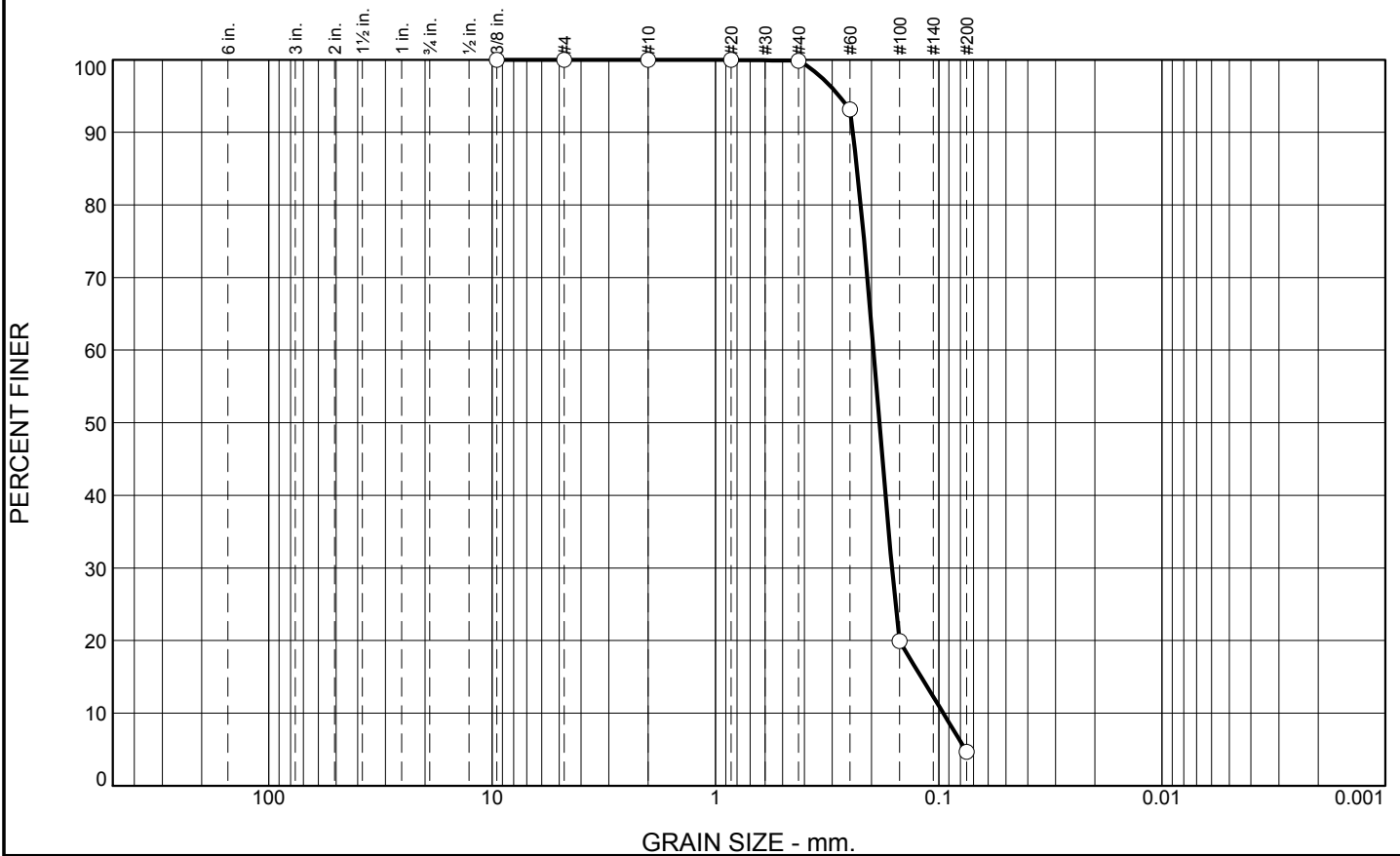
**Project No:** 10-2123-0009

**Figure**

**Tested By:** G.Fancher

**Checked By:** R.Byrd

# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.0	0.0	0.1	95.2	4.7	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
.375	100.0		
#4	100.0		
#10	100.0		
#20	100.0		
#40	99.9		
#60	93.1		
#100	19.9		
#200	4.7		

\* (no specification provided)

Material Description		
SAND, (SP), fine grained		
<div> <div> <b>Atterberg Limits</b>            PL=      LL=      PI=         </div> <div> <b>Coefficients</b>            D<sub>90</sub>= 0.2423      D<sub>85</sub>= 0.2322      D<sub>60</sub>= 0.1961            D<sub>50</sub>= 0.1844      D<sub>30</sub>= 0.1621      D<sub>15</sub>= 0.1199            D<sub>10</sub>= 0.0955      C<sub>u</sub>= 2.05      C<sub>c</sub>= 1.40         </div> <div> <b>Classification</b>            USCS= SP      AASHTO=         </div> <div> <b>Remarks</b>            CADD CODE = CH10D965         </div> </div>		

**Location:** USACE Sample # BI-SI-89-10C  
**Sample Number:** TE Lab ID: 4557.06

**Depth:** 10.0 - 13.5 (ft.)

**Date:** 7/3/10

**Thompson Engineering**  
  
**Mobile, Alabama**

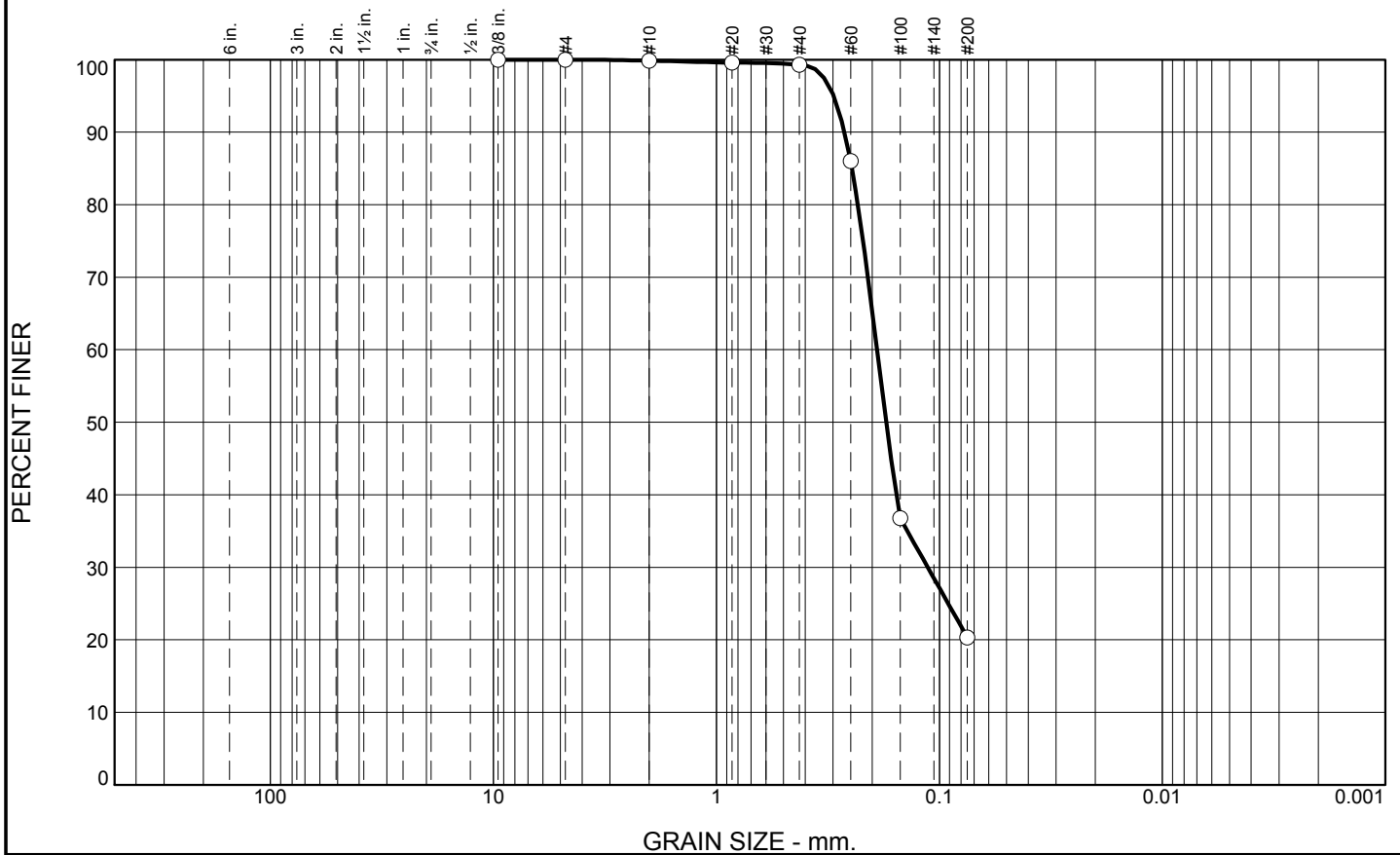
**Client:** US Army Corps of Engineers  
**Project:** Contract No. W91278-10-D-0026 - Task 03  
 Mississippi Barrier Island Restoration Project  
**Project No:** 10-2123-0009

**Figure**

**Tested By:** G.Fancher

**Checked By:** R.Byrd

# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.0	0.1	0.6	79.0	20.3	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
.375	100.0		
#4	100.0		
#10	99.9		
#20	99.6		
#40	99.3		
#60	86.0		
#100	36.8		
#200	20.3		

\* (no specification provided)

<u>Material Description</u>		
SILTY SAND, (SM), fine grained, with clay pockets		
<u>Atterberg Limits</u>		
PL=	LL=	PI=
<u>Coefficients</u>		
D <sub>90</sub> = 0.2661	D <sub>85</sub> = 0.2466	D <sub>60</sub> = 0.1904
D <sub>50</sub> = 0.1732	D <sub>30</sub> = 0.1128	D <sub>15</sub> =
D <sub>10</sub> =	C <sub>u</sub> =	C <sub>c</sub> =
<u>Classification</u>		
USCS= SM	AASHTO=	
<u>Remarks</u>		
CADD CODE = CH10D965		

Location: USACE Sample # BI-SI-89-10D  
Sample Number: TE Lab ID: 4557.07

Depth: 13.5 - 18.3 (ft.)

Date: 7/3/10

**Thompson Engineering**  
**Mobile, Alabama**

**Client:** US Army Corps of Engineers  
**Project:** Contract No. W91278-10-D-0026 - Task 03  
Mississippi Barrier Island Restoration Project  
**Project No:** 10-2123-0009

**Figure**

Tested By: G.Fancher

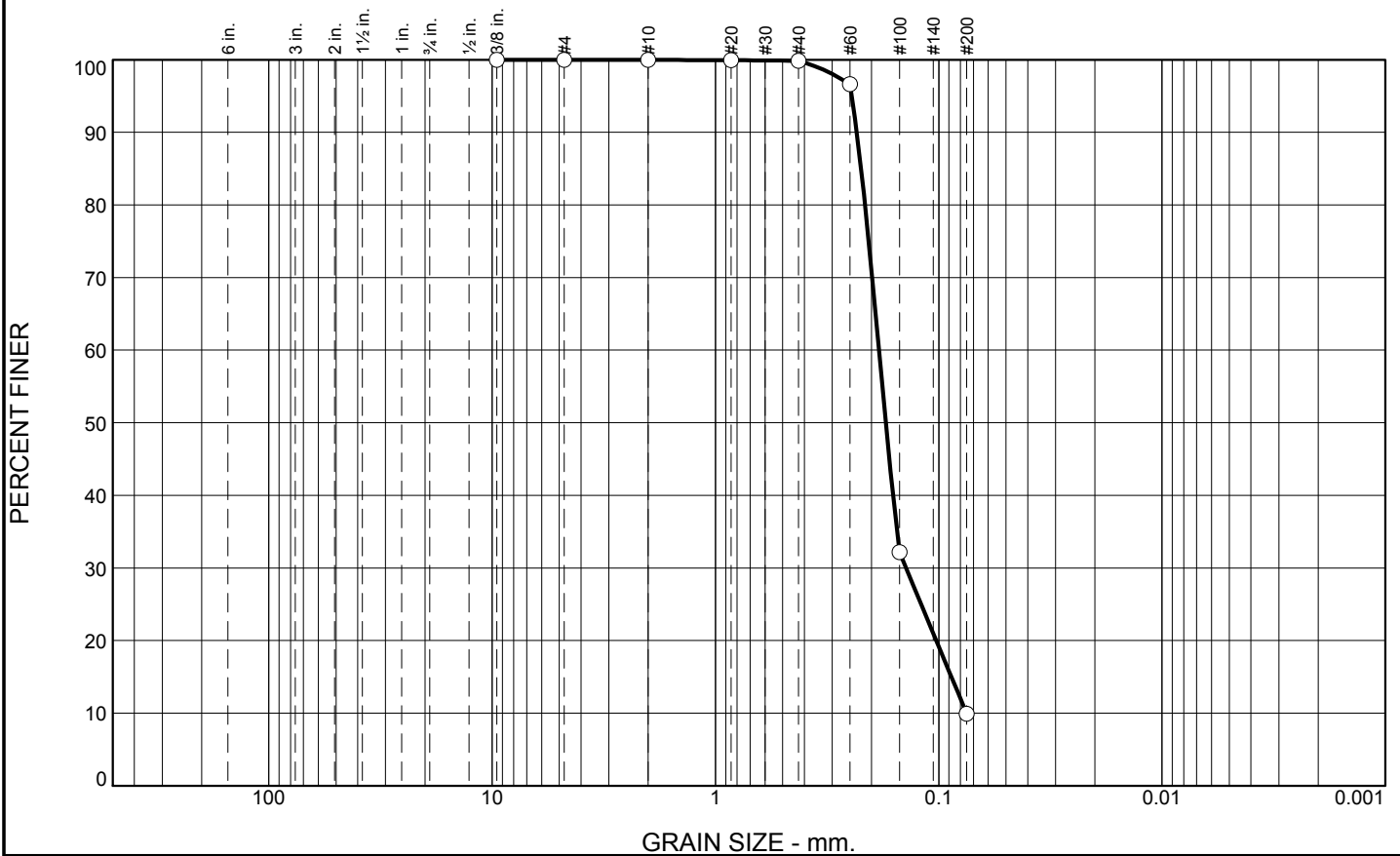
Checked By: R.Byrd

# Boring Designation BI-SI-90-10

DRILLING LOG		DIVISION South Atlantic		INSTALLATION Mobile District		SHEET 1 OF 1 SHEETS	
1. PROJECT MsCIP Barrier Island Restoration Ship Island				9. SIZE AND TYPE OF BIT N/A			
2. BORING DESIGNATION BI-SI-90-10		LOCATION COORDINATES E = 973,659 N = 256,121		10. COORDINATE SYSTEM/DATUM State Plane, MSE (U.S. Ft.)		HORIZONTAL NAD83 VERTICAL NAVD88	
3. DRILLING AGENCY Corps of Engineers - CESAM		CONTRACTOR FILE NO.		11. MANUFACTURER'S DESIGNATION OF DRILL Vibracore		<input type="checkbox"/> AUTO HAMMER <input type="checkbox"/> MANUAL HAMMER	
4. NAME OF DRILLER Construction Solutions International, Inc.				12. TOTAL SAMPLES		DISTURBED 1 UNDISTURBED (UD) 0	
5. DIRECTION OF BORING <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED		DEG. FROM VERTICAL		13. TOTAL NUMBER CORE BOXES			
		BEARING		14. WATER DEPTH 30 Ft.			
6. THICKNESS OF OVERBURDEN N/A				15. DATE BORING		STARTED 06-21-10 COMPLETED 06-21-10	
7. DEPTH DRILLED INTO ROCK N/A				16. ELEVATION TOP OF BORING -29.3 Ft.			
8. TOTAL DEPTH OF BORING 12.7 Ft.				17. TOTAL RECOVERY FOR BORING 100%			
				18. SIGNATURE AND TITLE OF INSPECTOR Marty Gates, Geologist			
ELEV.	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS	SAMPLE	LABORATORY RESULTS		
-29.3	0.0						
-30.9	1.6		CLAY, lean, dark gray (CL)	NS			
-34.2	4.9		SAND, silty, mostly fine to medium-grained sand-sized quartz, some silt, gray (SM)	A	Classification: SP-SM Color: 2.5Y 6/2-light brownish gray D50: 0.1727 mm % Fines: 9.9		
-35.3	6.0		CLAY, lean, dark gray (CL)	NS			
-37.3	8.0		SAND, poorly-graded, mostly fine to medium-grained sand-sized quartz, trace silt, lt. gray (SP)				
-42.0	12.7		CLAY, lean, dark gray (CL)				
			NOTES: 1. Soils are field visually classified in accordance with the Unified Soils Classification System. 2. NS = Sample not submitted for laboratory analysis from this interval. 3. Seafloor elevation calculated using sampling vessel's fathometer water depth reading and applying NOAA tidal gauge data conversion factor.				



# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.0	0.0	0.2	89.9	9.9	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
.375	100.0		
#4	100.0		
#10	100.0		
#20	99.9		
#40	99.8		
#60	96.6		
#100	32.2		
#200	9.9		

\* (no specification provided)

## Material Description

SAND, (SP-SM), fine grained

## Atterberg Limits

PL=

LL=

PI=

## Coefficients

D<sub>90</sub>= 0.2327

D<sub>85</sub>= 0.2226

D<sub>60</sub>= 0.1853

D<sub>50</sub>= 0.1727

D<sub>30</sub>= 0.1402

D<sub>15</sub>= 0.0878

D<sub>10</sub>= 0.0752

C<sub>u</sub>= 2.46

C<sub>c</sub>= 1.41

## Classification

USCS= SP-SM

AASHTO=

## Remarks

CADD CODE = CH10D965

Location: USACE Sample # BI-SI-90-10A  
Sample Number: TE Lab ID: 4557.08

Depth: 1.6 - 4.9 (ft.)

Date: 7/3/10

**Thompson Engineering**

**Mobile, Alabama**

Client: US Army Corps of Engineers

Project: Contract No. W91278-10-D-0026 - Task 03  
Mississippi Barrier Island Restoration Project

Project No: 10-2123-0009

Figure

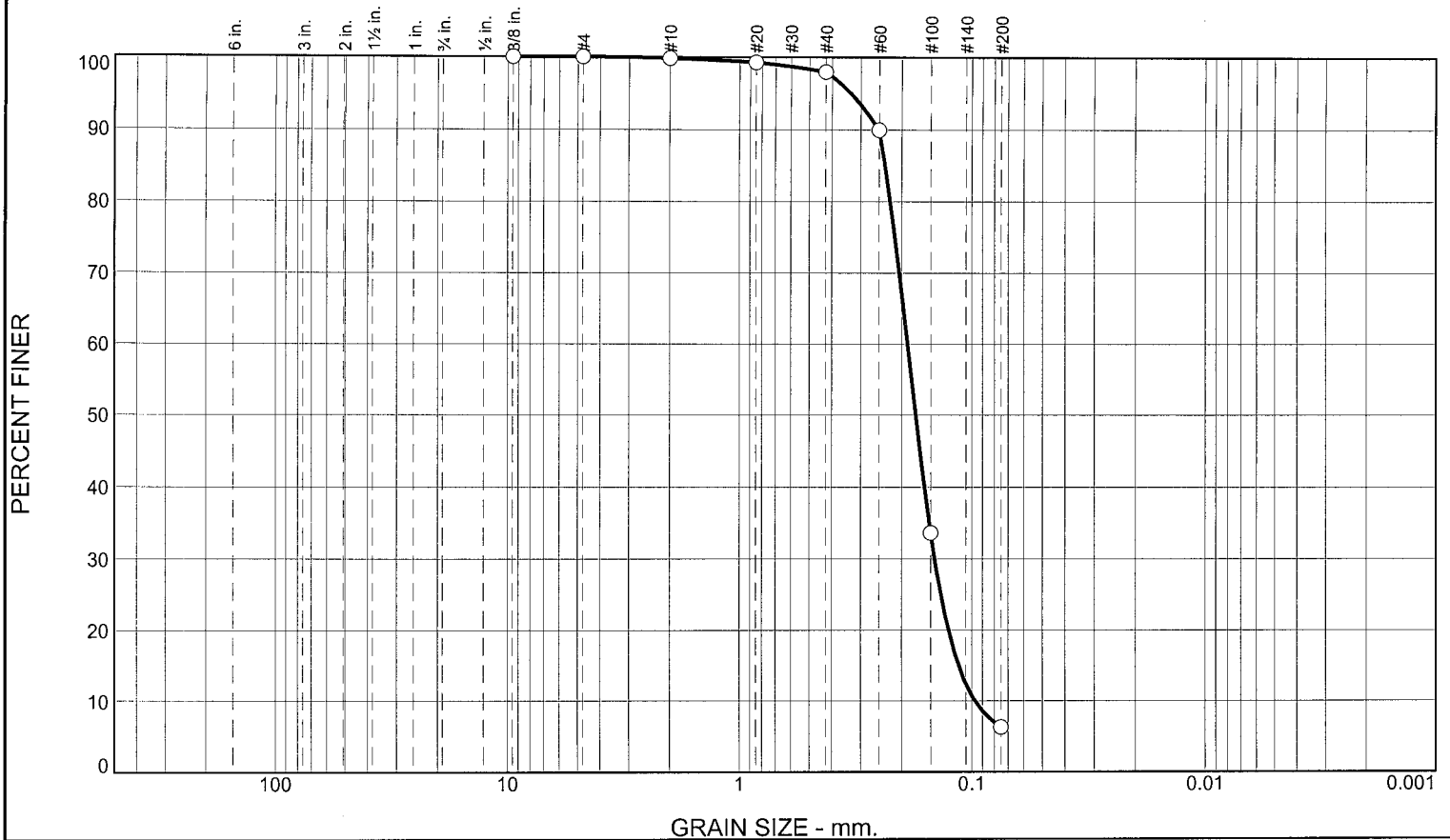
Tested By: G.Fancher

Checked By: R.Byrd

# Boring Designation BI-SI-91-10

DRILLING LOG		DIVISION South Atlantic		INSTALLATION Mobile District		SHEET 1 OF 1 SHEETS	
1. PROJECT MsCIP Barrier Island Restoration Ship Island				9. SIZE AND TYPE OF BIT N/A			
2. BORING DESIGNATION BI-SI-91-10		LOCATION COORDINATES E = 970,695 N = 252,173		10. COORDINATE SYSTEM/DATUM State Plane, MSE (U.S. Ft.)		HORIZONTAL NAD83 VERTICAL NAVD88	
3. DRILLING AGENCY Corps of Engineers - CESAM		CONTRACTOR FILE NO.		11. MANUFACTURER'S DESIGNATION OF DRILL Vibracore		<input type="checkbox"/> AUTO HAMMER <input type="checkbox"/> MANUAL HAMMER	
4. NAME OF DRILLER Construction Solutions International, Inc.				12. TOTAL SAMPLES 3		DISTURBED 0 UNDISTURBED (UD)	
5. DIRECTION OF BORING <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED		DEG. FROM VERTICAL		13. TOTAL NUMBER CORE BOXES			
		BEARING		14. WATER DEPTH 32 Ft.			
6. THICKNESS OF OVERBURDEN N/A				15. DATE BORING 06-17-10		STARTED 06-17-10 COMPLETED 06-17-10	
7. DEPTH DRILLED INTO ROCK N/A				16. ELEVATION TOP OF BORING -30.5 Ft.			
8. TOTAL DEPTH OF BORING 15.7 Ft.				17. TOTAL RECOVERY FOR BORING 100%			
				18. SIGNATURE AND TITLE OF INSPECTOR Brad Johnson, Geologist			
ELEV.	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS	SAMPLE	LABORATORY RESULTS		
-30.5	0.0						
			CLAY, lean, dark gray (CL)	NS			
-33.4	2.9						
			SAND, clayey, mostly fine to medium-grained sand-sized quartz, some clay, gray (SC)	A	Classification: SP-SM Color: 2.5Y 6/2-light brownish gray D50: 0.1738 mm % Fines: 6.2		
-38.6	8.1			B	Classification: SP-SM Color: 2.5Y 6/2-light brownish gray D50: 0.1533 mm % Fines: 7.3		
			CLAY, lean, some silt, some sand, gray (CL)	NS			
-42.2	11.7						
			SAND, silty, some silt, some clay, gray (SM)	C	Classification: SM Color: 2.5Y 5/2-grayish brown D50: 0.1179 mm % Fines: 12.2		
-46.2	15.7						
			NOTES:				
			1. Soils are field visually classified in accordance with the Unified Soils Classification System.				
			2. NS = Sample not submitted for laboratory analysis from this interval.				
			3. Seafloor elevation calculated using sampling vessel's fathometer water depth reading and applying NOAA tidal gauge data conversion factor.				

# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.0	0.2	1.9	91.7	6.2	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
.375	100.0		
#4	100.0		
#10	99.8		
#20	99.3		
#40	97.9		
#60	89.9		
#100	33.6		
#200	6.2		

\* (no specification provided)

**Material Description**

SAND, (SP-SM), fine grained

**Atterberg Limits**

PL=      LL=      PI=

**Coefficients**

D<sub>90</sub>= 0.2510      D<sub>85</sub>= 0.2355      D<sub>60</sub>= 0.1885  
D<sub>50</sub>= 0.1738      D<sub>30</sub>= 0.1443      D<sub>15</sub>= 0.1138  
D<sub>10</sub>= 0.0970      C<sub>u</sub>= 1.94      C<sub>c</sub>= 1.14

**Classification**

USCS= SP-SM      AASHTO=

**Remarks**

CADD CODE = CH10D965

Location: USACE Sample # BI-SI-91-10A  
Sample Number: TE Lab ID: 4549.63

Depth: 2.9 - 5.9 (ft.)

Date: 6/26/10

**Thompson Engineering**

**Mobile, Alabama**

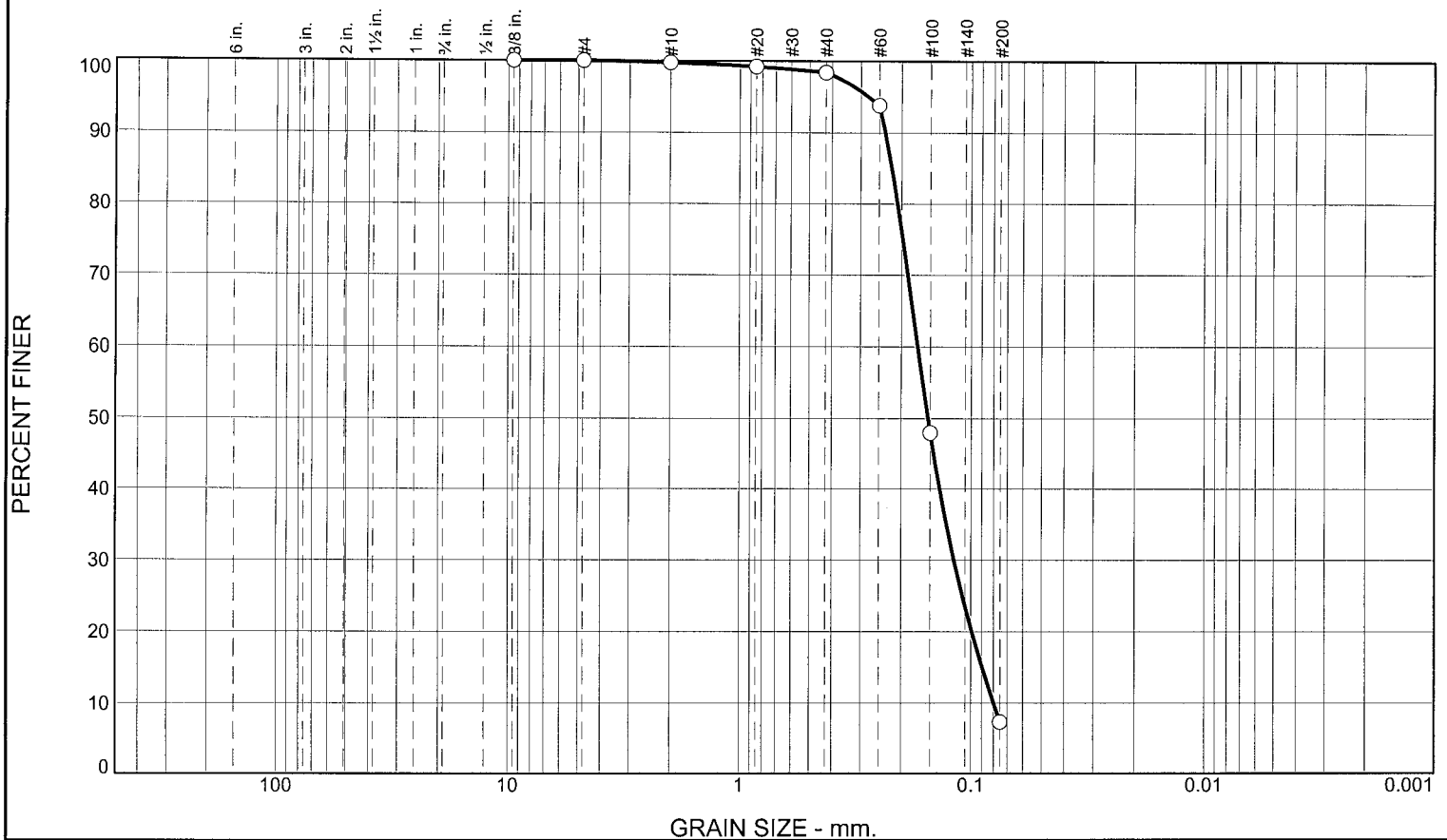
**Client:** US Army Corps of Engineers  
**Project:** Contract No. W91278-10-D-0026 - Task 03  
Mississippi Barrier Island Restoration Project  
**Project No:** 10-2123-0009

**Figure**

Tested By: G.Fancher

Checked By: R.Byrd

# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.0	0.3	1.3	91.1	7.3	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
.375	100.0		
#4	100.0		
#10	99.7		
#20	99.2		
#40	98.4		
#60	93.8		
#100	48.0		
#200	7.3		

\* (no specification provided)

**Material Description**  
SAND, (SP-SM), fine grained

**Atterberg Limits**  
 PL=                      LL=                      PI=

**Coefficients**  
 D<sub>90</sub>= 0.2350      D<sub>85</sub>= 0.2202      D<sub>60</sub>= 0.1699  
 D<sub>50</sub>= 0.1533      D<sub>30</sub>= 0.1184      D<sub>15</sub>= 0.0893  
 D<sub>10</sub>= 0.0798      C<sub>u</sub>= 2.13              C<sub>c</sub>= 1.03

**Classification**  
 USCS= SP-SM                      AASHTO=

**Remarks**  
 CADD CODE = CH10D965

Location: USACE Sample # BI-SI-91-10B  
 Sample Number: TE Lab ID: 4549.64

Date: 6/26/10

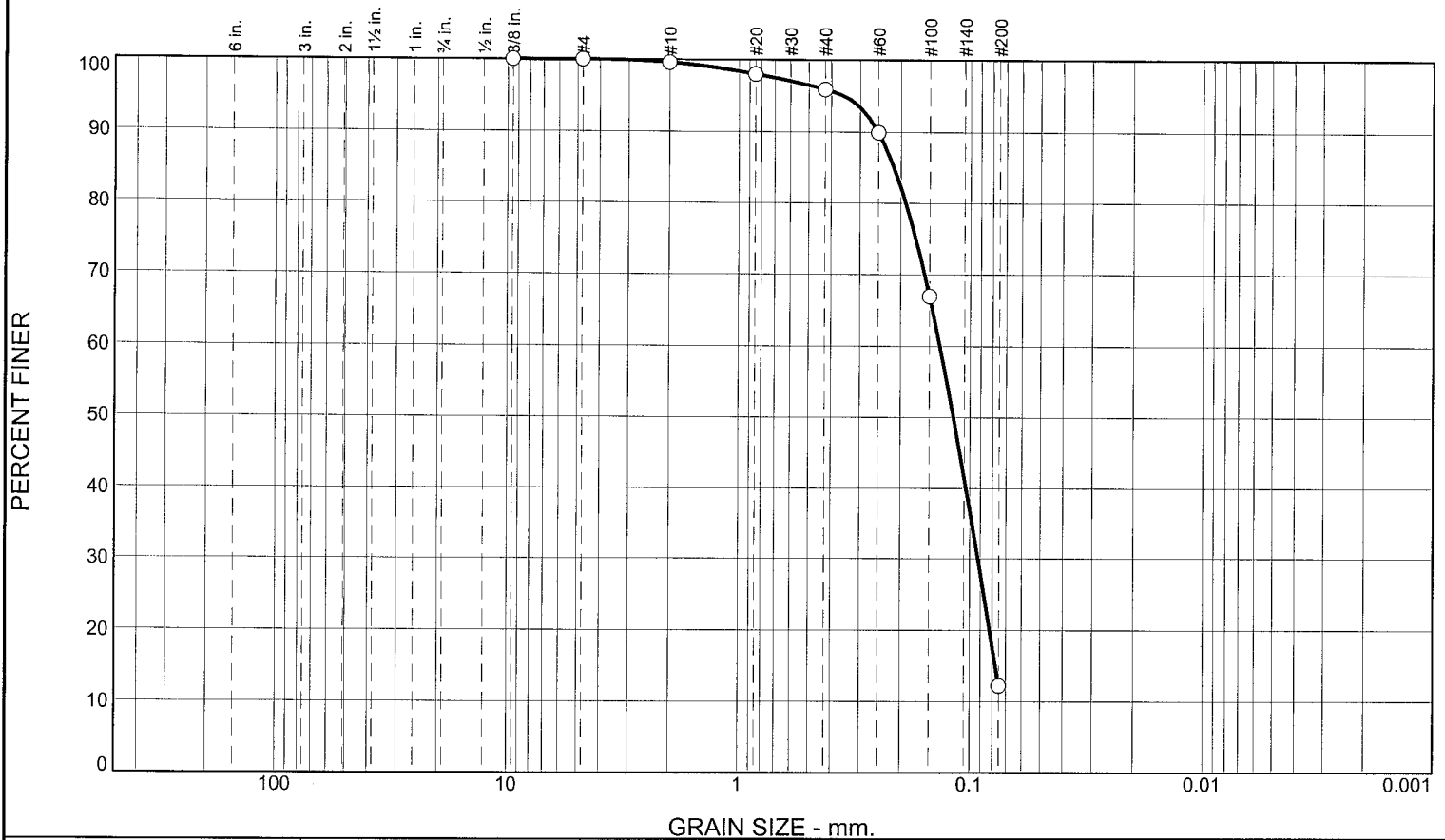
**Thompson Engineering**  
**Mobile, Alabama**

**Client:** US Army Corps of Engineers  
**Project:** Contract No. W91278-10-D-0026 - Task 03  
 Mississippi Barrier Island Restoration Project  
**Project No:** 10-2123-0009

**Figure**

Tested By: G.Fancher                      Checked By: R.Byrd

# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.0	0.4	3.7	83.7	12.2	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
.375	100.0		
#4	100.0		
#10	99.6		
#20	98.0		
#40	95.9		
#60	89.9		
#100	67.0		
#200	12.2		

\* (no specification provided)

**Material Description**  
SILTY SAND, (SM), fine grained

**Atterberg Limits**  
 PL=                      LL=                      PI=

**Coefficients**  
 D<sub>90</sub>= 0.2508      D<sub>85</sub>= 0.2141      D<sub>60</sub>= 0.1351  
 D<sub>50</sub>= 0.1179      D<sub>30</sub>= 0.0922      D<sub>15</sub>= 0.0774  
 D<sub>10</sub>=                      C<sub>u</sub>=                      C<sub>c</sub>=

**Classification**  
 USCS= SM                      AASHTO=

**Remarks**  
 CADD CODE = CH10D965

Location: USACE Sample # BI-SI-91-10C  
 Sample Number: TE Lab ID: 4549.65

Depth: 11.7 - 15.7 (ft.)

Date: 6/26/10

**Thompson Engineering**  
**Mobile, Alabama**

**Client:** US Army Corps of Engineers  
**Project:** Contract No. W91278-10-D-0026 - Task 03  
 Mississippi Barrier Island Restoration Project  
**Project No:** 10-2123-0009

**Figure**

Tested By: G.Fancher

Checked By: R.Byrd

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## **Appendix G**

### **Dog Keys Pass Vibracores and Lab Results**

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Vibracore / Sample ID	Investigation Area	Sample Event	Date of Sample	Time_CST	Latitude	Longitude	Northing_Y	Easting_X	Sample Method	Water Depth (feet)	Boring Depth (feet below seafloor surface )	Sample Depth (Feet below seafloor surface)	Sample Thickness (feet)	Field USCS	Lab USCS	Angularity	Wet Munsell Color	Wet Munsell Color Code	Wet Munsell Value	Dry Munsell Color	Dry Munsell Color Code	Dry Munsell Value	CaCO3	D50 (mm)	Graphic Mean (mm)	% Fines	Cu (D60/D10)	Cc (D30)*2 / (D10*D60)
BI-DK-1-10	DOG KEYS PASS	2010	6/15/2010	4:00 PM	30.18796	-88.76256	250191.58810	1006610.22600	20-ft Vibracore	43.0	19.1	NO SAMPLE TAKEN		CL	NO SAMPLE TESTED													
BI-DK-2-10	DOG KEYS PASS	2010	6/15/2010	3:10 PM	30.18029	-88.77293	247400.27270	1003335.39200	20-ft Vibracore	40.0	17.1																	
BI-DK-2-10A	DOG KEYS PASS	2010	6/15/2010	3:10 PM	30.18029	-88.77293	247400.27270	1003335.39200	20-ft Vibracore	40.0	17.1	5.6 - 10.5	4.9	SM	SM	CLAY FINES	DK GRAYISH BROWN	2.5Y 4/2	4	GRAYISH BROWN	2.5Y 5/2	5	YES	0.17	#VALUE!	16.9	#VALUE!	#VALUE!
BI-DK-2-10B	DOG KEYS PASS	2010	6/15/2010	3:10 PM	30.18029	-88.77293	247400.27270	1003335.39200	20-ft Vibracore	40.0	17.1	12.0 - 14.0	2.0	SM	SM	SUBANGULAR TO ROUNDED	DK GRAYISH BROWN	2.5Y 4/2	4	GRAYISH BROWN	2.5Y 5/2	5	NO	0.28	#VALUE!	17.3	#VALUE!	#VALUE!
BI-DK-2-10C	DOG KEYS PASS	2010	6/15/2010	3:10 PM	30.18029	-88.77293	247400.27270	1003335.39200	20-ft Vibracore	40.0	17.1	14.0 - 17.2	3.2	SP	SM	SUBANGULAR TO ROUNDED	DK GRAYISH BROWN	2.5Y 4/2	4	LT BROWNISH GRAY	2.5Y 6/2	6	NO	0.18	0.17	14.9	#VALUE!	#VALUE!
BI-DK-3-10	DOG KEYS PASS	2010	6/15/2010	2:40 PM	30.17949	-88.78397	247107.64880	999847.25400	20-ft Vibracore	43.0	18.2																	
BI-DK-3-10A	DOG KEYS PASS	2010	6/15/2010	2:40 PM	30.17949	-88.78397	247107.64880	999847.25400	20-ft Vibracore	43.0	18.2	7.6 - 13.0	5.4	SM	SP-SM	SUBANGULAR TO ROUNDED	GRAYISH BROWN	2.5Y 5/2	5	GRAYISH BROWN	2.5Y 5/2	5	YES	0.19	0.18	8.4	2.6	1.5
BI-DK-3-10B	DOG KEYS PASS	2010	6/15/2010	2:40 PM	30.17949	-88.78397	247107.64880	999847.25400	20-ft Vibracore	43.0	18.2	13.0 - 18.2	5.2	SP	SP-SM	CLAY FINES	GRAYISH BROWN	2.5Y 5/2	5	LT BROWNISH GRAY	2.5Y 6/2	6	NO	0.20	0.21	5.7	1.9	1.3
BI-DK-4-10	DOG KEYS PASS	2010	6/15/2010	1:10 PM	30.19348	-88.84560	252192.37040	980374.66880	20-ft Vibracore	37.5	19.7																	
BI-DK-4-10A	DOG KEYS PASS	2010	6/15/2010	1:10 PM	30.19348	-88.84560	252192.37040	980374.66880	20-ft Vibracore	37.5	19.7	10.0 - 13.5	3.5	SM	SP-SM	SUBANGULAR TO ROUNDED	GRAY	2.5Y 5/1	5	GRAYISH BROWN	2.5Y 5/2	5	YES	0.22	0.24	7.9	2.9	1.5
BI-DK-4-10B	DOG KEYS PASS	2010	6/15/2010	1:10 PM	30.19348	-88.84560	252192.37040	980374.66880	20-ft Vibracore	37.5	19.7	13.5 - 17.7	4.2	SM	SP-SM	SUBANGULAR TO ROUNDED	GRAY	5Y 5/1	5	GRAYISH BROWN	2.5Y 5/2	5	YES	0.22	0.24	8.0	2.8	1.5
BI-DK-4-10C	DOG KEYS PASS	2010	6/15/2010	1:10 PM	30.19348	-88.84560	252192.37040	980374.66880	20-ft Vibracore	37.5	19.7	17.2 - 19.7	2.5	SP	SP-SM	CLAY FINES	DK GRAYISH BROWN	2.5Y 4/2	4	GRAYISH BROWN	2.5Y 5/2	5	NO	0.28	0.28	10.6	#VALUE!	#VALUE!
BI-DK-5-10	DOG KEYS PASS	2010	6/15/2010	1:40 PM	30.18607	-88.83091	249497.29580	985015.64580	20-ft Vibracore	40.0	19.5	NO SAMPLE TAKEN		CL	NO SAMPLE TESTED													
BI-DK-6-10	DOG KEYS PASS	2010	6/2/2010	1:40 PM	30.18053	-88.82766	247482.54310	986042.57520	20-ft Vibracore	42.0	20.0																	
BI-DK-6-10A	DOG KEYS PASS	2010	6/2/2010	1:40 PM	30.18053	-88.82766	247482.54310	986042.57520	20-ft Vibracore	42.0	20.0	14.5 - 16.5	2.0	SM	SM	CLAY FINES	VERY DK GRAY	2.5Y 3/1	3	DK GRAYISH BROWN	2.5Y 4/2	4	NO	0.13	#VALUE!	24.6	#VALUE!	#VALUE!
BI-DK-6-10B	DOG KEYS PASS	2010	6/2/2010	1:40 PM	30.18053	-88.82766	247482.54310	986042.57520	20-ft Vibracore	42.0	20.0	16.5 - 20.0	3.5	SP	SM	CLAY FINES	VERY DK GRAY	2.5Y 3/1	3	DK GRAYISH BROWN	2.5Y 4/2	4	NO	0.17	0.17	12.9	#VALUE!	#VALUE!
BI-DK-7-10	DOG KEYS PASS	2010	6/2/2010	10:20 AM	30.22398	-88.82932	263284.47810	985517.51630	20-ft Vibracore	26.0	15.9																	
BI-DK-7-10A	DOG KEYS PASS	2010	6/2/2010	10:20 AM	30.22398	-88.82932	263284.47810	985517.51630	20-ft Vibracore	26.0	15.9	0.0 - 4.3	4.3	SP	SP	SUBANGULAR TO ROUNDED	OLIVE GRAY	5Y 5/2	5	LT GRAY	5Y 7/1	7	NO	0.17	0.17	4.3	2.0	1.1
BI-DK-8-10	DOG KEYS PASS	2010	6/2/2010	11:15 AM	30.22033	-88.79269	261959.30610	997086.70940	20-ft Vibracore	17.0	12.4																	
BI-DK-8-10A	DOG KEYS PASS	2010	6/2/2010	11:15 AM	30.22033	-88.79269	261959.30610	997086.70940	20-ft Vibracore	17.0	12.4	0.0 - 5.0	5.0	SP	SP	SUBANGULAR TO ROUNDED	LT OLIVE GRAY	5Y 6/2	6	LT GRAY	5Y 7/1	7	NO	0.19	0.20	1.6	1.7	1.0
BI-DK-8-10B	DOG KEYS PASS	2010	6/2/2010	11:15 AM	30.22033	-88.79269	261959.30610	997086.70940	20-ft Vibracore	17.0	12.4	5.0 - 10.5	5.5	SP	SP-SM	SUBANGULAR TO ROUNDED	LT OLIVE GRAY	5Y 6/2	6	LT GRAY	5Y 7/1	7	YES	0.15	0.16	7.0	2.2	1.0
BI-DK-8-10C	DOG KEYS PASS	2010	6/2/2010	11:15 AM	30.22033	-88.79269	261959.30610	997086.70940	20-ft Vibracore	17.0	12.4	10.5 - 12.4	1.9	SM	SP-SM	SUBANGULAR TO ROUNDED	OLIVE GRAY	5Y 4/2	4	LT BROWNISH GRAY	2.5Y 6/2	6	YES	0.12	0.13	9.9	1.7	0.9
BI-DK-9-10	DOG KEYS PASS	2010	6/2/2010	12:00 PM	30.21798	-88.79262	261104.66040	997109.12370	20-ft Vibracore	31.0	17.9																	
BI-DK-9-10A	DOG KEYS PASS	2010	6/2/2010	12:00 PM	30.21798	-88.79262	261104.66040	997109.12370	20-ft Vibracore	31.0	17.9	0.0 - 2.8	2.8	SM	SP-SM	SUBANGULAR TO ROUNDED	OLIVE GRAY	5Y 4/2	4	LT BROWNISH GRAY	2.5Y 6/2	6	YES	0.13	0.14	9.8	1.9	0.9
BI-DK-10-10	DOG KEYS PASS	2010	6/8/2010	7:35 AM	30.22446	-88.78223	263462.64660	1000389.70100	20-ft Vibracore	13.0	13.9																	
BI-DK-10-10A	DOG KEYS PASS	2010	6/8/2010	7:35 AM	30.22446	-88.78223	263462.64660	1000389.70100	20-ft Vibracore	13.0	13.9	0.0 - 5.0	5.0	SP	SP	SUBANGULAR TO ROUNDED	GRAY	5Y 6/1	6	LT GRAY	2.5Y 7/1	7	NO	0.24	0.25	1.7	1.7	0.9
BI-DK-10-10B	DOG KEYS PASS	2010	6/8/2010	7:35 AM	30.22446	-88.78223	263462.64660	1000389.70100	20-ft Vibracore	13.0	13.9	5.0 - 10.0	5.0	SP	SP	SUBANGULAR TO ROUNDED	GRAY	5Y 6/1	6	LT GRAY	5Y 7/1	7	NO	0.20	0.20	3.9	1.9	1.2
BI-DK-10-10C	DOG KEYS PASS	2010	6/8/2010	7:35 AM	30.22446	-88.78223	263462.64660	1000389.70100	20-ft Vibracore	13.0	13.9	10.0 - 13.9	3.9	SP	SP-SM	SUBANGULAR TO ROUNDED	GRAY	5Y 5/1	5	LT GRAY	5Y 7/1	7	YES	0.18	0.18	5.9	2.3	1.4
BI-DK-11-10	DOG KEYS PASS	2010	6/8/2010	10:00 AM	30.22095	-88.78249	262186.08380	1000308.15700	20-ft Vibracore	12.5	8.6																	
BI-DK-11-10A	DOG KEYS PASS	2010	6/8/2010	10:00 AM	30.22095	-88.78249	262186.08380	1000308.15700	20-ft Vibracore	12.5	8.6	0.0 - 4.3	4.3	SP	SP	SUBANGULAR TO ROUNDED	LT GRAY	2.5Y 7/2	7	LT GRAY	2.5Y 7/1	7	NO	0.16	0.16	4.1	2.0	1.1
BI-DK-11-10B	DOG KEYS PASS	2010	6/8/2010	10:00 AM	30.22095	-88.78249	262186.08380	1000308.15700	20-ft Vibracore	12.5	8.6	4.3 - 8.6	4.3	SP	SP	SUBANGULAR TO ROUNDED	GRAY	2.5Y 6/1	6	LT GRAY	5Y 7/1	7	NO	0.19	0.19	3.3	1.7	1.0
BI-DK-12-10	DOG KEYS PASS	2010	6/7/2010	11:30 AM	30.22268	-88.74105	262823.48320	1013395.89600	20-ft Vibracore	30.0	18.7	NO SAMPLE TAKEN		CL	NO SAMPLE TESTED													
BI-DK-13-10	DOG KEYS PASS	2010	6/7/2010	2:35 PM	30.22833	-88.79799	264868.20880	995411.86440	20-ft Vibracore	13.0	12.5																	
BI-DK-13-10A	DOG KEYS PASS	2010	6/7/2010	2:35 PM	30.22833	-88.79799	264868.20880	995411.86440	20-ft Vibracore	13.0	12.5	0.0 - 5.0	5.0	SP	SP	SUBANGULAR TO ROUNDED	LT BROWNISH GRAY	2.5Y 6/2	6	LT GRAY	2.5Y 7/1	7	NO	0.24	0.25	2.0	1.7	0.9
BI-DK-13-10B	DOG KEYS PASS	2010	6/7/2010	2:35 PM	30.22833	-88.79799	264868.20880	995411.86440	20-ft Vibracore	13.0	12.5	5.0 - 10.6	5.6	SP	SM	SUBANGULAR TO ROUNDED	GRAY	5Y 6/1	6	LT GRAY	5Y 7/1	7	NO	0.22	0.21	13.4	#VALUE!	#VALUE!
BI-DK-14-10	DOG KEYS PASS	2010	6/7/2010	1:55 PM	30.22758	-88.78490	264596.96820	999545.96580	20-ft Vibracore	15.5	17.1																	
BI-DK-14-10A	DOG KEYS PASS	2010	6/7/2010	1:55 PM	30.22758	-88.78490	264596.96820	999545.96580	20-ft Vibracore	15.5	17.1	0.0 - 4.0	4.0	SP	SP	SUBANGULAR TO ROUNDED	LT GRAY	2.5Y 7/2	7	LT GRAY	2.5Y 7/1	7	NO	0.23	0.25	1.8	1.6	0.9
BI-DK-14-10B	DOG KEYS PASS	2010	6/7/2010	1:55 PM	30.22758	-88.78490	264596.96820	999545.96580	20-ft Vibracore	15.5	17.1	4.0 - 8.0	4.0	SP	SP	SUBANGULAR TO ROUNDED	GRAY	5Y 5/1	5	LT GRAY	5Y 7/1	7	NO	0.21	0.22	3.1	1.7	1.1
BI-DK-14-10C	DOG KEYS PASS	2010	6/7/2010	1:55 PM	30.22758	-88.78490	264596.96820	999545.96580	20-ft Vibracore	15.5	17.1	8.0 - 11.4	3.4	SM	SM	SUBANGULAR TO ROUNDED	GRAY	5Y 5/1	5	LT BROWNISH GRAY	2.5Y 6/2	6	YES	0.16	#VALUE!	15.4	#VALUE!	#VALUE!
BI-DK-15-10	DOG KEYS PASS	2010	6/7/2010	1:00 PM	30.22761	-88.77568	264609.23580	1002457.77400	20-ft Vibracore	15.0	14.1																	
BI-DK-15-10A	DOG KEYS PASS	2010	6/7/2010	1:00 PM	30.22761	-88.77568	264609.23580	1002457.77400	20-ft Vibracore	15.0	14.1	0.0 - 4.0	4.0	SP	SP-SM	SUBANGULAR TO ROUNDED	GRAY	5Y 6.5/1	7	LT GRAY	2.5Y 7/1	7	YES	0.21	0.22	5.6	2.5	1.3
BI-DK-15-10B	DOG KEYS PASS	2010	6/7/2010	1:00 PM	30.22761	-88.77568	264609.23580	1002457.77400	20-ft Vibracore	15.0	14.1	4.0 - 8.2	4.2	SP	SP-SM	SUBANGULAR TO ROUNDED	GRAT	5Y 5/1	5	LT GRAY	5Y 7/1	7	YES	0.19	0.18	5.9	2.3	1.4
BI-DK-16-10	DOG KEYS PASS	2010	6/8/2010	11:00 AM	30.23025	-88.83878	265564.78800	982529.90840	20-ft Vibracore	13.0	14.3																	
BI-DK-16-10A	DOG KEYS PASS	2010	6/8/2010	11:00 AM	30.23025	-88.83878	265564.78800	982529.90840	20-ft Vibracore	13.0	14.3	0.0 - 5.2	5.2	SP	SP	SUBANGULAR TO ROUNDED	LT BROWNISH GRAY	2.5Y 6/2	6	LT GRAY	2.5Y 7/1	7	NO	0.25	0.26	2.0	1.7	0.9
BI-DK-16-10B	DOG KEYS PASS	2010	6/8/2010	11:00 AM	30.23025	-88.83878	265564.78800	982529.90840	20-ft Vibracore	13.0	14.3	5.2 - 9.0	3.8	SM	SP-SM	SUBANGULAR TO ROUNDED												

Vibracore / Sample ID	Investigation Area	Sample Event	Date of Sample	Time_CST	Latitude	Longitude	Northing_Y	Easting_X	Sample Method	Water Depth (feet)	Boring Depth (feet below seafloor surface )	Sample Depth (Feet below seafloor surface)	Sample Thickness (feet)	Field USCS	Lab USCS	Angularity	Wet Munsell Color	Wet Munsell Color Code	Wet Munsell Value	Dry Munsell Color	Dry Munsell Color Code	Dry Munsell Value	CaCO3	D50 (mm)	Graphic Mean (mm)	% Fines	Cu (D60/D10)	Cc (D30)^2 / (D10*D60)
BI-DK-22-10	DOG KEYS PASS	2010	6/24/2010	8:15 AM	30.22053	-88.80519	262030.84980	993138.71610	20-ft Vibracore	30.0	19.0	NO SAMPLE TAKEN		CL	NO SAMPLE TESTED													
BI-DK-23-10	DOG KEYS PASS	2010	6/24/2010	10:25 AM	30.22896	-88.84407	265095.75580	980859.24880	20-ft Vibracore	25.0	16.5	NO SAMPLE TAKEN		CL	NO SAMPLE TESTED													
BI-DK-25-10	DOG KEYS PASS	2010	6/24/2010	10:00 AM	30.22596	-88.84169	264004.64430	981610.79750	20-ft Vibracore	27.0	18.5	NO SAMPLE TAKEN		CL	NO SAMPLE TESTED													

Cu: Coefficient of Uniformity  
Cc: Coefficient of Curvature  
The "#Value!" error message indicates that data was not available for that calculation.

# Boring Designation BI-DK-01-10

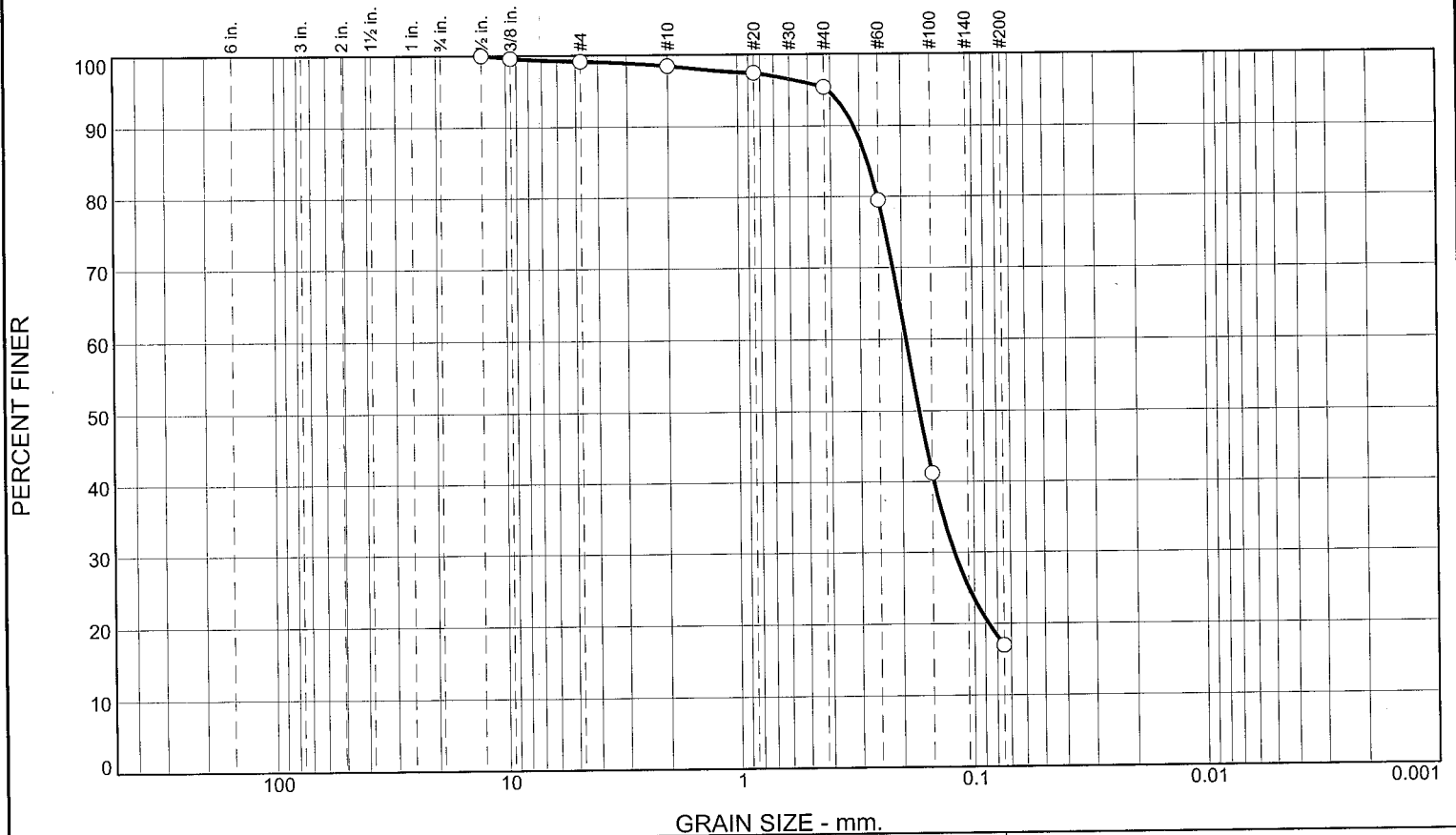
DRILLING LOG		DIVISION South Atlantic		INSTALLATION Mobile District		SHEET 1 OF 2 SHEETS	
1. PROJECT MsCIP Barrier Island Restoration Dog Keys Pass				9. SIZE AND TYPE OF BIT N/A			
2. BORING DESIGNATION BI-DK-01-10		LOCATION COORDINATES E = 1,006,610 N = 250,192		10. COORDINATE SYSTEM/DATUM State Plane, MSE (U.S. Ft.)		HORIZONTAL NAD83 VERTICAL NAVD88	
3. DRILLING AGENCY Corps of Engineers - CESAM		CONTRACTOR FILE NO.		11. MANUFACTURER'S DESIGNATION OF DRILL Vibrocure		<input type="checkbox"/> AUTO HAMMER <input type="checkbox"/> MANUAL HAMMER	
4. NAME OF DRILLER Construction Solutions International, Inc.				12. TOTAL SAMPLES 0		DISTURBED 0 UNDISTURBED (UD) 0	
5. DIRECTION OF BORING <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED		DEG. FROM VERTICAL		13. TOTAL NUMBER CORE BOXES			
		BEARING		14. WATER DEPTH 43 Ft.			
6. THICKNESS OF OVERBURDEN N/A				15. DATE BORING 06-15-10		STARTED 06-15-10 COMPLETED 06-15-10	
7. DEPTH DRILLED INTO ROCK N/A				16. ELEVATION TOP OF BORING -41.3 Ft.			
8. TOTAL DEPTH OF BORING 19.1 Ft.				17. TOTAL RECOVERY FOR BORING 100%			
				18. SIGNATURE AND TITLE OF INSPECTOR Marty Gates, Geologist			
ELEV.	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS	SAMPLE	LABORATORY RESULTS		
-41.3	0.0		CLAY, lean, dark gray (CL)	NS			
-47.6	6.3						
-49.7	8.4		SAND, silty, mostly fine to medium-grained sand-sized quartz, some silt, trace shell fragments, gray (SM)				
-55.3	14.0		CLAY, lean, brown (CL)				
-60.4	19.1		SAND, poorly-graded, mostly fine to medium-grained sand-sized quartz, little silt, brown (SP)				
			NOTES: 1. Soils are field visually classified in accordance with the Unified Soils Classification System. 2. NS = Sample not submitted for laboratory analysis from this interval. 3. Seafloor elevation calculated using sampling vessel's fathometer water depth reading and applying NOAA tidal gauge data conversion				

<b>DRILLING LOG (Cont. Sheet)</b>			<b>INSTALLATION</b> Mobile District			<b>SHEET 2</b>	
						<b>OF 2 SHEETS</b>	
<b>PROJECT</b> MsCIP Barrier Island Restoration			<b>COORDINATE SYSTEM/DATUM</b> State Plane, MSE (U.S. Ft.)		<b>HORIZONTAL</b> NAD83	<b>VERTICAL</b> NAVD88	
<b>LOCATION COORDINATES</b> X = 1,006,610 Y = 250,192			<b>ELEVATION TOP OF BORING</b> -41.3 Ft.				
<b>ELEV.</b>	<b>DEPTH</b>	<b>LEGEND</b>	<b>CLASSIFICATION OF MATERIALS</b>	<b>SAMPLE</b>	<b>LABORATORY RESULTS</b>		
			factor.				

# Boring Designation BI-DK-02-10

DRILLING LOG		DIVISION South Atlantic		INSTALLATION Mobile District		SHEET 1 OF 1 SHEETS	
1. PROJECT MsCIP Barrier Island Restoration Dog Keys Pass				9. SIZE AND TYPE OF BIT N/A			
2. BORING DESIGNATION BI-DK-02-10		LOCATION COORDINATES E = 1,003,335 N = 247,400		10. COORDINATE SYSTEM/DATUM State Plane, MSE (U.S. Ft.)		HORIZONTAL NAD83	
3. DRILLING AGENCY Corps of Engineers - CESAM		CONTRACTOR FILE NO.		11. MANUFACTURER'S DESIGNATION OF DRILL Vibrocure		<input type="checkbox"/> AUTO HAMMER <input type="checkbox"/> MANUAL HAMMER	
4. NAME OF DRILLER Construction Solutions International, Inc.				12. TOTAL SAMPLES		DISTURBED 3	
5. DIRECTION OF BORING <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED				13. TOTAL NUMBER CORE BOXES		UNDISTURBED (UD) 0	
6. THICKNESS OF OVERBURDEN N/A				14. WATER DEPTH		40 Ft.	
7. DEPTH DRILLED INTO ROCK N/A				15. DATE BORING		STARTED 06-15-10	
8. TOTAL DEPTH OF BORING 17.1 Ft.				16. ELEVATION TOP OF BORING		COMPLETED 06-15-10	
				17. TOTAL RECOVERY FOR BORING		100%	
				18. SIGNATURE AND TITLE OF INSPECTOR Marty Gates, Geologist			
ELEV.	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS	SAMPLE	LABORATORY RESULTS		
-38.1	0.0		CLAY, lean, dark gray (CL)	NS			
-43.7	5.6		SAND, silty, mostly fine to medium-grained sand-sized quartz, some silt, trace shell fragments, gray (SM)	A	Classification: SM Color: 2.5Y 5/2-grayish brown D50: 0.1694 mm % Fines: 16.9		
-48.6	10.5		SILT, inorganic-L, brown (ML)	NS			
-50.1	12.0		SAND, silty, mostly fine to medium-grained sand-sized quartz, some silt, trace shell fragments, gray (SM)	B	Classification: SM Color: 2.5Y 5/2-grayish brown D50: 0.2772 mm % Fines: 17.3		
-52.1	14.0		SAND, poorly-graded, mostly fine to medium-grained sand-sized quartz, little silt, trace shell fragments, brown (SP)	C	Classification: SM Color: 2.5Y 6/2-light brownish gray D50: 0.1817 mm % Fines: 14.9		
-55.2	17.1		NOTES: 1. Soils are field visually classified in accordance with the Unified Soils Classification System. 2. NS = Sample not submitted for laboratory analysis from this interval. 3. Seafloor elevation calculated using sampling vessel's fathometer water depth reading and applying NOAA tidal gauge data conversion factor.				

# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.9	0.6	3.1	78.5	16.9	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
.500	100.0		
.375	99.6		
#4	99.1		
#10	98.5		
#20	97.4		
#40	95.4		
#60	79.5		
#100	41.2		
#200	16.9		

\* (no specification provided)

**Material Description**  
SILTY SAND, (SM), fine grained, with trace gravel and clay pockets

**Atterberg Limits**  
 PL=      LL=      PI=

**Coefficients**  
 D<sub>90</sub>= 0.3176      D<sub>85</sub>= 0.2777      D<sub>60</sub>= 0.1920  
 D<sub>50</sub>= 0.1694      D<sub>30</sub>= 0.1213      D<sub>15</sub>=  
 D<sub>10</sub>=      C<sub>u</sub>=      C<sub>c</sub>=

**Classification**  
 USCS= SM      AASHTO=

**Remarks**  
 CADD CODE = CH10D965

Location: USACE Sample # BI-DK-2-10A  
 Sample Number: TE Lab ID: 4549.33

Depth: 5.6 - 10.5 (ft.)

Date: 6/26/10

**Thompson Engineering**

**Mobile, Alabama**

Client: US Army Corps of Engineers  
 Project: Contract No. W91278-10-D-0026 - Task 03  
 Mississippi Barrier Island Restoration Project  
 Project No: 10-2123-0009

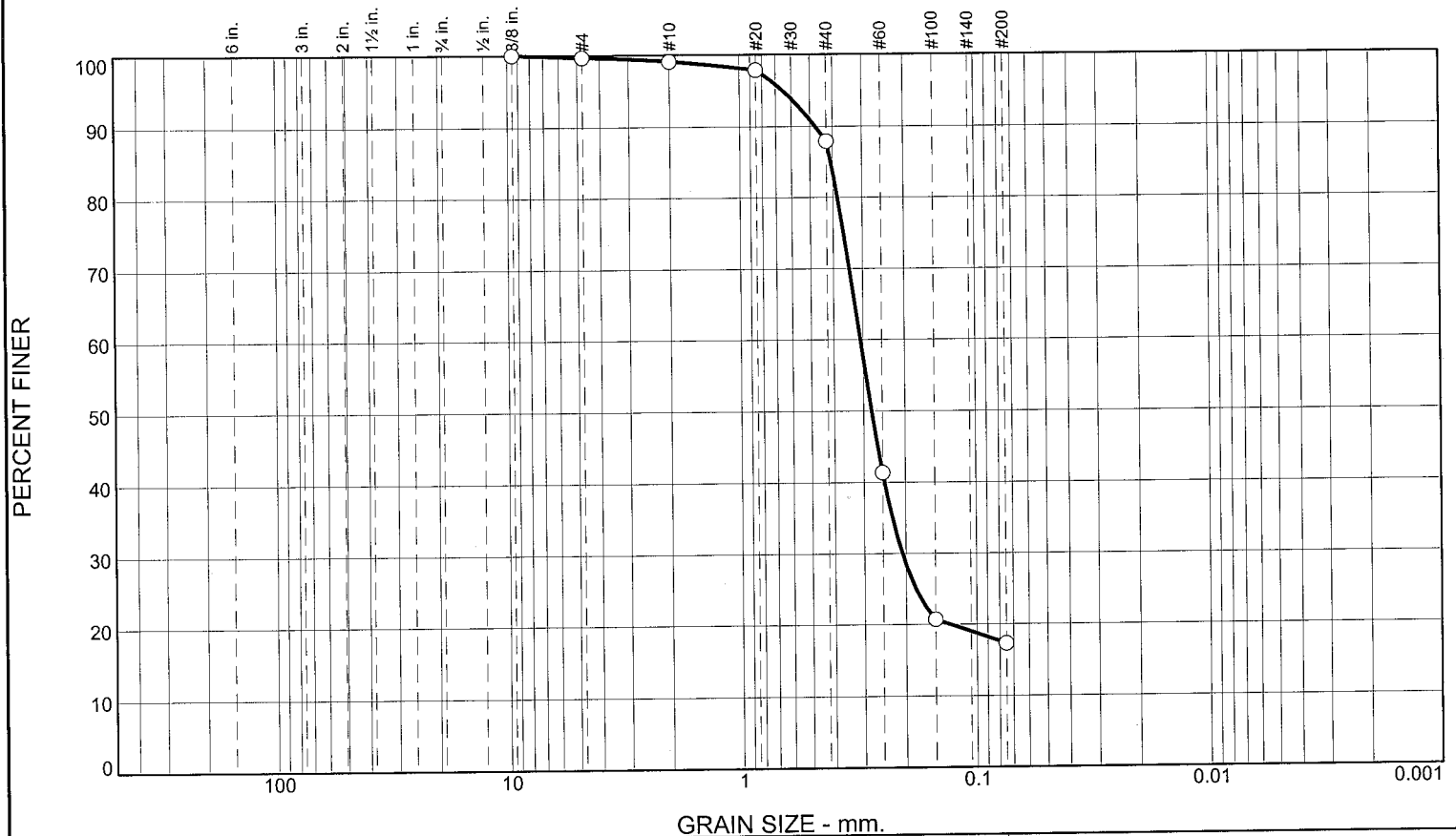
Figure

Tested By: G.Fancher

Checked By: R.Byrd



# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.4	0.5	11.2	70.6	17.3	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
.375	100.0		
#4	99.6		
#10	99.1		
#20	97.8		
#40	87.9		
#60	41.4		
#100	20.7		
#200	17.3		

\* (no specification provided)

**Material Description**  
SILTY SAND, (SM), fine grained, with clay pockets and trace organics

**Atterberg Limits**  
 PL=      LL=      PI=

**Coefficients**  
 D<sub>90</sub>= 0.4741      D<sub>85</sub>= 0.4073      D<sub>60</sub>= 0.3082  
 D<sub>50</sub>= 0.2772      D<sub>30</sub>= 0.2069      D<sub>15</sub>=  
 D<sub>10</sub>=      C<sub>u</sub>=      C<sub>c</sub>=

**Classification**  
 USCS= SM      AASHTO=

**Remarks**  
 CADD CODE = CH10D965

Location: USACE Sample # BI-DK-2-10B  
 Sample Number: TE Lab ID: 4549.34

Depth: 12.0 - 14.0 (ft.)

Date: 6/26/10

**Thompson Engineering**

**Mobile, Alabama**

Client: US Army Corps of Engineers

Project: Contract No. W91278-10-D-0026 - Task 03  
 Mississippi Barrier Island Restoration Project

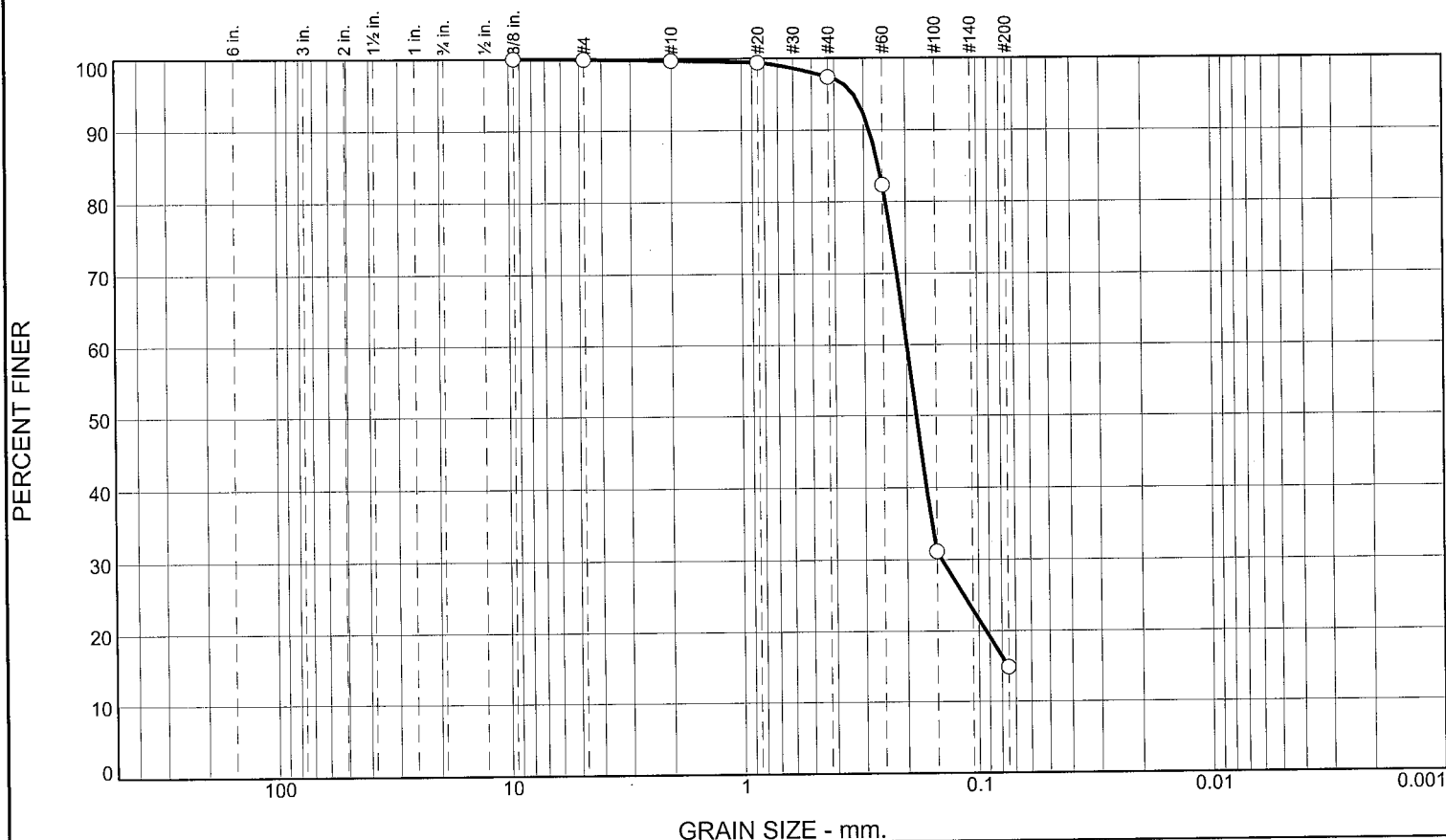
Project No: 10-2123-0009

Figure

Tested By: G.Fancher

Checked By: R.Byrd

# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.1	0.2	2.4	82.4	14.9	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
.375	100.0		
#4	99.9		
#10	99.7		
#20	99.4		
#40	97.3		
#60	82.4		
#100	31.1		
#200	14.9		

**Material Description**  
SILTY SAND, (SM), fine grained

**Atterberg Limits**  
 PL=      LL=      PI=

**Coefficients**  
 D<sub>90</sub>= 0.2839      D<sub>85</sub>= 0.2595      D<sub>60</sub>= 0.1988  
 D<sub>50</sub>= 0.1817      D<sub>30</sub>= 0.1429      D<sub>15</sub>= 0.0754  
 D<sub>10</sub>=      C<sub>u</sub>=      C<sub>c</sub>=

**Classification**  
 USCS= SM      AASHTO=

**Remarks**  
 CADD CODE = CH10D965

\* (no specification provided)

Location: USACE Sample # BI-DK-2-10C  
 Sample Number: TE Lab ID: 4549.35

Depth: 14.0 - 17.2 (ft.)

Date: 6/26/10

**Thompson Engineering**

**Mobile, Alabama**

Client: US Army Corps of Engineers  
 Project: Contract No. W91278-10-D-0026 - Task 03  
 Mississippi Barrier Island Restoration Project  
 Project No: 10-2123-0009

Figure

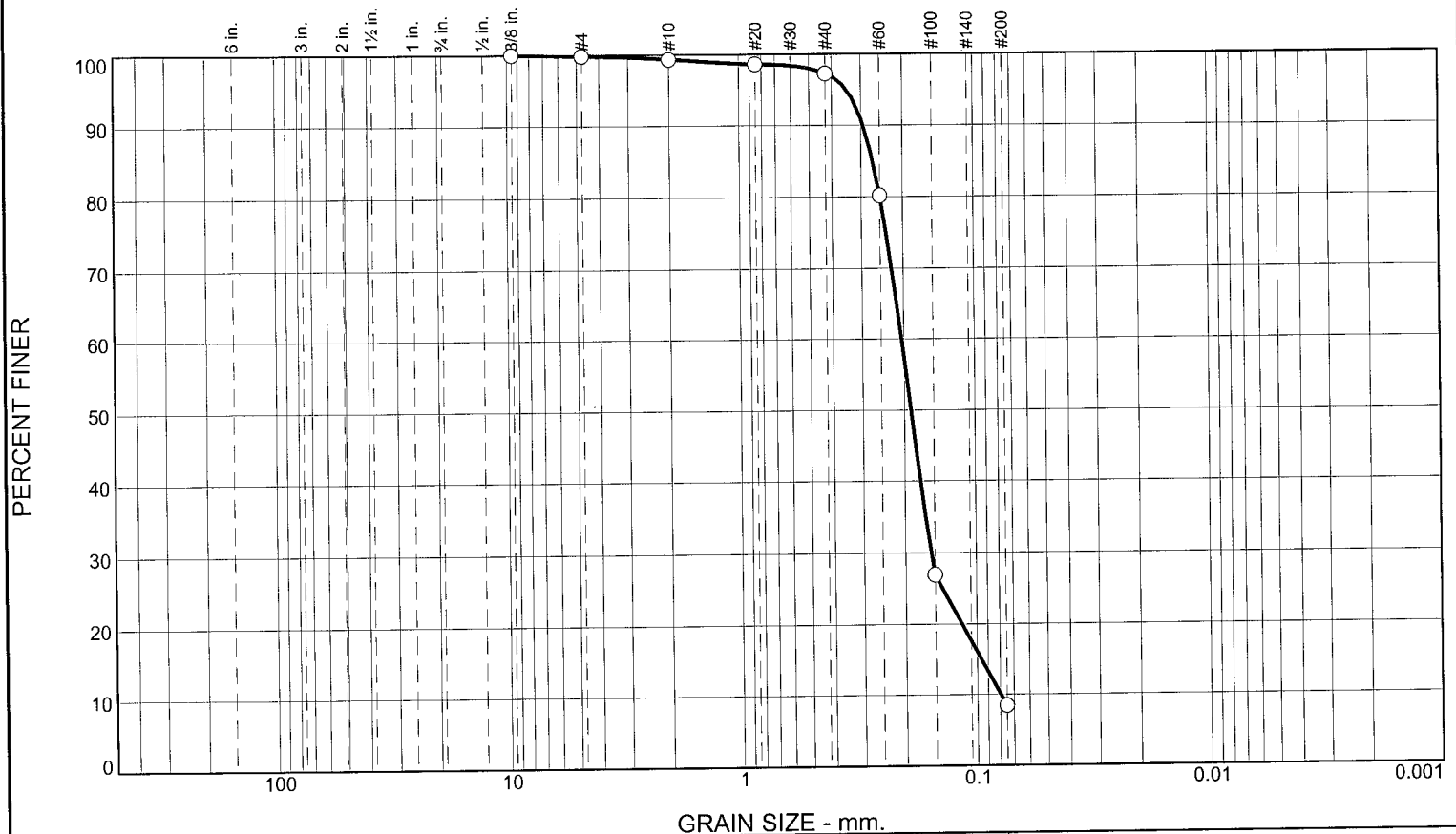
Tested By: G.Fancher

Checked By: R.Byrd

# Boring Designation BI-DK-03-10

DRILLING LOG		DIVISION South Atlantic		INSTALLATION Mobile District		SHEET 1 OF 1 SHEETS	
1. PROJECT MsCIP Barrier Island Restoration Dog Keys Pass				9. SIZE AND TYPE OF BIT N/A			
2. BORING DESIGNATION BI-DK-03-10		LOCATION COORDINATES E = 999,847 N = 247,108		10. COORDINATE SYSTEM/DATUM State Plane, MSE (U.S. Ft.)		HORIZONTAL NAD83 VERTICAL NAVD88	
3. DRILLING AGENCY Corps of Engineers - CESAM		CONTRACTOR FILE NO.		11. MANUFACTURER'S DESIGNATION OF DRILL Vibracore		<input type="checkbox"/> AUTO HAMMER <input type="checkbox"/> MANUAL HAMMER	
4. NAME OF DRILLER Construction Solutions International, Inc.				12. TOTAL SAMPLES 2		DISTURBED 2 UNDISTURBED (UD) 0	
5. DIRECTION OF BORING <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED		DEG. FROM VERTICAL		13. TOTAL NUMBER CORE BOXES			
		BEARING		14. WATER DEPTH 43 Ft.			
6. THICKNESS OF OVERBURDEN N/A				15. DATE BORING 06-15-10		STARTED 06-15-10 COMPLETED 06-15-10	
7. DEPTH DRILLED INTO ROCK N/A				16. ELEVATION TOP OF BORING -41.0 Ft.			
8. TOTAL DEPTH OF BORING 18.2 Ft.				17. TOTAL RECOVERY FOR BORING 100%			
				18. SIGNATURE AND TITLE OF INSPECTOR Marty Gates, Geologist			
ELEV.	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS	SAMPLE	LABORATORY RESULTS		
-41.0	0.0		CLAY, lean, dark gray (CL)	NS			
-48.6	7.6		SAND, silty, mostly fine to medium-grained sand-sized quartz, some silt, trace shell fragments (SM)	A	Classification: SP-SM Color: 2.5Y 5/2-grayish brown D50: 0.1874 mm % Fines: 8.4		
-54.0	13.0		SAND, poorly-graded, mostly fine to medium-grained sand-sized quartz, trace silt, trace shell fragments (SP)	B	Classification: SP-SM Color: 2.5Y 6/2-light brownish gray D50: 0.1995 mm % Fines: 5.7		
-59.2	18.2		NOTES: 1. Soils are field visually classified in accordance with the Unified Soils Classification System. 2. NS = Sample not submitted for laboratory analysis from this interval. 3. Seafloor elevation calculated using sampling vessel's fathometer water depth reading and applying NOAA tidal gauge data conversion factor.				

# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.2	0.5	2.0	88.9	8.4	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
.375	100.0		
#4	99.8		
#10	99.3		
#20	98.6		
#40	97.3		
#60	80.2		
#100	26.9		
#200	8.4		

\* (no specification provided)

**Material Description**  
SAND, (SP-SM), fine grained

**Atterberg Limits**  
 PL=      LL=      PI=

**Coefficients**  
 D<sub>90</sub>= 0.2935      D<sub>85</sub>= 0.2674      D<sub>60</sub>= 0.2045  
 D<sub>50</sub>= 0.1874      D<sub>30</sub>= 0.1553      D<sub>15</sub>= 0.0959  
 D<sub>10</sub>= 0.0795      C<sub>u</sub>= 2.57      C<sub>c</sub>= 1.48

**Classification**  
 USCS= SP-SM      AASHTO=

**Remarks**  
 CADD CODE = CH10D965

Location: USACE Sample # BI-DK-3-10A  
 Sample Number: TE Lab ID: 4549.31

Depth: 7.6 - 13.0 (ft.)

Date: 6/26/10

**Thompson Engineering**

**Mobile, Alabama**

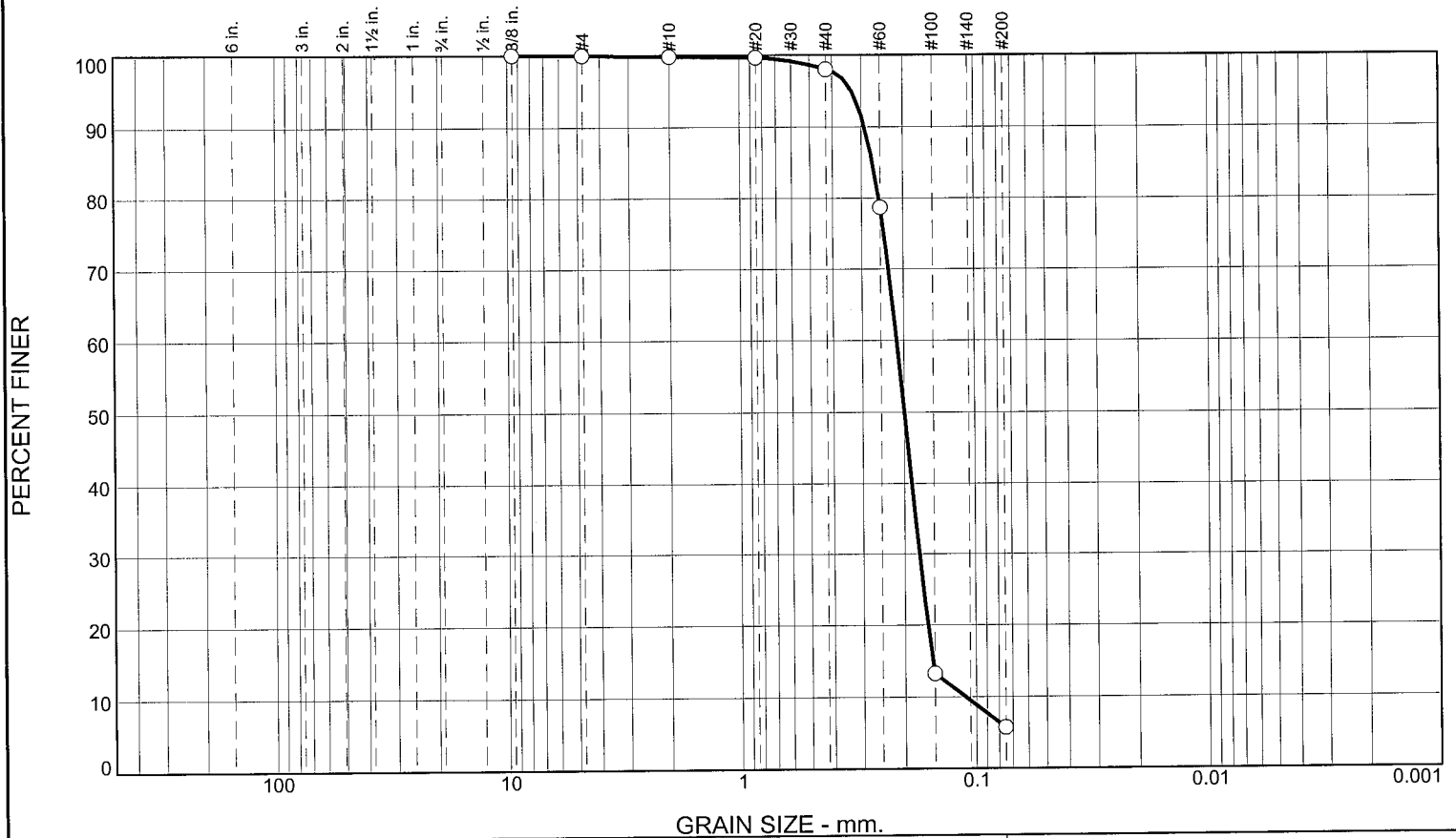
Client: US Army Corps of Engineers  
 Project: Contract No. W91278-10-D-0026 - Task 03  
 Mississippi Barrier Island Restoration Project  
 Project No: 10-2123-0009

**Figure**

Tested By: G.Fancher

Checked By: R.Byrd

# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.0	0.2	1.8	92.3	5.7	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
.375	100.0		
#4	100.0		
#10	99.8		
#20	99.7		
#40	98.0		
#60	78.7		
#100	13.3		
#200	5.7		

\* (no specification provided)

<b>Material Description</b>		
SAND, (SP-SM), fine grained		
<b>Atterberg Limits</b>		
PL=	LL=	PI=
<b>Coefficients</b>		
D <sub>90</sub> = 0.2905	D <sub>85</sub> = 0.2688	D <sub>60</sub> = 0.2142
D <sub>50</sub> = 0.1995	D <sub>30</sub> = 0.1731	D <sub>15</sub> = 0.1527
D <sub>10</sub> = 0.1111	C <sub>u</sub> = 1.93	C <sub>c</sub> = 1.26
<b>Classification</b>		
USCS= SP-SM	AASHTO=	
<b>Remarks</b>		
CADD CODE = CH10D965		

Location: USACE Sample # BI-DK-3-10B  
Sample Number: TE Lab ID: 4549.32

Depth: 13.0 - 18.2 (ft.)

Date: 6/26/10

**Thompson Engineering**

**Mobile, Alabama**

Client: US Army Corps of Engineers

Project: Contract No. W91278-10-D-0026 - Task 03  
Mississippi Barrier Island Restoration Project

Project No: 10-2123-0009

Figure

Tested By: G.Fancher

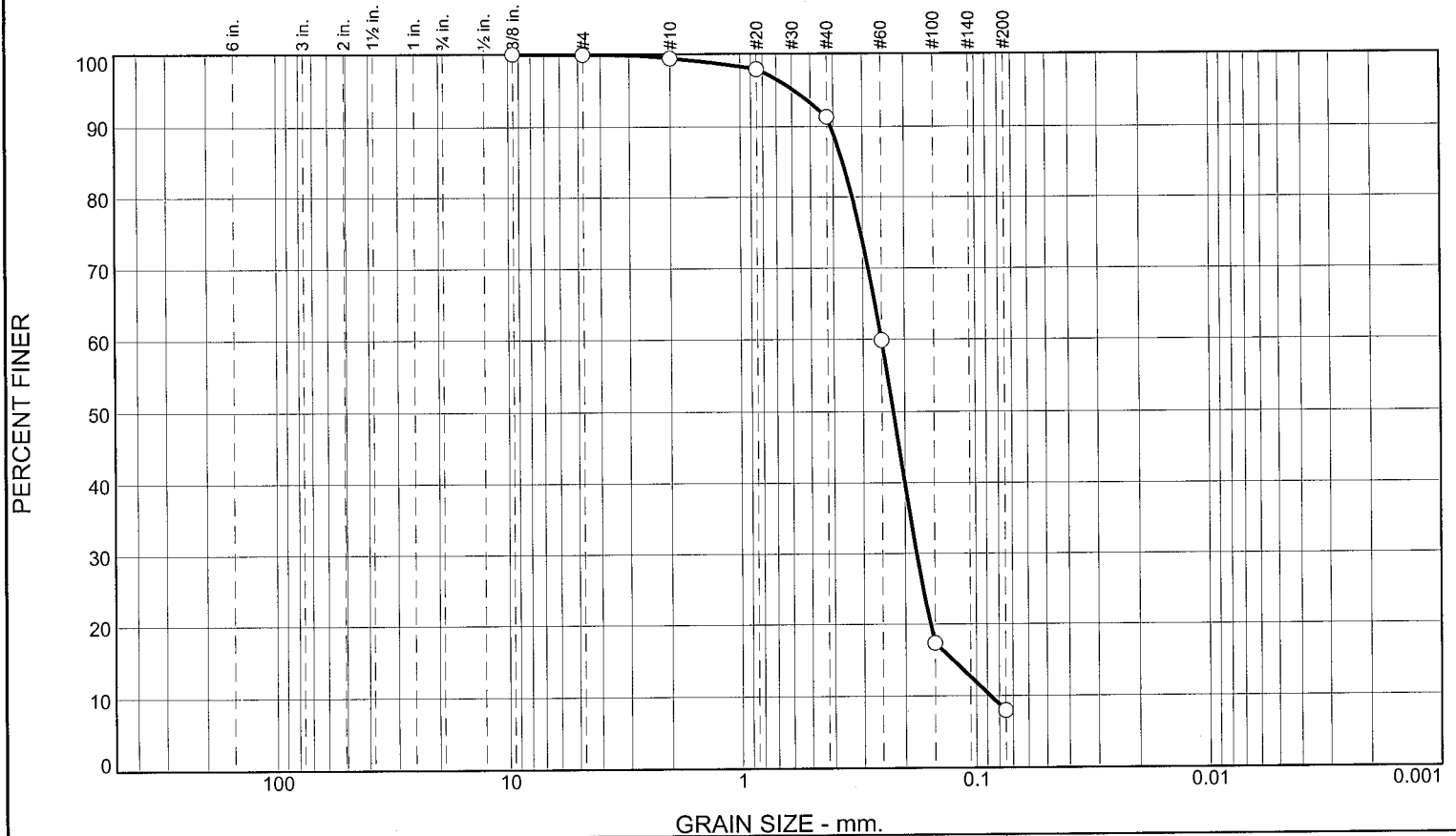
Checked By: R.Byrd

# Boring Designation BI-DK-04-10

DRILLING LOG		DIVISION South Atlantic		INSTALLATION Mobile District		SHEET 1 OF 2 SHEETS	
1. PROJECT MsCIP Barrier Island Restoration Dog Keys Pass				9. SIZE AND TYPE OF BIT N/A			
2. BORING DESIGNATION BI-DK-04-10		LOCATION COORDINATES E = 980,375 N = 252,192		10. COORDINATE SYSTEM/DATUM State Plane, MSE (U.S. Ft.)		HORIZONTAL NAD83 VERTICAL NAVD88	
3. DRILLING AGENCY Corps of Engineers - CESAM		CONTRACTOR FILE NO.		11. MANUFACTURER'S DESIGNATION OF DRILL Vibracore		<input type="checkbox"/> AUTO HAMMER <input type="checkbox"/> MANUAL HAMMER	
4. NAME OF DRILLER Construction Solutions International, Inc.				12. TOTAL SAMPLES 3		DISTURBED 0 UNDISTURBED (UD)	
5. DIRECTION OF BORING <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED		DEG. FROM VERTICAL		13. TOTAL NUMBER CORE BOXES			
		BEARING		14. WATER DEPTH 37.5 Ft.			
6. THICKNESS OF OVERBURDEN N/A				15. DATE BORING 06-15-10		STARTED 06-15-10 COMPLETED 06-15-10	
7. DEPTH DRILLED INTO ROCK N/A				16. ELEVATION TOP OF BORING -35.4 Ft.			
8. TOTAL DEPTH OF BORING 19.7 Ft.				17. TOTAL RECOVERY FOR BORING 100%			
				18. SIGNATURE AND TITLE OF INSPECTOR Marty Gates, Geologist			
ELEV.	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS	SAMPLE	LABORATORY RESULTS		
-35.4	0.0		CLAY, lean, dark gray (CL)	NS			
-45.4	10.0		SAND, silty, mostly fine to medium-grained sand-sized quartz, some silt, trace shell fragments, gray (SM)	A	Classification: SP-SM Color: 2.5Y 5/2-grayish brown D50: 0.2235 mm % Fines: 7.9		
-52.6	17.2		SAND, poorly-graded, mostly fine to medium-grained sand-sized quartz, little silt, trace shell fragments, brown (SP)	B	Classification: SP-SM Color: 2.5Y 5/2-grayish brown D50: 0.2245 mm % Fines: 8		
-55.1	19.7			C	Classification: SP-SM Color: 2.5Y 5/2-grayish brown D50: 0.2778 mm % Fines: 10.6		
			NOTES: 1. Soils are field visually classified in accordance with the Unified Soils Classification System. 2. NS = Sample not submitted for laboratory analysis from this interval. 3. Seafloor elevation calculated using sampling vessel's fathometer water depth reading and				

<b>DRILLING LOG (Cont. Sheet)</b>			<b>INSTALLATION</b> Mobile District		<b>SHEET 2</b> <b>OF 2 SHEETS</b>
<b>PROJECT</b> MsCIP Barrier Island Restoration			<b>COORDINATE SYSTEM/DATUM</b> State Plane, MSE (U.S. Ft.)	<b>HORIZONTAL</b> NAD83	<b>VERTICAL</b> NAVD88
<b>LOCATION COORDINATES</b> X = 980,375 Y = 252,192			<b>ELEVATION TOP OF BORING</b> -35.4 Ft.		
<b>ELEV.</b>	<b>DEPTH</b>	<b>LEGEND</b>	<b>CLASSIFICATION OF MATERIALS</b>	<b>SAMPLE</b>	<b>LABORATORY RESULTS</b>
			applying NOAA tidal gauge data conversion factor.		

# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.1	0.5	8.1	83.4	7.9	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
.375	100.0		
#4	99.9		
#10	99.4		
#20	97.9		
#40	91.3		
#60	59.9		
#100	17.4		
#200	7.9		

**Material Description**  
SAND, (SP-SM), medium to fine grained

**Atterberg Limits**  
PL=      LL=      PI=

**Coefficients**  
D<sub>90</sub>= 0.4090      D<sub>85</sub>= 0.3639      D<sub>60</sub>= 0.2503  
D<sub>50</sub>= 0.2235      D<sub>30</sub>= 0.1787      D<sub>15</sub>= 0.1262  
D<sub>10</sub>= 0.0874      C<sub>u</sub>= 2.87      C<sub>c</sub>= 1.46

**Classification**  
USCS= SP-SM      AASHTO=

**Remarks**  
CADD CODE = CH10D965

\* (no specification provided)

Location: USACE Sample # BI-DK-4-10A  
Sample Number: TE Lab ID: 4549.28

Depth: 10.0 - 13.5 (ft.)

Date: 6/26/10

**Thompson Engineering**

**Mobile, Alabama**

Client: US Army Corps of Engineers  
Project: Contract No. W91278-10-D-0026 - Task 03  
Mississippi Barrier Island Restoration Project  
Project No: 10-2123-0009

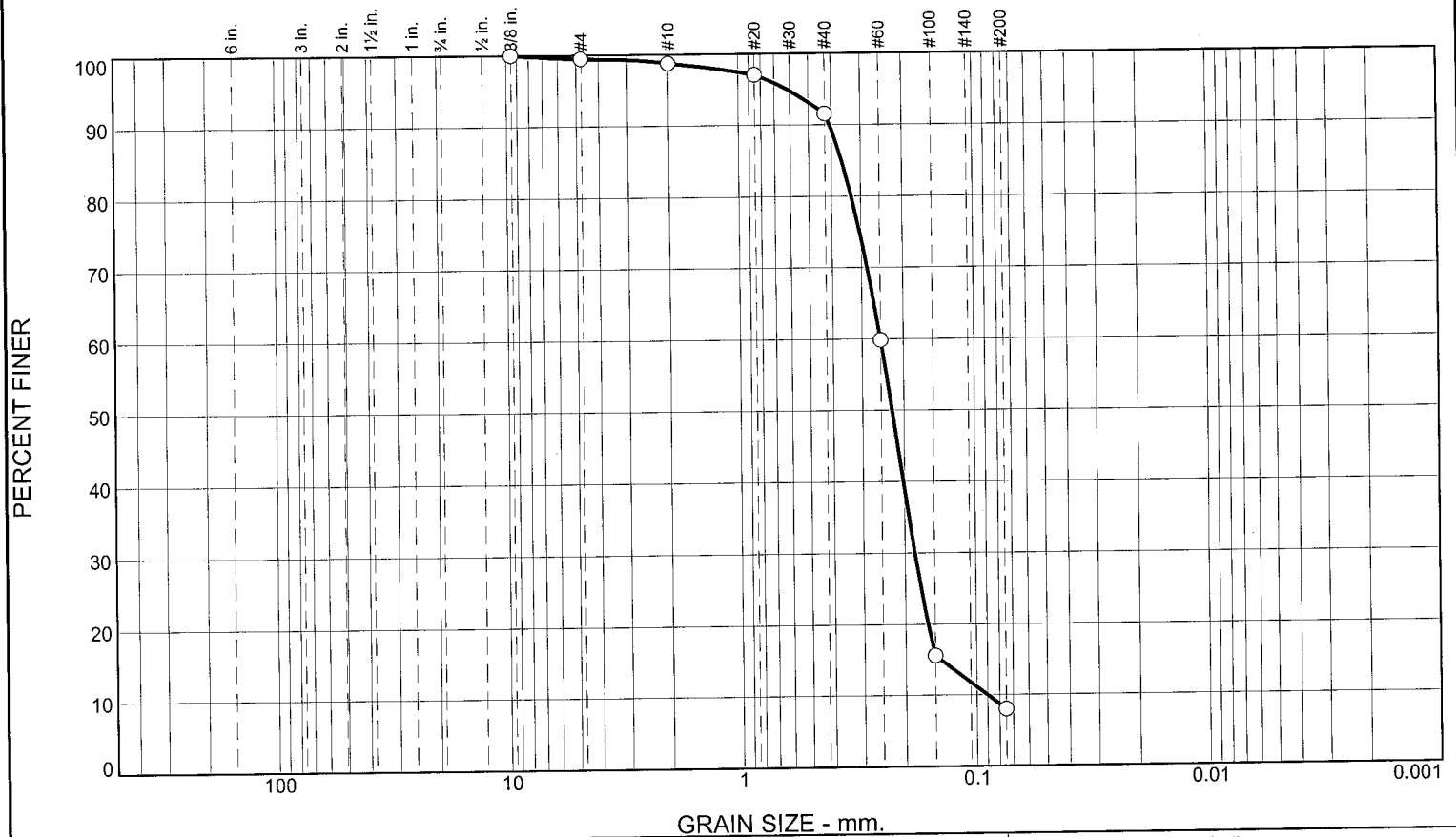
Figure

Tested By: G.Fancher

Checked By: R.Byrd



# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.5	0.8	7.1	83.6	8.0	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
.375	100.0		
#4	99.5		
#10	98.7		
#20	97.1		
#40	91.6		
#60	59.9		
#100	15.6		
#200	8.0		

\* (no specification provided)

**Material Description**  
SAND, (SP-SM), fine grained

**Atterberg Limits**  
PL=      LL=      PI=

**Coefficients**  
D<sub>90</sub>= 0.4059      D<sub>85</sub>= 0.3611      D<sub>60</sub>= 0.2504  
D<sub>50</sub>= 0.2245      D<sub>30</sub>= 0.1814      D<sub>15</sub>= 0.1422  
D<sub>10</sub>= 0.0902      C<sub>u</sub>= 2.78      C<sub>c</sub>= 1.46

**Classification**  
USCS= SP-SM      AASHTO=

**Remarks**  
CADD CODE = CH10D965

Location: USACE Sample # BI-DK-4-10B  
Sample Number: TE Lab ID: 4549.29

Depth: 13.5 - 17.7 (ft.)

Date: 6/26/10

**Thompson Engineering**

**Mobile, Alabama**

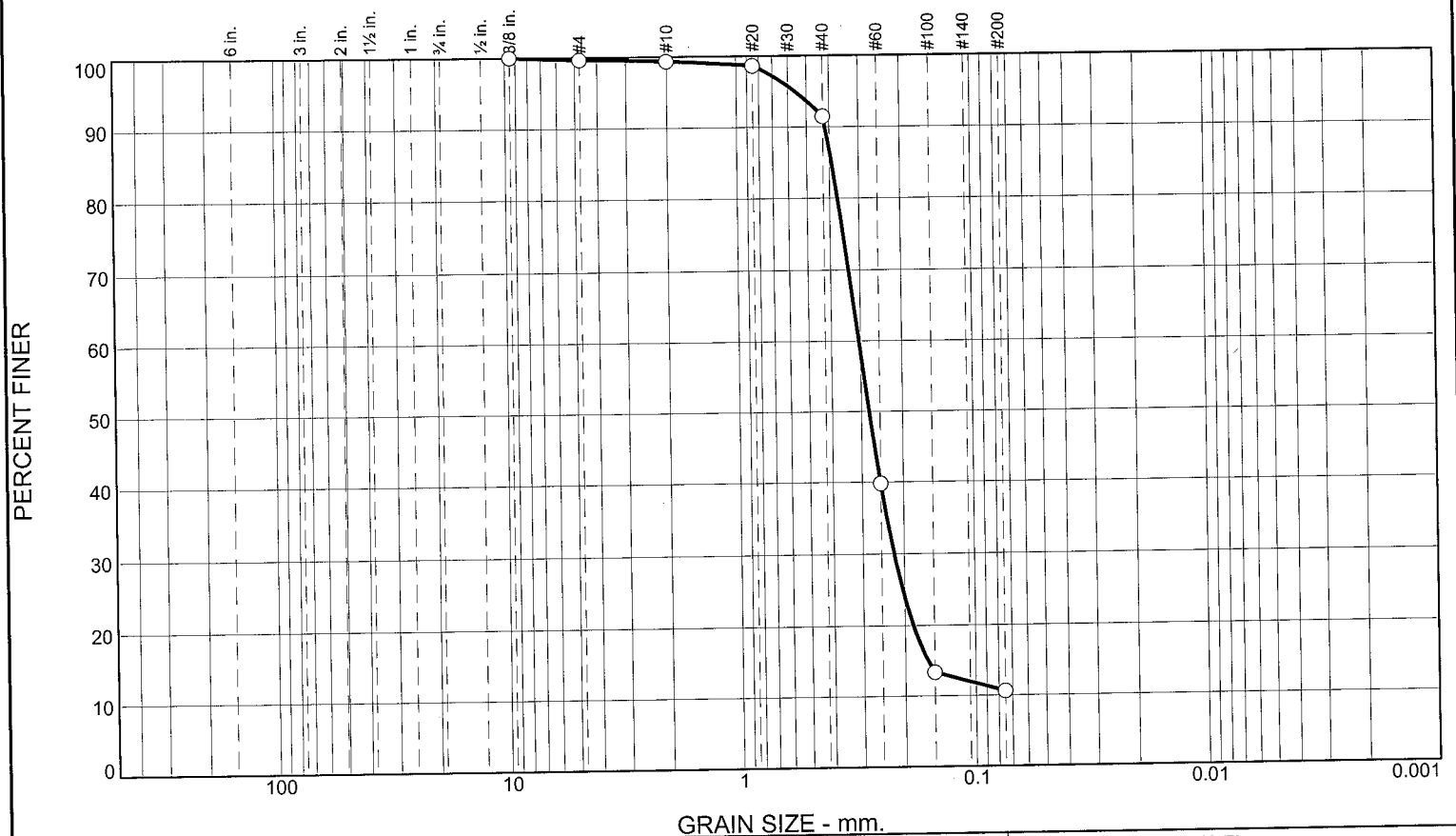
Client: US Army Corps of Engineers  
Project: Contract No. W91278-10-D-0026 - Task 03  
Mississippi Barrier Island Restoration Project  
Project No: 10-2123-0009

Figure

Tested By: G.Fancher

Checked By: R.Byrd

# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.4	0.3	7.9	80.8	10.6	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
.375	100.0		
#4	99.6		
#10	99.3		
#20	98.6		
#40	91.4		
#60	39.8		
#100	13.3		
#200	10.6		

\* (no specification provided)

**Material Description**  
SAND, (SP-SM), medium to fine grained

**Atterberg Limits**  
PL= LL= PI=

**Coefficients**  
D<sub>90</sub>= 0.4163 D<sub>85</sub>= 0.3907 D<sub>60</sub>= 0.3051  
D<sub>50</sub>= 0.2778 D<sub>30</sub>= 0.2207 D<sub>15</sub>= 0.1602  
D<sub>10</sub>= C<sub>u</sub>= C<sub>c</sub>=

**Classification**  
USCS= SP-SM AASHTO=

**Remarks**  
CADD CODE = CH10D965

Location: USACE Sample # BI-DK-4-10C  
Sample Number: TE Lab ID: 4549.30

Depth: 17.2 - 19.7 (ft.)

Date: 6/26/10

**Thompson Engineering**

**Mobile, Alabama**

Client: US Army Corps of Engineers  
Project: Contract No. W91278-10-D-0026 - Task 03  
Mississippi Barrier Island Restoration Project  
Project No: 10-2123-0009

Figure

Tested By: G.Fancher

Checked By: R.Byrd

# Boring Designation BI-DK-05-10

DRILLING LOG		DIVISION South Atlantic		INSTALLATION Mobile District		SHEET 1 OF 2 SHEETS	
1. PROJECT MsCIP Barrier Island Restoration Dog Keys Pass				9. SIZE AND TYPE OF BIT N/A			
2. BORING DESIGNATION BI-DK-05-10		LOCATION COORDINATES E = 985,016 N = 249,497		10. COORDINATE SYSTEM/DATUM State Plane, MSE (U.S. Ft.)		HORIZONTAL NAD83 VERTICAL NAVD88	
3. DRILLING AGENCY Corps of Engineers - CESAM		CONTRACTOR FILE NO.		11. MANUFACTURER'S DESIGNATION OF DRILL Vibracore		<input type="checkbox"/> AUTO HAMMER <input type="checkbox"/> MANUAL HAMMER	
4. NAME OF DRILLER Construction Solutions International, Inc.				12. TOTAL SAMPLES		DISTURBED 0 UNDISTURBED (UD) 0	
5. DIRECTION OF BORING <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED		DEG. FROM VERTICAL		13. TOTAL NUMBER CORE BOXES			
		BEARING		14. WATER DEPTH 40 Ft.			
6. THICKNESS OF OVERBURDEN N/A				15. DATE BORING		STARTED 06-15-10 COMPLETED 06-15-10	
7. DEPTH DRILLED INTO ROCK N/A				16. ELEVATION TOP OF BORING -37.9 Ft.			
8. TOTAL DEPTH OF BORING 19.5 Ft.				17. TOTAL RECOVERY FOR BORING 100%			
				18. SIGNATURE AND TITLE OF INSPECTOR Marty Gates, Geologist			

ELEV.	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS	SAMPLE	LABORATORY RESULTS
-37.9	0.0				
			CLAY, lean, dark gray (CL)		
-46.3	8.4				
			SAND, silty, mostly fine to medium-grained sand-sized quartz, some silt, trace shell fragments, gray (SM)	NS	
-49.2	11.3				
			CLAY, lean, dark gray (CL)		
-55.0	17.1				
			SAND, silty, mostly fine to medium-grained sand-sized quartz, some silt, trace shell fragments, brown (SM)		
-57.4	19.5				
			NOTES: 1. Soils are field visually classified in accordance with the Unified Soils Classification System. 2. NS = Sample not submitted for laboratory analysis from this interval. 3. Seafloor elevation calculated using sampling vessel's fathometer water depth reading and		

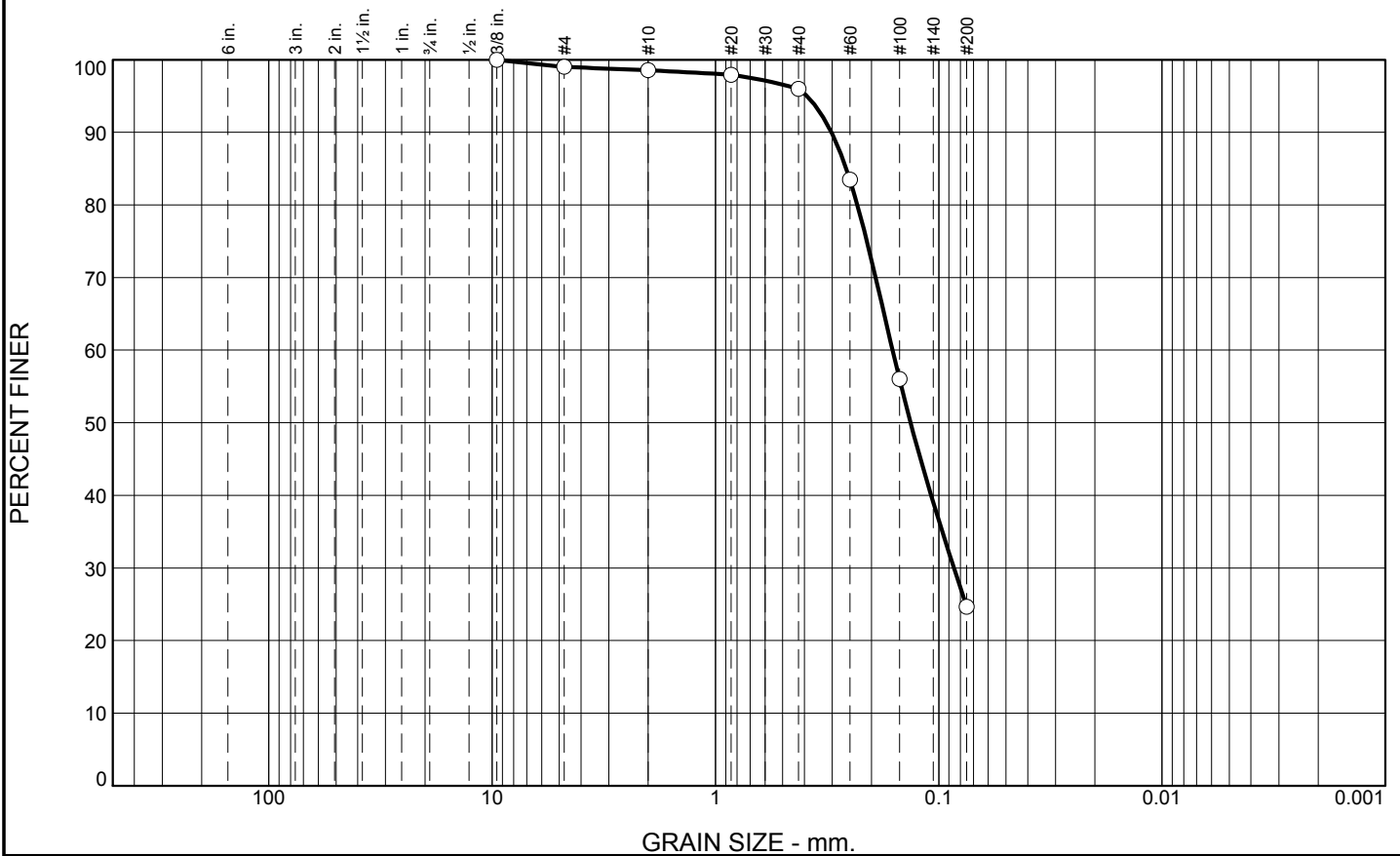
<b>DRILLING LOG (Cont. Sheet)</b>			<b>INSTALLATION</b> Mobile District		<b>SHEET 2</b> <b>OF 2 SHEETS</b>
<b>PROJECT</b> MsCIP Barrier Island Restoration			<b>COORDINATE SYSTEM/DATUM</b> State Plane, MSE (U.S. Ft.)	<b>HORIZONTAL</b> NAD83	<b>VERTICAL</b> NAVD88
<b>LOCATION COORDINATES</b> X = 985,016 Y = 249,497			<b>ELEVATION TOP OF BORING</b> -37.9 Ft.		
<b>ELEV.</b>	<b>DEPTH</b>	<b>LEGEND</b>	<b>CLASSIFICATION OF MATERIALS</b>	<b>SAMPLE</b>	<b>LABORATORY RESULTS</b>
			applying NOAA tidal gauge data conversion factor.		

# Boring Designation BI-DK-06-10

DRILLING LOG		DIVISION South Atlantic		INSTALLATION Mobile District		SHEET 1 OF 2 SHEETS	
1. PROJECT MsCIP Barrier Island Restoration Dog Keys Pass				9. SIZE AND TYPE OF BIT N/A			
2. BORING DESIGNATION BI-DK-06-10		LOCATION COORDINATES E = 986,043 N = 247,483		10. COORDINATE SYSTEM/DATUM State Plane, MSE (U.S. Ft.)		HORIZONTAL NAD83 VERTICAL NAVD88	
3. DRILLING AGENCY Corps of Engineers - CESAM		CONTRACTOR FILE NO.		11. MANUFACTURER'S DESIGNATION OF DRILL Vibracore		<input type="checkbox"/> AUTO HAMMER <input type="checkbox"/> MANUAL HAMMER	
4. NAME OF DRILLER Construction Solutions International, Inc.				12. TOTAL SAMPLES 2		DISTURBED 0 UNDISTURBED (UD)	
5. DIRECTION OF BORING <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED		DEG. FROM VERTICAL		13. TOTAL NUMBER CORE BOXES			
		BEARING		14. WATER DEPTH 42 Ft.			
6. THICKNESS OF OVERBURDEN N/A				15. DATE BORING 06-02-10		STARTED 06-02-10 COMPLETED 06-02-10	
7. DEPTH DRILLED INTO ROCK N/A				16. ELEVATION TOP OF BORING -40.2 Ft.			
8. TOTAL DEPTH OF BORING 20.0 Ft.				17. TOTAL RECOVERY FOR BORING 100%			
				18. SIGNATURE AND TITLE OF INSPECTOR Marty Gates, Geologist			
ELEV.	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS	SAMPLE	LABORATORY RESULTS		
-40.2	0.0		CLAY, lean, dark gray (CL)				
				NS			
-54.7	14.5						
-56.7	16.5		SAND, silty, mostly fine to medium-grained sand-sized quartz, some silt, trace shell fragments, gray (SM)	A	Classification: SM Color: 2.5Y 4/2-dark grayish brown D50: 0.1337 mm % Fines: 24.6		
-60.2	20.0		SAND, poorly-graded, mostly fine to medium-grained sand-sized quartz, little silt, trace shell fragments, brown (SP)	B	Classification: SM Color: 2.5Y 4/2-dark grayish brown D50: 0.1703 mm % Fines: 12.9		
			NOTES: 1. Soils are field visually classified in accordance with the Unified Soils Classification System. 2. NS = Sample not submitted for laboratory analysis from this interval. 3. Seafloor elevation calculated using sampling				

<b>DRILLING LOG (Cont. Sheet)</b>			<b>INSTALLATION</b> Mobile District		<b>SHEET 2</b> <b>OF 2 SHEETS</b>
<b>PROJECT</b> MsCIP Barrier Island Restoration			<b>COORDINATE SYSTEM/DATUM</b> State Plane, MSE (U.S. Ft.)	<b>HORIZONTAL</b> NAD83	<b>VERTICAL</b> NAVD88
<b>LOCATION COORDINATES</b> X = 986,043 Y = 247,483			<b>ELEVATION TOP OF BORING</b> -40.2 Ft.		
<b>ELEV.</b>	<b>DEPTH</b>	<b>LEGEND</b>	<b>CLASSIFICATION OF MATERIALS</b>	<b>SAMPLE</b>	<b>LABORATORY RESULTS</b>
			vessel's fathometer water depth reading and applying NOAA tidal gauge data conversion factor.		

# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.9	0.6	2.5	71.4	24.6	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
.375	100.0		
#4	99.1		
#10	98.5		
#20	97.9		
#40	96.0		
#60	83.5		
#100	56.0		
#200	24.6		

\* (no specification provided)

<u>Material Description</u>		
SILTY SAND, (SM), fine grained, with clay pockets		
<u>Atterberg Limits</u>		
PL=	LL=	PI=
<u>Coefficients</u>		
D <sub>90</sub> = 0.3022	D <sub>85</sub> = 0.2595	D <sub>60</sub> = 0.1611
D <sub>50</sub> = 0.1337	D <sub>30</sub> = 0.0855	D <sub>15</sub> =
D <sub>10</sub> =	C <sub>u</sub> =	C <sub>c</sub> =
<u>Classification</u>		
USCS= SM	AASHTO=	
<u>Remarks</u>		
CADD CODE = CH10D965		

Location: USACE Sample # BI-DK-6-10A  
Sample Number: TE Lab ID: 4519.08

Depth: 14.5 - 16.5 (ft.)

Date: 6/12/10

**Thompson Engineering**  
**Mobile, Alabama**

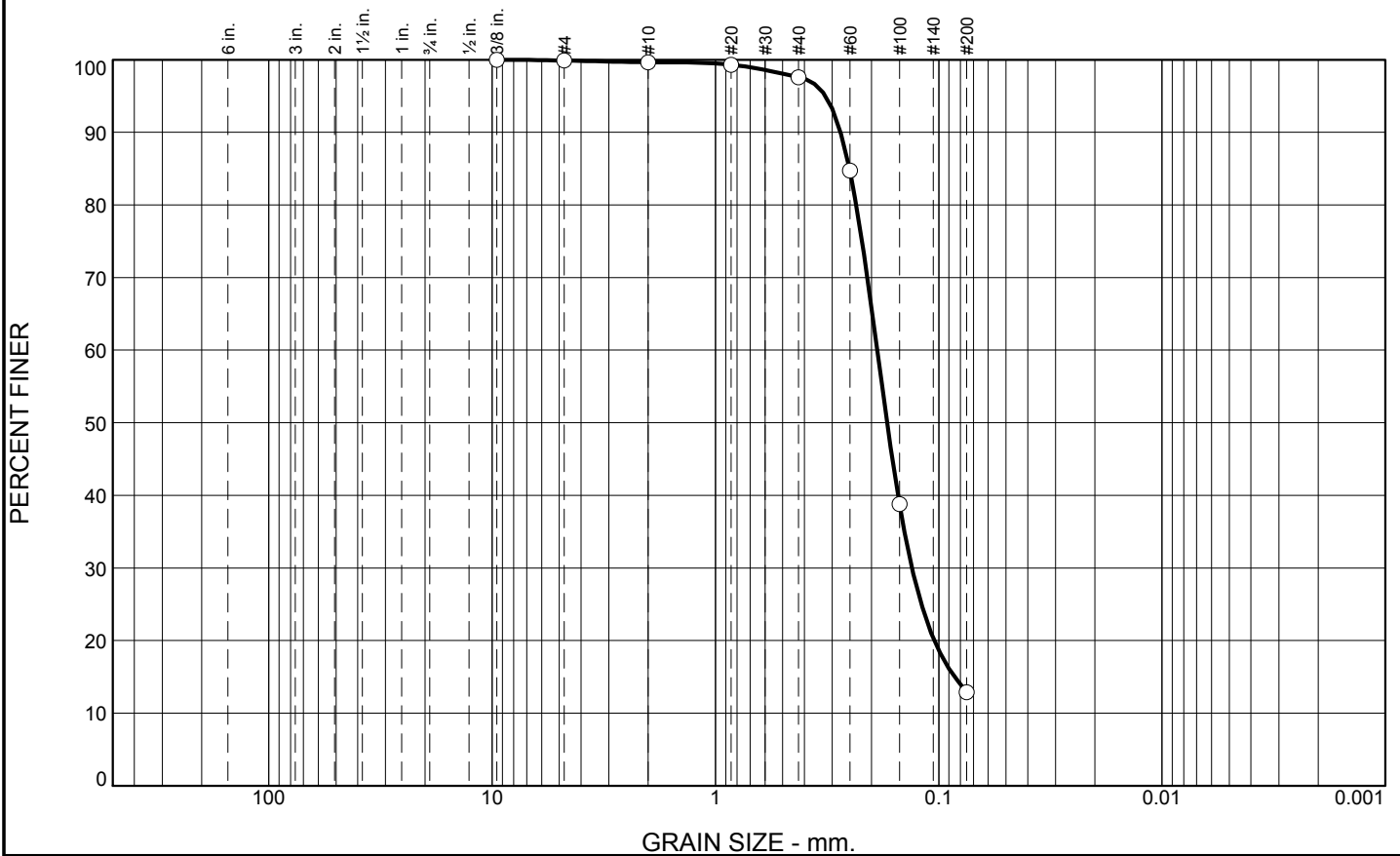
**Client:** US Army Corps of Engineers  
**Project:** Contract No. W91278-10-D-0026 - Task 03  
Mississippi Barrier Island Restoration Project  
**Project No:** 10-2123-0009

**Figure**

Tested By: R.Martin

Checked By: R.Byrd

# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.1	0.3	2.0	84.7	12.9	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
.375	100.0		
#4	99.9		
#10	99.6		
#20	99.3		
#40	97.6		
#60	84.7		
#100	38.8		
#200	12.9		

\* (no specification provided)

<u><b>Material Description</b></u>		
SILTY SAND, (SM), fine grained		
<u><b>Atterberg Limits</b></u>		
PL=	LL=	PI=
<u><b>Coefficients</b></u>		
D <sub>90</sub> = 0.2752	D <sub>85</sub> = 0.2511	D <sub>60</sub> = 0.1886
D <sub>50</sub> = 0.1703	D <sub>30</sub> = 0.1319	D <sub>15</sub> = 0.0849
D <sub>10</sub> =	C <sub>u</sub> =	C <sub>c</sub> =
<u><b>Classification</b></u>		
USCS= SM	AASHTO=	
<u><b>Remarks</b></u>		
CADD CODE = CH10D965		

Location: USACE Sample # BI-DK-6-10B  
Sample Number: TE Lab ID: 4519.09

Depth: 16.5 - 20.0 (ft.)

Date: 6/12/10

**Thompson Engineering**  
**Mobile, Alabama**

**Client:** US Army Corps of Engineers  
**Project:** Contract No. W91278-10-D-0026 - Task 03  
Mississippi Barrier Island Restoration Project  
**Project No:** 10-2123-0009

**Figure**

Tested By: R.Martin

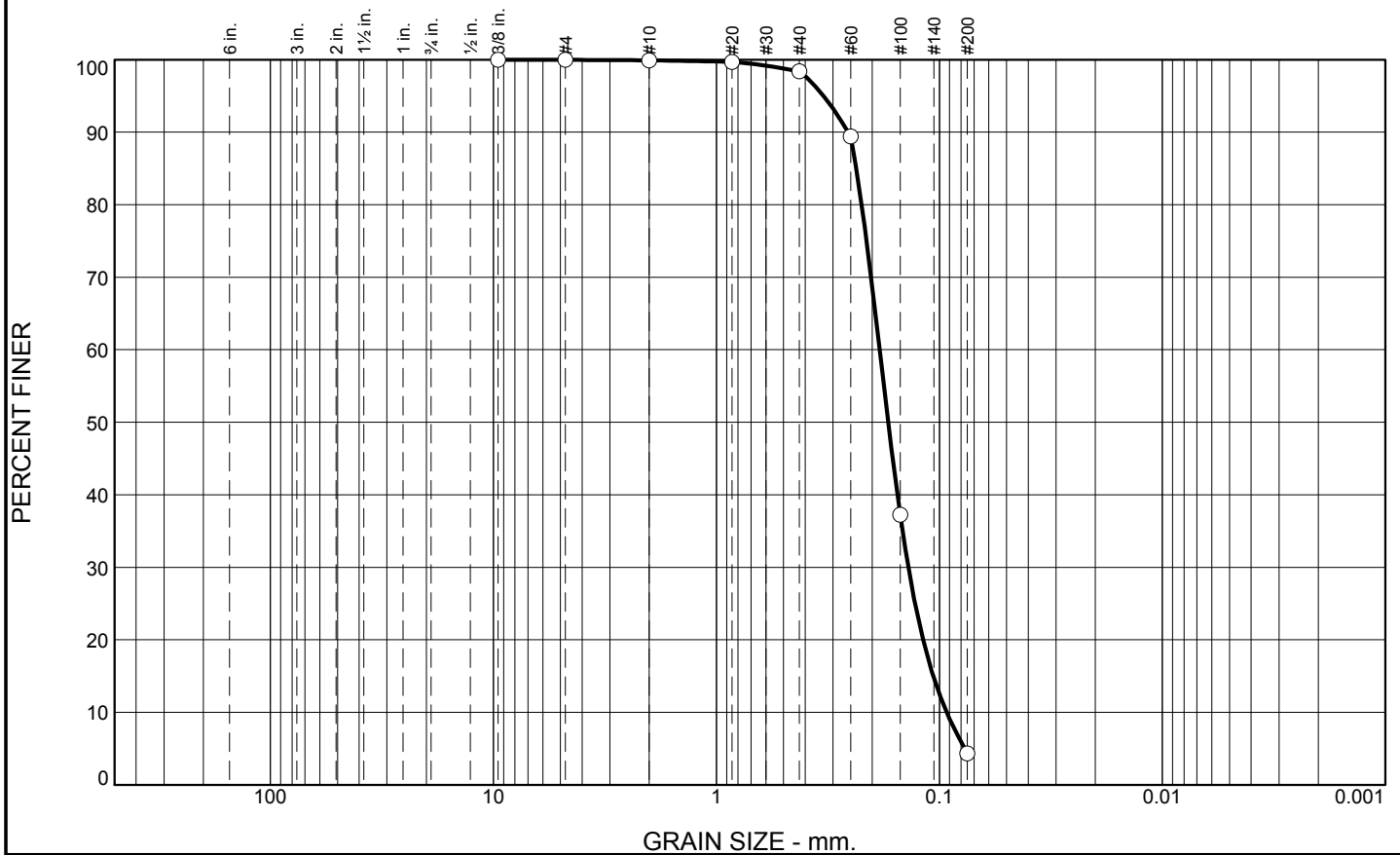
Checked By: R.Byrd



# Boring Designation BI-DK-07-10

DRILLING LOG		DIVISION South Atlantic		INSTALLATION Mobile District		SHEET 1 OF 1 SHEETS	
1. PROJECT MsCIP Barrier Island Restoration Dog Keys Pass				9. SIZE AND TYPE OF BIT N/A			
2. BORING DESIGNATION BI-DK-07-10		LOCATION COORDINATES E = 985,518 N = 263,284		10. COORDINATE SYSTEM/DATUM State Plane, MSE (U.S. Ft.)		HORIZONTAL NAD83 VERTICAL NAVD88	
3. DRILLING AGENCY Corps of Engineers - CESAM		CONTRACTOR FILE NO.		11. MANUFACTURER'S DESIGNATION OF DRILL Vibrocure		<input type="checkbox"/> AUTO HAMMER <input type="checkbox"/> MANUAL HAMMER	
4. NAME OF DRILLER Construction Solutions International, Inc.				12. TOTAL SAMPLES 1		DISTURBED 1 UNDISTURBED (UD) 0	
5. DIRECTION OF BORING <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED		DEG. FROM VERTICAL		13. TOTAL NUMBER CORE BOXES			
		BEARING		14. WATER DEPTH 26 Ft.			
6. THICKNESS OF OVERBURDEN N/A				15. DATE BORING 06-02-10		STARTED 06-02-10 COMPLETED 06-02-10	
7. DEPTH DRILLED INTO ROCK N/A				16. ELEVATION TOP OF BORING -25.1 Ft.			
8. TOTAL DEPTH OF BORING 15.9 Ft.				17. TOTAL RECOVERY FOR BORING 100%			
				18. SIGNATURE AND TITLE OF INSPECTOR Marty Gates, Geologist			
ELEV.	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS	SAMPLE	LABORATORY RESULTS		
-25.1	0.0						
			SAND, poorly-graded, mostly fine to medium-grained sand-sized quartz, little silt, trace shell fragments, lt. gray (SP)	A	Classification: SP Color: 5Y 7/1-light gray D50: 0.1696 mm % Fines: 4.3		
-29.4	4.3						
			CLAY, lean, dark gray (CL)	NS			
-41.0	15.9						
			NOTES: 1. Soils are field visually classified in accordance with the Unified Soils Classification System. 2. NS = Sample not submitted for laboratory analysis from this interval. 3. Seafloor elevation calculated using sampling vessel's fathometer water depth reading and applying NOAA tidal gauge data conversion factor.				

# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.0	0.1	1.5	94.1	4.3	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
.375	100.0		
#4	100.0		
#10	99.9		
#20	99.7		
#40	98.4		
#60	89.4		
#100	37.3		
#200	4.3		

\* (no specification provided)

Material Description		
SAND, (SP), fine grained		
<div> <div> <b>Atterberg Limits</b>            PL=      LL=      PI=         </div> <div> <b>Coefficients</b>            D<sub>90</sub>= 0.2565      D<sub>85</sub>= 0.2359      D<sub>60</sub>= 0.1853            D<sub>50</sub>= 0.1696      D<sub>30</sub>= 0.1378      D<sub>15</sub>= 0.1066            D<sub>10</sub>= 0.0928      C<sub>u</sub>= 2.00      C<sub>c</sub>= 1.10         </div> <div> <b>Classification</b>            USCS= SP      AASHTO=         </div> <div> <b>Remarks</b>            CADD CODE = CH10D965         </div> </div>		

Location: USACE Sample # BI-DK-7-10A  
Sample Number: TE Lab ID: 4519.07

Depth: 0.0 - 4.3 (ft.)

Date: 6/12/10

**Thompson Engineering**  
**Mobile, Alabama**

**Client:** US Army Corps of Engineers  
**Project:** Contract No. W91278-10-D-0026 - Task 03  
Mississippi Barrier Island Restoration Project  
**Project No:** 10-2123-0009

**Figure**

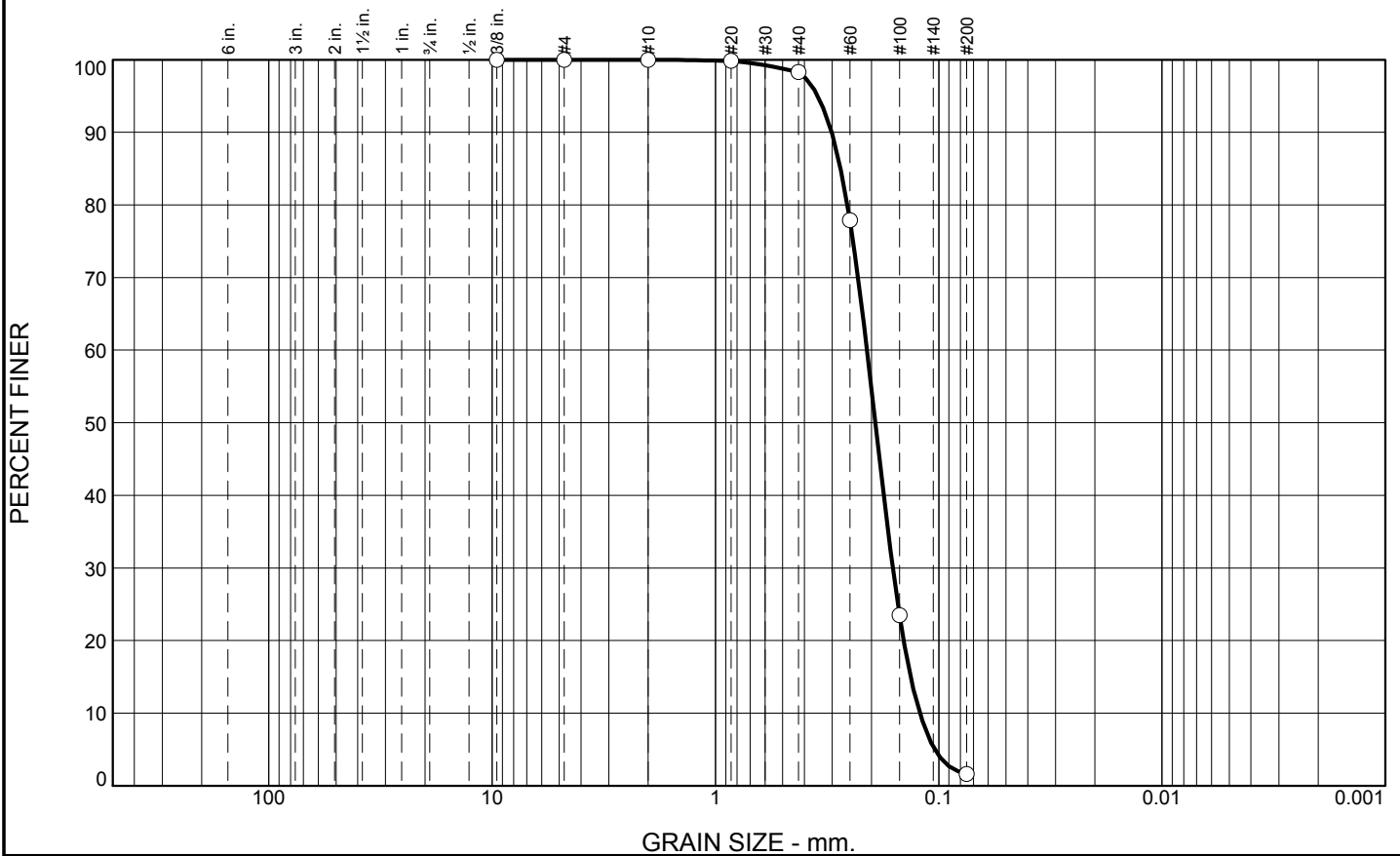
Tested By: R.Martin

Checked By: R.Byrd

# Boring Designation BI-DK-08-10

DRILLING LOG		DIVISION South Atlantic		INSTALLATION Mobile District		SHEET 1 OF 1 SHEETS	
1. PROJECT MsCIP Barrier Island Restoration Dog Keys Pass				9. SIZE AND TYPE OF BIT N/A			
2. BORING DESIGNATION BI-DK-08-10		LOCATION COORDINATES E = 997,087 N = 261,959		10. COORDINATE SYSTEM/DATUM State Plane, MSE (U.S. Ft.)		HORIZONTAL NAD83 VERTICAL NAVD88	
3. DRILLING AGENCY Corps of Engineers - CESAM		CONTRACTOR FILE NO.		11. MANUFACTURER'S DESIGNATION OF DRILL Vibracore		<input type="checkbox"/> AUTO HAMMER <input type="checkbox"/> MANUAL HAMMER	
4. NAME OF DRILLER Construction Solutions International, Inc.				12. TOTAL SAMPLES 3		DISTURBED 3 UNDISTURBED (UD) 0	
5. DIRECTION OF BORING <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED		DEG. FROM VERTICAL		13. TOTAL NUMBER CORE BOXES			
		BEARING		14. WATER DEPTH 17 Ft.			
6. THICKNESS OF OVERBURDEN N/A				15. DATE BORING 06-02-10		STARTED 06-02-10 COMPLETED 06-02-10	
7. DEPTH DRILLED INTO ROCK N/A				16. ELEVATION TOP OF BORING -15.9 Ft.			
8. TOTAL DEPTH OF BORING 12.4 Ft.				17. TOTAL RECOVERY FOR BORING 100%			
				18. SIGNATURE AND TITLE OF INSPECTOR Marty Gates, Geologist			
ELEV.	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS	SAMPLE	LABORATORY RESULTS		
-15.9	0.0						
			SAND, poorly-graded, mostly fine to medium-grained sand-sized quartz, little silt, trace shell fragments, lt. gray (SP)	A	Classification: SP Color: 5Y 7/1-light gray D50: 0.1923 mm % Fines: 1.6		
				B	Classification: SP-SM Color: 5Y 7/1-light gray D50: 0.1542 mm % Fines: 7		
-26.4	10.5						
			SAND, silty, mostly fine to medium-grained sand-sized quartz, some silt, trace shell fragments, gray (SM)	C	Classification: SP-SM Color: 2.5Y 6/2-light brownish gray D50: 0.1154 mm % Fines: 9.9		
-28.3	12.4						
			NOTES: 1. Soils are field visually classified in accordance with the Unified Soils Classification System. 2. NS = Sample not submitted for laboratory analysis from this interval. 3. Seafloor elevation calculated using sampling vessel's fathometer water depth reading and applying NOAA tidal gauge data conversion factor.				

# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.0	0.0	1.7	96.7	1.6	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
.375	100.0		
#4	100.0		
#10	100.0		
#20	99.9		
#40	98.3		
#60	77.9		
#100	23.5		
#200	1.6		

\* (no specification provided)

**Material Description**  
SAND, (SP), fine grained

**Atterberg Limits**  
 PL=                      LL=                      PI=

**Coefficients**  
 D<sub>90</sub>= 0.3017      D<sub>85</sub>= 0.2752      D<sub>60</sub>= 0.2097  
 D<sub>50</sub>= 0.1923      D<sub>30</sub>= 0.1607      D<sub>15</sub>= 0.1336  
 D<sub>10</sub>= 0.1215      C<sub>u</sub>= 1.73      C<sub>c</sub>= 1.01

**Classification**  
 USCS= SP                      AASHTO=

**Remarks**  
 CADD CODE = CH10D965

**Location:** USACE Sample # BI-DK-8-10A  
**Sample Number:** TE Lab ID: 4519.04

**Depth:** 0.0 - 5.0 (ft.)

**Date:** 6/12/10

**Thompson Engineering**  
  
**Mobile, Alabama**

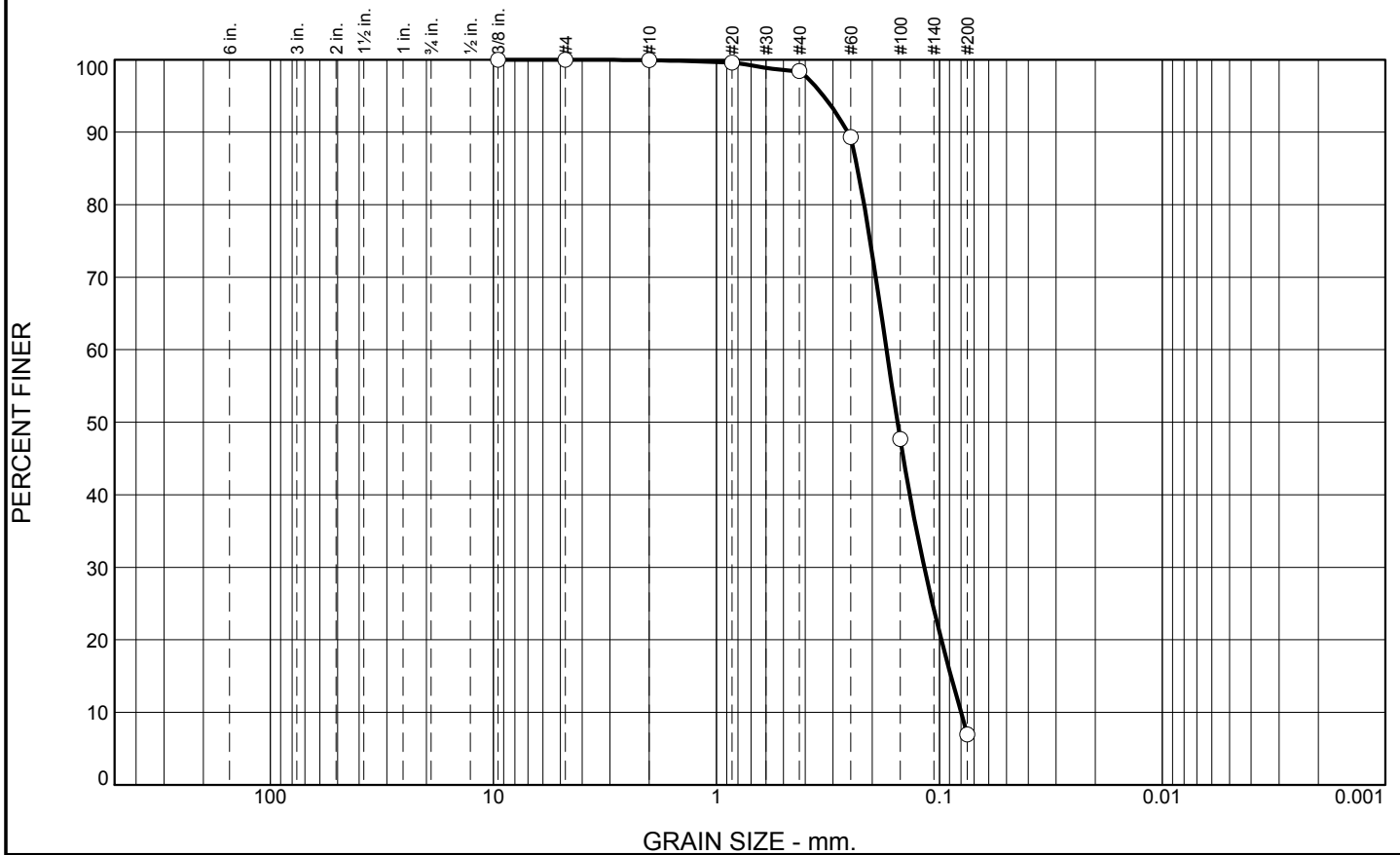
**Client:** US Army Corps of Engineers  
**Project:** Contract No. W91278-10-D-0026 - Task 03  
 Mississippi Barrier Island Restoration Project  
**Project No:** 10-2123-0009

**Figure**

**Tested By:** R.Martin

**Checked By:** R.Byrd

# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.0	0.1	1.5	91.4	7.0	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
.375	100.0		
#4	100.0		
#10	99.9		
#20	99.6		
#40	98.4		
#60	89.3		
#100	47.7		
#200	7.0		

\* (no specification provided)

**Material Description**  
SAND, (SP-SM), fine grained

**Atterberg Limits**  
 PL=      LL=      PI=

**Coefficients**  
 D<sub>90</sub>= 0.2575      D<sub>85</sub>= 0.2329      D<sub>60</sub>= 0.1727  
 D<sub>50</sub>= 0.1542      D<sub>30</sub>= 0.1170      D<sub>15</sub>= 0.0888  
 D<sub>10</sub>= 0.0800      C<sub>u</sub>= 2.16      C<sub>c</sub>= 0.99

**Classification**  
 USCS= SP-SM      AASHTO=

**Remarks**  
 CADD CODE = CH10D965

**Location:** USACE Sample # BI-DK-8-10B  
**Sample Number:** TE Lab ID: 4519.05

**Depth:** 5.0 - 10.5 (ft.)

**Date:** 6/12/10

**Thompson Engineering**  
  
**Mobile, Alabama**

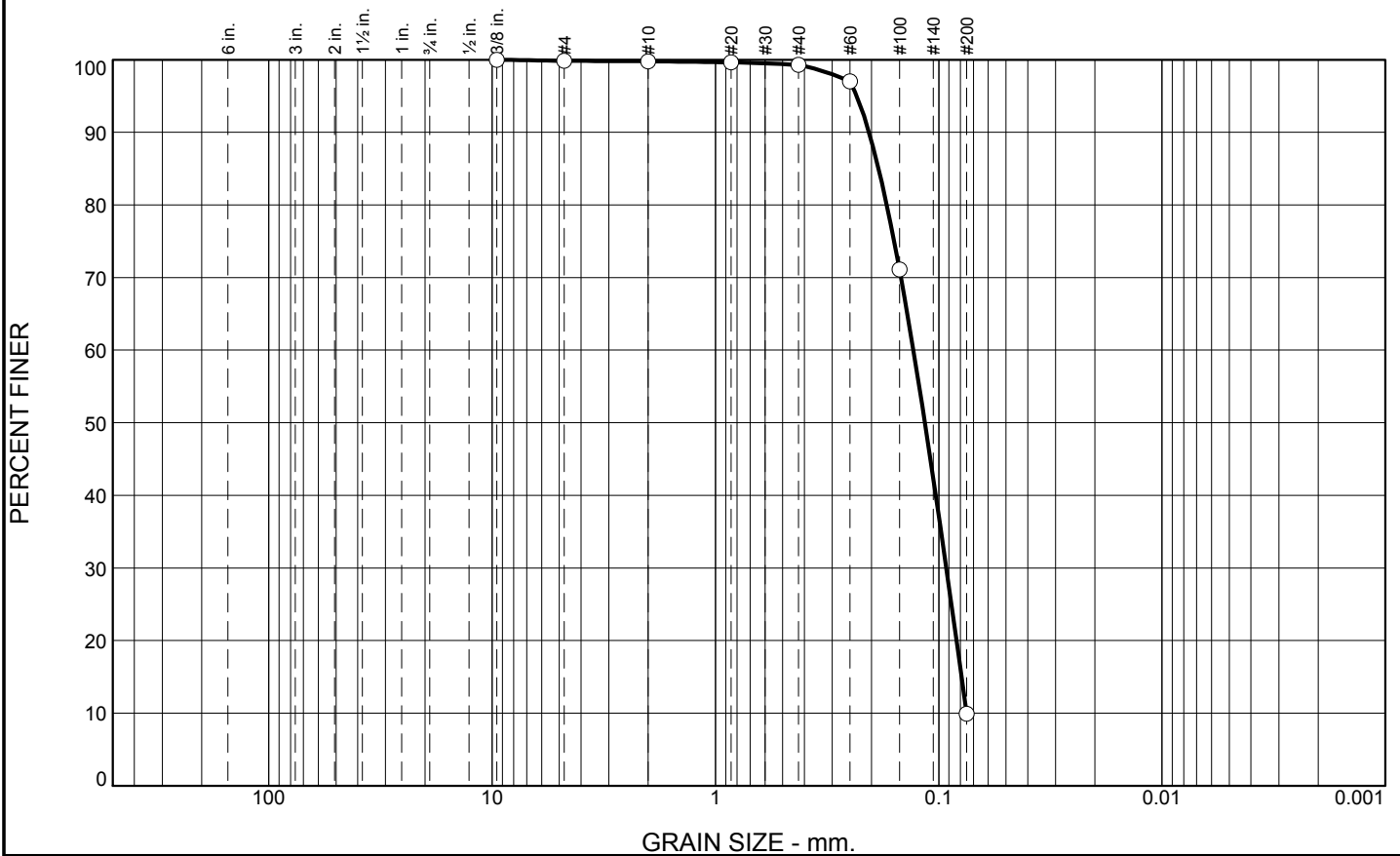
**Client:** US Army Corps of Engineers  
**Project:** Contract No. W91278-10-D-0026 - Task 03  
 Mississippi Barrier Island Restoration Project  
**Project No:** 10-2123-0009

**Figure**

**Tested By:** R.Martin

**Checked By:** R.Byrd

# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.2	0.0	0.5	89.4	9.9	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
.375	100.0		
#4	99.8		
#10	99.8		
#20	99.6		
#40	99.3		
#60	97.0		
#100	71.1		
#200	9.9		

\* (no specification provided)

<u>Material Description</u>		
SAND, (SP-SM), fine grained		
<u>Atterberg Limits</u>		
PL=	LL=	PI=
<u>Coefficients</u>		
D <sub>90</sub> = 0.2053	D <sub>85</sub> = 0.1861	D <sub>60</sub> = 0.1299
D <sub>50</sub> = 0.1154	D <sub>30</sub> = 0.0926	D <sub>15</sub> = 0.0791
D <sub>10</sub> = 0.0751	C <sub>u</sub> = 1.73	C <sub>c</sub> = 0.88
<u>Classification</u>		
USCS= SP-SM	AASHTO=	
<u>Remarks</u>		
CADD CODE = CH10D965		

**Location:** USACE Sample # BI-DK-8-10C  
**Sample Number:** TE Lab ID: 4519.06

**Depth:** 10.5 - 12.4 (ft.)

**Date:** 6/12/10

**Thompson Engineering**  
**Mobile, Alabama**

**Client:** US Army Corps of Engineers  
**Project:** Contract No. W91278-10-D-0026 - Task 03  
 Mississippi Barrier Island Restoration Project  
**Project No:** 10-2123-0009

**Figure**

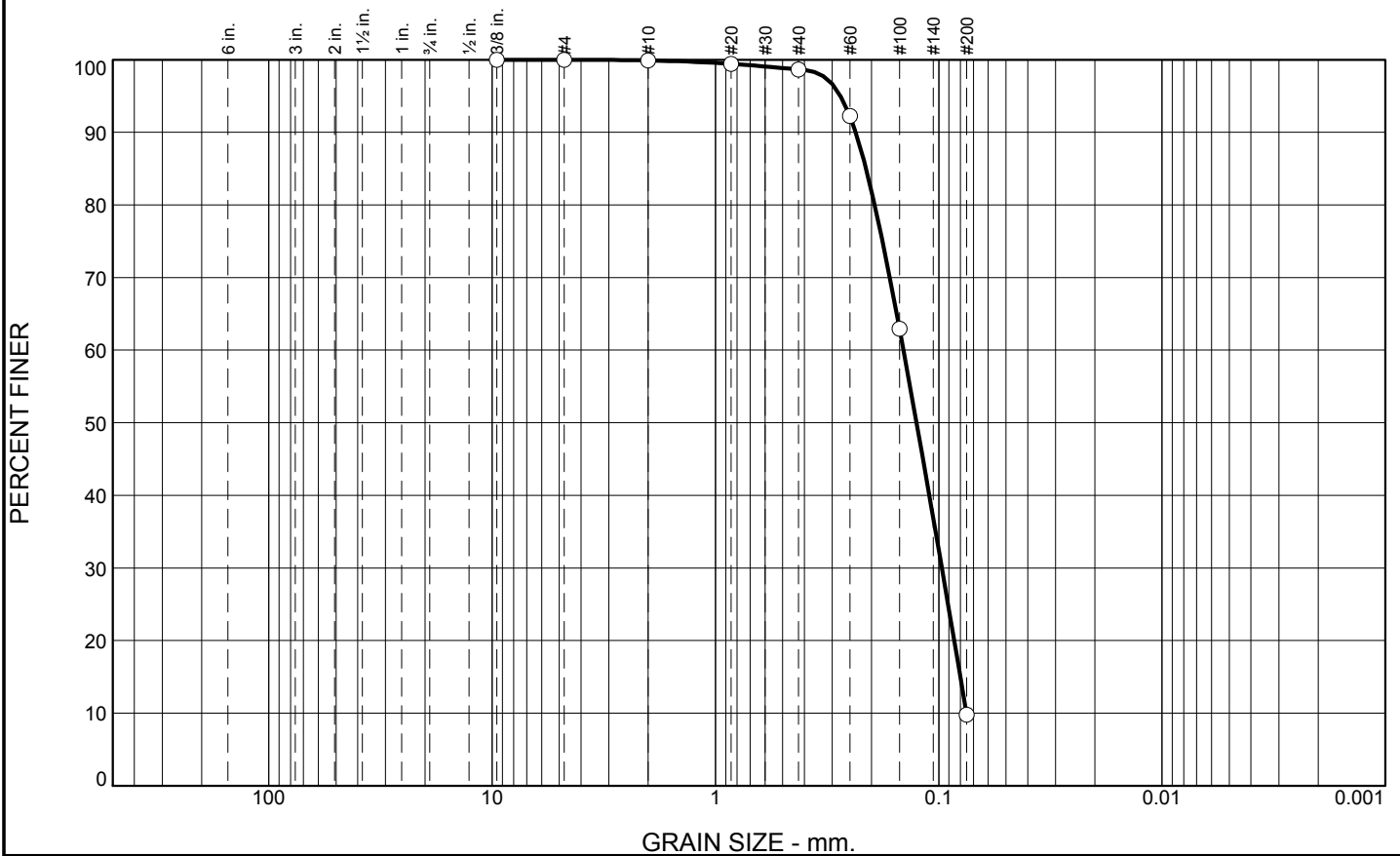
**Tested By:** R.Martin

**Checked By:** R.Byrd

# Boring Designation BI-DK-09-10

DRILLING LOG		DIVISION South Atlantic		INSTALLATION Mobile District		SHEET 1 OF 1 SHEETS	
1. PROJECT MsCIP Barrier Island Restoration Dog Keys Pass				9. SIZE AND TYPE OF BIT N/A			
2. BORING DESIGNATION BI-DK-09-10		LOCATION COORDINATES E = 997,109 N = 261,105		10. COORDINATE SYSTEM/DATUM State Plane, MSE (U.S. Ft.)		HORIZONTAL NAD83 VERTICAL NAVD88	
3. DRILLING AGENCY Corps of Engineers - CESAM		CONTRACTOR FILE NO.		11. MANUFACTURER'S DESIGNATION OF DRILL Vibrocure		<input type="checkbox"/> AUTO HAMMER <input type="checkbox"/> MANUAL HAMMER	
4. NAME OF DRILLER Construction Solutions International, Inc.				12. TOTAL SAMPLES		DISTURBED 1 UNDISTURBED (UD) 0	
5. DIRECTION OF BORING <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED		DEG. FROM VERTICAL		13. TOTAL NUMBER CORE BOXES			
		BEARING		14. WATER DEPTH 31 Ft.			
6. THICKNESS OF OVERBURDEN N/A				15. DATE BORING		STARTED 06-02-10 COMPLETED 06-02-10	
7. DEPTH DRILLED INTO ROCK N/A				16. ELEVATION TOP OF BORING -29.8 Ft.			
8. TOTAL DEPTH OF BORING 17.9 Ft.				17. TOTAL RECOVERY FOR BORING 100%			
				18. SIGNATURE AND TITLE OF INSPECTOR Marty Gates, Geologist			
ELEV.	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS	SAMPLE	LABORATORY RESULTS		
-29.8	0.0						
-32.6	2.8		SAND, silty, mostly fine to medium-grained sand-sized quartz, some silt, trace shell fragments, gray (SM)	A	Classification: SP-SM Color: 2.5Y 6/2-light brownish gray D50: 0.1257 mm % Fines: 9.8		
			CLAY, lean, dark gray (CL)	NS			
-47.7	17.9						
			NOTES: 1. Soils are field visually classified in accordance with the Unified Soils Classification System. 2. NS = Sample not submitted for laboratory analysis from this interval. 3. Seafloor elevation calculated using sampling vessel's fathometer water depth reading and applying NOAA tidal gauge data conversion factor.				

# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.0	0.1	1.2	88.9	9.8	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
.375	100.0		
#4	100.0		
#10	99.9		
#20	99.4		
#40	98.7		
#60	92.2		
#100	63.0		
#200	9.8		

\* (no specification provided)

<u>Material Description</u>		
SAND, (SP-SM), fine grained		
<u>Atterberg Limits</u>		
PL=	LL=	PI=
<u>Coefficients</u>		
D <sub>90</sub> = 0.2356	D <sub>85</sub> = 0.2118	D <sub>60</sub> = 0.1440
D <sub>50</sub> = 0.1257	D <sub>30</sub> = 0.0969	D <sub>15</sub> = 0.0801
D <sub>10</sub> = 0.0752	C <sub>u</sub> = 1.92	C <sub>c</sub> = 0.87
<u>Classification</u>		
USCS= SP-SM	AASHTO=	
<u>Remarks</u>		
CADD CODE = CH10D965		

Location: USACE Sample # BI-DK-9-10BA  
Sample Number: TE Lab ID: 4519.03

Depth: 0.0 - 2.8 (ft.)

Date: 6/12/10

**Thompson Engineering**  
**Mobile, Alabama**

**Client:** US Army Corps of Engineers  
**Project:** Contract No. W91278-10-D-0026 - Task 03  
Mississippi Barrier Island Restoration Project  
**Project No:** 10-2123-0009


**Figure**

Tested By: R.Martin

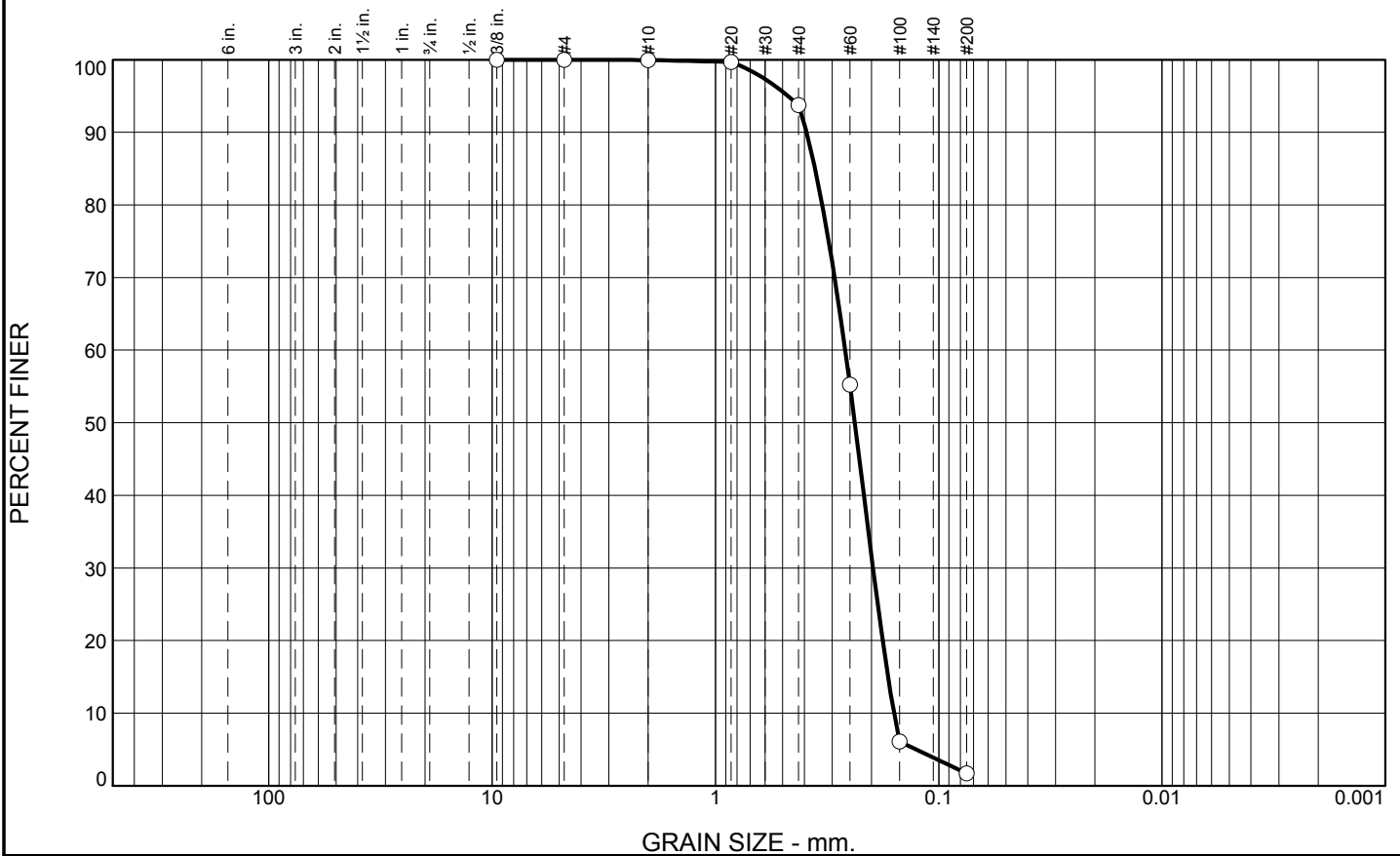
Checked By: R.Byrd



# Boring Designation BI-DK-10-10

DRILLING LOG		DIVISION South Atlantic		INSTALLATION Mobile District		SHEET 1 OF 1 SHEETS	
1. PROJECT MsCIP Barrier Island Restoration Dog Keys Pass				9. SIZE AND TYPE OF BIT N/A			
2. BORING DESIGNATION BI-DK-10-10		LOCATION COORDINATES E = 1,000,390 N = 263,463		10. COORDINATE SYSTEM/DATUM State Plane, MSE (U.S. Ft.)		HORIZONTAL NAD83 VERTICAL NAVD88	
3. DRILLING AGENCY Corps of Engineers - CESAM		CONTRACTOR FILE NO.		11. MANUFACTURER'S DESIGNATION OF DRILL Vibracore		<input type="checkbox"/> AUTO HAMMER <input type="checkbox"/> MANUAL HAMMER	
4. NAME OF DRILLER Construction Solutions International, Inc.				12. TOTAL SAMPLES 3		DISTURBED 0 UNDISTURBED (UD)	
5. DIRECTION OF BORING <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED		DEG. FROM VERTICAL		13. TOTAL NUMBER CORE BOXES			
		BEARING		14. WATER DEPTH 13 Ft.			
6. THICKNESS OF OVERBURDEN N/A				15. DATE BORING 06-08-10		STARTED 06-08-10 COMPLETED 06-08-10	
7. DEPTH DRILLED INTO ROCK N/A				16. ELEVATION TOP OF BORING -11.1 Ft.			
8. TOTAL DEPTH OF BORING 13.9 Ft.				17. TOTAL RECOVERY FOR BORING 100%			
				18. SIGNATURE AND TITLE OF INSPECTOR Marty Gates, Geologist			
ELEV.	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS	SAMPLE	LABORATORY RESULTS		
-11.1	0.0						
			SAND, poorly-graded, mostly fine to medium-grained sand-sized quartz, trace silt, trace organic matter, trace shell fragments, lt. gray (SP)	A	Classification: SP Color: 2.5Y 7/1-light gray D50: 0.2376 mm % Fines: 1.7		
				B	Classification: SP Color: 5Y 7/1-light gray D50: 0.1972 mm % Fines: 3.9		
				C	Classification: SP-SM Color: 5Y 7/1-light gray D50: 0.1844 mm % Fines: 5.9		
-25.0	13.9						
			NOTES: 1. Soils are field visually classified in accordance with the Unified Soils Classification System. 2. NS = Sample not submitted for laboratory analysis from this interval. 3. Seafloor elevation calculated using sampling vessel's fathometer water depth reading and applying NOAA tidal gauge data conversion factor.				

# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.0	0.1	6.2	92.0	1.7	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
.375	100.0		
#4	100.0		
#10	99.9		
#20	99.7		
#40	93.7		
#60	55.3		
#100	6.1		
#200	1.7		

<u><b>Material Description</b></u>		
SAND, (SP), fine grained		
<u><b>Atterberg Limits</b></u>		
PL=	LL=	PI=
<u><b>Coefficients</b></u>		
D <sub>90</sub> = 0.3912	D <sub>85</sub> = 0.3581	D <sub>60</sub> = 0.2623
D <sub>50</sub> = 0.2376	D <sub>30</sub> = 0.1970	D <sub>15</sub> = 0.1688
D <sub>10</sub> = 0.1587	C <sub>u</sub> = 1.65	C <sub>c</sub> = 0.93
<u><b>Classification</b></u>		
USCS= SP	AASHTO=	
<u><b>Remarks</b></u>		
CADD CODE = CH10D965		

\* (no specification provided)

Location: USACE Sample # BI-DK-11-10A  
Sample Number: TE Lab ID: 4538.66

Depth: 0.0 - 5.0 (ft.)

Date: 6/26/10

This sample is actually BI-DK-10-10A

**Thompson Engineering**  
**Mobile, Alabama**

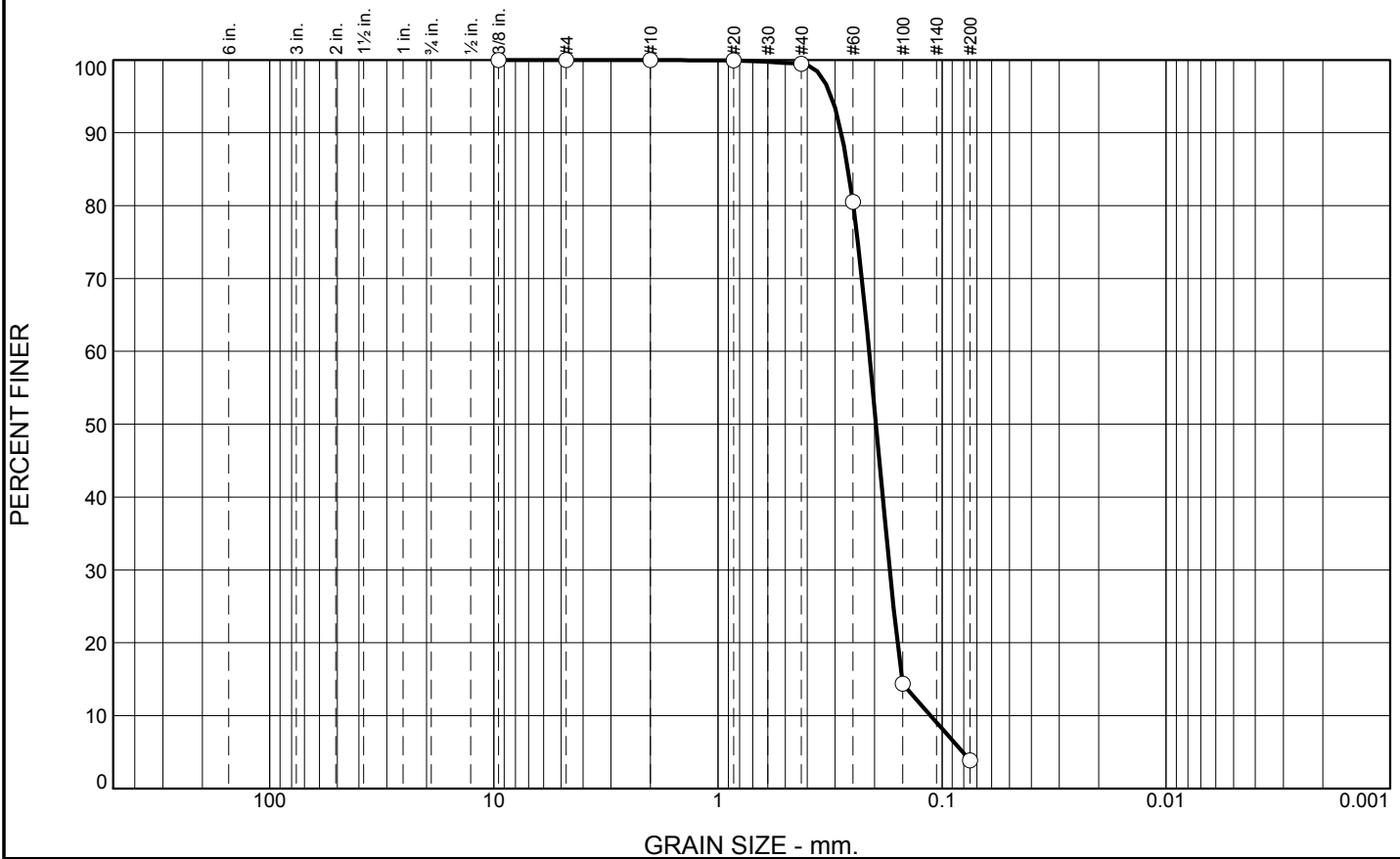
**Client:** US Army Corps of Engineers  
**Project:** Contract No. W91278-10-D-0026 - Task 03  
Mississippi Barrier Island Restoration Project  
**Project No:** 10-2123-0009

**Figure**

Tested By: R.Martin

Checked By: R.Byrd

# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.0	0.0	0.6	95.5	3.9	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
.375	100.0		
#4	100.0		
#10	100.0		
#20	99.9		
#40	99.4		
#60	80.5		
#100	14.4		
#200	3.9		

\* (no specification provided)

Material Description		
SAND, (SP), fine grained		
<div> <div> <b>Atterberg Limits</b>            PL=      LL=      PI=         </div> <div> <b>Coefficients</b>            D<sub>90</sub>= 0.2814      D<sub>85</sub>= 0.2626      D<sub>60</sub>= 0.2115            D<sub>50</sub>= 0.1972      D<sub>30</sub>= 0.1712      D<sub>15</sub>= 0.1510            D<sub>10</sub>= 0.1125      C<sub>u</sub>= 1.88      C<sub>c</sub>= 1.23         </div> <div> <b>Classification</b>            USCS= SP      AASHTO=         </div> <div> <b>Remarks</b>            CADD CODE = CH10D965         </div> </div>		

This sample is actually BI-DK-10-10B

Location: USACE Sample # BI-DK-11-10B  
Sample Number: TE Lab ID: 4538.67

Depth: 5.0 - 10.0 (ft.)

Date: 6/26/10

**Thompson Engineering**  
**Mobile, Alabama**

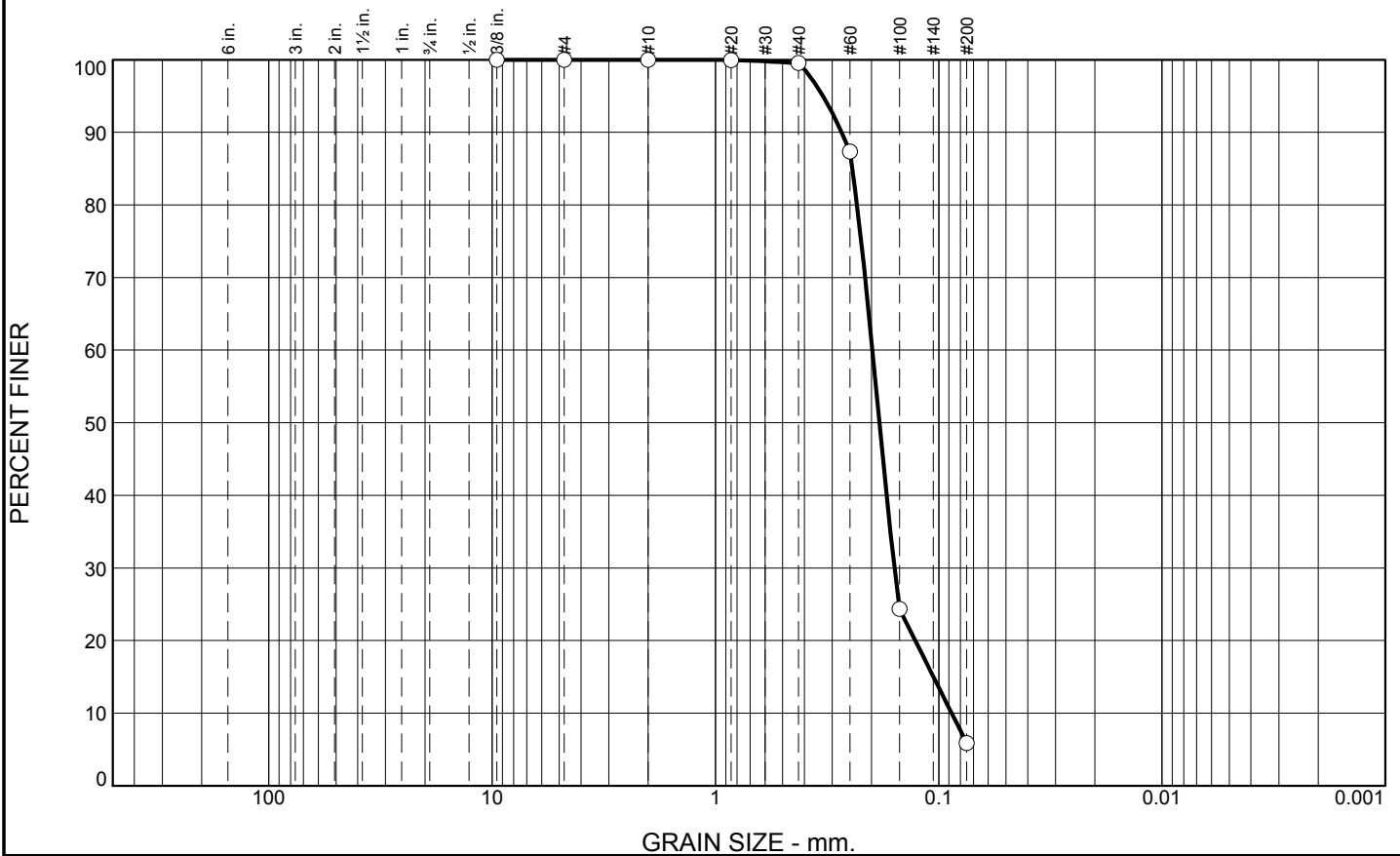
**Client:** US Army Corps of Engineers  
**Project:** Contract No. W91278-10-D-0026 - Task 03  
Mississippi Barrier Island Restoration Project  
**Project No:** 10-2123-0009

**Figure**

Tested By: R.Martin

Checked By: R.Byrd

# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.0	0.0	0.5	93.6	5.9	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
.375	100.0		
#4	100.0		
#10	100.0		
#20	100.0		
#40	99.5		
#60	87.3		
#100	24.4		
#200	5.9		

\* (no specification provided)

<u>Material Description</u>		
SAND, (SP-SM), fine grained		
<u>Atterberg Limits</u>		
PL=	LL=	PI=
<u>Coefficients</u>		
D <sub>90</sub> = 0.2723	D <sub>85</sub> = 0.2437	D <sub>60</sub> = 0.1983
D <sub>50</sub> = 0.1844	D <sub>30</sub> = 0.1580	D <sub>15</sub> = 0.1056
D <sub>10</sub> = 0.0876	C <sub>u</sub> = 2.26	C <sub>c</sub> = 1.44
<u>Classification</u>		
USCS= SP-SM	AASHTO=	
<u>Remarks</u>		
CADD CODE = CH10D965		

Location: USACE Sample # **BI-DK-11-10C**  
Sample Number: TE Lab ID: 4538.68

Depth: 10.0 - 13.9 (ft.)

Date: 6/26/10

This sample is actually BI-DK-10-10C

**Thompson Engineering**  
**Mobile, Alabama**

**Client:** US Army Corps of Engineers  
**Project:** Contract No. W91278-10-D-0026 - Task 03  
Mississippi Barrier Island Restoration Project  
**Project No:** 10-2123-0009

**Figure**

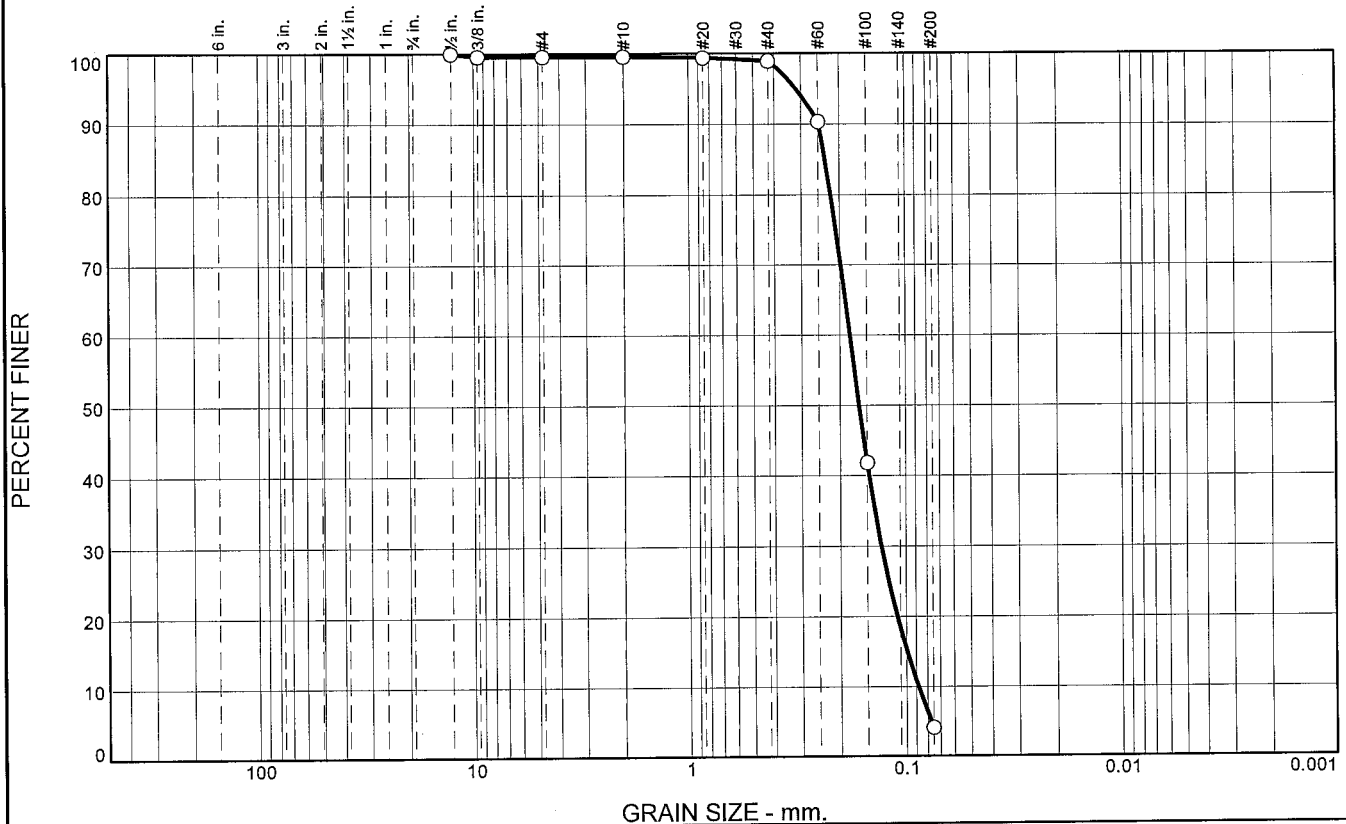
Tested By: R.Martin

Checked By: R.Byrd

# Boring Designation BI-DK-11-10

DRILLING LOG		DIVISION South Atlantic		INSTALLATION Mobile District		SHEET 1 OF 1 SHEETS	
1. PROJECT MsCIP Barrier Island Restoration Dog Keys Pass				9. SIZE AND TYPE OF BIT N/A			
2. BORING DESIGNATION BI-DK-11-10		LOCATION COORDINATES E = 1,000,308 N = 262,186		10. COORDINATE SYSTEM/DATUM State Plane, MSE (U.S. Ft.)		HORIZONTAL NAD83	
3. DRILLING AGENCY Corps of Engineers - CESAM		CONTRACTOR FILE NO.		11. MANUFACTURER'S DESIGNATION OF DRILL Vibrocure		<input type="checkbox"/> AUTO HAMMER <input type="checkbox"/> MANUAL HAMMER	
4. NAME OF DRILLER Construction Solutions International, Inc.				12. TOTAL SAMPLES 2		UNDISTURBED (UD) 0	
5. DIRECTION OF BORING <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED				13. TOTAL NUMBER CORE BOXES		14. WATER DEPTH 12.5 Ft.	
6. THICKNESS OF OVERBURDEN N/A				15. DATE BORING 06-08-10		STARTED 06-08-10	
7. DEPTH DRILLED INTO ROCK N/A				16. ELEVATION TOP OF BORING -10.9 Ft.		COMPLETED 06-08-10	
8. TOTAL DEPTH OF BORING 8.6 Ft.				17. TOTAL RECOVERY FOR BORING 100%			
				18. SIGNATURE AND TITLE OF INSPECTOR Marty Gates, Geologist			
ELEV.	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS	SAMPLE	LABORATORY RESULTS		
-10.9	0.0						
			SAND, poorly-graded, mostly fine to medium-grained sand-sized quartz, trace silt, trace organic matter, trace shell fragments, lt. gray (SP)	A	Classification: SP Color: 2.5Y 7/1-light gray D50: 0.1633 mm % Fines: 4.1		
				B	Classification: SP Color: 5Y 7/1-light gray D50: 0.1863 mm % Fines: 3.3		
-19.5	8.6						
			NOTES: 1. Soils are field visually classified in accordance with the Unified Soils Classification System. 2. NS = Sample not submitted for laboratory analysis from this interval. 3. Seafloor elevation calculated using sampling vessel's fathometer water depth reading and applying NOAA tidal gauge data conversion factor.				

# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.5	0.0	0.6	94.8	4.1	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
.500	100.0		
.375	99.5		
#4	99.5		
#10	99.5		
#20	99.4		
#40	98.9		
#60	90.3		
#100	41.8		
#200	4.1		

\* (no specification provided)

**Material Description**  
SAND, (SP), fine grained

**Atterberg Limits**  
PL=      LL=      PI=

**Coefficients**  
D<sub>90</sub>= 0.2487      D<sub>85</sub>= 0.2321      D<sub>60</sub>= 0.1797  
D<sub>50</sub>= 0.1633      D<sub>30</sub>= 0.1295      D<sub>15</sub>= 0.0991  
D<sub>10</sub>= 0.0879      C<sub>u</sub>= 2.04      C<sub>c</sub>= 1.06

**Classification**  
USCS= SP      AASHTO=

**Remarks**  
CADD CODE = VH10D965

This sample is actually BI-DK-11-10A

Location: USACE Sample # BI-DK-10-10A  
Sample Number: TE Lab ID: 4538.69

Depth: 0.0 - 4.3 (ft.)

Date: 6/26/10

**Thompson Engineering**  
**Mobile, Alabama**

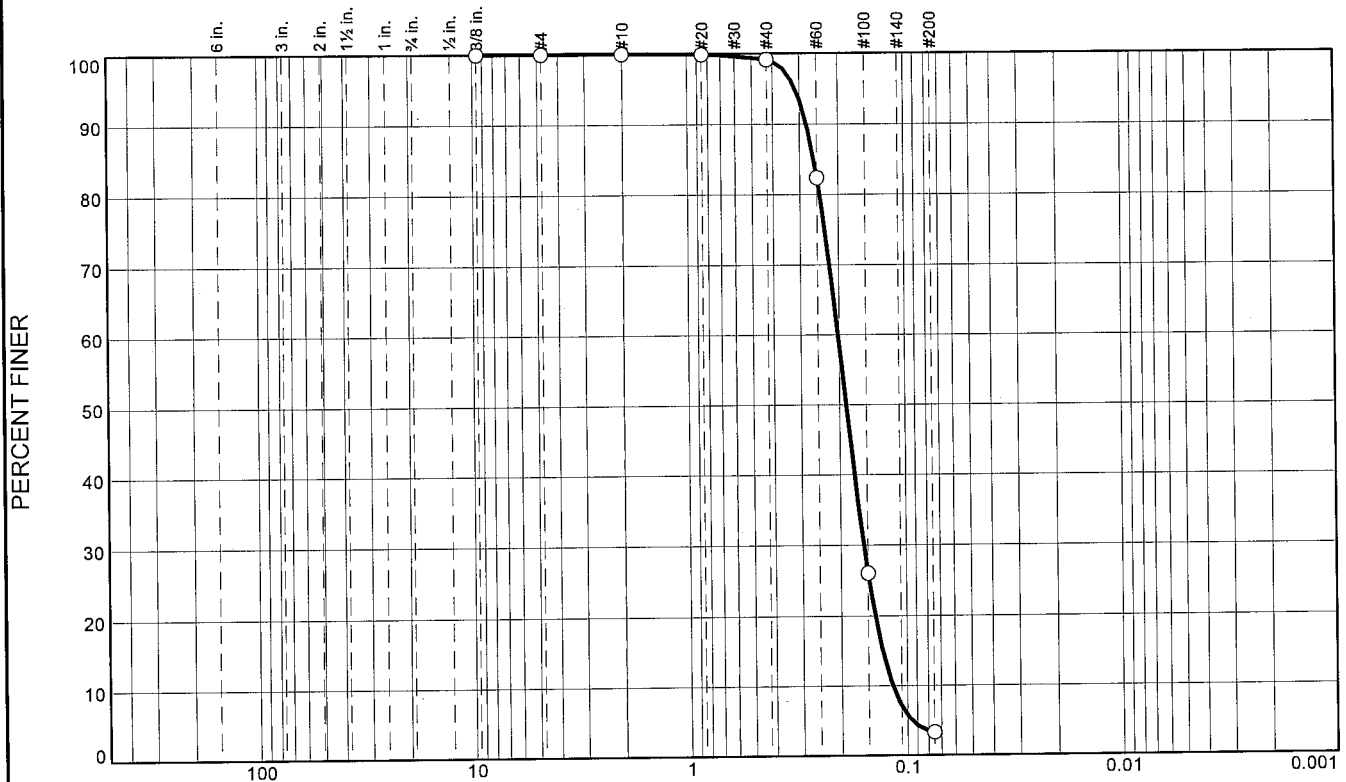
Client: US Army Corps of Engineers  
Project: Contract No. W91278-10-D-0026 - Task 03  
Mississippi Barrier Island Restoration Project  
Project No: 10-2123-0009

Figure

Tested By: R.Martin

Checked By: R.Byrd

# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.0	0.0	0.9	95.8	3.3	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
.375	100.0		
#4	100.0		
#10	100.0		
#20	99.9		
#40	99.1		
#60	82.4		
#100	26.0		
#200	3.3		

\* (no specification provided)

## Material Description

SAND, (SP), fine grained

## Atterberg Limits

PL=

LL=

PI=

## Coefficients

D<sub>90</sub>= 0.2795

D<sub>85</sub>= 0.2585

D<sub>60</sub>= 0.2023

D<sub>50</sub>= 0.1863

D<sub>30</sub>= 0.1563

D<sub>15</sub>= 0.1292

D<sub>10</sub>= 0.1164

C<sub>u</sub>= 1.74

C<sub>c</sub>= 1.04

## Classification

USCS= SP

AASHTO=

## Remarks

CADD CODE = CH10D965

This sample is actually BI-DK-11-10B

Location: USACE Sample # BI-DK-10-10B  
Sample Number: TE Lab ID: 4538.03

Depth: 4.3 - 8.6 (ft.)

Date: 6/19/10

**Thompson Engineering**

**Mobile, Alabama**

Client: US Army Corps of Engineers

Project: Contract No. W91278-10-D-0026 - Task 03  
Mississippi Barrier Island Restoration Project

Project No: 10-2123-0009

Figure

Tested By: G.Fancher

Checked By: R.Byrd

# Boring Designation BI-DK-12-10

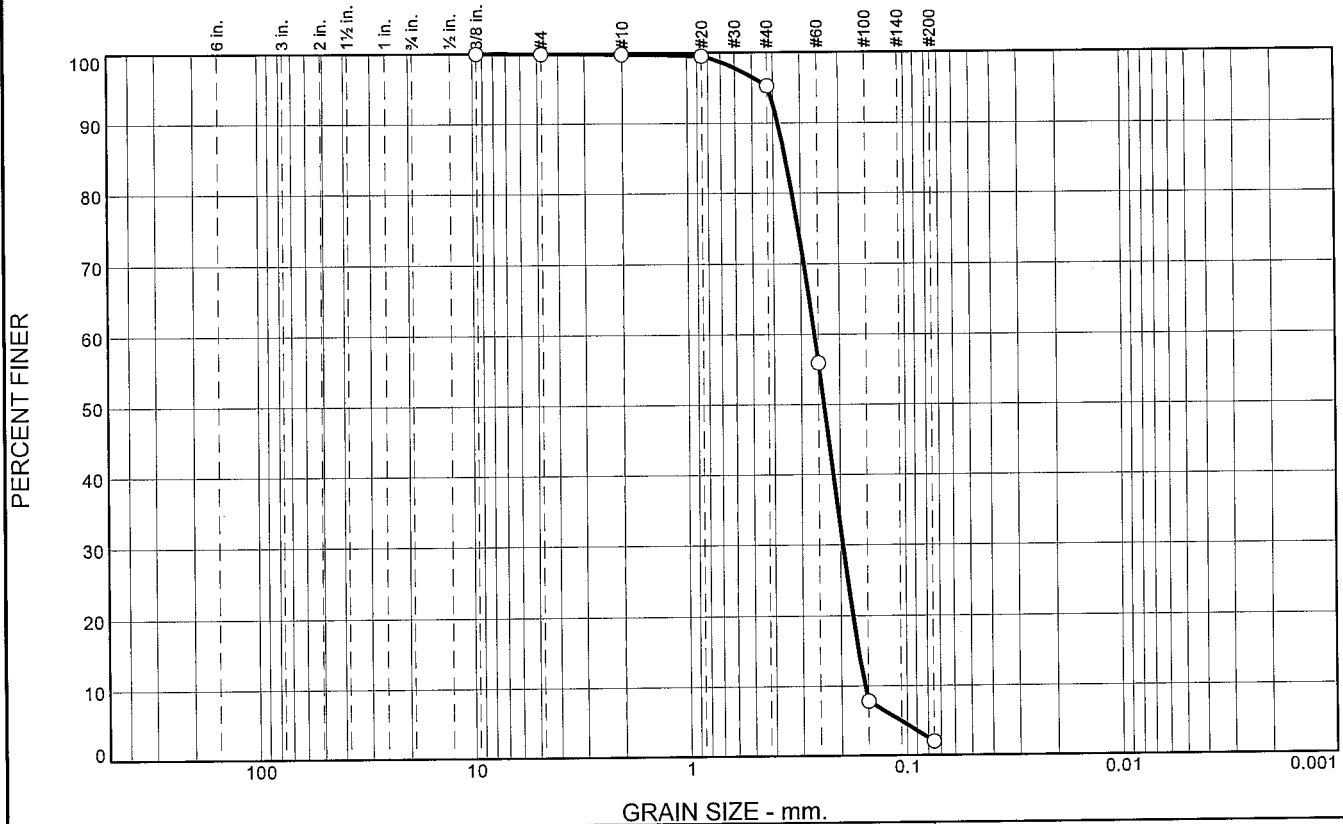
DRILLING LOG		DIVISION South Atlantic		INSTALLATION Mobile District		SHEET 1 OF 1 SHEETS	
1. PROJECT MsCIP Barrier Island Restoration Dog Keys Pass				9. SIZE AND TYPE OF BIT N/A			
2. BORING DESIGNATION BI-DK-12-10		LOCATION COORDINATES E = 1,013,396 N = 262,823		10. COORDINATE SYSTEM/DATUM State Plane, MSE (U.S. Ft.)		HORIZONTAL NAD83 VERTICAL NAVD88	
3. DRILLING AGENCY Corps of Engineers - CESAM		CONTRACTOR FILE NO.		11. MANUFACTURER'S DESIGNATION OF DRILL Vibrocure		<input type="checkbox"/> AUTO HAMMER <input type="checkbox"/> MANUAL HAMMER	
4. NAME OF DRILLER Construction Solutions International, Inc.				12. TOTAL SAMPLES		DISTURBED 0 UNDISTURBED (UD) 0	
5. DIRECTION OF BORING <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED		DEG. FROM VERTICAL		13. TOTAL NUMBER CORE BOXES			
		BEARING		14. WATER DEPTH 30 Ft.			
6. THICKNESS OF OVERBURDEN N/A				15. DATE BORING		STARTED 06-07-10 COMPLETED 06-07-10	
7. DEPTH DRILLED INTO ROCK N/A				16. ELEVATION TOP OF BORING -29.0 Ft.			
8. TOTAL DEPTH OF BORING 18.7 Ft.				17. TOTAL RECOVERY FOR BORING 100%			
				18. SIGNATURE AND TITLE OF INSPECTOR Marty Gates, Geologist			
ELEV.	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS	SAMPLE	LABORATORY RESULTS		
-29.0	0.0						
			CLAY, lean, dark gray (CL)				
				NS			
-43.2	14.2						
-45.2	16.2		SAND, silty, mostly fine to medium-grained sand-sized quartz, some silt, trace shell fragments, gray (SM)				
			CLAY, lean, dark gray (CL)				
-47.7	18.7						
			NOTES: 1. Soils are field visually classified in accordance with the Unified Soils Classification System. 2. NS = Sample not submitted for laboratory analysis from this interval. 3. Seafloor elevation calculated using sampling vessel's fathometer water depth reading and applying NOAA tidal gauge data conversion factor.				



# Boring Designation BI-DK-13-10

DRILLING LOG		DIVISION South Atlantic		INSTALLATION Mobile District		SHEET 1 OF 1 SHEETS	
1. PROJECT MsCIP Barrier Island Restoration Dog Keys Pass				9. SIZE AND TYPE OF BIT N/A			
2. BORING DESIGNATION BI-DK-13-10		LOCATION COORDINATES E = 995,412 N = 264,868		10. COORDINATE SYSTEM/DATUM State Plane, MSE (U.S. Ft.)		HORIZONTAL NAD83 VERTICAL NAVD88	
3. DRILLING AGENCY Corps of Engineers - CESAM		CONTRACTOR FILE NO.		11. MANUFACTURER'S DESIGNATION OF DRILL Vibrocure		<input type="checkbox"/> AUTO HAMMER <input type="checkbox"/> MANUAL HAMMER	
4. NAME OF DRILLER Construction Solutions International, Inc.				12. TOTAL SAMPLES 2		DISTURBED 0 UNDISTURBED (UD)	
5. DIRECTION OF BORING <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED		DEG. FROM VERTICAL		13. TOTAL NUMBER CORE BOXES			
		BEARING		14. WATER DEPTH 13 Ft.			
6. THICKNESS OF OVERBURDEN N/A				15. DATE BORING 06-07-10		STARTED 06-07-10 COMPLETED 06-07-10	
7. DEPTH DRILLED INTO ROCK N/A				16. ELEVATION TOP OF BORING -12.5 Ft.			
8. TOTAL DEPTH OF BORING 12.5 Ft.				17. TOTAL RECOVERY FOR BORING 100%			
				18. SIGNATURE AND TITLE OF INSPECTOR Marty Gates, Geologist			
ELEV.	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS	SAMPLE	LABORATORY RESULTS		
-12.5	0.0						
			SAND, poorly-graded, mostly fine to medium-grained sand-sized quartz, trace silt, trace shell fragments, lt. gray (SP)	A	Classification: SP Color: 2.5Y 7/1-light gray D50: 0.2361 mm % Fines: 2		
				B	Classification: SM Color: 5Y 7/1-light gray D50: 0.2167 mm % Fines: 13.4		
-23.1	10.6						
			CLAY, lean, dark gray (CL)	NS			
-25.0	12.5						
			NOTES: 1. Soils are field visually classified in accordance with the Unified Soils Classification System. 2. NS = Sample not submitted for laboratory analysis from this interval. 3. Seafloor elevation calculated using sampling vessel's fathometer water depth reading and applying NOAA tidal gauge data conversion factor.				

# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.1	0.1	4.6	93.2	2.0	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
.375	100.0		
#4	99.9		
#10	99.8		
#20	99.5		
#40	95.2		
#60	55.9		
#100	7.8		
#200	2.0		

\* (no specification provided)

**Material Description**  
SAND, (SP), fine grained

**Atterberg Limits**  
PL=      LL=      PI=

**Coefficients**  
D<sub>90</sub>= 0.3810      D<sub>85</sub>= 0.3513      D<sub>60</sub>= 0.2605  
D<sub>50</sub>= 0.2361      D<sub>30</sub>= 0.1950      D<sub>15</sub>= 0.1658  
D<sub>10</sub>= 0.1551      C<sub>u</sub>= 1.68      C<sub>c</sub>= 0.94

**Classification**  
USCS= SP      AASHTO=

**Remarks**  
CADD CODE = CH10D965

Location: USACE Sample # BI-DK-13-10A  
Sample Number: TE Lab ID: 4538.63

Depth: 0.0 - 5.0 (ft.)

Date: 6/26/10

**Thompson Engineering**

**Mobile, Alabama**

Client: US Army Corps of Engineers

Project: Contract No. W91278-10-D-0026 - Task 03  
Mississippi Barrier Island Restoration Project

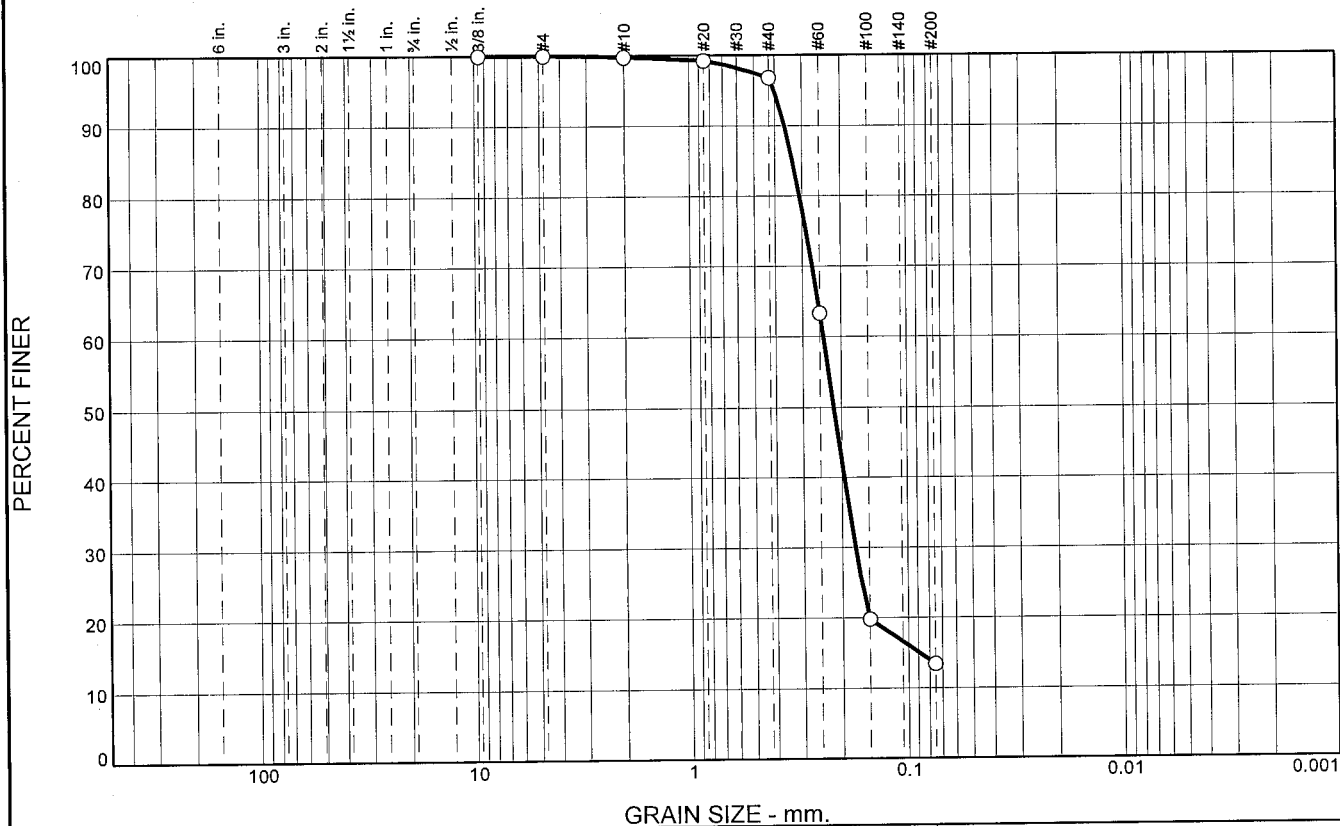
Project No: 10-2123-0009

Figure

Tested By: R.Martin

Checked By: R.Byrd

# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.0	0.2	2.9	83.5	13.4	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
.375	100.0		
#4	100.0		
#10	99.8		
#20	99.3		
#40	96.9		
#60	63.3		
#100	19.8		
#200	13.4		

\* (no specification provided)

**Material Description**  
SILTY SAND, (SM), medium to fine grained

**Atterberg Limits**  
PL=      LL=      PI=

**Coefficients**  
D<sub>90</sub>= 0.3617      D<sub>85</sub>= 0.3317      D<sub>60</sub>= 0.2410  
D<sub>50</sub>= 0.2167      D<sub>30</sub>= 0.1736      D<sub>15</sub>= 0.0893  
D<sub>10</sub>=      C<sub>u</sub>=      C<sub>c</sub>=

**Classification**  
USCS= SM      AASHTO=

**Remarks**  
CADD CODE = CH10D965

Location: USACE Sample # BI-DK-13-10B  
Sample Number: TE Lab ID: 4538.02

Depth: 5.0 - 10.6 (ft.)

Date: 6/19/10

**Thompson Engineering**

**Mobile, Alabama**

Client: US Army Corps of Engineers

Project: Contract No. W91278-10-D-0026 - Task 03  
Mississippi Barrier Island Restoration Project

Project No: 10-2123-0009

Figure

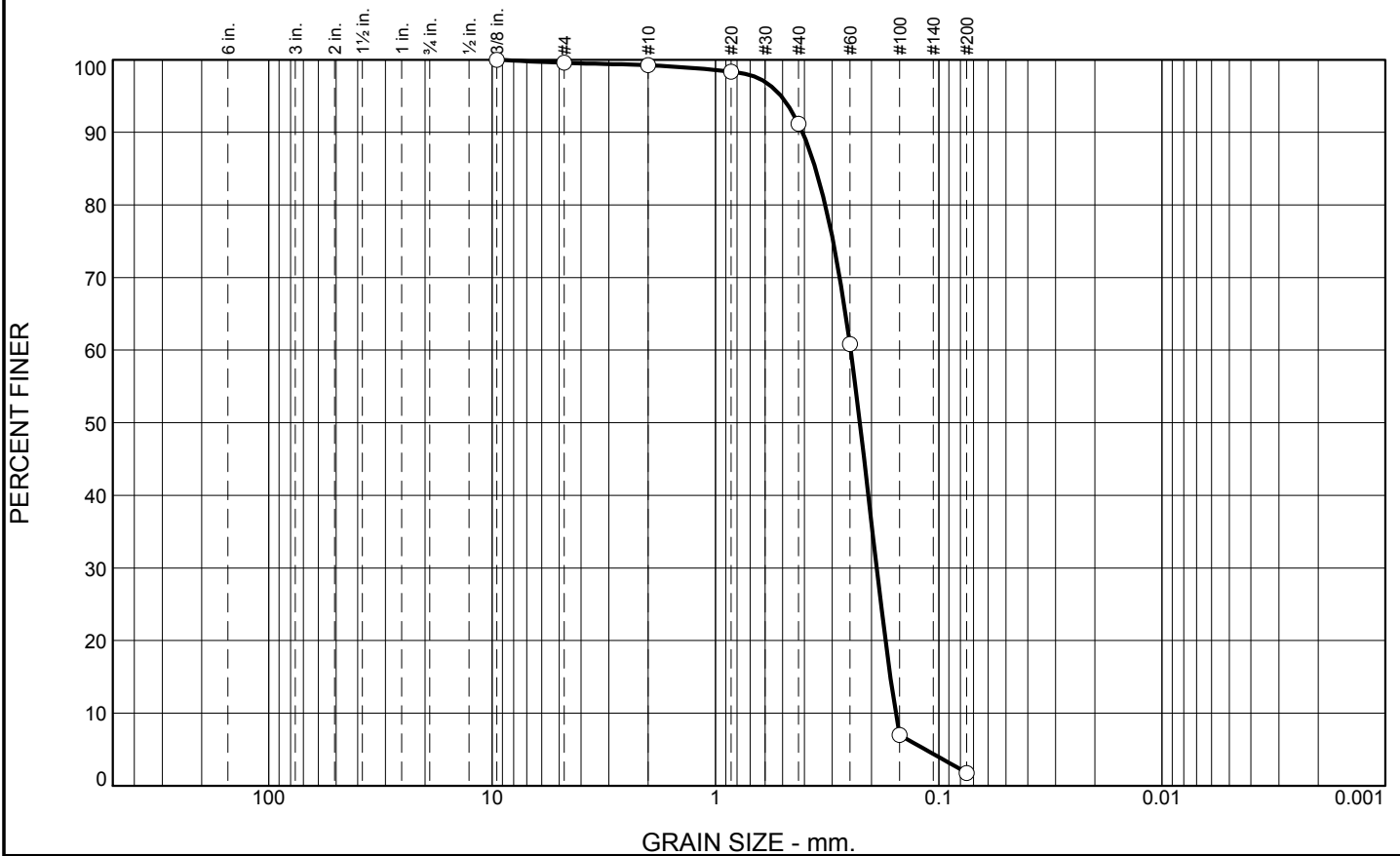
Tested By: G.Fancher

Checked By: R.Byrd

# Boring Designation BI-DK-14-10

DRILLING LOG		DIVISION South Atlantic		INSTALLATION Mobile District		SHEET 1 OF 1 SHEETS	
1. PROJECT MsCIP Barrier Island Restoration Dog Keys Pass				9. SIZE AND TYPE OF BIT N/A			
2. BORING DESIGNATION BI-DK-14-10		LOCATION COORDINATES E = 999,546 N = 264,597		10. COORDINATE SYSTEM/DATUM State Plane, MSE (U.S. Ft.)		HORIZONTAL NAD83	
3. DRILLING AGENCY Corps of Engineers - CESAM		CONTRACTOR FILE NO.		11. MANUFACTURER'S DESIGNATION OF DRILL Vibrocure		<input type="checkbox"/> AUTO HAMMER <input type="checkbox"/> MANUAL HAMMER	
4. NAME OF DRILLER Construction Solutions International, Inc.				12. TOTAL SAMPLES 3		UNDISTURBED (UD) 0	
5. DIRECTION OF BORING <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED				13. TOTAL NUMBER CORE BOXES		14. WATER DEPTH 15.5 Ft.	
6. THICKNESS OF OVERBURDEN N/A				15. DATE BORING 06-07-10		STARTED 06-07-10	
7. DEPTH DRILLED INTO ROCK N/A				16. ELEVATION TOP OF BORING -14.9 Ft.		COMPLETED 06-07-10	
8. TOTAL DEPTH OF BORING 17.1 Ft.				17. TOTAL RECOVERY FOR BORING 100%			
				18. SIGNATURE AND TITLE OF INSPECTOR Marty Gates, Geologist			
ELEV.	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS	SAMPLE	LABORATORY RESULTS		
-14.9	0.0						
			SAND, poorly-graded, mostly fine to medium-grained sand-sized quartz, trace silt, trace shell fragments, lt. gray (SP)	A	Classification: SP Color: 2.5Y 7/1-light gray D50: 0.2256 mm % Fines: 1.8		
				B	Classification: SP Color: 5Y 7/1-light gray D50: 0.2119 mm % Fines: 3.1		
-22.9	8.0						
			SAND, silty, mostly fine to medium-grained sand-sized quartz, some silt, gray (SM)	C	Classification: SM Color: 2.5Y 6/2-light brownish gray D50: 0.156 mm % Fines: 15.4		
-26.3	11.4						
			CLAY, lean, dark gray (CL)	NS			
-32.0	17.1						
			NOTES: 1. Soils are field visually classified in accordance with the Unified Soils Classification System. 2. NS = Sample not submitted for laboratory analysis from this interval. 3. Seafloor elevation calculated using sampling vessel's fathometer water depth reading and applying NOAA tidal gauge data conversion factor.				

# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.4	0.4	8.0	89.4	1.8	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
.375	100.0		
#4	99.6		
#10	99.2		
#20	98.3		
#40	91.2		
#60	60.8		
#100	7.0		
#200	1.8		

\* (no specification provided)

Material Description		
SAND, (SP), fine grained		
<div> <div> Atterberg Limits </div> <div> PL= </div> <div> LL= </div> <div> PI= </div> </div>		
<div> <div> Coefficients </div> <div> D<sub>90</sub>= 0.4080 </div> <div> D<sub>50</sub>= 0.2256 </div> <div> D<sub>10</sub>= 0.1559 </div> <div> D<sub>85</sub>= 0.3563 </div> <div> D<sub>30</sub>= 0.1897 </div> <div> C<sub>u</sub>= 1.59 </div> <div> D<sub>60</sub>= 0.2479 </div> <div> D<sub>15</sub>= 0.1648 </div> <div> C<sub>c</sub>= 0.93 </div> </div>		
<div> <div> Classification </div> <div> USCS= SP </div> <div> AASHTO= </div> </div>		
<div> <div> Remarks </div> <div> CADD CODE = CH10D965 </div> </div>		

Location: USACE Sample # BI-DK-14-10A  
Sample Number: TE Lab ID: 4538.60

Depth: 0.0 - 4.0 (ft.)

Date: 6/26/10

**Thompson Engineering**  
**Mobile, Alabama**

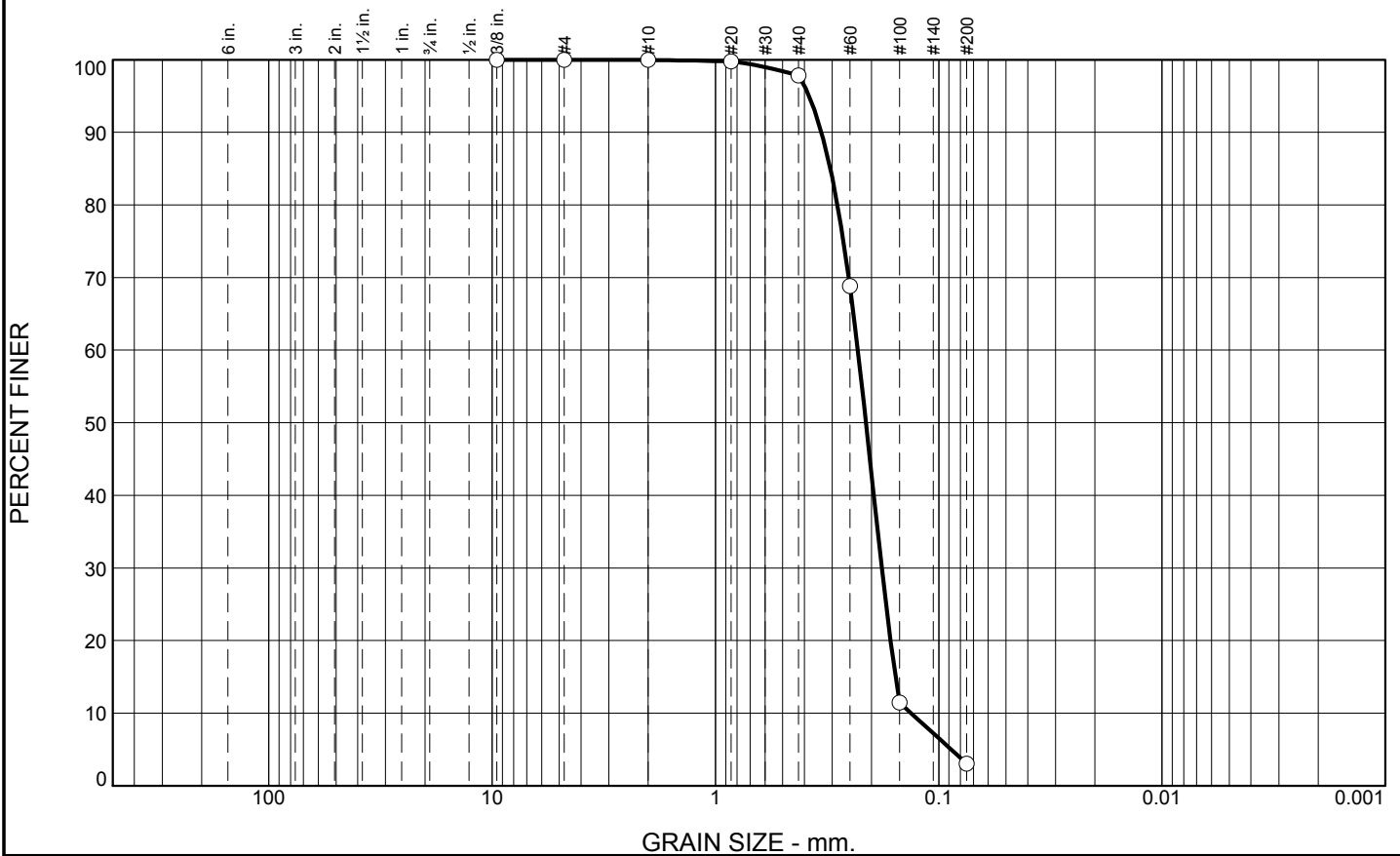
**Client:** US Army Corps of Engineers  
**Project:** Contract No. W91278-10-D-0026 - Task 03  
Mississippi Barrier Island Restoration Project  
**Project No:** 10-2123-0009

**Figure**

Tested By: R.Martin

Checked By: R.Byrd

# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.0	0.0	2.2	94.7	3.1	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
.375	100.0		
#4	100.0		
#10	100.0		
#20	99.8		
#40	97.8		
#60	68.8		
#100	11.5		
#200	3.1		

\* (no specification provided)

Material Description		
SAND, (SP), fine grained		
<div> <div> Atterberg Limits </div> <div> PL= </div> <div> LL= </div> <div> PI= </div> </div>		
<div> <div> Coefficients </div> <div> D<sub>90</sub>= 0.3351 </div> <div> D<sub>50</sub>= 0.2119 </div> <div> D<sub>10</sub>= 0.1330 </div> <div> D<sub>85</sub>= 0.3057 </div> <div> D<sub>30</sub>= 0.1800 </div> <div> C<sub>u</sub>= 1.73 </div> <div> D<sub>60</sub>= 0.2304 </div> <div> D<sub>15</sub>= 0.1563 </div> <div> C<sub>c</sub>= 1.06 </div> </div>		
<div> <div> Classification </div> <div> USCS= SP </div> <div> AASHTO= </div> </div>		
<div> <div> Remarks </div> <div> CADD CODE = CH10D965 </div> </div>		

Location: USACE Sample # BI-DK-14-10B  
Sample Number: TE Lab ID: 4538.61

Depth: 4.0 - 8.0 (ft.)

Date: 6/26/10

**Thompson Engineering**  
**Mobile, Alabama**

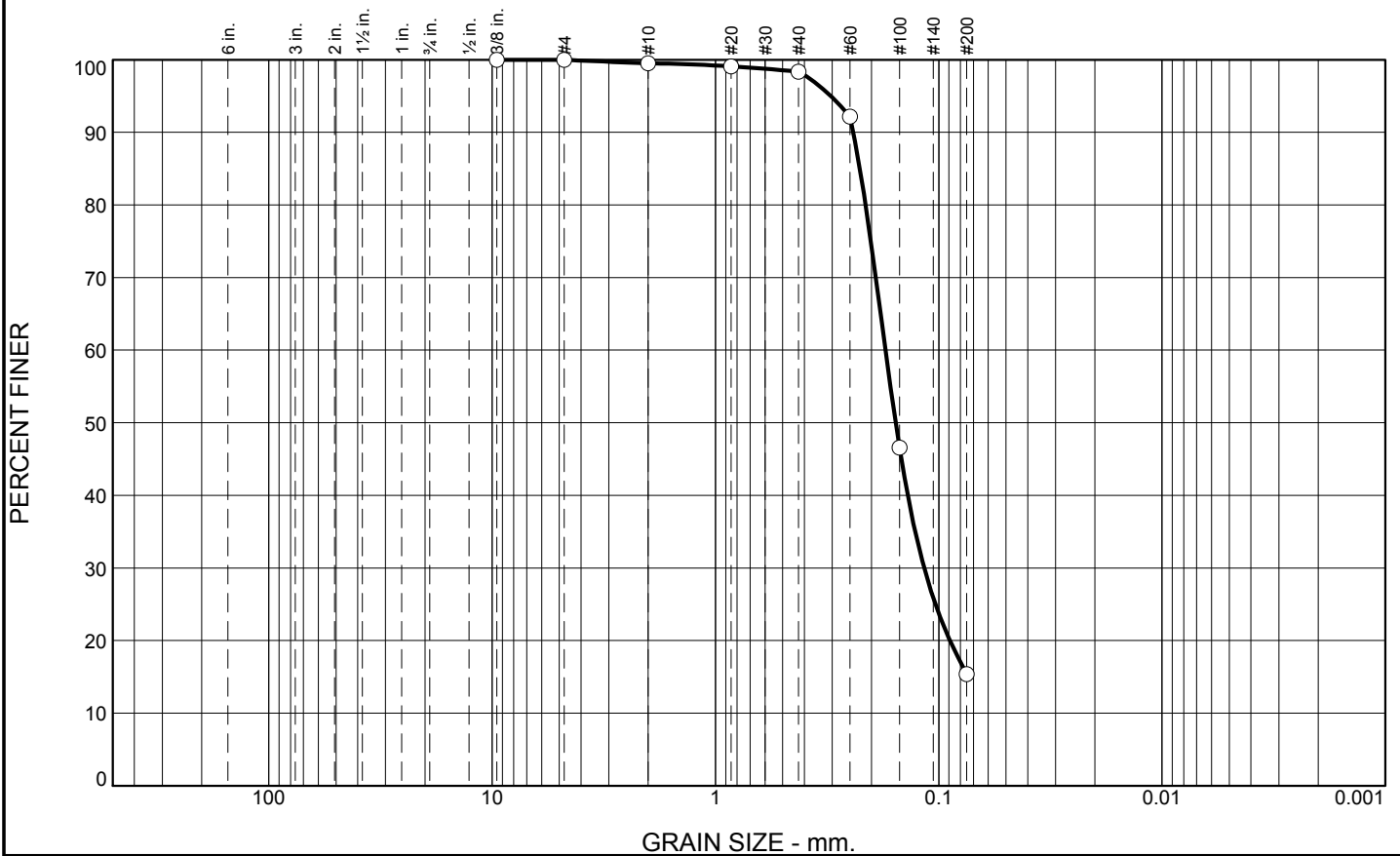
**Client:** US Army Corps of Engineers  
**Project:** Contract No. W91278-10-D-0026 - Task 03  
Mississippi Barrier Island Restoration Project  
**Project No:** 10-2123-0009

**Figure**

Tested By: R.Martin

Checked By: R.Byrd

# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.0	0.5	1.2	82.9	15.4	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
.375	100.0		
#4	100.0		
#10	99.5		
#20	99.1		
#40	98.3		
#60	92.1		
#100	46.6		
#200	15.4		

\* (no specification provided)

<u>Material Description</u>		
SILTY SAND, (SM), fine grained, with clay nodules		
<u>Atterberg Limits</u>		
PL=	LL=	PI=
<u>Coefficients</u>		
D <sub>90</sub> = 0.2414	D <sub>85</sub> = 0.2256	D <sub>60</sub> = 0.1733
D <sub>50</sub> = 0.1560	D <sub>30</sub> = 0.1162	D <sub>15</sub> =
D <sub>10</sub> =	C <sub>u</sub> =	C <sub>c</sub> =
<u>Classification</u>		
USCS= SM	AASHTO=	
<u>Remarks</u>		
CADD CODE = CH10D965		

Location: USACE Sample # BI-DK-14-10C  
Sample Number: TE Lab ID: 4538.62

Depth: 8.0 - 11.4 (ft.)

Date: 6/26/10

**Thompson Engineering**  
**Mobile, Alabama**

**Client:** US Army Corps of Engineers  
**Project:** Contract No. W91278-10-D-0026 - Task 03  
Mississippi Barrier Island Restoration Project  
**Project No:** 10-2123-0009

**Figure**

Tested By: R.Martin

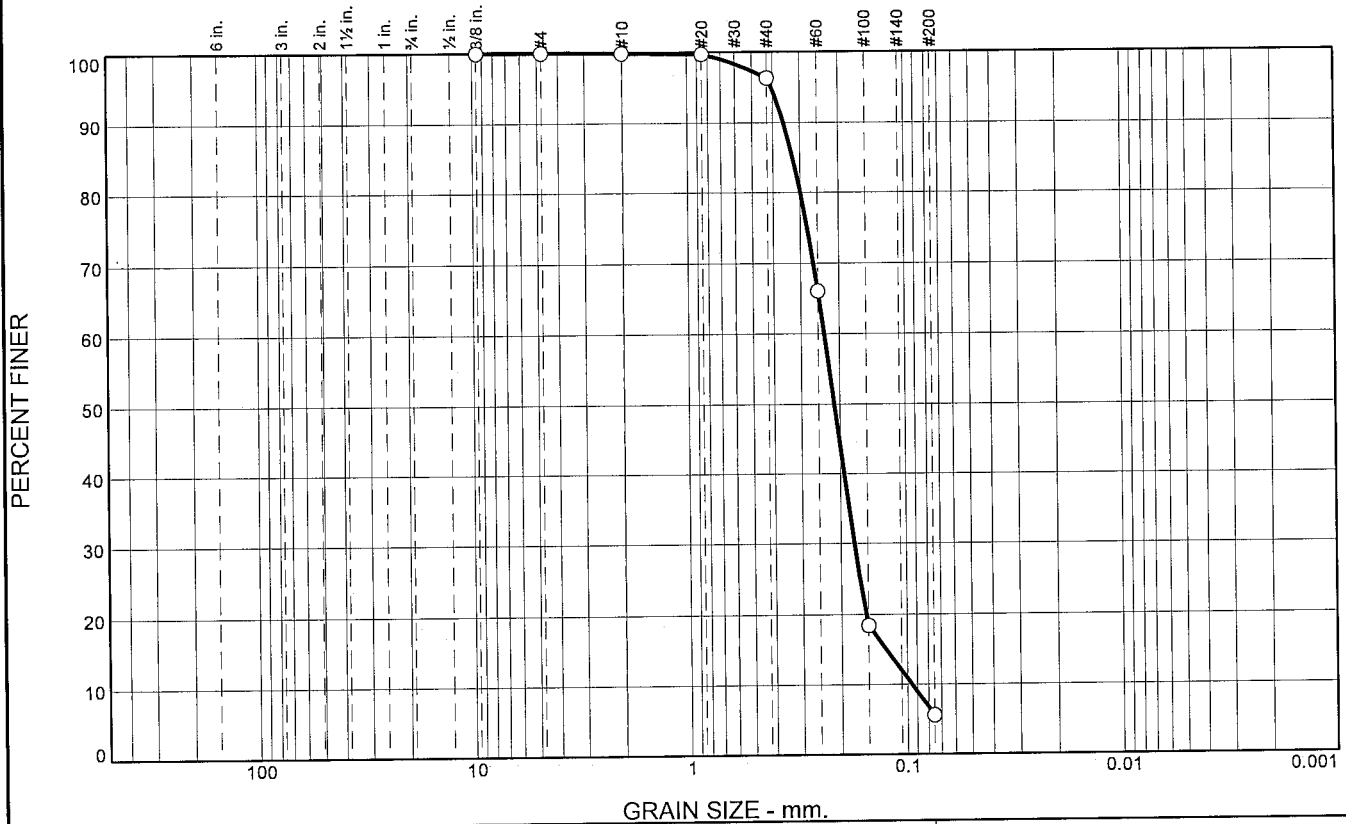
Checked By: R.Byrd

# Boring Designation BI-DK-15-10

DRILLING LOG		DIVISION South Atlantic		INSTALLATION Mobile District		SHEET 1 OF 1 SHEETS	
1. PROJECT MsCIP Barrier Island Restoration Dog Keys Pass				9. SIZE AND TYPE OF BIT N/A			
2. BORING DESIGNATION BI-DK-15-10		LOCATION COORDINATES E = 1,002,458 N = 264,609		10. COORDINATE SYSTEM/DATUM State Plane, MSE (U.S. Ft.)		HORIZONTAL NAD83	
3. DRILLING AGENCY Corps of Engineers - CESAM		CONTRACTOR FILE NO.		11. MANUFACTURER'S DESIGNATION OF DRILL Vibracore		<input type="checkbox"/> AUTO HAMMER <input type="checkbox"/> MANUAL HAMMER	
4. NAME OF DRILLER Construction Solutions International, Inc.				12. TOTAL SAMPLES 2		UNDISTURBED (UD) 0	
5. DIRECTION OF BORING <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED				13. TOTAL NUMBER CORE BOXES		14. WATER DEPTH 15 Ft.	
6. THICKNESS OF OVERBURDEN N/A				15. DATE BORING 06-07-10		COMPLETED 06-07-10	
7. DEPTH DRILLED INTO ROCK N/A				16. ELEVATION TOP OF BORING -14.3 Ft.		17. TOTAL RECOVERY FOR BORING 100%	
8. TOTAL DEPTH OF BORING 14.1 Ft.				18. SIGNATURE AND TITLE OF INSPECTOR Marty Gates, Geologist			
ELEV.	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS	SAMPLE	LABORATORY RESULTS		
-14.3	0.0						
			SAND, poorly-graded, mostly fine to medium-grained sand-sized quartz, trace silt, trace organic matter, lt. gray (SP)	A	Classification: SP-SM    Color: 5Y 7/1-light gray D50: 0.2119 mm    % Fines: 5.6		
				B	Classification: SP-SM    Color: 5Y 7/1-light gray D50: 0.1869 mm    % Fines: 5.9		
-22.5	8.2						
			CLAY, lean, dark gray (CL)	NS			
-28.4	14.1						
			NOTES:				
			1. Soils are field visually classified in accordance with the Unified Soils Classification System.				
			2. NS = Sample not submitted for laboratory analysis from this interval.				
			3. Seafloor elevation calculated using sampling vessel's fathometer water depth reading and applying NOAA tidal gauge data conversion factor.				



# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.0	0.1	3.6	90.7	5.6	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
.375	100.0		
#4	100.0		
#10	99.9		
#20	99.7		
#40	96.3		
#60	66.0		
#100	18.4		
#200	5.6		

\* (no specification provided)

**Material Description**  
SAND, (SP-SM), fine grained

**Atterberg Limits**  
PL=      LL=      PI=

**Coefficients**  
D<sub>90</sub>= 0.3573      D<sub>85</sub>= 0.3243      D<sub>60</sub>= 0.2343  
D<sub>50</sub>= 0.2119      D<sub>30</sub>= 0.1731      D<sub>15</sub>= 0.1246  
D<sub>10</sub>= 0.0951      C<sub>u</sub>= 2.46      C<sub>c</sub>= 1.34

**Classification**  
USCS= SP-SM      AASHTO=

**Remarks**  
CADD CODE = CH10D965

Location: USACE Sample # BI-DK-15-10A  
Sample Number: TE Lab ID: 4538.01

Depth: 0.0 - 4.0 (ft.)

Date: 6/19/10

**Thompson Engineering**

**Mobile, Alabama**

Client: US Army Corps of Engineers

Project: Contract No. W91278-10-D-0026 - Task 03  
Mississippi Barrier Island Restoration Project

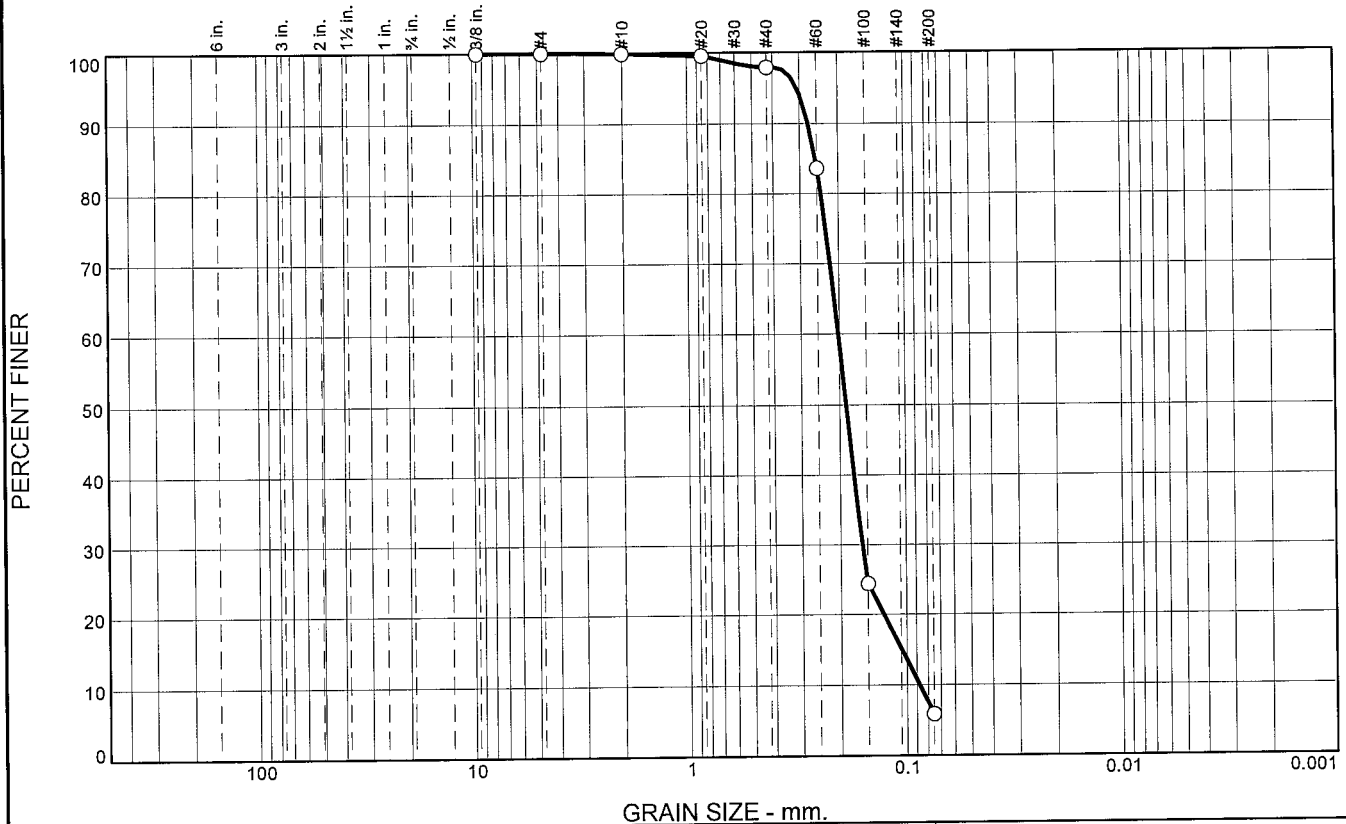
Project No: 10-2123-0009

Figure

Tested By: G.Fancher

Checked By: R.Byrd

# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.0	0.1	2.0	92.0	5.9	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
.375	100.0		
#4	100.0		
#10	99.9		
#20	99.6		
#40	97.9		
#60	83.6		
#100	24.4		
#200	5.9		

\* (no specification provided)

**Material Description**  
SAND, (SP-SM), fine grained

**Atterberg Limits**  
PL=      LL=      PI=

**Coefficients**  
D<sub>90</sub>= 0.2741      D<sub>85</sub>= 0.2545      D<sub>60</sub>= 0.2020  
D<sub>50</sub>= 0.1869      D<sub>30</sub>= 0.1585      D<sub>15</sub>= 0.1055  
D<sub>10</sub>= 0.0875      C<sub>u</sub>= 2.31      C<sub>c</sub>= 1.42

**Classification**  
USCS= SP-SM      AASHTO=

**Remarks**  
CADD CODE = CH10D965

Location: USACE Sample # BI-DK-15-10B  
Sample Number: TE Lab ID: 4538.59

Depth: 4.0 - 8.2 (ft.)

Date: 6/26/10

**Thompson Engineering**

**Mobile, Alabama**

Client: US Army Corps of Engineers

Project: Contract No. W91278-10-D-0026 - Task 03  
Mississippi Barrier Island Restoration Project

Project No: 10-2123-0009

Figure

Tested By: R.Martin

Checked By: R.Byrd

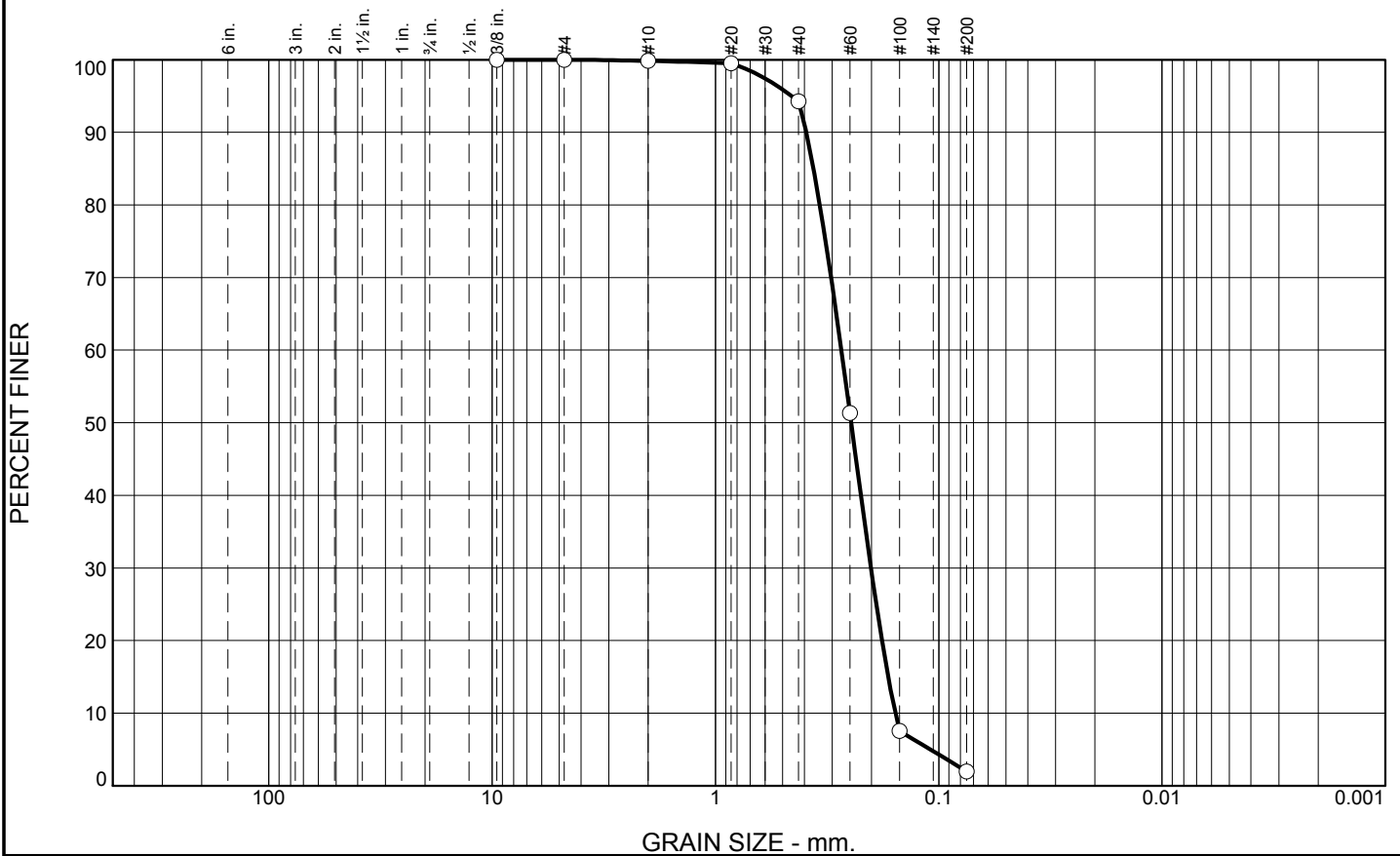
# Boring Designation BI-DK-16-10

DRILLING LOG		DIVISION South Atlantic		INSTALLATION Mobile District		SHEET 1 OF 1 SHEETS	
1. PROJECT MsCIP Barrier Island Restoration Dog Keys Pass				9. SIZE AND TYPE OF BIT N/A			
2. BORING DESIGNATION BI-DK-16-10		LOCATION COORDINATES E = 982,530 N = 265,565		10. COORDINATE SYSTEM/DATUM State Plane, MSE (U.S. Ft.)		HORIZONTAL NAD83 VERTICAL NAVD88	
3. DRILLING AGENCY Corps of Engineers - CESAM		CONTRACTOR FILE NO.		11. MANUFACTURER'S DESIGNATION OF DRILL Vibrocure		<input type="checkbox"/> AUTO HAMMER <input type="checkbox"/> MANUAL HAMMER	
4. NAME OF DRILLER Construction Solutions International, Inc.				12. TOTAL SAMPLES 2		DISTURBED 0 UNDISTURBED (UD)	
5. DIRECTION OF BORING <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED		DEG. FROM VERTICAL		13. TOTAL NUMBER CORE BOXES			
		BEARING		14. WATER DEPTH 13 Ft.			
6. THICKNESS OF OVERBURDEN N/A				15. DATE BORING 06-08-10		STARTED 06-08-10 COMPLETED 06-08-10	
7. DEPTH DRILLED INTO ROCK N/A				16. ELEVATION TOP OF BORING -11.6 Ft.			
8. TOTAL DEPTH OF BORING 14.3 Ft.				17. TOTAL RECOVERY FOR BORING 100%			
				18. SIGNATURE AND TITLE OF INSPECTOR Marty Gates, Geologist			

ELEV.	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS	SAMPLE	LABORATORY RESULTS
-11.6	0.0				
			SAND, poorly-graded, mostly fine to medium-grained sand-sized quartz, trace silt, trace shell fragments, lt. gray (SP)	A	Classification: SP Color: 2.5Y 7/1-light gray D50: 0.2467 mm % Fines: 2
-16.8	5.2				
			SAND, silty, mostly fine to medium-grained sand-sized quartz, some silt, trace shell fragments, gray (SM)	B	Classification: SP-SM Color: 2.5Y 6/2-light brownish gray D50: 0.1741 mm % Fines: 10.5
-20.6	9.0				
-21.2	9.6		CLAY, lean, dark gray (CL)		
-22.8	11.2		SAND, silty, mostly fine to medium-grained sand-sized quartz, some silt, trace shell fragments, gray (SM)		
-23.5	11.9		CLAY, lean, dark gray (CL)	NS	
-25.9	14.3		SAND, silty, mostly fine to medium-grained sand-sized quartz, some silt, trace shell fragments (SM)		
			NOTES: 1. Soils are field visually classified in accordance with the Unified Soils Classification System. 2. NS = Sample not submitted for laboratory analysis from this interval. 3. Seafloor elevation calculated using sampling vessel's fathometer water depth reading and applying NOAA tidal gauge data conversion factor.		

# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.0	0.2	5.5	92.3	2.0	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
.375	100.0		
#4	100.0		
#10	99.8		
#20	99.5		
#40	94.3		
#60	51.3		
#100	7.6		
#200	2.0		

\* (no specification provided)

Material Description		
SAND, (SP), fine grained		
<div> <div> <b>Atterberg Limits</b>            PL=      LL=      PI=         </div> <div> <b>Coefficients</b>            D<sub>90</sub>= 0.3925      D<sub>85</sub>= 0.3640      D<sub>60</sub>= 0.2729            D<sub>50</sub>= 0.2467      D<sub>30</sub>= 0.2012      D<sub>15</sub>= 0.1685            D<sub>10</sub>= 0.1565      C<sub>u</sub>= 1.74      C<sub>c</sub>= 0.95         </div> <div> <b>Classification</b>            USCS= SP      AASHTO=         </div> <div> <b>Remarks</b>            CADD CODE = CH10D965         </div> </div>		

Location: USACE Sample # BI-DK-16-10A  
Sample Number: TE Lab ID: 4538.70

Depth: 0.0 - 5.2 (ft.)

Date: 6/26/10

**Thompson Engineering**  
  
**Mobile, Alabama**

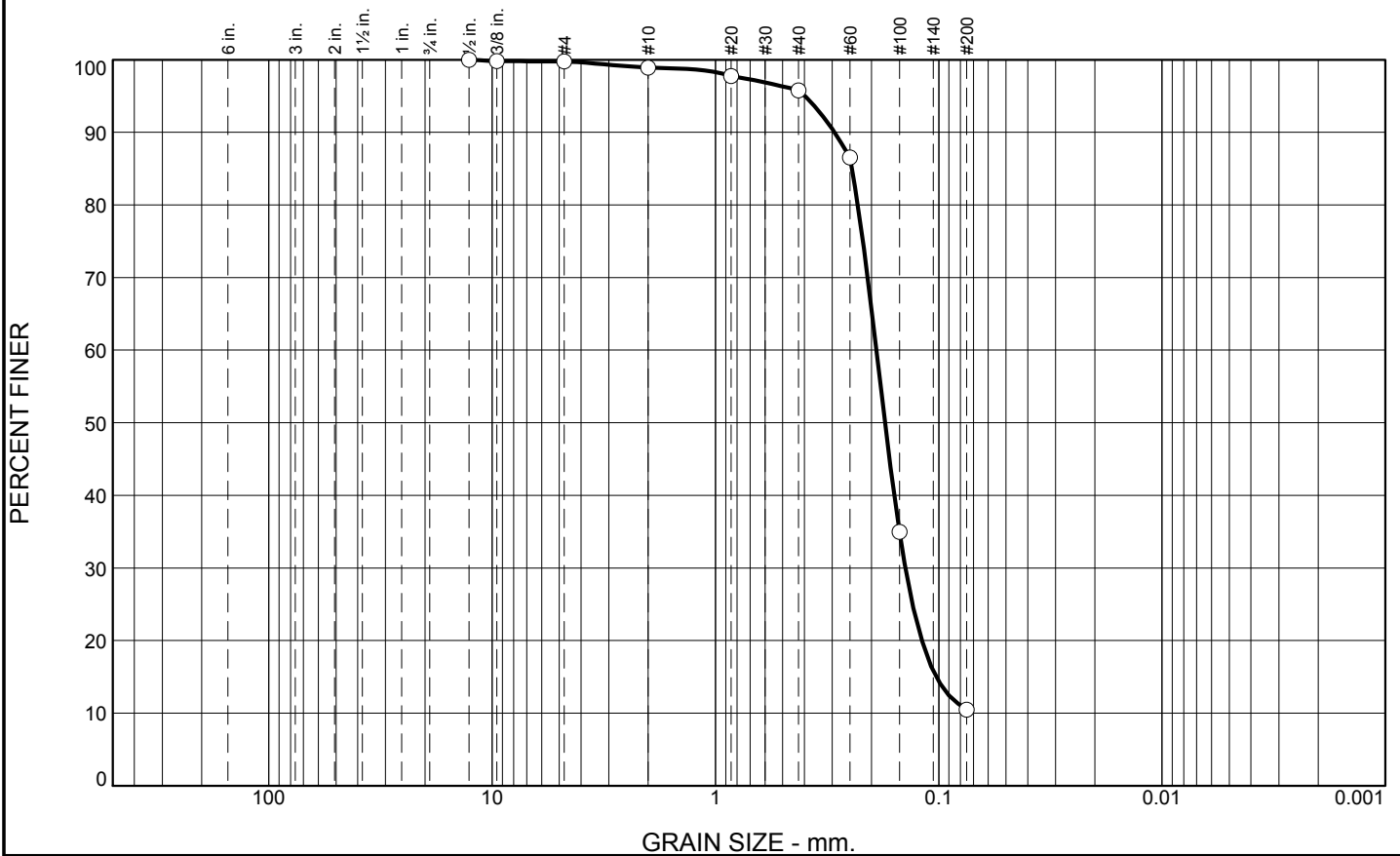
**Client:** US Army Corps of Engineers  
**Project:** Contract No. W91278-10-D-0026 - Task 03  
Mississippi Barrier Island Restoration Project  
**Project No:** 10-2123-0009

**Figure**

Tested By: R.Martin

Checked By: R.Byrd

# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.2	0.9	3.1	85.3	10.5	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
.500	100.0		
.375	99.8		
#4	99.8		
#10	98.9		
#20	97.7		
#40	95.8		
#60	86.5		
#100	35.0		
#200	10.5		

\* (no specification provided)

**Material Description**  
SAND, (SP-SM), fine grained

**Atterberg Limits**  
 PL=      LL=      PI=

**Coefficients**  
 D<sub>90</sub>= 0.2931      D<sub>85</sub>= 0.2448      D<sub>60</sub>= 0.1903  
 D<sub>50</sub>= 0.1741      D<sub>30</sub>= 0.1411      D<sub>15</sub>= 0.1027  
 D<sub>10</sub>=      C<sub>u</sub>=      C<sub>c</sub>=

**Classification**  
 USCS= SP-SM      AASHTO=

**Remarks**  
 CADD CODE = CH10D965

**Location:** USACE Sample # BI-DK-16-10B  
**Sample Number:** TE Lab ID: 4538.71

**Depth:** 5.2 - 9.0 (ft.)

**Date:** 6/26/10

**Thompson Engineering**  
  
**Mobile, Alabama**

**Client:** US Army Corps of Engineers  
**Project:** Contract No. W91278-10-D-0026 - Task 03  
 Mississippi Barrier Island Restoration Project  
**Project No:** 10-2123-0009

**Figure**

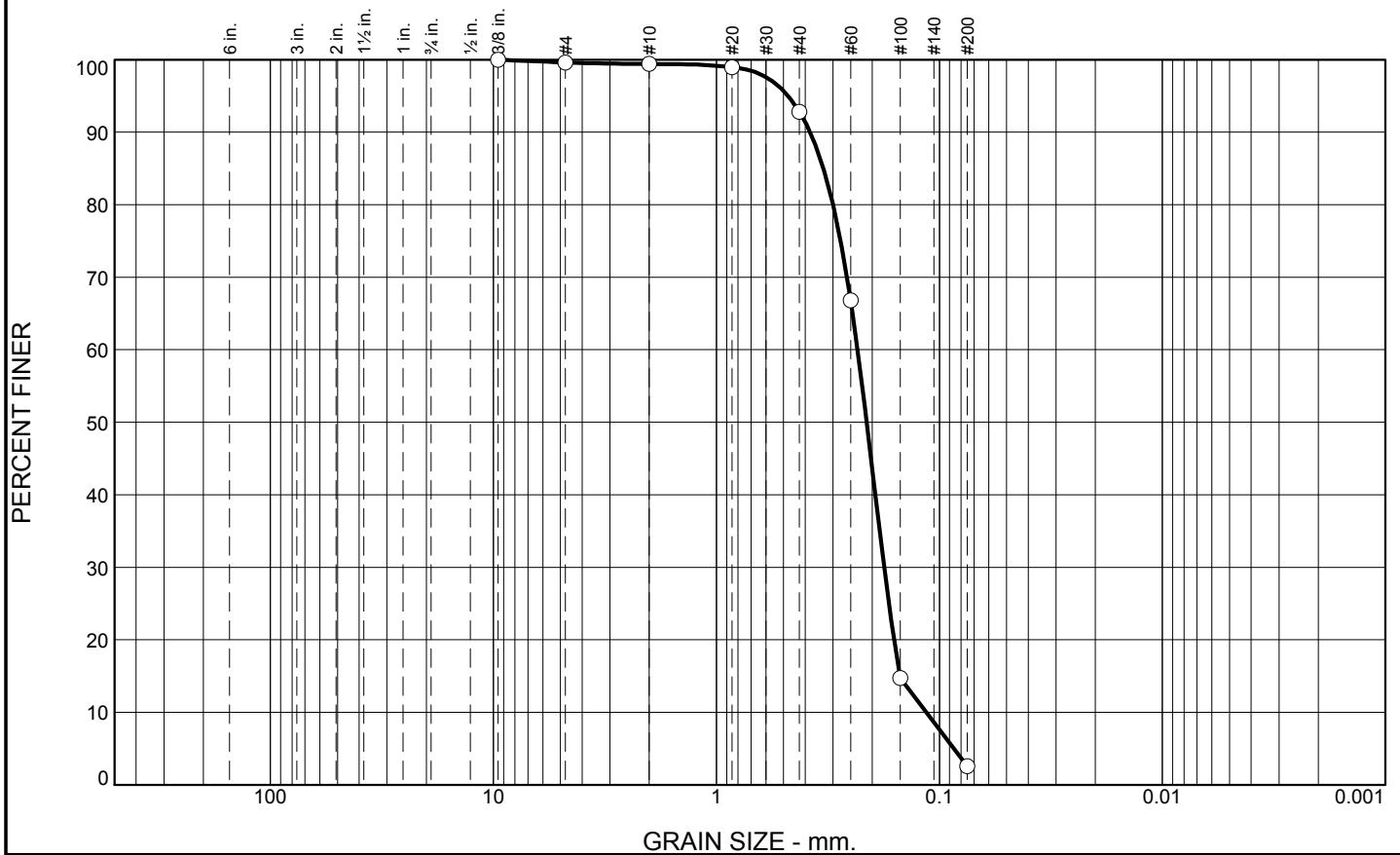
**Tested By:** R.Martin

**Checked By:** R.Byrd

# Boring Designation BI-DK-17-10

DRILLING LOG		DIVISION South Atlantic		INSTALLATION Mobile District		SHEET 1 OF 1 SHEETS	
1. PROJECT MsCIP Barrier Island Restoration Dog Keys Pass				9. SIZE AND TYPE OF BIT N/A			
2. BORING DESIGNATION BI-DK-17-10		LOCATION COORDINATES E = 984,605 N = 265,296		10. COORDINATE SYSTEM/DATUM State Plane, MSE (U.S. Ft.)		HORIZONTAL NAD83 VERTICAL NAVD88	
3. DRILLING AGENCY Corps of Engineers - CESAM		CONTRACTOR FILE NO.		11. MANUFACTURER'S DESIGNATION OF DRILL Vibrocure		<input type="checkbox"/> AUTO HAMMER <input type="checkbox"/> MANUAL HAMMER	
4. NAME OF DRILLER Construction Solutions International, Inc.				12. TOTAL SAMPLES		DISTURBED 1 UNDISTURBED (UD) 0	
5. DIRECTION OF BORING <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED				13. TOTAL NUMBER CORE BOXES		14. WATER DEPTH 14 Ft.	
6. THICKNESS OF OVERBURDEN N/A				15. DATE BORING		STARTED 06-07-10 COMPLETED 06-07-10	
7. DEPTH DRILLED INTO ROCK N/A				16. ELEVATION TOP OF BORING -13.7 Ft.		17. TOTAL RECOVERY FOR BORING 100%	
8. TOTAL DEPTH OF BORING 16.4 Ft.				18. SIGNATURE AND TITLE OF INSPECTOR Marty Gates, Geologist			
ELEV.	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS	SAMPLE	LABORATORY RESULTS		
-13.7	0.0		SAND, poorly-graded, mostly fine to medium-grained sand-sized quartz, little silt, trace shell fragments, lt. gray (SP)	A	Classification: SP Color: 5Y 7/1-light gray D50: 0.212 mm % Fines: 2.6		
-18.7	5.0		CLAY, lean, dark gray (CL)	NS			
-19.9	6.2		SAND, silty, mostly fine to medium-grained sand-sized quartz, some silt, trace shell fragments, gray (SM)				
-21.1	7.4		CLAY, lean, dark gray (CL)				
-23.7	10.0		SAND, silty, mostly fine to medium-grained sand-sized quartz, some silt, trace shell fragments, gray (SM)				
-25.2	11.5		CLAY, lean, dark gray (CL)				
-28.2	14.5		SAND, silty, mostly fine to medium-grained sand-sized quartz, some silt, trace shell fragments, gray (SM)				
-30.1	16.4		NOTES: 1. Soils are field visually classified in accordance with the Unified Soils Classification System. 2. NS = Sample not submitted for laboratory analysis from this interval. 3. Seafloor elevation calculated using sampling vessel's fathometer water depth reading and applying NOAA tidal gauge data conversion factor.				

# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.4	0.2	6.6	90.2	2.6	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
.375	100.0		
#4	99.6		
#10	99.4		
#20	98.9		
#40	92.8		
#60	66.8		
#100	14.7		
#200	2.6		

\* (no specification provided)

Material Description		
SAND, (SP), fine grained		
<div> <div> Atterberg Limits </div> <div> PL= </div> <div> LL= </div> <div> PI= </div> </div>		
<div> <div> Coefficients </div> <div> D<sub>90</sub>= 0.3802 </div> <div> D<sub>50</sub>= 0.2120 </div> <div> D<sub>10</sub>= 0.1145 </div> <div> D<sub>85</sub>= 0.3312 </div> <div> D<sub>30</sub>= 0.1768 </div> <div> C<sub>u</sub>= 2.03 </div> <div> D<sub>60</sub>= 0.2328 </div> <div> D<sub>15</sub>= 0.1505 </div> <div> C<sub>c</sub>= 1.17 </div> </div>		
<div> <div> Classification </div> <div> USCS= SP </div> <div> AASHTO= </div> </div>		
<div> <div> Remarks </div> <div> CADD CODE = CH10D965 </div> </div>		

Location: USACE Sample # BI-DK-17-10A  
Sample Number: TE Lab ID: 4538.65

Depth: 0.0 - 5.0 (ft.)

Date: 6/26/10

**Thompson Engineering**  
**Mobile, Alabama**

**Client:** US Army Corps of Engineers  
**Project:** Contract No. W91278-10-D-0026 - Task 03  
Mississippi Barrier Island Restoration Project  
**Project No:** 10-2123-0009

**Figure**

Tested By: R.Martin

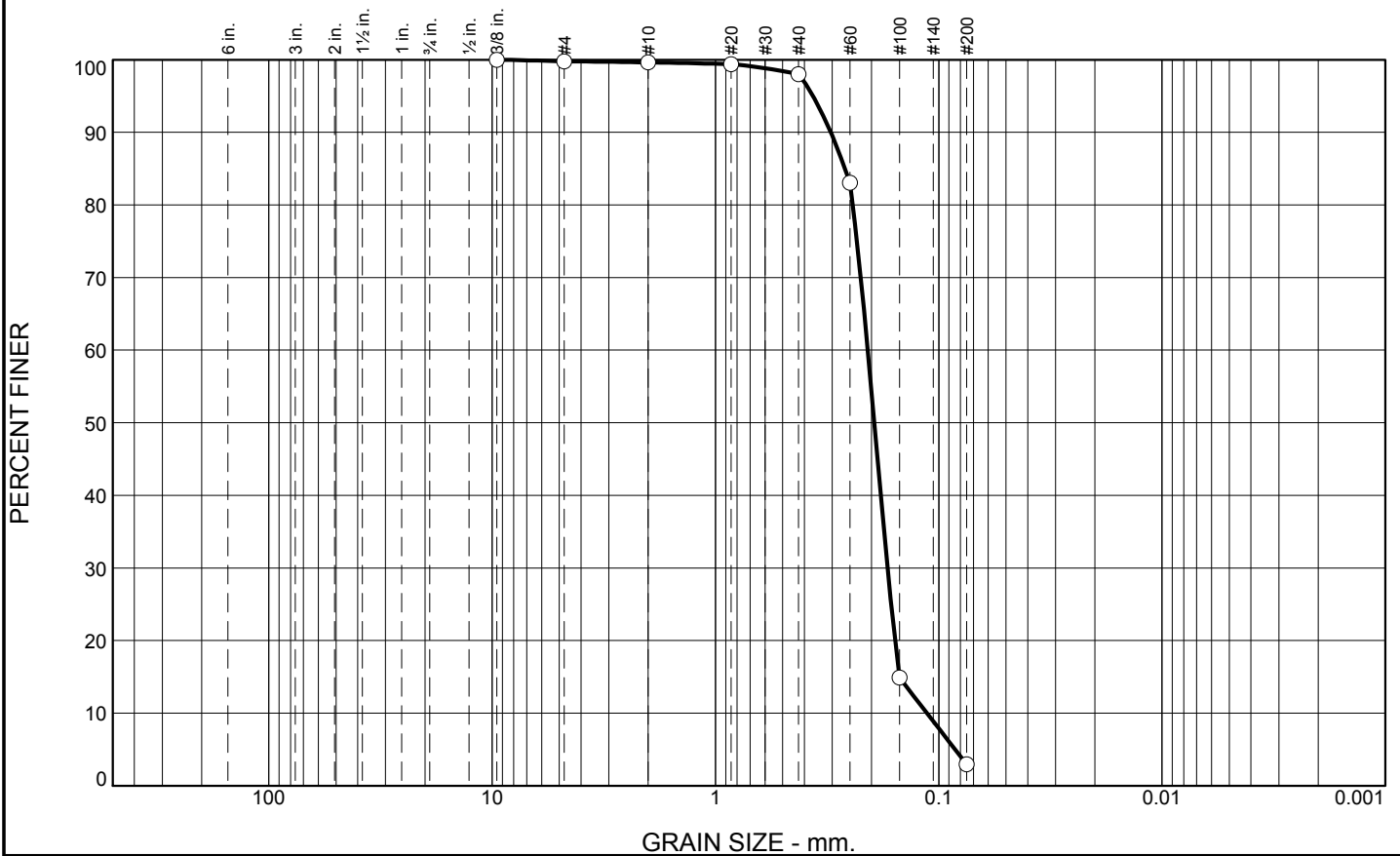
Checked By: R.Byrd

# Boring Designation BI-DK-18-10

DRILLING LOG		DIVISION South Atlantic		INSTALLATION Mobile District		SHEET 1 OF 1 SHEETS	
1. PROJECT MsCIP Barrier Island Restoration Dog Keys Pass				9. SIZE AND TYPE OF BIT N/A			
2. BORING DESIGNATION BI-DK-18-10		LOCATION COORDINATES E = 987,030 N = 265,299		10. COORDINATE SYSTEM/DATUM State Plane, MSE (U.S. Ft.)		HORIZONTAL NAD83 VERTICAL NAVD88	
3. DRILLING AGENCY Corps of Engineers - CESAM		CONTRACTOR FILE NO.		11. MANUFACTURER'S DESIGNATION OF DRILL Vibracore		<input type="checkbox"/> AUTO HAMMER <input type="checkbox"/> MANUAL HAMMER	
4. NAME OF DRILLER Construction Solutions International, Inc.				12. TOTAL SAMPLES		DISTURBED UNDISTURBED (UD) 0	
5. DIRECTION OF BORING <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED				13. TOTAL NUMBER CORE BOXES		14. WATER DEPTH 15.5 Ft.	
6. THICKNESS OF OVERBURDEN N/A				15. DATE BORING		STARTED 06-07-10 COMPLETED 06-07-10	
7. DEPTH DRILLED INTO ROCK N/A				16. ELEVATION TOP OF BORING -15.1 Ft.		17. TOTAL RECOVERY FOR BORING 100%	
8. TOTAL DEPTH OF BORING 11.7 Ft.				18. SIGNATURE AND TITLE OF INSPECTOR Marty Gates, Geologist			
ELEV.	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS	SAMPLE	LABORATORY RESULTS		
-15.1	0.0						
-18.6	3.5		SAND, poorly-graded, mostly fine to medium-grained sand-sized quartz, little silt, trace shell fragments, lt. gray (SP)	A	Classification: SP Color: 5Y 7/1-light gray D50: 0.1944 mm % Fines: 2.9		
-22.1	7.0		CLAY, lean, dark gray (CL)	NS			
-23.5	8.4		SAND, silty, mostly fine to medium-grained sand-sized quartz, some silt, gray (SM)				
-26.8	11.7		CLAY, lean, dark gray (CL)				
NOTES: 1. Soils are field visually classified in accordance with the Unified Soils Classification System. 2. NS = Sample not submitted for laboratory analysis from this interval. 3. Seafloor elevation calculated using sampling vessel's fathometer water depth reading and applying NOAA tidal gauge data conversion factor.							



# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.2	0.2	1.6	95.1	2.9	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
.375	100.0		
#4	99.8		
#10	99.6		
#20	99.4		
#40	98.0		
#60	83.0		
#100	14.9		
#200	2.9		

\* (no specification provided)

## Material Description

SAND, (SP), fine grained

## Atterberg Limits

PL=

LL=

PI=

## Coefficients

D<sub>90</sub>= 0.3043

D<sub>85</sub>= 0.2630

D<sub>60</sub>= 0.2080

D<sub>50</sub>= 0.1944

D<sub>30</sub>= 0.1696

D<sub>15</sub>= 0.1501

D<sub>10</sub>= 0.1129

C<sub>u</sub>= 1.84

C<sub>c</sub>= 1.22

## Classification

USCS= SP

AASHTO=

## Remarks

CADD CODE = CH10D965

Location: USACE Sample # BI-DK-18-10A  
Sample Number: TE Lab ID: 4538.64

Depth: 0.0 - 3.5 (ft.)

Date: 6/26/10

**Thompson Engineering**

**Mobile, Alabama**

Client: US Army Corps of Engineers

Project: Contract No. W91278-10-D-0026 - Task 03  
Mississippi Barrier Island Restoration Project

Project No: 10-2123-0009

Figure

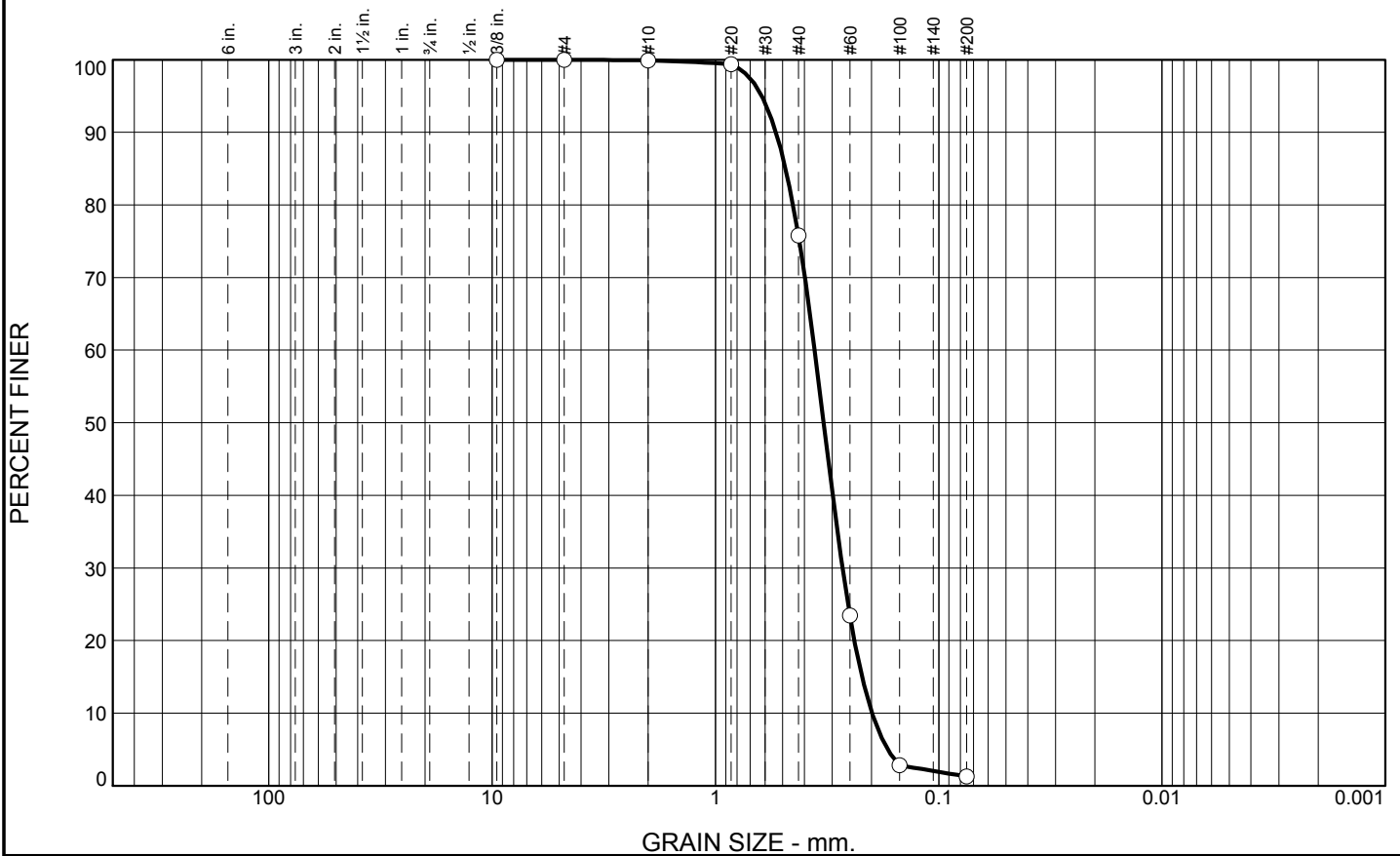
Tested By: R.Martin

Checked By: R.Byrd

# Boring Designation BI-DK-19-10

DRILLING LOG		DIVISION South Atlantic		INSTALLATION Mobile District		SHEET 1 OF 1 SHEETS	
1. PROJECT MsCIP Barrier Island Restoration Dog Keys Pass				9. SIZE AND TYPE OF BIT N/A			
2. BORING DESIGNATION BI-DK-19-10		LOCATION COORDINATES E = 995,476 N = 262,857		10. COORDINATE SYSTEM/DATUM State Plane, MSE (U.S. Ft.)		HORIZONTAL NAD83 VERTICAL NAVD88	
3. DRILLING AGENCY Corps of Engineers - CESAM		CONTRACTOR FILE NO.		11. MANUFACTURER'S DESIGNATION OF DRILL Vibracore		<input type="checkbox"/> AUTO HAMMER <input type="checkbox"/> MANUAL HAMMER	
4. NAME OF DRILLER Construction Solutions International, Inc.				12. TOTAL SAMPLES 3		DISTURBED 0 UNDISTURBED (UD)	
5. DIRECTION OF BORING <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED		DEG. FROM VERTICAL		13. TOTAL NUMBER CORE BOXES			
		BEARING		14. WATER DEPTH 17 Ft.			
6. THICKNESS OF OVERBURDEN N/A				15. DATE BORING 06-24-10		STARTED 06-24-10 COMPLETED 06-24-10	
7. DEPTH DRILLED INTO ROCK N/A				16. ELEVATION TOP OF BORING -14.9 Ft.			
8. TOTAL DEPTH OF BORING 14.1 Ft.				17. TOTAL RECOVERY FOR BORING 100%			
				18. SIGNATURE AND TITLE OF INSPECTOR Marty Gates, Geologist			
ELEV.	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS	SAMPLE	LABORATORY RESULTS		
-14.9	0.0						
			SAND, poorly-graded, mostly medium-grained sand-sized quartz, trace silt, lt. gray (SP)	A	Classification: SP Color: 7.5YR 8.5/1-white D50: 0.3276 mm % Fines: 1.3		
				B	Classification: SP Color: 2.5Y 7/1-light gray D50: 0.2991 mm % Fines: 2.7		
-27.3	12.4						
-29.0	14.1		SAND, silty, mostly medium-grained sand-sized quartz, some silt, gray (SM)	C	Classification: SM Color: 2.5Y 6/2-light brownish gray D50: 0.1497 mm % Fines: 18.8		
			NOTES: 1. Soils are field visually classified in accordance with the Unified Soils Classification System. 2. NS = Sample not submitted for laboratory analysis from this interval. 3. Seafloor elevation calculated using sampling vessel's fathometer water depth reading and applying NOAA tidal gauge data conversion factor.				

# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.0	0.1	24.1	74.5	1.3	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
.375	100.0		
#4	100.0		
#10	99.9		
#20	99.4		
#40	75.8		
#60	23.4		
#100	2.8		
#200	1.3		

\* (no specification provided)

## Material Description

SAND, (SP), medium to fine grained

## Atterberg Limits

PL=

LL=

PI=

## Coefficients

D<sub>90</sub>= 0.5353

D<sub>85</sub>= 0.4850

D<sub>60</sub>= 0.3599

D<sub>50</sub>= 0.3276

D<sub>30</sub>= 0.2696

D<sub>15</sub>= 0.2207

D<sub>10</sub>= 0.1990

C<sub>u</sub>= 1.81

C<sub>c</sub>= 1.02

## Classification

USCS= SP

AASHTO=

## Remarks

CADD CODE = CH10D965

Location: USACE Sample # BI-DK-19-10A  
Sample Number: TE Lab ID: 4557.19

Depth: 0.0 - 6.0 (ft.)

Date: 7/3/10

**Thompson Engineering**

**Mobile, Alabama**

Client: US Army Corps of Engineers

Project: Contract No. W91278-10-D-0026 - Task 03  
Mississippi Barrier Island Restoration Project

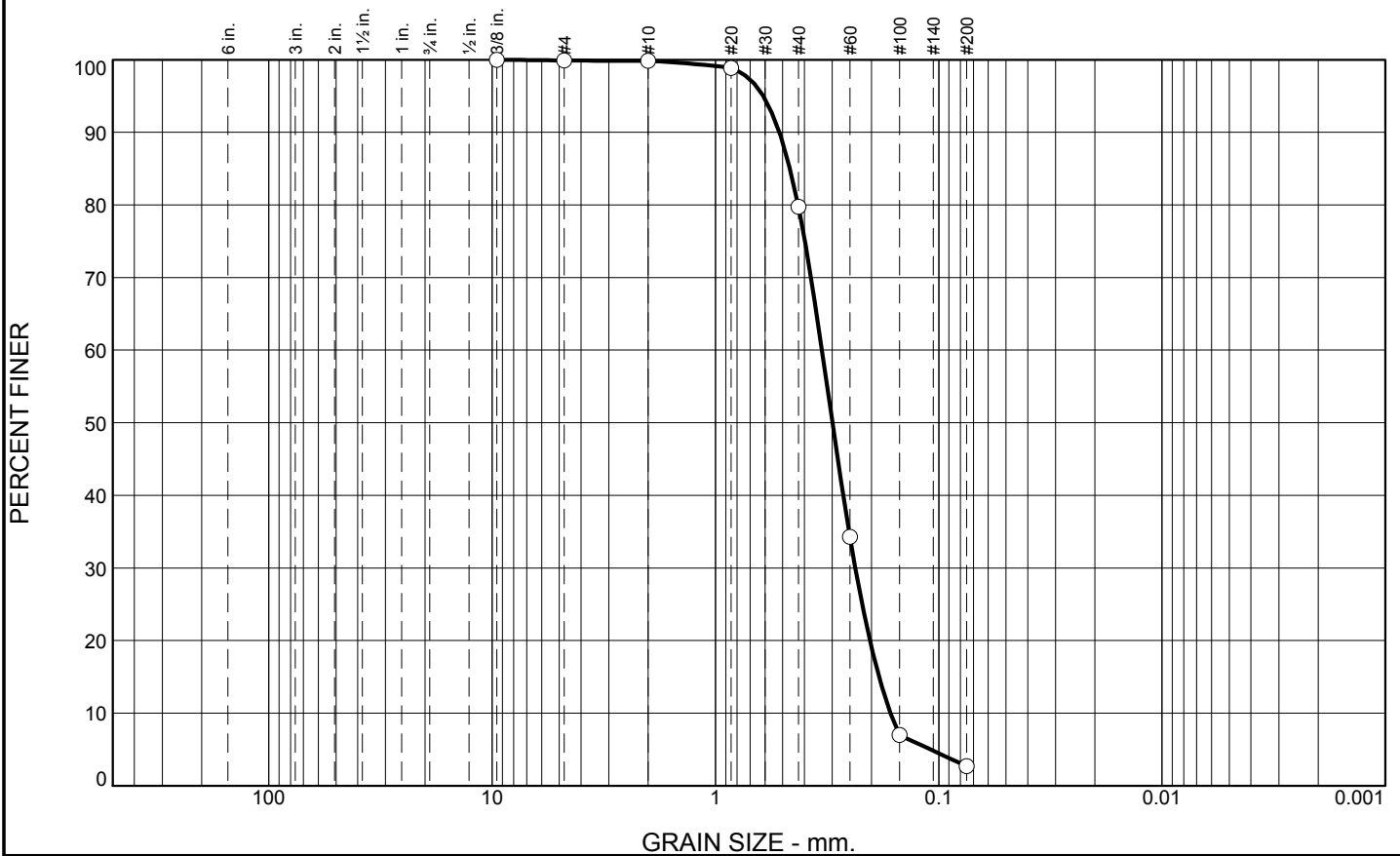
Project No: 10-2123-0009

Figure

Tested By: G.Fancher

Checked By: R.Byrd

# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.1	0.1	20.1	77.0	2.7	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
.375	100.0		
#4	99.9		
#10	99.8		
#20	98.9		
#40	79.7		
#60	34.3		
#100	7.0		
#200	2.7		

\* (no specification provided)

Material Description		
SAND, (SP), medium to fine grained		
<div> <div> <b>Atterberg Limits</b>            PL=                      LL=                      PI=         </div> <div> <b>Coefficients</b>            D<sub>90</sub>= 0.5171      D<sub>85</sub>= 0.4639      D<sub>60</sub>= 0.3335            D<sub>50</sub>= 0.2991      D<sub>30</sub>= 0.2365      D<sub>15</sub>= 0.1851            D<sub>10</sub>= 0.1646      C<sub>u</sub>= 2.03          C<sub>c</sub>= 1.02         </div> <div> <b>Classification</b>            USCS= SP                      AASHTO=         </div> <div> <b>Remarks</b>            CADD CODE = CH10D965         </div> </div>		

**Location:** USACE Sample # BI-DK-19-10B  
**Sample Number:** TE Lab ID: 4557.20

**Depth:** 6.0 - 12.4 (ft.)

**Date:** 7/3/10

**Thompson Engineering**  
  
**Mobile, Alabama**

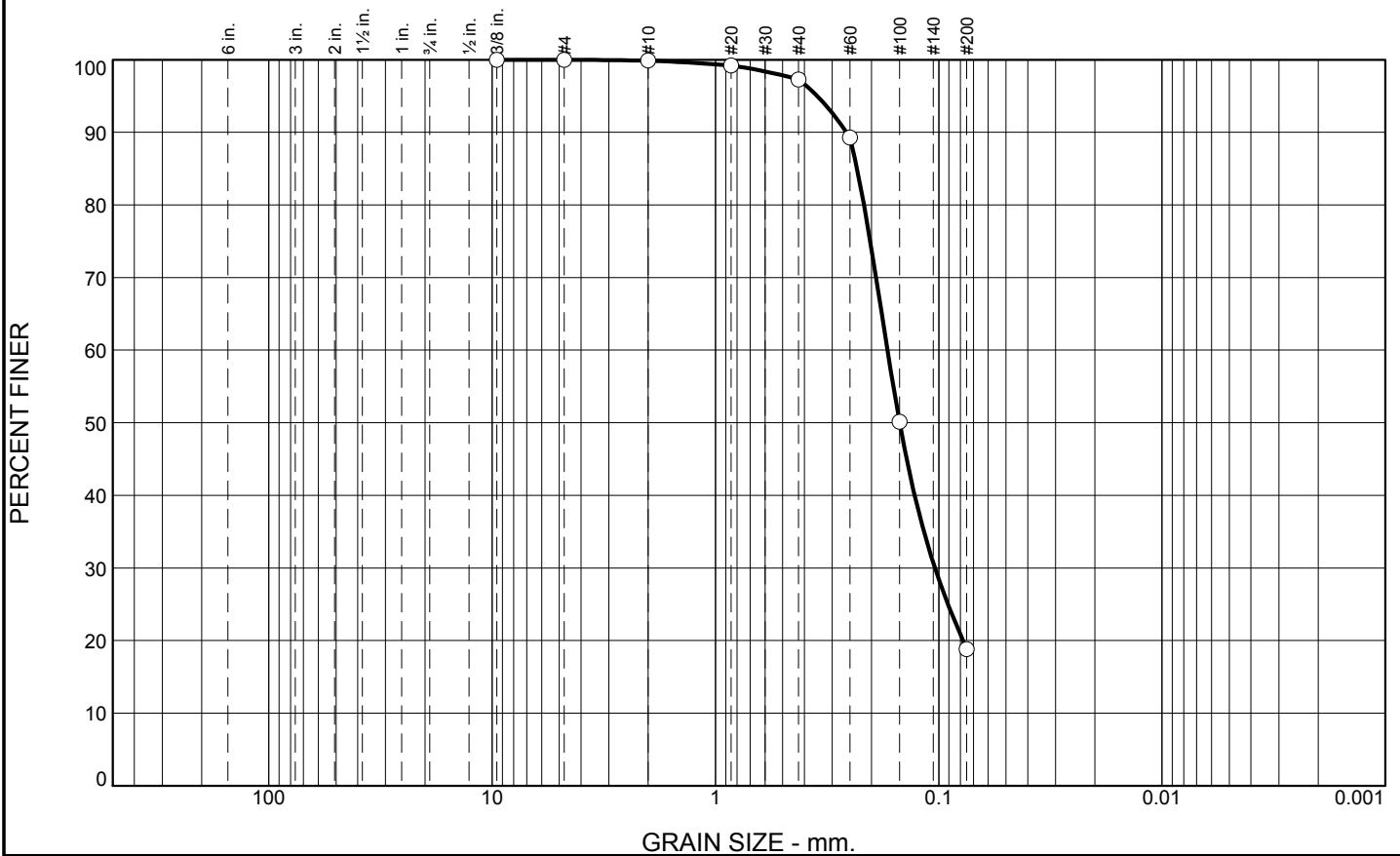
**Client:** US Army Corps of Engineers  
**Project:** Contract No. W91278-10-D-0026 - Task 03  
 Mississippi Barrier Island Restoration Project  
**Project No:** 10-2123-0009

**Figure**

**Tested By:** G.Fancher

**Checked By:** R.Byrd

# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.0	0.1	2.6	78.5	18.8	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
.375	100.0		
#4	100.0		
#10	99.9		
#20	99.2		
#40	97.3		
#60	89.3		
#100	50.1		
#200	18.8		

\* (no specification provided)

<u>Material Description</u>		
SILTY SAND, (SM), fine grained		
<u>Atterberg Limits</u>		
PL=	LL=	PI=
<u>Coefficients</u>		
D <sub>90</sub> = 0.2589	D <sub>85</sub> = 0.2322	D <sub>60</sub> = 0.1698
D <sub>50</sub> = 0.1497	D <sub>30</sub> = 0.1041	D <sub>15</sub> =
D <sub>10</sub> =	C <sub>u</sub> =	C <sub>c</sub> =
<u>Classification</u>		
USCS= SM	AASHTO=	
<u>Remarks</u>		
CADD CODE = CH10D965		

Location: USACE Sample # BI-DK-19-10C  
Sample Number: TE Lab ID: 4557.21

Depth: 12.4 - 14.1 (ft.)

Date: 7/3/10

**Thompson Engineering**  
**Mobile, Alabama**

**Client:** US Army Corps of Engineers  
**Project:** Contract No. W91278-10-D-0026 - Task 03  
Mississippi Barrier Island Restoration Project  
**Project No:** 10-2123-0009

**Figure**

Tested By: G.Fancher

Checked By: R.Byrd

# Boring Designation BI-DK-20-10

DRILLING LOG		DIVISION South Atlantic		INSTALLATION Mobile District		SHEET 1 OF 1 SHEETS	
1. PROJECT MsCIP Barrier Island Restoration Dog Keys Pass				9. SIZE AND TYPE OF BIT N/A			
2. BORING DESIGNATION BI-DK-20-10		LOCATION COORDINATES E = 993,085 N = 263,129		10. COORDINATE SYSTEM/DATUM State Plane, MSE (U.S. Ft.)		HORIZONTAL NAD83	
3. DRILLING AGENCY Corps of Engineers - CESAM		CONTRACTOR FILE NO.		11. MANUFACTURER'S DESIGNATION OF DRILL Vibrocure		<input type="checkbox"/> AUTO HAMMER <input type="checkbox"/> MANUAL HAMMER	
4. NAME OF DRILLER Construction Solutions International, Inc.				12. TOTAL SAMPLES		DISTURBED 0	
5. DIRECTION OF BORING <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED				13. TOTAL NUMBER CORE BOXES		UNDISTURBED (UD) 0	
6. THICKNESS OF OVERBURDEN N/A				14. WATER DEPTH		28 Ft.	
7. DEPTH DRILLED INTO ROCK N/A				15. DATE BORING		STARTED 06-24-10	
8. TOTAL DEPTH OF BORING 18.4 Ft.				16. ELEVATION TOP OF BORING		COMPLETED 06-24-10	
				17. TOTAL RECOVERY FOR BORING		100%	
				18. SIGNATURE AND TITLE OF INSPECTOR Marty Gates, Geologist			
ELEV.	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS	SAMPLE	LABORATORY RESULTS		
-25.8	0.0		CLAY, lean, dark gray (CL)				
				NS			
-44.2	18.4						
			NOTES: 1. Soils are field visually classified in accordance with the Unified Soils Classification System. 2. NS = Sample not submitted for laboratory analysis from this interval. 3. Seafloor elevation calculated using sampling vessel's fathometer water depth reading and applying NOAA tidal gauge data conversion factor.				

# Boring Designation BI-DK-21-10

DRILLING LOG		DIVISION South Atlantic		INSTALLATION Mobile District		SHEET 1 OF 1 SHEETS	
1. PROJECT MsCIP Barrier Island Restoration Dog Keys Pass				9. SIZE AND TYPE OF BIT N/A			
2. BORING DESIGNATION BI-DK-21-10		LOCATION COORDINATES E = 993,091 N = 264,402		10. COORDINATE SYSTEM/DATUM State Plane, MSE (U.S. Ft.)		HORIZONTAL NAD83	
3. DRILLING AGENCY Corps of Engineers - CESAM		CONTRACTOR FILE NO.		11. MANUFACTURER'S DESIGNATION OF DRILL Vibrocure		<input type="checkbox"/> AUTO HAMMER <input type="checkbox"/> MANUAL HAMMER	
4. NAME OF DRILLER Construction Solutions International, Inc.				12. TOTAL SAMPLES		DISTURBED 0	
5. DIRECTION OF BORING <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED				13. TOTAL NUMBER CORE BOXES		UNDISTURBED (UD) 0	
6. THICKNESS OF OVERBURDEN N/A				14. WATER DEPTH		26 Ft.	
7. DEPTH DRILLED INTO ROCK N/A				15. DATE BORING		STARTED 06-24-10	
8. TOTAL DEPTH OF BORING 15.9 Ft.				16. ELEVATION TOP OF BORING		COMPLETED 06-24-10	
				17. TOTAL RECOVERY FOR BORING		100%	
				18. SIGNATURE AND TITLE OF INSPECTOR Marty Gates, Geologist			
ELEV.	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS	SAMPLE	LABORATORY RESULTS		
-23.9	0.0		CLAY, lean, dark gray (CL)				
				NS			
-39.8	15.9		NOTES: 1. Soils are field visually classified in accordance with the Unified Soils Classification System. 2. NS = Sample not submitted for laboratory analysis from this interval. 3. Seafloor elevation calculated using sampling vessel's fathometer water depth reading and applying NOAA tidal gauge data conversion factor.				

# Boring Designation BI-DK-22-10

DRILLING LOG		DIVISION South Atlantic		INSTALLATION Mobile District		SHEET 1 OF 2 SHEETS	
1. PROJECT MsCIP Barrier Island Restoration Dog Keys Pass				9. SIZE AND TYPE OF BIT N/A			
2. BORING DESIGNATION BI-DK-22-10		LOCATION COORDINATES E = 993,139 N = 262,031		10. COORDINATE SYSTEM/DATUM State Plane, MSE (U.S. Ft.)		HORIZONTAL NAD83 VERTICAL NAVD88	
3. DRILLING AGENCY Corps of Engineers - CESAM		CONTRACTOR FILE NO.		11. MANUFACTURER'S DESIGNATION OF DRILL Vibrocure		<input type="checkbox"/> AUTO HAMMER <input type="checkbox"/> MANUAL HAMMER	
4. NAME OF DRILLER Construction Solutions International, Inc.				12. TOTAL SAMPLES 0		DISTURBED 0 UNDISTURBED (UD) 0	
5. DIRECTION OF BORING <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED		DEG. FROM VERTICAL		BEARING		13. TOTAL NUMBER CORE BOXES	
6. THICKNESS OF OVERBURDEN N/A				14. WATER DEPTH 30 Ft.			
7. DEPTH DRILLED INTO ROCK N/A				15. DATE BORING 06-24-10		STARTED 06-24-10 COMPLETED 06-24-10	
8. TOTAL DEPTH OF BORING 19.0 Ft.				16. ELEVATION TOP OF BORING -27.9 Ft.			
				17. TOTAL RECOVERY FOR BORING 100%			
				18. SIGNATURE AND TITLE OF INSPECTOR Marty Gates, Geologist			

ELEV.	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS	SAMPLE	LABORATORY RESULTS
-27.9	0.0				
			CLAY, lean, dark gray (CL)		
				NS	
-46.9	19.0				
			NOTES: 1. Soils are field visually classified in accordance with the Unified Soils Classification System. 2. NS = Sample not submitted for laboratory analysis from this interval. 3. Seafloor elevation calculated using sampling vessel's fathometer water depth reading and applying NOAA tidal gauge data conversion		



<b>DRILLING LOG (Cont. Sheet)</b>			<b>INSTALLATION</b> Mobile District		<b>SHEET 2</b>
					<b>OF 2 SHEETS</b>
<b>PROJECT</b> MsCIP Barrier Island Restoration			<b>COORDINATE SYSTEM/DATUM</b> State Plane, MSE (U.S. Ft.)	<b>HORIZONTAL</b> NAD83	<b>VERTICAL</b> NAVD88
<b>LOCATION COORDINATES</b> X = 993,139 Y = 262,031			<b>ELEVATION TOP OF BORING</b> -27.9 Ft.		
ELEV.	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS	SAMPLE	LABORATORY RESULTS
			factor.		

# Boring Designation BI-DK-23-10

DRILLING LOG		DIVISION South Atlantic		INSTALLATION Mobile District		SHEET 1 OF 1 SHEETS	
1. PROJECT MsCIP Barrier Island Restoration Dog Keys Pass				9. SIZE AND TYPE OF BIT N/A			
2. BORING DESIGNATION BI-DK-23-10		LOCATION COORDINATES E = 980,859 N = 265,096		10. COORDINATE SYSTEM/DATUM State Plane, MSE (U.S. Ft.)		HORIZONTAL NAD83 VERTICAL NAVD88	
3. DRILLING AGENCY Corps of Engineers - CESAM		CONTRACTOR FILE NO.		11. MANUFACTURER'S DESIGNATION OF DRILL Vibrocure		<input type="checkbox"/> AUTO HAMMER <input type="checkbox"/> MANUAL HAMMER	
4. NAME OF DRILLER Construction Solutions International, Inc.				12. TOTAL SAMPLES		DISTURBED 0 UNDISTURBED (UD) 0	
5. DIRECTION OF BORING <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED		DEG. FROM VERTICAL		13. TOTAL NUMBER CORE BOXES			
		BEARING		14. WATER DEPTH 25 Ft.			
6. THICKNESS OF OVERBURDEN N/A				15. DATE BORING		STARTED 06-24-10 COMPLETED 06-24-10	
7. DEPTH DRILLED INTO ROCK N/A				16. ELEVATION TOP OF BORING -23.0 Ft.			
8. TOTAL DEPTH OF BORING 16.5 Ft.				17. TOTAL RECOVERY FOR BORING 100%			
				18. SIGNATURE AND TITLE OF INSPECTOR Marty Gates, Geologist			
ELEV.	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS	SAMPLE	LABORATORY RESULTS		
-23.0	0.0						
-24.3	1.3		SAND, poorly-graded, mostly fine to medium-grained sand-sized quartz, trace silt, lt. gray (SP)				
			CLAY, lean, dark gray (CL)				
				NS			
-39.5	16.5						
			NOTES:				
			1. Soils are field visually classified in accordance with the Unified Soils Classification System.				
			2. NS = Sample not submitted for laboratory analysis from this interval.				
			3. Seafloor elevation calculated using sampling vessel's fathometer water depth reading and applying NOAA tidal gauge data conversion factor.				

# Boring Designation BI-DK-25-10

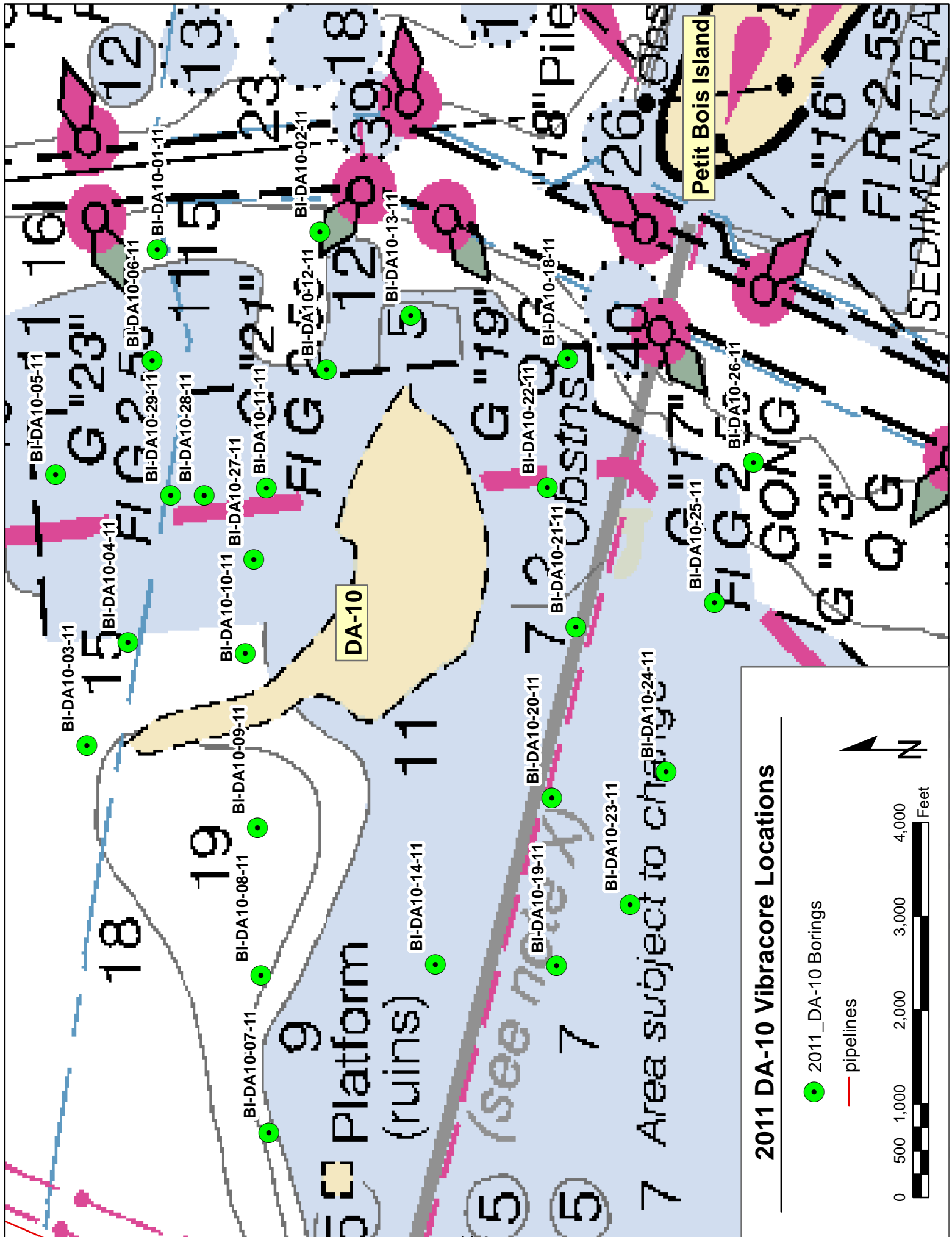
DRILLING LOG		DIVISION South Atlantic		INSTALLATION Mobile District		SHEET 1 OF 1 SHEETS	
1. PROJECT MsCIP Barrier Island Restoration Dog Keys Pass				9. SIZE AND TYPE OF BIT N/A			
2. BORING DESIGNATION BI-DK-25-10		LOCATION COORDINATES E = 981,611 N = 264,005		10. COORDINATE SYSTEM/DATUM State Plane, MSE (U.S. Ft.)		HORIZONTAL NAD83	
3. DRILLING AGENCY Corps of Engineers - CESAM		CONTRACTOR FILE NO.		11. MANUFACTURER'S DESIGNATION OF DRILL Vibrocure		<input type="checkbox"/> AUTO HAMMER <input type="checkbox"/> MANUAL HAMMER	
4. NAME OF DRILLER Construction Solutions International, Inc.				12. TOTAL SAMPLES		DISTURBED 0	
5. DIRECTION OF BORING <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED		DEG. FROM VERTICAL		13. TOTAL NUMBER CORE BOXES		UNDISTURBED (UD) 0	
6. THICKNESS OF OVERBURDEN N/A		BEARING		14. WATER DEPTH 27 Ft.		15. DATE BORING 06-24-10	
7. DEPTH DRILLED INTO ROCK N/A				16. ELEVATION TOP OF BORING -24.9 Ft.		COMPLETED 06-24-10	
8. TOTAL DEPTH OF BORING 18.5 Ft.				17. TOTAL RECOVERY FOR BORING 100%		18. SIGNATURE AND TITLE OF INSPECTOR Marty Gates, Geologist	
ELEV.	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS	SAMPLE	LABORATORY RESULTS		
-24.9	0.0		CLAY, lean, dark gray (CL)	NS			
-40.9	16.0						
-43.4	18.5		SILT, organic-L, brown (OL)				
			NOTES: 1. Soils are field visually classified in accordance with the Unified Soils Classification System. 2. NS = Sample not submitted for laboratory analysis from this interval. 3. Seafloor elevation calculated using sampling vessel's fathometer water depth reading and applying NOAA tidal gauge data conversion factor.				

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## **Appendix H**

### **DA-10 Vibracores and Lab Results**

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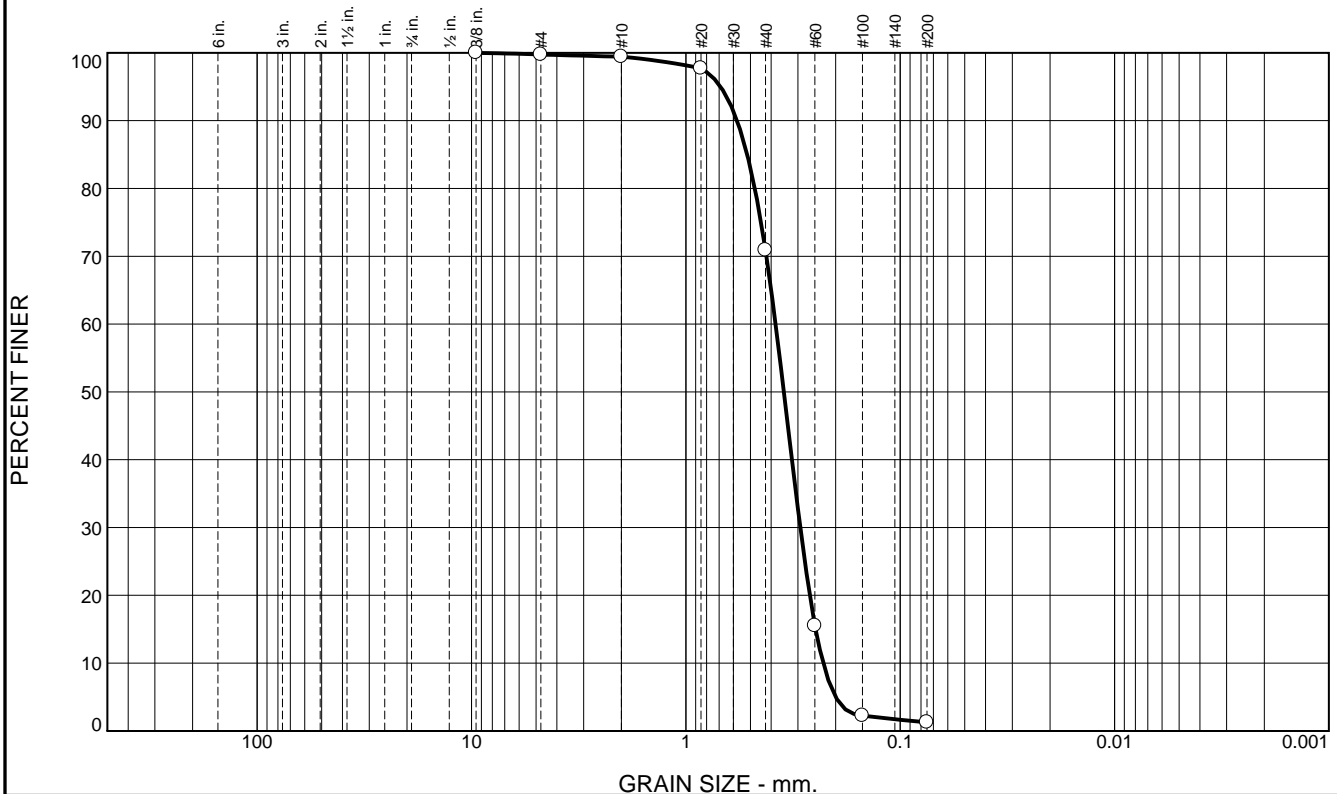
Vibracore / Sample ID	Investigation Area	Sample Event	Date of Sample	Time_CST	Latitude	Longitude	Northing_Y	Easting_X	Sample Method	Water Depth (feet)	Boring Depth (feet below seafloor surface )	Sample Depth (Feet below seafloor surface)	Sample Thickness (feet)	Field USCS	Lab USCS	Angularity	Wet Munsell Color	Wet Munsell Color Code	Wet Munsell Value	Dry Munsell Color	Dry Munsell Color Code	Dry Munsell Value	CaCO3	D50 (mm)	Graphic Mean (mm)	% Fines	Cu (D60/D10)	Cc (D30)^2 / (D10*D60)
BI-DA10-22-11	DA-10	2011	6/18/2011	9:50 AM	30.21879	-88.51537	261537.19480	1084676.72200	20-ft Vibracore	12.5	11.5																	
BI-DA10-22-11A	DA-10	2011	6/18/2011	9:50 AM	30.21879	-88.51537	261537.19480	1084676.72200	20-ft Vibracore	12.5	11.5	0.0 - 4.0	4.0	SP	SP	SUBANGULAR TO SUBROUNDED	LT TO MED GREY WITH SOME OLIVE	5Y 5/1	5	LT GREY WITH SOME BROWN	2.5Y 7/2	7	NA	0.32	0.35	1.0	1.7	1.0
BI-DA10-22-11B	DA-10	2011	6/18/2011	9:50 AM	30.21879	-88.51537	261537.19480	1084676.72200	20-ft Vibracore	12.5	11.5	4.0 - 8.0	4.0	SP	SP	SUBANGULAR TO SUBROUNDED	LT TO MED GREY WITH SOME OLIVE	5Y 5/1	5	LT GREY WITH SOME BROWN	2.5Y 7/2	7	NA	0.30	0.32	2.3	1.9	1.0
BI-DA10-22-11C	DA-10	2011	6/18/2011	9:50 AM	30.21879	-88.51537	261537.19480	1084676.72200	20-ft Vibracore	12.5	11.5	8.0 - 11.5	3.5	SP	SP	SUBANGULAR TO SUBROUNDED	LT GREY	5Y 7/1	7	WHITE	5Y 8/1	8	NA	0.40	0.44	4.6	2.4	1.2
BI-DA10-23-11	DA-10	2011	6/16/2011	11:15 AM	30.21637	-88.52757	260646.52120	1080825.77400	20-ft Vibracore	11.5	15.7																	
BI-DA10-23-11A	DA-10	2011	6/16/2011	11:15 AM	30.21637	-88.52757	260646.52120	1080825.77400	20-ft Vibracore	11.5	15.7	0.0 - 4.0	4.0	SP	SP	SUBANGULAR TO SUBROUNDED	GREYISH BROWN	2.5Y 5/2	5	LT GREY WITH SOME BROWN	2.5Y 7/2	7	NA	0.30	0.31	0.9	1.7	1.0
BI-DA10-23-11B	DA-10	2011	6/16/2011	11:15 AM	30.21637	-88.52757	260646.52120	1080825.77400	20-ft Vibracore	11.5	15.7	4.0 - 8.0	4.0	SP	SP	SUBANGULAR TO SUBROUNDED	GREYISH BROWN	2.5Y 5/2	5	LT GREY	2.5Y 7/1	7	NA	0.31	0.31	1.2	1.8	1.0
BI-DA10-23-11C	DA-10	2011	6/16/2011	11:15 AM	30.21637	-88.52757	260646.52120	1080825.77400	20-ft Vibracore	11.5	15.7	8.0 - 12.0	4.0	SP	SP-SM	SUBANGULAR TO SUBROUNDED	GREY	2.5Y 5/1	5	LT GREY WITH SOME OLIVE	5Y 7/1	7	NA	0.28	0.29	6.5	2.7	1.3
BI-DA10-23-11D	DA-10	2011	6/16/2011	11:15 AM	30.21637	-88.52757	260646.52120	1080825.77400	20-ft Vibracore	11.5	15.7	12.0 - 15.7	3.7	SP	SP-SM	SUBANGULAR TO SUBROUNDED	GREY	2.5Y 5/1	5	LT GREY WITH SOME OLIVE	5Y 7/1	7	NA	0.25	0.28	5.7	2.2	1.1
BI-DA10-24-11	DA-10	2011	6/18/2011	10:24 AM	30.21532	-88.52368	260267.97310	1082055.48000	20-ft Vibracore	9.0	11.4																	
BI-DA10-24-11A	DA-10	2011	6/18/2011	10:24 AM	30.21532	-88.52368	260267.97310	1082055.48000	20-ft Vibracore	9.0	11.4	0.0 - 4.0	4.0	SP	SP-SM	SUBANGULAR TO SUBROUNDED	LT TO MED GREY	2.5Y 6/1	6	LT GREY	2.5Y 7/1	7	NA	0.28	0.29	5.0	2.1	1.1
BI-DA10-24-11B	DA-10	2011	6/18/2011	10:24 AM	30.21532	-88.52368	260267.97310	1082055.48000	20-ft Vibracore	9.0	11.4	4.0 - 8.0	4.0	SP	SP	SUBANGULAR TO SUBROUNDED	LT TO MED GREY	2.5Y 6/1	6	LT GREY	2.5Y 7/1	7	NA	0.27	0.28	3.6	1.9	1.0
BI-DA10-24-11C	DA-10	2011	6/18/2011	10:24 AM	30.21532	-88.52368	260267.97310	1082055.48000	20-ft Vibracore	9.0	11.4	8.0 - 11.4	3.4	SP	SP	SUBANGULAR TO SUBROUNDED	LT TO MED GREY	2.5Y 6/1	6	LT GREY	2.5Y 7/1	7	NA	0.24	0.26	4.9	2.1	1.1
BI-DA10-25-11	DA-10	2011	6/18/2011	12:48 PM	30.21390	-88.51874	259755.81830	1083617.23800	20-ft Vibracore	21.0	14.5																	
BI-DA10-25-11A	DA-10	2011	6/18/2011	12:48 PM	30.21390	-88.51874	259755.81830	1083617.23800	20-ft Vibracore	21.0	14.5	0.0 - 5.0	5.0	SP	SP	SUBANGULAR TO SUBROUNDED	LT TO MED GREY WITH SOME OLIVE	5Y 5/1	5	LT GREY WITH SOME BROWN	2.5Y 7/2	7	NA	0.28	0.26	1.7	3.7	0.5
BI-DA10-25-11B	DA-10	2011	6/18/2011	12:48 PM	30.21390	-88.51874	259755.81830	1083617.23800	20-ft Vibracore	21.0	14.5	5.0 - 10.0	5.0	SP	SP	SUBANGULAR TO SUBROUNDED	LT TO MED GREY	2.5Y 6/1	6	LT GREY	2.5Y 7/1	7	NA	0.26	0.30	3.2	2.2	1.0
BI-DA10-25-11C	DA-10	2011	6/18/2011	12:48 PM	30.21390	-88.51874	259755.81830	1083617.23800	20-ft Vibracore	21.0	14.5	10.0 - 14.5	4.5	SP	SP	SUBANGULAR TO SUBROUNDED	LT TO MED GREY WITH SOME OLIVE	5Y 5/1	5	LT GREY WITH SOME BROWN	2.5Y 7/2	7	NA	0.33	0.36	1.2	1.6	1.0
BI-DA10-26-11	DA-10	2011	6/21/2011	8:54 AM	30.21276	-88.51464	259344.81920	1084913.42800	20-ft Vibracore	32.5	16.7	NO SAMPLE TAKEN			NO SAMPLE TESTED													
BI-DA10-27-11	DA-10	2011	6/20/2011	10:27 AM	30.22738	-88.51747	264659.40520	1084004.77700	20-ft Vibracore	9.5	13.1																	
BI-DA10-27-11A	DA-10	2011	6/20/2011	10:27 AM	30.22738	-88.51747	264659.40520	1084004.77700	20-ft Vibracore	9.5	13.1	0.0 - 4.0	4.0	SP	SP	SUBANGULAR TO SUBROUNDED	LT TO MED GREY WITH SOME OLIVE	5Y 5/1	5	LT GREY WITH SOME BROWN	2.5Y 7/2	7	NA	0.33	0.34	1.0	1.6	1.0
BI-DA10-27-11B	DA-10	2011	6/20/2011	10:27 AM	30.22738	-88.51747	264659.40520	1084004.77700	20-ft Vibracore	9.5	13.1	4.0 - 7.5	3.5	SP	SP	SUBANGULAR TO SUBROUNDED	LT TO MED GREY WITH SOME OLIVE	5Y 5/1	5	LT GREY WITH SOME BROWN	2.5Y 7/2	7	NA	0.34	0.36	1.8	1.7	1.1
BI-DA10-28-11	DA-10	2011	6/20/2011	10:58 AM	30.22883	-88.52299	265181.95300	1082260.02500	20-ft Vibracore	6.5	11.6																	
BI-DA10-28-11A	DA-10	2011	6/20/2011	10:58 AM	30.22883	-88.52299	265181.95300	1082260.02500	20-ft Vibracore	6.5	11.6	0.0 - 5.0	5.0	SP	SP	SUBANGULAR TO SUBROUNDED	LT TO MED GREY WITH SOME OLIVE	5Y 5/1	5	LT GREY WITH SOME BROWN	2.5Y 7/2	7	NA	0.31	0.33	0.7	1.9	1.1
BI-DA10-28-11B	DA-10	2011	6/20/2011	10:58 AM	30.22883	-88.52299	265181.95300	1082260.02500	20-ft Vibracore	6.5	11.6	5.0 - 9.3	4.3	SP	SP	SUBANGULAR TO SUBROUNDED	LT TO MED GREY WITH SOME OLIVE	5Y 5/1	5	LT GREY WITH SOME BROWN	2.5Y 7/2	7	NA	0.29	0.30	1.9	2.2	1.1
BI-DA10-29-11	DA-10	2011	6/20/2011	2:32 PM	30.22981	-88.51560	265544.80520	1084592.89000	20-ft Vibracore	10.1	13.5																	
BI-DA10-29-11A	DA-10	2011	6/20/2011	2:32 PM	30.22981	-88.51560	265544.80520	1084592.89000	20-ft Vibracore	10.1	13.5	0.0 - 6.7	6.7	SP	SP	SUBANGULAR TO SUBROUNDED	GREYISH BROWN	2.5Y 5/2	5	LT GREY	2.5Y 7/1	7	NA	0.34	0.36	1.1	1.6	1.0

Cu: Coefficient of Uniformity  
Cc: Coefficient of Curvature  
The "#Value!" error message indicates that data was not available for that calculation.

# Boring Designation BI-DA10-01-11

DRILLING LOG		DIVISION South Atlantic		INSTALLATION Mobile District		SHEET 1 OF 1 SHEETS	
1. PROJECT MsCIP Barrier Island Restoration Disposal Area 10				9. SIZE AND TYPE OF BIT N/A			
2. BORING DESIGNATION BI-DA10-01-11		LOCATION COORDINATES E = 1,086,863 N = 265,697		10. COORDINATE SYSTEM/DATUM State Plane, MSE (U.S. Ft.)		HORIZONTAL NAD83 VERTICAL NAVD88	
3. DRILLING AGENCY Corps of Engineers - CESAM		CONTRACTOR FILE NO.		11. MANUFACTURER'S DESIGNATION OF DRILL Vibracore		<input type="checkbox"/> AUTO HAMMER <input type="checkbox"/> MANUAL HAMMER	
4. NAME OF DRILLER Construction Solutions International, Inc.				12. TOTAL SAMPLES 1		DISTURBED 1 UNDISTURBED (UD) 0	
5. DIRECTION OF BORING <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED		DEG. FROM VERTICAL		13. TOTAL NUMBER CORE BOXES			
		BEARING		14. WATER DEPTH 9.5 Ft.			
6. THICKNESS OF OVERBURDEN N/A				15. DATE BORING 06-20-11		STARTED 06-20-11 COMPLETED 06-20-11	
7. DEPTH DRILLED INTO ROCK N/A				16. ELEVATION TOP OF BORING -7.8 Ft.			
8. TOTAL DEPTH OF BORING 14.5 Ft.				17. TOTAL RECOVERY FOR BORING 100%			
				18. SIGNATURE AND TITLE OF INSPECTOR Rhonda Capes, Geologist			
ELEV.	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS	SAMPLE	LABORATORY RESULTS		
-7.8	0.0						
-9.3	1.5		SAND, poorly-graded, mostly medium-grained sand-sized quartz, gray (SP)	A	Classification: SP Color: 2.5Y 6/2-light brownish gray D50: 0.3492 mm % Fines: 1.3		
			CLAY, lean, trace fine-grained sand, gray (CL)	NS			
-22.3	14.5						
			NOTES: 1. Soils are field visually classified in accordance with the Unified Soils Classification System. 2. NS = Sample not submitted for laboratory analysis from this interval. 3. Seafloor elevation calculated using sampling vessel's fathometer water depth reading and applying NOAA tidal gauge data conversion factor.				

# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.3	0.3	28.5	69.6	1.3	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
.375	100.0		
#4	99.7		
#10	99.4		
#20	97.7		
#40	70.9		
#60	15.5		
#100	2.3		
#200	1.3		

Material Description		
SAND (SP), medium to fine grained		
PL=	Atterberg Limits LL=	PI=
D <sub>90</sub> = 0.5766	Coefficients D <sub>85</sub> = 0.5172	D <sub>60</sub> = 0.3815
D <sub>50</sub> = 0.3492	D <sub>30</sub> = 0.2927	D <sub>15</sub> = 0.2483
D <sub>10</sub> = 0.2288	C <sub>u</sub> = 1.67	C <sub>c</sub> = 0.98
USCS= SP	Classification AASHTO=	
Remarks		

\* (no specification provided)

Location: USACE Sample # BI-DA10-1A-11  
Sample Number: TE Lab ID: 5054.14

Depth: 0.0 - 1.5 (ft)

Date: 7/15/11

**Thompson Engineering**

**Mobile, Alabama**

Client: US Army Corps of Engineers

Project: Contract No. W91278-10-D-0026 - Task 009  
Mississippi Barrier Island Restoration Project

Project No: 11-2116-0057

Figure

# Boring Designation BI-DA10-02-11

DRILLING LOG		DIVISION South Atlantic		INSTALLATION Mobile District		SHEET 1 OF 1 SHEETS	
1. PROJECT MsCIP Barrier Island Restoration Disposal Area 10				9. SIZE AND TYPE OF BIT N/A			
2. BORING DESIGNATION BI-DA10-02-11		LOCATION COORDINATES E = 1,087,035 N = 263,966		10. COORDINATE SYSTEM/DATUM State Plane, MSE (U.S. Ft.)		HORIZONTAL NAD83 VERTICAL NAVD88	
3. DRILLING AGENCY Corps of Engineers - CESAM		CONTRACTOR FILE NO.		11. MANUFACTURER'S DESIGNATION OF DRILL Vibracore		<input type="checkbox"/> AUTO HAMMER <input type="checkbox"/> MANUAL HAMMER	
4. NAME OF DRILLER Construction Solutions International, Inc.				12. TOTAL SAMPLES 0		DISTURBED 0 UNDISTURBED (UD) 0	
5. DIRECTION OF BORING <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED		DEG. FROM VERTICAL		13. TOTAL NUMBER CORE BOXES			
		BEARING		14. WATER DEPTH 21.5 Ft.			
6. THICKNESS OF OVERBURDEN N/A				15. DATE BORING 06-20-11		STARTED 06-20-11 COMPLETED 06-20-11	
7. DEPTH DRILLED INTO ROCK N/A				16. ELEVATION TOP OF BORING -19.8 Ft.			
8. TOTAL DEPTH OF BORING 13.5 Ft.				17. TOTAL RECOVERY FOR BORING 100%			
				18. SIGNATURE AND TITLE OF INSPECTOR Rhonda Capes, Geologist			
ELEV.	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS	SAMPLE	LABORATORY RESULTS		
-19.8	0.0						
-20.2	0.4						
-22.2	2.4		SAND, poorly-graded, mostly medium-grained sand-sized quartz, trace shell fragments, gray (SP)				
-24.3	4.5		CLAY, lean, some sand, gray (CL)				
-25.1	5.3		SAND, poorly-graded, mostly fine-grained sand-sized quartz, dark gray (SP)				
-26.5	6.7		CLAY, lean, dark gray (CL)				
-33.3	13.5		SAND, poorly-graded, mostly fine-grained quartz, gray (SP)	NS			
			CLAY, lean, dark gray (CL)				
NOTES:							
1. Soils are field visually classified in accordance with the Unified Soils Classification System.							
2. NS = Sample not submitted for laboratory analysis from this interval.							
3. Seafloor elevation calculated using sampling vessel's fathometer water depth reading and applying NOAA tidal gauge data conversion factor.							

# Boring Designation BI-DA10-03-11

DRILLING LOG		DIVISION South Atlantic		INSTALLATION Mobile District		SHEET 1 OF 1 SHEETS	
1. PROJECT MsCIP Barrier Island Restoration Disposal Area 10				9. SIZE AND TYPE OF BIT N/A			
2. BORING DESIGNATION BI-DA10-03-11		LOCATION COORDINATES E = 1,082,279 N = 266,429		10. COORDINATE SYSTEM/DATUM State Plane, MSE (U.S. Ft.)		HORIZONTAL NAD83 VERTICAL NAVD88	
3. DRILLING AGENCY Corps of Engineers - CESAM		CONTRACTOR FILE NO.		11. MANUFACTURER'S DESIGNATION OF DRILL Vibracore		<input type="checkbox"/> AUTO HAMMER <input type="checkbox"/> MANUAL HAMMER	
4. NAME OF DRILLER Construction Solutions International, Inc.				12. TOTAL SAMPLES 0		DISTURBED 0 UNDISTURBED (UD) 0	
5. DIRECTION OF BORING <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED		DEG. FROM VERTICAL		13. TOTAL NUMBER CORE BOXES			
		BEARING		14. WATER DEPTH 21.5 Ft.			
6. THICKNESS OF OVERBURDEN N/A				15. DATE BORING 06-20-11		STARTED 06-20-11 COMPLETED 06-20-11	
7. DEPTH DRILLED INTO ROCK N/A				16. ELEVATION TOP OF BORING -19.5 Ft.			
8. TOTAL DEPTH OF BORING 13.5 Ft.				17. TOTAL RECOVERY FOR BORING 100%			
				18. SIGNATURE AND TITLE OF INSPECTOR Rhonda Capes, Geologist			

ELEV.	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS	SAMPLE	LABORATORY RESULTS
-19.5	0.0				
			CLAY, lean, dark gray (CL)		
-24.0	4.5				
-24.5	5.0		SAND, clayey, dark gray (SC)		
			SAND, poorly-graded, mostly medium-grained sand-sized quartz, lt. gray (SP)		
-26.7	7.2			NS	
			CLAY, lean, dark gray (CL)		
-33.0	13.5				
			NOTES:		
			1. Soils are field visually classified in accordance with the Unified Soils Classification System.		
			2. NS = Sample not submitted for laboratory analysis from this interval.		
			3. Seafloor elevation calculated using sampling vessel's fathometer water depth reading and applying NOAA tidal gauge data conversion factor.		

# Boring Designation BI-DA10-04-11

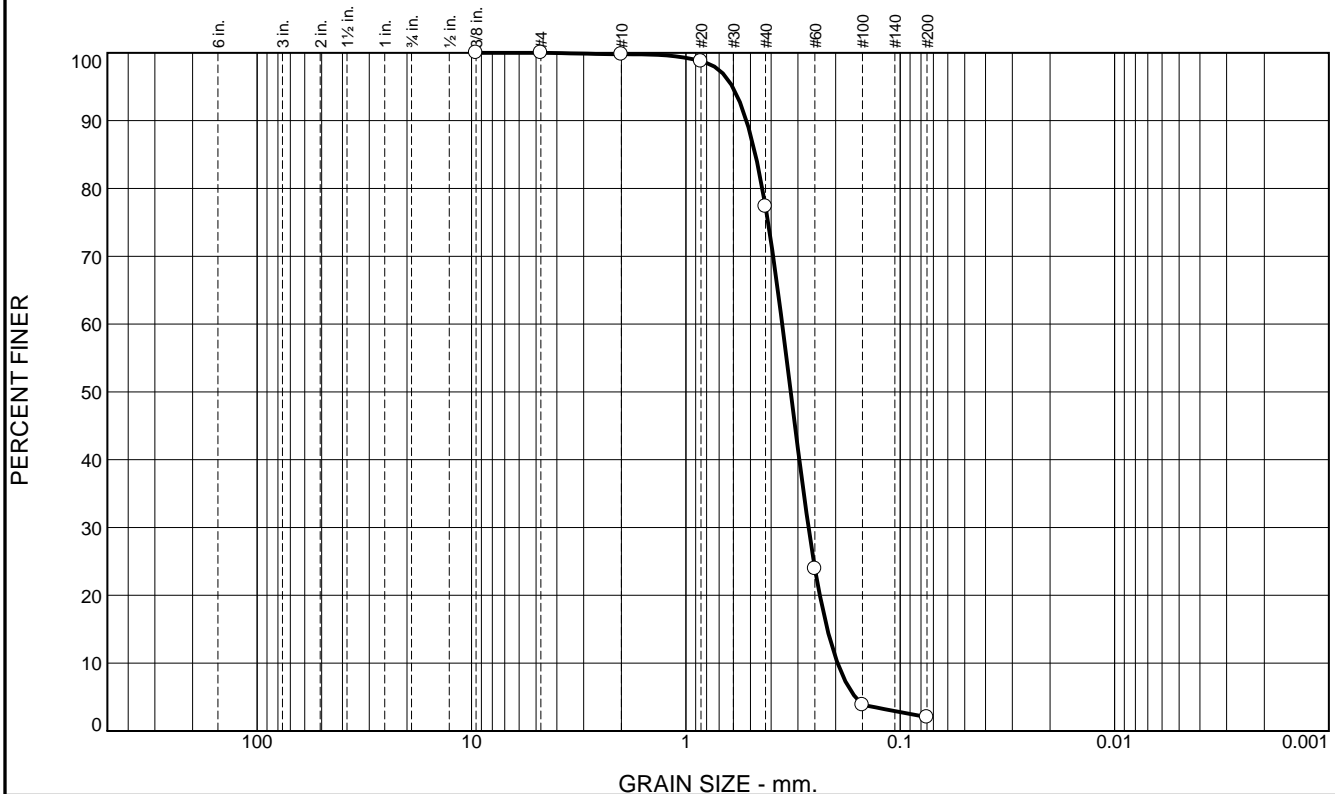
DRILLING LOG		DIVISION South Atlantic		INSTALLATION Mobile District		SHEET 1 OF 1 SHEETS	
1. PROJECT MsCIP Barrier Island Restoration Disposal Area 10				9. SIZE AND TYPE OF BIT N/A			
2. BORING DESIGNATION BI-DA10-04-11		LOCATION COORDINATES E = 1,083,234 N = 265,999		10. COORDINATE SYSTEM/DATUM State Plane, MSE (U.S. Ft.)		HORIZONTAL NAD83 VERTICAL NAVD88	
3. DRILLING AGENCY Corps of Engineers - CESAM		CONTRACTOR FILE NO.		11. MANUFACTURER'S DESIGNATION OF DRILL Vibracore		<input type="checkbox"/> AUTO HAMMER <input type="checkbox"/> MANUAL HAMMER	
4. NAME OF DRILLER Construction Solutions International, Inc.				12. TOTAL SAMPLES 0		DISTURBED 0 UNDISTURBED (UD) 0	
5. DIRECTION OF BORING <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED		DEG. FROM VERTICAL		13. TOTAL NUMBER CORE BOXES			
		BEARING		14. WATER DEPTH 19.5 Ft.			
6. THICKNESS OF OVERBURDEN N/A				15. DATE BORING 06-20-11		STARTED 06-20-11 COMPLETED 06-20-11	
7. DEPTH DRILLED INTO ROCK N/A				16. ELEVATION TOP OF BORING -17.5 Ft.			
8. TOTAL DEPTH OF BORING 11.8 Ft.				17. TOTAL RECOVERY FOR BORING 100%			
				18. SIGNATURE AND TITLE OF INSPECTOR Rhonda Capes, Geologist			
ELEV.	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS	SAMPLE	LABORATORY RESULTS		
-17.5	0.0		CLAY, lean, trace shell fragments, dark gray (CL)				
			At El. -21.0 Ft., dark gray	NS			
-29.3	11.8						
			NOTES: 1. Soils are field visually classified in accordance with the Unified Soils Classification System. 2. NS = Sample not submitted for laboratory analysis from this interval. 3. Seafloor elevation calculated using sampling vessel's fathometer water depth reading and applying NOAA tidal gauge data conversion factor.				

# Boring Designation BI-DA10-05-11

DRILLING LOG		DIVISION South Atlantic		INSTALLATION Mobile District		SHEET 1 OF 1 SHEETS	
1. PROJECT MsCIP Barrier Island Restoration Disposal Area 10				9. SIZE AND TYPE OF BIT N/A			
2. BORING DESIGNATION BI-DA10-05-11		LOCATION COORDINATES E = 1,084,779 N = 266,771		10. COORDINATE SYSTEM/DATUM State Plane, MSE (U.S. Ft.)		HORIZONTAL NAD83 VERTICAL NAVD88	
3. DRILLING AGENCY Corps of Engineers - CESAM		CONTRACTOR FILE NO.		11. MANUFACTURER'S DESIGNATION OF DRILL Vibrocure		<input type="checkbox"/> AUTO HAMMER <input type="checkbox"/> MANUAL HAMMER	
4. NAME OF DRILLER Construction Solutions International, Inc.				12. TOTAL SAMPLES		DISTURBED 1 UNDISTURBED (UD) 0	
5. DIRECTION OF BORING <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED		DEG. FROM VERTICAL		13. TOTAL NUMBER CORE BOXES			
		BEARING		14. WATER DEPTH 12.5 Ft.			
6. THICKNESS OF OVERBURDEN N/A				15. DATE BORING		STARTED 06-20-11 COMPLETED 06-20-11	
7. DEPTH DRILLED INTO ROCK N/A				16. ELEVATION TOP OF BORING -10.6 Ft.			
8. TOTAL DEPTH OF BORING 15.4 Ft.				17. TOTAL RECOVERY FOR BORING 100%			
				18. SIGNATURE AND TITLE OF INSPECTOR Rhonda Capes, Geologist			
ELEV.	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS	SAMPLE	LABORATORY RESULTS		
-10.6	0.0						
-12.9	2.3		SAND, poorly-graded, mostly medium-grained sand-sized quartz, trace shell fragments, occasional clay, lt. gray (SP)	A	Classification: SP Color: 2.5Y 6/2-light brownish gray D50: 0.3243 mm % Fines: 2		
-18.0	7.4		SAND, clayey, gray and brown (SC)	NS			
-20.8	10.2		SAND, poorly-graded, mostly medium-grained sand-sized quartz, lt. gray (SP)				
-26.0	15.4		CLAY, fat, dark gray (CH)				
			NOTES: 1. Soils are field visually classified in accordance with the Unified Soils Classification System. 2. NS = Sample not submitted for laboratory analysis from this interval. 3. Seafloor elevation calculated using sampling vessel's fathometer water depth reading and applying NOAA tidal gauge data conversion factor.				



# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.0	0.2	22.5	75.3	2.0	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
.375	100.0		
#4	100.0		
#10	99.8		
#20	98.8		
#40	77.3		
#60	23.9		
#100	3.8		
#200	2.0		

\* (no specification provided)

Material Description		
SAND (SP), medium to fine grained		
<div> <div> <b>Atterberg Limits</b>            PL=      LL=      PI=         </div> <div> <b>Coefficients</b>            D<sub>90</sub>= 0.5214    D<sub>85</sub>= 0.4735    D<sub>60</sub>= 0.3553            D<sub>50</sub>= 0.3243    D<sub>30</sub>= 0.2679    D<sub>15</sub>= 0.2188            D<sub>10</sub>= 0.1960    C<sub>u</sub>= 1.81      C<sub>c</sub>= 1.03         </div> <div> <b>Classification</b>            USCS= SP      AASHTO=         </div> <div> <b>Remarks</b> </div> </div>		

Location: USACE Sample # BI-DA10-5A-11  
Sample Number: TE Lab ID: 5054.15

Depth: 0.0 - 2.3 (ft)

Date: 7/15/11

**Thompson Engineering**

**Mobile, Alabama**

**Client:** US Army Corps of Engineers

**Project:** Contract No. W91278-10-D-0026 - Task 009  
Mississippi Barrier Island Restoration Project

**Project No:** 11-2116-0057

**Figure**

# Boring Designation BI-DA10-06-11

DRILLING LOG		DIVISION South Atlantic		INSTALLATION Mobile District		SHEET 1 OF 1 SHEETS	
1. PROJECT MsCIP Barrier Island Restoration Disposal Area 10				9. SIZE AND TYPE OF BIT N/A			
2. BORING DESIGNATION BI-DA10-06-11		LOCATION COORDINATES E = 1,085,833 N = 265,748		10. COORDINATE SYSTEM/DATUM State Plane, MSE (U.S. Ft.)		HORIZONTAL NAD83 VERTICAL NAVD88	
3. DRILLING AGENCY Corps of Engineers - CESAM		CONTRACTOR FILE NO.		11. MANUFACTURER'S DESIGNATION OF DRILL Vibracore		<input type="checkbox"/> AUTO HAMMER <input type="checkbox"/> MANUAL HAMMER	
4. NAME OF DRILLER Construction Solutions International, Inc.				12. TOTAL SAMPLES 0		DISTURBED 0 UNDISTURBED (UD) 0	
5. DIRECTION OF BORING <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED		DEG. FROM VERTICAL		13. TOTAL NUMBER CORE BOXES			
		BEARING		14. WATER DEPTH 16.5 Ft.			
6. THICKNESS OF OVERBURDEN N/A				15. DATE BORING 06-20-11		STARTED 06-20-11 COMPLETED 06-20-11	
7. DEPTH DRILLED INTO ROCK N/A				16. ELEVATION TOP OF BORING -14.6 Ft.			
8. TOTAL DEPTH OF BORING 10.8 Ft.				17. TOTAL RECOVERY FOR BORING 100%			
				18. SIGNATURE AND TITLE OF INSPECTOR Rhonda Capes, Geologist			
ELEV.	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS	SAMPLE	LABORATORY RESULTS		
-14.6	0.0						
-15.6	1.0		SAND, poorly-graded, mostly medium-grained sand-sized quartz, gray (SP)				
			SAND, silty, mostly fine-grained sand-sized quartz, some silt, occasional clay, gray (SM)				
-19.6	5.0						
			CLAY, fat, dark gray (CH)	NS			
-25.4	10.8						
			NOTES:				
			1. Soils are field visually classified in accordance with the Unified Soils Classification System.				
			2. NS = Sample not submitted for laboratory analysis from this interval.				
			3. Seafloor elevation calculated using sampling vessel's fathometer water depth reading and applying NOAA tidal gauge data conversion factor.				

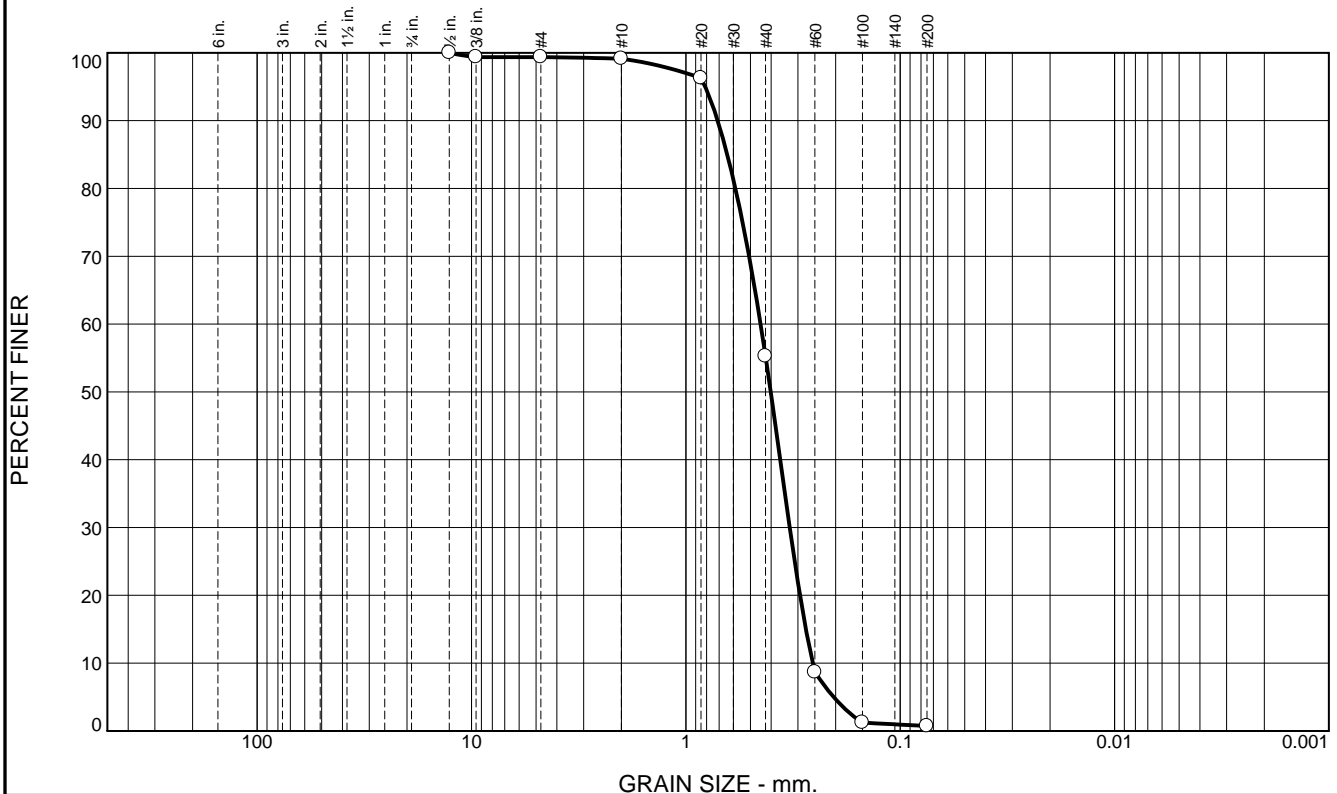
# Boring Designation BI-DA10-07-11

DRILLING LOG		DIVISION South Atlantic		INSTALLATION Mobile District		SHEET 1 OF 1 SHEETS	
1. PROJECT MsCIP Barrier Island Restoration Disposal Area 10				9. SIZE AND TYPE OF BIT N/A			
2. BORING DESIGNATION BI-DA10-07-11		LOCATION COORDINATES E = 1,078,709 N = 264,485		10. COORDINATE SYSTEM/DATUM State Plane, MSE (U.S. Ft.)		HORIZONTAL NAD83 VERTICAL NAVD88	
3. DRILLING AGENCY Corps of Engineers - CESAM		CONTRACTOR FILE NO.		11. MANUFACTURER'S DESIGNATION OF DRILL Vibrocure		<input type="checkbox"/> AUTO HAMMER <input type="checkbox"/> MANUAL HAMMER	
4. NAME OF DRILLER Construction Solutions International, Inc.				12. TOTAL SAMPLES		DISTURBED 1 UNDISTURBED (UD) 0	
5. DIRECTION OF BORING <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED		DEG. FROM VERTICAL		13. TOTAL NUMBER CORE BOXES			
		BEARING		14. WATER DEPTH 17.5 Ft.			
6. THICKNESS OF OVERBURDEN N/A				15. DATE BORING 06-20-11		STARTED 06-20-11 COMPLETED 06-20-11	
7. DEPTH DRILLED INTO ROCK N/A				16. ELEVATION TOP OF BORING -15.5 Ft.			
8. TOTAL DEPTH OF BORING 14.8 Ft.				17. TOTAL RECOVERY FOR BORING 100%			
				18. SIGNATURE AND TITLE OF INSPECTOR Rhonda Capes, Geologist			

ELEV.	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS	SAMPLE	LABORATORY RESULTS
-15.5	0.0				
-16.5	1.0		SAND, poorly-graded, mostly medium-grained sand-sized quartz, trace shell fragments, tan (SP) SAND, poorly-graded, mostly medium-grained sand-sized quartz, trace shell fragments, lt. gray (SP)	A	Classification: SP Color: 2.5Y 7/2-light gray D50: 0.4019 mm % Fines: 0.7
-23.1	7.6				
-30.2	14.8		CLAY, lean, dark gray (CL)	NS	
			SAND, poorly-graded, mostly medium-grained sand-sized quartz, brown (SP)  NOTES: 1. Soils are field visually classified in accordance with the Unified Soils Classification System. 2. NS = Sample not submitted for laboratory analysis from this interval. 3. Seafloor elevation calculated using sampling vessel's fathometer water depth reading and applying NOAA tidal gauge data conversion factor.		

# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.6	0.3	43.8	54.6	0.7	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
.5	100.0		
.375	99.4		
#4	99.4		
#10	99.1		
#20	96.3		
#40	55.3		
#60	8.7		
#100	1.2		
#200	0.7		

\* (no specification provided)

Material Description		
SAND (SP), medium to fine grained		
<div> <div> <b>Atterberg Limits</b>            PL=      LL=      PI=         </div> <div> <b>Coefficients</b>            D<sub>90</sub>= 0.7105      D<sub>85</sub>= 0.6405      D<sub>60</sub>= 0.4480            D<sub>50</sub>= 0.4019      D<sub>30</sub>= 0.3279      D<sub>15</sub>= 0.2758            D<sub>10</sub>= 0.2560      C<sub>u</sub>= 1.75      C<sub>c</sub>= 0.94         </div> <div> <b>Classification</b>            USCS= SP      AASHTO=         </div> <div> <b>Remarks</b> </div> </div>		

Location: USACE Sample # BI-DA10-7A-11  
Sample Number: TE Lab ID: 5054.16

Depth: 0.0 - 5.0 (ft)

Date: 7/15/11

**Thompson Engineering**

**Mobile, Alabama**




**Client:** US Army Corps of Engineers

**Project:** Contract No. W91278-10-D-0026 - Task 009  
Mississippi Barrier Island Restoration Project

**Project No:** 11-2116-0057

**Figure**

# Boring Designation BI-DA10-08-11

DRILLING LOG		DIVISION South Atlantic		INSTALLATION Mobile District		SHEET 1 OF 1 SHEETS	
1. PROJECT MsCIP Barrier Island Restoration Disposal Area 10				9. SIZE AND TYPE OF BIT N/A			
2. BORING DESIGNATION BI-DA10-08-11		LOCATION COORDINATES E = 1,080,158 N = 264,573		10. COORDINATE SYSTEM/DATUM State Plane, MSE (U.S. Ft.)		HORIZONTAL NAD83 VERTICAL NAVD88	
3. DRILLING AGENCY Corps of Engineers - CESAM		CONTRACTOR FILE NO.		11. MANUFACTURER'S DESIGNATION OF DRILL Vibracore		<input type="checkbox"/> AUTO HAMMER <input type="checkbox"/> MANUAL HAMMER	
4. NAME OF DRILLER Construction Solutions International, Inc.				12. TOTAL SAMPLES 0		DISTURBED 0 UNDISTURBED (UD) 0	
5. DIRECTION OF BORING <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED		DEG. FROM VERTICAL		13. TOTAL NUMBER CORE BOXES			
		BEARING		14. WATER DEPTH 25.5 Ft.			
6. THICKNESS OF OVERBURDEN N/A				15. DATE BORING 06-20-11		STARTED 06-20-11 COMPLETED 06-20-11	
7. DEPTH DRILLED INTO ROCK N/A				16. ELEVATION TOP OF BORING -23.6 Ft.			
8. TOTAL DEPTH OF BORING 14.8 Ft.				17. TOTAL RECOVERY FOR BORING 100%			
				18. SIGNATURE AND TITLE OF INSPECTOR Rhonda Capes, Geologist			
ELEV.	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS	SAMPLE	LABORATORY RESULTS		
-23.6	0.0						
			CLAY, lean, trace sand, dark gray (CL)	NS			
-28.9	5.3		SAND, silty, mostly medium-grained sand-sized quartz, occasional clay, dark gray (SM)				
-32.1	8.5		SAND, poorly-graded, mostly medium-grained sand-sized quartz, tan and white (SP)				
-38.4	14.8						
			NOTES: 1. Soils are field visually classified in accordance with the Unified Soils Classification System. 2. NS = Sample not submitted for laboratory analysis from this interval. 3. Seafloor elevation calculated using sampling vessel's fathometer water depth reading and applying NOAA tidal gauge data conversion factor.				

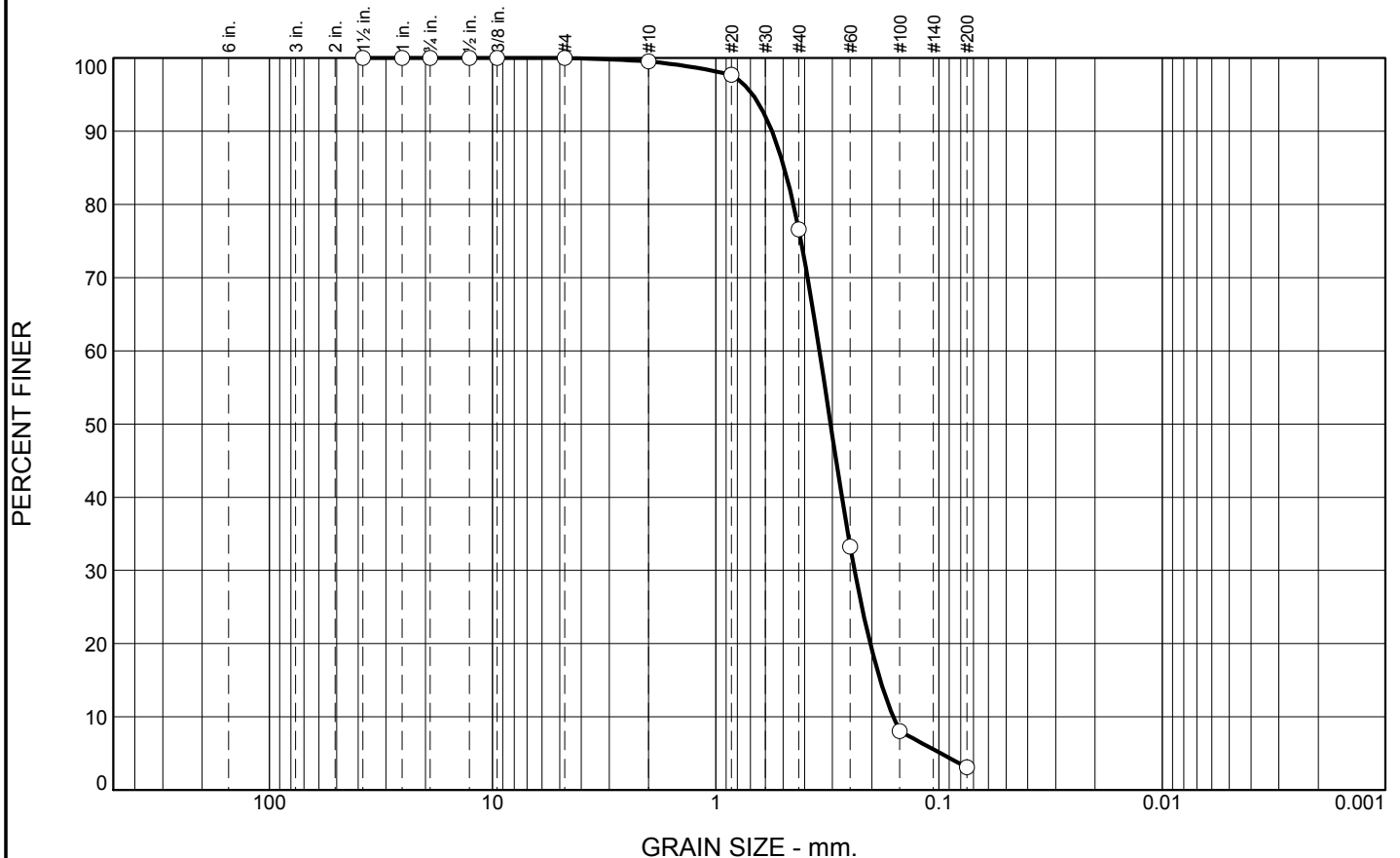
# Boring Designation BI-DA10-09-11

DRILLING LOG		DIVISION South Atlantic		INSTALLATION Mobile District		SHEET 1 OF 1 SHEETS	
1. PROJECT MsCIP Barrier Island Restoration Disposal Area 10				9. SIZE AND TYPE OF BIT N/A			
2. BORING DESIGNATION BI-DA10-09-11		LOCATION COORDINATES E = 1,081,523 N = 264,613		10. COORDINATE SYSTEM/DATUM State Plane, MSE (U.S. Ft.)		HORIZONTAL NAD83 VERTICAL NAVD88	
3. DRILLING AGENCY Corps of Engineers - CESAM		CONTRACTOR FILE NO.		11. MANUFACTURER'S DESIGNATION OF DRILL Vibrocure		<input type="checkbox"/> AUTO HAMMER <input type="checkbox"/> MANUAL HAMMER	
4. NAME OF DRILLER Construction Solutions International, Inc.				12. TOTAL SAMPLES 0		DISTURBED 0 UNDISTURBED (UD) 0	
5. DIRECTION OF BORING <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED		DEG. FROM VERTICAL		13. TOTAL NUMBER CORE BOXES			
		BEARING		14. WATER DEPTH 20 Ft.			
6. THICKNESS OF OVERBURDEN N/A				15. DATE BORING 06-18-11		STARTED 06-18-11 COMPLETED 06-18-11	
7. DEPTH DRILLED INTO ROCK N/A				16. ELEVATION TOP OF BORING -18.0 Ft.			
8. TOTAL DEPTH OF BORING 16.9 Ft.				17. TOTAL RECOVERY FOR BORING 100%			
				18. SIGNATURE AND TITLE OF INSPECTOR Rhonda Capes, Geologist			
ELEV.	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS	SAMPLE	LABORATORY RESULTS		
-18.0	0.0		CLAY, lean, dark gray (CL)				
-24.2	6.2		SAND, poorly-graded, mostly medium-grained sand-sized quartz, gray (SP)				
			At El. -26.5 Ft., lt. gray				
			At El. -27.6 Ft., brown	NS			
-34.9	16.9						
			NOTES: 1. Soils are field visually classified in accordance with the Unified Soils Classification System. 2. NS = Sample not submitted for laboratory analysis from this interval. 3. Seafloor elevation calculated using sampling vessel's fathometer water depth reading and applying NOAA tidal gauge data conversion factor.				

# Boring Designation BI-DA10-10-11

DRILLING LOG		DIVISION South Atlantic		INSTALLATION Mobile District		SHEET 1 OF 1 SHEETS	
1. PROJECT MsCIP Barrier Island Restoration Disposal Area 10				9. SIZE AND TYPE OF BIT N/A			
2. BORING DESIGNATION BI-DA10-10-11		LOCATION COORDINATES E = 1,083,136 N = 264,748		10. COORDINATE SYSTEM/DATUM State Plane, MSE (U.S. Ft.)		HORIZONTAL NAD83 VERTICAL NAVD88	
3. DRILLING AGENCY Corps of Engineers - CESAM		CONTRACTOR FILE NO.		11. MANUFACTURER'S DESIGNATION OF DRILL Vibracore		<input type="checkbox"/> AUTO HAMMER <input type="checkbox"/> MANUAL HAMMER	
4. NAME OF DRILLER Construction Solutions International, Inc.				12. TOTAL SAMPLES 3		DISTURBED 0 UNDISTURBED (UD)	
5. DIRECTION OF BORING <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED		DEG. FROM VERTICAL		13. TOTAL NUMBER CORE BOXES			
		BEARING		14. WATER DEPTH 17.5 Ft.			
6. THICKNESS OF OVERBURDEN N/A				15. DATE BORING 06-18-11		STARTED 06-18-11 COMPLETED 06-18-11	
7. DEPTH DRILLED INTO ROCK N/A				16. ELEVATION TOP OF BORING -15.3 Ft.			
8. TOTAL DEPTH OF BORING 13.5 Ft.				17. TOTAL RECOVERY FOR BORING 100%			
				18. SIGNATURE AND TITLE OF INSPECTOR Rhonda Capes, Geologist			
ELEV.	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS	SAMPLE	LABORATORY RESULTS		
-15.3	0.0						
-17.0	1.7		CLAY, lean, gray (CL)	NS			
			SAND, poorly-graded, mostly medium-grained sand-sized quartz, gray (SP)	A	Classification: SP Color: 10YR 6/2-light brownish gray D50: 0.306 mm % Fines: 3.1		
			At El. -21.0 Ft., brown	B	Classification: SP Color: 10YR 4/2-dark grayish brown D50: 0.2718 mm % Fines: 3		
-22.9	7.6						
-23.3	8.0		SAND, clayey, mostly medium-grained sand-sized quartz, dark brown (SC)	NS			
			SAND, poorly-graded, mostly medium-grained sand-sized quartz, gray (SP)	C	Classification: SP Color: 10YR 4/2-dark grayish brown D50: 0.2889 mm % Fines: 2.8		
-28.8	13.5						
NOTES:							
1. Soils are field visually classified in accordance with the Unified Soils Classification System.							
2. NS = Sample not submitted for laboratory analysis from this interval.							
3. Seafloor elevation calculated using sampling vessel's fathometer water depth reading and applying NOAA tidal gauge data conversion factor.							

# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.0	0.4	23.0	73.5	3.1	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
1.50	100.0		
1	100.0		
.75	100.0		
.5	100.0		
.375	100.0		
#4	100.0		
#10	99.6		
#20	97.7		
#40	76.6		
#60	33.3		
#100	8.0		
#200	3.1		

\* (no specification provided)

<u><b>Material Description</b></u>		
SAND (SP), medium to fine grained		
<u><b>Atterberg Limits</b></u>		
PL=	LL=	PI=
<u><b>Coefficients</b></u>		
D <sub>90</sub> = 0.5597	D <sub>85</sub> = 0.4937	D <sub>60</sub> = 0.3433
D <sub>50</sub> = 0.3060	D <sub>30</sub> = 0.2390	D <sub>15</sub> = 0.1833
D <sub>10</sub> = 0.1606	C <sub>u</sub> = 2.14	C <sub>c</sub> = 1.04
<u><b>Classification</b></u>		
USCS= SP	AASHTO=	
<u><b>Remarks</b></u>		

Location: USACE Sample # B1-DA10-10A-11  
Sample Number: TE Lab ID: 5055.01

Depth: 1.7 - 5.7 (ft)

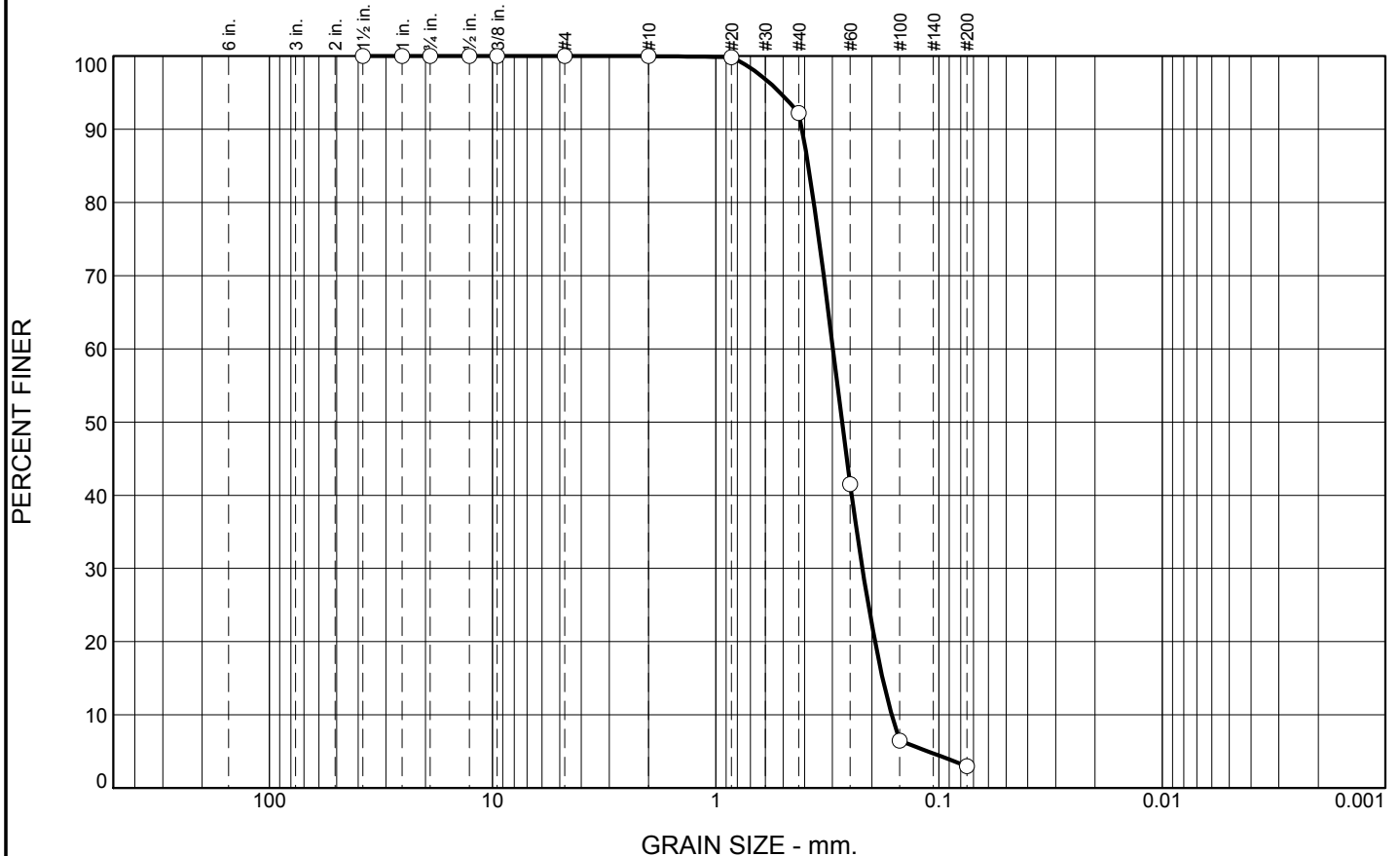
Date: 8/8/11

**Thompson Engineering**  
**Mobile, Alabama**

**Client:** US Army Corps of Engineers  
**Project:** Contract No. W91278-10-D-0026 - Task 009  
Mississippi Barrier Island Restoration Project  
**Project No:** 11-2116-0057  
**Report No.**



# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.0	0.0	7.8	89.2	3.0	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
1.50	100.0		
1	100.0		
.75	100.0		
.5	100.0		
.375	100.0		
#4	100.0		
#10	100.0		
#20	99.8		
#40	92.2		
#60	41.5		
#100	6.5		
#200	3.0		

\* (no specification provided)

## Material Description

SAND (SP), fine grained

## Atterberg Limits

PL=

LL=

PI=

## Coefficients

D<sub>90</sub>= 0.4111

D<sub>85</sub>= 0.3852

D<sub>60</sub>= 0.2986

D<sub>50</sub>= 0.2718

D<sub>30</sub>= 0.2204

D<sub>15</sub>= 0.1791

D<sub>10</sub>= 0.1631

C<sub>u</sub>= 1.83

C<sub>c</sub>= 1.00

## Classification

USCS= SP

AASHTO=

## Remarks

Location: USACE Sample # B1-DA10-10B-11  
Sample Number: TE Lab ID: 5055.02

Depth: 5.7 - 7.6 (ft)

Date: 8/8/11

**Thompson Engineering**

**Mobile, Alabama**

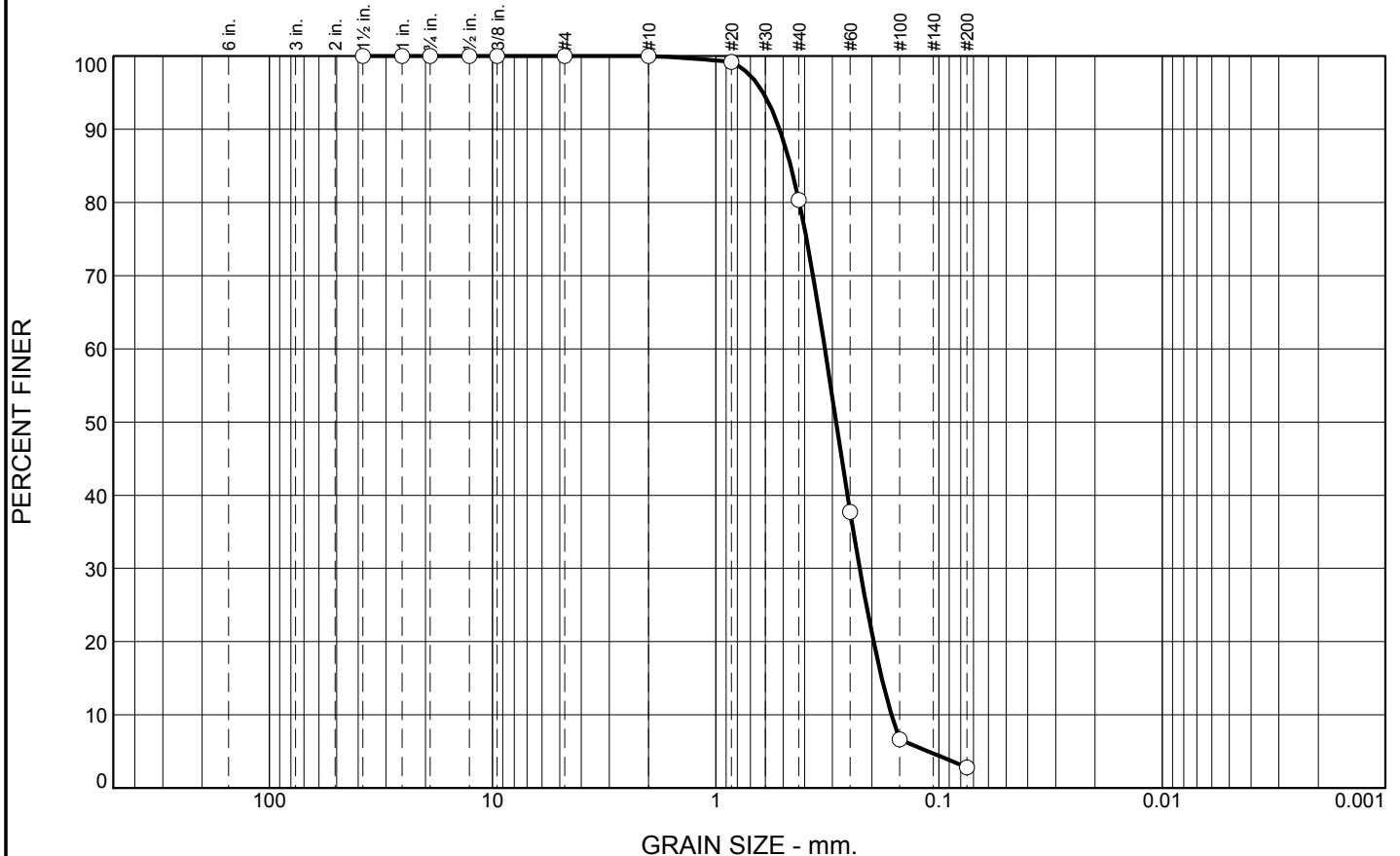
Client: US Army Corps of Engineers

Project: Contract No. W91278-10-D-0026 - Task 009  
Mississippi Barrier Island Restoration Project

Project No: 11-2116-0057

Report No.

# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.0	0.0	19.6	77.6	2.8	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
1.50	100.0		
1	100.0		
.75	100.0		
.5	100.0		
.375	100.0		
#4	100.0		
#10	100.0		
#20	99.2		
#40	80.4		
#60	37.7		
#100	6.6		
#200	2.8		

\* (no specification provided)

**Material Description**

SAND (SP), medium to fine grained

**Atterberg Limits**

PL=      LL=      PI=

**Coefficients**

D<sub>90</sub>= 0.5175      D<sub>85</sub>= 0.4618      D<sub>60</sub>= 0.3245  
D<sub>50</sub>= 0.2889      D<sub>30</sub>= 0.2267      D<sub>15</sub>= 0.1805  
D<sub>10</sub>= 0.1634      C<sub>u</sub>= 1.99      C<sub>c</sub>= 0.97

**Classification**

USCS= SP      AASHTO=

**Remarks**

Location: USACE Sample # B1-DA10-10C-11  
Sample Number: TE Lab ID: 5055.03

Depth: 8.0 - 13.5 (ft)

Date: 8/8/11

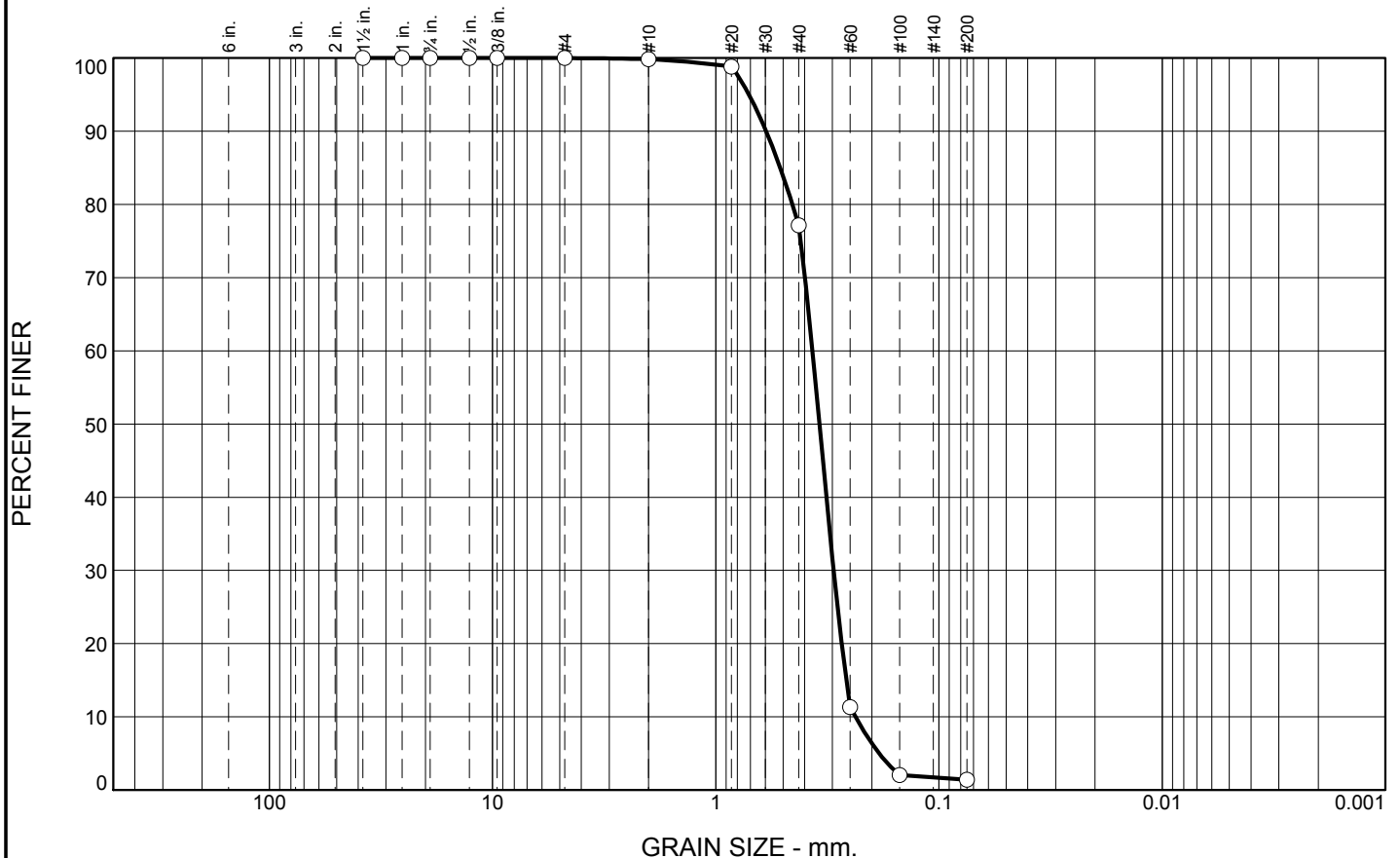
**Thompson Engineering**  
**Mobile, Alabama**

**Client:** US Army Corps of Engineers  
**Project:** Contract No. W91278-10-D-0026 - Task 009  
Mississippi Barrier Island Restoration Project  
**Project No:** 11-2116-0057      **Report No.**

# Boring Designation BI-DA10-11-11

DRILLING LOG		DIVISION South Atlantic		INSTALLATION Mobile District		SHEET 1 OF 1 SHEETS	
1. PROJECT MsCIP Barrier Island Restoration Disposal Area 10				9. SIZE AND TYPE OF BIT N/A			
2. BORING DESIGNATION BI-DA10-11-11		LOCATION COORDINATES E = 1,084,662 N = 264,527		10. COORDINATE SYSTEM/DATUM State Plane, MSE (U.S. Ft.)		HORIZONTAL NAD83 VERTICAL NAVD88	
3. DRILLING AGENCY Corps of Engineers - CESAM		CONTRACTOR FILE NO.		11. MANUFACTURER'S DESIGNATION OF DRILL Vibracore		<input type="checkbox"/> AUTO HAMMER <input type="checkbox"/> MANUAL HAMMER	
4. NAME OF DRILLER Construction Solutions International, Inc.				12. TOTAL SAMPLES 2		DISTURBED 2 UNDISTURBED (UD) 0	
5. DIRECTION OF BORING <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED		DEG. FROM VERTICAL		13. TOTAL NUMBER CORE BOXES			
		BEARING		14. WATER DEPTH 3 Ft.			
6. THICKNESS OF OVERBURDEN N/A				15. DATE BORING 06-18-11		STARTED 06-18-11 COMPLETED 06-18-11	
7. DEPTH DRILLED INTO ROCK N/A				16. ELEVATION TOP OF BORING -0.7 Ft.			
8. TOTAL DEPTH OF BORING 14.1 Ft.				17. TOTAL RECOVERY FOR BORING 100%			
				18. SIGNATURE AND TITLE OF INSPECTOR Rhonda Capes, Geologist			
ELEV.	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS	SAMPLE	LABORATORY RESULTS		
-0.7	0.0						
			SAND, poorly-graded, mostly medium-grained sand-sized quartz, lt. gray (SP)	A	Classification: SP Color: 2.5Y 7/2-light gray D50: 0.343 mm % Fines: 1.4		
				B	Classification: SP Color: 2.5Y 7/2-light gray D50: 0.338 mm % Fines: 2.4		
-10.4	9.7		CLAY, lean, gray (CL)	NS			
-13.9	13.2						
-14.8	14.1		SAND, poorly-graded, mostly medium-grained sand-sized quartz, lt. gray (SP)				
NOTES:							
1. Soils are field visually classified in accordance with the Unified Soils Classification System.							
2. NS = Sample not submitted for laboratory analysis from this interval.							
3. Seafloor elevation calculated using sampling vessel's fathometer water depth reading and applying NOAA tidal gauge data conversion factor.							

# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.0	0.1	22.8	75.7	1.4	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
1.50	100.0		
1	100.0		
.75	100.0		
.5	100.0		
.375	100.0		
#4	100.0		
#10	99.9		
#20	98.8		
#40	77.1		
#60	11.3		
#100	2.0		
#200	1.4		

\* (no specification provided)

## Material Description

SAND (SP), medium to fine grained

## Atterberg Limits

PL=

LL=

PI=

## Coefficients

D<sub>90</sub>= 0.5949

D<sub>85</sub>= 0.5146

D<sub>60</sub>= 0.3688

D<sub>50</sub>= 0.3430

D<sub>30</sub>= 0.2965

D<sub>15</sub>= 0.2604

D<sub>10</sub>= 0.2368

C<sub>u</sub>= 1.56

C<sub>c</sub>= 1.01

## Classification

USCS= SP

AASHTO=

## Remarks

Location: USACE Sample # B1-DA10-11A-11  
Sample Number: TE Lab ID: 5055.04

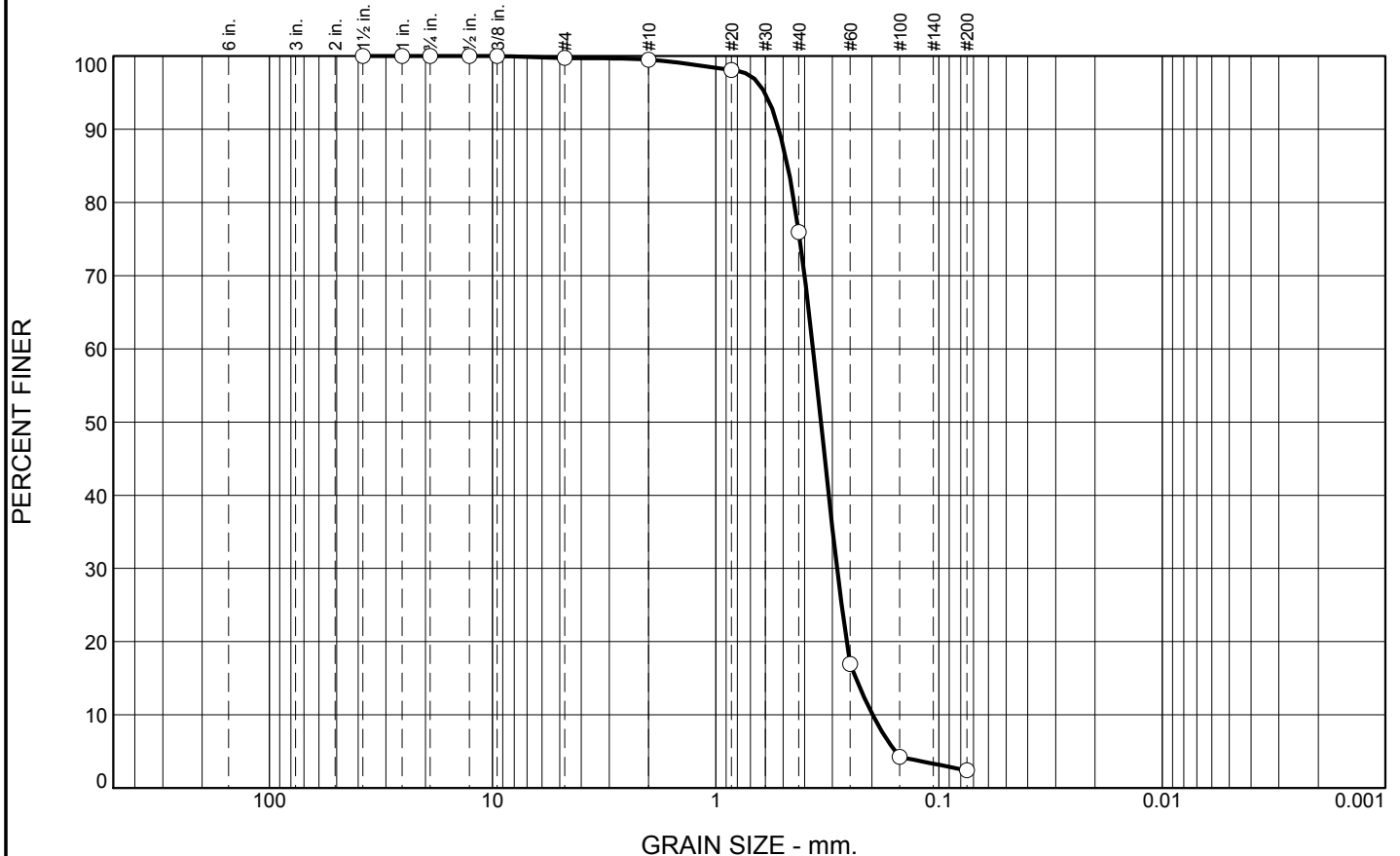
Depth: 0.0 - 5.0 (ft)

Date: 8/8/11

**Thompson Engineering**  
**Mobile, Alabama**

**Client:** US Army Corps of Engineers  
**Project:** Contract No. W91278-10-D-0026 - Task 009  
Mississippi Barrier Island Restoration Project  
**Project No:** 11-2116-0057  
**Report No.**

# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.3	0.2	23.5	73.6	2.4	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
1.50	100.0		
1	100.0		
.75	100.0		
.5	100.0		
.375	100.0		
#4	99.7		
#10	99.5		
#20	98.1		
#40	76.0		
#60	17.0		
#100	4.2		
#200	2.4		

\* (no specification provided)

**Material Description**  
 SAND (SP), medium to fine grained

**Atterberg Limits**  
 PL=      LL=      PI=

**Coefficients**  
 D<sub>90</sub>= 0.5219      D<sub>85</sub>= 0.4769      D<sub>60</sub>= 0.3667  
 D<sub>50</sub>= 0.3380      D<sub>30</sub>= 0.2862      D<sub>15</sub>= 0.2357  
 D<sub>10</sub>= 0.1983      C<sub>u</sub>= 1.85      C<sub>c</sub>= 1.13

**Classification**  
 USCS= SP      AASHTO=

**Remarks**

Location: USACE Sample # B1-DA10-11B-11  
 Sample Number: TE Lab ID: 5055.05

Depth: 5.0 - 9.7 (ft)

Date: 8/8/11

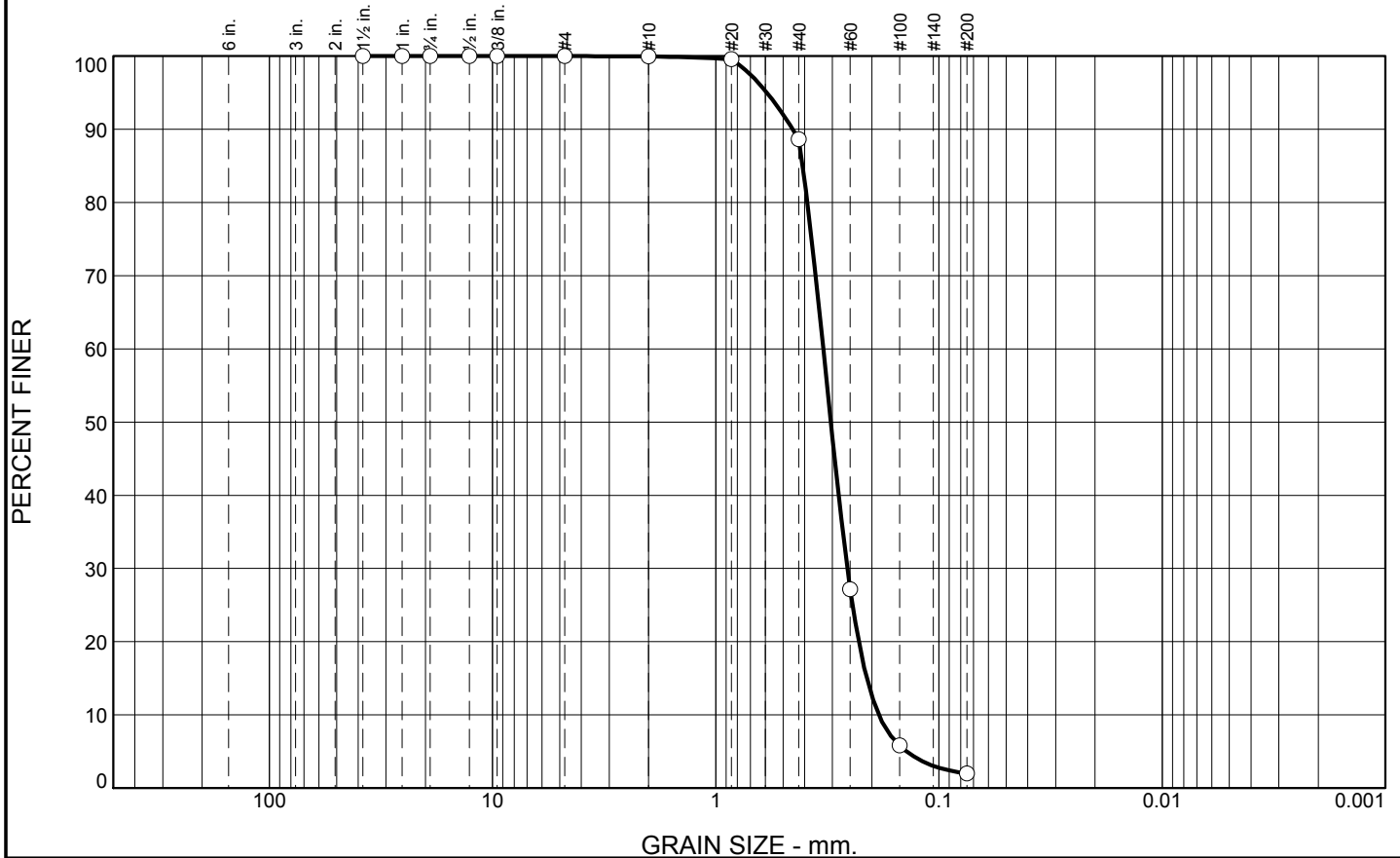
**Thompson Engineering**  
**Mobile, Alabama**

**Client:** US Army Corps of Engineers  
**Project:** Contract No. W91278-10-D-0026 - Task 009  
 Mississippi Barrier Island Restoration Project  
**Project No:** 11-2116-0057      **Report No.**

# Boring Designation BI-DA10-12-11

DRILLING LOG		DIVISION South Atlantic		INSTALLATION Mobile District		SHEET 1 OF 1 SHEETS	
1. PROJECT MsCIP Barrier Island Restoration Disposal Area 10				9. SIZE AND TYPE OF BIT N/A			
2. BORING DESIGNATION BI-DA10-12-11		LOCATION COORDINATES E = 1,085,757 N = 263,890		10. COORDINATE SYSTEM/DATUM State Plane, MSE (U.S. Ft.)		HORIZONTAL NAD83	
3. DRILLING AGENCY Corps of Engineers - CESAM		CONTRACTOR FILE NO.		11. MANUFACTURER'S DESIGNATION OF DRILL Vibrocure		<input type="checkbox"/> AUTO HAMMER <input type="checkbox"/> MANUAL HAMMER	
4. NAME OF DRILLER Construction Solutions International, Inc.				12. TOTAL SAMPLES 4		DISTURBED 0	
5. DIRECTION OF BORING <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED				13. TOTAL NUMBER CORE BOXES		14. WATER DEPTH 6.5 Ft.	
6. THICKNESS OF OVERBURDEN N/A				15. DATE BORING 06-18-11		STARTED 06-18-11	
7. DEPTH DRILLED INTO ROCK N/A				16. ELEVATION TOP OF BORING -4.2 Ft.		COMPLETED 06-18-11	
8. TOTAL DEPTH OF BORING 17.4 Ft.				17. TOTAL RECOVERY FOR BORING 100%		18. SIGNATURE AND TITLE OF INSPECTOR Rhonda Capes, Geologist	
ELEV.	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS	SAMPLE	LABORATORY RESULTS		
-4.2	0.0		SAND, poorly-graded, mostly medium-grained sand-sized quartz, lt. gray (SP)	A	Classification: SP Color: 2.5Y 7/2-light gray D50: 0.3053 mm % Fines: 2		
				B	Classification: SP Color: 2.5Y 7/2-light gray D50: 0.2972 mm % Fines: 4.1		
				C	Classification: SP Color: 2.5Y 7/2-light gray D50: 0.3417 mm % Fines: 3.7		
				D	Classification: SP-SM Color: 2.5Y 7/2-light gray D50: 0.3292 mm % Fines: 5.2		
-21.6	17.4		NOTES:				
			1. Soils are field visually classified in accordance with the Unified Soils Classification System.				
			2. NS = Sample not submitted for laboratory analysis from this interval.				
			3. Seafloor elevation calculated using sampling vessel's fathometer water depth reading and applying NOAA tidal gauge data conversion factor.				

# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.0	0.0	11.4	86.6	2.0	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
1.50	100.0		
1	100.0		
.75	100.0		
.5	100.0		
.375	100.0		
#4	100.0		
#10	100.0		
#20	99.6		
#40	88.6		
#60	27.2		
#100	5.8		
#200	2.0		

\* (no specification provided)

<b><u>Material Description</u></b>		
SAND (SP), medium to fine grained		
<b><u>Atterberg Limits</u></b>		
PL=	LL=	PI=
<b><u>Coefficients</u></b>		
D <sub>90</sub> = 0.4522	D <sub>85</sub> = 0.4083	D <sub>60</sub> = 0.3298
D <sub>50</sub> = 0.3053	D <sub>30</sub> = 0.2574	D <sub>15</sub> = 0.2108
D <sub>10</sub> = 0.1862	C <sub>u</sub> = 1.77	C <sub>c</sub> = 1.08
<b><u>Classification</u></b>		
USCS= SP	AASHTO=	
<b><u>Remarks</u></b>		

Location: USACE Sample # B1-DA10-12A-11  
Sample Number: TE Lab ID: 5055.06

Depth: 0.0 - 4.0 (ft)

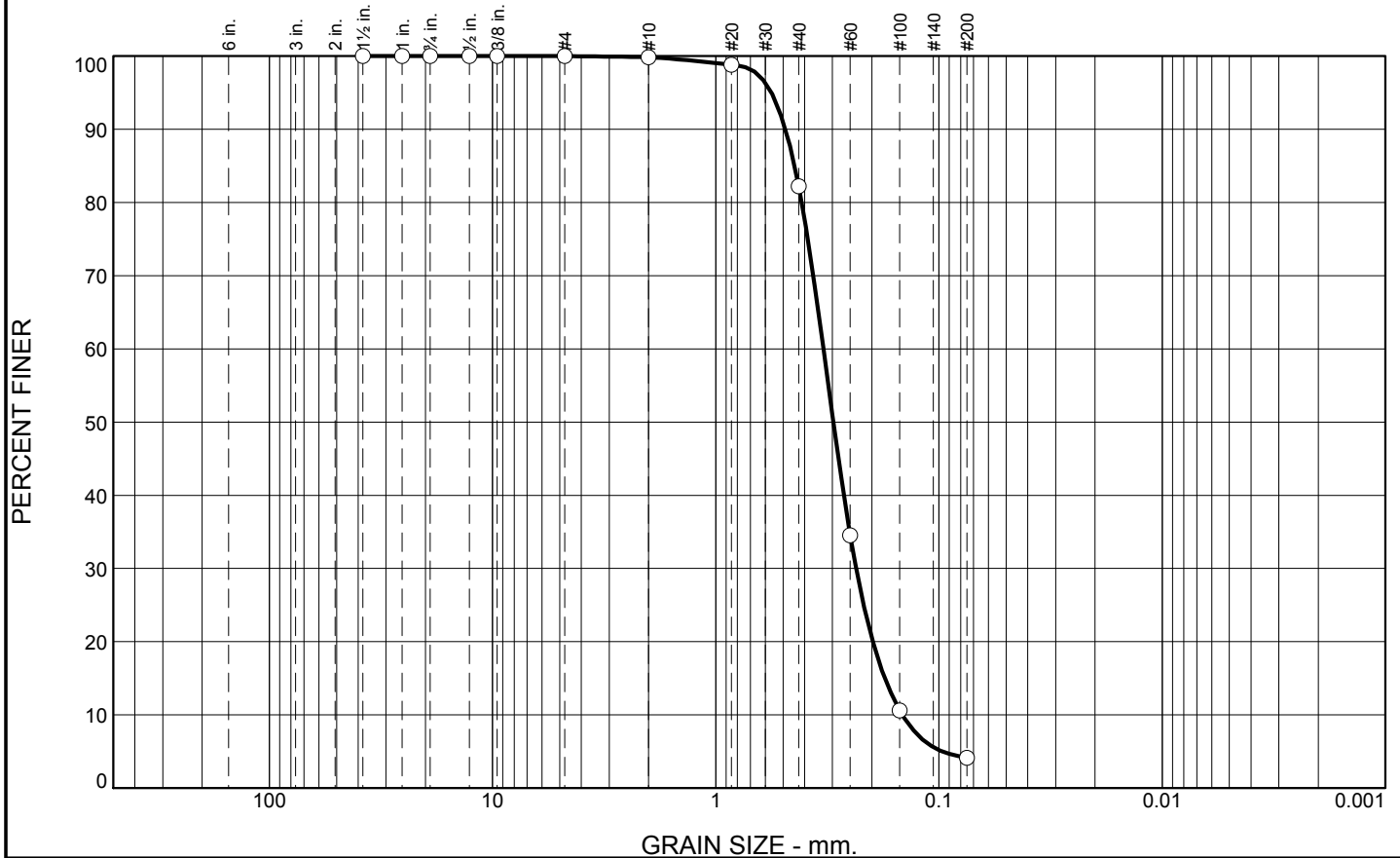
Date: 8/8/11

**Thompson Engineering**  
**Mobile, Alabama**

Client: US Army Corps of Engineers  
Project: Contract No. W91278-10-D-0026 - Task 009  
Mississippi Barrier Island Restoration Project  
Project No: 11-2116-0057

Report No.

# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.0	0.2	17.6	78.1	4.1	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
1.50	100.0		
1	100.0		
.75	100.0		
.5	100.0		
.375	100.0		
#4	100.0		
#10	99.8		
#20	98.8		
#40	82.2		
#60	34.5		
#100	10.6		
#200	4.1		

\* (no specification provided)

<u><b>Material Description</b></u>		
SAND (SP), medium to fine grained		
<u><b>Atterberg Limits</b></u>		
PL=	LL=	PI=
<u><b>Coefficients</b></u>		
D <sub>90</sub> = 0.4877	D <sub>85</sub> = 0.4437	D <sub>60</sub> = 0.3293
D <sub>50</sub> = 0.2972	D <sub>30</sub> = 0.2352	D <sub>15</sub> = 0.1750
D <sub>10</sub> = 0.1459	C <sub>u</sub> = 2.26	C <sub>c</sub> = 1.15
<u><b>Classification</b></u>		
USCS= SP	AASHTO=	
<u><b>Remarks</b></u>		

Location: USACE Sample # B1-DA10-12B-11  
Sample Number: TE Lab ID: 5055.07

Depth: 4.0 - 8.0 (ft)

Date: 8/8/11

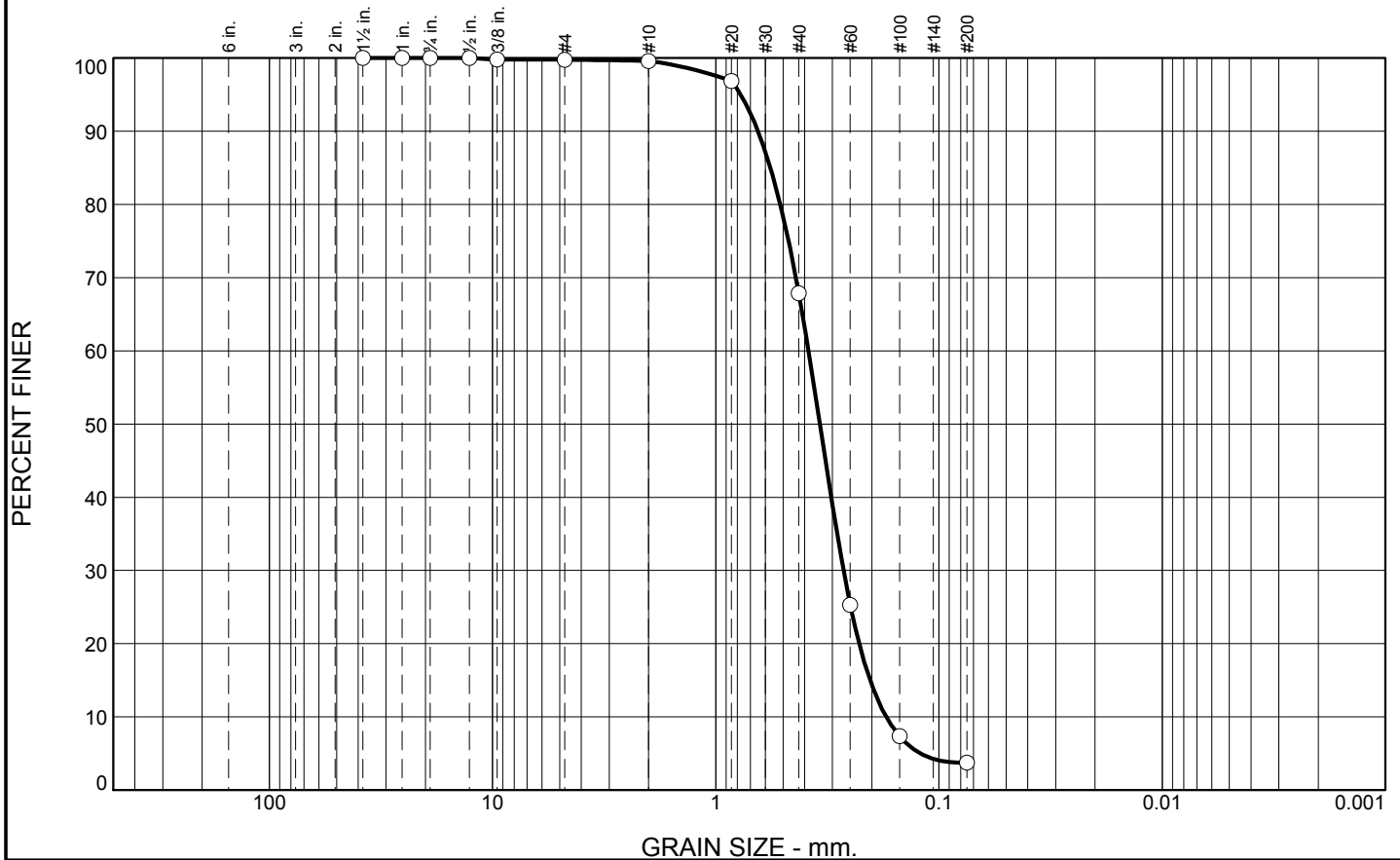
**Thompson Engineering**  
**Mobile, Alabama**

Client: US Army Corps of Engineers  
Project: Contract No. W91278-10-D-0026 - Task 009  
Mississippi Barrier Island Restoration Project  
Project No: 11-2116-0057

Report No.



# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.2	0.2	31.7	64.2	3.7	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
1.50	100.0		
1	100.0		
.75	100.0		
.5	100.0		
.375	99.8		
#4	99.8		
#10	99.6		
#20	96.9		
#40	67.9		
#60	25.3		
#100	7.4		
#200	3.7		

\* (no specification provided)

<b>Material Description</b> SAND (SP), medium to fine grained		
PL=	<b>Atterberg Limits</b> LL=	PI=
<b>Coefficients</b> D <sub>90</sub> = 0.6467    D <sub>85</sub> = 0.5696    D <sub>60</sub> = 0.3844 D <sub>50</sub> = 0.3417    D <sub>30</sub> = 0.2677    D <sub>15</sub> = 0.2037 D <sub>10</sub> = 0.1725    C <sub>u</sub> = 2.23    C <sub>c</sub> = 1.08		
<b>Classification</b> USCS= SP    AASHTO=		
<b>Remarks</b>		

Location: USACE Sample # B1-DA10-12C-11  
 Sample Number: TE Lab ID: 5055.08

Depth: 8.0. - 12.0 (ft)

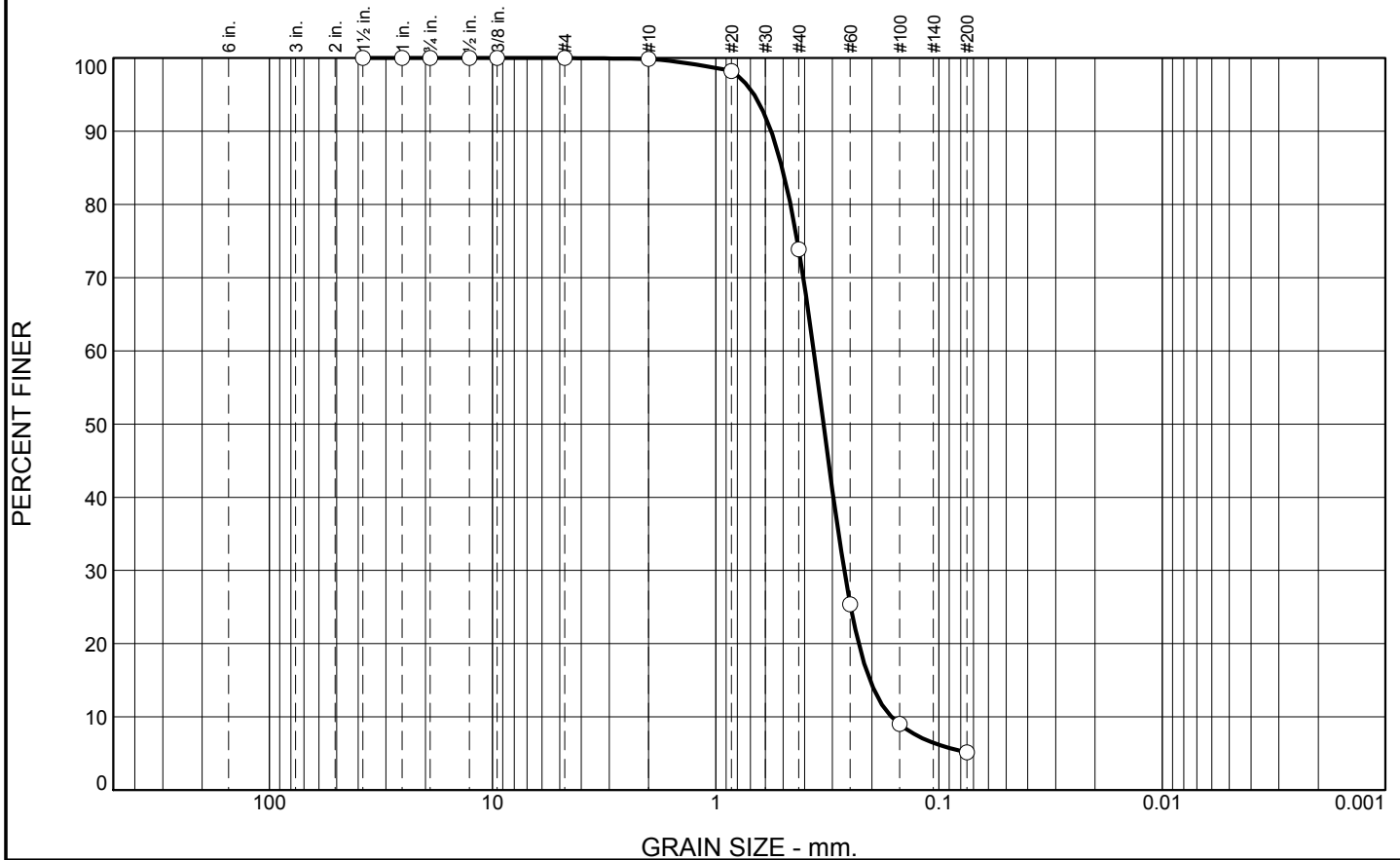
Date: 8/8/11

**Thompson Engineering**  
**Mobile, Alabama**

Client: US Army Corps of Engineers  
 Project: Contract No. W91278-10-D-0026 - Task 009  
 Mississippi Barrier Island Restoration Project  
 Project No: 11-2116-0057

Report No.

# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.0	0.1	26.0	68.7	5.2	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
1.50	100.0		
1	100.0		
.75	100.0		
.5	100.0		
.375	100.0		
#4	100.0		
#10	99.9		
#20	98.2		
#40	73.9		
#60	25.4		
#100	9.0		
#200	5.2		

\* (no specification provided)

## Material Description

Slightly silty SAND (SP-SM), medium to fine grained

## Atterberg Limits

PL= LL= PI=

## Coefficients

D<sub>90</sub>= 0.5647 D<sub>85</sub>= 0.5046 D<sub>60</sub>= 0.3640  
D<sub>50</sub>= 0.3292 D<sub>30</sub>= 0.2658 D<sub>15</sub>= 0.2039  
D<sub>10</sub>= 0.1632 C<sub>u</sub>= 2.23 C<sub>c</sub>= 1.19

## Classification

USCS= SP-SM AASHTO=

## Remarks

Location: USACE Sample # B1-DA10-12D-11  
Sample Number: TE Lab ID: 5055.09

Depth: 12.0 - 17.4 (ft)

Date: 8/8/11

**Thompson Engineering**  
**Mobile, Alabama**

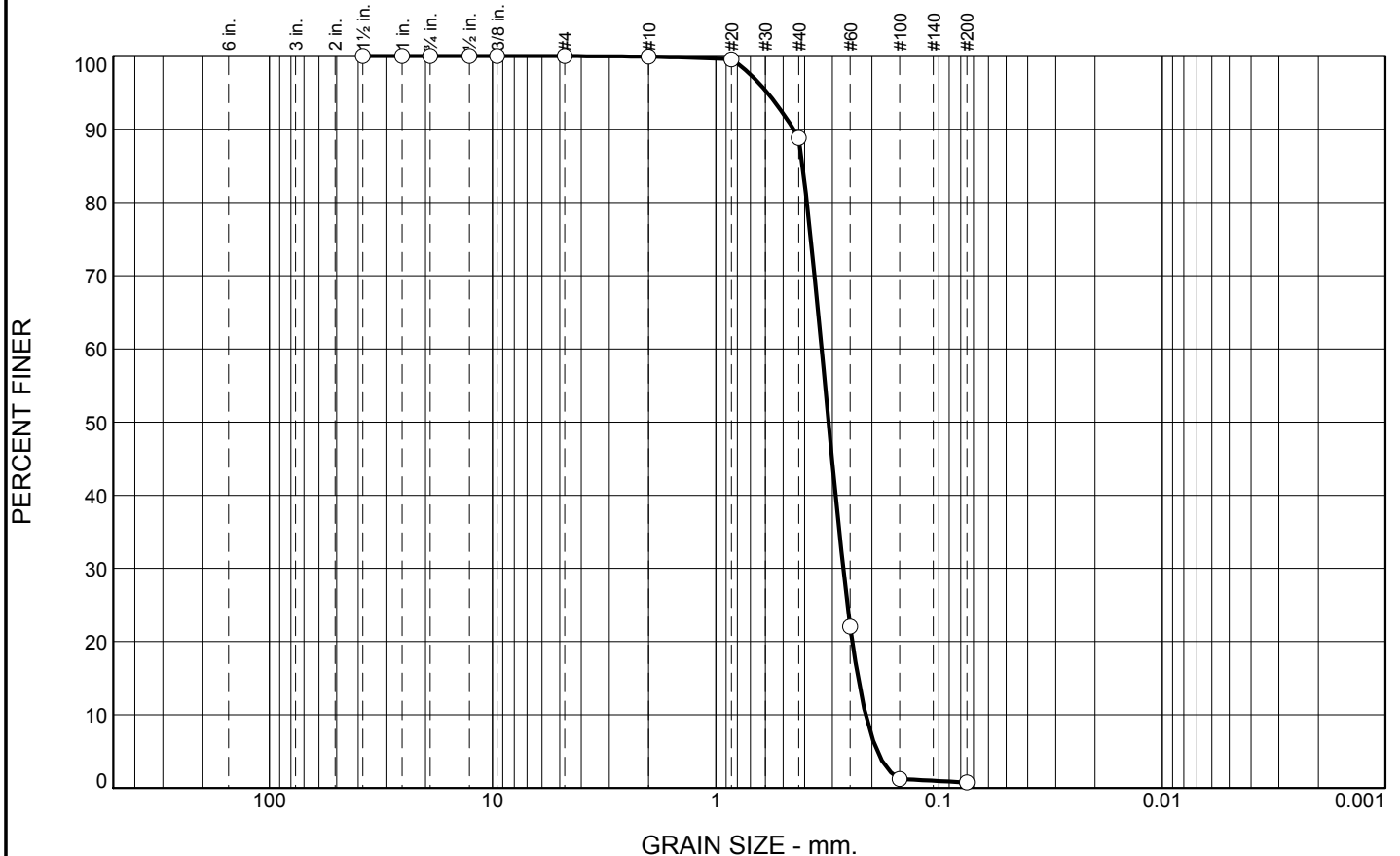
Client: US Army Corps of Engineers  
Project: Contract No. W91278-10-D-0026 - Task 009  
Mississippi Barrier Island Restoration Project  
Project No: 11-2116-0057

Report No.

# Boring Designation BI-DA10-13-11

DRILLING LOG		DIVISION South Atlantic		INSTALLATION Mobile District		SHEET 1 OF 1 SHEETS	
1. PROJECT MsCIP Barrier Island Restoration Disposal Area 10				9. SIZE AND TYPE OF BIT N/A			
2. BORING DESIGNATION BI-DA10-13-11		LOCATION COORDINATES E = 1,086,264 N = 262,996		10. COORDINATE SYSTEM/DATUM State Plane, MSE (U.S. Ft.)		HORIZONTAL NAD83 VERTICAL NAVD88	
3. DRILLING AGENCY Corps of Engineers - CESAM		CONTRACTOR FILE NO.		11. MANUFACTURER'S DESIGNATION OF DRILL Vibracore		<input type="checkbox"/> AUTO HAMMER <input type="checkbox"/> MANUAL HAMMER	
4. NAME OF DRILLER Construction Solutions International, Inc.				12. TOTAL SAMPLES 5		DISTURBED 5 UNDISTURBED (UD) 0	
5. DIRECTION OF BORING <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED		DEG. FROM VERTICAL		13. TOTAL NUMBER CORE BOXES			
		BEARING		14. WATER DEPTH 6 Ft.			
6. THICKNESS OF OVERBURDEN N/A				15. DATE BORING 06-18-11		STARTED 06-18-11 COMPLETED 06-18-11	
7. DEPTH DRILLED INTO ROCK N/A				16. ELEVATION TOP OF BORING -3.6 Ft.			
8. TOTAL DEPTH OF BORING 15.8 Ft.				17. TOTAL RECOVERY FOR BORING 100%			
				18. SIGNATURE AND TITLE OF INSPECTOR Rhonda Capes, Geologist			
ELEV.	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS	SAMPLE	LABORATORY RESULTS		
-3.6	0.0						
			SAND, poorly-graded, mostly medium-grained sand-sized quartz, tan and gray mottled (SP)	A	Classification: SP Color: 2.5Y 6/3-light yellowish brown D50: 0.3125 mm % Fines: 0.8		
			At El. -7.1 Ft., dark gray	B	Classification: SP Color: 2.5Y 6/2-light brownish gray D50: 0.3058 mm % Fines: 1.3		
				C	Classification: SP Color: 2.5Y 6/2-light brownish gray D50: 0.3237 mm % Fines: 3.2		
			At El. -13.0 Ft., lt. gray	D	Classification: SP Color: 2.5Y 7/1-light gray D50: 0.3204 mm % Fines: 4.5		
				E	Classification: SP-SM Color: 2.5Y 7/1-light gray D50: 0.3302 mm % Fines: 8.1		
-19.4	15.8						
			NOTES: 1. Soils are field visually classified in accordance with the Unified Soils Classification System. 2. NS = Sample not submitted for laboratory analysis from this interval. 3. Seafloor elevation calculated using sampling vessel's fathometer water depth reading and applying NOAA tidal gauge data conversion factor.				

# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.0	0.1	11.1	88.0	0.8	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
1.50	100.0		
1	100.0		
.75	100.0		
.5	100.0		
.375	100.0		
#4	100.0		
#10	99.9		
#20	99.6		
#40	88.8		
#60	22.1		
#100	1.2		
#200	0.8		

\* (no specification provided)

<b>Material Description</b> SAND (SP), medium to fine grained		
PL=	<b>Atterberg Limits</b> LL=	PI=
<b>Coefficients</b> D <sub>90</sub> = 0.4491    D <sub>85</sub> = 0.4089    D <sub>60</sub> = 0.3355 D <sub>50</sub> = 0.3125    D <sub>30</sub> = 0.2687    D <sub>15</sub> = 0.2304 D <sub>10</sub> = 0.2131    C <sub>u</sub> = 1.57    C <sub>c</sub> = 1.01		
<b>Classification</b> USCS= SP    AASHTO=		
<b>Remarks</b>		

Location: USACE Sample # B1-DA10-13A-11  
 Sample Number: TE Lab ID: 5055.10

Depth: 0.0 - 3.5 (ft)

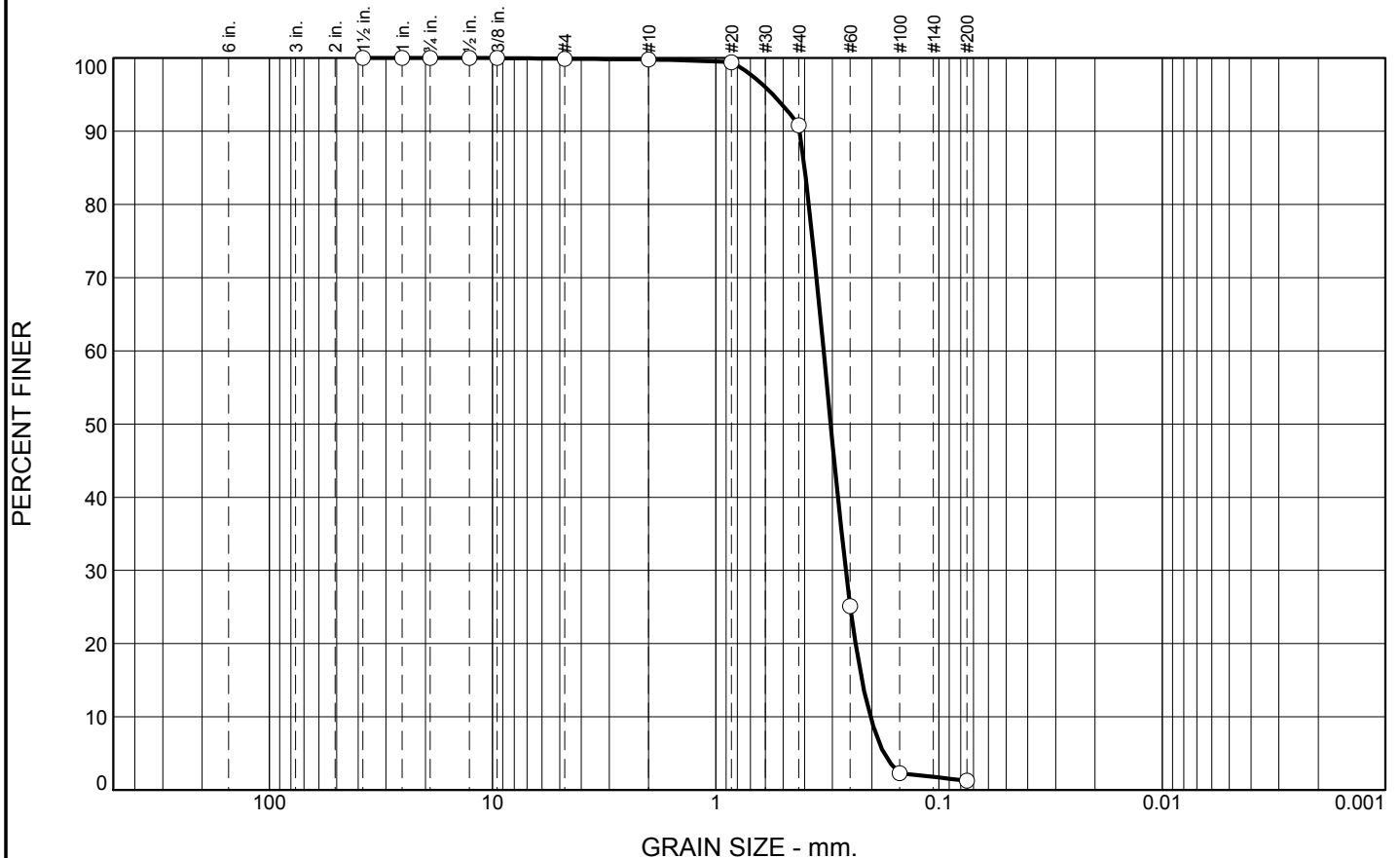
Date: 8/8/11

**Thompson Engineering**  
**Mobile, Alabama**

Client: US Army Corps of Engineers  
 Project: Contract No. W91278-10-D-0026 - Task 009  
 Mississippi Barrier Island Restoration Project  
 Project No: 11-2116-0057

Report No.

# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.1	0.1	9.0	89.5	1.3	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
1.50	100.0		
1	100.0		
.75	100.0		
.5	100.0		
.375	100.0		
#4	99.9		
#10	99.8		
#20	99.4		
#40	90.8		
#60	25.1		
#100	2.3		
#200	1.3		

\* (no specification provided)

## Material Description

SAND (SP), fine grained

## Atterberg Limits

PL=

LL=

PI=

## Coefficients

D<sub>90</sub>= 0.4212

D<sub>85</sub>= 0.4005

D<sub>60</sub>= 0.3287

D<sub>50</sub>= 0.3058

D<sub>30</sub>= 0.2616

D<sub>15</sub>= 0.2214

D<sub>10</sub>= 0.2029

C<sub>u</sub>= 1.62

C<sub>c</sub>= 1.03

## Classification

USCS= SP

AASHTO=

## Remarks

Location: USACE Sample # B1-DA10-13B-11  
Sample Number: TE Lab ID: 5055.11

Depth: 3.5 - 6.0 (ft)

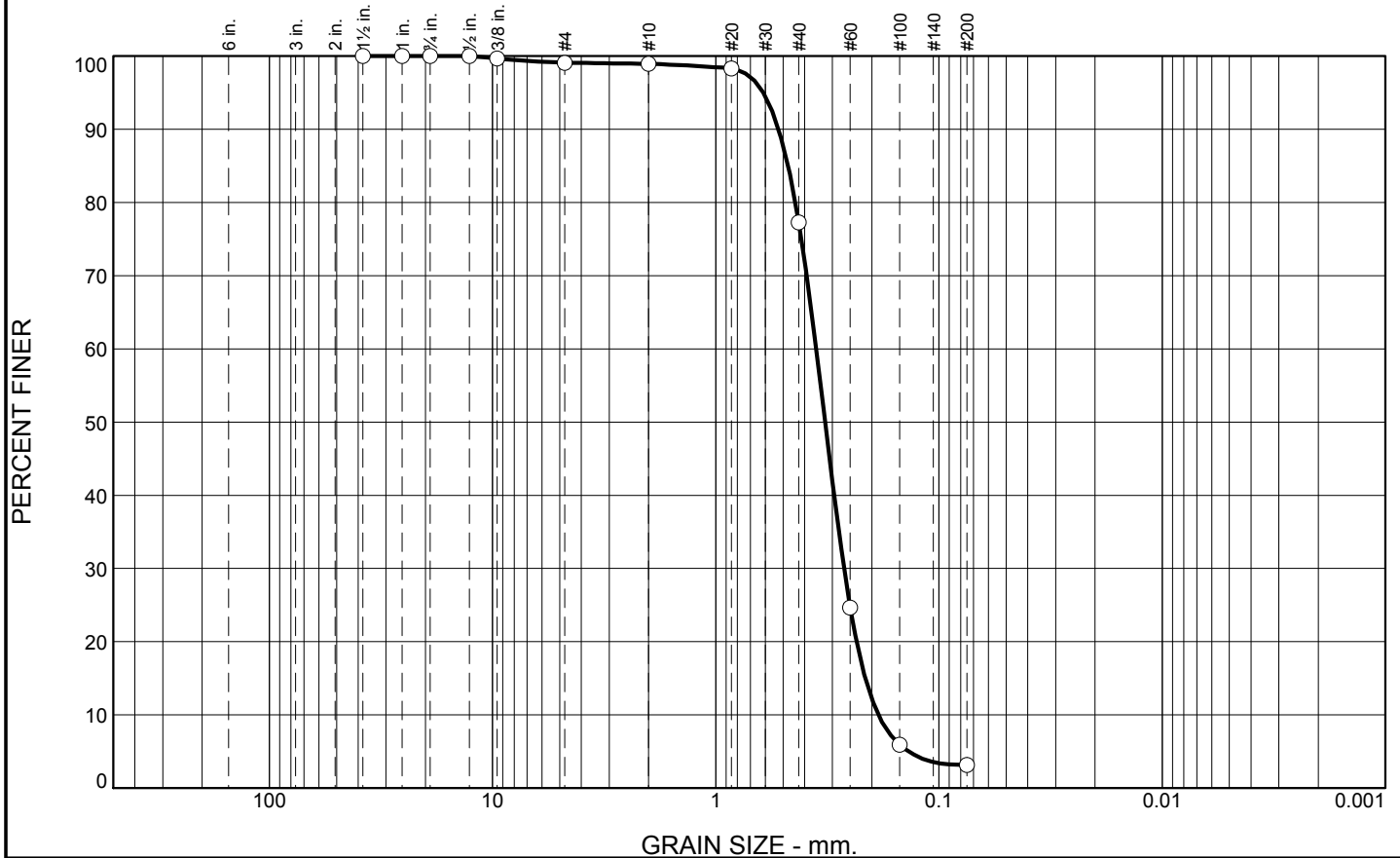
Date: 8/8/11

**Thompson Engineering**  
**Mobile, Alabama**

Client: US Army Corps of Engineers  
Project: Contract No. W91278-10-D-0026 - Task 009  
Mississippi Barrier Island Restoration Project  
Project No: 11-2116-0057

Report No.

# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.9	0.1	21.7	74.1	3.2	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
1.50	100.0		
1	100.0		
.75	100.0		
.5	100.0		
.375	99.7		
#4	99.1		
#10	99.0		
#20	98.3		
#40	77.3		
#60	24.7		
#100	5.9		
#200	3.2		

\* (no specification provided)

## Material Description

SAND (SP), medium to fine grained

## Atterberg Limits

PL= LL= PI=

## Coefficients

D<sub>90</sub>= 0.5237 D<sub>85</sub>= 0.4745 D<sub>60</sub>= 0.3550  
D<sub>50</sub>= 0.3237 D<sub>30</sub>= 0.2663 D<sub>15</sub>= 0.2139  
D<sub>10</sub>= 0.1870 C<sub>u</sub>= 1.90 C<sub>c</sub>= 1.07

## Classification

USCS= SP AASHTO=

## Remarks

Location: USACE Sample # B1-DA10-13C-11  
Sample Number: TE Lab ID: 5055.12

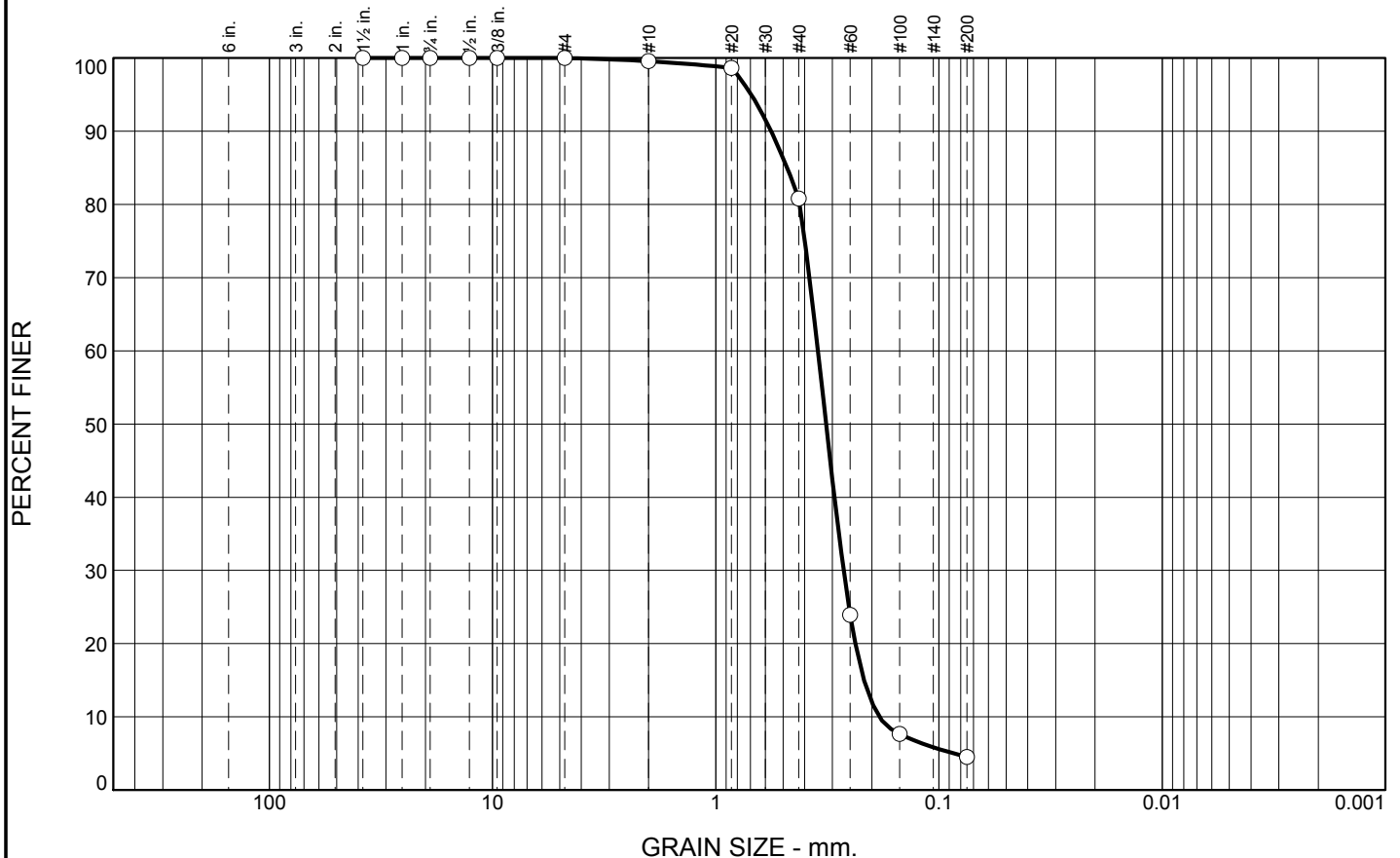
Depth: 6.0 - 9.4 (ft)

Date: 8/8/11

**Thompson Engineering**  
**Mobile, Alabama**

**Client:** US Army Corps of Engineers  
**Project:** Contract No. W91278-10-D-0026 - Task 009  
Mississippi Barrier Island Restoration Project  
**Project No:** 11-2116-0057 **Report No.**

# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.0	0.4	18.8	76.3	4.5	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
1.50	100.0		
1	100.0		
.75	100.0		
.5	100.0		
.375	100.0		
#4	100.0		
#10	99.6		
#20	98.6		
#40	80.8		
#60	23.9		
#100	7.7		
#200	4.5		

\* (no specification provided)

<u><b>Material Description</b></u>		
SAND (SP), medium to fine grained		
<u><b>Atterberg Limits</b></u>		
PL=	LL=	PI=
<u><b>Coefficients</b></u>		
D <sub>90</sub> = 0.5654	D <sub>85</sub> = 0.4795	D <sub>60</sub> = 0.3486
D <sub>50</sub> = 0.3204	D <sub>30</sub> = 0.2676	D <sub>15</sub> = 0.2166
D <sub>10</sub> = 0.1850	C <sub>u</sub> = 1.88	C <sub>c</sub> = 1.11
<u><b>Classification</b></u>		
USCS= SP	AASHTO=	
<u><b>Remarks</b></u>		

Location: USACE Sample # B1-DA10-13D-11  
Sample Number: TE Lab ID: 5055.13

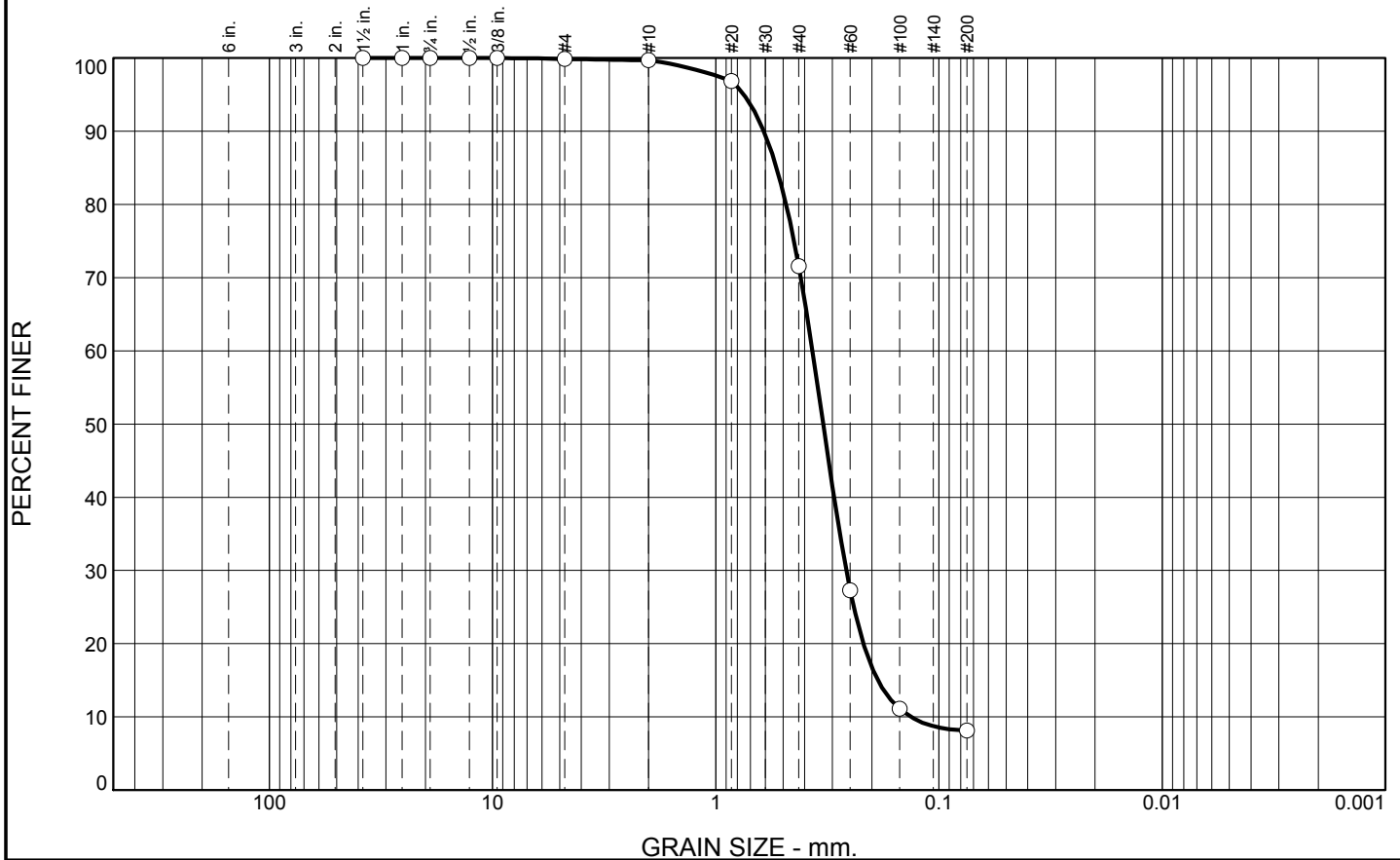
Depth: 9.4 - 13.0 (ft)

Date: 8/8/11

**Thompson Engineering**  
**Mobile, Alabama**

**Client:** US Army Corps of Engineers  
**Project:** Contract No. W91278-10-D-0026 - Task 009  
Mississippi Barrier Island Restoration Project  
**Project No:** 11-2116-0057  
**Report No.**

# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.1	0.2	28.1	63.5	8.1	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
1.50	100.0		
1	100.0		
.75	100.0		
.5	100.0		
.375	100.0		
#4	99.9		
#10	99.7		
#20	96.9		
#40	71.6		
#60	27.3		
#100	11.1		
#200	8.1		

\* (no specification provided)

**Material Description**  
 Slightly silty SAND (SP-SM), medium to fine grained

**Atterberg Limits**  
 PL=      LL=      PI=

**Coefficients**  
 D<sub>90</sub>= 0.6093      D<sub>85</sub>= 0.5345      D<sub>60</sub>= 0.3690  
 D<sub>50</sub>= 0.3302      D<sub>30</sub>= 0.2602      D<sub>15</sub>= 0.1880  
 D<sub>10</sub>= 0.1333      C<sub>u</sub>= 2.77      C<sub>c</sub>= 1.38

**Classification**  
 USCS= SP-SM      AASHTO=

**Remarks**

Location: USACE Sample # B1-DA10-13E-11  
 Sample Number: TE Lab ID: 5055.14

Depth: 13.0 - 15.8 (ft)

Date: 8/8/11

**Thompson Engineering**  
**Mobile, Alabama**

**Client:** US Army Corps of Engineers  
**Project:** Contract No. W91278-10-D-0026 - Task 009  
 Mississippi Barrier Island Restoration Project  
**Project No:** 11-2116-0057      **Report No.**



# Boring Designation BI-DA10-14-11

DRILLING LOG		DIVISION South Atlantic		INSTALLATION Mobile District		SHEET 1 OF 1 SHEETS	
1. PROJECT MsCIP Barrier Island Restoration Disposal Area 10				9. SIZE AND TYPE OF BIT N/A			
2. BORING DESIGNATION BI-DA10-14-11		LOCATION COORDINATES E = 1,080,268 N = 262,714		10. COORDINATE SYSTEM/DATUM State Plane, MSE (U.S. Ft.)		HORIZONTAL NAD83	
3. DRILLING AGENCY Corps of Engineers - CESAM		CONTRACTOR FILE NO.		11. MANUFACTURER'S DESIGNATION OF DRILL Vibracore		<input type="checkbox"/> AUTO HAMMER <input type="checkbox"/> MANUAL HAMMER	
4. NAME OF DRILLER Construction Solutions International, Inc.				12. TOTAL SAMPLES 2		UNDISTURBED (UD) 0	
5. DIRECTION OF BORING <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED				13. TOTAL NUMBER CORE BOXES		14. WATER DEPTH 13.2 Ft.	
6. THICKNESS OF OVERBURDEN N/A				15. DATE BORING 06-21-11		COMPLETED 06-21-11	
7. DEPTH DRILLED INTO ROCK N/A				16. ELEVATION TOP OF BORING -11.4 Ft.		17. TOTAL RECOVERY FOR BORING 100%	
8. TOTAL DEPTH OF BORING 12.1 Ft.				18. SIGNATURE AND TITLE OF INSPECTOR Rhonda Capes, Geologist			
ELEV.	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS	SAMPLE	LABORATORY RESULTS		
-11.4	0.0						
-16.0	4.6		SAND, poorly-graded, mostly fine-grained sand-sized quartz, tan (SP) At El. -12.2 Ft., gray	A	Classification: SP Color: 2.5Y 7/1-light gray D50: 0.3497 mm % Fines: 0.5		
-16.9	5.5		CLAY, lean, trace fine-grained sand, gray (CL)	NS			
-23.5	12.1		SAND, poorly-graded, mostly fine-grained sand-sized quartz, lt. gray (SP)	B	Classification: SP Color: 2.5Y 7/1-light gray D50: 0.301 mm % Fines: 4		
NOTES: 1. Soils are field visually classified in accordance with the Unified Soils Classification System. 2. NS = Sample not submitted for laboratory analysis from this interval. 3. Seafloor elevation calculated using sampling vessel's fathometer water depth reading and applying NOAA tidal gauge data conversion factor.							

## PERCENT FINER



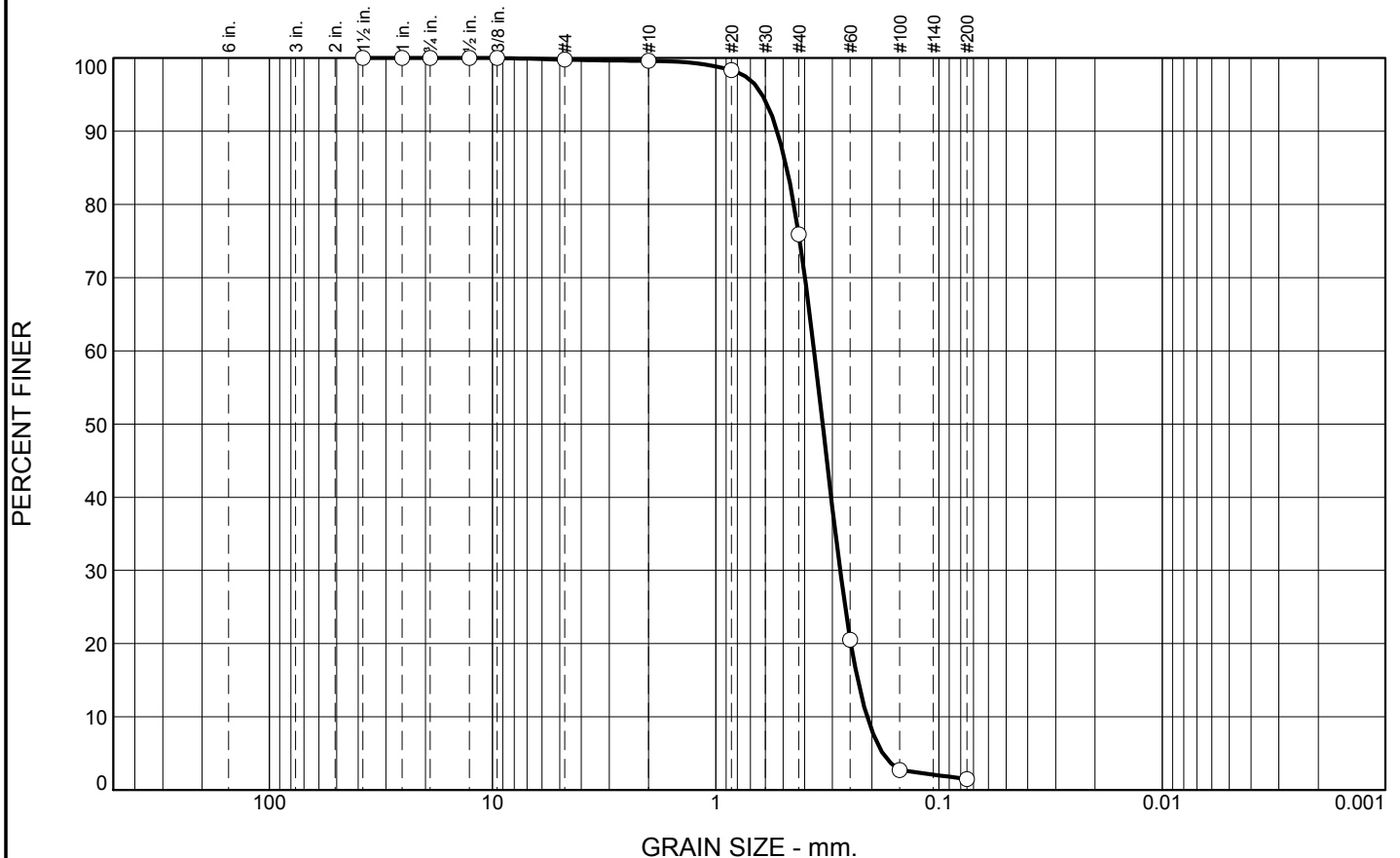
<b><u>Material Description</u></b>		
SAND (SP), medium to fine grained		
<b><u>Atterberg Limits</u></b>		
PL=	LL=	PI=
<b><u>Coefficients</u></b>		
D <sub>90</sub> = 0.5841	D <sub>85</sub> = 0.5224	D <sub>60</sub> = 0.3826
D <sub>50</sub> = 0.3497	D <sub>30</sub> = 0.2926	D <sub>15</sub> = 0.2484
D <sub>10</sub> = 0.2297	C <sub>u</sub> = 1.67	C <sub>c</sub> = 0.97
<b><u>Classification</u></b>		
USCS= SP	AASHTO=	
<b><u>Remarks</u></b>		



# Boring Designation BI-DA10-18-11

DRILLING LOG		DIVISION South Atlantic		INSTALLATION Mobile District		SHEET 1 OF 1 SHEETS	
1. PROJECT MsCIP Barrier Island Restoration Disposal Area 10				9. SIZE AND TYPE OF BIT N/A			
2. BORING DESIGNATION BI-DA10-18-11		LOCATION COORDINATES E = 1,085,865 N = 261,322		10. COORDINATE SYSTEM/DATUM State Plane, MSE (U.S. Ft.)		HORIZONTAL NAD83 VERTICAL NAVD88	
3. DRILLING AGENCY Corps of Engineers - CESAM		CONTRACTOR FILE NO.		11. MANUFACTURER'S DESIGNATION OF DRILL Vibrocure		<input type="checkbox"/> AUTO HAMMER <input type="checkbox"/> MANUAL HAMMER	
4. NAME OF DRILLER Construction Solutions International, Inc.				12. TOTAL SAMPLES 3		DISTURBED 3 UNDISTURBED (UD) 0	
5. DIRECTION OF BORING <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED		DEG. FROM VERTICAL		13. TOTAL NUMBER CORE BOXES			
		BEARING		14. WATER DEPTH 18 Ft.			
6. THICKNESS OF OVERBURDEN N/A				15. DATE BORING 06-18-11		STARTED 06-18-11 COMPLETED 06-18-11	
7. DEPTH DRILLED INTO ROCK N/A				16. ELEVATION TOP OF BORING -15.6 Ft.			
8. TOTAL DEPTH OF BORING 14.5 Ft.				17. TOTAL RECOVERY FOR BORING 100%			
				18. SIGNATURE AND TITLE OF INSPECTOR Rhonda Capes, Geologist			
ELEV.	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS	SAMPLE	LABORATORY RESULTS		
-15.6	0.0						
			SAND, poorly-graded, mostly medium-grained sand-sized quartz, tan and gray mottled (SP)	A	Classification: SP Color: 2.5Y 7/2-light gray D50: 0.3321 mm % Fines: 1.5		
			At El. -19.4 Ft., lt. gray	B	Classification: SP Color: 2.5Y 7/1-light gray D50: 0.3527 mm % Fines: 2.7		
				C	Classification: SP Color: 2.5Y 7/1-light gray D50: 0.3366 mm % Fines: 3.6		
-30.1	14.5						
			NOTES: 1. Soils are field visually classified in accordance with the Unified Soils Classification System. 2. NS = Sample not submitted for laboratory analysis from this interval. 3. Seafloor elevation calculated using sampling vessel's fathometer water depth reading and applying NOAA tidal gauge data conversion factor.				

# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.2	0.2	23.7	74.4	1.5	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
1.50	100.0		
1	100.0		
.75	100.0		
.5	100.0		
.375	100.0		
#4	99.8		
#10	99.6		
#20	98.3		
#40	75.9		
#60	20.5		
#100	2.7		
#200	1.5		

\* (no specification provided)

<u><b>Material Description</b></u>		
SAND (SP), medium to fine grained		
<u><b>Atterberg Limits</b></u>		
PL=	LL=	PI=
<u><b>Coefficients</b></u>		
D <sub>90</sub> = 0.5307	D <sub>85</sub> = 0.4815	D <sub>60</sub> = 0.3627
D <sub>50</sub> = 0.3321	D <sub>30</sub> = 0.2772	D <sub>15</sub> = 0.2312
D <sub>10</sub> = 0.2100	C <sub>u</sub> = 1.73	C <sub>c</sub> = 1.01
<u><b>Classification</b></u>		
USCS= SP	AASHTO=	
<u><b>Remarks</b></u>		

Location: USACE Sample # B1-DA10-18A-11  
Sample Number: TE Lab ID: 5055.15

Depth: 0.0 - 5.0 (ft)

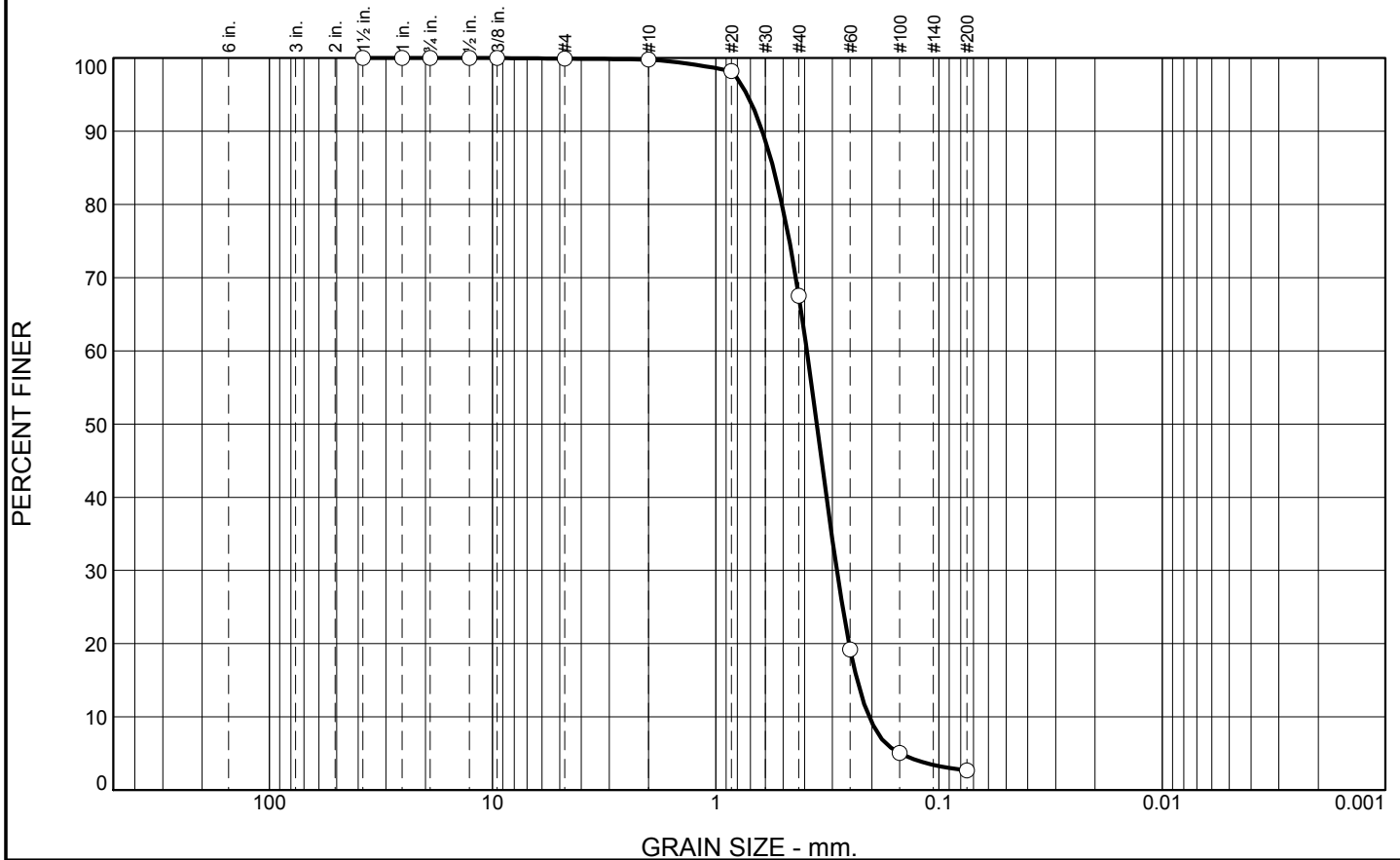
Date: 8/8/11

**Thompson Engineering**  
**Mobile, Alabama**

Client: US Army Corps of Engineers  
Project: Contract No. W91278-10-D-0026 - Task 009  
Mississippi Barrier Island Restoration Project  
Project No: 11-2116-0057

Report No.

# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.1	0.1	32.3	64.8	2.7	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
1.50	100.0		
1	100.0		
.75	100.0		
.5	100.0		
.375	100.0		
#4	99.9		
#10	99.8		
#20	98.2		
#40	67.5		
#60	19.2		
#100	5.1		
#200	2.7		

\* (no specification provided)

**Material Description**  
 SAND (SP), medium to fine grained

**Atterberg Limits**  
 PL=      LL=      PI=

**Coefficients**  
 D<sub>90</sub>= 0.6186      D<sub>85</sub>= 0.5528      D<sub>60</sub>= 0.3908  
 D<sub>50</sub>= 0.3527      D<sub>30</sub>= 0.2869      D<sub>15</sub>= 0.2326  
 D<sub>10</sub>= 0.2057      C<sub>u</sub>= 1.90      C<sub>c</sub>= 1.02

**Classification**  
 USCS= SP      AASHTO=

**Remarks**

Location: USACE Sample # B1-DA10-18B-11  
 Sample Number: TE Lab ID: 5055.16

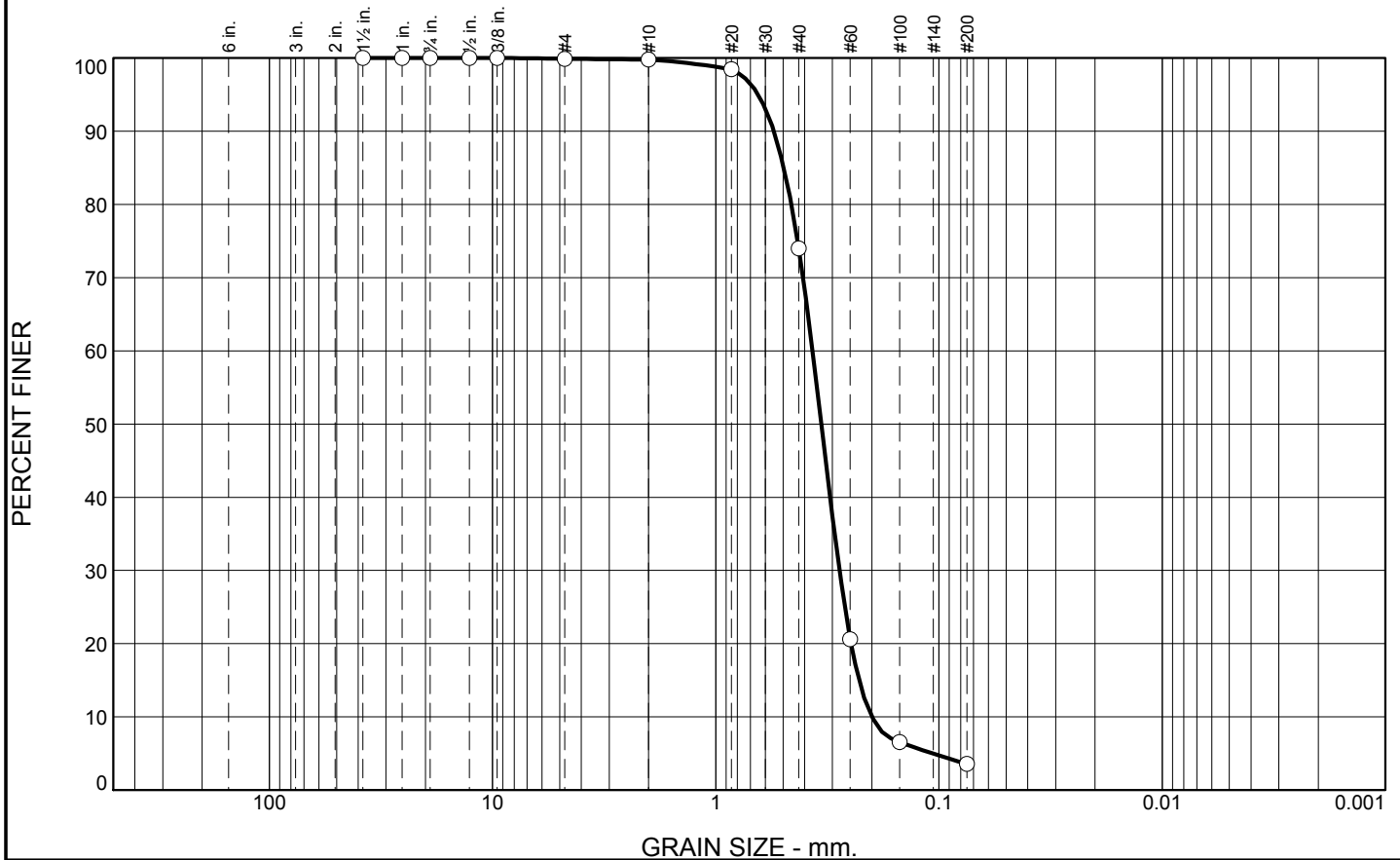
Depth: 5.0 - 10.0 (ft)

Date: 8/8/11

**Thompson Engineering**  
**Mobile, Alabama**

**Client:** US Army Corps of Engineers  
**Project:** Contract No. W91278-10-D-0026 - Task 009  
 Mississippi Barrier Island Restoration Project  
**Project No:** 11-2116-0057      **Report No.**

# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.1	0.1	25.8	70.4	3.6	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
1.50	100.0		
1	100.0		
.75	100.0		
.5	100.0		
.375	100.0		
#4	99.9		
#10	99.8		
#20	98.5		
#40	74.0		
#60	20.6		
#100	6.5		
#200	3.6		

\* (no specification provided)

**Material Description**  
 SAND (SP), medium to fine grained

**Atterberg Limits**  
 PL=      LL=      PI=

**Coefficients**  
 D<sub>90</sub>= 0.5494      D<sub>85</sub>= 0.4959      D<sub>60</sub>= 0.3686  
 D<sub>50</sub>= 0.3366      D<sub>30</sub>= 0.2790      D<sub>15</sub>= 0.2281  
 D<sub>10</sub>= 0.1998      C<sub>u</sub>= 1.84      C<sub>c</sub>= 1.06

**Classification**  
 USCS= SP      AASHTO=

**Remarks**

Location: USACE Sample # B1-DA10-18C-11  
 Sample Number: TE Lab ID: 5055.17

Depth: 10.0 - 14.5 (ft)

Date: 8/8/11

**Thompson Engineering**  
**Mobile, Alabama**

**Client:** US Army Corps of Engineers  
**Project:** Contract No. W91278-10-D-0026 - Task 009  
 Mississippi Barrier Island Restoration Project  
**Project No:** 11-2116-0057      **Report No.**

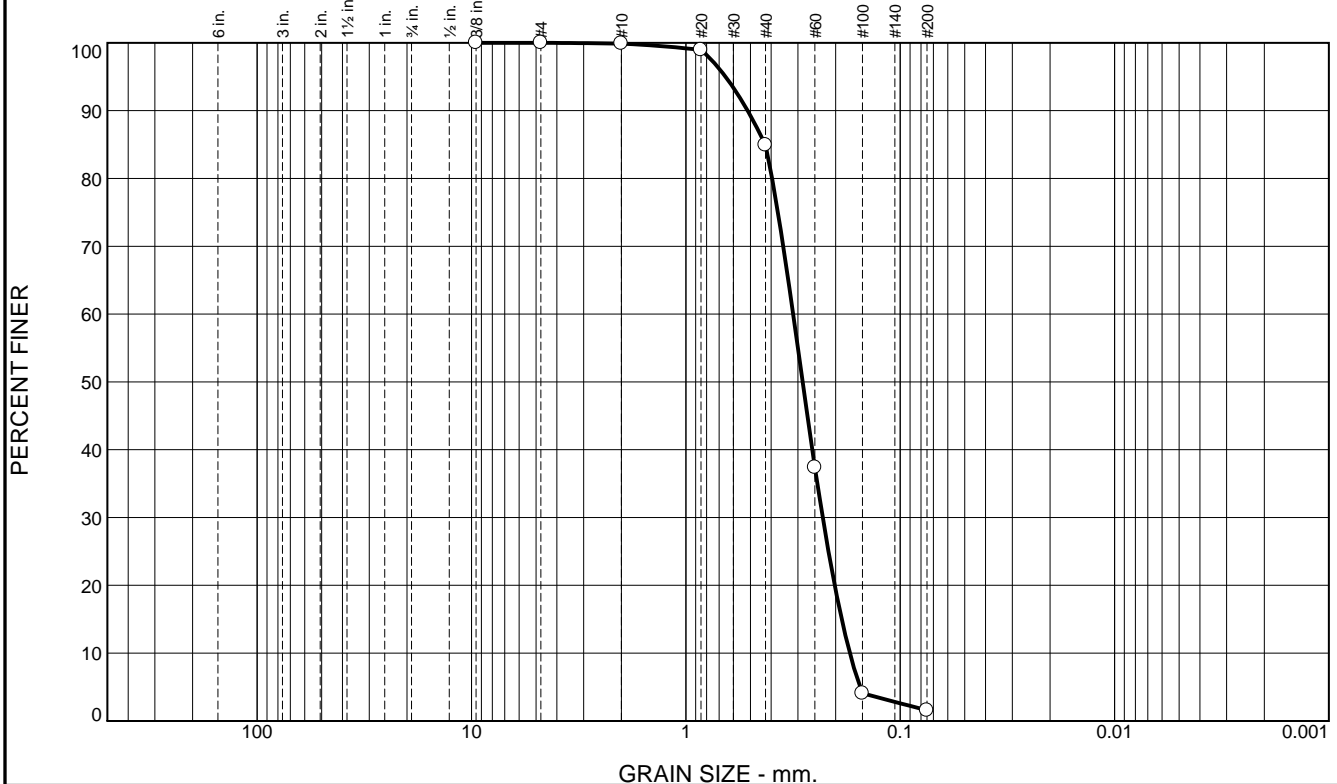
# Boring Designation BI-DA10-19-11

DRILLING LOG		DIVISION South Atlantic		INSTALLATION Mobile District		SHEET 1 OF 2 SHEETS	
1. PROJECT MsCIP Barrier Island Restoration Disposal Area 10				9. SIZE AND TYPE OF BIT N/A			
2. BORING DESIGNATION BI-DA10-19-11		LOCATION COORDINATES E = 1,080,255 N = 261,427		10. COORDINATE SYSTEM/DATUM State Plane, MSE (U.S. Ft.)		HORIZONTAL NAD83	
3. DRILLING AGENCY Corps of Engineers - CESAM		CONTRACTOR FILE NO.		11. MANUFACTURER'S DESIGNATION OF DRILL Vibrocure		<input type="checkbox"/> AUTO HAMMER <input type="checkbox"/> MANUAL HAMMER	
4. NAME OF DRILLER Construction Solutions International, Inc.				12. TOTAL SAMPLES 5		DISTURBED 0	
5. DIRECTION OF BORING <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED				13. TOTAL NUMBER CORE BOXES		14. WATER DEPTH 13 Ft.	
6. THICKNESS OF OVERBURDEN N/A				15. DATE BORING 06-16-11		STARTED 06-16-11	
7. DEPTH DRILLED INTO ROCK N/A				16. ELEVATION TOP OF BORING -11.1 Ft.		COMPLETED 06-16-11	
8. TOTAL DEPTH OF BORING 19.2 Ft.				17. TOTAL RECOVERY FOR BORING 100%		18. SIGNATURE AND TITLE OF INSPECTOR Rhonda Capes, Geologist	
ELEV.	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS	SAMPLE	LABORATORY RESULTS		
-11.1	0.0						
			SAND, poorly-graded, mostly medium-grained sand-sized quartz, tan (SP) At El. -11.9 Ft., gray	A	Classification: SP Color: 2.5Y 7/2-light gray D50: 0.2854 mm % Fines: 1.6		
			At El. -16.0 Ft., lt. gray	B	Classification: SP Color: 2.5Y 7/2-light gray D50: 0.276 mm % Fines: 3.5		
				C	Classification: SP Color: 2.5Y 7/2-light gray D50: 0.3211 mm % Fines: 1.5		
				D	Classification: SP Color: 2.5Y 7/2-light gray D50: 0.3323 mm % Fines: 1.6		
				E	Classification: SP Color: 2.5Y 7/1-light gray D50: 0.335 mm % Fines: 1.9		
-30.3	19.2						
			NOTES: 1. Soils are field visually classified in accordance with the Unified Soils Classification System. 2. NS = Sample not submitted for laboratory analysis from this interval. 3. Seafloor elevation calculated using sampling vessel's fathometer water depth reading and applying NOAA tidal gauge data conversion				



<b>DRILLING LOG (Cont. Sheet)</b>			<b>INSTALLATION</b> Mobile District		<b>SHEET 2</b> <b>OF 2 SHEETS</b>
<b>PROJECT</b> MsCIP Barrier Island Restoration			<b>COORDINATE SYSTEM/DATUM</b> State Plane, MSE (U.S. Ft.)	<b>HORIZONTAL</b> NAD83	<b>VERTICAL</b> NAVD88
<b>LOCATION COORDINATES</b> X = 1,080,255 Y = 261,427			<b>ELEVATION TOP OF BORING</b> -11.1 Ft.		
<b>ELEV.</b>	<b>DEPTH</b>	<b>LEGEND</b>	<b>CLASSIFICATION OF MATERIALS</b>	<b>SAMPLE</b>	<b>LABORATORY RESULTS</b>
			factor.		

# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.0	0.1	15.0	83.3	1.6	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
.375	100.0		
#4	100.0		
#10	99.9		
#20	99.0		
#40	84.9		
#60	37.4		
#100	4.1		
#200	1.6		

\* (no specification provided)

Material Description		
SAND (SP), medium to fine grained		
PL=	Atterberg Limits LL=	PI=
D <sub>90</sub> = 0.5149	Coefficients D <sub>85</sub> = 0.4261	D <sub>60</sub> = 0.3160
D <sub>50</sub> = 0.2854	D <sub>30</sub> = 0.2298	D <sub>15</sub> = 0.1874
D <sub>10</sub> = 0.1718	C <sub>u</sub> = 1.84	C <sub>c</sub> = 0.97
USCS= SP	Classification AASHTO=	
Remarks		

Location: USACE Sample # BI-DA10-19A-11  
Sample Number: TE Lab ID: 5054.01

Depth: 0.0 - 4.0 (ft)

Date: 7/15/11

**Thompson Engineering**

**Mobile, Alabama**

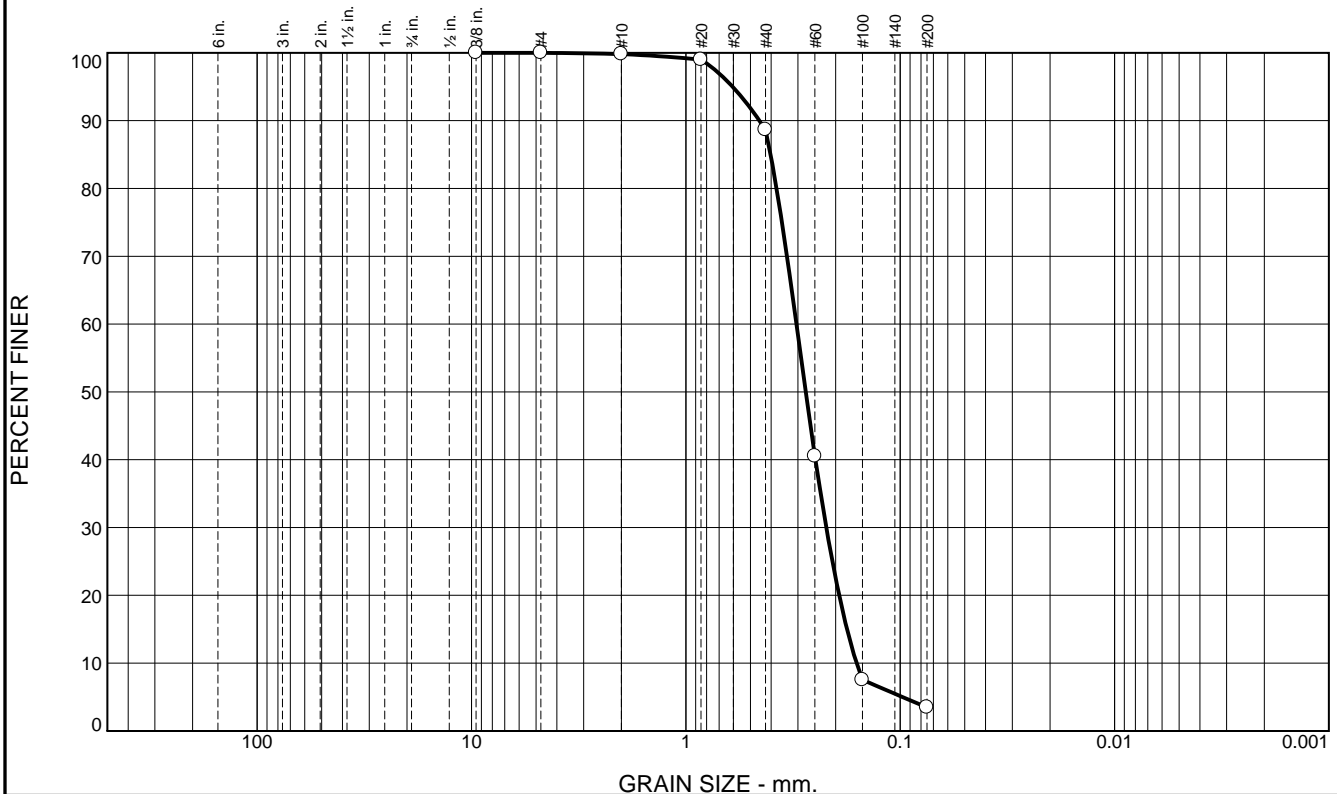
Client: US Army Corps of Engineers

Project: Contract No. W91278-10-D-0026 - Task 009  
Mississippi Barrier Island Restoration Project

Project No: 11-2116-0057

Figure

# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.0	0.2	11.1	85.2	3.5	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
.375	100.0		
#4	100.0		
#10	99.8		
#20	99.0		
#40	88.7		
#60	40.5		
#100	7.5		
#200	3.5		

\* (no specification provided)

**Material Description**  
SAND (SP), medium to fine grained

**Atterberg Limits**  
 PL=      LL=      PI=

**Coefficients**  
 D<sub>90</sub>= 0.4536      D<sub>85</sub>= 0.4025      D<sub>60</sub>= 0.3050  
 D<sub>50</sub>= 0.2760      D<sub>30</sub>= 0.2212      D<sub>15</sub>= 0.1771  
 D<sub>10</sub>= 0.1599      C<sub>u</sub>= 1.91      C<sub>c</sub>= 1.00

**Classification**  
 USCS= SP      AASHTO=

**Remarks**

Location: USACE Sample # BI-DA10-19B-11  
 Sample Number: TE Lab ID: 5054.02

Depth: 4.0 - 8.0 (ft)

Date: 7/15/11

**Thompson Engineering**

**Mobile, Alabama**

**Client:** US Army Corps of Engineers

**Project:** Contract No. W91278-10-D-0026 - Task 009  
 Mississippi Barrier Island Restoration Project

**Project No:** 11-2116-0057

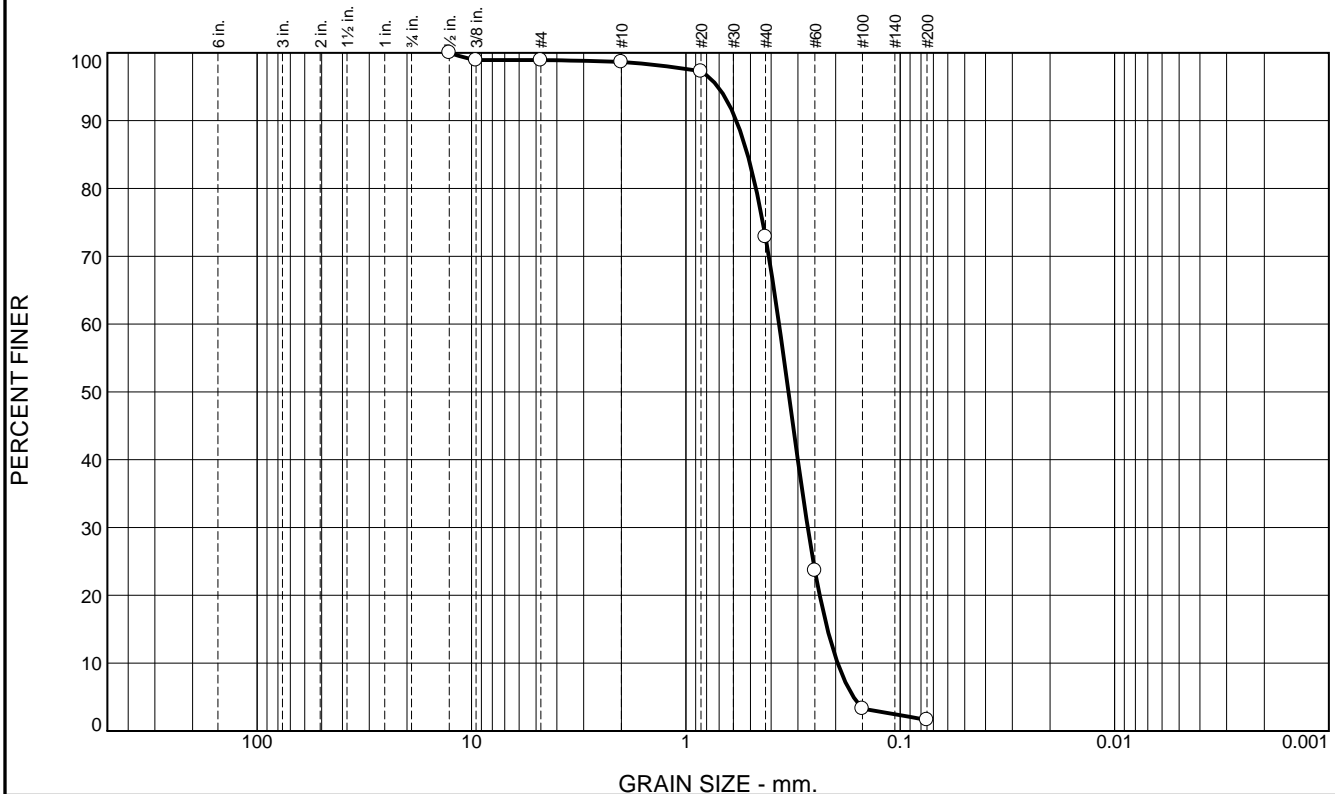
**Figure**

## PERCENT FINER



<b><u>Material Description</u></b>		
SAND (SP), medium to fine grained		
<b><u>Atterberg Limits</u></b>		
PL=	LL=	PI=
<b><u>Coefficients</u></b>		
D <sub>90</sub> = 0.5503	D <sub>85</sub> = 0.4916	D <sub>60</sub> = 0.3552
D <sub>50</sub> = 0.3211	D <sub>30</sub> = 0.2604	D <sub>15</sub> = 0.2102
D <sub>10</sub> = 0.1895	C <sub>u</sub> = 1.87	C <sub>c</sub> = 1.01
<b><u>Classification</u></b>		
USCS= SP	AASHTO=	
<b><u>Remarks</u></b>		

# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	1.1	0.2	25.8	71.3	1.6	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
.5	100.0		
.375	98.9		
#4	98.9		
#10	98.7		
#20	97.3		
#40	72.9		
#60	23.6		
#100	3.3		
#200	1.6		

\* (no specification provided)

## Material Description

SAND (SP), medium to fine grained

## Atterberg Limits

PL= LL= PI=

## Coefficients

D<sub>90</sub>= 0.5812 D<sub>85</sub>= 0.5152 D<sub>60</sub>= 0.3676  
D<sub>50</sub>= 0.3323 D<sub>30</sub>= 0.2702 D<sub>15</sub>= 0.2185  
D<sub>10</sub>= 0.1958 C<sub>u</sub>= 1.88 C<sub>c</sub>= 1.01

## Classification

USCS= SP AASHTO=

## Remarks

Location: USACE Sample # BI-DA10-19D-11

Sample Number: TE Lab ID: 5054.04

Depth: 12.0 - 16.0 (ft)

Date: 7/15/11

**Thompson Engineering**

**Mobile, Alabama**

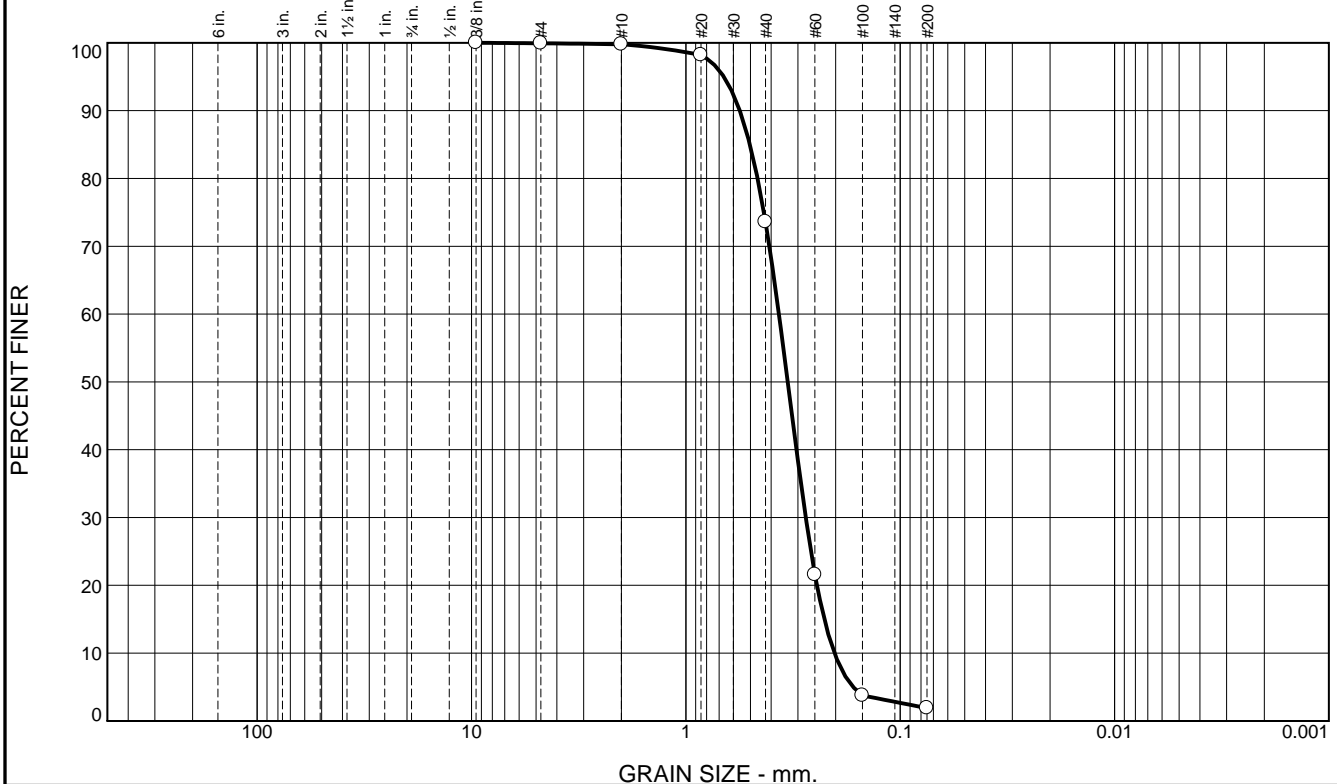
Client: US Army Corps of Engineers

Project: Contract No. W91278-10-D-0026 - Task 009  
Mississippi Barrier Island Restoration Project

Project No: 11-2116-0057

Figure

# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.1	0.1	26.2	71.7	1.9	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
.375	100.0		
#4	99.9		
#10	99.8		
#20	98.2		
#40	73.6		
#60	21.6		
#100	3.8		
#200	1.9		

\* (no specification provided)

**Material Description**  
SAND (SP), medium to fine grained

**Atterberg Limits**  
 PL=      LL=      PI=

**Coefficients**  
 D<sub>90</sub>= 0.5601      D<sub>85</sub>= 0.5026      D<sub>60</sub>= 0.3681  
 D<sub>50</sub>= 0.3350      D<sub>30</sub>= 0.2760      D<sub>15</sub>= 0.2261  
 D<sub>10</sub>= 0.2026      C<sub>u</sub>= 1.82      C<sub>c</sub>= 1.02

**Classification**  
 USCS= SP      AASHTO=

**Remarks**

Location: USACE Sample # BI-DA10-19E-11  
 Sample Number: TE Lab ID: 5054.05

Depth: 16.0 - 19.2 (ft)

Date: 7/15/11

**Thompson Engineering**

**Mobile, Alabama**

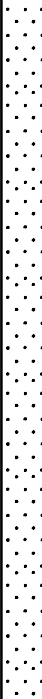
**Client:** US Army Corps of Engineers

**Project:** Contract No. W91278-10-D-0026 - Task 009  
 Mississippi Barrier Island Restoration Project

**Project No:** 11-2116-0057

**Figure**

# Boring Designation BI-DA10-20-11

DRILLING LOG		DIVISION South Atlantic		INSTALLATION Mobile District		SHEET 1 OF 1 SHEETS	
1. PROJECT MsCIP Barrier Island Restoration Disposal Area 10				9. SIZE AND TYPE OF BIT N/A			
2. BORING DESIGNATION BI-DA10-20-11		LOCATION COORDINATES E = 1,081,812 N = 261,482		10. COORDINATE SYSTEM/DATUM State Plane, MSE (U.S. Ft.)		HORIZONTAL NAD83 VERTICAL NAVD88	
3. DRILLING AGENCY Corps of Engineers - CESAM		CONTRACTOR FILE NO.		11. MANUFACTURER'S DESIGNATION OF DRILL Vibracore		<input type="checkbox"/> AUTO HAMMER <input type="checkbox"/> MANUAL HAMMER	
4. NAME OF DRILLER Construction Solutions International, Inc.				12. TOTAL SAMPLES 4		DISTURBED 4 UNDISTURBED (UD) 0	
5. DIRECTION OF BORING <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED		DEG. FROM VERTICAL		13. TOTAL NUMBER CORE BOXES			
		BEARING		14. WATER DEPTH 11 Ft.			
6. THICKNESS OF OVERBURDEN N/A				15. DATE BORING 06-16-11		STARTED 06-16-11 COMPLETED 06-16-11	
7. DEPTH DRILLED INTO ROCK N/A				16. ELEVATION TOP OF BORING -9.0 Ft.			
8. TOTAL DEPTH OF BORING 16.0 Ft.				17. TOTAL RECOVERY FOR BORING 100%			
				18. SIGNATURE AND TITLE OF INSPECTOR Rhonda Capes, Geologist			
ELEV.	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS	SAMPLE	LABORATORY RESULTS		
-9.0	0.0						
		 SAND, poorly-graded, mostly medium-grained sand-sized quartz, gray (SP)  At El. -21.0 Ft., trace shell fragments At El. -22.0 Ft., discontinue shell fragments		A	Classification: SP Color: 2.5Y 6/2-light brownish gray D50: 0.3214 mm % Fines: 1.1		
				B	Classification: SP Color: 2.5Y 7/1-light gray D50: 0.3564 mm % Fines: 1.9		
				C	Classification: SP Color: 2.5Y 7/2-light gray D50: 0.3176 mm % Fines: 2.7		
				D	Classification: SP Color: 2.5Y 6/2-light brownish gray D50: 0.2525 mm % Fines: 4.5		
-25.0	16.0						
			NOTES:				
			1. Soils are field visually classified in accordance with the Unified Soils Classification System.				
			2. NS = Sample not submitted for laboratory analysis from this interval.				
			3. Seafloor elevation calculated using sampling vessel's fathometer water depth reading and applying NOAA tidal gauge data conversion factor.				

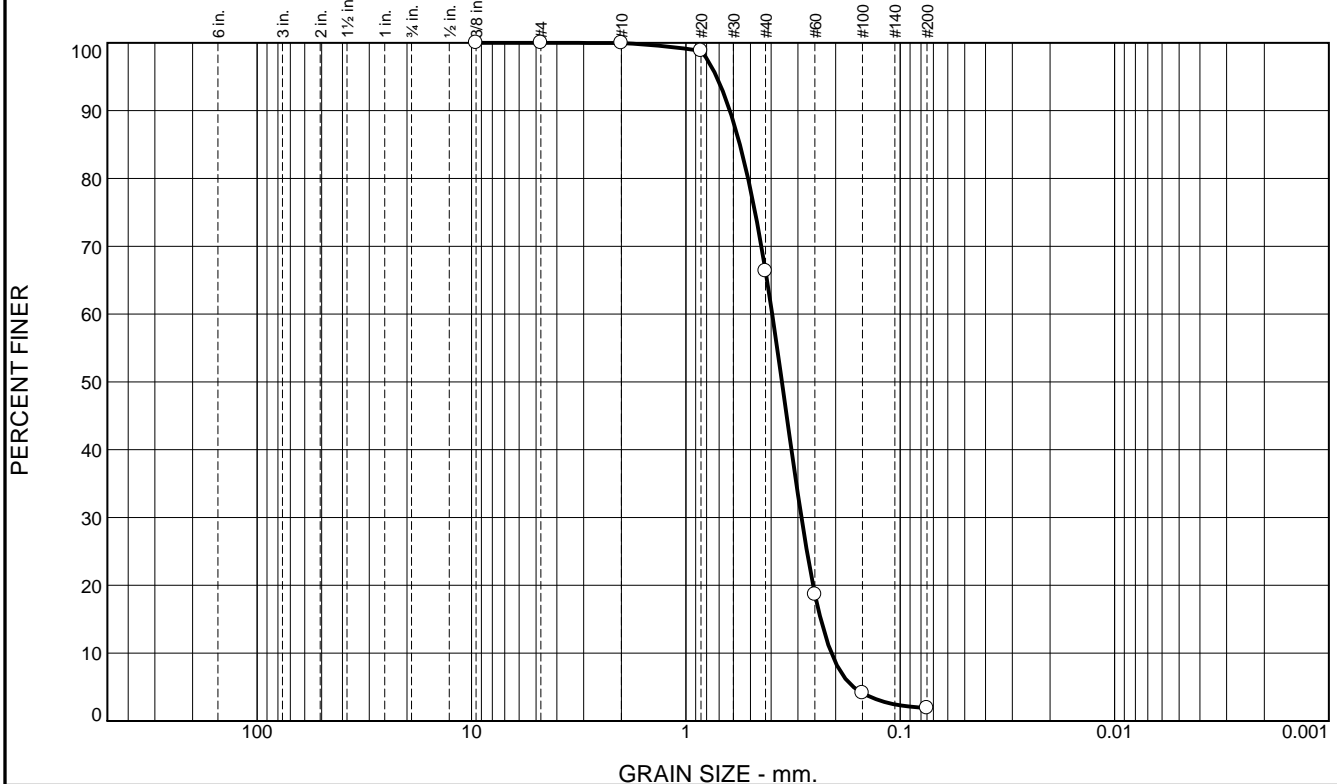
## PERCENT FINER



<b><u>Material Description</u></b>		
SAND (SP), medium to fine grained		
<b><u>Atterberg Limits</u></b>		
PL=	LL=	PI=
<b><u>Coefficients</u></b>		
D <sub>90</sub> = 0.5691	D <sub>85</sub> = 0.5060	D <sub>60</sub> = 0.3577
D <sub>50</sub> = 0.3214	D <sub>30</sub> = 0.2576	D <sub>15</sub> = 0.2065
D <sub>10</sub> = 0.1863	C <sub>u</sub> = 1.92	C <sub>c</sub> = 1.00
<b><u>Classification</u></b>		
USCS= SP	AASHTO=	
<b><u>Remarks</u></b>		



# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.0	0.0	33.6	64.5	1.9	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
.375	100.0		
#4	100.0		
#10	100.0		
#20	98.8		
#40	66.4		
#60	18.7		
#100	4.1		
#200	1.9		

\* (no specification provided)

Material Description		
SAND (SP), medium to fine grained		
<div> <div> <b>Atterberg Limits</b>            PL=      LL=      PI=         </div> <div> <b>Coefficients</b>            D<sub>90</sub>= 0.6230      D<sub>85</sub>= 0.5596      D<sub>60</sub>= 0.3956            D<sub>50</sub>= 0.3564      D<sub>30</sub>= 0.2891      D<sub>15</sub>= 0.2349            D<sub>10</sub>= 0.2093      C<sub>u</sub>= 1.89      C<sub>c</sub>= 1.01         </div> <div> <b>Classification</b>            USCS= SP      AASHTO=         </div> <div> <b>Remarks</b> </div> </div>		

Location: USACE Sample # BI-DA10-20B-11  
Sample Number: TE Lab ID: 5054.07

Depth: 4.0 - 8.0 (ft)

Date: 7/15/11

**Thompson Engineering**

**Mobile, Alabama**

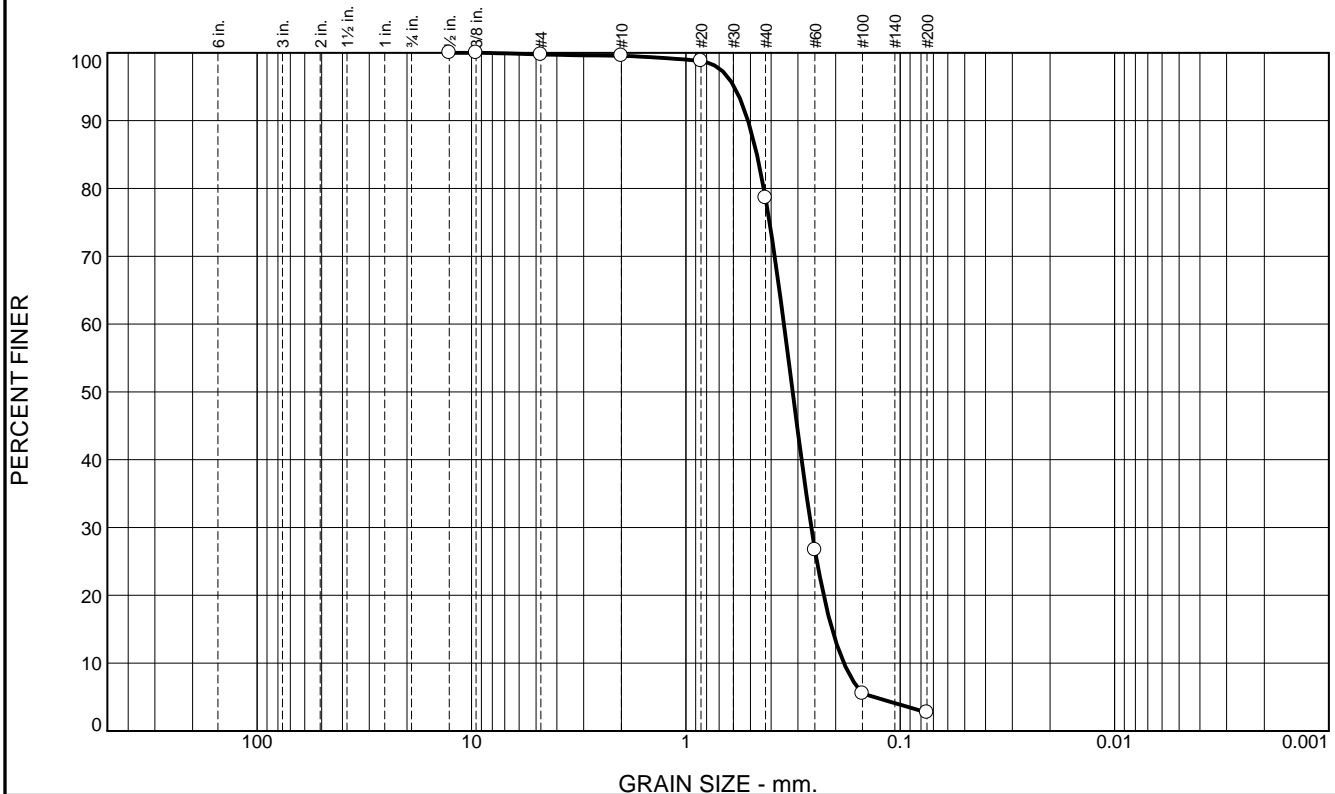
**Client:** US Army Corps of Engineers

**Project:** Contract No. W91278-10-D-0026 - Task 009  
Mississippi Barrier Island Restoration Project

**Project No:** 11-2116-0057

**Figure**

# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.2	0.2	21.0	75.9	2.7	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
.5	100.0		
.375	100.0		
#4	99.8		
#10	99.6		
#20	98.8		
#40	78.6		
#60	26.7		
#100	5.5		
#200	2.7		

\* (no specification provided)

Material Description		
SAND (SP), medium to fine grained		
<div> <div> <b>Atterberg Limits</b>            PL=                      LL=                      PI=         </div> <div> <b>Coefficients</b>            D<sub>90</sub>= 0.5127      D<sub>85</sub>= 0.4659      D<sub>60</sub>= 0.3489            D<sub>50</sub>= 0.3176      D<sub>30</sub>= 0.2600      D<sub>15</sub>= 0.2079            D<sub>10</sub>= 0.1830      C<sub>u</sub>= 1.91              C<sub>c</sub>= 1.06         </div> <div> <b>Classification</b>            USCS= SP                      AASHTO=         </div> <div> <b>Remarks</b> </div> </div>		

Location: USACE Sample # BI-DA10-20C-11  
Sample Number: TE Lab ID: 5054.08

Depth: 8.0 - 12.0 (ft)

Date: 7/15/11

**Thompson Engineering**

**Mobile, Alabama**

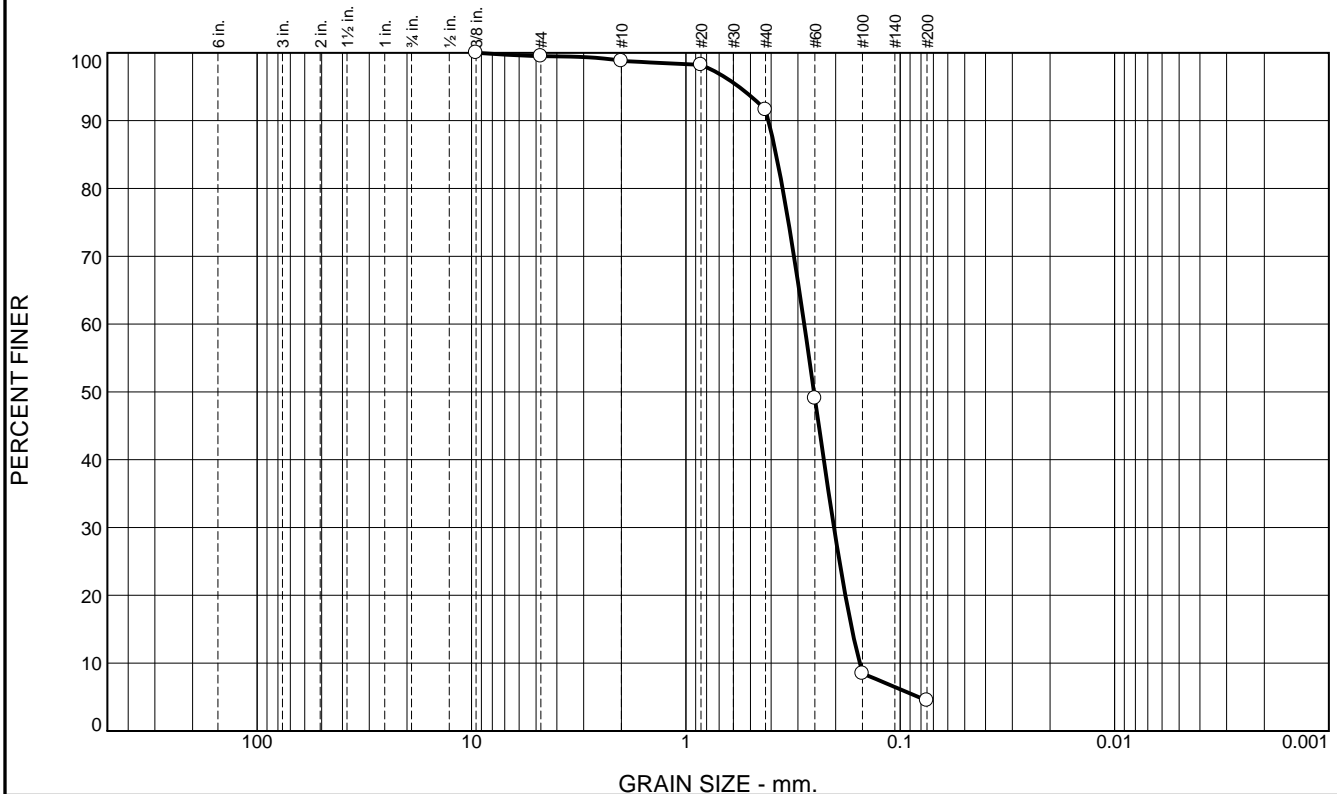
**Client:** US Army Corps of Engineers

**Project:** Contract No. W91278-10-D-0026 - Task 009  
Mississippi Barrier Island Restoration Project

**Project No:** 11-2116-0057

**Figure**

# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.5	0.7	7.2	87.1	4.5	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
.375	100.0		
#4	99.5		
#10	98.8		
#20	98.2		
#40	91.6		
#60	49.0		
#100	8.5		
#200	4.5		

\* (no specification provided)

**Material Description**  
SAND (SP), fine grained

**Atterberg Limits**  
 PL=      LL=      PI=

**Coefficients**  
 D<sub>90</sub>= 0.4119      D<sub>85</sub>= 0.3793      D<sub>60</sub>= 0.2806  
 D<sub>50</sub>= 0.2525      D<sub>30</sub>= 0.2036      D<sub>15</sub>= 0.1680  
 D<sub>10</sub>= 0.1546      C<sub>u</sub>= 1.82      C<sub>c</sub>= 0.96

**Classification**  
 USCS= SP      AASHTO=

**Remarks**

Location: USACE Sample # BI-DA10-20D-11  
 Sample Number: TE Lab ID: 5054.09

Depth: 12.0 -16.0 (ft)

Date: 7/15/11

**Thompson Engineering**

**Mobile, Alabama**


**Client:** US Army Corps of Engineers

**Project:** Contract No. W91278-10-D-0026 - Task 009  
 Mississippi Barrier Island Restoration Project

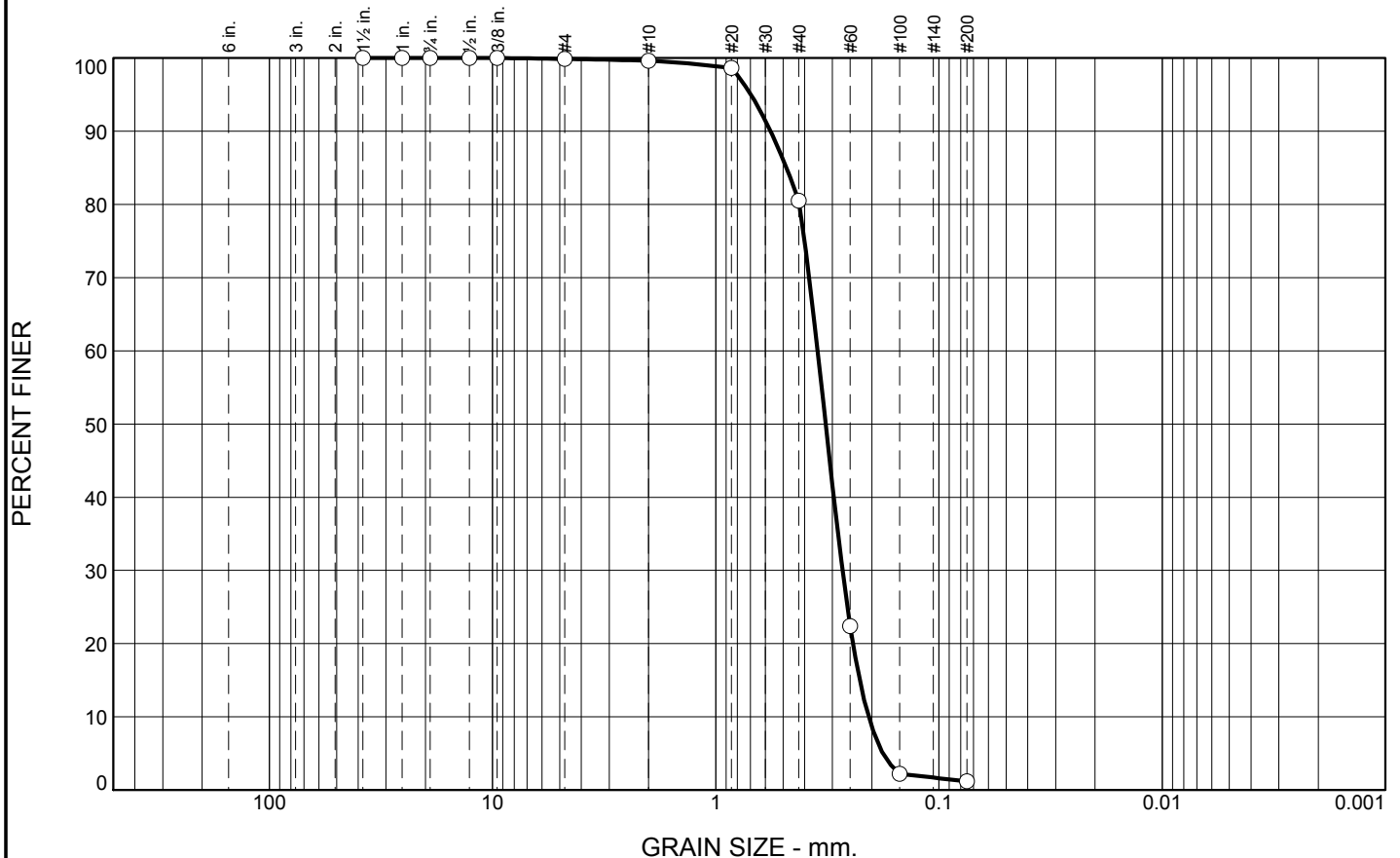
**Project No:** 11-2116-0057

**Figure**

# Boring Designation BI-DA10-21-11

DRILLING LOG		DIVISION South Atlantic		INSTALLATION Mobile District		SHEET 1 OF 1 SHEETS	
1. PROJECT MsCIP Barrier Island Restoration Disposal Area 10				9. SIZE AND TYPE OF BIT N/A			
2. BORING DESIGNATION BI-DA10-21-11		LOCATION COORDINATES E = 1,083,389 N = 261,228		10. COORDINATE SYSTEM/DATUM State Plane, MSE (U.S. Ft.)		HORIZONTAL NAD83	
3. DRILLING AGENCY Corps of Engineers - CESAM		CONTRACTOR FILE NO.		11. MANUFACTURER'S DESIGNATION OF DRILL Vibrocure		<input type="checkbox"/> AUTO HAMMER <input type="checkbox"/> MANUAL HAMMER	
4. NAME OF DRILLER Construction Solutions International, Inc.				12. TOTAL SAMPLES 4		UNDISTURBED (UD) 0	
5. DIRECTION OF BORING <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED				13. TOTAL NUMBER CORE BOXES		14. WATER DEPTH 9 Ft.	
6. THICKNESS OF OVERBURDEN N/A				15. DATE BORING 06-18-11		STARTED 06-18-11	
7. DEPTH DRILLED INTO ROCK N/A				16. ELEVATION TOP OF BORING -6.9 Ft.		COMPLETED 06-18-11	
8. TOTAL DEPTH OF BORING 17.4 Ft.				17. TOTAL RECOVERY FOR BORING 100%			
				18. SIGNATURE AND TITLE OF INSPECTOR Rhonda Capes, Geologist			
ELEV.	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS	SAMPLE	LABORATORY RESULTS		
-6.9	0.0						
			SAND, poorly-graded, mostly medium-grained sand-sized quartz, lt. gray (SP)	A	Classification: SP Color: 2.5Y 7/2-light gray D50: 0.3218 mm % Fines: 1.2		
	B			Classification: SP Color: 2.5Y 7/1-light gray D50: 0.3334 mm % Fines: 2.4			
	C			Classification: SP Color: 5Y 7/1-light gray D50: 0.3256 mm % Fines: 3.1			
	D			Classification: SP Color: 5Y 7/1-light gray D50: 0.2759 mm % Fines: 4.2			
-24.3	17.4						
			NOTES:				
			1. Soils are field visually classified in accordance with the Unified Soils Classification System.				
			2. NS = Sample not submitted for laboratory analysis from this interval.				
			3. Seafloor elevation calculated using sampling vessel's fathometer water depth reading and applying NOAA tidal gauge data conversion factor.				

# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.1	0.3	19.1	79.3	1.2	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
1.50	100.0		
1	100.0		
.75	100.0		
.5	100.0		
.375	100.0		
#4	99.9		
#10	99.6		
#20	98.6		
#40	80.5		
#60	22.4		
#100	2.2		
#200	1.2		

\* (no specification provided)

<u><b>Material Description</b></u>		
SAND (SP), medium to fine grained		
<u><b>Atterberg Limits</b></u>		
PL=	LL=	PI=
<u><b>Coefficients</b></u>		
D <sub>90</sub> = 0.5682	D <sub>85</sub> = 0.4825	D <sub>60</sub> = 0.3497
D <sub>50</sub> = 0.3218	D <sub>30</sub> = 0.2706	D <sub>15</sub> = 0.2266
D <sub>10</sub> = 0.2066	C <sub>u</sub> = 1.69	C <sub>c</sub> = 1.01
<u><b>Classification</b></u>		
USCS= SP	AASHTO=	
<u><b>Remarks</b></u>		

Location: USACE Sample # B1-DA10-21A-11  
Sample Number: TE Lab ID: 5055.18

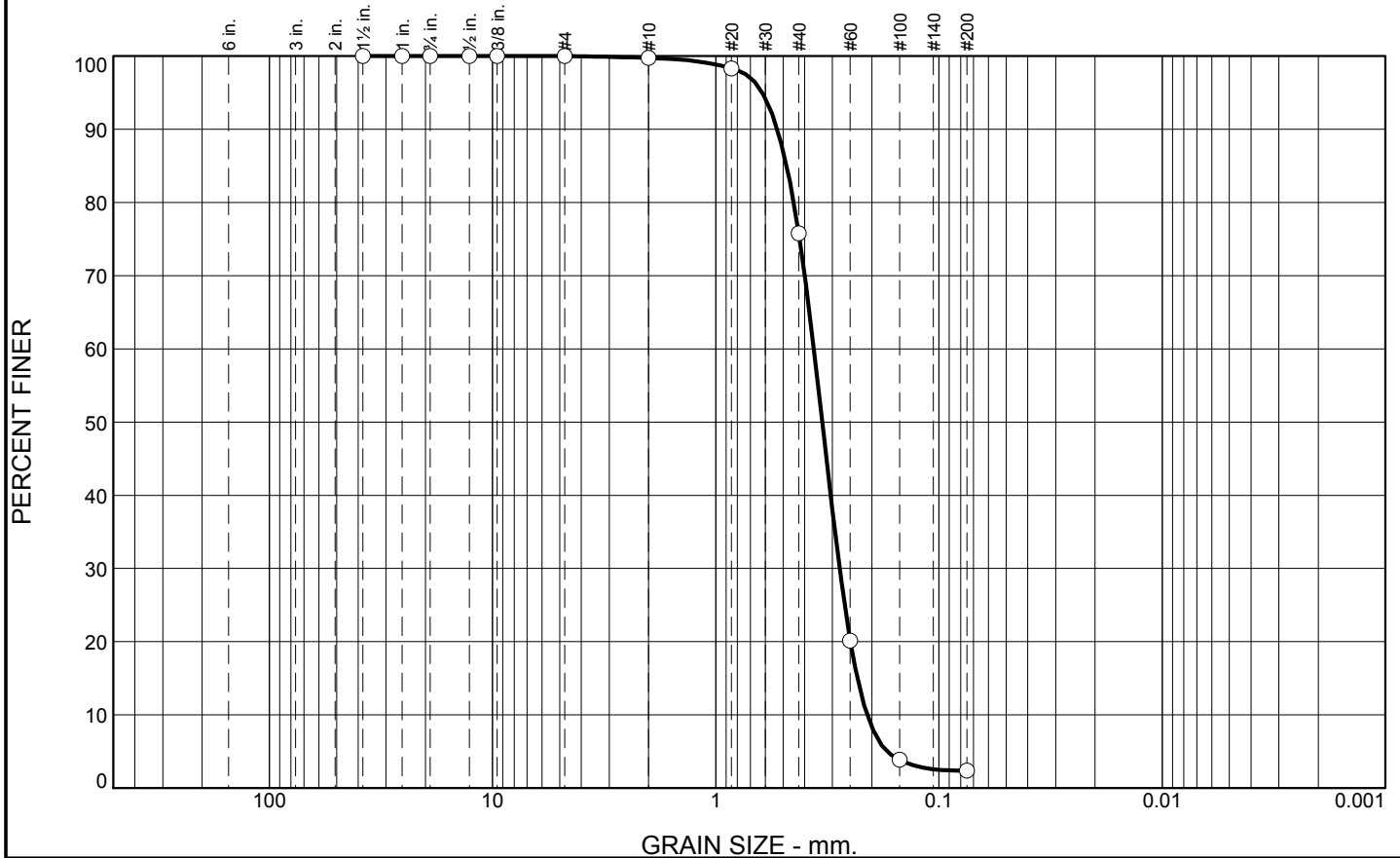
Depth: 0.0 - 4.0 (ft)

Date: 8/8/11

**Thompson Engineering**  
**Mobile, Alabama**

**Client:** US Army Corps of Engineers  
**Project:** Contract No. W91278-10-D-0026 - Task 009  
Mississippi Barrier Island Restoration Project  
**Project No:** 11-2116-0057  
**Report No.**

# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.0	0.3	23.9	73.4	2.4	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
1.50	100.0		
1	100.0		
.75	100.0		
.5	100.0		
.375	100.0		
#4	100.0		
#10	99.7		
#20	98.3		
#40	75.8		
#60	20.1		
#100	3.9		
#200	2.4		

\* (no specification provided)

<b><u>Material Description</u></b>		
SAND (SP), medium to fine grained		
<b><u>Atterberg Limits</u></b>		
PL=	LL=	PI=
<b><u>Coefficients</u></b>		
D <sub>90</sub> = 0.5305	D <sub>85</sub> = 0.4817	D <sub>60</sub> = 0.3638
D <sub>50</sub> = 0.3334	D <sub>30</sub> = 0.2786	D <sub>15</sub> = 0.2322
D <sub>10</sub> = 0.2098	C <sub>u</sub> = 1.73	C <sub>c</sub> = 1.02
<b><u>Classification</u></b>		
USCS= SP	AASHTO=	
<b><u>Remarks</u></b>		

Location: USACE Sample # B1-DA10-21B-11  
Sample Number: TE Lab ID: 5055.19

Depth: 4.0 - 8.0 (ft)

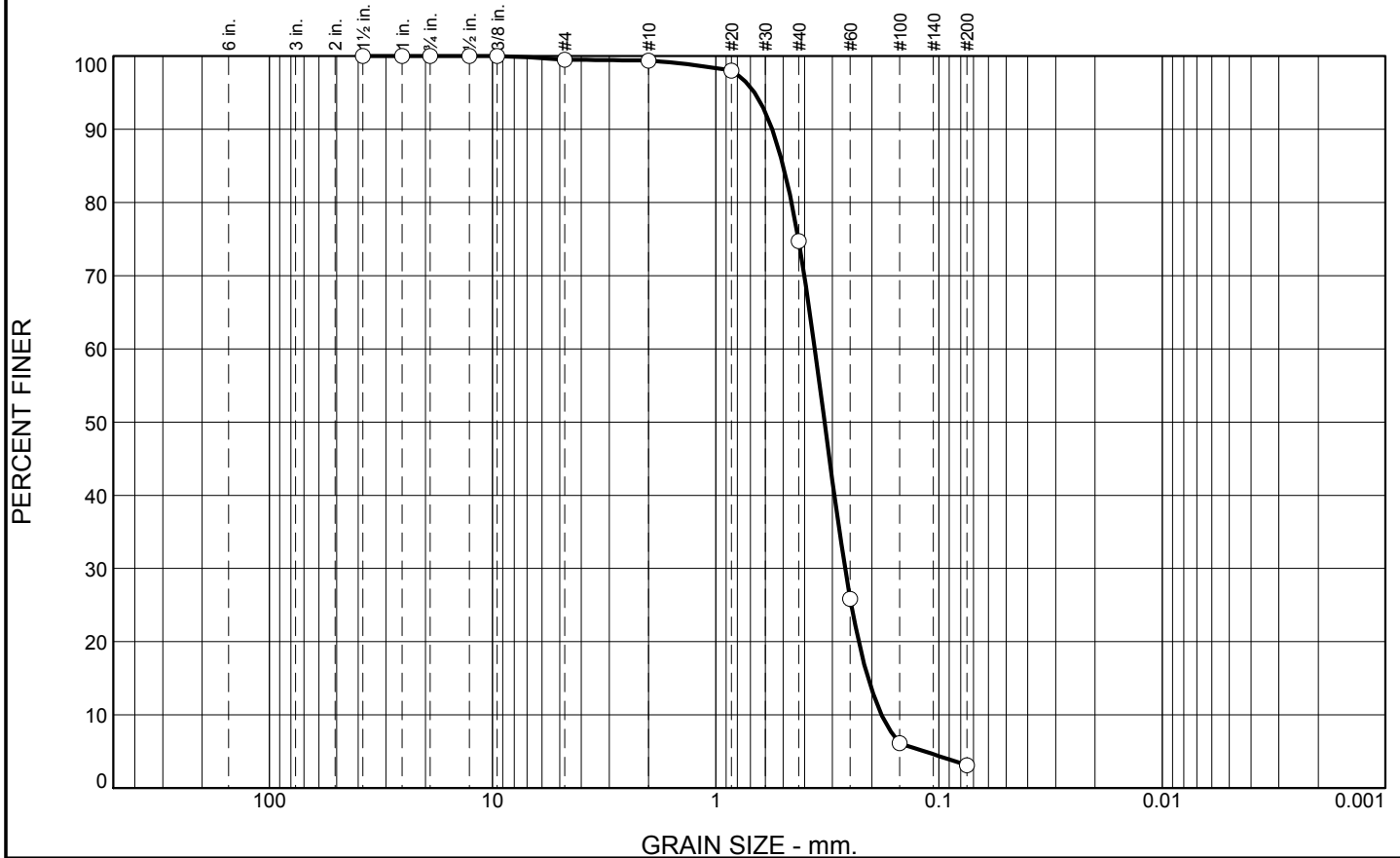
Date: 8/8/11

**Thompson Engineering**  
**Mobile, Alabama**

Client: US Army Corps of Engineers  
Project: Contract No. W91278-10-D-0026 - Task 009  
Mississippi Barrier Island Restoration Project  
Project No: 11-2116-0057

Report No.

# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.5	0.1	24.7	71.6	3.1	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
1.50	100.0		
1	100.0		
.75	100.0		
.5	100.0		
.375	100.0		
#4	99.5		
#10	99.4		
#20	98.0		
#40	74.7		
#60	25.9		
#100	6.1		
#200	3.1		

\* (no specification provided)

<b><u>Material Description</u></b>		
SAND (SP), medium to fine grained		
<b><u>Atterberg Limits</u></b>		
PL=	LL=	PI=
<b><u>Coefficients</u></b>		
D <sub>90</sub> = 0.5592	D <sub>85</sub> = 0.4992	D <sub>60</sub> = 0.3601
D <sub>50</sub> = 0.3256	D <sub>30</sub> = 0.2634	D <sub>15</sub> = 0.2078
D <sub>10</sub> = 0.1808	C <sub>u</sub> = 1.99	C <sub>c</sub> = 1.07
<b><u>Classification</u></b>		
USCS= SP	AASHTO=	
<b><u>Remarks</u></b>		

**Location:** USACE Sample # B1-DA10-21C-11  
**Sample Number:** TE Lab ID: 5055.20

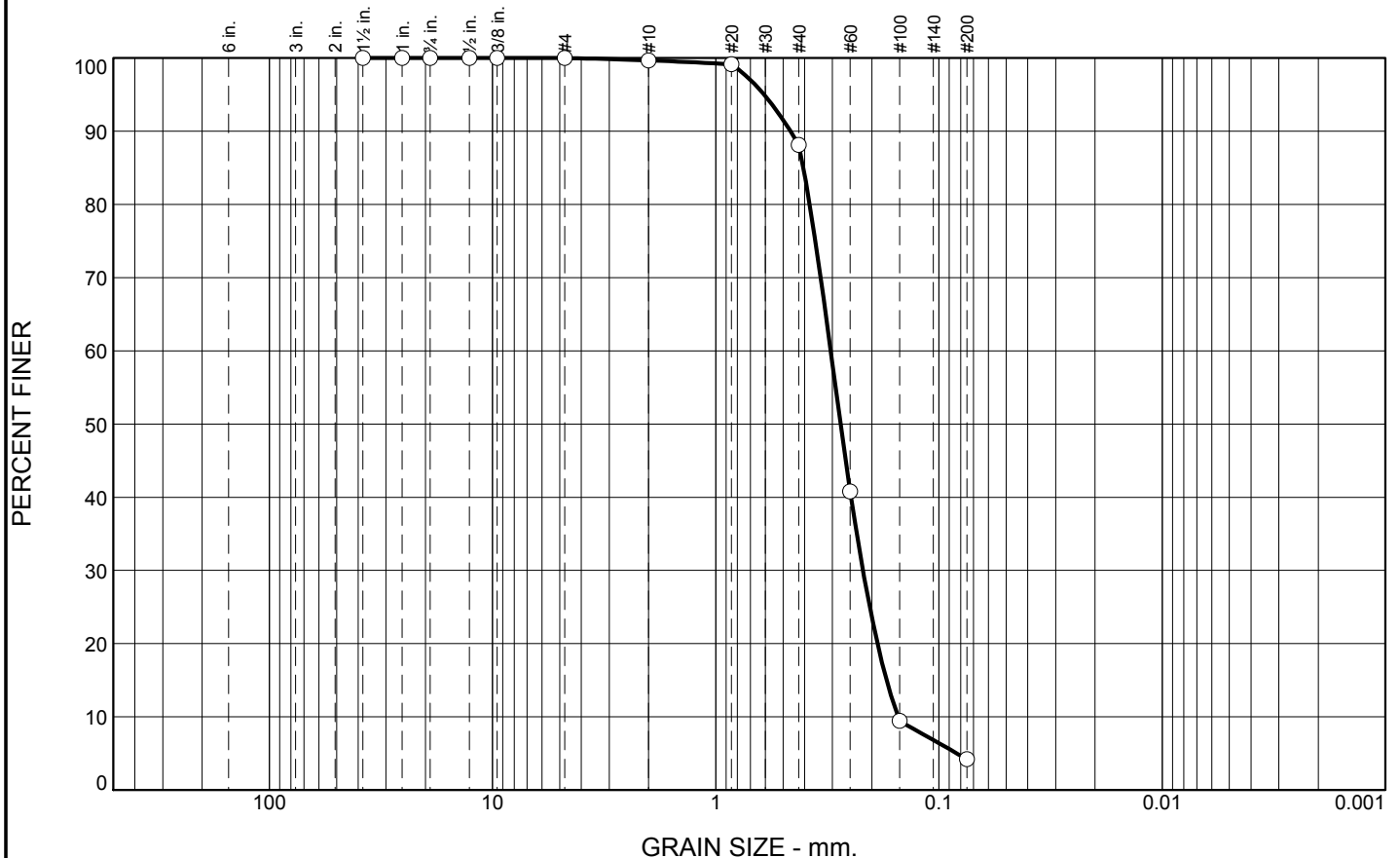
**Depth:** 8.0 - 12.0 (ft)

**Date:** 8/8/11

**Thompson Engineering**  
**Mobile, Alabama**

**Client:** US Army Corps of Engineers  
**Project:** Contract No. W91278-10-D-0026 - Task 009  
 Mississippi Barrier Island Restoration Project  
**Project No:** 11-2116-0057  
**Report No.**

# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.0	0.3	11.5	84.0	4.2	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
1.50	100.0		
1	100.0		
.75	100.0		
.5	100.0		
.375	100.0		
#4	100.0		
#10	99.7		
#20	99.2		
#40	88.2		
#60	40.8		
#100	9.4		
#200	4.2		

\* (no specification provided)

<u><b>Material Description</b></u>		
SAND (SP), medium to fine grained		
<u><b>Atterberg Limits</b></u>		
PL=	LL=	PI=
<u><b>Coefficients</b></u>		
D <sub>90</sub> = 0.4624	D <sub>85</sub> = 0.4053	D <sub>60</sub> = 0.3056
D <sub>50</sub> = 0.2759	D <sub>30</sub> = 0.2191	D <sub>15</sub> = 0.1719
D <sub>10</sub> = 0.1525	C <sub>u</sub> = 2.00	C <sub>c</sub> = 1.03
<u><b>Classification</b></u>		
USCS= SP	AASHTO=	
<u><b>Remarks</b></u>		

Location: USACE Sample # B1-DA10-21D-11  
Sample Number: TE Lab ID: 5055.21

Depth: 12.0 - 17.4 (ft)

Date: 8/8/11

**Thompson Engineering**  
**Mobile, Alabama**


**Client:** US Army Corps of Engineers  
**Project:** Contract No. W91278-10-D-0026 - Task 009  
Mississippi Barrier Island Restoration Project  
**Project No:** 11-2116-0057  
**Report No.**



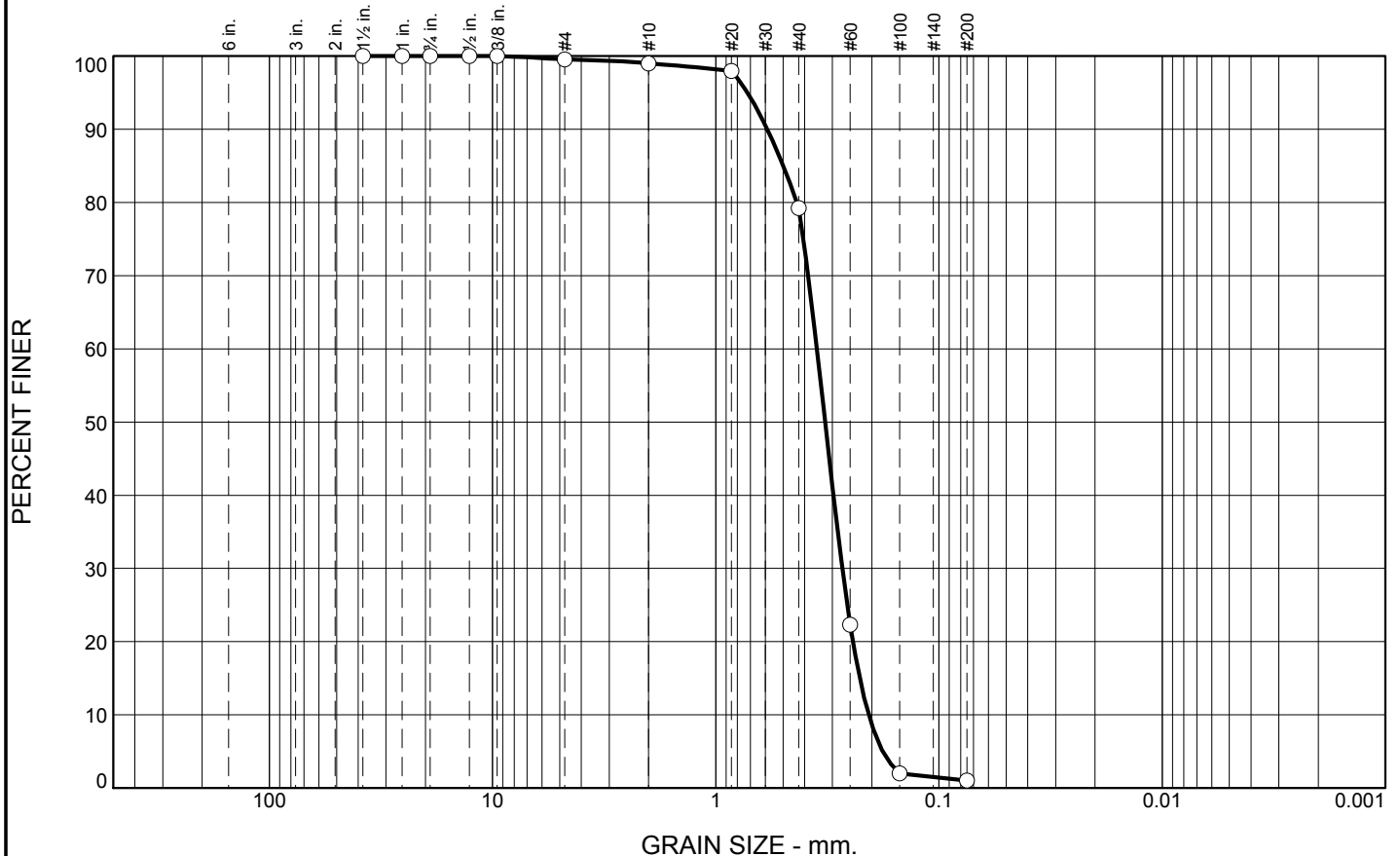
# Boring Designation BI-DA10-22-11

DRILLING LOG		DIVISION South Atlantic		INSTALLATION Mobile District		SHEET 1 OF 1 SHEETS	
1. PROJECT MsCIP Barrier Island Restoration Disposal Area 10				9. SIZE AND TYPE OF BIT N/A			
2. BORING DESIGNATION BI-DA10-22-11		LOCATION COORDINATES E = 1,084,677 N = 261,537		10. COORDINATE SYSTEM/DATUM State Plane, MSE (U.S. Ft.)		HORIZONTAL NAD83 VERTICAL NAVD88	
3. DRILLING AGENCY Corps of Engineers - CESAM		CONTRACTOR FILE NO.		11. MANUFACTURER'S DESIGNATION OF DRILL Vibracore		<input type="checkbox"/> AUTO HAMMER <input type="checkbox"/> MANUAL HAMMER	
4. NAME OF DRILLER Construction Solutions International, Inc.				12. TOTAL SAMPLES 3		DISTURBED 3 UNDISTURBED (UD) 0	
5. DIRECTION OF BORING <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED		DEG. FROM VERTICAL		13. TOTAL NUMBER CORE BOXES			
		BEARING		14. WATER DEPTH 12.5 Ft.			
6. THICKNESS OF OVERBURDEN N/A				15. DATE BORING 06-18-11		STARTED 06-18-11 COMPLETED 06-18-11	
7. DEPTH DRILLED INTO ROCK N/A				16. ELEVATION TOP OF BORING -10.3 Ft.			
8. TOTAL DEPTH OF BORING 11.5 Ft.				17. TOTAL RECOVERY FOR BORING 100%			
				18. SIGNATURE AND TITLE OF INSPECTOR Rhonda Capes, Geologist			

ELEV.	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS	SAMPLE	LABORATORY RESULTS
-10.3	0.0				
		 SAND, poorly-graded, mostly medium-grained sand-sized quartz, trace shell fragments, lt. gray (SP)  At El. -17.3 Ft., white	A	Classification: SP Color: 2.5Y 7/2-light gray D50: 0.3236 mm % Fines: 1	
			B	Classification: SP Color: 2.5Y 7/2-light gray D50: 0.3044 mm % Fines: 2.3	
			C	Classification: SP Color: 5Y 8/1-white D50: 0.4041 mm % Fines: 4.6	
-21.8	11.5				
			NOTES: 1. Soils are field visually classified in accordance with the Unified Soils Classification System. 2. NS = Sample not submitted for laboratory analysis from this interval. 3. Seafloor elevation calculated using sampling vessel's fathometer water depth reading and applying NOAA tidal gauge data conversion factor.		

# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.4	0.6	19.7	78.3	1.0	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
1.50	100.0		
1	100.0		
.75	100.0		
.5	100.0		
.375	100.0		
#4	99.6		
#10	99.0		
#20	98.0		
#40	79.3		
#60	22.3		
#100	2.0		
#200	1.0		

\* (no specification provided)

<b><u>Material Description</u></b>		
SAND (SP), medium to fine grained		
<b><u>Atterberg Limits</u></b>		
PL=	LL=	PI=
<b><u>Coefficients</u></b>		
D <sub>90</sub> = 0.5878	D <sub>85</sub> = 0.4989	D <sub>60</sub> = 0.3524
D <sub>50</sub> = 0.3236	D <sub>30</sub> = 0.2711	D <sub>15</sub> = 0.2265
D <sub>10</sub> = 0.2065	C <sub>u</sub> = 1.71	C <sub>c</sub> = 1.01
<b><u>Classification</u></b>		
USCS= SP	AASHTO=	
<b><u>Remarks</u></b>		

Location: USACE Sample # B1-DA10-22A-11  
Sample Number: TE Lab ID: 5055.22

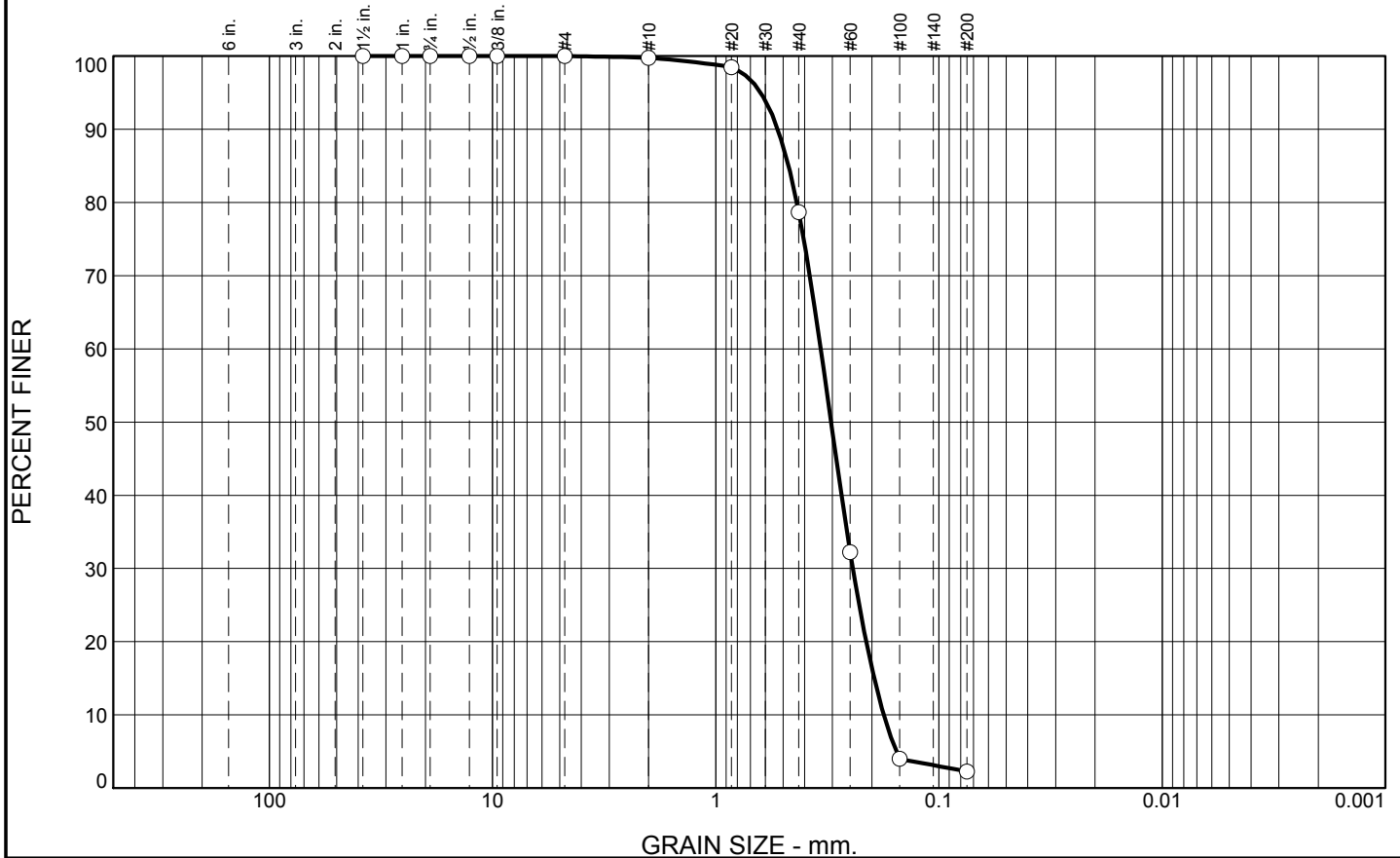
Depth: 0.0 - 4.0 (ft)

Date: 8/8/11

**Thompson Engineering**  
**Mobile, Alabama**

**Client:** US Army Corps of Engineers  
**Project:** Contract No. W91278-10-D-0026 - Task 009  
Mississippi Barrier Island Restoration Project  
**Project No:** 11-2116-0057  
**Report No.**

# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.0	0.2	21.1	76.4	2.3	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
1.50	100.0		
1	100.0		
.75	100.0		
.5	100.0		
.375	100.0		
#4	100.0		
#10	99.8		
#20	98.5		
#40	78.7		
#60	32.2		
#100	4.0		
#200	2.3		

\* (no specification provided)

<u><b>Material Description</b></u>		
SAND (SP), medium to fine grained		
<u><b>Atterberg Limits</b></u>		
PL=	LL=	PI=
<u><b>Coefficients</b></u>		
D <sub>90</sub> = 0.5279	D <sub>85</sub> = 0.4721	D <sub>60</sub> = 0.3387
D <sub>50</sub> = 0.3044	D <sub>30</sub> = 0.2433	D <sub>15</sub> = 0.1952
D <sub>10</sub> = 0.1769	C <sub>u</sub> = 1.92	C <sub>c</sub> = 0.99
<u><b>Classification</b></u>		
USCS= SP	AASHTO=	
<u><b>Remarks</b></u>		

Location: USACE Sample # B1-DA10-22B-11  
Sample Number: TE Lab ID: 5055.23

Depth: 4.0 - 8.0 (ft)

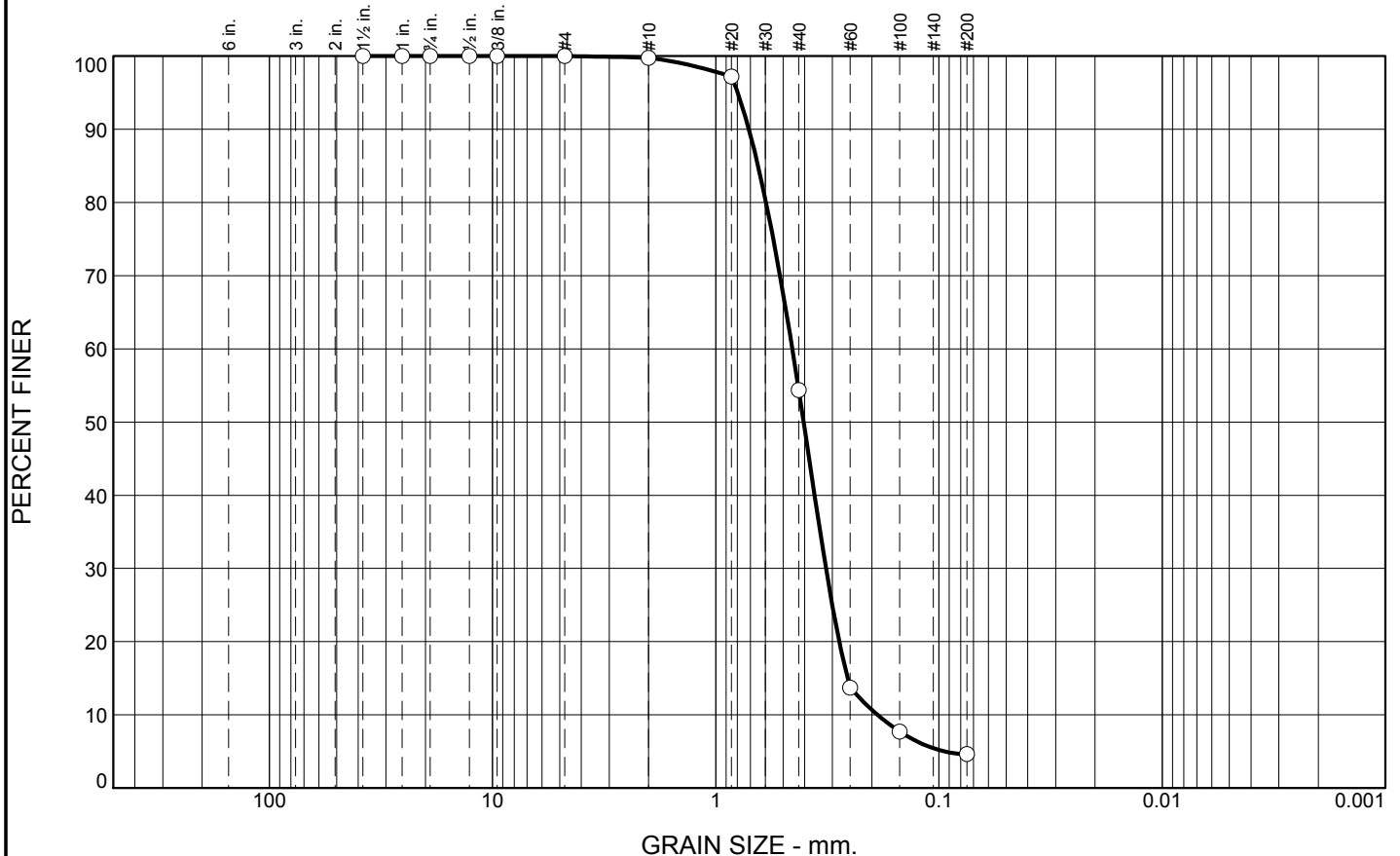
Date: 8/8/11

**Thompson Engineering**  
**Mobile, Alabama**

Client: US Army Corps of Engineers  
Project: Contract No. W91278-10-D-0026 - Task 009  
Mississippi Barrier Island Restoration Project  
Project No: 11-2116-0057

Report No.

# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.0	0.2	45.4	49.8	4.6	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
1.50	100.0		
1	100.0		
.75	100.0		
.5	100.0		
.375	100.0		
#4	100.0		
#10	99.8		
#20	97.2		
#40	54.4		
#60	13.7		
#100	7.7		
#200	4.6		

\* (no specification provided)

<b><u>Material Description</u></b>		
SAND (SP), medium to fine grained		
<b><u>Atterberg Limits</u></b>		
PL=	LL=	PI=
<b><u>Coefficients</u></b>		
D <sub>90</sub> = 0.7104	D <sub>85</sub> = 0.6466	D <sub>60</sub> = 0.4543
D <sub>50</sub> = 0.4041	D <sub>30</sub> = 0.3208	D <sub>15</sub> = 0.2569
D <sub>10</sub> = 0.1886	C <sub>u</sub> = 2.41	C <sub>c</sub> = 1.20
<b><u>Classification</u></b>		
USCS= SP	AASHTO=	
<b><u>Remarks</u></b>		

Location: USACE Sample # B1-DA10-22C-11  
Sample Number: TE Lab ID: 5055.24

Depth: 8.0 - 11.5 (ft)

Date: 8/8/11

**Thompson Engineering**  
**Mobile, Alabama**

Client: US Army Corps of Engineers  
Project: Contract No. W91278-10-D-0026 - Task 009  
Mississippi Barrier Island Restoration Project  
Project No: 11-2116-0057

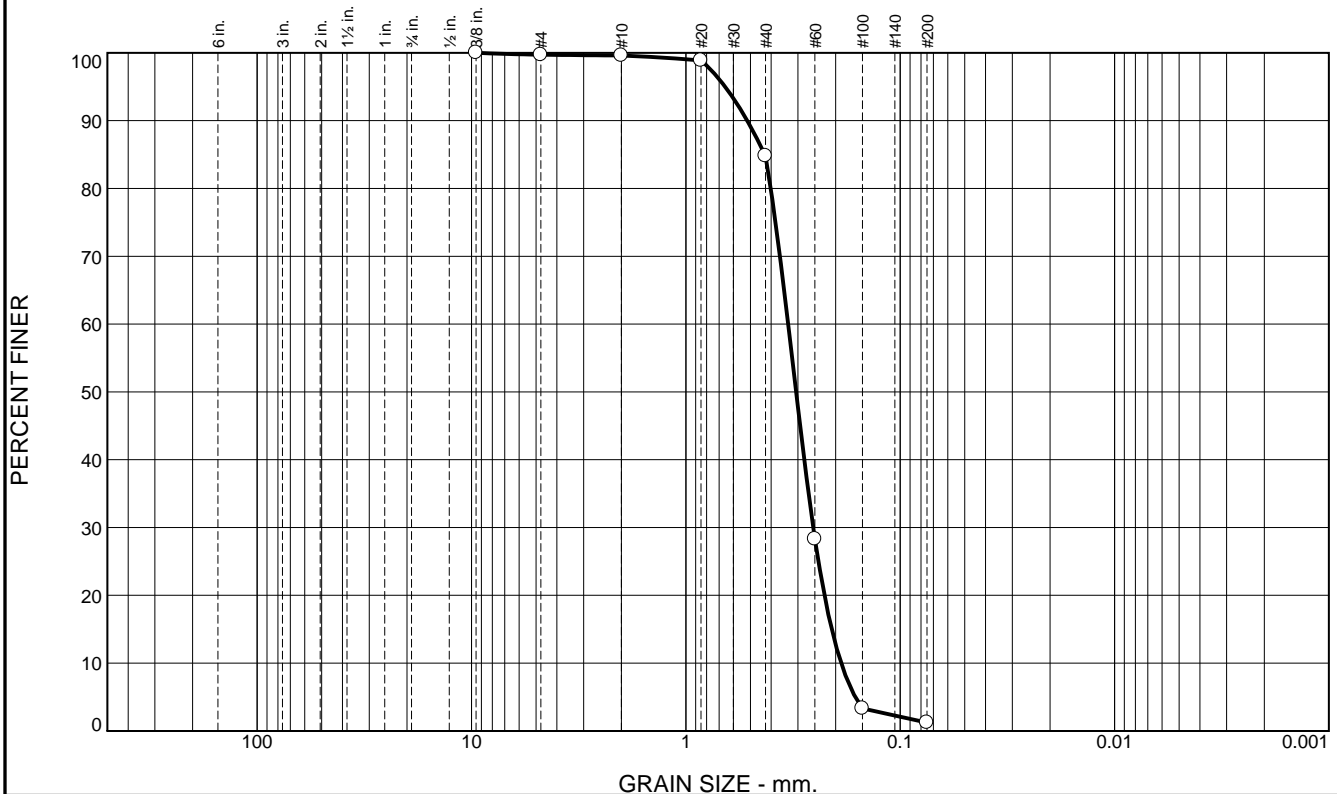
Report No.

# Boring Designation BI-DA10-23-11

DRILLING LOG		DIVISION South Atlantic		INSTALLATION Mobile District		SHEET 1 OF 1 SHEETS	
1. PROJECT MsCIP Barrier Island Restoration Disposal Area 10				9. SIZE AND TYPE OF BIT N/A			
2. BORING DESIGNATION BI-DA10-23-11		LOCATION COORDINATES E = 1,080,826 N = 260,647		10. COORDINATE SYSTEM/DATUM State Plane, MSE (U.S. Ft.)		HORIZONTAL NAD83 VERTICAL NAVD88	
3. DRILLING AGENCY Corps of Engineers - CESAM		CONTRACTOR FILE NO.		11. MANUFACTURER'S DESIGNATION OF DRILL Vibracore		<input type="checkbox"/> AUTO HAMMER <input type="checkbox"/> MANUAL HAMMER	
4. NAME OF DRILLER Construction Solutions International, Inc.				12. TOTAL SAMPLES 4		DISTURBED 4 UNDISTURBED (UD) 0	
5. DIRECTION OF BORING <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED		DEG. FROM VERTICAL		13. TOTAL NUMBER CORE BOXES			
		BEARING		14. WATER DEPTH 11.5 Ft.			
6. THICKNESS OF OVERBURDEN N/A				15. DATE BORING 06-16-11		STARTED 06-16-11 COMPLETED 06-16-11	
7. DEPTH DRILLED INTO ROCK N/A				16. ELEVATION TOP OF BORING -9.6 Ft.			
8. TOTAL DEPTH OF BORING 15.7 Ft.				17. TOTAL RECOVERY FOR BORING 100%			
				18. SIGNATURE AND TITLE OF INSPECTOR Rhonda Capes, Geologist			
ELEV.	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS	SAMPLE	LABORATORY RESULTS		
-9.6	0.0						
			SAND, poorly-graded, mostly medium-grained sand-sized quartz, dark gray (SP)	A	Classification: SP Color: 2.5Y 7/2-light gray D50: 0.3011 mm % Fines: 0.9		
			At El. -13.6 Ft., lt. gray	B	Classification: SP Color: 2.5Y 7/1-light gray D50: 0.3061 mm % Fines: 1.2		
			At El. -18.1 Ft., trace shell fragments, lt. gray	C	Classification: SP-SM Color: 5Y 7/1-light gray D50: 0.2796 mm % Fines: 6.5		
			At El. -20.1 Ft., discontinue shell fragments, lt. gray	D	Classification: SP-SM Color: 5Y 7/1-light gray D50: 0.2473 mm % Fines: 5.7		
-25.3	15.7						
			NOTES: 1. Soils are field visually classified in accordance with the Unified Soils Classification System. 2. NS = Sample not submitted for laboratory analysis from this interval. 3. Seafloor elevation calculated using sampling vessel's fathometer water depth reading and applying NOAA tidal gauge data conversion factor.				



# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.3	0.1	14.8	83.6	1.2	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
.375	100.0		
#4	99.7		
#10	99.6		
#20	98.9		
#40	84.8		
#60	28.3		
#100	3.3		
#200	1.2		

\* (no specification provided)

<u>Material Description</u>		
SAND (SP), medium to fine grained		
<u>Atterberg Limits</u>		
PL=	LL=	PI=
<u>Coefficients</u>		
D <sub>90</sub> = 0.5172	D <sub>85</sub> = 0.4281	D <sub>60</sub> = 0.3334
D <sub>50</sub> = 0.3061	D <sub>30</sub> = 0.2546	D <sub>15</sub> = 0.2087
D <sub>10</sub> = 0.1886	C <sub>u</sub> = 1.77	C <sub>c</sub> = 1.03
<u>Classification</u>		
USCS= SP	AASHTO=	
<u>Remarks</u>		

Location: USACE Sample # BI-DA10-23B-11  
Sample Number: TE Lab ID: 5054.11

Depth: 4.0 -8.0 (ft)

Date: 7/15/11

**Thompson Engineering**

**Mobile, Alabama**

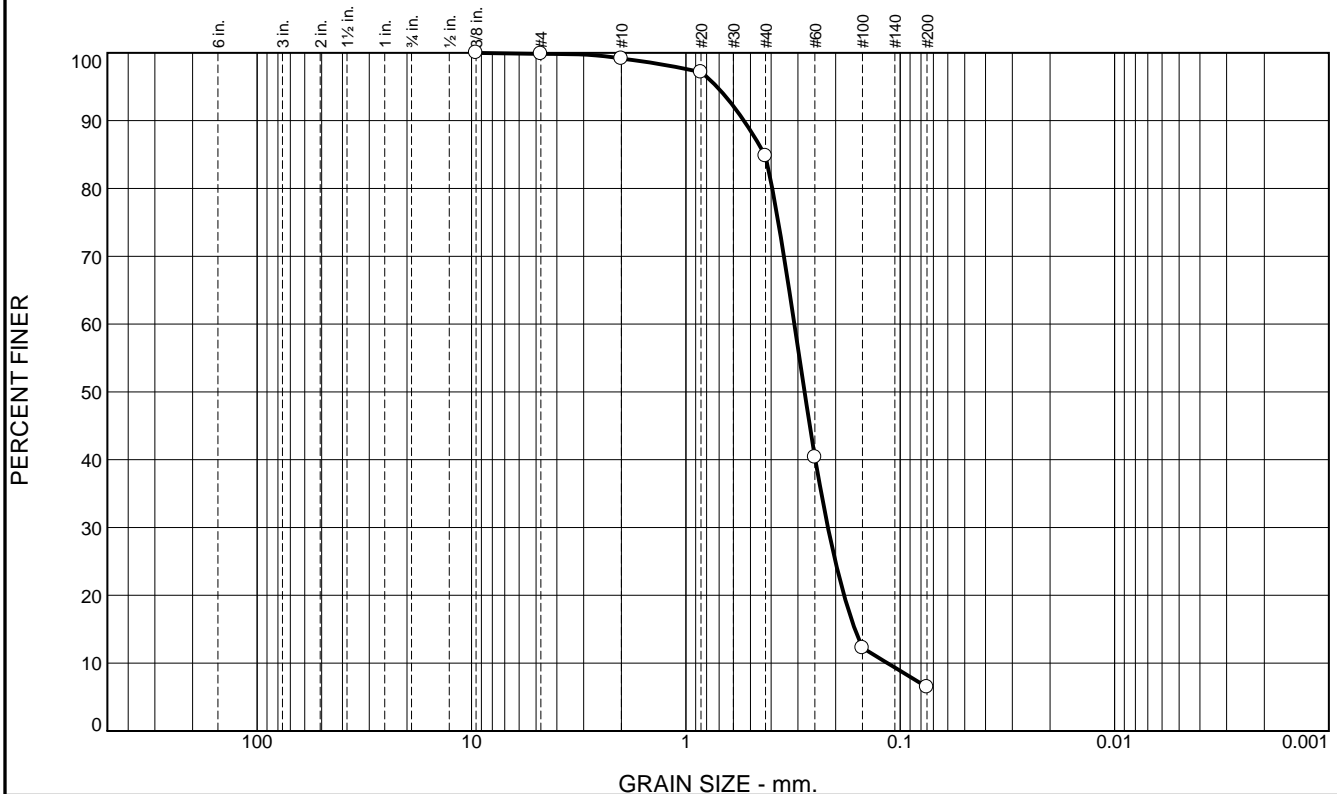
**Client:** US Army Corps of Engineers

**Project:** Contract No. W91278-10-D-0026 - Task 009  
Mississippi Barrier Island Restoration Project

**Project No:** 11-2116-0057

**Figure**

# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.2	0.7	14.3	78.3	6.5	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
.375	100.0		
#4	99.8		
#10	99.1		
#20	97.2		
#40	84.8		
#60	40.4		
#100	12.2		
#200	6.5		

\* (no specification provided)

## Material Description

Slightly silty SAND (SP-SM), medium to fine grained

## Atterberg Limits

PL=

LL=

PI=

## Coefficients

D<sub>90</sub>= 0.5361

D<sub>85</sub>= 0.4287

D<sub>60</sub>= 0.3119

D<sub>50</sub>= 0.2796

D<sub>30</sub>= 0.2173

D<sub>15</sub>= 0.1627

D<sub>10</sub>= 0.1146

C<sub>u</sub>= 2.72

C<sub>c</sub>= 1.32

## Classification

USCS= SP-SM

AASHTO=

## Remarks

Location: USACE Sample # BI-DA10-23C-11

Sample Number: TE Lab ID: 5054.12

Depth: 8.0 - 12.0 (ft)

Date: 7/15/11

**Thompson Engineering**

**Mobile, Alabama**

Client: US Army Corps of Engineers

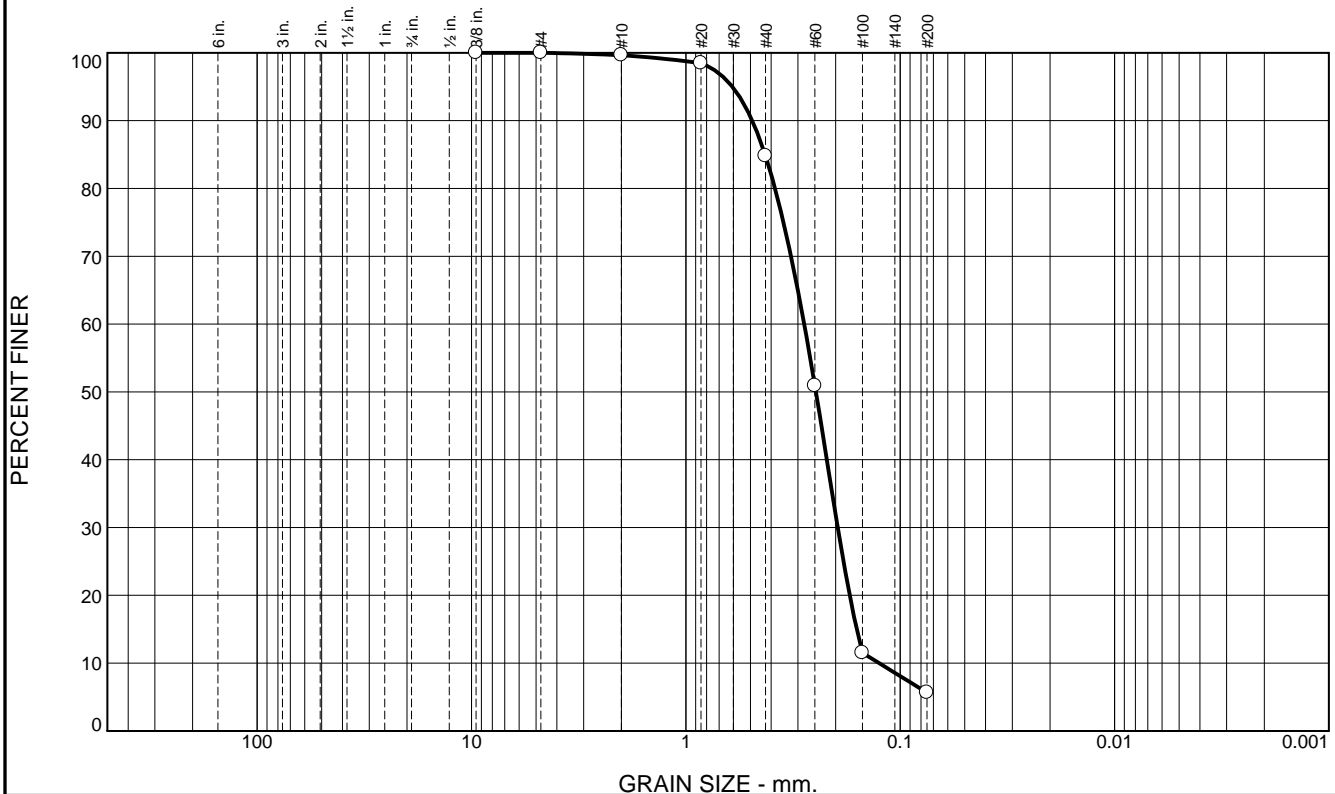
Project: Contract No. W91278-10-D-0026 - Task 009  
Mississippi Barrier Island Restoration Project

Project No: 11-2116-0057

Figure



# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.0	0.3	14.9	79.1	5.7	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
.375	100.0		
#4	100.0		
#10	99.7		
#20	98.5		
#40	84.8		
#60	50.9		
#100	11.5		
#200	5.7		

\* (no specification provided)

## Material Description

Slightly silty SAND (SP-SM), medium to fine grained

PL=

## Atterberg Limits

LL=

PI=

## Coefficients

D<sub>90</sub>= 0.4901

D<sub>85</sub>= 0.4270

D<sub>60</sub>= 0.2805

D<sub>50</sub>= 0.2473

D<sub>30</sub>= 0.1956

D<sub>15</sub>= 0.1596

D<sub>10</sub>= 0.1254

C<sub>u</sub>= 2.24

C<sub>c</sub>= 1.09

## Classification

USCS= SP-SM

AASHTO=

## Remarks

Location: USACE Sample # BI-DA10-23D-11

Sample Number: TE Lab ID: 5054.13

Depth: 12.0 - 15.7 (ft)

Date: 7/15/11

**Thompson Engineering**

**Mobile, Alabama**

Client: US Army Corps of Engineers

Project: Contract No. W91278-10-D-0026 - Task 009  
Mississippi Barrier Island Restoration Project


Project No: 11-2116-0057

Figure

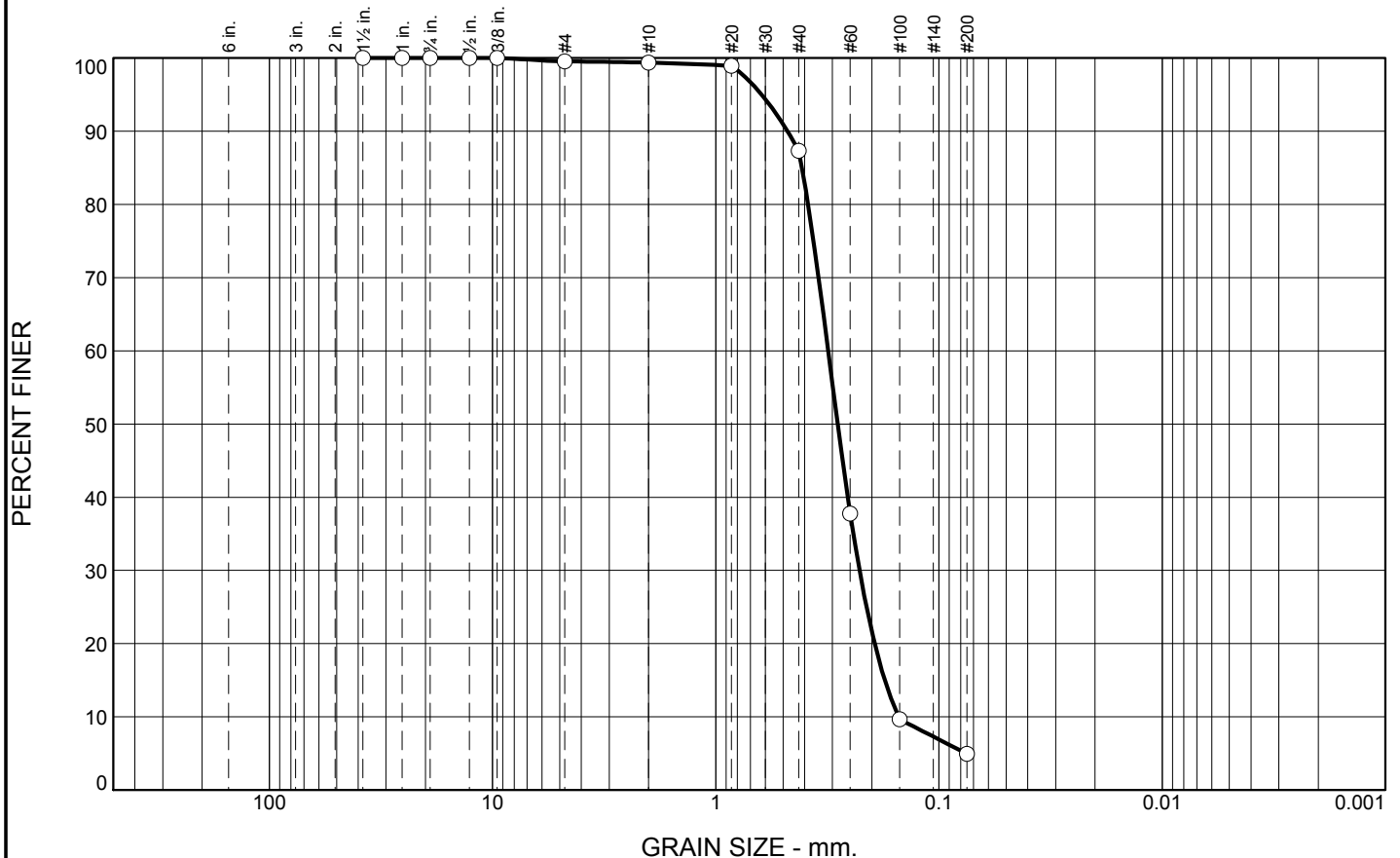
# Boring Designation BI-DA10-24-11

DRILLING LOG		DIVISION South Atlantic		INSTALLATION Mobile District		SHEET 1 OF 1 SHEETS	
1. PROJECT MsCIP Barrier Island Restoration Disposal Area 10				9. SIZE AND TYPE OF BIT N/A			
2. BORING DESIGNATION BI-DA10-24-11		LOCATION COORDINATES E = 1,082,055 N = 260,268		10. COORDINATE SYSTEM/DATUM State Plane, MSE (U.S. Ft.)		HORIZONTAL NAD83 VERTICAL NAVD88	
3. DRILLING AGENCY Corps of Engineers - CESAM		CONTRACTOR FILE NO.		11. MANUFACTURER'S DESIGNATION OF DRILL Vibracore		<input type="checkbox"/> AUTO HAMMER <input type="checkbox"/> MANUAL HAMMER	
4. NAME OF DRILLER Construction Solutions International, Inc.				12. TOTAL SAMPLES 3		DISTURBED 3 UNDISTURBED (UD) 0	
5. DIRECTION OF BORING <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED		DEG. FROM VERTICAL		13. TOTAL NUMBER CORE BOXES			
		BEARING		14. WATER DEPTH 9 Ft.			
6. THICKNESS OF OVERBURDEN N/A				15. DATE BORING 06-18-11		STARTED 06-18-11 COMPLETED 06-18-11	
7. DEPTH DRILLED INTO ROCK N/A				16. ELEVATION TOP OF BORING -6.7 Ft.			
8. TOTAL DEPTH OF BORING 11.4 Ft.				17. TOTAL RECOVERY FOR BORING 100%			
				18. SIGNATURE AND TITLE OF INSPECTOR Rhonda Capes, Geologist			

ELEV.	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS	SAMPLE	LABORATORY RESULTS
-6.7	0.0				
		 SAND, poorly-graded, mostly medium-grained sand-sized quartz, tan (SP) At El. -8.7 Ft., trace shell fragments, lt. gray			
			A	Classification: SP-SM Color: 2.5Y 7/1-light gray D50: 0.2844 mm % Fines: 5	
			B	Classification: SP Color: 2.5Y 7/1-light gray D50: 0.2657 mm % Fines: 3.6	
				C	Classification: SP Color: 2.5Y 7/1-light gray D50: 0.2437 mm % Fines: 4.9
-18.1	11.4				
NOTES:					
1. Soils are field visually classified in accordance with the Unified Soils Classification System.					
2. NS = Sample not submitted for laboratory analysis from this interval.					
3. Seafloor elevation calculated using sampling vessel's fathometer water depth reading and applying NOAA tidal gauge data conversion factor.					

# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.5	0.1	12.1	82.3	5.0	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
1.50	100.0		
1	100.0		
.75	100.0		
.5	100.0		
.375	100.0		
#4	99.5		
#10	99.4		
#20	99.0		
#40	87.3		
#60	37.8		
#100	9.7		
#200	5.0		

\* (no specification provided)

## Material Description

Slightly silty SAND (SP-SM), medium to fine grained

## Atterberg Limits

PL= LL= PI=

## Coefficients

D<sub>90</sub>= 0.4775 D<sub>85</sub>= 0.4110 D<sub>60</sub>= 0.3136  
D<sub>50</sub>= 0.2844 D<sub>30</sub>= 0.2271 D<sub>15</sub>= 0.1750  
D<sub>10</sub>= 0.1519 C<sub>u</sub>= 2.07 C<sub>c</sub>= 1.08

## Classification

USCS= SP-SM AASHTO=

## Remarks

Location: USACE Sample # B1-DA10-24A-11  
Sample Number: TE Lab ID: 5055.25

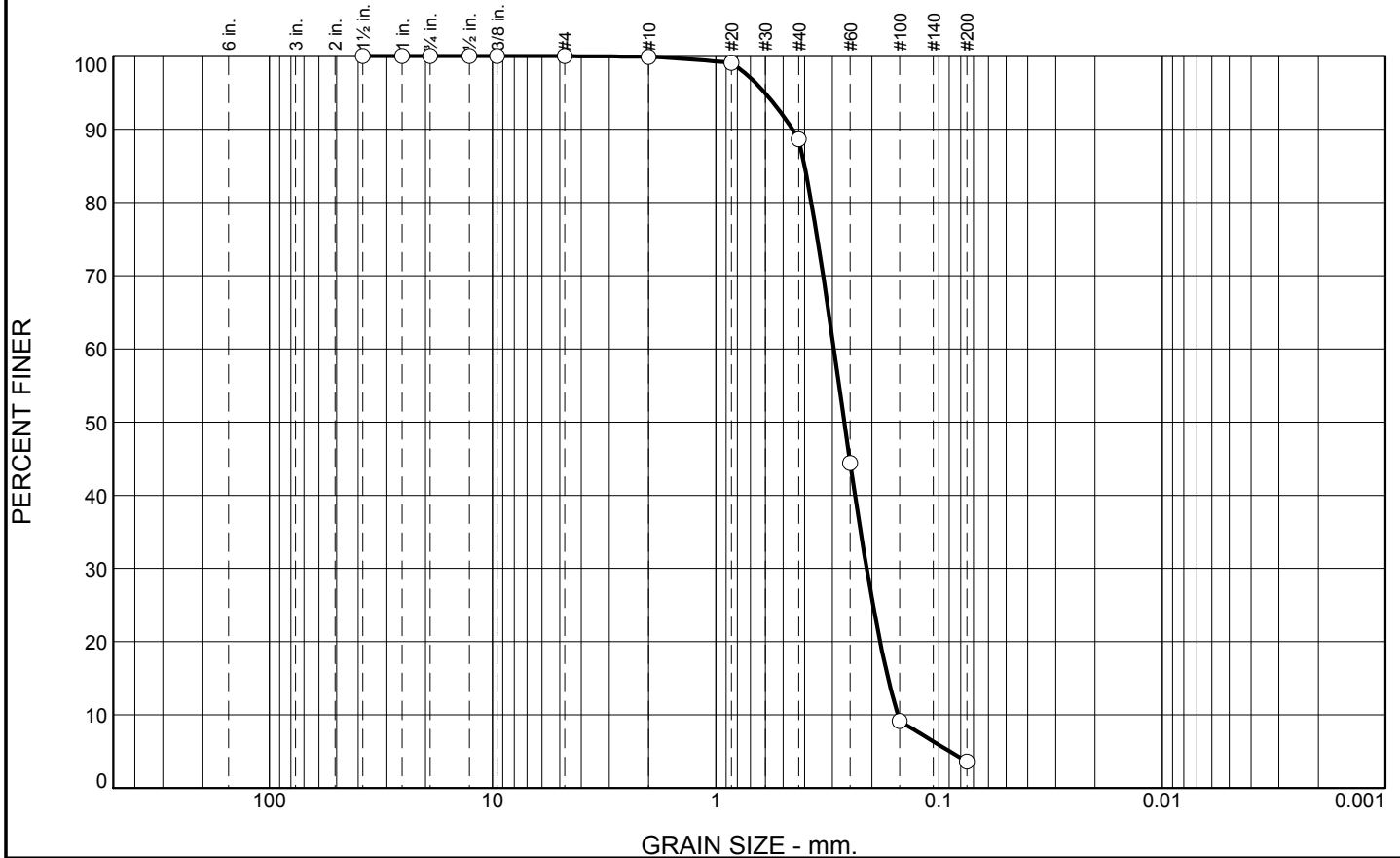
Depth: 0.0 - 4.0 (ft)

Date: 8/8/11

**Thompson Engineering**  
**Mobile, Alabama**

**Client:** US Army Corps of Engineers  
**Project:** Contract No. W91278-10-D-0026 - Task 009  
Mississippi Barrier Island Restoration Project  
**Project No:** 11-2116-0057 **Report No.**

# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.0	0.1	11.3	85.0	3.6	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
1.50	100.0		
1	100.0		
.75	100.0		
.5	100.0		
.375	100.0		
#4	100.0		
#10	99.9		
#20	99.1		
#40	88.6		
#60	44.4		
#100	9.2		
#200	3.6		

\* (no specification provided)

<u><b>Material Description</b></u>		
SAND (SP), medium to fine grained		
<u><b>Atterberg Limits</b></u>		
PL=	LL=	PI=
<u><b>Coefficients</b></u>		
D <sub>90</sub> = 0.4537	D <sub>85</sub> = 0.4003	D <sub>60</sub> = 0.2959
D <sub>50</sub> = 0.2657	D <sub>30</sub> = 0.2109	D <sub>15</sub> = 0.1692
D <sub>10</sub> = 0.1531	C <sub>u</sub> = 1.93	C <sub>c</sub> = 0.98
<u><b>Classification</b></u>		
USCS= SP	AASHTO=	
<u><b>Remarks</b></u>		

Location: USACE Sample # B1-DA10-24B-11  
Sample Number: TE Lab ID: 5055.26

Depth: 4.0 - 8.0 (ft)

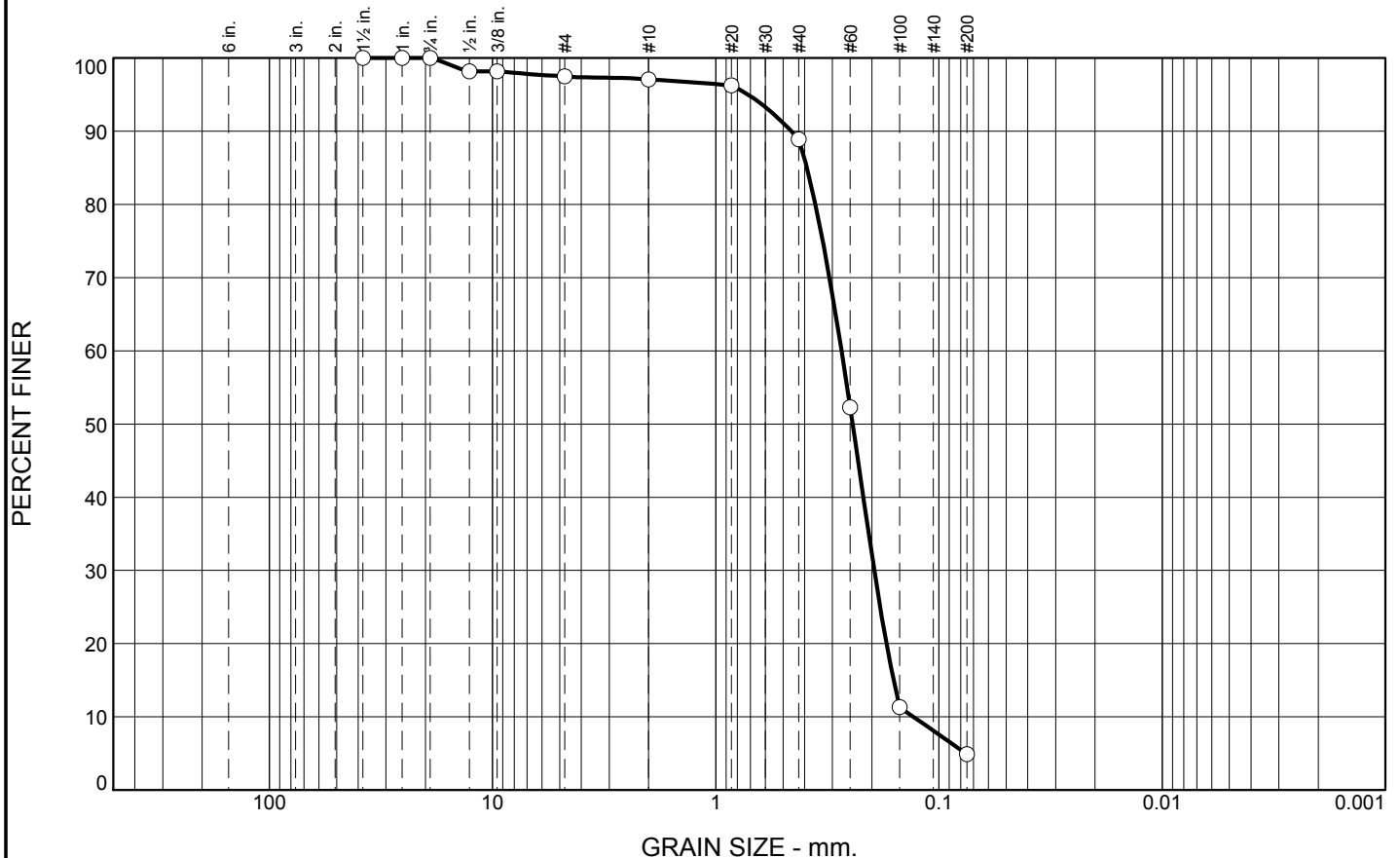
Date: 8/8/11

**Thompson Engineering**  
**Mobile, Alabama**

Client: US Army Corps of Engineers  
Project: Contract No. W91278-10-D-0026 - Task 009  
Mississippi Barrier Island Restoration Project  
Project No: 11-2116-0057

Report No.

# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	2.5	0.4	8.2	84.0	4.9	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
1.50	100.0		
1	100.0		
.75	100.0		
.5	98.2		
.375	98.2		
#4	97.5		
#10	97.1		
#20	96.3		
#40	88.9		
#60	52.3		
#100	11.3		
#200	4.9		

\* (no specification provided)

Material Description		
SAND (SP), fine grained		
<div> <div> <b>Atterberg Limits</b>            PL=      LL=      PI=         </div> <div> <b>Coefficients</b>            D<sub>90</sub>= 0.4584    D<sub>85</sub>= 0.3907    D<sub>60</sub>= 0.2733            D<sub>50</sub>= 0.2437    D<sub>30</sub>= 0.1949    D<sub>15</sub>= 0.1599            D<sub>10</sub>= 0.1302    C<sub>u</sub>= 2.10      C<sub>c</sub>= 1.07         </div> <div> <b>Classification</b>            USCS= SP      AASHTO=         </div> <div> <b>Remarks</b> </div> </div>		

Location: USACE Sample # B1-DA10-24C-11  
 Sample Number: TE Lab ID: 5055.27

Depth: 8.0 - 11.4 (ft)

Date: 8/8/11

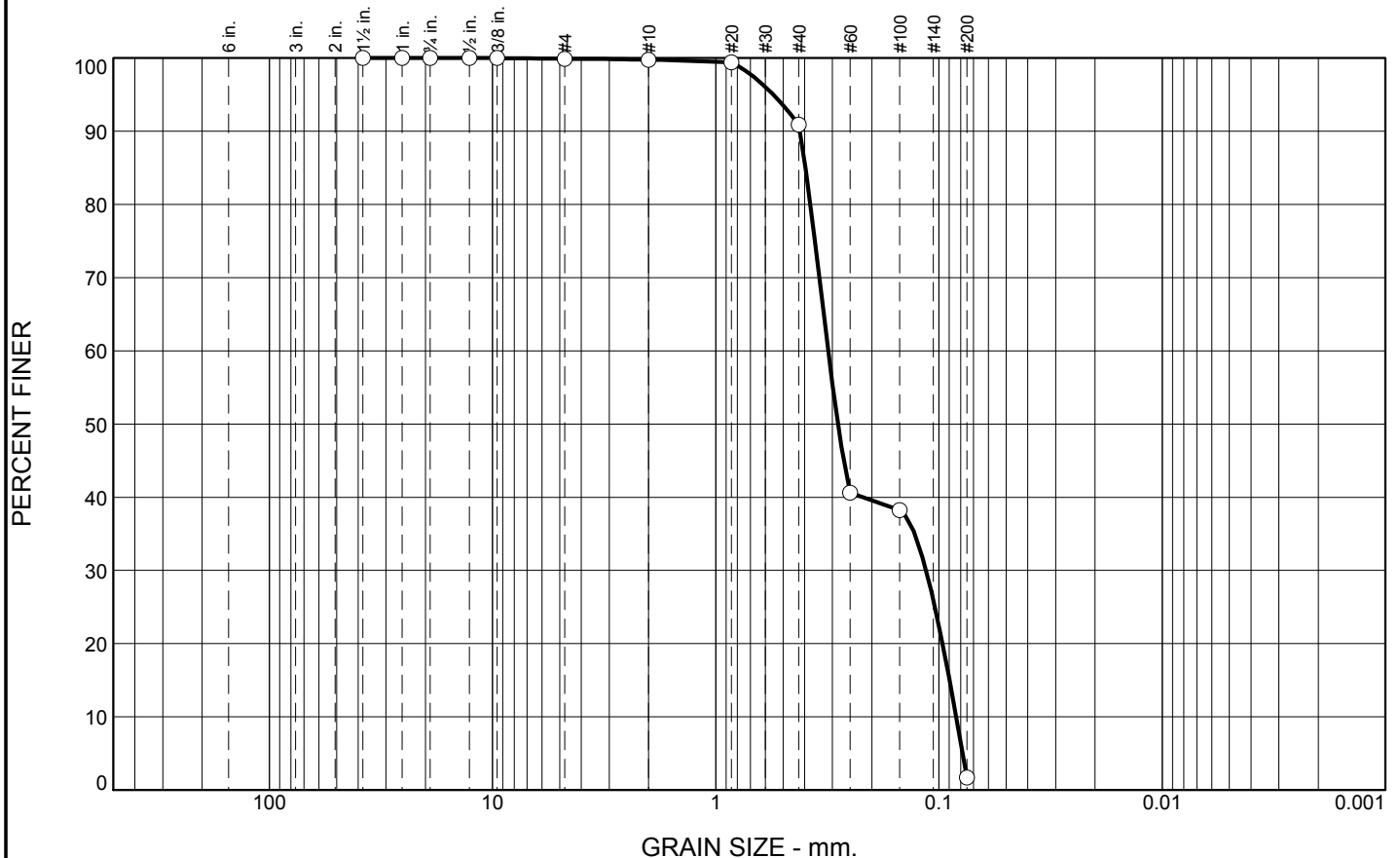
**Thompson Engineering**  
**Mobile, Alabama**

**Client:** US Army Corps of Engineers  
**Project:** Contract No. W91278-10-D-0026 - Task 009  
 Mississippi Barrier Island Restoration Project  
**Project No:** 11-2116-0057  
**Report No.**

# Boring Designation BI-DA10-25-11

DRILLING LOG		DIVISION South Atlantic		INSTALLATION Mobile District		SHEET 1 OF 1 SHEETS	
1. PROJECT MsCIP Barrier Island Restoration Disposal Area 10				9. SIZE AND TYPE OF BIT N/A			
2. BORING DESIGNATION BI-DA10-25-11		LOCATION COORDINATES E = 1,083,617 N = 259,756		10. COORDINATE SYSTEM/DATUM State Plane, MSE (U.S. Ft.)		HORIZONTAL NAD83 VERTICAL NAVD88	
3. DRILLING AGENCY Corps of Engineers - CESAM		CONTRACTOR FILE NO.		11. MANUFACTURER'S DESIGNATION OF DRILL Vibrocure		<input type="checkbox"/> AUTO HAMMER <input type="checkbox"/> MANUAL HAMMER	
4. NAME OF DRILLER Construction Solutions International, Inc.				12. TOTAL SAMPLES 3		DISTURBED 0 UNDISTURBED (UD) 0	
5. DIRECTION OF BORING <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED		DEG. FROM VERTICAL		13. TOTAL NUMBER CORE BOXES			
		BEARING		14. WATER DEPTH 21 Ft.			
6. THICKNESS OF OVERBURDEN N/A				15. DATE BORING 06-18-11		STARTED 06-18-11 COMPLETED 06-18-11	
7. DEPTH DRILLED INTO ROCK N/A				16. ELEVATION TOP OF BORING -18.4 Ft.			
8. TOTAL DEPTH OF BORING 14.5 Ft.				17. TOTAL RECOVERY FOR BORING 100%			
				18. SIGNATURE AND TITLE OF INSPECTOR Rhonda Capes, Geologist			
ELEV.	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS	SAMPLE	LABORATORY RESULTS		
-18.4	0.0						
			SAND, poorly-graded, mostly medium-grained sand-sized quartz, tan (SP) At El. -20.9 Ft., lt. gray	A	Classification: SP Color: 2.5Y 7/2-light gray D50: 0.2837 mm % Fines: 1.7		
				B	Classification: SP Color: 2.5Y 7/1-light gray D50: 0.2558 mm % Fines: 3.2		
				C	Classification: SP Color: 2.5Y 7/2-light gray D50: 0.3322 mm % Fines: 1.2		
-32.9	14.5						
			NOTES: 1. Soils are field visually classified in accordance with the Unified Soils Classification System. 2. NS = Sample not submitted for laboratory analysis from this interval. 3. Seafloor elevation calculated using sampling vessel's fathometer water depth reading and applying NOAA tidal gauge data conversion factor.				

# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.1	0.1	8.9	89.2	1.7	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
1.50	100.0		
1	100.0		
.75	100.0		
.5	100.0		
.375	100.0		
#4	99.9		
#10	99.8		
#20	99.4		
#40	90.9		
#60	40.6		
#100	38.2		
#200	1.7		

\* (no specification provided)

## Material Description

SAND (SP), fine grained

## Atterberg Limits

PL= LL= PI=

## Coefficients

D<sub>90</sub>= 0.4201 D<sub>85</sub>= 0.3966 D<sub>60</sub>= 0.3135  
D<sub>50</sub>= 0.2837 D<sub>30</sub>= 0.1141 D<sub>15</sub>= 0.0897  
D<sub>10</sub>= 0.0837 C<sub>u</sub>= 3.74 C<sub>c</sub>= 0.50

## Classification

USCS= SP AASHTO=

## Remarks

Location: USACE Sample # B1-DA10-25A-11  
Sample Number: TE Lab ID: 5055.28

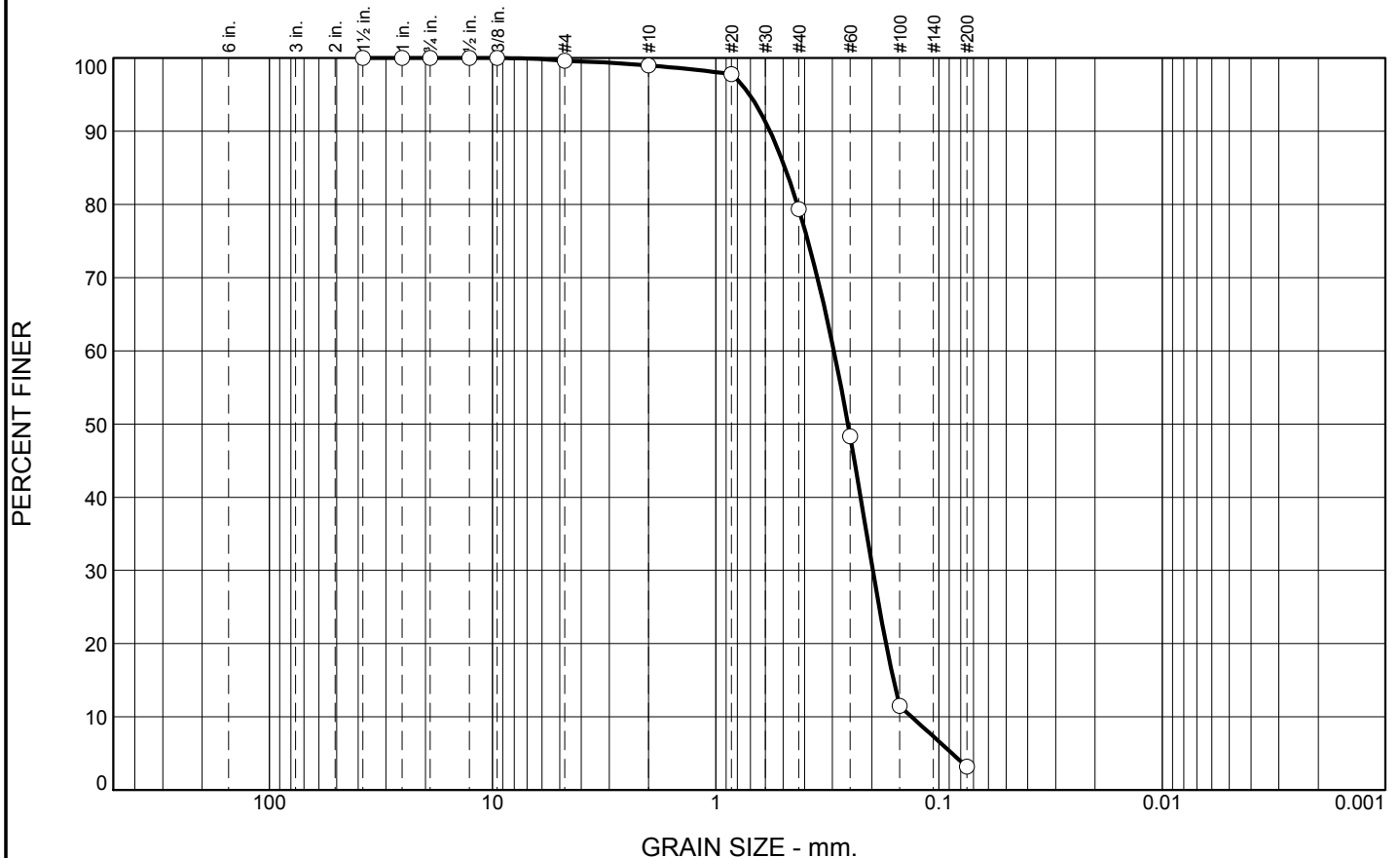
Depth: 0.0 - 5.0 (ft)

Date: 8/8/11

**Thompson Engineering**  
**Mobile, Alabama**

**Client:** US Army Corps of Engineers  
**Project:** Contract No. W91278-10-D-0026 - Task 009  
Mississippi Barrier Island Restoration Project  
**Project No:** 11-2116-0057  
**Report No.**

# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.4	0.6	19.6	76.2	3.2	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
1.50	100.0		
1	100.0		
.75	100.0		
.5	100.0		
.375	100.0		
#4	99.6		
#10	99.0		
#20	97.8		
#40	79.4		
#60	48.3		
#100	11.5		
#200	3.2		

\* (no specification provided)

<u><b>Material Description</b></u>		
SAND (SP), medium to fine grained		
<u><b>Atterberg Limits</b></u>		
PL=	LL=	PI=
<u><b>Coefficients</b></u>		
D <sub>90</sub> = 0.5718	D <sub>85</sub> = 0.4898	D <sub>60</sub> = 0.2959
D <sub>50</sub> = 0.2558	D <sub>30</sub> = 0.1979	D <sub>15</sub> = 0.1600
D <sub>10</sub> = 0.1326	C <sub>u</sub> = 2.23	C <sub>c</sub> = 1.00
<u><b>Classification</b></u>		
USCS= SP	AASHTO=	
<u><b>Remarks</b></u>		

Location: USACE Sample # B1-DA10-25B-11  
Sample Number: TE Lab ID: 5055.29

Depth: 5.0 - 10.0 (ft)

Date: 8/8/11

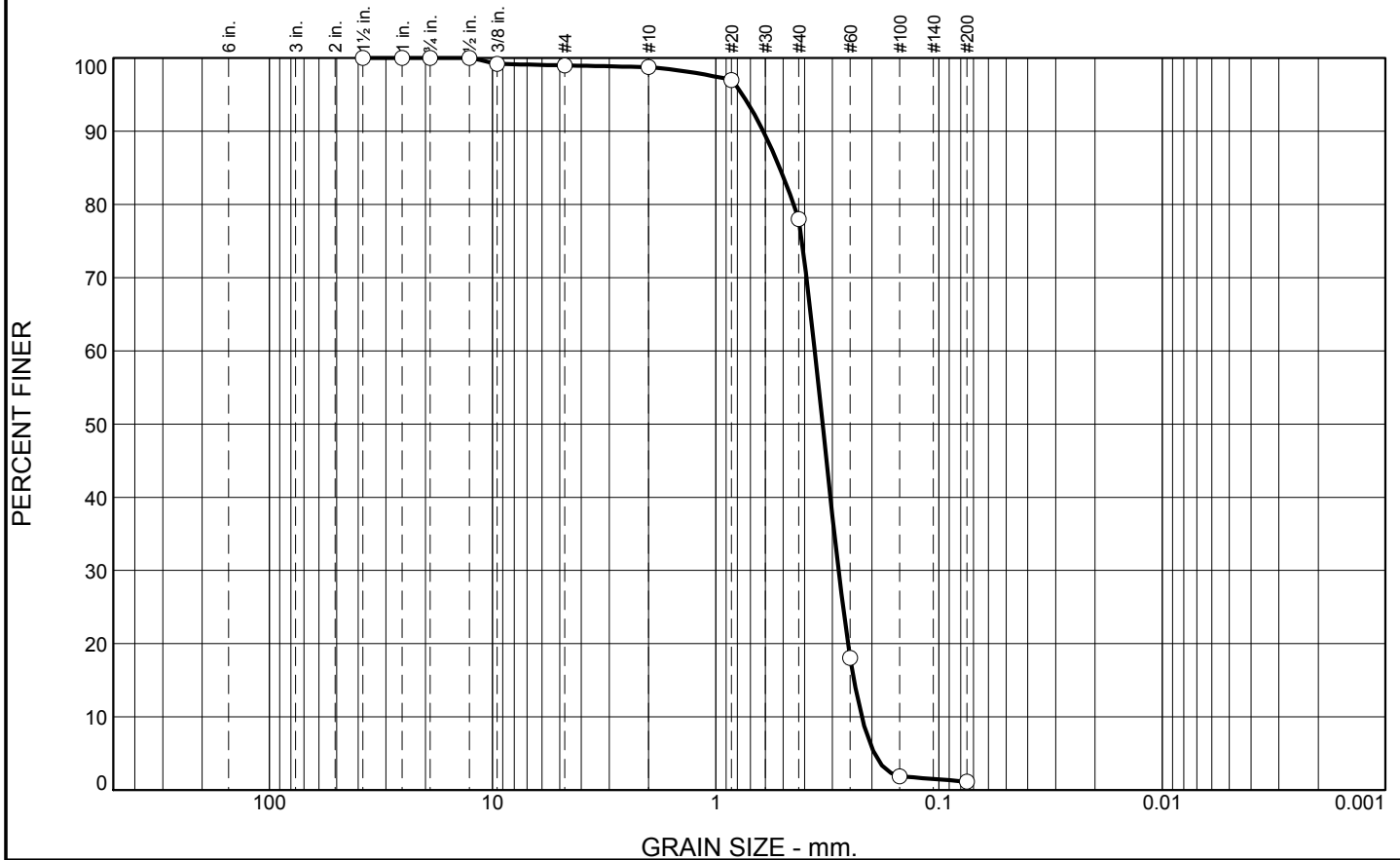
**Thompson Engineering**  
**Mobile, Alabama**

Client: US Army Corps of Engineers  
Project: Contract No. W91278-10-D-0026 - Task 009  
Mississippi Barrier Island Restoration Project  
Project No: 11-2116-0057

Report No.



# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	1.0	0.2	20.8	76.8	1.2	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
1.50	100.0		
1	100.0		
.75	100.0		
.5	100.0		
.375	99.2		
#4	99.0		
#10	98.8		
#20	97.0		
#40	78.0		
#60	18.0		
#100	1.9		
#200	1.2		

\* (no specification provided)

<u><b>Material Description</b></u>		
SAND (SP), medium to fine grained		
<u><b>Atterberg Limits</b></u>		
PL=	LL=	PI=
<u><b>Coefficients</b></u>		
D <sub>90</sub> = 0.6130	D <sub>85</sub> = 0.5176	D <sub>60</sub> = 0.3600
D <sub>50</sub> = 0.3322	D <sub>30</sub> = 0.2818	D <sub>15</sub> = 0.2405
D <sub>10</sub> = 0.2219	C <sub>u</sub> = 1.62	C <sub>c</sub> = 0.99
<u><b>Classification</b></u>		
USCS= SP	AASHTO=	
<u><b>Remarks</b></u>		

Location: USACE Sample # B1-DA10-25C-11  
Sample Number: TE Lab ID: 5055.30

Depth: 10.0 - 14.5 (ft)

Date: 8/8/11

**Thompson Engineering**  
**Mobile, Alabama**

Client: US Army Corps of Engineers  
Project: Contract No. W91278-10-D-0026 - Task 009  
Mississippi Barrier Island Restoration Project  
Project No: 11-2116-0057

Report No.

# Boring Designation BI-DA10-26-11

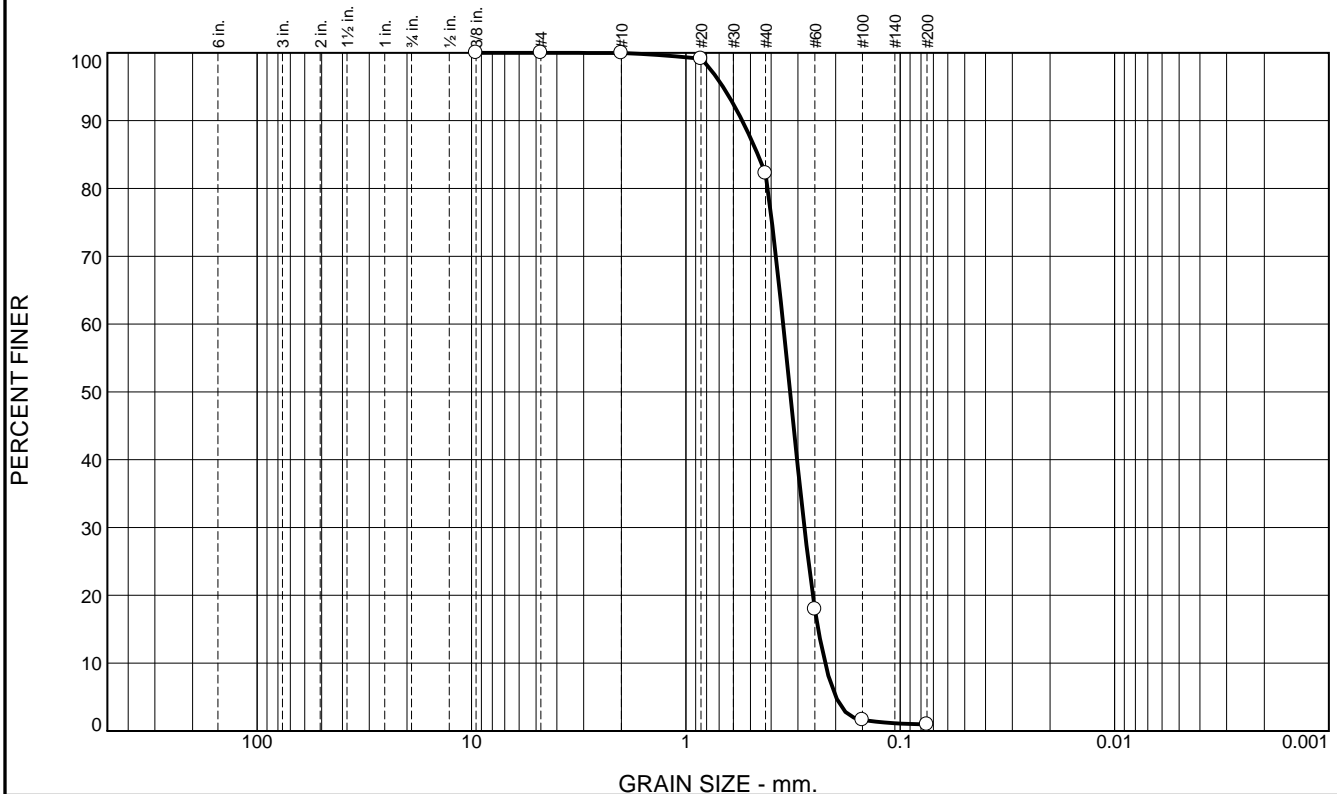
<b>DRILLING LOG</b>		<b>DIVISION</b> South Atlantic	<b>INSTALLATION</b> Mobile District	<b>SHEET 1</b> <b>OF 1 SHEETS</b>
<b>1. PROJECT</b> MsCIP Barrier Island Restoration Disposal Area 10		<b>9. SIZE AND TYPE OF BIT</b> N/A		
<b>2. BORING DESIGNATION</b> BI-DA10-26-11		<b>10. COORDINATE SYSTEM/DATUM</b> State Plane, MSE (U.S. Ft.)		
<b>3. DRILLING AGENCY</b> Corps of Engineers - CESAM		<b>11. MANUFACTURER'S DESIGNATION OF DRILL</b> Vibrocure		
<b>4. NAME OF DRILLER</b> Construction Solutions International, Inc.		<b>12. TOTAL SAMPLES</b> 0		
<b>5. DIRECTION OF BORING</b> <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED		<b>13. TOTAL NUMBER CORE BOXES</b> 0		
<b>6. THICKNESS OF OVERBURDEN</b> N/A		<b>14. WATER DEPTH</b> 32.5 Ft.		
<b>7. DEPTH DRILLED INTO ROCK</b> N/A		<b>15. DATE BORING</b> 06-21-11		
<b>8. TOTAL DEPTH OF BORING</b> 16.7 Ft.		<b>16. ELEVATION TOP OF BORING</b> -30.8 Ft.		
		<b>17. TOTAL RECOVERY FOR BORING</b> 100%		
		<b>18. SIGNATURE AND TITLE OF INSPECTOR</b> Rhonda Capes, Geologist		

ELEV.	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS	SAMPLE	LABORATORY RESULTS
-30.8	0.0				
-31.7	0.9		SAND, poorly-graded, mostly medium-grained sand-sized quartz, lt. gray (SP)		
			SAND, clayey, mostly medium-grained sand-sized quartz, some clay, gray (SC)		
-39.3	8.5				
-39.8	9.0		SAND, silty, mostly quartz, dark gray (SM)		
			SAND, poorly-graded, mostly medium-grained sand-sized quartz, dark brown (SP)		
-44.3	13.5				
			CLAY, lean, dark gray (CL)		
-47.5	16.7				
			NOTES: 1. Soils are field visually classified in accordance with the Unified Soils Classification System. 2. NS = Sample not submitted for laboratory analysis from this interval. 3. Seafloor elevation calculated using sampling vessel's fathometer water depth reading and applying NOAA tidal gauge data conversion factor.		

# Boring Designation BI-DA10-27-11

DRILLING LOG		DIVISION South Atlantic		INSTALLATION Mobile District		SHEET 1 OF 1 SHEETS	
1. PROJECT MsCIP Barrier Island Restoration Disposal Area 10				9. SIZE AND TYPE OF BIT N/A			
2. BORING DESIGNATION BI-DA10-27-11		LOCATION COORDINATES E = 1,084,005 N = 264,659		10. COORDINATE SYSTEM/DATUM State Plane, MSE (U.S. Ft.)		HORIZONTAL NAD83 VERTICAL NAVD88	
3. DRILLING AGENCY Corps of Engineers - CESAM		CONTRACTOR FILE NO.		11. MANUFACTURER'S DESIGNATION OF DRILL Vibracore		<input type="checkbox"/> AUTO HAMMER <input type="checkbox"/> MANUAL HAMMER	
4. NAME OF DRILLER Construction Solutions International, Inc.				12. TOTAL SAMPLES 2		DISTURBED 2 UNDISTURBED (UD) 0	
5. DIRECTION OF BORING <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED		DEG. FROM VERTICAL		13. TOTAL NUMBER CORE BOXES			
		BEARING		14. WATER DEPTH 9.5 Ft.			
6. THICKNESS OF OVERBURDEN N/A				15. DATE BORING 06-20-11		STARTED 06-20-11 COMPLETED 06-20-11	
7. DEPTH DRILLED INTO ROCK N/A				16. ELEVATION TOP OF BORING -7.8 Ft.			
8. TOTAL DEPTH OF BORING 13.1 Ft.				17. TOTAL RECOVERY FOR BORING 100%			
				18. SIGNATURE AND TITLE OF INSPECTOR Rhonda Capes, Geologist			
ELEV.	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS	SAMPLE	LABORATORY RESULTS		
-7.8	0.0						
			SAND, poorly-graded, mostly medium-grained sand-sized quartz, gray (SP)	A	Classification: SP Color: 2.5Y 7/2-light gray D50: 0.3266 mm % Fines: 1		
				B	Classification: SP Color: 2.5Y 7/2-light gray D50: 0.3419 mm % Fines: 1.8		
-15.3	7.5						
			SAND, clayey, gray (SC)	NS			
-18.8	11.0						
			SAND, poorly-graded, mostly medium-grained sand-sized quartz, gray (SP)				
-20.9	13.1						
			NOTES: 1. Soils are field visually classified in accordance with the Unified Soils Classification System. 2. NS = Sample not submitted for laboratory analysis from this interval. 3. Seafloor elevation calculated using sampling vessel's fathometer water depth reading and applying NOAA tidal gauge data conversion factor.				

# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.0	0.0	17.8	81.2	1.0	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
.375	100.0		
#4	100.0		
#10	100.0		
#20	99.1		
#40	82.2		
#60	17.9		
#100	1.6		
#200	1.0		

Material Description		
SAND (SP), medium to fine grained		
PL=	Atterberg Limits LL=	PI=
D <sub>90</sub> = 0.5457	D <sub>85</sub> = 0.4615	D <sub>60</sub> = 0.3517
D <sub>50</sub> = 0.3266	D <sub>30</sub> = 0.2801	D <sub>15</sub> = 0.2414
D <sub>10</sub> = 0.2241	C <sub>u</sub> = 1.57	C <sub>c</sub> = 1.00
USCS= SP	Classification AASHTO=	
Remarks		

\* (no specification provided)

Location: USACE Sample # BI-DA10-27A-11  
Sample Number: TE Lab ID: 5054.17

Depth: 0.0 - 4.0 (ft)

Date: 7/15/11

**Thompson Engineering**

**Mobile, Alabama**

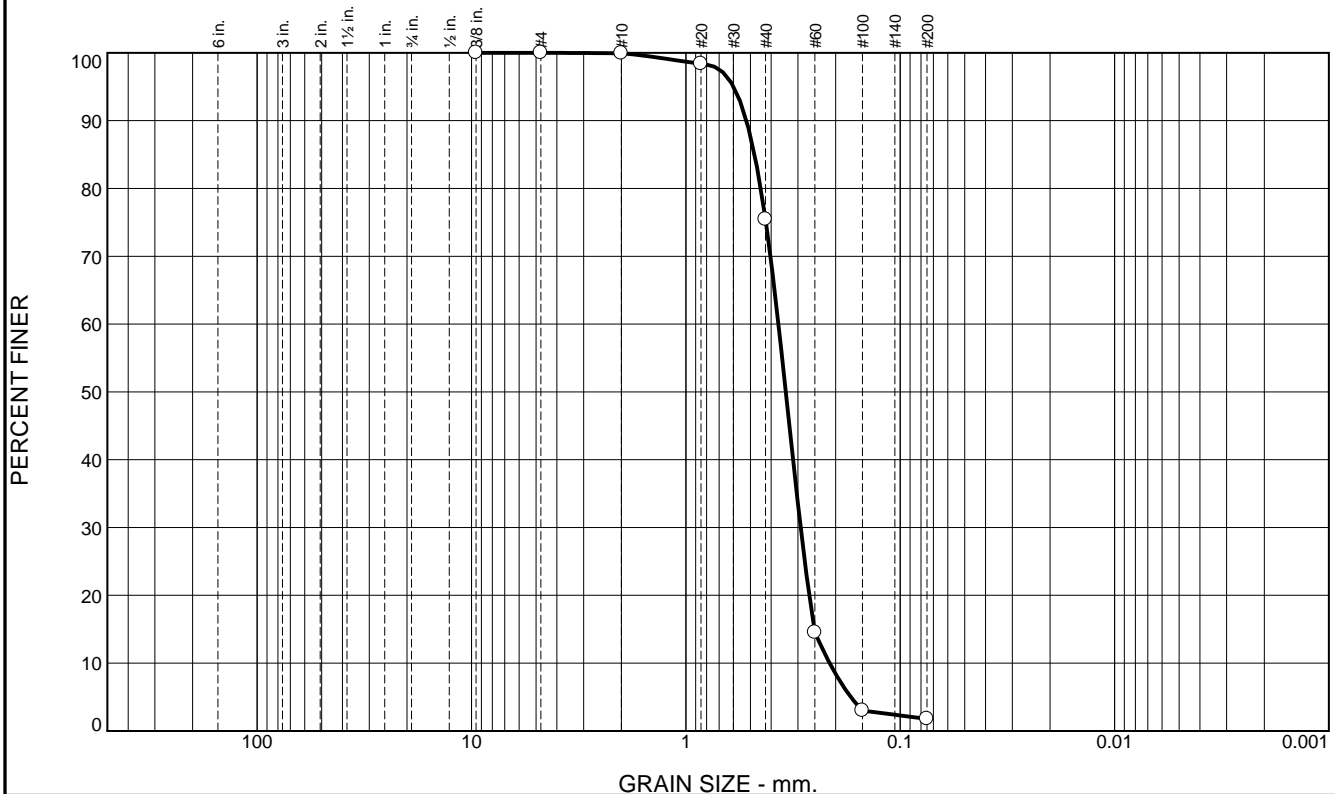
Client: US Army Corps of Engineers

Project: Contract No. W91278-10-D-0026 - Task 009  
Mississippi Barrier Island Restoration Project

Project No: 11-2116-0057

Figure

# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.0	0.1	24.4	73.7	1.8	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
.375	100.0		
#4	100.0		
#10	99.9		
#20	98.4		
#40	75.5		
#60	14.5		
#100	3.0		
#200	1.8		

\* (no specification provided)

## Material Description

SAND (SP), medium to fine grained

## Atterberg Limits

PL= LL= PI=

## Coefficients

D<sub>90</sub>= 0.5217 D<sub>85</sub>= 0.4781 D<sub>60</sub>= 0.3701  
D<sub>50</sub>= 0.3419 D<sub>30</sub>= 0.2916 D<sub>15</sub>= 0.2515  
D<sub>10</sub>= 0.2134 C<sub>u</sub>= 1.73 C<sub>c</sub>= 1.08

## Classification

USCS= SP AASHTO=

## Remarks

Location: USACE Sample # BI-DA10-27B-11

Sample Number: TE Lab ID: 5054.18

Depth: 4.0 - 7.5 (ft)

Date: 7/15/11

**Thompson Engineering**

**Mobile, Alabama**

Client: US Army Corps of Engineers

Project: Contract No. W91278-10-D-0026 - Task 009  
Mississippi Barrier Island Restoration Project

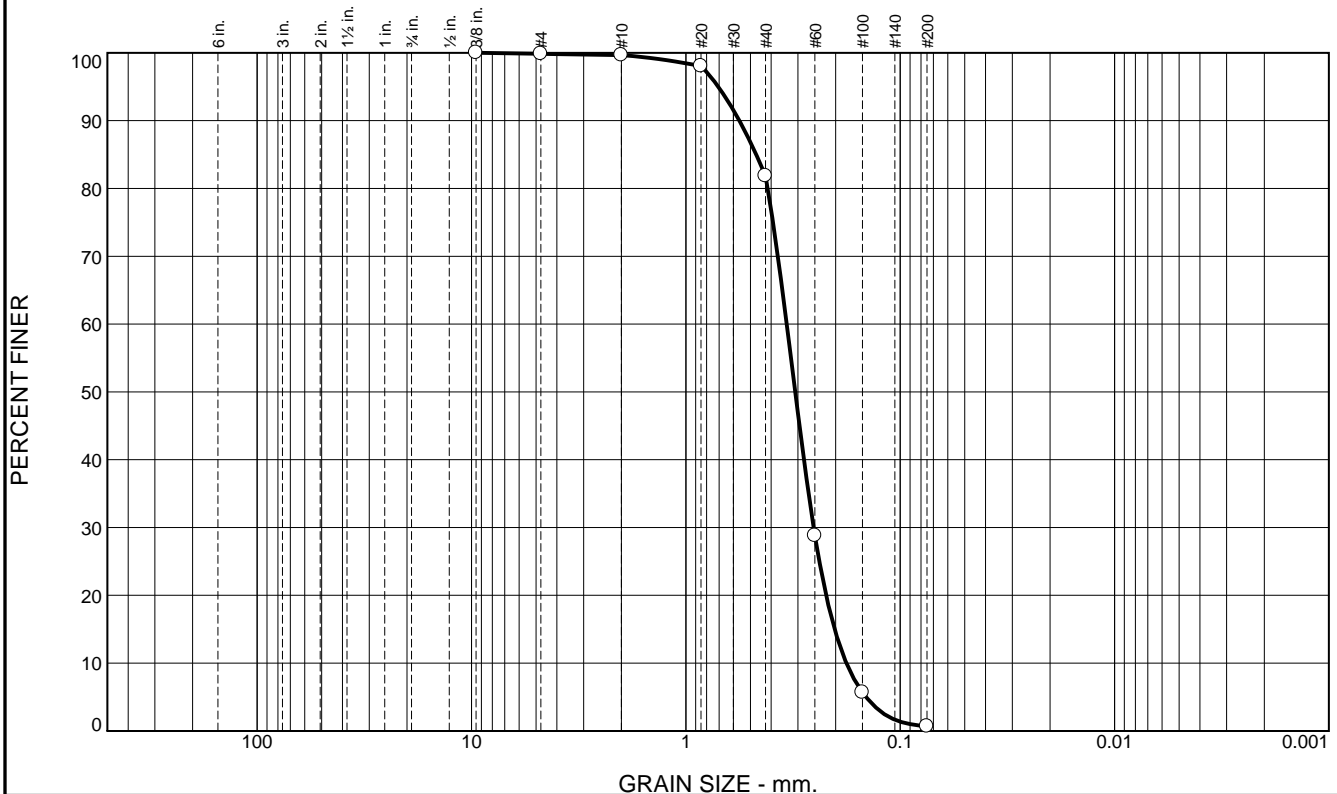
Project No: 11-2116-0057

Figure

# Boring Designation BI-DA10-28-11

DRILLING LOG		DIVISION South Atlantic		INSTALLATION Mobile District		SHEET 1 OF 1 SHEETS	
1. PROJECT MsCIP Barrier Island Restoration Disposal Area 10				9. SIZE AND TYPE OF BIT N/A			
2. BORING DESIGNATION BI-DA10-28-11		LOCATION COORDINATES E = 1,082,260 N = 265,182		10. COORDINATE SYSTEM/DATUM State Plane, MSE (U.S. Ft.)		HORIZONTAL NAD83 VERTICAL NAVD88	
3. DRILLING AGENCY Corps of Engineers - CESAM		CONTRACTOR FILE NO.		11. MANUFACTURER'S DESIGNATION OF DRILL Vibracore		<input type="checkbox"/> AUTO HAMMER <input type="checkbox"/> MANUAL HAMMER	
4. NAME OF DRILLER Construction Solutions International, Inc.				12. TOTAL SAMPLES 2		DISTURBED 2 UNDISTURBED (UD) 0	
5. DIRECTION OF BORING <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED		DEG. FROM VERTICAL		13. TOTAL NUMBER CORE BOXES			
		BEARING		14. WATER DEPTH 6.5 Ft.			
6. THICKNESS OF OVERBURDEN N/A				15. DATE BORING 06-20-11		STARTED 06-20-11 COMPLETED 06-20-11	
7. DEPTH DRILLED INTO ROCK N/A				16. ELEVATION TOP OF BORING -4.7 Ft.			
8. TOTAL DEPTH OF BORING 11.6 Ft.				17. TOTAL RECOVERY FOR BORING 100%			
				18. SIGNATURE AND TITLE OF INSPECTOR Rhonda Capes, Geologist			
ELEV.	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS	SAMPLE	LABORATORY RESULTS		
-4.7	0.0						
			SAND, poorly-graded, mostly medium-grained sand-sized quartz, lt. gray (SP)	A	Classification: SP Color: 2.5Y 7/2-light gray D50: 0.309 mm % Fines: 0.7		
				B	Classification: SP Color: 2.5Y 7/2-light gray D50: 0.2896 mm % Fines: 1.9		
-14.0	9.3						
			CLAY, lean, dark gray (CL)	NS			
-16.3	11.6						
			NOTES: 1. Soils are field visually classified in accordance with the Unified Soils Classification System. 2. NS = Sample not submitted for laboratory analysis from this interval. 3. Seafloor elevation calculated using sampling vessel's fathometer water depth reading and applying NOAA tidal gauge data conversion factor.				

# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.1	0.2	17.9	81.1	0.7	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
.375	100.0		
#4	99.9		
#10	99.7		
#20	98.0		
#40	81.8		
#60	28.8		
#100	5.7		
#200	0.7		

\* (no specification provided)

<u>Material Description</u>		
SAND (SP), medium to fine grained		
<u>Atterberg Limits</u>		
PL=	LL=	PI=
<u>Coefficients</u>		
D <sub>90</sub> = 0.5627	D <sub>85</sub> = 0.4697	D <sub>60</sub> = 0.3386
D <sub>50</sub> = 0.3090	D <sub>30</sub> = 0.2536	D <sub>15</sub> = 0.2022
D <sub>10</sub> = 0.1783	C <sub>u</sub> = 1.90	C <sub>c</sub> = 1.07
<u>Classification</u>		
USCS= SP	AASHTO=	
<u>Remarks</u>		

Location: USACE Sample # BI-DA10-28A-11  
Sample Number: TE Lab ID: 5054.19

Depth: 0.0 - 5.0 (ft)

Date: 7/15/11

**Thompson Engineering**

**Mobile, Alabama**

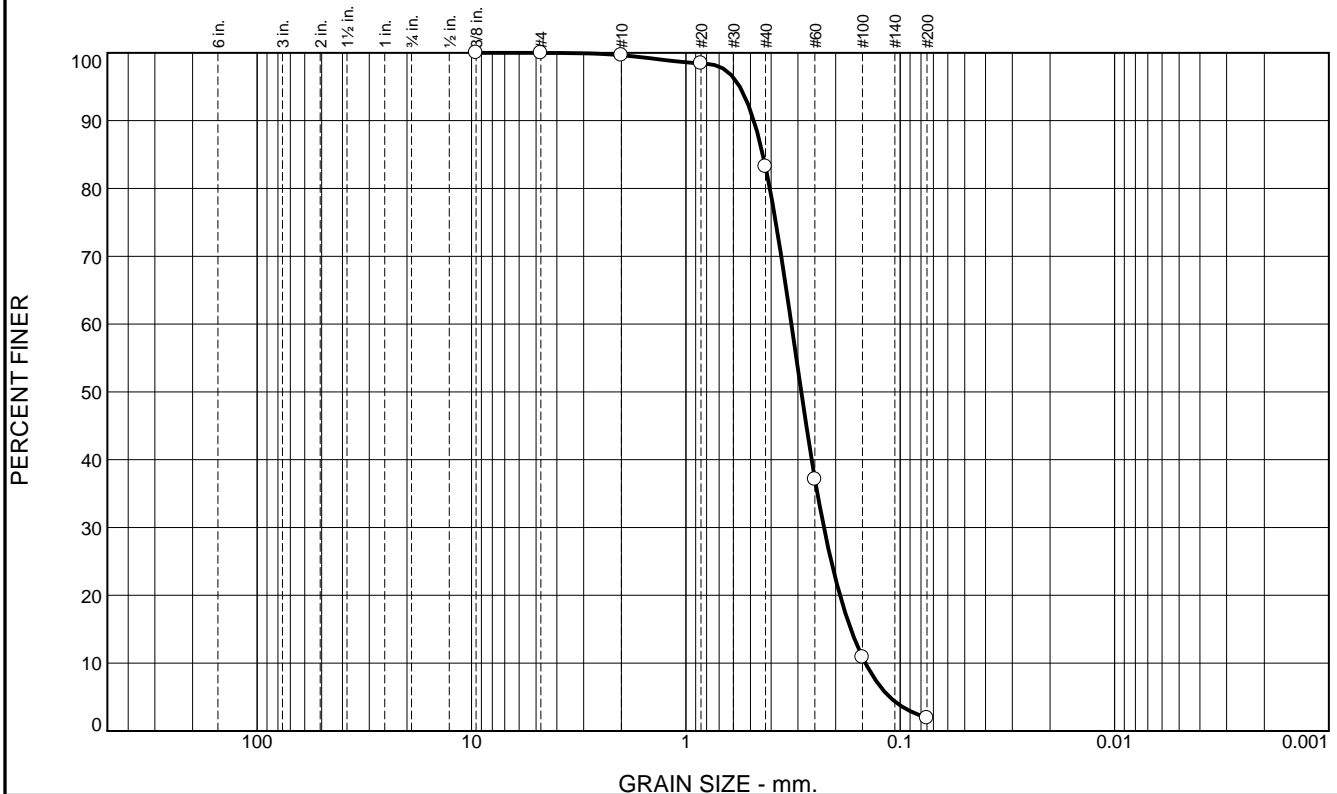
**Client:** US Army Corps of Engineers

**Project:** Contract No. W91278-10-D-0026 - Task 009  
Mississippi Barrier Island Restoration Project

**Project No:** 11-2116-0057

**Figure**

# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.0	0.4	16.4	81.3	1.9	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
.375	100.0		
#4	100.0		
#10	99.6		
#20	98.4		
#40	83.2		
#60	37.1		
#100	10.9		
#200	1.9		

\* (no specification provided)

<u>Material Description</u>		
SAND (SP), medium to fine grained		
<u>Atterberg Limits</u>		
PL=	LL=	PI=
<u>Coefficients</u>		
D <sub>90</sub> = 0.4816	D <sub>85</sub> = 0.4372	D <sub>60</sub> = 0.3220
D <sub>50</sub> = 0.2896	D <sub>30</sub> = 0.2270	D <sub>15</sub> = 0.1700
D <sub>10</sub> = 0.1453	C <sub>u</sub> = 2.22	C <sub>c</sub> = 1.10
<u>Classification</u>		
USCS= SP	AASHTO=	
<u>Remarks</u>		

Location: USACE Sample # BI-DA10-28B-11  
Sample Number: TE Lab ID: 5054.20

Depth: 5.0 - 9.3 (ft)

Date: 7/15/11

**Thompson Engineering**

**Mobile, Alabama**

**Client:** US Army Corps of Engineers

**Project:** Contract No. W91278-10-D-0026 - Task 009  
Mississippi Barrier Island Restoration Project

**Project No:** 11-2116-0057

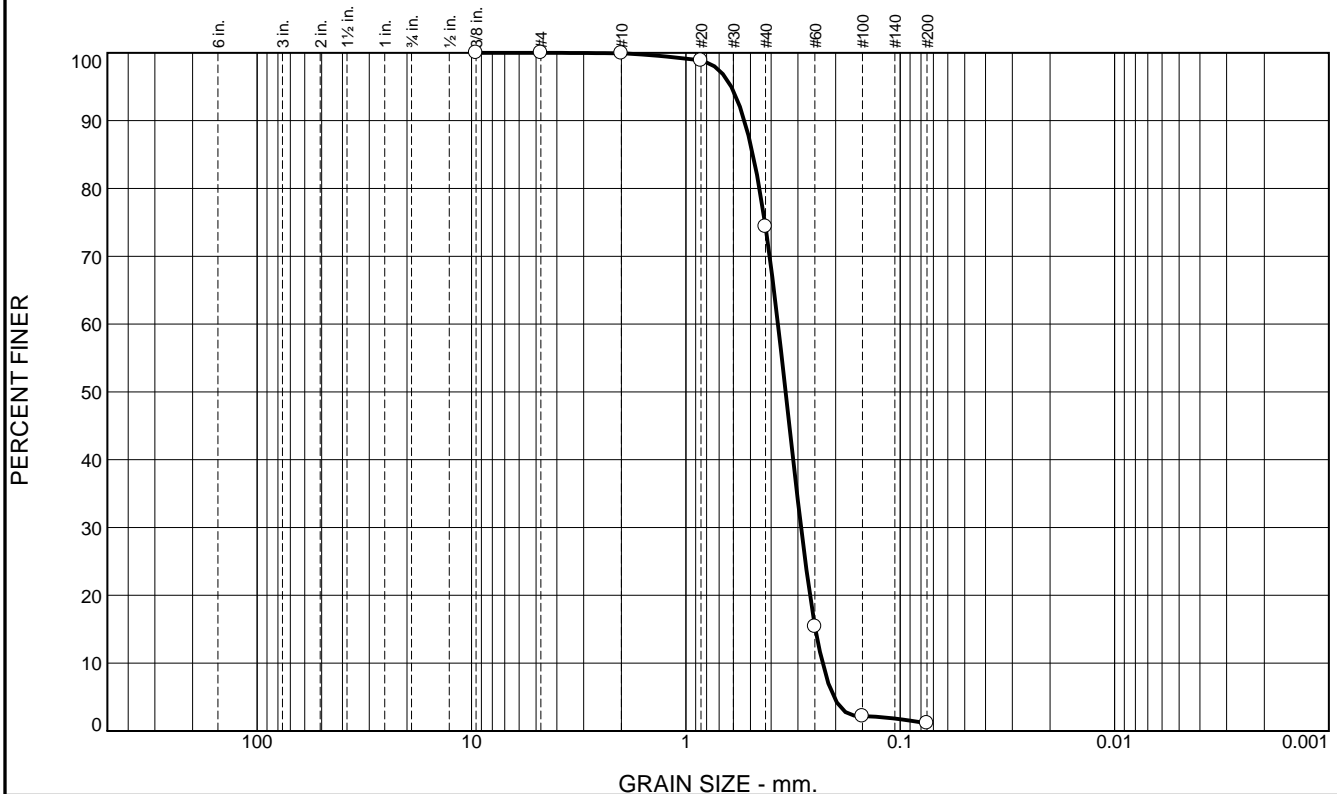
**Figure**



# Boring Designation BI-DA10-29-11

DRILLING LOG		DIVISION South Atlantic		INSTALLATION Mobile District		SHEET 1 OF 1 SHEETS	
1. PROJECT MsCIP Barrier Island Restoration Disposal Area 10				9. SIZE AND TYPE OF BIT N/A			
2. BORING DESIGNATION BI-DA10-29-11		LOCATION COORDINATES E = 1,084,593 N = 265,545		10. COORDINATE SYSTEM/DATUM State Plane, MSE (U.S. Ft.)		HORIZONTAL NAD83 VERTICAL NAVD88	
3. DRILLING AGENCY Corps of Engineers - CESAM		CONTRACTOR FILE NO.		11. MANUFACTURER'S DESIGNATION OF DRILL Vibrocure		<input type="checkbox"/> AUTO HAMMER <input type="checkbox"/> MANUAL HAMMER	
4. NAME OF DRILLER Construction Solutions International, Inc.				12. TOTAL SAMPLES		DISTURBED 1 UNDISTURBED (UD) 0	
5. DIRECTION OF BORING <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED				13. TOTAL NUMBER CORE BOXES		14. WATER DEPTH 10.1 Ft.	
6. THICKNESS OF OVERBURDEN N/A				15. DATE BORING		STARTED 06-20-11 COMPLETED 06-20-11	
7. DEPTH DRILLED INTO ROCK N/A				16. ELEVATION TOP OF BORING -8.2 Ft.		17. TOTAL RECOVERY FOR BORING 100%	
8. TOTAL DEPTH OF BORING 13.5 Ft.				18. SIGNATURE AND TITLE OF INSPECTOR Rhonda Capes, Geologist			
ELEV.	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS	SAMPLE	LABORATORY RESULTS		
-8.2	0.0						
			SAND, poorly-graded, mostly medium-grained sand-sized quartz, tan (SP)	A	Classification: SP Color: 2.5Y 7/1-light gray D50: 0.3426 mm % Fines: 1.1		
			At El. -12.6 Ft., trace silt, lt. gray				
-14.9	6.7						
			SAND, silty, mostly fine-grained sand-sized quartz, occasional clay, dark gray (SM)				
-16.8	8.6						
			CLAY, lean, dark gray (CL)	NS			
-21.7	13.5						
			NOTES: 1. Soils are field visually classified in accordance with the Unified Soils Classification System. 2. NS = Sample not submitted for laboratory analysis from this interval. 3. Seafloor elevation calculated using sampling vessel's fathometer water depth reading and applying NOAA tidal gauge data conversion factor.				

# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.0	0.1	25.5	73.3	1.1	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
.375	100.0		
#4	100.0		
#10	99.9		
#20	98.9		
#40	74.4		
#60	15.4		
#100	2.2		
#200	1.1		

\* (no specification provided)

<u>Material Description</u>		
SAND (SP), medium to fine grained		
<u>Atterberg Limits</u>		
PL=	LL=	PI=
<u>Coefficients</u>		
D <sub>90</sub> = 0.5329	D <sub>85</sub> = 0.4865	D <sub>60</sub> = 0.3719
D <sub>50</sub> = 0.3426	D <sub>30</sub> = 0.2903	D <sub>15</sub> = 0.2487
D <sub>10</sub> = 0.2305	C <sub>u</sub> = 1.61	C <sub>c</sub> = 0.98
<u>Classification</u>		
USCS= SP	AASHTO=	
<u>Remarks</u>		

Location: USACE Sample # BI-DA10-29A-11  
Sample Number: TE Lab ID: 5054.21

Depth: 0.0 - 4.4 (ft)

Date: 7/18/11

**Thompson Engineering**

**Mobile, Alabama**

Client: US Army Corps of Engineers

Project: Contract No. W91278-10-D-0026 - Task 009  
Mississippi Barrier Island Restoration Project

Project No: 11-2116-0057

Figure

## **Appendix I**

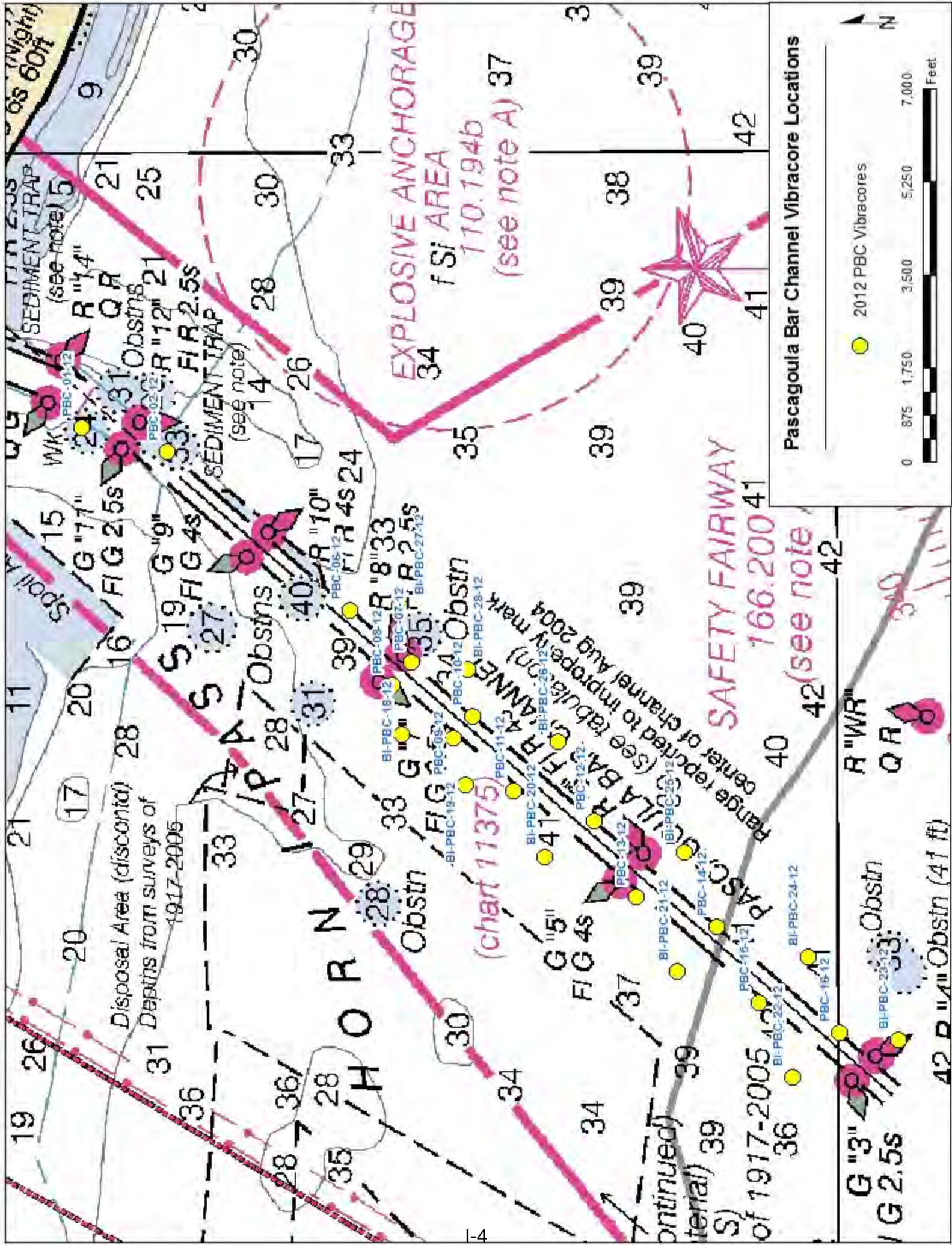
### **Horn Island Pass and Pascagoula Bar Channel**

#### **Vibracores and Lab Results**

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Pascagoula Bar Channel Vibracore Locations

2012 PBC Vibracores



EXPLOSIVE ANCHORAGE  
f Si AREA  
110.194b  
(see note A) 37

SAFETY FAIRWAY  
166.200 41  
(see note)

Disposal Area (discontinuity)  
Depths from surveys of  
1917-2005

PASCAGOULA BAR CHANNEL  
(see tabular mark)  
Range reported to improve mark  
center of channel Aug 2004

42 D "4" Obstrn (41 ft)

Obstrn

R "WR" QR

FIG 4s  
G "5"

Obstrn

HORN

IP 28  
A 28  
S 27

S 19  
G "9"  
FIG 4s

Obstrn  
R "12" 21  
FIR 2.5s

Obstrn  
R "14" 21  
FIR 2.5s

Obstrn  
R "14" 21  
FIR 2.5s

Obstrn  
R "14" 21  
FIR 2.5s



Vibracore / Sample ID	Investigation Area	Sample Event	Date of Sample	Time_CST	Latitude	Longitude	Northing_Y	Easting_X	Sample Method	Water Depth (feet)	Boring Depth (feet below seafloor surface )	Sample Depth (Feet below seafloor surface)	Sample Thickness (feet)	Field USCS	Lab USCS	Angularity	Wet Munsell Color	Wet Munsell Color Code	Wet Munsell Value	Dry Munsell Color	Dry Munsell Color Code	Dry Munsell Value	CaCO3	D50 (mm)	Graphic Mean (mm)	% Fines	Cu (D60/D10)	Cc (D30)*2 / (D10*D60)	
BI-HP-1-10	HORN ISLAND PASS	2010	7/13/2010	4:05 PM	30.18621	-88.55043	249659.15780	1073632.62500	20-ft Vibracore	31.0	19.2																		
BI-HP-1-10A	HORN ISLAND PASS	2010	7/13/2010	4:05 PM	30.18621	-88.55043	249659.15780	1073632.62500	20-ft Vibracore	31.0	19.2	0.0 - 5.0	5.0	SP	SP-SM	SUBANGULAR TO ROUNDED	GRAY	2.5Y 5/1	5	LT GRAY	2.5Y 7/1	7		0.29	0.29	8.2	3.2	1.5	
BI-HP-1-10B	HORN ISLAND PASS	2010	7/13/2010	4:05 PM	30.18621	-88.55043	249659.15780	1073632.62500	20-ft Vibracore	31.0	19.2	5.0 - 9.9	4.9	SP	SP	SUBANGULAR TO ROUNDED	GRAY	2.5Y 5/1	5	LT GRAY	2.5Y 7/1	7		0.30	0.32	2.4	1.9	1.1	
BI-HP-2-10	HORN ISLAND PASS	2010	7/13/2010	2:35 PM	30.18353	-88.55217	248683.12770	1073085.27900	20-ft Vibracore	34.0	17.6																		
BI-HP-2-10A	HORN ISLAND PASS	2010	7/13/2010	2:35 PM	30.18353	-88.55217	248683.12770	1073085.27900	20-ft Vibracore	34.0	17.6	0.0 - 3.3	3.3	SP	SP	SUBANGULAR TO ROUNDED	DK GRAYISH BROWN	2.5Y 4/2	4	LT BROWNISH GRAY	2.5Y 6/2	6		0.28	0.30	2.0	2.0	1.0	
BI-HP-2-10B	HORN ISLAND PASS	2010	7/13/2010	2:35 PM	30.18353	-88.55217	248683.12770	1073085.27900	20-ft Vibracore	34.0	17.6	3.3 - 5.9	2.6	SM	SM	SUBANGULAR TO ROUNDED	VERY DK GRAYISH BROWN	2.5Y 3/2	3	GRAY	2.5Y 5/1	5		0.23	#VALUE!	15.2	#VALUE!	#VALUE!	
BI-HP-3-10	HORN ISLAND PASS	2010	7/13/2010	2:02 PM	30.18417	-88.54793	248919.21470	1074424.35500	20-ft Vibracore	34.0	18.1																		
BI-HP-3-10A	HORN ISLAND PASS	2010	7/13/2010	2:02 PM	30.18417	-88.54793	248919.21470	1074424.35500	20-ft Vibracore	34.0	18.1	0.0 - 2.9	2.9	SP	SP-SM	SUBANGULAR TO ROUNDED	GRAY	2.5Y 6/1	6	LT GRAY	2.5Y 7/2	7		0.30	0.31	5.6	2.2	1.2	
BI-HP-3-10B	HORN ISLAND PASS	2010	7/13/2010	2:02 PM	30.18417	-88.54793	248919.21470	1074424.35500	20-ft Vibracore	34.0	18.1	2.9 - 5.8	2.9	SP	SP	SUBANGULAR TO ROUNDED	GRAY	5Y 5/1	5	LT GRAY	2.5Y 7/2	7		0.26	0.27	3.4	2.4	1.2	
BI-HP-4-10	HORN ISLAND PASS	2010	7/13/2010	2:02 PM	30.18659	-88.54844	249798.92370	1074261.01800	20-ft Vibracore	30.0	19.3																		
BI-HP-4-10A	HORN ISLAND PASS	2010	7/13/2010	2:02 PM	30.18659	-88.54844	249798.92370	1074261.01800	20-ft Vibracore	30.0	19.3	0.0 - 4.2	4.2	SP	SP-SM	SUBANGULAR TO ROUNDED	GRAY	2.5Y 6/1	6	LT GRAY	2.5Y 7/1	7		0.28	0.28	6.6	3.1	1.4	
BI-HP-4-10B	HORN ISLAND PASS	2010	7/13/2010	2:02 PM	30.18659	-88.54844	249798.92370	1074261.01800	20-ft Vibracore	30.0	19.3	4.2 - 8.5	4.3	SP	SM	SUBANGULAR TO ROUNDED	LT BROWNISH GRAY	2.5Y 6/2	6	LT GRAY	2.5Y 7/2	7		0.27	0.27	12.5	#VALUE!	#VALUE!	
BI-HP-4-10C	HORN ISLAND PASS	2010	7/13/2010	2:02 PM	30.18659	-88.54844	249798.92370	1074261.01800	20-ft Vibracore	30.0	19.3	8.5 - 11.2	2.7	SM	SM	SUBANGULAR TO ROUNDED	BLACK	2.5Y 2.5/1	3	DK GRAYISH BROWN	2.5Y 4/2	4		0.18	#VALUE!	29.3	#VALUE!	#VALUE!	
BI-HP-5-10	HORN ISLAND PASS	2010	7/14/2010	8:00 AM	30.18858	-88.54765	250523.27750	1074508.80200	20-ft Vibracore	34.0	17.8																		
BI-HP-5-10A	HORN ISLAND PASS	2010	7/14/2010	8:00 AM	30.18858	-88.54765	250523.27750	1074508.80200	20-ft Vibracore	34.0	17.8	0.0 - 4.8	4.8	SP	SP-SM	SUBANGULAR TO ROUNDED	GRAYISH BROWN	2.5Y 5/2	5	LT GRAY	2.5Y 7/1	7		0.28	0.29	6.7	2.9	1.3	
BI-HP-6-10	HORN ISLAND PASS	2010	7/14/2010	8:40 AM	30.18886	-88.55173	250621.89980	1073219.51000	20-ft Vibracore	34.0	17.5																		
BI-HP-6-10A	HORN ISLAND PASS	2010	7/14/2010	8:40 AM	30.18886	-88.55173	250621.89980	1073219.51000	20-ft Vibracore	34.0	17.5	0-4	4.0	SP	SP-SM	SUBANGULAR TO ROUNDED	VERY DK GRAYISH BROWN	2.5Y 3/2	3	GRAY	2.5Y 6/1	6		0.30	0.31	5.9	2.1	1.1	
BI-HP-7-10	HORN ISLAND PASS	2010	7/13/2010	3:20 PM	30.18484	-88.55027	249161.03800	1073684.41500	20-ft Vibracore	32.0	16.7																		
BI-HP-7-10A	HORN ISLAND PASS	2010	7/13/2010	3:20 PM	30.18484	-88.55027	249161.03800	1073684.41500	20-ft Vibracore	32.0	16.7	0.0 - 3.1	3.1	SP	SP	SUBANGULAR TO ROUNDED	DK GRAY	2.5Y 4/1	4	LT GRAY	2.5Y 7/1	7		0.30	0.31	3.2	2.1	1.1	
BI-HP-7-10B	HORN ISLAND PASS	2010	7/13/2010	3:20 PM	30.18484	-88.55027	249161.03800	1073684.41500	20-ft Vibracore	32.0	16.7	3.1 - 6.2	3.1	SP	SP-SM	SUBANGULAR TO ROUNDED	VERY DK GRAYISH BROWN	2.5Y 3/2	3	LT GRAY	2.5Y 7/1	7		0.25	0.26	6.2	2.6	1.1	
BI-HP-8-10	HORN ISLAND PASS	2010	7/14/2010	2:00 PM	30.19244	-88.55197	251923.69740	1073140.46900	20-ft Vibracore	33.0	17.4																		
BI-HP-8-10A	HORN ISLAND PASS	2010	7/14/2010	2:00 PM	30.19244	-88.55197	251923.69740	1073140.46900	20-ft Vibracore	33.0	17.4	0.0 - 5.1	5.1	SP	SP	SUBANGULAR TO ROUNDED	DK GRAYISH BROWN	2.5Y 4/2	4	LT GRAY	2.5Y 7/1	7		0.28	0.29	1.6	1.8	1.0	
BI-HP-9-10	HORN ISLAND PASS	2010	7/14/2010	1:18 PM	30.19274	-88.54668	252036.96860	1074811.45900	20-ft Vibracore	36.0	18.7																		
BI-HP-9-10A	HORN ISLAND PASS	2010	7/14/2010	1:18 PM	30.19274	-88.54668	252036.96860	1074811.45900	20-ft Vibracore	36.0	18.7	0.0 - 1.4	1.4	SM	SM	SUBANGULAR TO ROUNDED	VERY DK GRAYISH BROWN	2.5Y 3/2	3	GRAYISH BROWN	2.5Y 5/2	5		0.23	0.24	12.7	#VALUE!	#VALUE!	
BI-HP-10-10	HORN ISLAND PASS	2010	7/14/2010	12:34 PM	30.19288	-88.54127	252092.22530	1076520.49900	20-ft Vibracore	31.0	18.8																		
BI-HP-10-10A	HORN ISLAND PASS	2010	7/14/2010	12:34 PM	30.19288	-88.54127	252092.22530	1076520.49900	20-ft Vibracore	31.0	18.8	0.0 - 2.8	2.8	SP	SP	SUBANGULAR TO ROUNDED	DK GRAYISH BROWN	2.5Y 4/2	4	LT GRAY	2.5Y 7/1	7		0.29	0.30	3.2	2.1	1.1	
BI-HP-10-10B	HORN ISLAND PASS	2010	7/14/2010	12:34 PM	30.19288	-88.54127	252092.22530	1076520.49900	20-ft Vibracore	31.0	18.8	2.8 - 5.6	2.8	SP	SP	SUBANGULAR TO ROUNDED	DK GRAY	2.5Y 4/1	4	LT GRAY	2.5Y 7/1	7		0.26	0.28	3.5	2.2	1.1	
BI-HP-11-10	HORN ISLAND PASS	2010	7/14/2010	9:15 AM	30.18497	-88.55648	249203.49640	1071722.23000	20-ft Vibracore	36.0	18.0																		
BI-HP-11-10A	HORN ISLAND PASS	2010	7/14/2010	9:15 AM	30.18497	-88.55648	249203.49640	1071722.23000	20-ft Vibracore	36.0	18.0	0.0 - 5.1	5.1	SP	SP	SUBANGULAR TO ROUNDED	DK GRAY	2.5Y 4/1	4	LT GRAY	2.5Y 7/1	7		0.29	0.29	4.5	2.7	1.2	
BI-HP-11-10B	HORN ISLAND PASS	2010	7/14/2010	9:15 AM	30.18497	-88.55648	249203.49640	1071722.23000	20-ft Vibracore	36.0	18.0	5.1 - 6.2	1.1	SM	SM	SUBANGULAR TO ROUNDED	BLACK	2.5Y 2.5/1	3	GRAY	2.5Y 5/1	5		0.22	#VALUE!	16.8	#VALUE!	#VALUE!	
BI-HP-12-10	HORN ISLAND PASS	2010	7/14/2010	10:22 AM	30.17997	-88.55652	247385.05360	1071714.00900	20-ft Vibracore	36.0	17.8																		
BI-HP-12-10A	HORN ISLAND PASS	2010	7/14/2010	10:22 AM	30.17997	-88.55652	247385.05360	1071714.00900	20-ft Vibracore	36.0	17.8	0.0 - 3.0	3.0	SP	SM	SUBANGULAR TO ROUNDED	DK GRAY	10YR 4/1	4	LT GRAY	2.5Y 7/1	7		0.27	0.27	12.3	#VALUE!	#VALUE!	
BI-HP-12-10B	HORN ISLAND PASS	2010	7/14/2010	10:22 AM	30.17997	-88.55652	247385.05360	1071714.00900	20-ft Vibracore	36.0	17.8	3.0 - 6.0	3.0	SP	SP-SM	SUBANGULAR TO ROUNDED	OLIVE GRAY	5Y 5/2	5	LT GRAY	2.5Y 7/1	7		0.24	0.25	6.4	2.8	1.2	
BI-HP-13-10	HORN ISLAND PASS	2010	7/14/2010	11:07 AM	30.18005	-88.56105	247410.70020	1070282.60200	20-ft Vibracore	38.0	17.3																		
BI-HP-13-10A	HORN ISLAND PASS	2010	7/14/2010	11:07 AM	30.18005	-88.56105	247410.70020	1070282.60200	20-ft Vibracore	38.0	17.3	0.0 - 3.2	3.2	SP	SP	SUBANGULAR TO ROUNDED	GRAY	2.5Y 6/1	6	LT GRAY	2.5Y 7/2	7		0.29	0.30	2.1	2.0	1.0	
BI-HP-14-10	HORN ISLAND PASS	2010	7/14/2010	9:50 AM	30.17988	-88.55166	247356.08460	1073249.69800	20-ft Vibracore	37.0	15.9																		
BI-HP-14-10A	HORN ISLAND PASS	2010	7/14/2010	9:50 AM	30.17988	-88.55166	247356.08460	1073249.69800	20-ft Vibracore	37.0	15.9	0.0 - 2.5	2.5	SP	SP-SM	SUBANGULAR TO ROUNDED	OLIVE GRAY	5Y 4/2	4	LT OLIVE GRAY	5Y 6/2	6		0.24	0.25	6.7	2.9	1.4	
BI-HP-15-10	HORN ISLAND PASS	2010	7/14/2010	2:49 PM	30.18942	-88.53846	250836.16820	1077411.51300	20-ft Vibracore	36.0	18.5	NO SAMPLE TAKEN		SC	NO SAMPLE TESTED														
BI-HP-16-10	HORN ISLAND PASS	2010	7/14/2010	3:30 PM	30.18423	-88.54405	248944.12680	1075650.20700	20-ft Vibracore	37.0	17.7																		
BI-HP-16-10A	HORN ISLAND PASS	2010	7/14/2010	3:30 PM	30.18423	-88.54405	248944.12680	1075650.20700	20-ft Vibracore	37.0	17.7	0.0 - 1.5	1.5	SP	SP-SM	SUBANGULAR TO ROUNDED	DK GRAYISH BROWN	2.5Y 4/2	4	LT GRAY	2.5Y 7/2	7		0.25	0.27	7.0	2.8	1.2	
BI-HP-16-10B	HORN ISLAND PASS	2010	7/14/2010	3:30 PM	30.18423	-88.54405	248944.12680	1075650.20700	20-ft Vibracore	37.0	17.7	1.5 - 3.0	1.5	SM	SM	SUBANGULAR TO ROUNDED	DK GRAYISH BROWN	2.5Y 4/2	4	OLIVE BROWN	2.5Y 4/3	4		0.18	#VALUE!	26.7	#VALUE!	#VALUE!	
BI-HP-17-10	HORN ISLAND PASS	2010	7/15/2010	1:10 PM	30.18016	-88.54816	247460.66580	1074355.33500	20-ft Vibracore	39.0	17.0	NO SAMPLE TAKEN	0.0	SC	NO SAMPLE TESTED														
BI-HP-18-10	HORN ISLAND PASS	2010	7/15/2010	8:00 AM	30.19567	-88.54340	253105.18280	1075844.99100	20-ft Vibracore	34.0	16.5	NO SAMPLE TAKEN	0.0	SC	NO SAMPLE TESTED														
BI-HP-19-10	HORN ISLAND PASS	2010	7/15/2010	8:41 AM	30.19606	-88.55061	253241.29410	1073566.86500	20-ft Vibracore	35.0	18.1	NO SAMPLE TAKEN	0.0	SC	NO SAMPLE TESTED														
BI-HP-20-10	HORN ISLAND PASS	2010	7/15/2010	9:35 AM	30.19091	-88.54910	251369.51300	1074048.57300	20-ft Vibracore	36.0	17.6																		
BI-HP-20-10A	HORN ISLAND PASS	2010	7/15/2010	9:35 AM	30.19091	-88.54910	251369.51300																						

Vibracore / Sample ID	Investigation Area	Sample Event	Date of Sample	Time_CST	Latitude	Longitude	Northing_Y	Easting_X	Sample Method	Water Depth (feet)	Boring Depth (feet below seafloor surface )	Sample Depth (Feet below seafloor surface)	Sample Thickness (feet)	Field USCS	Lab USCS	Angularity	Wet Munsell Color	Wet Munsell Color Code	Wet Munsell Value	Dry Munsell Color	Dry Munsell Color Code	Dry Munsell Value	CaCO3	D50 (mm)	Graphic Mean (mm)	% Fines	Cu (D60/D10)	Cc (D30)^2 / (D10*D60)
BI-HP-24-10A	HORN ISLAND PASS	2010	7/15/2010	1:45 PM	30.18626	-88.54550	249681.24270	1075190.20700	20-ft Vibracore	33.0	18.6	0.0 - 3.4	3.4	SP	SP-SM	SUBANGULAR TO ROUNDED	GRAYISH BROWN	2.5Y 5/2	5	LT BROWNISH GRAY	2.5Y 6/2	6		0.26	0.28	5.5	2.5	1.2
BI-HP-24-10B	HORN ISLAND PASS	2010	7/15/2010	1:45 PM	30.18626	-88.54550	249681.24270	1075190.20700	20-ft Vibracore	33.0	18.6	3.4 - 6.7	3.3	SP	SP-SM	SUBANGULAR TO ROUNDED	DK GRAYISH BROWN	2.Y 4/2	4	LT GRAY	2.5Y 7/1	7		0.26	0.27	7.1	2.7	1.2
BI-HP-25-10	HORN ISLAND PASS	2010	7/15/2010	2:25 PM	30.18788	-88.54330	250272.17150	1075883.79500	20-ft Vibracore	35.0	17.4																	
BI-HP-25-10A	HORN ISLAND PASS	2010	7/15/2010	2:25 PM	30.18788	-88.54330	250272.17150	1075883.79500	20-ft Vibracore	35.0	17.4	0.0 - 2.5	2.5	SP	SP-SM	SUBANGULAR TO ROUNDED	GRAYISH BROWN	2.5Y 5/2	5	LT GRAY	2.5Y 7/1	7		0.25	0.27	5.4	2.4	1.2
BI-HP-26-10	HORN ISLAND PASS	2010	7/15/2010	3:03 PM	30.19048	-88.54306	251217.94040	1075957.21200	20-ft Vibracore	34.0	17.9																	
BI-HP-26-10A	HORN ISLAND PASS	2010	7/15/2010	3:03 PM	30.19048	-88.54306	251217.94040	1075957.21200	20-ft Vibracore	34.0	17.9	0.0 - 4.0	4.0	SP	SP	SUBANGULAR TO ROUNDED	OLIVE GRAY	5Y 5/2	5	LT GRAY	2.5Y 7/1	7		0.25	0.26	2.1	1.8	0.9
BI-HP-27-12	HORN ISLAND PASS	2012	12/4/2012	1:29 PM	30.19757	-88.53702	253801.36780	1077858.75500	20-ft Vibracore	29.6	15.7																	
BI-HP-27-12A	HORN ISLAND PASS	2012	12/4/2012	1:29 PM	30.19757	-88.53702	253801.36780	1077858.75500	20-ft Vibracore	29.6	15.7	0-3.7	3.7	SP	SP	SUBANGULAR TO SUBROUNDED	LT GRAY	2.5Y 7/1	7	PALE BROWN	2.5Y 7.5/2	8		0.33	0.36	1.6	1.6	1.0
BI-HP-27-12B	HORN ISLAND PASS	2012	12/4/2012	1:29 PM	30.19757	-88.53702	253801.36780	1077858.75500	20-ft Vibracore	29.6	15.7	3.7-6	2.3	SP-SM	SP-SM	SUBANGULAR TO SUBROUNDED	LT BROWNISH GRAY	2.5Y 5.5/2	6	LT GRAY	2.5Y 7/2	7		0.30	0.31	7.4	2.5	1.2
BI-HP-28-12	HORN ISLAND PASS	2012	12/4/2012	10:28 AM	30.19687	-88.53180	253551.11670	1079508.49400	20-ft Vibracore	28.9	20.0			SP														
BI-HP-28-12A	HORN ISLAND PASS	2012	12/4/2012	10:28 AM	30.19687	-88.53180	253551.11670	1079508.49400	20-ft Vibracore	28.9	20.0	0-5.5	5.5	SP	SP	SUBANGULAR TO SUBROUNDED	WHITE	2.5Y 8/1	8	WHITE	5Y 8/1	8		0.34	0.36	1.2	1.7	1.1
BI-HP-28-12B	HORN ISLAND PASS	2012	12/4/2012	10:28 AM	30.19687	-88.53180	253551.11670	1079508.49400	20-ft Vibracore	28.9	20.0	5.5-6.3	0.8	SP	SP	SUBANGULAR TO SUBROUNDED	LT BROWNISH GRAY	2.5Y 6/1.5	6	LT GRAY	2.5Y 7/2	7		0.21	0.23	4.7	1.9	1.0
BI-HP-29-12	HORN ISLAND PASS	2012	12/4/2012	11:15 AM	30.19422	-88.53372	252585.75490	1078904.47200	20-ft Vibracore	32.7	18.5																	
BI-HP-29-12A	HORN ISLAND PASS	2012	12/4/2012	11:15 AM	30.19422	-88.53372	252585.75490	1078904.47200	20-ft Vibracore	32.7	18.5	0-0.9	0.9	SP	SP-SM	SUBANGULAR TO SUBROUNDED	LT BROWNISH GRAY	2.5Y 6/2	6	LT GRAY	2.5Y 7/2	7		0.32	0.34	6.7	2.2	1.2
BI-HP-29-12B	HORN ISLAND PASS	2012	12/4/2012	11:15 AM	30.19422	-88.53372	252585.75490	1078904.47200	20-ft Vibracore	32.7	18.5	0.9-3.5	2.6	SP	SP	SUBANGULAR TO SUBROUNDED	LT OLIVE GRAY	5Y 6/2	6	LT GRAY	5Y 7/2	7		0.28	0.29	1.3	1.7	1.0
BI-HP-29-12C	HORN ISLAND PASS	2012	12/4/2012	11:15 AM	30.19422	-88.53372	252585.75490	1078904.47200	20-ft Vibracore	32.7	18.5	3.5-5.1	1.6	SP	SP	SUBANGULAR TO SUBROUNDED	LT GRAY	2.5Y 7/1.5	7	PALE BROWN	2.5Y 7.5/2	8		0.29	0.30	1.9	1.9	1.0
BI-HP-30-12	HORN ISLAND PASS	2012	12/4/2012	12:00 PM	30.19495	-88.53765	252847.99990	1077662.20400	20-ft Vibracore	29.8	19.0																	
BI-HP-30-12A	HORN ISLAND PASS	2012	12/4/2012	12:00 PM	30.19495	-88.53765	252847.99990	1077662.20400	20-ft Vibracore	29.8	19.0	0-2.4	2.4	SP	SP	ANGULAR TO SUBROUNDED	LT GRAY	2.5Y 7/2	7	WHITE	2.5Y 8/1	8		0.31	0.33	4.5	2.1	1.1
BI-HP-30-12B	HORN ISLAND PASS	2012	12/4/2012	12:00 PM	30.19495	-88.53765	252847.99990	1077662.20400	20-ft Vibracore	29.8	19.0	2.4-5.4	3.0	SP-SM	SP	SUBANGULAR TO SUBROUNDED	LT BROWNISH GRAY	2.5Y 6/2	6	LT GRAY	2.5Y 7/2	7		0.27	0.28	3.4	2.0	1.0
BI-HP-30-12C	HORN ISLAND PASS	2012	12/4/2012	12:00 PM	30.19495	-88.53765	252847.99990	1077662.20400	20-ft Vibracore	29.8	19.0	5.4-7.9	2.5	SP	SP	SUBANGULAR TO SUBROUNDED	LT BROWNISH GRAY	2.5Y 5.5/2	6	LT GRAY	2.5Y 7/2	7		0.32	0.32	1.7	1.7	1.0
BI-HP-31-12	HORN ISLAND PASS	2012	12/4/2012	2:14 PM	30.18998	-88.57763	251009.93040	1065035.74400	20-ft Vibracore	30.3	13.0	NO SAMPLE TAKEN		CL	NO SAMPLE TESTED													
BI-HP-32-12	HORN ISLAND PASS	2012	12/4/2012	2:49 PM	30.18370	-88.58010	248724.26250	1064260.45700	20-ft Vibracore	32.3	11.0	NO SAMPLE TAKEN		CL	NO SAMPLE TESTED													
BI-HP-33-12	HORN ISLAND PASS	2012	12/4/2012	3:25 PM	30.18580	-88.58643	249483.60620	1062258.79700	20-ft Vibracore	31.7	10.7																	
BI-HP-33-12A	HORN ISLAND PASS	2012	12/4/2012	3:25 PM	30.18580	-88.58643	249483.60620	1062258.79700	20-ft Vibracore	31.7	10.7	0-2.2	2.2	SP	SP	SUBANGULAR TO SUBROUNDED	LT BROWNISH GRAY	2.5Y 6/2	6	LT GRAY	2.5Y 7/2	7		0.21	0.23	2.1	1.6	1.0
BI-HP-34-12	HORN ISLAND PASS	2012	12/21/2012	3:30 PM	30.19253	-88.55495	251954.11610	1072198.92100	20-ft Vibracore	30.1	19.5																	
BI-HP-34-12A	HORN ISLAND PASS	2012	12/21/2012	3:30 PM	30.19253	-88.55495	251954.11610	1072198.92100	20-ft Vibracore	30.1	19.5	0-4.5	4.5	SP	SP	SUBANGULAR TO SUBROUNDED	LT BROWNISH GRAY	2.5y 6/2	6	LT GRAY	2.5Y 7/2	7		0.33	0.35	0.7	1.8	1.0
BI-HP-34-12B	HORN ISLAND PASS	2012	12/21/2012	3:30 PM	30.19253	-88.55495	251954.11610	1072198.92100	20-ft Vibracore	30.1	19.5	4.5-9.5	5.0	SP	SP	SUBANGULAR TO SUBROUNDED	LT OLIVE GRAY	5Y 6/2	6	LT GRAY	5Y 7/2	7		0.29	0.30	2.9	1.8	1.0
BI-HP-34-12C	HORN ISLAND PASS	2012	12/21/2012	3:30 PM	30.19253	-88.55495	251954.11610	1072198.92100	20-ft Vibracore	30.1	19.5	9.5-10.7	1.2	SP	SP	SUBANGULAR TO SUBROUNDED	OLIVE GRAY	5Y 5/2	5	LT OLIVE GRAY	5Y 6/2	6		0.29	0.31	1.8	1.9	1.0
BI-HP-36-12	HORN ISLAND PASS	2012	12/21/2012	2:16 PM	30.20090	-88.52752	255020.36690	1080856.67600	20-ft Vibracore	19.8	18.8																	
BI-HP-36-12A	HORN ISLAND PASS	2012	12/21/2012	2:16 PM	30.20090	-88.52752	255020.36690	1080856.67600	20-ft Vibracore	19.8	18.8	0-3.8	3.8	SP	SP	SUBANGULAR TO SUBROUNDED	LT OLIVE GRAY	5Y 6/2	6	LT GRAY	5Y 7/2	7		0.26	0.27	1.6	1.7	1.0
BI-HP-36-12B	HORN ISLAND PASS	2012	12/21/2012	2:16 PM	30.20090	-88.52752	255020.36690	1080856.67600	20-ft Vibracore	19.8	18.8	3.8-8.8	5.0	SP	SP	SUBANGULAR TO SUBROUNDED	LT OLIVE GRAY	5Y 6/2	6	LT GRAY	5Y 7/1	7		0.21	0.22	1.7	1.5	1.0
BI-HP-36-12C	HORN ISLAND PASS	2012	12/21/2012	2:16 PM	30.20090	-88.52752	255020.36690	1080856.67600	20-ft Vibracore	19.8	18.8	8.8-11.8	3.0	SP	SP	SUBANGULAR TO SUBROUNDED	OLIVE GRAY	5Y 5/2	5	LT OLIVE GRAY	5Y 6/2	6		0.21	0.22	2.5	1.6	1.0
BI-HP-37-12	HORN ISLAND PASS	2012	1/5/2013	12:44 PM	30.18480	-88.55917	249139.61560	1070872.46600	20-ft Vibracore	39.8	14.4																	
BI-HP-37-12	HORN ISLAND PASS	2012	1/5/2013	12:44 PM	30.18480	-88.55917	249139.61560	1070872.46600	20-ft Vibracore	39.8	14.4	0.0-3.0	3.0	SP	SP	SUBANGULAR TO SUBROUNDED	OLIVE	5Y 4/3	4	PALE OLIVE	5Y 6/3	6		0.25	0.27	3.3	1.9	1.0
BI-HP-38-12	HORN ISLAND PASS	2012	12/21/2012	3:00 PM	30.19947	-88.53510	254493.94960	1078463.49900	20-ft Vibracore	29.2	16.1																	
BI-HP-38-12A	HORN ISLAND PASS	2012	12/21/2012	3:00 PM	30.19947	-88.53510	254493.94960	1078463.49900	20-ft Vibracore	29.2	16.1	0-3.6	3.6	SP	SP-SM	SUBANGULAR TO SUBROUNDED	OLIVE GRAY	5Y 5/2	5	LT GRAY	5Y 7/2	7		0.30	0.32	5.3	2.0	1.1
BI-HP-39-12	HORN ISLAND PASS	2012	12/21/2012	4:00 PM	30.19077	-88.55702	251312.44210	1071546.50100	20-ft Vibracore	32.0	17.4																	
BI-HP-39-12A	HORN ISLAND PASS	2012	12/21/2012	4:00 PM	30.19077	-88.55702	251312.44210	1071546.50100	20-ft Vibracore	32.0	17.4	0-2	2.0	SP	SP	SUBANGULAR TO SUBROUNDED	LT OLIVE GRAY	5Y 6/2	6	LT GRAY	5Y 7/2	7		0.30	0.31	1.2	1.8	1.0
BI-HP-39-12B	HORN ISLAND PASS	2012	12/21/2012	4:00 PM	30.19077	-88.55702	251312.44210	1071546.50100	20-ft Vibracore	32.0	17.4	2-7.2	5.2	SP	SP	SUBANGULAR TO SUBROUNDED	LT OLIVE GRAY	5Y 6/2	6	LT GRAY	5Y 7/2	7		0.27	0.28	1.8	1.8	1.0
BI-HP-39-12C	HORN ISLAND PASS	2012	12/21/2012	4:00 PM	30.19077	-88.55702	251312.44210	1071546.50100	20-ft Vibracore	32.0	17.4	7.2-9.5	2.3	SP	SP	SUBANGULAR TO SUBROUNDED	OLIVE GRAY	5Y 5/2	5	LT OLIVE GRAY	5Y 6/2	6		0.30	0.30	2.1	1.8	1.0
BI-HP-40-12	HORN ISLAND PASS	2012	12/21/2012	4:24 PM	30.18765	-88.55672	250177.98180	1071644.03600	20-ft Vibracore	34.2	16.6																	
BI-HP-40-12A	HORN ISLAND PASS	2012	12/21/2012	4:24 PM	30.18765	-88.55672	250177.98180	1071644.03600	20-ft Vibracore	34.2	16.6	0-1.6	1.6	SP	SP	SUBANGULAR TO SUBROUNDED	OLIVE GRAY	5Y 5/2	5	LT GRAY	5Y 7/2	7		0.23	0.25	2.4	1.7	1.0
BI-HP-40-12B	HORN ISLAND PASS	2012	12/21/2012	4:24 PM	30.18765	-88.55672	250177.98180	1071644.03600	20-ft Vibracore	34.2	16.6	1.6-4.9	3.3	SP	SP	SUBANGULAR TO SUBROUNDED	OLIVE GRAY	5Y 5/2	5	LT OLIVE GRAY	5Y 6/2	6		0.28	0.29	3.8	2.2	1.1
BI-HP-41-12	HORN ISLAND PASS	2012	1/5/2013	11:42 PM	30.19870	-88.53372	254215.05730	1078900.18700	20-ft Vibracore	28.5	14.8																	
BI-HP-41-12A	HORN ISLAND PASS	2012	1/5/2013	11:42 PM	30.19870	-88.53372	254215.05730	1078900.18700	20-ft Vibracore	28.5	14.8	0.0-1.5	1.5	SP	SP	SUBANGULAR TO SUBROUNDED												



Vibracore / Sample ID	Investigation Area	Sample Event	Date of Sample	Time_CST	Latitude	Longitude	Northing_Y	Easting_X	Sample Method	Water Depth (feet)	Boring Depth (feet below seafloor surface)	Sample Depth (Feet below seafloor surface)	Sample Thickness (feet)	Field USCS	Lab USCS	Angularity	Wet Munsell Color	Wet Munsell Color Code	Wet Munsell Value	Dry Munsell Color	Dry Munsell Color Code	Dry Munsell Value	CaCO3	D50 (mm)	Graphic Mean (mm)	% Fines	Cu (D60/D10)	Cc (D30)^2 / (D10*D60)
BI-HP-46-13A	HORN ISLAND PASS	2013	11/29/2013	10:03 AM	30.17801	-88.55850	246670.72240	1071090.11000	20-ft Vibracore	37.0	17.6	0.0-3.3	3.3	SP	SP-SM	SUBANGULAR TO SUBROUNDED	Light Olive Gray	5Y 6/2	6	Light Gray	2.5Y 7/1	6		0.28	0.29	6.3	2.5	1.1
BI-HP-46-13B	HORN ISLAND PASS	2013	11/29/2013	10:03 AM	30.17801	-88.55850	246670.72240	1071090.11000	20-ft Vibracore	37.0	17.6	3.3-8.6	5.3	SM	SP-SM	SUBANGULAR TO SUBROUNDED	Very Dark Greenish Gray	10Y 3/1	3	Gray	2.5Y 5/1	5		0.19	0.21	11.5	#DIV/0!	#DIV/0!
BI-HP-47-13	HORN ISLAND PASS	2013	11/29/2013	3:02 PM	30.17620	-88.55563	246014.65580	1071998.56200	20-ft Vibracore	41.0	16.8																	
BI-HP-47-13A	HORN ISLAND PASS	2013	11/29/2013	3:02 PM	30.17620	-88.55563	246014.65580	1071998.56200	20-ft Vibracore	41.0	16.8	0.0-1.9	1.9	SP	SP-SM	SUBANGULAR TO SUBROUNDED	Olive Gray	5Y 5/2	5	Greenish Gray	GLE Y1 10Y 6/1	6		0.20	0.22	5.0	2.1	1.1
BI-HP-47-13B	HORN ISLAND PASS	2013	11/29/2013	3:02 PM	30.17620	-88.55563	246014.65580	1071998.56200	20-ft Vibracore	41.0	16.8	1.9-3.0	1.1	SP-SM	SM	SUBANGULAR TO SUBROUNDED	Dark Greenish Gray	10Y 4/1	4	Gray	2.5Y 5/1	5		0.19	0.19	14.4	#DIV/0!	#DIV/0!
BI-HP-47-13C	HORN ISLAND PASS	2013	11/29/2013	3:02 PM	30.17620	-88.55563	246014.65580	1071998.56200	20-ft Vibracore	41.0	16.8	3.0-5.0	2.0	SM	SM	SUBANGULAR TO SUBROUNDED	Dark Greenish Gray	10Y 4/1	4	Gray	2.5Y 5/1	5		0.17	0.14	15.2	#DIV/0!	#DIV/0!
BI-HP-48-13	HORN ISLAND PASS	2013	11/23/2013	11:14 AM	30.17947	-88.56406	247197.50490	1069332.03500	20-ft Vibracore	40.0	15.2																	
BI-HP-48-13A	HORN ISLAND PASS	2013	11/23/2013	11:14 AM	30.17947	-88.56406	247197.50490	1069332.03500	20-ft Vibracore	40.0	15.2	0.0-2.8	2.8	SP	SP	SUBANGULAR TO SUBROUNDED	Light Olive Gray	5Y 6/2	6	Light Gray	2.5Y 7/1	7		0.27	0.29	3.2	2.0	0.9
BI-HP-49-13	HORN ISLAND PASS	2013	11/23/2013	3:35 PM	30.17584	-88.56072	245879.84780	1070390.53300	20-ft Vibracore	37.5	15.9																	
BI-HP-49-13A	HORN ISLAND PASS	2013	11/23/2013	3:35 PM	30.17584	-88.56072	245879.84780	1070390.53300	20-ft Vibracore	37.5	15.9	0.0-3.4	3.4	SP	SP	SUBANGULAR TO SUBROUNDED	Light Olive Gray	5Y 6/2	6	Light Greenish Gray	GLE Y1 10Y 7/1	7		0.31	0.35	1.4	2.2	1.0
BI-HP-49-13B	HORN ISLAND PASS	2013	11/23/2013	3:35 PM	30.17584	-88.56072	245879.84780	1070390.53300	20-ft Vibracore	37.5	15.9	3.4-4.1	0.7	SM	SP-SM	SUBANGULAR TO SUBROUNDED	Very Dark Greenish Gray	10Y 3/1	3	Gray	2.5Y 6/1	6		0.21	0.24	9.3	3.1	1.3
BI-HP-50-13	HORN ISLAND PASS	2013	11/29/2013	12:55 PM	30.17402	-88.55768	245220.25670	1071352.71900	20-ft Vibracore	41.0	16.5																	
BI-HP-50-13A	HORN ISLAND PASS	2013	11/29/2013	12:55 PM	30.17402	-88.55768	245220.25670	1071352.71900	20-ft Vibracore	41.0	16.5	0.0-1.2	1.2	SP	SP-SM	SUBANGULAR TO SUBROUNDED	Olive Gray	5Y 4/2	4	Gray	2.5Y 6/1	6		0.23	0.26	6.6	2.5	1.1
BI-HP-50-13B	HORN ISLAND PASS	2013	11/29/2013	12:55 PM	30.17402	-88.55768	245220.25670	1071352.71900	20-ft Vibracore	41.0	16.5	1.2-4.0	2.8	SP-SM	SM	SUBANGULAR TO SUBROUNDED	Dark Greenish Gray	10Y 4/1	4	Greenish Gray	GLE Y1 10Y 5/1	5		0.17	0.17	14.0	#DIV/0!	#DIV/0!
BI-HP-50-13C	HORN ISLAND PASS	2013	11/29/2013	12:55 PM	30.17402	-88.55768	245220.25670	1071352.71900	20-ft Vibracore	41.0	16.5	4.0-9.0	5.0	SM	SM	SUBANGULAR TO SUBROUNDED	Dark Greenish Gray	10Y 4/1	4	Greenish Gray	GLE Y1 10Y 5/1	5		0.16	0.13	18.4	#DIV/0!	#DIV/0!
BI-HP-50-13D	HORN ISLAND PASS	2013	11/29/2013	12:55 PM	30.17402	-88.55768	245220.25670	1071352.71900	20-ft Vibracore	41.0	16.5	9.0-13.0	4.0	SM	SM	SUBANGULAR TO SUBROUNDED	Dark Greenish Gray	10Y 4/1	4	Gray	2.5Y 5/1	5		0.16	0.13	22.0	#DIV/0!	#DIV/0!
BI-HP-51-13	HORN ISLAND PASS	2013	11/29/2013	11:39 AM	30.17148	-88.56044	244294.40650	1070482.80400	20-ft Vibracore	43.0	15.9																	
BI-HP-51-13A	HORN ISLAND PASS	2013	11/29/2013	11:39 AM	30.17148	-88.56044	244294.40650	1070482.80400	20-ft Vibracore	43.0	15.9	0.0-0.7	0.7	SP	SP-SM	SUBANGULAR TO SUBROUNDED	Olive Gray	5Y 4/2	4	Greenish Gray	GLE Y1 10Y 5/1	5		0.19	0.21	8.4	2.5	1.3
BI-HP-51-13B	HORN ISLAND PASS	2013	11/29/2013	11:39 AM	30.17148	-88.56044	244294.40650	1070482.80400	20-ft Vibracore	43.0	15.9	0.7-5.7	5.0	SM	SM	SUBANGULAR TO SUBROUNDED	Dark Greenish Gray	10Y 4/1	4	Gray	2.5Y 5/1	5		0.17	0.14	15.2	#DIV/0!	#DIV/0!
BI-HP-51-13C	HORN ISLAND PASS	2013	11/29/2013	11:39 AM	30.17148	-88.56044	244294.40650	1070482.80400	20-ft Vibracore	43.0	15.9	5.7-10.7	5.0	SM	SM	SUBANGULAR TO SUBROUNDED	Very Dark Greenish Gray	10Y 3/1	3	Gray	2.5Y 5/1	5		0.16	0.13	18.5	#DIV/0!	#DIV/0!
BI-HP-51-13D	HORN ISLAND PASS	2013	11/29/2013	11:39 AM	30.17148	-88.56044	244294.40650	1070482.80400	20-ft Vibracore	43.0	15.9	10.7-14.5	3.8	SM	SM	SUBANGULAR TO SUBROUNDED	Dark Greenish Gray	10Y 4/1	4	Gray	2.5Y 5/1	5		0.12	0.11	26.8	#DIV/0!	#DIV/0!
BI-HP-52-13	HORN ISLAND PASS	2013	11/23/2013	2:40 PM	30.17340	-88.56332	244990.50840	1069571.08300	20-ft Vibracore	40.0	19.2																	
BI-HP-52-13A	HORN ISLAND PASS	2013	11/23/2013	2:40 PM	30.17340	-88.56332	244990.50840	1069571.08300	20-ft Vibracore	40.0	19.2	0.0-1.9	1.9	SM	SP	SUBANGULAR TO SUBROUNDED	Dark Greenish Gray	10Y 4/1	4	Gray	2.5Y 6/1	6		0.25	0.28	4.5	2.3	1.0
BI-HP-53-13	HORN ISLAND PASS	2013	11/23/2013	12:42 PM	30.17655	-88.56641	246133.80680	1068591.99200	20-ft Vibracore	39.0	15.5																	
BI-HP-53-13A	HORN ISLAND PASS	2013	11/23/2013	12:42 PM	30.17655	-88.56641	246133.80680	1068591.99200	20-ft Vibracore	39.0	15.5	0.0-2.4	2.4	SP	SP	SUBANGULAR TO SUBROUNDED	Greenish Gray	10Y 6/1	6	Light Gray	2.5Y 7/1	7		0.27	0.28	3.1	2.0	0.9
BI-HP-54-13	HORN ISLAND PASS	2013	11/22/2013	3:24 PM	30.18235	-88.56165	248246.71700	1070091.02700	20-ft Vibracore	39.0	16.0																	
BI-HP-54-13A	HORN ISLAND PASS	2013	11/22/2013	3:24 PM	30.18235	-88.56165	248246.71700	1070091.02700	20-ft Vibracore	39.0	16.0	0.0-2.2	2.2	SP	SP	SUBANGULAR TO SUBROUNDED	Light Greenish Gray	10Y 7/1	7	Light Greenish Gray	GLE Y1 10Y 7/1	7		0.25	0.27	3.7	2.1	0.9
BI-HP-54-13B	HORN ISLAND PASS	2013	11/22/2013	3:24 PM	30.18235	-88.56165	248246.71700	1070091.02700	20-ft Vibracore	39.0	16.0	2.2-4.0	1.8	SM	SM	SUBANGULAR TO SUBROUNDED	Dark Greenish Gray	10Y 4/1	4	Greenish Gray	GLE Y1 10Y 5/1	5		0.19	0.20	13.0	#DIV/0!	#DIV/0!
BI-HP-55-13	HORN ISLAND PASS	2013	11/22/2013	12:27 PM	30.18218	-88.55896	248186.92720	1070941.11100	20-ft Vibracore	38.0	19.4																	
BI-HP-55-13A	HORN ISLAND PASS	2013	12/8/2012	12:27 PM	30.18218	-88.55896	248186.92720	1070941.11100	20-ft Vibracore	38.0	19.4	0.0-4.0	4.0	SP	SP-SM	SUBANGULAR TO SUBROUNDED	Greenish Gray	10Y 6/1	6	Gray	2.5Y 6/1	6		0.23	0.25	5.8	2.4	1.1

Cu: Coefficient of Uniformity  
Cc: Coefficient of Curvature  
The "#Value!" error message indicates that data was not available for that calculation.

Vibracore / Sample ID	Investigation Area	Sample Event	Date of Sample	Time_CST	Latitude	Longitude	Northing_Y	Easting_X	Sample Method	Water Depth (feet)	Boring Depth (ft)	Sample Depth (Feet below seafloor surface)	Sample Thickness (feet)	Field USCS	Lab USCS	Angularity	Wet Munsell Color	Wet Munsell Color Code	Wet Munsell Value	Dry Munsell Color	Dry Munsell Color Code	Dry Munsell Value	CaCO3	D50 (mm)	Graphic Mean (mm)	% Fines	Cu (D60/D10)	Cc (D30)*2 / (D10*D60)
BI-PBC-1-12	PASCAGOULA BAR CHANNEL	2012	12/21/2012	1:01 PM	30.20522	-88.51597	256601.46430	1084500.97100	20-ft Vibracore	49.8	16.1	NO SAMPLE TAKEN		ML	NO SAMPLE TESTED													
BI-PBC-2-12	PASCAGOULA BAR CHANNEL	2012	12/21/2012	1:50 PM	30.20082	-88.51742	254999.98030	1084047.37100	20-ft Vibracore	38.2	13.2	NO SAMPLE TAKEN		ML	NO SAMPLE TESTED													
BI-PBC-6-12	PASCAGOULA BAR CHANNEL	2012	12/16/2012	2:28 PM	30.19150	-88.52677	251602.37740	1081102.80300	20-ft Vibracore	42.3	13.9																	
BI-PBC-6-12a	PASCAGOULA BAR CHANNEL	2012	12/16/2012	2:28 PM	30.19150	-88.52677	251602.37740	1081102.80300	20-ft Vibracore	42.3	13.9	0-1	1.0	SP	SP-SM	SUBANGULAR TO SUBROUNDED	OLIVE	5Y 4/3	4	OLIVE	5Y 5/3	5		0.17	0.18	6.6	1.9	1.1
BI-PBC-7-12	PASCAGOULA BAR CHANNEL	2012	12/16/2012	1:28 PM	30.18837	-88.52985	250461.44360	1080132.76300	20-ft Vibracore	41.2	19.2																	
BI-PBC-7-12a	PASCAGOULA BAR CHANNEL	2012	12/16/2012	1:28 PM	30.18837	-88.52985	250461.44360	1080132.76300	20-ft Vibracore	41.2	19.2	0.5-1.5	1.0	SP	SP	SUBANGULAR TO SUBROUNDED	OLIVE	5Y 4/3	4	PALE OLIVE	5Y 6/3	6		0.20	0.21	3.0	1.7	1.0
BI-PBC-7-12b	PASCAGOULA BAR CHANNEL	2012	12/16/2012	1:28 PM	30.18837	-88.52985	250461.44360	1080132.76300	20-ft Vibracore	41.2	19.2	5-6	1.0	SM	SM	SUBANGULAR TO SUBROUNDED	OLIVE GRAY	5Y 4/2	4	OLIVE GRAY	5Y 5/2	5		0.20	#VALUE!	15.7	#VALUE!	#VALUE!
BI-PBC-8-12	PASCAGOULA BAR CHANNEL	2012	12/16/2012	12:10 PM	30.18937	-88.53118	250824.01000	1079711.59600	20-ft Vibracore	41.3	16.5																	
BI-PBC-8-12a	PASCAGOULA BAR CHANNEL	2012	12/16/2012	12:10 PM	30.18937	-88.53118	250824.01000	1079711.59600	20-ft Vibracore	41.3	16.5	2.5-4	1.5	SM	SP	SUBANGULAR TO SUBROUNDED	OLIVE GRAY	5Y 4/2	4	OLIVE GRAY	5Y 5/2	5		0.20	0.22	0.4	1.7	1.0
BI-PBC-9-12	PASCAGOULA BAR CHANNEL	2012	12/16/2012	9:59 AM	30.18625	-88.53430	249686.71830	1078728.84400	20-ft Vibracore	41.2	16.8																	
BI-PBC-9-12a	PASCAGOULA BAR CHANNEL	2012	12/16/2012	9:59 AM	30.18625	-88.53430	249686.71830	1078728.84400	20-ft Vibracore	41.2	16.8	2-5	3.0	SM	SM	SUBANGULAR TO SUBROUNDED	OLIVE GRAY	5Y 4/2	4	OLIVE GRAY	5Y 5/2	5		0.18	#VALUE!	15.9	#VALUE!	#VALUE!
BI-PBC-10-12	PASCAGOULA BAR CHANNEL	2012	12/16/2012	10:30 AM	30.18527	-88.53302	249331.37250	1079134.19800	20-ft Vibracore	42.7	15.0																	
BI-PBC-10-12a	PASCAGOULA BAR CHANNEL	2012	12/16/2012	10:30 AM	30.18527	-88.53302	249331.37250	1079134.19800	20-ft Vibracore	42.7	15.0	0.8-1.8	1.0	SP	SP-SM	SUBANGULAR TO SUBROUNDED	OLIVE	5Y 4/3	4	OLIVE	5Y 5/3	5		0.18	0.18	10.2	#VALUE!	#VALUE!
BI-PBC-11-12	PASCAGOULA BAR CHANNEL	2012	12/15/2012	2:52 PM	30.18317	-88.53743	248563.99350	1077742.83200	20-ft Vibracore	42.3	15.3																	
BI-PBC-11-12a	PASCAGOULA BAR CHANNEL	2012	12/15/2012	2:52 PM	30.18317	-88.53743	248563.99350	1077742.83200	20-ft Vibracore	42.3	15.3	2-4	2.0	SP	SP-SM	SUBANGULAR TO SUBROUNDED	OLIVE GRAY	5Y 5/2	5	LT OLIVE GRAY	5Y 6/2	6		0.20	0.21	7.3	1.8	1.1
BI-PBC-11-12b	PASCAGOULA BAR CHANNEL	2012	12/15/2012	2:52 PM	30.18317	-88.53743	248563.99350	1077742.83200	20-ft Vibracore	42.3	15.3	4-6	2.0	SM	SM	SUBANGULAR TO SUBROUNDED	OLIVE GRAY	5Y 4/2	4	OLIVE GRAY	5Y 5/2	5		0.17	#VALUE!	16.1	#VALUE!	#VALUE!
BI-PBC-12-12	PASCAGOULA BAR CHANNEL	2012	12/15/2012	1:55 PM	30.17905	-88.53923	247064.14890	1077177.97300	20-ft Vibracore	43.9	16.2																	
BI-PBC-12-12a	PASCAGOULA BAR CHANNEL	2012	12/15/2012	1:55 PM	30.17905	-88.53923	247064.14890	1077177.97300	20-ft Vibracore	43.9	16.2	3-4	1.0	SP	SP-SM	SUBANGULAR TO SUBROUNDED	OLIVE GRAY	5Y 4/2	4	OLIVE GRAY	5Y 5/2	5		0.20	0.22	10.6	#VALUE!	#VALUE!
BI-PBC-12-12b	PASCAGOULA BAR CHANNEL	2012	12/15/2012	1:55 PM	30.17905	-88.53923	247064.14890	1077177.97300	20-ft Vibracore	43.9	16.2	4-8	4.0	SM	SM	SUBANGULAR TO SUBROUNDED	DK OLIVE GRAY	5Y 3/2	3	OLIVE GRAY	5Y 5/2	5		0.16	#VALUE!	18.6	#VALUE!	#VALUE!
BI-PBC-13-12	PASCAGOULA BAR CHANNEL	2012	12/15/2012	1:07 PM	30.17693	-88.54367	246289.54940	1075777.01800	20-ft Vibracore	42.3	15.7																	
BI-PBC-13-12a	PASCAGOULA BAR CHANNEL	2012	12/15/2012	1:07 PM	30.17693	-88.54367	246289.54940	1075777.01800	20-ft Vibracore	42.3	15.7	0.8-5.8	5.0	SM	SM	SUBANGULAR TO SUBROUNDED	OLIVE GRAY	5Y 4/2	4	OLIVE GRAY	5Y 5/2	5		0.17	#VALUE!	17.4	#VALUE!	#VALUE!
BI-PBC-13-12b	PASCAGOULA BAR CHANNEL	2012	12/15/2012	1:07 PM	30.17693	-88.54367	246289.54940	1075777.01800	20-ft Vibracore	42.3	15.7	5.8-8	2.2	SM	SM	SUBANGULAR TO SUBROUNDED	OLIVE GRAY	5Y 4/2	4	OLIVE GRAY	5Y 5/2	5		0.15	#VALUE!	19.2	#VALUE!	#VALUE!
BI-PBC-14-12	PASCAGOULA BAR CHANNEL	2012	12/15/2012	11:03 AM	30.17283	-88.54547	244797.01160	1075212.02200	20-ft Vibracore	42.6	16.3																	
BI-PBC-14-12a	PASCAGOULA BAR CHANNEL	2012	12/15/2012	11:03 AM	30.17283	-88.54547	244797.01160	1075212.02200	20-ft Vibracore	42.6	16.3	0.3-5.3	5.0	SM	SM	SUBANGULAR TO SUBROUNDED	OLIVE GRAY	5Y 4/2	4	OLIVE GRAY	5Y 5/2	5		0.17	#VALUE!	15.4	#VALUE!	#VALUE!
BI-PBC-14-12b	PASCAGOULA BAR CHANNEL	2012	12/15/2012	11:03 AM	30.17283	-88.54547	244797.01160	1075212.02200	20-ft Vibracore	42.6	16.3	5.3-16.3	11.0	SM-SC	SM	SUBANGULAR TO SUBROUNDED	OLIVE GRAY	5Y 4/2	4	OLIVE GRAY	5Y 5/2	5		0.15	#VALUE!	19.9	#VALUE!	#VALUE!
BI-PBC-15-12	PASCAGOULA BAR CHANNEL	2012	12/15/2012	10:06 AM	30.17070	-88.54992	244018.84560	1073807.78500	20-ft Vibracore	41.4	15.4																	
BI-PBC-15-12a	PASCAGOULA BAR CHANNEL	2012	12/15/2012	10:06 AM	30.17070	-88.54992	244018.84560	1073807.78500	20-ft Vibracore	41.4	15.4	0.5-5.5	5.0	SM	SM	SUBANGULAR TO SUBROUNDED	OLIVE GRAY	5Y 4/2	4	OLIVE GRAY	5Y 5/2	5		0.16	#VALUE!	16.5	#VALUE!	#VALUE!
BI-PBC-15-12b	PASCAGOULA BAR CHANNEL	2012	12/15/2012	10:06 AM	30.17070	-88.54992	244018.84560	1073807.78500	20-ft Vibracore	41.4	15.4	5.5-10.5	5.0	SM	SM	SUBANGULAR TO SUBROUNDED	OLIVE GRAY	5Y 4/2	4	OLIVE GRAY	5Y 5/2	5		0.15	#VALUE!	17.8	#VALUE!	#VALUE!
BI-PBC-16-12	PASCAGOULA BAR CHANNEL	2012	12/15/2012	8:59 AM	30.16658	-88.55172	242519.06730	1073242.68900	20-ft Vibracore	42.7	15.7																	
BI-PBC-16-12a	PASCAGOULA BAR CHANNEL	2012	12/15/2012	8:59 AM	30.16658	-88.55172	242519.06730	1073242.68900	20-ft Vibracore	42.7	15.7	0-2	2.0	SM	SM	SUBANGULAR TO SUBROUNDED	OLIVE GRAY	5Y 4/2	4	OLIVE GRAY	5Y 5/2	5		0.17	0.17	14.4	#VALUE!	#VALUE!
BI-PBC-16-12b	PASCAGOULA BAR CHANNEL	2012	12/15/2012	8:59 AM	30.16658	-88.55172	242519.06730	1073242.68900	20-ft Vibracore	42.7	15.7	5-10	5.0	SM	SM	SUBANGULAR TO SUBROUNDED	OLIVE GRAY	5Y 4/2	4	OLIVE GRAY	5Y 5/2	5		0.15	#VALUE!	16.0	#VALUE!	#VALUE!
BI-PBC-18-12	PASCAGOULA BAR CHANNEL	2012	12/16/2012	11:40 AM	30.18888	-88.53408	250643.38720	1078795.84100	20-ft Vibracore	37.8	15.8																	
BI-PBC-18-12a	PASCAGOULA BAR CHANNEL	2012	12/16/2012	11:40 AM	30.18888	-88.53408	250643.38720	1078795.84100	20-ft Vibracore	37.8	15.8	2-4	2.0	SM	SM	SUBANGULAR TO SUBROUNDED	OLIVE GRAY	5Y 4/2	4	OLIVE GRAY	5Y 5/2	5		0.19	#VALUE!	16.3	#VALUE!	#VALUE!
BI-PBC-18-12b	PASCAGOULA BAR CHANNEL	2012	12/16/2012	11:40 AM	30.18888	-88.53408	250643.38720	1078795.84100	20-ft Vibracore	37.8	15.8	4-5	1.0	SP	SM	SUBANGULAR TO SUBROUNDED	OLIVE GRAY	5Y 4/2	4	OLIVE GRAY	5Y 5/2	5		0.21	0.22	12.4	#VALUE!	#VALUE!
BI-PBC-18-12c	PASCAGOULA BAR CHANNEL	2012	12/16/2012	11:40 AM	30.18888	-88.53408	250643.38720	1078795.84100	20-ft Vibracore	37.8	15.8	5-7	2.0	SM	SM	SUBANGULAR TO SUBROUNDED	OLIVE GRAY	5Y 4/2	4	OLIVE GRAY	5Y 5/2	5		0.18	#VALUE!	15.9	#VALUE!	#VALUE!
BI-PBC-19-12	PASCAGOULA BAR CHANNEL	2012	12/15/2012	3:20 PM	30.18565	-88.53708	249466.21430	1077851.07300	20-ft Vibracore	39.4	15.5																	
BI-PBC-19-12a	PASCAGOULA BAR CHANNEL	2012	12/15/2012	3:20 PM	30.18565	-88.53708	249466.21430	1077851.07300	20-ft Vibracore	39.4	15.5	0-4.2	4.2	SM	SM	SUBANGULAR TO SUBROUNDED	OLIVE GRAY	5Y 4/2	4	OLIVE GRAY	5Y 5/2	5		0.19	#VALUE!	16.8	#VALUE!	#VALUE!
BI-PBC-19-12b	PASCAGOULA BAR CHANNEL	2012	12/15/2012	3:20 PM	30.18565	-88.53708	249466.21430	1077851.07300	20-ft Vibracore	39.4	15.5	4.2-6	1.8	SP	SP-SM	SUBANGULAR TO SUBROUNDED	OLIVE GRAY	5Y 5/2	5	LT OLIVE GRAY	5Y 6/2	6		0.22	0.23	5.1	1.8	1.1
BI-PBC-19-12c	PASCAGOULA BAR CHANNEL	2012	12/15/2012	3:20 PM	30.18565	-88.53708	249466.21430	1077851.07300	20-ft Vibracore	39.4	15.5	6-9	3.0	SM	SM	SUBANGULAR TO SUBROUNDED	OLIVE GRAY	5Y 4/2	4	OLIVE GRAY	5Y 5/2	5		0.17	#VALUE!	16.2	#VALUE!	#VALUE!
BI-PBC-20-12	PASCAGOULA BAR CHANNEL	2012	12/15/2012	1:35 PM	30.18157	-88.54130	247978.94700	1076521.56300	20-ft Vibracore	40.8	14.7																	
BI-PBC-20-12a	PASCAGOULA BAR CHANNEL	2012	12/15/2012	1:35 PM	30.18157	-88.54130	247978.94700	1076521.56300	20-ft Vibracore	40.8	14.7	0-0.4	0.4	SP	SP	SUBANGULAR TO SUBROUNDED	OLIVE GRAY	5Y 4/2	4	OLIVE GRAY	5Y 5/2	5		0.28	0.31	3.0	2.0	1.0
BI-PBC-20-12b	PASCAGOULA BAR CHANNEL	2012	12/15/2012	1:35 PM	30.18157	-88.54130	247978.94700	1076521.56300	20-ft Vibracore	40.8	14.7	0.4-6	5.6	SM	SM	SUBANGULAR TO SUBROUNDED	OLIVE GRAY	5Y 4/2	4	OLIVE GRAY	5Y 5/2	5		0.17	0.17	14.9	#VALUE!	#VALUE!
BI-PBC-21-12	PASCAGOULA BAR CHANNEL	2012	12/15/2012	11:33 AM	30.17483	-88.54808	245522.30250	1074385.46400	20-ft Vibracore	40.6	15.0																	
BI-PBC-21-12a	PASCAGOULA BAR CHANNEL	2012	12/15/2012	11:33 AM	30.17483	-88.54808	245522.30250	1074385.46400	20-ft Vibracore	40.6	15.0	0-5	5.0	SM	SM	SUBANGULAR TO SUBROUNDED	OLIVE GRAY	5Y 4/2	4	OLIVE GRAY	5Y 5/2	5		0.18	0.17	14.9	#VALUE!	#VALUE!
BI-PBC-21-12b	PASCAGOULA BAR CHANNEL	2012	12/15/2012	11:33 AM	30.17483	-88.54808	245522.30250	1074385.46400	20-ft Vibracore	40.6	15.0	5-10	5.0	SM	SM	SUBANGULAR TO SUBROUNDED	OLIVE GRAY	5Y 4/2	4	OLIVE GRAY	5Y 5/2	5		0.16	#VALUE!	15.5	#VALUE!	#VALUE!
BI-PBC-22-12	PASCAGOULA BAR CHANNEL	2012	12/15/2012	9:33 AM	30.16895	-88.55433	243378.96510	1072415.79000	20-ft Vibracore	41.7	14.4																	
BI-PBC-22-12a	PASCAGOULA BAR CHANNEL	2012	12/15/2012	9:33 AM	30.1																							

Cu: Coefficient of Uniformity

Cc: Coefficient of Curvature

The "#Value!" error message indicates that data was not available for that calculation.

Vibracore / Sample ID	Investigation Area	Sample Event	Date of Sample	Time_CST	Latitude	Longitude	Northing_Y	Easting_X	Sample Method	Water Depth (feet)	Boring Depth (ft)	Sample Depth (Feet below seafloor surface)	Sample Thickness (feet)	Field USCS	Lab USCS	Angularity	Wet Munsell Color	Wet Munsell Color Code	Wet Munsell Value	Dry Munsell Color	Dry Munsell Color Code	Dry Munsell Value	CaCO3	D50 (mm)	Graphic Mean (mm)	% Fines	Cu (D60/D10)	Cc (D30) <sup>1/2</sup> / (D10 <sup>1/2</sup> D60)
BI-PBC-24-12	PASCAGOULA BAR CHANNEL	2012	12/15/2012	10:37 AM	30.16817	-88.54723	243100.85380	1074660.13000	20-ft Vibracore	40.3	15.3																	
BI-PBC-24-12a	PASCAGOULA BAR CHANNEL	2012	12/15/2012	10:37 AM	30.16817	-88.54723	243100.85380	1074660.13000	20-ft Vibracore	40.3	15.3	0-0.5	0.5	SP	SP	SUBANGULAR TO SUBROUNDED	OLIVE	5Y 4/3	4	OLIVE	5Y 5/3	5		0.21	0.22	4.2	1.6	1.0
BI-PBC-24-12b	PASCAGOULA BAR CHANNEL	2012	12/15/2012	10:37 AM	30.16817	-88.54723	243100.85380	1074660.13000	20-ft Vibracore	40.3	15.3	0.5-5.5	5.0	SM	SM	SUBANGULAR TO SUBROUNDED	DK OLIVE GRAY	5Y 3/2	3	OLIVE GRAY	5Y 5/2	5		0.18	#VALUE!	15.1	#VALUE!	#VALUE!
BI-PBC-24-12c	PASCAGOULA BAR CHANNEL	2012	12/15/2012	10:37 AM	30.16817	-88.54723	243100.85380	1074660.13000	20-ft Vibracore	40.3	15.3	5.5-11	5.5	SM	SM	SUBANGULAR TO SUBROUNDED	OLIVE GRAY	5Y 4/2	4	OLIVE GRAY	5Y 5/2	5		0.16	#VALUE!	15.1	#VALUE!	#VALUE!
BI-PBC-25-12	PASCAGOULA BAR CHANNEL	2012	12/15/2012	12:00 PM	30.17448	-88.54107	245400.62500	1076600.84700	20-ft Vibracore	41.2	14.3																	
BI-PBC-25-12a	PASCAGOULA BAR CHANNEL	2012	12/15/2012	12:00 PM	30.17448	-88.54107	245400.62500	1076600.84700	20-ft Vibracore	41.2	14.3	0-5	5.0	SM	SM	SUBANGULAR TO SUBROUNDED	OLIVE GRAY	5Y 4/2	4	OLIVE GRAY	5Y 5/2	5		0.19	0.18	13.7	#VALUE!	#VALUE!
BI-PBC-25-12b	PASCAGOULA BAR CHANNEL	2012	12/15/2012	12:00 PM	30.17448	-88.54107	245400.62500	1076600.84700	20-ft Vibracore	41.2	14.3	5-9	4.0	SM	SM	SUBANGULAR TO SUBROUNDED	OLIVE GRAY	5Y 4/2	4	OLIVE GRAY	5Y 5/2	5		0.18	0.17	12.0	#VALUE!	#VALUE!
BI-PBC-26-12	PASCAGOULA BAR CHANNEL	2012	12/15/2012	2:21 PM	30.18092	-88.53453	247748.09810	1078661.25800	20-ft Vibracore	40.1	15.7																	
BI-PBC-26-12a	PASCAGOULA BAR CHANNEL	2012	12/15/2012	2:21 PM	30.18092	-88.53453	247748.09810	1078661.25800	20-ft Vibracore	40.1	15.7	1.8-4	2.2	SM	SM	SUBANGULAR TO SUBROUNDED	OLIVE GRAY	5Y 4/2	4	OLIVE GRAY	5Y 5/2	5		0.20	#VALUE!	15.6	#VALUE!	#VALUE!
BI-PBC-26-12b	PASCAGOULA BAR CHANNEL	2012	12/15/2012	2:21 PM	30.18092	-88.53453	247748.09810	1078661.25800	20-ft Vibracore	40.1	15.7	4-6	2.0	SP	SP-SM	SUBANGULAR TO SUBROUNDED	OLIVE GRAY	5Y 4/2	4	LT OLIVE GRAY	5Y 6/2	6		0.20	0.21	6.9	1.8	1.2
BI-PBC-26-12c	PASCAGOULA BAR CHANNEL	2012	12/15/2012	2:21 PM	30.18092	-88.53453	247748.09810	1078661.25800	20-ft Vibracore	40.1	15.7	6-9	3.0	SM	SM	SUBANGULAR TO SUBROUNDED	OLIVE GRAY	5Y 4/2	4	OLIVE GRAY	5Y 5/2	5		0.18	0.18	13.5	#VALUE!	#VALUE!
BI-PBC-27-12	PASCAGOULA BAR CHANNEL	2012	12/16/2012	2:00 PM	30.18898	-88.52653	250686.09950	1081181.09400	20-ft Vibracore	36.7	13.8																	
BI-PBC-27-12a	PASCAGOULA BAR CHANNEL	2012	12/16/2012	2:00 PM	30.18898	-88.52653	250686.09950	1081181.09400	20-ft Vibracore	36.7	13.8	0-0.5	0.5	SP	SM	SUBANGULAR TO SUBROUNDED	OLIVE	5Y 4/3	4	OLIVE	5Y 5/3	5		0.17	#VALUE!	19.8	#VALUE!	#VALUE!
BI-PBC-28-12	PASCAGOULA BAR CHANNEL	2012	12/16/2012	11:14 AM	30.18550	-88.53025	249417.33670	1080009.16300	20-ft Vibracore	37.8	15.3																	
BI-PBC-28-12a	PASCAGOULA BAR CHANNEL	2012	12/16/2012	11:14 AM	30.18550	-88.53025	249417.33670	1080009.16300	20-ft Vibracore	37.8	15.3	2.5-4	1.5	SM	SM	SUBANGULAR TO SUBROUNDED	OLIVE GRAY	5Y 4/2	4	OLIVE GRAY	5Y 5/2	5		0.19	#VALUE!	15.8	#VALUE!	#VALUE!
BI-PBC-28-12b	PASCAGOULA BAR CHANNEL	2012	12/16/2012	11:14 AM	30.18550	-88.53025	249417.33670	1080009.16300	20-ft Vibracore	37.8	15.3	6-9	3.0	SM	SM	SUBANGULAR TO SUBROUNDED	OLIVE GRAY	5Y 4/2	4	OLIVE GRAY	5Y 5/2	5		0.19	0.19	12.6	#VALUE!	#VALUE!

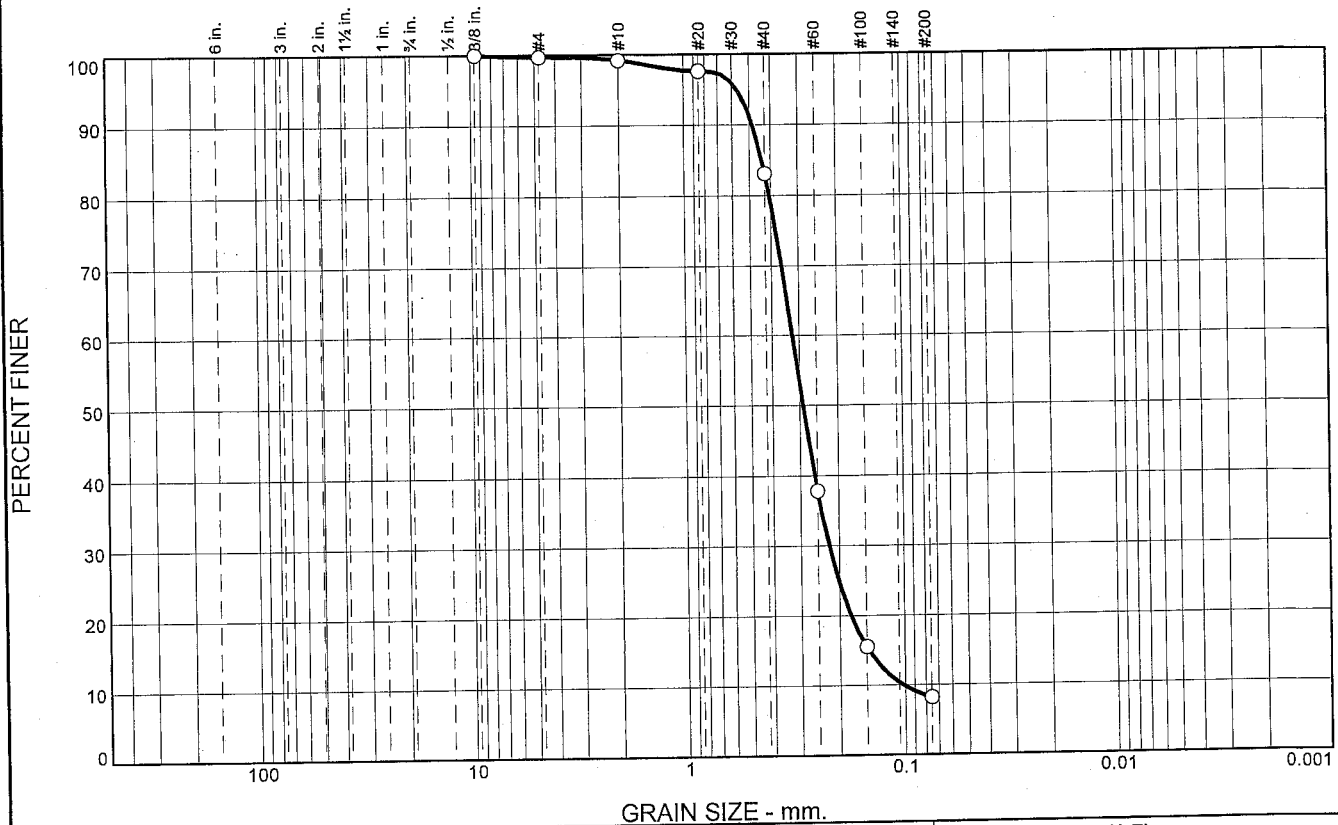
Cu: Coefficient of Uniformity  
Cc: Coefficient of Curvature  
The "#Value!" error message indicates that data was not available for that calculation.

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# Boring Designation BI-HP-01-10

DRILLING LOG		DIVISION South Atlantic		INSTALLATION Mobile District		SHEET 1 OF 1 SHEETS	
1. PROJECT MsCIP Barrier Island Restoration Horn Island Pass				9. SIZE AND TYPE OF BIT N/A			
2. BORING DESIGNATION BI-HP-01-10		LOCATION COORDINATES E = 1,073,633 N = 249,659		10. COORDINATE SYSTEM/DATUM State Plane, MSE (U.S. Ft.)		HORIZONTAL NAD83 VERTICAL NAVD88	
3. DRILLING AGENCY Corps of Engineers - CESAM		CONTRACTOR FILE NO.		11. MANUFACTURER'S DESIGNATION OF DRILL Vibrocure		<input type="checkbox"/> AUTO HAMMER <input type="checkbox"/> MANUAL HAMMER	
4. NAME OF DRILLER Construction Solutions International, Inc.				12. TOTAL SAMPLES 2		DISTURBED 2 UNDISTURBED (UD) 0	
5. DIRECTION OF BORING <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED		DEG. FROM VERTICAL		13. TOTAL NUMBER CORE BOXES			
		BEARING		14. WATER DEPTH 31 Ft.			
6. THICKNESS OF OVERBURDEN N/A				15. DATE BORING 07-13-10		STARTED 07-13-10 COMPLETED 07-13-10	
7. DEPTH DRILLED INTO ROCK N/A				16. ELEVATION TOP OF BORING -31.3 Ft.			
8. TOTAL DEPTH OF BORING 19.2 Ft.				17. TOTAL RECOVERY FOR BORING 100%			
				18. SIGNATURE AND TITLE OF INSPECTOR John Baehr, Geologist			
ELEV.	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS	SAMPLE	LABORATORY RESULTS		
-31.3	0.0						
			SAND, poorly-graded, trace shell fragments, lt. gray (SP)	A	Classification: SP-SM Color: 2.5Y 7/1-light gray D50: 0.289 mm % Fines: 8.2		
				B	Classification: SP Color: 2.5Y 7/1-light gray D50: 0.3016 mm % Fines: 2.4		
-41.2	9.9		SAND, clayey, mostly fine-grained sand-sized quartz, gray (SC)	NS			
-50.5	19.2						
			NOTES: 1. Soils are field visually classified in accordance with the Unified Soils Classification System. 2. NS = Sample not submitted for laboratory analysis from this interval. 3. Seafloor elevation determined from USACE hydrographic survey completed June 2014.				

# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.3	0.5	16.1	74.9	8.2	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
.375	100.0		
#4	99.7		
#10	99.2		
#20	97.6		
#40	83.1		
#60	37.8		
#100	15.5		
#200	8.2		

\* (no specification provided)

**Material Description**  
SAND, (SP-SM), medium to fine grained, with clay nodules

**Atterberg Limits**  
 PL=      LL=      PI=

**Coefficients**  
 D<sub>90</sub>= 0.4835      D<sub>85</sub>= 0.4379      D<sub>60</sub>= 0.3220  
 D<sub>50</sub>= 0.2890      D<sub>30</sub>= 0.2220      D<sub>15</sub>= 0.1465  
 D<sub>10</sub>= 0.1017      C<sub>u</sub>= 3.17      C<sub>c</sub>= 1.51

**Classification**  
 USCS= SP-SM      AASHTO=

**Remarks**  
 CADD CODE = CH10D965

Location: USACE Sample # BI-HP-1-10A  
 Sample Number: TE Lab ID: 4593.29

Depth: 0.0 - 5.0 (ft.)

Date: 7/26/10

**Thompson Engineering**

**Mobile, Alabama**

Client: US Army Corps of Engineers

Project: Contract No. W91278-10-D-0026 - Task 03  
 Mississippi Barrier Island Restoration Project

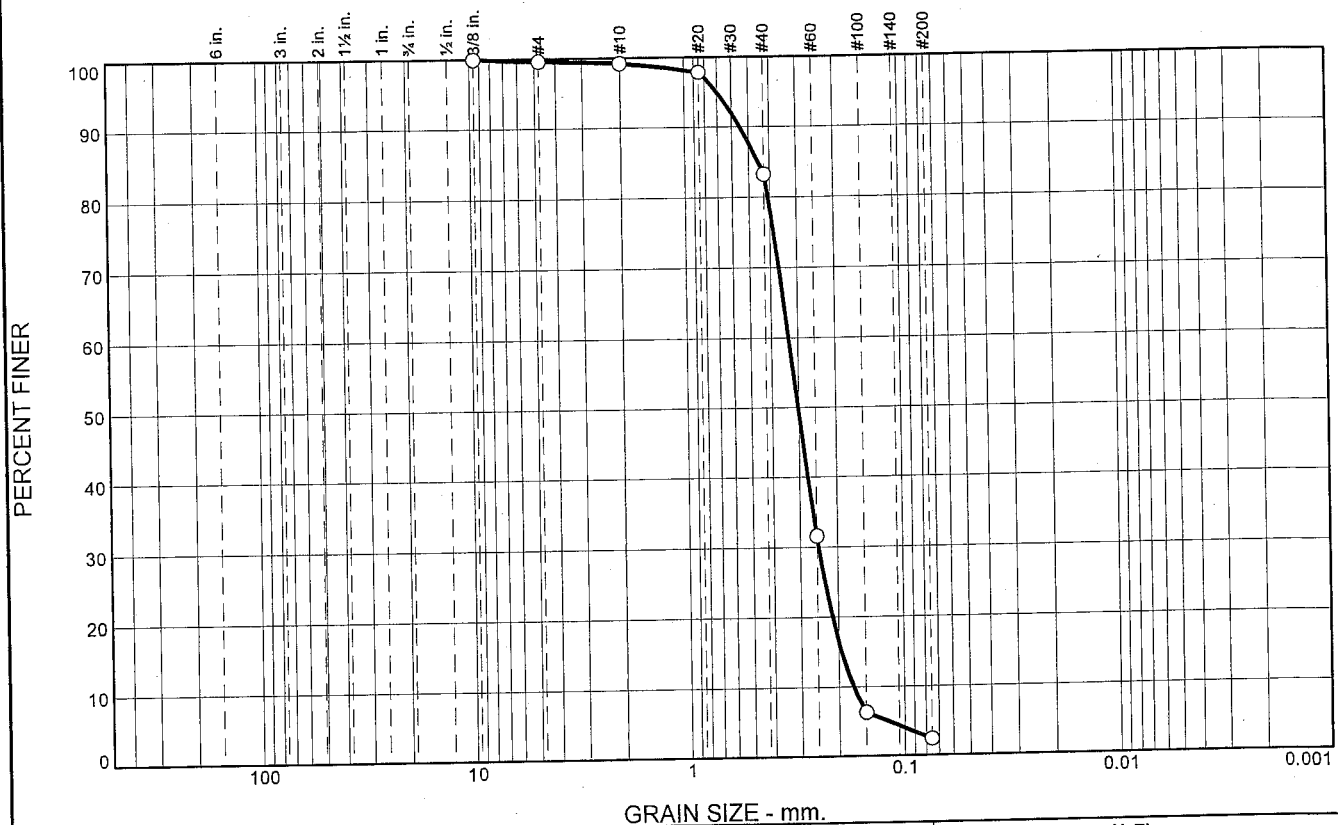
Project No: 10-2123-0009

Report No.

Tested By: G.Fancher

Checked By: R.Byrd

# Particle Size Distribution Report

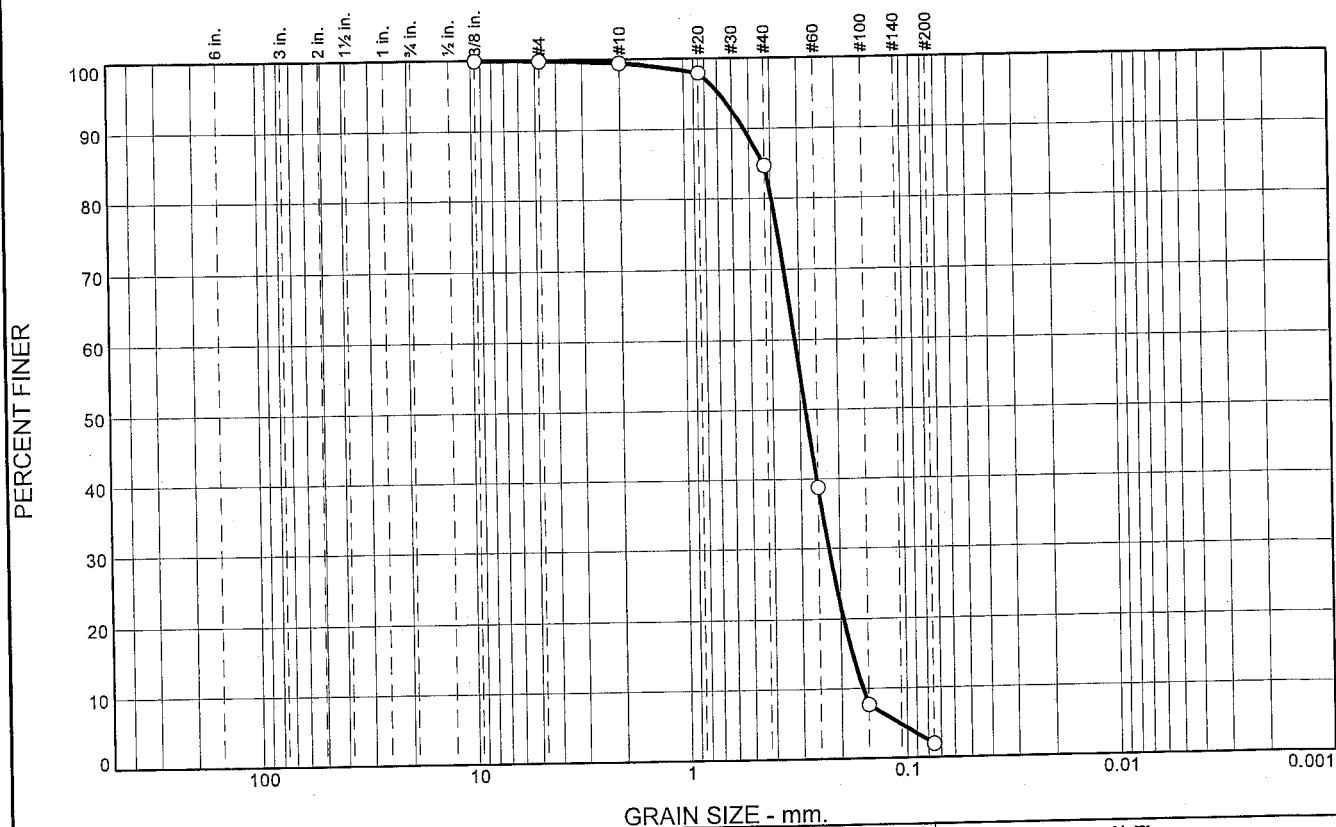


# Boring Designation BI-HP-02-10

DRILLING LOG		DIVISION South Atlantic		INSTALLATION Mobile District		SHEET 1 OF 1 SHEETS	
1. PROJECT MsCIP Barrier Island Restoration Horn Island Pass				9. SIZE AND TYPE OF BIT N/A			
2. BORING DESIGNATION BI-HP-02-10		LOCATION COORDINATES E = 1,073,085 N = 248,683		10. COORDINATE SYSTEM/DATUM State Plane, MSE (U.S. Ft.)		HORIZONTAL NAD83 VERTICAL NAVD88	
3. DRILLING AGENCY Corps of Engineers - CESAM		CONTRACTOR FILE NO.		11. MANUFACTURER'S DESIGNATION OF DRILL Vibrocure		<input type="checkbox"/> AUTO HAMMER <input type="checkbox"/> MANUAL HAMMER	
4. NAME OF DRILLER Construction Solutions International, Inc.				12. TOTAL SAMPLES 2		DISTURBED 2 UNDISTURBED (UD) 0	
5. DIRECTION OF BORING <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED		DEG. FROM VERTICAL		13. TOTAL NUMBER CORE BOXES			
		BEARING		14. WATER DEPTH 34 Ft.			
6. THICKNESS OF OVERBURDEN N/A				15. DATE BORING 07-13-10		STARTED 07-13-10 COMPLETED 07-13-10	
7. DEPTH DRILLED INTO ROCK N/A				16. ELEVATION TOP OF BORING -35.0 Ft.			
8. TOTAL DEPTH OF BORING 17.6 Ft.				17. TOTAL RECOVERY FOR BORING 100%			
				18. SIGNATURE AND TITLE OF INSPECTOR John Baehr, Geologist			
ELEV.	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS	SAMPLE	LABORATORY RESULTS		
-35.0	0.0						
-38.3	3.3		SAND, poorly-graded, mostly fine-grained sand-sized quartz, trace shell fragments, lt. gray (SP)	A	Classification: SP Color: 2.5Y 6/2-light brownish gray D50: 0.2829 mm % Fines: 2		
-40.9	5.9		SAND, silty, mostly fine-grained sand-sized quartz, trace shell fragments, gray (SM)	B	Classification: SM Color: 2.5Y 5/1-gray D50: 0.229 mm % Fines: 15.2		
-42.0	7.0		CLAY, lean, some sand, gray (CL)				
-52.6	17.6		SAND, clayey, mostly fine-grained sand-sized quartz, trace shell fragments, gray (SC)	NS			
NOTES: 1. Soils are field visually classified in accordance with the Unified Soils Classification System. 2. NS = Sample not submitted for laboratory analysis from this interval. 3. Seafloor elevation determined from USACE hydrographic survey completed June 2014.							



# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.1	0.4	14.8	82.7	2.0	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
.375	100.0		
#4	99.9		
#10	99.5		
#20	98.0		
#40	84.7		
#60	38.8		
#100	7.7		
#200	2.0		

**Material Description**  
SAND, (SP), medium to fine grained

**Atterberg Limits**  
PL=      LL=      PI=

**Coefficients**  
D<sub>90</sub>= 0.5277      D<sub>85</sub>= 0.4299      D<sub>60</sub>= 0.3144  
D<sub>50</sub>= 0.2829      D<sub>30</sub>= 0.2245      D<sub>15</sub>= 0.1778  
D<sub>10</sub>= 0.1597      C<sub>u</sub>= 1.97      C<sub>c</sub>= 1.00

**Classification**  
USCS= SP      AASHTO=

**Remarks**  
CADD CODE = CH10D965

\* (no specification provided)

Location: USACE Sample # BI-HP-2-10A  
Sample Number: TE Lab ID: 4593.25

Depth: 0.0 - 3.3 (ft.)

Date: 7/26/10

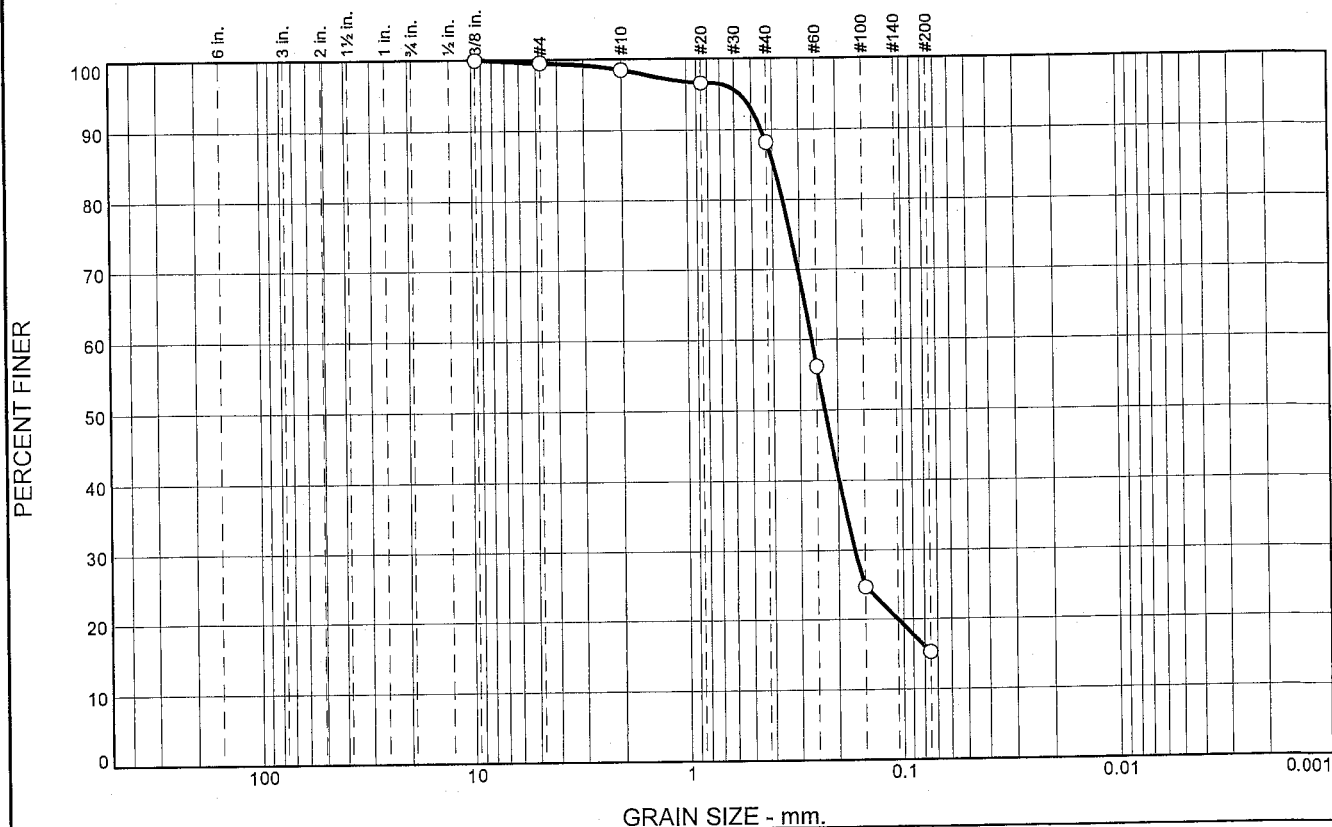
**Thompson Engineering**  
**Mobile, Alabama**

Client: US Army Corps of Engineers  
Project: Contract No. W91278-10-D-0026 - Task 03  
Mississippi Barrier Island Restoration Project  
Project No: 10-2123-0009      Report No.

Tested By: G.Fancher

Checked By: R.Byrd

# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.5	1.0	10.3	73.0	15.2	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
.375	100.0		
#4	99.5		
#10	98.5		
#20	96.6		
#40	88.2		
#60	56.2		
#100	24.7		
#200	15.2		

**Material Description**

SILTY SAND, (SM), medium to fine grained, with clay nodules

**Atterberg Limits**

PL=      LL=      PI=

**Coefficients**

D<sub>90</sub>= 0.4475      D<sub>85</sub>= 0.3949      D<sub>60</sub>= 0.2636  
D<sub>50</sub>= 0.2290      D<sub>30</sub>= 0.1676      D<sub>15</sub>=  
D<sub>10</sub>=      C<sub>u</sub>=      C<sub>c</sub>=

**Classification**

USCS= SM      AASHTO=

**Remarks**

CADD CODE = CH10D965

\* (no specification provided)

Location: USACE Sample # BI-HP-2-10B  
Sample Number: TE Lab ID: 4593.26

Depth: 3.3 - 5.9 (ft.)

Date: 7/26/10

**Thompson Engineering**  
  
**Mobile, Alabama**

Client: US Army Corps of Engineers  
Project: Contract No. W91278-10-D-0026 - Task 03  
Mississippi Barrier Island Restoration Project  
Project No: 10-2123-0009      Report No.

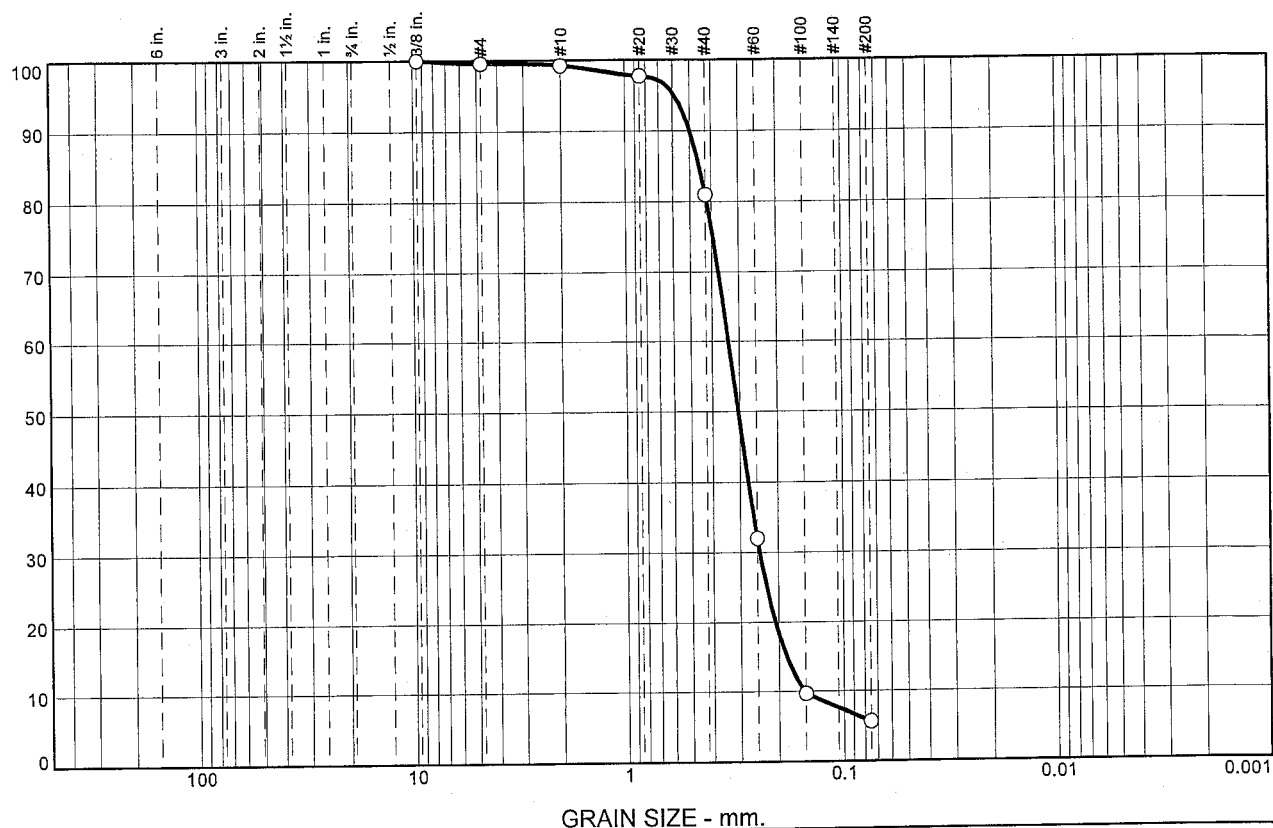
Tested By: G.Fancher

Checked By: R.Byrd

# Boring Designation BI-HP-03-10

DRILLING LOG		DIVISION South Atlantic		INSTALLATION Mobile District		SHEET 1 OF 1 SHEETS	
1. PROJECT MsCIP Barrier Island Restoration Horn Island Pass				9. SIZE AND TYPE OF BIT N/A			
2. BORING DESIGNATION BI-HP-03-10		LOCATION COORDINATES E = 1,074,424 N = 248,919		10. COORDINATE SYSTEM/DATUM State Plane, MSE (U.S. Ft.)		HORIZONTAL NAD83 VERTICAL NAVD88	
3. DRILLING AGENCY Corps of Engineers - CESAM		CONTRACTOR FILE NO.		11. MANUFACTURER'S DESIGNATION OF DRILL Vibrocure		<input type="checkbox"/> AUTO HAMMER <input type="checkbox"/> MANUAL HAMMER	
4. NAME OF DRILLER Construction Solutions International, Inc.				12. TOTAL SAMPLES 2		DISTURBED 2 UNDISTURBED (UD) 0	
5. DIRECTION OF BORING <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED		DEG. FROM VERTICAL		13. TOTAL NUMBER CORE BOXES			
		BEARING		14. WATER DEPTH 34 Ft.			
6. THICKNESS OF OVERBURDEN N/A				15. DATE BORING 07-13-10		STARTED 07-13-10 COMPLETED 07-13-10	
7. DEPTH DRILLED INTO ROCK N/A				16. ELEVATION TOP OF BORING -34.9 Ft.			
8. TOTAL DEPTH OF BORING 18.1 Ft.				17. TOTAL RECOVERY FOR BORING 100%			
				18. SIGNATURE AND TITLE OF INSPECTOR John Baehr, Geologist			
ELEV.	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS	SAMPLE	LABORATORY RESULTS		
-34.9	0.0						
			SAND, poorly-graded, mostly fine-grained sand-sized quartz, occ. clay balls (1' - 2"), lt. gray (SP)	A	Classification: SP-SM Color: 2.5Y 7/2-light gray D50: 0.3041 mm % Fines: 5.6		
				B	Classification: SP Color: 2.5Y 7/2-light gray D50: 0.2557 mm % Fines: 3.4		
-40.7	5.8						
			SAND, clayey, mostly fine-grained sand-sized quartz, trace shell fragments, gray (SC)	NS			
-53.0	18.1						
			NOTES: 1. Soils are field visually classified in accordance with the Unified Soils Classification System. 2. NS = Sample not submitted for laboratory analysis from this interval. 3. Seafloor elevation determined from USACE hydrographic survey completed June 2014.				

## PERCENT FINER



GRAIN SIZE - mm.							
% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.4	0.4	18.2	75.4	5.6	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
.375	100.0		
#4	99.6		
#10	99.2		
#20	97.7		
#40	81.0		
#60	32.0		
#100	9.7		
#200	5.6		

SAND, (SP-SM), medium to fine grained, with clay nodules

$$P_L =$$

### Atterberg Limits

$$LL =$$
$$P1=$$

### Coefficients

$$D_{90} = 0.4986$$
$$D_{0.5} = 0.4518$$
$$D_{60} = 0.3358$$
$$D_{50} = 0.3041$$
$$D_{30} = 0.2436$$
$$D_{15} = 0.1839$$
$$D_{10} = 0.1527$$
$$C_{H^+} = 2.20$$
$$C_{C=O} = 1.16$$

## Classification

USCS= SP-SM

AASHTO=

### Remarks

CADD CODE = CH10D965

\* (no specification provided)

**Location:** USACE Sample # BI-HP-3-10A  
**Sample Number:** TE Lab ID: 4593.23

**Depth: 0.0 - 2.9 (ft.)**

Date: 7/26/10

## Thompson Engineering

## Mobile, Alabama

**Client:** US Army Corps of Engineers

**Project:** Contract No. W91278-10-D-0026 - Task 03  
Mississippi Barrier Island Restoration Project

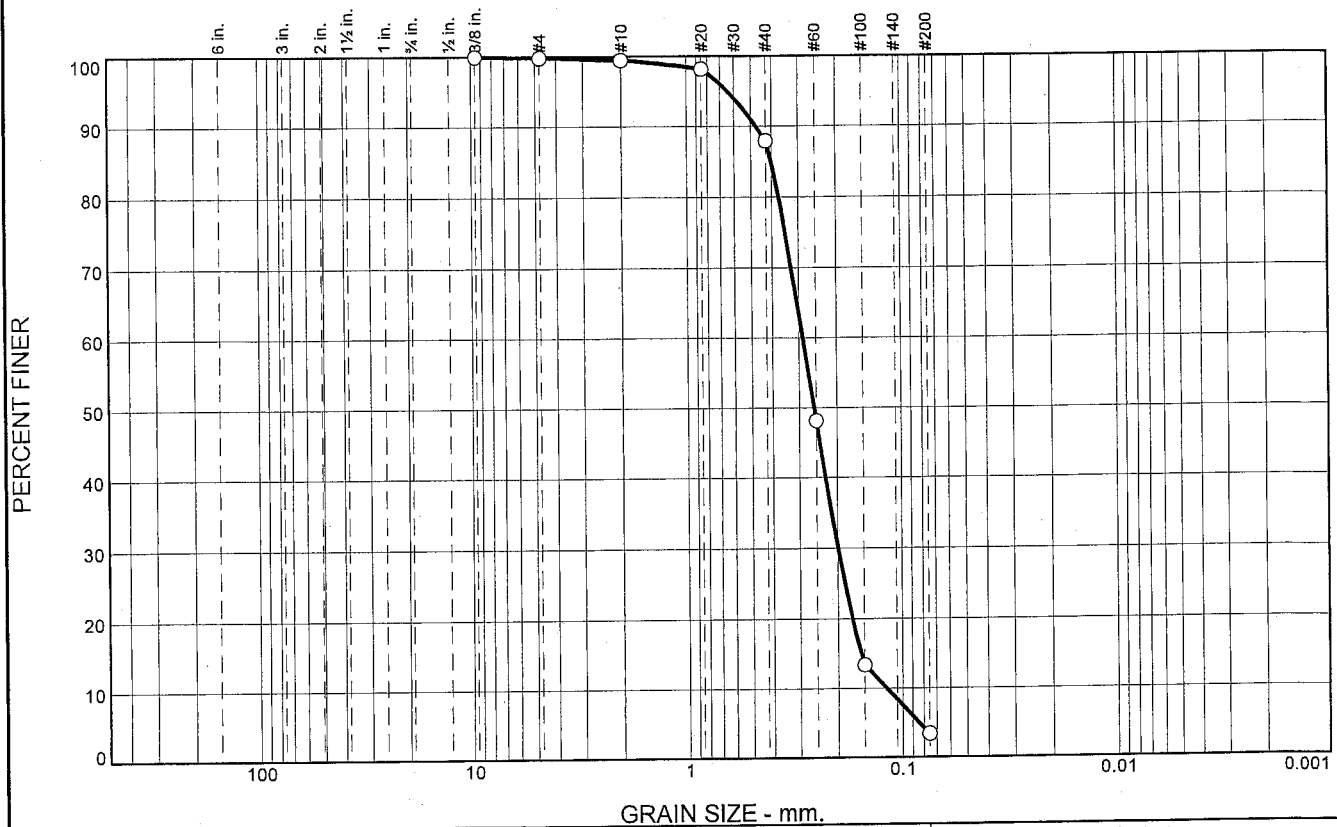
**Project No:** 10-2123-0009

Report No.

**Tested By:** G.Fancher

**Checked By:** R.Byrd

# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.2	0.3	11.6	84.5	3.4	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
.375	100.0		
#4	99.8		
#10	99.5		
#20	98.2		
#40	87.9		
#60	48.1		
#100	13.4		
#200	3.4		

\* (no specification provided)

## Material Description

SAND, (SP), medium to fine grained

PL=      Atterberg Limits      LL=      PI=

Coefficients  
D<sub>90</sub>= 0.4726      D<sub>85</sub>= 0.4028      D<sub>60</sub>= 0.2877  
D<sub>50</sub>= 0.2557      D<sub>30</sub>= 0.1986      D<sub>15</sub>= 0.1554  
D<sub>10</sub>= 0.1187      C<sub>u</sub>= 2.42      C<sub>c</sub>= 1.16

Classification  
USCS= SP      AASHTO=

Remarks  
CADD CODE = CH10D965

Location: USACE Sample # BI-HP-3-10B  
Sample Number: TE Lab ID: 4593.24

Depth: 2.9 - 5.8 (ft.)

Date: 7/26/10

**Thompson Engineering**

**Mobile, Alabama**

Client: US Army Corps of Engineers

Project: Contract No. W91278-10-D-0026 - Task 03  
Mississippi Barrier Island Restoration Project

Project No: 10-2123-0009

Report No.

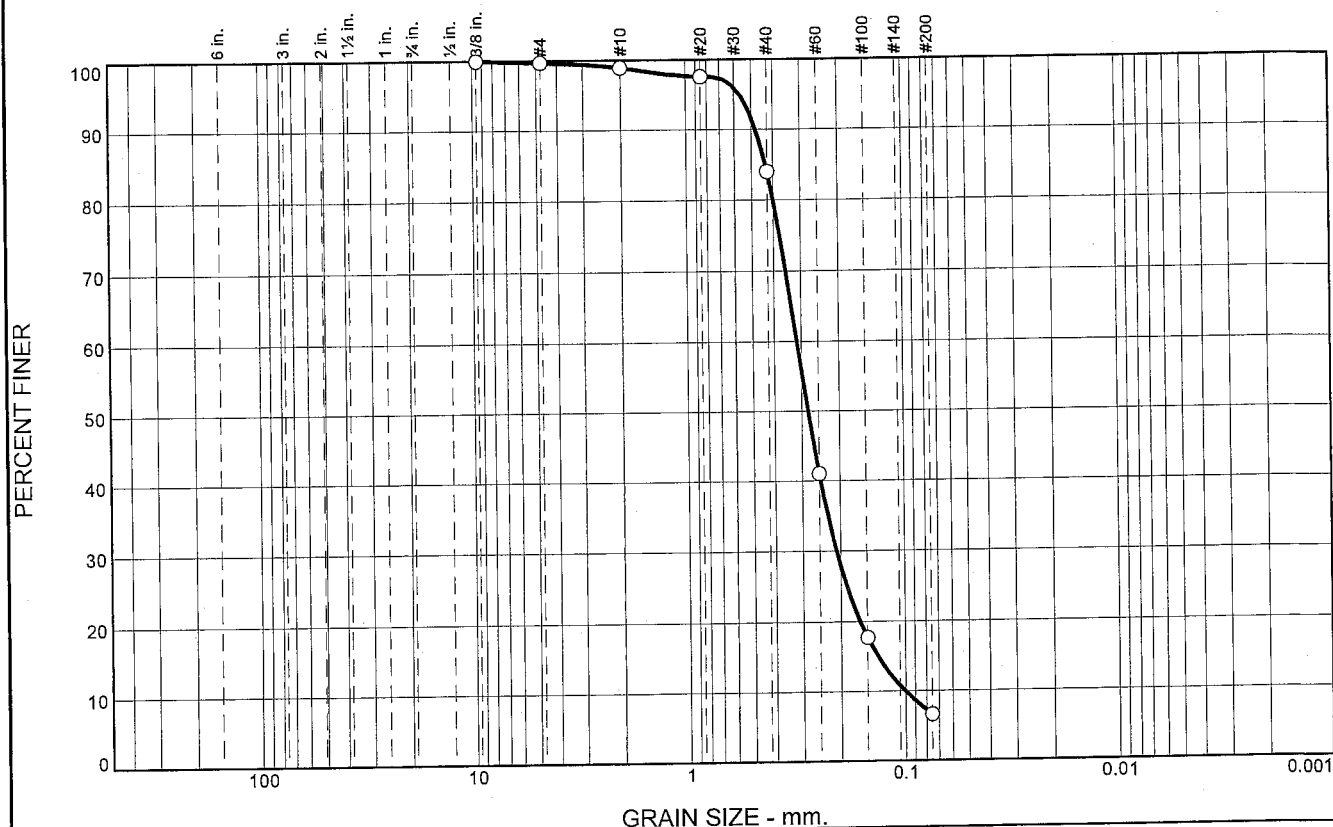
Tested By: G.Fancher

Checked By: R.Byrd

# Boring Designation BI-HP-04-10

DRILLING LOG		DIVISION South Atlantic		INSTALLATION Mobile District		SHEET 1 OF 1 SHEETS	
1. PROJECT MsCIP Barrier Island Restoration Horn Island Pass				9. SIZE AND TYPE OF BIT N/A			
2. BORING DESIGNATION BI-HP-04-10		LOCATION COORDINATES E = 1,074,261 N = 249,799		10. COORDINATE SYSTEM/DATUM State Plane, MSE (U.S. Ft.)		HORIZONTAL NAD83 VERTICAL NAVD88	
3. DRILLING AGENCY Corps of Engineers - CESAM		CONTRACTOR FILE NO.		11. MANUFACTURER'S DESIGNATION OF DRILL Vibracore		<input type="checkbox"/> AUTO HAMMER <input type="checkbox"/> MANUAL HAMMER	
4. NAME OF DRILLER Construction Solutions International, Inc.				12. TOTAL SAMPLES 3		DISTURBED 3 UNDISTURBED (UD) 0	
5. DIRECTION OF BORING <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED		DEG. FROM VERTICAL		13. TOTAL NUMBER CORE BOXES			
		BEARING		14. WATER DEPTH 30 Ft.			
6. THICKNESS OF OVERBURDEN N/A				15. DATE BORING 07-13-10		STARTED 07-13-10 COMPLETED 07-13-10	
7. DEPTH DRILLED INTO ROCK N/A				16. ELEVATION TOP OF BORING -32.2 Ft.			
8. TOTAL DEPTH OF BORING 19.3 Ft.				17. TOTAL RECOVERY FOR BORING 100%			
				18. SIGNATURE AND TITLE OF INSPECTOR John Baehr, Geologist			
ELEV.	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS	SAMPLE	LABORATORY RESULTS		
-32.2	0.0						
			SAND, poorly-graded, mostly fine-grained sand-sized quartz, trace shell fragments, lt. gray (SP)	A	Classification: SP-SM Color: 2.5Y 7/1-light gray D50: 0.28 mm % Fines: 6.6		
				B	Classification: SM Color: 2.5Y 7/2-light gray D50: 0.2732 mm % Fines: 12.5		
-40.7	8.5						
			SAND, silty, mostly fine-grained sand-sized quartz, trace clay balls, gray (SM)	C	Classification: SM Color: 2.5Y 4/2-dark grayish brown D50: 0.1803 mm % Fines: 29.3		
-43.4	11.2						
			SAND, clayey, mostly fine-grained sand-sized quartz, some clay, trace shell fragments (SC)	NS			
-51.5	19.3						
			NOTES: 1. Soils are field visually classified in accordance with the Unified Soils Classification System. 2. NS = Sample not submitted for laboratory analysis from this interval. 3. Seafloor elevation determined from USACE hydrographic survey completed June 2014.				

# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.3	0.8	14.9	77.4	6.6	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
.375	100.0		
#4	99.7		
#10	98.9		
#20	97.6		
#40	84.0		
#60	41.0		
#100	17.7		
#200	6.6		

\* (no specification provided)

## Material Description

SAND, (SP-SM), medium to fine grained, with clay nodules

## Atterberg Limits

PL=

LL=

PI=

## Coefficients

D<sub>90</sub>= 0.4785

D<sub>85</sub>= 0.4324

D<sub>60</sub>= 0.3140

D<sub>50</sub>= 0.2800

D<sub>30</sub>= 0.2090

D<sub>15</sub>= 0.1342

D<sub>10</sub>= 0.1003

C<sub>u</sub>= 3.13

C<sub>c</sub>= 1.39

## Classification

USCS= SP-SM

AASHTO=

## Remarks

CADD CODE = CH10D965

Location: USACE Sample # BI-HP-4-10A  
Sample Number: TE Lab ID: 4593.31

Depth: 0.0 - 4.2 (ft.)

Date: 7/26/10

**Thompson Engineering**

**Mobile, Alabama**

Client: US Army Corps of Engineers

Project: Contract No. W91278-10-D-0026 - Task 03  
Mississippi Barrier Island Restoration Project

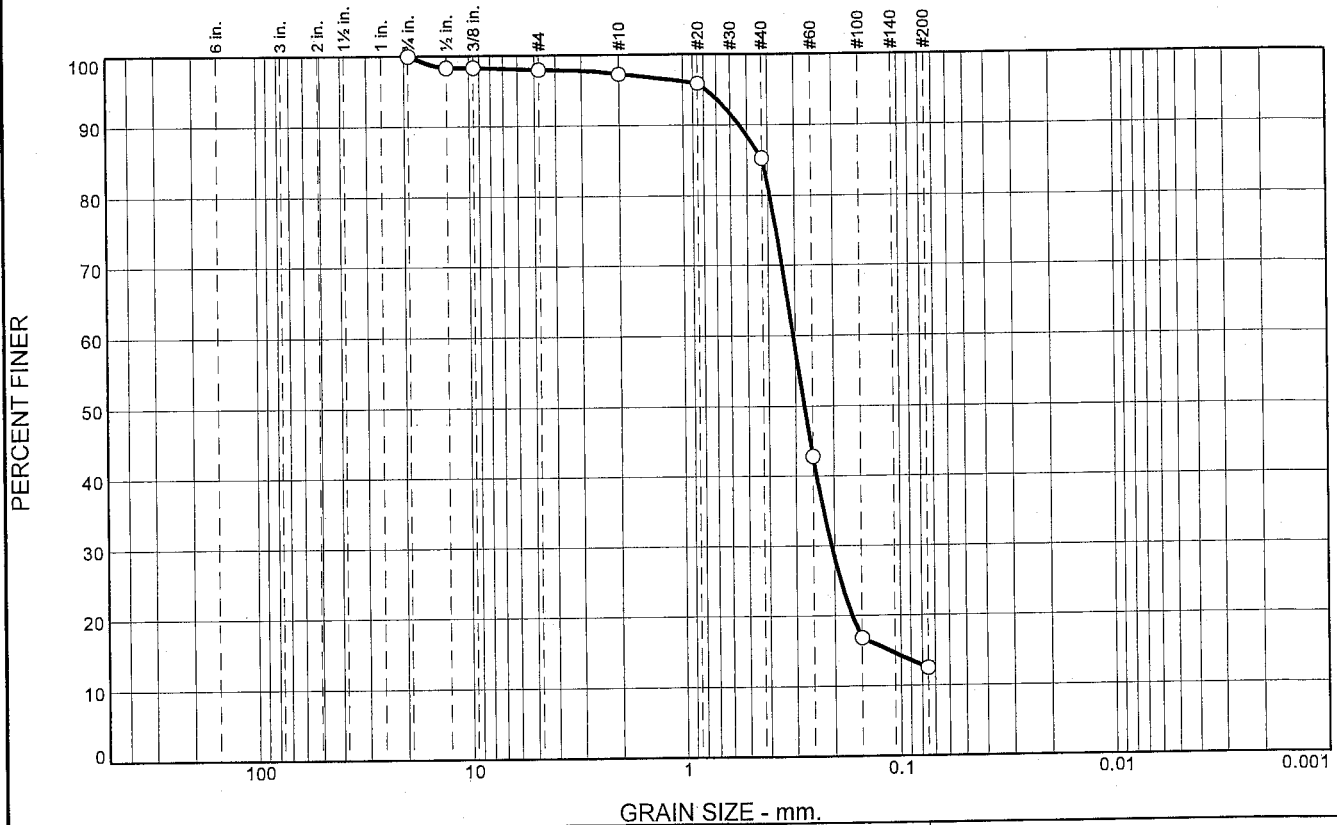
Project No: 10-2123-0009

Report No.

Tested By: G.Fancher

Checked By: R.Byrd

# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	2.0	0.7	12.1	72.7	12.5	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
.750	100.0		
.500	98.4		
.375	98.4		
#4	98.0		
#10	97.3		
#20	95.9		
#40	85.2		
#60	42.8		
#100	16.8		
#200	12.5		

\* (no specification provided)

## Material Description

SILTY SAND, (SM), medium to fine grained, with clay nodules and trace shell

## Atterberg Limits

PL=

LL=

PI=

## Coefficients

D<sub>90</sub>= 0.5436

D<sub>85</sub>= 0.4232

D<sub>60</sub>= 0.3065

D<sub>50</sub>= 0.2732

D<sub>30</sub>= 0.2065

D<sub>15</sub>= 0.1125

D<sub>10</sub>=

C<sub>u</sub>=

C<sub>c</sub>=

## Classification

USCS= SM

AASHTO=

## Remarks

CADD CODE = CH10D965

Location: USACE Sample # BI-HP-4-10B  
Sample Number: TE Lab ID: 4593.32

Depth: 4.2 -8.5 (ft.)

Date: 7/26/10

**Thompson Engineering**

**Mobile, Alabama**

Client: US Army Corps of Engineers

Project: Contract No. W91278-10-D-0026 - Task 03  
Mississippi Barrier Island Restoration Project

Project No: 10-2123-0009

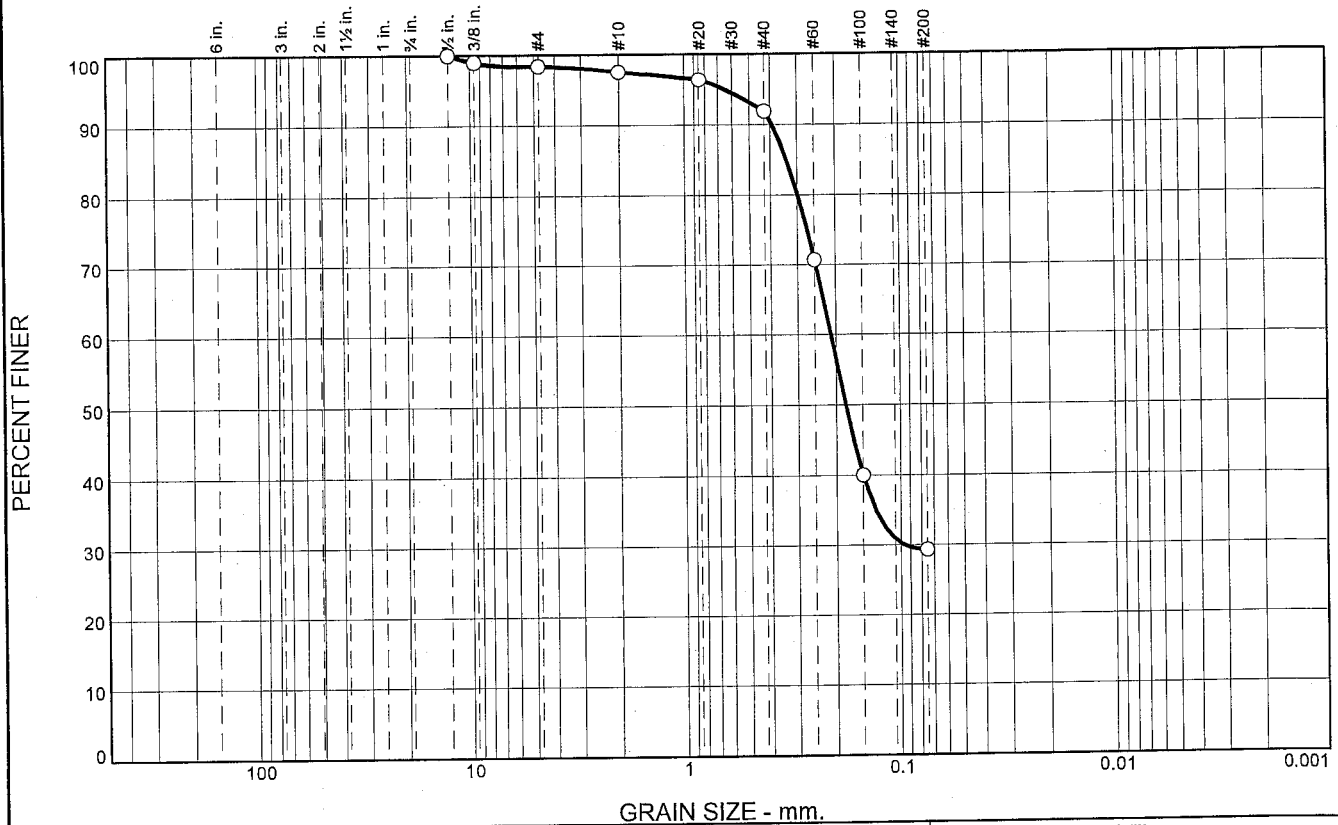
Report No.

Tested By: G.Fancher

Checked By: R.Byrd



# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	1.6	0.8	5.7	62.6	29.3	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
.500	100.0		
.375	99.0		
#4	98.4		
#10	97.6		
#20	96.4		
#40	91.9		
#60	70.7		
#100	40.1		
#200	29.3		

\* (no specification provided)

## Material Description

SILTY SAND, (SM), fine grained, with trace shell

## Atterberg Limits

PL= LL= PI=

## Coefficients

D<sub>90</sub>= 0.3932 D<sub>85</sub>= 0.3367 D<sub>60</sub>= 0.2109  
D<sub>50</sub>= 0.1803 D<sub>30</sub>= 0.0960 D<sub>15</sub>=  
D<sub>10</sub>= C<sub>u</sub>= C<sub>c</sub>=

## Classification

USCS= SM AASHTO=

## Remarks

CADD CODE = CH10D965

Location: USACE Sample # BI-HP-4-10C  
Sample Number: TE Lab ID: 4593.33

Depth: 8.5 - 11.2 (ft.)

Date: 7/26/10

**Thompson Engineering**  
**Mobile, Alabama**

Client: US Army Corps of Engineers  
Project: Contract No. W91278-10-D-0026 - Task 03  
Mississippi Barrier Island Restoration Project  
Project No: 10-2123-0009 Report No.

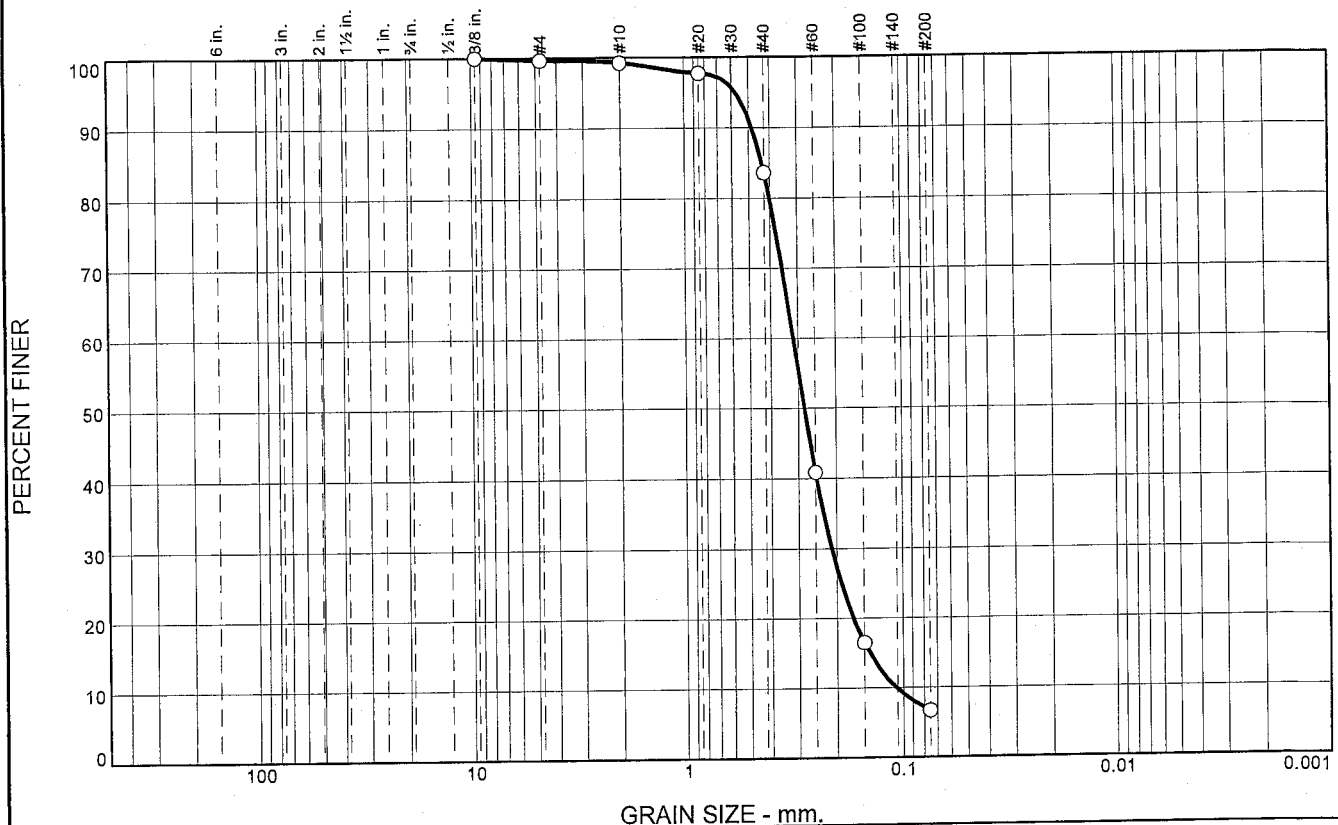
Tested By: G.Fancher

Checked By: R.Byrd

# Boring Designation BI-HP-05-10

DRILLING LOG		DIVISION South Atlantic		INSTALLATION Mobile District		SHEET 1 OF 1 SHEETS	
1. PROJECT MsCIP Barrier Island Restoration Horn Island Pass				9. SIZE AND TYPE OF BIT N/A			
2. BORING DESIGNATION BI-HP-05-10		LOCATION COORDINATES E = 1,074,509 N = 250,523		10. COORDINATE SYSTEM/DATUM State Plane, MSE (U.S. Ft.)		HORIZONTAL NAD83 VERTICAL NAVD88	
3. DRILLING AGENCY Corps of Engineers - CESAM		CONTRACTOR FILE NO.		11. MANUFACTURER'S DESIGNATION OF DRILL Vibrocure		<input type="checkbox"/> AUTO HAMMER <input type="checkbox"/> MANUAL HAMMER	
4. NAME OF DRILLER Construction Solutions International, Inc.				12. TOTAL SAMPLES		DISTURBED UNDISTURBED (UD) 0	
5. DIRECTION OF BORING <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED		DEG. FROM VERTICAL		13. TOTAL NUMBER CORE BOXES			
		BEARING		14. WATER DEPTH 34 Ft.			
6. THICKNESS OF OVERBURDEN N/A				15. DATE BORING		STARTED 07-14-10 COMPLETED 07-14-10	
7. DEPTH DRILLED INTO ROCK N/A				16. ELEVATION TOP OF BORING -33.7 Ft.			
8. TOTAL DEPTH OF BORING 17.8 Ft.				17. TOTAL RECOVERY FOR BORING 100%			
				18. SIGNATURE AND TITLE OF INSPECTOR John Baehr, Geologist			
ELEV.	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS	SAMPLE	LABORATORY RESULTS		
-33.7	0.0						
			SAND, poorly-graded, mostly fine-grained sand-sized quartz, trace clay, lt. gray (SP)	A	Classification: SP-SM Color: 2.5Y 7/1-light gray D50: 0.2803 mm % Fines: 6.7		
-38.5	4.8						
			SAND, clayey, mostly fine-grained sand-sized quartz, some clay, gray (SC)	B			
-51.5	17.8						
			NOTES: 1. Soils are field visually classified in accordance with the Unified Soils Classification System. 2. NS = Sample not submitted for laboratory analysis from this interval. 3. Seafloor elevation determined from USACE hydrographic survey completed June 2014.				

# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.3	0.4	15.7	76.9	6.7	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
.375	100.0		
#4	99.7		
#10	99.3		
#20	97.7		
#40	83.6		
#60	40.9		
#100	16.5		
#200	6.7		

**Material Description**  
SAND, (SP-SM), medium to fine grained, with clay nodules

**Atterberg Limits**  
PL=      LL=      PI=

**Coefficients**  
D<sub>90</sub>= 0.4832      D<sub>85</sub>= 0.4354      D<sub>60</sub>= 0.3146  
D<sub>50</sub>= 0.2803      D<sub>30</sub>= 0.2110      D<sub>15</sub>= 0.1417  
D<sub>10</sub>= 0.1073      C<sub>u</sub>= 2.93      C<sub>c</sub>= 1.32

**Classification**  
USCS= SP-SM      AASHTO=

**Remarks**  
CADD CODE = CH10D965

\* (no specification provided)

Location: USACE Sample # BI-HP-5-10A  
Sample Number: TE Lab ID: 4593.34

Depth: 0.0 - 4.8 (ft.)

Date: 7/26/10

**Thompson Engineering**  
  
**Mobile, Alabama**

Client: US Army Corps of Engineers  
Project: Contract No. W91278-10-D-0026 - Task 03  
Mississippi Barrier Island Restoration Project  
Project No: 10-2123-0009      Report No.

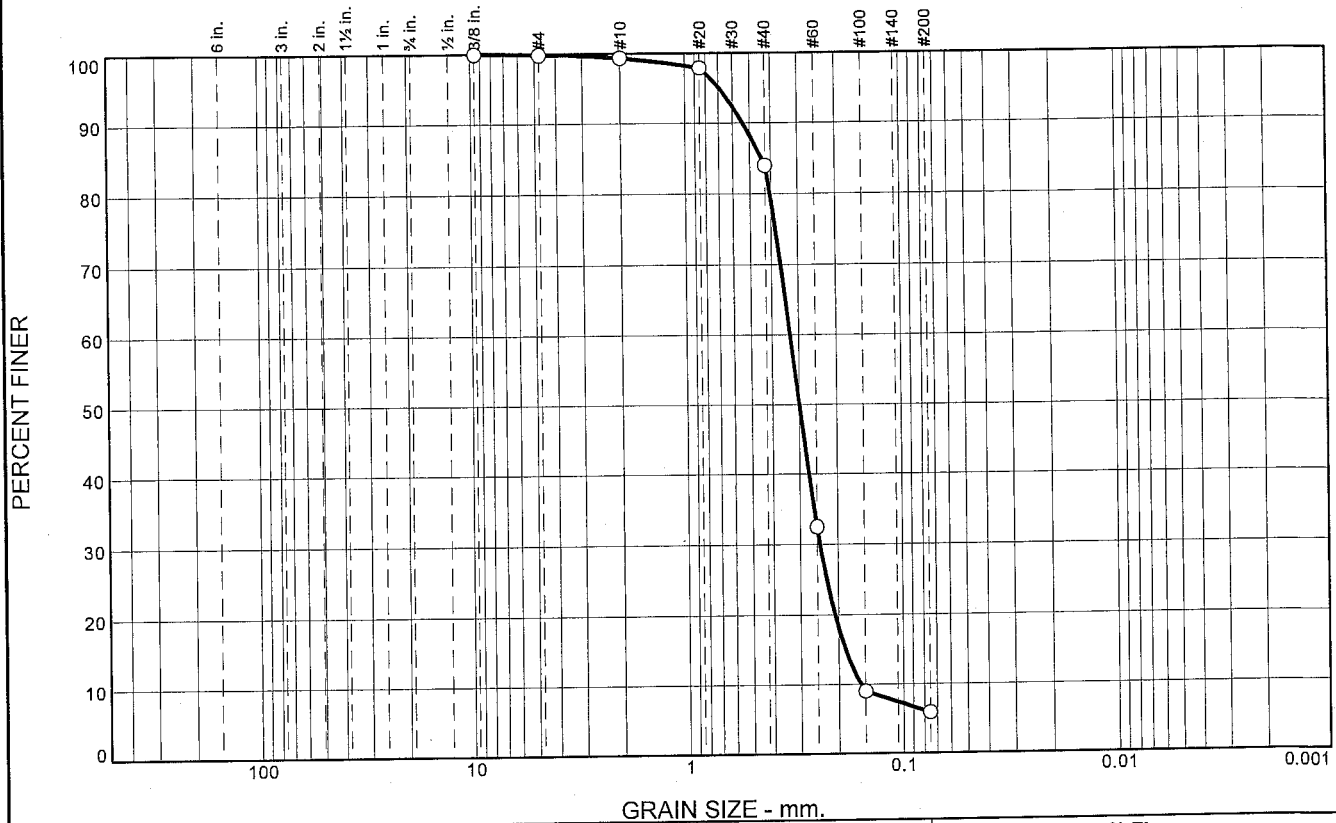
Tested By: G.Fancher

Checked By: R.Byrd

# Boring Designation BI-HP-06-10

DRILLING LOG		DIVISION South Atlantic		INSTALLATION Mobile District		SHEET 1 OF 1 SHEETS	
1. PROJECT MsCIP Barrier Island Restoration Horn Island Pass				9. SIZE AND TYPE OF BIT N/A			
2. BORING DESIGNATION BI-HP-06-10		LOCATION COORDINATES E = 1,073,220 N = 250,622		10. COORDINATE SYSTEM/DATUM State Plane, MSE (U.S. Ft.)		HORIZONTAL NAD83 VERTICAL NAVD88	
3. DRILLING AGENCY Corps of Engineers - CESAM		CONTRACTOR FILE NO.		11. MANUFACTURER'S DESIGNATION OF DRILL Vibrocure		<input type="checkbox"/> AUTO HAMMER <input type="checkbox"/> MANUAL HAMMER	
4. NAME OF DRILLER Construction Solutions International, Inc.				12. TOTAL SAMPLES 1		DISTURBED 1 UNDISTURBED (UD) 0	
5. DIRECTION OF BORING <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED		DEG. FROM VERTICAL		13. TOTAL NUMBER CORE BOXES			
		BEARING		14. WATER DEPTH 34 Ft.			
6. THICKNESS OF OVERBURDEN N/A				15. DATE BORING 07-14-10		STARTED 07-14-10 COMPLETED 07-14-10	
7. DEPTH DRILLED INTO ROCK N/A				16. ELEVATION TOP OF BORING -34.7 Ft.			
8. TOTAL DEPTH OF BORING 17.5 Ft.				17. TOTAL RECOVERY FOR BORING 100%			
				18. SIGNATURE AND TITLE OF INSPECTOR John Baehr, Geologist			
ELEV.	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS	SAMPLE	LABORATORY RESULTS		
-34.7	0.0						
			SAND, poorly-graded, mostly fine-grained sand-sized quartz, lt. gray (SP)	A	Classification: SP-SM    Color: 2.5Y 6/1-gray D50: 0.2996 mm    % Fines: 5.9		
-38.7	4.0						
			SAND, clayey, mostly fine-grained sand-sized quartz, occasional clay balls, gray (SC)	NS			
-52.2	17.5						
			NOTES: 1. Soils are field visually classified in accordance with the Unified Soils Classification System. 2. NS = Sample not submitted for laboratory analysis from this interval. 3. Seafloor elevation determined from USACE hydrographic survey completed June 2014.				

# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.1	0.5	15.4	78.1	5.9	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
.375	100.0		
#4	99.9		
#10	99.4		
#20	97.9		
#40	84.0		
#60	32.5		
#100	9.0		
#200	5.9		

\* (no specification provided)

## Material Description

SAND, (SP-SM), medium to fine grained, with clay nodules

## Atterberg Limits

PL= LL= PI=

## Coefficients

D<sub>90</sub>= 0.5378 D<sub>85</sub>= 0.4409 D<sub>60</sub>= 0.3291  
D<sub>50</sub>= 0.2996 D<sub>30</sub>= 0.2425 D<sub>15</sub>= 0.1864  
D<sub>10</sub>= 0.1577 C<sub>u</sub>= 2.09 C<sub>c</sub>= 1.13

## Classification

USCS= SP-SM AASHTO=

## Remarks

CADD CODE = CH10D965

Location: USACE Sample # BI-HP-6-10A  
Sample Number: TE Lab ID: 4593.35

Depth: 0.0 - 4.3 (ft.)

Date: 7/26/10

**Thompson Engineering**

**Mobile, Alabama**

Client: US Army Corps of Engineers

Project: Contract No. W91278-10-D-0026 - Task 03  
Mississippi Barrier Island Restoration Project

Project No: 10-2123-0009

Report No.

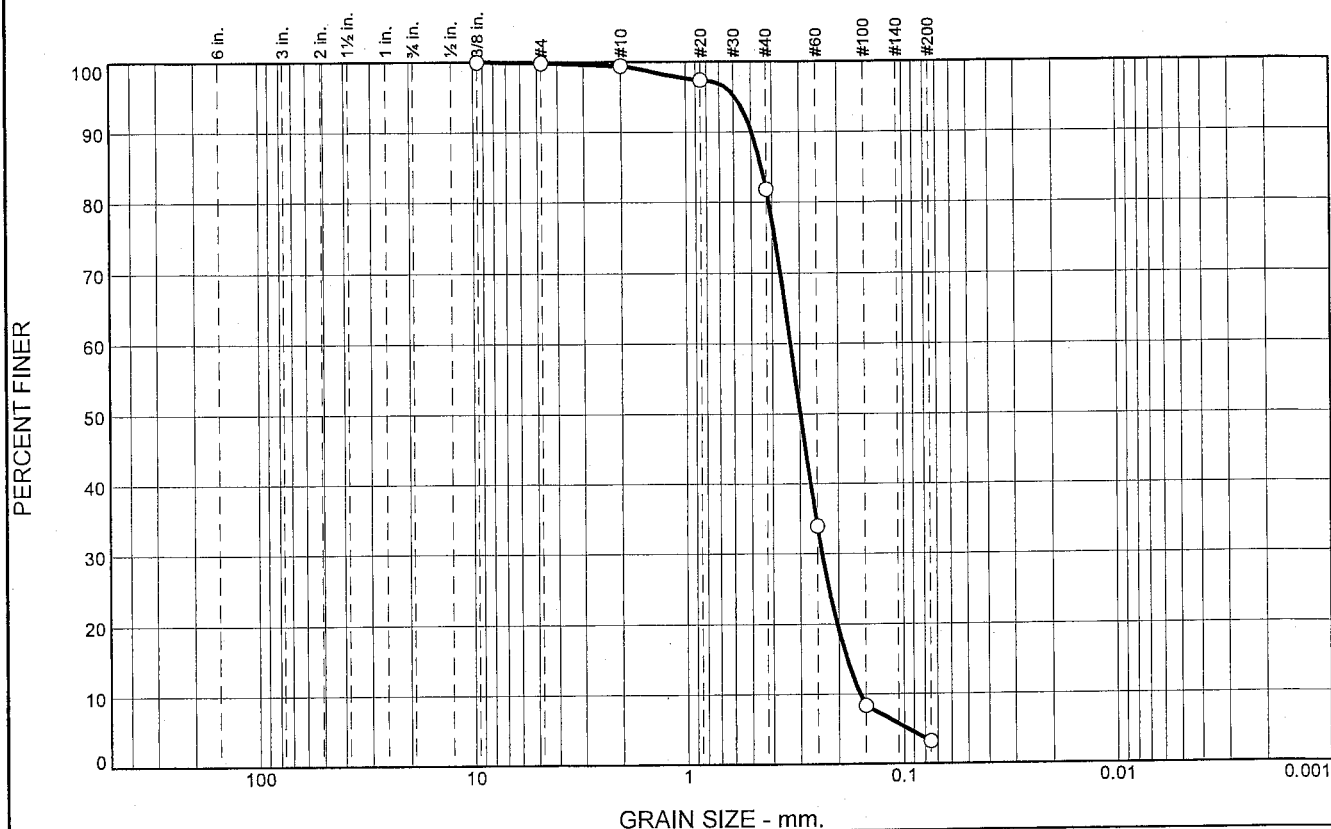
Tested By: G.Fancher

Checked By: R.Byrd

# Boring Designation BI-HP-07-10

DRILLING LOG		DIVISION South Atlantic		INSTALLATION Mobile District		SHEET 1 OF 1 SHEETS	
1. PROJECT MsCIP Barrier Island Restoration Horn Island Pass				9. SIZE AND TYPE OF BIT N/A			
2. BORING DESIGNATION BI-HP-07-10		LOCATION COORDINATES E = 1,073,684 N = 249,161		10. COORDINATE SYSTEM/DATUM State Plane, MSE (U.S. Ft.)		HORIZONTAL NAD83 VERTICAL NAVD88	
3. DRILLING AGENCY Corps of Engineers - CESAM		CONTRACTOR FILE NO.		11. MANUFACTURER'S DESIGNATION OF DRILL Vibrocure		<input type="checkbox"/> AUTO HAMMER <input type="checkbox"/> MANUAL HAMMER	
4. NAME OF DRILLER Construction Solutions International, Inc.				12. TOTAL SAMPLES 2		DISTURBED 0 UNDISTURBED (UD)	
5. DIRECTION OF BORING <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED		DEG. FROM VERTICAL		13. TOTAL NUMBER CORE BOXES			
		BEARING		14. WATER DEPTH 32 Ft.			
6. THICKNESS OF OVERBURDEN N/A				15. DATE BORING 07-13-10		STARTED 07-13-10 COMPLETED 07-13-10	
7. DEPTH DRILLED INTO ROCK N/A				16. ELEVATION TOP OF BORING -32.8 Ft.			
8. TOTAL DEPTH OF BORING 16.7 Ft.				17. TOTAL RECOVERY FOR BORING 100%			
				18. SIGNATURE AND TITLE OF INSPECTOR John Baehr, Geologist			
ELEV.	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS	SAMPLE	LABORATORY RESULTS		
-32.8	0.0						
			SAND, poorly-graded, mostly fine-grained sand-sized quartz, trace shell fragments, occ. clay balls (SP)	A	Classification: SP Color: 2.5Y 7/1-light gray D50: 0.2982 mm % Fines: 3.2		
				B	Classification: SP-SM Color: 2.5Y 7/1-light gray D50: 0.2463 mm % Fines: 6.2		
-39.0	6.2						
			SAND, clayey, mostly fine-grained sand-sized quartz, some clay, gray (SC)	NS			
-49.5	16.7						
			NOTES: 1. Soils are field visually classified in accordance with the Unified Soils Classification System. 2. NS = Sample not submitted for laboratory analysis from this interval. 3. Seafloor elevation determined from USACE hydrographic survey completed June 2014.				

# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.1	0.5	17.6	78.6	3.2	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
.375	100.0		
#4	99.9		
#10	99.4		
#20	97.4		
#40	81.8		
#60	33.9		
#100	8.3		
#200	3.2		

(no specification provided)

**Material Description**  
SAND, (SP), medium to fine grained, with clay nodules

**Atterberg Limits**  
PL=      LL=      PI=

**Coefficients**  
D<sub>90</sub>= 0.4948      D<sub>85</sub>= 0.4472      D<sub>60</sub>= 0.3301  
D<sub>50</sub>= 0.2982      D<sub>30</sub>= 0.2378      D<sub>15</sub>= 0.1834  
D<sub>10</sub>= 0.1595      C<sub>u</sub>= 2.07      C<sub>c</sub>= 1.07

**Classification**  
USCS= SP      AASHTO=

**Remarks**  
CADD CODE = CH10D965

Location: USACE Sample # BI-HP-7-10A  
Sample Number: TE Lab ID: 4593.27

Depth: 0.0 - 3.1 (ft.)

Date: 7/26/10

**Thompson Engineering**

**Mobile, Alabama**

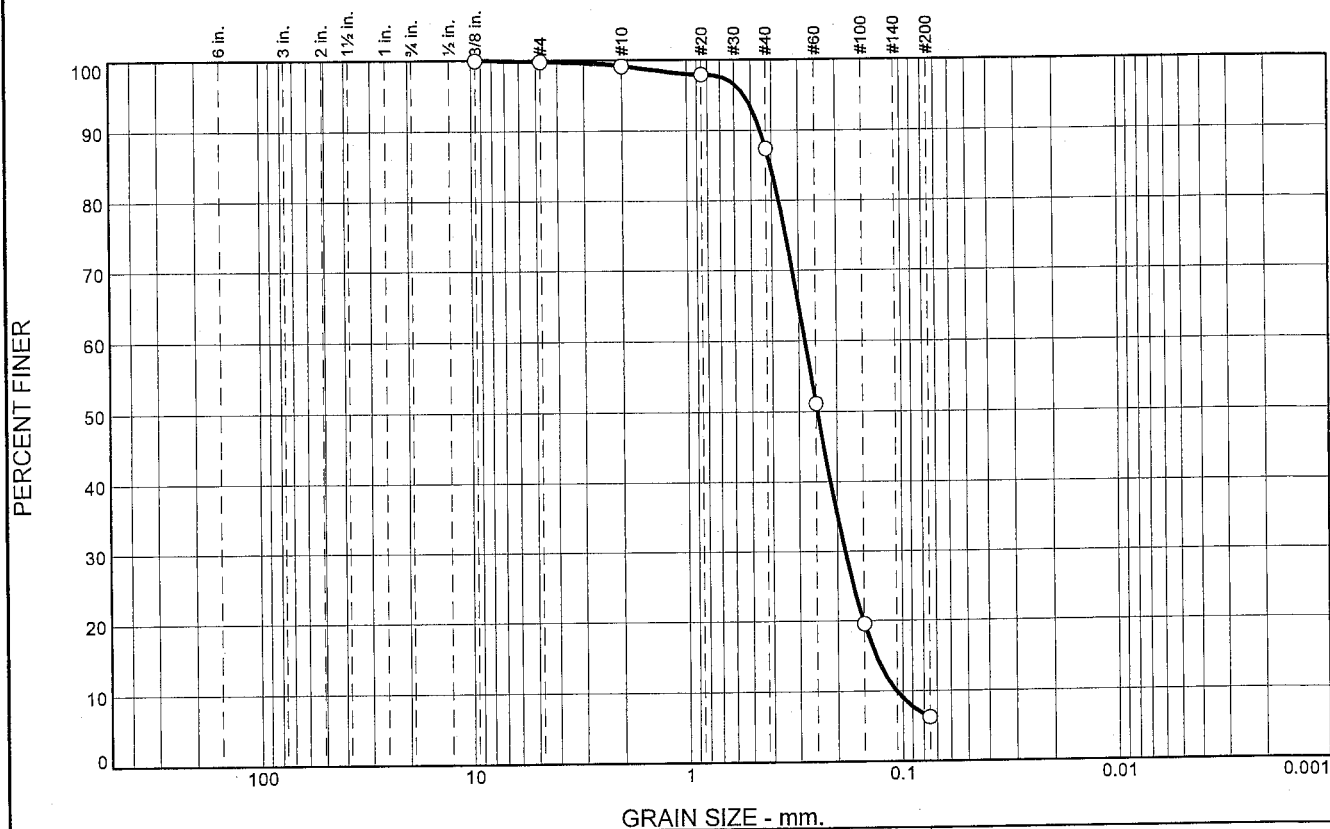
Client: US Army Corps of Engineers  
Project: Contract No. W91278-10-D-0026 - Task 03  
Mississippi Barrier Island Restoration Project  
Project No: 10-2123-0009

Report No.

Tested By: G.Fancher

Checked By: R.Byrd

# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.2	0.6	11.8	81.2	6.2	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
.375	100.0		
#4	99.8		
#10	99.2		
#20	98.0		
#40	87.4		
#60	51.1		
#100	19.5		
#200	6.2		

\* (no specification provided)

**Material Description**  
SAND, (SP-SM), medium to fine grained, with clay nodules

**Atterberg Limits**  
 PL=      LL=      PI=  
**Coefficients**  
 D<sub>90</sub>= 0.4518      D<sub>85</sub>= 0.4050      D<sub>60</sub>= 0.2808  
 D<sub>50</sub>= 0.2463      D<sub>30</sub>= 0.1838      D<sub>15</sub>= 0.1324  
 D<sub>10</sub>= 0.1068      C<sub>u</sub>= 2.63      C<sub>c</sub>= 1.13

**Classification**  
USCS= SP-SM      AASHTO=

**Remarks**  
CADD CODE = CH10D965

Location: USACE Sample # BI-HP-7-10B  
Sample Number: TE Lab ID: 4593.28

Depth: 3.1 - 6.2 (ft.)

Date: 7/26/10

**Thompson Engineering**  
**Mobile, Alabama**

Client: US Army Corps of Engineers  
Project: Contract No. W91278-10-D-0026 - Task 03  
Mississippi Barrier Island Restoration Project  
Project No: 10-2123-0009

Report No.

Tested By: G.Fancher

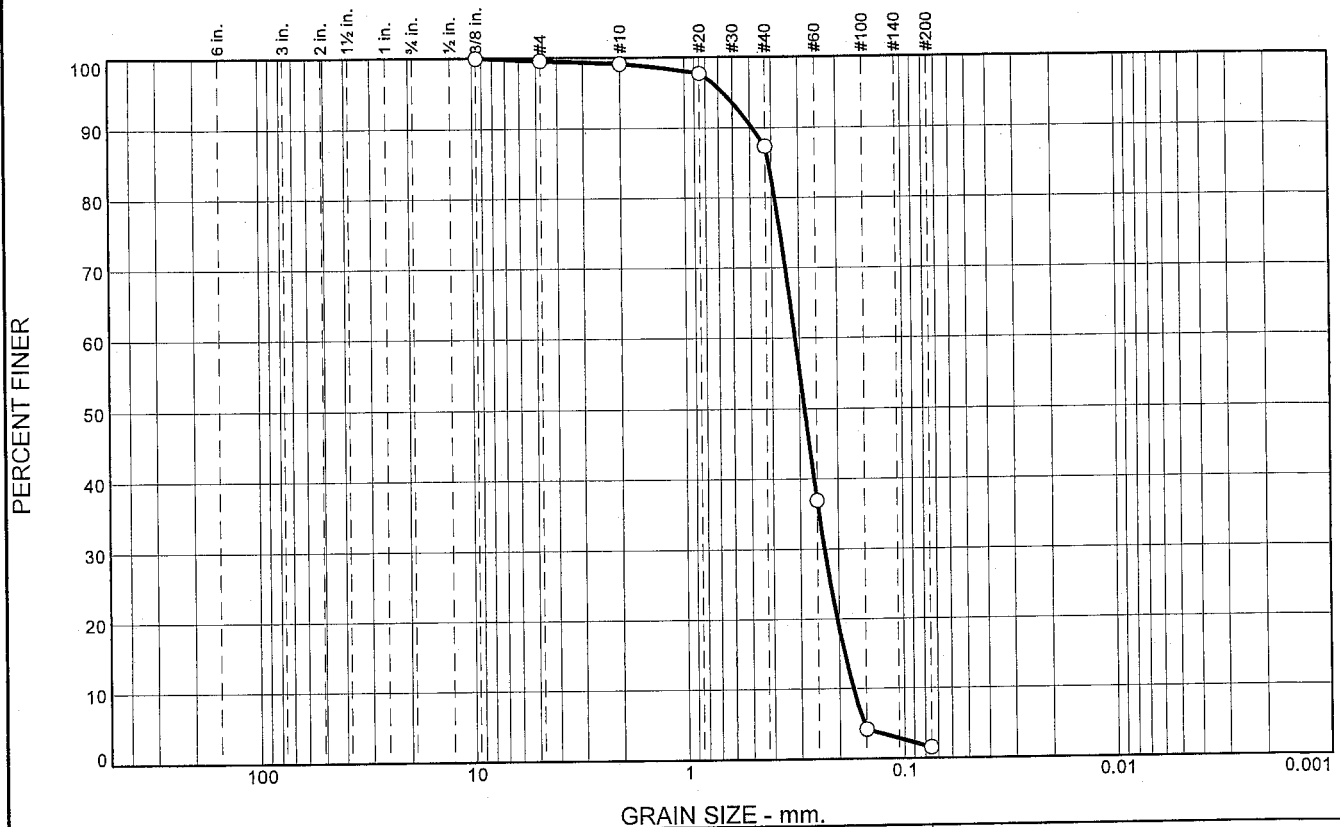
Checked By: R.Byrd



# Boring Designation BI-HP-08-10

DRILLING LOG		DIVISION South Atlantic		INSTALLATION Mobile District		SHEET 1 OF 1 SHEETS	
1. PROJECT MsCIP Barrier Island Restoration Horn Island Pass				9. SIZE AND TYPE OF BIT N/A			
2. BORING DESIGNATION BI-HP-08-10		LOCATION COORDINATES E = 1,073,140 N = 251,924		10. COORDINATE SYSTEM/DATUM State Plane, MSE (U.S. Ft.)		HORIZONTAL NAD83 VERTICAL NAVD88	
3. DRILLING AGENCY Corps of Engineers - CESAM		CONTRACTOR FILE NO.		11. MANUFACTURER'S DESIGNATION OF DRILL Vibrocure		<input type="checkbox"/> AUTO HAMMER <input type="checkbox"/> MANUAL HAMMER	
4. NAME OF DRILLER Construction Solutions International, Inc.				12. TOTAL SAMPLES 1		DISTURBED 1 UNDISTURBED (UD) 0	
5. DIRECTION OF BORING <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED		DEG. FROM VERTICAL		13. TOTAL NUMBER CORE BOXES			
		BEARING		14. WATER DEPTH 33 Ft.			
6. THICKNESS OF OVERBURDEN N/A				15. DATE BORING 07-14-10		STARTED 07-14-10 COMPLETED 07-14-10	
7. DEPTH DRILLED INTO ROCK N/A				16. ELEVATION TOP OF BORING -33.6 Ft.			
8. TOTAL DEPTH OF BORING 17.4 Ft.				17. TOTAL RECOVERY FOR BORING 100%			
				18. SIGNATURE AND TITLE OF INSPECTOR John Baehr, Geologist			
ELEV.	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS	SAMPLE	LABORATORY RESULTS		
-33.6	0.0						
			SAND, poorly-graded, mostly fine to medium-grained sand-sized quartz, trace shell fragments, lt. gray (SP)	A	Classification: SP Color: 2.5Y 7/1-light gray D50: 0.2849 mm % Fines: 1.6		
-38.7	5.1						
			SAND, clayey, mostly fine-grained sand-sized quartz, some clay, gray (SC)	NS			
-51.0	17.4						
			NOTES: 1. Soils are field visually classified in accordance with the Unified Soils Classification System. 2. NS = Sample not submitted for laboratory analysis from this interval. 3. Seafloor elevation determined from USACE hydrographic survey completed June 2014.				

# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.4	0.5	11.8	85.7	1.6	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
.375	100.0		
#4	99.6		
#10	99.1		
#20	97.8		
#40	87.3		
#60	36.9		
#100	4.2		
#200	1.6		

\* (no specification provided)

## Material Description

SAND, (SP), medium to fine grained, with clay nodules

## Atterberg Limits

PL= LL= PI=

## Coefficients

D<sub>90</sub>= 0.4863 D<sub>85</sub>= 0.4109 D<sub>60</sub>= 0.3134  
D<sub>50</sub>= 0.2849 D<sub>30</sub>= 0.2316 D<sub>15</sub>= 0.1888  
D<sub>10</sub>= 0.1725 C<sub>u</sub>= 1.82 C<sub>c</sub>= 0.99

## Classification

USCS= SP AASHTO=

## Remarks

CADD CODE = CH10D965

Location: USACE Sample # BI-HP-8-10A  
Sample Number: TE Lab ID: 4593.45

Depth: 0.0 - 5.1 (ft.)

Date: 7/26/10

**Thompson Engineering**

**Mobile, Alabama**

Client: US Army Corps of Engineers

Project: Contract No. W91278-10-D-0026 - Task 03  
Mississippi Barrier Island Restoration Project

Project No: 10-2123-0009

Report No.

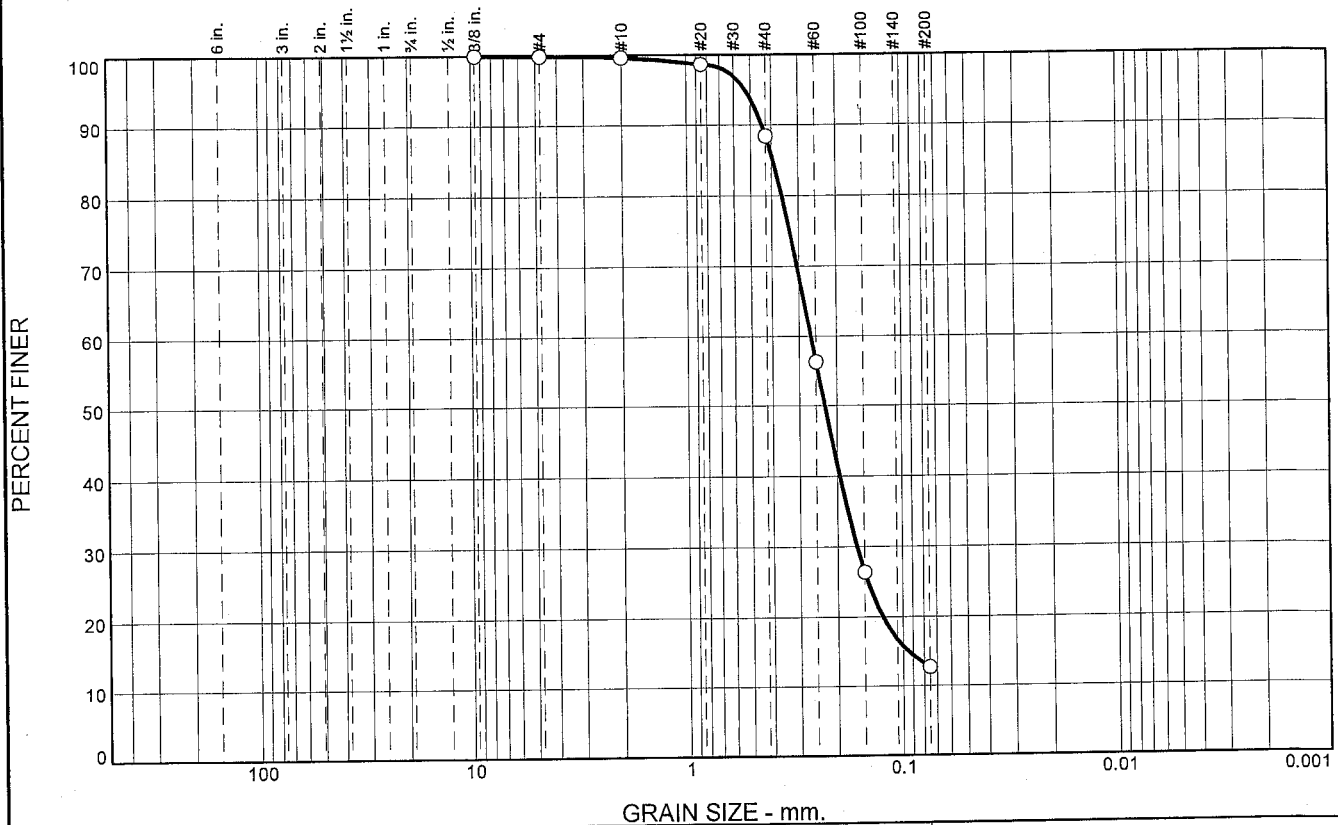
Tested By: G.Fancher

Checked By: R.Byrd

# Boring Designation BI-HP-09-10

DRILLING LOG		DIVISION South Atlantic		INSTALLATION Mobile District		SHEET 1 OF 1 SHEETS	
1. PROJECT MsCIP Barrier Island Restoration Horn Island Pass				9. SIZE AND TYPE OF BIT N/A			
2. BORING DESIGNATION BI-HP-09-10		LOCATION COORDINATES E = 1,074,811 N = 252,037		10. COORDINATE SYSTEM/DATUM State Plane, MSE (U.S. Ft.)		HORIZONTAL NAD83 VERTICAL NAVD88	
3. DRILLING AGENCY Corps of Engineers - CESAM		CONTRACTOR FILE NO.		11. MANUFACTURER'S DESIGNATION OF DRILL Vibrocure		<input type="checkbox"/> AUTO HAMMER <input type="checkbox"/> MANUAL HAMMER	
4. NAME OF DRILLER Construction Solutions International, Inc.				12. TOTAL SAMPLES		DISTURBED 1 UNDISTURBED (UD) 0	
5. DIRECTION OF BORING <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED		DEG. FROM VERTICAL		BEARING		13. TOTAL NUMBER CORE BOXES	
6. THICKNESS OF OVERBURDEN N/A		7. DEPTH DRILLED INTO ROCK N/A		8. TOTAL DEPTH OF BORING 18.7 Ft.		14. WATER DEPTH 36 Ft.	
						15. DATE BORING STARTED 07-14-10 COMPLETED 07-14-10	
						16. ELEVATION TOP OF BORING -36.1 Ft.	
						17. TOTAL RECOVERY FOR BORING 100%	
						18. SIGNATURE AND TITLE OF INSPECTOR John Baehr, Geologist	
ELEV.	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS	SAMPLE	LABORATORY RESULTS		
-36.1	0.0						
-36.6	0.5						
-37.5	1.4		SAND, poorly-graded, mostly fine-grained sand-sized quartz, trace shell fragments, lt. gray (SP)	A	Classification: SM Color: 2.5Y 7/1-light gray D50: 0.2278 mm % Fines: 12.7		
			SAND, silty, mostly fine-grained sand-sized quartz, some silt, lt. gray (SM)				
			SAND, clayey, mostly fine-grained sand-sized quartz, some clay, gray (SC)				
				NS			
-54.8	18.7						
			NOTES: 1. Soils are field visually classified in accordance with the Unified Soils Classification System. 2. NS = Sample not submitted for laboratory analysis from this interval. 3. Seafloor elevation determined from USACE hydrographic survey completed June 2014.				

# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.1	0.2	11.3	75.7	12.7	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
.375	100.0		
#4	99.9		
#10	99.7		
#20	98.7		
#40	88.4		
#60	56.3		
#100	26.3		
#200	12.7		

\* (no specification provided)

**Material Description**  
SILTY SAND, (SM), medium to fine grained

PL= **Atterberg Limits** LL= PI=

**Coefficients**  
D<sub>90</sub>= 0.4423 D<sub>85</sub>= 0.3940 D<sub>60</sub>= 0.2637  
D<sub>50</sub>= 0.2278 D<sub>30</sub>= 0.1627 D<sub>15</sub>= 0.0944  
D<sub>10</sub>= C<sub>u</sub>= C<sub>c</sub>=

USCS= SM **Classification** AASHTO=

**Remarks**  
CADD CODE = CH10D965

Location: USACE Sample # BI-HP-9-10A  
Sample Number: TE Lab ID: 4593.44

Depth: 0.0 - 1.4 (ft.)

Date: 7/26/10

**Thompson Engineering**  
**Mobile, Alabama**

Client: US Army Corps of Engineers  
Project: Contract No. W91278-10-D-0026 - Task 03  
Mississippi Barrier Island Restoration Project  
Project No: 10-2123-0009

Report No.

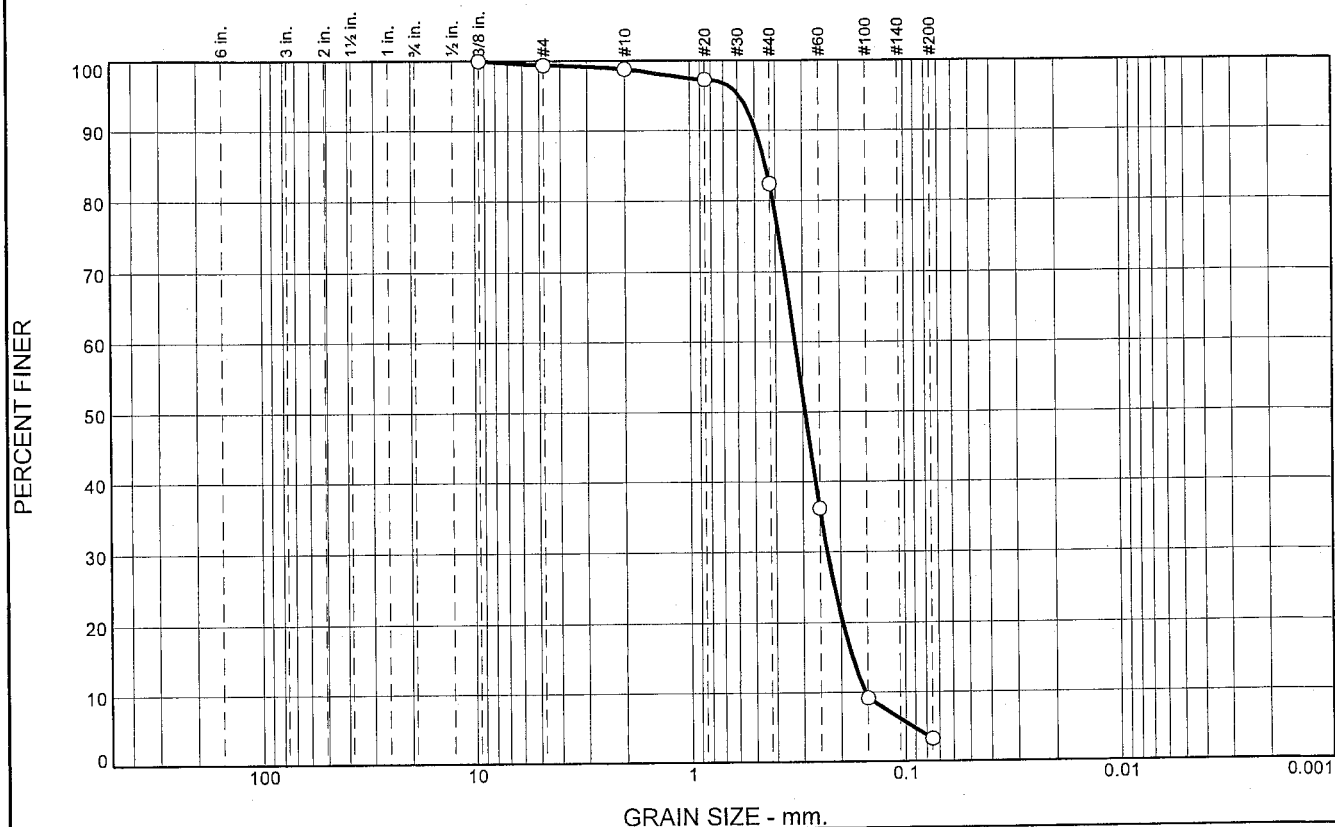
Tested By: G.Fancher

Checked By: R.Byrd

# Boring Designation BI-HP-10-10

DRILLING LOG		DIVISION South Atlantic		INSTALLATION Mobile District		SHEET 1 OF 1 SHEETS	
1. PROJECT MsCIP Barrier Island Restoration Horn Island Pass				9. SIZE AND TYPE OF BIT N/A			
2. BORING DESIGNATION BI-HP-10-10		LOCATION COORDINATES E = 1,076,520 N = 252,092		10. COORDINATE SYSTEM/DATUM State Plane, MSE (U.S. Ft.)		HORIZONTAL NAD83 VERTICAL NAVD88	
3. DRILLING AGENCY Corps of Engineers - CESAM		CONTRACTOR FILE NO.		11. MANUFACTURER'S DESIGNATION OF DRILL Vibrocure		<input type="checkbox"/> AUTO HAMMER <input type="checkbox"/> MANUAL HAMMER	
4. NAME OF DRILLER Construction Solutions International, Inc.				12. TOTAL SAMPLES 2		DISTURBED 2 UNDISTURBED (UD) 0	
5. DIRECTION OF BORING <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED		DEG. FROM VERTICAL		13. TOTAL NUMBER CORE BOXES			
		BEARING		14. WATER DEPTH 31 Ft.			
6. THICKNESS OF OVERBURDEN N/A				15. DATE BORING 07-14-10		STARTED 07-14-10 COMPLETED 07-14-10	
7. DEPTH DRILLED INTO ROCK N/A				16. ELEVATION TOP OF BORING -31.8 Ft.			
8. TOTAL DEPTH OF BORING 18.8 Ft.				17. TOTAL RECOVERY FOR BORING 100%			
				18. SIGNATURE AND TITLE OF INSPECTOR John Baehr, Geologist			
ELEV.	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS	SAMPLE	LABORATORY RESULTS		
-31.8	0.0						
			SAND, poorly-graded, mostly fine-grained sand-sized quartz, trace shell fragments (SP)	A	Classification: SP Color: 2.5Y 7/1-light gray D50: 0.2922 mm % Fines: 3.2		
				B	Classification: SP Color: 2.5Y 7/1-light gray D50: 0.2576 mm % Fines: 3.5		
-37.4	5.6						
			SAND, clayey, mostly fine-grained sand-sized quartz, some clay, gray (SC)	NS			
-50.6	18.8						
			NOTES:				
			1. Soils are field visually classified in accordance with the Unified Soils Classification System.				
			2. NS = Sample not submitted for laboratory analysis from this interval.				
			3. Seafloor elevation determined from USACE hydrographic survey completed June 2014.				

# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.6	0.6	16.5	79.1	3.2	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
.375	100.0		
#4	99.4		
#10	98.8		
#20	97.3		
#40	82.3		
#60	36.1		
#100	9.2		
#200	3.2		

**Material Description**  
SAND, (SP), medium to fine grained

**Atterberg Limits**  
PL=      LL=      PI=

**Coefficients**  
D<sub>90</sub>= 0.4926      D<sub>85</sub>= 0.4440      D<sub>60</sub>= 0.3247  
D<sub>50</sub>= 0.2922      D<sub>30</sub>= 0.2307      D<sub>15</sub>= 0.1771  
D<sub>10</sub>= 0.1544      C<sub>u</sub>= 2.10      C<sub>c</sub>= 1.06

**Classification**  
USCS= SP      AASHTO=

**Remarks**  
CADD CODE = CH10D965

\* (no specification provided)

Location: USACE Sample # BI-HP-10-10A  
Sample Number: TE Lab ID: 4593.42

Depth: 0.0 - 2.8 (ft.)

Date: 7/26/10

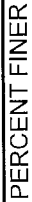
**Thompson Engineering**  
**Mobile, Alabama**

Client: US Army Corps of Engineers  
Project: Contract No. W91278-10-D-0026 - Task 03  
Mississippi Barrier Island Restoration Project  
Project No: 10-2123-0009      Report No.

Tested By: G.Fancher

Checked By: R.Byrd

**PERCENT FINER**



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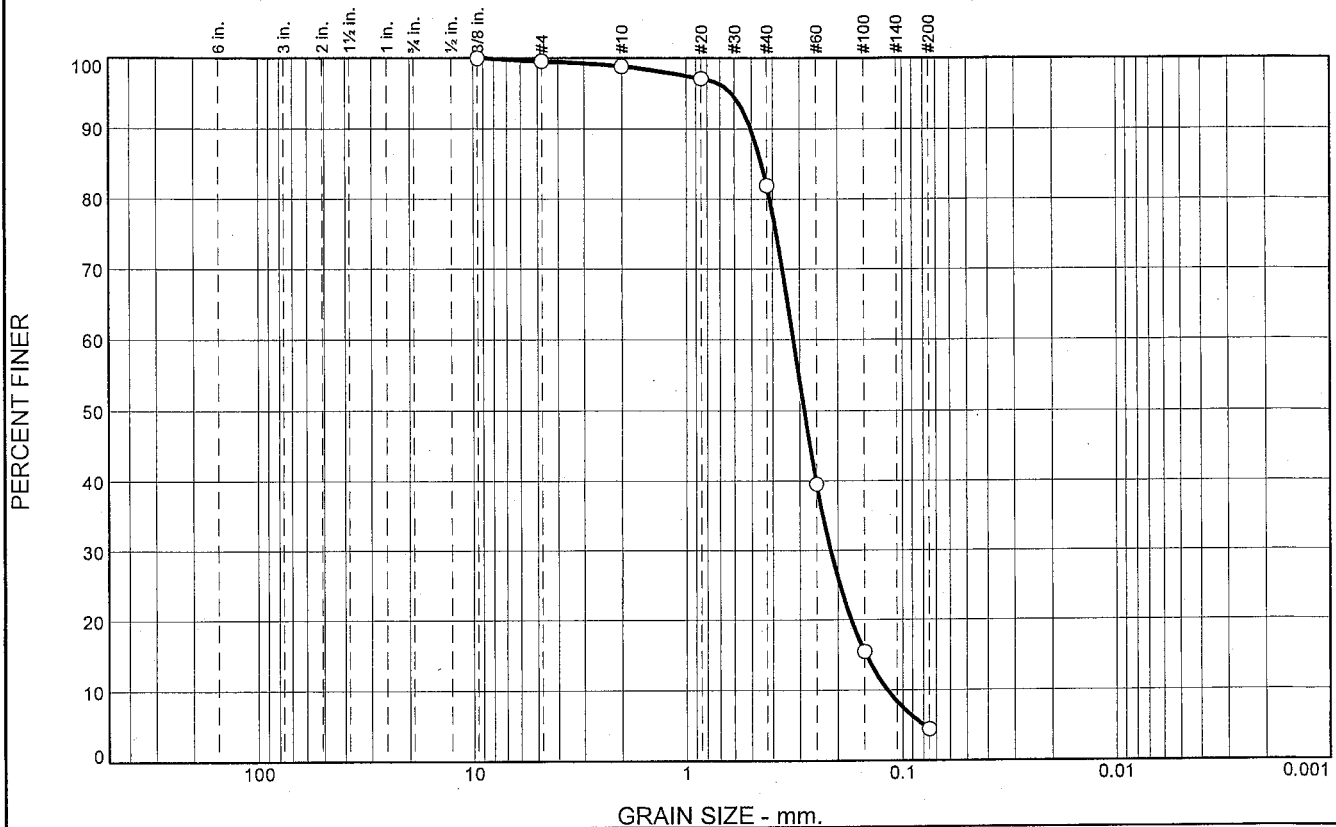
PERCENT FINER

# Boring Designation BI-HP-11-10

DRILLING LOG		DIVISION South Atlantic		INSTALLATION Mobile District		SHEET 1 OF 1 SHEETS	
1. PROJECT MsCIP Barrier Island Restoration Horn Island Pass				9. SIZE AND TYPE OF BIT N/A			
2. BORING DESIGNATION BI-HP-11-10		LOCATION COORDINATES E = 1,071,722 N = 249,203		10. COORDINATE SYSTEM/DATUM State Plane, MSE (U.S. Ft.)		HORIZONTAL NAD83 VERTICAL NAVD88	
3. DRILLING AGENCY Corps of Engineers - CESAM		CONTRACTOR FILE NO.		11. MANUFACTURER'S DESIGNATION OF DRILL Vibrocure		<input type="checkbox"/> AUTO HAMMER <input type="checkbox"/> MANUAL HAMMER	
4. NAME OF DRILLER Construction Solutions International, Inc.				12. TOTAL SAMPLES 2		DISTURBED 2 UNDISTURBED (UD) 0	
5. DIRECTION OF BORING <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED		DEG. FROM VERTICAL		13. TOTAL NUMBER CORE BOXES			
		BEARING		14. WATER DEPTH 36 Ft.			
6. THICKNESS OF OVERBURDEN N/A				15. DATE BORING 07-14-10		STARTED 07-14-10 COMPLETED 07-14-10	
7. DEPTH DRILLED INTO ROCK N/A				16. ELEVATION TOP OF BORING -35.6 Ft.			
8. TOTAL DEPTH OF BORING 18.0 Ft.				17. TOTAL RECOVERY FOR BORING 100%			
				18. SIGNATURE AND TITLE OF INSPECTOR John Baehr, Geologist			
ELEV.	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS	SAMPLE	LABORATORY RESULTS		
-35.6	0.0						
			SAND, poorly-graded, mostly fine-grained sand-sized quartz, trace shell fragments, lt. gray (SP)	A	Classification: SP Color: 2.5Y 7/1-light gray D50: 0.2854 mm % Fines: 4.5		
-40.7	5.1						
-41.8	6.2		SAND, silty, mostly fine-grained sand-sized quartz, some silt, trace shell fragments, lt. gray (SM)	B	Classification: SM Color: 2.5Y 5/1-gray D50: 0.2161 mm % Fines: 16.8		
			SAND, clayey, mostly fine-grained sand-sized quartz, some clay, trace shell fragments, gray (SC)	NS			
-53.6	18.0						
			NOTES: 1. Soils are field visually classified in accordance with the Unified Soils Classification System. 2. NS = Sample not submitted for laboratory analysis from this interval. 3. Seafloor elevation determined from USACE hydrographic survey completed June 2014.				



# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.5	0.6	17.0	77.4	4.5	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
.375	100.0		
#4	99.5		
#10	98.9		
#20	97.1		
#40	81.9		
#60	39.5		
#100	15.4		
#200	4.5		

\* (no specification provided)

**Material Description**  
SAND, (SP), medium to fine grained, with clay nodules

**Atterberg Limits**  
PL=      LL=      PI=

**Coefficients**  
D<sub>90</sub>= 0.5033      D<sub>85</sub>= 0.4490      D<sub>60</sub>= 0.3205  
D<sub>50</sub>= 0.2854      D<sub>30</sub>= 0.2156      D<sub>15</sub>= 0.1478  
D<sub>10</sub>= 0.1176      C<sub>u</sub>= 2.73      C<sub>c</sub>= 1.23

**Classification**  
USCS= SP      AASHTO=

**Remarks**  
CADD CODE = CH10D965

Location: USACE Sample # BI-HP-11-10A  
Sample Number: TE Lab ID: 4593.36

Depth: 0.0 - 5.1 (ft.)

Date: 7/26/10

**Thompson Engineering**

**Mobile, Alabama**

Client: US Army Corps of Engineers

Project: Contract No. W91278-10-D-0026 - Task 03  
Mississippi Barrier Island Restoration Project

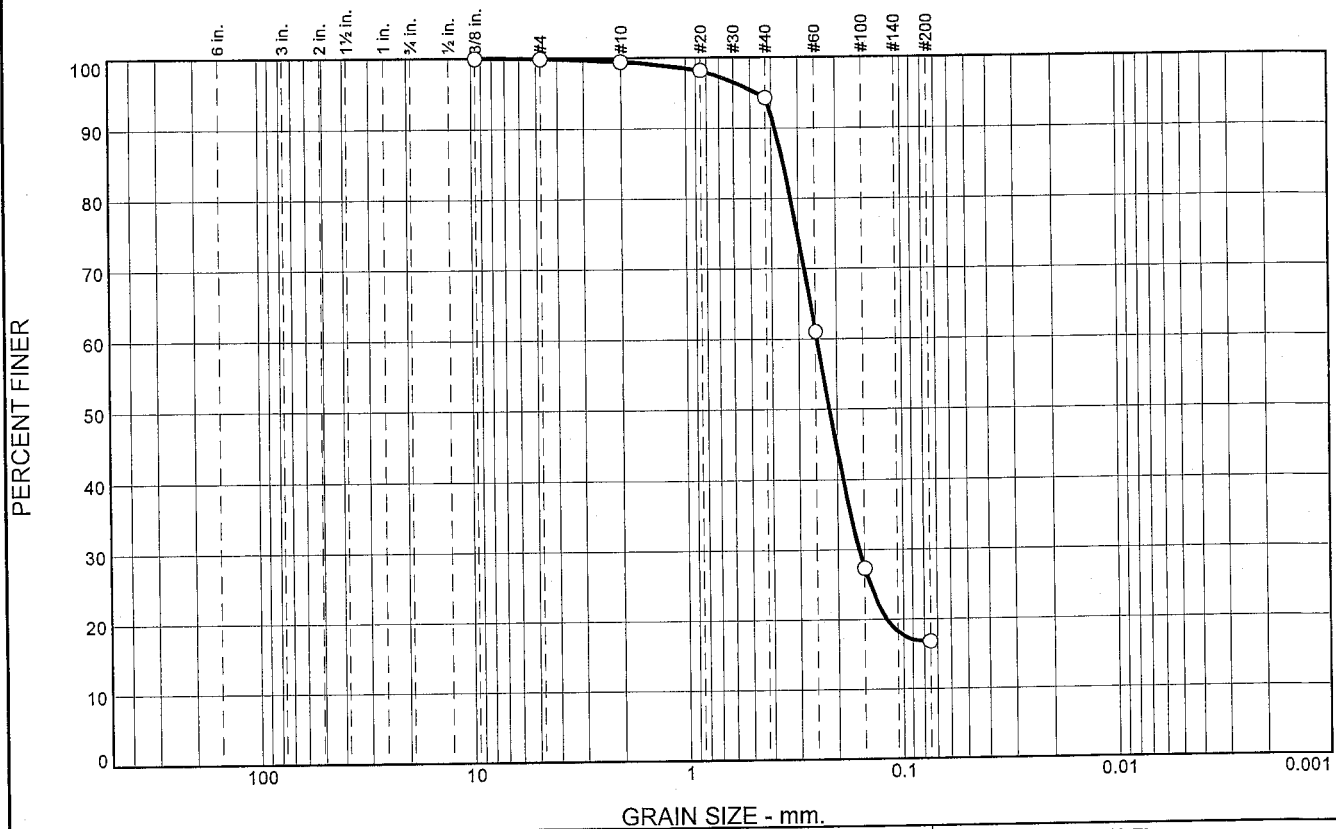
Project No: 10-2123-0009

Report No.

Tested By: G.Fancher

Checked By: R.Byrd

# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.1	0.4	5.2	77.5	16.8	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
.375	100.0		
#4	99.9		
#10	99.5		
#20	98.2		
#40	94.3		
#60	61.0		
#100	27.3		
#200	16.8		

\* (no specification provided)

**Material Description**  
SILTY SAND, (SM), fine grained

**Atterberg Limits**  
 PL=      LL=      PI=

**Coefficients**  
 D<sub>90</sub>= 0.3850      D<sub>85</sub>= 0.3514      D<sub>60</sub>= 0.2467  
 D<sub>50</sub>= 0.2161      D<sub>30</sub>= 0.1586      D<sub>15</sub>=  
 D<sub>10</sub>=      C<sub>u</sub>=      C<sub>c</sub>=

**Classification**  
 USCS= SM      AASHTO=

**Remarks**  
 CADD CODE = CH10D965

Location: USACE Sample # BI-HP-11-10B  
 Sample Number: TE Lab ID: 4593.37

Depth: 5.1 - 6.2 (ft.)

Date: 7/26/10

**Thompson Engineering**

**Mobile, Alabama**

Client: US Army Corps of Engineers  
 Project: Contract No. W91278-10-D-0026 - Task 03  
 Mississippi Barrier Island Restoration Project  
 Project No: 10-2123-0009

Report No.

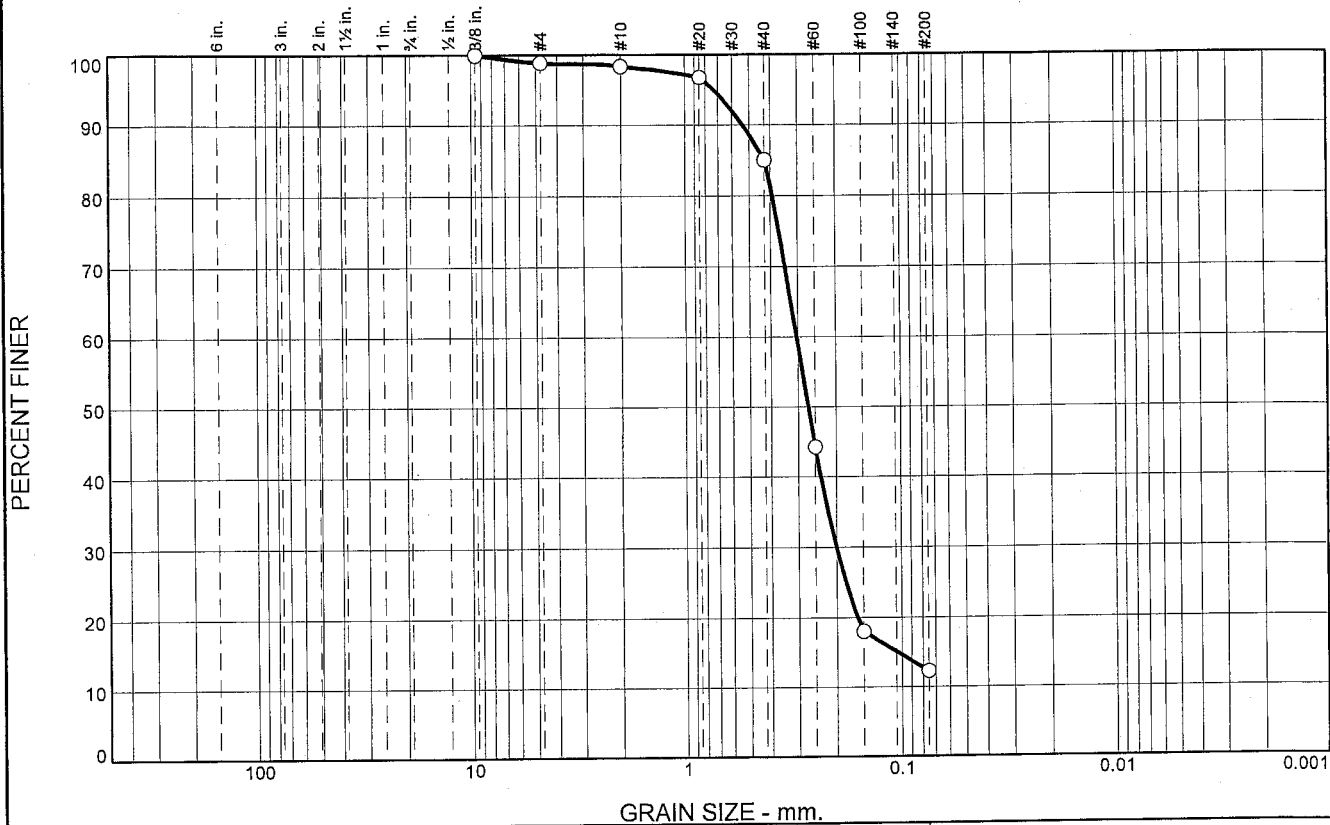
Tested By: G.Fancher

Checked By: R.Byrd

# Boring Designation BI-HP-12-10

DRILLING LOG		DIVISION South Atlantic		INSTALLATION Mobile District		SHEET 1 OF 1 SHEETS	
1. PROJECT MsCIP Barrier Island Restoration Horn Island Pass				9. SIZE AND TYPE OF BIT N/A			
2. BORING DESIGNATION BI-HP-12-10		LOCATION COORDINATES E = 1,071,714 N = 247,385		10. COORDINATE SYSTEM/DATUM State Plane, MSE (U.S. Ft.)		HORIZONTAL NAD83	
3. DRILLING AGENCY Corps of Engineers - CESAM		CONTRACTOR FILE NO.		11. MANUFACTURER'S DESIGNATION OF DRILL Vibrocure		<input type="checkbox"/> AUTO HAMMER <input type="checkbox"/> MANUAL HAMMER	
4. NAME OF DRILLER Construction Solutions International, Inc.				12. TOTAL SAMPLES 2		DISTURBED 0	
5. DIRECTION OF BORING <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED		DEG. FROM VERTICAL		13. TOTAL NUMBER CORE BOXES			
		BEARING		14. WATER DEPTH 36 Ft.			
6. THICKNESS OF OVERBURDEN N/A				15. DATE BORING 07-14-10		COMPLETED 07-14-10	
7. DEPTH DRILLED INTO ROCK N/A				16. ELEVATION TOP OF BORING -36.2 Ft.			
8. TOTAL DEPTH OF BORING 17.8 Ft.				17. TOTAL RECOVERY FOR BORING 100%			
				18. SIGNATURE AND TITLE OF INSPECTOR John Baehr, Geologist			
ELEV.	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS	SAMPLE	LABORATORY RESULTS		
-36.2	0.0						
			SAND, poorly-graded, mostly fine-grained sand-sized quartz, occ. silty zones, lt. gray (SP)	A	Classification: SM Color: 2.5Y 7/1-light gray D50: 0.2691 mm % Fines: 12.3		
				B	Classification: SP-SM Color: 2.5Y 7/1-light gray D50: 0.2371 mm % Fines: 6.4		
-42.2	6.0						
			SAND, clayey, mostly fine-grained sand-sized quartz, some clay, gray (SC)	NS			
-54.0	17.8						
			NOTES: 1. Soils are field visually classified in accordance with the Unified Soils Classification System. 2. NS = Sample not submitted for laboratory analysis from this interval. 3. Seafloor elevation determined from 2013 USACE survey conducted by Irvington Area Office.				

# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	1.1	0.5	13.4	72.7	12.3	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
.375	100.0		
#4	98.9		
#10	98.4		
#20	96.8		
#40	85.0		
#60	44.3		
#100	18.0		
#200	12.3		

\* (no specification provided)

**Material Description**  
SILTY SAND, (SM), fine grained, with clay nodules and trace shell

**Atterberg Limits**  
PL=      LL=      PI=

**Coefficients**  
D<sub>90</sub>= 0.5356      D<sub>85</sub>= 0.4248      D<sub>60</sub>= 0.3035  
D<sub>50</sub>= 0.2691      D<sub>30</sub>= 0.2006      D<sub>15</sub>= 0.1044  
D<sub>10</sub>=      C<sub>u</sub>=      C<sub>c</sub>=

**Classification**  
USCS= SM      AASHTO=

**Remarks**  
CADD CODE = CH10D965

Location: USACE Sample # BI-HP-12-10A  
Sample Number: TE Lab ID: 4593.39

Depth: 0.0 - 3.0 (ft.)

Date: 7/26/10

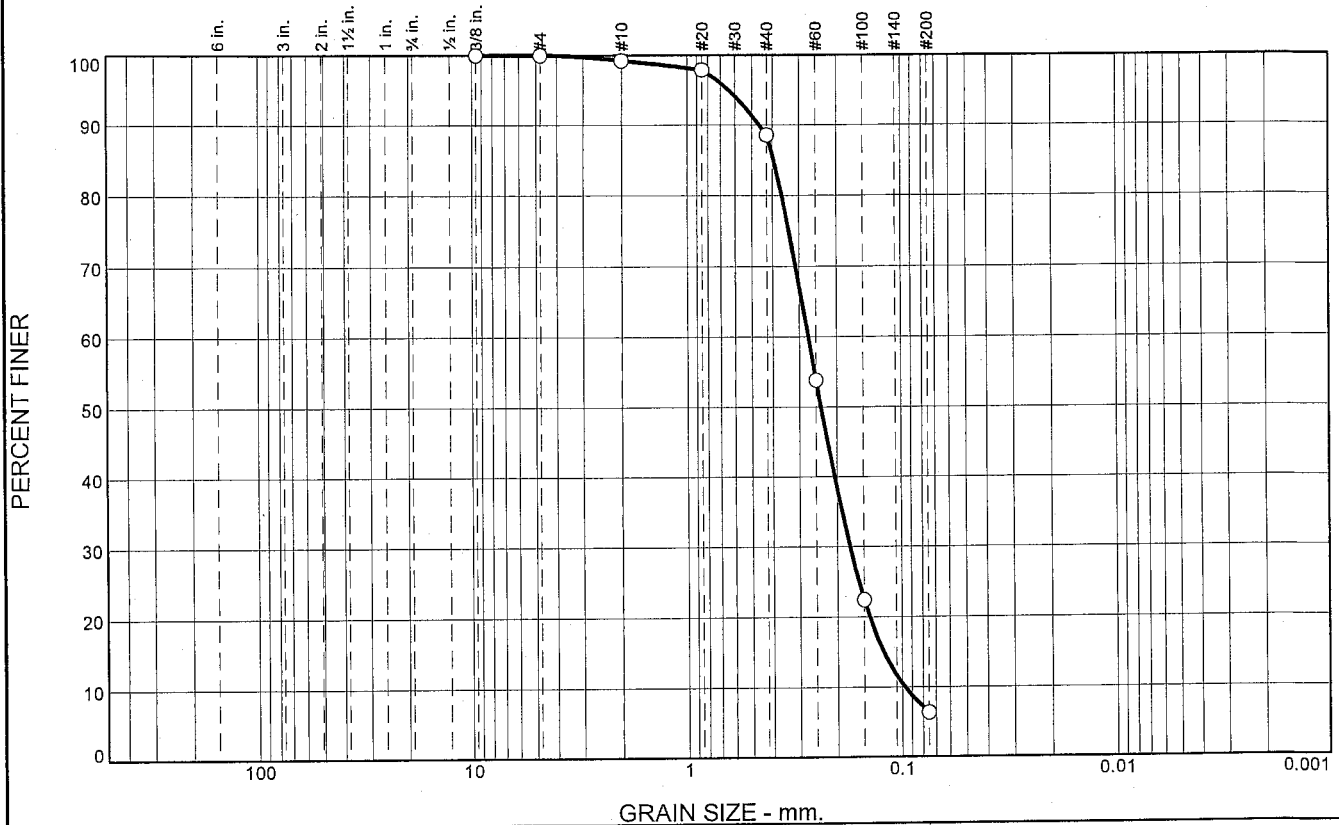
**Thompson Engineering**  
  
**Mobile, Alabama**

Client: US Army Corps of Engineers  
Project: Contract No. W91278-10-D-0026 - Task 03  
Mississippi Barrier Island Restoration Project  
Project No: 10-2123-0009      Report No.

Tested By: G.Fancher

Checked By: R.Byrd

# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.0	0.8	10.6	82.2	6.4	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
.375	100.0		
#4	100.0		
#10	99.2		
#20	97.9		
#40	88.6		
#60	53.8		
#100	22.4		
#200	6.4		

## Material Description

SAND, (SP-SM), medium to fine grained, with clay nodules

## Atterberg Limits

PL= LL= PI=

## Coefficients

$D_{90}$  = 0.4598       $D_{85}$  = 0.3948       $D_{60}$  = 0.2717  
 $D_{50}$  = 0.2371       $D_{30}$  = 0.1744       $D_{15}$  = 0.1219  
 $D_{10}$  = 0.0971       $C_u$  = 2.80       $C_c$  = 1.15

## Classification

USCS= SP-SM      AASHTO=

## Remarks

CADD CODE = CH10D965

\* (no specification provided)

Location: USACE Sample # BI-HP-12-10B  
Sample Number: TE Lab ID: 4593.40

Depth: 3.0 - 6.0 (ft.)

Date: 7/26/10

**Thompson Engineering**

**Mobile, Alabama**

Client: US Army Corps of Engineers

Project: Contract No. W91278-10-D-0026 - Task 03  
Mississippi Barrier Island Restoration Project

Project No: 10-2123-0009

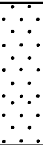

Report No.

Tested By: G.Fancher

Checked By: R.Byrd

**Boring Designation** BI-HP-13-10

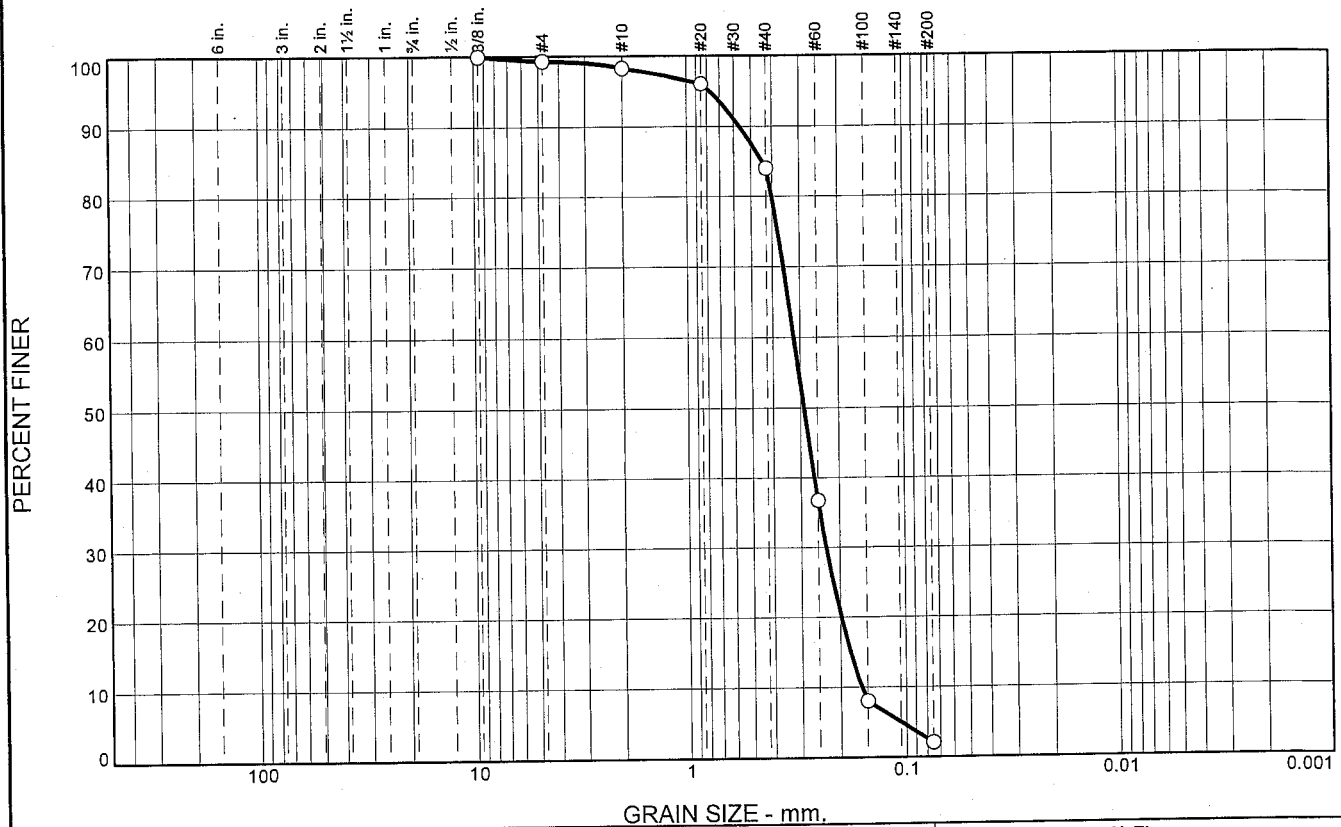
DRILLING LOG		DIVISION South Atlantic		INSTALLATION Mobile District		SHEET 1 OF 1 SHEETS	
1. PROJECT  MsCIP Barrier Island Restoration Horn Island Pass				9. SIZE AND TYPE OF BIT N/A			
				10. COORDINATE SYSTEM/DATUM State Plane, MSE (U.S. Ft.)		HORIZONTAL NAD83	
2. BORING DESIGNATION BI-HP-13-10		LOCATION COORDINATES E = 1,070,283 N = 247,411		11. MANUFACTURER'S DESIGNATION OF DRILL Vibracore		<input type="checkbox"/> AUTO HAMMER <input type="checkbox"/> MANUAL HAMMER	
3. DRILLING AGENCY Corps of Engineers - CESAM		CONTRACTOR FILE NO.		12. TOTAL SAMPLES		DISTURBED 1 UNDISTURBED (UD) 0	
4. NAME OF DRILLER Construction Solutions International, Inc.				13. TOTAL NUMBER CORE BOXES			
5. DIRECTION OF BORING <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED		DEG. FROM VERTICAL		BEARING		14. WATER DEPTH 38 Ft.	
						15. DATE BORING 07-14-10	
						COMPLETED 07-14-10	
6. THICKNESS OF OVERBURDEN		N/A		16. ELEVATION TOP OF BORING		-38.0 Ft.	
7. DEPTH DRILLED INTO ROCK		N/A		17. TOTAL RECOVERY FOR BORING		100%	
8. TOTAL DEPTH OF BORING		17.3 Ft.		18. SIGNATURE AND TITLE OF INSPECTOR John Baehr. Geologist			

ELEV.	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS	SAMPLE	LABORATORY RESULTS
-38.0	0.0				
-41.2	3.2		SAND, poorly-graded, mostly fine to medium-grained sand-sized quartz, trace shell fragments, lt. gray (SP)	A	Classification: SP Color: 2.5Y 7/2-light gray D50: 0.2888 mm % Fines: 2.1
-55.3	17.3		SAND, clayey, mostly fine-grained sand-sized quartz, some clay, gray (SC)	NS	
			NOTES:  1. Soils are field visually classified in accordance with the Unified Soils Classification System.  2. NS = Sample not submitted for laboratory analysis from this interval.  3. Seafloor elevation determined from 2013 USACE survey conducted by Irvington Area Office.		

**SAM FORM 1836 - MsCIP**  
MAY 2010

**Lat = 30.18005° Long = -88.56105°**

# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.7	1.0	14.3	81.9	2.1	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
.375	100.0		
#4	99.3		
#10	98.3		
#20	96.0		
#40	84.0		
#60	36.7		
#100	8.0		
#200	2.1		

\* (no specification provided)

## Material Description

SAND, (SP), medium to fine grained

## Atterberg Limits

PL= LL= PI=

## Coefficients

D<sub>90</sub>= 0.5635 D<sub>85</sub>= 0.4434 D<sub>60</sub>= 0.3200  
D<sub>50</sub>= 0.2888 D<sub>30</sub>= 0.2300 D<sub>15</sub>= 0.1799  
D<sub>10</sub>= 0.1594 C<sub>u</sub>= 2.01 C<sub>c</sub>= 1.04

## Classification

USCS= SP AASHTO=

## Remarks

CADD CODE = CH10D965

Location: USACE Sample # BI-HP-13-10A  
Sample Number: TE Lab ID: 4593.41

Depth: 0.0 - 3.2 (ft.)

Date: 7/26/10

**Thompson Engineering**

**Mobile, Alabama**

Client: US Army Corps of Engineers

Project: Contract No. W91278-10-D-0026 - Task 03  
Mississippi Barrier Island Restoration Project

Project No: 10-2123-0009

Report No.

Tested By: G.Fancher

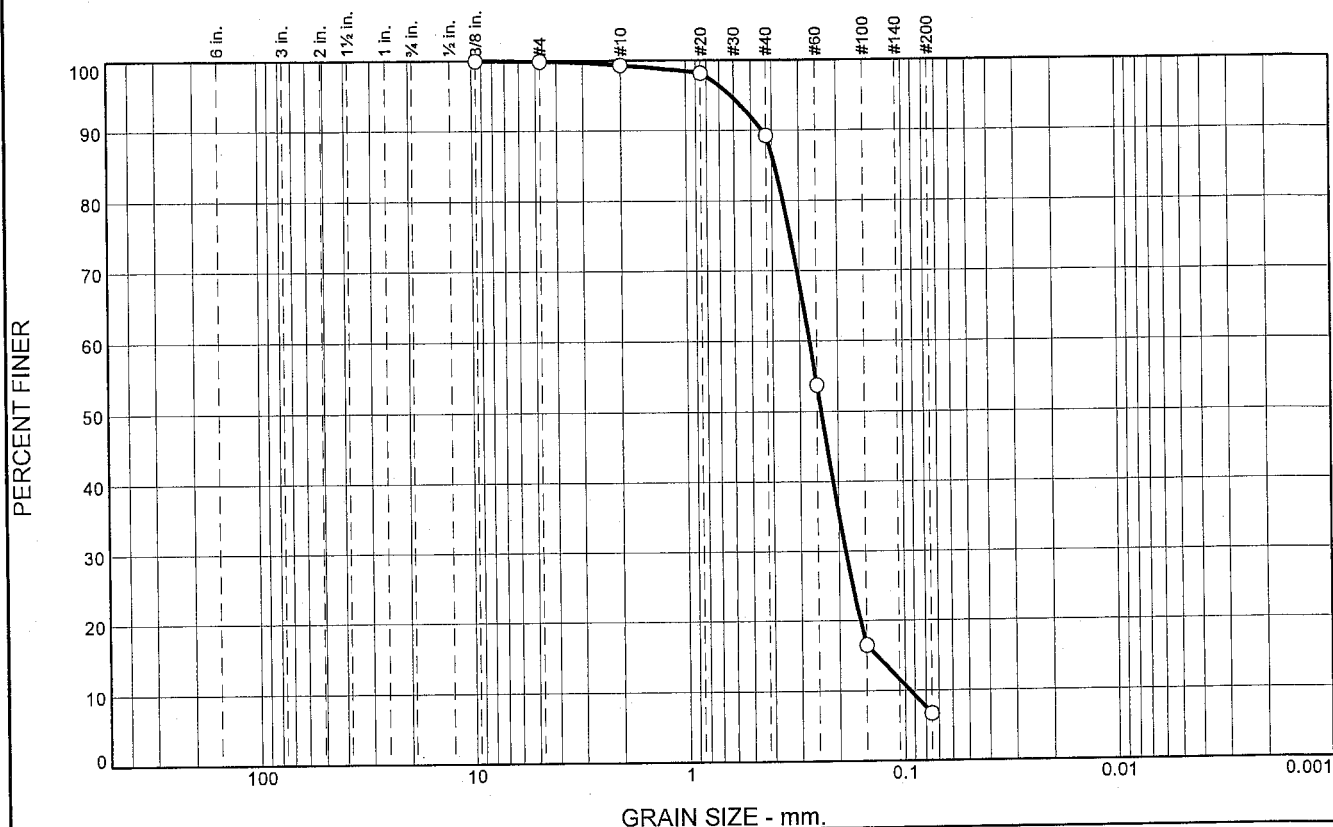
Checked By: R.Byrd

# Boring Designation BI-HP-14-10

DRILLING LOG		DIVISION South Atlantic		INSTALLATION Mobile District		SHEET 1 OF 1 SHEETS	
1. PROJECT MsCIP Barrier Island Restoration Horn Island Pass				9. SIZE AND TYPE OF BIT N/A			
2. BORING DESIGNATION BI-HP-14-10		LOCATION COORDINATES E = 1,073,250 N = 247,356		10. COORDINATE SYSTEM/DATUM State Plane, MSE (U.S. Ft.)		HORIZONTAL NAD83 VERTICAL NAVD88	
3. DRILLING AGENCY Corps of Engineers - CESAM		CONTRACTOR FILE NO.		11. MANUFACTURER'S DESIGNATION OF DRILL Vibrocure		<input type="checkbox"/> AUTO HAMMER <input type="checkbox"/> MANUAL HAMMER	
4. NAME OF DRILLER Construction Solutions International, Inc.				12. TOTAL SAMPLES 1		DISTURBED 1 UNDISTURBED (UD) 0	
5. DIRECTION OF BORING <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED		DEG. FROM VERTICAL		13. TOTAL NUMBER CORE BOXES			
		BEARING		14. WATER DEPTH 37 Ft.			
6. THICKNESS OF OVERBURDEN N/A				15. DATE BORING 07-14-10		STARTED 07-14-10 COMPLETED 07-14-10	
7. DEPTH DRILLED INTO ROCK N/A				16. ELEVATION TOP OF BORING -39.4 Ft.			
8. TOTAL DEPTH OF BORING 15.9 Ft.				17. TOTAL RECOVERY FOR BORING 100%			
				18. SIGNATURE AND TITLE OF INSPECTOR John Baehr, Geologist			
ELEV.	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS	SAMPLE	LABORATORY RESULTS		
-39.4	0.0						
-41.9	2.5		SAND, poorly-graded, mostly fine-grained sand-sized quartz, trace shell fragments, lt. gray (SP)	A	Classification: SP-SM Color: 5Y 6/2-light olive gray D50: 0.2388 mm % Fines: 6.7		
-55.3	15.9		SAND, clayey, mostly fine-grained sand-sized quartz, some clay, gray (SC)	NS			
			NOTES: 1. Soils are field visually classified in accordance with the Unified Soils Classification System. 2. NS = Sample not submitted for laboratory analysis from this interval. 3. Seafloor elevation determined from USACE hydrographic survey completed June 2014.				



# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.1	0.6	10.0	82.6	6.7	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
.375	100.0		
#4	99.9		
#10	99.3		
#20	98.2		
#40	89.3		
#60	53.8		
#100	16.5		
#200	6.7		

## Material Description

SAND, (SP-SM), medium to fine grained, with clay nodules

## Atterberg Limits

PL= LL= PI=

## Coefficients

D<sub>90</sub>= 0.4431 D<sub>85</sub>= 0.3886 D<sub>60</sub>= 0.2699  
D<sub>50</sub>= 0.2388 D<sub>30</sub>= 0.1860 D<sub>15</sub>= 0.1349  
D<sub>10</sub>= 0.0946 C<sub>u</sub>= 2.85 C<sub>c</sub>= 1.35

## Classification

USCS= SP-SM AASHTO=

## Remarks

CADD CODE = CH10D965

\* (no specification provided)

Location: USACE Sample # BI-HP-14-10A  
Sample Number: TE Lab ID: 4593.38

Depth: 0.0 - 2.5 (ft.)

Date: 7/26/10

**Thompson Engineering**

**Mobile, Alabama**

Client: US Army Corps of Engineers

Project: Contract No. W91278-10-D-0026 - Task 03  
Mississippi Barrier Island Restoration Project

Project No: 10-2123-0009

Report No.

Tested By: G.Fancher

Checked By: R.Byrd

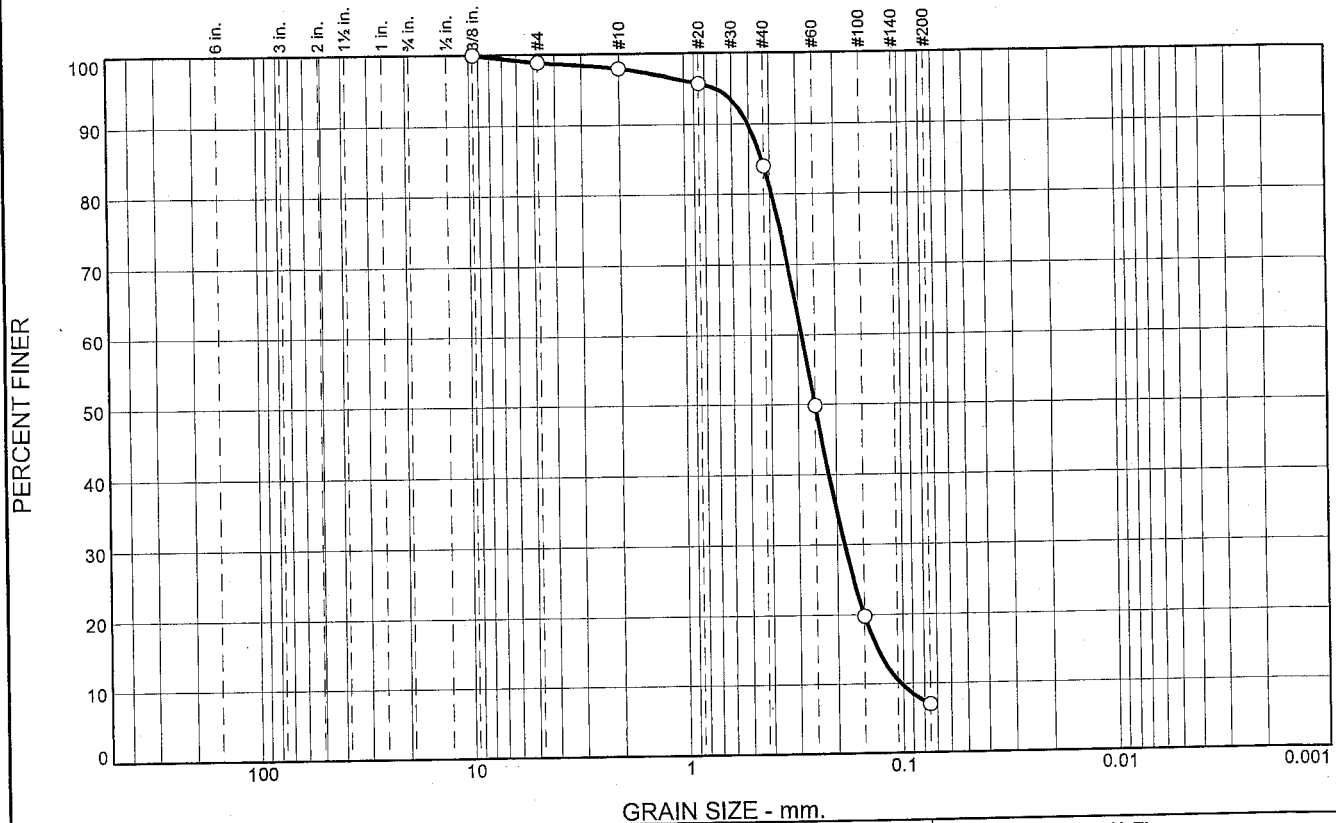
# Boring Designation BI-HP-15-10

DRILLING LOG		DIVISION South Atlantic		INSTALLATION Mobile District		SHEET 1 OF 1 SHEETS	
1. PROJECT MsCIP Barrier Island Restoration Horn Island Pass				9. SIZE AND TYPE OF BIT N/A			
2. BORING DESIGNATION BI-HP-15-10		LOCATION COORDINATES E = 1,077,412 N = 250,836		10. COORDINATE SYSTEM/DATUM State Plane, MSE (U.S. Ft.)		HORIZONTAL NAD83	
3. DRILLING AGENCY Corps of Engineers - CESAM		CONTRACTOR FILE NO.		11. MANUFACTURER'S DESIGNATION OF DRILL Vibrocure		<input type="checkbox"/> AUTO HAMMER <input type="checkbox"/> MANUAL HAMMER	
4. NAME OF DRILLER Construction Solutions International, Inc.				12. TOTAL SAMPLES 0		DISTURBED 0	
5. DIRECTION OF BORING <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED		DEG. FROM VERTICAL		13. TOTAL NUMBER CORE BOXES			
		BEARING		14. WATER DEPTH 36 Ft.			
6. THICKNESS OF OVERBURDEN N/A				15. DATE BORING 07-14-10		STARTED 07-14-10	
7. DEPTH DRILLED INTO ROCK N/A				16. ELEVATION TOP OF BORING -36.0 Ft.			
8. TOTAL DEPTH OF BORING 18.5 Ft.				17. TOTAL RECOVERY FOR BORING 100%			
				18. SIGNATURE AND TITLE OF INSPECTOR John Baehr, Geologist			
ELEV.	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS	SAMPLE	LABORATORY RESULTS		
-36.0	0.0		SAND, clayey, mostly fine-grained sand-sized quartz, some clay, gray (SC)				
				NS			
-54.5	18.5						
			NOTES: 1. Soils are field visually classified in accordance with the Unified Soils Classification System. 2. NS = Sample not submitted for laboratory analysis from this interval. 3. Seafloor elevation determined from USACE hydrographic survey completed June 2014.				

# Boring Designation BI-HP-16-10

DRILLING LOG		DIVISION South Atlantic		INSTALLATION Mobile District		SHEET 1 OF 1 SHEETS	
1. PROJECT MsCIP Barrier Island Restoration Horn Island Pass				9. SIZE AND TYPE OF BIT N/A			
2. BORING DESIGNATION BI-HP-16-10		LOCATION COORDINATES E = 1,075,650 N = 248,944		10. COORDINATE SYSTEM/DATUM State Plane, MSE (U.S. Ft.)		HORIZONTAL NAD83 VERTICAL NAVD88	
3. DRILLING AGENCY Corps of Engineers - CESAM		CONTRACTOR FILE NO.		11. MANUFACTURER'S DESIGNATION OF DRILL Vibrocure		<input type="checkbox"/> AUTO HAMMER <input type="checkbox"/> MANUAL HAMMER	
4. NAME OF DRILLER Construction Solutions International, Inc.				12. TOTAL SAMPLES 2		DISTURBED 2 UNDISTURBED (UD) 0	
5. DIRECTION OF BORING <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED		DEG. FROM VERTICAL		13. TOTAL NUMBER CORE BOXES			
		BEARING		14. WATER DEPTH 37 Ft.			
6. THICKNESS OF OVERBURDEN N/A				15. DATE BORING 07-14-10		STARTED 07-14-10 COMPLETED 07-14-10	
7. DEPTH DRILLED INTO ROCK N/A				16. ELEVATION TOP OF BORING -37.7 Ft.			
8. TOTAL DEPTH OF BORING 17.7 Ft.				17. TOTAL RECOVERY FOR BORING 100%			
				18. SIGNATURE AND TITLE OF INSPECTOR John Baehr, Geologist			
ELEV.	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS	SAMPLE	LABORATORY RESULTS		
-37.7	0.0						
-39.2	1.5		SAND, poorly-graded, mostly fine to medium-grained sand-sized quartz, lt. gray (SP)	A	Classification: SP-SM Color: 2.5Y 7/2-light gray D50: 0.2508 mm % Fines: 7		
-40.7	3.0		SAND, silty, mostly fine-grained sand-sized quartz, occ. clayey zones, lt. gray (SM)	B	Classification: SM Color: 2.5Y 7/2-light gray D50: 0.1831 mm % Fines: 26.7		
			SAND, clayey, mostly fine-grained sand-sized quartz, some clay, gray (SC)	NS			
-55.4	17.7						
			NOTES: 1. Soils are field visually classified in accordance with the Unified Soils Classification System. 2. NS = Sample not submitted for laboratory analysis from this interval. 3. Seafloor elevation determined from USACE hydrographic survey completed June 2014.				

# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	1.1	1.0	13.9	77.0	7.0	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
.375	100.0		
#4	98.9		
#10	97.9		
#20	95.7		
#40	84.0		
#60	49.8		
#100	19.7		
#200	7.0		

\* (no specification provided)

## Material Description

SAND, (SP-SM), medium to fine grained, with clay nodules and trace shell

## Atterberg Limits

PL= LL= PI=

## Coefficients

D<sub>90</sub>= 0.5037 D<sub>85</sub>= 0.4352 D<sub>60</sub>= 0.2883  
D<sub>50</sub>= 0.2508 D<sub>30</sub>= 0.1846 D<sub>15</sub>= 0.1306  
D<sub>10</sub>= 0.1026 C<sub>u</sub>= 2.81 C<sub>c</sub>= 1.15

## Classification

USCS= SP-SM AASHTO=

## Remarks

CADD CODE = CH10D965

Location: USACE Sample # BI-HP-16-10A  
Sample Number: TE Lab ID: 4593.46

Depth: 0.0 - 1.5 (ft.)

Date: 7/26/10

**Thompson Engineering**

**Mobile, Alabama**

Client: US Army Corps of Engineers

Project: Contract No. W91278-10-D-0026 - Task 03  
Mississippi Barrier Island Restoration Project

Project No: 10-2123-0009

Report No.

Tested By: G.Fancher

Checked By: R.Byrd



# Boring Designation BI-HP-17-10

DRILLING LOG		DIVISION South Atlantic		INSTALLATION Mobile District		SHEET 1 OF 1 SHEETS	
1. PROJECT MsCIP Barrier Island Restoration Horn Island Pass				9. SIZE AND TYPE OF BIT N/A			
2. BORING DESIGNATION BI-HP-17-10		LOCATION COORDINATES E = 1,074,355 N = 247,461		10. COORDINATE SYSTEM/DATUM State Plane, MSE (U.S. Ft.)		HORIZONTAL NAD83 VERTICAL NAVD88	
3. DRILLING AGENCY Corps of Engineers - CESAM		CONTRACTOR FILE NO.		11. MANUFACTURER'S DESIGNATION OF DRILL Vibrocure		<input type="checkbox"/> AUTO HAMMER <input type="checkbox"/> MANUAL HAMMER	
4. NAME OF DRILLER Construction Solutions International, Inc.				12. TOTAL SAMPLES 0		DISTURBED 0 UNDISTURBED (UD) 0	
5. DIRECTION OF BORING <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED		DEG. FROM VERTICAL		13. TOTAL NUMBER CORE BOXES			
		BEARING		14. WATER DEPTH 39 Ft.			
6. THICKNESS OF OVERBURDEN N/A				15. DATE BORING 07-15-10		STARTED 07-15-10 COMPLETED 07-15-10	
7. DEPTH DRILLED INTO ROCK N/A				16. ELEVATION TOP OF BORING -40.0 Ft.			
8. TOTAL DEPTH OF BORING 17.0 Ft.				17. TOTAL RECOVERY FOR BORING 100%			
				18. SIGNATURE AND TITLE OF INSPECTOR John Baehr, Geologist			
ELEV.	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS	SAMPLE	LABORATORY RESULTS		
-40.0	0.0		SAND, clayey, mostly fine-grained sand-sized quartz, trace shell fragments, gray (SC)				
				NS			
-57.0	17.0		NOTES: 1. Soils are field visually classified in accordance with the Unified Soils Classification System. 2. NS = Sample not submitted for laboratory analysis from this interval. 3. Seafloor elevation determined from USACE hydrographic survey completed June 2014.				

# Boring Designation BI-HP-18-10

DRILLING LOG		DIVISION South Atlantic		INSTALLATION Mobile District		SHEET 1 OF 1 SHEETS	
1. PROJECT MsCIP Barrier Island Restoration Horn Island Pass				9. SIZE AND TYPE OF BIT N/A			
2. BORING DESIGNATION BI-HP-18-10		LOCATION COORDINATES E = 1,075,845 N = 253,105		10. COORDINATE SYSTEM/DATUM State Plane, MSE (U.S. Ft.)		HORIZONTAL NAD83 VERTICAL NAVD88	
3. DRILLING AGENCY Corps of Engineers - CESAM		CONTRACTOR FILE NO.		11. MANUFACTURER'S DESIGNATION OF DRILL Vibrocure		<input type="checkbox"/> AUTO HAMMER <input type="checkbox"/> MANUAL HAMMER	
4. NAME OF DRILLER Construction Solutions International, Inc.				12. TOTAL SAMPLES 0		DISTURBED 0 UNDISTURBED (UD) 0	
5. DIRECTION OF BORING <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED		DEG. FROM VERTICAL		13. TOTAL NUMBER CORE BOXES			
		BEARING		14. WATER DEPTH 34 Ft.			
6. THICKNESS OF OVERBURDEN N/A				15. DATE BORING 07-15-10		STARTED 07-15-10 COMPLETED 07-15-10	
7. DEPTH DRILLED INTO ROCK N/A				16. ELEVATION TOP OF BORING -34.9 Ft.			
8. TOTAL DEPTH OF BORING 16.5 Ft.				17. TOTAL RECOVERY FOR BORING 100%			
				18. SIGNATURE AND TITLE OF INSPECTOR John Baehr, Geologist			
ELEV.	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS	SAMPLE	LABORATORY RESULTS		
-34.9	0.0						
			SAND, clayey, mostly fine-grained sand-sized quartz, trace, gray (SC)				
				NS			
-50.0	15.1						
-51.4	16.5		CLAY, lean, yellow brown (CL)				
			NOTES: 1. Soils are field visually classified in accordance with the Unified Soils Classification System. 2. NS = Sample not submitted for laboratory analysis from this interval. 3. Seafloor elevation determined from USACE hydrographic survey completed June 2014.				

# Boring Designation BI-HP-19-10

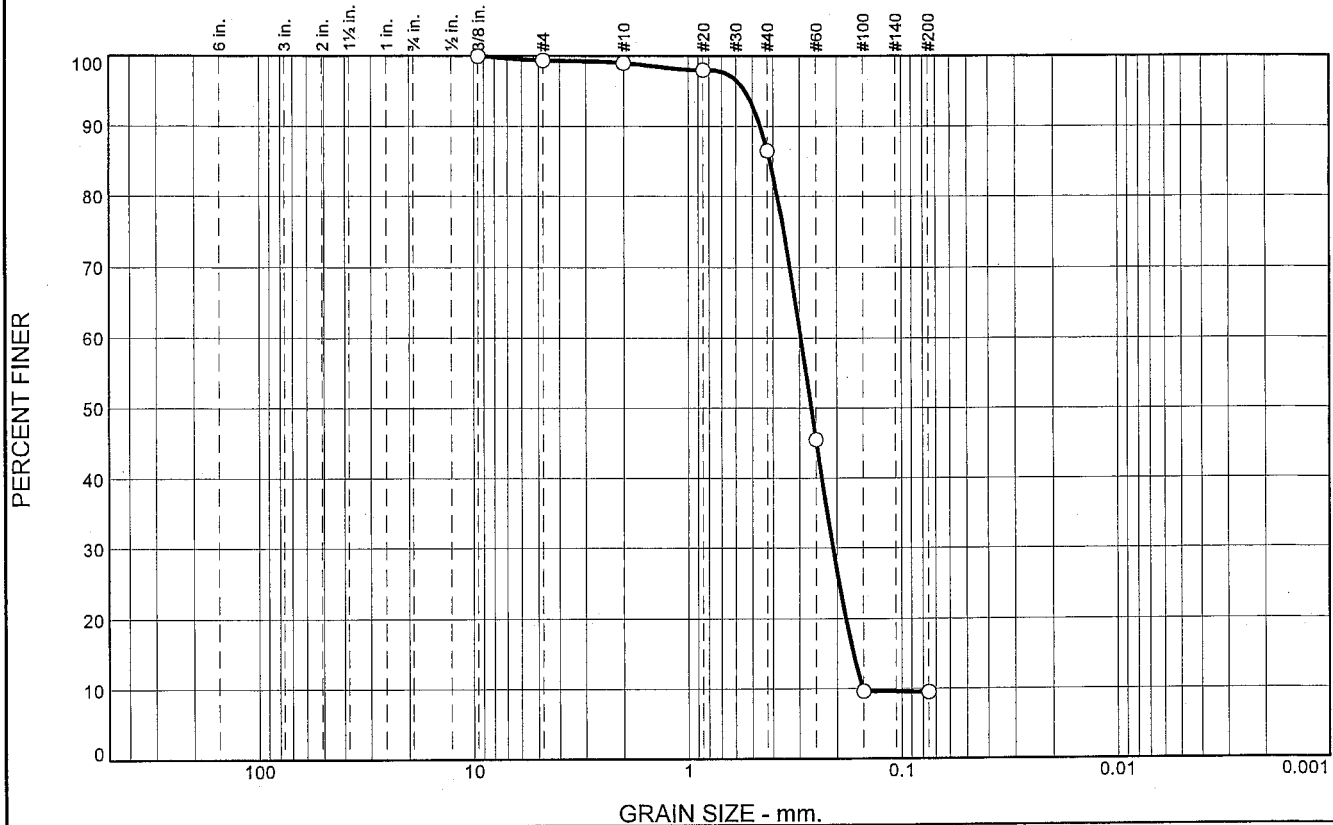
DRILLING LOG		DIVISION South Atlantic		INSTALLATION Mobile District		SHEET 1 OF 1 SHEETS	
1. PROJECT MsCIP Barrier Island Restoration Horn Island Pass				9. SIZE AND TYPE OF BIT N/A			
2. BORING DESIGNATION BI-HP-19-10		LOCATION COORDINATES E = 1,073,567 N = 253,241		10. COORDINATE SYSTEM/DATUM State Plane, MSE (U.S. Ft.)		HORIZONTAL NAD83	
3. DRILLING AGENCY Corps of Engineers - CESAM		CONTRACTOR FILE NO.		11. MANUFACTURER'S DESIGNATION OF DRILL Vibrocure		<input type="checkbox"/> AUTO HAMMER <input type="checkbox"/> MANUAL HAMMER	
4. NAME OF DRILLER Construction Solutions International, Inc.				12. TOTAL SAMPLES 0		DISTURBED 0	
5. DIRECTION OF BORING <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED		DEG. FROM VERTICAL		13. TOTAL NUMBER CORE BOXES			
		BEARING		14. WATER DEPTH 35 Ft.			
6. THICKNESS OF OVERBURDEN N/A				15. DATE BORING 07-15-10		COMPLETED 07-15-10	
7. DEPTH DRILLED INTO ROCK N/A				16. ELEVATION TOP OF BORING -35.9 Ft.			
8. TOTAL DEPTH OF BORING 18.1 Ft.				17. TOTAL RECOVERY FOR BORING 100%			
				18. SIGNATURE AND TITLE OF INSPECTOR John Baehr, Geologist			
ELEV.	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS	SAMPLE	LABORATORY RESULTS		
-35.9	0.0		SAND, clayey, mostly fine-grained sand-sized quartz, gray (SC)				
				NS			
-54.0	18.1						
			NOTES: 1. Soils are field visually classified in accordance with the Unified Soils Classification System. 2. NS = Sample not submitted for laboratory analysis from this interval. 3. Seafloor elevation determined from USACE hydrographic survey completed June 2014.				



# Boring Designation BI-HP-20-10

DRILLING LOG		DIVISION South Atlantic		INSTALLATION Mobile District		SHEET 1 OF 1 SHEETS	
1. PROJECT MsCIP Barrier Island Restoration Horn Island Pass				9. SIZE AND TYPE OF BIT N/A			
2. BORING DESIGNATION BI-HP-20-10		LOCATION COORDINATES E = 1,074,049 N = 251,370		10. COORDINATE SYSTEM/DATUM State Plane, MSE (U.S. Ft.)		HORIZONTAL NAD83 VERTICAL NAVD88	
3. DRILLING AGENCY Corps of Engineers - CESAM		CONTRACTOR FILE NO.		11. MANUFACTURER'S DESIGNATION OF DRILL Vibrocure		<input type="checkbox"/> AUTO HAMMER <input type="checkbox"/> MANUAL HAMMER	
4. NAME OF DRILLER Construction Solutions International, Inc.				12. TOTAL SAMPLES		DISTURBED 1 UNDISTURBED (UD) 0	
5. DIRECTION OF BORING <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED		DEG. FROM VERTICAL		13. TOTAL NUMBER CORE BOXES			
		BEARING		14. WATER DEPTH 36 Ft.			
6. THICKNESS OF OVERBURDEN N/A				15. DATE BORING		STARTED 07-15-10 COMPLETED 07-15-10	
7. DEPTH DRILLED INTO ROCK N/A				16. ELEVATION TOP OF BORING -35.9 Ft.			
8. TOTAL DEPTH OF BORING 17.6 Ft.				17. TOTAL RECOVERY FOR BORING 100%			
				18. SIGNATURE AND TITLE OF INSPECTOR John Baehr, Geologist			
ELEV.	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS	SAMPLE	LABORATORY RESULTS		
-35.9	0.0						
-37.5	1.6		SAND, poorly-graded, mostly fine to medium-grained sand-sized quartz, trace shell fragments, trace of clay balls, lt. gray (SP)	A	Classification: SP-SM Color: 2.5Y 7/1-light gray D50: 0.2632 mm % Fines: 9.5		
			SAND, clayey, mostly fine-grained sand-sized quartz, trace shell fragments, gray (SC)	NS			
-53.5	17.6						
			NOTES: 1. Soils are field visually classified in accordance with the Unified Soils Classification System. 2. NS = Sample not submitted for laboratory analysis from this interval. 3. Seafloor elevation determined from USACE hydrographic survey completed June 2014.				

# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.6	0.4	12.5	77.0	9.5	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
.375	100.0		
#4	99.4		
#10	99.0		
#20	98.0		
#40	86.5		
#60	45.5		
#100	9.6		
#200	9.5		

\* (no specification provided)

**Material Description**  
SAND, (SP-SM), medium to fine grained

**Atterberg Limits**  
PL= LL= PI=

**Coefficients**  
D<sub>90</sub>= 0.4590 D<sub>85</sub>= 0.4135 D<sub>60</sub>= 0.2950  
D<sub>50</sub>= 0.2632 D<sub>30</sub>= 0.2082 D<sub>15</sub>= 0.1676  
D<sub>10</sub>= 0.1514 C<sub>u</sub>= 1.95 C<sub>c</sub>= 0.97

**Classification**  
USCS= SP-SM AASHTO=

**Remarks**  
CADD CODE = CH10D965

Location: USACE Sample # BI-HP-20-10A  
Sample Number: TE Lab ID: 4593.48

Depth: 0.0 - 1.6 (ft.)

Date: 7/26/10



**Thompson Engineering**  
**Mobile, Alabama**

Client: US Army Corps of Engineers  
Project: Contract No. W91278-10-D-0026 - Task 03  
Mississippi Barrier Island Restoration Project  
Project No: 10-2123-0009 Report No.

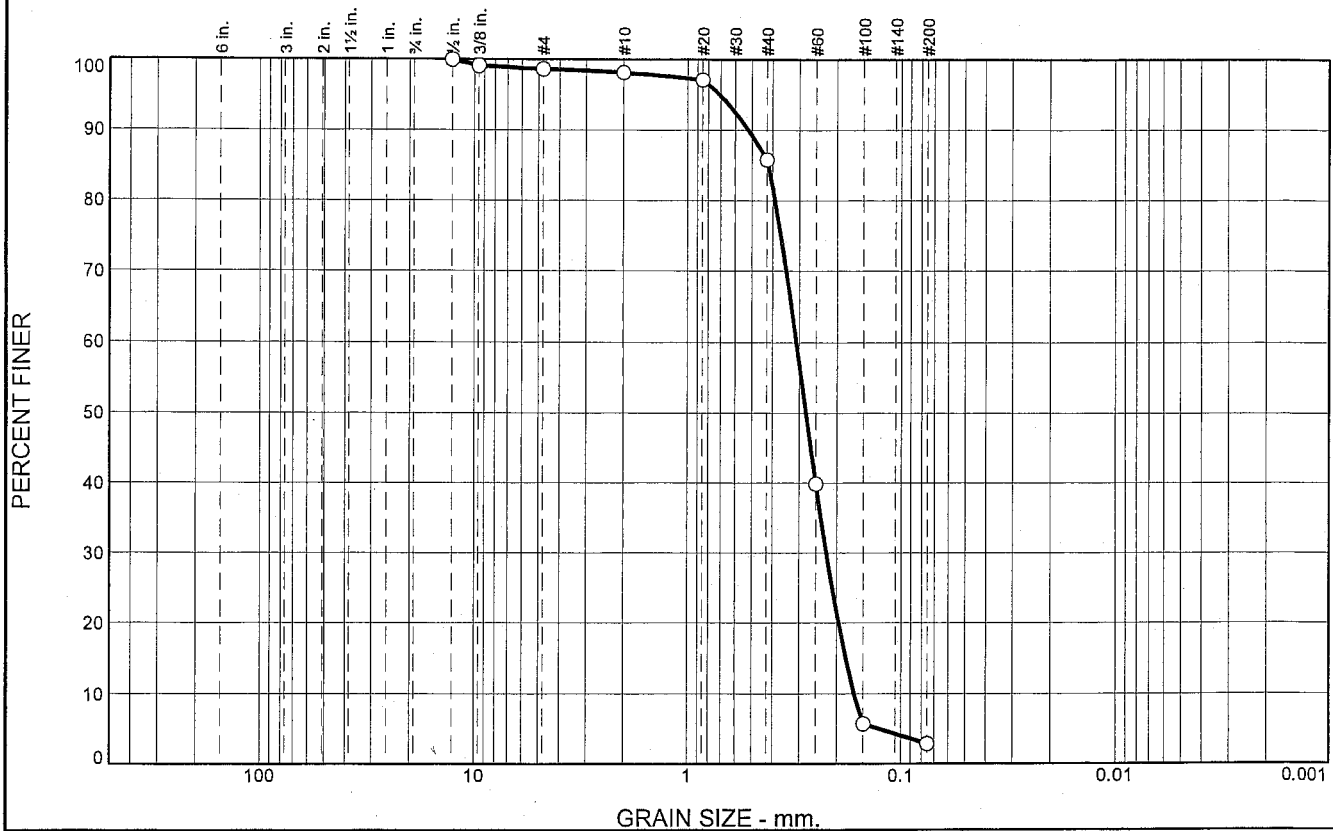
Tested By: G.Fancher

Checked By: R.Byrd

# Boring Designation BI-HP-21-10

DRILLING LOG		DIVISION South Atlantic		INSTALLATION Mobile District		SHEET 1 OF 1 SHEETS	
1. PROJECT MsCIP Barrier Island Restoration Horn Island Pass				9. SIZE AND TYPE OF BIT N/A			
2. BORING DESIGNATION BI-HP-21-10		LOCATION COORDINATES E = 1,072,441 N = 250,020		10. COORDINATE SYSTEM/DATUM State Plane, MSE (U.S. Ft.)		HORIZONTAL NAD83 VERTICAL NAVD88	
3. DRILLING AGENCY Corps of Engineers - CESAM		CONTRACTOR FILE NO.		11. MANUFACTURER'S DESIGNATION OF DRILL Vibrocure		<input type="checkbox"/> AUTO HAMMER <input type="checkbox"/> MANUAL HAMMER	
4. NAME OF DRILLER Construction Solutions International, Inc.				12. TOTAL SAMPLES 2		DISTURBED 2 UNDISTURBED (UD) 0	
5. DIRECTION OF BORING <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED		DEG. FROM VERTICAL		13. TOTAL NUMBER CORE BOXES			
		BEARING		14. WATER DEPTH 35 Ft.			
6. THICKNESS OF OVERBURDEN N/A				15. DATE BORING 07-15-10		STARTED 07-15-10 COMPLETED 07-15-10	
7. DEPTH DRILLED INTO ROCK N/A				16. ELEVATION TOP OF BORING -34.5 Ft.			
8. TOTAL DEPTH OF BORING 18.4 Ft.				17. TOTAL RECOVERY FOR BORING 100%			
				18. SIGNATURE AND TITLE OF INSPECTOR John Baehr, Geologist			
ELEV.	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS	SAMPLE	LABORATORY RESULTS		
-34.5	0.0						
			SAND, poorly-graded, mostly fine-grained sand-sized quartz, trace shell fragments, occ. clay balls, lt. gray (SP)	A	Classification: SP Color: 2.5Y 8/1-white D50: 0.2786 mm % Fines: 2.9		
				B	Classification: SP-SM Color: 2.5Y 7/2-light gray D50: 0.2702 mm % Fines: 7.9		
-40.4	5.9		SAND, clayey, mostly fine-grained sand-sized quartz, gray (SC)	NS			
-52.9	18.4						
			NOTES: 1. Soils are field visually classified in accordance with the Unified Soils Classification System. 2. NS = Sample not submitted for laboratory analysis from this interval. 3. Seafloor elevation determined from USACE hydrographic survey completed June 2014.				

# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	1.4	0.4	12.5	82.8	2.9	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
.500	100.0		
.375	99.1		
#4	98.6		
#10	98.2		
#20	97.1		
#40	85.7		
#60	39.8		
#100	5.7		
#200	2.9		

**Material Description**  
SAND, (SP), medium to fine grained, with trace shell

**Atterberg Limits**  
 PL=      LL=      PI=

**Coefficients**  
 D<sub>90</sub>= 0.5192      D<sub>85</sub>= 0.4198      D<sub>60</sub>= 0.3093  
 D<sub>50</sub>= 0.2786      D<sub>30</sub>= 0.2232      D<sub>15</sub>= 0.1811  
 D<sub>10</sub>= 0.1655      C<sub>u</sub>= 1.87      C<sub>c</sub>= 0.97

**Classification**  
 USCS= SP      AASHTO=

**Remarks**  
 CADD CODE = CH10D965

\* (no specification provided)

Location: USACE Sample # BI-HP-21-10A  
 Sample Number: TE Lab ID: 4593.49

Depth: 0.0 - 3.0 (ft.)

Date: 7/26/10

**Thompson Engineering**  
  
**Mobile, Alabama**

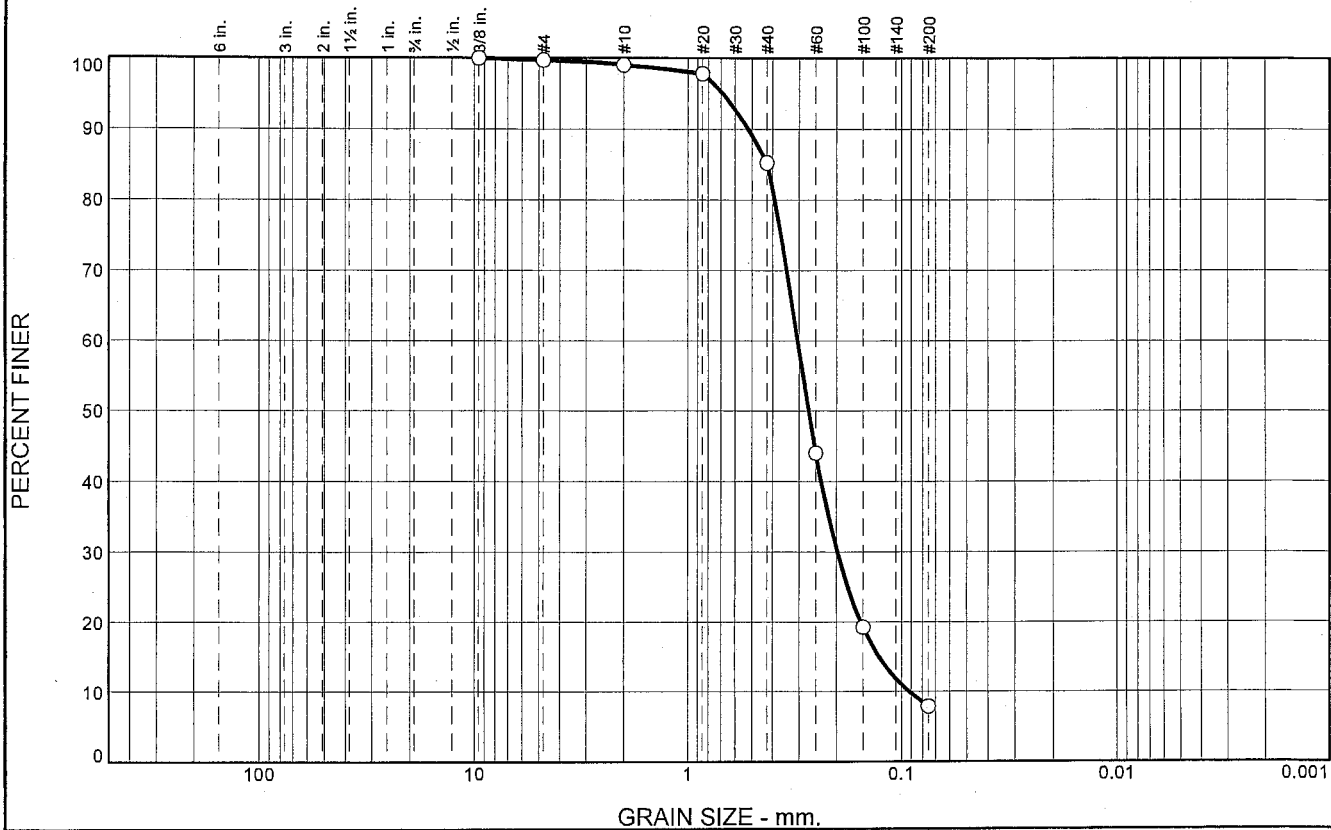
**Client:** US Army Corps of Engineers  
**Project:** Contract No. W91278-10-D-0026 - Task 03  
 Mississippi Barrier Island Restoration Project  
**Project No:** 10-2123-0009

**Report No.**

Tested By: G.Fancher

Checked By: R.Byrd

# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.3	0.7	13.8	77.3	7.9	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
.375	100.0		
#4	99.7		
#10	99.0		
#20	97.8		
#40	85.2		
#60	44.0		
#100	19.2		
#200	7.9		

\* (no specification provided)

## Material Description

SAND, (SP-SM), medium to fine grained, with clay nodules

## Atterberg Limits

PL= LL= PI=

## Coefficients

D<sub>90</sub>= 0.5205 D<sub>85</sub>= 0.4233 D<sub>60</sub>= 0.3048  
D<sub>50</sub>= 0.2702 D<sub>30</sub>= 0.1982 D<sub>15</sub>= 0.1267  
D<sub>10</sub>= 0.0920 C<sub>u</sub>= 3.31 C<sub>c</sub>= 1.40

## Classification

USCS= SP-SM AASHTO=

## Remarks

CADD CODE = CH10D965

Location: USACE Sample # BI-HP-21-10B  
Sample Number: TE Lab ID: 4593.50

Depth: 3.0 - 5.9 (ft.)

Date: 7/26/10

**Thompson Engineering**  
**Mobile, Alabama**

Client: US Army Corps of Engineers  
Project: Contract No. W91278-10-D-0026 - Task 03  
Mississippi Barrier Island Restoration Project  
Project No: 10-2123-0009 Report No.

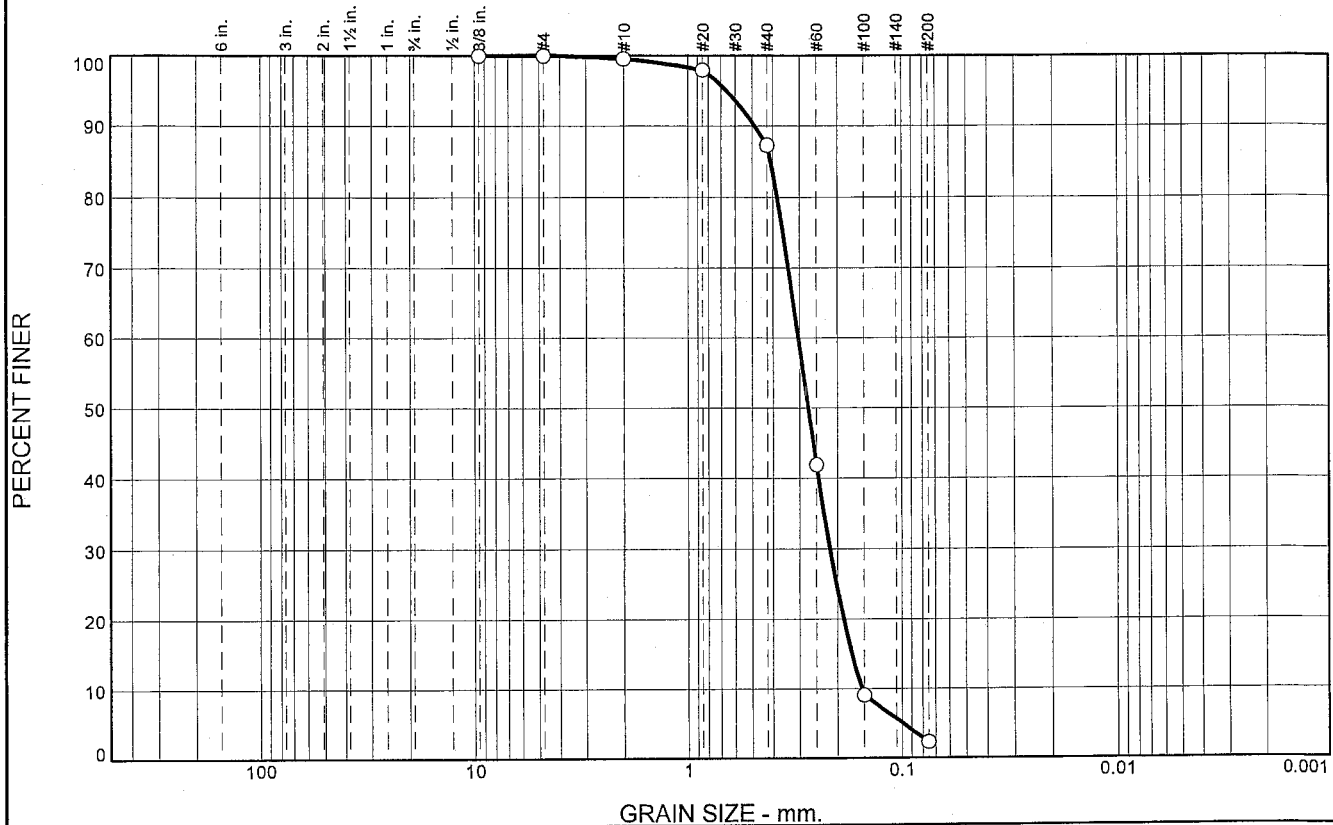
Tested By: G.Fancher

Checked By: R.Byrd

# Boring Designation BI-HP-22-10

DRILLING LOG		DIVISION South Atlantic		INSTALLATION Mobile District		SHEET 1 OF 1 SHEETS	
1. PROJECT MsCIP Barrier Island Restoration Horn Island Pass				9. SIZE AND TYPE OF BIT N/A			
2. BORING DESIGNATION BI-HP-22-10		LOCATION COORDINATES E = 1,072,851 N = 248,861		10. COORDINATE SYSTEM/DATUM State Plane, MSE (U.S. Ft.)		HORIZONTAL NAD83 VERTICAL NAVD88	
3. DRILLING AGENCY Corps of Engineers - CESAM		CONTRACTOR FILE NO.		11. MANUFACTURER'S DESIGNATION OF DRILL Vibrocure		<input type="checkbox"/> AUTO HAMMER <input type="checkbox"/> MANUAL HAMMER	
4. NAME OF DRILLER Construction Solutions International, Inc.				12. TOTAL SAMPLES 2		DISTURBED 2 UNDISTURBED (UD) 0	
5. DIRECTION OF BORING <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED		DEG. FROM VERTICAL		13. TOTAL NUMBER CORE BOXES			
		BEARING		14. WATER DEPTH 34 Ft.			
6. THICKNESS OF OVERBURDEN N/A				15. DATE BORING 07-15-10		STARTED 07-15-10 COMPLETED 07-15-10	
7. DEPTH DRILLED INTO ROCK N/A				16. ELEVATION TOP OF BORING -34.6 Ft.			
8. TOTAL DEPTH OF BORING 19.1 Ft.				17. TOTAL RECOVERY FOR BORING 100%			
				18. SIGNATURE AND TITLE OF INSPECTOR John Baehr, Geologist			
ELEV.	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS	SAMPLE	LABORATORY RESULTS		
-34.6	0.0						
-37.6	3.0		SAND, poorly-graded, mostly fine to medium-grained sand-sized quartz, trace shell fragments, occ. clay balls, lt. gray (SP)	A	Classification: SP Color: 2.5Y 7/1-light gray D50: 0.2733 mm % Fines: 2.3		
-41.0	6.4			B	Classification: SP-SM Color: 2.5Y 7/1-light gray D50: 0.2499 mm % Fines: 9.2		
-53.7	19.1		SAND, clayey, mostly fine-grained sand-sized quartz, gray (SC)	NS			
			NOTES:				
			1. Soils are field visually classified in accordance with the Unified Soils Classification System.				
			2. NS = Sample not submitted for laboratory analysis from this interval.				
			3. Seafloor elevation determined from USACE hydrographic survey completed June 2014.				

# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.0	0.4	12.3	85.0	2.3	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
.375	100.0		
#4	100.0		
#10	99.6		
#20	98.0		
#40	87.3		
#60	41.9		
#100	9.0		
#200	2.3		

\* (no specification provided)

**Material Description**  
SAND, (SP), medium to fine grained

**Atterberg Limits**  
PL= LL= PI=

**Coefficients**  
D<sub>90</sub>= 0.4853 D<sub>85</sub>= 0.4094 D<sub>60</sub>= 0.3038  
D<sub>50</sub>= 0.2733 D<sub>30</sub>= 0.2164 D<sub>15</sub>= 0.1714  
D<sub>10</sub>= 0.1538 C<sub>u</sub>= 1.98 C<sub>c</sub>= 1.00

**Classification**  
USCS= SP AASHTO=

**Remarks**  
CADD CODE = CH10D965

Location: USACE Sample # BI-HP-22-10A  
Sample Number: TE Lab ID: 4593.51

Depth: 0.0 - 3.0 (ft.)

Date: 7/26/10

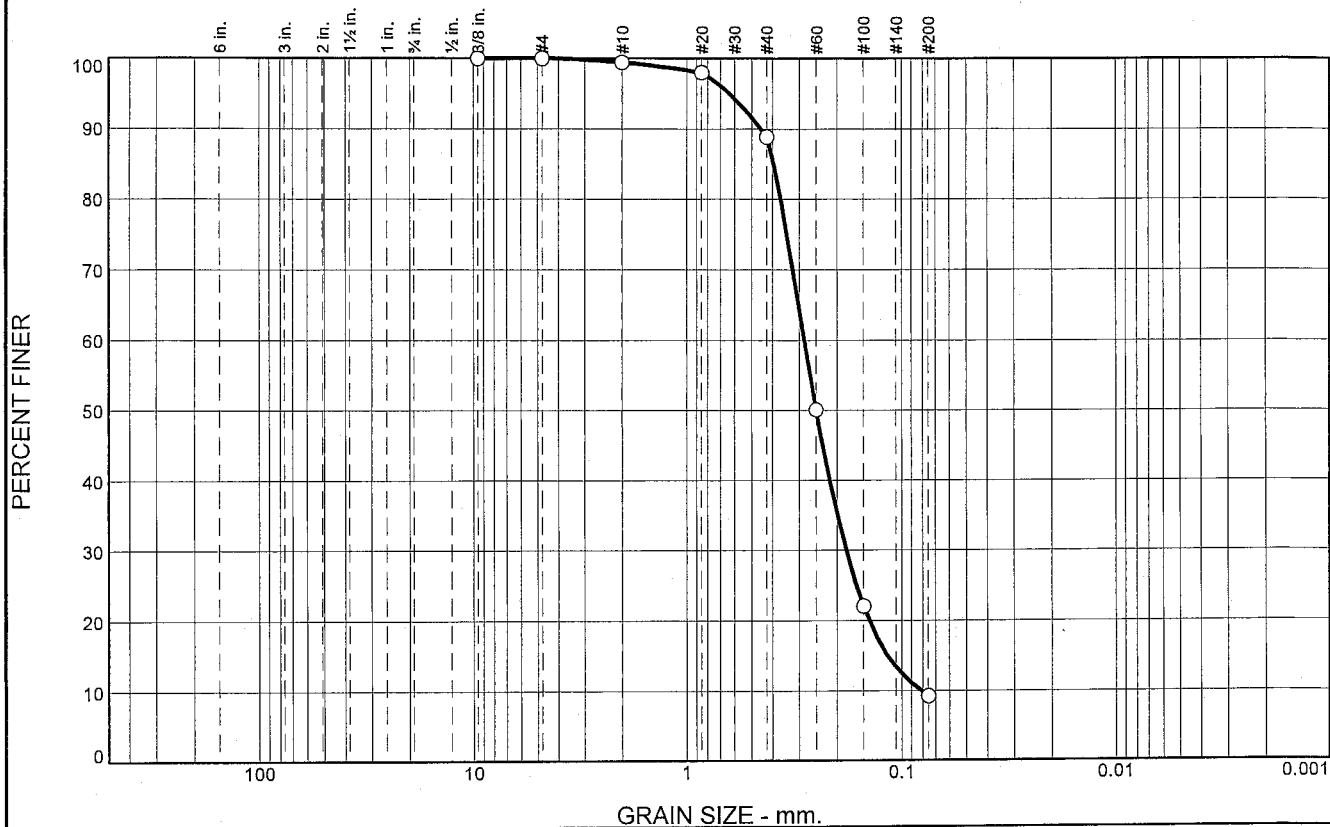
**Thompson Engineering**  
**Mobile, Alabama**

Client: US Army Corps of Engineers  
Project: Contract No. W91278-10-D-0026 - Task 03  
Mississippi Barrier Island Restoration Project  
Project No: 10-2123-0009 Report No.

Tested By: G.Fancher

Checked By: R.Byrd

# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.0	0.6	10.6	79.6	9.2	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
.375	100.0		
#4	100.0		
#10	99.4		
#20	98.0		
#40	88.8		
#60	50.0		
#100	22.0		
#200	9.2		

\* (no specification provided)

**Material Description**  
SAND, (SP-SM), medium to fine grained, with clay nodules

**Atterberg Limits**  
PL=      LL=      PI=

**Coefficients**  
D<sub>90</sub>= 0.4533      D<sub>85</sub>= 0.3966      D<sub>60</sub>= 0.2841  
D<sub>50</sub>= 0.2499      D<sub>30</sub>= 0.1809      D<sub>15</sub>= 0.1158  
D<sub>10</sub>= 0.0810      C<sub>u</sub>= 3.51      C<sub>c</sub>= 1.42

**Classification**  
USCS= SP-SM      AASHTO=

**Remarks**  
CADD CODE = CH10D965

Location: USACE Sample # BI-HP-22-10B  
Sample Number: TE Lab ID: 4593.52

Depth: 3.0 - 6.4 (ft.)

Date: 7/26/10

**Thompson Engineering**  
  
**Mobile, Alabama**

Client: US Army Corps of Engineers  
Project: Contract No. W91278-10-D-0026 - Task 03  
Mississippi Barrier Island Restoration Project  
Project No: 10-2123-0009      Report No.

Tested By: G.Fancher

Checked By: R.Byrd



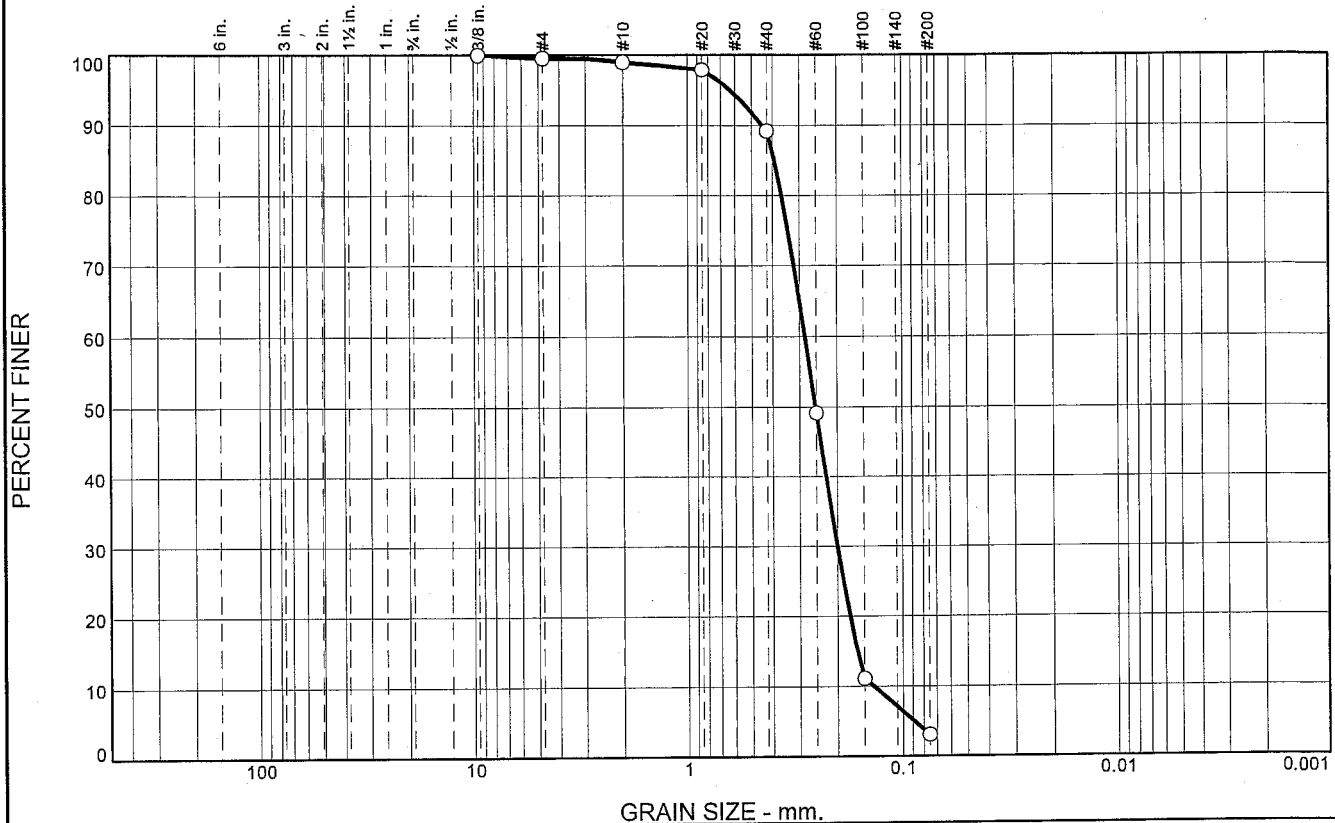
# Boring Designation BI-HP-23-10

DRILLING LOG		DIVISION South Atlantic		INSTALLATION Mobile District		SHEET 1 OF 1 SHEETS	
1. PROJECT MsCIP Barrier Island Restoration Horn Island Pass				9. SIZE AND TYPE OF BIT N/A			
2. BORING DESIGNATION BI-HP-23-10		LOCATION COORDINATES E = 1,072,094 N = 248,186		10. COORDINATE SYSTEM/DATUM State Plane, MSE (U.S. Ft.)		HORIZONTAL NAD83 VERTICAL NAVD88	
3. DRILLING AGENCY Corps of Engineers - CESAM		CONTRACTOR FILE NO.		11. MANUFACTURER'S DESIGNATION OF DRILL Vibrocure		<input type="checkbox"/> AUTO HAMMER <input type="checkbox"/> MANUAL HAMMER	
4. NAME OF DRILLER Construction Solutions International, Inc.				12. TOTAL SAMPLES 2		DISTURBED 2 UNDISTURBED (UD) 0	
5. DIRECTION OF BORING <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED		DEG. FROM VERTICAL		13. TOTAL NUMBER CORE BOXES			
		BEARING		14. WATER DEPTH 37 Ft.			
6. THICKNESS OF OVERBURDEN N/A				15. DATE BORING 07-15-10		STARTED 07-15-10 COMPLETED 07-15-10	
7. DEPTH DRILLED INTO ROCK N/A				16. ELEVATION TOP OF BORING -37.3 Ft.			
8. TOTAL DEPTH OF BORING 16.1 Ft.				17. TOTAL RECOVERY FOR BORING 100%			
				18. SIGNATURE AND TITLE OF INSPECTOR John Baehr, Geologist			

ELEV.	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS	SAMPLE	LABORATORY RESULTS
-37.3	0.0				
			SAND, poorly-graded, mostly fine-grained sand-sized quartz, trace shell fragments, occ. clay balls, lt. gray (SP)	A	Classification: SP Color: 2.5Y 7/1-light gray D50: 0.2524 mm % Fines: 3.1
-40.7	3.4				
-41.5	4.2		SAND, silty, mostly fine-grained sand-sized quartz, trace shell fragments, occ. clay balls, gray (SM)	B	Classification: SM Color: 2.5Y 6/2-light brownish gray D50: 0.2126 mm % Fines: 12
			SAND, clayey, mostly fine-grained sand-sized quartz, trace shell fragments (SC)	NS	
-53.4	16.1				
NOTES: 1. Soils are field visually classified in accordance with the Unified Soils Classification System. 2. NS = Sample not submitted for laboratory analysis from this interval. 3. Seafloor elevation determined from USACE hydrographic survey completed June 2014.					

# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.5	0.5	9.8	86.1	3.1	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
.375	100.0		
#4	99.5		
#10	99.0		
#20	97.9		
#40	89.2		
#60	49.2		
#100	11.1		
#200	3.1		

\* (no specification provided)

**Material Description**  
SAND, (SP), fine grained, with clay nodules

**Atterberg Limits**  
PL=      LL=      PI=

**Coefficients**  
 D<sub>90</sub>= 0.4450      D<sub>85</sub>= 0.3929      D<sub>60</sub>= 0.2827  
 D<sub>50</sub>= 0.2524      D<sub>30</sub>= 0.1999      D<sub>15</sub>= 0.1614  
 D<sub>10</sub>= 0.1363      C<sub>u</sub>= 2.07      C<sub>c</sub>= 1.04

**Classification**  
USCS= SP      AASHTO=

**Remarks**  
CADD CODE = CH10D965

Location: USACE Sample # BI-HP-23-10A  
Sample Number: TE Lab ID: 4593.53

Depth: 0.0 - 3.4 (ft.)

Date: 7/26/10

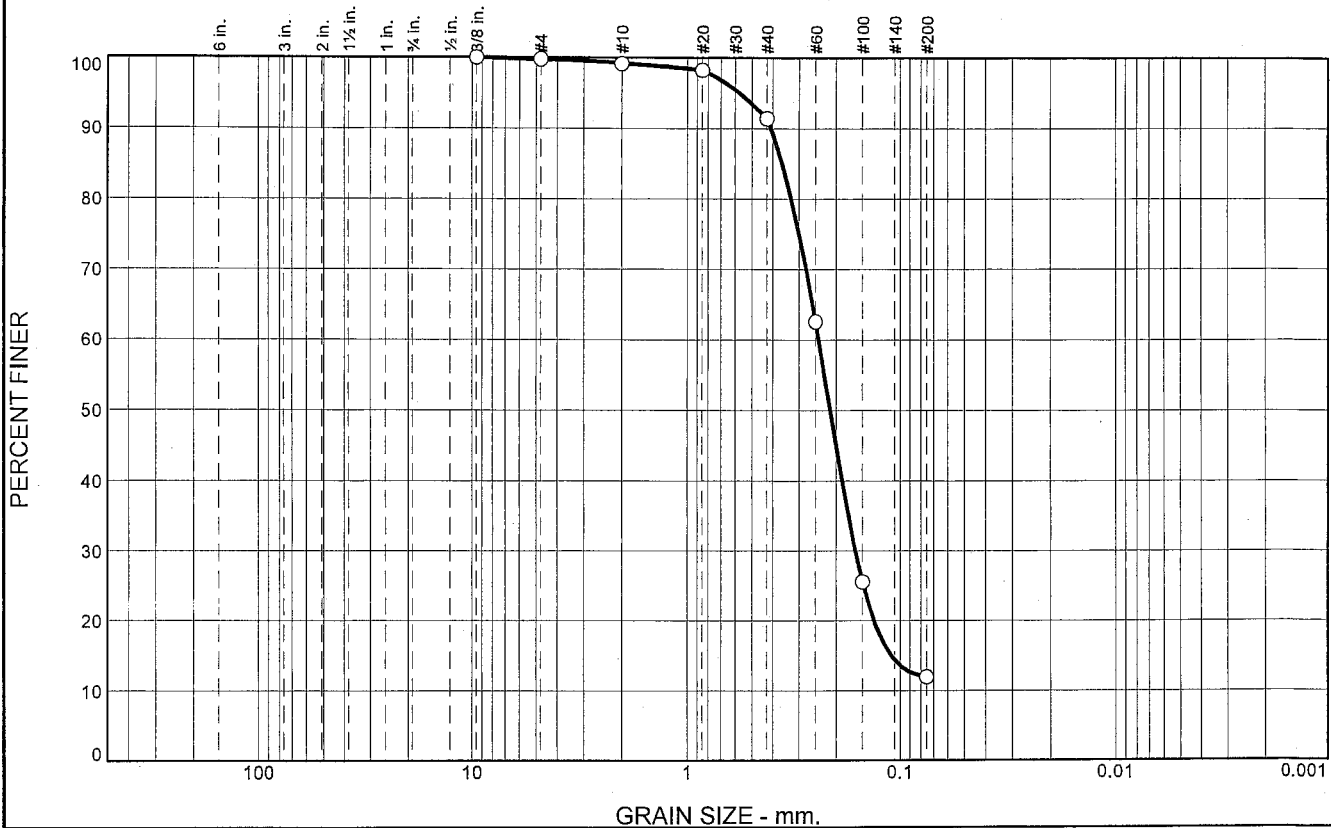
**Thompson Engineering**  
  
**Mobile, Alabama**

Client: US Army Corps of Engineers  
Project: Contract No. W91278-10-D-0026 - Task 03  
Mississippi Barrier Island Restoration Project  
Project No: 10-2123-0009      Report No.

Tested By: G.Fancher

Checked By: R.Byrd

# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.2	0.6	7.8	79.4	12.0	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
.375	100.0		
#4	99.8		
#10	99.2		
#20	98.2		
#40	91.4		
#60	62.6		
#100	25.5		
#200	12.0		

\* (no specification provided)

**Material Description**  
SILTY SAND, (SM), fine grained, with clay nodules

**Atterberg Limits**  
 PL=                      LL=                      PI=  
**Coefficients**  
 D<sub>90</sub>= 0.4080      D<sub>85</sub>= 0.3612      D<sub>60</sub>= 0.2416  
 D<sub>50</sub>= 0.2126      D<sub>30</sub>= 0.1620      D<sub>15</sub>= 0.1102  
 D<sub>10</sub>=                      C<sub>u</sub>=                      C<sub>c</sub>=

**Classification**  
USCS= SM                      AASHTO=

**Remarks**  
CADD CODE = CH10D965

Location: USACE Sample # BI-HP-23-10B  
Sample Number: TE Lab ID: 4593.54

Depth: 3.4 - 4.2 (ft.)

Date: 7/26/10

**Thompson Engineering**  
  
**Mobile, Alabama**

Client: US Army Corps of Engineers  
Project: Contract No. W91278-10-D-0026 - Task 03  
Mississippi Barrier Island Restoration Project  
Project No: 10-2123-0009      Report No.

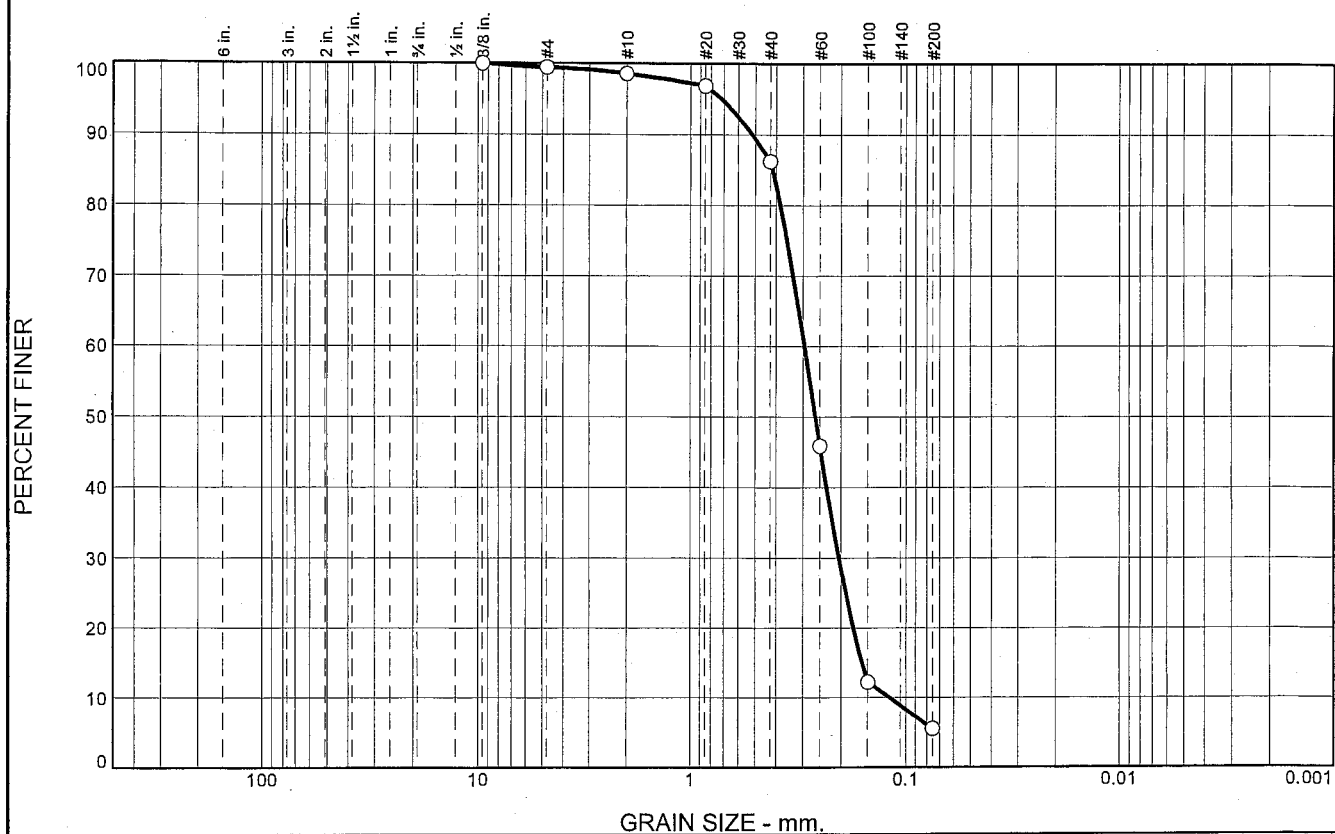
Tested By: G.Fancher

Checked By: R.Byrd

# Boring Designation BI-HP-24-10

DRILLING LOG		DIVISION South Atlantic		INSTALLATION Mobile District		SHEET 1 OF 1 SHEETS	
1. PROJECT MsCIP Barrier Island Restoration Horn Island Pass				9. SIZE AND TYPE OF BIT N/A			
2. BORING DESIGNATION BI-HP-24-10		LOCATION COORDINATES E = 1,075,190 N = 249,681		10. COORDINATE SYSTEM/DATUM State Plane, MSE (U.S. Ft.)		HORIZONTAL NAD83 VERTICAL NAVD88	
3. DRILLING AGENCY Corps of Engineers - CESAM		CONTRACTOR FILE NO.		11. MANUFACTURER'S DESIGNATION OF DRILL Vibrocure		<input type="checkbox"/> AUTO HAMMER <input type="checkbox"/> MANUAL HAMMER	
4. NAME OF DRILLER Construction Solutions International, Inc.				12. TOTAL SAMPLES 2		DISTURBED 2 UNDISTURBED (UD) 0	
5. DIRECTION OF BORING <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED		DEG. FROM VERTICAL		13. TOTAL NUMBER CORE BOXES			
		BEARING		14. WATER DEPTH 33 Ft.			
6. THICKNESS OF OVERBURDEN N/A				15. DATE BORING 07-15-10		STARTED 07-15-10 COMPLETED 07-15-10	
7. DEPTH DRILLED INTO ROCK N/A				16. ELEVATION TOP OF BORING -33.6 Ft.			
8. TOTAL DEPTH OF BORING 18.6 Ft.				17. TOTAL RECOVERY FOR BORING 100%			
				18. SIGNATURE AND TITLE OF INSPECTOR John Baehr, Geologist			
ELEV.	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS	SAMPLE	LABORATORY RESULTS		
-33.6	0.0						
			SAND, poorly-graded, mostly fine-grained sand-sized quartz, trace shell fragments, occ. clay balls, lt. gray (SP)	A	Classification: SP-SM Color: 2.5Y 6/2-light brownish gray D50: 0.2625 mm % Fines: 5.5		
				B	Classification: SP-SM Color: 2.5Y 7/1-light gray D50: 0.2557 mm % Fines: 7.1		
-40.3	6.7						
			SAND, clayey, mostly fine-grained sand-sized quartz, gray (SC)	NS			
-52.2	18.6						
			NOTES: 1. Soils are field visually classified in accordance with the Unified Soils Classification System. 2. NS = Sample not submitted for laboratory analysis from this interval. 3. Seafloor elevation determined from USACE hydrographic survey completed June 2014.				

# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.6	0.9	12.3	80.7	5.5	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
.375	100.0		
#4	99.4		
#10	98.5		
#20	96.9		
#40	86.2		
#60	45.9		
#100	12.2		
#200	5.5		

\* (no specification provided)

**Material Description**  
SAND, (SP-SM), medium to fine grained, with clay nodules

**Atterberg Limits**  
PL= LL= PI=

**Coefficients**  
D<sub>90</sub>= 0.5157 D<sub>85</sub>= 0.4157 D<sub>60</sub>= 0.2953  
D<sub>50</sub>= 0.2625 D<sub>30</sub>= 0.2042 D<sub>15</sub>= 0.1597  
D<sub>10</sub>= 0.1192 C<sub>u</sub>= 2.48 C<sub>c</sub>= 1.18

**Classification**  
USCS= SP-SM AASHTO=

**Remarks**  
CADD CODE = CH10D965

Location: USACE Sample # BI-HP-24-10A  
Sample Number: TE Lab ID: 4593.55

Depth: 0.0 - 3.4 (ft.)

Date: 7/26/10

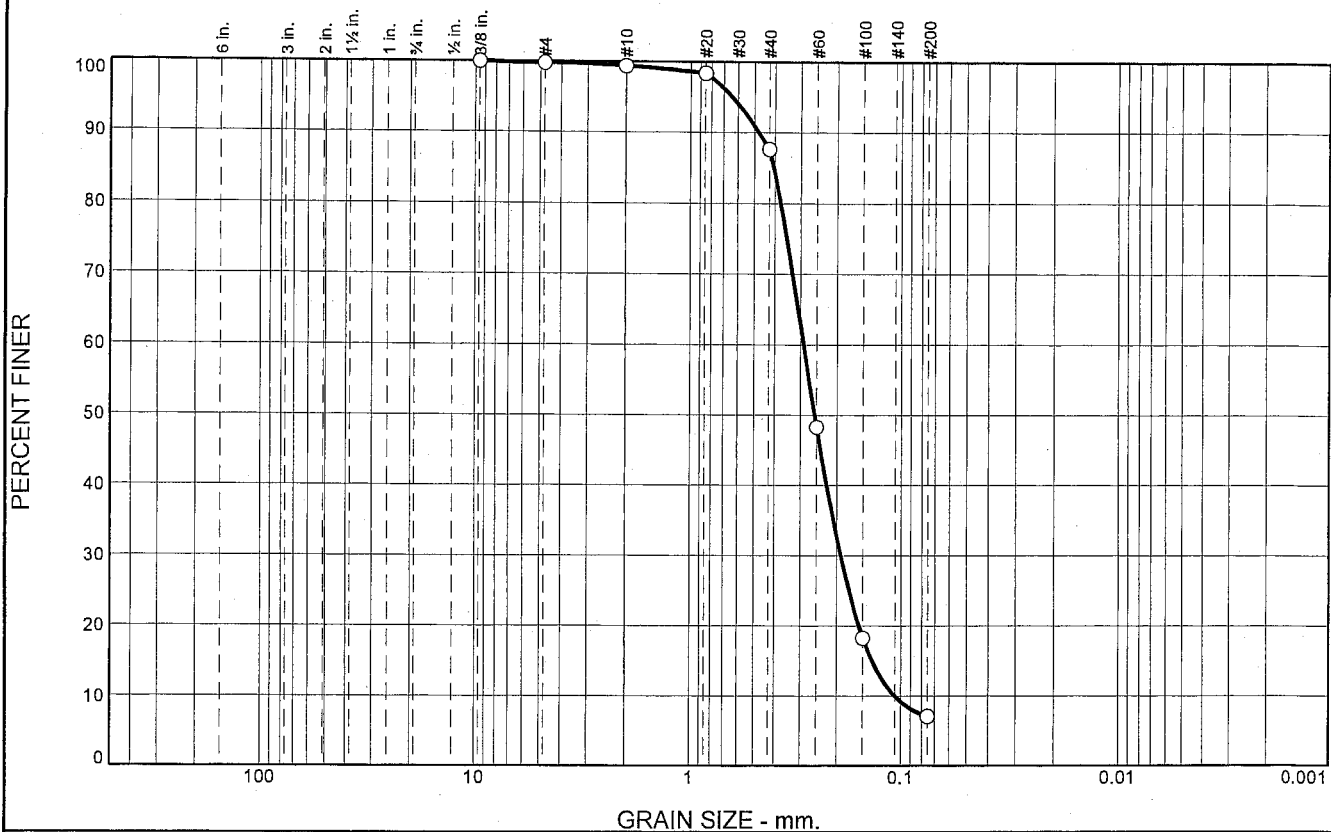
**Thompson Engineering**  
**Mobile, Alabama**

Client: US Army Corps of Engineers  
Project: Contract No. W91278-10-D-0026 - Task 03  
Mississippi Barrier Island Restoration Project  
Project No: 10-2123-0009 Report No.

Tested By: G.Fancher

Checked By: R.Byrd

# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.2	0.4	11.8	80.5	7.1	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
.375	100.0		
#4	99.8		
#10	99.4		
#20	98.4		
#40	87.6		
#60	48.2		
#100	18.3		
#200	7.1		

\* (no specification provided)

## Material Description

SAND, (SP-SM), medium to fine grained, with clay nodules

## Atterberg Limits

PL= LL= PI=

## Coefficients

D<sub>90</sub>= 0.4764 D<sub>85</sub>= 0.4053 D<sub>60</sub>= 0.2894  
D<sub>50</sub>= 0.2557 D<sub>30</sub>= 0.1913 D<sub>15</sub>= 0.1359  
D<sub>10</sub>= 0.1069 C<sub>u</sub>= 2.71 C<sub>c</sub>= 1.18

## Classification

USCS= SP-SM AASHTO=

## Remarks

CADD CODE = CH10D965

Location: USACE Sample # BI-HP-24-10B  
Sample Number: TE Lab ID: 4593.56

Depth: 3.4 - 6.7 (ft.)

Date: 7/26/10

**Thompson Engineering**

**Mobile, Alabama**

Client: US Army Corps of Engineers

Project: Contract No. W91278-10-D-0026 - Task 03  
Mississippi Barrier Island Restoration Project

Project No: 10-2123-0009

Report No.

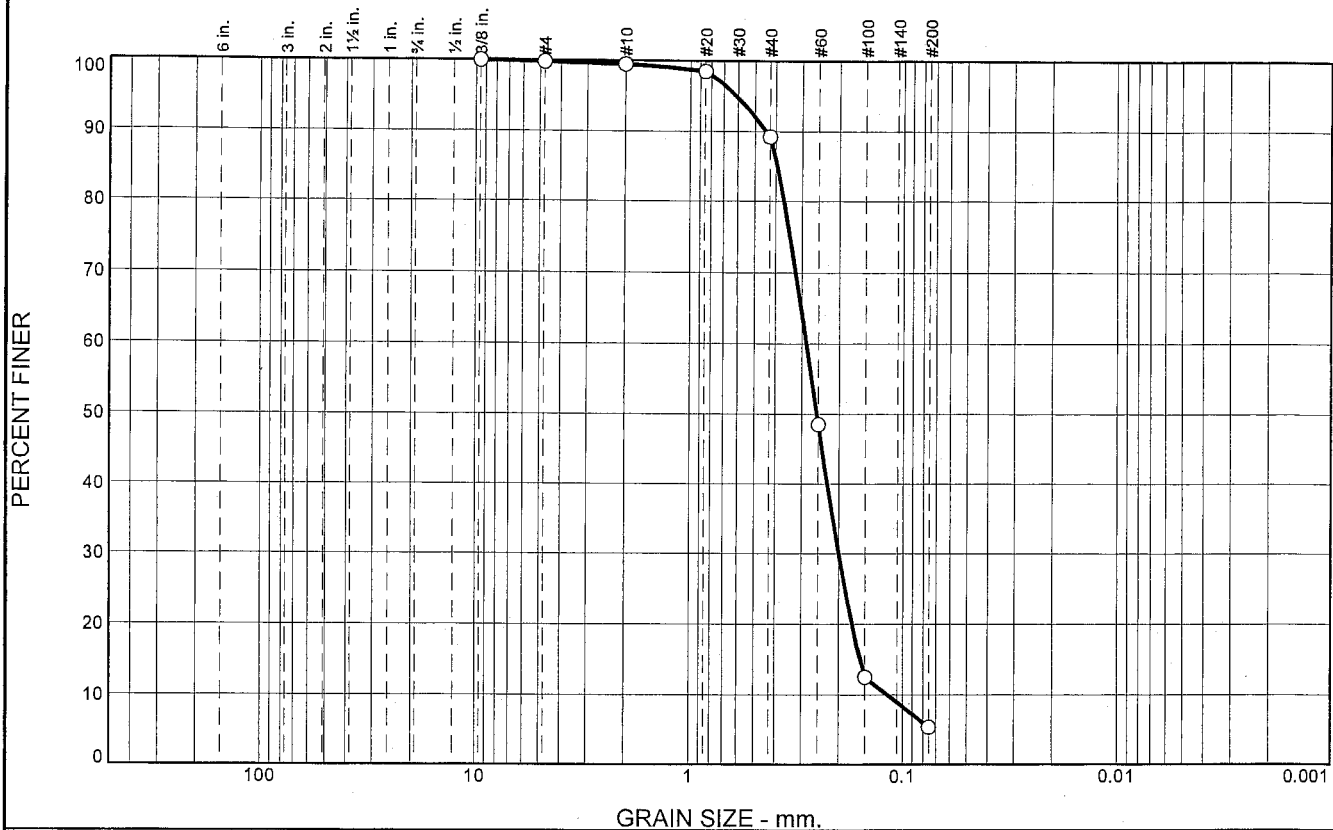
Tested By: G.Fancher

Checked By: R.Byrd

# Boring Designation BI-HP-25-10

DRILLING LOG		DIVISION South Atlantic		INSTALLATION Mobile District		SHEET 1 OF 1 SHEETS	
1. PROJECT MsCIP Barrier Island Restoration Horn Island Pass				9. SIZE AND TYPE OF BIT N/A			
2. BORING DESIGNATION BI-HP-25-10		LOCATION COORDINATES E = 1,075,884 N = 250,272		10. COORDINATE SYSTEM/DATUM State Plane, MSE (U.S. Ft.)		HORIZONTAL NAD83 VERTICAL NAVD88	
3. DRILLING AGENCY Corps of Engineers - CESAM		CONTRACTOR FILE NO.		11. MANUFACTURER'S DESIGNATION OF DRILL Vibrocure		<input type="checkbox"/> AUTO HAMMER <input type="checkbox"/> MANUAL HAMMER	
4. NAME OF DRILLER Construction Solutions International, Inc.				12. TOTAL SAMPLES 1		DISTURBED 1 UNDISTURBED (UD) 0	
5. DIRECTION OF BORING <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED		DEG. FROM VERTICAL		13. TOTAL NUMBER CORE BOXES			
		BEARING		14. WATER DEPTH 35 Ft.			
6. THICKNESS OF OVERBURDEN N/A				15. DATE BORING 07-15-10		STARTED 07-15-10 COMPLETED 07-15-10	
7. DEPTH DRILLED INTO ROCK N/A				16. ELEVATION TOP OF BORING -34.9 Ft.			
8. TOTAL DEPTH OF BORING 17.4 Ft.				17. TOTAL RECOVERY FOR BORING 100%			
				18. SIGNATURE AND TITLE OF INSPECTOR John Baehr, Geologist			
ELEV.	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS	SAMPLE	LABORATORY RESULTS		
-34.9	0.0						
-37.4	2.5		SAND, poorly-graded, mostly fine-grained sand-sized quartz, trace shell fragments, occ. clay balls, lt. gray (SP)	A	Classification: SP-SM Color: 2.5Y 7/1-light gray D50: 0.2544 mm % Fines: 5.4		
-52.3	17.4		SAND, clayey, mostly fine-grained sand-sized quartz, gray (SC)	NS			
			NOTES: 1. Soils are field visually classified in accordance with the Unified Soils Classification System. 2. NS = Sample not submitted for laboratory analysis from this interval. 3. Seafloor elevation determined from USACE hydrographic survey completed June 2014.				

# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.2	0.3	10.3	83.8	5.4	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
.375	100.0		
#4	99.8		
#10	99.5		
#20	98.5		
#40	89.2		
#60	48.5		
#100	12.5		
#200	5.4		

\* (no specification provided)

**Material Description**  
SAND, (SP-SM), medium to fine grained, with clay nodules

**Atterberg Limits**  
 PL=                      LL=                      PI=  
**Coefficients**  
 D<sub>90</sub>= 0.4432      D<sub>85</sub>= 0.3940      D<sub>60</sub>= 0.2851  
 D<sub>50</sub>= 0.2544      D<sub>30</sub>= 0.1997      D<sub>15</sub>= 0.1582  
 D<sub>10</sub>= 0.1178      C<sub>u</sub>= 2.42              C<sub>c</sub>= 1.19

**Classification**  
USCS= SP-SM                      AASHTO=

**Remarks**  
CADD CODE = CH10D965

Location: USACE Sample # BI-HP-25-10A  
Sample Number: TE Lab ID: 4593.57

Depth: 0.0 - 2.5 (ft.)

Date: 7/26/10

**Thompson Engineering**  
  
**Mobile, Alabama**

Client: US Army Corps of Engineers  
Project: Contract No. W91278-10-D-0026 - Task 03  
Mississippi Barrier Island Restoration Project  
Project No: 10-2123-0009                      Report No.

Tested By: G.Fancher

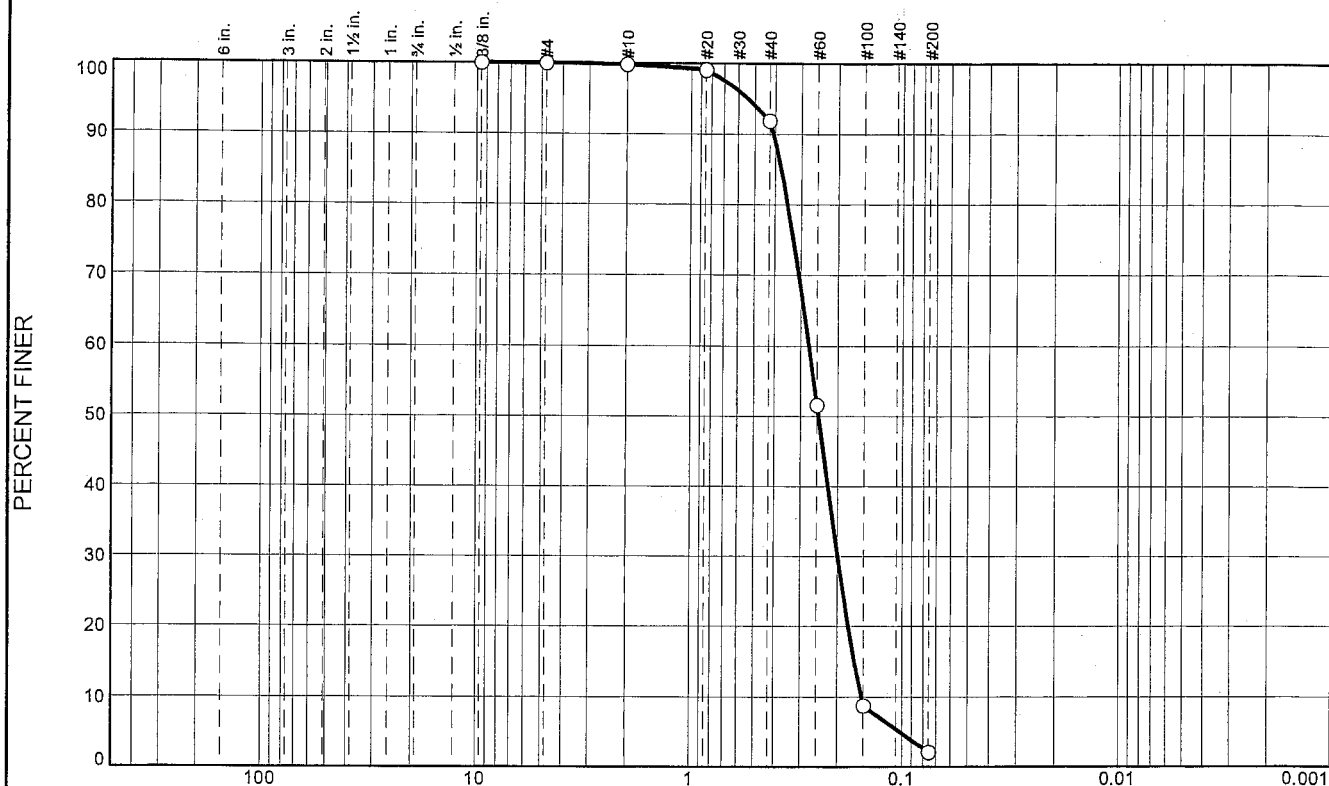
Checked By: R.Byrd



# Boring Designation BI-HP-26-10

DRILLING LOG		DIVISION South Atlantic		INSTALLATION Mobile District		SHEET 1 OF 1 SHEETS	
1. PROJECT MsCIP Barrier Island Restoration Horn Island Pass				9. SIZE AND TYPE OF BIT N/A			
2. BORING DESIGNATION BI-HP-26-10		LOCATION COORDINATES E = 1,075,957 N = 251,218		10. COORDINATE SYSTEM/DATUM State Plane, MSE (U.S. Ft.)		HORIZONTAL NAD83 VERTICAL NAVD88	
3. DRILLING AGENCY Corps of Engineers - CESAM		CONTRACTOR FILE NO.		11. MANUFACTURER'S DESIGNATION OF DRILL Vibrocure		<input type="checkbox"/> AUTO HAMMER <input type="checkbox"/> MANUAL HAMMER	
4. NAME OF DRILLER Construction Solutions International, Inc.				12. TOTAL SAMPLES		DISTURBED 1 UNDISTURBED (UD) 0	
5. DIRECTION OF BORING <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED		DEG. FROM VERTICAL		13. TOTAL NUMBER CORE BOXES			
6. THICKNESS OF OVERBURDEN N/A				14. WATER DEPTH 34 Ft.			
7. DEPTH DRILLED INTO ROCK N/A				15. DATE BORING		STARTED 07-15-10 COMPLETED 07-15-10	
8. TOTAL DEPTH OF BORING 17.9 Ft.				16. ELEVATION TOP OF BORING -33.3 Ft.			
				17. TOTAL RECOVERY FOR BORING 100%			
				18. SIGNATURE AND TITLE OF INSPECTOR John Baehr, Geologist			
ELEV.	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS	SAMPLE	LABORATORY RESULTS		
-33.3	0.0						
			SAND, poorly-graded, mostly fine-grained sand-sized quartz, trace shell fragments, lt. gray (SP)	A	Classification: SP Color: 2.5Y 7/1-light gray D50: 0.2459 mm % Fines: 2.1		
-37.3	4.0						
			SAND, clayey, mostly fine-grained sand-sized quartz, trace shell fragments, gray (SC)	NS			
-51.2	17.9						
			NOTES: 1. Soils are field visually classified in accordance with the Unified Soils Classification System. 2. NS = Sample not submitted for laboratory analysis from this interval. 3. Seafloor elevation determined from USACE hydrographic survey completed June 2014.				

# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.0	0.2	7.9	89.8	2.1	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
.375	100.0		
#4	100.0		
#10	99.8		
#20	99.1		
#40	91.9		
#60	51.6		
#100	8.7		
#200	2.1		

**Material Description**  
SAND, (SP), fine grained, with clay nodules

PL=      **Atterberg Limits**      LL=      PI=

**Coefficients**  
D<sub>90</sub>= 0.4088      D<sub>85</sub>= 0.3747      D<sub>60</sub>= 0.2735  
D<sub>50</sub>= 0.2459      D<sub>30</sub>= 0.1991      D<sub>15</sub>= 0.1658  
D<sub>10</sub>= 0.1535      C<sub>u</sub>= 1.78      C<sub>c</sub>= 0.94

USCS= SP      **Classification**      AASHTO=

**Remarks**  
CADD CODE = CH10D965

\* (no specification provided)

Location: USACE Sample # BI-HP-26-10A  
Sample Number: TE Lab ID: 4593.58

Depth: 0.0 - 4.0 (ft.)

Date: 7/26/10

**Thompson Engineering**  
  
**Mobile, Alabama**

Client: US Army Corps of Engineers  
Project: Contract No. W91278-10-D-0026 - Task 03  
Mississippi Barrier Island Restoration Project  
Project No: 10-2123-0009      Report No.

Tested By: G.Fancher

Checked By: R.Byrd

# Boring Designation BI-HP-27-12

DRILLING LOG		DIVISION South Atlantic		INSTALLATION Mobile District		SHEET 1 OF 1 SHEETS	
1. PROJECT MsCIP Barrier Island Restoration Horn Island Pass				9. SIZE AND TYPE OF BIT N/A			
2. BORING DESIGNATION BI-HP-27-12		LOCATION COORDINATES E = 1,077,859 N = 253,801		10. COORDINATE SYSTEM/DATUM State Plane, MSE (U.S. Ft.)		HORIZONTAL NAD83 VERTICAL NAVD88	
3. DRILLING AGENCY Corps of Engineers - CESAM		CONTRACTOR FILE NO.		11. MANUFACTURER'S DESIGNATION OF DRILL Vibracore		<input type="checkbox"/> AUTO HAMMER <input type="checkbox"/> MANUAL HAMMER	
4. NAME OF DRILLER American Vibracore Systems, Inc.				12. TOTAL SAMPLES		DISTURBED UNDISTURBED (UD) 0	
5. DIRECTION OF BORING <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED		DEG. FROM VERTICAL		13. TOTAL NUMBER CORE BOXES			
		BEARING		14. WATER DEPTH 29.6 Ft.			
6. THICKNESS OF OVERBURDEN N/A				15. DATE BORING 12-04-12		STARTED COMPLETED 12-04-12	
7. DEPTH DRILLED INTO ROCK N/A				16. ELEVATION TOP OF BORING -29.0 Ft.			
8. TOTAL DEPTH OF BORING 15.7 Ft.				17. TOTAL RECOVERY FOR BORING 100%			
				18. SIGNATURE AND TITLE OF INSPECTOR Mike FitzHarris, Geologist			
ELEV.	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS	SAMPLE	LABORATORY RESULTS		
-29.0	0.0						
			SAND, poorly-graded, mostly fine to medium-grained sand-sized quartz, trace silt, trace shell fragments, trace clay nodules, lt. gray (SP)	A	Classification: SP Color: 2.5Y 7.5/2- D50: 0.3309 mm % Fines: 1.6		
-32.7	3.7						
			SAND, poorly-graded with silt, mostly fine-grained sand-sized quartz, little silt, trace shell fragments, little clay stringers, lt gray with gray bands (SP-SM)	B	Classification: SP-SM Color: 2.5Y 7/2-light gray D50: 0.2966 mm % Fines: 7.4		
-35.0	6.0						
			CLAY, lean, mostly clay, trace shell fragments, gray (CL)	NS			
-44.7	15.7						
			NOTES: 1. Soils are field visually classified in accordance with the Unified Soils Classification System. 2. NS = Sample not submitted for laboratory analysis from this interval. 3. Seafloor elevation determined from USACE hydrographic survey completed June 2014.				

**Project**

Mississippi Barrier Island  
Restoration Project

**AVS**  
**AMERICAN VIBRACORE**  
**S E R V I C E S**

**Core Identifier** BI-HP-27-12

**Date** 12/04/2012

**Water Depth** 29.6'

**Coordinate System**

Latitude / Longitude

**Start Time** 13:28:18

**End Time** 13:29:12

**Penetration** 20.0'

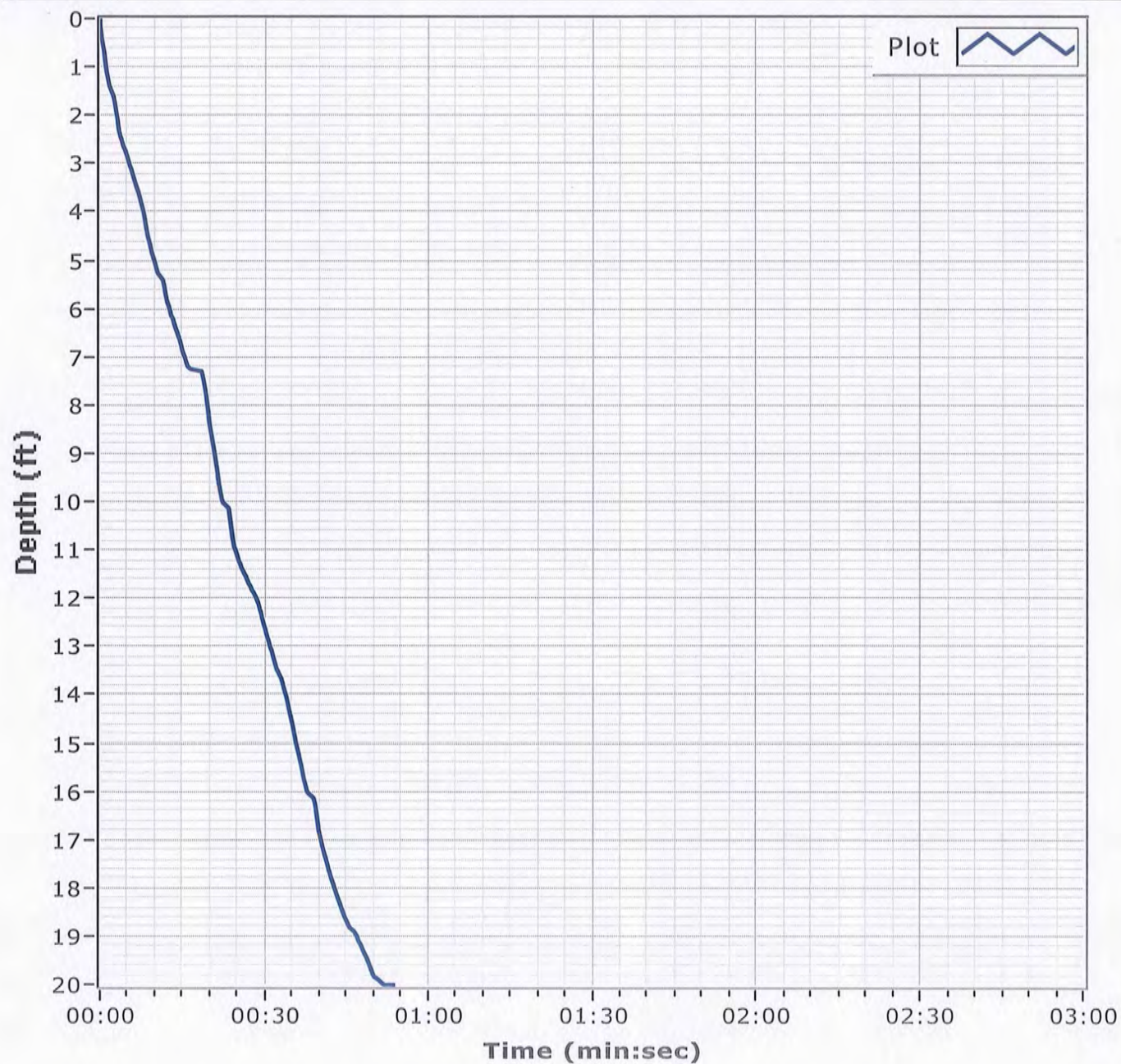
**Latitude** 30 11.854

**Total Time** 00:00:54

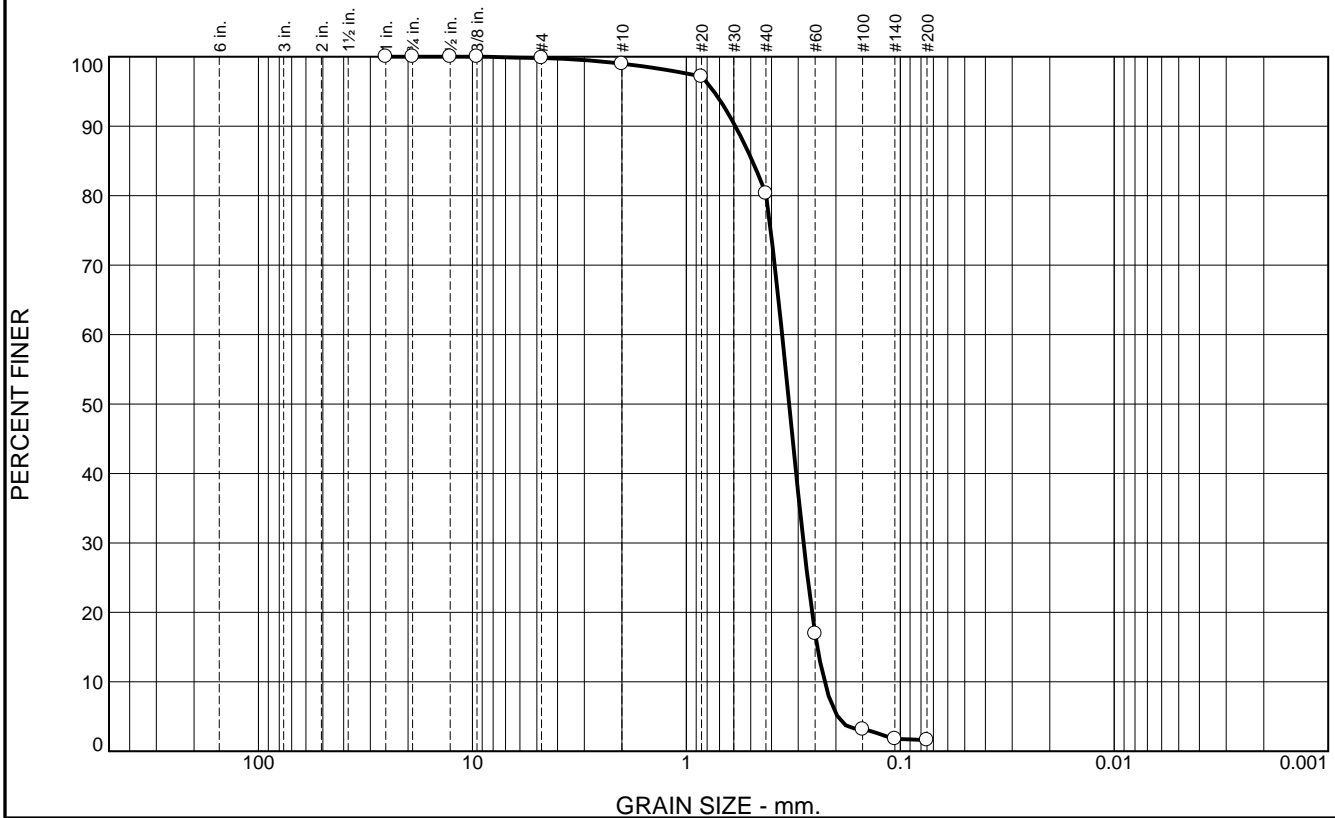
**Recovery** 15.7'

**Longitude** 088 32.221

**Comments**



# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.2	0.8	18.7	78.7	1.6	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
1	100.0		
.75	100.0		
.5	100.0		
.375	100.0		
#4	99.8		
#10	99.0		
#20	97.2		
#40	80.3		
#60	16.9		
#100	3.2		
#140	1.8		
#200	1.6		

\* (no specification provided)

<u><b>Material Description</b></u>		
Fine to medium grained, SAND		
<u><b>Atterberg Limits</b></u>		
PL=	LL=	PI=
<u><b>Coefficients</b></u>		
D <sub>90</sub> = 0.5902	D <sub>85</sub> = 0.4919	D <sub>60</sub> = 0.3567
D <sub>50</sub> = 0.3309	D <sub>30</sub> = 0.2835	D <sub>15</sub> = 0.2441
D <sub>10</sub> = 0.2258	C <sub>u</sub> = 1.58	C <sub>c</sub> = 1.00
<u><b>Classification</b></u>		
USCS= SP	AASHTO=	
<u><b>Remarks</b></u>		

Location: BI-HP-27-12 A  
Sample Number: 6480 (1)

Depth: 0.0'

Date: 12/07/12

**Thompson Engineering**

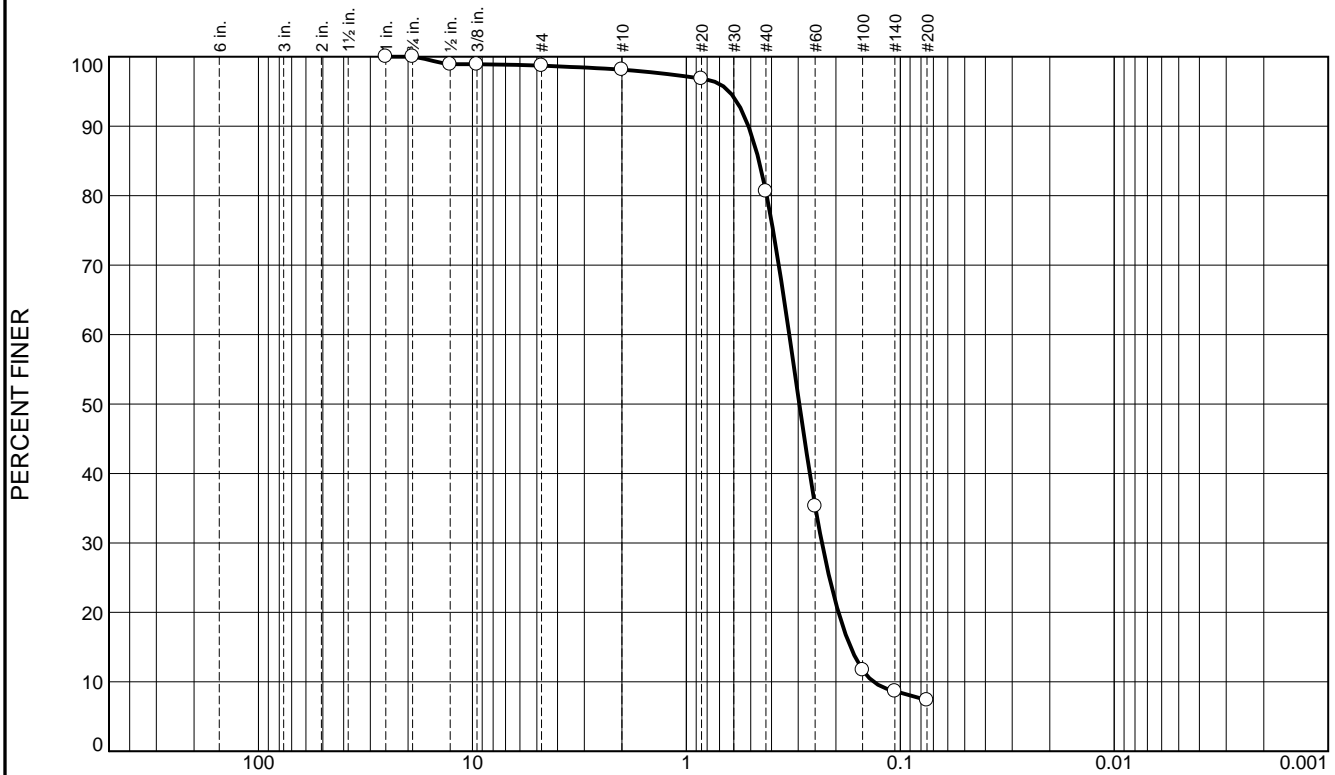
**Mobile, Alabama**

Client: CDM/Thompson Engineering JV  
Project: MsCIP Barrier Island Restoration GT

Project No: 1221110095

Figure

# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	1.3	0.6	17.5	73.2	7.4	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
1	100.0		
.75	100.0		
.5	98.9		
.375	98.9		
#4	98.7		
#10	98.1		
#20	96.8		
#40	80.6		
#60	35.3		
#100	11.7		
#140	8.7		
#200	7.4		

\* (no specification provided)

## Material Description

Fine to medium grained, SLIGHTLY SILTY SAND, with trace SHELL

## Atterberg Limits

PL= LL= PI=

## Coefficients

D<sub>90</sub>= 0.5126 D<sub>85</sub>= 0.4577 D<sub>60</sub>= 0.3305  
D<sub>50</sub>= 0.2966 D<sub>30</sub>= 0.2324 D<sub>15</sub>= 0.1709  
D<sub>10</sub>= 0.1333 C<sub>u</sub>= 2.48 C<sub>c</sub>= 1.23

## Classification

USCS= SP-SM AASHTO=

## Remarks

Location: BI-HP-27-12 B  
Sample Number: 6480 (2)

Depth: 3.7'

Date: 12/07/12

**Thompson Engineering**

**Mobile, Alabama**

Client: CDM/Thompson Engineering JV  
Project: MsCIP Barrier Island Restoration GT

Project No: 1221110095

Figure

# Boring Designation BI-HP-28-12

DRILLING LOG		DIVISION South Atlantic		INSTALLATION Mobile District		SHEET 1 OF 2 SHEETS	
1. PROJECT MsCIP Barrier Island Restoration Horn Island Pass				9. SIZE AND TYPE OF BIT N/A			
2. BORING DESIGNATION BI-HP-28-12		LOCATION COORDINATES E = 1,079,508 N = 253,551		10. COORDINATE SYSTEM/DATUM State Plane, MSE (U.S. Ft.)		HORIZONTAL NAD83	
3. DRILLING AGENCY Corps of Engineers - CESAM		CONTRACTOR FILE NO.		11. MANUFACTURER'S DESIGNATION OF DRILL Vibracore		<input type="checkbox"/> AUTO HAMMER <input type="checkbox"/> MANUAL HAMMER	
4. NAME OF DRILLER American Vibracore Systems, Inc.				12. TOTAL SAMPLES		DISTURBED 0	
5. DIRECTION OF BORING <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED				13. TOTAL NUMBER CORE BOXES		14. WATER DEPTH 28.9 Ft.	
6. THICKNESS OF OVERBURDEN N/A				15. DATE BORING		STARTED 12-04-12	
7. DEPTH DRILLED INTO ROCK N/A				16. ELEVATION TOP OF BORING -30.3 Ft.		COMPLETED 12-04-12	
8. TOTAL DEPTH OF BORING 20.0 Ft.				17. TOTAL RECOVERY FOR BORING 100%		18. SIGNATURE AND TITLE OF INSPECTOR Mike FitzHarris, Geologist	
ELEV.	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS	SAMPLE	LABORATORY RESULTS		
-30.3	0.0						
			SAND, poorly-graded, mostly fine to medium-grained sand-sized quartz, trace shell fragments, trace silt, lt. gray to white (SP)	A	Classification: SP Color: 5Y 8/1-white D50: 0.3355 mm % Fines: 1.2		
-35.8	5.5			NS			
-36.6	6.3		SAND, poorly-graded with silt, mostly fine-grained sand-sized quartz, few silt, trace clay nodules, clay lens at 6.2 ft., gray (SP-SM)	B	Classification: SP Color: 2.5Y 7/2-light gray D50: 0.2128 mm % Fines: 4.7		
			CLAY, lean, mostly clay, some silt, trace shell fragments, gray (CL)	NS			
-50.3	20.0						
NOTES:							
1. Soils are field visually classified in accordance with the Unified Soils Classification System.							
2. NS = Sample not submitted for laboratory analysis from this interval.							
3. Seafloor elevation determined from USACE							

<b>DRILLING LOG (Cont. Sheet)</b>			<b>INSTALLATION</b> Mobile District		<b>SHEET 2</b> <b>OF 2 SHEETS</b>
<b>PROJECT</b> MsCIP Barrier Island Restoration			<b>COORDINATE SYSTEM/DATUM</b> State Plane, MSE (U.S. Ft.)	<b>HORIZONTAL</b> NAD83	<b>VERTICAL</b> NAVD88
<b>LOCATION COORDINATES</b> X = 1,079,508 Y = 253,551			<b>ELEVATION TOP OF BORING</b> -30.3 Ft.		
<b>ELEV.</b>	<b>DEPTH</b>	<b>LEGEND</b>	<b>CLASSIFICATION OF MATERIALS</b>	<b>SAMPLE</b>	<b>LABORATORY RESULTS</b>
			hydrographic survey completed June 2014.		



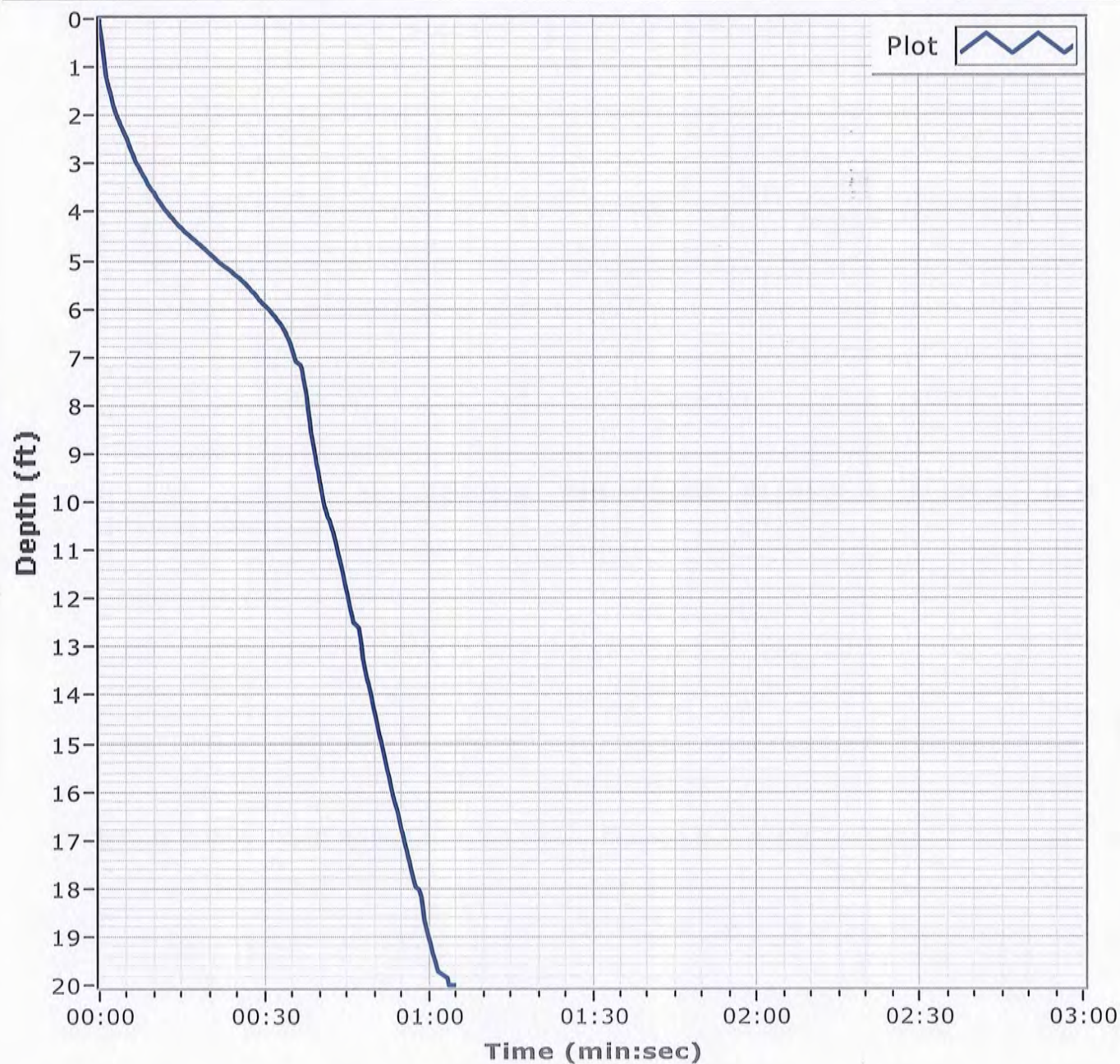
**Project**

Mississippi Barrier Island  
Restoration Project

**AVS**  
**AMERICAN VIBRACORE**  
**S E R V I C E S**

**Core Identifier** BI-HP-28-12**Date** 12/04/2012**Water Depth** 28.9'**Coordinate System**

Latitude / Longitude

**Start Time** 10:27:43**End Time** 10:28:48**Penetration** 20.0'**Latitude** 30 11.812**Total Time** 00:01:05**Recovery** 20.0'**Longitude** 088 31.908**Comments**

# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.3	0.6	20.2	77.7	1.2	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
1	100.0		
.75	100.0		
.5	100.0		
.375	100.0		
#4	99.7		
#10	99.1		
#20	97.5		
#40	78.9		
#60	14.9		
#100	1.8		
#140	1.3		
#200	1.2		

\* (no specification provided)

<u><b>Material Description</b></u>		
Fine to medium grained, SAND		
<u><b>Atterberg Limits</b></u>		
PL=	LL=	PI=
<u><b>Coefficients</b></u>		
D <sub>90</sub> = 0.5981	D <sub>85</sub> = 0.5057	D <sub>60</sub> = 0.3616
D <sub>50</sub> = 0.3355	D <sub>30</sub> = 0.2883	D <sub>15</sub> = 0.2503
D <sub>10</sub> = 0.2182	C <sub>u</sub> = 1.66	C <sub>c</sub> = 1.05
<u><b>Classification</b></u>		
USCS= SP	AASHTO=	
<u><b>Remarks</b></u>		

Location: BI-HP-28-12 A  
Sample Number: 6480 (3)

Depth: 0.0'

Date: 12/07/12

**Thompson Engineering**

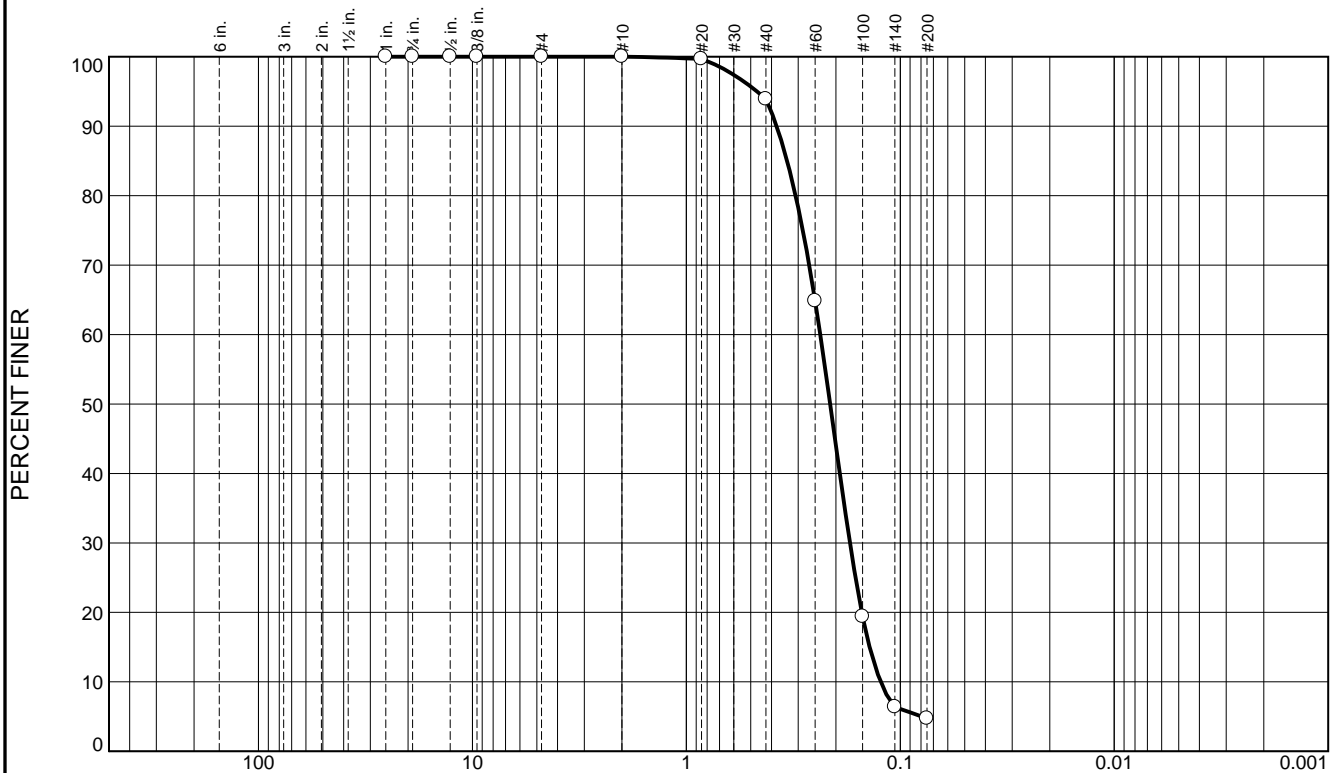
**Mobile, Alabama**

Client: CDM/Thompson Engineering JV  
Project: MsCIP Barrier Island Restoration GT

Project No: 1221110095

Figure

# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.0	0.0	6.1	89.2	4.7	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
1	100.0		
.75	100.0		
.5	100.0		
.375	100.0		
#4	100.0		
#10	100.0		
#20	99.7		
#40	93.9		
#60	64.8		
#100	19.4		
#140	6.4		
#200	4.7		

\* (no specification provided)

## Material Description

Fine grained, SAND

## Atterberg Limits

PL=

LL=

PI=

## Coefficients

D<sub>90</sub>= 0.3783

D<sub>85</sub>= 0.3380

D<sub>60</sub>= 0.2366

D<sub>50</sub>= 0.2128

D<sub>30</sub>= 0.1721

D<sub>15</sub>= 0.1392

D<sub>10</sub>= 0.1236

C<sub>u</sub>= 1.91

C<sub>c</sub>= 1.01

## Classification

USCS= SP

AASHTO=

## Remarks

Location: BI-HP-28-12 B  
Sample Number: 6480 (4)

Depth: 5.5'

Date: 12/07/12

**Thompson Engineering**

**Mobile, Alabama**

Client: CDM/Thompson Engineering JV  
Project: MsCIP Barrier Island Restoration GT

Project No: 1221110095

Figure

# Boring Designation BI-HP-29-12

DRILLING LOG		DIVISION South Atlantic		INSTALLATION Mobile District		SHEET 1 OF 1 SHEETS	
1. PROJECT MsCIP Barrier Island Restoration Horn Island Pass				9. SIZE AND TYPE OF BIT N/A			
2. BORING DESIGNATION BI-HP-29-12		LOCATION COORDINATES E = 1,078,904 N = 252,586		10. COORDINATE SYSTEM/DATUM State Plane, MSE (U.S. Ft.)		HORIZONTAL NAD83	
3. DRILLING AGENCY Corps of Engineers - CESAM		CONTRACTOR FILE NO.		11. MANUFACTURER'S DESIGNATION OF DRILL Vibracore		<input type="checkbox"/> AUTO HAMMER <input type="checkbox"/> MANUAL HAMMER	
4. NAME OF DRILLER American Vibracore Systems, Inc.				12. TOTAL SAMPLES		DISTURBED 0	
5. DIRECTION OF BORING <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED				13. TOTAL NUMBER CORE BOXES		14. WATER DEPTH 32.7 Ft.	
6. THICKNESS OF OVERBURDEN N/A				15. DATE BORING		STARTED 12-04-12	
7. DEPTH DRILLED INTO ROCK N/A				16. ELEVATION TOP OF BORING -32.2 Ft.		COMPLETED 12-04-12	
8. TOTAL DEPTH OF BORING 18.5 Ft.				17. TOTAL RECOVERY FOR BORING 100%			
				18. SIGNATURE AND TITLE OF INSPECTOR Mike FitzHarris, Geologist			
ELEV.	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS	SAMPLE	LABORATORY RESULTS		
-32.2	0.0						
-33.1	0.9		SAND, poorly-graded, mostly fine to medium-grained sand-sized quartz, trace silt, trace shell fragments, trace wood debris, gray (SP) SAND, poorly-graded, mostly fine to medium-grained sand-sized quartz, trace silt, trace shell fragments, lt. gray (SP)	A	Classification: SP-SM Color: 2.5Y 7/2-light gray D50: 0.3244 mm % Fines: 6.7		
				B	Classification: SP Color: 5Y 7/2-light gray D50: 0.2781 mm % Fines: 1.3		
-35.7	3.5			C	Classification: SP Color: 2.5Y 7.5/2- D50: 0.2868 mm % Fines: 1.9		
-37.3	5.1		SAND, poorly-graded, mostly fine to medium-grained sand-sized quartz, trace silt, trace shell fragments, lt. gray to pale brown (SP) CLAY, lean, mostly fine-grained sand-sized clay, some silt, trace shells, trace shell fragments, alternating sandy clay and clayey sands, gray to brownish gray (CL)	NS			
-50.7	18.5						
			NOTES:				
			1. Soils are field visually classified in accordance with the Unified Soils Classification System.				
			2. NS = Sample not submitted for laboratory analysis from this interval.				
			3. Seafloor elevation determined from USACE hydrographic survey completed June 2014.				



**Project**

Mississippi Barrier Island  
Restoration Project



**Core Identifier** BI-HP-29-12

**Date** 12/04/2012

**Water Depth** 32.7'

**Coordinate System**

**Start Time** 11:13:56

Latitude / Longitude

**End Time** 11:14:34

**Penetration** 20.0'

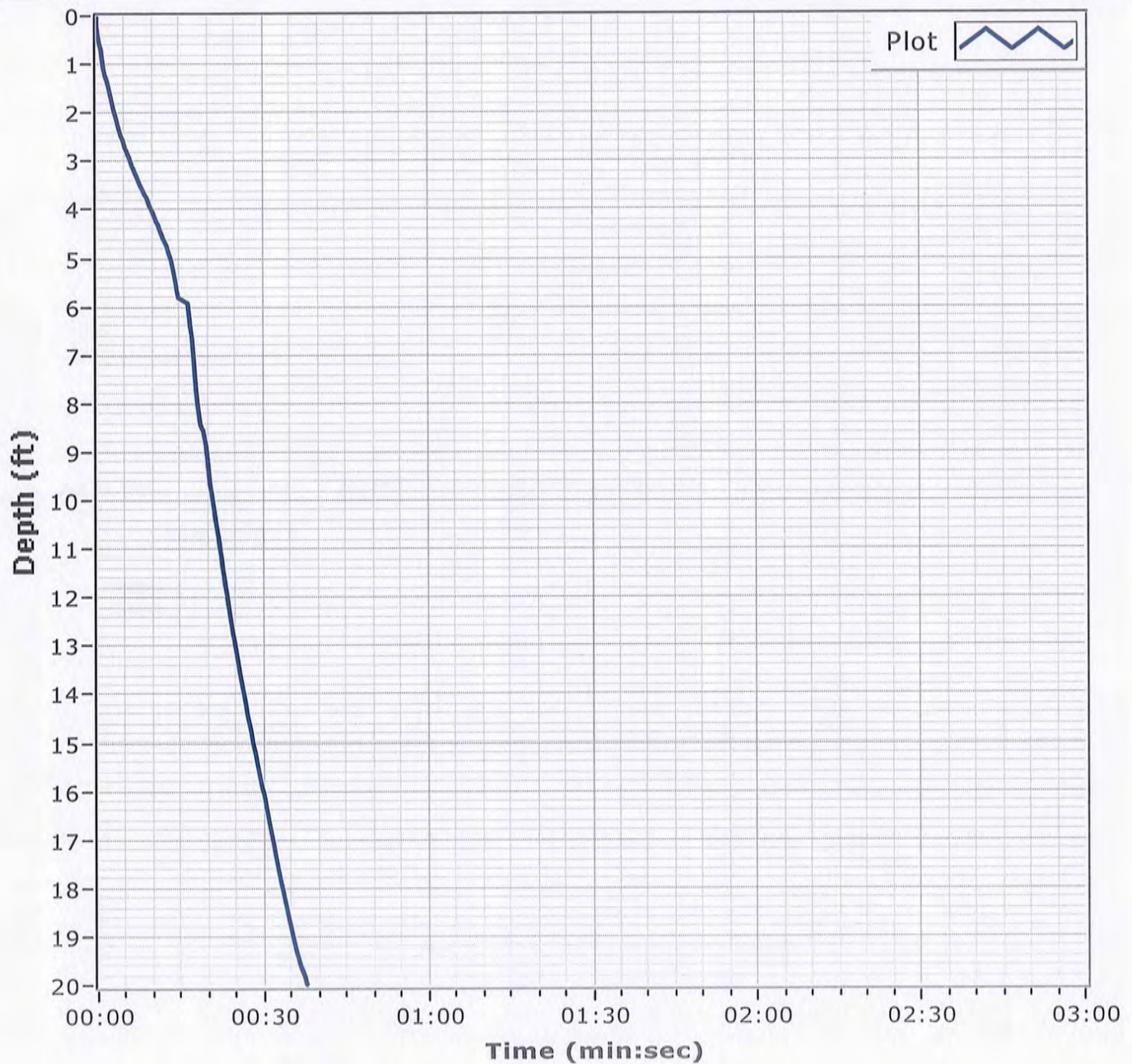
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**Total Time** 00:00:38

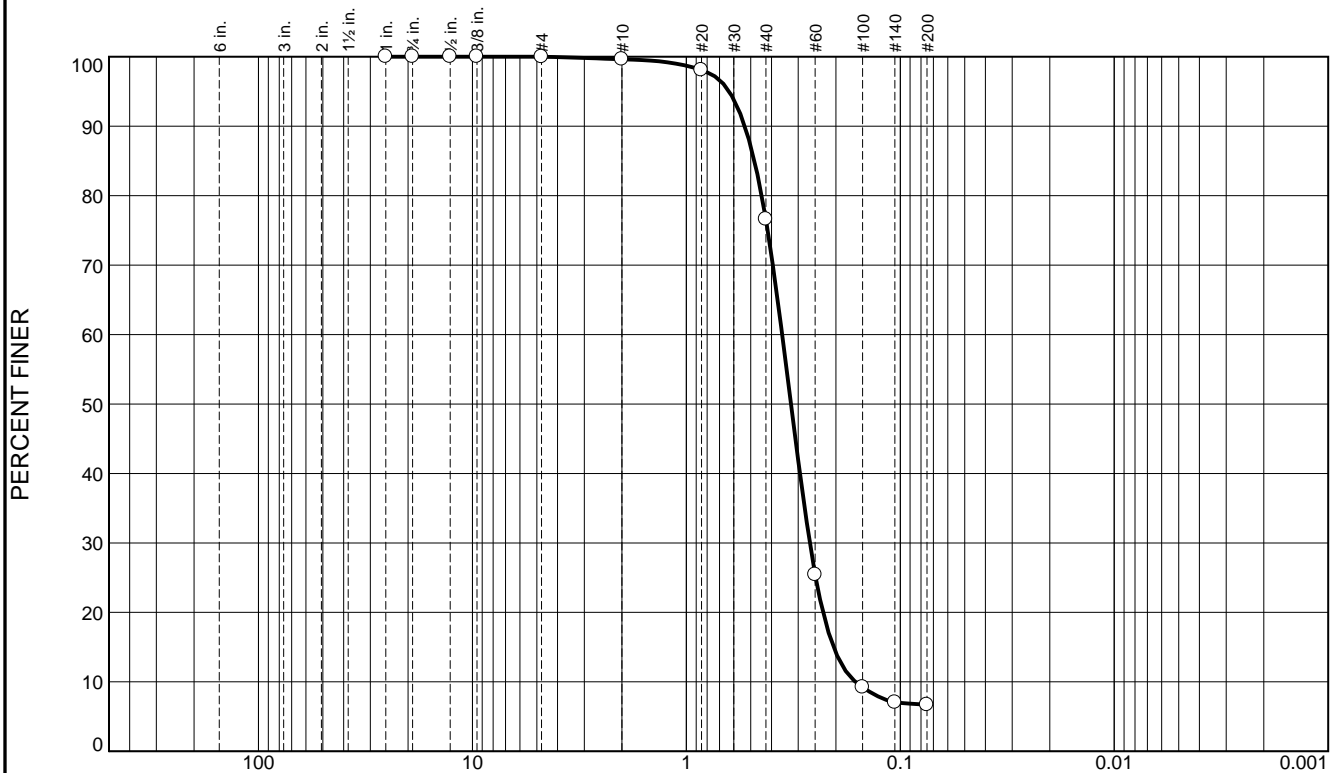
**Recovery** 18.5'

**Longitude** 088 32.023

**Comments**



# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.0	0.4	23.0	69.9	6.7	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
1	100.0		
.75	100.0		
.5	100.0		
.375	100.0		
#4	100.0		
#10	99.6		
#20	98.1		
#40	76.6		
#60	25.4		
#100	9.2		
#140	7.0		
#200	6.7		

\* (no specification provided)

## Material Description

Fine to medium grained, SLIGHTLY SILTY SAND

## Atterberg Limits

PL= LL= PI=

## Coefficients

D<sub>90</sub>= 0.5331 D<sub>85</sub>= 0.4807 D<sub>60</sub>= 0.3565  
D<sub>50</sub>= 0.3244 D<sub>30</sub>= 0.2649 D<sub>15</sub>= 0.2051  
D<sub>10</sub>= 0.1621 C<sub>u</sub>= 2.20 C<sub>c</sub>= 1.21

## Classification

USCS= SP-SM AASHTO=

## Remarks

Location: BI-HP-29-12 A  
Sample Number: 6480 (5)

Depth: 0.0'

Date: 12/07/12

**Thompson Engineering**

**Mobile, Alabama**

Client: CDM/Thompson Engineering JV  
Project: MsCIP Barrier Island Restoration GT

Project No: 1221110095

Figure

# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.1	0.5	10.3	87.8	1.3	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
1	100.0		
.75	100.0		
.5	100.0		
.375	100.0		
#4	99.9		
#10	99.4		
#20	98.5		
#40	89.1		
#60	39.0		
#100	3.3		
#140	1.5		
#200	1.3		

\* (no specification provided)

## Material Description

Fine to medium grained, SAND

## Atterberg Limits

PL= LL= PI=

## Coefficients

D<sub>90</sub>= 0.4461 D<sub>85</sub>= 0.4002 D<sub>60</sub>= 0.3057  
D<sub>50</sub>= 0.2781 D<sub>30</sub>= 0.2279 D<sub>15</sub>= 0.1898  
D<sub>10</sub>= 0.1754 C<sub>u</sub>= 1.74 C<sub>c</sub>= 0.97

## Classification

USCS= SP AASHTO=

## Remarks

Location: BI-HP-29-12 B  
Sample Number: 6480 (6)

Depth: 0.9'

Date: 12/07/12

**Thompson Engineering**

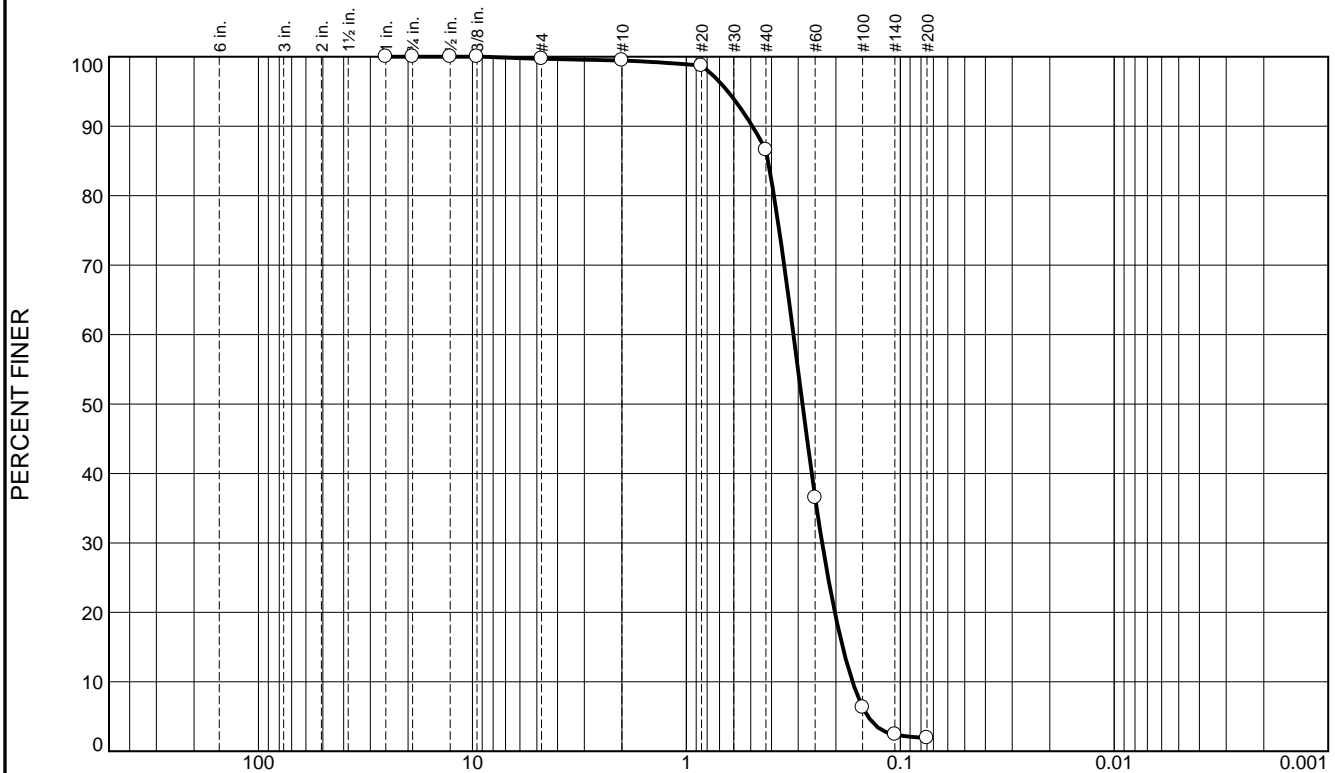
**Mobile, Alabama**

Client: CDM/Thompson Engineering JV  
Project: MsCIP Barrier Island Restoration GT

Project No: 1221110095

Figure

# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.3	0.2	12.9	84.7	1.9	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
1	100.0		
.75	100.0		
.5	100.0		
.375	100.0		
#4	99.7		
#10	99.5		
#20	98.7		
#40	86.6		
#60	36.5		
#100	6.3		
#140	2.4		
#200	1.9		

\* (no specification provided)

<u><b>Material Description</b></u>		
Fine to medium grained, SAND		
<u><b>Atterberg Limits</b></u>		
PL=	LL=	PI=
<u><b>Coefficients</b></u>		
D <sub>90</sub> = 0.4918	D <sub>85</sub> = 0.4153	D <sub>60</sub> = 0.3159
D <sub>50</sub> = 0.2868	D <sub>30</sub> = 0.2319	D <sub>15</sub> = 0.1860
D <sub>10</sub> = 0.1673	C <sub>u</sub> = 1.89	C <sub>c</sub> = 1.02
<u><b>Classification</b></u>		
USCS= SP	AASHTO=	
<u><b>Remarks</b></u>		

Location: BI-HP-29-12 C  
Sample Number: 6480 (7)

Depth: 3.5'

Date: 12/07/12

**Thompson Engineering**

**Mobile, Alabama**

Client: CDM/Thompson Engineering JV  
Project: MsCIP Barrier Island Restoration GT

Project No: 1221110095

Figure



# Boring Designation BI-HP-30-12

DRILLING LOG		DIVISION South Atlantic		INSTALLATION Mobile District		SHEET 1 OF 1 SHEETS	
1. PROJECT MsCIP Barrier Island Restoration Horn Island Pass				9. SIZE AND TYPE OF BIT N/A			
2. BORING DESIGNATION BI-HP-30-12		LOCATION COORDINATES E = 1,077,662 N = 252,848		10. COORDINATE SYSTEM/DATUM State Plane, MSE (U.S. Ft.)		HORIZONTAL NAD83	
3. DRILLING AGENCY Corps of Engineers - CESAM		CONTRACTOR FILE NO.		11. MANUFACTURER'S DESIGNATION OF DRILL Vibracore		<input type="checkbox"/> AUTO HAMMER <input type="checkbox"/> MANUAL HAMMER	
4. NAME OF DRILLER American Vibracore Systems, Inc.				12. TOTAL SAMPLES		DISTURBED 0	
5. DIRECTION OF BORING <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED				13. TOTAL NUMBER CORE BOXES		14. WATER DEPTH 29.8 Ft.	
6. THICKNESS OF OVERBURDEN N/A				15. DATE BORING		STARTED 12-04-12	
7. DEPTH DRILLED INTO ROCK N/A				16. ELEVATION TOP OF BORING -29.2 Ft.		COMPLETED 12-04-12	
8. TOTAL DEPTH OF BORING 19.0 Ft.				17. TOTAL RECOVERY FOR BORING 100%			
				18. SIGNATURE AND TITLE OF INSPECTOR Mike FitzHarris, Geologist			
ELEV.	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS	SAMPLE	LABORATORY RESULTS		
-29.2	0.0						
-31.6	2.4		SAND, poorly-graded, mostly fine to medium-grained sand-sized quartz, trace silt, trace shell fragments, trace wood debris, lt gray with pale brown at 0.7 thru 1.0 ft (SP)	A	Classification: SP Color: 2.5Y 8/1-white D50: 0.3133 mm % Fines: 4.5		
-34.6	5.4		SAND, poorly-graded with silt, mostly fine to medium-grained sand-sized quartz, little silt, trace shell fragments, few clay stringers throughout and a clay band at 4.2 ft., gray (SP-SM)	B	Classification: SP Color: 2.5Y 7/2-light gray D50: 0.2705 mm % Fines: 3.4		
-37.1	7.9		SAND, poorly-graded, mostly fine-grained sand-sized quartz, trace silt, trace shell fragments, gray to lt. gray (SP)	C	Classification: SP Color: 2.5Y 7/2-light gray D50: 0.3164 mm % Fines: 1.7		
-48.2	19.0		CLAY, lean, mostly clay, trace shells, alternating clay and sandy clay layers, gray (CL)	NS			
NOTES: 1. Soils are field visually classified in accordance with the Unified Soils Classification System. 2. NS = Sample not submitted for laboratory analysis from this interval. 3. Seafloor elevation determined from USACE hydrographic survey completed June 2014.							

# Project

Mississippi Barrier Island  
Restoration Project

**AVS**  
AMERICAN VIBRACORE  
SERVICES

Core Identifier BI-HP-30-12

Date 12/04/2012

Water Depth 29.8'

## Coordinate System

Latitude / Longitude

Start Time 11:59:24

End Time 12:01:03

Penetration 20.0'

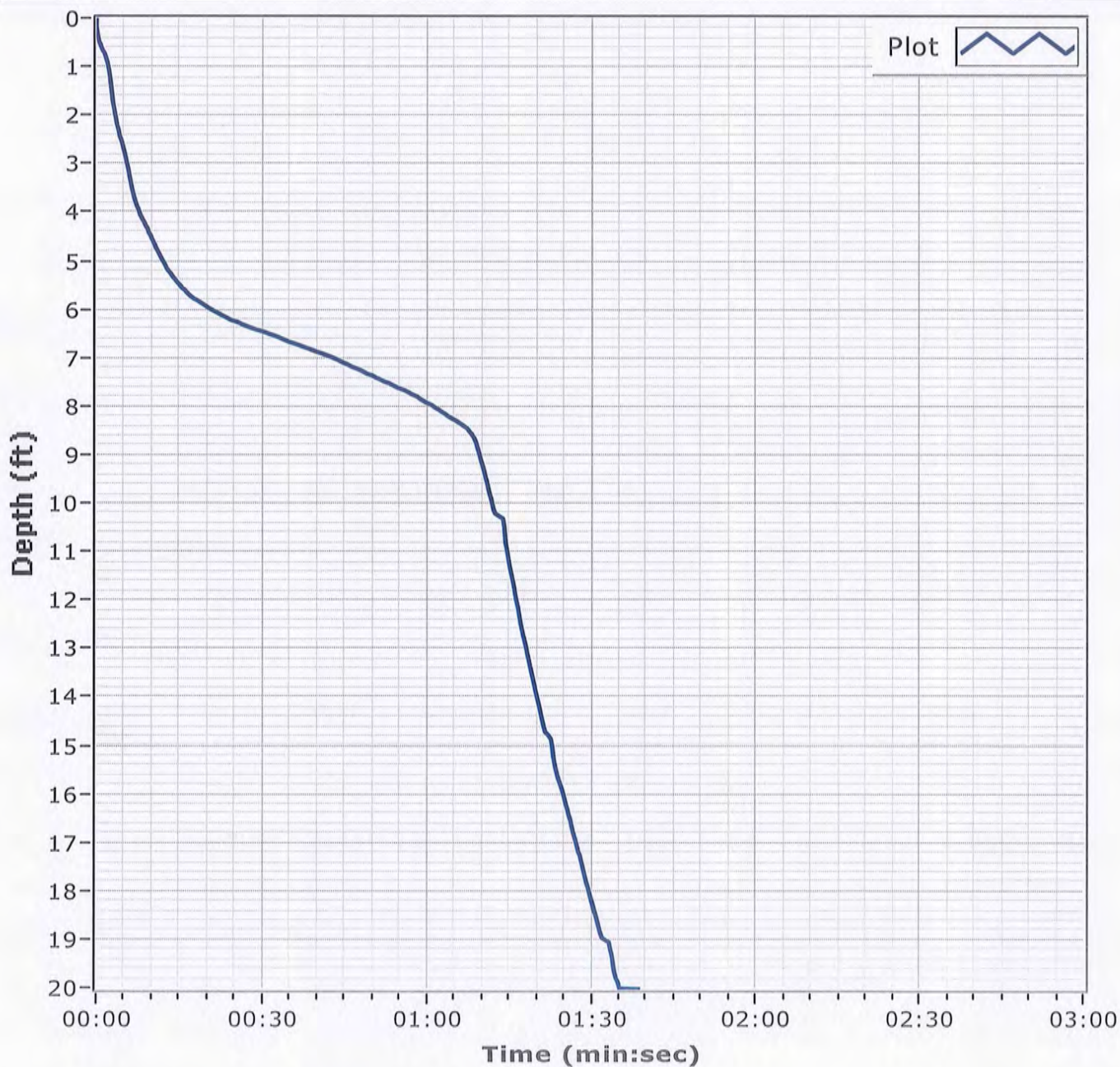
Latitude 30 11.697

Total Time 00:01:39

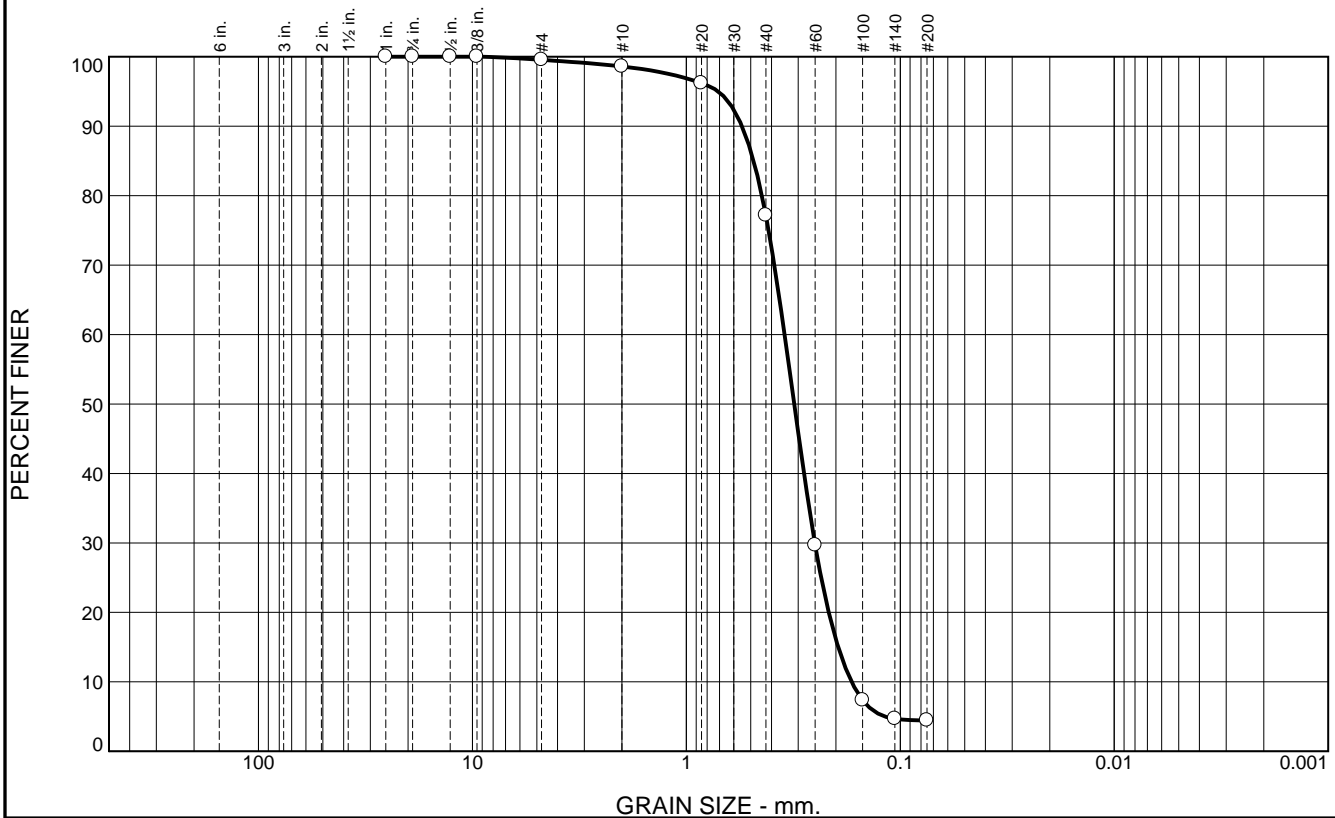
Recovery 19.0'

Longitude 088 32.259

## Comments



# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.5	0.9	21.4	72.7	4.5	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
1	100.0		
.75	100.0		
.5	100.0		
.375	100.0		
#4	99.5		
#10	98.6		
#20	96.2		
#40	77.2		
#60	29.7		
#100	7.4		
#140	4.7		
#200	4.5		

\* (no specification provided)

**Material Description**  
 Fine to medium grained, SAND

**Atterberg Limits**  
 PL=      LL=      PI=

**Coefficients**  
 D<sub>90</sub>= 0.5496      D<sub>85</sub>= 0.4849      D<sub>60</sub>= 0.3474  
 D<sub>50</sub>= 0.3133      D<sub>30</sub>= 0.2510      D<sub>15</sub>= 0.1951  
 D<sub>10</sub>= 0.1690      C<sub>u</sub>= 2.06      C<sub>c</sub>= 1.07

**Classification**  
 USCS= SP      AASHTO=

**Remarks**

Location: BI-HP-30-12 A  
Sample Number: 6480 (8)

Depth: 0.0'

Date: 12/07/12

**Thompson Engineering**

**Mobile, Alabama**

Client: CDM/Thompson Engineering JV  
Project: MsCIP Barrier Island Restoration GT

Project No: 1221110095

Figure

# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	1.2	0.4	11.3	83.7	3.4	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
1	100.0		
.75	100.0		
.5	100.0		
.375	99.2		
#4	98.8		
#10	98.4		
#20	97.5		
#40	87.1		
#60	42.8		
#100	9.3		
#140	4.7		
#200	3.4		

\* (no specification provided)

Material Description		
Fine to medium grained, SAND, with trace SHELL		
<div> <div> Atterberg Limits </div> <div> PL= </div> <div> LL= </div> <div> PI= </div> </div>		
<div> <div> Coefficients </div> <div> D<sub>90</sub>= 0.4908 </div> <div> D<sub>50</sub>= 0.2705 </div> <div> D<sub>10</sub>= 0.1532 </div> <div> D<sub>85</sub>= 0.4100 </div> <div> D<sub>30</sub>= 0.2149 </div> <div> C<sub>u</sub>= 1.97 </div> <div> D<sub>60</sub>= 0.3012 </div> <div> D<sub>15</sub>= 0.1715 </div> <div> C<sub>c</sub>= 1.00 </div> </div>		
<div> <div> Classification </div> <div> USCS= SP </div> <div> AASHTO= </div> </div>		
<div> <div> Remarks </div> </div>		

Location: BI-HP-30-12 B  
Sample Number: 6480 (9)

Depth: 2.4'

Date: 12/07/12

**Thompson Engineering**

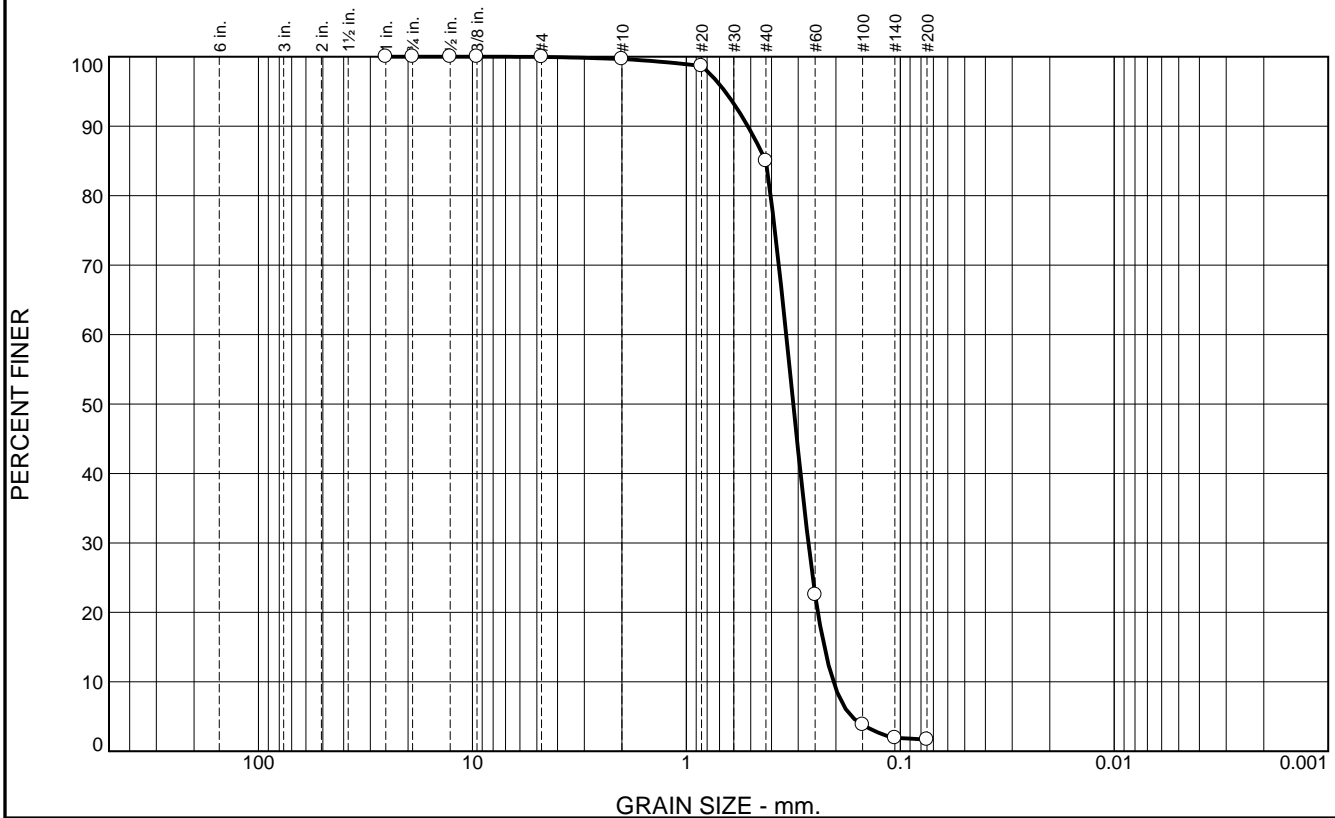
**Mobile, Alabama**

Client: CDM/Thompson Engineering JV  
Project: MsCIP Barrier Island Restoration GT

Project No: 1221110095

Figure

# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.0	0.3	14.7	83.3	1.7	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
1	100.0		
.75	100.0		
.5	100.0		
.375	100.0		
#4	100.0		
#10	99.7		
#20	98.7		
#40	85.0		
#60	22.6		
#100	3.8		
#140	1.9		
#200	1.7		

\* (no specification provided)

<u><b>Material Description</b></u>		
Fine to medium grained, SAND		
<u><b>Atterberg Limits</b></u>		
PL=	LL=	PI=
<u><b>Coefficients</b></u>		
D <sub>90</sub> = 0.5164	D <sub>85</sub> = 0.4251	D <sub>60</sub> = 0.3415
D <sub>50</sub> = 0.3164	D <sub>30</sub> = 0.2691	D <sub>15</sub> = 0.2265
D <sub>10</sub> = 0.2055	C <sub>u</sub> = 1.66	C <sub>c</sub> = 1.03
<u><b>Classification</b></u>		
USCS= SP	AASHTO=	
<u><b>Remarks</b></u>		

Location: BI-HP-30-12 C  
Sample Number: 6480 (10)

Depth: 5.4'

Date: 12/07/12

**Thompson Engineering**

**Mobile, Alabama**

Client: CDM/Thompson Engineering JV  
Project: MsCIP Barrier Island Restoration GT

Project No: 1221110095

Figure

# Boring Designation BI-HP-31-12

DRILLING LOG		DIVISION South Atlantic		INSTALLATION Mobile District		SHEET 1 OF 1 SHEETS	
1. PROJECT MsCIP Barrier Island Restoration Horn Island Pass				9. SIZE AND TYPE OF BIT N/A			
2. BORING DESIGNATION BI-HP-31-12		LOCATION COORDINATES E = 1,065,036 N = 251,010		10. COORDINATE SYSTEM/DATUM State Plane, MSE (U.S. Ft.)		HORIZONTAL NAD83 VERTICAL NAVD88	
3. DRILLING AGENCY Corps of Engineers - CESAM		CONTRACTOR FILE NO.		11. MANUFACTURER'S DESIGNATION OF DRILL Vibracore		<input type="checkbox"/> AUTO HAMMER <input type="checkbox"/> MANUAL HAMMER	
4. NAME OF DRILLER American Vibracore Systems, Inc.				12. TOTAL SAMPLES		DISTURBED UNDISTURBED (UD) 0	
5. DIRECTION OF BORING <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED				13. TOTAL NUMBER CORE BOXES		14. WATER DEPTH 30.3 Ft.	
6. THICKNESS OF OVERBURDEN N/A				15. DATE BORING		STARTED 12-04-12 COMPLETED 12-04-12	
7. DEPTH DRILLED INTO ROCK N/A				16. ELEVATION TOP OF BORING -29.1 Ft.		17. TOTAL RECOVERY FOR BORING 100%	
8. TOTAL DEPTH OF BORING 13.0 Ft.				18. SIGNATURE AND TITLE OF INSPECTOR Mike FitzHarris, Geologist			

ELEV.	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS	SAMPLE	LABORATORY RESULTS
-29.1	0.0				
-29.5	0.4				
-30.3	1.2		SAND, poorly-graded, mostly fine-grained sand-sized quartz, trace silt, lt. brownish gray (SP)		
-31.7	2.6		CLAY, lean, mostly clay, little silt, little fine-grained sand-sized quartz, trace shell fragments, dark gray (CL)		
-32.1	3.0				
-32.4	3.3				
-32.9	3.8		CLAY, fat, mostly clay, trace fine-grained sand-sized quartz, trace silt, high plasticity, brown, greenish gray, and gray mottle (CH)		
			CLAY, lean, mostly clay, some silt, some fine-grained sand-sized quartz, low to medium plasticity, dark gray (CL)	NS	
			SAND, clayey, mostly fine-grained sand-sized quartz, some clay, brown and gray mottle (SC)		
			CLAY, fat, mostly clay, high plasticity, brown and gray mottle (CH)		
			CLAY, lean, some clay, some fine-grained sand-sized quartz, alternating 0.6 ft.-thick beds of clayey sand and generally clean SP, gray and dark gray (CL)		
-42.1	13.0		At El. -35.1 Ft., mostly clay, some fine-grained sand-sized quartz, some silt, trace shell fragments, low plasticity, dark gray		
			NOTES:		
			1. Soils are field visually classified in accordance with the Unified Soils Classification System.		
			2. NS = Sample not submitted for laboratory analysis from this interval.		
			3. Seafloor elevation calculated using sampling vessel's fathometer water depth reading and applying NOAA tidal gauge data conversion factor.		



# Project

Mississippi Barrier Island  
Restoration Project

**AVS**  
AMERICAN VIBRACORE  
S E R V I C E S

Core Identifier BI-HP-31-12

Date 12/04/2012

Water Depth 30.3'

## Coordinate System

Latitude / Longitude

Start Time 14:12:54

End Time 14:13:32

Penetration 20.0'

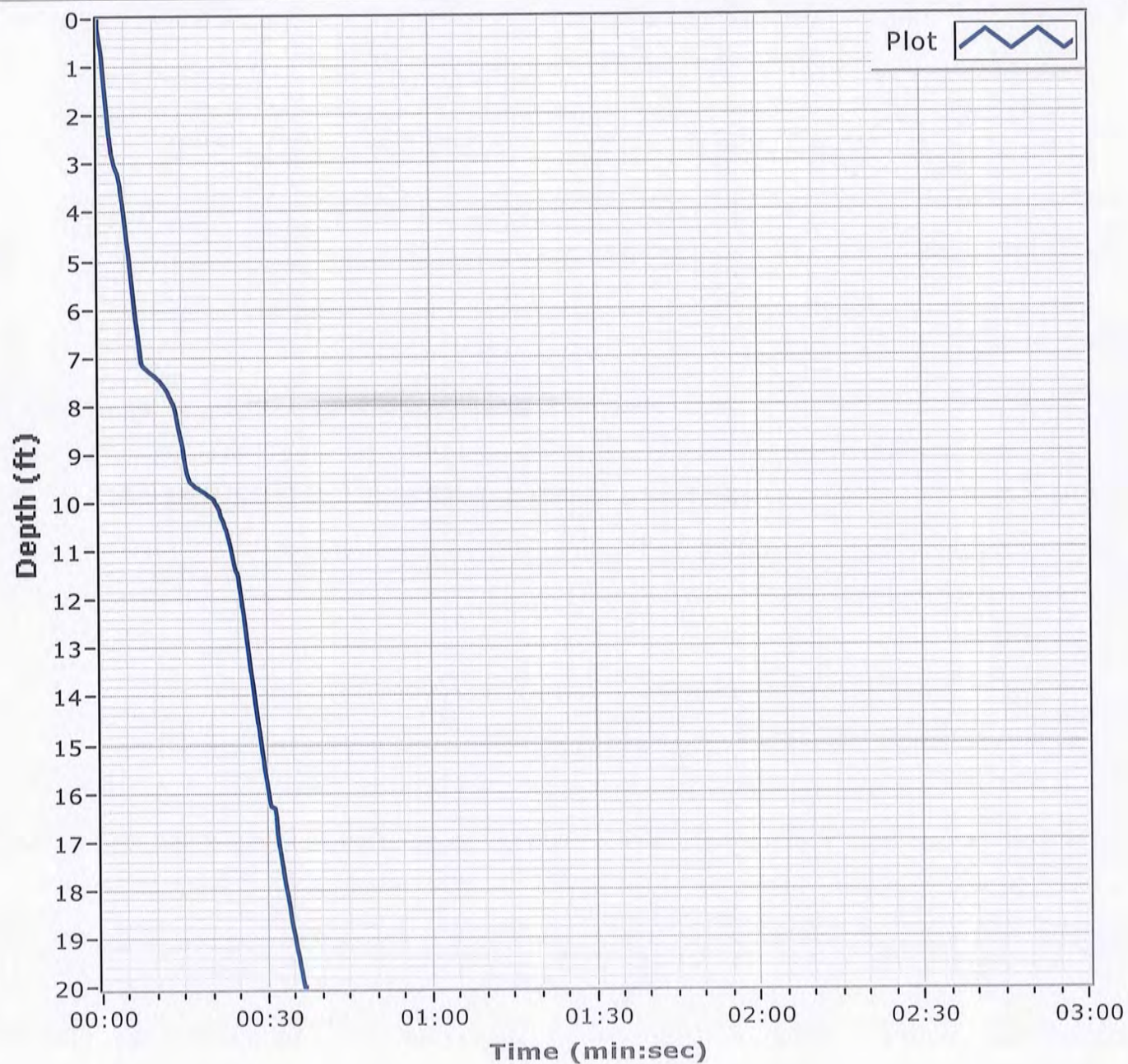
Latitude 30 11.399

Total Time 00:00:37

Recovery 13.0'

Longitude 088 34.658

## Comments



# Boring Designation BI-HP-32-12

DRILLING LOG		DIVISION South Atlantic		INSTALLATION Mobile District		SHEET 1 OF 1 SHEETS	
1. PROJECT MsCIP Barrier Island Restoration Horn Island Pass				9. SIZE AND TYPE OF BIT N/A			
2. BORING DESIGNATION BI-HP-32-12		LOCATION COORDINATES E = 1,064,260 N = 248,724		10. COORDINATE SYSTEM/DATUM State Plane, MSE (U.S. Ft.)		HORIZONTAL NAD83 VERTICAL NAVD88	
3. DRILLING AGENCY Corps of Engineers - CESAM		CONTRACTOR FILE NO.		11. MANUFACTURER'S DESIGNATION OF DRILL Vibracore		<input type="checkbox"/> AUTO HAMMER <input type="checkbox"/> MANUAL HAMMER	
4. NAME OF DRILLER American Vibracore Systems, Inc.				12. TOTAL SAMPLES		DISTURBED UNDISTURBED (UD) 0	
5. DIRECTION OF BORING <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED		DEG. FROM VERTICAL		13. TOTAL NUMBER CORE BOXES			
		BEARING		14. WATER DEPTH 32.3 Ft.			
6. THICKNESS OF OVERBURDEN N/A				15. DATE BORING 12-04-12		STARTED COMPLETED 12-04-12	
7. DEPTH DRILLED INTO ROCK N/A				16. ELEVATION TOP OF BORING -31.1 Ft.			
8. TOTAL DEPTH OF BORING 11.0 Ft.				17. TOTAL RECOVERY FOR BORING 100%			
				18. SIGNATURE AND TITLE OF INSPECTOR Mike FitzHarris, Geologist			

ELEV.	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS	SAMPLE	LABORATORY RESULTS
-31.1	0.0				
-32.1	1.0		SAND, poorly-graded, mostly fine-grained sand-sized quartz, trace silt, trace shell fragments, lt to dark gray (SP)		
-33.2	2.1		SAND, clayey, mostly fine-grained sand-sized quartz, some clay, band of poorly graded sand at 1.7 ft, dark gray (SC)		
-34.1	3.0		CLAY, lean, mostly clay, some fine-grained sand-sized quartz, gray (CL)		
-37.5	6.4		CLAY, fat, mostly clay, trace fine-grained sand-sized quartz, trace silt, high plasticity, dark gray (CH)		
-38.3	7.2		SAND, poorly-graded with silt, mostly fine-grained sand-sized quartz, few silt, trace shell fragments, gray (SP-SM)		
-42.1	11.0		CLAY, lean, mostly clay, little silt, trace fine-grained sand-sized quartz, trace shell fragments, gray (CL)		
			NOTES:		
			1. Soils are field visually classified in accordance with the Unified Soils Classification System.		
			2. NS = Sample not submitted for laboratory analysis from this interval.		
			3. Seafloor elevation calculated using sampling vessel's fathometer water depth reading and applying NOAA tidal gauge data conversion factor.		



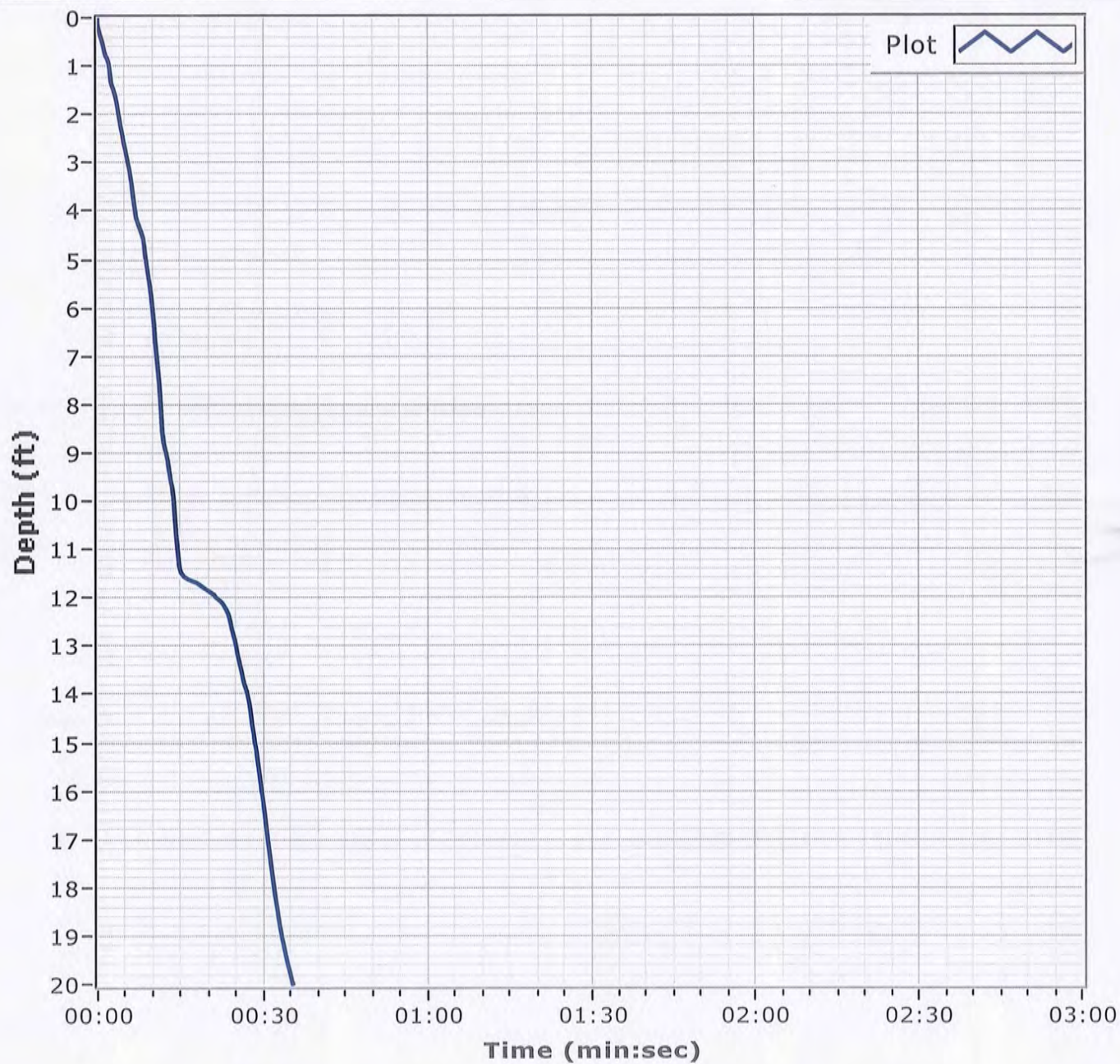
**Project**

Mississippi Barrier Island  
Restoration Project

**AVS**  
**AMERICAN VIBRACORE**  
**S E R V I C E S**

**Core Identifier** BI-HP-32-12**Date** 12/04/2012**Water Depth** 32.3'**Coordinate System**

Latitude / Longitude

**Start Time** 14:48:06**End Time** 14:48:42**Penetration** 20.0'**Latitude** 30 11.022**Total Time** 00:00:35**Recovery** 11.0'**Longitude** 088 34.806**Comments**

# Boring Designation BI-HP-33-12

DRILLING LOG		DIVISION South Atlantic		INSTALLATION Mobile District		SHEET 1 OF 1 SHEETS	
1. PROJECT MsCIP Barrier Island Restoration Horn Island Pass				9. SIZE AND TYPE OF BIT N/A			
2. BORING DESIGNATION BI-HP-33-12		LOCATION COORDINATES E = 1,062,259 N = 249,484		10. COORDINATE SYSTEM/DATUM State Plane, MSE (U.S. Ft.)		HORIZONTAL NAD83 VERTICAL NAVD88	
3. DRILLING AGENCY Corps of Engineers - CESAM		CONTRACTOR FILE NO.		11. MANUFACTURER'S DESIGNATION OF DRILL Vibracore		<input type="checkbox"/> AUTO HAMMER <input type="checkbox"/> MANUAL HAMMER	
4. NAME OF DRILLER American Vibracore Systems, Inc.				12. TOTAL SAMPLES		DISTURBED UNDISTURBED (UD) 0	
5. DIRECTION OF BORING <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED		DEG. FROM VERTICAL		13. TOTAL NUMBER CORE BOXES			
		BEARING		14. WATER DEPTH 31.7 Ft.			
6. THICKNESS OF OVERBURDEN N/A				15. DATE BORING 12-04-12		STARTED COMPLETED 12-04-12	
7. DEPTH DRILLED INTO ROCK N/A				16. ELEVATION TOP OF BORING -30.4 Ft.			
8. TOTAL DEPTH OF BORING 10.7 Ft.				17. TOTAL RECOVERY FOR BORING 100%			
				18. SIGNATURE AND TITLE OF INSPECTOR Mike FitzHarris, Geologist			
ELEV.	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS	SAMPLE	LABORATORY RESULTS		
-30.4	0.0						
-32.6	2.2		SAND, poorly-graded, mostly fine to medium-grained sand-sized quartz, trace silt, trace clay, lt. gray (SP)	A	Classification: SP Color: 2.5Y 7/2-light gray D50: 0.2133 mm % Fines: 2.1		
-33.5	3.1		SILT, inorganic-L, mostly silt, some clay, dark gray (ML)				
			CLAY, lean, mostly clay, some fine-grained sand-sized quartz, trace shell fragments, sandy clay/clayey sand strata, dark gray (CL)	NS			
-41.1	10.7						
			NOTES: 1. Soils are field visually classified in accordance with the Unified Soils Classification System. 2. NS = Sample not submitted for laboratory analysis from this interval. 3. Seafloor elevation calculated using sampling vessel's fathometer water depth reading and applying NOAA tidal gauge data conversion factor.				



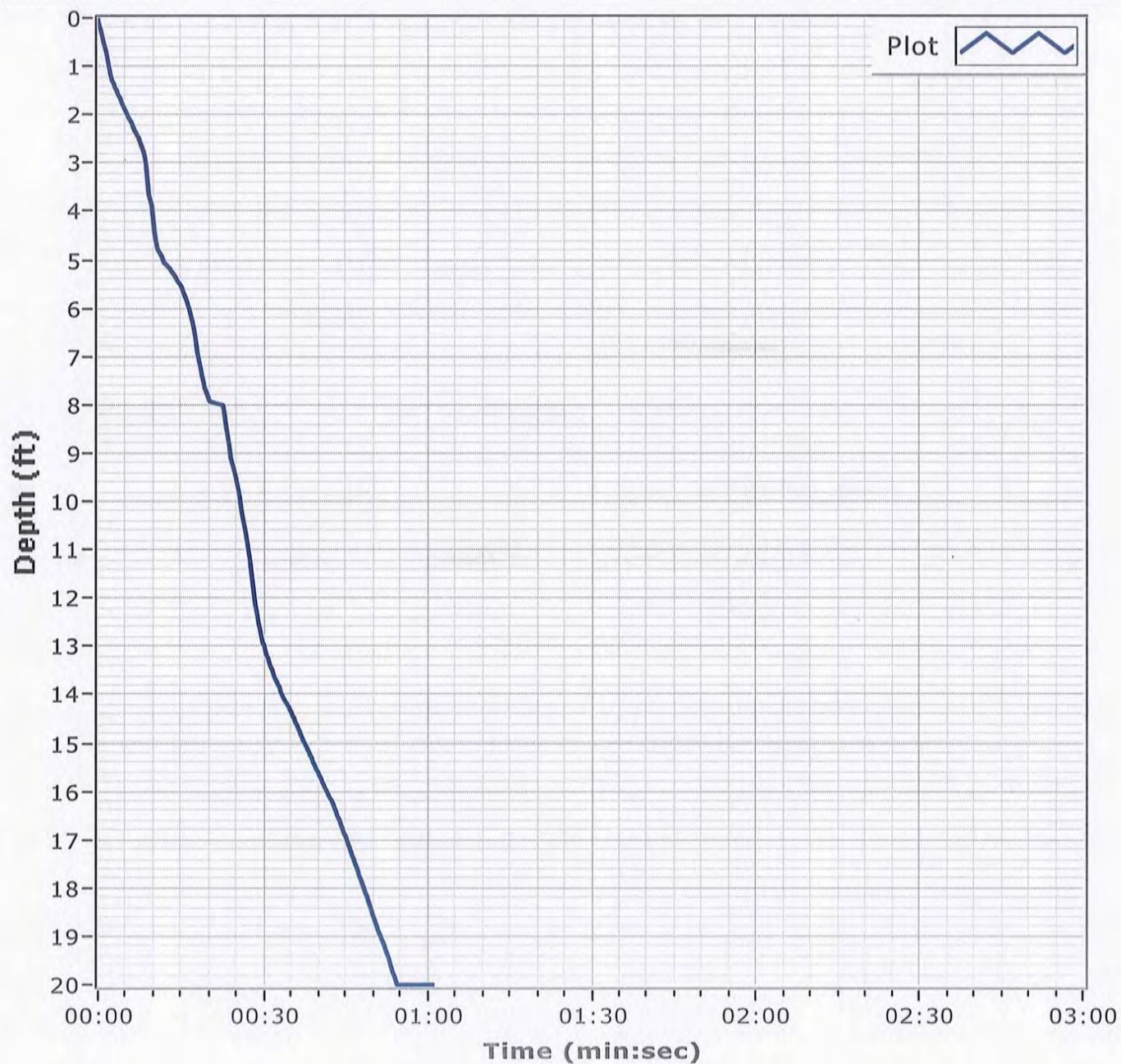
**Project**

Mississippi Barrier Island  
Restoration Project

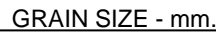
**AVS**  
**AMERICAN VIBRACORE**  
**S E R V I C E S**

**Core Identifier** BI-HP-33-12**Date** 12/04/2012**Water Depth** 31.7**Coordinate System**

Latitude / Longitude

**Start Time** 15:24:42**End Time** 15:25:43**Penetration** 20.0'**Latitude** 30 11.148**Total Time** 00:01:01**Recovery** 10.7'**Longitude** 088 35.186**Comments**

## PERCENT FINER

1-98

# Boring Designation BI-HP-34-12

DRILLING LOG		DIVISION South Atlantic		INSTALLATION Mobile District		SHEET 1 OF 1 SHEETS	
1. PROJECT MsCIP Barrier Island Restoration Horn Island Pass				9. SIZE AND TYPE OF BIT N/A			
2. BORING DESIGNATION BI-HP-34-12		LOCATION COORDINATES E = 1,072,199 N = 251,954		10. COORDINATE SYSTEM/DATUM State Plane, MSE (U.S. Ft.)		HORIZONTAL NAD83	
3. DRILLING AGENCY Corps of Engineers - CESAM		CONTRACTOR FILE NO.		11. MANUFACTURER'S DESIGNATION OF DRILL Vibrocure		<input type="checkbox"/> AUTO HAMMER <input type="checkbox"/> MANUAL HAMMER	
4. NAME OF DRILLER American Vibrocure Systems, Inc.				12. TOTAL SAMPLES		DISTURBED 0	
5. DIRECTION OF BORING <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED				13. TOTAL NUMBER CORE BOXES		14. WATER DEPTH 30.1 Ft.	
6. THICKNESS OF OVERBURDEN N/A				15. DATE BORING		STARTED 12-21-12	
7. DEPTH DRILLED INTO ROCK N/A				16. ELEVATION TOP OF BORING -30.1 Ft.		COMPLETED 12-21-12	
8. TOTAL DEPTH OF BORING 19.5 Ft.				17. TOTAL RECOVERY FOR BORING 100%		18. SIGNATURE AND TITLE OF INSPECTOR Mike FitzHarris, Geologist	
ELEV.	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS	SAMPLE	LABORATORY RESULTS		
-30.1	0.0						
			SAND, poorly-graded, mostly fine to medium-grained sand-sized quartz, trace fines, trace shell fragments, clay ban at 7.9 ft., lt. pale brown to lt. gray (SP)	A	Classification: SP Color: 2.5Y 7/2-light gray D50: 0.3284 mm % Fines: 0.7		
				B	Classification: SP Color: 5Y 7/2-light gray D50: 0.2909 mm % Fines: 2.9		
-40.8	10.7			C	Classification: SP Color: 5Y 6/2-light olive gray D50: 0.2948 mm % Fines: 1.8		
			SILT, inorganic-L, mostly silt, some clay, few fine-grained sand-sized quartz, few shell fragments, soft, dark gray (ML)	NS			
-49.6	19.5						
			NOTES:				
			1. Soils are field visually classified in accordance with the Unified Soils Classification System.				
			2. NS = Sample not submitted for laboratory analysis from this interval.				
			3. Seafloor elevation determined from USACE hydrographic survey completed June 2014.				



# Project

Mississippi Barrier Island  
Restoration Project

**AVS**  
AMERICAN VIBRACORE  
S E R V I C E S

Core Identifier BI-HP-34-12

Date 12/21/2012

Water Depth 30.1'

## Coordinate System

Latitude / Longitude

Start Time 15:28:34

End Time 15:30:20

Penetration 20.0'

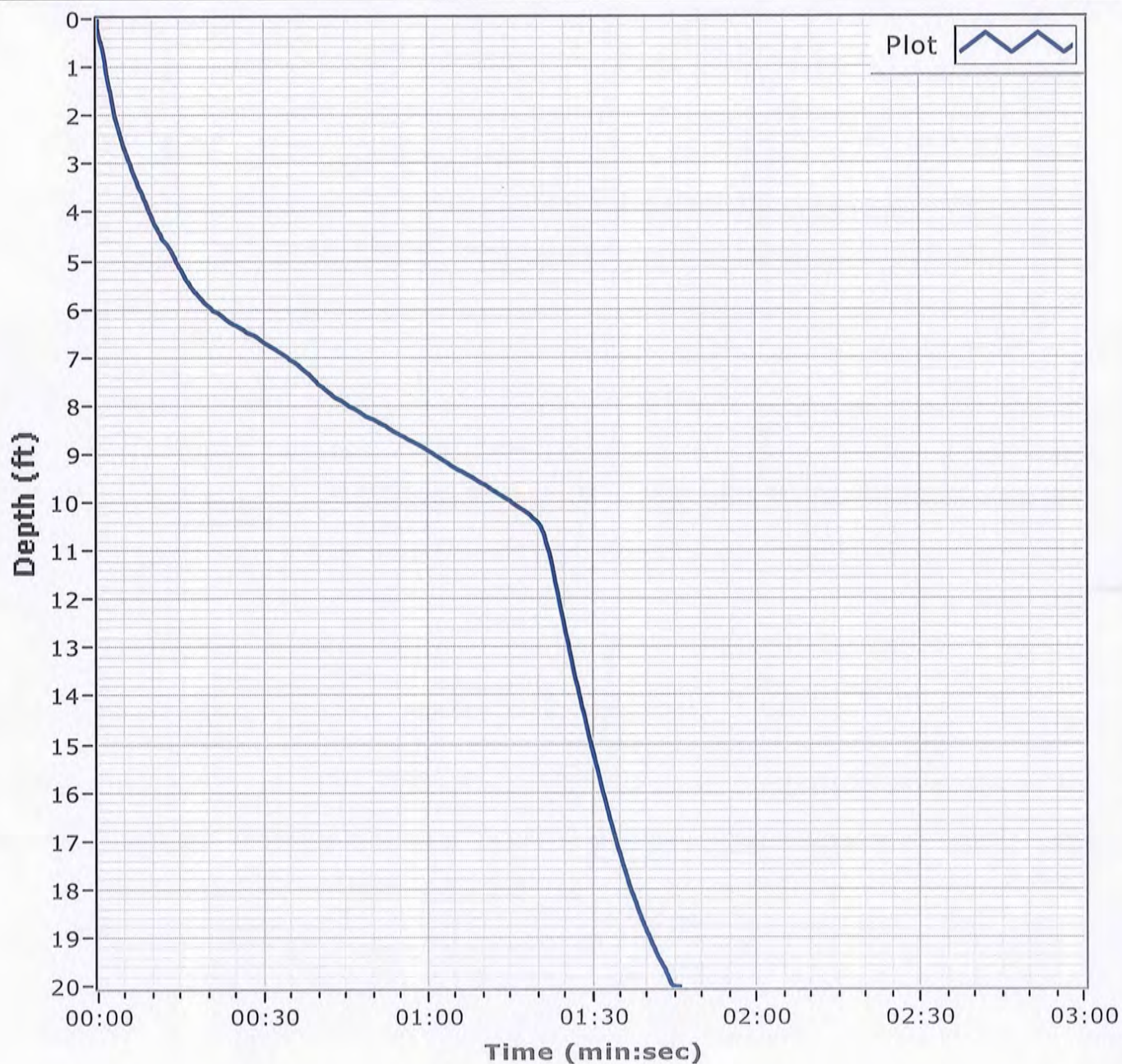
Latitude 30 11.552 N

Total Time 00:01:46

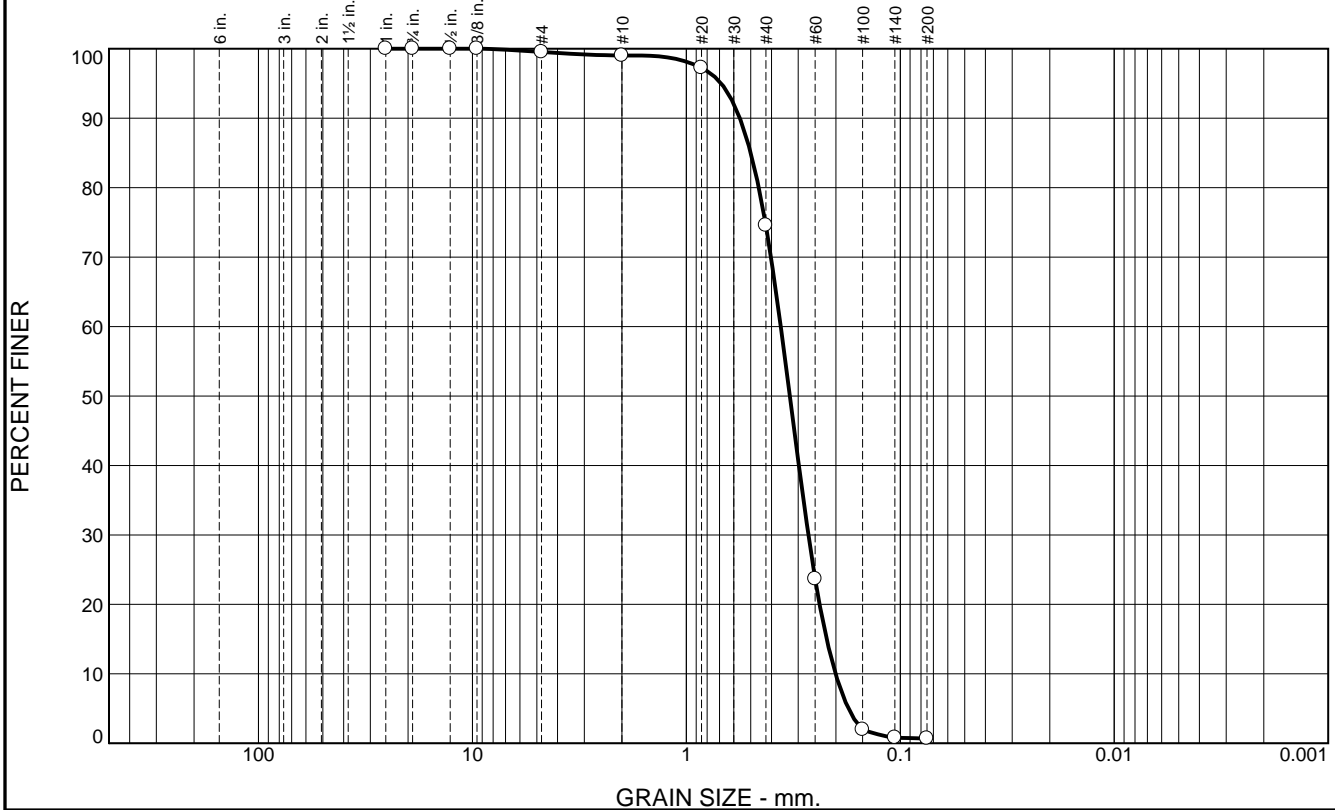
Recovery 19.5'

Longitude 088 33.297 W

## Comments



# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.5	0.5	24.4	73.9	0.7	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
1	100.0		
.75	100.0		
.5	100.0		
.375	100.0		
#4	99.5		
#10	99.0		
#20	97.2		
#40	74.6		
#60	23.6		
#100	2.0		
#140	0.8		
#200	0.7		

\* (no specification provided)

## Material Description

Fine to medium grained, SAND

## Atterberg Limits

PL= LL= PI=

## Coefficients

D<sub>90</sub>= 0.5621 D<sub>85</sub>= 0.5002 D<sub>60</sub>= 0.3620  
D<sub>50</sub>= 0.3284 D<sub>30</sub>= 0.2690 D<sub>15</sub>= 0.2209  
D<sub>10</sub>= 0.2007 C<sub>u</sub>= 1.80 C<sub>c</sub>= 1.00

## Classification

USCS= SP AASHTO=

## Remarks

Location: BI-HP-34-12 A  
Sample Number: 6495 (1)

Depth: 0.0'

Date: 12/31/12

**Thompson Engineering**

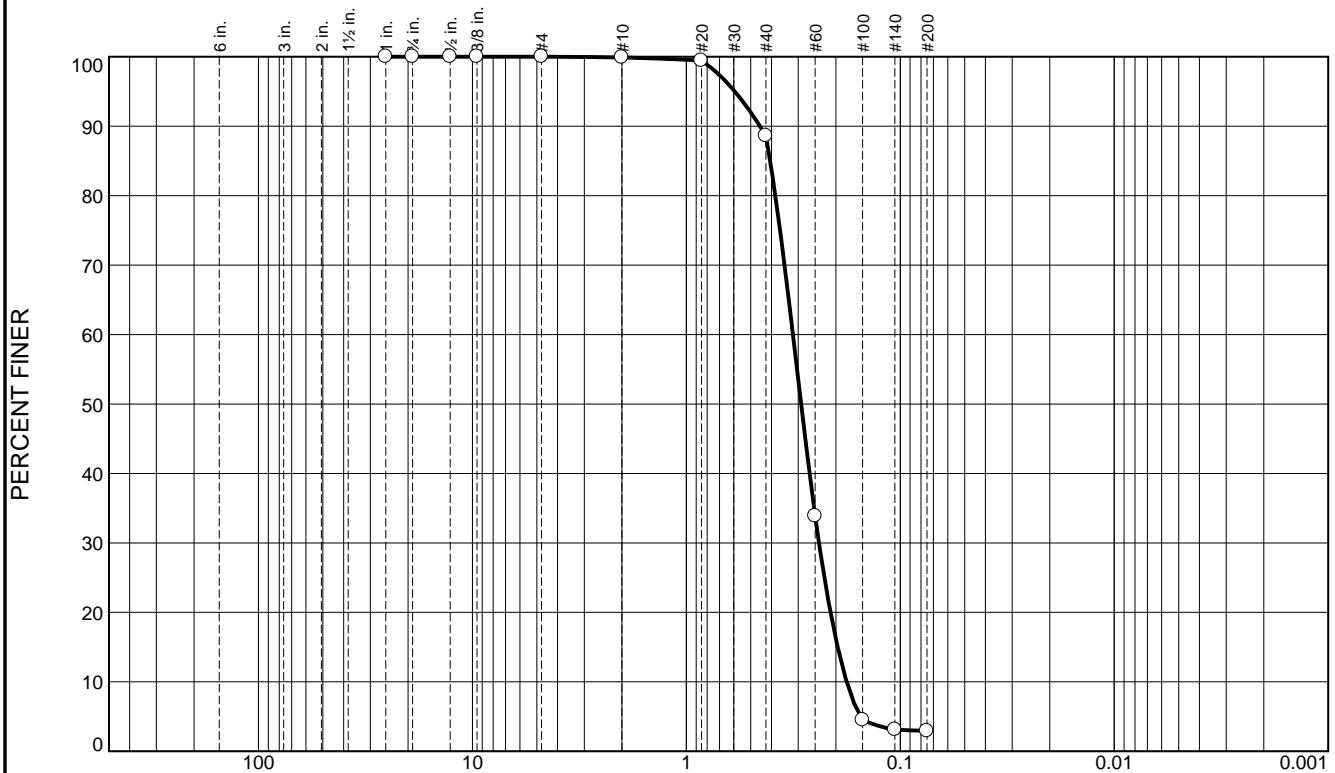
**Mobile, Alabama**

Client: CDM/Thompson Engineering JV  
Project: MsCIP Barrier Island Restoration GT

Project No: 1221110095

Figure

# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.0	0.1	11.3	85.7	2.9	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
1	100.0		
.75	100.0		
.5	100.0		
.375	100.0		
#4	100.0		
#10	99.9		
#20	99.4		
#40	88.6		
#60	33.9		
#100	4.5		
#140	3.1		
#200	2.9		

\* (no specification provided)

<u><b>Material Description</b></u>		
Fine to medium grained, SAND		
<u><b>Atterberg Limits</b></u>		
PL=	LL=	PI=
<u><b>Coefficients</b></u>		
D <sub>90</sub> = 0.4531	D <sub>85</sub> = 0.4057	D <sub>60</sub> = 0.3176
D <sub>50</sub> = 0.2909	D <sub>30</sub> = 0.2399	D <sub>15</sub> = 0.1963
D <sub>10</sub> = 0.1782	C <sub>u</sub> = 1.78	C <sub>c</sub> = 1.02
<u><b>Classification</b></u>		
USCS= SP	AASHTO=	
<u><b>Remarks</b></u>		

Location: BI-HP-34-12 B  
Sample Number: 6495 (2)

Depth: 4.5'

Date: 12/31/12

**Thompson Engineering**

**Mobile, Alabama**

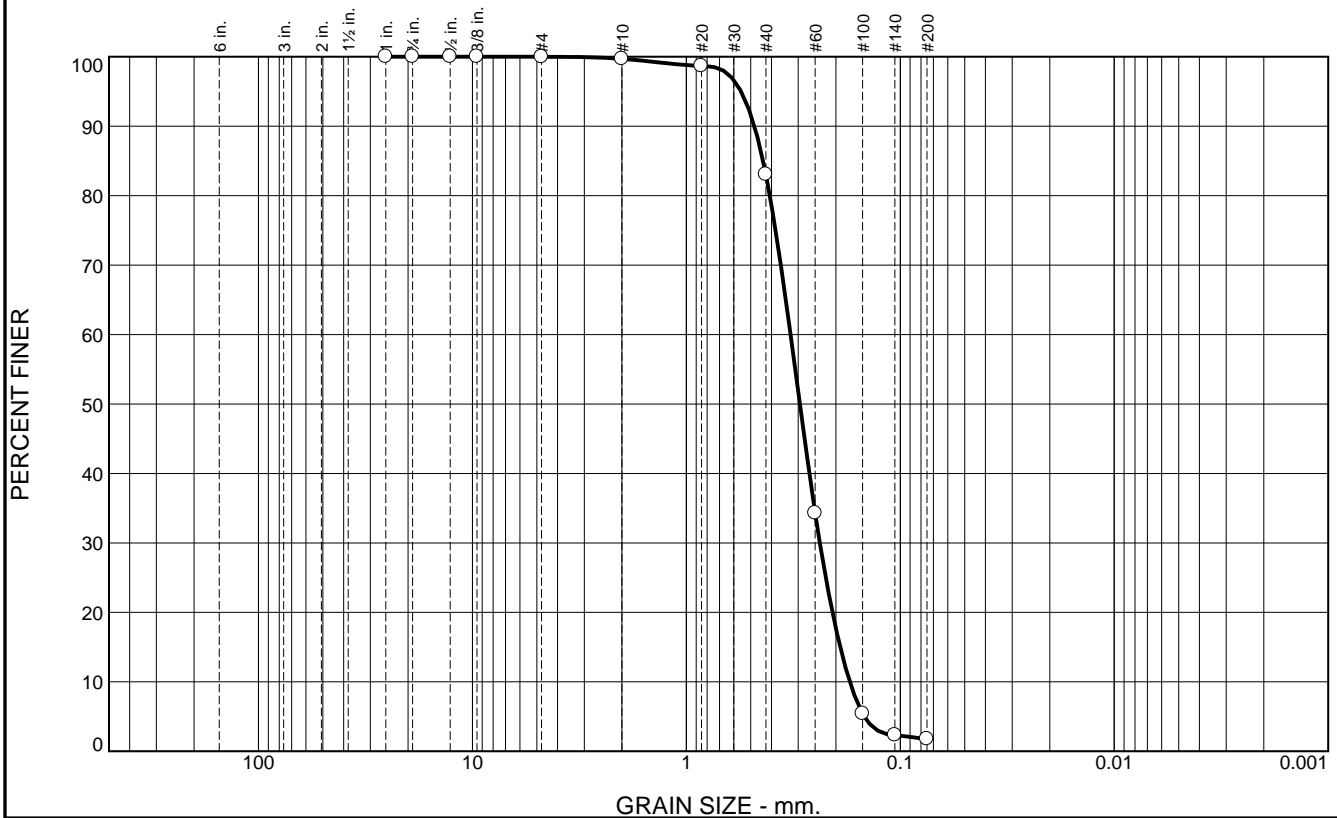
Client: CDM/Thompson Engineering JV  
Project: MsCIP Barrier Island Restoration GT

Project No: 1221110095

Figure



# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.0	0.3	16.6	81.3	1.8	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
1	100.0		
.75	100.0		
.5	100.0		
.375	100.0		
#4	100.0		
#10	99.7		
#20	98.7		
#40	83.1		
#60	34.3		
#100	5.4		
#140	2.3		
#200	1.8		

\* (no specification provided)

<u><b>Material Description</b></u>		
Fine to medium grained, SAND		
<u><b>Atterberg Limits</b></u>		
PL=	LL=	PI=
<u><b>Coefficients</b></u>		
D <sub>90</sub> = 0.4809	D <sub>85</sub> = 0.4379	D <sub>60</sub> = 0.3258
D <sub>50</sub> = 0.2948	D <sub>30</sub> = 0.2377	D <sub>15</sub> = 0.1910
D <sub>10</sub> = 0.1724	C <sub>u</sub> = 1.89	C <sub>c</sub> = 1.01
<u><b>Classification</b></u>		
USCS= SP	AASHTO=	
<u><b>Remarks</b></u>		

Location: BI-HP-34-12 C  
Sample Number: 6495 (3)

Depth: 9.5'

Date: 12/31/12

**Thompson Engineering**

**Mobile, Alabama**

Client: CDM/Thompson Engineering JV  
Project: MsCIP Barrier Island Restoration GT

Project No: 1221110095

Figure

# Boring Designation BI-HP-36-12

DRILLING LOG		DIVISION South Atlantic		INSTALLATION Mobile District		SHEET 1 OF 1 SHEETS	
1. PROJECT MsCIP Barrier Island Restoration Horn Island Pass				9. SIZE AND TYPE OF BIT N/A			
2. BORING DESIGNATION BI-HP-36-12		LOCATION COORDINATES E = 1,080,857 N = 255,020		10. COORDINATE SYSTEM/DATUM State Plane, MSE (U.S. Ft.)		HORIZONTAL NAD83	
3. DRILLING AGENCY Corps of Engineers - CESAM		CONTRACTOR FILE NO.		11. MANUFACTURER'S DESIGNATION OF DRILL Vibracore		<input type="checkbox"/> AUTO HAMMER <input type="checkbox"/> MANUAL HAMMER	
4. NAME OF DRILLER American Vibracore Systems, Inc.				12. TOTAL SAMPLES		DISTURBED 0	
5. DIRECTION OF BORING <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED				13. TOTAL NUMBER CORE BOXES		14. WATER DEPTH 19.8 Ft.	
6. THICKNESS OF OVERBURDEN N/A				15. DATE BORING		STARTED 12-21-12	
7. DEPTH DRILLED INTO ROCK N/A				16. ELEVATION TOP OF BORING -19.2 Ft.		COMPLETED 12-21-12	
8. TOTAL DEPTH OF BORING 18.8 Ft.				17. TOTAL RECOVERY FOR BORING 100%			
				18. SIGNATURE AND TITLE OF INSPECTOR Mike FitzHarris, Geologist			
ELEV.	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS	SAMPLE	LABORATORY RESULTS		
-19.2	0.0						
			SAND, poorly-graded, mostly fine to medium-grained sand-sized quartz, trace fines, trace shell fragments, lt. gray (SP)	A	Classification: SP Color: 5Y 7/2-light gray D50: 0.2577 mm % Fines: 1.6		
				B	Classification: SP Color: 5Y 7/1-light gray D50: 0.2099 mm % Fines: 1.7		
				C	Classification: SP Color: 5Y 6/2-light olive gray D50: 0.2072 mm % Fines: 2.5		
-31.0	11.8						
			SAND, silty, mostly fine-grained sand-sized quartz, some silt, few clay bands and few pockets of poorly graded sand (SP) throughout interval, silt content increases with depth, gray to dark gray (SM)	NS			
-38.0	18.8						
			NOTES: 1. Soils are field visually classified in accordance with the Unified Soils Classification System. 2. NS = Sample not submitted for laboratory analysis from this interval. 3. Seafloor elevation calculated using sampling vessel's fathometer water depth reading and applying NOAA tidal gauge data conversion factor.				

**Project**

Mississippi Barrier Island  
Restoration Project

**AVS**  
**AMERICAN VIBRACORE**  
**S E R V I C E S**

**Core Identifier** BI-HP-36-12

**Date** 12/21/2012

**Water Depth** 19.8'

**Coordinate System**

Latitude / Longitude

**Start Time** 14:14:41

**End Time** 14:16:43

**Penetration** 20.0'

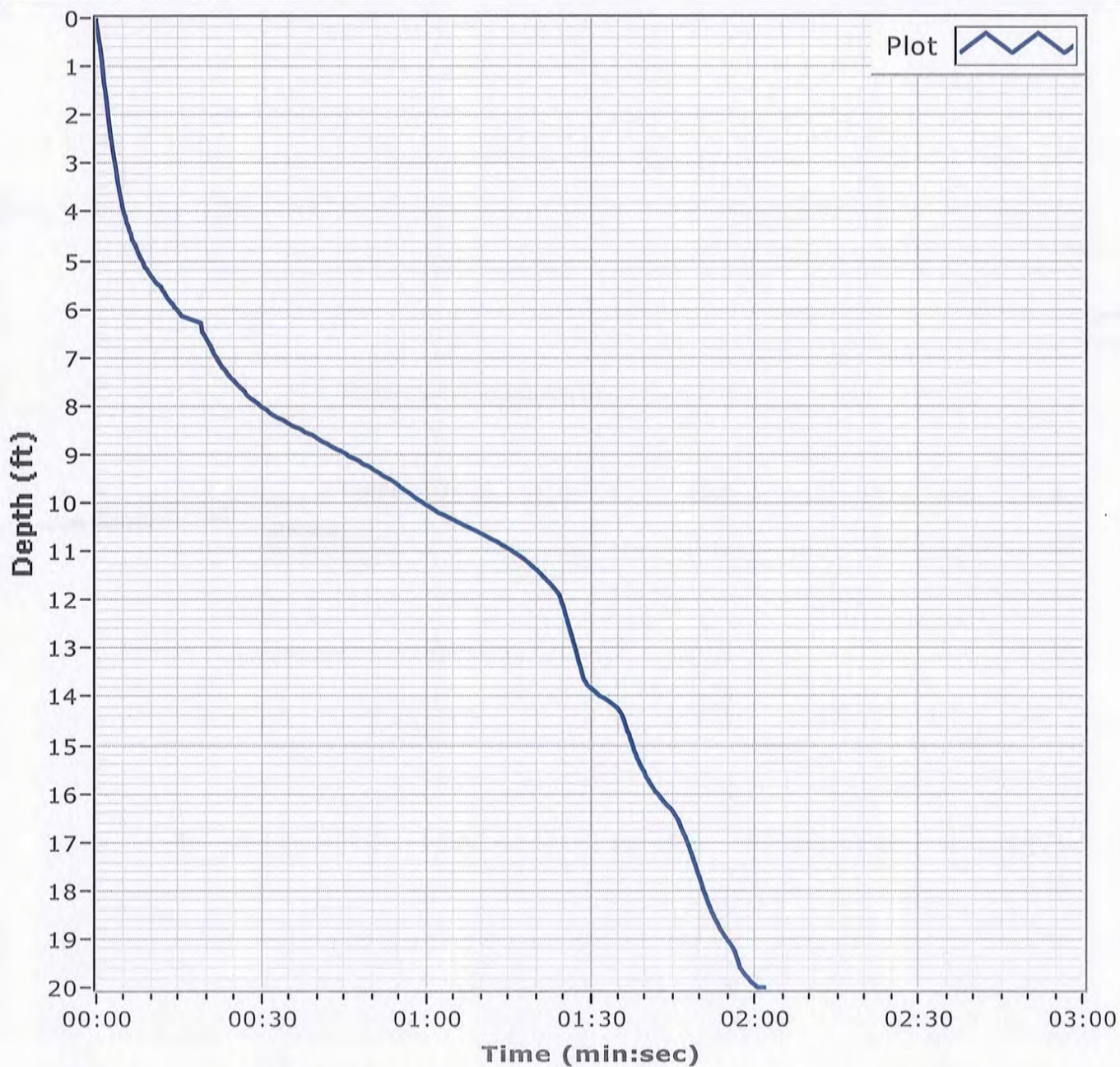
**Latitude** 30 12.054 N

**Total Time** 00:02:02

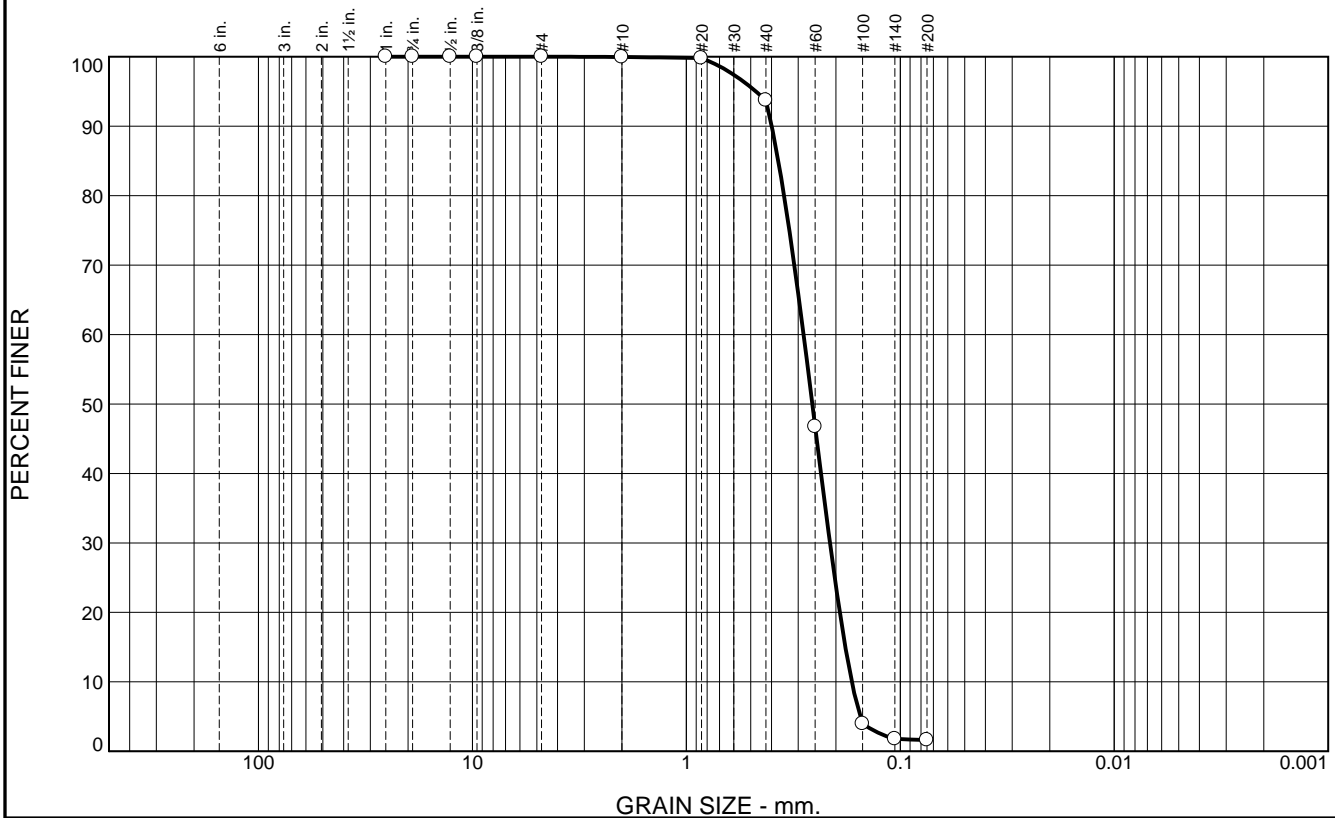
**Recovery** 18.8'

**Longitude** 88 31.651 W

**Comments**



# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.0	0.0	6.3	92.1	1.6	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
1	100.0		
.75	100.0		
.5	100.0		
.375	100.0		
#4	100.0		
#10	100.0		
#20	99.8		
#40	93.7		
#60	46.7		
#100	4.0		
#140	1.8		
#200	1.6		

\* (no specification provided)

## Material Description

Fine grained, SAND

## Atterberg Limits

PL=

LL=

PI=

## Coefficients

D<sub>90</sub>= 0.3989

D<sub>85</sub>= 0.3715

D<sub>60</sub>= 0.2833

D<sub>50</sub>= 0.2577

D<sub>30</sub>= 0.2132

D<sub>15</sub>= 0.1808

D<sub>10</sub>= 0.1687

C<sub>u</sub>= 1.68

C<sub>c</sub>= 0.95

## Classification

USCS= SP

AASHTO=

## Remarks

Location: BI-HP-36-12 A  
Sample Number: 6495 (4)

Depth: 0.0'

Date: 12/31/12

**Thompson Engineering**

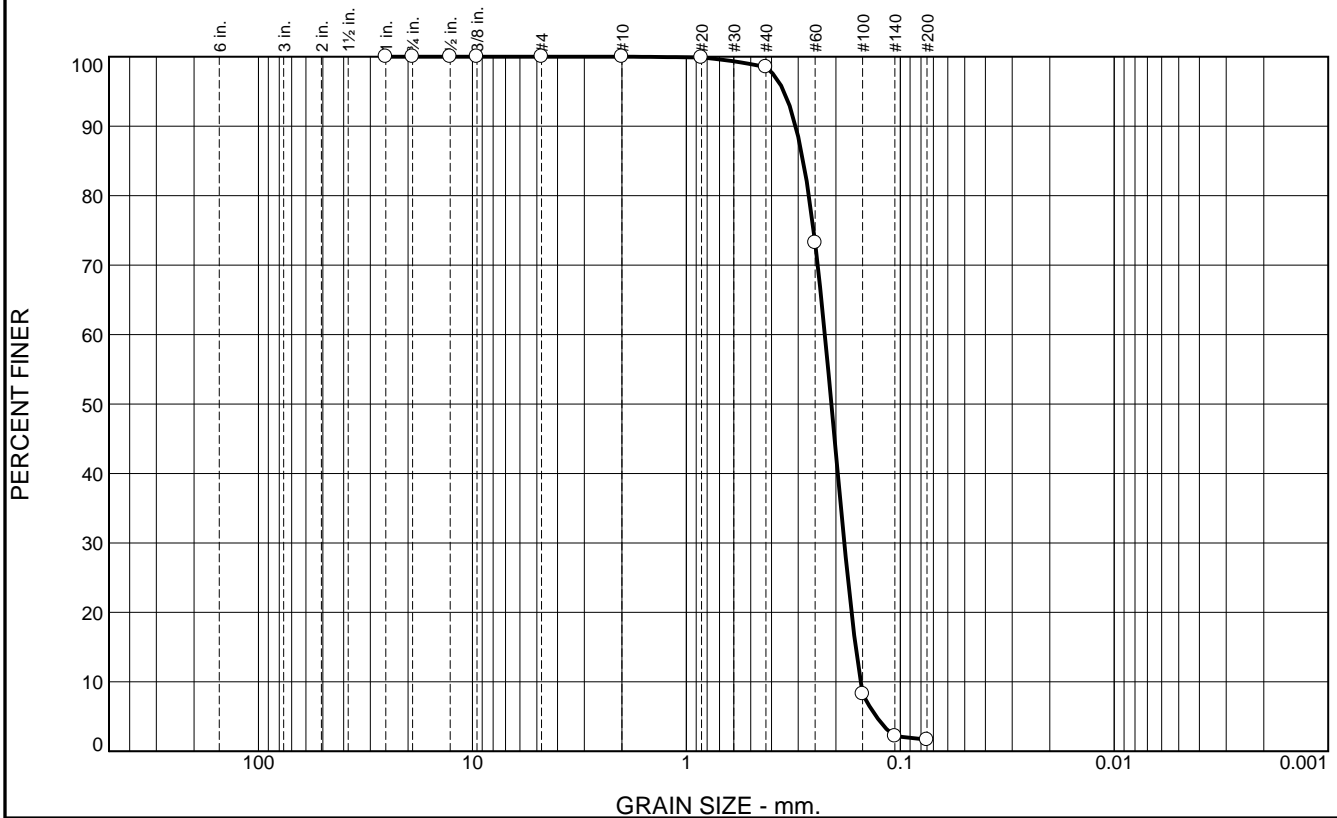
**Mobile, Alabama**

Client: CDM/Thompson Engineering JV  
Project: MsCIP Barrier Island Restoration GT

Project No: 1221110095

Figure

# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.0	0.0	1.5	96.8	1.7	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
1	100.0		
.75	100.0		
.5	100.0		
.375	100.0		
#4	100.0		
#10	100.0		
#20	99.9		
#40	98.5		
#60	73.2		
#100	8.2		
#140	2.2		
#200	1.7		

\* (no specification provided)

Material Description		
Fine grained, SAND		
<div> <div> <b>Atterberg Limits</b> </div> <div>           PL=      LL=      PI=         </div> </div>		
<div> <div> <b>Coefficients</b> </div> <div>           D<sub>90</sub>= 0.3085      D<sub>85</sub>= 0.2846      D<sub>60</sub>= 0.2251            D<sub>50</sub>= 0.2099      D<sub>30</sub>= 0.1828      D<sub>15</sub>= 0.1618            D<sub>10</sub>= 0.1534      C<sub>u</sub>= 1.47      C<sub>c</sub>= 0.97         </div> </div>		
<div> <div> <b>Classification</b> </div> <div>           USCS= SP      AASHTO=         </div> </div>		
<div> <div> <b>Remarks</b> </div> </div>		

Location: BI-HP-36-12 B  
Sample Number: 6495 (5)

Depth: 3.8'

Date: 12/31/12

**Thompson Engineering**

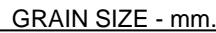
**Mobile, Alabama**

Client: CDM/Thompson Engineering JV  
Project: MsCIP Barrier Island Restoration GT

Project No: 1221110095

Figure

## PERCENT FINER



I-108

# Boring Designation BI-HP-37-12

DRILLING LOG		DIVISION South Atlantic		INSTALLATION Mobile District		SHEET 1 OF 1 SHEETS	
1. PROJECT MsCIP Barrier Island Restoration Horn Island Pass				9. SIZE AND TYPE OF BIT N/A			
2. BORING DESIGNATION BI-HP-37-12		LOCATION COORDINATES E = 1,070,872 N = 249,140		10. COORDINATE SYSTEM/DATUM State Plane, MSE (U.S. Ft.)		HORIZONTAL NAD83 VERTICAL NAVD88	
3. DRILLING AGENCY Corps of Engineers - CESAM		CONTRACTOR FILE NO.		11. MANUFACTURER'S DESIGNATION OF DRILL Vibracore		<input type="checkbox"/> AUTO HAMMER <input type="checkbox"/> MANUAL HAMMER	
4. NAME OF DRILLER American Vibracore Systems, Inc.				12. TOTAL SAMPLES		DISTURBED UNDISTURBED (UD) 0	
5. DIRECTION OF BORING <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED		DEG. FROM VERTICAL		13. TOTAL NUMBER CORE BOXES			
		BEARING		14. WATER DEPTH 39.8 Ft.			
6. THICKNESS OF OVERBURDEN N/A				15. DATE BORING 01-05-13		STARTED COMPLETED 01-05-13	
7. DEPTH DRILLED INTO ROCK N/A				16. ELEVATION TOP OF BORING -37.9 Ft.			
8. TOTAL DEPTH OF BORING 14.4 Ft.				17. TOTAL RECOVERY FOR BORING 100%			
				18. SIGNATURE AND TITLE OF INSPECTOR Mike FitzHarris, Geologist			
ELEV.	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS	SAMPLE	LABORATORY RESULTS		
-37.9	0.0						
-40.9	3.0		SAND, poorly-graded, mostly fine-grained sand-sized quartz, trace fines, trace shell fragments, trace silty pockets, lt. gray (SP)	A	Classification: SP Color: 5Y 6/3-pale olive D50: 0.2458 mm % Fines: 3.3		
-52.3	14.4		SILT, inorganic-L, mostly silt, some fine-grained sand-sized quartz, little clay, trace shell fragments, soft, gray (ML)	NS			
			NOTES: 1. Soils are field visually classified in accordance with the Unified Soils Classification System. 2. NS = Sample not submitted for laboratory analysis from this interval. 3. Seafloor elevation determined from USACE hydrographic survey completed June 2014.				



**Project**

Mississippi Barrier Island  
Restoration Project

**AVS**  
**AMERICAN VIBRACORE**  
**S E R V I C E S**

**Core Identifier** BI-HP-37-12

**Date** 01/05/2013

**Water Depth** 39.8'

**Coordinate System**

Latitude / Longitude

**Start Time** 12:42:36

**End Time** 12:43:07

**Penetration** 20.0'

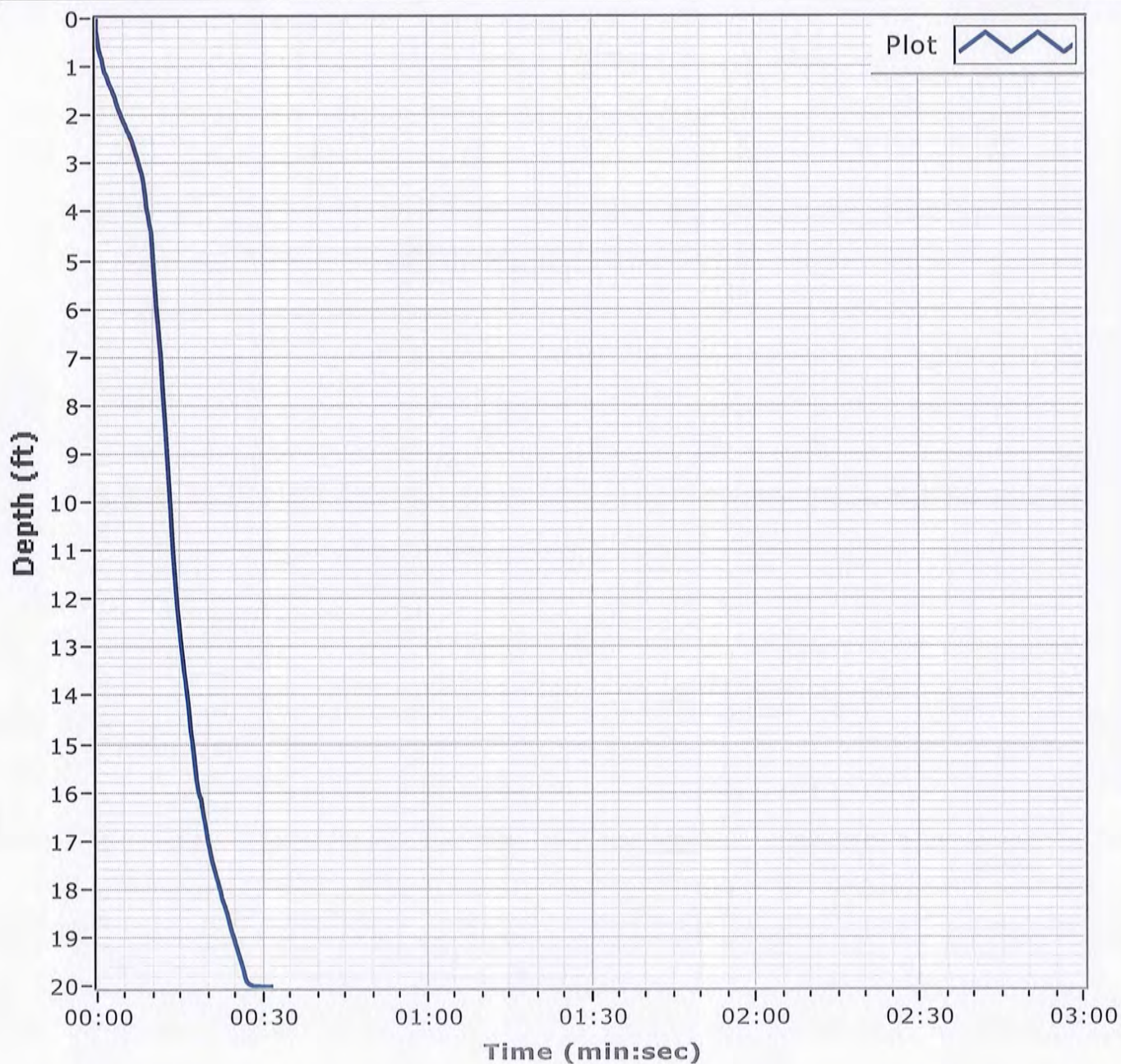
**Latitude** 30 11.088 N

**Total Time** 00:00:31

**Recovery** 14.4'

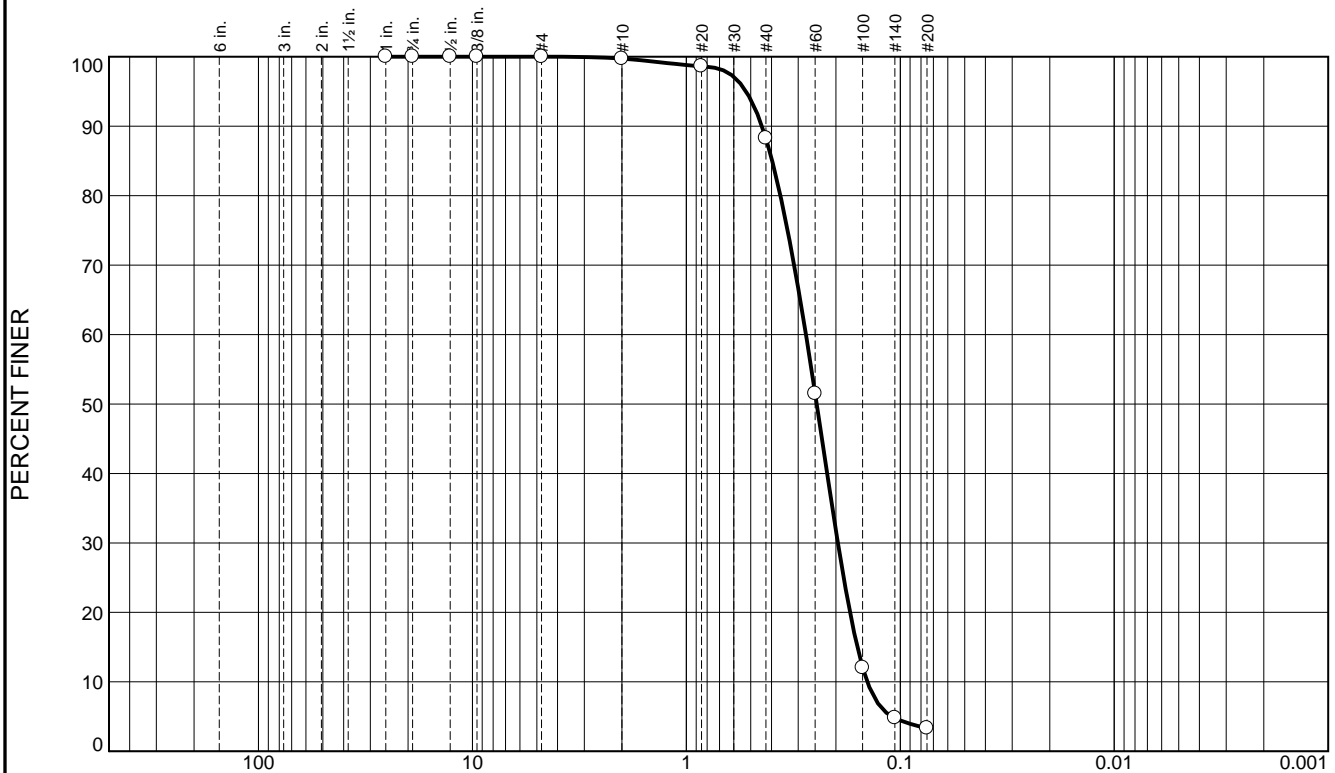
**Longitude** 088 33.550 W

**Comments**





# Particle Size Distribution Report



GRAIN SIZE - mm.

% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.0	0.3	11.4	85.0	3.3	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
1	100.0		
.75	100.0		
.5	100.0		
.375	100.0		
#4	100.0		
#10	99.7		
#20	98.6		
#40	88.3		
#60	51.5		
#100	12.0		
#140	4.8		
#200	3.3		

\* (no specification provided)

## Material Description

Fine to medium grained, SAND

## Atterberg Limits

PL= LL= PI=

## Coefficients

D<sub>90</sub>= 0.4434 D<sub>85</sub>= 0.3969 D<sub>60</sub>= 0.2762  
D<sub>50</sub>= 0.2458 D<sub>30</sub>= 0.1958 D<sub>15</sub>= 0.1589  
D<sub>10</sub>= 0.1427 C<sub>u</sub>= 1.94 C<sub>c</sub>= 0.97

## Classification

USCS= SP AASHTO=

## Remarks

Location: BI-HP-37-12 A  
Sample Number: 6503 (31)

Depth: 0.0'

Date: 1/08/13

**Thompson Engineering**

**Mobile, Alabama**

Client: CDM/Thompson Engineering JV  
Project: MsCIP Barrier Island Restoration GT

Project No: 1221110095

Figure

# Boring Designation BI-HP-38-12

DRILLING LOG		DIVISION South Atlantic		INSTALLATION Mobile District		SHEET 1 OF 1 SHEETS	
1. PROJECT MsCIP Barrier Island Restoration Horn Island Pass				9. SIZE AND TYPE OF BIT N/A			
2. BORING DESIGNATION BI-HP-38-12		LOCATION COORDINATES E = 1,078,463 N = 254,494		10. COORDINATE SYSTEM/DATUM State Plane, MSE (U.S. Ft.)		HORIZONTAL NAD83	
3. DRILLING AGENCY Corps of Engineers - CESAM		CONTRACTOR FILE NO.		11. MANUFACTURER'S DESIGNATION OF DRILL Vibracore		<input type="checkbox"/> AUTO HAMMER <input type="checkbox"/> MANUAL HAMMER	
4. NAME OF DRILLER American Vibracore Systems, Inc.				12. TOTAL SAMPLES		DISTURBED 0	
5. DIRECTION OF BORING <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED				13. TOTAL NUMBER CORE BOXES		14. WATER DEPTH 29.2 Ft.	
6. THICKNESS OF OVERBURDEN N/A				15. DATE BORING		STARTED 12-21-12	
7. DEPTH DRILLED INTO ROCK N/A				16. ELEVATION TOP OF BORING -29.8 Ft.		COMPLETED 12-21-12	
8. TOTAL DEPTH OF BORING 16.1 Ft.				17. TOTAL RECOVERY FOR BORING 100%			
				18. SIGNATURE AND TITLE OF INSPECTOR Mike FitzHarris, Geologist			
ELEV.	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS	SAMPLE	LABORATORY RESULTS		
-29.8	0.0						
-33.4	3.6		SAND, poorly-graded, mostly fine to medium-grained sand-sized quartz, trace shell fragments, trace clayey bands, pale lt. brown (SP)	A	Classification: SP-SM Color: 5Y 7/2-light gray D50: 0.3044 mm % Fines: 5.3		
-37.8	8.0		SILT, inorganic-L, mostly silt, some clay, trace fine-grained sand-sized quartz, trace shell fragments, dark gray (ML)	NS			
-39.5	9.7		SAND, silty, mostly fine-grained sand-sized quartz, some silt, few shell fragments, trace clay, dark gray (SM)				
-45.9	16.1		SILT, inorganic-L, mostly silt, some clay, some fine-grained sand-sized quartz, little shell fragments, dark gray (ML)				
NOTES: 1. Soils are field visually classified in accordance with the Unified Soils Classification System. 2. NS = Sample not submitted for laboratory analysis from this interval. 3. Seafloor elevation determined from USACE hydrographic survey completed June 2014.							

# Project

Mississippi Barrier Island  
Restoration Project



Core Identifier BI-HP-38-12

Date 12/21/2012

Water Depth 29.2'

## Coordinate System

Latitude / Longitude

Start Time 14:57:56

End Time 14:58:26

Penetration 20.0'

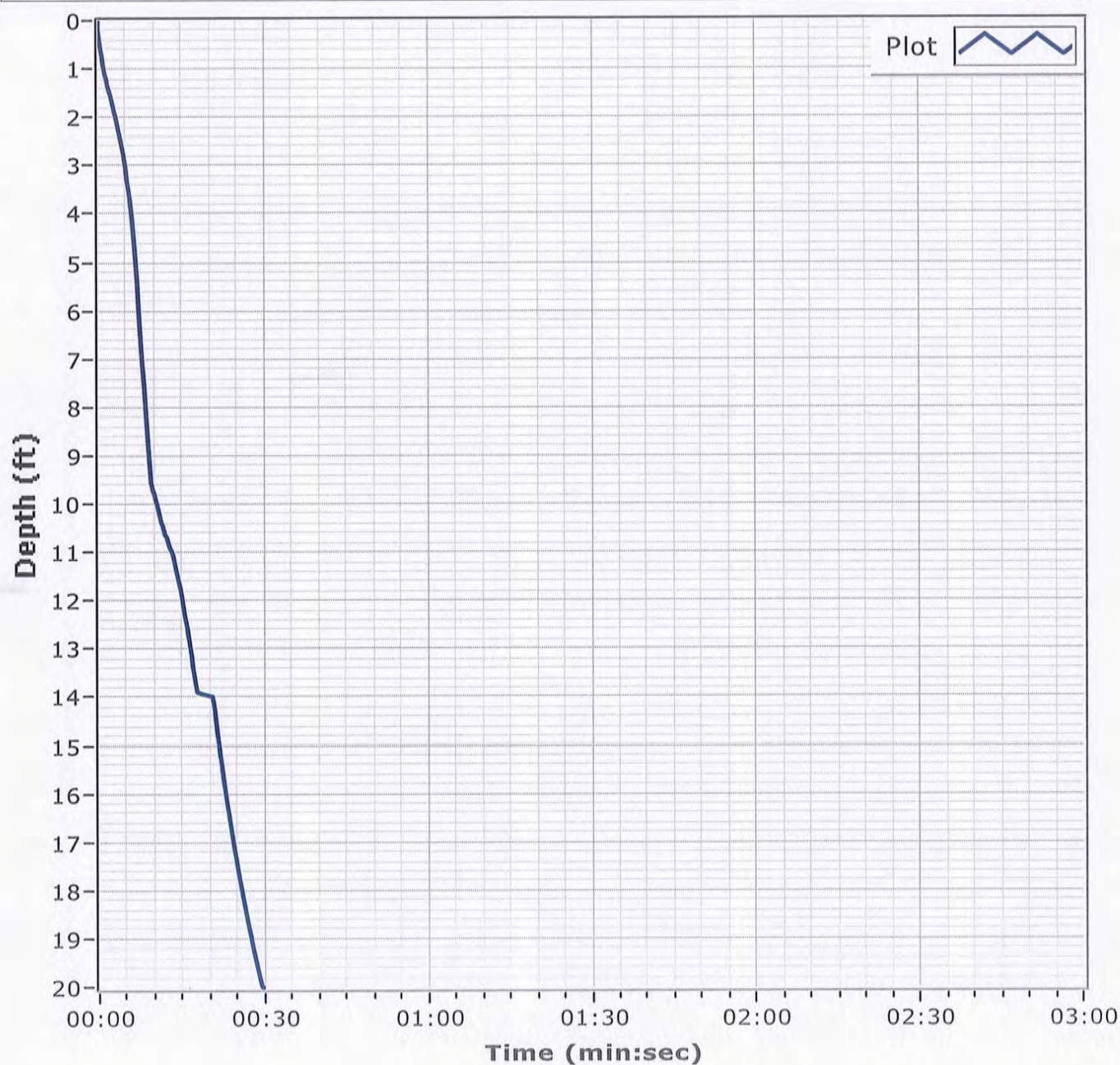
Latitude 30 11.968 N

Total Time 00:00:30

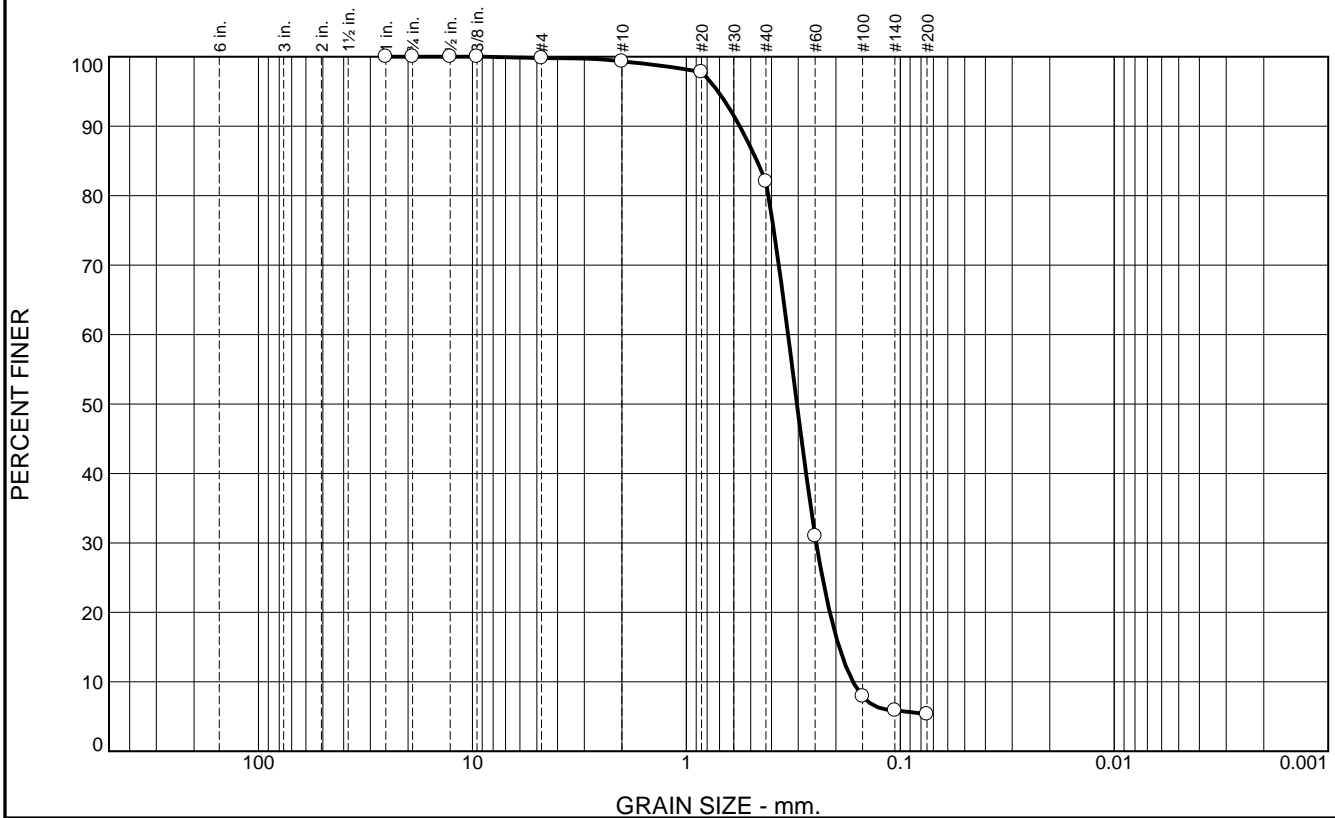
Recovery 16.1'

Longitude 088 32.106 W

## Comments



# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.2	0.5	17.3	76.7	5.3	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
1	100.0		
.75	100.0		
.5	100.0		
.375	100.0		
#4	99.8		
#10	99.3		
#20	97.8		
#40	82.0		
#60	31.0		
#100	7.9		
#140	5.9		
#200	5.3		

\* (no specification provided)

## Material Description

Fine to medium grained, SLIGHTLY SILTY SAND

## Atterberg Limits

PL= LL= PI=

## Coefficients

D<sub>90</sub>= 0.5631 D<sub>85</sub>= 0.4679 D<sub>60</sub>= 0.3347  
D<sub>50</sub>= 0.3044 D<sub>30</sub>= 0.2470 D<sub>15</sub>= 0.1932  
D<sub>10</sub>= 0.1665 C<sub>u</sub>= 2.01 C<sub>c</sub>= 1.09

## Classification

USCS= SP-SM AASHTO=

## Remarks

Location: BI-HP-38-12 A  
Sample Number: 6495 (7)

Depth: 0.0'

Date: 12/31/12

**Thompson Engineering**

**Mobile, Alabama**

Client: CDM/Thompson Engineering JV  
Project: MsCIP Barrier Island Restoration GT

Project No: 1221110095

Figure

# Boring Designation BI-HP-39-12

DRILLING LOG		DIVISION South Atlantic		INSTALLATION Mobile District		SHEET 1 OF 1 SHEETS	
1. PROJECT MsCIP Barrier Island Restoration Horn Island Pass				9. SIZE AND TYPE OF BIT N/A			
2. BORING DESIGNATION BI-HP-39-12		LOCATION COORDINATES E = 1,071,547 N = 251,312		10. COORDINATE SYSTEM/DATUM State Plane, MSE (U.S. Ft.)		HORIZONTAL NAD83	
3. DRILLING AGENCY Corps of Engineers - CESAM		CONTRACTOR FILE NO.		11. MANUFACTURER'S DESIGNATION OF DRILL Vibracore		<input type="checkbox"/> AUTO HAMMER <input type="checkbox"/> MANUAL HAMMER	
4. NAME OF DRILLER American Vibracore Systems, Inc.				12. TOTAL SAMPLES		DISTURBED 0	
5. DIRECTION OF BORING <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED				13. TOTAL NUMBER CORE BOXES		14. WATER DEPTH 32 Ft.	
6. THICKNESS OF OVERBURDEN N/A				15. DATE BORING		STARTED 12-21-12	
7. DEPTH DRILLED INTO ROCK N/A				16. ELEVATION TOP OF BORING -31.9 Ft.		COMPLETED 12-21-12	
8. TOTAL DEPTH OF BORING 17.4 Ft.				17. TOTAL RECOVERY FOR BORING 100%		18. SIGNATURE AND TITLE OF INSPECTOR Mike FitzHarris, Geologist	
ELEV.	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS	SAMPLE	LABORATORY RESULTS		
-31.9	0.0						
			SAND, poorly-graded, mostly fine to medium-grained sand-sized quartz, trace fines, trace shell fragments, trace clayey bands and silty zones, lt. pale brown to lt. gray (SP)	A	Classification: SP Color: 5Y 7/2-light gray D50: 0.2983 mm % Fines: 1.2		
				B	Classification: SP Color: 5Y 7/2-light gray D50: 0.2688 mm % Fines: 1.8		
-41.4	9.5			C	Classification: SP Color: 5Y 6/2-light olive gray D50: 0.2974 mm % Fines: 2.1		
			SILT, inorganic-L, mostly silt, some clay, some fine-grained sand-sized quartz, little shell fragments, soft, dark gray (ML)	NS			
-49.3	17.4						
		NOTES:					
		1. Soils are field visually classified in accordance with the Unified Soils Classification System. 2. NS = Sample not submitted for laboratory analysis from this interval. 3. Seafloor elevation determined from USACE hydrographic survey completed June 2014.					



**Project**

Mississippi Barrier Island  
Restoration Project

**AVS**  
**AMERICAN VIBRACORE**  
**S E R V I C E S**

**Core Identifier** BI-HP-39-12

**Date** 12/21/2012

**Water Depth** 32.0'

**Coordinate System**

Latitude / Longitude

**Start Time** 15:57:37

**End Time** 15:59:16

**Penetration** 20.0'

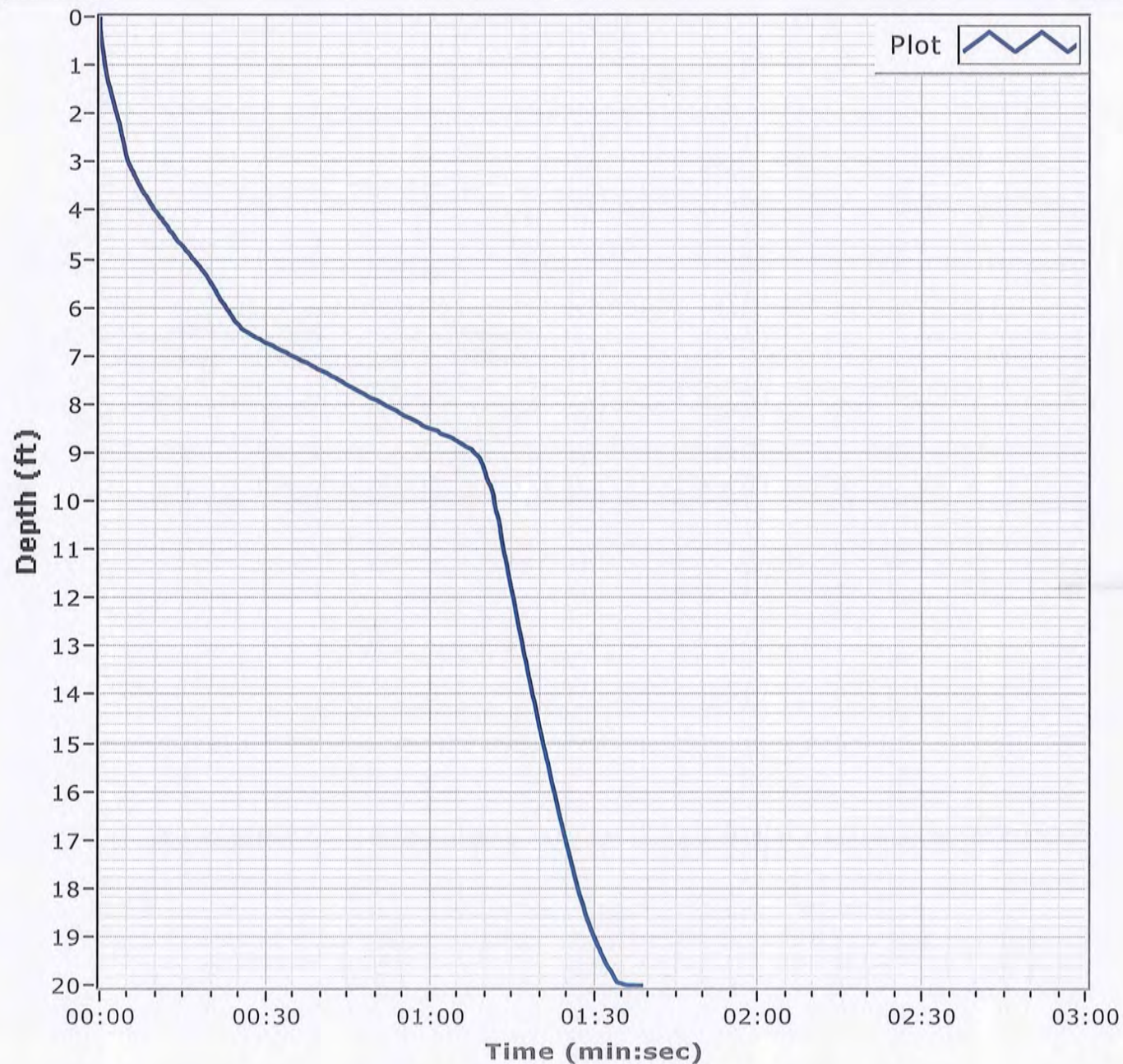
**Latitude** 30 11.446 N

**Total Time** 00:01:38

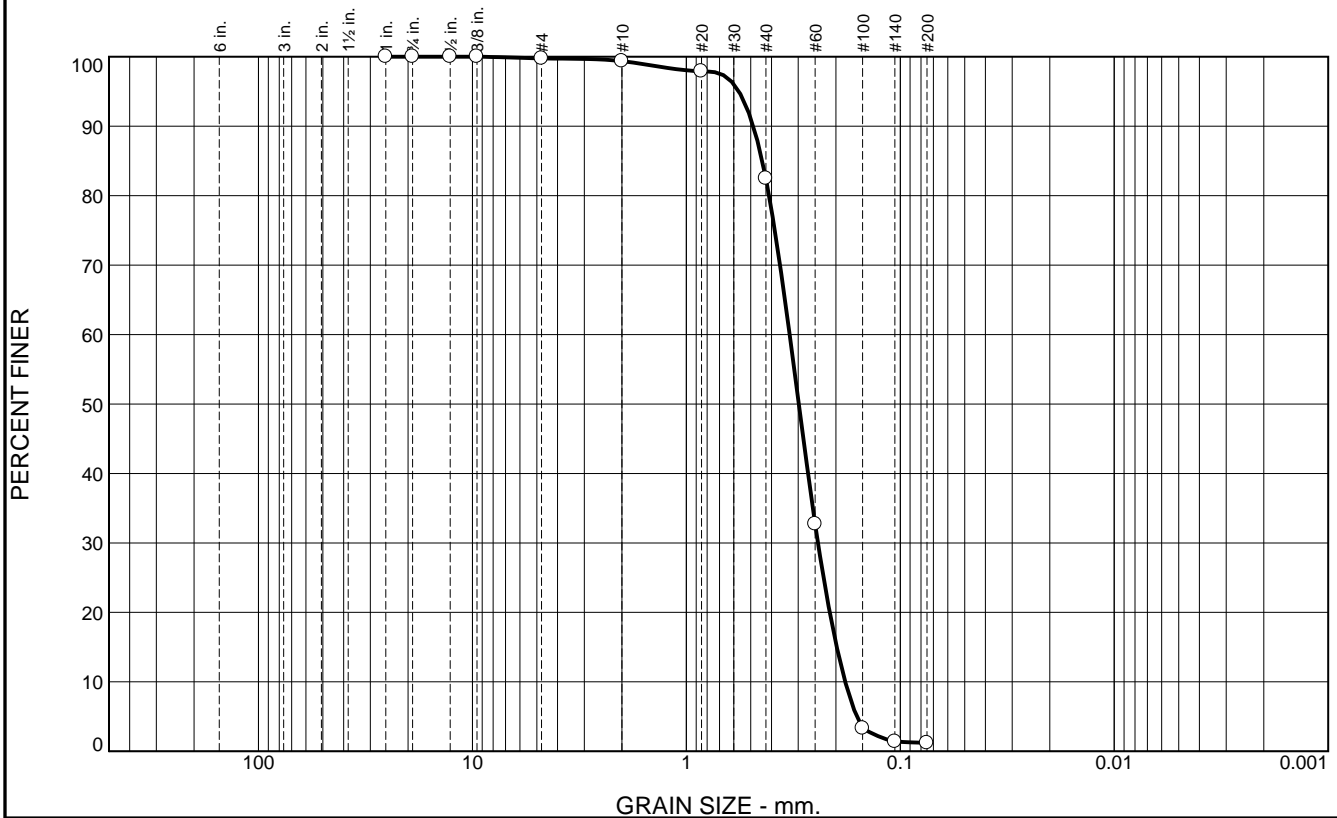
**Recovery** 17.4'

**Longitude** 088 33.421 W

**Comments**



# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.2	0.4	16.9	81.3	1.2	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
1	100.0		
.75	100.0		
.5	100.0		
.375	100.0		
#4	99.8		
#10	99.4		
#20	97.9		
#40	82.5		
#60	32.7		
#100	3.3		
#140	1.4		
#200	1.2		

\* (no specification provided)

<u><b>Material Description</b></u>		
Fine to medium grained, SAND		
<u><b>Atterberg Limits</b></u>		
PL=	LL=	PI=
<u><b>Coefficients</b></u>		
D <sub>90</sub> = 0.4867	D <sub>85</sub> = 0.4420	D <sub>60</sub> = 0.3290
D <sub>50</sub> = 0.2983	D <sub>30</sub> = 0.2425	D <sub>15</sub> = 0.1982
D <sub>10</sub> = 0.1810	C <sub>u</sub> = 1.82	C <sub>c</sub> = 0.99
<u><b>Classification</b></u>		
USCS= SP	AASHTO=	
<u><b>Remarks</b></u>		

Location: BI-HP-39-12 A  
Sample Number: 6495 (8)

Depth: 0.0'

Date: 12/31/12

**Thompson Engineering**

**Mobile, Alabama**

Client: CDM/Thompson Engineering JV  
Project: MsCIP Barrier Island Restoration GT

Project No: 1221110095

Figure

# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.3	0.3	9.3	88.3	1.8	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
1	100.0		
.75	100.0		
.5	100.0		
.375	99.7		
#4	99.7		
#10	99.4		
#20	98.6		
#40	90.1		
#60	42.7		
#100	5.5		
#140	2.2		
#200	1.8		

\* (no specification provided)

Material Description		
Fine grained, SAND		
<div> <div> Atterberg Limits </div> <div> PL= </div> <div> LL= </div> <div> PI= </div> </div>		
<div> <div> Coefficients </div> <div> D<sub>90</sub>= 0.4241 </div> <div> D<sub>50</sub>= 0.2688 </div> <div> D<sub>10</sub>= 0.1665 </div> <div> D<sub>85</sub>= 0.3927 </div> <div> D<sub>30</sub>= 0.2186 </div> <div> C<sub>u</sub>= 1.78 </div> <div> D<sub>60</sub>= 0.2967 </div> <div> D<sub>15</sub>= 0.1809 </div> <div> C<sub>c</sub>= 0.97 </div> </div>		
<div> <div> Classification </div> <div> USCS= SP </div> <div> AASHTO= </div> </div>		
<div> <div> Remarks </div> </div>		

Location: BI-HP-39-12 B  
Sample Number: 6495 (9)

Depth: 2.1'

Date: 12/31/12

**Thompson Engineering**

**Mobile, Alabama**

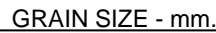
Client: CDM/Thompson Engineering JV  
Project: MsCIP Barrier Island Restoration GT

Project No: 1221110095

Figure



## PERCENT FINER



I-119

# Boring Designation BI-HP-40-12

DRILLING LOG		DIVISION South Atlantic		INSTALLATION Mobile District		SHEET 1 OF 1 SHEETS	
1. PROJECT MsCIP Barrier Island Restoration Horn Island Pass				9. SIZE AND TYPE OF BIT N/A			
2. BORING DESIGNATION BI-HP-40-12		LOCATION COORDINATES E = 1,071,644 N = 250,178		10. COORDINATE SYSTEM/DATUM State Plane, MSE (U.S. Ft.)		HORIZONTAL NAD83	
3. DRILLING AGENCY Corps of Engineers - CESAM		CONTRACTOR FILE NO.		11. MANUFACTURER'S DESIGNATION OF DRILL Vibracore		<input type="checkbox"/> AUTO HAMMER <input type="checkbox"/> MANUAL HAMMER	
4. NAME OF DRILLER American Vibracore Systems, Inc.				12. TOTAL SAMPLES		DISTURBED 0	
5. DIRECTION OF BORING <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED		DEG. FROM VERTICAL		13. TOTAL NUMBER CORE BOXES			
		BEARING		14. WATER DEPTH 34.2 Ft.			
6. THICKNESS OF OVERBURDEN N/A				15. DATE BORING 12-21-12		COMPLETED 12-21-12	
7. DEPTH DRILLED INTO ROCK N/A				16. ELEVATION TOP OF BORING -36.1 Ft.			
8. TOTAL DEPTH OF BORING 16.6 Ft.				17. TOTAL RECOVERY FOR BORING 100%			
				18. SIGNATURE AND TITLE OF INSPECTOR Mike FitzHarris, Geologist			
ELEV.	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS	SAMPLE	LABORATORY RESULTS		
-36.1	0.0						
-37.7	1.6		SAND, poorly-graded, mostly fine-grained sand-sized quartz, trace fines, lt. pale brown (SP)	A	Classification: SP Color: 5Y 7/2-light gray D50: 0.2302 mm % Fines: 2.4		
			SAND, poorly-graded, mostly fine to medium-grained sand-sized quartz, trace fines, trace shell fragments, shelly at 3.7 ft., lt. gray (SP)	B	Classification: SP Color: 5Y 6/2-light olive gray D50: 0.2819 mm % Fines: 3.8		
-41.0	4.9		SILT, inorganic-L, mostly silt, some clay, some fine-grained sand-sized quartz, some shell fragments, soft, gray (ML)	NS			
-52.7	16.6						
			NOTES:				
			1. Soils are field visually classified in accordance with the Unified Soils Classification System.				
			2. NS = Sample not submitted for laboratory analysis from this interval.				
			3. Seafloor elevation determined from USACE hydrographic survey completed June 2014.				

**Project**

Mississippi Barrier Island  
Restoration Project

**AVS**  
**AMERICAN VIBRACORE**  
**S E R V I C E S**

**Core Identifier** BI-HP-40-12

**Date** 12/21/2012

**Water Depth** 34.2'

**Coordinate System**

Latitude / Longitude

**Start Time** 16:22:32

**End Time** 16:23:21

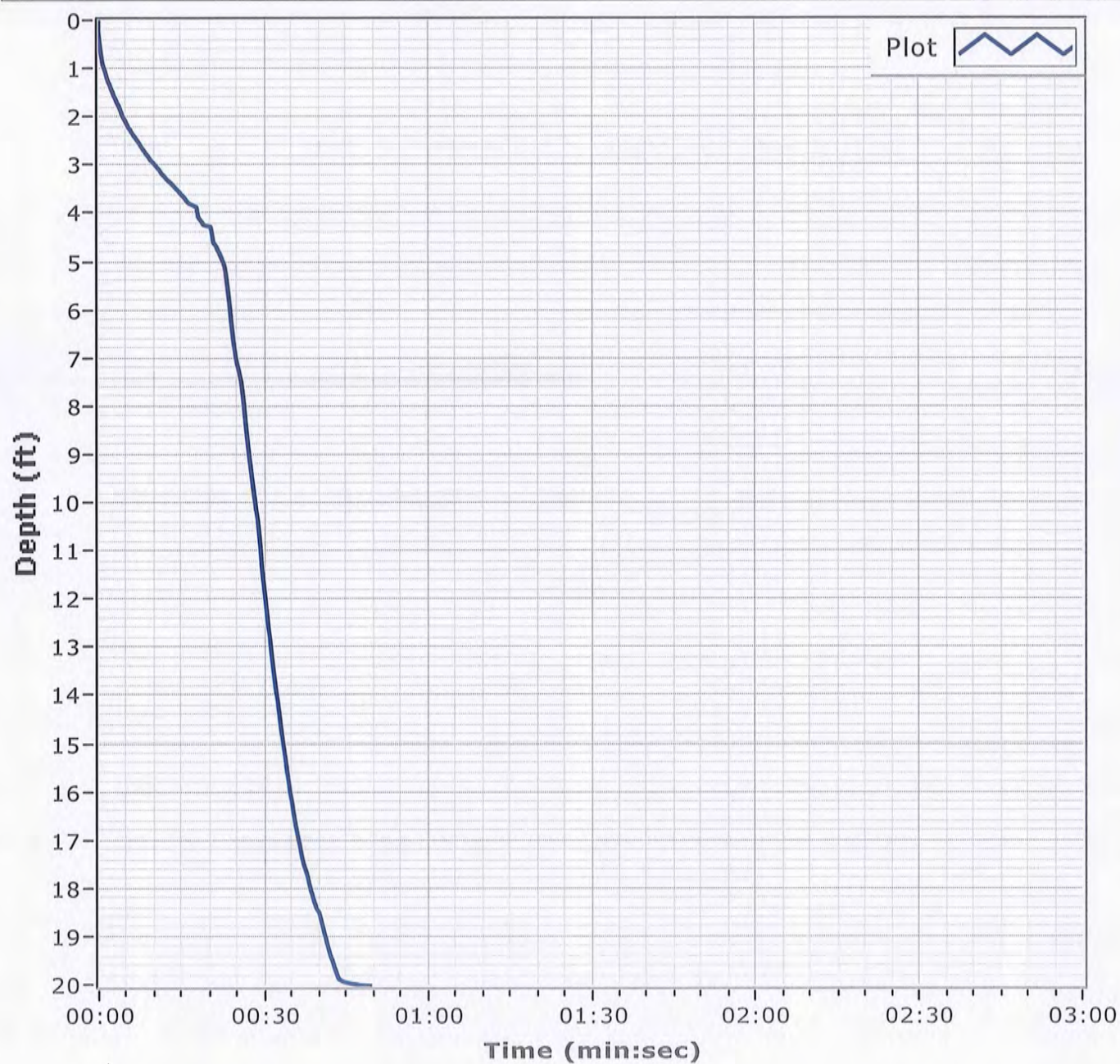
**Penetration** 20.0'

**Latitude** 30 11.259 N

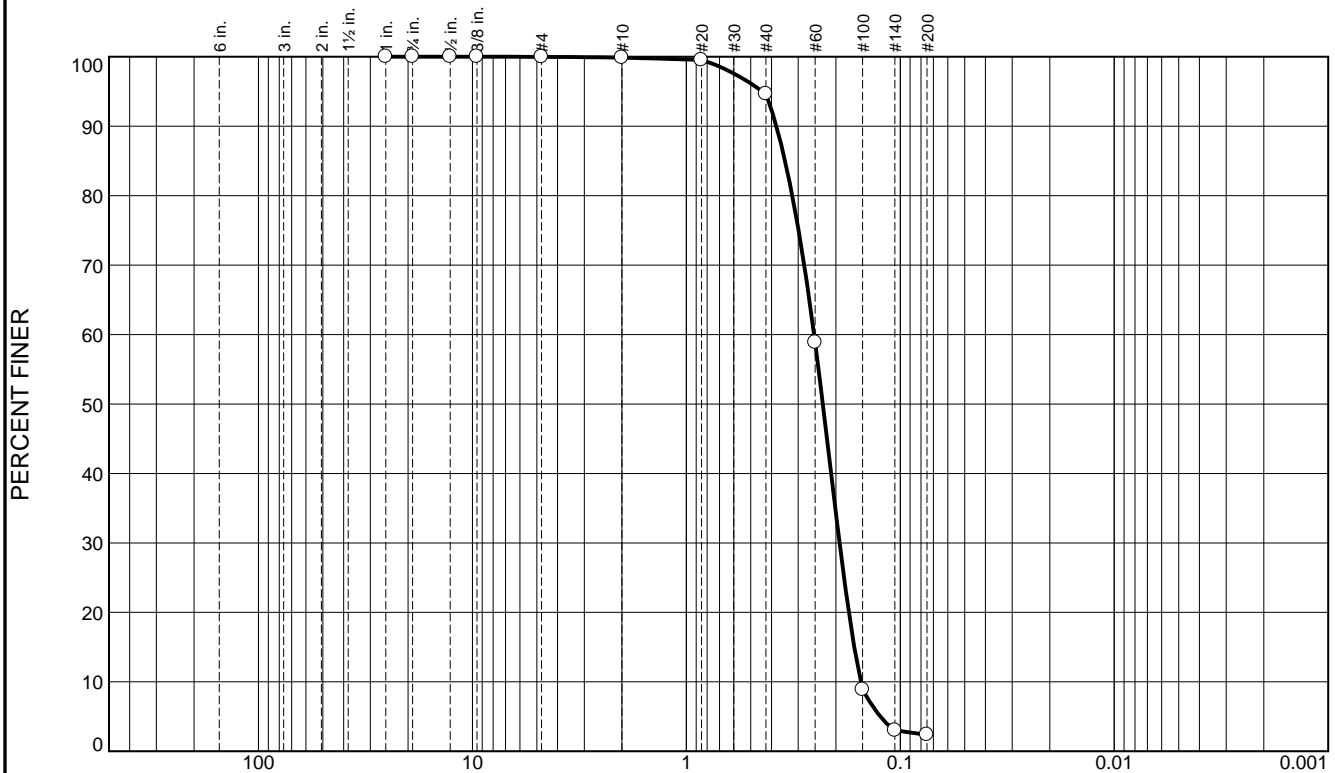
**Total Time** 00:00:49

**Recovery** 16.6'

**Longitude** 088 33.403 W

**Comments**

# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.0	0.2	5.2	92.2	2.4	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
1	100.0		
.75	100.0		
.5	100.0		
.375	100.0		
#4	100.0		
#10	99.8		
#20	99.5		
#40	94.6		
#60	58.8		
#100	8.9		
#140	3.0		
#200	2.4		

\* (no specification provided)

Material Description		
Fine grained, SAND		
<div> <div> <b>Atterberg Limits</b>            PL=      LL=      PI=         </div> <div> <b>Coefficients</b>            D<sub>90</sub>= 0.3793    D<sub>85</sub>= 0.3456    D<sub>60</sub>= 0.2529            D<sub>50</sub>= 0.2302    D<sub>30</sub>= 0.1923    D<sub>15</sub>= 0.1643            D<sub>10</sub>= 0.1530    C<sub>u</sub>= 1.65      C<sub>c</sub>= 0.96         </div> <div> <b>Classification</b>            USCS= SP      AASHTO=         </div> <div> <b>Remarks</b> </div> </div>		

Location: BI-HP-40-12 A  
Sample Number: 6495 (11)

Depth: 0.0'

Date: 12/31/12

**Thompson Engineering**

**Mobile, Alabama**

Client: CDM/Thompson Engineering JV  
Project: MsCIP Barrier Island Restoration GT

Project No: 1221110095

Figure

# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.3	0.6	12.7	82.6	3.8	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
1	100.0		
.75	100.0		
.5	100.0		
.375	100.0		
#4	99.7		
#10	99.1		
#20	97.7		
#40	86.4		
#60	39.1		
#100	11.2		
#140	5.5		
#200	3.8		

\* (no specification provided)

## Material Description

Fine to medium grained, SAND

## Atterberg Limits

PL= LL= PI=

## Coefficients

D<sub>90</sub>= 0.5040 D<sub>85</sub>= 0.4163 D<sub>60</sub>= 0.3124  
D<sub>50</sub>= 0.2819 D<sub>30</sub>= 0.2222 D<sub>15</sub>= 0.1680  
D<sub>10</sub>= 0.1433 C<sub>u</sub>= 2.18 C<sub>c</sub>= 1.10

## Classification

USCS= SP AASHTO=

## Remarks

Location: BI-HP-40-12 B  
Sample Number: 6495 (12)

Depth: 1.6'

Date: 12/31/12

**Thompson Engineering**

**Mobile, Alabama**

Client: CDM/Thompson Engineering JV  
Project: MsCIP Barrier Island Restoration GT

Project No: 1221110095

Figure

# Boring Designation BI-HP-41-12

DRILLING LOG		DIVISION South Atlantic		INSTALLATION Mobile District		SHEET 1 OF 1 SHEETS	
1. PROJECT MsCIP Barrier Island Restoration Horn Island Pass				9. SIZE AND TYPE OF BIT N/A			
2. BORING DESIGNATION BI-HP-41-12		LOCATION COORDINATES E = 1,078,900 N = 254,215		10. COORDINATE SYSTEM/DATUM State Plane, MSE (U.S. Ft.)		HORIZONTAL NAD83 VERTICAL NAVD88	
3. DRILLING AGENCY Corps of Engineers - CESAM		CONTRACTOR FILE NO.		11. MANUFACTURER'S DESIGNATION OF DRILL Vibracore		<input type="checkbox"/> AUTO HAMMER <input type="checkbox"/> MANUAL HAMMER	
4. NAME OF DRILLER American Vibracore Systems, Inc.				12. TOTAL SAMPLES		DISTURBED UNDISTURBED (UD) 0	
5. DIRECTION OF BORING <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED		DEG. FROM VERTICAL		13. TOTAL NUMBER CORE BOXES			
		BEARING		14. WATER DEPTH 28.5 Ft.			
6. THICKNESS OF OVERBURDEN N/A				15. DATE BORING 01-05-13		STARTED COMPLETED 01-05-13	
7. DEPTH DRILLED INTO ROCK N/A				16. ELEVATION TOP OF BORING -28.2 Ft.			
8. TOTAL DEPTH OF BORING 14.8 Ft.				17. TOTAL RECOVERY FOR BORING 100%			
				18. SIGNATURE AND TITLE OF INSPECTOR Mike FitzHarris, Geologist			
ELEV.	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS	SAMPLE	LABORATORY RESULTS		
-28.2	0.0						
-29.7	1.5		SAND, poorly-graded, mostly fine to medium-grained sand-sized quartz, trace fines, trace shell fragments, lt. pale brown (SP)	A	Classification: SP Color: 2.5Y 8/1-white D50: 0.3021 mm % Fines: 1.9		
			SAND, poorly-graded, mostly fine to medium-grained sand-sized quartz, trace fines, trace shell fragments, few clay lenses, lt. gray (SP)	B	Classification: SP-SM Color: 2.5Y 6/2-light brownish gray D50: 0.286 mm % Fines: 6.4		
-32.4	4.2		SAND, poorly-graded, mostly fine to medium-grained sand-sized quartz, trace shell fragments, trace clay lenses, lt. gray (SP)	C	Classification: SP Color: 2.5Y 7/2-light gray D50: 0.2785 mm % Fines: 4.1		
-35.3	7.1						
-38.2	10.0		SILT, inorganic-L, mostly silt, some fine-grained sand-sized quartz, trace clay, trace shell fragments, soft, gray (ML)	NS			
-39.3	11.1		SAND, silty, mostly fine-grained sand-sized quartz, some silt, few shell fragments, gray (SM)				
			SILT, inorganic-L, mostly silt, some fine-grained sand-sized quartz, few shell fragments, trace clay, soft, gray (ML)				
-43.0	14.8						
			NOTES: 1. Soils are field visually classified in accordance with the Unified Soils Classification System. 2. NS = Sample not submitted for laboratory analysis from this interval. 3. Seafloor elevation determined from USACE hydrographic survey completed June 2014.				



**Project**

Mississippi Barrier Island  
Restoration Project

**AVS**  
**AMERICAN VIBRACORE**  
**S E R V I C E S**

**Core Identifier** BI-HP-41-12

**Date** 01/05/2013

**Water Depth** 28.5'

**Coordinate System**

Latitude / Longitude

**Start Time** 11:40:13

**End Time** 11:41:09

**Penetration** 20.0'

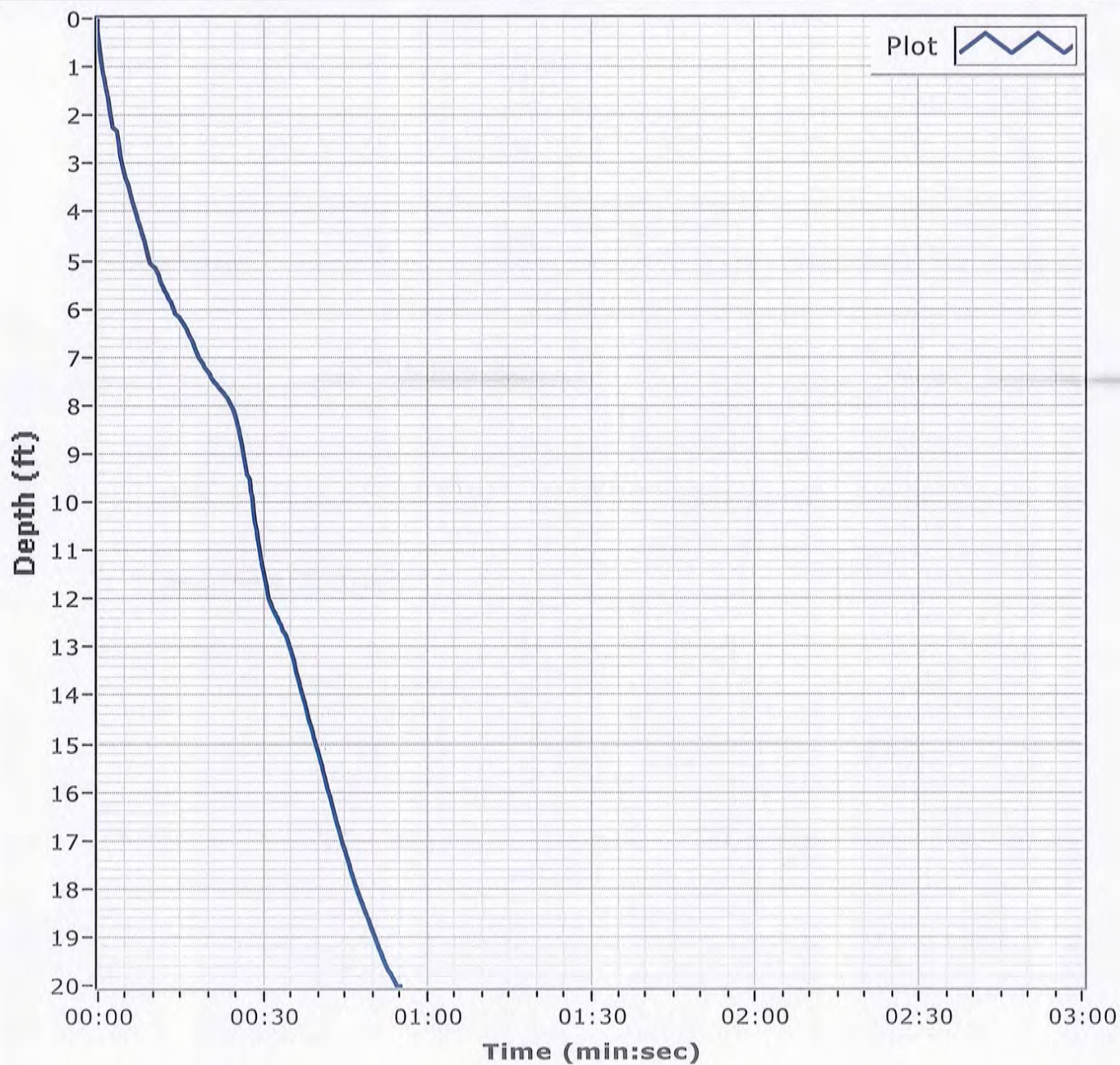
**Latitude** 30 11.922 N

**Total Time** 00:00:55

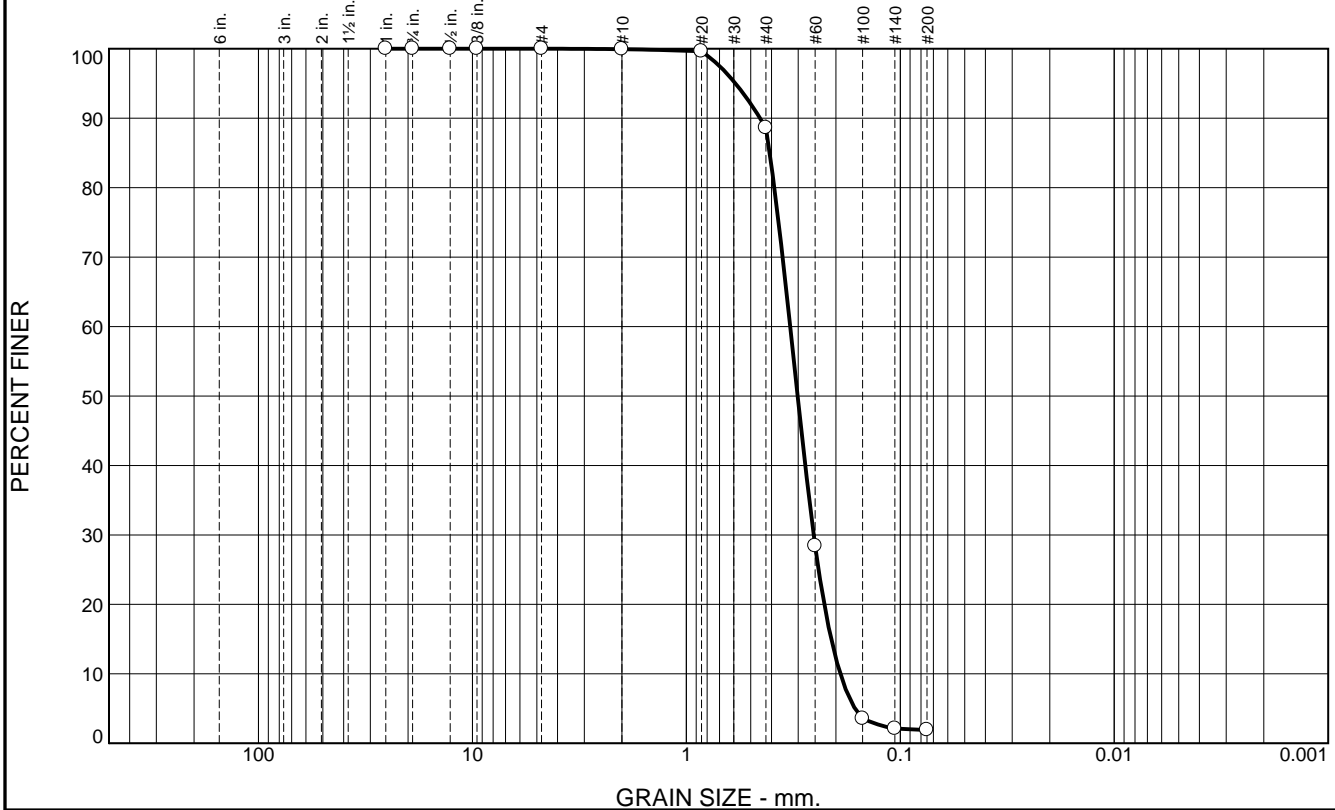
**Recovery** 14.8'

**Longitude** 088 32.023 W

**Comments**



# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.0	0.1	11.3	86.7	1.9	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
1	100.0		
.75	100.0		
.5	100.0		
.375	100.0		
#4	100.0		
#10	99.9		
#20	99.6		
#40	88.6		
#60	28.4		
#100	3.6		
#140	2.1		
#200	1.9		

\* (no specification provided)

<u><b>Material Description</b></u>		
Fine to medium grained, SAND		
<u><b>Atterberg Limits</b></u>		
PL=	LL=	PI=
<u><b>Coefficients</b></u>		
D <sub>90</sub> = 0.4528	D <sub>85</sub> = 0.4078	D <sub>60</sub> = 0.3271
D <sub>50</sub> = 0.3021	D <sub>30</sub> = 0.2540	D <sub>15</sub> = 0.2104
D <sub>10</sub> = 0.1908	C <sub>u</sub> = 1.71	C <sub>c</sub> = 1.03
<u><b>Classification</b></u>		
USCS= SP	AASHTO=	
<u><b>Remarks</b></u>		

Location: BI-HP-41-12 A  
Sample Number: 6503 (32)

Depth: 0.0'

Date: 1/08/13

**Thompson Engineering**

**Mobile, Alabama**

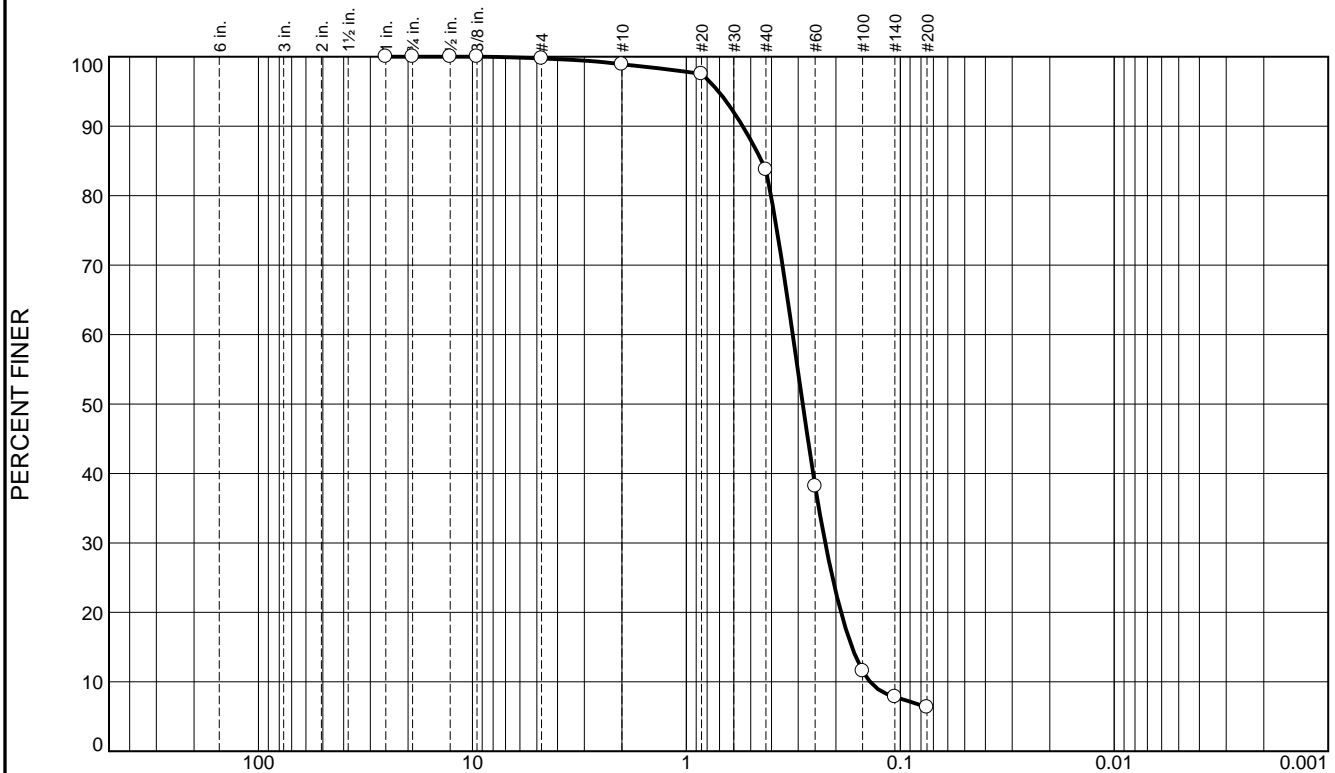
Client: CDM/Thompson Engineering JV  
Project: MsCIP Barrier Island Restoration GT

Project No: 1221110095

Figure



# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.3	0.8	15.2	77.3	6.4	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
1	100.0		
.75	100.0		
.5	100.0		
.375	100.0		
#4	99.7		
#10	98.9		
#20	97.5		
#40	83.7		
#60	38.2		
#100	11.6		
#140	7.8		
#200	6.4		

\* (no specification provided)

<b><u>Material Description</u></b>		
Fine to medium grained, SLIGHTLY SILTY SAND		
<b><u>Atterberg Limits</u></b>		
PL=	LL=	PI=
<b><u>Coefficients</u></b>		
D <sub>90</sub> = 0.5452	D <sub>85</sub> = 0.4450	D <sub>60</sub> = 0.3183
D <sub>50</sub> = 0.2860	D <sub>30</sub> = 0.2242	D <sub>15</sub> = 0.1684
D <sub>10</sub> = 0.1384	C <sub>u</sub> = 2.30	C <sub>c</sub> = 1.14
<b><u>Classification</u></b>		
USCS= SP-SM	AASHTO=	
<b><u>Remarks</u></b>		

Location: BI-HP-41-12 B  
Sample Number: 6503 (33)

Depth: 1.5'

Date: 1/08/13

**Thompson Engineering**

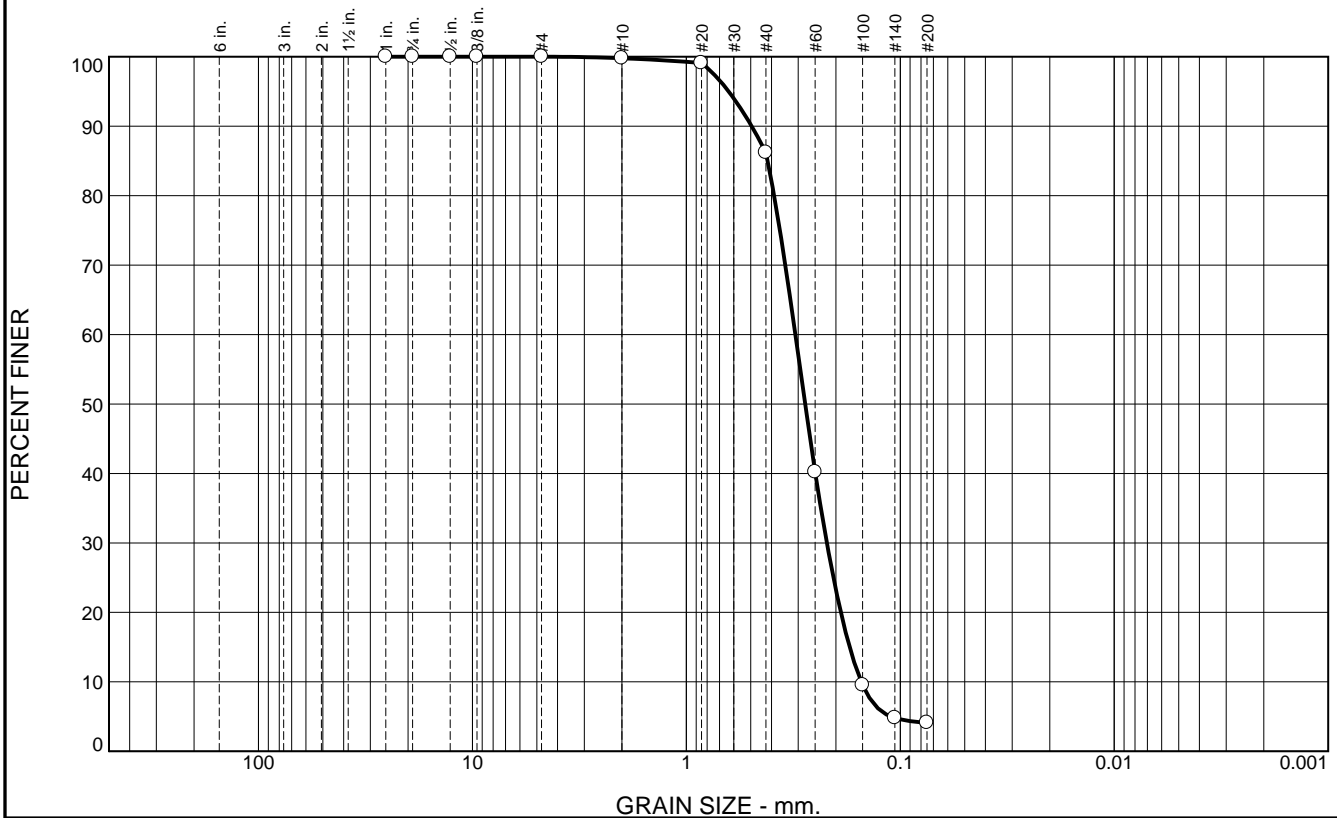
**Mobile, Alabama**

Client: CDM/Thompson Engineering JV  
Project: MsCIP Barrier Island Restoration GT

Project No: 1221110095

Figure

# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.0	0.2	13.6	82.1	4.1	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
1	100.0		
.75	100.0		
.5	100.0		
.375	100.0		
#4	100.0		
#10	99.8		
#20	99.1		
#40	86.2		
#60	40.2		
#100	9.5		
#140	4.8		
#200	4.1		

\* (no specification provided)

## Material Description

Fine to medium grained, SAND

## Atterberg Limits

PL= LL= PI=

## Coefficients

D<sub>90</sub>= 0.4954 D<sub>85</sub>= 0.4170 D<sub>60</sub>= 0.3094  
D<sub>50</sub>= 0.2785 D<sub>30</sub>= 0.2204 D<sub>15</sub>= 0.1727  
D<sub>10</sub>= 0.1522 C<sub>u</sub>= 2.03 C<sub>c</sub>= 1.03

## Classification

USCS= SP AASHTO=

## Remarks

Location: BI-HP-41-12 C  
Sample Number: 6503 (34)

Depth: 4.2'

Date: 1/08/13

**Thompson Engineering**

**Mobile, Alabama**

Client: CDM/Thompson Engineering JV  
Project: MsCIP Barrier Island Restoration GT

Project No: 1221110095

Figure

# Boring Designation BI-HP-42-12

DRILLING LOG		DIVISION South Atlantic		INSTALLATION Mobile District		SHEET 1 OF 1 SHEETS	
1. PROJECT MsCIP Barrier Island Restoration Horn Island Pass				9. SIZE AND TYPE OF BIT N/A			
2. BORING DESIGNATION BI-HP-42-12		LOCATION COORDINATES E = 1,072,671 N = 252,654		10. COORDINATE SYSTEM/DATUM State Plane, MSE (U.S. Ft.)		HORIZONTAL NAD83	
3. DRILLING AGENCY Corps of Engineers - CESAM		CONTRACTOR FILE NO.		11. MANUFACTURER'S DESIGNATION OF DRILL Vibrocure		<input type="checkbox"/> AUTO HAMMER <input type="checkbox"/> MANUAL HAMMER	
4. NAME OF DRILLER American Vibrocure Systems, Inc.				12. TOTAL SAMPLES		DISTURBED 0	
5. DIRECTION OF BORING <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED		DEG. FROM VERTICAL		13. TOTAL NUMBER CORE BOXES			
		BEARING		14. WATER DEPTH 32.4 Ft.			
6. THICKNESS OF OVERBURDEN N/A				15. DATE BORING 01-05-13		COMPLETED 01-05-13	
7. DEPTH DRILLED INTO ROCK N/A				16. ELEVATION TOP OF BORING -32.0 Ft.			
8. TOTAL DEPTH OF BORING 19.4 Ft.				17. TOTAL RECOVERY FOR BORING 100%			
				18. SIGNATURE AND TITLE OF INSPECTOR Mike FitzHarris, Geologist			
ELEV.	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS	SAMPLE	LABORATORY RESULTS		
-32.0	0.0						
			SAND, poorly-graded, mostly fine to medium-grained sand-sized quartz, few shell fragments, trace fines, lt. gray (SP)	A	Classification: SP Color: 5Y 7/2-light gray D50: 0.2961 mm % Fines: 1.9		
-37.0	5.0						
-38.4	6.4		SAND, poorly-graded, mostly fine-grained sand-sized quartz, trace fines, trace shell fragments, gray (SP)	B	Classification: SP Color: 5Y 7/2-light gray D50: 0.276 mm % Fines: 2.3		
			SILT, inorganic-L, mostly silt, some fine-grained sand-sized quartz, few clay, trace shell fragments, soft, gray (ML)	NS			
-51.4	19.4						
NOTES:							
1. Soils are field visually classified in accordance with the Unified Soils Classification System.							
2. NS = Sample not submitted for laboratory analysis from this interval.							
3. Seafloor elevation determined from USACE hydrographic survey completed June 2014.							

# Project

Mississippi Barrier Island  
Restoration Project

**AVS**  
AMERICAN VIBRACORE  
SERVICES

Core Identifier BI-HP-42-12

Date 01/05/2013

Water Depth 32.4'

## Coordinate System

Latitude / Longitude

Start Time 12:11:02

End Time 12:11:55

Penetration 20.0'

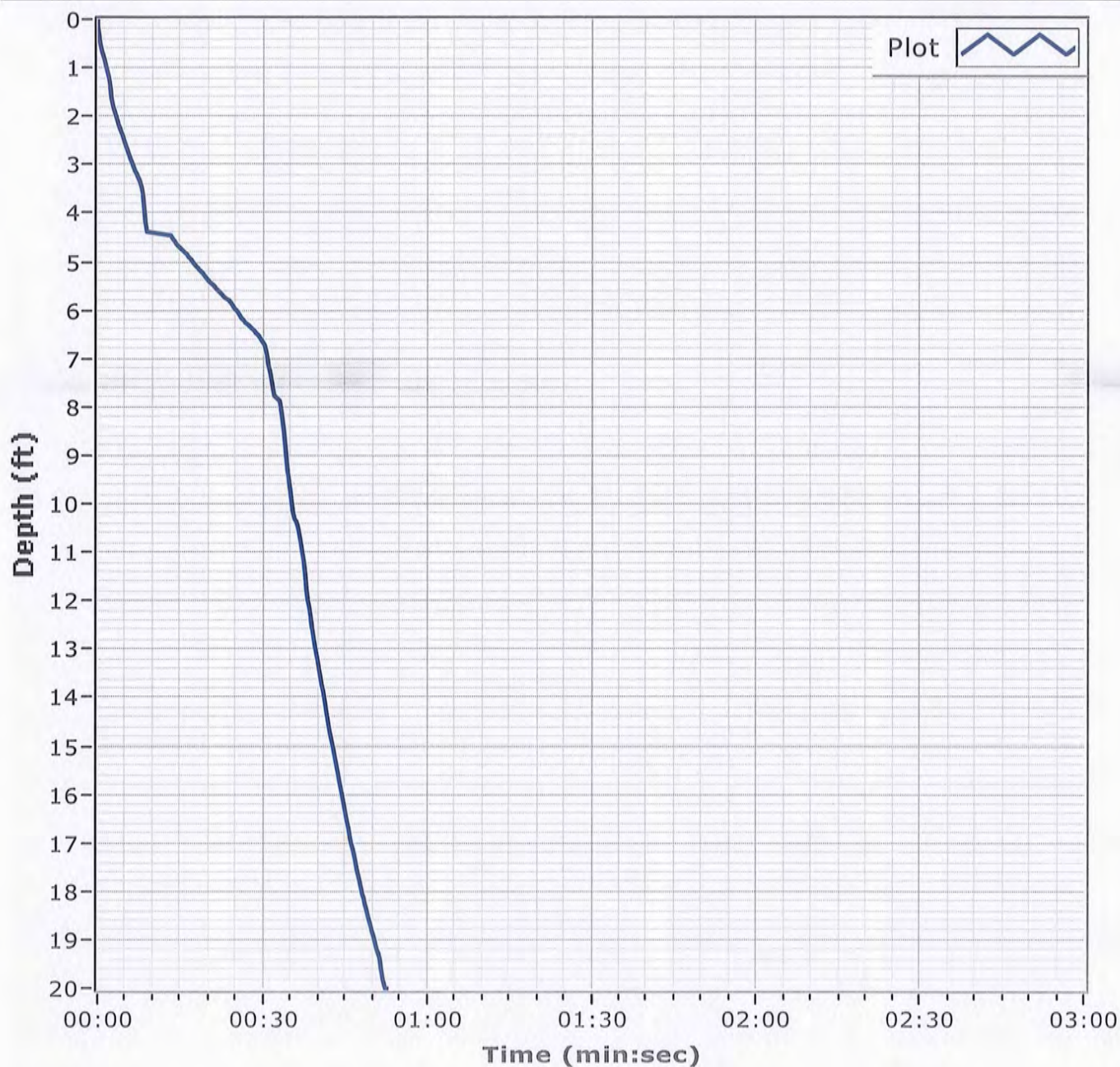
Latitude 30 11.667 N

Total Time 00:00:53

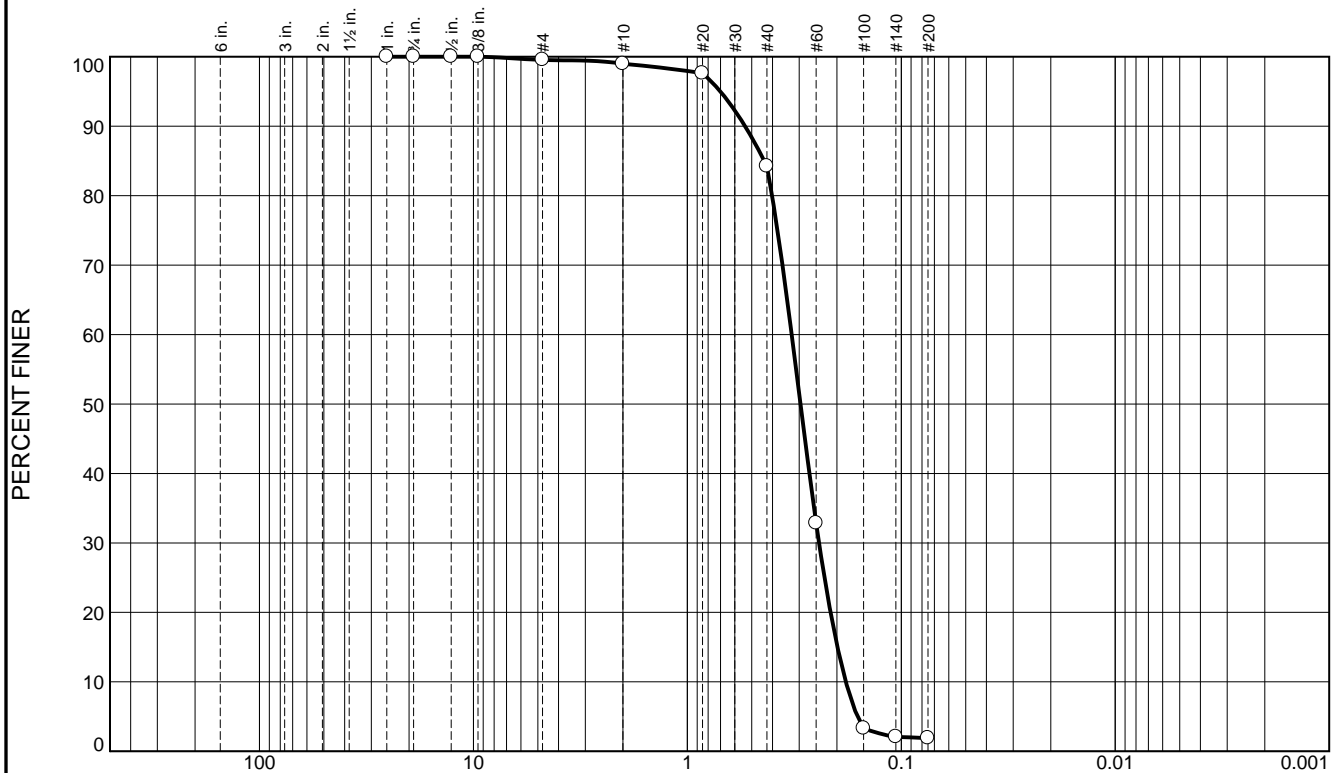
Recovery 19.4'

Longitude 088 33.207 W

## Comments



# Particle Size Distribution Report



GRAIN SIZE - mm.

% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.5	0.5	14.8	82.3	1.9	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
1	100.0		
.75	100.0		
.5	100.0		
.375	100.0		
#4	99.5		
#10	99.0		
#20	97.6		
#40	84.2		
#60	32.9		
#100	3.3		
#140	2.1		
#200	1.9		

\* (no specification provided)

## Material Description

Fine to medium grained, SAND

## Atterberg Limits

PL= LL= PI=

## Coefficients

D<sub>90</sub>= 0.5376 D<sub>85</sub>= 0.4374 D<sub>60</sub>= 0.3255  
D<sub>50</sub>= 0.2961 D<sub>30</sub>= 0.2423 D<sub>15</sub>= 0.1988  
D<sub>10</sub>= 0.1818 C<sub>u</sub>= 1.79 C<sub>c</sub>= 0.99

## Classification

USCS= SP AASHTO=

## Remarks

Location: BI-HP-42-12 A  
Sample Number: 6503 (35)

Depth: 0.0'

Date: 1/08/13

**Thompson Engineering**

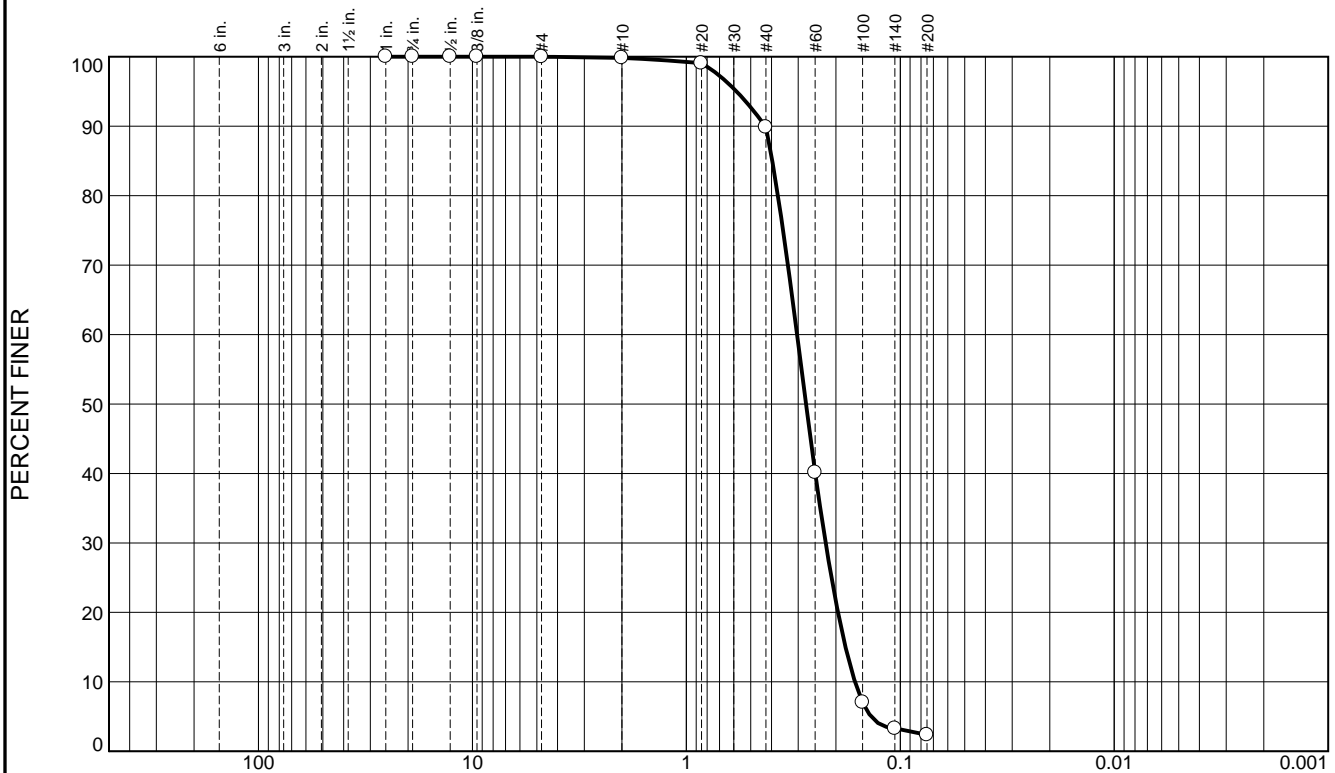
**Mobile, Alabama**

Client: CDM/Thompson Engineering JV  
Project: MsCIP Barrier Island Restoration GT

Project No: 1221110095

Figure

# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.0	0.2	9.9	87.6	2.3	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
1	100.0		
.75	100.0		
.5	100.0		
.375	100.0		
#4	100.0		
#10	99.8		
#20	99.1		
#40	89.9		
#60	40.1		
#100	7.0		
#140	3.3		
#200	2.3		

\* (no specification provided)

## Material Description

Fine grained, SAND

## Atterberg Limits

PL=

LL=

PI=

## Coefficients

D<sub>90</sub>= 0.4284

D<sub>85</sub>= 0.3965

D<sub>60</sub>= 0.3039

D<sub>50</sub>= 0.2760

D<sub>30</sub>= 0.2233

D<sub>15</sub>= 0.1804

D<sub>10</sub>= 0.1630

C<sub>u</sub>= 1.86

C<sub>c</sub>= 1.01

## Classification

USCS= SP

AASHTO=

## Remarks

Location: BI-HP-42-12 B

Sample Number: 6503 (36)

Depth: 5.0'

Date: 1/08/13

**Thompson Engineering**

**Mobile, Alabama**

Client: CDM/Thompson Engineering JV

Project: MsCIP Barrier Island Restoration GT

Project No: 1221110095

Figure

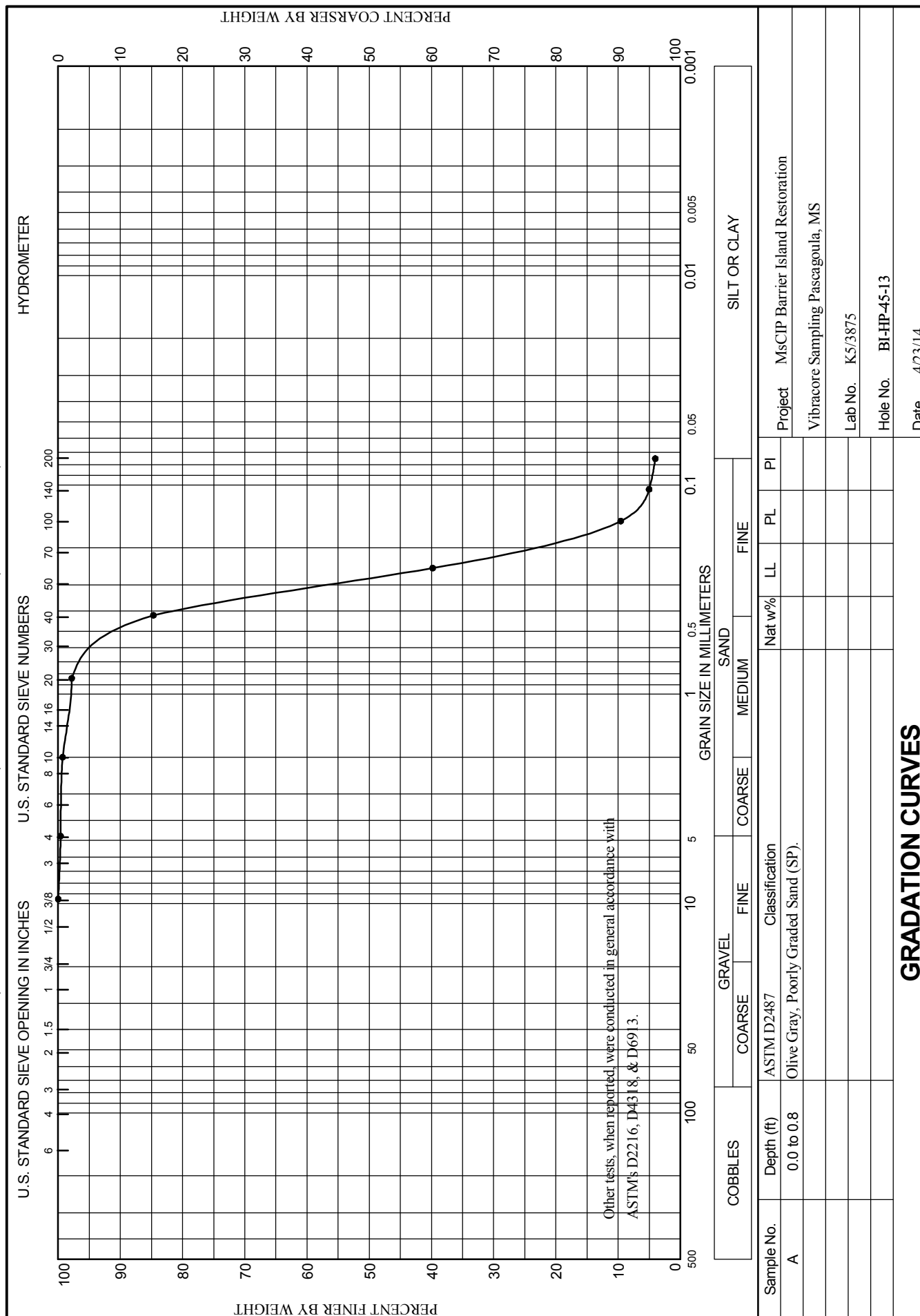
**Boring Designation** BI-HP-45-13

DRILLING LOG			DIVISION South Atlantic	INSTALLATION Mobile District	SHEET 1 OF 1 SHEETS	
1. PROJECT MsCIP Barrier Island Restoration Horn Island Pass				9. SIZE AND TYPE OF BIT N/A		
2. BORING DESIGNATION BI-HP-45-13		LOCATION COORDINATES E = 1,072,524 N = 246,783		10. COORDINATE SYSTEM/DATUM State Plane, MSE (U.S. Ft.)		HORIZONTAL NAD83
3. DRILLING AGENCY Corps of Engineers - CESAM		CONTRACTOR FILE NO.		11. MANUFACTURER'S DESIGNATION OF DRILL Vibrocure		AUTO HAMMER MANUAL HAMMER
4. NAME OF DRILLER Construction Solutions International, Inc.				12. TOTAL SAMPLES 3		
5. DIRECTION OF BORING <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED				13. TOTAL NUMBER CORE BOXES 0		
6. THICKNESS OF OVERBURDEN N/A				14. WATER DEPTH 40 Ft.		
7. DEPTH DRILLED INTO ROCK N/A				15. DATE BORING 11-29-13		
8. TOTAL DEPTH OF BORING 15.0 Ft.				16. ELEVATION TOP OF BORING -38.5 Ft.		
				17. TOTAL RECOVERY FOR BORING 100%		
				18. SIGNATURE AND TITLE OF INSPECTOR Tom Powers, Geologist		
ELEV.	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS	SAMPLE	LABORATORY RESULTS	
-38.5	0.0					
-39.3	0.8		SAND, poorly-graded, mostly fine-grained quartz, lt. gray (SP)	A	Classification: SP Color: GLEY1 10Y 7/1- D50: 0.281 mm % Fines: 4	
-39.9	1.4		CLAY, lean, medium to dark gray (CL)	NS		
-41.5	3.0		SAND, poorly-graded, mostly fine to medium-grained quartz, few shell, trace 1/2-inch clay lens, lt. gray (SP)	B	Classification: SP Color: 2.5Y 6/1-gray D50: 0.255 mm % Fines: 3.5	
-42.7	4.2		SAND, silty, medium to dark gray (SM)	C	Classification: SM Color: 2.5Y 5/1-gray D50: 0.196 mm % Fines: 14.4	
-43.5	5.0		SAND, clayey, medium to dark gray (SC)			
			CLAY, lean, medium to dark gray (CL)	NS		
-53.5	15.0					
NOTES: 1. Soils are field visually classified in accordance with the Unified Soils Classification System. 2. NS = Sample not submitted for laboratory analysis from this interval. 3. Seafloor elevation from 2013 USACE hydrographic survey.						



WORK ORDER: 848e

REQUISITION: W33SJG32900192



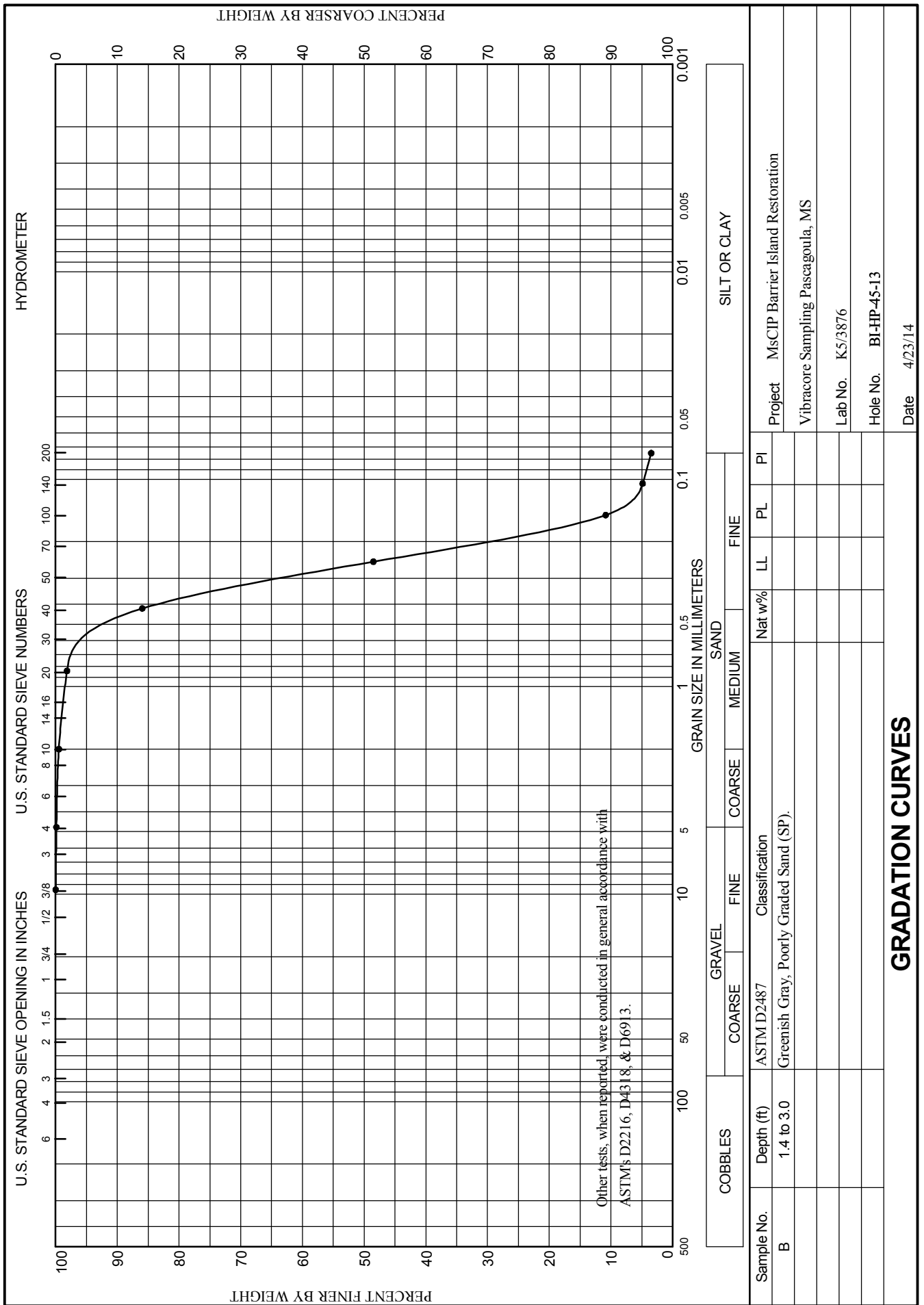




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WORK ORDER: 848e

REQUISITION: W33SJC32900192

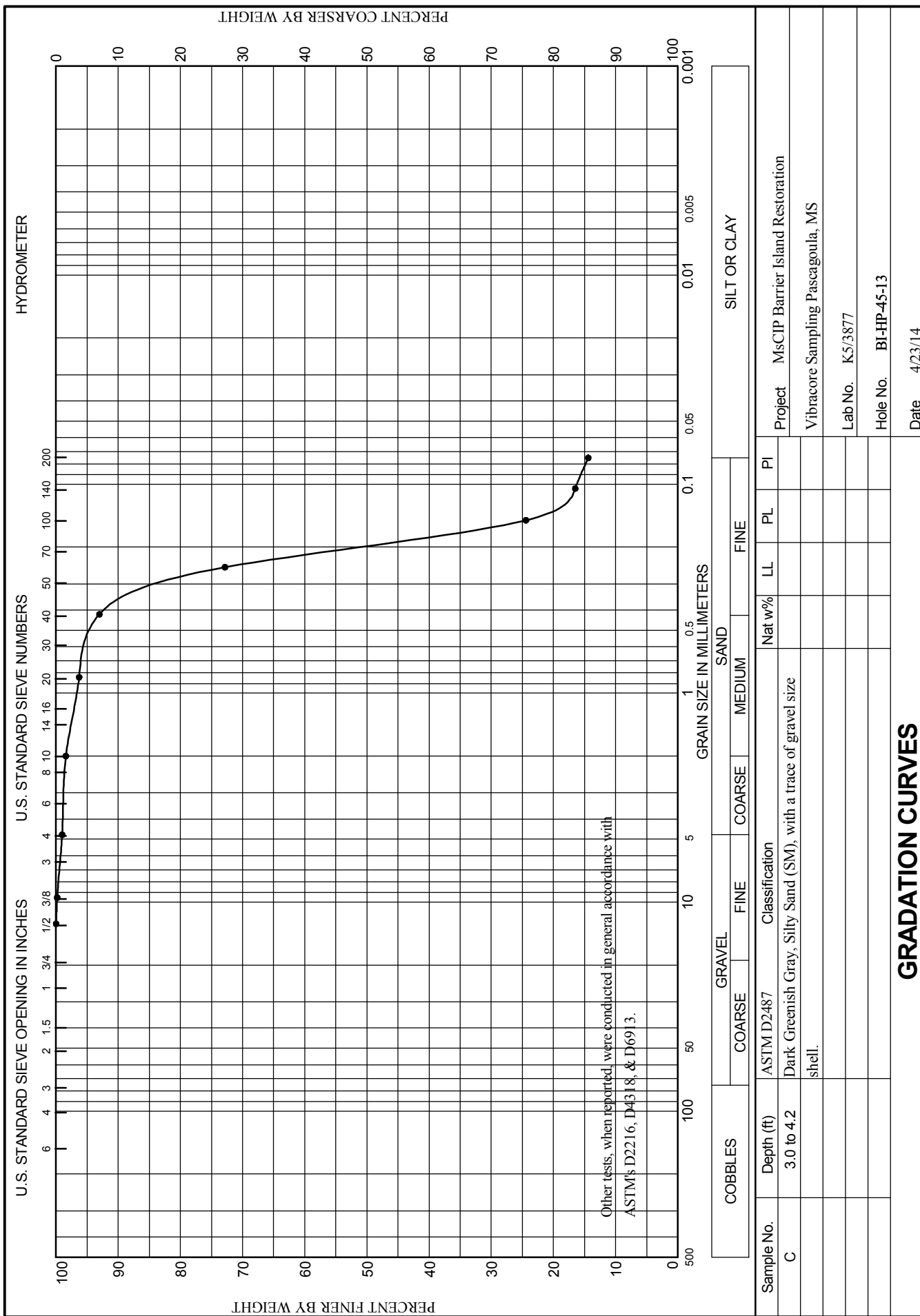




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CORPS OF ENGINEERS, 200 N. COBB PARKWAY, BLDG 400 SUITE 404, MARIETTA, GA. 30062

WORK ORDER: 848e

REQUISITION: W33SJC32900192



# Boring Designation BI-HP-46-13

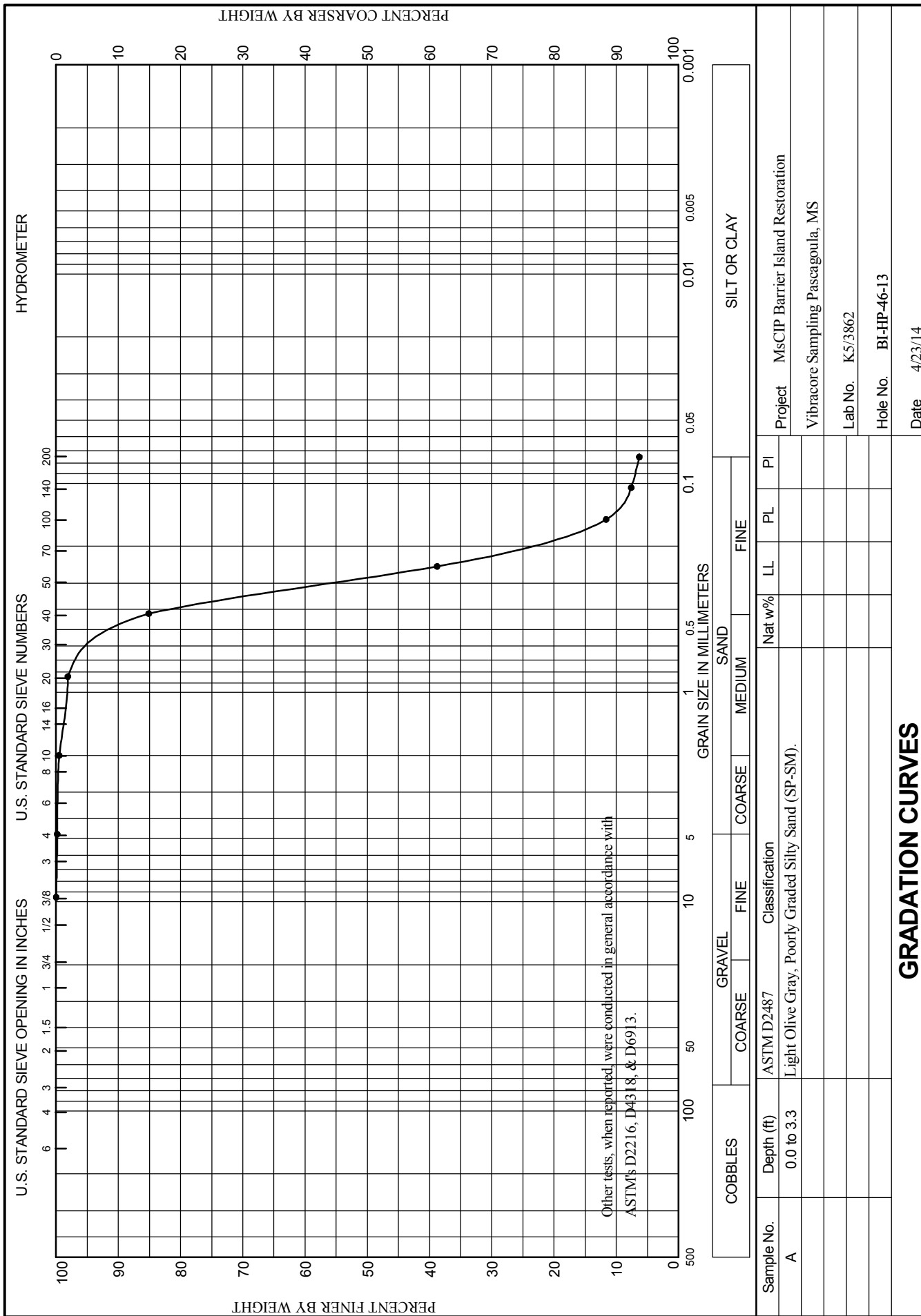
DRILLING LOG		DIVISION South Atlantic		INSTALLATION Mobile District		SHEET 1 OF 1 SHEETS	
1. PROJECT MsCIP Barrier Island Restoration Horn Island Pass				9. SIZE AND TYPE OF BIT N/A			
2. BORING DESIGNATION BI-HP-46-13		LOCATION COORDINATES E = 1,071,090 N = 246,671		10. COORDINATE SYSTEM/DATUM State Plane, MSE (U.S. Ft.)		HORIZONTAL NAD83 VERTICAL NAVD88	
3. DRILLING AGENCY Corps of Engineers - CESAM		CONTRACTOR FILE NO.		11. MANUFACTURER'S DESIGNATION OF DRILL Vibrocure		<input type="checkbox"/> AUTO HAMMER <input type="checkbox"/> MANUAL HAMMER	
4. NAME OF DRILLER Construction Solutions International, Inc.				12. TOTAL SAMPLES 2		DISTURBED 2 UNDISTURBED (UD) 0	
5. DIRECTION OF BORING <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED		DEG. FROM VERTICAL		13. TOTAL NUMBER CORE BOXES			
		BEARING		14. WATER DEPTH 37 Ft.			
6. THICKNESS OF OVERBURDEN N/A				15. DATE BORING 11-29-13		STARTED 11-29-13 COMPLETED 11-29-13	
7. DEPTH DRILLED INTO ROCK N/A				16. ELEVATION TOP OF BORING -36.5 Ft.			
8. TOTAL DEPTH OF BORING 17.6 Ft.				17. TOTAL RECOVERY FOR BORING 100%			
				18. SIGNATURE AND TITLE OF INSPECTOR Tom Powers, Geologist			
ELEV.	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS	SAMPLE	LABORATORY RESULTS		
-36.5	0.0						
-39.8	3.3		SAND, poorly-graded, mostly fine to medium-grained quartz, trace shell, single 1-inch clay lens at 1.5-ft. depth, light gray (SP)	A	Classification: SP-SM Color: 2.5Y 7/1-light gray D50: 0.283 mm % Fines: 6.3		
-45.1	8.6		SAND, silty, few shell, several 1-inch clay lenses in upper half of sample, medium gray (SM)	B	Classification: SP-SM Color: 2.5Y 5/1-gray D50: 0.19 mm % Fines: 11.5		
-54.1	17.6		SAND, clayey, medium gray (SC)	NS			
			NOTES: 1. Soils are field visually classified in accordance with the Unified Soils Classification System. 2. NS = Sample not submitted for laboratory analysis from this interval. 3. Seafloor elevation from 2013 USACE hydrographic survey.				



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WORK ORDER: 848e

REQUISITION: W33SJC32900192

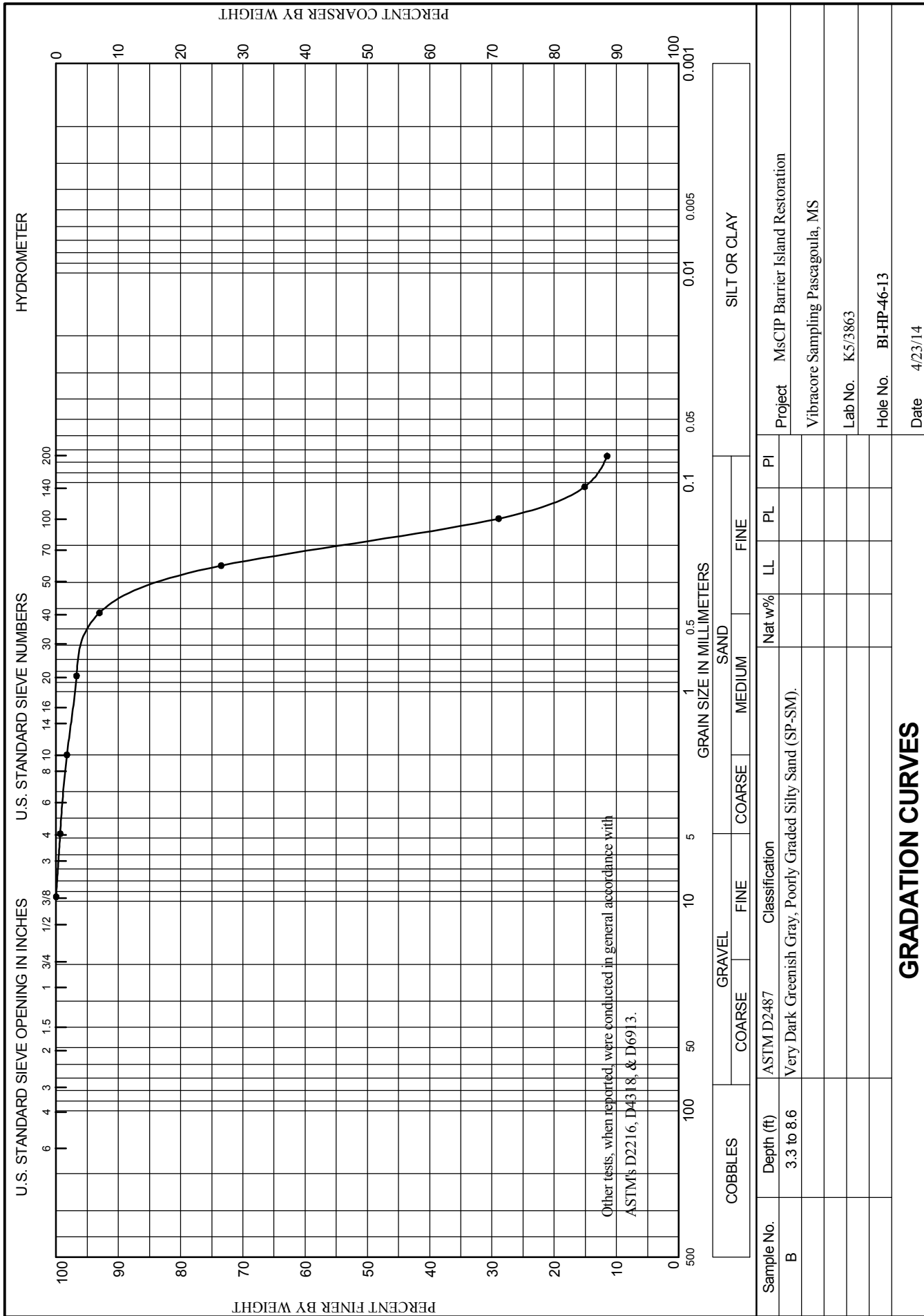




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CORPS OF ENGINEERS, 200 N. COBB PARKWAY, BLDG 400 SUITE 404, MARIETTA, GA. 30062

WORK ORDER: 848e

REQUISITION: W33SJC32900192



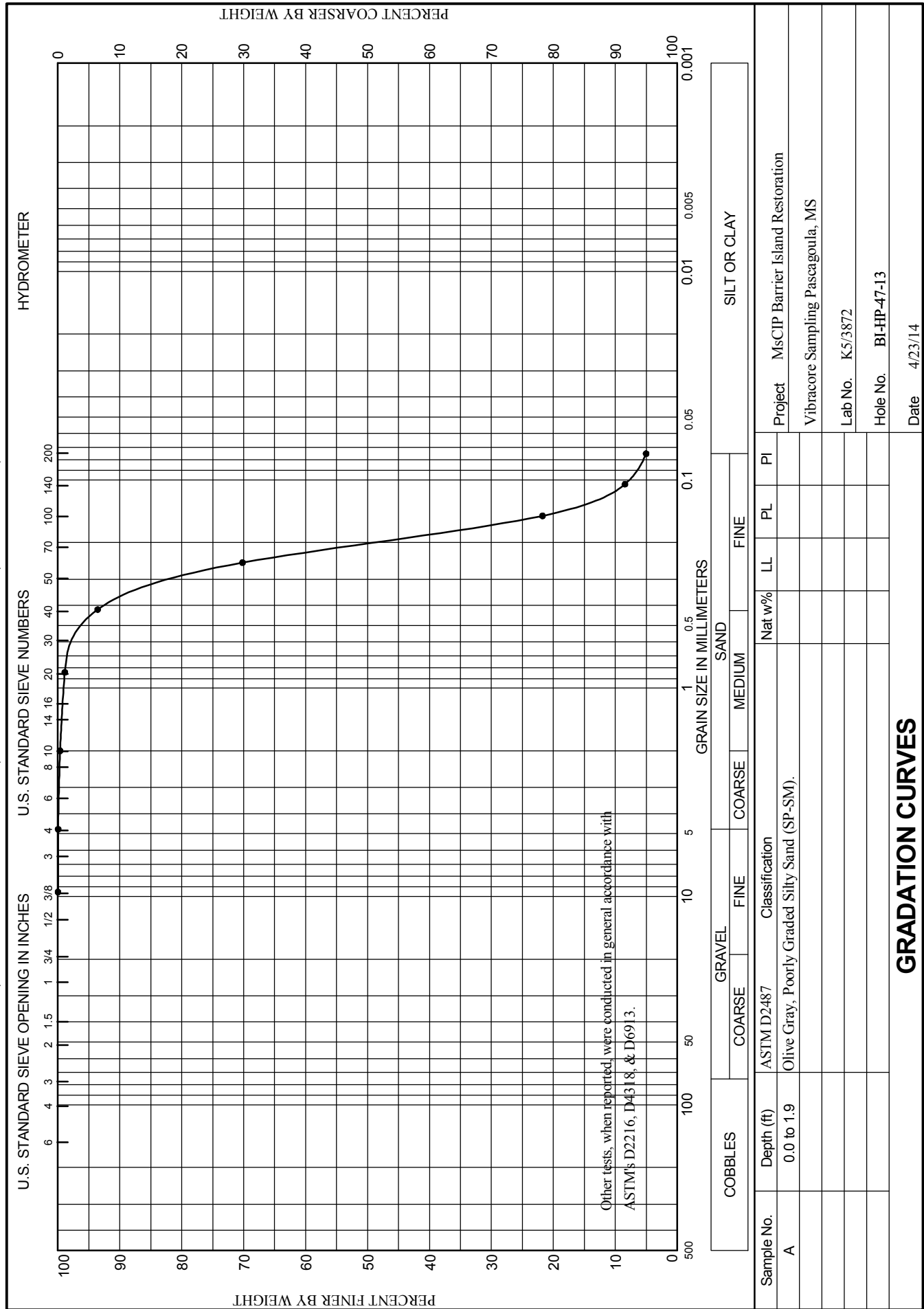
# Boring Designation BI-HP-47-13

DRILLING LOG		DIVISION South Atlantic		INSTALLATION Mobile District		SHEET 1 OF 1 SHEETS	
1. PROJECT MsCIP Barrier Island Restoration Horn Island Pass				9. SIZE AND TYPE OF BIT N/A			
2. BORING DESIGNATION BI-HP-47-13		LOCATION COORDINATES E = 1,071,999 N = 246,015		10. COORDINATE SYSTEM/DATUM State Plane, MSE (U.S. Ft.)		HORIZONTAL NAD83 VERTICAL NAVD88	
3. DRILLING AGENCY Corps of Engineers - CESAM		CONTRACTOR FILE NO.		11. MANUFACTURER'S DESIGNATION OF DRILL Vibrocure		<input type="checkbox"/> AUTO HAMMER <input type="checkbox"/> MANUAL HAMMER	
4. NAME OF DRILLER Construction Solutions International, Inc.				12. TOTAL SAMPLES 3		DISTURBED 3 UNDISTURBED (UD) 0	
5. DIRECTION OF BORING <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED		DEG. FROM VERTICAL		13. TOTAL NUMBER CORE BOXES			
		BEARING		14. WATER DEPTH 41 Ft.			
6. THICKNESS OF OVERBURDEN N/A				15. DATE BORING 11-29-13		STARTED 11-29-13 COMPLETED 11-29-13	
7. DEPTH DRILLED INTO ROCK N/A				16. ELEVATION TOP OF BORING -39.8 Ft.			
8. TOTAL DEPTH OF BORING 16.8 Ft.				17. TOTAL RECOVERY FOR BORING 100%			
				18. SIGNATURE AND TITLE OF INSPECTOR Tom Powers, Geologist			
ELEV.	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS	SAMPLE	LABORATORY RESULTS		
-39.8	0.0						
-41.7	1.9		SAND, poorly-graded, mostly fine-grained quartz, trace shell, lt. gray (SP)	A	Classification: SP-SM Color: GLEY1 10Y 6/1- D50: 0.201 mm % Fines: 5		
-42.8	3.0		SAND, poorly-graded with silt, medium gray (SP-SM)	B	Classification: SM Color: 2.5Y 5/1-gray D50: 0.189 mm % Fines: 14.4		
-44.8	5.0		SAND, silty, little shell, medium gray (SM)	C	Classification: SM Color: 2.5Y 5/1-gray D50: 0.171 mm % Fines: 15.2		
-45.8	6.0		SAND, clayey, trace shell, medium gray (SC)	NS			
			CLAY, lean, sandy, medium gray (CL)				
-48.3	8.5						
-48.8	9.0		SAND, clayey, medium gray (SC)				
			CLAY, lean, sandy, medium gray (CL)				
-56.6	16.8						
NOTES:							
1. Soils are field visually classified in accordance with the Unified Soils Classification System.							
2. NS = Sample not submitted for laboratory analysis from this interval.							
3. Seafloor elevation from 2013 USACE hydrographic survey.							



WORK ORDER: 848e

REQUISITION: W33SJG32900192

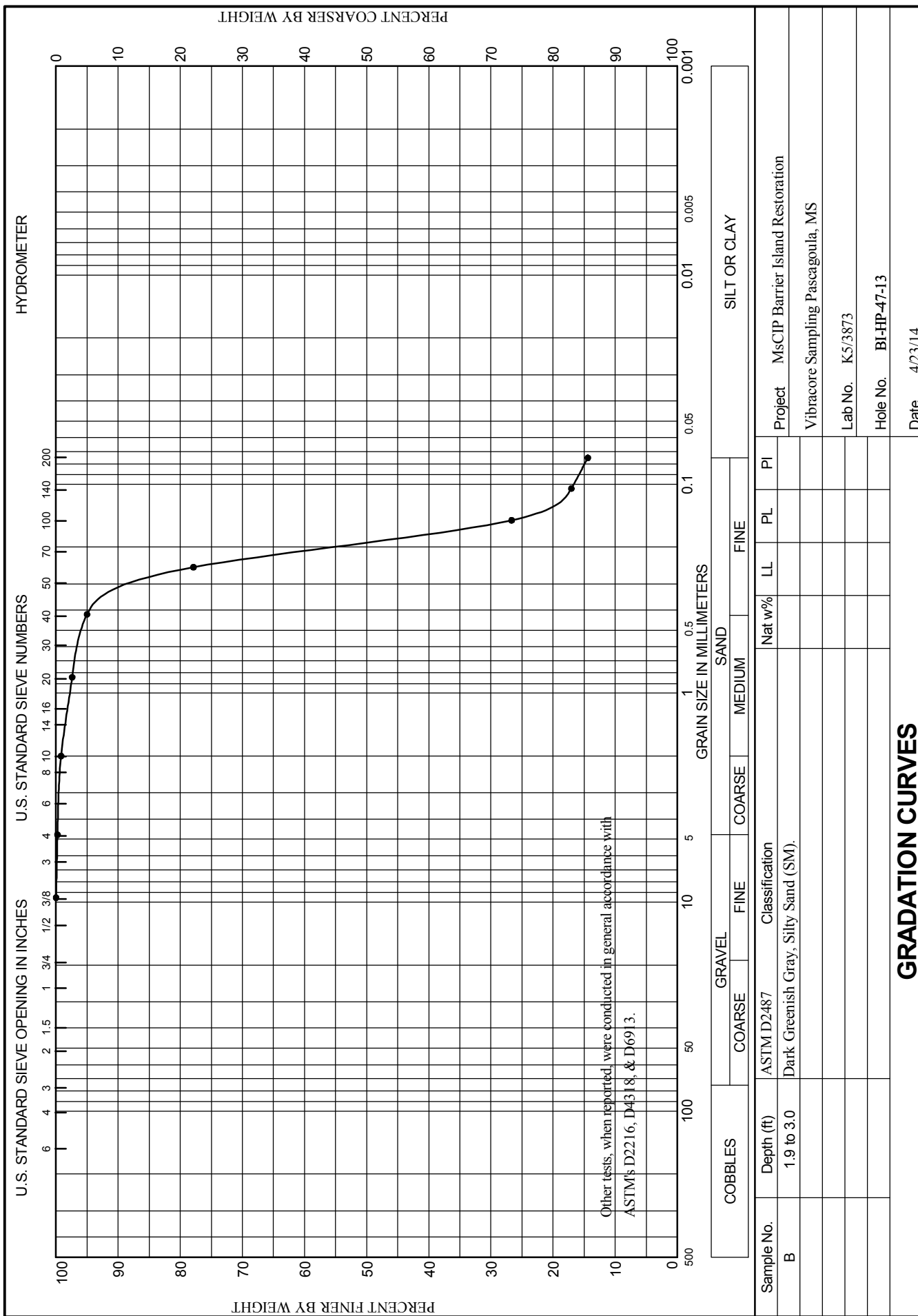




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WORK ORDER: 848e

REQUISITION: W33SJC32900192



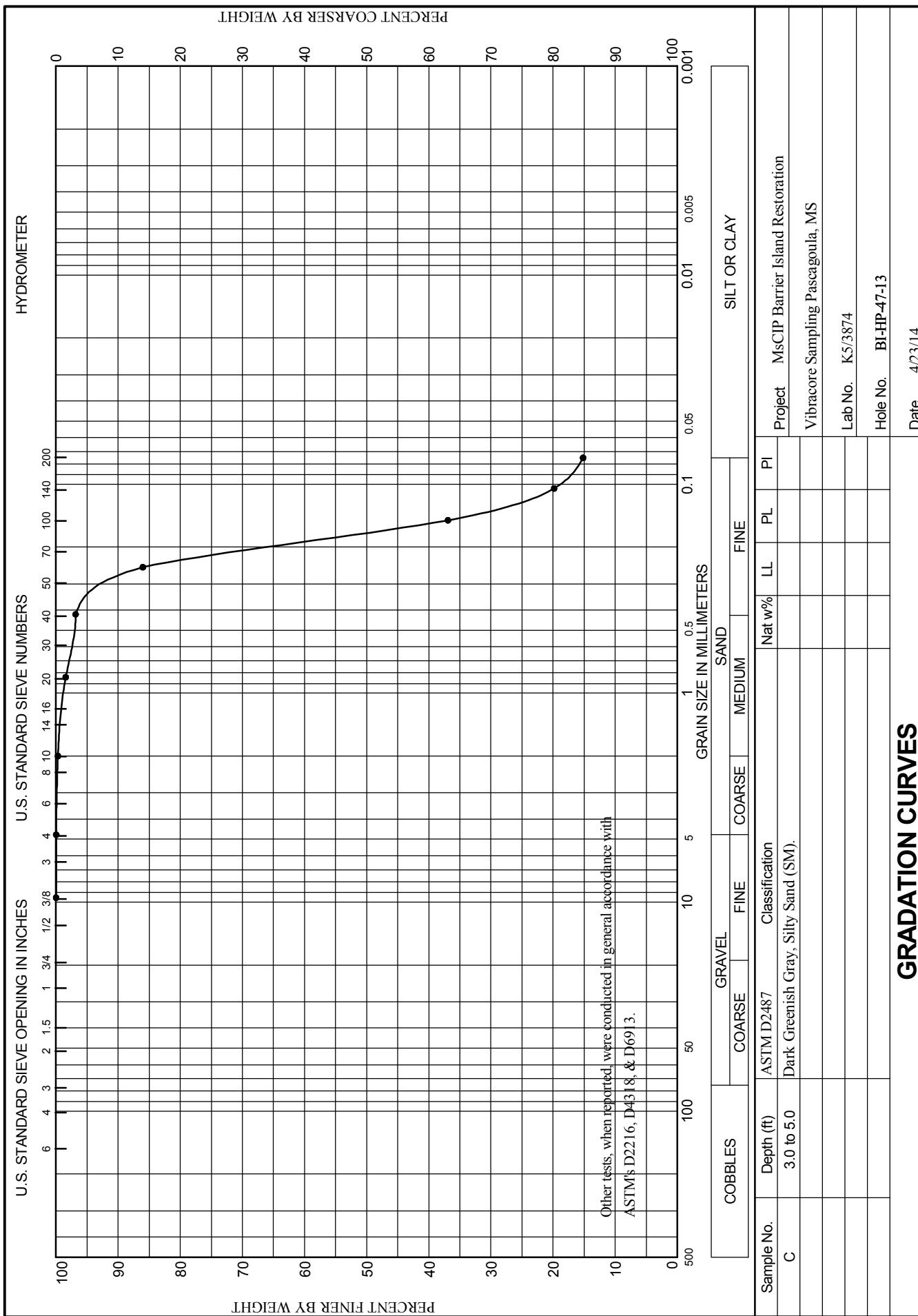




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CORPS OF ENGINEERS, 200 N. COBB PARKWAY, BLDG 400 SUITE 404, MARIETTA, GA. 30062

WORK ORDER: 848e

REQUISITION: W33SJC32900192



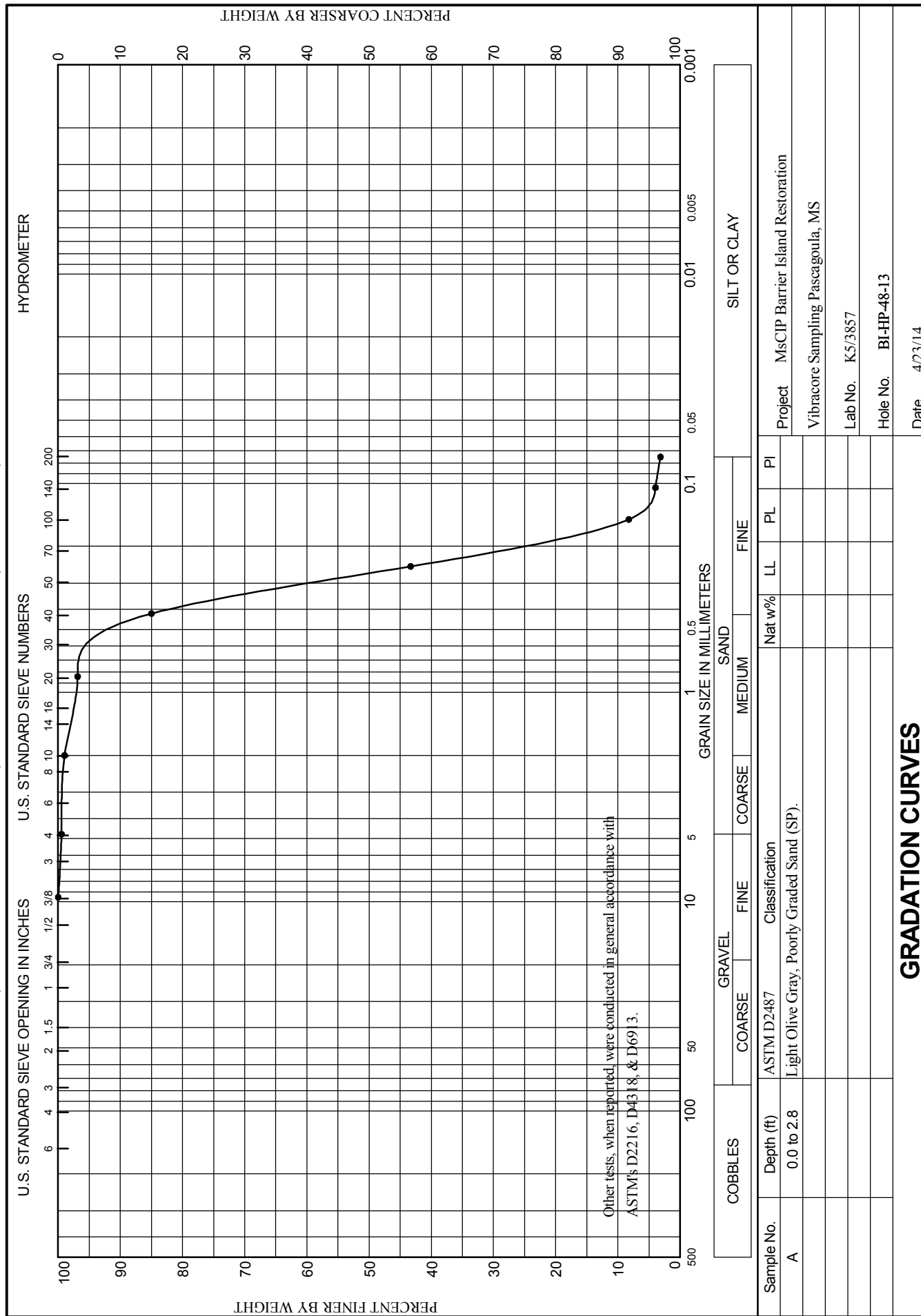
# Boring Designation BI-HP-48-13

DRILLING LOG		DIVISION South Atlantic		INSTALLATION Mobile District		SHEET 1 OF 1 SHEETS	
1. PROJECT MsCIP Barrier Island Restoration Horn Island Pass				9. SIZE AND TYPE OF BIT N/A			
2. BORING DESIGNATION BI-HP-48-13		LOCATION COORDINATES E = 1,069,332 N = 247,198		10. COORDINATE SYSTEM/DATUM State Plane, MSE (U.S. Ft.)		HORIZONTAL NAD83 VERTICAL NAVD88	
3. DRILLING AGENCY Corps of Engineers - CESAM		CONTRACTOR FILE NO.		11. MANUFACTURER'S DESIGNATION OF DRILL Vibrocure		<input type="checkbox"/> AUTO HAMMER <input type="checkbox"/> MANUAL HAMMER	
4. NAME OF DRILLER Construction Solutions International, Inc.				12. TOTAL SAMPLES		DISTURBED 1 UNDISTURBED (UD) 0	
5. DIRECTION OF BORING <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED		DEG. FROM VERTICAL		13. TOTAL NUMBER CORE BOXES			
		BEARING		14. WATER DEPTH 40 Ft.			
6. THICKNESS OF OVERBURDEN N/A				15. DATE BORING 11-23-13		STARTED 11-23-13 COMPLETED 11-23-13	
7. DEPTH DRILLED INTO ROCK N/A				16. ELEVATION TOP OF BORING -39.5 Ft.			
8. TOTAL DEPTH OF BORING 15.2 Ft.				17. TOTAL RECOVERY FOR BORING 100%			
				18. SIGNATURE AND TITLE OF INSPECTOR Tom Powers, Geologist			
ELEV.	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS	SAMPLE	LABORATORY RESULTS		
-39.5	0.0						
-42.3	2.8		SAND, poorly-graded, mostly fine to medium-grained quartz, trace fine-grained gravel, few shell fragments, light gray (SP)	A	Classification: SP Color: 2.5Y 7/1-light gray D50: 0.272 mm % Fines: 3.2		
-43.5	4.0		SAND, clayey, few shell fragments, medium gray (SC)				
			CLAY, lean, some quartz, sandy, little shell, medium gray (CL)	NS			
-54.7	15.2						
			NOTES: 1. Soils are field visually classified in accordance with the Unified Soils Classification System. 2. NS = Sample not submitted for laboratory analysis from this interval. 3. Seafloor elevation from 2013 USACE hydrographic survey.				



WORK ORDER: 848e

REQUISITION: W33SJG32900192



# Boring Designation BI-HP-49-13

DRILLING LOG		DIVISION South Atlantic		INSTALLATION Mobile District		SHEET 1 OF 1 SHEETS	
1. PROJECT MsCIP Barrier Island Restoration Horn Island Pass				9. SIZE AND TYPE OF BIT N/A			
2. BORING DESIGNATION BI-HP-49-13		LOCATION COORDINATES E = 1,070,391 N = 245,880		10. COORDINATE SYSTEM/DATUM State Plane, MSE (U.S. Ft.)		HORIZONTAL NAD83 VERTICAL NAVD88	
3. DRILLING AGENCY Corps of Engineers - CESAM		CONTRACTOR FILE NO.		11. MANUFACTURER'S DESIGNATION OF DRILL Vibracore		<input type="checkbox"/> AUTO HAMMER <input type="checkbox"/> MANUAL HAMMER	
4. NAME OF DRILLER Construction Solutions International, Inc.				12. TOTAL SAMPLES 2		DISTURBED 2 UNDISTURBED (UD) 0	
5. DIRECTION OF BORING <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED		DEG. FROM VERTICAL		13. TOTAL NUMBER CORE BOXES			
		BEARING		14. WATER DEPTH 37.5 Ft.			
6. THICKNESS OF OVERBURDEN N/A				15. DATE BORING 11-23-13		STARTED 11-23-13 COMPLETED 11-23-13	
7. DEPTH DRILLED INTO ROCK N/A				16. ELEVATION TOP OF BORING -38.6 Ft.			
8. TOTAL DEPTH OF BORING 15.9 Ft.				17. TOTAL RECOVERY FOR BORING 100%			
				18. SIGNATURE AND TITLE OF INSPECTOR Tom Powers, Geologist			

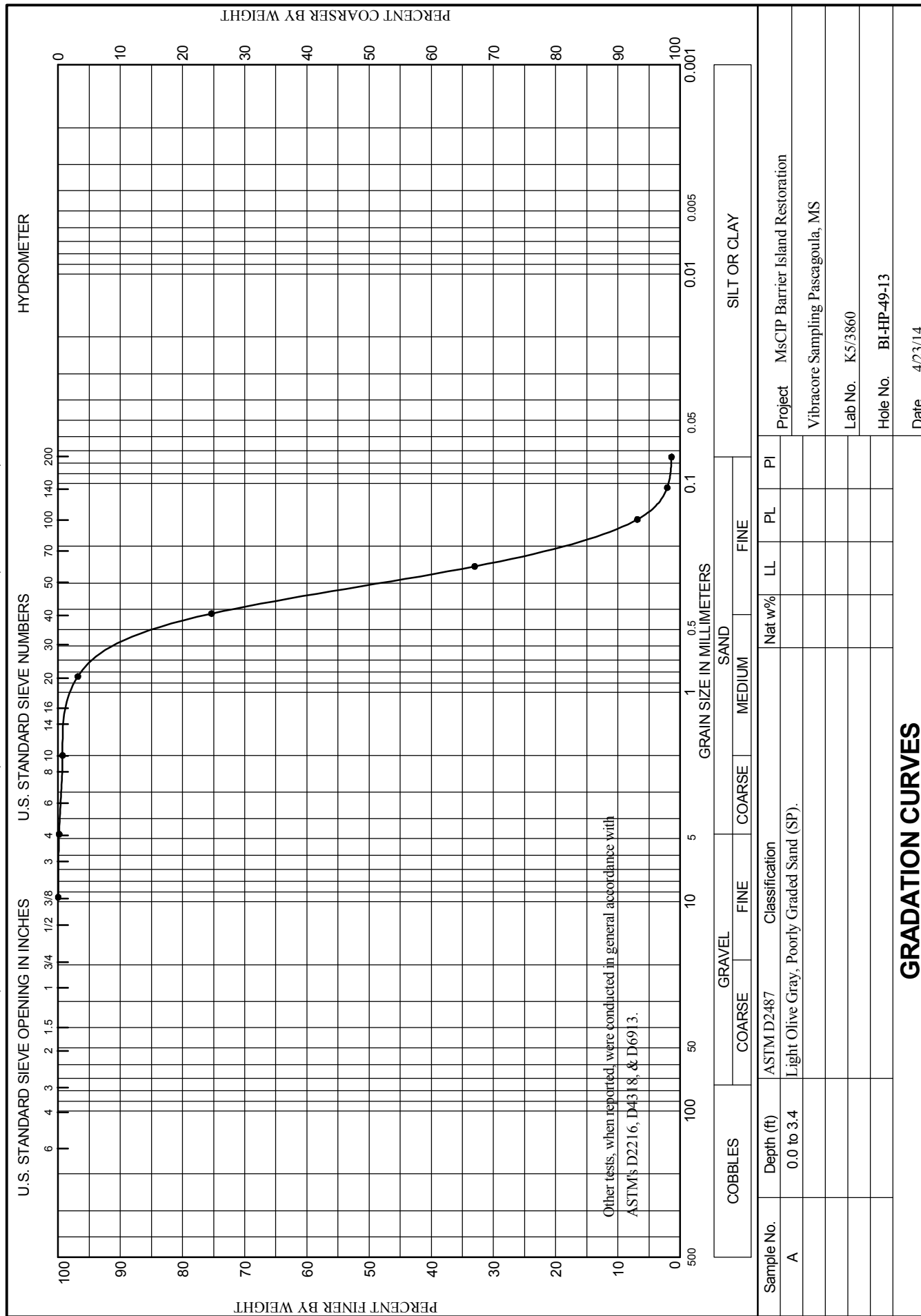
  

ELEV.	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS	SAMPLE	LABORATORY RESULTS
-38.6	0.0				
			SAND, poorly-graded, mostly fine to medium-grained quartz, few shell fragments, light gray (SP)	A	Classification: SP Color: GLEY1 10Y 7/1- D50: 0.308 mm % Fines: 1.4
-42.0	3.4				
-42.7	4.1		SAND, silty, mostly fine-grained, trace shell fragments, medium gray (SM)	B	Classification: SP-SM Color: 2.5Y 6/1-gray D50: 0.214 mm % Fines: 9.3
			SAND, clayey, little shell, medium gray (SC)		
			At El. -47.6 Ft., interbedded clayey sand and silty sand, medium gray	NS	
-54.5	15.9				
			NOTES: 1. Soils are field visually classified in accordance with the Unified Soils Classification System. 2. NS = Sample not submitted for laboratory analysis from this interval. 3. Seafloor elevation from 2013 USACE hydrographic survey.		



WORK ORDER: 848e

REQUISITION: W33SJG32900192

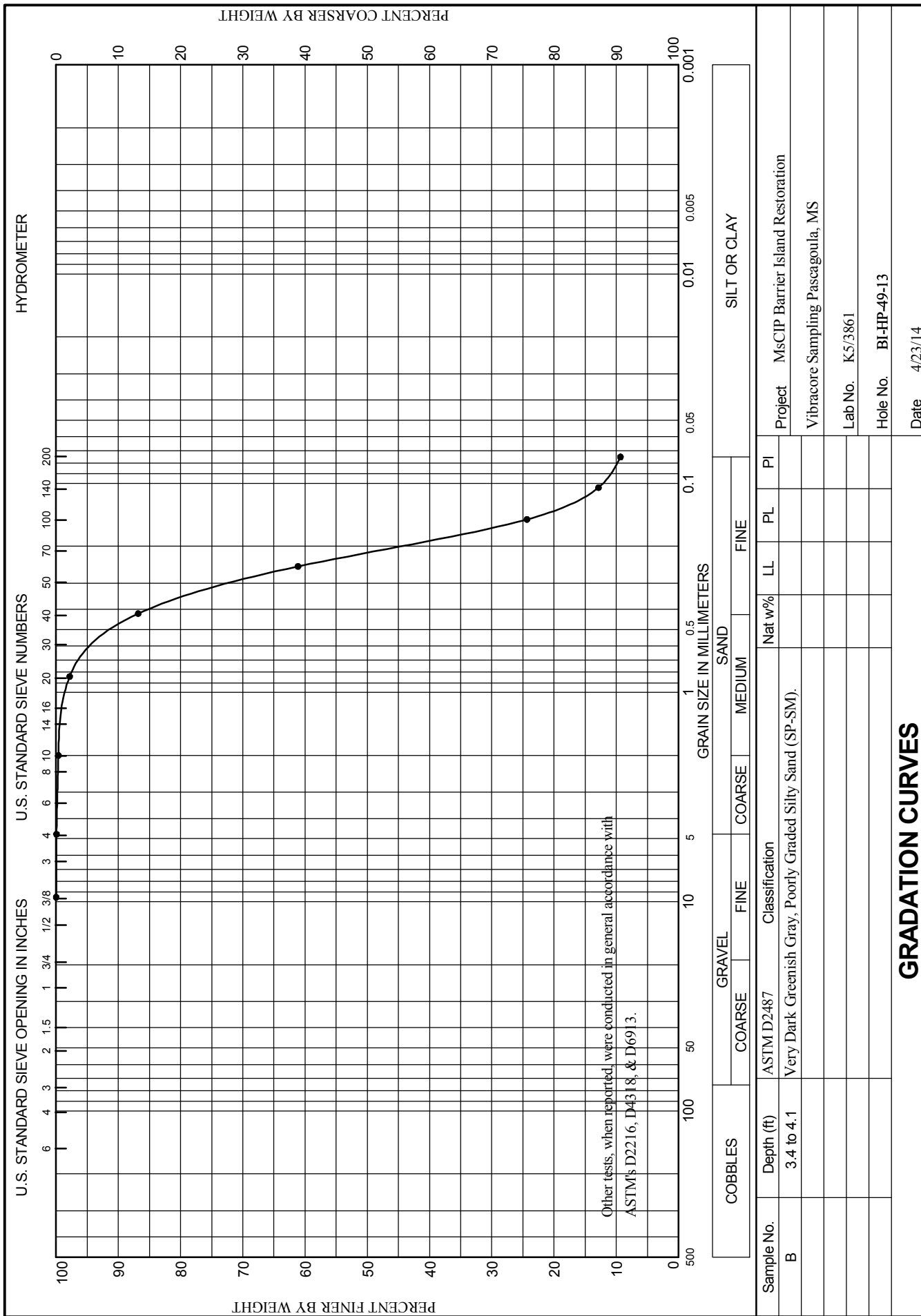




DEPARTMENT OF THE ARMY, SAVANNAH DISTRICT, ENVIRONMENTAL AND MATERIALS UNIT  
CORPS OF ENGINEERS, 200 N. COBB PARKWAY, BLDG 400 SUITE 404, MARIETTA, GA. 30062

WORK ORDER: 848e

REQUISITION: W33SJC32900192



# Boring Designation BI-HP-50-13

DRILLING LOG		DIVISION South Atlantic		INSTALLATION Mobile District		SHEET 1 OF 1 SHEETS	
1. PROJECT MsCIP Barrier Island Restoration Horn Island Pass				9. SIZE AND TYPE OF BIT N/A			
2. BORING DESIGNATION BI-HP-50-13		LOCATION COORDINATES E = 1,071,353 N = 245,220		10. COORDINATE SYSTEM/DATUM State Plane, MSE (U.S. Ft.)		HORIZONTAL NAD83 VERTICAL NAVD88	
3. DRILLING AGENCY Corps of Engineers - CESAM		CONTRACTOR FILE NO.		11. MANUFACTURER'S DESIGNATION OF DRILL Vibrocure		<input type="checkbox"/> AUTO HAMMER <input type="checkbox"/> MANUAL HAMMER	
4. NAME OF DRILLER Construction Solutions International, Inc.				12. TOTAL SAMPLES 4		DISTURBED 0 UNDISTURBED (UD)	
5. DIRECTION OF BORING <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED		DEG. FROM VERTICAL		13. TOTAL NUMBER CORE BOXES			
		BEARING		14. WATER DEPTH 41 Ft.			
6. THICKNESS OF OVERBURDEN N/A				15. DATE BORING 11-29-13		STARTED 11-29-13 COMPLETED 11-29-13	
7. DEPTH DRILLED INTO ROCK N/A				16. ELEVATION TOP OF BORING -40.5 Ft.			
8. TOTAL DEPTH OF BORING 16.5 Ft.				17. TOTAL RECOVERY FOR BORING 100%			
				18. SIGNATURE AND TITLE OF INSPECTOR Tom Powers, Geologist			

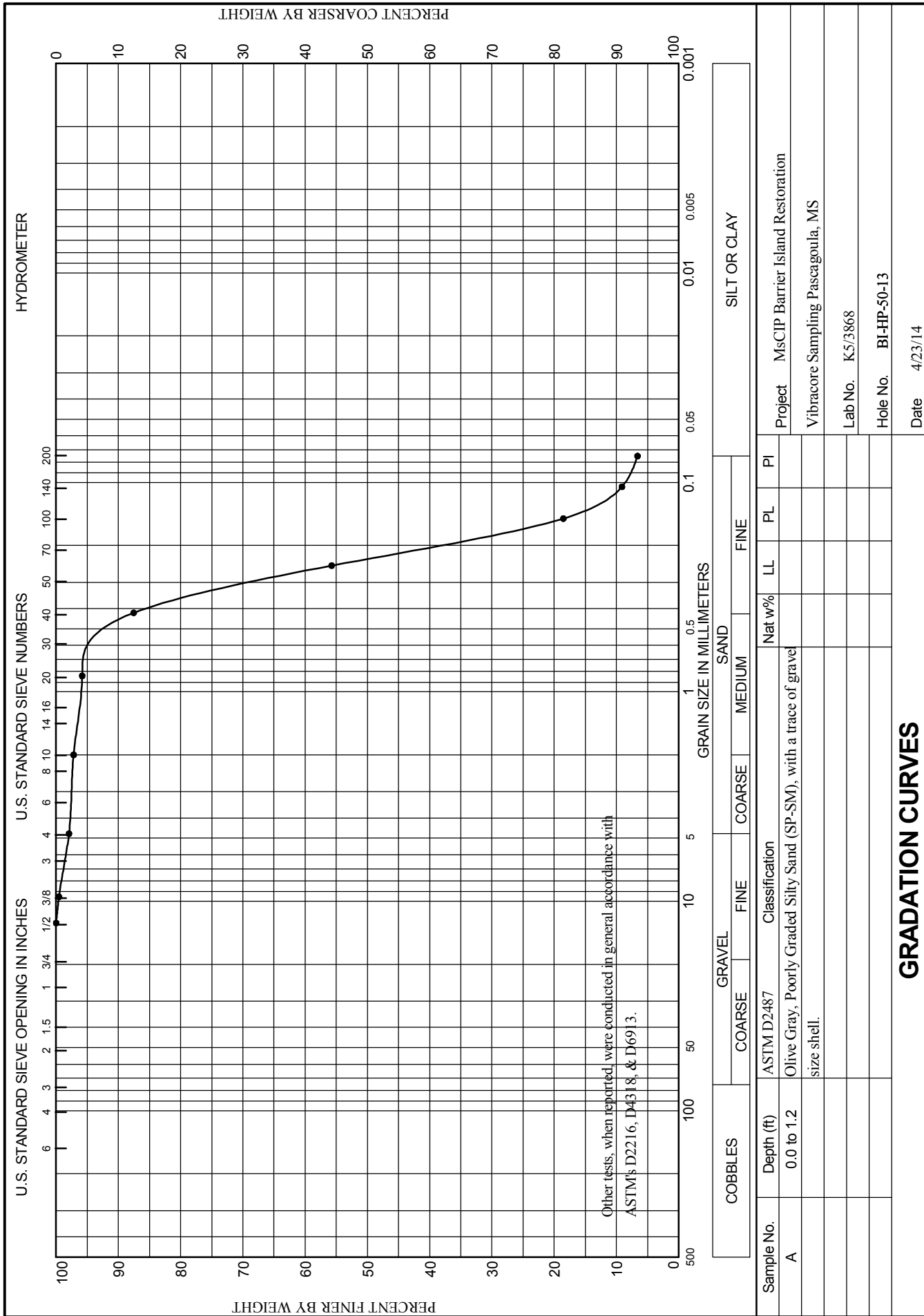
ELEV.	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS	SAMPLE	LABORATORY RESULTS
-40.5	0.0				
-41.7	1.2		SAND, poorly-graded, mostly fine-grained quartz, little shell, few 1/2-inch clay lenses, medium gray (SP)	A	Classification: SP-SM Color: 2.5Y 6/1-gray D50: 0.231 mm % Fines: 6.6
-44.5	4.0		SAND, poorly-graded with silt, mostly fine-grained, little shell, medium gray (SP-SM)	B	Classification: SM Color: GLEY1 10Y 5/1- D50: 0.174 mm % Fines: 14
-53.5	13.0		SAND, silty, mostly fine-grained, little shell, medium gray (SM)	C	Classification: SM Color: GLEY1 10Y 5/1- D50: 0.155 mm % Fines: 18.4
-57.0	16.5		SAND, clayey, little shell, medium gray (SC)	NS	Classification: SM Color: 2.5Y 5/1-gray D50: 0.156 mm % Fines: 22
NOTES: 1. Soils are field visually classified in accordance with the Unified Soils Classification System. 2. NS = Sample not submitted for laboratory analysis from this interval. 3. Seafloor elevation from 2013 USACE hydrographic survey.					



DEPARTMENT OF THE ARMY, SAVANNAH DISTRICT, ENVIRONMENTAL AND MATERIALS UNIT  
CORPS OF ENGINEERS, 200 N. COBB PARKWAY, BLDG 400 SUITE 404, MARIETTA, GA. 30062

WORK ORDER: 848e

REQUISITION: W33SJC32900192



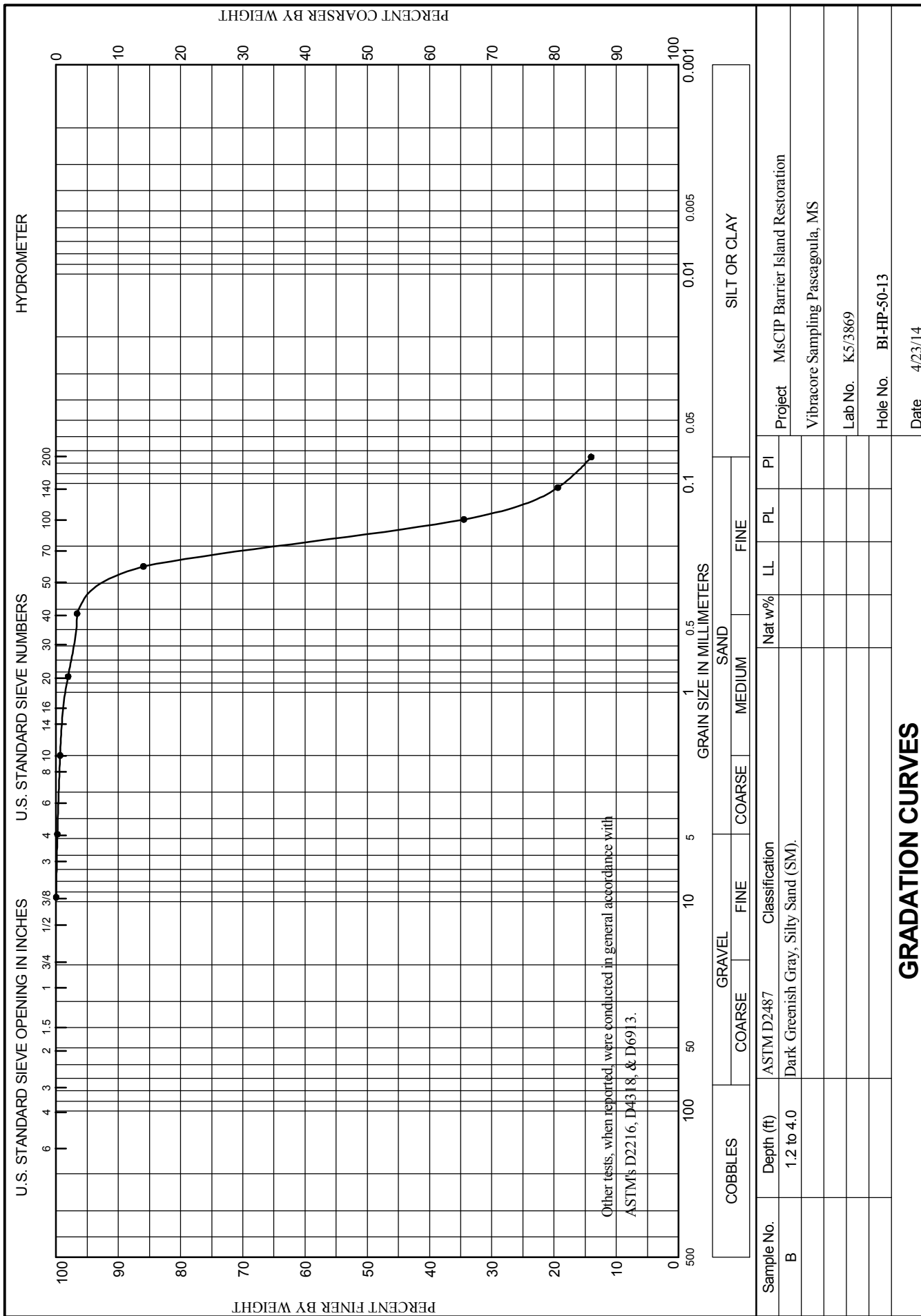




DEPARTMENT OF THE ARMY, SAVANNAH DISTRICT, ENVIRONMENTAL AND MATERIALS UNIT  
CORPS OF ENGINEERS, 200 N. COBB PARKWAY, BLDG 400 SUITE 404, MARIETTA, GA. 30062

WORK ORDER: 848e

REQUISITION: W33SJC32900192

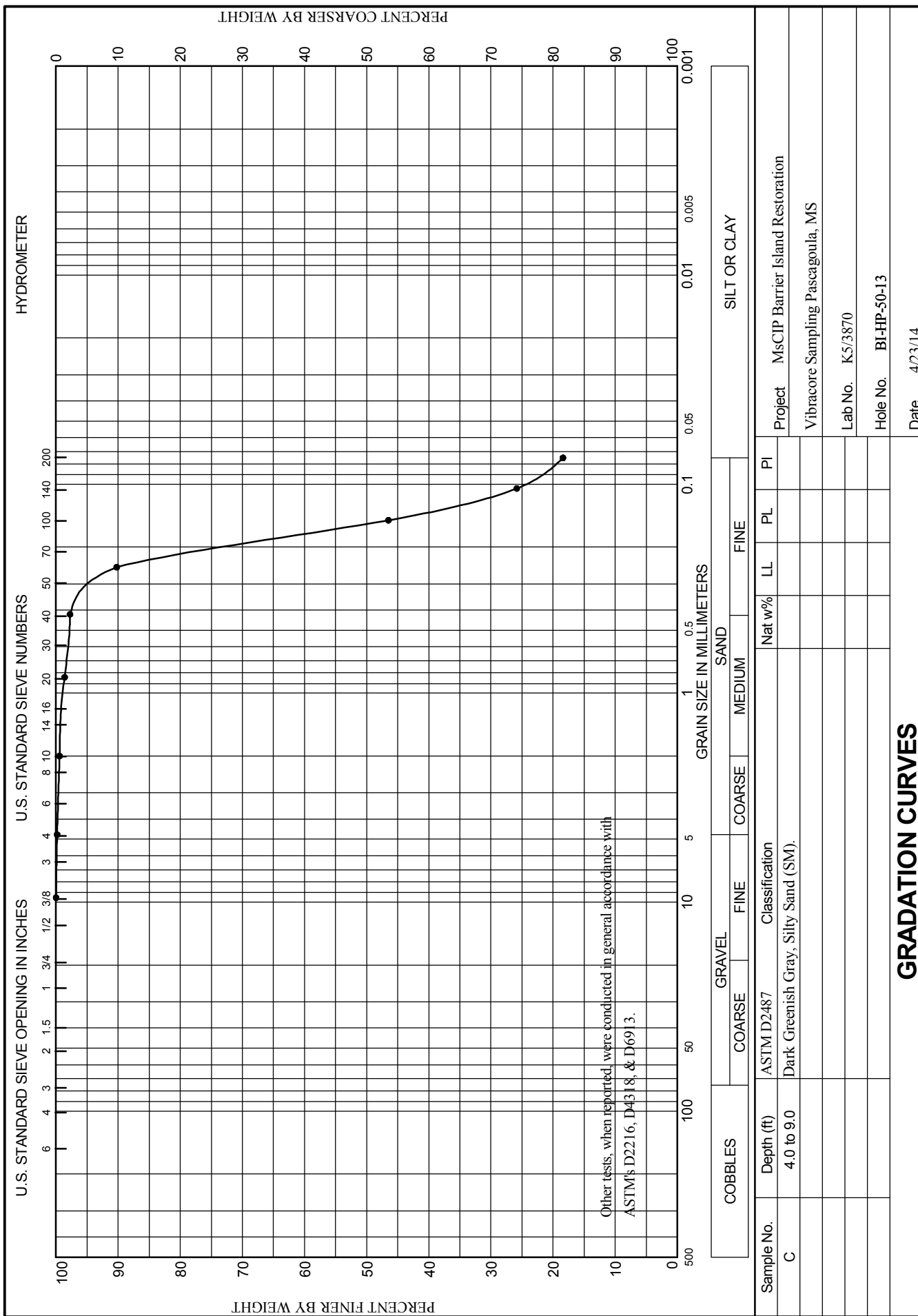




DEPARTMENT OF THE ARMY, SAVANNAH DISTRICT, ENVIRONMENTAL AND MATERIALS UNIT  
CORPS OF ENGINEERS, 200 N. COBB PARKWAY, BLDG 400 SUITE 404, MARIETTA, GA. 30062

WORK ORDER: 848e

REQUISITION: W33SJC32900192

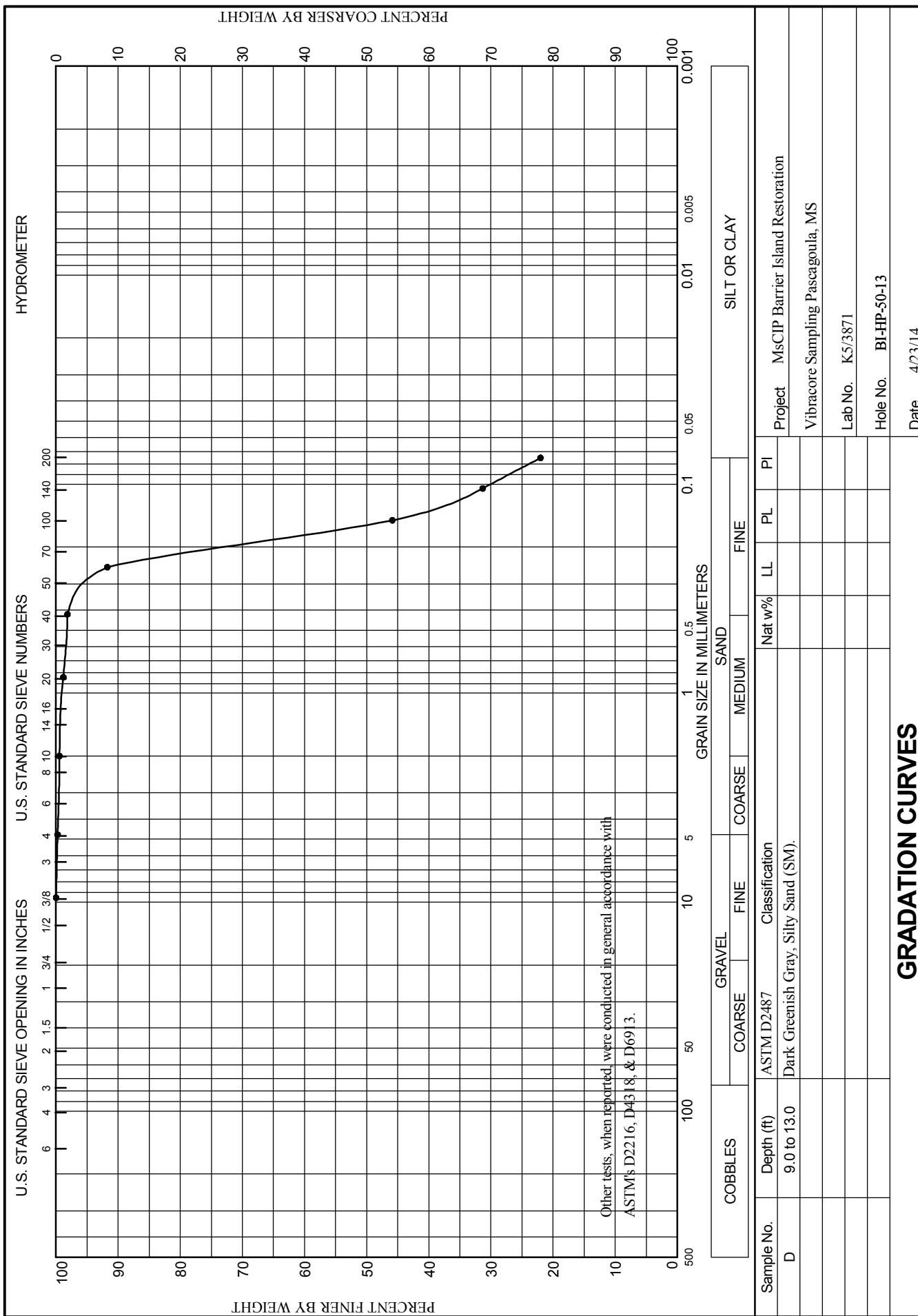




DEPARTMENT OF THE ARMY, SAVANNAH DISTRICT, ENVIRONMENTAL AND MATERIALS UNIT  
CORPS OF ENGINEERS, 200 N. COBB PARKWAY, BLDG 400 SUITE 404, MARIETTA, GA. 30062

WORK ORDER: 848e

REQUISITION: W33SJC32900192



# Boring Designation BI-HP-51-13

DRILLING LOG		DIVISION South Atlantic		INSTALLATION Mobile District		SHEET 1 OF 1 SHEETS	
1. PROJECT MsCIP Barrier Island Restoration Horn Island Pass				9. SIZE AND TYPE OF BIT N/A			
2. BORING DESIGNATION BI-HP-51-13		LOCATION COORDINATES E = 1,070,483 N = 244,294		10. COORDINATE SYSTEM/DATUM State Plane, MSE (U.S. Ft.)		HORIZONTAL NAD83 VERTICAL NAVD88	
3. DRILLING AGENCY Corps of Engineers - CESAM		CONTRACTOR FILE NO.		11. MANUFACTURER'S DESIGNATION OF DRILL Vibrocure		<input type="checkbox"/> AUTO HAMMER <input type="checkbox"/> MANUAL HAMMER	
4. NAME OF DRILLER Construction Solutions International, Inc.				12. TOTAL SAMPLES 4		DISTURBED 0 UNDISTURBED (UD)	
5. DIRECTION OF BORING <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED		DEG. FROM VERTICAL		13. TOTAL NUMBER CORE BOXES			
		BEARING		14. WATER DEPTH 43 Ft.			
6. THICKNESS OF OVERBURDEN N/A				15. DATE BORING 11-29-13		STARTED 11-29-13 COMPLETED 11-29-13	
7. DEPTH DRILLED INTO ROCK N/A				16. ELEVATION TOP OF BORING -41.8 Ft.			
8. TOTAL DEPTH OF BORING 15.9 Ft.				17. TOTAL RECOVERY FOR BORING 100%			
				18. SIGNATURE AND TITLE OF INSPECTOR Tom Powers, Geologist			

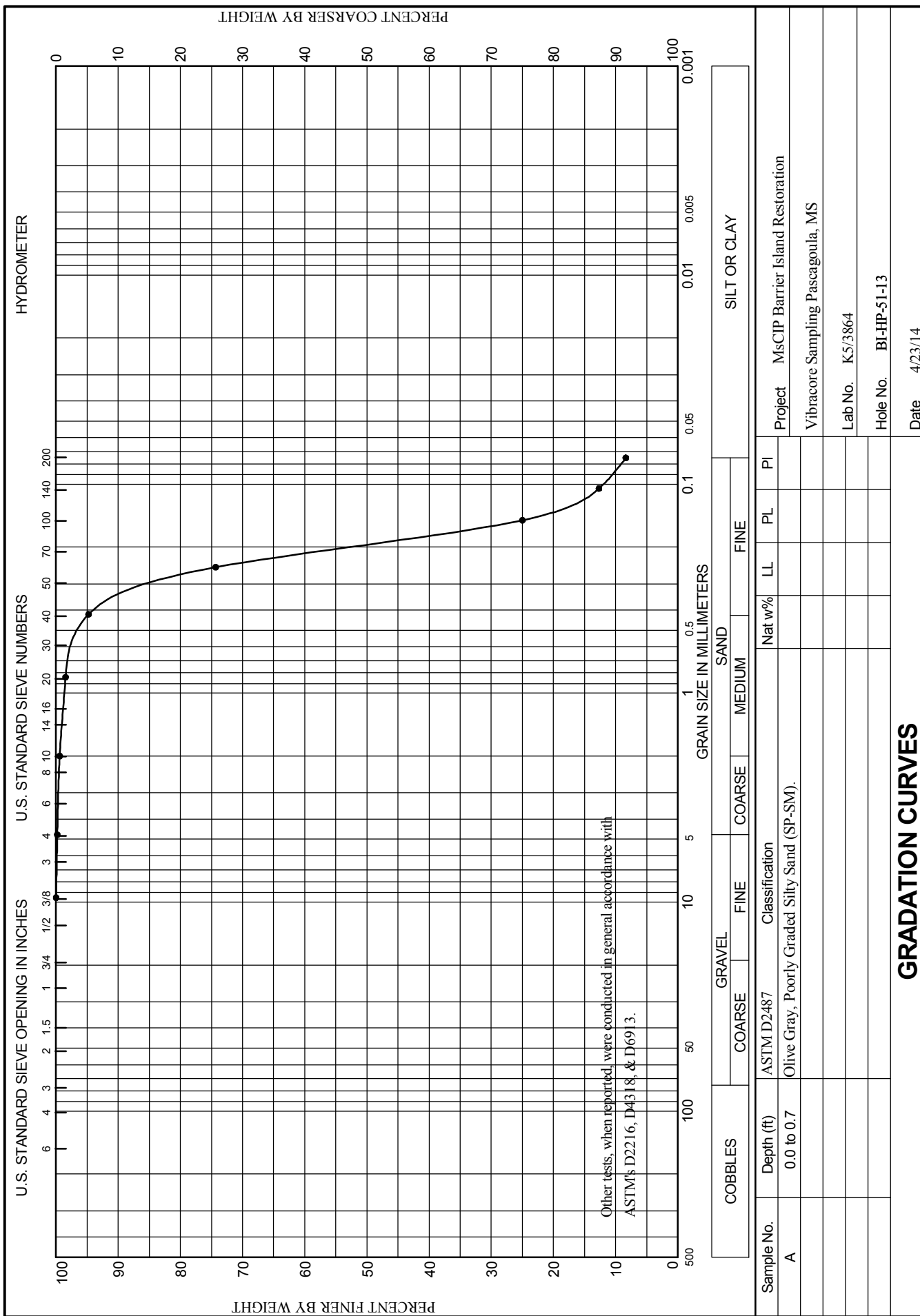
ELEV.	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS	SAMPLE	LABORATORY RESULTS
-41.8	0.0				
-42.5	0.7		SAND, poorly-graded, mostly fine-grained quartz, medium gray (SP)	A	Classification: SP-SM Color: GLEY1 10Y 5/1- D50: 0.194 mm % Fines: 8.4
			SAND, silty, mostly fine-grained, few shell, medium gray (SM)	B	Classification: SM Color: 2.5Y 5/1-gray D50: 0.165 mm % Fines: 15.2
				C	Classification: SM Color: 2.5Y 5/1-gray D50: 0.157 mm % Fines: 18.5
				D	Classification: SM Color: 2.5Y 5/1-gray D50: 0.117 mm % Fines: 26.8
-56.3	14.5				
-57.7	15.9		CLAY, lean, sandy, medium gray (CL)	NS	
			NOTES: 1. Soils are field visually classified in accordance with the Unified Soils Classification System. 2. NS = Sample not submitted for laboratory analysis from this interval. 3. Seafloor elevation from 2013 USACE hydrographic survey.		



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WORK ORDER: 848e

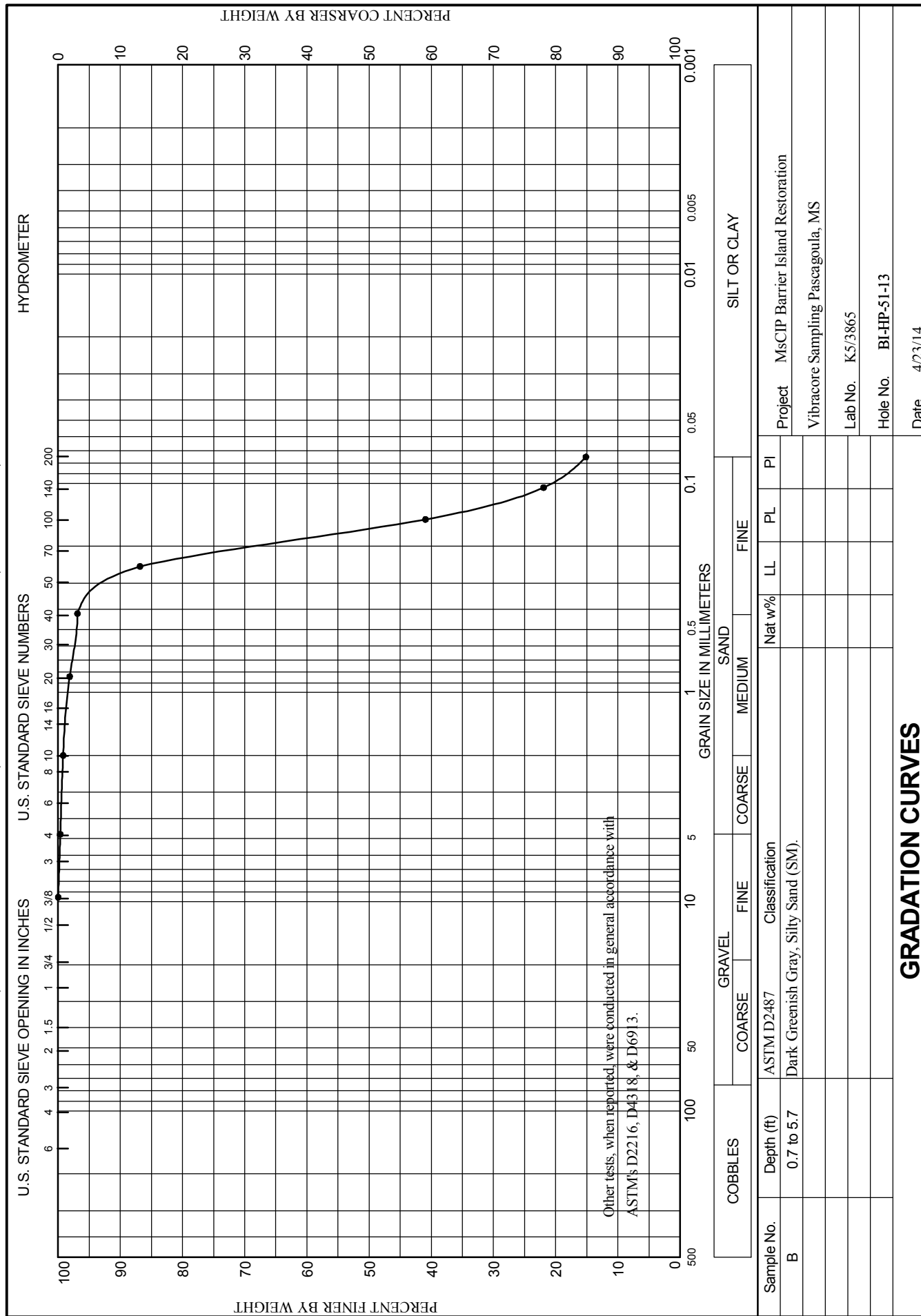
REQUISITION: W33SJC32900192





WORK ORDER: 848e

REQUISITION: W33SJG32900192





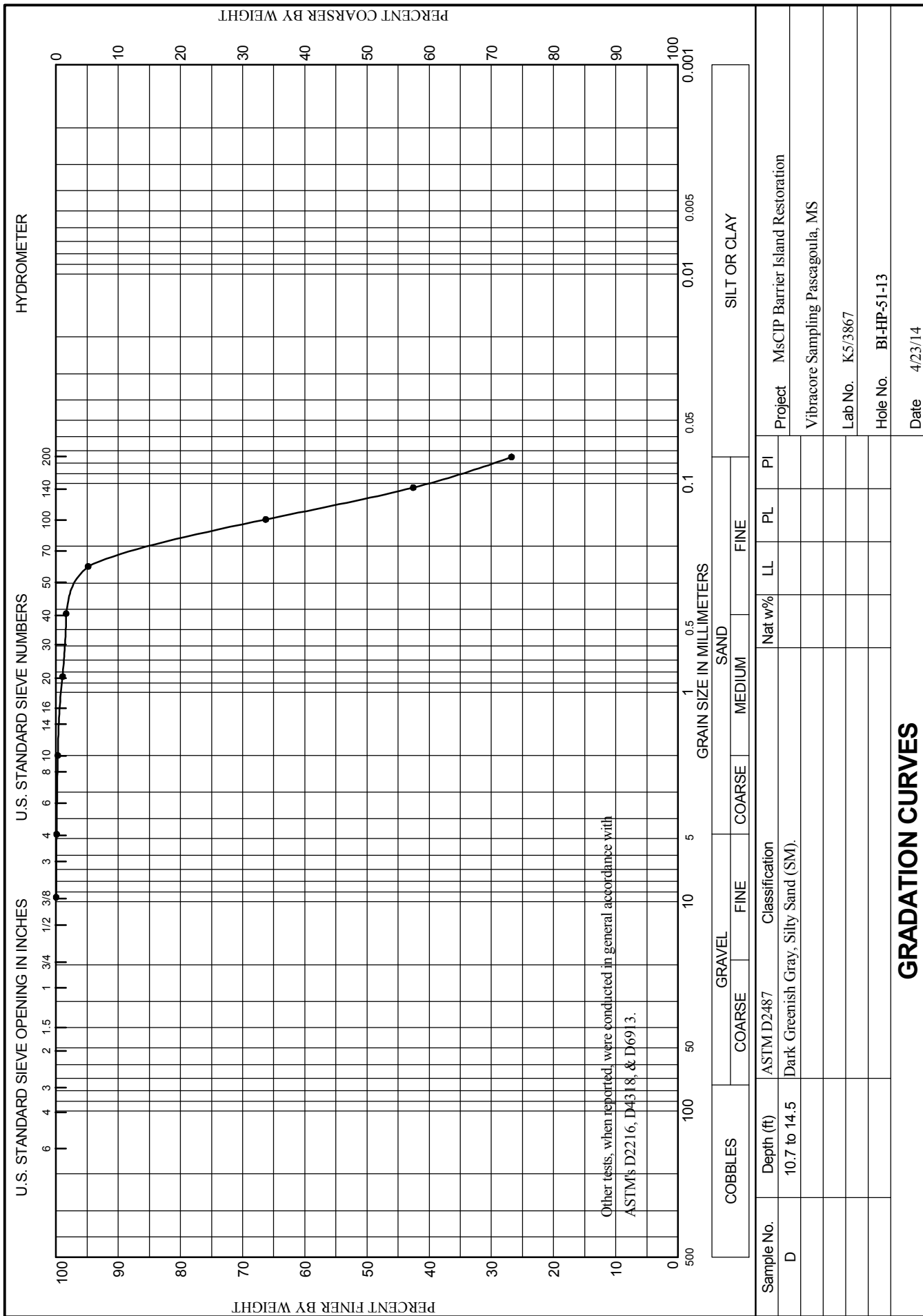
REQUISITION: W33SJG32900192





DEPARTMENT OF THE ARMY, SAVANNAH DISTRICT, ENVIRONMENTAL AND MATERIALS UNIT  
CORPS OF ENGINEERS, 200 N. COBB PARKWAY, BLDG 400 SUITE 404, MARIETTA, GA. 30062

WORK ORDER: 848e  
REQUISITION: W33SJC32900192





# Boring Designation BI-HP-52-13

DRILLING LOG		DIVISION South Atlantic		INSTALLATION Mobile District		SHEET 1 OF 1 SHEETS	
1. PROJECT MsCIP Barrier Island Restoration Horn Island Pass				9. SIZE AND TYPE OF BIT N/A			
2. BORING DESIGNATION BI-HP-52-13		LOCATION COORDINATES E = 1,069,571 N = 244,991		10. COORDINATE SYSTEM/DATUM State Plane, MSE (U.S. Ft.)		HORIZONTAL NAD83 VERTICAL NAVD88	
3. DRILLING AGENCY Corps of Engineers - CESAM		CONTRACTOR FILE NO.		11. MANUFACTURER'S DESIGNATION OF DRILL Vibrocure		<input type="checkbox"/> AUTO HAMMER <input type="checkbox"/> MANUAL HAMMER	
4. NAME OF DRILLER Construction Solutions International, Inc.				12. TOTAL SAMPLES		DISTURBED 1 UNDISTURBED (UD) 0	
5. DIRECTION OF BORING <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED		DEG. FROM VERTICAL		13. TOTAL NUMBER CORE BOXES			
		BEARING		14. WATER DEPTH 40 Ft.			
6. THICKNESS OF OVERBURDEN N/A				15. DATE BORING 11-23-13		STARTED 11-23-13 COMPLETED 11-23-13	
7. DEPTH DRILLED INTO ROCK N/A				16. ELEVATION TOP OF BORING -40.7 Ft.			
8. TOTAL DEPTH OF BORING 19.2 Ft.				17. TOTAL RECOVERY FOR BORING 100%			
				18. SIGNATURE AND TITLE OF INSPECTOR Tom Powers, Geologist			
ELEV.	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS	SAMPLE	LABORATORY RESULTS		
-40.7	0.0						
-42.6	1.9		SAND, silty, mostly fine to medium-grained, little shell, medium gray (SM)	A	Classification: SP Color: 2.5YR 6/1-reddish gray D50: 0.253 mm % Fines: 4.5		
-44.7	4.0		CLAY, lean, sandy, little shell fragment, medium gray (CL)	NS			
-47.7	7.0		SAND, silty, medium gray (SM)				
-54.7	14.0		SAND, clayey, medium gray (SC)				
-59.9	19.2		CLAY, lean, sandy, medium gray (CL)				
			NOTES: 1. Soils are field visually classified in accordance with the Unified Soils Classification System. 2. NS = Sample not submitted for laboratory analysis from this interval. 3. Seafloor elevation from 2013 USACE hydrographic survey.				



REQUISITION: W33SJG32900192



# Boring Designation BI-HP-53-13

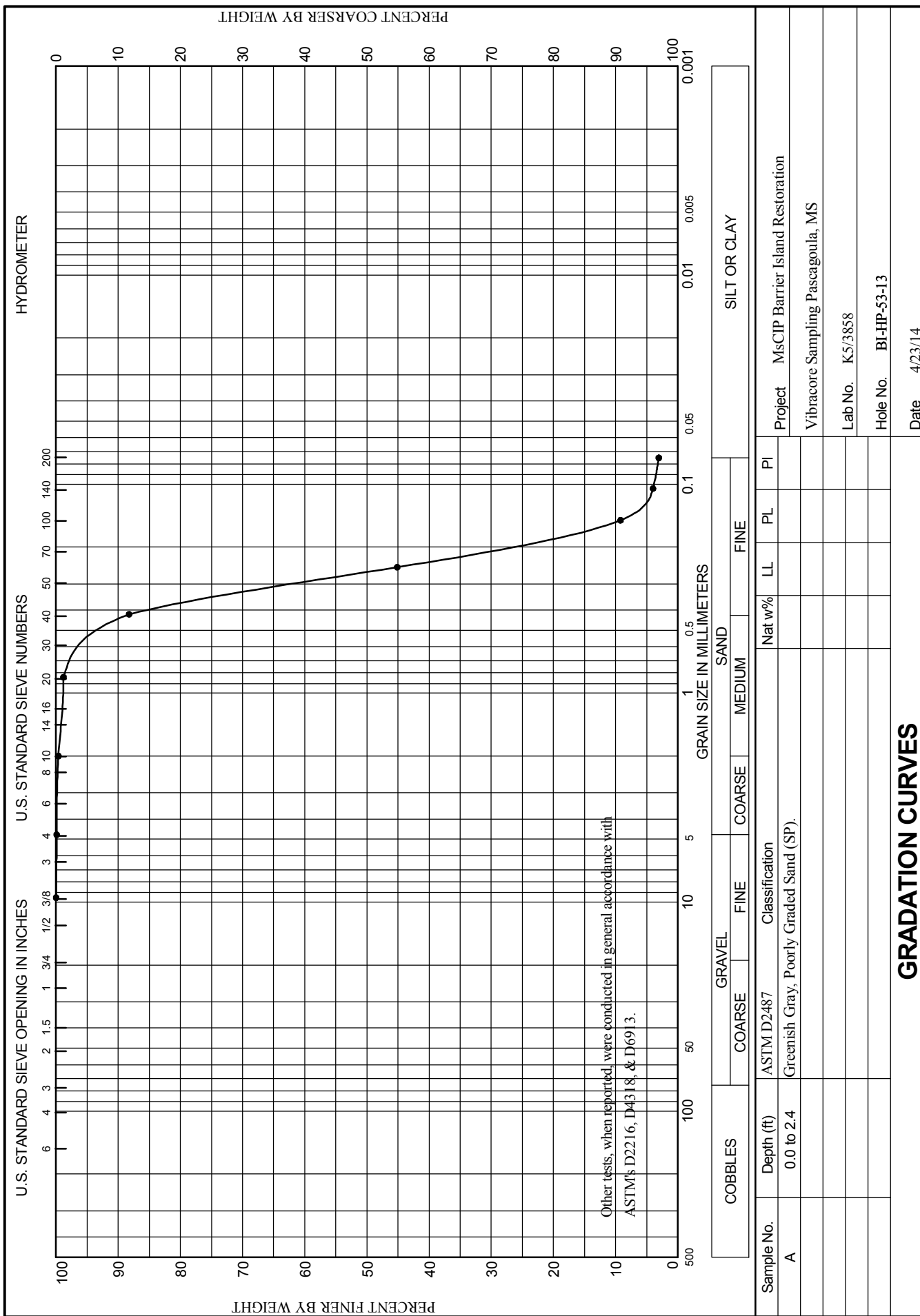
DRILLING LOG		DIVISION South Atlantic		INSTALLATION Mobile District		SHEET 1 OF 1 SHEETS	
1. PROJECT MsCIP Barrier Island Restoration Horn Island Pass				9. SIZE AND TYPE OF BIT N/A			
2. BORING DESIGNATION BI-HP-53-13		LOCATION COORDINATES E = 1,068,592 N = 246,134		10. COORDINATE SYSTEM/DATUM State Plane, MSE (U.S. Ft.)		HORIZONTAL NAD83 VERTICAL NAVD88	
3. DRILLING AGENCY Corps of Engineers - CESAM		CONTRACTOR FILE NO.		11. MANUFACTURER'S DESIGNATION OF DRILL Vibrocure		<input type="checkbox"/> AUTO HAMMER <input type="checkbox"/> MANUAL HAMMER	
4. NAME OF DRILLER Construction Solutions International, Inc.				12. TOTAL SAMPLES		DISTURBED 1 UNDISTURBED (UD) 0	
5. DIRECTION OF BORING <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED		DEG. FROM VERTICAL		13. TOTAL NUMBER CORE BOXES			
		BEARING		14. WATER DEPTH 39 Ft.			
6. THICKNESS OF OVERBURDEN N/A				15. DATE BORING 11-23-13		STARTED 11-23-13 COMPLETED 11-23-13	
7. DEPTH DRILLED INTO ROCK N/A				16. ELEVATION TOP OF BORING -39.9 Ft.			
8. TOTAL DEPTH OF BORING 15.5 Ft.				17. TOTAL RECOVERY FOR BORING 100%			
				18. SIGNATURE AND TITLE OF INSPECTOR Tom Powers, Geologist			
ELEV.	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS	SAMPLE	LABORATORY RESULTS		
-39.9	0.0						
-42.3	2.4		SAND, poorly-graded, mostly fine to medium-grained quartz, trace shell, trace clay lenses, 0.1 ft. thick, light gray (SP)	A	Classification: SP Color: 2.5Y 7/1-light gray D50: 0.265 mm % Fines: 3.1		
-55.4	15.5		CLAY, lean, sandy, little shell, medium gray (CL)	NS			
			NOTES: 1. Soils are field visually classified in accordance with the Unified Soils Classification System. 2. NS = Sample not submitted for laboratory analysis from this interval. 3. Seafloor elevation from 2013 USACE hydrographic survey.				



DEPARTMENT OF THE ARMY, SAVANNAH DISTRICT, ENVIRONMENTAL AND MATERIALS UNIT  
CORPS OF ENGINEERS, 200 N. COBB PARKWAY, BLDG 400 SUITE 404, MARIETTA, GA. 30062

WORK ORDER: 848e

REQUISITION: W33SJC32900192



# Boring Designation BI-HP-54-13

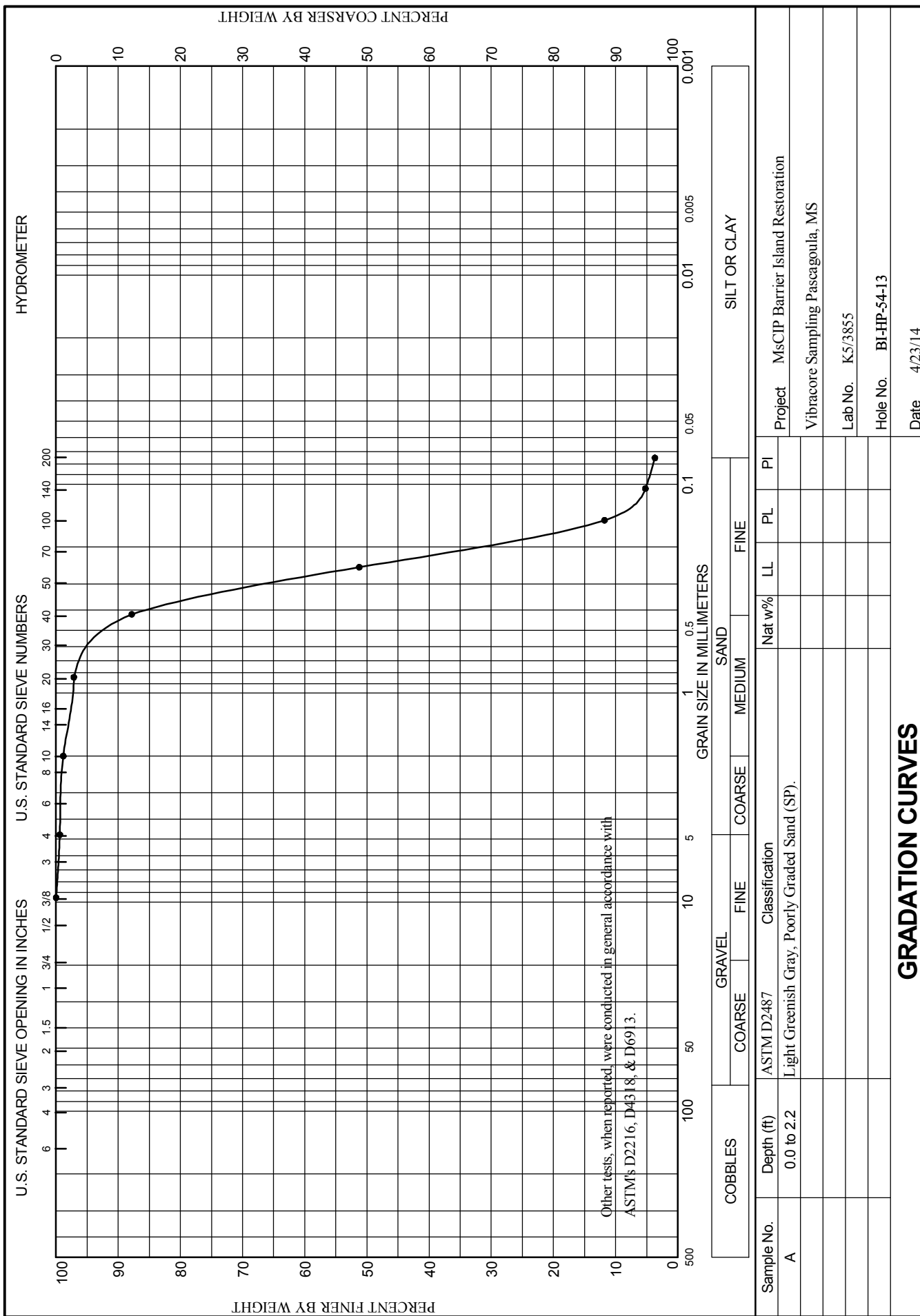
DRILLING LOG		DIVISION South Atlantic		INSTALLATION Mobile District		SHEET 1 OF 1 SHEETS	
1. PROJECT MsCIP Barrier Island Restoration Horn Island Pass				9. SIZE AND TYPE OF BIT N/A			
2. BORING DESIGNATION BI-HP-54-13		LOCATION COORDINATES E = 1,070,091 N = 248,247		10. COORDINATE SYSTEM/DATUM State Plane, MSE (U.S. Ft.)		HORIZONTAL NAD83 VERTICAL NAVD88	
3. DRILLING AGENCY Corps of Engineers - CESAM		CONTRACTOR FILE NO.		11. MANUFACTURER'S DESIGNATION OF DRILL Vibracore		<input type="checkbox"/> AUTO HAMMER <input type="checkbox"/> MANUAL HAMMER	
4. NAME OF DRILLER Construction Solutions International, Inc.				12. TOTAL SAMPLES 2		DISTURBED 2 UNDISTURBED (UD) 0	
5. DIRECTION OF BORING <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED		DEG. FROM VERTICAL		13. TOTAL NUMBER CORE BOXES			
		BEARING		14. WATER DEPTH 39 Ft.			
6. THICKNESS OF OVERBURDEN N/A				15. DATE BORING 11-22-13		STARTED 11-22-13 COMPLETED 11-22-13	
7. DEPTH DRILLED INTO ROCK N/A				16. ELEVATION TOP OF BORING -39.2 Ft.			
8. TOTAL DEPTH OF BORING 16.0 Ft.				17. TOTAL RECOVERY FOR BORING 100%			
				18. SIGNATURE AND TITLE OF INSPECTOR Tom Powers, Geologist			
ELEV.	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS	SAMPLE	LABORATORY RESULTS		
-39.2	0.0						
-41.4	2.2		SAND, poorly-graded, mostly fine to medium-grained quartz, few shell, light gray (SP)	A	Classification: SP Color: GLEY1 10Y 7/1- D50: 0.246 mm % Fines: 3.7		
-43.2	4.0		SAND, silty, mostly fine-grained quartz, few shell, medium gray (SM)	B	Classification: SM Color: GLEY1 10Y 5/1- D50: 0.19 mm % Fines: 13		
-44.2	5.0		SAND, clayey, few shell, medium gray (SC)				
			CLAY, lean, sandy, little shell, medium gray (CL)	NS			
-55.2	16.0						
			NOTES: 1. Soils are field visually classified in accordance with the Unified Soils Classification System. 2. NS = Sample not submitted for laboratory analysis from this interval. 3. Seafloor elevation from 2013 USACE hydrographic survey.				



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CORPS OF ENGINEERS, 200 N. COBB PARKWAY, BLDG 400 SUITE 404, MARIETTA, GA. 30062

WORK ORDER: 848e

REQUISITION: W33SJC32900192

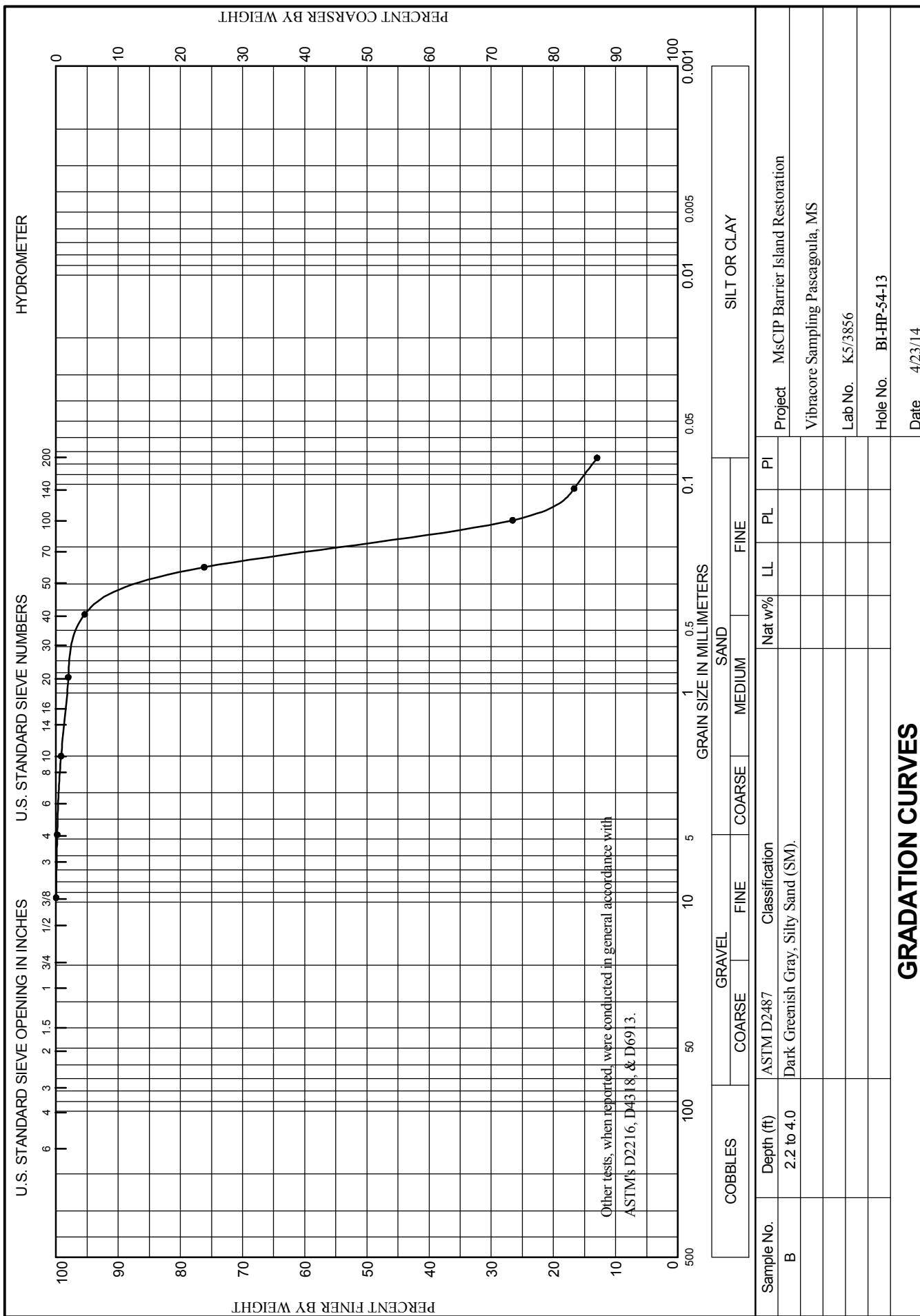




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CORPS OF ENGINEERS, 200 N. COBB PARKWAY, BLDG 400 SUITE 404, MARIETTA, GA. 30062

WORK ORDER: 848e

REQUISITION: W33SJC32900192



# Boring Designation BI-HP-55-13

DRILLING LOG		DIVISION South Atlantic		INSTALLATION Mobile District		SHEET 1 OF 1 SHEETS	
1. PROJECT MsCIP Barrier Island Restoration Horn Island Pass				9. SIZE AND TYPE OF BIT N/A			
2. BORING DESIGNATION BI-HP-55-13		LOCATION COORDINATES E = 1,070,941 N = 248,187		10. COORDINATE SYSTEM/DATUM State Plane, MSE (U.S. Ft.)		HORIZONTAL NAD83 VERTICAL NAVD88	
3. DRILLING AGENCY Corps of Engineers - CESAM		CONTRACTOR FILE NO.		11. MANUFACTURER'S DESIGNATION OF DRILL Vibrocure		<input type="checkbox"/> AUTO HAMMER <input type="checkbox"/> MANUAL HAMMER	
4. NAME OF DRILLER Construction Solutions International, Inc.				12. TOTAL SAMPLES		DISTURBED 1 UNDISTURBED (UD) 0	
5. DIRECTION OF BORING <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED		DEG. FROM VERTICAL		13. TOTAL NUMBER CORE BOXES			
		BEARING		14. WATER DEPTH 38 Ft.			
6. THICKNESS OF OVERBURDEN N/A				15. DATE BORING		STARTED 11-22-13 COMPLETED 11-22-13	
7. DEPTH DRILLED INTO ROCK N/A				16. ELEVATION TOP OF BORING -38.3 Ft.			
8. TOTAL DEPTH OF BORING 19.4 Ft.				17. TOTAL RECOVERY FOR BORING 100%			
				18. SIGNATURE AND TITLE OF INSPECTOR Tom Powers, Geologist			
ELEV.	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS	SAMPLE	LABORATORY RESULTS		
-38.3	0.0						
			SAND, poorly-graded, mostly fine to medium-grained quartz, little shell, light gray (SP)	A	Classification: SP-SM Color: 2.5Y 6/1-gray D50: 0.231 mm % Fines: 5.8		
-42.3	4.0						
-43.3	5.0		SAND, clayey, medium gray (SC)				
			CLAY, lean, sandy, little shell, medium to dark gray (CL)	NS			
-57.7	19.4						
			NOTES: 1. Soils are field visually classified in accordance with the Unified Soils Classification System. 2. NS = Sample not submitted for laboratory analysis from this interval. 3. Seafloor elevation from 2013 USACE hydrographic survey.				

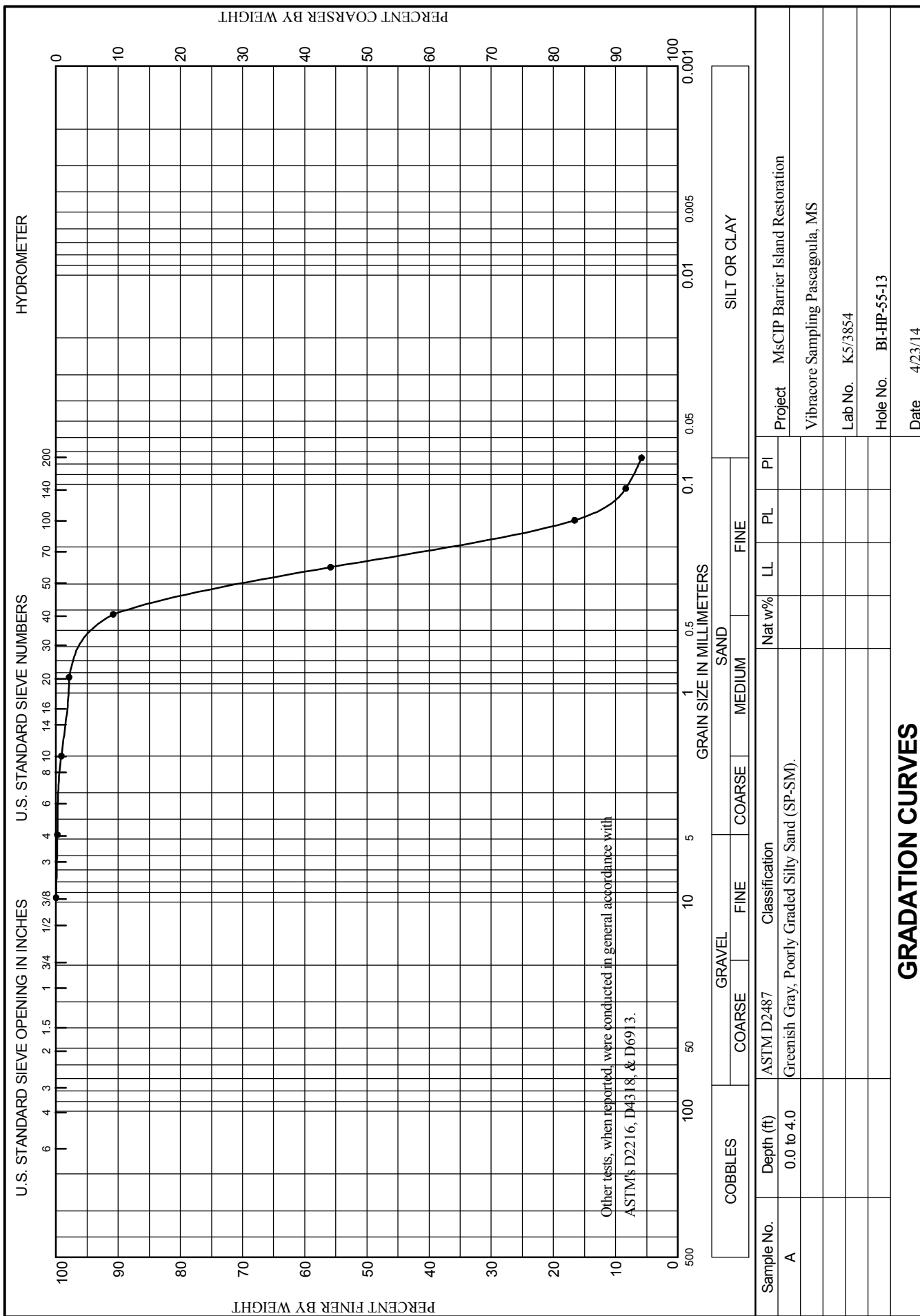




DEPARTMENT OF THE ARMY, SAVANNAH DISTRICT, ENVIRONMENTAL AND MATERIALS UNIT  
CORPS OF ENGINEERS, 200 N. COBB PARKWAY, BLDG 400 SUITE 404, MARIETTA, GA. 30062

WORK ORDER: 848e

REQUISITION: W33SJC32900192



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# Boring Designation BI-PBC-01-12

DRILLING LOG		DIVISION South Atlantic		INSTALLATION Mobile District		SHEET 1 OF 1 SHEETS	
1. PROJECT MsCIP Barrier Island Restoration Pascagoula Bar Channel				9. SIZE AND TYPE OF BIT N/A			
2. BORING DESIGNATION BI-PBC-01-12		LOCATION COORDINATES E = 1,084,501 N = 256,601		10. COORDINATE SYSTEM/DATUM State Plane, MSE (U.S. Ft.)		HORIZONTAL NAD83	
3. DRILLING AGENCY Corps of Engineers - CESAM		CONTRACTOR FILE NO.		11. MANUFACTURER'S DESIGNATION OF DRILL Vibracore		<input type="checkbox"/> AUTO HAMMER <input type="checkbox"/> MANUAL HAMMER	
4. NAME OF DRILLER American Vibracore Systems, Inc.				12. TOTAL SAMPLES		DISTURBED 0	
5. DIRECTION OF BORING <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED				13. TOTAL NUMBER CORE BOXES		14. WATER DEPTH 49.8 Ft.	
6. THICKNESS OF OVERBURDEN N/A				15. DATE BORING		STARTED 12-21-12	
7. DEPTH DRILLED INTO ROCK N/A				16. ELEVATION TOP OF BORING -49.5 Ft.		COMPLETED 12-21-12	
8. TOTAL DEPTH OF BORING 16.1 Ft.				17. TOTAL RECOVERY FOR BORING 100%			
				18. SIGNATURE AND TITLE OF INSPECTOR Mike FitzHarris, Geologist			
ELEV.	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS	SAMPLE	LABORATORY RESULTS		
-49.5	0.0		SILT, inorganic-L, mostly silt, some clay, few fine-grained sand-sized quartz, trace shell fragments, gray (ML)	NS			
-56.0	6.5		CLAY, fat, mostly clay, trace silt, trace shell fragments, medium to high plasticity, greenish gray (CH)				
-59.7	10.2		SAND, silty, mostly fine-grained sand-sized quartz, some silt, trace clay, gray and orange mottle (SM)				
-62.3	12.8		SILT, inorganic-L, mostly silt, trace clay, gray (ML)				
-65.6	16.1		NOTES: 1. Soils are field visually classified in accordance with the Unified Soils Classification System. 2. NS = Sample not submitted for laboratory analysis from this interval. 3. Seafloor elevation calculated using sampling vessel's fathometer water depth reading and applying NOAA tidal gauge data conversion factor.				

# Project

Mississippi Barrier Island  
Restoration Project



Core Identifier BI-PBC-1-12

Date 12/21/2012

Water Depth 49.8'

## Coordinate System

Latitude / Longitude

Start Time 12:58:54

End Time 12:59:40

Penetration 20.0'

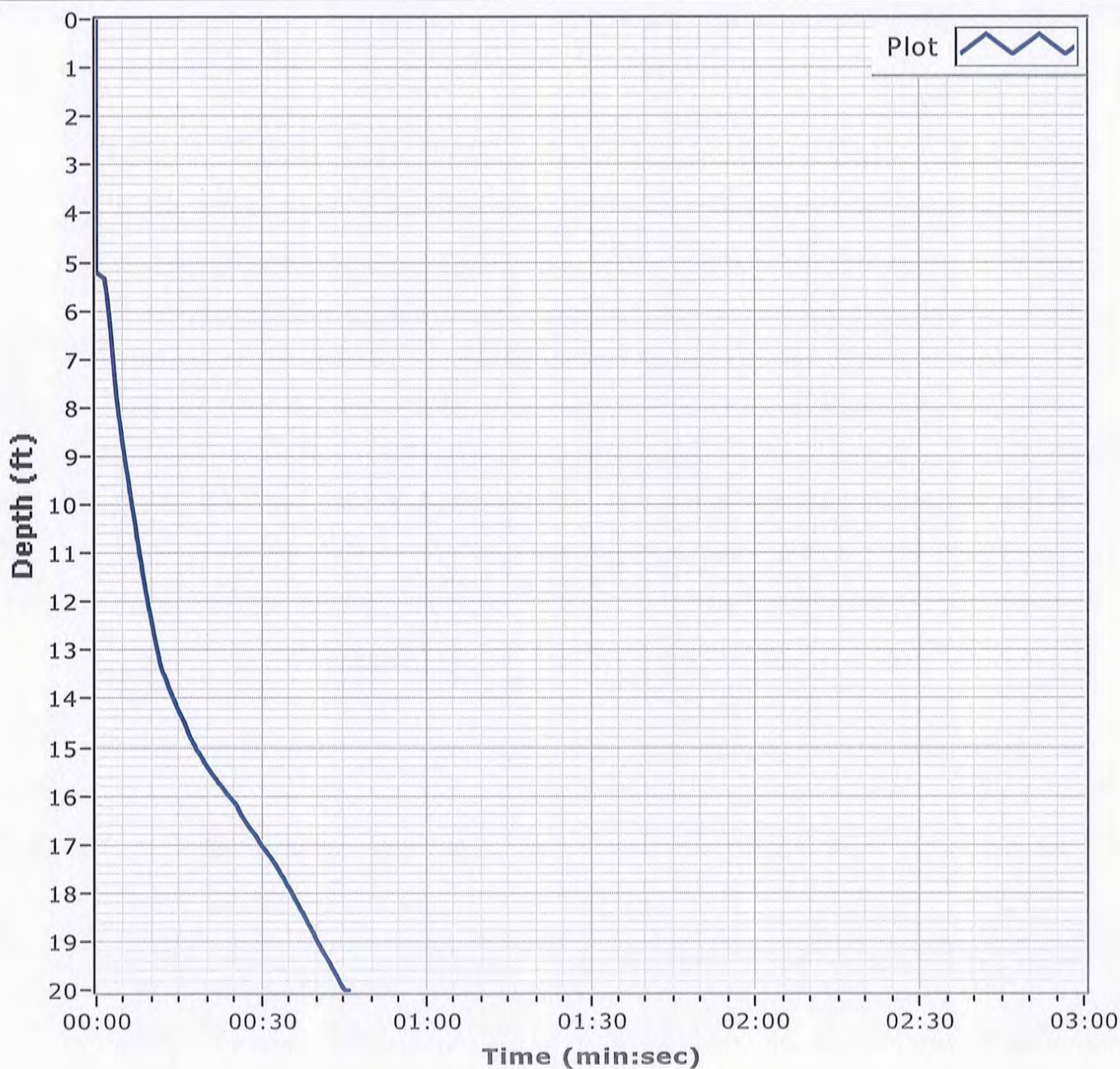
Latitude 30 12.313 N

Total Time 00:00:46

Recovery 16.1'

Longitude 88 30.958 W

## Comments



# Boring Designation BI-PBC-02-12

DRILLING LOG		DIVISION South Atlantic		INSTALLATION Mobile District		SHEET 1 OF 1 SHEETS	
1. PROJECT MsCIP Barrier Island Restoration Pascagoula Bar Channel				9. SIZE AND TYPE OF BIT N/A			
2. BORING DESIGNATION BI-PBC-02-12		LOCATION COORDINATES E = 1,084,047 N = 255,000		10. COORDINATE SYSTEM/DATUM State Plane, MSE (U.S. Ft.)		HORIZONTAL NAD83 VERTICAL NAVD88	
3. DRILLING AGENCY Corps of Engineers - CESAM		CONTRACTOR FILE NO.		11. MANUFACTURER'S DESIGNATION OF DRILL Vibracore		<input type="checkbox"/> AUTO HAMMER <input type="checkbox"/> MANUAL HAMMER	
4. NAME OF DRILLER American Vibracore Systems, Inc.				12. TOTAL SAMPLES		DISTURBED UNDISTURBED (UD) 0	
5. DIRECTION OF BORING <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED		DEG. FROM VERTICAL		13. TOTAL NUMBER CORE BOXES			
		BEARING		14. WATER DEPTH 38.2 Ft.			
6. THICKNESS OF OVERBURDEN N/A				15. DATE BORING 12-21-12		STARTED COMPLETED 12-21-12	
7. DEPTH DRILLED INTO ROCK N/A				16. ELEVATION TOP OF BORING -37.7 Ft.			
8. TOTAL DEPTH OF BORING 13.2 Ft.				17. TOTAL RECOVERY FOR BORING 100%			
				18. SIGNATURE AND TITLE OF INSPECTOR Mike FitzHarris, Geologist			

ELEV.	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS	SAMPLE	LABORATORY RESULTS
-37.7	0.0				
-37.8	0.1		SAND, poorly-graded, mostly fine to medium-grained sand-sized quartz, trace fines, trace shell fragments, gray (SP)		
			SILT, inorganic-L, mostly silt, little shell fragments, few clay, trace fine-grained sand-sized quartz, slightly clayey, gray (ML)		
-43.1	5.4				
			CLAY, fat, mostly clay, few shell fragments, trace silt, medium to high plasticity, gray (CH)	NS	
-47.0	9.3				
			CLAY, lean, mostly clay, trace fine-grained sand-sized quartz, trace shell fragments, low to medium plasticity, stiff, orange and gray mottle (CL)		
-50.9	13.2				
			NOTES: 1. Soils are field visually classified in accordance with the Unified Soils Classification System. 2. NS = Sample not submitted for laboratory analysis from this interval. 3. Seafloor elevation calculated using sampling vessel's fathometer water depth reading and applying NOAA tidal gauge data conversion factor.		



# Project

Mississippi Barrier Island  
Restoration Project

**AVS**  
AMERICAN VIBRACORE  
S E R V I C E S

Core Identifier BI-PBC-2-12

Date 12/21/2012

Water Depth 38.2'

## Coordinate System

Latitude / Longitude

Start Time 13:47:50

End Time 13:48:54

Penetration 20.0'

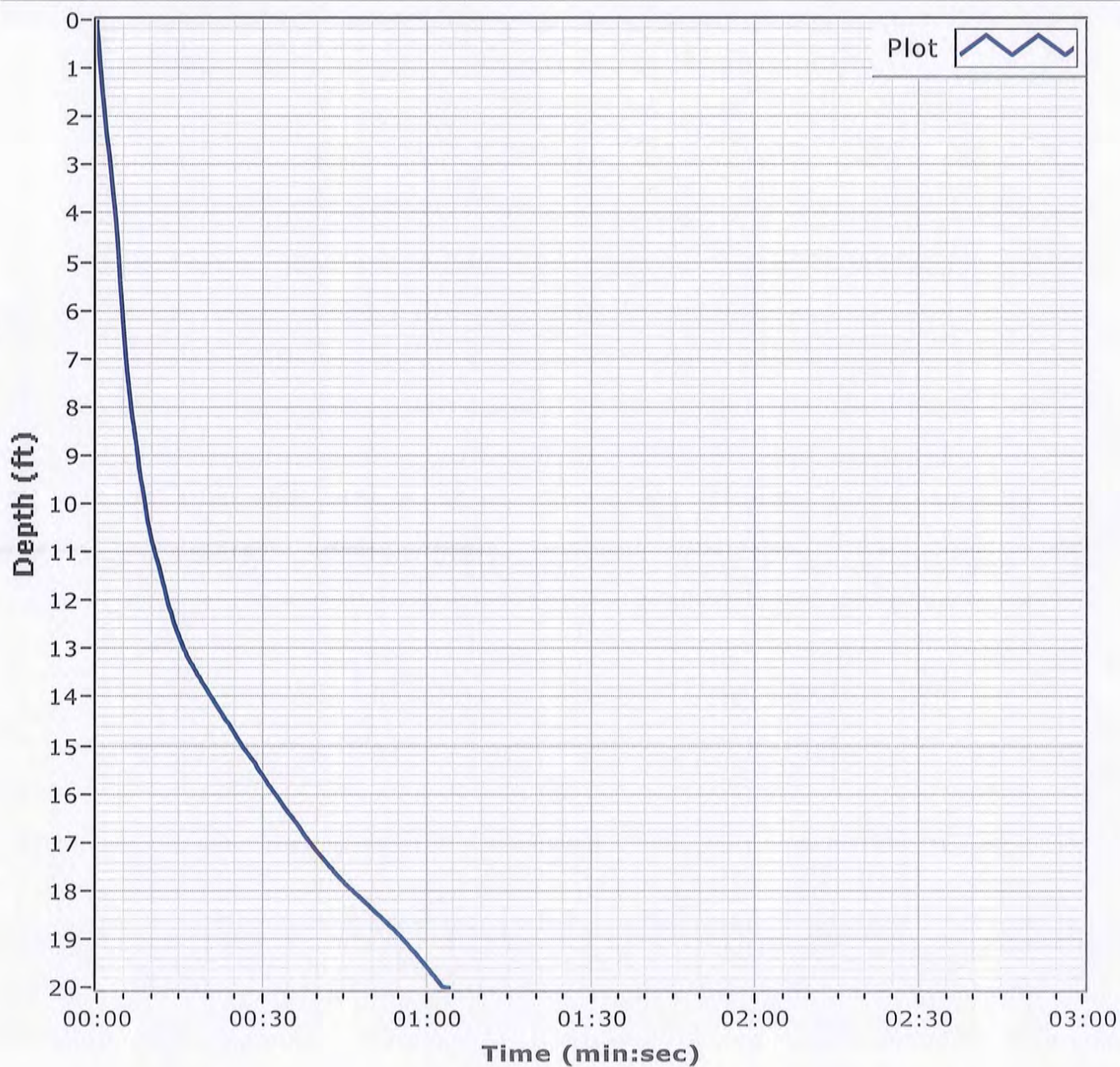
Latitude 30 12.049 N

Total Time 00:01:04

Recovery 13.2'

Longitude 88 31.045 W

## Comments



# Boring Designation BI-PBC-06-12

DRILLING LOG		DIVISION South Atlantic		INSTALLATION Mobile District		SHEET 1 OF 1 SHEETS	
1. PROJECT MsCIP Barrier Island Restoration Pascagoula Bar Channel				9. SIZE AND TYPE OF BIT N/A			
2. BORING DESIGNATION BI-PBC-06-12		LOCATION COORDINATES E = 1,081,103 N = 251,602		10. COORDINATE SYSTEM/DATUM State Plane, MSE (U.S. Ft.)		HORIZONTAL NAD83 VERTICAL NAVD88	
3. DRILLING AGENCY Corps of Engineers - CESAM		CONTRACTOR FILE NO.		11. MANUFACTURER'S DESIGNATION OF DRILL Vibracore		<input type="checkbox"/> AUTO HAMMER <input type="checkbox"/> MANUAL HAMMER	
4. NAME OF DRILLER American Vibracore Systems, Inc.				12. TOTAL SAMPLES		DISTURBED UNDISTURBED (UD) 0	
5. DIRECTION OF BORING <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED		DEG. FROM VERTICAL		13. TOTAL NUMBER CORE BOXES			
		BEARING		14. WATER DEPTH 42.3 Ft.			
6. THICKNESS OF OVERBURDEN N/A				15. DATE BORING 12-16-12		STARTED COMPLETED 12-16-12	
7. DEPTH DRILLED INTO ROCK N/A				16. ELEVATION TOP OF BORING -41.4 Ft.			
8. TOTAL DEPTH OF BORING 13.9 Ft.				17. TOTAL RECOVERY FOR BORING 100%			
				18. SIGNATURE AND TITLE OF INSPECTOR Mark Green, Geotechnical Engineer			

ELEV.	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS	SAMPLE	LABORATORY RESULTS
-41.4	0.0				
-42.4	1.0		SAND, poorly-graded, mostly fine-grained sand-sized quartz, trace silt, lt. gray (SP)	A	Classification: SP-SM Color: 5Y 5/3-olive D50: 0.1722 mm % Fines: 6.6
-49.6	8.2		SAND, clayey, mostly fine-grained sand-sized quartz, some clay, lenses of silty sand and trace shell fragments, gray (SC)	NS	
-52.4	11.0		SILT, inorganic-L, mostly silt, trace fine-grained sand-sized quartz, lt. gray and yellowish orange mottle (ML)		
-55.3	13.9		CLAY, lean, mostly clay, trace fine-grained sand-sized quartz, firm, some plasticity, lt. gray and orange mottle (CL)		
			NOTES: 1. Soils are field visually classified in accordance with the Unified Soils Classification System. 2. NS = Sample not submitted for laboratory analysis from this interval. 3. Seafloor elevation calculated using sampling vessel's fathometer water depth reading and applying NOAA tidal gauge data conversion factor.		



# Project

Mississippi Barrier Island  
Restoration Project

**AVS**  
AMERICAN VIBRACORE  
SERVICES

Core Identifier BI-PBC-6-12

Date 12/16/2012

Water Depth 42.3'

## Coordinate System

Latitude / Longitude

Start Time 14:23:50

End Time 14:25:19

Penetration 20.0'

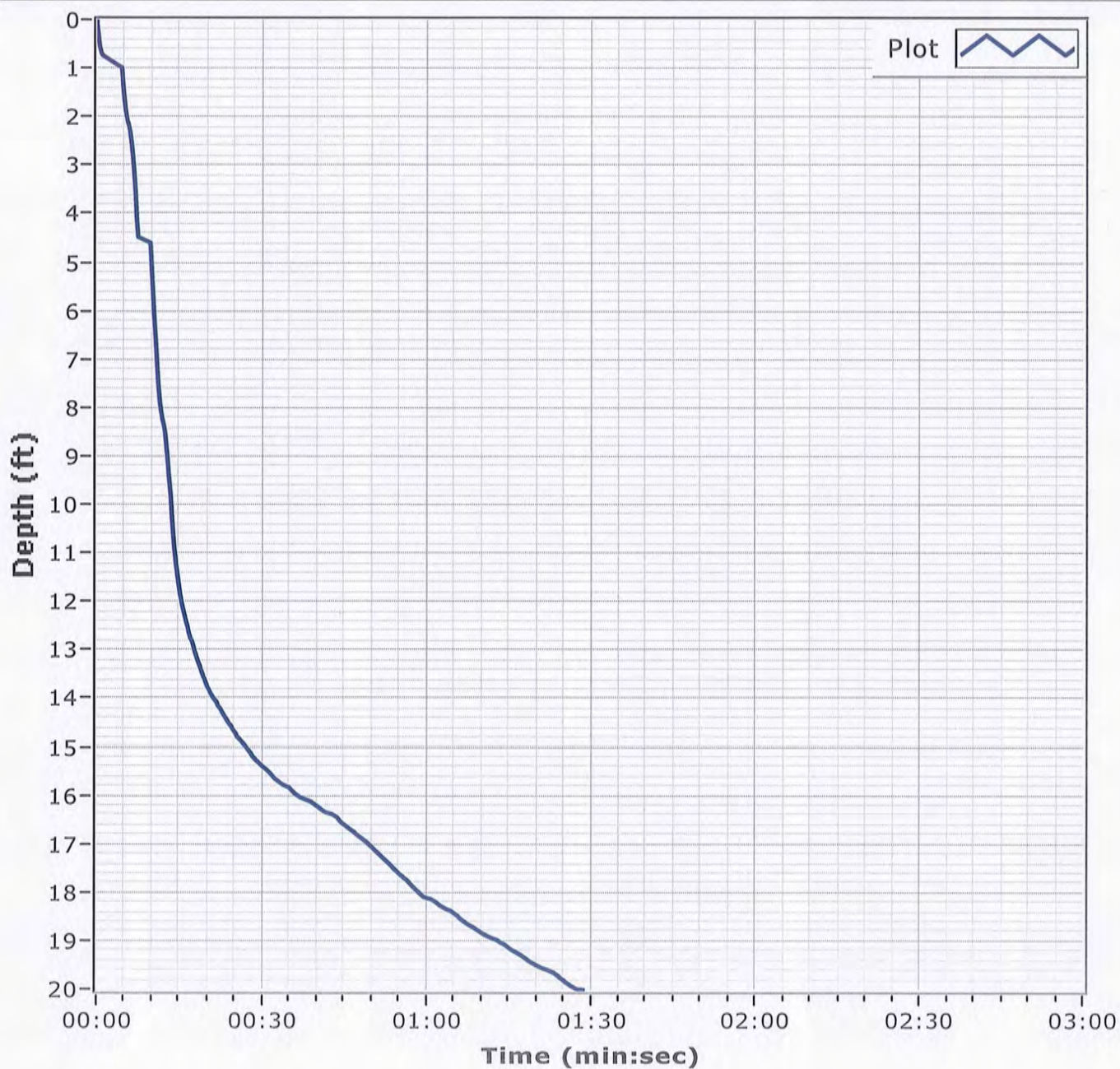
Latitude 30 11.490

Total Time 00:01:29

Recovery 14.0

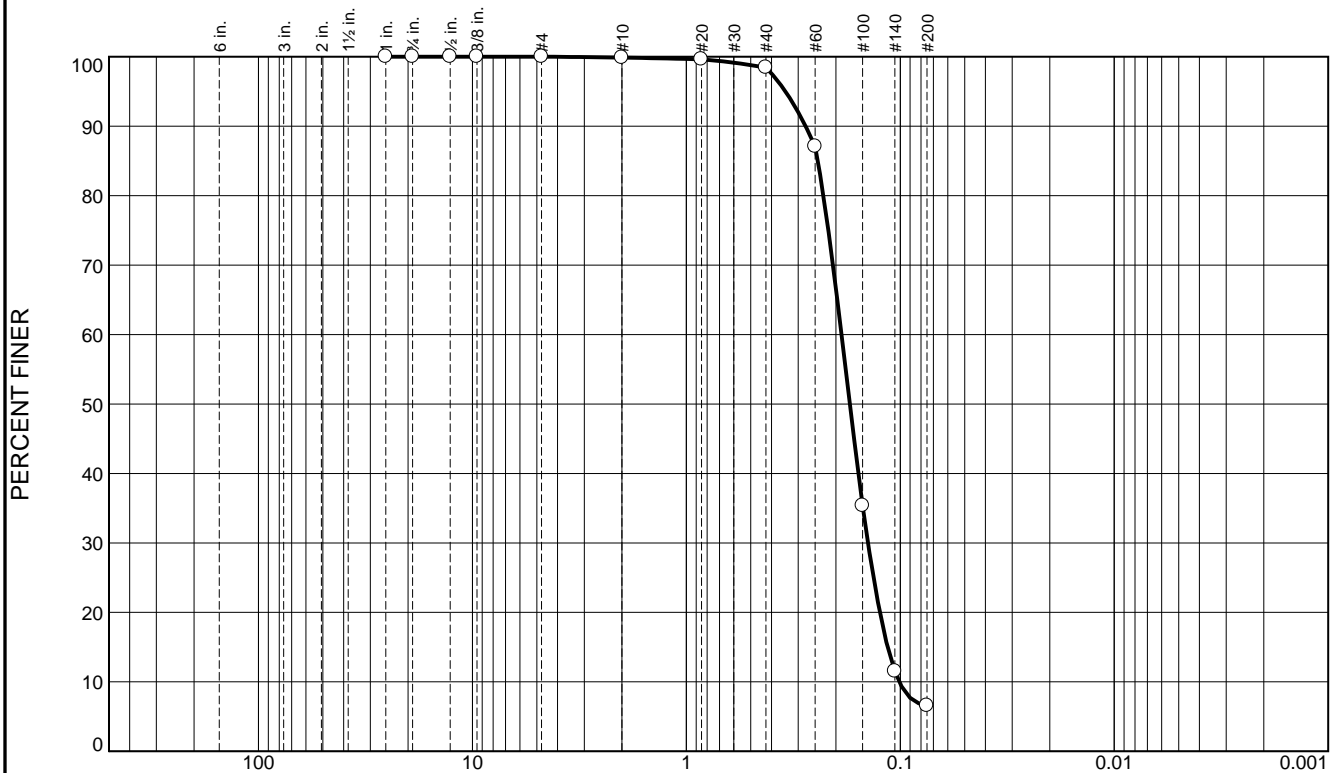
Longitude 088 31.606

## Comments





# Particle Size Distribution Report



# Boring Designation BI-PBC-07-12

DRILLING LOG		DIVISION South Atlantic		INSTALLATION Mobile District		SHEET 1 OF 2 SHEETS	
1. PROJECT MsCIP Barrier Island Restoration Pascagoula Bar Channel				9. SIZE AND TYPE OF BIT N/A			
2. BORING DESIGNATION BI-PBC-07-12		LOCATION COORDINATES E = 1,080,133 N = 250,461		10. COORDINATE SYSTEM/DATUM State Plane, MSE (U.S. Ft.)		HORIZONTAL NAD83	
3. DRILLING AGENCY Corps of Engineers - CESAM		CONTRACTOR FILE NO.		11. MANUFACTURER'S DESIGNATION OF DRILL Vibracore		<input type="checkbox"/> AUTO HAMMER <input type="checkbox"/> MANUAL HAMMER	
4. NAME OF DRILLER American Vibracore Systems, Inc.				12. TOTAL SAMPLES		DISTURBED 0	
5. DIRECTION OF BORING <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED				13. TOTAL NUMBER CORE BOXES		14. WATER DEPTH 41.2 Ft.	
6. THICKNESS OF OVERBURDEN N/A				15. DATE BORING		STARTED 12-16-12	
7. DEPTH DRILLED INTO ROCK N/A				16. ELEVATION TOP OF BORING -40.4 Ft.		COMPLETED 12-16-12	
8. TOTAL DEPTH OF BORING 19.2 Ft.				17. TOTAL RECOVERY FOR BORING 100%		18. SIGNATURE AND TITLE OF INSPECTOR Mark Green, Geotechnical Engineer	
ELEV.	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS	SAMPLE	LABORATORY RESULTS		
-40.4	0.0						
-40.9	0.5			NS			
-41.9	1.5		CLAY, organic-H, mostly organic matter, some clay, some silt, trace fine-grained sand-sized quartz, trace shell fragments, gray to dark gray (OH)	A	Classification: SP Color: 5Y 6/3-pale olive D50: 0.2002 mm % Fines: 3		
			SAND, poorly-graded, mostly fine to medium-grained sand-sized quartz, trace shell fragments, trace silt, gray (SP)	NS			
-45.4	5.0						
-46.4	6.0		SAND, clayey, mostly fine-grained sand-sized quartz, some clay, trace shell fragments, gray (SC)	B	Classification: SM Color: 5Y 5/2-olive gray D50: 0.1965 mm % Fines: 15.7		
			SAND, silty, mostly fine-grained sand-sized quartz, some silt, trace shell fragments, clay lenses, gray (SM)				
-49.4	9.0						
			SAND, clayey, mostly fine-grained sand-sized quartz, some clay, trace shell fragments, gray (SC)				
-51.6	11.2						
			SILT, inorganic-L, mostly silt, some fine-grained sand-sized quartz, lt. gray and orange mottle (ML)	NS			
			CLAY, fat, mostly clay, firm to soft, dark gray (CH)				
-59.6	19.2						
NOTES: 1. Soils are field visually classified in accordance with the Unified Soils Classification System. 2. NS = Sample not submitted for laboratory analysis from this interval. 3. Seafloor elevation calculated using sampling vessel's fathometer water depth reading and applying NOAA tidal gauge data conversion							



**Project**

Mississippi Barrier Island  
Restoration Project

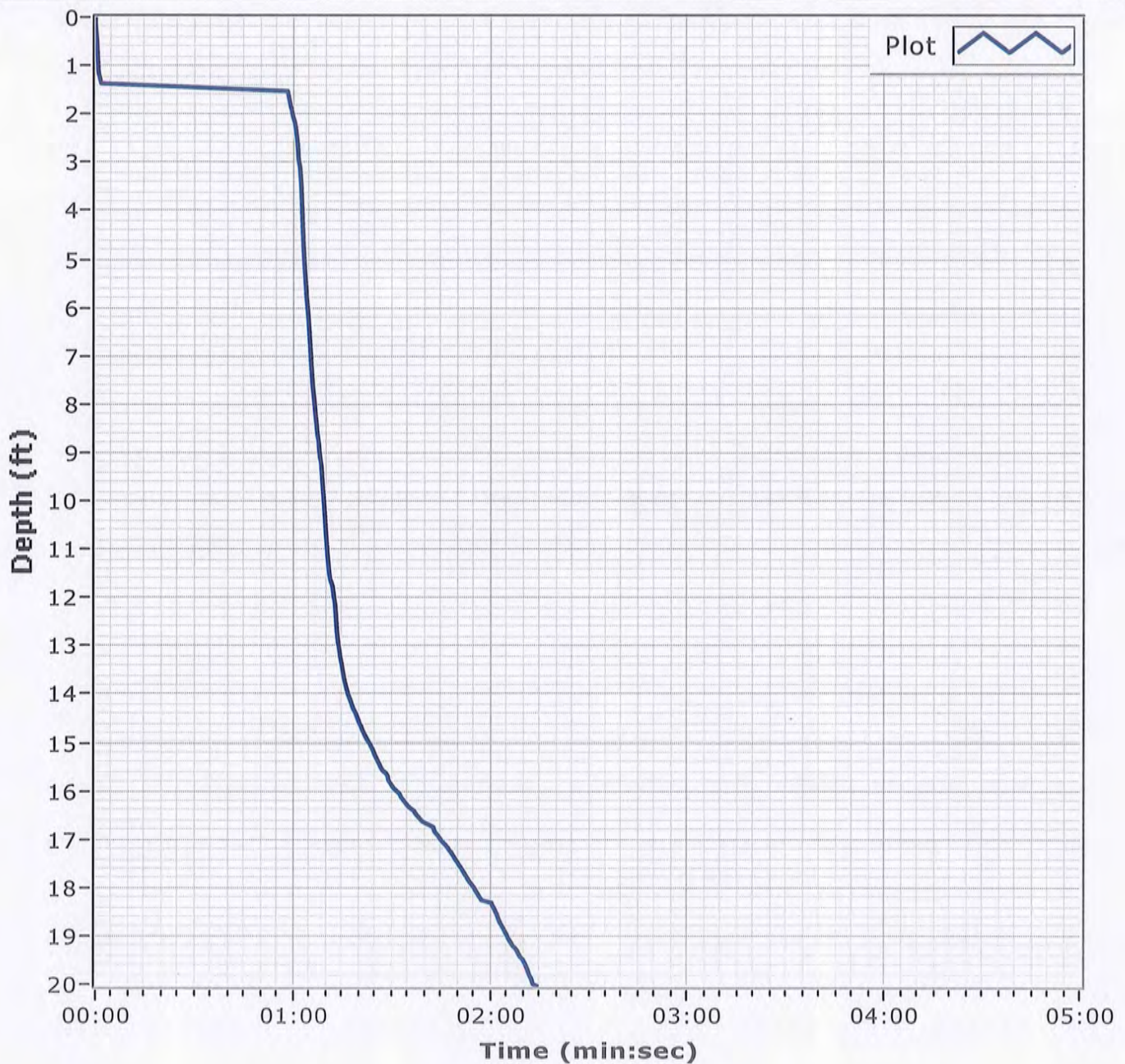
**AVS**  
**AMERICAN VIBRACORE**  
**S E R V I C E S**

**Core Identifier** BI-PBC-7-12**Date** 12/16/2012**Water Depth** 41.2'**Coordinate System**

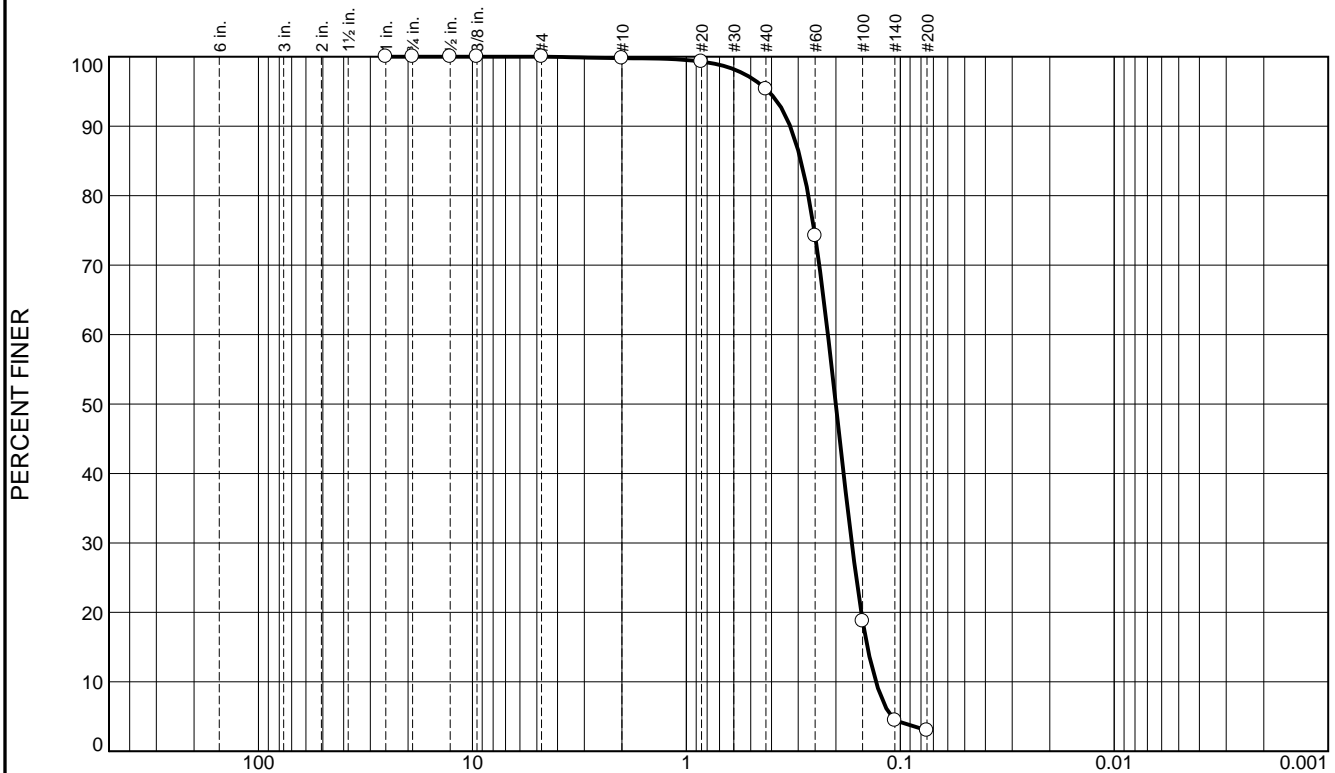
Latitude / Longitude

**Start Time** 13:25:25**End Time** 13:27:39**Penetration** 20.0'**Latitude** 30 11.303**Total Time** 00:02:14**Recovery** 19.0'**Longitude** 088 31.791**Comments**

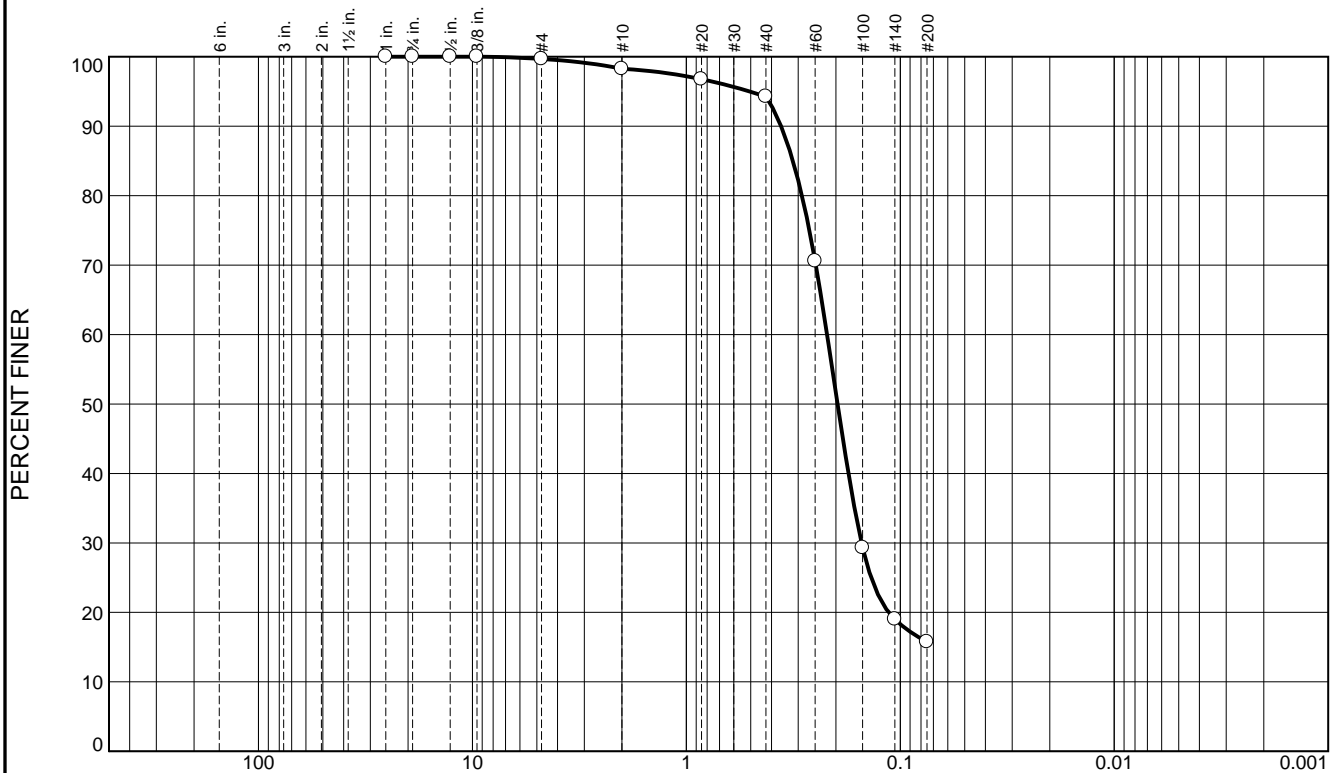
Note: vibrator stopped and restarted at 1.4'



# Particle Size Distribution Report



# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.3	1.5	4.0	78.5	15.7	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
1	100.0		
.75	100.0		
.5	100.0		
.375	100.0		
#4	99.7		
#10	98.2		
#20	96.8		
#40	94.2		
#60	70.6		
#100	29.3		
#140	19.0		
#200	15.7		

\* (no specification provided)

**Material Description**  
Fine grained, SILTY SAND

**Atterberg Limits**  
 PL=      LL=      PI=

**Coefficients**  
 D<sub>90</sub>= 0.3608      D<sub>85</sub>= 0.3177      D<sub>60</sub>= 0.2199  
 D<sub>50</sub>= 0.1965      D<sub>30</sub>= 0.1518      D<sub>15</sub>=  
 D<sub>10</sub>=      C<sub>u</sub>=      C<sub>c</sub>=

**Classification**  
 USCS= SM      AASHTO=

**Remarks**

Location: BI-PBC-7-12 B  
Sample Number: 6494 (3)

Depth: 5.0'

Date: 12/26/12

**Thompson Engineering**

**Mobile, Alabama**

Client: CDM/Thompson Engineering JV  
Project: MsCIP Barrier Island Restoration GT

Project No: 1221110095

Figure

# Boring Designation BI-PBC-08-12

DRILLING LOG		DIVISION South Atlantic		INSTALLATION Mobile District		SHEET 1 OF 1 SHEETS	
1. PROJECT MsCIP Barrier Island Restoration Pascagoula Bar Channel				9. SIZE AND TYPE OF BIT N/A			
2. BORING DESIGNATION BI-PBC-08-12		LOCATION COORDINATES E = 1,079,712 N = 250,824		10. COORDINATE SYSTEM/DATUM State Plane, MSE (U.S. Ft.)		HORIZONTAL NAD83 VERTICAL NAVD88	
3. DRILLING AGENCY Corps of Engineers - CESAM		CONTRACTOR FILE NO.		11. MANUFACTURER'S DESIGNATION OF DRILL Vibracore		<input type="checkbox"/> AUTO HAMMER <input type="checkbox"/> MANUAL HAMMER	
4. NAME OF DRILLER American Vibracore Systems, Inc.				12. TOTAL SAMPLES		DISTURBED UNDISTURBED (UD) 0	
5. DIRECTION OF BORING <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED		DEG. FROM VERTICAL		13. TOTAL NUMBER CORE BOXES			
		BEARING		14. WATER DEPTH 41.3 Ft.			
6. THICKNESS OF OVERBURDEN N/A				15. DATE BORING 12-16-12		STARTED COMPLETED 12-16-12	
7. DEPTH DRILLED INTO ROCK N/A				16. ELEVATION TOP OF BORING -40.7 Ft.			
8. TOTAL DEPTH OF BORING 16.5 Ft.				17. TOTAL RECOVERY FOR BORING 100%			
				18. SIGNATURE AND TITLE OF INSPECTOR Mark Green, Geotechnical Engineer			
ELEV.	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS	SAMPLE	LABORATORY RESULTS		
-40.7	0.0						
-41.7	1.0		CLAY, organic-H, mostly organic matter, some clay, some silt, soft, gray and dark gray (OH)	NS			
-43.2	2.5		CLAY, fat, mostly clay, trace fine-grained sand-sized quartz, soft, gray (CH)				
-44.7	4.0		SAND, silty, mostly fine-grained sand-sized quartz, some silt, trace shell fragments, trace clayey lenses, gray (SM)	A	Classification: SP Color: 5Y 5/2-olive gray D50: 0.2045 mm % Fines: 0.4		
			SAND, clayey, mostly fine-grained sand-sized quartz, some clay, gray (SC)				
-48.7	8.0						
-49.7	9.0		SILT, inorganic-L, mostly silt, some fine-grained sand-sized quartz, lt. gray and orange (ML)				
			CLAY, fat, mostly clay, trace fine-grained sand-sized quartz, lt. gray and orange mottle (CH)	NS			
-57.2	16.5						
NOTES:							
1. Soils are field visually classified in accordance with the Unified Soils Classification System.							
2. NS = Sample not submitted for laboratory analysis from this interval.							
3. Seafloor elevation calculated using sampling vessel's fathometer water depth reading and applying NOAA tidal gauge data conversion factor.							



**Project**

Mississippi Barrier Island  
Restoration Project

**AVS**  
**AMERICAN VIBRACORE**  
**S E R V I C E S**

**Core Identifier** BI-PBC-8-12

**Date** 12/16/2012

**Water Depth** 41.3'

**Coordinate System**

Latitude / Longitude

**Start Time** 12:06:54

**End Time** 12:08:57

**Penetration** 20.0'

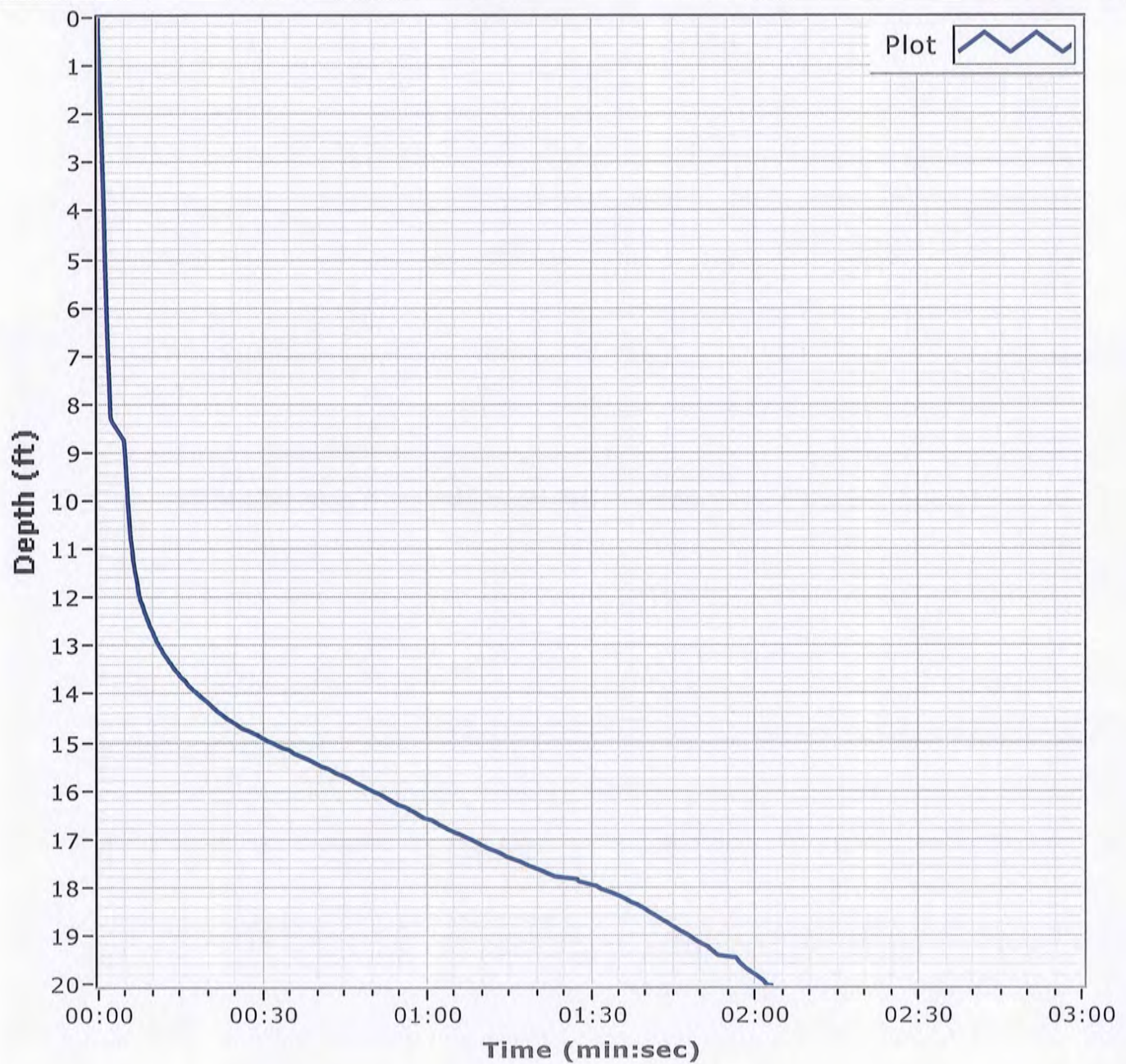
**Latitude** 30 11.362

**Total Time** 00:02:03

**Recovery** 16.5'

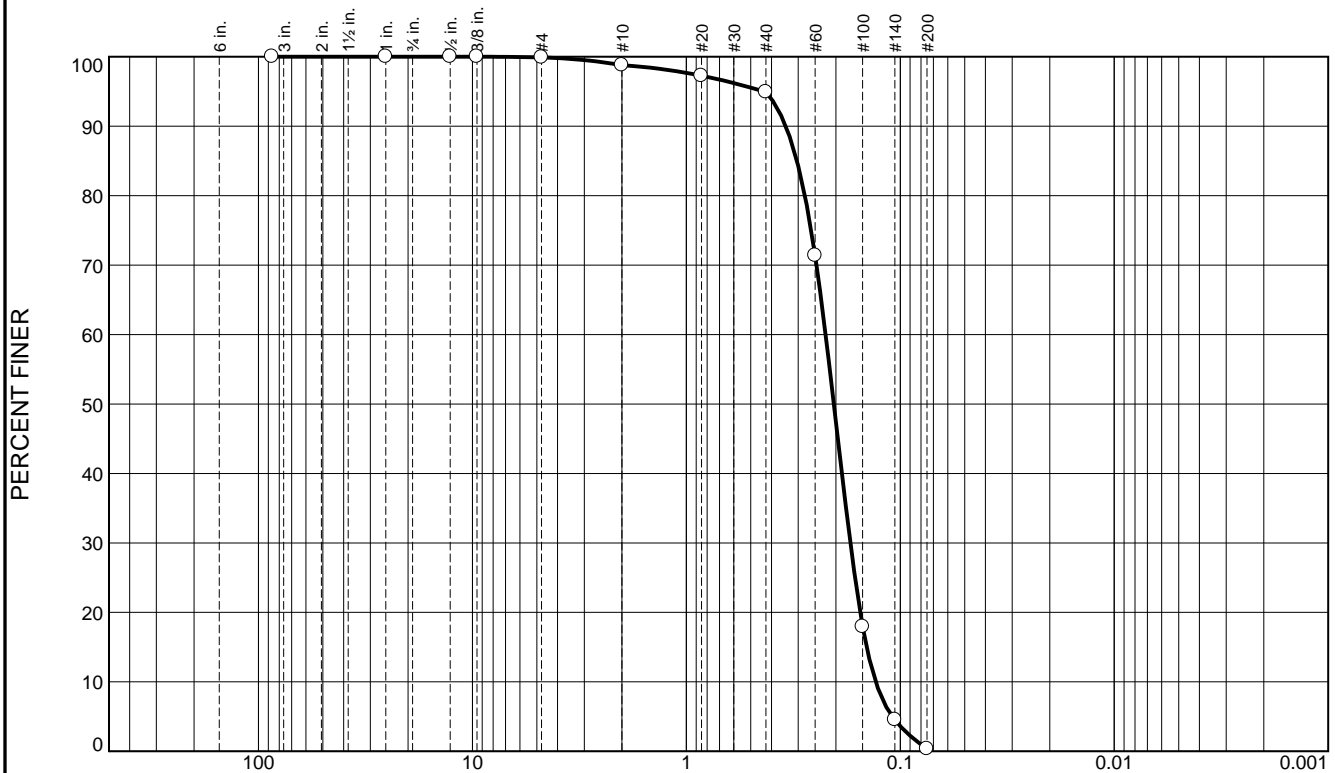
**Longitude** 088 31.871

**Comments**





# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.1	1.1	3.9	94.5	0.4	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
3.4	100.0		
1	100.0		
1/2	100.0		
.375	100.0		
#4	99.9		
#10	98.8		
#20	97.3		
#40	94.9		
#60	71.4		
#100	17.9		
#140	4.5		
#200	0.4		

\* (no specification provided)

## Material Description

Fine grained, SAND

## Atterberg Limits

PL=

LL=

PI=

## Coefficients

D<sub>90</sub>= 0.3429

D<sub>85</sub>= 0.3043

D<sub>60</sub>= 0.2234

D<sub>50</sub>= 0.2045

D<sub>30</sub>= 0.1712

D<sub>15</sub>= 0.1437

D<sub>10</sub>= 0.1304

C<sub>u</sub>= 1.71

C<sub>c</sub>= 1.01

## Classification

USCS= SP

AASHTO=

## Remarks

Location: BI-PBC-8-12 A  
Sample Number: 6494 (4)

Depth: 2.5'

Date: 12/26/12

**Thompson Engineering**

**Mobile, Alabama**

Client: CDM/Thompson Engineering JV  
Project: MsCIP Barrier Island Restoration GT

Project No: 1221110095

Figure

# Boring Designation BI-PBC-09-12

DRILLING LOG		DIVISION South Atlantic		INSTALLATION Mobile District		SHEET 1 OF 1 SHEETS	
1. PROJECT MsCIP Barrier Island Restoration Pascagoula Bar Channel				9. SIZE AND TYPE OF BIT N/A			
2. BORING DESIGNATION BI-PBC-09-12		LOCATION COORDINATES E = 1,078,729 N = 249,687		10. COORDINATE SYSTEM/DATUM State Plane, MSE (U.S. Ft.)		HORIZONTAL NAD83 VERTICAL NAVD88	
3. DRILLING AGENCY Corps of Engineers - CESAM		CONTRACTOR FILE NO.		11. MANUFACTURER'S DESIGNATION OF DRILL Vibrocure		<input type="checkbox"/> AUTO HAMMER <input type="checkbox"/> MANUAL HAMMER	
4. NAME OF DRILLER American Vibrocure Systems, Inc.				12. TOTAL SAMPLES		DISTURBED 0 UNDISTURBED (UD)	
5. DIRECTION OF BORING <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED		DEG. FROM VERTICAL		13. TOTAL NUMBER CORE BOXES			
		BEARING		14. WATER DEPTH 41.2 Ft.			
6. THICKNESS OF OVERBURDEN N/A				15. DATE BORING 12-16-12		STARTED 12-16-12 COMPLETED 12-16-12	
7. DEPTH DRILLED INTO ROCK N/A				16. ELEVATION TOP OF BORING -40.7 Ft.			
8. TOTAL DEPTH OF BORING 16.8 Ft.				17. TOTAL RECOVERY FOR BORING 100%			
				18. SIGNATURE AND TITLE OF INSPECTOR Mark Green, Geotechnical Engineer			
ELEV.	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS	SAMPLE	LABORATORY RESULTS		
-40.7	0.0						
-42.7	2.0		CLAY, organic-H, mostly organic matter, some clay, some silt, dark gray to black (OH)	NS			
-45.7	5.0		SAND, silty, mostly fine-grained sand-sized quartz, some silt, little clay, little shell fragments, clayey lenses, gray (SM)	A	Classification: SM Color: 5Y 5/2-olive gray D50: 0.1804 mm % Fines: 15.9		
-50.7	10.0		SAND, clayey, mostly fine-grained sand-sized quartz, some clay, trace shell fragments, gray (SC)	NS			
-52.2	11.5		CLAY, lean, mostly clay, trace fine-grained sand-sized quartz, lean, firm, lt. gray (CL)				
-57.5	16.8		CLAY, fat, mostly clay, trace fine-grained sand-sized quartz, firm, gray, yellow-orange mottle (CH)				
			NOTES: 1. Soils are field visually classified in accordance with the Unified Soils Classification System. 2. NS = Sample not submitted for laboratory analysis from this interval. 3. Seafloor elevation calculated using sampling vessel's fathometer water depth reading and applying NOAA tidal gauge data conversion factor.				

**Project**

Mississippi Barrier Island  
Restoration Project

**AVS**  
**AMERICAN VIBRACORE**  
**S E R V I C E S**

**Core Identifier** BI-PBC-9-12

**Date** 12/16/2012

**Water Depth** 41.2'

**Coordinate System**

Latitude / Longitude

**Start Time** 09:55:29

**End Time** 09:57:37

**Penetration** 20.0'

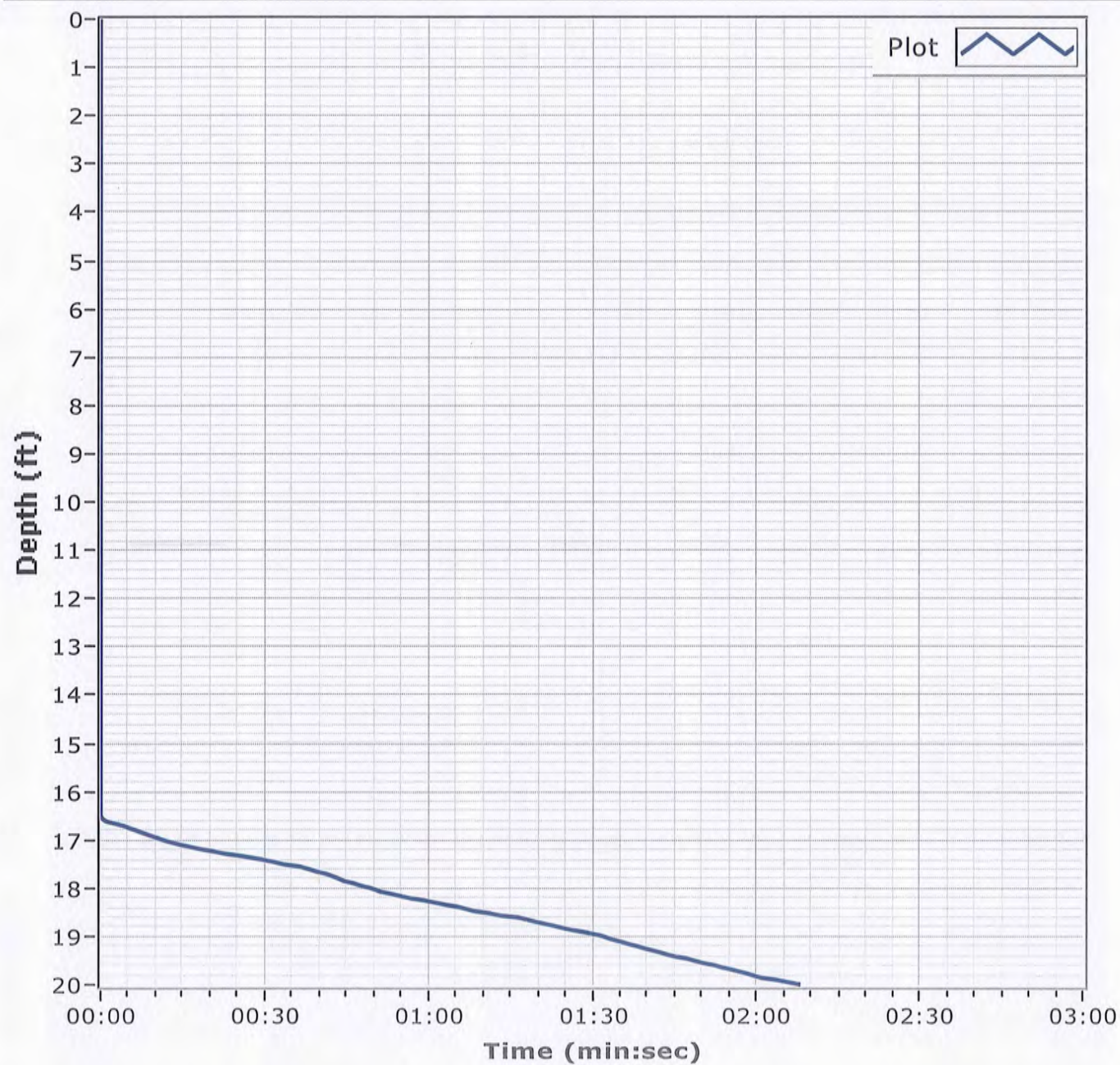
**Latitude** 30 11.175

**Total Time** 00:02:08

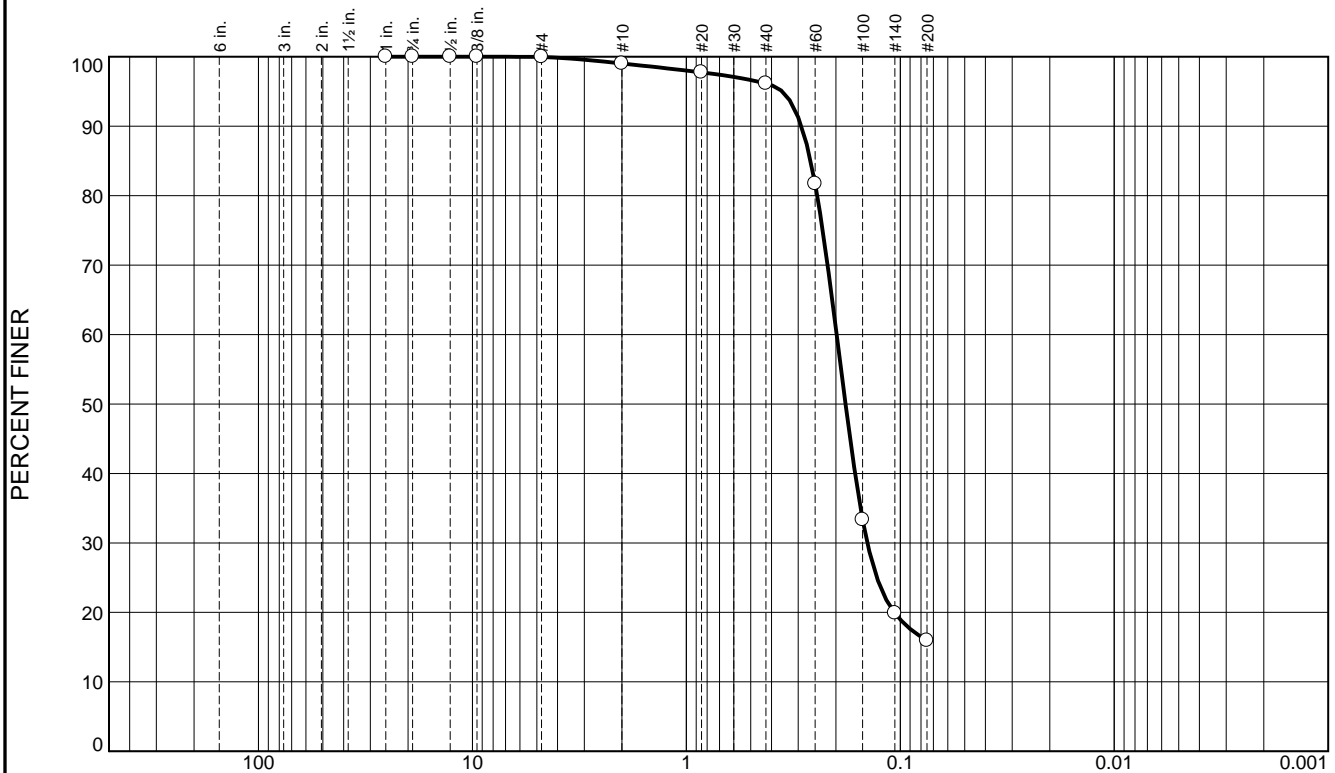
**Recovery** 16.6'

**Longitude** 088 32.058

**Comments**



# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.0	1.0	2.9	80.2	15.9	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
1	100.0		
.75	100.0		
.5	100.0		
.375	100.0		
#4	100.0		
#10	99.0		
#20	97.7		
#40	96.1		
#60	81.7		
#100	33.3		
#140	19.9		
#200	15.9		

\* (no specification provided)

**Material Description**  
Fine grained, SILTY SAND

**Atterberg Limits**  
PL=      LL=      PI=

**Coefficients**  
D<sub>90</sub>= 0.2900      D<sub>85</sub>= 0.2625      D<sub>60</sub>= 0.1984  
D<sub>50</sub>= 0.1804      D<sub>30</sub>= 0.1426      D<sub>15</sub>=  
D<sub>10</sub>=      C<sub>u</sub>=      C<sub>c</sub>=

**Classification**  
USCS= SM      AASHTO=

**Remarks**

Location: BI-PBC-9-12 A  
Sample Number: 6494 (5)

Depth: 2.0'

Date: 12/26/12

**Thompson Engineering**

**Mobile, Alabama**

Client: CDM/Thompson Engineering JV  
Project: MsCIP Barrier Island Restoration GT

Project No: 1221110095

Figure

# Boring Designation BI-PBC-10-12

DRILLING LOG		DIVISION South Atlantic		INSTALLATION Mobile District		SHEET 1 OF 1 SHEETS	
1. PROJECT MsCIP Barrier Island Restoration Pascagoula Bar Channel				9. SIZE AND TYPE OF BIT N/A			
2. BORING DESIGNATION BI-PBC-10-12		LOCATION COORDINATES E = 1,079,134 N = 249,331		10. COORDINATE SYSTEM/DATUM State Plane, MSE (U.S. Ft.)		HORIZONTAL NAD83 VERTICAL NAVD88	
3. DRILLING AGENCY Corps of Engineers - CESAM		CONTRACTOR FILE NO.		11. MANUFACTURER'S DESIGNATION OF DRILL Vibracore		<input type="checkbox"/> AUTO HAMMER <input type="checkbox"/> MANUAL HAMMER	
4. NAME OF DRILLER American Vibracore Systems, Inc.				12. TOTAL SAMPLES		DISTURBED UNDISTURBED (UD) 0	
5. DIRECTION OF BORING <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED		DEG. FROM VERTICAL		13. TOTAL NUMBER CORE BOXES			
		BEARING		14. WATER DEPTH 42.7 Ft.			
6. THICKNESS OF OVERBURDEN N/A				15. DATE BORING 12-16-12		STARTED COMPLETED 12-16-12	
7. DEPTH DRILLED INTO ROCK N/A				16. ELEVATION TOP OF BORING -42.2 Ft.			
8. TOTAL DEPTH OF BORING 15.0 Ft.				17. TOTAL RECOVERY FOR BORING 100%			
				18. SIGNATURE AND TITLE OF INSPECTOR Mark Green, Geotechnical Engineer			
ELEV.	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS	SAMPLE	LABORATORY RESULTS		
-42.2	0.0						
-43.0	0.8		CLAY, organic-H, mostly organic matter, some clay, some silt, soft, dark gray (OH)	NS			
-44.0	1.8		SAND, poorly-graded, mostly fine to medium-grained sand-sized quartz, trace fines, trace shell fragments, gray (SP)	A	Classification: SP-SM Color: 5Y 5/3-olive D50: 0.1764 mm % Fines: 10.2		
			SAND, clayey, mostly fine-grained sand-sized quartz, some clay, gray (SC)				
-51.2	9.0			NS			
			CLAY, lean, mostly clay, trace fine-grained sand-sized quartz, very stiff, lt. gray and orange mottle (CL)				
-57.2	15.0						
NOTES:							
1. Soils are field visually classified in accordance with the Unified Soils Classification System.							
2. NS = Sample not submitted for laboratory analysis from this interval.							
3. Seafloor elevation calculated using sampling vessel's fathometer water depth reading and applying NOAA tidal gauge data conversion factor.							



# Project

Mississippi Barrier Island  
Restoration Project

**AVS**  
**AMERICAN VIBRACORE**  
**S E R V I C E S**

**Core Identifier** BI-PBC-10-12

**Date** 12/16/2012

**Water Depth** 42.7

**Coordinate System**

**Start Time** 10:27:33

Latitude / Longitude

**End Time** 10:29:27

**Penetration** 20.0'

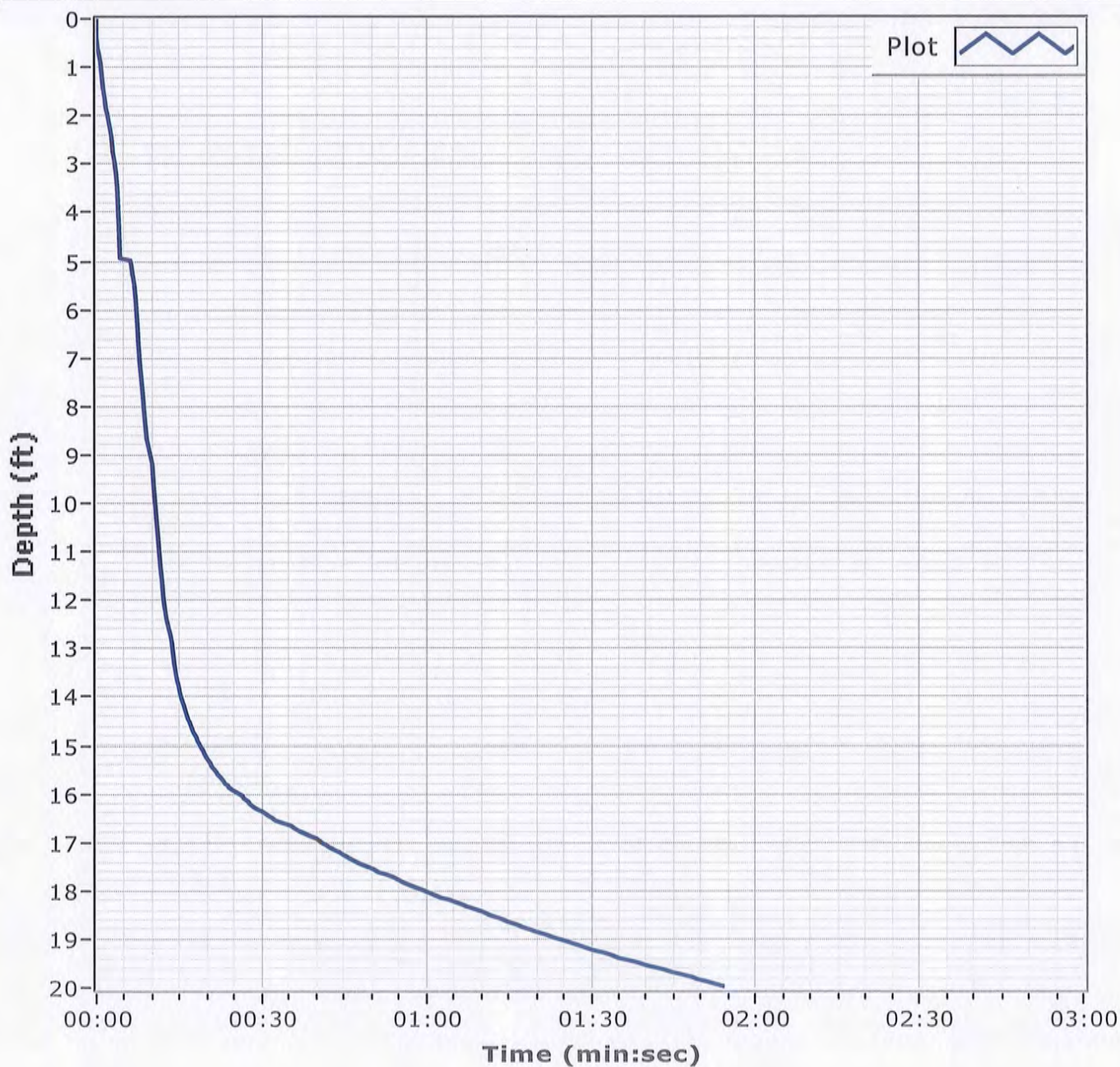
**Latitude** 30 11.116

**Total Time** 00:01:54

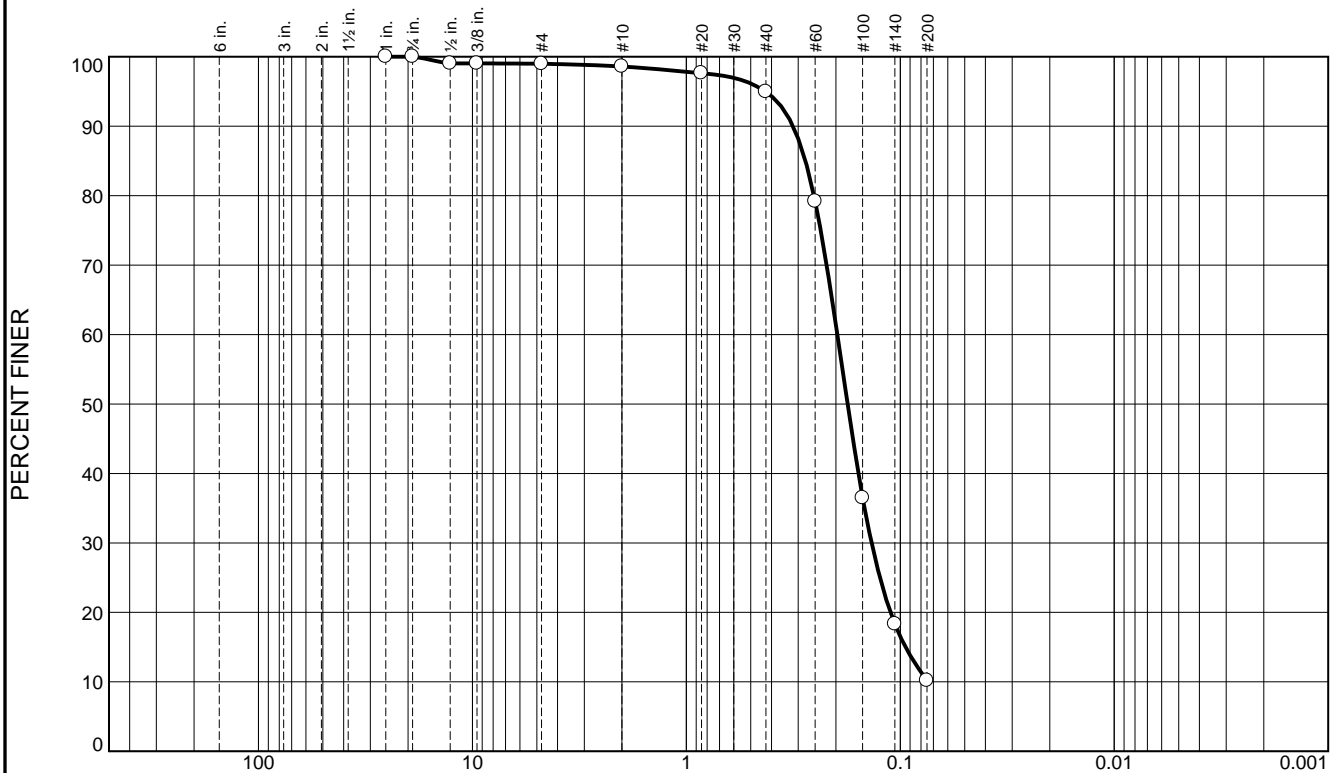
**Recovery** 15.0'

**Longitude** 088 31.981

**Comments**



# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	1.0	0.4	3.7	84.7	10.2	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
1	100.0		
.75	100.0		
.5	99.0		
.375	99.0		
#4	99.0		
#10	98.6		
#20	97.6		
#40	94.9		
#60	79.2		
#100	36.5		
#140	18.3		
#200	10.2		

\* (no specification provided)

<b><u>Material Description</u></b>		
Fine grained, SLIGHTLY SILTY SAND, with trace SHELL		
<b><u>Atterberg Limits</u></b>		
PL=	LL=	PI=
<b><u>Coefficients</u></b>		
D <sub>90</sub> = 0.3175	D <sub>85</sub> = 0.2777	D <sub>60</sub> = 0.1970
D <sub>50</sub> = 0.1764	D <sub>30</sub> = 0.1363	D <sub>15</sub> = 0.0946
D <sub>10</sub> =	C <sub>u</sub> =	C <sub>c</sub> =
<b><u>Classification</u></b>		
USCS= SP-SM	AASHTO=	
<b><u>Remarks</u></b>		

Location: BI-PBC-10-12 A  
Sample Number: 6494 (6)

Depth: 0.8'

Date: 12/26/12

**Thompson Engineering**

**Mobile, Alabama**

Client: CDM/Thompson Engineering JV  
Project: MsCIP Barrier Island Restoration GT

Project No: 1221110095

Figure

# Boring Designation BI-PBC-11-12

DRILLING LOG		DIVISION South Atlantic		INSTALLATION Mobile District		SHEET 1 OF 1 SHEETS	
1. PROJECT MsCIP Barrier Island Restoration Pascagoula Bar Channel				9. SIZE AND TYPE OF BIT N/A			
2. BORING DESIGNATION BI-PBC-11-12		LOCATION COORDINATES E = 1,077,743 N = 248,564		10. COORDINATE SYSTEM/DATUM State Plane, MSE (U.S. Ft.)		HORIZONTAL NAD83	
3. DRILLING AGENCY Corps of Engineers - CESAM		CONTRACTOR FILE NO.		11. MANUFACTURER'S DESIGNATION OF DRILL Vibrocure		<input type="checkbox"/> AUTO HAMMER <input type="checkbox"/> MANUAL HAMMER	
4. NAME OF DRILLER American Vibrocure Systems, Inc.				12. TOTAL SAMPLES		DISTURBED 0	
5. DIRECTION OF BORING <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED				13. TOTAL NUMBER CORE BOXES		14. WATER DEPTH 42.3 Ft.	
6. THICKNESS OF OVERBURDEN N/A				15. DATE BORING		STARTED 12-15-12	
7. DEPTH DRILLED INTO ROCK N/A				16. ELEVATION TOP OF BORING -41.5 Ft.		COMPLETED 12-15-12	
8. TOTAL DEPTH OF BORING 15.3 Ft.				17. TOTAL RECOVERY FOR BORING 100%		18. SIGNATURE AND TITLE OF INSPECTOR Mark Green, Geotechnical Engineer	
ELEV.	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS	SAMPLE	LABORATORY RESULTS		
-41.5	0.0						
-43.5	2.0		CLAY, fat, mostly clay, soft, gray to brown (CH)	NS			
-45.5	4.0		SAND, poorly-graded, mostly fine to medium-grained sand-sized quartz, trace shell fragments, gray (SP)	A	Classification: SP-SM Color: 5Y 6/2-light olive gray D50: 0.1992 mm % Fines: 7.3		
-47.5	6.0		SAND, silty, mostly fine-grained sand-sized quartz, some silt, trace shell fragments, trace clayey lenses, gray (SM)	B	Classification: SM Color: 5Y 5/2-olive gray D50: 0.173 mm % Fines: 16.1		
-53.5	12.0		SAND, clayey, mostly fine-grained sand-sized quartz, some clay, gray (SC)	NS			
-56.8	15.3		CLAY, fat, mostly clay, little fine-grained sand-sized quartz, gray (CH)				
			NOTES: 1. Soils are field visually classified in accordance with the Unified Soils Classification System. 2. NS = Sample not submitted for laboratory analysis from this interval. 3. Seafloor elevation calculated using sampling vessel's fathometer water depth reading and applying NOAA tidal gauge data conversion factor.				



**Project**

Mississippi Barrier Island  
Restoration Project

**AVS**  
**AMERICAN VIBRACORE**  
**S E R V I C E S**

**Core Identifier** BI-PBC-11-12

**Date** 12/15/2012

**Water Depth** 42.3'

**Coordinate System**

Latitude / Longitude

**Start Time** 14:49:37

**End Time** 14:50:01

**Penetration** 20.0'

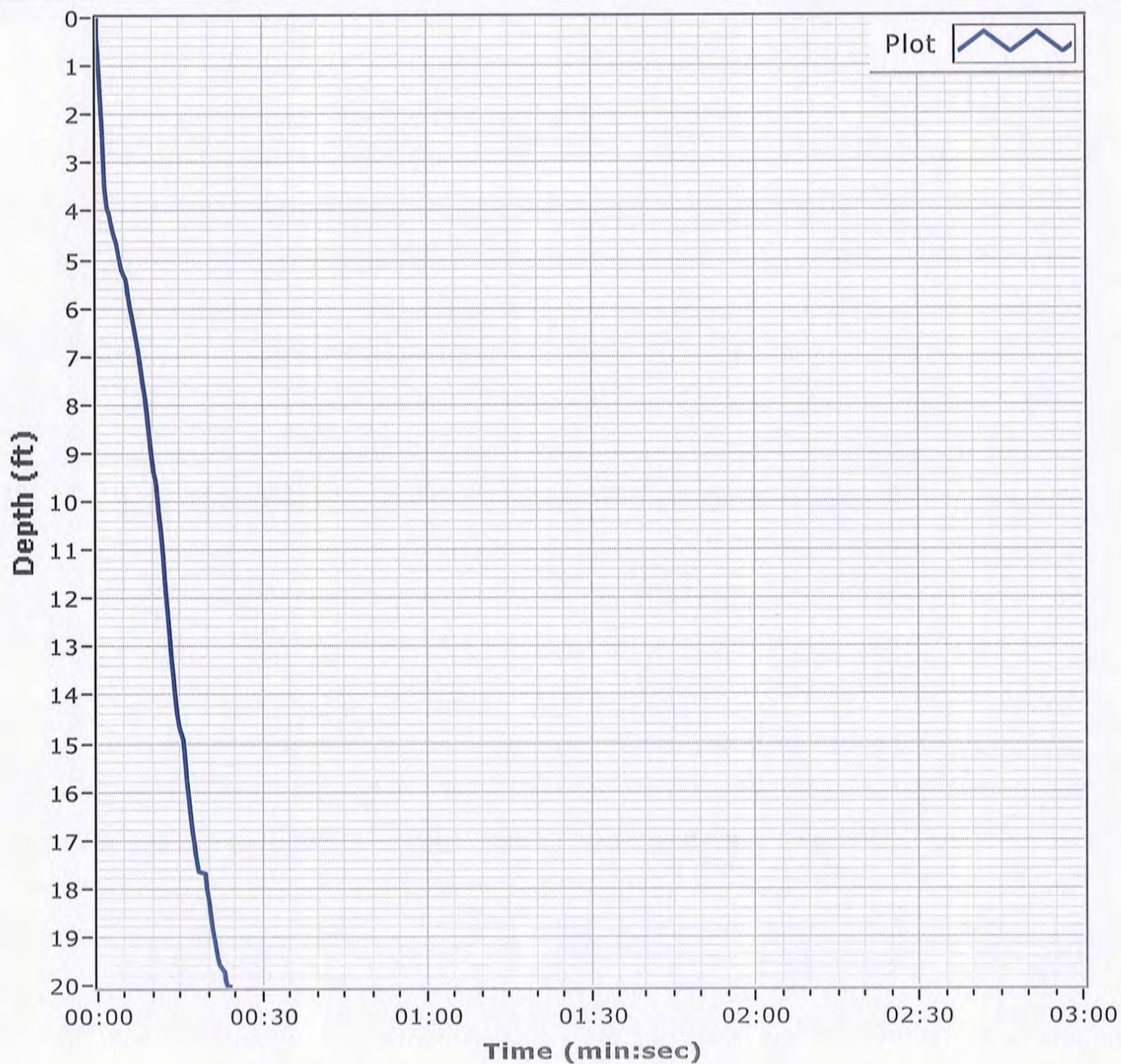
**Latitude** 30 10.990

**Total Time** 00:00:24

**Recovery** 15.5'

**Longitude** 088 32.246

**Comments**



# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.5	1.0	4.1	87.1	7.3	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
1	100.0		
.75	100.0		
.5	100.0		
.375	100.0		
#4	99.5		
#10	98.5		
#20	96.8		
#40	94.4		
#60	76.8		
#100	18.3		
#140	9.2		
#200	7.3		

\* (no specification provided)

<b>Material Description</b> Fine grained, SLIGHTLY SILTY SAND		
PL=	<b>Atterberg Limits</b> LL=	PI=
<b>Coefficients</b> D <sub>90</sub> = 0.3098    D <sub>85</sub> = 0.2785    D <sub>60</sub> = 0.2152 D <sub>50</sub> = 0.1992    D <sub>30</sub> = 0.1697    D <sub>15</sub> = 0.1423 D <sub>10</sub> = 0.1201    C <sub>u</sub> = 1.79    C <sub>c</sub> = 1.12		
<b>Classification</b> USCS= SP-SM    AASHTO=		
<b>Remarks</b>		

Location: BI-PBC-11-12 A  
Sample Number: 6494 (7)

Depth: 2.0'

Date: 12/26/12

**Thompson Engineering**

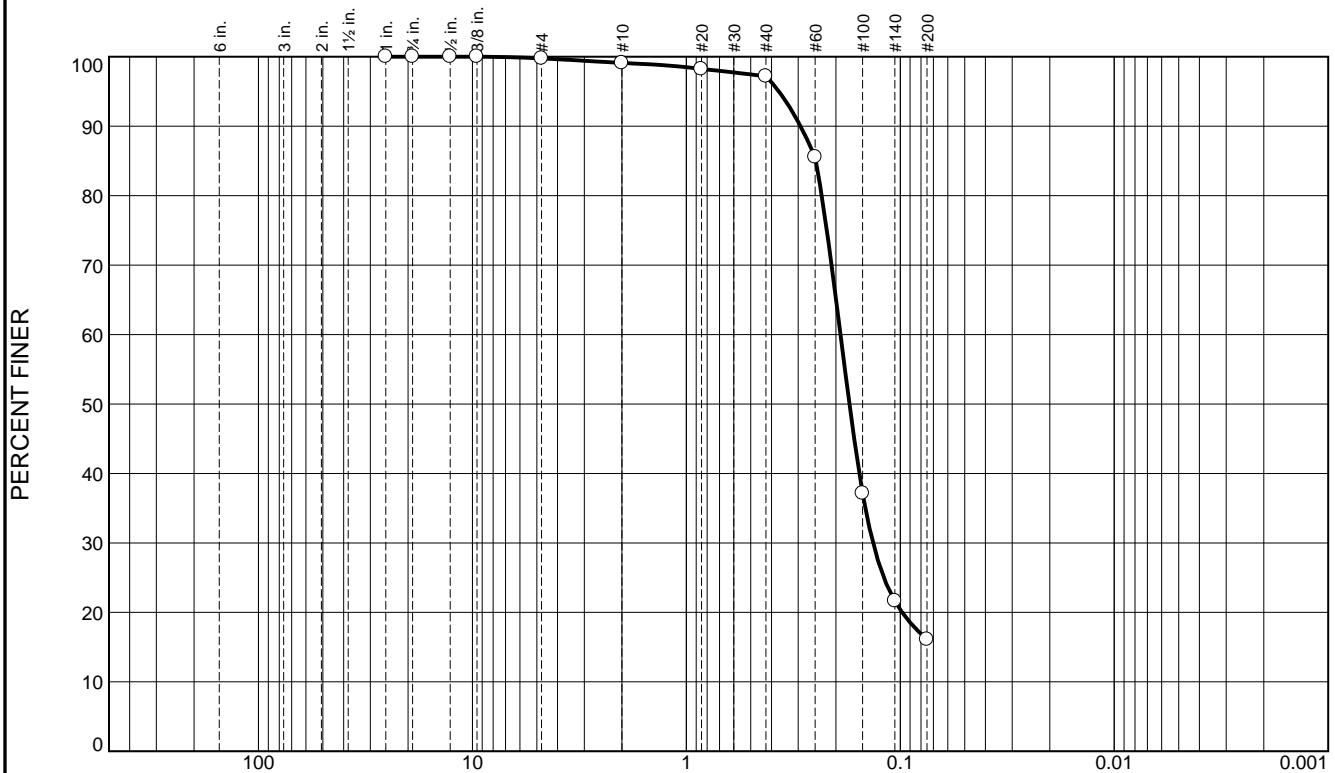
**Mobile, Alabama**

Client: CDM/Thompson Engineering JV  
Project: MsCIP Barrier Island Restoration GT

Project No: 1221110095

Figure

# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.2	0.7	1.9	81.1	16.1	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
1	100.0		
.75	100.0		
.5	100.0		
.375	100.0		
#4	99.8		
#10	99.1		
#20	98.2		
#40	97.2		
#60	85.5		
#100	37.1		
#140	21.6		
#200	16.1		

\* (no specification provided)

**Material Description**  
Fine grained, SILTY SAND

**Atterberg Limits**  
 PL=                      LL=                      PI=

**Coefficients**  
 D<sub>90</sub>= 0.2930      D<sub>85</sub>= 0.2481      D<sub>60</sub>= 0.1904  
 D<sub>50</sub>= 0.1730      D<sub>30</sub>= 0.1342      D<sub>15</sub>=  
 D<sub>10</sub>=                      C<sub>u</sub>=                      C<sub>c</sub>=

**Classification**  
 USCS= SM                      AASHTO=

**Remarks**

Location: BI-PBC-11-12 B  
Sample Number: 6494 (8)

Depth: 4.0'

Date: 12/26/12

**Thompson Engineering**

**Mobile, Alabama**

Client: CDM/Thompson Engineering JV  
Project: MsCIP Barrier Island Restoration GT

Project No: 1221110095

Figure

# Boring Designation BI-PBC-12-12

DRILLING LOG		DIVISION South Atlantic		INSTALLATION Mobile District		SHEET 1 OF 1 SHEETS	
1. PROJECT MsCIP Barrier Island Restoration Pascagoula Bar Channel				9. SIZE AND TYPE OF BIT N/A			
2. BORING DESIGNATION BI-PBC-12-12		LOCATION COORDINATES E = 1,077,178 N = 247,064		10. COORDINATE SYSTEM/DATUM State Plane, MSE (U.S. Ft.)		HORIZONTAL NAD83	
3. DRILLING AGENCY Corps of Engineers - CESAM		CONTRACTOR FILE NO.		11. MANUFACTURER'S DESIGNATION OF DRILL Vibracore		<input type="checkbox"/> AUTO HAMMER <input type="checkbox"/> MANUAL HAMMER	
4. NAME OF DRILLER American Vibracore Systems, Inc.				12. TOTAL SAMPLES		DISTURBED 0	
5. DIRECTION OF BORING <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED				13. TOTAL NUMBER CORE BOXES		14. WATER DEPTH 43.9 Ft.	
6. THICKNESS OF OVERBURDEN N/A				15. DATE BORING		STARTED 12-15-12	
7. DEPTH DRILLED INTO ROCK N/A				16. ELEVATION TOP OF BORING -43.3 Ft.		COMPLETED 12-15-12	
8. TOTAL DEPTH OF BORING 16.2 Ft.				17. TOTAL RECOVERY FOR BORING 100%		18. SIGNATURE AND TITLE OF INSPECTOR Mark Green, Geotechnical Engineer	

ELEV.	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS	SAMPLE	LABORATORY RESULTS
-43.3	0.0				
-46.3	3.0		CLAY, organic-H, mostly organic matter, highly plastic clay/silt, dark gray to black (OH)	NS	
-47.3	4.0		SAND, poorly-graded, mostly fine to medium-grained sand-sized quartz, some shell fragments, trace silt, gray (SP)	A	Classification: SP-SM Color: 5Y 5/2-olive gray D50: 0.2037 mm % Fines: 10.6
-51.3	8.0		SAND, silty, mostly fine-grained sand-sized quartz, some silt, trace shell fragments, trace clayey lenses, greenish gray (SM)	B	Classification: SM Color: 5Y 5/2-olive gray D50: 0.1606 mm % Fines: 18.6
-55.3	12.0		SAND, clayey, mostly fine-grained sand-sized quartz, trace shell fragments, gray (SC)	NS	
-59.5	16.2		CLAY, fat, mostly clay, trace fine-grained sand-sized quartz, gray and grayish brown (CH)		
			NOTES: 1. Soils are field visually classified in accordance with the Unified Soils Classification System. 2. NS = Sample not submitted for laboratory analysis from this interval. 3. Seafloor elevation calculated using sampling vessel's fathometer water depth reading and applying NOAA tidal gauge data conversion factor.		

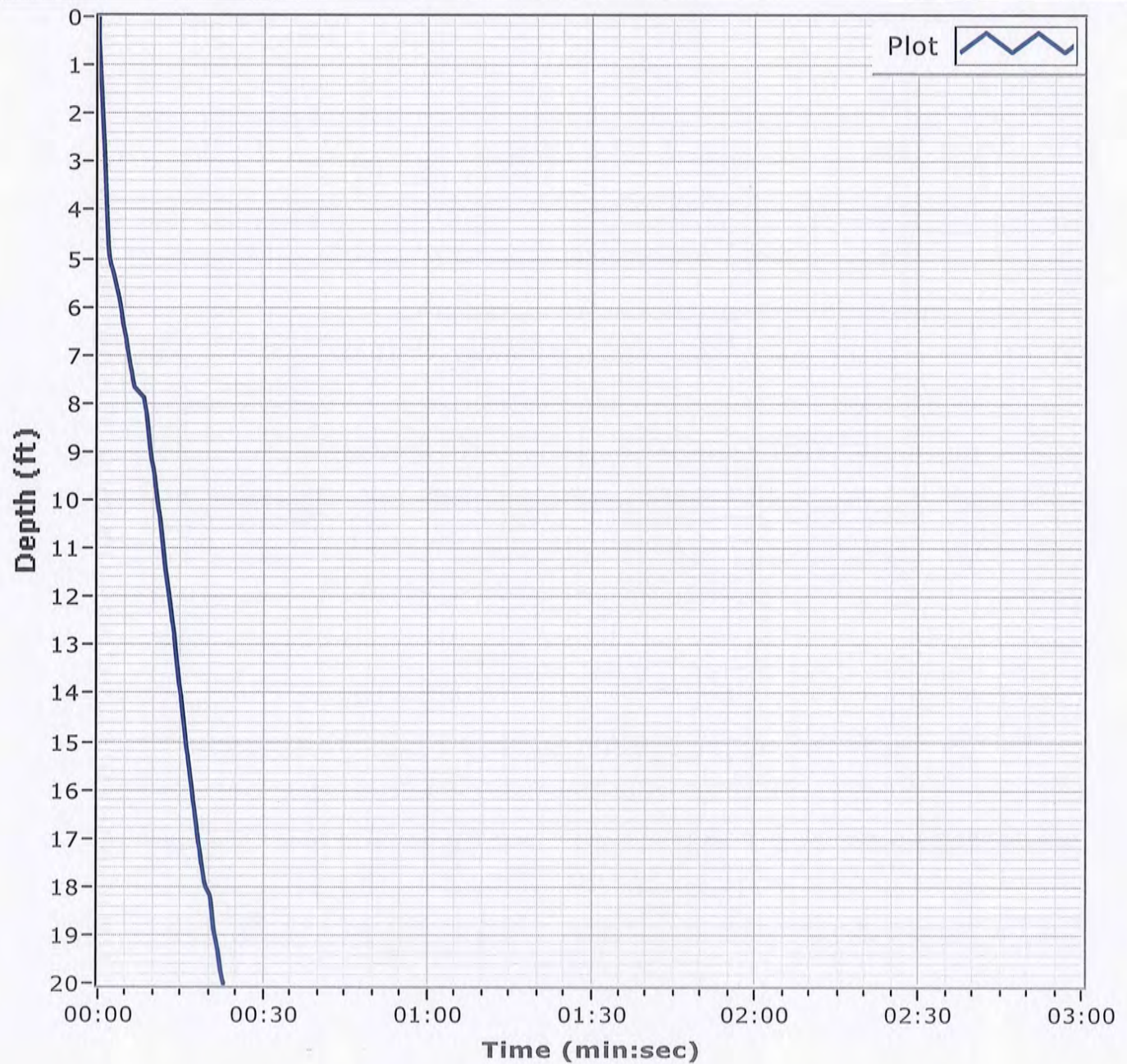


**Project**

Mississippi Barrier Island  
Restoration Project

**Core Identifier** BI-PBC-12-12**Date** 12/15/2012**Water Depth** 43.9'**Coordinate System**

Latitude / Longitude

**Start Time** 13:52:52**End Time** 13:53:15**Penetration** 20.0'**Latitude** 30 10.743**Total Time** 00:00:22**Recovery** 16.2'**Longitude** 088 32.354**Comments**

# Particle Size Distribution Report



GRAIN SIZE - mm.

% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	2.7	1.2	5.8	79.7	10.6	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
1	100.0		
.75	100.0		
.5	100.0		
.375	100.0		
#4	97.3		
#10	96.1		
#20	94.5		
#40	90.3		
#60	68.6		
#100	23.7		
#140	13.6		
#200	10.6		

\* (no specification provided)

## Material Description

Fine grained, SLIGHTLY SILTY SAND, with trace SHELL

## Atterberg Limits

PL= LL= PI=

## Coefficients

D<sub>90</sub>= 0.4179 D<sub>85</sub>= 0.3396 D<sub>60</sub>= 0.2261  
D<sub>50</sub>= 0.2037 D<sub>30</sub>= 0.1640 D<sub>15</sub>= 0.1174  
D<sub>10</sub>= C<sub>u</sub>= C<sub>c</sub>=

## Classification

USCS= SP-SM AASHTO=

## Remarks

Location: BI-PBC-12-12 A  
Sample Number: 6494 (9)

Depth: 3.0'

Date: 12/26/12

**Thompson Engineering**

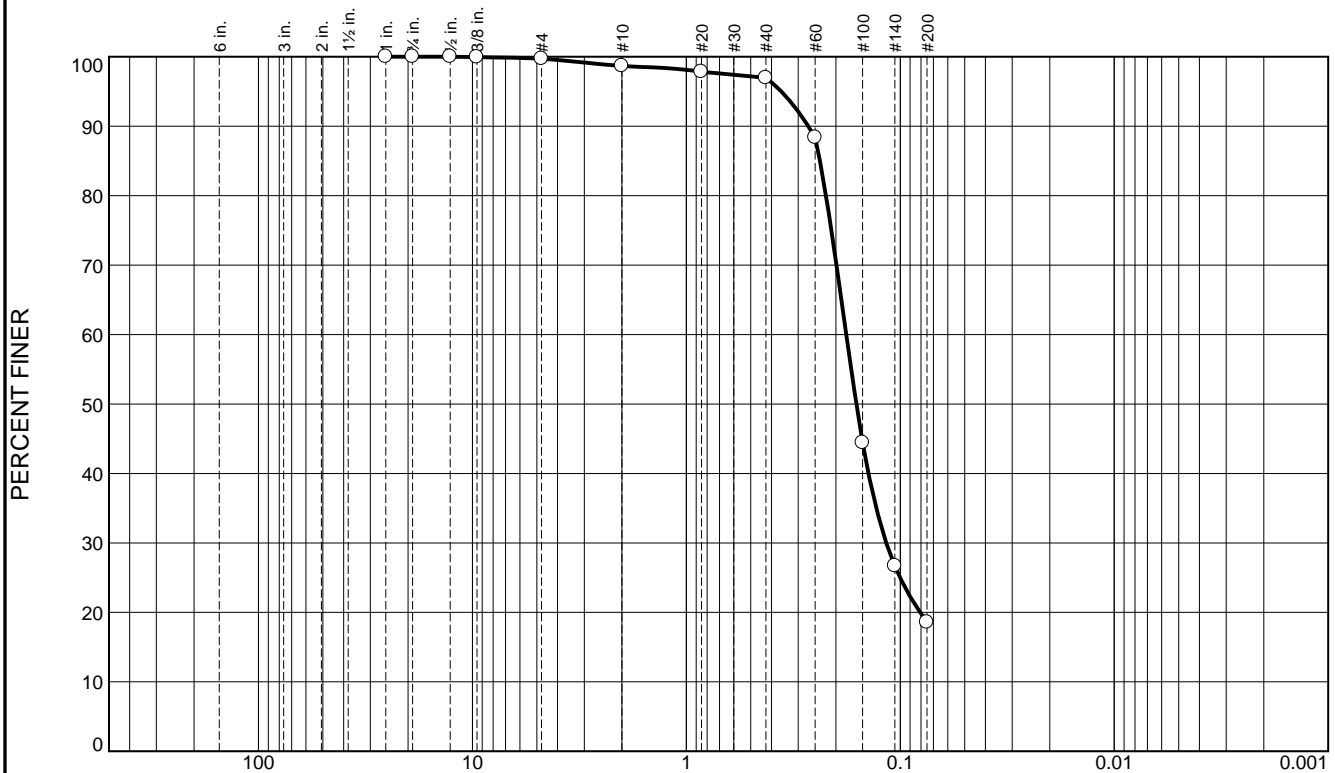
**Mobile, Alabama**

Client: CDM/Thompson Engineering JV  
Project: MsCIP Barrier Island Restoration GT

Project No: 1221110095

Figure

# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.3	1.0	1.8	78.3	18.6	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
1	100.0		
.75	100.0		
.5	100.0		
.375	99.9		
#4	99.7		
#10	98.7		
#20	97.8		
#40	96.9		
#60	88.4		
#100	44.4		
#140	26.7		
#200	18.6		

\* (no specification provided)

Material Description		
Fine grained, SILTY SAND		
<div> <div> Atterberg Limits </div> <div> PL= </div> <div> LL= </div> <div> PI= </div> </div>		
<div> <div> Coefficients </div> <div> D<sub>90</sub>= 0.2696 </div> <div> D<sub>50</sub>= 0.1606 </div> <div> D<sub>10</sub>= </div> <div> D<sub>85</sub>= 0.2374 </div> <div> D<sub>30</sub>= 0.1163 </div> <div> C<sub>u</sub>= </div> <div> D<sub>60</sub>= 0.1790 </div> <div> D<sub>15</sub>= </div> <div> C<sub>c</sub>= </div> </div>		
<div> <div> Classification </div> <div> USCS= SM </div> <div> AASHTO= </div> </div>		
<div> <div> Remarks </div> </div>		

Location: BI-PBC-12-12 B  
Sample Number: 6494 (10)

Depth: 4.0'

Date: 12/26/12

**Thompson Engineering**

**Mobile, Alabama**

Client: CDM/Thompson Engineering JV  
Project: MsCIP Barrier Island Restoration GT

Project No: 1221110095

Figure

# Boring Designation BI-PBC-13-12

DRILLING LOG		DIVISION South Atlantic		INSTALLATION Mobile District		SHEET 1 OF 1 SHEETS	
1. PROJECT MsCIP Barrier Island Restoration Pascagoula Bar Channel				9. SIZE AND TYPE OF BIT N/A			
2. BORING DESIGNATION BI-PBC-13-12		LOCATION COORDINATES E = 1,075,777 N = 246,290		10. COORDINATE SYSTEM/DATUM State Plane, MSE (U.S. Ft.)		HORIZONTAL NAD83	
3. DRILLING AGENCY Corps of Engineers - CESAM		CONTRACTOR FILE NO.		11. MANUFACTURER'S DESIGNATION OF DRILL Vibracore		<input type="checkbox"/> AUTO HAMMER <input type="checkbox"/> MANUAL HAMMER	
4. NAME OF DRILLER American Vibracore Systems, Inc.				12. TOTAL SAMPLES		DISTURBED 0	
5. DIRECTION OF BORING <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED				13. TOTAL NUMBER CORE BOXES		14. WATER DEPTH 42.3 Ft.	
6. THICKNESS OF OVERBURDEN N/A				15. DATE BORING		STARTED 12-15-12	
7. DEPTH DRILLED INTO ROCK N/A				16. ELEVATION TOP OF BORING -41.8 Ft.		COMPLETED 12-15-12	
8. TOTAL DEPTH OF BORING 15.7 Ft.				17. TOTAL RECOVERY FOR BORING 100%		18. SIGNATURE AND TITLE OF INSPECTOR Mark Green, Geotechnical Engineer	
ELEV.	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS	SAMPLE	LABORATORY RESULTS		
-41.8	0.0						
-42.6	0.8		CLAY, fat, mostly clay, very soft, gray (CH)	NS			
			SAND, silty, mostly fine-grained sand-sized quartz, some silt, trace shell fragments, trace clay lenses, gray (SM)	A	Classification: SM Color: 5Y 5/2-olive gray D50: 0.1674 mm % Fines: 17.4		
			SILT, inorganic-L, mostly silt, some fine-grained sand-sized quartz, trace shell fragments, gray (ML)	B	Classification: SM Color: 5Y 5/2-olive gray D50: 0.1486 mm % Fines: 19.2		
-50.8	9.0						
-52.8	11.0						
			SAND, clayey, mostly fine-grained sand-sized quartz, some clay, trace shell fragments, gray (SC)	NS			
-55.3	13.5						
-57.5	15.7		CLAY, fat, mostly clay, soft, gray and brown (CH)				
			NOTES: 1. Soils are field visually classified in accordance with the Unified Soils Classification System. 2. NS = Sample not submitted for laboratory analysis from this interval. 3. Seafloor elevation calculated using sampling vessel's fathometer water depth reading and applying NOAA tidal gauge data conversion factor.				



**Project**

Mississippi Barrier Island  
Restoration Project

**AVS**  
**AMERICAN VIBRACORE**  
**S E R V I C E S**

**Core Identifier** BI-PBC-13-12

**Date** 12/15/2012

**Water Depth** 42.3'

**Coordinate System**

Latitude / Longitude

**Start Time** 13:05:20

**End Time** 13:05:45

**Penetration** 20.0'

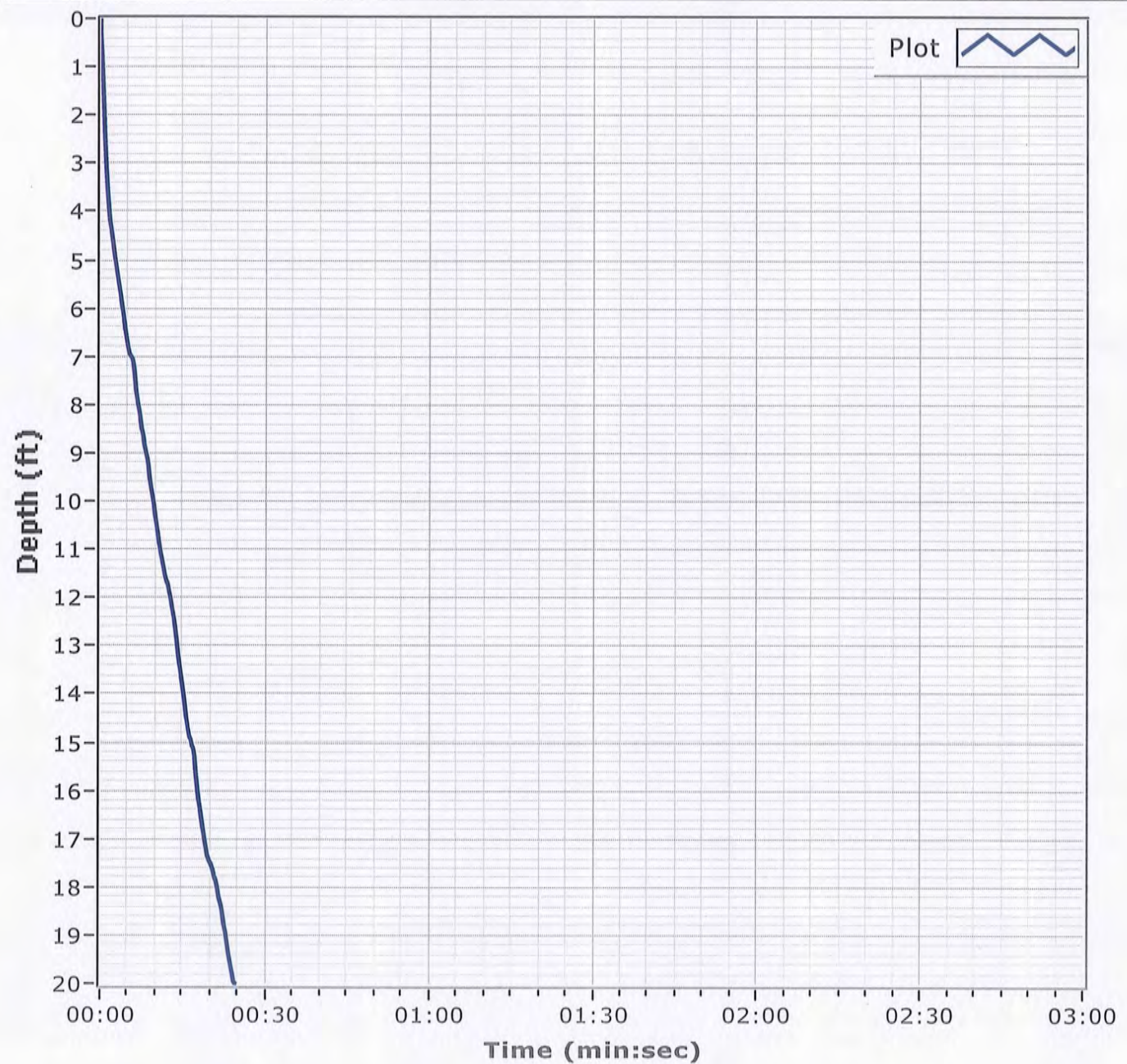
**Latitude** 30 10.616

**Total Time** 00:00:24

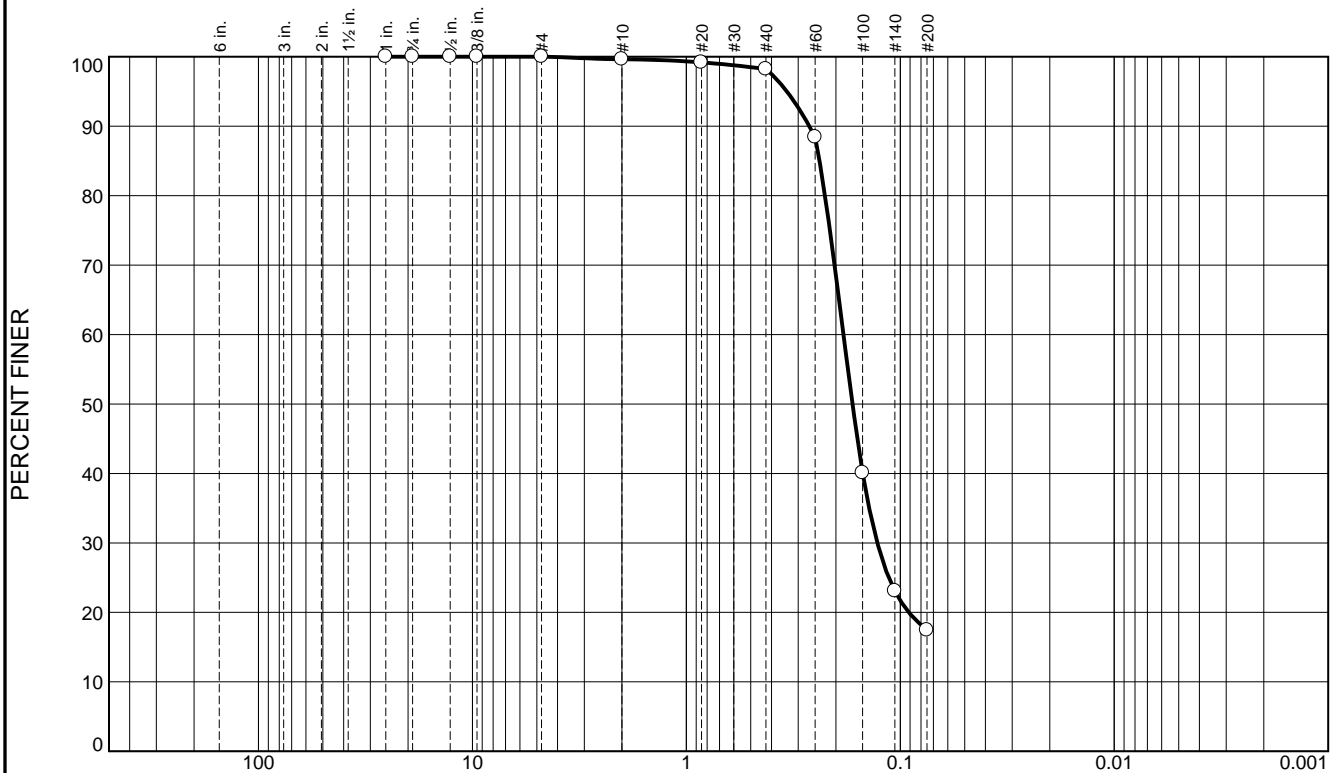
**Recovery** 15.6'

**Longitude** 088 32.620

**Comments**



# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.0	0.4	1.4	80.8	17.4	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
1	100.0		
.75	100.0		
.5	100.0		
.375	100.0		
#4	100.0		
#10	99.6		
#20	99.2		
#40	98.2		
#60	88.4		
#100	40.1		
#140	23.1		
#200	17.4		

\* (no specification provided)

<u>Material Description</u>		
Fine grained, SILTY SAND		
PL=	<u>Atterberg Limits</u> LL=	PI=
<u>Coefficients</u>		
D <sub>90</sub> = 0.2663	D <sub>85</sub> = 0.2385	D <sub>60</sub> = 0.1845
D <sub>50</sub> = 0.1674	D <sub>30</sub> = 0.1281	D <sub>15</sub> =
D <sub>10</sub> =	C <sub>u</sub> =	C <sub>c</sub> =
<u>Classification</u>		
USCS= SM	AASHTO=	
<u>Remarks</u>		

Location: BI-PBC-13-12 A  
Sample Number: 6494 (11)

Depth: 0.8'

Date: 12/26/12

**Thompson Engineering**

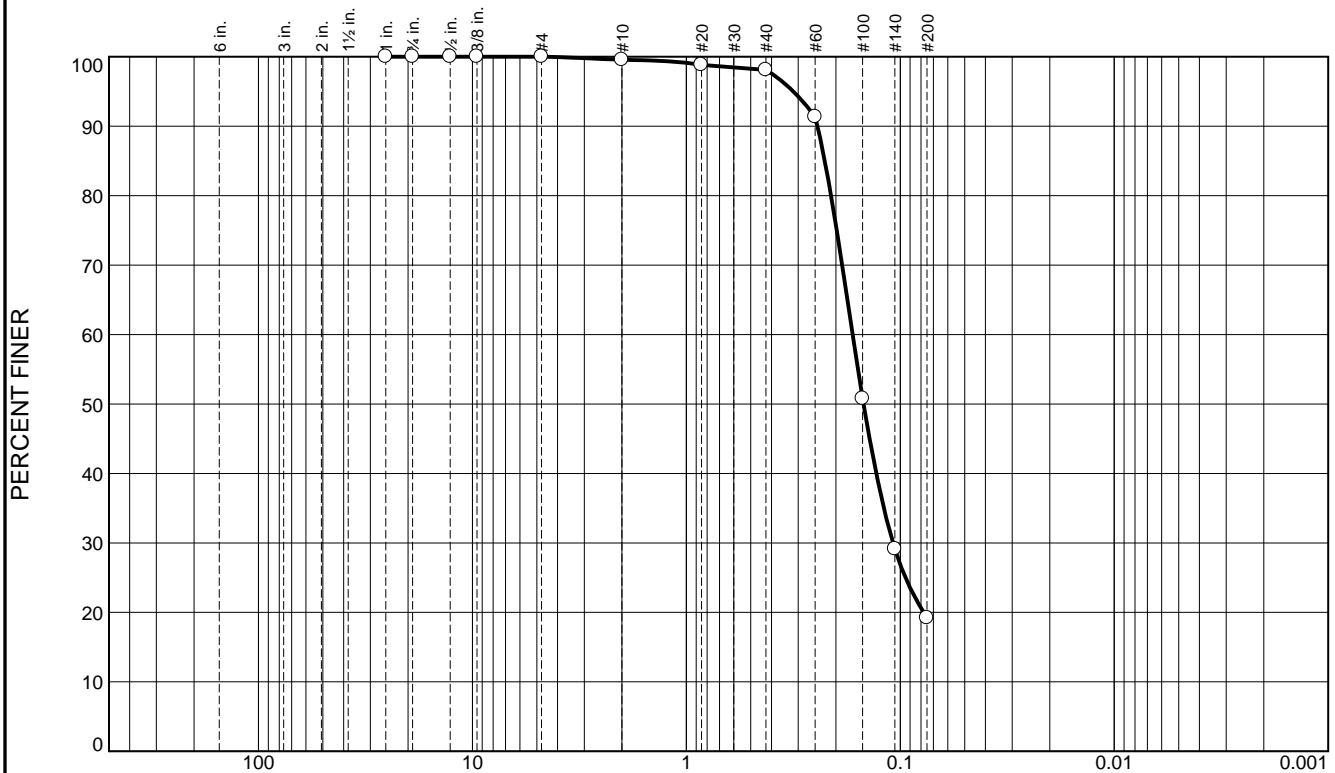
**Mobile, Alabama**

Client: CDM/Thompson Engineering JV  
Project: MsCIP Barrier Island Restoration GT

Project No: 1221110095

Figure

# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.0	0.4	1.5	78.9	19.2	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
1	100.0		
.75	100.0		
.5	100.0		
.375	100.0		
#4	100.0		
#10	99.6		
#20	98.8		
#40	98.1		
#60	91.3		
#100	50.8		
#140	29.1		
#200	19.2		

\* (no specification provided)

<u><b>Material Description</b></u>		
Fine grained, SILTY SAND		
PL=	<u><b>Atterberg Limits</b></u> LL=	PI=
<u><b>Coefficients</b></u>		
D <sub>90</sub> = 0.2438	D <sub>85</sub> = 0.2252	D <sub>60</sub> = 0.1671
D <sub>50</sub> = 0.1486	D <sub>30</sub> = 0.1081	D <sub>15</sub> =
D <sub>10</sub> =	C <sub>u</sub> =	C <sub>c</sub> =
<u><b>Classification</b></u>		
USCS= SM	AASHTO=	
<u><b>Remarks</b></u>		

Location: BI-PBC-13-12 B  
Sample Number: 6494 (12)

Depth: 5.8'

Date: 12/26/12

**Thompson Engineering**

**Mobile, Alabama**

Client: CDM/Thompson Engineering JV  
Project: MsCIP Barrier Island Restoration GT

Project No: 1221110095

Figure

# Boring Designation BI-PBC-14-12

DRILLING LOG		DIVISION South Atlantic		INSTALLATION Mobile District		SHEET 1 OF 1 SHEETS	
1. PROJECT MsCIP Barrier Island Restoration Pascagoula Bar Channel				9. SIZE AND TYPE OF BIT N/A			
2. BORING DESIGNATION BI-PBC-14-12		LOCATION COORDINATES E = 1,075,212 N = 244,797		10. COORDINATE SYSTEM/DATUM State Plane, MSE (U.S. Ft.)		HORIZONTAL NAD83	
3. DRILLING AGENCY Corps of Engineers - CESAM		CONTRACTOR FILE NO.		11. MANUFACTURER'S DESIGNATION OF DRILL Vibracore		<input type="checkbox"/> AUTO HAMMER <input type="checkbox"/> MANUAL HAMMER	
4. NAME OF DRILLER American Vibracore Systems, Inc.				12. TOTAL SAMPLES		DISTURBED 0	
5. DIRECTION OF BORING <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED				13. TOTAL NUMBER CORE BOXES		14. WATER DEPTH 42.6 Ft.	
6. THICKNESS OF OVERBURDEN N/A				15. DATE BORING		STARTED 12-15-12	
7. DEPTH DRILLED INTO ROCK N/A				16. ELEVATION TOP OF BORING -42.5 Ft.		COMPLETED 12-15-12	
8. TOTAL DEPTH OF BORING 16.3 Ft.				17. TOTAL RECOVERY FOR BORING 100%		18. SIGNATURE AND TITLE OF INSPECTOR Mark Green, Geotechnical Engineer	

ELEV.	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS	SAMPLE	LABORATORY RESULTS
-42.5	0.0				
-42.8	0.3		CLAY, fat, mostly clay, soft, gray (CH)	NS	
			SAND, silty, mostly fine-grained sand-sized quartz, some silt, little shell fragments, clay lenses, gray (SM)	A	Classification: SM Color: 5Y 5/2-olive gray D50: 0.1681 mm % Fines: 15.4
				B	Classification: SM Color: 5Y 5/2-olive gray D50: 0.152 mm % Fines: 19.9
-53.5	11.0				
-55.5	13.0		SAND, clayey, mostly fine-grained sand-sized quartz, some clay, trace fine-grained sand-sized quartz, trace shell fragments, gray (SC)	NS	
			CLAY, fat, mostly clay, trace fine-grained sand-sized quartz, trace shell fragments, gray (CH)		
-58.8	16.3				
NOTES: 1. Soils are field visually classified in accordance with the Unified Soils Classification System. 2. NS = Sample not submitted for laboratory analysis from this interval. 3. Seafloor elevation calculated using sampling vessel's fathometer water depth reading and applying NOAA tidal gauge data conversion factor.					



**Project**

Mississippi Barrier Island  
Restoration Project

**AVS**  
**AMERICAN VIBRACORE**  
**S E R V I C E S**

**Core Identifier** BI-PBC-14-12

**Date** 12/15/2012

**Water Depth** 42.6'

**Coordinate System**

Latitude / Longitude

**Start Time** 11:01:28

**End Time** 11:01:54

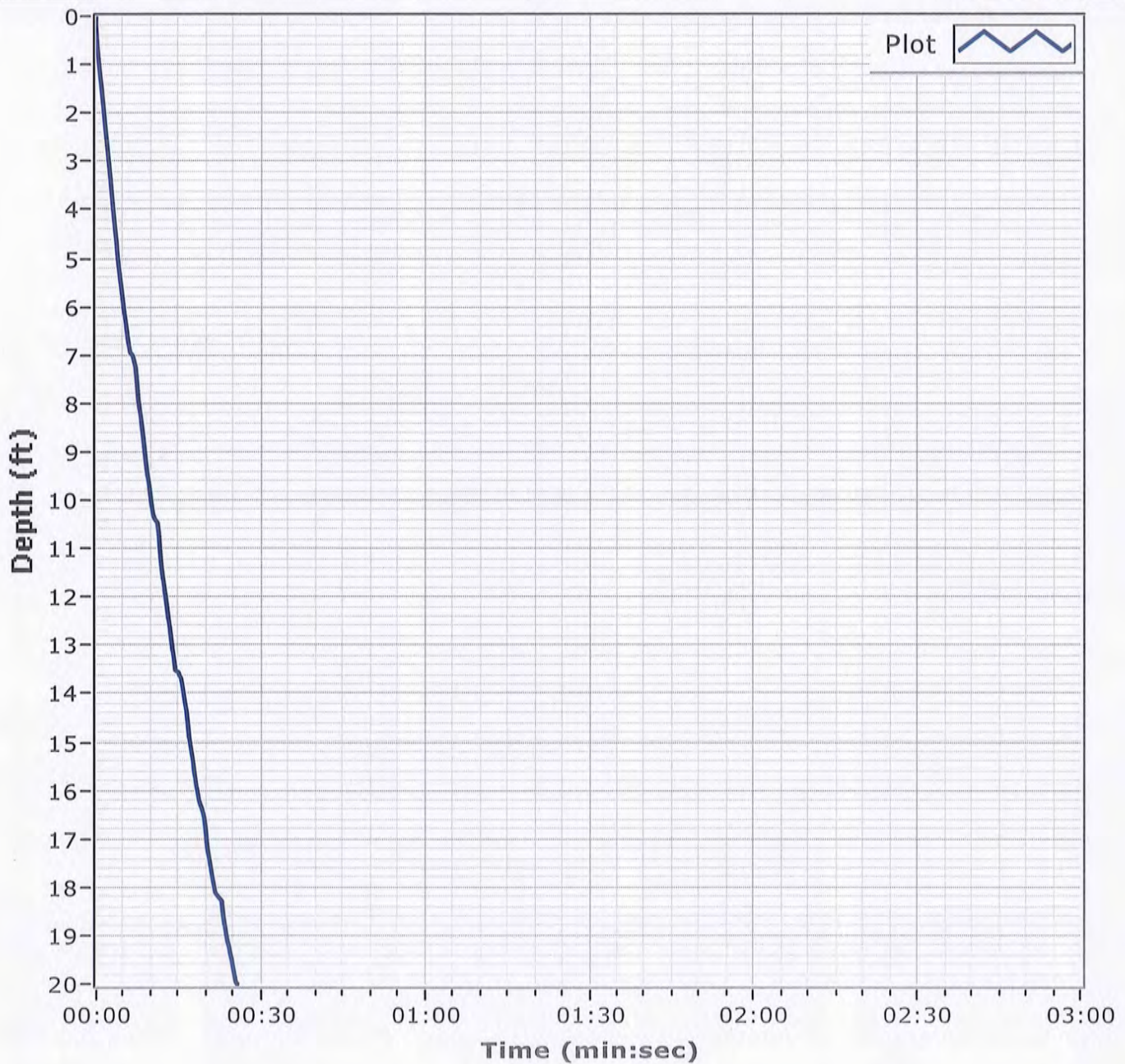
**Penetration** 20.0'

**Latitude** 30 10.370

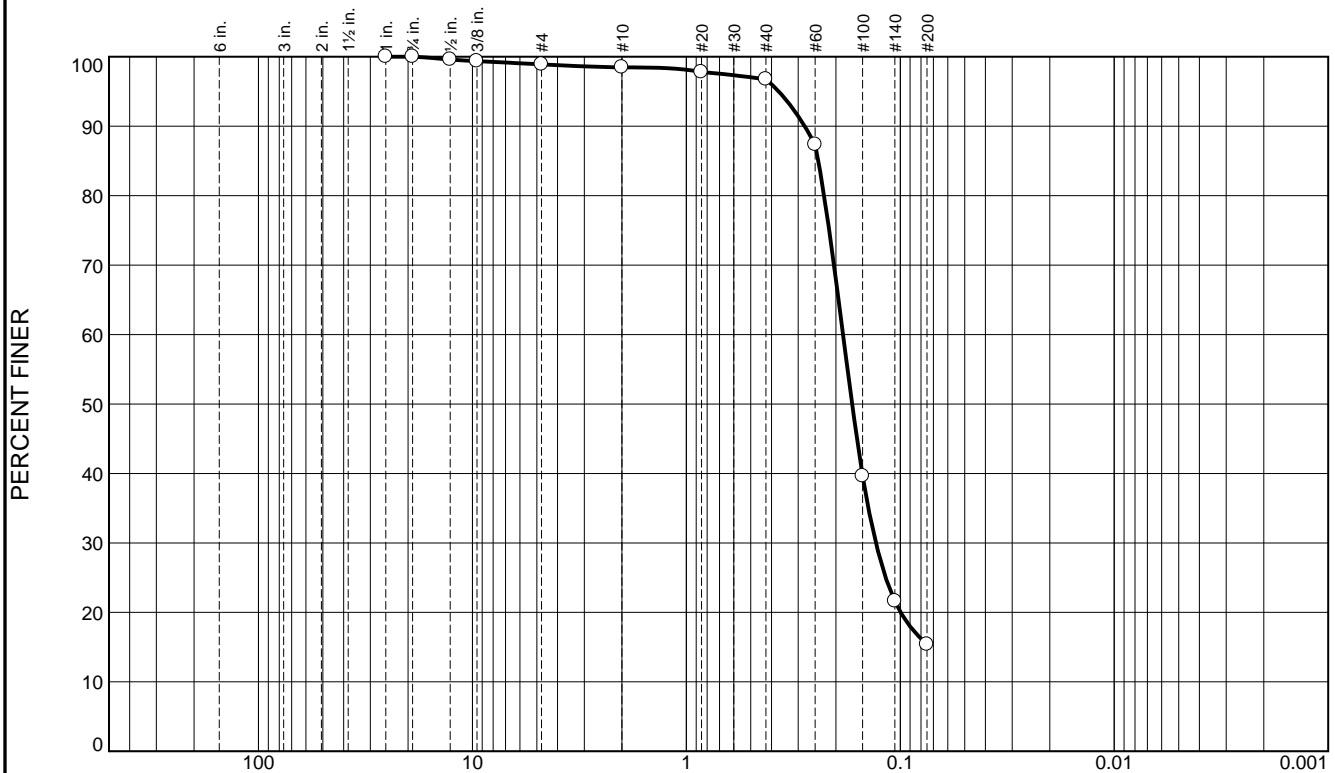
**Total Time** 00:00:26

**Recovery** 16.2'

**Longitude** 088 32.728

**Comments**

# Particle Size Distribution Report



GRAIN SIZE - mm.

% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	1.1	0.4	1.8	81.3	15.4	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
1	100.0		
.75	100.0		
.5	99.6		
.375	99.4		
#4	98.9		
#10	98.5		
#20	97.8		
#40	96.7		
#60	87.4		
#100	39.6		
#140	21.6		
#200	15.4		

\* (no specification provided)

## Material Description

Fine grained, SILTY SAND, with trace SHELL

## Atterberg Limits

PL= LL= PI=

## Coefficients

D<sub>90</sub>= 0.2802 D<sub>85</sub>= 0.2416 D<sub>60</sub>= 0.1853  
D<sub>50</sub>= 0.1681 D<sub>30</sub>= 0.1301 D<sub>15</sub>=  
D<sub>10</sub>= C<sub>u</sub>= C<sub>c</sub>=

## Classification

USCS= SM AASHTO=

## Remarks

Location: BI-PBC-14-12 A  
Sample Number: 6494 (13)

Depth: 0.25'

Date: 12/26/12

**Thompson Engineering**

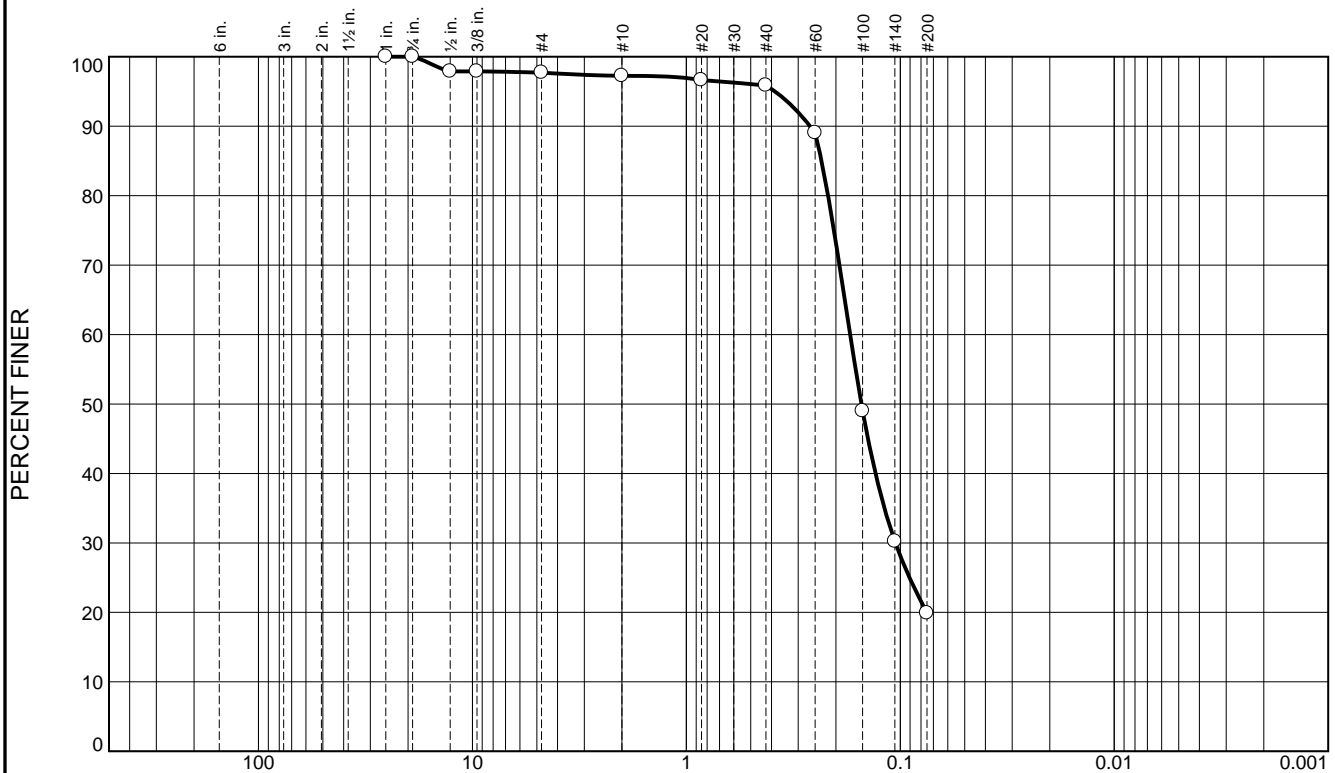
**Mobile, Alabama**

Client: CDM/Thompson Engineering JV  
Project: MsCIP Barrier Island Restoration GT

Project No: 1221110095

Figure

# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	2.3	0.5	1.3	76.0	19.9	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
1	100.0		
.75	100.0		
.5	97.9		
.375	97.9		
#4	97.7		
#10	97.2		
#20	96.6		
#40	95.9		
#60	89.0		
#100	49.0		
#140	30.2		
#200	19.9		

\* (no specification provided)

<u><b>Material Description</b></u>		
Fine grained, SILTY SAND, with trace SHELL		
<u><b>Atterberg Limits</b></u>		
PL=	LL=	PI=
<u><b>Coefficients</b></u>		
D <sub>90</sub> = 0.2644	D <sub>85</sub> = 0.2334	D <sub>60</sub> = 0.1717
D <sub>50</sub> = 0.1520	D <sub>30</sub> = 0.1054	D <sub>15</sub> =
D <sub>10</sub> =	C <sub>u</sub> =	C <sub>c</sub> =
<u><b>Classification</b></u>		
USCS= SM	AASHTO=	
<u><b>Remarks</b></u>		

Location: BI-PBC-14-12 B  
Sample Number: 6494 (14)

Depth: 5.25'

Date: 12/26/12

**Thompson Engineering**

**Mobile, Alabama**

Client: CDM/Thompson Engineering JV  
Project: MsCIP Barrier Island Restoration GT

Project No: 1221110095

Figure

# Boring Designation BI-PBC-15-12

DRILLING LOG		DIVISION South Atlantic		INSTALLATION Mobile District		SHEET 1 OF 1 SHEETS	
1. PROJECT MsCIP Barrier Island Restoration Pascagoula Bar Channel				9. SIZE AND TYPE OF BIT N/A			
2. BORING DESIGNATION BI-PBC-15-12		LOCATION COORDINATES E = 1,073,808 N = 244,019		10. COORDINATE SYSTEM/DATUM State Plane, MSE (U.S. Ft.)		HORIZONTAL NAD83 VERTICAL NAVD88	
3. DRILLING AGENCY Corps of Engineers - CESAM		CONTRACTOR FILE NO.		11. MANUFACTURER'S DESIGNATION OF DRILL Vibracore		<input type="checkbox"/> AUTO HAMMER <input type="checkbox"/> MANUAL HAMMER	
4. NAME OF DRILLER American Vibracore Systems, Inc.				12. TOTAL SAMPLES		DISTURBED UNDISTURBED (UD) 0	
5. DIRECTION OF BORING <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED		DEG. FROM VERTICAL		13. TOTAL NUMBER CORE BOXES			
		BEARING		14. WATER DEPTH 41.4 Ft.			
6. THICKNESS OF OVERBURDEN N/A				15. DATE BORING 12-15-12		STARTED COMPLETED 12-15-12	
7. DEPTH DRILLED INTO ROCK N/A				16. ELEVATION TOP OF BORING -41.4 Ft.			
8. TOTAL DEPTH OF BORING 15.4 Ft.				17. TOTAL RECOVERY FOR BORING 100%			
				18. SIGNATURE AND TITLE OF INSPECTOR Mark Green, Geotechnical Engineer			

ELEV.	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS	SAMPLE	LABORATORY RESULTS
-41.4	0.0				
-41.9	0.5		CLAY, fat, mostly clay, soft, grayish brown (CH)	NS	
			SAND, silty, mostly fine-grained sand-sized quartz, some silt, little shell fragments, trace clay, silt predominant 10-12 ft., gray (SM)	A	Classification: SM Color: 5Y 5/2-olive gray D50: 0.1566 mm % Fines: 16.5
				B	Classification: SM Color: 5Y 5/2-olive gray D50: 0.1526 mm % Fines: 17.8
-53.4	12.0		SAND, clayey, mostly fine-grained sand-sized quartz, some clay, gray (SC)	NS	
-55.4	14.0				
-56.8	15.4		CLAY, fat, mostly clay, trace fine-grained sand-sized quartz, trace shell fragments, soft, gray (CH)		
NOTES: 1. Soils are field visually classified in accordance with the Unified Soils Classification System. 2. NS = Sample not submitted for laboratory analysis from this interval. 3. Seafloor elevation calculated using sampling vessel's fathometer water depth reading and applying NOAA tidal gauge data conversion factor.					



# Project

Mississippi Barrier Island  
Restoration Project

**AVS**  
**AMERICAN VIBRACORE**  
**S E R V I C E S**

**Core Identifier** BI-PBC-15-12

**Date** 12/15/2012

**Water Depth** 41.4'

## Coordinate System

Latitude / Longitude

**Start Time** 10:03:12

**End Time** 10:03:39

**Penetration** 20.0'

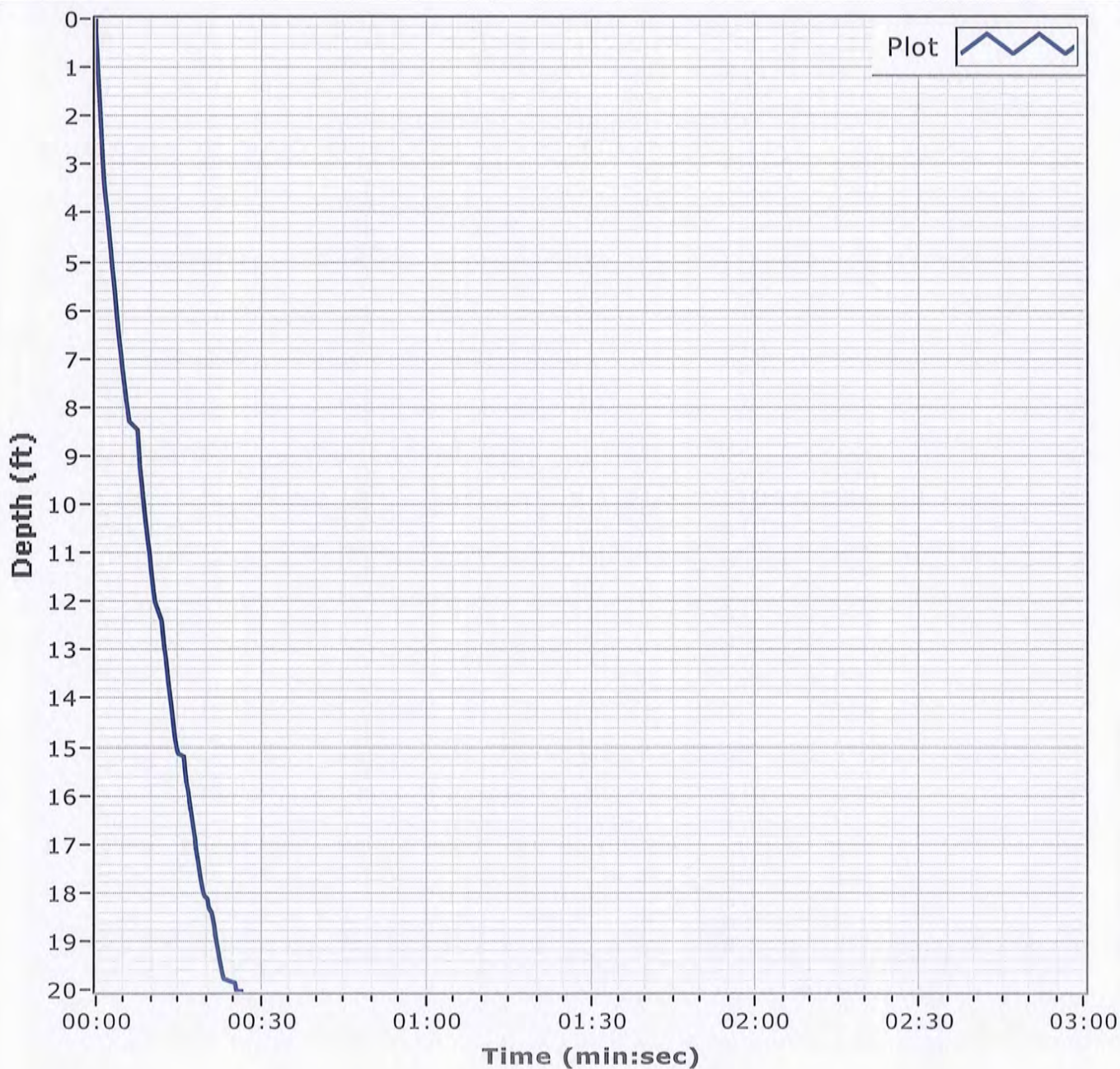
**Latitude** 30 10.242

**Total Time** 00:00:26

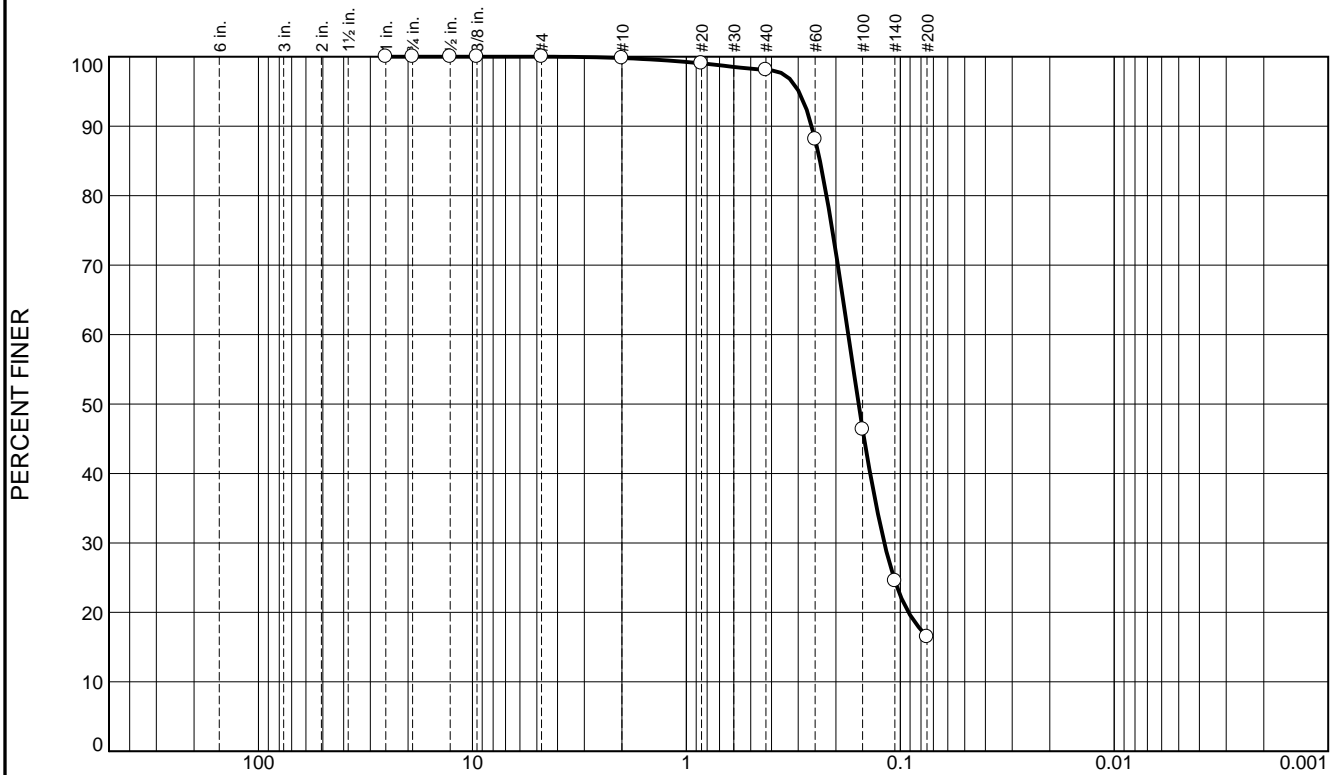
**Recovery** 15.4'

**Longitude** 088 32.995

## Comments



# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.0	0.2	1.7	81.6	16.5	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
1	100.0		
.75	100.0		
.5	100.0		
.375	100.0		
#4	100.0		
#10	99.8		
#20	99.0		
#40	98.1		
#60	88.1		
#100	46.3		
#140	24.5		
#200	16.5		

\* (no specification provided)

Material Description		
Fine grained, SILTY SAND		
<div> <div> Atterberg Limits </div> <div> PL= </div> <div> LL= </div> <div> PI= </div> </div>		
<div> <div> Coefficients </div> <div> D<sub>90</sub>= 0.2593 </div> <div> D<sub>50</sub>= 0.1566 </div> <div> D<sub>10</sub>= </div> <div> D<sub>85</sub>= 0.2373 </div> <div> D<sub>30</sub>= 0.1188 </div> <div> C<sub>u</sub>= </div> <div> D<sub>60</sub>= 0.1752 </div> <div> D<sub>15</sub>= </div> <div> C<sub>c</sub>= </div> </div>		
<div> <div> Classification </div> <div> USCS= SM </div> <div> AASHTO= </div> </div>		
<div> <div> Remarks </div> </div>		

Location: BI-PBC-15-12 A  
Sample Number: 6494 (15)

Depth: 0.5'

Date: 12/26/12

**Thompson Engineering**

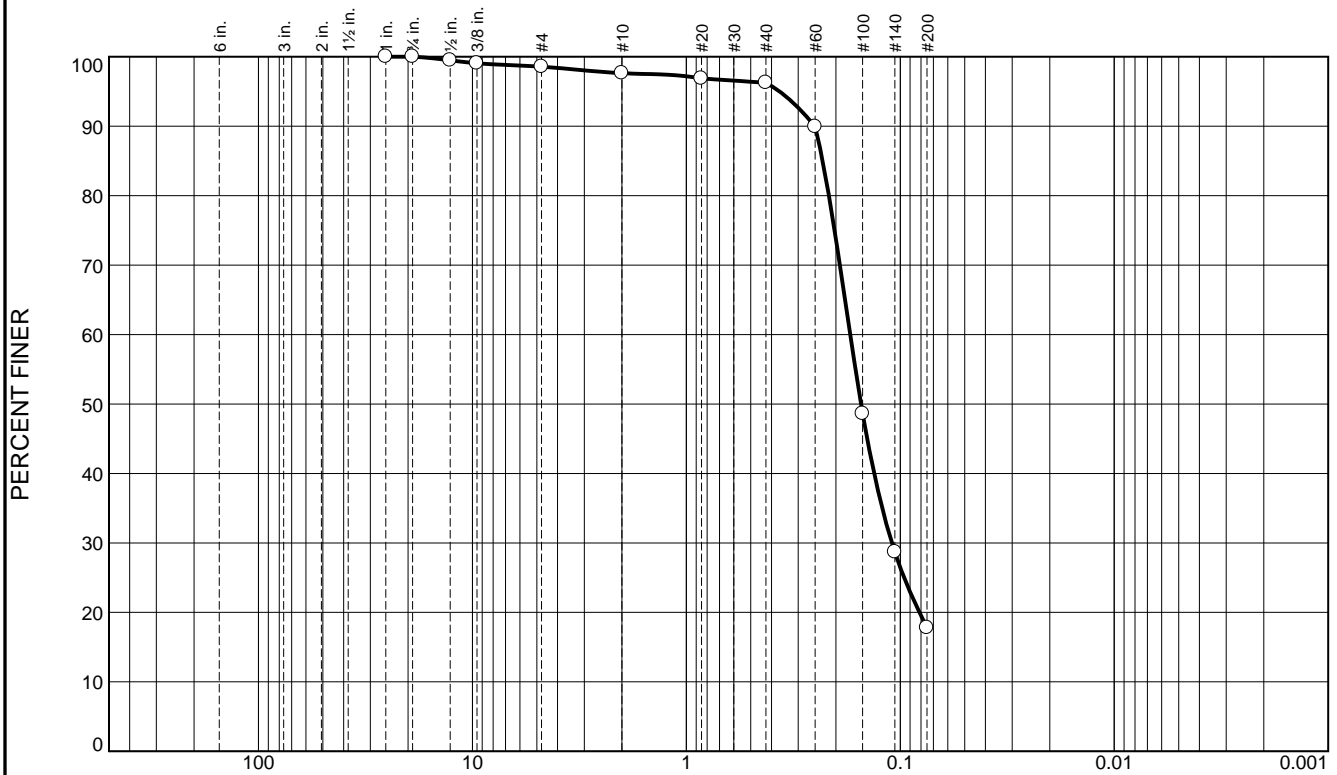
**Mobile, Alabama**

Client: CDM/Thompson Engineering JV  
Project: MsCIP Barrier Island Restoration GT

Project No: 1221110095

Figure

# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	1.4	1.0	1.4	78.4	17.8	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
1	100.0		
.75	100.0		
.5	99.5		
.375	99.1		
#4	98.6		
#10	97.6		
#20	96.9		
#40	96.2		
#60	89.9		
#100	48.6		
#140	28.7		
#200	17.8		

\* (no specification provided)

Material Description		
Fine grained, SILTY SAND, with trace SHELL		
<div> <div> Atterberg Limits </div> <div> PL= </div> <div> LL= </div> <div> PI= </div> </div>		
<div> <div> Coefficients </div> <div> D<sub>90</sub>= 0.2514 </div> <div> D<sub>50</sub>= 0.1526 </div> <div> D<sub>10</sub>= </div> <div> D<sub>85</sub>= 0.2306 </div> <div> D<sub>30</sub>= 0.1094 </div> <div> C<sub>u</sub>= </div> <div> D<sub>60</sub>= 0.1715 </div> <div> D<sub>15</sub>= </div> <div> C<sub>c</sub>= </div> </div>		
<div> <div> Classification </div> <div> USCS= SM </div> <div> AASHTO= </div> </div>		
<div> <div> Remarks </div> </div>		

Location: BI-PBC-15-12 B  
Sample Number: 6494 (16)

Depth: 5.5'

Date: 12/26/12

**Thompson Engineering**

**Mobile, Alabama**

Client: CDM/Thompson Engineering JV  
Project: MsCIP Barrier Island Restoration GT

Project No: 1221110095

Figure

# Boring Designation BI-PBC-16-12

DRILLING LOG		DIVISION South Atlantic		INSTALLATION Mobile District		SHEET 1 OF 1 SHEETS	
1. PROJECT MsCIP Barrier Island Restoration Pascagoula Bar Channel				9. SIZE AND TYPE OF BIT N/A			
2. BORING DESIGNATION BI-PBC-16-12		LOCATION COORDINATES E = 1,073,243 N = 242,519		10. COORDINATE SYSTEM/DATUM State Plane, MSE (U.S. Ft.)		HORIZONTAL NAD83 VERTICAL NAVD88	
3. DRILLING AGENCY Corps of Engineers - CESAM		CONTRACTOR FILE NO.		11. MANUFACTURER'S DESIGNATION OF DRILL Vibracore		<input type="checkbox"/> AUTO HAMMER <input type="checkbox"/> MANUAL HAMMER	
4. NAME OF DRILLER American Vibracore Systems, Inc.				12. TOTAL SAMPLES		DISTURBED UNDISTURBED (UD) 0	
5. DIRECTION OF BORING <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED				13. TOTAL NUMBER CORE BOXES		14. WATER DEPTH 42.7 Ft.	
6. THICKNESS OF OVERBURDEN N/A				15. DATE BORING		STARTED 12-15-12 COMPLETED 12-15-12	
7. DEPTH DRILLED INTO ROCK N/A				16. ELEVATION TOP OF BORING -42.7 Ft.		17. TOTAL RECOVERY FOR BORING 100%	
8. TOTAL DEPTH OF BORING 15.7 Ft.				18. SIGNATURE AND TITLE OF INSPECTOR Mark Green, Geotechnical Engineer			
ELEV.	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS	SAMPLE	LABORATORY RESULTS		
-42.7	0.0						
-44.7	2.0		SAND, silty, mostly fine-grained sand-sized quartz, some silt, greenish gray (SM)	A	Classification: SM Color: 5Y 5/2-olive gray D50: 0.1672 mm % Fines: 14.4		
-45.2	2.5		CLAY, fat, mostly clay, trace shell fragments, clay lenses, greenish gray (CH)	NS			
-47.7	5.0		SAND, silty, clayey, mostly fine-grained sand-sized quartz, some clay, some silt, greenish gray (SC-SM)				
-52.7	10.0		SAND, silty, mostly fine-grained sand-sized quartz, some silt, some shell fragments, some clayey lenses, greenish gray (SM)	B	Classification: SM Color: 5Y 5/2-olive gray D50: 0.1549 mm % Fines: 16		
-58.4	15.7		SAND, clayey, mostly fine-grained sand-sized quartz, some clay, trace silt, trace shell fragments, greenish gray (SC)	NS			
NOTES:							
1. Soils are field visually classified in accordance with the Unified Soils Classification System.							
2. NS = Sample not submitted for laboratory analysis from this interval.							
3. Seafloor elevation calculated using sampling vessel's fathometer water depth reading and applying NOAA tidal gauge data conversion factor.							



**Project**

Mississippi Barrier Island  
Restoration Project

**AVS**  
**AMERICAN VIBRACORE**  
**S E R V I C E S**

**Core Identifier** BI-PBC-16-12

**Date** 12/15/2012

**Water Depth** 42.7'

**Coordinate System**

Latitude / Longitude

**Start Time** 09:00:32

**End Time** 09:01:04

**Penetration** 20.0'

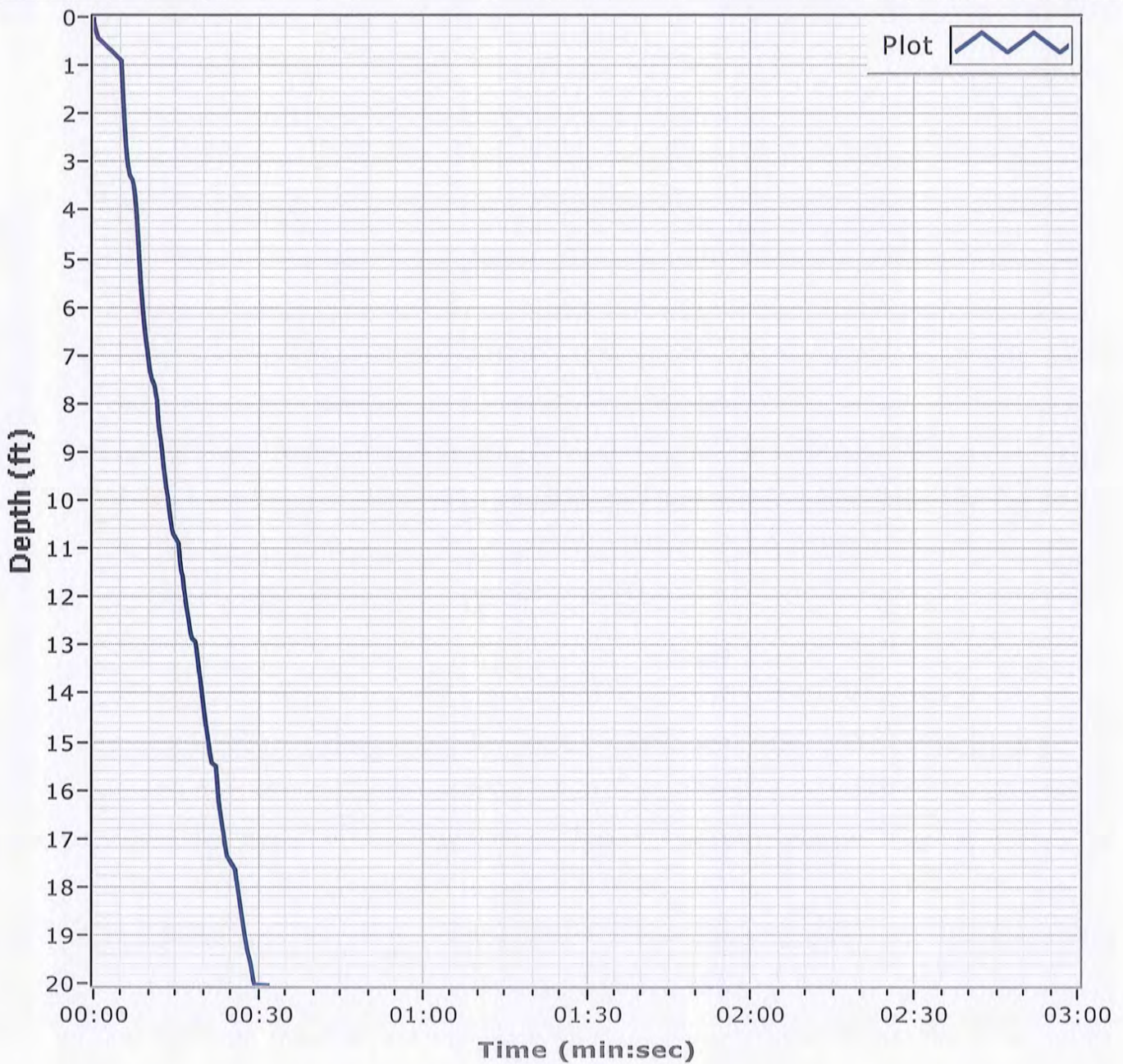
**Latitude** 30 09.995

**Total Time** 00:00:32

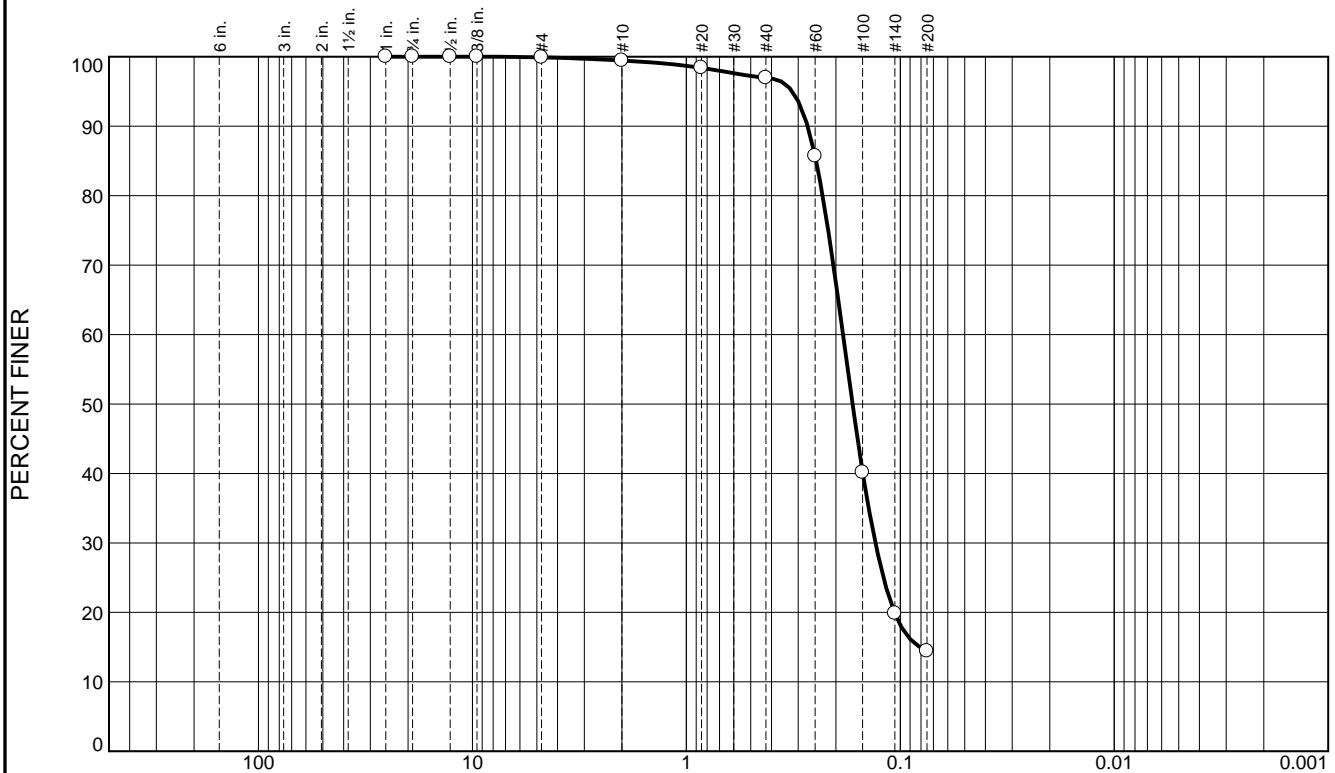
**Recovery** 15.6'

**Longitude** 088 33.103

**Comments**



# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.1	0.5	2.4	82.6	14.4	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
1	100.0		
.75	100.0		
.5	100.0		
.375	100.0		
#4	99.9		
#10	99.4		
#20	98.4		
#40	97.0		
#60	85.7		
#100	40.1		
#140	19.8		
#200	14.4		

\* (no specification provided)

<u><b>Material Description</b></u>		
Fine grained, SILTY SAND		
<u><b>Atterberg Limits</b></u>		
PL=	LL=	PI=
<u><b>Coefficients</b></u>		
D <sub>90</sub> = 0.2712	D <sub>85</sub> = 0.2473	D <sub>60</sub> = 0.1853
D <sub>50</sub> = 0.1672	D <sub>30</sub> = 0.1308	D <sub>15</sub> = 0.0810
D <sub>10</sub> =	C <sub>u</sub> =	C <sub>c</sub> =
<u><b>Classification</b></u>		
USCS= SM	AASHTO=	
<u><b>Remarks</b></u>		

Location: BI-PBC-16-12 A  
Sample Number: 6494 (17)

Depth: 0.0'

Date: 12/26/12

**Thompson Engineering**

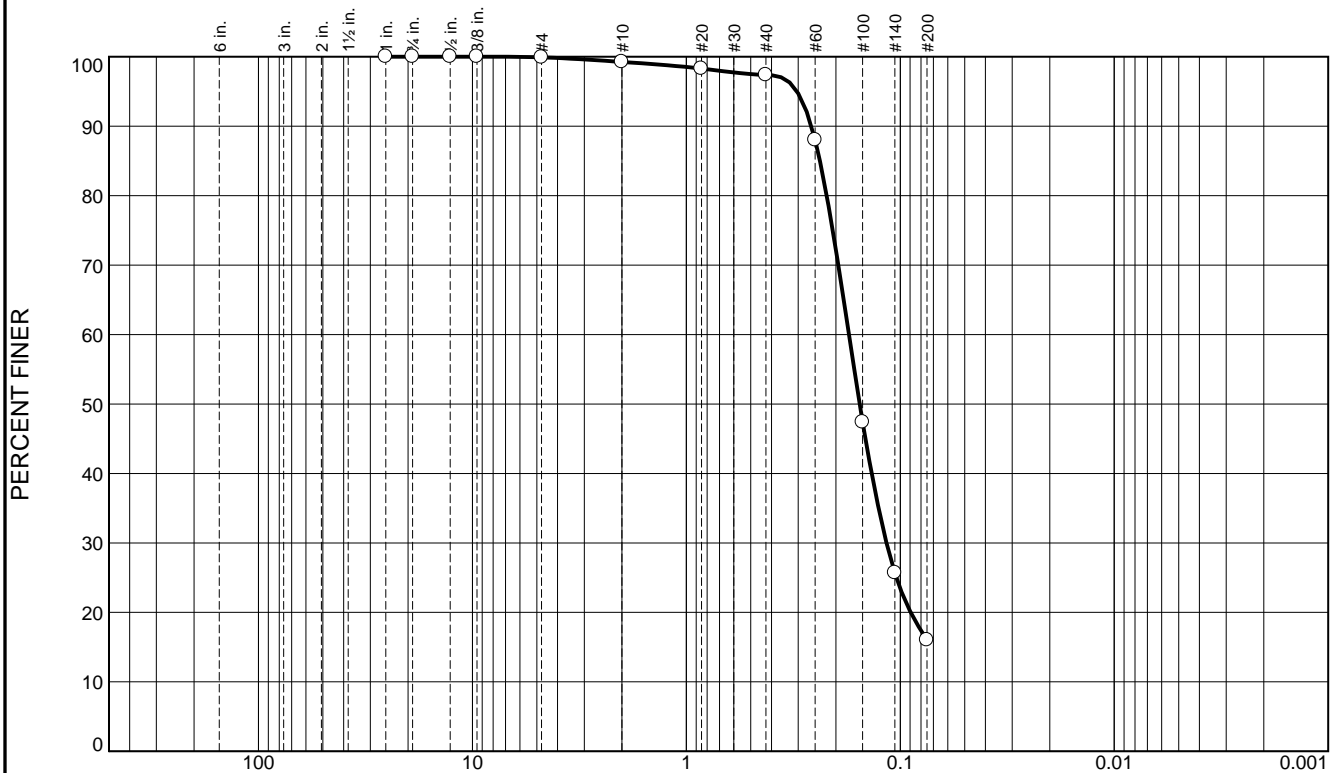
**Mobile, Alabama**

Client: CDM/Thompson Engineering JV  
Project: MsCIP Barrier Island Restoration GT

Project No: 1221110095

Figure

# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.1	0.7	1.8	81.4	16.0	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
1	100.0		
.75	100.0		
.5	100.0		
.375	100.0		
#4	99.9		
#10	99.2		
#20	98.3		
#40	97.4		
#60	88.0		
#100	47.4		
#140	25.7		
#200	16.0		

\* (no specification provided)

Material Description		
Fine grained, SILTY SAND		
<div> <div> Atterberg Limits </div> <div> PL= </div> <div> LL= </div> <div> PI= </div> </div>		
<div> <div> Coefficients </div> <div> D<sub>90</sub>= 0.2604 </div> <div> D<sub>50</sub>= 0.1549 </div> <div> D<sub>10</sub>= </div> <div> D<sub>85</sub>= 0.2374 </div> <div> D<sub>30</sub>= 0.1160 </div> <div> C<sub>u</sub>= </div> <div> D<sub>60</sub>= 0.1738 </div> <div> D<sub>15</sub>= </div> <div> C<sub>c</sub>= </div> </div>		
<div> <div> Classification </div> <div> USCS= SM </div> <div> AASHTO= </div> </div>		
<div> <div> Remarks </div> </div>		

Location: BI-PBC-16-12 B  
Sample Number: 6494 (18)

Depth: 5.0'

Date: 12/26/12

**Thompson Engineering**

**Mobile, Alabama**

Client: CDM/Thompson Engineering JV  
Project: MsCIP Barrier Island Restoration GT

Project No: 1221110095

Figure

# Boring Designation BI-PBC-18-12

DRILLING LOG		DIVISION South Atlantic		INSTALLATION Mobile District		SHEET 1 OF 1 SHEETS	
1. PROJECT MsCIP Barrier Island Restoration Pascagoula Bar Channel				9. SIZE AND TYPE OF BIT N/A			
2. BORING DESIGNATION BI-PBC-18-12		LOCATION COORDINATES E = 1,078,796 N = 250,643		10. COORDINATE SYSTEM/DATUM State Plane, MSE (U.S. Ft.)		HORIZONTAL NAD83	
3. DRILLING AGENCY Corps of Engineers - CESAM		CONTRACTOR FILE NO.		11. MANUFACTURER'S DESIGNATION OF DRILL Vibracore		<input type="checkbox"/> AUTO HAMMER <input type="checkbox"/> MANUAL HAMMER	
4. NAME OF DRILLER American Vibracore Systems, Inc.				12. TOTAL SAMPLES		DISTURBED 0	
5. DIRECTION OF BORING <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED				13. TOTAL NUMBER CORE BOXES		14. WATER DEPTH 37.8 Ft.	
6. THICKNESS OF OVERBURDEN N/A				15. DATE BORING		STARTED 12-16-12	
7. DEPTH DRILLED INTO ROCK N/A				16. ELEVATION TOP OF BORING -37.2 Ft.		COMPLETED 12-16-12	
8. TOTAL DEPTH OF BORING 15.8 Ft.				17. TOTAL RECOVERY FOR BORING 100%			
				18. SIGNATURE AND TITLE OF INSPECTOR Mark Green, Geotechnical Engineer			
ELEV.	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS	SAMPLE	LABORATORY RESULTS		
-37.2	0.0						
-39.2	2.0		SAND, clayey, mostly fine-grained sand-sized quartz, some clay, trace shell fragments, gray (SC)	NS			
-41.2	4.0		SAND, silty, mostly fine-grained sand-sized quartz, some silt, trace shell fragments, trace clay lenses, gray (SM)	A	Classification: SM Color: 5Y 5/2-olive gray D50: 0.1852 mm % Fines: 16.3		
-42.2	5.0		SAND, poorly-graded, mostly fine to medium-grained sand-sized quartz, little silt, little shell fragments, gray (SP)	B	Classification: SM Color: 5Y 5/2-olive gray D50: 0.2122 mm % Fines: 12.4		
-44.2	7.0		SAND, silty, mostly fine-grained sand-sized quartz, some silt, trace shell fragments, trace clay lenses, gray (SM)	C	Classification: SM Color: 5Y 5/2-olive gray D50: 0.178 mm % Fines: 15.9		
-47.2	10.0		SAND, clayey, mostly fine-grained sand-sized quartz, some clay, gray (SC)	NS			
-49.2	12.0		CLAY, fat, mostly clay, gray (CH)				
-53.0	15.8		CLAY, lean, mostly clay, trace fine-grained sand-sized quartz, stiff, gray and yellow-orange mottle (CL)				
NOTES:							
1. Soils are field visually classified in accordance with the Unified Soils Classification System.							
2. NS = Sample not submitted for laboratory analysis from this interval.							
3. Seafloor elevation calculated using sampling vessel's fathometer water depth reading and applying NOAA tidal gauge data conversion factor.							



# Project

Mississippi Barrier Island  
Restoration Project

**AVS**  
AMERICAN VIBRACORE  
SERVICES

Core Identifier BI-PBC-18-12

Date 12/16/2012

Water Depth 37.8'

Coordinate System

Latitude / Longitude

Start Time 11:35:59

End Time 11:36:53

Penetration 20.0'

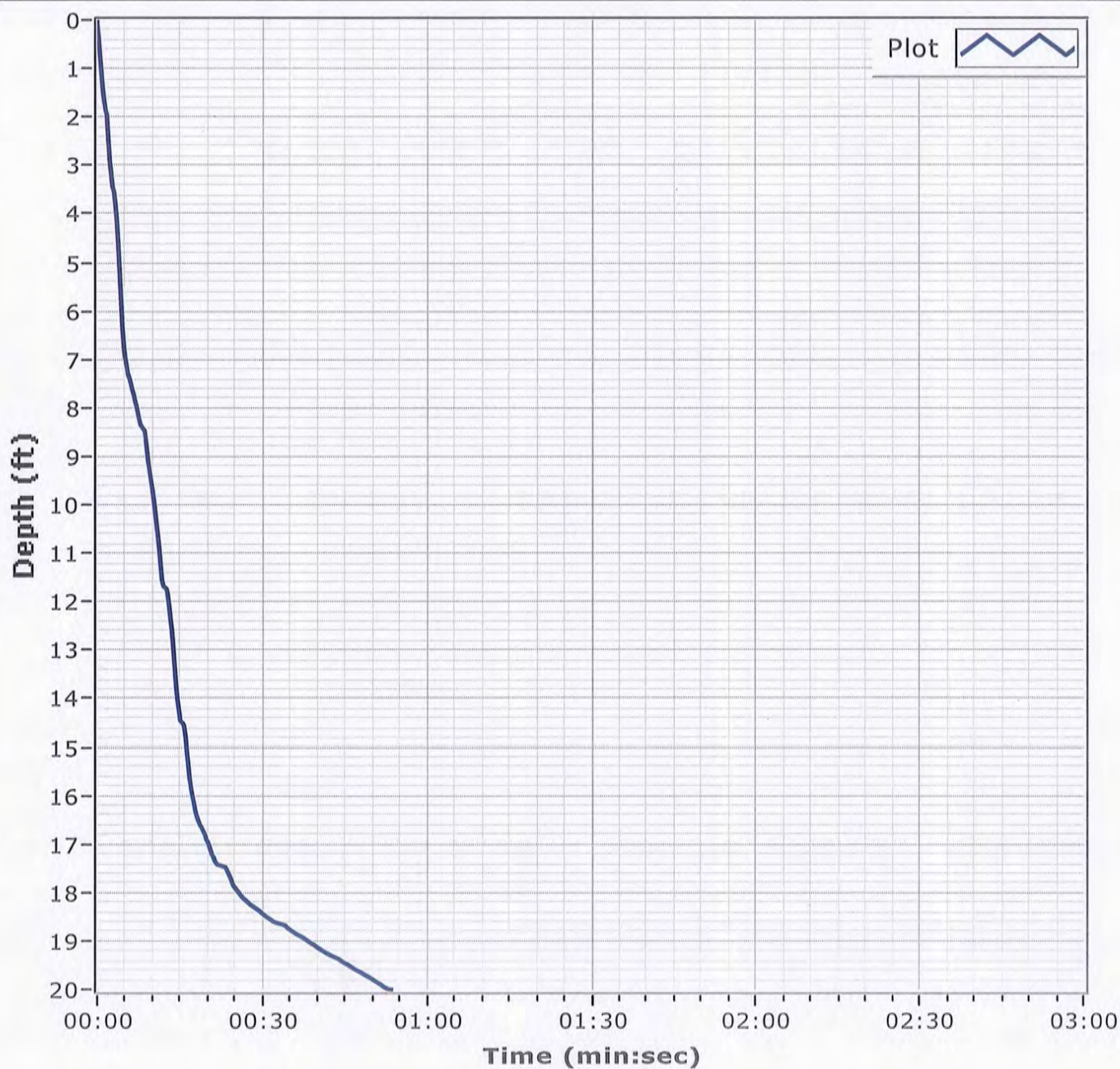
Latitude 30 11.333

Total Time 00:00:53

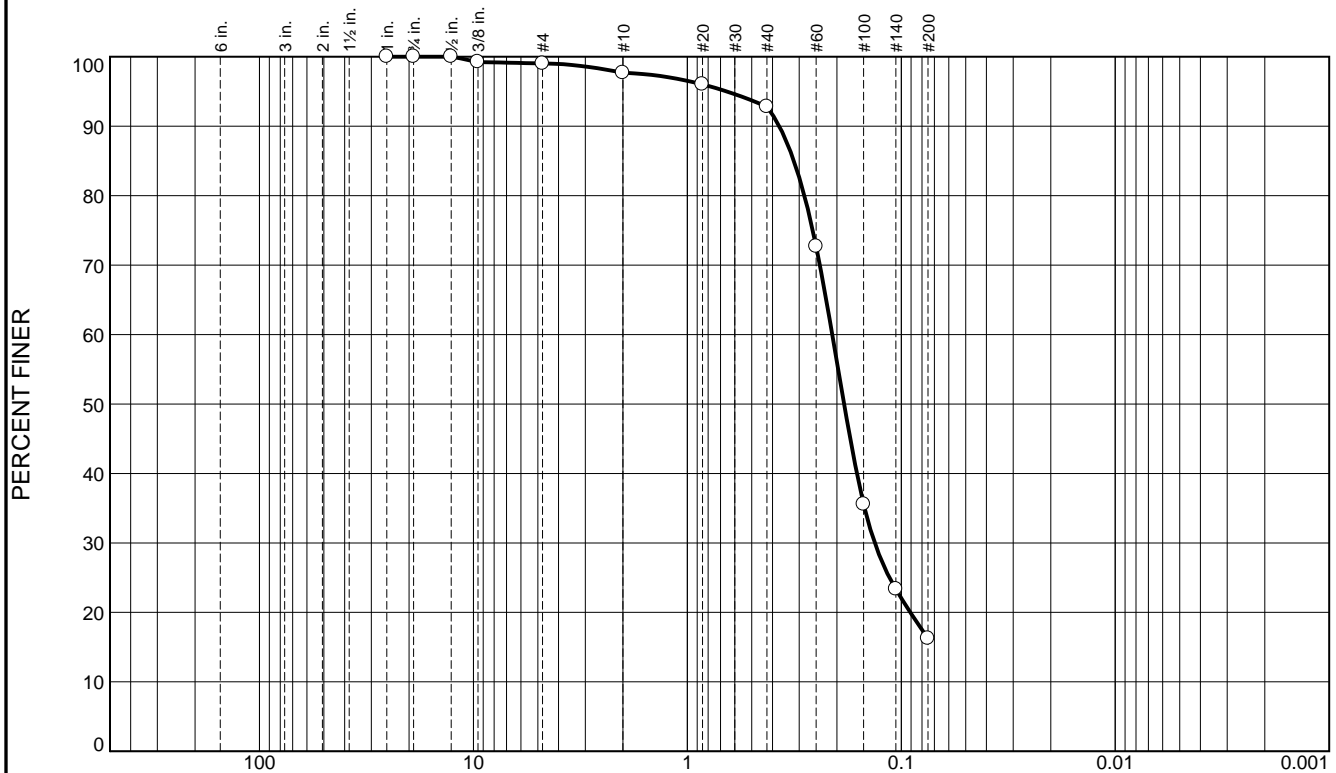
Recovery 15.8'

Longitude 088 32.045

Comments



# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	1.0	1.3	4.9	76.5	16.3	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
1	100.0		
.75	100.0		
.5	100.0		
.375	99.2		
#4	99.0		
#10	97.7		
#20	96.0		
#40	92.8		
#60	72.7		
#100	35.6		
#140	23.3		
#200	16.3		

\* (no specification provided)

**Material Description**  
Fine grained, SILTY SAND, with trace SHELL

**Atterberg Limits**  
PL=      LL=      PI=

**Coefficients**  
D<sub>90</sub>= 0.3719      D<sub>85</sub>= 0.3178      D<sub>60</sub>= 0.2102  
D<sub>50</sub>= 0.1852      D<sub>30</sub>= 0.1332      D<sub>15</sub>=  
D<sub>10</sub>=      C<sub>u</sub>=      C<sub>c</sub>=

**Classification**  
USCS= SM      AASHTO=

**Remarks**

Location: BI-PBC-18-12 A  
Sample Number: 6494 (19)

Depth: 2.0'

Date: 12/26/12

**Thompson Engineering**

**Mobile, Alabama**

Client: CDM/Thompson Engineering JV  
Project: MsCIP Barrier Island Restoration GT

Project No: 1221110095

Figure

# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.1	0.9	5.5	81.1	12.4	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
1	100.0		
.75	100.0		
.5	100.0		
.375	100.0		
#4	99.9		
#10	99.0		
#20	97.3		
#40	93.5		
#60	64.4		
#100	23.5		
#140	15.4		
#200	12.4		

\* (no specification provided)

Material Description		
Fine grained, SILTY SAND		
<div> <div> Atterberg Limits </div> <div> PL= </div> <div> LL= </div> <div> PI= </div> </div>		
<div> <div> Coefficients </div> <div> D<sub>90</sub>= 0.3821 </div> <div> D<sub>50</sub>= 0.2122 </div> <div> D<sub>10</sub>= </div> <div> D<sub>85</sub>= 0.3414 </div> <div> D<sub>30</sub>= 0.1670 </div> <div> C<sub>u</sub>= </div> <div> D<sub>60</sub>= 0.2374 </div> <div> D<sub>15</sub>= 0.1017 </div> <div> C<sub>c</sub>= </div> </div>		
<div> <div> Classification </div> <div> USCS= SM </div> <div> AASHTO= </div> </div>		
<div> <div> Remarks </div> </div>		

Location: BI-PBC-18-12 B  
Sample Number: 6494 (20)

Depth: 4.0'

Date: 12/26/12

**Thompson Engineering**

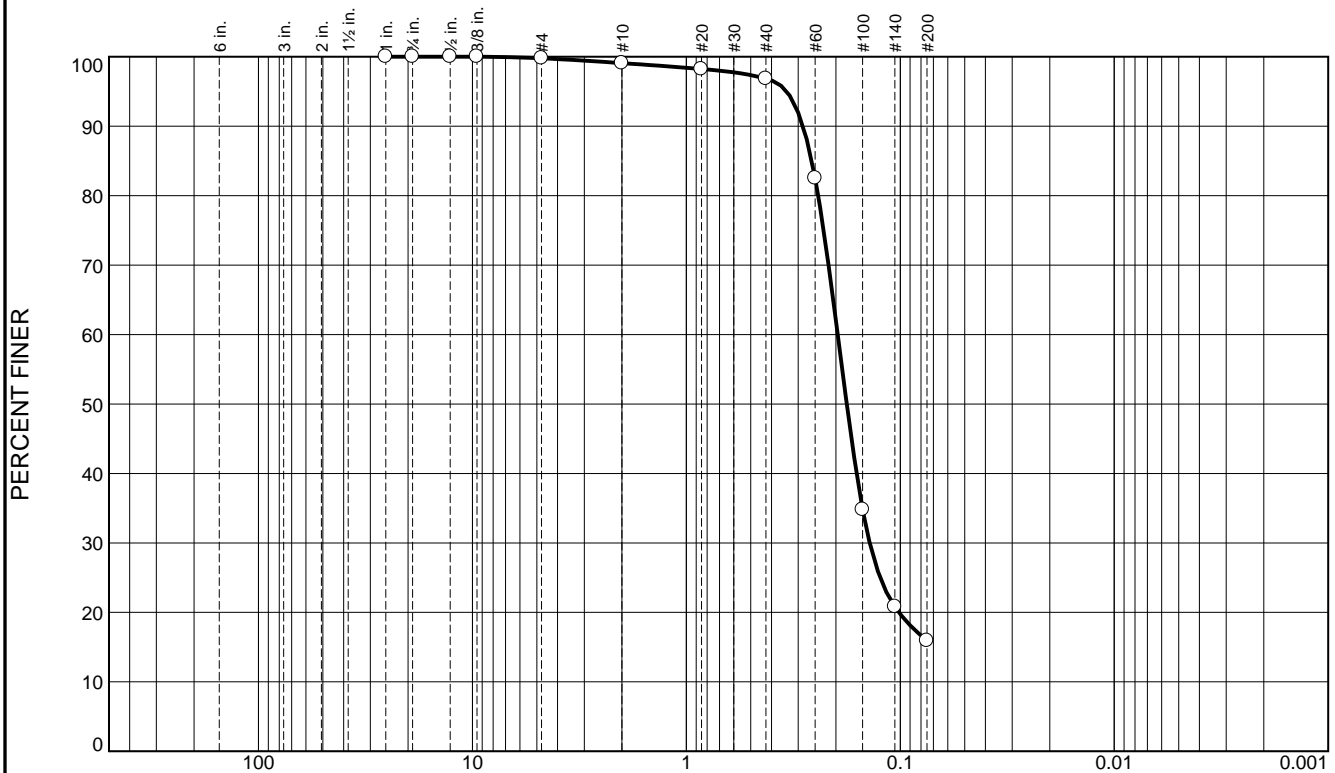
**Mobile, Alabama**

Client: CDM/Thompson Engineering JV  
Project: MsCIP Barrier Island Restoration GT

Project No: 1221110095

Figure

# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.2	0.7	2.3	80.9	15.9	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
1	100.0		
.75	100.0		
.5	100.0		
.375	100.0		
#4	99.8		
#10	99.1		
#20	98.2		
#40	96.8		
#60	82.5		
#100	34.8		
#140	20.8		
#200	15.9		

\* (no specification provided)

Material Description		
Fine grained, SILTY SAND		
<div> <div> Atterberg Limits </div> <div> PL= LL= PI= </div> </div>		
<div> <div> Coefficients </div> <div> D<sub>90</sub>= 0.2853 D<sub>85</sub>= 0.2594 D<sub>60</sub>= 0.1962 D<sub>50</sub>= 0.1780 D<sub>30</sub>= 0.1390 D<sub>15</sub>= D<sub>10</sub>= C<sub>u</sub>= C<sub>c</sub>= </div> </div>		
<div> <div> Classification </div> <div> USCS= SM AASHTO= </div> </div>		
<div> <div> Remarks </div> </div>		

Location: BI-PBC-18-12 C  
Sample Number: 6494 (21)

Depth: 5.0'

Date: 12/26/12

**Thompson Engineering**

**Mobile, Alabama**

Client: CDM/Thompson Engineering JV  
Project: MsCIP Barrier Island Restoration GT

Project No: 1221110095

Figure

# Boring Designation BI-PBC-19-12

DRILLING LOG		DIVISION South Atlantic		INSTALLATION Mobile District		SHEET 1 OF 1 SHEETS	
1. PROJECT MsCIP Barrier Island Restoration Pascagoula Bar Channel				9. SIZE AND TYPE OF BIT N/A			
2. BORING DESIGNATION BI-PBC-19-12		LOCATION COORDINATES E = 1,077,851 N = 249,466		10. COORDINATE SYSTEM/DATUM State Plane, MSE (U.S. Ft.)		HORIZONTAL NAD83 VERTICAL NAVD88	
3. DRILLING AGENCY Corps of Engineers - CESAM		CONTRACTOR FILE NO.		11. MANUFACTURER'S DESIGNATION OF DRILL Vibracore		<input type="checkbox"/> AUTO HAMMER <input type="checkbox"/> MANUAL HAMMER	
4. NAME OF DRILLER American Vibracore Systems, Inc.				12. TOTAL SAMPLES		DISTURBED UNDISTURBED (UD) 0	
5. DIRECTION OF BORING <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED		DEG. FROM VERTICAL		13. TOTAL NUMBER CORE BOXES			
		BEARING		14. WATER DEPTH 39.4 Ft.			
6. THICKNESS OF OVERBURDEN N/A				15. DATE BORING 12-15-12		STARTED COMPLETED 12-15-12	
7. DEPTH DRILLED INTO ROCK N/A				16. ELEVATION TOP OF BORING -38.4 Ft.			
8. TOTAL DEPTH OF BORING 15.5 Ft.				17. TOTAL RECOVERY FOR BORING 100%			
				18. SIGNATURE AND TITLE OF INSPECTOR Mark Green, Geotechnical Engineer			
ELEV.	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS	SAMPLE	LABORATORY RESULTS		
-38.4	0.0						
			SAND, silty, mostly fine-grained sand-sized quartz, mostly clay, mostly silt, few shell fragments, silty, clayey, gray (SM)	A	Classification: SM Color: 5Y 5/2-olive gray D50: 0.1915 mm % Fines: 16.8		
-42.6	4.2						
-44.4	6.0		SAND, poorly-graded, mostly fine to medium-grained sand-sized quartz, trace silt, trace shell fragments, gray (SP)	B	Classification: SP-SM Color: 5Y 6/2-light olive gray D50: 0.2168 mm % Fines: 5.1		
			SAND, silty, mostly fine-grained sand-sized quartz, some silt, trace shell fragments, trace clayey lenses, gray (SM)	C	Classification: SM Color: 5Y 5/2-olive gray D50: 0.1742 mm % Fines: 16.2		
-47.4	9.0						
-50.4	12.0		SAND, clayey, mostly fine-grained sand-sized quartz, some clay, trace shell fragments, some larger shells, gray (SC)	NS			
			CLAY, fat, mostly clay, trace fine-grained sand-sized quartz, trace shell fragments, soft, gray (CH)				
-53.9	15.5						
			NOTES: 1. Soils are field visually classified in accordance with the Unified Soils Classification System. 2. NS = Sample not submitted for laboratory analysis from this interval. 3. Seafloor elevation calculated using sampling vessel's fathometer water depth reading and applying NOAA tidal gauge data conversion factor.				



## Project

Mississippi Barrier Island  
Restoration Project

**AVS**  
AMERICAN VIBRACORE  
S E R V I C E S

Core Identifier BI-PBC-19-12

Date 12/15/2012

Water Depth 39.4'

### Coordinate System

Latitude / Longitude

Start Time 15:16:53

End Time 15:17:22

Penetration 20.0'

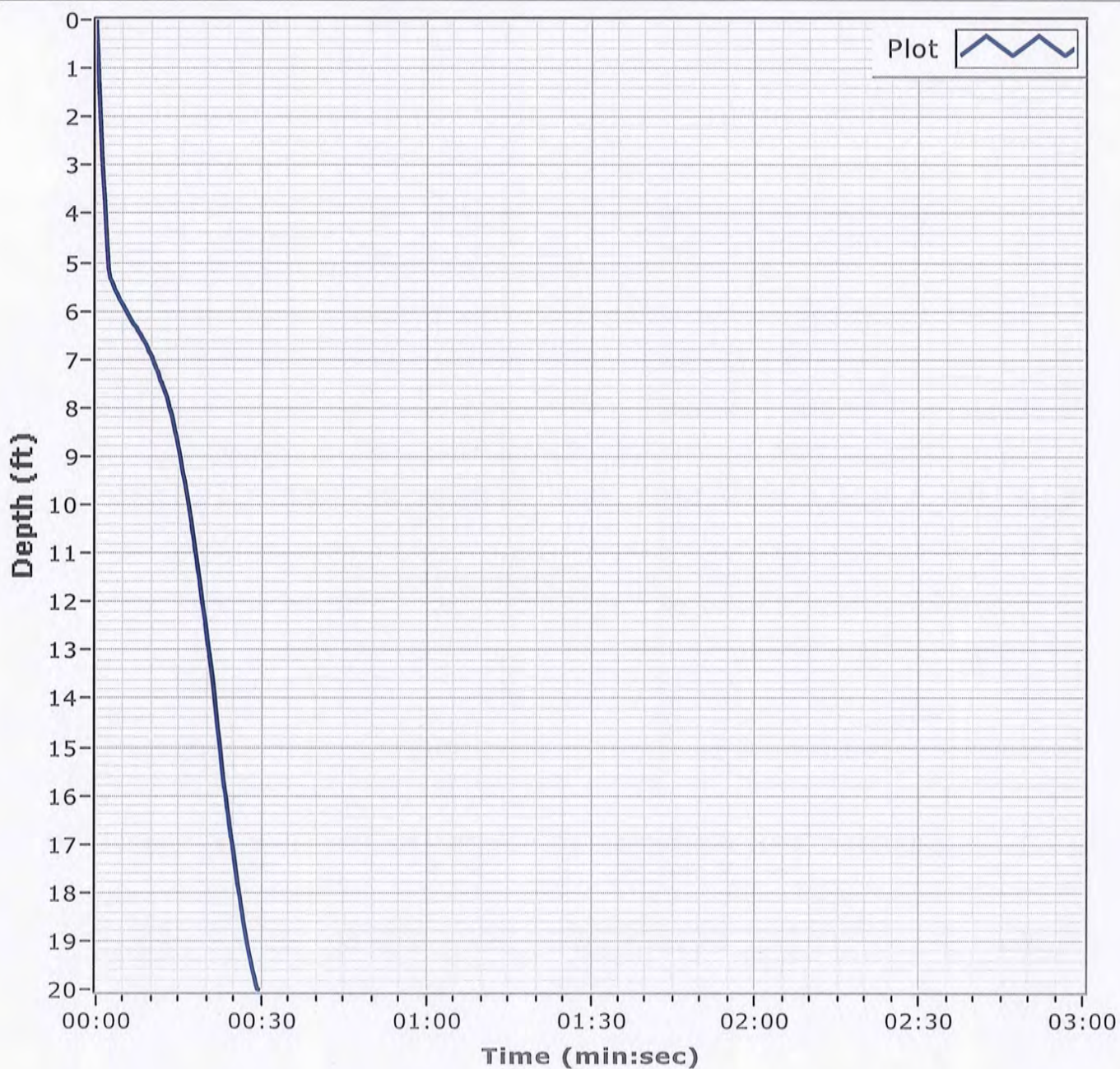
Latitude 30 11.139

Total Time 00:00:29

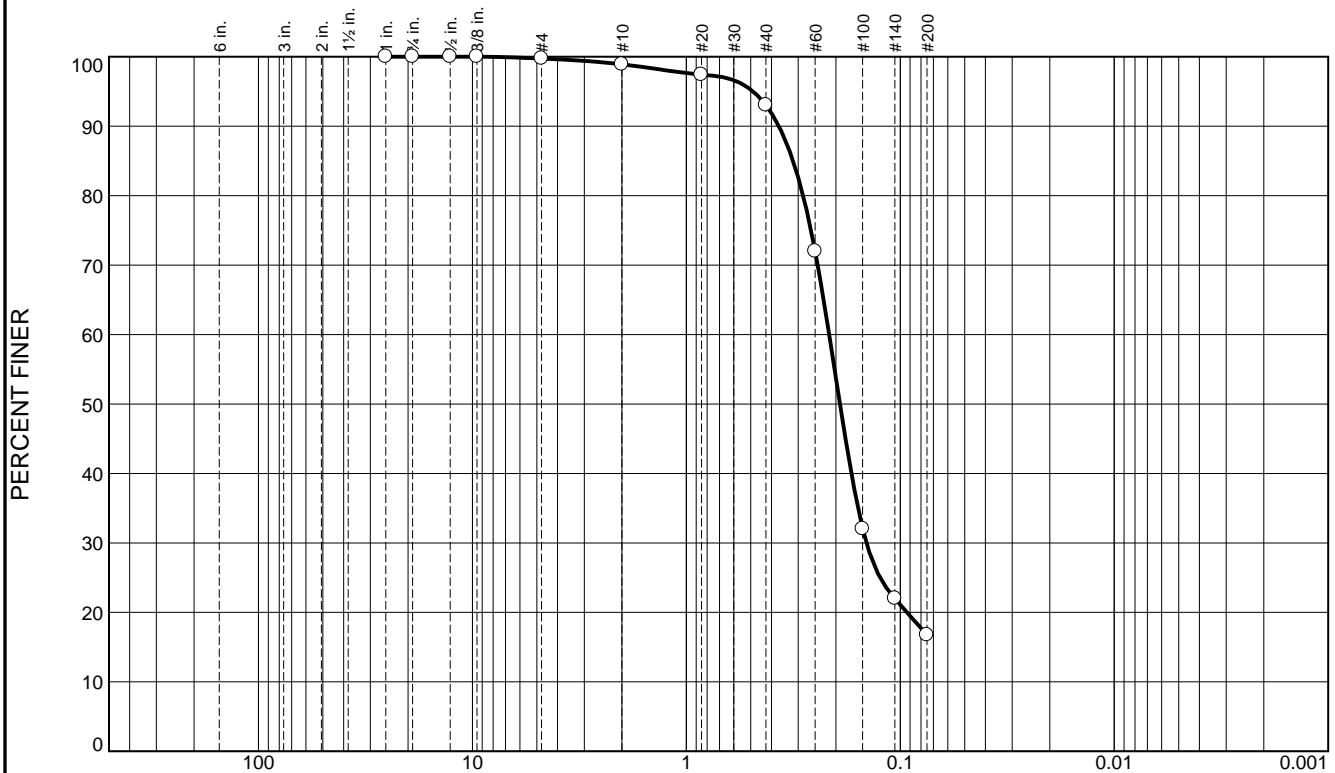
Recovery 15.5'

Longitude 088 32.225

### Comments



# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.3	0.8	5.9	76.2	16.8	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
1	100.0		
.75	100.0		
.5	100.0		
.375	100.0		
#4	99.7		
#10	98.9		
#20	97.4		
#40	93.0		
#60	72.0		
#100	32.0		
#140	22.0		
#200	16.8		

<u><b>Material Description</b></u>		
Fine grained, SILTY SAND		
<u><b>Atterberg Limits</b></u>		
PL=	LL=	PI=
<u><b>Coefficients</b></u>		
D <sub>90</sub> = 0.3694	D <sub>85</sub> = 0.3172	D <sub>60</sub> = 0.2150
D <sub>50</sub> = 0.1915	D <sub>30</sub> = 0.1440	D <sub>15</sub> =
D <sub>10</sub> =	C <sub>u</sub> =	C <sub>c</sub> =
<u><b>Classification</b></u>		
USCS= SM	AASHTO=	
<u><b>Remarks</b></u>		

\* (no specification provided)

Location: BI-PBC-19-12 A  
Sample Number: 6494 (22)

Depth: 0.0'

Date: 12/26/12

**Thompson Engineering**

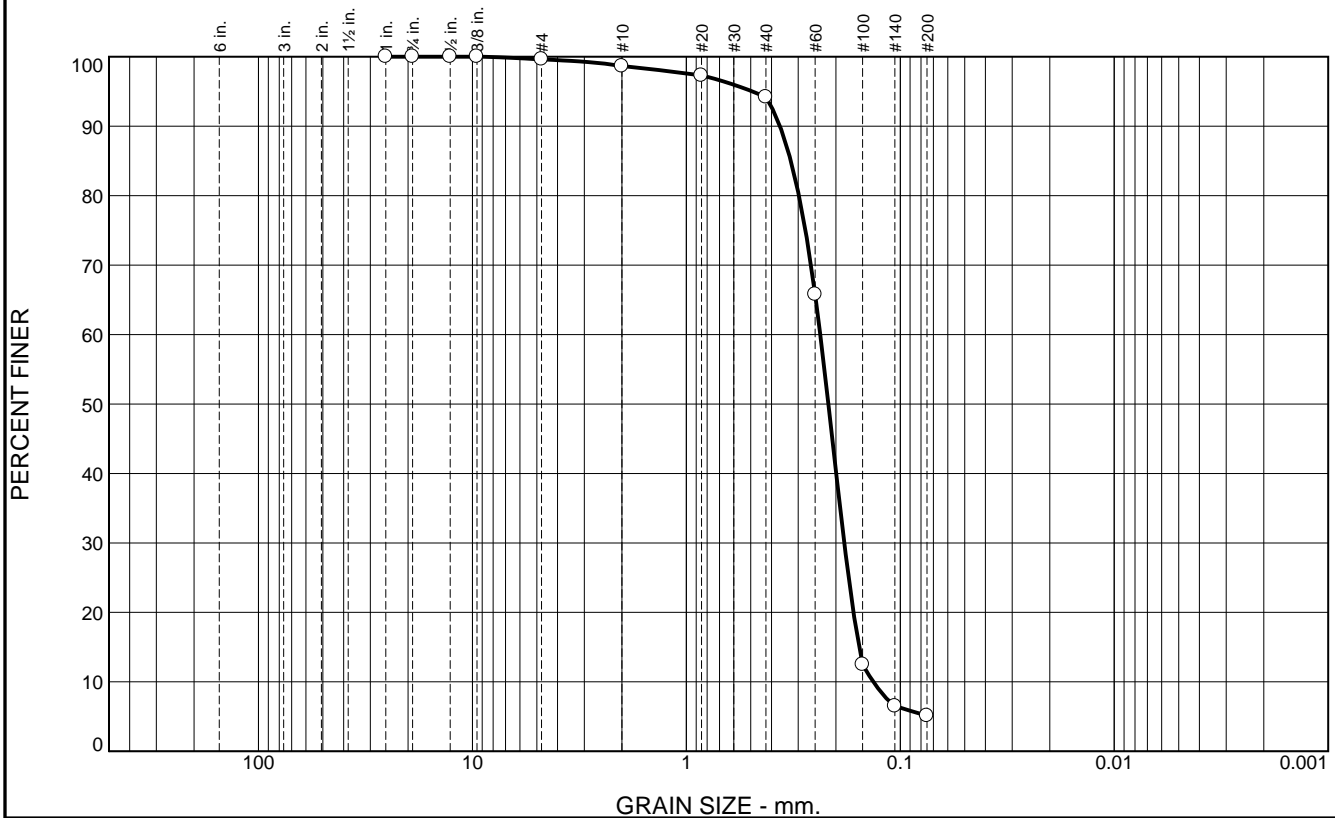
**Mobile, Alabama**

Client: CDM/Thompson Engineering JV  
Project: MsCIP Barrier Island Restoration GT

Project No: 1221110095

Figure

# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.4	1.0	4.4	89.1	5.1	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
1	100.0		
.75	100.0		
.5	100.0		
.375	100.0		
#4	99.6		
#10	98.6		
#20	97.3		
#40	94.2		
#60	65.8		
#100	12.5		
#140	6.5		
#200	5.1		

\* (no specification provided)

<b><u>Material Description</u></b>		
Fine grained, SLIGHTLY SILTY SAND		
<b><u>Atterberg Limits</u></b>		
PL=	LL=	PI=
<b><u>Coefficients</u></b>		
D <sub>90</sub> = 0.3650	D <sub>85</sub> = 0.3248	D <sub>60</sub> = 0.2366
D <sub>50</sub> = 0.2168	D <sub>30</sub> = 0.1828	D <sub>15</sub> = 0.1558
D <sub>10</sub> = 0.1337	C <sub>u</sub> = 1.77	C <sub>c</sub> = 1.06
<b><u>Classification</u></b>		
USCS= SP-SM	AASHTO=	
<b><u>Remarks</u></b>		

Location: BI-PBC-19-12 B  
Sample Number: 6494 (23)

Depth: 4.2'

Date: 12/26/12

**Thompson Engineering**

**Mobile, Alabama**

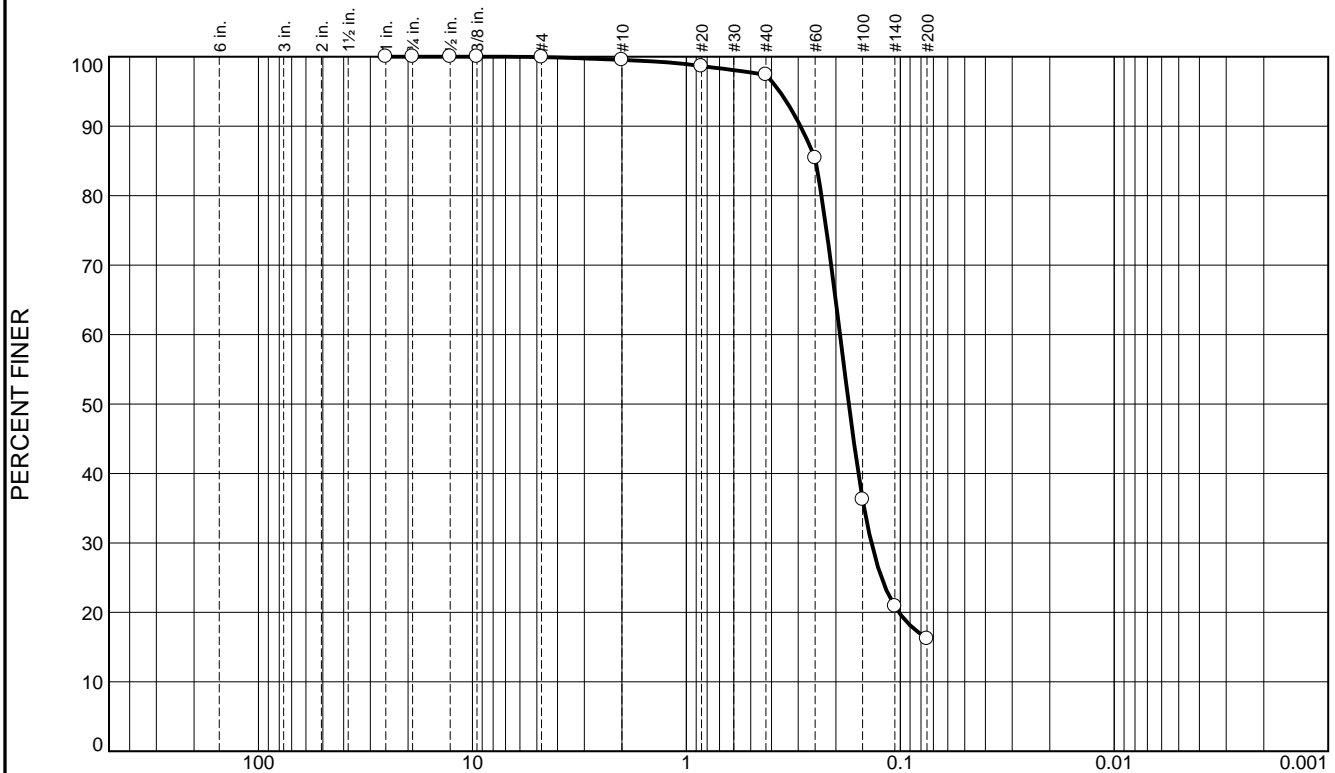
Client: CDM/Thompson Engineering JV  
Project: MsCIP Barrier Island Restoration GT

Project No: 1221110095

Figure



# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.1	0.4	2.1	81.2	16.2	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
1	100.0		
.75	100.0		
.5	100.0		
.375	100.0		
#4	99.9		
#10	99.5		
#20	98.6		
#40	97.4		
#60	85.4		
#100	36.2		
#140	20.9		
#200	16.2		

\* (no specification provided)

<u><b>Material Description</b></u>		
Fine grained, SILTY SAND		
PL=	<u><b>Atterberg Limits</b></u> LL=	PI=
<u><b>Coefficients</b></u>		
D <sub>90</sub> = 0.2931	D <sub>85</sub> = 0.2486	D <sub>60</sub> = 0.1914
D <sub>50</sub> = 0.1742	D <sub>30</sub> = 0.1365	D <sub>15</sub> =
D <sub>10</sub> =	C <sub>u</sub> =	C <sub>c</sub> =
<u><b>Classification</b></u>		
USCS= SM	AASHTO=	
<u><b>Remarks</b></u>		

Location: BI-PBC-19-12 C  
Sample Number: 6494 (24)

Depth: 6.0'

Date: 12/26/12

**Thompson Engineering**

**Mobile, Alabama**

Client: CDM/Thompson Engineering JV  
Project: MsCIP Barrier Island Restoration GT

Project No: 1221110095

Figure

# Boring Designation BI-PBC-20-12

DRILLING LOG		DIVISION South Atlantic		INSTALLATION Mobile District		SHEET 1 OF 1 SHEETS	
1. PROJECT MsCIP Barrier Island Restoration Pascagoula Bar Channel				9. SIZE AND TYPE OF BIT N/A			
2. BORING DESIGNATION BI-PBC-20-12		LOCATION COORDINATES E = 1,076,522 N = 247,979		10. COORDINATE SYSTEM/DATUM State Plane, MSE (U.S. Ft.)		HORIZONTAL NAD83	
3. DRILLING AGENCY Corps of Engineers - CESAM		CONTRACTOR FILE NO.		11. MANUFACTURER'S DESIGNATION OF DRILL Vibracore		<input type="checkbox"/> AUTO HAMMER <input type="checkbox"/> MANUAL HAMMER	
4. NAME OF DRILLER American Vibracore Systems, Inc.				12. TOTAL SAMPLES		DISTURBED 0	
5. DIRECTION OF BORING <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED				13. TOTAL NUMBER CORE BOXES		14. WATER DEPTH 40.8 Ft.	
6. THICKNESS OF OVERBURDEN N/A				15. DATE BORING		STARTED 12-15-12	
7. DEPTH DRILLED INTO ROCK N/A				16. ELEVATION TOP OF BORING -40.2 Ft.		COMPLETED 12-15-12	
8. TOTAL DEPTH OF BORING 14.7 Ft.				17. TOTAL RECOVERY FOR BORING 100%		18. SIGNATURE AND TITLE OF INSPECTOR Mark Green, Geotechnical Engineer	

ELEV.	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS	SAMPLE	LABORATORY RESULTS
-40.2	0.0				
-40.6	0.4			A	Classification: SP Color: 5Y 5/2-olive gray D50: 0.278 mm % Fines: 3
			SAND, poorly-graded, mostly fine to medium-grained sand-sized quartz, trace silt, trace shell fragments, gray (SP)		
			SAND, silty, mostly fine-grained sand-sized quartz, little shell fragments, trace clayey lenses, gray (SM)	B	Classification: SM Color: 5Y 5/2-olive gray D50: 0.1746 mm % Fines: 14.9
-46.2	6.0				
			SAND, clayey, mostly fine-grained sand-sized quartz, some clay, trace shell fragments, gray (SC)	NS	
-52.2	12.0				
			CLAY, fat, mostly clay, trace shell fragments, slight organic odor, gray and brown (CH)		
-54.9	14.7				
			NOTES: 1. Soils are field visually classified in accordance with the Unified Soils Classification System. 2. NS = Sample not submitted for laboratory analysis from this interval. 3. Seafloor elevation calculated using sampling vessel's fathometer water depth reading and applying NOAA tidal gauge data conversion factor.		

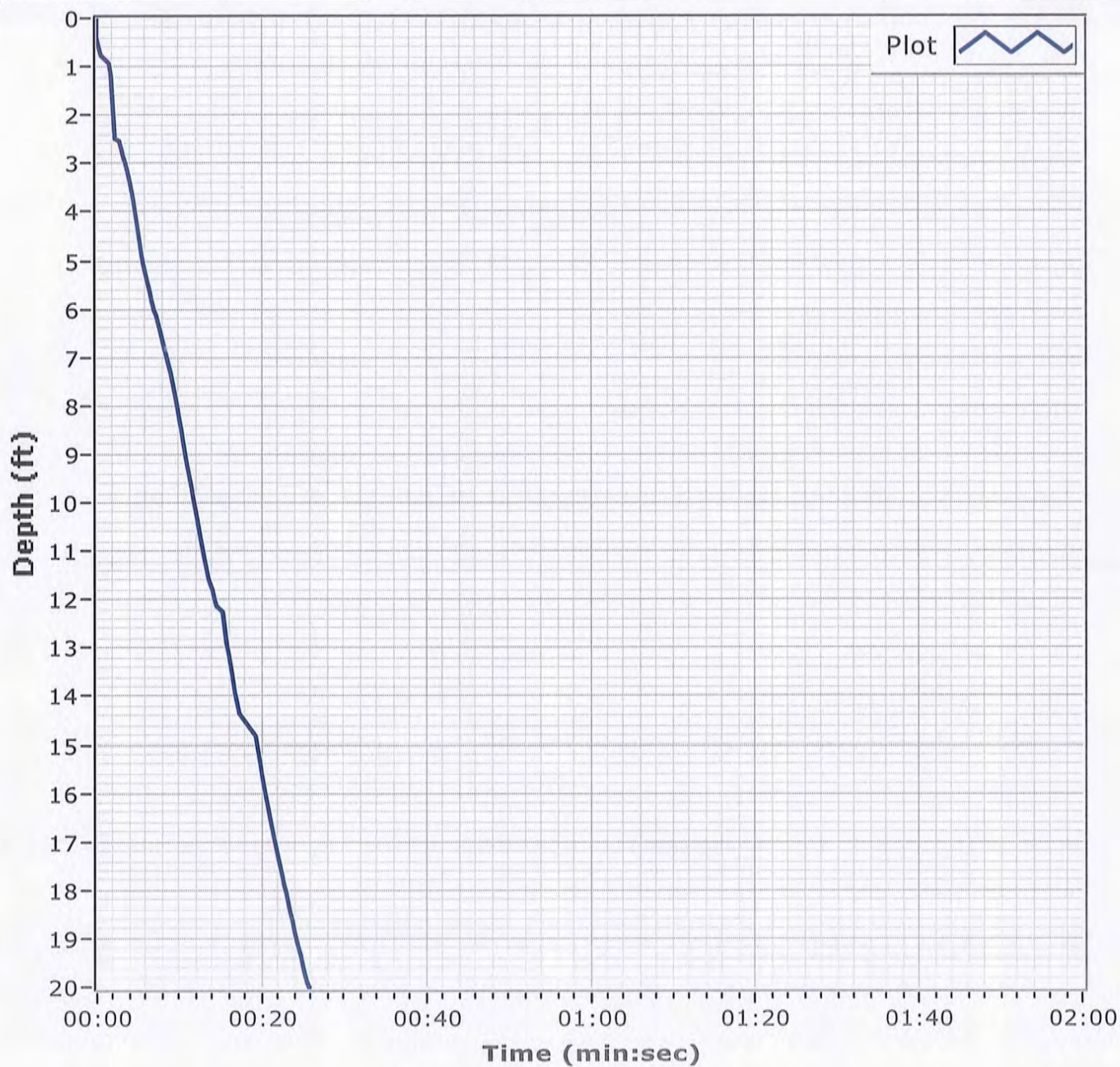
**Project**

Mississippi Barrier Island  
Restoration Project

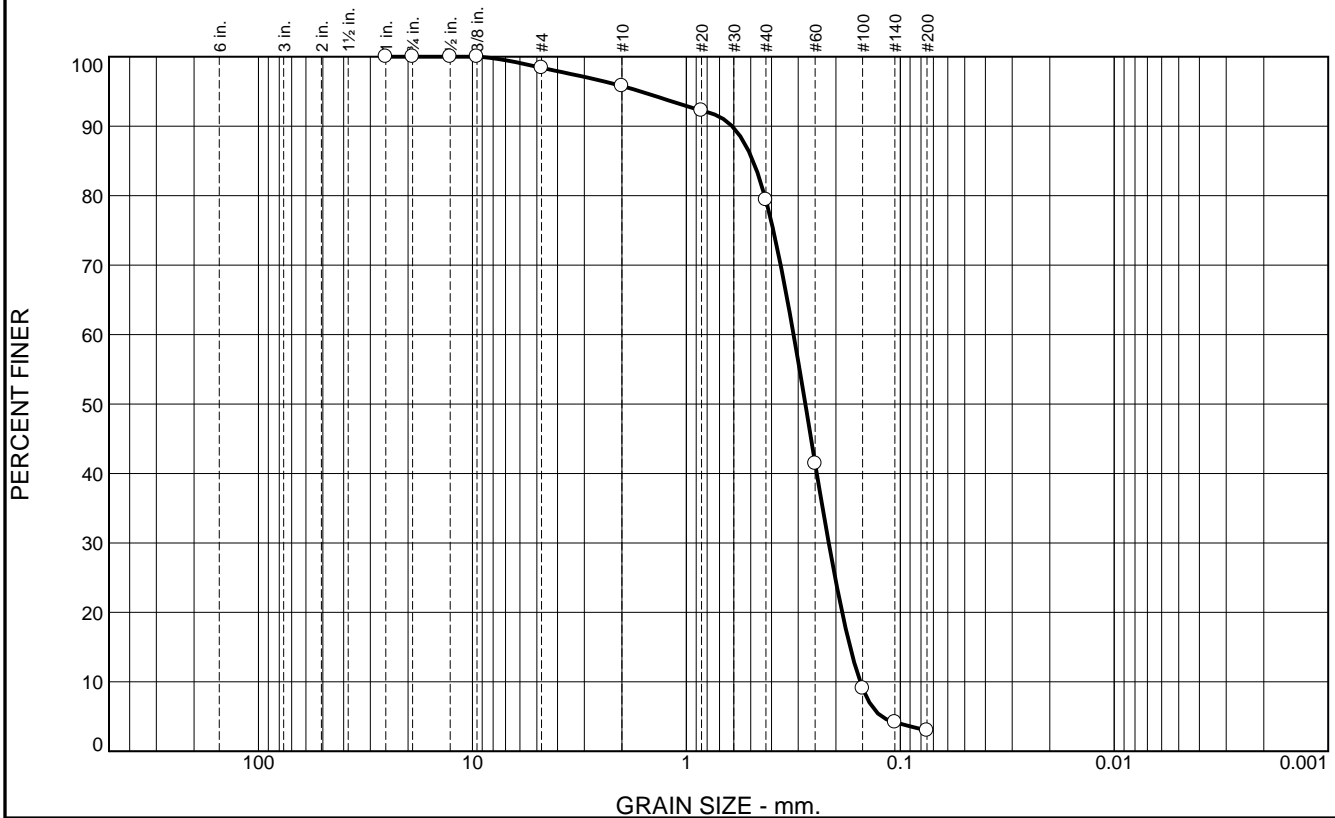
**AVS**  
**AMERICAN VIBRACORE**  
**S E R V I C E S**

**Core Identifier** BI-PBC-20-12**Date** 12/15/2012**Water Depth** 40.8'**Coordinate System**

Latitude / Longitude

**Start Time** 13:30:43**End Time** 13:31:09**Penetration** 20.0'**Latitude** 30 10.894**Total Time** 00:00:26**Recovery** 14.6'**Longitude** 088 32.478**Comments**

# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	1.6	2.6	16.4	76.4	3.0	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
1	100.0		
.75	100.0		
.5	100.0		
.375	100.0		
#4	98.4		
#10	95.8		
#20	92.3		
#40	79.4		
#60	41.4		
#100	9.1		
#140	4.2		
#200	3.0		

\* (no specification provided)

## Material Description

Fine to medium grained, SAND, with trace SHELL

## Atterberg Limits

PL= LL= PI=

## Coefficients

D<sub>90</sub>= 0.6110 D<sub>85</sub>= 0.4880 D<sub>60</sub>= 0.3155  
D<sub>50</sub>= 0.2780 D<sub>30</sub>= 0.2160 D<sub>15</sub>= 0.1717  
D<sub>10</sub>= 0.1540 C<sub>u</sub>= 2.05 C<sub>c</sub>= 0.96

## Classification

USCS= SP AASHTO=

## Remarks

Location: BI-PBC-20-12 A  
Sample Number: 6494 (25)

Depth: 0.0'

Date: 12/26/12

**Thompson Engineering**

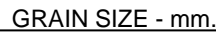
**Mobile, Alabama**

Client: CDM/Thompson Engineering JV  
Project: MsCIP Barrier Island Restoration GT

Project No: 1221110095

Figure

**PERCENT FINER**

1-227

# Boring Designation BI-PBC-21-12

DRILLING LOG		DIVISION South Atlantic		INSTALLATION Mobile District		SHEET 1 OF 1 SHEETS	
1. PROJECT MsCIP Barrier Island Restoration Pascagoula Bar Channel				9. SIZE AND TYPE OF BIT N/A			
2. BORING DESIGNATION BI-PBC-21-12		LOCATION COORDINATES E = 1,074,385 N = 245,522		10. COORDINATE SYSTEM/DATUM State Plane, MSE (U.S. Ft.)		HORIZONTAL NAD83 VERTICAL NAVD88	
3. DRILLING AGENCY Corps of Engineers - CESAM		CONTRACTOR FILE NO.		11. MANUFACTURER'S DESIGNATION OF DRILL Vibracore		<input type="checkbox"/> AUTO HAMMER <input type="checkbox"/> MANUAL HAMMER	
4. NAME OF DRILLER American Vibracore Systems, Inc.				12. TOTAL SAMPLES		DISTURBED UNDISTURBED (UD) 0	
5. DIRECTION OF BORING <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED		DEG. FROM VERTICAL		BEARING		13. TOTAL NUMBER CORE BOXES	
6. THICKNESS OF OVERBURDEN N/A		7. DEPTH DRILLED INTO ROCK N/A		8. TOTAL DEPTH OF BORING 15.0 Ft.		14. WATER DEPTH 40.6 Ft.	
						15. DATE BORING STARTED 12-15-12 COMPLETED 12-15-12	
						16. ELEVATION TOP OF BORING -40.4 Ft.	
						17. TOTAL RECOVERY FOR BORING 100%	
						18. SIGNATURE AND TITLE OF INSPECTOR Mark Green, Geotechnical Engineer	

ELEV.	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS	SAMPLE	LABORATORY RESULTS
-40.4	0.0				
			SAND, silty, mostly fine-grained sand-sized quartz, some silt, some shell fragments, trace clay lenses, gray (SM)	A	Classification: SM Color: 5Y 5/2-olive gray D50: 0.1844 mm % Fines: 14.9
				B	Classification: SM Color: 5Y 5/2-olive gray D50: 0.162 mm % Fines: 15.5
-52.4	12.0				
-53.9	13.5		SAND, clayey, mostly fine-grained sand-sized quartz, some clay, trace shell fragments, gray (SC)	NS	
-55.4	15.0		CLAY, fat, mostly clay, trace fine-grained sand-sized quartz, trace shell fragments, gray (CH)		
NOTES: 1. Soils are field visually classified in accordance with the Unified Soils Classification System. 2. NS = Sample not submitted for laboratory analysis from this interval. 3. Seafloor elevation calculated using sampling vessel's fathometer water depth reading and applying NOAA tidal gauge data conversion factor.					



**Project**

Mississippi Barrier Island  
Restoration Project



**Core Identifier** BI-PBC-21-12

**Date** 12/15/2012

**Water Depth** 40.6'

**Coordinate System**

Latitude / Longitude

**Start Time** 11:30:38

**End Time** 11:31:02

**Penetration** 20.0'

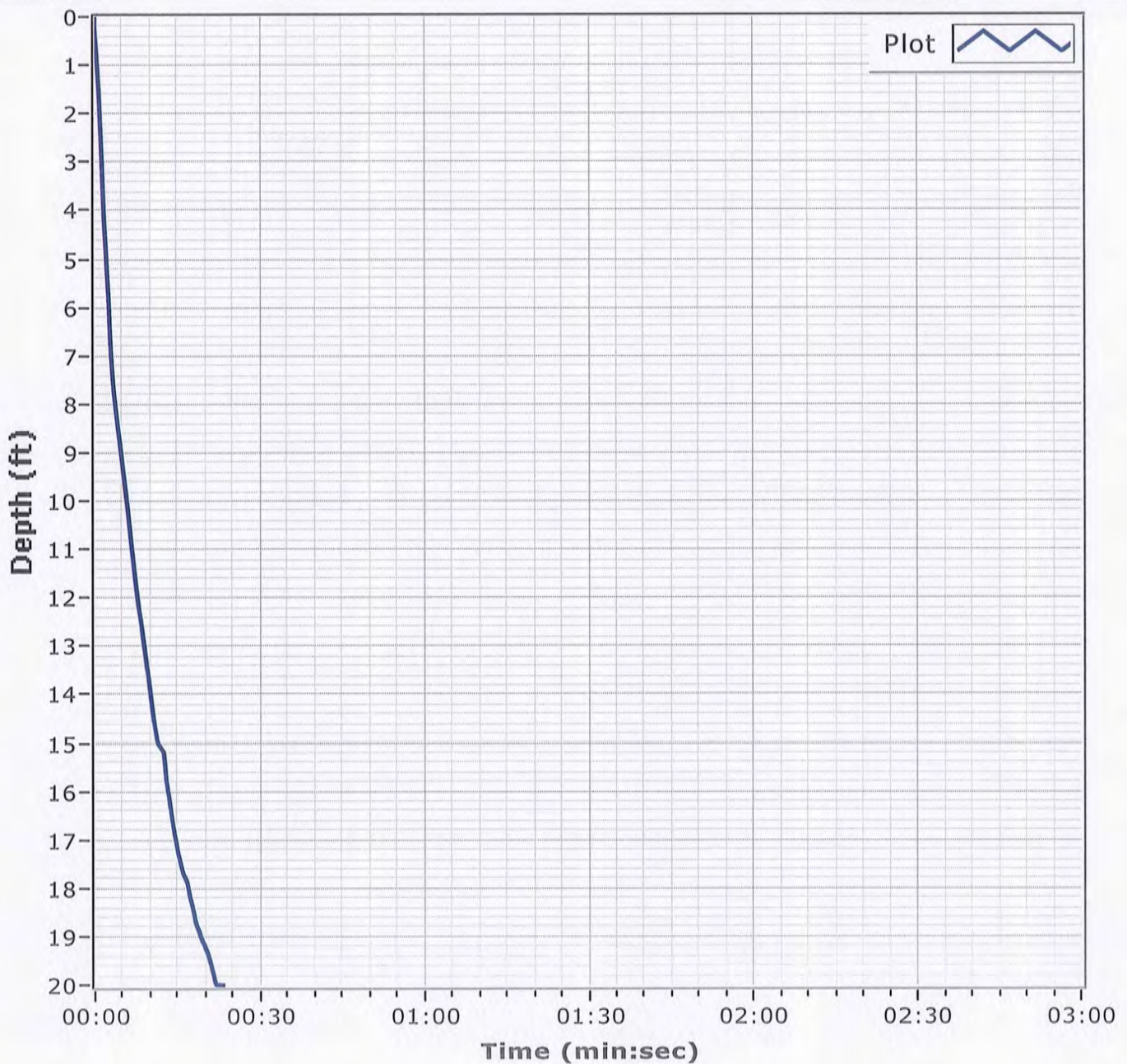
**Latitude** 30 10.490

**Total Time** 00:00:23

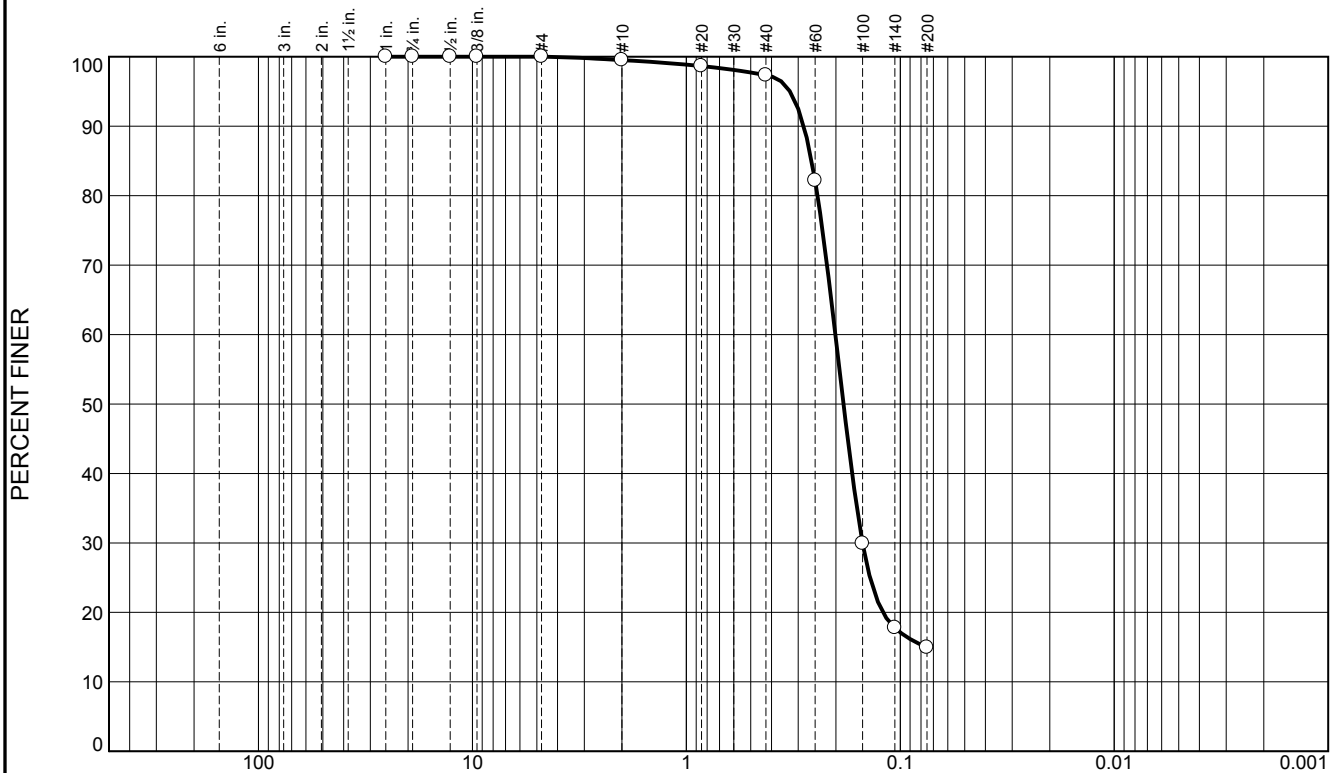
**Recovery** 15.0

**Longitude** 088 32.885

**Comments**



# Particle Size Distribution Report



GRAIN SIZE - mm.

% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.0	0.5	2.2	82.4	14.9	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
1	100.0		
.75	100.0		
.5	100.0		
.375	100.0		
#4	100.0		
#10	99.5		
#20	98.7		
#40	97.3		
#60	82.2		
#100	29.9		
#140	17.8		
#200	14.9		

\* (no specification provided)

## Material Description

Fine grained, SILTY SAND

## Atterberg Limits

PL= LL= PI=

## Coefficients

D<sub>90</sub>= 0.2829 D<sub>85</sub>= 0.2597 D<sub>60</sub>= 0.2012  
D<sub>50</sub>= 0.1844 D<sub>30</sub>= 0.1502 D<sub>15</sub>= 0.0757  
D<sub>10</sub>= C<sub>u</sub>= C<sub>c</sub>=

## Classification

USCS= SM AASHTO=

## Remarks

Location: BI-PBC-21-12 A  
Sample Number: 6494 (27)

Depth: 0.0'

Date: 12/26/12

**Thompson Engineering**

**Mobile, Alabama**

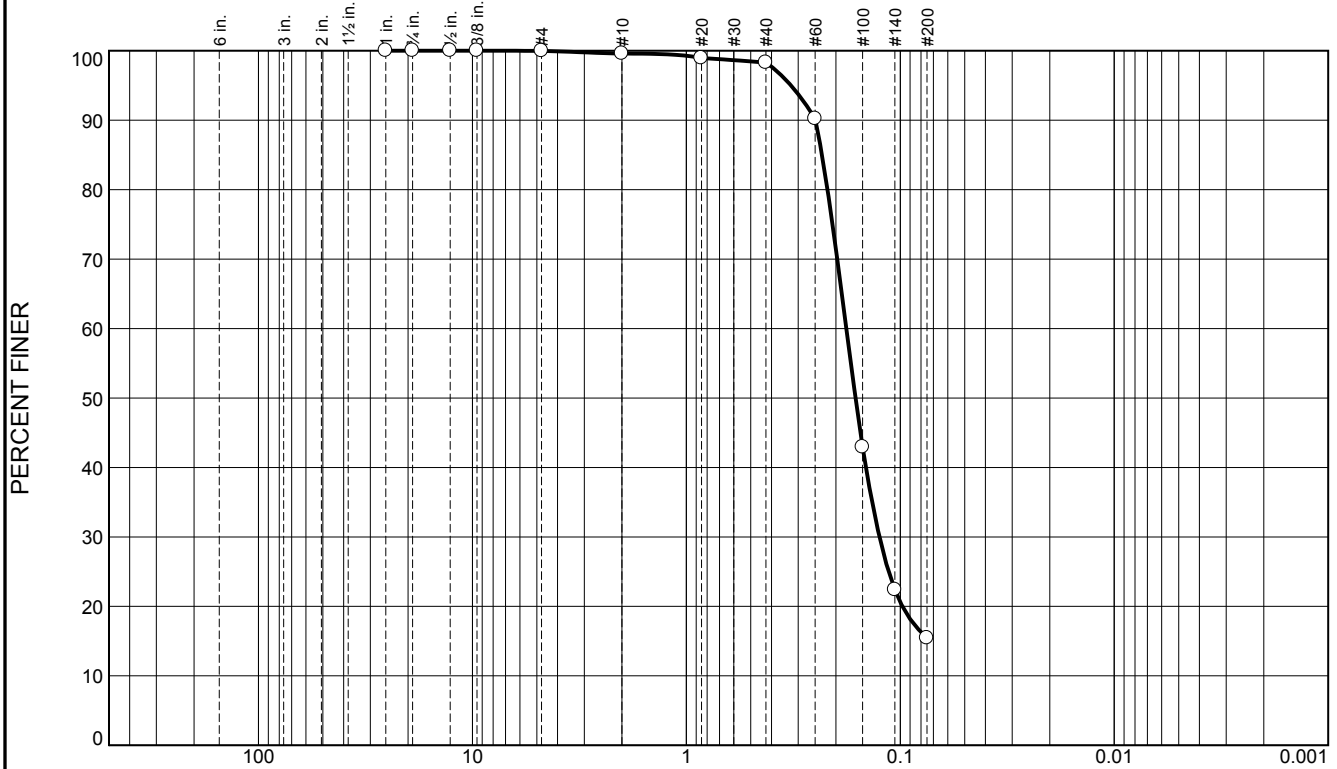
Client: CDM/Thompson Engineering JV  
Project: MsCIP Barrier Island Restoration GT

Project No: 1221110095

Figure



# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.0	0.4	1.3	82.8	15.5	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
1	100.0		
.75	100.0		
.5	100.0		
.375	100.0		
#4	100.0		
#10	99.6		
#20	99.0		
#40	98.3		
#60	90.2		
#100	42.9		
#140	22.4		
#200	15.5		

\* (no specification provided)

Material Description		
Fine grained, SILTY SAND		
<div> <div> Atterberg Limits </div> <div> PL= </div> <div> LL= </div> <div> PI= </div> </div>		
<div> <div> Coefficients </div> <div> D<sub>90</sub>= 0.2492 </div> <div> D<sub>50</sub>= 0.1620 </div> <div> D<sub>10</sub>= </div> <div> D<sub>85</sub>= 0.2322 </div> <div> D<sub>30</sub>= 0.1252 </div> <div> C<sub>u</sub>= </div> <div> D<sub>60</sub>= 0.1789 </div> <div> D<sub>15</sub>= </div> <div> C<sub>c</sub>= </div> </div>		
<div> <div> Classification </div> <div> USCS= SM </div> <div> AASHTO= </div> </div>		
<div> <div> Remarks </div> </div>		

Location: BI-PBC-21-12 B  
Sample Number: 6494 (28)

Depth: 5.0'

Date: 12/26/12

Thompson Engineering

Mobile, Alabama

Client: CDM/Thompson Engineering JV  
Project: MsCIP Barrier Island Restoration GT

Project No: 1221110095

Figure

# Boring Designation BI-PBC-22-12

DRILLING LOG		DIVISION South Atlantic		INSTALLATION Mobile District		SHEET 1 OF 1 SHEETS	
1. PROJECT MsCIP Barrier Island Restoration Pascagoula Bar Channel				9. SIZE AND TYPE OF BIT N/A			
2. BORING DESIGNATION BI-PBC-22-12		LOCATION COORDINATES E = 1,072,416 N = 243,379		10. COORDINATE SYSTEM/DATUM State Plane, MSE (U.S. Ft.)		HORIZONTAL NAD83	
3. DRILLING AGENCY Corps of Engineers - CESAM		CONTRACTOR FILE NO.		11. MANUFACTURER'S DESIGNATION OF DRILL Vibracore		<input type="checkbox"/> AUTO HAMMER <input type="checkbox"/> MANUAL HAMMER	
4. NAME OF DRILLER American Vibracore Systems, Inc.				12. TOTAL SAMPLES		DISTURBED 0	
5. DIRECTION OF BORING <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED				13. TOTAL NUMBER CORE BOXES		14. WATER DEPTH 41.7 Ft.	
6. THICKNESS OF OVERBURDEN N/A				15. DATE BORING		STARTED 12-15-12	
7. DEPTH DRILLED INTO ROCK N/A				16. ELEVATION TOP OF BORING -41.7 Ft.		COMPLETED 12-15-12	
8. TOTAL DEPTH OF BORING 14.4 Ft.				17. TOTAL RECOVERY FOR BORING 100%		18. SIGNATURE AND TITLE OF INSPECTOR Mark Green, Geotechnical Engineer	
ELEV.	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS	SAMPLE	LABORATORY RESULTS		
-41.7	0.0						
			SAND, silty, mostly fine-grained sand-sized quartz, some silt, little shell fragments, greenish gray (SM)	A	Classification: SM Color: 5Y 5/2-olive gray D50: 0.1715 mm % Fines: 13.2		
-45.2	3.5			NS			
-45.7	4.0		SAND, clayey, mostly fine-grained sand-sized quartz, some clay, greenish gray (SC)				
			SAND, silty, mostly fine-grained sand-sized quartz, some silt, greenish gray (SM)	B	Classification: SM Color: 5Y 5/2-olive gray D50: 0.1556 mm % Fines: 15.5		
-50.7	9.0						
			SILT, inorganic-L, mostly silt, some fine-grained sand-sized quartz, trace shell fragments, greenish gray (ML)	NS			
-54.7	13.0						
-56.1	14.4		SAND, clayey, mostly fine-grained sand-sized quartz, some clay, trace shell fragments, trace fat clay lenses, gray (SC)				
NOTES: 1. Soils are field visually classified in accordance with the Unified Soils Classification System. 2. NS = Sample not submitted for laboratory analysis from this interval. 3. Seafloor elevation calculated using sampling vessel's fathometer water depth reading and applying NOAA tidal gauge data conversion factor.							

**Project**

Mississippi Barrier Island  
Restoration Project

**AVS**  
**AMERICAN VIBRACORE**  
**S E R V I C E S**

**Core Identifier** BI-PBC-22-12

**Date** 12/15/2012

**Water Depth** 41.7'

**Coordinate System**

Latitude / Longitude

**Start Time** 09:30:44

**End Time** 09:31:05

**Penetration** 20.0'

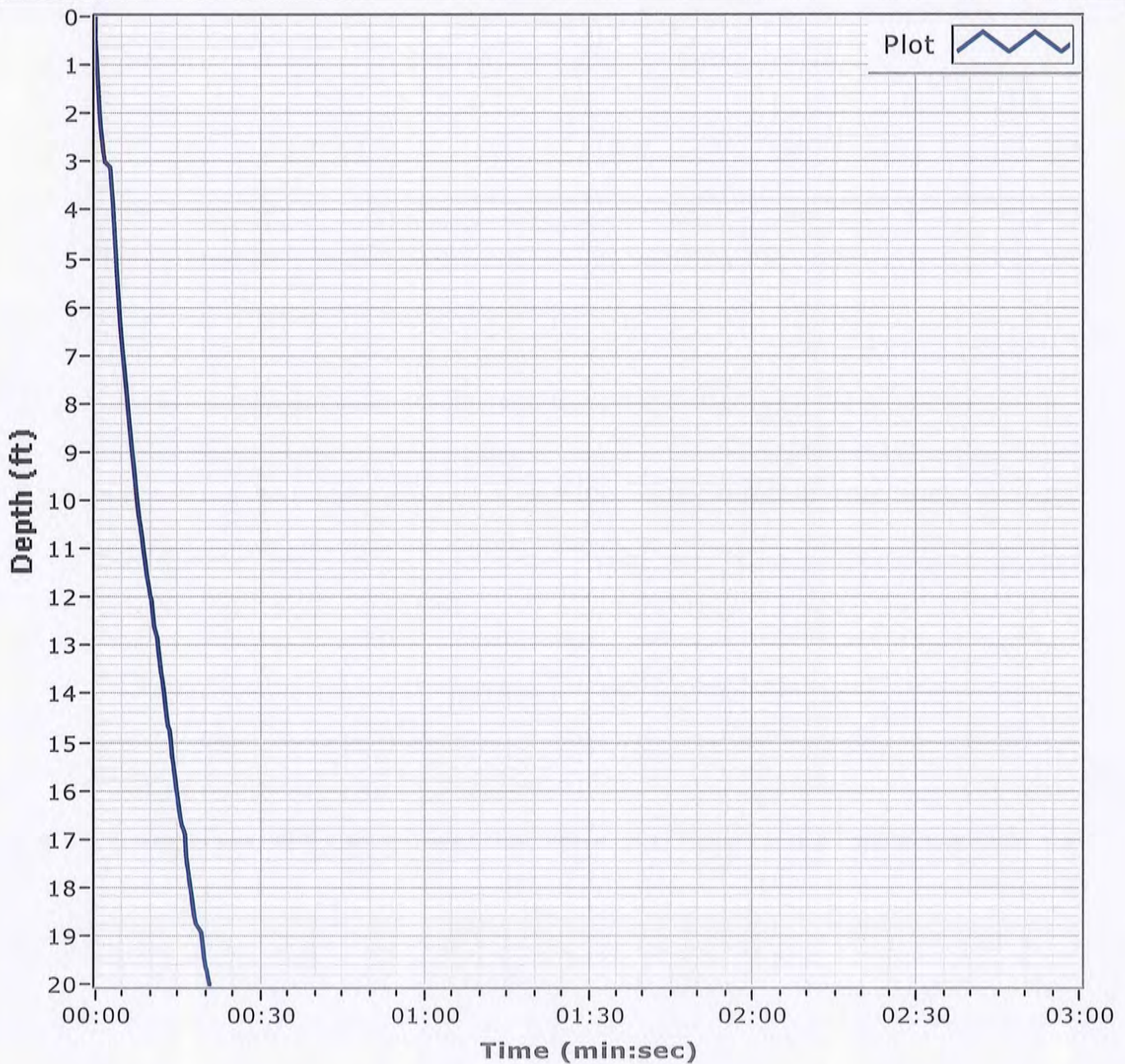
**Latitude** 30 10.137

**Total Time** 00:00:21

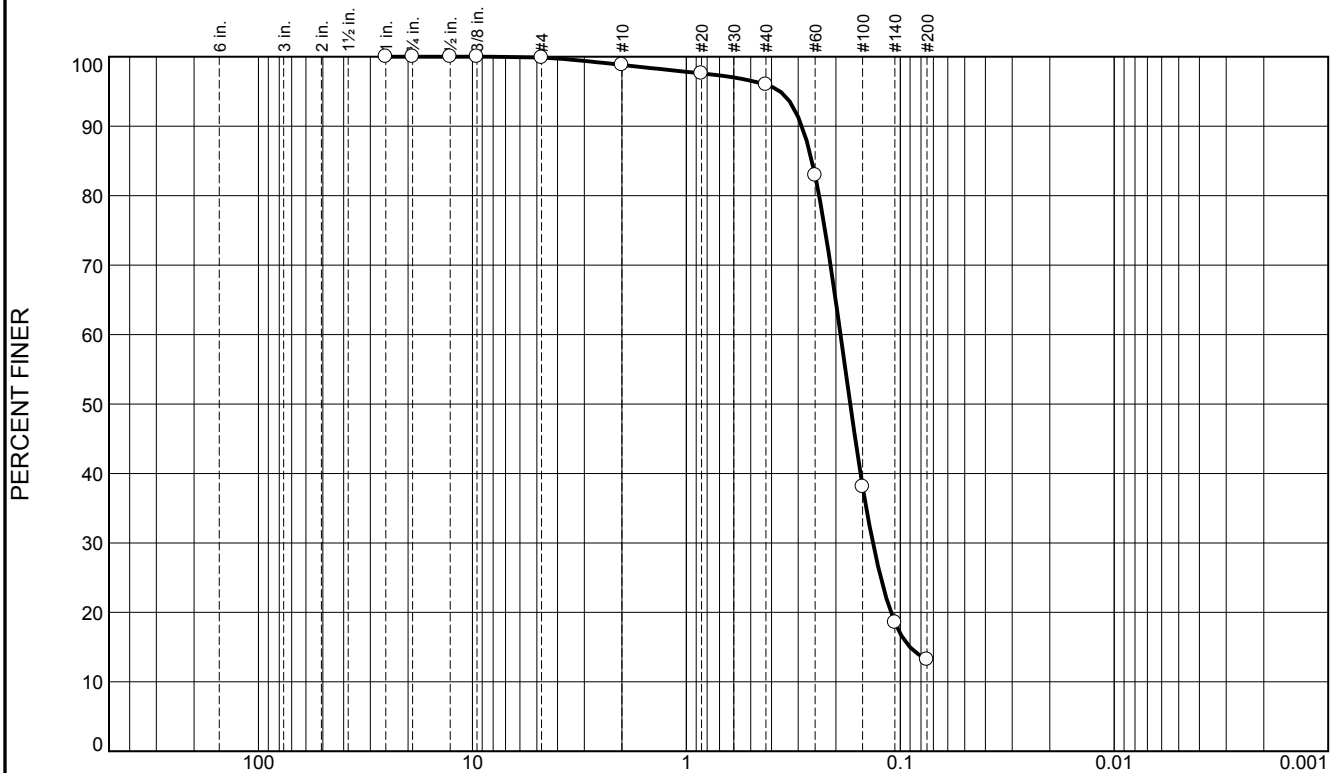
**Recovery** 14.4'

**Longitude** 088 33.260

**Comments**



# Particle Size Distribution Report



GRAIN SIZE - mm.

% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.1	1.1	2.8	82.8	13.2	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
1	100.0		
.75	100.0		
.5	100.0		
.375	100.0		
#4	99.9		
#10	98.8		
#20	97.6		
#40	96.0		
#60	82.9		
#100	38.1		
#140	18.6		
#200	13.2		

\* (no specification provided)

## Material Description

Fine grained, SILTY SAND

## Atterberg Limits

PL=

LL=

PI=

## Coefficients

D<sub>90</sub>= 0.2886

D<sub>85</sub>= 0.2588

D<sub>60</sub>= 0.1904

D<sub>50</sub>= 0.1715

D<sub>30</sub>= 0.1343

D<sub>15</sub>= 0.0902

D<sub>10</sub>=

C<sub>u</sub>=

C<sub>c</sub>=

## Classification

USCS= SM

AASHTO=

## Remarks

Location: BI-PBC-22-12 A  
Sample Number: 6494 (29)

Depth: 0.0'

Date: 12/26/12

**Thompson Engineering**

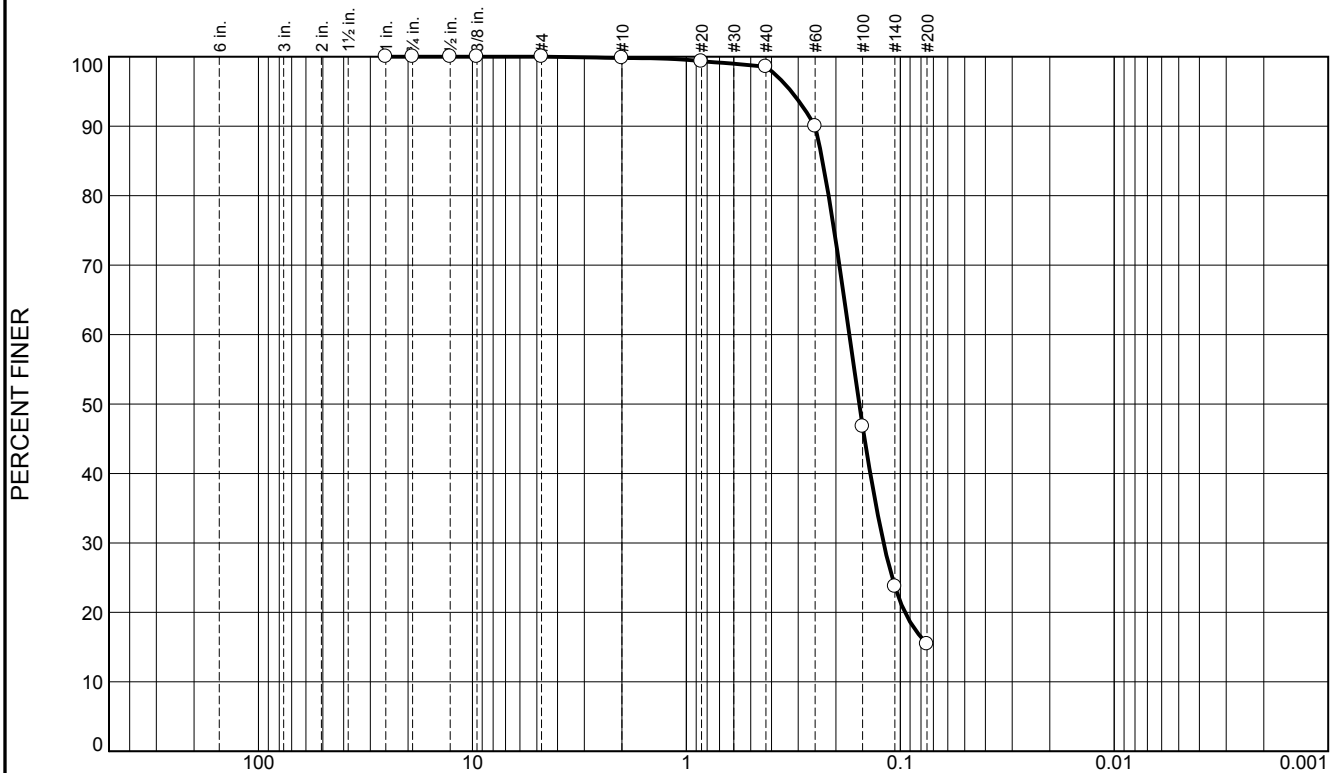
**Mobile, Alabama**

Client: CDM/Thompson Engineering JV  
Project: MsCIP Barrier Island Restoration GT

Project No: 1221110095

Figure

# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.0	0.2	1.2	83.1	15.5	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
1	100.0		
.75	100.0		
.5	100.0		
.375	100.0		
#4	100.0		
#10	99.8		
#20	99.3		
#40	98.6		
#60	90.0		
#100	46.8		
#140	23.7		
#200	15.5		

<u><b>Material Description</b></u>		
Fine grained, SILTY SAND		
<u><b>Atterberg Limits</b></u>		
PL=	LL=	PI=
<u><b>Coefficients</b></u>		
D <sub>90</sub> = 0.2501	D <sub>85</sub> = 0.2309	D <sub>60</sub> = 0.1732
D <sub>50</sub> = 0.1556	D <sub>30</sub> = 0.1197	D <sub>15</sub> =
D <sub>10</sub> =	C <sub>u</sub> =	C <sub>c</sub> =
<u><b>Classification</b></u>		
USCS= SM	AASHTO=	
<u><b>Remarks</b></u>		

\* (no specification provided)

Location: BI-PBC-22-12 B  
Sample Number: 6494 (30)

Depth: 4.0'

Date: 12/26/12

**Thompson Engineering**

**Mobile, Alabama**

Client: CDM/Thompson Engineering JV  
Project: MsCIP Barrier Island Restoration GT

Project No: 1221110095

Figure

# Boring Designation BI-PBC-23-12

DRILLING LOG		DIVISION South Atlantic		INSTALLATION Mobile District		SHEET 1 OF 1 SHEETS	
1. PROJECT MsCIP Barrier Island Restoration Pascagoula Bar Channel				9. SIZE AND TYPE OF BIT N/A			
2. BORING DESIGNATION BI-PBC-23-12		LOCATION COORDINATES E = 1,073,116 N = 241,417		10. COORDINATE SYSTEM/DATUM State Plane, MSE (U.S. Ft.)		HORIZONTAL NAD83	
3. DRILLING AGENCY Corps of Engineers - CESAM		CONTRACTOR FILE NO.		11. MANUFACTURER'S DESIGNATION OF DRILL Vibracore		<input type="checkbox"/> AUTO HAMMER <input type="checkbox"/> MANUAL HAMMER	
4. NAME OF DRILLER American Vibracore Systems, Inc.				12. TOTAL SAMPLES			
5. DIRECTION OF BORING <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED				DEG. FROM VERTICAL		BEARING	
6. THICKNESS OF OVERBURDEN N/A				13. TOTAL NUMBER CORE BOXES			
7. DEPTH DRILLED INTO ROCK N/A				14. WATER DEPTH 42 Ft.			
8. TOTAL DEPTH OF BORING 16.4 Ft.				15. DATE BORING			
				STARTED		COMPLETED	
				12-15-12		12-15-12	
				16. ELEVATION TOP OF BORING -42.0 Ft.			
				17. TOTAL RECOVERY FOR BORING 100%			
				18. SIGNATURE AND TITLE OF INSPECTOR Mark Green, Geotechnical Engineer			
ELEV.	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS	SAMPLE	LABORATORY RESULTS		
-42.0	0.0						
			SAND, silty, mostly fine-grained sand-sized quartz, some silt, little shell fragments, trace clay, lt. to dark green-gray (SM)	A	Classification: SM Color: 5Y 5/2-olive gray D50: 0.1679 mm % Fines: 15		
				B	Classification: SM Color: 5Y 5/2-olive gray D50: 0.1626 mm % Fines: 13.9		
-52.0	10.0						
			SAND, clayey, mostly fine-grained sand-sized quartz, some clay, little shell fragments, lt. to dark greenish gray (SC)	NS			
-58.4	16.4						
			NOTES: 1. Soils are field visually classified in accordance with the Unified Soils Classification System. 2. NS = Sample not submitted for laboratory analysis from this interval. 3. Seafloor elevation calculated using sampling vessel's fathometer water depth reading and applying NOAA tidal gauge data conversion factor.				



## Project

Mississippi Barrier Island  
Restoration Project

**AVS**  
AMERICAN VIBRACORE  
S E R V I C E S

Core Identifier BI-PBC-23-12

Date 12/15/2012

Water Depth 42.0'

Coordinate System

Start Time 08:24:14

Latitude / Longitude

End Time 08:25:58

Penetration 20.0'

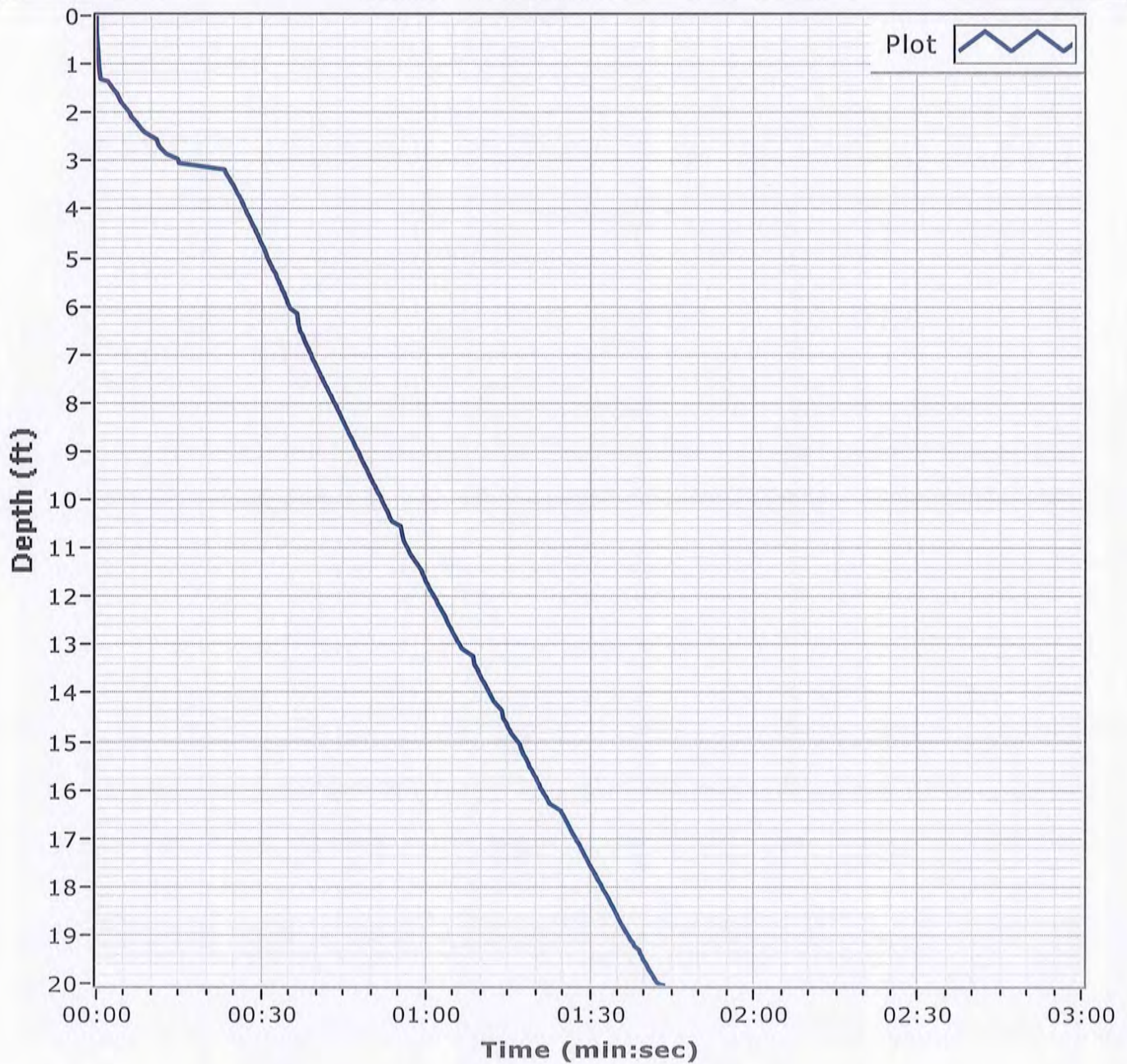
Latitude 30 09.813

Total Time 00:01:43

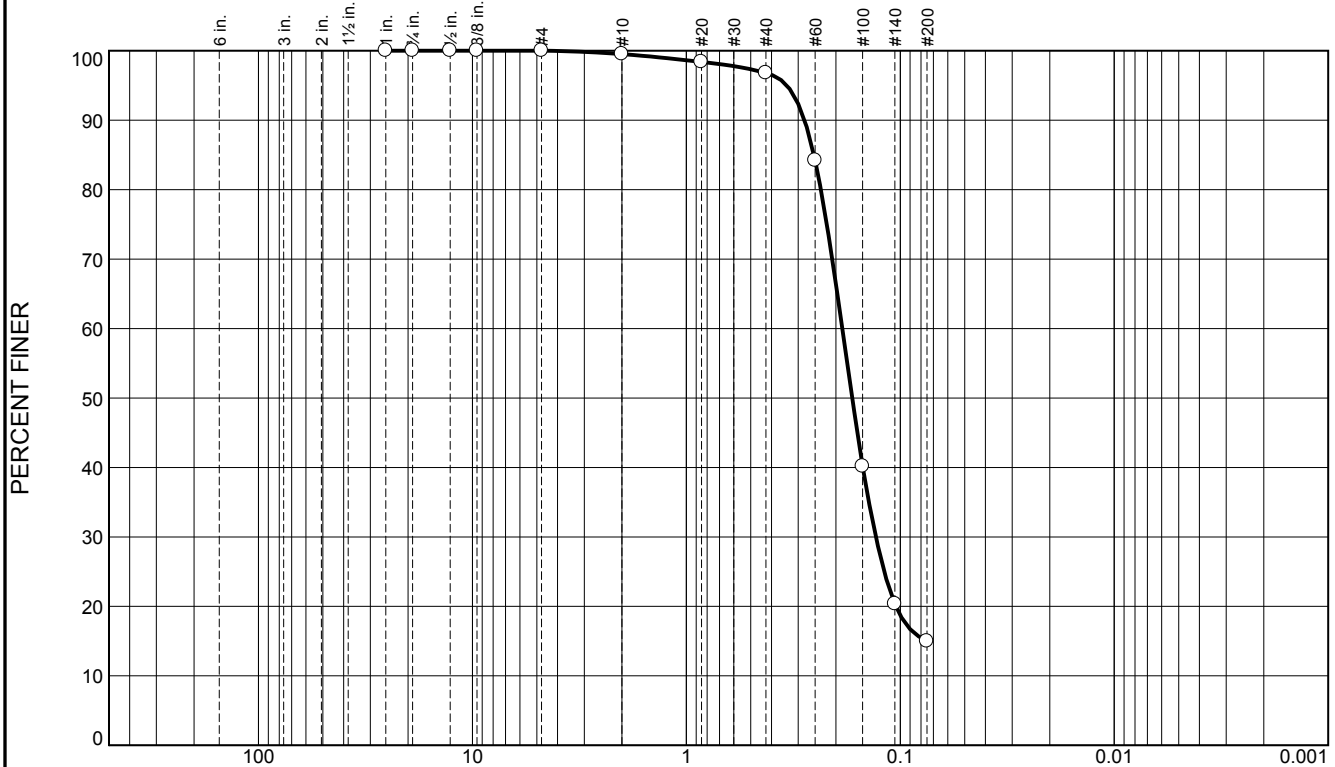
Recovery 16.3'

Longitude 088 33.128

Comments



# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.0	0.5	2.7	81.8	15.0	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
1	100.0		
.75	100.0		
.5	100.0		
.375	100.0		
#4	100.0		
#10	99.5		
#20	98.4		
#40	96.8		
#60	84.2		
#100	40.2		
#140	20.4		
#200	15.0		

\* (no specification provided)

Material Description		
Fine grained, SILTY SAND		
<div> <div> Atterberg Limits </div> <div> PL= </div> <div> LL= </div> <div> PI= </div> </div>		
<div> <div> Coefficients </div> <div> D<sub>90</sub>= 0.2805 </div> <div> D<sub>50</sub>= 0.1679 </div> <div> D<sub>10</sub>= </div> <div> D<sub>85</sub>= 0.2533 </div> <div> D<sub>30</sub>= 0.1301 </div> <div> C<sub>u</sub>= </div> <div> D<sub>60</sub>= 0.1867 </div> <div> D<sub>15</sub>= 0.0751 </div> <div> C<sub>c</sub>= </div> </div>		
<div> <div> Classification </div> <div> USCS= SM </div> <div> AASHTO= </div> </div>		
<div> <div> Remarks </div> </div>		

Location: BI-PBC-23-12 A  
Sample Number: 6494 (31)

Depth: 0.0'

Date: 12/26/12

Thompson Engineering

Mobile, Alabama

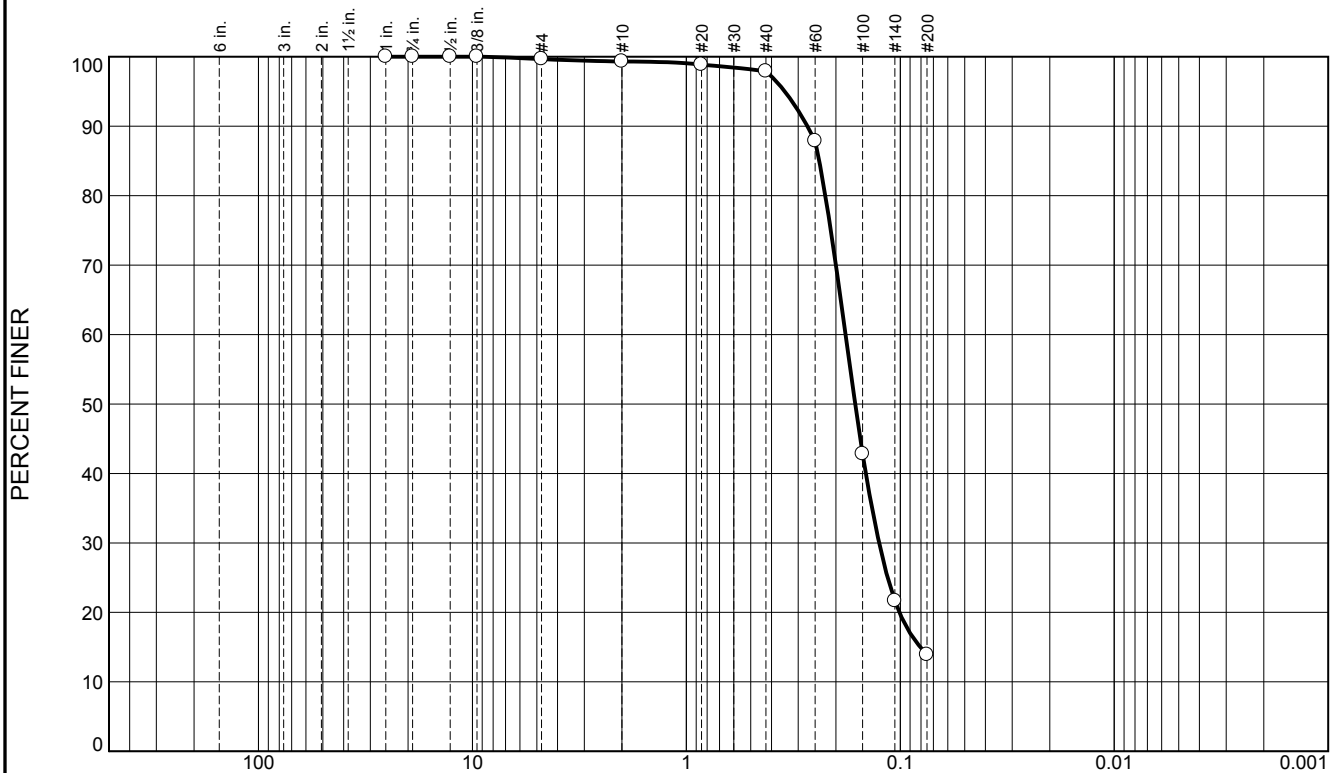
Client: CDM/Thompson Engineering JV  
Project: MsCIP Barrier Island Restoration GT

Project No: 1221110095

Figure



# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.3	0.4	1.4	84.0	13.9	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
1	100.0		
.75	100.0		
.5	100.0		
.375	100.0		
#4	99.7		
#10	99.3		
#20	98.8		
#40	97.9		
#60	87.9		
#100	42.8		
#140	21.7		
#200	13.9		

\* (no specification provided)

Material Description		
Fine grained, SILTY SAND		
<div> <div> Atterberg Limits </div> <div> PL= </div> <div> LL= </div> <div> PI= </div> </div>		
<div> <div> Coefficients </div> <div> D<sub>90</sub>= 0.2720 </div> <div> D<sub>50</sub>= 0.1626 </div> <div> D<sub>10</sub>= </div> <div> D<sub>85</sub>= 0.2392 </div> <div> D<sub>30</sub>= 0.1257 </div> <div> C<sub>u</sub>= </div> <div> D<sub>60</sub>= 0.1804 </div> <div> D<sub>15</sub>= 0.0806 </div> <div> C<sub>c</sub>= </div> </div>		
<div> <div> Classification </div> <div> USCS= SM </div> <div> AASHTO= </div> </div>		
<div> <div> Remarks </div> </div>		

Location: BI-PBC-23-12 B  
Sample Number: 6494 (32)

Depth: 5.0'

Date: 12/26/12

**Thompson Engineering**

**Mobile, Alabama**

Client: CDM/Thompson Engineering JV  
Project: MsCIP Barrier Island Restoration GT

Project No: 1221110095

Figure

# Boring Designation BI-PBC-24-12

DRILLING LOG		DIVISION South Atlantic		INSTALLATION Mobile District		SHEET 1 OF 1 SHEETS	
1. PROJECT MsCIP Barrier Island Restoration Pascagoula Bar Channel				9. SIZE AND TYPE OF BIT N/A			
2. BORING DESIGNATION BI-PBC-24-12		LOCATION COORDINATES E = 1,074,660 N = 243,101		10. COORDINATE SYSTEM/DATUM State Plane, MSE (U.S. Ft.)		HORIZONTAL NAD83 VERTICAL NAVD88	
3. DRILLING AGENCY Corps of Engineers - CESAM		CONTRACTOR FILE NO.		11. MANUFACTURER'S DESIGNATION OF DRILL Vibracore		<input type="checkbox"/> AUTO HAMMER <input type="checkbox"/> MANUAL HAMMER	
4. NAME OF DRILLER American Vibracore Systems, Inc.				12. TOTAL SAMPLES		DISTURBED UNDISTURBED (UD) 0	
5. DIRECTION OF BORING <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED		DEG. FROM VERTICAL		13. TOTAL NUMBER CORE BOXES			
		BEARING		14. WATER DEPTH 40.3 Ft.			
6. THICKNESS OF OVERBURDEN N/A				15. DATE BORING 12-15-12		STARTED COMPLETED 12-15-12	
7. DEPTH DRILLED INTO ROCK N/A				16. ELEVATION TOP OF BORING -40.2 Ft.			
8. TOTAL DEPTH OF BORING 15.3 Ft.				17. TOTAL RECOVERY FOR BORING 100%			
				18. SIGNATURE AND TITLE OF INSPECTOR Mark Green, Geotechnical Engineer			

ELEV.	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS	SAMPLE	LABORATORY RESULTS
-40.2	0.0				
-40.7	0.5			A	Classification: SP Color: 5Y 5/3-olive D50: 0.2062 mm % Fines: 4.2
			SAND, poorly-graded, mostly fine-grained sand-sized quartz, little silt, trace shell fragments, gray (SP)		
			SAND, silty, mostly fine-grained sand-sized quartz, some silt, little shell fragments, gray (SM)	B	Classification: SM Color: 5Y 5/2-olive gray D50: 0.1763 mm % Fines: 15.1
				C	Classification: SM Color: 5Y 5/2-olive gray D50: 0.1575 mm % Fines: 15.1
-51.2	11.0				
			SILT, inorganic-L, mostly silt, some fine-grained sand-sized quartz, trace shell fragments, gray (ML)	NS	
-53.7	13.5				
			SAND, clayey, mostly fine-grained sand-sized quartz, some clay, trace shell fragments, gray (SC)		
-55.5	15.3				
			NOTES: 1. Soils are field visually classified in accordance with the Unified Soils Classification System. 2. NS = Sample not submitted for laboratory analysis from this interval. 3. Seafloor elevation calculated using sampling vessel's fathometer water depth reading and applying NOAA tidal gauge data conversion factor.		

# Project

Mississippi Barrier Island  
Restoration Project

**AVS**  
AMERICAN VIBRACORE  
S E R V I C E S

Core Identifier BI-PBC-24-12

Date 12/15/2012

Water Depth 40.3'

## Coordinate System

Latitude / Longitude

Start Time 10:34:24

End Time 10:34:52

Penetration 20.0'

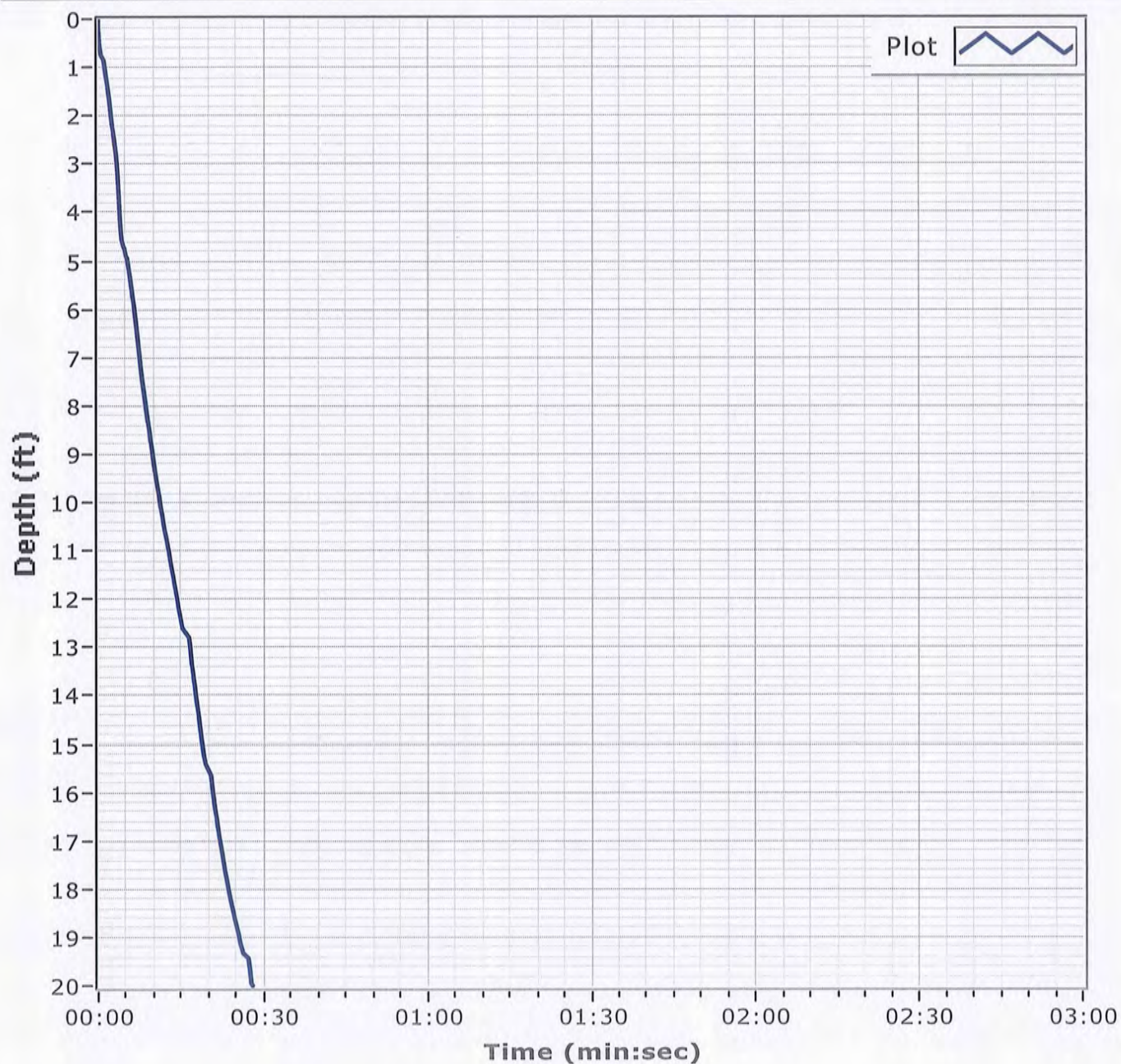
Latitude 30 10.090

Total Time 00:00:28

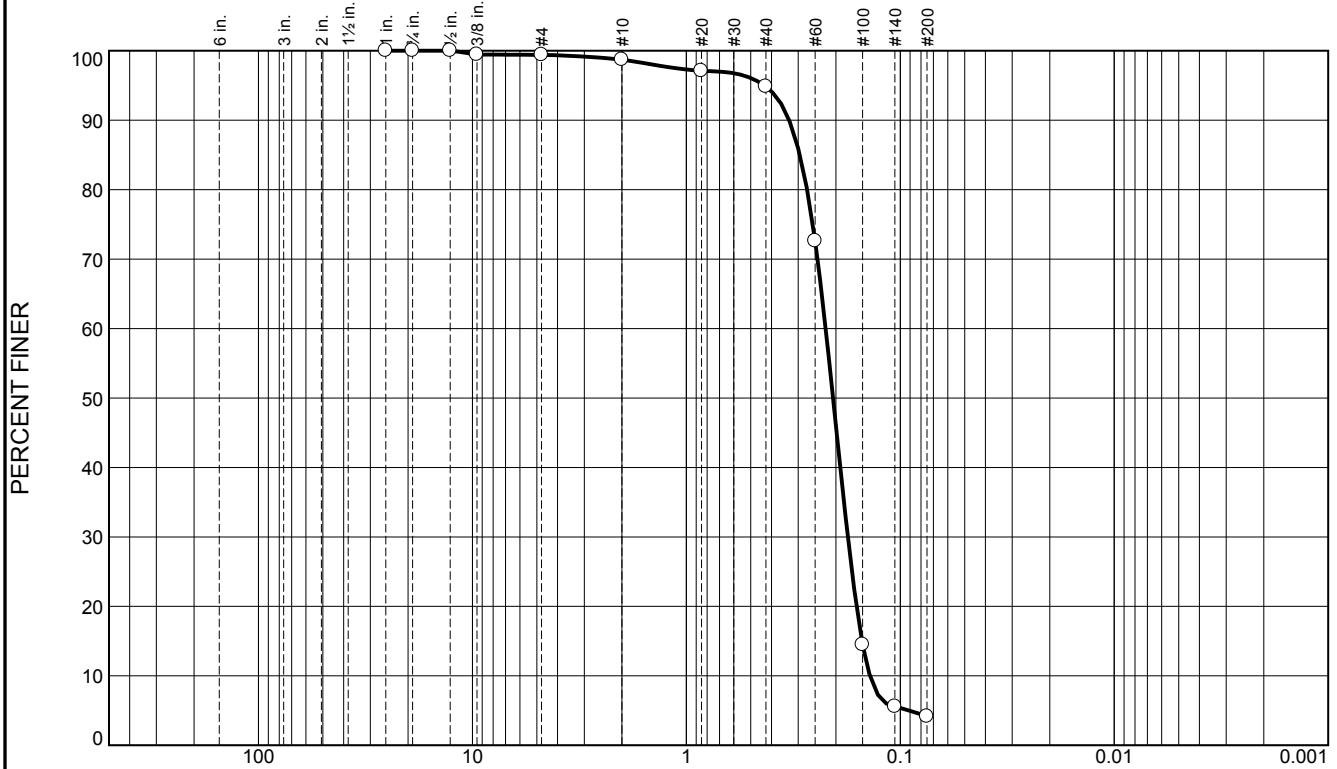
Recovery 15.0'

Longitude 088 32.834

## Comments



# Particle Size Distribution Report



GRAIN SIZE - mm.

% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.6	0.7	3.9	90.6	4.2	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
1	100.0		
.75	100.0		
.5	100.0		
.375	99.4		
#4	99.4		
#10	98.7		
#20	97.1		
#40	94.8		
#60	72.6		
#100	14.5		
#140	5.6		
#200	4.2		

\* (no specification provided)

## Material Description

Fine grained, SAND

## Atterberg Limits

PL=

LL=

PI=

## Coefficients

D<sub>90</sub>= 0.3309

D<sub>85</sub>= 0.2951

D<sub>60</sub>= 0.2232

D<sub>50</sub>= 0.2062

D<sub>30</sub>= 0.1760

D<sub>15</sub>= 0.1511

D<sub>10</sub>= 0.1387

C<sub>u</sub>= 1.61

C<sub>c</sub>= 1.00

## Classification

USCS= SP

AASHTO=

## Remarks

Location: BI-PBC-24-12 A

Sample Number: 6494 (33)

Depth: 0.0'

Date: 12/26/12

**Thompson Engineering**

**Mobile, Alabama**

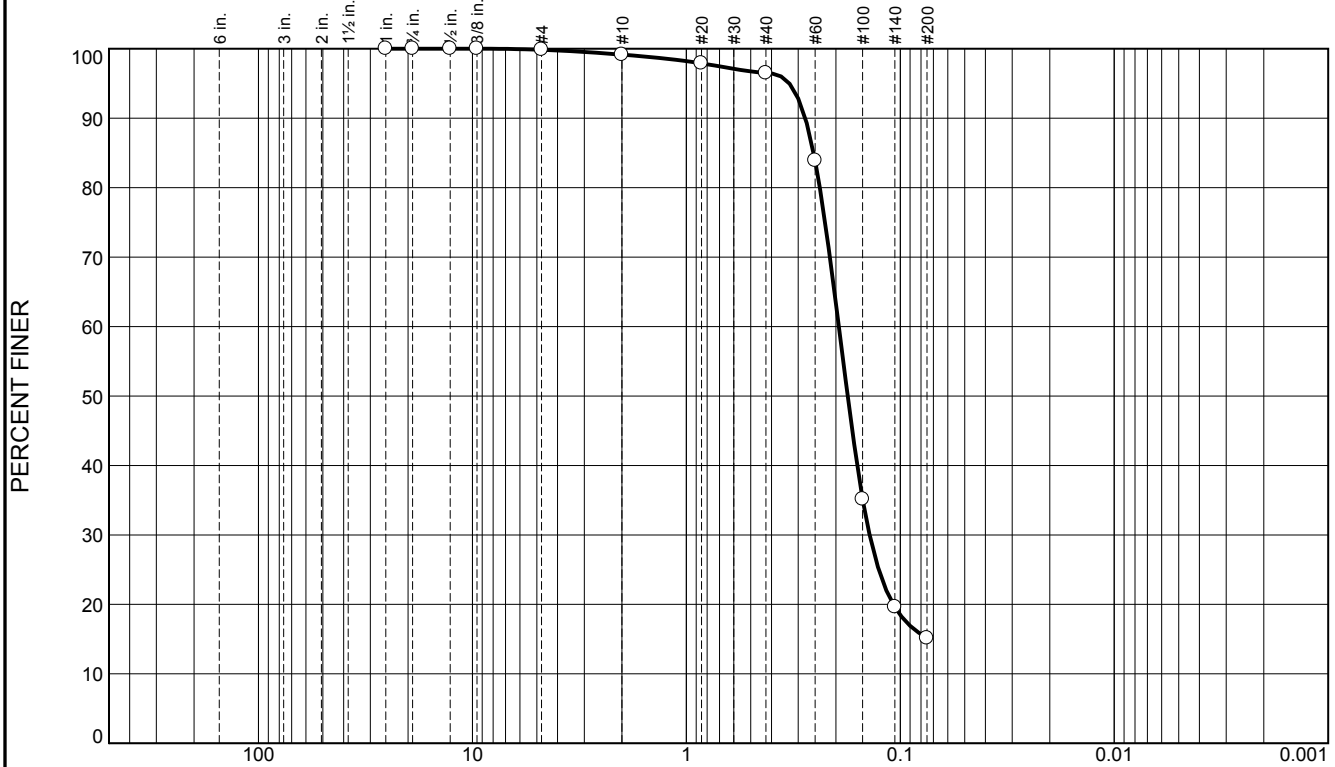
Client: CDM/Thompson Engineering JV

Project: MsCIP Barrier Island Restoration GT

Project No: 1221110095

Figure

# Particle Size Distribution Report



GRAIN SIZE - mm.

% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.2	0.7	2.6	81.4	15.1	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
1	100.0		
.75	100.0		
.5	100.0		
.375	100.0		
#4	99.8		
#10	99.1		
#20	97.9		
#40	96.5		
#60	83.9		
#100	35.1		
#140	19.6		
#200	15.1		

\* (no specification provided)

## Material Description

Fine grained, SILTY SAND

## Atterberg Limits

PL=

LL=

PI=

## Coefficients

D<sub>90</sub>= 0.2782

D<sub>85</sub>= 0.2542

D<sub>60</sub>= 0.1938

D<sub>50</sub>= 0.1763

D<sub>30</sub>= 0.1392

D<sub>15</sub>=

D<sub>10</sub>=

C<sub>u</sub>=

C<sub>c</sub>=

## Classification

USCS= SM

AASHTO=

## Remarks

Location: BI-PBC-24-12 B  
Sample Number: 6494 (34)

Depth: 0.5'

Date: 12/26/12

**Thompson Engineering**

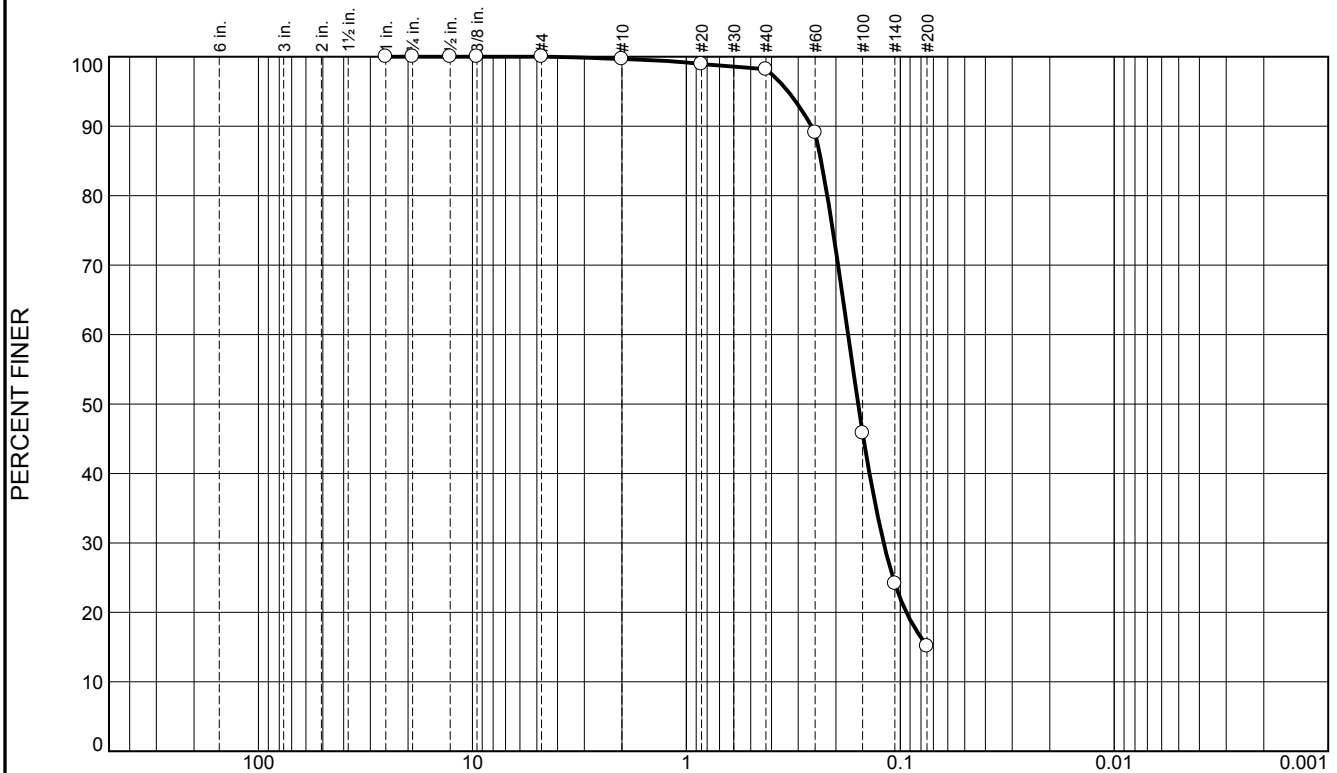
**Mobile, Alabama**

Client: CDM/Thompson Engineering JV  
Project: MsCIP Barrier Island Restoration GT

Project No: 1221110095

Figure

# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.0	0.3	1.5	83.1	15.1	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
1	100.0		
.75	100.0		
.5	100.0		
.375	100.0		
#4	100.0		
#10	99.7		
#20	98.9		
#40	98.2		
#60	89.1		
#100	45.8		
#140	24.2		
#200	15.1		

\* (no specification provided)

Material Description		
Fine grained, SILTY SAND		
<div> <div> Atterberg Limits </div> <div> PL= </div> <div> LL= </div> <div> PI= </div> </div>		
<div> <div> Coefficients </div> <div> D<sub>90</sub>= 0.2601 </div> <div> D<sub>50</sub>= 0.1575 </div> <div> D<sub>10</sub>= </div> <div> D<sub>85</sub>= 0.2344 </div> <div> D<sub>30</sub>= 0.1196 </div> <div> C<sub>u</sub>= </div> <div> D<sub>60</sub>= 0.1755 </div> <div> D<sub>15</sub>= </div> <div> C<sub>c</sub>= </div> </div>		
<div> <div> Classification </div> <div> USCS= SM </div> <div> AASHTO= </div> </div>		
<div> <div> Remarks </div> </div>		

Location: BI-PBC-24-12 C  
Sample Number: 6494 (35)

Depth: 5.5'

Date: 12/26/12

**Thompson Engineering**

**Mobile, Alabama**

Client: CDM/Thompson Engineering JV  
Project: MsCIP Barrier Island Restoration GT

Project No: 1221110095

Figure

# Boring Designation BI-PBC-25-12

DRILLING LOG		DIVISION South Atlantic		INSTALLATION Mobile District		SHEET 1 OF 1 SHEETS	
1. PROJECT MsCIP Barrier Island Restoration Pascagoula Bar Channel				9. SIZE AND TYPE OF BIT N/A			
2. BORING DESIGNATION BI-PBC-25-12		LOCATION COORDINATES E = 1,076,601 N = 245,401		10. COORDINATE SYSTEM/DATUM State Plane, MSE (U.S. Ft.)		HORIZONTAL NAD83 VERTICAL NAVD88	
3. DRILLING AGENCY Corps of Engineers - CESAM		CONTRACTOR FILE NO.		11. MANUFACTURER'S DESIGNATION OF DRILL Vibracore		<input type="checkbox"/> AUTO HAMMER <input type="checkbox"/> MANUAL HAMMER	
4. NAME OF DRILLER American Vibracore Systems, Inc.				12. TOTAL SAMPLES		DISTURBED UNDISTURBED (UD) 0	
5. DIRECTION OF BORING <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED		DEG. FROM VERTICAL		13. TOTAL NUMBER CORE BOXES			
		BEARING		14. WATER DEPTH 41.2 Ft.			
6. THICKNESS OF OVERBURDEN N/A				15. DATE BORING 12-15-12		STARTED COMPLETED 12-15-12	
7. DEPTH DRILLED INTO ROCK N/A				16. ELEVATION TOP OF BORING -40.9 Ft.			
8. TOTAL DEPTH OF BORING 14.3 Ft.				17. TOTAL RECOVERY FOR BORING 100%			
				18. SIGNATURE AND TITLE OF INSPECTOR Mark Green, Geotechnical Engineer			

ELEV.	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS	SAMPLE	LABORATORY RESULTS
-40.9	0.0				
			SAND, silty, mostly fine-grained sand-sized quartz, trace shell fragments, trace clay lenses, gray (SM)	A	Classification: SM Color: 5Y 5/2-olive gray D50: 0.1861 mm % Fines: 13.7
				B	Classification: SM Color: 5Y 5/2-olive gray D50: 0.1801 mm % Fines: 12
-49.9	9.0				
			SILT, inorganic-L, mostly silt, some fine-grained sand-sized quartz, trace shell fragments, gray (ML)	NS	
-52.9	12.0				
-53.9	13.0		SAND, clayey, mostly fine-grained sand-sized quartz, some clay, gray (SC)		
-55.2	14.3		CLAY, fat, mostly clay, gray (CH)		
			NOTES: 1. Soils are field visually classified in accordance with the Unified Soils Classification System. 2. NS = Sample not submitted for laboratory analysis from this interval. 3. Seafloor elevation calculated using sampling vessel's fathometer water depth reading and applying NOAA tidal gauge data conversion factor.		



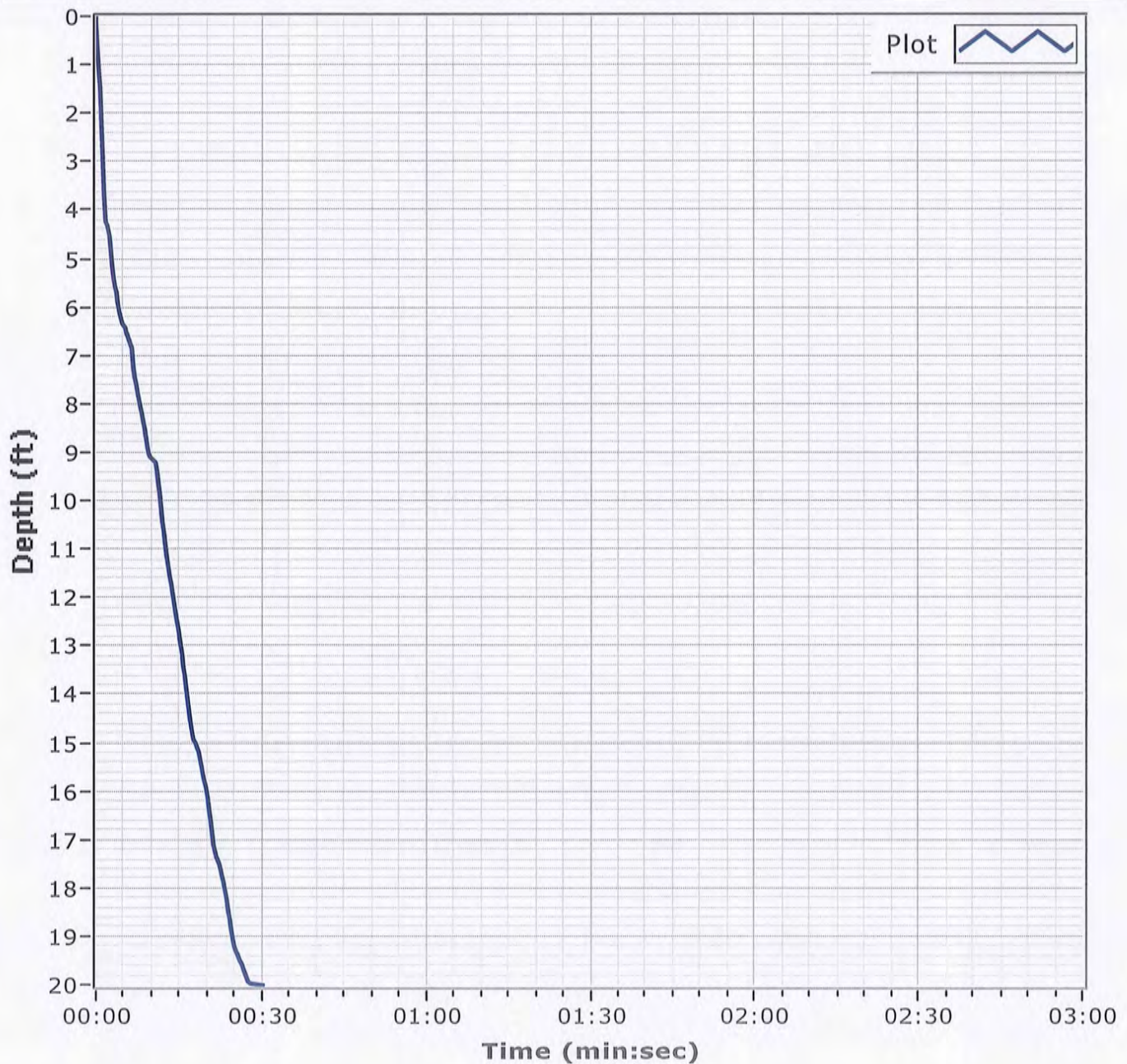
**Project**

Mississippi Barrier Island  
Restoration Project

**AVS**  
**AMERICAN VIBRACORE**  
**S E R V I C E S**

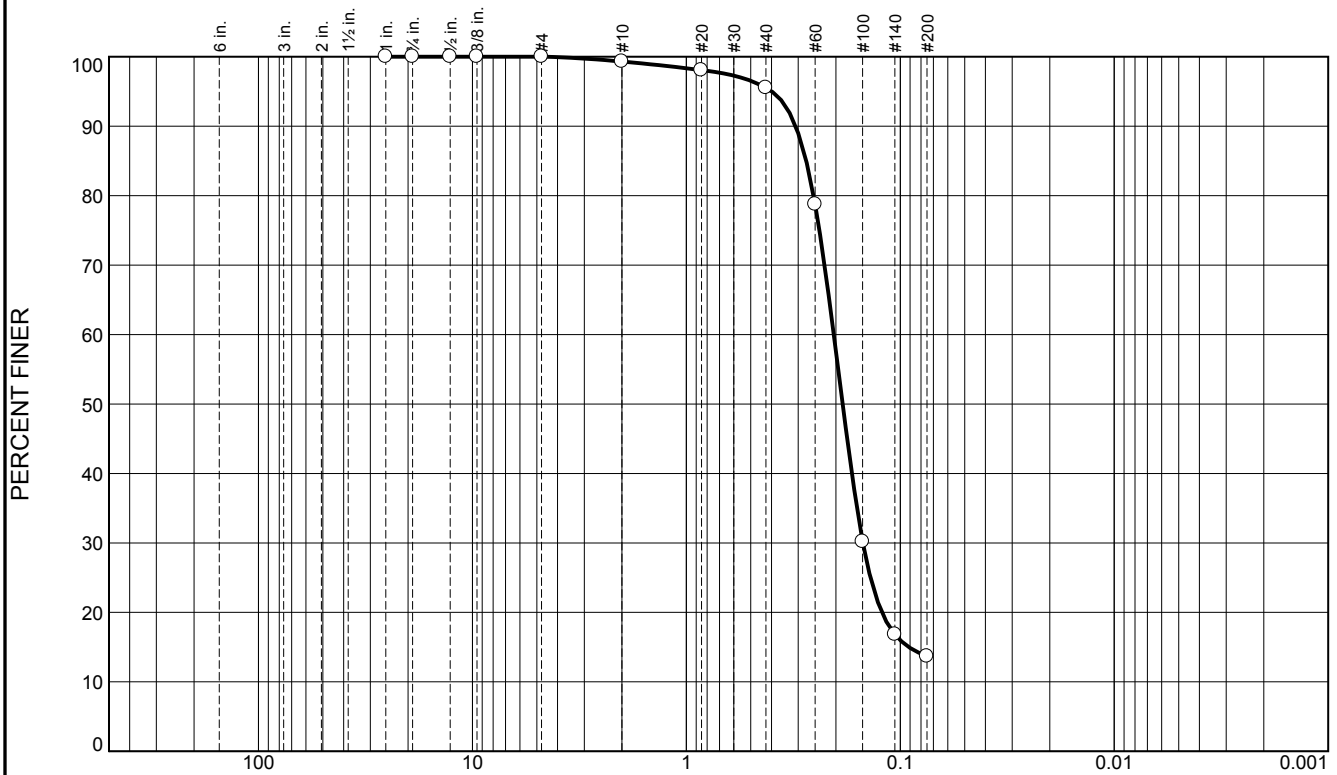
**Core Identifier** BI-PBC-25-12**Date** 12/15/2012**Water Depth** 41.2'**Coordinate System**

Latitude / Longitude

**Start Time** 11:57:13**End Time** 11:57:43**Penetration** 20.0'**Latitude** 30 10.469**Total Time** 00:00:30**Recovery** 14.4'**Longitude** 088 32.464**Comments**



# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.0	0.7	3.8	81.8	13.7	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
1	100.0		
.75	100.0		
.5	100.0		
.375	100.0		
#4	100.0		
#10	99.3		
#20	98.1		
#40	95.5		
#60	78.7		
#100	30.2		
#140	16.8		
#200	13.7		

\* (no specification provided)

<u>Material Description</u>		
Fine grained, SILTY SAND		
PL=	<u>Atterberg Limits</u> LL=	PI=
<u>Coefficients</u>		
D <sub>90</sub> = 0.3087	D <sub>85</sub> = 0.2754	D <sub>60</sub> = 0.2046
D <sub>50</sub> = 0.1861	D <sub>30</sub> = 0.1496	D <sub>15</sub> = 0.0913
D <sub>10</sub> =	C <sub>u</sub> =	C <sub>c</sub> =
<u>Classification</u>		
USCS= SM	AASHTO=	
<u>Remarks</u>		

Location: BI-PBC-25-12 A  
Sample Number: 6494 (36)

Depth: 0.0'

Date: 12/26/12

**Thompson Engineering**

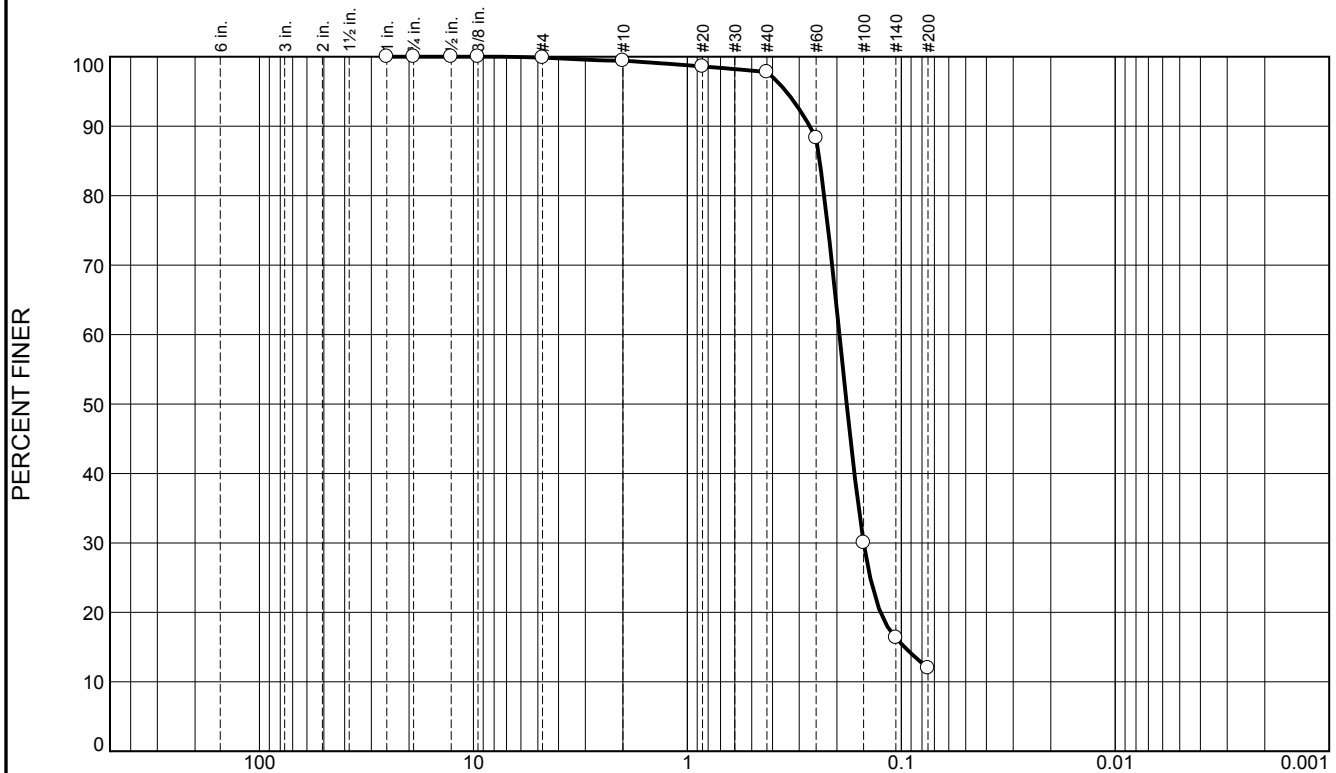
**Mobile, Alabama**

Client: CDM/Thompson Engineering JV  
Project: MsCIP Barrier Island Restoration GT

Project No: 1221110095

Figure

# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.1	0.5	1.6	85.8	12.0	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
1	100.0		
.75	100.0		
.5	100.0		
.375	100.0		
#4	99.9		
#10	99.4		
#20	98.6		
#40	97.8		
#60	88.3		
#100	30.0		
#140	16.3		
#200	12.0		

\* (no specification provided)

Material Description		
Fine grained, SILTY SAND		
PL=	Atterberg Limits LL=	PI=
D <sub>90</sub> = 0.2682	Coefficients D <sub>85</sub> = 0.2408	D <sub>60</sub> = 0.1947
D <sub>50</sub> = 0.1801	D <sub>30</sub> = 0.1499	D <sub>15</sub> = 0.0965
D <sub>10</sub> =	C <sub>u</sub> =	C <sub>c</sub> =
USCS= SM	Classification AASHTO=	
Remarks		

Location: BI-PBC-25-12 B  
Sample Number: 6494 (37)

Depth: 5.0'

Date: 12/26/12

**Thompson Engineering**

**Mobile, Alabama**

Client: CDM/Thompson Engineering JV  
Project: MsCIP Barrier Island Restoration GT

Project No: 1221110095

Figure

# Boring Designation BI-PBC-26-12

DRILLING LOG		DIVISION South Atlantic		INSTALLATION Mobile District		SHEET 1 OF 1 SHEETS	
1. PROJECT MsCIP Barrier Island Restoration Pascagoula Bar Channel				9. SIZE AND TYPE OF BIT N/A			
2. BORING DESIGNATION BI-PBC-26-12		LOCATION COORDINATES E = 1,078,661 N = 247,748		10. COORDINATE SYSTEM/DATUM State Plane, MSE (U.S. Ft.)		HORIZONTAL NAD83 VERTICAL NAVD88	
3. DRILLING AGENCY Corps of Engineers - CESAM		CONTRACTOR FILE NO.		11. MANUFACTURER'S DESIGNATION OF DRILL Vibracore		<input type="checkbox"/> AUTO HAMMER <input type="checkbox"/> MANUAL HAMMER	
4. NAME OF DRILLER American Vibracore Systems, Inc.				12. TOTAL SAMPLES		DISTURBED UNDISTURBED (UD) 0	
5. DIRECTION OF BORING <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED		DEG. FROM VERTICAL		13. TOTAL NUMBER CORE BOXES			
		BEARING		14. WATER DEPTH 40.1 Ft.			
6. THICKNESS OF OVERBURDEN N/A				15. DATE BORING 12-15-12		STARTED COMPLETED 12-15-12	
7. DEPTH DRILLED INTO ROCK N/A				16. ELEVATION TOP OF BORING -39.3 Ft.			
8. TOTAL DEPTH OF BORING 15.7 Ft.				17. TOTAL RECOVERY FOR BORING 100%			
				18. SIGNATURE AND TITLE OF INSPECTOR Mark Green, Geotechnical Engineer			
ELEV.	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS	SAMPLE	LABORATORY RESULTS		
-39.3	0.0						
-40.3	1.0		CLAY, fat, mostly clay, soft, gray (CH)	NS			
-41.1	1.8		SAND, clayey, mostly fine-grained sand-sized quartz, some clay, little shell fragments, gray (SC)	A	Classification: SM Color: 5Y 5/2-olive gray D50: 0.2016 mm % Fines: 15.6		
-43.3	4.0		SAND, silty, mostly fine-grained sand-sized quartz, some silt, trace shell fragments, gray (SM)	B	Classification: SP-SM Color: 5Y 6/2-light olive gray D50: 0.2045 mm % Fines: 6.9		
-45.3	6.0		SAND, poorly-graded, mostly fine to medium-grained sand-sized quartz, trace silt, trace shell fragments, gray (SP)	C	Classification: SM Color: 5Y 5/2-olive gray D50: 0.1841 mm % Fines: 13.5		
-48.3	9.0		SAND, silty, mostly fine-grained sand-sized quartz, trace shell fragments, gray (SM)				
			SAND, clayey, mostly fine-grained sand-sized quartz, some clay, gray (SC)	NS			
-55.0	15.7						
NOTES:							
1. Soils are field visually classified in accordance with the Unified Soils Classification System.							
2. NS = Sample not submitted for laboratory analysis from this interval.							
3. Seafloor elevation calculated using sampling vessel's fathometer water depth reading and applying NOAA tidal gauge data conversion factor.							

**Project**

Mississippi Barrier Island  
Restoration Project



**Core Identifier** BI-PBC-26-12

**Date** 12/15/2012

**Water Depth** 40.1'

**Coordinate System**

**Start Time** 14:21:07

Latitude / Longitude

**End Time** 14:21:36

**Penetration** 20.0'

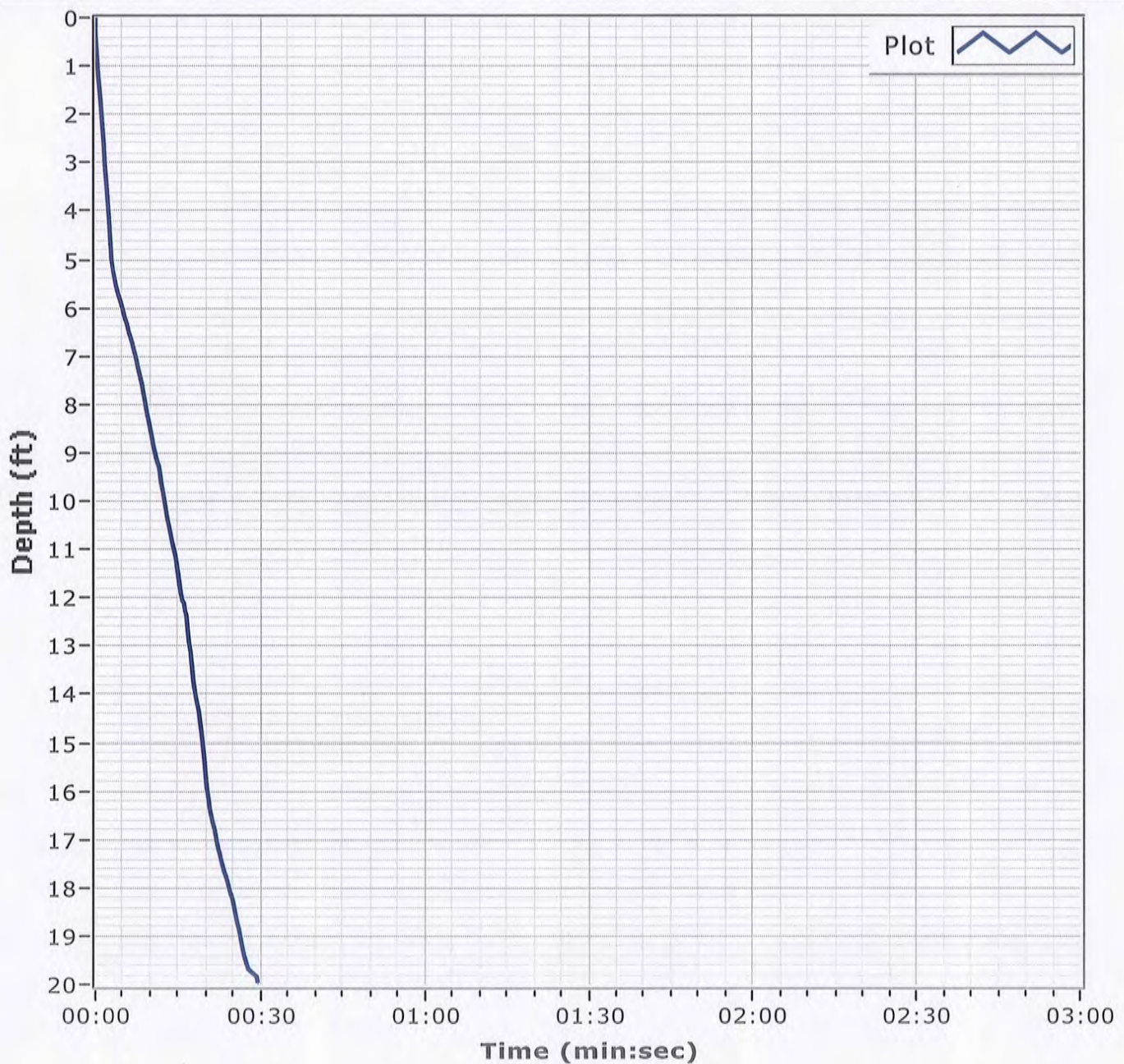
**Latitude** 30 10.855

**Total Time** 00:00:29

**Recovery** 15.9'

**Longitude** 088 32.072

**Comments**



# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	3.6	0.9	5.8	74.1	15.6	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
1	100.0		
.75	100.0		
.5	98.6		
.375	97.5		
#4	96.4		
#10	95.5		
#20	94.1		
#40	89.7		
#60	67.8		
#100	27.8		
#140	19.2		
#200	15.6		

\* (no specification provided)

<b><u>Material Description</u></b>		
Fine grained, SILTY SAND, with trace SHELL		
<b><u>Atterberg Limits</u></b>		
PL=	LL=	PI=
<b><u>Coefficients</u></b>		
D <sub>90</sub> = 0.4328	D <sub>85</sub> = 0.3514	D <sub>60</sub> = 0.2263
D <sub>50</sub> = 0.2016	D <sub>30</sub> = 0.1561	D <sub>15</sub> =
D <sub>10</sub> =	C <sub>u</sub> =	C <sub>c</sub> =
<b><u>Classification</u></b>		
USCS= SM	AASHTO=	
<b><u>Remarks</u></b>		

Location: BI-PBC-26-12 A  
Sample Number: 6494 (38)

Depth: 1.8'

Date: 12/26/12

**Thompson Engineering**

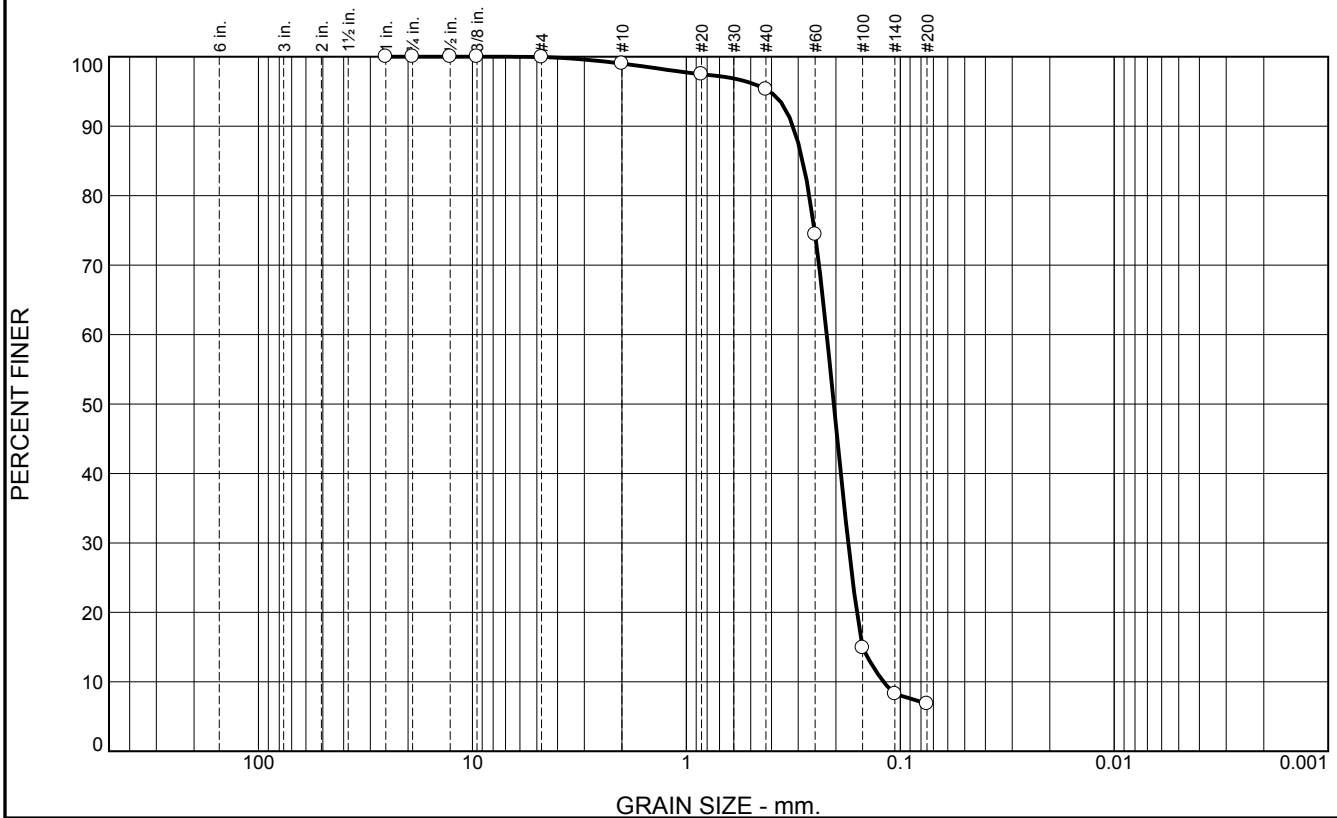
**Mobile, Alabama**

Client: CDM/Thompson Engineering JV  
Project: MsCIP Barrier Island Restoration GT

Project No: 1221110095

Figure

# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.0	1.0	3.7	88.4	6.9	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
1	100.0		
.75	100.0		
.5	100.0		
.375	100.0		
#4	100.0		
#10	99.0		
#20	97.5		
#40	95.3		
#60	74.4		
#100	14.9		
#140	8.3		
#200	6.9		

\* (no specification provided)

## Material Description

Fine grained, SLIGHTLY SILTY SAND

## Atterberg Limits

PL= LL= PI=

## Coefficients

D<sub>90</sub>= 0.3174 D<sub>85</sub>= 0.2861 D<sub>60</sub>= 0.2206  
D<sub>50</sub>= 0.2045 D<sub>30</sub>= 0.1753 D<sub>15</sub>= 0.1502  
D<sub>10</sub>= 0.1197 C<sub>u</sub>= 1.84 C<sub>c</sub>= 1.16

## Classification

USCS= SP-SM AASHTO=

## Remarks

Location: BI-PBC-26-12 B  
Sample Number: 6494 (39)

Depth: 4.0'

Date: 12/26/12

**Thompson Engineering**

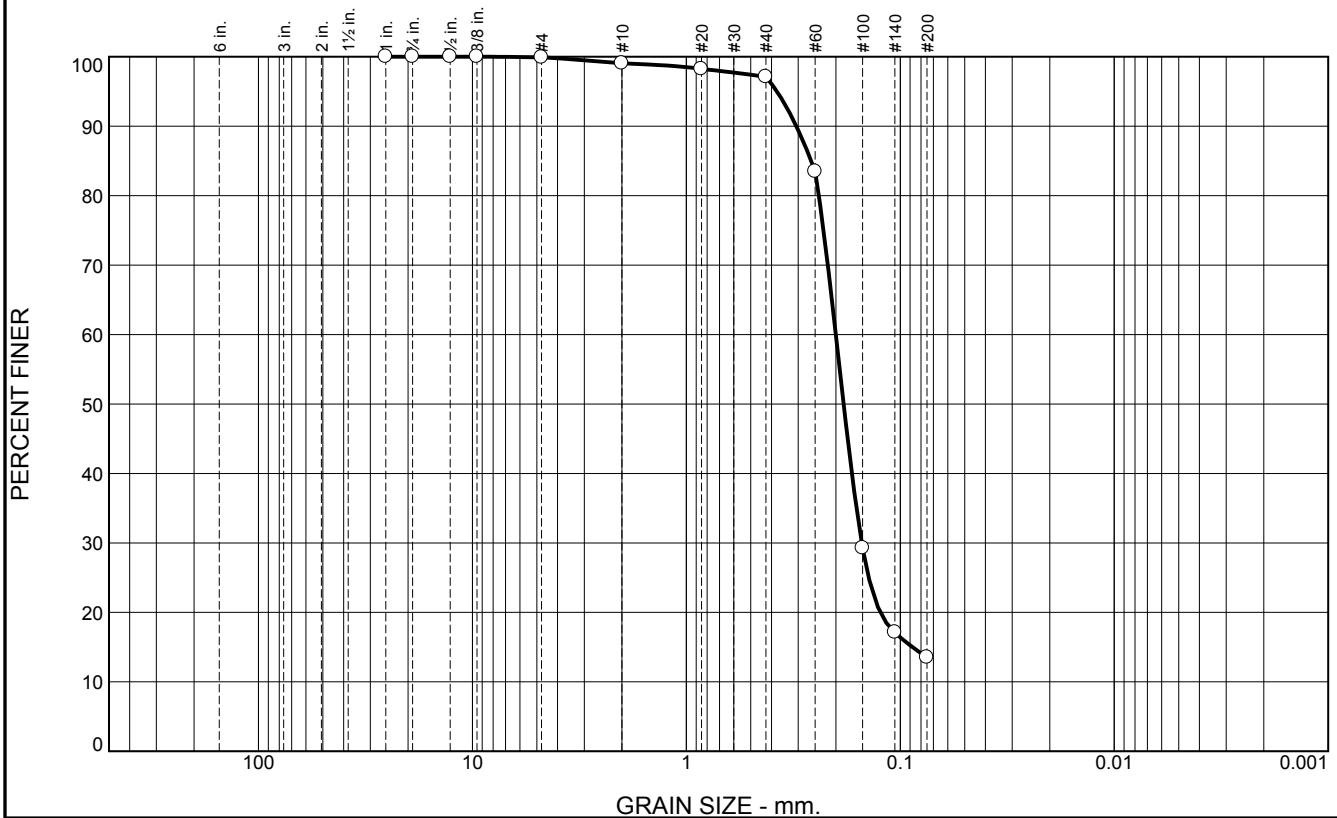
**Mobile, Alabama**

Client: CDM/Thompson Engineering JV  
Project: MsCIP Barrier Island Restoration GT

Project No: 1221110095

Figure

# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.1	0.8	2.0	83.6	13.5	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
1	100.0		
.75	100.0		
.5	100.0		
.375	100.0		
#4	99.9		
#10	99.1		
#20	98.2		
#40	97.1		
#60	83.5		
#100	29.2		
#140	17.1		
#200	13.5		

\* (no specification provided)

<u>Material Description</u>		
Fine grained, SILTY SAND		
PL=	<u>Atterberg Limits</u> LL=	PI=
<u>Coefficients</u>		
D <sub>90</sub> = 0.3063	D <sub>85</sub> = 0.2610	D <sub>60</sub> = 0.2002
D <sub>50</sub> = 0.1841	D <sub>30</sub> = 0.1515	D <sub>15</sub> = 0.0878
D <sub>10</sub> =	C <sub>u</sub> =	C <sub>c</sub> =
<u>Classification</u>		
USCS= SM	AASHTO=	
<u>Remarks</u>		

Location: BI-PBC-26-12 C  
Sample Number: 6494 (40)

Depth: 6.0'

Date: 12/26/12

**Thompson Engineering**

**Mobile, Alabama**

Client: CDM/Thompson Engineering JV  
Project: MsCIP Barrier Island Restoration GT

Project No: 1221110095

Figure

# Boring Designation BI-PBC-27-12

DRILLING LOG		DIVISION South Atlantic		INSTALLATION Mobile District		SHEET 1 OF 1 SHEETS	
1. PROJECT MsCIP Barrier Island Restoration Pascagoula Bar Channel				9. SIZE AND TYPE OF BIT N/A			
2. BORING DESIGNATION BI-PBC-27-12		LOCATION COORDINATES E = 1,081,181 N = 250,686		10. COORDINATE SYSTEM/DATUM State Plane, MSE (U.S. Ft.)		HORIZONTAL NAD83	
3. DRILLING AGENCY Corps of Engineers - CESAM		CONTRACTOR FILE NO.		11. MANUFACTURER'S DESIGNATION OF DRILL Vibracore		<input type="checkbox"/> AUTO HAMMER <input type="checkbox"/> MANUAL HAMMER	
4. NAME OF DRILLER American Vibracore Systems, Inc.				12. TOTAL SAMPLES		DISTURBED 0	
5. DIRECTION OF BORING <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED				13. TOTAL NUMBER CORE BOXES		14. WATER DEPTH 36.7 Ft.	
6. THICKNESS OF OVERBURDEN N/A				15. DATE BORING		STARTED 12-16-12	
7. DEPTH DRILLED INTO ROCK N/A				16. ELEVATION TOP OF BORING -35.8 Ft.		COMPLETED 12-16-12	
8. TOTAL DEPTH OF BORING 13.8 Ft.				17. TOTAL RECOVERY FOR BORING 100%		18. SIGNATURE AND TITLE OF INSPECTOR Mark Green, Geotechnical Engineer	

ELEV.	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS	SAMPLE	LABORATORY RESULTS
-35.8	0.0				
-36.3	0.5			A	Classification: SM Color: 5Y 5/3-olive D50: 0.1657 mm % Fines: 19.8
			SAND, poorly-graded, mostly fine-grained sand-sized quartz, trace silt, lt. gray (SP)		
			SAND, clayey, mostly quartz, some clay, little shell fragments, gray (SC)	NS	
-46.8	11.0				
-47.8	12.0		SILT, inorganic-L, mostly silt, some fine-grained sand-sized quartz, lt. gray (ML)		
-49.6	13.8		CLAY, lean, mostly clay, trace fine-grained sand-sized quartz, mottled lt. gray and yellowish orange (CL)		
			NOTES: 1. Soils are field visually classified in accordance with the Unified Soils Classification System. 2. NS = Sample not submitted for laboratory analysis from this interval. 3. Seafloor elevation calculated using sampling vessel's fathometer water depth reading and applying NOAA tidal gauge data conversion factor.		



**Project**

Mississippi Barrier Island  
Restoration Project

**AVS**  
**AMERICAN VIBRACORE**  
**S E R V I C E S**

**Core Identifier** BI-PBC-27-12

**Date** 12/16/2012

**Water Depth** 36.7'

**Coordinate System**

Latitude / Longitude

**Start Time** 13:57:54

**End Time** 13:58:35

**Penetration** 20.0'

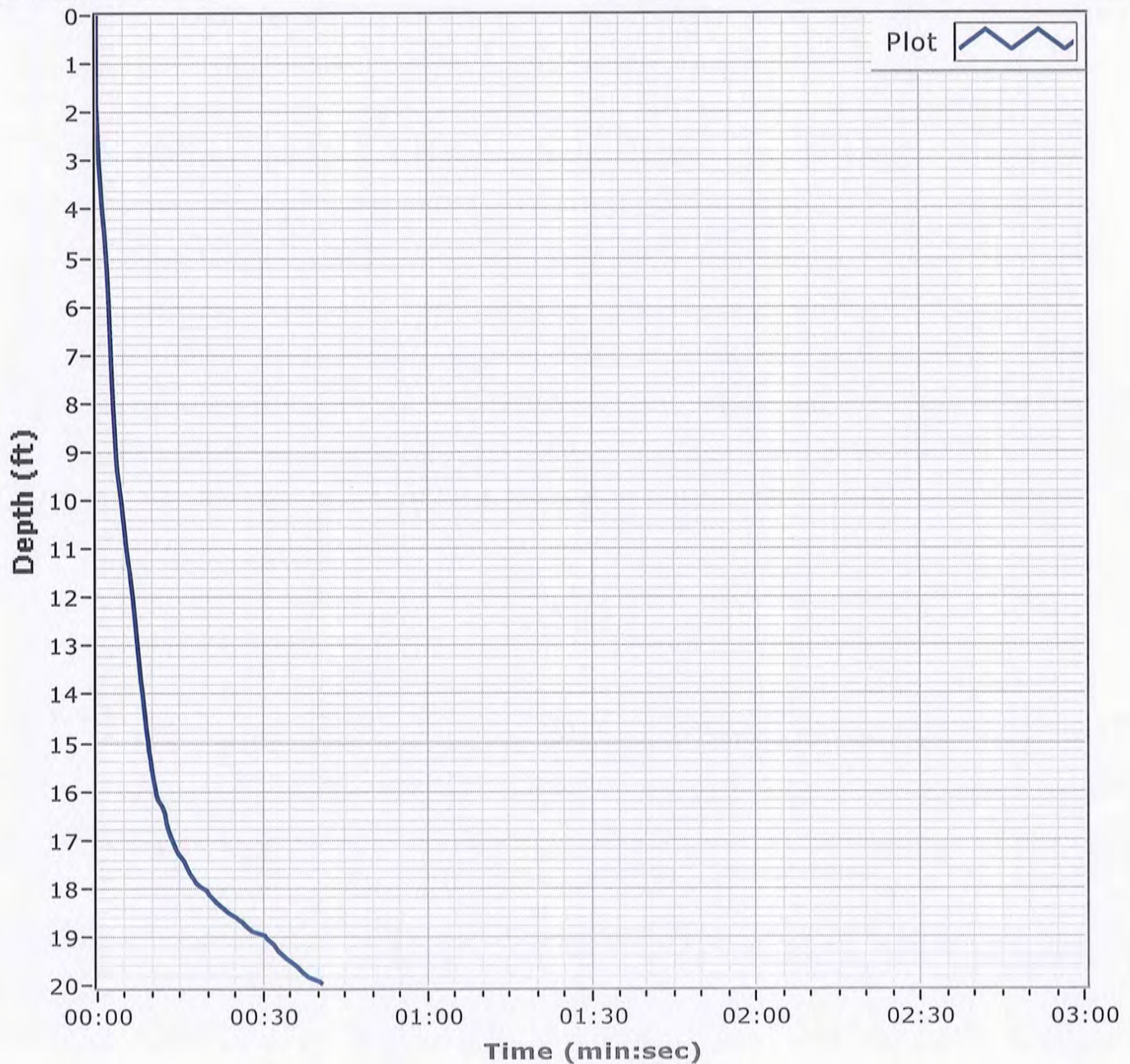
**Latitude** 30 11.339

**Total Time** 00:00:40

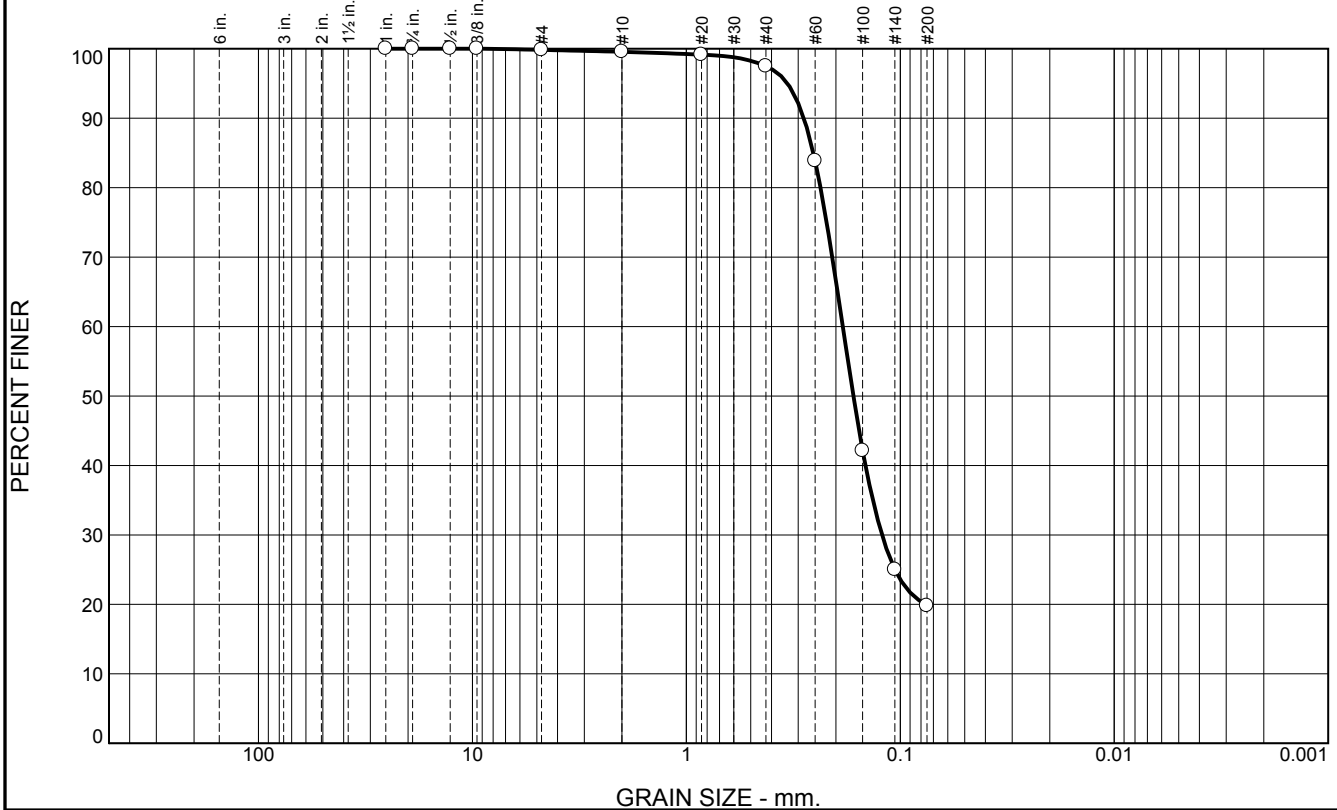
**Recovery** 14.0'

**Longitude** 088 31.592

**Comments**



# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.2	0.3	2.0	77.7	19.8	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
1	100.0		
.75	100.0		
.5	100.0		
.375	100.0		
#4	99.8		
#10	99.5		
#20	99.1		
#40	97.5		
#60	83.8		
#100	42.1		
#140	25.0		
#200	19.8		

\* (no specification provided)

<u>Material Description</u>		
Fine grained, SILTY SAND		
PL=	<u>Atterberg Limits</u> LL=	PI=
<u>Coefficients</u>		
D <sub>90</sub> = 0.2825	D <sub>85</sub> = 0.2549	D <sub>60</sub> = 0.1857
D <sub>50</sub> = 0.1657	D <sub>30</sub> = 0.1218	D <sub>15</sub> =
D <sub>10</sub> =	C <sub>u</sub> =	C <sub>c</sub> =
<u>Classification</u>		
USCS= SM	AASHTO=	
<u>Remarks</u>		

Location: BI-PBC-27-12 A  
Sample Number: 6494 (41)

Depth: 0.0'

Date: 12/26/12

**Thompson Engineering**

**Mobile, Alabama**

Client: CDM/Thompson Engineering JV  
Project: MsCIP Barrier Island Restoration GT

Project No: 1221110095

Figure

# Boring Designation BI-PBC-28-12

DRILLING LOG		DIVISION South Atlantic		INSTALLATION Mobile District		SHEET 1 OF 1 SHEETS	
1. PROJECT MsCIP Barrier Island Restoration Pascagoula Bar Channel				9. SIZE AND TYPE OF BIT N/A			
2. BORING DESIGNATION BI-PBC-28-12		LOCATION COORDINATES E = 1,080,009 N = 249,417		10. COORDINATE SYSTEM/DATUM State Plane, MSE (U.S. Ft.)		HORIZONTAL NAD83 VERTICAL NAVD88	
3. DRILLING AGENCY Corps of Engineers - CESAM		CONTRACTOR FILE NO.		11. MANUFACTURER'S DESIGNATION OF DRILL Vibracore		<input type="checkbox"/> AUTO HAMMER <input type="checkbox"/> MANUAL HAMMER	
4. NAME OF DRILLER American Vibracore Systems, Inc.				12. TOTAL SAMPLES		DISTURBED UNDISTURBED (UD) 0	
5. DIRECTION OF BORING <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED				DEG. FROM VERTICAL		BEARING	
6. THICKNESS OF OVERBURDEN N/A				13. TOTAL NUMBER CORE BOXES			
7. DEPTH DRILLED INTO ROCK N/A				14. WATER DEPTH 37.8 Ft.			
8. TOTAL DEPTH OF BORING 15.3 Ft.				15. DATE BORING		STARTED 12-16-12 COMPLETED 12-16-12	
				16. ELEVATION TOP OF BORING -37.3 Ft.			
				17. TOTAL RECOVERY FOR BORING 100%			
				18. SIGNATURE AND TITLE OF INSPECTOR Mark Green, Geotechnical Engineer			
ELEV.	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS	SAMPLE	LABORATORY RESULTS		
-37.3	0.0						
-39.8	2.5		SAND, clayey, mostly fine-grained sand-sized quartz, some clay, trace shell fragments, gray (SC)	NS			
-41.3	4.0		SAND, silty, mostly fine-grained sand-sized quartz, some silt, clayey lenses, gray (SM)	A	Classification: SM Color: 5Y 5/2-olive gray D50: 0.1894 mm % Fines: 15.8		
-43.3	6.0		SAND, clayey, mostly fine-grained sand-sized quartz, some clay, trace shell fragments, gray (SC)	NS			
-46.3	9.0		SAND, silty, mostly fine-grained sand-sized quartz, some silt, trace shell fragments, clayey lenses, gray (SM)	B	Classification: SM Color: 5Y 5/2-olive gray D50: 0.1921 mm % Fines: 12.6		
-51.3	14.0		SAND, clayey, mostly fine-grained sand-sized quartz, some clay, trace shell fragments, gray (SC)	NS			
-52.6	15.3		CLAY, fat, mostly clay, trace fine-grained sand-sized quartz, soft, gray and brown (CH)				
NOTES: 1. Soils are field visually classified in accordance with the Unified Soils Classification System. 2. NS = Sample not submitted for laboratory analysis from this interval. 3. Seafloor elevation calculated using sampling vessel's fathometer water depth reading and applying NOAA tidal gauge data conversion factor.							



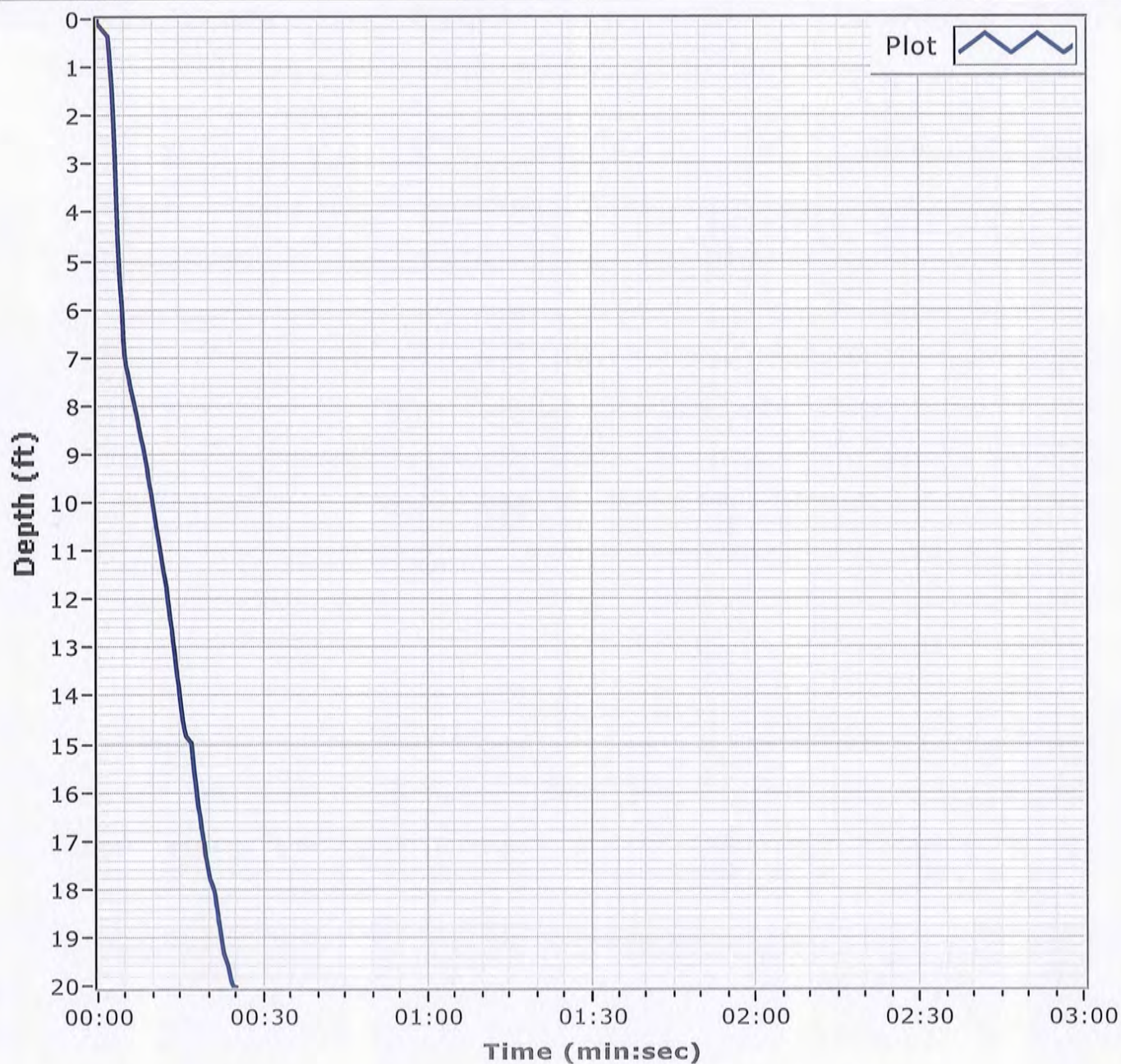
**Project**

Mississippi Barrier Island  
Restoration Project

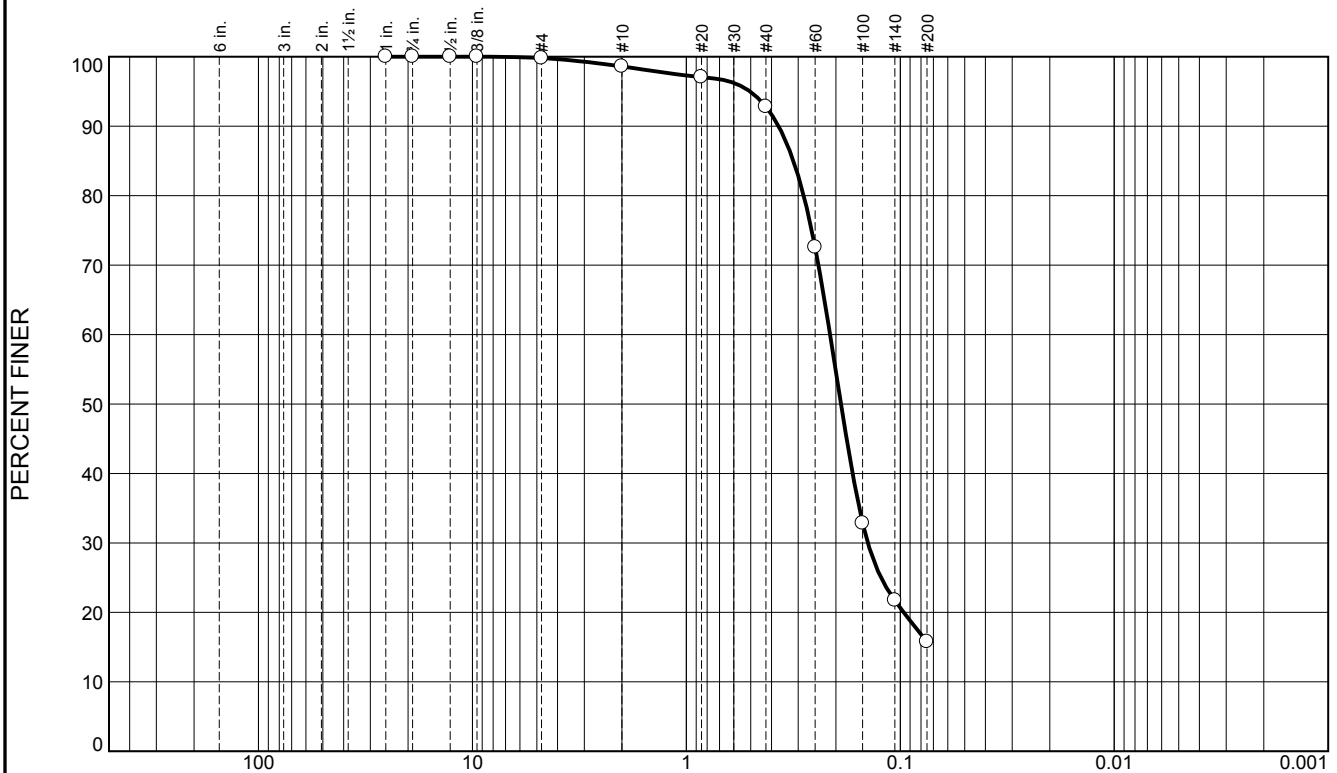
**AVS**  
**AMERICAN VIBRACORE**  
**S E R V I C E S**

**Core Identifier** BI-PBC-28-12a**Date** 12/16/2012**Water Depth** 37.8**Coordinate System**

Latitude / Longitude

**Start Time** 11:10:38**End Time** 11:11:04**Penetration** 20.0'**Latitude** 30 11.130**Total Time** 00:00:25**Recovery** 15.5'**Longitude** 088 31.815**Comments**

# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.2	1.2	5.8	77.0	15.8	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
1	100.0		
.75	100.0		
.5	100.0		
.375	100.0		
#4	99.8		
#10	98.6		
#20	97.1		
#40	92.8		
#60	72.6		
#100	32.8		
#140	21.7		
#200	15.8		

\* (no specification provided)

<u>Material Description</u>		
Fine grained, SILTY SAND		
PL=	<u>Atterberg Limits</u> LL=	PI=
<u>Coefficients</u>		
D <sub>90</sub> = 0.3705	D <sub>85</sub> = 0.3160	D <sub>60</sub> = 0.2130
D <sub>50</sub> = 0.1894	D <sub>30</sub> = 0.1418	D <sub>15</sub> =
D <sub>10</sub> =	C <sub>u</sub> =	C <sub>c</sub> =
<u>Classification</u>		
USCS= SM	AASHTO=	
<u>Remarks</u>		

Location: BI-PBC-28-12 A  
Sample Number: 6494 (42)

Depth: 2.5'

Date: 12/26/12

**Thompson Engineering**

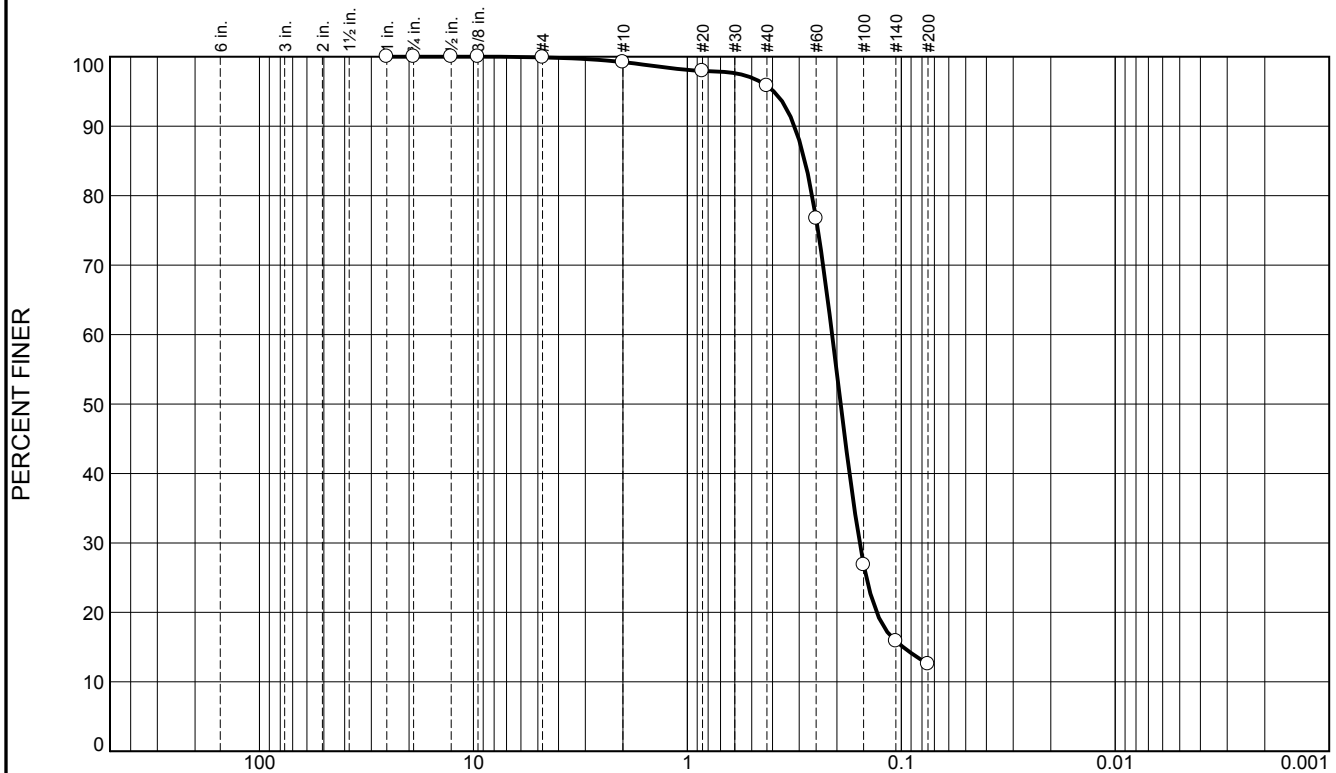
**Mobile, Alabama**

Client: CDM/Thompson Engineering JV  
Project: MsCIP Barrier Island Restoration GT

Project No: 1221110095

Figure

# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.1	0.7	3.4	83.2	12.6	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
1	100.0		
.75	100.0		
.5	100.0		
.375	100.0		
#4	99.9		
#10	99.2		
#20	97.9		
#40	95.8		
#60	76.7		
#100	26.9		
#140	15.9		
#200	12.6		

\* (no specification provided)

<u><b>Material Description</b></u>		
Fine grained, SILTY SAND		
<u><b>Atterberg Limits</b></u>		
PL=	LL=	PI=
<u><b>Coefficients</b></u>		
D <sub>90</sub> = 0.3158	D <sub>85</sub> = 0.2825	D <sub>60</sub> = 0.2105
D <sub>50</sub> = 0.1921	D <sub>30</sub> = 0.1566	D <sub>15</sub> = 0.0980
D <sub>10</sub> =	C <sub>u</sub> =	C <sub>c</sub> =
<u><b>Classification</b></u>		
USCS= SM	AASHTO=	
<u><b>Remarks</b></u>		

Location: BI-PBC-28-12 B  
Sample Number: 6494 (43)

Depth: 6.0'

Date: 12/26/12

**Thompson Engineering**

**Mobile, Alabama**

Client: CDM/Thompson Engineering JV  
Project: MsCIP Barrier Island Restoration GT

Project No: 1221110095

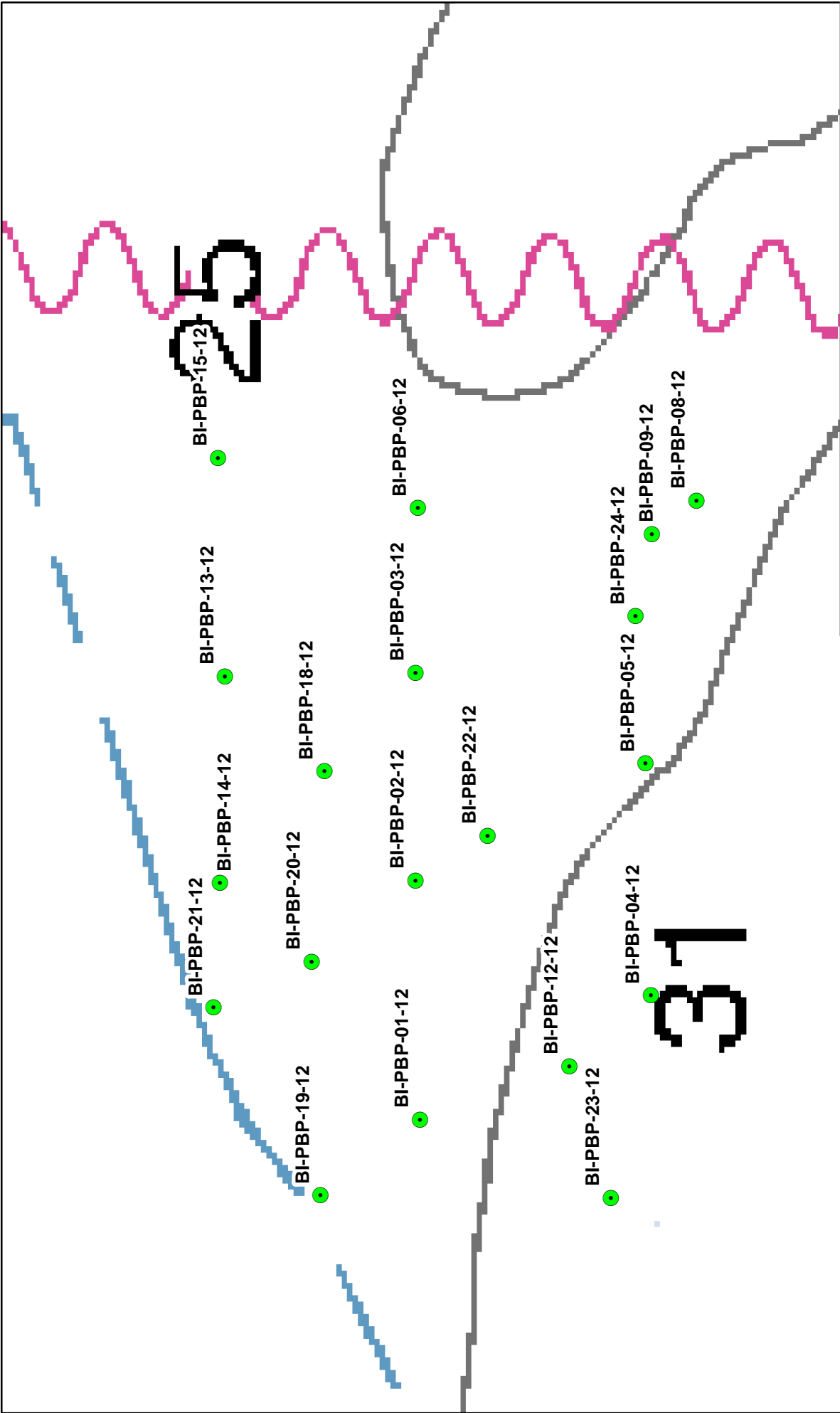
Figure

## **Appendix J**

### **Petit Bois Pass-Mississippi Vibracores and Lab Results**

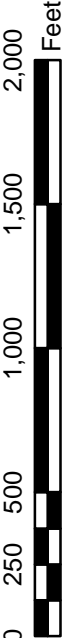
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## 2012 Petit Bois Pass-Mississippi Vibracore Locations

● 2012 PBP-MS Borings



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Vibracore / Sample ID	Investigation Area	Sample Event	Date of Sample	Time_CST	Latitude	Longitude	Northing_Y	Easting_X	Sample Method	Water Depth (feet)	Boring Depth (feet below seafloor surface )	Sample Depth (Feet below seafloor surface)	Sample Thickness (feet)	Field USCS	Lab USCS	Angularity	Wet Munsell Color	Wet Munsell Color Code	Wet Munsell Value	Dry Munsell Color	Dry Munsell Color Code	Dry Munsell Value	CaCO3	D50 (mm)	Graphic Mean (mm)	% Fines	Cu (D60/D10)	Cc (D30)^2 / (D10*D60)
BI-PBP-1-12	PETIT BOIS PASS - MISSISSIPPI	2012	12/8/2012	11:10 AM	30.19192	-88.39588	251890.15020	1122454.74100	20-ft Vibracore	31.7	16.3																	
BI-PBP-1-12A	PETIT BOIS PASS - MISSISSIPPI	2012	12/8/2012	11:10 AM	30.19192	-88.39588	251890.15020	1122454.74100	20-ft Vibracore	31.7	16.3	0-0.6	0.6	SP	SP	SUBANGULAR TO SUBROUNDED	OLIVE	5Y 5/3	5	PALE OLIVE	5Y 6/3	6		0.25	0.27	2.1	1.9	0.9
BI-PBP-1-12B	PETIT BOIS PASS - MISSISSIPPI	2012	12/8/2012	11:10 AM	30.19192	-88.39588	251890.15020	1122454.74100	20-ft Vibracore	31.7	16.3	1.3-2.5	1.2	SP	SP	SUBANGULAR TO SUBROUNDED	LT GRAY	2.5Y 7/1	7	WHITE	5Y 8/1	8		0.37	0.38	1.6	1.5	1.0
BI-PBP-1-12C	PETIT BOIS PASS - MISSISSIPPI	2012	12/8/2012	11:10 AM	30.19192	-88.39588	251890.15020	1122454.74100	20-ft Vibracore	31.7	16.3	2.5-6.1	3.6	SP	SP	SUBANGULAR TO SUBROUNDED	LT OLIVE GRAY	5Y 6/2	6	LT GRAY	5Y 7/2	7		0.48	0.58	1.4	2.3	0.9
BI-PBP-1-12D	PETIT BOIS PASS - MISSISSIPPI	2012	12/8/2012	11:10 AM	30.19192	-88.39588	251890.15020	1122454.74100	20-ft Vibracore	31.7	16.3	6.1-7.4	1.3	SP-SM	SP-SM	SUBANGULAR TO SUBROUNDED	OLIVE GRAY	5Y 4/2	4	OLIVE GRAY	5Y 5/2	5		0.34	0.35	8.2	4.7	1.9
BI-PBP-1-12E	PETIT BOIS PASS - MISSISSIPPI	2012	12/8/2012	11:10 AM	30.19192	-88.39588	251890.15020	1122454.74100	20-ft Vibracore	31.7	16.3	7.4-9.2	1.8	SP	SP	SUBANGULAR TO SUBROUNDED	WHITE	2.5Y 8/1	8	WHITE	2.5Y 8.5/1	9		0.37	0.39	0.9	1.5	0.9
BI-PBP-1-12F	PETIT BOIS PASS - MISSISSIPPI	2012	12/8/2012	11:10 AM	30.19192	-88.39588	251890.15020	1122454.74100	20-ft Vibracore	31.7	16.3	11.7-13	1.3	SP	SP	SUBANGULAR TO SUBROUNDED	OLIVE GRAY	5Y 5/2	5	LT OLIVE GRAY	5Y 6/2	6		0.30	0.31	3.2	1.9	1.1
BI-PBP-1-12G	PETIT BOIS PASS - MISSISSIPPI	2012	12/8/2012	11:10 AM	30.19192	-88.39588	251890.15020	1122454.74100	20-ft Vibracore	31.7	16.3	13-16.3	3.3	SP	SP	SUBANGULAR TO SUBROUNDED	OLIVE GRAY	5Y 5/2	5	LT OLIVE GRAY	5Y 6/2	6		0.35	0.40	4.1	2.4	1.1
BI-PBP-2-12	PETIT BOIS PASS - MISSISSIPPI	2012	12/8/2012	12:01 PM	30.19198	-88.39268	251915.86740	1123465.64300	20-ft Vibracore	25.8	15.0																	
BI-PBP-2-12A	PETIT BOIS PASS - MISSISSIPPI	2012	12/8/2012	12:01 PM	30.19198	-88.39268	251915.86740	1123465.64300	20-ft Vibracore	25.8	15.0	0-5	5.0	SP	SP	SUBANGULAR TO SUBROUNDED	LT OLIVE GRAY	5Y 6/2	6	LT GRAY	5Y 7/2	7		0.32	0.34	1.1	1.7	1.0
BI-PBP-2-12B	PETIT BOIS PASS - MISSISSIPPI	2012	12/8/2012	12:01 PM	30.19198	-88.39268	251915.86740	1123465.64300	20-ft Vibracore	25.8	15.0	6-8.6	2.6	SP	SP	SUBANGULAR TO SUBROUNDED	OLIVE GRAY	5Y 5/2	5	LT OLIVE GRAY	5Y 6/2	6		0.24	0.28	4.4	1.9	1.0
BI-PBP-2-12C	PETIT BOIS PASS - MISSISSIPPI	2012	12/8/2012	12:01 PM	30.19198	-88.39268	251915.86740	1123465.64300	20-ft Vibracore	25.8	15.0	8.6-11	2.4	SP	SP	SUBANGULAR TO SUBROUNDED	LT OLIVE GRAY	5Y 6/2	6	LT GRAY	5Y 7/2	7		0.36	0.39	1.7	1.7	1.0
BI-PBP-2-12D	PETIT BOIS PASS - MISSISSIPPI	2012	12/8/2012	12:01 PM	30.19198	-88.39268	251915.86740	1123465.64300	20-ft Vibracore	25.8	15.0	11-15	4.0	SP	SP	SUBANGULAR TO SUBROUNDED	LT OLIVE GRAY	5Y 6/2	6	LT GRAY	5Y 7/2	7		0.32	0.36	2.7	2.1	1.0
BI-PBP-3-12	PETIT BOIS PASS - MISSISSIPPI	2012	12/8/2012	1:07 PM	30.19198	-88.38990	251919.27520	1124343.93700	20-ft Vibracore	28.9	19.0																	
BI-PBP-3-12B	PETIT BOIS PASS - MISSISSIPPI	2012	12/8/2012	1:07 PM	30.19198	-88.38990	251919.27520	1124343.93700	20-ft Vibracore	28.9	19.0	0-1.8	1.8	SP	SP	SUBANGULAR TO SUBROUNDED	LT OLIVE GRAY	5Y 6/2	6	LT GRAY	5Y 7/2	7		0.38	0.43	1.0	1.8	0.9
BI-PBP-3-12A	PETIT BOIS PASS - MISSISSIPPI	2012	12/8/2012	1:07 PM	30.19198	-88.38990	251919.27520	1124343.93700	20-ft Vibracore	28.9	19.0	3.1-4	0.9	SP	SP	SUBANGULAR TO SUBROUNDED	GRAY	5Y 6/1	6	LT GRAY	5Y 7/1	7		0.34	0.37	1.6	1.9	1.1
BI-PBP-3-12D	PETIT BOIS PASS - MISSISSIPPI	2012	12/8/2012	1:07 PM	30.19198	-88.38990	251919.27520	1124343.93700	20-ft Vibracore	28.9	19.0	4-5.1	1.1	SP	SP	SUBANGULAR TO SUBROUNDED	LT OLIVE GRAY	5Y 6/2	6	LT GRAY	5Y 7/2	7		0.36	0.40	1.8	1.8	1.0
BI-PBP-3-12C	PETIT BOIS PASS - MISSISSIPPI	2012	12/8/2012	1:07 PM	30.19198	-88.38990	251919.27520	1124343.93700	20-ft Vibracore	28.9	19.0	5.1-7.1	2.0	SP	SP	SUBANGULAR TO SUBROUNDED	LT GRAY	2.5Y 7/1	7	WHITE	2.5Y 8/1	8		0.29	0.29	2.1	1.7	1.0
BI-PBP-4-12	PETIT BOIS PASS - MISSISSIPPI	2012	12/22/2012	2:57 PM	30.18883	-88.39422	250768.37780	1122983.52100	20-ft Vibracore	32.3	15.0																	
BI-PBS-4-12A	PETIT BOIS PASS - MISSISSIPPI	2012	12/22/2012	2:57 PM	30.18883	-88.39422	250768.37780	1122983.52100	20-ft Vibracore	32.3	15.0	0-4.3	4.3	SP-SM	SP-SM	SUBANGULAR TO SUBROUNDED	OLIVE GRAY	5Y 4/2	4	LT OLIVE GRAY	5Y 6/2	6		0.25	0.28	5.6	2.8	1.2
BI-PBP-5-12	PETIT BOIS PASS - MISSISSIPPI	2012	12/8/2012	2:53 PM	30.18890	-88.39112	250797.62370	1123962.84600	20-ft Vibracore	31.2	16.8																	
BI-PBP-5-12A	PETIT BOIS PASS - MISSISSIPPI	2012	12/8/2012	2:53 PM	30.18890	-88.39112	250797.62370	1123962.84600	20-ft Vibracore	31.2	16.8	0-4.5	4.5	SP	SP	SUBANGULAR TO SUBROUNDED	LT OLIVE GRAY	5Y 6/2	6	LT GRAY	5Y 7/2	7		0.27	0.28	1.8	1.7	1.0
BI-PBP-5-12B	PETIT BOIS PASS - MISSISSIPPI	2012	12/8/2012	2:53 PM	30.18890	-88.39112	250797.62370	1123962.84600	20-ft Vibracore	31.2	16.8	6.2-7.2	1.0	SP-SM	SP-SM	SUBANGULAR TO SUBROUNDED	LT OLIVE GRAY	5Y 6/2	6	LT GRAY	5Y 7/2	7		0.24	0.26	5.4	1.8	1.0
BI-PBP-6-12	PETIT BOIS PASS - MISSISSIPPI	2012	12/8/2012	1:47 PM	30.19195	-88.38770	251911.07660	1125039.03300	20-ft Vibracore	33.0	6.8		5.5															
BI-PBP-6-12A	PETIT BOIS PASS - MISSISSIPPI	2012	12/8/2012	1:47 PM	30.19195	-88.38770	251911.07660	1125039.03300	20-ft Vibracore	33.0	6.8	0-3.4	3.4	SP	SP	SUBANGULAR TO SUBROUNDED	LT OLIVE GRAY	5Y 6/2	6	LT GRAY	5Y 7/2	7		0.33	0.36	2.1	1.7	1.1
BI-PBP-6-12B	PETIT BOIS PASS - MISSISSIPPI	2012	12/8/2012	1:47 PM	30.19195	-88.38770	251911.07660	1125039.03300	20-ft Vibracore	33.0	6.8	4.7-6.8	2.1	SP	SP	SUBANGULAR TO SUBROUNDED	DK GRAYISH BROWN	2.5Y 4/2	4	GRAYISH BROWN	2.5Y 5/2	5		0.24	0.28	2.7	2.0	0.9
BI-PBP-8-12	PETIT BOIS PASS - MISSISSIPPI	2012	12/22/2012	1:50 PM	30.18822	-88.38760	250554.65060	1125075.93300	20-ft Vibracore	27.1	16.7																	
BI-PBP-8-12A	PETIT BOIS PASS - MISSISSIPPI	2012	12/22/2012	1:50 PM	30.18822	-88.38760	250554.65060	1125075.93300	20-ft Vibracore	27.1	16.7	0-5	5.0	SP	SP	SUBANGULAR TO SUBROUNDED	LT OLIVE GRAY	5Y 6/2	6	LT GRAY	5Y 7/2	7		0.36	0.41	1.0	1.8	1.0
BI-PBP-8-12B	PETIT BOIS PASS - MISSISSIPPI	2012	12/22/2012	1:50 PM	30.18822	-88.38760	250554.65060	1125075.93300	20-ft Vibracore	27.1	16.7	5-6.3	1.3	SP	SP	SUBANGULAR TO SUBROUNDED	OLIVE GRAY	5Y 5/2	5	LT GRAY	5Y 7/2	7		0.24	0.27	1.7	1.6	0.9
BI-PBP-9-12	PETIT BOIS PASS - MISSISSIPPI	2012	12/8/2012	2:18 PM	30.18882	-88.38805	250772.30640	1124932.90500	20-ft Vibracore	28.9	18.0																	
BI-PBP-9-12A	PETIT BOIS PASS - MISSISSIPPI	2012	12/8/2012	2:18 PM	30.18882	-88.38805	250772.30640	1124932.90500	20-ft Vibracore	28.9	18.0	0-2.2	2.2	SP	SP	SUBANGULAR TO SUBROUNDED	LT BROWNISH GRAY	2.5Y 6/2	6	LT GRAY	2.5Y 7/2	7		0.33	0.35	1.0	1.7	1.0
BI-PBP-9-12B	PETIT BOIS PASS - MISSISSIPPI	2012	12/8/2012	2:18 PM	30.18882	-88.38805	250772.30640	1124932.90500	20-ft Vibracore	28.9	18.0	2.4-5.6	3.2	SP	SP	SUBANGULAR TO SUBROUNDED	LT OLIVE GRAY	5Y 6/2	6	LT GRAY	5Y 7/2	7		0.26	0.29	1.7	1.8	0.9
BI-PBP-12-12	PETIT BOIS PASS - MISSISSIPPI	2012	12/22/2012	2:22 PM	30.18992	-88.39517	251163.64000	1122681.85100	20-ft Vibracore	32.5	8.6																	
BI-PBP-12-12A	PETIT BOIS PASS - MISSISSIPPI	2012	12/22/2012	2:22 PM	30.18992	-88.39517	251163.64000	1122681.85100	20-ft Vibracore	32.5	8.6	0-2.1	2.1	SP	SP	SUBANGULAR TO SUBROUNDED	OLIVE GRAY	5Y 5/2	5	LT OLIVE GRAY	5Y 6/2	6		0.28	0.31	2.0	1.9	0.9
BI-PBP-12-12B	PETIT BOIS PASS - MISSISSIPPI	2012	12/22/2012	2:22 PM	30.18992	-88.39517	251163.64000	1122681.85100	20-ft Vibracore	32.5	8.6	3.1-5.7	2.6	SM	SP-SM	SUBANGULAR TO SUBROUNDED	OLIVE GRAY	5Y 4/2	4	OLIVE GRAY	5Y 5/2	5		0.29	0.32	7.3	2.8	1.2
BI-PBP-12-12C	PETIT BOIS PASS - MISSISSIPPI	2012	12/22/2012	2:22 PM	30.18992	-88.39517	251163.64000	1122681.85100	20-ft Vibracore	32.5	8.6	6.9-8.6	1.7	SP-SM	SP	SUBANGULAR TO SUBROUNDED	DK GRAYISH BROWN	2.5Y 4/2	4	LT BROWNISH GRAY	2.5Y 6/2	6		0.23	0.27	3.1	2.3	1.0
BI-PBP-13-12	PETIT BOIS PASS - MISSISSIPPI	2012	12/22/2012	10:49 AM	30.19453	-88.38995	252846.61390	1124324.53100	20-ft Vibracore	29.0	19.3																	
BI-PBP-13-12A	PETIT BOIS PASS - MISSISSIPPI	2012	12/22/2012	10:49 AM	30.19453	-88.38995	252846.61390	1124324.53100	20-ft Vibracore	29.0	19.3	0-4.8	4.8	SP	SP	SUBANGULAR TO SUBROUNDED	LT BROWNISH GRAY	2.5Y 6/2	6	LT GRAY	2.5Y 7/2	7		0.29	0.32	1.9	1.9	1.0
BI-PBP-13-12B	PETIT BOIS PASS - MISSISSIPPI	2012	12/22/2012	10:49 AM	30.19453	-88.38995	252846.61390	1124324.53100	20-ft Vibracore	29.0	19.3	6-9.5	3.5	SP-SM	SP-SM	SUBANGULAR TO SUBROUNDED	VERY DK GRAYISH BROWN	2.5Y 3/2	3	DK GRAYISH BROWN	2.5Y 4/2	4		0.24	0.27	5.3	2.7	1.0
BI-PBP-14-12	PETIT BOIS PASS - MISSISSIPPI	2012	12/22/2012	11:17 AM	30.19460	-88.39272	252868.67660	1123449.32000	20-ft Vibracore	27.3	15.5																	
BI-PBP-14-12A	PETIT BOIS PASS - MISSISSIPPI	2012	12/22/2012	11:17 AM	30.19460	-88.39272	252868.67660	1123449.32000	20-ft Vibracore	27.3	15.5	0-2	2.0	SP	SP	SUBANGULAR TO SUBROUNDED	OLIVE GRAY	5Y 5/2	5	LT OLIVE GRAY	5Y 6/2	6		0.26	0.30	2.5	2.3	1.0
BI-PBP-15-12	PETIT BOIS PASS - MISSISSIPPI	2012	12/22/2012	10:19 AM	30.19462	-88.38703	252882.94790	1125246.90400	20-ft Vibracore	29.4	19.6																	
BI-PBP-15-12A	PETIT BOIS PASS - MISSISSIPPI	2012	12/22/2012	10:19 AM	30.19462	-88.38703	25288																					

Vibracore / Sample ID	Investigation Area	Sample Event	Date of Sample	Time_CST	Latitude	Longitude	Northing_Y	Easting_X	Sample Method	Water Depth (feet)	Boring Depth (feet below seafloor surface )	Sample Depth (Feet below seafloor surface)	Sample Thickness (feet)	Field USCS	Lab USCS	Angularity	Wet Munsell Color	Wet Munsell Color Code	Wet Munsell Value	Dry Munsell Color	Dry Munsell Color Code	Dry Munsell Value	CaCO3	D50 (mm)	Graphic Mean (mm)	% Fines	Cu (D60/D10)	Cc (D30)^2 / (D10*D60)
BI-PBP-19-12B	PETIT BOIS PASS - MISSISSIPPI	2012	12/22/2012	11:45 AM	30.19325	-88.39690	252372.61680	1122130.63600	20-ft Vibracore	30.5	17.7	3-7.9	4.9	SP	SP	SUBANGULAR TO SUBROUNDED	LT BROWNISH GRAY	2.5Y 6/2	6	LT GRAY	2.5Y 7/2	7		0.35	0.37	1.5	1.4	1.0
BI-PBP-19-12C	PETIT BOIS PASS - MISSISSIPPI	2012	12/22/2012	11:45 AM	30.19325	-88.39690	252372.61680	1122130.63600	20-ft Vibracore	30.5	17.7	7.9-12	4.1	SP-SM	SP	SUBANGULAR TO SUBROUNDED	OLIVE GRAY	5Y 4/2	4	LT OLIVE GRAY	5Y 6/2	6		0.43	0.48	3.7	1.8	0.9
BI-PBP-19-12D	PETIT BOIS PASS - MISSISSIPPI	2012	12/22/2012	11:45 AM	30.19325	-88.39690	252372.61680	1122130.63600	20-ft Vibracore	30.5	17.7	14.1-17.7	3.6	SP	SP	SUBANGULAR TO SUBROUNDED	GRAYISH BROWN	2.5Y 5/2	5	LT BROWNISH GRAY	2.5Y 6/2			0.34	0.35	3.0	1.6	1.0
BI-PBP-20-12	PETIT BOIS PASS - MISSISSIPPI	2012	12/22/2012	12:49 PM	30.19337	-88.39377	252420.06100	1123119.32500	20-ft Vibracore	24.2	13.1																	
BI-PBP-20-12A	PETIT BOIS PASS - MISSISSIPPI	2012	12/22/2012	12:49 PM	30.19337	-88.39377	252420.06100	1123119.32500	20-ft Vibracore	24.2	13.1	0-5	5.0	SP	SP	SUBANGULAR TO SUBROUNDED	OLIVE GRAY	5Y 5/2	5	LT GRAY	5Y 7/2	7		0.33	0.36	0.9	1.9	1.0
BI-PBP-20-12B	PETIT BOIS PASS - MISSISSIPPI	2012	12/22/2012	12:49 PM	30.19337	-88.39377	252420.06100	1123119.32500	20-ft Vibracore	24.2	13.1	5-10	5.0	SP	SP	SUBANGULAR TO SUBROUNDED	OLIVE GRAY	5Y 5/2	5	LT OLIVE GRAY	5Y 6/2	6		0.23	0.25	4.3	1.6	1.0
BI-PBP-20-12C	PETIT BOIS PASS - MISSISSIPPI	2012	12/22/2012	12:49 PM	30.19337	-88.39377	252420.06100	1123119.32500	20-ft Vibracore	24.2	13.1	10-13.1	3.1	SP	SP	SUBANGULAR TO SUBROUNDED	OLIVE GRAY	5Y 5/2	5	LT GRAY	5Y 7/2	7		0.30	0.31	3.1	1.8	1.0
BI-PBP-21-12	PETIT BOIS PASS - MISSISSIPPI	2012	1/4/2013	11:30 AM	30.19468	-88.39438	252895.74690	1122924.77300	20-ft Vibracore	25.8	13.0																	
BI-PBP-21-12A	PETIT BOIS PASS - MISSISSIPPI	2012	1/4/2013	11:30 AM	30.19468	-88.39438	252895.74690	1122924.77300	20-ft Vibracore	25.8	13.0	0.0-2.5	2.5	SP	SP	SUBANGULAR TO SUBROUNDED	LT OLIVE GRAY	5Y 6/2	6	LT GRAY	5Y 7/2	7		0.31	0.34	1.4	1.9	1.0
BI-PBP-21-12B	PETIT BOIS PASS - MISSISSIPPI	2012	1/4/2013	11:30 AM	30.19468	-88.39438	252895.74690	1122924.77300	20-ft Vibracore	25.8	13.0	2.5-7.5	5.0	SP	SP	SUBANGULAR TO SUBROUNDED	LT GRAY	5Y 7/1	7	WHITE	5Y 8/1	8		0.30	0.31	1.6	1.6	1.0
BI-PBP-21-12C	PETIT BOIS PASS - MISSISSIPPI	2012	1/4/2013	11:30 AM	30.19468	-88.39438	252895.74690	1122924.77300	20-ft Vibracore	25.8	13.0	7.5-13.0	5.5	SP	SP	SUBANGULAR TO SUBROUNDED	LT GRAY	5Y 7/1	7	WHITE	5Y 8/1	8		0.30	0.30	1.7	1.6	1.0
BI-PBP-22-12	PETIT BOIS PASS - MISSISSIPPI	2012	1/4/2013	10:54 AM	30.19102	-88.39208	251567.46240	1123656.55500	20-ft Vibracore	24.2	18.8																	
BI-PBP-22-12A	PETIT BOIS PASS - MISSISSIPPI	2012	1/4/2013	10:54 AM	30.19102	-88.39208	251567.46240	1123656.55500	20-ft Vibracore	24.2	18.8	0.0-5.0	5.0	SP	SP	SUBANGULAR TO SUBROUNDED	LT OLIVE GRAY	5Y 6/2	6	LT GRAY	5Y 7/2	7		0.31	0.31	1.3	1.6	1.0
BI-PBP-22-12B	PETIT BOIS PASS - MISSISSIPPI	2012	1/4/2013	10:54 AM	30.19102	-88.39208	251567.46240	1123656.55500	20-ft Vibracore	24.2	18.8	5.0-10.0	5.0	SP	SP	SUBANGULAR TO SUBROUNDED	OLIVE GRAY	5Y 5/2	5	LT GRAY	5Y 7/2	7		0.29	0.31	2.2	1.8	1.0
BI-PBP-22-12C	PETIT BOIS PASS - MISSISSIPPI	2012	1/4/2013	10:54 AM	30.19102	-88.39208	251567.46240	1123656.55500	20-ft Vibracore	24.2	18.8	10.3-14.2	3.9	SP	SP	SUBANGULAR TO SUBROUNDED	OLIVE GRAY	5Y 5/2	5	LT OLIVE GRAY	5Y 6/2	6		0.24	0.30	4.5	1.8	1.0
BI-PBP-23-12	PETIT BOIS PASS - MISSISSIPPI	2012	1/4/2013	10:12 AM	30.18937	-88.39693	250961.47860	1122126.56300	20-ft Vibracore	35.4	14.9																	
BI-PBP-23-12A	PETIT BOIS PASS - MISSISSIPPI	2012	1/4/2013	10:12 AM	30.18937	-88.39693	250961.47860	1122126.56300	20-ft Vibracore	35.4	14.9	1.2-3.2	2.0	SP	SP-SM	SUBANGULAR TO SUBROUNDED	OLIVE GRAY	5Y 4/2	4	OLIVE GRAY	5Y 5/2	5		0.32	0.32	6.9	2.1	1.4
BI-PBP-23-12B	PETIT BOIS PASS - MISSISSIPPI	2012	1/4/2013	10:12 AM	30.18937	-88.39693	250961.47860	1122126.56300	20-ft Vibracore	35.4	14.9	4.8-7.3	2.5	SC	SM	SUBANGULAR TO SUBROUNDED	DK GRAYISH BROWN	2.5Y 4/2	4	GRAYISH BROWN	2.5Y 5/2	5		0.13	0.15	13.0	#VALUE!	#VALUE!
BI-PBP-23-12C	PETIT BOIS PASS - MISSISSIPPI	2012	1/4/2013	10:12 AM	30.18937	-88.39693	250961.47860	1122126.56300	20-ft Vibracore	35.4	14.9	9.3-11.3	2.0	SM	SM	SUBANGULAR TO SUBROUNDED	OLIVE GRAY	5Y 4/2	4	OLIVE GRAY	5Y 5/2	5		0.18	0.19	14.3	#VALUE!	#VALUE!
BI-PBP-23-12D	PETIT BOIS PASS - MISSISSIPPI	2012	1/4/2013	10:12 AM	30.18937	-88.39693	250961.47860	1122126.56300	20-ft Vibracore	35.4	14.9	11.3-14.4	3.1	SP	SP-SM	SUBANGULAR TO SUBROUNDED	OLIVE GRAY	5Y 4/2	4	LT OLIVE GRAY	5Y 6/2	6		0.14	0.14	5.4	1.5	1.1
BI-PBP-24-12	PETIT BOIS PASS - MISSISSIPPI	2012	1/4/2013	9:28 AM	30.18903	-88.38915	250847.32400	1124585.07000	20-ft Vibracore	27.1	19.9																	
BI-PBP-24-12A	PETIT BOIS PASS - MISSISSIPPI	2012	1/4/2013	9:28 AM	30.18903	-88.38915	250847.32400	1124585.07000	20-ft Vibracore	27.1	19.9	0.0-5.0	5.0	SP	SP-SM	SUBANGULAR TO SUBROUNDED	LT OLIVE GRAY	5Y 6/2	6	LT GRAY	5Y 7/2	7		0.33	0.35	5.1	1.9	1.0
BI-PBP-24-12B	PETIT BOIS PASS - MISSISSIPPI	2012	1/4/2013	9:28 AM	30.18903	-88.38915	250847.32400	1124585.07000	20-ft Vibracore	27.1	19.9	5.0-8.6	3.6	SP	SP	SUBANGULAR TO SUBROUNDED	OLIVE GRAY	5Y 5/2	5	LT GRAY	5Y 7/2	7		0.25	0.29	2.0	1.8	0.9
BI-PBP-24-12C	PETIT BOIS PASS - MISSISSIPPI	2012	1/4/2013	9:28 AM	30.18903	-88.38915	250847.32400	1124585.07000	20-ft Vibracore	27.1	19.9	8.6-11.2	2.6	SP-SM	SP-SM	SUBANGULAR TO SUBROUNDED	OLIVE GRAY	5Y 5/2	5	LT OLIVE GRAY	5Y 6/2	6		0.30	0.30	6.2	2.1	1.2
BI-PBP-24-12D	PETIT BOIS PASS - MISSISSIPPI	2012	1/4/2013	9:28 AM	30.18903	-88.38915	250847.32400	1124585.07000	20-ft Vibracore	27.1	19.9	13.6-18.1	4.5	SM	SM	SUBANGULAR TO SUBROUNDED	VERY DK GRAYISH BROWN	2.5Y 3/2	3	DK GRAYISH BROWN	2.5Y 4/2	4		0.12	0.13	13.6	#VALUE!	#VALUE!

Cu: Coefficient of Uniformity

Cc: Coefficient of Curvature

The "#Value!" error message indicates that data was not available for that calculation.

# Boring Designation BI-PBP-01-12

<b>DRILLING LOG</b>		<b>DIVISION</b> South Atlantic	<b>INSTALLATION</b> Mobile District	<b>SHEET 1</b> <b>OF 2 SHEETS</b>
<b>1. PROJECT</b> MsCIP Barrier Island Restoration Petit Bois Pass-MS		<b>9. SIZE AND TYPE OF BIT</b> N/A		
<b>2. BORING DESIGNATION</b> BI-PBP-01-12		<b>10. COORDINATE SYSTEM/DATUM</b> State Plane, MSE (U.S. Ft.)		
<b>3. DRILLING AGENCY</b> Corps of Engineers - CESAM		<b>11. MANUFACTURER'S DESIGNATION OF DRILL</b> Vibracore		
<b>4. NAME OF DRILLER</b> American Vibracore Systems, Inc.		<b>12. TOTAL SAMPLES</b> 0		
<b>5. DIRECTION OF BORING</b> <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED		<b>13. TOTAL NUMBER CORE BOXES</b>		
<b>6. THICKNESS OF OVERBURDEN</b> N/A		<b>14. WATER DEPTH</b> 31.7 Ft.		
<b>7. DEPTH DRILLED INTO ROCK</b> N/A		<b>15. DATE BORING</b> 12-08-12		
<b>8. TOTAL DEPTH OF BORING</b> 16.3 Ft.		<b>16. ELEVATION TOP OF BORING</b> -31.1 Ft.		
		<b>17. TOTAL RECOVERY FOR BORING</b> 100%		
		<b>18. SIGNATURE AND TITLE OF INSPECTOR</b> Mike FitzHarris, Geologist		

ELEV.	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS	SAMPLE	LABORATORY RESULTS
-31.1	0.0				
-31.7	0.6			A	Classification: SP Color: 5Y 6/3-pale olive D50: 0.2506 mm % Fines: 2.1
-32.1	1.0		SAND, poorly-graded, mostly fine-grained sand-sized quartz, trace silt, brownish gray (SP)	NS	
			CLAY, fat, mostly clay, medium to high plasticity, dark gray (CH)	C	Classification: SP Color: 5Y 7/2-light gray D50: 0.4777 mm % Fines: 1.4
			SAND, poorly-graded, mostly fine to medium-grained sand-sized quartz, little shell fragments, trace silt, gray (SP)	B	Classification: SP Color: 5Y 8/1-white D50: 0.3651 mm % Fines: 1.6
			At El. -32.4 Ft., mostly fine to medium-grained sand-sized quartz, some shell fragments, trace silt, gray		
-38.5	7.4		At El. -33.6 Ft., mostly fine-grained sand-sized quartz, trace silt, trace shell fragments, trace clay stringers, lt. gray to white	E	Classification: SP Color: 2.5Y 8.5/1- D50: 0.3686 mm % Fines: 0.9
-40.3	9.2		At El. -37.4 Ft., mostly fine to medium-grained sand-sized quartz, trace silt, lt. gray to white	D	Classification: SP-SM Color: 5Y 5/2-olive gray D50: 0.3369 mm % Fines: 8.2
-42.1	11.0		SAND, poorly-graded with silt, mostly fine-grained sand-sized quartz, few silt, trace shell fragments, dark gray (SP-SM)	NS	
-42.4	11.3				
-42.8	11.7		SAND, silty, mostly fine-grained sand-sized quartz, trace shell fragments, dark gray (SM)	G	Classification: SP Color: 5Y 6/2-light olive gray D50: 0.3452 mm % Fines: 4.1
			CLAY, fat, mostly clay, medium to high plasticity, dark gray (CH)		
			SAND, poorly-graded with silt, mostly fine-grained sand-sized quartz, few silt, clay banding, dark gray (SP-SM)	F	Classification: SP Color: 5Y 6/2-light olive gray D50: 0.3004 mm % Fines: 3.2
-47.4	16.3				
			SAND, poorly-graded, mostly fine to medium-grained sand-sized quartz, some shell fragments, trace silt, clay nodules, gray (SP)		
			At El. -44.2 Ft., mostly fine-grained sand-sized quartz, trace silt, trace clay, trace shell fragments, gray to light gray		
			NOTES: 1. Soils are field visually classified in accordance with the Unified Soils Classification System. 2. NS = Sample not submitted for laboratory analysis from this interval. 3. Sample intervals do not match up with lithologic intervals because the contractor		

<b>DRILLING LOG (Cont. Sheet)</b>			<b>INSTALLATION</b> Mobile District		<b>SHEET 2</b> <b>OF 2 SHEETS</b>
<b>PROJECT</b> MsCIP Barrier Island Restoration			<b>COORDINATE SYSTEM/DATUM</b> State Plane, MSE (U.S. Ft.)	<b>HORIZONTAL</b> NAD83	<b>VERTICAL</b> NAVD88
<b>LOCATION COORDINATES</b> X = 1,122,455 Y = 251,890			<b>ELEVATION TOP OF BORING</b> -31.1 Ft.		
<b>ELEV.</b>	<b>DEPTH</b>	<b>LEGEND</b>	<b>CLASSIFICATION OF MATERIALS</b>	<b>SAMPLE</b>	<b>LABORATORY RESULTS</b>
			<p>reversed the tubes on the table during sampling. This caused a disjointed sampling event because there were four five-foot tubes and the tops and bottoms did not match up correctly. The original log was redrawn to correct this situation, but the samples remained from the original, incorrect intervals. Their depths have been adjusted to account for the mix up. The lab sample intervals are incorrect; they match the original sample intervals.</p> <p>4. Seafloor elevation determined from USACE hydrographic survey completed April 2014.</p>		



**Project**

Mississippi Barrier Island  
Restoration Project

**AVS**  
**AMERICAN VIBRACORE**  
**S E R V I C E S**

**Core Identifier** BI-PBP-1-12

**Date** 12/08/2012

**Water Depth** 31.7'

**Coordinate System**

**Start Time** 11:08:23

Latitude / Longitude

**End Time** 11:13:58

**Penetration** 18.9'

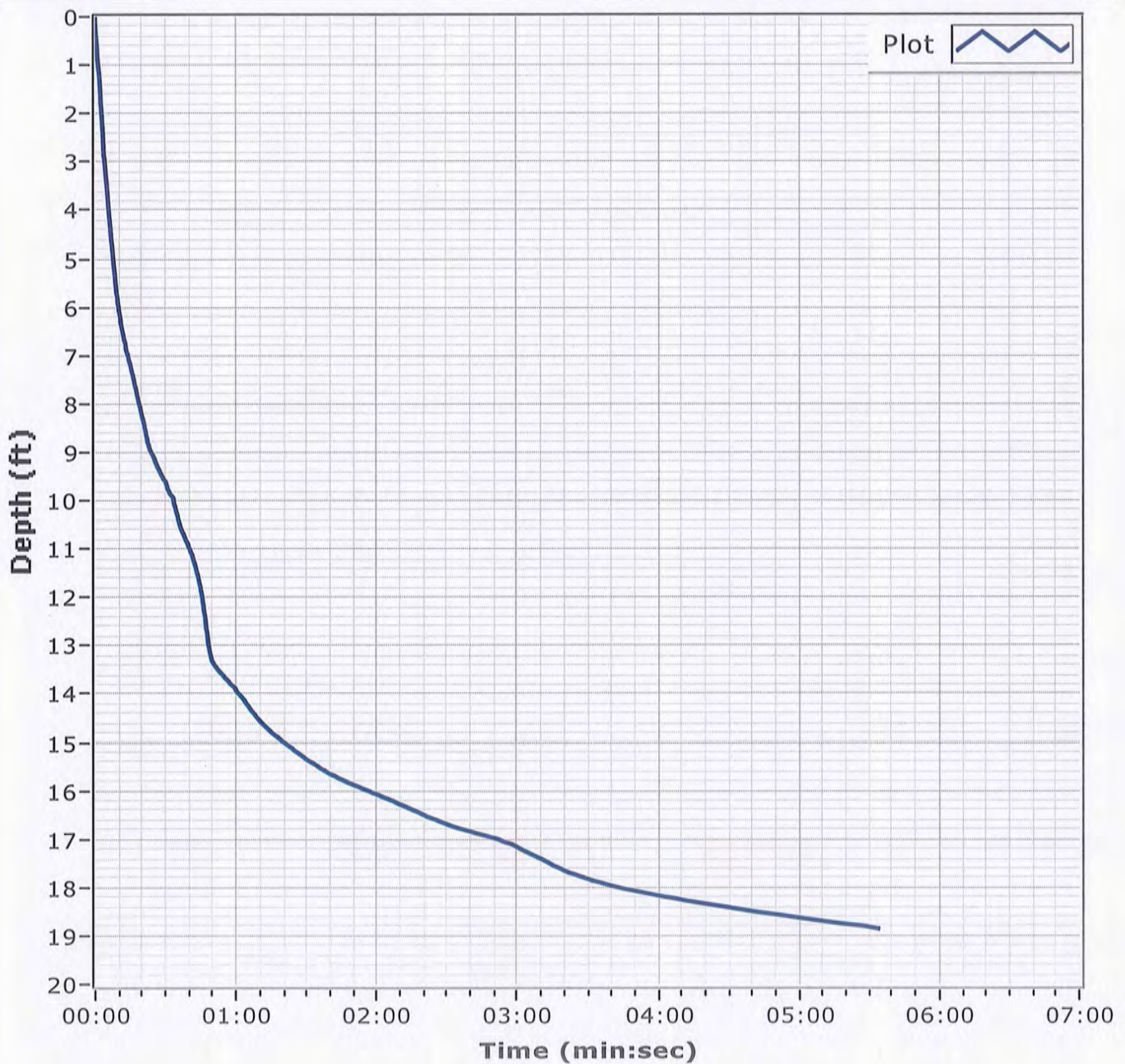
**Latitude** 30 11.515

**Total Time** 00:05:34

**Recovery** 16.3'

**Longitude** 088 23.753

**Comments**



# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.0	0.3	12.6	85.0	2.1	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
1	100.0		
.75	100.0		
.5	100.0		
.375	100.0		
#4	100.0		
#10	99.7		
#20	98.7		
#40	87.1		
#60	49.8		
#100	10.1		
#140	2.8		
#200	2.1		

\* (no specification provided)

Material Description		
Fine to medium grained, SAND		
<div> <div> Atterberg Limits </div> <div> PL= </div> <div> LL= </div> <div> PI= </div> </div>		
<div> <div> Coefficients </div> <div> D<sub>90</sub>= 0.4561 </div> <div> D<sub>50</sub>= 0.2506 </div> <div> D<sub>10</sub>= 0.1495 </div> <div> D<sub>85</sub>= 0.4068 </div> <div> D<sub>30</sub>= 0.1999 </div> <div> C<sub>u</sub>= 1.88 </div> <div> D<sub>60</sub>= 0.2818 </div> <div> D<sub>15</sub>= 0.1639 </div> <div> C<sub>c</sub>= 0.95 </div> </div>		
<div> <div> Classification </div> <div> USCS= SP </div> <div> AASHTO= </div> </div>		
<div> <div> Remarks </div> </div>		

Location: BI-PBP-1-12 A  
Sample Number: 6482 (20)

Depth: 0.7'

Date: 12/12/12

**Thompson Engineering**

**Mobile, Alabama**

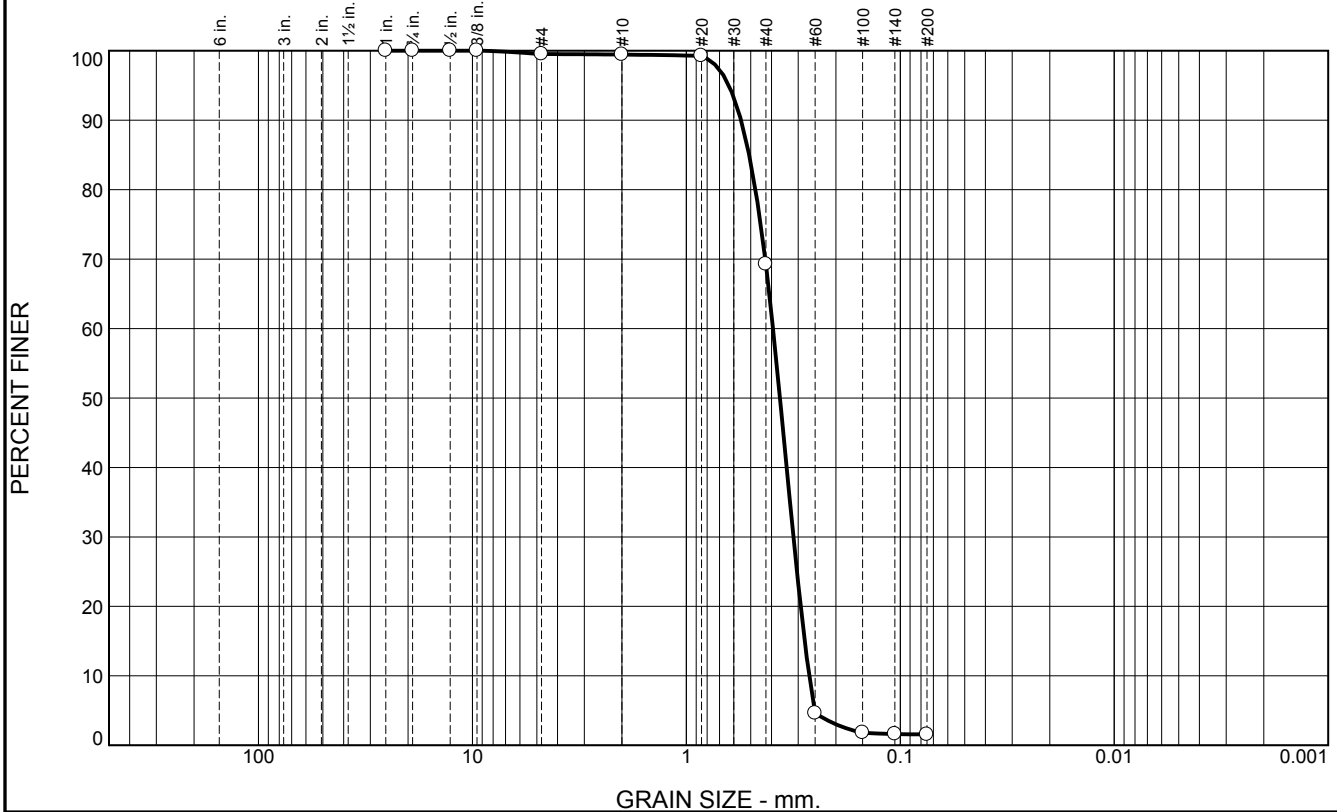
Client: CDM/Thompson Engineering JV  
Project: MsCIP Barrier Island Restoration GT

Project No: 1221110095

Figure



# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.5	0.1	30.1	67.7	1.6	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
1	100.0		
.75	100.0		
.5	100.0		
.375	100.0		
#4	99.5		
#10	99.4		
#20	99.3		
#40	69.3		
#60	4.6		
#100	1.8		
#140	1.6		
#200	1.6		

\* (no specification provided)

Material Description		
Fine to medium grained, SAND		
PL=	Atterberg Limits LL=	PI=
D <sub>90</sub> = 0.5551	Coefficients D <sub>85</sub> = 0.5088	D <sub>60</sub> = 0.3935
D <sub>50</sub> = 0.3651	D <sub>30</sub> = 0.3160	D <sub>15</sub> = 0.2801
D <sub>10</sub> = 0.2668	C <sub>u</sub> = 1.47	C <sub>c</sub> = 0.95
USCS= SP	Classification AASHTO=	
Remarks		

Location: BI-PBP-1-12 B  
Sample Number: 6482 (21)

Depth: 1.3'

Date: 12/12/12

**Thompson Engineering**

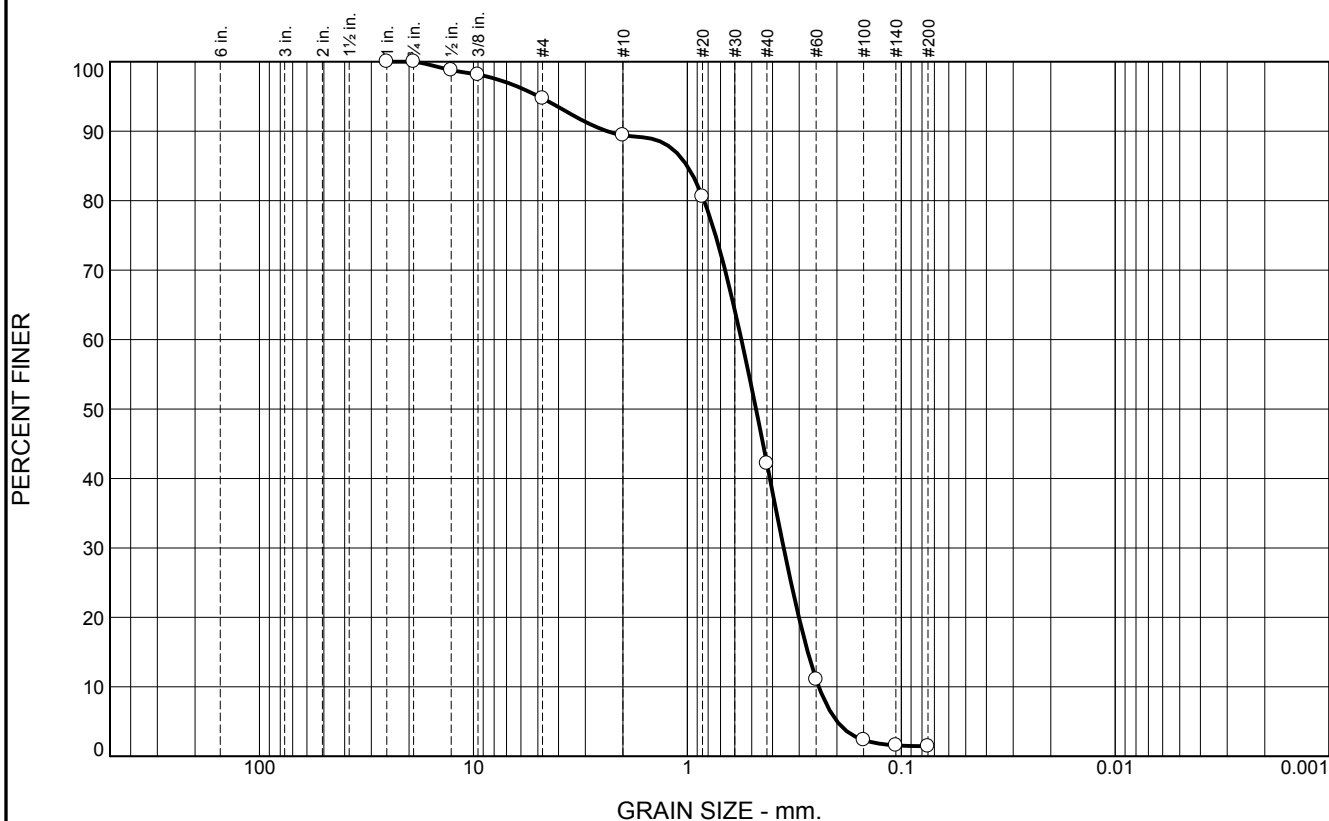
**Mobile, Alabama**

Client: CDM/Thompson Engineering JV  
Project: MsCIP Barrier Island Restoration GT

Project No: 1221110095

Figure

# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	5.3	5.3	47.2	40.8	1.4	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
1	100.0		
.75	100.0		
.5	98.8		
.375	98.1		
#4	94.7		
#10	89.4		
#20	80.6		
#40	42.2		
#60	11.1		
#100	2.4		
#140	1.6		
#200	1.4		

\* (no specification provided)

## Material Description

Fine to medium grained, SAND, with trace SHELL

## Atterberg Limits

PL= LL= PI=

## Coefficients

D<sub>90</sub>= 2.3797 D<sub>85</sub>= 1.0022 D<sub>60</sub>= 0.5589  
D<sub>50</sub>= 0.4777 D<sub>30</sub>= 0.3545 D<sub>15</sub>= 0.2737  
D<sub>10</sub>= 0.2429 C<sub>u</sub>= 2.30 C<sub>c</sub>= 0.93

## Classification

USCS= SP AASHTO=

## Remarks

Location: BI-PBP-1-12 C  
Sample Number: 6482 (22)

Depth: 5.1'

Date: 12/12/12

**Thompson Engineering**

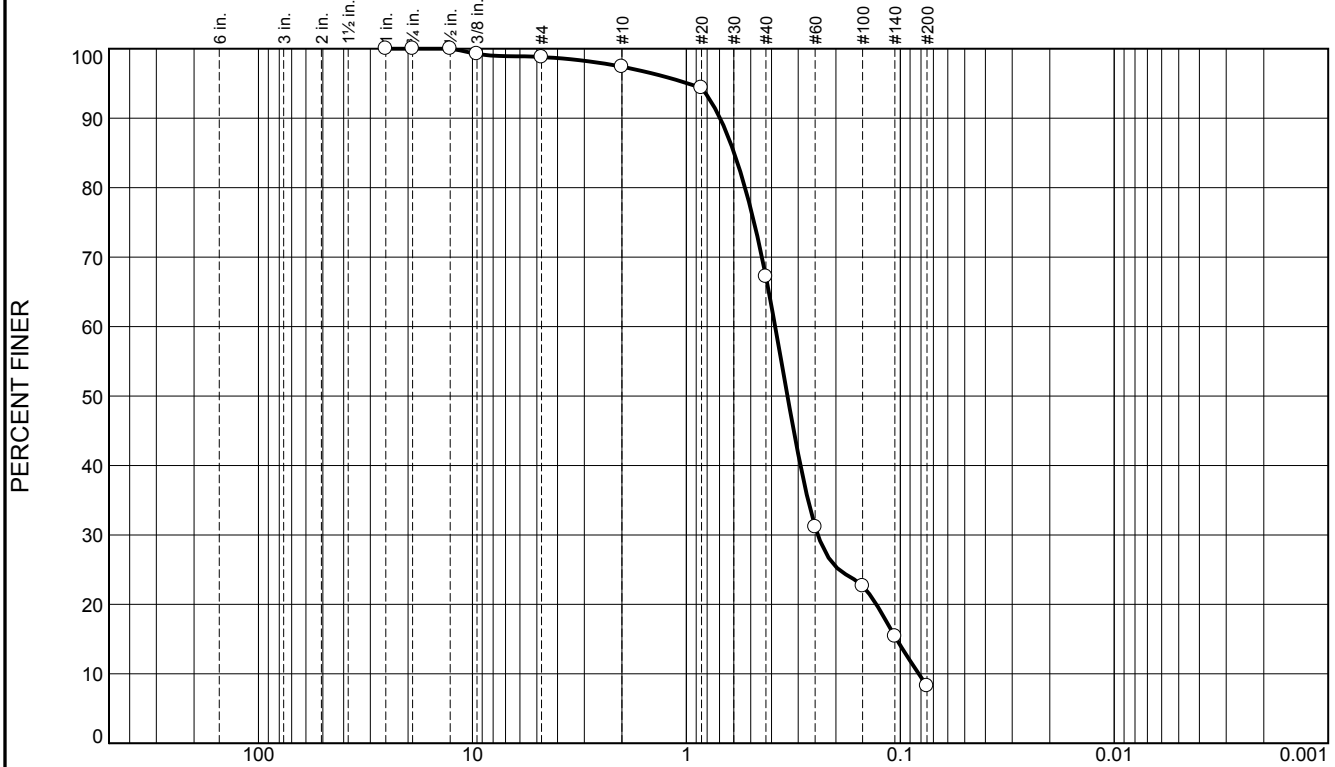
**Mobile, Alabama**

Client: CDM/Thompson Engineering JV  
Project: MsCIP Barrier Island Restoration GT

Project No: 1221110095

Figure

# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	1.2	1.4	30.2	59.0	8.2	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
1	100.0		
.75	100.0		
.5	100.0		
.375	99.3		
#4	98.8		
#10	97.4		
#20	94.4		
#40	67.2		
#60	31.2		
#100	22.6		
#140	15.4		
#200	8.2		

\* (no specification provided)

<u><b>Material Description</b></u>		
Fine to medium grained, SLIGHTLY SILTY SAND, with trace SHELL		
<u><b>Atterberg Limits</b></u>		
PL=	LL=	PI=
<u><b>Coefficients</b></u>		
D <sub>90</sub> = 0.6960	D <sub>85</sub> = 0.5977	D <sub>60</sub> = 0.3843
D <sub>50</sub> = 0.3369	D <sub>30</sub> = 0.2429	D <sub>15</sub> = 0.1042
D <sub>10</sub> = 0.0820	C <sub>u</sub> = 4.69	C <sub>c</sub> = 1.87
<u><b>Classification</b></u>		
USCS= SP-SM	AASHTO=	
<u><b>Remarks</b></u>		

Location: BI-PBP-1-12 D  
Sample Number: 6482 (23)

Depth: 8.4'

Date: 12/12/12

**Thompson Engineering**

**Mobile, Alabama**

Client: CDM/Thompson Engineering JV  
Project: MsCIP Barrier Island Restoration GT

Project No: 1221110095

Figure

# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.0	0.0	31.4	67.7	0.9	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
1	100.0		
.75	100.0		
.5	100.0		
.375	100.0		
#4	100.0		
#10	100.0		
#20	99.9		
#40	68.6		
#60	2.4		
#100	1.1		
#140	1.0		
#200	0.9		

\* (no specification provided)

<u>Material Description</u>		
Fine to medium grained, SAND		
PL=	<u>Atterberg Limits</u> LL=	PI=
<u>Coefficients</u>		
D <sub>90</sub> = 0.5541	D <sub>85</sub> = 0.5097	D <sub>60</sub> = 0.3965
D <sub>50</sub> = 0.3686	D <sub>30</sub> = 0.3204	D <sub>15</sub> = 0.2855
D <sub>10</sub> = 0.2729	C <sub>u</sub> = 1.45	C <sub>c</sub> = 0.95
<u>Classification</u>		
USCS= SP	AASHTO=	
<u>Remarks</u>		

Location: BI-PBP-1-12 E  
Sample Number: 6482 (24)

Depth: 10.2'

Date: 12/12/12

**Thompson Engineering**

**Mobile, Alabama**

Client: CDM/Thompson Engineering JV  
Project: MsCIP Barrier Island Restoration GT

Project No: 1221110095

Figure

# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.0	0.0	15.9	80.9	3.2	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
1	100.0		
.75	100.0		
.5	100.0		
.375	100.0		
#4	100.0		
#10	100.0		
#20	99.3		
#40	84.1		
#60	31.7		
#100	6.5		
#140	3.5		
#200	3.2		

\* (no specification provided)

<u><b>Material Description</b></u>		
Fine to medium grained, SAND		
<u><b>Atterberg Limits</b></u>		
PL=	LL=	PI=
<u><b>Coefficients</b></u>		
D <sub>90</sub> = 0.5226	D <sub>85</sub> = 0.4377	D <sub>60</sub> = 0.3296
D <sub>50</sub> = 0.3004	D <sub>30</sub> = 0.2450	D <sub>15</sub> = 0.1946
D <sub>10</sub> = 0.1719	C <sub>u</sub> = 1.92	C <sub>c</sub> = 1.06
<u><b>Classification</b></u>		
USCS= SP	AASHTO=	
<u><b>Remarks</b></u>		

Location: BI-PBP-1-12 F  
Sample Number: 6482 (25)

Depth: 11.3'

Date: 12/12/12

**Thompson Engineering**

**Mobile, Alabama**

Client: CDM/Thompson Engineering JV  
Project: MsCIP Barrier Island Restoration GT

Project No: 1221110095

Figure

# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	2.1	2.7	29.6	61.5	4.1	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
1	100.0		
.75	100.0		
.5	100.0		
.375	100.0		
#4	97.9		
#10	95.2		
#20	90.3		
#40	65.6		
#60	25.8		
#100	8.2		
#140	5.7		
#200	4.1		

\* (no specification provided)

## Material Description

Fine to medium grained, SAND, with trace SHELL

## Atterberg Limits

PL= LL= PI=

## Coefficients

D<sub>90</sub>= 0.8355 D<sub>85</sub>= 0.6555 D<sub>60</sub>= 0.3926  
D<sub>50</sub>= 0.3452 D<sub>30</sub>= 0.2666 D<sub>15</sub>= 0.1998  
D<sub>10</sub>= 0.1668 C<sub>u</sub>= 2.35 C<sub>c</sub>= 1.08

## Classification

USCS= SP AASHTO=

## Remarks

Location: BI-PBP-1-12 G  
Sample Number: 6482 (26)

Depth: 14.5'

Date: 12/12/12

**Thompson Engineering**

**Mobile, Alabama**

Client: CDM/Thompson Engineering JV  
Project: MsCIP Barrier Island Restoration GT

Project No: 1221110095

Figure

# Boring Designation BI-PBP-02-12

DRILLING LOG		DIVISION South Atlantic		INSTALLATION Mobile District		SHEET 1 OF 1 SHEETS	
1. PROJECT MsCIP Barrier Island Restoration Petit Bois Pass-MS				9. SIZE AND TYPE OF BIT N/A			
2. BORING DESIGNATION BI-PBP-02-12		LOCATION COORDINATES E = 1,123,466 N = 251,916		10. COORDINATE SYSTEM/DATUM State Plane, MSE (U.S. Ft.)		HORIZONTAL NAD83	
3. DRILLING AGENCY Corps of Engineers - CESAM		CONTRACTOR FILE NO.		11. MANUFACTURER'S DESIGNATION OF DRILL Vibrocure		<input type="checkbox"/> AUTO HAMMER <input type="checkbox"/> MANUAL HAMMER	
4. NAME OF DRILLER American Vibrocure Systems, Inc.				12. TOTAL SAMPLES		DISTURBED 0	
5. DIRECTION OF BORING <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED				13. TOTAL NUMBER CORE BOXES		14. WATER DEPTH 25.8 Ft.	
6. THICKNESS OF OVERBURDEN N/A				15. DATE BORING		STARTED 12-08-12	
7. DEPTH DRILLED INTO ROCK N/A				16. ELEVATION TOP OF BORING -24.1 Ft.		COMPLETED 12-08-12	
8. TOTAL DEPTH OF BORING 15.0 Ft.				17. TOTAL RECOVERY FOR BORING 100%			
				18. SIGNATURE AND TITLE OF INSPECTOR Mike FitzHarris, Geologist			
ELEV.	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS	SAMPLE	LABORATORY RESULTS		
-24.1	0.0						
			SAND, poorly-graded, mostly fine to medium-grained sand-sized quartz, trace fines, trace shell fragments, lt. gray (SP)	A	Classification: SP Color: 5Y 7/2-light gray D50: 0.3198 mm % Fines: 1.1		
-29.1	5.0			NS			
-30.1	6.0		SAND, poorly-graded with silt, mostly fine-grained sand-sized quartz, few silt, trace shell fragments, trace clay, lt. gray to gray (SP-SM)	B	Classification: SP Color: 5Y 6/2-light olive gray D50: 0.2417 mm % Fines: 4.4		
			SAND, poorly-graded, mostly fine-grained sand-sized quartz, trace shell fragments, silty bands at 7.2 ft. and 7.8 ft., lt. gray (SP)	C	Classification: SP Color: 5Y 7/2-light gray D50: 0.3588 mm % Fines: 1.7		
			At El. -32.7 Ft., mostly fine to medium-grained sand-sized quartz, little shell fragments, siltier at 10.8 ft. with a clay band at 10.9 ft., lt. gray to gray	D	Classification: SP Color: 5Y 7/2-light gray D50: 0.3187 mm % Fines: 2.7		
-39.1	15.0		At El. -35.1 Ft., mostly fine to medium-grained sand-sized quartz, trace shell fragments, silty band at 12.3 to 12.5 ft., sand grades finer with depth, dense, lt. gray				
			NOTES: 1. Soils are field visually classified in accordance with the Unified Soils Classification System. 2. NS = Sample not submitted for laboratory analysis from this interval. 3. Seafloor elevation determined from USACE hydrographic survey completed April 2014.				

**Project**

Mississippi Barrier Island  
Restoration Project



**Core Identifier** BI-PBP-2-12

**Date** 12/08/2012

**Water Depth** 25.8'

**Coordinate System**

**Start Time** 11:59:54

**Penetration** 18.5'

Latitude / Longitude

**End Time** 12:07:08

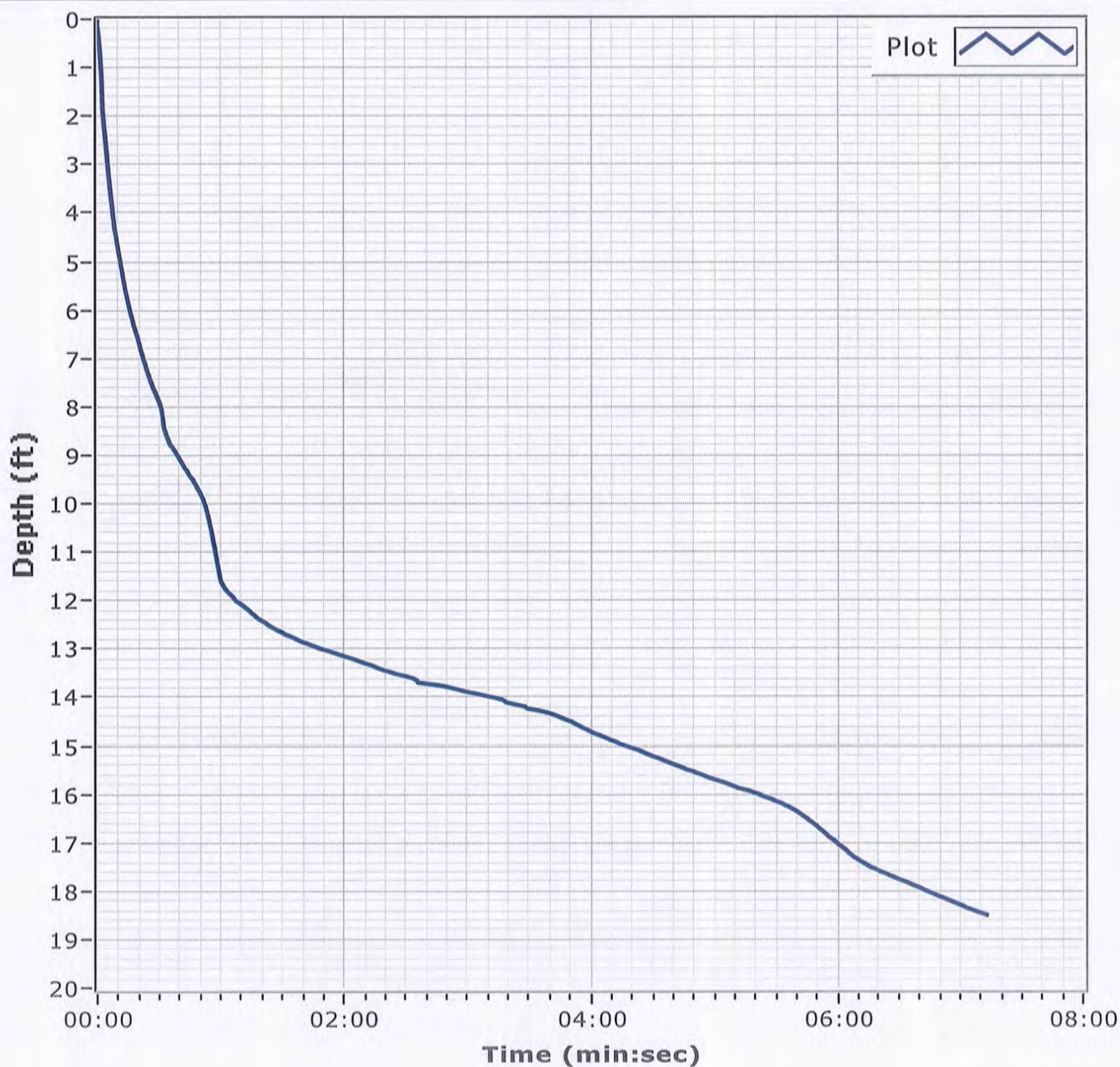
**Recovery** 15.0'

**Latitude** 30 11.519

**Total Time** 00:07:13

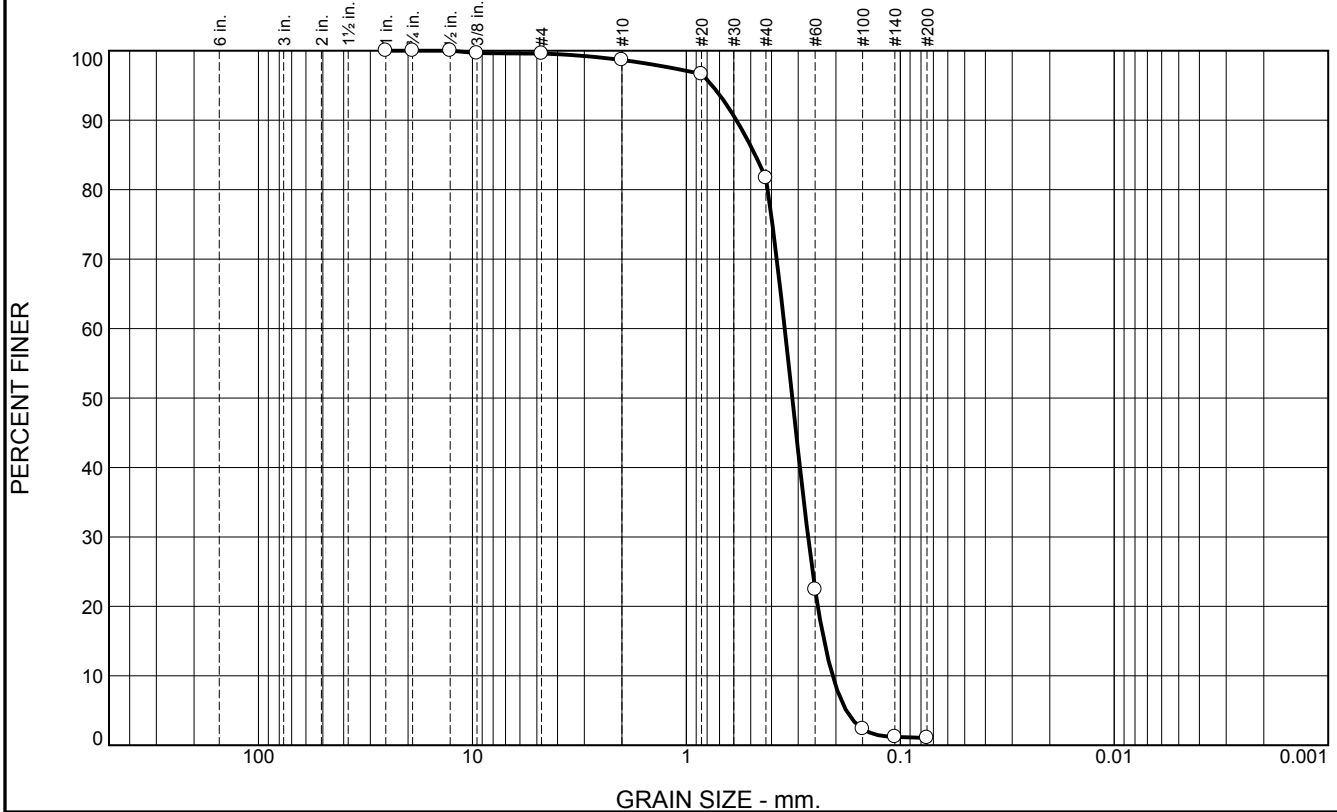
**Longitude** 088 23.561

**Comments**





# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.4	0.9	17.0	80.6	1.1	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
1	100.0		
.75	100.0		
.5	100.0		
.375	99.6		
#4	99.6		
#10	98.7		
#20	96.6		
#40	81.7		
#60	22.4		
#100	2.4		
#140	1.2		
#200	1.1		

\* (no specification provided)

<u>Material Description</u>		
Fine to medium grained, SAND		
PL=	<u>Atterberg Limits</u> LL=	PI=
<u>Coefficients</u>		
D <sub>90</sub> = 0.5836	D <sub>85</sub> = 0.4771	D <sub>60</sub> = 0.3468
D <sub>50</sub> = 0.3198	D <sub>30</sub> = 0.2699	D <sub>15</sub> = 0.2269
D <sub>10</sub> = 0.2073	C <sub>u</sub> = 1.67	C <sub>c</sub> = 1.01
<u>Classification</u>		
USCS= SP	AASHTO=	
<u>Remarks</u>		

Location: BI-PBP-2-12 A  
Sample Number: 6482 (27)

Depth: 0.0'

Date: 12/12/12

**Thompson Engineering**

**Mobile, Alabama**

Client: CDM/Thompson Engineering JV  
Project: MsCIP Barrier Island Restoration GT

Project No: 1221110095

Figure

# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.2	0.9	15.1	79.4	4.4	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
1	100.0		
.75	100.0		
.5	100.0		
.375	100.0		
#4	99.8		
#10	98.9		
#20	96.2		
#40	83.8		
#60	52.9		
#100	11.6		
#140	6.2		
#200	4.4		

\* (no specification provided)

Material Description		
Fine to medium grained, SAND		
<div> <div> Atterberg Limits </div> <div> PL= </div> <div> LL= </div> <div> PI= </div> </div>		
<div> <div> Coefficients </div> <div> D<sub>90</sub>= 0.5272 </div> <div> D<sub>50</sub>= 0.2417 </div> <div> D<sub>10</sub>= 0.1443 </div> <div> D<sub>85</sub>= 0.4402 </div> <div> D<sub>30</sub>= 0.1943 </div> <div> C<sub>u</sub>= 1.89 </div> <div> D<sub>60</sub>= 0.2734 </div> <div> D<sub>15</sub>= 0.1600 </div> <div> C<sub>c</sub>= 0.96 </div> </div>		
<div> <div> Classification </div> <div> USCS= SP </div> <div> AASHTO= </div> </div>		
<div> <div> Remarks </div> </div>		

Location: BI-PBP-2-12 B  
Sample Number: 6482 (28)

Depth: 6.0'

Date: 12/12/12

**Thompson Engineering**

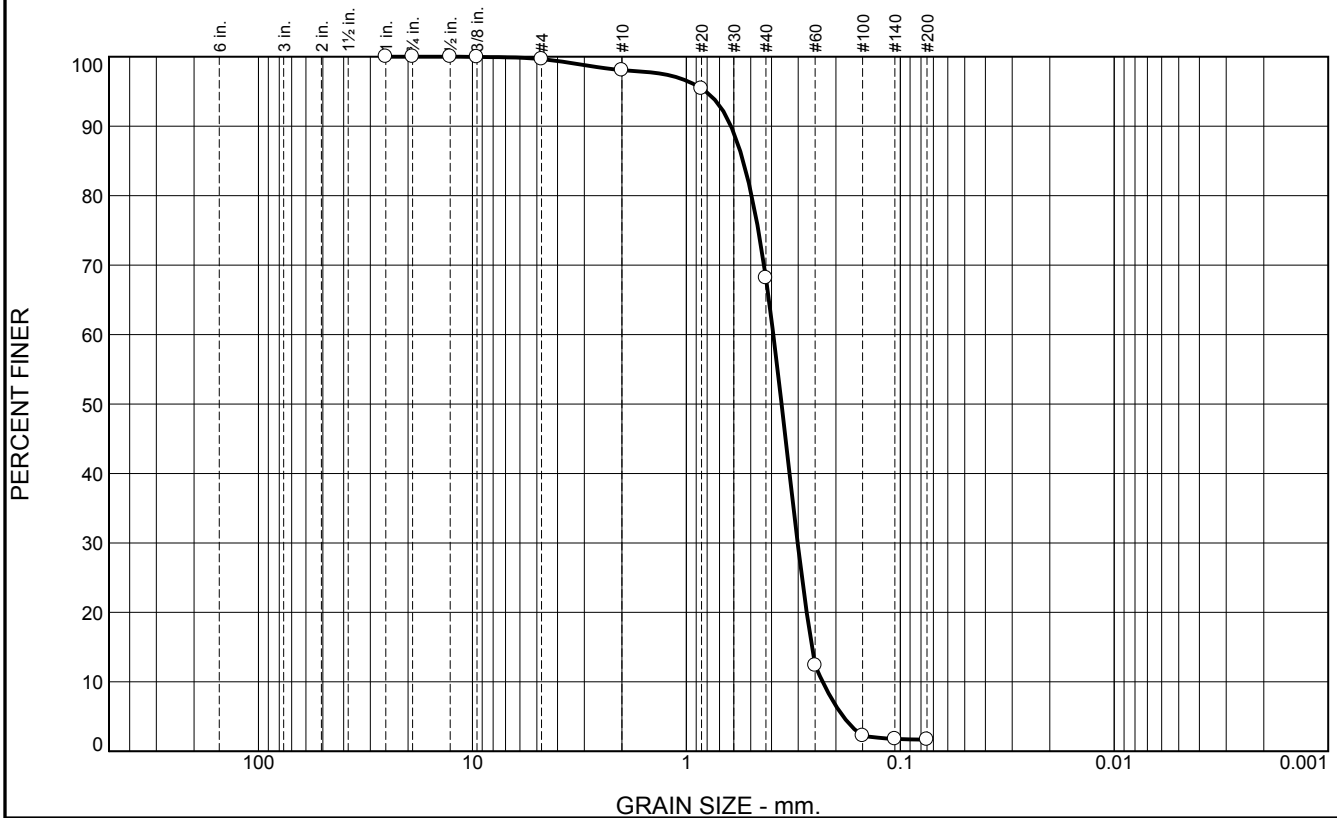
**Mobile, Alabama**

Client: CDM/Thompson Engineering JV  
Project: MsCIP Barrier Island Restoration GT

Project No: 1221110095

Figure

# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.4	1.5	29.9	66.5	1.7	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
1	100.0		
.75	100.0		
.5	100.0		
.375	100.0		
#4	99.6		
#10	98.1		
#20	95.4		
#40	68.2		
#60	12.4		
#100	2.2		
#140	1.8		
#200	1.7		

\* (no specification provided)

<u><b>Material Description</b></u>		
Fine to medium grained, SAND		
<u><b>Atterberg Limits</b></u>		
PL=	LL=	PI=
<u><b>Coefficients</b></u>		
D <sub>90</sub> = 0.6180	D <sub>85</sub> = 0.5426	D <sub>60</sub> = 0.3920
D <sub>50</sub> = 0.3588	D <sub>30</sub> = 0.3020	D <sub>15</sub> = 0.2589
D <sub>10</sub> = 0.2305	C <sub>u</sub> = 1.70	C <sub>c</sub> = 1.01
<u><b>Classification</b></u>		
USCS= SP	AASHTO=	
<u><b>Remarks</b></u>		

Location: BI-PBP-2-12 C  
Sample Number: 6482 (29)

Depth: 8.6'

Date: 12/12/12

**Thompson Engineering**

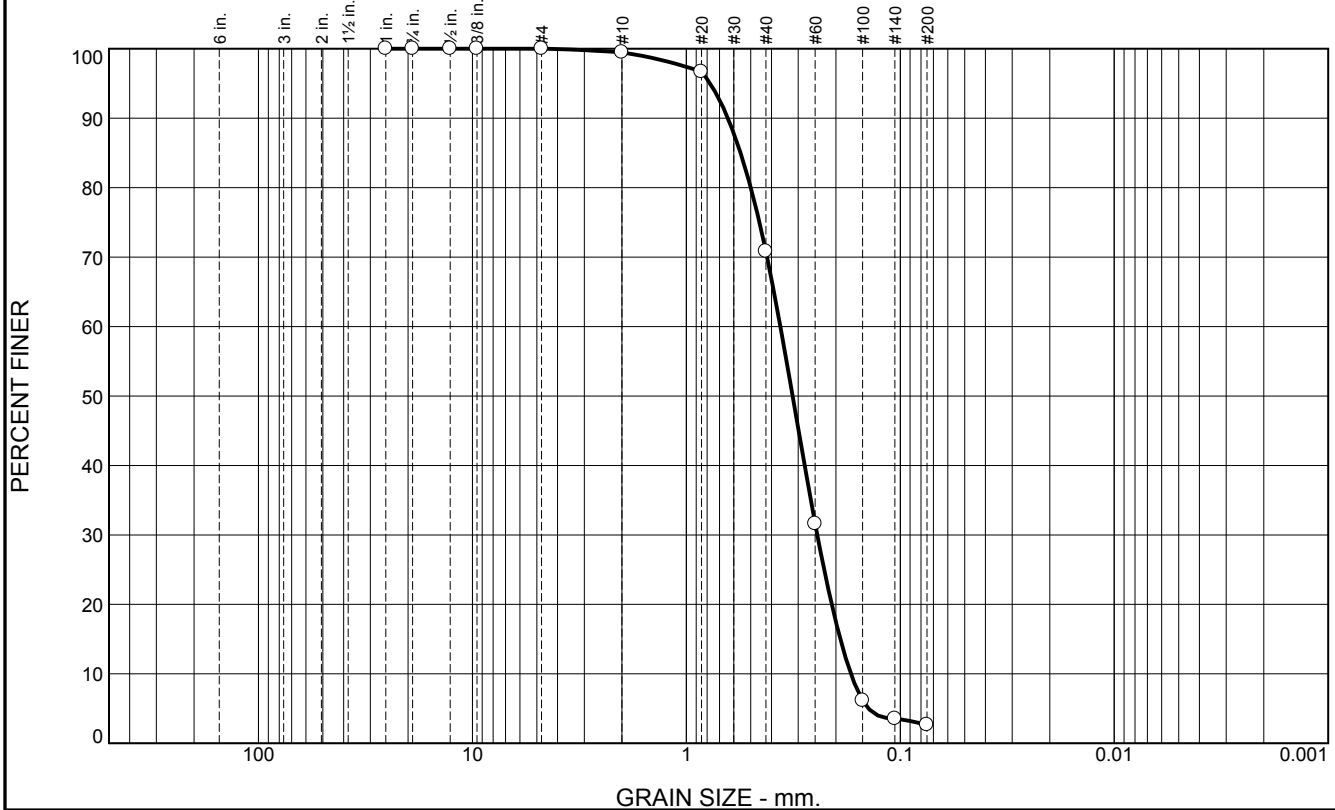
**Mobile, Alabama**

Client: CDM/Thompson Engineering JV  
Project: MsCIP Barrier Island Restoration GT

Project No: 1221110095

Figure

# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.0	0.5	28.7	68.1	2.7	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
1	100.0		
.75	100.0		
.5	100.0		
.375	100.0		
#4	100.0		
#10	99.5		
#20	96.7		
#40	70.8		
#60	31.6		
#100	6.2		
#140	3.5		
#200	2.7		

\* (no specification provided)

<u><b>Material Description</b></u>		
Fine to medium grained, SAND		
<u><b>Atterberg Limits</b></u>		
PL=	LL=	PI=
<u><b>Coefficients</b></u>		
D <sub>90</sub> = 0.6397	D <sub>85</sub> = 0.5581	D <sub>60</sub> = 0.3635
D <sub>50</sub> = 0.3187	D <sub>30</sub> = 0.2443	D <sub>15</sub> = 0.1908
D <sub>10</sub> = 0.1703	C <sub>u</sub> = 2.13	C <sub>c</sub> = 0.96
<u><b>Classification</b></u>		
USCS= SP	AASHTO=	
<u><b>Remarks</b></u>		

Location: BI-PBP-2-12 D  
Sample Number: 6482 (30)

Depth: 11.0'

Date: 12/12/12

**Thompson Engineering**

**Mobile, Alabama**

Client: CDM/Thompson Engineering JV  
Project: MsCIP Barrier Island Restoration GT

Project No: 1221110095

Figure

# Boring Designation BI-PBP-03-12

DRILLING LOG		DIVISION South Atlantic		INSTALLATION Mobile District		SHEET 1 OF 1 SHEETS	
1. PROJECT MsCIP Barrier Island Restoration Petit Bois Pass-MS				9. SIZE AND TYPE OF BIT N/A			
2. BORING DESIGNATION BI-PBP-03-12		LOCATION COORDINATES E = 1,124,344 N = 251,919		10. COORDINATE SYSTEM/DATUM State Plane, MSE (U.S. Ft.)		HORIZONTAL NAD83	
3. DRILLING AGENCY Corps of Engineers - CESAM		CONTRACTOR FILE NO.		11. MANUFACTURER'S DESIGNATION OF DRILL Vibracore		<input type="checkbox"/> AUTO HAMMER <input type="checkbox"/> MANUAL HAMMER	
4. NAME OF DRILLER American Vibracore Systems, Inc.				12. TOTAL SAMPLES		DISTURBED 0	
5. DIRECTION OF BORING <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED				13. TOTAL NUMBER CORE BOXES		14. WATER DEPTH 28.9 Ft.	
6. THICKNESS OF OVERBURDEN N/A				15. DATE BORING		STARTED 12-08-12	
7. DEPTH DRILLED INTO ROCK N/A				16. ELEVATION TOP OF BORING -27.4 Ft.		COMPLETED 12-08-12	
8. TOTAL DEPTH OF BORING 19.0 Ft.				17. TOTAL RECOVERY FOR BORING 100%		18. SIGNATURE AND TITLE OF INSPECTOR Mike FitzHarris, Geologist	

ELEV.	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS	SAMPLE	LABORATORY RESULTS
-27.4	0.0				
-29.2	1.8		SAND, poorly-graded, mostly fine to medium-grained sand-sized quartz, little shell fragments, trace fines, gray (SP)	B	Classification: SP Color: 5Y 7/2-light gray D50: 0.3817 mm % Fines: 1
-30.1	2.7		SAND, silty, mostly fine-grained sand-sized quartz, some silt, trace shell fragments, dark gray (SM)	NS	
-30.5	3.1		CLAY, fat, mostly clay, medium to high plasticity, dark gray (CH)	A	Classification: SP Color: 5Y 7/1-light gray D50: 0.3418 mm % Fines: 1.6
			SAND, poorly-graded, mostly fine to medium-grained sand-sized quartz, few shell fragments, trace silt, lt. gray (SP)	D	Classification: SP Color: 5Y 7/2-light gray D50: 0.3612 mm % Fines: 1.8
-34.5	7.1		At El. -31.4 Ft., mostly fine to medium-grained sand-sized quartz, trace fines, trace shell fragments, lt. gray	C	Classification: SP Color: 2.5Y 8/1-white D50: 0.2873 mm % Fines: 2.1
-36.0	8.6		At El. -32.5 Ft., mostly fine-grained sand-sized quartz, trace fines, lt. gray to white		
-36.4	9.0		SAND, silty, mostly fine-grained sand-sized quartz, some silt, trace shell fragments, trace clay stringers, brown (SM)		
-38.9	11.5		SAND, poorly-graded, mostly fine to medium-grained sand-sized quartz, little shell fragments, trace fines, lt. brown (SP)	NS	
-41.4	14.0		SAND, silty, mostly fine-grained sand-sized quartz, some silt, brown (SM)		
			CLAY, lean, mostly clay, some fine-grained sand-sized quartz, trace shell fragments, dark brown to dark gray (CL)		
-46.4	19.0		SAND, clayey, mostly fine-grained sand-sized quartz, some clay, with shelly bands throughout, gray (SC)		
NOTES: 1. Soils are field visually classified in accordance with the Unified Soils Classification System. 2. NS = Sample not submitted for laboratory analysis from this interval. 3. Seafloor elevation determined from USACE hydrographic survey completed April 2014.					

## Project

Mississippi Barrier Island  
Restoration Project

**AVS**  
AMERICAN VIBRACORE  
S E R V I C E S

Core Identifier BI-PBP-3-12

Date 12/08/2012

Water Depth 28.9'

### Coordinate System

Latitude / Longitude

Start Time 13:05:48

End Time 13:09:12

Penetration 20.0'

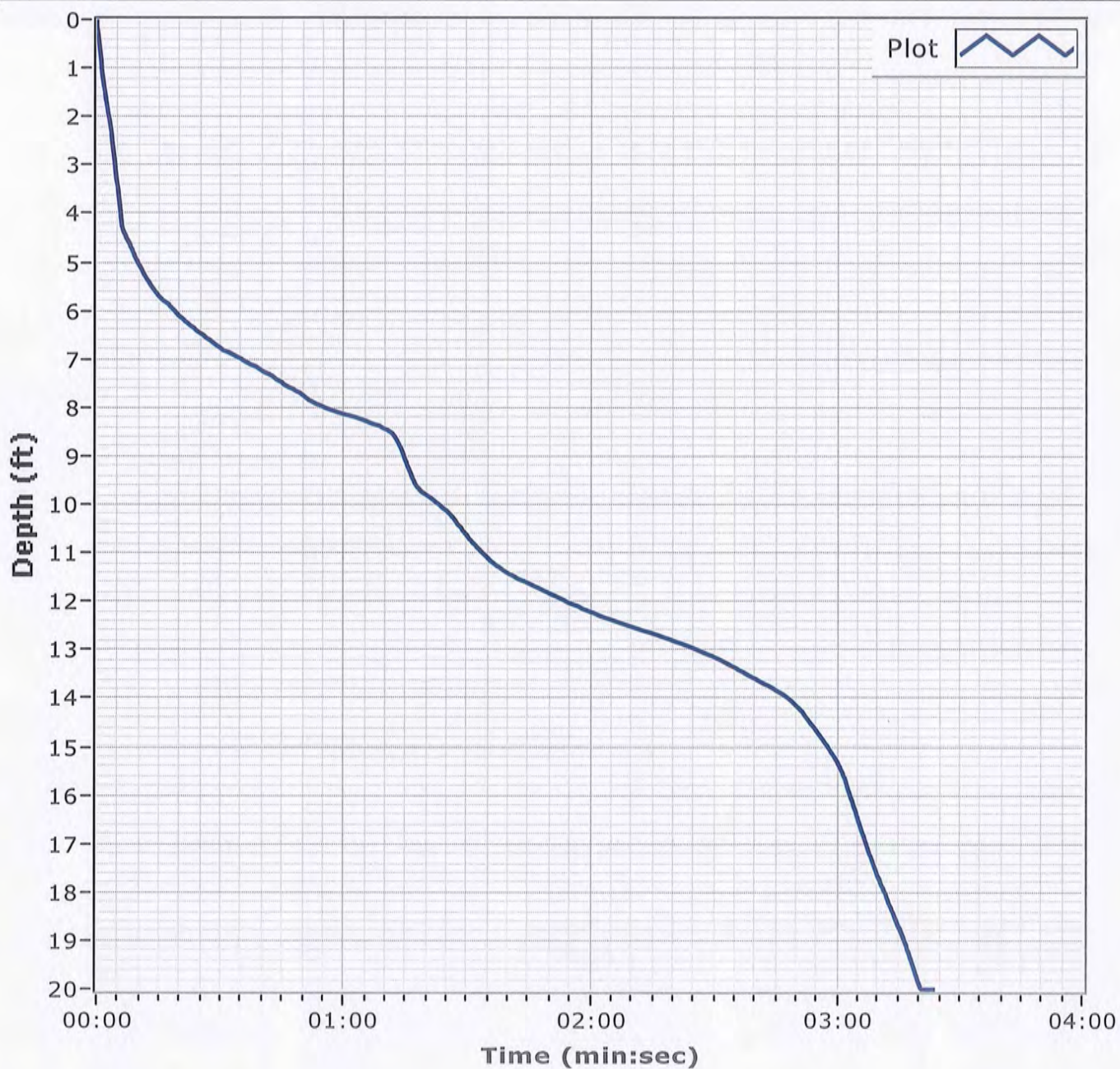
Latitude 30 11.519

Total Time 00:03:24

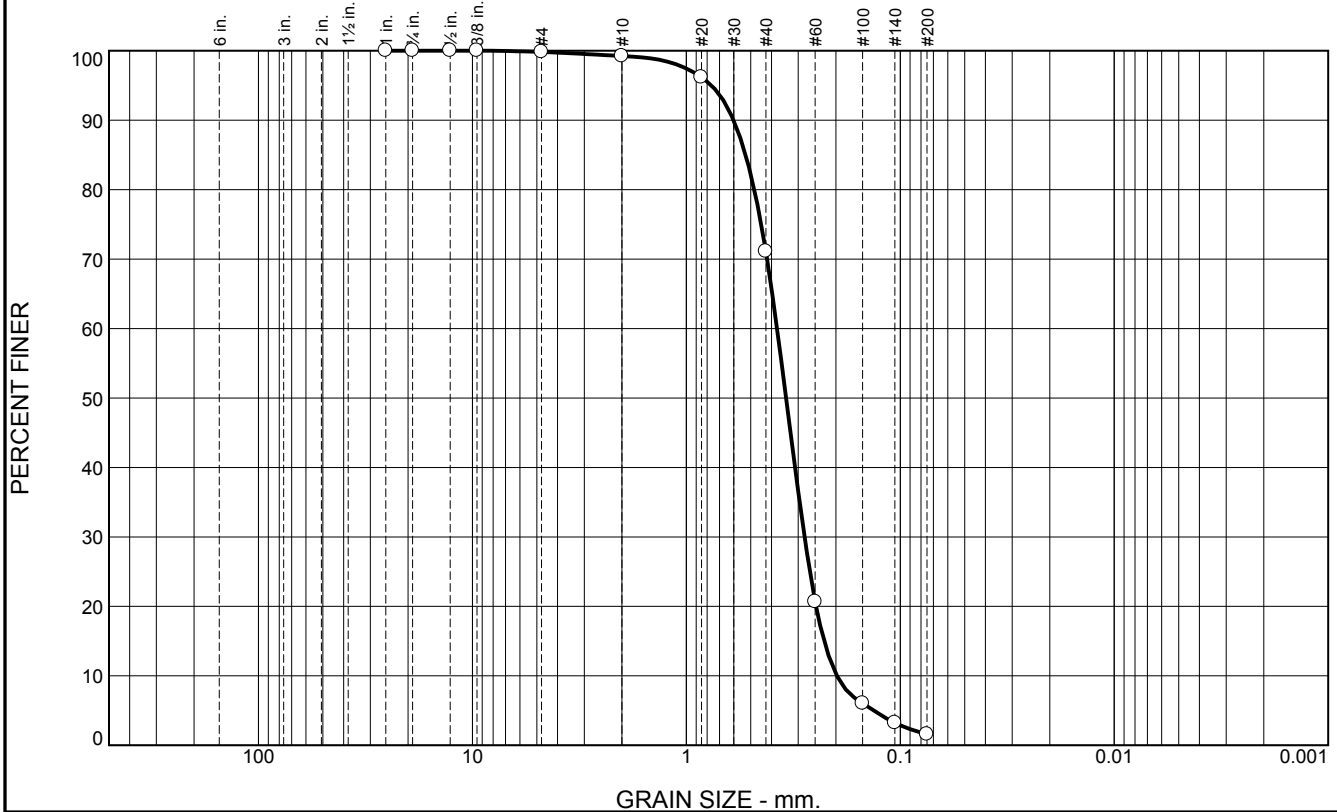
Recovery 19.0'

Longitude 088 23.396

### Comments



# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.2	0.6	28.1	69.5	1.6	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
1	100.0		
.75	100.0		
.5	100.0		
.375	100.0		
#4	99.8		
#10	99.2		
#20	96.2		
#40	71.1		
#60	20.7		
#100	6.0		
#140	3.2		
#200	1.6		

\* (no specification provided)

<u>Material Description</u>		
Fine to medium grained, SAND		
PL=	<u>Atterberg Limits</u> LL=	PI=
<u>Coefficients</u>		
D <sub>90</sub> = 0.6013	D <sub>85</sub> = 0.5284	D <sub>60</sub> = 0.3767
D <sub>50</sub> = 0.3418	D <sub>30</sub> = 0.2804	D <sub>15</sub> = 0.2269
D <sub>10</sub> = 0.1978	C <sub>u</sub> = 1.90	C <sub>c</sub> = 1.05
<u>Classification</u>		
USCS= SP	AASHTO=	
<u>Remarks</u>		

Location: BI-PBP-3-12 A  
Sample Number: 6482 (31)

Depth: 0.0'

Date: 12/12/12

**Thompson Engineering**

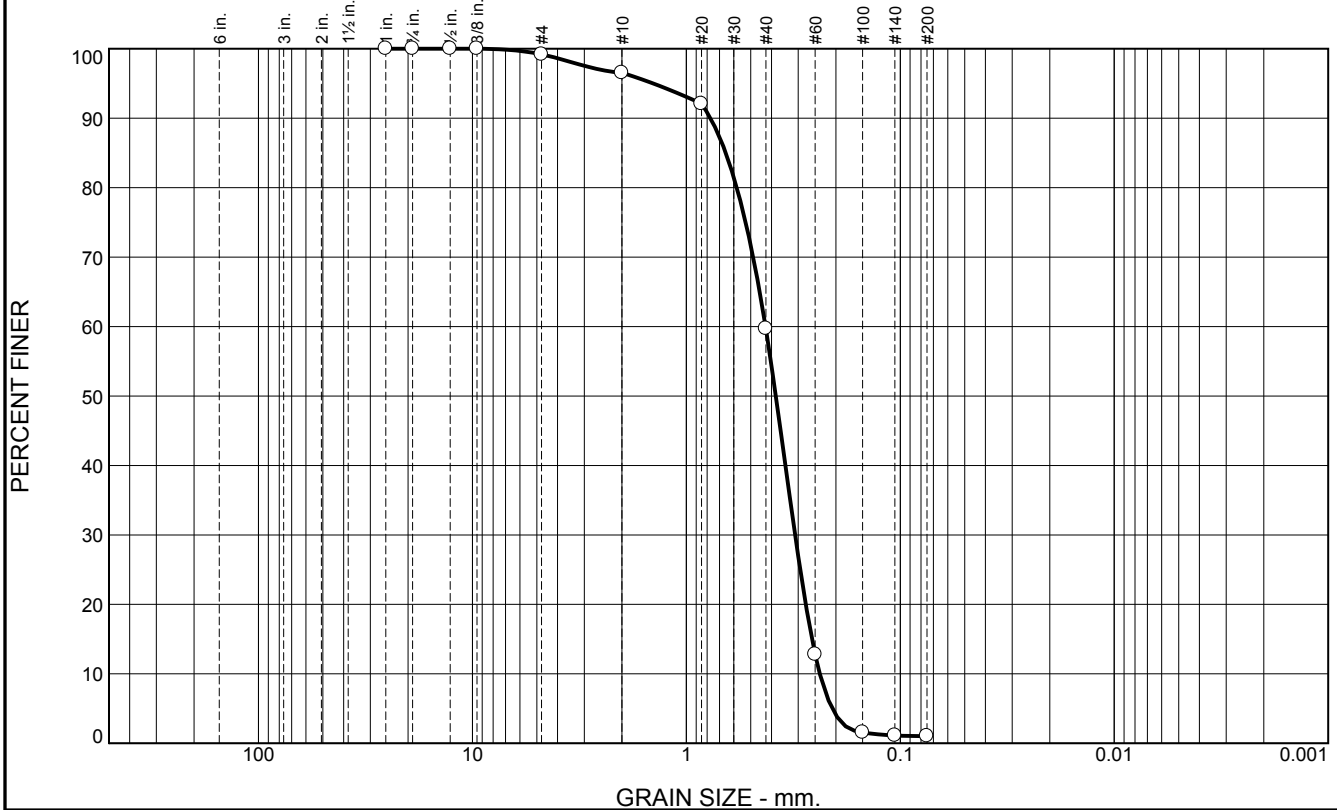
**Mobile, Alabama**

Client: CDM/Thompson Engineering JV  
Project: MsCIP Barrier Island Restoration GT

Project No: 1221110095

Figure

# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.8	2.7	36.8	58.7	1.0	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
1	100.0		
.75	100.0		
.5	100.0		
.375	100.0		
#4	99.2		
#10	96.5		
#20	92.1		
#40	59.7		
#60	12.8		
#100	1.6		
#140	1.1		
#200	1.0		

\* (no specification provided)

Material Description		
Fine to medium grained, SAND		
PL=	Atterberg Limits LL=	PI=
D <sub>90</sub> = 0.7718	D <sub>85</sub> = 0.6544	D <sub>60</sub> = 0.4266
D <sub>50</sub> = 0.3817	D <sub>30</sub> = 0.3103	D <sub>15</sub> = 0.2588
D <sub>10</sub> = 0.2377	C <sub>u</sub> = 1.79	C <sub>c</sub> = 0.95
USCS= SP	Classification AASHTO=	
Remarks		

Location: BI-PBP-3-12 B  
Sample Number: 6482 (32)

Depth: 2.2'

Date: 12/12/12

**Thompson Engineering**

**Mobile, Alabama**

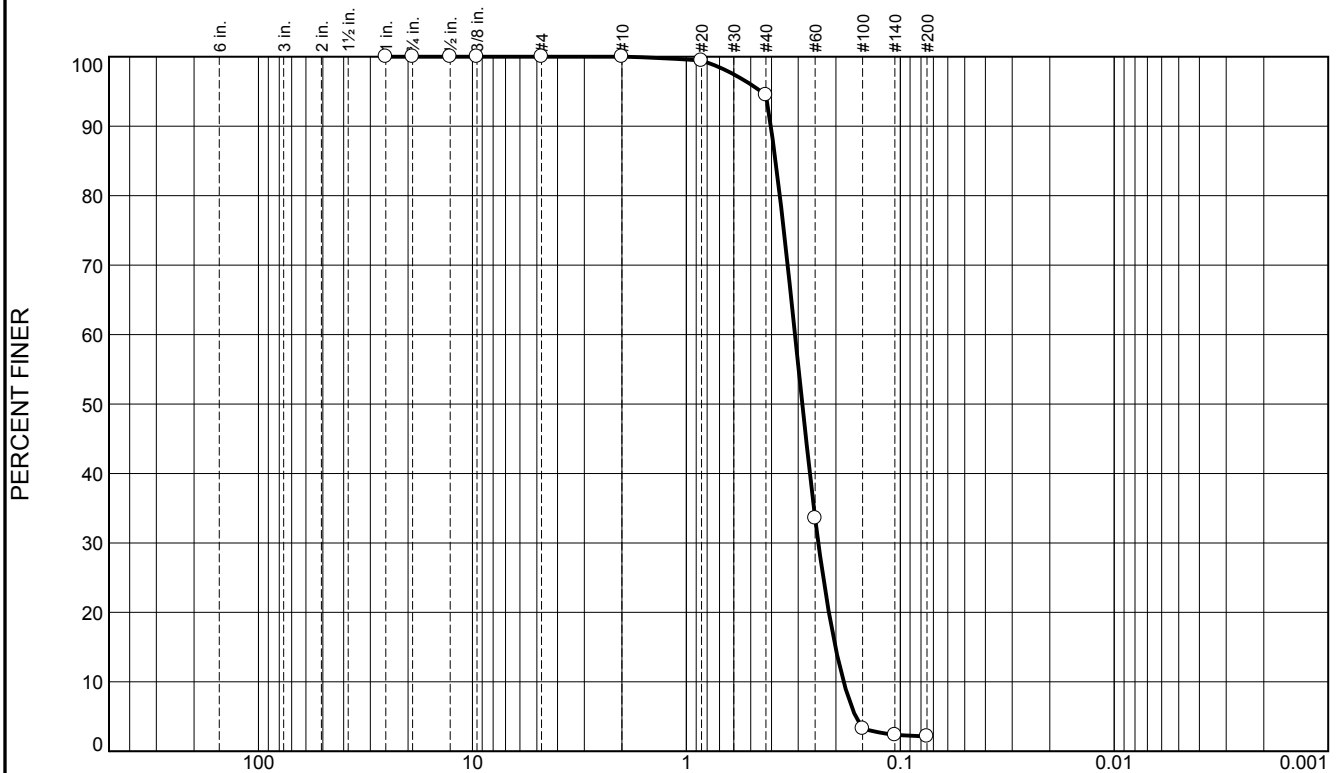
Client: CDM/Thompson Engineering JV  
Project: MsCIP Barrier Island Restoration GT

Project No: 1221110095

Figure



# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.0	0.0	5.5	92.4	2.1	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
1	100.0		
.75	100.0		
.5	100.0		
.375	100.0		
#4	100.0		
#10	100.0		
#20	99.4		
#40	94.5		
#60	33.6		
#100	3.3		
#140	2.4		
#200	2.1		

\* (no specification provided)

Material Description		
Fine grained, SAND		
PL=	Atterberg Limits LL=	PI=
D <sub>90</sub> = 0.4028	Coefficients D <sub>85</sub> = 0.3828	D <sub>60</sub> = 0.3107
D <sub>50</sub> = 0.2873	D <sub>30</sub> = 0.2415	D <sub>15</sub> = 0.2011
D <sub>10</sub> = 0.1841	C <sub>u</sub> = 1.69	C <sub>c</sub> = 1.02
USCS= SP	Classification AASHTO=	
Remarks		

Location: BI-PBP-3-12 C  
Sample Number: 6482 (33)

Depth: 5.9'

Date: 12/12/12

**Thompson Engineering**

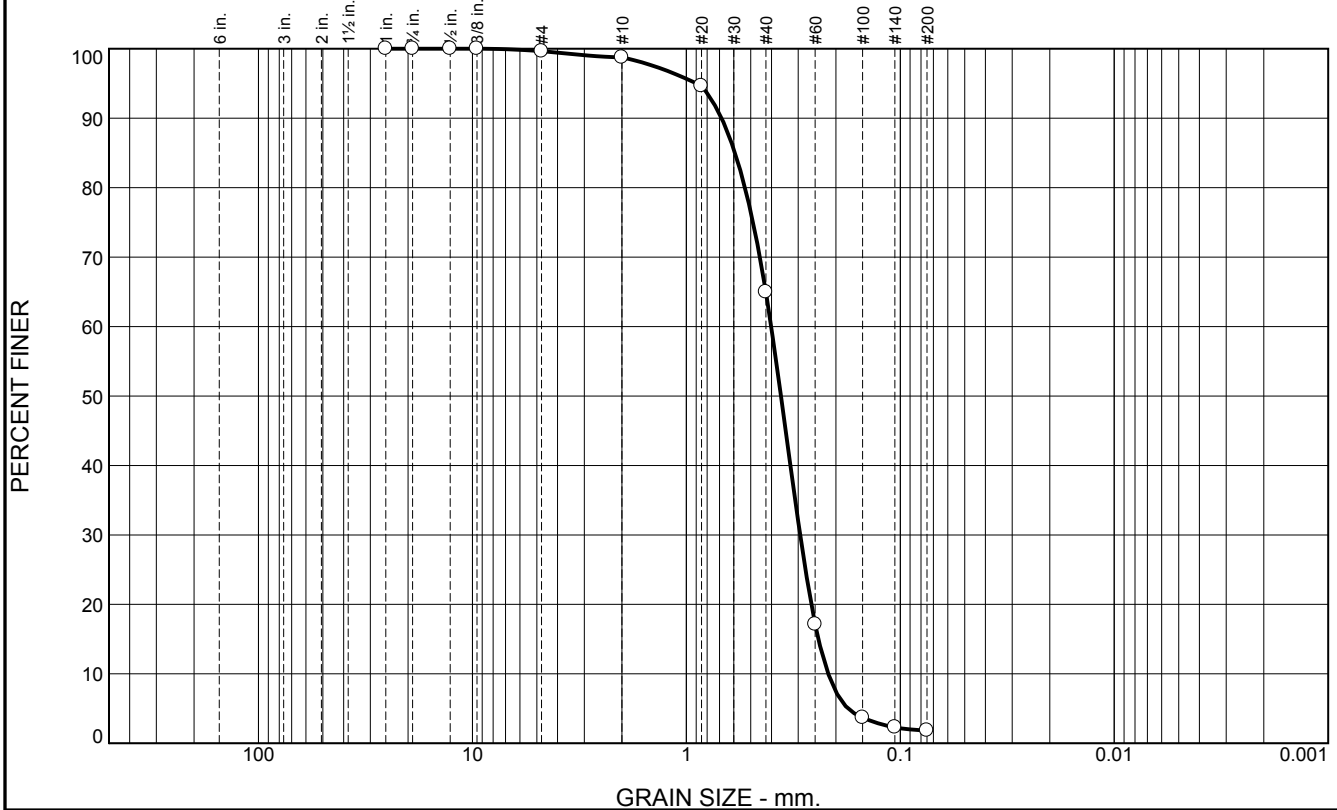
**Mobile, Alabama**

Client: CDM/Thompson Engineering JV  
Project: MsCIP Barrier Island Restoration GT

Project No: 1221110095

Figure

# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.4	0.8	33.8	63.2	1.8	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
1	100.0		
.75	100.0		
.5	100.0		
.375	100.0		
#4	99.6		
#10	98.8		
#20	94.6		
#40	65.0		
#60	17.1		
#100	3.7		
#140	2.3		
#200	1.8		

\* (no specification provided)

Material Description		
Fine to medium grained, SAND		
<div> <div> Atterberg Limits </div> <div> PL= </div> <div> LL= </div> <div> PI= </div> </div>		
<div> <div> Coefficients </div> <div> D<sub>90</sub>= 0.6848 </div> <div> D<sub>50</sub>= 0.3612 </div> <div> D<sub>10</sub>= 0.2171 </div> <div> D<sub>85</sub>= 0.5922 </div> <div> D<sub>30</sub>= 0.2940 </div> <div> C<sub>u</sub>= 1.85 </div> <div> D<sub>60</sub>= 0.4013 </div> <div> D<sub>15</sub>= 0.2414 </div> <div> C<sub>c</sub>= 0.99 </div> </div>		
<div> <div> Classification </div> <div> USCS= SP </div> <div> AASHTO= </div> </div>		
<div> <div> Remarks </div> </div>		

Location: BI-PBP-3-12 D  
Sample Number: 6482 (34)

Depth: 7.9'

Date: 12/12/12

**Thompson Engineering**

**Mobile, Alabama**

Client: CDM/Thompson Engineering JV  
Project: MsCIP Barrier Island Restoration GT

Project No: 1221110095

Figure

# Boring Designation BI-PBP-04-12

DRILLING LOG		DIVISION South Atlantic		INSTALLATION Mobile District		SHEET 1 OF 1 SHEETS	
1. PROJECT MsCIP Barrier Island Restoration Petit Bois Pass-MS				9. SIZE AND TYPE OF BIT N/A			
2. BORING DESIGNATION BI-PBP-04-12		LOCATION COORDINATES E = 1,122,984 N = 250,768		10. COORDINATE SYSTEM/DATUM State Plane, MSE (U.S. Ft.)		HORIZONTAL NAD83	
3. DRILLING AGENCY Corps of Engineers - CESAM		CONTRACTOR FILE NO.		11. MANUFACTURER'S DESIGNATION OF DRILL Vibracore		<input type="checkbox"/> AUTO HAMMER <input type="checkbox"/> MANUAL HAMMER	
4. NAME OF DRILLER American Vibracore Systems, Inc.				12. TOTAL SAMPLES		DISTURBED 0	
5. DIRECTION OF BORING <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED				13. TOTAL NUMBER CORE BOXES		14. WATER DEPTH 32.3 Ft.	
6. THICKNESS OF OVERBURDEN N/A				15. DATE BORING		STARTED 12-22-12	
7. DEPTH DRILLED INTO ROCK N/A				16. ELEVATION TOP OF BORING -31.6 Ft.		COMPLETED 12-22-12	
8. TOTAL DEPTH OF BORING 15.0 Ft.				17. TOTAL RECOVERY FOR BORING 100%			
				18. SIGNATURE AND TITLE OF INSPECTOR Mike FitzHarris, Geologist			
ELEV.	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS	SAMPLE	LABORATORY RESULTS		
-31.6	0.0						
			SAND, poorly-graded, mostly fine to medium-grained sand-sized quartz, trace fines, trace shell fragments, slightly silty at 3.1 ft., gray (SP)	A	Classification: SP-SM Color: 5Y 6/2-light olive gray D50: 0.2498 mm % Fines: 5.6		
-35.9	4.3		SAND, clayey, mostly fine-grained sand-sized quartz, some clay, trace shell fragments, clay band at 5.1 ft., gray (SC)				
-38.9	7.3		SAND, silty, mostly fine-grained sand-sized quartz, some silt, gray (SM)				
-41.6	10.0		SILT, inorganic-L, mostly silt, some fine-grained sand-sized quartz, little clay, brown grading to gray (ML)	NS			
-43.4	11.8		SAND, poorly-graded with silt, mostly fine-grained sand-sized quartz, some silt, few clay stringers, gray (SP-SM)				
-46.6	15.0						
			NOTES: 1. Soils are field visually classified in accordance with the Unified Soils Classification System. 2. NS = Sample not submitted for laboratory analysis from this interval. 3. Seafloor elevation determined from USACE hydrographic survey completed April 2014.				

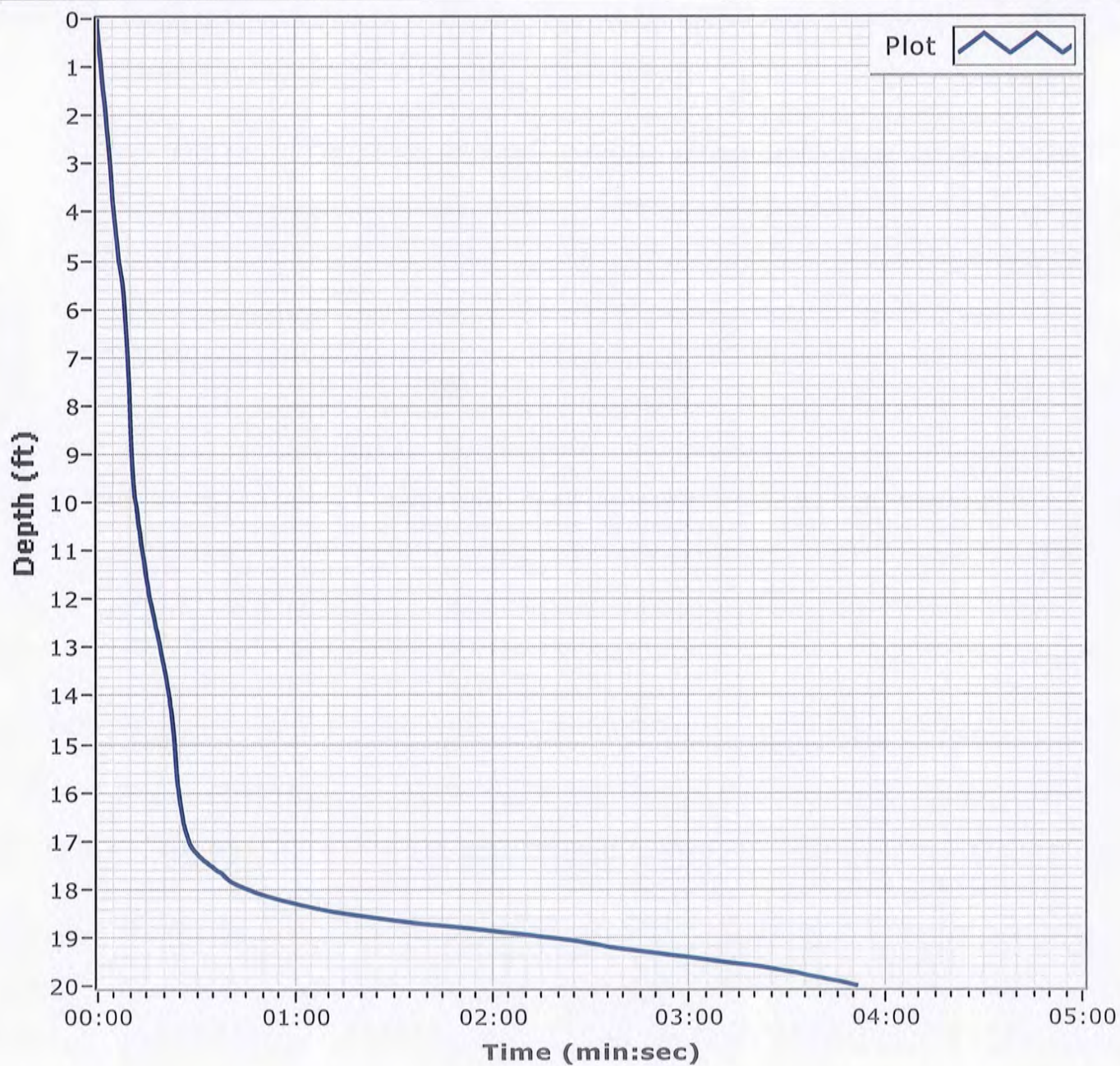
**Project**

Mississippi Barrier Island  
Restoration Project

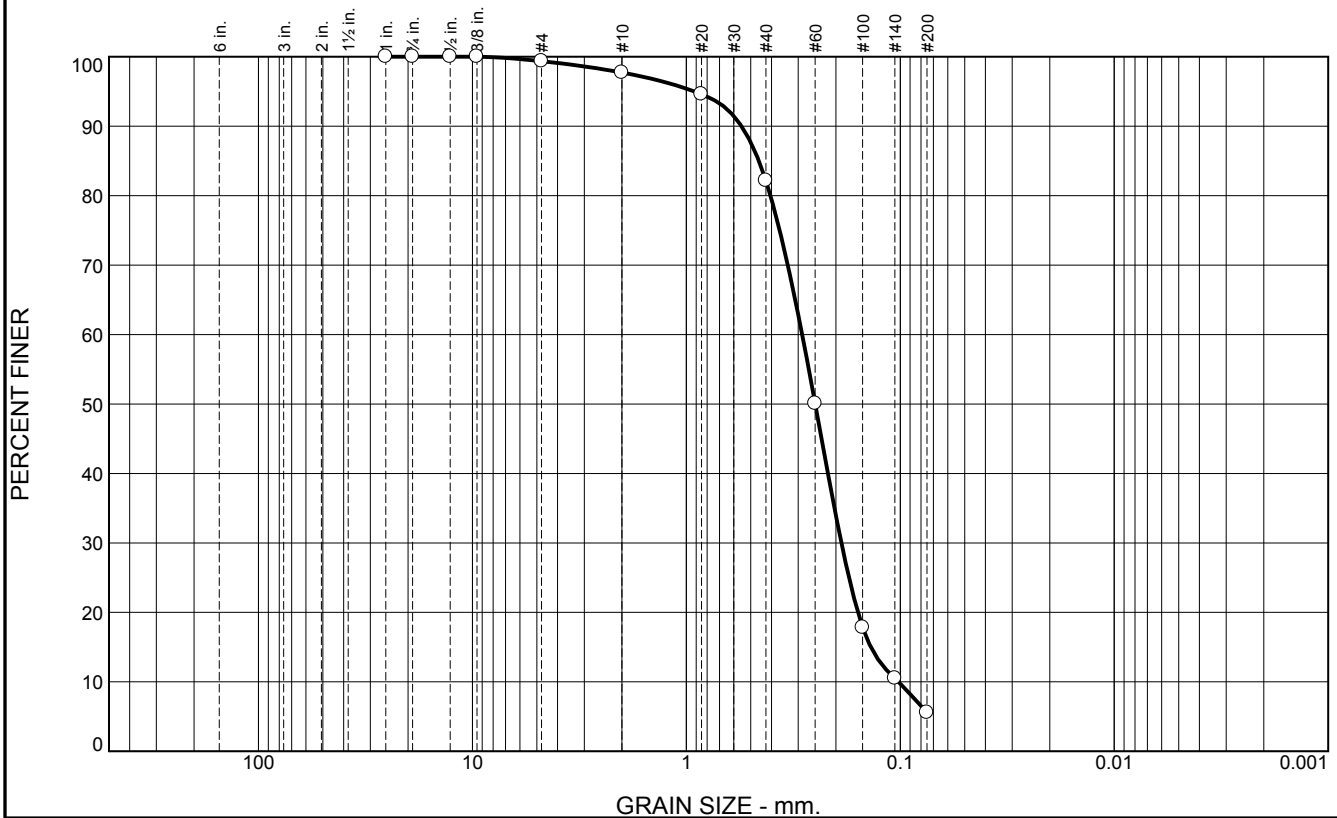
**AVS**  
**AMERICAN VIBRACORE**  
**S E R V I C E S**

**Core Identifier** BI-PBP-4-12**Date** 12/22/2012**Water Depth** 32.3'**Coordinate System****Start Time** 14:55:19**End Time** 14:59:11**Penetration** 20.0'

Latitude / Longitude

**Latitude** 30 11.330**Total Time** 00:03:51**Recovery** 15.0'**Longitude** 088 23.653**Comments**

# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.7	1.6	15.5	76.6	5.6	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
1	100.0		
.75	100.0		
.5	100.0		
.375	100.0		
#4	99.3		
#10	97.7		
#20	94.6		
#40	82.2		
#60	50.1		
#100	17.8		
#140	10.5		
#200	5.6		

\* (no specification provided)

## Material Description

Fine to medium grained, SLIGHTLY SILTY SAND

## Atterberg Limits

PL= LL= PI=

## Coefficients

D<sub>90</sub>= 0.5525 D<sub>85</sub>= 0.4583 D<sub>60</sub>= 0.2877  
D<sub>50</sub>= 0.2498 D<sub>30</sub>= 0.1886 D<sub>15</sub>= 0.1374  
D<sub>10</sub>= 0.1021 C<sub>u</sub>= 2.82 C<sub>c</sub>= 1.21

## Classification

USCS= SP-SM AASHTO=

## Remarks

Location: BI-PBP-4-12 A  
Sample Number: 6495 (20)

Depth: 0.0'

Date: 12/31/12

**Thompson Engineering**

**Mobile, Alabama**

Client: CDM/Thompson Engineering JV  
Project: MsCIP Barrier Island Restoration GT

Project No: 1221110095

Figure

# Boring Designation BI-PBP-05-12

DRILLING LOG		DIVISION South Atlantic		INSTALLATION Mobile District		SHEET 1 OF 1 SHEETS	
1. PROJECT MsCIP Barrier Island Restoration Petit Bois Pass-MS				9. SIZE AND TYPE OF BIT N/A			
2. BORING DESIGNATION BI-PBP-05-12		LOCATION COORDINATES E = 1,123,963 N = 250,798		10. COORDINATE SYSTEM/DATUM State Plane, MSE (U.S. Ft.)		HORIZONTAL NAD83	
3. DRILLING AGENCY Corps of Engineers - CESAM		CONTRACTOR FILE NO.		11. MANUFACTURER'S DESIGNATION OF DRILL Vibracore		<input type="checkbox"/> AUTO HAMMER <input type="checkbox"/> MANUAL HAMMER	
4. NAME OF DRILLER American Vibracore Systems, Inc.				12. TOTAL SAMPLES		DISTURBED 0	
5. DIRECTION OF BORING <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED				13. TOTAL NUMBER CORE BOXES		14. WATER DEPTH 31.2 Ft.	
6. THICKNESS OF OVERBURDEN N/A				15. DATE BORING 12-08-12		COMPLETED 12-08-12	
7. DEPTH DRILLED INTO ROCK N/A				16. ELEVATION TOP OF BORING -29.5 Ft.		17. TOTAL RECOVERY FOR BORING 100%	
8. TOTAL DEPTH OF BORING 16.8 Ft.				18. SIGNATURE AND TITLE OF INSPECTOR Mike FitzHarris, Geologist			

ELEV.	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS	SAMPLE	LABORATORY RESULTS
-29.5	0.0				
-34.0	4.5		SAND, poorly-graded, mostly fine to medium-grained sand-sized quartz, trace shell fragments, lt. gray (SP)	A	Classification: SP Color: 5Y 7/2-light gray D50: 0.2748 mm % Fines: 1.8
-35.7	6.2		SHELL, mostly shell fragments, clay band at 5.2 to 5.4 ft., gray	NS	
-36.7	7.2		SAND, poorly-graded with silt, mostly fine-grained sand-sized quartz, few silt, lt. gray to gray (SP-SM)	B	Classification: SP-SM Color: 5Y 7/2-light gray D50: 0.2448 mm % Fines: 5.4
-39.5	10.0		CLAY, lean, mostly clay, some fine-grained sand-sized quartz, trace shell fragments, gray (CL)	NS	
-42.1	12.6		SAND, silty, mostly fine-grained sand-sized quartz, some silt, lt. brown to gray (SM)		
-42.9	13.4		CLAY, lean, mostly clay, some fine-grained sand-sized quartz, trace shell fragments, low to medium plasticity, dark gray (CL)		
-45.6	16.1		SAND, silty, mostly fine-grained sand-sized quartz, some silt, trace shell fragments, dark gray (SM)		
-46.3	16.8		SAND, poorly-graded, mostly fine-grained sand-sized quartz, trace silt, lt. gray (SP)		
NOTES: 1. Soils are field visually classified in accordance with the Unified Soils Classification System. 2. NS = Sample not submitted for laboratory analysis from this interval. 3. Seafloor elevation determined from USACE hydrographic survey completed April 2014.					



**Project**

Mississippi Barrier Island  
Restoration Project

**AVS**  
**AMERICAN VIBRACORE**  
**S E R V I C E S**

**Core Identifier** BI-PBP-5-12

**Date** 12/08/2012

**Water Depth** 31.2'

**Coordinate System**

**Start Time** 14:51:14

**End Time** 14:53:06

**Penetration** 20.0'

Latitude / Longitude

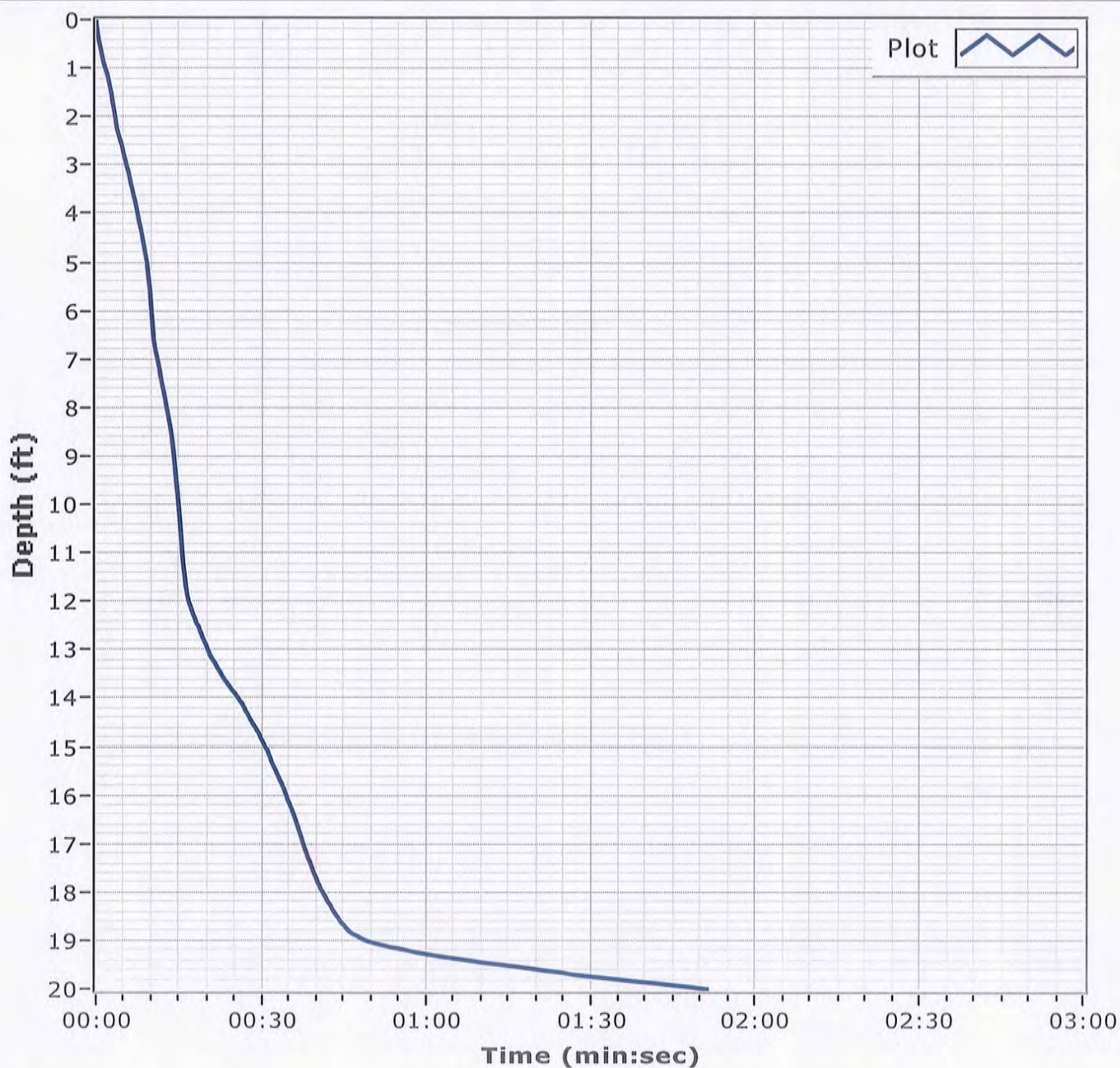
**Latitude** 30 11.467

**Total Time** 00:01:51

**Recovery** 16.8'

**Longitude** 088 23.334

**Comments**



# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.1	0.5	8.6	89.0	1.8	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
1	100.0		
.75	100.0		
.5	100.0		
.375	100.0		
#4	99.9		
#10	99.4		
#20	98.1		
#40	90.8		
#60	40.1		
#100	4.1		
#140	2.0		
#200	1.8		

\* (no specification provided)

Material Description		
Fine grained, SAND		
<div> <div> Atterberg Limits </div> <div> PL= </div> <div> LL= </div> <div> PI= </div> </div>		
<div> <div> Coefficients </div> <div> D<sub>90</sub>= 0.4194 </div> <div> D<sub>50</sub>= 0.2748 </div> <div> D<sub>10</sub>= 0.1725 </div> <div> D<sub>85</sub>= 0.3911 </div> <div> D<sub>30</sub>= 0.2254 </div> <div> C<sub>u</sub>= 1.75 </div> <div> D<sub>60</sub>= 0.3016 </div> <div> D<sub>15</sub>= 0.1871 </div> <div> C<sub>c</sub>= 0.98 </div> </div>		
<div> <div> Classification </div> <div> USCS= SP </div> <div> AASHTO= </div> </div>		
<div> Remarks </div>		

Location: BI-PBP-5-12 A  
Sample Number: 6482 (35)

Depth: 0.0'

Date: 12/12/12

**Thompson Engineering**

**Mobile, Alabama**

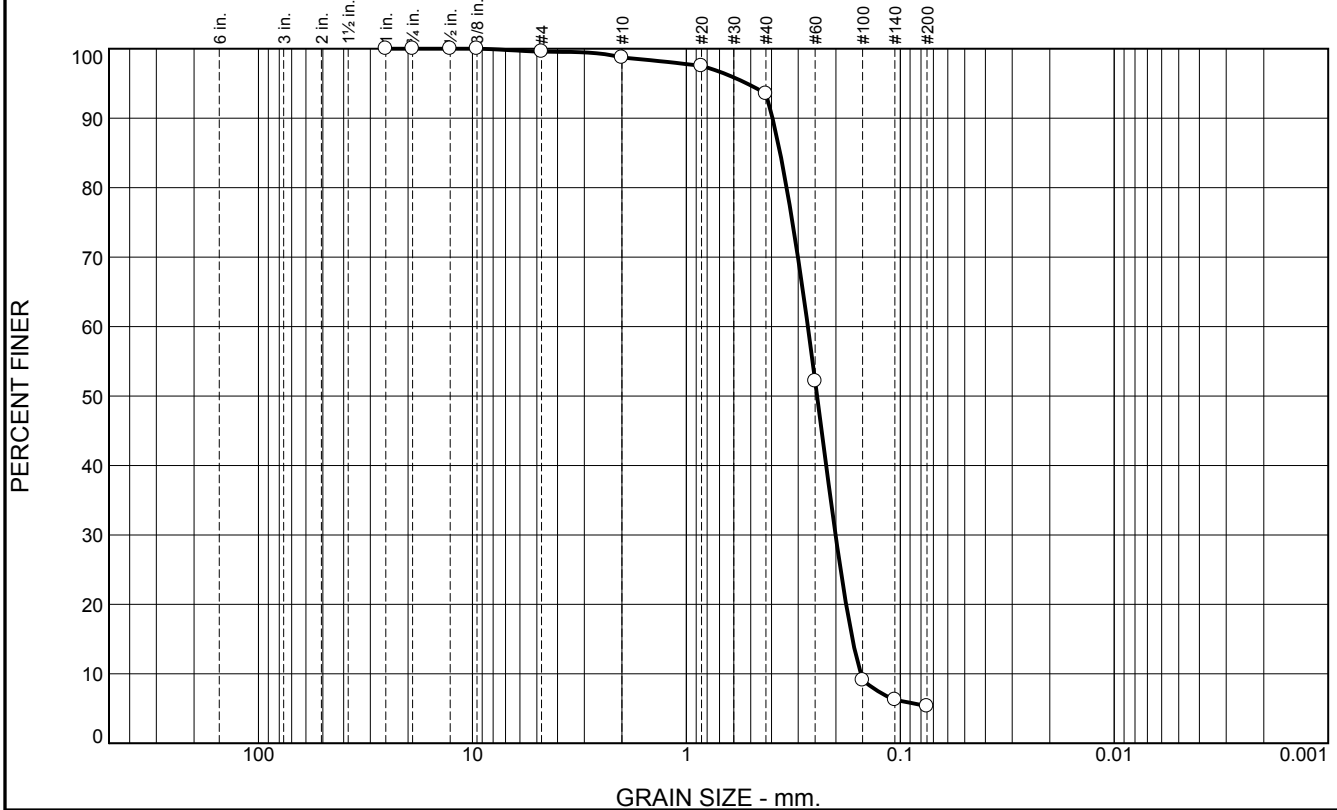
Client: CDM/Thompson Engineering JV  
Project: MsCIP Barrier Island Restoration GT

Project No: 1221110095

Figure



# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.4	0.9	5.2	88.1	5.4	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
1	100.0		
.75	100.0		
.5	100.0		
.375	100.0		
#4	99.6		
#10	98.7		
#20	97.5		
#40	93.5		
#60	52.2		
#100	9.1		
#140	6.3		
#200	5.4		

\* (no specification provided)

<b><u>Material Description</u></b>		
Fine grained, SLIGHTLY SILTY SAND		
<b><u>Atterberg Limits</u></b>		
PL=	LL=	PI=
<b><u>Coefficients</u></b>		
D <sub>90</sub> = 0.3954	D <sub>85</sub> = 0.3643	D <sub>60</sub> = 0.2705
D <sub>50</sub> = 0.2448	D <sub>30</sub> = 0.2008	D <sub>15</sub> = 0.1675
D <sub>10</sub> = 0.1533	C <sub>u</sub> = 1.76	C <sub>c</sub> = 0.97
<b><u>Classification</u></b>		
USCS= SP-SM	AASHTO=	
<b><u>Remarks</u></b>		

Location: BI-PBP-5-12 B  
Sample Number: 6482 (36)

Depth: 6.2'

Date: 12/12/12

**Thompson Engineering**

**Mobile, Alabama**

Client: CDM/Thompson Engineering JV  
Project: MsCIP Barrier Island Restoration GT

Project No: 1221110095

Figure

# Boring Designation BI-PBP-06-12

DRILLING LOG		DIVISION South Atlantic		INSTALLATION Mobile District		SHEET 1 OF 1 SHEETS	
1. PROJECT MsCIP Barrier Island Restoration Petit Bois Pass-MS				9. SIZE AND TYPE OF BIT N/A			
2. BORING DESIGNATION BI-PBP-06-12		LOCATION COORDINATES E = 1,125,039 N = 251,911		10. COORDINATE SYSTEM/DATUM State Plane, MSE (U.S. Ft.)		HORIZONTAL NAD83	
3. DRILLING AGENCY Corps of Engineers - CESAM		CONTRACTOR FILE NO.		11. MANUFACTURER'S DESIGNATION OF DRILL Vibracore		<input type="checkbox"/> AUTO HAMMER <input type="checkbox"/> MANUAL HAMMER	
4. NAME OF DRILLER American Vibracore Systems, Inc.				12. TOTAL SAMPLES		DISTURBED 0	
5. DIRECTION OF BORING <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED				13. TOTAL NUMBER CORE BOXES		14. WATER DEPTH 33 Ft.	
6. THICKNESS OF OVERBURDEN N/A				15. DATE BORING		STARTED 12-08-12	
7. DEPTH DRILLED INTO ROCK N/A				16. ELEVATION TOP OF BORING -31.5 Ft.		COMPLETED 12-08-12	
8. TOTAL DEPTH OF BORING 6.8 Ft.				17. TOTAL RECOVERY FOR BORING 100%			
				18. SIGNATURE AND TITLE OF INSPECTOR Mike FitzHarris, Geologist			
ELEV.	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS	SAMPLE	LABORATORY RESULTS		
-31.5	0.0						
			SAND, poorly-graded, mostly fine to medium-grained sand-sized quartz, some shell fragments, trace silt, clay pocket at 0.2, gray to lt. gray (SP)	A	Classification: SP Color: 5Y 7/2-light gray D50: 0.3322 mm % Fines: 2.1		
-34.9	3.4						
-36.2	4.7		CLAY, fat, mostly clay, some sand, trace shell fragments, medium to high plasticity, greenish gray (CH)	NS			
-38.3	6.8		SAND, silty, mostly fine-grained sand-sized quartz, some silt, dark brown band at 5.3 ft., dense sand, pale brown (SM)	B	Classification: SP Color: 2.5Y 5/2-grayish brown D50: 0.24 mm % Fines: 2.7		
NOTES: 1. Soils are field visually classified in accordance with the Unified Soils Classification System. 2. NS = Sample not submitted for laboratory analysis from this interval. 3. Seafloor elevation determined from USACE hydrographic survey completed April 2014.							

**Project**

Mississippi Barrier Island  
Restoration Project

**AVS**  
**AMERICAN VIBRACORE**  
**S E R V I C E S**

**Core Identifier** BI-PBP-6-12

**Date** 12/08/2012

**Water Depth** 33.0'

**Coordinate System**

Latitude / Longitude

**Start Time** 13:45:51

**End Time** 13:48:32

**Penetration** 8.0'

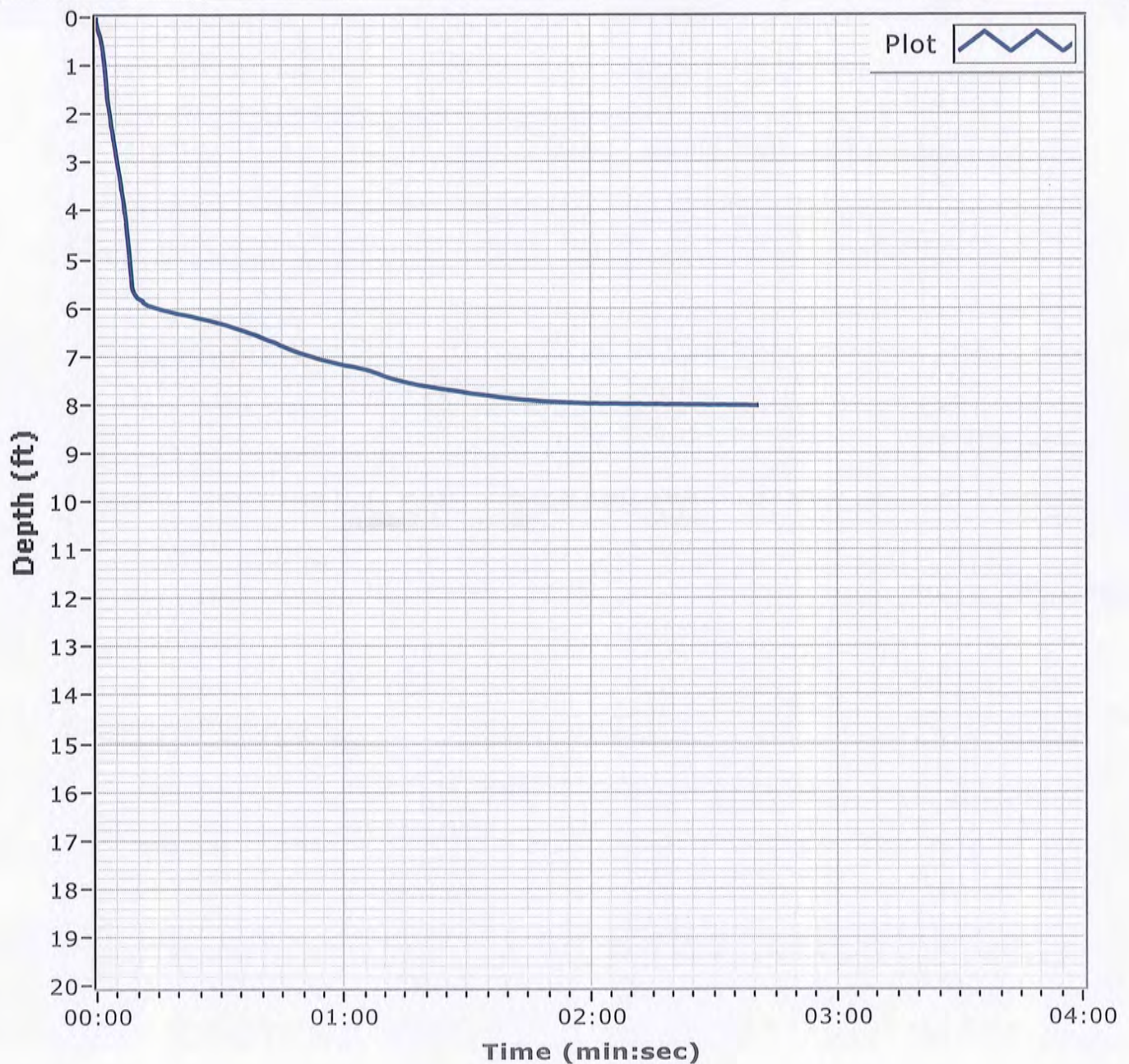
**Latitude** 30 11.517

**Total Time** 00:02:41

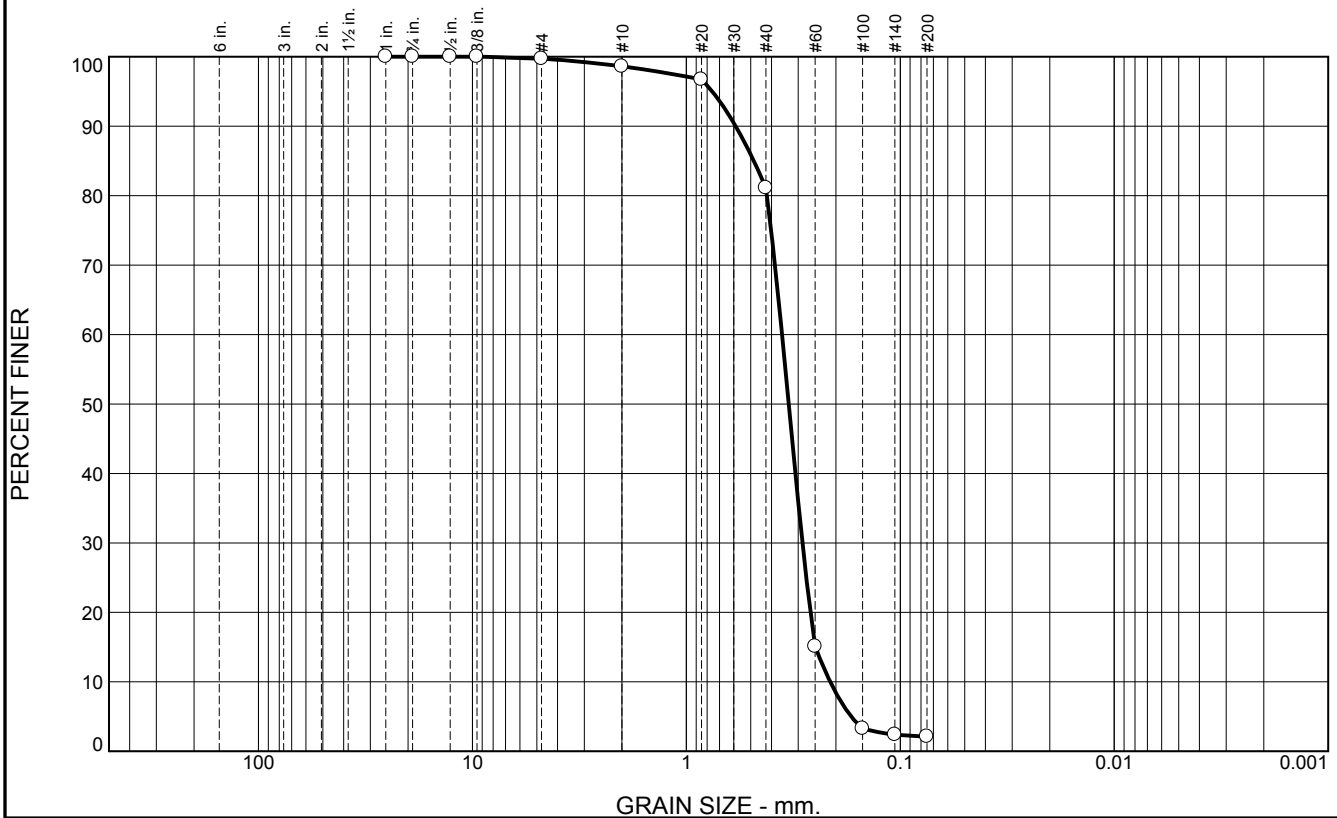
**Recovery** 6.8'

**Longitude** 088 23.262

**Comments**



# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.3	1.1	17.5	79.0	2.1	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
1	100.0		
.75	100.0		
.5	100.0		
.375	100.0		
#4	99.7		
#10	98.6		
#20	96.7		
#40	81.1		
#60	15.1		
#100	3.3		
#140	2.4		
#200	2.1		

\* (no specification provided)

<u><b>Material Description</b></u>		
Fine to medium grained, SAND		
<u><b>Atterberg Limits</b></u>		
PL=	LL=	PI=
<u><b>Coefficients</b></u>		
D <sub>90</sub> = 0.5883	D <sub>85</sub> = 0.4841	D <sub>60</sub> = 0.3569
D <sub>50</sub> = 0.3322	D <sub>30</sub> = 0.2869	D <sub>15</sub> = 0.2492
D <sub>10</sub> = 0.2126	C <sub>u</sub> = 1.68	C <sub>c</sub> = 1.08
<u><b>Classification</b></u>		
USCS= SP	AASHTO=	
<u><b>Remarks</b></u>		

Location: BI-PBP-6-12 A  
Sample Number: 6482 (37)

Depth: 0.0'

Date: 12/12/12

**Thompson Engineering**

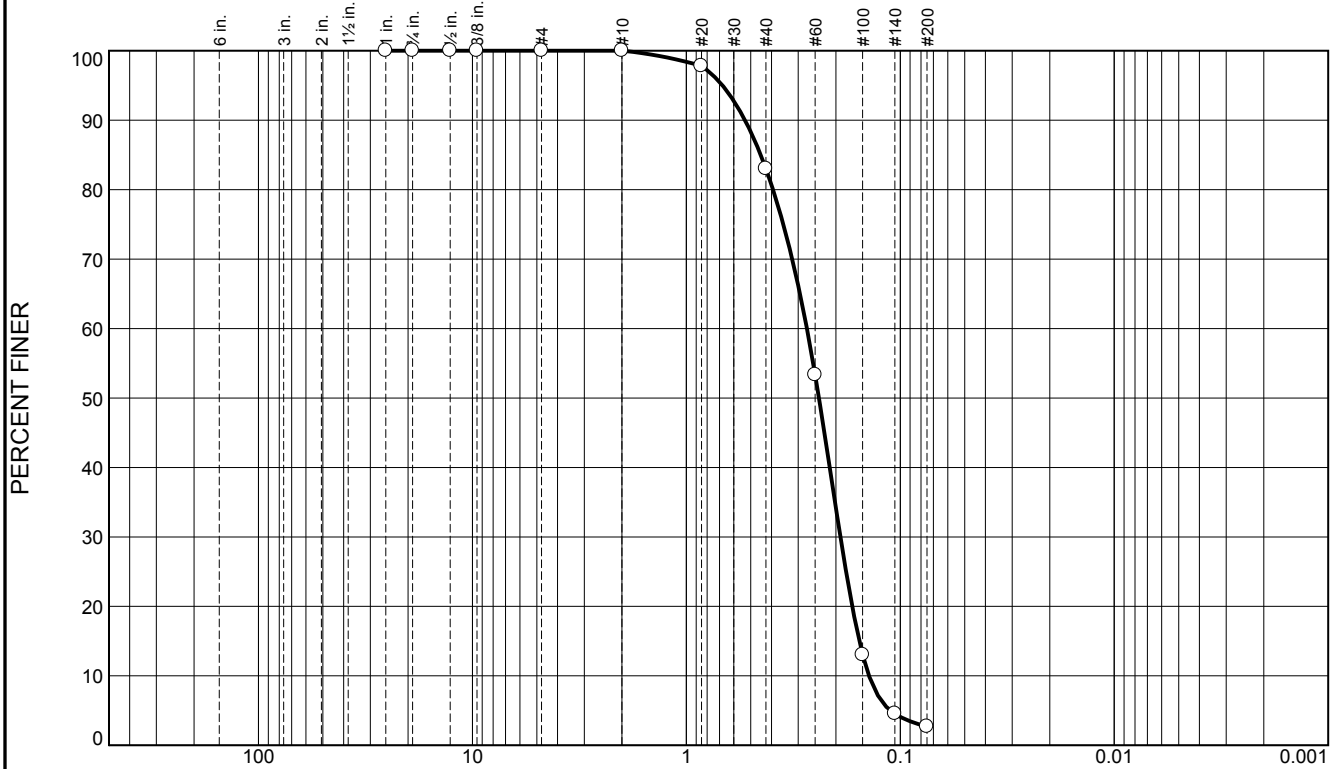
**Mobile, Alabama**

Client: CDM/Thompson Engineering JV  
Project: MsCIP Barrier Island Restoration GT

Project No: 1221110095

Figure

# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.0	0.0	17.0	80.3	2.7	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
1	100.0		
.75	100.0		
.5	100.0		
.375	100.0		
#4	100.0		
#10	100.0		
#20	97.8		
#40	83.0		
#60	53.3		
#100	13.0		
#140	4.6		
#200	2.7		

\* (no specification provided)

<u>Material Description</u>		
Fine to medium grained, SAND		
PL=	<u>Atterberg Limits</u> LL=	PI=
<u>Coefficients</u>		
D <sub>90</sub> = 0.5320	D <sub>85</sub> = 0.4495	D <sub>60</sub> = 0.2733
D <sub>50</sub> = 0.2400	D <sub>30</sub> = 0.1906	D <sub>15</sub> = 0.1555
D <sub>10</sub> = 0.1400	C <sub>u</sub> = 1.95	C <sub>c</sub> = 0.95
<u>Classification</u>		
USCS= SP	AASHTO=	
<u>Remarks</u>		

Location: BI-PBP-6-12 B  
Sample Number: 6482 (38)

Depth: 4.7'

Date: 12/12/12

**Thompson Engineering**

**Mobile, Alabama**

Client: CDM/Thompson Engineering JV  
Project: MsCIP Barrier Island Restoration GT

Project No: 1221110095

Figure

# Boring Designation BI-PBP-08-12

DRILLING LOG		DIVISION South Atlantic		INSTALLATION Mobile District		SHEET 1 OF 1 SHEETS	
1. PROJECT MsCIP Barrier Island Restoration Petit Bois Pass-MS				9. SIZE AND TYPE OF BIT N/A			
2. BORING DESIGNATION BI-PBP-08-12		LOCATION COORDINATES E = 1,125,076 N = 250,555		10. COORDINATE SYSTEM/DATUM State Plane, MSE (U.S. Ft.)		HORIZONTAL NAD83	
3. DRILLING AGENCY Corps of Engineers - CESAM		CONTRACTOR FILE NO.		11. MANUFACTURER'S DESIGNATION OF DRILL Vibracore		<input type="checkbox"/> AUTO HAMMER <input type="checkbox"/> MANUAL HAMMER	
4. NAME OF DRILLER American Vibracore Systems, Inc.				12. TOTAL SAMPLES		DISTURBED 0	
5. DIRECTION OF BORING <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED				13. TOTAL NUMBER CORE BOXES		14. WATER DEPTH 27.1 Ft.	
6. THICKNESS OF OVERBURDEN N/A				15. DATE BORING		STARTED 12-22-12	
7. DEPTH DRILLED INTO ROCK N/A				16. ELEVATION TOP OF BORING -27.3 Ft.		COMPLETED 12-22-12	
8. TOTAL DEPTH OF BORING 16.7 Ft.				17. TOTAL RECOVERY FOR BORING 100%			
				18. SIGNATURE AND TITLE OF INSPECTOR Mike FitzHarris, Geologist			
ELEV.	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS	SAMPLE	LABORATORY RESULTS		
-27.3	0.0						
			SAND, poorly-graded, mostly fine to medium-grained sand-sized quartz, few shell fragments, trace fines, lt. gray to gray (SP)	A	Classification: SP Color: 5Y 7/2-light gray D50: 0.3643 mm % Fines: 1		
-33.6	6.3			B	Classification: SP Color: 5Y 7/2-light gray D50: 0.2361 mm % Fines: 1.7		
-37.2	9.9		SAND, silty, mostly fine-grained sand-sized quartz, some silt, little clay stringers, gray (SM)				
-39.6	12.3		SILT, inorganic-L, mostly silt, some clay, little fine-grained sand-sized quartz, dark gray (ML)	NS			
-43.0	15.7		SAND, silty, mostly fine-grained sand-sized quartz, some silt, few clay stringers and a clay band at 14.8 ft., brown to gray (SM)				
-44.0	16.7		SAND, poorly-graded with silt, mostly fine-grained sand-sized quartz, few silt, gray (SP-SM)				
			NOTES: 1. Soils are field visually classified in accordance with the Unified Soils Classification System. 2. NS = Sample not submitted for laboratory analysis from this interval. 3. Seafloor elevation determined from USACE hydrographic survey completed April 2014.				



**Project**

Mississippi Barrier Island  
Restoration Project

**AVS**  
**AMERICAN VIBRACORE**  
**S E R V I C E S**

**Core Identifier** BI-PBP-8-12

**Date** 12/22/2012

**Water Depth** 27.1'

**Coordinate System**

Latitude / Longitude

**Start Time** 13:47:50

**End Time** 13:49:21

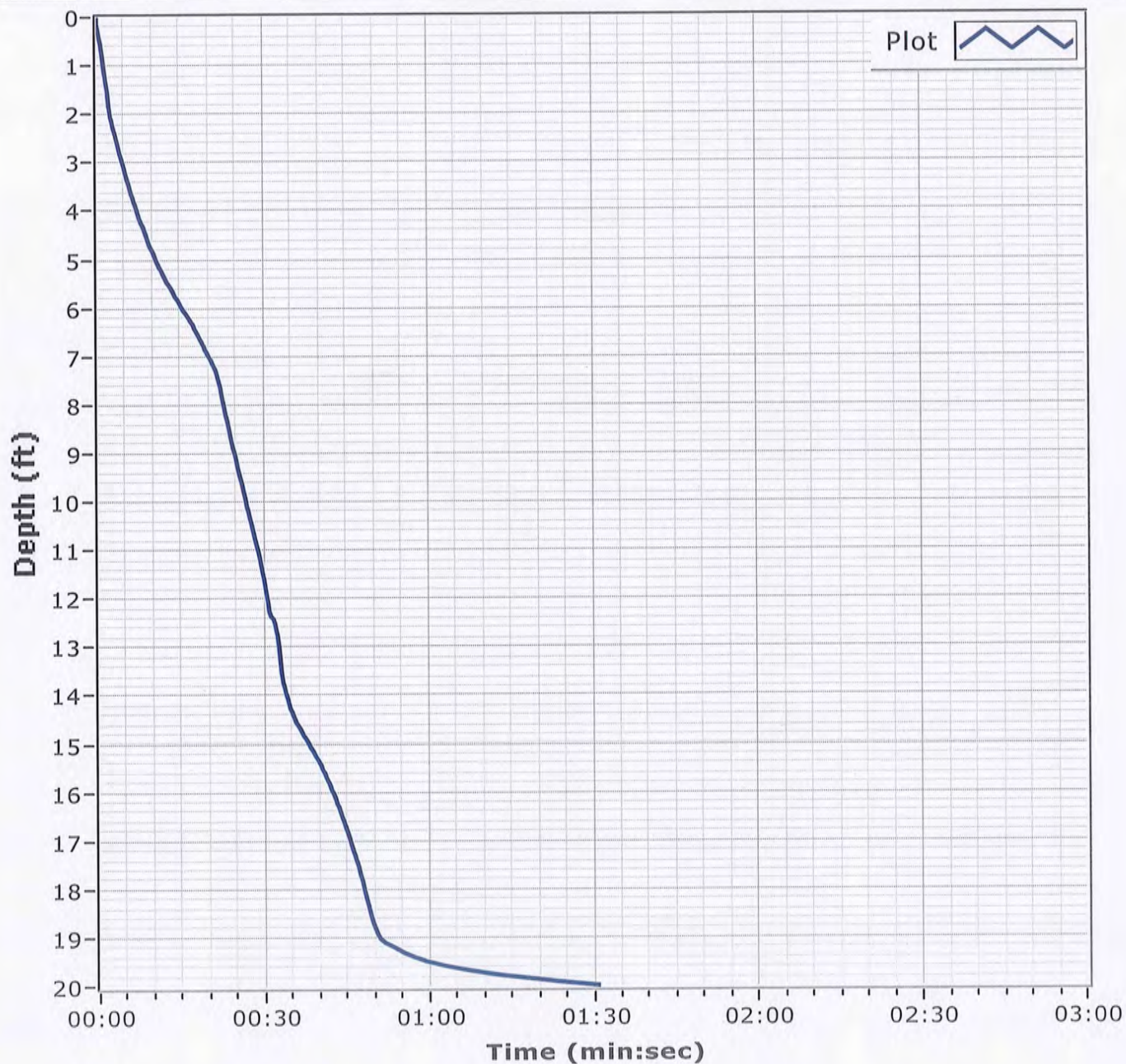
**Penetration** 20.0'

**Latitude** 30 11.293

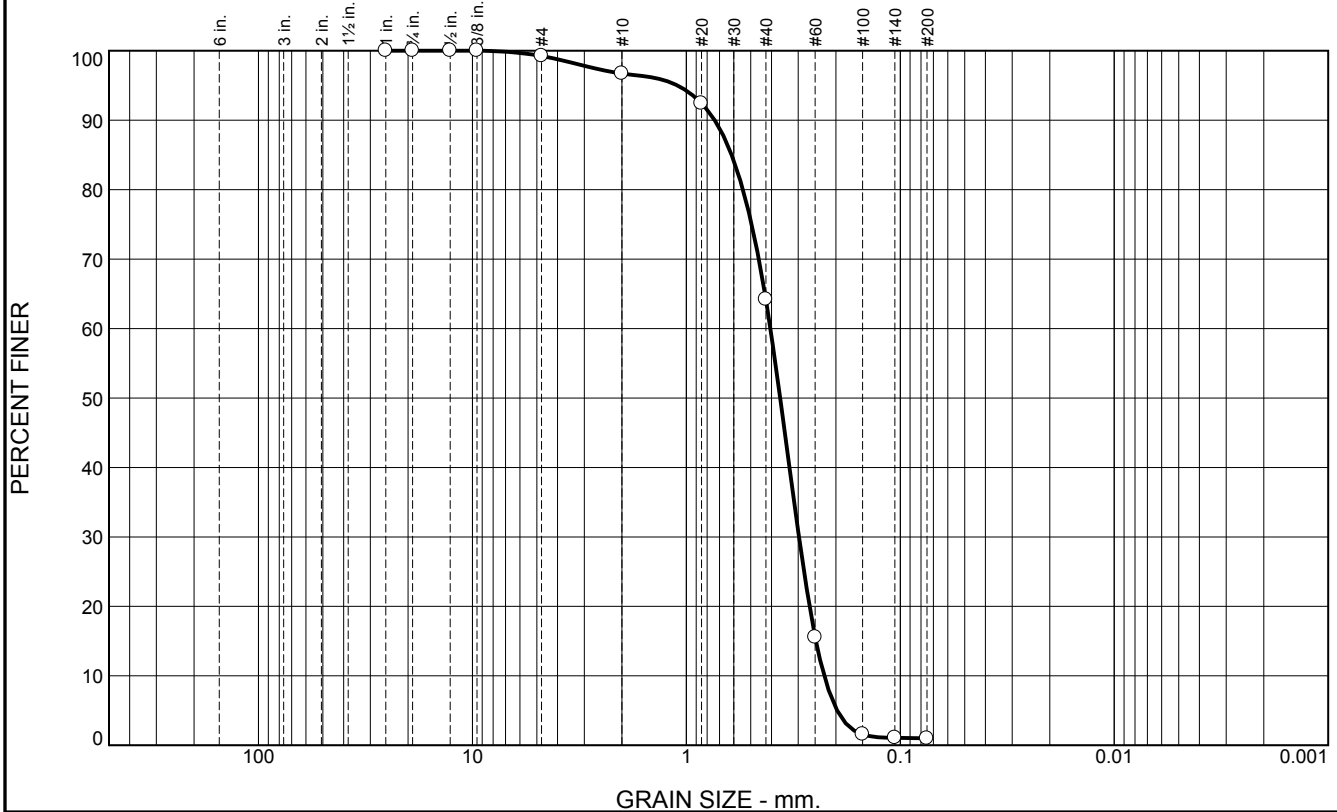
**Total Time** 00:01:31

**Recovery** 16.7'

**Longitude** 088 23.256

**Comments**

# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.8	2.5	32.5	63.2	1.0	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
1	100.0		
.75	100.0		
.5	100.0		
.375	100.0		
#4	99.2		
#10	96.7		
#20	92.4		
#40	64.2		
#60	15.5		
#100	1.6		
#140	1.1		
#200	1.0		

\* (no specification provided)

Material Description		
Fine to medium grained, SAND		
PL=	Atterberg Limits LL=	PI=
D <sub>90</sub> = 0.7379	Coefficients D <sub>85</sub> = 0.6142	D <sub>60</sub> = 0.4048
D <sub>50</sub> = 0.3643	D <sub>30</sub> = 0.2977	D <sub>15</sub> = 0.2479
D <sub>10</sub> = 0.2268	C <sub>u</sub> = 1.78	C <sub>c</sub> = 0.97
USCS= SP	Classification AASHTO=	
Remarks		

Location: BI-PBP-8-12 A  
Sample Number: 6495 (21)

Depth: 0.0'

Date: 12/31/12

**Thompson Engineering**

**Mobile, Alabama**

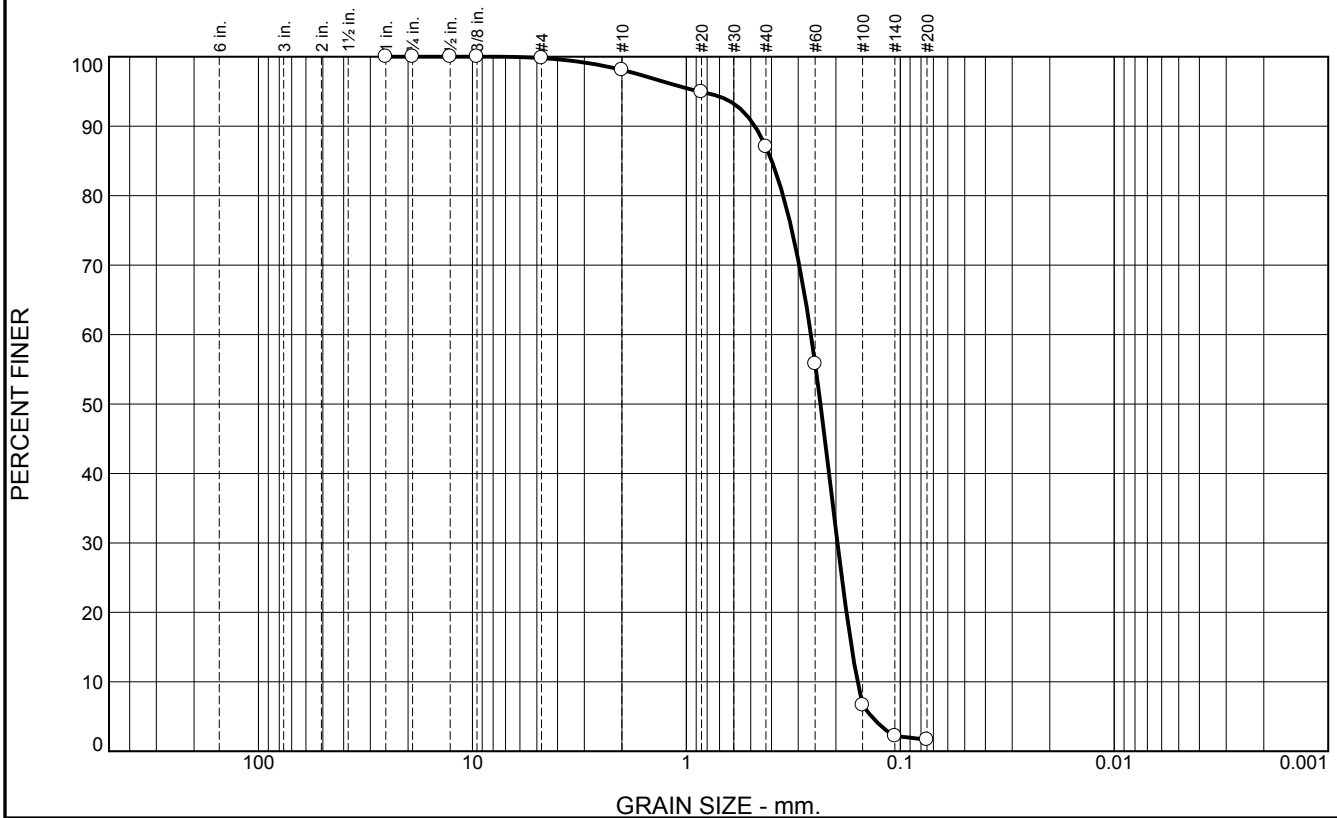
Client: CDM/Thompson Engineering JV  
Project: MsCIP Barrier Island Restoration GT

Project No: 1221110095

Figure



# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.2	1.7	11.1	85.3	1.7	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
1	100.0		
.75	100.0		
.5	100.0		
.375	100.0		
#4	99.8		
#10	98.1		
#20	94.9		
#40	87.0		
#60	55.8		
#100	6.6		
#140	2.2		
#200	1.7		

\* (no specification provided)

<u>Material Description</u>		
Fine to medium grained, SAND		
PL=	<u>Atterberg Limits</u> LL=	PI=
<u>Coefficients</u>		
D <sub>90</sub> = 0.4787	D <sub>85</sub> = 0.3988	D <sub>60</sub> = 0.2616
D <sub>50</sub> = 0.2361	D <sub>30</sub> = 0.1967	D <sub>15</sub> = 0.1691
D <sub>10</sub> = 0.1586	C <sub>u</sub> = 1.65	C <sub>c</sub> = 0.93
<u>Classification</u>		
USCS= SP	AASHTO=	
<u>Remarks</u>		

Location: BI-PBP-8-12 B  
Sample Number: 6495 (22)

Depth: 5.0'

Date: 12/31/12

**Thompson Engineering**

**Mobile, Alabama**

Client: CDM/Thompson Engineering JV  
Project: MsCIP Barrier Island Restoration GT

Project No: 1221110095

Figure

# Boring Designation BI-PBP-09-12

DRILLING LOG		DIVISION South Atlantic		INSTALLATION Mobile District		SHEET 1 OF 2 SHEETS	
1. PROJECT MsCIP Barrier Island Restoration Petit Bois Pass-MS				9. SIZE AND TYPE OF BIT N/A			
2. BORING DESIGNATION BI-PBP-09-12		LOCATION COORDINATES E = 1,124,933 N = 250,772		10. COORDINATE SYSTEM/DATUM State Plane, MSE (U.S. Ft.)		HORIZONTAL NAD83 VERTICAL NAVD88	
3. DRILLING AGENCY Corps of Engineers - CESAM		CONTRACTOR FILE NO.		11. MANUFACTURER'S DESIGNATION OF DRILL Vibracore		<input type="checkbox"/> AUTO HAMMER <input type="checkbox"/> MANUAL HAMMER	
4. NAME OF DRILLER American Vibracore Systems, Inc.				12. TOTAL SAMPLES		DISTURBED UNDISTURBED (UD) 0	
5. DIRECTION OF BORING <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED		DEG. FROM VERTICAL		13. TOTAL NUMBER CORE BOXES			
		BEARING		14. WATER DEPTH 28.9 Ft.			
6. THICKNESS OF OVERBURDEN N/A				15. DATE BORING 12-08-12		STARTED COMPLETED 12-08-12	
7. DEPTH DRILLED INTO ROCK N/A				16. ELEVATION TOP OF BORING -27.4 Ft.			
8. TOTAL DEPTH OF BORING 18.0 Ft.				17. TOTAL RECOVERY FOR BORING 100%			
				18. SIGNATURE AND TITLE OF INSPECTOR Mike FitzHarris, Geologist			

ELEV.	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS	SAMPLE	LABORATORY RESULTS
-27.4	0.0				
-29.6	2.2		SAND, poorly-graded, mostly fine to medium-grained sand-sized quartz, trace shell fragments, pale lt. brown (SP)	A	Classification: SP Color: 2.5Y 7/2-light gray D50: 0.3314 mm % Fines: 1
-29.8	2.4		SHELL, mostly shell fragments, trace fine-grained sand-sized quartz, gray	NS	
-33.0	5.6		SAND, poorly-graded, mostly fine to medium-grained sand-sized quartz, few shell fragments, trace fines, lt. gray (SP)	B	Classification: SP Color: 5Y 7/2-light gray D50: 0.2559 mm % Fines: 1.7
-33.9	6.5		SAND, clayey, mostly fine-grained sand-sized quartz, some clay, gray (SC)		
-34.9	7.5		CLAY, fat, mostly clay, medium to high plasticity, dark gray (CH)		
-36.5	9.1		SAND, poorly-graded, mostly fine-grained sand-sized quartz, trace fines, trace shell fragments, gray (SP)		
			SAND, silty, mostly fine-grained sand-sized quartz, some silt, pale brown (SM)	NS	
-42.8	15.4		At El. -41.2 Ft., mostly fine-grained sand-sized quartz, some silt, trace clay, brown		
-43.3	15.9		CLAY, lean, mostly clay, trace fine-grained sand-sized quartz, low to medium plasticity, dark gray (CL)		
-45.1	17.7		SAND, silty, mostly fine-grained sand-sized quartz, some silt, gray (SM)		
-45.4	18.0		SAND, poorly-graded, mostly fine-grained sand-sized quartz, trace fines, lt. gray (SP)		
NOTES: 1. Soils are field visually classified in accordance with the Unified Soils Classification System. 2. NS = Sample not submitted for laboratory analysis from this interval. 3. Seafloor elevation determined from USACE					

<b>DRILLING LOG (Cont. Sheet)</b>			<b>INSTALLATION</b> Mobile District		<b>SHEET 2</b> <b>OF 2 SHEETS</b>
<b>PROJECT</b> MsCIP Barrier Island Restoration			<b>COORDINATE SYSTEM/DATUM</b> State Plane, MSE (U.S. Ft.)	<b>HORIZONTAL</b> NAD83	<b>VERTICAL</b> NAVD88
<b>LOCATION COORDINATES</b> X = 1,124,933 Y = 250,772			<b>ELEVATION TOP OF BORING</b> -27.4 Ft.		
<b>ELEV.</b>	<b>DEPTH</b>	<b>LEGEND</b>	<b>CLASSIFICATION OF MATERIALS</b>	<b>SAMPLE</b>	<b>LABORATORY RESULTS</b>
			hydrographic survey completed April 2014.		

**Project**

Mississippi Barrier Island  
Restoration Project

**AVS**  
**AMERICAN VIBRACORE**  
**S E R V I C E S**

**Core Identifier** BI-PBP-9-12

**Date** 12/08/2012

**Water Depth** 28.9'

**Coordinate System**

Latitude / Longitude

**Start Time** 14:17:46

**End Time** 14:18:59

**Penetration** 20.0'

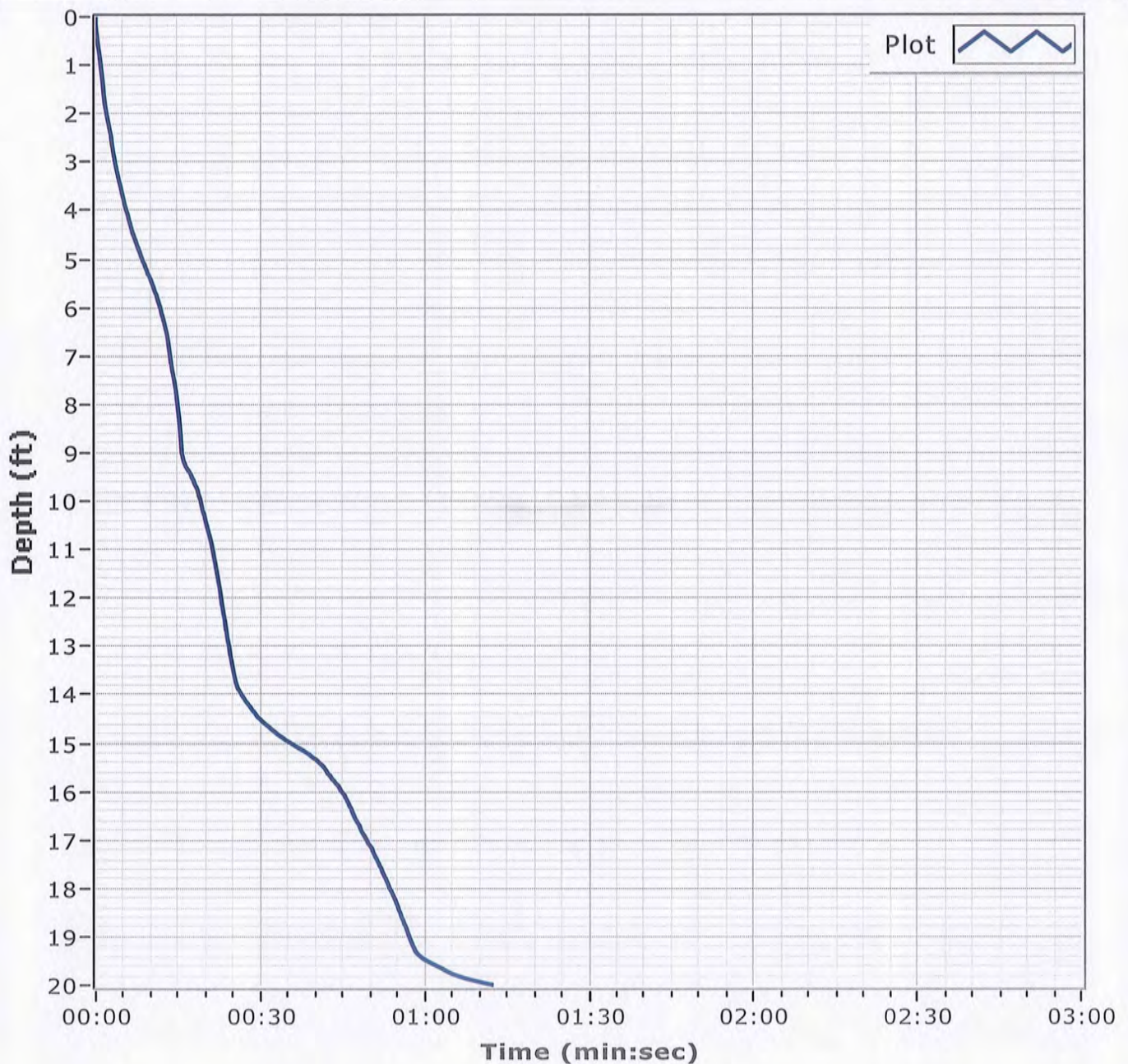
**Latitude** 30 11.329

**Total Time** 00:01:12

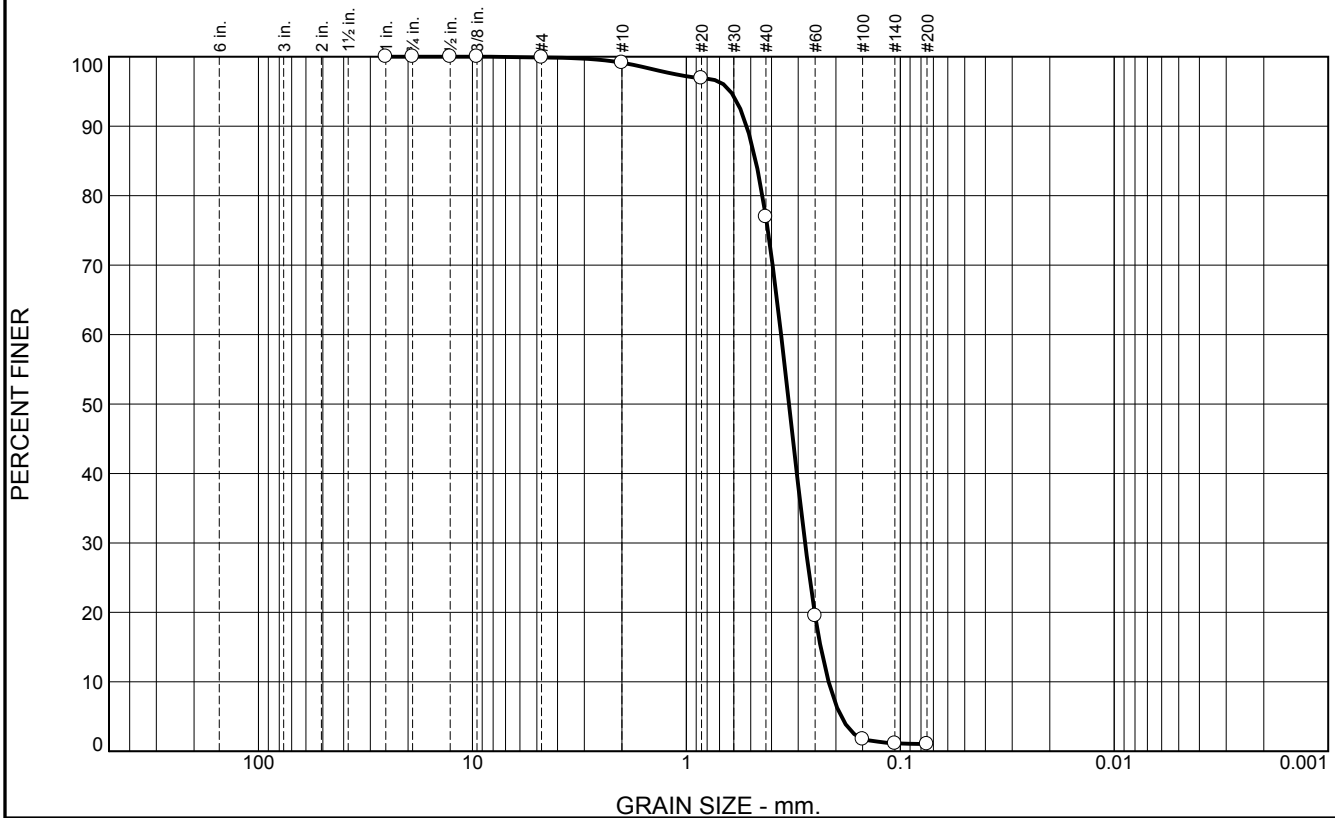
**Recovery** 18.0'

**Longitude** 088 23.283

**Comments**



# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.1	0.8	22.1	76.0	1.0	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
1	100.0		
.75	100.0		
.5	100.0		
.375	100.0		
#4	99.9		
#10	99.1		
#20	96.9		
#40	77.0		
#60	19.5		
#100	1.7		
#140	1.1		
#200	1.0		

\* (no specification provided)

<u>Material Description</u>		
Fine to medium grained, SAND		
PL=	<u>Atterberg Limits</u> LL=	PI=
<u>Coefficients</u>		
D <sub>90</sub> = 0.5225	D <sub>85</sub> = 0.4741	D <sub>60</sub> = 0.3607
D <sub>50</sub> = 0.3314	D <sub>30</sub> = 0.2788	D <sub>15</sub> = 0.2355
D <sub>10</sub> = 0.2163	C <sub>u</sub> = 1.67	C <sub>c</sub> = 1.00
<u>Classification</u>		
USCS= SP	AASHTO=	
<u>Remarks</u>		

Location: BI-PBP-9-12 A  
Sample Number: 6482 (39)

Depth: 0.0'

Date: 12/12/12

**Thompson Engineering**

**Mobile, Alabama**

Client: CDM/Thompson Engineering JV  
Project: MsCIP Barrier Island Restoration GT

Project No: 1221110095

Figure

# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.6	2.1	14.4	81.2	1.7	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
1	100.0		
.75	100.0		
.5	100.0		
.375	100.0		
#4	99.4		
#10	97.3		
#20	93.9		
#40	82.9		
#60	47.9		
#100	5.2		
#140	2.1		
#200	1.7		

\* (no specification provided)

Material Description		
Fine to medium grained, SAND		
<div> <div> Atterberg Limits </div> <div> PL= </div> <div> LL= </div> <div> PI= </div> </div>		
<div> <div> Coefficients </div> <div> D<sub>90</sub>= 0.5473 </div> <div> D<sub>85</sub>= 0.4503 </div> <div> D<sub>60</sub>= 0.2882 </div> <div> D<sub>50</sub>= 0.2559 </div> <div> D<sub>30</sub>= 0.2079 </div> <div> D<sub>15</sub>= 0.1759 </div> <div> D<sub>10</sub>= 0.1641 </div> <div> C<sub>u</sub>= 1.76 </div> <div> C<sub>c</sub>= 0.91 </div> </div>		
<div> <div> Classification </div> <div> USCS= SP </div> <div> AASHTO= </div> </div>		
<div> <div> Remarks </div> </div>		

Location: BI-PBP-9-12 B  
Sample Number: 6482 (40)

Depth: 2.4'

Date: 12/12/12

**Thompson Engineering**

**Mobile, Alabama**

Client: CDM/Thompson Engineering JV  
Project: MsCIP Barrier Island Restoration GT

Project No: 1221110095

Figure

# Boring Designation BI-PBP-12-12

DRILLING LOG		DIVISION South Atlantic		INSTALLATION Mobile District		SHEET 1 OF 1 SHEETS	
1. PROJECT MsCIP Barrier Island Restoration Petit Bois Pass-MS				9. SIZE AND TYPE OF BIT N/A			
2. BORING DESIGNATION BI-PBP-12-12		LOCATION COORDINATES E = 1,122,682 N = 251,164		10. COORDINATE SYSTEM/DATUM State Plane, MSE (U.S. Ft.)		HORIZONTAL NAD83	
3. DRILLING AGENCY Corps of Engineers - CESAM		CONTRACTOR FILE NO.		11. MANUFACTURER'S DESIGNATION OF DRILL Vibracore		<input type="checkbox"/> AUTO HAMMER <input type="checkbox"/> MANUAL HAMMER	
4. NAME OF DRILLER American Vibracore Systems, Inc.				12. TOTAL SAMPLES		DISTURBED 0	
5. DIRECTION OF BORING <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED				13. TOTAL NUMBER CORE BOXES		14. WATER DEPTH 32.5 Ft.	
6. THICKNESS OF OVERBURDEN N/A				15. DATE BORING		STARTED 12-22-12	
7. DEPTH DRILLED INTO ROCK N/A				16. ELEVATION TOP OF BORING -31.0 Ft.		COMPLETED 12-22-12	
8. TOTAL DEPTH OF BORING 8.6 Ft.				17. TOTAL RECOVERY FOR BORING 100%			
				18. SIGNATURE AND TITLE OF INSPECTOR Mike FitzHarris, Geologist			
ELEV.	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS	SAMPLE	LABORATORY RESULTS		
-31.0	0.0						
-33.1	2.1		SAND, poorly-graded, mostly fine to medium-grained sand-sized quartz, trace fines, trace shell fragments, gray (SP)	A	Classification: SP Color: 5Y 6/2-light olive gray D50: 0.2788 mm % Fines: 2		
-34.1	3.1		SAND, poorly-graded with silt, mostly fine to medium-grained sand-sized quartz, some shell fragments, few clay stringers, gray (SP-SM)	NS			
-36.7	5.7		SAND, silty, mostly fine-grained sand-sized quartz, some silt, little shell fragments, gray (SM)	B	Classification: SP-SM Color: 5Y 5/2-olive gray D50: 0.2942 mm % Fines: 7.3		
-37.9	6.9		SAND, clayey, mostly fine-grained sand-sized quartz, some clay, clay band at 6.6 ft., dark gray (SC)	NS			
-39.6	8.6		SAND, poorly-graded with silt, mostly fine-grained sand-sized quartz, few silt, grades siltier with depth, gray grading to brown (SP-SM)	C	Classification: SP Color: 2.5Y 6/2-light brownish gray D50: 0.2302 mm % Fines: 3.1		
			NOTES: 1. Soils are field visually classified in accordance with the Unified Soils Classification System. 2. NS = Sample not submitted for laboratory analysis from this interval. 3. Drilled depth was 16.3 ft. and return was 8.6 ft. Unsure of cause of poor return. Did not appear to be a mechanical issue. 4. Seafloor elevation determined from USACE hydrographic survey completed April 2014.	NS			



**Project**

Mississippi Barrier Island  
Restoration Project

**AVS**  
**AMERICAN VIBRACORE**  
**S E R V I C E S**

**Core Identifier** BI-PBP-12-12

**Date** 12/22/2012

**Water Depth** 32.5'

**Coordinate System**

Latitude / Longitude

**Start Time** 14:20:05

**End Time** 14:22:54

**Penetration** 16.3'

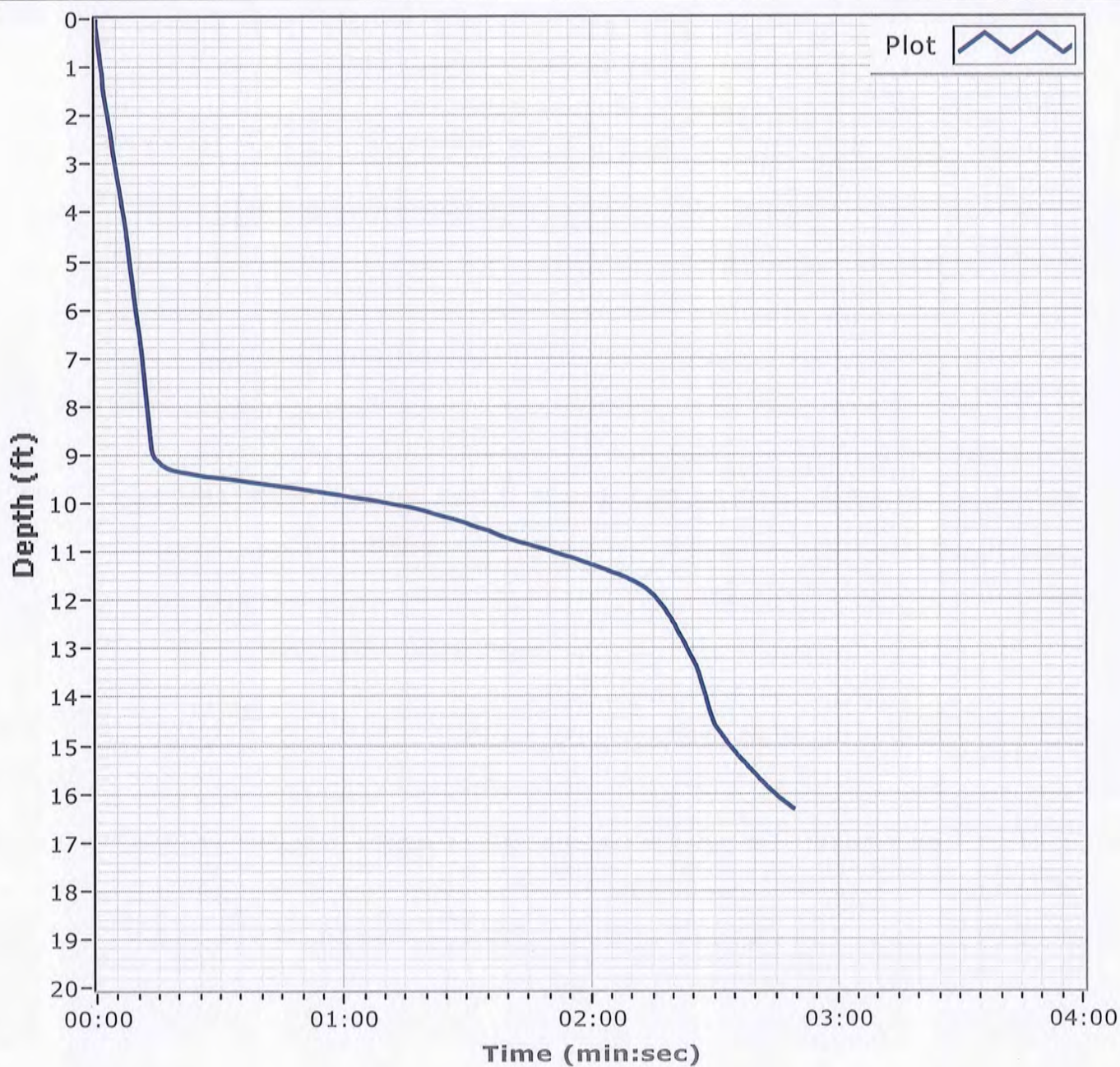
**Latitude** 30 11.395

**Total Time** 00:02:49

**Recovery** 8.6'

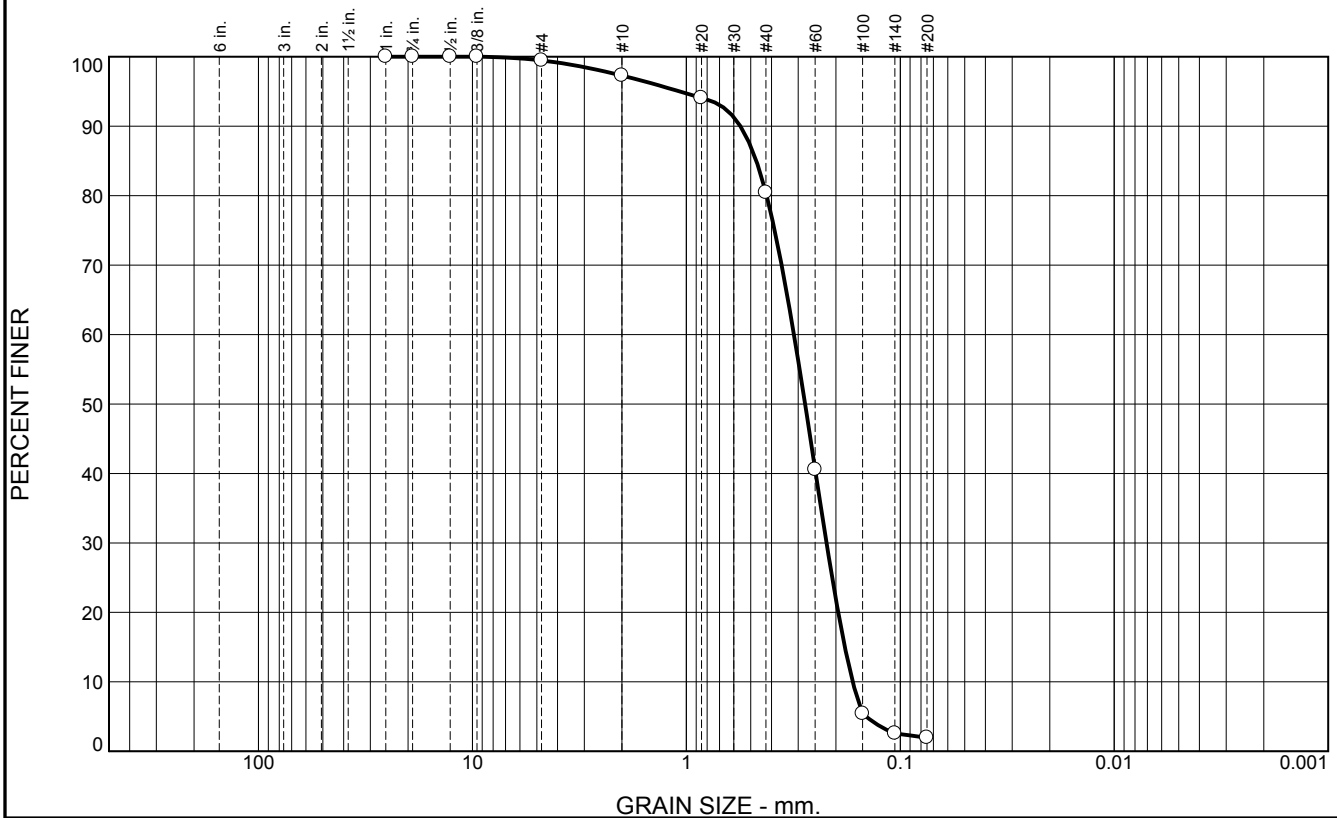
**Longitude** 088 23.710

**Comments**





# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.5	2.2	16.9	78.4	2.0	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
1	100.0		
.75	100.0		
.5	100.0		
.375	100.0		
#4	99.5		
#10	97.3		
#20	94.1		
#40	80.4		
#60	40.6		
#100	5.4		
#140	2.6		
#200	2.0		

\* (no specification provided)

<b>Material Description</b> Fine to medium grained, SAND		
PL=	<b>Atterberg Limits</b> LL=	PI=
D <sub>90</sub> = 0.5591 D <sub>50</sub> = 0.2788 D <sub>10</sub> = 0.1670	<b>Coefficients</b> D <sub>85</sub> = 0.4710 D <sub>30</sub> = 0.2212 C <sub>u</sub> = 1.88	D <sub>60</sub> = 0.3143 D <sub>15</sub> = 0.1817 C <sub>c</sub> = 0.93
USCS= SP	<b>Classification</b> AASHTO=	
<b>Remarks</b>		

Location: BI-PBP-12-12 A  
Sample Number: 6495 (23)

Depth: 0.0'

Date: 12/31/12

**Thompson Engineering**

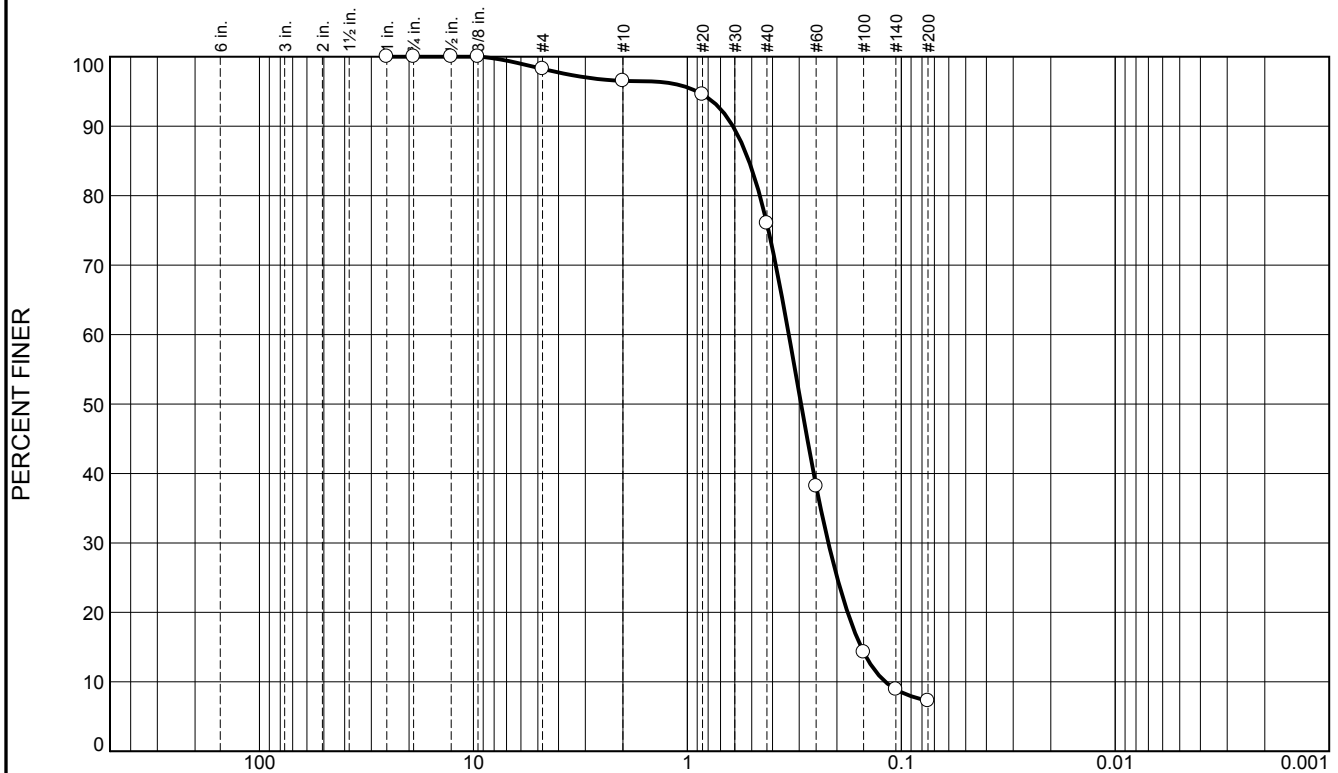
**Mobile, Alabama**

Client: CDM/Thompson Engineering JV  
Project: MsCIP Barrier Island Restoration GT

Project No: 1221110095

Figure

# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	1.8	1.7	20.5	68.7	7.3	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
1	100.0		
.75	100.0		
.5	100.0		
.375	100.0		
#4	98.2		
#10	96.5		
#20	94.6		
#40	76.0		
#60	38.2		
#100	14.3		
#140	8.9		
#200	7.3		

\* (no specification provided)

## Material Description

Fine to medium grained, SLIGHTLY SILTY SAND, with trace SHELL

## Atterberg Limits

PL= LL= PI=

## Coefficients

D<sub>90</sub>= 0.6120 D<sub>85</sub>= 0.5157 D<sub>60</sub>= 0.3356  
D<sub>50</sub>= 0.2942 D<sub>30</sub>= 0.2192 D<sub>15</sub>= 0.1541  
D<sub>10</sub>= 0.1187 C<sub>u</sub>= 2.83 C<sub>c</sub>= 1.21

## Classification

USCS= SP-SM AASHTO=

## Remarks

Location: BI-PBP-12-12 B  
Sample Number: 6495 (24)

Depth: 3.1'

Date: 12/31/12

**Thompson Engineering**

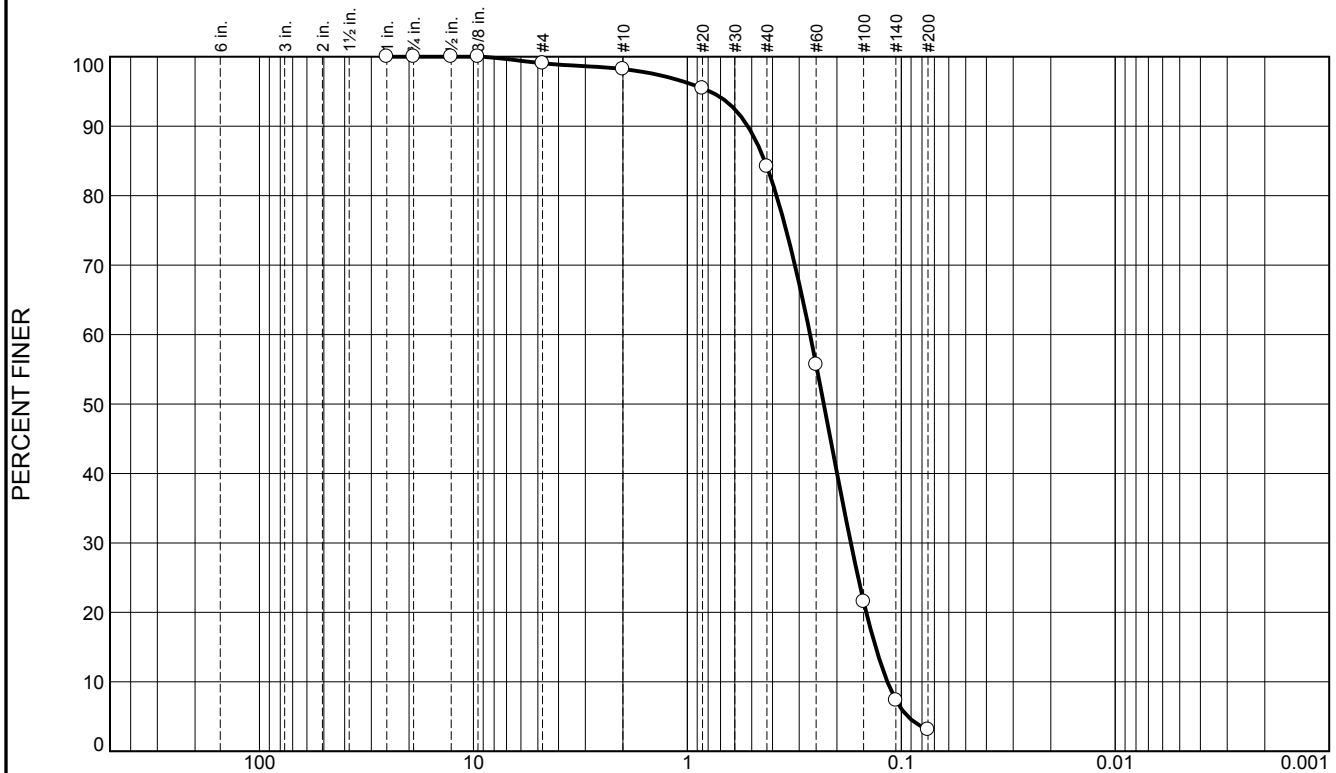
**Mobile, Alabama**

Client: CDM/Thompson Engineering JV  
Project: MsCIP Barrier Island Restoration GT

Project No: 1221110095

Figure

# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.9	0.9	14.0	81.1	3.1	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
1	100.0		
.75	100.0		
.5	100.0		
.375	100.0		
#4	99.1		
#10	98.2		
#20	95.4		
#40	84.2		
#60	55.7		
#100	21.5		
#140	7.4		
#200	3.1		

\* (no specification provided)

<u><b>Material Description</b></u>		
Fine to medium grained, SAND		
<u><b>Atterberg Limits</b></u>		
PL=	LL=	PI=
<u><b>Coefficients</b></u>		
D <sub>90</sub> = 0.5218	D <sub>85</sub> = 0.4348	D <sub>60</sub> = 0.2669
D <sub>50</sub> = 0.2302	D <sub>30</sub> = 0.1723	D <sub>15</sub> = 0.1319
D <sub>10</sub> = 0.1162	C <sub>u</sub> = 2.30	C <sub>c</sub> = 0.96
<u><b>Classification</b></u>		
USCS= SP	AASHTO=	
<u><b>Remarks</b></u>		

Location: BI-PBP-12-12 C  
Sample Number: 6495 (25)

Depth: 6.9'

Date: 12/31/12

**Thompson Engineering**

**Mobile, Alabama**

Client: CDM/Thompson Engineering JV  
Project: MsCIP Barrier Island Restoration GT

Project No: 1221110095

Figure

# Boring Designation BI-PBP-13-12

DRILLING LOG		DIVISION South Atlantic		INSTALLATION Mobile District		SHEET 1 OF 1 SHEETS	
1. PROJECT MsCIP Barrier Island Restoration Petit Bois Pass-MS				9. SIZE AND TYPE OF BIT N/A			
2. BORING DESIGNATION BI-PBP-13-12		LOCATION COORDINATES E = 1,124,325 N = 252,847		10. COORDINATE SYSTEM/DATUM State Plane, MSE (U.S. Ft.)		HORIZONTAL NAD83	
3. DRILLING AGENCY Corps of Engineers - CESAM		CONTRACTOR FILE NO.		11. MANUFACTURER'S DESIGNATION OF DRILL Vibrocure		<input type="checkbox"/> AUTO HAMMER <input type="checkbox"/> MANUAL HAMMER	
4. NAME OF DRILLER American Vibrocure Systems, Inc.				12. TOTAL SAMPLES		DISTURBED 0	
5. DIRECTION OF BORING <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED				13. TOTAL NUMBER CORE BOXES		14. WATER DEPTH 29 Ft.	
6. THICKNESS OF OVERBURDEN N/A				15. DATE BORING		STARTED 12-22-12	
7. DEPTH DRILLED INTO ROCK N/A				16. ELEVATION TOP OF BORING -28.9 Ft.		COMPLETED 12-22-12	
8. TOTAL DEPTH OF BORING 19.3 Ft.				17. TOTAL RECOVERY FOR BORING 100%		18. SIGNATURE AND TITLE OF INSPECTOR Mike FitzHarris, Geologist	
ELEV.	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS	SAMPLE	LABORATORY RESULTS		
-28.9	0.0						
			SAND, poorly-graded, mostly fine to medium-grained sand-sized quartz, trace shell fragments, shelly at 1.2 ft., dense, lt. gray (SP)	A	Classification: SP Color: 2.5Y 7/2-light gray D50: 0.2911 mm % Fines: 1.9		
-33.7	4.8		SAND, silty, mostly fine-grained sand-sized quartz, some silt, trace shell fragments, thick clay bands, gray (SM)	NS			
			At El. -34.9 Ft., mostly fine-grained sand-sized quartz, some silt, organic staining, trace clay bands, brown	B	Classification: SP-SM Color: 2.5Y 4/2-dark grayish brown D50: 0.2371 mm % Fines: 5.3		
-38.4	9.5						
			SAND, clayey, mostly fine-grained sand-sized quartz, some clay, little silt, trace shell fragments, gray (SC)				
-42.7	13.8						
			SAND, silty, mostly fine-grained sand-sized quartz, some silt, trace shell fragments, trace clay bands, loose, gray (SM)	NS			
-48.2	19.3						
			NOTES: 1. Soils are field visually classified in accordance with the Unified Soils Classification System. 2. NS = Sample not submitted for laboratory analysis from this interval. 3. Seafloor elevation determined from USACE hydrographic survey completed April 2014.				

# Project

Mississippi Barrier Island  
Restoration Project

**AVS**  
AMERICAN VIBRACORE  
S E R V I C E S

Core Identifier BI-PBP-13-12

Date 12/22/2012

Water Depth 29.0'

## Coordinate System

Latitude / Longitude

Start Time 10:47:16

End Time 10:48:41

Penetration 20.0'

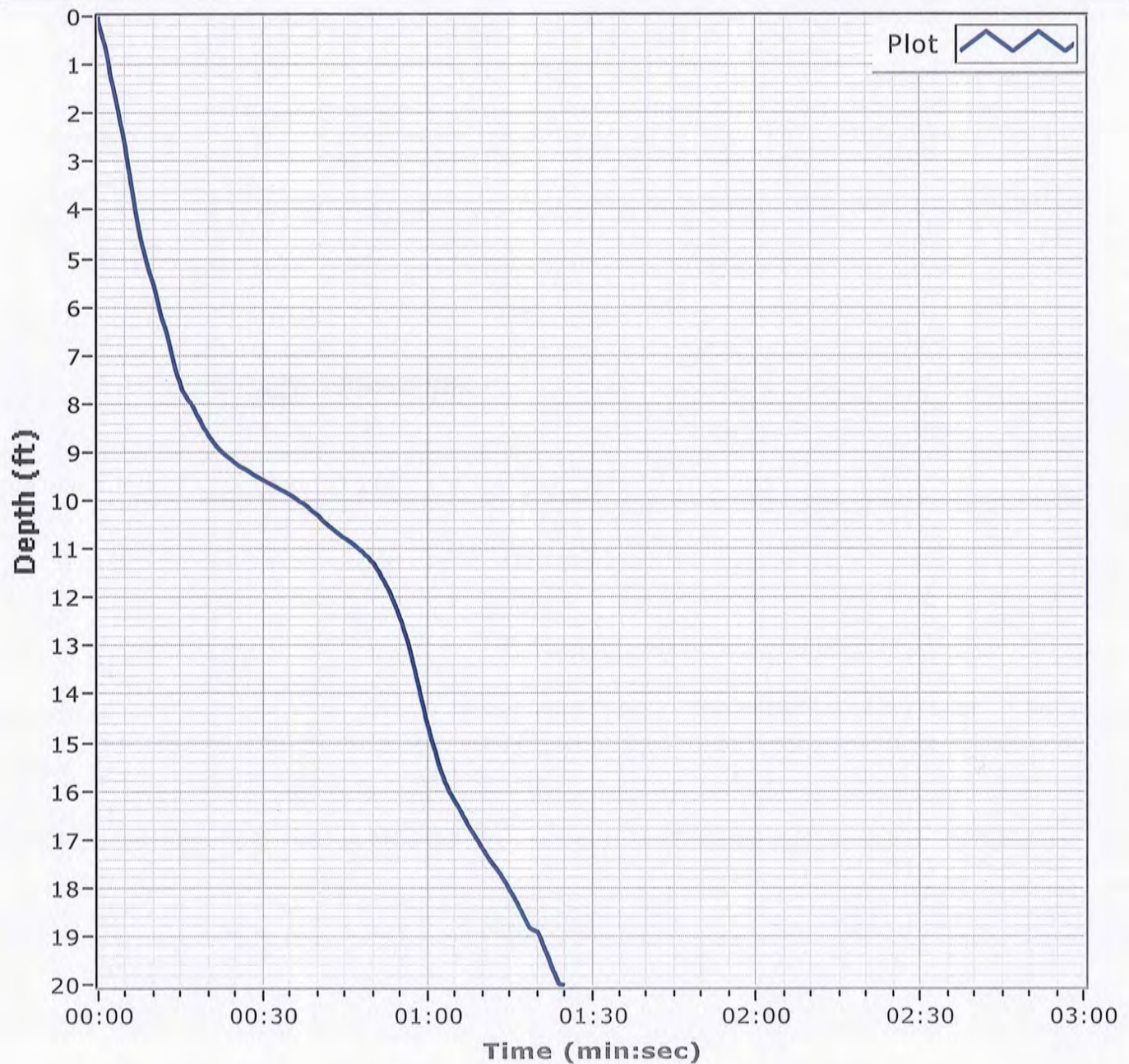
Latitude 30 11.672 N

Total Time 00:01:25

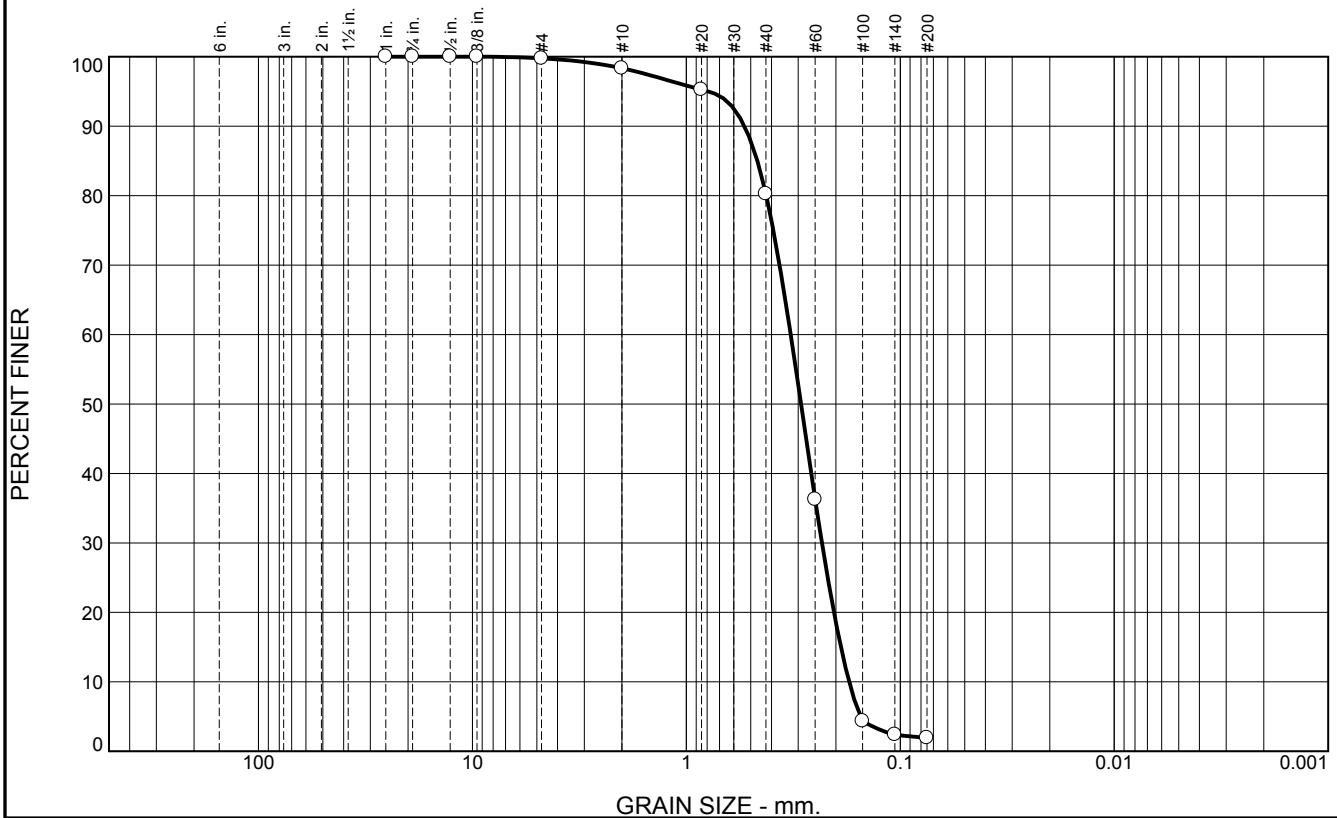
Recovery 19.3'

Longitude 088 23.397 W

## Comments



# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.2	1.5	18.0	78.4	1.9	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
1	100.0		
.75	100.0		
.5	100.0		
.375	100.0		
#4	99.8		
#10	98.3		
#20	95.3		
#40	80.3		
#60	36.3		
#100	4.3		
#140	2.4		
#200	1.9		

\* (no specification provided)

<u>Material Description</u>		
Fine to medium grained, SAND		
PL=	<u>Atterberg Limits</u> LL=	PI=
<u>Coefficients</u>		
D <sub>90</sub> = 0.5350	D <sub>85</sub> = 0.4657	D <sub>60</sub> = 0.3253
D <sub>50</sub> = 0.2911	D <sub>30</sub> = 0.2323	D <sub>15</sub> = 0.1896
D <sub>10</sub> = 0.1736	C <sub>u</sub> = 1.87	C <sub>c</sub> = 0.96
<u>Classification</u>		
USCS= SP	AASHTO=	
<u>Remarks</u>		

Location: BI-PBP-13-12 A  
Sample Number: 6495 (26)

Depth: 0.0'

Date: 12/31/12

**Thompson Engineering**

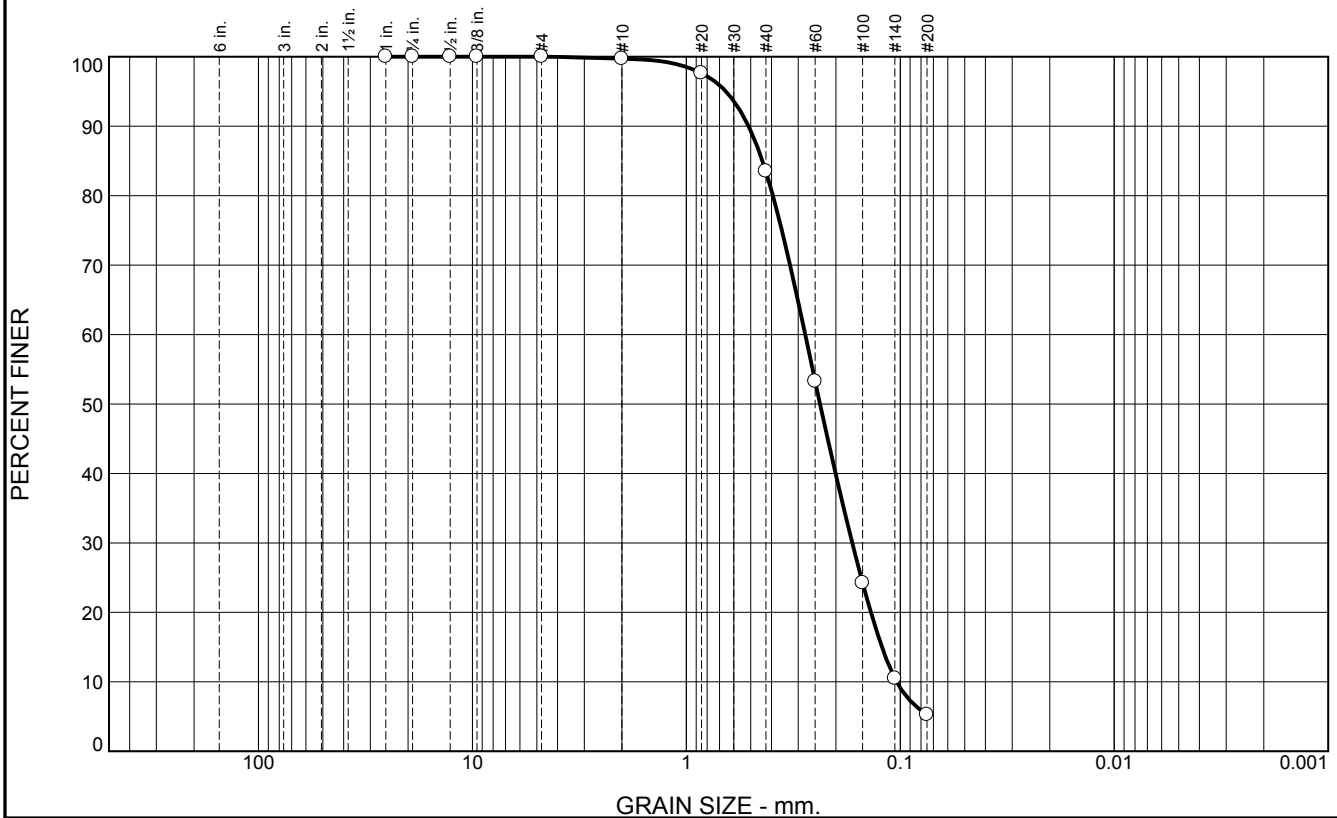
**Mobile, Alabama**

Client: CDM/Thompson Engineering JV  
Project: MsCIP Barrier Island Restoration GT

Project No: 1221110095

Figure

# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.0	0.3	16.2	78.2	5.3	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
1	100.0		
.75	100.0		
.5	100.0		
.375	100.0		
#4	100.0		
#10	99.7		
#20	97.6		
#40	83.5		
#60	53.3		
#100	24.2		
#140	10.5		
#200	5.3		

\* (no specification provided)

<u><b>Material Description</b></u>		
Fine to medium grained, SLIGHTLY SILTY SAND		
<u><b>Atterberg Limits</b></u>		
PL=	LL=	PI=
<u><b>Coefficients</b></u>		
D <sub>90</sub> = 0.5121	D <sub>85</sub> = 0.4409	D <sub>60</sub> = 0.2783
D <sub>50</sub> = 0.2371	D <sub>30</sub> = 0.1678	D <sub>15</sub> = 0.1218
D <sub>10</sub> = 0.1040	C <sub>u</sub> = 2.68	C <sub>c</sub> = 0.97
<u><b>Classification</b></u>		
USCS= SP-SM	AASHTO=	
<u><b>Remarks</b></u>		

Location: BI-PBP-13-12 B  
Sample Number: 6495 (27)

Depth: 6.0'

Date: 12/31/12

**Thompson Engineering**

**Mobile, Alabama**

Client: CDM/Thompson Engineering JV  
Project: MsCIP Barrier Island Restoration GT

Project No: 1221110095

Figure

# Boring Designation BI-PBP-14-12

DRILLING LOG		DIVISION South Atlantic		INSTALLATION Mobile District		SHEET 1 OF 1 SHEETS	
1. PROJECT MsCIP Barrier Island Restoration Petit Bois Pass-MS				9. SIZE AND TYPE OF BIT N/A			
2. BORING DESIGNATION BI-PBP-14-12		LOCATION COORDINATES E = 1,123,449 N = 252,869		10. COORDINATE SYSTEM/DATUM State Plane, MSE (U.S. Ft.)		HORIZONTAL NAD83 VERTICAL NAVD88	
3. DRILLING AGENCY Corps of Engineers - CESAM		CONTRACTOR FILE NO.		11. MANUFACTURER'S DESIGNATION OF DRILL Vibracore		<input type="checkbox"/> AUTO HAMMER <input type="checkbox"/> MANUAL HAMMER	
4. NAME OF DRILLER American Vibracore Systems, Inc.				12. TOTAL SAMPLES		DISTURBED UNDISTURBED (UD) 0	
5. DIRECTION OF BORING <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED		DEG. FROM VERTICAL		13. TOTAL NUMBER CORE BOXES			
		BEARING		14. WATER DEPTH 27.3 Ft.			
6. THICKNESS OF OVERBURDEN N/A				15. DATE BORING 12-22-12		STARTED COMPLETED 12-22-12	
7. DEPTH DRILLED INTO ROCK N/A				16. ELEVATION TOP OF BORING -27.8 Ft.			
8. TOTAL DEPTH OF BORING 15.5 Ft.				17. TOTAL RECOVERY FOR BORING 100%			
				18. SIGNATURE AND TITLE OF INSPECTOR Mike FitzHarris, Geologist			
ELEV.	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS	SAMPLE	LABORATORY RESULTS		
-27.8	0.0						
-29.8	2.0		SAND, poorly-graded, mostly fine to medium-grained sand-sized quartz, trace fines, trace shell fragments, gray (SP)	A	Classification: SP Color: 5Y 6/2-light olive gray D50: 0.2613 mm % Fines: 2.5		
			SAND, silty, mostly fine-grained sand-sized quartz, some silt, alternating bands of silty, fine-grained sand and stiff, low to medium plasticity, silty clay up to 1 ft. thick, gray (SM)	NS			
-43.3	15.5						
			NOTES: 1. Soils are field visually classified in accordance with the Unified Soils Classification System. 2. NS = Sample not submitted for laboratory analysis from this interval. 3. Seafloor elevation determined from USACE hydrographic survey completed April 2014.				



**Project**

Mississippi Barrier Island  
Restoration Project

**AVS**  
**AMERICAN VIBRACORE**  
**S E R V I C E S**

**Core Identifier** BI-PBP-14-12

**Date** 12/22/2012

**Water Depth** 27.3

**Coordinate System**

**Start Time** 11:14:48

Latitude / Longitude

**End Time** 11:17:15

**Penetration** 20.0'

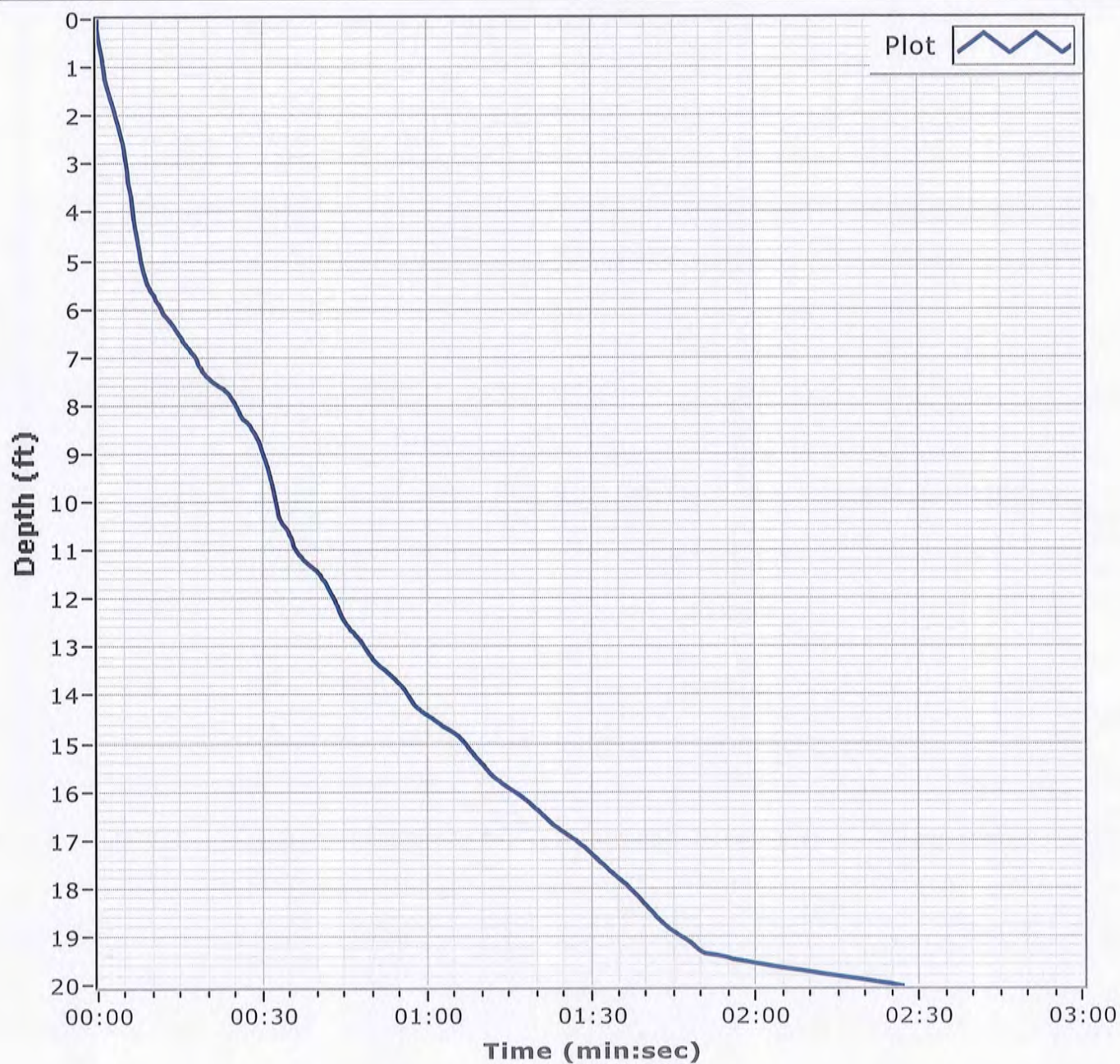
**Latitude** 30 11.676 N

**Total Time** 00:02:27

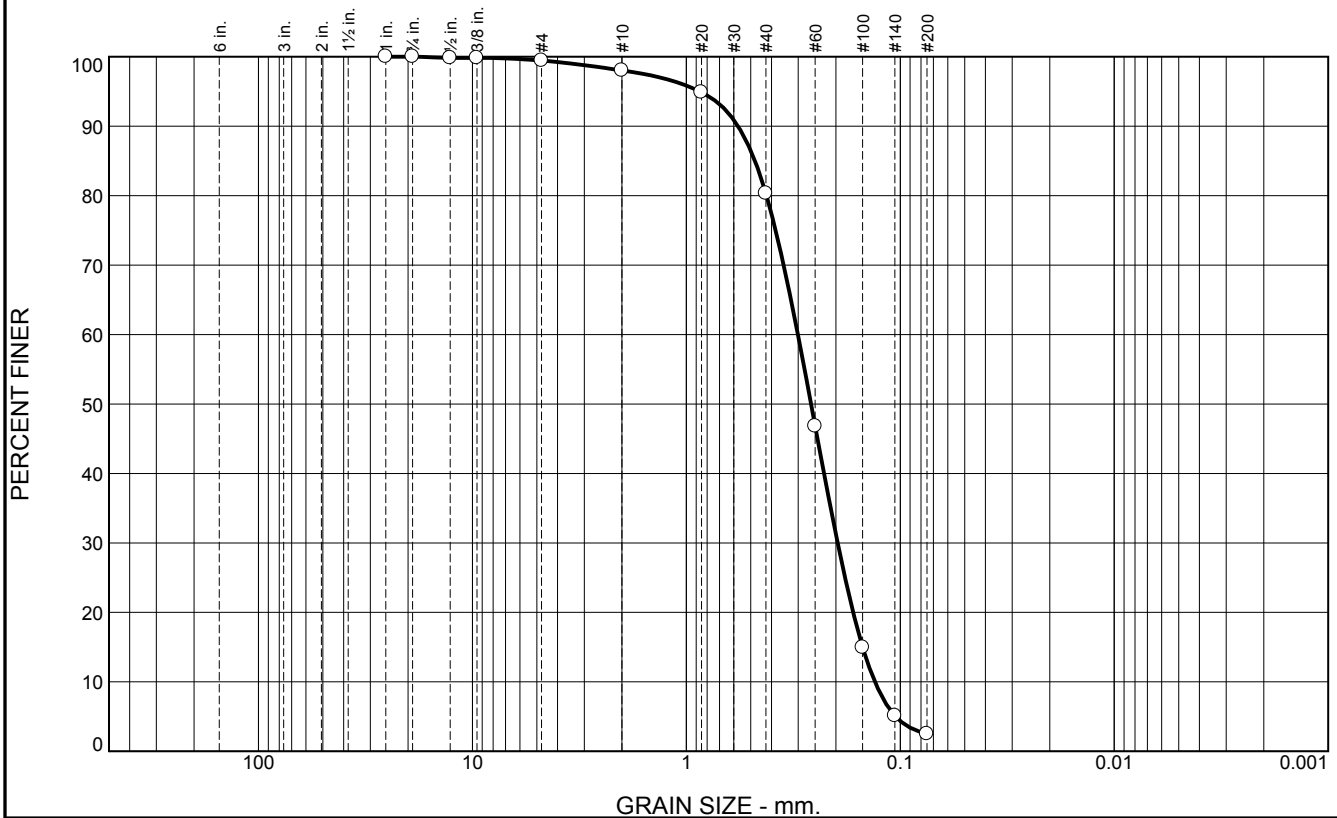
**Recovery** 15.5'

**Longitude** 088 23.563 W

**Comments**



# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.6	1.4	17.7	77.8	2.5	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
1	100.0		
.75	100.0		
.5	99.8		
.375	99.8		
#4	99.4		
#10	98.0		
#20	94.9		
#40	80.3		
#60	46.8		
#100	15.0		
#140	5.1		
#200	2.5		

\* (no specification provided)

<u>Material Description</u>		
Fine to medium grained, SAND		
PL=	<u>Atterberg Limits</u> LL=	PI=
<u>Coefficients</u>		
D <sub>90</sub> = 0.5732	D <sub>85</sub> = 0.4779	D <sub>60</sub> = 0.3012
D <sub>50</sub> = 0.2613	D <sub>30</sub> = 0.1962	D <sub>15</sub> = 0.1501
D <sub>10</sub> = 0.1315	C <sub>u</sub> = 2.29	C <sub>c</sub> = 0.97
<u>Classification</u>		
USCS= SP	AASHTO=	
<u>Remarks</u>		

Location: BI-PBP-14-12 A  
Sample Number: 6495 (28)

Depth: 0.0'

Date: 12/31/12

**Thompson Engineering**

**Mobile, Alabama**

Client: CDM/Thompson Engineering JV  
Project: MsCIP Barrier Island Restoration GT

Project No: 1221110095

Figure

# Boring Designation BI-PBP-15-12

DRILLING LOG		DIVISION South Atlantic		INSTALLATION Mobile District		SHEET 1 OF 1 SHEETS	
1. PROJECT MsCIP Barrier Island Restoration Petit Bois Pass-MS				9. SIZE AND TYPE OF BIT N/A			
2. BORING DESIGNATION BI-PBP-15-12		LOCATION COORDINATES E = 1,125,247 N = 252,883		10. COORDINATE SYSTEM/DATUM State Plane, MSE (U.S. Ft.)		HORIZONTAL NAD83	
3. DRILLING AGENCY Corps of Engineers - CESAM		CONTRACTOR FILE NO.		11. MANUFACTURER'S DESIGNATION OF DRILL Vibracore		<input type="checkbox"/> AUTO HAMMER <input type="checkbox"/> MANUAL HAMMER	
4. NAME OF DRILLER American Vibracore Systems, Inc.				12. TOTAL SAMPLES		DISTURBED 0	
5. DIRECTION OF BORING <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED		DEG. FROM VERTICAL		13. TOTAL NUMBER CORE BOXES			
		BEARING		14. WATER DEPTH 29.4 Ft.			
6. THICKNESS OF OVERBURDEN N/A				15. DATE BORING 12-22-12		COMPLETED 12-22-12	
7. DEPTH DRILLED INTO ROCK N/A				16. ELEVATION TOP OF BORING -28.0 Ft.			
8. TOTAL DEPTH OF BORING 19.6 Ft.				17. TOTAL RECOVERY FOR BORING 100%			
				18. SIGNATURE AND TITLE OF INSPECTOR Mike FitzHarris, Geologist			

ELEV.	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS	SAMPLE	LABORATORY RESULTS
-28.0	0.0				
			SAND, poorly-graded, mostly fine to medium-grained sand-sized quartz, trace coarse-grained sand-sized quartz, some shell fragments from 0.0 to 1.3 ft. and trace fines from 0.0 to 0.3 ft., gray to lt. gray to white (SP)	A	Classification: SP Color: 5Y 7/2-light gray D50: 0.3401 mm % Fines: 1.2
-33.0	5.0		SAND, poorly-graded with silt, mostly fine-grained sand-sized quartz, few silt, few shell fragments, gray (SP-SM)	B	Classification: SP-SM Color: 5Y 5/2-olive gray D50: 0.2343 mm % Fines: 6.9
-35.2	7.2		SAND, silty, mostly fine-grained sand-sized quartz, some silt, clay bands at 9.0 ft., gray (SM)		
			At El. -38.9 Ft., mostly fine-grained sand-sized quartz, some silt, trace clay, trace shell fragments, two 1-in. diameter cobbles within interval, gray	NS	
			At El. -42.6 Ft., mostly fine-grained sand-sized quartz, some silt, some clay, trace shell fragments, slightly plastic, greenish gray		
-47.6	19.6				
			NOTES: 1. Soils are field visually classified in accordance with the Unified Soils Classification System. 2. NS = Sample not submitted for laboratory analysis from this interval. 3. Seafloor elevation determined from USGS hydrographic survey.		



**Project**

Mississippi Barrier Island  
Restoration Project

**AVS**  
**AMERICAN VIBRACORE**  
**S E R V I C E S**

**Core Identifier** BI-PBP-15-12

**Date** 12/22/2012

**Water Depth** 29.4'

**Coordinate System**

Latitude / Longitude

**Start Time** 10:16:56

**End Time** 10:18:32

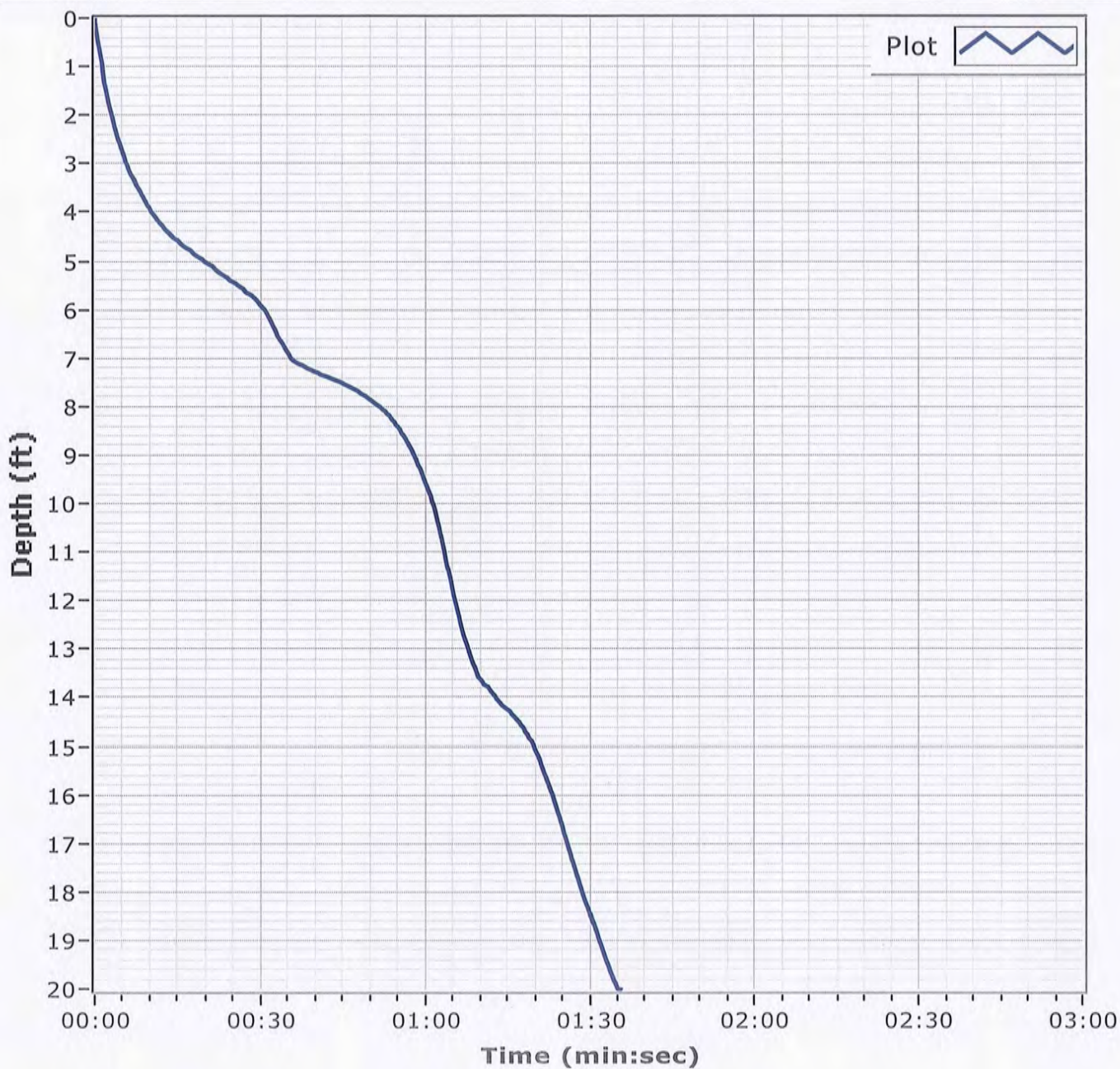
**Penetration** 20.0'

**Latitude** 30 11.677 N

**Total Time** 00:01:35

**Recovery** 19.6'

**Longitude** 088 23.222 W

**Comments**

# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.6	0.7	18.2	79.3	1.2	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
1	100.0		
.75	100.0		
.5	100.0		
.375	100.0		
#4	99.4		
#10	98.7		
#20	97.5		
#40	80.5		
#60	9.5		
#100	2.0		
#140	1.3		
#200	1.2		

\* (no specification provided)

Material Description		
Fine to medium grained, SAND		
<div> <div> Atterberg Limits </div> <div> PL= </div> <div> LL= </div> <div> PI= </div> </div>		
<div> <div> Coefficients </div> <div> D<sub>90</sub>= 0.5831 </div> <div> D<sub>50</sub>= 0.3401 </div> <div> D<sub>10</sub>= 0.2515 </div> <div> D<sub>85</sub>= 0.4880 </div> <div> D<sub>30</sub>= 0.2976 </div> <div> C<sub>u</sub>= 1.45 </div> <div> D<sub>60</sub>= 0.3634 </div> <div> D<sub>15</sub>= 0.2646 </div> <div> C<sub>c</sub>= 0.97 </div> </div>		
<div> <div> Classification </div> <div> USCS= SP </div> <div> AASHTO= </div> </div>		
<div> <div> Remarks </div> </div>		

Location: BI-PBP-15-12 A  
Sample Number: 6495 (29)

Depth: 0.0'

Date: 12/31/12

Thompson Engineering

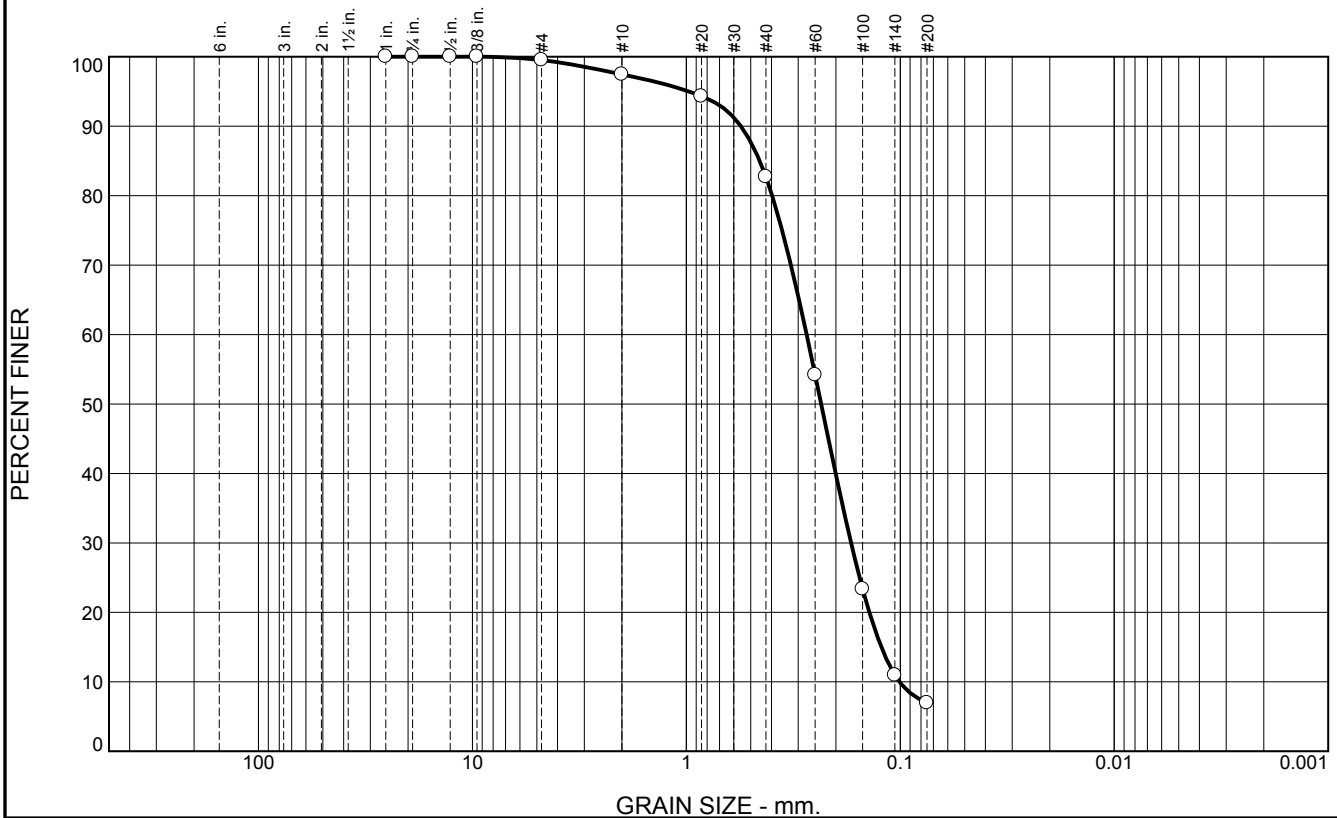
Mobile, Alabama

Client: CDM/Thompson Engineering JV  
Project: MsCIP Barrier Island Restoration GT

Project No: 1221110095

Figure

# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.5	2.1	14.7	75.8	6.9	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
1	100.0		
.75	100.0		
.5	100.0		
.375	100.0		
#4	99.5		
#10	97.4		
#20	94.3		
#40	82.7		
#60	54.2		
#100	23.4		
#140	11.0		
#200	6.9		

\* (no specification provided)

## Material Description

Fine to medium grained, SLIGHTLY SILTY SAND

## Atterberg Limits

PL= LL= PI=

## Coefficients

D<sub>90</sub>= 0.5561 D<sub>85</sub>= 0.4541 D<sub>60</sub>= 0.2741  
D<sub>50</sub>= 0.2343 D<sub>30</sub>= 0.1699 D<sub>15</sub>= 0.1227  
D<sub>10</sub>= 0.1009 C<sub>u</sub>= 2.72 C<sub>c</sub>= 1.04

## Classification

USCS= SP-SM AASHTO=

## Remarks

Location: BI-PBP-15-12 B  
Sample Number: 6495 (30)

Depth: 5.0'

Date: 12/31/12

**Thompson Engineering**

**Mobile, Alabama**

Client: CDM/Thompson Engineering JV  
Project: MsCIP Barrier Island Restoration GT

Project No: 1221110095

Figure

# Boring Designation BI-PBP-18-12

DRILLING LOG		DIVISION South Atlantic		INSTALLATION Mobile District		SHEET 1 OF 1 SHEETS	
1. PROJECT MsCIP Barrier Island Restoration Petit Bois Pass-MS				9. SIZE AND TYPE OF BIT N/A			
2. BORING DESIGNATION BI-PBP-18-12		LOCATION COORDINATES E = 1,123,925 N = 252,361		10. COORDINATE SYSTEM/DATUM State Plane, MSE (U.S. Ft.)		HORIZONTAL NAD83 VERTICAL NAVD88	
3. DRILLING AGENCY Corps of Engineers - CESAM		CONTRACTOR FILE NO.		11. MANUFACTURER'S DESIGNATION OF DRILL Vibracore		<input type="checkbox"/> AUTO HAMMER <input type="checkbox"/> MANUAL HAMMER	
4. NAME OF DRILLER American Vibracore Systems, Inc.				12. TOTAL SAMPLES		DISTURBED UNDISTURBED (UD) 0	
5. DIRECTION OF BORING <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED		DEG. FROM VERTICAL		13. TOTAL NUMBER CORE BOXES			
		BEARING		14. WATER DEPTH 27 Ft.			
6. THICKNESS OF OVERBURDEN N/A				15. DATE BORING 12-22-12		STARTED COMPLETED 12-22-12	
7. DEPTH DRILLED INTO ROCK N/A				16. ELEVATION TOP OF BORING -27.5 Ft.			
8. TOTAL DEPTH OF BORING 19.1 Ft.				17. TOTAL RECOVERY FOR BORING 100%			
				18. SIGNATURE AND TITLE OF INSPECTOR Mike FitzHarris, Geologist			

ELEV.	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS	SAMPLE	LABORATORY RESULTS
-27.5	0.0				
			SAND, poorly-graded, mostly fine to medium-grained sand-sized quartz, trace fines, trace shell fragments, lt. gray (SP)	A	Classification: SP Color: 5Y 6/2-light olive gray D50: 0.2036 mm % Fines: 3.4
				B	Classification: SP Color: 5Y 7/2-light gray D50: 0.2137 mm % Fines: 3.2
-35.5	8.0				
-36.2	8.7		CLAY, lean, mostly clay, some fine-grained sand-sized quartz, little silt, low to medium plasticity, dark gray (CL)	NS	
			SAND, silty, mostly fine-grained sand-sized quartz, some silt, few organic matter, trace clay, brown (SM)	C	Classification: SP-SM Color: 2.5Y 4/2-dark grayish brown D50: 0.2694 mm % Fines: 5.5
-40.6	13.1				
-41.6	14.1		CLAY, lean, mostly clay, some fine-grained sand-sized quartz, medium plasticity, dark brown (CL)		
			SAND, clayey, mostly fine-grained sand-sized quartz, some clay, trace clay stringers, gray (SC)	NS	
-45.6	18.1				
-46.6	19.1		SAND, poorly-graded, mostly fine-grained sand-sized quartz, trace fines, lt. gray (SP)		
NOTES: 1. Soils are field visually classified in accordance with the Unified Soils Classification System. 2. NS = Sample not submitted for laboratory analysis from this interval. 3. Seafloor elevation determined from USACE hydrographic survey completed April 2014.					



# Project

Mississippi Barrier Island  
Restoration Project

**AVS**  
AMERICAN VIBRACORE  
S E R V I C E S

Core Identifier BI-PBP-18-12

Date 12/22/2012

Water Depth 27.0'

## Coordinate System

Latitude / Longitude

Start Time 13:16:44

End Time 13:19:25

Penetration 20.0'

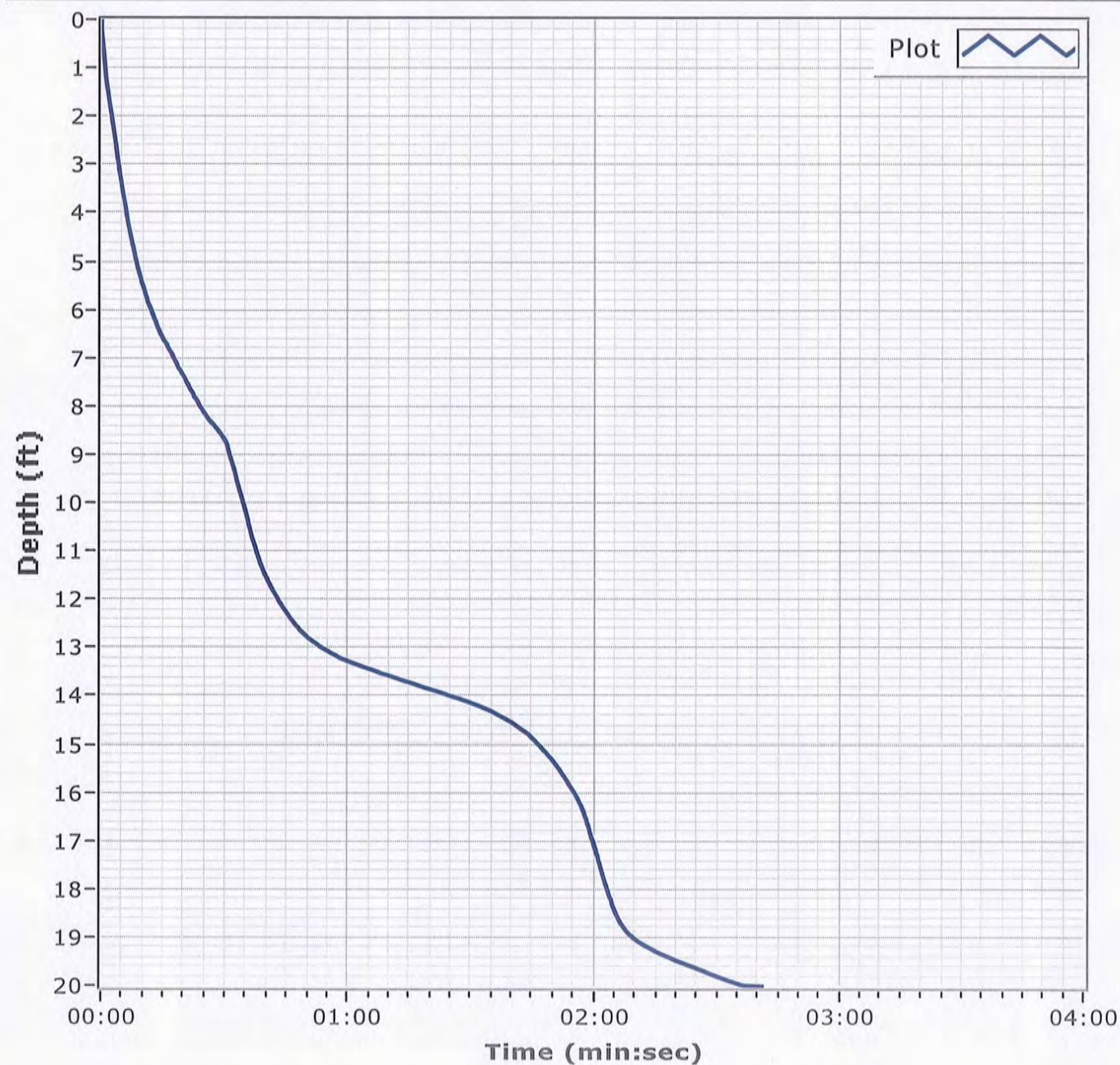
Latitude 30 11.592 N

Total Time 00:02:41

Recovery 19.1'

Longitude 088 23.473 W

## Comments





# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.3	0.9	7.0	88.4	3.4	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
1	100.0		
.75	100.0		
.5	100.0		
.375	100.0		
#4	99.7		
#10	98.8		
#20	97.6		
#40	91.8		
#60	68.3		
#100	23.2		
#140	8.8		
#200	3.4		

\* (no specification provided)

Material Description		
Fine grained, SAND		
<div> <div> Atterberg Limits </div> <div> PL= </div> <div> LL= </div> <div> PI= </div> </div>		
<div> <div> Coefficients </div> <div> D<sub>90</sub>= 0.3927 </div> <div> D<sub>50</sub>= 0.2036 </div> <div> D<sub>10</sub>= 0.1115 </div> <div> D<sub>85</sub>= 0.3353 </div> <div> D<sub>30</sub>= 0.1640 </div> <div> C<sub>u</sub>= 2.03 </div> <div> D<sub>60</sub>= 0.2265 </div> <div> D<sub>15</sub>= 0.1292 </div> <div> C<sub>c</sub>= 1.06 </div> </div>		
<div> <div> Classification </div> <div> USCS= SP </div> <div> AASHTO= </div> </div>		
<div> <div> Remarks </div> </div>		

Location: BI-PBP-18-12 A  
Sample Number: 6495 (31)

Depth: 0.0'

Date: 12/31/12

**Thompson Engineering**

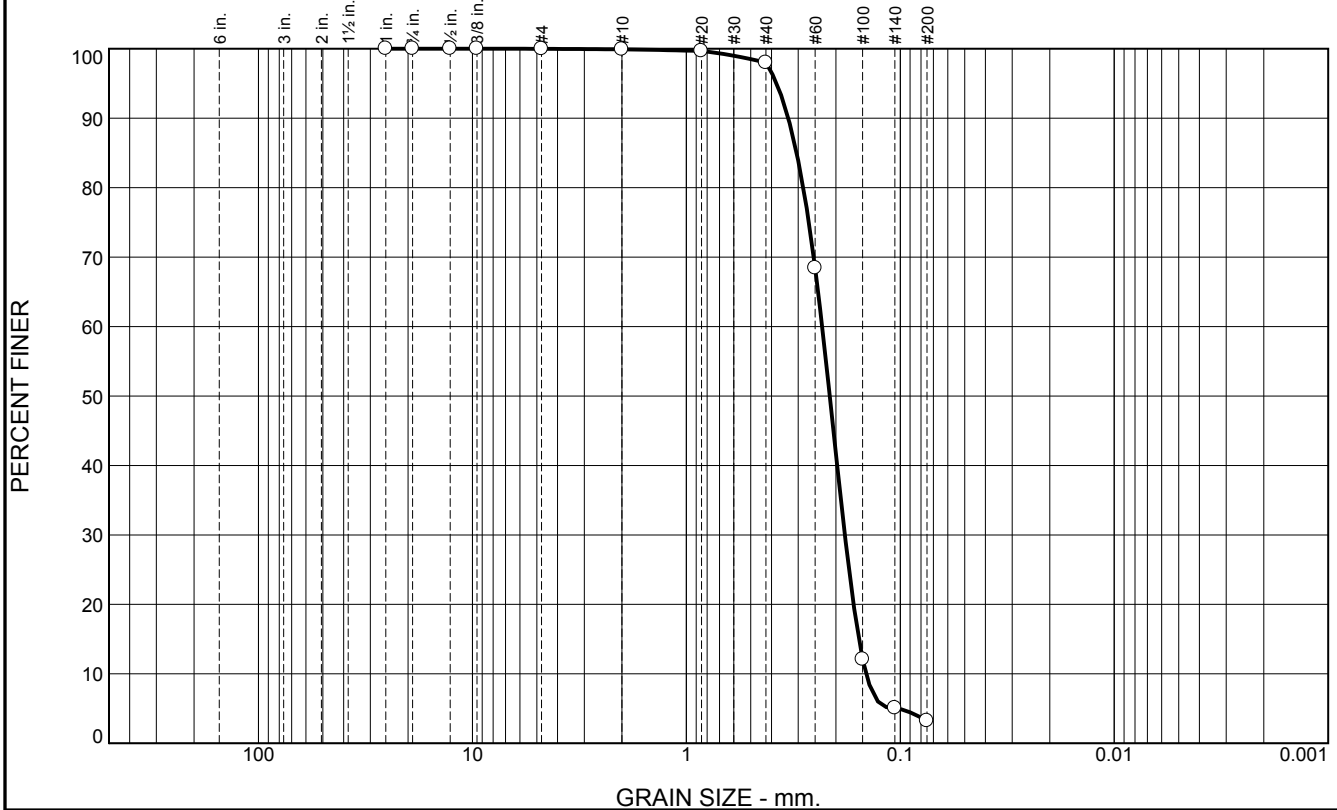
**Mobile, Alabama**

Client: CDM/Thompson Engineering JV  
Project: MsCIP Barrier Island Restoration GT

Project No: 1221110095

Figure

# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.0	0.1	1.9	94.8	3.2	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
1	100.0		
.75	100.0		
.5	100.0		
.375	100.0		
#4	100.0		
#10	99.9		
#20	99.7		
#40	98.0		
#60	68.4		
#100	12.1		
#140	5.1		
#200	3.2		

\* (no specification provided)

## Material Description

Fine grained, SAND

## Atterberg Limits

PL=

LL=

PI=

## Coefficients

D<sub>90</sub>= 0.3339

D<sub>85</sub>= 0.3053

D<sub>60</sub>= 0.2318

D<sub>50</sub>= 0.2137

D<sub>30</sub>= 0.1817

D<sub>15</sub>= 0.1563

D<sub>10</sub>= 0.1446

C<sub>u</sub>= 1.60

C<sub>c</sub>= 0.98

## Classification

USCS= SP

AASHTO=

## Remarks

Location: BI-PBP-18-12 B  
Sample Number: 6495 (32)

Depth: 4.1'

Date: 12/31/12

**Thompson Engineering**

**Mobile, Alabama**

Client: CDM/Thompson Engineering JV  
Project: MsCIP Barrier Island Restoration GT

Project No: 1221110095

Figure

# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.0	0.3	14.2	80.0	5.5	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
1	100.0		
.75	100.0		
.5	100.0		
.375	100.0		
#4	100.0		
#10	99.7		
#20	97.9		
#40	85.5		
#60	44.5		
#100	20.5		
#140	8.9		
#200	5.5		

\* (no specification provided)

<u><b>Material Description</b></u>		
Fine to medium grained, SLIGHTLY SILTY SAND		
<u><b>Atterberg Limits</b></u>		
PL=	LL=	PI=
<u><b>Coefficients</b></u>		
D <sub>90</sub> = 0.5168	D <sub>85</sub> = 0.4214	D <sub>60</sub> = 0.3045
D <sub>50</sub> = 0.2694	D <sub>30</sub> = 0.1914	D <sub>15</sub> = 0.1296
D <sub>10</sub> = 0.1108	C <sub>u</sub> = 2.75	C <sub>c</sub> = 1.09
<u><b>Classification</b></u>		
USCS= SP-SM	AASHTO=	
<u><b>Remarks</b></u>		

Location: BI-PBP-18-12 C  
 Sample Number: 6495 (33)

Depth: 8.7'

Date: 12/31/12

**Thompson Engineering**

**Mobile, Alabama**

Client: CDM/Thompson Engineering JV  
 Project: MsCIP Barrier Island Restoration GT

Project No: 1221110095

Figure

# Boring Designation BI-PBP-19-12

DRILLING LOG		DIVISION South Atlantic		INSTALLATION Mobile District		SHEET 1 OF 1 SHEETS	
1. PROJECT MsCIP Barrier Island Restoration Petit Bois Pass-MS				9. SIZE AND TYPE OF BIT N/A			
2. BORING DESIGNATION BI-PBP-19-12		LOCATION COORDINATES E = 1,122,131 N = 252,373		10. COORDINATE SYSTEM/DATUM State Plane, MSE (U.S. Ft.)		HORIZONTAL NAD83	
3. DRILLING AGENCY Corps of Engineers - CESAM		CONTRACTOR FILE NO.		11. MANUFACTURER'S DESIGNATION OF DRILL Vibracore		<input type="checkbox"/> AUTO HAMMER <input type="checkbox"/> MANUAL HAMMER	
4. NAME OF DRILLER American Vibracore Systems, Inc.				12. TOTAL SAMPLES		DISTURBED 0	
5. DIRECTION OF BORING <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED				13. TOTAL NUMBER CORE BOXES		14. WATER DEPTH 30.5 Ft.	
6. THICKNESS OF OVERBURDEN N/A				15. DATE BORING		STARTED 12-22-12	
7. DEPTH DRILLED INTO ROCK N/A				16. ELEVATION TOP OF BORING -30.3 Ft.		COMPLETED 12-22-12	
8. TOTAL DEPTH OF BORING 17.7 Ft.				17. TOTAL RECOVERY FOR BORING 100%			
				18. SIGNATURE AND TITLE OF INSPECTOR Mike FitzHarris, Geologist			

ELEV.	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS	SAMPLE	LABORATORY RESULTS
-30.3	0.0				
-30.7	0.4		SILT, inorganic-L, mostly silt, trace clay, very soft, dark gray (ML)	NS	
			SAND, poorly-graded, mostly fine to medium-grained sand-sized quartz, trace fines, trace shell fragments, gray (SP)	A	Classification: SP Color: 5Y 6/2-light olive gray D50: 0.3295 mm % Fines: 1.7
			At El. -33.3 Ft., mostly fine-grained sand-sized quartz, trace fines, 1-inch clayey band at 3.7 ft., lt. gray to white	B	Classification: SP Color: 2.5Y 7/2-light gray D50: 0.346 mm % Fines: 1.5
-38.2	7.9		SAND, poorly-graded with silt, mostly fine to medium-grained sand-sized quartz, few silt, trace shell fragments, siltier at 8.6 and 11.1 ft., shell hash at 12 ft., gray (SP-SM)	C	Classification: SP Color: 5Y 6/2-light olive gray D50: 0.4269 mm % Fines: 3.7
-42.3	12.0				
-43.0	12.7		SAND, silty, mostly fine-grained sand-sized quartz, some silt, dark brown (SM)	NS	
-43.8	13.5		SAND, clayey, mostly fine-grained sand-sized quartz, some clay, dark brown (SC)		
-44.4	14.1		CLAY, fat, mostly clay, medium to high plasticity, stiff, dark gray (CH)	D	Classification: SP Color: 2.5Y 6/2-light brownish gray D50: 0.3387 mm % Fines: 3
-48.0	17.7		SAND, poorly-graded, mostly fine to medium-grained sand-sized quartz, trace fines, gets siltier with depth, lt. gray (SP)		
NOTES: 1. Soils are field visually classified in accordance with the Unified Soils Classification System. 2. NS = Sample not submitted for laboratory analysis from this interval. 3. Seafloor elevation determined from USACE hydrographic survey completed April 2014.					

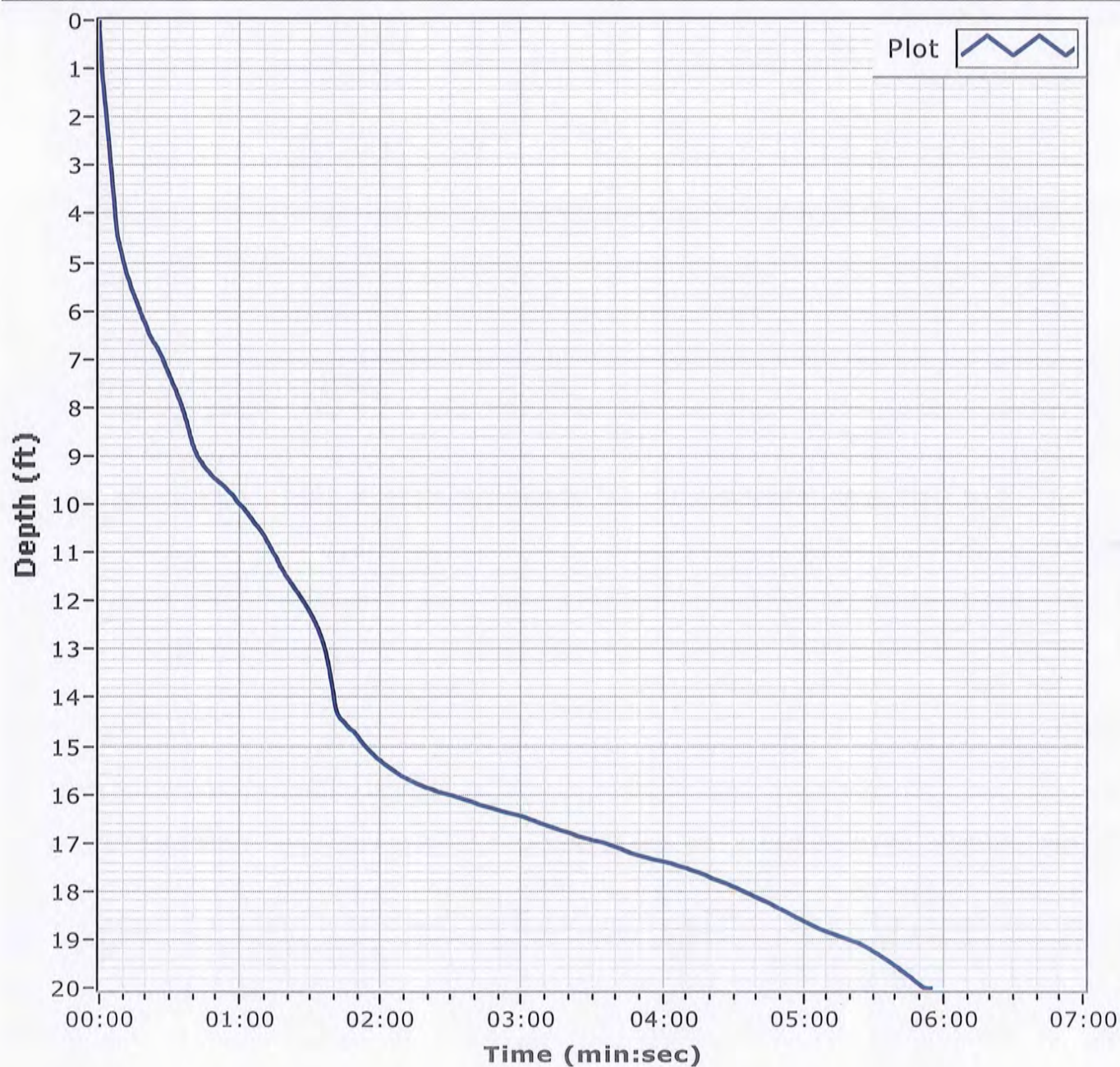
**Project**

Mississippi Barrier Island  
Restoration Project

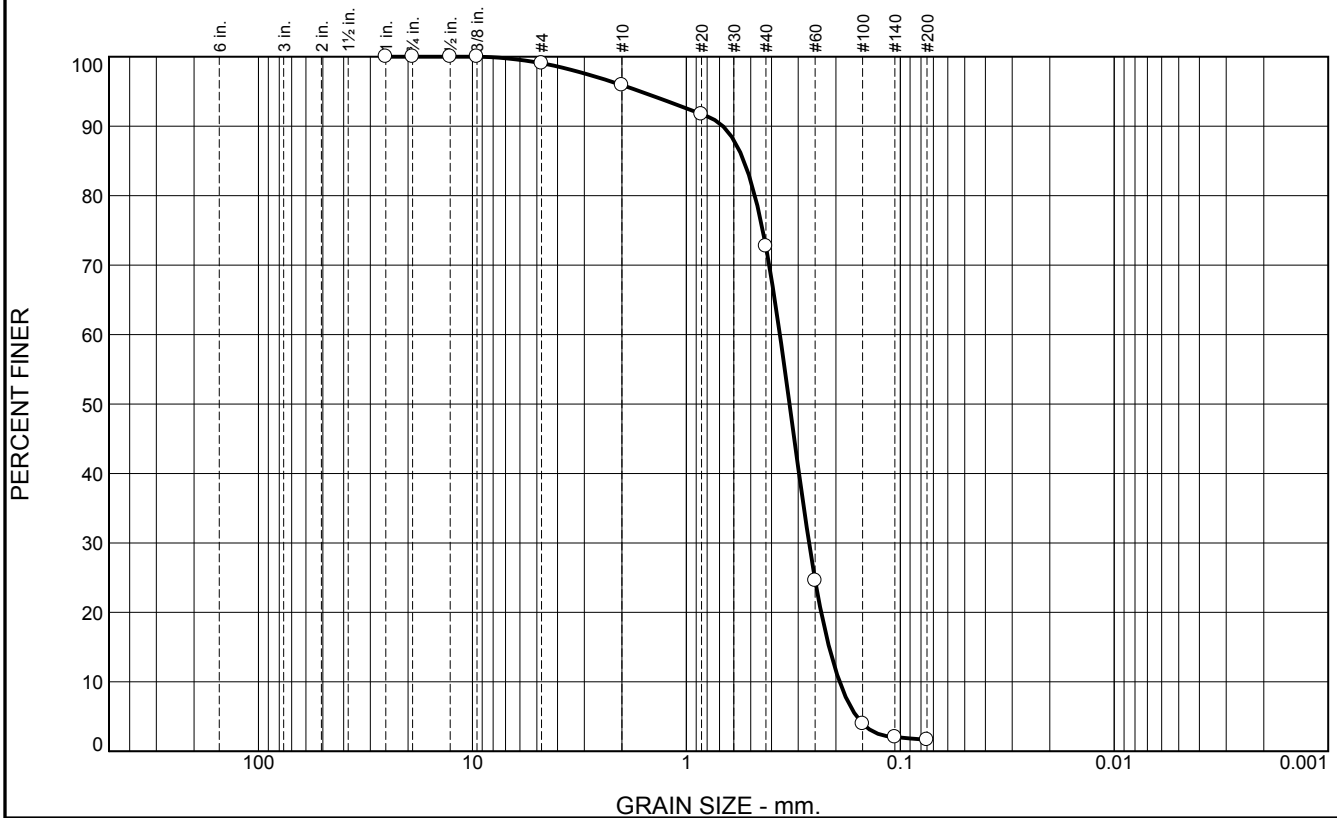
**AVS**  
**AMERICAN VIBRACORE**  
**S E R V I C E S**

**Core Identifier** BI-PBP-19-12**Date** 12/22/2012**Water Depth** 30.5'**Coordinate System**

Latitude / Longitude

**Start Time** 11:42:59**End Time** 11:48:55**Penetration** 20.0'**Latitude** 30 11.676 N**Total Time** 00:05:55**Recovery** 17.7'**Longitude** 088 23.814 W**Comments**

# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.9	3.2	23.2	71.0	1.7	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
1	100.0		
.75	100.0		
.5	100.0		
.375	100.0		
#4	99.1		
#10	95.9		
#20	91.7		
#40	72.7		
#60	24.6		
#100	4.0		
#140	2.0		
#200	1.7		

\* (no specification provided)

Material Description		
Fine to medium grained, SAND		
PL=	Atterberg Limits LL=	PI=
D <sub>90</sub> = 0.6750	D <sub>85</sub> = 0.5385	D <sub>60</sub> = 0.3654
D <sub>50</sub> = 0.3295	D <sub>30</sub> = 0.2671	D <sub>15</sub> = 0.2152
D <sub>10</sub> = 0.1923	C <sub>u</sub> = 1.90	C <sub>c</sub> = 1.02
USCS= SP	Classification AASHTO=	
Remarks		

Location: BI-PBP-19-12 A  
Sample Number: 6495 (34)

Depth: 0.4'

Date: 12/31/12

**Thompson Engineering**

**Mobile, Alabama**

Client: CDM/Thompson Engineering JV  
Project: MsCIP Barrier Island Restoration GT

Project No: 1221110095

Figure

# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.0	0.1	21.8	76.6	1.5	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
1	100.0		
.75	100.0		
.5	100.0		
.375	100.0		
#4	100.0		
#10	99.9		
#20	99.8		
#40	78.1		
#60	7.7		
#100	1.9		
#140	1.6		
#200	1.5		

\* (no specification provided)

Material Description		
Fine to medium grained, SAND		
PL=	Atterberg Limits LL=	PI=
D <sub>90</sub> = 0.5759	D <sub>85</sub> = 0.5008	D <sub>60</sub> = 0.3700
D <sub>50</sub> = 0.3460	D <sub>30</sub> = 0.3026	D <sub>15</sub> = 0.2695
D <sub>10</sub> = 0.2567	C <sub>u</sub> = 1.44	C <sub>c</sub> = 0.96
USCS= SP	Classification AASHTO=	
Remarks		

Location: BI-PBP-19-12 B  
Sample Number: 6495 (35)

Depth: 3.0'

Date: 12/31/12

**Thompson Engineering**

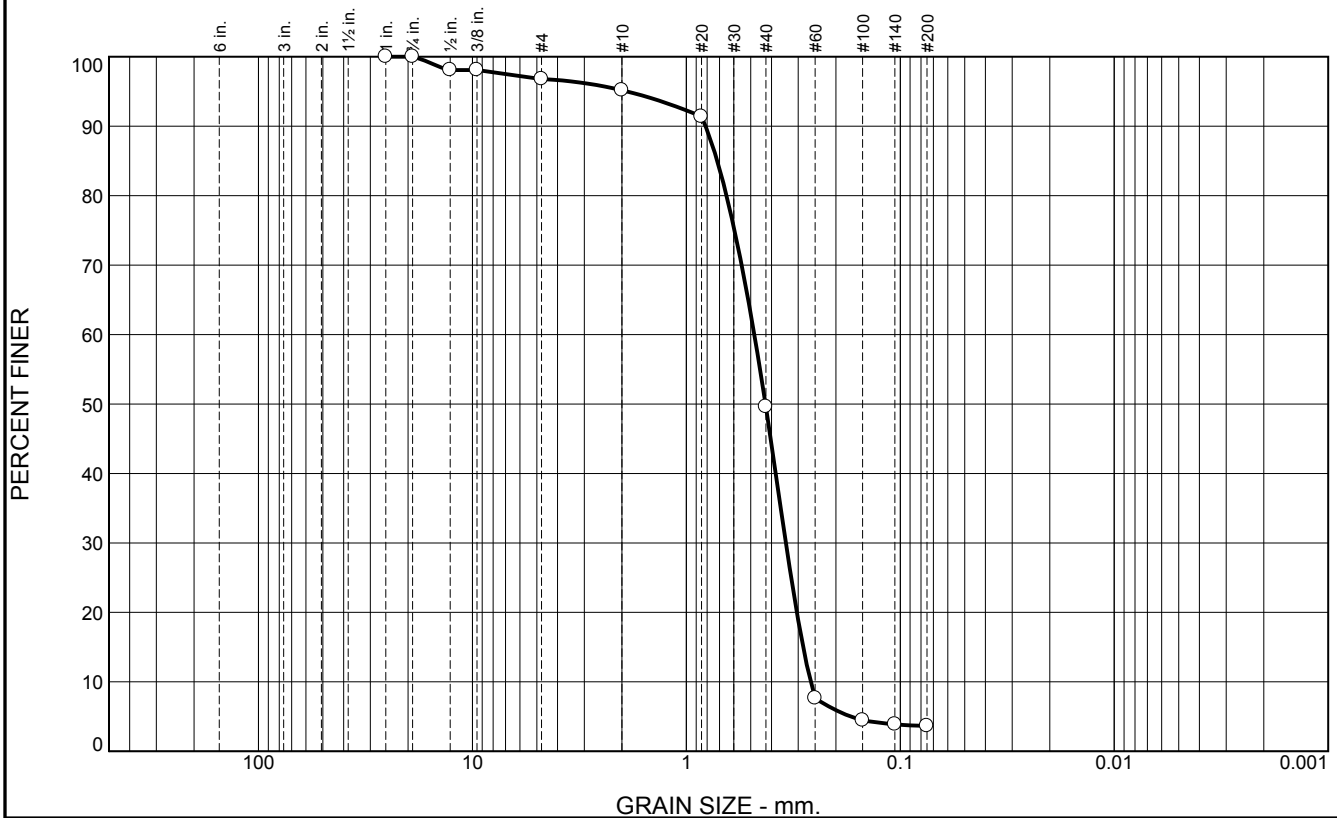
**Mobile, Alabama**

Client: CDM/Thompson Engineering JV  
Project: MsCIP Barrier Island Restoration GT

Project No: 1221110095

Figure

# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	3.2	1.6	45.6	45.9	3.7	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
1	100.0		
.75	100.0		
.5	98.1		
.375	98.1		
#4	96.8		
#10	95.2		
#20	91.4		
#40	49.6		
#60	7.6		
#100	4.5		
#140	3.9		
#200	3.7		

\* (no specification provided)

## Material Description

Fine to medium grained, SAND, with trace SHELL

## Atterberg Limits

PL= LL= PI=

## Coefficients

D<sub>90</sub>= 0.8137 D<sub>85</sub>= 0.7172 D<sub>60</sub>= 0.4813  
D<sub>50</sub>= 0.4269 D<sub>30</sub>= 0.3427 D<sub>15</sub>= 0.2847  
D<sub>10</sub>= 0.2625 C<sub>u</sub>= 1.83 C<sub>c</sub>= 0.93

## Classification

USCS= SP AASHTO=

## Remarks

Location: BI-PBP-19-12 C  
Sample Number: 6495 (36)

Depth: 7.9'

Date: 12/31/12

**Thompson Engineering**

**Mobile, Alabama**

Client: CDM/Thompson Engineering JV  
Project: MsCIP Barrier Island Restoration GT

Project No: 1221110095

Figure



# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.0	0.0	24.3	72.7	3.0	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
1	100.0		
.75	100.0		
.5	100.0		
.375	100.0		
#4	100.0		
#10	100.0		
#20	99.6		
#40	75.7		
#60	16.9		
#100	4.0		
#140	3.1		
#200	3.0		

\* (no specification provided)

<u><b>Material Description</b></u>		
Fine to medium grained, SAND		
<u><b>Atterberg Limits</b></u>		
PL=	LL=	PI=
<u><b>Coefficients</b></u>		
D <sub>90</sub> = 0.5200	D <sub>85</sub> = 0.4773	D <sub>60</sub> = 0.3677
D <sub>50</sub> = 0.3387	D <sub>30</sub> = 0.2866	D <sub>15</sub> = 0.2434
D <sub>10</sub> = 0.2230	C <sub>u</sub> = 1.65	C <sub>c</sub> = 1.00
<u><b>Classification</b></u>		
USCS= SP	AASHTO=	
<u><b>Remarks</b></u>		

Location: BI-PBP-19-12 D  
Sample Number: 6495 (37)

Depth: 14.1'

Date: 12/31/12

**Thompson Engineering**

**Mobile, Alabama**

Client: CDM/Thompson Engineering JV  
Project: MsCIP Barrier Island Restoration GT

Project No: 1221110095

Figure

# Boring Designation BI-PBP-20-12

DRILLING LOG		DIVISION South Atlantic		INSTALLATION Mobile District		SHEET 1 OF 1 SHEETS	
1. PROJECT MsCIP Barrier Island Restoration Petit Bois Pass-MS				9. SIZE AND TYPE OF BIT N/A			
2. BORING DESIGNATION BI-PBP-20-12		LOCATION COORDINATES E = 1,123,119 N = 252,420		10. COORDINATE SYSTEM/DATUM State Plane, MSE (U.S. Ft.)		HORIZONTAL NAD83	
3. DRILLING AGENCY Corps of Engineers - CESAM		CONTRACTOR FILE NO.		11. MANUFACTURER'S DESIGNATION OF DRILL Vibracore		<input type="checkbox"/> AUTO HAMMER <input type="checkbox"/> MANUAL HAMMER	
4. NAME OF DRILLER American Vibracore Systems, Inc.				12. TOTAL SAMPLES		DISTURBED 0	
5. DIRECTION OF BORING <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED				13. TOTAL NUMBER CORE BOXES		14. WATER DEPTH 24.2 Ft.	
6. THICKNESS OF OVERBURDEN N/A				15. DATE BORING		STARTED 12-22-12	
7. DEPTH DRILLED INTO ROCK N/A				16. ELEVATION TOP OF BORING -24.9 Ft.		COMPLETED 12-22-12	
8. TOTAL DEPTH OF BORING 13.1 Ft.				17. TOTAL RECOVERY FOR BORING 100%			
				18. SIGNATURE AND TITLE OF INSPECTOR Mike FitzHarris, Geologist			
ELEV.	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS	SAMPLE	LABORATORY RESULTS		
-24.9	0.0						
			SAND, poorly-graded, mostly fine to medium-grained sand-sized quartz, few shell fragments, trace fines, pale lt. brown (SP)	A	Classification: SP Color: 5Y 7/2-light gray D50: 0.3285 mm % Fines: 0.9		
-29.9	5.0		SAND, poorly-graded, mostly fine to medium-grained sand-sized quartz, trace shell fragments, silty zone at 7.2 ft., dense, lt. gray (SP)	B	Classification: SP Color: 5Y 6/2-light olive gray D50: 0.2316 mm % Fines: 4.3		
-34.9	10.0		SAND, poorly-graded, mostly fine-grained sand-sized quartz, trace fines, trace shell fragments, very dense, lt. gray (SP)	C	Classification: SP Color: 5Y 7/2-light gray D50: 0.3013 mm % Fines: 3.1		
-38.0	13.1						
			NOTES: 1. Soils are field visually classified in accordance with the Unified Soils Classification System. 2. NS = Sample not submitted for laboratory analysis from this interval. 3. Refusal reached at 16 ft. 4. Seafloor elevation determined from USACE hydrographic survey completed April 2014.				

# Project

Mississippi Barrier Island  
Restoration Project



Core Identifier BI-PBP-20-12

Date 12/22/2012

Water Depth 24.2'

Coordinate System

Latitude / Longitude

Start Time 12:47:35

End Time 12:53:58

Penetration 16.0'

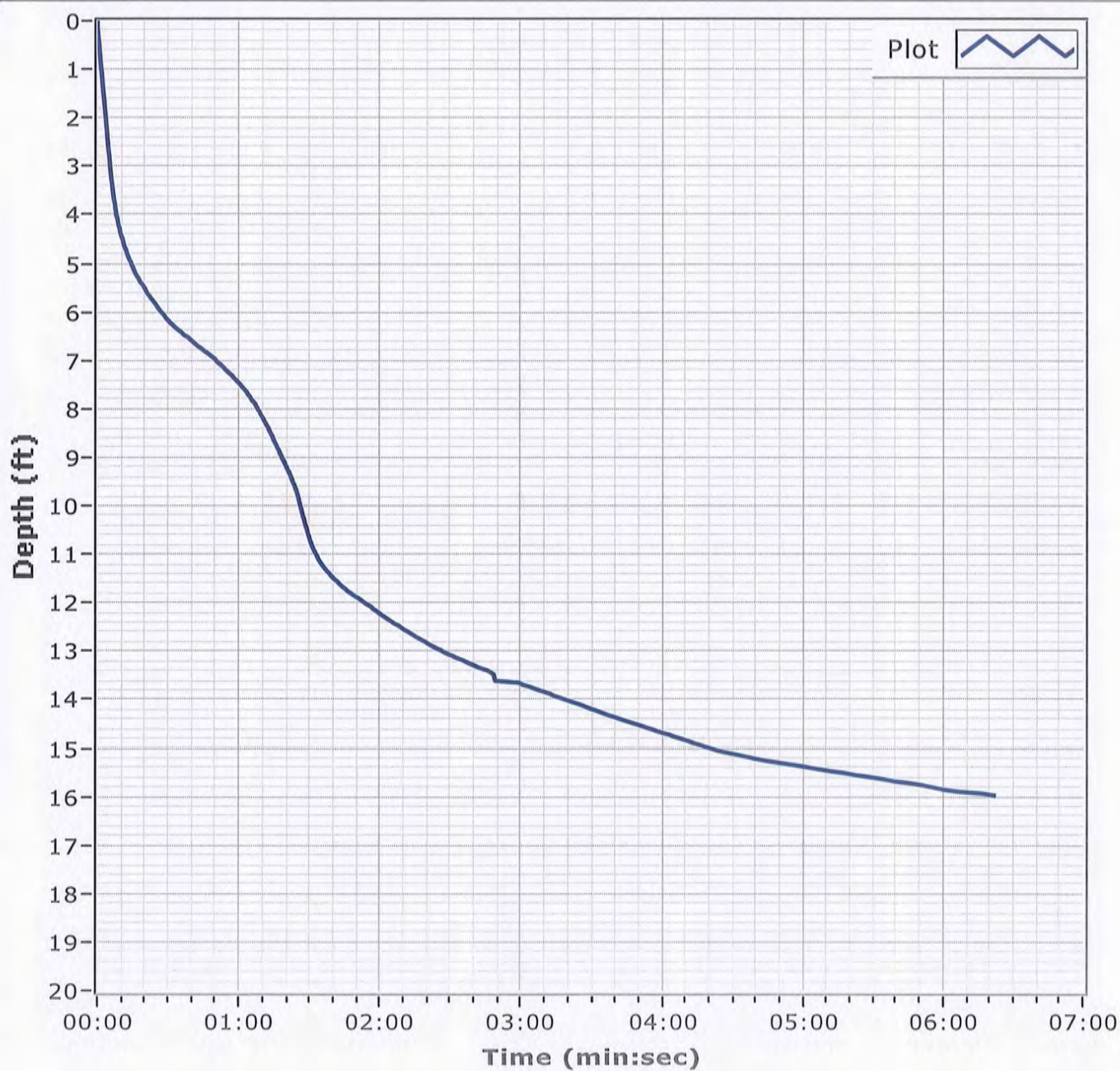
Latitude 30 11.602 N

Total Time 00:06:22

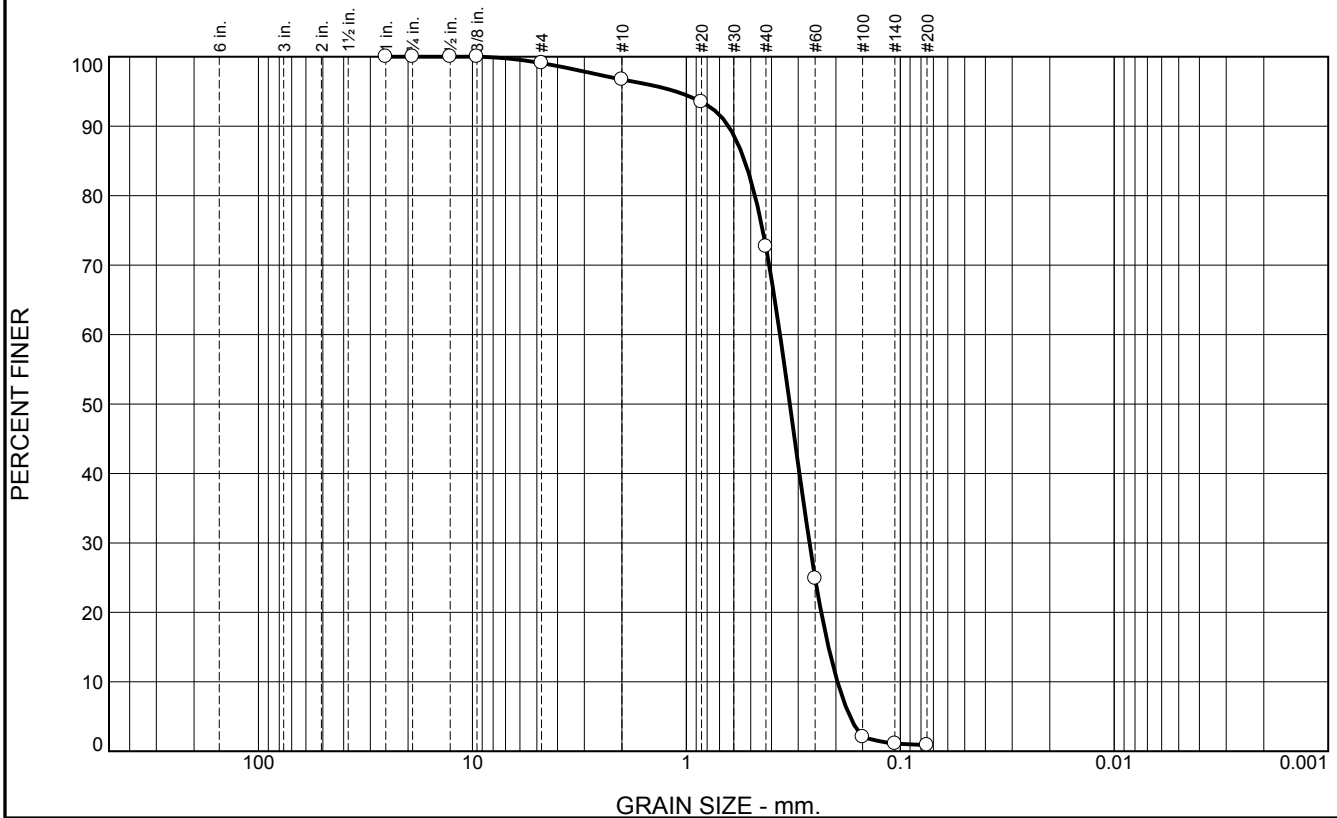
Recovery 13.1'

Longitude 088 23.626 W

Comments



# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.9	2.4	24.0	71.8	0.9	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
1	100.0		
.75	100.0		
.5	100.0		
.375	100.0		
#4	99.1		
#10	96.7		
#20	93.5		
#40	72.7		
#60	24.9		
#100	2.1		
#140	1.1		
#200	0.9		

\* (no specification provided)

**Material Description**  
Fine to medium grained, SAND

**Atterberg Limits**  
PL=      LL=      PI=

**Coefficients**  
D<sub>90</sub>= 0.6353      D<sub>85</sub>= 0.5335      D<sub>60</sub>= 0.3649  
D<sub>50</sub>= 0.3285      D<sub>30</sub>= 0.2658      D<sub>15</sub>= 0.2165  
D<sub>10</sub>= 0.1967      C<sub>u</sub>= 1.86      C<sub>c</sub>= 0.98

**Classification**  
USCS= SP      AASHTO=

**Remarks**

Location: BI-PBP-20-12 A  
Sample Number: 6495 (38)

Depth: 0.0'

Date: 12/31/12

**Thompson Engineering**

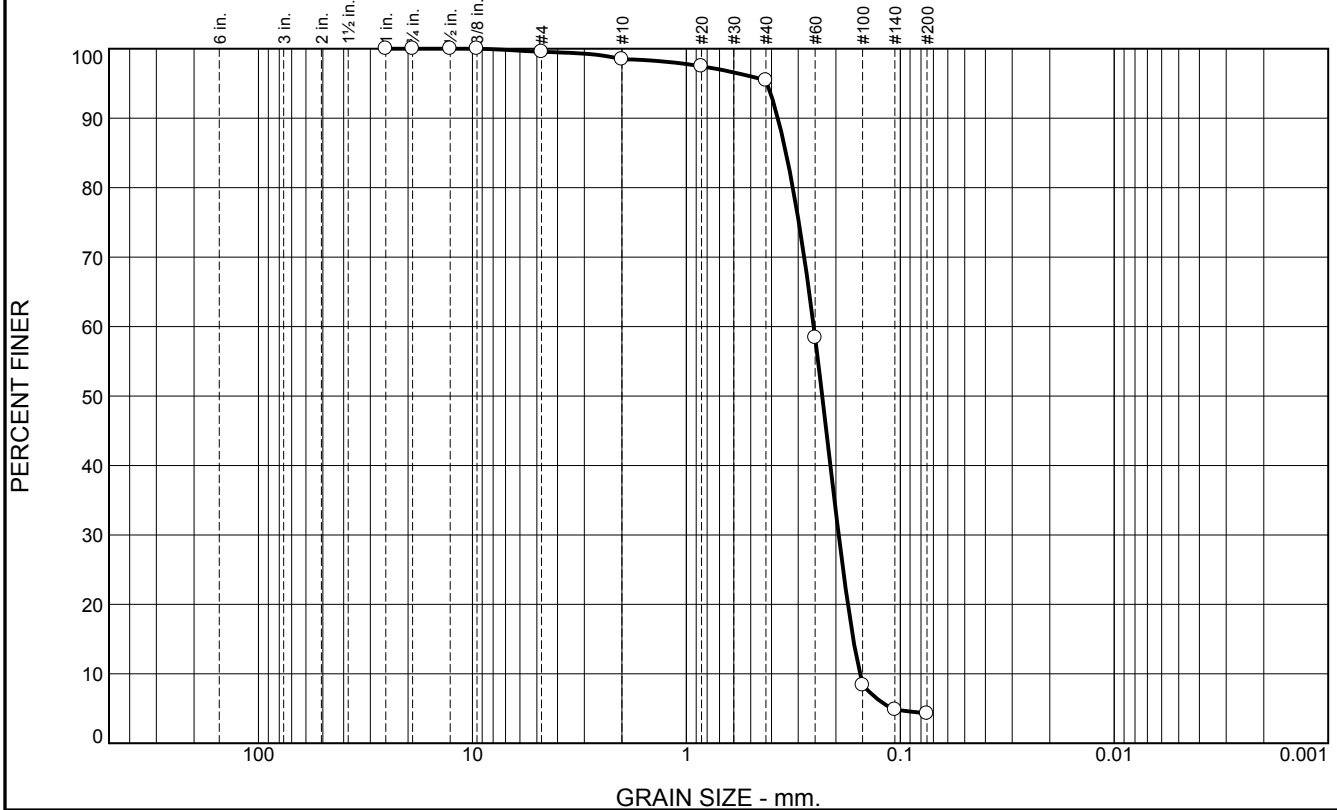
**Mobile, Alabama**

Client: CDM/Thompson Engineering JV  
Project: MsCIP Barrier Island Restoration GT

Project No: 1221110095

Figure

# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.4	1.1	3.1	91.1	4.3	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
1	100.0		
.75	100.0		
.5	100.0		
.375	100.0		
#4	99.6		
#10	98.5		
#20	97.5		
#40	95.4		
#60	58.4		
#100	8.4		
#140	4.8		
#200	4.3		

\* (no specification provided)

Material Description		
Fine grained, SAND		
PL=	Atterberg Limits LL=	PI=
D <sub>90</sub> = 0.3733	Coefficients D <sub>85</sub> = 0.3421	D <sub>60</sub> = 0.2538
D <sub>50</sub> = 0.2316	D <sub>30</sub> = 0.1941	D <sub>15</sub> = 0.1661
D <sub>10</sub> = 0.1546	C <sub>u</sub> = 1.64	C <sub>c</sub> = 0.96
USCS= SP	Classification AASHTO=	
Remarks		

Location: BI-PBP-20-12 B  
Sample Number: 6495 (39)

Depth: 5.0'

Date: 12/31/12

**Thompson Engineering**

**Mobile, Alabama**

Client: CDM/Thompson Engineering JV  
Project: MsCIP Barrier Island Restoration GT

Project No: 1221110095

Figure

# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.0	0.3	13.5	83.1	3.1	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
1	100.0		
.75	100.0		
.5	100.0		
.375	100.0		
#4	100.0		
#10	99.7		
#20	98.5		
#40	86.2		
#60	29.9		
#100	4.4		
#140	3.6		
#200	3.1		

\* (no specification provided)

<u><b>Material Description</b></u>		
Fine to medium grained, SAND		
<u><b>Atterberg Limits</b></u>		
PL=	LL=	PI=
<u><b>Coefficients</b></u>		
D <sub>90</sub> = 0.5003	D <sub>85</sub> = 0.4185	D <sub>60</sub> = 0.3282
D <sub>50</sub> = 0.3013	D <sub>30</sub> = 0.2503	D <sub>15</sub> = 0.2049
D <sub>10</sub> = 0.1850	C <sub>u</sub> = 1.77	C <sub>c</sub> = 1.03
<u><b>Classification</b></u>		
USCS= SP	AASHTO=	
<u><b>Remarks</b></u>		

Location: BI-PBP-20-12 C  
Sample Number: 6495 (40)

Depth: 10.0'

Date: 12/31/12

**Thompson Engineering**

**Mobile, Alabama**

Client: CDM/Thompson Engineering JV  
Project: MsCIP Barrier Island Restoration GT

Project No: 1221110095

Figure

# Boring Designation BI-PBP-21-12

DRILLING LOG		DIVISION South Atlantic		INSTALLATION Mobile District		SHEET 1 OF 1 SHEETS	
1. PROJECT MsCIP Barrier Island Restoration Petit Bois Pass-MS				9. SIZE AND TYPE OF BIT N/A			
2. BORING DESIGNATION BI-PBP-21-12		LOCATION COORDINATES E = 1,122,925 N = 252,896		10. COORDINATE SYSTEM/DATUM State Plane, MSE (U.S. Ft.)		HORIZONTAL NAD83	
3. DRILLING AGENCY Corps of Engineers - CESAM		CONTRACTOR FILE NO.		11. MANUFACTURER'S DESIGNATION OF DRILL Vibracore		<input type="checkbox"/> AUTO HAMMER <input type="checkbox"/> MANUAL HAMMER	
4. NAME OF DRILLER American Vibracore Systems, Inc.				12. TOTAL SAMPLES		DISTURBED 0	
5. DIRECTION OF BORING <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED				13. TOTAL NUMBER CORE BOXES		14. WATER DEPTH 25.8 Ft.	
6. THICKNESS OF OVERBURDEN N/A				15. DATE BORING		STARTED 01-04-13	
7. DEPTH DRILLED INTO ROCK N/A				16. ELEVATION TOP OF BORING -25.8 Ft.		COMPLETED 01-04-13	
8. TOTAL DEPTH OF BORING 13.0 Ft.				17. TOTAL RECOVERY FOR BORING 100%			
				18. SIGNATURE AND TITLE OF INSPECTOR Mike FitzHarris, Geologist			
ELEV.	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS	SAMPLE	LABORATORY RESULTS		
-25.8	0.0						
-28.3	2.5		SAND, poorly-graded, mostly fine to medium-grained sand-sized quartz, trace fines, trace shell fragments, pale brownish gray (SP)	A	Classification: SP Color: 5Y 7/2-light gray D50: 0.314 mm % Fines: 1.4		
			SAND, poorly-graded, mostly fine to medium-grained sand-sized quartz, trace fines, trace shell fragments, 0.5-inch clayey band at 9.1 ft., very dense, lt. gray (SP)	B	Classification: SP Color: 5Y 8/1-white D50: 0.3034 mm % Fines: 1.5		
				C	Classification: SP Color: 5Y 8/1-white D50: 0.2974 mm % Fines: 1.7		
-38.8	13.0						
			NOTES: 1. Soils are field visually classified in accordance with the Unified Soils Classification System. 2. NS = Sample not submitted for laboratory analysis from this interval. 3. Seafloor elevation determined from USACE hydrographic survey completed April 2014.				



# Project

Mississippi Barrier Island  
Restoration Project

**AVS**  
AMERICAN VIBRACORE  
S E R V I C E S

Core Identifier BI-PBP-21-12

Date 01/04/2013

Water Depth 25.8'

## Coordinate System

Latitude / Longitude

Start Time 11:28:15

End Time 11:34:12

Penetration 13.3'

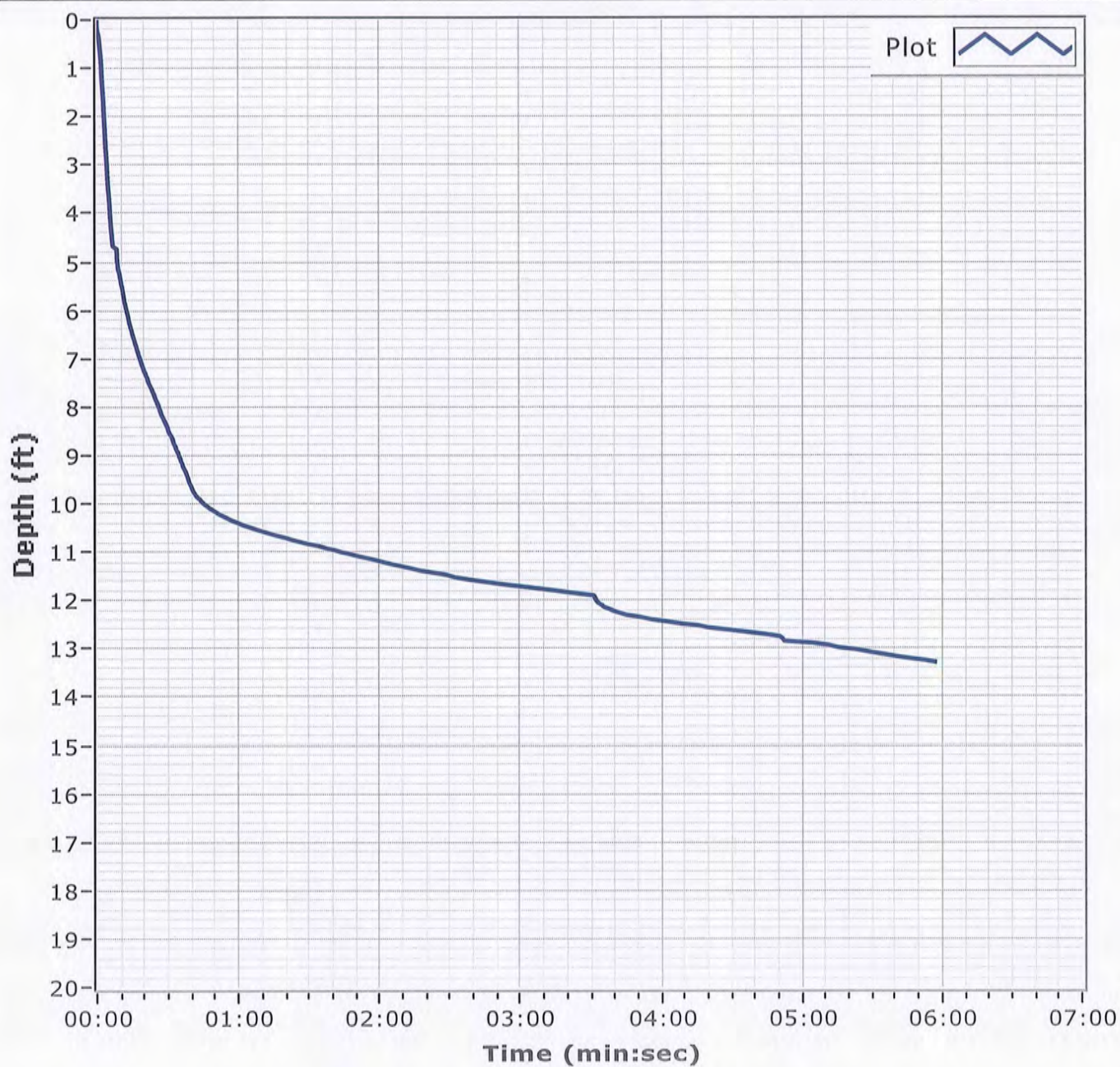
Latitude 30 11.681 N

Total Time 00:05:57

Recovery 13.0'

Longitude 088 23.663 W

## Comments





# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.2	1.0	22.9	74.5	1.4	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
1	100.0		
.75	100.0		
.5	100.0		
.375	100.0		
#4	99.8		
#10	98.8		
#20	96.7		
#40	75.9		
#60	29.5		
#100	3.5		
#140	1.7		
#200	1.4		

\* (no specification provided)

<u><b>Material Description</b></u>		
Fine to medium grained, SAND		
<u><b>Atterberg Limits</b></u>		
PL=	LL=	PI=
<u><b>Coefficients</b></u>		
D <sub>90</sub> = 0.5661	D <sub>85</sub> = 0.4976	D <sub>60</sub> = 0.3496
D <sub>50</sub> = 0.3140	D <sub>30</sub> = 0.2516	D <sub>15</sub> = 0.2028
D <sub>10</sub> = 0.1838	C <sub>u</sub> = 1.90	C <sub>c</sub> = 0.99
<u><b>Classification</b></u>		
USCS= SP	AASHTO=	
<u><b>Remarks</b></u>		

Location: BI-PBP-21-12 A  
Sample Number: 6503 (1)

Depth: 0.0'

Date: 1/08/13

**Thompson Engineering**

**Mobile, Alabama**

Client: CDM/Thompson Engineering JV  
Project: MsCIP Barrier Island Restoration GT

Project No: 1221110095

Figure

# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.2	0.1	8.4	89.8	1.5	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
1	100.0		
.75	100.0		
.5	100.0		
.375	100.0		
#4	99.8		
#10	99.7		
#20	99.4		
#40	91.3		
#60	26.2		
#100	2.4		
#140	1.6		
#200	1.5		

\* (no specification provided)

Material Description		
Fine grained, SAND		
<div> <div> <b>Atterberg Limits</b>            PL=      LL=      PI=         </div> <div> <b>Coefficients</b>            D<sub>90</sub>= 0.4189    D<sub>85</sub>= 0.3982    D<sub>60</sub>= 0.3264            D<sub>50</sub>= 0.3034    D<sub>30</sub>= 0.2590    D<sub>15</sub>= 0.2188            D<sub>10</sub>= 0.2006    C<sub>u</sub>= 1.63      C<sub>c</sub>= 1.02         </div> <div> <b>Classification</b>            USCS= SP      AASHTO=         </div> <div> <b>Remarks</b> </div> </div>		

Location: BI-PBP-21-12 B  
Sample Number: 6503 (2)

Depth: 2.5'

Date: 1/08/13

**Thompson Engineering**

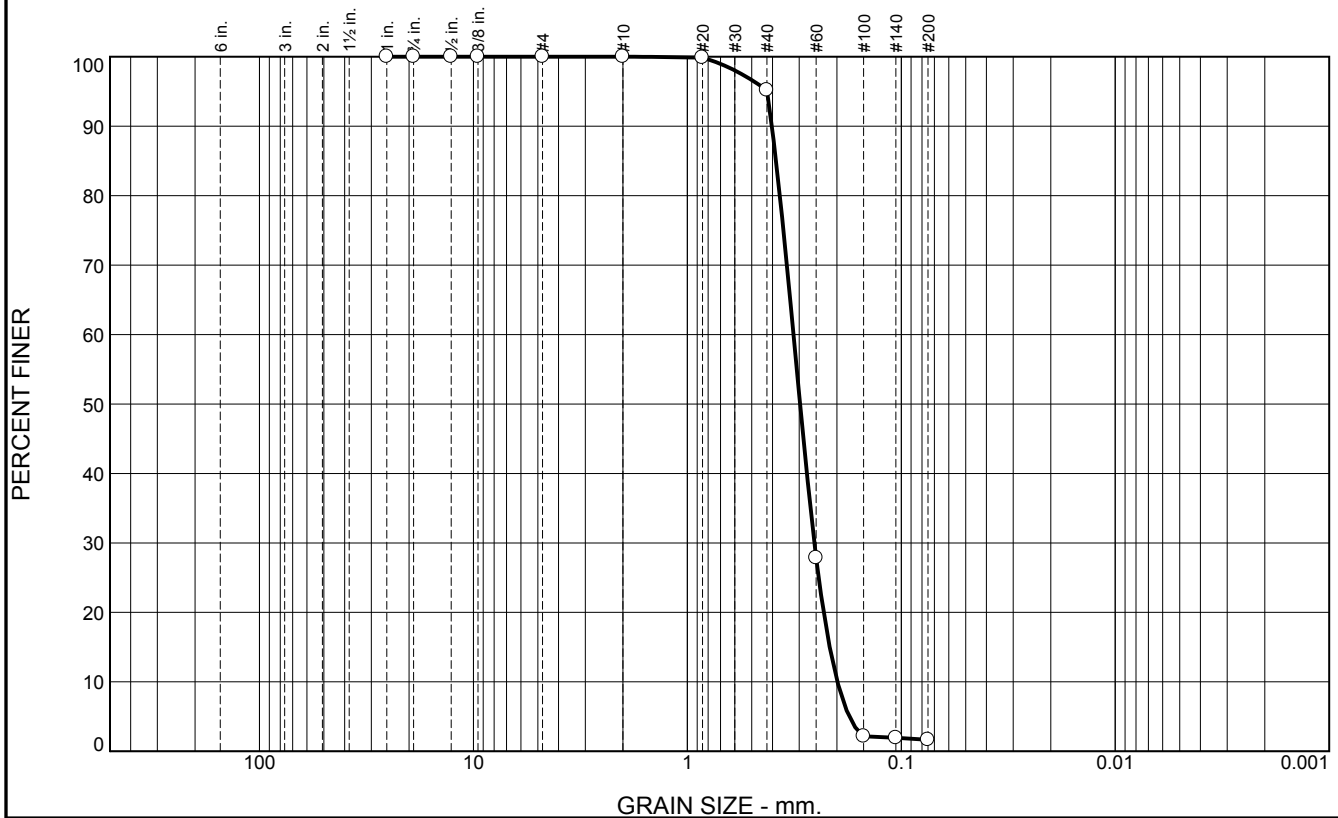
**Mobile, Alabama**

Client: CDM/Thompson Engineering JV  
Project: MsCIP Barrier Island Restoration GT

Project No: 1221110095

Figure

# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.0	0.0	4.8	93.5	1.7	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
1	100.0		
.75	100.0		
.5	100.0		
.375	100.0		
#4	100.0		
#10	100.0		
#20	99.9		
#40	95.2		
#60	27.8		
#100	2.1		
#140	1.9		
#200	1.7		

\* (no specification provided)

Material Description		
Fine grained, SAND		
<div> <div> Atterberg Limits </div> <div> PL= </div> <div> LL= </div> <div> PI= </div> </div>		
<div> <div> Coefficients </div> <div> D<sub>90</sub>= 0.4026 </div> <div> D<sub>50</sub>= 0.2974 </div> <div> D<sub>10</sub>= 0.1989 </div> <div> D<sub>85</sub>= 0.3848 </div> <div> D<sub>30</sub>= 0.2549 </div> <div> C<sub>u</sub>= 1.60 </div> <div> D<sub>60</sub>= 0.3191 </div> <div> D<sub>15</sub>= 0.2161 </div> <div> C<sub>c</sub>= 1.02 </div> </div>		
<div> <div> Classification </div> <div> USCS= SP </div> <div> AASHTO= </div> </div>		
<div> <div> Remarks </div> </div>		

Location: BI-PBP-21-12 C  
Sample Number: 6503 (3)

Depth: 7.5'

Date: 1/08/13

**Thompson Engineering**

**Mobile, Alabama**

Client: CDM/Thompson Engineering JV  
Project: MsCIP Barrier Island Restoration GT

Project No: 1221110095

Figure

# Boring Designation BI-PBP-22-12

DRILLING LOG		DIVISION South Atlantic		INSTALLATION Mobile District		SHEET 1 OF 2 SHEETS	
1. PROJECT MsCIP Barrier Island Restoration Petit Bois Pass-MS				9. SIZE AND TYPE OF BIT N/A			
2. BORING DESIGNATION BI-PBP-22-12		LOCATION COORDINATES E = 1,123,657 N = 251,567		10. COORDINATE SYSTEM/DATUM State Plane, MSE (U.S. Ft.)		HORIZONTAL NAD83	
3. DRILLING AGENCY Corps of Engineers - CESAM		CONTRACTOR FILE NO.		11. MANUFACTURER'S DESIGNATION OF DRILL Vibracore		<input type="checkbox"/> AUTO HAMMER <input type="checkbox"/> MANUAL HAMMER	
4. NAME OF DRILLER American Vibracore Systems, Inc.				12. TOTAL SAMPLES		DISTURBED 0	
5. DIRECTION OF BORING <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED				13. TOTAL NUMBER CORE BOXES		14. WATER DEPTH 24.2 Ft.	
6. THICKNESS OF OVERBURDEN N/A				15. DATE BORING		STARTED 01-04-13	
7. DEPTH DRILLED INTO ROCK N/A				16. ELEVATION TOP OF BORING -23.7 Ft.		COMPLETED 01-04-13	
8. TOTAL DEPTH OF BORING 18.8 Ft.				17. TOTAL RECOVERY FOR BORING 100%		18. SIGNATURE AND TITLE OF INSPECTOR Mike FitzHarris, Geologist	

ELEV.	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS	SAMPLE	LABORATORY RESULTS
-23.7	0.0				
			SAND, poorly-graded, mostly fine to medium-grained sand-sized quartz, trace fines, trace shell fragments, lt. gray (SP)	A	Classification: SP Color: 5Y 7/2-light gray D50: 0.3069 mm % Fines: 1.3
				B	Classification: SP Color: 5Y 7/2-light gray D50: 0.2872 mm % Fines: 2.2
-33.7	10.0			NS	
34.0	10.3		CLAY, fat, mostly clay, medium to high plasticity, gray (CH)		
			SAND, poorly-graded, mostly fine to medium-grained sand-sized quartz, trace fines, trace clay stringers, gray to lt. gray (SP)	C	Classification: SP Color: 5Y 6/2-light olive gray D50: 0.2354 mm % Fines: 4.5
-37.9	14.2				
-40.4	16.7		CLAY, lean, mostly clay, some silt, trace shell fragments, sandy zone between 14.2 to 14.7 ft., low to medium plasticity, gray (CL)	NS	
-42.2	18.5		SAND, poorly-graded with silt, mostly fine-grained sand-sized quartz, few silt, trace shell fragments, gray (SP-SM)		
-42.5	18.8		SAND, poorly-graded with clay, mostly fine-grained sand-sized quartz, few clay, clay band at 18.6 ft., gray (SP-SC)		
NOTES: 1. Soils are field visually classified in accordance with the Unified Soils Classification System. 2. NS = Sample not submitted for laboratory analysis from this interval.					

<b>DRILLING LOG (Cont. Sheet)</b>			<b>INSTALLATION</b> Mobile District		<b>SHEET 2</b> <b>OF 2 SHEETS</b>
<b>PROJECT</b> MsCIP Barrier Island Restoration			<b>COORDINATE SYSTEM/DATUM</b> State Plane, MSE (U.S. Ft.)	<b>HORIZONTAL</b> NAD83	<b>VERTICAL</b> NAVD88
<b>LOCATION COORDINATES</b> X = 1,123,657 Y = 251,567			<b>ELEVATION TOP OF BORING</b> -23.7 Ft.		
<b>ELEV.</b>	<b>DEPTH</b>	<b>LEGEND</b>	<b>CLASSIFICATION OF MATERIALS</b>	<b>SAMPLE</b>	<b>LABORATORY RESULTS</b>
			3. Seafloor elevation determined from USACE hydrographic survey completed April 2014.		

# Project

Mississippi Barrier Island  
Restoration Project

**AVS**  
AMERICAN VIBRACORE  
S E R V I C E S

Core Identifier BI-PBP-22-12

Date 01/04/2013

Water Depth 24.2'

## Coordinate System

Latitude / Longitude

Start Time 10:52:09

End Time 10:54:10

Penetration 20.0'

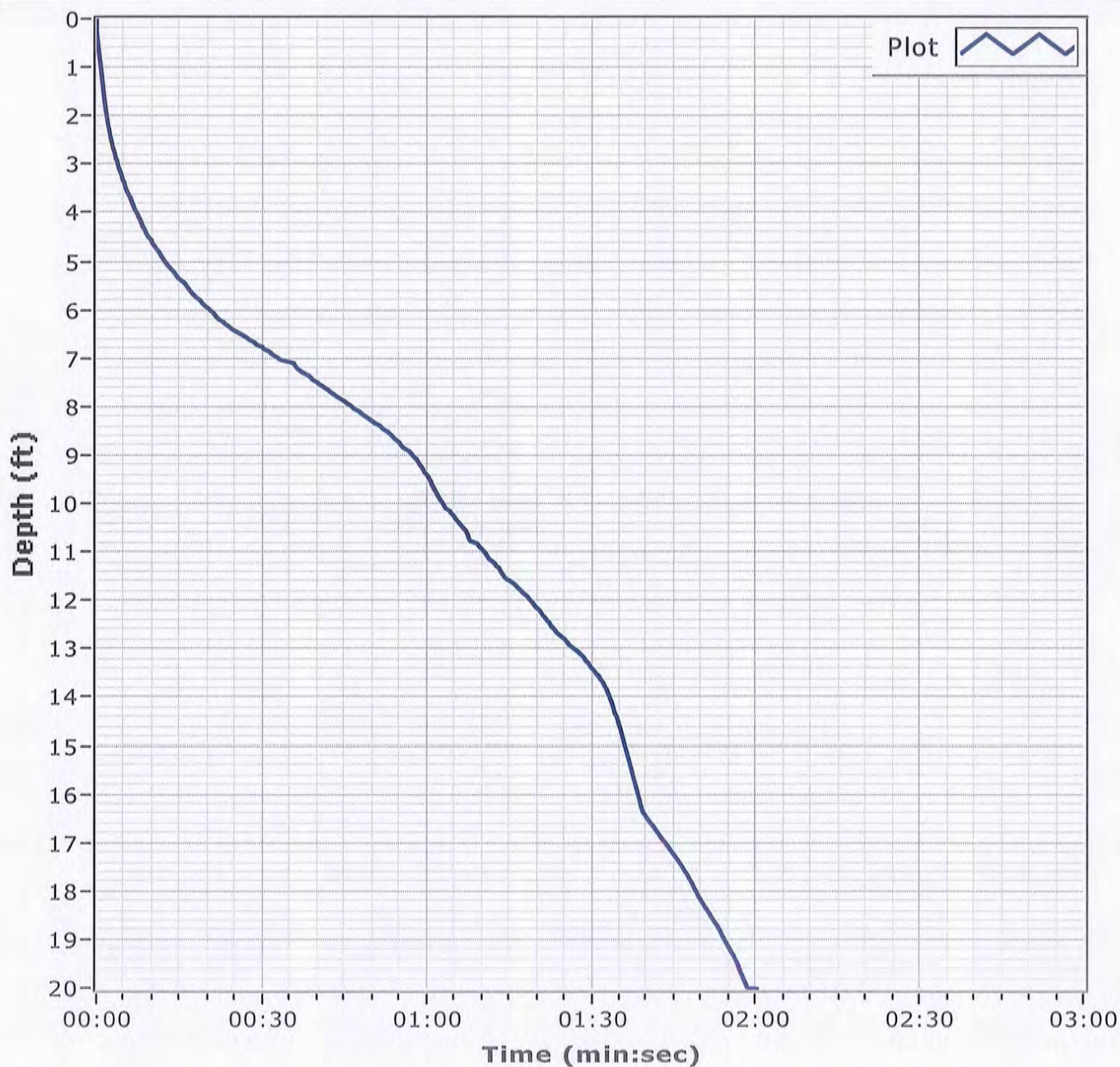
Latitude 30 11.461 N

Total Time 00:02:00

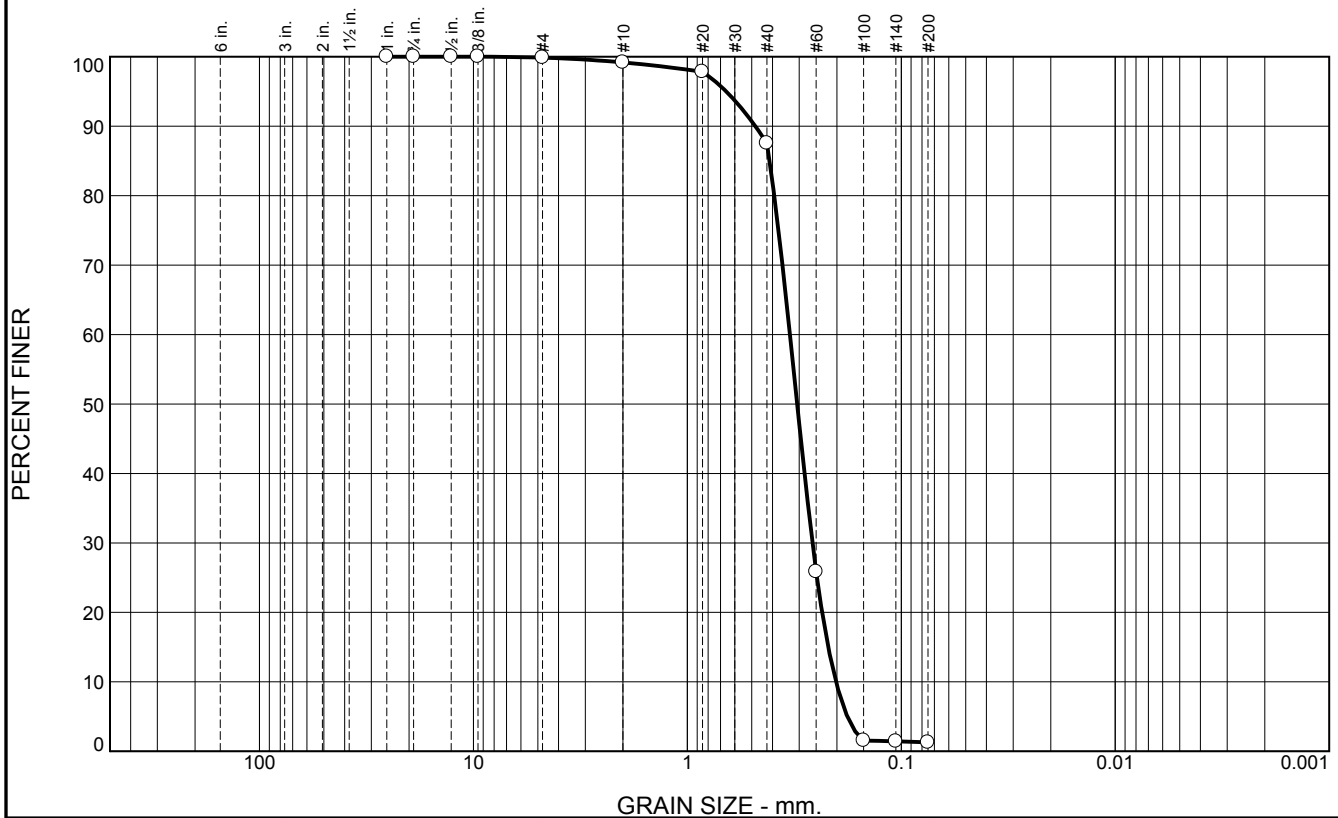
Recovery 18.8'

Longitude 088 23.525 W

## Comments



# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.1	0.7	11.7	86.2	1.3	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
1	100.0		
.75	100.0		
.5	100.0		
.375	100.0		
#4	99.9		
#10	99.2		
#20	97.8		
#40	87.5		
#60	25.9		
#100	1.5		
#140	1.4		
#200	1.3		

\* (no specification provided)

**Material Description**  
Fine to medium grained, SAND

**Atterberg Limits**  
PL=      LL=      PI=

**Coefficients**  
D<sub>90</sub>= 0.4815      D<sub>85</sub>= 0.4128      D<sub>60</sub>= 0.3316  
D<sub>50</sub>= 0.3069      D<sub>30</sub>= 0.2602      D<sub>15</sub>= 0.2195  
D<sub>10</sub>= 0.2019      C<sub>u</sub>= 1.64      C<sub>c</sub>= 1.01

**Classification**  
USCS= SP      AASHTO=

**Remarks**

Location: BI-PBP-22-12 A  
Sample Number: 6503 (4)

Depth: 0.0'

Date: 1/08/13

**Thompson Engineering**

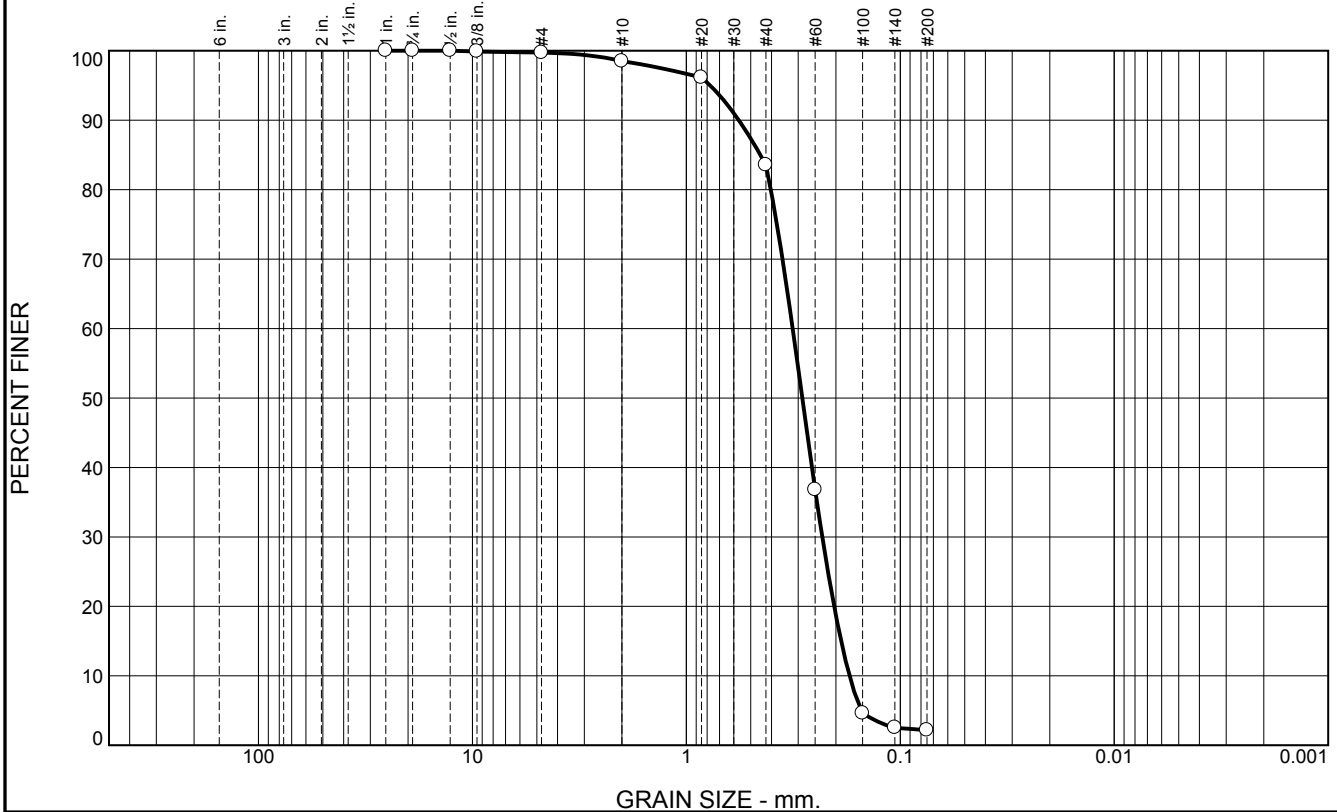
**Mobile, Alabama**

Client: CDM/Thompson Engineering JV  
Project: MsCIP Barrier Island Restoration GT

Project No: 1221110095

Figure

# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.3	1.2	15.0	81.3	2.2	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
1	100.0		
.75	100.0		
.5	100.0		
.375	99.9		
#4	99.7		
#10	98.5		
#20	96.1		
#40	83.5		
#60	36.8		
#100	4.6		
#140	2.5		
#200	2.2		

\* (no specification provided)

Material Description		
Fine to medium grained, SAND		
<div> <div> Atterberg Limits </div> <div> PL= </div> <div> LL= </div> <div> PI= </div> </div>		
<div> <div> Coefficients </div> <div> D<sub>90</sub>= 0.5688 </div> <div> D<sub>50</sub>= 0.2872 </div> <div> D<sub>10</sub>= 0.1729 </div> <div> D<sub>85</sub>= 0.4513 </div> <div> D<sub>30</sub>= 0.2315 </div> <div> C<sub>u</sub>= 1.84 </div> <div> D<sub>60</sub>= 0.3185 </div> <div> D<sub>15</sub>= 0.1891 </div> <div> C<sub>c</sub>= 0.97 </div> </div>		
<div> <div> Classification </div> <div> USCS= SP </div> <div> AASHTO= </div> </div>		
<div> <div> Remarks </div> </div>		

Location: BI-PBP-22-12 B  
Sample Number: 6503 (5)

Depth: 5.0'

Date: 1/08/12

**Thompson Engineering**

**Mobile, Alabama**

Client: CDM/Thompson Engineering JV  
Project: MsCIP Barrier Island Restoration GT

Project No: 1221110095

Figure



# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	2.9	2.9	12.5	77.2	4.5	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
1	100.0		
.75	100.0		
.5	100.0		
.375	100.0		
#4	97.1		
#10	94.2		
#20	90.4		
#40	81.7		
#60	55.4		
#100	10.8		
#140	5.5		
#200	4.5		

\* (no specification provided)

## Material Description

Fine to medium grained, SAND, with trace SHELL

## Atterberg Limits

PL= LL= PI=

## Coefficients

D<sub>90</sub>= 0.7955 D<sub>85</sub>= 0.4955 D<sub>60</sub>= 0.2650  
D<sub>50</sub>= 0.2354 D<sub>30</sub>= 0.1919 D<sub>15</sub>= 0.1609  
D<sub>10</sub>= 0.1443 C<sub>u</sub>= 1.84 C<sub>c</sub>= 0.96

## Classification

USCS= SP AASHTO=

## Remarks

Location: BI-PBP-22-12 C  
Sample Number: 6503 (6)

Depth: 10.3'

Date: 1/08/13

**Thompson Engineering**

**Mobile, Alabama**

Client: CDM/Thompson Engineering JV  
Project: MsCIP Barrier Island Restoration GT

Project No: 1221110095

Figure

# Boring Designation BI-PBP-23-12

DRILLING LOG		DIVISION South Atlantic		INSTALLATION Mobile District		SHEET 1 OF 1 SHEETS	
1. PROJECT MsCIP Barrier Island Restoration Petit Bois Pass-MS				9. SIZE AND TYPE OF BIT N/A			
2. BORING DESIGNATION BI-PBP-23-12		LOCATION COORDINATES E = 1,122,127 N = 250,961		10. COORDINATE SYSTEM/DATUM State Plane, MSE (U.S. Ft.)		HORIZONTAL NAD83	
3. DRILLING AGENCY Corps of Engineers - CESAM		CONTRACTOR FILE NO.		11. MANUFACTURER'S DESIGNATION OF DRILL Vibracore		<input type="checkbox"/> AUTO HAMMER <input type="checkbox"/> MANUAL HAMMER	
4. NAME OF DRILLER American Vibracore Systems, Inc.				12. TOTAL SAMPLES		DISTURBED 0	
5. DIRECTION OF BORING <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED				13. TOTAL NUMBER CORE BOXES		14. WATER DEPTH 35.4 Ft.	
6. THICKNESS OF OVERBURDEN N/A				15. DATE BORING		STARTED 01-04-13	
7. DEPTH DRILLED INTO ROCK N/A				16. ELEVATION TOP OF BORING -35.3 Ft.		COMPLETED 01-04-13	
8. TOTAL DEPTH OF BORING 14.9 Ft.				17. TOTAL RECOVERY FOR BORING 100%			
				18. SIGNATURE AND TITLE OF INSPECTOR Mike FitzHarris, Geologist			

ELEV.	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS	SAMPLE	LABORATORY RESULTS
-35.3	0.0				
-36.5	1.2		SAND, clayey, mostly fine-grained sand-sized quartz, some clay, some silt, trace shells, dark gray (SC)	NS	
-38.5	3.2		SAND, poorly-graded, mostly fine-grained sand-sized quartz, trace fines, trace shell fragments, few silty bands, lt. gray (SP)	A	Classification: SP-SM Color: 5Y 5/2-olive gray D50: 0.3227 mm % Fines: 6.9
-40.1	4.8		SAND, clayey, mostly fine-grained sand-sized quartz, some clay, trace shell fragments, gray (SC)	B	Classification: SM Color: 2.5Y 5/2-grayish brown D50: 0.1263 mm % Fines: 13
-42.6	7.3		SAND, silty, mostly fine-grained sand-sized quartz, some silt, trace shell fragments, some medium grained sand between 4.8-5.3 ft., brown (SM)	NS	
-44.6	9.3		SILT, inorganic-L, mostly silt, some fine-grained sand-sized quartz, trace clay, trace shell fragments, gray (ML)	C	Classification: SM Color: 5Y 5/2-olive gray D50: 0.1847 mm % Fines: 14.3
-46.6	11.3		SAND, silty, mostly fine-grained sand-sized quartz, some silt, gray (SM)	D	Classification: SP-SM Color: 5Y 6/2-light olive gray D50: 0.1352 mm % Fines: 5.4
-49.7	14.4		SAND, poorly-graded, mostly fine-grained sand-sized quartz, trace fines, trace silty bands, dense, lt. gray (SP)		
-50.2	14.9		SAND, clayey, mostly fine-grained sand-sized quartz, some clay, gray (SC)	NS	
NOTES: 1. Soils are field visually classified in accordance with the Unified Soils Classification System. 2. NS = Sample not submitted for laboratory analysis from this interval. 3. Seafloor elevation determined from USGS hydrographic survey.					

**Project**

Mississippi Barrier Island  
Restoration Project

**AVS**  
**AMERICAN VIBRACORE**  
**S E R V I C E S**

**Core Identifier** BI-PBP-23-12

**Date** 01/04/2013

**Water Depth** 35.4'

**Coordinate System**

Latitude / Longitude

**Start Time** 10:09:47

**End Time** 10:12:55

**Penetration** 20.0'

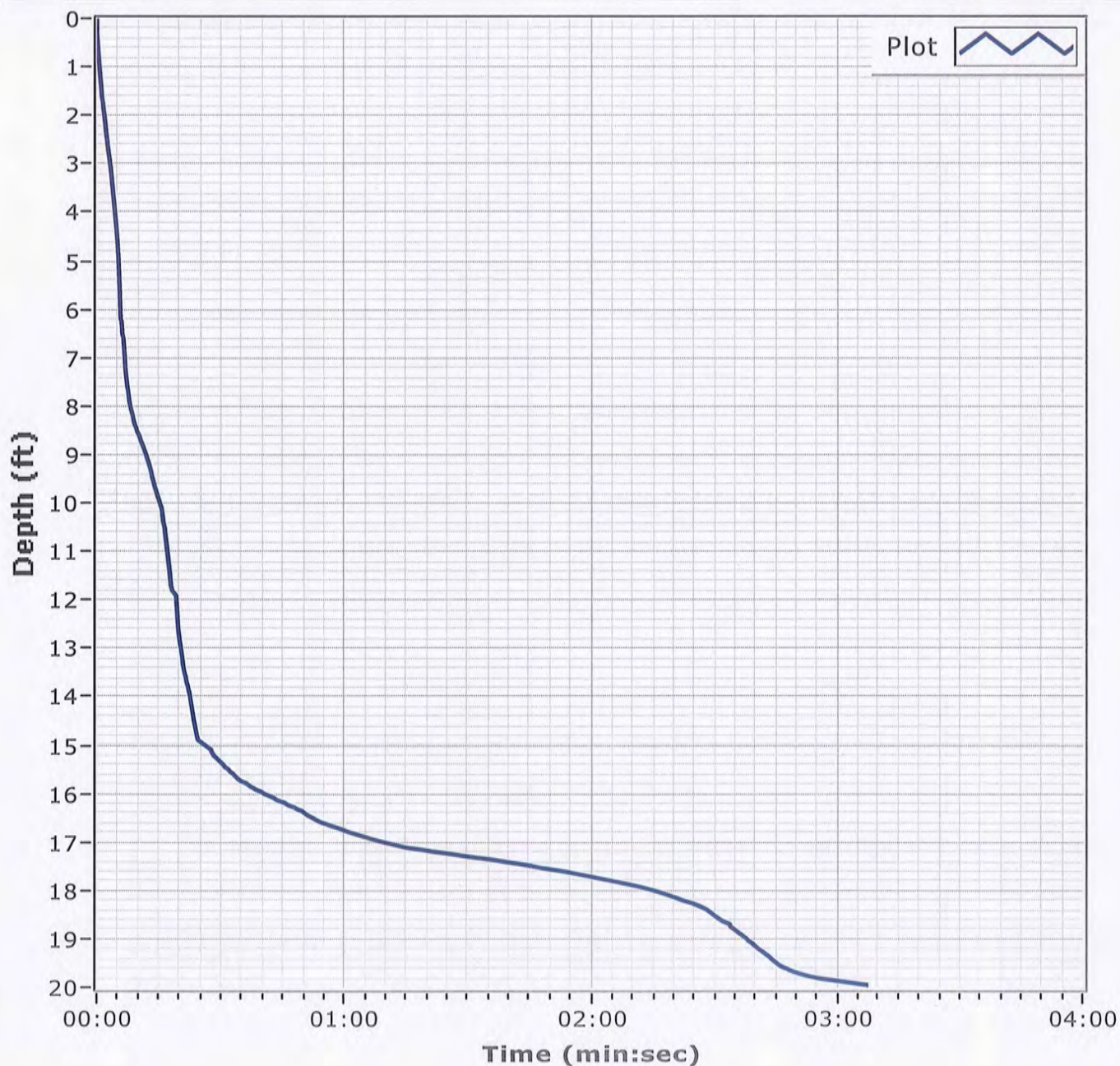
**Latitude** 30 11.362 N

**Total Time** 00:03:07

**Recovery** 14.9'

**Longitude** 088 23.816 W

**Comments**



# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.2	1.2	11.5	80.2	6.9	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
1	100.0		
.75	100.0		
.5	100.0		
.375	100.0		
#4	99.8		
#10	98.6		
#20	97.1		
#40	87.1		
#60	17.7		
#100	9.0		
#140	7.6		
#200	6.9		

\* (no specification provided)

## Material Description

Fine to medium grained, SLIGHTLY SILTY SAND

## Atterberg Limits

PL= LL= PI=

## Coefficients

D<sub>90</sub>= 0.4967 D<sub>85</sub>= 0.4166 D<sub>60</sub>= 0.3450  
D<sub>50</sub>= 0.3227 D<sub>30</sub>= 0.2800 D<sub>15</sub>= 0.2220  
D<sub>10</sub>= 0.1646 C<sub>u</sub>= 2.10 C<sub>c</sub>= 1.38

## Classification

USCS= SP-SM AASHTO=

## Remarks

Location: BI-PBP-23-12 A  
Sample Number: 6503 (7)

Depth: 1.2'

Date: 1/08/13

**Thompson Engineering**

**Mobile, Alabama**

Client: CDM/Thompson Engineering JV  
Project: MsCIP Barrier Island Restoration GT

Project No: 1221110095

Figure

# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.1	0.8	7.4	78.7	13.0	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
1	100.0		
.75	100.0		
.5	100.0		
.375	100.0		
#4	99.9		
#10	99.1		
#20	96.7		
#40	91.7		
#60	85.2		
#100	62.8		
#140	36.4		
#200	13.0		

\* (no specification provided)

<u>Material Description</u>		
Fine grained, SILTY SAND		
<u>Atterberg Limits</u>		
PL=	LL=	PI=
<u>Coefficients</u>		
D <sub>90</sub> = 0.3404	D <sub>85</sub> = 0.2478	D <sub>60</sub> = 0.1441
D <sub>50</sub> = 0.1263	D <sub>30</sub> = 0.0971	D <sub>15</sub> = 0.0774
D <sub>10</sub> =	C <sub>u</sub> =	C <sub>c</sub> =
<u>Classification</u>		
USCS= SM	AASHTO=	
<u>Remarks</u>		

Location: BI-PBP-23-12 B  
Sample Number: 6503 (8)

Depth: 4.8'

Date: 1/08/13

**Thompson Engineering**

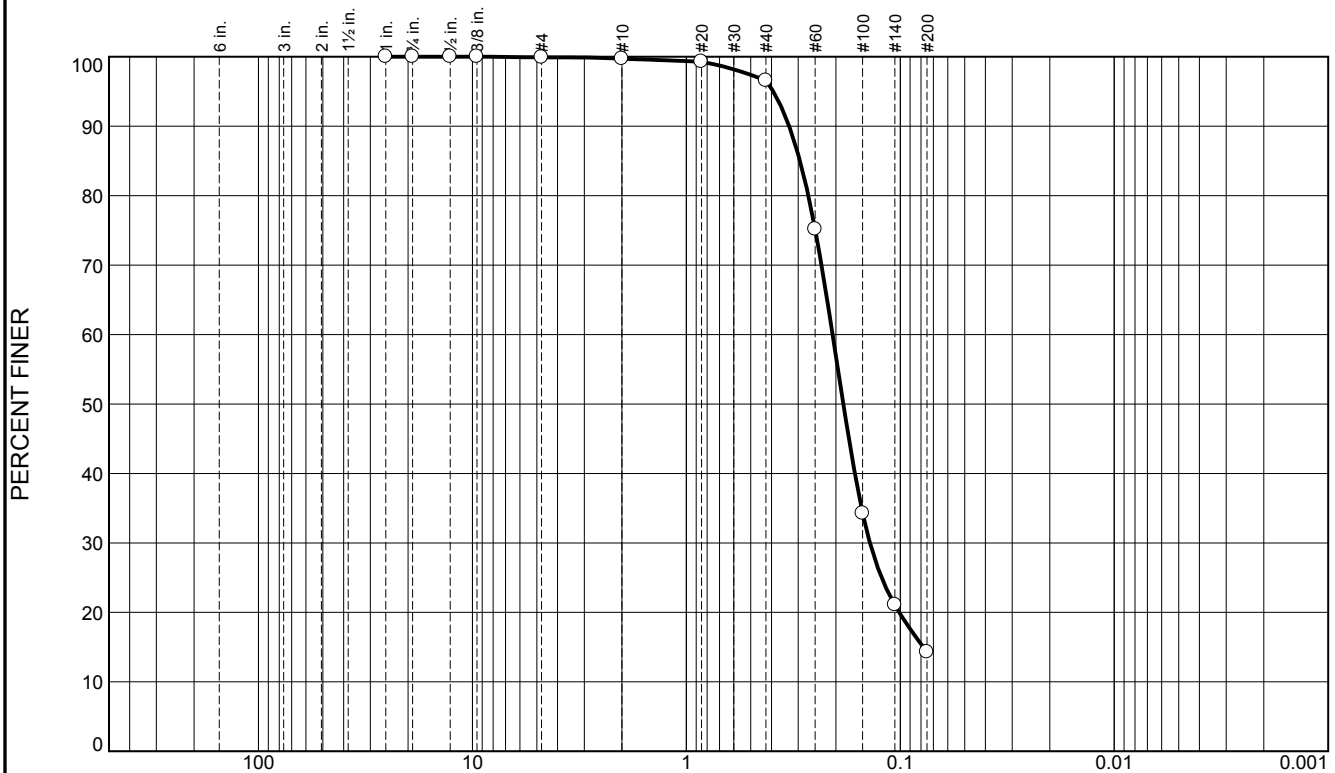
**Mobile, Alabama**

Client: CDM/Thompson Engineering JV  
Project: MsCIP Barrier Island Restoration GT

Project No: 1221110095

Figure

# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.1	0.2	3.1	82.3	14.3	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
1	100.0		
.75	100.0		
.5	100.0		
.375	100.0		
#4	99.9		
#10	99.7		
#20	99.3		
#40	96.6		
#60	75.2		
#100	34.3		
#140	21.1		
#200	14.3		

\* (no specification provided)

Material Description		
Fine grained, SILTY SAND		
PL=	Atterberg Limits LL=	PI=
D <sub>90</sub> = 0.3308	Coefficients D <sub>85</sub> = 0.2946	D <sub>60</sub> = 0.2073
D <sub>50</sub> = 0.1847	D <sub>30</sub> = 0.1387	D <sub>15</sub> = 0.0781
D <sub>10</sub> =	C <sub>u</sub> =	C <sub>c</sub> =
USCS= SM	Classification AASHTO=	
Remarks		

Location: BI-PBP-23-12 C  
Sample Number: 6503 (9)

Depth: 9.3'

Date: 1/08/13

**Thompson Engineering**

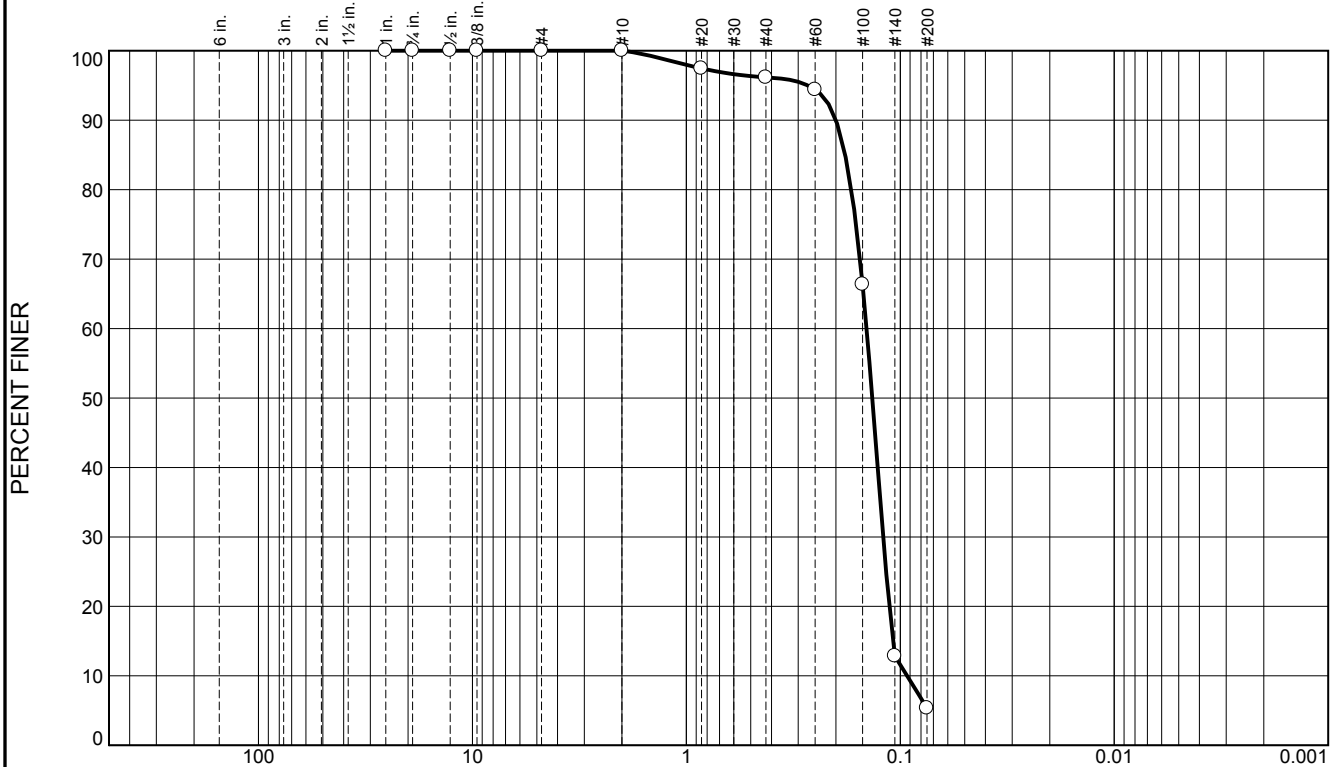
**Mobile, Alabama**

Client: CDM/Thompson Engineering JV  
Project: MsCIP Barrier Island Restoration GT

Project No: 1221110095

Figure

# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.0	0.0	3.8	90.8	5.4	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
1	100.0		
.75	100.0		
.5	100.0		
.375	100.0		
#4	100.0		
#10	100.0		
#20	97.4		
#40	96.2		
#60	94.4		
#100	66.3		
#140	12.8		
#200	5.4		

\* (no specification provided)

<u><b>Material Description</b></u>		
Fine grained, SLIGHTLY SILTY SAND		
<u><b>Atterberg Limits</b></u>		
PL=	LL=	PI=
<u><b>Coefficients</b></u>		
D <sub>90</sub> = 0.2000	D <sub>85</sub> = 0.1811	D <sub>60</sub> = 0.1437
D <sub>50</sub> = 0.1352	D <sub>30</sub> = 0.1202	D <sub>15</sub> = 0.1081
D <sub>10</sub> = 0.0929	C <sub>u</sub> = 1.55	C <sub>c</sub> = 1.08
<u><b>Classification</b></u>		
USCS= SP-SM	AASHTO=	
<u><b>Remarks</b></u>		

Location: BI-PBP-23-12 D  
Sample Number: 6503 (10)

Depth: 11.3'

Date: 1/08/13

**Thompson Engineering**

**Mobile, Alabama**

Client: CDM/Thompson Engineering JV  
Project: MsCIP Barrier Island Restoration GT

Project No: 1221110095

Figure

# Boring Designation BI-PBP-24-12

DRILLING LOG		DIVISION South Atlantic		INSTALLATION Mobile District		SHEET 1 OF 2 SHEETS	
1. PROJECT MsCIP Barrier Island Restoration Petit Bois Pass-MS				9. SIZE AND TYPE OF BIT N/A			
2. BORING DESIGNATION BI-PBP-24-12		LOCATION COORDINATES E = 1,124,585 N = 250,847		10. COORDINATE SYSTEM/DATUM State Plane, MSE (U.S. Ft.)		HORIZONTAL NAD83	
3. DRILLING AGENCY Corps of Engineers - CESAM		CONTRACTOR FILE NO.		11. MANUFACTURER'S DESIGNATION OF DRILL Vibracore		<input type="checkbox"/> AUTO HAMMER <input type="checkbox"/> MANUAL HAMMER	
4. NAME OF DRILLER American Vibracore Systems, Inc.				12. TOTAL SAMPLES		DISTURBED 0	
5. DIRECTION OF BORING <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED				13. TOTAL NUMBER CORE BOXES		14. WATER DEPTH 27.1 Ft.	
6. THICKNESS OF OVERBURDEN N/A				15. DATE BORING		STARTED 01-04-13	
7. DEPTH DRILLED INTO ROCK N/A				16. ELEVATION TOP OF BORING -26.3 Ft.		COMPLETED 01-04-13	
8. TOTAL DEPTH OF BORING 19.9 Ft.				17. TOTAL RECOVERY FOR BORING 100%		18. SIGNATURE AND TITLE OF INSPECTOR Mike FitzHarris, Geologist	

ELEV.	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS	SAMPLE	LABORATORY RESULTS
-26.3	0.0				
			SAND, poorly-graded, mostly fine to medium-grained sand-sized quartz, trace fines, trace shell fragments, lt. pale brown to light gray (SP)	A	Classification: SP-SM Color: 5Y 7/2-light gray D50: 0.3327 mm % Fines: 5.1
				B	Classification: SP Color: 5Y 7/2-light gray D50: 0.2546 mm % Fines: 2
-34.9	8.6				
			SAND, poorly-graded with silt, mostly fine-grained sand-sized quartz, few silt, trace shell fragments, gray (SP-SM)	C	Classification: SP-SM Color: 5Y 6/2-light olive gray D50: 0.2973 mm % Fines: 6.2
-37.5	11.2				
			SAND, clayey, mostly fine-grained sand-sized quartz, some clay, little silt, trace shell fragments, gray (SC)	NS	
-39.9	13.6				
			SAND, silty, mostly fine-grained sand-sized quartz, some silt, trace shell fragments, brown (SM)	D	Classification: SM Color: 2.5Y 4/2-dark grayish brown D50: 0.1227 mm % Fines: 13.6
-44.4	18.1				
-44.7	18.4				
-45.9	19.6		SAND, clayey, mostly fine-grained sand-sized quartz, some clay, trace shell fragments, gray (SC)	NS	
-46.2	19.9				
			CLAY, lean, mostly clay, some fine-grained sand-sized quartz, gray (CL)		
			SAND, clayey, mostly fine-grained sand-sized quartz, some clay, gray (SC)		
			NOTES: 1. Soils are field visually classified in accordance with the Unified Soils Classification		



<b>DRILLING LOG (Cont. Sheet)</b>			<b>INSTALLATION</b> Mobile District		<b>SHEET 2</b> <b>OF 2 SHEETS</b>
<b>PROJECT</b> MsCIP Barrier Island Restoration			<b>COORDINATE SYSTEM/DATUM</b> State Plane, MSE (U.S. Ft.)	<b>HORIZONTAL</b> NAD83	<b>VERTICAL</b> NAVD88
<b>LOCATION COORDINATES</b> X = 1,124,585 Y = 250,847			<b>ELEVATION TOP OF BORING</b> -26.3 Ft.		
<b>ELEV.</b>	<b>DEPTH</b>	<b>LEGEND</b>	<b>CLASSIFICATION OF MATERIALS</b>	<b>SAMPLE</b>	<b>LABORATORY RESULTS</b>
			System.  2. NS = Sample not submitted for laboratory analysis from this interval.  3. Seafloor elevation determined from USACE hydrographic survey completed April 2014.		

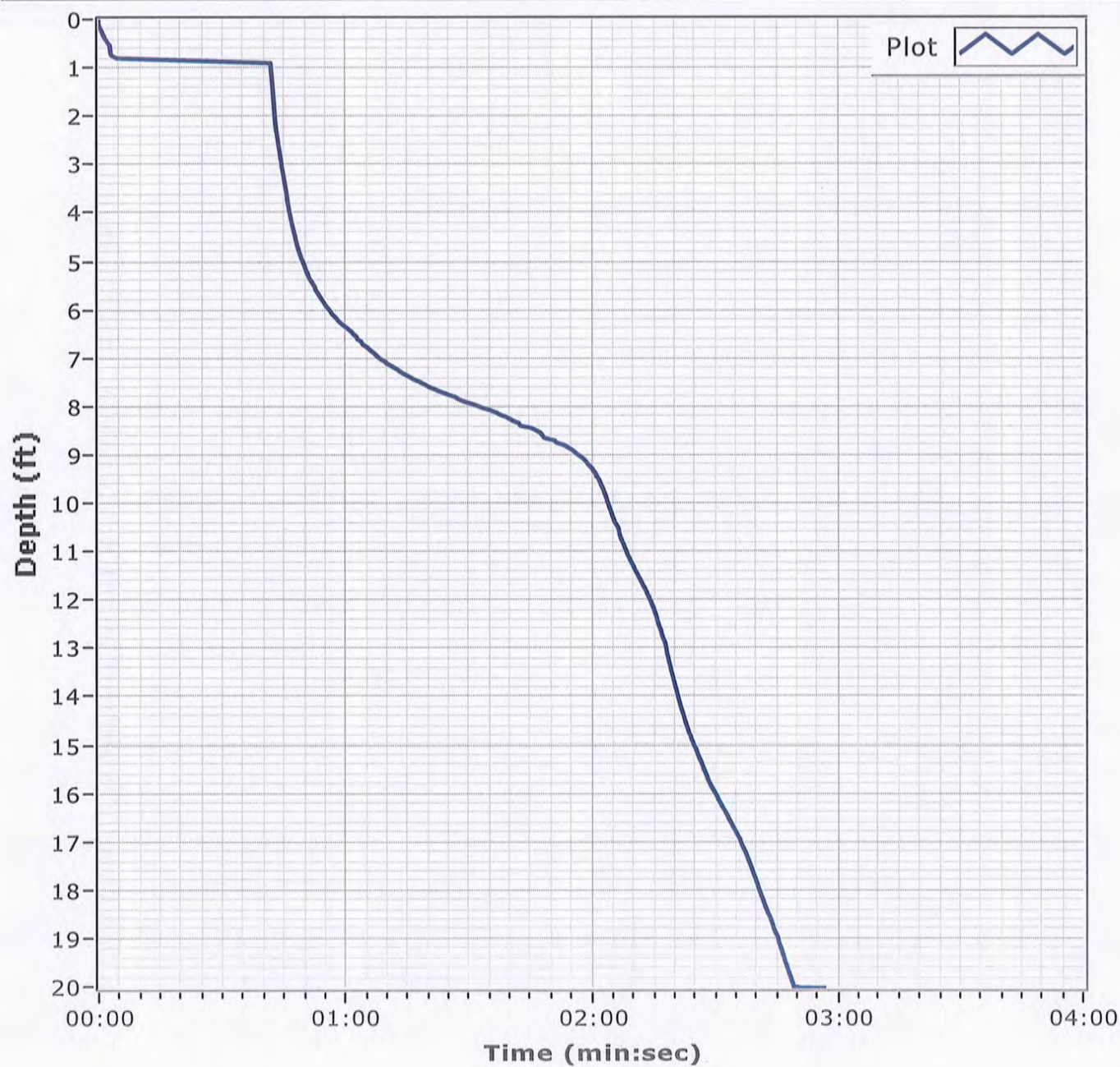
**Project**

Mississippi Barrier Island  
Restoration Project

**AVS**  
**AMERICAN VIBRACORE**  
**S E R V I C E S**

**Core Identifier** BI-PBP-24-12**Date** 01/04/2013**Water Depth** 27.1'**Coordinate System**

Latitude / Longitude

**Start Time** 09:25:47**End Time** 09:28:44**Penetration** 20.0'**Latitude** 30 11.342 N**Total Time** 00:02:57**Recovery** 19.9'**Longitude** 088 23.349 W**Comments**

# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.0	1.2	25.1	68.6	5.1	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
1	100.0		
.75	100.0		
.5	100.0		
.375	100.0		
#4	100.0		
#10	98.8		
#20	96.8		
#40	73.7		
#60	22.8		
#100	5.8		
#140	5.3		
#200	5.1		

\* (no specification provided)

## Material Description

Fine to medium grained, SLIGHTLY SILTY SAND

## Atterberg Limits

PL= LL= PI=

## Coefficients

D<sub>90</sub>= 0.5703 D<sub>85</sub>= 0.5061 D<sub>60</sub>= 0.3663  
D<sub>50</sub>= 0.3327 D<sub>30</sub>= 0.2726 D<sub>15</sub>= 0.2202  
D<sub>10</sub>= 0.1937 C<sub>u</sub>= 1.89 C<sub>c</sub>= 1.05

## Classification

USCS= SP-SM AASHTO=

## Remarks

Location: BI-PBP-24-12 A  
Sample Number: 6503 (11)

Depth: 0.0'

Date: 1/08/13

**Thompson Engineering**

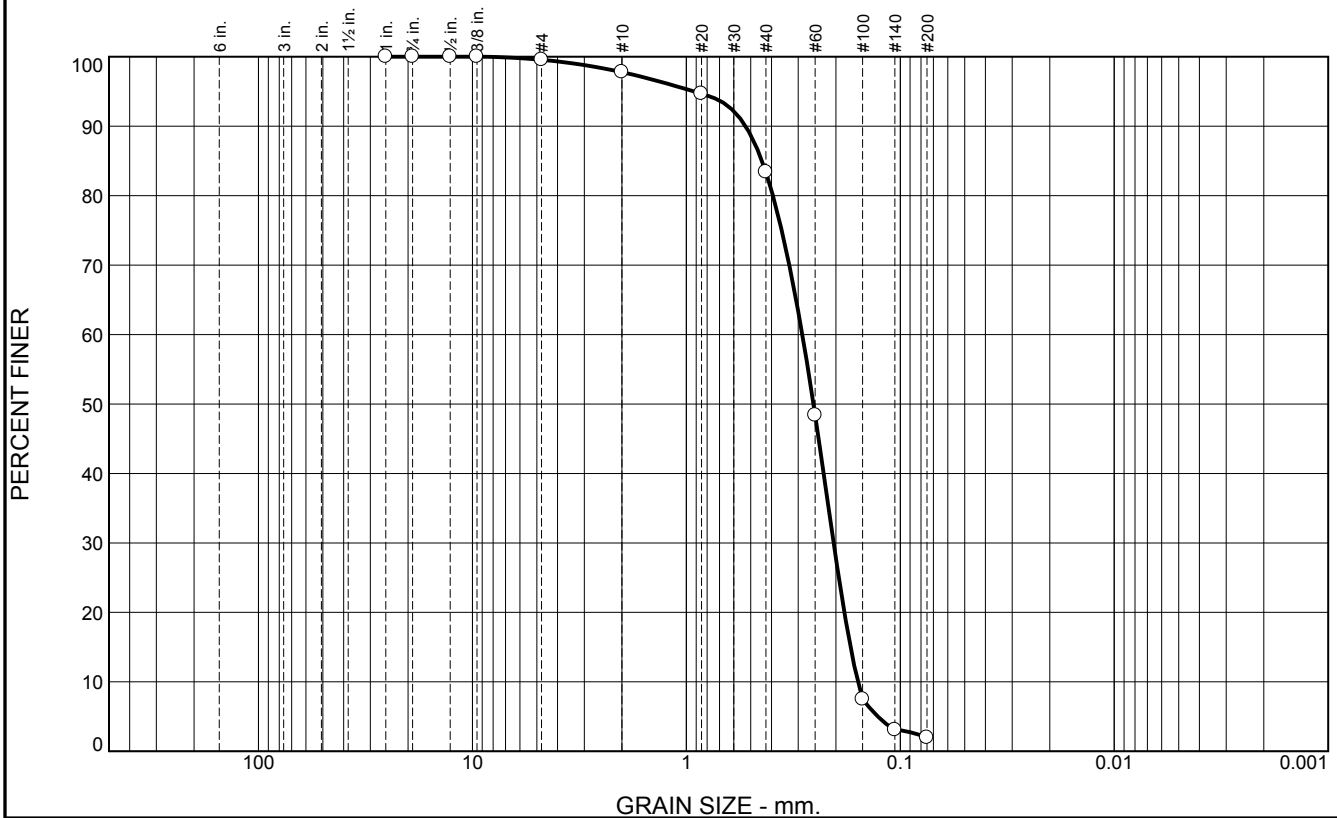
**Mobile, Alabama**

Client: CDM/Thompson Engineering JV  
Project: MsCIP Barrier Island Restoration GT

Project No: 1221110095

Figure

# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.4	1.8	14.4	81.4	2.0	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
1	100.0		
.75	100.0		
.5	100.0		
.375	100.0		
#4	99.6		
#10	97.8		
#20	94.7		
#40	83.4		
#60	48.4		
#100	7.5		
#140	3.1		
#200	2.0		

\* (no specification provided)

Material Description		
Fine to medium grained, SAND		
PL=	Atterberg Limits LL=	PI=
D <sub>90</sub> = 0.5288	D <sub>85</sub> = 0.4432	D <sub>60</sub> = 0.2873
D <sub>50</sub> = 0.2546	D <sub>30</sub> = 0.2049	D <sub>15</sub> = 0.1710
D <sub>10</sub> = 0.1580	C <sub>u</sub> = 1.82	C <sub>c</sub> = 0.93
USCS= SP	Classification AASHTO=	
Remarks		

Location: BI-PBP-24-12 B  
Sample Number: 6503 (12)

Depth: 5.0'

Date: 1/08/13

**Thompson Engineering**

**Mobile, Alabama**

Client: CDM/Thompson Engineering JV  
Project: MsCIP Barrier Island Restoration GT

Project No: 1221110095

Figure

# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.2	1.3	8.6	83.7	6.2	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
1	100.0		
.75	100.0		
.5	100.0		
.375	100.0		
#4	99.8		
#10	98.5		
#20	97.2		
#40	89.9		
#60	31.1		
#100	9.8		
#140	7.3		
#200	6.2		

\* (no specification provided)

<b><u>Material Description</u></b>		
Fine grained, SLIGHTLY SILTY SAND		
<b><u>Atterberg Limits</u></b>		
PL=	LL=	PI=
<b><u>Coefficients</u></b>		
D <sub>90</sub> = 0.4275	D <sub>85</sub> = 0.4015	D <sub>60</sub> = 0.3223
D <sub>50</sub> = 0.2973	D <sub>30</sub> = 0.2470	D <sub>15</sub> = 0.1917
D <sub>10</sub> = 0.1529	C <sub>u</sub> = 2.11	C <sub>c</sub> = 1.24
<b><u>Classification</u></b>		
USCS= SP-SM	AASHTO=	
<b><u>Remarks</u></b>		

Location: BI-PBP-24-12 C  
Sample Number: 6503 (13)

Depth: 8.6'

Date: 1/08/13

**Thompson Engineering**

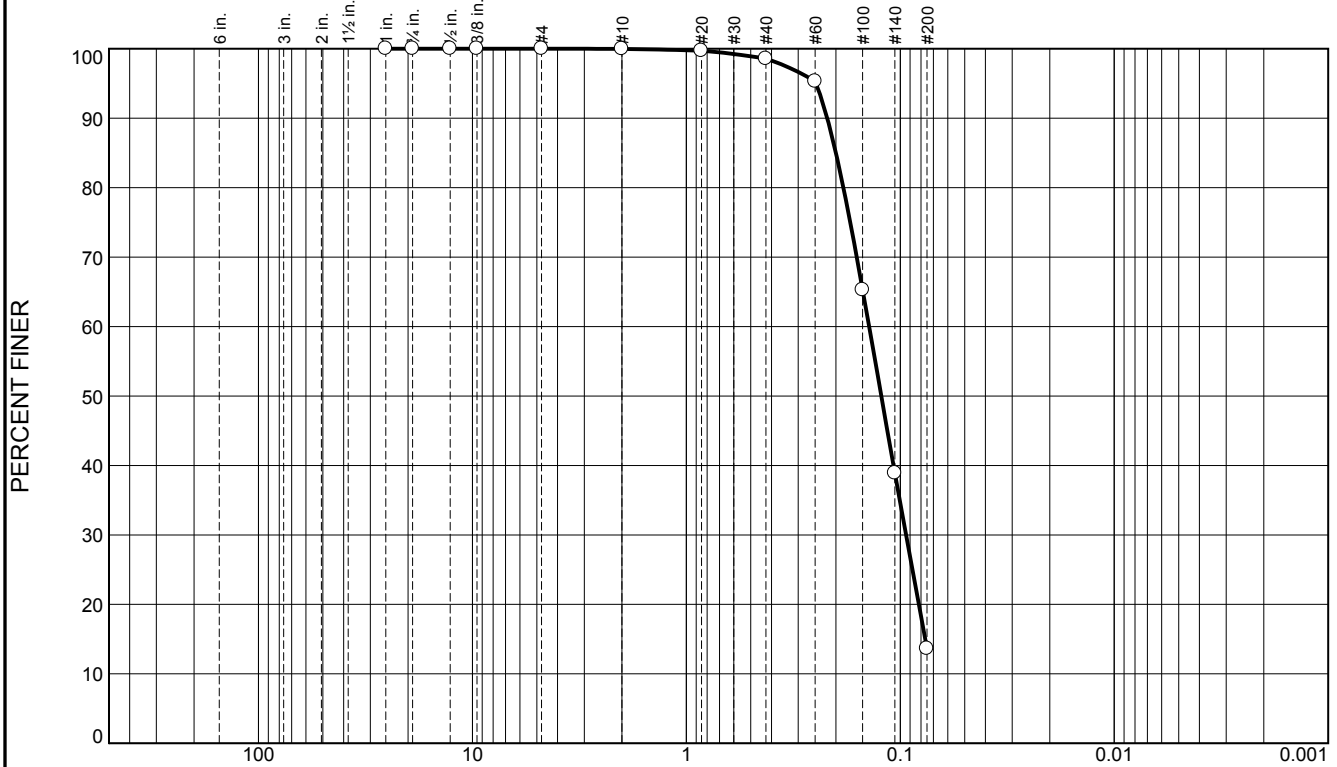
**Mobile, Alabama**

Client: CDM/Thompson Engineering JV  
Project: MsCIP Barrier Island Restoration GT

Project No: 1221110095

Figure

# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.0	0.0	1.4	85.0	13.6	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
1	100.0		
.75	100.0		
.5	100.0		
.375	100.0		
#4	100.0		
#10	100.0		
#20	99.7		
#40	98.6		
#60	95.3		
#100	65.3		
#140	38.9		
#200	13.6		

\* (no specification provided)

Material Description		
Fine grained, SILTY SAND		
<div> <div> Atterberg Limits </div> <div> PL= </div> <div> LL= </div> <div> PI= </div> </div>		
<div> <div> Coefficients </div> <div> D<sub>90</sub>= 0.2194 </div> <div> D<sub>50</sub>= 0.1227 </div> <div> D<sub>10</sub>= </div> <div> D<sub>85</sub>= 0.2000 </div> <div> D<sub>30</sub>= 0.0940 </div> <div> C<sub>u</sub>= </div> <div> D<sub>60</sub>= 0.1399 </div> <div> D<sub>15</sub>= 0.0764 </div> <div> C<sub>c</sub>= </div> </div>		
<div> <div> Classification </div> <div> USCS= SM </div> <div> AASHTO= </div> </div>		
<div> <div> Remarks </div> </div>		

Location: BI-PBP-24-12 D  
Sample Number: 6503 (14)

Depth: 13.6'

Date: 1/08/13

**Thompson Engineering**

**Mobile, Alabama**

Client: CDM/Thompson Engineering JV  
Project: MsCIP Barrier Island Restoration GT

Project No: 1221110095

Figure

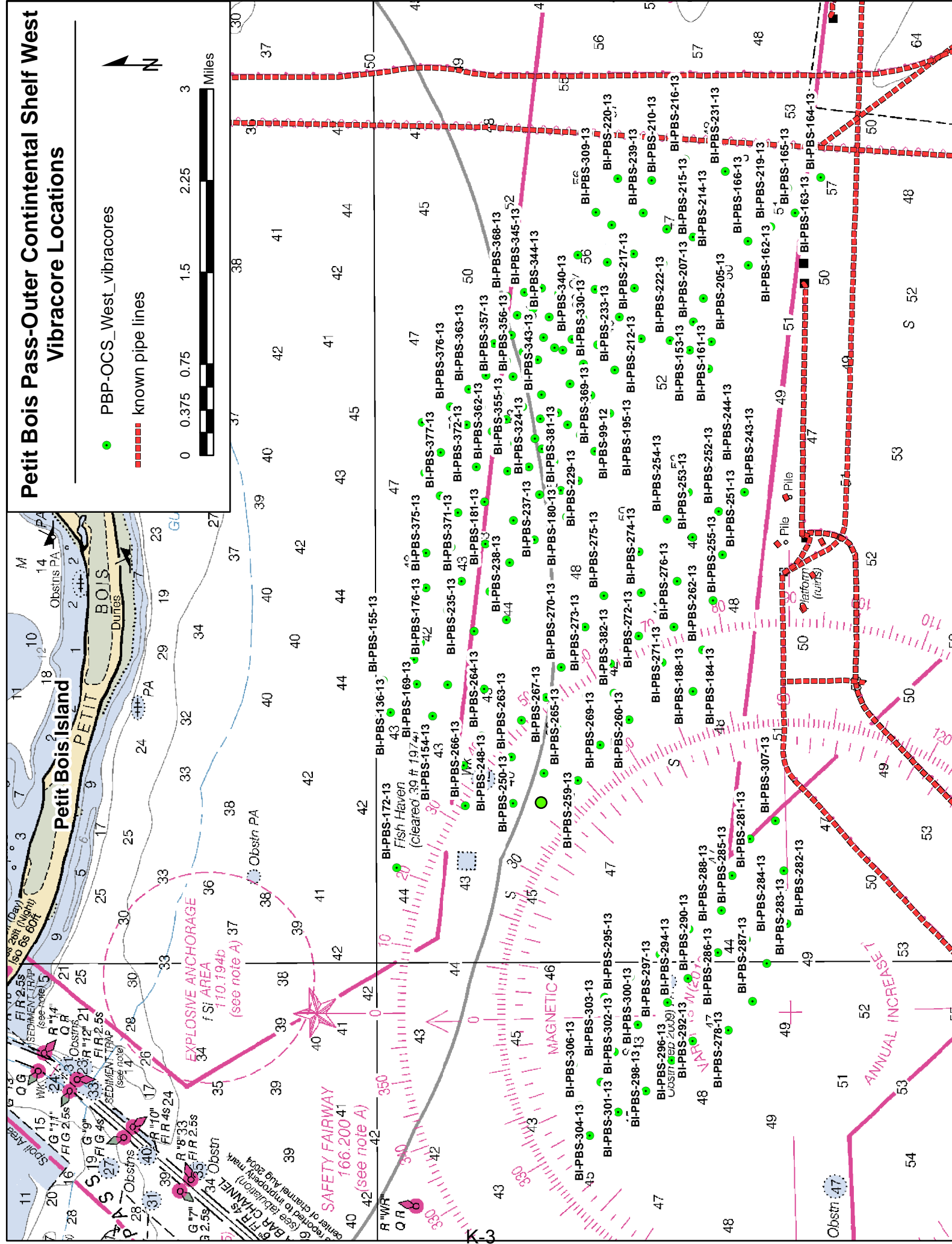
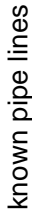
## **Appendix K**

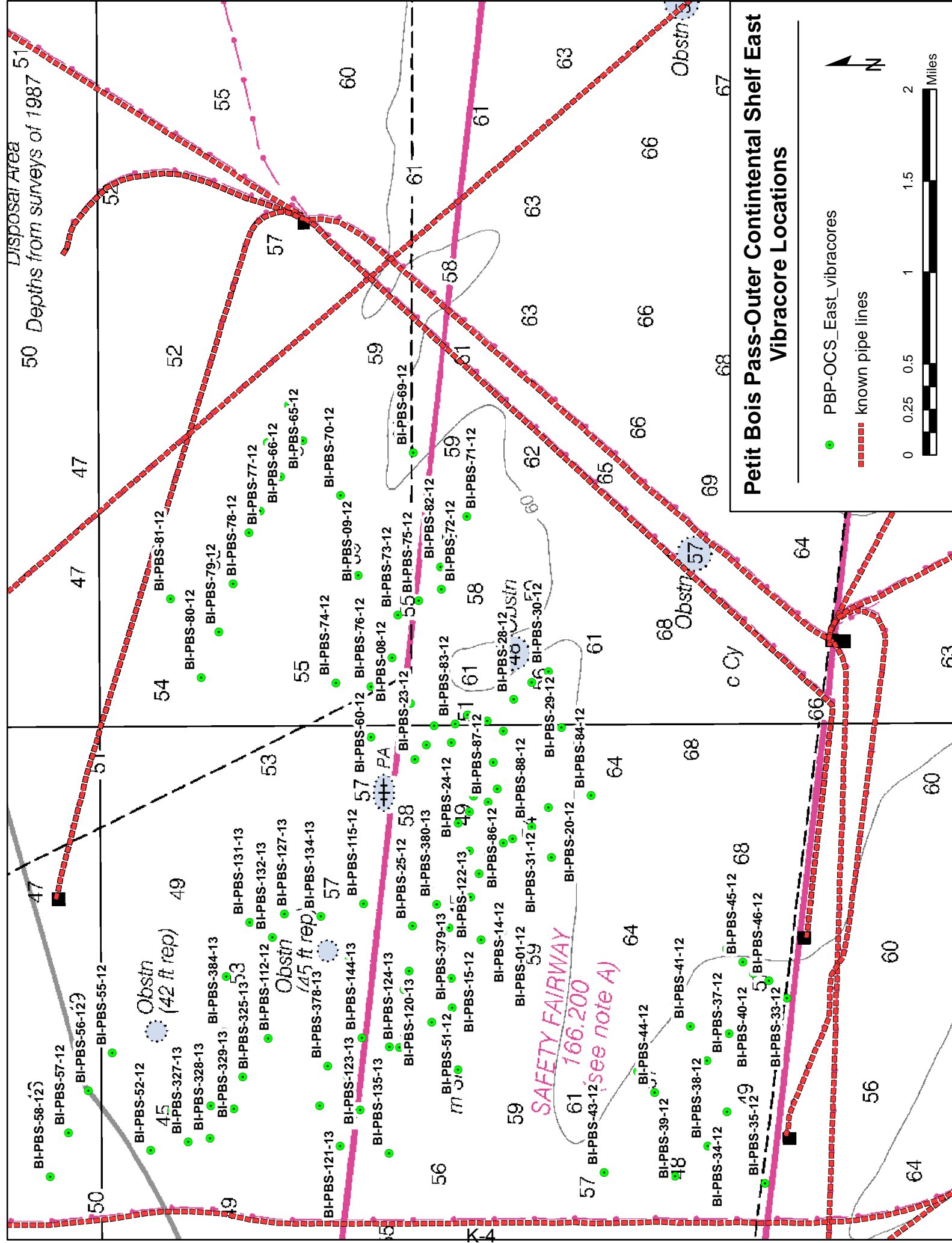
### **Petit Bois Pass-Outer Continental Shelf Vibracores and Lab Results**

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- PBP-OCS\_West\_vibracores
- known pipe lines





Vibracore / Sample ID	Investigation Area	Sample Event	Date of Sample	Time_CST	Latitude	Longitude	Northing_Y	Easting_X	Sample Method	Water Depth (feet)	Boring Depth (feet below seafloor surface )	Sample Depth (Feet below seafloor surface)	Sample Thickness (feet)	Field USCS	Lab USCS	Angularity	Wet Munsell Color	Wet Munsell Color Code	Wet Munsell Value	Dry Munsell Color	Dry Munsell Color Code	Dry Munsell Value	CaCO3	D50 (mm)	Graphic Mean (mm)	% Fines	Cu (D60/D10)	Cc (D30)^2 / (D10*D60)
BI-PBS-1-12	PETIT BOIS PASS - OCS EAST	2012	11/26/2012	1:22 AM	30.13475	-88.35205	231154.07510	1136389.87700	20-ft Vibracore	57.8	13.4																	
BI-PBS-1-12A	PETIT BOIS PASS - OCS EAST	2012	11/26/2012	1:22 AM	30.13476	-88.35205	231157.71200	1136389.86200	20-ft Vibracore	57.8	13.4	0-0.4	0.4	SM	SP-SM	SUBANGULAR TO SUBROUNDED	OLIVE GRAY	5Y 4/2	4	LT OLIVE GRAY	5Y 5.5/2	6		0.21	0.25	11.3	#VALUE!	#VALUE!
BI-PBS-2-12	PETIT BOIS PASS - OCS EAST	2012	11/26/2012	12:37 PM	30.13658	-88.34678	231826.68140	1138052.97400	20-ft Vibracore	50.9	20.0																	
BI-PBS-2-12A	PETIT BOIS PASS - OCS EAST	2012	11/26/2012	12:37 PM	30.13657	-88.34678	231823.04450	1138052.99000	20-ft Vibracore	50.9	20.0	0-4.5	4.5	SP	SP	SUBANGULAR TO SUBROUNDED	LT OLIVE GRAY	5Y 6/2	6	LT GRAY	5Y 7/2	7		0.22	0.29	1.6	1.5	0.9
BI-PBS-2-12B	PETIT BOIS PASS - OCS EAST	2012	11/26/2012	12:37 PM	30.13657	-88.34678	231823.04450	1138052.99000	20-ft Vibracore	50.9	20.0	4.5-7.8	3.3	SP	SP	SUBANGULAR TO SUBROUNDED	OLIVE GRAY	5Y 5/2	5	LT OLIVE GRAY	5Y 6/2	6		0.21	0.24	3.9	1.6	1.0
BI-PBS-3-12	PETIT BOIS PASS - OCS EAST	2012	11/26/2012	9:52 AM	30.13733	-88.34468	232102.28110	1138715.63900	20-ft Vibracore	59.7	19.5	NO SAMPLE TAKEN		CL	NO SAMPLE TESTED													
BI-PBS-4-12	PETIT BOIS PASS - OCS EAST	2012	11/26/2012	10:36 AM	30.13822	-88.34212	232429.43460	1139523.48400	20-ft Vibracore	49.8	20.0																	
BI-PBS-4-12A	PETIT BOIS PASS - OCS EAST	2012	11/26/2012	10:36 AM	30.13820	-88.34209	232422.20170	1139532.99900	20-ft Vibracore	49.8	20.0	0-5	5.0	SP	SP	SUBANGULAR TO SUBROUNDED	LT GRAY	5Y 7/2	7	LT GRAY	5Y 7/2	7		0.26	0.30	1.2	1.8	0.9
BI-PBS-4-12B	PETIT BOIS PASS - OCS EAST	2012	11/26/2012	10:36 AM	30.13820	-88.34209	232422.20170	1139532.99900	20-ft Vibracore	49.8	20.0	5-8.6	3.6	SP	SP	SUBANGULAR TO SUBROUNDED	LT OLIVE GRAY	5Y 6/2	6	LT GRAY	5Y 7/2	7		0.23	0.25	2.4	1.6	1.0
BI-PBS-5-12	PETIT BOIS PASS - OCS EAST	2012	11/24/2012	3:55 PM	30.13940	-88.33877	232863.15650	1140580.57900	20-ft Vibracore	60.1	17.4																	
BI-PBS-5-12A	PETIT BOIS PASS - OCS EAST	2012	11/24/2012	3:55 PM	30.13938	-88.33879	232855.85540	1140574.28800	20-ft Vibracore	60.1	17.4	4-6	2.8	SP	SM	ANGULAR TO SUBROUNDED	GRAYISH BROWN	2.5Y 4.5/2	5	LT BROWNISH GRAY	2.5Y 6/2	6		0.20	0.21	14.4	#VALUE!	#VALUE!
BI-PBS-6-12	PETIT BOIS PASS - OCS EAST	2012	11/24/2012	2:29 PM	30.14074	-88.33502	233355.65130	1141763.83300	20-ft Vibracore	55.0	19.7																	
BI-PBS-6-12A	PETIT BOIS PASS - OCS EAST	2012	11/24/2012	2:29 PM	30.14074	-88.33502	233355.65130	1141763.83300	20-ft Vibracore	55.0	19.7	0-5	5.0	SP	SP	ANGULAR TO SUBROUNDED	LT OLIVE GRAY	5Y 6/2	6	LT GRAY	5Y 7/2	7		0.27	0.30	2.8	1.8	0.9
BI-PBS-6-12B	PETIT BOIS PASS - OCS EAST	2012	11/24/2012	2:29 PM	30.14074	-88.33502	233355.65130	1141763.83300	20-ft Vibracore	55.0	19.7	6.9-16.4	9.5	SP-SM	SM	ANGULAR TO SUBROUNDED	DK OLIVE GRAY	5Y 4/1.5	4	LT OLIVE GRAY	5Y 6/2	6		0.40	#VALUE!	18.0	#VALUE!	#VALUE!
BI-PBS-7-12	PETIT BOIS PASS - OCS EAST	2012	11/21/2012	11:39 AM	30.14197	-88.33118	233808.30520	1142975.68100	20-ft Vibracore	60.9	15.0																	
BI-PBS-7-12A	PETIT BOIS PASS - OCS EAST	2012	11/21/2012	11:39 AM	30.14197	-88.33120	233808.27740	1142969.35900	20-ft Vibracore	60.9	15.0	3.5-10.4	6.9	SP	SM	SUBANGULAR TO SUBROUNDED	DK GRAYISH BROWN	2.5Y 4/2	4	GRAYISH BROWN	2.5Y 5/2	5		0.22	#VALUE!	18.1	#VALUE!	#VALUE!
BI-PBS-7-12B	PETIT BOIS PASS - OCS EAST	2012	11/21/2012	11:39 AM	30.14197	-88.33120	233808.27740	1142969.35900	20-ft Vibracore	60.9	15.0	10.4-15	4.6	SP	SP-SM	SUBANGULAR TO SUBROUNDED	LT OLIVE BROWN	2.5Y 5.5/3	6	LT GRAY	2.5Y 7/2	7		0.21	0.22	6.7	2.0	1.2
BI-PBS-8-12	PETIT BOIS PASS - OCS EAST	2012	11/21/2012	9:15 AM	30.14340	-88.32703	234334.17220	1144285.16400	20-ft Vibracore	57.0	18.1																	
BI-PBS-8-12A	PETIT BOIS PASS - OCS EAST	2012	11/21/2012	9:15 AM	30.14339	-88.32705	234330.50720	1144278.85800	20-ft Vibracore	57.0	18.1	0.0 - 3.1	3.1	SP	SP-SM	ANGULAR TO SUBROUNDED	LT OLIVE GRAY	5Y 5.5/2	6	LT GRAY	5Y 6.5/2	7		0.22	0.25	5.2	1.8	1.0
BI-PBS-8-12B	PETIT BOIS PASS - OCS EAST	2012	11/21/2012	9:15 AM	30.14339	-88.32705	234330.50720	1144278.85800	20-ft Vibracore	57.0	18.1	3.1-7.3	4.2	SP	SM	ANGULAR TO SUBROUNDED	OLIVE GRAY	5Y 4/2	4	OLIVE GRAY	5Y 5/2	5		0.19	#VALUE!	19.2	#VALUE!	#VALUE!
BI-PBS-9-12	PETIT BOIS PASS - OCS EAST	2012	11/19/2012	10:10 AM	30.14607	-88.31945	235315.92440	1146676.75100	20-ft Vibracore	59.4	17.3	NO SAMPLE TAKEN		CL	NO SAMPLE TESTED													
BI-PBS-10-12	PETIT BOIS PASS - OCS EAST	2012	11/23/2012	3:45 PM	30.13897	-88.35172	232689.26250	1136487.71800	20-ft Vibracore	48.1	11.9																	
BI-PBS-10-12A	PETIT BOIS PASS - OCS EAST	2012	11/23/2012	3:45 PM	30.13897	-88.35172	232689.26250	1136487.71800	20-ft Vibracore	48.1	11.9	0-5.9	5.9	SP	SP	ANGULAR TO SUBROUNDED	LT OLIVE GRAY	5Y 6/2	6	LT GRAY	5Y 7/2	7		0.33	0.43	1.3	2.1	0.9
BI-PBS-10-12B	PETIT BOIS PASS - OCS EAST	2012	11/23/2012	3:45 PM	30.13897	-88.35172	232689.26250	1136487.71800	20-ft Vibracore	48.1	11.9	5.9-8.4	2.5	SP	SP	ANGULAR TO SUBROUNDED	OLIVE GRAY	5Y 5/2	5	LT GRAY	5Y 6.5/2	7		0.28	0.29	2.5	1.8	1.0
BI-PBS-11-12	PETIT BOIS PASS - OCS EAST	2012	11/23/2012	3:08 PM	30.13808	-88.35015	232367.68150	1136985.37100	20-ft Vibracore	46.4	19.3																	
BI-PBS-11-12A	PETIT BOIS PASS - OCS EAST	2012	11/23/2012	3:08 PM	30.13807	-88.35015	232364.04470	1136985.38600	20-ft Vibracore	46.4	19.3	0-8.6	8.6	SP	SP	ANGULAR TO SUBROUNDED	LT OLIVE GRAY	5Y 6/2	6	LT GRAY	5Y 7/2	7		0.28	0.36	1.6	1.9	0.9
BI-PBS-11-12B	PETIT BOIS PASS - OCS EAST	2012	11/23/2012	3:08 PM	30.13807	-88.35015	232364.04470	1136985.38600	20-ft Vibracore	46.4	19.3	8.6-10.4	1.8	SP	SP	ANGULAR TO SUBROUNDED	OLIVE GRAY	5Y 5/2	5	LT OLIVE GRAY	5Y 6/2	6		0.24	0.26	3.2	1.7	0.9
BI-PBS-12-12	PETIT BOIS PASS - OCS EAST	2012	11/23/2012	2:20 PM	30.13727	-88.34887	232074.81270	1137391.23700	20-ft Vibracore	48.7	20.0																	
BI-PBS-12-12A	PETIT BOIS PASS - OCS EAST	2012	11/23/2012	2:20 PM	30.13725	-88.34889	232067.51220	1137384.94600	20-ft Vibracore	48.7	20.0	0-5	5.0	SP	SP	ANGULAR TO SUBROUNDED	LT OLIVE GRAY	5Y 5.5/2	6	LT GRAY	5Y 6.5/2	7		0.27	0.37	1.9	1.9	0.9
BI-PBS-12-12B	PETIT BOIS PASS - OCS EAST	2012	11/23/2012	2:20 PM	30.13725	-88.34889	232067.51220	1137384.94600	20-ft Vibracore	48.7	20.0	5-8.8	3.8	SP	SP	ANGULAR TO SUBROUNDED	OLIVE GRAY	5Y 5/2	5	LT OLIVE GRAY	5Y 6/2	6		0.23	0.26	2.8	1.7	1.0
BI-PBS-12-12C	PETIT BOIS PASS - OCS EAST	2012	11/23/2012	2:20 PM	30.13725	-88.34889	232067.51220	1137384.94600	20-ft Vibracore	48.7	20.0	8.8-10	1.2	SP	SP-SM	ANGULAR TO SUBROUNDED	OLIVE GRAY	5Y 4/2	4	OLIVE GRAY	5Y 5/2	5		0.21	0.27	9.9	3.1	1.5
BI-PBS-13-12	PETIT BOIS PASS - OCS EAST	2012	11/28/2012	1:41 PM	30.14040	-88.36032	233197.95960	1133767.07600	20-ft Vibracore	46.7	11.8																	
BI-PBS-13-12A	PETIT BOIS PASS - OCS EAST	2012	11/28/2012	1:41 PM	30.14042	-88.36031	233205.24640	1133770.20700	20-ft Vibracore	46.7	11.8	0-5	5.0	SP	SP	ANGULAR TO SUBROUNDED	LT BROWNISH GRAY	2.5Y 6/2	6	LT GRAY	2.5Y 7/1	7		0.35	0.38	1.6	1.7	1.0
BI-PBS-13-12B	PETIT BOIS PASS - OCS EAST	2012	11/28/2012	1:41 PM	30.14042	-88.36031	233205.24640	1133770.20700	20-ft Vibracore	46.7	11.8	5-9.2	4.0	SP	SP	ANGULAR TO SUBROUNDED	LT BROWNISH GRAY	2.5Y 5.5/2	6	LT GRAY	2.5Y 6.5/2	7		0.25	0.28	2.9	1.7	0.9
BI-PBS-14-12	PETIT BOIS PASS - OCS EAST	2012	11/28/2012	9:50 AM	30.13645	-88.35283	231771.29910	1136140.70300	20-ft Vibracore	53.4	19.6																	
BI-PBS-14-12A	PETIT BOIS PASS - OCS EAST	2012	11/28/2012	9:50 AM	30.13649	-88.35278	231785.91300	1136156.44700	20-ft Vibracore	53.4	19.6	0-3.2	3.2	SP	SP	ANGULAR TO SUBROUNDED	OLIVE GRAY	5Y 4/2	4	LT OLIVE GRAY	5Y 6/2	6		0.25	0.28	3.7	2.0	1.0
BI-PBS-14-12B	PETIT BOIS PASS - OCS EAST	2012	11/28/2012	9:50 AM	30.13649	-88.35278	231785.91300	1136156.44700	20-ft Vibracore	53.4	19.6	3.2-6	2.8	SM	SP-SM	ANGULAR TO SUBROUNDED	OLIVE GRAY	5Y 4/2	4	OLIVE GRAY	5Y 5/2	5		0.20	0.26	11.8	#VALUE!	#VALUE!
BI-PBS-15-12	PETIT BOIS PASS - OCS EAST	2012	11/28/2012	10:32 AM	30.13883	-88.35632	232632.23900	1135033.85700	20-ft Vibracore	48.9	19.9																	
BI-PBS-15-12A	PETIT BOIS PASS - OCS EAST	2012	11/28/2012	10:32 AM	30.13884	-88.35632	232635.87580	1135033.84100	20-ft Vibracore	48.9	19.9	0-5.5	5.5	SP	SP	ANGULAR TO SUBROUNDED	LT OLIVE GRAY	5Y 6/1.5	6	LT GRAY	5Y 7/2	7		0.29	0.31	2.0	1.8	1.0
BI-PBS-15-12B	PETIT BOIS PASS - OCS EAST	2012	11/28/2012	10:32 AM	30.13884	-88.35632	232635.87580	1135033.84100	20-ft Vibracore	48.9	19.9	5.5-8.7	3.2	SM	SP-SM	ANGULAR TO SUBROUNDED	OLIVE GRAY	5Y 4/2	4	OLIVE GRAY	5Y 5/2	5		0.20	0.23	11.6	#VALUE!	#VALUE!
BI-PBS-16-12	PETIT BOIS PASS - OCS EAST	2012	11/23/2012	1:35 PM	30.13582	-88.34503	231552.64410	1138607.35100	20-ft Vibracore	52.8	17.8																	
BI-PBS-16-12A	PETIT BOIS PASS - OCS EAST	2012	11/23/2012	1:35 PM	30.13583	-88.34503	231556.28090	1138607.33600	20-ft Vibracore	52.8	17.8	0-2.5	2.5	SP	SP	SUBANGULAR TO SUBROUNDED	OLIVE GRAY	5Y 5/2	5	LT OLIVE GRAY	5Y 6/2	6		0.29	0.33	2.4	1.9	1.0
BI-PBS-16-12B	PETIT BOIS PASS - OCS EAST	2012	11/23/2012	1:35 PM	30.13583	-88.34503	231556.28090	1138607.33600	20-ft Vibracore	52.8	17.8	2.5-3.8	1.3	SP	SP	SUBANGULAR TO SUBROUNDED	OLIVE GRAY	5Y 4.5/2	5	LT OLIVE GRAY	5Y 6/2	6		0.21	0.23	3.7	1.6	1.0
BI-PBS-16-12C	PETIT BOIS PASS - OCS EAST	2012	11/23/2012	1:35 PM	30.13583	-88.34503	231556.28090	1138																				

Vibrator / Sample ID	Investigation Area	Sample Event	Date of Sample	Time_CST	Latitude	Longitude	Northing_Y	Easting_X	Sample Method	Water Depth (feet)	Boring Depth (feet below seafloor surface)	Sample Depth (feet below seafloor surface)	Sample Thickness (feet)	Field USCS	Lab USCS	Angularity	Wet Munsell Color	Wet Munsell Color Code	Wet Munsell Value	Dry Munsell Color	Dry Munsell Color Code	Dry Munsell Value	CaCO3	D50 (mm)	Graphic Mean (mm)	% Fines	Cu (D60/D10)	Cc (D30)*2 / (D10*D60)
BI-PBS-19-12A	PETIT BOIS PASS - OCS EAST	2012	11/23/2012	11:42 AM	30.13945	-88.34275	232875.90990	1139322.41400	20-ft Vibracore	50.6	18.6	0-5	5.0	SP	SP	ANGULAR TO SUBROUNDED	LT OLIVE GRAY	5Y 5.5/2	6	LT GRAY	6.5/2	7		0.30	0.33	1.8	1.9	1.0
BI-PBS-20-12	PETIT BOIS PASS - OCS EAST	2012	11/23/2012	1:01 PM	30.13082	-88.34532	229733.83110	1138523.45400	20-ft Vibracore	60.8	12.7																	
BI-PBS-20-12A	PETIT BOIS PASS - OCS EAST	2012	11/23/2012	1:01 PM	30.13082	-88.34532	229733.83110	1138523.45400	20-ft Vibracore	60.8	12.7	4.1-6	1.9	SP	SP-SM	ANGULAR TO SUBROUNDED	OLIVE GRAY	5Y 4/2	4	LT OLIVE GRAY	5Y 6/2	6		0.28	0.28	9.1	2.9	1.5
BI-PBS-20-12B	PETIT BOIS PASS - OCS EAST	2012	11/23/2012	1:01 PM	30.13082	-88.34532	229733.83110	1138523.45400	20-ft Vibracore	60.8	12.7	12-12.7	0.7	SP-SM	SM	SUBANGULAR TO SUBROUNDED	OLIVE GRAY	5Y 4/2	4	OLIVE GRAY	5Y 5/2	5		0.29	0.29	12.8	#VALUE!	#VALUE!
BI-PBS-21-12	PETIT BOIS PASS - OCS EAST	2012	11/21/2012	12:58 PM	30.13743	-88.33227	232155.66120	1142638.38900	20-ft Vibracore	52.0	20.0																	
BI-PBS-21-12A	PETIT BOIS PASS - OCS EAST	2012	11/21/2012	12:58 PM	30.13743	-88.33227	232155.66120	1142638.38900	20-ft Vibracore	52.0	20.0	0-3.5	3.5	SP	SP	ANGULAR TO SUBROUNDED	LT GRAY	5Y 7/2	7	LT GRAY	2.5Y 7/2	7		0.38	0.52	1.3	2.1	0.9
BI-PBS-21-12B	PETIT BOIS PASS - OCS EAST	2012	11/21/2012	12:58 PM	30.13744	-88.33227	232159.29800	1142638.37300	20-ft Vibracore	52.0	20.0	3.5-7.2	3.7	SP	SP	ANGULAR TO SUBROUNDED	LT OLIVE GRAY	5Y 5.5/2	6	LT GRAY	5Y 6.5/2	7		0.24	0.30	3.0	1.8	0.9
BI-PBS-22-12	PETIT BOIS PASS - OCS EAST	2012	11/21/2012	3:33 PM	30.14010	-88.33327	233125.31300	1142318.02500	20-ft Vibracore	56.0	20.0																	
BI-PBS-22-12A	PETIT BOIS PASS - OCS EAST	2012	11/21/2012	3:33 PM	30.14006	-88.33331	233110.71020	1142305.44500	20-ft Vibracore	56.0	20.0	0-5.9	5.9	SP	SP	ANGULAR TO SUBROUNDED	LT OLIVE GRAY	5Y 6/2	6	LT GRAY	5Y 7/1	7		0.29	0.33	2.3	1.9	0.9
BI-PBS-23-12	PETIT BOIS PASS - OCS EAST	2012	11/23/2012	9:00 AM	30.14163	-88.33627	233677.60740	1141367.30100	20-ft Vibracore	55.7	19.7																	
BI-PBS-23-12A	PETIT BOIS PASS - OCS EAST	2012	11/23/2012	9:00 AM	30.14165	-88.33625	233684.90860	1141373.59100	20-ft Vibracore	55.7	19.7	0-3.6	3.6	SP	SP	SUBANGULAR TO SUBROUNDED	LT BROWNISH GRAY	2.5Y 6/2	6	LT GRAY	2.5Y 7/2	7		0.31	0.32	2.6	1.7	1.1
BI-PBS-23-12B	PETIT BOIS PASS - OCS EAST	2012	11/23/2012	9:00 AM	30.14165	-88.33625	233684.90860	1141373.59100	20-ft Vibracore	55.7	19.7	7.9-9.7	1.8	SP-SM	SP-SM	ANGULAR TO SUBROUNDED	GRAYISH BROWN	2.5Y 5/2	5	LT BROWNISH GRAY	2.5Y 6/2	6		0.20	0.22	9.0	2.5	1.4
BI-PBS-23-12C	PETIT BOIS PASS - OCS EAST	2012	11/23/2012	9:00 AM	30.14165	-88.33625	233684.90860	1141373.59100	20-ft Vibracore	55.7	19.7	18.7-19.7	1.0	SP-SM	SP-SM	ANGULAR TO SUBROUNDED	LT BROWNISH GRAY	2.5Y 6/2	6	LT GRAY	2.5Y 7/1.5	7		0.31	0.31	8.2	2.5	1.5
BI-PBS-24-12	PETIT BOIS PASS - OCS EAST	2012	11/21/2012	2:54 PM	30.13875	-88.33477	232632.26370	1141846.02000	20-ft Vibracore	55.6	18.8																	
BI-PBS-24-12A	PETIT BOIS PASS - OCS EAST	2012	11/21/2012	2:54 PM	30.13876	-88.33481	232635.84530	1141833.36000	20-ft Vibracore	55.6	18.8	0-3.6	3.6	SP	SP	ANGULAR TO SUBROUNDED	OLIVE GRAY	5Y 5/2	5	LT GRAY	5Y 7/2	7		0.29	0.29	3.4	2.0	1.1
BI-PBS-25-12	PETIT BOIS PASS - OCS EAST	2012	11/24/2012	11:25 AM	30.14190	-88.35155	233755.08470	1136536.95600	20-ft Vibracore	49.8	18.8																	
BI-PBS-25-12A	PETIT BOIS PASS - OCS EAST	2012	11/24/2012	11:25 AM	30.14189	-88.35155	233751.44780	1136536.97200	20-ft Vibracore	49.8	18.8	0-5.2	5.2	SP	SP	ANGULAR TO SUBROUNDED	LT OLIVE GRAY	5Y 6/2	6	LT GRAY	5Y 7/2	7		0.31	0.38	1.6	2.0	0.9
BI-PBS-25-12B	PETIT BOIS PASS - OCS EAST	2012	11/24/2012	11:25 AM	30.14189	-88.35155	233751.44780	1136536.97200	20-ft Vibracore	49.8	18.8	5.2-6.6	1.4	SP	SP-SM	ANGULAR TO SUBROUNDED	OLIVE GRAY	5Y 4.5/2	5	LT GRAY	5Y 6/1	6		0.34	0.88	5.7	3.1	0.9
BI-PBS-25-12C	PETIT BOIS PASS - OCS EAST	2012	11/24/2012	11:25 AM	30.14189	-88.35155	233751.44780	1136536.97200	20-ft Vibracore	49.8	18.8	13.4-15.7	2.3	SP-SM	SP-SM	SUBANGULAR TO SUBROUNDED	GRAYISH BROWN	2.5Y 5/2	5	LT BROWNISH GRAY	2.5Y 6/2	6		0.25	0.27	12.3	#VALUE!	#VALUE!
BI-PBS-26-12	PETIT BOIS PASS - OCS EAST	2012	11/23/2012	9:45 AM	30.13513	-88.33902	231309.88100	1140508.28000	20-ft Vibracore	54.8	17.6																	
BI-PBS-26-12A	PETIT BOIS PASS - OCS EAST	2012	11/23/2012	9:45 AM	30.13513	-88.33902	231309.88100	1140508.28000	20-ft Vibracore	54.8	17.6	0-3.6	3.6	SP	SP	ANGULAR TO SUBROUNDED	LT OLIVE GRAY	5Y 6/2	6	LT GRAY	2.5Y 7/2	7		0.31	0.35	2.1	2.0	1.1
BI-PBS-26-12B	PETIT BOIS PASS - OCS EAST	2012	11/23/2012	9:45 AM	30.13513	-88.33902	231309.88100	1140508.28000	20-ft Vibracore	54.8	17.6	3.6-4.3	2.5	SP	SP-SM	ANGULAR TO SUBROUNDED	OLIVE GRAY	5Y 5/2	5	LT OLIVE GRAY	5Y 6/2	6		0.19	0.20	6.2	1.9	1.1
BI-PBS-27-12	PETIT BOIS PASS - OCS EAST	2012	11/21/2012	2:12 PM	30.13462	-88.33377	231131.62850	1142168.70000	20-ft Vibracore	55.1	19.7																	
BI-PBS-27-12A	PETIT BOIS PASS - OCS EAST	2012	11/21/2012	2:12 PM	30.13462	-88.33377	231131.62850	1142168.70000	20-ft Vibracore	55.1	19.7	0-6	6.0	SP	SP	ANGULAR TO SUBROUNDED	LT OLIVE GRAY	5Y 6/2	6	LT GRAY	5Y 7/1	7		0.37	0.43	1.5	1.6	1.0
BI-PBS-27-12B	PETIT BOIS PASS - OCS EAST	2012	11/21/2012	2:12 PM	30.13462	-88.33377	231131.62850	1142168.70000	20-ft Vibracore	55.1	19.7	6-7.3	1.3	SP	SP-SM	SUBANGULAR TO SUBROUNDED	OLIVE GRAY	5Y 5/2	5	LT GRAY	5Y 7/2	7		0.26	0.27	5.2	2.4	1.1
BI-PBS-27-12C	PETIT BOIS PASS - OCS EAST	2012	11/21/2012	2:12 PM	30.13462	-88.33377	231131.62850	1142168.70000	20-ft Vibracore	55.1	19.7	10.6-12.6	2.0	SP	SP-SM	SUBANGULAR TO SUBROUNDED	GRAY	5Y 5/1	5	LT GRAY	5Y 7/2	7		0.30	0.34	9.2	2.9	1.2
BI-PBS-28-12	PETIT BOIS PASS - OCS EAST	2012	11/21/2012	1:38 PM	30.13378	-88.33088	230830.14400	1143083.62400	20-ft Vibracore	56.4	12.4																	
BI-PBS-28-12A	PETIT BOIS PASS - OCS EAST	2012	11/21/2012	1:38 PM	30.13377	-88.33088	230826.50720	1143083.64000	20-ft Vibracore	56.4	12.4	0-6.5	6.5	SP	SP	SUBANGULAR TO SUBROUNDED	OLIVE GRAY	5Y 5/2	5	LT GRAY	5Y 7/2	7		0.30	0.32	2.9	2.1	1.1
BI-PBS-28-12B	PETIT BOIS PASS - OCS EAST	2012	11/21/2012	1:38 PM	30.13377	-88.33088	230826.50720	1143083.64000	20-ft Vibracore	56.4	12.4	11-12.4	1.4	SP	SP-SM	SUBANGULAR TO SUBROUNDED	OLIVE GRAY	5Y 5/2	5	LT GRAY	5Y 7/2	7		0.28	0.32	8.5	2.5	1.1
BI-PBS-29-12	PETIT BOIS PASS - OCS EAST	2012	11/24/2012	12:54 PM	30.13233	-88.32928	230305.03170	1143591.74600	20-ft Vibracore	62.0	7.2																	
BI-PBS-29-12A	PETIT BOIS PASS - OCS EAST	2012	11/24/2012	12:54 PM	30.13234	-88.32928	230308.66850	1143591.73000	20-ft Vibracore	62.0	7.2	0-6	6.0	SP	SP	ANGULAR TO SUBROUNDED	LT OLIVE GRAY	5Y 6/2	6	LT GRAY	5Y 7/2	7		0.25	0.28	2.1	1.8	0.9
BI-PBS-29-12B	PETIT BOIS PASS - OCS EAST	2012	11/24/2012	12:54 PM	30.13234	-88.32928	230308.66850	1143591.73000	20-ft Vibracore	62.0	7.2	6-6.6	0.6	SP	SP-SM	SUBANGULAR TO SUBROUNDED	OLIVE GRAY	5Y 4/2	4	LT OLIVE GRAY	5Y 6/2	6		0.19	0.21	10.9	#VALUE!	#VALUE!
BI-PBS-30-12	PETIT BOIS PASS - OCS EAST	2012	11/24/2012	12:16 PM	30.13102	-88.32830	229829.97440	1143903.65600	20-ft Vibracore	62.7	15.6																	
BI-PBS-30-12A	PETIT BOIS PASS - OCS EAST	2012	11/24/2012	12:16 PM	30.13102	-88.32829	229829.98840	1143906.81800	20-ft Vibracore	62.7	15.6	0-3.1	3.1	SP	SP	ANGULAR TO SUBROUNDED	OLIVE GRAY	5Y 5/2	5	LT BROWNISH GRAY	2.5Y 6/2	6		0.29	0.33	3.0	2.1	1.1
BI-PBS-30-12B	PETIT BOIS PASS - OCS EAST	2012	11/24/2012	12:16 PM	30.13102	-88.32829	229829.98840	1143906.81800	20-ft Vibracore	62.7	15.6	14.3-15.6	1.3	SP-SM	SM	ANGULAR TO SUBROUNDED	GRAYISH BROWN	2.5Y 5/2	5	LT BROWNISH GRAY	2.5Y 6/2	6		0.34	#VALUE!	22.5	#VALUE!	#VALUE!
BI-PBS-31-12	PETIT BOIS PASS - OCS EAST	2012	11/26/2012	9:05 AM	30.13390	-88.34360	230856.30730	1139062.39000	20-ft Vibracore	55.1	19.7																	
BI-PBS-31-12A	PETIT BOIS PASS - OCS EAST	2012	11/26/2012	9:05 AM	30.13391	-88.34359	230859.95770	1139065.53500	20-ft Vibracore	55.1	19.7	0-3.7	3.7	SP-SM	SP	SUBANGULAR TO SUBROUNDED	OLIVE GRAY	5Y 5/2	5	LT OLIVE GRAY	5Y 6/2	6		0.27	0.30	2.4	1.9	0.9
BI-PBS-32-12	PETIT BOIS PASS - OCS EAST	2012	12/1/2012	9:24 AM	30.11697	-88.35372	224685.55930	1135889.13000	20-ft Vibracore	62.8	20.0																	
BI-PBS-32-12A	PETIT BOIS PASS - OCS EAST	2012	12/1/2012	9:24 AM	30.11697	-88.35372	224685.55930	1135889.13000	20-ft Vibracore	62.8	20.0	4-9	5.0	SM	SP-SM	SUBANGULAR TO SUBROUNDED	GRAYISH BROWN	2.5Y 5/2	5	LT GRAY	2.5Y 7/2	7		0.25	0.26	6.5	2.1	1.1
BI-PBS-32-12B	PETIT BOIS PASS - OCS EAST	2012	12/1/2012	9:24 AM	30.11697	-88.35372	224685.55930	1135889.13000	20-ft Vibracore	62.8	20.0	9-12.5	3.5	SP	SP-SM	SUBANGULAR TO SUBROUNDED	GRAY	5Y 6/1.5	6	LT GRAY	2.5Y 7/1	7		0.20	0.21	6.5	1.7	1.1
BI-PBS-32-12C	PETIT BOIS PASS - OCS EAST	2012	12/1/2012	9:24 AM	30.11697	-88.35372	224685.55930	1135889.13000	20-ft Vibracore	62.8	20.0	12.5-16.6	4.1	SP-SM	SP-SM	SUBANGULAR TO SUBROUNDED	LT BROWNISH GRAY	2.5Y 6/1.5	6	LT GRAY	2.5Y 7/1	7		0.19	0.19	9.7	2.6	1.7
BI-PBS-33-12	PETIT BOIS PASS - OCS EAST	2012	12/7/2012	9:32 AM	30.11218	-88.35825	222937.53110	1134464.11300	20-ft Vibracore	64.1	17.0	NO SAMPLE TAKEN		CL	NO SAMPLE TESTED													
BI-PBS-34-12	PETIT BOIS PASS - OCS EAST	2012	12/9/2012	10:21 AM	30.11697	-88.36862	224666.07910	1131178.15100	20-ft Vibracore	51.4	16.4																	
BI-PBS-34-12A	PETIT BOIS PASS - OCS EAST	2012	12/9/2012	10:21 AM	30.11697	-88.36862	224666.07910	1131178.15100	20-ft Vibracore	51.4	16.4	0-5	5.0	SP	SP	SUBANGULAR TO SUBROUNDED	OLIVE GRAY	5Y 5/2	5	LT OLIVE GRAY	5Y 6/2	6		0.27	0.29			

Cu: Coefficient of Uniformity

Cc: Coefficient of Curvature

The "#Value!" error message indicates that data was not available for that calculation.



Vibracore / Sample ID	Investigation Area	Sample Event	Date of Sample	Time_CST	Latitude	Longitude	Northing_Y	Easting_X	Sample Method	Water Depth (feet)	Boring Depth (feet below seafloor surface )	Sample Depth (Feet below seafloor surface)	Sample Thickness (feet)	Field USCS	Lab USCS	Angularity	Wet Munsell Color	Wet Munsell Color Code	Wet Munsell Value	Dry Munsell Color	Dry Munsell Color Code	Dry Munsell Value	CaCO3	D50 (mm)	Graphic Mean (mm)	% Fines	Cu (D60/D10)	Cc (D30)*2 / (D10*D60)
BI-PBS-38-12	PETIT BOIS PASS - OCS EAST	2012	12/9/2012	10:56 AM	30.11852	-88.37173	225225.79880	1130192.57500	20-ft Vibracore	50.6	19.1																	
BI-PBS-38-12A	PETIT BOIS PASS - OCS EAST	2012	12/9/2012	10:56 AM	30.11852	-88.37173	225225.79880	1130192.57500	20-ft Vibracore	50.6	19.1	0-5	5.0	SP	SP	SUBANGULAR TO SUBROUNDED	OLIVE GRAY	5Y 5/2	5	LT GRAY	5Y 7/2	7		0.29	0.32	1.2	1.8	1.0
BI-PBS-38-12B	PETIT BOIS PASS - OCS EAST	2012	12/9/2012	10:56 AM	30.11852	-88.37173	225225.79880	1130192.57500	20-ft Vibracore	50.6	19.1	5-9.1	4.1	SP	SP	SUBANGULAR TO SUBROUNDED	OLIVE GRAY	5Y 5/2	5	LT OLIVE GRAY	5Y 6/2	6		0.22	0.25	3.7	1.5	1.0
BI-PBS-39-12	PETIT BOIS PASS - OCS EAST	2012	12/9/2012	11:33 AM	30.12113	-88.37450	226171.48060	1129312.97500	20-ft Vibracore	49.2	15.0																	
BI-PBS-39-12A	PETIT BOIS PASS - OCS EAST	2012	12/9/2012	11:33 AM	30.12113	-88.37450	226171.48060	1129312.97500	20-ft Vibracore	49.2	15.0	0-5	5.0	SP	SP	SUBANGULAR TO SUBROUNDED	OLIVE GRAY	5Y 5/2	5	LT OLIVE GRAY	5Y 6/2	6		0.31	0.33	1.1	1.8	1.0
BI-PBS-39-12B	PETIT BOIS PASS - OCS EAST	2012	12/9/2012	11:33 AM	30.12113	-88.37450	226171.48060	1129312.97500	20-ft Vibracore	49.2	15.0	5-8.1	3.1	SP	SP	SUBANGULAR TO SUBROUNDED	OLIVE GRAY	5Y 5/2	5	LT OLIVE GRAY	5Y 6/2	6		0.26	0.28	1.6	1.7	0.9
BI-PBS-40-12	PETIT BOIS PASS - OCS EAST	2012	12/1/2012	11:57 AM	30.11482	-88.35600	223900.62030	1135171.52300	20-ft Vibracore	66.9	15.9	NO SAMPLE TAKEN		CL	NO SAMPLE TESTED													
BI-PBS-41-12	PETIT BOIS PASS - OCS EAST	2012	12/9/2012	8:58 AM	30.11985	-88.36078	225723.65930	1133652.61200	20-ft Vibracore	62.0	16.3																	
BI-PBS-41-12A	PETIT BOIS PASS - OCS EAST	2012	12/9/2012	8:58 AM	30.11985	-88.36078	225723.65930	1133652.61200	20-ft Vibracore	62.0	16.3	0-3.2	3.2	SP	SP	SUBANGULAR TO SUBROUNDED	OLIVE GRAY	5Y 4/2	4	LT OLIVE GRAY	5Y 6/2	6		0.27	0.28	2.4	1.8	1.0
BI-PBS-41-12B	PETIT BOIS PASS - OCS EAST	2012	12/9/2012	8:58 AM	30.11985	-88.36078	225723.65930	1133652.61200	20-ft Vibracore	62.0	16.3	5.6-6.9	1.3	SP-SM	SP-SM	SUBANGULAR TO SUBROUNDED	DK GRAY	2.5Y 4/1	4	GRAY	2.5Y 5/1	5		0.27	0.29	5.7	2.1	1.0
BI-PBS-41-12C	PETIT BOIS PASS - OCS EAST	2012	12/9/2012	8:58 AM	30.11985	-88.36078	225723.65930	1133652.61200	20-ft Vibracore	62.0	16.3	7.6-10.2	2.6	SM	SP-SM	SUBANGULAR TO SUBROUNDED	OLIVE GRAY	5Y 4/2	4	LT OLIVE GRAY	5Y 6/2	6		0.23	0.27	7.0	2.0	1.0
BI-PBS-41-12D	PETIT BOIS PASS - OCS EAST	2012	12/9/2012	8:58 AM	30.11985	-88.36078	225723.65930	1133652.61200	20-ft Vibracore	62.0	16.3	10.2-11.3	1.1	SP-SM	SP	SUBANGULAR TO SUBROUNDED	OLIVE GRAY	5Y 5/2	5	LT OLIVE GRAY	5Y 6/2	6		0.26	0.26	4.8	1.7	1.0
BI-PBS-41-12E	PETIT BOIS PASS - OCS EAST	2012	12/9/2012	8:58 AM	30.11985	-88.36078	225723.65930	1133652.61200	20-ft Vibracore	62.0	16.3	11.3-16.3	5.0	SP	SP	SUBANGULAR TO SUBROUNDED	GRAY	2.5Y 6/1	6	LT GRAY	2.5Y 7/1	7		0.21	0.23	4.6	1.7	1.0
BI-PBS-42-12	PETIT BOIS PASS - OCS EAST	2012	12/9/2012	1:52 PM	30.12407	-88.36487	227253.07290	1132353.20500	20-ft Vibracore	61.7	20.0																	
BI-PBS-42-12A	PETIT BOIS PASS - OCS EAST	2012	12/9/2012	1:52 PM	30.12407	-88.36487	227253.07290	1132353.20500	20-ft Vibracore	61.7	20.0	0-1.6	1.6	SP-SC	SP-SM	SUBANGULAR TO SUBROUNDED	OLIVE	5Y 5/4	5	PALE OLIVE	5Y 6/4	6		0.22	0.28	9.7	2.7	1.3
BI-PBS-42-12B	PETIT BOIS PASS - OCS EAST	2012	12/9/2012	1:52 PM	30.12407	-88.36487	227253.07290	1132353.20500	20-ft Vibracore	61.7	20.0	4.4-8	3.6	SP-SM	SP-SM	SUBANGULAR TO SUBROUNDED	DK GRAYISH BROWN	2.5Y 4/2	4	GRAYISH BROWN	2.5Y 5/2	5		0.22	0.24	7.9	2.0	1.1
BI-PBS-42-12C	PETIT BOIS PASS - OCS EAST	2012	12/9/2012	1:52 PM	30.12407	-88.36487	227253.07290	1132353.20500	20-ft Vibracore	61.7	20.0	9.5-14.5	5.0	SP	SP-SM	SUBANGULAR TO SUBROUNDED	OLIVE GRAY	5Y 5/2	5	LT OLIVE GRAY	5Y 6/2	6		0.21	0.22	6.1	1.7	1.1
BI-PBS-43-12	PETIT BOIS PASS - OCS EAST	2012	12/9/2012	1:17 PM	30.12673	-88.37410	228208.61330	1129431.24600	20-ft Vibracore	59.3	9.8																	
BI-PBS-43-12A	PETIT BOIS PASS - OCS EAST	2012	12/9/2012	1:17 PM	30.12673	-88.37410	228208.61330	1129431.24600	20-ft Vibracore	59.3	9.8	0-1.5	1.5	SP	SP	SUBANGULAR TO SUBROUNDED	OLIVE GRAY	5Y 5/2	5	LT OLIVE GRAY	5Y 6/2	6		0.32	0.32	1.4	1.6	1.0
BI-PBS-44-12	PETIT BOIS PASS - OCS EAST	2012	12/9/2012	12:10 PM	30.12272	-88.36683	226759.56340	1131735.55600	20-ft Vibracore	60.1	18.7		1.2															
BI-PBS-44-12A	PETIT BOIS PASS - OCS EAST	2012	12/9/2012	12:10 PM	30.12272	-88.36683	226759.56340	1131735.55600	20-ft Vibracore	60.1	18.7	0-1.2	1.2	SP	SP	SUBANGULAR TO SUBROUNDED	LT OLIVE GRAY	5Y 6/2	6	LT GRAY	5Y 7/2	7		0.28	0.29	2.5	1.8	1.0
BI-PBS-45-12	PETIT BOIS PASS - OCS EAST	2012	12/1/2012	10:27 AM	30.11567	-88.35493	224211.16650	1135508.54100	20-ft Vibracore	60.5	17.2																	
BI-PBS-45-12A	PETIT BOIS PASS - OCS EAST	2012	12/1/2012	10:27 AM	30.11567	-88.35493	224211.16650	1135508.54100	20-ft Vibracore	60.5	17.2	0-2.8	2.8	SP	SP	ANGULAR TO SUBROUNDED	LT BROWNISH GRAY	2.5Y 6/2	6	LT GRAY	2.5Y 7/1	7		0.50	1.85	1.4	2.6	0.9
BI-PBS-45-12B	PETIT BOIS PASS - OCS EAST	2012	12/1/2012	10:27 AM	30.11567	-88.35493	224211.16650	1135508.54100	20-ft Vibracore	60.5	17.2	2.8-5	2.2	SP	SP	SUBANGULAR TO SUBROUNDED	GRAYISH BROWN	2.5Y 5/2	5	LT BROWNISH GRAY	2.5Y 6/2	6		0.22	0.23	3.4	1.6	1.0
BI-PBS-45-12C	PETIT BOIS PASS - OCS EAST	2012	12/1/2012	10:27 AM	30.11567	-88.35493	224211.16650	1135508.54100	20-ft Vibracore	60.5	17.2	14-17.2	3.2	SP	SP	SUBANGULAR TO SUBROUNDED	LT BROWNISH GRAY	2.5Y 6/2	6	LT GRAY	2.5Y 7/2	7		0.25	0.27	4.9	1.9	1.0
BI-PBS-46-12	PETIT BOIS PASS - OCS EAST	2012	12/1/2012	1:42 PM	30.11362	-88.35668	223463.30280	1134958.34300	20-ft Vibracore	60.9	20.0																	
BI-PBS-46-12A	PETIT BOIS PASS - OCS EAST	2012	12/1/2012	1:42 PM	30.11362	-88.35668	223463.30280	1134958.34300	20-ft Vibracore	60.9	20.0	0-4.5	4.5	SP	SP	ANGULAR TO SUBROUNDED	LT BROWNISH GRAY	2.5Y 5.5/2	6	LT GRAY	2.5Y 7/2	7		0.26	0.30	2.3	1.8	0.9
BI-PBS-46-12B	PETIT BOIS PASS - OCS EAST	2012	12/1/2012	1:42 PM	30.11362	-88.35668	223463.30280	1134958.34300	20-ft Vibracore	60.9	20.0	6.4-8.7	2.3	SP	SP-SM	SUBANGULAR TO SUBROUNDED	LT GRAY	2.5Y 6.5/2	7	LT GRAY	2.5Y 7/2	7		0.26	0.28	7.8	2.3	1.1
BI-PBS-46-12C	PETIT BOIS PASS - OCS EAST	2012	12/1/2012	1:42 PM	30.11362	-88.35668	223463.30280	1134958.34300	20-ft Vibracore	60.9	20.0	8.7-10.0	1.3	SP-SM	SP-SM	SUBANGULAR TO SUBROUNDED	GRAYISH BROWN	2.5Y 5/1.5	5	LT BROWNISH GRAY	2.5Y 6/2	6		0.24	0.27	6.4	1.9	1.0
BI-PBS-46-12D	PETIT BOIS PASS - OCS EAST	2012	12/1/2012	1:42 PM	30.11362	-88.35668	223463.30280	1134958.34300	20-ft Vibracore	60.9	20.0	10-11.4	1.4	SM	SP-SM	SUBANGULAR TO SUBROUNDED	DK GRAYISH BROWN	2.5Y 3.5/2	4	GRAYISH BROWN	2.5Y 5/2	5		0.22	0.25	7.0	2.1	1.1
BI-PBS-46-12E	PETIT BOIS PASS - OCS EAST	2012	12/1/2012	1:42 PM	30.11362	-88.35668	223463.30280	1134958.34300	20-ft Vibracore	60.9	20.0	11.4-14.3	2.9	SP-SM	SP-SM	SUBANGULAR TO SUBROUNDED	GRAYISH BROWN	2.5Y 5/2	5	LT BROWNISH GRAY	2.5Y 6/2	6		0.19	0.21	6.3	1.8	1.1
BI-PBS-46-12F	PETIT BOIS PASS - OCS EAST	2012	12/1/2012	1:42 PM	30.11362	-88.35668	223463.30280	1134958.34300	20-ft Vibracore	60.9	20.0	16.7-20	3.3	SP-SM	SP-SM	SUBANGULAR TO SUBROUNDED	LT OLIVE GRAY	5Y 5.5/2	6	LT GRAY	2.5Y 7/2	7		0.25	0.27	6.7	2.1	1.1
BI-PBS-47-12	PETIT BOIS PASS - OCS EAST	2012	11/28/2012	2:22 PM	30.14375	-88.36252	234413.42560	1133066.63200	20-ft Vibracore	48.4	16.9																	
BI-PBS-47-12A	PETIT BOIS PASS - OCS EAST	2012	11/28/2012	2:22 PM	30.14375	-88.36252	234413.42560	1133066.63200	20-ft Vibracore	48.4	16.9	0-3.7	3.7	SP	SP	ANGULAR TO SUBROUNDED	LT OLIVE GRAY	5Y 6/2	6	LT GRAY	5Y 7/2	7		0.28	0.32	1.7	1.8	0.9
BI-PBS-47-12B	PETIT BOIS PASS - OCS EAST	2012	11/28/2012	2:22 PM	30.14375	-88.36252	234413.42560	1133066.63200	20-ft Vibracore	48.4	16.9	3.7-5.6	1.9	SP-SM	SP	ANGULAR TO SUBROUNDED	OLIVE GRAY	5Y 4/2	4	LT OLIVE GRAY	5Y 6/2	6		0.21	0.26	0.2	1.8	1.0
BI-PBS-48-12	PETIT BOIS PASS - OCS EAST	2012	11/28/2012	11:21 AM	30.14258	-88.35732	233994.73490	1134712.06400	20-ft Vibracore	48.1	18.4																	
BI-PBS-48-12A	PETIT BOIS PASS - OCS EAST	2012	11/28/2012	11:21 AM	30.14258	-88.35732	233994.73490	1134712.06400	20-ft Vibracore	48.1	18.4	0-1.3	1.2	SP	SP	ANGULAR TO SUBROUNDED	LT GRAY	5Y 7/2	7	LT GRAY	5Y 7/2	7		0.51	0.90	1.7	2.7	0.9
BI-PBS-48-12B	PETIT BOIS PASS - OCS EAST	2012	11/28/2012	11:21 AM	30.14258	-88.35732	233994.73490	1134712.06400	20-ft Vibracore	48.1	18.4	1.3-3.9	2.7	SP	SP	ANGULAR TO SUBROUNDED	OLIVE GRAY	5Y 5/2	5	LT OLIVE GRAY	5Y 6/2	6		0.22	0.26	0.4	1.5	0.9
BI-PBS-48-12C	PETIT BOIS PASS - OCS EAST	2012	11/28/2012	11:21 AM	30.14258	-88.35732	233994.73490	1134712.06400	20-ft Vibracore	48.1	18.4	3.9-6.3	2.4	SM	SM	ANGULAR TO SUBROUNDED	OLIVE GRAY	5Y 4/2	4	OLIVE GRAY	5Y 5/2	5		0.19	0.24	14.9	#VALUE!	#VALUE!
BI-PBS-49-12	PETIT BOIS PASS - OCS EAST	2012	11/28/2012	3:44 PM	30.14932	-88.36788	236432.19570	1131364.13700	20-ft Vibracore	50.6	19.2																	
BI-PBS-49-12A	PETIT BOIS PASS - OCS EAST	2012	11/28/2012	3:44 PM	30.14932	-88.36788	236432.19570	1131364.13700	20-ft Vibracore	50.6	19.2	0-4.2	4.2	SP	SP	SUBANGULAR TO SUBROUNDED	OLIVE GRAY	5Y 5/2	5	LT GRAY	5Y 7/2	7		0.24	0.27	3.6	1.7	0.9
BI-PBS-50-12	PETIT BOIS PASS - OCS EAST	2012	11/28/2012	3:03 PM	30.14710	-88.36523	235628.24340	1132205.03600	20-ft Vibracore	48.7	18.9																	
BI-PBS-50-12A	PETIT BOIS PASS - OCS EAST	2012	11/28/2012	3:03 PM	30.14711	-88.36521	235631.90620	1132211.34200	20-ft Vibracore	48.7	18.9	0-5	5.0															

Vibracore / Sample ID	Investigation Area	Sample Event	Date of Sample	Time_CST	Latitude	Longitude	Northing_Y	Easting_X	Sample Method	Water Depth (feet)	Boring Depth (feet below seafloor surface )	Sample Depth (Feet below seafloor surface)	Sample Thickness (feet)	Field USCS	Lab USCS	Angularity	Wet Munsell Color	Wet Munsell Color Code	Wet Munsell Value	Dry Munsell Color	Dry Munsell Color Code	Dry Munsell Value	CaCO3	D50 (mm)	Graphic Mean (mm)	% Fines	Cu (D60/D10)	Cc (D30)^2 / (D10*D60)
BI-PBS-54-12B	PETIT BOIS PASS - OCS EAST	2012	11/30/2012	9:17 AM	30.15882	-88.36450	239891.57620	1132418.25200	20-ft Vibracore	45.7	20.0	5.6-6.8	1.2	SP-SM	SP	ANGULAR TO SUBROUNDED	LT OLIVE GRAY	5Y 6/2	6	LT GRAY	5Y 7/2	7		0.39	0.50	3.2	1.9	1.0
BI-PBS-54-12C	PETIT BOIS PASS - OCS EAST	2012	11/30/2012	9:17 AM	30.15882	-88.36450	239891.57620	1132418.25200	20-ft Vibracore	45.7	20.0	7.5-9.5	2.0	SM	SP-SM	ANGULAR TO SUBROUNDED	OLIVE GRAY	5Y 5/2	5	LT GRAY	5Y 7/2	7		0.35	0.38	6.7	2.2	1.1
BI-PBS-55-12	PETIT BOIS PASS - OCS EAST	2012	11/30/2012	12:53 PM	30.16577	-88.36303	242421.10200	1132872.40500	20-ft Vibracore	47.2	15.0																	
BI-PBS-55-12A	PETIT BOIS PASS - OCS EAST	2012	11/30/2012	12:53 PM	30.16578	-88.36302	242424.75190	1132875.55000	20-ft Vibracore	47.2	15.0	0-3.2	3.2	SP	SP	ANGULAR TO SUBROUNDED	LT OLIVE GRAY	5Y 6/2	6	LT GRAY	5Y 7/2	7		0.33	0.36	1.7	1.8	1.0
BI-PBS-56-12	PETIT BOIS PASS - OCS EAST	2012	11/30/2012	1:48 PM	30.16767	-88.36647	243107.63670	1131782.47600	20-ft Vibracore	48.3	14.8																	
BI-PBS-56-12A	PETIT BOIS PASS - OCS EAST	2012	11/30/2012	1:48 PM	30.16766	-88.36638	243104.11630	1131810.93200	20-ft Vibracore	48.3	14.8	0-2.6	2.6	SP	SP	ANGULAR TO SUBROUNDED	LT OLIVE GRAY	5Y 6/2	6	LT GRAY	5Y 7/2	7		0.34	0.40	1.4	1.7	1.0
BI-PBS-56-12B	PETIT BOIS PASS - OCS EAST	2012	11/30/2012	1:48 PM	30.16766	-88.36638	243104.11630	1131810.93200	20-ft Vibracore	48.3	14.8	2.6-4.7	2.1	SC	SM	SUBANGULAR TO SUBROUNDED	OLIVE GRAY	5Y 4/2	4	OLIVE GRAY	5Y 5/2	5		0.25	0.28	13.8	#VALUE!	#VALUE!
BI-PBS-56-12C	PETIT BOIS PASS - OCS EAST	2012	11/30/2012	1:48 PM	30.16766	-88.36638	243104.11630	1131810.93200	20-ft Vibracore	48.3	14.8	4.7-7.4	2.7	SP-SM	SP-SM	SUBANGULAR TO SUBROUNDED	GRAYISH BROWN	2.5Y 5/2	5	LT BROWNISH GRAY	2.5Y 6/2	6		0.24	0.25	7.2	2.0	1.1
BI-PBS-57-12	PETIT BOIS PASS - OCS EAST	2012	11/30/2012	2:52 PM	30.16927	-88.37030	243684.59760	1130569.78900	20-ft Vibracore	47.4	14.0																	
BI-PBS-57-12A	PETIT BOIS PASS - OCS EAST	2012	11/30/2012	2:52 PM	30.16927	-88.37030	243684.59760	1130569.78900	20-ft Vibracore	47.4	14.0	0-3.8	3.8	SP	SP	ANGULAR TO SUBROUNDED	OLIVE GRAY	5Y 6/2	6	LT GRAY	5Y 7/2	7		0.34	0.38	2.3	2.0	1.0
BI-PBS-57-12C	PETIT BOIS PASS - OCS EAST	2012	11/30/2012	2:52 PM	30.16927	-88.37030	243684.59760	1130569.78900	20-ft Vibracore	47.4	14.0	4.6-5.4	1.6	SP	SP-SM	SUBANGULAR TO SUBROUNDED	OLIVE GRAY	5Y 5/2	5	LT OLIVE GRAY	5Y 6/2	6		0.23	0.25	8.5	1.7	1.0
BI-PBS-58-12	PETIT BOIS PASS - OCS EAST	2012	11/30/2012	3:42 PM	30.17072	-88.37428	244206.85530	1129309.96200	20-ft Vibracore	47.2	19.9																	
BI-PBS-58-12A	PETIT BOIS PASS - OCS EAST	2012	11/30/2012	3:42 PM	30.17072	-88.37428	244206.85530	1129309.96200	20-ft Vibracore	47.2	19.9	0-3.2	3.2	SP	SP	ANGULAR TO SUBROUNDED	LT OLIVE GRAY	5Y 5.5/2	6	LT GRAY	5Y 7/2	7		0.34	0.39	1.6	1.7	1.0
BI-PBS-58-12B	PETIT BOIS PASS - OCS EAST	2012	11/30/2012	3:42 PM	30.17072	-88.37428	244206.85530	1129309.96200	20-ft Vibracore	47.2	19.9	3.2-4.6	1.4	SC	SM	SUBANGULAR TO SUBROUNDED	OLIVE GRAY	5Y 4/2	4	OLIVE GRAY	5Y 5/2	5		0.24	#VALUE!	16.5	#VALUE!	#VALUE!
BI-PBS-59-12	PETIT BOIS PASS - OCS EAST	2012	11/26/2012	11:20 AM	30.14097	-88.34617	233424.07880	1138238.98600	20-ft Vibracore	53.4	19.5																	
BI-PBS-59-12A	PETIT BOIS PASS - OCS EAST	2012	11/26/2012	11:20 AM	30.14097	-88.34617	233424.07880	1138238.98600	20-ft Vibracore	53.4	19.5	0-1.8	1.8	SP	SP	SUBANGULAR TO SUBROUNDED	LT OLIVE GRAY	5Y 6/2	6	LT GRAY	5Y 7/1	7		0.32	0.34	1.1	1.8	1.0
BI-PBS-59-12B	PETIT BOIS PASS - OCS EAST	2012	11/26/2012	11:20 AM	30.14097	-88.34617	233424.07880	1138238.98600	20-ft Vibracore	53.4	19.5	1.8-2.6	0.8	SM	SP-SM	SUBANGULAR TO SUBROUNDED	OLIVE GRAY	5Y 4/2	4	OLIVE GRAY	5Y 5/2	5		0.21	0.26	11.4	#VALUE!	#VALUE!
BI-PBS-60-12	PETIT BOIS PASS - OCS EAST	2012	11/24/2012	3:08 PM	30.14512	-88.33425	234949.65540	1142000.26100	20-ft Vibracore	61.3	16.8																	
BI-PBS-60-12A	PETIT BOIS PASS - OCS EAST	2012	11/24/2012	3:08 PM	30.14512	-88.33428	234949.61390	1141990.77800	20-ft Vibracore	61.3	16.8	2.8-7.9	5.1	SP-SM	SM	SUBANGULAR TO SUBROUNDED	OLIVE GRAY	5Y 4/2	4	LT BROWNISH GRAY	2.5Y 6/2	6		0.20	#VALUE!	17.9	#VALUE!	#VALUE!
BI-PBS-60-12B	PETIT BOIS PASS - OCS EAST	2012	11/24/2012	3:08 PM	30.14512	-88.33428	234949.61390	1141990.77800	20-ft Vibracore	61.3	16.8	7.9-9.4	1.5	SP	SM	SUBANGULAR TO SUBROUNDED	OLIVE GRAY	5Y 4/2	4	LT BROWNISH GRAY	2.5Y 6/2	6		0.21	0.22	13.5	#VALUE!	#VALUE!
BI-PBS-60-12C	PETIT BOIS PASS - OCS EAST	2012	11/24/2012	3:08 PM	30.14512	-88.33428	234949.61390	1141990.77800	20-ft Vibracore	61.3	16.8	9.4-11.8	2.4	SP	SP	SUBANGULAR TO SUBROUNDED	LT YELLOWISH BROWN	2.5Y 6/3	6	PALE BROWN	2.5Y 7/3	7		0.25	0.27	4.3	1.9	1.0
BI-PBS-60-12D	PETIT BOIS PASS - OCS EAST	2012	11/24/2012	3:08 PM	30.14512	-88.33428	234949.61390	1141990.77800	20-ft Vibracore	61.3	16.8	11.8-16.8	5.0	SP	SP	SUBANGULAR TO SUBROUNDED	LT GRAY	2.5Y 7/2	7	PALE BROWN	2.5Y 7.5/1.5	8		0.26	0.30	1.4	1.9	0.9
BI-PBS-61-12	PETIT BOIS PASS - OCS EAST	2012	11/16/2012	4:30 PM	30.15042	-88.30715	236915.68050	1150557.25600	20-ft Vibracore	55.0	11.2																	
BI-PBS-61-12A	PETIT BOIS PASS - OCS EAST	2012	11/16/2012	4:30 PM	30.15041	-88.30713	236912.07280	1150563.59400	20-ft Vibracore	55.0	11.2	0-2.2	2.2	SP	SP-SM	SUBANGULAR TO SUBROUNDED	GRAYISH BROWN	5Y 5/1.5	5	LT GRAY	5Y 6.5/2	7		0.23	0.26	5.2	1.8	1.0
BI-PBS-62-12	PETIT BOIS PASS - OCS EAST	2012	11/16/2012	1:13 PM	30.15325	-88.30730	237944.69400	1150505.09900	20-ft Vibracore	56.0	16.1																	
BI-PBS-62-12A	PETIT BOIS PASS - OCS EAST	2012	11/16/2012	1:13 PM	30.15325	-88.30730	237944.69400	1150505.09900	20-ft Vibracore	56.0	16.1	0-0.8	0.8	SP	SP	SUBANGULAR TO SUBROUNDED	LT BROWNISH GRAY	5Y 6/2	6	LT GRAY	5Y 7/2	7		0.24	0.26	3.0	1.8	1.0
BI-PBS-62-12B	PETIT BOIS PASS - OCS EAST	2012	11/16/2012	1:13 PM	30.15325	-88.30730	237944.69400	1150505.09900	20-ft Vibracore	56.0	16.1	3.1-5.9	2.8	SP	SP-SM	SUBANGULAR TO SUBROUNDED	LT BROWNISH GRAY	2.5Y 6/2	6	LT GRAY	2.5Y 7/2	7		0.18	0.18	11.6	#DIV/0!	#DIV/0!
BI-PBS-62-12C	PETIT BOIS PASS - OCS EAST	2012	11/16/2012	1:13 PM	30.15325	-88.30730	237944.69400	1150505.09900	20-ft Vibracore	56.0	16.1	5.9-11	5.1	SP	SP	SUBANGULAR TO SUBROUNDED	WHITE	2.5Y 8/1	8	WHITE	2.5Y 8/1	8		0.21	0.21	2.5	1.4	1.0
BI-PBS-62-12D	PETIT BOIS PASS - OCS EAST	2012	11/16/2012	1:13 PM	30.15325	-88.30730	237944.69400	1150505.09900	20-ft Vibracore	56.0	16.1	11-16.1	5.1	SP	SP	SUBANGULAR TO SUBROUNDED	WHITE	2.5Y 8/1	8	WHITE	2.5Y 8/1	8		0.28	0.29	2.3	1.7	1.0
BI-PBS-63-12	PETIT BOIS PASS - OCS EAST	2012	11/16/2012	2:16 PM	30.15448	-88.31182	238385.46790	1149074.46800	20-ft Vibracore	56.0	14.0																	
BI-PBS-63-12A	PETIT BOIS PASS - OCS EAST	2012	11/16/2012	2:16 PM	30.15449	-88.31182	238389.10480	1149074.45200	20-ft Vibracore	56.0	14.0	0-1.5	1.5	SP	SP	SUBANGULAR TO SUBROUNDED	LT OLIVE GRAY	5Y 6/2	6	LT GRAY	5Y 7/2	7		0.28	0.29	2.3	1.8	1.0
BI-PBS-63-12B	PETIT BOIS PASS - OCS EAST	2012	11/16/2012	2:16 PM	30.15449	-88.31182	238389.10480	1149074.45200	20-ft Vibracore	56.0	14.0	6.4-9	2.6	SP	SP	SUBANGULAR TO SUBROUNDED	LT BROWNISH GRAY	2.5Y 6/2	6	LT GRAY	2.5Y 7/2	7		0.21	0.22	3.0	1.4	1.0
BI-PBS-63-12C	PETIT BOIS PASS - OCS EAST	2012	11/16/2012	2:16 PM	30.15449	-88.31182	238389.10480	1149074.45200	20-ft Vibracore	56.0	14.0	9-14	5.0	SP	SP	SUBANGULAR TO SUBROUNDED	LT GRAY	2.5Y 6.5/2	7	PALE BROWN	2.5Y 7.5/2	8		0.24	0.25	2.0	1.6	0.9
BI-PBS-64-12	PETIT BOIS PASS - OCS EAST	2012	11/16/2012	11:50 AM	30.15155	-88.30387	237331.44310	1151592.05000	20-ft Vibracore	56.0	16.2																	
BI-PBS-64-12A	PETIT BOIS PASS - OCS EAST	2012	11/16/2012	11:50 AM	30.15155	-88.30387	237331.44310	1151592.05000	20-ft Vibracore	56.0	16.2	0-1	1.0	SP	SP	SUBANGULAR TO SUBROUNDED	LT OLIVE GRAY	5Y 6/2	6	LT GRAY	5Y 7/2	7		0.30	0.30	1.6	1.7	1.1
BI-PBS-64-12B	PETIT BOIS PASS - OCS EAST	2012	11/16/2012	11:50 AM	30.15156	-88.30387	237335.08000	1151592.03400	20-ft Vibracore	56.0	16.2	15.2-16.2	1.0	SP	SP	SUBANGULAR TO SUBROUNDED	LT BROWNISH GRAY	10YR 6/2	6	LT GRAY	10YR 7/1	7		0.23	0.24	3.9	2.0	1.1
BI-PBS-65-12	PETIT BOIS PASS - OCS EAST	2012	11/16/2012	3:50 PM	30.15222	-88.31045	237565.51940	1149511.23100	20-ft Vibracore	54.0	13.4																	
BI-PBS-65-12A	PETIT BOIS PASS - OCS EAST	2012	11/16/2012	3:50 PM	30.15217	-88.31046	237547.32060	1149508.15400	20-ft Vibracore	54.0	13.4	0-2.5	2.5	SP	SP-SM	SUBANGULAR TO SUBROUNDED	LT OLIVE GRAY	5Y 5.5/2	6	LT GRAY	5Y 7/1	7		0.32	0.33	5.8	2.2	1.3
BI-PBS-66-12	PETIT BOIS PASS - OCS EAST	2012	11/16/2012	3:00 PM	30.15385	-88.31358	238153.80650	1148519.25600	20-ft Vibracore	54.0	12.6																	
BI-PBS-66-12A	PETIT BOIS PASS - OCS EAST	2012	11/16/2012	3:00 PM	30.15387	-88.31358	238161.08020	1148519.22300	20-ft Vibracore	54.0	12.6	0-2.4	2.4	SP	SP	SUBANGULAR TO SUBROUNDED	LT BROWNISH GRAY	2.5Y 6/2	6	LT GRAY	2.5Y 7/2	7		0.32	0.33	1.7	1.6	1.0
BI-PBS-67-12	PETIT BOIS PASS - OCS EAST	2012	11/19/2012	10:58 AM	30.14215	-88.31923	233890.59050	1146752.71200	20-ft Vibracore	58.3	18.8																	
BI-PBS-67-12A	PETIT BOIS PASS - OCS EAST	2012	11/19/2012	10:58 AM	30.14215	-88.31922	233890.60480	1146755.87300	20-ft Vibracore	58.3	18.8	0-4.2	4.2	SP	SP-SM	SUBANGULAR TO SUBROUNDED	OLIVE GRAY	5Y 5/2	5	LT OLIVE GRAY	5Y 6/2	6		0.19	0.20	8.3	2.4	1.3
BI-PBS-68-12	PETIT BOIS PASS - OCS EAST	2012	11/19/2012	1:13 PM	30.13895	-88.31593	232731.51240	1147801.09900	20-ft Vibracore	57.8	19.																	

Vibracore / Sample ID	Investigation Area	Sample Event	Date of Sample	Time_CST	Latitude	Longitude	Northing_Y	Easting_X	Sample Method	Water Depth (feet)	Boring Depth (feet below seafloor surface)	Sample Depth (Feet below seafloor surface)	Sample Thickness (feet)	Field USCS	Lab USCS	Angularity	Wet Munsell Color	Wet Munsell Color Code	Wet Munsell Value	Dry Munsell Color	Dry Munsell Color Code	Dry Munsell Value	CaCO3	D50 (mm)	Graphic Mean (mm)	% Fines	Cu (D60/D10)	Cc (D30) <sup>2</sup> / (D10 <sup>3</sup> D60)
BI-PBS-71-12A	PETIT BOIS PASS - OCS EAST	2012	11/19/2012	2:06 PM	30.13743	-88.31410	232181.33830	1148382.08500	20-ft Vibracore	57.6	18.4	0-3.4	3.4	SP	SP	ANGULAR TO SUBROUNDED	LT OLIVE GRAY	5Y 6/2	6	LT GRAY	5Y 7/2	7		0.25	0.28	3.4	1.9	1.0
BI-PBS-71-12B	PETIT BOIS PASS - OCS EAST	2012	11/19/2012	2:06 PM	30.13743	-88.31410	232181.33830	1148382.08500	20-ft Vibracore	57.6	18.4	3.4-5.2	1.8	SC	SM	ANGULAR TO SUBROUNDED	OLIVE GRAY	5Y 4/2	4	OLIVE GRAY	5Y 5/2	5		0.21	0.39	13.2	#DIV/0!	#DIV/0!
BI-PBS-71-12C	PETIT BOIS PASS - OCS EAST	2012	11/19/2012	2:06 PM	30.13743	-88.31410	232181.33830	1148382.08500	20-ft Vibracore	57.6	18.4	5.9-10.5	4.6	SC	SM	ANGULAR TO SUBROUNDED	OLIVE GRAY	5Y 4/2	4	LT OLIVE GRAY	5Y 6/2	6		0.20	#VALUE!	15.3	#VALUE!	#VALUE!
BI-PBS-72-12	PETIT BOIS PASS - OCS EAST	2012	11/19/2012	2:45 PM	30.13947	-88.32075	232913.75230	1146276.62800	20-ft Vibracore	58.7	16.8																	
BI-PBS-72-12A	PETIT BOIS PASS - OCS EAST	2012	11/19/2012	2:45 PM	30.13947	-88.32075	232913.75230	1146276.62800	20-ft Vibracore	58.7	16.8	0-2.3	2.3	SP	SP	ANGULAR TO SUBROUNDED	LT OLIVE GRAY	5Y 6/2	6	LT GRAY	5Y 7/2	7		0.33	0.43	1.8	2.4	0.8
BI-PBS-72-12B	PETIT BOIS PASS - OCS EAST	2012	11/19/2012	2:45 PM	30.13947	-88.32075	232913.75230	1146276.62800	20-ft Vibracore	58.7	16.8	2.3-9.5	7.2	SC	SM	ANGULAR TO SUBROUNDED	OLIVE GRAY	5Y 4/2	4	LT OLIVE GRAY	5Y 6/2	6		0.20	0.32	13.6	#VALUE!	#VALUE!
BI-PBS-73-12	PETIT BOIS PASS - OCS EAST	2012	11/20/2012	9:50 AM	30.14295	-88.32313	234176.00530	1145518.64600	20-ft Vibracore	55.4	19.4																	
BI-PBS-73-12A	PETIT BOIS PASS - OCS EAST	2012	11/20/2012	9:50 AM	30.14295	-88.32313	234176.00530	1145518.64600	20-ft Vibracore	55.4	19.4	0-2.9	2.9	SP	SP	ANGULAR TO SUBROUNDED	OLIVE GRAY	5Y 5/2	5	LT OLIVE GRAY	5Y 6/2	6		0.26	0.29	2.8	1.8	0.9
BI-PBS-73-12B	PETIT BOIS PASS - OCS EAST	2012	11/20/2012	9:50 AM	30.14295	-88.32313	234176.00530	1145518.64600	20-ft Vibracore	55.4	19.4	2.9-5.4	2.5	SP-SM	SM	ANGULAR TO SUBROUNDED	OLIVE GRAY	5Y 4/2	4	OLIVE GRAY	5Y 5/2	5		0.20	0.27	13.4	#VALUE!	#VALUE!
BI-PBS-74-12	PETIT BOIS PASS - OCS EAST	2012	11/21/2012	10:01 AM	30.14787	-88.32930	235956.66850	1143560.45800	20-ft Vibracore	55.9	17.6																	
BI-PBS-74-12A	PETIT BOIS PASS - OCS EAST	2012	11/21/2012	10:01 AM	30.14787	-88.32930	235956.66850	1143560.45800	20-ft Vibracore	55.9	17.6	0-2.2	2.2	SP	SP	ANGULAR TO SUBROUNDED	LT OLIVE GRAY	5Y 6/2	6	LT GRAY	5Y 7/2	7		0.28	0.30	2.5	1.9	1.0
BI-PBS-74-12B	PETIT BOIS PASS - OCS EAST	2012	11/21/2012	10:01 AM	30.14787	-88.32930	235956.66850	1143560.45800	20-ft Vibracore	55.9	17.6	2.2-4.4	2.2	SM	SM	ANGULAR TO SUBROUNDED	GRAY	5Y 5/1	5	LT OLIVE GRAY	5Y 6/2	6		0.18	#VALUE!	19.6	#VALUE!	#VALUE!
BI-PBS-75-12	PETIT BOIS PASS - OCS EAST	2012	11/20/2012	9:06 AM	30.14127	-88.32180	233566.89630	1145941.78600	20-ft Vibracore	56.7	19.1																	
BI-PBS-75-12A	PETIT BOIS PASS - OCS EAST	2012	11/20/2012	9:06 AM	30.14127	-88.32180	233566.89630	1145941.78600	20-ft Vibracore	56.7	19.1	0-3	3.0	SP	SP	ANGULAR TO SUBROUNDED	OLIVE GRAY	5Y 4.5/2	5	LT GRAY	5Y 6.5/2	7		0.23	0.31	3.6	1.8	0.9
BI-PBS-76-12	PETIT BOIS PASS - OCS EAST	2012	11/21/2012	10:43 AM	30.14510	-88.32962	234948.81340	1143463.76200	20-ft Vibracore	52.8	19.4																	
BI-PBS-76-12A	PETIT BOIS PASS - OCS EAST	2012	11/21/2012	10:43 AM	30.14510	-88.32962	234948.81340	1143463.76200	20-ft Vibracore	52.8	19.4	0-3.9	3.9	SP	SP	ANGULAR TO SUBROUNDED	LT OLIVE GRAY	5Y 6/2	6	LT GRAY	5Y 7/2	7		0.32	0.35	1.8	2.0	1.0
BI-PBS-76-12B	PETIT BOIS PASS - OCS EAST	2012	11/21/2012	10:43 AM	30.14510	-88.32962	234948.81340	1143463.76200	20-ft Vibracore	52.8	19.4	3.9-5.4	1.5	SP	SM	SUBANGULAR TO SUBROUNDED	OLIVE GRAY	5Y 4/2	4	OLIVE GRAY	5Y 5/2	5		0.20	0.26	14.4	#VALUE!	#VALUE!
BI-PBS-76-12C	PETIT BOIS PASS - OCS EAST	2012	11/21/2012	10:43 AM	30.14510	-88.32962	234948.81340	1143463.76200	20-ft Vibracore	52.8	19.4	8-9	1.0	SP	SM	SUBANGULAR TO SUBROUNDED	DK GRAY	5Y 4/1	4	GRAYISH BROWN	2.5Y 5/2	5		0.21	#VALUE!	16.9	#VALUE!	#VALUE!
BI-PBS-77-12	PETIT BOIS PASS - OCS EAST	2012	12/18/2012	11:16 AM	30.15473	-88.31553	238471.04710	1147901.49300	20-ft Vibracore	55.8	20.0																	
BI-PBS-77-12A	PETIT BOIS PASS - OCS EAST	2012	12/18/2012	11:16 AM	30.15473	-88.31553	238471.04710	1147901.49300	20-ft Vibracore	55.8	20.0	0-1.9	1.9	SP	SP	SUBANGULAR TO SUBROUNDED	OLIVE GRAY	5Y 4/2	4	LT OLIVE GRAY	5Y 6/2	6		0.25	0.27	4.6	2.3	1.1
BI-PBS-78-12	PETIT BOIS PASS - OCS EAST	2012	12/18/2012	10:50 AM	30.15602	-88.32018	238933.56000	1146429.73200	20-ft Vibracore	53.9	18.2																	
BI-PBS-78-12A	PETIT BOIS PASS - OCS EAST	2012	12/18/2012	10:50 AM	30.15602	-88.32018	238933.56000	1146429.73200	20-ft Vibracore	53.9	18.2	0-3.2	3.2	SP	SP-SM	SUBANGULAR TO SUBROUNDED	OLIVE GRAY	5Y 5/2	5	LT OLIVE GRAY	5Y 6/2	6		0.28	0.30	6.3	2.5	1.2
BI-PBS-79-12	PETIT BOIS PASS - OCS EAST	2012	12/18/2012	9:55 AM	30.15715	-88.32458	239338.29520	1145037.28100	20-ft Vibracore	52.3	16.4																	
BI-PBS-79-12A	PETIT BOIS PASS - OCS EAST	2012	12/18/2012	9:55 AM	30.15715	-88.32458	239338.29520	1145037.28100	20-ft Vibracore	52.3	16.4	0-1.9	1.9	SP	SP	SUBANGULAR TO SUBROUNDED	OLIVE GRAY	5Y 5/2	5	LT OLIVE GRAY	5Y 6/2	6		0.27	0.29	1.9	1.8	0.9
BI-PBS-79-12C	PETIT BOIS PASS - OCS EAST	2012	12/18/2012	9:55 AM	30.15715	-88.32458	239338.29520	1145037.28100	20-ft Vibracore	52.3	16.4	1.9-3.1	1.2	SP-SM	SP-SM	SUBANGULAR TO SUBROUNDED	OLIVE GRAY	5Y 4/2	4	OLIVE GRAY	5Y 5/2	5		0.21	0.26	11.5	#VALUE!	#VALUE!
BI-PBS-80-12	PETIT BOIS PASS - OCS EAST	2012	12/18/2012	9:24 AM	30.15858	-88.32878	239852.46920	1143707.58700	20-ft Vibracore	52.3	19.4																	
BI-PBS-80-12A	PETIT BOIS PASS - OCS EAST	2012	12/18/2012	9:24 AM	30.15858	-88.32878	239852.46920	1143707.58700	20-ft Vibracore	52.3	19.4	0-2	2.0	SP	SP	SUBANGULAR TO SUBROUNDED	OLIVE GRAY	5Y 5/2	5	LT OLIVE GRAY	5Y 6/2	6		0.26	0.29	1.9	1.8	0.9
BI-PBS-80-12B	PETIT BOIS PASS - OCS EAST	2012	12/18/2012	9:24 AM	30.15858	-88.32878	239852.46920	1143707.58700	20-ft Vibracore	52.3	19.4	2-4.4	2.4	SC	SP-SM	SUBANGULAR TO SUBROUNDED	OLIVE GRAY	5Y 4/2	4	OLIVE GRAY	5Y 5/2	5		0.23	0.32	11.6	#VALUE!	#VALUE!
BI-PBS-81-12	PETIT BOIS PASS - OCS EAST	2012	12/18/2012	10:20 AM	30.16100	-88.32153	240742.80020	1145994.93700	20-ft Vibracore	52.0	16.9																	
BI-PBS-81-12A	PETIT BOIS PASS - OCS EAST	2012	12/18/2012	10:20 AM	30.16100	-88.32153	240742.80020	1145994.93700	20-ft Vibracore	52.0	16.9	0-1.9	1.9	SP	SP	SUBANGULAR TO SUBROUNDED	OLIVE GRAY	5Y 4/2	4	LT OLIVE GRAY	5Y 6/2	6		0.22	0.25	2.4	1.6	1.0
BI-PBS-81-12B	PETIT BOIS PASS - OCS EAST	2012	12/18/2012	10:20 AM	30.16100	-88.32153	240742.80020	1145994.93700	20-ft Vibracore	52.0	16.9	1.9-3.6	1.7	SM	SP-SM	SUBANGULAR TO SUBROUNDED	OLIVE GRAY	5Y 4/2	4	OLIVE GRAY	5Y 5/2	5		0.18	0.19	9.1	2.5	1.2
BI-PBS-82-12	PETIT BOIS PASS - OCS EAST	2012	12/18/2012	11:46 AM	30.13952	-88.31872	232934.82480	1146918.23400	20-ft Vibracore	59.6	19.0	NO SAMPLE TAKEN		CL	NO SAMPLE TESTED													
BI-PBS-83-12	PETIT BOIS PASS - OCS EAST	2012	12/18/2012	12:23 PM	30.13843	-88.33307	232518.23640	1142383.90800	20-ft Vibracore	52.4	19.6																	
BI-PBS-83-12A	PETIT BOIS PASS - OCS EAST	2012	12/18/2012	12:23 PM	30.13843	-88.33307	232518.23640	1142383.90800	20-ft Vibracore	52.4	19.6	0-5	5.0	SP	SP	SUBANGULAR TO SUBROUNDED	OLIVE GRAY	5Y 5/2	5	LT OLIVE GRAY	5Y 6/2	6		0.35	0.43	1.0	2.1	0.9
BI-PBS-83-12B	PETIT BOIS PASS - OCS EAST	2012	12/18/2012	12:23 PM	30.13843	-88.33307	232518.23640	1142383.90800	20-ft Vibracore	52.4	19.6	5-7.7	2.7	SP	SP-SM	SUBANGULAR TO SUBROUNDED	OLIVE GRAY	5Y 4/2	4	OLIVE GRAY	5Y 5/2	5		0.24	0.34	5.2	2.0	1.0
BI-PBS-84-12	PETIT BOIS PASS - OCS EAST	2012	12/18/2012	1:24 PM	30.12767	-88.33970	228595.86620	1140305.05500	20-ft Vibracore	63.7	15.5																	
BI-PBS-84-12A	PETIT BOIS PASS - OCS EAST	2012	12/18/2012	1:24 PM	30.12767	-88.33970	228595.86620	1140305.05500	20-ft Vibracore	63.7	15.5	0-4.1	4.1	SM	SM	SUBANGULAR TO SUBROUNDED	OLIVE GRAY	5Y 4/2	4	OLIVE GRAY	5Y 5/2	5		0.20	#VALUE!	16.7	#VALUE!	#VALUE!
BI-PBS-84-12B	PETIT BOIS PASS - OCS EAST	2012	12/18/2012	1:24 PM	30.12767	-88.33970	228595.86620	1140305.05500	20-ft Vibracore	63.7	15.5	4.1-6.2	2.1	SP	SP	SUBANGULAR TO SUBROUNDED	GRAY	2.5Y 5/1	5	GRAY	2.5Y 6/1	6		0.28	0.30	4.6	1.9	0.9
BI-PBS-85-12	PETIT BOIS PASS - OCS EAST	2012	12/18/2012	3:27 PM	30.14058	-88.34798	233279.80360	1137667.45400	20-ft Vibracore	56.7	18.6																	
BI-PBS-85-12A	PETIT BOIS PASS - OCS EAST	2012	12/18/2012	3:27 PM	30.14058	-88.34798	233279.80360	1137667.45400	20-ft Vibracore	56.7	18.6	0-1.6	1.6	SP	SP	SUBANGULAR TO SUBROUNDED	OLIVE GRAY	5Y 5/2	5	LT OLIVE GRAY	5Y 6/2	6		0.30	0.38	1.2	2.0	0.9
BI-PBS-86-12	PETIT BOIS PASS - OCS EAST	2012	12/18/2012	2:26 PM	30.13465	-88.34397	231128.56880	1138944.25600	20-ft Vibracore	54.7	17.8																	
BI-PBS-86-12A	PETIT BOIS PASS - OCS EAST	2012	12/18/2012	2:26 PM	30.13465	-88.34397	231128.56880	1138944.25600	20-ft Vibracore	54.7	17.8	0-3.6	3.6	SP	SP	SUBANGULAR TO SUBROUNDED	OLIVE GRAY	5Y 5/2	5	LT OLIVE GRAY	5Y 6/2	6		0.20	0.22	3.1	1.6	1.0
BI-PBS-86-12B	PETIT BOIS PASS - OCS EAST	2012	12/18/2012	2:26 PM	30.13465	-88.34397	231128.56880	1138944.25600	20-ft Vibracore	54.7	17.8	3.6-5.9	2.3	SM	SM	SUBANGULAR TO SUBROUNDED	OLIVE GRAY	5Y 4/2	4	OLIVE GRAY	5Y 5/2	5		0.19	0.26	13.2	#VALUE!	#VALUE!
BI-PBS-87-12	PETIT BOIS PASS - OCS EAST	2012	12/18/2012	2:56 PM	30.13585	-88.34023	231570.07900	1140124.64800																				

Vibracore / Sample ID	Investigation Area	Sample Event	Date of Sample	Time_CST	Latitude	Longitude	Northing_Y	Easting_X	Sample Method	Water Depth (feet)	Boring Depth (feet below seafloor surface)	Sample Depth (Feet below seafloor surface)	Sample Thickness (feet)	Field USCS	Lab USCS	Angularity	Wet Munsell Color	Wet Munsell Color Code	Wet Munsell Value	Dry Munsell Color	Dry Munsell Color Code	Dry Munsell Value	CaCO3	D50 (mm)	Graphic Mean (mm)	% Fines	Cu (D60/D10)	Cc (D30)*2 / (D10*D60)
BI-PBS-94-12A	PETIT BOIS PASS - OCS WEST	2012	1/5/2013	1:30 PM	30.14518	-88.46772	234811.60390	1099812.65500	20-ft Vibracore	40.0	19.5	0.0-4.5	4.5	SP	SP-SM	SUBANGULAR TO SUBROUNDED	OLIVE GRAY	5Y 5/2	5	LT OLIVE GRAY	5Y 6/2	6		0.24	0.27	5.4	1.8	1.0
BI-PBS-94-12B	PETIT BOIS PASS - OCS WEST	2012	1/5/2013	1:30 PM	30.14518	-88.46772	234811.60390	1099812.65500	20-ft Vibracore	40.0	19.5	4.5-7.0	2.5	SP-SM	SP	SUBANGULAR TO SUBROUNDED	OLIVE GRAY	5Y 5/2	5	LT GRAY	5Y 7/2	7		0.33	0.36	1.1	1.6	1.0
BI-PBS-94-12C	PETIT BOIS PASS - OCS WEST	2012	1/5/2013	1:30 PM	30.14518	-88.46772	234811.60390	1099812.65500	20-ft Vibracore	40.0	19.5	7.0-10.0	3.0	SM	SP-SM	SUBANGULAR TO SUBROUNDED	OLIVE GRAY	5Y 4/2	4	OLIVE GRAY	5Y 5/2	5		0.21	0.23	7.7	2.0	1.1
BI-PBS-95-12	PETIT BOIS PASS - OCS WEST	2012	1/5/2013	2:58 PM	30.16208	-88.45838	240967.42130	1102744.64800	20-ft Vibracore	43.8	17.9																	
BI-PBS-95-12A	PETIT BOIS PASS - OCS WEST	2012	1/5/2013	2:58 PM	30.16208	-88.45838	240967.42130	1102744.64800	20-ft Vibracore	43.8	17.9	0.0-2.2	2.2	SP	SP	SUBANGULAR TO SUBROUNDED	OLIVE GRAY	5Y 5/2	5	LT OLIVE GRAY	5Y 6/2	6		0.32	0.32	1.2	1.6	1.1
BI-PBS-95-12B	PETIT BOIS PASS - OCS WEST	2012	1/5/2013	2:58 PM	30.16208	-88.45838	240967.42130	1102744.64800	20-ft Vibracore	43.8	17.9	2.2-4.2	2.0	SM	SP-SM	SUBANGULAR TO SUBROUNDED	OLIVE GRAY	5Y 4/2	4	OLIVE GRAY	5Y 5/2	5		0.20	0.21	10.5	#VALUE!	#VALUE!
BI-PBS-99-12	PETIT BOIS PASS - OCS WEST	2012	1/12/2013	9:21 AM	30.14097	-88.42232	233329.34110	1114168.26800	20-ft Vibracore	43.4	18.3																	
BI-PBS-99-12A	PETIT BOIS PASS - OCS WEST	2012	1/12/2013	9:21 AM	30.14097	-88.42232	233329.34110	1114168.26800	20-ft Vibracore	43.4	18.3	0-3.8	3.8	SP	SP	SUBANGULAR TO SUBROUNDED	OLIVE	5Y 5/2	5	LT OLIVE GRAY	5Y 6/2	6		0.30	0.31	2.1	1.7	1.0
BI-PBS-99-12B	PETIT BOIS PASS - OCS WEST	2012	1/12/2013	9:21 AM	30.14097	-88.42232	233329.34110	1114168.26800	20-ft Vibracore	43.4	18.3	3.8-6.3	2.5	SP	SP	SUBANGULAR TO SUBROUNDED	OLIVE GRAY	5Y 5/2	5	LT OLIVE GRAY	5Y 6/2	6		0.32	0.33	2.0	1.5	1.1
BI-PBS-99-12C	PETIT BOIS PASS - OCS WEST	2012	1/12/2013	9:21 AM	30.14097	-88.42232	233329.34110	1114168.26800	20-ft Vibracore	43.4	18.3	6.3-8.7	2.4	SP-SM	SM	SUBANGULAR TO SUBROUNDED	OLIVE GRAY	5Y 4/2	4	OLIVE GRAY	5Y 5/2	5		0.26	1.67	12.5	#VALUE!	#VALUE!
BI-PBS-101-12	PETIT BOIS PASS - OCS WEST	2012	1/12/2013	10:09 AM	30.13187	-88.39965	230046.35030	1121346.73100	20-ft Vibracore	47.3	15.0																	
BI-PBS-101-12A	PETIT BOIS PASS - OCS WEST	2012	1/12/2013	10:09 AM	30.13187	-88.39965	230046.35030	1121346.73100	20-ft Vibracore	47.3	15.0	0-5	5.0	SP	SP	SUBANGULAR TO SUBROUNDED	OLIVE GRAY	5Y 5/2	5	LT OLIVE GRAY	5Y 6/2	6		0.31	0.33	1.8	1.7	1.0
BI-PBS-101-12B	PETIT BOIS PASS - OCS WEST	2012	1/12/2013	10:09 AM	30.13187	-88.39965	230046.35030	1121346.73100	20-ft Vibracore	47.3	15.0	5-6.8	1.8	SP	SP	SUBANGULAR TO SUBROUNDED	OLIVE GRAY	5Y 5/2	5	LT OLIVE GRAY	5Y 6/2	6		0.30	0.30	1.9	1.6	1.0
BI-PBS-104-12	PETIT BOIS PASS - OCS EAST	2012	1/4/2013	1:56 PM	30.13105	-88.34075	229823.68440	1139967.80400	20-ft Vibracore	60.1	18.2																	
BI-PBS-104-12A	PETIT BOIS PASS - OCS EAST	2012	1/4/2013	1:56 PM	30.13105	-88.34075	229823.68440	1139967.80400	20-ft Vibracore	60.1	18.2	0.0-1.0	1.0	SP	SP	SUBANGULAR TO SUBROUNDED	OLIVE GRAY	5Y 5/2	5	LT OLIVE GRAY	5Y 6/2	6		0.28	0.29	1.9	1.8	1.0
BI-PBS-104-12B	PETIT BOIS PASS - OCS EAST	2012	1/4/2013	1:56 PM	30.13105	-88.34075	229823.68440	1139967.80400	20-ft Vibracore	60.1	18.2	1.0-4.1	3.1	SM	SM	SUBANGULAR TO SUBROUNDED	OLIVE GRAY	5Y 4/2	4	OLIVE GRAY	5Y 5/2	5		0.21	0.23	12.9	#VALUE!	#VALUE!
BI-PBS-104-12C	PETIT BOIS PASS - OCS EAST	2012	1/4/2013	1:56 PM	30.13105	-88.34075	229823.68440	1139967.80400	20-ft Vibracore	60.1	18.2	4.1-6.7	2.6	SC	SM	SUBANGULAR TO SUBROUNDED	OLIVE GRAY	5Y 4/2	4	OLIVE GRAY	5Y 5/2	5		0.24	#VALUE!	21.9	#VALUE!	#VALUE!
BI-PBS-105-12	PETIT BOIS PASS - OCS EAST	2012	1/4/2013	3:42 PM	30.13542	-88.33660	231418.67110	1141272.82100	20-ft Vibracore	59.8	18.5																	
BI-PBS-105-12A	PETIT BOIS PASS - OCS EAST	2012	1/4/2013	3:42 PM	30.13542	-88.33660	231418.67110	1141272.82100	20-ft Vibracore	59.8	18.5	0.0-1.5	1.5	SP	SP	SUBANGULAR TO SUBROUNDED	OLIVE GRAY	5Y 5/2	5	LT OLIVE GRAY	5Y 6/2	6		0.26	0.28	2.1	1.7	0.9
BI-PBS-106A-12	PETIT BOIS PASS - OCS EAST	2012	1/12/2013	2:58 PM	30.13698	-88.33967	231981.80780	1140299.89400	20-ft Vibracore	58.4	20.2																	
BI-PBS-106A-12A	PETIT BOIS PASS - OCS EAST	2012	1/12/2013	2:58 PM	30.13698	-88.33967	231981.80780	1140299.89400	20-ft Vibracore	58.4	20.2	0.0-1.1	1.1	SP	SP	SUBANGULAR TO SUBROUNDED	OLIVE	5Y 5/3	5	PALE OLIVE	5Y 6/3	6		0.50	0.65	2.5	3.1	1.2
BI-PBS-107-12	PETIT BOIS PASS - OCS EAST	2012	1/4/2013	1:06 PM	30.11680	-88.36145	224613.55030	1133445.36700	20-ft Vibracore	62.5	17.3																	
BI-PBS-107-12A	PETIT BOIS PASS - OCS EAST	2012	1/4/2013	1:06 PM	30.11680	-88.36145	224613.55030	1133445.36700	20-ft Vibracore	62.5	17.3	6.0-8.1	2.1	SM	SM	SUBANGULAR TO SUBROUNDED	OLIVE GRAY	5Y 4/2	4	OLIVE GRAY	5Y 5/2	5		0.22	#VALUE!	15.1	#VALUE!	#VALUE!
BI-PBS-107-12B	PETIT BOIS PASS - OCS EAST	2012	1/4/2013	1:06 PM	30.11680	-88.36145	224613.55030	1133445.36700	20-ft Vibracore	62.5	17.3	8.7-11.1	2.4	SM	SM	SUBANGULAR TO SUBROUNDED	DK GRAY	5Y 4/1	4	GRAY	5Y 5/1	5		0.29	0.32	13.3	#VALUE!	#VALUE!
BI-PBS-107-12C	PETIT BOIS PASS - OCS EAST	2012	1/4/2013	1:06 PM	30.11680	-88.36145	224613.55030	1133445.36700	20-ft Vibracore	62.5	17.3	11.1-17.3	6.2	SP	SP-SM	SUBANGULAR TO SUBROUNDED	OLIVE GRAY	5Y 5/2	5	LT OLIVE GRAY	5Y 6/2	6		0.20	0.21	6.7	1.8	1.2
BI-PBS-108-12	PETIT BOIS PASS - OCS EAST	2012	1/4/2013	3:13 PM	30.13308	-88.33728	230566.71450	1141061.56200	20-ft Vibracore	59.1	17.5																	
BI-PBS-108-12A	PETIT BOIS PASS - OCS EAST	2012	1/4/2013	3:13 PM	30.13308	-88.33728	230566.71450	1141061.56200	20-ft Vibracore	59.1	17.5	0.0-2.7	2.7	SP	SP	SUBANGULAR TO SUBROUNDED	OLIVE GRAY	5Y 5/2	5	LT OLIVE GRAY	5Y 6/2	6		0.24	0.28	4.4	1.8	0.9
BI-PBS-108-12B	PETIT BOIS PASS - OCS EAST	2012	1/4/2013	3:13 PM	30.13308	-88.33728	230566.71450	1141061.56200	20-ft Vibracore	59.1	17.5	2.7-4.1	1.4	SC	SM	SUBANGULAR TO SUBROUNDED	OLIVE GRAY	5Y 4/2	4	OLIVE GRAY	5Y 5/2	5		0.23	#VALUE!	27.7	#VALUE!	#VALUE!
BI-PBS-109-12	PETIT BOIS PASS - OCS EAST	2012	1/4/2013	2:37 PM	30.12998	-88.33345	229444.57560	1142277.24800	20-ft Vibracore	60.4	16.6																	
BI-PBS-109-12A	PETIT BOIS PASS - OCS EAST	2012	1/4/2013	2:37 PM	30.12998	-88.33345	229444.57560	1142277.24800	20-ft Vibracore	60.4	16.6	0.0-2.3	2.3	SP	SP	SUBANGULAR TO SUBROUNDED	OLIVE GRAY	5Y 4/2	4	OLIVE GRAY	5Y 5/2	5		0.24	0.27	3.5	1.7	0.9
BI-PBS-109-12B	PETIT BOIS PASS - OCS EAST	2012	1/4/2013	2:37 PM	30.12998	-88.33345	229444.57560	1142277.24800	20-ft Vibracore	60.4	16.6	2.3-5.9	3.6	SM	SM	SUBANGULAR TO SUBROUNDED	OLIVE GRAY	5Y 4/2	4	OLIVE GRAY	5Y 5/2	5		0.24	#VALUE!	22.2	#VALUE!	#VALUE!
BI-PBS-110-12	PETIT BOIS PASS - OCS EAST	2012	1/12/2013	11:47 AM	30.15670	-88.35607	239131.61470	1135085.69300	20-ft Vibracore	51.4	18.3																	
BI-PBS-110-12A	PETIT BOIS PASS - OCS EAST	2012	1/12/2013	11:47 AM	30.15670	-88.35607	239131.61470	1135085.69300	20-ft Vibracore	51.4	18.3	0.0-2.3	2.3	SP	SP	SUBANGULAR TO SUBROUNDED	OLIVE GRAY	5Y 5/2	5	LT OLIVE GRAY	5Y 6/2	6		0.30	0.30	2.6	1.8	1.0
BI-PBS-110-12B	PETIT BOIS PASS - OCS EAST	2012	1/12/2013	11:47 AM	30.15670	-88.35607	239131.61470	1135085.69300	20-ft Vibracore	51.4	18.3	2.3-12.5	10.2	SM	SM	SUBANGULAR TO SUBROUNDED	OLIVE GRAY	5Y 4/2	4	OLIVE GRAY	5Y 5/2	5		0.21	0.22	14.5	#VALUE!	#VALUE!
BI-PBS-111-12	PETIT BOIS PASS - OCS EAST	2012	1/12/2013	12:21 PM	30.15215	-88.34733	237488.51180	1137854.99200	20-ft Vibracore	52.0	19.9																	
BI-PBS-111-12A	PETIT BOIS PASS - OCS EAST	2012	1/12/2013	12:21 PM	30.15215	-88.34733	237488.51180	1137854.99200	20-ft Vibracore	52.0	19.9	0-4	4.0	SP	SP	SUBANGULAR TO SUBROUNDED	OLIVE GRAY	5Y 4/2	4	LT OLIVE GRAY	5Y 6/2	6		0.30	0.34	3.7	2.1	1.0
BI-PBS-111-12B	PETIT BOIS PASS - OCS EAST	2012	1/12/2013	12:21 PM	30.15215	-88.34733	237488.51180	1137854.99200	20-ft Vibracore	52.0	19.9	6.4-12.8	6.4	SM	SM	SUBANGULAR TO SUBROUNDED	OLIVE GRAY	5Y 4/2	4	OLIVE GRAY	5Y 5/2	5		0.20	#VALUE!	15.7	#VALUE!	#VALUE!
BI-PBS-112-12	PETIT BOIS PASS - OCS EAST	2012	1/12/2013	11:05 AM	30.15337	-88.36170	237913.14180	1133311.35900	20-ft Vibracore	49.0	20.2																	
BI-PBS-112-12A	PETIT BOIS PASS - OCS EAST	2012	1/12/2013	11:05 AM	30.15337	-88.36170	237913.14180	1133311.35900	20-ft Vibracore	49.0	20.2	0-5	5.0	SP	SP	SUBANGULAR TO SUBROUNDED	OLIVE GRAY	5Y 5/2	5	LT OLIVE GRAY	5Y 6/2	6		0.33	0.35	2.3	1.8	1.0
BI-PBS-112-12B	PETIT BOIS PASS - OCS EAST	2012	1/12/2013	11:05 AM	30.15337	-88.36170	237913.14180	1133311.35900	20-ft Vibracore	49.0	20.2	5-6.6	1.6	SP-SM	SP-SM	SUBANGULAR TO SUBROUNDED	OLIVE GRAY	5Y 4/2	4	OLIVE GRAY	5Y 5/2	5		0.31	0.42	7.6	2.8	1.1
BI-PBS-112-12C	PETIT BOIS PASS - OCS EAST	2012	1/12/2013	11:05 AM	30.15337	-88.36170	237913.14180	1133311.35900	20-ft Vibracore	49.0	20.2	9-14	5.0	SP-SM	SM	SUBANGULAR TO SUBROUNDED	VERY DK GRAY	5Y 3/1	3	GRAY	5Y 5/1	5		0.22	0.24	12.7	#VALUE!	#VALUE!
BI-PBS-112-12D	PETIT BOIS PASS - OCS EAST	2012	1/12/2013	11:05 AM	30.15337	-88.36170	237913.14180	1133311.35900	20-ft Vibracore	49.0	20.2	14-17.8	3.8	SM	SP-SM	SUBANGULAR TO SUBROUNDED	OLIVE GRAY	5Y 4/2	4	OLIVE GRAY	5Y 5/2	5		0.23	0.28	11.2	#VALUE!	#VALUE!
BI-PBS-112-12E	PETIT BOIS PASS - OCS EAST	2012	1/12/2013	11:05 AM	30.15337	-88.36170	237913.14180	1133311.35900	20-ft Vibracore	49.0	20.2	17.8-20.2	2.4	SP	SP													



Vibracore / Sample ID	Investigation Area	Sample Event	Date of Sample	Time_CST	Latitude	Longitude	Northing_Y	Easting_X	Sample Method	Water Depth (feet)	Boring Depth (feet below seafloor surface )	Sample Depth (Feet below seafloor surface)	Sample Thickness (feet)	Field USCS	Lab USCS	Angularity	Wet Munsell Color	Wet Munsell Color Code	Wet Munsell Value	Dry Munsell Color	Dry Munsell Color Code	Dry Munsell Value	CaCO3	D50 (mm)	Graphic Mean (mm)	% Fines	Cu (D60/D10)	Cc (D30)^2 / (D10*D60)
BI-PBS-120-13	PETIT BOIS PASS - OCS EAST	2013	12/1/2013	10:27 AM	30.14218	-88.35563	233851.49380	1135246.86700	20-ft Vibracore	49.0	18.4																	
BI-PBS-120-13A	PETIT BOIS PASS - OCS EAST	2013	12/1/2013	10:27 AM	30.14218	-88.35563	233851.49380	1135246.86700	20-ft Vibracore	49.0	18.4	0-3.0	3.0	SP	SP	SUB-ANGULAR TO SUB- ROUNDED	Olive Gray	5Y 5/2	5	Light Greenish Gray	GLEY1 10Y 7/1	7		0.34	0.43	1.7	2.3	1.0
BI-PBS-120-13B	PETIT BOIS PASS - OCS EAST	2013	12/1/2013	10:27 AM	30.14218	-88.35563	233851.49380	1135246.86700	20-ft Vibracore	49.0	18.4	3.0-6.0	3.0	SP	SP	SUB-ANGULAR TO SUB- ROUNDED	Olive Gray	5Y 5/2	5	Greenish Gray	GLEY1 10Y 6/1	6		0.31	0.40	1.9	2.3	0.9
BI-PBS-120-13C	PETIT BOIS PASS - OCS EAST	2013	12/1/2013	10:27 AM	30.14218	-88.35563	233851.49380	1135246.86700	20-ft Vibracore	49.0	18.4	6.0-8.1	2.1	SM	SP-SM	SUB-ANGULAR TO SUB- ROUNDED	Dark Greenish Gray	10Y 4/1	4	Greenish Gray	GLEY1 10Y 5/1	5		0.19	0.23	11.1	#DIV/0!	#DIV/0!
BI-PBS-121-13	PETIT BOIS PASS - OCS EAST	2013	12/1/2013	4:03 PM	30.14771	-88.37157	235841.92400	1130200.21000	20-ft Vibracore	52.0	18.2																	
BI-PBS-121-13A	PETIT BOIS PASS - OCS EAST	2013	12/1/2013	4:03 PM	30.14771	-88.37157	235841.92400	1130200.21000	20-ft Vibracore	52.0	18.2	0.0-2.0	2.0	SP	SP	SUB-ANGULAR TO SUB- ROUNDED	Greenish Gray	10Y 6/1	6	Greenish Gray	GLEY1 10Y 6/1	6		0.22	0.26	3.6	1.6	0.9
BI-PBS-121-13B	PETIT BOIS PASS - OCS EAST	2013	12/1/2013	4:03 PM	30.14771	-88.37157	235841.92400	1130200.21000	20-ft Vibracore	52.0	18.2	2.0-3.4	1.4	SM	SP-SM	SUB-ANGULAR TO SUB- ROUNDED	Dark Greenish Gray	10Y 4/1	4	Greenish Gray	GLEY1 10Y 6/1	6		0.20	0.25	10.5	#DIV/0!	#DIV/0!
BI-PBS-122-13	PETIT BOIS PASS - OCS EAST	2013	12/1/2013	8:30 AM	30.13935	-88.35336	232825.27830	1135968.72800	20-ft Vibracore	48.0	17.4																	
BI-PBS-122-13A	PETIT BOIS PASS - OCS EAST	2013	12/1/2013	8:30 AM	30.13935	-88.35336	232825.27830	1135968.72800	20-ft Vibracore	48.0	17.4	0.0-5.0	5.0	SP	SP	SUB-ANGULAR TO SUB- ROUNDED	Olive Gray	5Y 5/2	5	Greenish Gray	GLEY1 10Y 6/1	6		0.25	0.29	2.5	1.9	0.9
BI-PBS-122-13B	PETIT BOIS PASS - OCS EAST	2013	12/1/2013	8:30 AM	30.13935	-88.35336	232825.27830	1135968.72800	20-ft Vibracore	48.0	17.4	5.0-8.4	3.4	SM	SP-SM	SUB-ANGULAR TO SUB- ROUNDED	Very Dark Greenish Gray	10Y 3/1	3	Greenish Gray	GLEY1 10Y 5/1	5		0.19	0.23	11.9	#DIV/0!	#DIV/0!
BI-PBS-123-13	PETIT BOIS PASS - OCS EAST	2013	12/1/2013	1:39 PM	30.14610	-88.36832	235260.56480	1131229.84000	20-ft Vibracore	50.0	20.0																	
BI-PBS-123-13A	PETIT BOIS PASS - OCS EAST	2013	12/1/2013	1:39 PM	30.14610	-88.36832	235260.56480	1131229.84000	20-ft Vibracore	50.0	20.0	0.0-2.3	2.3	SM	SP-SM	SUB-ANGULAR TO SUB- ROUNDED	Dark Greenish Gray	10Y 4/1	4	Greenish Gray	GLEY1 10Y 6/1	6		0.21	0.25	6.1	2.0	1.1
BI-PBS-123-13B	PETIT BOIS PASS - OCS EAST	2013	12/1/2013	1:39 PM	30.14610	-88.36832	235260.56480	1131229.84000	20-ft Vibracore	50.0	20.0	2.3-5.7	3.4	SM	SM	SUB-ANGULAR TO SUB- ROUNDED	Dark Greenish Gray	10Y 4/1	4	Gray	2.5Y 5/1	5		0.19	0.29	14.6	#DIV/0!	#DIV/0!
BI-PBS-124-13	PETIT BOIS PASS - OCS EAST	2013	12/1/2013	12:18 PM	30.14296	-88.36259	234126.02370	1133045.69100	20-ft Vibracore	46.0	18.7																	
BI-PBS-124-13A	PETIT BOIS PASS - OCS EAST	2013	12/1/2013	12:18 PM	30.14296	-88.36259	234126.02370	1133045.69100	20-ft Vibracore	46.0	18.7	0.0-4.0	4.0	SP	SP	SUB-ANGULAR TO SUB- ROUNDED	Olive Gray	5Y 5/2	5	Light Greenish Gray	GLEY1 10Y 7/1	7		0.31	0.38	1.8	2.1	0.9
BI-PBS-124-13B	PETIT BOIS PASS - OCS EAST	2013	12/1/2013	12:18 PM	30.14296	-88.36259	234126.02370	1133045.69100	20-ft Vibracore	46.0	18.7	4.0-7.8	3.8	SP	SP	SUB-ANGULAR TO SUB- ROUNDED	Olive Gray	5Y 5/2	5	Light Greenish Gray	GLEY1 10Y 7/1	7		0.36	0.45	1.5	2.3	1.0
BI-PBS-124-13C	PETIT BOIS PASS - OCS EAST	2013	12/1/2013	12:18 PM	30.14296	-88.36259	234126.02370	1133045.69100	20-ft Vibracore	46.0	18.7	7.8-10.5	2.7	SM	SP-SM	SUB-ANGULAR TO SUB- ROUNDED	Dark Greenish Gray	10Y 4/1	4	Greenish Gray	GLEY1 10Y 5/1	5		0.19	0.24	9.2	2.6	1.4
BI-PBS-127-13	PETIT BOIS PASS - OCS EAST	2013	11/30/2013	1:05 PM	30.15206	-88.35036	237451.71240	1136897.46500	20-ft Vibracore	55.0	16.6																	
BI-PBS-127-13A	PETIT BOIS PASS - OCS EAST	2013	11/30/2013	1:05 PM	30.15206	-88.35036	237451.71240	1136897.46500	20-ft Vibracore	55.0	16.6	0-1.0	1.0	SP	SP	SUB-ANGULAR TO SUB- ROUNDED	Olive Gray	5Y 5/2	5	Gray	2.5Y 6/1	6		0.20	0.26	3.8	2.1	1.0
BI-PBS-127-13B	PETIT BOIS PASS - OCS EAST	2013	11/30/2013	1:05 PM	30.15206	-88.35036	237451.71240	1136897.46500	20-ft Vibracore	55.0	16.6	1.0-4.2	3.2	SM-SC	SM	SUB-ANGULAR TO SUB- ROUNDED	Dark Greenish Gray	10Y 4/1	4	Greenish Gray	GLEY1 10Y 5/1	5		0.16	0.21	23.4	#DIV/0!	#DIV/0!
BI-PBS-127-13C	PETIT BOIS PASS - OCS EAST	2013	11/30/2013	1:05 PM	30.15206	-88.35036	237451.71240	1136897.46500	20-ft Vibracore	55.0	16.6	4.2-10.7	6.5	SM	SM	SUB-ANGULAR TO SUB- ROUNDED	Greenish Gray	10Y 6/1	6	Gray	2.5Y 6/1	6		0.23	0.26	14.6	#DIV/0!	#DIV/0!
BI-PBS-127-13D	PETIT BOIS PASS - OCS EAST	2013	11/30/2013	1:05 PM	30.15206	-88.35036	237451.71240	1136897.46500	20-ft Vibracore	55.0	16.6	10.7-12.7	2.0	SP	SP-SM	SUB-ANGULAR TO SUB- ROUNDED	Gray	5Y 5/1	5	Light Gray	2.5Y 7/1	7		0.17	0.17	8.7	2.3	1.2
BI-PBS-127-13E	PETIT BOIS PASS - OCS EAST	2013	11/30/2013	1:05 PM	30.15206	-88.35036	237451.71240	1136897.46500	20-ft Vibracore	55.0	16.6	12.7-15.9	3.2	SM-SC	SM	SUB-ANGULAR TO SUB- ROUNDED	Greenish Gray	10Y 6/1	6	Gray	2.5Y 6/1	6		0.15	0.16	23.8	#DIV/0!	#DIV/0!
BI-PBS-127-13F	PETIT BOIS PASS - OCS EAST	2013	11/30/2013	1:05 PM	30.15206	-88.35036	237451.71240	1136897.46500	20-ft Vibracore	55.0	16.6	15.9-16.6	0.7	SP	SP-SM	SUB-ANGULAR TO SUB- ROUNDED	Gray	5Y 5/1	5	Gray	2.5Y 6/1	6		0.39	0.42	10.8	#DIV/0!	#DIV/0!
BI-PBS-128-13	PETIT BOIS PASS - OCS EAST	2013	11/30/2013	2:37 PM	30.15009	-88.34806	236738.33820	1137627.45500	20-ft Vibracore	57.0	19.2																	
BI-PBS-128-13A	PETIT BOIS PASS - OCS EAST	2013	11/30/2013	2:37 PM	30.15009	-88.34806	236738.33820	1137627.45500	20-ft Vibracore	57.0	19.2	0.0-4.5	4.5	SM	SM	SUB-ANGULAR TO SUB- ROUNDED	Dark Greenish Gray	10Y 4/1	4	Gray	2.5Y 5/1	5		0.19	0.21	16.1	#DIV/0!	#DIV/0!
BI-PBS-128-13B	PETIT BOIS PASS - OCS EAST	2013	11/30/2013	2:37 PM	30.15009	-88.34806	236738.33820	1137627.45500	20-ft Vibracore	57.0	19.2	4.5-8.8	4.3	SM	SP-SM	SUB-ANGULAR TO SUB- ROUNDED	Dark Greenish Gray	10Y 4/1	4	Gray	2.5Y 5/1	5		0.24	0.38	11.8	#DIV/0!	#DIV/0!
BI-PBS-128-13C	PETIT BOIS PASS - OCS EAST	2013	11/30/2013	2:37 PM	30.15009	-88.34806	236738.33820	1137627.45500	20-ft Vibracore	57.0	19.2	8.8-10.0	1.2	SP	SP-SM	SUB-ANGULAR TO SUB- ROUNDED	Greenish Gray	10Y 6/1	6	Gray	2.5Y 6/1	6		0.21	0.23	11.0	#DIV/0!	#DIV/0!
BI-PBS-131-13	PETIT BOIS PASS - OCS EAST	2013	11/30/2013	9:10 AM	30.15479	-88.35113	238443.54320	1136649.90000	20-ft Vibracore	55.0	20.0																	
BI-PBS-131-13A	PETIT BOIS PASS - OCS EAST	2013	11/30/2013	9:10 AM	30.15479	-88.35113	238443.54320	1136649.90000	20-ft Vibracore	55.0	20.0	0.0-3.0	3.0	SM	SM	SUB-ANGULAR TO SUB- ROUNDED	Dark Greenish Gray	10Y 4/1	4	Gray	2.5Y 5/1	5		0.20	0.19	15.6	#DIV/0!	#DIV/0!
BI-PBS-131-13B	PETIT BOIS PASS - OCS EAST	2013	11/30/2013	9:10 AM	30.15479	-88.35113	238443.54320	1136649.90000	20-ft Vibracore	55.0	20.0	3.0-8.0	5.0	SP-SM	SM	SUB-ANGULAR TO SUB- ROUNDED	Dark Greenish Gray	10Y 4/1	4	Gray	2.5Y 5/1	5		0.14	0.13	19.1	#DIV/0!	#DIV/0!
BI-PBS-131-13C	PETIT BOIS PASS - OCS EAST	2013	11/30/2013	9:10 AM	30.15479	-88.35113	238443.54320	1136649.90000	20-ft Vibracore	55.0	20.0	8.0-11.0	3.0	SP	SM	SUB-ANGULAR TO SUB- ROUNDED	Very Dark Gray	2.5Y 3/1	3	Gray	2.5Y 6/1	6		0.21	0.23	14.0	#DIV/0!	#DIV/0!
BI-PBS-131-13D	PETIT BOIS PASS - OCS EAST	2013	11/30/2013	9:10 AM	30.15479	-88.35113	238443.54320	1136649.90000	20-ft Vibracore	55.0	20.0	11.0-14.0	3.0	SP	SP	SUB-ANGULAR TO SUB- ROUNDED	Gray	5Y 5/1	5	Light Gray	2.5Y 7/1	7		0.34	0.40	3.0	2.2	1.1
BI-PBS-131-13E	PETIT BOIS PASS - OCS EAST	2013	11/30/2013	9:10 AM	30.15479	-88.35113	238443.54320	1136649.90000	20-ft Vibracore	55.0	20.0	14.0-17.0	3.0	SP	SP	SUB-ANGULAR TO SUB- ROUNDED	Gray	5Y 5/1	5	Light Gray	2.5Y 7/1	7		0.41	0.47	1.4	2.7	1.0
BI-PBS-131-13F	PETIT BOIS PASS - OCS EAST	2013	11/30/2013	9:10 AM	30.15479	-88.35113	238443.54320	1136649.90000	20-ft Vibracore	55.0	20.0	17.0-20.0	3.0	SP	SP	SUB-ANGULAR TO SUB- ROUNDED	Gray	10Y 4/1	4	Light Gray	2.5Y 7/1	7		0.49	0.53	1.5	2.5	0.9
BI-PBS-132-13	PETIT BOIS PASS - OCS EAST	2013	11/30/2013	11:23 AM	30.15301	-88.35248	237794.38230	1136225.95800	20-ft Vibracore	55.0	16.1																	
BI-PBS-132-13A	PETIT BOIS PASS - OCS EAST	2013	11/30/2013	11:23 AM	30.15301	-88.35248	237794.38230	1136225.95800	20-ft Vibracore	55.0	16.1	0.0-1.0	1.0	SP	SP-SM	SUB-ANGULAR TO SUB- ROUNDED	Dark Greenish Gray	10Y 4/1	4	Greenish Gray	GLEY1 10Y 6/1	6		0.22	0.26	6.5	2.3	1.1
BI-PBS-132-13B	PETIT BOIS PASS - OCS EAST	2013	11/30/2013	11:23 AM	30.15301	-88.35248	237794.38230	1136225.95800	20-ft Vibracore	55.0	16.1	1.0-5.0	4.0	SM	SP-SM	SUB-ANGULAR TO SUB- ROUNDED	Dark Greenish Gray	10Y 4/1	4	Gray	2.5Y 5/1	5		0.21	0.29	10.9	#DIV/0!	#DIV/0!
BI-PBS-132-13C	PETIT BOIS PASS - OCS EAST	2013	11/30/2013	11:23 AM	30.15301	-88.35248	237794.38230	1136225.95800	20-ft Vibracore	55.0	16.1	5.0-9.0	4.0	SM	SM	SUB-ANGULAR TO SUB- ROUNDED	Dark Greenish Gray	10Y 6/1	6	Gray	2.5Y 6/1	6		0.26	0.24	15.1	#DIV/0!	#DIV/0!
BI-PBS-132-13D	PETIT BOIS PASS - OCS EAST	2013	11/30/2013	11:23 AM	30.15301	-88.35248	237794.38230	1136225.95800	20-ft Vibracore	55.0	16.1	9.0-10.2	1.2	SP	SP-SM	SUB-ANGULAR TO SUB- ROUNDED	Greenish Gray	10Y 4/1	4	Gray	2.5Y 5/1	5		0.15	0.16	11.2	#DIV/0!	#DIV/0!
BI-PBS-132-13E	PETIT BOIS PASS - OCS EAST	2013	11/30/2013	11:23 AM	30.15301	-88.35248	237794.38230	1136225.95800	20-ft Vibracore	55.0	16.1	10.2-12.0	1.8	SM	SM	SUB-ANGULAR TO SUB- ROUNDED	Dark Greenish Gray	10Y 4/1	4	Gray	2.5Y 5/1							

Vibracore / Sample ID	Investigation Area	Sample Event	Date of Sample	Time_CST	Latitude	Longitude	Northing_Y	Easting_X	Sample Method	Water Depth (feet)	Boring Depth (feet below seafloor surface )	Sample Depth (Feet below seafloor surface)	Sample Thickness (feet)	Field USCS	Lab USCS	Angularity	Wet Munsell Color	Wet Munsell Color Code	Wet Munsell Value	Dry Munsell Color	Dry Munsell Color Code	Dry Munsell Value	CaCO3	D50 (mm)	Graphic Mean (mm)	% Fines	Cu (D60/D10)	Cc (D30)*2 / (D10*D60)
BI-PBS-137-13C	PETIT BOIS PASS - OCS WEST	2013	12/30/2013	4:12 PM	30.15377	-88.46246	237941.00100	1101465.08500	20-ft Vibracore	48.0	11.4	1.5-2.4	0.9	SM	SM	SUB-ANGULAR TO SUB- ROUNDED	Very Dark Greenish Gray	5GY 3/1	3	Greenish Gray	GLEY1 10Y 6/1	6		0.16	0.19	13.8	#DIV/0!	#DIV/0!
BI-PBS-138-13	PETIT BOIS PASS - OCS WEST	2013	12/9/2013	10:29 AM	30.12693	-88.41882	228227.24260	1115293.14700	20-ft Vibracore	58.2	19.9	NO SAMPLE TAKEN		CL	NO SAMPLE TESTED													
BI-PBS-144-13	PETIT BOIS PASS - OCS EAST	2013	11/30/2013	4:28 PM	30.14593	-88.36170	235207.32800	1133322.54600	20-ft Vibracore	50.0	18.7																	
BI-PBS-144-13A	PETIT BOIS PASS - OCS EAST	2013	11/30/2013	4:28 PM	30.14593	-88.36170	235207.32800	1133322.54600	20-ft Vibracore	50.0	18.7	0.0-4.2	4.2	SP	SP	SUB-ANGULAR TO SUB- ROUNDED	Olive Gray	5Y 5/2	5	Light Greenish Gray	GLEY1 10Y 7/1	7		0.33	0.49	1.4	2.3	0.9
BI-PBS-153-13	PETIT BOIS PASS - OCS WEST	2013	12/8/2013	2:56 PM	30.12916	-88.41622	229041.24780	1116112.14800	20-ft Vibracore	56.3	19.2																	
BI-PBS-153-13A	PETIT BOIS PASS - OCS WEST	2013	12/8/2013	2:56 PM	30.12916	-88.41622	229041.24780	1116112.14800	20-ft Vibracore	56.3	19.2	0.0-0.8	0.8	SM	SP-SM	SUB-ANGULAR TO SUB- ROUNDED	Greenish Gray	10Y 6/1	6	Greenish Gray	GLEY1 10Y 6/1	6		0.21	0.26	7.0	2.1	1.2
BI-PBS-154-13	PETIT BOIS PASS - OCS WEST	2013	12/29/2013	4:03 PM	30.15989	-88.46614	240162.97550	1100294.84100	20-ft Vibracore	48.1	15.2																	
BI-PBS-154-13A	PETIT BOIS PASS - OCS WEST	2013	12/29/2013	4:03 PM	30.15989	-88.46614	240162.97550	1100294.84100	20-ft Vibracore	48.1	15.2	0.0-0.5	0.5	SP	SP	SUB-ANGULAR TO SUB- ROUNDED	Gray	2.5Y 6/1	6	Greenish Gray	GLEY1 10Y 6/1	6		0.27	0.27	1.5	1.9	0.9
BI-PBS-154-13B	PETIT BOIS PASS - OCS WEST	2013	12/29/2013	4:03 PM	30.15989	-88.46614	240162.97550	1100294.84100	20-ft Vibracore	48.1	15.2	0.5-1.7	1.2	SP-SM	SP-SM	SUB-ANGULAR TO SUB- ROUNDED	Gray	2.5Y 5/1	5	Greenish Gray	GLEY1 10Y 6/1	6		0.25	0.27	5.7	2.0	0.9
BI-PBS-154-13C	PETIT BOIS PASS - OCS WEST	2013	12/29/2013	4:03 PM	30.15989	-88.46614	240162.97550	1100294.84100	20-ft Vibracore	48.1	15.2	1.7-6.0	4.3	SM	SM	SUB-ANGULAR TO SUB- ROUNDED	Greenish Gray	10Y 5/1	5	Greenish Gray	GLEY1 10Y 5/1	5		0.15	0.14	18.1	#DIV/0!	#DIV/0!
BI-PBS-155-13	PETIT BOIS PASS - OCS WEST	2013	12/30/2013	3:17 PM	30.16573	-88.46123	242291.91430	1101839.63800	20-ft Vibracore	47.1	12.1																	
BI-PBS-155-13A	PETIT BOIS PASS - OCS WEST	2013	12/30/2013	3:17 PM	30.16573	-88.46123	242291.91430	1101839.63800	20-ft Vibracore	47.1	12.1	0.0-1.7	1.7	SM	SP-SM	SUB-ANGULAR TO SUB- ROUNDED	Dark Greenish Gray	10Y 4/1	4	Gray	2.5Y 5/1	5		0.19	0.22	8.8	2.7	1.3
BI-PBS-160-13	PETIT BOIS PASS - OCS WEST	2013	12/3/2013	2:40 PM	30.12543	-88.40632	227696.28540	1119246.94100	20-ft Vibracore	53.0	18.5																	
BI-PBS-160-13A	PETIT BOIS PASS - OCS WEST	2013	12/3/2013	2:40 PM	30.12543	-88.40632	227696.28540	1119246.94100	20-ft Vibracore	53.0	18.5	0.0-5.6	5.6	SP	SP	SUB-ANGULAR TO SUB- ROUNDED	Olive Gray	5Y 5/2	5	Greenish Gray	GLEY1 10Y 6/1	6		0.33	0.41	1.6	2.2	0.9
BI-PBS-160-13B	PETIT BOIS PASS - OCS WEST	2013	12/3/2013	2:40 PM	30.12543	-88.40632	227696.28540	1119246.94100	20-ft Vibracore	53.0	18.5	5.6-6.2	0.6	SP	SP	SUB-ANGULAR TO SUB- ROUNDED	Olive Gray	5Y 5/2	5	Greenish Gray	GLEY1 10Y 6/1	6		0.26	0.35	3.9	2.0	0.8
BI-PBS-160-13C	PETIT BOIS PASS - OCS WEST	2013	12/3/2013	2:40 PM	30.12543	-88.40632	227696.28540	1119246.94100	20-ft Vibracore	53.0	18.5	6.2-8.9	2.7	SM	SP-SM	SUB-ANGULAR TO SUB- ROUNDED	Dark Greenish Gray	10Y 4/1	4	Greenish Gray	GLEY1 10Y 5/1	5		0.20	0.23	10.4	#DIV/0!	#DIV/0!
BI-PBS-161-13	PETIT BOIS PASS - OCS WEST	2013	12/9/2013	9:14 AM	30.12661	-88.41508	228115.17720	1116475.93800	20-ft Vibracore	57.0	18.3																	
BI-PBS-161-13A	PETIT BOIS PASS - OCS WEST	2013	12/9/2013	9:14 AM	30.12661	-88.41508	228115.17720	1116475.93800	20-ft Vibracore	57.0	18.3	0.0-1.5	1.5	SC-SM	SP-SM	SUB-ANGULAR TO SUB- ROUNDED	Dark Greenish Gray	10Y 4/1	4	Greenish Gray	GLEY1 10Y 5/1	5		0.21	0.29	11.5	#DIV/0!	#DIV/0!
BI-PBS-162-13	PETIT BOIS PASS - OCS WEST	2013	12/3/2013	3:55 PM	30.12216	-88.40470	226508.96420	1119763.56100	20-ft Vibracore	57.0	19.3																	
BI-PBS-162-13A	PETIT BOIS PASS - OCS WEST	2013	12/3/2013	3:55 PM	30.12216	-88.40470	226508.96420	1119763.56100	20-ft Vibracore	57.0	19.3	0.0-3.1	3.1	SP	SP	SUB-ANGULAR TO SUB- ROUNDED	Dark Greenish Gray	10Y 4/1	4	Greenish Gray	GLEY1 10Y 6/1	6		0.21	0.25	4.2	1.6	0.9
BI-PBS-162-13B	PETIT BOIS PASS - OCS WEST	2013	12/3/2013	3:55 PM	30.12216	-88.40470	226508.96420	1119763.56100	20-ft Vibracore	57.0	19.3	3.1-5.5	2.4	SM	SP-SM	SUB-ANGULAR TO SUB- ROUNDED	Greenish Gray	10Y 6/1	6	Gray	2.5Y 6/1	6		0.20	0.24	11.1	#DIV/0!	#DIV/0!
BI-PBS-163-13	PETIT BOIS PASS - OCS WEST	2013	12/17/2013	3:17 PM	30.11750	-88.39417	224826.85760	1123099.19900	20-ft Vibracore	54.6	16.7																	
BI-PBS-163-13A	PETIT BOIS PASS - OCS WEST	2013	12/17/2013	3:17 PM	30.11750	-88.39417	224826.85760	1123099.19900	20-ft Vibracore	54.6	16.7	0.0-1.0	1.0	SP-SM	SP	SUB-ANGULAR TO SUB- ROUNDED	Greenish Gray	10Y 6/1	6	Gray	2.5Y 6/1	6		0.22	0.26	2.8	1.6	0.9
BI-PBS-163-13B	PETIT BOIS PASS - OCS WEST	2013	12/17/2013	3:17 PM	30.11750	-88.39417	224826.85760	1123099.19900	20-ft Vibracore	54.6	16.7	1.0-2.5	1.5	SM	SP-SM	SUB-ANGULAR TO SUB- ROUNDED	Greenish Gray	10Y 5/1	5	Gray	2.5Y 5/1	5		0.20	0.23	9.6	2.7	1.5
BI-PBS-164-13	PETIT BOIS PASS - OCS WEST	2013	12/17/2013	1:59 PM	30.11353	-88.39271	223384.81850	1123566.38000	20-ft Vibracore	54.3	19.2																	
BI-PBS-164-13A	PETIT BOIS PASS - OCS WEST	2013	12/17/2013	1:59 PM	30.11353	-88.39271	223384.81850	1123566.38000	20-ft Vibracore	54.3	19.2	0.0-3.8	3.8	SP	SP	SUB-ANGULAR TO SUB- ROUNDED	Greenish Gray	10Y 6/1	6	Greenish Gray	GLEY1 10Y 6/1	6		0.21	0.24	2.8	1.5	0.9
BI-PBS-164-13B	PETIT BOIS PASS - OCS WEST	2013	12/17/2013	1:59 PM	30.11353	-88.39271	223384.81850	1123566.38000	20-ft Vibracore	54.3	19.2	3.8-4.4	0.6	SM	SP-SM	SUB-ANGULAR TO SUB- ROUNDED	Greenish Gray	10Y 6/1	6	Gray	2.5Y 6/1	6		0.21	0.25	8.7	2.2	1.2
BI-PBS-165-13	PETIT BOIS PASS - OCS WEST	2013	12/17/2013	12:44 PM	30.11660	-88.39751	224495.49780	1122044.43900	20-ft Vibracore	55.6	15.0																	
BI-PBS-165-13A	PETIT BOIS PASS - OCS WEST	2013	12/17/2013	12:44 PM	30.11660	-88.39751	224495.49780	1122044.43900	20-ft Vibracore	55.6	15.0	0.0-2.5	2.5	SP	SP	SUB-ANGULAR TO SUB- ROUNDED	Greenish Gray	10Y 7/1	7	Light Greenish Gray	GLEY1 10Y 7/1	7		0.21	0.24	4.0	1.6	1.0
BI-PBS-165-13B	PETIT BOIS PASS - OCS WEST	2013	12/17/2013	12:44 PM	30.11660	-88.39751	224495.49780	1122044.43900	20-ft Vibracore	55.6	15.0	2.5-2.8	0.3	SM	SP-SM	SUB-ANGULAR TO SUB- ROUNDED	Greenish Gray	10Y 5/1	5	Gray	2.5Y 5/1	5		0.26	0.35	11.3	#DIV/0!	#DIV/0!
BI-PBS-166-13	PETIT BOIS PASS - OCS WEST	2013	12/17/2013	10:06 AM	30.12222	-88.40137	226534.75310	1120816.27700	20-ft Vibracore	52.5	12.9																	
BI-PBS-166-13A	PETIT BOIS PASS - OCS WEST	2013	12/17/2013	10:06 AM	30.12222	-88.40137	226534.75310	1120816.27700	20-ft Vibracore	52.5	12.9	0.0-3.6	3.6	SP-SM	SP	SUB-ANGULAR TO SUB- ROUNDED	Light Greenish Gray	10Y 7/1	7	Light Greenish Gray	10Y 7/1	7		0.24	0.27	2.7	1.8	0.9
BI-PBS-169-13	PETIT BOIS PASS - OCS WEST	2013	12/29/2013	12:38 PM	30.16177	-88.46171	240851.23460	1101692.64500	20-ft Vibracore	45.1	17.7																	
BI-PBS-169-13A	PETIT BOIS PASS - OCS WEST	2013	12/29/2013	12:38 PM	30.16177	-88.46171	240851.23460	1101692.64500	20-ft Vibracore	45.1	17.7	0.0-2.7	2.7	SP	SP	SUB-ANGULAR TO SUB- ROUNDED	Gray	2.5Y 6/1	6	Light Greenish Gray	GLEY1 10Y 7/1	7		0.26	0.27	1.2	1.8	0.9
BI-PBS-169-13B	PETIT BOIS PASS - OCS WEST	2013	12/29/2013	12:38 PM	30.16177	-88.46171	240851.23460	1101692.64500	20-ft Vibracore	45.1	17.7	2.7-7.5	4.8	SM	SP-SM	SUB-ANGULAR TO SUB- ROUNDED	Greenish Gray	10Y 6/1	6	Gray	2.5Y 6/1	6		0.22	0.38	9.7	3.4	1.4
BI-PBS-170-13	PETIT BOIS PASS - OCS WEST	2013	12/29/2013	2:47 PM	30.15808	-88.46185	239509.10060	1101652.77200	20-ft Vibracore	50.0	16.5																	
BI-PBS-170-13A	PETIT BOIS PASS - OCS WEST	2013	12/29/2013	2:47 PM	30.15808	-88.46185	239509.10060	1101652.77200	20-ft Vibracore	50.0	16.5	0.0-3.2	3.2	SM	SM	SUB-ANGULAR TO SUB- ROUNDED	Greenish Gray	10Y 5/1	5	Greenish Gray	GLEY1 10Y 5/1	5		0.17	0.16	16.4	#DIV/0!	#DIV/0!
BI-PBS-171-13	PETIT BOIS PASS - OCS WEST	2013	12/27/2013	1:07 PM	30.15775	-88.45673	239394.39230	1103271.29400	20-ft Vibracore	46.8	9.8																	
BI-PBS-171-13A	PETIT BOIS PASS - OCS WEST	2013	12/27/2013	1:07 PM	30.15775	-88.45673	239394.39230	1103271.29400	20-ft Vibracore	46.8	9.8	0.0-0.8	0.8	SP	SP	SUB-ANGULAR TO SUB- ROUNDED	Greenish Gray	10Y 6/1	6	Greenish Gray	GLEY1 10Y 6/1	6		0.25	0.30	3.2	1.8	0.9
BI-PBS-171-13B	PETIT BOIS PASS - OCS WEST	2013	12/27/2013	1:07 PM	30.15775	-88.45673	239394.39230	1103271.29400	20-ft Vibracore	46.8	9.8	0.8-1.5	0.7	SM	SP-SM	SUB-ANGULAR TO SUB- ROUNDED	Greenish Gray	10Y 5/1	5	Greenish Gray	GLEY1 10Y 5/1	5		0.20	0.24	9.8	3.0	1.5
BI-PBS-172-13	PETIT BOIS PASS - OCS WEST	2013	12/30/2013	1:14 PM	30.16420	-88.48682	241709.99580	1093754.49600	20-ft Vibracore	45.1	16.8																	
BI-PBS-172-13A	PETIT BOIS PASS - OCS WEST	2013	12/30/2013	1:14 PM	30.16420	-88.48682	241709.99580	1093754.49600	20-ft Vibracore	45.1	16.8	0.0-0.8	0.8	SP	SP	SUB-ANGULAR TO SUB- ROUNDED	Very Dark Greenish Gray	10Y 3/1	3	Gray	2.5Y 6/1	6		0.22	0.25	1.2	1.6	0.9
BI-PBS-172-13B	PETIT BOIS PASS - OCS WEST	2013	12/30/2013	1:14 PM	30.16420	-88.48682	241709.99580	1093754.49600	20-ft Vibracore	45.1	16.8	0.8-5.8	5.0	SM	SP-SM	SUB-ANGULAR TO SUB- ROUNDED	Greenish Black	10Y 2.5/1	3	Gray	2.5Y 5/1	5		0.18	0			

Vibracore / Sample ID	Investigation Area	Sample Event	Date of Sample	Time_CST	Latitude	Longitude	Northing_Y	Easting_X	Sample Method	Water Depth (feet)	Boring Depth (feet below seafloor surface )	Sample Depth (Feet below seafloor surface)	Sample Thickness (feet)	Field USCS	Lab USCS	Angularity	Wet Munsell Color	Wet Munsell Color Code	Wet Munsell Value	Dry Munsell Color	Dry Munsell Color Code	Dry Munsell Value	CaCO3	D50 (mm)	Graphic Mean (mm)	% Fines	Cu (D60/D10)	Cc (D30)*2 / (D10*D60)
BI-PBS-175-13A	PETIT BOIS PASS - OCS WEST	2013	12/27/2013	2:17 PM	30.15808	-88.45164	239519.75570	1104879.54200	20-ft Vibracore	44.8	16.6	0.0-2.7	2.7	SP	SP	SUB-ANGULAR TO SUB- ROUNDED	Gray	2.5Y 6/1	6	Light Greenish Gray	GLEY1 10Y 7/1	7		0.32	0.32	0.8	1.8	1.1
BI-PBS-175-13B	PETIT BOIS PASS - OCS WEST	2013	12/27/2013	2:17 PM	30.15808	-88.45164	239519.75570	1104879.54200	20-ft Vibracore	44.8	16.6	2.7-5.4	2.7	SP	SP	SUB-ANGULAR TO SUB- ROUNDED	Gray	2.5Y 6/1	6	Light Greenish Gray	GLEY1 10Y 7/1	7		0.33	0.43	0.8	1.9	1.1
BI-PBS-175-13C	PETIT BOIS PASS - OCS WEST	2013	12/27/2013	2:17 PM	30.15808	-88.45164	239519.75570	1104879.54200	20-ft Vibracore	44.8	16.6	5.4-9.0	3.6	SM	SM	SUB-ANGULAR TO SUB- ROUNDED	Gray	2.5Y 5/1	5	Greenish Gray	GLEY1 10Y 5/1	5		0.18	0.17	15.4	#DIV/0!	#DIV/0!
BI-PBS-176-13	PETIT BOIS PASS - OCS WEST	2013	12/29/2013	9:34 AM	30.16060	-88.44859	240439.47610	1105840.37200	20-ft Vibracore	50.1	19.8																	
BI-PBS-176-13A	PETIT BOIS PASS - OCS WEST	2013	12/29/2013	9:34 AM	30.16060	-88.44859	240439.47610	1105840.37200	20-ft Vibracore	50.1	19.8	0.0-3.2	3.2	SM	SM	SUB-ANGULAR TO SUB- ROUNDED	Dark Greenish Gray	10Y 4/1	4	Greenish Gray	GLEY1 10Y 5/1	5		0.14	0.14	22.4	#DIV/0!	#DIV/0!
BI-PBS-177-13	PETIT BOIS PASS - OCS WEST	2013	12/16/2013	12:09 PM	30.15762	-88.44303	239361.67130	1107601.22100	20-ft Vibracore	50.4	11.5																	
BI-PBS-177-13A	PETIT BOIS PASS - OCS WEST	2013	12/16/2013	12:09 PM	30.15762	-88.44303	239361.67130	1107601.22100	20-ft Vibracore	50.4	11.5	0.0-0.3	0.3	SM	SM	SUB-ANGULAR TO SUB- ROUNDED	Greenish Gray & Light Greenish Gray	10Y 5/1	5	Greenish Gray	GLEY1 10Y 5/1	5		0.21	0.25	17.1	#DIV/0!	#DIV/0!
BI-PBS-178-13	PETIT BOIS PASS - OCS WEST	2013	12/16/2013	1:38 PM	30.15356	-88.44260	237885.58350	1107742.17700	20-ft Vibracore	44.8	19.3																	
BI-PBS-178-13A	PETIT BOIS PASS - OCS WEST	2013	12/16/2013	1:38 PM	30.15356	-88.44260	237885.58350	1107742.17700	20-ft Vibracore	44.8	19.3	0.0-5.0	5.0	SP	SP	SUB-ANGULAR TO SUB- ROUNDED	Gray	2.5Y 6/1	6	Greenish Gray	GLEY1 10Y 6/1	6		0.31	0.31	1.8	1.9	1.1
BI-PBS-178-13B	PETIT BOIS PASS - OCS WEST	2013	12/16/2013	1:38 PM	30.15356	-88.44260	237885.58350	1107742.17700	20-ft Vibracore	44.8	19.3	5.0-6.5	1.5	SM	SM	SUB-ANGULAR TO SUB- ROUNDED	Greenish Gray	10Y 5/1	5	Gray	2.5Y 6/1	6		0.16	0.17	18.1	#DIV/0!	#DIV/0!
BI-PBS-179-13	PETIT BOIS PASS - OCS WEST	2013	12/16/2013	2:56 PM	30.15021	-88.43943	236670.69180	1108748.27800	20-ft Vibracore	47.4	13.6																	
BI-PBS-179-13A	PETIT BOIS PASS - OCS WEST	2013	12/16/2013	2:56 PM	30.15021	-88.43943	236670.69180	1108748.27800	20-ft Vibracore	47.4	13.6	0.0-4.2	4.2	SP-SM	SP	SUB-ANGULAR TO SUB- ROUNDED	Greenish Gray	10Y 5/1	6	Gray	2.5Y 6/1	6		0.31	0.34	1.5	2.0	1.1
BI-PBS-180-13	PETIT BOIS PASS - OCS WEST	2013	12/19/2013	9:29 AM	30.14772	-88.44211	235762.20690	1107904.32800	20-ft Vibracore	48.4	14.8																	
BI-PBS-180-13A	PETIT BOIS PASS - OCS WEST	2013	12/19/2013	9:29 AM	30.14772	-88.44211	235762.20690	1107904.32800	20-ft Vibracore	48.4	14.8	0.0-1.6	1.6	SP-SM	SM	SUB-ANGULAR TO SUB- ROUNDED	Greenish Gray	10Y 5/1	5	Gray	2.5Y 5/1	5		0.19	0.22	14.1	#DIV/0!	#DIV/0!
BI-PBS-181-13	PETIT BOIS PASS - OCS WEST	2013	12/16/2013	11:13 AM	30.15365	-88.43690	237924.53140	1109543.57600	20-ft Vibracore	49.4	18.8																	
BI-PBS-181-13A	PETIT BOIS PASS - OCS WEST	2013	12/16/2013	11:13 AM	30.15365	-88.43690	237924.53140	1109543.57600	20-ft Vibracore	49.4	18.8	0.0-1.5	1.5	SM	SP-SM	SUB-ANGULAR TO SUB- ROUNDED	Greenish Gray	10Y 5/1	5	Gray	2.5Y 5/1	5		0.26	0.28	11.3	#DIV/0!	#DIV/0!
BI-PBS-182-13	PETIT BOIS PASS - OCS WEST	2013	12/18/2013	3:50 PM	30.14708	-88.43591	235536.22360	1109864.79500	20-ft Vibracore	49.0	18.7																	
BI-PBS-182-13A	PETIT BOIS PASS - OCS WEST	2013	12/18/2013	3:50 PM	30.14708	-88.43591	235536.22360	1109864.79500	20-ft Vibracore	49.0	18.7	0.0-2.9	2.9	SP	SP	SUB-ANGULAR TO SUB- ROUNDED	Greenish Gray	10Y 6/1	6	Greenish Gray	GLEY1 10Y 6/1	6		0.27	0.28	3.3	2.0	0.9
BI-PBS-182-13B	PETIT BOIS PASS - OCS WEST	2013	12/18/2013	3:50 PM	30.14708	-88.43591	235536.22360	1109864.79500	20-ft Vibracore	49.0	18.7	4.5-5.0	0.5	SP-SM	SP	SUB-ANGULAR TO SUB- ROUNDED	Greenish Gray	10Y 6/1	6	Gray	2.5Y 6/1	6		0.31	0.39	4.8	2.3	0.9
BI-PBS-184-13	PETIT BOIS PASS - OCS WEST	2013	1/20/2014	9:00 AM	30.12897	-88.46291	228921.22950	1101352.14100	20-ft Vibracore	52.0	12.9																	
BI-PBS-184-13A	PETIT BOIS PASS - OCS WEST	2013	1/20/2014	9:00 AM	30.12897	-88.46291	228921.22950	1101352.14100	20-ft Vibracore	52.0	12.9	0.0-1.5	1.5	SP-SM	SP-SM	SUB-ANGULAR TO SUB- ROUNDED	Very Dark Gray	5Y 3/1	3	Greenish Gray	GLEY1 10Y 5/1	5		0.19	0.22	7.7	2.4	1.3
BI-PBS-184-13B	PETIT BOIS PASS - OCS WEST	2013	1/20/2014	9:00 AM	30.12897	-88.46291	228921.22950	1101352.14100	20-ft Vibracore	52.0	12.9	1.5-3.0	1.5	SM	SM	SUB-ANGULAR TO SUB- ROUNDED	Very Dark Gray	5Y 3/1	3	Gray	2.5Y 6/1	6		0.14	0.13	15.4	#DIV/0!	#DIV/0!
BI-PBS-185-13	PETIT BOIS PASS - OCS WEST	2013	12/16/2013	10:11 AM	30.15086	-88.43270	236914.49370	1110874.56900	20-ft Vibracore	50.0	20.0																	
BI-PBS-185-13A	PETIT BOIS PASS - OCS WEST	2013	12/16/2013	10:11 AM	30.15086	-88.43270	236914.49370	1110874.56900	20-ft Vibracore	50.0	20.0	0.0-4.9	4.9	SM	SM	SUB-ANGULAR TO SUB- ROUNDED	Greenish Gray	10Y 5/1	5	Gray	2.5Y 5/1	5		0.23	0.21	20.5	#DIV/0!	#DIV/0!
BI-PBS-185-13B	PETIT BOIS PASS - OCS WEST	2013	12/16/2013	10:11 AM	30.15086	-88.43270	236914.49370	1110874.56900	20-ft Vibracore	50.0	20.0	4.9-9.9	5.0	SP	SP	SUB-ANGULAR TO SUB- ROUNDED	Gray	2.5Y 6/1	6	Gray	2.5Y 6/1	6		0.37	0.43	3.2	1.6	0.9
BI-PBS-185-13C	PETIT BOIS PASS - OCS WEST	2013	12/16/2013	10:11 AM	30.15086	-88.43270	236914.49370	1110874.56900	20-ft Vibracore	50.0	20.0	9.9-14.9	5.0	SP	SP	SUB-ANGULAR TO SUB- ROUNDED	Gray	2.5Y 6/1	6	Gray	2.5Y 6/1	6		0.35	0.39	2.7	1.5	0.9
BI-PBS-185-13D	PETIT BOIS PASS - OCS WEST	2013	12/16/2013	10:11 AM	30.15086	-88.43270	236914.49370	1110874.56900	20-ft Vibracore	50.0	20.0	14.9-18.3	3.4	SP	SP	SUB-ANGULAR TO SUB- ROUNDED	Light Gray	2.5Y 7/1	7	Light Gray	2.5Y 7/1	7		0.37	0.43	3.2	1.9	1.0
BI-PBS-185-13E	PETIT BOIS PASS - OCS WEST	2013	12/16/2013	10:11 AM	30.15086	-88.43270	236914.49370	1110874.56900	20-ft Vibracore	50.0	20.0	18.3-20.0	1.7	SP-SM	SP-SM	SUB-ANGULAR TO SUB- ROUNDED	Gray	2.5Y 5/1	5	Gray	2.5Y 5/1	5		0.32	0.34	9.0	3.3	1.9
BI-PBS-186-13	PETIT BOIS PASS - OCS WEST	2013	12/18/2013	3:00 PM	30.14391	-88.43901	234379.94980	1108888.94500	20-ft Vibracore	48.4	16.4																	
BI-PBS-186-13A	PETIT BOIS PASS - OCS WEST	2013	12/18/2013	3:00 PM	30.14391	-88.43901	234379.94980	1108888.94500	20-ft Vibracore	48.4	16.4	0.0-1.1	1.1	SP	SP	SUB-ANGULAR TO SUB- ROUNDED	Greenish Gray	10Y 6/1	6	Greenish Gray	GLEY1 10Y 6/1	6		0.25	0.38	2.3	1.9	0.8
BI-PBS-188-13	PETIT BOIS PASS - OCS WEST	2013	1/18/2014	2:01 PM	30.13259	-88.45892	230241.87130	1102609.19200	20-ft Vibracore	48.1	18.8																	
BI-PBS-188-13A	PETIT BOIS PASS - OCS WEST	2013	1/18/2014	2:01 PM	30.13259	-88.45892	230241.87130	1102609.19200	20-ft Vibracore	48.1	18.8	0.0-1.0	1.0	SP	SP	SUB-ANGULAR TO SUB- ROUNDED	Greenish Black	10Y 2.5/1	3	Greenish Gray	GLEY1 10Y 6/1	6		0.20	0.23	4.1	1.7	1.1
BI-PBS-188-13B	PETIT BOIS PASS - OCS WEST	2013	1/18/2014	2:01 PM	30.13259	-88.45892	230241.87130	1102609.19200	20-ft Vibracore	48.1	18.8	1.0-2.4	1.4	SP-SM	SM	SUB-ANGULAR TO SUB- ROUNDED	Greenish Black	10Y 2.5/1	3	Gray	2.5Y 5/1	5		0.16	0.18	13.7	#DIV/0!	#DIV/0!
BI-PBS-188-13C	PETIT BOIS PASS - OCS WEST	2013	1/18/2014	2:01 PM	30.13259	-88.45892	230241.87130	1102609.19200	20-ft Vibracore	48.1	18.8	11.7-15.0	3.3	SP	SP	SUB-ANGULAR TO SUB- ROUNDED	Grayish Brown	10YR 5/2	5	Light Gray	2.5Y 7/2	7		0.22	0.24	3.4	1.5	0.9
BI-PBS-190-13	PETIT BOIS PASS - OCS WEST	2013	12/9/2013	4:27 PM	30.14489	-88.42474	234752.23010	1113398.21200	20-ft Vibracore	51.3	17.3																	
BI-PBS-190-13A	PETIT BOIS PASS - OCS WEST	2013	12/9/2013	4:27 PM	30.14489	-88.42474	234752.23010	1113398.21200	20-ft Vibracore	51.3	17.3	0.0-3.0	3.0	SP	SP	SUB-ANGULAR TO SUB- ROUNDED	Light Greenish Gray	10Y 7/1	7	Light Greenish Gray	GLEY1 10Y 7/1	7		0.37	0.43	1.5	1.7	0.9
BI-PBS-190-13B	PETIT BOIS PASS - OCS WEST	2013	12/9/2013	4:27 PM	30.14489	-88.42474	234752.23010	1113398.21200	20-ft Vibracore	51.3	17.3	3.0-4.6	1.6	SM-SC	SM	SUB-ANGULAR TO SUB- ROUNDED	Light Greenish Gray	10Y 7/1	7	Light Gray	2.5Y 7/1	7		0.24	0.24	13.8	#DIV/0!	#DIV/0!
BI-PBS-190-13C	PETIT BOIS PASS - OCS WEST	2013	12/9/2013	4:27 PM	30.14489	-88.42474	234752.23010	1113398.21200	20-ft Vibracore	51.3	17.3	4.6-9.6	5.0	SP	SP	SUB-ANGULAR TO SUB- ROUNDED	Greenish Gray	10Y 6/1	6	Gray	2.5Y 6/1	6		0.31	0.34	2.6	2.1	1.1
BI-PBS-190-13D	PETIT BOIS PASS - OCS WEST	2013	12/9/2013	4:27 PM	30.14489	-88.42474	234752.23010	1113398.21200	20-ft Vibracore	51.3	17.3	9.6-14.6	5.0	SP	SP	SUB-ANGULAR TO SUB- ROUNDED	Light Greenish Gray	10Y 7/1	7	Light Gray	2.5Y 7/1	7		0.31	0.35	2.9	2.1	1.1
BI-PBS-190-13E	PETIT BOIS PASS - OCS WEST	2013	12/9/2013	4:27 PM	30.14489	-88.42474	234752.23010	1113398.21200	20-ft Vibracore	51.3	17.3	14.6-17.3	2.7	SP	SP	SUB-ANGULAR TO SUB- ROUNDED	Light Greenish Gray	10Y 7/1	7	Light Gray	2.5Y 7/1	7		0.34	0.38	2.2	2.2	1.1
BI-PBS-194-13	PETIT BOIS PASS - OCS WEST	2013	12/9/2013	3:40 PM	30.14342	-88.42076	234222.14350	1114658.15500	20-ft Vibracore	51.0	14.4																	
BI-PBS-194-13A	PETIT BOIS PASS - OCS WEST	2013	12/9/2013	3:40 PM	30.14342	-88.42076	234222.14350	1114658.15500	20-ft Vibracore	51.0	14.4	0.0-1.5	1.5	SP	SP	SUB-ANGULAR TO SUB- ROUNDED	Light Greenish Gray	10Y 7/1	7	Light Gray	2.5Y 7/1	7		0.43	0.73	1.1	2.1	0.8
BI-PBS-194-13B																												



Vibracore / Sample ID	Investigation Area	Sample Event	Date of Sample	Time_CST	Latitude	Longitude	Northing_Y	Easting_X	Sample Method	Water Depth (feet)	Boring Depth (feet below seafloor surface )	Sample Depth (Feet below seafloor surface)	Sample Thickness (feet)	Field USCS	Lab USCS	Angularity	Wet Munsell Color	Wet Munsell Color Code	Wet Munsell Value	Dry Munsell Color	Dry Munsell Color Code	Dry Munsell Value	CaCO3	D50 (mm)	Graphic Mean (mm)	% Fines	Cu (D60/D10)	Cc (D30)^2 / (D10*D60)
BI-PBS-198-13	PETIT BOIS PASS - OCS WEST	2013	12/4/2013	3:05 PM	30.13575	-88.40772	231447.83540	1118790.34200	20-ft Vibracore	49.0	9.6																	
BI-PBS-198-13A	PETIT BOIS PASS - OCS WEST	2013	12/4/2013	3:05 PM	30.13575	-88.40772	231447.83540	1118790.34200	20-ft Vibracore	49.0	9.6	0.0-1.5	1.5	SP	SP	SUB-ANGULAR TO SUB- ROUNDED	Light Greenish Gray	10Y 7/1	7	Light Gray	2.5Y 7/1	7		0.31	0.37	1.6	2.0	1.0
BI-PBS-200-13	PETIT BOIS PASS - OCS WEST	2013	12/3/2013	9:36 AM	30.13842	-88.39909	232429.14640	1121514.69700	20-ft Vibracore	57.0	18.8	NO SAMPLE TAKEN		CL	NO SAMPLE TESTED													
BI-PBS-201-13	PETIT BOIS PASS - OCS WEST	2013	12/3/2013	1:40 PM	30.13235	-88.40438	230215.26730	1119850.80500	20-ft Vibracore	52.0	19.4																	
BI-PBS-201-13A	PETIT BOIS PASS - OCS WEST	2013	12/3/2013	1:40 PM	30.13235	-88.40438	230215.26730	1119850.80500	20-ft Vibracore	52.0	19.4	0.0-2.4	2.4	SP	SP	SUB-ANGULAR TO SUB- ROUNDED	Olive Gray	5Y 5/2	5	Greenish Gray	GLE Y1 10Y 6/1	6		0.28	0.28	2.8	1.9	1.0
BI-PBS-201-13B	PETIT BOIS PASS - OCS WEST	2013	12/3/2013	1:40 PM	30.13235	-88.40438	230215.26730	1119850.80500	20-ft Vibracore	52.0	19.4	2.4-3.9	1.5	SM	SM	SUB-ANGULAR TO SUB- ROUNDED	Dark Greenish Gray	10Y 4/1	4	Gray	2.5Y 5/1	5		0.18	0.18	29.6	#DIV/0!	#DIV/0!
BI-PBS-202-13	PETIT BOIS PASS - OCS WEST	2013	12/3/2013	11:40 AM	30.13580	-88.40302	231471.59110	1120276.00100	20-ft Vibracore	50.0	16.0																	
BI-PBS-202-13A	PETIT BOIS PASS - OCS WEST	2013	12/3/2013	11:40 AM	30.13580	-88.40302	231471.59110	1120276.00100	20-ft Vibracore	50.0	16.0	0.0-1.2	1.2	SP	SP	SUB-ANGULAR TO SUB- ROUNDED	Olive Gray	5Y 5/2	5	Greenish Gray	GLE Y1 10Y 6/1	6		0.31	0.35	1.6	2.0	1.1
BI-PBS-205-13	PETIT BOIS PASS - OCS WEST	2013	12/8/2013	11:45 AM	30.12754	-88.40919	228460.27230	1118336.75300	20-ft Vibracore	54.3	20.0																	
BI-PBS-205-13A	PETIT BOIS PASS - OCS WEST	2013	12/8/2013	11:45 AM	30.12754	-88.40919	228460.27230	1118336.75300	20-ft Vibracore	54.3	20.0	0.0-1.0	1.0	SP	SP	SUB-ANGULAR TO SUB- ROUNDED	Greenish Gray	10Y 6/1	6	Greenish Gray	GLE Y1 10Y 6/1	6		0.23	0.30	4.7	1.7	0.9
BI-PBS-205-13B	PETIT BOIS PASS - OCS WEST	2013	12/8/2013	11:45 AM	30.12754	-88.40919	228460.27230	1118336.75300	20-ft Vibracore	54.3	20.0	1.0-3.2	2.2	SP-SM	SP-SM	SUB-ANGULAR TO SUB- ROUNDED	Greenish Gray	10Y 6/1	6	Greenish Gray	GLE Y1 10Y 6/1	6		0.21	0.27	6.8	2.1	1.1
BI-PBS-206-13	PETIT BOIS PASS - OCS WEST	2013	12/3/2013	10:38 AM	30.13893	-88.40418	232608.53780	1119905.03000	20-ft Vibracore	55.5	20.0	NO SAMPLE TAKEN		CL	NO SAMPLE TESTED													
BI-PBS-207-13	PETIT BOIS PASS - OCS WEST	2013	12/8/2013	1:36 PM	30.12876	-88.41234	228900.27810	1117339.28100	20-ft Vibracore	55.0	19.7																	
BI-PBS-207-13A	PETIT BOIS PASS - OCS WEST	2013	12/8/2013	1:36 PM	30.12876	-88.41234	228900.27810	1117339.28100	20-ft Vibracore	55.0	19.7	0.0-1.1	1.1	SP	SP	SUB-ANGULAR TO SUB- ROUNDED	Greenish Gray	10Y 6/1	6	Greenish Gray	GLE Y1 10Y 6/1	6		0.24	0.34	3.6	1.9	0.8
BI-PBS-207-13B	PETIT BOIS PASS - OCS WEST	2013	12/8/2013	1:36 PM	30.12876	-88.41234	228900.27810	1117339.28100	20-ft Vibracore	55.0	19.7	1.1-2.5	1.4	SM	SM	SUB-ANGULAR TO SUB- ROUNDED	Greenish Gray	10Y 6/1	6	Greenish Gray	GLE Y1 10Y 6/1	6		0.21	0.28	13.7	#DIV/0!	#DIV/0!
BI-PBS-210-13	PETIT BOIS PASS - OCS WEST	2013	12/2/2013	10:17 AM	30.13365	-88.39303	230701.71850	1123436.98000	20-ft Vibracore	56.0	19.8																	
BI-PBS-210-13A	PETIT BOIS PASS - OCS WEST	2013	12/2/2013	10:17 AM	30.13365	-88.39303	230701.71850	1123436.98000	20-ft Vibracore	56.0	19.8	0.0-1.5	1.5	SC-SM	SM	SUB-ANGULAR TO SUB- ROUNDED	Gray	5Y 5/1	5	Gray	2.5Y 6/1	6		0.21	0.20	24.4	#DIV/0!	#DIV/0!
BI-PBS-210-13B	PETIT BOIS PASS - OCS WEST	2013	12/2/2013	10:17 AM	30.13365	-88.39303	230701.71850	1123436.98000	20-ft Vibracore	56.0	19.8	1.5-3.4	1.9	SC	SC	SUB-ANGULAR TO SUB- ROUNDED	Gray	5Y 5/1	5	Light Gray	2.5Y 7/1	7		0.09	0.11	48.2	#DIV/0!	
BI-PBS-210-13C	PETIT BOIS PASS - OCS WEST	2013	12/2/2013	10:17 AM	30.13365	-88.39303	230701.71850	1123436.98000	20-ft Vibracore	56.0	19.8	5.4-10.0	4.6	SP-SM	SP-SM	SUB-ANGULAR TO SUB- ROUNDED	Greenish Gray	10Y 6/1	6	Gray	2.5Y 6/1	6		0.23	0.25	8.5	2.2	1.1
BI-PBS-210-13D	PETIT BOIS PASS - OCS WEST	2013	12/2/2013	10:17 AM	30.13365	-88.39303	230701.71850	1123436.98000	20-ft Vibracore	56.0	19.8	11.0-13.0	2.0	SP	SP-SM	SUB-ANGULAR TO SUB- ROUNDED	Gray	5Y 5/1	5	Gray	2.5Y 6/1	6		0.21	0.24	6.8	2.0	1.1
BI-PBS-210-13E	PETIT BOIS PASS - OCS WEST	2013	12/2/2013	10:17 AM	30.13365	-88.39303	230701.71850	1123436.98000	20-ft Vibracore	56.0	19.8	13.0-14.0	1.0	SP-SM	SP-SM	SUB-ANGULAR TO SUB- ROUNDED	Greenish Gray	10Y 6/1	6	Gray	2.5Y 6/1	6		0.19	0.21	9.2	2.5	1.4
BI-PBS-210-13F	PETIT BOIS PASS - OCS WEST	2013	12/2/2013	10:17 AM	30.13365	-88.39303	230701.71850	1123436.98000	20-ft Vibracore	56.0	19.8	14.0-19.0	5.0	SM	SM	SUB-ANGULAR TO SUB- ROUNDED	Greenish Gray	10Y 6/1	6	Gray	2.5Y 6/1	6		0.18	0.17	12.4	#DIV/0!	#DIV/0!
BI-PBS-212-13	PETIT BOIS PASS - OCS WEST	2013	12/9/2013	12:04 PM	30.13495	-88.41465	231148.78590	1116600.75200	20-ft Vibracore	53.0	11.9																	
BI-PBS-212-13A	PETIT BOIS PASS - OCS WEST	2013	12/9/2013	12:04 PM	30.13495	-88.41465	231148.78590	1116600.75200	20-ft Vibracore	53.0	11.9	0.0-1.0	1.0	SP	SP	SUB-ANGULAR TO SUB- ROUNDED	Light Greenish Gray	10Y 7/1	7	Light Gray	2.5Y 7/1	7		0.30	0.32	1.5	2.0	1.0
BI-PBS-212-13B	PETIT BOIS PASS - OCS WEST	2013	12/9/2013	12:04 PM	30.13495	-88.41465	231148.78590	1116600.75200	20-ft Vibracore	53.0	11.9	1.0-1.7	0.7	SM	SM	SUB-ANGULAR TO SUB- ROUNDED	Dark Greenish Gray	10Y 4/1	4	Gray	2.5Y 5/1	5		0.22	0.27	13.5	#DIV/0!	#DIV/0!
BI-PBS-214-13	PETIT BOIS PASS - OCS WEST	2013	12/2/2013	11:31 AM	30.12965	-88.39583	229243.58340	1122557.42200	20-ft Vibracore	49.0	19.8																	
BI-PBS-214-13A	PETIT BOIS PASS - OCS WEST	2013	12/2/2013	11:31 AM	30.12965	-88.39583	229243.58340	1122557.42200	20-ft Vibracore	49.0	19.8	0.0-5.0	5.0	SP	SP	SUB-ANGULAR TO SUB- ROUNDED	Olive Gray	5Y 5/2	5	Greenish Gray	GLE Y1 10Y 6/1	6		0.28	0.29	3.9	2.0	0.9
BI-PBS-214-13B	PETIT BOIS PASS - OCS WEST	2013	12/2/2013	11:31 AM	30.12965	-88.39583	229243.58340	1122557.42200	20-ft Vibracore	49.0	19.8	5.0-7.2	2.2	SP	SP	SUB-ANGULAR TO SUB- ROUNDED	Olive Gray	5Y 5/2	5	Greenish Gray	GLE Y1 10Y 6/1	6		0.30	0.33	1.9	2.0	1.0
BI-PBS-214-13C	PETIT BOIS PASS - OCS WEST	2013	12/2/2013	11:31 AM	30.12965	-88.39583	229243.58340	1122557.42200	20-ft Vibracore	49.0	19.8	7.2-9.0	1.8	SM-SC	SM	SUB-ANGULAR TO SUB- ROUNDED	Dark Greenish Gray	10Y 4/1	4	Greenish Gray	GLE Y1 10Y 5/1	5		0.21	0.26	16.7	#DIV/0!	#DIV/0!
BI-PBS-215-13	PETIT BOIS PASS - OCS WEST	2013	12/2/2013	1:05 PM	30.12876	-88.40077	228913.95380	1120996.95700	20-ft Vibracore	56.5	18.7																	
BI-PBS-215-13A	PETIT BOIS PASS - OCS WEST	2013	12/2/2013	1:05 PM	30.12876	-88.40077	228913.95380	1120996.95700	20-ft Vibracore	56.5	18.7	0.0-1.3	1.3	SM	SP-SM	SUB-ANGULAR TO SUB- ROUNDED	Dark Olive Gray	5Y 3/2	3	Greenish Gray	GLE Y1 10Y 6/1	6		0.21	0.23	8.5	2.1	1.2
BI-PBS-216-13	PETIT BOIS PASS - OCS WEST	2013	12/18/2013	10:45 AM	30.12966	-88.39019	229254.09840	1124340.39200	20-ft Vibracore	50.0	19.7																	
BI-PBS-216-13A	PETIT BOIS PASS - OCS WEST	2013	12/18/2013	10:45 AM	30.12966	-88.39019	229254.09840	1124340.39200	20-ft Vibracore	50.0	19.7	0.0-3.4	3.4	SP	SP	SUB-ANGULAR TO SUB- ROUNDED	Light Greenish Gray	10Y 7/1	7	Light Gray	2.5Y 7/1	7		0.29	0.32	2.2	2.0	0.9
BI-PBS-216-13B	PETIT BOIS PASS - OCS WEST	2013	12/18/2013	10:45 AM	30.12966	-88.39019	229254.09840	1124340.39200	20-ft Vibracore	50.0	19.7	3.4-3.7	0.3	SM	SP-SM	SUB-ANGULAR TO SUB- ROUNDED	Greenish Gray	10Y 5/1	5	Gray	2.5Y 5/1	5		0.24	0.37	8.3	2.2	1.0
BI-PBS-217-13	PETIT BOIS PASS - OCS WEST	2013	12/4/2013	1:36 PM	30.13755	-88.41171	232097.78240	1117526.63600	20-ft Vibracore	48.7	11.5																	
BI-PBS-217-13A	PETIT BOIS PASS - OCS WEST	2013	12/4/2013	1:36 PM	30.13755	-88.41171	232097.78240	1117526.63600	20-ft Vibracore	48.7	11.5	0.0-3.4	3.4	SP	SP	SUB-ANGULAR TO SUB- ROUNDED	Light Greenish Gray	10Y 7/1	7	Light Greenish Gray	GLE Y1 10Y 7/1	7		0.28	0.29	1.3	1.9	0.9
BI-PBS-218-13	PETIT BOIS PASS - OCS WEST	2013	12/4/2013	4:27 PM	30.13291	-88.41034	230411.89760	1117965.95600	20-ft Vibracore	55.0	19.5																	
BI-PBS-218-13A	PETIT BOIS PASS - OCS WEST	2013	12/4/2013	4:27 PM	30.13291	-88.41034	230411.89760	1117965.95600	20-ft Vibracore	55.0	19.5	0.0-0.3	0.3	SP-SM	SP-SM	SUB-ANGULAR TO SUB- ROUNDED	Greenish Gray	10Y 6/1	6	Gray	2.5Y 6/1	6		0.24	0.62	9.9	4.0	1.4
BI-PBS-219-13	PETIT BOIS PASS - OCS WEST	2013	12/17/2013	11:08 AM	30.11952	-88.39940	225555.17330	1121442.83500	20-ft Vibracore	53.0	17.5																	
BI-PBS-219-13A	PETIT BOIS PASS - OCS WEST	2013	12/17/2013	11:08 AM	30.11952	-88.39940	225555.17330	1121442.83500	20-ft Vibracore	53.0	17.5	0.0-5.3	5.3	SP-SM	SP	SUB-ANGULAR TO SUB- ROUNDED	Greenish Gray	10Y 6/1	6	Greenish Gray	GLE Y1 10Y 6/1	6		0.23	0.26	3.1	1.7	0.9
BI-PBS-220-13	PETIT BOIS PASS - OCS WEST	2013	12/2/2013	9:00 AM	30.13765	-88.39274	232156.80460	1123523.03800	20-ft Vibracore	59.0	20.0																	
BI-PBS-220-13A	PETIT BOIS PASS - OCS WEST	2013	12/2/2013	9:00 AM	30.13765	-88.39274	232156.80460	1123523.03800	20-ft Vibracore	59.0	20.0	0.0-1.1	1.1	SM	SC	SUB-ANGULAR TO SUB- ROUNDED	Dark Greenish Gray	10Y 4/1	4	Gray	2.5Y 5/1	5		0.17	0.17	34.6	#DIV/0!	
BI-PBS-220-13B	PETIT BOIS PASS - OCS WEST	2013	12/2/2013	9:00 AM	30.13765	-88.39274	232156.80460	1123523.03800	20-ft Vibracore	59.0	20.0	1.6-2.2	0.6	SM	SP-SM	SUB-ANGULAR TO SUB- ROUNDED	Greenish Gray	10Y 6/1	6	Gray	2.5Y 6/1	6						

Vibracore / Sample ID	Investigation Area	Sample Event	Date of Sample	Time_CST	Latitude	Longitude	Northing_Y	Easting_X	Sample Method	Water Depth (feet)	Boring Depth (feet below seafloor surface )	Sample Depth (Feet below seafloor surface)	Sample Thickness (feet)	Field USCS	Lab USCS	Angularity	Wet Munsell Color	Wet Munsell Color Code	Wet Munsell Value	Dry Munsell Color	Dry Munsell Color Code	Dry Munsell Value	CaCO3	D50 (mm)	Graphic Mean (mm)	% Fines	Cu (D60/D10)	Cc (D30)*2 / (D10*D60)
BI-PBS-223-13A	PETIT BOIS PASS - OCS WEST	2013	12/4/2013	9:53 AM	30.14042	-88.40788	233146.04580	1118733.43200	20-ft Vibracore	56.0	19.0	0.0-3.4	3.4	SM	SM	SUB-ANGULAR TO SUB- ROUNDED	Very Dark Gray	2.5Y 3/1	3	Gray	2.5Y 5/1	5		0.20	0.21	14.9	#DIV/0!	#DIV/0!
BI-PBS-223-13B	PETIT BOIS PASS - OCS WEST	2013	12/4/2013	9:53 AM	30.14042	-88.40788	233146.04580	1118733.43200	20-ft Vibracore	56.0	19.0	5.1-10.3	5.2	SP-SM	SP-SM	SUB-ANGULAR TO SUB- ROUNDED	Dark Greenish Gray	10Y 4/1	4	Gray	2.5Y 5/1	5		0.21	0.24	7.4	2.0	1.1
BI-PBS-223-13C	PETIT BOIS PASS - OCS WEST	2013	12/4/2013	9:53 AM	30.14042	-88.40788	233146.04580	1118733.43200	20-ft Vibracore	56.0	19.0	10.3-15.3	5.0	SP-SM	SP-SM	SUB-ANGULAR TO SUB- ROUNDED	Dark Greenish Gray	10Y 4/1	4	Gray	2.5Y 6/1	6		0.19	0.20	7.2	2.1	1.2
BI-PBS-224-13	PETIT BOIS PASS - OCS WEST	2013	12/4/2013	11:08 AM	30.14188	-88.41183	233672.38900	1117482.88600	20-ft Vibracore	56.0	19.5																	
BI-PBS-224-13A	PETIT BOIS PASS - OCS WEST	2013	12/4/2013	11:08 AM	30.14188	-88.41183	233672.38900	1117482.88600	20-ft Vibracore	56.0	19.5	3.9-7.2	3.3	SP-SM	SP-SM	SUB-ANGULAR TO SUB- ROUNDED	Dark Greenish Gray	10Y 4/1	4	Gray	2.5Y 5/1	5		0.20	0.22	7.6	1.9	1.2
BI-PBS-224-13B	PETIT BOIS PASS - OCS WEST	2013	12/4/2013	11:08 AM	30.14188	-88.41183	233672.38900	1117482.88600	20-ft Vibracore	56.0	19.5	7.2-12.5	5.3	SP	SP-SM	SUB-ANGULAR TO SUB- ROUNDED	Dark Greenish Gray	10Y 4/1	4	Gray	2.5Y 6/1	6		0.20	0.23	5.8	2.0	1.1
BI-PBS-225-13	PETIT BOIS PASS - OCS WEST	2013	12/18/2013	1:56 PM	30.14250	-88.43407	233872.58780	1110452.20300	20-ft Vibracore	48.7	20.0																	
BI-PBS-225-13A	PETIT BOIS PASS - OCS WEST	2013	12/18/2013	1:56 PM	30.14250	-88.43407	233872.58780	1110452.20300	20-ft Vibracore	48.7	20.0	0.0-0.9	0.9	SP	SP	SUB-ANGULAR TO SUB- ROUNDED	Greenish Gray	10Y 5/1	5	Gray	2.5Y 6/1	6		0.31	1.87	3.1	2.5	0.7
BI-PBS-225-13B	PETIT BOIS PASS - OCS WEST	2013	12/18/2013	1:56 PM	30.14250	-88.43407	233872.58780	1110452.20300	20-ft Vibracore	48.7	20.0	0.9-1.4	0.5	SM	SM	SUB-ANGULAR TO SUB- ROUNDED	Dark Greenish Gray	10Y 4/1	4	Greenish Gray	GLEY1 10Y 5/1	5		0.21	1.21	13.6	#DIV/0!	#DIV/0!
BI-PBS-228-13	PETIT BOIS PASS - OCS WEST	2013	12/16/2013	8:52 AM	30.14759	-88.42831	235730.15020	1112266.31100	20-ft Vibracore	53.0	20.0																	
BI-PBS-228-13A	PETIT BOIS PASS - OCS WEST	2013	12/16/2013	8:52 AM	30.14759	-88.42831	235730.15020	1112266.31100	20-ft Vibracore	53.0	20.0	0.0-3.9	3.9	SM	SM	SUB-ANGULAR TO SUB- ROUNDED	Dark Gray	2.5Y 4/1	4	Gray	2.5Y 5/1	5		0.25	0.23	19.8	#DIV/0!	#DIV/0!
BI-PBS-228-13B	PETIT BOIS PASS - OCS WEST	2013	12/16/2013	8:52 AM	30.14759	-88.42831	235730.15020	1112266.31100	20-ft Vibracore	53.0	20.0	3.9-8.9	5.0	SP	SP	SUB-ANGULAR TO SUB- ROUNDED	Gray	2.5Y 6/1	6	Gray	2.5Y 6/1	6		0.34	0.39	2.6	1.8	1.1
BI-PBS-228-13C	PETIT BOIS PASS - OCS WEST	2013	12/16/2013	8:52 AM	30.14759	-88.42831	235730.15020	1112266.31100	20-ft Vibracore	53.0	20.0	8.9-13.9	5.0	SP	SP	SUB-ANGULAR TO SUB- ROUNDED	Gray	2.5Y 6/1	6	Greenish Gray	GLEY1 10Y 6/1	6		0.32	0.35	3.1	2.0	1.2
BI-PBS-228-13D	PETIT BOIS PASS - OCS WEST	2013	12/16/2013	8:52 AM	30.14759	-88.42831	235730.15020	1112266.31100	20-ft Vibracore	53.0	20.0	13.9-18.9	5.0	SP	SP	SUB-ANGULAR TO SUB- ROUNDED	Gray	2.5Y 6/1	6	Gray	2.5Y 6/1	6		0.51	0.55	3.7	2.2	0.9
BI-PBS-228-13E	PETIT BOIS PASS - OCS WEST	2013	12/16/2013	8:52 AM	30.14759	-88.42831	235730.15020	1112266.31100	20-ft Vibracore	53.0	20.0	18.9-20.0	1.1	SM	SM	SUB-ANGULAR TO SUB- ROUNDED	Gray	2.5Y 5/1	5	Greenish Gray	GLEY1 10Y 6/1	6		0.19	0.20	14.0	#DIV/0!	#DIV/0!
BI-PBS-229-13	PETIT BOIS PASS - OCS WEST	2013	12/16/2013	3:55 PM	30.14538	-88.43136	234923.00150	1111305.11700	20-ft Vibracore	48.7	17.5																	
BI-PBS-229-13A	PETIT BOIS PASS - OCS WEST	2013	12/16/2013	3:55 PM	30.14538	-88.43136	234923.00150	1111305.11700	20-ft Vibracore	48.7	17.5	0.0-3.6	3.6	SP	SP	SUB-ANGULAR TO SUB- ROUNDED	Light Gray	2.5Y 7/1	7	Light Gray	2.5Y 7/1	7		0.29	0.30	1.7	1.9	1.0
BI-PBS-229-13B	PETIT BOIS PASS - OCS WEST	2013	12/16/2013	3:55 PM	30.14538	-88.43136	234923.00150	1111305.11700	20-ft Vibracore	48.7	17.5	3.6-4.8	1.2	SM	SM	SUB-ANGULAR TO SUB- ROUNDED	Greenish Gray	10Y 5/1	5	Gray	2.5Y 5/1	5		0.22	0.23	17.0	#DIV/0!	#DIV/0!
BI-PBS-229-13C	PETIT BOIS PASS - OCS WEST	2013	12/16/2013	3:55 PM	30.14538	-88.43136	234923.00150	1111305.11700	20-ft Vibracore	48.7	17.5	6.2-7.8	1.6	SM	SM	SUB-ANGULAR TO SUB- ROUNDED	Very Dark Gray	2.5Y 3/1	3	Dark Gray	2.5Y 4/1	4		0.23	0.24	14.1	#DIV/0!	#DIV/0!
BI-PBS-229-13D	PETIT BOIS PASS - OCS WEST	2013	12/16/2013	3:55 PM	30.14538	-88.43136	234923.00150	1111305.11700	20-ft Vibracore	48.7	17.5	8.5-13.5	5.0	SP	SP	SUB-ANGULAR TO SUB- ROUNDED	Gray	2.5Y 5/1	5	Gray	2.5Y 6/1	6		0.27	0.28	4.3	2.0	0.9
BI-PBS-229-13E	PETIT BOIS PASS - OCS WEST	2013	12/16/2013	3:55 PM	30.14538	-88.43136	234923.00150	1111305.11700	20-ft Vibracore	48.7	17.5	13.5-17.5	4.0	SP	SP	SUB-ANGULAR TO SUB- ROUNDED	Gray	2.5Y 5/1	5	Light Gray	2.5Y 7/1	7		0.20	0.22	3.2	1.6	1.0
BI-PBS-230-13	PETIT BOIS PASS - OCS WEST	2013	12/17/2013	8:35 AM	30.14220	-88.42780	233770.47270	1112434.47600	20-ft Vibracore	45.4	18.2																	
BI-PBS-230-13A	PETIT BOIS PASS - OCS WEST	2013	12/17/2013	8:35 AM	30.14220	-88.42780	233770.47270	1112434.47600	20-ft Vibracore	45.4	18.2	0.0-4.4	4.4	SP	SP	SUB-ANGULAR TO SUB- ROUNDED	Gray	2.5Y 6/1	6	Greenish Gray	GLEY1 10Y 6/1	6		0.29	0.29	1.8	1.9	0.9
BI-PBS-230-13B	PETIT BOIS PASS - OCS WEST	2013	12/17/2013	8:35 AM	30.14220	-88.42780	233770.47270	1112434.47600	20-ft Vibracore	45.4	18.2	4.4-5.0	0.6	GP	SP	SUB-ANGULAR TO SUB- ROUNDED	Dark Gray & Gray	2.5Y 4/1	4	Greenish Gray	GLEY1 10Y 5/1	5		2.60	4.03	2.7	21.5	0.3
BI-PBS-230-13C	PETIT BOIS PASS - OCS WEST	2013	12/17/2013	8:35 AM	30.14220	-88.42780	233770.47270	1112434.47600	20-ft Vibracore	45.4	18.2	5.0-6.8	1.8	SM	SM	SUB-ANGULAR TO SUB- ROUNDED	Dark Gray	2.5Y 4/1	4	Gray	2.5Y 5/1	5		0.20	0.19	21.5	#DIV/0!	#DIV/0!
BI-PBS-230-13D	PETIT BOIS PASS - OCS WEST	2013	12/17/2013	8:35 AM	30.14220	-88.42780	233770.47270	1112434.47600	20-ft Vibracore	45.4	18.2	8.2-9.8	1.6	SM	SM	SUB-ANGULAR TO SUB- ROUNDED	Dark Gray	2.5Y 4/1	4	Gray	2.5Y 5/1	5		0.20	0.18	21.0	#DIV/0!	#DIV/0!
BI-PBS-231-13	PETIT BOIS PASS - OCS WEST	2013	12/18/2013	9:07 AM	30.12489	-88.39184	227517.31080	1123825.48400	20-ft Vibracore	54.6	19.7																	
BI-PBS-231-13A	PETIT BOIS PASS - OCS WEST	2013	12/18/2013	9:07 AM	30.12489	-88.39184	227517.31080	1123825.48400	20-ft Vibracore	54.6	19.7	0.0-3.0	3.0	SP	SP-SM	SUB-ANGULAR TO SUB- ROUNDED	Greenish Gray	10Y 6/1	6	Greenish Gray	GLEY1 10Y 6/1	6		0.22	0.25	5.3	1.6	0.9
BI-PBS-233-13	PETIT BOIS PASS - OCS WEST	2013	12/9/2013	1:42 PM	30.13810	-88.41889	232289.49350	1115256.26600	20-ft Vibracore	50.0	14.1																	
BI-PBS-233-13A	PETIT BOIS PASS - OCS WEST	2013	12/9/2013	1:42 PM	30.13810	-88.41889	232289.49350	1115256.26600	20-ft Vibracore	50.0	14.1	0.0-3.3	3.3	SP	SP	SUB-ANGULAR TO SUB- ROUNDED	Light Greenish Gray	10Y 7/1	7	Light Greenish Gray	GLEY1 10Y 7/1	7		0.29	0.29	1.6	1.9	1.0
BI-PBS-234-13	PETIT BOIS PASS - OCS WEST	2013	1/8/2014	10:28 AM	30.14932	-88.46674	236318.24160	1100117.57600	20-ft Vibracore	48.1	13.7																	
BI-PBS-234-13A	PETIT BOIS PASS - OCS WEST	2013	1/8/2014	10:28 AM	30.14932	-88.46674	236318.24160	1100117.57600	20-ft Vibracore	48.1	13.7	0.0-2.6	2.6	SP	SP	SUB-ANGULAR TO SUB- ROUNDED	Very Dark Gray	5Y 3/1	3	Greenish Gray	GLEY1 10Y 6/1	6		0.39	1.03	1.3	3.0	0.9
BI-PBS-234-13B	PETIT BOIS PASS - OCS WEST	2013	1/8/2014	10:28 AM	30.14932	-88.46674	236318.24160	1100117.57600	20-ft Vibracore	48.1	13.7	2.6-3.3	0.7	SP	SP-SM	SUB-ANGULAR TO SUB- ROUNDED	Dark Gray	5Y 4/1	4	Gray	2.5Y 6/1	6		0.21	0.36	5.1	2.1	1.0
BI-PBS-234-13C	PETIT BOIS PASS - OCS WEST	2013	1/8/2014	10:28 AM	30.14932	-88.46674	236318.24160	1100117.57600	20-ft Vibracore	48.1	13.7	3.3-7.0	3.7	SM	SM	SUB-ANGULAR TO SUB- ROUNDED	Very Dark Gray	5Y 3/1	3	Greenish Gray	GLEY1 10Y 5/1	5		0.15	0.14	16.3	#DIV/0!	#DIV/0!
BI-PBS-235-13	PETIT BOIS PASS - OCS WEST	2013	12/27/2013	3:24 PM	30.15642	-88.44769	238920.24160	1106129.94200	20-ft Vibracore	45.6	18.2																	
BI-PBS-235-13A	PETIT BOIS PASS - OCS WEST	2013	12/27/2013	3:24 PM	30.15642	-88.44769	238920.24160	1106129.94200	20-ft Vibracore	45.6	18.2	0.0-5.0	5.0	SP	SP	SUB-ANGULAR TO SUB- ROUNDED	Gray	2.5Y 6/1	6	Light Greenish Gray	GLEY1 10Y 7/1	7		0.33	0.36	0.7	1.7	1.1
BI-PBS-235-13B	PETIT BOIS PASS - OCS WEST	2013	12/27/2013	3:24 PM	30.15642	-88.44769	238920.24160	1106129.94200	20-ft Vibracore	45.6	18.2	5.0-7.6	2.6	SM	SM	SUB-ANGULAR TO SUB- ROUNDED	Greenish Gray	10Y 5/1	5	Greenish Gray	GLEY1 10Y 5/1	5		0.19	0.22	13.3	#DIV/0!	#DIV/0!
BI-PBS-236-13	PETIT BOIS PASS - OCS WEST	2013	12/27/2013	9:53 AM	30.15303	-88.44914	237685.81010	1105675.82900	20-ft Vibracore	49.3	19.8																	
BI-PBS-236-13A	PETIT BOIS PASS - OCS WEST	2013	12/27/2013	9:53 AM	30.15303	-88.44914	237685.81010	1105675.82900	20-ft Vibracore	49.3	19.8	0.0-0.6	0.6	SP	SP	SUB-ANGULAR TO SUB- ROUNDED	Greenish Gray	10Y 6/1	6	Greenish Gray	GLEY1 10Y 6/1	6		0.24	0.32	2.8	1.8	0.9
BI-PBS-236-13B	PETIT BOIS PASS - OCS WEST	2013	12/27/2013	9:53 AM	30.15303	-88.44914	237685.81010	1105675.82900	20-ft Vibracore	49.3	19.8	0.6-2.9	2.3	SM	SM	SUB-ANGULAR TO SUB- ROUNDED	Dark Greenish Gray	10Y 4/1	4	Gray	2.5Y 5/1	5		0.21	0.32	12.1	#DIV/0!	#DIV/0!
BI-PBS-237-13	PETIT BOIS PASS - OCS WEST	2013	12/19/2013	10:28 AM	30.15068	-88.44518	236835.39290	1106930.32000	20-ft Vibracore	49.7	19.7																	
BI-PBS-237-13A	PETIT BOIS PASS - OCS WEST	2013	12/19/2013	10:28 AM	30.15068	-88.44518	236835.39290	1106930.32000	20-ft Vibracore	49.7	19.7	0.0-1.3																

Vibracore / Sample ID	Investigation Area	Sample Event	Date of Sample	Time_CST	Latitude	Longitude	Northing_Y	Easting_X	Sample Method	Water Depth (feet)	Boring Depth (feet below seafloor surface )	Sample Depth (Feet below seafloor surface)	Sample Thickness (feet)	Field USCS	Lab USCS	Angularity	Wet Munsell Color	Wet Munsell Color Code	Wet Munsell Value	Dry Munsell Color	Dry Munsell Color Code	Dry Munsell Value	CaCO3	D50 (mm)	Graphic Mean (mm)	% Fines	Cu (D60/D10)	Cc (D30)*2 / (D10*D60)	
BI-PBS-243-13B	PETIT BOIS PASS - OCS WEST	2013	1/13/2014	12:24 PM	30.12275	-88.43571	226688.05960	1109958.83900	20-ft Vibracore	47.7	12.2	3.7-5.2	1.5	SP	SP-SM	SUB-ANGULAR TO SUB- ROUNDED	Very Dark Greenish Gray	10Y 3/1	3	Greenish Gray	GLE Y1 10Y 5/1	5		0.19	0.21	5.0	1.9	1.0	
BI-PBS-243-13C	PETIT BOIS PASS - OCS WEST	2013	1/13/2014	12:24 PM	30.12275	-88.43571	226688.05960	1109958.83900	20-ft Vibracore	47.7	12.2	5.2-5.8	0.6	SM	SM	SUB-ANGULAR TO SUB- ROUNDED	Very Dark Greenish Gray	10Y 3/1	3	Gray	2.5Y 5/1	5		0.18	0.17	16.4	#DIV/0!	#DIV/0!	
BI-PBS-244-13	PETIT BOIS PASS - OCS WEST	2013	1/12/2014	2:15 PM	30.12671	-88.43241	228131.88730	1110997.08600	20-ft Vibracore	53.3	10.7																		
BI-PBS-244-13A	PETIT BOIS PASS - OCS WEST	2013	1/12/2014	2:15 PM	30.12671	-88.43241	228131.88730	1110997.08600	20-ft Vibracore	53.3	10.7	0.0-0.9	0.9	SP-SM	SP-SM	SUB-ANGULAR TO SUB- ROUNDED	Dark Greenish Gray	10Y 4/1	4	Gray	2.5Y 5/1	5		0.21	0.24	5.0	2.1	1.0	
BI-PBS-245-13	PETIT BOIS PASS - OCS WEST	2013	1/12/2014	12:56 PM	30.12940	-88.43568	229106.57500	1109959.89800	20-ft Vibracore	52.0	18.3																		
BI-PBS-245-13A	PETIT BOIS PASS - OCS WEST	2013	1/12/2014	12:56 PM	30.12940	-88.43568	229106.57500	1109959.89800	20-ft Vibracore	52.0	18.3	0.0-1.3	1.3	SP-SM	SP	SUB-ANGULAR TO SUB- ROUNDED	Very Dark Greenish Gray	5GY 3/1	3	Gray	2.5Y 5/1	5		0.26	0.32	4.0	2.5	1.0	
BI-PBS-248-13	PETIT BOIS PASS - OCS WEST	2013	1/8/2014	1:49 PM	30.15620	-88.47290	238814.17130	1098162.69200	20-ft Vibracore	46.1	18.1																		
BI-PBS-248-13A	PETIT BOIS PASS - OCS WEST	2013	1/8/2014	1:49 PM	30.15620	-88.47290	238814.17130	1098162.69200	20-ft Vibracore	46.1	18.1	0.0-4.8	4.8	SP	SP-SM	SUB-ANGULAR TO SUB- ROUNDED	Very Dark Gray	5Y 3/1	3	Gray	2.5Y 5/1	5		0.17	0.19	11.7	#DIV/0!	#DIV/0!	
BI-PBS-248-13B	PETIT BOIS PASS - OCS WEST	2013	1/8/2014	1:49 PM	30.15620	-88.47290	238814.17130	1098162.69200	20-ft Vibracore	46.1	18.1	4.8-6.5	1.7	SM	SM	SUB-ANGULAR TO SUB- ROUNDED	Very Dark Gray	5Y 3/1	3	Greenish Gray	GLE Y1 10Y 5/1	5		0.13	0.12	21.7	#DIV/0!	#DIV/0!	
BI-PBS-250-13	PETIT BOIS PASS - OCS WEST	2013	1/8/2014	4:11 PM	30.15038	-88.47808	236692.40450	1096532.16700	20-ft Vibracore	44.5	15.7																		
BI-PBS-250-13A	PETIT BOIS PASS - OCS WEST	2013	1/8/2014	4:11 PM	30.15038	-88.47808	236692.40450	1096532.16700	20-ft Vibracore	44.5	15.7	0.0-2.8	2.8	SP	SP	SUB-ANGULAR TO SUB- ROUNDED	Dark Olive Gray	5Y 3/2	3	Greenish Gray	GLE Y1 10Y 6/1	6		0.24	0.27	1.6	1.8	0.9	
BI-PBS-250-13B	PETIT BOIS PASS - OCS WEST	2013	1/8/2014	4:11 PM	30.15038	-88.47808	236692.40450	1096532.16700	20-ft Vibracore	44.5	15.7	2.8-4.2	1.4	SM	SP-SM	SUB-ANGULAR TO SUB- ROUNDED	Very Dark Gray	5Y 3/1	3	Greenish Gray	GLE Y1 10Y 5/1	5		0.20	0.22	7.2	2.0	1.1	
BI-PBS-251-13	PETIT BOIS PASS - OCS WEST	2013	1/20/2014	11:29 AM	30.12536	-88.44421	227628.00830	1107268.30300	20-ft Vibracore	48.4	14.8																		
BI-PBS-251-13A	PETIT BOIS PASS - OCS WEST	2013	1/20/2014	11:29 AM	30.12536	-88.44421	227628.00830	1107268.30300	20-ft Vibracore	48.4	14.8	0.0-2.5	2.5	SP	SP	SUB-ANGULAR TO SUB- ROUNDED	Dark Gray	5Y 4/1	4	Gray	2.5Y 6/1	6		0.23	0.26	2.0	1.6	0.9	
BI-PBS-251-13B	PETIT BOIS PASS - OCS WEST	2013	1/20/2014	11:29 AM	30.12536	-88.44421	227628.00830	1107268.30300	20-ft Vibracore	48.4	14.8	2.5-4.6	2.1	SP-SM	SP-SM	SUB-ANGULAR TO SUB- ROUNDED	Very Dark Gray	5Y 3/1	3	Gray	2.5Y 5/1	5		0.20	0.24	7.0	2.2	1.1	
BI-PBS-252-13	PETIT BOIS PASS - OCS WEST	2013	1/13/2014	2:10 PM	30.12580	-88.43832	227794.42340	1109129.84100	20-ft Vibracore	48.1	15.5																		
BI-PBS-252-13A	PETIT BOIS PASS - OCS WEST	2013	1/13/2014	2:10 PM	30.12580	-88.43832	227794.42340	1109129.84100	20-ft Vibracore	48.1	15.5	0.0-1.9	1.9	SP	SP	SUB-ANGULAR TO SUB- ROUNDED	Greenish Gray	10Y 5/1	5	Light Gray	2.5Y 7/1	7		0.24	0.27	1.7	1.8	0.9	
BI-PBS-252-13B	PETIT BOIS PASS - OCS WEST	2013	1/13/2014	2:10 PM	30.12580	-88.43832	227794.42340	1109129.84100	20-ft Vibracore	48.1	15.5	1.9-2.8	0.9	SM	SP-SM	SUB-ANGULAR TO SUB- ROUNDED	Greenish Gray	10Y 5/1	5	Gray	2.5Y 5/1	5		0.19	0.22	8.0	2.4	1.2	
BI-PBS-253-13	PETIT BOIS PASS - OCS WEST	2013	1/16/2014	4:03 PM	30.12892	-88.44182	228925.29780	1108019.44800	20-ft Vibracore	48.1	11.7																		
BI-PBS-253-13A	PETIT BOIS PASS - OCS WEST	2013	1/16/2014	4:03 PM	30.12892	-88.44182	228925.29780	1108019.44800	20-ft Vibracore	48.1	11.7	0.0-1.1	1.1	SP	SP	SUB-ANGULAR TO SUB- ROUNDED	Gray	5Y 5/1	5	Light Gray	2.5Y 7/1	7		0.32	0.50	0.8	2.1	0.9	
BI-PBS-253-13B	PETIT BOIS PASS - OCS WEST	2013	1/16/2014	4:03 PM	30.12892	-88.44182	228925.29780	1108019.44800	20-ft Vibracore	48.1	11.7	1.1-1.7	0.6	SP-SM	SP	SUB-ANGULAR TO SUB- ROUNDED	Dark Olive Gray	5Y 3/2	3	Greenish Gray	GLE Y1 10Y 6/1	6		0.23	0.35	4.9	2.2	1.0	
BI-PBS-253-13C	PETIT BOIS PASS - OCS WEST	2013	1/16/2014	4:03 PM	30.12892	-88.44182	228925.29780	1108019.44800	20-ft Vibracore	48.1	11.7	1.7-2.4	0.7	SM	SP-SM	SUB-ANGULAR TO SUB- ROUNDED	Very Dark Gray	5Y 3/1	3	Greenish Gray	GLE Y1 10Y 6/1	6		0.22	0.27	5.6	2.2	1.0	
BI-PBS-254-13	PETIT BOIS PASS - OCS WEST	2013	1/12/2014	11:20 AM	30.13194	-88.43935	230026.30340	1108796.50600	20-ft Vibracore	52.0	16.4																		
BI-PBS-254-13A	PETIT BOIS PASS - OCS WEST	2013	1/12/2014	11:20 AM	30.13194	-88.43935	230026.30340	1108796.50600	20-ft Vibracore	52.0	16.4	0.0-0.6	0.6	SM	SP-SM	SUB-ANGULAR TO SUB- ROUNDED	Very Dark Gray	5Y 3/1	3	Gray	2.5Y 5/1	5		0.20	0.24	9.1	2.8	1.1	
BI-PBS-255-13	PETIT BOIS PASS - OCS WEST	2013	1/20/2014	10:25 AM	30.12651	-88.45049	228039.52880	1105281.51200	20-ft Vibracore	49.0	16.7																		
BI-PBS-255-13A	PETIT BOIS PASS - OCS WEST	2013	1/20/2014	10:25 AM	30.12651	-88.45049	228039.52880	1105281.51200	20-ft Vibracore	49.0	16.7	0.0-2.2	2.2	SP	SP	SUB-ANGULAR TO SUB- ROUNDED	Very Dark Gray	5Y 3/1	3	Gray	2.5Y 6/1	6		0.21	0.25	2.4	1.5	0.9	
BI-PBS-255-13B	PETIT BOIS PASS - OCS WEST	2013	1/20/2014	10:25 AM	30.12651	-88.45049	228039.52880	1105281.51200	20-ft Vibracore	49.0	16.7	2.2-4.2	2.0	SM	SM	SUB-ANGULAR TO SUB- ROUNDED	Very Dark Gray	5Y 3/1	3	Gray	2.5Y 5/1	5		0.18	0.19	12.5	#DIV/0!	#DIV/0!	
BI-PBS-257-13	PETIT BOIS PASS - OCS WEST	2013	1/16/2014	2:51 PM	30.13078	-88.44780	229595.31070	1106126.68600	20-ft Vibracore	47.1	9.3																		
BI-PBS-257-13A	PETIT BOIS PASS - OCS WEST	2013	1/16/2014	2:51 PM	30.13078	-88.44780	229595.31070	1106126.68600	20-ft Vibracore	47.1	9.3	0.0-2.0	2.0	SP	SP	SUB-ANGULAR TO SUB- ROUNDED	Dark Olive Gray	5Y 3/2	3	Gray	2.5Y 6/1	6		0.25	0.28	1.7	1.8	0.9	
BI-PBS-257-13B	PETIT BOIS PASS - OCS WEST	2013	1/16/2014	2:51 PM	30.13078	-88.44780	229595.31070	1106126.68600	20-ft Vibracore	47.1	9.3	2.0-2.5	0.5	SM	SP	SUB-ANGULAR TO SUB- ROUNDED	Dark Olive Gray	5Y 3/2	3	Greenish Gray	GLE Y1 10Y 6/1	6		0.21	0.25	4.8	2.0	1.1	
BI-PBS-258-13	PETIT BOIS PASS - OCS WEST	2013	1/12/2014	9:58 AM	30.13528	-88.44379	231236.18280	1107388.77100	20-ft Vibracore	51.7	18.1	NO SAMPLE TAKEN		CL	NO SAMPLE TESTED														
BI-PBS-259-13	PETIT BOIS PASS - OCS WEST	2013	1/18/2014	8:43 AM	30.14268	-88.47501	233895.08900	1097511.28000	20-ft Vibracore	46.8	14.2																		
BI-PBS-259-13A	PETIT BOIS PASS - OCS WEST	2013	1/18/2014	8:43 AM	30.14268	-88.47501	233895.08900	1097511.28000	20-ft Vibracore	46.8	14.2	0.0-1.3	1.3	SP	SM	SUB-ANGULAR TO SUB- ROUNDED	Dark Olive Gray	5Y 3/2	3	Gray	2.5Y 5/1	5		0.16	0.17	12.1	#DIV/0!	#DIV/0!	
BI-PBS-260-13	PETIT BOIS PASS - OCS WEST	2013	1/18/2014	10:54 AM	30.13656	-88.46674	231677.66140	1100132.48600	20-ft Vibracore	47.4	16.9																		
BI-PBS-260-13A	PETIT BOIS PASS - OCS WEST	2013	1/18/2014	10:54 AM	30.13656	-88.46674	231677.66140	1100132.48600	20-ft Vibracore	47.4	16.9	0.0-1.5	1.5	SP	SP-SM	SUB-ANGULAR TO SUB- ROUNDED	Dark Greenish Gray	5GY 4/1	4	Greenish Gray	GLE Y1 10Y 6/1	6		0.19	0.21	6.8	2.1	1.2	
BI-PBS-260-13B	PETIT BOIS PASS - OCS WEST	2013	1/18/2014	10:54 AM	30.13656	-88.46674	231677.66140	1100132.48600	20-ft Vibracore	47.4	16.9	1.5-3.6	2.1	SP-SM	SM	SUB-ANGULAR TO SUB- ROUNDED	Dark Greenish Gray	5GY 4/1	4	Greenish Gray	GLE Y1 10Y 5/1	5		0.12	0.12	19.7	#DIV/0!	#DIV/0!	
BI-PBS-261-13	PETIT BOIS PASS - OCS WEST	2013	1/18/2014	12:16 PM	30.13361	-88.46355	230608.05450	1101144.34900	20-ft Vibracore	48.1	12.4																		
BI-PBS-261-13A	PETIT BOIS PASS - OCS WEST	2013	1/18/2014	12:16 PM	30.13361	-88.46355	230608.05450	1101144.34900	20-ft Vibracore	48.1	12.4	0.0-1.7	1.7	SP	SM	SUB-ANGULAR TO SUB- ROUNDED	Very Dark Greenish Gray	10Y 3/1	3	Gray	2.5Y 5/1	5		0.17	0.17	12.2	#DIV/0!	#DIV/0!	
BI-PBS-262-13	PETIT BOIS PASS - OCS WEST	2013	1/18/2014	4:07 PM	30.12777	-88.45716	228490.75680	1103171.34300	20-ft Vibracore	49.4	14.0																		
BI-PBS-262-13A	PETIT BOIS PASS - OCS WEST	2013	1/18/2014	4:07 PM	30.12777	-88.45716	228490.75680	1103171.34300	20-ft Vibracore	49.4	14.0	0.0-2.3	2.3	SP	SP	SUB-ANGULAR TO SUB- ROUNDED	Very Dark Gray	5Y 3/1	3	Greenish Gray	GLE Y1 10Y 6/1	6		0.20	0.22	2.7	1.4	0.9	
BI-PBS-262-13B	PETIT BOIS PASS - OCS WEST	2013	1/18/2014	4:07 PM	30.12777	-88.45716	228490.75680	1103171.34300	20-ft Vibracore	49.4	14.0	2.3-4.0	1.7	SP-SM	SP-SM	SUB-ANGULAR TO SUB- ROUNDED	Dark Olive Gray	5Y 3/2	3	Greenish Gray	GLE Y1 10Y 6/1	6		0.18	0.19	10.8	#DIV/0!	#DIV/0!	
BI-PBS-263-13	PETIT BOIS PASS - OCS WEST	2013	1/9/2014	8:42 AM	30.15052	-88.47179	236749.56610	1098520.05100	20-ft Vibracore	45.4	18.2																		
BI-PBS-263-13A	PETIT BOIS PASS - OCS WEST	2013	1/9/2014	8:42 AM	30.15052	-88.47179	236749.56610	1098520.05100	20-ft Vibracore	45.4	18.2	0.0-1.4	1.4	SP	SP	SUB-ANGULAR TO SUB- ROUNDED	Very Dark Gray	5Y 3/1	3	Greenish Gray	GLE Y1 10Y 6/1	6		0.24	0.33	3.2			



Vibracore / Sample ID	Investigation Area	Sample Event	Date of Sample	Time_CST	Latitude	Longitude	Northing_Y	Easting_X	Sample Method	Water Depth (feet)	Boring Depth (feet below seafloor surface )	Sample Depth (Feet below seafloor surface)	Sample Thickness (feet)	Field USCS	Lab USCS	Angularity	Wet Munsell Color	Wet Munsell Color Code	Wet Munsell Value	Dry Munsell Color	Dry Munsell Color Code	Dry Munsell Value	CaCO3	D50 (mm)	Graphic Mean (mm)	% Fines	Cu (D60/D10)	Cc (D30)^2 / (D10*D60)
BI-PBS-265-13B	PETIT BOIS PASS - OCS WEST	2013	1/20/2014	1:33 PM	30.14667	-88.47398	235347.20320	1097832.28100	20-ft Vibracore	44.1	14.4	3.1-4.0	0.9	SM	SP-SM	SUB-ANGULAR TO SUB- ROUNDED	Very Dark Gray	5Y 3/1	3	Gray	2.5Y 5/1	5		0.20	0.22	6.7	2.0	1.1
BI-PBS-265-13C	PETIT BOIS PASS - OCS WEST	2013	1/20/2014	1:33 PM	30.14667	-88.47398	235347.20320	1097832.28100	20-ft Vibracore	44.1	14.4	5.3-8.0	2.7	SM	SM	SUB-ANGULAR TO SUB- ROUNDED	Very Dark Gray	5Y 3/1	3	Gray	2.5Y 5/1	5		0.14	0.13	19.5	#DIV/0!	#DIV/0!
BI-PBS-266-13	PETIT BOIS PASS - OCS WEST	2013	1/8/2014	3:00 PM	30.15605	-88.47837	238754.19710	1096434.09200	20-ft Vibracore	44.5	17.7																	
BI-PBS-266-13A	PETIT BOIS PASS - OCS WEST	2013	1/8/2014	3:00 PM	30.15605	-88.47837	238754.19710	1096434.09200	20-ft Vibracore	44.5	17.7	0.0-1.0	1.0	SP	SP	SUB-ANGULAR TO SUB- ROUNDED	Very Dark Gray	5Y 3/1	3	Gray	2.5Y 6/1	6		0.30	0.41	1.2	2.2	0.8
BI-PBS-266-13B	PETIT BOIS PASS - OCS WEST	2013	1/8/2014	3:00 PM	30.15605	-88.47837	238754.19710	1096434.09200	20-ft Vibracore	44.5	17.7	1.0-6.0	5.0	SM	SP-SM	SUB-ANGULAR TO SUB- ROUNDED	Greenish Black	10Y 2.5/1	3	Greenish Gray	GLEY1 10Y 5/1	5		0.19	0.21	9.1	2.6	1.3
BI-PBS-266-13C	PETIT BOIS PASS - OCS WEST	2013	1/8/2014	3:00 PM	30.15605	-88.47837	238754.19710	1096434.09200	20-ft Vibracore	44.5	17.7	6.0-10.7	4.7	SM	SM	SUB-ANGULAR TO SUB- ROUNDED	Greenish Black	10Y 2.5/1	3	Gray	2.5Y 5/1	5		0.14	0.13	19.2	#DIV/0!	#DIV/0!
BI-PBS-267-13	PETIT BOIS PASS - OCS WEST	2013	1/9/2014	10:00 AM	30.14638	-88.46361	235252.20880	1101110.33400	20-ft Vibracore	50.0	20.0																	
BI-PBS-267-13A	PETIT BOIS PASS - OCS WEST	2013	1/9/2014	10:00 AM	30.14638	-88.46361	235252.20880	1101110.33400	20-ft Vibracore	50.0	20.0	0.0-0.9	0.9	SP	SP	SUB-ANGULAR TO SUB- ROUNDED	Very Dark Greenish Gray	10Y 3/1	3	Light Gray	2.5Y 7/1	7		0.32	0.40	1.0	2.2	1.0
BI-PBS-267-13B	PETIT BOIS PASS - OCS WEST	2013	1/9/2014	10:00 AM	30.14638	-88.46361	235252.20880	1101110.33400	20-ft Vibracore	50.0	20.0	0.9-2.0	1.1	SP-SM	SP-SM	SUB-ANGULAR TO SUB- ROUNDED	Greenish Black	10Y 2.5/1	3	Greenish Gray	GLEY1 10Y 5/1	5		0.19	0.23	8.4	2.5	1.1
BI-PBS-267-13C	PETIT BOIS PASS - OCS WEST	2013	1/9/2014	10:00 AM	30.14638	-88.46361	235252.20880	1101110.33400	20-ft Vibracore	50.0	20.0	2.0-5.0	3.0	SM	SM	SUB-ANGULAR TO SUB- ROUNDED	Greenish Black	10Y 2.5/1	3	Greenish Gray	GLEY1 10Y 6/1	6		0.15	0.16	14.4	#DIV/0!	#DIV/0!
BI-PBS-268-13	PETIT BOIS PASS - OCS WEST	2013	1/16/2014	9:06 AM	30.14156	-88.46340	233499.47690	1101182.39400	20-ft Vibracore	42.5	14.6																	
BI-PBS-268-13A	PETIT BOIS PASS - OCS WEST	2013	1/16/2014	9:06 AM	30.14156	-88.46340	233499.47690	1101182.39400	20-ft Vibracore	42.5	14.6	0.0-4.5	4.5	SP	SP	SUB-ANGULAR TO SUB- ROUNDED	Greenish Gray	10Y 5/1	5	Light Greenish Gray	GLEY1 10Y 7/1	7		0.28	0.29	0.9	1.9	0.9
BI-PBS-268-13B	PETIT BOIS PASS - OCS WEST	2013	1/16/2014	9:06 AM	30.14156	-88.46340	233499.47690	1101182.39400	20-ft Vibracore	42.5	14.6	4.5-5.3	0.8	SP-SM	SP	SUB-ANGULAR TO SUB- ROUNDED	Greenish Gray	10Y 5/1	5	Gray	2.5Y 6/1	6		0.25	0.28	3.4	1.9	0.9
BI-PBS-268-13C	PETIT BOIS PASS - OCS WEST	2013	1/16/2014	9:06 AM	30.14156	-88.46340	233499.47690	1101182.39400	20-ft Vibracore	42.5	14.6	5.3-6.4	1.1	SP	SP	SUB-ANGULAR TO SUB- ROUNDED	Greenish Gray	10Y 5/1	5	Gray	2.5Y 6/1	6		0.25	0.28	2.2	1.9	0.9
BI-PBS-268-13D	PETIT BOIS PASS - OCS WEST	2013	1/16/2014	9:06 AM	30.14156	-88.46340	233499.47690	1101182.39400	20-ft Vibracore	42.5	14.6	6.4-8.3	1.9	SM	SP-SM	SUB-ANGULAR TO SUB- ROUNDED	Dark Greenish Gray	10Y 4/1	4	Gray	2.5Y 5/1	5		0.20	0.23	6.3	2.0	1.1
BI-PBS-269-13	PETIT BOIS PASS - OCS WEST	2013	1/18/2014	9:46 AM	30.13999	-88.47020	232921.59210	1099034.78100	20-ft Vibracore	46.8	16.0																	
BI-PBS-269-13A	PETIT BOIS PASS - OCS WEST	2013	1/18/2014	9:46 AM	30.13999	-88.47020	232921.59210	1099034.78100	20-ft Vibracore	46.8	16.0	0.0-0.8	0.8	SP	SP-SM	SUB-ANGULAR TO SUB- ROUNDED	Dark Olive Gray	5Y 3/2	3	Gray	2.5Y 6/1	6		0.20	0.23	5.1	1.7	1.0
BI-PBS-269-13B	PETIT BOIS PASS - OCS WEST	2013	1/18/2014	9:46 AM	30.13999	-88.47020	232921.59210	1099034.78100	20-ft Vibracore	46.8	16.0	0.8-3.4	2.6	SP-SM	SM	SUB-ANGULAR TO SUB- ROUNDED	Very Dark Gray	5Y 3/1	3	Gray	2.5Y 6/1	6		0.14	0.12	16.3	#DIV/0!	#DIV/0!
BI-PBS-270-13	PETIT BOIS PASS - OCS WEST	2013	1/9/2014	2:10 PM	30.14457	-88.45954	234598.13610	1102398.92500	20-ft Vibracore	51.0	8.5																	
BI-PBS-270-13A1	PETIT BOIS PASS - OCS WEST	2013	1/9/2014	2:10 PM	30.14457	-88.45954	234598.13610	1102398.92500	20-ft Vibracore	51.0	8.5	0.0-0.1	0.1	SP	SP	SUB-ANGULAR TO SUB- ROUNDED	Dark Greenish Gray	10Y 4/1	4	Greenish Gray	GLEY1 10Y 6/1	6		0.29	0.34	1.2	2.0	0.9
BI-PBS-270-13A2	PETIT BOIS PASS - OCS WEST	2013	1/9/2014	2:10 PM	30.14457	-88.45954	234598.13610	1102398.92500	20-ft Vibracore	51.0	8.5	0.1-1.3	1.2	SM	SP-SM	SUB-ANGULAR TO SUB- ROUNDED	Greenish Black	10Y 2.5/1	3	Greenish Gray	GLEY1 10Y 5/1	5		0.19	0.23	8.1	2.5	1.1
BI-PBS-271-13	PETIT BOIS PASS - OCS WEST	2013	1/16/2014	11:52 AM	30.13536	-88.45524	231253.10430	1103769.18100	20-ft Vibracore	45.1	8.6																	
BI-PBS-271-13A1	PETIT BOIS PASS - OCS WEST	2013	1/16/2014	11:52 AM	30.13536	-88.45524	231253.10430	1103769.18100	20-ft Vibracore	45.1	8.6	-2.1-0	2.1	SP	SP	SUB-ANGULAR TO SUB- ROUNDED	Dark Gray	5Y 4/1	4	Light Greenish Gray	GLEY1 10Y 7/1	7		0.27	0.28	1.3	1.8	0.9
BI-PBS-271-13A2	PETIT BOIS PASS - OCS WEST	2013	1/16/2014	11:52 AM	30.13536	-88.45524	231253.10430	1103769.18100	20-ft Vibracore	45.1	8.6	0.0-1.3	1.3	SP	SP	SUB-ANGULAR TO SUB- ROUNDED	Dark Gray	5Y 4/1	4	Gray	2.5Y 6/1	6		0.25	0.29	2.0	1.9	0.9
BI-PBS-271-13B	PETIT BOIS PASS - OCS WEST	2013	1/16/2014	11:52 AM	30.13536	-88.45524	231253.10430	1103769.18100	20-ft Vibracore	45.1	8.6	1.3-2.4	1.1	SM	SP-SM	SUB-ANGULAR TO SUB- ROUNDED	Dark Olive Gray	5Y 3/2	3	Gray	2.5Y 6/1	6		0.20	0.23	6.3	2.0	1.1
BI-PBS-272-13	PETIT BOIS PASS - OCS WEST	2013	1/16/2014	11:00 AM	30.13871	-88.45901	232467.50930	1102573.44100	20-ft Vibracore	44.1	13.9																	
BI-PBS-272-13A	PETIT BOIS PASS - OCS WEST	2013	1/16/2014	11:00 AM	30.13871	-88.45901	232467.50930	1102573.44100	20-ft Vibracore	44.1	13.9	0.0-2.8	2.8	SP	SP	SUB-ANGULAR TO SUB- ROUNDED	Greenish Gray	10Y 5/1	5	Gray	2.5Y 5/1	5		0.26	0.29	1.8	1.9	0.9
BI-PBS-272-13B	PETIT BOIS PASS - OCS WEST	2013	1/16/2014	11:00 AM	30.13871	-88.45901	232467.50930	1102573.44100	20-ft Vibracore	44.1	13.9	2.8-5.3	2.5	SM	SP-SM	SUB-ANGULAR TO SUB- ROUNDED	Olive Gray	5Y 4/2	4	Gray	2.5Y 5/1	5		0.20	0.22	8.4	2.3	1.2
BI-PBS-273-13	PETIT BOIS PASS - OCS WEST	2013	1/9/2014	4:20 PM	30.14173	-88.45402	233571.03750	1104147.13800	20-ft Vibracore	50.0	14.5																	
BI-PBS-273-13A	PETIT BOIS PASS - OCS WEST	2013	1/9/2014	4:20 PM	30.14173	-88.45402	233571.03750	1104147.13800	20-ft Vibracore	50.0	14.5	0.0-2.9	2.9	SP	SP	SUB-ANGULAR TO SUB- ROUNDED	Greenish Gray	10Y 5/1	5	Gray	2.5Y 6/1	6		0.34	0.45	0.8	2.1	1.1
BI-PBS-273-13B	PETIT BOIS PASS - OCS WEST	2013	1/9/2014	4:20 PM	30.14173	-88.45402	233571.03750	1104147.13800	20-ft Vibracore	50.0	14.5	2.9-3.3	0.4	SM	SP-SM	SUB-ANGULAR TO SUB- ROUNDED	Very Dark Gray	5Y 3/1	3	Greenish Gray	GLEY1 10Y 6/1	6		0.23	0.33	9.1	3.4	1.2
BI-PBS-274-13	PETIT BOIS PASS - OCS WEST	2013	1/16/2014	1:37 PM	30.13506	-88.44935	231150.21640	1105631.45200	20-ft Vibracore	46.8	8.9																	
BI-PBS-274-13A	PETIT BOIS PASS - OCS WEST	2013	1/16/2014	1:37 PM	30.13506	-88.44935	231150.21640	1105631.45200	20-ft Vibracore	46.8	8.9	0.0-1.4	1.4	SP	SP	SUB-ANGULAR TO SUB- ROUNDED	Olive Gray	5Y 4/2	4	Light Gray	2.5Y 7/1	7		0.33	0.57	0.9	2.2	1.0
BI-PBS-274-13B	PETIT BOIS PASS - OCS WEST	2013	1/16/2014	1:37 PM	30.13506	-88.44935	231150.21640	1105631.45200	20-ft Vibracore	46.8	8.9	1.4-2.6	1.2	SP	SP	SUB-ANGULAR TO SUB- ROUNDED	Dark Olive Gray	5Y 3/2	3	Greenish Gray	GLEY1 10Y 6/1	6		0.21	0.25	3.9	1.9	1.0
BI-PBS-274-13C	PETIT BOIS PASS - OCS WEST	2013	1/16/2014	1:37 PM	30.13506	-88.44935	231150.21640	1105631.45200	20-ft Vibracore	46.8	8.9	2.6-3.5	0.9	SM	SP-SM	SUB-ANGULAR TO SUB- ROUNDED	Dark Olive Gray	5Y 3/2	3	Greenish Gray	GLEY1 10Y 6/1	6		0.20	0.23	8.3	2.4	1.2
BI-PBS-275-13	PETIT BOIS PASS - OCS WEST	2013	1/12/2014	8:42 AM	30.13948	-88.44976	232757.25440	1105496.44200	20-ft Vibracore	50.7	16.9																	
BI-PBS-275-13A	PETIT BOIS PASS - OCS WEST	2013	1/12/2014	8:42 AM	30.13948	-88.44976	232757.25440	1105496.44200	20-ft Vibracore	50.7	16.9	0.0-1.6	1.6	SP-SM	SM	SUB-ANGULAR TO SUB- ROUNDED	Very Dark Gray	5Y 3/1	3	Gray	2.5Y 5/1	5		0.17	0.20	14.1	#DIV/0!	#DIV/0!
BI-PBS-276-13	PETIT BOIS PASS - OCS WEST	2013	1/18/2014	3:15 PM	30.13115	-88.45413	229723.16910	1104125.15400	20-ft Vibracore	47.7	14.6																	
BI-PBS-276-13A	PETIT BOIS PASS - OCS WEST	2013	1/18/2014	3:15 PM	30.13115	-88.45413	229723.16910	1104125.15400	20-ft Vibracore	47.7	14.6	0.0-1.8	1.8	SP	SP	SUB-ANGULAR TO SUB- ROUNDED	Very Dark Gray	5Y 3/1	3	Gray	2.5Y 6/1	6		0.21	0.24	3.0	1.5	0.9
BI-PBS-276-13B	PETIT BOIS PASS - OCS WEST	2013	1/18/2014	3:15 PM	30.13115	-88.45413	229723.16910	1104125.15400	20-ft Vibracore	47.7	14.6	1.8-5.4	3.6	SM	SP-SM	SUB-ANGULAR TO SUB- ROUNDED	Very Dark Gray	5Y 3/1	3	Gray	2.5Y 5/1	5		0.19	0.21	10.1	#DIV/0!	#DIV/0!
BI-PBS-277-13	PETIT BOIS PASS - OCS WEST	2013	1/27/2014	1:17 PM	30.11821	-88.48740	224983.73480	1093621.91200	20-ft Vibracore	48.4	14.6																	
BI-PBS-277-13A	PETIT BOIS PASS - OCS WEST	2013	1/27/2014	1:17 PM	30.11821	-88.48740	224983.73480	1093621.91200	20-ft Vibracore	48.4	14.6	0.0-2.4	2.4	SP	SP	SUB-ANGULAR TO SUB- ROUNDED	Dark Gray	2.5Y 4/1	4	Gray	2.5Y 5/1	5		0.21	0.25	2.5	1.6	0.9
BI-PBS-277-13B	PETIT BOIS PASS - OCS WEST	2013	1/27/2014	1:																								

Vibracore / Sample ID	Investigation Area	Sample Event	Date of Sample	Time_CST	Latitude	Longitude	Northing_Y	Easting_X	Sample Method	Water Depth (feet)	Boring Depth (feet below seafloor surface )	Sample Depth (Feet below seafloor surface)	Sample Thickness (feet)	Field USCS	Lab USCS	Angularity	Wet Munsell Color	Wet Munsell Color Code	Wet Munsell Value	Dry Munsell Color	Dry Munsell Color Code	Dry Munsell Value	CaCO3	D50 (mm)	Graphic Mean (mm)	% Fines	Cu (D60/D10)	Cc (D30)*2 / (D10*D60)
BI-PBS-281-13	PETIT BOIS PASS - OCS WEST	2013	1/22/2014	4:43 PM	30.12434	-88.48810	227212.42470	1093393.85400	20-ft Vibracore	48.7	12.5																	
BI-PBS-281-13A	PETIT BOIS PASS - OCS WEST	2013	1/22/2014	4:43 PM	30.12434	-88.48810	227212.42470	1093393.85400	20-ft Vibracore	48.7	12.5	0.0-3.3	3.3	SP	SP	SUB-ANGULAR TO SUB- ROUNDED	Gray	2.5Y 5/1	5	Light Greenish Gray	10Y 8/1	8		0.23	0.27	2.1	1.6	0.9
BI-PBS-281-13B	PETIT BOIS PASS - OCS WEST	2013	1/22/2014	4:43 PM	30.12434	-88.48810	227212.42470	1093393.85400	20-ft Vibracore	48.7	12.5	3.3-8.2	4.9	SM	SM	SUB-ANGULAR TO SUB- ROUNDED	Very Dark Gray	GLEY1 3/N	3	Light Greenish Gray	10Y 7/1	7		0.14	0.16	12.2	#DIV/0!	#DIV/0!
BI-PBS-282-13	PETIT BOIS PASS - OCS WEST	2013	2/18/2014	10:33 AM	30.11787	-88.49464	224853.22110	1091333.23300	20-ft Vibracore	49.3	7.4																	
BI-PBS-282-13A	PETIT BOIS PASS - OCS WEST	2013	2/18/2014	10:33 AM	30.11787	-88.49464	224853.22110	1091333.23300	20-ft Vibracore	49.3	7.4	0.0-2.2	2.2	SM	SP-SM	SUB-ANGULAR TO SUB- ROUNDED	Greenish Gray	GLEY1 10Y 5/1	5	Gray	2.5Y 6/1	6		0.18	0.20	6.9	2.2	1.2
BI-PBS-283-13	PETIT BOIS PASS - OCS WEST	2013	1/27/2014	2:17 PM	30.12025	-88.50005	225713.74610	1089620.24000	20-ft Vibracore	50.4	19.9																	
BI-PBS-283-13A	PETIT BOIS PASS - OCS WEST	2013	1/27/2014	2:17 PM	30.12025	-88.50005	225713.74610	1089620.24000	20-ft Vibracore	50.4	19.9	0.0-2.0	2.0	SP-SM	SP-SM	SUB-ANGULAR TO SUB- ROUNDED	Very Dark Gray	GLEY1 3/N	3	Gray	2.5Y 5/1	5		0.18	0.20	6.0	1.9	1.1
BI-PBS-283-13B	PETIT BOIS PASS - OCS WEST	2013	1/27/2014	2:17 PM	30.12025	-88.50005	225713.74610	1089620.24000	20-ft Vibracore	50.4	19.9	2.0-6.0	4.0	SM	SP-SM	SUB-ANGULAR TO SUB- ROUNDED	Very Dark Gray	GLEY1 3/N	3	Gray	2.5Y 5/1	5		0.15	0.17	11.0	#DIV/0!	#DIV/0!
BI-PBS-283-13C	PETIT BOIS PASS - OCS WEST	2013	1/27/2014	2:17 PM	30.12025	-88.50005	225713.74610	1089620.24000	20-ft Vibracore	50.4	19.9	6.0-9.5	3.5	SM	SM	SUB-ANGULAR TO SUB- ROUNDED	Very Dark Gray	GLEY1 3/N	3	Gray	2.5Y 5/1	5		0.11	0.11	19.0	#DIV/0!	#DIV/0!
BI-PBS-284-13	PETIT BOIS PASS - OCS WEST	2013	1/26/2014	4:04 PM	30.12266	-88.49679	226593.23840	1090648.33800	20-ft Vibracore	48.4	17.5																	
BI-PBS-284-13A	PETIT BOIS PASS - OCS WEST	2013	1/26/2014	4:04 PM	30.12266	-88.49679	226593.23840	1090648.33800	20-ft Vibracore	48.4	17.5	0.0-2.9	2.9	SP	SP	SUB-ANGULAR TO SUB- ROUNDED	Gray	2.5Y 5/1	5	Gray	2.5Y 6/1	6		0.20	0.22	1.8	1.6	1.0
BI-PBS-284-13B	PETIT BOIS PASS - OCS WEST	2013	1/26/2014	4:04 PM	30.12266	-88.49679	226593.23840	1090648.33800	20-ft Vibracore	48.4	17.5	2.9-7.5	4.6	SM	SP-SM	SUB-ANGULAR TO SUB- ROUNDED	Dark Gray	GLEY1 4/N	4	Gray	2.5Y 6/1	6		0.19	0.22	5.6	2.0	1.1
BI-PBS-284-13C	PETIT BOIS PASS - OCS WEST	2013	1/26/2014	4:04 PM	30.12266	-88.49679	226593.23840	1090648.33800	20-ft Vibracore	48.4	17.5	7.5-10.5	3.0	SM	SM	SUB-ANGULAR TO SUB- ROUNDED	Dark Gray	GLEY1 4/N	4	Gray	2.5Y 6/1	6		0.13	0.15	13.0	#DIV/0!	#DIV/0!
BI-PBS-285-13	PETIT BOIS PASS - OCS WEST	2013	1/22/2014	3:50 PM	30.12563	-88.49289	226767.02460	1091878.11100	20-ft Vibracore	47.7	16.7																	
BI-PBS-285-13A	PETIT BOIS PASS - OCS WEST	2013	1/22/2014	3:50 PM	30.12563	-88.49289	226767.02460	1091878.11100	20-ft Vibracore	47.7	16.7	0.0-3.5	3.5	SP	SP	SUB-ANGULAR TO SUB- ROUNDED	Dark Gray	2.5Y 4/1	4	Light Greenish Gray	10Y 8/1	8		0.22	0.25	2.2	1.6	0.9
BI-PBS-285-13B	PETIT BOIS PASS - OCS WEST	2013	1/22/2014	3:50 PM	30.12563	-88.49289	226767.02460	1091878.11100	20-ft Vibracore	47.7	16.7	3.5-8.2	4.7	SM	SM	SUB-ANGULAR TO SUB- ROUNDED	Dark Gray	2.5Y 4/1	4	Light Greenish Gray	10Y 7/1	7		0.14	0.16	12.2	#DIV/0!	#DIV/0!
BI-PBS-286-13	PETIT BOIS PASS - OCS WEST	2013	1/26/2014	3:07 PM	30.12609	-88.49854	227839.03480	1090091.41300	20-ft Vibracore	47.7	19.2																	
BI-PBS-286-13A	PETIT BOIS PASS - OCS WEST	2013	1/26/2014	3:07 PM	30.12609	-88.49854	227839.03480	1090091.41300	20-ft Vibracore	47.7	19.2	0.0-3.5	3.5	SP	SP	SUB-ANGULAR TO SUB- ROUNDED	Dark Gray	GLEY1 4/N	4	Gray	2.5Y 6/1	6		0.20	0.22	1.9	1.5	0.9
BI-PBS-286-13B	PETIT BOIS PASS - OCS WEST	2013	1/26/2014	3:07 PM	30.12609	-88.49854	227839.03480	1090091.41300	20-ft Vibracore	47.7	19.2	3.5-7.0	3.5	SP	SP-SM	SUB-ANGULAR TO SUB- ROUNDED	Dark Gray	2.5Y 4/1	4	Gray	2.5Y 6/1	6		0.19	0.22	5.1	2.0	1.0
BI-PBS-286-13C	PETIT BOIS PASS - OCS WEST	2013	1/26/2014	3:07 PM	30.12609	-88.49854	227839.03480	1090091.41300	20-ft Vibracore	47.7	19.2	7.0-12.0	5.0	SM	SM	SUB-ANGULAR TO SUB- ROUNDED	Dark Gray	GLEY1 4/N	4	Gray	2.5Y 6/1	6		0.12	0.11	15.7	#DIV/0!	#DIV/0!
BI-PBS-287-13	PETIT BOIS PASS - OCS WEST	2013	2/18/2014	12:22 PM	30.12197	-88.50527	226334.49580	1087968.08800	20-ft Vibracore	50.0	8.2																	
BI-PBS-287-13A	PETIT BOIS PASS - OCS WEST	2013	2/18/2014	12:22 PM	30.12197	-88.50527	226334.49580	1087968.08800	20-ft Vibracore	50.0	8.2	0.0-4.3	4.3	SM	SP-SM	SUB-ANGULAR TO SUB- ROUNDED	Greenish Gray	GLEY1 10Y 5/1	5	Gray	2.5Y 6/1	6		0.18	0.19	7.4	2.2	1.1
BI-PBS-288-13	PETIT BOIS PASS - OCS WEST	2013	1/22/2014	2:36 PM	30.12950	-88.49541	229082.10070	1091077.26400	20-ft Vibracore	47.7	14.7																	
BI-PBS-288-13A	PETIT BOIS PASS - OCS WEST	2013	1/22/2014	2:36 PM	30.12950	-88.49541	229082.10070	1091077.26400	20-ft Vibracore	47.7	14.7	0.0-0.9	0.9	SP	SP	SUB-ANGULAR TO SUB- ROUNDED	Dark Gray	2.5Y 4/1	4	Light Greenish Gray	10Y 8/1	8		0.25	0.38	1.4	1.9	0.8
BI-PBS-288-13B	PETIT BOIS PASS - OCS WEST	2013	1/22/2014	2:36 PM	30.12950	-88.49541	229082.10070	1091077.26400	20-ft Vibracore	47.7	14.7	0.9-2.0	1.1	SP	SP	SUB-ANGULAR TO SUB- ROUNDED	Dark Gray	2.5Y 4/1	4	Light Greenish Gray	10Y 7/1	7		0.23	0.28	3.1	1.7	0.9
BI-PBS-288-13C	PETIT BOIS PASS - OCS WEST	2013	1/22/2014	2:36 PM	30.12950	-88.49541	229082.10070	1091077.26400	20-ft Vibracore	47.7	14.7	2.0-3.5	1.5	SP-SM	SP-SM	SUB-ANGULAR TO SUB- ROUNDED	Dark Gray	2.5Y 4/1	4	Light Greenish Gray	10Y 7/1	7		0.19	0.21	6.5	2.2	1.1
BI-PBS-288-13D	PETIT BOIS PASS - OCS WEST	2013	1/22/2014	2:36 PM	30.12950	-88.49541	229082.10070	1091077.26400	20-ft Vibracore	47.7	14.7	3.5-6.0	2.5	SM	SP-SM	SUB-ANGULAR TO SUB- ROUNDED	Dark Gray	2.5Y 4/1	4	Light Greenish Gray	10Y 7/1	7		0.14	0.15	9.5	2.0	1.0
BI-PBS-288-13E	PETIT BOIS PASS - OCS WEST	2013	1/22/2014	2:36 PM	30.12950	-88.49541	229082.10070	1091077.26400	20-ft Vibracore	47.7	14.7	10.3-14.7	4.4	SM	SM	SUB-ANGULAR TO SUB- ROUNDED	Dark Gray	2.5Y 4/1	4	Light Greenish Gray	10Y 8/1	8		0.15	0.16	12.7	#DIV/0!	#DIV/0!
BI-PBS-290-13	PETIT BOIS PASS - OCS WEST	2013	1/26/2014	2:02 PM	30.12964	-88.50214	229126.78010	1088949.55800	20-ft Vibracore	47.4	15.9																	
BI-PBS-290-13A	PETIT BOIS PASS - OCS WEST	2013	1/26/2014	2:02 PM	30.12964	-88.50214	229126.78010	1088949.55800	20-ft Vibracore	47.4	15.9	0.0-1.9	1.9	SP	SP	SUB-ANGULAR TO SUB- ROUNDED	Dark Gray	2.5Y 4/1	4	Gray	2.5Y 5/1	5		0.21	0.24	3.0	1.5	0.9
BI-PBS-290-13B	PETIT BOIS PASS - OCS WEST	2013	1/26/2014	2:02 PM	30.12964	-88.50214	229126.78010	1088949.55800	20-ft Vibracore	47.4	15.9	1.9-2.5	0.6	SP-SM	SP	SUB-ANGULAR TO SUB- ROUNDED	Gray	2.5Y 5/1	5	Gray	2.5Y 5/1	5		0.20	0.23	4.8	1.8	1.1
BI-PBS-290-13C	PETIT BOIS PASS - OCS WEST	2013	1/26/2014	2:02 PM	30.12964	-88.50214	229126.78010	1088949.55800	20-ft Vibracore	47.4	15.9	2.5-7.5	5.0	SM	SP-SM	SUB-ANGULAR TO SUB- ROUNDED	Dark Gray	GLEY1 4/N	4	Gray	2.5Y 5/1	5		0.18	0.21	5.8	2.1	1.0
BI-PBS-291-13	PETIT BOIS PASS - OCS WEST	2013	1/22/2014	1:28 PM	30.13295	-88.49887	230333.57700	1089979.77600	20-ft Vibracore	47.7	17.6																	
BI-PBS-291-13A	PETIT BOIS PASS - OCS WEST	2013	1/22/2014	1:28 PM	30.13295	-88.49887	230333.57700	1089979.77600	20-ft Vibracore	47.7	17.6	0.0-2.2	2.2	SP	SP	SUB-ANGULAR TO SUB- ROUNDED	Gray	2.5Y 5/1	5	Light Greenish Gray	10Y 8/1	8		0.23	0.29	3.0	1.9	0.9
BI-PBS-291-13B	PETIT BOIS PASS - OCS WEST	2013	1/22/2014	1:28 PM	30.13295	-88.49887	230333.57700	1089979.77600	20-ft Vibracore	47.7	17.6	2.2-4.0	1.8	SP-SM	SP-SM	SUB-ANGULAR TO SUB- ROUNDED	Dark Gray	2.5Y 4/1	4	Light Greenish Gray	10Y 7/1	7		0.16	0.17	9.1	2.4	1.1
BI-PBS-291-13C	PETIT BOIS PASS - OCS WEST	2013	1/22/2014	1:28 PM	30.13295	-88.49887	230333.57700	1089979.77600	20-ft Vibracore	47.7	17.6	4.0-7.4	3.4	SM	SM	SUB-ANGULAR TO SUB- ROUNDED	Dark Gray	GLEY1 4/N	4	Light Greenish Gray	10Y 7/1	7		0.12	0.11	18.0	#DIV/0!	#DIV/0!
BI-PBS-292-13	PETIT BOIS PASS - OCS WEST	2013	2/18/2014	4:01 PM	30.12912	-88.51067	228929.94280	1086253.50500	20-ft Vibracore	48.5	19.0																	
BI-PBS-292-13A	PETIT BOIS PASS - OCS WEST	2013	2/18/2014	4:01 PM	30.12912	-88.51067	228929.94280	1086253.50500	20-ft Vibracore	48.5	19.0	0.0-5.0	5.0	SM	SP-SM	SUB-ANGULAR TO SUB- ROUNDED	Greenish Gray	GLEY1 10Y 5/1	5	Gray	2.5Y 6/1	6		0.18	0.20	7.2	2.2	1.1
BI-PBS-292-13B	PETIT BOIS PASS - OCS WEST	2013	2/18/2014	4:01 PM	30.12912	-88.51067	228929.94280	1086253.50500	20-ft Vibracore	48.5	19.0	5.0-10.0	5.0	SM	SM	SUB-ANGULAR TO SUB- ROUNDED	Dark Greenish Gray	GLEY1 10Y 4/1	4	Gray	2.5Y 6/1	6		0.13	0.12	17.7	#DIV/0!	#DIV/0!
BI-PBS-293-13	PETIT BOIS PASS - OCS WEST	2013	1/22/2014	11:42 AM	30.13651	-88.50183	231625.55040	1089040.30200	20-ft Vibracore	48.1	15.7																	
BI-PBS-293-13A	PETIT BOIS PASS - OCS WEST	2013	1/22/2014	11:42 AM	30.13651	-88.50183	231625.55040	1089040.30200	20-ft Vibracore	48.1	15.7	0.0-2.5	2.5	SP	SP	SUB-ANGULAR TO SUB- ROUNDED	Gray	2.5Y 5/1	5	Light Greenish Gray	10Y 8/1	8		0.25	0.32	2.0	1.9	0.8
BI-PBS-293-13B	PETIT BOIS PASS - OCS WEST	2013	1/22/2014	11:42 AM	30.13651	-88.50183	231625.55040	1089040.30200	20-ft Vibracore	48.1	15.7	2.5-3.5	1.0	SP-SM	SP-SM	SUB-ANGULAR TO SUB- ROUNDED	Dark Gray	2.5Y 4/1	4	Light Greenish Gray	10Y 7/1	7		0.19	0.22	6.5	2.2	1.0
BI-PBS-293-13C																												



Vibrator / Sample ID	Investigation Area	Sample Event	Date of Sample	Time_CST	Latitude	Longitude	Northing_Y	Easting_X	Sample Method	Water Depth (feet)	Boring Depth (feet below seafloor surface)	Sample Depth (Feet below seafloor surface)	Sample Thickness (feet)	Field USCS	Lab USCS	Angularity	Wet Munsell Color	Wet Munsell Color Code	Wet Munsell Value	Dry Munsell Color	Dry Munsell Color Code	Dry Munsell Value	CaCO3	D50 (mm)	Graphic Mean (mm)	% Fines	Cu (D60/D10)	Cc (D30)*2 / (D10*D60)
BI-PBS-295-13C	PETIT BOIS PASS - OCS WEST	2013	1/22/2014	10:25 AM	30.13952	-88.50465	232717.65120	1088145.72400	20-ft Vibracore	48.1	14.9	3.5-5.8	2.3	SM	SP-SM	SUB-ANGULAR TO SUB-ROUNDED	Dark Gray	2.5Y 4/1	4	Light Greenish Gray	10Y 7/1	7		0.16	0.17	10.7	#DIV/0!	#DIV/0!
BI-PBS-296-13	PETIT BOIS PASS - OCS WEST	2013	2/19/2014	3:13 PM	30.13161	-88.51329	229833.17480	1085422.70100	20-ft Vibracore	48.5	16.0																	
BI-PBS-296-13A	PETIT BOIS PASS - OCS WEST	2013	2/19/2014	3:13 PM	30.13161	-88.51329	229833.17480	1085422.70100	20-ft Vibracore	48.5	16.0	0.0-1.7	1.7	SM	SP	SUB-ANGULAR TO SUB-ROUNDED	Greenish Gray	GLE1Y 10Y 5/1	5	Gray	2.5Y 6/1	6		0.19	0.20	4.7	1.8	1.1
BI-PBS-297-13	PETIT BOIS PASS - OCS WEST	2013	1/26/2014	10:53 AM	30.13560	-88.50845	231288.58280	1086948.60900	20-ft Vibracore	46.8	19.3																	
BI-PBS-297-13A	PETIT BOIS PASS - OCS WEST	2013	1/26/2014	10:53 AM	30.13560	-88.50845	231288.58280	1086948.60900	20-ft Vibracore	46.8	19.3	0.0-1.8	1.8	SP	SP	SUB-ANGULAR TO SUB-ROUNDED	Dark Gray	2.5Y 4/1	4	Light Greenish Gray	10Y 8/1	8		0.21	0.24	2.6	1.5	0.9
BI-PBS-297-13B	PETIT BOIS PASS - OCS WEST	2013	1/26/2014	10:53 AM	30.13560	-88.50845	231288.58280	1086948.60900	20-ft Vibracore	46.8	19.3	1.8-7.0	5.2	SP-SM	SP	SUB-ANGULAR TO SUB-ROUNDED	Dark Gray	GLE1Y 4/N	4	Light Greenish Gray	10Y 8/1	8		0.19	0.22	4.0	1.9	1.0
BI-PBS-297-13C	PETIT BOIS PASS - OCS WEST	2013	1/26/2014	10:53 AM	30.13560	-88.50845	231288.58280	1086948.60900	20-ft Vibracore	46.8	19.3	7.0-12.0	5.0	SM	SM	SUB-ANGULAR TO SUB-ROUNDED	Very Dark Gray	GLE1Y 3/N	3	Light Greenish Gray	10Y 7/1	7		0.13	0.15	14.2	#DIV/0!	#DIV/0!
BI-PBS-298-13	PETIT BOIS PASS - OCS WEST	2013	2/19/2014	2:13 PM	30.13466	-88.51749	230938.70130	1084091.91300	20-ft Vibracore	48.5	17.5																	
BI-PBS-298-13A	PETIT BOIS PASS - OCS WEST	2013	2/19/2014	2:13 PM	30.13466	-88.51749	230938.70130	1084091.91300	20-ft Vibracore	48.5	17.5	0.0-6.5	6.5	SM	SP-SM	SUB-ANGULAR TO SUB-ROUNDED	Dark Greenish Gray	GLE1Y 10Y 4/1	4	Gray	2.5Y 6/1	6		0.16	0.17	10.6	#DIV/0!	#DIV/0!
BI-PBS-299-13	PETIT BOIS PASS - OCS WEST	2013	1/22/2014	8:57 AM	30.14152	-88.50935	233440.76420	1086657.99600	20-ft Vibracore	47.4	18.8																	
BI-PBS-299-13A	PETIT BOIS PASS - OCS WEST	2013	1/22/2014	8:57 AM	30.14152	-88.50935	233440.76420	1086657.99600	20-ft Vibracore	47.4	18.8	0.0-5.4	5.4	SP-SM	SP-SM	SUB-ANGULAR TO SUB-ROUNDED	Dark Gray	2.5Y 4/1	4	Light Greenish Gray	10Y 7/1	7		0.21	0.24	5.4	2.1	1.1
BI-PBS-299-13B	PETIT BOIS PASS - OCS WEST	2013	1/22/2014	8:57 AM	30.14152	-88.50935	233440.76420	1086657.99600	20-ft Vibracore	47.4	18.8	5.4-9.0	3.6	SP-SM	SP-SM	SUB-ANGULAR TO SUB-ROUNDED	Dark Gray	2.5Y 4/1	4	Light Greenish Gray	10Y 7/1	7		0.16	0.17	9.7	2.4	1.1
BI-PBS-300-13	PETIT BOIS PASS - OCS WEST	2013	1/26/2014	9:52 AM	30.13843	-88.51215	232314.48840	1085776.10200	20-ft Vibracore	46.4	16.8																	
BI-PBS-300-13A	PETIT BOIS PASS - OCS WEST	2013	1/26/2014	9:52 AM	30.13843	-88.51215	232314.48840	1085776.10200	20-ft Vibracore	46.4	16.8	0.0-1.8	1.8	SP	SP	SUB-ANGULAR TO SUB-ROUNDED	Gray	2.5Y 5/1	5	Light Greenish Gray	10Y 8/1	8		0.21	0.24	1.9	1.5	0.9
BI-PBS-300-13B	PETIT BOIS PASS - OCS WEST	2013	1/26/2014	9:52 AM	30.13843	-88.51215	232314.48840	1085776.10200	20-ft Vibracore	46.4	16.8	1.8-7.0	5.2	SP-SM	SP	SUB-ANGULAR TO SUB-ROUNDED	Gray	2.5Y 5/1	5	Light Greenish Gray	10Y 7/1	7		0.19	0.22	4.8	1.9	1.0
BI-PBS-300-13C	PETIT BOIS PASS - OCS WEST	2013	1/26/2014	9:52 AM	30.13843	-88.51215	232314.48840	1085776.10200	20-ft Vibracore	46.4	16.8	7.0-12.0	5.0	SM	SM	SUB-ANGULAR TO SUB-ROUNDED	Dark Gray	GLE1Y 4/N	4	Light Greenish Gray	10Y 7/1	7		0.14	0.15	12.1	#DIV/0!	#DIV/0!
BI-PBS-301-13	PETIT BOIS PASS - OCS WEST	2013	2/19/2014	12:29 PM	30.13796	-88.52032	232136.38210	1083194.01900	20-ft Vibracore	48.1	14.6																	
BI-PBS-301-13A	PETIT BOIS PASS - OCS WEST	2013	2/19/2014	12:29 PM	30.13796	-88.52032	232136.38210	1083194.01900	20-ft Vibracore	48.1	14.6	0.0-5.0	5.0	SM	SP-SM	SUB-ANGULAR TO SUB-ROUNDED	Dark Greenish Gray	GLE1Y 10Y 4/1	4	Gray	2.5Y 6/1	6		0.18	0.18	9.1	2.4	1.2
BI-PBS-302-13	PETIT BOIS PASS - OCS WEST	2013	1/26/2014	8:44 AM	30.14001	-88.51623	232885.49690	1084484.81000	20-ft Vibracore	46.1	18.8		15.5															
BI-PBS-302-13A	PETIT BOIS PASS - OCS WEST	2013	1/26/2014	8:44 AM	30.14001	-88.51623	232885.49690	1084484.81000	20-ft Vibracore	46.1	18.8	0.0-1.8	1.8	SP-SM	SP	SUB-ANGULAR TO SUB-ROUNDED	Gray	2.5Y 5/1	5	Light Greenish Gray	10Y 8/1	8		0.20	0.23	3.3	1.6	1.0
BI-PBS-302-13B	PETIT BOIS PASS - OCS WEST	2013	1/26/2014	8:44 AM	30.14001	-88.51623	232885.49690	1084484.81000	20-ft Vibracore	46.1	18.8	1.8-5.8	4.0	SM	SP-SM	SUB-ANGULAR TO SUB-ROUNDED	Gray	2.5Y 5/1	5	Light Greenish Gray	10Y 7/1	7		0.19	0.20	7.3	2.1	1.2
BI-PBS-302-13C	PETIT BOIS PASS - OCS WEST	2013	1/26/2014	8:44 AM	30.14001	-88.51623	232885.49690	1084484.81000	20-ft Vibracore	46.1	18.8	5.8-10.8	5.0	SM	SM	SUB-ANGULAR TO SUB-ROUNDED	Dark Gray	GLE1Y 4/N	4	Light Greenish Gray	10Y 7/1	7		0.14	0.15	12.5	#DIV/0!	#DIV/0!
BI-PBS-302-13D	PETIT BOIS PASS - OCS WEST	2013	1/26/2014	8:44 AM	30.14001	-88.51623	232885.49690	1084484.81000	20-ft Vibracore	46.1	18.8	10.8-15.5	4.7	SC-SM	SM	SUB-ANGULAR TO SUB-ROUNDED	Dark Gray	GLE1Y 4/N	4	Light Greenish Gray	10Y 7/1	7		0.10	0.08	26.2	#DIV/0!	#DIV/0!
BI-PBS-303-13	PETIT BOIS PASS - OCS WEST	2013	1/20/2014	2:50 PM	30.14332	-88.51382	234091.40570	1085243.23200	20-ft Vibracore	46.4	12.8																	
BI-PBS-303-13A	PETIT BOIS PASS - OCS WEST	2013	1/20/2014	2:50 PM	30.14332	-88.51382	234091.40570	1085243.23200	20-ft Vibracore	46.4	12.8	0.0-1.4	1.4	SP	SP-SM	SUB-ANGULAR TO SUB-ROUNDED	Very Dark Gray	5Y 3/1	3	Gray	2.5Y 6/1	6		0.18	0.21	7.8	2.4	1.2
BI-PBS-303-13B	PETIT BOIS PASS - OCS WEST	2013	1/20/2014	2:50 PM	30.14332	-88.51382	234091.40570	1085243.23200	20-ft Vibracore	46.4	12.8	1.4-4.4	3.0	SP-SM	SP	SUB-ANGULAR TO SUB-ROUNDED	Dark Olive Gray	5Y 3/2	3	Gray	2.5Y 5/1	5		0.28	0.35	1.8	2.0	0.9
BI-PBS-304-13	PETIT BOIS PASS - OCS WEST	2013	2/19/2014	11:18 AM	30.14135	-88.52354	233366.48170	1082172.82000	20-ft Vibracore	47.7	17.6																	
BI-PBS-304-13A	PETIT BOIS PASS - OCS WEST	2013	2/19/2014	11:18 AM	30.14135	-88.52354	233366.48170	1082172.82000	20-ft Vibracore	47.7	17.6	0.2-5.0	4.8	SM	SP-SM	SUB-ANGULAR TO SUB-ROUNDED	Dark Greenish Gray	GLE1Y 10Y 4/1	4	Gray	2.5Y 6/1	6		0.18	0.19	9.1	2.5	1.3
BI-PBS-306-13	PETIT BOIS PASS - OCS WEST	2013	1/20/2014	4:03 PM	30.14246	-88.51942	233773.72670	1083474.01000	20-ft Vibracore	46.1	13.3																	
BI-PBS-306-13A	PETIT BOIS PASS - OCS WEST	2013	1/20/2014	4:03 PM	30.14246	-88.51942	233773.72670	1083474.01000	20-ft Vibracore	46.1	13.3	0.0-4.0	4.0	SP-SM	SP-SM	SUB-ANGULAR TO SUB-ROUNDED	Greenish Black	10Y 2.5/1	3	Gray	2.5Y 5/1	5		0.19	0.20	5.8	1.9	1.1
BI-PBS-306-13B	PETIT BOIS PASS - OCS WEST	2013	1/20/2014	4:03 PM	30.14246	-88.51942	233773.72670	1083474.01000	20-ft Vibracore	46.1	13.3	4.0-8.3	4.3	SM	SM	SUB-ANGULAR TO SUB-ROUNDED	Greenish Black	10Y 2.5/1	3	Gray	2.5Y 6/1	6		0.11	0.10	24.2	#DIV/0!	#DIV/0!
BI-PBS-307-13	PETIT BOIS PASS - OCS WEST	2013	1/27/2014	11:36 AM	30.11920	-88.48064	225350.31670	1095758.08700	20-ft Vibracore	50.4	20.0																	
BI-PBS-307-13A	PETIT BOIS PASS - OCS WEST	2013	1/27/2014	11:36 AM	30.11920	-88.48064	225350.31670	1095758.08700	20-ft Vibracore	50.4	20.0	0.0-2.2	2.2	SP	SP	SUB-ANGULAR TO SUB-ROUNDED	Dark Gray	GLE1Y 4/N	4	Gray	2.5Y 6/1	6		0.22	0.44	4.7	2.2	1.0
BI-PBS-307-13B	PETIT BOIS PASS - OCS WEST	2013	1/27/2014	11:36 AM	30.11920	-88.48064	225350.31670	1095758.08700	20-ft Vibracore	50.4	20.0	2.2-4.0	1.8	SP-SM	SP-SM	SUB-ANGULAR TO SUB-ROUNDED	Dark Gray	GLE1Y 4/N	4	Gray	2.5Y 5/1	5		0.14	0.15	11.6	#DIV/0!	#DIV/0!
BI-PBS-307-13C	PETIT BOIS PASS - OCS WEST	2013	1/27/2014	11:36 AM	30.11920	-88.48064	225350.31670	1095758.08700	20-ft Vibracore	50.4	20.0	4.0-4.9	0.9	SM	SM	SUB-ANGULAR TO SUB-ROUNDED	Dark Gray	GLE1Y 4/N	4	Gray	2.5Y 5/1	5		0.12	0.11	16.3	#DIV/0!	#DIV/0!
BI-PBS-308-13	PETIT BOIS PASS - OCS WEST	2013	1/31/2014	2:06 PM	30.14243	-88.40321	233882.58320	1120206.85100	20-ft Vibracore	58.2	14.5																	
BI-PBS-308-13A	PETIT BOIS PASS - OCS WEST	2013	1/31/2014	2:06 PM	30.14243	-88.40321	233882.58320	1120206.85100	20-ft Vibracore	58.2	14.5	3.0-6.7	3.7	SP	SP	SUB-ANGULAR TO SUB-ROUNDED	Gray	2.5Y 5/1	5	Light Greenish Gray	10Y 7/1	7		0.21	0.23	4.7	1.9	1.1
BI-PBS-309-13	PETIT BOIS PASS - OCS WEST	2013	1/31/2014	3:03 PM	30.14026	-88.39735	233100.42070	1122062.16100	20-ft Vibracore	58.9	12.5	NO SAMPLE TAKEN		CL	NO SAMPLE TESTED													
BI-PBS-310-13	PETIT BOIS PASS - OCS WEST	2013	1/31/2014	12:48 PM	30.14471	-88.40845	234705.57490	1118547.44700	20-ft Vibracore	57.2	18.6																	
BI-PBS-310-13A	PETIT BOIS PASS - OCS WEST	2013	1/31/2014	12:48 PM	30.14471	-88.40845	234705.57490	1118547.44700	20-ft Vibracore	57.2	18.6	2.7-4.7	2.0	SP	SP	SUB-ANGULAR TO SUB-ROUNDED	Dark Gray	GLE1Y 4/N	4	Light Greenish Gray	10Y 7/1	7		0.23	0.25	4.8	1.7	0.9
BI-PBS-310-13B	PETIT BOIS PASS - OCS WEST	2013	1/31/2014	12:48 PM	30.14471	-88.40845	234705.57490	1118547.44700	20-ft Vibracore	57.2	18.6	4.7-6.2	1.5	SP-SM	SP	SUB-ANGULAR TO SUB-ROUNDED	Dark Gray	GLE1Y 4/N	4	Light Greenish Gray	10Y 7/1	7		0.20	0.22	4.9	1.9	1.1
BI-PBS-310-13C	PETIT BOIS PASS - OCS WEST	2013	1/31/2014	12:48 PM	30.14471	-88.40845	234705.57490	1118547.44700	20-ft Vibracore	57.2	18.6	6.2-8.2	2.0	SM	SP	SUB-ANGULAR TO SUB-ROUNDED	Gray	2.5Y 5/1	5	Light Greenish Gray	10Y 7/1	7		0.20	0.22	4.5	1.9	1.1
BI-PBS-311-13	PETIT BOIS PASS - OCS WEST	2013	1/31/2014	10:57 AM	30.14656	-88.41438	235371.45700	1116670.60000	20-ft Vibracore	56.3	15.5																	
BI-PBS-311-13A	PETIT BOIS PASS - OCS WEST	2013	1/31/2014	10:57 AM	30.14656	-88.41438	235371.45700	1116670.60000	20-ft Vibracore	56.3	15.5	2.6-5.5	2.9	SP-SM	SP	SUB-												

Cu: Coefficient of Uniformity

Cc: Coefficient of Curvature

The "#Value!" error message indicates that data was not available for that calculation.

Vibracore / Sample ID	Investigation Area	Sample Event	Date of Sample	Time_CST	Latitude	Longitude	Northing_Y	Easting_X	Sample Method	Water Depth (feet)	Boring Depth (feet below seafloor surface )	Sample Depth (Feet below seafloor surface)	Sample Thickness (feet)	Field USCS	Lab USCS	Angularity	Wet Munsell Color	Wet Munsell Color Code	Wet Munsell Value	Dry Munsell Color	Dry Munsell Color Code	Dry Munsell Value	CaCO3	D50 (mm)	Graphic Mean (mm)	% Fines	Cu (D60/D10)	Cc (D30)^2 / (D10*D60)
BI-PBS-312-13D	PETIT BOIS PASS - OCS WEST	2013	1/31/2014	9:49 AM	30.14838	-88.42062	236026.17120	1114695.88200	20-ft Vibracore	55.3	17.7	10.1-11.6	1.5	SM	SP	SUB-ANGULAR TO SUB- ROUNDED	Dark Gray	GLE1 4/N	4	Light Greenish Gray	10Y 7/1	7		0.19	0.21	4.8	1.8	1.1
BI-PBS-313-13	PETIT BOIS PASS - OCS WEST	2013	1/31/2014	8:29 AM	30.15098	-88.42560	236966.08700	1113118.46500	20-ft Vibracore	54.0	20.0																	
BI-PBS-313-13A	PETIT BOIS PASS - OCS WEST	2013	1/31/2014	8:29 AM	30.15098	-88.42560	236966.08700	1113118.46500	20-ft Vibracore	54.0	20.0	0.6-4.2	3.6	SP-SM	SP	SUB-ANGULAR TO SUB- ROUNDED	Very Dark Gray	GLE1 3/N	3	Gray	2.5Y 5/1	5		0.20	0.22	4.9	1.9	1.1
BI-PBS-313-13B	PETIT BOIS PASS - OCS WEST	2013	1/31/2014	8:29 AM	30.15098	-88.42560	236966.08700	1113118.46500	20-ft Vibracore	54.0	20.0	4.2-5.0	0.8	SM	SP-SM	SUB-ANGULAR TO SUB- ROUNDED	Dark Gray	GLE1 4/N	4	Gray	2.5Y 5/1	5		0.20	0.23	6.8	2.0	1.1
BI-PBS-313-13C	PETIT BOIS PASS - OCS WEST	2013	1/31/2014	8:29 AM	30.15098	-88.42560	236966.08700	1113118.46500	20-ft Vibracore	54.0	20.0	5.0-9.7	4.7	SP	SP	SUB-ANGULAR TO SUB- ROUNDED	Dark Gray	GLE1 4/N	4	Light Greenish Gray	10Y 7/1	7		0.22	0.25	3.9	1.7	0.9
BI-PBS-313-13D	PETIT BOIS PASS - OCS WEST	2013	1/31/2014	8:29 AM	30.15098	-88.42560	236966.08700	1113118.46500	20-ft Vibracore	54.0	20.0	9.7-12.7	3.0	SP-SM	SP	SUB-ANGULAR TO SUB- ROUNDED	Dark Gray	GLE1 4/N	4	Light Greenish Gray	10Y 7/1	7		0.20	0.23	3.7	1.6	1.0
BI-PBS-313-13E	PETIT BOIS PASS - OCS WEST	2013	1/31/2014	8:29 AM	30.15098	-88.42560	236966.08700	1113118.46500	20-ft Vibracore	54.0	20.0	12.7-14.4	1.7	SM	SP-SM	SUB-ANGULAR TO SUB- ROUNDED	Dark Gray	GLE1 4/N	4	Light Greenish Gray	10Y 7/1	7		0.19	0.19	5.6	1.8	1.1
BI-PBS-314-13	PETIT BOIS PASS - OCS WEST	2013	1/31/2014	4:02 PM	30.14427	-88.41615	234536.57270	1116114.18800	20-ft Vibracore	57.9	10.7																	
BI-PBS-314-13A	PETIT BOIS PASS - OCS WEST	2013	1/31/2014	4:02 PM	30.14427	-88.41615	234536.57270	1116114.18800	20-ft Vibracore	57.9	10.7	2.5-4.0	1.5	SP	SP	SUB-ANGULAR TO SUB- ROUNDED	Dark Gray	2.5Y 4/1	4	Light Greenish Gray	10Y 7/1	7		0.20	0.21	2.9	1.6	1.0
BI-PBS-314-13B	PETIT BOIS PASS - OCS WEST	2013	1/31/2014	4:02 PM	30.14427	-88.41615	234536.57270	1116114.18800	20-ft Vibracore	57.9	10.7	4.0-5.3	1.3	SM	SP	SUB-ANGULAR TO SUB- ROUNDED	Dark Gray	2.5Y 4/1	4	Light Greenish Gray	10Y 7/1	7		0.22	0.24	4.5	1.7	1.0
BI-PBS-314-13C	PETIT BOIS PASS - OCS WEST	2013	1/31/2014	4:02 PM	30.14427	-88.41615	234536.57270	1116114.18800	20-ft Vibracore	57.9	10.7	5.3-6.0	0.7	SP-SM	SP	SUB-ANGULAR TO SUB- ROUNDED	Gray	2.5Y 5/1	5	Light Greenish Gray	10Y 7/1	7		0.24	0.26	3.9	1.8	0.9
BI-PBS-314-13D	PETIT BOIS PASS - OCS WEST	2013	1/31/2014	4:02 PM	30.14427	-88.41615	234536.57270	1116114.18800	20-ft Vibracore	57.9	10.7	6.0-8.0	2.0	SM	SP-SM	SUB-ANGULAR TO SUB- ROUNDED	Dark Gray	2.5Y 4/1	4	Light Greenish Gray	10Y 7/1	7		0.20	0.21	6.5	1.9	1.1
BI-PBS-315-13	PETIT BOIS PASS - OCS WEST	2013	2/1/2014	8:46 AM	30.14680	-88.42223	235449.71460	1114189.07700	20-ft Vibracore	55.3	18.6																	
BI-PBS-315-13A	PETIT BOIS PASS - OCS WEST	2013	2/1/2014	8:46 AM	30.14680	-88.42223	235449.71460	1114189.07700	20-ft Vibracore	55.3	18.6	5.5-10.5	5.0	SP	SP	SUB-ANGULAR TO SUB- ROUNDED	Gray	2.5Y 5/1	5	Gray	2.5Y 6/1	6		0.22	0.25	2.3	1.6	0.9
BI-PBS-316-13	PETIT BOIS PASS - OCS WEST	2013	2/2/2014	8:38 AM	30.14694	-88.42554	235496.87530	1113142.68100	20-ft Vibracore	54.0	19.4																	
BI-PBS-316-13A	PETIT BOIS PASS - OCS WEST	2013	2/2/2014	8:38 AM	30.14694	-88.42554	235496.87530	1113142.68100	20-ft Vibracore	54.0	19.4	0.0-4.1	4.1	SC-SM	SM	SUB-ANGULAR TO SUB- ROUNDED	Dark Gray	2.5Y 4/1	4	Greenish Gray	10Y 5/1	5		0.22	0.21	15.4	#DIV/0!	#DIV/0!
BI-PBS-316-13B	PETIT BOIS PASS - OCS WEST	2013	2/2/2014	8:38 AM	30.14694	-88.42554	235496.87530	1113142.68100	20-ft Vibracore	54.0	19.4	5.2-6.3	1.1	SM	SP-SM	SUB-ANGULAR TO SUB- ROUNDED	Dark Gray	2.5Y 4/1	4	Greenish Gray	10Y 5/1	5		0.22	0.24	10.9	#DIV/0!	#DIV/0!
BI-PBS-316-13C	PETIT BOIS PASS - OCS WEST	2013	2/2/2014	8:38 AM	30.14694	-88.42554	235496.87530	1113142.68100	20-ft Vibracore	54.0	19.4	7.3-12.5	5.2	SP-SM	SP	SUB-ANGULAR TO SUB- ROUNDED	Dark Gray	2.5Y 4/1	4	Greenish Gray	10Y 5/1	5		0.22	0.24	4.7	1.6	0.9
BI-PBS-316-13D	PETIT BOIS PASS - OCS WEST	2013	2/2/2014	8:38 AM	30.14694	-88.42554	235496.87530	1113142.68100	20-ft Vibracore	54.0	19.4	12.5-19.4	6.9	SP-SM	SP	SUB-ANGULAR TO SUB- ROUNDED	Gray	2.5Y 5/1	5	Greenish Gray	10Y 6/1	6		0.20	0.22	4.2	1.6	1.0
BI-PBS-317-13	PETIT BOIS PASS - OCS WEST	2013	2/1/2014	1:53 PM	30.15002	-88.42889	236613.24940	1112079.85500	20-ft Vibracore	53.0	18.7	NO SAMPLE TAKEN		CL	NO SAMPLE TESTED													
BI-PBS-318-13	PETIT BOIS PASS - OCS WEST	2013	2/1/2014	11:37 AM	30.15199	-88.42986	237328.61940	1111770.73600	20-ft Vibracore	54.3	19.1																	
BI-PBS-318-13A	PETIT BOIS PASS - OCS WEST	2013	2/1/2014	11:37 AM	30.15199	-88.42986	237328.61940	1111770.73600	20-ft Vibracore	54.3	19.1	3.0-8.0	5.0	SP-SM	SP	SUB-ANGULAR TO SUB- ROUNDED	Gray	2.5Y 5/1	5	Light Greenish Gray	10Y 7/1	7		0.22	0.24	2.9	1.5	0.9
BI-PBS-318-13B	PETIT BOIS PASS - OCS WEST	2013	2/1/2014	11:37 AM	30.15199	-88.42986	237328.61940	1111770.73600	20-ft Vibracore	54.3	19.1	8.0-13.0	5.0	SM	SP	SUB-ANGULAR TO SUB- ROUNDED	Gray	2.5Y 5/1	5	Light Greenish Gray	10Y 7/1	7		0.19	0.20	2.7	1.6	1.0
BI-PBS-319-13	PETIT BOIS PASS - OCS WEST	2013	2/8/2014	11:19 AM	30.14777	-88.41046	235816.08520	1117907.99400	20-ft Vibracore	55.3	16.9																	
BI-PBS-319-13A	PETIT BOIS PASS - OCS WEST	2013	2/8/2014	11:19 AM	30.14777	-88.41046	235816.08520	1117907.99400	20-ft Vibracore	55.3	16.9	0.0-1.1	1.1	SP	SP	SUB-ANGULAR TO SUB- ROUNDED	Gray	2.5Y 5/1	5	Gray	2.5Y 6/1	6		0.23	0.25	2.8	1.7	0.9
BI-PBS-319-13B	PETIT BOIS PASS - OCS WEST	2013	2/8/2014	11:19 AM	30.14777	-88.41046	235816.08520	1117907.99400	20-ft Vibracore	55.3	16.9	1.1-3.5	2.4	SP-SM	SP	SUB-ANGULAR TO SUB- ROUNDED	Greenish Gray	GLE1 10Y 5/1	5	Gray	2.5Y 6/1	6		0.21	0.25	3.7	1.7	1.0
BI-PBS-319-13C	PETIT BOIS PASS - OCS WEST	2013	2/8/2014	11:19 AM	30.14777	-88.41046	235816.08520	1117907.99400	20-ft Vibracore	55.3	16.9	3.5-5.5	2.0	SM	SP	SUB-ANGULAR TO SUB- ROUNDED	Greenish Gray	GLE1 10Y 5/1	5	Gray	2.5Y 6/1	6		0.19	0.21	4.8	1.8	1.1
BI-PBS-321-13	PETIT BOIS PASS - OCS WEST	2013	2/1/2014	10:21 AM	30.15270	-88.42722	237589.79550	1112604.21500	20-ft Vibracore	54.0	19.6																	
BI-PBS-321-13A	PETIT BOIS PASS - OCS WEST	2013	2/1/2014	10:21 AM	30.15270	-88.42722	237589.79550	1112604.21500	20-ft Vibracore	54.0	19.6	0.0-3.0	3.0	SM	SP-SM	SUB-ANGULAR TO SUB- ROUNDED	Gray	2.5Y 5/1	5	Light Greenish Gray	10Y 7/1	7		0.22	0.24	6.5	2.1	1.1
BI-PBS-321-13B	PETIT BOIS PASS - OCS WEST	2013	2/1/2014	10:21 AM	30.15270	-88.42722	237589.79550	1112604.21500	20-ft Vibracore	54.0	19.6	3.0-6.3	3.3	SM	SP	SUB-ANGULAR TO SUB- ROUNDED	Gray	2.5Y 5/1	5	Light Greenish Gray	10Y 7/1	7		0.19	0.20	4.5	1.8	1.0
BI-PBS-321-13C	PETIT BOIS PASS - OCS WEST	2013	2/1/2014	10:21 AM	30.15270	-88.42722	237589.79550	1112604.21500	20-ft Vibracore	54.0	19.6	6.3-11.0	4.7	SP	SP	SUB-ANGULAR TO SUB- ROUNDED	Gray	2.5Y 5/1	5	Light Greenish Gray	10Y 7/1	7		0.22	0.25	3.8	1.6	0.9
BI-PBS-321-13D	PETIT BOIS PASS - OCS WEST	2013	2/1/2014	10:21 AM	30.15270	-88.42722	237589.79550	1112604.21500	20-ft Vibracore	54.0	19.6	11.0-16.0	5.0	SP	SP	SUB-ANGULAR TO SUB- ROUNDED	Gray	2.5Y 5/1	5	Light Greenish Gray	10Y 7/1	7		0.22	0.24	2.2	1.5	0.9
BI-PBS-321-13E	PETIT BOIS PASS - OCS WEST	2013	2/1/2014	10:21 AM	30.15270	-88.42722	237589.79550	1112604.21500	20-ft Vibracore	54.0	19.6	16.0-19.6	3.6	SM	SP	SUB-ANGULAR TO SUB- ROUNDED	Gray	2.5Y 5/1	5	Light Greenish Gray	10Y 7/1	7		0.19	0.19	4.6	1.8	1.1
BI-PBS-322-13	PETIT BOIS PASS - OCS WEST	2013	2/2/2014	12:03 PM	30.15169	-88.42242	237227.90870	1114122.61600	20-ft Vibracore	55.0	20.0													0.26				
BI-PBS-322-13A	PETIT BOIS PASS - OCS WEST	2013	2/2/2014	12:03 PM	30.15169	-88.42242	237227.90870	1114122.61600	20-ft Vibracore	55.0	20.0	1.4-4.7	3.3	SM	SP	SUB-ANGULAR TO SUB- ROUNDED	Gray	2.5Y 5/1	5	Greenish Gray	10Y 5/1	5		0.23	0.26	4.8	1.8	0.9
BI-PBS-322-13B	PETIT BOIS PASS - OCS WEST	2013	2/2/2014	12:03 PM	30.15169	-88.42242	237227.90870	1114122.61600	20-ft Vibracore	55.0	20.0	4.7-9.0	4.3	SP-SM	SP	SUB-ANGULAR TO SUB- ROUNDED	Gray	2.5Y 5/1	5	Greenish Gray	10Y 5/1	5		0.24	0.27	3.8	1.8	0.9
BI-PBS-322-13C	PETIT BOIS PASS - OCS WEST	2013	2/2/2014	12:03 PM	30.15169	-88.42242	237227.90870	1114122.61600	20-ft Vibracore	55.0	20.0	9.0-11.0	2.0	SP	SP	SUB-ANGULAR TO SUB- ROUNDED	Gray	2.5Y 5/1	5	Greenish Gray	10Y 5/1	5		0.24	0.26	2.6	1.7	0.9
BI-PBS-322-13D	PETIT BOIS PASS - OCS WEST	2013	2/2/2014	12:03 PM	30.15169	-88.42242	237227.90870	1114122.61600	20-ft Vibracore	55.0	20.0	11.0-13.0	2.0	SP-SM	SP	SUB-ANGULAR TO SUB- ROUNDED	Gray	2.5Y 5/1	5	Greenish Gray	10Y 5/1	5		0.37	0.43	2.5	1.6	0.9
BI-PBS-322-13E	PETIT BOIS PASS - OCS WEST	2013	2/2/2014	12:03 PM	30.15169	-88.42242	237227.90870	1114122.61600	20-ft Vibracore	55.0	20.0	13.0-15.4	2.4	SM	SP	SUB-ANGULAR TO SUB- ROUNDED	Gray	2.5Y 5/1	5	Greenish Gray	10Y 6/1	6		0.21	0.23	3.1	1.5	0.9
BI-PBS-323-13	PETIT BOIS PASS - OCS WEST	2013	2/2/2014	10:52 AM	30.14906	-88.42387	236269.77400	1113667.76100	20-ft Vibracore	55.6	18.6																	
BI-PBS-323-13A	PETIT BOIS PASS - OCS WEST	2013	2/2/2014	10:52 AM	30.14906	-88.42387	236269.77400	1113667.76100	20-ft Vibracore	55.6	18.6	1.6-4.0	2.4	SP	SP	SUB-ANGULAR TO SUB- ROUNDED	Gray	2.5Y 5/1	5	Greenish Gray	10Y 6/1	6		0.20	0.22	2.7	1.7	1.0
BI-PBS-323-13B	PETIT BOIS PASS - OCS WEST	2013	2/2/2014	10:52 AM	30.14906	-88.42387	236269.77400	1113667.76100	20-ft Vibracore	55.6	18.6	4.0-7.0	3.0	SM	SP	SUB-ANGULAR TO SUB- ROUN												

Vibracore / Sample ID	Investigation Area	Sample Event	Date of Sample	Time_CST	Latitude	Longitude	Northing_Y	Easting_X	Sample Method	Water Depth (feet)	Boring Depth (feet below seafloor surface )	Sample Depth (Feet below seafloor surface)	Sample Thickness (feet)	Field USCS	Lab USCS	Angularity	Wet Munsell Color	Wet Munsell Color Code	Wet Munsell Value	Dry Munsell Color	Dry Munsell Color Code	Dry Munsell Value	CaCO3	D50 (mm)	Graphic Mean (mm)	% Fines	Cu (D60/D10)	Cc (D30)^2 / (D10*D60)
BI-PBS-325-13B	PETIT BOIS PASS - OCS EAST	2013	2/10/2014	2:52 PM	30.15540	-88.36524	238646.81300	1132189.48800	20-ft Vibracore	50.7	18.4	6.0-7.0	1.0	SP-SM	SP-SM	SUB-ANGULAR TO SUB- ROUNDED	Dark Gray	2.5Y 4/1	4	Gray	2.5Y 6/1	6		0.27	0.28	6.8	2.2	1.0
BI-PBS-326-13	PETIT BOIS PASS - OCS EAST	2013	2/10/2014	11:25 AM	30.15794	-88.36787	239567.17070	1131354.50500	20-ft Vibracore	53.3	17.6																	
BI-PBS-326-13A	PETIT BOIS PASS - OCS EAST	2013	2/10/2014	11:25 AM	30.15794	-88.36787	239567.17070	1131354.50500	20-ft Vibracore	53.3	17.6	0.0-1.5	1.5	SM	SP-SM	SUB-ANGULAR TO SUB- ROUNDED	Dark Greenish Gray	GLE Y1 10Y 4/1	4	Gray	2.5Y 5/1	5		0.20	0.23	10.0	#DIV/0!	#DIV/0!
BI-PBS-327-13	PETIT BOIS PASS - OCS EAST	2013	2/10/2014	8:49 AM	30.15978	-88.37115	240232.13500	1130315.17400	20-ft Vibracore	52.3	19.8	NO SAMPLE TAKEN		CL	NO SAMPLE TESTED													
BI-PBS-328-13	PETIT BOIS PASS - OCS EAST	2013	2/10/2014	9:55 AM	30.15801	-88.37082	239588.83550	1130422.07700	20-ft Vibracore	50.0	19.9																	
BI-PBS-328-13A	PETIT BOIS PASS - OCS EAST	2013	2/10/2014	9:55 AM	30.15801	-88.37082	239588.83550	1130422.07700	20-ft Vibracore	50.0	19.9	0.0-0.8	0.8	SP	SP	SUB-ANGULAR TO SUB- ROUNDED	Greenish Gray	GLE Y1 10Y 5/1	5	Gray	2.5Y 6/1	6		0.30	0.33	1.8	2.0	1.0
BI-PBS-328-13B	PETIT BOIS PASS - OCS EAST	2013	2/10/2014	9:55 AM	30.15801	-88.37082	239588.83550	1130422.07700	20-ft Vibracore	50.0	19.9	0.8-3.5	2.7	SM	SP	SUB-ANGULAR TO SUB- ROUNDED	Dark Greenish Gray	GLE Y1 10Y 4/1	4	Gray	2.5Y 5/1	5		0.23	0.27	3.9	2.0	0.9
BI-PBS-329-13	PETIT BOIS PASS - OCS EAST	2013	2/10/2014	1:18 PM	30.15611	-88.36813	238901.29210	1131275.04900	20-ft Vibracore	50.4	17.6																	
BI-PBS-329-13A	PETIT BOIS PASS - OCS EAST	2013	2/10/2014	1:18 PM	30.15611	-88.36813	238901.29210	1131275.04900	20-ft Vibracore	50.4	17.6	0.0-1.7	1.7	SP-SM	SP-SM	SUB-ANGULAR TO SUB- ROUNDED	Dark Greenish Gray	GLE Y1 10Y 4/1	4	Greenish Gray	GLE Y1 10Y 6/1	6		0.22	0.24	9.1	3.1	1.3
BI-PBS-329-13B	PETIT BOIS PASS - OCS EAST	2013	2/10/2014	1:18 PM	30.15611	-88.36813	238901.29210	1131275.04900	20-ft Vibracore	50.4	17.6	14.3-17.6	3.3	SP-SM	SP	SUB-ANGULAR TO SUB- ROUNDED	Gray	2.5Y 6/1	6	Gray	2.5Y 6/1	6		0.28	0.28	2.7	1.9	1.0
BI-PBS-330-13	PETIT BOIS PASS - OCS WEST	2013	2/3/2014	11:36 AM	30.14180	-88.41808	233636.05040	1115507.41400	20-ft Vibracore	50.7	12.2																	
BI-PBS-330-13A	PETIT BOIS PASS - OCS WEST	2013	2/3/2014	11:36 AM	30.14180	-88.41808	233636.05040	1115507.41400	20-ft Vibracore	50.7	12.2	0.0-2.1	2.1	SP	SP	SUB-ANGULAR TO SUB- ROUNDED	Gray	2.5Y 5/1	5	Greenish Gray	10Y 6/1	6		0.33	0.38	0.7	2.0	1.1
BI-PBS-331-13	PETIT BOIS PASS - OCS WEST	2013	2/3/2014	2:26 PM	30.14522	-88.41590	234882.36060	1116191.94500	20-ft Vibracore	57.2	16.1																	
BI-PBS-331-13A	PETIT BOIS PASS - OCS WEST	2013	2/3/2014	2:26 PM	30.14522	-88.41590	234882.36060	1116191.94500	20-ft Vibracore	57.2	16.1	3.8-5.3	1.5	SM	SP-SM	SUB-ANGULAR TO SUB- ROUNDED	Dark Gray	2.5Y 4/1	4	Greenish Gray	10Y 5/1	5		0.22	0.24	5.1	1.8	1.0
BI-PBS-331-13B	PETIT BOIS PASS - OCS WEST	2013	2/3/2014	2:26 PM	30.14522	-88.41590	234882.36060	1116191.94500	20-ft Vibracore	57.2	16.1	5.3-7.9	2.6	SP-SM	SP	SUB-ANGULAR TO SUB- ROUNDED	Gray	2.5Y 5/1	5	Greenish Gray	10Y 6/1	6		0.28	0.28	2.0	1.9	0.9
BI-PBS-331-13C	PETIT BOIS PASS - OCS WEST	2013	2/3/2014	2:26 PM	30.14522	-88.41590	234882.36060	1116191.94500	20-ft Vibracore	57.2	16.1	7.9-13.5	5.6	SM	SP-SM	SUB-ANGULAR TO SUB- ROUNDED	Dark Gray	2.5Y 4/1	4	Greenish Gray	10Y 5/1	5		0.19	0.21	8.4	2.2	1.2
BI-PBS-332-13	PETIT BOIS PASS - OCS WEST	2013	2/3/2014	3:59 PM	30.14725	-88.41745	235618.84800	1115699.32700	20-ft Vibracore	56.3	18.9													0.28				
BI-PBS-332-13A	PETIT BOIS PASS - OCS WEST	2013	2/3/2014	3:59 PM	30.14725	-88.41745	235618.84800	1115699.32700	20-ft Vibracore	56.3	18.9	0.0-4.5	4.5	SP-SM	SP-SM	SUB-ANGULAR TO SUB- ROUNDED	Gray	2.5Y 5/1	5	Greenish Gray	10Y 5/1	5		0.27	0.28	5.4	2.0	0.9
BI-PBS-332-13B	PETIT BOIS PASS - OCS WEST	2013	2/3/2014	3:59 PM	30.14725	-88.41745	235618.84800	1115699.32700	20-ft Vibracore	56.3	18.9	4.5-9.0	4.5	SP	SP	SUB-ANGULAR TO SUB- ROUNDED	Gray	2.5Y 5/1	5	Greenish Gray	10Y 5/1	5		0.29	0.30	1.6	2.0	0.9
BI-PBS-332-13C	PETIT BOIS PASS - OCS WEST	2013	2/3/2014	3:59 PM	30.14725	-88.41745	235618.84800	1115699.32700	20-ft Vibracore	56.3	18.9	9.0-10.5	1.5	SP-SM	SP	SUB-ANGULAR TO SUB- ROUNDED	Gray	2.5Y 5/1	5	Greenish Gray	10Y 5/1	5		0.26	0.28	2.2	1.9	0.9
BI-PBS-332-13D	PETIT BOIS PASS - OCS WEST	2013	2/3/2014	3:59 PM	30.14725	-88.41745	235618.84800	1115699.32700	20-ft Vibracore	56.3	18.9	10.5-16.5	6.0	SM	SP-SM	SUB-ANGULAR TO SUB- ROUNDED	Gray	2.5Y 5/1	5	Greenish Gray	10Y 5/1	5		0.19	0.21	5.8	1.9	1.1
BI-PBS-333-13	PETIT BOIS PASS - OCS WEST	2013	2/3/2014	10:21 AM	30.15020	-88.41975	236689.07050	1114968.46400	20-ft Vibracore	55.0	16.5													0.24				
BI-PBS-333-13A	PETIT BOIS PASS - OCS WEST	2013	2/3/2014	10:21 AM	30.15020	-88.41975	236689.07050	1114968.46400	20-ft Vibracore	55.0	16.5	0.0-3.0	3.0	SP	SP	SUB-ANGULAR TO SUB- ROUNDED	Gray	2.5Y 5/1	5	Greenish Gray	10Y 6/1	6		0.27	0.29	2.4	1.9	0.9
BI-PBS-333-13B	PETIT BOIS PASS - OCS WEST	2013	2/3/2014	10:21 AM	30.15020	-88.41975	236689.07050	1114968.46400	20-ft Vibracore	55.0	16.5	3.0-7.8	4.8	SP-SM	SP	SUB-ANGULAR TO SUB- ROUNDED	Gray	2.5Y 5/1	5	Greenish Gray	10Y 6/1	6		0.23	0.26	2.7	1.6	0.9
BI-PBS-333-13C	PETIT BOIS PASS - OCS WEST	2013	2/3/2014	10:21 AM	30.15020	-88.41975	236689.07050	1114968.46400	20-ft Vibracore	55.0	16.5	7.8-9.6	1.8	SM	SP-SM	SUB-ANGULAR TO SUB- ROUNDED	Gray	2.5Y 5/1	5	Greenish Gray	10Y 6/1	6		0.21	0.24	5.3	1.7	1.0
BI-PBS-333-13D	PETIT BOIS PASS - OCS WEST	2013	2/3/2014	10:21 AM	30.15020	-88.41975	236689.07050	1114968.46400	20-ft Vibracore	55.0	16.5	9.6-12.5	2.9	SM	SP	SUB-ANGULAR TO SUB- ROUNDED	Dark Gray	2.5Y 4/1	4	Greenish Gray	10Y 5/1	5		0.19	0.21	4.9	1.8	1.1
BI-PBS-334-13	PETIT BOIS PASS - OCS WEST	2013	2/8/2014	9:04 AM	30.14900	-88.41639	236256.51660	1116032.04100	20-ft Vibracore	55.3	17.8													0.23				
BI-PBS-334-13A	PETIT BOIS PASS - OCS WEST	2013	2/8/2014	9:04 AM	30.14900	-88.41639	236256.51660	1116032.04100	20-ft Vibracore	55.3	17.8	0.0-4.5	4.5	SP	SP	SUB-ANGULAR TO SUB- ROUNDED	Gray	2.5Y 6/1	6	Light Gray	2.5Y 7/1	7		0.24	0.27	2.2	1.8	0.9
BI-PBS-334-13B	PETIT BOIS PASS - OCS WEST	2013	2/8/2014	9:04 AM	30.14900	-88.41639	236256.51660	1116032.04100	20-ft Vibracore	55.3	17.8	4.5-9.0	4.5	SP	SP	SUB-ANGULAR TO SUB- ROUNDED	Gray	2.5Y 5/1	5	Gray	2.5Y 6/1	6		0.22	0.25	2.3	1.6	0.9
BI-PBS-334-13C	PETIT BOIS PASS - OCS WEST	2013	2/8/2014	9:04 AM	30.14900	-88.41639	236256.51660	1116032.04100	20-ft Vibracore	55.3	17.8	9.0-10.8	1.8	SP-SM	SP	SUB-ANGULAR TO SUB- ROUNDED	Greenish Gray	GLE Y1 10Y 5/1	5	Gray	2.5Y 6/1	6		0.21	0.23	4.1	1.6	1.0
BI-PBS-334-13D	PETIT BOIS PASS - OCS WEST	2013	2/8/2014	9:04 AM	30.14900	-88.41639	236256.51660	1116032.04100	20-ft Vibracore	55.3	17.8	10.8-16.0	5.2	SM	SP-SM	SUB-ANGULAR TO SUB- ROUNDED	Greenish Gray	GLE Y1 10Y 5/1	5	Gray	2.5Y 6/1	6		0.18	0.19	6.0	1.9	1.1
BI-PBS-335-13	PETIT BOIS PASS - OCS WEST	2013	2/17/2014	1:43 PM	30.14676	-88.40765	235452.06820	1118797.53200	20-ft Vibracore	56.2	15.7	NO SAMPLE TAKEN		CL	NO SAMPLE TESTED													
BI-PBS-337-13	PETIT BOIS PASS - OCS WEST	2013	2/8/2014	10:12 AM	30.14851	-88.41352	236081.63860	1116939.81700	20-ft Vibracore	55.6	19.9																	
BI-PBS-337-13A	PETIT BOIS PASS - OCS WEST	2013	2/8/2014	10:12 AM	30.14851	-88.41352	236081.63860	1116939.81700	20-ft Vibracore	55.6	19.9	0.2-2.4	2.2	SM	SP	SUB-ANGULAR TO SUB- ROUNDED	Greenish Gray	GLE Y1 10Y 5/1	5	Gray	2.5Y 6/1	6		0.25	0.27	4.1	1.8	0.9
BI-PBS-337-13B	PETIT BOIS PASS - OCS WEST	2013	2/8/2014	10:12 AM	30.14851	-88.41352	236081.63860	1116939.81700	20-ft Vibracore	55.6	19.9	2.4-6.2	3.8	SP-SM	SP-SM	SUB-ANGULAR TO SUB- ROUNDED	Gray	2.5Y 5/1	5	Gray	2.5Y 6/1	6		0.24	0.27	5.5	1.8	0.9
BI-PBS-337-13C	PETIT BOIS PASS - OCS WEST	2013	2/8/2014	10:12 AM	30.14851	-88.41352	236081.63860	1116939.81700	20-ft Vibracore	55.6	19.9	6.2-8.5	2.3	SM	SP	SUB-ANGULAR TO SUB- ROUNDED	Greenish Gray	GLE Y1 10Y 5/1	5	Gray	2.5Y 6/1	6		0.20	0.23	4.0	1.7	1.0
BI-PBS-338-13	PETIT BOIS PASS - OCS WEST	2013	2/1/2014	3:59 PM	30.14677	-88.42962	235430.46260	1111853.30900	20-ft Vibracore	51.0	17.8																	
BI-PBS-338-13A	PETIT BOIS PASS - OCS WEST	2013	2/1/2014	3:59 PM	30.14677	-88.42962	235430.46260	1111853.30900	20-ft Vibracore	51.0	17.8	0.6-6.0	5.4	SC-SM	SM	SUB-ANGULAR TO SUB- ROUNDED	Dark Gray	2.5Y 4/1	4	Greenish Gray	10Y 5/1	5		0.23	0.21	15.6	#DIV/0!	#DIV/0!
BI-PBS-338-13B	PETIT BOIS PASS - OCS WEST	2013	2/1/2014	3:59 PM	30.14677	-88.42962	235430.46260	1111853.30900	20-ft Vibracore	51.0	17.8	7.6-10.9	3.3	SM	SP	SUB-ANGULAR TO SUB- ROUNDED	Dark Gray	2.5Y 4/1	4	Greenish Gray	10Y 5/1	5		0.34	0.38	4.8	2.1	1.2
BI-PBS-338-13C	PETIT BOIS PASS - OCS WEST	2013	2/1/2014	3:59 PM	30.14677	-88.42962	235430.46260	1111853.30900	20-ft Vibracore	51.0	17.8	10.9-13.5	2.6	SP-SM	SP	SUB-ANGULAR TO SUB- ROUNDED	Dark Gray	2.5Y 4/1	4	Greenish Gray	10Y 5/1	5		0.36	0.41	1.3	1.5	0.9
BI-PBS-338-13D	PETIT BOIS PASS - OCS WEST	2013	2/1/2014	3:59 PM	30.14677	-88.42962	235430.46260	1111853.30900	20-ft Vibracore	51.0	17.8	13.5-17.8	4.3	SP	SP	SUB-ANGULAR TO SUB- ROUNDED	Dark Gray	2.5Y 4/1	4	Greenish Gray	10Y 5/1	5		0.35	0.39	1.2	1.5	0.9
BI-PBS-339-13	PETIT BOIS PASS - OCS WEST	2013	2/8/2014	1:05 PM	30.14587	-88.41167	235123.67140	1117528.09800	20-ft Vibracore	57.2	18.6																	
BI-PBS-339-13A	PETIT BOIS PASS - OCS WEST																											



Vibracore / Sample ID	Investigation Area	Sample Event	Date of Sample	Time_CST	Latitude	Longitude	Northing_Y	Easting_X	Sample Method	Water Depth (feet)	Boring Depth (feet below seafloor surface )	Sample Depth (Feet below seafloor surface)	Sample Thickness (feet)	Field USCS	Lab USCS	Angularity	Wet Munsell Color	Wet Munsell Color Code	Wet Munsell Value	Dry Munsell Color	Dry Munsell Color Code	Dry Munsell Value	CaCO3	D50 (mm)	Graphic Mean (mm)	% Fines	Cu (D60/D10)	Cc (D30)^2 / (D10*D60)
BI-PBS-341-13D	PETIT BOIS PASS - OCS WEST	2013	2/2/2014	9:49 AM	30.14372	-88.42643	234324.81210	1112865.55000	20-ft Vibracore	47.7	19.4	16.0-19.4	3.4	SM	SP	SUB-ANGULAR TO SUB- ROUNDED	Dark Gray	2.5Y 4/1	4	Greenish Gray	10Y 5/1	5		0.19	0.20	4.4	1.6	1.1
BI-PBS-342-13	PETIT BOIS PASS - OCS WEST	2013	2/8/2014	2:25 PM	30.15096	-88.41764	236967.89390	1115634.35600	20-ft Vibracore	55.3	18.6													0.26				
BI-PBS-342-13A	PETIT BOIS PASS - OCS WEST	2013	2/8/2014	2:25 PM	30.15096	-88.41764	236967.89390	1115634.35600	20-ft Vibracore	55.3	18.6	0.0-5.0	5.0	SP	SP	SUB-ANGULAR TO SUB- ROUNDED	Gray	2.5Y 5/1	5	Light Gray	2.5Y 7/1	7		0.27	0.29	1.5	1.9	0.9
BI-PBS-342-13B	PETIT BOIS PASS - OCS WEST	2013	2/8/2014	2:25 PM	30.15096	-88.41764	236967.89390	1115634.35600	20-ft Vibracore	55.3	18.6	5.0-11.2	6.2	SP	SP	SUB-ANGULAR TO SUB- ROUNDED	Gray	2.5Y 5/1	5	Light Gray	2.5Y 7/1	7		0.24	0.27	2.0	1.8	0.9
BI-PBS-342-13C	PETIT BOIS PASS - OCS WEST	2013	2/8/2014	2:25 PM	30.15096	-88.41764	236967.89390	1115634.35600	20-ft Vibracore	55.3	18.6	11.2-14.0	2.8	SM	SP-SM	SUB-ANGULAR TO SUB- ROUNDED	Greenish Gray	GLE Y1 10Y 5/1	5	Gray	2.5Y 6/1	6		0.20	0.22	5.1	1.8	1.1
BI-PBS-343-13	PETIT BOIS PASS - OCS WEST	2013	2/8/2014	3:43 PM	30.15037	-88.41409	236757.42710	1116757.17100	20-ft Vibracore	55.0	17.7																	
BI-PBS-343-13A	PETIT BOIS PASS - OCS WEST	2013	2/8/2014	3:43 PM	30.15037	-88.41409	236757.42710	1116757.17100	20-ft Vibracore	55.0	17.7	0.5-1.3	0.8	SP-SM	SP	SUB-ANGULAR TO SUB- ROUNDED	Greenish Gray	GLE Y1 10Y 5/1	5	Gray	2.5Y 6/1	6		0.28	0.30	3.7	2.0	0.9
BI-PBS-343-13B	PETIT BOIS PASS - OCS WEST	2013	2/8/2014	3:43 PM	30.15037	-88.41409	236757.42710	1116757.17100	20-ft Vibracore	55.0	17.7	1.3-4.0	2.7	SP	SP	SUB-ANGULAR TO SUB- ROUNDED	Greenish Gray	GLE Y1 10Y 5/1	5	Light Gray	2.5Y 7/1	7		0.25	0.28	3.1	1.9	0.9
BI-PBS-343-13C	PETIT BOIS PASS - OCS WEST	2013	2/8/2014	3:43 PM	30.15037	-88.41409	236757.42710	1116757.17100	20-ft Vibracore	55.0	17.7	4.0-7.0	3.0	SP-SM	SP	SUB-ANGULAR TO SUB- ROUNDED	Greenish Gray	GLE Y1 10Y 5/1	5	Gray	2.5Y 6/1	6		0.22	0.25	2.2	1.6	0.9
BI-PBS-344-13	PETIT BOIS PASS - OCS WEST	2013	2/9/2014	8:57 AM	30.14964	-88.41138	236495.09640	1117614.69000	20-ft Vibracore	54.6	20.0																	
BI-PBS-344-13A	PETIT BOIS PASS - OCS WEST	2013	2/9/2014	8:57 AM	30.14964	-88.41138	236495.09640	1117614.69000	20-ft Vibracore	54.6	20.0	1.1-7.0	5.9	SM	SP	SUB-ANGULAR TO SUB- ROUNDED	Greenish Gray	GLE Y1 10Y 5/1	5	Gray	2.5Y 6/1	6		0.21	0.24	3.3	1.6	0.9
BI-PBS-344-13B	PETIT BOIS PASS - OCS WEST	2013	2/9/2014	8:57 AM	30.14964	-88.41138	236495.09640	1117614.69000	20-ft Vibracore	54.6	20.0	7.0-8.5	1.5	SP-SM	SP	SUB-ANGULAR TO SUB- ROUNDED	Greenish Gray	GLE Y1 10Y 5/1	5	Gray	2.5Y 6/1	6		0.20	0.22	3.9	1.7	1.0
BI-PBS-344-13C	PETIT BOIS PASS - OCS WEST	2013	2/9/2014	8:57 AM	30.14964	-88.41138	236495.09640	1117614.69000	20-ft Vibracore	54.6	20.0	8.5-10.0	1.5	SM	SP	SUB-ANGULAR TO SUB- ROUNDED	Greenish Gray	GLE Y1 10Y 5/1	5	Gray	2.5Y 6/1	6		0.19	0.21	4.7	1.8	1.1
BI-PBS-345-13	PETIT BOIS PASS - OCS WEST	2013	2/9/2014	10:04 AM	30.14880	-88.40826	236193.26340	1118601.96000	20-ft Vibracore	55.3	20.0	NO SAMPLE TAKEN		CL	NO SAMPLE TESTED													
BI-PBS-354-13	PETIT BOIS PASS - OCS WEST	2013	2/9/2014	11:15 AM	30.15431	-88.42921	238173.09170	1111973.18600	20-ft Vibracore	53.3	16.9													0.25				
BI-PBS-354-13A	PETIT BOIS PASS - OCS WEST	2013	2/9/2014	11:15 AM	30.15431	-88.42921	238173.09170	1111973.18600	20-ft Vibracore	53.3	16.9	0.0-3.5	3.5	SM	SP	SUB-ANGULAR TO SUB- ROUNDED	Gray	2.5Y 5/1	5	Gray	2.5Y 6/1	6		0.25	0.28	3.6	2.2	0.9
BI-PBS-354-13B	PETIT BOIS PASS - OCS WEST	2013	2/9/2014	11:15 AM	30.15431	-88.42921	238173.09170	1111973.18600	20-ft Vibracore	53.3	16.9	3.5-8.5	5.0	SP-SM	SP	SUB-ANGULAR TO SUB- ROUNDED	Gray	2.5Y 5/1	5	Light Gray	2.5Y 7/1	7		0.26	0.28	2.0	1.9	0.9
BI-PBS-354-13C	PETIT BOIS PASS - OCS WEST	2013	2/9/2014	11:15 AM	30.15431	-88.42921	238173.09170	1111973.18600	20-ft Vibracore	53.3	16.9	8.5-11.0	2.5	SP-SM	SP	SUB-ANGULAR TO SUB- ROUNDED	Gray	2.5Y 5/1	5	Gray	2.5Y 6/1	6		0.23	0.27	3.0	1.7	0.9
BI-PBS-355-13	PETIT BOIS PASS - OCS WEST	2013	2/9/2014	12:32 PM	30.15400	-88.42394	238066.28970	1113639.18800	20-ft Vibracore	53.3	18.0													0.29				
BI-PBS-355-13A	PETIT BOIS PASS - OCS WEST	2013	2/9/2014	12:32 PM	30.15400	-88.42394	238066.28970	1113639.18800	20-ft Vibracore	53.3	18.0	0.0-3.6	3.6	SP-SM	SP	SUB-ANGULAR TO SUB- ROUNDED	Gray	2.5Y 5/1	5	Gray	2.5Y 6/1	6		0.30	0.33	3.0	2.1	1.0
BI-PBS-355-13B	PETIT BOIS PASS - OCS WEST	2013	2/9/2014	12:32 PM	30.15400	-88.42394	238066.28970	1113639.18800	20-ft Vibracore	53.3	18.0	3.6-8.6	5.0	SP-SM	SP	SUB-ANGULAR TO SUB- ROUNDED	Gray	2.5Y 5/1	5	Gray	2.5Y 6/1	6		0.31	0.36	2.5	2.1	1.0
BI-PBS-355-13C	PETIT BOIS PASS - OCS WEST	2013	2/9/2014	12:32 PM	30.15400	-88.42394	238066.28970	1113639.18800	20-ft Vibracore	53.3	18.0	8.6-12.5	3.9	SP	SP	SUB-ANGULAR TO SUB- ROUNDED	Gray	2.5Y 5/1	5	Gray	2.5Y 6/1	6		0.25	0.28	2.5	1.9	0.9
BI-PBS-355-13D	PETIT BOIS PASS - OCS WEST	2013	2/9/2014	12:32 PM	30.15400	-88.42394	238066.28970	1113639.18800	20-ft Vibracore	53.3	18.0	12.5-16.0	3.5	SM	SP-SM	SUB-ANGULAR TO SUB- ROUNDED	Greenish Gray	GLE Y1 10Y 5/1	5	Gray	2.5Y 6/1	6		0.20	0.22	6.2	1.9	1.1
BI-PBS-356-13	PETIT BOIS PASS - OCS WEST	2013	2/9/2014	2:23 PM	30.15340	-88.41958	237853.05210	1115017.97400	20-ft Vibracore	55.0	17.1													0.33				
BI-PBS-356-13A	PETIT BOIS PASS - OCS WEST	2013	2/9/2014	2:23 PM	30.15340	-88.41958	237853.05210	1115017.97400	20-ft Vibracore	55.0	17.1	0.0-5.2	5.2	SP-SM	SP	SUB-ANGULAR TO SUB- ROUNDED	Gray	2.5Y 5/1	5	Light Gray	2.5Y 7/1	7		0.29	0.31	2.7	2.0	1.0
BI-PBS-356-13B	PETIT BOIS PASS - OCS WEST	2013	2/9/2014	2:23 PM	30.15340	-88.41958	237853.05210	1115017.97400	20-ft Vibracore	55.0	17.1	5.2-9.9	4.7	SP	SP	SUB-ANGULAR TO SUB- ROUNDED	Gray	2.5Y 5/1	5	Gray	2.5Y 6/1	6		0.39	0.56	2.2	2.6	1.0
BI-PBS-356-13C	PETIT BOIS PASS - OCS WEST	2013	2/9/2014	2:23 PM	30.15340	-88.41958	237853.05210	1115017.97400	20-ft Vibracore	55.0	17.1	9.9-12.0	2.1	SP	SP	SUB-ANGULAR TO SUB- ROUNDED	Gray	2.5Y 5/1	5	Gray	2.5Y 6/1	6		0.27	0.32	2.1	2.0	0.9
BI-PBS-356-13D	PETIT BOIS PASS - OCS WEST	2013	2/9/2014	2:23 PM	30.15340	-88.41958	237853.05210	1115017.97400	20-ft Vibracore	55.0	17.1	12.0-14.0	2.0	SM	SP-SM	SUB-ANGULAR TO SUB- ROUNDED	Greenish Gray	GLE Y1 10Y 5/1	5	Gray	2.5Y 6/1	6		0.20	0.24	6.2	1.9	1.1
BI-PBS-357-13	PETIT BOIS PASS - OCS WEST	2013	2/9/2014	3:51 PM	30.15242	-88.41525	237501.63250	1116387.80200	20-ft Vibracore	54.3	20.0	NO SAMPLE TAKEN		CL	NO SAMPLE TESTED													
BI-PBS-361-13	PETIT BOIS PASS - OCS WEST	2013	2/16/2014	9:16 AM	30.15570	-88.42638	238681.79170	1112865.81100	20-ft Vibracore	51.7	16.9													0.28				
BI-PBS-361-13A	PETIT BOIS PASS - OCS WEST	2013	2/16/2014	9:16 AM	30.15570	-88.42638	238681.79170	1112865.81100	20-ft Vibracore	51.7	16.9	0.0-5.0	5.0	SP	SP	SUB-ANGULAR TO SUB- ROUNDED	Gray	2.5Y 5/1	5	Gray	2.5Y 6/1	6		0.29	0.30	2.3	2.0	1.0
BI-PBS-361-13B	PETIT BOIS PASS - OCS WEST	2013	2/16/2014	9:16 AM	30.15570	-88.42638	238681.79170	1112865.81100	20-ft Vibracore	51.7	16.9	5.0-8.5	3.5	SP-SM	SP	SUB-ANGULAR TO SUB- ROUNDED	Gray	2.5Y 5/1	5	Gray	2.5Y 6/1	6		0.30	0.34	3.3	2.1	1.0
BI-PBS-361-13C	PETIT BOIS PASS - OCS WEST	2013	2/16/2014	9:16 AM	30.15570	-88.42638	238681.79170	1112865.81100	20-ft Vibracore	51.7	16.9	8.5-12.0	3.5	SP-SM	SP	SUB-ANGULAR TO SUB- ROUNDED	Gray	2.5Y 5/1	5	Gray	2.5Y 6/1	6		0.25	0.28	3.3	1.8	0.9
BI-PBS-362-13	PETIT BOIS PASS - OCS WEST	2013	2/16/2014	10:38 AM	30.15459	-88.43206	238271.74270	1111072.07800	20-ft Vibracore	52.7	17.2	NO SAMPLE TAKEN		CL	NO SAMPLE TESTED													
BI-PBS-363-13	PETIT BOIS PASS - OCS WEST	2013	2/17/2014	11:47 AM	30.15548	-88.42145	238607.37460	1114424.21800	20-ft Vibracore	52.3	19.5	NO SAMPLE TAKEN		CL	NO SAMPLE TESTED													
BI-PBS-368-13	PETIT BOIS PASS - OCS WEST	2013	2/10/2014	4:26 PM	30.15091	-88.40877	236960.03530	1118437.90800	20-ft Vibracore	55.0	18.7	NO SAMPLE TAKEN		CL	NO SAMPLE TESTED													
BI-PBS-369-13	PETIT BOIS PASS - OCS WEST	2013	2/17/2014	3:03 PM	30.14053	-88.43002	233160.63560	1111734.90100	20-ft Vibracore	49.7	15.4																	
BI-PBS-369-13A	PETIT BOIS PASS - OCS WEST	2013	2/17/2014	3:03 PM	30.14053	-88.43002	233160.63560	1111734.90100	20-ft Vibracore	49.7	15.4	0.0-1.8	1.8	SP-SM	SP	SUB-ANGULAR TO SUB- ROUNDED	Greenish Gray	GLE Y1 10Y 5/1	5	Gray	2.5Y 6/1	6		0.25	0.28	2.0	1.8	0.9
BI-PBS-370-13	PETIT BOIS PASS - OCS WEST	2013	2/16/2014	11:52 AM	30.15695	-88.43316	239128.81380	1110721.40900	20-ft Vibracore	50.7	17.2																	
BI-PBS-370-13A	PETIT BOIS PASS - OCS WEST	2013	2/16/2014	11:52 AM	30.15695	-88.43316	239128.81380	1110721.40900	20-ft Vibracore	50.7	17.2	3.8-8.8	5.0	SP-SM	SP	SUB-ANGULAR TO SUB- ROUNDED	Gray	2.5Y 5/1	5	Gray	2.5Y 6/1	6		0.22	0.25	4.1	1.6	0.9
BI-PBS-371-13	PETIT BOIS PASS - OCS WEST	2013	2/17/2014	4:16 PM	30.15680	-88.43837	239068.52140	1109075.00900	20-ft Vibracore	52.3	16.3	NO SAMPLE TAKEN		CL	NO SAMPLE TESTED													
BI-PBS-372-13	PETIT BOIS PASS - OCS WEST	2013	2/16/2014	4:23 PM	30.15884	-88.43011	239819.57060	1111682.91400	20-ft Vibracore	50.7	17.8													0.25				
BI-PBS-372-13A	PETIT BOIS PASS - OCS WEST	2013	2/16/2014	4:23 PM	30.15884	-88.43011	239819.57060	1111682.91400	20-ft Vibracore	50.7	17.8	0.0-3.6	3.6	SP-SM	SP	SUB-ANGULAR TO SUB- ROUNDED	Dark Gray	2.5Y 4/1	4									

Vibracore / Sample ID	Investigation Area	Sample Event	Date of Sample	Time_CST	Latitude	Longitude	Northing_Y	Easting_X	Sample Method	Water Depth (feet)	Boring Depth (feet below seafloor surface )	Sample Depth (Feet below seafloor surface)	Sample Thickness (feet)	Field USCS	Lab USCS	Angularity	Wet Munsell Color	Wet Munsell Color Code	Wet Munsell Value	Dry Munsell Color	Dry Munsell Color Code	Dry Munsell Value	CaCO3	D50 (mm)	Graphic Mean (mm)	% Fines	Cu (D60/D10)	Cc (D30)^2 / (D10*D60)
BI-PBS-374-13A	PETIT BOIS PASS - OCS WEST	2013	2/16/2014	3:17 PM	30.16073	-88.43288	240503.84780	1110805.07400	20-ft Vibracore	50.0	20.0	1.6-6.0	4.4	SM	SP-SM	SUB-ANGULAR TO SUB- ROUNDED	Gray	2.5Y 5/1	5	Gray	2.5Y 6/1	6		0.26	0.28	5.8	2.3	1.0
BI-PBS-374-13B	PETIT BOIS PASS - OCS WEST	2013	2/16/2014	3:17 PM	30.16073	-88.43288	240503.84780	1110805.07400	20-ft Vibracore	50.0	20.0	6.0-11.0	5.0	SP	SP	SUB-ANGULAR TO SUB- ROUNDED	Gray	2.5Y 5/1	5	Light Gray	2.5Y 7/1	7		0.23	0.25	2.4	1.6	0.9
BI-PBS-374-13C	PETIT BOIS PASS - OCS WEST	2013	2/16/2014	3:17 PM	30.16073	-88.43288	240503.84780	1110805.07400	20-ft Vibracore	50.0	20.0	11.0-16.3	5.3	SP	SP	SUB-ANGULAR TO SUB- ROUNDED	Gray	2.5Y 5/1	5	Light Gray	2.5Y 7/1	7		0.23	0.25	2.3	1.6	0.9
BI-PBS-375-13	PETIT BOIS PASS - OCS WEST	2013	2/18/2014	8:40 AM	30.16060	-88.44382	240444.59370	1107347.84600	20-ft Vibracore	51.3	13.8	NO SAMPLE TAKEN		CL	NO SAMPLE TESTED													
BI-PBS-376-13	PETIT BOIS PASS - OCS WEST	2013	2/17/2014	10:35 AM	30.15765	-88.42387	239393.81380	1113656.54600	20-ft Vibracore	51.3	15.3																	
BI-PBS-376-13A	PETIT BOIS PASS - OCS WEST	2013	2/17/2014	10:35 AM	30.15765	-88.42387	239393.81380	1113656.54600	20-ft Vibracore	51.3	15.3	4.0-9.5	5.5	SP-SM	SP	SUB-ANGULAR TO SUB- ROUNDED	Gray	2.5Y 5/1	5	Gray	2.5Y 6/1	6		0.21	0.23	4.0	1.5	0.9
BI-PBS-376-13B	PETIT BOIS PASS - OCS WEST	2013	2/17/2014	10:35 AM	30.15765	-88.42387	239393.81380	1113656.54600	20-ft Vibracore	51.3	15.3	9.5-15.3	5.8	SP-SM	SP-SM	SUB-ANGULAR TO SUB- ROUNDED	Gray	2.5Y 5/1	5	Gray	2.5Y 6/1	6		0.21	0.23	5.2	1.7	1.0
BI-PBS-377-13	PETIT BOIS PASS - OCS WEST	2013	2/16/2014	1:47 PM	30.15887	-88.43604	239823.90350	1109808.77000	20-ft Vibracore	51.0	20.0																	
BI-PBS-377-13A	PETIT BOIS PASS - OCS WEST	2013	2/16/2014	1:47 PM	30.15887	-88.43604	239823.90350	1109808.77000	20-ft Vibracore	51.0	20.0	5.4-10.4	5.0	SP-SM	SP	SUB-ANGULAR TO SUB- ROUNDED	Dark Gray	2.5Y 4/1	4	Gray	2.5Y 5/1	5		0.25	0.42	4.9	1.9	0.9
BI-PBS-378-13	PETIT BOIS PASS - OCS EAST	2013	2/22/2014	11:43 AM	30.14865	-88.36428	236193.18770	1132502.99100	20-ft Vibracore	51.3	18.1																	
BI-PBS-378-13A	PETIT BOIS PASS - OCS EAST	2013	2/22/2014	11:43 AM	30.14865	-88.36428	236193.18770	1132502.99100	20-ft Vibracore	51.3	18.1	0.0-3.4	3.4	SP	SP	SUB-ANGULAR TO SUB- ROUNDED	Greenish Gray	GLEY1 10Y 5/1	5	Gray	2.5Y 6/1	6		0.31	0.40	1.3	2.2	0.8
BI-PBS-379-13	PETIT BOIS PASS - OCS EAST	2013	2/22/2014	10:34 AM	30.13875	-88.35901	232599.59970	1134183.65900	20-ft Vibracore	55.0	18.3																	
BI-PBS-379-13A	PETIT BOIS PASS - OCS EAST	2013	2/22/2014	10:34 AM	30.13875	-88.35901	232599.59970	1134183.65900	20-ft Vibracore	55.0	18.3	0.0-1.6	1.6	SM	SP	SUB-ANGULAR TO SUB- ROUNDED	Greenish Gray	GLEY1 10Y 5/1	5	Gray	2.5Y 6/1	6		0.22	0.25	2.5	1.6	0.9
BI-PBS-380-13	PETIT BOIS PASS - OCS EAST	2013	2/22/2014	9:29 AM	30.13995	-88.34956	233048.56150	1137168.99000	20-ft Vibracore	55.6	18.5																	
BI-PBS-380-13A	PETIT BOIS PASS - OCS EAST	2013	2/22/2014	9:29 AM	30.13995	-88.34956	233048.56150	1137168.99000	20-ft Vibracore	55.6	18.5	0.0-2.9	2.9	SP	SP	SUB-ANGULAR TO SUB- ROUNDED	Gray	2.5Y 5/1	5	Gray	2.5Y 6/1	6		0.40	1.11	1.1	3.2	0.8
BI-PBS-380-13B	PETIT BOIS PASS - OCS EAST	2013	2/22/2014	9:29 AM	30.13995	-88.34956	233048.56150	1137168.99000	20-ft Vibracore	55.6	18.5	2.9-4.0	1.1	SM	SP-SM	SUB-ANGULAR TO SUB- ROUNDED	Dark Greenish Gray	GLEY1 10Y 4/1	4	Gray	2.5Y 5/1	5		0.20	0.30	9.6	3.1	1.1
BI-PBS-381-13	PETIT BOIS PASS - OCS WEST	2013	2/22/2014	2:07 PM	30.14458	-88.43534	234627.64500	1110048.12900	20-ft Vibracore	48.7	18.8																	
BI-PBS-381-13A	PETIT BOIS PASS - OCS WEST	2013	2/22/2014	2:07 PM	30.14458	-88.43534	234627.64500	1110048.12900	20-ft Vibracore	48.7	18.8	0.0-1.8	1.8	SP	SP	SUB-ANGULAR TO SUB- ROUNDED	Greenish Gray	GLEY1 10Y 5/1	5	Light Gray	2.5Y 7/1	7		0.30	0.29	1.1	1.9	1.1
BI-PBS-381-13B	PETIT BOIS PASS - OCS WEST	2013	2/22/2014	2:07 PM	30.14458	-88.43534	234627.64500	1110048.12900	20-ft Vibracore	48.7	18.8	1.8-2.9	1.1	SM	SP-SM	SUB-ANGULAR TO SUB- ROUNDED	Greenish Gray	GLEY1 10Y 5/1	5	Gray	2.5Y 6/1	6		0.24	0.55	7.5	3.3	1.1
BI-PBS-382-13	PETIT BOIS PASS - OCS WEST	2013	2/22/2014	3:09 PM	30.13832	-88.46310	232321.45570	1101281.04500	20-ft Vibracore	47.4	19.3																	
BI-PBS-382-13A	PETIT BOIS PASS - OCS WEST	2013	2/22/2014	3:09 PM	30.13832	-88.46310	232321.45570	1101281.04500	20-ft Vibracore	47.4	19.3	0.0-3.0	3.0	SP-SM	SP-SM	SUB-ANGULAR TO SUB- ROUNDED	Greenish Gray	GLEY1 10Y 5/1	5	Gray	2.5Y 6/1	6		0.20	0.24	7.3	2.1	1.1
BI-PBS-384-13	PETIT BOIS PASS - OCS EAST	2013	2/22/2014	12:37 PM	30.15685	-88.36111	239179.53700	1133492.59300	20-ft Vibracore	56.3	17.5																	
BI-PBS-384-13A	PETIT BOIS PASS - OCS EAST	2013	2/22/2014	12:37 PM	30.15685	-88.36111	239179.53700	1133492.59300	20-ft Vibracore	56.3	17.5	0.0-2.3	2.3	SM	SM	SUB-ANGULAR TO SUB- ROUNDED	Very Dark Gray	5Y 3/1	3	Gray	2.5Y 5/1	5		0.28	0.30	19.7	#DIV/0!	#DIV/0!
BI-PBS-384-13B	PETIT BOIS PASS - OCS EAST	2013	2/22/2014	12:37 PM	30.15685	-88.36111	239179.53700	1133492.59300	20-ft Vibracore	56.3	17.5	2.9-8.0	5.1	SM	SP-SM	SUB-ANGULAR TO SUB- ROUNDED	Dark Greenish Gray	GLEY1 10Y 4/1	4	Gray	2.5Y 5/1	5		0.25	0.26	11.7	#DIV/0!	#DIV/0!
BI-PBS-384-13C	PETIT BOIS PASS - OCS EAST	2013	2/22/2014	12:37 PM	30.15685	-88.36111	239179.53700	1133492.59300	20-ft Vibracore	56.3	17.5	8.0-13.7	5.7	SM	SP-SM	SUB-ANGULAR TO SUB- ROUNDED	Greenish Gray	GLEY1 10Y 5/1	5	Gray	2.5Y 6/1	6		0.23	0.25	8.9	2.4	1.2
BI-PBS-384-13D	PETIT BOIS PASS - OCS EAST	2013	2/22/2014	12:37 PM	30.15685	-88.36111	239179.53700	1133492.59300	20-ft Vibracore	56.3	17.5	13.7-17.5	3.8	SP-SM	SP	SUB-ANGULAR TO SUB- ROUNDED	Gray	2.5Y 5/1	5	Light Gray	2.5Y 7/1	7		0.22	0.24	3.9	1.6	0.9

Cu: Coefficient of Uniformity  
Cc: Coefficient of Curvature  
The "#Value!" error message indicates that data was not available for that calculation.

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# Boring Designation BI-PBS-001-12

DRILLING LOG		DIVISION South Atlantic		INSTALLATION Mobile District		SHEET 1 OF 1 SHEETS	
1. PROJECT MsCIP Barrier Island Restoration Petit Bois Pass-OCS East				9. SIZE AND TYPE OF BIT N/A			
2. BORING DESIGNATION BI-PBS-001-12		LOCATION COORDINATES E = 1,136,390 N = 231,154		10. COORDINATE SYSTEM/DATUM State Plane, MSE (U.S. Ft.)		HORIZONTAL NAD83 VERTICAL NAVD88	
3. DRILLING AGENCY Corps of Engineers - CESAM		CONTRACTOR FILE NO.		11. MANUFACTURER'S DESIGNATION OF DRILL Vibrocure		<input type="checkbox"/> AUTO HAMMER <input type="checkbox"/> MANUAL HAMMER	
4. NAME OF DRILLER American Vibrocure Systems, Inc.				12. TOTAL SAMPLES		DISTURBED UNDISTURBED (UD) 0	
5. DIRECTION OF BORING <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED				13. TOTAL NUMBER CORE BOXES		14. WATER DEPTH 57.8 Ft.	
6. THICKNESS OF OVERBURDEN N/A				15. DATE BORING		STARTED 11-26-12 COMPLETED 11-26-12	
7. DEPTH DRILLED INTO ROCK N/A				16. ELEVATION TOP OF BORING -56.8 Ft.		17. TOTAL RECOVERY FOR BORING 100%	
8. TOTAL DEPTH OF BORING 13.4 Ft.				18. SIGNATURE AND TITLE OF INSPECTOR Mike FitzHarris, Geologist			

ELEV.	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS	SAMPLE	LABORATORY RESULTS
-56.8	0.0				
-57.2	0.4				
-59.3	2.5		SAND, poorly-graded with silt, mostly fine to medium-grained sand-sized quartz, few silt, trace shell fragments, gray (SP-SM)	A	Classification: SP-SM Color: 5Y 5.5/2- D50: 0.2136 mm % Fines: 11.3
-61.6	4.8		SAND, silty, mostly fine-grained sand-sized quartz, some silt, trace shell fragments, gray (SM)		
-62.8	6.0		SAND, clayey, mostly fine-grained sand-sized quartz, some clay, some silt, alternating layers of clayey sand and silty sand, greenish gray mottled with gray (SC)		
-69.3	12.5		SILT, inorganic-L, mostly silt, little fine-grained sand-sized quartz, trace clay, trace wood debris, lt. gray mottled with gray (ML)	NS	
-70.2	13.4		CLAY, fat, mostly clay, some silt, trace fine-grained sand-sized quartz, trace wood debris, low to medium plasticity, gray (CH)		
			CLAY, lean, mostly clay, some fine-grained sand-sized quartz, little shell fragments, trace wood debris, gray (CL)		
NOTES: 1. Soils are field visually classified in accordance with the Unified Soils Classification System. 2. NS = Sample not submitted for laboratory analysis from this interval. 3. Seafloor elevation calculated using sampling vessel's fathometer water depth reading and applying NOAA tidal gauge data conversion factor.					



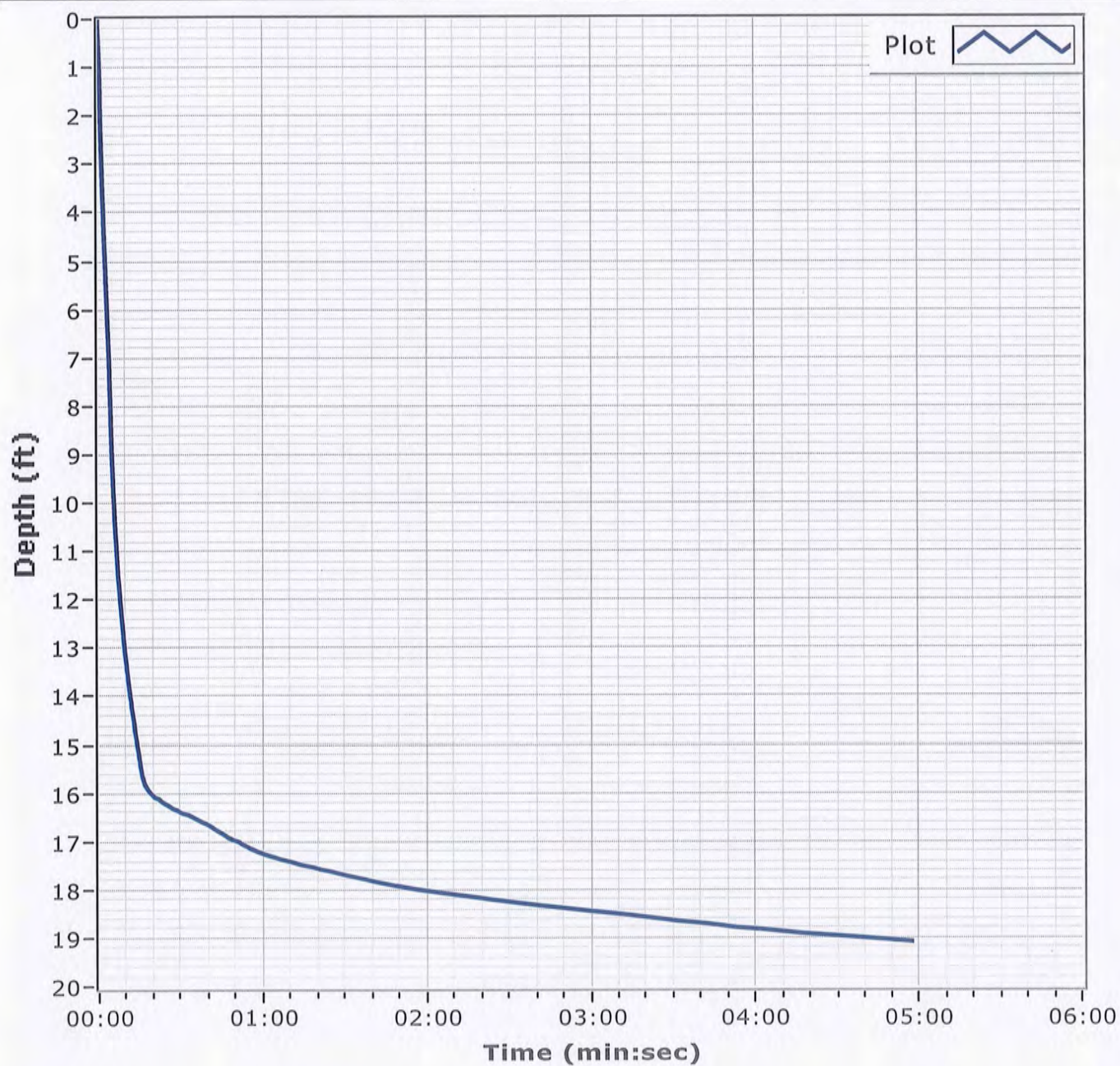
**Project**

Mississippi Barrier Island  
Restoration Project

**AVS**  
**AMERICAN VIBRACORE**  
**S E R V I C E S**

**Core Identifier** BI-PBS-01-12**Date** 11/26/2012**Water Depth** 57.8'**Coordinate System**

Latitude / Longitude

**Start Time** 13:30:56**End Time** 13:35:54**Penetration** 19.1'**Latitude** 30 08.085**Total Time** 00:04:58**Recovery** 13.4'**Longitude** 088 21.123**Comments**



# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	2.0	1.6	12.7	72.4	11.3	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
1	100.0		
.75	100.0		
.5	100.0		
.375	99.4		
#4	98.0		
#10	96.4		
#20	93.8		
#40	83.7		
#60	60.1		
#100	28.7		
#140	17.4		
#200	11.3		

\* (no specification provided)

## Material Description

Fine to medium grained, SLIGHTLY SILTY SAND, with trace SHELL

## Atterberg Limits

PL= LL= PI=

## Coefficients

D<sub>90</sub>= 0.5689 D<sub>85</sub>= 0.4448 D<sub>60</sub>= 0.2498  
D<sub>50</sub>= 0.2136 D<sub>30</sub>= 0.1540 D<sub>15</sub>= 0.0940  
D<sub>10</sub>= C<sub>u</sub>= C<sub>c</sub>=

## Classification

USCS= SP-SM AASHTO=

## Remarks

Location: BI-PBS-01-12 A  
Sample Number: 6471 (45)

Depth: 0.0'

Date: 12/03/12

**Thompson Engineering**

**Mobile, Alabama**

Client: CDM/Thompson Engineering JV  
Project: MsCIP Barrier Island Restoration GT

Project No: 1221110095

Figure

# Boring Designation BI-PBS-002-12

DRILLING LOG		DIVISION South Atlantic		INSTALLATION Mobile District		SHEET 1 OF 2 SHEETS	
1. PROJECT MsCIP Barrier Island Restoration Petit Bois Pass-OCS East				9. SIZE AND TYPE OF BIT N/A			
2. BORING DESIGNATION BI-PBS-002-12		LOCATION COORDINATES E = 1,138,053 N = 231,827		10. COORDINATE SYSTEM/DATUM State Plane, MSE (U.S. Ft.)		HORIZONTAL NAD83 VERTICAL NAVD88	
3. DRILLING AGENCY Corps of Engineers - CESAM		CONTRACTOR FILE NO.		11. MANUFACTURER'S DESIGNATION OF DRILL Vibracore		<input type="checkbox"/> AUTO HAMMER <input type="checkbox"/> MANUAL HAMMER	
4. NAME OF DRILLER American Vibracore Systems, Inc.				12. TOTAL SAMPLES		DISTURBED UNDISTURBED (UD) 0	
5. DIRECTION OF BORING <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED		DEG. FROM VERTICAL		13. TOTAL NUMBER CORE BOXES			
		BEARING		14. WATER DEPTH 50.9 Ft.			
6. THICKNESS OF OVERBURDEN N/A				15. DATE BORING 11-26-12		STARTED COMPLETED 11-26-12	
7. DEPTH DRILLED INTO ROCK N/A				16. ELEVATION TOP OF BORING -50.2 Ft.			
8. TOTAL DEPTH OF BORING 20.0 Ft.				17. TOTAL RECOVERY FOR BORING 100%			
				18. SIGNATURE AND TITLE OF INSPECTOR Mike FitzHarris, Geologist			

ELEV.	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS	SAMPLE	LABORATORY RESULTS
-50.2	0.0				
			SAND, poorly-graded, mostly fine to medium-grained sand-sized quartz, trace silt, shell fragments in interval 0-2.7 ft., greenish gray (SP)	A	Classification: SP Color: 5Y 7/2-light gray D50: 0.22 mm % Fines: 1.6
				B	Classification: SP Color: 5Y 6/2-light olive gray D50: 0.21 mm % Fines: 3.9
-58.0	7.8				
			SAND, clayey, mostly fine-grained sand-sized quartz, some clay, trace shell fragments, greenish gray (SC)		
-59.7	9.5				
			CLAY, lean, mostly clay, some sand, trace shell fragments, greenish gray (CL)		
-61.7	11.5				
			CLAY, fat, mostly clay, moderately stiff with some clayey sand nodules, greenish gray mottled with brown (CH)	NS	
-66.7	16.5				
			SAND, silty, mostly fine-grained sand-sized quartz, some silt, trace clay, trace shell fragments, gray (SM)		
-68.6	18.4				
			CLAY, fat, mostly clay, trace fine-grained sand-sized quartz, trace wood debris, moderately stiff, gray (CH)		
-70.2	20.0				
			NOTES: 1. Soils are field visually classified in accordance with the Unified Soils Classification System. 2. NS = Sample not submitted for laboratory analysis from this interval.		

<b>DRILLING LOG (Cont. Sheet)</b>			<b>INSTALLATION</b> Mobile District		<b>SHEET 2</b> <b>OF 2 SHEETS</b>
<b>PROJECT</b> MsCIP Barrier Island Restoration			<b>COORDINATE SYSTEM/DATUM</b> State Plane, MSE (U.S. Ft.)	<b>HORIZONTAL</b> NAD83	<b>VERTICAL</b> NAVD88
<b>LOCATION COORDINATES</b> X = 1,138,053 Y = 231,827			<b>ELEVATION TOP OF BORING</b> -50.2 Ft.		
<b>ELEV.</b>	<b>DEPTH</b>	<b>LEGEND</b>	<b>CLASSIFICATION OF MATERIALS</b>	<b>SAMPLE</b>	<b>LABORATORY RESULTS</b>
			3. Seafloor elevation determined from USACE hydrographic survey completed April 2014.		

# Project

Mississippi Barrier Island  
Restoration Project

**AVS**  
AMERICAN VIBRACORE  
S E R V I C E S

Core Identifier BI-PBS-02-12

Date 11/26/2012

Water Depth 50.9'

## Coordinate System

Latitude / Longitude

Start Time 12:43:05

End Time 12:44:50

Penetration 20.0'

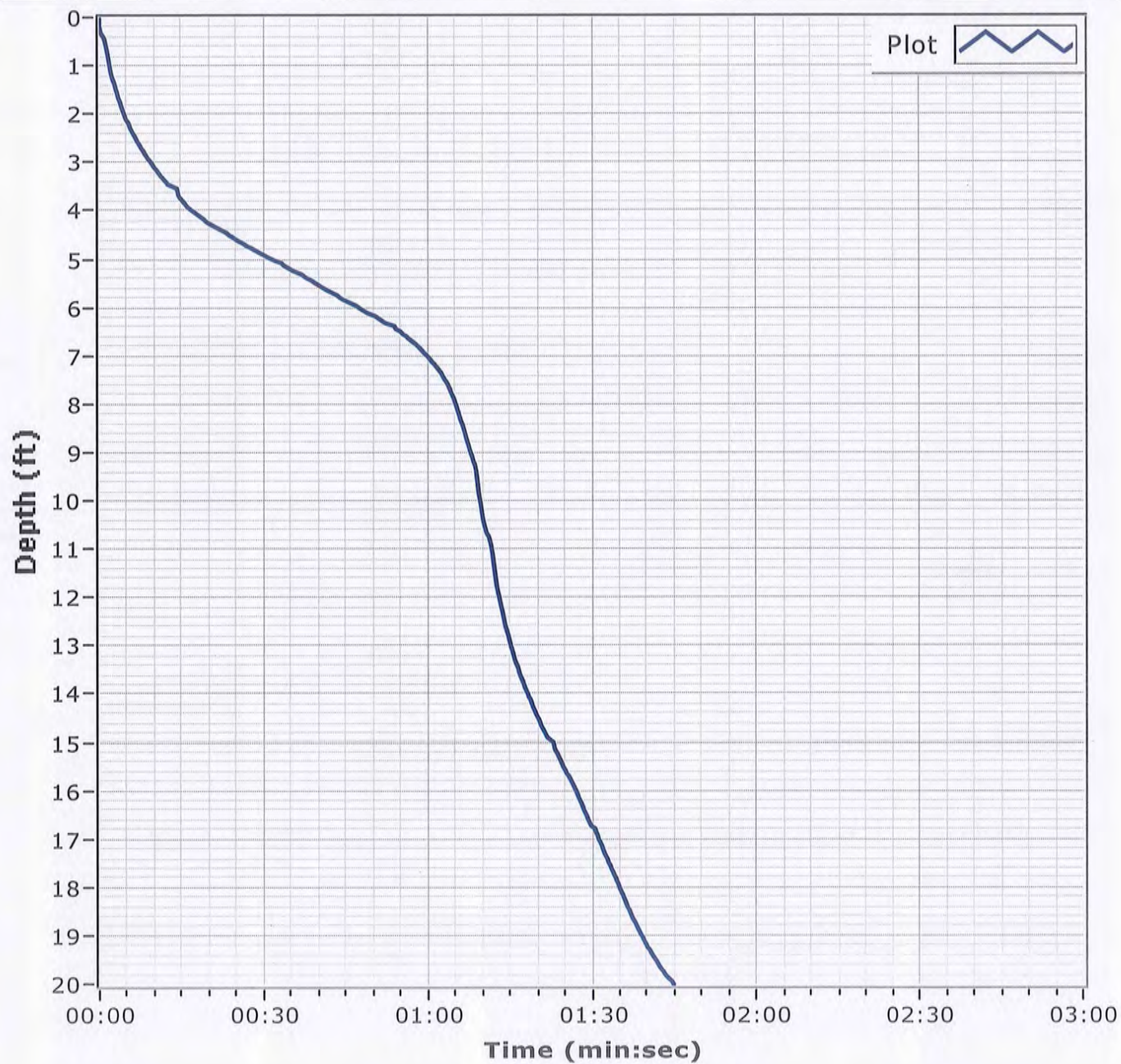
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Total Time 00:01:45

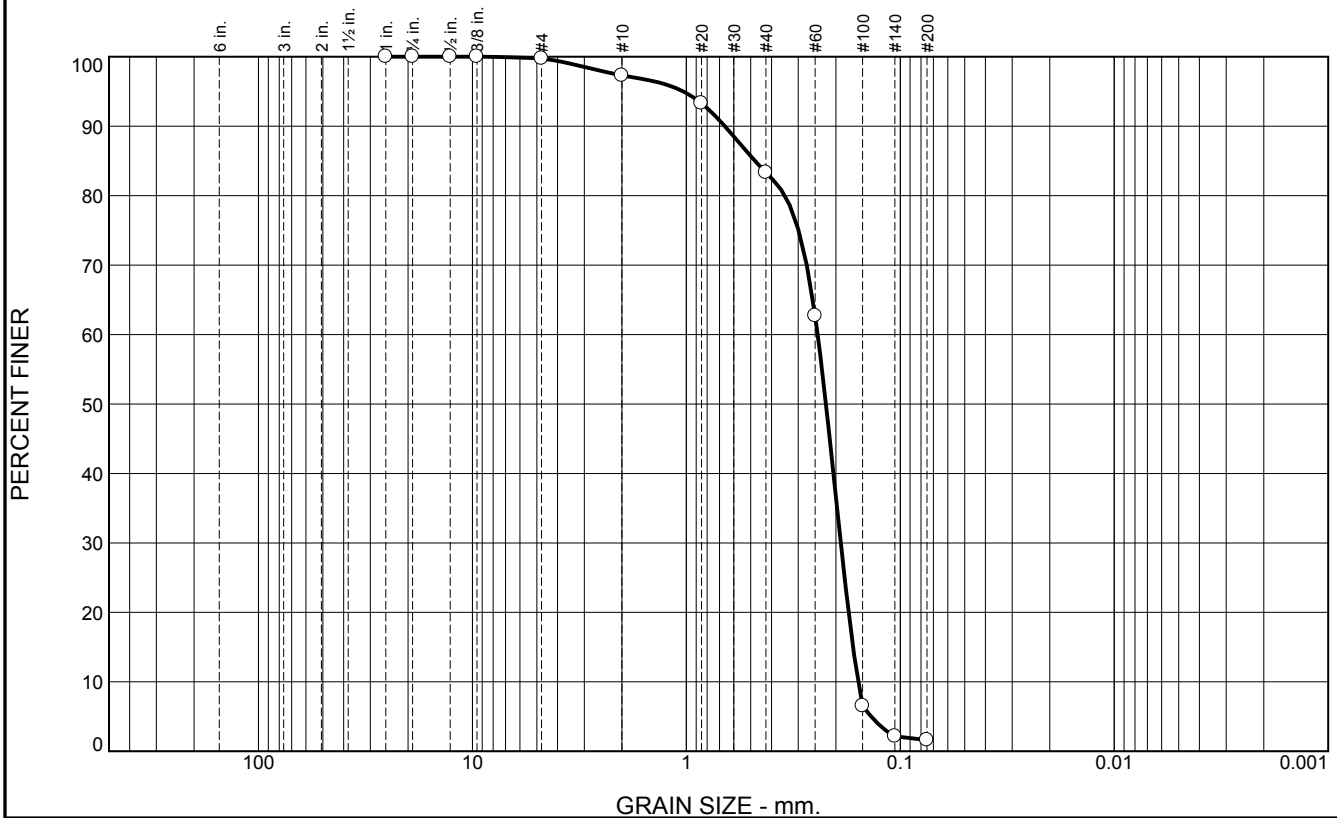
Recovery 19.5'

Longitude 088 20.807

## Comments



# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.3	2.4	14.0	81.7	1.6	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
1	100.0		
.75	100.0		
.5	100.0		
.375	100.0		
#4	99.7		
#10	97.3		
#20	93.3		
#40	83.3		
#60	62.7		
#100	6.5		
#140	2.2		
#200	1.6		

\* (no specification provided)

Material Description		
Fine to medium grained, SAND		
<div> <div> Atterberg Limits </div> <div> PL= </div> <div> LL= </div> <div> PI= </div> </div>		
<div> <div> Coefficients </div> <div> D<sub>90</sub>= 0.6616 </div> <div> D<sub>50</sub>= 0.2225 </div> <div> D<sub>10</sub>= 0.1575 </div> <div> D<sub>85</sub>= 0.4781 </div> <div> D<sub>30</sub>= 0.1898 </div> <div> C<sub>u</sub>= 1.54 </div> <div> D<sub>60</sub>= 0.2432 </div> <div> D<sub>15</sub>= 0.1665 </div> <div> C<sub>c</sub>= 0.94 </div> </div>		
<div> <div> Classification </div> <div> USCS= SP </div> <div> AASHTO= </div> </div>		
<div> <div> Remarks </div> </div>		

Location: BI-PBS-02-12 A  
Sample Number: 6469 (55)

Depth: 0.0'

Date: 11/28/12

**Thompson Engineering**

**Mobile, Alabama**

Client: CDM/Thompson Engineering JV  
Project: MsCIP Barrier Island Restoration GT

Project No: 1221110095

Figure

# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.2	1.5	8.8	85.6	3.9	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
1	100.0		
.75	100.0		
.5	100.0		
.375	100.0		
#4	99.8		
#10	98.3		
#20	95.7		
#40	89.5		
#60	67.3		
#100	12.4		
#140	5.2		
#200	3.9		

\* (no specification provided)

Material Description		
Fine grained, SAND		
<div> <div> Atterberg Limits </div> <div> PL= </div> <div> LL= </div> <div> PI= </div> </div>		
<div> <div> Coefficients </div> <div> D<sub>90</sub>= 0.4395 </div> <div> D<sub>50</sub>= 0.2136 </div> <div> D<sub>10</sub>= 0.1438 </div> <div> D<sub>85</sub>= 0.3391 </div> <div> D<sub>30</sub>= 0.1810 </div> <div> C<sub>u</sub>= 1.62 </div> <div> D<sub>60</sub>= 0.2327 </div> <div> D<sub>15</sub>= 0.1556 </div> <div> C<sub>c</sub>= 0.98 </div> </div>		
<div> <div> Classification </div> <div> USCS= SP </div> <div> AASHTO= </div> </div>		
<div> <div> Remarks </div> </div>		

Location: BI-PBS-02-12 B  
Sample Number: 6469 (56)

Depth: 4.5'

Date: 11/28/12

**Thompson Engineering**

**Mobile, Alabama**

Client: CDM/Thompson Engineering JV  
Project: MsCIP Barrier Island Restoration GT

Project No: 1221110095

Figure

# Boring Designation BI-PBS-003-12

DRILLING LOG		DIVISION South Atlantic		INSTALLATION Mobile District		SHEET 1 OF 2 SHEETS	
1. PROJECT MsCIP Barrier Island Restoration Petit Bois Pass-OCS East				9. SIZE AND TYPE OF BIT N/A			
2. BORING DESIGNATION BI-PBS-003-12		LOCATION COORDINATES E = 1,138,716 N = 232,102		10. COORDINATE SYSTEM/DATUM State Plane, MSE (U.S. Ft.)		HORIZONTAL NAD83 VERTICAL NAVD88	
3. DRILLING AGENCY Corps of Engineers - CESAM		CONTRACTOR FILE NO.		11. MANUFACTURER'S DESIGNATION OF DRILL Vibrocure		<input type="checkbox"/> AUTO HAMMER <input type="checkbox"/> MANUAL HAMMER	
4. NAME OF DRILLER American Vibrocure Systems, Inc.				12. TOTAL SAMPLES		DISTURBED UNDISTURBED (UD) 0	
5. DIRECTION OF BORING <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED		DEG. FROM VERTICAL		13. TOTAL NUMBER CORE BOXES			
		BEARING		14. WATER DEPTH 59.7 Ft.			
6. THICKNESS OF OVERBURDEN N/A				15. DATE BORING 11-26-12		STARTED COMPLETED 11-26-12	
7. DEPTH DRILLED INTO ROCK N/A				16. ELEVATION TOP OF BORING -59.4 Ft.			
8. TOTAL DEPTH OF BORING 19.5 Ft.				17. TOTAL RECOVERY FOR BORING 100%			
				18. SIGNATURE AND TITLE OF INSPECTOR Mike FitzHarris, Geologist			

ELEV.	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS	SAMPLE	LABORATORY RESULTS
-59.4	0.0				
-61.2	1.8		SAND, clayey, mostly fine-grained sand-sized quartz, some shell fragments, with sandy clay stringers, gray mottled with brown (SC)		
-66.5	7.1		CLAY, lean, mostly clay, trace shell fragments, pockets of sandy clay, medium plasticity, gray mottled with brown (CL)		
-78.9	19.5		SAND, clayey, mostly fine-grained sand-sized quartz, trace shell fragments, low plasticity, gray (SC) At El. -67.6 Ft., mostly fine-grained sand-sized quartz, some clay, trace shell fragments, trace wood debris, alternating layers of clayey sand and sandy clay, gray	NS	
			NOTES: 1. Soils are field visually classified in accordance with the Unified Soils Classification System. 2. NS = Sample not submitted for laboratory analysis from this interval. 3. Seafloor elevation calculated using sampling vessel's fathometer water depth reading and		

<b>DRILLING LOG (Cont. Sheet)</b>			<b>INSTALLATION</b> Mobile District		<b>SHEET 2</b> <b>OF 2 SHEETS</b>
<b>PROJECT</b> MsCIP Barrier Island Restoration			<b>COORDINATE SYSTEM/DATUM</b> State Plane, MSE (U.S. Ft.)	<b>HORIZONTAL</b> NAD83	<b>VERTICAL</b> NAVD88
<b>LOCATION COORDINATES</b> X = 1,138,716 Y = 232,102			<b>ELEVATION TOP OF BORING</b> -59.4 Ft.		
<b>ELEV.</b>	<b>DEPTH</b>	<b>LEGEND</b>	<b>CLASSIFICATION OF MATERIALS</b>	<b>SAMPLE</b>	<b>LABORATORY RESULTS</b>
			applying NOAA tidal gauge data conversion factor.		



**Project**

Mississippi Barrier Island  
Restoration Project

**AVS**  
**AMERICAN VIBRACORE**  
**S E R V I C E S**

**Core Identifier** BI-PBS-03-12

**Date** 11/26/2012

**Water Depth** 59.7'

**Coordinate System**

Latitude / Longitude

**Start Time** 09:52:42

**End Time** 09:53:38

**Penetration** 20.0'

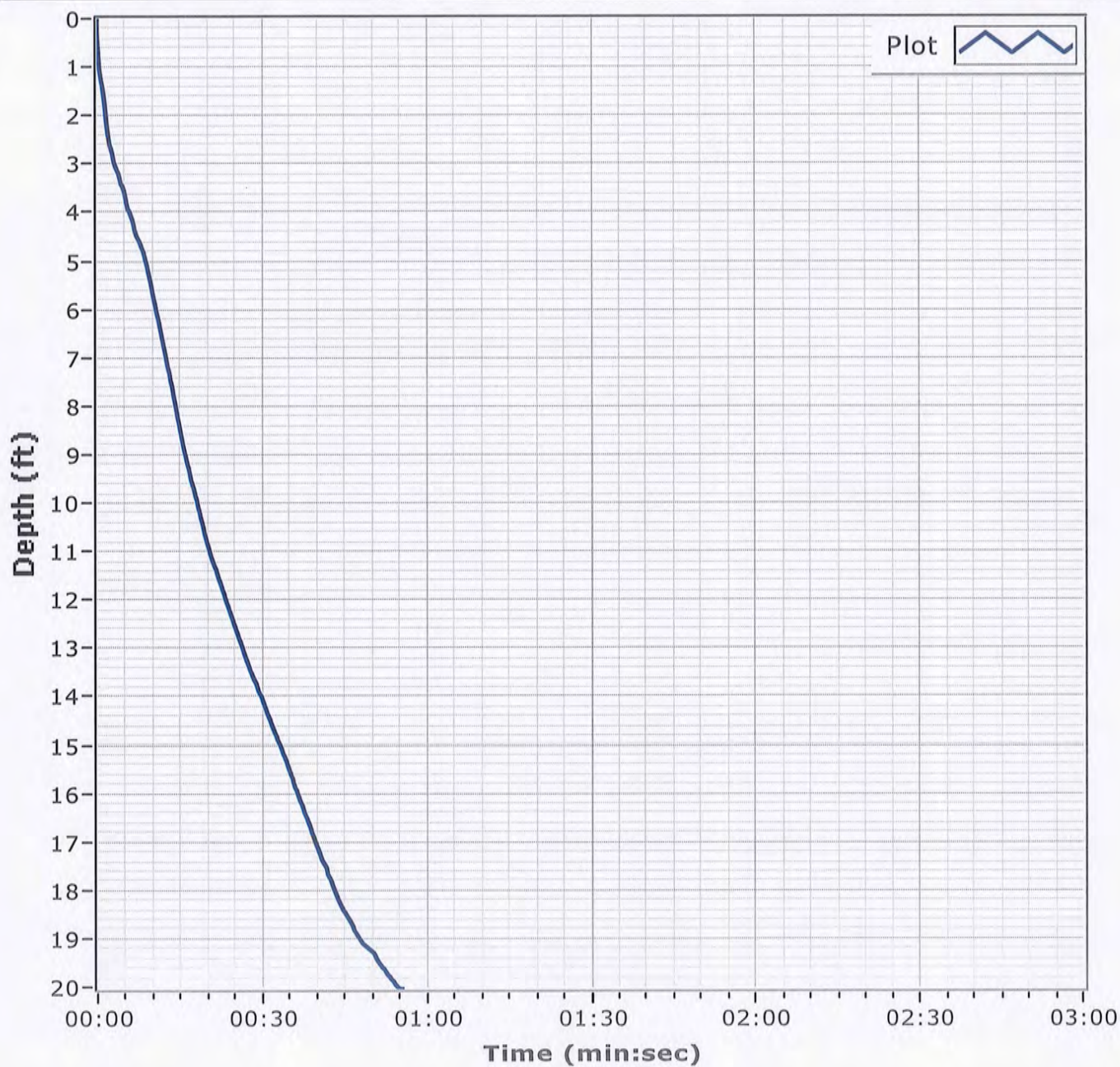
**Latitude** 30 08.240

**Total Time** 00:00:55

**Recovery** 19.5'

**Longitude** 088 20.681

**Comments**



# Boring Designation BI-PBS-004-12

DRILLING LOG		DIVISION South Atlantic		INSTALLATION Mobile District		SHEET 1 OF 2 SHEETS	
1. PROJECT MsCIP Barrier Island Restoration Petit Bois Pass-OCS East				9. SIZE AND TYPE OF BIT N/A			
2. BORING DESIGNATION BI-PBS-004-12		LOCATION COORDINATES E = 1,139,523 N = 232,429		10. COORDINATE SYSTEM/DATUM State Plane, MSE (U.S. Ft.)		HORIZONTAL NAD83	
3. DRILLING AGENCY Corps of Engineers - CESAM		CONTRACTOR FILE NO.		11. MANUFACTURER'S DESIGNATION OF DRILL Vibracore		<input type="checkbox"/> AUTO HAMMER <input type="checkbox"/> MANUAL HAMMER	
4. NAME OF DRILLER American Vibracore Systems, Inc.				12. TOTAL SAMPLES		DISTURBED 0	
5. DIRECTION OF BORING <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED				13. TOTAL NUMBER CORE BOXES		14. WATER DEPTH 49.8 Ft.	
6. THICKNESS OF OVERBURDEN N/A				15. DATE BORING		STARTED 11-26-12	
7. DEPTH DRILLED INTO ROCK N/A				16. ELEVATION TOP OF BORING -50.1 Ft.		COMPLETED 11-26-12	
8. TOTAL DEPTH OF BORING 20.0 Ft.				17. TOTAL RECOVERY FOR BORING 100%			
				18. SIGNATURE AND TITLE OF INSPECTOR Mike FitzHarris, Geologist			

ELEV.	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS	SAMPLE	LABORATORY RESULTS
-50.1	0.0				
			SAND, poorly-graded, mostly fine to medium-grained sand-sized quartz, trace silt, trace wood debris, greenish gray (SP)	A	Classification: SP Color: 5Y 7/2-light gray D50: 0.26 mm % Fines: 1.2
				B	Classification: SP Color: 5Y 7/2-light gray D50: 0.23 mm % Fines: 2.4
-58.7	8.6				
-59.8	9.7		SAND, silty, mostly fine to medium-grained sand-sized quartz, some shell fragments, greenish gray (SM)		
			CLAY, lean, mostly clay, some fine-grained sand-sized quartz, trace shell fragments, medium stiffness, brown mottled with gray (CL)		
			At El. -60.6 Ft., mostly clay, some fine-grained sand-sized quartz, medium stiffness, some bands of fat clay throughout interval, greenish gray mottled with brown	NS	
-65.6	15.5				
			SAND, clayey, mostly fine-grained sand-sized quartz, trace shell fragments, gray (SC)		
-69.6	19.5				
-70.1	20.0		CLAY, fat, mostly clay, trace shell fragments, medium stiffness, gray (CH)		
NOTES: 1. Soils are field visually classified in accordance with the Unified Soils Classification System. 2. NS = Sample not submitted for laboratory analysis from this interval.					

<b>DRILLING LOG (Cont. Sheet)</b>			<b>INSTALLATION</b> Mobile District		<b>SHEET 2</b> <b>OF 2 SHEETS</b>
<b>PROJECT</b> MsCIP Barrier Island Restoration			<b>COORDINATE SYSTEM/DATUM</b> State Plane, MSE (U.S. Ft.)	<b>HORIZONTAL</b> NAD83	<b>VERTICAL</b> NAVD88
<b>LOCATION COORDINATES</b> X = 1,139,523 Y = 232,429			<b>ELEVATION TOP OF BORING</b> -50.1 Ft.		
<b>ELEV.</b>	<b>DEPTH</b>	<b>LEGEND</b>	<b>CLASSIFICATION OF MATERIALS</b>	<b>SAMPLE</b>	<b>LABORATORY RESULTS</b>
			3. Seafloor elevation determined from USACE hydrographic survey completed April 2014.		



**Project**

Mississippi Barrier Island  
Restoration Project

**AVS**  
**AMERICAN VIBRACORE**  
**S E R V I C E S**

**Core Identifier** BI-PBS-04-12

**Date** 11/26/2012

**Water Depth** 59.3'

**Coordinate System**

**Start Time** 10:36:10

Latitude / Longitude

**End Time** 10:37:58

**Penetration** 20.0'

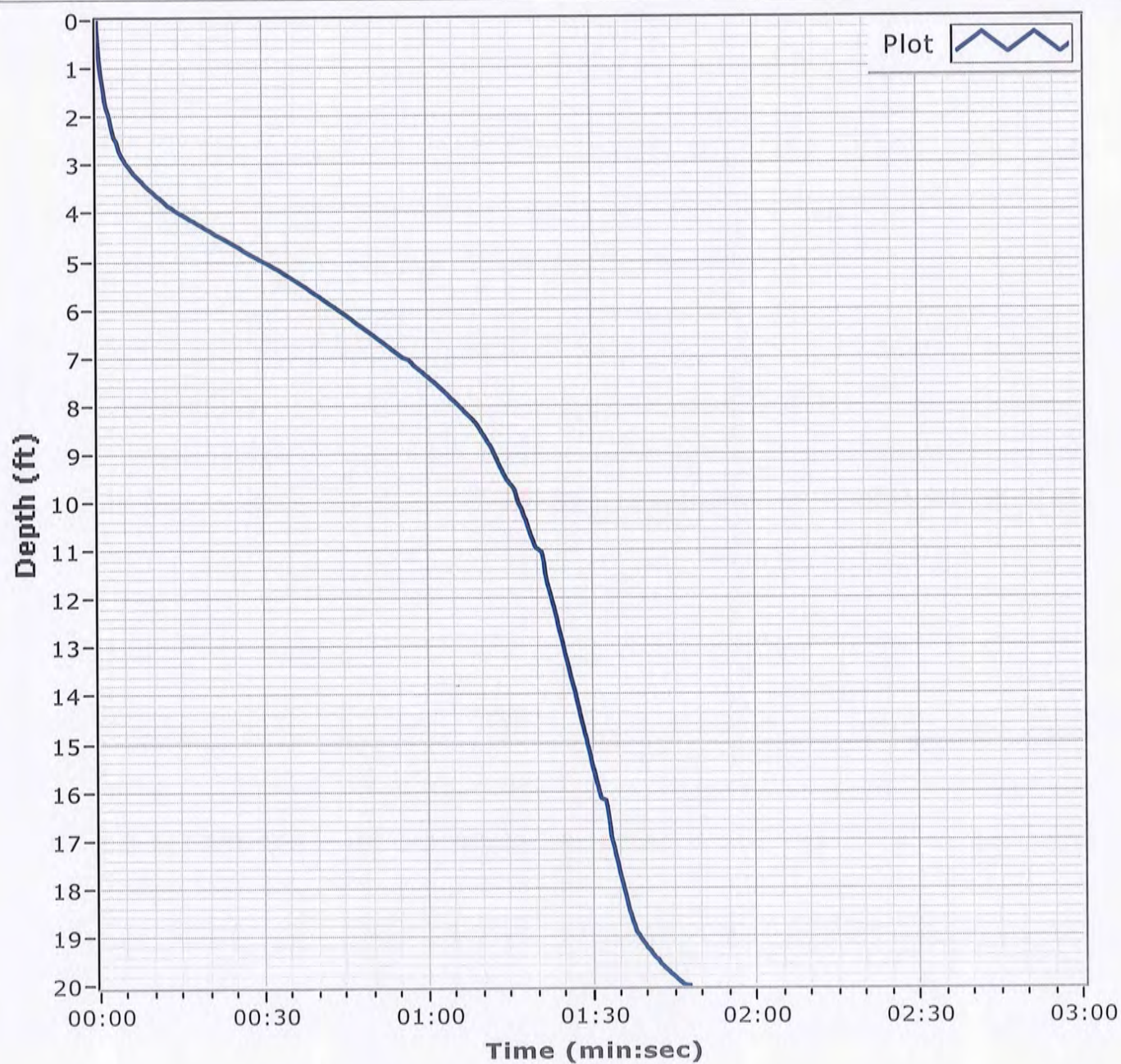
**Latitude** 30 08.293

**Total Time** 00:01:48

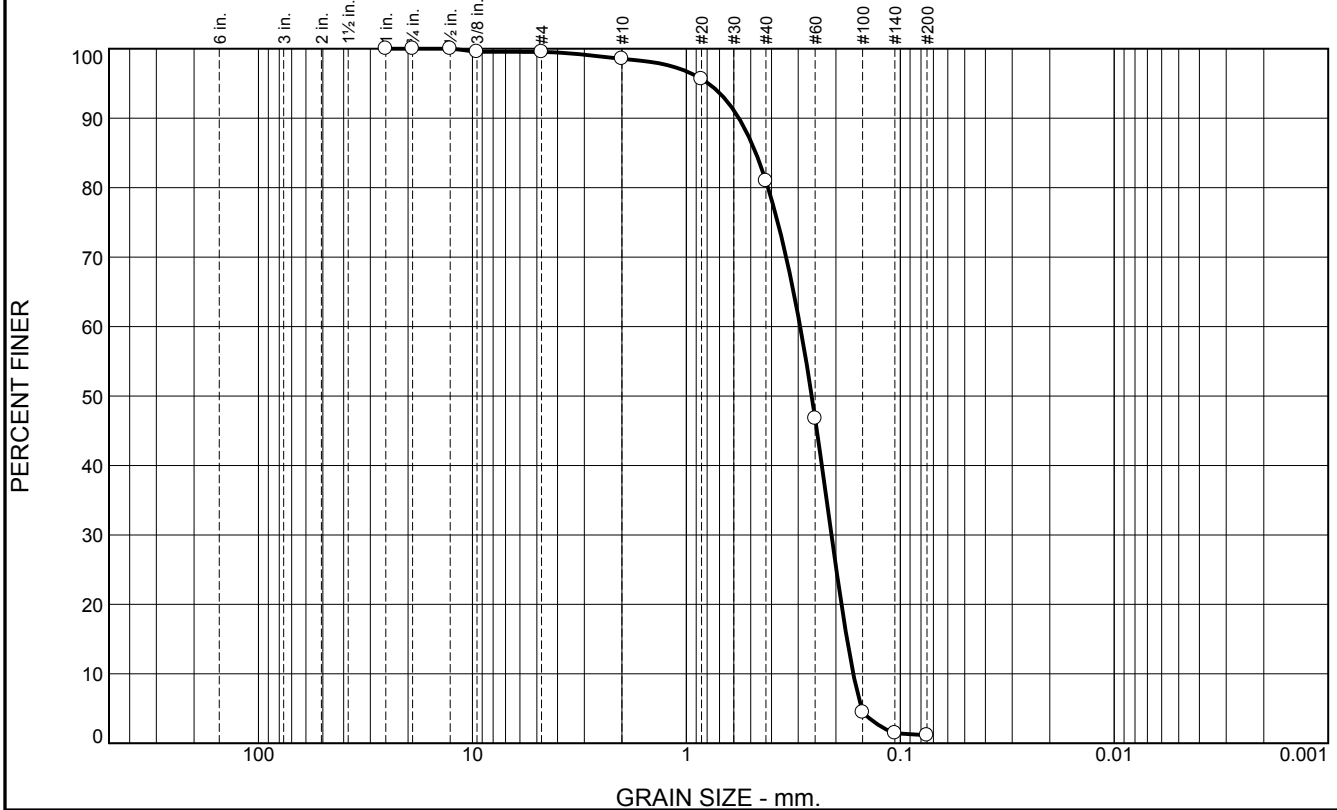
**Recovery** 20.0'

**Longitude** 088 20.527

**Comments**



# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.5	1.0	17.5	79.8	1.2	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
1	100.0		
.75	100.0		
.5	100.0		
.375	99.6		
#4	99.5		
#10	98.5		
#20	95.6		
#40	81.0		
#60	46.8		
#100	4.5		
#140	1.5		
#200	1.2		

\* (no specification provided)

Material Description		
Fine to medium grained, SAND		
<div> <div> Atterberg Limits </div> <div> PL= LL= PI= </div> </div>		
<div> <div> Coefficients </div> <div> D<sub>90</sub>= 0.5681 D<sub>85</sub>= 0.4736 D<sub>60</sub>= 0.2939 D<sub>50</sub>= 0.2594 D<sub>30</sub>= 0.2097 D<sub>15</sub>= 0.1776 D<sub>10</sub>= 0.1660 C<sub>u</sub>= 1.77 C<sub>c</sub>= 0.90 </div> </div>		
<div> <div> Classification </div> <div> USCS= SP AASHTO= </div> </div>		
<div> <div> Remarks </div> </div>		

Location: BI-PBS-04-12 A  
Sample Number: 6469 (57)

Depth: 0.0'

Date: 11/28/12

**Thompson Engineering**

**Mobile, Alabama**

Client: CDM/Thompson Engineering JV  
Project: MsCIP Barrier Island Restoration GT

Project No: 1221110095

Figure

# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.0	0.7	6.8	90.1	2.4	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
1	100.0		
.75	100.0		
.5	100.0		
.375	100.0		
#4	100.0		
#10	99.3		
#20	97.7		
#40	92.5		
#60	61.5		
#100	7.4		
#140	3.1		
#200	2.4		

\* (no specification provided)

Material Description		
Fine grained, SAND		
PL=	Atterberg Limits LL=	PI=
D <sub>90</sub> = 0.3901	Coefficients D <sub>85</sub> = 0.3443	D <sub>60</sub> = 0.2465
D <sub>50</sub> = 0.2258	D <sub>30</sub> = 0.1914	D <sub>15</sub> = 0.1662
D <sub>10</sub> = 0.1563	C <sub>u</sub> = 1.58	C <sub>c</sub> = 0.95
USCS= SP	Classification AASHTO=	
Remarks		

Location: BI-PBS-04-12 B  
Sample Number: 6469 (58)

Depth: 5.0'

Date: 11/28/12

**Thompson Engineering**

**Mobile, Alabama**

Client: CDM/Thompson Engineering JV  
Project: MsCIP Barrier Island Restoration GT

Project No: 1221110095

Figure

# Boring Designation BI-PBS-005-12

DRILLING LOG		DIVISION South Atlantic		INSTALLATION Mobile District		SHEET 1 OF 1 SHEETS	
1. PROJECT MsCIP Barrier Island Restoration Petit Bois Pass-OCS East				9. SIZE AND TYPE OF BIT N/A			
2. BORING DESIGNATION BI-PBS-005-12		LOCATION COORDINATES E = 1,140,581 N = 232,863		10. COORDINATE SYSTEM/DATUM State Plane, MSE (U.S. Ft.)		HORIZONTAL NAD83 VERTICAL NAVD88	
3. DRILLING AGENCY Corps of Engineers - CESAM		CONTRACTOR FILE NO.		11. MANUFACTURER'S DESIGNATION OF DRILL Vibracore		<input type="checkbox"/> AUTO HAMMER <input type="checkbox"/> MANUAL HAMMER	
4. NAME OF DRILLER American Vibracore Systems, Inc.				12. TOTAL SAMPLES		DISTURBED UNDISTURBED (UD) 0	
5. DIRECTION OF BORING <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED		DEG. FROM VERTICAL		13. TOTAL NUMBER CORE BOXES			
		BEARING		14. WATER DEPTH 60.1 Ft.			
6. THICKNESS OF OVERBURDEN N/A				15. DATE BORING 11-24-12		STARTED COMPLETED 11-24-12	
7. DEPTH DRILLED INTO ROCK N/A				16. ELEVATION TOP OF BORING -60.1 Ft.			
8. TOTAL DEPTH OF BORING 17.4 Ft.				17. TOTAL RECOVERY FOR BORING 100%			
				18. SIGNATURE AND TITLE OF INSPECTOR John Bass, Geotechnical Engineer			
ELEV.	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS	SAMPLE	LABORATORY RESULTS		
-60.1	0.0						
-62.1	2.0		SAND, clayey, mostly fine-grained sand-sized quartz, some clay, some shell fragments, dark gray (SC)	NS			
-63.1	3.0		CLAY, lean, mostly clay, little fine-grained sand-sized quartz, dark gray (CL)				
-64.1	4.0			A	Classification: SM Color: 2.5Y 6/2-light brownish gray D50: 0.2 mm % Fines: 14.4		
-66.1	6.0		SAND, silty, mostly fine-grained sand-sized quartz, some silt, little shell fragments, gray (SM)				
-66.9	6.8		SAND, poorly-graded, mostly fine-grained sand-sized quartz, little shell fragments, trace silt, gray (SP)	NS			
			SAND, silty, mostly fine-grained sand-sized quartz, some silt, trace shell fragments, gray (SM)				
-71.3	11.2		CLAY, silty, some clay, some silt, trace fine-grained sand-sized quartz, gray (CL-ML)				
-73.0	12.9		SAND, silty, mostly fine-grained sand-sized quartz, some silt, little clay, gray (SM)				
			CLAY, fat, mostly clay, trace fine-grained sand-sized quartz, stiff, lt. gray to tan (CH)				
-77.5	17.4						
NOTES: 1. Soils are field visually classified in accordance with the Unified Soils Classification System. 2. NS = Sample not submitted for laboratory analysis from this interval. 3. Seafloor elevation determined from USACE hydrographic survey completed April 2014.							



**Project**

Mississippi Barrier Island  
Restoration Project

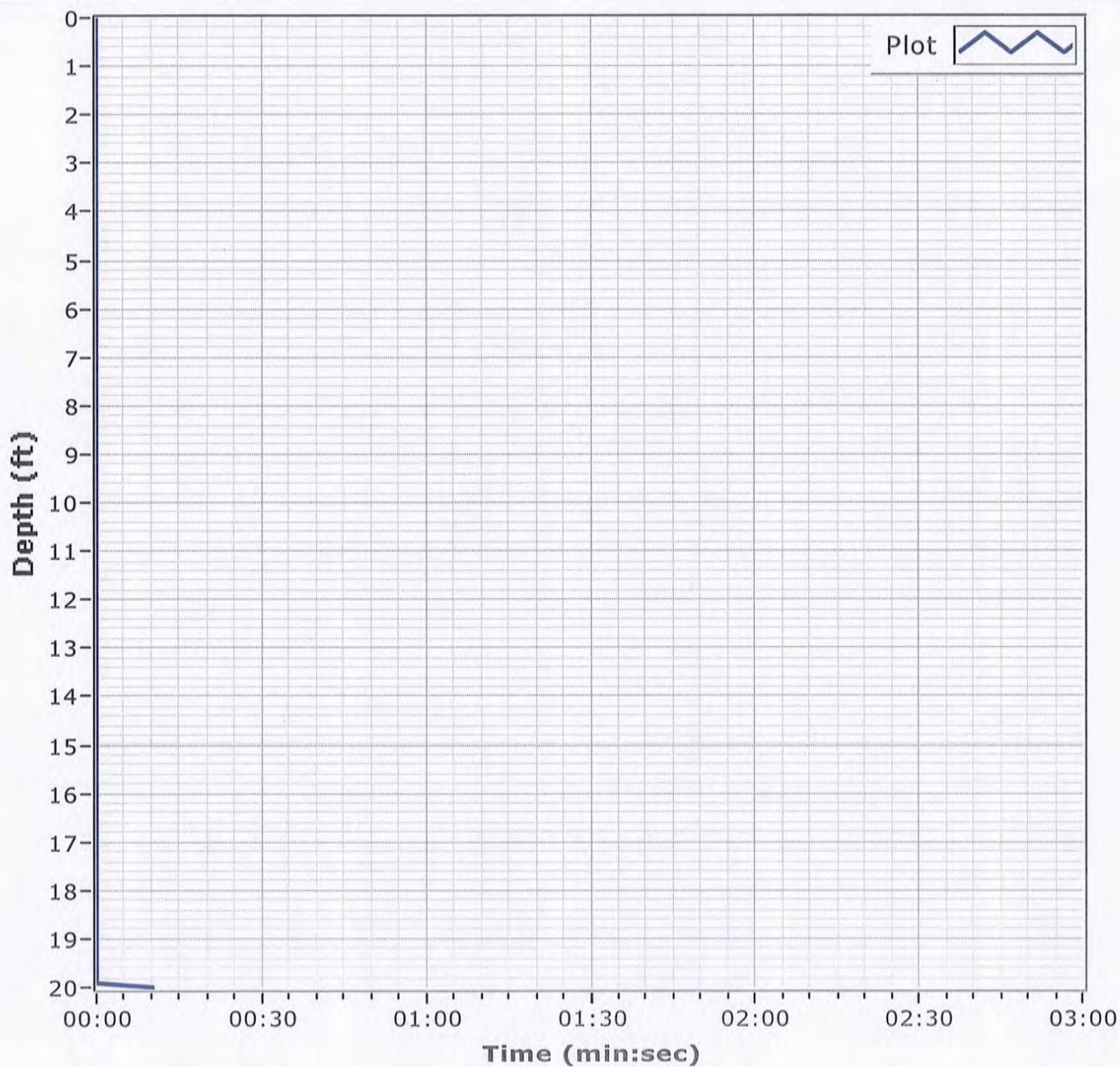
**AVS**  
**AMERICAN VIBRACORE**  
**S E R V I C E S**

**Core Identifier** BI-PBS-05-12**Date** 11/24/2012**Water Depth** 60.1'**Coordinate System**

Latitude / Longitude

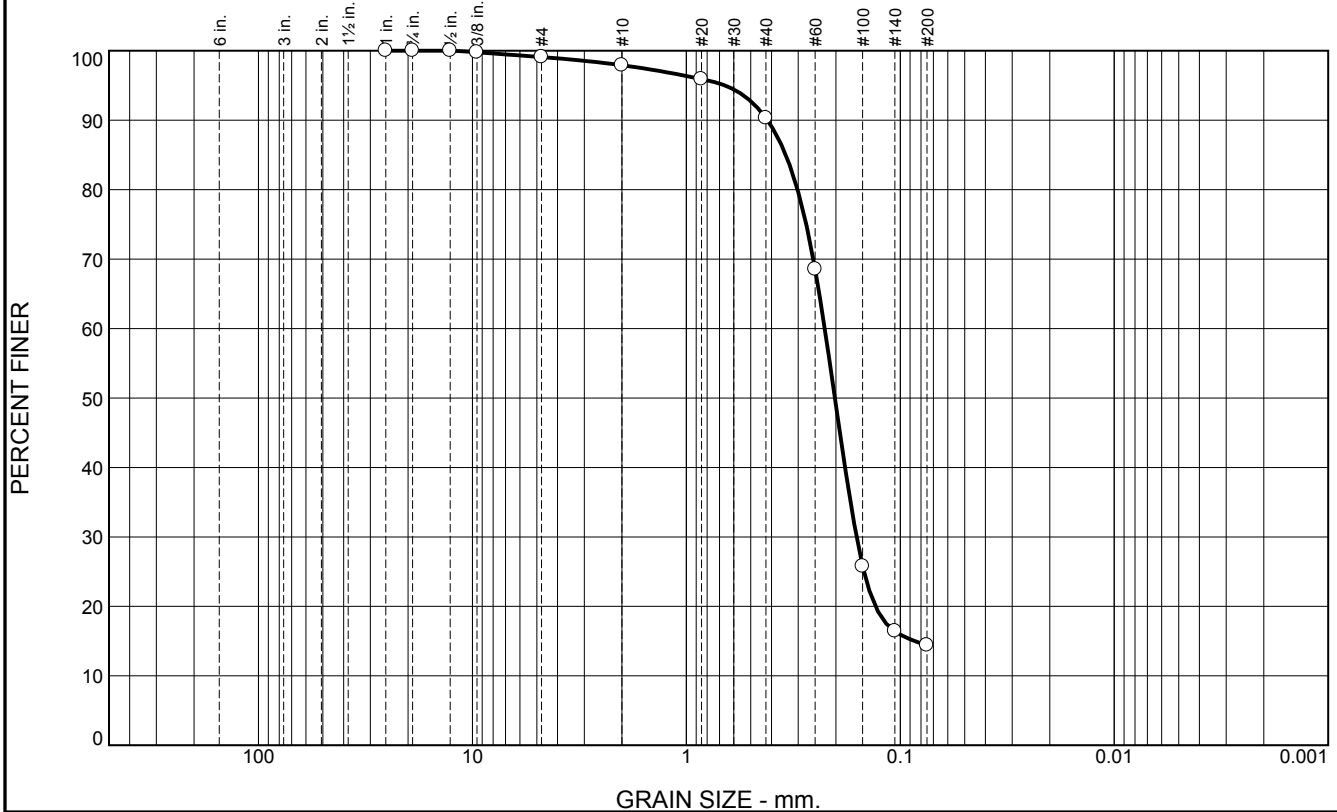
**Start Time** 15:56:19**End Time** 15:56:29**Penetration** 20.0'**Latitude** 30 08.364**Total Time** 00:00:10**Recovery** 17.4'**Longitude** 088 20.326**Comments**

Note: Penetrometer cable damaged.





# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.9	1.2	7.6	75.9	14.4	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
1	100.0		
.75	100.0		
.5	100.0		
.375	99.8		
#4	99.1		
#10	97.9		
#20	95.9		
#40	90.3		
#60	68.5		
#100	25.8		
#140	16.4		
#200	14.4		

\* (no specification provided)

Material Description		
Fine grained, SILTY SAND		
<div> <div> Atterberg Limits </div> <div> PL= </div> <div> LL= </div> <div> PI= </div> </div>		
<div> <div> Coefficients </div> <div> D<sub>90</sub>= 0.4182 </div> <div> D<sub>50</sub>= 0.2022 </div> <div> D<sub>10</sub>= </div> <div> D<sub>85</sub>= 0.3430 </div> <div> D<sub>30</sub>= 0.1602 </div> <div> C<sub>u</sub>= </div> <div> D<sub>60</sub>= 0.2255 </div> <div> D<sub>15</sub>= 0.0857 </div> <div> C<sub>c</sub>= </div> </div>		
<div> <div> Classification </div> <div> USCS= SM </div> <div> AASHTO= </div> </div>		
<div> <div> Remarks </div> </div>		

Location: BI-PBS-05-12 A  
Sample Number: 6469 (54)

Depth: 4.0'

Date: 11/28/12

**Thompson Engineering**

**Mobile, Alabama**

Client: CDM/Thompson Engineering JV  
Project: MsCIP Barrier Island Restoration GT

Project No: 1221110095

Figure

# Boring Designation BI-PBS-006-12

DRILLING LOG		DIVISION South Atlantic		INSTALLATION Mobile District		SHEET 1 OF 2 SHEETS	
1. PROJECT MsCIP Barrier Island Restoration Petit Bois Pass-OCS East				9. SIZE AND TYPE OF BIT N/A			
2. BORING DESIGNATION BI-PBS-006-12		LOCATION COORDINATES E = 1,141,764 N = 233,356		10. COORDINATE SYSTEM/DATUM State Plane, MSE (U.S. Ft.)		HORIZONTAL NAD83 VERTICAL NAVD88	
3. DRILLING AGENCY Corps of Engineers - CESAM		CONTRACTOR FILE NO.		11. MANUFACTURER'S DESIGNATION OF DRILL Vibracore		<input type="checkbox"/> AUTO HAMMER <input type="checkbox"/> MANUAL HAMMER	
4. NAME OF DRILLER American Vibracore Systems, Inc.				12. TOTAL SAMPLES		DISTURBED UNDISTURBED (UD) 0	
5. DIRECTION OF BORING <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED		DEG. FROM VERTICAL		13. TOTAL NUMBER CORE BOXES			
		BEARING		14. WATER DEPTH 55 Ft.			
6. THICKNESS OF OVERBURDEN N/A				15. DATE BORING 11-24-12		STARTED COMPLETED 11-24-12	
7. DEPTH DRILLED INTO ROCK N/A				16. ELEVATION TOP OF BORING -55.1 Ft.			
8. TOTAL DEPTH OF BORING 19.7 Ft.				17. TOTAL RECOVERY FOR BORING 100%			
				18. SIGNATURE AND TITLE OF INSPECTOR John Bass, Geotechnical Engineer			
ELEV.	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS	SAMPLE	LABORATORY RESULTS		
-55.1	0.0		SAND, poorly-graded, mostly fine-grained sand-sized quartz, trace fines, lt. gray (SP)	A	Classification: SP Color: 5Y 7/2-light gray D50: 0.27 mm % Fines: 2.8		
-60.1	5.0		SAND, silty, mostly fine-grained sand-sized quartz, clay lenses throughout, gray (SM)	NS			
-62.0	6.9		SAND, poorly-graded with silt, mostly fine-grained sand-sized quartz, trace shells, clay lenses throughout, gray (SP-SM)	B	Classification: SM Color: 5Y 6/2-light olive gray D50: 0.1672 mm % Fines: 18		
-71.5	16.4		SAND, silty, mostly fine-grained sand-sized quartz, some shells, gray (SM)	NS			
-74.1	19.0		CLAY, lean, mostly clay, little fine-grained sand-sized quartz, little shell fragments, gray (CL)				
-74.8	19.7		NOTES: 1. Soils are field visually classified in accordance with the Unified Soils Classification System. 2. NS = Sample not submitted for laboratory analysis from this interval.				

<b>DRILLING LOG (Cont. Sheet)</b>			<b>INSTALLATION</b> Mobile District		<b>SHEET 2</b> <b>OF 2 SHEETS</b>
<b>PROJECT</b> MsCIP Barrier Island Restoration			<b>COORDINATE SYSTEM/DATUM</b> State Plane, MSE (U.S. Ft.)	<b>HORIZONTAL</b> NAD83	<b>VERTICAL</b> NAVD88
<b>LOCATION COORDINATES</b> X = 1,141,764 Y = 233,356			<b>ELEVATION TOP OF BORING</b> -55.1 Ft.		
<b>ELEV.</b>	<b>DEPTH</b>	<b>LEGEND</b>	<b>CLASSIFICATION OF MATERIALS</b>	<b>SAMPLE</b>	<b>LABORATORY RESULTS</b>
			3. Seafloor elevation determined from USACE hydrographic survey completed April 2014.		

# Project

Mississippi Barrier Island  
Restoration Project

**AVS**  
AMERICAN VIBRACORE  
S E R V I C E S

Core Identifier BI-PBS-06-12-a

Date 11/24/2012

Water Depth 55.0'

## Coordinate System

Latitude / Longitude

Start Time 14:29:00

End Time 14:30:10

Penetration 20.0'

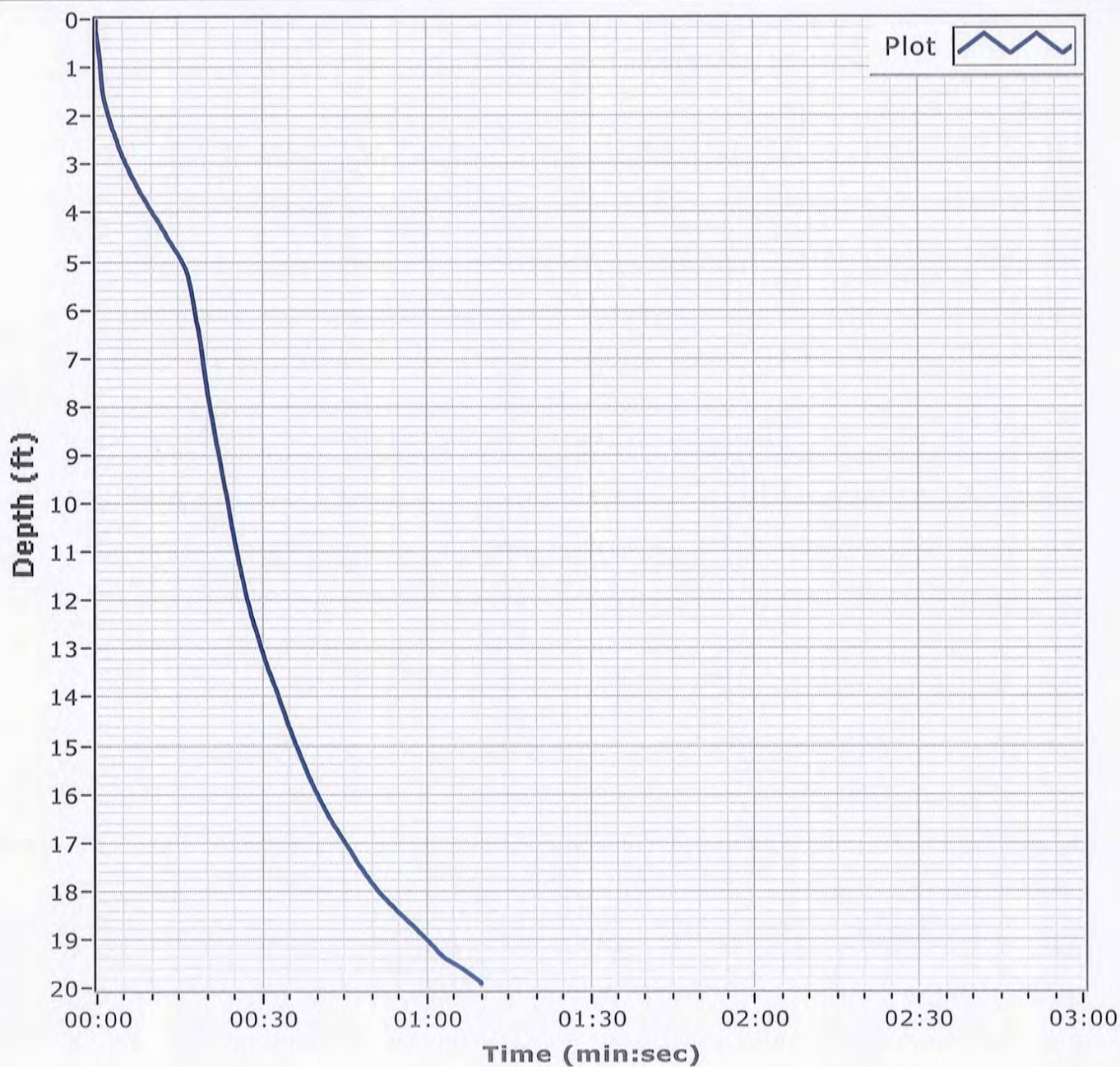
Latitude 30 08.443

Total Time 00:01:10

Recovery 19.7'

Longitude 088 20.105

## Comments



# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.3	1.1	12.8	84.4	1.4	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
1	100.0		
.75	100.0		
.5	100.0		
.375	100.0		
#4	99.7		
#10	98.6		
#20	96.3		
#40	85.8		
#60	40.3		
#100	4.1		
#140	1.9		
#200	1.4		

\* (no specification provided)

Material Description		
Fine to medium grained, SAND		
PL=	Atterberg Limits LL=	PI=
D <sub>90</sub> = 0.5317	D <sub>85</sub> = 0.4195	D <sub>60</sub> = 0.3067
D <sub>50</sub> = 0.2764	D <sub>30</sub> = 0.2238	D <sub>15</sub> = 0.1857
D <sub>10</sub> = 0.1715	C <sub>u</sub> = 1.79	C <sub>c</sub> = 0.95
USCS= SP	Classification AASHTO=	
Remarks		

Location: BI-PBS-06-12a A  
Sample Number: 6469 (47)

Depth: 0.0'

Date: 11/28/12

**Thompson Engineering**

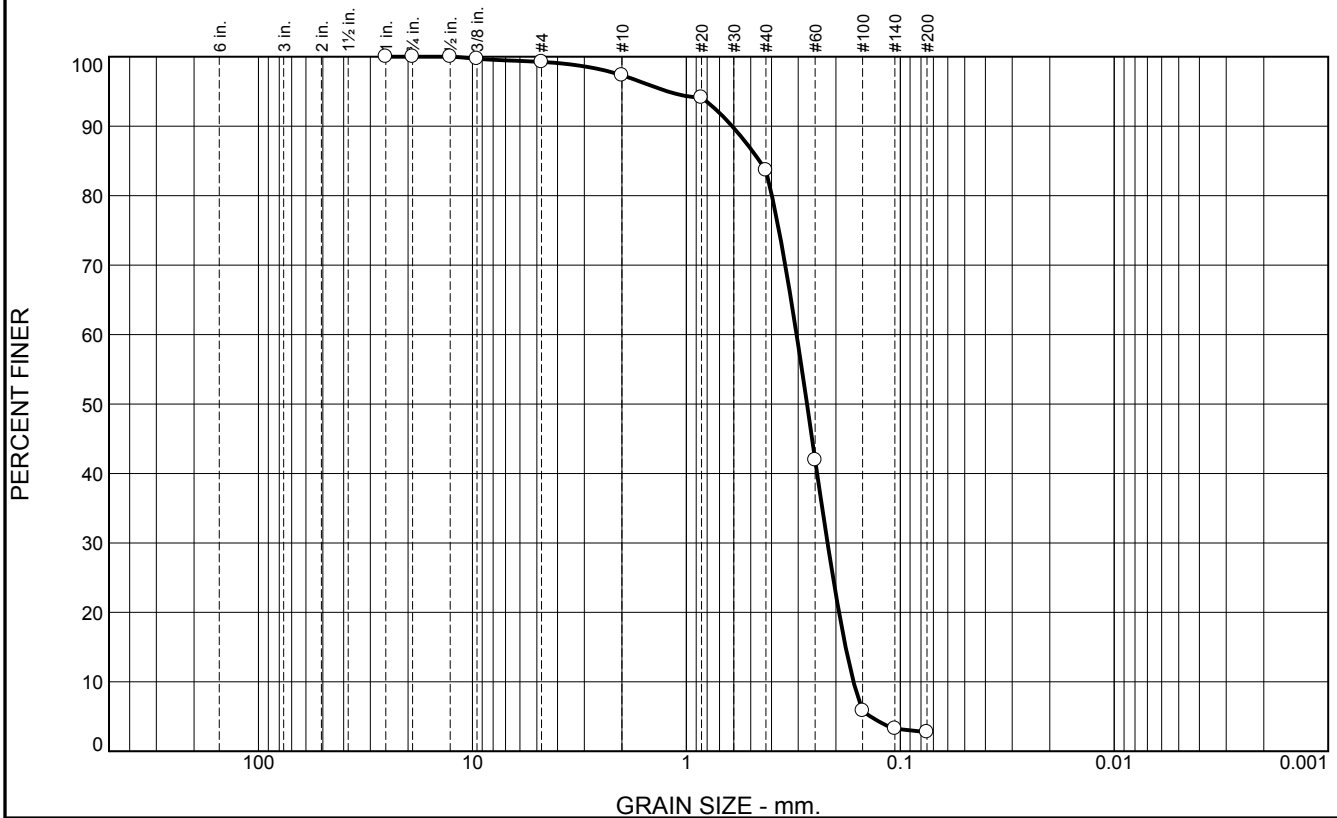
**Mobile, Alabama**

Client: CDM/Thompson Engineering JV  
Project: MsCIP Barrier Island Restoration GT

Project No: 1221110095

Figure

# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.8	1.9	13.7	80.8	2.8	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
1	100.0		
.75	100.0		
.5	100.0		
.375	99.7		
#4	99.2		
#10	97.3		
#20	94.1		
#40	83.6		
#60	41.9		
#100	5.8		
#140	3.3		
#200	2.8		

\* (no specification provided)

<u><b>Material Description</b></u>		
Fine to medium grained, SAND		
<u><b>Atterberg Limits</b></u>		
PL=	LL=	PI=
<u><b>Coefficients</b></u>		
D <sub>90</sub> = 0.6106	D <sub>85</sub> = 0.4553	D <sub>60</sub> = 0.3055
D <sub>50</sub> = 0.2731	D <sub>30</sub> = 0.2188	D <sub>15</sub> = 0.1802
D <sub>10</sub> = 0.1656	C <sub>u</sub> = 1.84	C <sub>c</sub> = 0.95
<u><b>Classification</b></u>		
USCS= SP	AASHTO=	
<u><b>Remarks</b></u>		

Location: BI-PBS-06-12b A  
Sample Number: 6469 (48)

Depth: 0.0'

Date: 11/28/12

**Thompson Engineering**

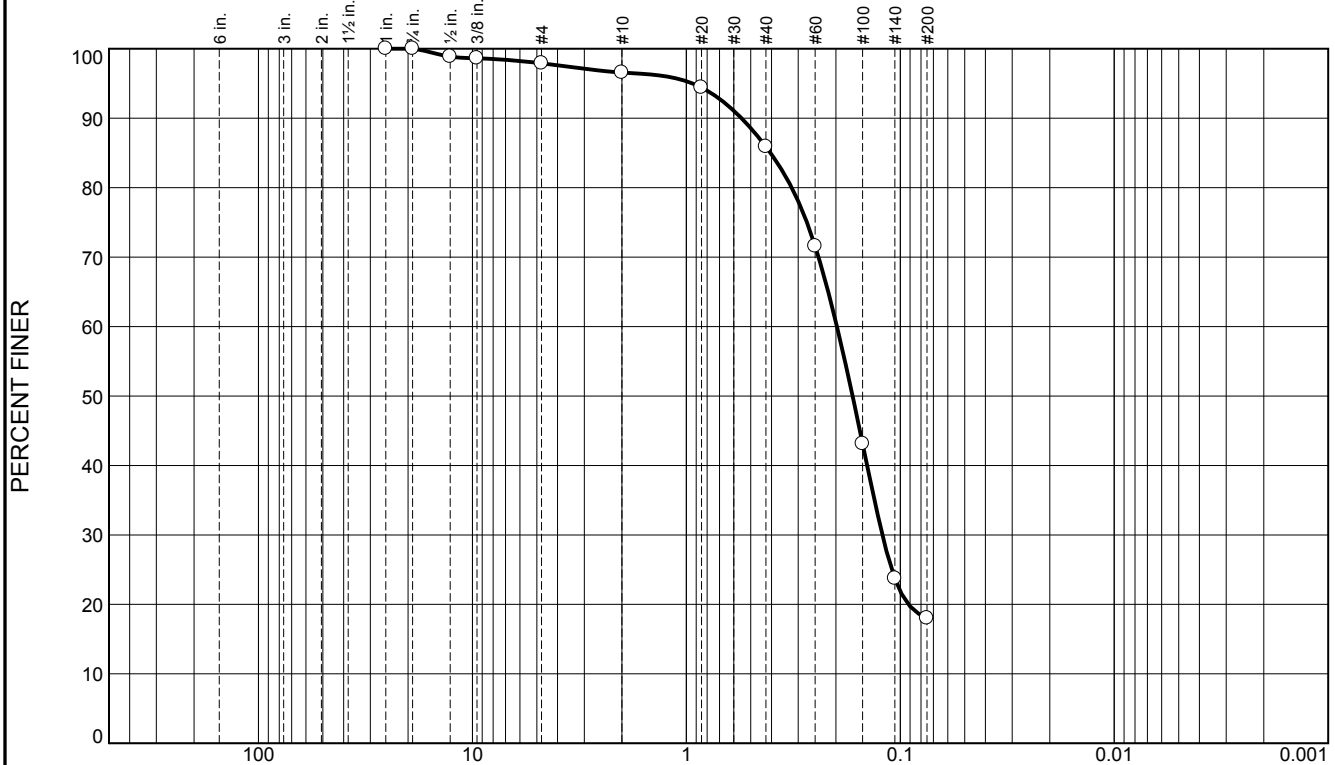
**Mobile, Alabama**

Client: CDM/Thompson Engineering JV  
Project: MsCIP Barrier Island Restoration GT

Project No: 1221110095

Figure

# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	2.1	1.3	10.7	67.9	18.0	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
1	100.0		
.75	100.0		
.5	98.9		
.375	98.6		
#4	97.9		
#10	96.6		
#20	94.4		
#40	85.9		
#60	71.6		
#100	43.1		
#140	23.7		
#200	18.0		

\* (no specification provided)

## Material Description

Fine to medium grained, SILTY SAND, with trace SHELL

## Atterberg Limits

PL= LL= PI=

## Coefficients

D<sub>90</sub>= 0.5527 D<sub>85</sub>= 0.4046 D<sub>60</sub>= 0.1978  
D<sub>50</sub>= 0.1672 D<sub>30</sub>= 0.1213 D<sub>15</sub>=  
D<sub>10</sub>= C<sub>u</sub>= C<sub>c</sub>=

## Classification

USCS= SM AASHTO=

## Remarks

Location: BI-PBS-06-12b B  
Sample Number: 6469 (49)

Depth: 6.9'

Date: 11/28/12

**Thompson Engineering**

**Mobile, Alabama**

Client: CDM/Thompson Engineering JV  
Project: MsCIP Barrier Island Restoration GT

Project No: 1221110095

Figure

# Boring Designation BI-PBS-007-12

DRILLING LOG		DIVISION South Atlantic		INSTALLATION Mobile District		SHEET 1 OF 1 SHEETS	
1. PROJECT MsCIP Barrier Island Restoration Petit Bois Pass-OCS East				9. SIZE AND TYPE OF BIT N/A			
2. BORING DESIGNATION BI-PBS-007-12		LOCATION COORDINATES E = 1,142,976 N = 233,808		10. COORDINATE SYSTEM/DATUM State Plane, MSE (U.S. Ft.)		HORIZONTAL NAD83 VERTICAL NAVD88	
3. DRILLING AGENCY Corps of Engineers - CESAM		CONTRACTOR FILE NO.		11. MANUFACTURER'S DESIGNATION OF DRILL Vibracore		<input type="checkbox"/> AUTO HAMMER <input type="checkbox"/> MANUAL HAMMER	
4. NAME OF DRILLER American Vibracore Systems, Inc.				12. TOTAL SAMPLES		DISTURBED UNDISTURBED (UD) 0	
5. DIRECTION OF BORING <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED		DEG. FROM VERTICAL		BEARING		13. TOTAL NUMBER CORE BOXES	
6. THICKNESS OF OVERBURDEN N/A		7. DEPTH DRILLED INTO ROCK N/A		8. TOTAL DEPTH OF BORING 15.0 Ft.		14. WATER DEPTH 60.9 Ft.	
						15. DATE BORING STARTED 11-21-12 COMPLETED 11-21-12	
						16. ELEVATION TOP OF BORING -60.5 Ft.	
						17. TOTAL RECOVERY FOR BORING 100%	
						18. SIGNATURE AND TITLE OF INSPECTOR John Bass, Geotechnical Engineer	
ELEV.	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS	SAMPLE	LABORATORY RESULTS		
-60.5	0.0						
			SILT, inorganic-L, mostly silt, some fine-grained sand-sized quartz, trace shell fragments, gray (ML)	NS			
-64.0	3.5						
			SAND, poorly-graded, mostly fine-grained sand-sized quartz, few silt, trace wood debris, gray (SP)	A	Classification: SM Color: 2.5Y 5/2-grayish brown D50: 0.22 mm % Fines: 18.1		
			At El. -71.0 Ft., mostly fine-grained sand-sized quartz, trace shell fragments, lt. gray to white	B	Classification: SP-SM Color: 2.5Y 7/2-light gray D50: 0.21 mm % Fines: 6.7		
-75.5	15.0						
			NOTES: 1. Soils are field visually classified in accordance with the Unified Soils Classification System. 2. NS = Sample not submitted for laboratory analysis from this interval. 3. Seafloor elevation calculated using sampling vessel's fathometer water depth reading and applying NOAA tidal gauge data conversion factor.				



**Project**

Mississippi Barrier Island  
Restoration Project

**AVS**  
**AMERICAN VIBRACORE**  
**S E R V I C E S**

**Core Identifier** BI-PBS-7-12

**Date** 11/21/2012

**Water Depth** 60.9'

**Coordinate System**

Latitude / Longitude

**Start Time** 11:38:15

**End Time** 11:41:01

**Penetration** 15.3'

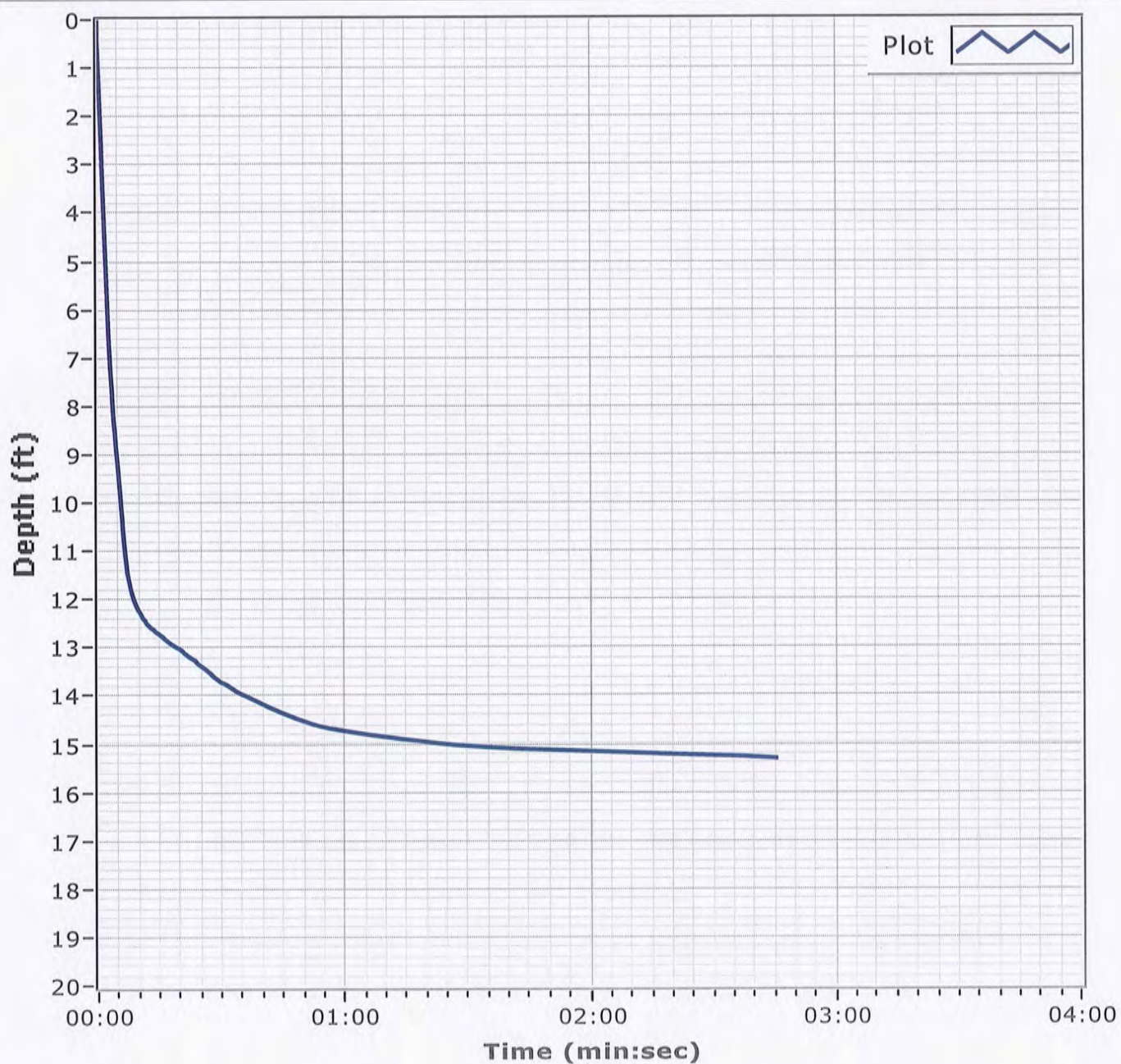
**Latitude** 30 08.518

**Total Time** 00:02:45

**Recovery** 15.0'

**Longitude** 088 19.871

**Comments**



# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.1	0.3	13.8	67.7	18.1	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
1	100.0		
.75	100.0		
.5	100.0		
.375	100.0		
#4	99.9		
#10	99.6		
#20	98.0		
#40	85.8		
#60	57.6		
#100	31.6		
#140	22.3		
#200	18.1		

\* (no specification provided)

<u><b>Material Description</b></u>		
Fine to medium grained, SILTY SAND		
<u><b>Atterberg Limits</b></u>		
PL=	LL=	PI=
<u><b>Coefficients</b></u>		
D <sub>90</sub> = 0.4805	D <sub>85</sub> = 0.4161	D <sub>60</sub> = 0.2606
D <sub>50</sub> = 0.2193	D <sub>30</sub> = 0.1435	D <sub>15</sub> =
D <sub>10</sub> =	C <sub>u</sub> =	C <sub>c</sub> =
<u><b>Classification</b></u>		
USCS= SM	AASHTO=	
<u><b>Remarks</b></u>		

Location: BI-PBS-07-12 A  
Sample Number: 6469 (8)

Depth: 3.5'

Date: 11/28/12

**Thompson Engineering**

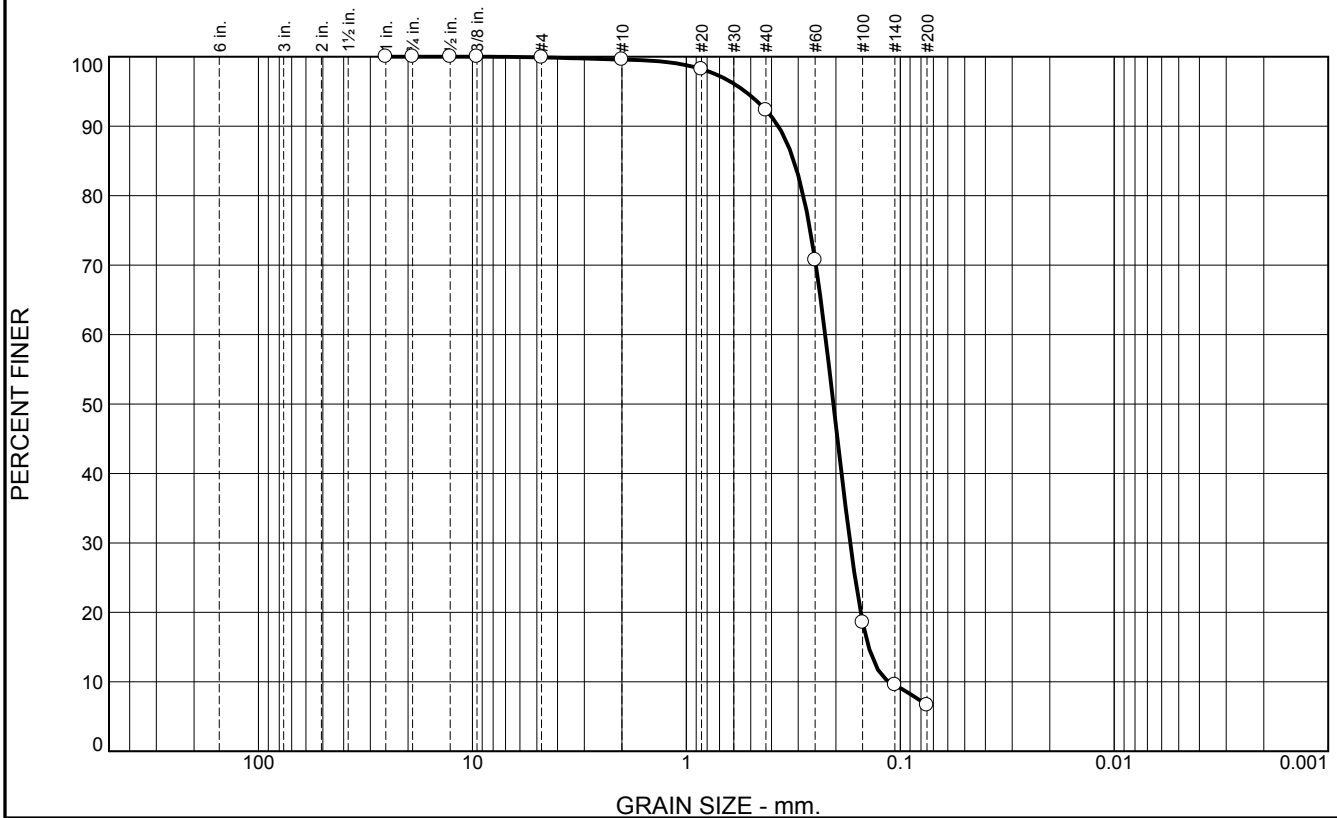
**Mobile, Alabama**

Client: CDM/Thompson Engineering JV  
Project: MsCIP Barrier Island Restoration GT

Project No: 1221110095

Figure

# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.1	0.3	7.3	85.6	6.7	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
1	100.0		
.75	100.0		
.5	100.0		
.375	100.0		
#4	99.9		
#10	99.6		
#20	98.2		
#40	92.3		
#60	70.7		
#100	18.6		
#140	9.6		
#200	6.7		

\* (no specification provided)

<u><b>Material Description</b></u>		
Fine grained, SLIGHTLY SILTY SAND		
<u><b>Atterberg Limits</b></u>		
PL=	LL=	PI=
<u><b>Coefficients</b></u>		
D <sub>90</sub> = 0.3716	D <sub>85</sub> = 0.3144	D <sub>60</sub> = 0.2244
D <sub>50</sub> = 0.2054	D <sub>30</sub> = 0.1716	D <sub>15</sub> = 0.1406
D <sub>10</sub> = 0.1125	C <sub>u</sub> = 1.99	C <sub>c</sub> = 1.17
<u><b>Classification</b></u>		
USCS= SP-SM	AASHTO=	
<u><b>Remarks</b></u>		

Location: BI-PBS-07-12 B  
Sample Number: 6469 (9)

Depth: 10.4'

Date: 11/28/12

**Thompson Engineering**

**Mobile, Alabama**

Client: CDM/Thompson Engineering JV  
Project: MsCIP Barrier Island Restoration GT

Project No: 1221110095

Figure

# Boring Designation BI-PBS-008-12

DRILLING LOG		DIVISION South Atlantic		INSTALLATION Mobile District		SHEET 1 OF 1 SHEETS	
1. PROJECT MsCIP Barrier Island Restoration Petit Bois Pass-OCS East				9. SIZE AND TYPE OF BIT N/A			
2. BORING DESIGNATION BI-PBS-008-12		LOCATION COORDINATES E = 1,144,285 N = 234,334		10. COORDINATE SYSTEM/DATUM State Plane, MSE (U.S. Ft.)		HORIZONTAL NAD83 VERTICAL NAVD88	
3. DRILLING AGENCY Corps of Engineers - CESAM		CONTRACTOR FILE NO.		11. MANUFACTURER'S DESIGNATION OF DRILL Vibracore		<input type="checkbox"/> AUTO HAMMER <input type="checkbox"/> MANUAL HAMMER	
4. NAME OF DRILLER American Vibracore Systems, Inc.				12. TOTAL SAMPLES		DISTURBED UNDISTURBED (UD) 0	
5. DIRECTION OF BORING <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED		DEG. FROM VERTICAL		13. TOTAL NUMBER CORE BOXES			
		BEARING		14. WATER DEPTH 57 Ft.			
6. THICKNESS OF OVERBURDEN N/A				15. DATE BORING 11-21-12		STARTED COMPLETED 11-21-12	
7. DEPTH DRILLED INTO ROCK N/A				16. ELEVATION TOP OF BORING -56.6 Ft.			
8. TOTAL DEPTH OF BORING 18.1 Ft.				17. TOTAL RECOVERY FOR BORING 100%			
				18. SIGNATURE AND TITLE OF INSPECTOR John Bass, Geotechnical Engineer			
ELEV.	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS	SAMPLE	LABORATORY RESULTS		
-56.6	0.0						
-59.7	3.1		SAND, poorly-graded, mostly fine to medium-grained quartz, trace fines, trace shell fragments, lt. gray to gray (SP)	A	Classification: SP-SM    Color: 5Y 6.5/2- D50: 0.22 mm    % Fines: 5.2		
-63.9	7.3		SAND, poorly-graded, mostly fine-grained sand-sized quartz, few fines, few shell fragments, gray (SP)	B	Classification: SM    Color: 5Y 5/2-olive gray D50: 0.19 mm    % Fines: 19.2		
-66.6	10.0		SAND, silty, mostly fine-grained sand-sized quartz, some fines, fines content increases with depth, gray (SM)	NS			
-68.1	11.5		SAND, clayey, mostly fine-grained sand-sized quartz, some clay, clayey sand bordering on sandy clay with SP lense at 11.5 ft., dark gray (SC)				
-74.7	18.1		CLAY, lean, mostly clay, some sand, low to medium plasticity, lt. gray mottled with orange (CL)				
NOTES:							
1. Soils are field visually classified in accordance with the Unified Soils Classification System.							
2. NS = Sample not submitted for laboratory analysis from this interval.							
3. Seafloor elevation calculated using sampling vessel's fathometer water depth reading and applying NOAA tidal gauge data conversion factor.							



**Project**

Mississippi Barrier Island  
Restoration Project

**AVS**  
**AMERICAN VIBRACORE**  
**S E R V I C E S**

**Core Identifier** BI-PBS-08-12

**Date** 11/21/2012

**Water Depth** 57.0'

**Coordinate System**

Latitude / Longitude

**Start Time** 09:13:51

**End Time** 09:14:41

**Penetration** 20.0'

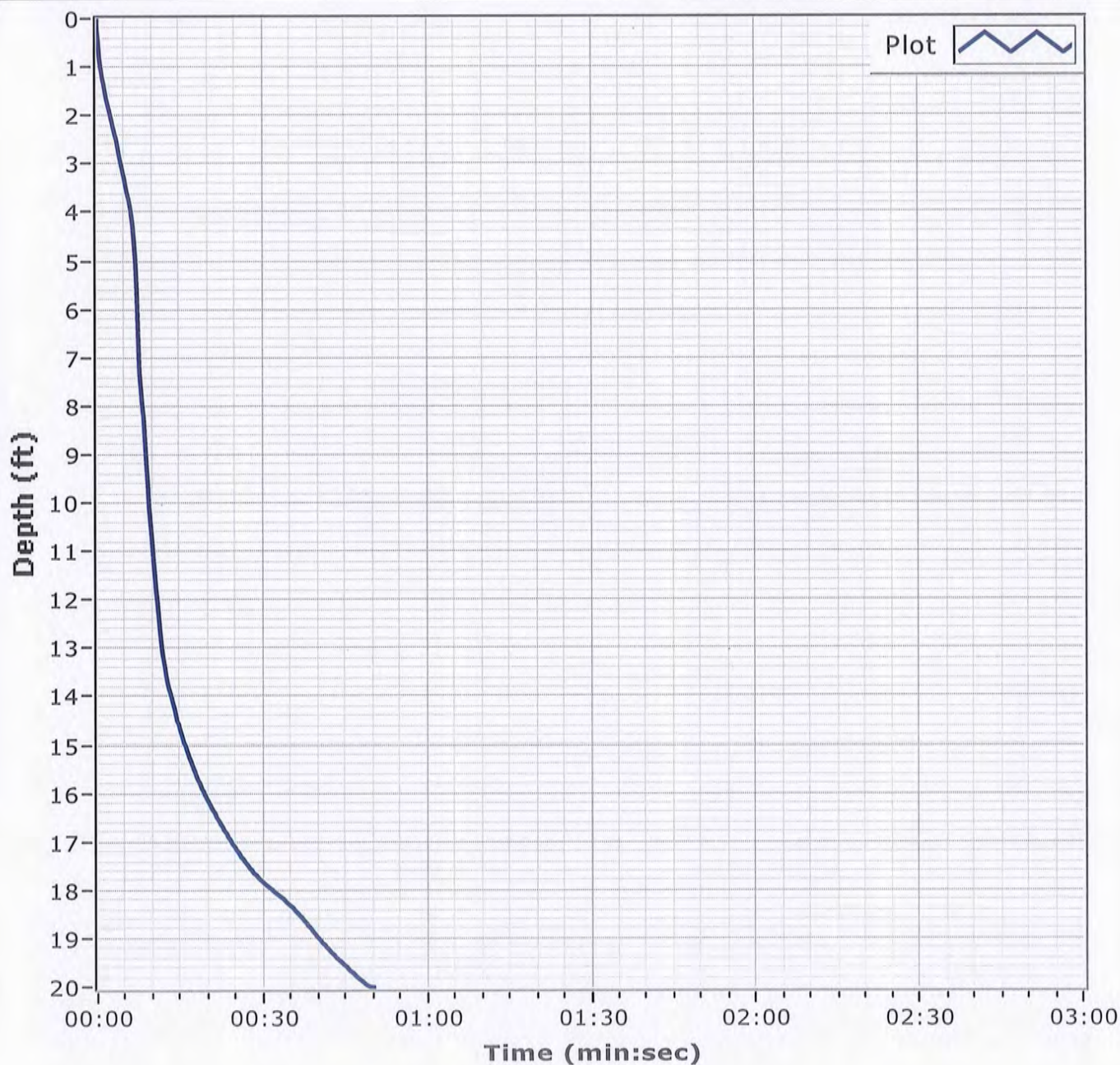
**Latitude** 30 08.604

**Total Time** 00:00:50

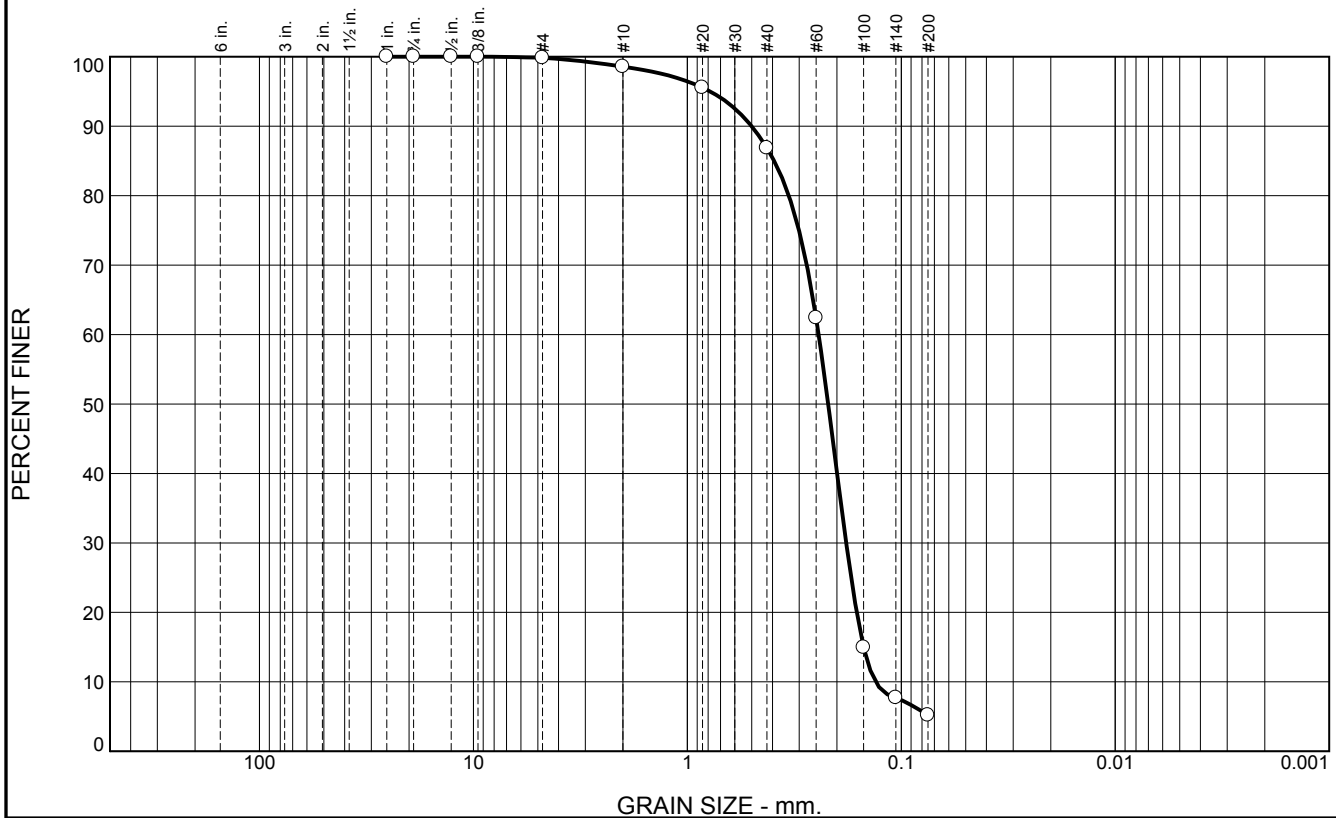
**Recovery** 18.1'

**Longitude** 088 19.622

**Comments**



# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.2	1.2	11.7	81.7	5.2	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
1	100.0		
.75	100.0		
.5	100.0		
.375	100.0		
#4	99.8		
#10	98.6		
#20	95.5		
#40	86.9		
#60	62.4		
#100	15.0		
#140	7.7		
#200	5.2		

\* (no specification provided)

## Material Description

Fine to medium grained, SLIGHTLY SILTY SAND

## Atterberg Limits

PL= LL= PI=

## Coefficients

D<sub>90</sub>= 0.5011 D<sub>85</sub>= 0.3929 D<sub>60</sub>= 0.2433  
D<sub>50</sub>= 0.2196 D<sub>30</sub>= 0.1810 D<sub>15</sub>= 0.1501  
D<sub>10</sub>= 0.1320 C<sub>u</sub>= 1.84 C<sub>c</sub>= 1.02

## Classification

USCS= SP-SM AASHTO=

## Remarks

Location: BI-PBS-08-12 A  
Sample Number: 6469 (1)

Depth: 0.0'

Date: 11/28/12

**Thompson Engineering**

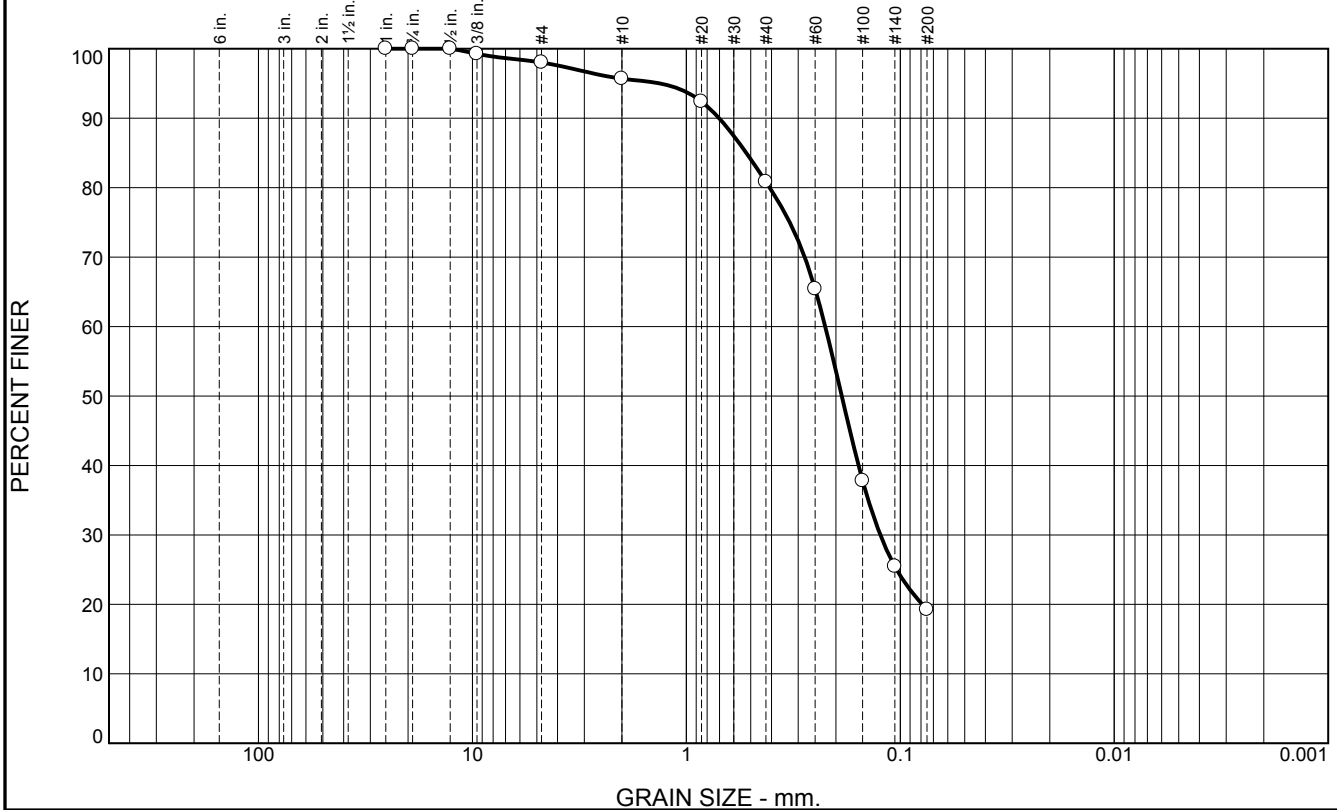
**Mobile, Alabama**

Client: CDM/Thompson Engineering JV  
Project: MsCIP Barrier Island Restoration GT

Project No: 1221110095

Figure

# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	2.0	2.3	14.9	61.6	19.2	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
1	100.0		
.75	100.0		
.5	100.0		
.375	99.2		
#4	98.0		
#10	95.7		
#20	92.4		
#40	80.8		
#60	65.4		
#100	37.8		
#140	25.4		
#200	19.2		

\* (no specification provided)

<u><b>Material Description</b></u>		
Fine to medium grained, SILTY SAND, with trace SHELL		
<u><b>Atterberg Limits</b></u>		
PL=	LL=	PI=
<u><b>Coefficients</b></u>		
D <sub>90</sub> = 0.7036	D <sub>85</sub> = 0.5247	D <sub>60</sub> = 0.2243
D <sub>50</sub> = 0.1878	D <sub>30</sub> = 0.1240	D <sub>15</sub> =
D <sub>10</sub> =	C <sub>u</sub> =	C <sub>c</sub> =
<u><b>Classification</b></u>		
USCS= SM	AASHTO=	
<u><b>Remarks</b></u>		

Location: BI-PBS-08-12 B  
Sample Number: 6469 (2)

Depth: 3.1'

Date: 11/28/12

**Thompson Engineering**

**Mobile, Alabama**

Client: CDM/Thompson Engineering JV  
Project: MsCIP Barrier Island Restoration GT

Project No: 1221110095

Figure

# Boring Designation BI-PBS-009-12

DRILLING LOG		DIVISION South Atlantic		INSTALLATION Mobile District		SHEET 1 OF 1 SHEETS	
1. PROJECT MsCIP Barrier Island Restoration Petit Bois Pass-OCS East				9. SIZE AND TYPE OF BIT N/A			
2. BORING DESIGNATION BI-PBS-009-12		LOCATION COORDINATES E = 1,146,677 N = 235,316		10. COORDINATE SYSTEM/DATUM State Plane, MSE (U.S. Ft.)		HORIZONTAL NAD83	
3. DRILLING AGENCY Corps of Engineers - CESAM		CONTRACTOR FILE NO.		11. MANUFACTURER'S DESIGNATION OF DRILL Vibracore		<input type="checkbox"/> AUTO HAMMER <input type="checkbox"/> MANUAL HAMMER	
4. NAME OF DRILLER American Vibracore Systems, Inc.				12. TOTAL SAMPLES		DISTURBED 0	
5. DIRECTION OF BORING <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED		DEG. FROM VERTICAL		13. TOTAL NUMBER CORE BOXES			
		BEARING		14. WATER DEPTH 59.4 Ft.			
6. THICKNESS OF OVERBURDEN N/A				15. DATE BORING 11-19-12		STARTED 11-19-12	
7. DEPTH DRILLED INTO ROCK N/A				16. ELEVATION TOP OF BORING -59.4 Ft.		COMPLETED 11-19-12	
8. TOTAL DEPTH OF BORING 17.3 Ft.				17. TOTAL RECOVERY FOR BORING 100%			
				18. SIGNATURE AND TITLE OF INSPECTOR John Bass, Geotechnical Engineer			
ELEV.	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS	SAMPLE	LABORATORY RESULTS		
-59.4	0.0						
-62.0	2.6		SAND, clayey, mostly fine-grained sand-sized quartz, trace shell fragments, gray (SC)				
			CLAY, fat, mostly clay, trace fine-grained sand-sized quartz, trace shell fragments, trace wood debris, gray (CH)	NS			
-76.7	17.3						
			NOTES: 1. Soils are field visually classified in accordance with the Unified Soils Classification System. 2. NS = Sample not submitted for laboratory analysis from this interval. 3. Seafloor elevation calculated using sampling vessel's fathometer water depth reading and applying NOAA tidal gauge data conversion factor.				



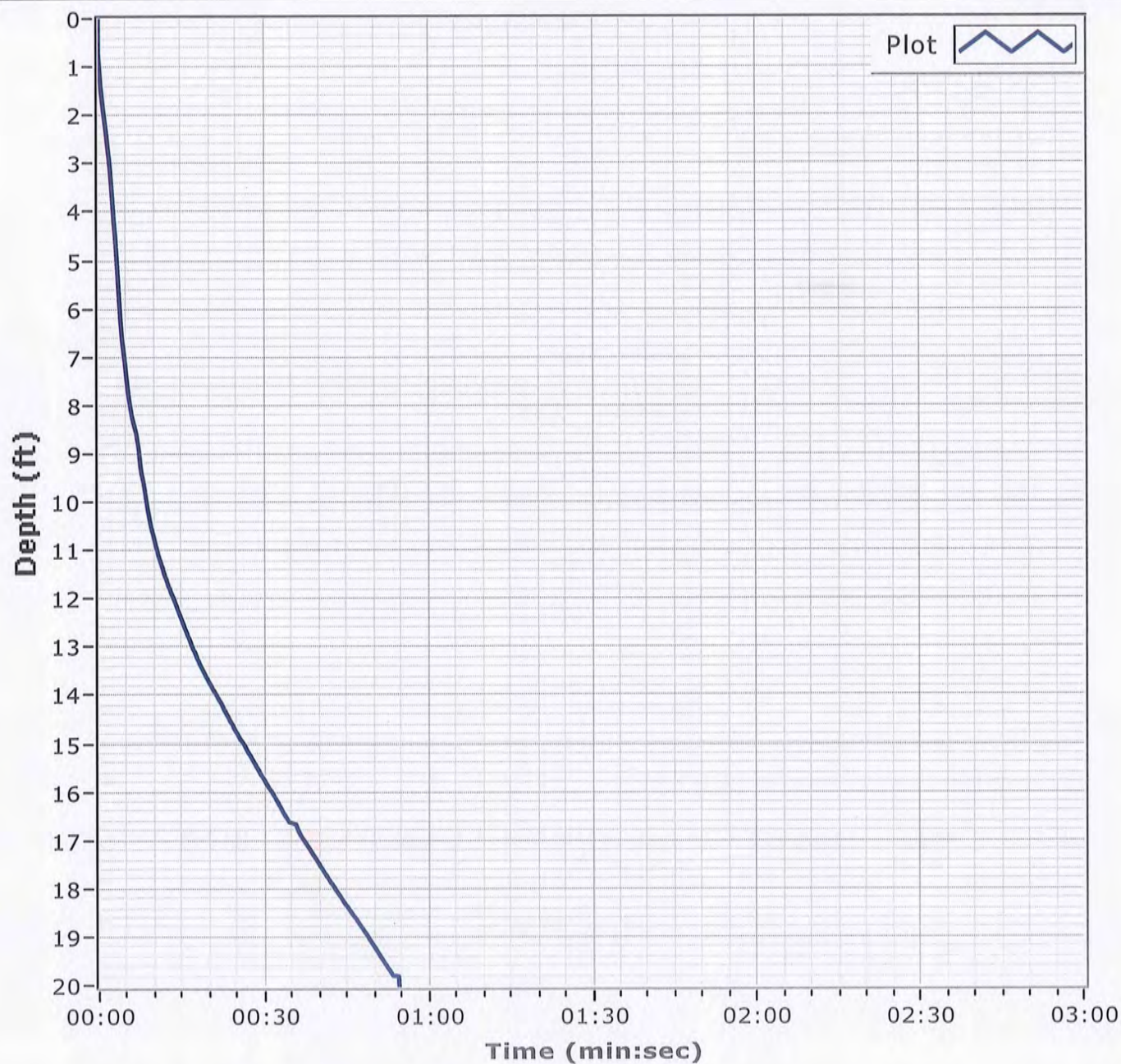
**Project**

Mississippi Barrier Island  
Restoration Project

**AVS**  
**AMERICAN VIBRACORE**  
**S E R V I C E S**

**Core Identifier** BI-PBS-9-12**Date** 11/19/2012**Water Depth** 59.4'**Coordinate System**

Latitude / Longitude

**Start Time** 10:09:30**End Time** 10:10:26**Penetration** 20.8'**Latitude** 30 08.764**Total Time** 00:00:55**Recovery** 17.2'**Longitude** 88 19.167**Comments**

# Boring Designation BI-PBS-010-12

DRILLING LOG		DIVISION South Atlantic		INSTALLATION Mobile District		SHEET 1 OF 1 SHEETS	
1. PROJECT MsCIP Barrier Island Restoration Petit Bois Pass-OCS East				9. SIZE AND TYPE OF BIT N/A			
2. BORING DESIGNATION BI-PBS-010-12		LOCATION COORDINATES E = 1,136,488 N = 232,689		10. COORDINATE SYSTEM/DATUM State Plane, MSE (U.S. Ft.)		HORIZONTAL NAD83	
3. DRILLING AGENCY Corps of Engineers - CESAM		CONTRACTOR FILE NO.		11. MANUFACTURER'S DESIGNATION OF DRILL Vibracore		<input type="checkbox"/> AUTO HAMMER <input type="checkbox"/> MANUAL HAMMER	
4. NAME OF DRILLER American Vibracore Systems, Inc.				12. TOTAL SAMPLES		DISTURBED 0	
5. DIRECTION OF BORING <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED				13. TOTAL NUMBER CORE BOXES		14. WATER DEPTH 48.1 Ft.	
6. THICKNESS OF OVERBURDEN N/A				15. DATE BORING		STARTED 11-23-12	
7. DEPTH DRILLED INTO ROCK N/A				16. ELEVATION TOP OF BORING -47.3 Ft.		COMPLETED 11-23-12	
8. TOTAL DEPTH OF BORING 11.9 Ft.				17. TOTAL RECOVERY FOR BORING 100%		18. SIGNATURE AND TITLE OF INSPECTOR John Bass, Geotechnical Engineer	
ELEV.	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS	SAMPLE	LABORATORY RESULTS		
-47.3	0.0						
			SAND, poorly-graded, mostly fine to medium-grained sand-sized quartz, little shell fragments, trace fines, gray to light gray (SP)	A	Classification: SP Color: 5Y 7/2-light gray D50: 0.33 mm % Fines: 1.3		
-53.2	5.9		SAND, poorly-graded, mostly fine-grained sand-sized quartz, trace silt, trace shell fragments, gray to light gray (SP)	B	Classification: SP Color: 5Y 6.5/2- D50: 0.28 mm % Fines: 2.5		
-55.7	8.4						
-57.0	9.7		SAND, poorly-graded with silt, mostly fine-grained sand-sized quartz, few silt, trace shell fragments, gray (SP-SM)	NS			
-59.2	11.9		SAND, silty, mostly fine-grained sand-sized quartz, some silt, trace shell fragments, gray (SM)				
NOTES:							
1. Soils are field visually classified in accordance with the Unified Soils Classification System.							
2. NS = Sample not submitted for laboratory analysis from this interval.							
3. Seafloor elevation determined from USACE hydrographic survey completed April 2014.							



**Project**

Mississippi Barrier Island  
Restoration Project

**AVS**  
AMERICAN VIBRACORE  
SERVICES

**Core Identifier** BI-PBS-10-12

**Date** 11/23/2012

**Water Depth** 48.1'

**Coordinate System**

Latitude / Longitude

**Start Time** 15:44:24

**End Time** 15:50:33

**Penetration** 12.3'

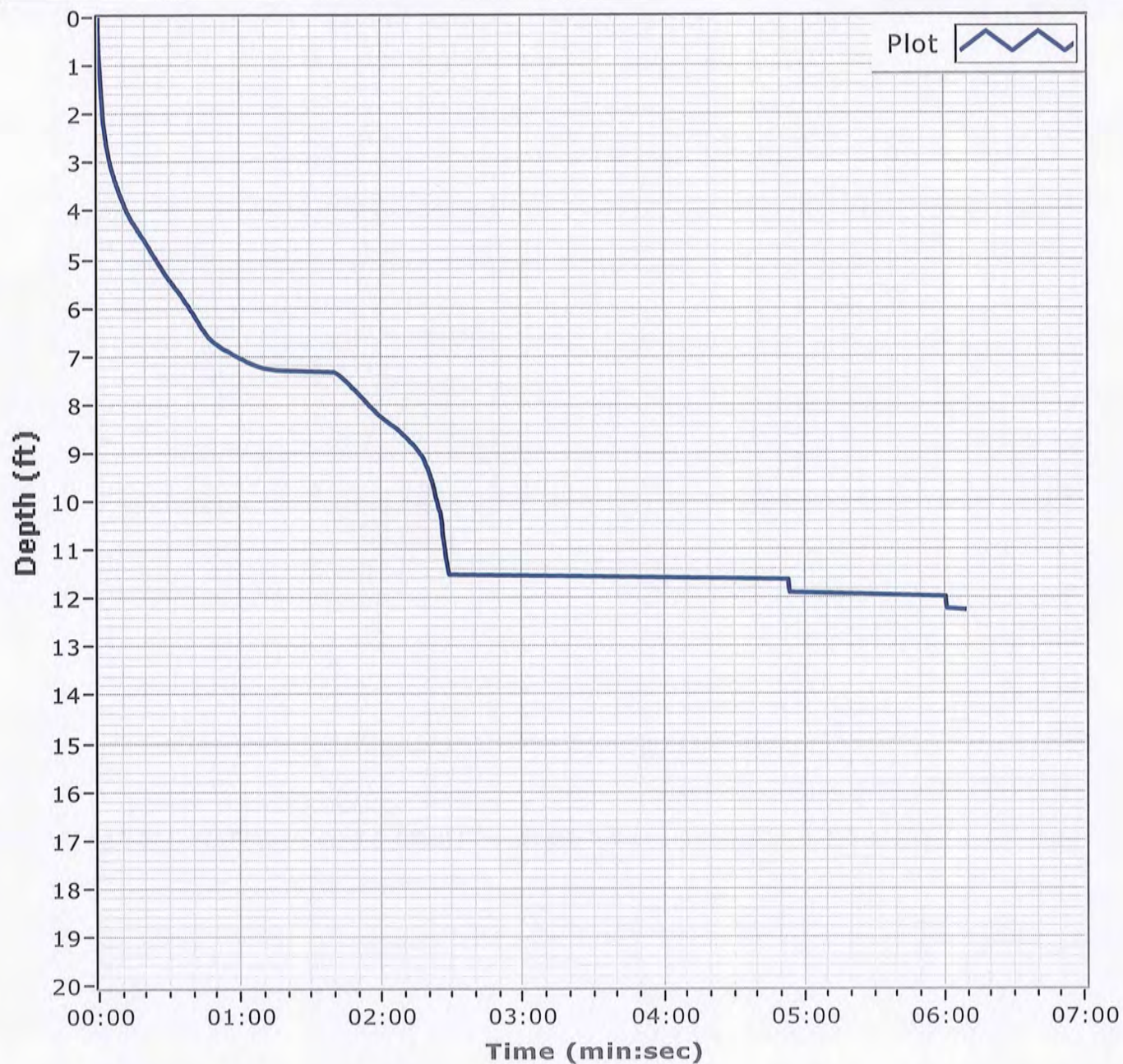
**Latitude** 30 08.338

**Total Time** 00:06:09

**Recovery** 11.9'

**Longitude** 088 20.103

**Comments**



# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	1.7	4.4	27.1	65.5	1.3	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
1	100.0		
.75	100.0		
.5	100.0		
.375	100.0		
#4	98.3		
#10	93.9		
#20	86.6		
#40	66.8		
#60	28.9		
#100	2.6		
#140	1.5		
#200	1.3		

\* (no specification provided)

<u>Material Description</u>		
Fine to medium grained, SAND, with SHELL		
PL=	<u>Atterberg Limits</u> LL=	PI=
<u>Coefficients</u>		
D <sub>90</sub> = 1.1641	D <sub>85</sub> = 0.7550	D <sub>60</sub> = 0.3804
D <sub>50</sub> = 0.3303	D <sub>30</sub> = 0.2537	D <sub>15</sub> = 0.2028
D <sub>10</sub> = 0.1848	C <sub>u</sub> = 2.06	C <sub>c</sub> = 0.92
<u>Classification</u>		
USCS= SP	AASHTO=	
<u>Remarks</u>		

Location: BI-PBS-10-12 A  
Sample Number: 6469 (38)

Depth: 0.0'

Date: 11/28/12

**Thompson Engineering**

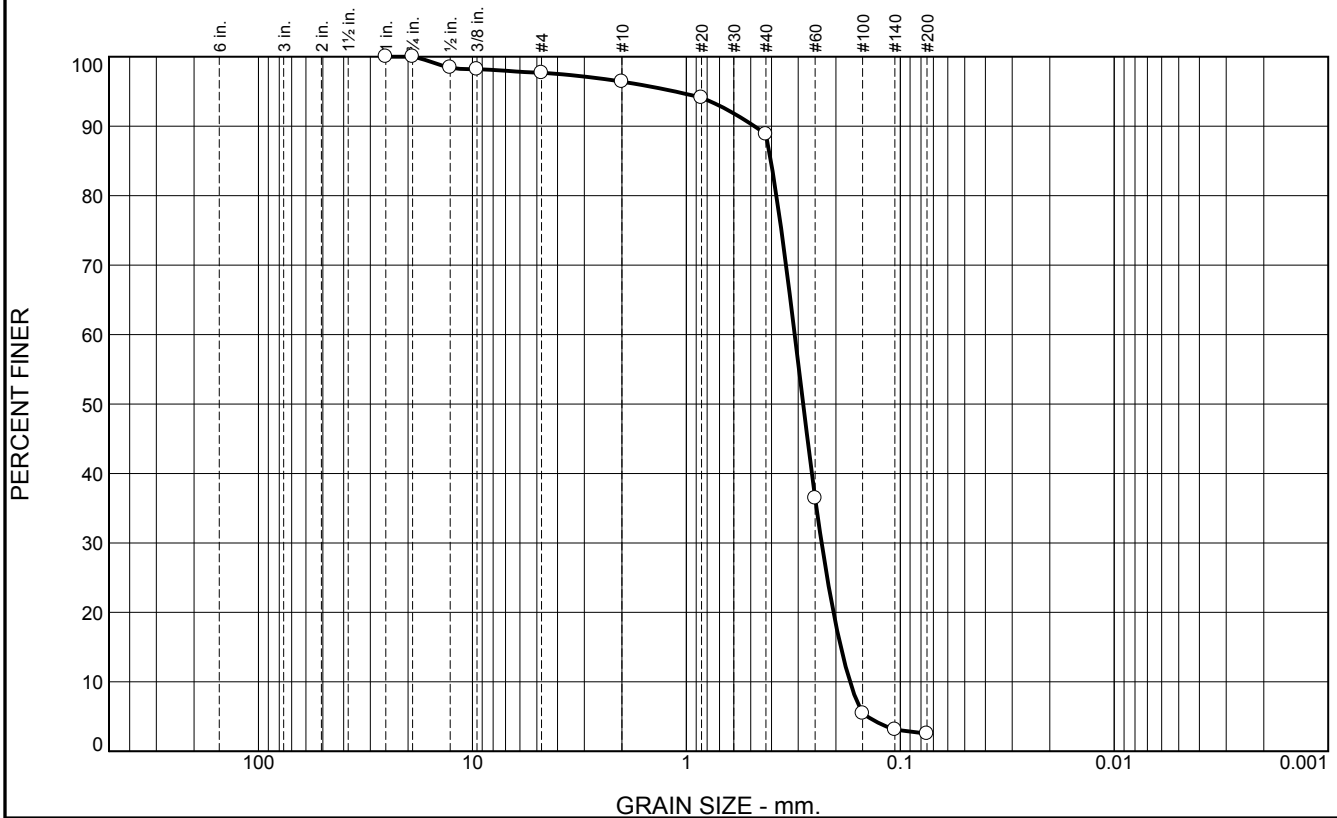
**Mobile, Alabama**

Client: CDM/Thompson Engineering JV  
Project: MsCIP Barrier Island Restoration GT

Project No: 1221110095

Figure

# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	2.3	1.3	7.6	86.3	2.5	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
1	100.0		
.75	100.0		
.5	98.4		
.375	98.2		
#4	97.7		
#10	96.4		
#20	94.1		
#40	88.8		
#60	36.4		
#100	5.4		
#140	3.1		
#200	2.5		

\* (no specification provided)

<b><u>Material Description</u></b>		
Fine grained, SAND, with trace SHELL		
<b><u>Atterberg Limits</u></b>		
PL=	LL=	PI=
<b><u>Coefficients</u></b>		
D <sub>90</sub> = 0.4813	D <sub>85</sub> = 0.4025	D <sub>60</sub> = 0.3117
D <sub>50</sub> = 0.2846	D <sub>30</sub> = 0.2332	D <sub>15</sub> = 0.1898
D <sub>10</sub> = 0.1720	C <sub>u</sub> = 1.81	C <sub>c</sub> = 1.01
<b><u>Classification</u></b>		
USCS= SP	AASHTO=	
<b><u>Remarks</u></b>		

Location: BI-PBS-10-12 B  
Sample Number: 6469 (39)

Depth: 5.9'

Date: 11/28/12

**Thompson Engineering**

**Mobile, Alabama**

Client: CDM/Thompson Engineering JV  
Project: MsCIP Barrier Island Restoration GT

Project No: 1221110095

Figure

# Boring Designation BI-PBS-011-12

DRILLING LOG		DIVISION South Atlantic		INSTALLATION Mobile District		SHEET 1 OF 1 SHEETS	
1. PROJECT MsCIP Barrier Island Restoration Petit Bois Pass-OCS East				9. SIZE AND TYPE OF BIT N/A			
2. BORING DESIGNATION BI-PBS-011-12		LOCATION COORDINATES E = 1,136,985 N = 232,368		10. COORDINATE SYSTEM/DATUM State Plane, MSE (U.S. Ft.)		HORIZONTAL NAD83	
3. DRILLING AGENCY Corps of Engineers - CESAM		CONTRACTOR FILE NO.		11. MANUFACTURER'S DESIGNATION OF DRILL Vibrocure		<input type="checkbox"/> AUTO HAMMER <input type="checkbox"/> MANUAL HAMMER	
4. NAME OF DRILLER American Vibrocure Systems, Inc.				12. TOTAL SAMPLES		DISTURBED 0	
5. DIRECTION OF BORING <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED				13. TOTAL NUMBER CORE BOXES		14. WATER DEPTH 46.4 Ft.	
6. THICKNESS OF OVERBURDEN N/A				15. DATE BORING		STARTED 11-23-12	
7. DEPTH DRILLED INTO ROCK N/A				16. ELEVATION TOP OF BORING -46.2 Ft.		COMPLETED 11-23-12	
8. TOTAL DEPTH OF BORING 19.3 Ft.				17. TOTAL RECOVERY FOR BORING 100%		18. SIGNATURE AND TITLE OF INSPECTOR John Bass, Geotechnical Engineer	
ELEV.	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS	SAMPLE	LABORATORY RESULTS		
-46.2	0.0		SAND, poorly-graded, mostly fine-grained sand-sized quartz, little shell fragments, trace fines, lt. gray (SP)	A	Classification: SP Color: 5Y 7/2-light gray D50: 0.28 mm % Fines: 1.6		
-54.8	8.6		SAND, poorly-graded, mostly fine-grained sand-sized quartz, few fines, trace shell fragments, lt. gray (SP)	B	Classification: SP Color: 5Y 6/2-light olive gray D50: 0.24 mm % Fines: 3.2		
-56.6	10.4		SAND, silty, mostly fine-grained sand-sized quartz, little shell fragments, gray (SM)	NS			
-60.0	13.8		CLAY, lean, mostly clay, some fine-grained sand-sized quartz, lt. gray mottled with gray and orange (CL)				
-60.7	14.5		SAND, silty, mostly fine-grained sand-sized quartz, some silt, gray (SM)				
-61.8	15.6		CLAY, lean, mostly clay, with sandy lenses throughout, lt. gray mottled with gray and orange (CL)				
-65.5	19.3		NOTES: 1. Soils are field visually classified in accordance with the Unified Soils Classification System. 2. NS = Sample not submitted for laboratory analysis from this interval. 3. Seafloor elevation determined from USACE hydrographic survey completed April 2014.				



**Project**

Mississippi Barrier Island  
Restoration Project

**AVS**  
**AMERICAN VIBRACORE**  
**S E R V I C E S**

**Core Identifier** BI-PBS-11-12

**Date** 11/23/2012

**Water Depth** 46.4

**Coordinate System**

Latitude / Longitude

**Start Time** 15:04:48

**End Time** 15:09:25

**Penetration** 20.0'

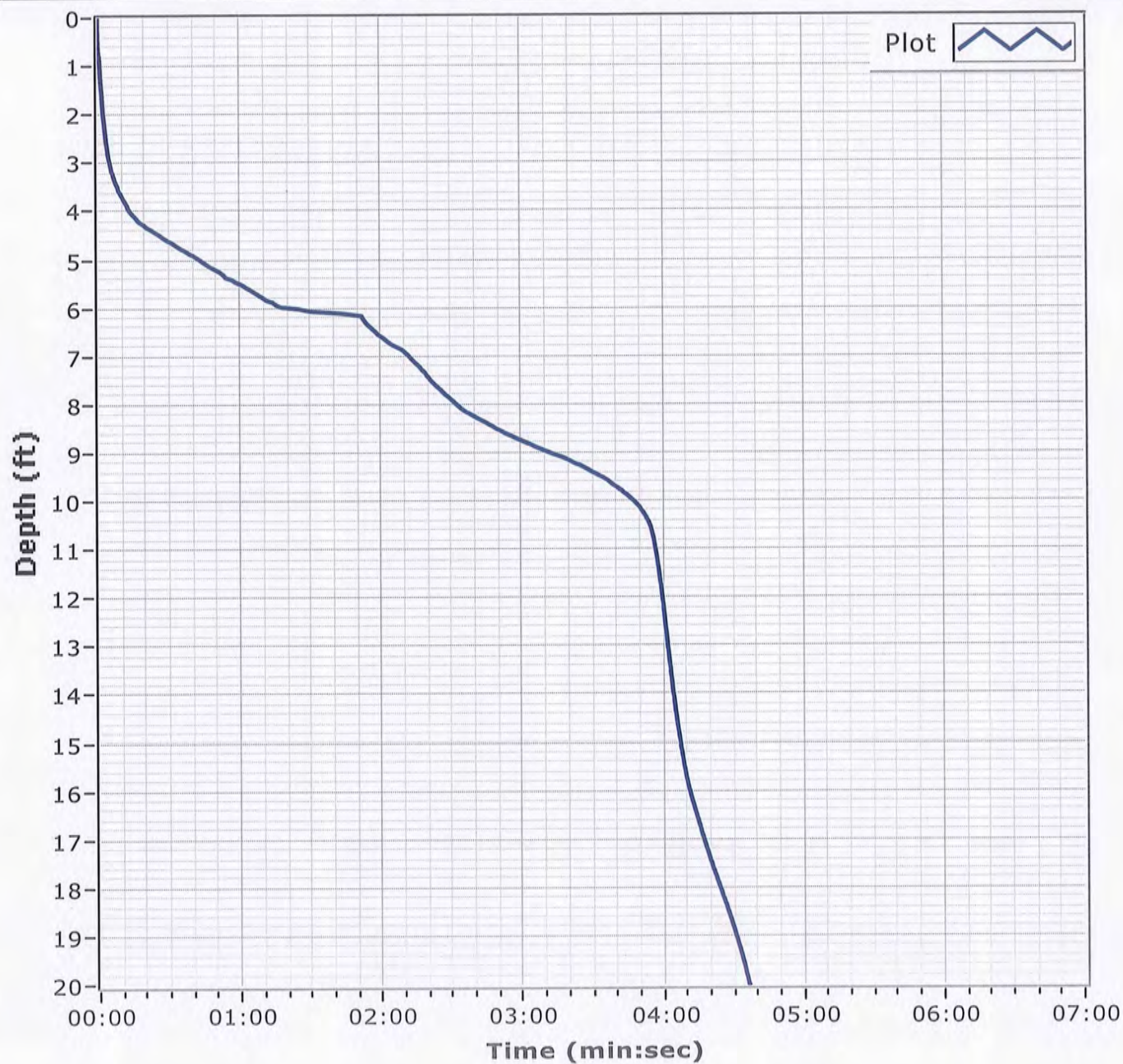
**Latitude** 30 08.285

**Total Time** 00:04:36

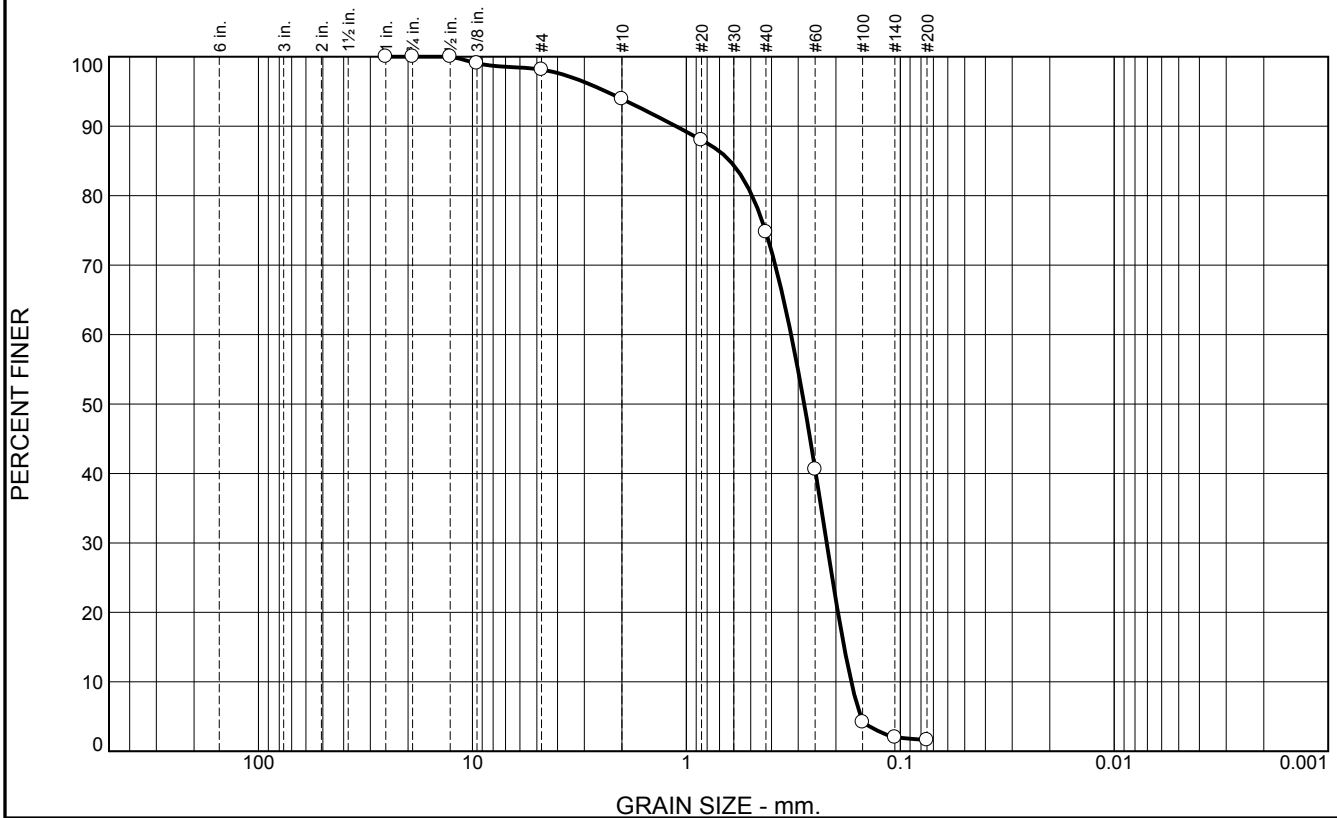
**Recovery** 19.3'

**Longitude** 088 20.009

**Comments**



# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	1.9	4.2	19.1	73.2	1.6	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
1	100.0		
.75	100.0		
.5	100.0		
.375	99.1		
#4	98.1		
#10	93.9		
#20	88.0		
#40	74.8		
#60	40.6		
#100	4.2		
#140	2.0		
#200	1.6		

\* (no specification provided)

## Material Description

Fine to medium grained, SAND, with trace SHELL

## Atterberg Limits

PL= LL= PI=

## Coefficients

D<sub>90</sub>= 1.1206 D<sub>85</sub>= 0.6257 D<sub>60</sub>= 0.3240  
D<sub>50</sub>= 0.2814 D<sub>30</sub>= 0.2208 D<sub>15</sub>= 0.1831  
D<sub>10</sub>= 0.1697 C<sub>u</sub>= 1.91 C<sub>c</sub>= 0.89

## Classification

USCS= SP AASHTO=

## Remarks

Location: BI-PBS-11-12 A  
Sample Number: 6469 (36)

Depth: 0.0'

Date: 11/28/12

**Thompson Engineering**

**Mobile, Alabama**

Client: CDM/Thompson Engineering JV  
Project: MsCIP Barrier Island Restoration GT

Project No: 1221110095

Figure



# Particle Size Distribution Report



GRAIN SIZE - mm.

% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.2	2.1	8.8	85.7	3.2	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
1	100.0		
.75	100.0		
.5	100.0		
.375	100.0		
#4	99.8		
#10	97.7		
#20	94.3		
#40	88.9		
#60	55.4		
#100	8.7		
#140	4.0		
#200	3.2		

\* (no specification provided)

## Material Description

Fine grained, SAND

## Atterberg Limits

PL=

LL=

PI=

## Coefficients

D<sub>90</sub>= 0.4772

D<sub>85</sub>= 0.3827

D<sub>60</sub>= 0.2626

D<sub>50</sub>= 0.2368

D<sub>30</sub>= 0.1955

D<sub>15</sub>= 0.1658

D<sub>10</sub>= 0.1537

C<sub>u</sub>= 1.71

C<sub>c</sub>= 0.95

## Classification

USCS= SP

AASHTO=

## Remarks

Location: BI-PBS-11-12 B

Sample Number: 6469 (37)

Depth: 8.6'

Date: 11/28/12

**Thompson Engineering**

**Mobile, Alabama**

Client: CDM/Thompson Engineering JV

Project: MsCIP Barrier Island Restoration GT

Project No: 1221110095

Figure

# Boring Designation BI-PBS-012-12

DRILLING LOG		DIVISION South Atlantic		INSTALLATION Mobile District		SHEET 1 OF 2 SHEETS	
1. PROJECT MsCIP Barrier Island Restoration Petit Bois Pass-OCS East				9. SIZE AND TYPE OF BIT N/A			
2. BORING DESIGNATION BI-PBS-012-12		LOCATION COORDINATES E = 1,137,391 N = 232,075		10. COORDINATE SYSTEM/DATUM State Plane, MSE (U.S. Ft.)		HORIZONTAL NAD83	
3. DRILLING AGENCY Corps of Engineers - CESAM		CONTRACTOR FILE NO.		11. MANUFACTURER'S DESIGNATION OF DRILL Vibracore		<input type="checkbox"/> AUTO HAMMER <input type="checkbox"/> MANUAL HAMMER	
4. NAME OF DRILLER American Vibracore Systems, Inc.				12. TOTAL SAMPLES		DISTURBED 0	
5. DIRECTION OF BORING <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED				13. TOTAL NUMBER CORE BOXES		14. WATER DEPTH 48.7 Ft.	
6. THICKNESS OF OVERBURDEN N/A				15. DATE BORING		STARTED 11-23-12	
7. DEPTH DRILLED INTO ROCK N/A				16. ELEVATION TOP OF BORING -49.2 Ft.		COMPLETED 11-23-12	
8. TOTAL DEPTH OF BORING 20.0 Ft.				17. TOTAL RECOVERY FOR BORING 100%			
				18. SIGNATURE AND TITLE OF INSPECTOR John Bass, Geotechnical Engineer			
ELEV.	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS	SAMPLE	LABORATORY RESULTS		
-49.2	0.0						
			SAND, poorly-graded, mostly fine to medium-grained quartz, little shell fragments, trace fines, sand and shell debris layer at 3.0-3.8 ft, lt. gray (SP)	A	Classification: SP Color: 5Y 6/2-light olive gray D50: 0.27 mm % Fines: 1.9		
-54.2	5.0		SAND, poorly-graded, mostly fine-grained sand-sized quartz, little fines, trace shell fragments, lt. gray (SP)	B	Classification: SP Color: 5Y 6/2-light olive gray D50: 0.23 mm % Fines: 2.8		
-58.0	8.8						
-59.2	10.0		SAND, poorly-graded, mostly fine-grained sand-sized quartz, little fines, lt. gray (SP)	C	Classification: SP-SM Color: 5Y 5/2-olive gray D50: 0.21 mm % Fines: 9.9		
-62.7	13.5		SAND, silty, mostly fine-grained sand-sized quartz, with clay lenses, gray (SM)				
-68.0	18.8		CLAY, silty, mostly clay, trace fine-grained sand-sized quartz, lt. gray mottled with orange (CL-ML)	NS			
-69.2	20.0		SAND, silty, mostly fine-grained sand-sized quartz, trace wood debris, gray (SM)				
NOTES: 1. Soils are field visually classified in accordance with the Unified Soils Classification System. 2. NS = Sample not submitted for laboratory analysis from this interval. 3. Seafloor elevation determined from USACE							

<b>DRILLING LOG (Cont. Sheet)</b>			<b>INSTALLATION</b> Mobile District		<b>SHEET 2</b> <b>OF 2 SHEETS</b>
<b>PROJECT</b> MsCIP Barrier Island Restoration			<b>COORDINATE SYSTEM/DATUM</b> State Plane, MSE (U.S. Ft.)	<b>HORIZONTAL</b> NAD83	<b>VERTICAL</b> NAVD88
<b>LOCATION COORDINATES</b> X = 1,137,391 Y = 232,075			<b>ELEVATION TOP OF BORING</b> -49.2 Ft.		
<b>ELEV.</b>	<b>DEPTH</b>	<b>LEGEND</b>	<b>CLASSIFICATION OF MATERIALS</b>	<b>SAMPLE</b>	<b>LABORATORY RESULTS</b>
			hydrographic survey completed April 2014.		

**Project**

Mississippi Barrier Island  
Restoration Project

**AVS**  
**AMERICAN VIBRACORE**  
**S E R V I C E S**

**Core Identifier** BI-PBS-12-12

**Date** 11/23/2012

**Water Depth** 48.7'

**Coordinate System**

Latitude / Longitude

**Start Time** 14:18:11

**End Time** 14:20:19

**Penetration** 20.0'

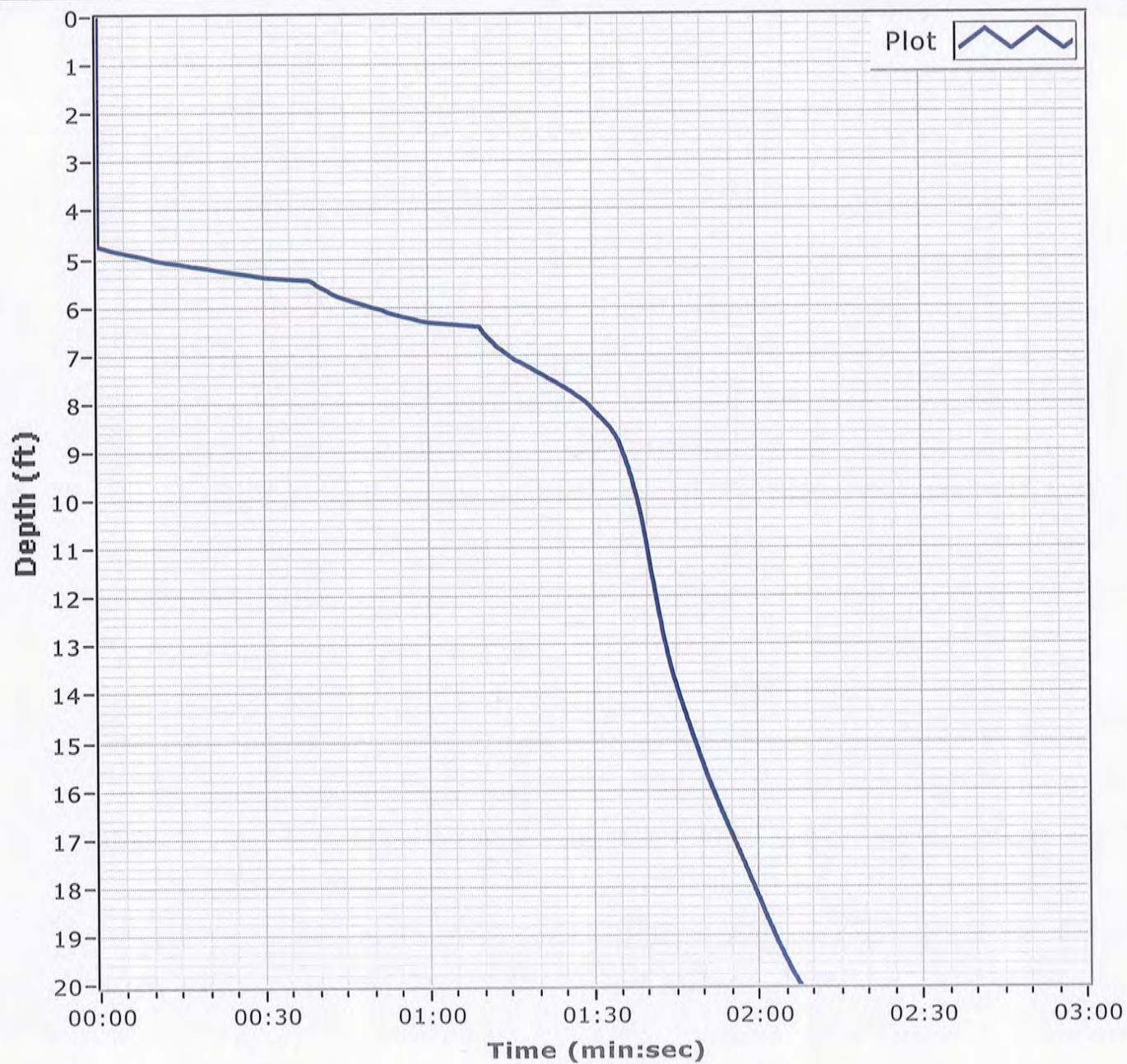
**Latitude** 30 08.236

**Total Time** 00:02:07

**Recovery** 20.0'

**Longitude** 088 20.932

**Comments**



# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	1.4	4.4	20.3	72.0	1.9	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
1	100.0		
.75	100.0		
.5	100.0		
.375	99.6		
#4	98.6		
#10	94.2		
#20	87.8		
#40	73.9		
#60	44.1		
#100	5.6		
#140	2.4		
#200	1.9		

\* (no specification provided)

**Material Description**  
 Fine to medium grained, SAND, with trace SHELL

**Atterberg Limits**  
 PL=      LL=      PI=

**Coefficients**  
 D<sub>90</sub>= 1.0750      D<sub>85</sub>= 0.6757      D<sub>60</sub>= 0.3148  
 D<sub>50</sub>= 0.2700      D<sub>30</sub>= 0.2121      D<sub>15</sub>= 0.1768  
 D<sub>10</sub>= 0.1640      C<sub>u</sub>= 1.92      C<sub>c</sub>= 0.87

**Classification**  
 USCS= SP      AASHTO=

**Remarks**

Location: BI-PBS-12-12 A  
 Sample Number: 6469 (33)

Depth: 0.0'

Date: 11/28/12

**Thompson Engineering**

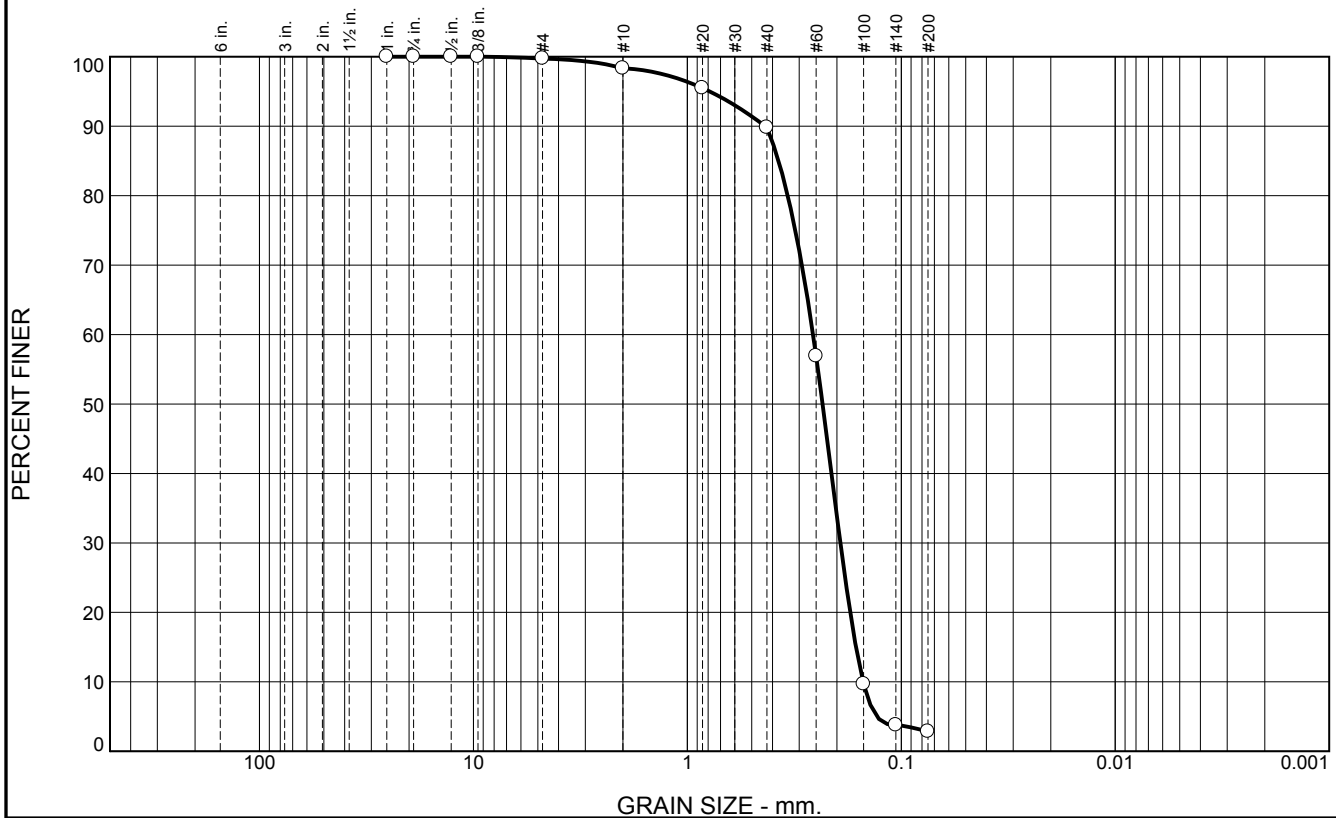
**Mobile, Alabama**

Client: CDM/Thompson Engineering JV  
 Project: MsCIP Barrier Island Restoration GT

Project No: 1221110095

Figure

# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.3	1.4	8.5	87.0	2.8	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
1	100.0		
.75	100.0		
.5	100.0		
.375	100.0		
#4	99.7		
#10	98.3		
#20	95.5		
#40	89.8		
#60	56.9		
#100	9.7		
#140	3.8		
#200	2.8		

\* (no specification provided)

Material Description		
Fine grained, SAND		
<div> <div> Atterberg Limits </div> <div> PL= </div> <div> LL= </div> <div> PI= </div> </div>		
<div> <div> Coefficients </div> <div> D<sub>90</sub>= 0.4338 </div> <div> D<sub>50</sub>= 0.2333 </div> <div> D<sub>10</sub>= 0.1509 </div> <div> D<sub>85</sub>= 0.3746 </div> <div> D<sub>30</sub>= 0.1927 </div> <div> C<sub>u</sub>= 1.71 </div> <div> D<sub>60</sub>= 0.2585 </div> <div> D<sub>15</sub>= 0.1631 </div> <div> C<sub>c</sub>= 0.95 </div> </div>		
<div> <div> Classification </div> <div> USCS= SP </div> <div> AASHTO= </div> </div>		
<div> <div> Remarks </div> </div>		

Location: BI-PBS-12-12 B  
Sample Number: 6469 (34)

Depth: 5.0'

Date: 11/28/12

**Thompson Engineering**

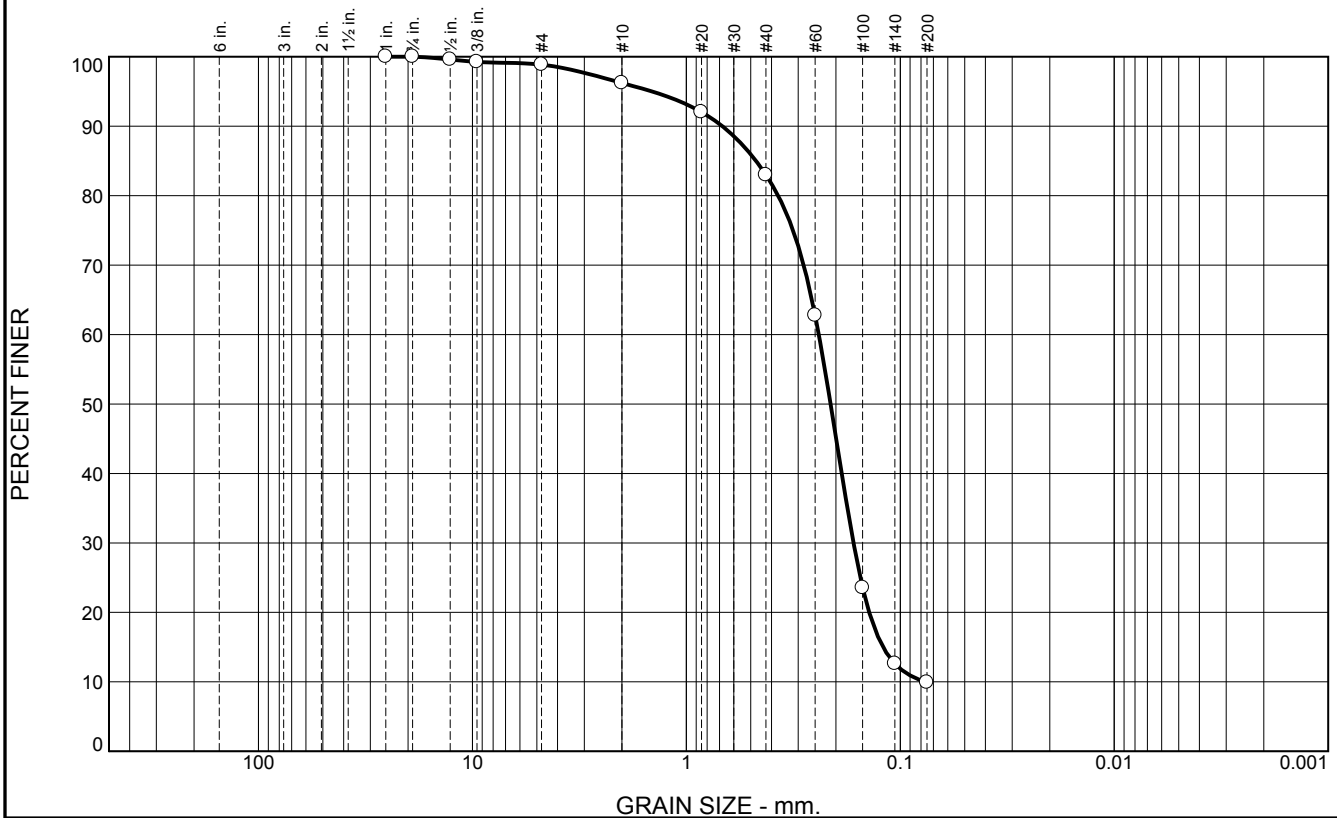
**Mobile, Alabama**

Client: CDM/Thompson Engineering JV  
Project: MsCIP Barrier Island Restoration GT

Project No: 1221110095

Figure

# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	1.2	2.6	13.2	73.1	9.9	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
1	100.0		
.75	100.0		
.5	99.6		
.375	99.3		
#4	98.8		
#10	96.2		
#20	92.0		
#40	83.0		
#60	62.8		
#100	23.6		
#140	12.6		
#200	9.9		

\* (no specification provided)

## Material Description

Fine to medium grained, SLIGHTLY SILTY SAND, with trace SHELL

## Atterberg Limits

PL= LL= PI=

## Coefficients

D<sub>90</sub>= 0.6799 D<sub>85</sub>= 0.4731 D<sub>60</sub>= 0.2404  
D<sub>50</sub>= 0.2117 D<sub>30</sub>= 0.1656 D<sub>15</sub>= 0.1204  
D<sub>10</sub>= 0.0766 C<sub>u</sub>= 3.14 C<sub>c</sub>= 1.49

## Classification

USCS= SP-SM AASHTO=

## Remarks

Location: BI-PBS-12-12 C  
Sample Number: 6469 (35)

Depth: 8.8'

Date: 11/28/12

**Thompson Engineering**

**Mobile, Alabama**

Client: CDM/Thompson Engineering JV  
Project: MsCIP Barrier Island Restoration GT

Project No: 1221110095

Figure

# Boring Designation BI-PBS-013-12

DRILLING LOG		DIVISION South Atlantic		INSTALLATION Mobile District		SHEET 1 OF 1 SHEETS	
1. PROJECT MsCIP Barrier Island Restoration Petit Bois Pass-OCS East				9. SIZE AND TYPE OF BIT N/A			
2. BORING DESIGNATION BI-PBS-013-12		LOCATION COORDINATES E = 1,133,767 N = 233,198		10. COORDINATE SYSTEM/DATUM State Plane, MSE (U.S. Ft.)		HORIZONTAL NAD83	
3. DRILLING AGENCY Corps of Engineers - CESAM		CONTRACTOR FILE NO.		11. MANUFACTURER'S DESIGNATION OF DRILL Vibracore		<input type="checkbox"/> AUTO HAMMER <input type="checkbox"/> MANUAL HAMMER	
4. NAME OF DRILLER American Vibracore Systems, Inc.				12. TOTAL SAMPLES		DISTURBED 0	
5. DIRECTION OF BORING <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED				13. TOTAL NUMBER CORE BOXES		14. WATER DEPTH 46.7 Ft.	
6. THICKNESS OF OVERBURDEN N/A				15. DATE BORING		STARTED 11-28-12	
7. DEPTH DRILLED INTO ROCK N/A				16. ELEVATION TOP OF BORING -47.3 Ft.		COMPLETED 11-28-12	
8. TOTAL DEPTH OF BORING 11.8 Ft.				17. TOTAL RECOVERY FOR BORING 100%			
				18. SIGNATURE AND TITLE OF INSPECTOR Mike FitzHarris, Geologist			
ELEV.	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS	SAMPLE	LABORATORY RESULTS		
-47.3	0.0						
			SAND, poorly-graded, mostly fine to medium-grained sand-sized quartz, trace shell fragments, occasional bands of shelly sand, gray (SP)	A	Classification: SP Color: 2.5Y 7/1-light gray D50: 0.35 mm % Fines: 1.6		
				B	Classification: SP Color: 2.5Y 6.5/2- D50: 0.25 mm % Fines: 2.9		
-56.5	9.2						
			CLAY, fat, mostly clay, trace silt, trace fine-grained sand-sized quartz, moderately stiff to stiff, medium to high plasticity, gray mottled with brown (CH)	NS			
-59.1	11.8						
			NOTES: 1. Soils are field visually classified in accordance with the Unified Soils Classification System. 2. NS = Sample not submitted for laboratory analysis from this interval. 3. Seafloor elevation determined from USACE hydrographic survey completed April 2014.				



**Project**

Mississippi Barrier Island  
Restoration Project

**AVS**  
**AMERICAN VIBRACORE**  
**S E R V I C E S**

**Core Identifier** BI-PBS-13-12

**Date** 11/28/2012

**Water Depth** 46.7'

**Coordinate System**

Latitude / Longitude

**Start Time** 13:40:11

**End Time** 13:43:08

**Penetration** 20.0'

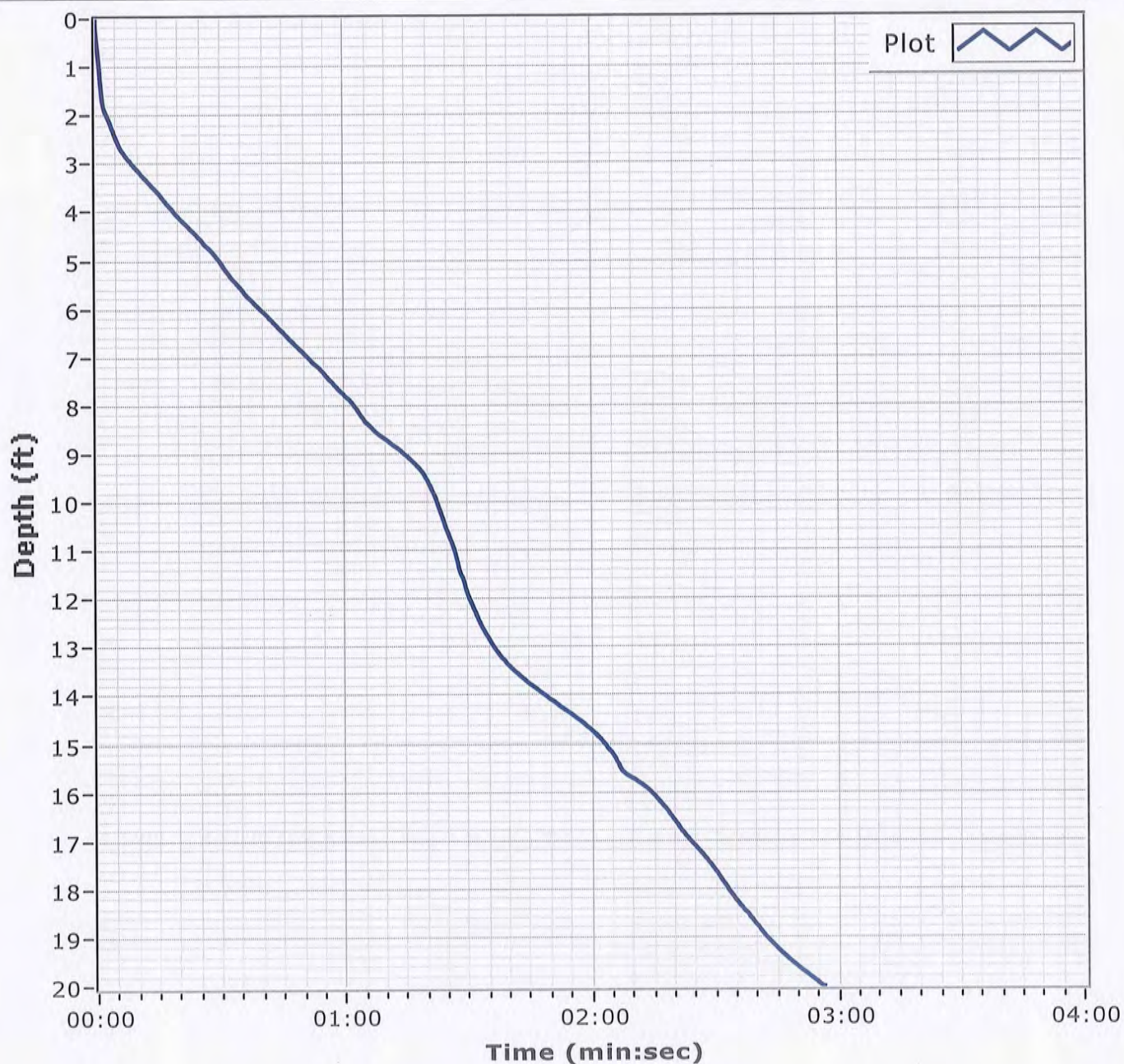
**Latitude** 30 08.424

**Total Time** 00:02:56

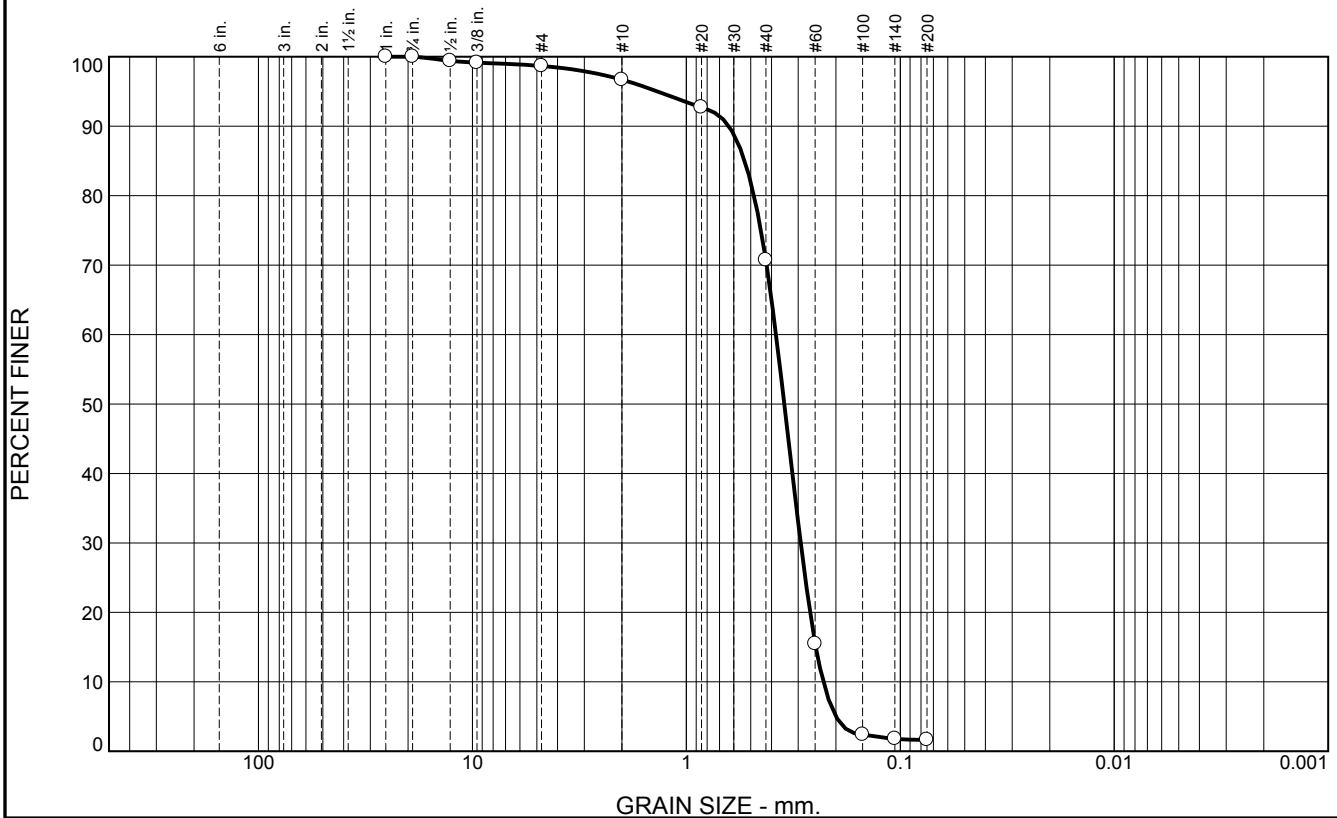
**Recovery** 12.1'

**Longitude** 088 21.619

**Comments**



# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	1.3	2.0	26.0	69.1	1.6	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
1	100.0		
.75	100.0		
.5	99.4		
.375	99.1		
#4	98.7		
#10	96.7		
#20	92.7		
#40	70.7		
#60	15.5		
#100	2.4		
#140	1.8		
#200	1.6		

\* (no specification provided)

## Material Description

Fine to medium grained, SAND, with trace SHELL

## Atterberg Limits

PL= LL= PI=

## Coefficients

D<sub>90</sub>= 0.6331 D<sub>85</sub>= 0.5337 D<sub>60</sub>= 0.3810  
D<sub>50</sub>= 0.3484 D<sub>30</sub>= 0.2923 D<sub>15</sub>= 0.2483  
D<sub>10</sub>= 0.2289 C<sub>u</sub>= 1.66 C<sub>c</sub>= 0.98

## Classification

USCS= SP AASHTO=

## Remarks

Location: BI-PBS-13-12 A  
Sample Number: 6471 (1)

Depth: 0.0'

Date: 12/03/12

**Thompson Engineering**

**Mobile, Alabama**

Client: CDM/Thompson Engineering JV  
Project: MsCIP Barrier Island Restoration GT

Project No: 1221110095

Figure

# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.8	2.1	12.3	81.9	2.9	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
1	100.0		
.75	100.0		
.5	100.0		
.375	100.0		
#4	99.2		
#10	97.1		
#20	93.1		
#40	84.8		
#60	50.9		
#100	6.6		
#140	3.4		
#200	2.9		

\* (no specification provided)

<u><b>Material Description</b></u>		
Fine to medium grained, SAND		
<u><b>Atterberg Limits</b></u>		
PL=	LL=	PI=
<u><b>Coefficients</b></u>		
D <sub>90</sub> = 0.5218	D <sub>85</sub> = 0.4275	D <sub>60</sub> = 0.2775
D <sub>50</sub> = 0.2477	D <sub>30</sub> = 0.2028	D <sub>15</sub> = 0.1718
D <sub>10</sub> = 0.1600	C <sub>u</sub> = 1.73	C <sub>c</sub> = 0.93
<u><b>Classification</b></u>		
USCS= SP	AASHTO=	
<u><b>Remarks</b></u>		

Location: BI-PBS-13-12 B  
Sample Number: 6471 (2)

Depth: 5.0'

Date: 12/03/12

**Thompson Engineering**

**Mobile, Alabama**

Client: CDM/Thompson Engineering JV  
Project: MsCIP Barrier Island Restoration GT

Project No: 1221110095

Figure

# Boring Designation BI-PBS-014-12

DRILLING LOG		DIVISION South Atlantic		INSTALLATION Mobile District		SHEET 1 OF 1 SHEETS	
1. PROJECT MsCIP Barrier Island Restoration Petit Bois Pass-OCS East				9. SIZE AND TYPE OF BIT N/A			
2. BORING DESIGNATION BI-PBS-014-12		LOCATION COORDINATES E = 1,136,141 N = 231,771		10. COORDINATE SYSTEM/DATUM State Plane, MSE (U.S. Ft.)		HORIZONTAL NAD83	
3. DRILLING AGENCY Corps of Engineers - CESAM		CONTRACTOR FILE NO.		11. MANUFACTURER'S DESIGNATION OF DRILL Vibracore		<input type="checkbox"/> AUTO HAMMER <input type="checkbox"/> MANUAL HAMMER	
4. NAME OF DRILLER American Vibracore Systems, Inc.				12. TOTAL SAMPLES		DISTURBED 0	
5. DIRECTION OF BORING <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED				13. TOTAL NUMBER CORE BOXES		14. WATER DEPTH 53.4 Ft.	
6. THICKNESS OF OVERBURDEN N/A				15. DATE BORING		STARTED 11-28-12	
7. DEPTH DRILLED INTO ROCK N/A				16. ELEVATION TOP OF BORING -53.2 Ft.		COMPLETED 11-28-12	
8. TOTAL DEPTH OF BORING 19.6 Ft.				17. TOTAL RECOVERY FOR BORING 100%			
				18. SIGNATURE AND TITLE OF INSPECTOR Mike FitzHarris, Geologist			
ELEV.	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS	SAMPLE	LABORATORY RESULTS		
-53.2	0.0						
-56.4	3.2		SAND, poorly-graded, mostly fine to medium-grained quartz, trace silt, trace shell fragments, greenish gray (SP)	A	Classification: SP Color: 5Y 6/2-light olive gray D50: 0.25 mm % Fines: 3.7		
-59.2	6.0		SAND, silty, mostly fine-grained sand-sized quartz, some silt, trace clay, trace shell fragments, greenish gray (SM)	B	Classification: SP-SM Color: 5Y 5/2-olive gray D50: 0.2 mm % Fines: 11.8		
-61.4	8.2		SAND, clayey, mostly fine-grained sand-sized quartz, some clay, trace shell fragments, alternating bands of clayey sand and sandy clay, gray mottled with greenish gray and brown (SC)				
-72.8	19.6		CLAY, fat, mostly clay, trace fine-grained sand-sized quartz, trace wood debris, trace shell fragments, occasional shelly bands and sandy pockets, moderately stiff, gray (CH)	NS			
NOTES: 1. Soils are field visually classified in accordance with the Unified Soils Classification System. 2. NS = Sample not submitted for laboratory analysis from this interval. 3. Seafloor elevation determined from USACE hydrographic survey completed April 2014.							



**Project**

Mississippi Barrier Island  
Restoration Project

**AVS**  
**AMERICAN VIBRACORE**  
**S E R V I C E S**

**Core Identifier** BI-PBS-14-12

**Date** 11/28/2012

**Water Depth** 53.4'

**Coordinate System**

Latitude / Longitude

**Start Time** 09:49:38

**End Time** 09:50:16

**Penetration** 20.0'

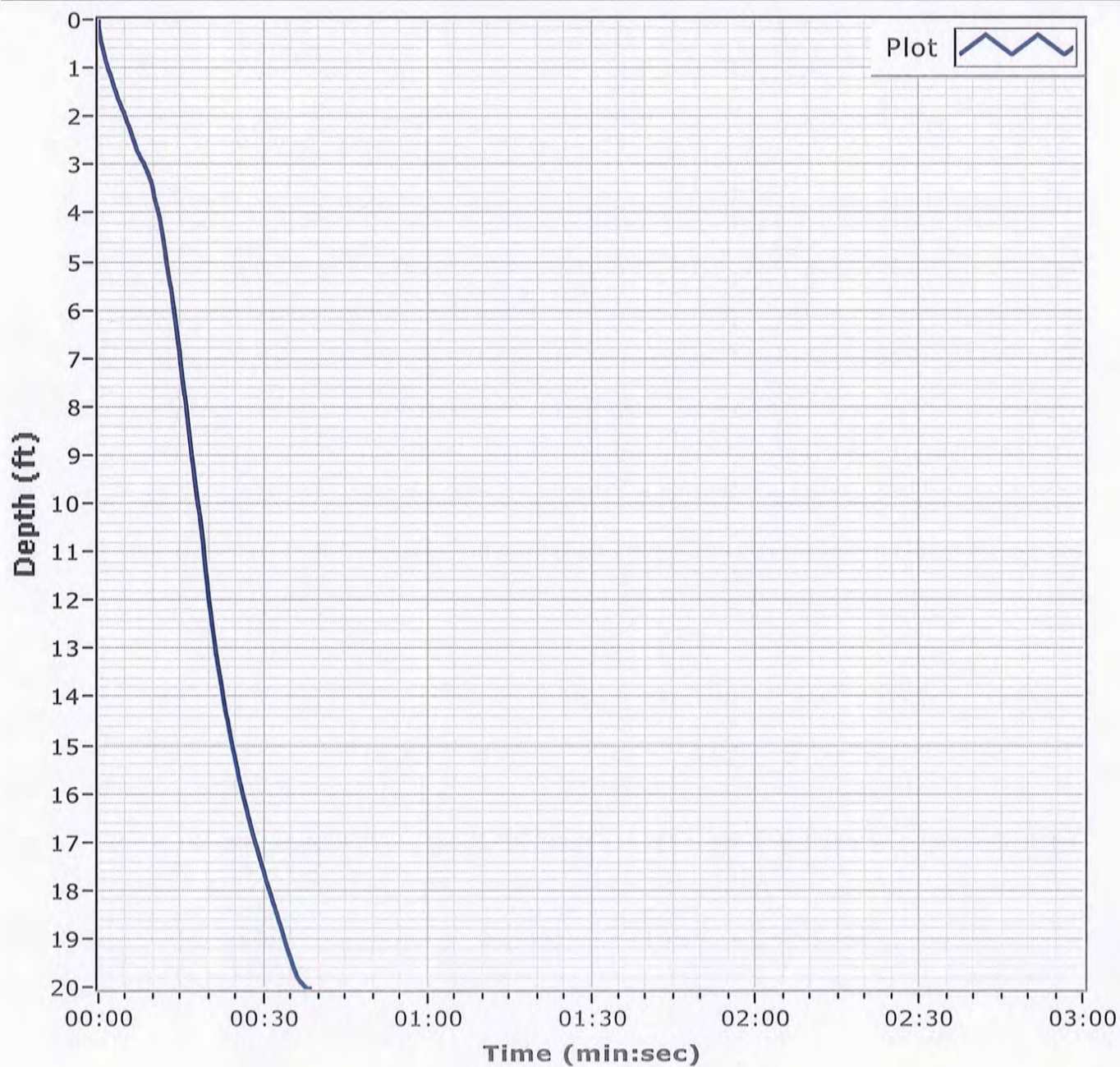
**Latitude** 30 08.187

**Total Time** 00:00:38

**Recovery** 19.6

**Longitude** 088 21.170

**Comments**



# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.1	2.3	13.0	80.9	3.7	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
1	100.0		
.75	100.0		
.5	100.0		
.375	100.0		
#4	99.9		
#10	97.6		
#20	93.6		
#40	84.6		
#60	50.9		
#100	12.4		
#140	5.0		
#200	3.7		

\* (no specification provided)

<u><b>Material Description</b></u>		
Fine to medium grained, SAND		
<u><b>Atterberg Limits</b></u>		
PL=	LL=	PI=
<u><b>Coefficients</b></u>		
D <sub>90</sub> = 0.5125	D <sub>85</sub> = 0.4290	D <sub>60</sub> = 0.2801
D <sub>50</sub> = 0.2473	D <sub>30</sub> = 0.1955	D <sub>15</sub> = 0.1580
D <sub>10</sub> = 0.1414	C <sub>u</sub> = 1.98	C <sub>c</sub> = 0.96
<u><b>Classification</b></u>		
USCS= SP	AASHTO=	
<u><b>Remarks</b></u>		

Location: BI-PBS-14-12 A  
Sample Number: 6471 (3)

Depth: 0.0'

Date: 12/03/12

**Thompson Engineering**

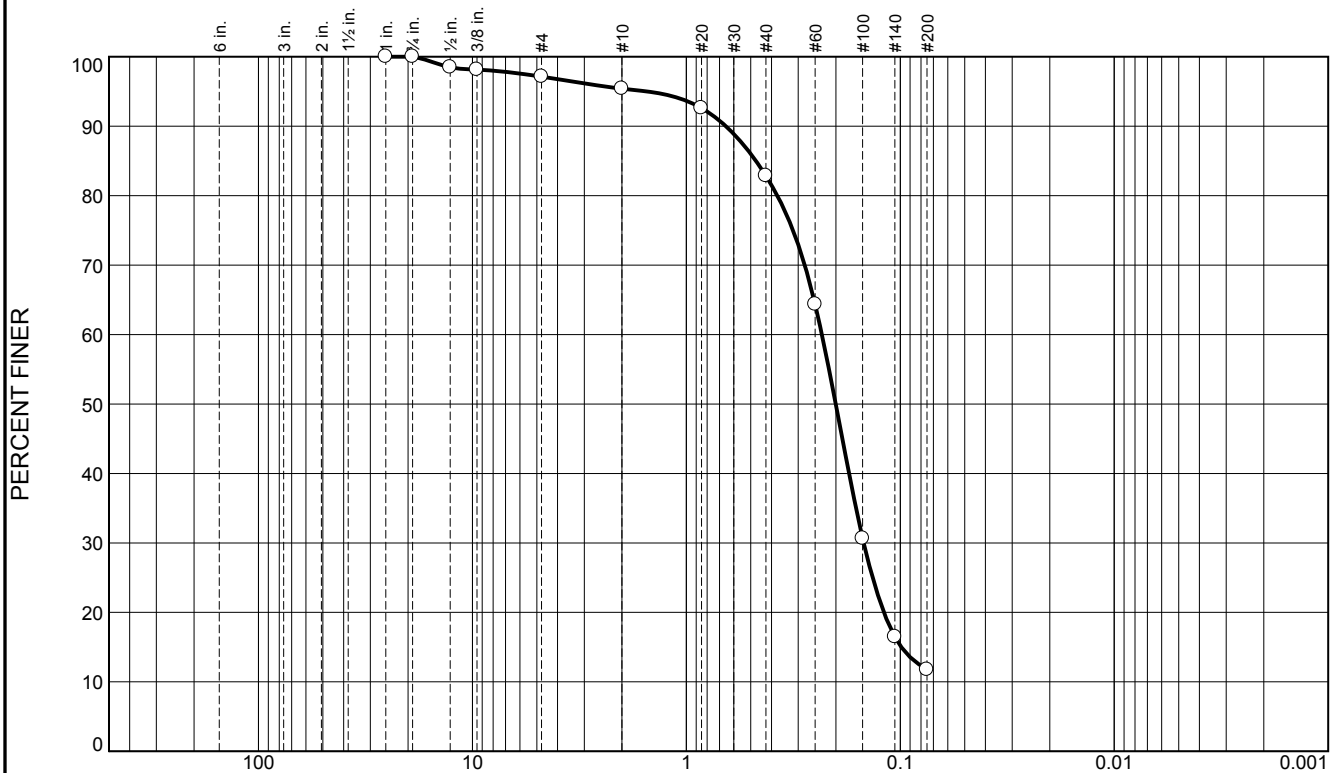
**Mobile, Alabama**

Client: CDM/Thompson Engineering JV  
Project: MsCIP Barrier Island Restoration GT

Project No: 1221110095

Figure

# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	2.9	1.7	12.6	71.0	11.8	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
1	100.0		
.75	100.0		
.5	98.5		
.375	98.1		
#4	97.1		
#10	95.4		
#20	92.6		
#40	82.8		
#60	64.3		
#100	30.6		
#140	16.5		
#200	11.8		

\* (no specification provided)

## Material Description

Fine to medium grained, SLIGHTLY SILTY SAND, with trace SHELL

## Atterberg Limits

PL= LL= PI=

## Coefficients

D<sub>90</sub>= 0.6538 D<sub>85</sub>= 0.4732 D<sub>60</sub>= 0.2325  
D<sub>50</sub>= 0.2004 D<sub>30</sub>= 0.1484 D<sub>15</sub>= 0.0989  
D<sub>10</sub>= C<sub>u</sub>= C<sub>c</sub>=

## Classification

USCS= SP-SM AASHTO=

## Remarks

Location: BI-PBS-14-12 B  
Sample Number: 6471 (4)

Depth: 3.2'

Date: 12/03/12

**Thompson Engineering**

**Mobile, Alabama**

Client: CDM/Thompson Engineering JV  
Project: MsCIP Barrier Island Restoration GT

Project No: 1221110095

Figure

# Boring Designation BI-PBS-015-12

DRILLING LOG		DIVISION South Atlantic		INSTALLATION Mobile District		SHEET 1 OF 2 SHEETS	
1. PROJECT MsCIP Barrier Island Restoration Petit Bois Pass-OCS East				9. SIZE AND TYPE OF BIT N/A			
2. BORING DESIGNATION BI-PBS-015-12		LOCATION COORDINATES E = 1,135,034 N = 232,632		10. COORDINATE SYSTEM/DATUM State Plane, MSE (U.S. Ft.)		HORIZONTAL NAD83	
3. DRILLING AGENCY Corps of Engineers - CESAM		CONTRACTOR FILE NO.		11. MANUFACTURER'S DESIGNATION OF DRILL Vibrocure		<input type="checkbox"/> AUTO HAMMER <input type="checkbox"/> MANUAL HAMMER	
4. NAME OF DRILLER American Vibrocure Systems, Inc.				12. TOTAL SAMPLES		DISTURBED 0	
5. DIRECTION OF BORING <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED				13. TOTAL NUMBER CORE BOXES		14. WATER DEPTH 48.9 Ft.	
6. THICKNESS OF OVERBURDEN N/A				15. DATE BORING		STARTED 11-28-12	
7. DEPTH DRILLED INTO ROCK N/A				16. ELEVATION TOP OF BORING -49.7 Ft.		COMPLETED 11-28-12	
8. TOTAL DEPTH OF BORING 19.9 Ft.				17. TOTAL RECOVERY FOR BORING 100%			
				18. SIGNATURE AND TITLE OF INSPECTOR Mike FitzHarris, Geologist			

ELEV.	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS	SAMPLE	LABORATORY RESULTS
-49.7	0.0				
			SAND, poorly-graded, mostly fine to medium-grained sand-sized quartz, trace silt, trace shell fragments, gray (SP)	A	Classification: SP Color: 5Y 7/2-light gray D50: 0.29 mm % Fines: 2
-55.2	5.5			NS	
			SAND, silty, mostly fine-grained sand-sized quartz, some silt, trace shell fragments, trace clay, gray (SM)	B	Classification: SP-SM Color: 5Y 5/2-olive gray D50: 0.2 mm % Fines: 11.6
-58.4	8.7				
			CLAY, lean, mostly clay, trace wood debris, occasional pockets of clayey sand, gray mottled with greenish gray and brown (CL)	NS	
-64.6	14.9				
			CLAY, fat, mostly clay, trace shell fragments, trace wood debris, moderately stiff, gray (CH)		
-67.8	18.1				
-68.3	18.6				
			SAND, clayey, mostly fine-grained sand-sized quartz, trace silt, trace shell fragments, gray (SC)		
-69.6	19.9				
			SAND, poorly-graded with silt, mostly fine-grained sand-sized quartz, few silt, trace shell fragments, trace clay, gray (SP-SM)		
NOTES: 1. Soils are field visually classified in accordance with the Unified Soils Classification System.					



<b>DRILLING LOG (Cont. Sheet)</b>			<b>INSTALLATION</b> Mobile District		<b>SHEET 2</b> <b>OF 2 SHEETS</b>
<b>PROJECT</b> MsCIP Barrier Island Restoration			<b>COORDINATE SYSTEM/DATUM</b> State Plane, MSE (U.S. Ft.)	<b>HORIZONTAL</b> NAD83	<b>VERTICAL</b> NAVD88
<b>LOCATION COORDINATES</b> X = 1,135,034 Y = 232,632			<b>ELEVATION TOP OF BORING</b> -49.7 Ft.		
<b>ELEV.</b>	<b>DEPTH</b>	<b>LEGEND</b>	<b>CLASSIFICATION OF MATERIALS</b>	<b>SAMPLE</b>	<b>LABORATORY RESULTS</b>
			2. NS = Sample not submitted for laboratory analysis from this interval.  3. Seafloor elevation determined from USACE hydrographic survey completed April 2014.		

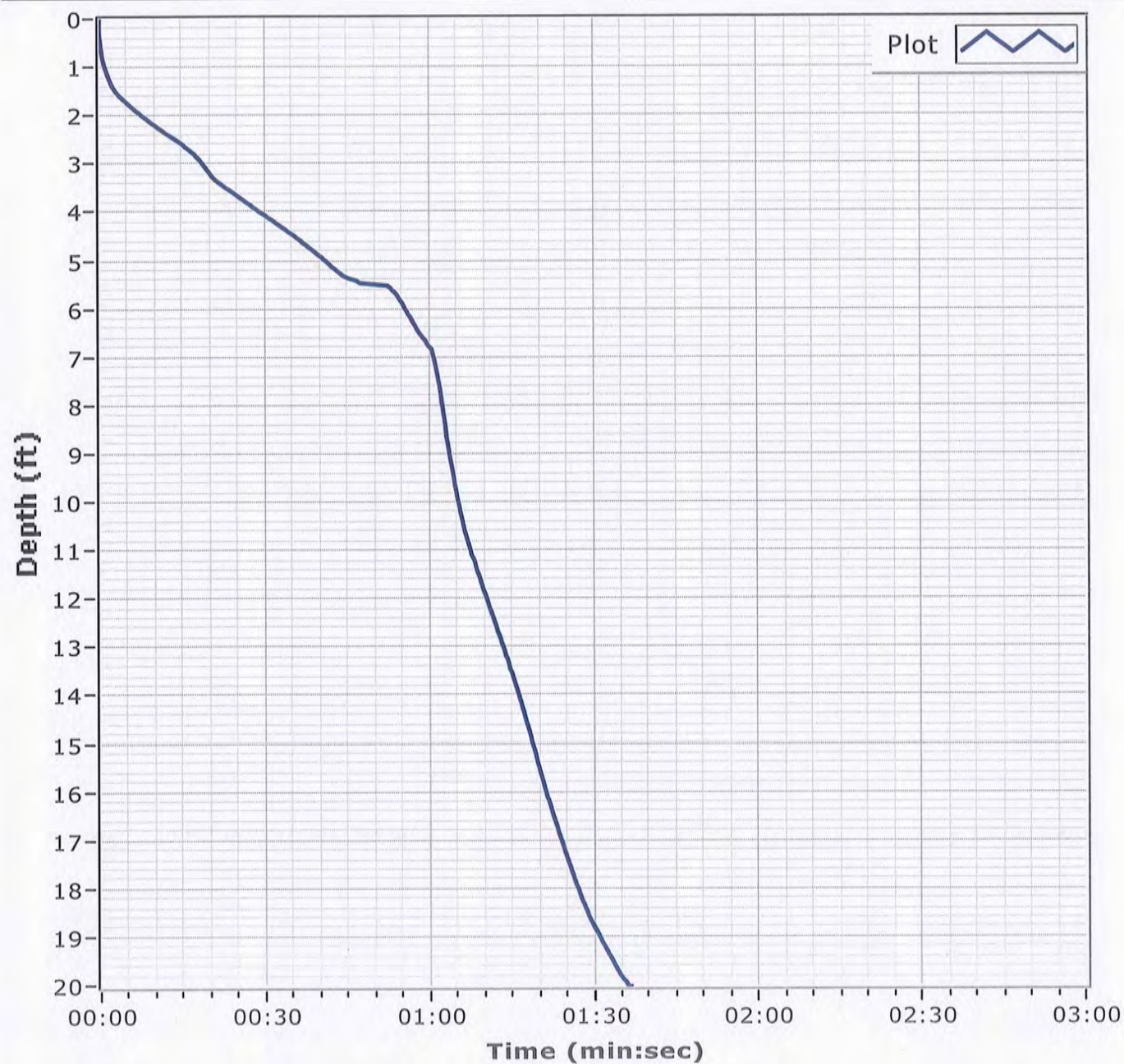
**Project**

Mississippi Barrier Island  
Restoration Project

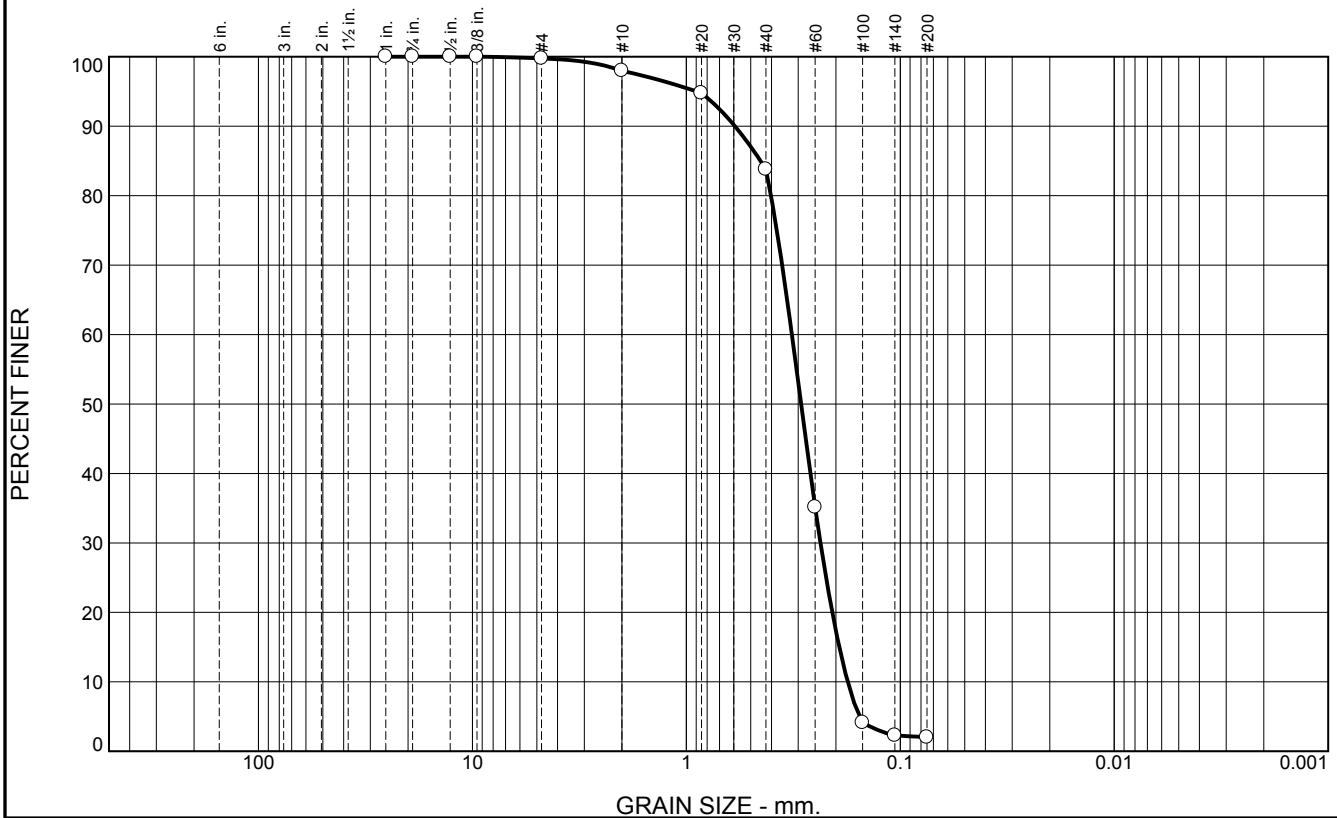
**AVS**  
**AMERICAN VIBRACORE**  
**S E R V I C E S**

**Core Identifier** BI-PBS-15-12**Date** 11/28/2012**Water Depth** 48.9'**Coordinate System**

Latitude / Longitude

**Start Time** 10:32:11**End Time** 10:33:48**Penetration** 20.0'**Latitude** 30 08.330**Total Time** 00:01:37**Recovery** 19.9'**Longitude** 088 21.379**Comments**

# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.3	1.7	14.2	81.8	2.0	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
1	100.0		
.75	100.0		
.5	100.0		
.375	100.0		
#4	99.7		
#10	98.0		
#20	94.8		
#40	83.8		
#60	35.1		
#100	4.1		
#140	2.3		
#200	2.0		

\* (no specification provided)

Material Description		
Fine to medium grained, SAND		
PL=	Atterberg Limits LL=	PI=
D <sub>90</sub> = 0.5930	D <sub>85</sub> = 0.4505	D <sub>60</sub> = 0.3212
D <sub>50</sub> = 0.2909	D <sub>30</sub> = 0.2360	D <sub>15</sub> = 0.1929
D <sub>10</sub> = 0.1763	C <sub>u</sub> = 1.82	C <sub>c</sub> = 0.98
USCS= SP	Classification AASHTO=	
Remarks		

Location: BI-PBS-15-12 A  
Sample Number: 6471 (5)

Depth: 0.0'

Date: 12/03/12

**Thompson Engineering**

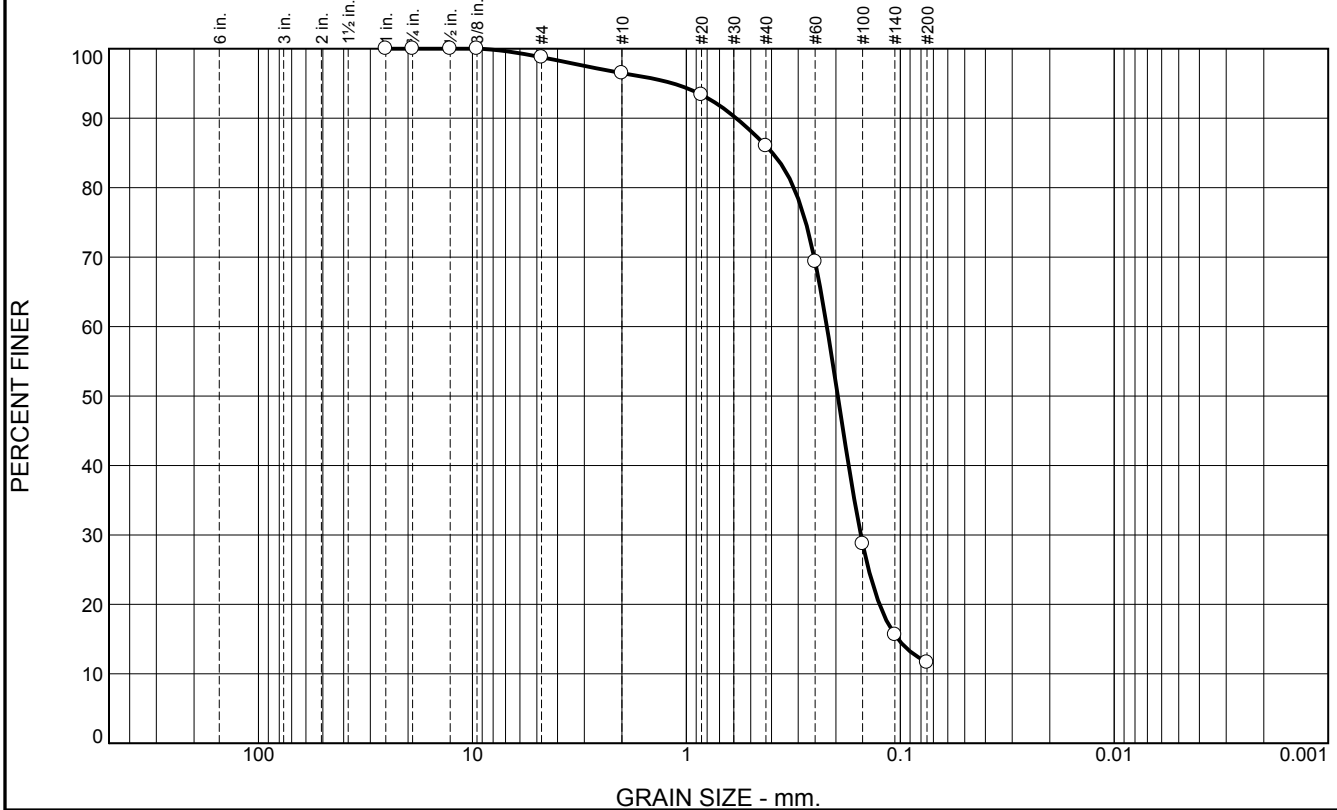
**Mobile, Alabama**

Client: CDM/Thompson Engineering JV  
Project: MsCIP Barrier Island Restoration GT

Project No: 1221110095

Figure

# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	1.2	2.3	10.5	74.4	11.6	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
1	100.0		
.75	100.0		
.5	100.0		
.375	100.0		
#4	98.8		
#10	96.5		
#20	93.4		
#40	86.0		
#60	69.4		
#100	28.7		
#140	15.6		
#200	11.6		

\* (no specification provided)

## Material Description

Fine to medium grained, SLIGHTLY SILTY SAND, with trace SHELL

## Atterberg Limits

PL= LL= PI=

## Coefficients

D<sub>90</sub>= 0.5851 D<sub>85</sub>= 0.3961 D<sub>60</sub>= 0.2203  
D<sub>50</sub>= 0.1960 D<sub>30</sub>= 0.1530 D<sub>15</sub>= 0.1024  
D<sub>10</sub>= C<sub>u</sub>= C<sub>c</sub>=

## Classification

USCS= SP-SM AASHTO=

## Remarks

Location: BI-PBS-15-12 B  
Sample Number: 6471 (6)

Depth: 5.5'

Date: 12/03/12

**Thompson Engineering**

**Mobile, Alabama**

Client: CDM/Thompson Engineering JV  
Project: MsCIP Barrier Island Restoration GT

Project No: 1221110095

Figure

# Boring Designation BI-PBS-016-12

DRILLING LOG		DIVISION South Atlantic		INSTALLATION Mobile District		SHEET 1 OF 1 SHEETS	
1. PROJECT MsCIP Barrier Island Restoration Petit Bois Pass-OCS East				9. SIZE AND TYPE OF BIT N/A			
2. BORING DESIGNATION BI-PBS-016-12		LOCATION COORDINATES E = 1,138,607 N = 231,553		10. COORDINATE SYSTEM/DATUM State Plane, MSE (U.S. Ft.)		HORIZONTAL NAD83	
3. DRILLING AGENCY Corps of Engineers - CESAM		CONTRACTOR FILE NO.		11. MANUFACTURER'S DESIGNATION OF DRILL Vibrocure		<input type="checkbox"/> AUTO HAMMER <input type="checkbox"/> MANUAL HAMMER	
4. NAME OF DRILLER American Vibrocure Systems, Inc.				12. TOTAL SAMPLES		DISTURBED 0	
5. DIRECTION OF BORING <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED				13. TOTAL NUMBER CORE BOXES		14. WATER DEPTH 52.8 Ft.	
6. THICKNESS OF OVERBURDEN N/A				15. DATE BORING		STARTED 11-23-12	
7. DEPTH DRILLED INTO ROCK N/A				16. ELEVATION TOP OF BORING -52.5 Ft.		COMPLETED 11-23-12	
8. TOTAL DEPTH OF BORING 17.8 Ft.				17. TOTAL RECOVERY FOR BORING 100%			
				18. SIGNATURE AND TITLE OF INSPECTOR John Bass, Geotechnical Engineer			
ELEV.	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS	SAMPLE	LABORATORY RESULTS		
-52.5	0.0						
-55.0	2.5		SAND, poorly-graded, mostly fine to medium-grained sand-sized quartz, trace fines, trace shell fragments, gray (SP)	A	Classification: SP Color: 5Y 6/2-light olive gray D50: 0.29 mm % Fines: 2.4		
-56.3	3.8		SAND, poorly-graded, mostly fine-grained sand-sized quartz, little fines, little shell fragments, gray (SP)	B	Classification: SP Color: 5Y 6/2-light olive gray D50: 0.21 mm % Fines: 3.7		
-58.1	5.6		SAND, poorly-graded, mostly fine to medium-grained sand-sized quartz, little fines, gray (SP)	C	Classification: SP Color: 5Y 6/2-light olive gray D50: 0.24 mm % Fines: 4		
-61.3	8.8		SAND, silty, mostly fine-grained sand-sized quartz, little shell fragments, gray (SM)	NS			
-64.6	12.1		CLAY, lean, mostly clay, some sand, lt. gray mottled with orange (CL)				
-65.6	13.1		SAND, clayey, mostly fine-grained sand-sized quartz, lt. gray mottled with orange (SC)				
-66.4	13.9		CLAY, lean, mostly clay, little fine-grained sand-sized quartz, low plasticity, dark gray (CL)				
-68.2	15.7		SAND, silty, mostly fine-grained sand-sized quartz, trace shell fragments, trace wood debris, gray (SM)				
-70.3	17.8		CLAY, lean, mostly clay, trace fine-grained sand-sized quartz, gray (CL)				
NOTES:							
1. Soils are field visually classified in accordance with the Unified Soils Classification System.							
2. NS = Sample not submitted for laboratory analysis from this interval.							
3. Seafloor elevation determined from USACE hydrographic survey completed April 2014.							



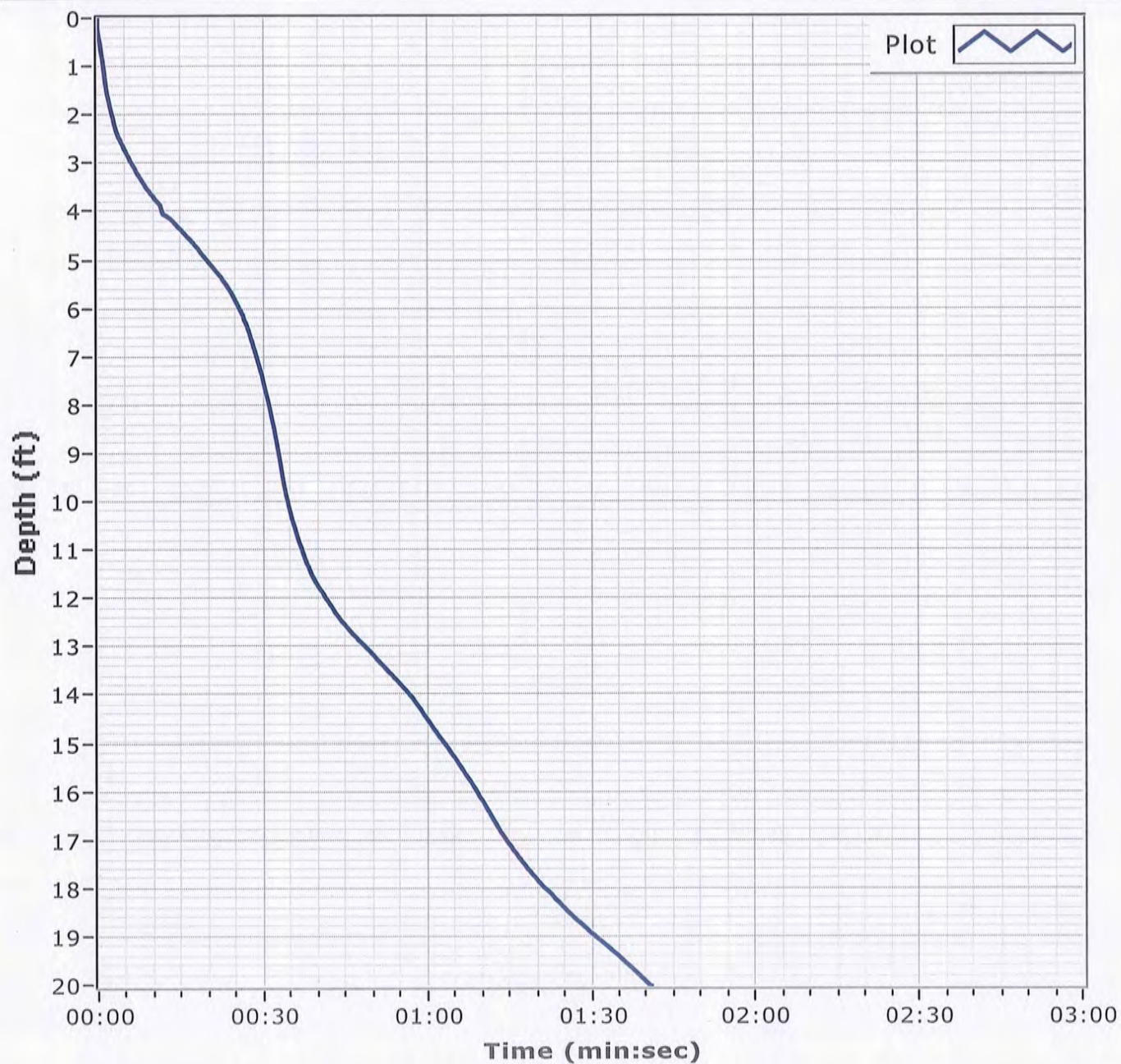
**Project**

Mississippi Barrier Island  
Restoration Project

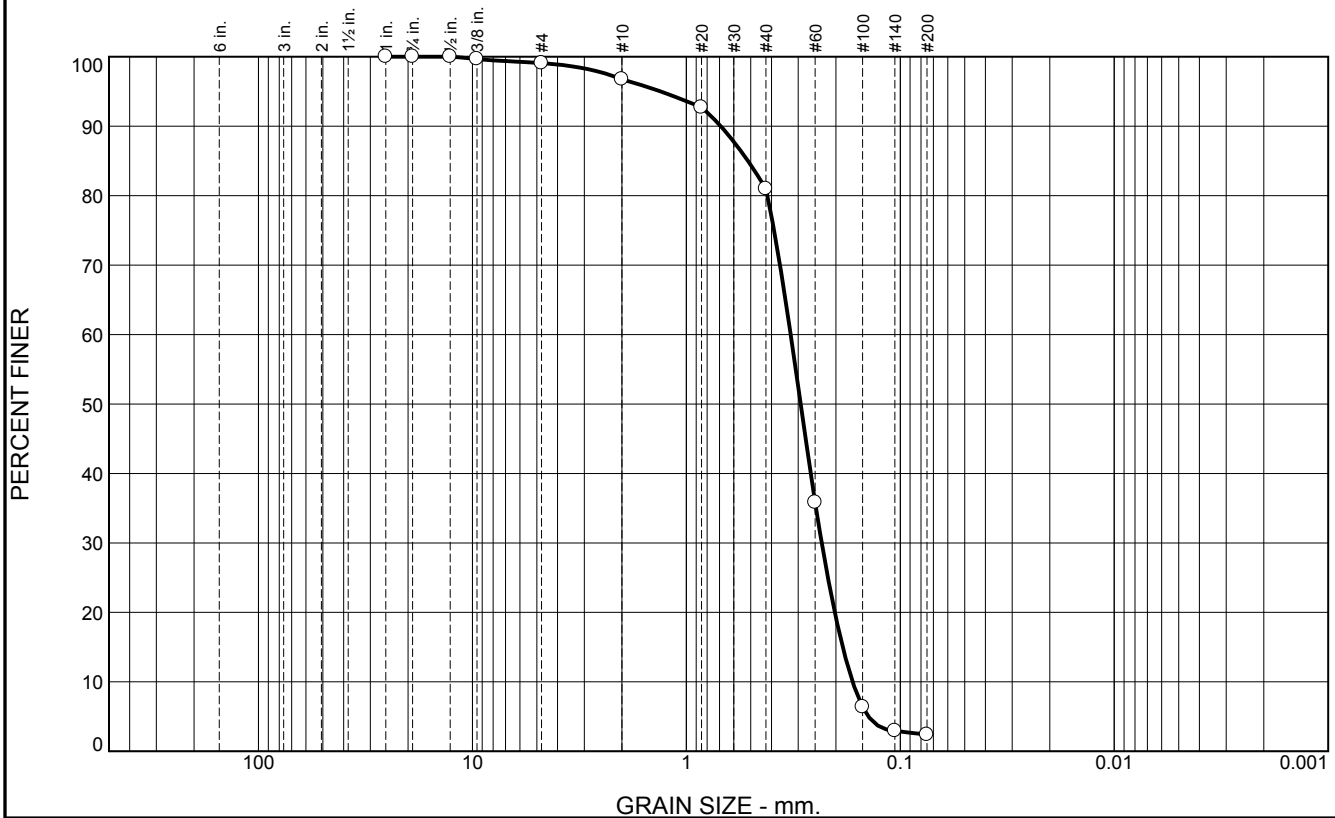
**AVS**  
**AMERICAN VIBRACORE**  
**S E R V I C E S**

**Core Identifier** BI-PBS-16-12**Date** 11/23/2012**Water Depth** 52.8'**Coordinate System**

Latitude / Longitude

**Start Time** 13:34:56**End Time** 13:36:37**Penetration** 20.0'**Latitude** 30 08.149**Total Time** 00:01:41**Recovery** 17.8'**Longitude** 088 20.702**Comments**

# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.9	2.4	15.7	78.6	2.4	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
1	100.0		
.75	100.0		
.5	100.0		
.375	99.7		
#4	99.1		
#10	96.7		
#20	92.7		
#40	81.0		
#60	35.8		
#100	6.4		
#140	2.9		
#200	2.4		

\* (no specification provided)

<b><u>Material Description</u></b>		
Fine to medium grained, SAND		
<b><u>Atterberg Limits</u></b>		
PL=	LL=	PI=
<b><u>Coefficients</u></b>		
D <sub>90</sub> = 0.6916	D <sub>85</sub> = 0.5156	D <sub>60</sub> = 0.3255
D <sub>50</sub> = 0.2923	D <sub>30</sub> = 0.2329	D <sub>15</sub> = 0.1859
D <sub>10</sub> = 0.1672	C <sub>u</sub> = 1.95	C <sub>c</sub> = 1.00
<b><u>Classification</u></b>		
USCS= SP	AASHTO=	
<b><u>Remarks</u></b>		

Location: BI-PBS-16-12 A  
Sample Number: 6469 (30)

Depth: 0.0'

Date: 11/28/12

**Thompson Engineering**

**Mobile, Alabama**

Client: CDM/Thompson Engineering JV  
Project: MsCIP Barrier Island Restoration GT

Project No: 1221110095

Figure

# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.1	1.0	6.8	88.4	3.7	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
1	100.0		
.75	100.0		
.5	100.0		
.375	100.0		
#4	99.9		
#10	98.9		
#20	97.1		
#40	92.1		
#60	70.0		
#100	13.2		
#140	4.9		
#200	3.7		

\* (no specification provided)

<u>Material Description</u>		
Fine grained, SAND		
<u>Atterberg Limits</u>		
PL=	LL=	PI=
<u>Coefficients</u>		
D <sub>90</sub> = 0.3712	D <sub>85</sub> = 0.3135	D <sub>60</sub> = 0.2276
D <sub>50</sub> = 0.2097	D <sub>30</sub> = 0.1785	D <sub>15</sub> = 0.1537
D <sub>10</sub> = 0.1420	C <sub>u</sub> = 1.60	C <sub>c</sub> = 0.99
<u>Classification</u>		
USCS= SP	AASHTO=	
<u>Remarks</u>		

Location: BI-PBS-16-12 B  
Sample Number: 6469 (31)

Depth: 2.5'

Date: 11/28/12

**Thompson Engineering**

**Mobile, Alabama**

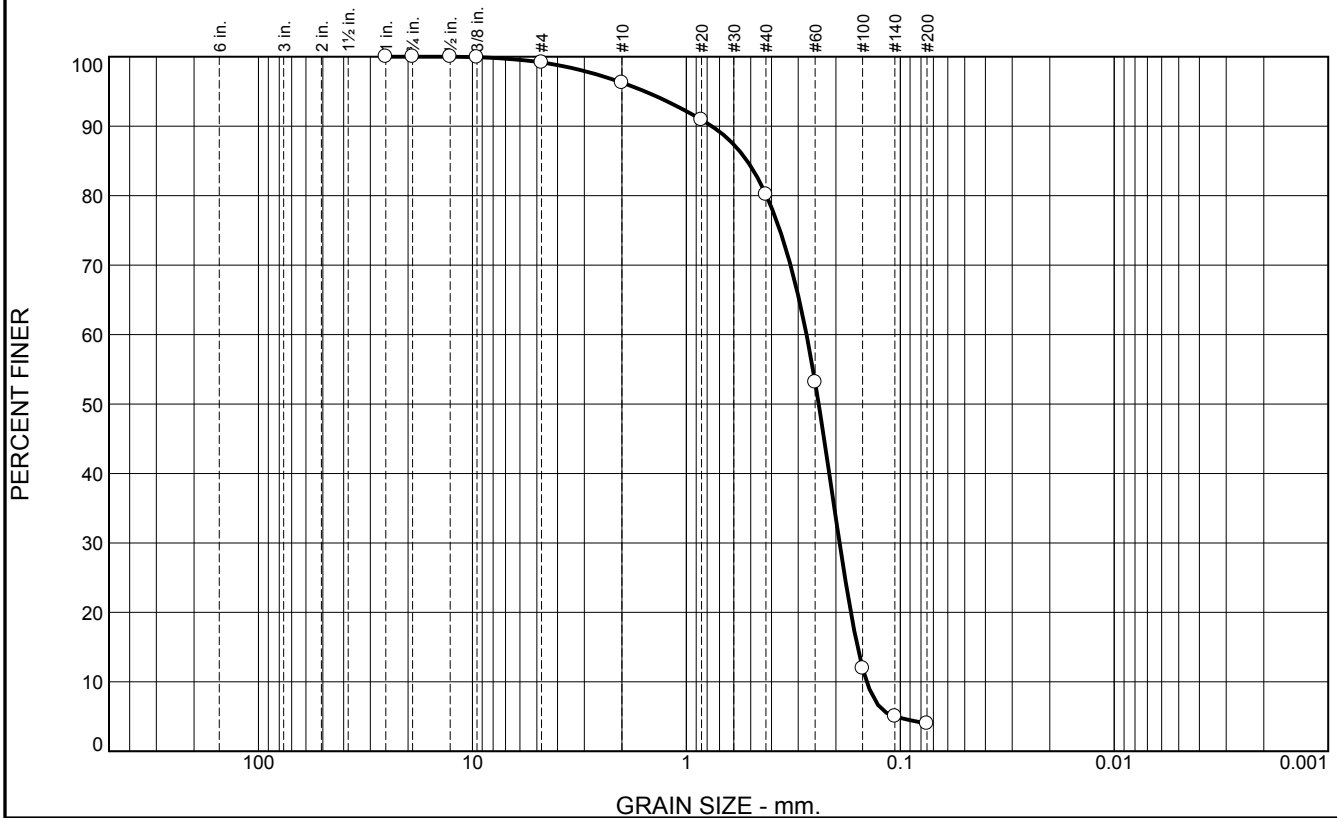
Client: CDM/Thompson Engineering JV  
Project: MsCIP Barrier Island Restoration GT

Project No: 1221110095

Figure



# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.8	2.9	16.1	76.2	4.0	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
1	100.0		
.75	100.0		
.5	100.0		
.375	99.9		
#4	99.2		
#10	96.3		
#20	90.9		
#40	80.2		
#60	53.1		
#100	11.9		
#140	5.0		
#200	4.0		

\* (no specification provided)

Material Description		
Fine to medium grained, SAND		
<div> <div> Atterberg Limits </div> <div> PL= </div> <div> LL= </div> <div> PI= </div> </div>		
<div> <div> Coefficients </div> <div> D<sub>90</sub>= 0.7616 </div> <div> D<sub>50</sub>= 0.2406 </div> <div> D<sub>10</sub>= 0.1436 </div> <div> D<sub>85</sub>= 0.5200 </div> <div> D<sub>30</sub>= 0.1923 </div> <div> C<sub>u</sub>= 1.91 </div> <div> D<sub>60</sub>= 0.2745 </div> <div> D<sub>15</sub>= 0.1585 </div> <div> C<sub>c</sub>= 0.94 </div> </div>		
<div> <div> Classification </div> <div> USCS= SP </div> <div> AASHTO= </div> </div>		
<div> <div> Remarks </div> </div>		

Location: BI-PBS-16-12 C  
Sample Number: 6469 (32)

Depth: 3.8'

Date: 11/28/12

**Thompson Engineering**

**Mobile, Alabama**

Client: CDM/Thompson Engineering JV  
Project: MsCIP Barrier Island Restoration GT

Project No: 1221110095

Figure

# Boring Designation BI-PBS-017-12

DRILLING LOG		DIVISION South Atlantic		INSTALLATION Mobile District		SHEET 1 OF 1 SHEETS	
1. PROJECT MsCIP Barrier Island Restoration Petit Bois Pass-OCS East				9. SIZE AND TYPE OF BIT N/A			
2. BORING DESIGNATION BI-PBS-017-12		LOCATION COORDINATES E = 1,139,765 N = 231,412		10. COORDINATE SYSTEM/DATUM State Plane, MSE (U.S. Ft.)		HORIZONTAL NAD83	
3. DRILLING AGENCY Corps of Engineers - CESAM		CONTRACTOR FILE NO.		11. MANUFACTURER'S DESIGNATION OF DRILL Vibracore		<input type="checkbox"/> AUTO HAMMER <input type="checkbox"/> MANUAL HAMMER	
4. NAME OF DRILLER American Vibracore Systems, Inc.				12. TOTAL SAMPLES		DISTURBED 0	
5. DIRECTION OF BORING <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED				13. TOTAL NUMBER CORE BOXES		14. WATER DEPTH 55.4 Ft.	
6. THICKNESS OF OVERBURDEN N/A				15. DATE BORING		STARTED 11-23-12	
7. DEPTH DRILLED INTO ROCK N/A				16. ELEVATION TOP OF BORING -58.5 Ft.		COMPLETED 11-23-12	
8. TOTAL DEPTH OF BORING 19.5 Ft.				17. TOTAL RECOVERY FOR BORING 100%		18. SIGNATURE AND TITLE OF INSPECTOR John Bass, Geotechnical Engineer	

ELEV.	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS	SAMPLE	LABORATORY RESULTS
-58.5	0.0				
-59.5	1.0		SAND, poorly-graded, mostly fine-grained sand-sized quartz, little fines, gray (SP)	A	Classification: SP Color: 2.5Y 6/2-light brownish gray D50: 0.21 mm % Fines: 2.7
-59.7	1.2				
-60.5	2.0		SAND, silty, mostly fine-grained sand-sized quartz, gray (SM)		
			SAND, poorly-graded with silt, mostly fine to medium-grained sand-sized quartz, few shell fragments, trace wood debris, gray (SP-SM)		
			SILT, inorganic-L, little sand, sand lense at 4.5 ft, lt. gray mottled with orange (ML)		
-66.0	7.5				
			SAND, silty, mostly fine-grained sand-sized quartz, trace wood debris, trace shell fragments, gray (SM)	NS	
-70.5	12.0				
			SILT, inorganic-L, trace sand, trace wood debris, gray (ML)		
-74.9	16.4				
-76.0	17.5		SAND, silty, mostly fine-grained sand-sized quartz, trace shell fragments, gray (SM)		
-78.0	19.5		CLAY, lean, stiff, sand lense at 18.7 ft, lt. gray to gray (CL)		
NOTES: 1. Soils are field visually classified in accordance with the Unified Soils Classification System. 2. NS = Sample not submitted for laboratory analysis from this interval. 3. Seafloor elevation determined from USACE hydrographic survey completed April 2014.					

**Project**

Mississippi Barrier Island  
Restoration Project

**AVS**  
**AMERICAN VIBRACORE**  
**S E R V I C E S**

**Core Identifier** BI-PBS-17-12

**Date** 11/23/2012

**Water Depth** 58.7'

**Coordinate System**

Latitude / Longitude

**Start Time** 10:21:34

**End Time** 10:22:18

**Penetration** 20.0'

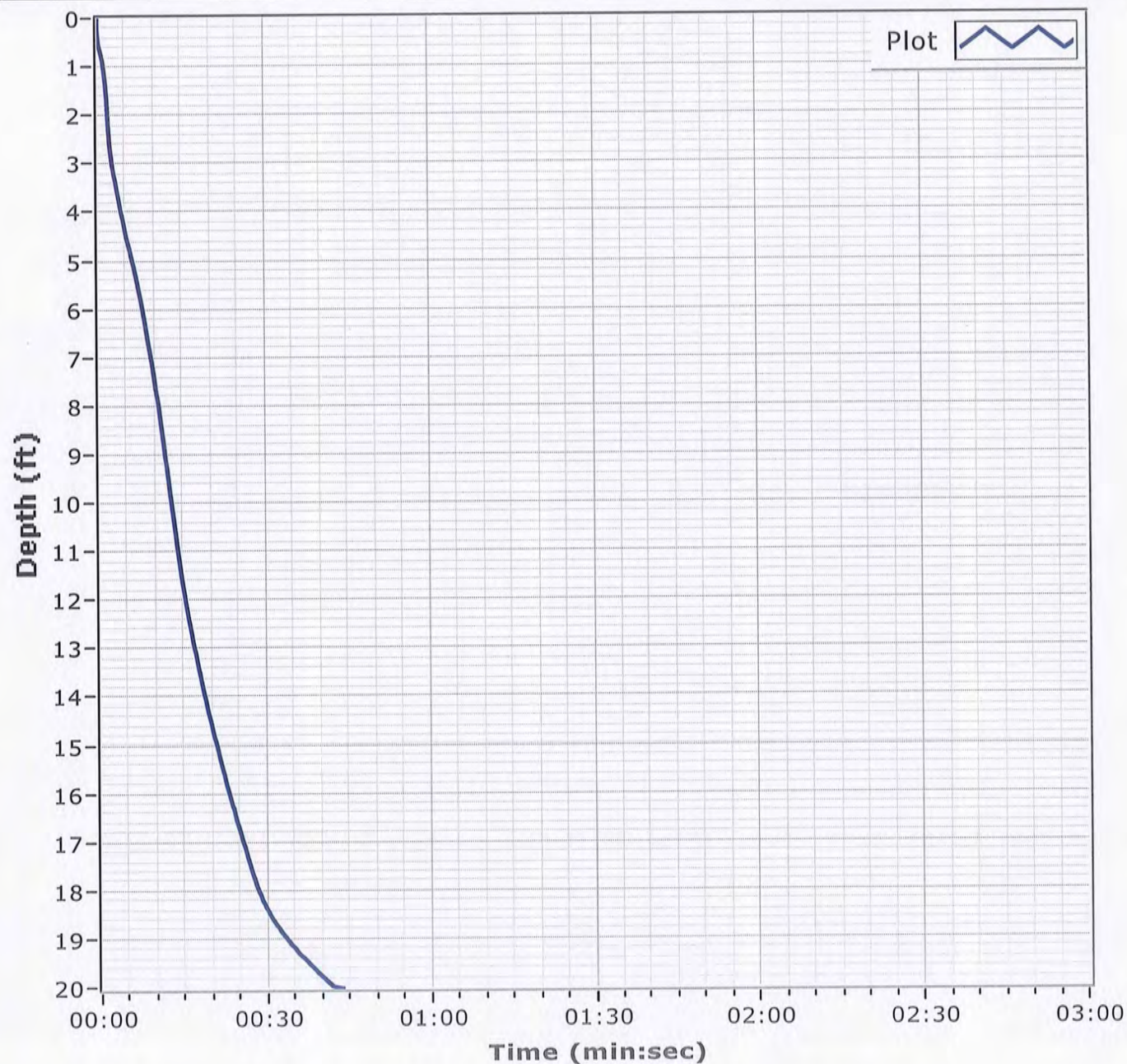
**Latitude** 30 08.125

**Total Time** 00:00:44

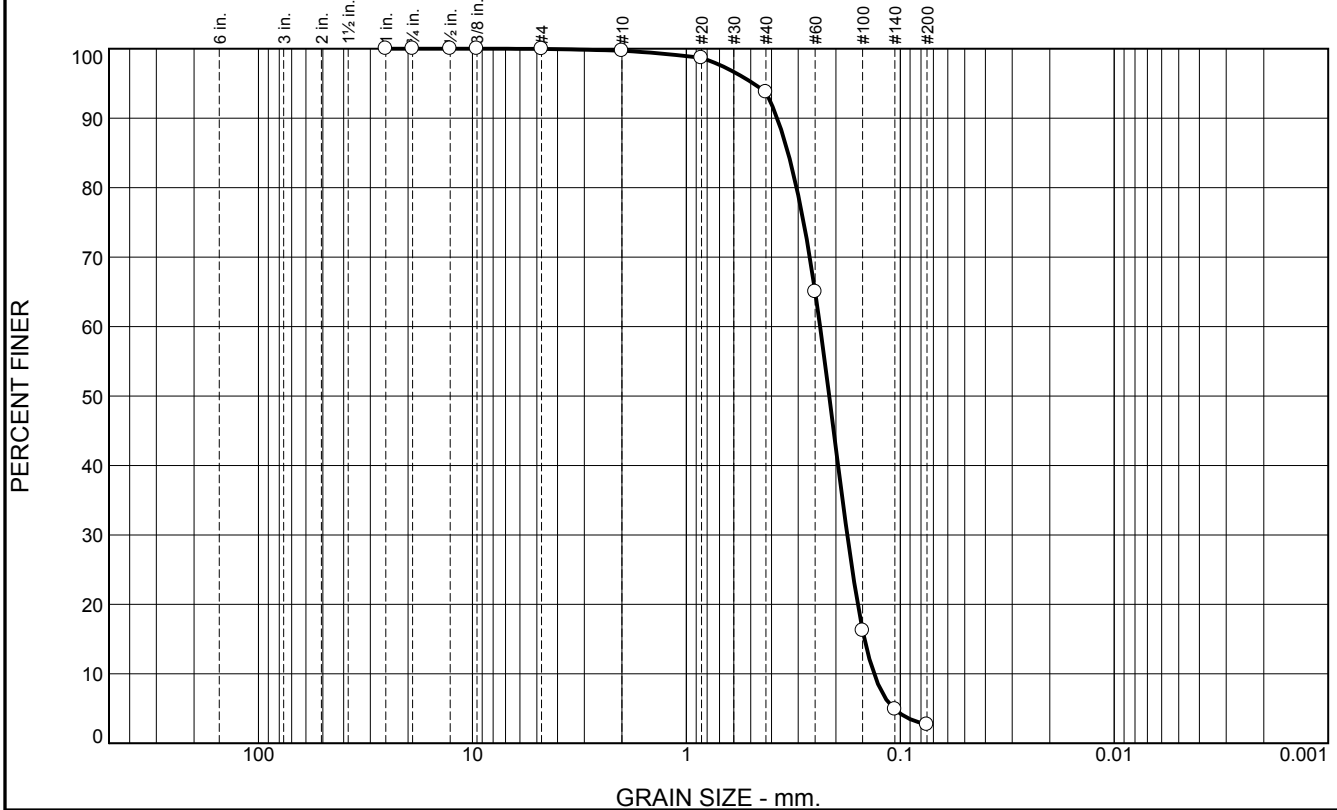
**Recovery** 19.5'

**Longitude** 088 20.482

**Comments**



# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.0	0.3	6.0	91.0	2.7	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
1	100.0		
.75	100.0		
.5	100.0		
.375	100.0		
#4	100.0		
#10	99.7		
#20	98.7		
#40	93.7		
#60	65.0		
#100	16.2		
#140	4.9		
#200	2.7		

\* (no specification provided)

Material Description		
Fine grained, SAND		
<div> <div> Atterberg Limits </div> <div> PL= </div> <div> LL= </div> <div> PI= </div> </div>		
<div> <div> Coefficients </div> <div> D<sub>90</sub>= 0.3762 </div> <div> D<sub>50</sub>= 0.2148 </div> <div> D<sub>10</sub>= 0.1328 </div> <div> D<sub>85</sub>= 0.3346 </div> <div> D<sub>30</sub>= 0.1771 </div> <div> C<sub>u</sub>= 1.78 </div> <div> D<sub>60</sub>= 0.2370 </div> <div> D<sub>15</sub>= 0.1471 </div> <div> C<sub>c</sub>= 1.00 </div> </div>		
<div> <div> Classification </div> <div> USCS= SP </div> <div> AASHTO= </div> </div>		
<div> <div> Remarks </div> </div>		

Location: BI-PBS-17-12 A  
Sample Number: 6469 (24)

Depth: 0.0'

Date: 11/28/12

**Thompson Engineering**

**Mobile, Alabama**

Client: CDM/Thompson Engineering JV  
Project: MsCIP Barrier Island Restoration GT

Project No: 1221110095

Figure

# Boring Designation BI-PBS-018-12

DRILLING LOG		DIVISION South Atlantic		INSTALLATION Mobile District		SHEET 1 OF 1 SHEETS	
1. PROJECT MsCIP Barrier Island Restoration Petit Bois Pass-OCS East				9. SIZE AND TYPE OF BIT N/A			
2. BORING DESIGNATION BI-PBS-018-12		LOCATION COORDINATES E = 1,139,854 N = 232,104		10. COORDINATE SYSTEM/DATUM State Plane, MSE (U.S. Ft.)		HORIZONTAL NAD83 VERTICAL NAVD88	
3. DRILLING AGENCY Corps of Engineers - CESAM		CONTRACTOR FILE NO.		11. MANUFACTURER'S DESIGNATION OF DRILL Vibracore		<input type="checkbox"/> AUTO HAMMER <input type="checkbox"/> MANUAL HAMMER	
4. NAME OF DRILLER American Vibracore Systems, Inc.				12. TOTAL SAMPLES		DISTURBED UNDISTURBED (UD) 0	
5. DIRECTION OF BORING <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED		DEG. FROM VERTICAL		13. TOTAL NUMBER CORE BOXES			
		BEARING		14. WATER DEPTH 50.2 Ft.			
6. THICKNESS OF OVERBURDEN N/A				15. DATE BORING 11-23-12		STARTED COMPLETED 11-23-12	
7. DEPTH DRILLED INTO ROCK N/A				16. ELEVATION TOP OF BORING -51.1 Ft.			
8. TOTAL DEPTH OF BORING 19.0 Ft.				17. TOTAL RECOVERY FOR BORING 100%			
				18. SIGNATURE AND TITLE OF INSPECTOR John Bass, Geotechnical Engineer			
ELEV.	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS	SAMPLE	LABORATORY RESULTS		
-51.1	0.0						
-53.5	2.4		SAND, poorly-graded, mostly fine to medium-grained sand-sized quartz, little shell fragments, trace fines, lt. gray (SP)	A	Classification: SP Color: 5Y 7/2-light gray D50: 0.3756 mm % Fines: 1.7		
-59.3	8.2		SAND, poorly-graded, mostly fine-grained sand-sized quartz, few fines, fines increase with depth, lt. gray to gray (SP)	B	Classification: SP Color: 5Y 7/2-light gray D50: 0.2358 mm % Fines: 2.6		
-59.7	8.6		SAND, poorly-graded with silt, mostly fine-grained sand-sized quartz, little shell fragments, gray (SP-SM)				
-61.9	10.8		SAND, silty, mostly fine-grained sand-sized quartz, trace shell fragments, gray mottled with lt. gray and reddish brown (SM)				
-63.9	12.8		CLAY, silty, some fine-grained sand-sized quartz, trace shell fragments, trace wood debris, gray (CL-ML)	NS			
-68.1	17.0		SAND, silty, mostly fine-grained sand-sized quartz, trace shell fragments, trace wood debris, gray (SM)				
-70.1	19.0		CLAY, lean, little fine-grained sand-sized quartz, trace wood debris, gray (CL)				
NOTES: 1. Soils are field visually classified in accordance with the Unified Soils Classification System. 2. NS = Sample not submitted for laboratory analysis from this interval. 3. Seafloor elevation determined from USACE hydrographic survey completed April 2014.							



**Project**

Mississippi Barrier Island  
Restoration Project

**AVS**  
**AMERICAN VIBRACORE**  
**S E R V I C E S**

**Core Identifier** BI-PBS-18-12

**Date** 11/23/2012

**Water Depth** 50.2'

**Coordinate System**

Latitude / Longitude

**Start Time** 10:57:35

**End Time** 11:00:41

**Penetration** 20.0'

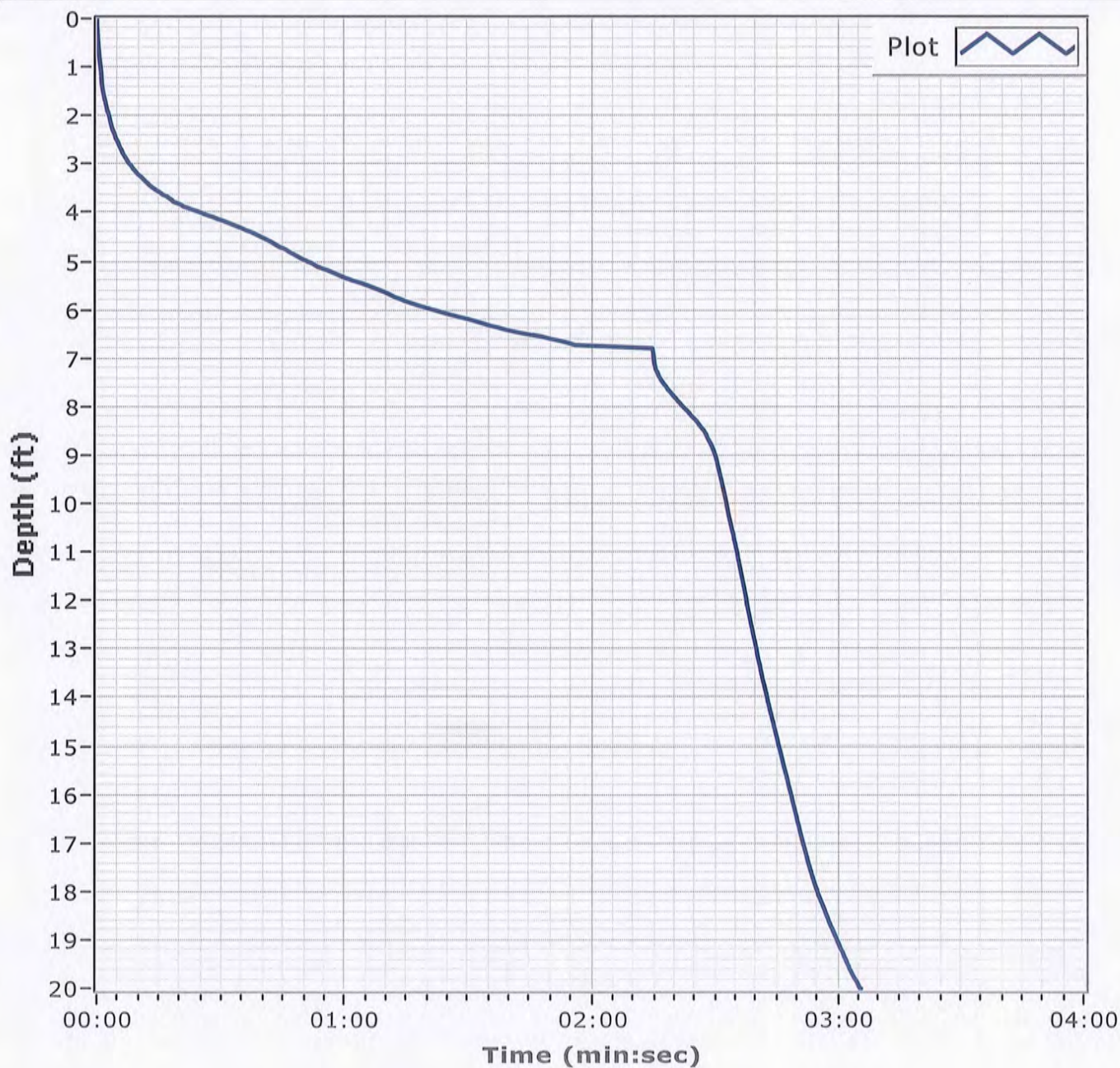
**Latitude** 30 08.239

**Total Time** 00:03:06

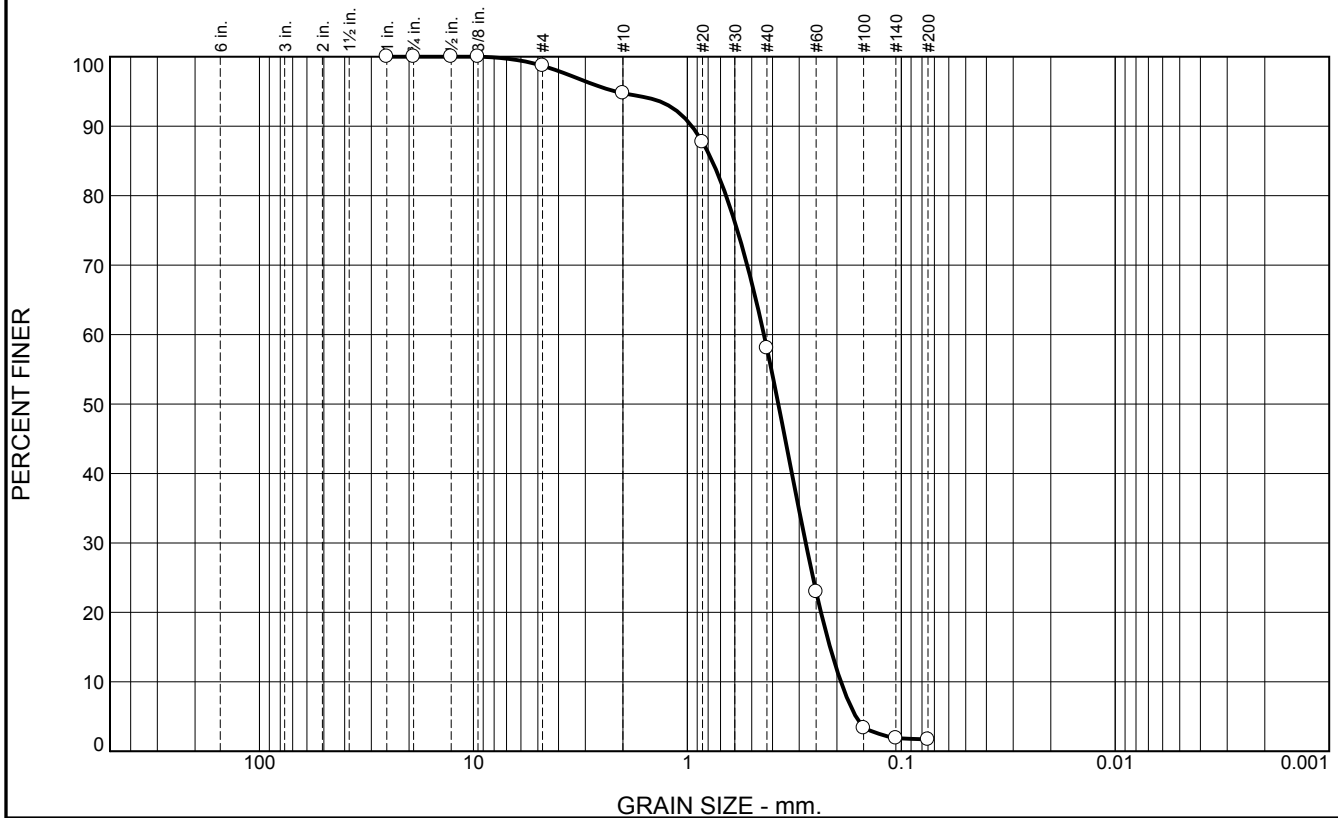
**Recovery** 19.0'

**Longitude** 088 20.465

**Comments**



# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	1.3	4.0	36.6	56.4	1.7	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
1	100.0		
.75	100.0		
.5	100.0		
.375	100.0		
#4	98.7		
#10	94.7		
#20	87.7		
#40	58.1		
#60	23.0		
#100	3.4		
#140	1.9		
#200	1.7		

\* (no specification provided)

<b>Material Description</b> Fine to medium grained, SAND, with trace SHELL		
PL=	<b>Atterberg Limits</b> LL=	PI=
D <sub>90</sub> = 0.9531 D <sub>50</sub> = 0.3756 D <sub>10</sub> = 0.1917	<b>Coefficients</b> D <sub>85</sub> = 0.7661 D <sub>30</sub> = 0.2799 C <sub>u</sub> = 2.29	D <sub>60</sub> = 0.4386 D <sub>15</sub> = 0.2153 C <sub>c</sub> = 0.93
USCS= SP	<b>Classification</b> AASHTO=	
<b>Remarks</b>		

Location: BI-PBS-18-12 A  
Sample Number: 6469 (25)

Depth: 0.0'

Date: 11/28/12

**Thompson Engineering**

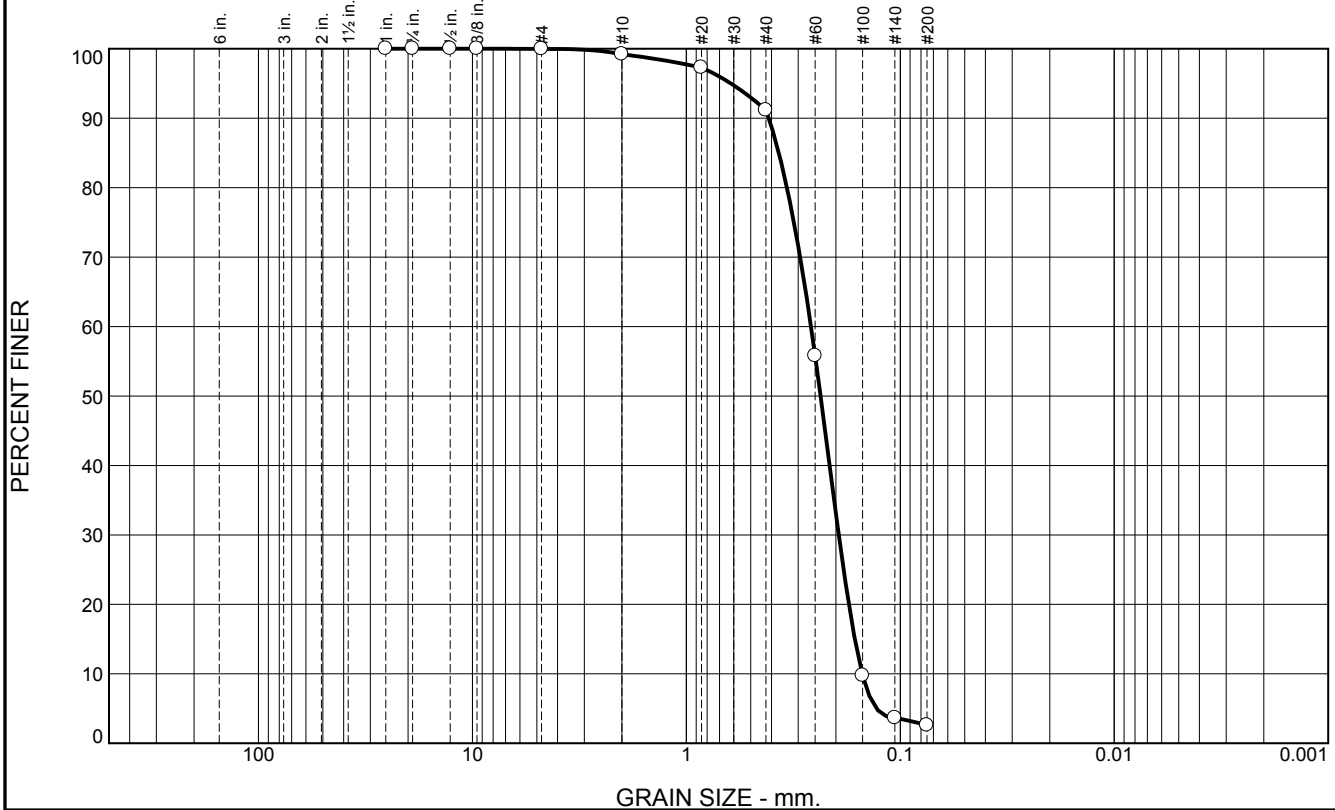
**Mobile, Alabama**

Client: CDM/Thompson Engineering JV  
Project: MsCIP Barrier Island Restoration GT

Project No: 1221110095

Figure

# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.0	0.8	8.0	88.6	2.6	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
1	100.0		
.75	100.0		
.5	100.0		
.375	100.0		
#4	100.0		
#10	99.2		
#20	97.3		
#40	91.2		
#60	55.8		
#100	9.8		
#140	3.6		
#200	2.6		

\* (no specification provided)

Material Description		
Fine grained, SAND		
PL=	Atterberg Limits LL=	PI=
D <sub>90</sub> = 0.4120	D <sub>85</sub> = 0.3695	D <sub>60</sub> = 0.2615
D <sub>50</sub> = 0.2358	D <sub>30</sub> = 0.1940	D <sub>15</sub> = 0.1633
D <sub>10</sub> = 0.1507	C <sub>u</sub> = 1.74	C <sub>c</sub> = 0.96
USCS= SP	Classification AASHTO=	
Remarks		

Location: BI-PBS-18-12 B  
Sample Number: 6469 (26)

Depth: 2.4'

Date: 11/28/12

**Thompson Engineering**

**Mobile, Alabama**

Client: CDM/Thompson Engineering JV  
Project: MsCIP Barrier Island Restoration GT

Project No: 1221110095

Figure



# Boring Designation BI-PBS-019-12

DRILLING LOG		DIVISION South Atlantic		INSTALLATION Mobile District		SHEET 1 OF 1 SHEETS	
1. PROJECT MsCIP Barrier Island Restoration Petit Bois Pass-OCS East				9. SIZE AND TYPE OF BIT N/A			
2. BORING DESIGNATION BI-PBS-019-12		LOCATION COORDINATES E = 1,139,322 N = 232,876		10. COORDINATE SYSTEM/DATUM State Plane, MSE (U.S. Ft.)		HORIZONTAL NAD83 VERTICAL NAVD88	
3. DRILLING AGENCY Corps of Engineers - CESAM		CONTRACTOR FILE NO.		11. MANUFACTURER'S DESIGNATION OF DRILL Vibracore		<input type="checkbox"/> AUTO HAMMER <input type="checkbox"/> MANUAL HAMMER	
4. NAME OF DRILLER American Vibracore Systems, Inc.				12. TOTAL SAMPLES		DISTURBED UNDISTURBED (UD) 0	
5. DIRECTION OF BORING <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED		DEG. FROM VERTICAL		13. TOTAL NUMBER CORE BOXES			
		BEARING		14. WATER DEPTH 50.6 Ft.			
6. THICKNESS OF OVERBURDEN N/A				15. DATE BORING 11-23-12		STARTED COMPLETED 11-23-12	
7. DEPTH DRILLED INTO ROCK N/A				16. ELEVATION TOP OF BORING -51.2 Ft.			
8. TOTAL DEPTH OF BORING 18.6 Ft.				17. TOTAL RECOVERY FOR BORING 100%			
				18. SIGNATURE AND TITLE OF INSPECTOR John Bass, Geotechnical Engineer			

ELEV.	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS	SAMPLE	LABORATORY RESULTS
-51.2	0.0				
			SAND, poorly-graded, mostly fine-grained sand-sized quartz, little shell fragments, trace fines, gray to light gray (SP)	A	Classification: SP Color: 5Y 6/2-light olive gray D50: 0.2978 mm % Fines: 1.8
-55.8	4.6				
-56.2	5.0		SAND, poorly-graded, mostly fine-grained sand-sized quartz, some shell fragments, few fines, gray (SP)		
-57.4	6.2				
			SAND, poorly-graded with silt, mostly fine-grained sand-sized quartz, little shell fragments, gray (SP-SM)		
-60.1	8.9				
-60.9	9.7		SAND, silty, mostly fine-grained sand-sized quartz, trace shell fragments, gray mottled with lt. gray and orange (SM)		
-61.2	10.0				
			CLAY, silty, little fine-grained sand-sized quartz, lt. gray mottled with orange (CL-ML)	NS	
-63.1	11.9				
			SAND, silty, mostly fine-grained sand-sized quartz, gray (SM)		
			CLAY, lean, little fine-grained sand-sized quartz, lt. gray mottled with orange (CL)		
-67.2	16.0				
			SAND, silty, mostly fine-grained sand-sized quartz, gray to tan (SM)		
-69.8	18.6				
			SILT, inorganic-L, mostly silt, trace fine-grained sand-sized quartz, trace wood debris, trace shell fragments, gray (ML)		
NOTES:					
1. Soils are field visually classified in accordance with the Unified Soils Classification System.					
2. NS = Sample not submitted for laboratory analysis from this interval.					
3. Seafloor elevation determined from USACE hydrographic survey completed April 2014.					

**Project**

Mississippi Barrier Island  
Restoration Project

**AVS**  
**AMERICAN VIBRACORE**  
**S E R V I C E S**

**Core Identifier** BI-PBS-19-12

**Date** 11/23/2012

**Water Depth** 50.6'

**Coordinate System**

Latitude / Longitude

**Start Time** 11:42:08

**End Time** 11:43:20

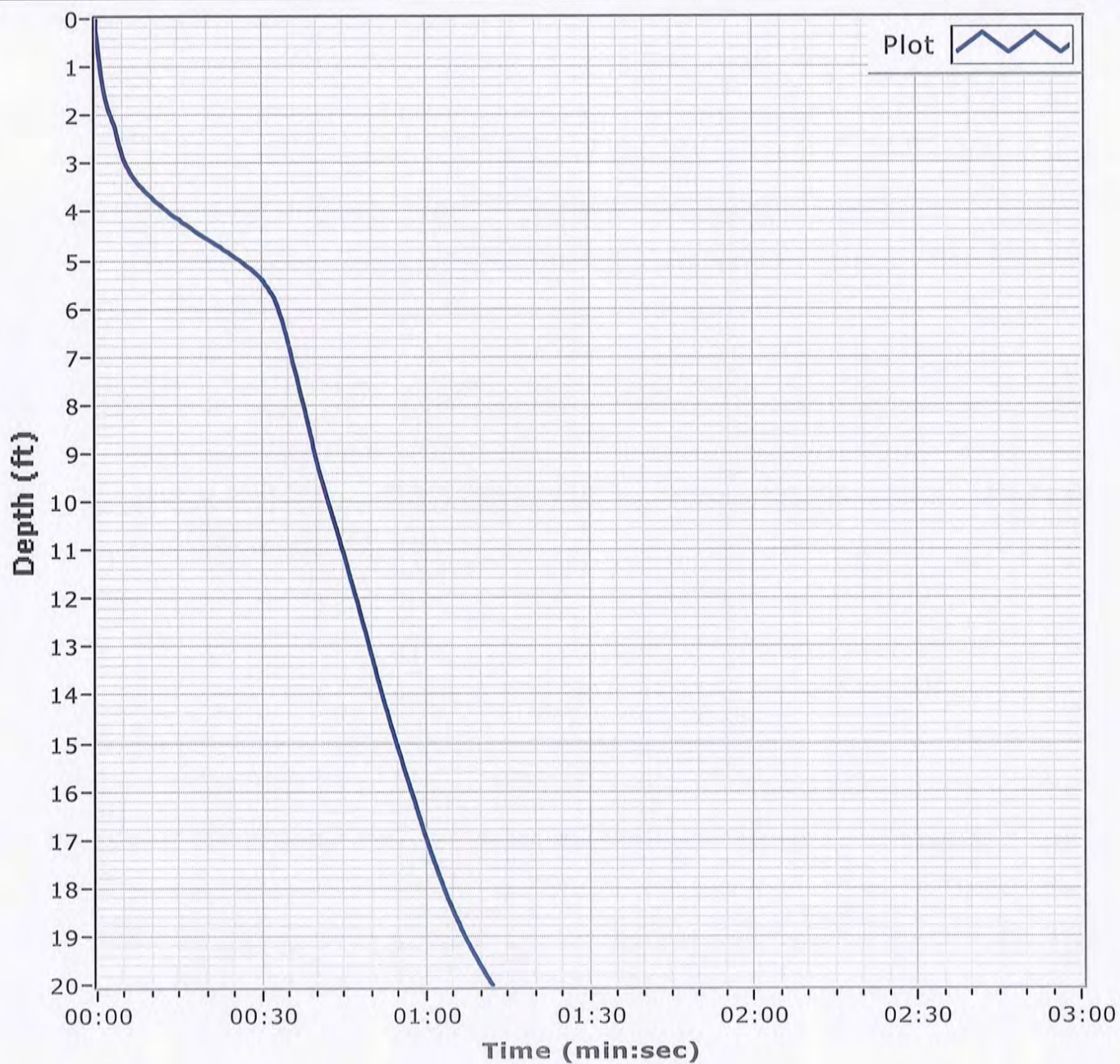
**Penetration** 20.0'

**Latitude** 30 08.367

**Total Time** 00:01:12

**Recovery** 18.6'

**Longitude** 088 20.565

**Comments**

# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.6	2.5	18.4	76.7	1.8	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
1	100.0		
.75	100.0		
.5	100.0		
.375	100.0		
#4	99.4		
#10	96.9		
#20	93.1		
#40	78.5		
#60	34.3		
#100	3.9		
#140	2.0		
#200	1.8		

\* (no specification provided)

<u>Material Description</u>		
Fine to medium grained, SAND		
PL=	<u>Atterberg Limits</u> LL=	PI=
<u>Coefficients</u>		
D <sub>90</sub> = 0.5783	D <sub>85</sub> = 0.4857	D <sub>60</sub> = 0.3329
D <sub>50</sub> = 0.2978	D <sub>30</sub> = 0.2376	D <sub>15</sub> = 0.1933
D <sub>10</sub> = 0.1768	C <sub>u</sub> = 1.88	C <sub>c</sub> = 0.96
<u>Classification</u>		
USCS= SP	AASHTO=	
<u>Remarks</u>		

Location: BI-PBS-19-12 A  
Sample Number: 6469 (27)

Depth: 0.0'

Date: 11/28/12

**Thompson Engineering**

**Mobile, Alabama**

Client: CDM/Thompson Engineering JV  
Project: MsCIP Barrier Island Restoration GT

Project No: 1221110095

Figure

# Boring Designation BI-PBS-020-12

DRILLING LOG		DIVISION South Atlantic		INSTALLATION Mobile District		SHEET 1 OF 1 SHEETS	
1. PROJECT MsCIP Barrier Island Restoration Petit Bois Pass-OCS East				9. SIZE AND TYPE OF BIT N/A			
2. BORING DESIGNATION BI-PBS-020-12		LOCATION COORDINATES E = 1,138,523 N = 229,734		10. COORDINATE SYSTEM/DATUM State Plane, MSE (U.S. Ft.)		HORIZONTAL NAD83 VERTICAL NAVD88	
3. DRILLING AGENCY Corps of Engineers - CESAM		CONTRACTOR FILE NO.		11. MANUFACTURER'S DESIGNATION OF DRILL Vibrocure		<input type="checkbox"/> AUTO HAMMER <input type="checkbox"/> MANUAL HAMMER	
4. NAME OF DRILLER American Vibrocure Systems, Inc.				12. TOTAL SAMPLES		DISTURBED UNDISTURBED (UD) 0	
5. DIRECTION OF BORING <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED		DEG. FROM VERTICAL		13. TOTAL NUMBER CORE BOXES			
		BEARING		14. WATER DEPTH 60.8 Ft.			
6. THICKNESS OF OVERBURDEN N/A				15. DATE BORING 11-23-12		STARTED COMPLETED 11-23-12	
7. DEPTH DRILLED INTO ROCK N/A				16. ELEVATION TOP OF BORING -60.1 Ft.			
8. TOTAL DEPTH OF BORING 12.7 Ft.				17. TOTAL RECOVERY FOR BORING 100%			
				18. SIGNATURE AND TITLE OF INSPECTOR John Bass, Geotechnical Engineer			

ELEV.	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS	SAMPLE	LABORATORY RESULTS
-60.1	0.0				
-60.3	0.2		SILT, inorganic-L, mostly silt, trace fine-grained sand-sized quartz, trace shell fragments, gray (ML)	NS	
			SAND, silty, mostly fine-grained sand-sized quartz, trace shell fragments, gray (SM)		
-64.2	4.1				
-66.1	6.0		SAND, poorly-graded, mostly fine-grained sand-sized quartz, trace shell fragments, lt. gray (SP)	A	Classification: SP-SM Color: 5Y 6/2-light olive gray D50: 0.2777 mm % Fines: 9.1
			CLAY, lean, mostly clay, some fine-grained sand-sized quartz, trace wood debris, gray (CL) At El. -66.7 Ft., mostly clay, trace fine-grained sand-sized quartz, trace shell fragments, trace wood debris, gray	NS	
-72.1	12.0				
-72.8	12.7		SAND, poorly-graded with silt, mostly fine-grained sand-sized quartz, gray mottled with brown (SP-SM)	B	Classification: SM Color: 5Y 5/2-olive gray D50: 0.2927 mm % Fines: 12.8
			NOTES: 1. Soils are field visually classified in accordance with the Unified Soils Classification System. 2. NS = Sample not submitted for laboratory analysis from this interval. 3. Seafloor elevation calculated using sampling vessel's fathometer water depth reading and applying NOAA tidal gauge data conversion factor.		



**Project**

Mississippi Barrier Island  
Restoration Project



**Core Identifier** BI-PBS-20-12

**Date** 11/23/2012

**Water Depth** 60.8

**Coordinate System**

**Start Time** 12:58:43

Latitude / Longitude

**End Time** 12:59:43

**Penetration** 14.4'

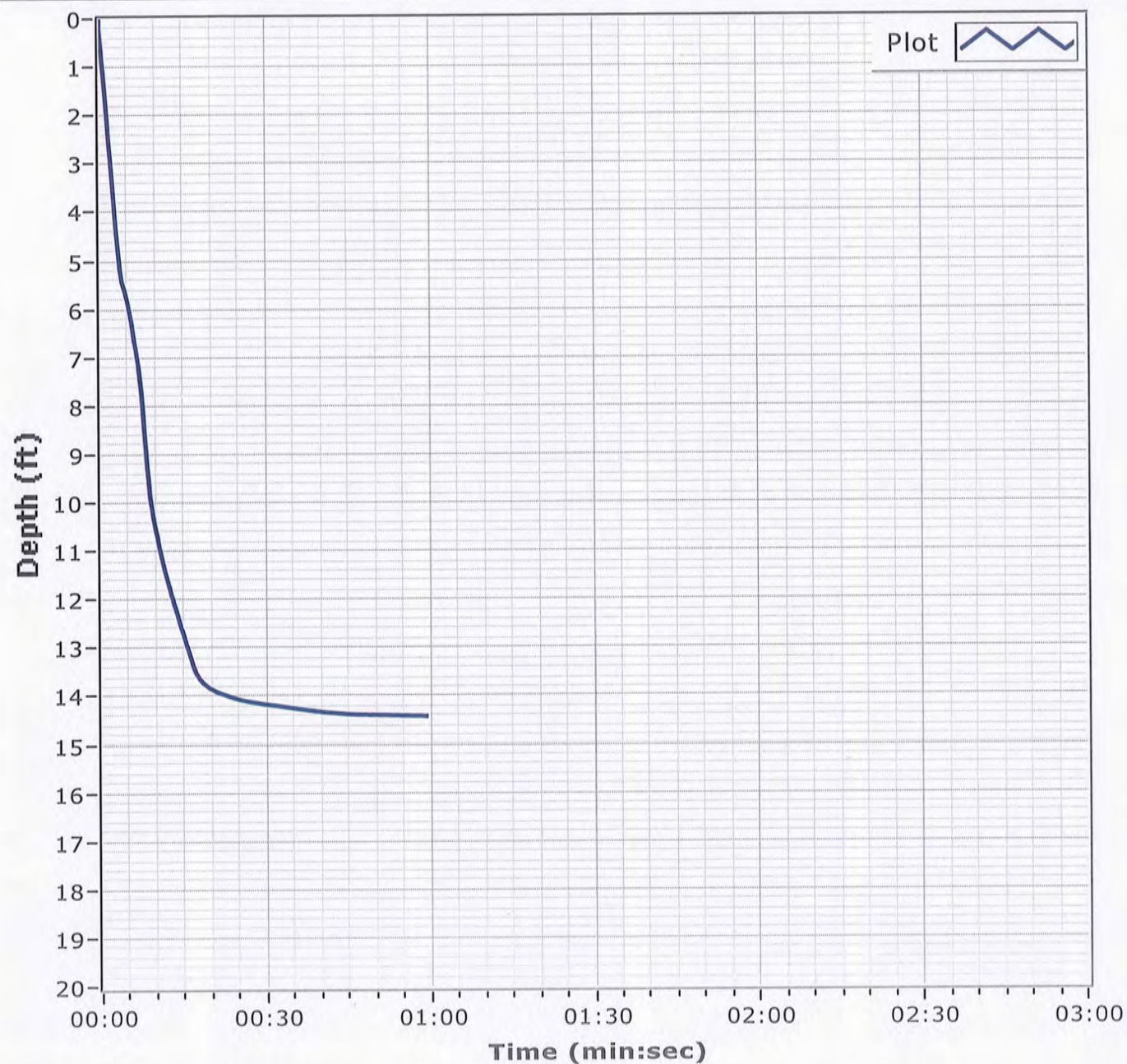
**Latitude** 30 08.849

**Total Time** 00:00:59

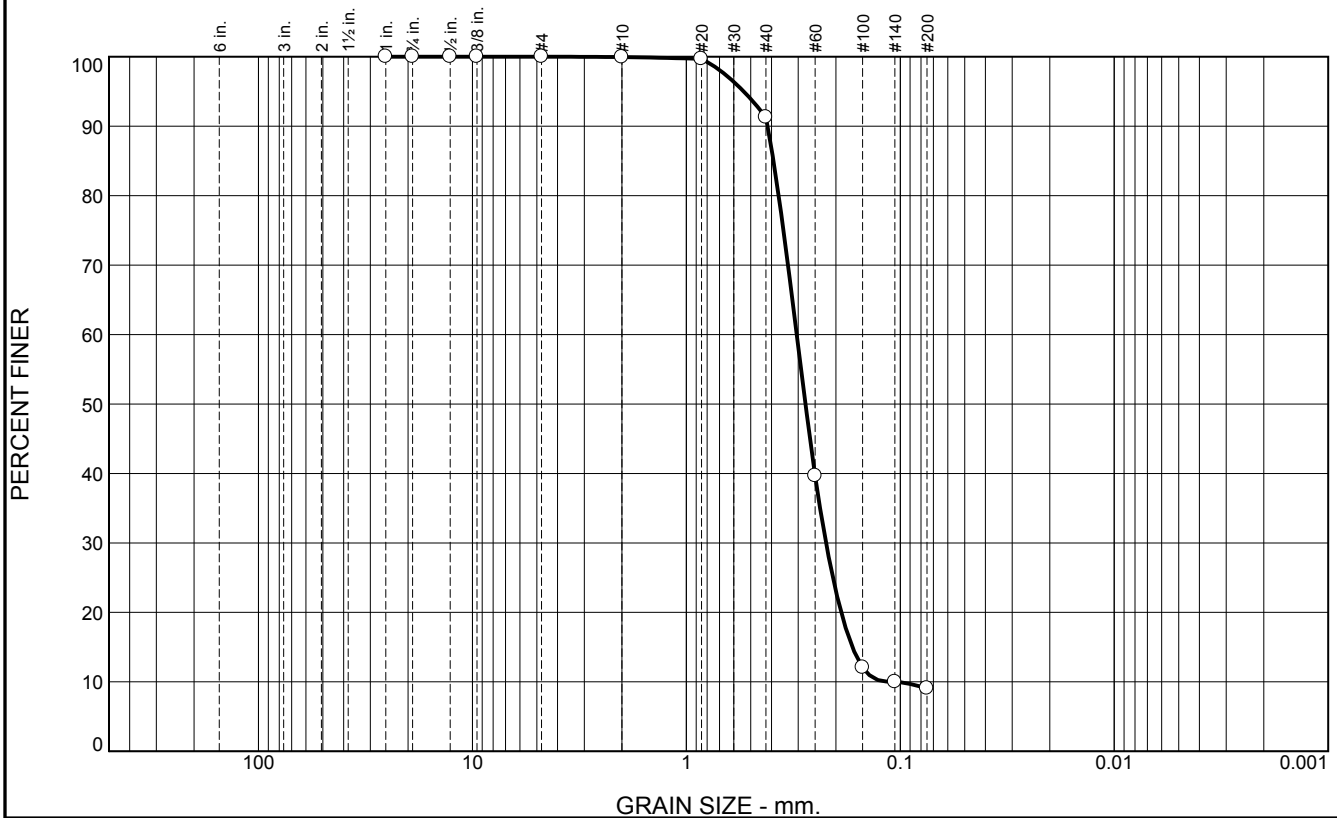
**Recovery** 12.7'

**Longitude** 088 20.719

**Comments**



# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.0	0.1	8.6	82.2	9.1	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
1	100.0		
.75	100.0		
.5	100.0		
.375	100.0		
#4	100.0		
#10	99.9		
#20	99.7		
#40	91.3		
#60	39.6		
#100	12.1		
#140	10.0		
#200	9.1		

\* (no specification provided)

<b><u>Material Description</u></b>		
Fine grained, SLIGHTLY SILTY SAND		
<b><u>Atterberg Limits</u></b>		
PL=	LL=	PI=
<b><u>Coefficients</u></b>		
D <sub>90</sub> = 0.4172	D <sub>85</sub> = 0.3913	D <sub>60</sub> = 0.3050
D <sub>50</sub> = 0.2777	D <sub>30</sub> = 0.2224	D <sub>15</sub> = 0.1676
D <sub>10</sub> = 0.1055	C <sub>u</sub> = 2.89	C <sub>c</sub> = 1.54
<b><u>Classification</u></b>		
USCS= SP-SM	AASHTO=	
<b><u>Remarks</u></b>		

Location: BI-PBS-20-12 A  
Sample Number: 6469 (28)

Depth: 4.1'

Date: 11/28/12

**Thompson Engineering**

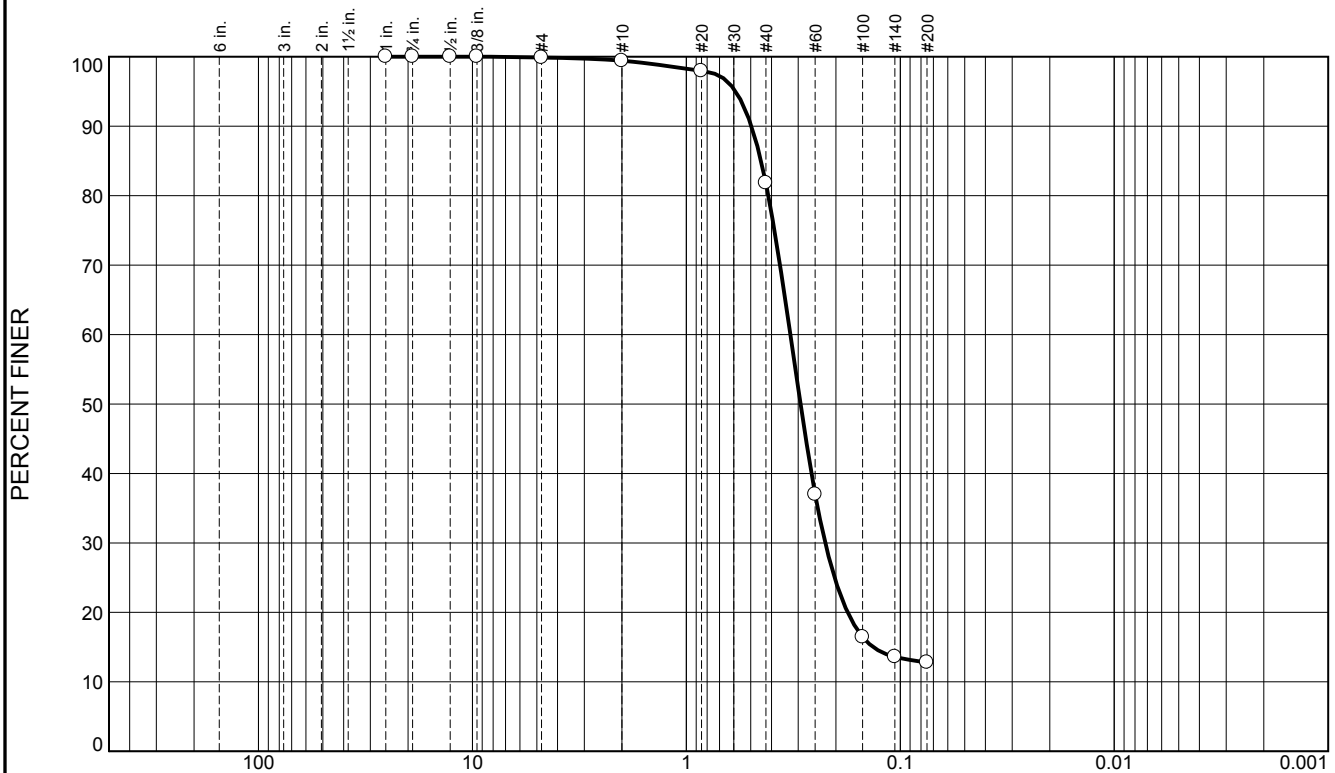
**Mobile, Alabama**

Client: CDM/Thompson Engineering JV  
Project: MsCIP Barrier Island Restoration GT

Project No: 1221110095

Figure

# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.1	0.5	17.6	69.0	12.8	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
1	100.0		
.75	100.0		
.5	100.0		
.375	100.0		
#4	99.9		
#10	99.4		
#20	97.9		
#40	81.8		
#60	37.0		
#100	16.5		
#140	13.6		
#200	12.8		

\* (no specification provided)

<u><b>Material Description</b></u>		
Fine to medium grained, SILTY SAND		
<u><b>Atterberg Limits</b></u>		
PL=	LL=	PI=
<u><b>Coefficients</b></u>		
D <sub>90</sub> = 0.4965	D <sub>85</sub> = 0.4477	D <sub>60</sub> = 0.3265
D <sub>50</sub> = 0.2927	D <sub>30</sub> = 0.2243	D <sub>15</sub> = 0.1339
D <sub>10</sub> =	C <sub>u</sub> =	C <sub>c</sub> =
<u><b>Classification</b></u>		
USCS= SM	AASHTO=	
<u><b>Remarks</b></u>		

Location: BI-PBS-20-12 B  
Sample Number: 6469 (29)

Depth: 12.0'

Date: 11/28/12

**Thompson Engineering**

**Mobile, Alabama**

Client: CDM/Thompson Engineering JV  
Project: MsCIP Barrier Island Restoration GT

Project No: 1221110095

Figure

# Boring Designation BI-PBS-021-12

DRILLING LOG		DIVISION South Atlantic		INSTALLATION Mobile District		SHEET 1 OF 2 SHEETS	
1. PROJECT MsCIP Barrier Island Restoration Petit Bois Pass-OCS East				9. SIZE AND TYPE OF BIT N/A			
2. BORING DESIGNATION BI-PBS-021-12		LOCATION COORDINATES E = 1,142,638 N = 232,156		10. COORDINATE SYSTEM/DATUM State Plane, MSE (U.S. Ft.)		HORIZONTAL NAD83 VERTICAL NAVD88	
3. DRILLING AGENCY Corps of Engineers - CESAM		CONTRACTOR FILE NO.		11. MANUFACTURER'S DESIGNATION OF DRILL Vibracore		<input type="checkbox"/> AUTO HAMMER <input type="checkbox"/> MANUAL HAMMER	
4. NAME OF DRILLER American Vibracore Systems, Inc.				12. TOTAL SAMPLES		DISTURBED UNDISTURBED (UD) 0	
5. DIRECTION OF BORING <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED		DEG. FROM VERTICAL		13. TOTAL NUMBER CORE BOXES			
		BEARING		14. WATER DEPTH 52 Ft.			
6. THICKNESS OF OVERBURDEN N/A				15. DATE BORING 11-21-12		COMPLETED 11-21-12	
7. DEPTH DRILLED INTO ROCK N/A				16. ELEVATION TOP OF BORING -52.9 Ft.			
8. TOTAL DEPTH OF BORING 20.0 Ft.				17. TOTAL RECOVERY FOR BORING 100%			
				18. SIGNATURE AND TITLE OF INSPECTOR John Bass, Geotechnical Engineer			

ELEV.	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS	SAMPLE	LABORATORY RESULTS
-52.9	0.0				
-56.4	3.5		SAND, poorly-graded, mostly fine to medium-grained quartz, little shell fragments, trace fines, lt. gray (SP)	A	Classification: SP Color: 2.5Y 7/2-light gray D50: 0.3757 mm % Fines: 1.3
-60.1	7.2		SAND, poorly-graded, mostly fine-grained sand-sized quartz, few fines, trace shell fragments, lt. gray (SP)	B	Classification: SP Color: 5Y 6.5/2- D50: 0.2445 mm % Fines: 3
-60.9	8.0		SAND, clayey, mostly fine-grained sand-sized quartz, some clay, trace wood debris, gray (SC)	NS	
-61.4	8.5		CLAY, lean, mostly fine-grained sand-sized quartz, some fine-grained sand-sized quartz, light gray mottled with brown (CL)		
-65.9	13.0		SAND, clayey, mostly fine-grained sand-sized quartz, some clay, trace shell fragments, trace wood debris, gray to dark gray (SC)		
-69.4	16.5		SAND, silty, mostly fine-grained sand-sized quartz, some silt, trace shell fragments, trace wood debris, gray (SM)		
-72.4	19.5		SILT, inorganic-L, mostly silt, some fine-grained sand-sized quartz, trace wood debris, gray (ML)		
-72.9	20.0		SAND, silty, mostly fine-grained sand-sized quartz, some silt, gray (SM)		
			NOTES: 1. Soils are field visually classified in accordance with the Unified Soils Classification System. 2. NS = Sample not submitted for laboratory analysis from this interval.		



<b>DRILLING LOG (Cont. Sheet)</b>			<b>INSTALLATION</b> Mobile District		<b>SHEET 2</b> <b>OF 2 SHEETS</b>
<b>PROJECT</b> MsCIP Barrier Island Restoration			<b>COORDINATE SYSTEM/DATUM</b> State Plane, MSE (U.S. Ft.)	<b>HORIZONTAL</b> NAD83	<b>VERTICAL</b> NAVD88
<b>LOCATION COORDINATES</b> X = 1,142,638 Y = 232,156			<b>ELEVATION TOP OF BORING</b> -52.9 Ft.		
<b>ELEV.</b>	<b>DEPTH</b>	<b>LEGEND</b>	<b>CLASSIFICATION OF MATERIALS</b>	<b>SAMPLE</b>	<b>LABORATORY RESULTS</b>
			3. Seafloor elevation determined from USACE hydrographic survey completed April 2014.		

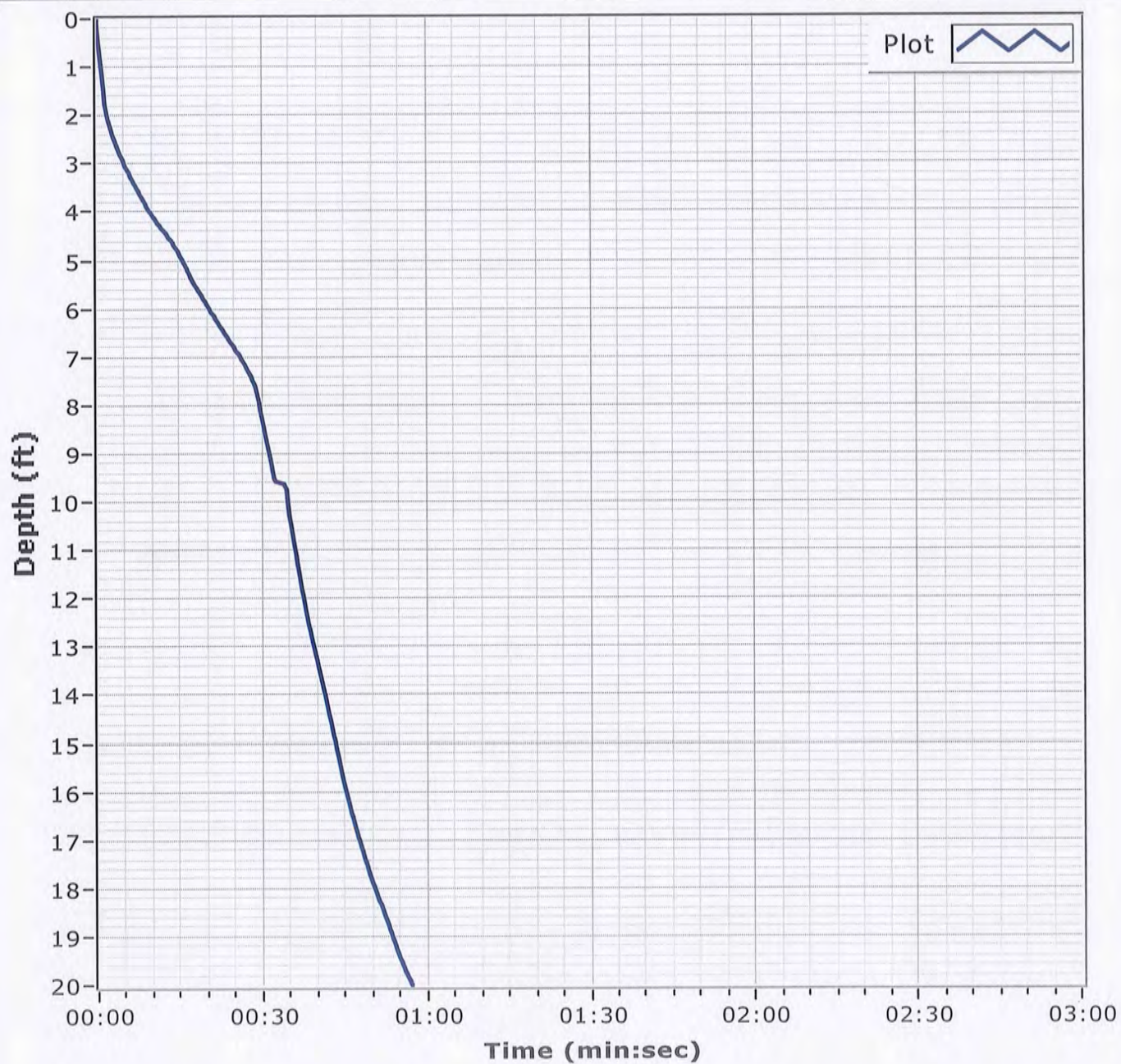
**Project**

Mississippi Barrier Island  
Restoration Project

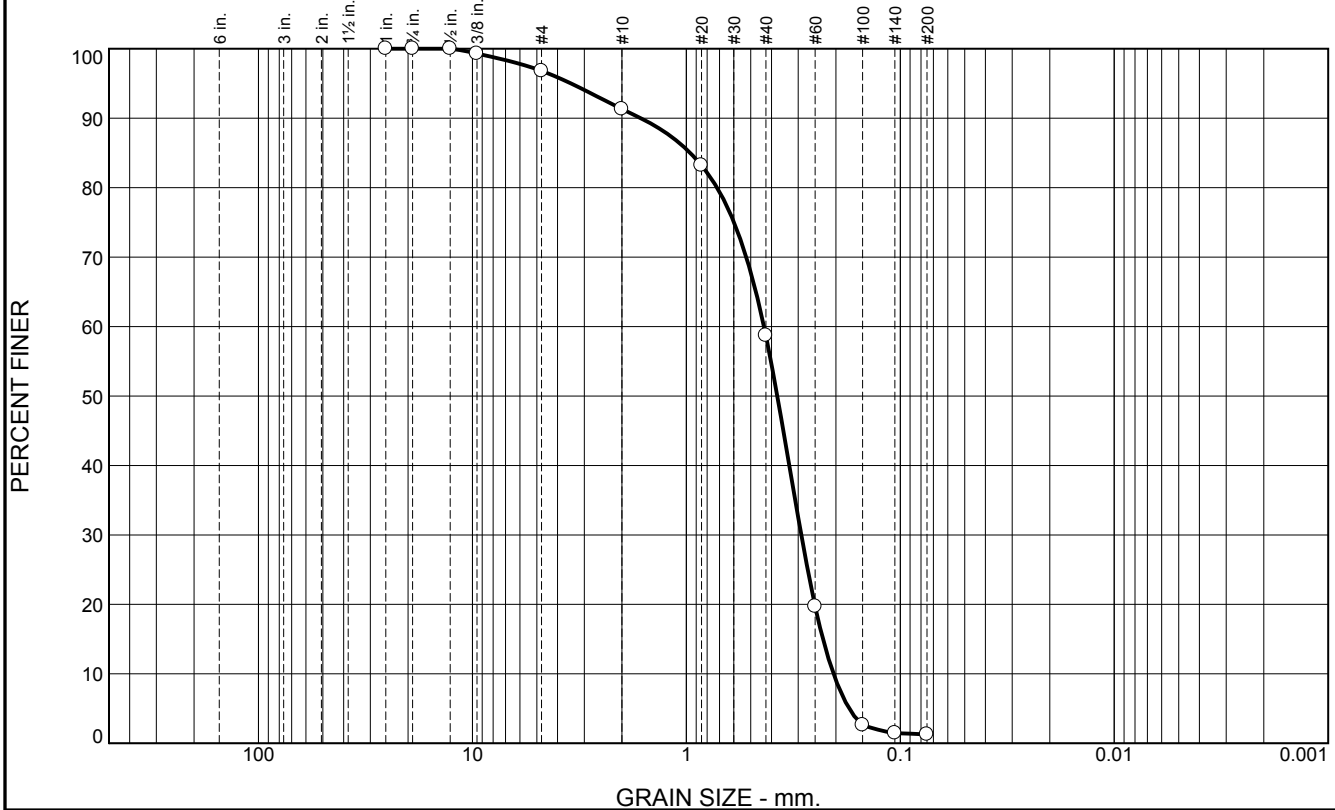
**AVS**  
**AMERICAN VIBRACORE**  
**S E R V I C E S**

**Core Identifier** BI-PBS-21-12**Date** 11/21/2012**Water Depth** 52.0'**Coordinate System**

Latitude / Longitude

**Start Time** 12:57:37**End Time** 12:58:34**Penetration** 20.0'**Latitude** 30 08.246**Total Time** 00:00:57**Recovery** 20.0'**Longitude** 088 19.936**Comments**

# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	3.2	5.5	32.6	57.4	1.3	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
1	100.0		
.75	100.0		
.5	100.0		
.375	99.3		
#4	96.8		
#10	91.3		
#20	83.2		
#40	58.7		
#60	19.7		
#100	2.6		
#140	1.5		
#200	1.3		

\* (no specification provided)

## Material Description

Fine to medium grained, SAND, with trace SHELL

## Atterberg Limits

PL= LL= PI=

## Coefficients

D<sub>90</sub>= 1.6366 D<sub>85</sub>= 0.9602 D<sub>60</sub>= 0.4338  
D<sub>50</sub>= 0.3757 D<sub>30</sub>= 0.2904 D<sub>15</sub>= 0.2298  
D<sub>10</sub>= 0.2052 C<sub>u</sub>= 2.11 C<sub>c</sub>= 0.95

## Classification

USCS= SP AASHTO=

## Remarks

Location: BI-PBS-21-12 A  
Sample Number: 6469 (10)

Depth: 0.0'

Date: 11/28/12

**Thompson Engineering**

**Mobile, Alabama**

Client: CDM/Thompson Engineering JV  
Project: MsCIP Barrier Island Restoration GT

Project No: 1221110095

Figure

# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	1.1	2.0	16.3	77.6	3.0	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
1	100.0		
.75	100.0		
.5	99.5		
.375	99.4		
#4	98.9		
#10	96.9		
#20	93.2		
#40	80.6		
#60	51.9		
#100	8.2		
#140	3.7		
#200	3.0		

\* (no specification provided)

## Material Description

Fine to medium grained, SAND, with trace SHELL

## Atterberg Limits

PL= LL= PI=

## Coefficients

D<sub>90</sub>= 0.6431 D<sub>85</sub>= 0.4973 D<sub>60</sub>= 0.2772  
D<sub>50</sub>= 0.2445 D<sub>30</sub>= 0.1986 D<sub>15</sub>= 0.1676  
D<sub>10</sub>= 0.1554 C<sub>u</sub>= 1.78 C<sub>c</sub>= 0.92

## Classification

USCS= SP AASHTO=

## Remarks

Location: BI-PBS-21-12 B  
Sample Number: 6469 (11)

Depth: 3.5'

Date: 11/28/12

**Thompson Engineering**

**Mobile, Alabama**

Client: CDM/Thompson Engineering JV  
Project: MsCIP Barrier Island Restoration GT

Project No: 1221110095

Figure

# Boring Designation BI-PBS-022-12

DRILLING LOG		DIVISION South Atlantic		INSTALLATION Mobile District		SHEET 1 OF 2 SHEETS	
1. PROJECT MsCIP Barrier Island Restoration Petit Bois Pass-OCS East				9. SIZE AND TYPE OF BIT N/A			
2. BORING DESIGNATION BI-PBS-022-12		LOCATION COORDINATES E = 1,142,318 N = 233,125		10. COORDINATE SYSTEM/DATUM State Plane, MSE (U.S. Ft.)		HORIZONTAL NAD83 VERTICAL NAVD88	
3. DRILLING AGENCY Corps of Engineers - CESAM		CONTRACTOR FILE NO.		11. MANUFACTURER'S DESIGNATION OF DRILL Vibracore		<input type="checkbox"/> AUTO HAMMER <input type="checkbox"/> MANUAL HAMMER	
4. NAME OF DRILLER American Vibracore Systems, Inc.				12. TOTAL SAMPLES		DISTURBED UNDISTURBED (UD) 0	
5. DIRECTION OF BORING <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED		DEG. FROM VERTICAL		13. TOTAL NUMBER CORE BOXES			
		BEARING		14. WATER DEPTH 56 Ft.			
6. THICKNESS OF OVERBURDEN N/A				15. DATE BORING 11-21-12		STARTED COMPLETED 11-21-12	
7. DEPTH DRILLED INTO ROCK N/A				16. ELEVATION TOP OF BORING -53.1 Ft.			
8. TOTAL DEPTH OF BORING 20.0 Ft.				17. TOTAL RECOVERY FOR BORING 100%			
				18. SIGNATURE AND TITLE OF INSPECTOR John Bass, Geotechnical Engineer			
ELEV.	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS	SAMPLE	LABORATORY RESULTS		
-53.1	0.0						
			SAND, poorly-graded, mostly fine to medium-grained quartz, little shell fragments, trace fines, gray (SP)	A	Classification: SP Color: 5Y 7/1-light gray D50: 0.291 mm % Fines: 2.3		
-59.0	5.9						
-59.8	6.7		SAND, silty, mostly fine-grained sand-sized quartz, trace shell fragments, trace wood debris, gray (SM)				
-61.1	8.0		CLAY, lean, mostly clay, some fine-grained sand-sized quartz, trace wood debris, gray (CL)				
			SAND, silty, mostly fine-grained sand-sized quartz, little shell fragments, gray (SM)	NS			
-73.1	20.0						
NOTES: 1. Soils are field visually classified in accordance with the Unified Soils Classification System. 2. NS = Sample not submitted for laboratory analysis from this interval. 3. Seafloor elevation determined from USACE							

<b>DRILLING LOG (Cont. Sheet)</b>			<b>INSTALLATION</b> Mobile District		<b>SHEET 2</b> <b>OF 2 SHEETS</b>
<b>PROJECT</b> MsCIP Barrier Island Restoration			<b>COORDINATE SYSTEM/DATUM</b> State Plane, MSE (U.S. Ft.)	<b>HORIZONTAL</b> NAD83	<b>VERTICAL</b> NAVD88
<b>LOCATION COORDINATES</b> X = 1,142,318 Y = 233,125			<b>ELEVATION TOP OF BORING</b> -53.1 Ft.		
<b>ELEV.</b>	<b>DEPTH</b>	<b>LEGEND</b>	<b>CLASSIFICATION OF MATERIALS</b>	<b>SAMPLE</b>	<b>LABORATORY RESULTS</b>
			hydrographic survey completed April 2014.		



**Project**

Mississippi Barrier Island  
Restoration Project

**AVS**  
**AMERICAN VIBRACORE**  
**S E R V I C E S**

**Core Identifier** BI-PBS-22-12

**Date** 11/21/2012

**Water Depth** 56.0'

**Coordinate System**

Latitude / Longitude

**Start Time** 15:33:14

**End Time** 15:34:34

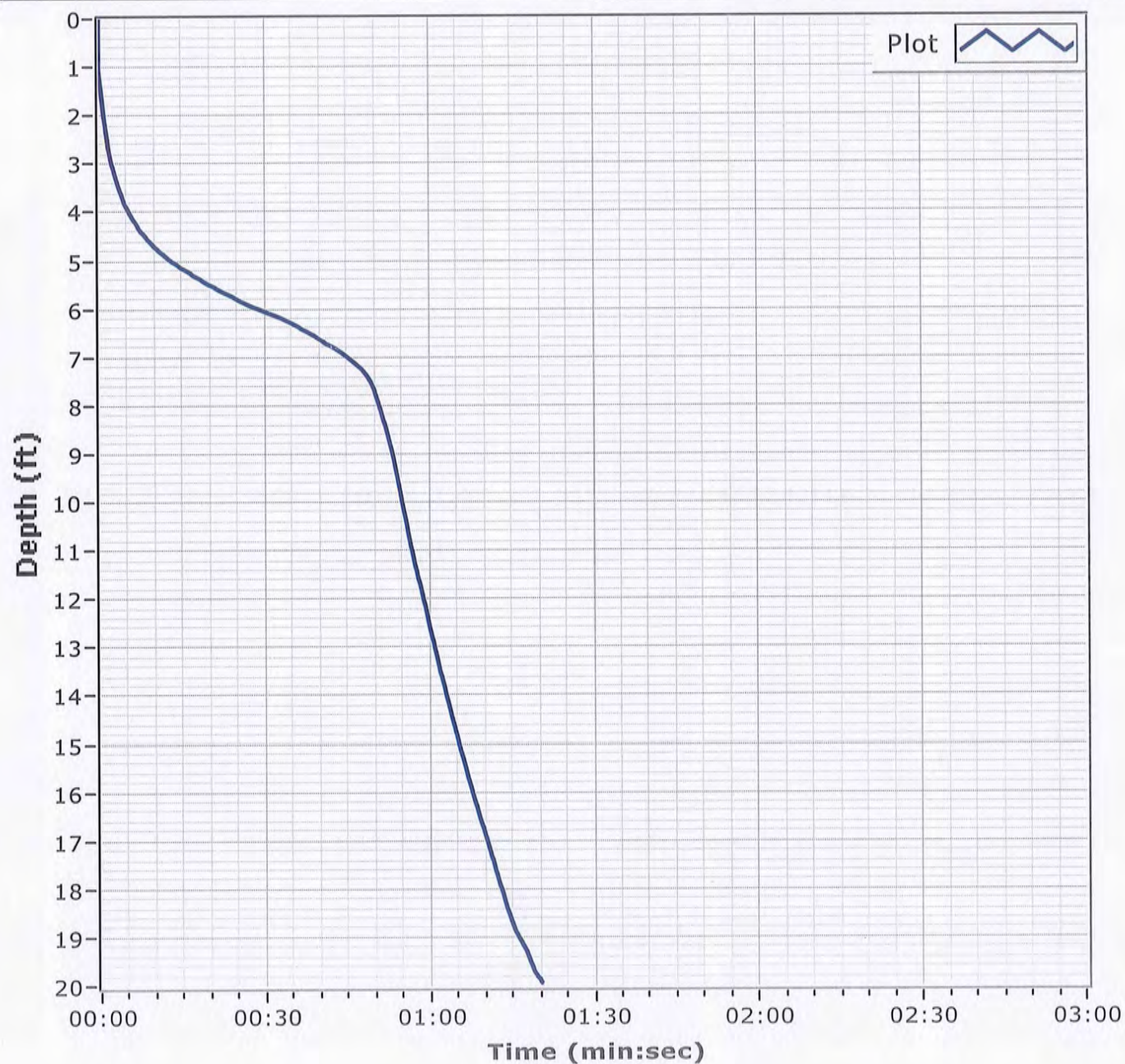
**Penetration** 20.0'

**Latitude** 30 08.406

**Total Time** 00:01:20

**Recovery** 20.0'

**Longitude** 088 19.996

**Comments**

# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	3.1	2.5	16.9	75.2	2.3	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
1	100.0		
.75	100.0		
.5	97.7		
.375	97.6		
#4	96.9		
#10	94.4		
#20	90.0		
#40	77.5		
#60	37.0		
#100	4.7		
#140	2.7		
#200	2.3		

\* (no specification provided)

<b>Material Description</b> Fine to medium grained, SAND, with trace SHELL		
PL=	<b>Atterberg Limits</b> LL=	PI=
D <sub>90</sub> = 0.8388 D <sub>50</sub> = 0.2910 D <sub>10</sub> = 0.1715	<b>Coefficients</b> D <sub>85</sub> = 0.5167 D <sub>30</sub> = 0.2298 C <sub>u</sub> = 1.92	D <sub>60</sub> = 0.3283 D <sub>15</sub> = 0.1872 C <sub>c</sub> = 0.94
USCS= SP	<b>Classification</b> AASHTO=	
<b>Remarks</b>		

Location: BI-PBS-22-12 A  
Sample Number: 6469 (18)

Depth: 0.0'

Date: 11/28/12

**Thompson Engineering**

**Mobile, Alabama**

Client: CDM/Thompson Engineering JV  
Project: MsCIP Barrier Island Restoration GT

Project No: 1221110095

Figure



# Boring Designation BI-PBS-023-12

DRILLING LOG		DIVISION South Atlantic		INSTALLATION Mobile District		SHEET 1 OF 2 SHEETS	
1. PROJECT MsCIP Barrier Island Restoration Petit Bois Pass-OCS East				9. SIZE AND TYPE OF BIT N/A			
2. BORING DESIGNATION BI-PBS-023-12		LOCATION COORDINATES E = 1,141,367 N = 233,678		10. COORDINATE SYSTEM/DATUM State Plane, MSE (U.S. Ft.)		HORIZONTAL NAD83 VERTICAL NAVD88	
3. DRILLING AGENCY Corps of Engineers - CESAM		CONTRACTOR FILE NO.		11. MANUFACTURER'S DESIGNATION OF DRILL Vibracore		<input type="checkbox"/> AUTO HAMMER <input type="checkbox"/> MANUAL HAMMER	
4. NAME OF DRILLER American Vibracore Systems, Inc.				12. TOTAL SAMPLES		DISTURBED UNDISTURBED (UD) 0	
5. DIRECTION OF BORING <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED				13. TOTAL NUMBER CORE BOXES		14. WATER DEPTH 55.7 Ft.	
6. THICKNESS OF OVERBURDEN N/A				15. DATE BORING		STARTED 11-23-12 COMPLETED 11-23-12	
7. DEPTH DRILLED INTO ROCK N/A				16. ELEVATION TOP OF BORING -55.9 Ft.		17. TOTAL RECOVERY FOR BORING 100%	
8. TOTAL DEPTH OF BORING 19.7 Ft.				18. SIGNATURE AND TITLE OF INSPECTOR John Bass, Geotechnical Engineer			

ELEV.	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS	SAMPLE	LABORATORY RESULTS
-55.9	0.0				
-59.5	3.6		SAND, poorly-graded, mostly fine-grained sand-sized quartz, trace fines, trace shell fragments, lt. gray (SP)	A	Classification: SP Color: 2.5Y 7/2-light gray D50: 0.3131 mm % Fines: 2.6
-60.2	4.3		SAND, poorly-graded with silt, mostly fine-grained sand-sized quartz, stringers of brown clay, lt. gray mottled with reddish brown (SP-SM)	NS	
-60.9	5.0		SILT, inorganic-L, mostly silt, some fine-grained sand-sized quartz, trace shell fragments, lt. gray (ML)		
-63.8	7.9		SAND, silty, mostly fine-grained sand-sized quartz, little shell fragments, trace wood debris, lt. gray (SM)	B	Classification: SP-SM Color: 2.5Y 6/2-light brownish gray D50: 0.2021 mm % Fines: 9
-65.6	9.7		SAND, poorly-graded with silt, mostly fine-grained sand-sized quartz, little silt, trace shell fragments, gray (SP-SM)	NS	
-72.9	17.0		SAND, silty, mostly fine-grained sand-sized quartz, little shell fragments, gray (SM)		
-74.6	18.7		CLAY, lean, mostly clay, lt. gray mottled with orange (CL)		
-75.6	19.7		SAND, poorly-graded, mostly fine-grained sand-sized quartz, trace fines, lt. gray mottled with reddish brown (SP)	C	Classification: SP-SM Color: 2.5Y 7/2-light gray D50: 0.3065 mm % Fines: 8.2
NOTES: 1. Soils are field visually classified in accordance with the Unified Soils Classification System. 2. NS = Sample not submitted for laboratory analysis from this interval.					

<b>DRILLING LOG (Cont. Sheet)</b>			<b>INSTALLATION</b> Mobile District		<b>SHEET 2</b> <b>OF 2 SHEETS</b>
<b>PROJECT</b> MsCIP Barrier Island Restoration			<b>COORDINATE SYSTEM/DATUM</b> State Plane, MSE (U.S. Ft.)	<b>HORIZONTAL</b> NAD83	<b>VERTICAL</b> NAVD88
<b>LOCATION COORDINATES</b> X = 1,141,367 Y = 233,678			<b>ELEVATION TOP OF BORING</b> -55.9 Ft.		
<b>ELEV.</b>	<b>DEPTH</b>	<b>LEGEND</b>	<b>CLASSIFICATION OF MATERIALS</b>	<b>SAMPLE</b>	<b>LABORATORY RESULTS</b>
			3. Seafloor elevation determined from USACE hydrographic survey completed April 2014.		

**Project**

Mississippi Barrier Island  
Restoration Project

**AVS**  
**AMERICAN VIBRACORE**  
**S E R V I C E S**

**Core Identifier** BI-PBS-23-12

**Date** 11/23/2012

**Water Depth** 55.7'

**Coordinate System**

Latitude / Longitude

**Start Time** 09:00:03

**End Time** 09:01:03

**Penetration** 20.0'

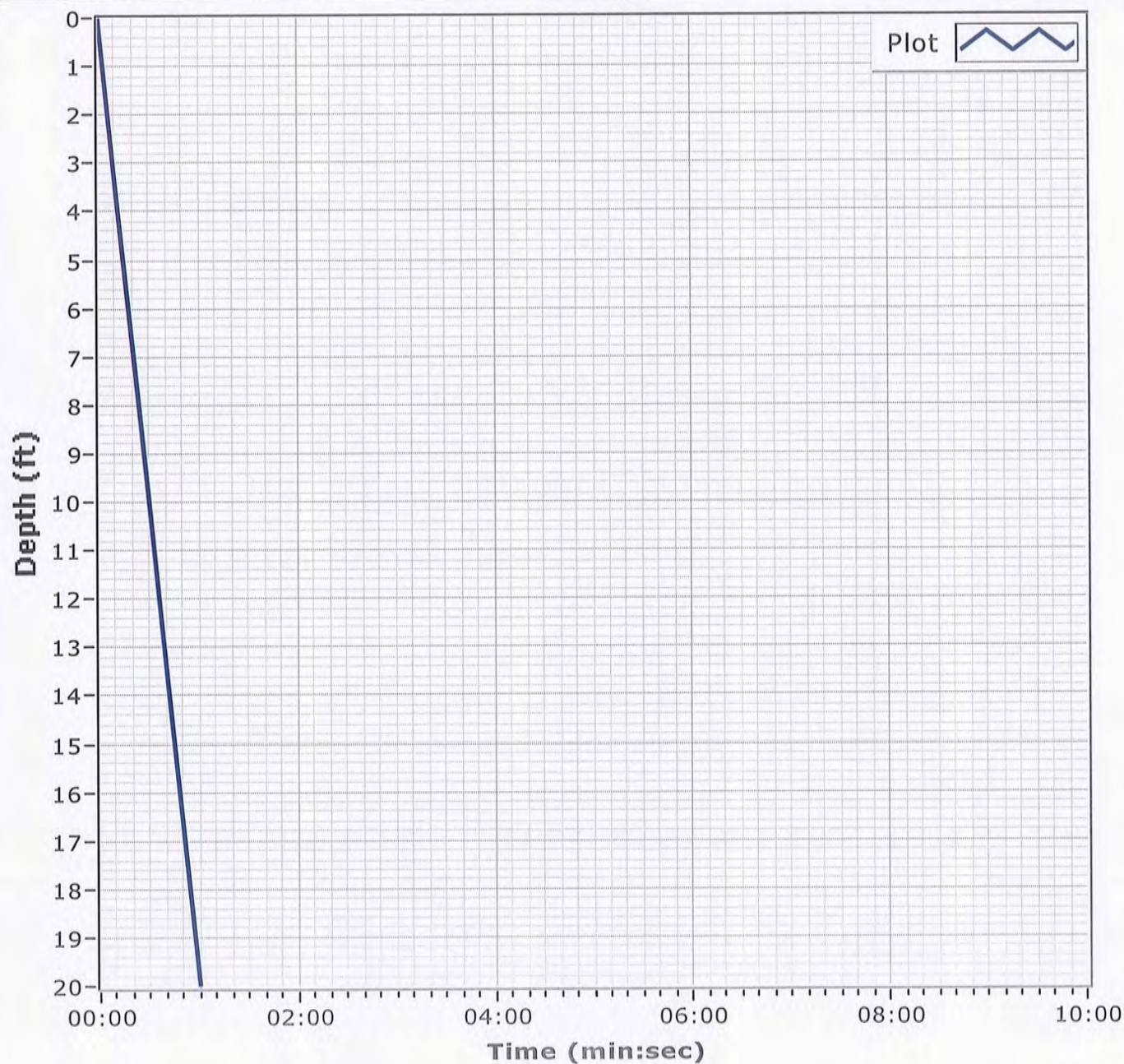
**Latitude** 30 08.498

**Total Time** 00:01:00

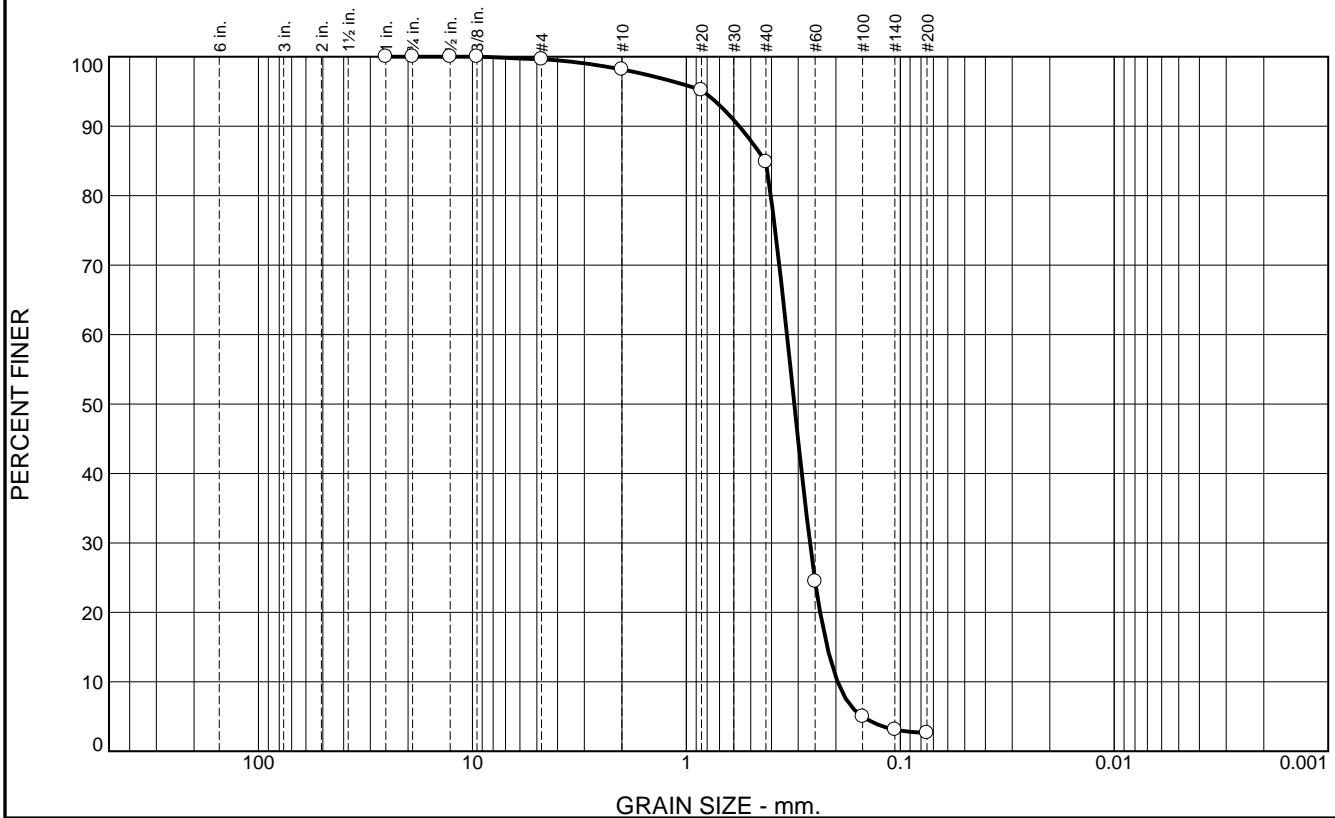
**Recovery** 19.7'

**Longitude** 088 20.176

**Comments**



# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.4	1.4	13.4	82.2	2.6	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
1	100.0		
.75	100.0		
.5	100.0		
.375	100.0		
#4	99.6		
#10	98.2		
#20	95.2		
#40	84.8		
#60	24.5		
#100	5.0		
#140	3.1		
#200	2.6		

\* (no specification provided)

## Material Description

Fine to medium grained, SAND

## Atterberg Limits

PL= LL= PI=

## Coefficients

D<sub>90</sub>= 0.5666 D<sub>85</sub>= 0.4285 D<sub>60</sub>= 0.3387  
D<sub>50</sub>= 0.3131 D<sub>30</sub>= 0.2646 D<sub>15</sub>= 0.2195  
D<sub>10</sub>= 0.1963 C<sub>u</sub>= 1.73 C<sub>c</sub>= 1.05

## Classification

USCS= SP AASHTO=

## Remarks

Location: BI-PBS-23-12 A  
Sample Number: 6469 (19)

Depth: 0.0'

Date: 11/28/12

**Thompson Engineering**

**Mobile, Alabama**

Client: CDM/Thompson Engineering JV  
Project: MsCIP Barrier Island Restoration GT

Project No: 1221110095

Figure

# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.4	0.5	8.2	81.9	9.0	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
1	100.0		
.75	100.0		
.5	100.0		
.375	99.7		
#4	99.6		
#10	99.1		
#20	97.5		
#40	90.9		
#60	69.9		
#100	23.1		
#140	11.8		
#200	9.0		

\* (no specification provided)

<b><u>Material Description</u></b>		
Fine grained, SLIGHTLY SILTY SAND		
<b><u>Atterberg Limits</u></b>		
PL=	LL=	PI=
<b><u>Coefficients</u></b>		
D <sub>90</sub> = 0.4032	D <sub>85</sub> = 0.3308	D <sub>60</sub> = 0.2235
D <sub>50</sub> = 0.2021	D <sub>30</sub> = 0.1642	D <sub>15</sub> = 0.1253
D <sub>10</sub> = 0.0882	C <sub>u</sub> = 2.53	C <sub>c</sub> = 1.37
<b><u>Classification</u></b>		
USCS= SP-SM	AASHTO=	
<b><u>Remarks</u></b>		

Location: BI-PBS-23-12 B  
Sample Number: 6469 (20)

Depth: 7.9'

Date: 11/28/12

**Thompson Engineering**

**Mobile, Alabama**

Client: CDM/Thompson Engineering JV  
Project: MsCIP Barrier Island Restoration GT

Project No: 1221110095

Figure

# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.0	0.3	10.1	81.4	8.2	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
1	100.0		
.75	100.0		
.5	100.0		
.375	100.0		
#4	100.0		
#10	99.7		
#20	99.0		
#40	89.6		
#60	26.6		
#100	10.6		
#140	8.8		
#200	8.2		

\* (no specification provided)

## Material Description

Fine to medium grained, SLIGHTLY SILTY SAND

## Atterberg Limits

PL= LL= PI=

## Coefficients

D<sub>90</sub>= 0.4344 D<sub>85</sub>= 0.4050 D<sub>60</sub>= 0.3304  
D<sub>50</sub>= 0.3065 D<sub>30</sub>= 0.2591 D<sub>15</sub>= 0.2056  
D<sub>10</sub>= 0.1326 C<sub>u</sub>= 2.49 C<sub>c</sub>= 1.53

## Classification

USCS= SP-SM AASHTO=

## Remarks

Location: BI-PBS-23-12 C  
Sample Number: 6469 (21)

Depth: 18.7'

Date: 11/28/12

**Thompson Engineering**

**Mobile, Alabama**

Client: CDM/Thompson Engineering JV  
Project: MsCIP Barrier Island Restoration GT

Project No: 1221110095

Figure

# Boring Designation BI-PBS-024-12

DRILLING LOG		DIVISION South Atlantic		INSTALLATION Mobile District		SHEET 1 OF 1 SHEETS	
1. PROJECT MsCIP Barrier Island Restoration Petit Bois Pass-OCS East				9. SIZE AND TYPE OF BIT N/A			
2. BORING DESIGNATION BI-PBS-024-12		LOCATION COORDINATES E = 1,141,846 N = 232,632		10. COORDINATE SYSTEM/DATUM State Plane, MSE (U.S. Ft.)		HORIZONTAL NAD83	
3. DRILLING AGENCY Corps of Engineers - CESAM		CONTRACTOR FILE NO.		11. MANUFACTURER'S DESIGNATION OF DRILL Vibracore		<input type="checkbox"/> AUTO HAMMER <input type="checkbox"/> MANUAL HAMMER	
4. NAME OF DRILLER American Vibracore Systems, Inc.				12. TOTAL SAMPLES		DISTURBED 0	
5. DIRECTION OF BORING <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED				13. TOTAL NUMBER CORE BOXES		14. WATER DEPTH 55.6 Ft.	
6. THICKNESS OF OVERBURDEN N/A				15. DATE BORING		STARTED 11-21-12	
7. DEPTH DRILLED INTO ROCK N/A				16. ELEVATION TOP OF BORING -56.0 Ft.		COMPLETED 11-21-12	
8. TOTAL DEPTH OF BORING 18.8 Ft.				17. TOTAL RECOVERY FOR BORING 100%			
				18. SIGNATURE AND TITLE OF INSPECTOR John Bass, Geotechnical Engineer			
ELEV.	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS	SAMPLE	LABORATORY RESULTS		
-56.0	0.0						
			SAND, poorly-graded, mostly fine-grained sand-sized quartz, trace fines, trace shell fragments, lt. gray (SP)	A	Classification: SP Color: 5Y 7/2-light gray D50: 0.2906 mm % Fines: 3.4		
-59.6	3.6						
			SAND, clayey, mostly fine-grained sand-sized quartz, some clay, clay lenses through interval, lt. gray mottled with gray and orange (SC)				
-63.5	7.5						
-64.4	8.4		CLAY, silty, mostly clay, trace sand, gray mottled with brown and orange (CL-ML)				
			SAND, silty, mostly fine-grained sand-sized quartz, some silt, trace shell fragments, trace wood debris, gray (SM)	NS			
-68.5	12.5						
-69.8	13.8		CLAY, lean, mostly clay, little fine-grained sand-sized quartz, trace wood debris, gray (CL)				
			SAND, silty, mostly fine-grained sand-sized quartz, trace wood debris, gray (SM)				
-74.8	18.8						
			NOTES: 1. Soils are field visually classified in accordance with the Unified Soils Classification System. 2. NS = Sample not submitted for laboratory analysis from this interval. 3. Seafloor elevation determined from USACE hydrographic survey completed April 2014.				



**Project**

Mississippi Barrier Island  
Restoration Project



**Core Identifier** BI-PBS-24-12

**Date** 11/21/2012

**Water Depth** 55.6

**Coordinate System**

**Start Time** 14:55:23

Latitude / Longitude

**End Time** 14:55:57

**Penetration** 20.0'

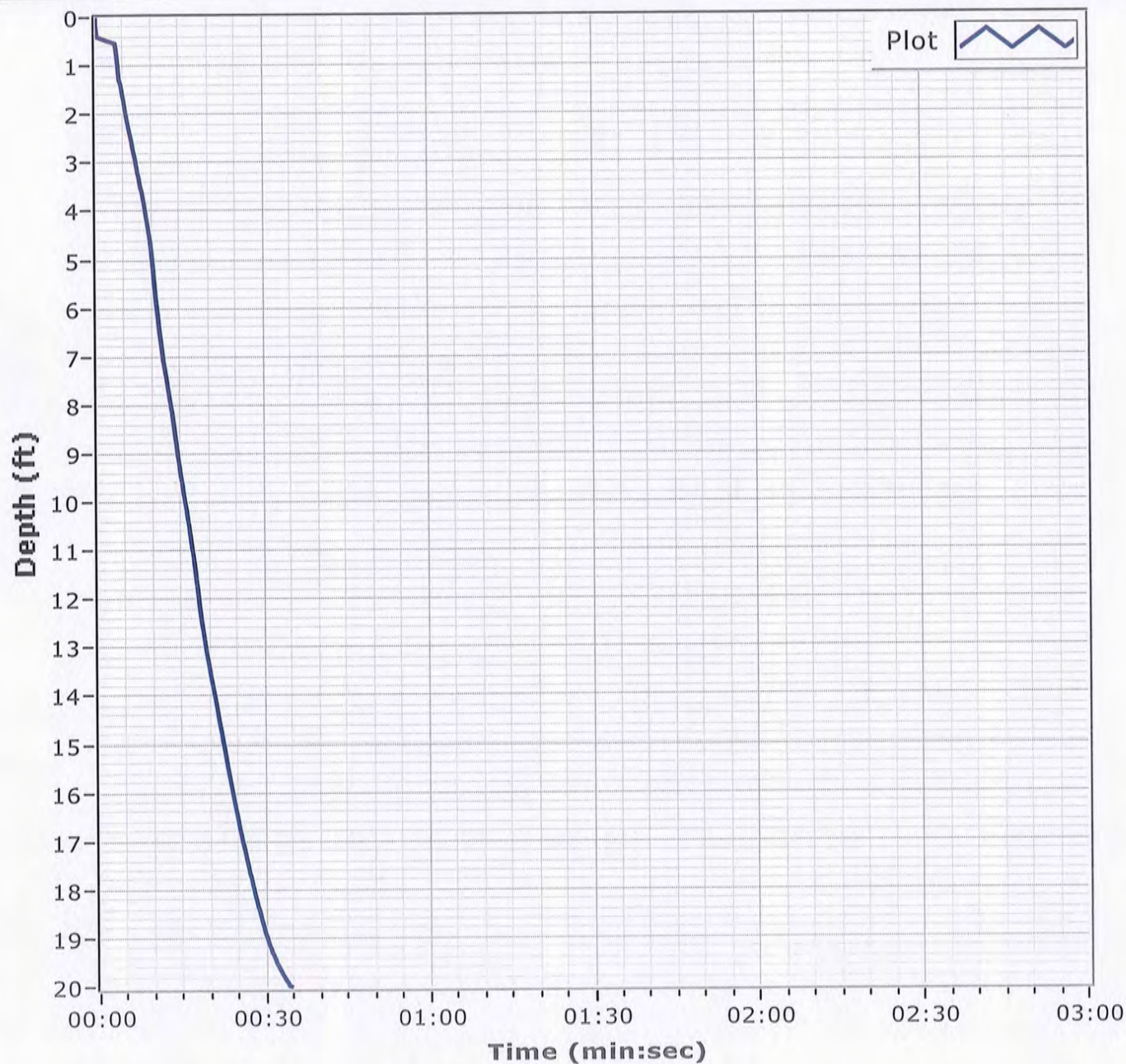
**Latitude** 30 08.325

**Total Time** 00:00:34

**Recovery** 18.8

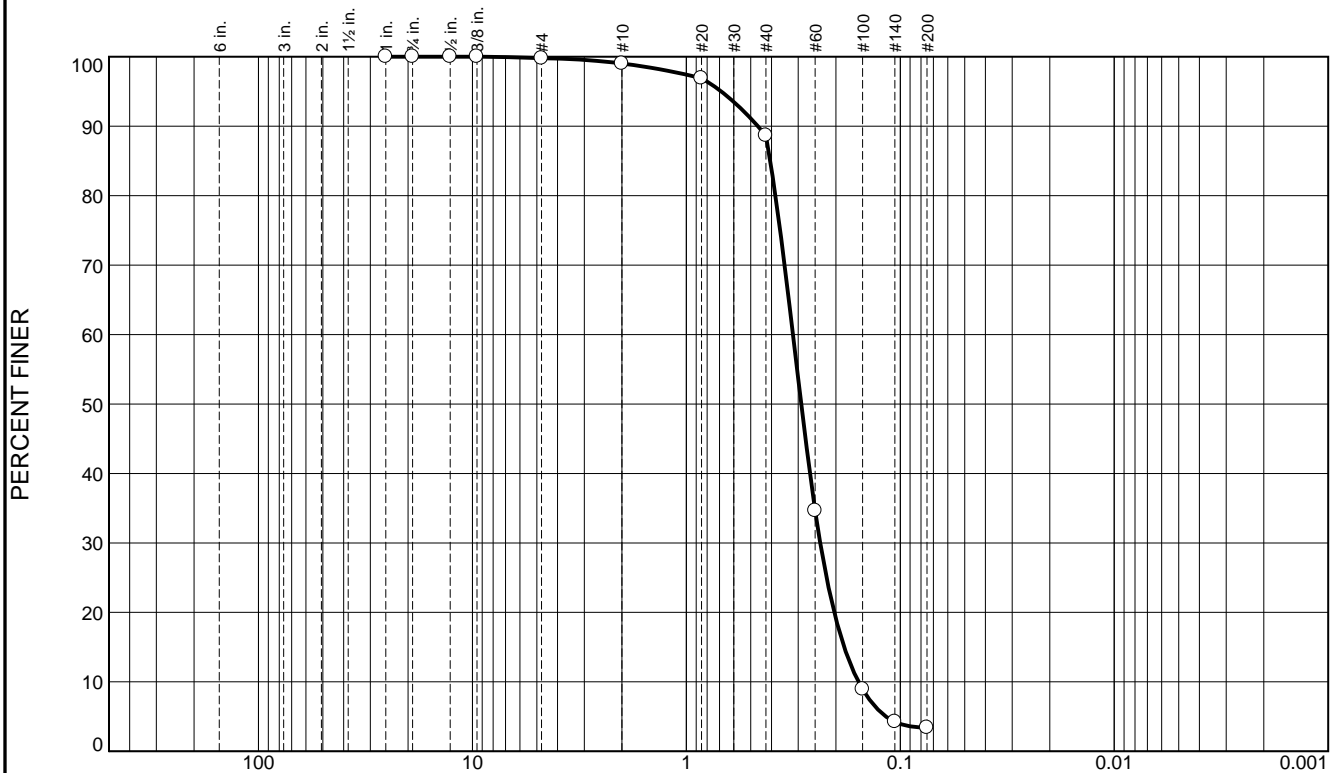
**Longitude** 088 20.086

**Comments**





# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.2	0.8	10.4	85.2	3.4	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
1	100.0		
.75	100.0		
.5	100.0		
.375	100.0		
#4	99.8		
#10	99.0		
#20	96.9		
#40	88.6		
#60	34.6		
#100	8.9		
#140	4.3		
#200	3.4		

\* (no specification provided)

## Material Description

Fine to medium grained, SAND

## Atterberg Limits

PL= LL= PI=

## Coefficients

D<sub>90</sub>= 0.4637 D<sub>85</sub>= 0.4054 D<sub>60</sub>= 0.3176  
D<sub>50</sub>= 0.2906 D<sub>30</sub>= 0.2367 D<sub>15</sub>= 0.1831  
D<sub>10</sub>= 0.1568 C<sub>u</sub>= 2.02 C<sub>c</sub>= 1.13

## Classification

USCS= SP AASHTO=

## Remarks

Location: BI-PBS-24-12 A  
Sample Number: 6469 (17)

Depth: 0.0'

Date: 11/28/12

**Thompson Engineering**

**Mobile, Alabama**

Client: CDM/Thompson Engineering JV  
Project: MsCIP Barrier Island Restoration GT

Project No: 1221110095

Figure

# Boring Designation BI-PBS-025-12

DRILLING LOG		DIVISION South Atlantic		INSTALLATION Mobile District		SHEET 1 OF 1 SHEETS	
1. PROJECT MsCIP Barrier Island Restoration Petit Bois Pass-OCS East				9. SIZE AND TYPE OF BIT N/A			
2. BORING DESIGNATION BI-PBS-025-12		LOCATION COORDINATES E = 1,136,537 N = 233,755		10. COORDINATE SYSTEM/DATUM State Plane, MSE (U.S. Ft.)		HORIZONTAL NAD83 VERTICAL NAVD88	
3. DRILLING AGENCY Corps of Engineers - CESAM		CONTRACTOR FILE NO.		11. MANUFACTURER'S DESIGNATION OF DRILL Vibracore		<input type="checkbox"/> AUTO HAMMER <input type="checkbox"/> MANUAL HAMMER	
4. NAME OF DRILLER American Vibracore Systems, Inc.				12. TOTAL SAMPLES		DISTURBED UNDISTURBED (UD) 0	
5. DIRECTION OF BORING <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED		DEG. FROM VERTICAL		13. TOTAL NUMBER CORE BOXES			
		BEARING		14. WATER DEPTH 49.8 Ft.			
6. THICKNESS OF OVERBURDEN N/A				15. DATE BORING 11-24-12		STARTED COMPLETED 11-24-12	
7. DEPTH DRILLED INTO ROCK N/A				16. ELEVATION TOP OF BORING -49.6 Ft.			
8. TOTAL DEPTH OF BORING 18.8 Ft.				17. TOTAL RECOVERY FOR BORING 100%			
				18. SIGNATURE AND TITLE OF INSPECTOR John Bass, Geotechnical Engineer			
ELEV.	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS	SAMPLE	LABORATORY RESULTS		
-49.6	0.0						
			SAND, poorly-graded, mostly fine-grained sand-sized quartz, little shell fragments, trace fines, lt. gray (SP)	A	Classification: SP Color: 5Y 7/2-light gray D50: 0.3107 mm % Fines: 1.6		
-54.8	5.2						
-56.2	6.6		SAND, poorly-graded, mostly fine to medium-grained sand-sized quartz, trace fines, trace shell fragments, lt. gray (SP)	B	Classification: SP-SM Color: 5Y 6/1-gray D50: 0.3415 mm % Fines: 5.7		
-58.0	8.4		SAND, silty, mostly fine-grained sand-sized quartz, with clay lenses, gray mottled with lt. gray and orange (SM)				
			CLAY, lean, mostly clay, little fine-grained sand-sized quartz, gray mottled with lt. gray and orange (CL)	NS			
-63.0	13.4						
-65.3	15.7		SAND, poorly-graded with silt, mostly fine-grained sand-sized quartz, little silt, trace shell fragments, gray to light gray (SP-SM)	C	Classification: SP-SM Color: 2.5Y 6/2-light brownish gray D50: 0.2548 mm % Fines: 12.3		
-66.3	16.7		SAND, silty, mostly fine-grained sand-sized quartz, some silt, trace shell fragments, silt content increases with depth, gray (SM)				
-68.4	18.8		CLAY, silty, mostly silt, some clay, little fine-grained sand-sized quartz, gray (CL-ML)	NS			
			NOTES: 1. Soils are field visually classified in accordance with the Unified Soils Classification System. 2. NS = Sample not submitted for laboratory analysis from this interval. 3. Seafloor elevation determined from USACE hydrographic survey completed April 2014.				

**Project**

Mississippi Barrier Island  
Restoration Project

**AVS**  
**AMERICAN VIBRACORE**  
**S E R V I C E S**

**Core Identifier** BI-PBS-25-12

**Date** 11/24/2012

**Water Depth** 49.8'

**Coordinate System**

Latitude / Longitude

**Start Time** 11:24:42

**End Time** 11:26:02

**Penetration** 20.0'

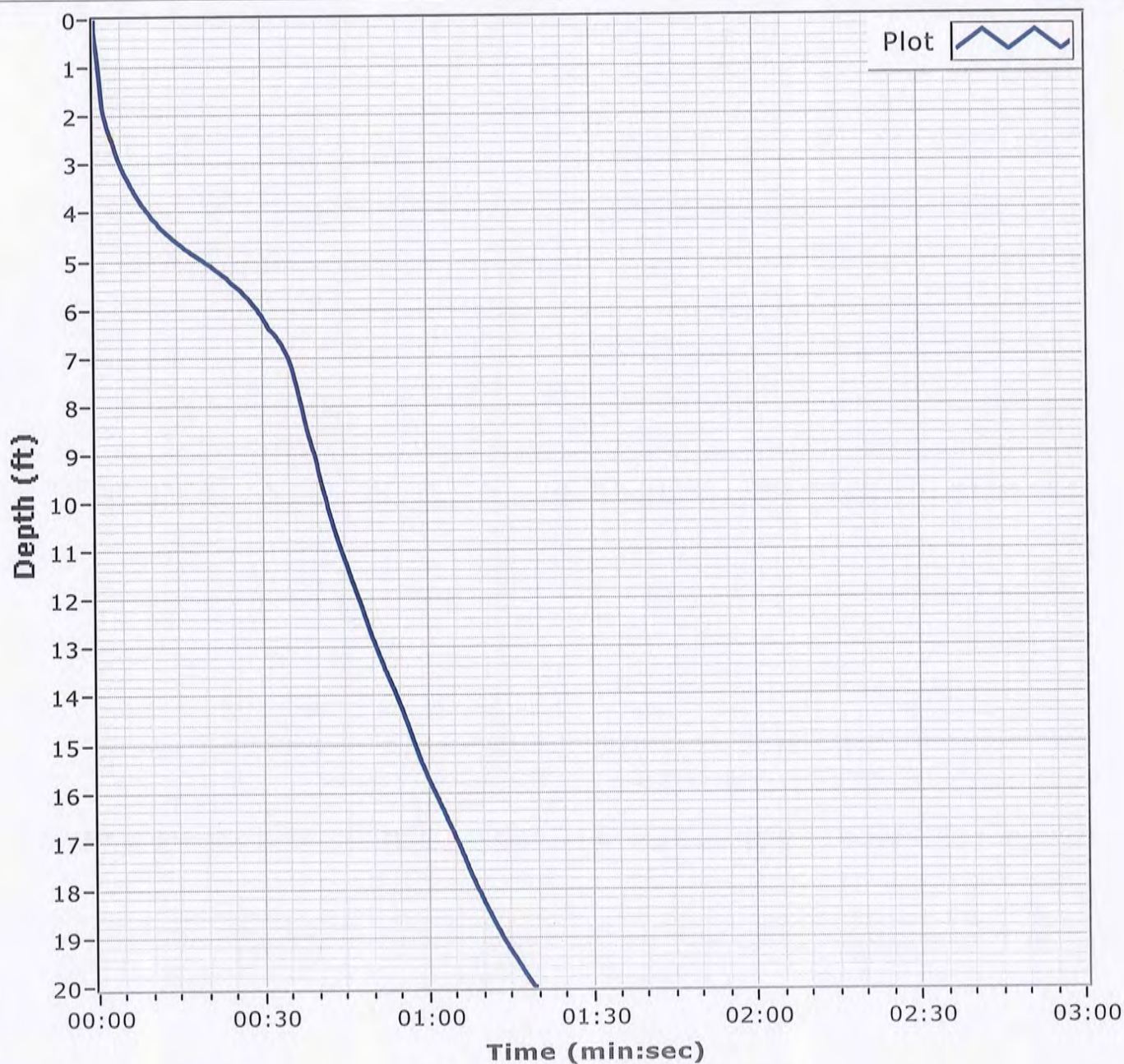
**Latitude** 30 08.514

**Total Time** 00:01:19

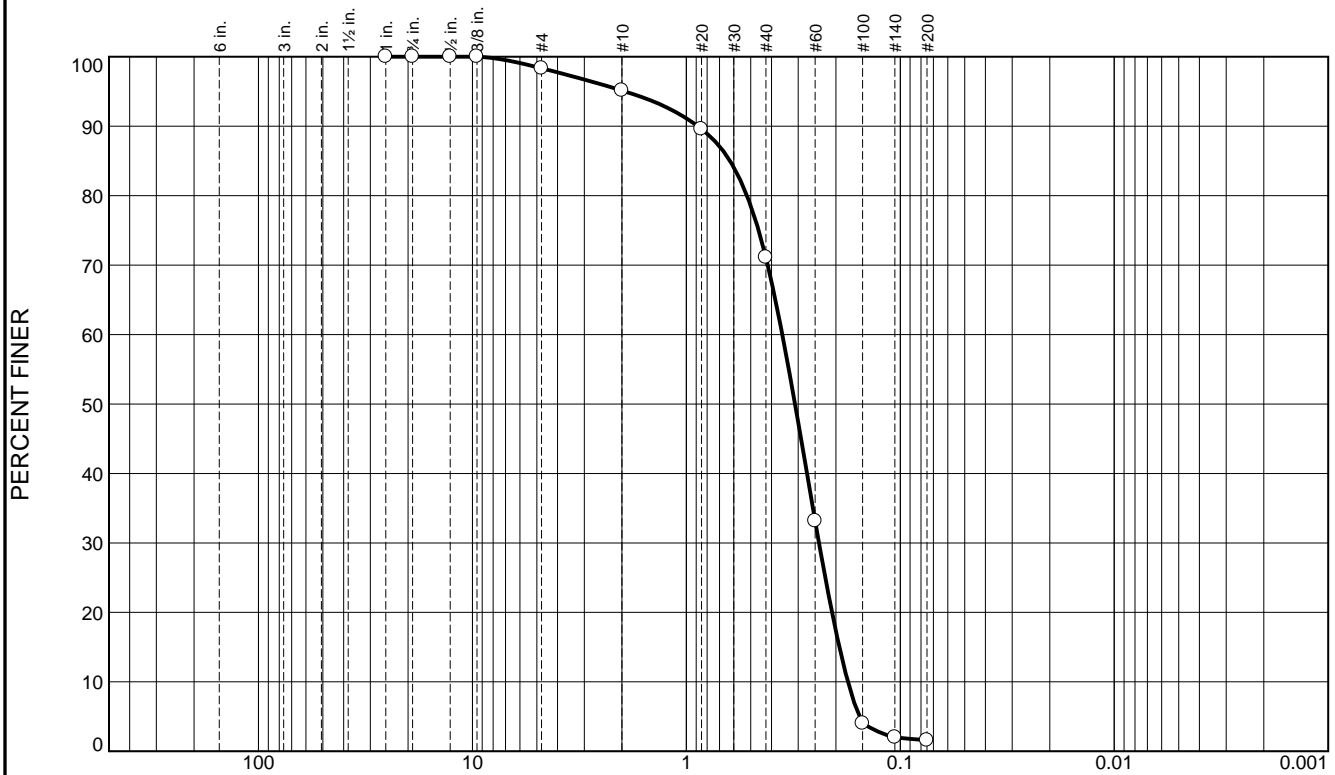
**Recovery** 18.8'

**Longitude** 088 21.093

**Comments**



# Particle Size Distribution Report



GRAIN SIZE - mm.

% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	1.7	3.2	24.0	69.5	1.6	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
1	100.0		
.75	100.0		
.5	100.0		
.375	100.0		
#4	98.3		
#10	95.1		
#20	89.6		
#40	71.1		
#60	33.2		
#100	4.0		
#140	2.0		
#200	1.6		

\* (no specification provided)

## Material Description

Fine to medium grained, SAND, with trace SHELL

## Atterberg Limits

PL= LL= PI=

## Coefficients

D<sub>90</sub>= 0.8852 D<sub>85</sub>= 0.6249 D<sub>60</sub>= 0.3560  
D<sub>50</sub>= 0.3107 D<sub>30</sub>= 0.2398 D<sub>15</sub>= 0.1927  
D<sub>10</sub>= 0.1759 C<sub>u</sub>= 2.02 C<sub>c</sub>= 0.92

## Classification

USCS= SP AASHTO=

## Remarks

Location: BI-PBS-25-12 A  
Sample Number: 6469 (40)

Depth: 0.0'

Date: 11/28/12

**Thompson Engineering**

**Mobile, Alabama**

Client: CDM/Thompson Engineering JV  
Project: MsCIP Barrier Island Restoration GT

Project No: 1221110095

Figure

# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	5.9	9.9	25.0	53.5	5.7	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
1	100.0		
.75	100.0		
.5	98.7		
.375	97.9		
#4	94.1		
#10	84.2		
#20	75.4		
#40	59.2		
#60	34.2		
#100	11.2		
#140	7.0		
#200	5.7		

\* (no specification provided)

<b><u>Material Description</u></b>		
Fine to medium grained, SLIGHTLY SILTY SAND, with trace SHELL		
<b><u>Atterberg Limits</u></b>		
PL=	LL=	PI=
<b><u>Coefficients</u></b>		
D <sub>90</sub> = 3.2439	D <sub>85</sub> = 2.1444	D <sub>60</sub> = 0.4341
D <sub>50</sub> = 0.3415	D <sub>30</sub> = 0.2310	D <sub>15</sub> = 0.1686
D <sub>10</sub> = 0.1423	C <sub>u</sub> = 3.05	C <sub>c</sub> = 0.86
<b><u>Classification</u></b>		
USCS= SP-SM	AASHTO=	
<b><u>Remarks</u></b>		

Location: BI-PBS-25-12 B  
Sample Number: 6469 (41)

Depth: 5.2'

Date: 11/28/12

**Thompson Engineering**

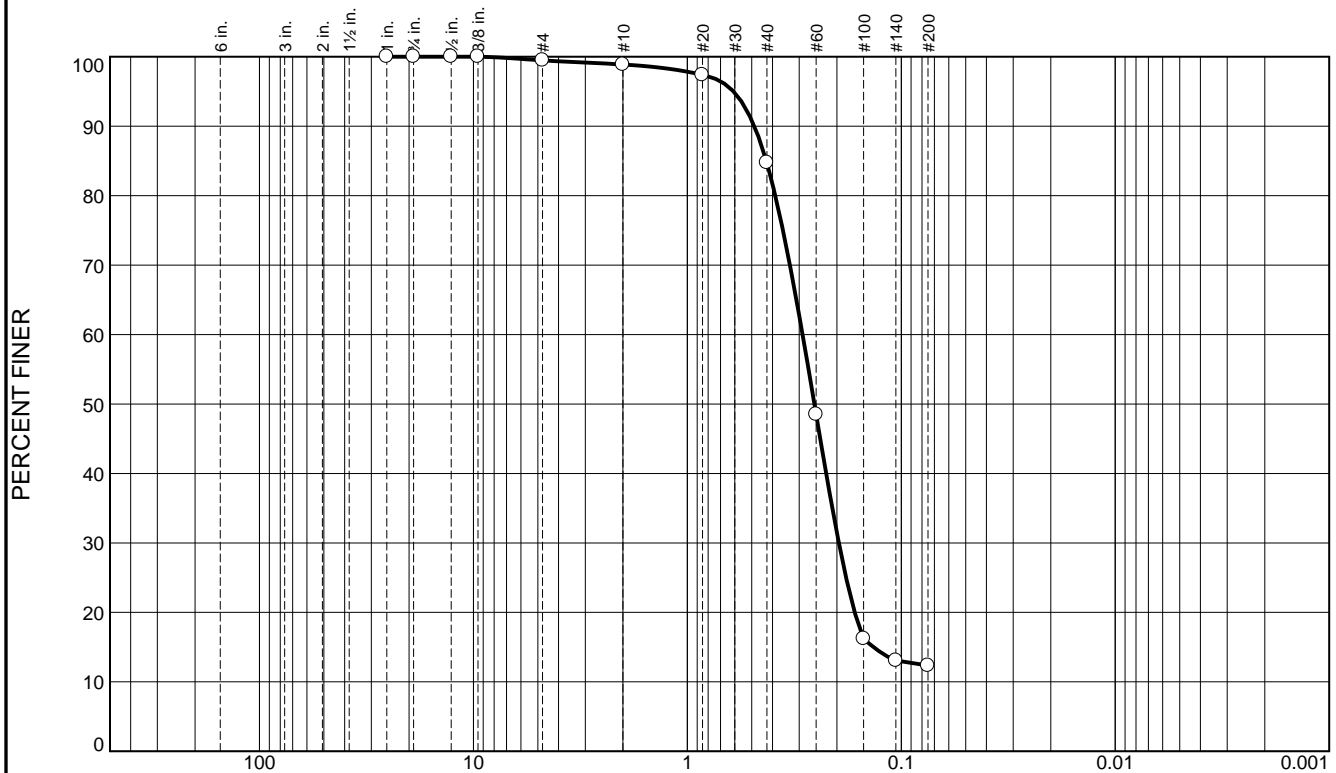
**Mobile, Alabama**

Client: CDM/Thompson Engineering JV  
Project: MsCIP Barrier Island Restoration GT

Project No: 1221110095

Figure

# Particle Size Distribution Report



GRAIN SIZE - mm.

% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.5	0.6	14.2	72.4	12.3	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
1	100.0		
.75	100.0		
.5	100.0		
.375	100.0		
#4	99.5		
#10	98.9		
#20	97.4		
#40	84.7		
#60	48.5		
#100	16.2		
#140	13.1		
#200	12.3		

\* (no specification provided)

## Material Description

Fine to medium grained, SLIGHTLY SILTY SAND

## Atterberg Limits

PL= LL= PI=

## Coefficients

D<sub>90</sub>= 0.4865 D<sub>85</sub>= 0.4275 D<sub>60</sub>= 0.2895  
D<sub>50</sub>= 0.2548 D<sub>30</sub>= 0.1959 D<sub>15</sub>= 0.1349  
D<sub>10</sub>= C<sub>u</sub>= C<sub>c</sub>=

## Classification

USCS= SP-SM AASHTO=

## Remarks

Location: BI-PBS-25-12 C  
Sample Number: 6469 (42)

Depth: 13.4'

Date: 11/28/12

**Thompson Engineering**

**Mobile, Alabama**

Client: CDM/Thompson Engineering JV  
Project: MsCIP Barrier Island Restoration GT

Project No: 1221110095

Figure

# Boring Designation BI-PBS-026-12

DRILLING LOG		DIVISION South Atlantic		INSTALLATION Mobile District		SHEET 1 OF 1 SHEETS	
1. PROJECT MsCIP Barrier Island Restoration Petit Bois Pass-OCS East				9. SIZE AND TYPE OF BIT N/A			
2. BORING DESIGNATION BI-PBS-026-12		LOCATION COORDINATES E = 1,140,508 N = 231,310		10. COORDINATE SYSTEM/DATUM State Plane, MSE (U.S. Ft.)		HORIZONTAL NAD83	
3. DRILLING AGENCY Corps of Engineers - CESAM		CONTRACTOR FILE NO.		11. MANUFACTURER'S DESIGNATION OF DRILL Vibracore		<input type="checkbox"/> AUTO HAMMER <input type="checkbox"/> MANUAL HAMMER	
4. NAME OF DRILLER American Vibracore Systems, Inc.				12. TOTAL SAMPLES		DISTURBED 0	
5. DIRECTION OF BORING <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED				13. TOTAL NUMBER CORE BOXES		14. WATER DEPTH 54.8 Ft.	
6. THICKNESS OF OVERBURDEN N/A				15. DATE BORING		STARTED 11-23-12	
7. DEPTH DRILLED INTO ROCK N/A				16. ELEVATION TOP OF BORING -55.3 Ft.		COMPLETED 11-23-12	
8. TOTAL DEPTH OF BORING 17.6 Ft.				17. TOTAL RECOVERY FOR BORING 100%		18. SIGNATURE AND TITLE OF INSPECTOR John Bass, Geotechnical Engineer	

ELEV.	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS	SAMPLE	LABORATORY RESULTS
-55.3	0.0				
-58.9	3.6		SAND, poorly-graded, mostly fine to medium-grained sand-sized quartz, trace fines, trace shell fragments, lt. gray (SP)	A	Classification: SP Color: 2.5Y 7/2-light gray D50: 0.3129 mm % Fines: 2.1
-59.6	4.3		SAND, poorly-graded, mostly fine-grained sand-sized quartz, little fines, lt. gray to gray (SP)	B	Classification: SP-SM Color: 5Y 6/2-light olive gray D50: 0.1923 mm % Fines: 6.2
-61.4	6.1		SAND, silty, mostly fine-grained sand-sized quartz, little shell fragments, lt. gray mottled with gray and orange (SM)	NS	
-64.2	8.9		CLAY, lean, mostly clay, little sand, low to medium plasticity, lt. gray mottled with orange (CL)		
-66.8	11.5		SAND, silty, mostly fine-grained sand-sized quartz, trace shell fragments, gray (SM)		
-72.3	17.0		CLAY, lean, mostly clay, little sand, trace shell fragments, trace wood debris, low plasticity, gray (CL)		
-72.9	17.6		SAND, silty, mostly fine-grained sand-sized quartz, gray (SM)		
NOTES: 1. Soils are field visually classified in accordance with the Unified Soils Classification System. 2. NS = Sample not submitted for laboratory analysis from this interval. 3. Seafloor elevation determined from USACE hydrographic survey completed April 2014.					



**Project**

Mississippi Barrier Island  
Restoration Project

**AVS**  
**AMERICAN VIBRACORE**  
**S E R V I C E S**

**Core Identifier** BI-PBS-26-12

**Date** 11/23/2012

**Water Depth** 54.8'

**Coordinate System**

Latitude / Longitude

**Start Time** 09:45:40

**End Time** 09:47:06

**Penetration** 20.0'

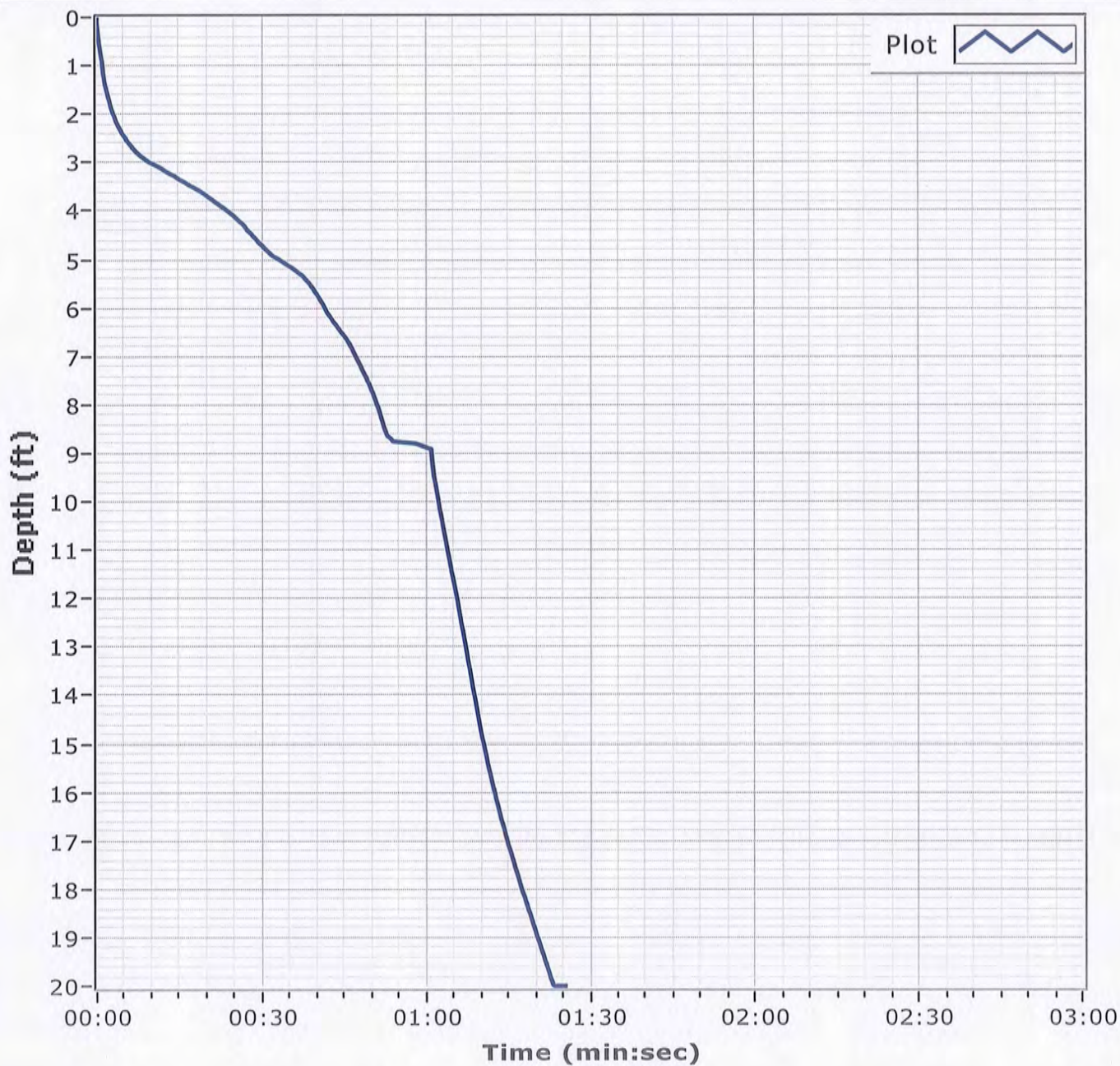
**Latitude** 30 08.108

**Total Time** 00:01:25

**Recovery** 17.6'

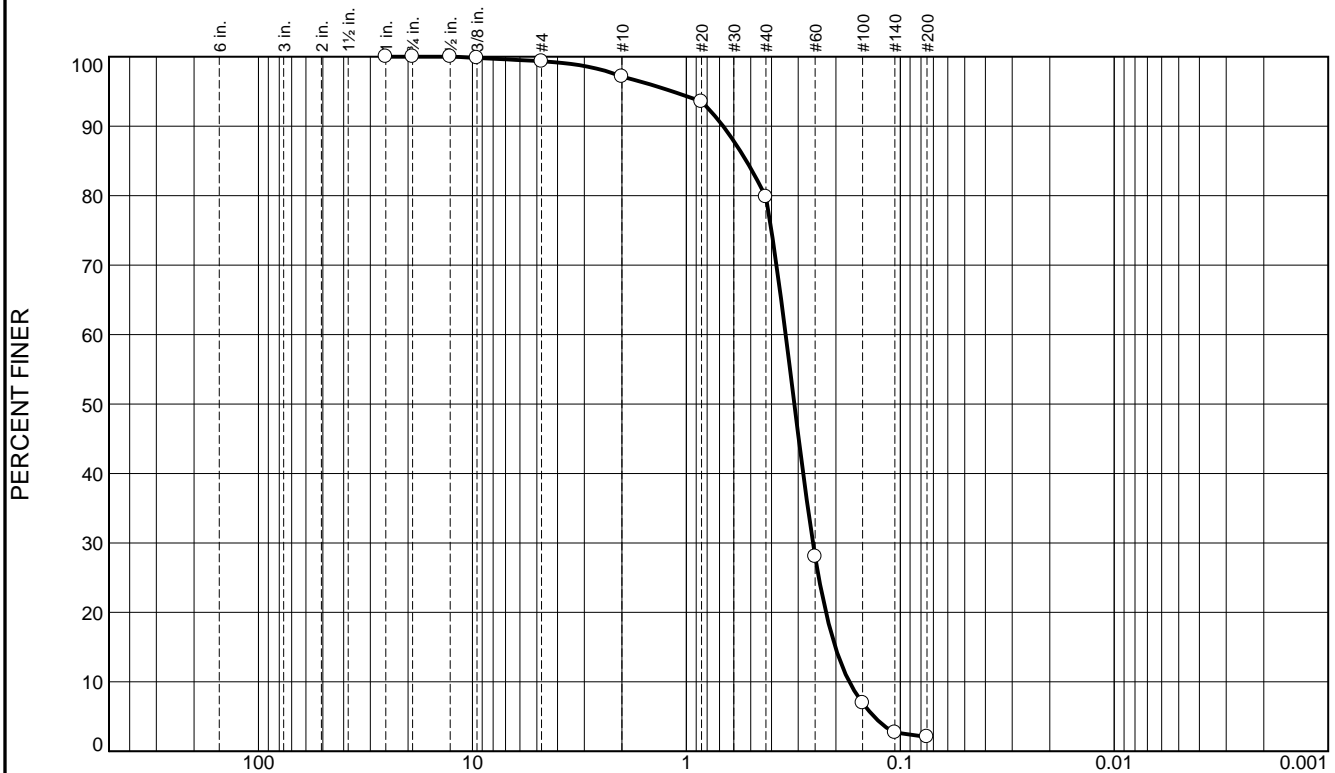
**Longitude** 088 20.341

**Comments**





# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.7	2.2	17.3	77.7	2.1	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
1	100.0		
.75	100.0		
.5	100.0		
.375	99.8		
#4	99.3		
#10	97.1		
#20	93.5		
#40	79.8		
#60	28.0		
#100	6.9		
#140	2.7		
#200	2.1		

\* (no specification provided)

Material Description		
Fine to medium grained, SAND		
<div> <div> Atterberg Limits </div> <div> PL= LL= PI= </div> </div>		
<div> <div> Coefficients </div> <div> D<sub>90</sub>= 0.6733 D<sub>85</sub>= 0.5244 D<sub>60</sub>= 0.3434 D<sub>50</sub>= 0.3129 D<sub>30</sub>= 0.2560 D<sub>15</sub>= 0.2013 D<sub>10</sub>= 0.1733 C<sub>u</sub>= 1.98 C<sub>c</sub>= 1.10 </div> </div>		
<div> <div> Classification </div> <div> USCS= SP AASHTO= </div> </div>		
<div> <div> Remarks </div> </div>		

Location: BI-PBS-26-12 A  
Sample Number: 6469 (22)

Depth: 0.0'

Date: 11/28/12

**Thompson Engineering**

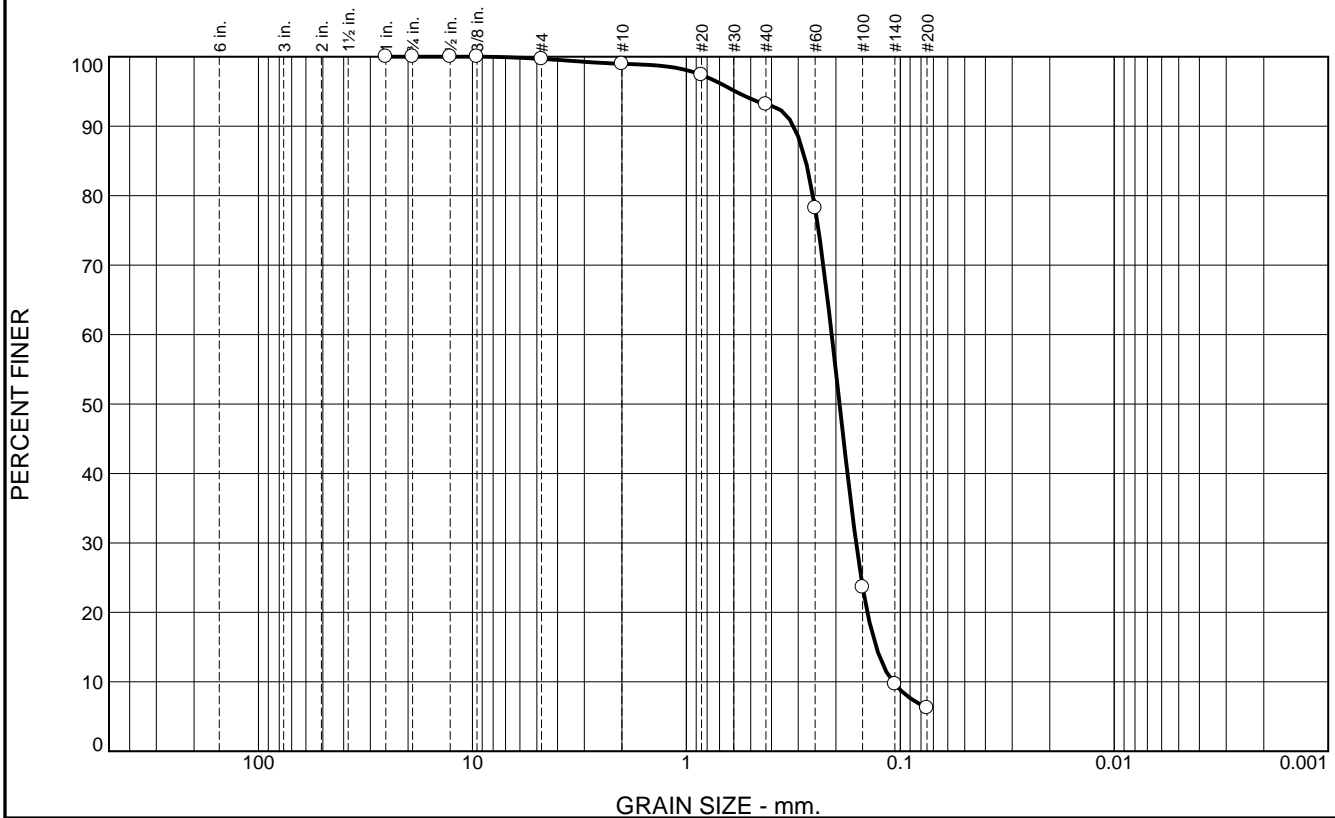
**Mobile, Alabama**

Client: CDM/Thompson Engineering JV  
Project: MsCIP Barrier Island Restoration GT

Project No: 1221110095

Figure

# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.3	0.7	5.9	86.9	6.2	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
1	100.0		
.75	100.0		
.5	100.0		
.375	100.0		
#4	99.7		
#10	99.0		
#20	97.4		
#40	93.1		
#60	78.2		
#100	23.6		
#140	9.7		
#200	6.2		

\* (no specification provided)

## Material Description

Fine grained, SLIGHTLY SILTY SAND

## Atterberg Limits

PL= LL= PI=

## Coefficients

D<sub>90</sub>= 0.3152 D<sub>85</sub>= 0.2770 D<sub>60</sub>= 0.2092  
D<sub>50</sub>= 0.1923 D<sub>30</sub>= 0.1610 D<sub>15</sub>= 0.1297  
D<sub>10</sub>= 0.1081 C<sub>u</sub>= 1.94 C<sub>c</sub>= 1.15

## Classification

USCS= SP-SM AASHTO=

## Remarks

Location: BI-PBS-26-12 B  
Sample Number: 6469 (23)

Depth: 3.6'

Date: 11/28/12

**Thompson Engineering**

**Mobile, Alabama**

Client: CDM/Thompson Engineering JV  
Project: MsCIP Barrier Island Restoration GT

Project No: 1221110095

Figure

# Boring Designation BI-PBS-027-12

DRILLING LOG		DIVISION South Atlantic		INSTALLATION Mobile District		SHEET 1 OF 1 SHEETS	
1. PROJECT MsCIP Barrier Island Restoration Petit Bois Pass-OCS East				9. SIZE AND TYPE OF BIT N/A			
2. BORING DESIGNATION BI-PBS-027-12		LOCATION COORDINATES E = 1,142,169 N = 231,132		10. COORDINATE SYSTEM/DATUM State Plane, MSE (U.S. Ft.)		HORIZONTAL NAD83 VERTICAL NAVD88	
3. DRILLING AGENCY Corps of Engineers - CESAM		CONTRACTOR FILE NO.		11. MANUFACTURER'S DESIGNATION OF DRILL Vibracore		<input type="checkbox"/> AUTO HAMMER <input type="checkbox"/> MANUAL HAMMER	
4. NAME OF DRILLER American Vibracore Systems, Inc.				12. TOTAL SAMPLES		DISTURBED UNDISTURBED (UD) 0	
5. DIRECTION OF BORING <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED		DEG. FROM VERTICAL		13. TOTAL NUMBER CORE BOXES			
		BEARING		14. WATER DEPTH 55.1 Ft.			
6. THICKNESS OF OVERBURDEN N/A				15. DATE BORING 11-21-12		STARTED COMPLETED 11-21-12	
7. DEPTH DRILLED INTO ROCK N/A				16. ELEVATION TOP OF BORING -56.4 Ft.			
8. TOTAL DEPTH OF BORING 19.7 Ft.				17. TOTAL RECOVERY FOR BORING 100%			
				18. SIGNATURE AND TITLE OF INSPECTOR John Bass, Geotechnical Engineer			

ELEV.	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS	SAMPLE	LABORATORY RESULTS
-56.4	0.0				
			SAND, poorly-graded, mostly fine to medium-grained quartz, some shell fragments, trace fines, light gray (SP)	A	Classification: SP Color: 5Y 7/1-light gray D50: 0.3658 mm % Fines: 1.5
-62.4	6.0				
-63.7	7.3		SAND, poorly-graded, mostly fine-grained sand-sized quartz, some shell fragments, trace fines, lt. gray (SP)	B	Classification: SP-SM Color: 5Y 7/2-light gray D50: 0.2594 mm % Fines: 5.2
			SAND, silty, mostly fine-grained sand-sized quartz, some silt, some shell fragments, gray (SM) At El. -64.4 Ft., mostly fine-grained sand-sized quartz, little shell fragments, gray	NS	
-67.0	10.6				
-69.0	12.6		SAND, poorly-graded, mostly fine-grained sand-sized quartz, little fines, trace shell fragments, clayey lenses at 11.0' and 12.0', lt. gray (SP)	C	Classification: SP-SM Color: 5Y 7/2-light gray D50: 0.2972 mm % Fines: 9.2
-69.9	13.5		SAND, silty, mostly fine-grained sand-sized quartz, some silt, little shell fragments, gray (SM)		
			CLAY, silty, some silt, some clay, trace fine-grained sand-sized quartz, gray (CL-ML) At El. -74.2 Ft., some silt, some clay, some fine-grained sand-sized quartz, little shell fragments, gray	NS	
-76.1	19.7				
NOTES: 1. Soils are field visually classified in accordance with the Unified Soils Classification System. 2. NS = Sample not submitted for laboratory analysis from this interval. 3. Seafloor elevation determined from USACE hydrographic survey completed April 2014.					

**Project**

Mississippi Barrier Island  
Restoration Project



**Core Identifier** BI-PBS-27-12

**Date** 11/21/2012

**Water Depth** 55.1'

**Coordinate System**

**Start Time** 14:11:22

Latitude / Longitude

**End Time** 14:12:22

**Penetration** 20.0'

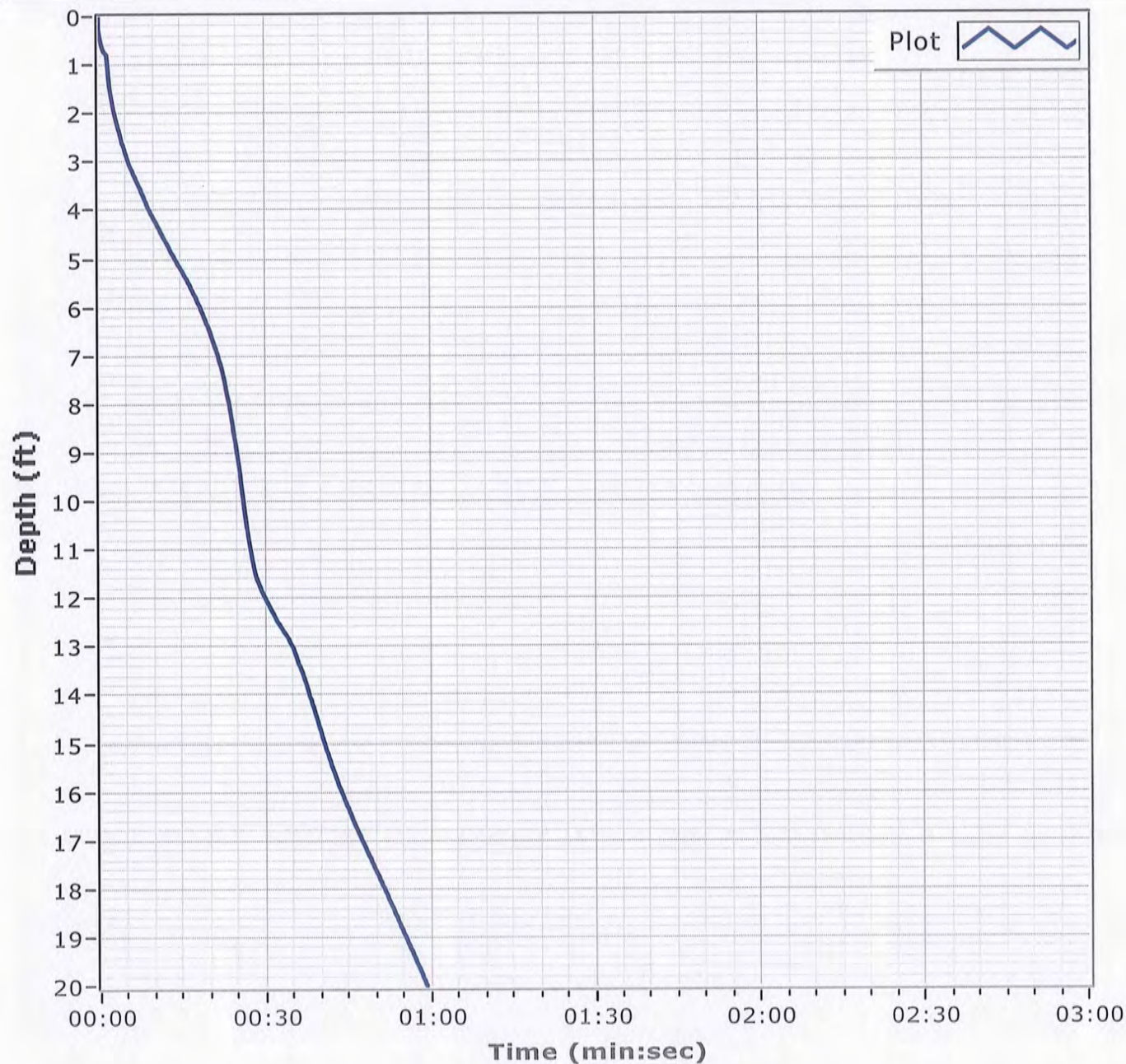
**Latitude** 30 08.077

**Total Time** 00:00:59

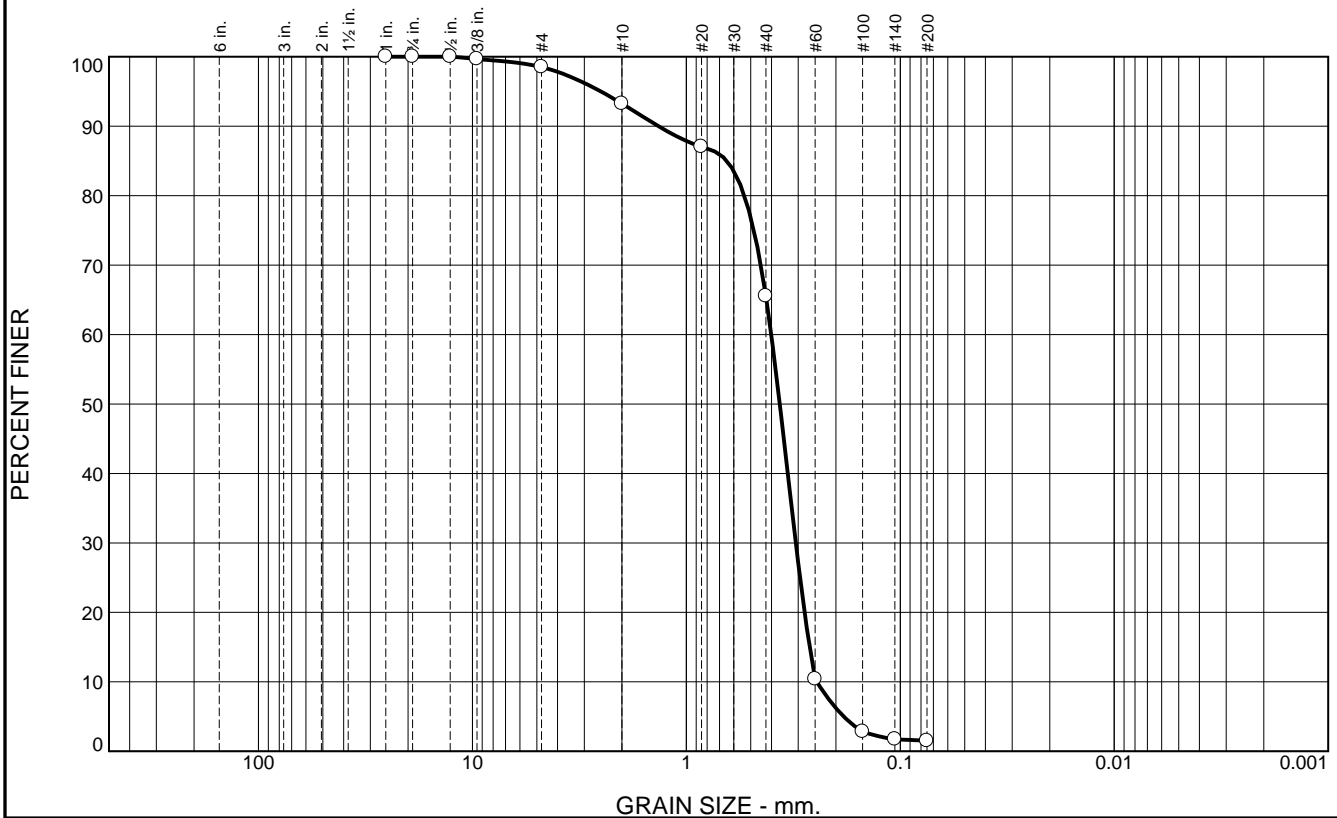
**Recovery** 19.7'

**Longitude** 088 20.026

**Comments**



# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	1.5	5.3	27.7	64.0	1.5	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
1	100.0		
.75	100.0		
.5	100.0		
.375	99.7		
#4	98.5		
#10	93.2		
#20	87.0		
#40	65.5		
#60	10.4		
#100	2.8		
#140	1.7		
#200	1.5		

\* (no specification provided)

## Material Description

Fine to medium grained, SAND, with trace SHELL

## Atterberg Limits

PL= LL= PI=

## Coefficients

D<sub>90</sub>= 1.3510 D<sub>85</sub>= 0.6468 D<sub>60</sub>= 0.4010  
D<sub>50</sub>= 0.3658 D<sub>30</sub>= 0.3080 D<sub>15</sub>= 0.2656  
D<sub>10</sub>= 0.2455 C<sub>u</sub>= 1.63 C<sub>c</sub>= 0.96

## Classification

USCS= SP AASHTO=

## Remarks

Location: BI-PBS-27-12 A  
Sample Number: 6469 (14)

Depth: 0.0'

Date: 11/28/12

**Thompson Engineering**

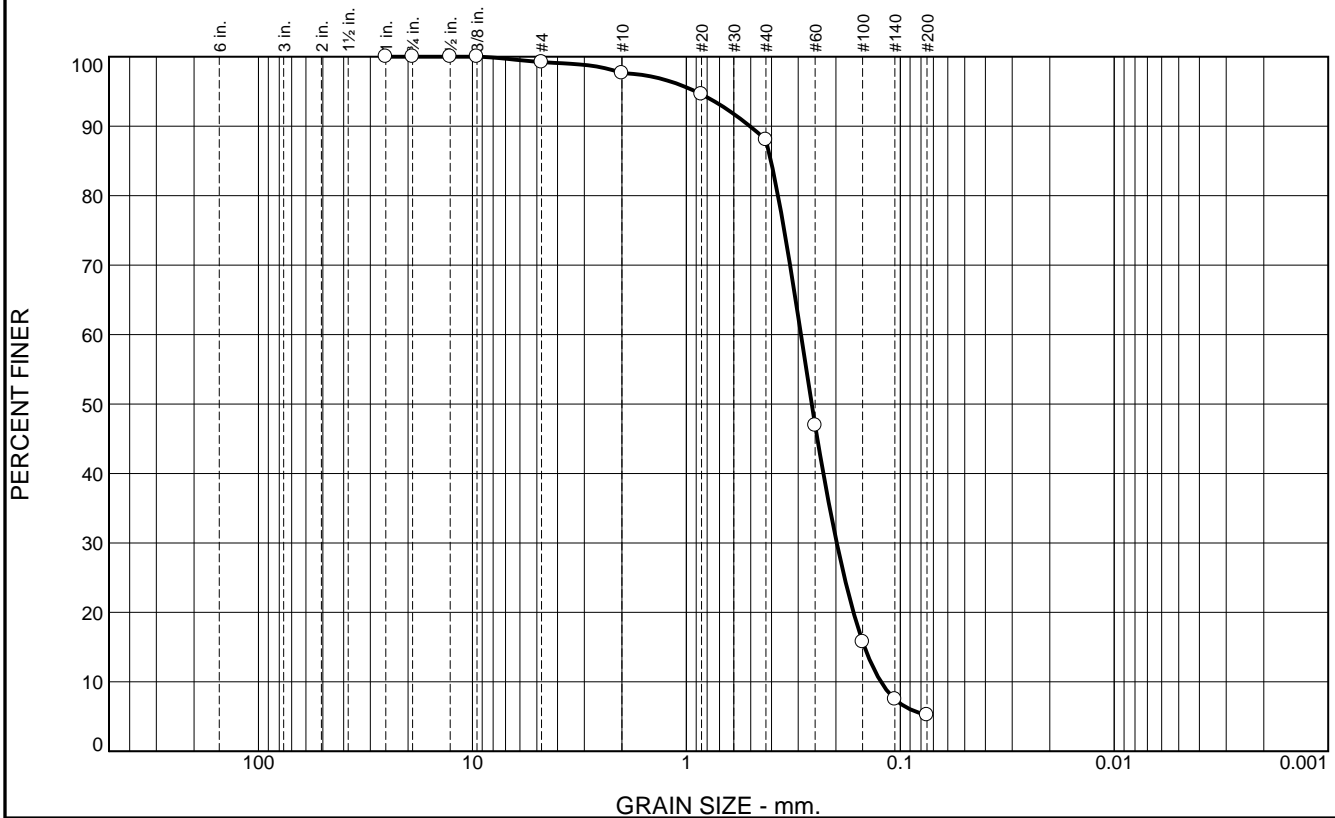
**Mobile, Alabama**

Client: CDM/Thompson Engineering JV  
Project: MsCIP Barrier Island Restoration GT

Project No: 1221110095

Figure

# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.8	1.6	9.6	82.8	5.2	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
1	100.0		
.75	100.0		
.5	100.0		
.375	100.0		
#4	99.2		
#10	97.6		
#20	94.6		
#40	88.0		
#60	46.9		
#100	15.8		
#140	7.5		
#200	5.2		

\* (no specification provided)

## Material Description

Fine grained, SLIGHTLY SILTY SAND

## Atterberg Limits

PL= LL= PI=

## Coefficients

D<sub>90</sub>= 0.5050 D<sub>85</sub>= 0.4022 D<sub>60</sub>= 0.2914  
D<sub>50</sub>= 0.2594 D<sub>30</sub>= 0.1982 D<sub>15</sub>= 0.1470  
D<sub>10</sub>= 0.1232 C<sub>u</sub>= 2.37 C<sub>c</sub>= 1.09

## Classification

USCS= SP-SM AASHTO=

## Remarks

Location: BI-PBS-27-12 B  
Sample Number: 6469 (15)

Depth: 6.0'

Date: 11/28/12

**Thompson Engineering**

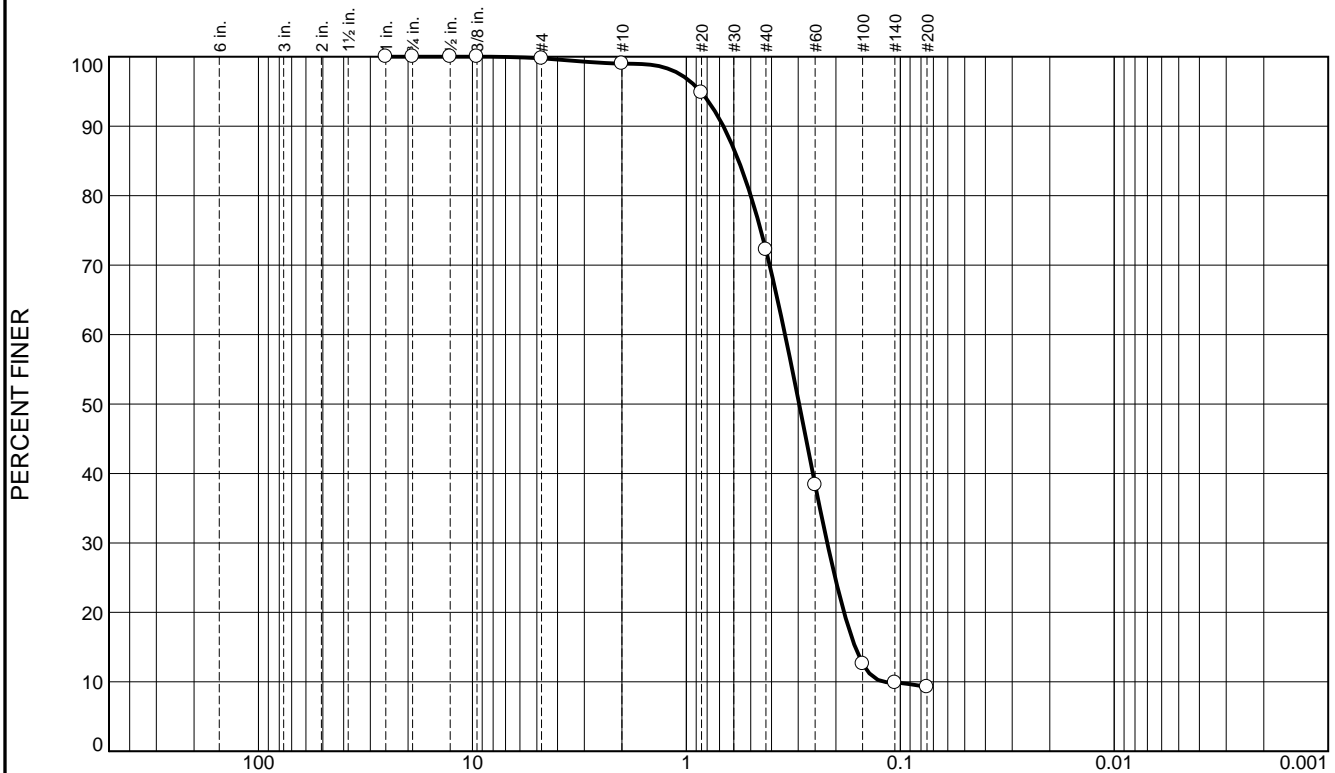
**Mobile, Alabama**

Client: CDM/Thompson Engineering JV  
Project: MsCIP Barrier Island Restoration GT

Project No: 1221110095

Figure

# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.2	0.8	26.8	63.0	9.2	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
1	100.0		
.75	100.0		
.5	100.0		
.375	100.0		
#4	99.8		
#10	99.0		
#20	94.8		
#40	72.2		
#60	38.4		
#100	12.6		
#140	9.9		
#200	9.2		

\* (no specification provided)

<b><u>Material Description</u></b>		
Fine to medium grained, SLIGHTLY SILTY SAND		
<b><u>Atterberg Limits</u></b>		
PL=	LL=	PI=
<b><u>Coefficients</u></b>		
D <sub>90</sub> = 0.6718	D <sub>85</sub> = 0.5694	D <sub>60</sub> = 0.3458
D <sub>50</sub> = 0.2972	D <sub>30</sub> = 0.2195	D <sub>15</sub> = 0.1626
D <sub>10</sub> = 0.1188	C <sub>u</sub> = 2.91	C <sub>c</sub> = 1.17
<b><u>Classification</u></b>		
USCS= SP-SM	AASHTO=	
<b><u>Remarks</u></b>		

Location: BI-PBS-27-12 C  
Sample Number: 6469 (16)

Depth: 10.6'

Date: 11/28/12

**Thompson Engineering**

**Mobile, Alabama**

Client: CDM/Thompson Engineering JV  
Project: MsCIP Barrier Island Restoration GT

Project No: 1221110095

Figure

# Boring Designation BI-PBS-028-12

DRILLING LOG		DIVISION South Atlantic		INSTALLATION Mobile District		SHEET 1 OF 1 SHEETS	
1. PROJECT MsCIP Barrier Island Restoration Petit Bois Pass-OCS East				9. SIZE AND TYPE OF BIT N/A			
2. BORING DESIGNATION BI-PBS-028-12		LOCATION COORDINATES E = 1,143,084 N = 230,830		10. COORDINATE SYSTEM/DATUM State Plane, MSE (U.S. Ft.)		HORIZONTAL NAD83	
3. DRILLING AGENCY Corps of Engineers - CESAM		CONTRACTOR FILE NO.		11. MANUFACTURER'S DESIGNATION OF DRILL Vibracore		<input type="checkbox"/> AUTO HAMMER <input type="checkbox"/> MANUAL HAMMER	
4. NAME OF DRILLER American Vibracore Systems, Inc.				12. TOTAL SAMPLES		DISTURBED 0	
5. DIRECTION OF BORING <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED				13. TOTAL NUMBER CORE BOXES		14. WATER DEPTH 56.4 Ft.	
6. THICKNESS OF OVERBURDEN N/A				15. DATE BORING		STARTED 11-21-12	
7. DEPTH DRILLED INTO ROCK N/A				16. ELEVATION TOP OF BORING -56.8 Ft.		COMPLETED 11-21-12	
8. TOTAL DEPTH OF BORING 12.4 Ft.				17. TOTAL RECOVERY FOR BORING 100%			
				18. SIGNATURE AND TITLE OF INSPECTOR John Bass, Geotechnical Engineer			

ELEV.	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS	SAMPLE	LABORATORY RESULTS
-56.8	0.0				
			SAND, poorly-graded, mostly fine-grained sand-sized quartz, trace fines, trace shell fragments, trace wood debris, lt. gray (SP)	A	Classification: SP Color: 5Y 7/2-light gray D50: 0.2984 mm % Fines: 2.9
-63.3	6.5				
-65.3	8.5		SAND, silty, mostly fine-grained sand-sized quartz, little shell fragments, trace wood debris, gray (SM)		
-66.8	10.0		CLAY, silty, some clay, some silt, little fine-grained sand-sized quartz, trace wood debris, gray (CL-ML)	NS	
-67.8	11.0				
-69.2	12.4		SAND, silty, mostly fine-grained sand-sized quartz, some silt, some shell fragments, little wood debris, gray (SM)	B	Classification: SP-SM Color: 5Y 7/2-light gray D50: 0.2837 mm % Fines: 8.5
			SAND, poorly-graded, mostly fine-grained sand-sized quartz, little fines, trace shell fragments, trace wood debris, lt. gray (SP)		
NOTES: 1. Soils are field visually classified in accordance with the Unified Soils Classification System. 2. NS = Sample not submitted for laboratory analysis from this interval. 3. Seafloor elevation determined from USACE hydrographic survey completed April 2014.					



**Project**

Mississippi Barrier Island  
Restoration Project

**AVS**  
**AMERICAN VIBRACORE**  
**S E R V I C E S**

**Core Identifier** BI-PBS-28-12

**Date** 11/21/2012

**Water Depth** 56.4'

**Coordinate System**

Latitude / Longitude

**Start Time** 13:36:59

**End Time** 13:39:10

**Penetration** 20.0'

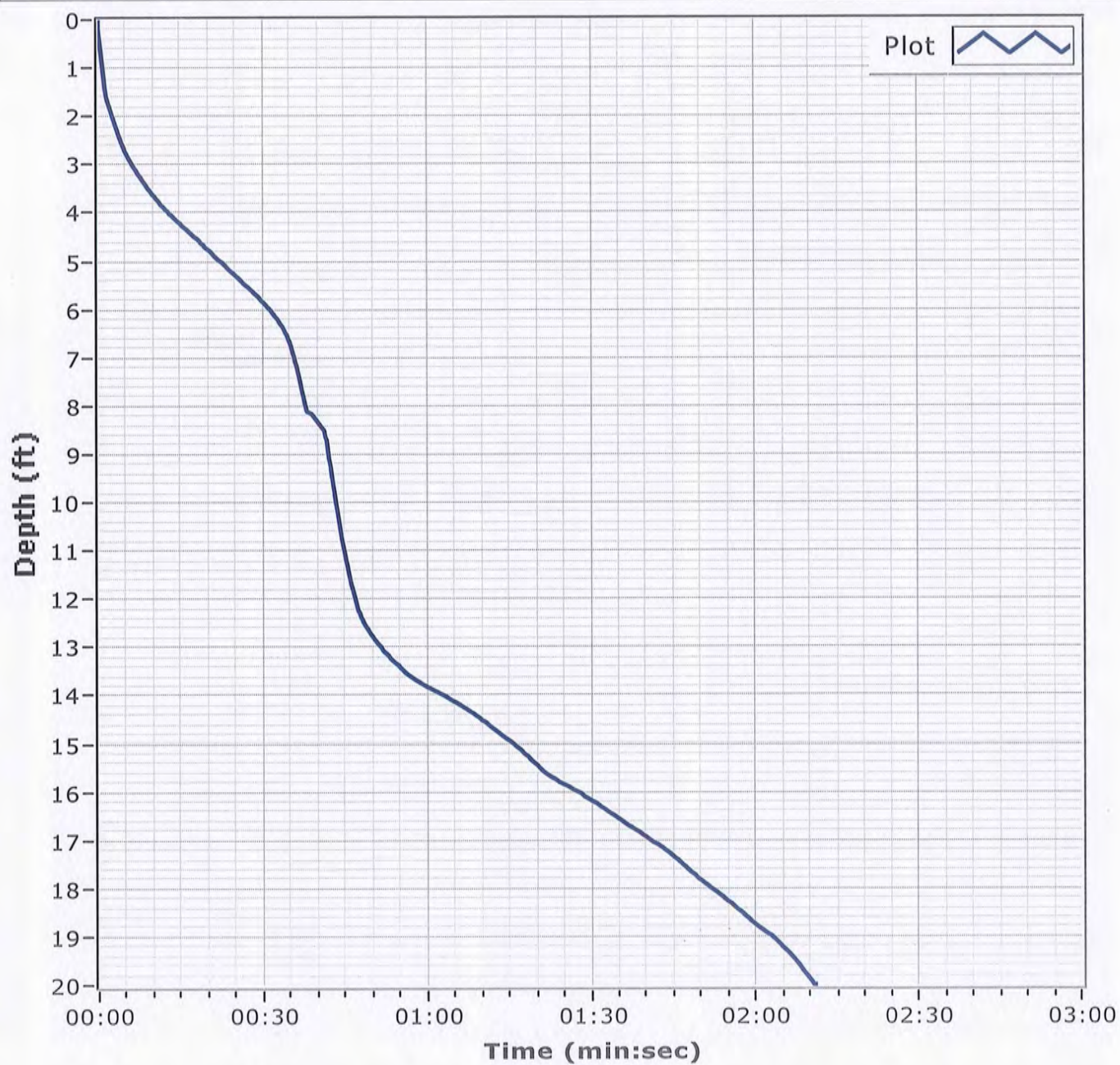
**Latitude** 30 08.027

**Total Time** 00:02:11

**Recovery** 12.4'

**Longitude** 088 19.853

**Comments**



# Particle Size Distribution Report



GRAIN SIZE - mm.

% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	1.2	2.1	14.3	79.5	2.9	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
1	100.0		
.75	100.0		
.5	100.0		
.375	99.4		
#4	98.8		
#10	96.7		
#20	93.1		
#40	82.4		
#60	33.3		
#100	8.6		
#140	4.2		
#200	2.9		

\* (no specification provided)

## Material Description

Fine to medium grained, SAND, with trace SHELL

## Atterberg Limits

PL= LL= PI=

## Coefficients

D<sub>90</sub>= 0.6592 D<sub>85</sub>= 0.4861 D<sub>60</sub>= 0.3292  
D<sub>50</sub>= 0.2984 D<sub>30</sub>= 0.2398 D<sub>15</sub>= 0.1847  
D<sub>10</sub>= 0.1588 C<sub>u</sub>= 2.07 C<sub>c</sub>= 1.10

## Classification

USCS= SP AASHTO=

## Remarks

Location: BI-PBS-28-12 A  
Sample Number: 6469 (12)

Depth: 0.0'

Date: 11/28/12

**Thompson Engineering**

**Mobile, Alabama**

Client: CDM/Thompson Engineering JV  
Project: MsCIP Barrier Island Restoration GT

Project No: 1221110095

Figure

# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.4	1.5	20.8	68.8	8.5	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
1	100.0		
.75	100.0		
.5	100.0		
.375	100.0		
#4	99.6		
#10	98.1		
#20	94.5		
#40	77.3		
#60	40.3		
#100	11.0		
#140	9.0		
#200	8.5		

\* (no specification provided)

<b>Material Description</b> Fine to medium grained, SLIGHTLY SILTY SAND		
PL=	<b>Atterberg Limits</b> LL=	PI=
D <sub>90</sub> = 0.6111	<b>Coefficients</b> D <sub>85</sub> = 0.5091	D <sub>60</sub> = 0.3242
D <sub>50</sub> = 0.2837	D <sub>30</sub> = 0.2173	D <sub>15</sub> = 0.1683
D <sub>10</sub> = 0.1305	C <sub>u</sub> = 2.49	C <sub>c</sub> = 1.12
USCS= SP-SM	<b>Classification</b> AASHTO=	
<b>Remarks</b>		

Location: BI-PBS-28-12 B  
Sample Number: 6469 (13)

Depth: 11.0'

Date: 11/28/12

**Thompson Engineering**

**Mobile, Alabama**

Client: CDM/Thompson Engineering JV  
Project: MsCIP Barrier Island Restoration GT

Project No: 1221110095

Figure

# Boring Designation BI-PBS-029-12

DRILLING LOG		DIVISION South Atlantic		INSTALLATION Mobile District		SHEET 1 OF 1 SHEETS	
1. PROJECT MsCIP Barrier Island Restoration Petit Bois Pass-OCS East				9. SIZE AND TYPE OF BIT N/A			
2. BORING DESIGNATION BI-PBS-029-12		LOCATION COORDINATES E = 1,143,592 N = 230,305		10. COORDINATE SYSTEM/DATUM State Plane, MSE (U.S. Ft.)		HORIZONTAL NAD83	
3. DRILLING AGENCY Corps of Engineers - CESAM		CONTRACTOR FILE NO.		11. MANUFACTURER'S DESIGNATION OF DRILL Vibrocure		<input type="checkbox"/> AUTO HAMMER <input type="checkbox"/> MANUAL HAMMER	
4. NAME OF DRILLER American Vibrocure Systems, Inc.				12. TOTAL SAMPLES		DISTURBED 0	
5. DIRECTION OF BORING <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED				13. TOTAL NUMBER CORE BOXES		14. WATER DEPTH 62 Ft.	
6. THICKNESS OF OVERBURDEN N/A				15. DATE BORING		STARTED 11-24-12	
7. DEPTH DRILLED INTO ROCK N/A				16. ELEVATION TOP OF BORING -55.2 Ft.		COMPLETED 11-24-12	
8. TOTAL DEPTH OF BORING 7.2 Ft.				17. TOTAL RECOVERY FOR BORING 100%		18. SIGNATURE AND TITLE OF INSPECTOR John Bass, Geotechnical Engineer	
ELEV.	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS	SAMPLE	LABORATORY RESULTS		
-55.2	0.0						
			SAND, poorly-graded, mostly fine to medium-grained sand-sized quartz, trace fines, trace shell fragments, lt. gray (SP)	A	Classification: SP Color: 5Y 7/2-light gray D50: 0.2483 mm % Fines: 2.1		
-61.2	6.0			B	Classification: SP-SM Color: 5Y 6/2-light olive gray D50: 0.1892 mm % Fines: 10.9		
-61.8	6.6		SAND, poorly-graded, mostly fine-grained sand-sized quartz, trace silt, gray (SP)	NS			
-62.4	7.2		CLAY, lean, mostly clay, little fine-grained sand-sized quartz, gray (CL)				
NOTES:							
1. Soils are field visually classified in accordance with the Unified Soils Classification System.							
2. NS = Sample not submitted for laboratory analysis from this interval.							
3. Seafloor elevation determined from USACE hydrographic survey completed April 2014.							



**Project**

Mississippi Barrier Island  
Restoration Project



**Core Identifier** BI-PBS-29-12

**Date** 11/24/2012

**Water Depth** 62.0'

**Coordinate System**

**Start Time** 12:53:28

Latitude / Longitude

**End Time** 12:54:59

**Penetration** 20.0'

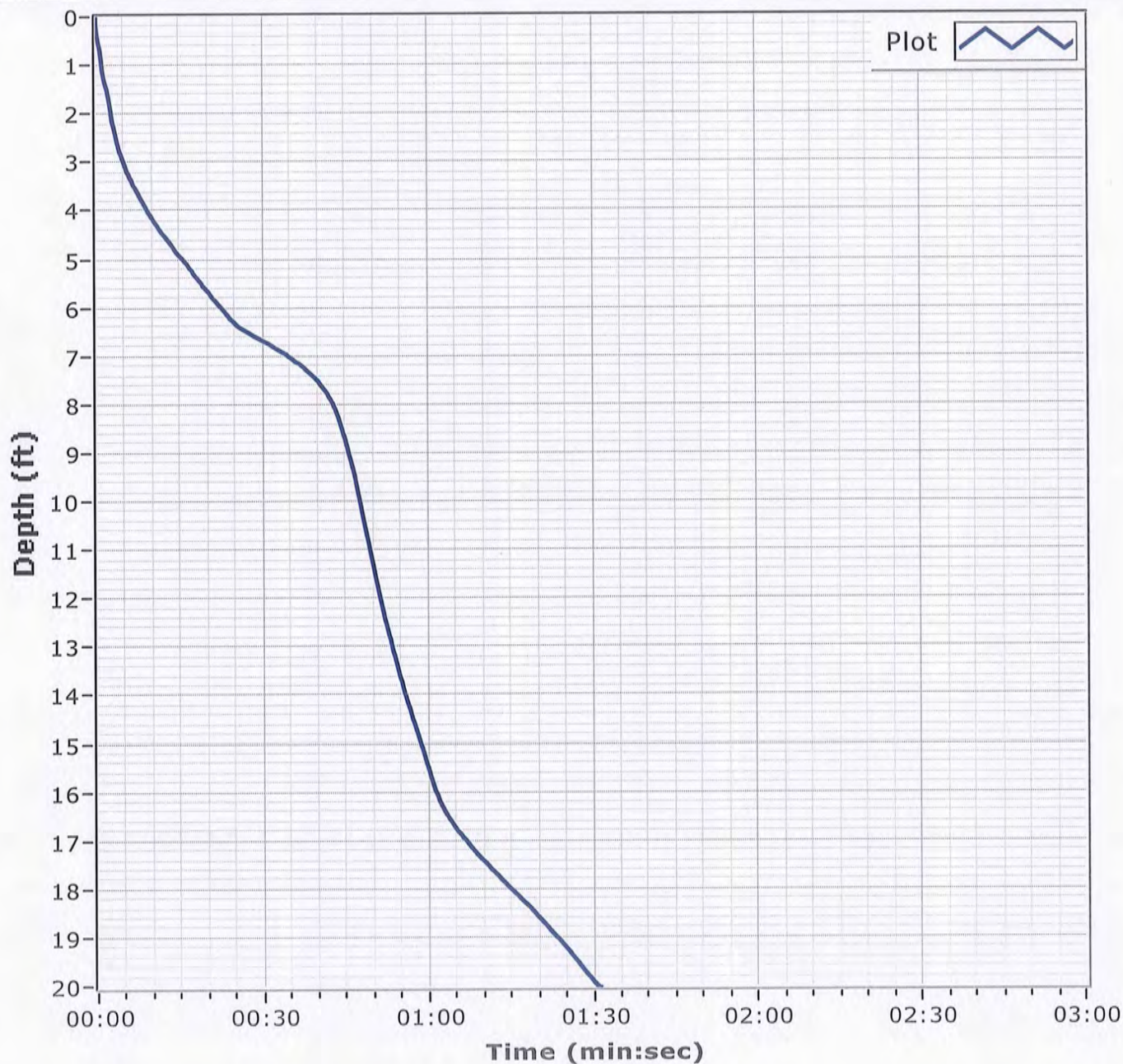
**Latitude** 30 07.940

**Total Time** 00:01:31

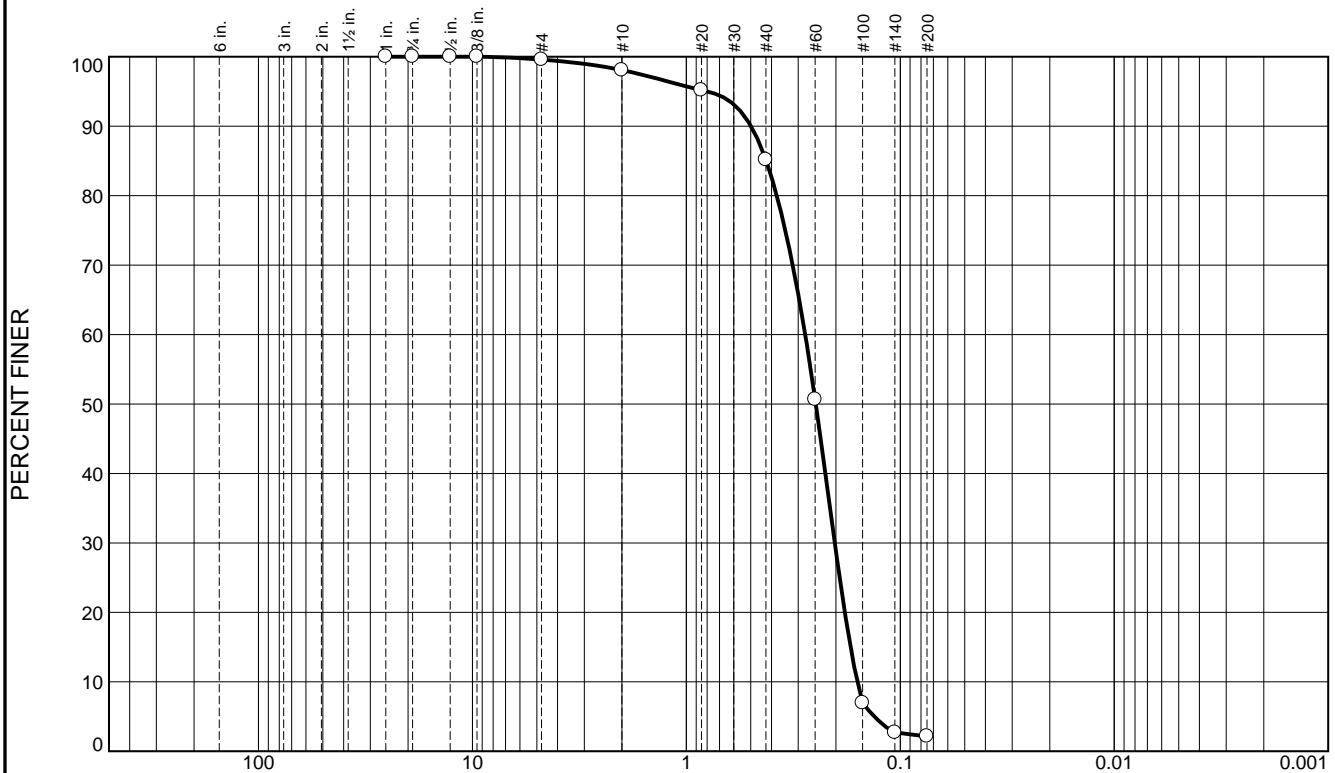
**Recovery** 7.2'

**Longitude** 088 19.757

**Comments**



# Particle Size Distribution Report



GRAIN SIZE - mm.

% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.4	1.5	12.9	83.1	2.1	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
1	100.0		
.75	100.0		
.5	100.0		
.375	100.0		
#4	99.6		
#10	98.1		
#20	95.2		
#40	85.2		
#60	50.6		
#100	7.0		
#140	2.7		
#200	2.1		

\* (no specification provided)

## Material Description

Fine to medium grained, SAND

## Atterberg Limits

PL= LL= PI=

## Coefficients

D<sub>90</sub>= 0.4988 D<sub>85</sub>= 0.4232 D<sub>60</sub>= 0.2784  
D<sub>50</sub>= 0.2483 D<sub>30</sub>= 0.2025 D<sub>15</sub>= 0.1710  
D<sub>10</sub>= 0.1589 C<sub>u</sub>= 1.75 C<sub>c</sub>= 0.93

## Classification

USCS= SP AASHTO=

## Remarks

Location: BI-PBS-29-12 A  
Sample Number: 6469 (45)

Depth: 0.0'

Date: 11/28/12

**Thompson Engineering**

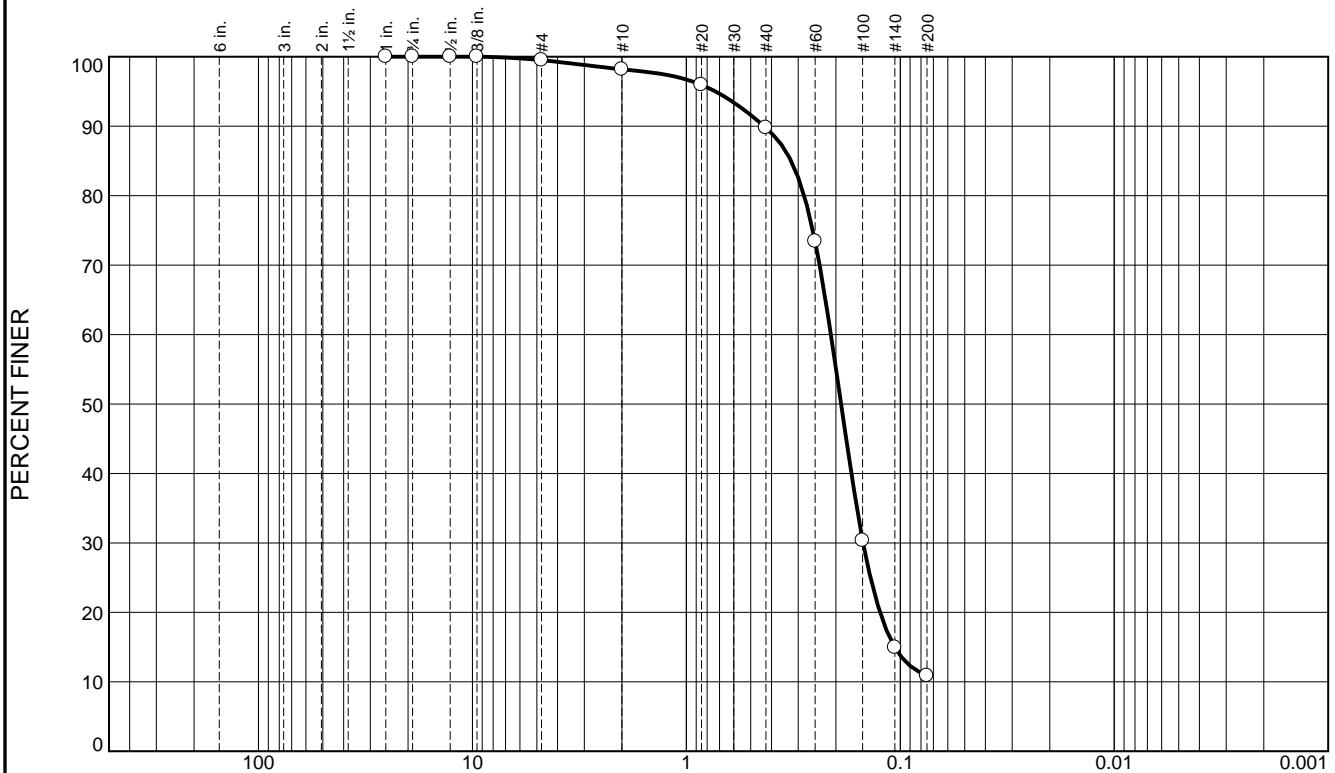
**Mobile, Alabama**

Client: CDM/Thompson Engineering JV  
Project: MsCIP Barrier Island Restoration GT

Project No: 1221110095

Figure

# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.5	1.3	8.5	78.8	10.9	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
1	100.0		
.75	100.0		
.5	100.0		
.375	100.0		
#4	99.5		
#10	98.2		
#20	95.9		
#40	89.7		
#60	73.4		
#100	30.3		
#140	15.0		
#200	10.9		

\* (no specification provided)

<u><b>Material Description</b></u>		
Fine grained, SLIGHTLY SILTY SAND		
<u><b>Atterberg Limits</b></u>		
PL=	LL=	PI=
<u><b>Coefficients</b></u>		
D <sub>90</sub> = 0.4341	D <sub>85</sub> = 0.3239	D <sub>60</sub> = 0.2111
D <sub>50</sub> = 0.1892	D <sub>30</sub> = 0.1493	D <sub>15</sub> = 0.1062
D <sub>10</sub> =	C <sub>u</sub> =	C <sub>c</sub> =
<u><b>Classification</b></u>		
USCS= SP-SM	AASHTO=	
<u><b>Remarks</b></u>		

Location: BI-PBS-29-12 B  
Sample Number: 6469 (46)

Depth: 6.0'

Date: 11/28/12

**Thompson Engineering**

**Mobile, Alabama**

Client: CDM/Thompson Engineering JV  
Project: MsCIP Barrier Island Restoration GT

Project No: 1221110095

Figure

# Boring Designation BI-PBS-030-12

DRILLING LOG		DIVISION South Atlantic		INSTALLATION Mobile District		SHEET 1 OF 1 SHEETS	
1. PROJECT MsCIP Barrier Island Restoration Petit Bois Pass-OCS East				9. SIZE AND TYPE OF BIT N/A			
2. BORING DESIGNATION BI-PBS-030-12		LOCATION COORDINATES E = 1,143,904 N = 229,830		10. COORDINATE SYSTEM/DATUM State Plane, MSE (U.S. Ft.)		HORIZONTAL NAD83 VERTICAL NAVD88	
3. DRILLING AGENCY Corps of Engineers - CESAM		CONTRACTOR FILE NO.		11. MANUFACTURER'S DESIGNATION OF DRILL Vibracore		<input type="checkbox"/> AUTO HAMMER <input type="checkbox"/> MANUAL HAMMER	
4. NAME OF DRILLER American Vibracore Systems, Inc.				12. TOTAL SAMPLES		DISTURBED UNDISTURBED (UD) 0	
5. DIRECTION OF BORING <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED		DEG. FROM VERTICAL		13. TOTAL NUMBER CORE BOXES			
6. THICKNESS OF OVERBURDEN N/A				14. WATER DEPTH 62.7 Ft.			
7. DEPTH DRILLED INTO ROCK N/A				15. DATE BORING 11-24-12		COMPLETED 11-24-12	
8. TOTAL DEPTH OF BORING 15.6 Ft.				16. ELEVATION TOP OF BORING -60.4 Ft.			
				17. TOTAL RECOVERY FOR BORING 100%			
				18. SIGNATURE AND TITLE OF INSPECTOR John Bass, Geotechnical Engineer			
ELEV.	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS	SAMPLE	LABORATORY RESULTS		
-60.4	0.0						
-63.5	3.1		SAND, poorly-graded, mostly fine-grained sand-sized quartz, little shell fragments, trace fines, lt. gray (SP)	A	Classification: SP Color: 2.5Y 6/2-light brownish gray D50: 0.2933 mm % Fines: 3		
-67.0	6.6		SAND, silty, mostly fine-grained sand-sized quartz, some shell fragments, gray (SM)	NS			
-68.0	7.6		CLAY, lean, mostly clay, little fine-grained sand-sized quartz, trace shell fragments, gray (CL)				
-69.5	9.1		SAND, clayey, mostly fine-grained sand-sized quartz, trace shell fragments, borderline CL, gray (SC)				
-74.7	14.3		CLAY, lean, mostly clay, trace fine-grained sand-sized quartz, trace shell fragments, gray (CL)				
-76.0	15.6		SAND, poorly-graded with silt, mostly fine-grained sand-sized quartz, few silt, trace shell fragments, lt. gray to gray (SP-SM)	B	Classification: SM Color: 2.5Y 6/2-light brownish gray D50: 0.3355 mm % Fines: 22.5		
NOTES: 1. Soils are field visually classified in accordance with the Unified Soils Classification System. 2. NS = Sample not submitted for laboratory analysis from this interval. 3. Seafloor elevation determined from USACE hydrographic survey completed April 2014.							



**Project**

Mississippi Barrier Island  
Restoration Project



**Core Identifier** BI-PBS-30-12

**Date** 11/24/2012

**Water Depth** 62.7'

**Coordinate System**

**Start Time** 12:11:23

Latitude / Longitude

**End Time** 12:12:52

**Penetration** 19.4'

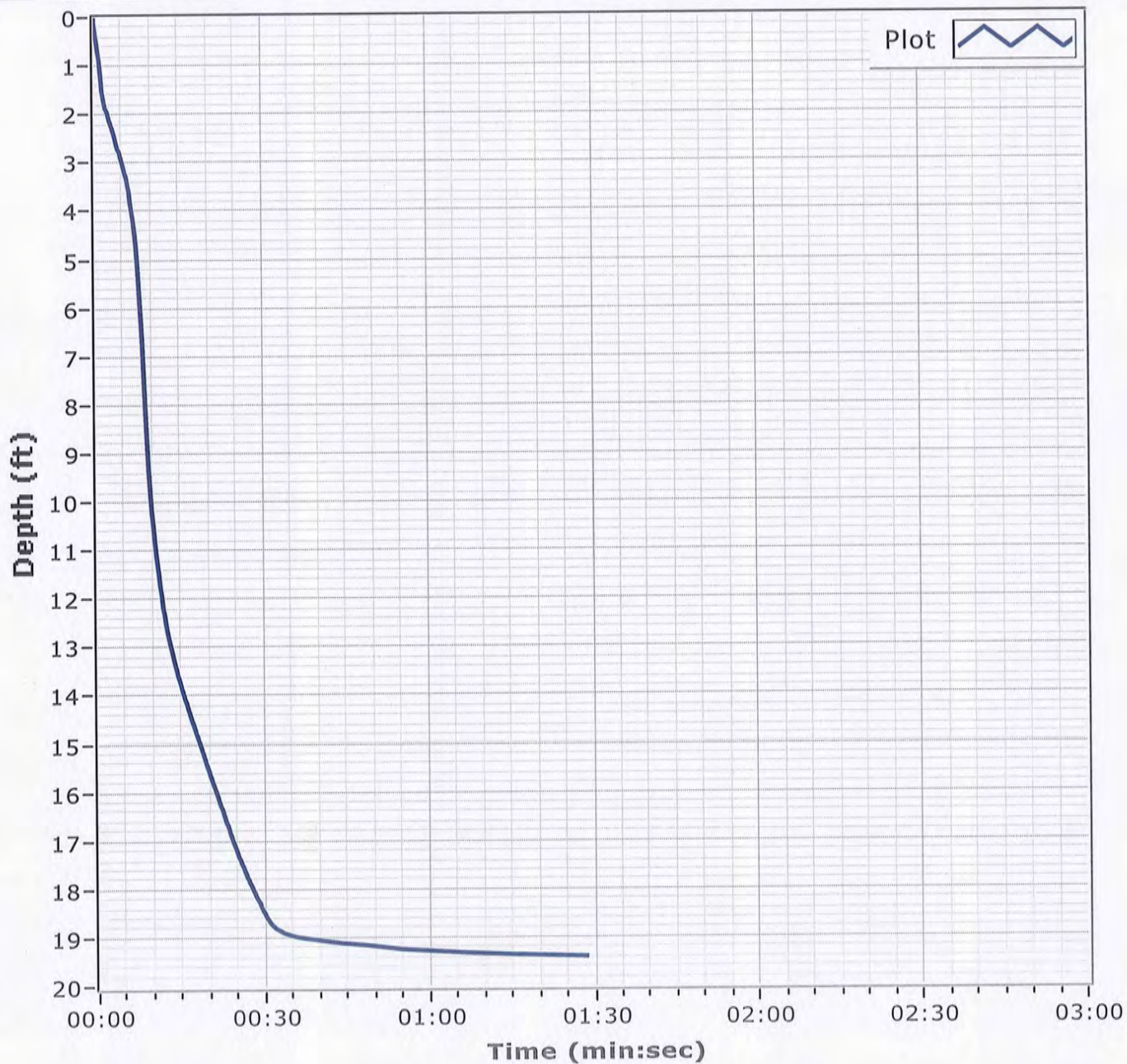
**Latitude** 30 07.861

**Total Time** 00:01:28

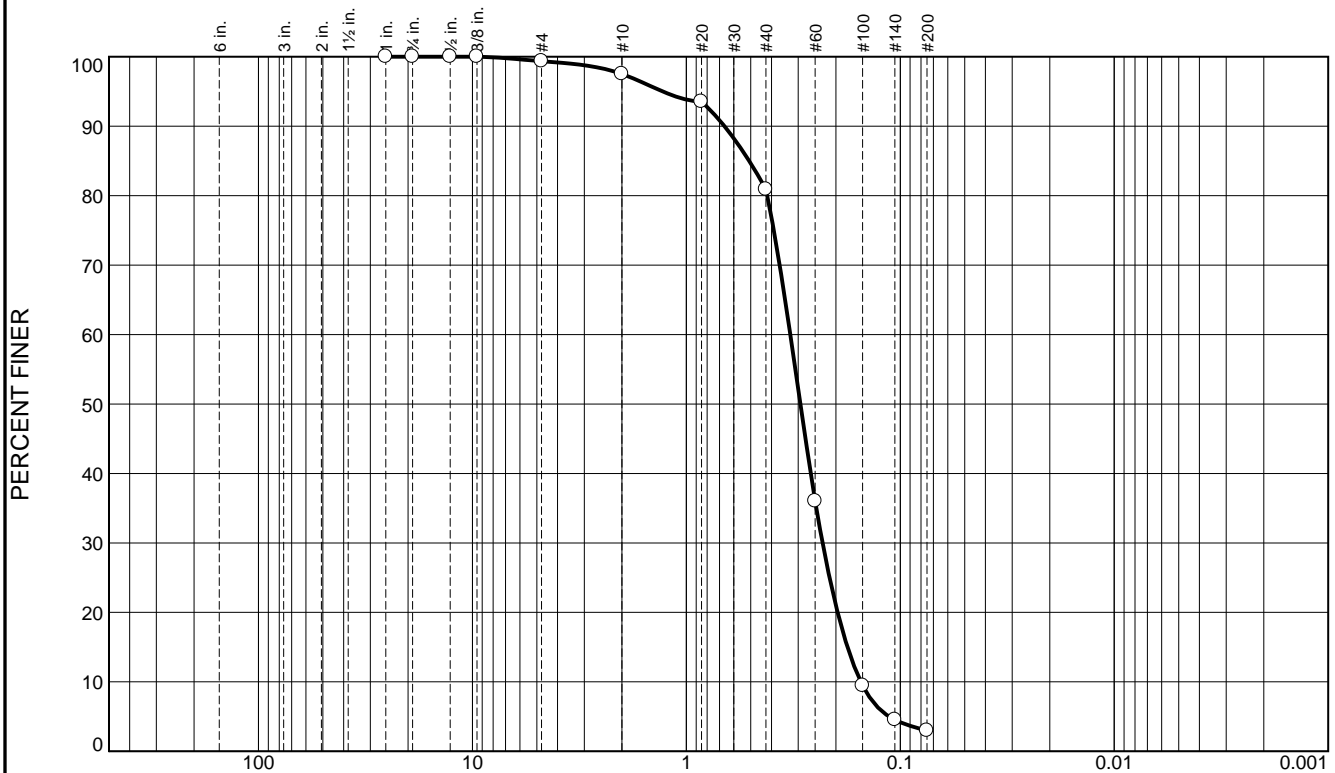
**Recovery** 15.6'

**Longitude** 088 19.698

**Comments**



# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.7	1.8	16.6	77.9	3.0	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
1	100.0		
.75	100.0		
.5	100.0		
.375	100.0		
#4	99.3		
#10	97.5		
#20	93.5		
#40	80.9		
#60	36.0		
#100	9.5		
#140	4.6		
#200	3.0		

\* (no specification provided)

<b>Material Description</b> Fine to medium grained, SAND		
PL=	<b>Atterberg Limits</b> LL=	PI=
D <sub>90</sub> = 0.6638 D <sub>50</sub> = 0.2933 D <sub>10</sub> = 0.1530	<b>Coefficients</b> D <sub>85</sub> = 0.5089 D <sub>30</sub> = 0.2309 C <sub>u</sub> = 2.14	D <sub>60</sub> = 0.3268 D <sub>15</sub> = 0.1767 C <sub>c</sub> = 1.07
USCS= SP	<b>Classification</b> AASHTO=	
<b>Remarks</b>		

Location: BI-PBS-30-12 A  
Sample Number: 6469 (43)

Depth: 0.0'

Date: 11/28/12

**Thompson Engineering**

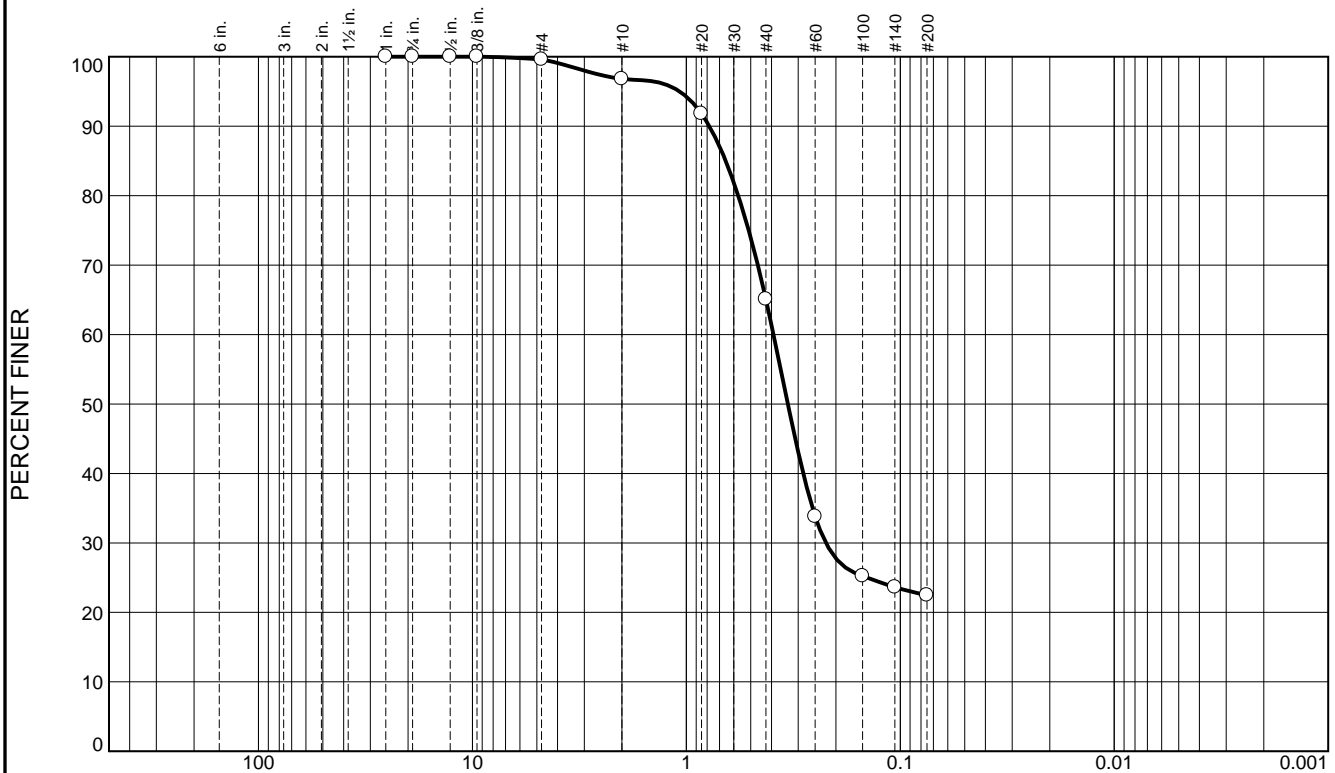
**Mobile, Alabama**

Client: CDM/Thompson Engineering JV  
Project: MsCIP Barrier Island Restoration GT

Project No: 1221110095

Figure

# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.4	2.8	31.7	42.6	22.5	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
1	100.0		
.75	100.0		
.5	100.0		
.375	100.0		
#4	99.6		
#10	96.8		
#20	91.8		
#40	65.1		
#60	33.8		
#100	25.2		
#140	23.6		
#200	22.5		

\* (no specification provided)

## Material Description

Fine to medium grained, SILTY SAND

## Atterberg Limits

PL= LL= PI=

## Coefficients

D<sub>90</sub>= 0.7814 D<sub>85</sub>= 0.6548 D<sub>60</sub>= 0.3915  
D<sub>50</sub>= 0.3355 D<sub>30</sub>= 0.2227 D<sub>15</sub>=  
D<sub>10</sub>= C<sub>u</sub>= C<sub>c</sub>=

## Classification

USCS= SM AASHTO=

## Remarks

Location: BI-PBS-30-12 B  
Sample Number: 6469 (44)

Depth: 14.3'

Date: 11/28/12

**Thompson Engineering**

**Mobile, Alabama**

Client: CDM/Thompson Engineering JV  
Project: MsCIP Barrier Island Restoration GT

Project No: 1221110095

Figure

# Boring Designation BI-PBS-031-12

DRILLING LOG		DIVISION South Atlantic		INSTALLATION Mobile District		SHEET 1 OF 1 SHEETS	
1. PROJECT MsCIP Barrier Island Restoration Petit Bois Pass-OCS East				9. SIZE AND TYPE OF BIT N/A			
2. BORING DESIGNATION BI-PBS-031-12		LOCATION COORDINATES E = 1,139,062 N = 230,856		10. COORDINATE SYSTEM/DATUM State Plane, MSE (U.S. Ft.)		HORIZONTAL NAD83	
3. DRILLING AGENCY Corps of Engineers - CESAM		CONTRACTOR FILE NO.		11. MANUFACTURER'S DESIGNATION OF DRILL Vibracore		<input type="checkbox"/> AUTO HAMMER <input type="checkbox"/> MANUAL HAMMER	
4. NAME OF DRILLER American Vibracore Systems, Inc.				12. TOTAL SAMPLES		DISTURBED 0	
5. DIRECTION OF BORING <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED				13. TOTAL NUMBER CORE BOXES		14. WATER DEPTH 55.1 Ft.	
6. THICKNESS OF OVERBURDEN N/A				15. DATE BORING		STARTED 11-26-12	
7. DEPTH DRILLED INTO ROCK N/A				16. ELEVATION TOP OF BORING -55.5 Ft.		COMPLETED 11-26-12	
8. TOTAL DEPTH OF BORING 19.7 Ft.				17. TOTAL RECOVERY FOR BORING 100%		18. SIGNATURE AND TITLE OF INSPECTOR Mike FitzHarris, Geologist	
ELEV.	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS	SAMPLE	LABORATORY RESULTS		
-55.5	0.0						
			SAND, poorly-graded with silt, mostly fine to medium-grained sand-sized quartz, trace shell fragments, trace clay, gray (SP-SM)	A	Classification: SP Color: 5Y 6/2-light olive gray D50: 0.2707 mm % Fines: 2.4		
-59.2	3.7						
			SAND, clayey, mostly fine to medium-grained sand-sized quartz, little silt, trace shell fragments, clay stringers, gray (SC)				
-62.4	6.9						
			CLAY, fat, mostly clay, trace wood debris, with silty lenses, some fine grained sand-sized quartz intermixed, medium plasticity, trace clayey sand lenses, gray with brown streaks (CH)	NS			
-75.2	19.7						
			NOTES: 1. Soils are field visually classified in accordance with the Unified Soils Classification System. 2. NS = Sample not submitted for laboratory analysis from this interval. 3. Seafloor elevation determined from USACE hydrographic survey completed April 2014.				



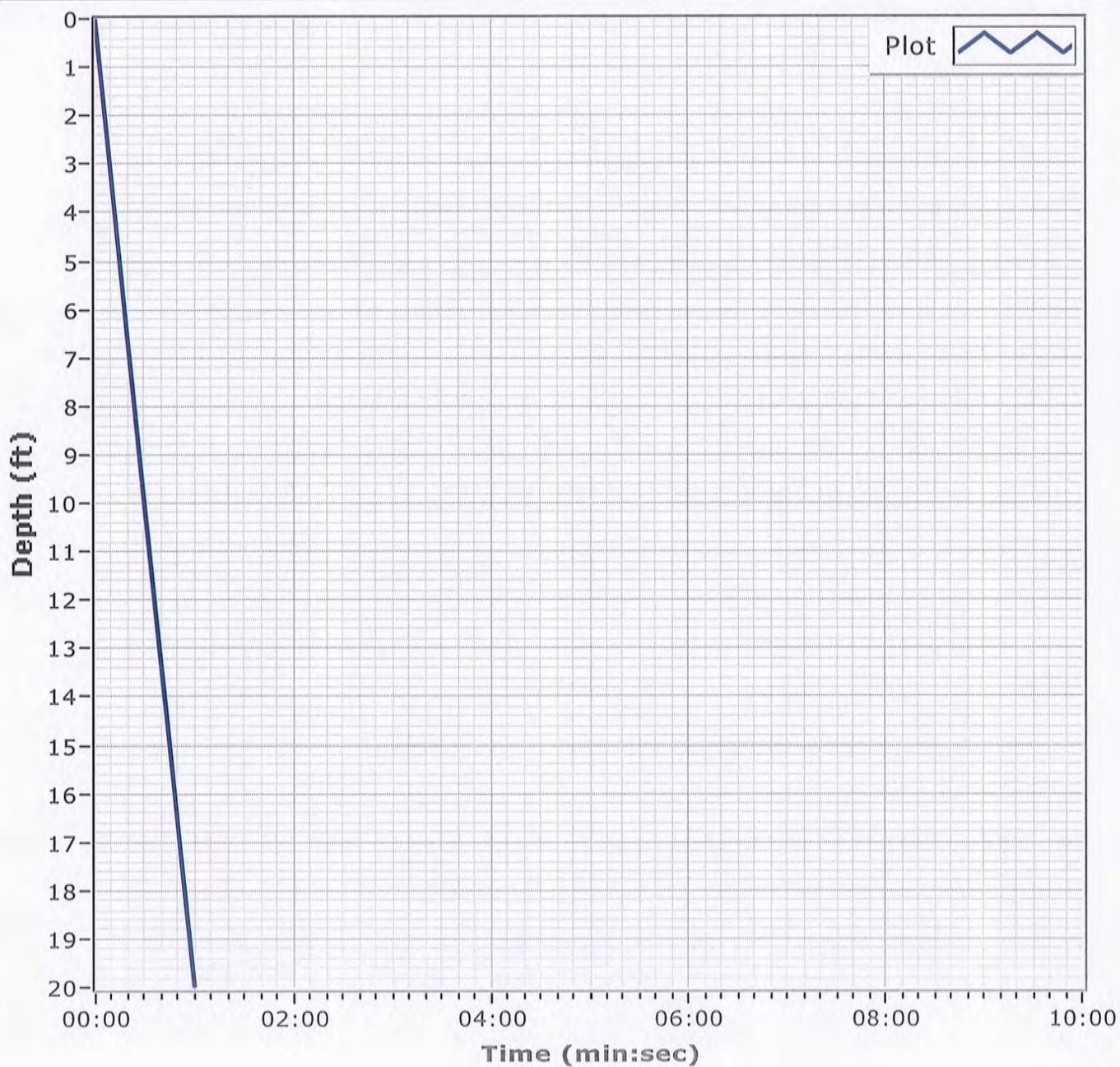
**Project**

Mississippi Barrier Island  
Restoration Project

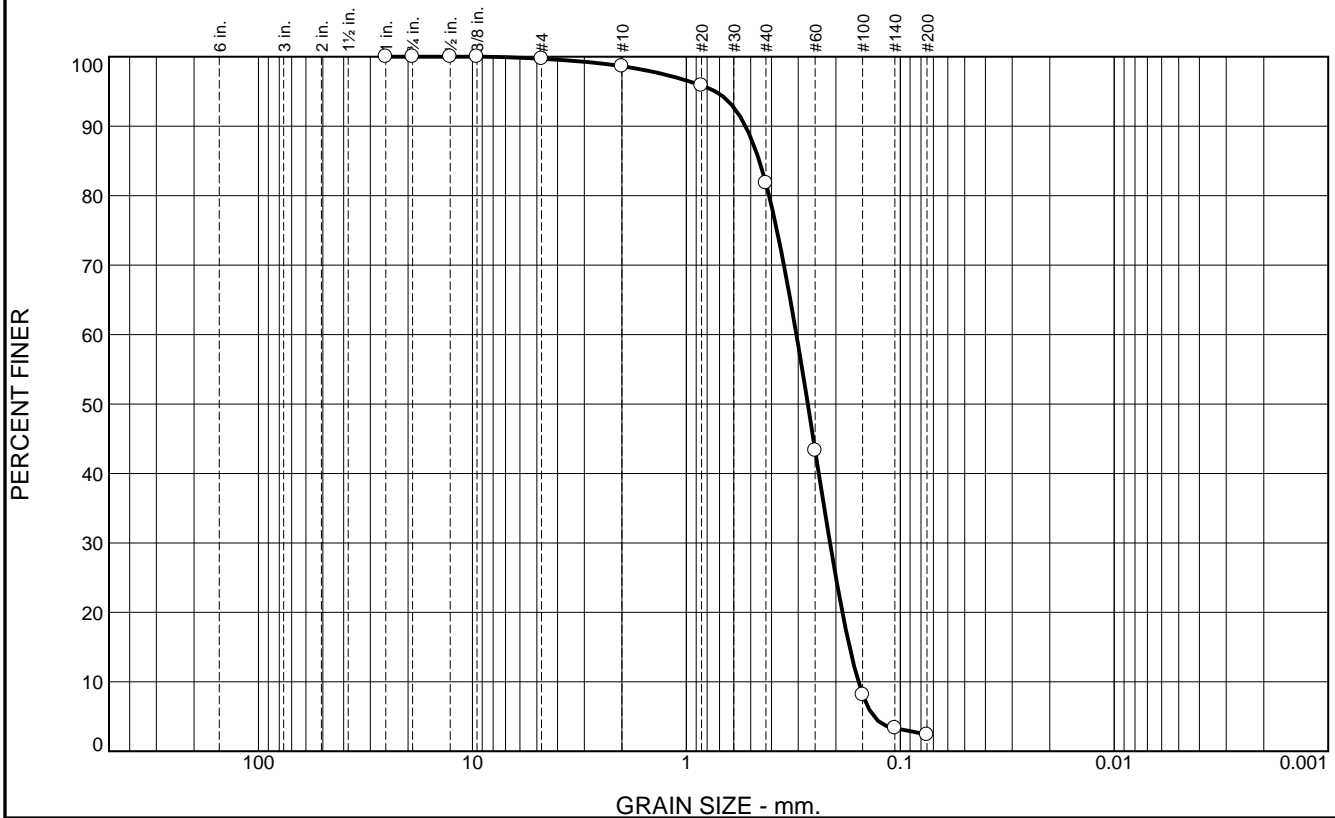
**AVS**  
**AMERICAN VIBRACORE**  
**S E R V I C E S**

**Core Identifier** BI-PBS-31-12**Date** 11/26/2012**Water Depth** 55.1'**Coordinate System**

Latitude / Longitude

**Start Time** 09:05:03**End Time** 09:06:03**Penetration** 20.0'**Latitude** 30 08.034**Total Time** 00:01:00**Recovery** 19.7'**Longitude** 088 20.616**Comments**

# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.3	1.1	16.8	79.4	2.4	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
1	100.0		
.75	100.0		
.5	100.0		
.375	100.0		
#4	99.7		
#10	98.6		
#20	95.9		
#40	81.8		
#60	43.3		
#100	8.1		
#140	3.3		
#200	2.4		

\* (no specification provided)

**Material Description**  
Fine to medium grained, SAND

**Atterberg Limits**  
PL=      LL=      PI=

**Coefficients**  
D<sub>90</sub>= 0.5289      D<sub>85</sub>= 0.4558      D<sub>60</sub>= 0.3060  
D<sub>50</sub>= 0.2707      D<sub>30</sub>= 0.2131      D<sub>15</sub>= 0.1727  
D<sub>10</sub>= 0.1570      C<sub>u</sub>= 1.95      C<sub>c</sub>= 0.94

**Classification**  
USCS= SP      AASHTO=

**Remarks**

Location: BI-PBS-31-12 A  
Sample Number: 6469 (59)

Depth: 0.0'

Date: 11/28/12

**Thompson Engineering**

**Mobile, Alabama**

Client: CDM/Thompson Engineering JV  
Project: MsCIP Barrier Island Restoration GT

Project No: 1221110095

Figure

# Boring Designation BI-PBS-032-12

DRILLING LOG		DIVISION South Atlantic		INSTALLATION Mobile District		SHEET 1 OF 2 SHEETS	
1. PROJECT MsCIP Barrier Island Restoration Petit Bois Pass-OCS East				9. SIZE AND TYPE OF BIT N/A			
2. BORING DESIGNATION BI-PBS-032-12		LOCATION COORDINATES E = 1,135,889 N = 224,686		10. COORDINATE SYSTEM/DATUM State Plane, MSE (U.S. Ft.)		HORIZONTAL NAD83	
3. DRILLING AGENCY Corps of Engineers - CESAM		CONTRACTOR FILE NO.		11. MANUFACTURER'S DESIGNATION OF DRILL Vibracore		<input type="checkbox"/> AUTO HAMMER <input type="checkbox"/> MANUAL HAMMER	
4. NAME OF DRILLER American Vibracore Systems, Inc.				12. TOTAL SAMPLES		DISTURBED 0	
5. DIRECTION OF BORING <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED				13. TOTAL NUMBER CORE BOXES		14. WATER DEPTH 62.8 Ft.	
6. THICKNESS OF OVERBURDEN N/A				15. DATE BORING		STARTED 12-01-12	
7. DEPTH DRILLED INTO ROCK N/A				16. ELEVATION TOP OF BORING -62.6 Ft.		COMPLETED 12-01-12	
8. TOTAL DEPTH OF BORING 20.0 Ft.				17. TOTAL RECOVERY FOR BORING 100%		18. SIGNATURE AND TITLE OF INSPECTOR Mike FitzHarris, Geologist	

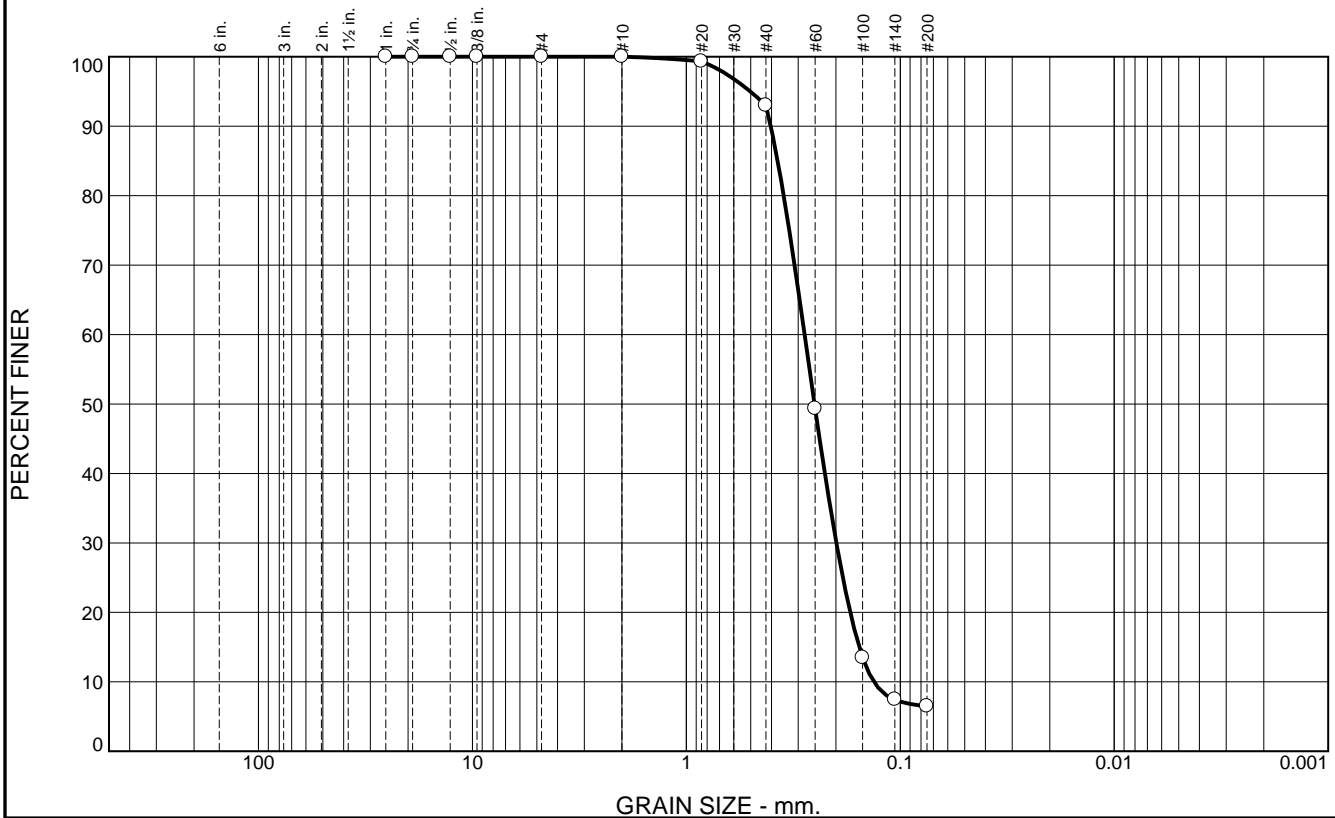
  

ELEV.	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS	SAMPLE	LABORATORY RESULTS
-62.6	0.0				
-62.8	0.2		SAND, poorly-graded, mostly fine to medium-grained sand-sized quartz, few shells, trace silt, gray (SP)	NS	
-66.6	4.0		SAND, clayey, mostly fine-grained sand-sized quartz, some clay, some silt, trace wood debris, alternating bands of clayey sand and sandy clay, gray (SC)		
-69.1	6.5		SAND, poorly-graded with silt, mostly fine-grained sand-sized quartz, few silt, gray (SP-SM)	A	Classification: SP-SM Color: 2.5Y 7/2-light gray D50: 0.2518 mm % Fines: 6.5
-75.1	12.5		SAND, poorly-graded, mostly fine-grained sand-sized quartz, trace silt, trace shell fragments, trace clay stringers, gray (SP)	B	Classification: SP-SM Color: 2.5Y 7/1-light gray D50: 0.2049 mm % Fines: 6.5
-79.2	16.6		SAND, poorly-graded with silt, mostly fine-grained sand-sized quartz, few silt, gray (SP-SM)	C	Classification: SP-SM Color: 2.5Y 7/1-light gray D50: 0.1877 mm % Fines: 9.7
-80.4	17.8		SAND, silty, mostly fine-grained sand-sized quartz, trace clay, gray (SM)	NS	
-82.6	20.0		CLAY, lean, mostly clay, some silt, trace fine-grained sand-sized quartz, trace shell fragments, gray (CL)		
NOTES: 1. Soils are field visually classified in accordance with the Unified Soils Classification System. 2. NS = Sample not submitted for laboratory analysis from this interval. 3. Seafloor elevation calculated using sampling					

<b>DRILLING LOG (Cont. Sheet)</b>			<b>INSTALLATION</b> Mobile District		<b>SHEET 2</b>
					<b>OF 2 SHEETS</b>
<b>PROJECT</b> MsCIP Barrier Island Restoration			<b>COORDINATE SYSTEM/DATUM</b> State Plane, MSE (U.S. Ft.)	<b>HORIZONTAL</b> NAD83	<b>VERTICAL</b> NAVD88
<b>LOCATION COORDINATES</b> X = 1,135,889 Y = 224,686			<b>ELEVATION TOP OF BORING</b> -62.6 Ft.		
<b>ELEV.</b>	<b>DEPTH</b>	<b>LEGEND</b>	<b>CLASSIFICATION OF MATERIALS</b>	<b>SAMPLE</b>	<b>LABORATORY RESULTS</b>
			vessel's fathometer water depth reading and applying NOAA tidal gauge data conversion factor.		



# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.0	0.0	7.0	86.5	6.5	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
1	100.0		
.75	100.0		
.5	100.0		
.375	100.0		
#4	100.0		
#10	100.0		
#20	99.3		
#40	93.0		
#60	49.3		
#100	13.5		
#140	7.4		
#200	6.5		

\* (no specification provided)

<b><u>Material Description</u></b>		
Fine grained, SLIGHTLY SILTY SAND		
<b><u>Atterberg Limits</u></b>		
PL=	LL=	PI=
<b><u>Coefficients</u></b>		
D <sub>90</sub> = 0.4031	D <sub>85</sub> = 0.3742	D <sub>60</sub> = 0.2802
D <sub>50</sub> = 0.2518	D <sub>30</sub> = 0.1990	D <sub>15</sub> = 0.1556
D <sub>10</sub> = 0.1329	C <sub>u</sub> = 2.11	C <sub>c</sub> = 1.06
<b><u>Classification</u></b>		
USCS= SP-SM	AASHTO=	
<b><u>Remarks</u></b>		

Location: BI-PBS-32-12 A  
Sample Number: 6471 (7)

Depth: 4.0'

Date: 12/03/12

**Thompson Engineering**

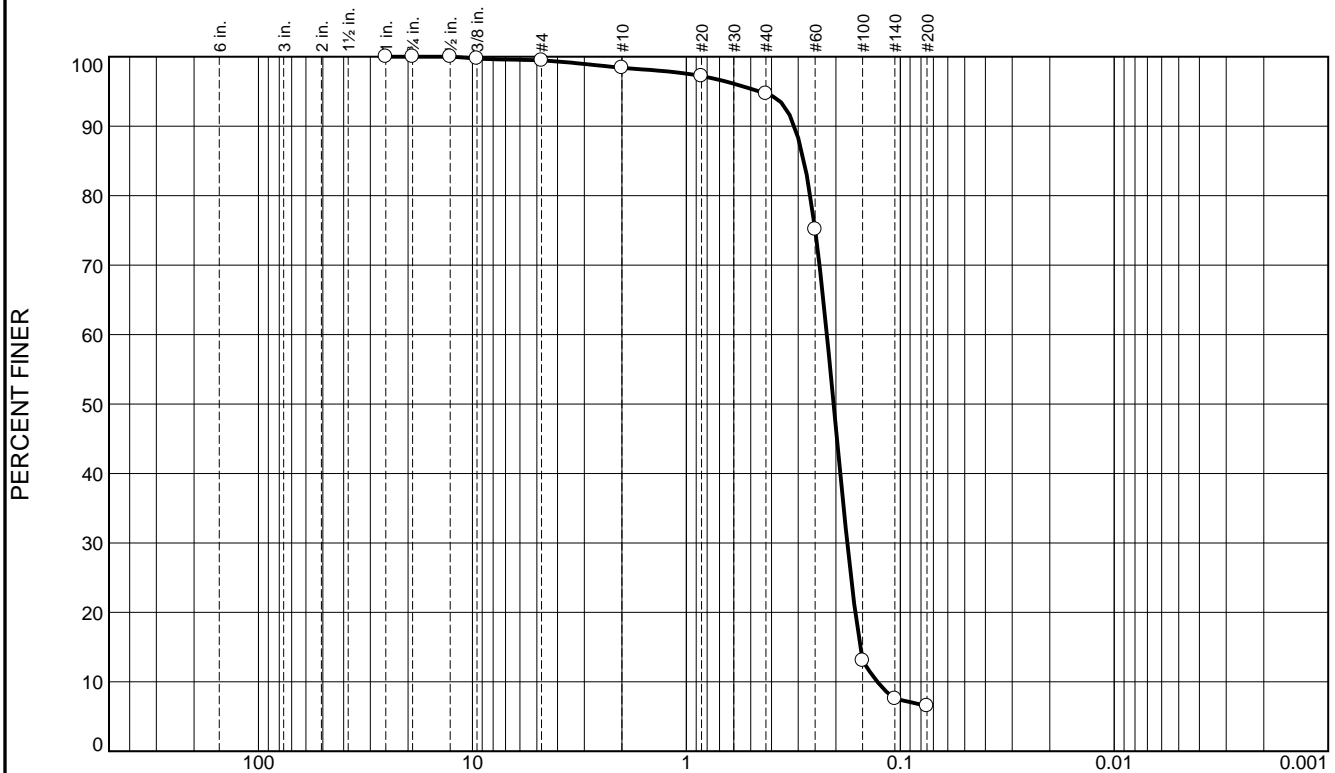
**Mobile, Alabama**

Client: CDM/Thompson Engineering JV  
Project: MsCIP Barrier Island Restoration GT

Project No: 1221110095

Figure

# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.5	1.1	3.7	88.2	6.5	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
1	100.0		
.75	100.0		
.5	100.0		
.375	99.7		
#4	99.5		
#10	98.4		
#20	97.2		
#40	94.7		
#60	75.2		
#100	13.1		
#140	7.6		
#200	6.5		

\* (no specification provided)

<u><b>Material Description</b></u>		
Fine grained, SLIGHTLY SILTY SAND		
<u><b>Atterberg Limits</b></u>		
PL=	LL=	PI=
<u><b>Coefficients</b></u>		
D <sub>90</sub> = 0.3128	D <sub>85</sub> = 0.2824	D <sub>60</sub> = 0.2203
D <sub>50</sub> = 0.2049	D <sub>30</sub> = 0.1771	D <sub>15</sub> = 0.1539
D <sub>10</sub> = 0.1279	C <sub>u</sub> = 1.72	C <sub>c</sub> = 1.11
<u><b>Classification</b></u>		
USCS= SP-SM	AASHTO=	
<u><b>Remarks</b></u>		

Location: BI-PBS-32-12 B  
Sample Number: 6471 (8)

Depth: 9.0'

Date: 12/03/12

**Thompson Engineering**

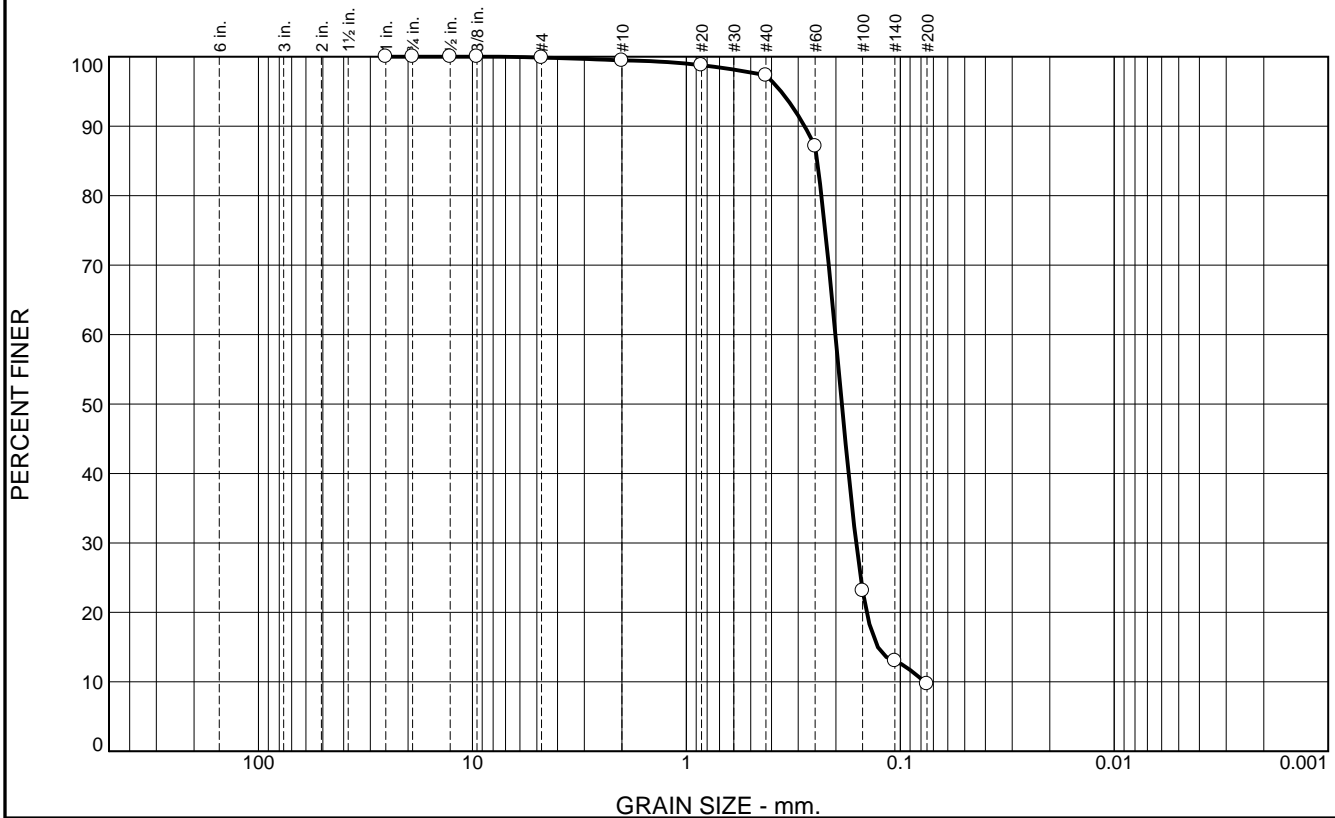
**Mobile, Alabama**

Client: CDM/Thompson Engineering JV  
Project: MsCIP Barrier Island Restoration GT

Project No: 1221110095

Figure

# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.1	0.4	2.2	87.6	9.7	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
1	100.0		
.75	100.0		
.5	100.0		
.375	100.0		
#4	99.9		
#10	99.5		
#20	98.8		
#40	97.3		
#60	87.1		
#100	23.1		
#140	13.0		
#200	9.7		

\* (no specification provided)

## Material Description

Fine grained, SLIGHTLY SILTY SAND

## Atterberg Limits

PL= LL= PI=

## Coefficients

D<sub>90</sub>= 0.2805 D<sub>85</sub>= 0.2445 D<sub>60</sub>= 0.2011  
D<sub>50</sub>= 0.1877 D<sub>30</sub>= 0.1610 D<sub>15</sub>= 0.1274  
D<sub>10</sub>= 0.0770 C<sub>u</sub>= 2.61 C<sub>c</sub>= 1.67

## Classification

USCS= SP-SM AASHTO=

## Remarks

Location: BI-PBS-32-12 C  
Sample Number: 6471 (9)

Depth: 12.5'

Date: 12/03/12

**Thompson Engineering**

**Mobile, Alabama**

Client: CDM/Thompson Engineering JV  
Project: MsCIP Barrier Island Restoration GT

Project No: 1221110095

Figure

# Boring Designation BI-PBS-033-12

DRILLING LOG		DIVISION South Atlantic		INSTALLATION Mobile District		SHEET 1 OF 1 SHEETS	
1. PROJECT MsCIP Barrier Island Restoration Petit Bois Pass-OCS East				9. SIZE AND TYPE OF BIT N/A			
2. BORING DESIGNATION BI-PBS-033-12		LOCATION COORDINATES E = 1,134,464 N = 222,938		10. COORDINATE SYSTEM/DATUM State Plane, MSE (U.S. Ft.)		HORIZONTAL NAD83 VERTICAL NAVD88	
3. DRILLING AGENCY Corps of Engineers - CESAM		CONTRACTOR FILE NO.		11. MANUFACTURER'S DESIGNATION OF DRILL Vibracore		<input type="checkbox"/> AUTO HAMMER <input type="checkbox"/> MANUAL HAMMER	
4. NAME OF DRILLER American Vibracore Systems, Inc.				12. TOTAL SAMPLES		DISTURBED UNDISTURBED (UD) 0	
5. DIRECTION OF BORING <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED		DEG. FROM VERTICAL		13. TOTAL NUMBER CORE BOXES			
		BEARING		14. WATER DEPTH 64.1 Ft.			
6. THICKNESS OF OVERBURDEN N/A				15. DATE BORING 12-07-12		STARTED COMPLETED 12-07-12	
7. DEPTH DRILLED INTO ROCK N/A				16. ELEVATION TOP OF BORING -63.4 Ft.			
8. TOTAL DEPTH OF BORING 17.0 Ft.				17. TOTAL RECOVERY FOR BORING 100%			
				18. SIGNATURE AND TITLE OF INSPECTOR Mike FitzHarris, Geologist			

ELEV.	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS	SAMPLE	LABORATORY RESULTS
-63.4	0.0				
-65.5	2.1		CLAY, fat, mostly clay, trace fine-grained sand-sized quartz, medium to high plasticity, orange, greenish gray, and gray mottle (CH)		
-67.8	4.4		SAND, clayey, mostly fine-grained sand-sized quartz, some clay, clay content decreases with depth, orange, greenish gray, and gray mottle (SC)		
-72.9	9.5		SAND, silty, mostly fine-grained sand-sized quartz, some silt, some shell fragments, little clay nodules, organic content between 4.4' - 4.8 ft., gray (SM)	NS	
-73.6	10.2		CLAY, fat, mostly clay, few shells, medium to high plasticity, gray (CH)		
-75.4	12.0		SAND, clayey, mostly fine-grained sand-sized quartz, some clay, few shell fragments, gray (SC)		
-76.4	13.0		SAND, silty, mostly fine-grained sand-sized quartz, some silt, trace shell fragments, gray (SM)		
-80.4	17.0		SAND, poorly-graded, mostly fine-grained sand-sized quartz, trace shell fragments, gray (SP)		
			NOTES: 1. Soils are field visually classified in accordance with the Unified Soils Classification System. 2. NS = Sample not submitted for laboratory analysis from this interval. 3. Seafloor elevation determined from 2013 USGS geophysical survey.		

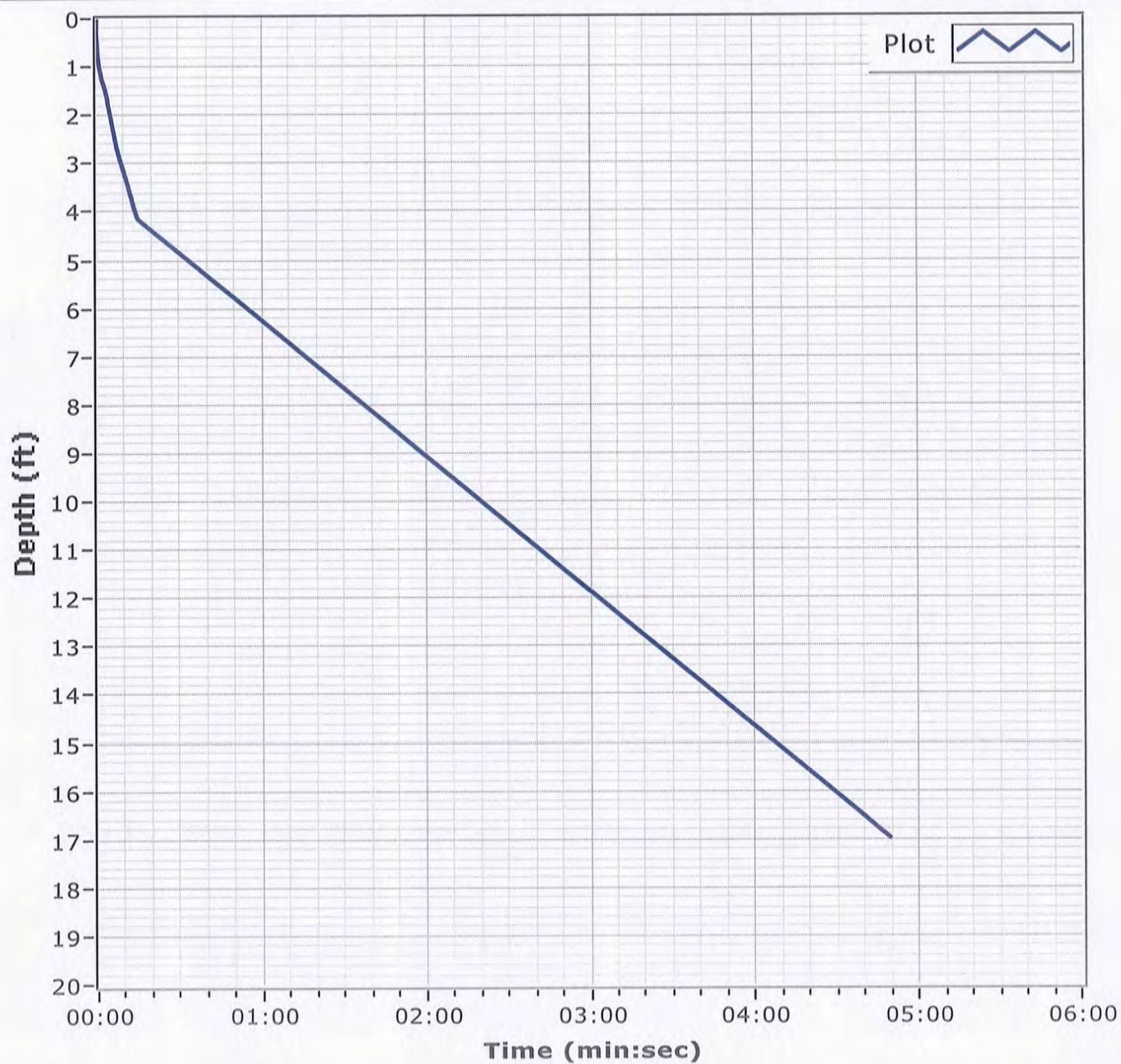
**Project**

Mississippi Barrier Island  
Restoration Project

**AVS**  
**AMERICAN VIBRACORE**  
**S E R V I C E S**

**Core Identifier** BI-PBS-33-12**Date** 12/07/2012**Water Depth** 64.1'**Coordinate System**

Latitude / Longitude

**Start Time** 09:25:30**End Time** 09:30:20**Penetration** 17.0'**Latitude** 30 06.731**Total Time** 00:04:50**Recovery** 17.0'**Longitude** 088 21.495**Comments**

# Boring Designation BI-PBS-034-12

DRILLING LOG		DIVISION South Atlantic		INSTALLATION Mobile District		SHEET 1 OF 1 SHEETS	
1. PROJECT MsCIP Barrier Island Restoration Petit Bois Pass-OCS East				9. SIZE AND TYPE OF BIT N/A			
2. BORING DESIGNATION BI-PBS-034-12		LOCATION COORDINATES E = 1,131,178 N = 224,666		10. COORDINATE SYSTEM/DATUM State Plane, MSE (U.S. Ft.)		HORIZONTAL NAD83 VERTICAL NAVD88	
3. DRILLING AGENCY Corps of Engineers - CESAM		CONTRACTOR FILE NO.		11. MANUFACTURER'S DESIGNATION OF DRILL Vibrocure		<input type="checkbox"/> AUTO HAMMER <input type="checkbox"/> MANUAL HAMMER	
4. NAME OF DRILLER American Vibrocure Systems, Inc.				12. TOTAL SAMPLES		DISTURBED UNDISTURBED (UD) 0	
5. DIRECTION OF BORING <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED		DEG. FROM VERTICAL		13. TOTAL NUMBER CORE BOXES			
		BEARING		14. WATER DEPTH 51.4 Ft.			
6. THICKNESS OF OVERBURDEN N/A				15. DATE BORING 12-09-12		STARTED COMPLETED 12-09-12	
7. DEPTH DRILLED INTO ROCK N/A				16. ELEVATION TOP OF BORING -51.7 Ft.			
8. TOTAL DEPTH OF BORING 16.4 Ft.				17. TOTAL RECOVERY FOR BORING 100%			
				18. SIGNATURE AND TITLE OF INSPECTOR Mike FitzHarris, Geologist			

ELEV.	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS	SAMPLE	LABORATORY RESULTS
-51.7	0.0				
			SAND, poorly-graded, mostly fine to medium-grained sand-sized quartz, few shell fragments, trace fines, occasional shelly layers, lt. gray (SP)	A	Classification: SP Color: 5Y 6/2-light olive gray D50: 0.2693 mm % Fines: 1.5
-56.7	5.0				
-58.6	6.9		SAND, poorly-graded, mostly fine-grained sand-sized quartz, trace fines, trace shell fragments, lt. gray (SP)	B	Classification: SP Color: 5Y 6/2-light olive gray D50: 0.2581 mm % Fines: 2.1
			SAND, poorly-graded with silt, mostly fine-grained sand-sized quartz, few silt, trace shell fragments, shelly at 6.9 to 7.3 ft., gray (SP-SM)	C	Classification: SP Color: 5Y 6/2-light olive gray D50: 0.2229 mm % Fines: 4.3
-63.0	11.3				
			CLAY, fat, mostly clay, some fine-grained sand-sized quartz, medium to high plasticity, very stiff, gray, greenish gray, orangy brown mottle (CH)	NS	
-66.7	15.0				
-68.1	16.4		SAND, clayey, mostly fine-grained sand-sized quartz, some clay, little shell fragments, gray (SC)		
			NOTES: 1. Soils are field visually classified in accordance with the Unified Soils Classification System. 2. NS = Sample not submitted for laboratory analysis from this interval. 3. Seafloor elevation determined from 12/17/2014 USACE survey.		



**Project**

Mississippi Barrier Island  
Restoration Project

**AVS**  
**AMERICAN VIBRACORE**  
**S E R V I C E S**

**Core Identifier** BI-PBS-34-12

**Date** 12/09/2012

**Water Depth** 51.4'

**Coordinate System**

Latitude / Longitude

**Start Time** 10:19:08

**End Time** 10:21:26

**Penetration** 20.0'

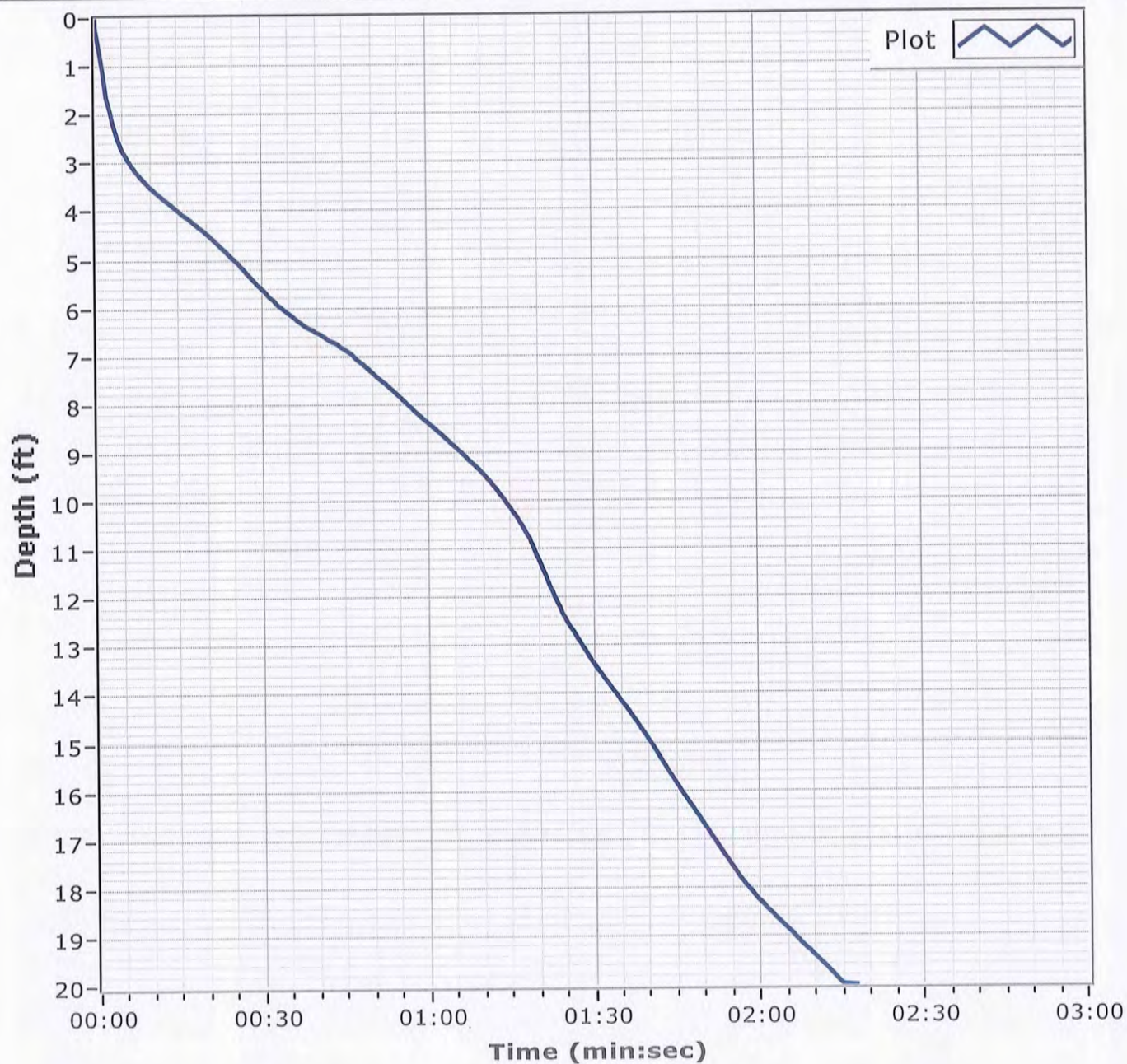
**Latitude** 30 07.018

**Total Time** 00:02:17

**Recovery** 16.4'

**Longitude** 088 22.117

**Comments**



# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.5	2.1	11.5	84.4	1.5	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
1	100.0		
.75	100.0		
.5	100.0		
.375	100.0		
#4	99.5		
#10	97.4		
#20	94.4		
#40	85.9		
#60	42.7		
#100	2.7		
#140	1.7		
#200	1.5		

\* (no specification provided)

<u><b>Material Description</b></u>		
Fine to medium grained, SAND		
<u><b>Atterberg Limits</b></u>		
PL=	LL=	PI=
<u><b>Coefficients</b></u>		
D <sub>90</sub> = 0.5641	D <sub>85</sub> = 0.4177	D <sub>60</sub> = 0.2992
D <sub>50</sub> = 0.2693	D <sub>30</sub> = 0.2199	D <sub>15</sub> = 0.1858
D <sub>10</sub> = 0.1735	C <sub>u</sub> = 1.72	C <sub>c</sub> = 0.93
<u><b>Classification</b></u>		
USCS= SP	AASHTO=	
<u><b>Remarks</b></u>		

Location: BI-PBS-34-12 A  
Sample Number: 6482 (41)

Depth: 0.0'

Date: 12/12/12

**Thompson Engineering**

**Mobile, Alabama**

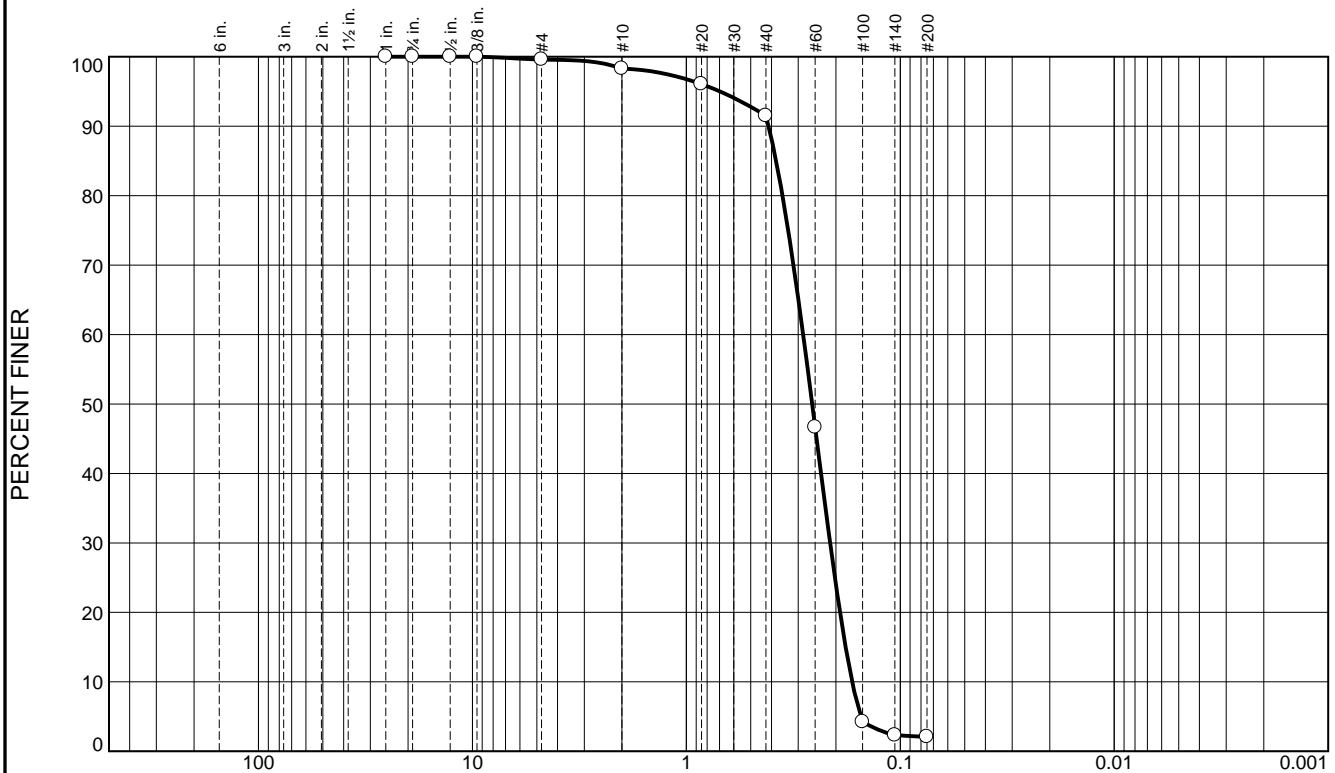
Client: CDM/Thompson Engineering JV  
Project: MsCIP Barrier Island Restoration GT

Project No: 1221110095

Figure



# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.4	1.3	6.8	89.4	2.1	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
1	100.0		
.75	100.0		
.5	100.0		
.375	100.0		
#4	99.6		
#10	98.3		
#20	96.1		
#40	91.5		
#60	46.7		
#100	4.2		
#140	2.3		
#200	2.1		

\* (no specification provided)

Material Description		
Fine grained, SAND		
<div> <div> Atterberg Limits </div> <div> PL= </div> <div> LL= </div> <div> PI= </div> </div>		
<div> <div> Coefficients </div> <div> D<sub>90</sub>= 0.4127 </div> <div> D<sub>50</sub>= 0.2581 </div> <div> D<sub>10</sub>= 0.1681 </div> <div> D<sub>85</sub>= 0.3802 </div> <div> D<sub>30</sub>= 0.2128 </div> <div> C<sub>u</sub>= 1.69 </div> <div> D<sub>60</sub>= 0.2846 </div> <div> D<sub>15</sub>= 0.1802 </div> <div> C<sub>c</sub>= 0.95 </div> </div>		
<div> <div> Classification </div> <div> USCS= SP </div> <div> AASHTO= </div> </div>		
<div> <div> Remarks </div> </div>		

Location: BI-PBS-34-12 B  
Sample Number: 6482 (42)

Depth: 5.0'

Date: 12/12/12

**Thompson Engineering**

**Mobile, Alabama**

Client: CDM/Thompson Engineering JV  
Project: MsCIP Barrier Island Restoration GT

Project No: 1221110095

Figure

# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	2.1	2.8	11.9	78.9	4.3	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
1	100.0		
.75	100.0		
.5	99.3		
.375	99.0		
#4	97.9		
#10	95.1		
#20	91.0		
#40	83.2		
#60	62.4		
#100	7.5		
#140	4.7		
#200	4.3		

\* (no specification provided)

## Material Description

Fine to medium grained, SAND, with trace shell

## Atterberg Limits

PL= LL= PI=

## Coefficients

D<sub>90</sub>= 0.7613 D<sub>85</sub>= 0.4931 D<sub>60</sub>= 0.2440  
D<sub>50</sub>= 0.2229 D<sub>30</sub>= 0.1897 D<sub>15</sub>= 0.1655  
D<sub>10</sub>= 0.1559 C<sub>u</sub>= 1.56 C<sub>c</sub>= 0.95

## Classification

USCS= SP AASHTO=

## Remarks

Location: BI-PBS-34-12 C  
Sample Number: 6482 (43)

Depth: 6.9'

Date: 12/12/12

**Thompson Engineering**

**Mobile, Alabama**

Client: CDM/Thompson Engineering JV  
Project: MsCIP Barrier Island Restoration GT

Project No: 1221110095

Figure

# Boring Designation BI-PBS-035-12

<b>DRILLING LOG</b>		<b>DIVISION</b> South Atlantic	<b>INSTALLATION</b> Mobile District	<b>SHEET 1</b> <b>OF 2 SHEETS</b>
<b>1. PROJECT</b> MsCIP Barrier Island Restoration Petit Bois Pass-OCS East			<b>9. SIZE AND TYPE OF BIT</b> N/A	
<b>2. BORING DESIGNATION</b> BI-PBS-035-12		<b>10. COORDINATE SYSTEM/DATUM</b> State Plane, MSE (U.S. Ft.)		<b>HORIZONTAL</b> NAD83
<b>3. DRILLING AGENCY</b> Corps of Engineers - CESAM		<b>11. MANUFACTURER'S DESIGNATION OF DRILL</b> Vibrocure		<b>VERTICAL</b> NAVD88
<b>4. NAME OF DRILLER</b> American Vibrocure Systems, Inc.		<b>12. TOTAL SAMPLES</b>		<b>DISTURBED</b> 0
<b>5. DIRECTION OF BORING</b> <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED		<b>13. TOTAL NUMBER CORE BOXES</b>		<b>UNDISTURBED (UD)</b> 0
<b>6. THICKNESS OF OVERBURDEN</b> N/A		<b>14. WATER DEPTH</b> 62.6 Ft.		
<b>7. DEPTH DRILLED INTO ROCK</b> N/A		<b>15. DATE BORING</b> 12-09-12		<b>STARTED</b> 12-09-12
<b>8. TOTAL DEPTH OF BORING</b> 20.0 Ft.		<b>16. ELEVATION TOP OF BORING</b> -61.4 Ft.		<b>COMPLETED</b> 12-09-12
		<b>17. TOTAL RECOVERY FOR BORING</b> 100%		
		<b>18. SIGNATURE AND TITLE OF INSPECTOR</b> Mike FitzHarris, Geologist		

ELEV.	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS	SAMPLE	LABORATORY RESULTS
-61.4	0.0				
-65.8	4.4		CLAY, fat, mostly clay, trace shell fragments, medium to high plasticity, pockets of trace fine-grained, sand-sized quartz, dark gray (CH)		
-68.0	6.6		CLAY, fat, mostly clay, medium to high plasticity, pockets of trace fine-grained, sand-sized quartz, greenish gray, orangy brown, gray mottle (CH)		
-69.8	8.4		SAND, silty, mostly fine-grained sand-sized quartz, some silt, trace wood debris, brownish gray (SM)		
-74.3	12.9		CLAY, lean, mostly clay, some fine-grained sand-sized quartz, some shell fragments, trace wood debris, low to medium plasticity, gray (CL)	NS	
-81.1	19.7		SAND, silty, mostly fine-grained sand-sized quartz, some silt, trace clay, trace shell fragments, gray (SM)		
-81.4	20.0		CLAY, lean, mostly clay, some fine-grained sand-sized quartz, low to medium plasticity, gray (CL)		
			NOTES: 1. Soils are field visually classified in accordance with the Unified Soils Classification System. 2. NS = Sample not submitted for laboratory		

<b>DRILLING LOG (Cont. Sheet)</b>			<b>INSTALLATION</b> Mobile District		<b>SHEET 2</b> <b>OF 2 SHEETS</b>
<b>PROJECT</b> MsCIP Barrier Island Restoration			<b>COORDINATE SYSTEM/DATUM</b> State Plane, MSE (U.S. Ft.)	<b>HORIZONTAL</b> NAD83	<b>VERTICAL</b> NAVD88
<b>LOCATION COORDINATES</b> X = 1,129,112 Y = 223,570			<b>ELEVATION TOP OF BORING</b> -61.4 Ft.		
<b>ELEV.</b>	<b>DEPTH</b>	<b>LEGEND</b>	<b>CLASSIFICATION OF MATERIALS</b>	<b>SAMPLE</b>	<b>LABORATORY RESULTS</b>
			<p>analysis from this interval.</p> <p>3. Seafloor elevation calculated using sampling vessel's fathometer water depth reading and applying NOAA tidal gauge data conversion factor.</p>		

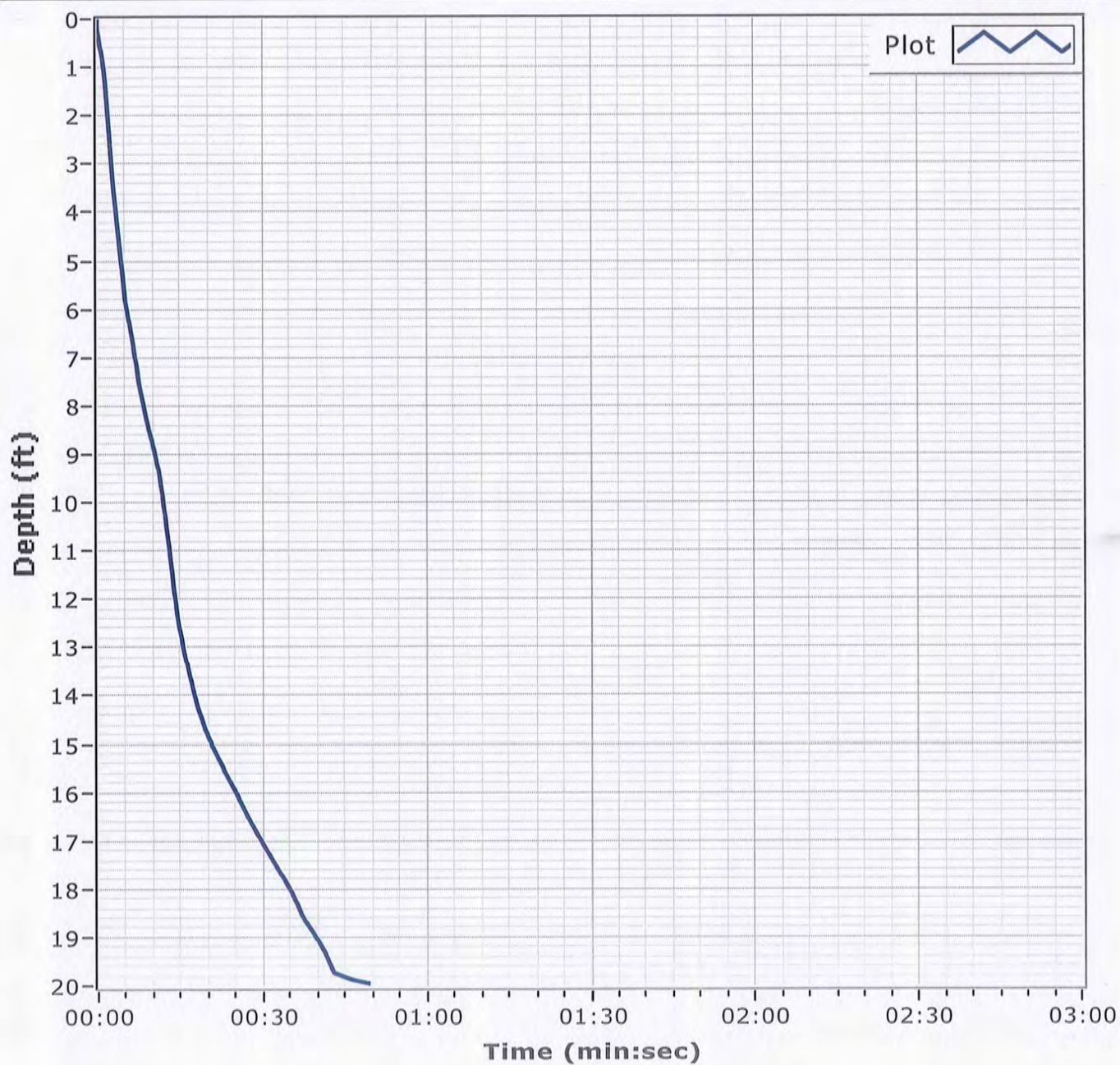
**Project**

Mississippi Barrier Island  
Restoration Project

**AVS**  
**AMERICAN VIBRACORE**  
**S E R V I C E S**

**Core Identifier** BI-PBS-35-12**Date** 12/09/2012**Water Depth** 62.6'**Coordinate System**

Latitude / Longitude

**Start Time** 15:09:12**End Time** 15:10:01**Penetration** 20.0'**Latitude** 30 06.839**Total Time** 00:00:49**Recovery** 20.0'**Longitude** 088 22.510**Comments**

# Boring Designation BI-PBS-036-12

DRILLING LOG		DIVISION South Atlantic		INSTALLATION Mobile District		SHEET 1 OF 1 SHEETS	
1. PROJECT MsCIP Barrier Island Restoration Petit Bois Pass-OCS East				9. SIZE AND TYPE OF BIT N/A			
2. BORING DESIGNATION BI-PBS-036-12		LOCATION COORDINATES E = 1,134,315 N = 226,116		10. COORDINATE SYSTEM/DATUM State Plane, MSE (U.S. Ft.)		HORIZONTAL NAD83	
3. DRILLING AGENCY Corps of Engineers - CESAM		CONTRACTOR FILE NO.		11. MANUFACTURER'S DESIGNATION OF DRILL Vibracore		<input type="checkbox"/> AUTO HAMMER <input type="checkbox"/> MANUAL HAMMER	
4. NAME OF DRILLER American Vibracore Systems, Inc.				12. TOTAL SAMPLES		DISTURBED 0	
5. DIRECTION OF BORING <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED				13. TOTAL NUMBER CORE BOXES		14. WATER DEPTH 63.9 Ft.	
6. THICKNESS OF OVERBURDEN N/A				15. DATE BORING		STARTED 12-09-12	
7. DEPTH DRILLED INTO ROCK N/A				16. ELEVATION TOP OF BORING -62.8 Ft.		COMPLETED 12-09-12	
8. TOTAL DEPTH OF BORING 13.7 Ft.				17. TOTAL RECOVERY FOR BORING 100%		18. SIGNATURE AND TITLE OF INSPECTOR Mike FitzHarris, Geologist	
ELEV.	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS	SAMPLE	LABORATORY RESULTS		
-62.8	0.0						
-65.8	3.0		SAND, poorly-graded, mostly fine to medium-grained sand-sized quartz, trace fines, shell hash at 2.6 ft., becomes siltier with depth, lt. gray (SP)	A	Classification: SP Color: 5Y 6/2-light olive gray D50: 0.315 mm % Fines: 2.9		
-66.5	3.7		SAND, poorly-graded with silt, mostly fine-grained sand-sized quartz, few silt, trace clay, dark brown (SP-SM)	NS			
-71.5	8.7		SAND, silty, mostly fine-grained sand-sized quartz, some silt, trace clay, trace shell fragments, gray (SM)				
-73.5	10.7		SAND, poorly-graded with silt, mostly fine-grained sand-sized quartz, few silt, trace shell fragments, gray (SP-SM)				
-76.5	13.7		SAND, poorly-graded, mostly fine-grained sand-sized quartz, trace fines, trace shell fragments, lt. gray (SP)				
NOTES: 1. Soils are field visually classified in accordance with the Unified Soils Classification System. 2. NS = Sample not submitted for laboratory analysis from this interval. 3. Seafloor elevation calculated using sampling vessel's fathometer water depth reading and applying NOAA tidal gauge data conversion factor.							



**Project**

Mississippi Barrier Island  
Restoration Project

**AVS**  
**AMERICAN VIBRACORE**  
**S E R V I C E S**

**Core Identifier** BI-PBS-36-12

**Date** 12/09/2012

**Water Depth** 63.9'

**Coordinate System**

Latitude / Longitude

**Start Time** 14:36:25

**End Time** 14:42:09

**Penetration** 15.7'

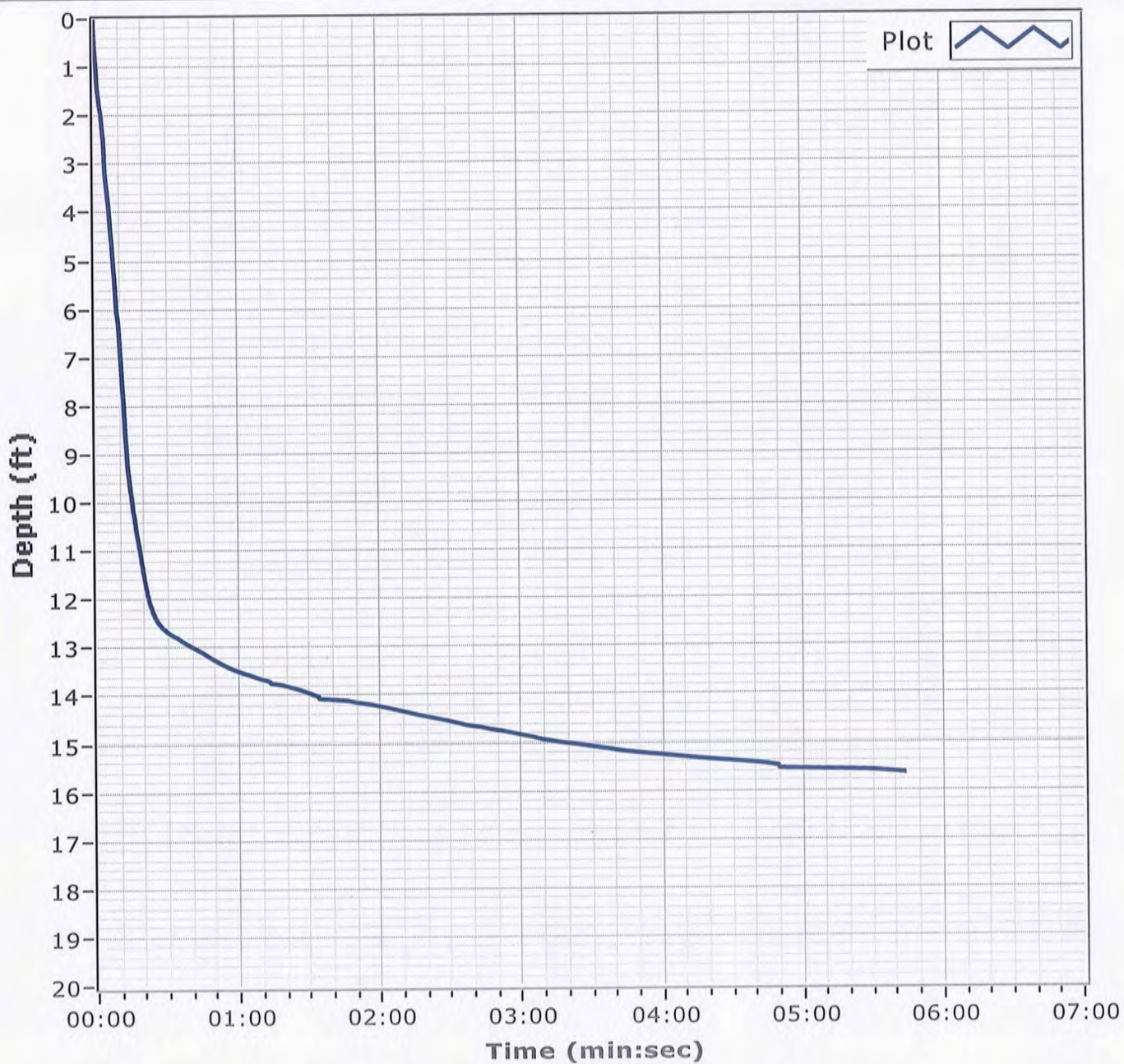
**Latitude** 30 07.255

**Total Time** 00:05:44

**Recovery** 13.7'

**Longitude** 088 21.521

**Comments**



# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	1.8	2.2	22.6	70.5	2.9	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
1	100.0		
.75	100.0		
.5	100.0		
.375	99.3		
#4	98.2		
#10	96.0		
#20	92.3		
#40	73.4		
#60	30.6		
#100	4.9		
#140	3.4		
#200	2.9		

\* (no specification provided)

## Material Description

Fine to medium grained, SAND, with trace SHELL

## Atterberg Limits

PL= LL= PI=

## Coefficients

D<sub>90</sub>= 0.6821 D<sub>85</sub>= 0.5464 D<sub>60</sub>= 0.3543  
D<sub>50</sub>= 0.3150 D<sub>30</sub>= 0.2482 D<sub>15</sub>= 0.1974  
D<sub>10</sub>= 0.1776 C<sub>u</sub>= 1.99 C<sub>c</sub>= 0.98

## Classification

USCS= SP AASHTO=

## Remarks

Location: BI-PBS-36-12 A  
Sample Number: 6482 (44)

Depth: 0.0'

Date: 12/12/12

**Thompson Engineering**

**Mobile, Alabama**

Client: CDM/Thompson Engineering JV  
Project: MsCIP Barrier Island Restoration GT

Project No: 1221110095

Figure



# Boring Designation BI-PBS-037-12

DRILLING LOG		DIVISION South Atlantic		INSTALLATION Mobile District		SHEET 1 OF 2 SHEETS	
1. PROJECT MsCIP Barrier Island Restoration Petit Bois Pass-OCS East				9. SIZE AND TYPE OF BIT N/A			
2. BORING DESIGNATION BI-PBS-037-12		LOCATION COORDINATES E = 1,132,652 N = 225,247		10. COORDINATE SYSTEM/DATUM State Plane, MSE (U.S. Ft.)		HORIZONTAL NAD83	
3. DRILLING AGENCY Corps of Engineers - CESAM		CONTRACTOR FILE NO.		11. MANUFACTURER'S DESIGNATION OF DRILL Vibracore		<input type="checkbox"/> AUTO HAMMER <input type="checkbox"/> MANUAL HAMMER	
4. NAME OF DRILLER American Vibracore Systems, Inc.				12. TOTAL SAMPLES		DISTURBED 0	
5. DIRECTION OF BORING <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED				13. TOTAL NUMBER CORE BOXES		14. WATER DEPTH 61.7 Ft.	
6. THICKNESS OF OVERBURDEN N/A				15. DATE BORING		STARTED 12-09-12	
7. DEPTH DRILLED INTO ROCK N/A				16. ELEVATION TOP OF BORING -62.3 Ft.		COMPLETED 12-09-12	
8. TOTAL DEPTH OF BORING 20.0 Ft.				17. TOTAL RECOVERY FOR BORING 100%			
				18. SIGNATURE AND TITLE OF INSPECTOR Mike FitzHarris, Geologist			
ELEV.	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS	SAMPLE	LABORATORY RESULTS		
-62.3	0.0						
-65.3	3.0		CLAY, fat, mostly clay, trace fine-grained sand-sized quartz, medium to high plasticity, gray, brown, greenish gray mottle (CH)	NS			
-67.5	5.2		CLAY, fat, mostly clay, trace fine-grained sand-sized quartz, trace wood debris, medium to high plasticity, dark gray (CH)				
-71.8	9.5		SAND, silty, mostly fine-grained sand-sized quartz, some silt, some shell fragments, gray (SM)				
-82.3	20.0		SAND, poorly-graded with silt, mostly fine-grained sand-sized quartz, few silt, trace shell fragments, silt content decreases with depth, gray (SP-SM)				
			NOTES: 1. Soils are field visually classified in accordance with the Unified Soils Classification System. 2. NS = Sample not submitted for laboratory analysis from this interval. 3. Seafloor elevation determined from				

<b>DRILLING LOG (Cont. Sheet)</b>			<b>INSTALLATION</b> Mobile District		<b>SHEET 2</b> <b>OF 2 SHEETS</b>
<b>PROJECT</b> MsCIP Barrier Island Restoration			<b>COORDINATE SYSTEM/DATUM</b> State Plane, MSE (U.S. Ft.)	<b>HORIZONTAL</b> NAD83	<b>VERTICAL</b> NAVD88
<b>LOCATION COORDINATES</b> X = 1,132,652 Y = 225,247			<b>ELEVATION TOP OF BORING</b> -62.3 Ft.		
<b>ELEV.</b>	<b>DEPTH</b>	<b>LEGEND</b>	<b>CLASSIFICATION OF MATERIALS</b>	<b>SAMPLE</b>	<b>LABORATORY RESULTS</b>
			12/17/2014 USACE survey.		

Project

Mississippi Barrier Island  
Restoration Project



Core Identifier BI-PBS-37-12

Date 12/09/2012

Water Depth 61.7'

Coordinate System

Latitude / Longitude

Start Time 09:46:28

End Time 09:50:07

Penetration 20.0'

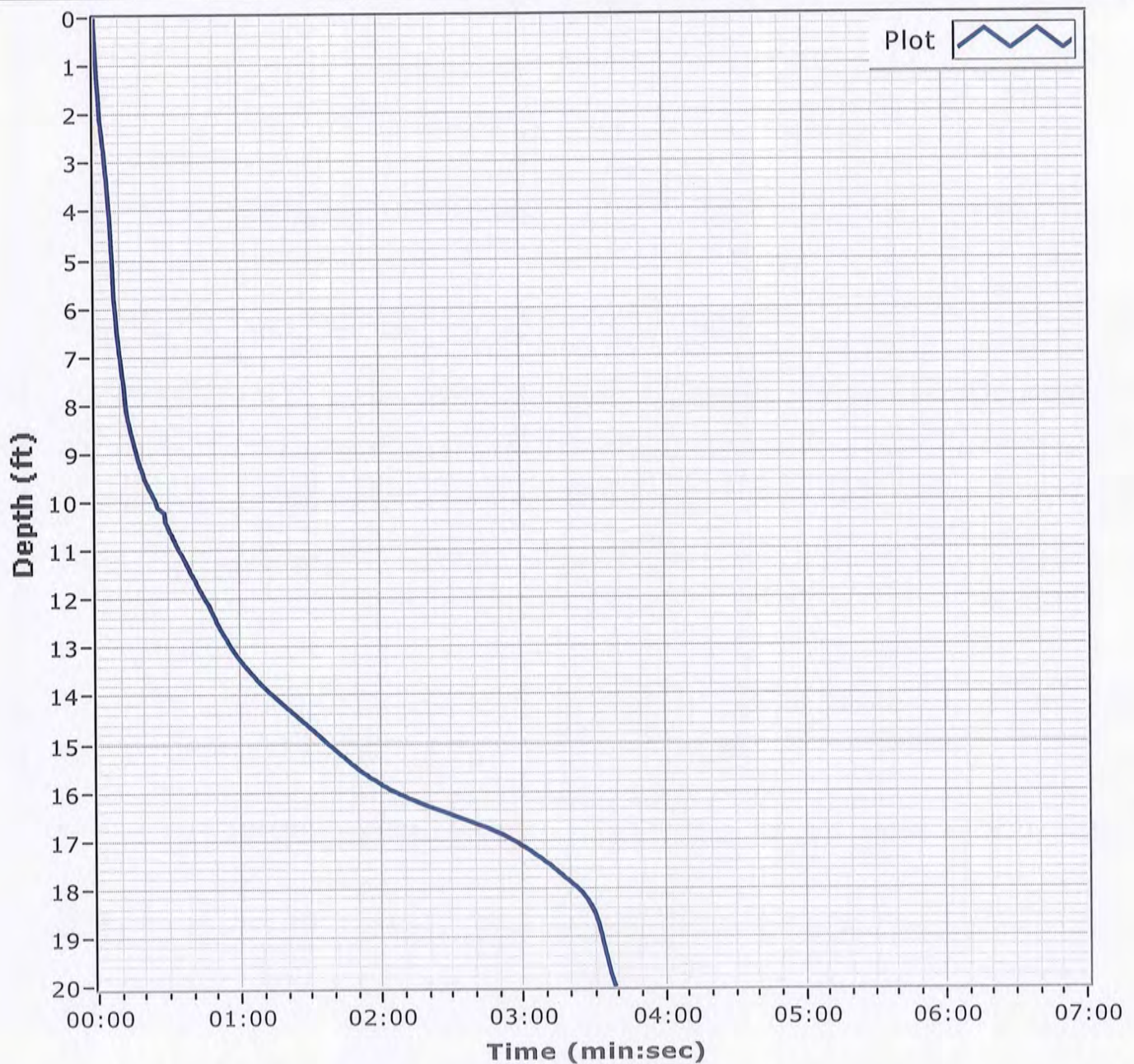
Latitude 30 07.113

Total Time 00:03:39

Recovery 20.0'

Longitude 088 21.837

Comments



# Boring Designation BI-PBS-038-12

DRILLING LOG		DIVISION South Atlantic		INSTALLATION Mobile District		SHEET 1 OF 1 SHEETS	
1. PROJECT MsCIP Barrier Island Restoration Petit Bois Pass-OCS East				9. SIZE AND TYPE OF BIT N/A			
2. BORING DESIGNATION BI-PBS-038-12		LOCATION COORDINATES E = 1,130,193 N = 225,226		10. COORDINATE SYSTEM/DATUM State Plane, MSE (U.S. Ft.)		HORIZONTAL NAD83	
3. DRILLING AGENCY Corps of Engineers - CESAM		CONTRACTOR FILE NO.		11. MANUFACTURER'S DESIGNATION OF DRILL Vibrocure		<input type="checkbox"/> AUTO HAMMER <input type="checkbox"/> MANUAL HAMMER	
4. NAME OF DRILLER American Vibrocure Systems, Inc.				12. TOTAL SAMPLES		DISTURBED 0	
5. DIRECTION OF BORING <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED				13. TOTAL NUMBER CORE BOXES		14. WATER DEPTH 50.6 Ft.	
6. THICKNESS OF OVERBURDEN N/A				15. DATE BORING		STARTED 12-09-12	
7. DEPTH DRILLED INTO ROCK N/A				16. ELEVATION TOP OF BORING -50.1 Ft.		COMPLETED 12-09-12	
8. TOTAL DEPTH OF BORING 19.1 Ft.				17. TOTAL RECOVERY FOR BORING 100%		18. SIGNATURE AND TITLE OF INSPECTOR Mike FitzHarris, Geologist	
ELEV.	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS	SAMPLE	LABORATORY RESULTS		
-50.1	0.0						
			SAND, poorly-graded, mostly fine to medium-grained sand-sized quartz, trace fines, trace shell fragments, dense, lt. gray (SP)	A	Classification: SP Color: 5Y 7/2-light gray D50: 0.2949 mm % Fines: 1.2		
-55.1	5.0		SAND, poorly-graded, mostly fine-grained sand-sized quartz, trace fines, trace shell fragments, dense, lt. gray (SP)	B	Classification: SP Color: 5Y 6/2-light olive gray D50: 0.2214 mm % Fines: 3.7		
-59.2	9.1						
-60.1	10.0		SAND, silty, mostly fine-grained sand-sized quartz, some silt, few shell fragments, gray (SM)				
-63.2	13.1		CLAY, fat, mostly clay, trace fine-grained sand-sized quartz, medium to high plasticity, dark gray (CH)				
			SILT, inorganic-L, mostly silt, some clay, little fine-grained sand-sized quartz, few shell fragments, gray (ML)	NS			
-69.2	19.1						
			NOTES: 1. Soils are field visually classified in accordance with the Unified Soils Classification System. 2. NS = Sample not submitted for laboratory analysis from this interval. 3. Seafloor elevation determined from 12/17/2014 USACE survey.				



**Project**

Mississippi Barrier Island  
Restoration Project

**AVS**  
**AMERICAN VIBRACORE**  
**S E R V I C E S**

**Core Identifier** BI-PBS-38-12

**Date** 12/09/2012

**Water Depth** 50.6'

**Coordinate System**

Latitude / Longitude

**Start Time** 10:55:00

**End Time** 10:59:46

**Penetration** 20.0'

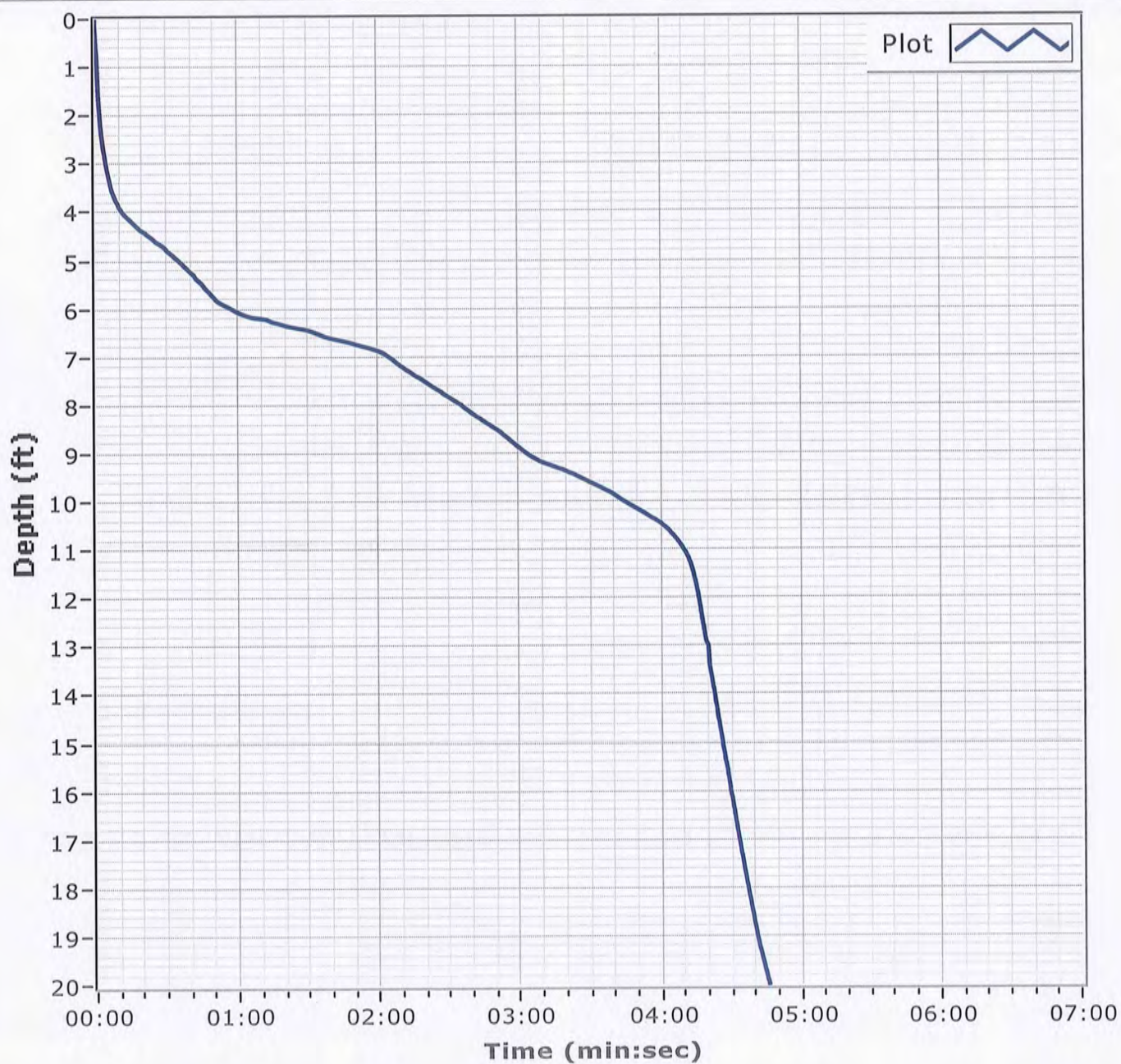
**Latitude** 30 07.111

**Total Time** 00:04:46

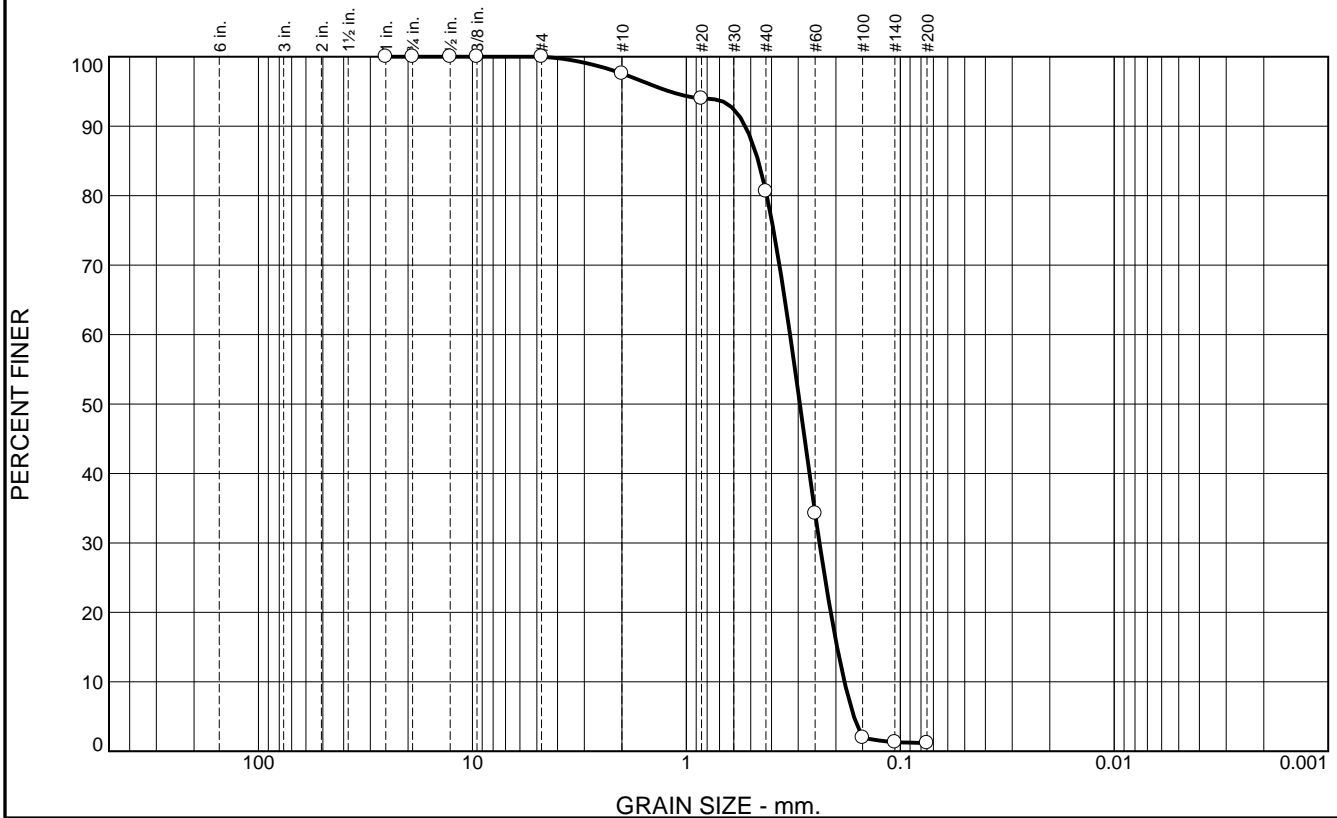
**Recovery** 19.1'

**Longitude** 088 22.304

**Comments**



# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.0	2.4	17.0	79.4	1.2	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
1	100.0		
.75	100.0		
.5	100.0		
.375	100.0		
#4	100.0		
#10	97.6		
#20	94.0		
#40	80.6		
#60	34.2		
#100	2.0		
#140	1.3		
#200	1.2		

\* (no specification provided)

Material Description		
Fine to medium grained, SAND		
PL=	Atterberg Limits LL=	PI=
D <sub>90</sub> = 0.5300	D <sub>85</sub> = 0.4613	D <sub>60</sub> = 0.3277
D <sub>50</sub> = 0.2949	D <sub>30</sub> = 0.2385	D <sub>15</sub> = 0.1974
D <sub>10</sub> = 0.1824	C <sub>u</sub> = 1.80	C <sub>c</sub> = 0.95
USCS= SP	Classification AASHTO=	
Remarks		

Location: BI-PBS-38-12 A  
Sample Number: 6482 (45)

Depth: 0.0'

Date: 12/12/12

**Thompson Engineering**

**Mobile, Alabama**

Client: CDM/Thompson Engineering JV  
Project: MsCIP Barrier Island Restoration GT

Project No: 1221110095

Figure

# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.8	1.7	8.4	85.4	3.7	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
1	100.0		
.75	100.0		
.5	100.0		
.375	100.0		
#4	99.2		
#10	97.5		
#20	94.8		
#40	89.1		
#60	64.3		
#100	6.3		
#140	4.1		
#200	3.7		

\* (no specification provided)

Material Description		
Fine grained, SAND		
<div> <div> Atterberg Limits </div> <div> PL= </div> <div> LL= </div> <div> PI= </div> </div>		
<div> <div> Coefficients </div> <div> D<sub>90</sub>= 0.4534 </div> <div> D<sub>85</sub>= 0.3499 </div> <div> D<sub>60</sub>= 0.2403 </div> <div> D<sub>50</sub>= 0.2214 </div> <div> D<sub>30</sub>= 0.1901 </div> <div> D<sub>15</sub>= 0.1671 </div> <div> D<sub>10</sub>= 0.1582 </div> <div> C<sub>u</sub>= 1.52 </div> <div> C<sub>c</sub>= 0.95 </div> </div>		
<div> <div> Classification </div> <div> USCS= SP </div> <div> AASHTO= </div> </div>		
<div> <div> Remarks </div> </div>		

Location: BI-PBS-38-12 B  
Sample Number: 6482 (46)

Depth: 5.0'

Date: 12/12/12

**Thompson Engineering**

**Mobile, Alabama**

Client: CDM/Thompson Engineering JV  
Project: MsCIP Barrier Island Restoration GT

Project No: 1221110095

Figure

# Boring Designation BI-PBS-039-12

DRILLING LOG		DIVISION South Atlantic		INSTALLATION Mobile District		SHEET 1 OF 1 SHEETS	
1. PROJECT MsCIP Barrier Island Restoration Petit Bois Pass-OCS East				9. SIZE AND TYPE OF BIT N/A			
2. BORING DESIGNATION BI-PBS-039-12		LOCATION COORDINATES E = 1,129,313 N = 226,171		10. COORDINATE SYSTEM/DATUM State Plane, MSE (U.S. Ft.)		HORIZONTAL NAD83	
3. DRILLING AGENCY Corps of Engineers - CESAM		CONTRACTOR FILE NO.		11. MANUFACTURER'S DESIGNATION OF DRILL Vibracore		<input type="checkbox"/> AUTO HAMMER <input type="checkbox"/> MANUAL HAMMER	
4. NAME OF DRILLER American Vibracore Systems, Inc.				12. TOTAL SAMPLES		DISTURBED 0	
5. DIRECTION OF BORING <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED				13. TOTAL NUMBER CORE BOXES		14. WATER DEPTH 49.2 Ft.	
6. THICKNESS OF OVERBURDEN N/A				15. DATE BORING		STARTED 12-09-12	
7. DEPTH DRILLED INTO ROCK N/A				16. ELEVATION TOP OF BORING -49.4 Ft.		COMPLETED 12-09-12	
8. TOTAL DEPTH OF BORING 15.0 Ft.				17. TOTAL RECOVERY FOR BORING 100%		18. SIGNATURE AND TITLE OF INSPECTOR Mike FitzHarris, Geologist	

ELEV.	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS	SAMPLE	LABORATORY RESULTS
-49.4	0.0				
			SAND, poorly-graded, mostly fine to medium-grained sand-sized quartz, little shell fragments, trace fines, lt. gray (SP)	A	Classification: SP Color: 5Y 6/2-light olive gray D50: 0.3064 mm % Fines: 1.1
-54.4	5.0		SAND, poorly-graded, mostly fine-grained sand-sized quartz, little shell fragments, trace fines, lt. gray (SP)	B	Classification: SP Color: 5Y 6/2-light olive gray D50: 0.2592 mm % Fines: 1.6
-57.5	8.1				
-58.5	9.1		SAND, poorly-graded with clay, mostly fine-grained sand-sized quartz, little shell fragments, few clay, gray (SP-SC)		
			CLAY, fat, mostly clay, trace fine-grained sand-sized quartz, trace pockets of fine-grained, sand-sized quartz, orangy brown, gray, greenish gray mottle (CH)	NS	
-62.1	12.7				
-63.1	13.7		SAND, clayey, mostly fine-grained sand-sized quartz, some clay, some shell fragments, gray (SC)		
-64.0	14.6				
-64.4	15.0		SAND, silty, mostly fine-grained sand-sized quartz, some silt, some shell fragments, gray (SM)		
			SAND, poorly-graded with silt, mostly fine-grained sand-sized quartz, few silt, trace shell fragments, gray (SP-SM)		
NOTES: 1. Soils are field visually classified in accordance with the Unified Soils Classification System. 2. NS = Sample not submitted for laboratory analysis from this interval. 3. Seafloor elevation determined from 12/17/2014 USACE survey.					



**Project**

Mississippi Barrier Island  
Restoration Project

**AVS**  
**AMERICAN VIBRACORE**  
**S E R V I C E S**

**Core Identifier** BI-PBS-39-12

**Date** 12/09/2012

**Water Depth** 49.2'

**Coordinate System**

Latitude / Longitude

**Start Time** 11:32:37

**End Time** 11:36:36

**Penetration** 20.0'

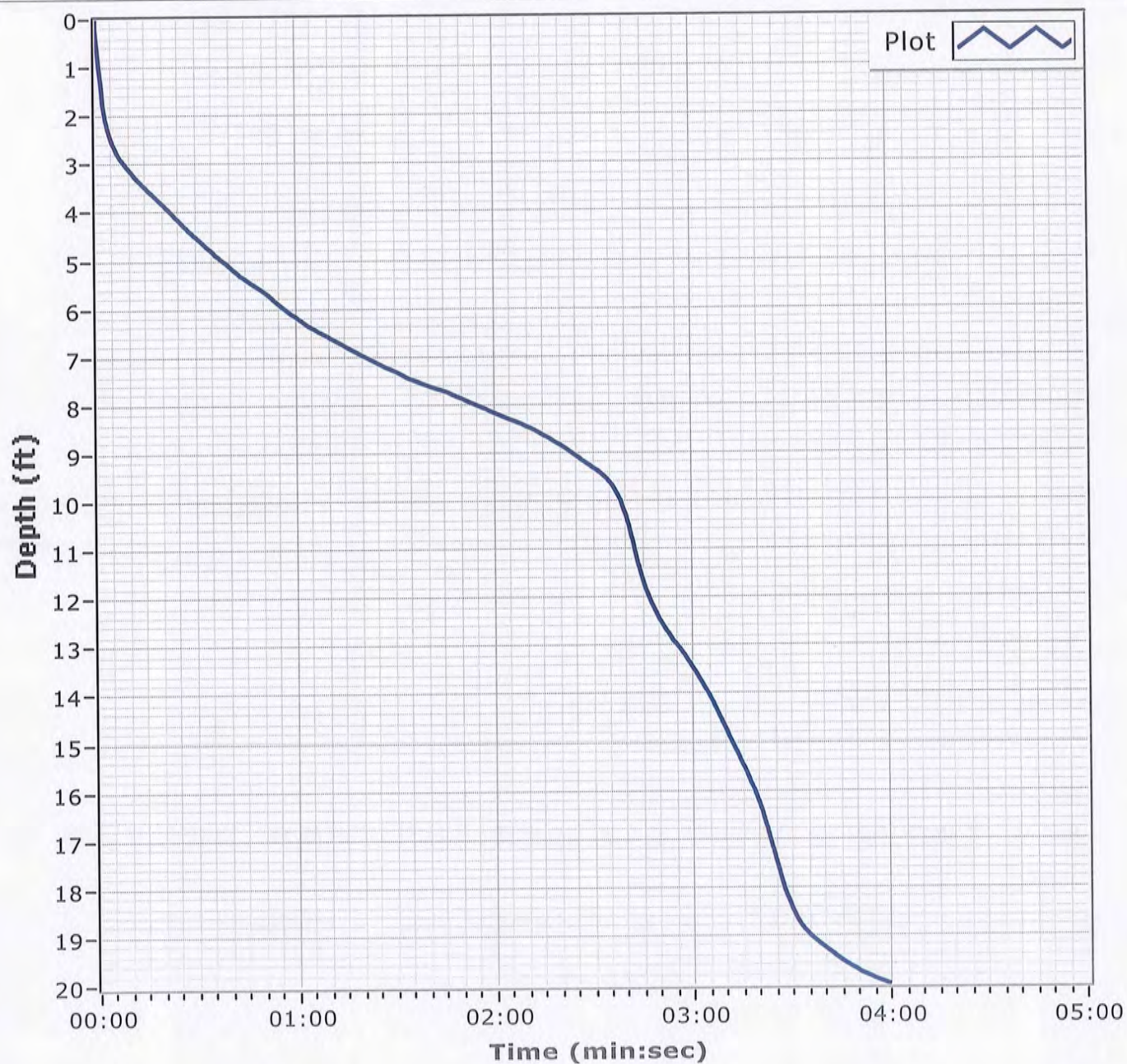
**Latitude** 30 07.268

**Total Time** 00:03:59

**Recovery** 15.0'

**Longitude** 088 22.470

**Comments**



# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.3	1.6	18.6	78.4	1.1	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
1	100.0		
.75	100.0		
.5	100.0		
.375	100.0		
#4	99.7		
#10	98.1		
#20	94.9		
#40	79.5		
#60	30.1		
#100	1.4		
#140	1.2		
#200	1.1		

\* (no specification provided)

<u><b>Material Description</b></u>		
Fine to medium grained, SAND		
<u><b>Atterberg Limits</b></u>		
PL=	LL=	PI=
<u><b>Coefficients</b></u>		
D <sub>90</sub> = 0.5294	D <sub>85</sub> = 0.4671	D <sub>60</sub> = 0.3385
D <sub>50</sub> = 0.3064	D <sub>30</sub> = 0.2498	D <sub>15</sub> = 0.2062
D <sub>10</sub> = 0.1898	C <sub>u</sub> = 1.78	C <sub>c</sub> = 0.97
<u><b>Classification</b></u>		
USCS= SP	AASHTO=	
<u><b>Remarks</b></u>		

Location: BI-PBS-39-12 A  
Sample Number: 6482 (47)

Depth: 0.0'

Date: 12/12/12

**Thompson Engineering**

**Mobile, Alabama**

Client: CDM/Thompson Engineering JV  
Project: MsCIP Barrier Island Restoration GT

Project No: 1221110095

Figure

# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.0	1.0	8.3	89.1	1.6	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
1	100.0		
.75	100.0		
.5	100.0		
.375	100.0		
#4	100.0		
#10	99.0		
#20	97.1		
#40	90.7		
#60	46.2		
#100	3.3		
#140	1.9		
#200	1.6		

\* (no specification provided)

**Material Description**  
Fine grained, SAND

**Atterberg Limits**  
PL=      LL=      PI=

**Coefficients**  
D<sub>90</sub>= 0.4193      D<sub>85</sub>= 0.3849      D<sub>60</sub>= 0.2860  
D<sub>50</sub>= 0.2592      D<sub>30</sub>= 0.2141      D<sub>15</sub>= 0.1822  
D<sub>10</sub>= 0.1705      C<sub>u</sub>= 1.68      C<sub>c</sub>= 0.94

**Classification**  
USCS= SP      AASHTO=

**Remarks**

Location: BI-PBS-39-12 B  
Sample Number: 6482 (48)

Depth: 5.0'

Date: 12/12/12

**Thompson Engineering**

**Mobile, Alabama**

Client: CDM/Thompson Engineering JV  
Project: MsCIP Barrier Island Restoration GT

Project No: 1221110095

Figure

# Boring Designation BI-PBS-040-12

DRILLING LOG		DIVISION South Atlantic		INSTALLATION Mobile District		SHEET 1 OF 1 SHEETS	
1. PROJECT MsCIP Barrier Island Restoration Petit Bois Pass-OCS East				9. SIZE AND TYPE OF BIT N/A			
2. BORING DESIGNATION BI-PBS-040-12		LOCATION COORDINATES E = 1,135,172 N = 223,901		10. COORDINATE SYSTEM/DATUM State Plane, MSE (U.S. Ft.)		HORIZONTAL NAD83 VERTICAL NAVD88	
3. DRILLING AGENCY Corps of Engineers - CESAM		CONTRACTOR FILE NO.		11. MANUFACTURER'S DESIGNATION OF DRILL Vibracore		<input type="checkbox"/> AUTO HAMMER <input type="checkbox"/> MANUAL HAMMER	
4. NAME OF DRILLER American Vibracore Systems, Inc.				12. TOTAL SAMPLES		DISTURBED UNDISTURBED (UD) 0	
5. DIRECTION OF BORING <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED		DEG. FROM VERTICAL		13. TOTAL NUMBER CORE BOXES			
		BEARING		14. WATER DEPTH 66.9 Ft.			
6. THICKNESS OF OVERBURDEN N/A				15. DATE BORING 12-01-12		STARTED COMPLETED 12-01-12	
7. DEPTH DRILLED INTO ROCK N/A				16. ELEVATION TOP OF BORING -66.7 Ft.			
8. TOTAL DEPTH OF BORING 15.9 Ft.				17. TOTAL RECOVERY FOR BORING 100%			
				18. SIGNATURE AND TITLE OF INSPECTOR Mike FitzHarris, Geologist			

ELEV.	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS	SAMPLE	LABORATORY RESULTS
-66.7	0.0				
-67.7	1.0		SHELL, mostly shell fragments, some medium to coarse-grained sand-sized quartz, trace silt, gray		
-68.0	1.3				
-68.8	2.1		CLAY, lean, mostly clay, trace fine-grained sand-sized quartz, trace shell fragments, brown mottled with gray (CL)		
-69.8	3.1				
			SAND, clayey, mostly fine-grained sand-sized quartz, some clay, trace shell fragments, gray mottled with brown (SC)		
-72.6	5.9				
-74.0	7.3		SAND, poorly-graded, mostly fine-grained sand-sized quartz, trace clay, trace shell fragments, lt. gray (SP)		
			SAND, silty, mostly fine-grained sand-sized quartz, some silt, some organic matter, organic staining, dark brown (SM)	NS	
			SAND, poorly-graded with silt, mostly fine-grained sand-sized quartz, few silt, trace shell fragments, clay nodules at 7.2 ft., gray (SP-SM)		
-79.9	13.2		SAND, clayey, mostly fine-grained sand-sized quartz, some clay, little shell fragments, gray (SC)		
-82.6	15.9		SAND, poorly-graded, mostly fine-grained sand-sized quartz, trace silt, trace shell fragments, gray (SP)		
			NOTES: 1. Soils are field visually classified in accordance with the Unified Soils Classification System. 2. NS = Sample not submitted for laboratory analysis from this interval. 3. Seafloor elevation calculated using sampling vessel's fathometer water depth reading and applying NOAA tidal gauge data conversion factor.		



**Project**

Mississippi Barrier Island  
Restoration Project

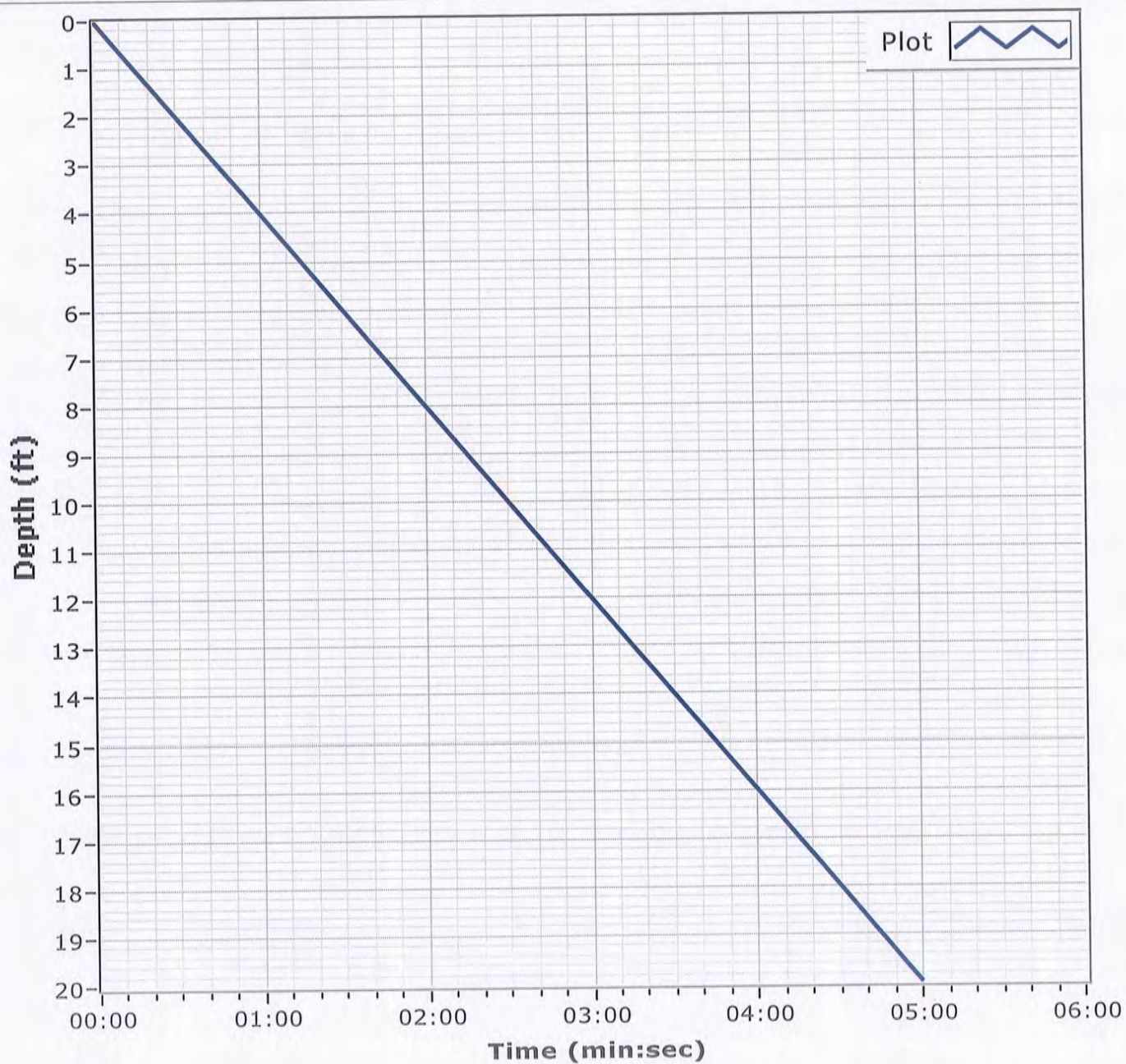
**AVS**  
**AMERICAN VIBRACORE**  
**S E R V I C E S**

**Core Identifier** BI-PBS-40-12**Date** 12/01/2012**Water Depth** 66.9'**Coordinate System**

Latitude / Longitude

**Start Time** 11:57:03**End Time** 12:02:03**Penetration** 20.0'**Latitude** 30 06.889**Total Time** 00:05:00**Recovery** 15.9**Longitude** 088 21.360**Comments**

pentotrometer cable broke. start time was; 1157, stop; 1202. penetration; 20.0'.



# Boring Designation BI-PBS-041-12

DRILLING LOG		DIVISION South Atlantic		INSTALLATION Mobile District		SHEET 1 OF 1 SHEETS	
1. PROJECT MsCIP Barrier Island Restoration Petit Bois Pass-OCS East				9. SIZE AND TYPE OF BIT N/A			
2. BORING DESIGNATION BI-PBS-041-12		LOCATION COORDINATES E = 1,133,653 N = 225,724		10. COORDINATE SYSTEM/DATUM State Plane, MSE (U.S. Ft.)		HORIZONTAL NAD83	
3. DRILLING AGENCY Corps of Engineers - CESAM		CONTRACTOR FILE NO.		11. MANUFACTURER'S DESIGNATION OF DRILL Vibracore		<input type="checkbox"/> AUTO HAMMER <input type="checkbox"/> MANUAL HAMMER	
4. NAME OF DRILLER American Vibracore Systems, Inc.				12. TOTAL SAMPLES		DISTURBED 0	
5. DIRECTION OF BORING <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED				13. TOTAL NUMBER CORE BOXES		14. WATER DEPTH 62 Ft.	
6. THICKNESS OF OVERBURDEN N/A				15. DATE BORING		STARTED 12-09-12	
7. DEPTH DRILLED INTO ROCK N/A				16. ELEVATION TOP OF BORING -61.6 Ft.		COMPLETED 12-09-12	
8. TOTAL DEPTH OF BORING 16.3 Ft.				17. TOTAL RECOVERY FOR BORING 100%			
				18. SIGNATURE AND TITLE OF INSPECTOR Mike FitzHarris, Geologist			

ELEV.	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS	SAMPLE	LABORATORY RESULTS
-61.6	0.0				
-64.8	3.2		SAND, poorly-graded, mostly fine to medium-grained sand-sized quartz, trace fines, trace shell fragments, gray (SP)	A	Classification: SP Color: 5Y 6/2-light olive gray D50: 0.2682 mm % Fines: 2.4
-65.8	4.2		SAND, silty, mostly fine-grained sand-sized quartz, some silt, trace organic matter, gray grading to brown (SM)	NS	
-66.5	4.9				
-67.2	5.6		SAND, clayey, mostly fine-grained sand-sized quartz, some clay, gray (SC)	B	Classification: SP-SM Color: 2.5Y 5/1-gray D50: 0.2692 mm % Fines: 5.7
-68.5	6.9				
-69.2	7.6		SAND, silty, mostly fine-grained sand-sized quartz, some silt, gray (SM)	NS	
-71.8	10.2		SAND, poorly-graded with silt, mostly fine-grained sand-sized quartz, few silt, gray (SP-SM)	C	Classification: SP-SM Color: 5Y 6/2-light olive gray D50: 0.2304 mm % Fines: 7
-72.9	11.3		SAND, clayey, mostly fine-grained sand-sized quartz, some clay, trace shell fragments, gray (SC)	D	Classification: SP Color: 5Y 6/2-light olive gray D50: 0.2353 mm % Fines: 4.8
-77.9	16.3		SAND, silty, mostly fine-grained sand-sized quartz, some silt, trace shell fragments, gray (SM)	E	Classification: SP Color: 2.5Y 7/1-light gray D50: 0.2128 mm % Fines: 4.6
			SAND, poorly-graded with silt, mostly fine-grained sand-sized quartz, few silt, few shell fragments, gray (SP-SM)		
			NOTES: 1. Soils are field visually classified in accordance with the Unified Soils Classification System. 2. NS = Sample not submitted for laboratory analysis from this interval. 3. Seafloor elevation calculated using sampling vessel's fathometer water depth reading and applying NOAA tidal gauge data conversion factor.		



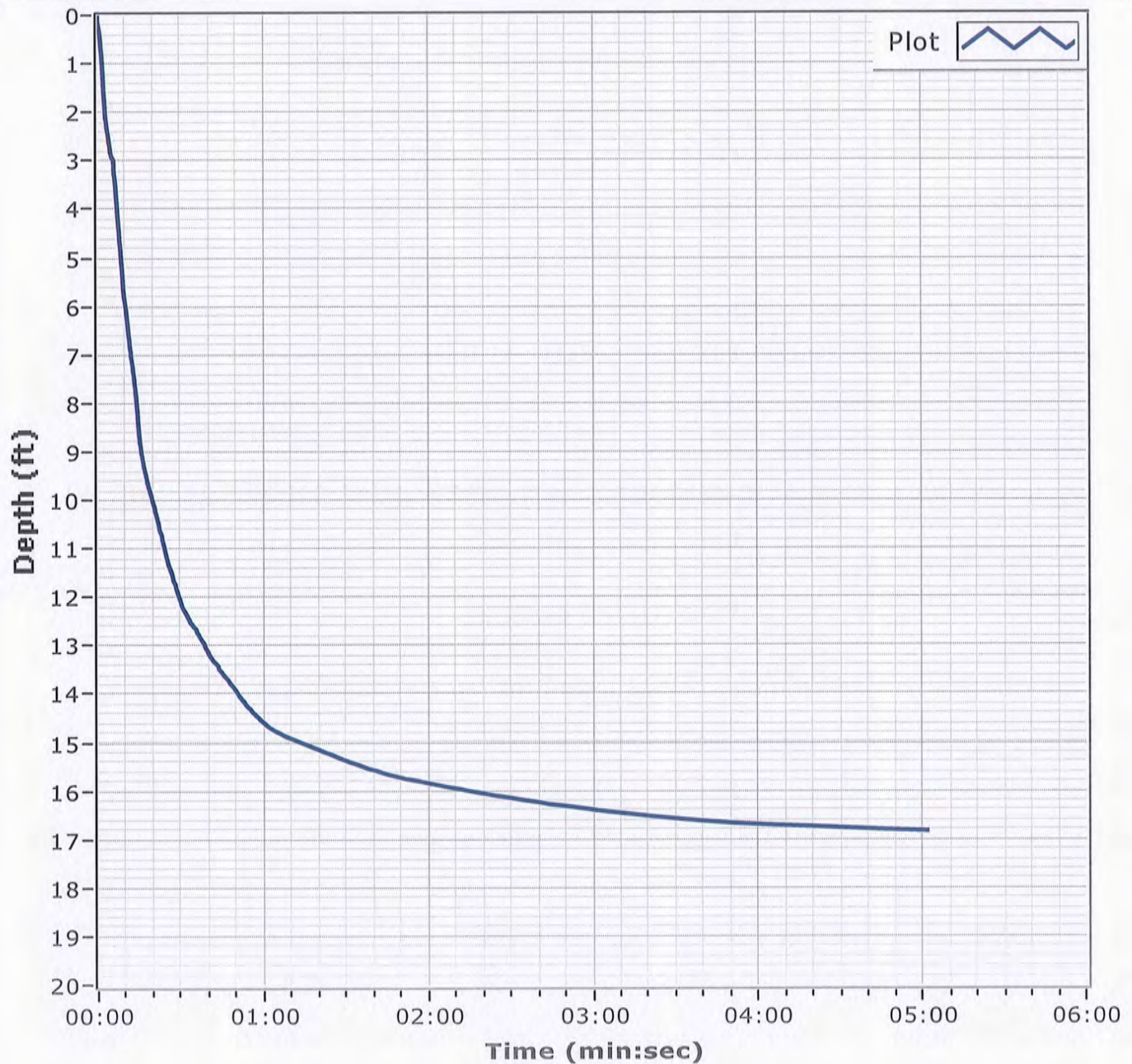
**Project**

Mississippi Barrier Island  
Restoration Project

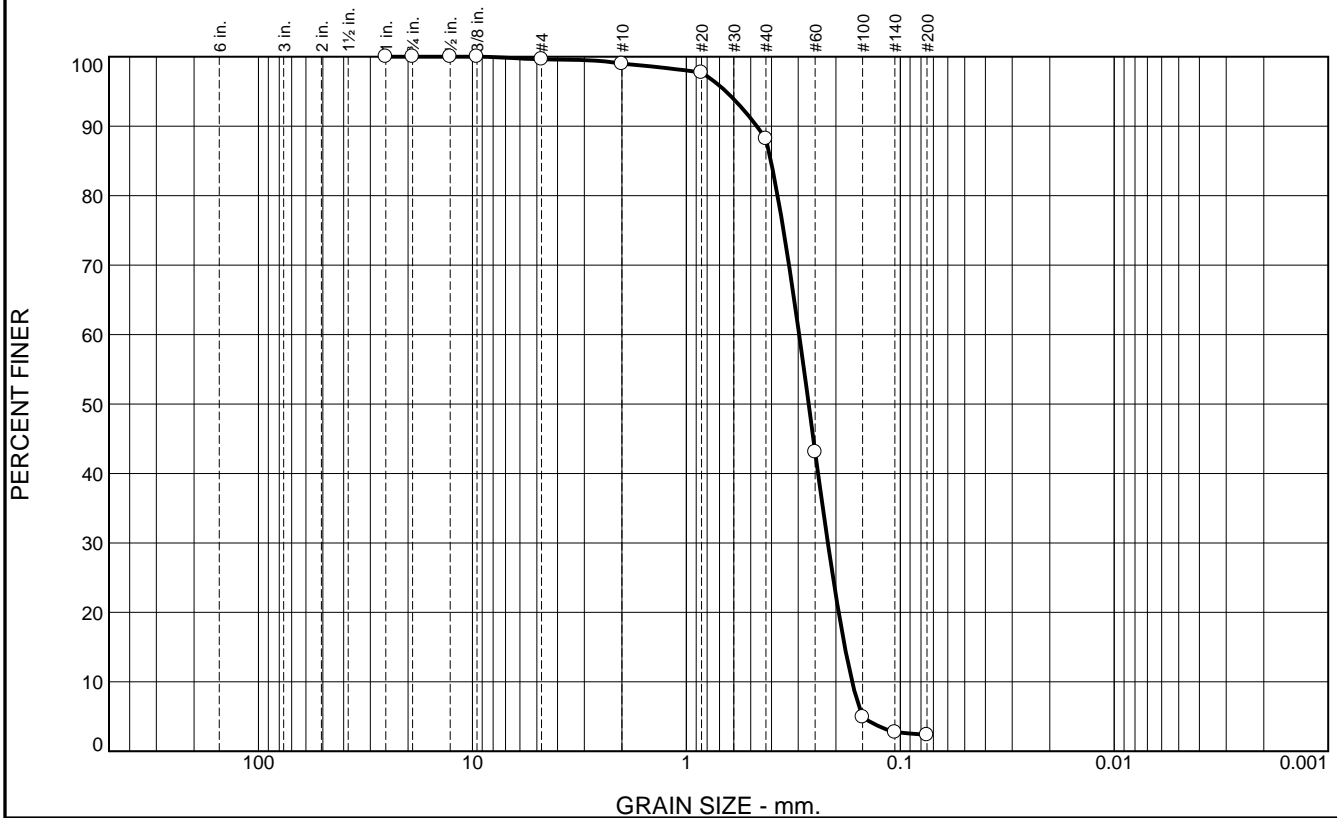
**AVS**  
**AMERICAN VIBRACORE**  
**S E R V I C E S**

**Core Identifier** BI-PBS-41-12**Date** 12/09/2012**Water Depth** 62.0'**Coordinate System**

Latitude / Longitude

**Start Time** 08:56:21**End Time** 09:01:23**Penetration** 16.8'**Latitude** 30 07.191**Total Time** 00:05:02**Recovery** 16.6'**Longitude** 088 21.647**Comments**

# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.4	0.6	10.8	85.8	2.4	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
1	100.0		
.75	100.0		
.5	100.0		
.375	100.0		
#4	99.6		
#10	99.0		
#20	97.7		
#40	88.2		
#60	43.1		
#100	4.9		
#140	2.8		
#200	2.4		

\* (no specification provided)

## Material Description

Fine to medium grained, SAND

## Atterberg Limits

PL= LL= PI=

## Coefficients

D<sub>90</sub>= 0.4687 D<sub>85</sub>= 0.4026 D<sub>60</sub>= 0.2972  
D<sub>50</sub>= 0.2682 D<sub>30</sub>= 0.2180 D<sub>15</sub>= 0.1817  
D<sub>10</sub>= 0.1680 C<sub>u</sub>= 1.77 C<sub>c</sub>= 0.95

## Classification

USCS= SP AASHTO=

## Remarks

Location: BI-PBS-41-12 A  
Sample Number: 6482 (49)

Depth: 0.0'

Date: 12/12/12

**Thompson Engineering**

**Mobile, Alabama**

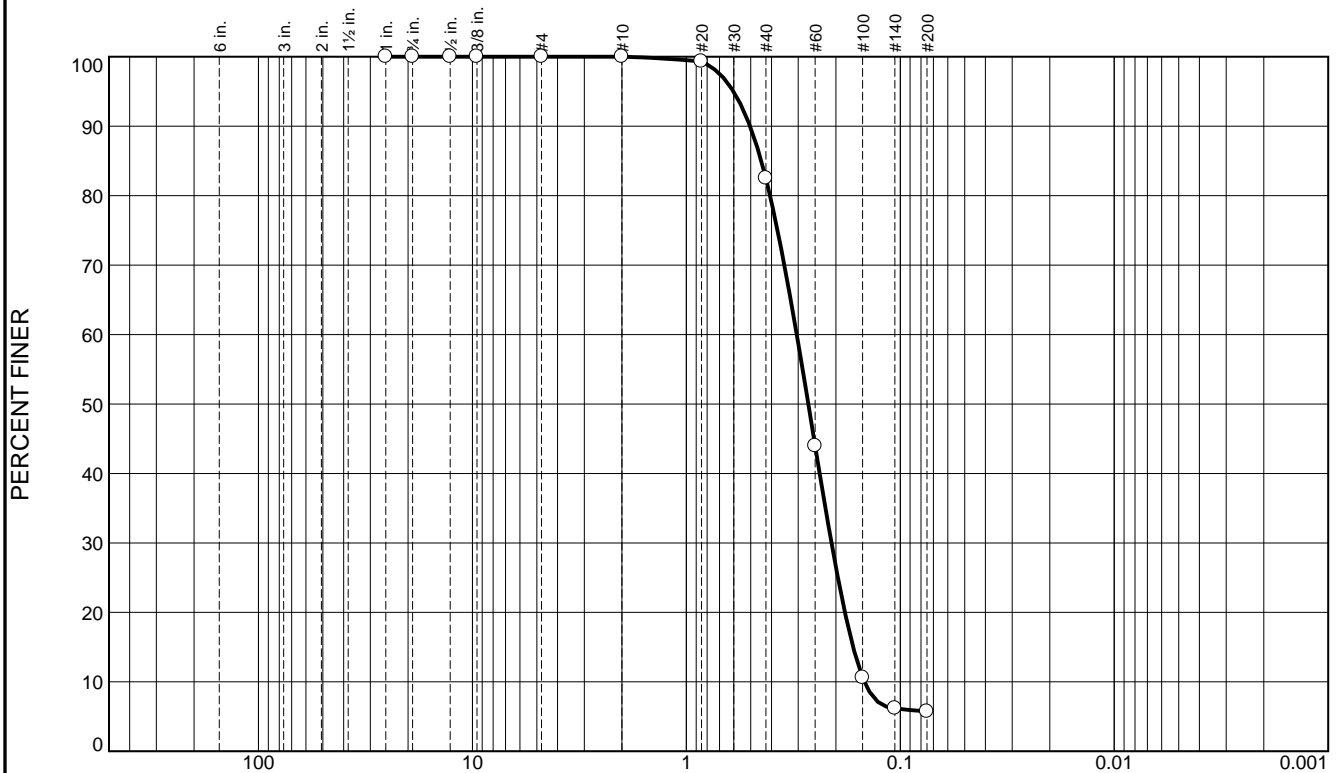
Client: CDM/Thompson Engineering JV  
Project: MsCIP Barrier Island Restoration GT

Project No: 1221110095

Figure



# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.0	0.0	17.5	76.8	5.7	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
1	100.0		
.75	100.0		
.5	100.0		
.375	100.0		
#4	100.0		
#10	100.0		
#20	99.3		
#40	82.5		
#60	44.0		
#100	10.6		
#140	6.2		
#200	5.7		

\* (no specification provided)

<u><b>Material Description</b></u>		
Fine to medium grained, SLIGHTLY SILTY SAND		
<u><b>Atterberg Limits</b></u>		
PL=	LL=	PI=
<u><b>Coefficients</b></u>		
D <sub>90</sub> = 0.5040	D <sub>85</sub> = 0.4467	D <sub>60</sub> = 0.3049
D <sub>50</sub> = 0.2692	D <sub>30</sub> = 0.2097	D <sub>15</sub> = 0.1663
D <sub>10</sub> = 0.1472	C <sub>u</sub> = 2.07	C <sub>c</sub> = 0.98
<u><b>Classification</b></u>		
USCS= SP-SM	AASHTO=	
<u><b>Remarks</b></u>		

Location: BI-PBS-41-12 B  
Sample Number: 6482 (50)

Depth: 5.6'

Date: 12/12/12

**Thompson Engineering**

**Mobile, Alabama**

Client: CDM/Thompson Engineering JV  
Project: MsCIP Barrier Island Restoration GT

Project No: 1221110095

Figure

# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.9	1.3	13.6	77.2	7.0	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
1	100.0		
.75	100.0		
.5	100.0		
.375	100.0		
#4	99.1		
#10	97.8		
#20	95.0		
#40	84.2		
#60	57.0		
#100	14.8		
#140	7.9		
#200	7.0		

\* (no specification provided)

## Material Description

Fine to medium grained, SLIGHTLY SILTY SAND

## Atterberg Limits

PL= LL= PI=

## Coefficients

D<sub>90</sub>= 0.5465 D<sub>85</sub>= 0.4375 D<sub>60</sub>= 0.2597  
D<sub>50</sub>= 0.2304 D<sub>30</sub>= 0.1853 D<sub>15</sub>= 0.1507  
D<sub>10</sub>= 0.1308 C<sub>u</sub>= 1.99 C<sub>c</sub>= 1.01

## Classification

USCS= SP-SM AASHTO=

## Remarks

Location: BI-PBS-41-12 C  
Sample Number: 6482 (51)

Depth: 7.6'

Date: 12/12/12

**Thompson Engineering**

**Mobile, Alabama**

Client: CDM/Thompson Engineering JV  
Project: MsCIP Barrier Island Restoration GT

Project No: 1221110095

Figure

# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	1.0	1.4	9.4	83.4	4.8	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
1	100.0		
.75	100.0		
.5	100.0		
.375	99.7		
#4	99.0		
#10	97.6		
#20	95.5		
#40	88.2		
#60	55.9		
#100	9.7		
#140	5.5		
#200	4.8		

\* (no specification provided)

## Material Description

Fine grained, SAND, with trace SHELL

## Atterberg Limits

PL= LL= PI=

## Coefficients

D<sub>90</sub>= 0.4534 D<sub>85</sub>= 0.3892 D<sub>60</sub>= 0.2614  
D<sub>50</sub>= 0.2353 D<sub>30</sub>= 0.1939 D<sub>15</sub>= 0.1637  
D<sub>10</sub>= 0.1509 C<sub>u</sub>= 1.73 C<sub>c</sub>= 0.95

## Classification

USCS= SP AASHTO=

## Remarks

Location: BI-PBS-41-12 D  
Sample Number: 6482 (52)

Depth: 10.2'

Date: 12/12/12

**Thompson Engineering**

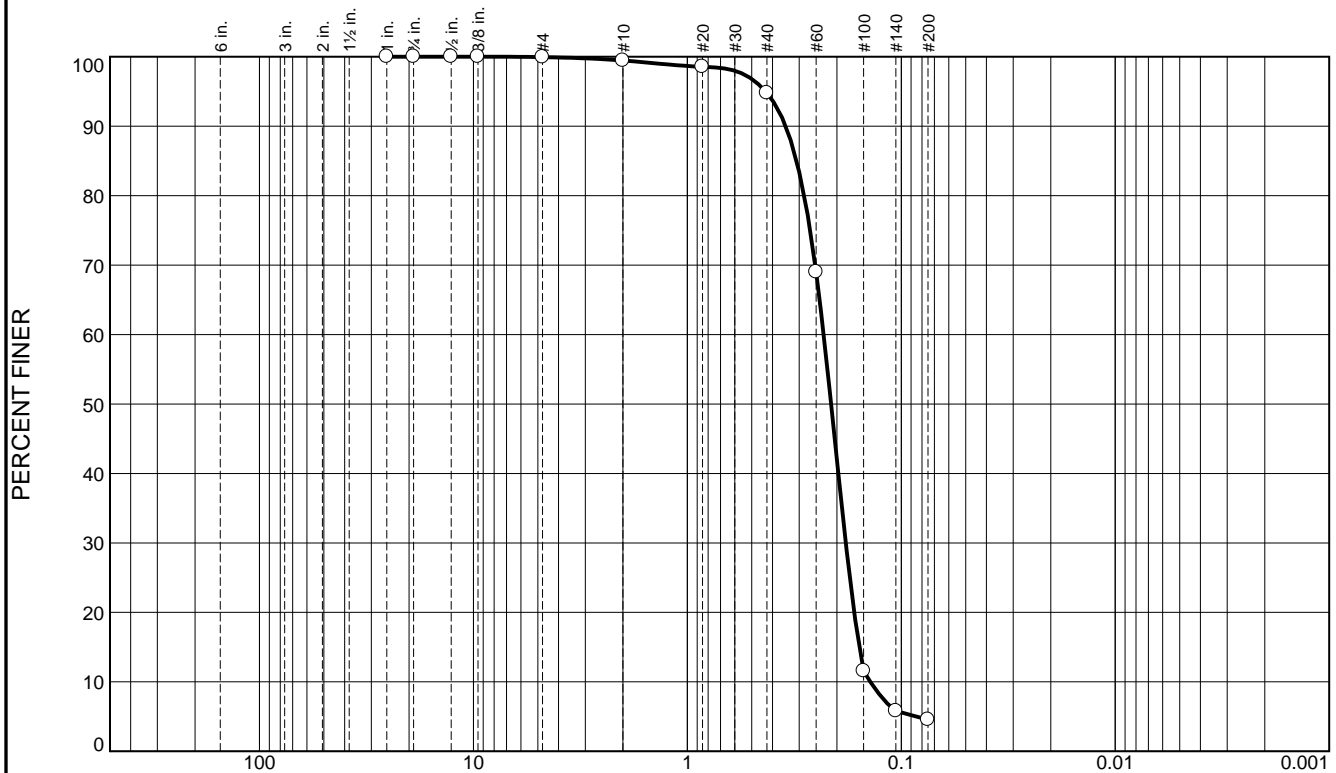
**Mobile, Alabama**

Client: CDM/Thompson Engineering JV  
Project: MsCIP Barrier Island Restoration GT

Project No: 1221110095

Figure

# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.1	0.5	4.6	90.2	4.6	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
1	100.0		
.75	100.0		
.5	100.0		
.375	100.0		
#4	99.9		
#10	99.4		
#20	98.5		
#40	94.8		
#60	69.0		
#100	11.6		
#140	5.8		
#200	4.6		

\* (no specification provided)

## Material Description

Fine grained, SAND

## Atterberg Limits

PL=

LL=

PI=

## Coefficients

D<sub>90</sub>= 0.3470

D<sub>85</sub>= 0.3089

D<sub>60</sub>= 0.2306

D<sub>50</sub>= 0.2128

D<sub>30</sub>= 0.1818

D<sub>15</sub>= 0.1573

D<sub>10</sub>= 0.1396

C<sub>u</sub>= 1.65

C<sub>c</sub>= 1.03

## Classification

USCS= SP

AASHTO=

## Remarks

Location: BI-PBS-41-12 E  
Sample Number: 6482 (53)

Depth: 11.3'

Date: 12/12/12

**Thompson Engineering**

**Mobile, Alabama**

Client: CDM/Thompson Engineering JV  
Project: MsCIP Barrier Island Restoration GT

Project No: 1221110095

Figure

# Boring Designation BI-PBS-042-12

DRILLING LOG		DIVISION South Atlantic		INSTALLATION Mobile District		SHEET 1 OF 2 SHEETS	
1. PROJECT MsCIP Barrier Island Restoration Petit Bois Pass-OCS East				9. SIZE AND TYPE OF BIT N/A			
2. BORING DESIGNATION BI-PBS-042-12		LOCATION COORDINATES E = 1,132,353 N = 227,253		10. COORDINATE SYSTEM/DATUM State Plane, MSE (U.S. Ft.)		HORIZONTAL NAD83	
3. DRILLING AGENCY Corps of Engineers - CESAM		CONTRACTOR FILE NO.		11. MANUFACTURER'S DESIGNATION OF DRILL Vibracore		<input type="checkbox"/> AUTO HAMMER <input type="checkbox"/> MANUAL HAMMER	
4. NAME OF DRILLER American Vibracore Systems, Inc.				12. TOTAL SAMPLES		DISTURBED 0	
5. DIRECTION OF BORING <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED				13. TOTAL NUMBER CORE BOXES		14. WATER DEPTH 61.7 Ft.	
6. THICKNESS OF OVERBURDEN N/A				15. DATE BORING		STARTED 12-09-12	
7. DEPTH DRILLED INTO ROCK N/A				16. ELEVATION TOP OF BORING -60.7 Ft.		COMPLETED 12-09-12	
8. TOTAL DEPTH OF BORING 20.0 Ft.				17. TOTAL RECOVERY FOR BORING 100%		18. SIGNATURE AND TITLE OF INSPECTOR Mike FitzHarris, Geologist	

ELEV.	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS	SAMPLE	LABORATORY RESULTS
-60.7	0.0				
-62.3	1.6		SAND, poorly-graded with clay, mostly fine to medium-grained sand-sized quartz, few clay, gray mottled with orangy brown (SP-SC)	A	Classification: SP-SM Color: 5Y 6/4-pale olive D50: 0.2201 mm % Fines: 9.7
-62.6	1.9		CLAY, fat, mostly clay, medium to high plasticity, dark gray (CH)	NS	
-65.1	4.4		SILT, inorganic-L, mostly silt, some fine-grained sand-sized quartz, trace clay, dark gray (ML)		
			SAND, poorly-graded with silt, mostly fine-grained sand-sized quartz, few silt, gray (SP-SM)	B	Classification: SP-SM Color: 2.5Y 5/2-grayish brown D50: 0.2199 mm % Fines: 7.9
-68.7	8.0				
-69.1	8.4		CLAY, fat, mostly clay, medium to high plasticity, dark gray (CH)	NS	
-70.2	9.5		SAND, poorly-graded with silt, mostly fine-grained sand-sized quartz, few silt, gray (SP-SM)		
			SAND, poorly-graded, mostly fine-grained sand-sized quartz, trace silt, trace clay, trace shell fragments, gray to lt. gray (SP)	C	Classification: SP-SM Color: 5Y 6/2-light olive gray D50: 0.2062 mm % Fines: 6.1
-75.2	14.5				
			SAND, silty, mostly fine-grained sand-sized quartz, some silt, trace shell fragments, gray (SM)	NS	
-80.7	20.0				
			NOTES: 1. Soils are field visually classified in accordance with the Unified Soils Classification System. 2. NS = Sample not submitted for laboratory analysis from this interval. 3. Seafloor elevation calculated using sampling		

<b>DRILLING LOG (Cont. Sheet)</b>			<b>INSTALLATION</b> Mobile District		<b>SHEET 2</b> <b>OF 2 SHEETS</b>
<b>PROJECT</b> MsCIP Barrier Island Restoration			<b>COORDINATE SYSTEM/DATUM</b> State Plane, MSE (U.S. Ft.)	<b>HORIZONTAL</b> NAD83	<b>VERTICAL</b> NAVD88
<b>LOCATION COORDINATES</b> X = 1,132,353 Y = 227,253			<b>ELEVATION TOP OF BORING</b> -60.7 Ft.		
<b>ELEV.</b>	<b>DEPTH</b>	<b>LEGEND</b>	<b>CLASSIFICATION OF MATERIALS</b>	<b>SAMPLE</b>	<b>LABORATORY RESULTS</b>
			vessel's fathometer water depth reading and applying NOAA tidal gauge data conversion factor.		

**Project**

Mississippi Barrier Island  
Restoration Project



**Core Identifier** BI-PBS-42-12

**Date** 12/09/2012

**Water Depth** 61.7'

**Coordinate System**

**Start Time** 13:50:56

Latitude / Longitude

**End Time** 13:54:54

**Penetration** 20.0'

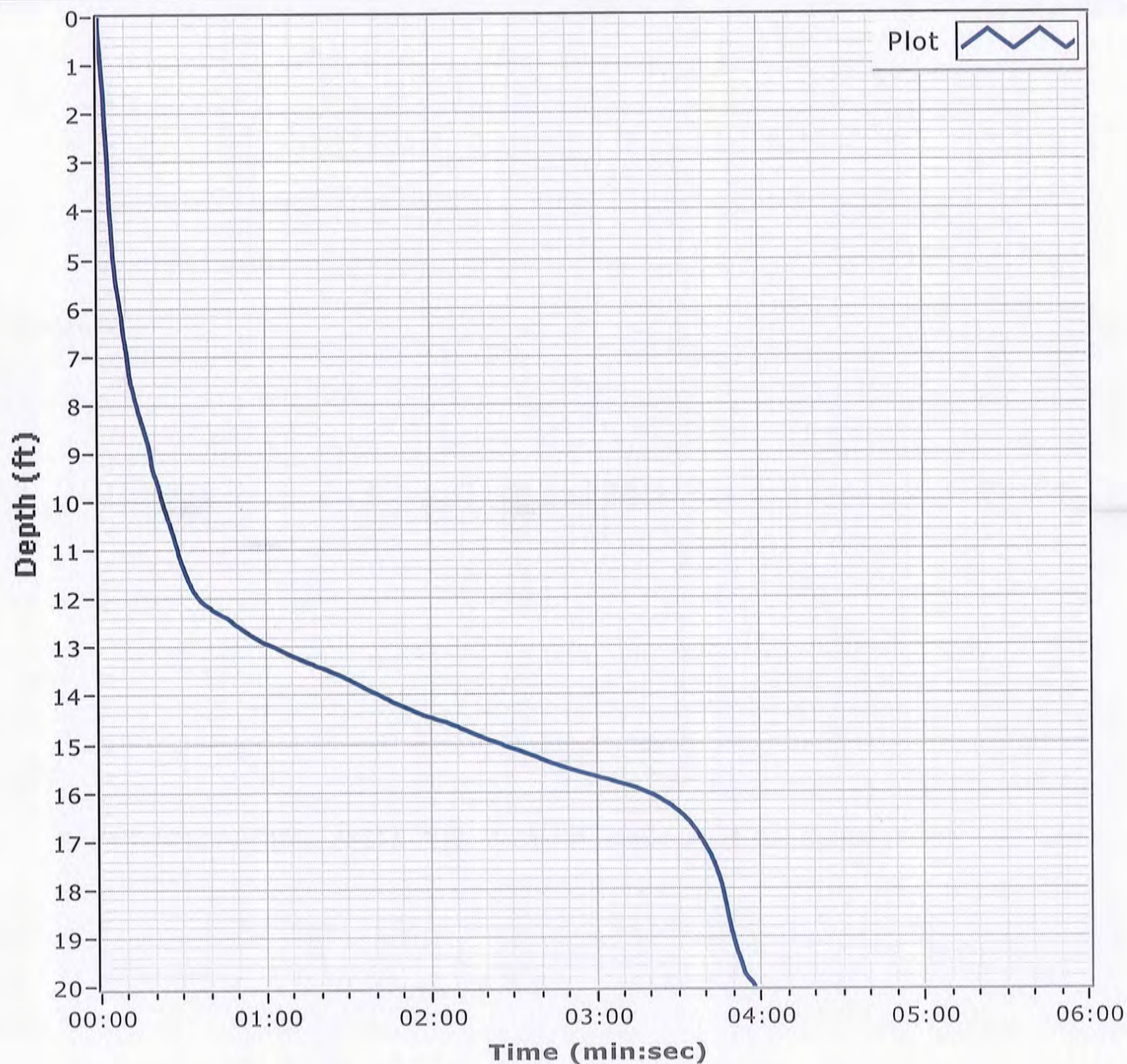
**Latitude** 30 07.444

**Total Time** 00:03:57

**Recovery** 20.0'

**Longitude** 088 21.892

**Comments**



# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	1.1	0.0	16.9	72.3	9.7	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
1	100.0		
.75	100.0		
.5	100.0		
.375	100.0		
#4	98.9		
#10	98.9		
#20	96.6		
#40	82.0		
#60	59.7		
#100	20.5		
#140	10.2		
#200	9.7		

\* (no specification provided)

## Material Description

Fine to medium grained, SLIGHTLY SILTY SAND, with trace SHELL

## Atterberg Limits

PL= LL= PI=

## Coefficients

D<sub>90</sub>= 0.5833 D<sub>85</sub>= 0.4746 D<sub>60</sub>= 0.2513  
D<sub>50</sub>= 0.2201 D<sub>30</sub>= 0.1726 D<sub>15</sub>= 0.1328  
D<sub>10</sub>= 0.0925 C<sub>u</sub>= 2.71 C<sub>c</sub>= 1.28

## Classification

USCS= SP-SM AASHTO=

## Remarks

Location: BI-PBS-42-12 A  
Sample Number: 6482 (54)

Depth: 0.0'

Date: 12/12/12

**Thompson Engineering**

**Mobile, Alabama**

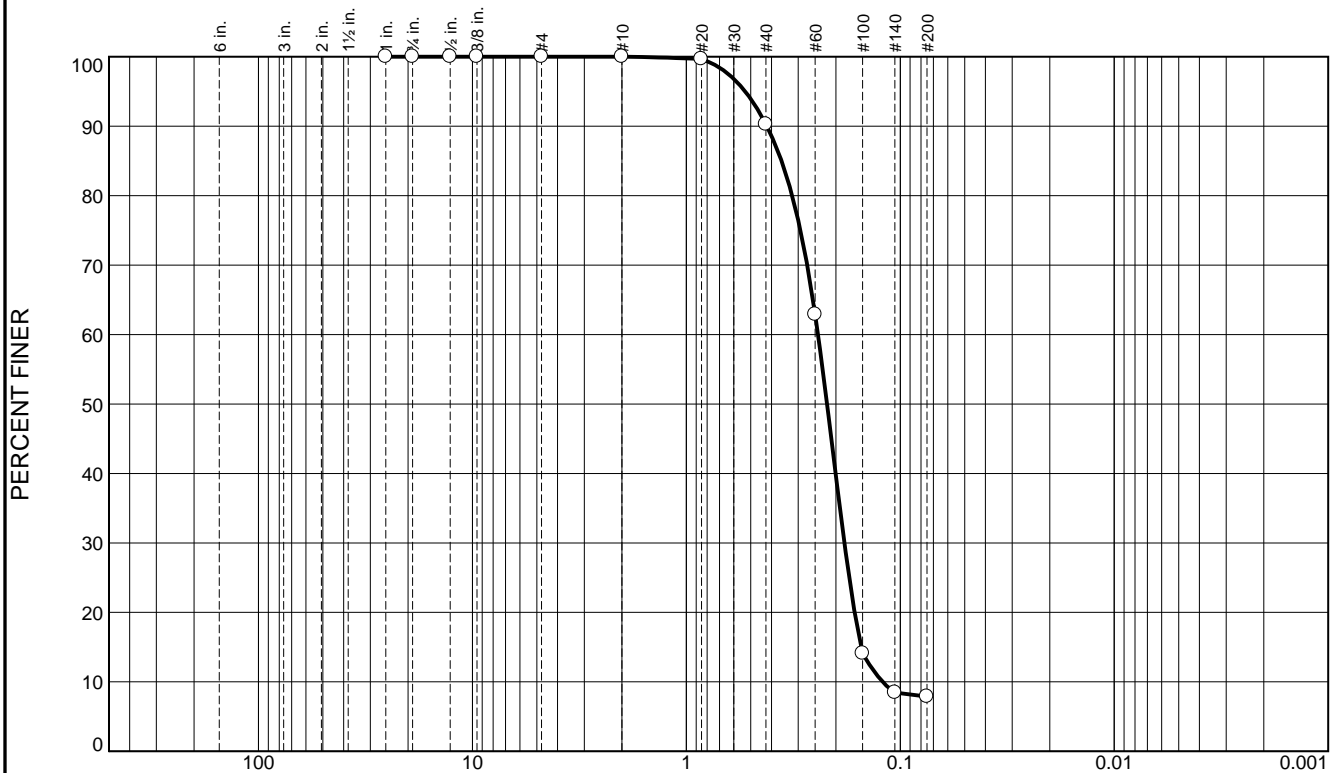
Client: CDM/Thompson Engineering JV  
Project: MsCIP Barrier Island Restoration GT

Project No: 1221110095

Figure



# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.0	0.0	9.7	82.4	7.9	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
1	100.0		
.75	100.0		
.5	100.0		
.375	100.0		
#4	100.0		
#10	100.0		
#20	99.7		
#40	90.3		
#60	62.9		
#100	14.1		
#140	8.5		
#200	7.9		

\* (no specification provided)

<b><u>Material Description</u></b>		
Fine grained, SLIGHTLY SILTY SAND		
<b><u>Atterberg Limits</u></b>		
PL=	LL=	PI=
<b><u>Coefficients</u></b>		
D <sub>90</sub> = 0.4207	D <sub>85</sub> = 0.3589	D <sub>60</sub> = 0.2424
D <sub>50</sub> = 0.2199	D <sub>30</sub> = 0.1825	D <sub>15</sub> = 0.1524
D <sub>10</sub> = 0.1209	C <sub>u</sub> = 2.00	C <sub>c</sub> = 1.14
<b><u>Classification</u></b>		
USCS= SP-SM	AASHTO=	
<b><u>Remarks</u></b>		

Location: BI-PBS-42-12 B  
Sample Number: 6482 (55)

Depth: 4.4'

Date: 12/12/12

**Thompson Engineering**

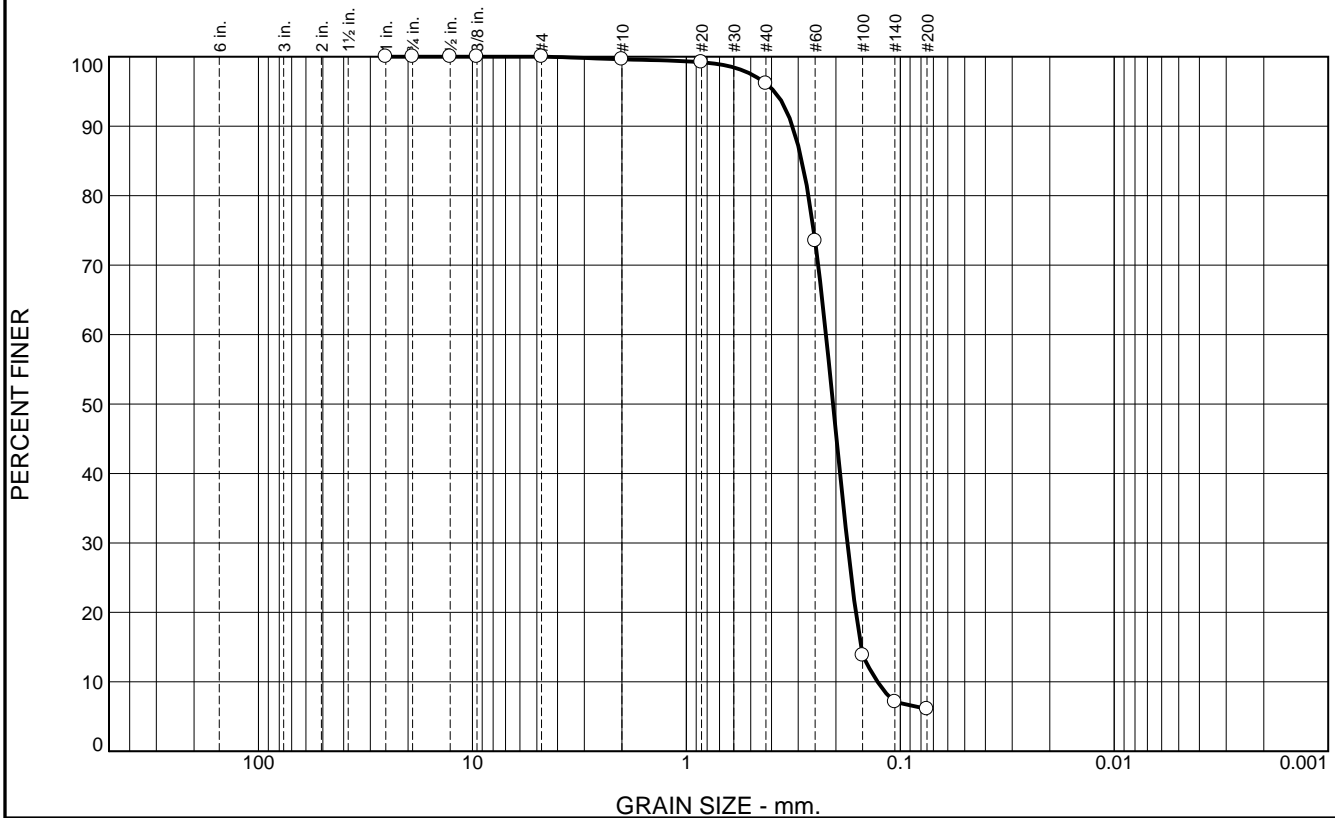
**Mobile, Alabama**

Client: CDM/Thompson Engineering JV  
Project: MsCIP Barrier Island Restoration GT

Project No: 1221110095

Figure

# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.0	0.4	3.5	90.0	6.1	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
1	100.0		
.75	100.0		
.5	100.0		
.375	100.0		
#4	100.0		
#10	99.6		
#20	99.2		
#40	96.1		
#60	73.5		
#100	13.8		
#140	7.1		
#200	6.1		

\* (no specification provided)

<b><u>Material Description</u></b>		
Fine grained, SLIGHTLY SILTY SAND		
<b><u>Atterberg Limits</u></b>		
PL=	LL=	PI=
<b><u>Coefficients</u></b>		
D <sub>90</sub> = 0.3191	D <sub>85</sub> = 0.2887	D <sub>60</sub> = 0.2225
D <sub>50</sub> = 0.2062	D <sub>30</sub> = 0.1769	D <sub>15</sub> = 0.1525
D <sub>10</sub> = 0.1277	C <sub>u</sub> = 1.74	C <sub>c</sub> = 1.10
<b><u>Classification</u></b>		
USCS= SP-SM	AASHTO=	
<b><u>Remarks</u></b>		

Location: BI-PBS-42-12 C  
Sample Number: 6482 (56)

Depth: 9.5'

Date: 12/12/12

**Thompson Engineering**

**Mobile, Alabama**

Client: CDM/Thompson Engineering JV  
Project: MsCIP Barrier Island Restoration GT

Project No: 1221110095

Figure

# Boring Designation BI-PBS-043-12

DRILLING LOG		DIVISION South Atlantic		INSTALLATION Mobile District		SHEET 1 OF 1 SHEETS	
1. PROJECT MsCIP Barrier Island Restoration Petit Bois Pass-OCS East				9. SIZE AND TYPE OF BIT N/A			
2. BORING DESIGNATION BI-PBS-043-12		LOCATION COORDINATES E = 1,129,431 N = 228,209		10. COORDINATE SYSTEM/DATUM State Plane, MSE (U.S. Ft.)		HORIZONTAL NAD83 VERTICAL NAVD88	
3. DRILLING AGENCY Corps of Engineers - CESAM		CONTRACTOR FILE NO.		11. MANUFACTURER'S DESIGNATION OF DRILL Vibracore		<input type="checkbox"/> AUTO HAMMER <input type="checkbox"/> MANUAL HAMMER	
4. NAME OF DRILLER American Vibracore Systems, Inc.				12. TOTAL SAMPLES		DISTURBED UNDISTURBED (UD) 0	
5. DIRECTION OF BORING <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED				13. TOTAL NUMBER CORE BOXES		14. WATER DEPTH 59.3 Ft.	
6. THICKNESS OF OVERBURDEN N/A				15. DATE BORING		STARTED 12-09-12 COMPLETED 12-09-12	
7. DEPTH DRILLED INTO ROCK N/A				16. ELEVATION TOP OF BORING -58.1 Ft.		17. TOTAL RECOVERY FOR BORING 100%	
8. TOTAL DEPTH OF BORING 9.8 Ft.				18. SIGNATURE AND TITLE OF INSPECTOR Mike FitzHarris, Geologist			
ELEV.	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS	SAMPLE	LABORATORY RESULTS		
-58.1	0.0						
-59.6	1.5		SAND, poorly-graded, mostly fine to medium-grained sand-sized quartz, trace fines, trace shell fragments, gray (SP)	A	Classification: SP Color: 5Y 6/2-light olive gray D50: 0.318 mm % Fines: 1.4		
-64.9	6.8		CLAY, fat, mostly clay, medium to high plasticity, little fine-grained, sand-sized quartz and shells between 1.5 to 2.4 ft., gray, greenish gray, and orangy brown mottle (CH)	NS			
-67.9	9.8		SAND, poorly-graded with silt, mostly fine-grained sand-sized quartz, few fines, dense, gray (SP-SM)				
NOTES: 1. Soils are field visually classified in accordance with the Unified Soils Classification System. 2. NS = Sample not submitted for laboratory analysis from this interval. 3. Seafloor elevation determined from 12/17/2014 USACE survey.							

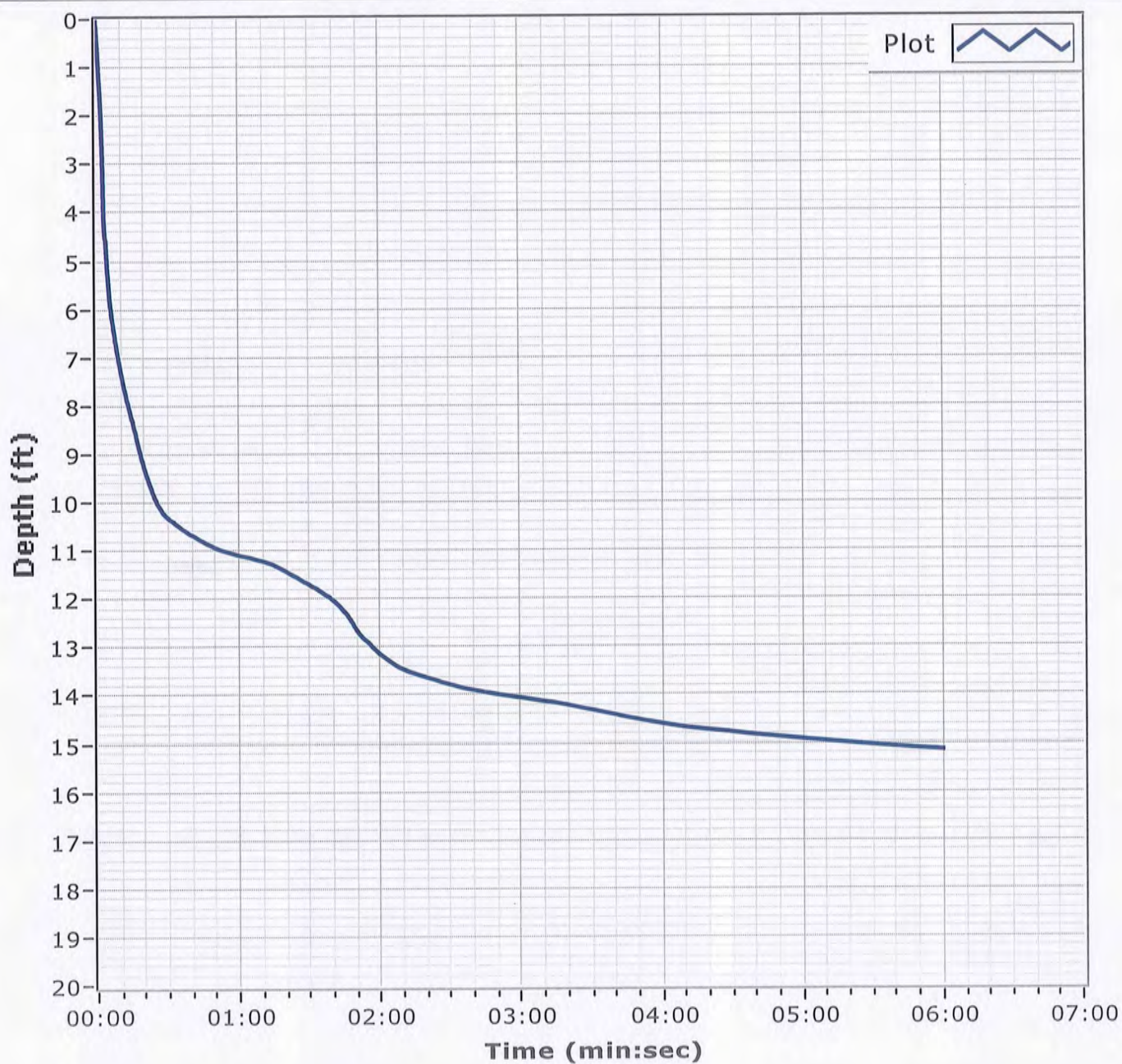
**Project**

Mississippi Barrier Island  
Restoration Project

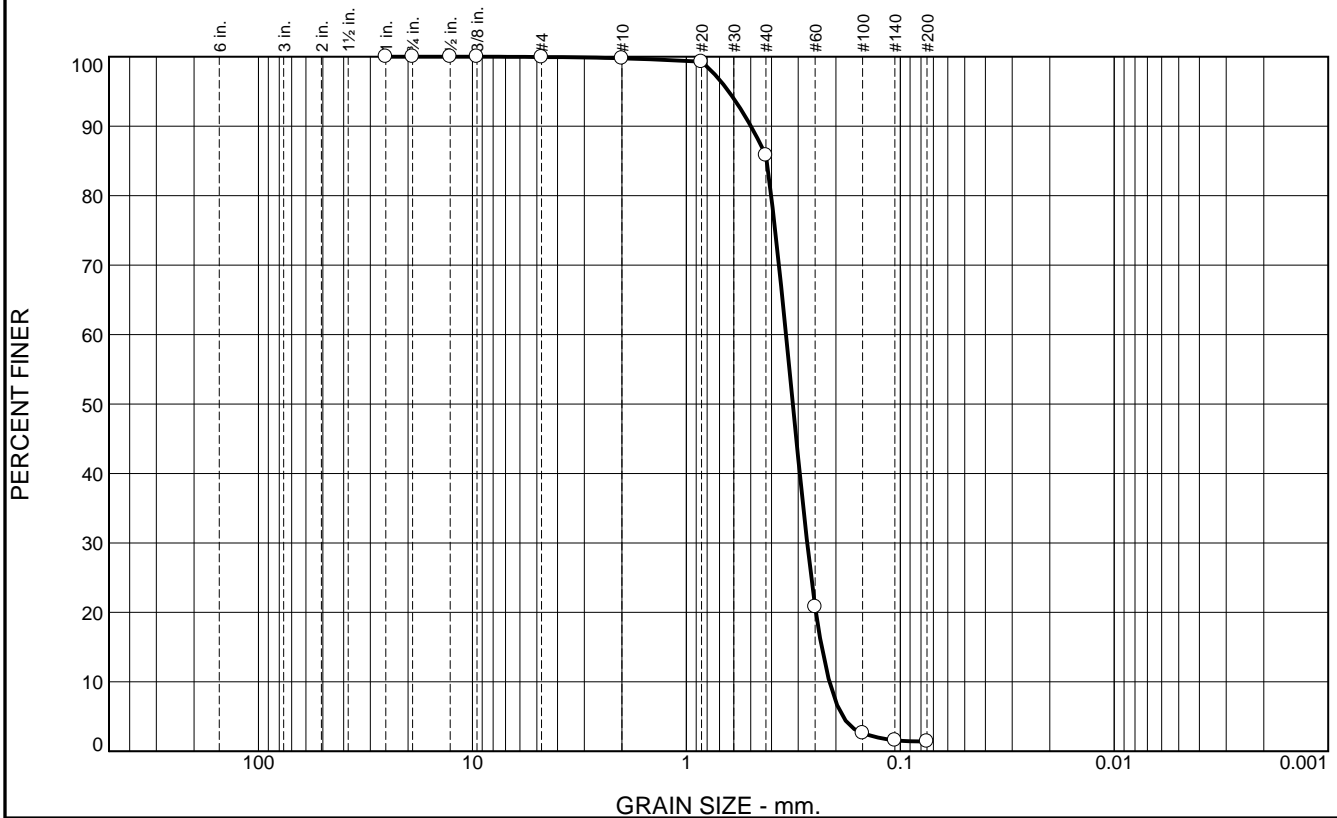
**AVS**  
**AMERICAN VIBRACORE**  
**S E R V I C E S**

**Core Identifier** BI-PBS-43-12**Date** 12/09/2012**Water Depth** 59.3'**Coordinate System**

Latitude / Longitude

**Start Time** 13:15:18**End Time** 13:21:19**Penetration** 15.2'**Latitude** 30 07.604**Total Time** 00:06:00**Recovery** 9.8'**Longitude** 088 22.446**Comments**

# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.1	0.1	14.0	84.4	1.4	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
1	100.0		
.75	100.0		
.5	100.0		
.375	100.0		
#4	99.9		
#10	99.8		
#20	99.3		
#40	85.8		
#60	20.8		
#100	2.6		
#140	1.6		
#200	1.4		

\* (no specification provided)

## Material Description

Fine to medium grained, SAND

## Atterberg Limits

PL= LL= PI=

## Coefficients

D<sub>90</sub>= 0.4996 D<sub>85</sub>= 0.4213 D<sub>60</sub>= 0.3421  
D<sub>50</sub>= 0.3180 D<sub>30</sub>= 0.2726 D<sub>15</sub>= 0.2330  
D<sub>10</sub>= 0.2144 C<sub>u</sub>= 1.60 C<sub>c</sub>= 1.01

## Classification

USCS= SP AASHTO=

## Remarks

Location: BI-PBS-43-12 A  
Sample Number: 6482 (57)

Depth: 0.0'

Date: 12/12/12

**Thompson Engineering**

**Mobile, Alabama**

Client: CDM/Thompson Engineering JV  
Project: MsCIP Barrier Island Restoration GT

Project No: 1221110095

Figure

# Boring Designation BI-PBS-044-12

DRILLING LOG		DIVISION South Atlantic		INSTALLATION Mobile District		SHEET 1 OF 1 SHEETS	
1. PROJECT MsCIP Barrier Island Restoration Petit Bois Pass-OCS East				9. SIZE AND TYPE OF BIT N/A			
2. BORING DESIGNATION BI-PBS-044-12		LOCATION COORDINATES E = 1,131,736 N = 226,760		10. COORDINATE SYSTEM/DATUM State Plane, MSE (U.S. Ft.)		HORIZONTAL NAD83	
3. DRILLING AGENCY Corps of Engineers - CESAM		CONTRACTOR FILE NO.		11. MANUFACTURER'S DESIGNATION OF DRILL Vibracore		<input type="checkbox"/> AUTO HAMMER <input type="checkbox"/> MANUAL HAMMER	
4. NAME OF DRILLER American Vibracore Systems, Inc.				12. TOTAL SAMPLES		DISTURBED 0	
5. DIRECTION OF BORING <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED				13. TOTAL NUMBER CORE BOXES		14. WATER DEPTH 60.1 Ft.	
6. THICKNESS OF OVERBURDEN N/A				15. DATE BORING		STARTED 12-09-12	
7. DEPTH DRILLED INTO ROCK N/A				16. ELEVATION TOP OF BORING -59.9 Ft.		COMPLETED 12-09-12	
8. TOTAL DEPTH OF BORING 18.7 Ft.				17. TOTAL RECOVERY FOR BORING 100%		18. SIGNATURE AND TITLE OF INSPECTOR Mike FitzHarris, Geologist	
ELEV.	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS	SAMPLE	LABORATORY RESULTS		
-59.9	0.0						
-61.1	1.2		SAND, poorly-graded, mostly fine to medium-grained sand-sized quartz, trace fines, trace shell fragments, lt. gray (SP)	A	Classification: SP Color: 5Y 7/2-light gray D50: 0.2779 mm % Fines: 2.5		
-63.4	3.5		SAND, clayey, mostly fine-grained sand-sized quartz, some clay, trace shell fragments, orangy brown, greenish gray, gray mottle (SC)				
-64.1	4.2		CLAY, fat, mostly clay, some fine-grained sand-sized quartz, medium to high plasticity, dark gray (CH)				
-66.2	6.3		SAND, silty, mostly fine-grained sand-sized quartz, some silt, trace clay, gray (SM)				
-67.6	7.7		CLAY, lean, mostly clay, some fine-grained sand-sized quartz, alternating bands of clay and clayey sand, gray (CL)				
-69.8	9.9		SAND, poorly-graded with silt, mostly fine-grained sand-sized quartz, few silt, gray (SP-SM)	NS			
-74.8	14.9		SAND, poorly-graded, mostly fine-grained sand-sized quartz, trace fines, gray (SP)				
-78.6	18.7		SAND, poorly-graded with silt, mostly fine-grained sand-sized quartz, few silt, silt content increases with depth, gray (SP-SM)				
NOTES: 1. Soils are field visually classified in accordance with the Unified Soils Classification System. 2. NS = Sample not submitted for laboratory analysis from this interval. 3. Seafloor elevation determined from 12/17/2014 USACE survey.							



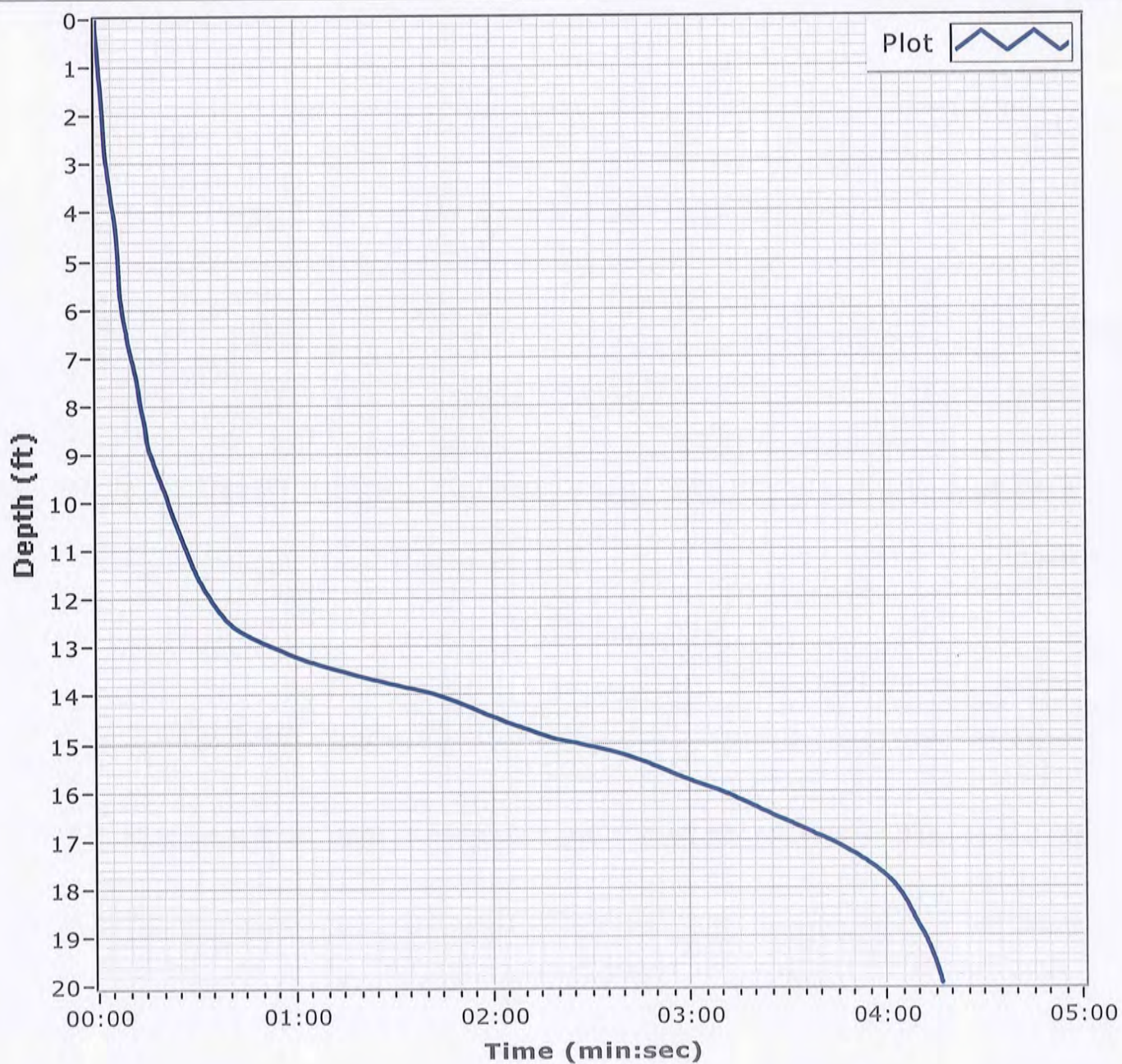
**Project**

Mississippi Barrier Island  
Restoration Project

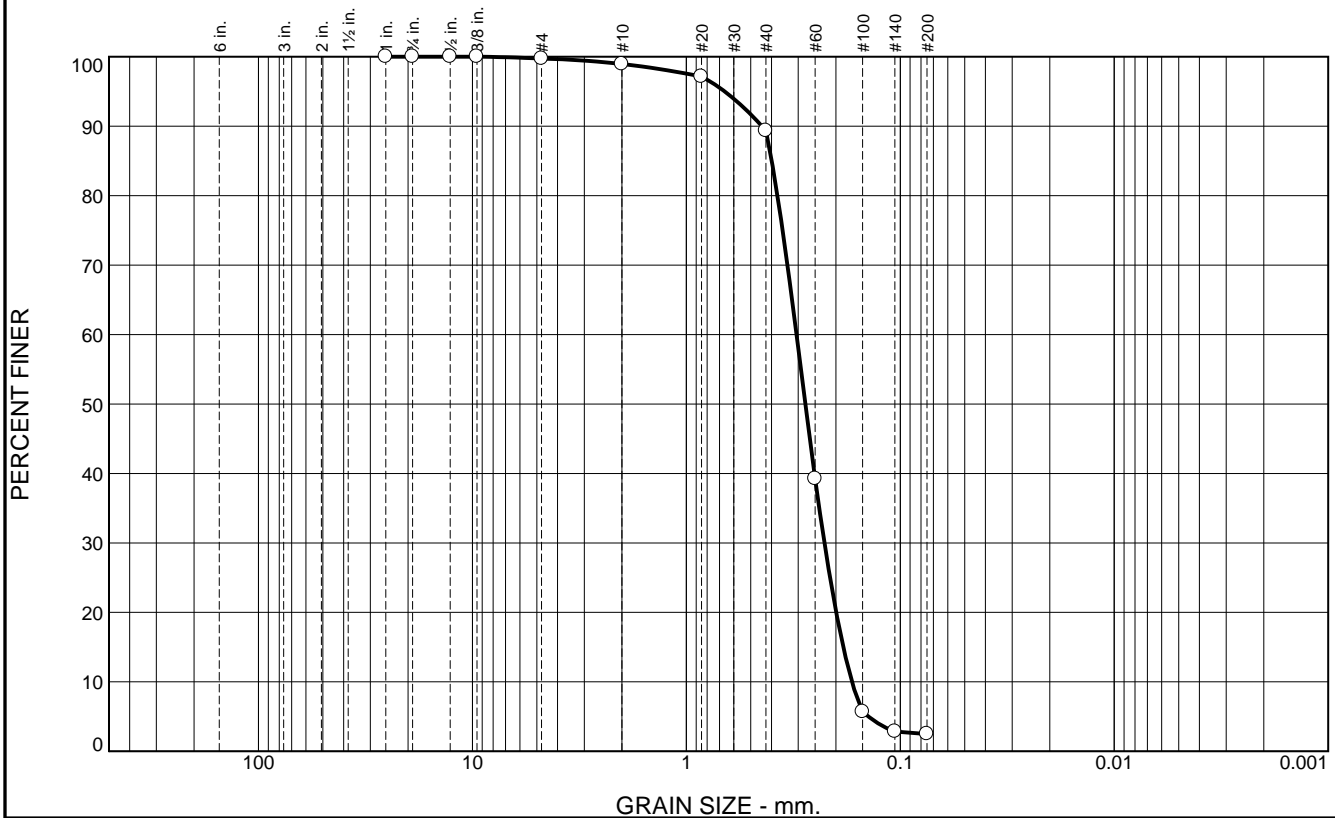
**AVS**  
**AMERICAN VIBRACORE**  
**S E R V I C E S**

**Core Identifier** BI-PBS-44-12**Date** 12/09/2012**Water Depth** 60.1'**Coordinate System**

Latitude / Longitude

**Start Time** 12:08:39**End Time** 12:12:57**Penetration** 20.0'**Latitude** 30 07.363**Total Time** 00:04:17**Recovery** 18.7'**Longitude** 088 22.010**Comments**

# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.3	0.8	9.5	86.9	2.5	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
1	100.0		
.75	100.0		
.5	100.0		
.375	100.0		
#4	99.7		
#10	98.9		
#20	97.1		
#40	89.4		
#60	39.2		
#100	5.7		
#140	2.9		
#200	2.5		

\* (no specification provided)

## Material Description

Fine grained, SAND

## Atterberg Limits

PL=

LL=

PI=

## Coefficients

D<sub>90</sub>= 0.4435

D<sub>85</sub>= 0.3988

D<sub>60</sub>= 0.3056

D<sub>50</sub>= 0.2779

D<sub>30</sub>= 0.2262

D<sub>15</sub>= 0.1848

D<sub>10</sub>= 0.1684

C<sub>u</sub>= 1.81

C<sub>c</sub>= 0.99

## Classification

USCS= SP

AASHTO=

## Remarks

Location: BI-PBS-44-12 A  
Sample Number: 6482 (58)

Depth: 0.0'

Date: 12/12/12

**Thompson Engineering**

**Mobile, Alabama**

Client: CDM/Thompson Engineering JV  
Project: MsCIP Barrier Island Restoration GT

Project No: 1221110095

Figure



# Boring Designation BI-PBS-045-12

DRILLING LOG		DIVISION South Atlantic		INSTALLATION Mobile District		SHEET 1 OF 1 SHEETS	
1. PROJECT MsCIP Barrier Island Restoration Petit Bois Pass-OCS East				9. SIZE AND TYPE OF BIT N/A			
2. BORING DESIGNATION BI-PBS-045-12		LOCATION COORDINATES E = 1,135,509 N = 224,211		10. COORDINATE SYSTEM/DATUM State Plane, MSE (U.S. Ft.)		HORIZONTAL NAD83 VERTICAL NAVD88	
3. DRILLING AGENCY Corps of Engineers - CESAM		CONTRACTOR FILE NO.		11. MANUFACTURER'S DESIGNATION OF DRILL Vibracore		<input type="checkbox"/> AUTO HAMMER <input type="checkbox"/> MANUAL HAMMER	
4. NAME OF DRILLER American Vibracore Systems, Inc.				12. TOTAL SAMPLES		DISTURBED UNDISTURBED (UD) 0	
5. DIRECTION OF BORING <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED		DEG. FROM VERTICAL		13. TOTAL NUMBER CORE BOXES			
		BEARING		14. WATER DEPTH 60.5 Ft.			
6. THICKNESS OF OVERBURDEN N/A				15. DATE BORING 12-01-12		STARTED COMPLETED 12-01-12	
7. DEPTH DRILLED INTO ROCK N/A				16. ELEVATION TOP OF BORING -60.3 Ft.			
8. TOTAL DEPTH OF BORING 17.2 Ft.				17. TOTAL RECOVERY FOR BORING 100%			
				18. SIGNATURE AND TITLE OF INSPECTOR Mike FitzHarris, Geologist			
ELEV.	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS	SAMPLE	LABORATORY RESULTS		
-60.3	0.0						
-63.1	2.8		SAND, poorly-graded, mostly medium-grained sand-sized quartz, little shell fragments, trace silt, lt. gray (SP)	A	Classification: SP Color: 2.5Y 7/1-light gray D50: 0.4972 mm % Fines: 1.4		
-65.3	5.0		SAND, poorly-graded, mostly fine-grained sand-sized quartz, trace silt, trace shell fragments, gray (SP)	B	Classification: SP Color: 2.5Y 6/2-light brownish gray D50: 0.2152 mm % Fines: 3.4		
-68.9	8.6		SAND, silty, mostly fine-grained sand-sized quartz, some silt, some organic matter, organic staining, brown (SM)	NS			
-69.4	9.1		SAND, poorly-graded, mostly fine-grained sand-sized quartz, trace silt, dense, gray (SP)				
-74.3	14.0		SAND, clayey, mostly fine-grained sand-sized quartz, some clay, 2-3 inch bands of lean clay and clayey sand, gray (SC) At El. -70.3 Ft., mostly fine-grained sand-sized quartz, some clay, some shells throughout, shelly layer between 13.1 and 13.5 ft., gray	NS			
-77.5	17.2		SAND, poorly-graded, mostly fine-grained sand-sized quartz, trace silt, shell layer at 16.0 ft., gray (SP)				
			NOTES: 1. Soils are field visually classified in accordance with the Unified Soils Classification System. 2. NS = Sample not submitted for laboratory analysis from this interval. 3. Seafloor elevation calculated using sampling vessel's fathometer water depth reading and applying NOAA tidal gauge data conversion factor.				

Project

Mississippi Barrier Island  
Restoration Project



Core Identifier BI-PBS-45-12

Date 12/01/2012

Water Depth 60.5'

Coordinate System  
Latitude / Longitude

Start Time 10:25:47

End Time 10:29:18

Penetration 17.2'

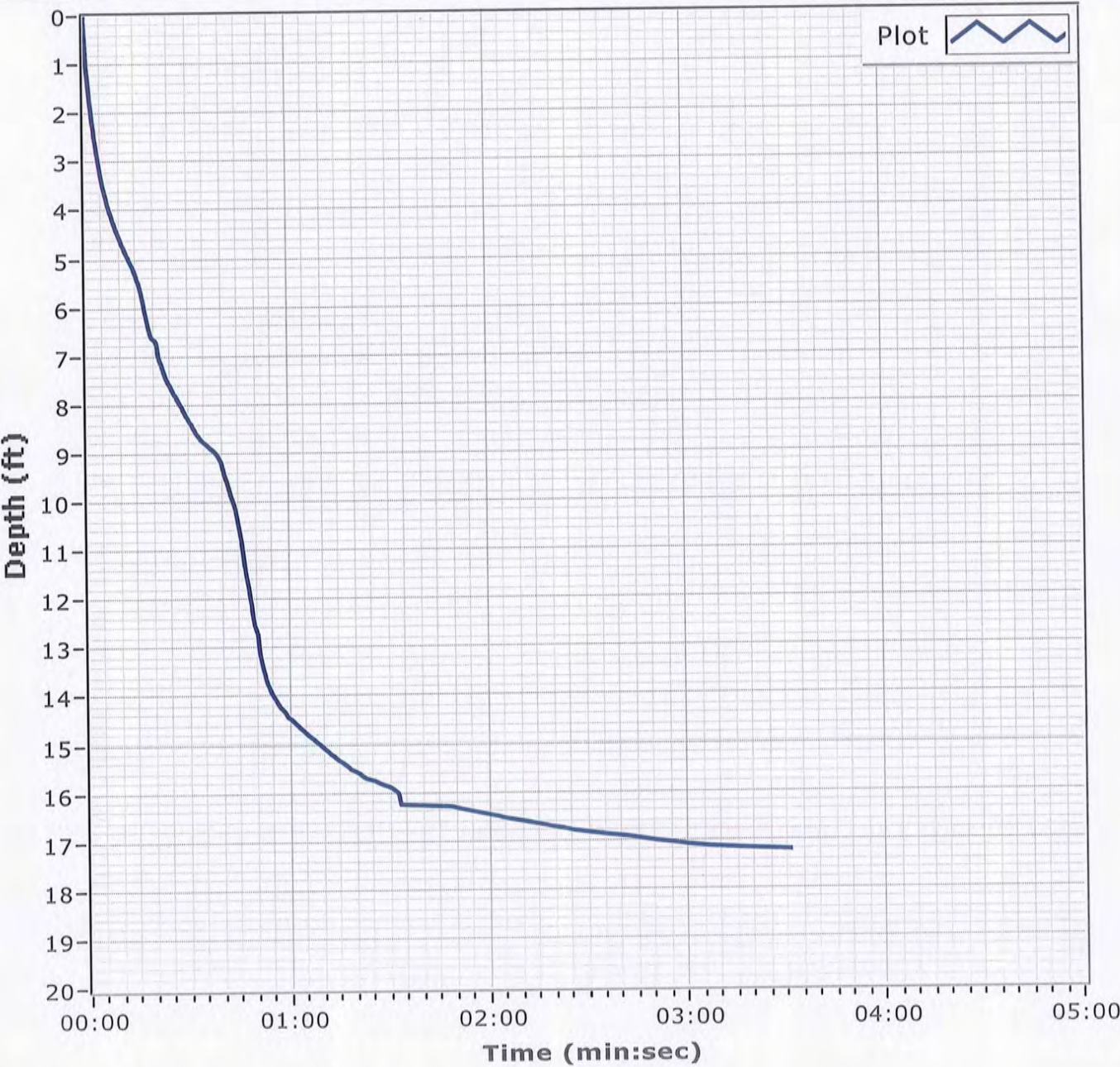
Latitude 30 06.940

Total Time 00:03:31

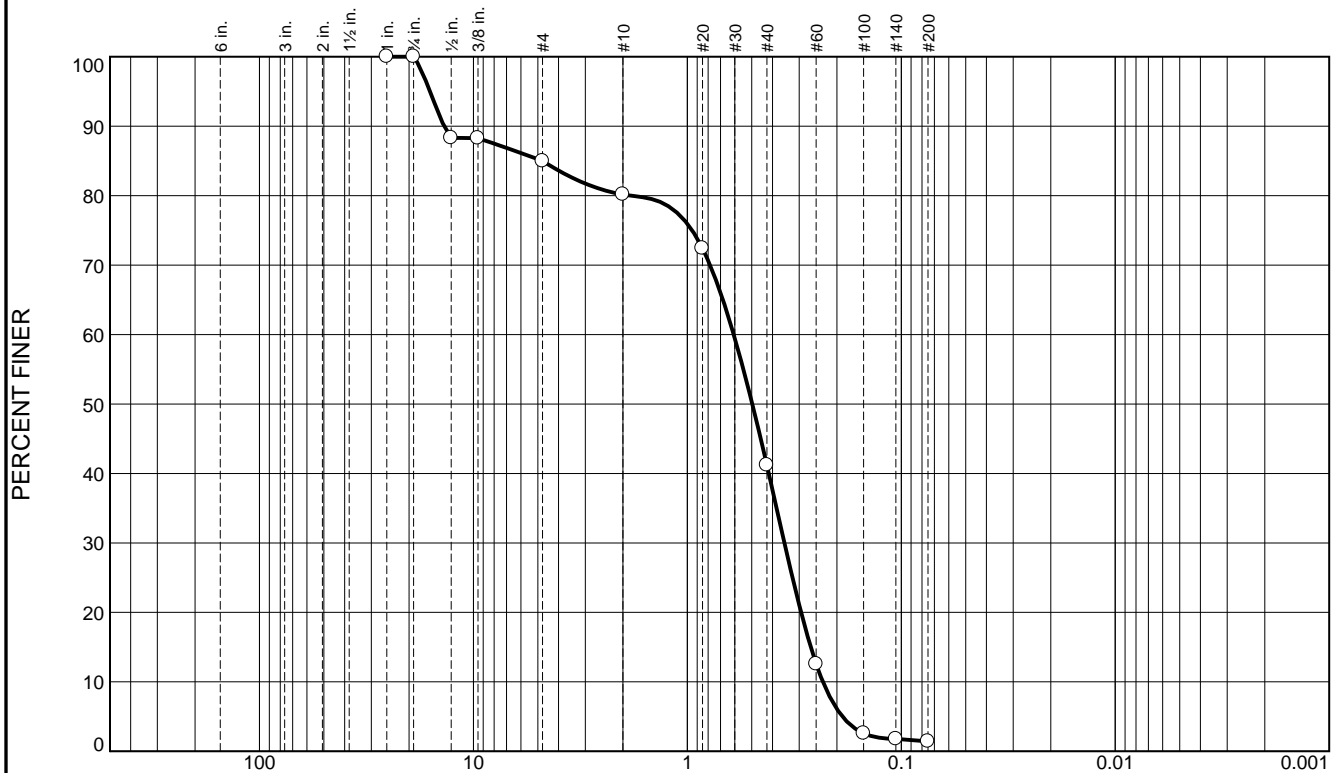
Recovery 17.2'

Longitude 088 21.296

Comments



# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	15.0	4.8	39.0	39.8	1.4	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
1	100.0		
.75	100.0		
.5	88.3		
.375	88.3		
#4	85.0		
#10	80.2		
#20	72.4		
#40	41.2		
#60	12.6		
#100	2.6		
#140	1.8		
#200	1.4		

\* (no specification provided)

<b>Material Description</b> Fine to medium grained, SAND, with some SHELL		
PL=	<b>Atterberg Limits</b> LL=	PI=
D <sub>90</sub> = 13.7089 D <sub>50</sub> = 0.4972 D <sub>10</sub> = 0.2325	<b>Coefficients</b> D <sub>85</sub> = 4.7741 D <sub>30</sub> = 0.3518 C <sub>u</sub> = 2.61	D <sub>60</sub> = 0.6072 D <sub>15</sub> = 0.2651 C <sub>c</sub> = 0.88
USCS= SP	<b>Classification</b> AASHTO=	
<b>Remarks</b>		

Location: BI-PBS-45-12 A  
Sample Number: 6471 (10)

Depth: 0.0'

Date: 12/03/12

**Thompson Engineering**

**Mobile, Alabama**

Client: CDM/Thompson Engineering JV  
Project: MsCIP Barrier Island Restoration GT

Project No: 1221110095

Figure

# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.0	0.0	7.4	89.2	3.4	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
1	100.0		
.75	100.0		
.5	100.0		
.375	100.0		
#4	100.0		
#10	100.0		
#20	98.4		
#40	92.6		
#60	67.5		
#100	10.0		
#140	4.3		
#200	3.4		

\* (no specification provided)

<u>Material Description</u>		
Fine grained, SAND		
PL=	<u>Atterberg Limits</u> LL=	PI=
<u>Coefficients</u>		
D <sub>90</sub> = 0.3731	D <sub>85</sub> = 0.3213	D <sub>60</sub> = 0.2335
D <sub>50</sub> = 0.2152	D <sub>30</sub> = 0.1841	D <sub>15</sub> = 0.1601
D <sub>10</sub> = 0.1500	C <sub>u</sub> = 1.56	C <sub>c</sub> = 0.97
<u>Classification</u>		
USCS= SP	AASHTO=	
<u>Remarks</u>		

Location: BI-PBS-45-12 B  
Sample Number: 6471 (11)

Depth: 2.8'

Date: 12/03/12

**Thompson Engineering**

**Mobile, Alabama**

Client: CDM/Thompson Engineering JV  
Project: MsCIP Barrier Island Restoration GT

Project No: 1221110095

Figure

# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	1.8	0.9	10.0	82.4	4.9	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
1	100.0		
.75	100.0		
.5	100.0		
.375	99.3		
#4	98.2		
#10	97.3		
#20	96.0		
#40	87.3		
#60	51.3		
#100	11.3		
#140	5.6		
#200	4.9		

\* (no specification provided)

## Material Description

Fine to medium grained, SAND, with trace SHELL

## Atterberg Limits

PL= LL= PI=

## Coefficients

D<sub>90</sub>= 0.5012 D<sub>85</sub>= 0.4030 D<sub>60</sub>= 0.2766  
D<sub>50</sub>= 0.2463 D<sub>30</sub>= 0.1973 D<sub>15</sub>= 0.1613  
D<sub>10</sub>= 0.1453 C<sub>u</sub>= 1.90 C<sub>c</sub>= 0.97

## Classification

USCS= SP AASHTO=

## Remarks

Location: BI-PBS-45-12 C

Sample Number: 6471 (12)

Depth: 14.0'

Date: 12/03/12

**Thompson Engineering**

**Mobile, Alabama**

Client: CDM/Thompson Engineering JV

Project: MsCIP Barrier Island Restoration GT

Project No: 1221110095

Figure

# Boring Designation BI-PBS-046-12

DRILLING LOG		DIVISION South Atlantic		INSTALLATION Mobile District		SHEET 1 OF 2 SHEETS	
1. PROJECT MsCIP Barrier Island Restoration Petit Bois Pass-OCS East				9. SIZE AND TYPE OF BIT N/A			
2. BORING DESIGNATION BI-PBS-046-12		LOCATION COORDINATES E = 1,134,958 N = 223,463		10. COORDINATE SYSTEM/DATUM State Plane, MSE (U.S. Ft.)		HORIZONTAL NAD83	
3. DRILLING AGENCY Corps of Engineers - CESAM		CONTRACTOR FILE NO.		11. MANUFACTURER'S DESIGNATION OF DRILL Vibracore		<input type="checkbox"/> AUTO HAMMER <input type="checkbox"/> MANUAL HAMMER	
4. NAME OF DRILLER American Vibracore Systems, Inc.				12. TOTAL SAMPLES		DISTURBED 0	
5. DIRECTION OF BORING <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED				13. TOTAL NUMBER CORE BOXES		14. WATER DEPTH 60.9 Ft.	
6. THICKNESS OF OVERBURDEN N/A				15. DATE BORING		STARTED 12-01-12	
7. DEPTH DRILLED INTO ROCK N/A				16. ELEVATION TOP OF BORING -60.6 Ft.		COMPLETED 12-01-12	
8. TOTAL DEPTH OF BORING 20.0 Ft.				17. TOTAL RECOVERY FOR BORING 100%			
				18. SIGNATURE AND TITLE OF INSPECTOR Mike FitzHarris, Geologist			
ELEV.	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS	SAMPLE	LABORATORY RESULTS		
-60.6	0.0						
			SAND, poorly-graded, mostly fine to medium-grained sand-sized quartz, trace shell fragments, gray (SP)	A	Classification: SP Color: 2.5Y 7/2-light gray D50: 0.261 mm % Fines: 2.3		
-65.1	4.5						
-66.1	5.5		CLAY, lean, mostly clay, little fine-grained sand-sized quartz, medium plasticity, gray mottled with orange (CL)	NS			
-67.0	6.4						
			SAND, clayey, mostly fine-grained sand-sized quartz, some clay, trace shell fragments, gray mottled with orange (SC)	B	Classification: SP-SM Color: 2.5Y 7/2-light gray D50: 0.2571 mm % Fines: 7.8		
-69.3	8.7						
-70.6	10.0		SAND, poorly-graded, mostly fine-grained sand-sized quartz, lt. gray (SP)	C	Classification: SP-SM Color: 2.5Y 6/2-light brownish gray D50: 0.2363 mm % Fines: 6.4		
-72.0	11.4		SAND, poorly-graded with silt, mostly fine-grained sand-sized quartz, few silt, trace wood debris, gray (SP-SM)	D	Classification: SP-SM Color: 2.5Y 5/2-grayish brown D50: 0.2177 mm % Fines: 7		
			SAND, silty, mostly fine-grained sand-sized quartz, some clay, trace shell fragments, dark gray (SM)	E	Classification: SP-SM Color: 2.5Y 6/2-light brownish gray D50: 0.1909 mm % Fines: 6.3		
-74.9	14.3						
-75.3	14.7		SAND, poorly-graded with silt, mostly fine-grained sand-sized quartz, few silt, trace shell fragments, gray (SP-SM)	NS			
-75.9	15.3						
-77.3	16.7		SHELL, mostly shell fragments, trace clay, dark gray				
			CLAY, lean, mostly clay, little fine-grained sand-sized quartz, medium plasticity, dark gray (CL)	F	Classification: SP-SM Color: 2.5Y 7/2-light gray D50: 0.2466 mm % Fines: 6.7		
-80.6	20.0		SAND, clayey, mostly fine-grained sand-sized quartz, some clay, little shell fragments, dark gray (SC)				
			SAND, poorly-graded with silt, mostly fine to medium-grained sand-sized quartz, few silt, trace shell fragments, gray (SP-SM)				
NOTES: 1. Soils are field visually classified in accordance with the Unified Soils Classification System.							

<b>DRILLING LOG (Cont. Sheet)</b>			<b>INSTALLATION</b> Mobile District		<b>SHEET 2</b> <b>OF 2 SHEETS</b>
<b>PROJECT</b> MsCIP Barrier Island Restoration			<b>COORDINATE SYSTEM/DATUM</b> State Plane, MSE (U.S. Ft.)	<b>HORIZONTAL</b> NAD83	<b>VERTICAL</b> NAVD88
<b>LOCATION COORDINATES</b> X = 1,134,958 Y = 223,463			<b>ELEVATION TOP OF BORING</b> -60.6 Ft.		
<b>ELEV.</b>	<b>DEPTH</b>	<b>LEGEND</b>	<b>CLASSIFICATION OF MATERIALS</b>	<b>SAMPLE</b>	<b>LABORATORY RESULTS</b>
			2. NS = Sample not submitted for laboratory analysis from this interval.  3. Seafloor elevation calculated using sampling vessel's fathometer water depth reading and applying NOAA tidal gauge data conversion factor.		



**Project**

Mississippi Barrier Island  
Restoration Project

**AVS**  
**AMERICAN VIBRACORE**  
**S E R V I C E S**

**Core Identifier** BI-PBS-46-12

**Date** 12/01/2012

**Water Depth** 60.9'

**Coordinate System**

Latitude / Longitude

**Start Time** 13:40:35

**End Time** 13:44:24

**Penetration** 20.0'

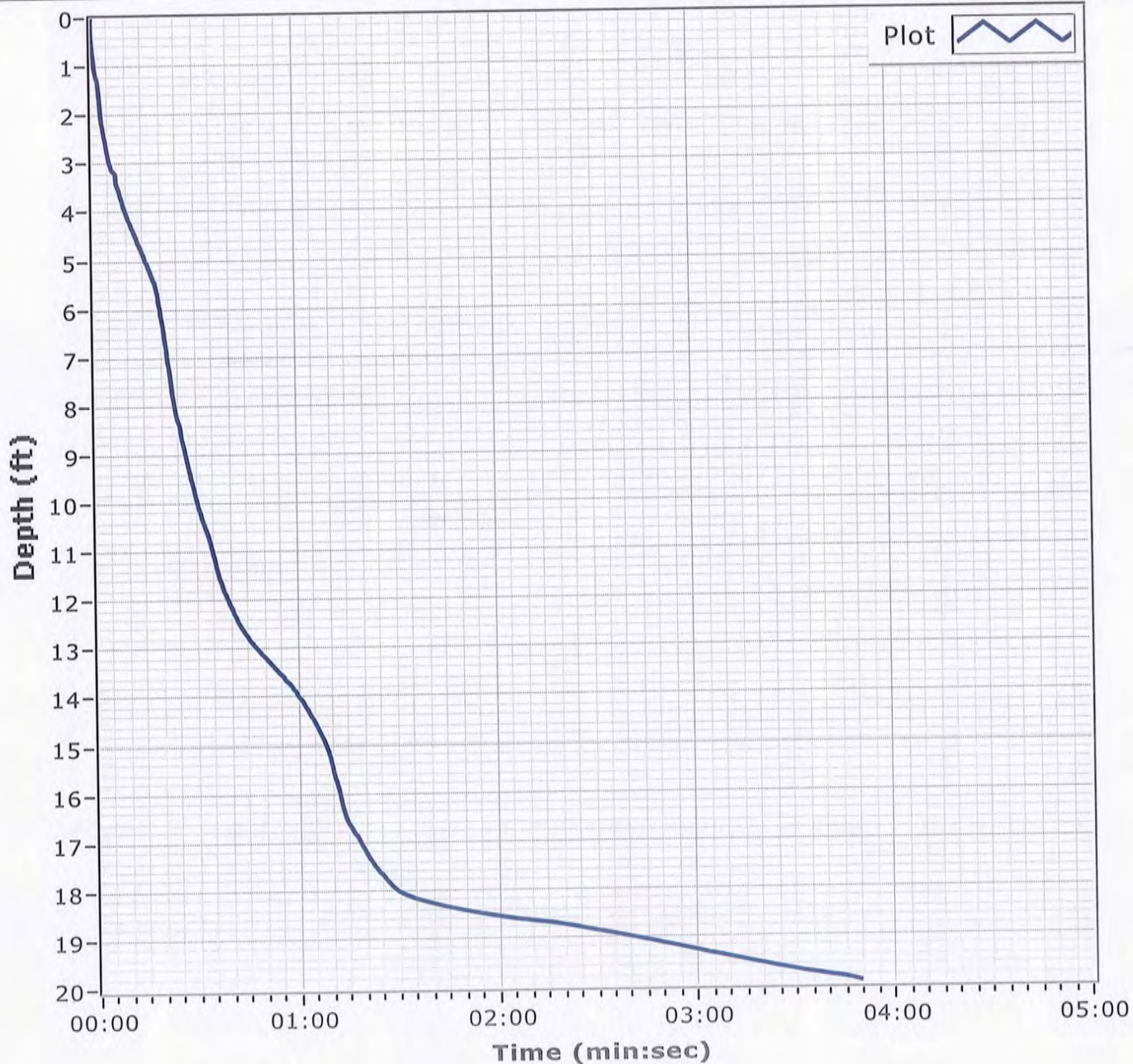
**Latitude** 30 06.817

**Total Time** 00:03:49

**Recovery** 20.0'

**Longitude** 088 21.401

**Comments**





# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	1.5	2.4	14.4	79.4	2.3	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
1	100.0		
.75	100.0		
.5	99.2		
.375	99.2		
#4	98.5		
#10	96.1		
#20	92.1		
#40	81.7		
#60	46.1		
#100	4.5		
#140	2.5		
#200	2.3		

\* (no specification provided)

## Material Description

Fine to medium grained, SAND, with trace SHELL

## Atterberg Limits

PL= LL= PI=

## Coefficients

D<sub>90</sub>= 0.6016 D<sub>85</sub>= 0.4680 D<sub>60</sub>= 0.2944  
D<sub>50</sub>= 0.2610 D<sub>30</sub>= 0.2114 D<sub>15</sub>= 0.1787  
D<sub>10</sub>= 0.1667 C<sub>u</sub>= 1.77 C<sub>c</sub>= 0.91

## Classification

USCS= SP AASHTO=

## Remarks

Location: BI-PBS-46-12 A  
Sample Number: 6471 (13)

Depth: 0.0'

Date: 12/03/12

**Thompson Engineering**

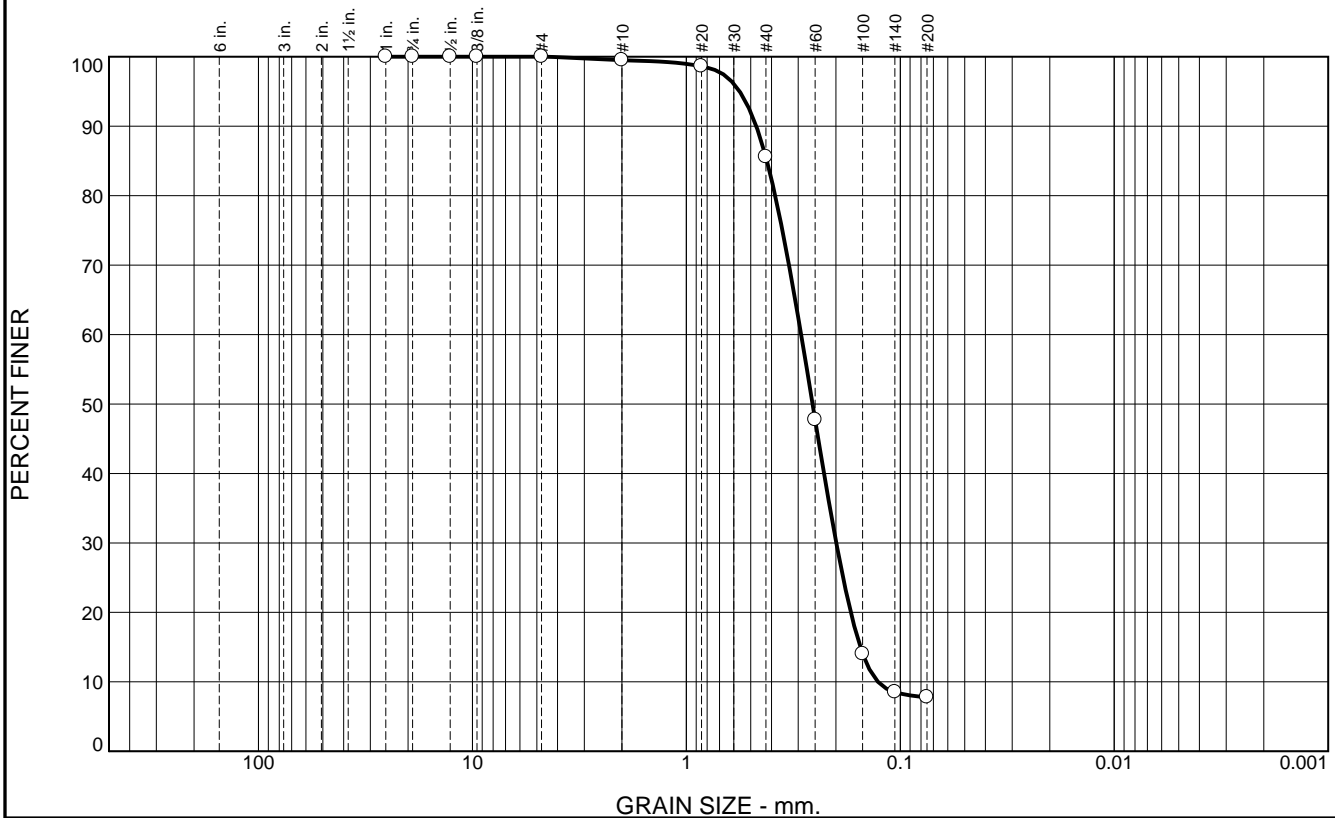
**Mobile, Alabama**

Client: CDM/Thompson Engineering JV  
Project: MsCIP Barrier Island Restoration GT

Project No: 1221110095

Figure

# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.0	0.5	13.9	77.8	7.8	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
1	100.0		
.75	100.0		
.5	100.0		
.375	100.0		
#4	100.0		
#10	99.5		
#20	98.6		
#40	85.6		
#60	47.7		
#100	14.0		
#140	8.5		
#200	7.8		

\* (no specification provided)

## Material Description

Fine to medium grained, SLIGHTLY SILTY SAND

## Atterberg Limits

PL= LL= PI=

## Coefficients

D<sub>90</sub>= 0.4713 D<sub>85</sub>= 0.4202 D<sub>60</sub>= 0.2909  
D<sub>50</sub>= 0.2571 D<sub>30</sub>= 0.1992 D<sub>15</sub>= 0.1538  
D<sub>10</sub>= 0.1272 C<sub>u</sub>= 2.29 C<sub>c</sub>= 1.07

## Classification

USCS= SP-SM AASHTO=

## Remarks

Location: BI-PBS-46-12 B  
Sample Number: 6471 (14)

Depth: 6.4'

Date: 12/03/12

**Thompson Engineering**

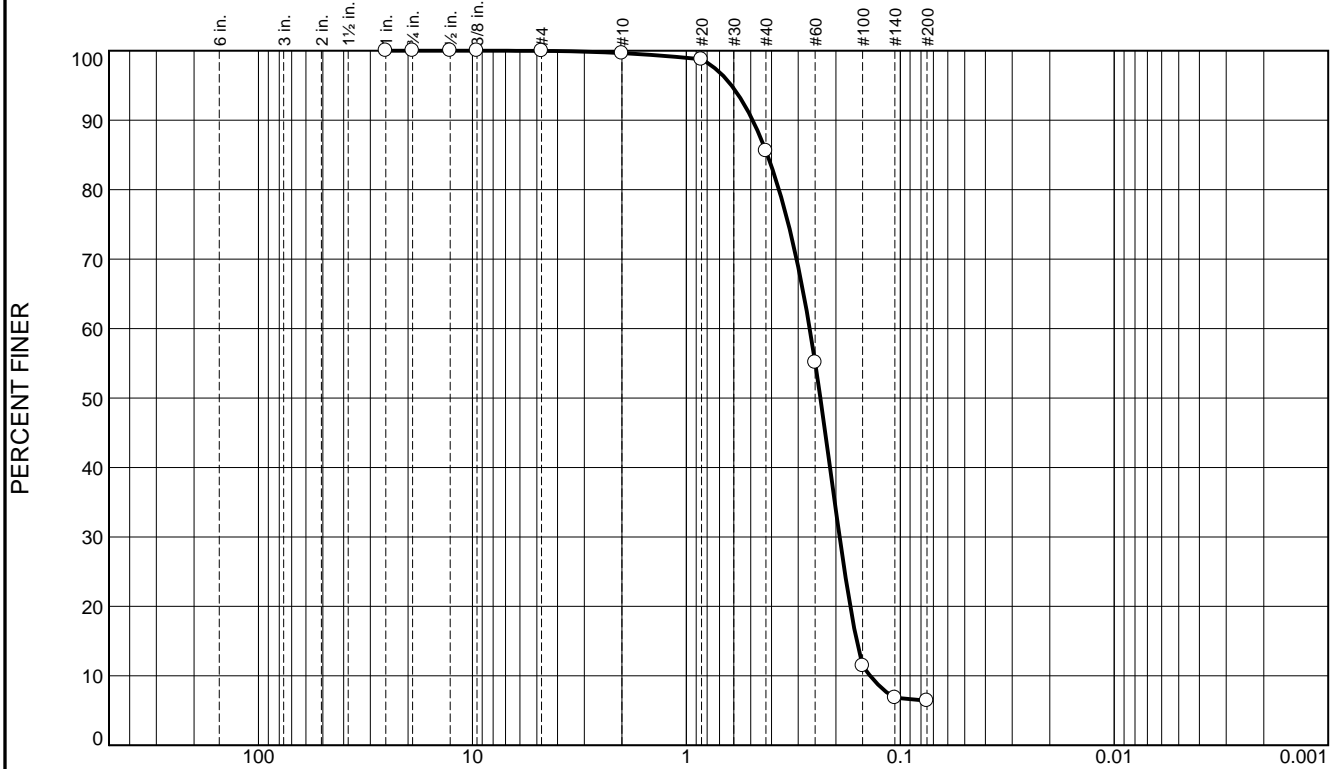
**Mobile, Alabama**

Client: CDM/Thompson Engineering JV  
Project: MsCIP Barrier Island Restoration GT

Project No: 1221110095

Figure

# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.0	0.4	14.0	79.2	6.4	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
1	100.0		
.75	100.0		
.5	100.0		
.375	100.0		
#4	100.0		
#10	99.6		
#20	98.8		
#40	85.6		
#60	55.1		
#100	11.4		
#140	6.9		
#200	6.4		

\* (no specification provided)

## Material Description

Fine to medium grained, SLIGHTLY SILTY SAND

## Atterberg Limits

PL= LL= PI=

## Coefficients

D<sub>90</sub>= 0.4901 D<sub>85</sub>= 0.4182 D<sub>60</sub>= 0.2651  
D<sub>50</sub>= 0.2363 D<sub>30</sub>= 0.1922 D<sub>15</sub>= 0.1599  
D<sub>10</sub>= 0.1383 C<sub>u</sub>= 1.92 C<sub>c</sub>= 1.01

## Classification

USCS= SP-SM AASHTO=

## Remarks

Location: BI-PBS-46-12 C

Sample Number: 6471 (15)

Depth: 8.7'

Date: 12/03/12

**Thompson Engineering**

**Mobile, Alabama**

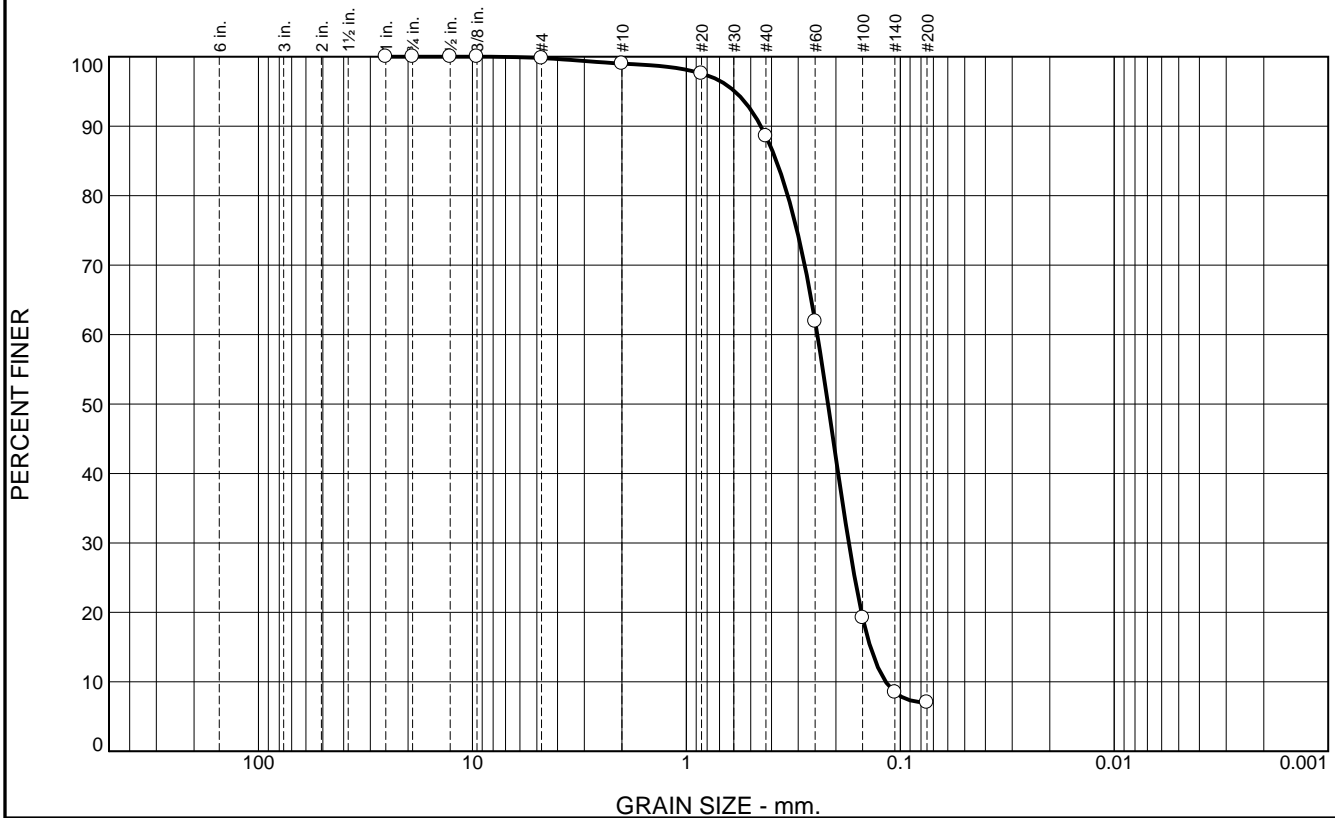
Client: CDM/Thompson Engineering JV

Project: MsCIP Barrier Island Restoration GT

Project No: 1221110095

Figure

# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.2	0.8	10.4	81.6	7.0	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
1	100.0		
.75	100.0		
.5	100.0		
.375	100.0		
#4	99.8		
#10	99.0		
#20	97.6		
#40	88.6		
#60	61.9		
#100	19.2		
#140	8.5		
#200	7.0		

\* (no specification provided)

## Material Description

Fine to medium grained, SLIGHTLY SILTY SAND

## Atterberg Limits

PL= LL= PI=

## Coefficients

D<sub>90</sub>= 0.4485 D<sub>85</sub>= 0.3795 D<sub>60</sub>= 0.2442  
D<sub>50</sub>= 0.2177 D<sub>30</sub>= 0.1742 D<sub>15</sub>= 0.1380  
D<sub>10</sub>= 0.1169 C<sub>u</sub>= 2.09 C<sub>c</sub>= 1.06

## Classification

USCS= SP-SM AASHTO=

## Remarks

Location: BI-PBS-46-12 D  
Sample Number: 6471 (16)

Depth: 10.0'

Date: 12/03/12

**Thompson Engineering**

**Mobile, Alabama**

Client: CDM/Thompson Engineering JV  
Project: MsCIP Barrier Island Restoration GT

Project No: 1221110095

Figure

# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	1.2	1.1	7.7	83.7	6.3	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
1	100.0		
.75	100.0		
.5	99.4		
.375	99.4		
#4	98.8		
#10	97.7		
#20	96.2		
#40	90.0		
#60	80.7		
#100	22.3		
#140	8.4		
#200	6.3		

\* (no specification provided)

<u><b>Material Description</b></u>		
Fine grained, SLIGHTLY SILTY SAND, with trace SHELL		
<u><b>Atterberg Limits</b></u>		
PL=	LL=	PI=
<u><b>Coefficients</b></u>		
D <sub>90</sub> = 0.4248	D <sub>85</sub> = 0.3106	D <sub>60</sub> = 0.2062
D <sub>50</sub> = 0.1909	D <sub>30</sub> = 0.1622	D <sub>15</sub> = 0.1346
D <sub>10</sub> = 0.1168	C <sub>u</sub> = 1.77	C <sub>c</sub> = 1.09
<u><b>Classification</b></u>		
USCS= SP-SM	AASHTO=	
<u><b>Remarks</b></u>		

Location: BI-PBS-46-12 E  
Sample Number: 6471 (17)

Depth: 11.4'

Date: 12/03/12

**Thompson Engineering**

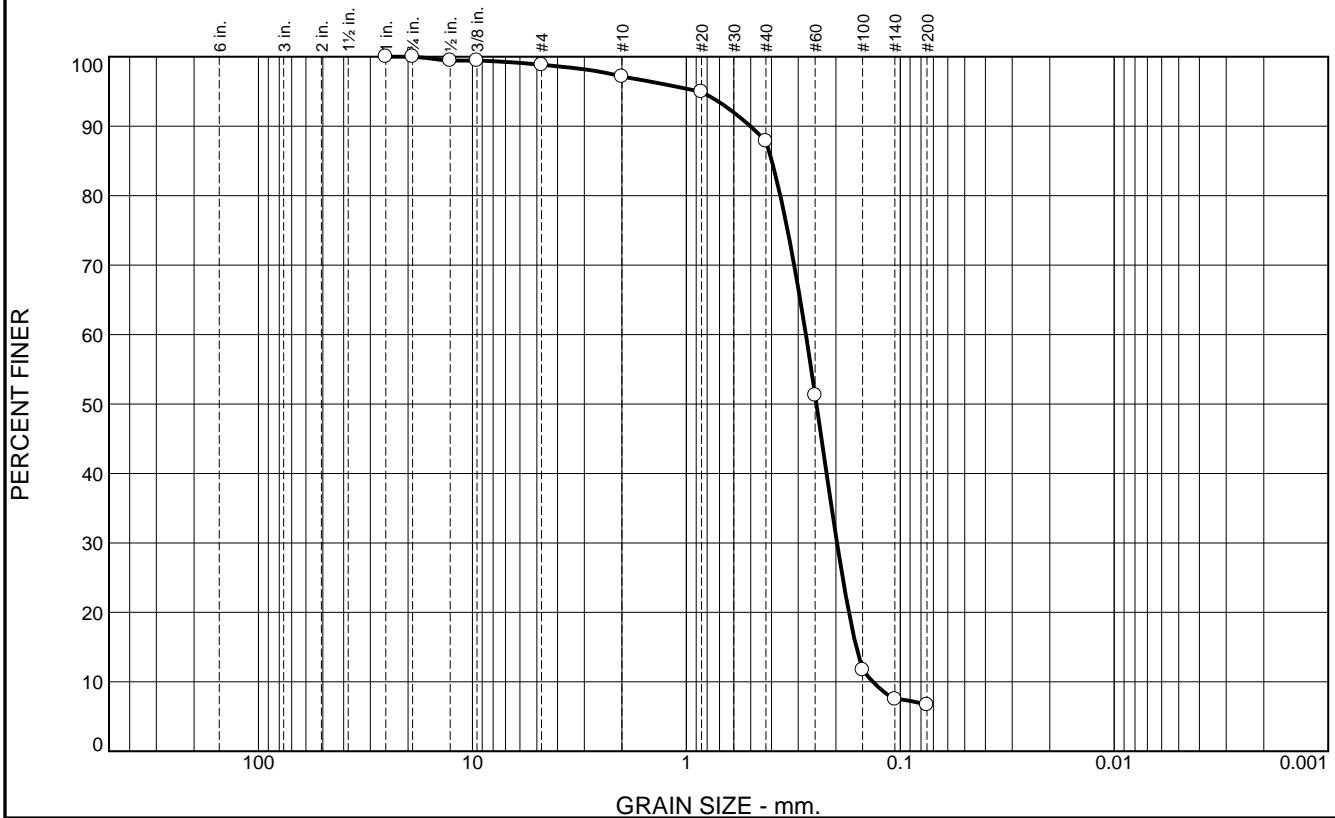
**Mobile, Alabama**

Client: CDM/Thompson Engineering JV  
Project: MsCIP Barrier Island Restoration GT

Project No: 1221110095

Figure

# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	1.2	1.7	9.2	81.2	6.7	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
1	100.0		
.75	100.0		
.5	99.4		
.375	99.4		
#4	98.8		
#10	97.1		
#20	94.9		
#40	87.9		
#60	51.3		
#100	11.7		
#140	7.5		
#200	6.7		

\* (no specification provided)

## Material Description

Fine grained, SLIGHTLY SILTY SAND, with trace SHELL

## Atterberg Limits

PL= LL= PI=

## Coefficients

D<sub>90</sub>= 0.5026 D<sub>85</sub>= 0.3986 D<sub>60</sub>= 0.2764  
D<sub>50</sub>= 0.2466 D<sub>30</sub>= 0.1977 D<sub>15</sub>= 0.1607  
D<sub>10</sub>= 0.1343 C<sub>u</sub>= 2.06 C<sub>c</sub>= 1.05

## Classification

USCS= SP-SM AASHTO=

## Remarks

Location: BI-PBS-46-12 F  
Sample Number: 6471 (18)

Depth: 16.7'

Date: 12/03/12

**Thompson Engineering**

**Mobile, Alabama**

Client: CDM/Thompson Engineering JV  
Project: MsCIP Barrier Island Restoration GT

Project No: 1221110095

Figure

# Boring Designation BI-PBS-047-12

DRILLING LOG		DIVISION South Atlantic		INSTALLATION Mobile District		SHEET 1 OF 1 SHEETS	
1. PROJECT MsCIP Barrier Island Restoration Petit Bois Pass-OCS East				9. SIZE AND TYPE OF BIT N/A			
2. BORING DESIGNATION BI-PBS-047-12		LOCATION COORDINATES E = 1,133,067 N = 234,413		10. COORDINATE SYSTEM/DATUM State Plane, MSE (U.S. Ft.)		HORIZONTAL NAD83	
3. DRILLING AGENCY Corps of Engineers - CESAM		CONTRACTOR FILE NO.		11. MANUFACTURER'S DESIGNATION OF DRILL Vibracore		<input type="checkbox"/> AUTO HAMMER <input type="checkbox"/> MANUAL HAMMER	
4. NAME OF DRILLER American Vibracore Systems, Inc.				12. TOTAL SAMPLES		DISTURBED 0	
5. DIRECTION OF BORING <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED				13. TOTAL NUMBER CORE BOXES		14. WATER DEPTH 48.4 Ft.	
6. THICKNESS OF OVERBURDEN N/A				15. DATE BORING		STARTED 11-28-12	
7. DEPTH DRILLED INTO ROCK N/A				16. ELEVATION TOP OF BORING -49.2 Ft.		COMPLETED 11-28-12	
8. TOTAL DEPTH OF BORING 16.9 Ft.				17. TOTAL RECOVERY FOR BORING 100%			
				18. SIGNATURE AND TITLE OF INSPECTOR Mike FitzHarris, Geologist			
ELEV.	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS	SAMPLE	LABORATORY RESULTS		
-49.2	0.0						
			SAND, poorly-graded, mostly fine to medium-grained sand-sized quartz, trace shell fragments, gray (SP)	A	Classification: SP Color: 5Y 7/2-light gray D50: 0.2838 mm % Fines: 1.7		
-52.9	3.7						
-54.8	5.6		SAND, poorly-graded with silt, mostly fine-grained sand-sized quartz, few silt, trace clay, trace shell fragments, gray (SP-SM)	B	Classification: SP Color: 5Y 6/2-light olive gray D50: 0.2135 mm % Fines: 0.2		
-57.7	8.5		SAND, poorly-graded with clay, mostly fine-grained sand-sized quartz, few clay, trace silt, trace shell fragments, gray (SP-SC)				
-62.7	13.5		CLAY, fat, mostly clay, trace shell fragments, trace wood debris, trace fine grain sand lenses, soft to moderately hard, med. to high plasticity, gray mottled with brown and greenish gray (CH)	NS			
-64.7	15.5		SAND, clayey, mostly fine-grained sand-sized quartz, some clay, trace shell fragments, sandy lense at 15.0', gray (SC)				
-66.1	16.9		CLAY, fat, mostly clay, trace wood debris, trace shell fragments, medium to high plasticity, gray (CH)				
			NOTES: 1. Soils are field visually classified in accordance with the Unified Soils Classification System. 2. NS = Sample not submitted for laboratory analysis from this interval. 3. Seafloor elevation determined from USACE hydrographic survey completed April 2014.				

# Project

Mississippi Barrier Island  
Restoration Project

**AVS**  
**AMERICAN VIBRACORE**  
**S E R V I C E S**

Core Identifier BI-PBS-47-12

Date 11/28/2012

Water Depth 48.4'

## Coordinate System

Latitude / Longitude

Start Time 14:21:09

End Time 14:22:41

Penetration 20.0'

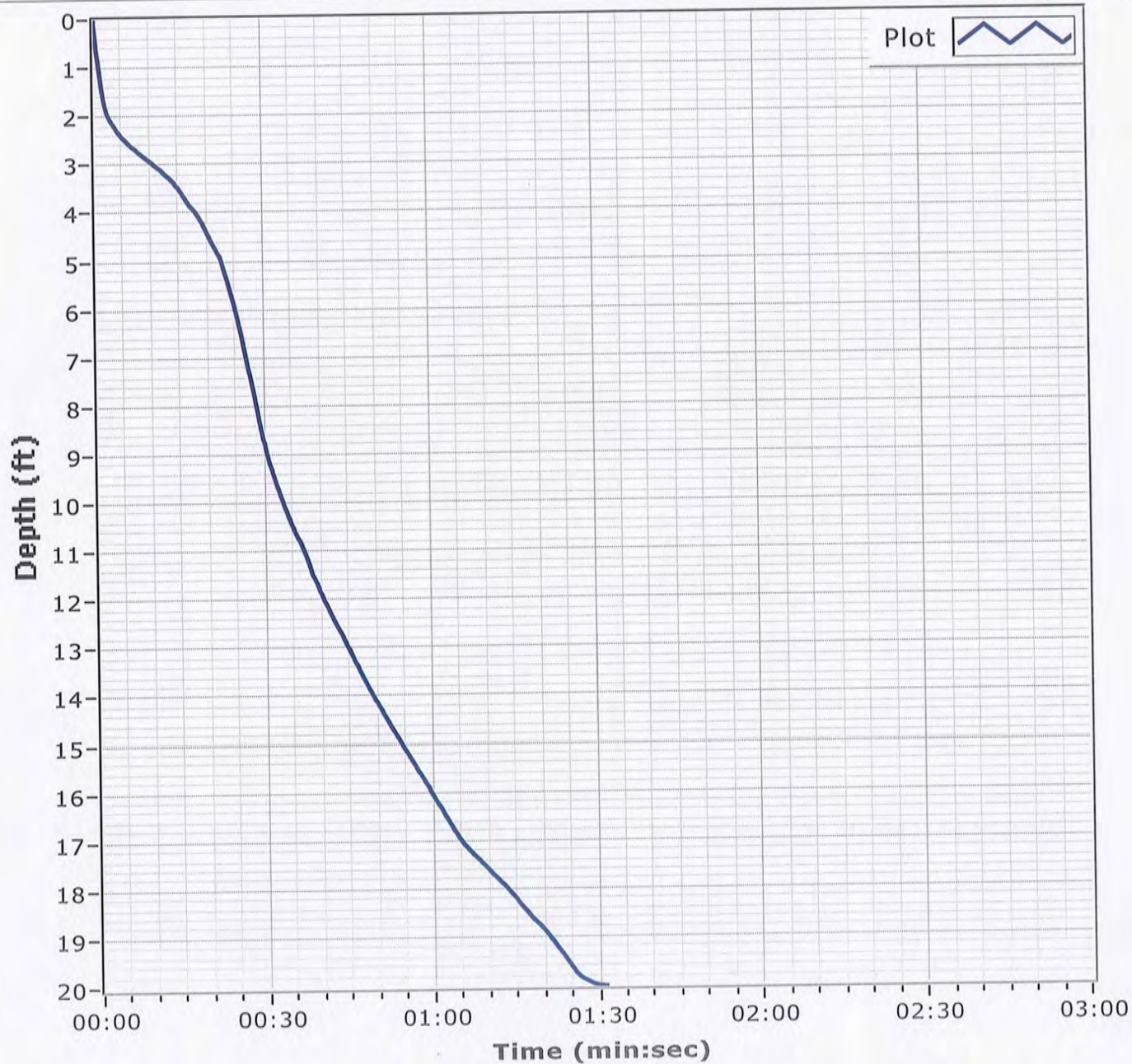
Latitude 30 08.635

Total Time 00:01:31

Recovery 16.9'

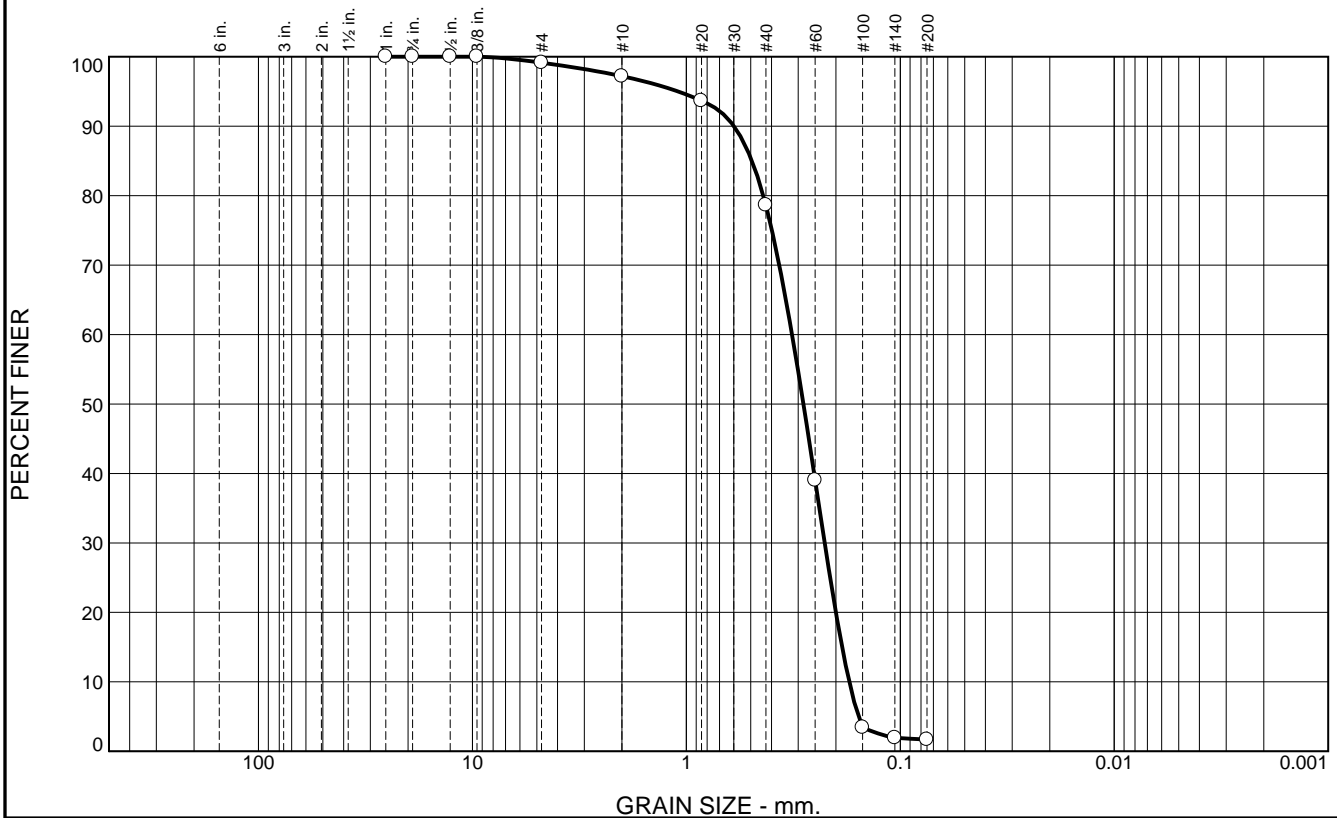
Longitude 088 21.751

## Comments





# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.9	1.9	18.6	76.9	1.7	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
1	100.0		
.75	100.0		
.5	100.0		
.375	100.0		
#4	99.1		
#10	97.2		
#20	93.7		
#40	78.6		
#60	39.0		
#100	3.4		
#140	1.9		
#200	1.7		

\* (no specification provided)

<u>Material Description</u>		
Fine to medium grained, SAND		
PL=	<u>Atterberg Limits</u> LL=	PI=
<u>Coefficients</u>		
D <sub>90</sub> = 0.5990	D <sub>85</sub> = 0.4938	D <sub>60</sub> = 0.3207
D <sub>50</sub> = 0.2838	D <sub>30</sub> = 0.2256	D <sub>15</sub> = 0.1871
D <sub>10</sub> = 0.1734	C <sub>u</sub> = 1.85	C <sub>c</sub> = 0.92
<u>Classification</u>		
USCS= SP	AASHTO=	
<u>Remarks</u>		

Location: BI-PBS-47-12 A  
Sample Number: 6471 (19)

Depth: 0.0'

Date: 12/03/12

**Thompson Engineering**

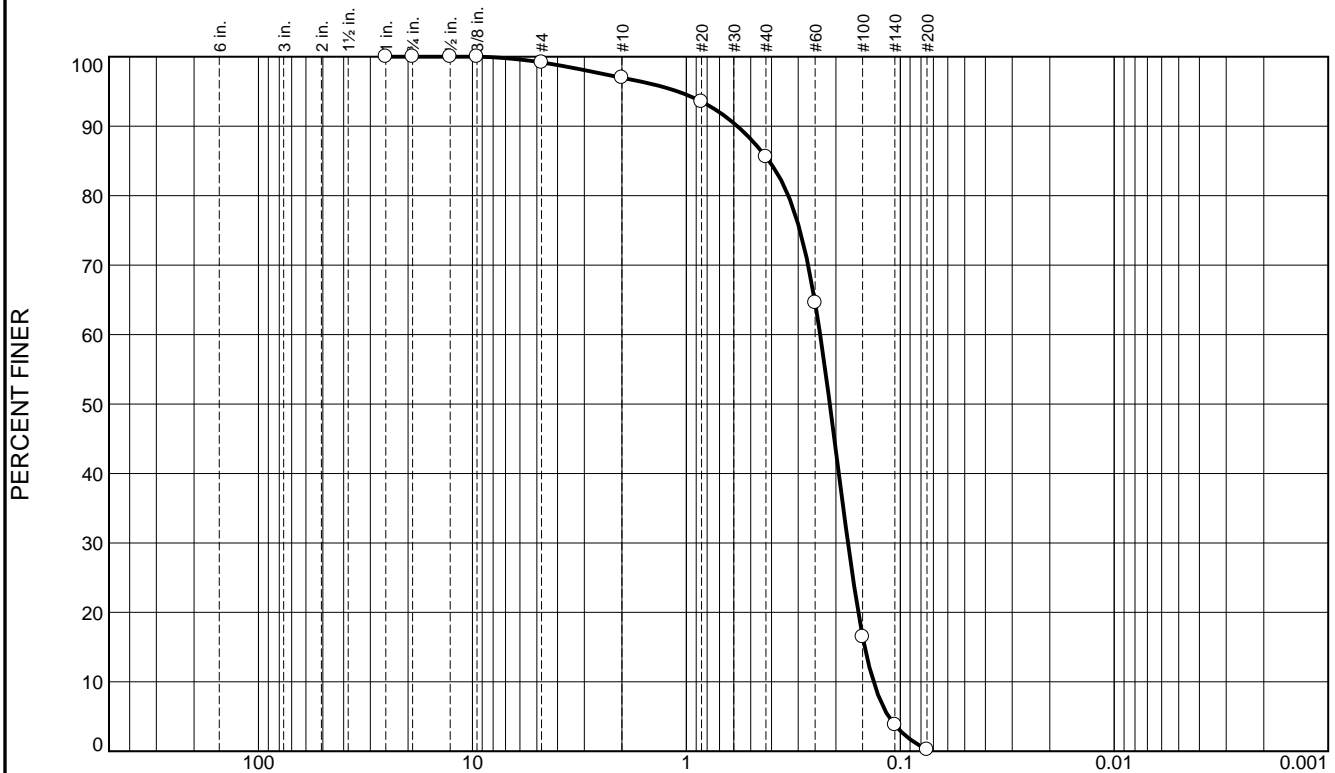
**Mobile, Alabama**

Client: CDM/Thompson Engineering JV  
Project: MsCIP Barrier Island Restoration GT

Project No: 1221110095

Figure

# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.8	2.2	11.4	85.4	0.2	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
1	100.0		
.75	100.0		
.5	100.0		
.375	100.0		
#4	99.2		
#10	97.0		
#20	93.5		
#40	85.6		
#60	64.6		
#100	16.5		
#140	3.8		
#200	0.2		

\* (no specification provided)

Material Description		
Fine to medium grained, SAND		
<div> <div> Atterberg Limits </div> <div> PL= </div> <div> LL= </div> <div> PI= </div> </div>		
<div> <div> Coefficients </div> <div> D<sub>90</sub>= 0.5779 </div> <div> D<sub>50</sub>= 0.2135 </div> <div> D<sub>10</sub>= 0.1334 </div> <div> D<sub>85</sub>= 0.4111 </div> <div> D<sub>30</sub>= 0.1757 </div> <div> C<sub>u</sub>= 1.77 </div> <div> D<sub>60</sub>= 0.2368 </div> <div> D<sub>15</sub>= 0.1467 </div> <div> C<sub>c</sub>= 0.98 </div> </div>		
<div> <div> Classification </div> <div> USCS= SP </div> <div> AASHTO= </div> </div>		
<div> <div> Remarks </div> </div>		

Location: BI-PBS-47-12 B  
Sample Number: 6471 (20)

Depth: 3.7'

Date: 12/03/12

**Thompson Engineering**

**Mobile, Alabama**

Client: CDM/Thompson Engineering JV  
Project: MsCIP Barrier Island Restoration GT

Project No: 1221110095

Figure

# Boring Designation BI-PBS-048-12

DRILLING LOG		DIVISION South Atlantic		INSTALLATION Mobile District		SHEET 1 OF 1 SHEETS	
1. PROJECT MsCIP Barrier Island Restoration Petit Bois Pass-OCS East				9. SIZE AND TYPE OF BIT N/A			
2. BORING DESIGNATION BI-PBS-048-12		LOCATION COORDINATES E = 1,134,712 N = 233,995		10. COORDINATE SYSTEM/DATUM State Plane, MSE (U.S. Ft.)		HORIZONTAL NAD83	
3. DRILLING AGENCY Corps of Engineers - CESAM		CONTRACTOR FILE NO.		11. MANUFACTURER'S DESIGNATION OF DRILL Vibracore		<input type="checkbox"/> AUTO HAMMER <input type="checkbox"/> MANUAL HAMMER	
4. NAME OF DRILLER American Vibracore Systems, Inc.				12. TOTAL SAMPLES		DISTURBED 0	
5. DIRECTION OF BORING <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED		DEG. FROM VERTICAL		13. TOTAL NUMBER CORE BOXES			
		BEARING		14. WATER DEPTH 48.1 Ft.			
6. THICKNESS OF OVERBURDEN N/A				15. DATE BORING 11-28-12		COMPLETED 11-28-12	
7. DEPTH DRILLED INTO ROCK N/A				16. ELEVATION TOP OF BORING -50.7 Ft.			
8. TOTAL DEPTH OF BORING 18.4 Ft.				17. TOTAL RECOVERY FOR BORING 100%			
				18. SIGNATURE AND TITLE OF INSPECTOR Mike FitzHarris, Geologist			
ELEV.	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS	SAMPLE	LABORATORY RESULTS		
-50.7	0.0						
-52.0	1.3		SAND, poorly-graded, mostly fine to medium-grained sand-sized quartz, little shell fragments, trace silt, gray (SP)	A	Classification: SP Color: 5Y 7/2-light gray D50: 0.5146 mm % Fines: 1.7		
-54.6	3.9		SAND, poorly-graded, mostly fine to medium-grained sand-sized quartz, trace shell fragments, gray (SP)	B	Classification: SP Color: 5Y 6/2-light olive gray D50: 0.2246 mm % Fines: 0.4		
-57.0	6.3		SAND, silty, mostly fine-grained sand-sized quartz, some silt, trace clay, trace shell fragments, gray (SM)	C	Classification: SM Color: 5Y 5/2-olive gray D50: 0.1863 mm % Fines: 14.9		
-66.0	15.3		SAND, clayey, mostly fine-grained sand-sized quartz, some clay, alternating bands of clayey sand and sandy clay, greenish gray (SC)	NS			
-69.1	18.4		CLAY, lean, mostly clay, trace fine-grained sand-sized quartz, trace wood debris, moderately stiff, gray (CL)				
			NOTES:				
			1. Soils are field visually classified in accordance with the Unified Soils Classification System.				
			2. NS = Sample not submitted for laboratory analysis from this interval.				
			3. Seafloor elevation determined from USACE hydrographic survey completed April 2014.				

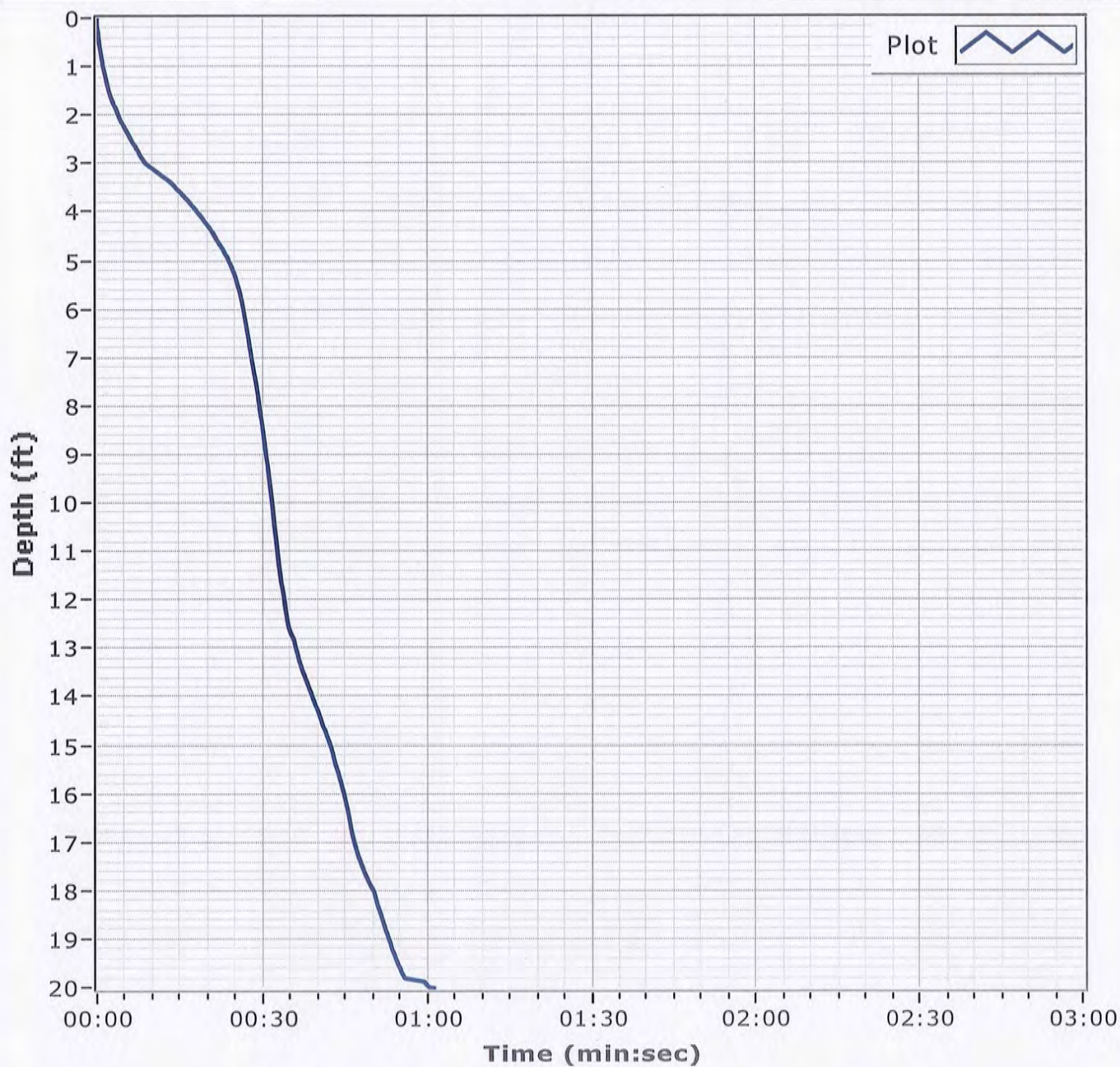
**Project**

Mississippi Barrier Island  
Restoration Project

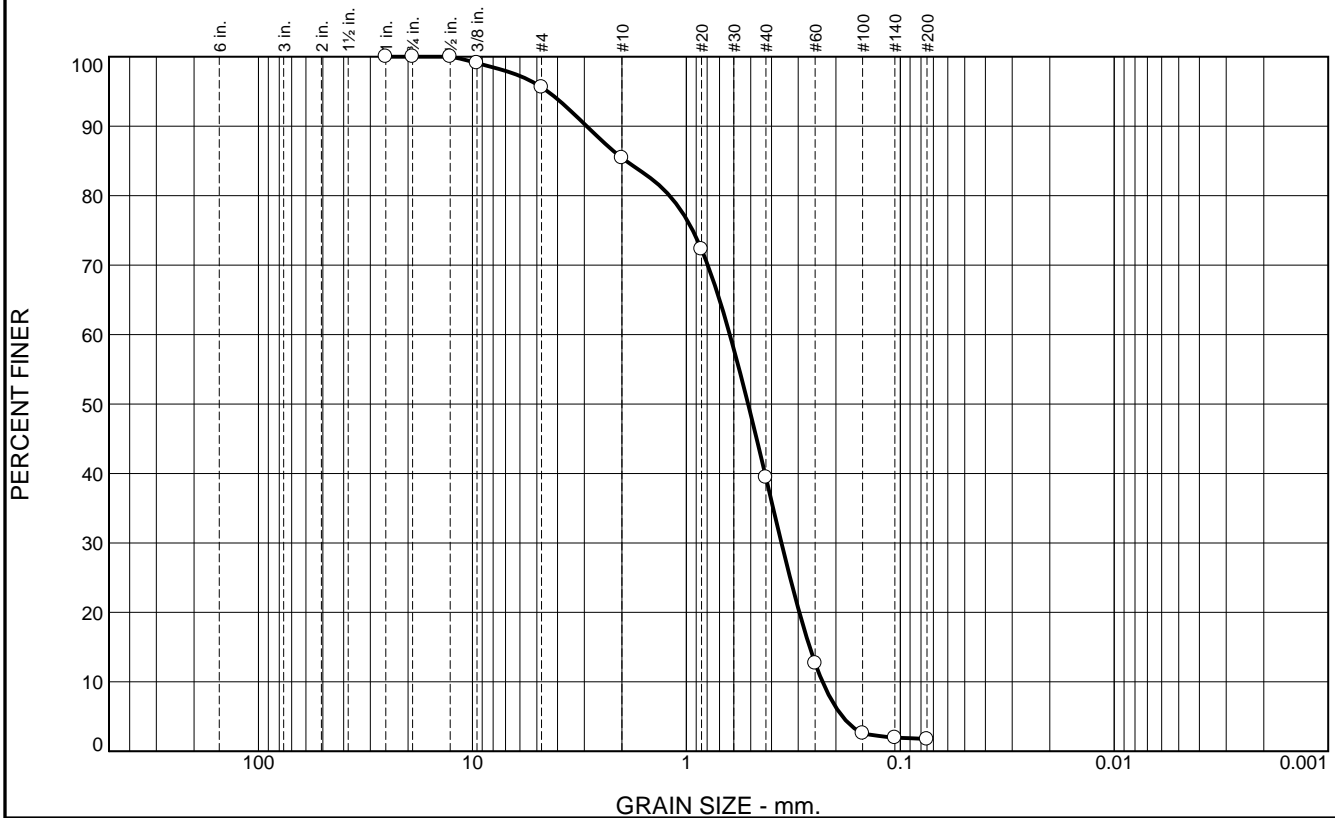
**AVS**  
**AMERICAN VIBRACORE**  
**S E R V I C E S**

**Core Identifier** BI-PBS-48-12**Date** 11/28/2012**Water Depth** 48.1'**Coordinate System**

Latitude / Longitude

**Start Time** 11:20:50**End Time** 11:21:52**Penetration** 20.0'**Latitude** 30 08.555**Total Time** 00:01:01**Recovery** 18.4'**Longitude** 088 21.439**Comments**

# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	4.4	10.2	46.0	37.7	1.7	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
1	100.0		
.75	100.0		
.5	100.0		
.375	99.1		
#4	95.6		
#10	85.4		
#20	72.3		
#40	39.4		
#60	12.7		
#100	2.6		
#140	1.9		
#200	1.7		

\* (no specification provided)

## Material Description

Fine to coarse grained, SAND, with trace SHELL

## Atterberg Limits

PL= LL= PI=

## Coefficients

D<sub>90</sub>= 2.9235 D<sub>85</sub>= 1.9142 D<sub>60</sub>= 0.6265  
D<sub>50</sub>= 0.5146 D<sub>30</sub>= 0.3592 D<sub>15</sub>= 0.2653  
D<sub>10</sub>= 0.2309 C<sub>u</sub>= 2.71 C<sub>c</sub>= 0.89

## Classification

USCS= SP AASHTO=

## Remarks

Location: BI-PBS-48-12 A  
Sample Number: 6471 (21)

Depth: 0.0'

Date: 12/03/12

**Thompson Engineering**

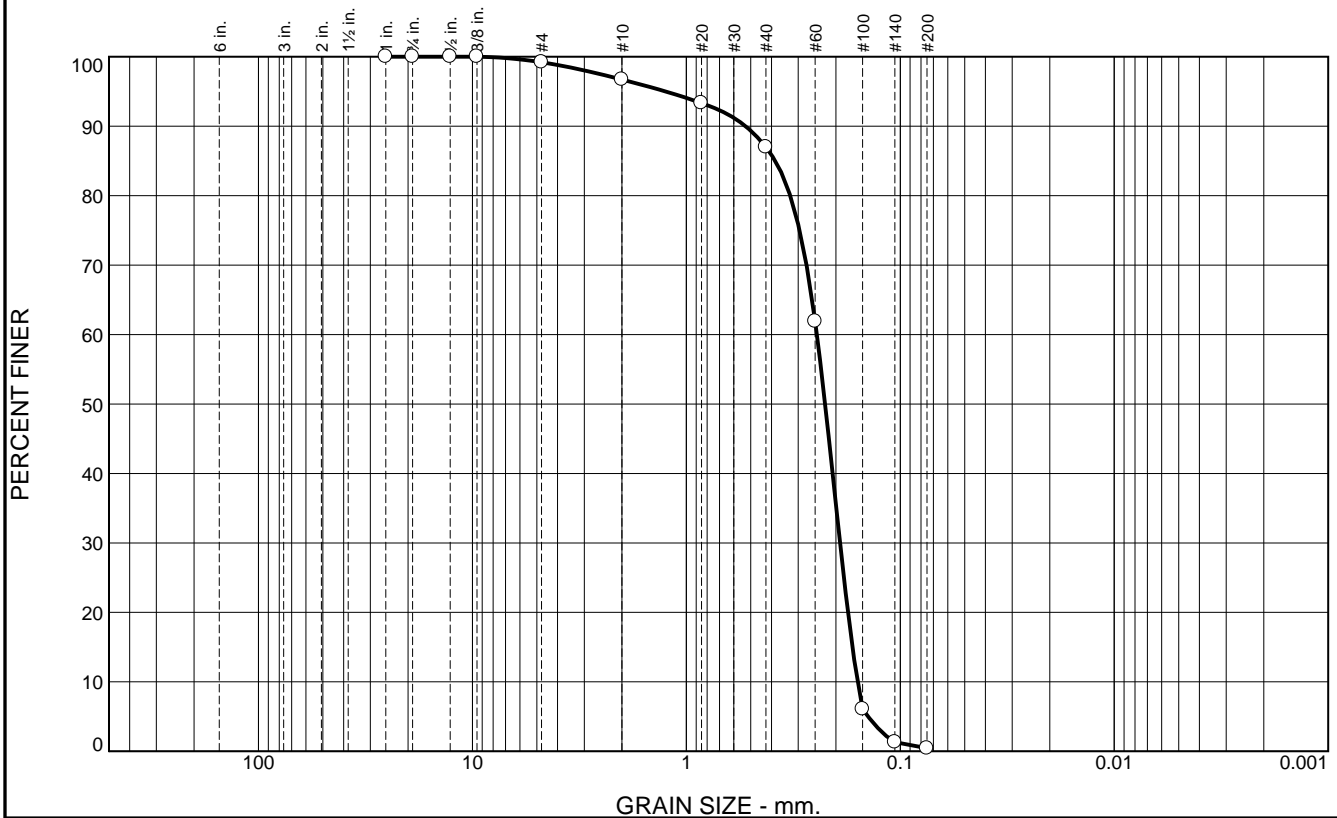
**Mobile, Alabama**

Client: CDM/Thompson Engineering JV  
Project: MsCIP Barrier Island Restoration GT

Project No: 1221110095

Figure

# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.8	2.5	9.7	86.6	0.4	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
1	100.0		
.75	100.0		
.5	100.0		
.375	100.0		
#4	99.2		
#10	96.7		
#20	93.3		
#40	87.0		
#60	61.9		
#100	6.1		
#140	1.3		
#200	0.4		

\* (no specification provided)

## Material Description

Fine grained, SAND

## Atterberg Limits

PL=

LL=

PI=

## Coefficients

D<sub>90</sub>= 0.5290

D<sub>85</sub>= 0.3840

D<sub>60</sub>= 0.2453

D<sub>50</sub>= 0.2246

D<sub>30</sub>= 0.1913

D<sub>15</sub>= 0.1675

D<sub>10</sub>= 0.1585

C<sub>u</sub>= 1.55

C<sub>c</sub>= 0.94

## Classification

USCS= SP

AASHTO=

## Remarks

Location: BI-PBS-48-12 B  
Sample Number: 6471 (22)

Depth: 1.3'

Date: 12/03/12

**Thompson Engineering**

**Mobile, Alabama**

Client: CDM/Thompson Engineering JV  
Project: MsCIP Barrier Island Restoration GT

Project No: 1221110095

Figure

# Particle Size Distribution Report



GRAIN SIZE - mm.

% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	2.5	2.5	10.9	69.2	14.9	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
1	100.0		
.75	100.0		
.5	100.0		
.375	100.0		
#4	97.5		
#10	95.0		
#20	92.1		
#40	84.1		
#60	68.5		
#100	35.4		
#140	19.2		
#200	14.9		

\* (no specification provided)

## Material Description

Fine to medium grained, SILTY SAND, with trace SHELL

## Atterberg Limits

PL= LL= PI=

## Coefficients

D<sub>90</sub>= 0.6631 D<sub>85</sub>= 0.4502 D<sub>60</sub>= 0.2161  
D<sub>50</sub>= 0.1863 D<sub>30</sub>= 0.1368 D<sub>15</sub>= 0.0769  
D<sub>10</sub>= C<sub>u</sub>= C<sub>c</sub>=

## Classification

USCS= SM AASHTO=

## Remarks

Location: BI-PBS-48-12 C

Sample Number: 6471 (23)

Depth: 3.9'

Date: 12/03/12

**Thompson Engineering**

**Mobile, Alabama**

Client: CDM/Thompson Engineering JV

Project: MsCIP Barrier Island Restoration GT

Project No: 1221110095

Figure

# Boring Designation BI-PBS-049-12

DRILLING LOG		DIVISION South Atlantic		INSTALLATION Mobile District		SHEET 1 OF 1 SHEETS	
1. PROJECT MsCIP Barrier Island Restoration Petit Bois Pass-OCS East				9. SIZE AND TYPE OF BIT N/A			
2. BORING DESIGNATION BI-PBS-049-12		LOCATION COORDINATES E = 1,131,364 N = 236,432		10. COORDINATE SYSTEM/DATUM State Plane, MSE (U.S. Ft.)		HORIZONTAL NAD83	
3. DRILLING AGENCY Corps of Engineers - CESAM		CONTRACTOR FILE NO.		11. MANUFACTURER'S DESIGNATION OF DRILL Vibracore		<input type="checkbox"/> AUTO HAMMER <input type="checkbox"/> MANUAL HAMMER	
4. NAME OF DRILLER American Vibracore Systems, Inc.				12. TOTAL SAMPLES		DISTURBED 0	
5. DIRECTION OF BORING <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED				13. TOTAL NUMBER CORE BOXES		14. WATER DEPTH 50.6 Ft.	
6. THICKNESS OF OVERBURDEN N/A				15. DATE BORING		STARTED 11-28-12	
7. DEPTH DRILLED INTO ROCK N/A				16. ELEVATION TOP OF BORING -50.6 Ft.		COMPLETED 11-28-12	
8. TOTAL DEPTH OF BORING 19.2 Ft.				17. TOTAL RECOVERY FOR BORING 100%			
				18. SIGNATURE AND TITLE OF INSPECTOR Mike FitzHarris, Geologist			
ELEV.	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS	SAMPLE	LABORATORY RESULTS		
-50.6	0.0						
			SAND, poorly-graded, mostly fine to medium-grained sand-sized quartz, trace shell fragments, gray (SP)	A	Classification: SP Color: 5Y 7/2-light gray D50: 0.2387 mm % Fines: 3.6		
-54.8	4.2						
-56.5	5.9		SAND, silty, mostly fine-grained sand-sized quartz, some silt, trace shell fragments, wood fragments at 4.3', gray (SM)				
-59.3	8.7		CLAY, lean, mostly clay, some fine-grained sand-sized quartz, trace wood debris, gray (CL)				
-61.3	10.7		SAND, clayey, mostly fine-grained sand-sized quartz, some clay, trace wood debris, gray (SC)				
-65.8	15.2		CLAY, fat, mostly clay, trace fine-grained sand-sized quartz, trace shell fragments, gray (CH)	NS			
-69.8	19.2		SAND, clayey, mostly fine-grained sand-sized quartz, some clay, trace shell fragments, trace wood debris, gray (SC)				
			NOTES: 1. Soils are field visually classified in accordance with the Unified Soils Classification System. 2. NS = Sample not submitted for laboratory analysis from this interval. 3. Seafloor elevation determined from USACE hydrographic survey completed April 2014.				



**Project**

Mississippi Barrier Island  
Restoration Project



**Core Identifier** BI-PBS-49-12

**Date** 11/28/2012

**Water Depth** 50.6'

**Coordinate System**

**Start Time** 15:43:56

Latitude / Longitude

**End Time** 15:44:29

**Penetration** 20.0'

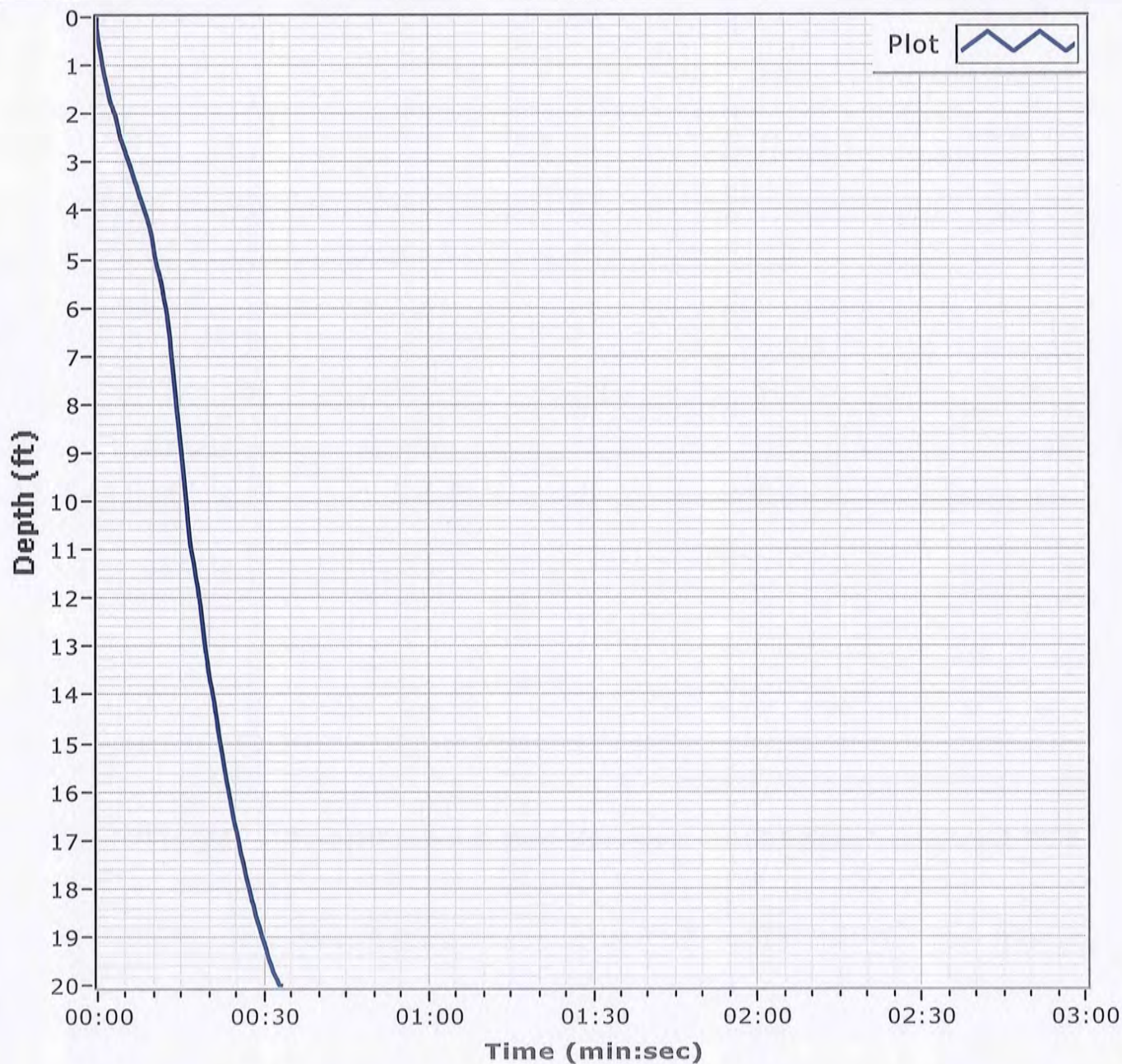
**Latitude** 30 08.959

**Total Time** 00:00:33

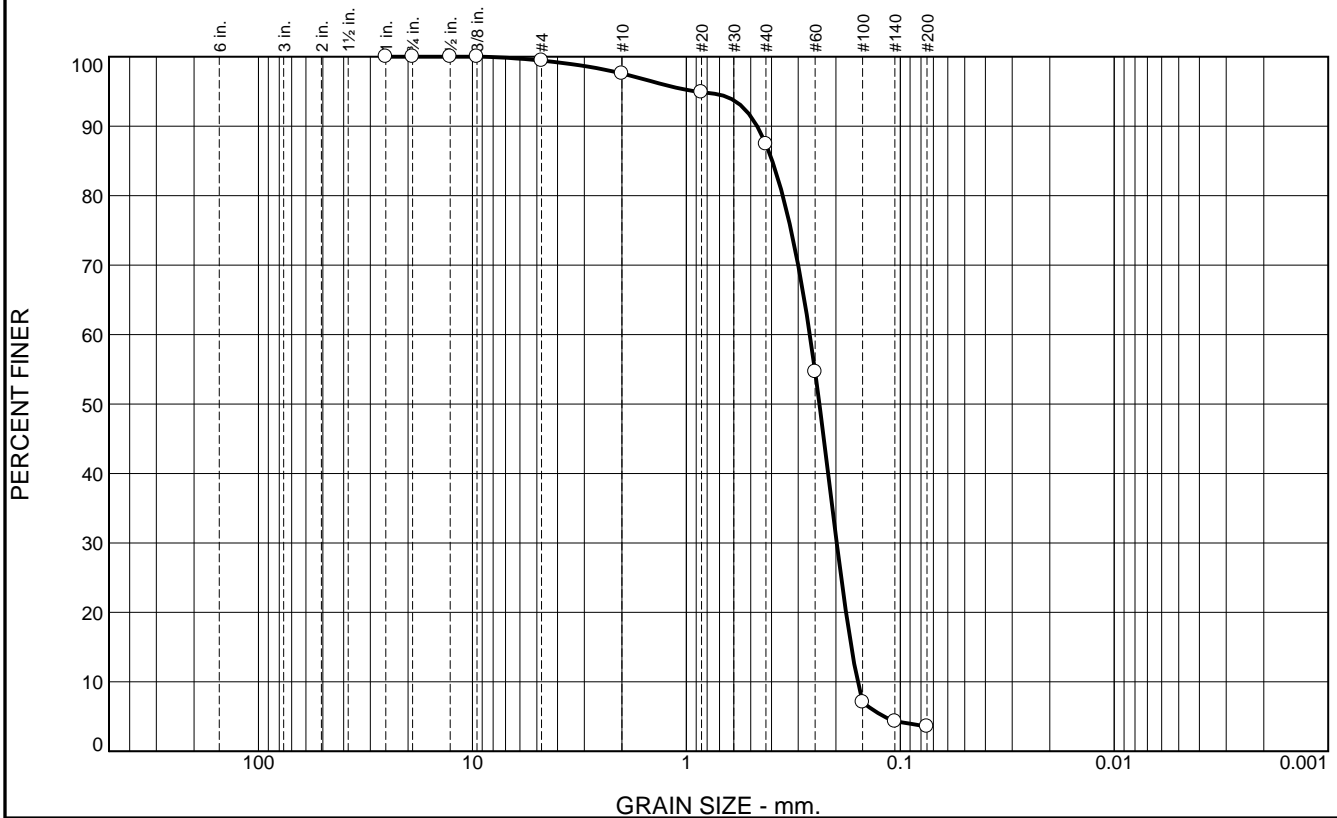
**Recovery** 19.2'

**Longitude** 088 22.073

**Comments**



# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.6	1.8	10.2	83.8	3.6	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
1	100.0		
.75	100.0		
.5	100.0		
.375	100.0		
#4	99.4		
#10	97.6		
#20	94.9		
#40	87.4		
#60	54.6		
#100	7.1		
#140	4.3		
#200	3.6		

\* (no specification provided)

## Material Description

Fine to medium grained, SAND

## Atterberg Limits

PL= LL= PI=

## Coefficients

D<sub>90</sub>= 0.4671 D<sub>85</sub>= 0.3966 D<sub>60</sub>= 0.2649  
D<sub>50</sub>= 0.2387 D<sub>30</sub>= 0.1982 D<sub>15</sub>= 0.1695  
D<sub>10</sub>= 0.1583 C<sub>u</sub>= 1.67 C<sub>c</sub>= 0.94

## Classification

USCS= SP AASHTO=

## Remarks

Location: BI-PBS-49-12 A  
Sample Number: 6471 (24)

Depth: 0.0'

Date: 12/03/12

**Thompson Engineering**

**Mobile, Alabama**

Client: CDM/Thompson Engineering JV  
Project: MsCIP Barrier Island Restoration GT

Project No: 1221110095

Figure

# Boring Designation BI-PBS-050-12

DRILLING LOG		DIVISION South Atlantic		INSTALLATION Mobile District		SHEET 1 OF 1 SHEETS	
1. PROJECT MsCIP Barrier Island Restoration Petit Bois Pass-OCS East				9. SIZE AND TYPE OF BIT N/A			
2. BORING DESIGNATION BI-PBS-050-12		LOCATION COORDINATES E = 1,132,205 N = 235,628		10. COORDINATE SYSTEM/DATUM State Plane, MSE (U.S. Ft.)		HORIZONTAL NAD83	
3. DRILLING AGENCY Corps of Engineers - CESAM		CONTRACTOR FILE NO.		11. MANUFACTURER'S DESIGNATION OF DRILL Vibrocure		<input type="checkbox"/> AUTO HAMMER <input type="checkbox"/> MANUAL HAMMER	
4. NAME OF DRILLER American Vibrocure Systems, Inc.				12. TOTAL SAMPLES		DISTURBED 0	
5. DIRECTION OF BORING <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED				13. TOTAL NUMBER CORE BOXES		14. WATER DEPTH 48.7 Ft.	
6. THICKNESS OF OVERBURDEN N/A				15. DATE BORING		STARTED 11-28-12	
7. DEPTH DRILLED INTO ROCK N/A				16. ELEVATION TOP OF BORING -48.4 Ft.		COMPLETED 11-28-12	
8. TOTAL DEPTH OF BORING 18.9 Ft.				17. TOTAL RECOVERY FOR BORING 100%			
				18. SIGNATURE AND TITLE OF INSPECTOR Mike FitzHarris, Geologist			
ELEV.	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS	SAMPLE	LABORATORY RESULTS		
-48.4	0.0						
			SAND, poorly-graded, mostly fine to medium-grained sand-sized quartz, trace shell fragments, gray (SP)	A	Classification: SP Color: 5Y 7/2-light gray D50: 0.2669 mm % Fines: 3.3		
-53.4	5.0						
-54.7	6.3		SAND, poorly-graded with clay, mostly fine-grained sand-sized quartz, few clay, trace shell fragments, gray (SP-SC)	B	Classification: SP-SM Color: 5Y 6/2-light olive gray D50: 0.2078 mm % Fines: 11.4		
-56.4	8.0		SAND, clayey, mostly fine-grained sand-sized quartz, some clay, trace shell fragments, gray (SC)				
			CLAY, fat, mostly clay, trace shell fragments, trace wood debris, intermittent lenses of sandy clay, gray (CH)	NS			
-67.3	18.9						
NOTES: 1. Soils are field visually classified in accordance with the Unified Soils Classification System. 2. NS = Sample not submitted for laboratory analysis from this interval. 3. Seafloor elevation determined from USACE hydrographic survey completed April 2014.							



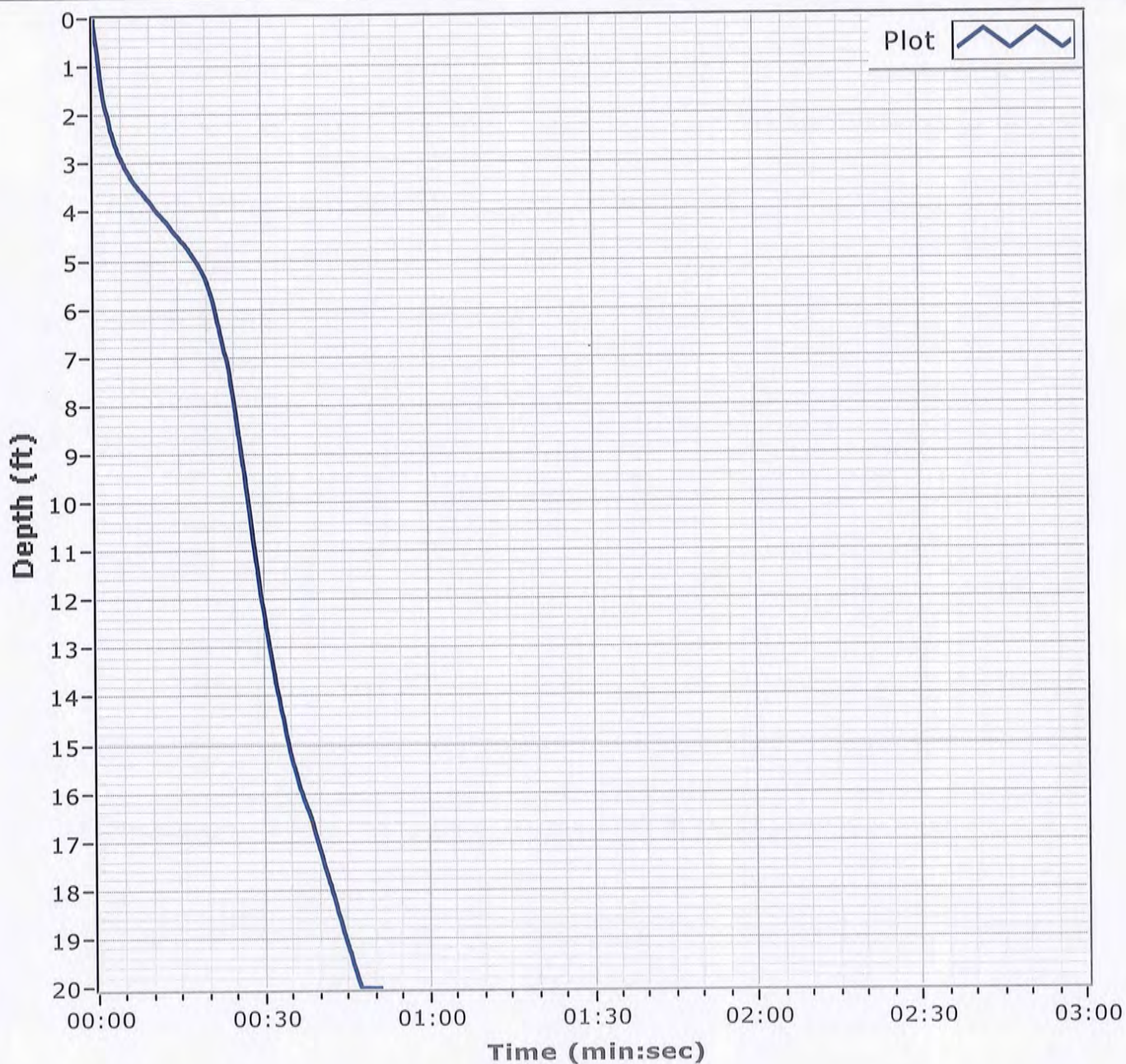
**Project**

Mississippi Barrier Island  
Restoration Project

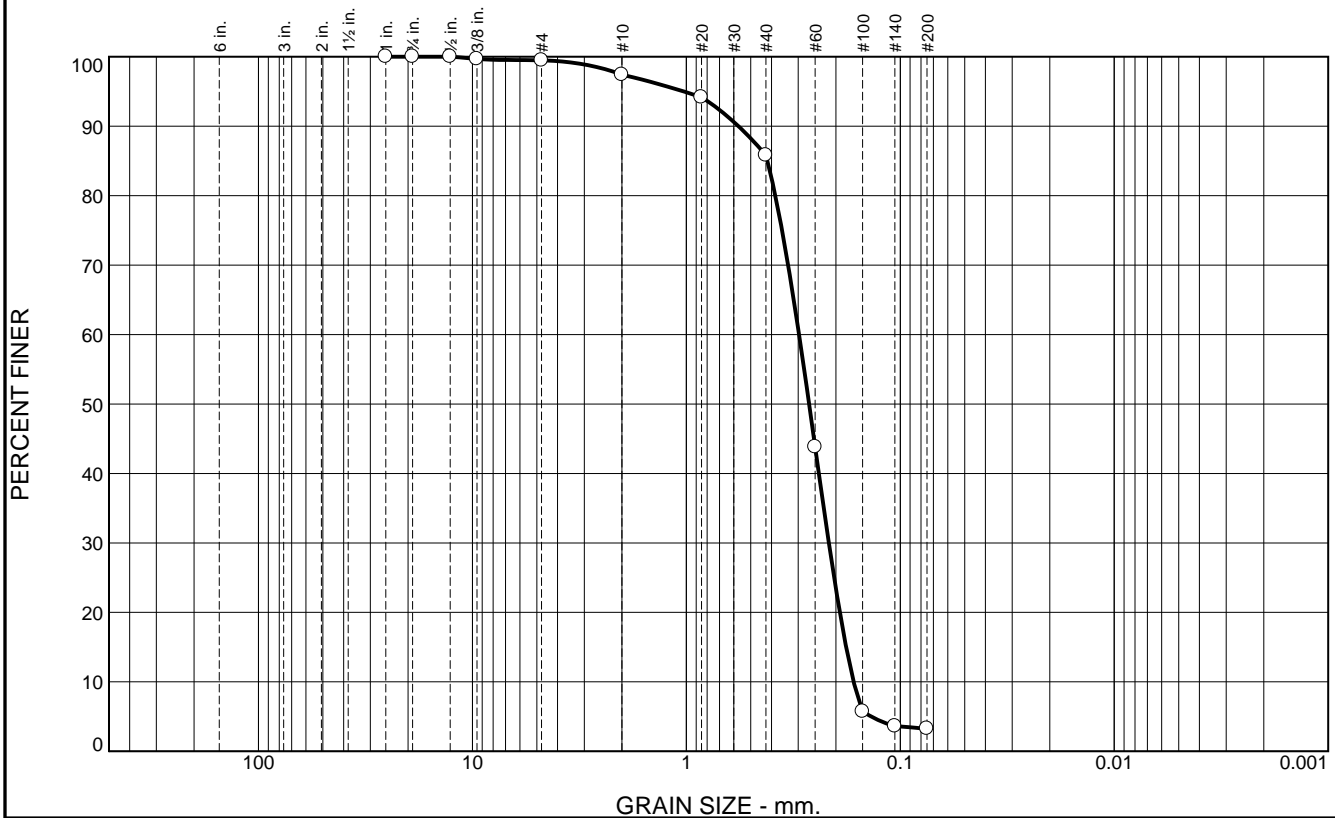
**AVS**  
**AMERICAN VIBRACORE**  
**S E R V I C E S**

**Core Identifier** BI-PBS-50-12**Date** 11/28/2012**Water Depth** 48.7'**Coordinate System**

Latitude / Longitude

**Start Time** 15:02:32**End Time** 15:03:23**Penetration** 20.0'**Latitude** 30 08.826**Total Time** 00:00:51**Recovery** 18.9'**Longitude** 088 21.914**Comments**

# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.5	2.1	11.6	82.5	3.3	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
1	100.0		
.75	100.0		
.5	100.0		
.375	99.7		
#4	99.5		
#10	97.4		
#20	94.2		
#40	85.8		
#60	43.8		
#100	5.7		
#140	3.6		
#200	3.3		

\* (no specification provided)

<u>Material Description</u>		
Fine to medium grained, SAND		
<u>Atterberg Limits</u>		
PL=	LL=	PI=
<u>Coefficients</u>		
D <sub>90</sub> = 0.5711	D <sub>85</sub> = 0.4181	D <sub>60</sub> = 0.2975
D <sub>50</sub> = 0.2669	D <sub>30</sub> = 0.2157	D <sub>15</sub> = 0.1792
D <sub>10</sub> = 0.1653	C <sub>u</sub> = 1.80	C <sub>c</sub> = 0.95
<u>Classification</u>		
USCS= SP	AASHTO=	
<u>Remarks</u>		

Location: BI-PBS-50-12 A  
Sample Number: 6471 (25)

Depth: 0.0'

Date: 12/03/12

**Thompson Engineering**

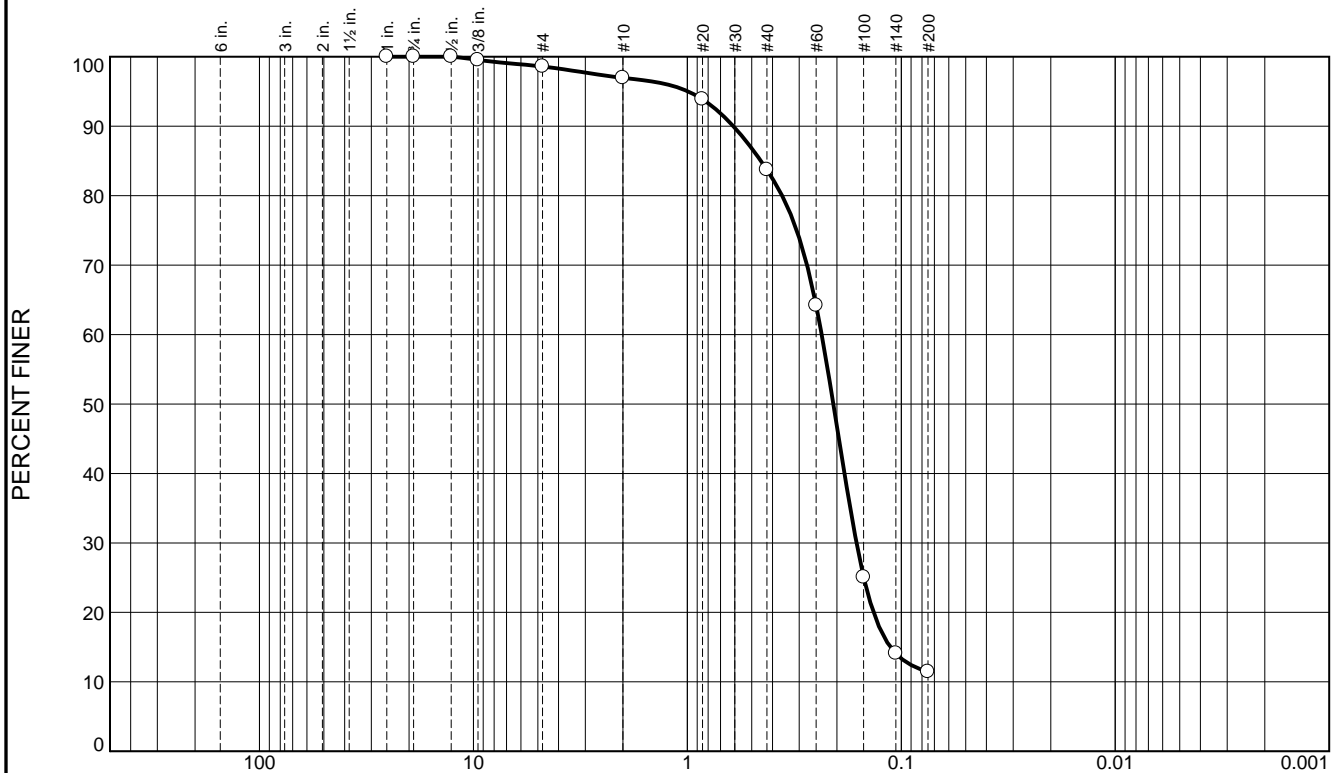
**Mobile, Alabama**

Client: CDM/Thompson Engineering JV  
Project: MsCIP Barrier Island Restoration GT

Project No: 1221110095

Figure

# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	1.4	1.7	13.2	72.3	11.4	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
1	100.0		
.75	100.0		
.5	100.0		
.375	99.5		
#4	98.6		
#10	96.9		
#20	93.9		
#40	83.7		
#60	64.2		
#100	25.1		
#140	14.1		
#200	11.4		

\* (no specification provided)

<b><u>Material Description</u></b>		
Fine to medium grained, SLIGHTLY SILTY SAND, with trace SHELL		
<b><u>Atterberg Limits</u></b>		
PL=	LL=	PI=
<b><u>Coefficients</u></b>		
D <sub>90</sub> = 0.6098	D <sub>85</sub> = 0.4536	D <sub>60</sub> = 0.2355
D <sub>50</sub> = 0.2078	D <sub>30</sub> = 0.1620	D <sub>15</sub> = 0.1123
D <sub>10</sub> =	C <sub>u</sub> =	C <sub>c</sub> =
<b><u>Classification</u></b>		
USCS= SP-SM	AASHTO=	
<b><u>Remarks</u></b>		

Location: BI-PBS-50-12 B  
Sample Number: 6471 (26)

Depth: 5.0'

Date: 12/03/12

**Thompson Engineering**

**Mobile, Alabama**




Client: CDM/Thompson Engineering JV  
Project: MsCIP Barrier Island Restoration GT

Project No: 1221110095

Figure

# Boring Designation BI-PBS-051-12

<b>DRILLING LOG</b>		<b>DIVISION</b> South Atlantic	<b>INSTALLATION</b> Mobile District	<b>SHEET 1</b> <b>OF 2 SHEETS</b>
<b>1. PROJECT</b> MsCIP Barrier Island Restoration Petit Bois Pass-OCS East		<b>9. SIZE AND TYPE OF BIT</b> N/A		
<b>2. BORING DESIGNATION</b> BI-PBS-051-12		<b>10. COORDINATE SYSTEM/DATUM</b> State Plane, MSE (U.S. Ft.)		<b>11. HORIZONTAL</b> NAD83
<b>3. DRILLING AGENCY</b> Corps of Engineers - CESAM		<b>11. MANUFACTURER'S DESIGNATION OF DRILL</b> Vibracore		<b>12. VERTICAL</b> NAVD88
<b>4. NAME OF DRILLER</b> American Vibracore Systems, Inc.		<b>12. TOTAL SAMPLES</b>		<b>13. DISTURBED</b> 0
<b>5. DIRECTION OF BORING</b> <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED		<b>13. TOTAL NUMBER CORE BOXES</b>		<b>14. WATER DEPTH</b> 56.4 Ft.
<b>6. THICKNESS OF OVERBURDEN</b> N/A		<b>14. DATE BORING</b>		<b>15. STARTED</b> 11-28-12
<b>7. DEPTH DRILLED INTO ROCK</b> N/A		<b>15. COMPLETED</b> 11-28-12		<b>16. ELEVATION TOP OF BORING</b> -56.4 Ft.
<b>8. TOTAL DEPTH OF BORING</b> 19.8 Ft.		<b>16. TOTAL RECOVERY FOR BORING</b> 100%		<b>17. SIGNATURE AND TITLE OF INSPECTOR</b> Mike FitzHarris, Geologist

ELEV.	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS	SAMPLE	LABORATORY RESULTS
-56.4	0.0				
-58.4	2.0		SAND, silty, mostly fine-grained sand-sized quartz, some silt, trace shell fragments, gray (SM)	NS	
-62.8	6.4		SAND, clayey, mostly fine-grained sand-sized quartz, some clay, trace shell fragments, with trace clayey nodules, gray mottled with brown (SC)		
-76.2	19.8		CLAY, fat, mostly clay, little silt, trace shell fragments, trace wood debris, with occasional silty pockets and sandy clay lenses, gray (CH)		
			NOTES: 1. Soils are field visually classified in accordance with the Unified Soils Classification System. 2. NS = Sample not submitted for laboratory analysis from this interval. 3. Seafloor elevation calculated using sampling vessel's fathometer water depth reading and		

<b>DRILLING LOG (Cont. Sheet)</b>			<b>INSTALLATION</b> Mobile District		<b>SHEET 2</b> <b>OF 2 SHEETS</b>
<b>PROJECT</b> MsCIP Barrier Island Restoration			<b>COORDINATE SYSTEM/DATUM</b> State Plane, MSE (U.S. Ft.)	<b>HORIZONTAL</b> NAD83	<b>VERTICAL</b> NAVD88
<b>LOCATION COORDINATES</b> X = 1,132,401 Y = 232,439			<b>ELEVATION TOP OF BORING</b> -56.4 Ft.		
<b>ELEV.</b>	<b>DEPTH</b>	<b>LEGEND</b>	<b>CLASSIFICATION OF MATERIALS</b>	<b>SAMPLE</b>	<b>LABORATORY RESULTS</b>
			applying NOAA tidal gauge data conversion factor.		



# Project

Mississippi Barrier Island  
Restoration Project

**AVS**  
AMERICAN VIBRACORE  
SERVICES

Core Identifier BI-PBS-51-12

Date 11/28/2012

Water Depth 56.4'

## Coordinate System

Latitude / Longitude

Start Time 12:11:35

End Time 12:12:16

Penetration 20.0'

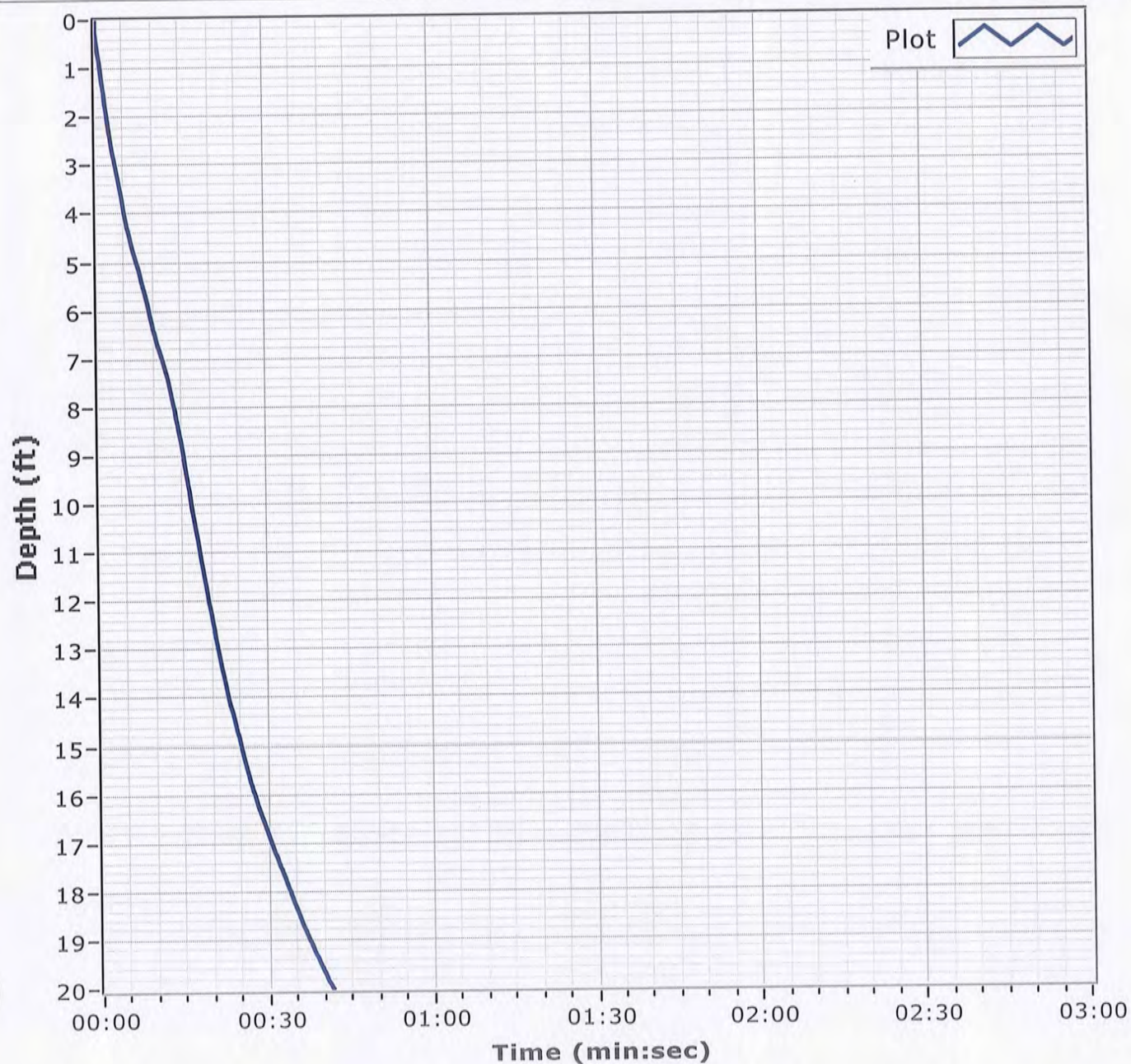
Latitude 30 08.300

Total Time 00:00:41

Recovery 19.8'

Longitude 088 21.879

## Comments



# Boring Designation BI-PBS-052-12

<b>DRILLING LOG</b>		<b>DIVISION</b> South Atlantic	<b>INSTALLATION</b> Mobile District	<b>SHEET 1</b> <b>OF 2 SHEETS</b>
<b>1. PROJECT</b> MsCIP Barrier Island Restoration Petit Bois Pass-OCS East			<b>9. SIZE AND TYPE OF BIT</b> N/A	
<b>2. BORING DESIGNATION</b> BI-PBS-052-12		<b>10. COORDINATE SYSTEM/DATUM</b> State Plane, MSE (U.S. Ft.)		<b>11. MANUFACTURER'S DESIGNATION OF DRILL</b> Vibracore
<b>3. DRILLING AGENCY</b> Corps of Engineers - CESAM		<b>12. TOTAL SAMPLES</b>		<b>13. TOTAL NUMBER CORE BOXES</b>
<b>4. NAME OF DRILLER</b> American Vibracore Systems, Inc.		<b>14. WATER DEPTH</b> 46.6 Ft.		<b>15. DATE BORING</b> 11-30-12
<b>5. DIRECTION OF BORING</b> <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED		<b>16. ELEVATION TOP OF BORING</b> -46.5 Ft.		<b>17. TOTAL RECOVERY FOR BORING</b> 100%
<b>6. THICKNESS OF OVERBURDEN</b> N/A		<b>18. SIGNATURE AND TITLE OF INSPECTOR</b> Mike FitzHarris, Geologist		
<b>7. DEPTH DRILLED INTO ROCK</b> N/A				
<b>8. TOTAL DEPTH OF BORING</b> 20.0 Ft.				

ELEV.	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS	SAMPLE	LABORATORY RESULTS
-46.5	0.0				
-47.5	1.0		SAND, poorly-graded, mostly fine to medium-grained sand-sized quartz, trace silt, trace shell fragments, gray (SP)		
-50.3	3.8		SAND, clayey, mostly fine-grained sand-sized quartz, little silt, Wood debris at 3 ft., gray (SC)		
-51.2	4.7		CLAY, lean, mostly clay, some silt, trace wood debris, silty clay, brownish gray (CL)		
-53.8	7.3		SAND, poorly-graded, mostly fine to medium-grained sand-sized quartz, trace silt, trace clay, lt. gray (SP)		
			SAND, clayey, mostly fine-grained sand-sized quartz, some clay, little shell fragments, gray (SC)	NS	
-62.2	15.7				
-63.0	16.5		CLAY, lean, mostly clay, little fine-grained sand-sized quartz, low plasticity, gray (CL)		
-65.1	18.6		SAND, clayey, mostly fine-grained sand-sized quartz, some clay, trace silt, gray (SC)		
-66.5	20.0		SAND, poorly-graded, mostly fine-grained sand-sized quartz, trace silt, lt. gray (SP)		
			NOTES: 1. Soils are field visually classified in accordance with the Unified Soils Classification System. 2. NS = Sample not submitted for laboratory analysis from this interval. 3. Seafloor elevation determined from USACE		

<b>DRILLING LOG (Cont. Sheet)</b>			<b>INSTALLATION</b> Mobile District		<b>SHEET 2</b>
					<b>OF 2 SHEETS</b>
<b>PROJECT</b> MsCIP Barrier Island Restoration			<b>COORDINATE SYSTEM/DATUM</b> State Plane, MSE (U.S. Ft.)	<b>HORIZONTAL</b> NAD83	<b>VERTICAL</b> NAVD88
<b>LOCATION COORDINATES</b> X = 1,130,058 Y = 241,304			<b>ELEVATION TOP OF BORING</b> -46.5 Ft.		
ELEV.	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS	SAMPLE	LABORATORY RESULTS
			hydrographic survey completed April 2014.		



**Project**

Mississippi Barrier Island  
Restoration Project

**AVS**  
**AMERICAN VIBRACORE**  
**S E R V I C E S**

**Core Identifier** BI-PBS-52-12

**Date** 11/30/2012

**Water Depth** 46.6'

**Coordinate System**

Latitude / Longitude

**Start Time** 11:36:31

**End Time** 11:37:43

**Penetration** 20.0'

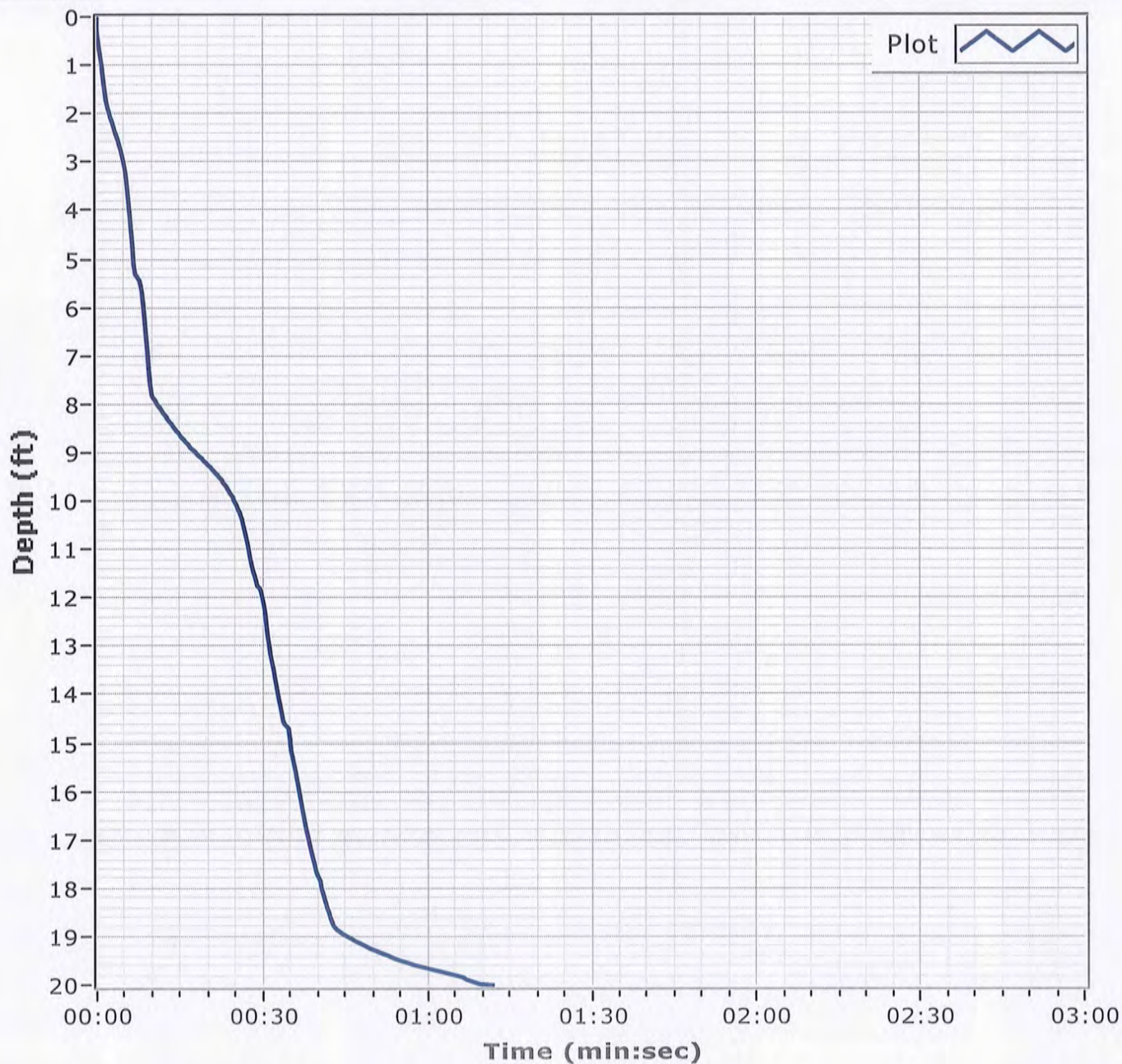
**Latitude** 30 09.764

**Total Time** 00:01:12

**Recovery** 20.0'

**Longitude** 088 22.317

**Comments**



# Boring Designation BI-PBS-053-12

DRILLING LOG		DIVISION South Atlantic		INSTALLATION Mobile District		SHEET 1 OF 2 SHEETS	
1. PROJECT MsCIP Barrier Island Restoration Petit Bois Pass-OCS East				9. SIZE AND TYPE OF BIT N/A			
2. BORING DESIGNATION BI-PBS-053-12		LOCATION COORDINATES E = 1,131,214 N = 240,705		10. COORDINATE SYSTEM/DATUM State Plane, MSE (U.S. Ft.)		HORIZONTAL NAD83	
3. DRILLING AGENCY Corps of Engineers - CESAM		CONTRACTOR FILE NO.		11. MANUFACTURER'S DESIGNATION OF DRILL Vibracore		<input type="checkbox"/> AUTO HAMMER <input type="checkbox"/> MANUAL HAMMER	
4. NAME OF DRILLER American Vibracore Systems, Inc.				12. TOTAL SAMPLES		DISTURBED 0	
5. DIRECTION OF BORING <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED				13. TOTAL NUMBER CORE BOXES		14. WATER DEPTH 44.5 Ft.	
6. THICKNESS OF OVERBURDEN N/A				15. DATE BORING		STARTED 11-30-12	
7. DEPTH DRILLED INTO ROCK N/A				16. ELEVATION TOP OF BORING -45.9 Ft.		COMPLETED 11-30-12	
8. TOTAL DEPTH OF BORING 20.0 Ft.				17. TOTAL RECOVERY FOR BORING 100%			
				18. SIGNATURE AND TITLE OF INSPECTOR Mike FitzHarris, Geologist			
ELEV.	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS	SAMPLE	LABORATORY RESULTS		
-45.9	0.0						
			SAND, poorly-graded, mostly fine to medium-grained sand-sized quartz, trace silt, trace shell fragments, gray (SP)	A	Classification: SP Color: 5Y 7/2-light gray D50: 0.3315 mm % Fines: 2.4		
-51.4	5.5						
-53.3	7.4		SAND, clayey, mostly fine-grained sand-sized quartz, some clay, trace shell fragments, gray (SC)				
-54.3	8.4		SAND, poorly-graded with silt, mostly fine to medium-grained sand-sized quartz, few silt, trace clay, gray (SP-SM)				
-59.5	13.6		SAND, clayey, mostly fine to medium-grained sand-sized quartz, some clay, little shell fragments, gray (SC)	NS			
-60.9	15.0		SHELL, mostly shell fragments, some fine-grained sand-sized quartz, some clay, gray				
-65.9	20.0		SAND, silty, mostly fine-grained sand-sized quartz, little clay, little shell fragments, gray (SM)				
NOTES: 1. Soils are field visually classified in accordance with the Unified Soils Classification System. 2. NS = Sample not submitted for laboratory analysis from this interval. 3. Seafloor elevation determined from USACE							

<b>DRILLING LOG (Cont. Sheet)</b>			<b>INSTALLATION</b> Mobile District		<b>SHEET 2</b> <b>OF 2 SHEETS</b>
<b>PROJECT</b> MsCIP Barrier Island Restoration			<b>COORDINATE SYSTEM/DATUM</b> State Plane, MSE (U.S. Ft.)	<b>HORIZONTAL</b> NAD83	<b>VERTICAL</b> NAVD88
<b>LOCATION COORDINATES</b> X = 1,131,214 Y = 240,705			<b>ELEVATION TOP OF BORING</b> -45.9 Ft.		
<b>ELEV.</b>	<b>DEPTH</b>	<b>LEGEND</b>	<b>CLASSIFICATION OF MATERIALS</b>	<b>SAMPLE</b>	<b>LABORATORY RESULTS</b>
			hydrographic survey completed April 2014.		



**Project**

Mississippi Barrier Island  
Restoration Project

**AVS**  
**AMERICAN VIBRACORE**  
**S E R V I C E S**

**Core Identifier** BI-PBS-53-12 A

**Date** 11/30/2012

**Water Depth** 44.5'

**Coordinate System**

**Start Time** 10:51:05

Latitude / Longitude

**End Time** 10:52:13

**Penetration** 20.0'

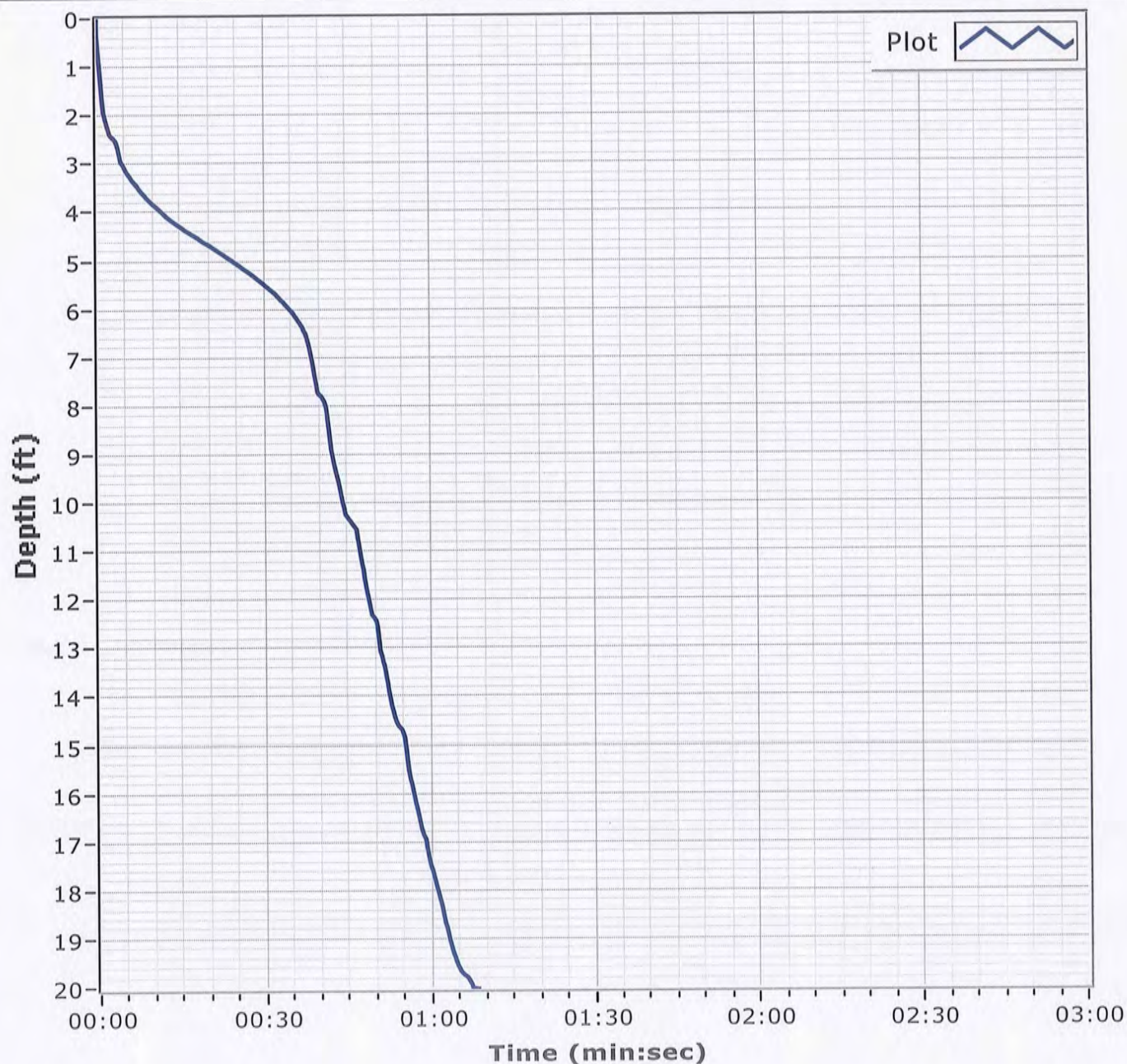
**Latitude** 30 09.664

**Total Time** 00:01:08

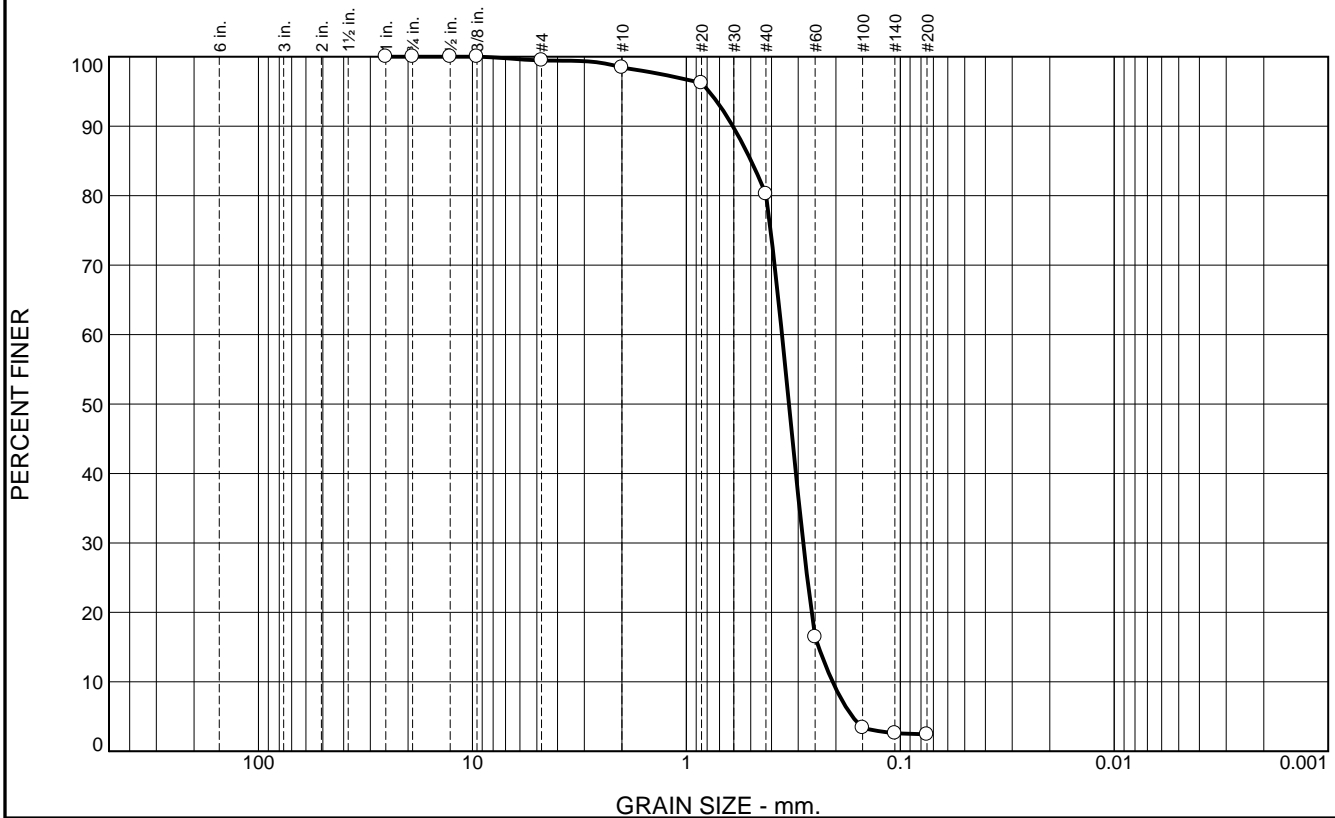
**Recovery** 20.0'

**Longitude** 088 22.098

**Comments**



# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.5	1.1	18.2	77.8	2.4	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
1	100.0		
.75	100.0		
.5	100.0		
.375	100.0		
#4	99.5		
#10	98.4		
#20	96.2		
#40	80.2		
#60	16.5		
#100	3.4		
#140	2.6		
#200	2.4		

\* (no specification provided)

Material Description		
Fine to medium grained, SAND		
<div> <div> Atterberg Limits </div> <div> PL= LL= PI= </div> </div>		
<div> <div> Coefficients </div> <div> D<sub>90</sub>= 0.6063 D<sub>85</sub>= 0.4980 D<sub>60</sub>= 0.3571 D<sub>50</sub>= 0.3315 D<sub>30</sub>= 0.2845 D<sub>15</sub>= 0.2407 D<sub>10</sub>= 0.2072 C<sub>u</sub>= 1.72 C<sub>c</sub>= 1.09 </div> </div>		
<div> <div> Classification </div> <div> USCS= SP AASHTO= </div> </div>		
<div> <div> Remarks </div> </div>		

Location: BI-PBS-53-12 A  
Sample Number: 6471 (27)

Depth: 0.0'

Date: 12/03/12

**Thompson Engineering**

**Mobile, Alabama**

Client: CDM/Thompson Engineering JV  
Project: MsCIP Barrier Island Restoration GT

Project No: 1221110095

Figure



# Boring Designation BI-PBS-054-12

DRILLING LOG		DIVISION South Atlantic		INSTALLATION Mobile District		SHEET 1 OF 2 SHEETS	
1. PROJECT MsCIP Barrier Island Restoration Petit Bois Pass-OCS East				9. SIZE AND TYPE OF BIT N/A			
2. BORING DESIGNATION BI-PBS-054-12		LOCATION COORDINATES E = 1,132,425 N = 239,892		10. COORDINATE SYSTEM/DATUM State Plane, MSE (U.S. Ft.)		HORIZONTAL NAD83 VERTICAL NAVD88	
3. DRILLING AGENCY Corps of Engineers - CESAM		CONTRACTOR FILE NO.		11. MANUFACTURER'S DESIGNATION OF DRILL Vibracore		<input type="checkbox"/> AUTO HAMMER <input type="checkbox"/> MANUAL HAMMER	
4. NAME OF DRILLER American Vibracore Systems, Inc.				12. TOTAL SAMPLES		DISTURBED UNDISTURBED (UD) 0	
5. DIRECTION OF BORING <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED		DEG. FROM VERTICAL		13. TOTAL NUMBER CORE BOXES			
		BEARING		14. WATER DEPTH 45.7 Ft.			
6. THICKNESS OF OVERBURDEN N/A				15. DATE BORING 11-30-12		STARTED COMPLETED 11-30-12	
7. DEPTH DRILLED INTO ROCK N/A				16. ELEVATION TOP OF BORING -46.5 Ft.			
8. TOTAL DEPTH OF BORING 20.0 Ft.				17. TOTAL RECOVERY FOR BORING 100%			
				18. SIGNATURE AND TITLE OF INSPECTOR Mike FitzHarris, Geologist			

ELEV.	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS	SAMPLE	LABORATORY RESULTS
-46.5	0.0				
			SAND, poorly-graded, mostly fine to medium-grained sand-sized quartz, trace silt, trace shell fragments, gray (SP)	A	Classification: SP Color: 5Y 7/2-light gray D50: 0.3037 mm % Fines: 1.7
-51.5	5.0				
-52.1	5.6		SAND, clayey, mostly fine-grained sand-sized quartz, some clay, gray (SC)	NS	
-53.3	6.8			B	Classification: SP Color: 5Y 7/2-light gray D50: 0.3861 mm % Fines: 3.2
-54.0	7.5		SAND, poorly-graded with silt, mostly fine to medium-grained sand-sized quartz, little shell fragments, few silt, gray (SP-SM)	NS	
-56.0	9.5		SAND, clayey, mostly fine-grained sand-sized quartz, some clay, trace shell fragments, gray (SC)	C	Classification: SP-SM Color: 5Y 7/2-light gray D50: 0.3507 mm % Fines: 6.7
			SAND, silty, mostly fine to medium-grained sand-sized quartz, some silt, trace shell fragments, trace clay, gray (SM)		
			SAND, clayey, mostly fine-grained sand-sized quartz, some clay, trace shell fragments, gray (SC)	NS	
-65.0	18.5				
-66.5	20.0		SAND, silty, mostly fine-grained sand-sized quartz, some silt, trace shell fragments, gray (SM)		
			NOTES: 1. Soils are field visually classified in accordance with the Unified Soils Classification System. 2. NS = Sample not submitted for laboratory analysis from this interval.		

<b>DRILLING LOG (Cont. Sheet)</b>			<b>INSTALLATION</b> Mobile District		<b>SHEET 2</b> <b>OF 2 SHEETS</b>
			<b>PROJECT</b> MsCIP Barrier Island Restoration		<b>COORDINATE SYSTEM/DATUM</b> State Plane, MSE (U.S. Ft.) <b>HORIZONTAL</b> NAD83 <b>VERTICAL</b> NAVD88
<b>LOCATION COORDINATES</b> X = 1,132,425 Y = 239,892			<b>ELEVATION TOP OF BORING</b> -46.5 Ft.		
ELEV.	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS	SAMPLE	LABORATORY RESULTS
			3. Seafloor elevation determined from USACE hydrographic survey completed April 2014.		

**Project**

Mississippi Barrier Island  
Restoration Project

**AVS**  
**AMERICAN VIBRACORE**  
**S E R V I C E S**

**Core Identifier** BI-PBS-54-12

**Date** 11/30/2012

**Water Depth** 45.7'

**Coordinate System**

**Start Time** 09:17:07

Latitude / Longitude

**End Time** 09:18:50

**Penetration** 20.0'

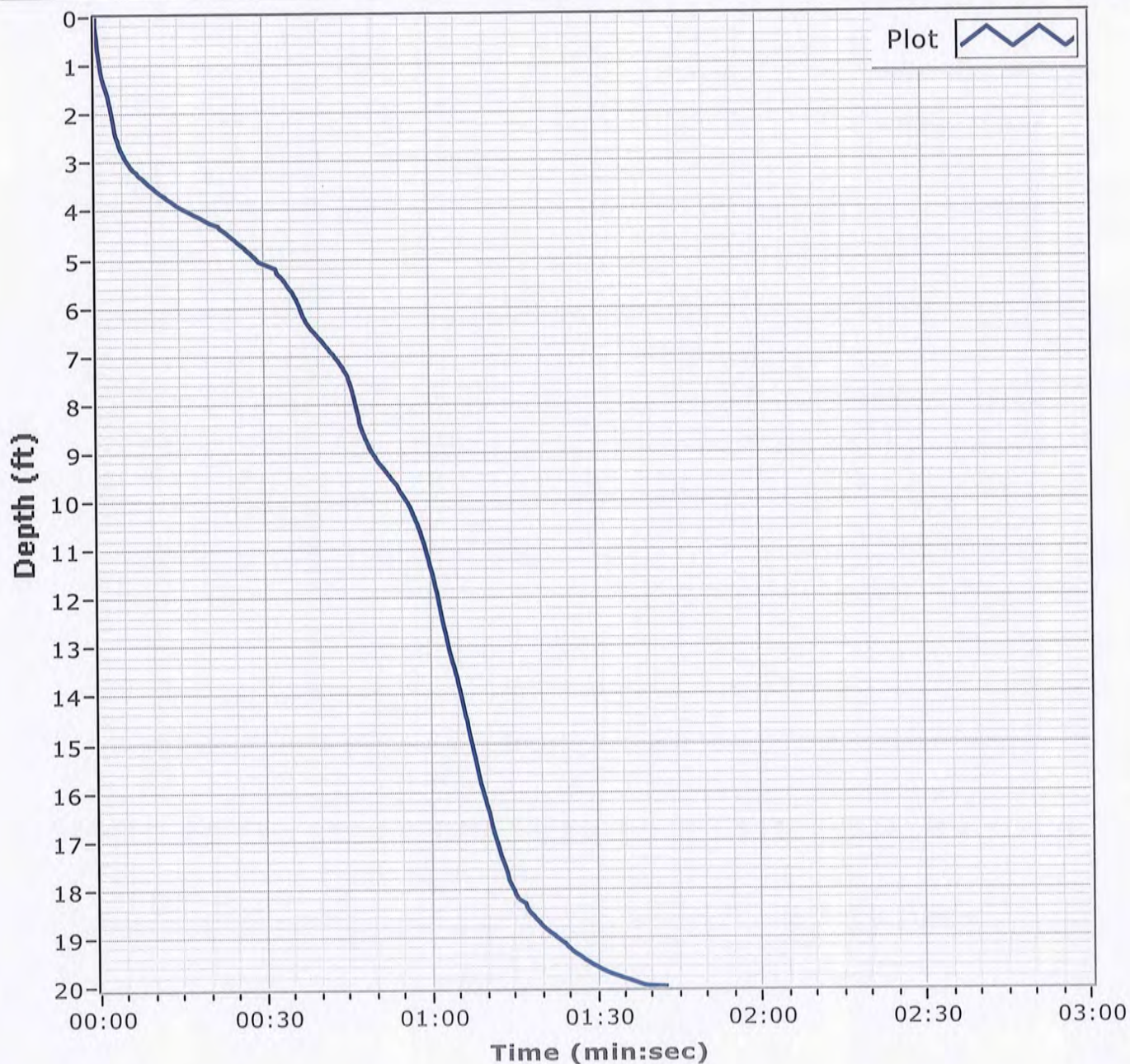
**Latitude** 30 09.529

**Total Time** 00:01:42

**Recovery** 20.0'

**Longitude** 088 21.869

**Comments**



# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.3	1.6	23.0	73.4	1.7	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
1	100.0		
.75	100.0		
.5	100.0		
.375	100.0		
#4	99.7		
#10	98.1		
#20	94.4		
#40	75.1		
#60	33.7		
#100	3.7		
#140	2.0		
#200	1.7		

\* (no specification provided)

<u><b>Material Description</b></u>		
Fine to medium grained, SAND		
<u><b>Atterberg Limits</b></u>		
PL=	LL=	PI=
<u><b>Coefficients</b></u>		
D <sub>90</sub> = 0.6261	D <sub>85</sub> = 0.5252	D <sub>60</sub> = 0.3432
D <sub>50</sub> = 0.3037	D <sub>30</sub> = 0.2387	D <sub>15</sub> = 0.1935
D <sub>10</sub> = 0.1770	C <sub>u</sub> = 1.94	C <sub>c</sub> = 0.94
<u><b>Classification</b></u>		
USCS= SP	AASHTO=	
<u><b>Remarks</b></u>		

Location: BI-PBS-54-12 A  
Sample Number: 6471 (28)

Depth: 0.0'

Date: 12/03/12

**Thompson Engineering**

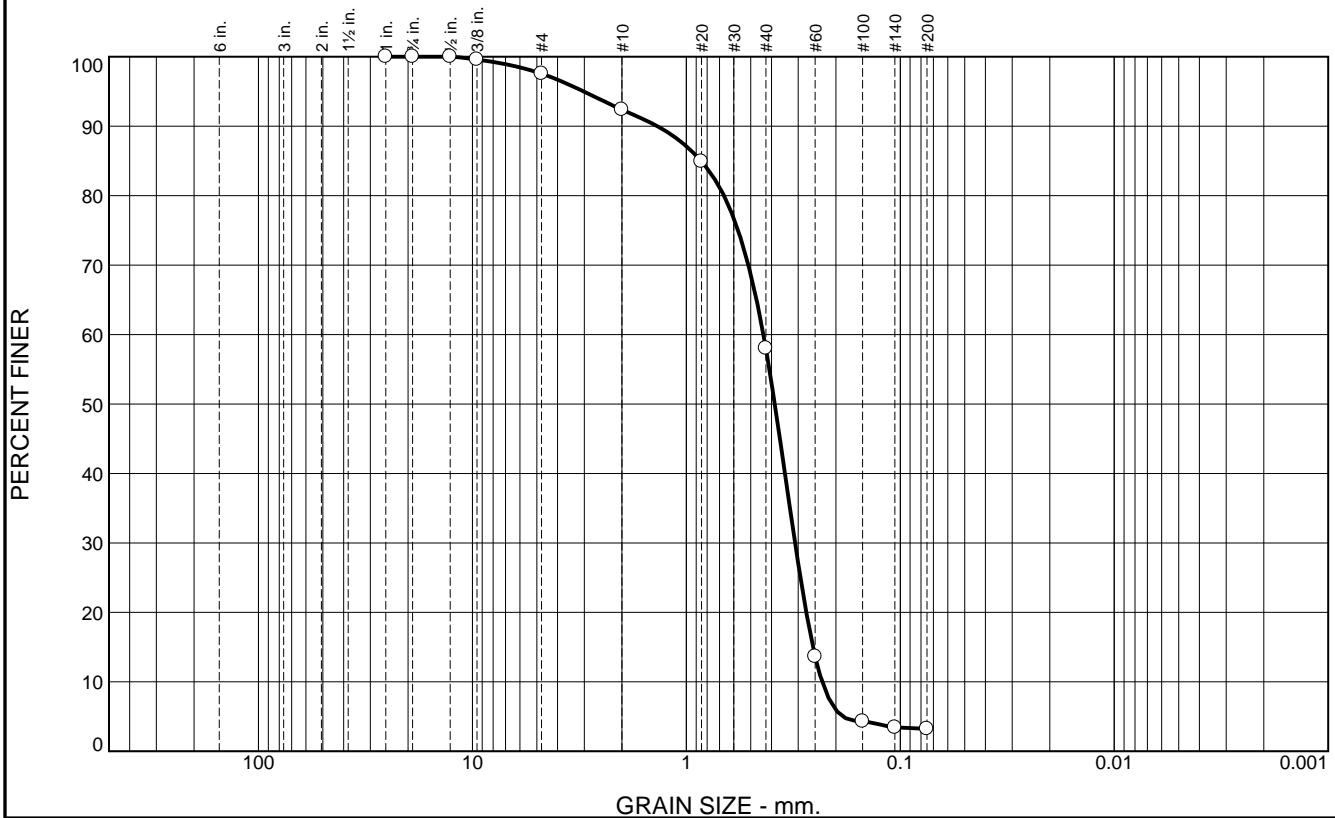
**Mobile, Alabama**

Client: CDM/Thompson Engineering JV  
Project: MsCIP Barrier Island Restoration GT

Project No: 1221110095

Figure

# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	2.4	5.2	34.4	54.8	3.2	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
1	100.0		
.75	100.0		
.5	100.0		
.375	99.6		
#4	97.6		
#10	92.4		
#20	84.9		
#40	58.0		
#60	13.6		
#100	4.3		
#140	3.4		
#200	3.2		

\* (no specification provided)

<b>Material Description</b> Fine to medium grained, SAND, with trace SHELL		
PL=	<b>Atterberg Limits</b> LL=	PI=
D <sub>90</sub> = 1.3683 D <sub>50</sub> = 0.3861 D <sub>10</sub> = 0.2318	<b>Coefficients</b> D <sub>85</sub> = 0.8553 D <sub>30</sub> = 0.3104 C <sub>u</sub> = 1.88	D <sub>60</sub> = 0.4365 D <sub>15</sub> = 0.2559 C <sub>c</sub> = 0.95
USCS= SP	<b>Classification</b> AASHTO=	
<b>Remarks</b>		

Location: BI-PBS-54-12 B  
Sample Number: 6471 (29)

Depth: 5.6'

Date: 12/03/12

**Thompson Engineering**

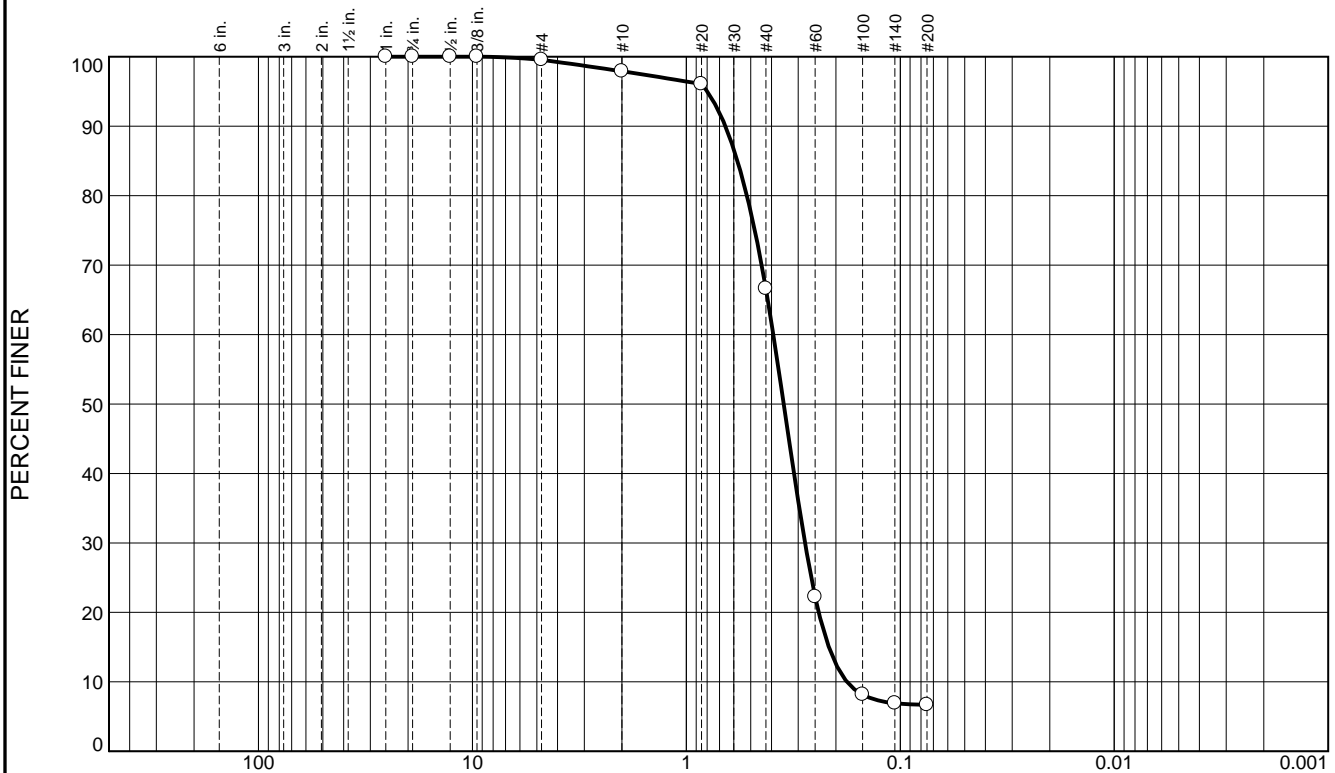
**Mobile, Alabama**

Client: CDM/Thompson Engineering JV  
Project: MsCIP Barrier Island Restoration GT

Project No: 1221110095

Figure

# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.5	1.6	31.3	59.9	6.7	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
1	100.0		
.75	100.0		
.5	100.0		
.375	100.0		
#4	99.5		
#10	97.9		
#20	96.1		
#40	66.6		
#60	22.2		
#100	8.2		
#140	6.9		
#200	6.7		

\* (no specification provided)

## Material Description

Fine to medium grained, SLIGHTLY SILTY SAND

## Atterberg Limits

PL= LL= PI=

## Coefficients

D<sub>90</sub>= 0.6572 D<sub>85</sub>= 0.5769 D<sub>60</sub>= 0.3922  
D<sub>50</sub>= 0.3507 D<sub>30</sub>= 0.2790 D<sub>15</sub>= 0.2157  
D<sub>10</sub>= 0.1777 C<sub>u</sub>= 2.21 C<sub>c</sub>= 1.12

## Classification

USCS= SP-SM AASHTO=

## Remarks

Location: BI-PBS-54-12 C  
Sample Number: 6471 (30)

Depth: 7.5'

Date: 12/03/12

**Thompson Engineering**

**Mobile, Alabama**

Client: CDM/Thompson Engineering JV  
Project: MsCIP Barrier Island Restoration GT

Project No: 1221110095

Figure

# Boring Designation BI-PBS-055-12

DRILLING LOG		DIVISION South Atlantic		INSTALLATION Mobile District		SHEET 1 OF 1 SHEETS	
1. PROJECT MsCIP Barrier Island Restoration Petit Bois Pass-OCS East				9. SIZE AND TYPE OF BIT N/A			
2. BORING DESIGNATION BI-PBS-055-12		LOCATION COORDINATES E = 1,132,872 N = 242,421		10. COORDINATE SYSTEM/DATUM State Plane, MSE (U.S. Ft.)		HORIZONTAL NAD83 VERTICAL NAVD88	
3. DRILLING AGENCY Corps of Engineers - CESAM		CONTRACTOR FILE NO.		11. MANUFACTURER'S DESIGNATION OF DRILL Vibracore		<input type="checkbox"/> AUTO HAMMER <input type="checkbox"/> MANUAL HAMMER	
4. NAME OF DRILLER American Vibracore Systems, Inc.				12. TOTAL SAMPLES		DISTURBED UNDISTURBED (UD) 0	
5. DIRECTION OF BORING <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED				13. TOTAL NUMBER CORE BOXES		14. WATER DEPTH 47.2 Ft.	
6. THICKNESS OF OVERBURDEN N/A				15. DATE BORING		STARTED 11-30-12 COMPLETED 11-30-12	
7. DEPTH DRILLED INTO ROCK N/A				16. ELEVATION TOP OF BORING -46.6 Ft.		17. TOTAL RECOVERY FOR BORING 100%	
8. TOTAL DEPTH OF BORING 15.0 Ft.				18. SIGNATURE AND TITLE OF INSPECTOR Mike FitzHarris, Geologist			

ELEV.	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS	SAMPLE	LABORATORY RESULTS
-46.6	0.0				
			SAND, poorly-graded, mostly fine to medium-grained sand-sized quartz, trace silt, trace shell fragments, lt. gray to gray (SP)	A	Classification: SP Color: 5Y 7/2-light gray D50: 0.3311 mm % Fines: 1.7
-49.8	3.2				
-50.6	4.0		SAND, clayey, mostly fine-grained sand-sized quartz, some clay, trace shell fragments, gray (SC)		
-51.5	4.9				
-53.0	6.4		CLAY, lean, mostly clay, with alternating bands of clayey sand, gray (CL)		
-56.1	9.5		SAND, poorly-graded with clay, mostly fine-grained sand-sized quartz, little clay, few clay stringers, gray (SP-SC)	NS	
			CLAY, lean, mostly clay, trace shell fragments, gray (CL)		
-58.6	12.0		SAND, clayey, mostly fine-grained sand-sized quartz, some clay, some shell fragments, gray (SC)		
-60.9	14.3		SAND, poorly-graded with silt, mostly fine-grained sand-sized quartz, few silt, trace shell fragments, gray (SP-SM)		
-61.6	15.0		SAND, poorly-graded, mostly fine-grained sand-sized quartz, trace silt, lt. gray (SP)		
			NOTES: 1. Soils are field visually classified in accordance with the Unified Soils Classification System. 2. NS = Sample not submitted for laboratory analysis from this interval. 3. Seafloor elevation determined from USACE hydrographic survey completed April 2014.		



**Project**

Mississippi Barrier Island  
Restoration Project

**AVS**  
**AMERICAN VIBRACORE**  
**S E R V I C E S**

**Core Identifier** BI-PBS-55-12

**Date** 11/30/2012

**Water Depth** 47.2'

**Coordinate System**

Latitude / Longitude

**Start Time** 12:49:34

**End Time** 12:52:32

**Penetration** 16.4'

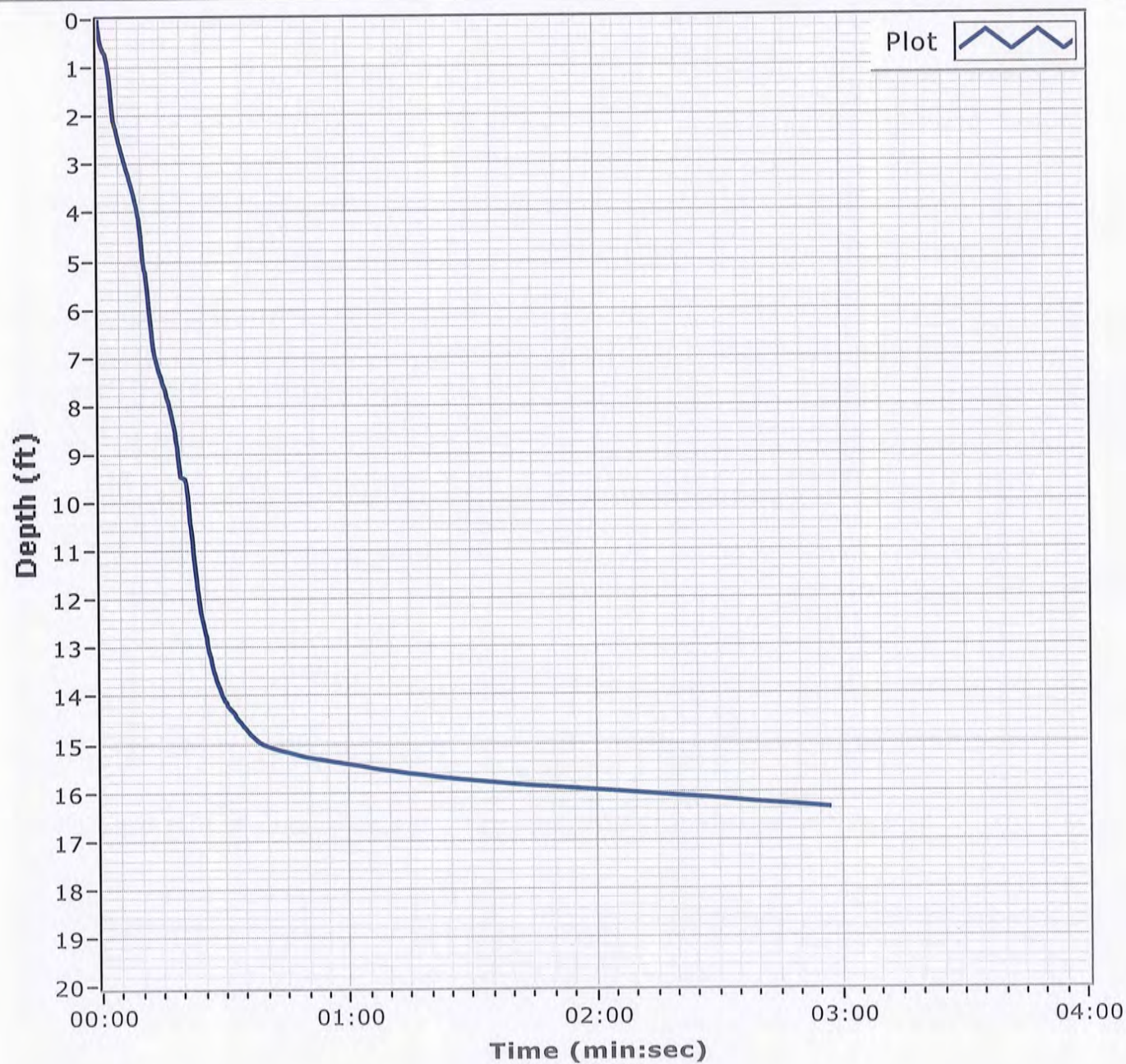
**Latitude** 30 09.946

**Total Time** 00:02:57

**Recovery** 15.0'

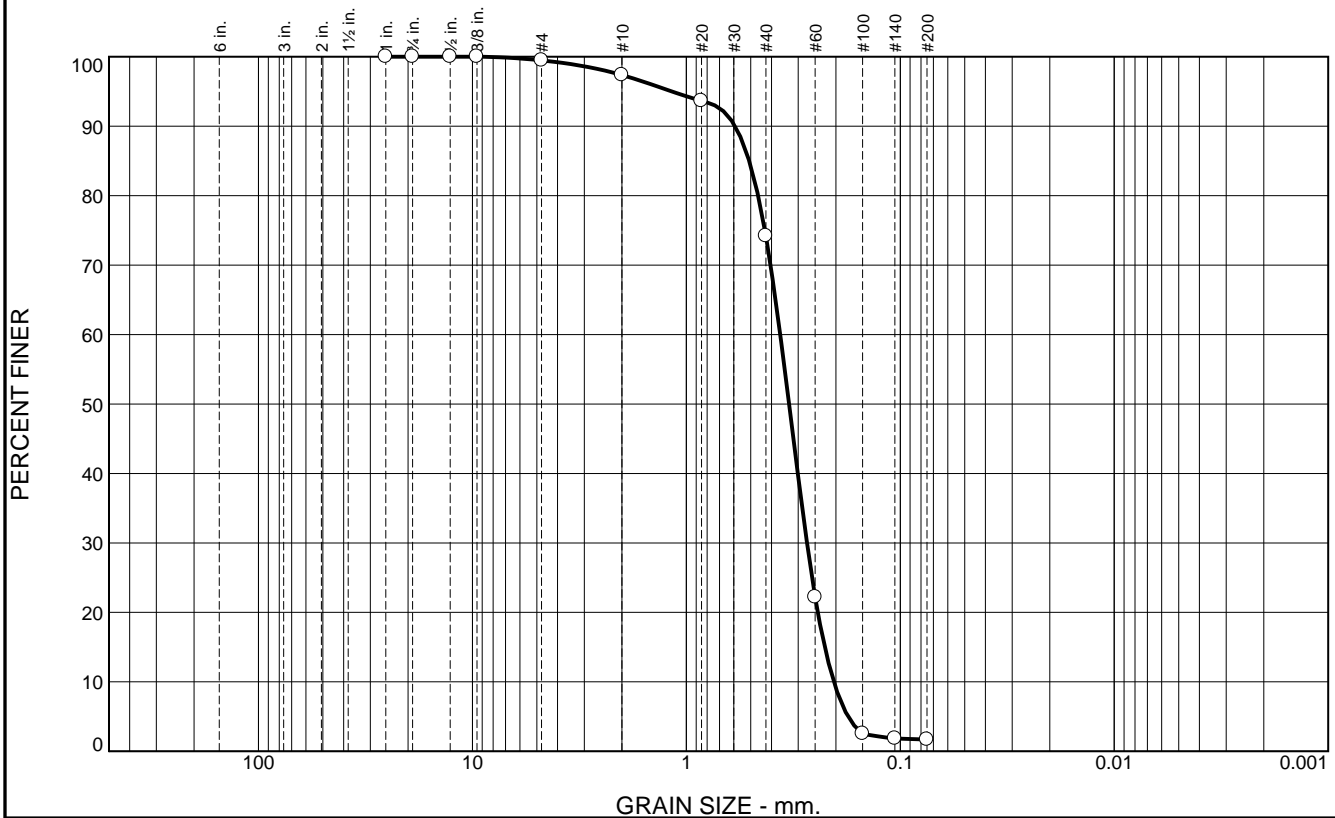
**Longitude** 088 21.782

**Comments**





# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.5	2.1	23.2	72.5	1.7	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
1	100.0		
.75	100.0		
.5	100.0		
.375	100.0		
#4	99.5		
#10	97.4		
#20	93.6		
#40	74.2		
#60	22.2		
#100	2.6		
#140	1.8		
#200	1.7		

\* (no specification provided)

Material Description		
Fine to medium grained, SAND		
<div> <div> Atterberg Limits </div> <div> PL= </div> <div> LL= </div> <div> PI= </div> </div>		
<div> <div> Coefficients </div> <div> D<sub>90</sub>= 0.5917 </div> <div> D<sub>85</sub>= 0.5087 </div> <div> D<sub>60</sub>= 0.3640 </div> <div> D<sub>50</sub>= 0.3311 </div> <div> D<sub>30</sub>= 0.2731 </div> <div> D<sub>15</sub>= 0.2254 </div> <div> D<sub>10</sub>= 0.2045 </div> <div> C<sub>u</sub>= 1.78 </div> <div> C<sub>c</sub>= 1.00 </div> </div>		
<div> <div> Classification </div> <div> USCS= SP </div> <div> AASHTO= </div> </div>		
<div> <div> Remarks </div> </div>		

Location: BI-PBS-55-12 A  
Sample Number: 6471 (31)

Depth: 0.0'

Date: 12/03/12

**Thompson Engineering**

**Mobile, Alabama**

Client: CDM/Thompson Engineering JV  
Project: MsCIP Barrier Island Restoration GT

Project No: 1221110095

Figure

# Boring Designation BI-PBS-056-12

DRILLING LOG		DIVISION South Atlantic		INSTALLATION Mobile District		SHEET 1 OF 1 SHEETS	
1. PROJECT MsCIP Barrier Island Restoration Petit Bois Pass-OCS East				9. SIZE AND TYPE OF BIT N/A			
2. BORING DESIGNATION BI-PBS-056-12		LOCATION COORDINATES E = 1,131,782 N = 243,108		10. COORDINATE SYSTEM/DATUM State Plane, MSE (U.S. Ft.)		HORIZONTAL NAD83 VERTICAL NAVD88	
3. DRILLING AGENCY Corps of Engineers - CESAM		CONTRACTOR FILE NO.		11. MANUFACTURER'S DESIGNATION OF DRILL Vibracore		<input type="checkbox"/> AUTO HAMMER <input type="checkbox"/> MANUAL HAMMER	
4. NAME OF DRILLER American Vibracore Systems, Inc.				12. TOTAL SAMPLES		DISTURBED UNDISTURBED (UD)	
5. DIRECTION OF BORING <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED				13. TOTAL NUMBER CORE BOXES		0	
6. THICKNESS OF OVERBURDEN N/A				14. WATER DEPTH 48.3 Ft.		15. DATE BORING STARTED 11-30-12 COMPLETED 11-30-12	
7. DEPTH DRILLED INTO ROCK N/A				16. ELEVATION TOP OF BORING -46.0 Ft.		17. TOTAL RECOVERY FOR BORING 100%	
8. TOTAL DEPTH OF BORING 14.8 Ft.				18. SIGNATURE AND TITLE OF INSPECTOR Mike FitzHarris, Geologist			

ELEV.	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS	SAMPLE	LABORATORY RESULTS
-46.0	0.0				
-48.6	2.6		SAND, poorly-graded, mostly fine to medium-grained sand-sized quartz, trace silt, trace shell fragments, lt. gray (SP)	A	Classification: SP Color: 5Y 7/2-light gray D50: 0.3431 mm % Fines: 1.4
-50.7	4.7		SAND, clayey, mostly fine-grained sand-sized quartz, some clay, trace silt, trace shell fragments, trace wood debris, gray (SC)	B	Classification: SM Color: 5Y 5/2-olive gray D50: 0.2458 mm % Fines: 13.8
-53.4	7.4		SAND, poorly-graded with silt, mostly fine-grained sand-sized quartz, few silt, trace clay, clayey band between 6.3 to 6.5 ft., gray (SP-SM)	C	Classification: SP-SM Color: 2.5Y 6/2-light brownish gray D50: 0.2416 mm % Fines: 7.2
-57.9	11.9		CLAY, lean, mostly clay, some fine-grained sand-sized quartz, trace shell fragments, low to medium plasticity, gray (CL)	NS	
-60.8	14.8		SAND, poorly-graded with silt, mostly fine-grained sand-sized quartz, few silt, trace shell fragments, clayey nodules throughout, lt. gray with dk gray spots (SP-SM)		
NOTES: 1. Soils are field visually classified in accordance with the Unified Soils Classification System. 2. NS = Sample not submitted for laboratory analysis from this interval. 3. Seafloor elevation determined from USACE hydrographic survey completed April 2014.					

**Project**

Mississippi Barrier Island  
Restoration Project

**AVS**  
**AMERICAN VIBRACORE**  
**S E R V I C E S**

**Core Identifier** BI-PBS-56-12

**Date** 11/30/2012

**Water Depth** 48.3'

**Coordinate System**

Latitude / Longitude

**Start Time** 13:48:11

**End Time** 13:51:43

**Penetration** 16.0'

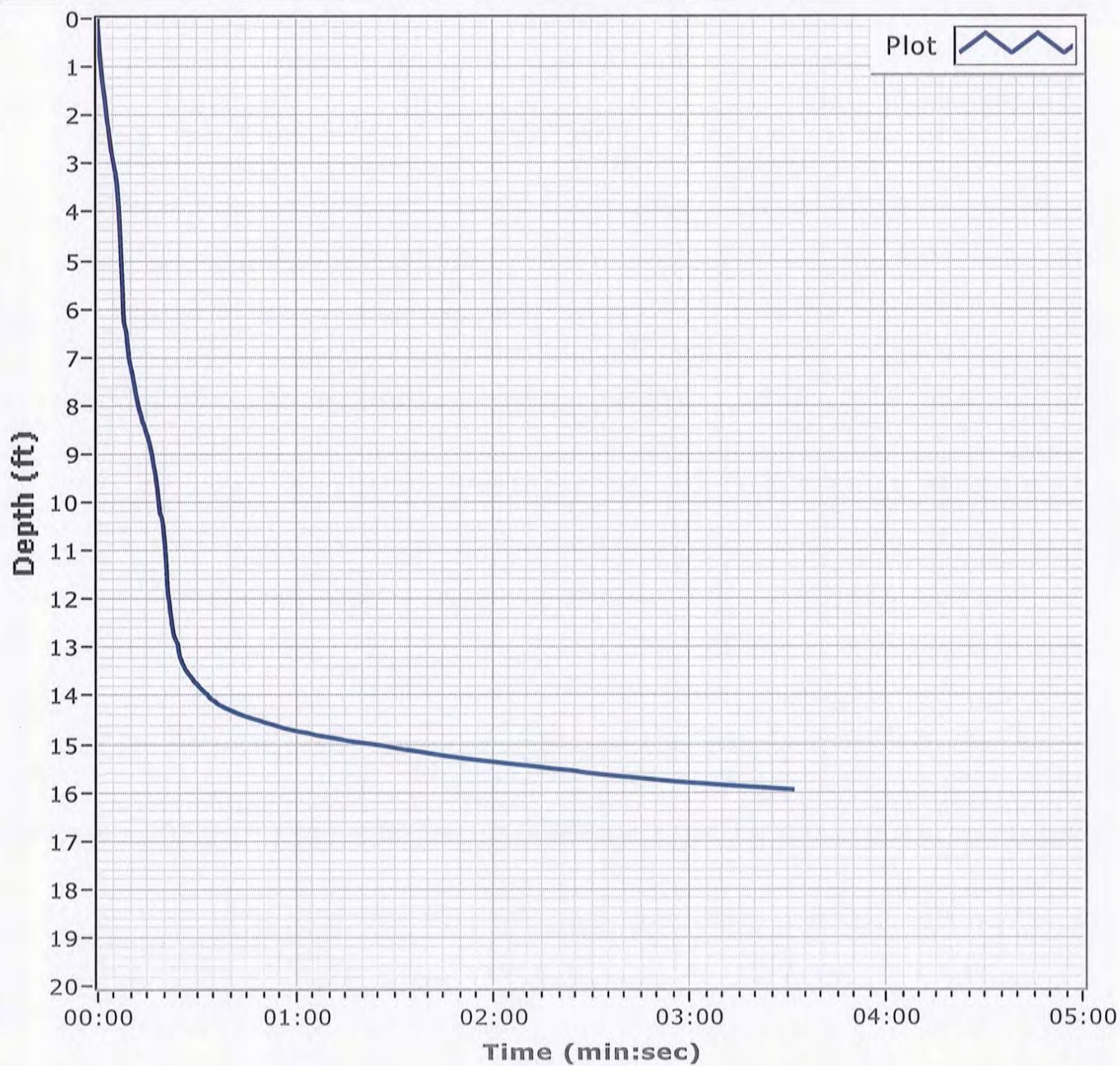
**Latitude** 30 10.060

**Total Time** 00:03:31

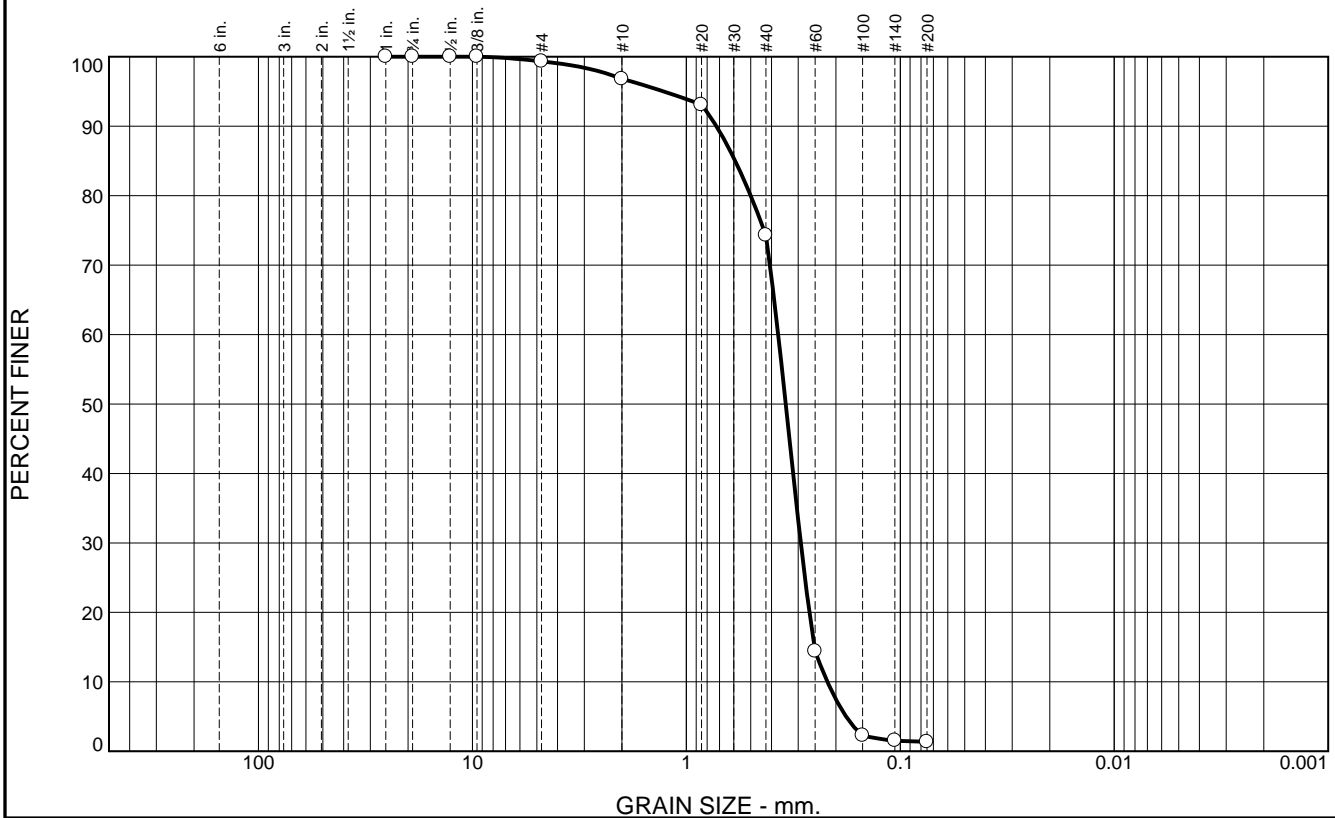
**Recovery** 14.8'

**Longitude** 088 21.988

**Comments**



# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.7	2.5	22.5	72.9	1.4	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
1	100.0		
.75	100.0		
.5	100.0		
.375	100.0		
#4	99.3		
#10	96.8		
#20	93.1		
#40	74.3		
#60	14.4		
#100	2.3		
#140	1.5		
#200	1.4		

\* (no specification provided)

<u><b>Material Description</b></u>		
Fine to medium grained, SAND		
<u><b>Atterberg Limits</b></u>		
PL=	LL=	PI=
<u><b>Coefficients</b></u>		
D <sub>90</sub> = 0.7245	D <sub>85</sub> = 0.5913	D <sub>60</sub> = 0.3720
D <sub>50</sub> = 0.3431	D <sub>30</sub> = 0.2921	D <sub>15</sub> = 0.2519
D <sub>10</sub> = 0.2191	C <sub>u</sub> = 1.70	C <sub>c</sub> = 1.05
<u><b>Classification</b></u>		
USCS= SP	AASHTO=	
<u><b>Remarks</b></u>		

Location: BI-PBS-56-12 A  
Sample Number: 6471 (32)

Depth: 0.0'

Date: 12/03/12

**Thompson Engineering**

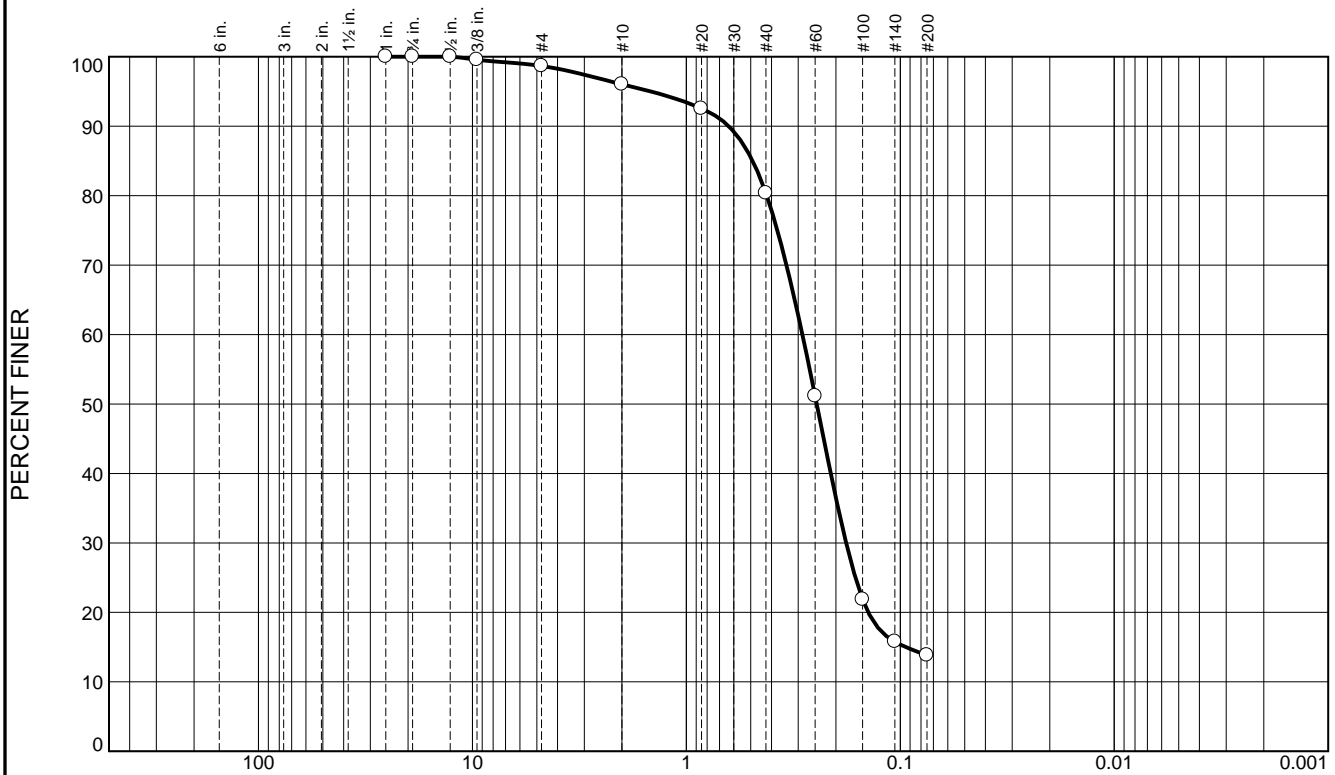
**Mobile, Alabama**

Client: CDM/Thompson Engineering JV  
Project: MsCIP Barrier Island Restoration GT

Project No: 1221110095

Figure

# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	1.3	2.7	15.6	66.6	13.8	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
1	100.0		
.75	100.0		
.5	100.0		
.375	99.6		
#4	98.7		
#10	96.0		
#20	92.5		
#40	80.4		
#60	51.1		
#100	21.9		
#140	15.8		
#200	13.8		

\* (no specification provided)

**Material Description**  
 Fine to medium grained, SILTY SAND, with trace SHELL

**Atterberg Limits**  
 PL=                      LL=                      PI=

**Coefficients**  
 D<sub>90</sub>= 0.6343      D<sub>85</sub>= 0.4902      D<sub>60</sub>= 0.2869  
 D<sub>50</sub>= 0.2458      D<sub>30</sub>= 0.1792      D<sub>15</sub>= 0.0941  
 D<sub>10</sub>=                      C<sub>u</sub>=                      C<sub>c</sub>=

**Classification**  
 USCS= SM                      AASHTO=

**Remarks**

Location: BI-PBS-56-12 B  
 Sample Number: 6471 (33)

Depth: 2.6'

Date: 12/03/12

**Thompson Engineering**

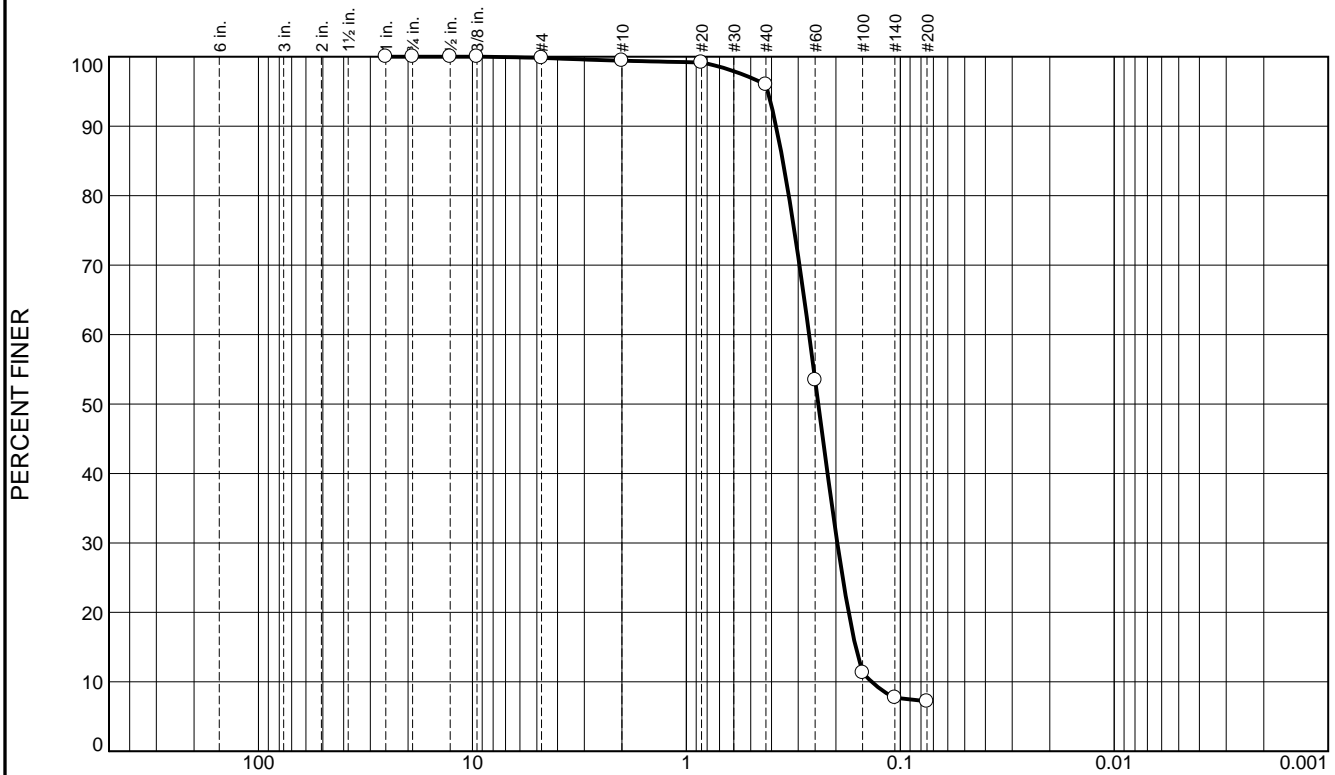
**Mobile, Alabama**

Client: CDM/Thompson Engineering JV  
 Project: MsCIP Barrier Island Restoration GT

Project No: 1221110095

Figure

# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.2	0.4	3.4	88.8	7.2	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
1	100.0		
.75	100.0		
.5	100.0		
.375	100.0		
#4	99.8		
#10	99.4		
#20	99.2		
#40	96.0		
#60	53.5		
#100	11.3		
#140	7.7		
#200	7.2		

\* (no specification provided)

<b><u>Material Description</u></b>		
Fine grained, SLIGHTLY SILTY SAND		
<b><u>Atterberg Limits</u></b>		
PL=	LL=	PI=
<b><u>Coefficients</u></b>		
D <sub>90</sub> = 0.3806	D <sub>85</sub> = 0.3539	D <sub>60</sub> = 0.2669
D <sub>50</sub> = 0.2416	D <sub>30</sub> = 0.1970	D <sub>15</sub> = 0.1618
D <sub>10</sub> = 0.1361	C <sub>u</sub> = 1.96	C <sub>c</sub> = 1.07
<b><u>Classification</u></b>		
USCS= SP-SM	AASHTO=	
<b><u>Remarks</u></b>		

Location: BI-PBS-56-12 C  
Sample Number: 6471 (34)

Depth: 4.7'

Date: 12/03/12

**Thompson Engineering**

**Mobile, Alabama**

Client: CDM/Thompson Engineering JV  
Project: MsCIP Barrier Island Restoration GT

Project No: 1221110095

Figure

# Boring Designation BI-PBS-057-12

DRILLING LOG		DIVISION South Atlantic		INSTALLATION Mobile District		SHEET 1 OF 1 SHEETS	
1. PROJECT MsCIP Barrier Island Restoration Petit Bois Pass-OCS East				9. SIZE AND TYPE OF BIT N/A			
2. BORING DESIGNATION BI-PBS-057-12		LOCATION COORDINATES E = 1,130,570 N = 243,685		10. COORDINATE SYSTEM/DATUM State Plane, MSE (U.S. Ft.)		HORIZONTAL NAD83 VERTICAL NAVD88	
3. DRILLING AGENCY Corps of Engineers - CESAM		CONTRACTOR FILE NO.		11. MANUFACTURER'S DESIGNATION OF DRILL Vibracore		<input type="checkbox"/> AUTO HAMMER <input type="checkbox"/> MANUAL HAMMER	
4. NAME OF DRILLER American Vibracore Systems, Inc.				12. TOTAL SAMPLES		DISTURBED UNDISTURBED (UD) 0	
5. DIRECTION OF BORING <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED				13. TOTAL NUMBER CORE BOXES		14. WATER DEPTH 47.4 Ft.	
6. THICKNESS OF OVERBURDEN N/A				15. DATE BORING		STARTED 11-30-12 COMPLETED 11-30-12	
7. DEPTH DRILLED INTO ROCK N/A				16. ELEVATION TOP OF BORING -45.1 Ft.		17. TOTAL RECOVERY FOR BORING 100%	
8. TOTAL DEPTH OF BORING 14.0 Ft.				18. SIGNATURE AND TITLE OF INSPECTOR Mike FitzHarris, Geologist			

ELEV.	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS	SAMPLE	LABORATORY RESULTS
-45.1	0.0				
-48.9	3.8		SAND, poorly-graded, mostly fine to medium-grained sand-sized quartz, trace silt, trace shell fragments, lt. gray to gray (SP)	A	Classification: SP Color: 5Y 7/2-light gray D50: 0.3414 mm % Fines: 2.3
-49.7	4.6		SAND, clayey, mostly fine-grained sand-sized quartz, some clay, trace shell fragments, gray (SC)	NS	
-50.5	5.4		SAND, poorly-graded, mostly fine-grained sand-sized quartz, trace clay, trace wood debris, gray (SP)	B	Classification: SP-SM Color: 5Y 6/2-light olive gray D50: 0.2327 mm % Fines: 8.5
-54.1	9.0		CLAY, lean, mostly clay, some silt, trace fine-grained sand-sized quartz, gray (CL)	NS	
-56.4	11.3		SAND, clayey, mostly fine-grained sand-sized quartz, some clay, little shells, trace wood debris, gray (SC)	NS	
-59.1	14.0		SAND, poorly-graded, mostly fine-grained sand-sized quartz, trace silt, trace shell fragments, trace wood debris, trace clay nodules, gray to light gray (SP)	NS	
NOTES: 1. Soils are field visually classified in accordance with the Unified Soils Classification System. 2. NS = Sample not submitted for laboratory analysis from this interval. 3. Seafloor elevation determined from USACE hydrographic survey completed April 2014.					



**Project**

Mississippi Barrier Island  
Restoration Project

**AVS**  
**AMERICAN VIBRACORE**  
**S E R V I C E S**

**Core Identifier** BI-PBS-57-12

**Date** 11/30/2012

**Water Depth** 47.4

**Coordinate System**

Latitude / Longitude

**Start Time** 14:51:00

**End Time** 14:53:28

**Penetration** 15.4'

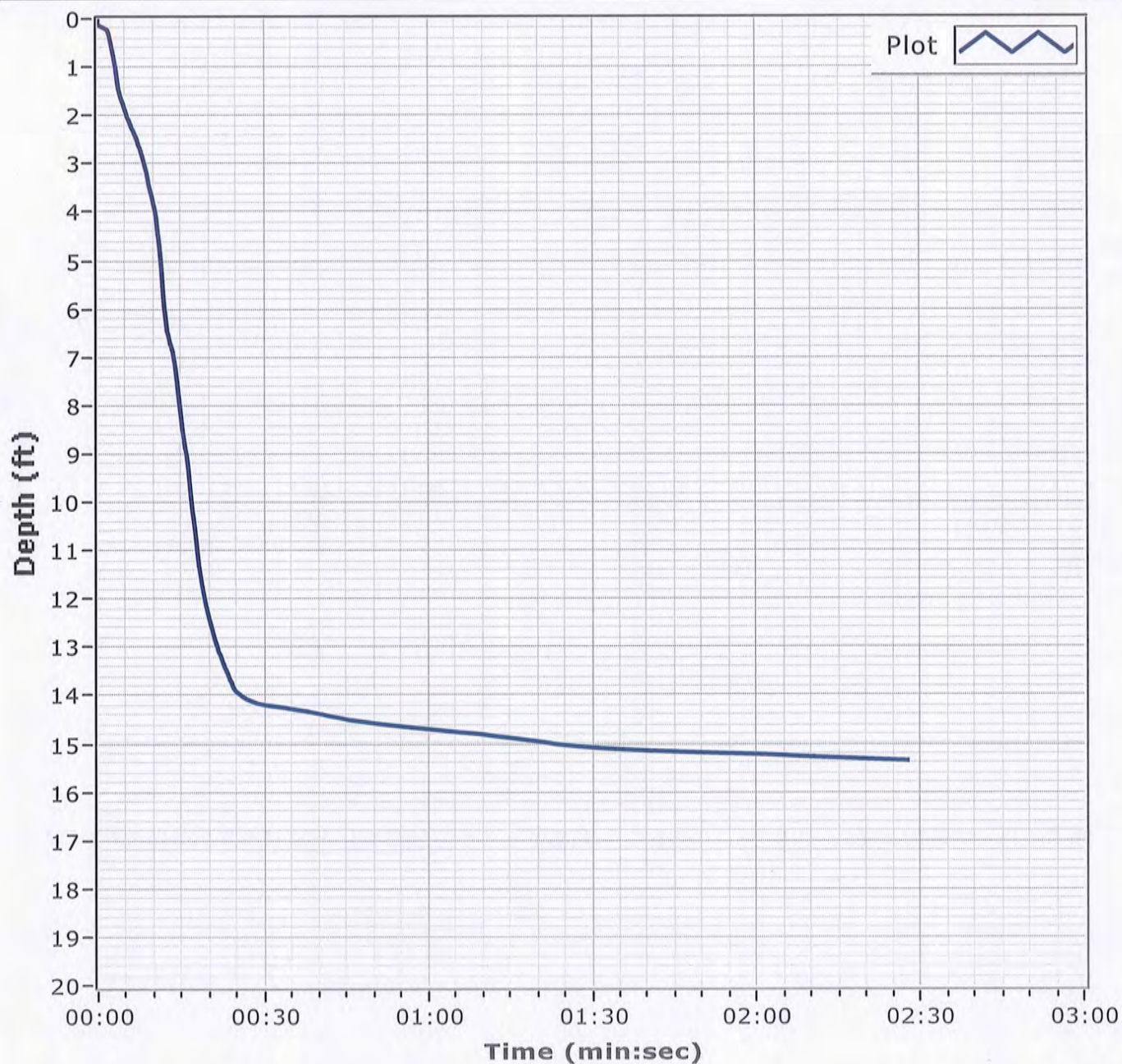
**Latitude** 30 10.156

**Total Time** 00:02:28

**Recovery** 14.0'

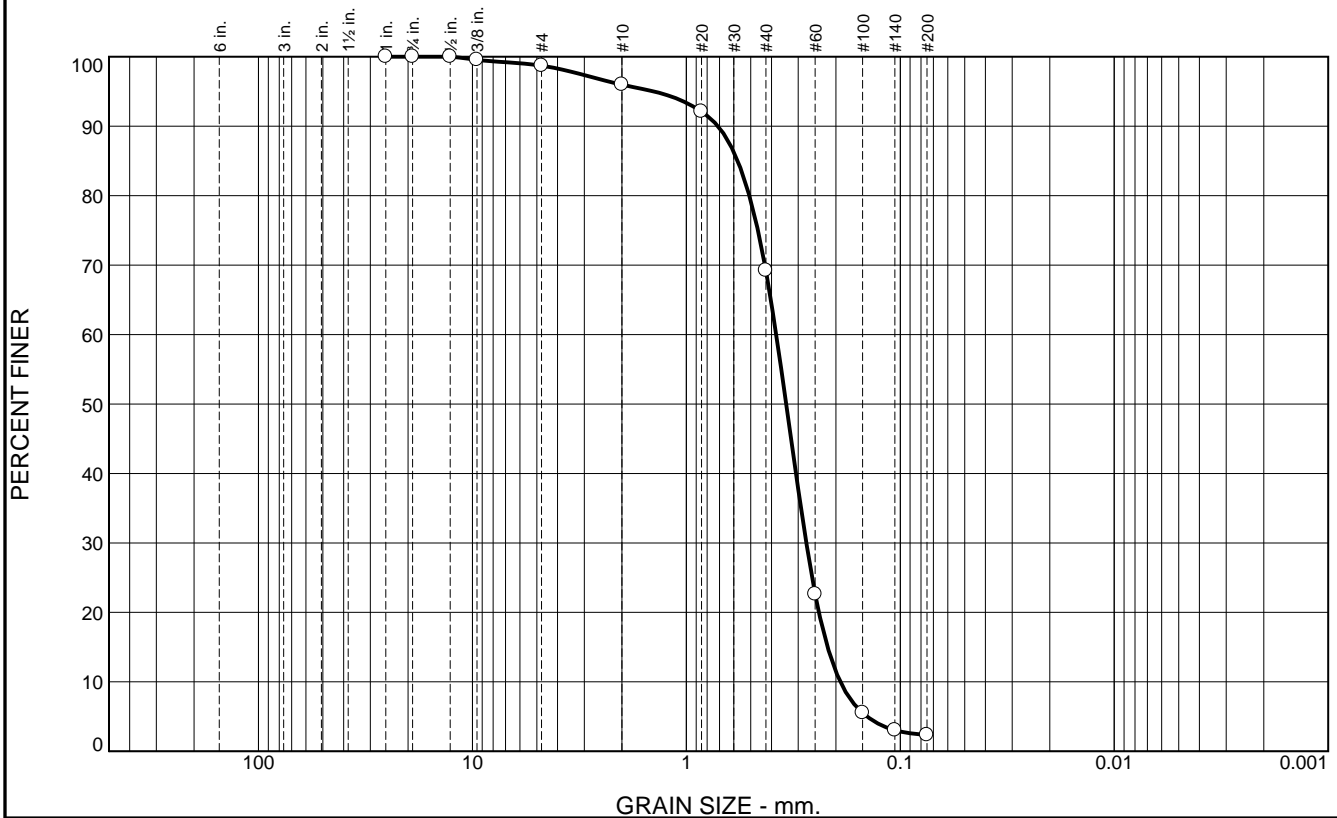
**Longitude** 088 22.218

**Comments**





# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	1.3	2.7	26.8	66.9	2.3	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
1	100.0		
.75	100.0		
.5	100.0		
.375	99.5		
#4	98.7		
#10	96.0		
#20	92.1		
#40	69.2		
#60	22.6		
#100	5.5		
#140	3.0		
#200	2.3		

\* (no specification provided)

**Material Description**  
 Fine to medium grained, SAND, with trace SHELL

**Atterberg Limits**  
 PL=                      LL=                      PI=

**Coefficients**  
 D<sub>90</sub>= 0.7121      D<sub>85</sub>= 0.5755      D<sub>60</sub>= 0.3801  
 D<sub>50</sub>= 0.3414      D<sub>30</sub>= 0.2751      D<sub>15</sub>= 0.2187  
 D<sub>10</sub>= 0.1908      C<sub>u</sub>= 1.99              C<sub>c</sub>= 1.04

**Classification**  
 USCS= SP                      AASHTO=

**Remarks**

Location: BI-PBS-57-12 A  
Sample Number: 6471 (35)

Depth: 0.0'

Date: 12/03/12

**Thompson Engineering**

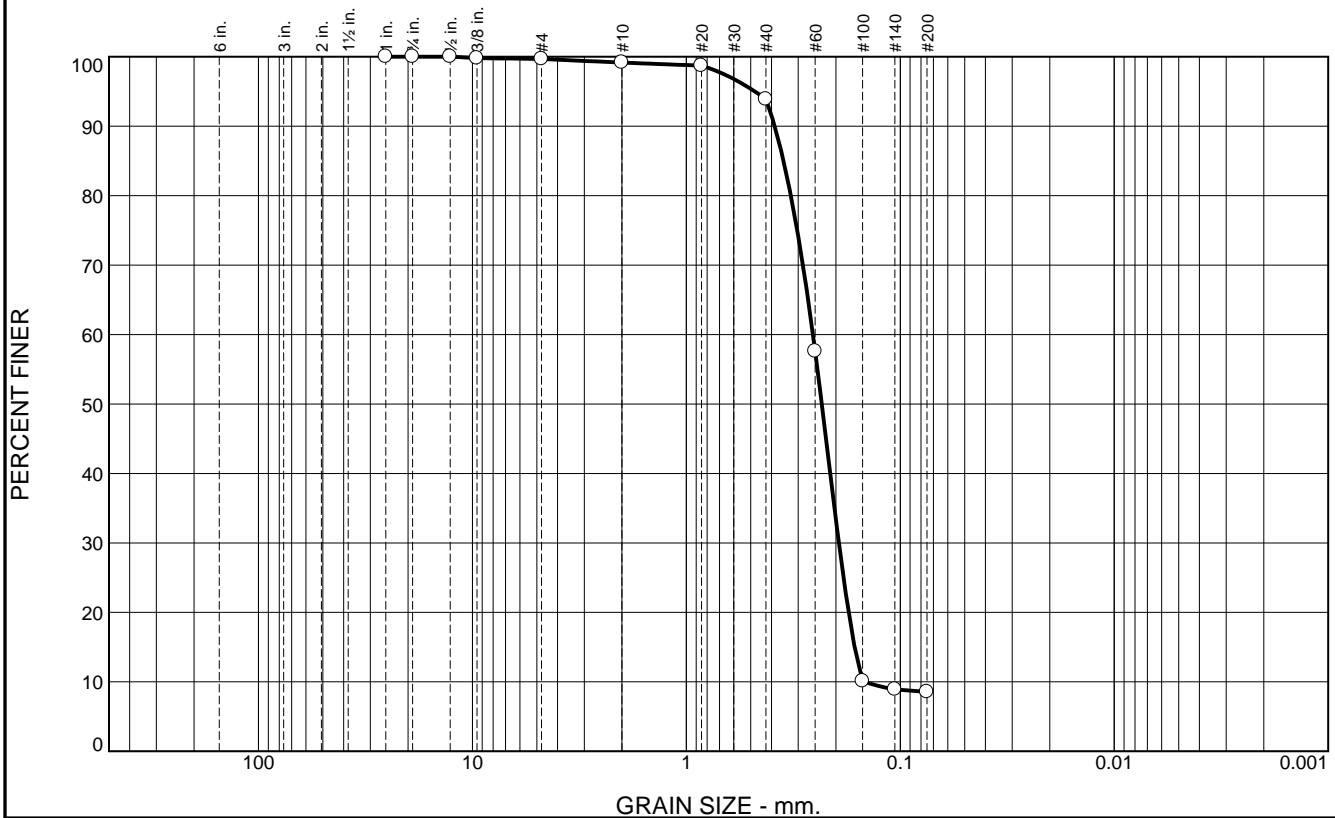
**Mobile, Alabama**

Client: CDM/Thompson Engineering JV  
Project: MsCIP Barrier Island Restoration GT

Project No: 1221110095

Figure

# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.3	0.5	5.3	85.4	8.5	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
1	100.0		
.75	100.0		
.5	100.0		
.375	99.8		
#4	99.7		
#10	99.2		
#20	98.7		
#40	93.9		
#60	57.6		
#100	10.1		
#140	8.9		
#200	8.5		

\* (no specification provided)

## Material Description

Fine grained, SLIGHTLY SILTY SAND

## Atterberg Limits

PL= LL= PI=

## Coefficients

D<sub>90</sub>= 0.3862 D<sub>85</sub>= 0.3513 D<sub>60</sub>= 0.2560  
D<sub>50</sub>= 0.2327 D<sub>30</sub>= 0.1938 D<sub>15</sub>= 0.1637  
D<sub>10</sub>= 0.1466 C<sub>u</sub>= 1.75 C<sub>c</sub>= 1.00

## Classification

USCS= SP-SM AASHTO=

## Remarks

Location: BI-PBS-57-12 B

Sample Number: 6471 (36)

Depth: 4.6'

Date: 12/03/12

**Thompson Engineering**

**Mobile, Alabama**

Client: CDM/Thompson Engineering JV

Project: MsCIP Barrier Island Restoration GT

Project No: 1221110095

Figure

# Boring Designation BI-PBS-058-12

DRILLING LOG		DIVISION South Atlantic		INSTALLATION Mobile District		SHEET 1 OF 2 SHEETS	
1. PROJECT MsCIP Barrier Island Restoration Petit Bois Pass-OCS East				9. SIZE AND TYPE OF BIT N/A			
2. BORING DESIGNATION BI-PBS-058-12		LOCATION COORDINATES E = 1,129,310 N = 244,207		10. COORDINATE SYSTEM/DATUM State Plane, MSE (U.S. Ft.)		HORIZONTAL NAD83 VERTICAL NAVD88	
3. DRILLING AGENCY Corps of Engineers - CESAM		CONTRACTOR FILE NO.		11. MANUFACTURER'S DESIGNATION OF DRILL Vibracore		<input type="checkbox"/> AUTO HAMMER <input type="checkbox"/> MANUAL HAMMER	
4. NAME OF DRILLER American Vibracore Systems, Inc.				12. TOTAL SAMPLES		DISTURBED UNDISTURBED (UD) 0	
5. DIRECTION OF BORING <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED		DEG. FROM VERTICAL		13. TOTAL NUMBER CORE BOXES			
		BEARING		14. WATER DEPTH 47.2 Ft.			
6. THICKNESS OF OVERBURDEN N/A				15. DATE BORING 11-30-12		STARTED COMPLETED 11-30-12	
7. DEPTH DRILLED INTO ROCK N/A				16. ELEVATION TOP OF BORING -44.3 Ft.			
8. TOTAL DEPTH OF BORING 19.9 Ft.				17. TOTAL RECOVERY FOR BORING 100%			
				18. SIGNATURE AND TITLE OF INSPECTOR Mike FitzHarris, Geologist			
ELEV.	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS	SAMPLE	LABORATORY RESULTS		
-44.3	0.0						
			SAND, poorly-graded, mostly fine to medium-grained sand-sized quartz, trace silt, trace shell fragments, lt. gray (SP)	A	Classification: SP Color: 5Y 7/2-light gray D50: 0.3436 mm % Fines: 1.6		
-47.5	3.2						
-48.9	4.6		SAND, clayey, mostly fine-grained sand-sized quartz, some clay, trace silt, trace shell fragments, trace wood debris, gray (SC)	B	Classification: SM Color: 5Y 5/2-olive gray D50: 0.2437 mm % Fines: 16.5		
			CLAY, fat, mostly clay, trace shell fragments, trace wood debris, few sandy pockets, medium to high plasticity, brownish gray to gray (CH)				
-54.4	10.1						
			SAND, clayey, mostly fine-grained sand-sized quartz, some clay, little shell fragments, large shells intermixed between 11.7 and 13.1 ft., gray (SC)	NS			
-58.2	13.9						
			SAND, poorly-graded with clay, mostly fine-grained sand-sized quartz, some clay, alternating bands of poorly graded, fine-grained sand and clay with some silt and fine grain sand, lt. gray to gray (SP-SC)				
-64.2	19.9						
			NOTES: 1. Soils are field visually classified in accordance with the Unified Soils Classification System. 2. NS = Sample not submitted for laboratory analysis from this interval. 3. Seafloor elevation determined from USACE				

<b>DRILLING LOG (Cont. Sheet)</b>			<b>INSTALLATION</b> Mobile District		<b>SHEET 2</b>
					<b>OF 2 SHEETS</b>
<b>PROJECT</b> MsCIP Barrier Island Restoration			<b>COORDINATE SYSTEM/DATUM</b> State Plane, MSE (U.S. Ft.)	<b>HORIZONTAL</b> NAD83	<b>VERTICAL</b> NAVD88
<b>LOCATION COORDINATES</b> X = 1,129,310 Y = 244,207			<b>ELEVATION TOP OF BORING</b> -44.3 Ft.		
<b>ELEV.</b>	<b>DEPTH</b>	<b>LEGEND</b>	<b>CLASSIFICATION OF MATERIALS</b>	<b>SAMPLE</b>	<b>LABORATORY RESULTS</b>
			hydrographic survey completed April 2014.		

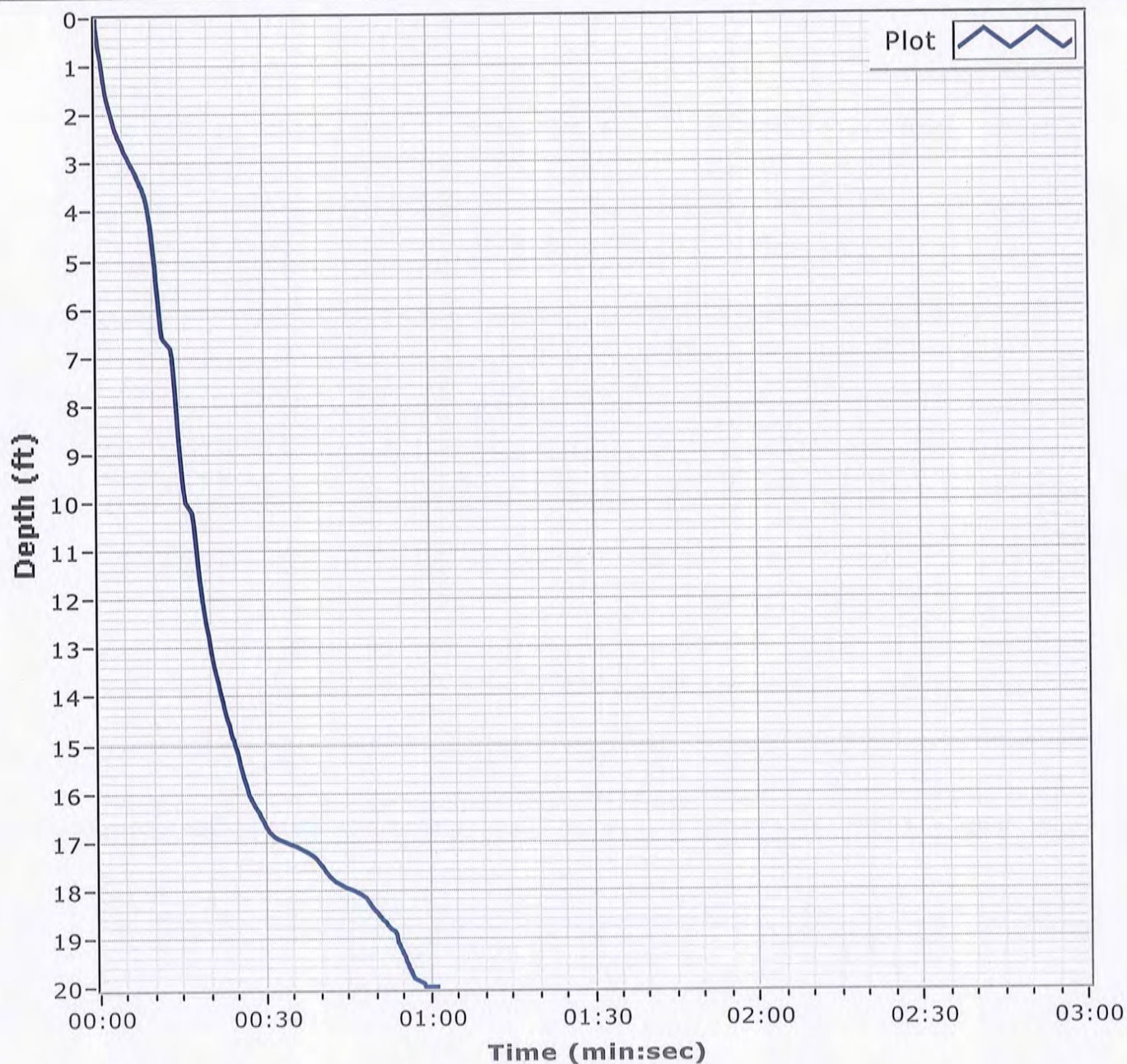
**Project**

Mississippi Barrier Island  
Restoration Project

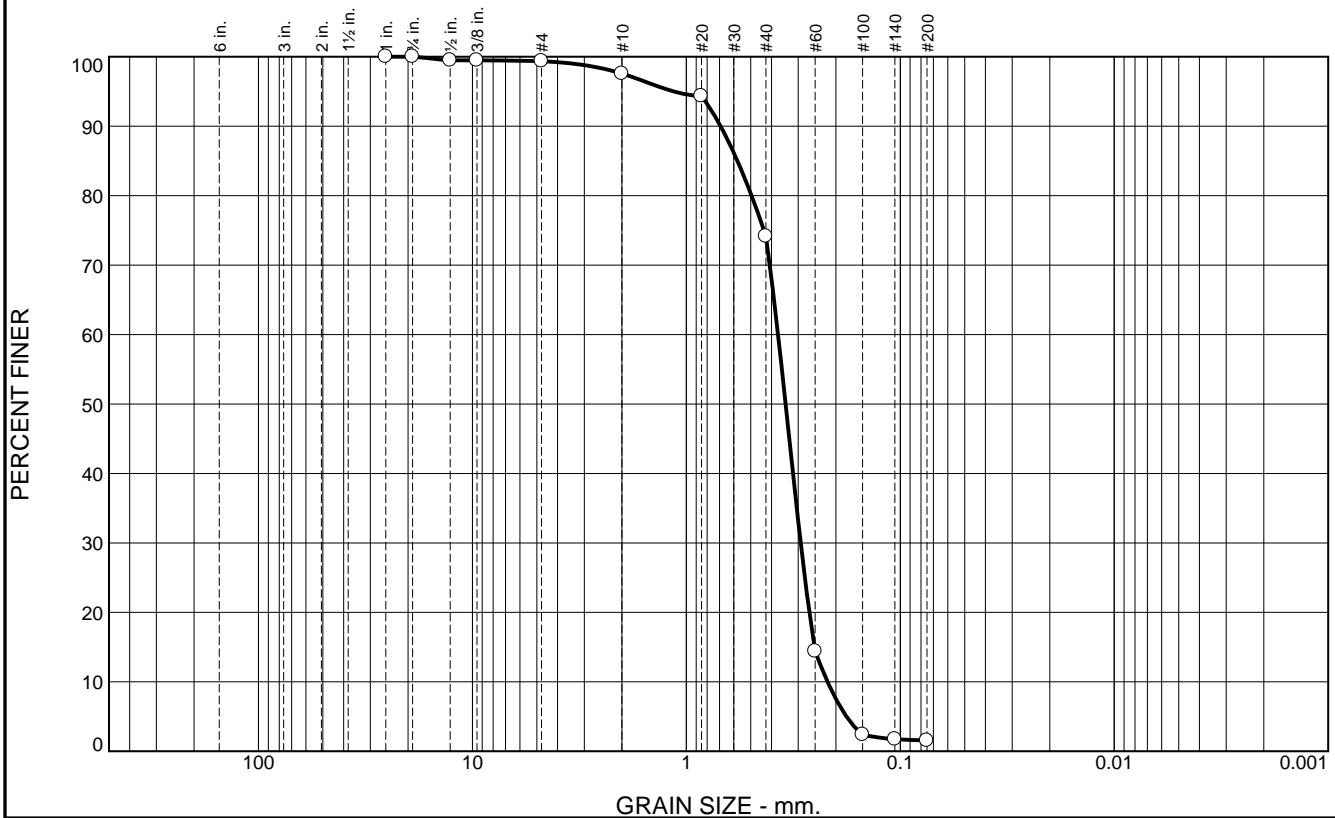
**AVS**  
**AMERICAN VIBRACORE**  
**S E R V I C E S**

**Core Identifier** BI-PBS-58-12**Date** 11/30/2012**Water Depth** 47.2'**Coordinate System**

Latitude / Longitude

**Start Time** 15:41:36**End Time** 15:42:37**Penetration** 20.0'**Latitude** 30 10.243**Total Time** 00:01:01**Recovery** 19.9'**Longitude** 088 22.457**Comments**

# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.6	1.8	23.5	72.5	1.6	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
1	100.0		
.75	100.0		
.5	99.5		
.375	99.5		
#4	99.4		
#10	97.6		
#20	94.3		
#40	74.1		
#60	14.4		
#100	2.4		
#140	1.7		
#200	1.6		

\* (no specification provided)

<u><b>Material Description</b></u>		
Fine to medium grained, SAND		
<u><b>Atterberg Limits</b></u>		
PL=	LL=	PI=
<u><b>Coefficients</b></u>		
D <sub>90</sub> = 0.6921	D <sub>85</sub> = 0.5770	D <sub>60</sub> = 0.3726
D <sub>50</sub> = 0.3436	D <sub>30</sub> = 0.2923	D <sub>15</sub> = 0.2519
D <sub>10</sub> = 0.2189	C <sub>u</sub> = 1.70	C <sub>c</sub> = 1.05
<u><b>Classification</b></u>		
USCS= SP	AASHTO=	
<u><b>Remarks</b></u>		

Location: BI-PBS-58.12A  
Sample Number: 6471 (37)

Depth: 0.0'

Date: 12/03/12

**Thompson Engineering**

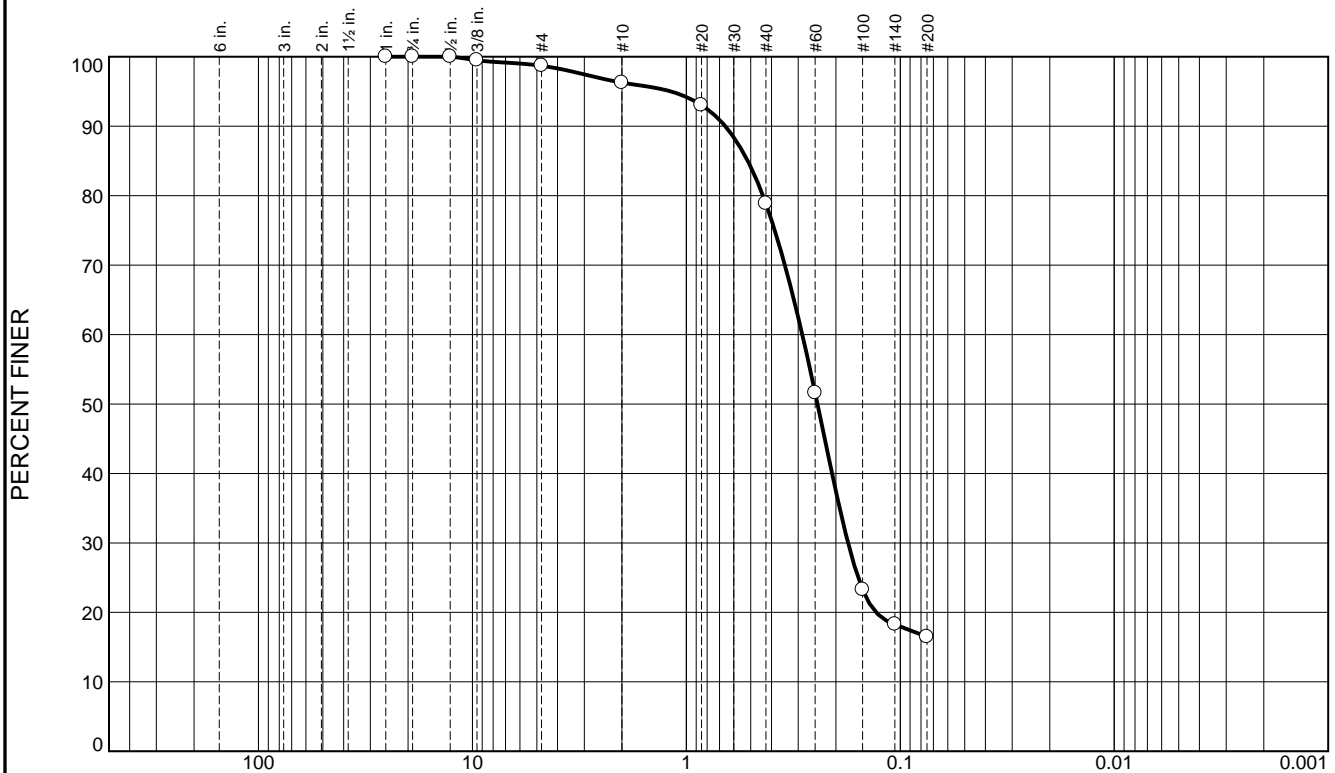
**Mobile, Alabama**

Client: CDM/Thompson Engineering JV  
Project: MsCIP Barrier Island Restoration GT

Project No: 1221110095

Figure

# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	1.3	2.4	17.4	62.4	16.5	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
1	100.0		
.75	100.0		
.5	100.0		
.375	99.5		
#4	98.7		
#10	96.3		
#20	93.0		
#40	78.9		
#60	51.6		
#100	23.3		
#140	18.3		
#200	16.5		

\* (no specification provided)

## Material Description

Fine to medium grained, SILTY SAND, with trace organics and trace SHELL

## Atterberg Limits

PL= LL= PI=

## Coefficients

D<sub>90</sub>= 0.6582 D<sub>85</sub>= 0.5164 D<sub>60</sub>= 0.2873  
D<sub>50</sub>= 0.2437 D<sub>30</sub>= 0.1756 D<sub>15</sub>=  
D<sub>10</sub>= C<sub>u</sub>= C<sub>c</sub>=

## Classification

USCS= SM AASHTO=

## Remarks

Location: BI-PBS-58-12 B  
Sample Number: 6471 (38)

Depth: 3.2'

Date: 12/03/12

**Thompson Engineering**

**Mobile, Alabama**

Client: CDM/Thompson Engineering JV  
Project: MsCIP Barrier Island Restoration GT

Project No: 1221110095

Figure

# Boring Designation BI-PBS-059-12

DRILLING LOG		DIVISION South Atlantic		INSTALLATION Mobile District		SHEET 1 OF 1 SHEETS	
1. PROJECT MsCIP Barrier Island Restoration Petit Bois Pass-OCS East				9. SIZE AND TYPE OF BIT N/A			
2. BORING DESIGNATION BI-PBS-059-12		LOCATION COORDINATES E = 1,138,239 N = 233,424		10. COORDINATE SYSTEM/DATUM State Plane, MSE (U.S. Ft.)		HORIZONTAL NAD83	
3. DRILLING AGENCY Corps of Engineers - CESAM		CONTRACTOR FILE NO.		11. MANUFACTURER'S DESIGNATION OF DRILL Vibracore		<input type="checkbox"/> AUTO HAMMER <input type="checkbox"/> MANUAL HAMMER	
4. NAME OF DRILLER American Vibracore Systems, Inc.				12. TOTAL SAMPLES		DISTURBED 0	
5. DIRECTION OF BORING <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED				13. TOTAL NUMBER CORE BOXES		14. WATER DEPTH 53.4 Ft.	
6. THICKNESS OF OVERBURDEN N/A				15. DATE BORING		STARTED 11-26-12	
7. DEPTH DRILLED INTO ROCK N/A				16. ELEVATION TOP OF BORING -53.1 Ft.		COMPLETED 11-26-12	
8. TOTAL DEPTH OF BORING 19.5 Ft.				17. TOTAL RECOVERY FOR BORING 100%		18. SIGNATURE AND TITLE OF INSPECTOR Mike FitzHarris, Geologist	

ELEV.	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS	SAMPLE	LABORATORY RESULTS
-53.1	0.0				
-54.9	1.8		SAND, poorly-graded, mostly fine to medium-grained sand-sized quartz, trace shell fragments, gray (SP)	A	Classification: SP Color: 5Y 7/1-light gray D50: 0.3203 mm % Fines: 1.1
-55.7	2.6		SAND, silty, mostly fine-grained sand-sized quartz, trace shell fragments, gray (SM)	B	Classification: SP-SM Color: 5Y 5/2-olive gray D50: 0.206 mm % Fines: 11.4
-61.2	8.1		CLAY, silty, mostly silt, some sand, trace shells, sandy silt with alternating clayey bands, greenish gray mottled with brown (CL-ML)	NS	
-66.4	13.3		SAND, silty, mostly fine-grained sand-sized quartz, some silt, few clay, trace shell fragments, gray (SM)		
-72.6	19.5		CLAY, fat, mostly clay, trace fine-grained sand-sized quartz, trace wood debris, medium stiffness, gray (CH)		
			NOTES: 1. Soils are field visually classified in accordance with the Unified Soils Classification System. 2. NS = Sample not submitted for laboratory analysis from this interval. 3. Seafloor elevation determined from USACE hydrographic survey completed April 2014.		



**Project**

Mississippi Barrier Island  
Restoration Project

**AVS**  
**AMERICAN VIBRACORE**  
**S E R V I C E S**

**Core Identifier** BI-PBS-59-12

**Date** 11/26/2012

**Water Depth** 53.4'

**Coordinate System**

Latitude / Longitude

**Start Time** 11:20:29

**End Time** 11:21:12

**Penetration** 20.0'

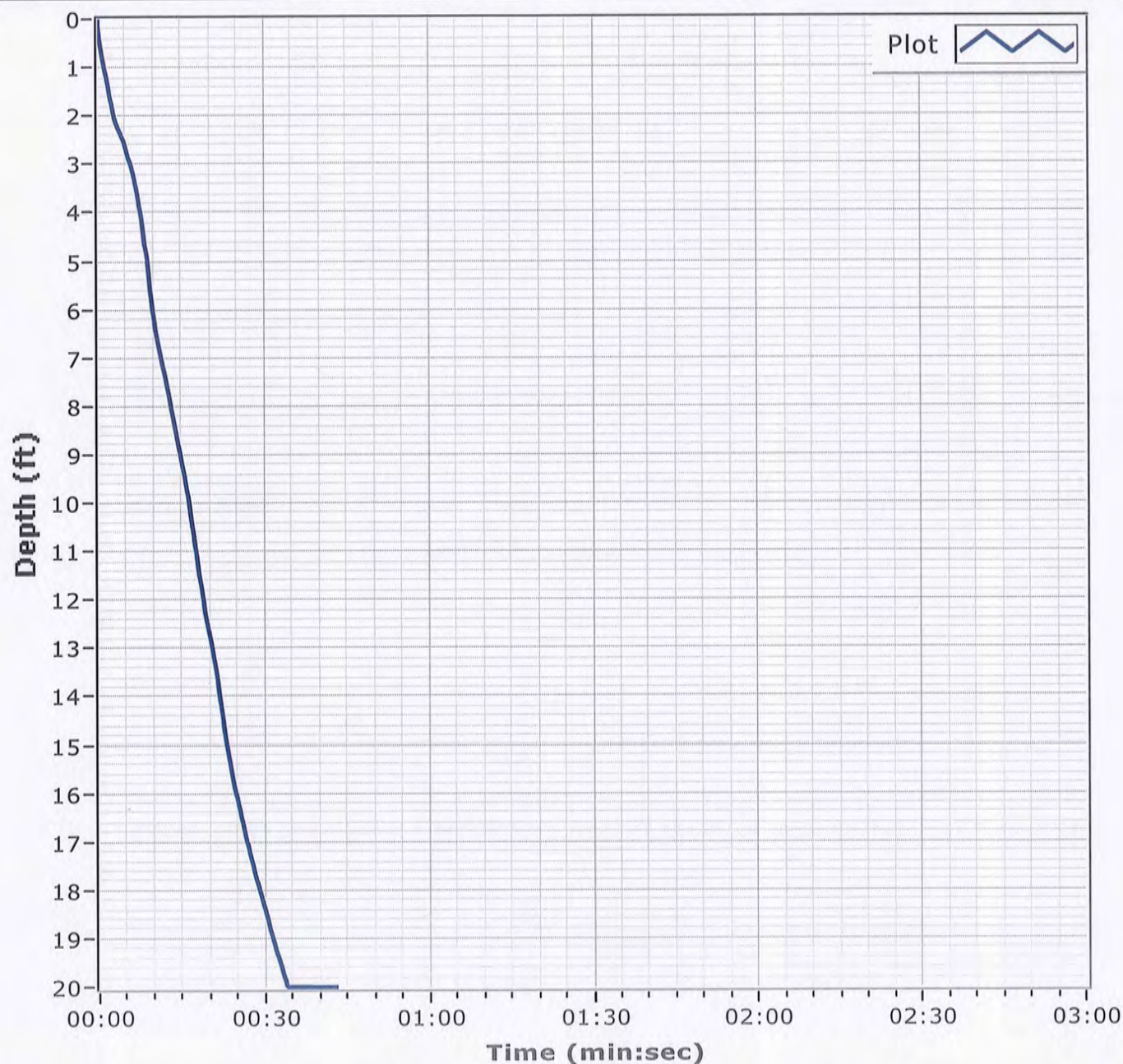
**Latitude** 30 08.458

**Total Time** 00:00:43

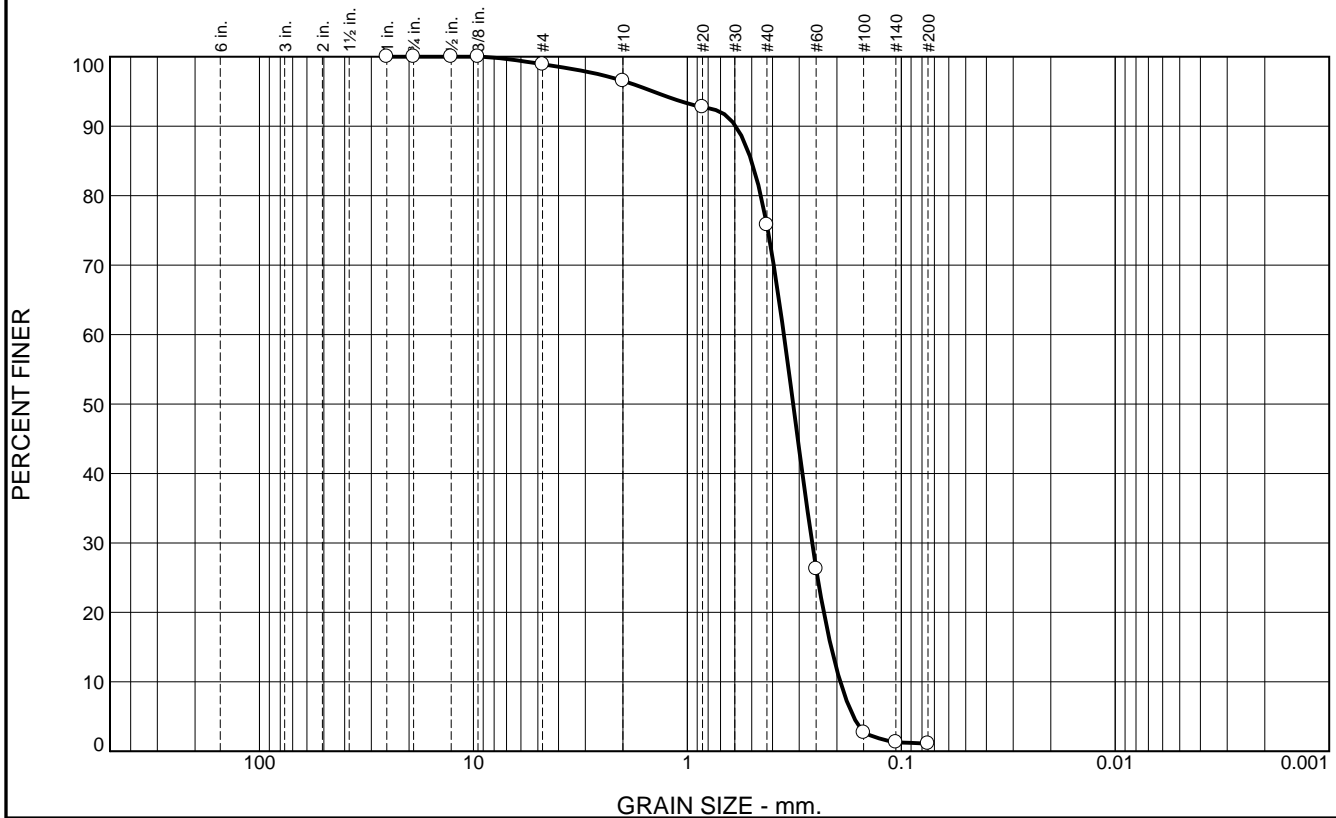
**Recovery** 19.5'

**Longitude** 088 20.770

**Comments**



# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	1.1	2.4	20.7	74.7	1.1	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
1	100.0		
.75	100.0		
.5	100.0		
.375	100.0		
#4	98.9		
#10	96.5		
#20	92.8		
#40	75.8		
#60	26.3		
#100	2.7		
#140	1.3		
#200	1.1		

\* (no specification provided)

<b>Material Description</b> Fine to medium grained, SAND, with trace SHELL		
PL=	<b>Atterberg Limits</b> LL=	PI=
D <sub>90</sub> = 0.5938 D <sub>50</sub> = 0.3203 D <sub>10</sub> = 0.1930	<b>Coefficients</b> D <sub>85</sub> = 0.5015 D <sub>30</sub> = 0.2611 C <sub>u</sub> = 1.83	D <sub>60</sub> = 0.3539 D <sub>15</sub> = 0.2128 C <sub>c</sub> = 1.00
USCS= SP	<b>Classification</b> AASHTO=	
<b>Remarks</b>		

Location: BI-PBS-59-12 A  
Sample Number: 6469 (60)

Depth: 0.0'

Date: 11/28/12

**Thompson Engineering**

**Mobile, Alabama**

Client: CDM/Thompson Engineering JV  
Project: MsCIP Barrier Island Restoration GT

Project No: 1221110095

Figure

# Particle Size Distribution Report



GRAIN SIZE - mm.

% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	2.6	1.8	11.6	72.6	11.4	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
1	100.0		
.75	100.0		
.5	100.0		
.375	98.4		
#4	97.4		
#10	95.6		
#20	92.9		
#40	84.0		
#60	66.6		
#100	23.0		
#140	13.4		
#200	11.4		

\* (no specification provided)

## Material Description

Fine to medium grained, SLIGHTLY SILTY SAND, with trace SHELL

## Atterberg Limits

PL= LL= PI=

## Coefficients

D<sub>90</sub>= 0.6502 D<sub>85</sub>= 0.4550 D<sub>60</sub>= 0.2299  
D<sub>50</sub>= 0.2060 D<sub>30</sub>= 0.1656 D<sub>15</sub>= 0.1202  
D<sub>10</sub>= C<sub>u</sub>= C<sub>c</sub>=

## Classification

USCS= SP-SM AASHTO=

## Remarks

Location: BI-PBS-59-12 B  
Sample Number: 6469 (61)

Depth: 1.8'

Date: 11/28/12

**Thompson Engineering**

**Mobile, Alabama**

Client: CDM/Thompson Engineering JV  
Project: MsCIP Barrier Island Restoration GT

Project No: 1221110095

Figure

# Boring Designation BI-PBS-060-12

DRILLING LOG		DIVISION South Atlantic		INSTALLATION Mobile District		SHEET 1 OF 1 SHEETS	
1. PROJECT MsCIP Barrier Island Restoration Petit Bois Pass-OCS East				9. SIZE AND TYPE OF BIT N/A			
2. BORING DESIGNATION BI-PBS-060-12		LOCATION COORDINATES E = 1,142,000 N = 234,950		10. COORDINATE SYSTEM/DATUM State Plane, MSE (U.S. Ft.)		HORIZONTAL NAD83 VERTICAL NAVD88	
3. DRILLING AGENCY Corps of Engineers - CESAM		CONTRACTOR FILE NO.		11. MANUFACTURER'S DESIGNATION OF DRILL Vibrocure		<input type="checkbox"/> AUTO HAMMER <input type="checkbox"/> MANUAL HAMMER	
4. NAME OF DRILLER American Vibrocure Systems, Inc.				12. TOTAL SAMPLES		DISTURBED UNDISTURBED (UD) 0	
5. DIRECTION OF BORING <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED		DEG. FROM VERTICAL		13. TOTAL NUMBER CORE BOXES			
		BEARING		14. WATER DEPTH 61.3 Ft.			
6. THICKNESS OF OVERBURDEN N/A				15. DATE BORING 11-24-12		STARTED COMPLETED 11-24-12	
7. DEPTH DRILLED INTO ROCK N/A				16. ELEVATION TOP OF BORING -60.5 Ft.			
8. TOTAL DEPTH OF BORING 16.8 Ft.				17. TOTAL RECOVERY FOR BORING 100%			
				18. SIGNATURE AND TITLE OF INSPECTOR John Bass, Geotechnical Engineer			
ELEV.	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS	SAMPLE	LABORATORY RESULTS		
-60.5	0.0						
-62.3	1.8		SILT, inorganic-L, mostly silt, little fine-grained sand-sized quartz, dark gray (ML)	NS			
-63.3	2.8		SAND, silty, mostly fine-grained sand-sized quartz, with clay lenses, dark gray (SM)				
-68.4	7.9		SAND, poorly-graded with silt, mostly fine-grained sand-sized quartz, few silt, trace shell fragments, trace wood debris, dark gray (SP-SM)	A	Classification: SM Color: 2.5Y 6/2-light brownish gray D50: 0.1996 mm % Fines: 17.9		
			SAND, poorly-graded, mostly fine-grained sand-sized quartz, trace fines, gray (SP)	B	Classification: SM Color: 2.5Y 6/2-light brownish gray D50: 0.2138 mm % Fines: 13.5		
			At El. -69.9 Ft., mostly fine-grained sand-sized quartz, trace fines, lt. gray	C	Classification: SP Color: 2.5Y 7/3-pale yellow D50: 0.2462 mm % Fines: 4.3		
			At El. -72.3 Ft., mostly fine-grained sand-sized quartz, tan mottled with light gray	D	Classification: SP Color: 2.5Y 7.5/1.5- D50: 0.2621 mm % Fines: 1.4		
-77.3	16.8						
			NOTES: 1. Soils are field visually classified in accordance with the Unified Soils Classification System. 2. NS = Sample not submitted for laboratory analysis from this interval. 3. Seafloor elevation calculated using sampling vessel's fathometer water depth reading and applying NOAA tidal gauge data conversion factor.				



**Project**

Mississippi Barrier Island  
Restoration Project



**Core Identifier** BI-PBS-60-12

**Date** 11/24/2012

**Water Depth** 61.3'

**Coordinate System**

Latitude / Longitude

**Start Time** 15:08:12

**End Time** 15:12:13

**Penetration** 17.1'

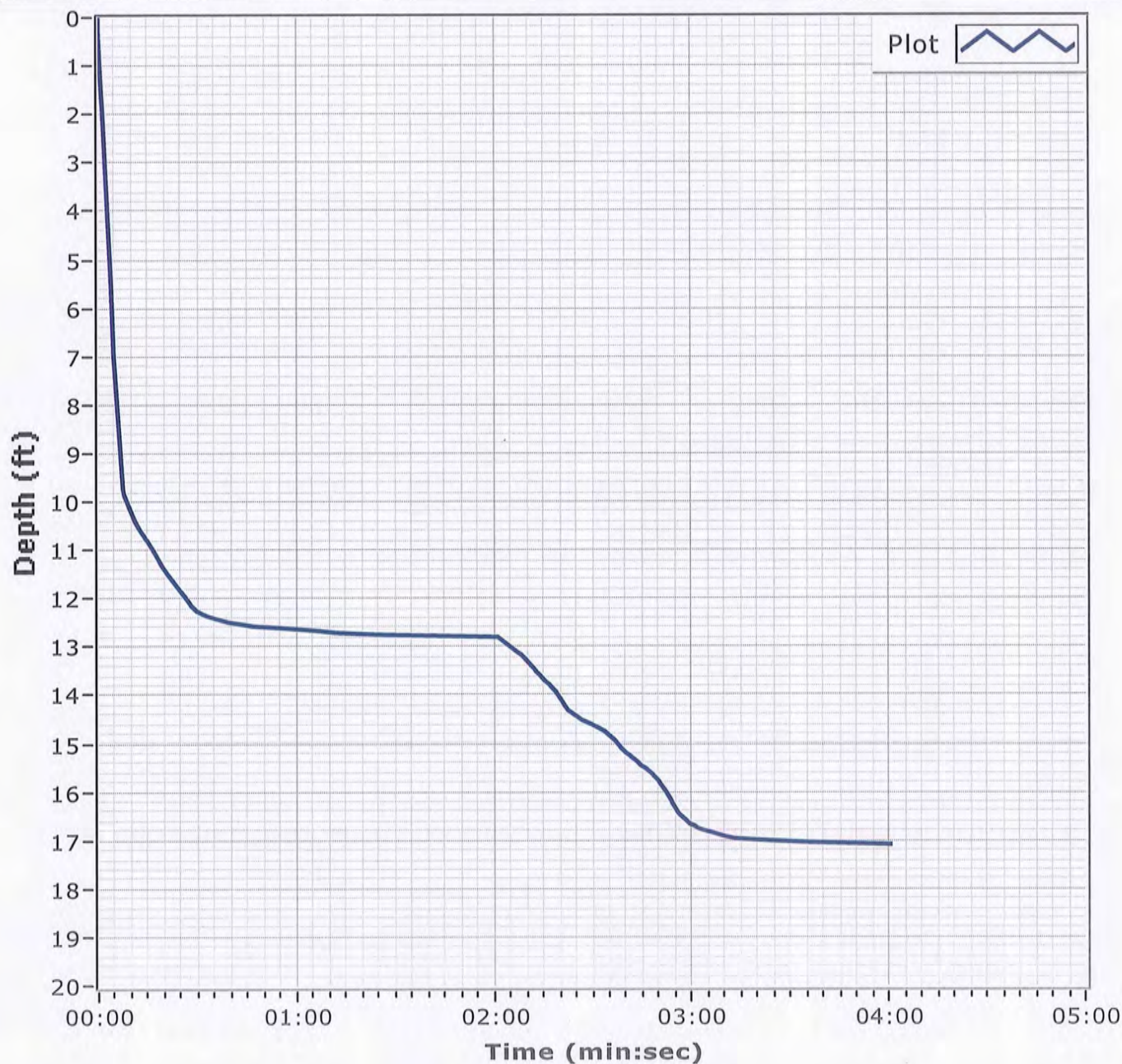
**Latitude** 30 08.707

**Total Time** 00:04:01

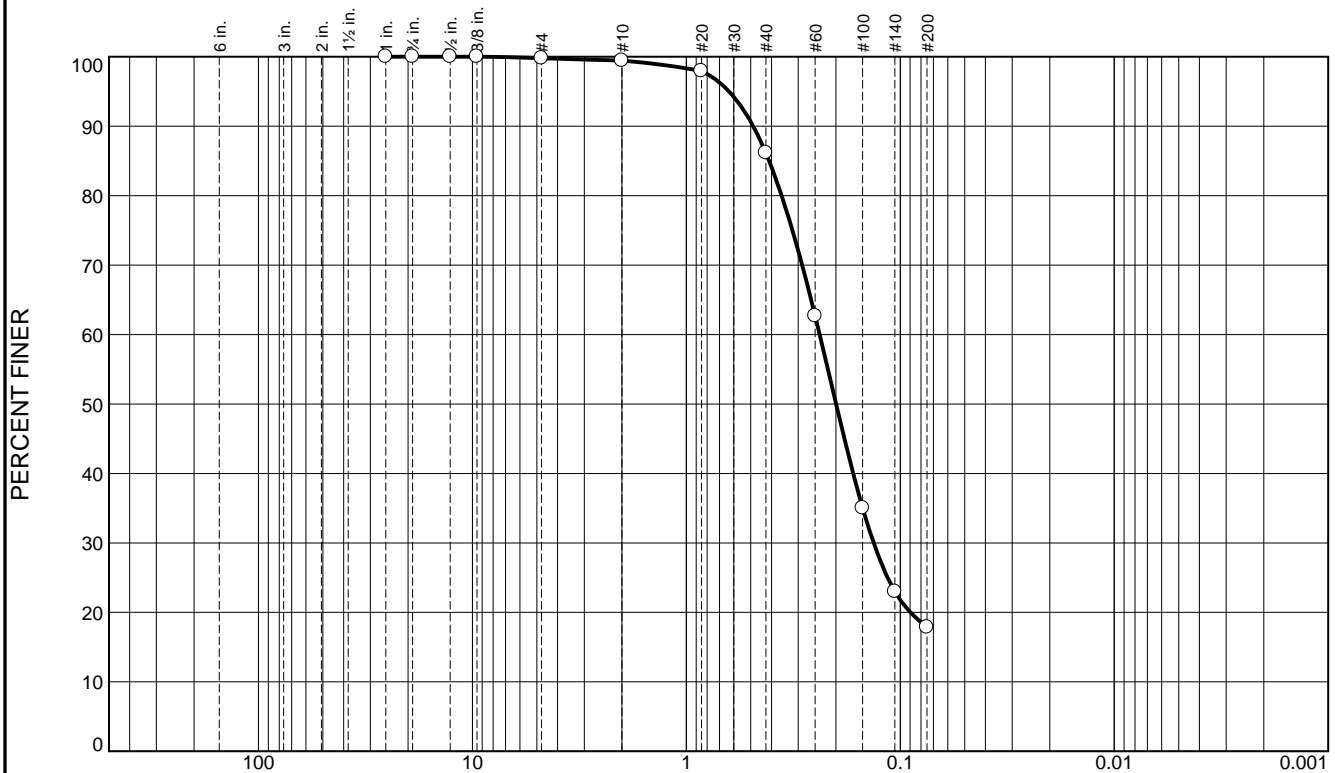
**Recovery** 16.8'

**Longitude** 088 20.055

**Comments**



# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.2	0.4	13.2	68.3	17.9	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
1	100.0		
.75	100.0		
.5	100.0		
.375	100.0		
#4	99.8		
#10	99.4		
#20	97.9		
#40	86.2		
#60	62.7		
#100	35.0		
#140	23.0		
#200	17.9		

\* (no specification provided)

## Material Description

Fine to medium grained, SILTY SAND

## Atterberg Limits

PL=

LL=

PI=

## Coefficients

D<sub>90</sub>= 0.4869

D<sub>85</sub>= 0.4102

D<sub>60</sub>= 0.2381

D<sub>50</sub>= 0.1996

D<sub>30</sub>= 0.1332

D<sub>15</sub>=

D<sub>10</sub>=

C<sub>u</sub>=

C<sub>c</sub>=

## Classification

USCS= SM

AASHTO=

## Remarks

Location: BI-PBS-60-12 A  
Sample Number: 6469 (50)

Depth: 2.8'

Date: 11/28/12

**Thompson Engineering**

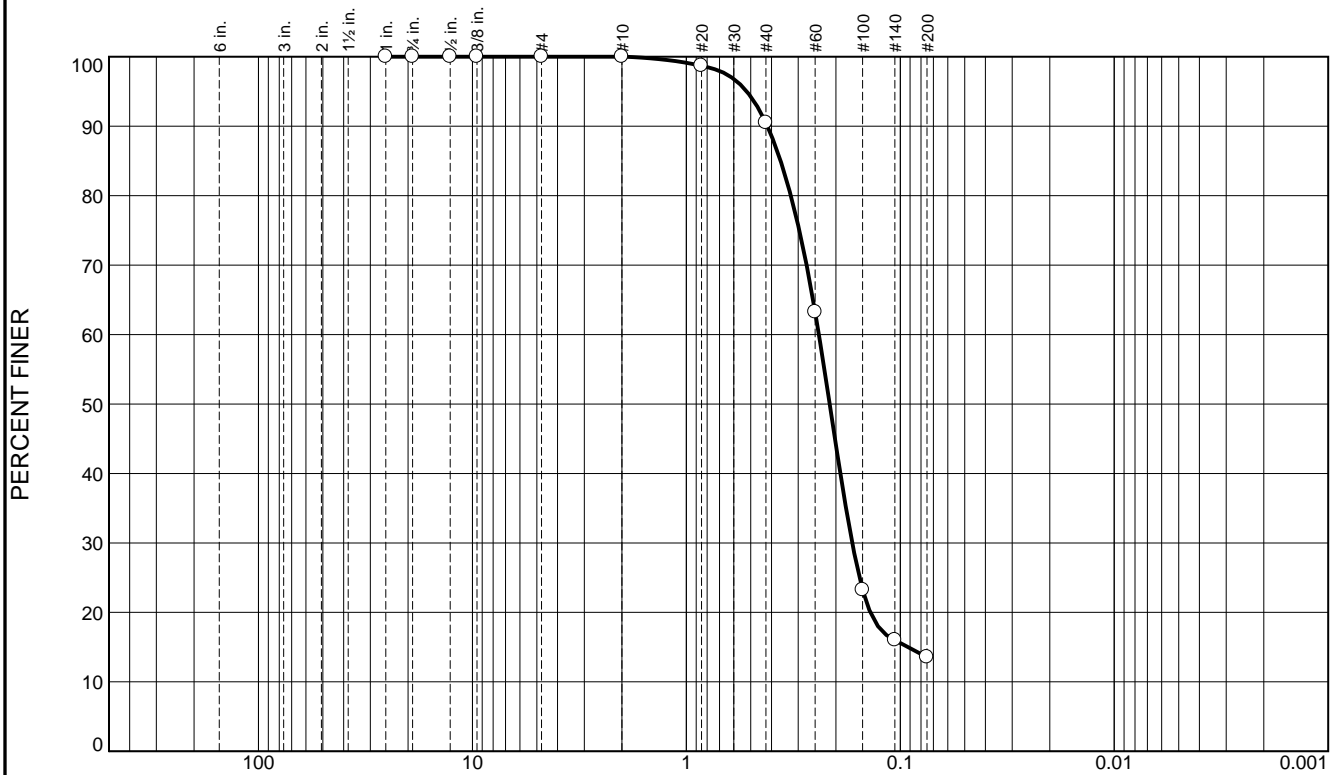
**Mobile, Alabama**

Client: CDM/Thompson Engineering JV  
Project: MsCIP Barrier Island Restoration GT

Project No: 1221110095

Figure

# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.0	0.0	9.5	77.0	13.5	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
1	100.0		
.75	100.0		
.5	100.0		
.375	100.0		
#4	100.0		
#10	100.0		
#20	98.7		
#40	90.5		
#60	63.2		
#100	23.2		
#140	16.0		
#200	13.5		

\* (no specification provided)

<u><b>Material Description</b></u>		
Fine grained, SILTY SAND		
PL=	<u><b>Atterberg Limits</b></u> LL=	PI=
<u><b>Coefficients</b></u>		
D <sub>90</sub> = 0.4181	D <sub>85</sub> = 0.3626	D <sub>60</sub> = 0.2401
D <sub>50</sub> = 0.2138	D <sub>30</sub> = 0.1679	D <sub>15</sub> = 0.0920
D <sub>10</sub> =	C <sub>u</sub> =	C <sub>c</sub> =
<u><b>Classification</b></u>		
USCS= SM	AASHTO=	
<u><b>Remarks</b></u>		

Location: BI-PBS-60-12 B  
Sample Number: 6469 (51)

Depth: 7.9'

Date: 11/28/12

**Thompson Engineering**

**Mobile, Alabama**

Client: CDM/Thompson Engineering JV  
Project: MsCIP Barrier Island Restoration GT

Project No: 1221110095

Figure

# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.0	0.6	12.1	83.0	4.3	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
1	100.0		
.75	100.0		
.5	100.0		
.375	100.0		
#4	100.0		
#10	99.4		
#20	97.8		
#40	87.3		
#60	51.4		
#100	11.2		
#140	5.2		
#200	4.3		

\* (no specification provided)

Material Description		
Fine to medium grained, SAND		
<div> <div> Atterberg Limits </div> <div> PL= </div> <div> LL= </div> <div> PI= </div> </div>		
<div> <div> Coefficients </div> <div> D<sub>90</sub>= 0.4570 </div> <div> D<sub>50</sub>= 0.2462 </div> <div> D<sub>10</sub>= 0.1457 </div> <div> D<sub>85</sub>= 0.4042 </div> <div> D<sub>30</sub>= 0.1972 </div> <div> C<sub>u</sub>= 1.90 </div> <div> D<sub>60</sub>= 0.2767 </div> <div> D<sub>15</sub>= 0.1614 </div> <div> C<sub>c</sub>= 0.96 </div> </div>		
<div> <div> Classification </div> <div> USCS= SP </div> <div> AASHTO= </div> </div>		
<div> <div> Remarks </div> </div>		

Location: BI-PBS-60-12 C  
Sample Number: 6469 (52)

Depth: 9.4'

Date: 11/28/12

**Thompson Engineering**

**Mobile, Alabama**

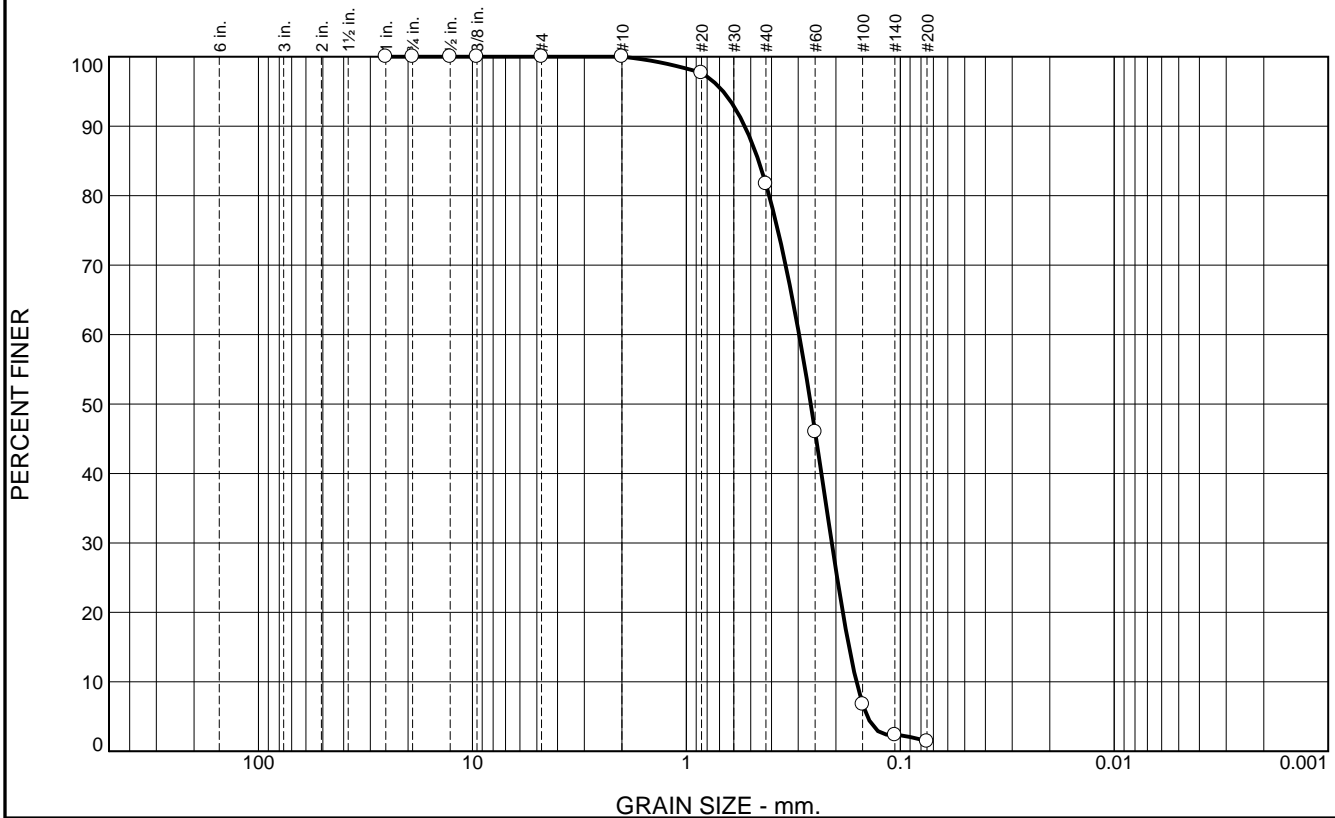
Client: CDM/Thompson Engineering JV  
Project: MsCIP Barrier Island Restoration GT

Project No: 1221110095

Figure



# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.0	0.0	18.3	80.3	1.4	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
1	100.0		
.75	100.0		
.5	100.0		
.375	100.0		
#4	100.0		
#10	100.0		
#20	97.7		
#40	81.7		
#60	46.0		
#100	6.7		
#140	2.3		
#200	1.4		

\* (no specification provided)

<u>Material Description</u>		
Fine to medium grained, SAND		
PL=	<u>Atterberg Limits</u> LL=	PI=
<u>Coefficients</u>		
D <sub>90</sub> = 0.5334	D <sub>85</sub> = 0.4595	D <sub>60</sub> = 0.2974
D <sub>50</sub> = 0.2621	D <sub>30</sub> = 0.2090	D <sub>15</sub> = 0.1737
D <sub>10</sub> = 0.1605	C <sub>u</sub> = 1.85	C <sub>c</sub> = 0.92
<u>Classification</u>		
USCS= SP	AASHTO=	
<u>Remarks</u>		

Location: BI-PBS-60-12 D  
Sample Number: 6469 (53)

Depth: 11.8'

Date: 11/28/12

**Thompson Engineering**

**Mobile, Alabama**

Client: CDM/Thompson Engineering JV  
Project: MsCIP Barrier Island Restoration GT

Project No: 1221110095

Figure

# Boring Designation BI-PBS-061-12

DRILLING LOG		DIVISION South Atlantic		INSTALLATION Mobile District		SHEET 1 OF 1 SHEETS	
1. PROJECT MsCIP Barrier Island Restoration Petit Bois Pass-OCS East				9. SIZE AND TYPE OF BIT N/A			
2. BORING DESIGNATION BI-PBS-061-12		LOCATION COORDINATES E = 1,150,557 N = 236,916		10. COORDINATE SYSTEM/DATUM State Plane, MSE (U.S. Ft.)		HORIZONTAL NAD83 VERTICAL NAVD88	
3. DRILLING AGENCY Corps of Engineers - CESAM		CONTRACTOR FILE NO.		11. MANUFACTURER'S DESIGNATION OF DRILL Vibracore		<input type="checkbox"/> AUTO HAMMER <input type="checkbox"/> MANUAL HAMMER	
4. NAME OF DRILLER American Vibracore Systems, Inc.				12. TOTAL SAMPLES		DISTURBED UNDISTURBED (UD) 0	
5. DIRECTION OF BORING <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED		DEG. FROM VERTICAL		13. TOTAL NUMBER CORE BOXES			
		BEARING		14. WATER DEPTH 55 Ft.			
6. THICKNESS OF OVERBURDEN N/A				15. DATE BORING 11-16-12		STARTED COMPLETED 11-16-12	
7. DEPTH DRILLED INTO ROCK N/A				16. ELEVATION TOP OF BORING -54.9 Ft.			
8. TOTAL DEPTH OF BORING 11.2 Ft.				17. TOTAL RECOVERY FOR BORING 100%			
				18. SIGNATURE AND TITLE OF INSPECTOR Mike FitzHarris, Geologist			
ELEV.	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS	SAMPLE	LABORATORY RESULTS		
-54.9	0.0						
-57.1	2.2		SAND, poorly-graded, mostly fine-grained sand-sized quartz, trace shell fragments, gray (SP)	A	Classification: SP-SM Color: 5Y 6.5/1-gray D50: 0.2349 mm % Fines: 5.2		
-60.7	5.8		SAND, silty, mostly fine-grained sand-sized quartz, some silt, trace clay, trace shell fragments, gray (SM)	NS			
-63.1	8.2		CLAY, fat, mostly clay, little fine-grained sand-sized quartz, medium plasticity, gray (CH)				
-64.6	9.7		SAND, silty, mostly fine-grained sand-sized quartz, some silt, brown (SM)				
-66.1	11.2		SAND, poorly-graded, mostly fine-grained sand-sized quartz, trace silt, light brown (SP)				
			NOTES: 1. Soils are field visually classified in accordance with the Unified Soils Classification System. 2. NS = Sample not submitted for laboratory analysis from this interval. 3. Seafloor elevation calculated using sampling vessel's fathometer water depth reading and applying NOAA tidal gauge data conversion factor.				

**Project**

Mississippi Barrier Island  
Restoration Project

**AVS**  
**AMERICAN VIBRACORE**  
**S E R V I C E S**

**Core Identifier** BI-PBS-61-12

**Date** 11/16/2012

**Water Depth** 55.0'

**Coordinate System**

Latitude / Longitude

**Start Time** 16:27:41

**End Time** 16:30:15

**Penetration** 14.7'

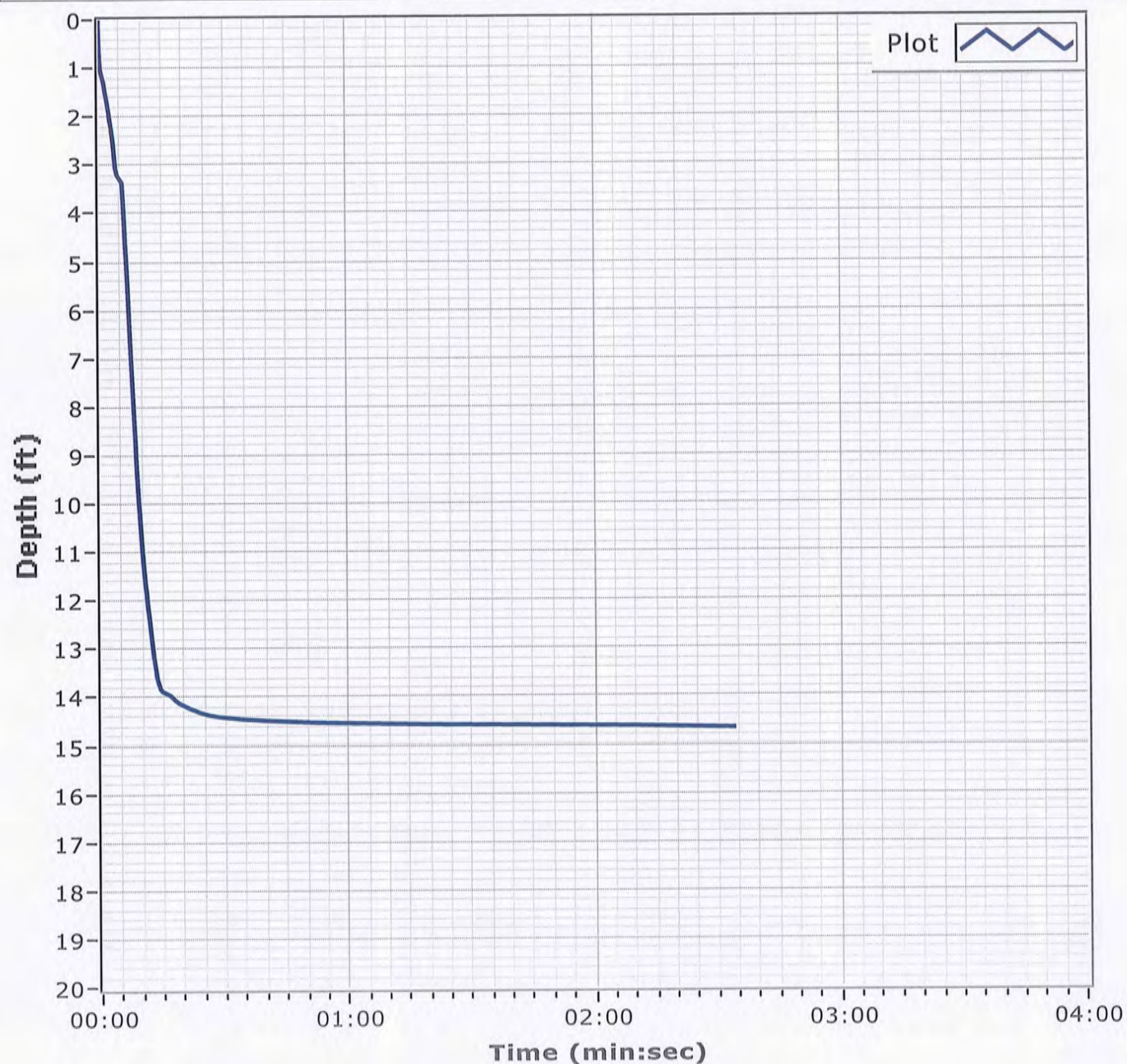
**Latitude** 30 09.025

**Total Time** 00:02:34

**Recovery** 12.3'

**Longitude** 88 18.429

**Comments**



# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.8	0.8	9.1	84.1	5.2	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
1	100.0		
.75	100.0		
.5	100.0		
.375	100.0		
#4	99.2		
#10	98.4		
#20	96.5		
#40	89.3		
#60	56.1		
#100	10.6		
#140	6.3		
#200	5.2		

\* (no specification provided)

<b><u>Material Description</u></b>		
Fine grained, SLIGHTLY SILTY SAND		
<b><u>Atterberg Limits</u></b>		
PL=	LL=	PI=
<b><u>Coefficients</u></b>		
D <sub>90</sub> = 0.4342	D <sub>85</sub> = 0.3805	D <sub>60</sub> = 0.2609
D <sub>50</sub> = 0.2349	D <sub>30</sub> = 0.1930	D <sub>15</sub> = 0.1618
D <sub>10</sub> = 0.1444	C <sub>u</sub> = 1.81	C <sub>c</sub> = 0.99
<b><u>Classification</u></b>		
USCS= SP-SM	AASHTO=	
<b><u>Remarks</u></b>		

Location: BI-PBS-61-12 A  
Sample Number: 6462

Depth: 0.0'

Date: 11/23/12

**Thompson Engineering**

**Mobile, Alabama**

Client: CDM/Thompson Engineering JV  
Project: MsCIP Barrier Island Restoration GT

Project No: 1221110095

Figure

# Boring Designation BI-PBS-062-12

DRILLING LOG		DIVISION South Atlantic		INSTALLATION Mobile District		SHEET 1 OF 1 SHEETS	
1. PROJECT MsCIP Barrier Island Restoration Petit Bois Pass-OCS East				9. SIZE AND TYPE OF BIT N/A			
2. BORING DESIGNATION BI-PBS-062-12		LOCATION COORDINATES E = 1,150,505 N = 237,945		10. COORDINATE SYSTEM/DATUM State Plane, MSE (U.S. Ft.)		HORIZONTAL NAD83	
3. DRILLING AGENCY Corps of Engineers - CESAM		CONTRACTOR FILE NO.		11. MANUFACTURER'S DESIGNATION OF DRILL Vibracore		<input type="checkbox"/> AUTO HAMMER <input type="checkbox"/> MANUAL HAMMER	
4. NAME OF DRILLER American Vibracore Systems, Inc.				12. TOTAL SAMPLES		DISTURBED 0	
5. DIRECTION OF BORING <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED				13. TOTAL NUMBER CORE BOXES		14. WATER DEPTH 56 Ft.	
6. THICKNESS OF OVERBURDEN N/A				15. DATE BORING		STARTED 11-16-12	
7. DEPTH DRILLED INTO ROCK N/A				16. ELEVATION TOP OF BORING -56.4 Ft.		COMPLETED 11-16-12	
8. TOTAL DEPTH OF BORING 16.1 Ft.				17. TOTAL RECOVERY FOR BORING 100%		18. SIGNATURE AND TITLE OF INSPECTOR Mike FitzHarris, Geologist	
ELEV.	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS	SAMPLE	LABORATORY RESULTS		
-56.4	0.0						
-57.2	0.8		SAND, poorly-graded, mostly fine to medium-grained sand-sized quartz, trace silt, gray (SP)	A	Classification: SP Color: 5Y 7/2-light gray D50: 0.2417 mm % Fines: 3		
-59.5	3.1		SAND, silty, mostly fine-grained sand-sized quartz, some silt, with clay lenses, gray (SM)	NS			
			SAND, poorly-graded, mostly fine-grained sand-sized quartz, few silt, gray (SP)	B	Classification: SP-SM Color: 2.5Y 7/2-light gray D50: 0.1758 mm % Fines: 11.6		
			At El. -62.3 Ft., mostly fine-grained sand-sized quartz, trace silt, light gray	C	Classification: SP Color: 2.5Y 8/1-white D50: 0.205 mm % Fines: 2.5		
				D	Classification: SP Color: 2.5Y 8/1-white D50: 0.2836 mm % Fines: 2.3		
-72.5	16.1						
NOTES: 1. Soils are field visually classified in accordance with the Unified Soils Classification System. 2. NS = Sample not submitted for laboratory analysis from this interval. 3. Seafloor elevation calculated using sampling vessel's fathometer water depth reading and applying NOAA tidal gauge data conversion factor.							



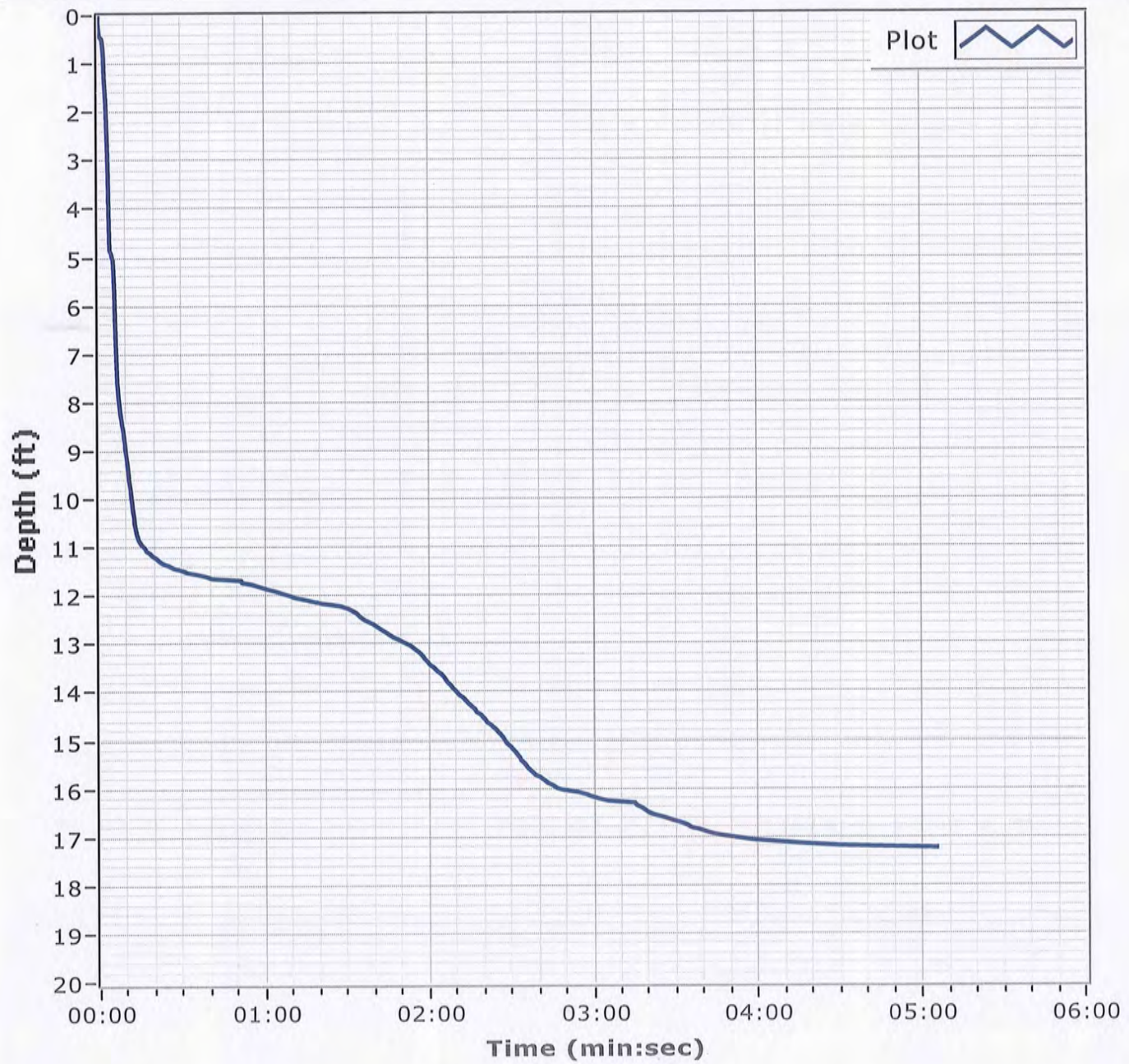
**Project**

Mississippi Barrier Island  
Restoration Project

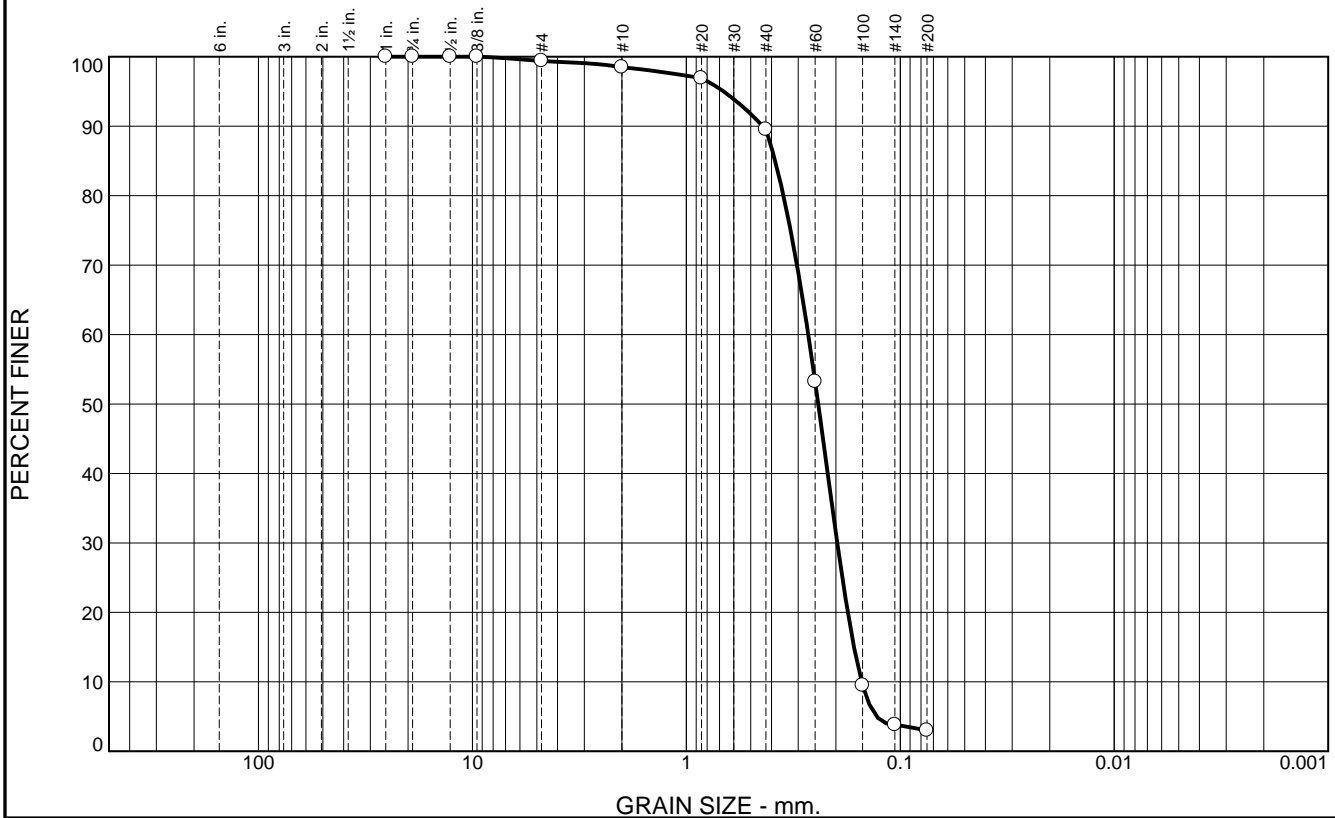


<b>Core Identifier</b> BI-PBS-62-12	<b>Date</b> 11/16/2012	<b>Water Depth</b> 56.0'
<b>Coordinate System</b> Latitude / Longitude	<b>Start Time</b> 13:13:00	
	<b>End Time</b> 13:18:06	<b>Penetration</b> 17.2'
<b>Latitude</b> 30 09.195	<b>Total Time</b> 00:05:06	<b>Recovery</b> 16.5'
<b>Longitude</b> 88 18.438		

**Comments**



# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.6	0.9	9.0	86.5	3.0	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
1	100.0		
.75	100.0		
.5	100.0		
.375	100.0		
#4	99.4		
#10	98.5		
#20	96.9		
#40	89.5		
#60	53.2		
#100	9.5		
#140	3.8		
#200	3.0		

\* (no specification provided)

Material Description		
Fine grained, SAND		
<div> <div> Atterberg Limits </div> <div> PL= </div> <div> LL= </div> <div> PI= </div> </div>		
<div> <div> Coefficients </div> <div> D<sub>90</sub>= 0.4395 </div> <div> D<sub>50</sub>= 0.2417 </div> <div> D<sub>10</sub>= 0.1515 </div> <div> D<sub>85</sub>= 0.3843 </div> <div> D<sub>30</sub>= 0.1971 </div> <div> C<sub>u</sub>= 1.78 </div> <div> D<sub>60</sub>= 0.2693 </div> <div> D<sub>15</sub>= 0.1648 </div> <div> C<sub>c</sub>= 0.95 </div> </div>		
<div> <div> Classification </div> <div> USCS= SP </div> <div> AASHTO= </div> </div>		
<div> <div> Remarks </div> </div>		

Location: BI-PBS-62-12 A  
Sample Number: 6462

Depth: 0.0

Date: 11/23/12

**Thompson Engineering**

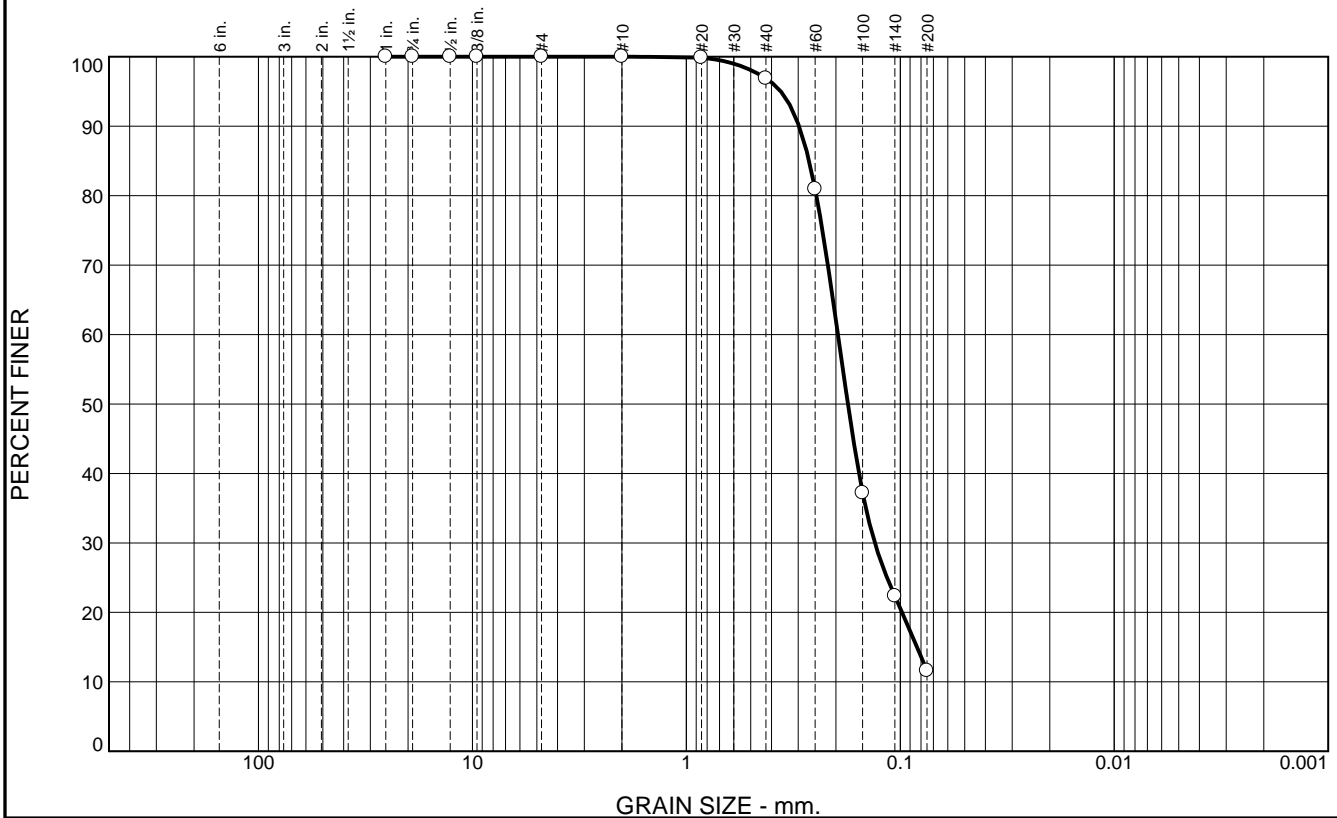
**Mobile, Alabama**

Client: CDM/Thompson Engineering JV  
Project: MsCIP Barrier Island Restoration GT

Project No: 1221110095

Figure

# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.0	0.0	3.1	85.3	11.6	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
1	100.0		
.75	100.0		
.5	100.0		
.375	100.0		
#4	100.0		
#10	100.0		
#20	99.9		
#40	96.9		
#60	80.9		
#100	37.2		
#140	22.4		
#200	11.6		

\* (no specification provided)

## Material Description

Fine grained, SLIGHTLY SILTY SAND

## Atterberg Limits

PL= LL= PI=

## Coefficients

D<sub>90</sub>= 0.2975 D<sub>85</sub>= 0.2670 D<sub>60</sub>= 0.1957  
D<sub>50</sub>= 0.1758 D<sub>30</sub>= 0.1316 D<sub>15</sub>= 0.0836  
D<sub>10</sub>= C<sub>u</sub>= C<sub>c</sub>=

## Classification

USCS= SP-SM AASHTO=

## Remarks

Location: BI-PBS-62-12 B

Sample Number: 6462

Depth: 3.1'

Date: 11/23/12

**Thompson Engineering**

**Mobile, Alabama**

Client: CDM/Thompson Engineering JV

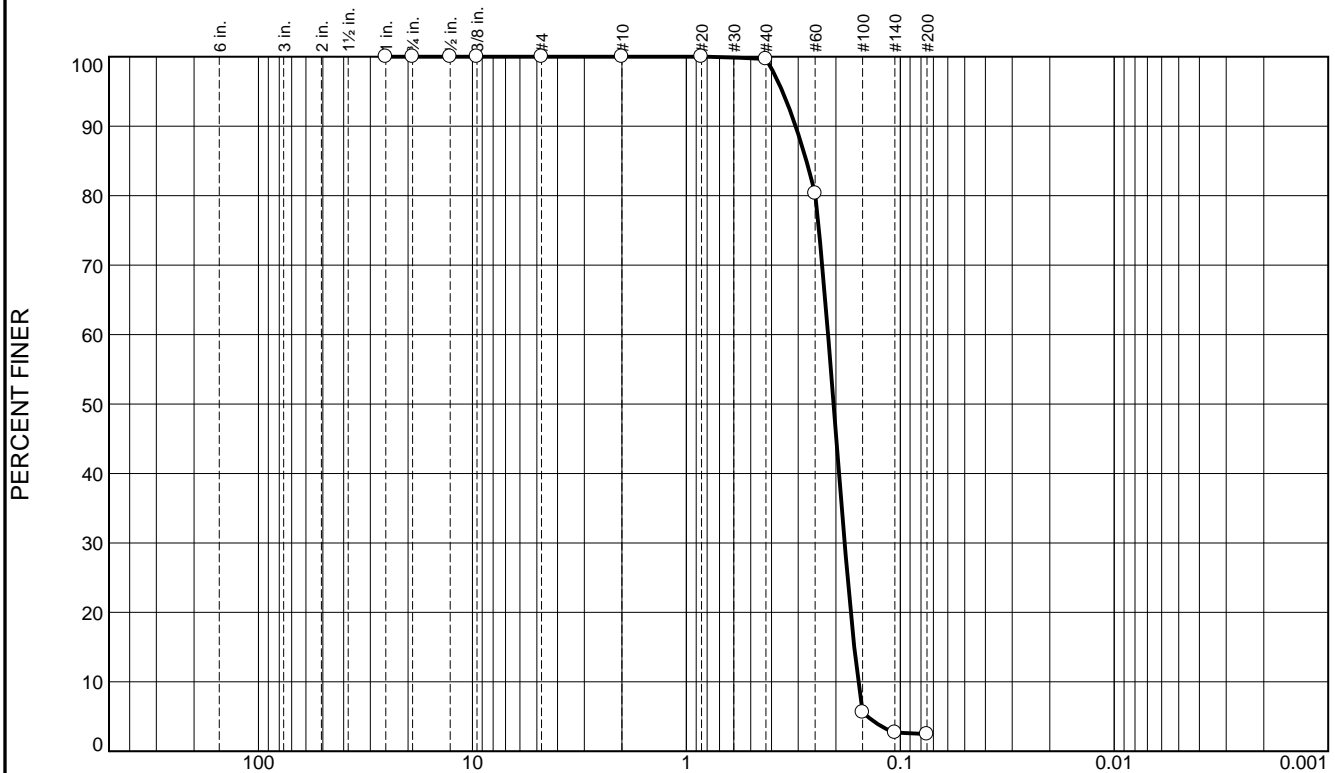
Project: MsCIP Barrier Island Restoration GT

Project No: 1221110095

Figure



# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.0	0.0	0.3	97.2	2.5	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
1	100.0		
.75	100.0		
.5	100.0		
.375	100.0		
#4	100.0		
#10	100.0		
#20	100.0		
#40	99.7		
#60	80.3		
#100	5.6		
#140	2.7		
#200	2.5		

\* (no specification provided)

## Material Description

Fine grained, SAND

## Atterberg Limits

PL=

LL=

PI=

## Coefficients

D<sub>90</sub>= 0.3087

D<sub>85</sub>= 0.2748

D<sub>60</sub>= 0.2175

D<sub>50</sub>= 0.2050

D<sub>30</sub>= 0.1821

D<sub>15</sub>= 0.1643

D<sub>10</sub>= 0.1574

C<sub>u</sub>= 1.38

C<sub>c</sub>= 0.97

## Classification

USCS= SP

AASHTO=

## Remarks

Location: BI-PBS-62-12 C

Sample Number: 6462

Depth: 5.9'

Date: 11/23/12

**Thompson Engineering**

**Mobile, Alabama**

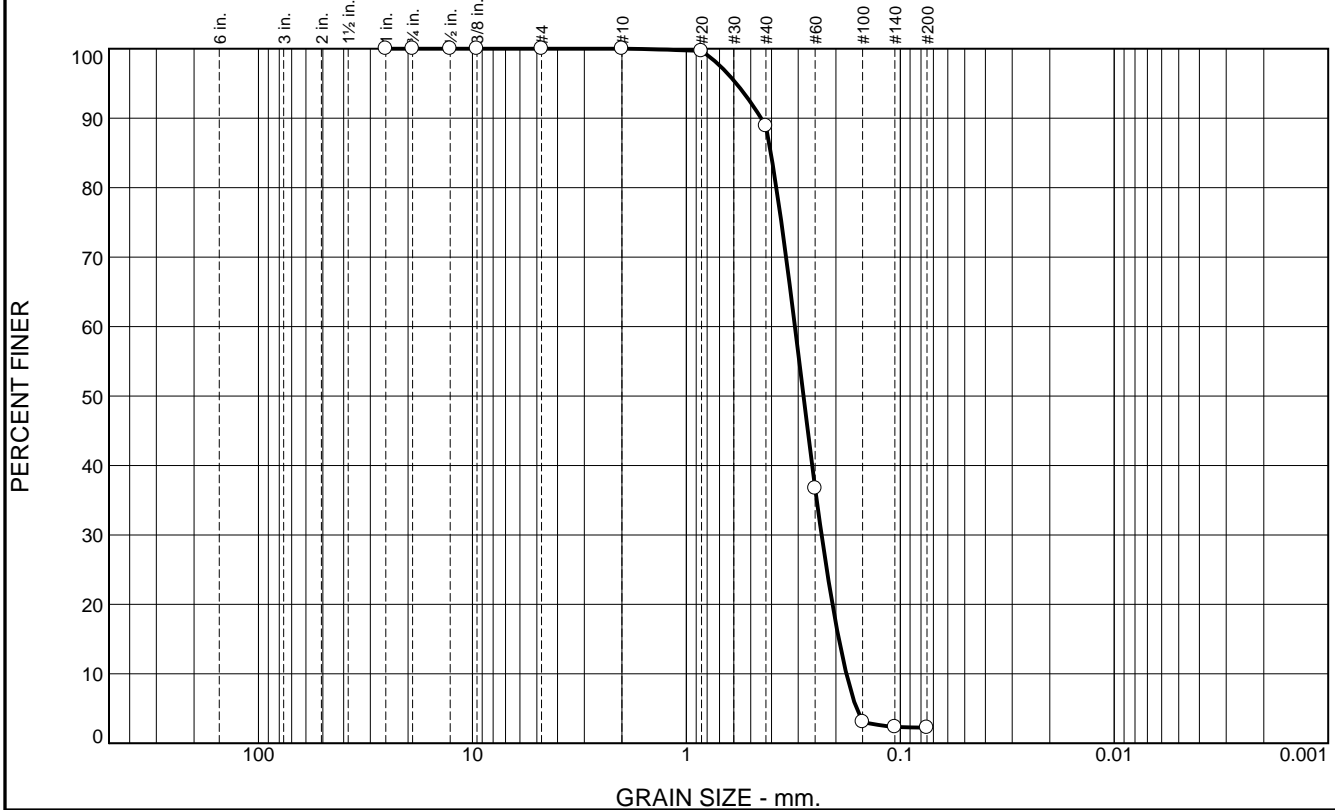
Client: CDM/Thompson Engineering JV

Project: MsCIP Barrier Island Restoration GT

Project No: 1221110095

Figure

# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.0	0.0	11.1	86.6	2.3	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
1	100.0		
.75	100.0		
.5	100.0		
.375	100.0		
#4	100.0		
#10	100.0		
#20	99.7		
#40	88.9		
#60	36.7		
#100	3.1		
#140	2.3		
#200	2.3		

\* (no specification provided)

<u><b>Material Description</b></u>		
Fine to medium grained, SAND		
<u><b>Atterberg Limits</b></u>		
PL=	LL=	PI=
<u><b>Coefficients</b></u>		
D <sub>90</sub> = 0.4475	D <sub>85</sub> = 0.4028	D <sub>60</sub> = 0.3109
D <sub>50</sub> = 0.2836	D <sub>30</sub> = 0.2333	D <sub>15</sub> = 0.1938
D <sub>10</sub> = 0.1788	C <sub>u</sub> = 1.74	C <sub>c</sub> = 0.98
<u><b>Classification</b></u>		
USCS= SP	AASHTO=	
<u><b>Remarks</b></u>		

Location: BI-PBS-62-12 D

Sample Number: 6462

Depth: 11.0'

Date: 11/23/12

**Thompson Engineering**

**Mobile, Alabama**

Client: CDM/Thompson Engineering JV

Project: MsCIP Barrier Island Restoration GT

Project No: 1221110095

Figure

# Boring Designation BI-PBS-063-12

DRILLING LOG		DIVISION South Atlantic		INSTALLATION Mobile District		SHEET 1 OF 1 SHEETS	
1. PROJECT MsCIP Barrier Island Restoration Petit Bois Pass-OCS East				9. SIZE AND TYPE OF BIT N/A			
2. BORING DESIGNATION BI-PBS-063-12		LOCATION COORDINATES E = 1,149,074 N = 238,385		10. COORDINATE SYSTEM/DATUM State Plane, MSE (U.S. Ft.)		HORIZONTAL NAD83	
3. DRILLING AGENCY Corps of Engineers - CESAM		CONTRACTOR FILE NO.		11. MANUFACTURER'S DESIGNATION OF DRILL Vibracore		<input type="checkbox"/> AUTO HAMMER <input type="checkbox"/> MANUAL HAMMER	
4. NAME OF DRILLER American Vibracore Systems, Inc.				12. TOTAL SAMPLES		DISTURBED 0	
5. DIRECTION OF BORING <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED				13. TOTAL NUMBER CORE BOXES		14. WATER DEPTH 56 Ft.	
6. THICKNESS OF OVERBURDEN N/A				15. DATE BORING		STARTED 11-16-12	
7. DEPTH DRILLED INTO ROCK N/A				16. ELEVATION TOP OF BORING -56.3 Ft.		COMPLETED 11-16-12	
8. TOTAL DEPTH OF BORING 14.0 Ft.				17. TOTAL RECOVERY FOR BORING 100%			
				18. SIGNATURE AND TITLE OF INSPECTOR Mike FitzHarris, Geologist			
ELEV.	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS	SAMPLE	LABORATORY RESULTS		
-56.3	0.0						
-57.8	1.5		SAND, poorly-graded, mostly fine-grained sand-sized quartz, gray (SP)	A	Classification: SP Color: 5Y 7/2-light gray D50: 0.2768 mm % Fines: 2.3		
-61.3	5.0		SAND, clayey, mostly fine-grained sand-sized quartz, some clay, trace medium to coarse-grained shell fragments, with clay lenses, gray (SC)	NS			
-61.8	5.5		CLAY, fat, mostly clay, medium to high plasticity, gray (CH)				
-62.6	6.3		SAND, poorly-graded with clay, mostly fine-grained sand-sized quartz, little clay, trace wood debris, gray (SP-SC)	B	Classification: SP Color: 2.5Y 7/2-light gray D50: 0.2104 mm % Fines: 3		
			SAND, poorly-graded, mostly fine-grained sand-sized quartz, trace silt, dense, lt. gray (SP)	C	Classification: SP Color: 2.5Y 7/2-light gray D50: 0.2398 mm % Fines: 2		
-70.3	14.0						
NOTES: 1. Soils are field visually classified in accordance with the Unified Soils Classification System. 2. NS = Sample not submitted for laboratory analysis from this interval. 3. Seafloor elevation calculated using sampling vessel's fathometer water depth reading and applying NOAA tidal gauge data conversion factor.							

**Project**

Mississippi Barrier Island  
Restoration Project

**AVS**  
**AMERICAN VIBRACORE**  
**S E R V I C E S**

**Core Identifier** BI-PBS-63-12

**Date** 11/16/2012

**Water Depth** 56.0'

**Coordinate System**

Latitude / Longitude

**Start Time** 14:13:22

**End Time** 14:19:31

**Penetration** 14.3'

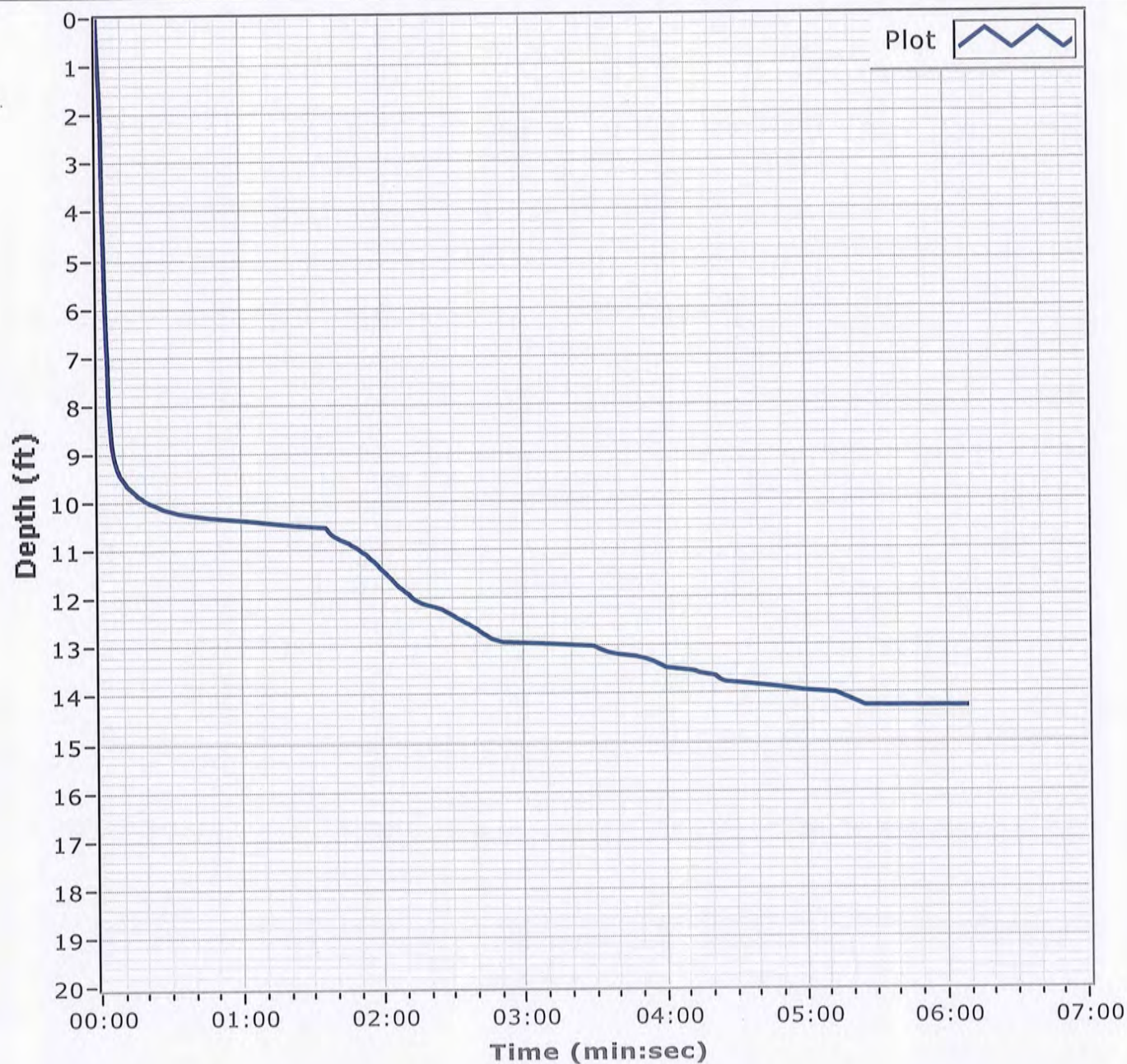
**Latitude** 30 09.269

**Total Time** 00:06:09

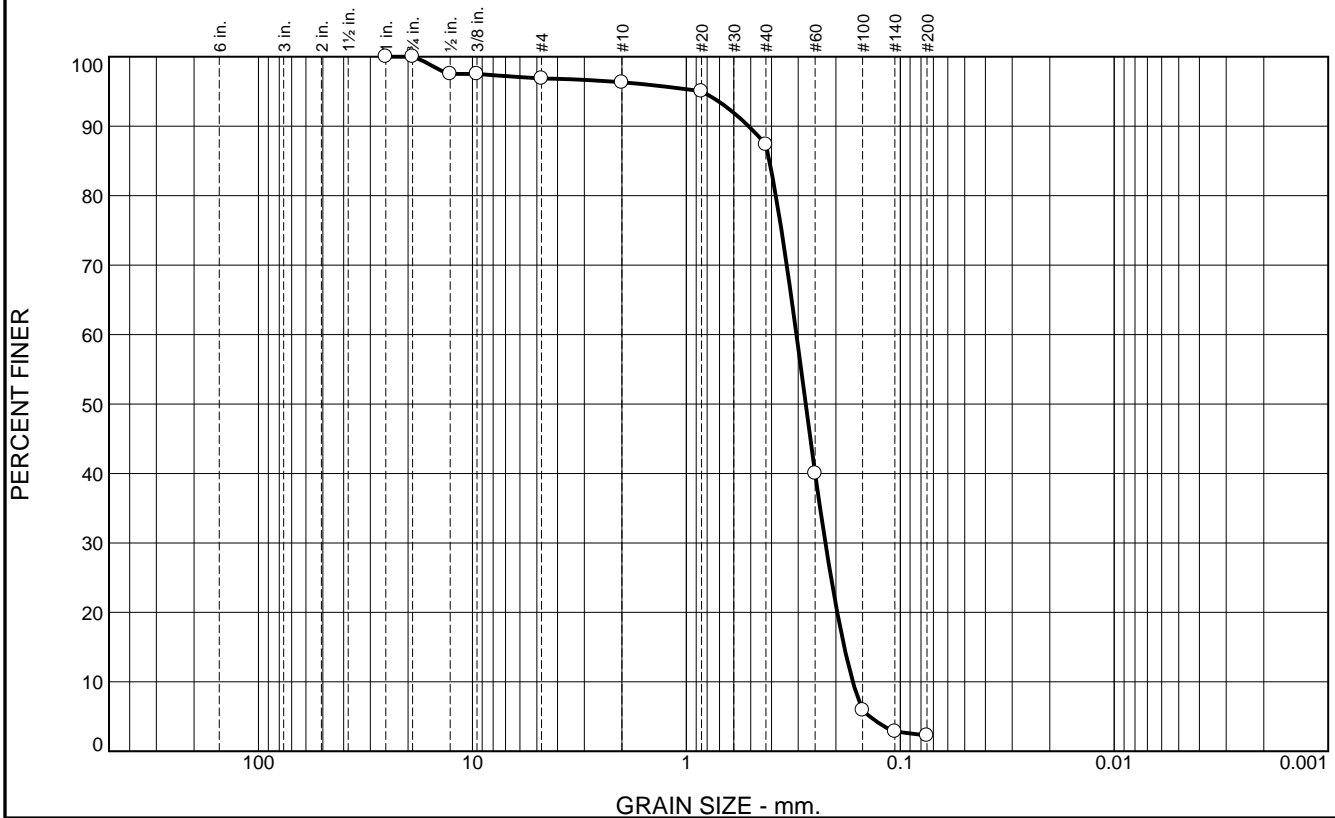
**Recovery** 14.0'

**Longitude** 88 18.709

**Comments**



# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	3.1	0.6	8.9	85.1	2.3	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
1	100.0		
.75	100.0		
.5	97.5		
.375	97.5		
#4	96.9		
#10	96.3		
#20	95.0		
#40	87.4		
#60	40.0		
#100	5.9		
#140	2.8		
#200	2.3		

\* (no specification provided)

## Material Description

Fine grained, SAND, with trace SHELL

## Atterberg Limits

PL= LL= PI=

## Coefficients

D<sub>90</sub>= 0.5122 D<sub>85</sub>= 0.4090 D<sub>60</sub>= 0.3060  
D<sub>50</sub>= 0.2768 D<sub>30</sub>= 0.2239 D<sub>15</sub>= 0.1829  
D<sub>10</sub>= 0.1668 C<sub>u</sub>= 1.83 C<sub>c</sub>= 0.98

## Classification

USCS= SP AASHTO=

## Remarks

Location: BI-PBS-63-12 A

Sample Number: 6462

Depth: 0.0'

Date: 11/23/12

**Thompson Engineering**

**Mobile, Alabama**

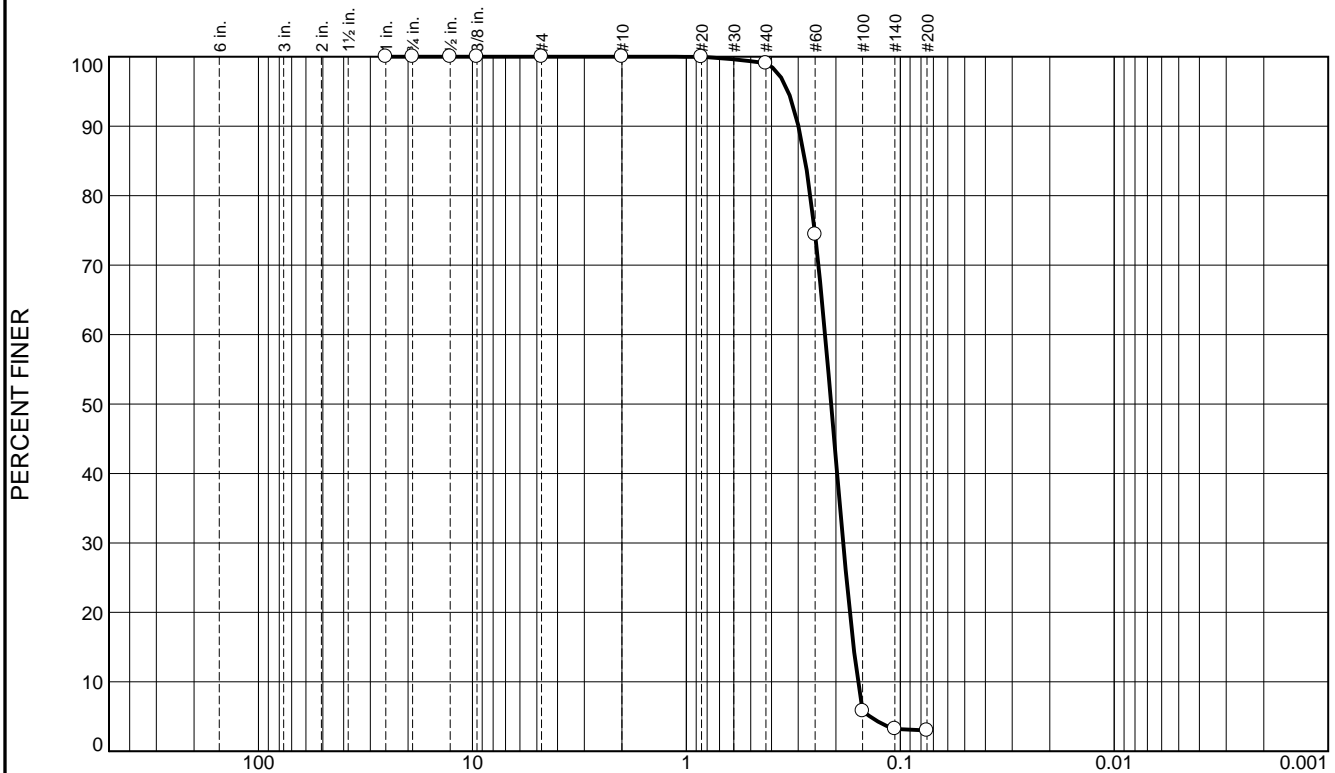
Client: CDM/Thompson Engineering JV

Project: MsCIP Barrier Island Restoration GT

Project No: 1221110095

Figure

# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.0	0.0	0.9	96.1	3.0	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
1	100.0		
.75	100.0		
.5	100.0		
.375	100.0		
#4	100.0		
#10	100.0		
#20	100.0		
#40	99.1		
#60	74.4		
#100	5.8		
#140	3.2		
#200	3.0		

\* (no specification provided)

Material Description		
Fine grained, SAND		
<div> <div> Atterberg Limits </div> <div> PL= </div> <div> LL= </div> <div> PI= </div> </div>		
<div> <div> Coefficients </div> <div> D<sub>90</sub>= 0.2995 </div> <div> D<sub>50</sub>= 0.2104 </div> <div> D<sub>10</sub>= 0.1578 </div> <div> D<sub>85</sub>= 0.2785 </div> <div> D<sub>30</sub>= 0.1850 </div> <div> C<sub>u</sub>= 1.42 </div> <div> D<sub>60</sub>= 0.2246 </div> <div> D<sub>15</sub>= 0.1655 </div> <div> C<sub>c</sub>= 0.97 </div> </div>		
<div> <div> Classification </div> <div> USCS= SP </div> <div> AASHTO= </div> </div>		
<div> <div> Remarks </div> </div>		

Location: BI-PBS-63-12 B  
Sample Number: 6462

Depth: 6.4'

Date: 11/23/12

**Thompson Engineering**

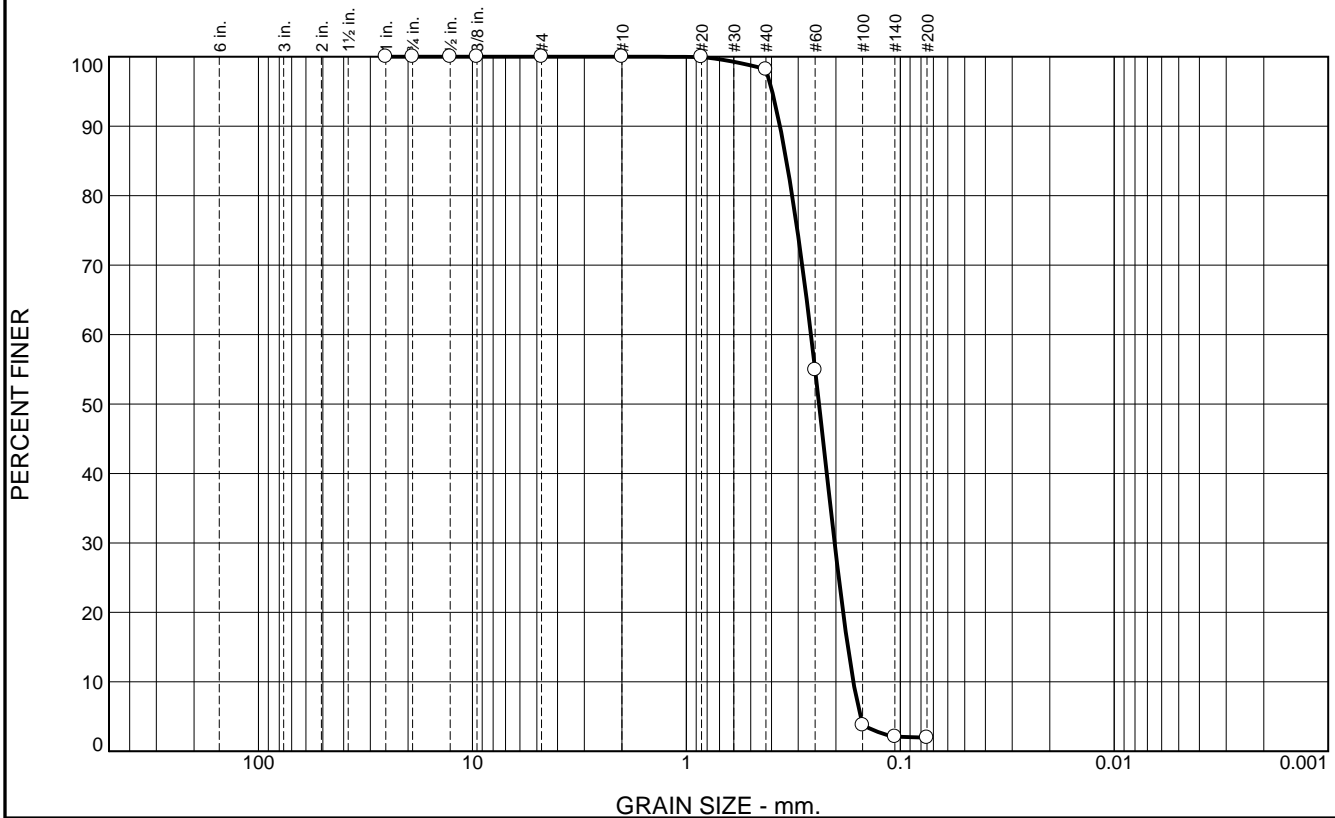
**Mobile, Alabama**

Client: CDM/Thompson Engineering JV  
Project: MsCIP Barrier Island Restoration GT

Project No: 1221110095

Figure

# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.0	0.0	1.8	96.2	2.0	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
1	100.0		
.75	100.0		
.5	100.0		
.375	100.0		
#4	100.0		
#10	100.0		
#20	100.0		
#40	98.2		
#60	54.9		
#100	3.8		
#140	2.1		
#200	2.0		

\* (no specification provided)

## Material Description

Fine grained, SAND

## Atterberg Limits

PL=

LL=

PI=

## Coefficients

D<sub>90</sub>= 0.3649

D<sub>85</sub>= 0.3404

D<sub>60</sub>= 0.2615

D<sub>50</sub>= 0.2398

D<sub>30</sub>= 0.2028

D<sub>15</sub>= 0.1759

D<sub>10</sub>= 0.1659

C<sub>u</sub>= 1.58

C<sub>c</sub>= 0.95

## Classification

USCS= SP

AASHTO=

## Remarks

Location: BI-PBS-63-12 C

Sample Number: 6462

Depth: 9.0'

Date: 11/23/12

**Thompson Engineering**

**Mobile, Alabama**

Client: CDM/Thompson Engineering JV

Project: MsCIP Barrier Island Restoration GT

Project No: 1221110095

Figure

# Boring Designation BI-PBS-064-12

DRILLING LOG		DIVISION South Atlantic		INSTALLATION Mobile District		SHEET 1 OF 1 SHEETS	
1. PROJECT MsCIP Barrier Island Restoration Petit Bois Pass-OCS East				9. SIZE AND TYPE OF BIT N/A			
2. BORING DESIGNATION BI-PBS-064-12		LOCATION COORDINATES E = 1,151,592 N = 237,331		10. COORDINATE SYSTEM/DATUM State Plane, MSE (U.S. Ft.)		HORIZONTAL NAD83	
3. DRILLING AGENCY Corps of Engineers - CESAM		CONTRACTOR FILE NO.		11. MANUFACTURER'S DESIGNATION OF DRILL Vibracore		<input type="checkbox"/> AUTO HAMMER <input type="checkbox"/> MANUAL HAMMER	
4. NAME OF DRILLER American Vibracore Services, Inc.				12. TOTAL SAMPLES		DISTURBED 0	
5. DIRECTION OF BORING <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED				13. TOTAL NUMBER CORE BOXES		14. WATER DEPTH 56 Ft.	
6. THICKNESS OF OVERBURDEN N/A				15. DATE BORING		STARTED 11-16-12	
7. DEPTH DRILLED INTO ROCK N/A				16. ELEVATION TOP OF BORING -56.5 Ft.		COMPLETED 11-16-12	
8. TOTAL DEPTH OF BORING 16.2 Ft.				17. TOTAL RECOVERY FOR BORING 100%			
				18. SIGNATURE AND TITLE OF INSPECTOR Mike FitzHarris, Geologist			

ELEV.	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS	SAMPLE	LABORATORY RESULTS
-56.5	0.0				
-57.5	1.0		SAND, poorly-graded, mostly fine to medium-grained sand-sized quartz, trace medium to coarse-grained shell fragments, lt. gray (SP)	A	Classification: SP Color: 5Y 7/2-light gray D50: 0.2991 mm % Fines: 1.6
-59.5	3.0		SAND, silty, mostly fine-grained sand-sized quartz, some silt, trace shell fragments, gray (SM)		
-62.0	5.5		SAND, clayey, mostly fine-grained sand-sized quartz, some clay, trace shell fragments, gray (SC)		
-62.5	6.0		CLAY, fat, mostly clay, medium to high plasticity, dark gray (CH)		
-65.8	9.3		SAND, silty, mostly fine-grained sand-sized quartz, some silt, trace clay, dark gray (SM)	NS	
-66.1	9.6		SILT, inorganic-L, mostly silt, little fine-grained sand, trace organic matter, brown (ML)		
-68.1	11.6		SAND, silty, mostly fine-grained sand-sized quartz, some silt, trace organic matter, dark brown (SM)		
-68.5	12.0				
-68.8	12.3		WOOD, mostly wood debris, brown		
-69.8	13.3		CLAY, lean, mostly clay, some silt, trace sand, dark brown (CL)		
-72.7	16.2		SAND, poorly-graded with silt, mostly fine-grained sand-sized quartz, few silt, gray (SP-SM)	B	Classification: SP Color: 10YR 7/1-light gray D50: 0.2304 mm % Fines: 3.9
			SAND, poorly-graded, mostly fine-grained sand-sized quartz, trace silt, lt. gray (SP)		
NOTES: 1. Soils are field visually classified in accordance with the Unified Soils Classification System. 2. NS = Sample not submitted for laboratory analysis from this interval. 3. Seafloor elevation calculated using sampling vessel's fathometer water depth reading and applying NOAA tidal gauge data conversion factor.					



# Project

Mississippi Barrier Island  
Restoration Project

**AVS**  
AMERICAN VIBRACORE  
S E R V I C E S

Core Identifier BI-PBS-64- 12

Date 11/16/2012

Water Depth 56.0'

## Coordinate System

Latitude / Longitude

Start Time 11:50:46

End Time 11:51:46

Penetration 20.0'

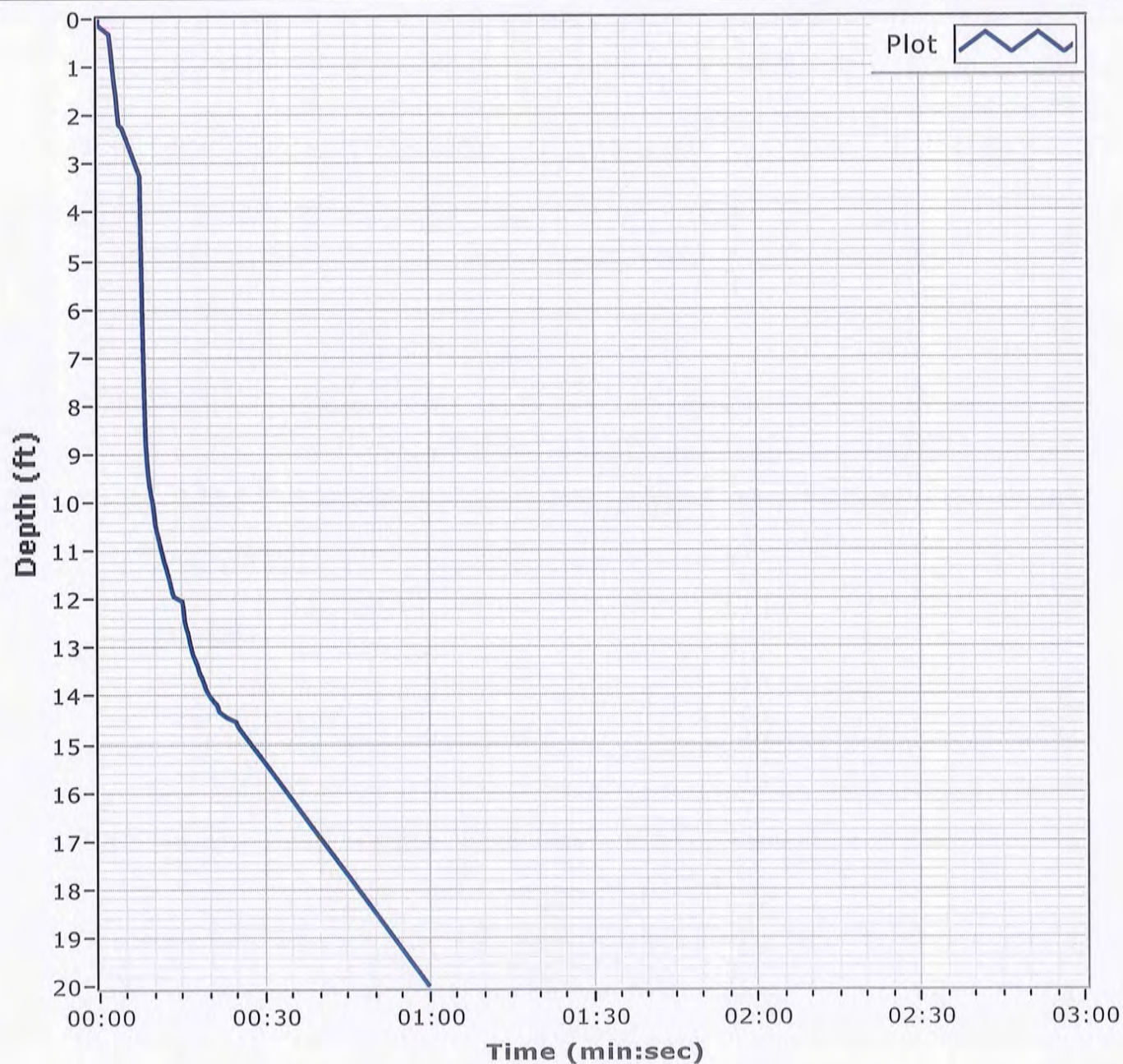
Latitude 30 09.093

Total Time 00:01:00

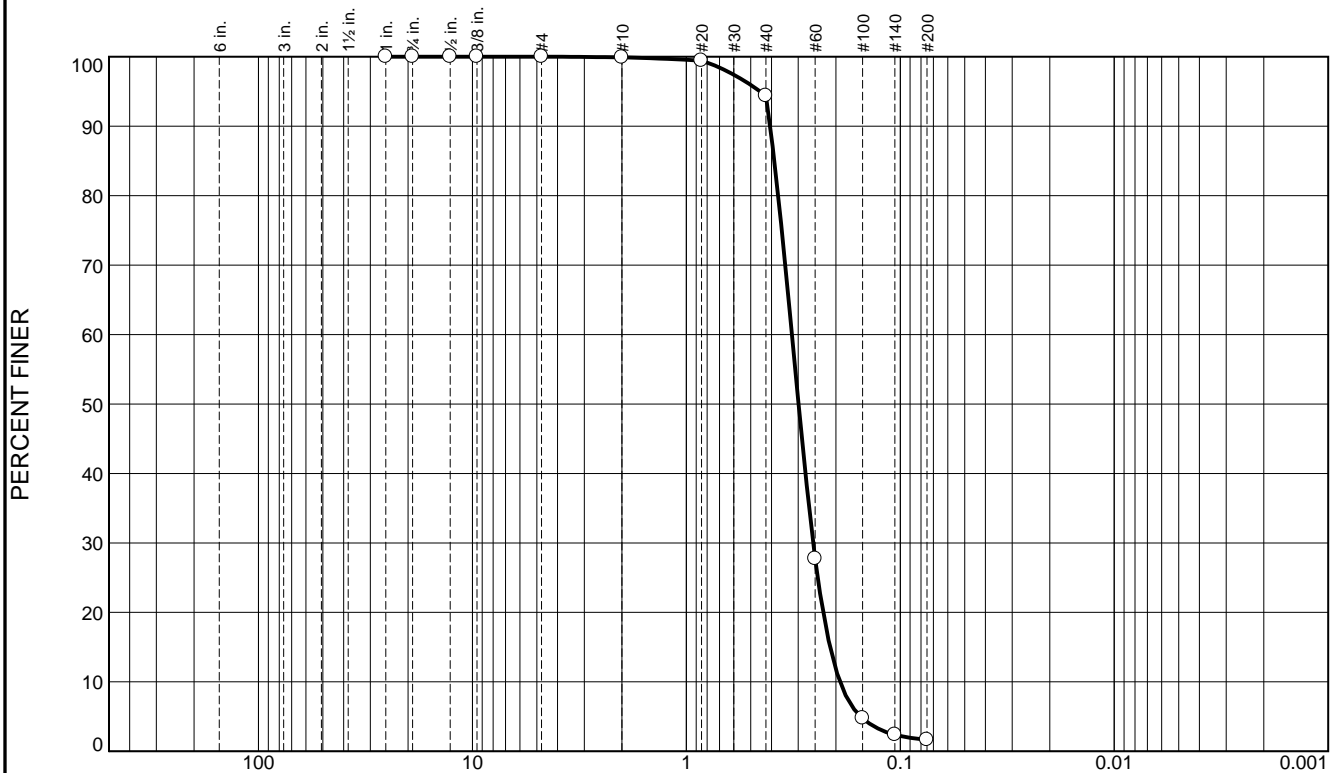
Recovery 17.0'

Longitude 88 18.232

## Comments



# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.0	0.1	5.5	92.8	1.6	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
1	100.0		
.75	100.0		
.5	100.0		
.375	100.0		
#4	100.0		
#10	99.9		
#20	99.4		
#40	94.4		
#60	27.7		
#100	4.8		
#140	2.4		
#200	1.6		

\* (no specification provided)

Material Description		
Fine grained, SAND		
<div> <div> Atterberg Limits </div> <div> PL= </div> <div> LL= </div> <div> PI= </div> </div>		
<div> <div> Coefficients </div> <div> D<sub>90</sub>= 0.4059 </div> <div> D<sub>50</sub>= 0.2991 </div> <div> D<sub>10</sub>= 0.1915 </div> <div> D<sub>85</sub>= 0.3878 </div> <div> D<sub>30</sub>= 0.2554 </div> <div> C<sub>u</sub>= 1.68 </div> <div> D<sub>60</sub>= 0.3211 </div> <div> D<sub>15</sub>= 0.2129 </div> <div> C<sub>c</sub>= 1.06 </div> </div>		
<div> <div> Classification </div> <div> USCS= SP </div> <div> AASHTO= </div> </div>		
<div> <div> Remarks </div> </div>		

Location: BI-PBS-64-12 A  
Sample Number: 6462

Depth: 0.0'

Date: 11/23/12

**Thompson Engineering**

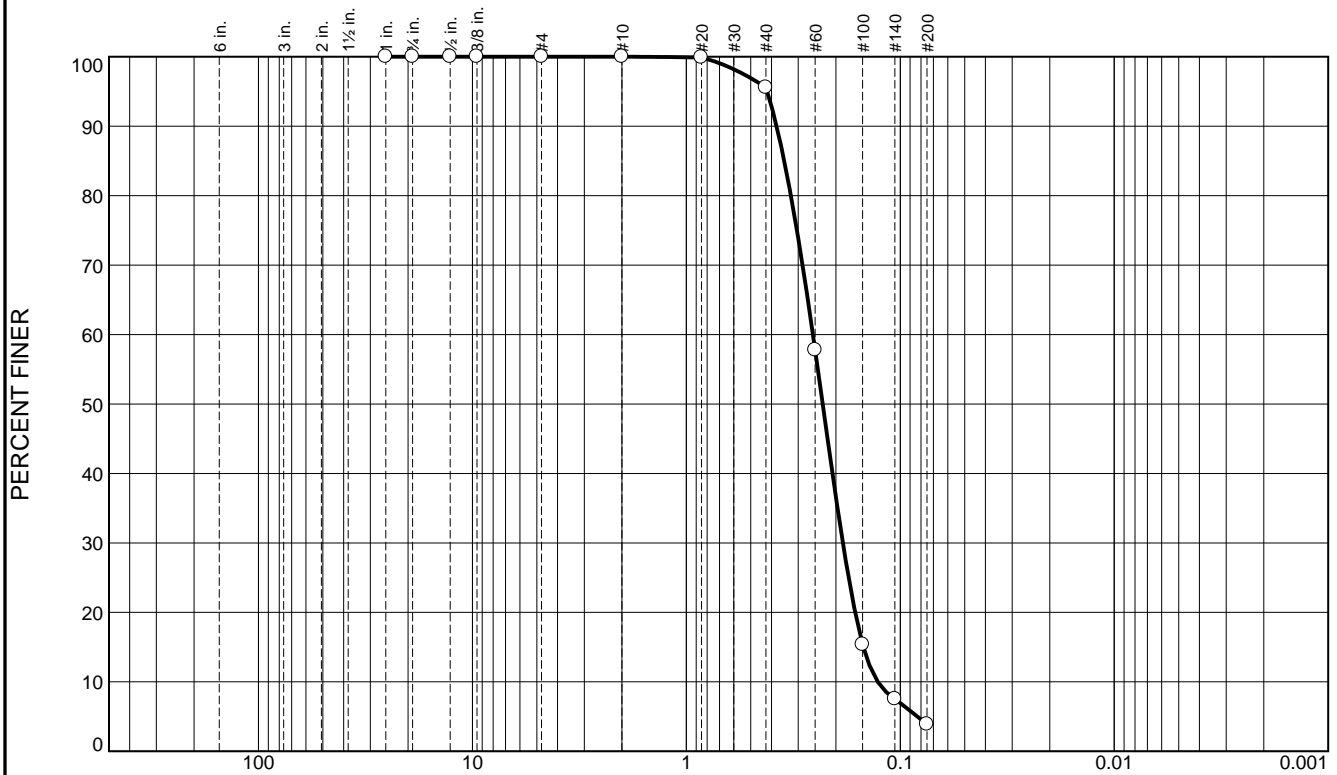
**Mobile, Alabama**

Client: CDM/Thompson Engineering JV  
Project: MsCIP Barrier Island Restoration GT

Project No: 1221110095

Figure

# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.0	0.0	4.4	91.7	3.9	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
1	100.0		
.75	100.0		
.5	100.0		
.375	100.0		
#4	100.0		
#10	100.0		
#20	99.9		
#40	95.6		
#60	57.8		
#100	15.4		
#140	7.5		
#200	3.9		

\* (no specification provided)

Material Description		
Fine grained, SAND		
<div> <div> Atterberg Limits </div> <div> PL= </div> <div> LL= </div> <div> PI= </div> </div>		
<div> <div> Coefficients </div> <div> D<sub>90</sub>= 0.3784 </div> <div> D<sub>50</sub>= 0.2304 </div> <div> D<sub>10</sub>= 0.1275 </div> <div> D<sub>85</sub>= 0.3487 </div> <div> D<sub>30</sub>= 0.1856 </div> <div> C<sub>u</sub>= 2.01 </div> <div> D<sub>60</sub>= 0.2561 </div> <div> D<sub>15</sub>= 0.1488 </div> <div> C<sub>c</sub>= 1.06 </div> </div>		
<div> <div> Classification </div> <div> USCS= SP </div> <div> AASHTO= </div> </div>		
<div> <div> Remarks </div> </div>		

Location: BI-PBS-64-12 B

Sample Number: 6462

Depth: 15.2'

Date: 11/23/12

**Thompson Engineering**

**Mobile, Alabama**

Client: CDM/Thompson Engineering JV

Project: MsCIP Barrier Island Restoration GT

Project No: 1221110095

Figure

# Boring Designation BI-PBS-065-12

DRILLING LOG		DIVISION South Atlantic		INSTALLATION Mobile District		SHEET 1 OF 1 SHEETS	
1. PROJECT MsCIP Barrier Island Restoration Petit Bois Pass-OCS East				9. SIZE AND TYPE OF BIT N/A			
2. BORING DESIGNATION BI-PBS-065-12		LOCATION COORDINATES E = 1,149,511 N = 237,566		10. COORDINATE SYSTEM/DATUM State Plane, MSE (U.S. Ft.)		HORIZONTAL NAD83 VERTICAL NAVD88	
3. DRILLING AGENCY Corps of Engineers - CESAM		CONTRACTOR FILE NO.		11. MANUFACTURER'S DESIGNATION OF DRILL Vibracore		<input type="checkbox"/> AUTO HAMMER <input type="checkbox"/> MANUAL HAMMER	
4. NAME OF DRILLER American Vibracore Systems, Inc.				12. TOTAL SAMPLES		DISTURBED UNDISTURBED (UD) 0	
5. DIRECTION OF BORING <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED				DEG. FROM VERTICAL		BEARING	
6. THICKNESS OF OVERBURDEN N/A				13. TOTAL NUMBER CORE BOXES			
7. DEPTH DRILLED INTO ROCK N/A				14. WATER DEPTH 54 Ft.			
8. TOTAL DEPTH OF BORING 13.4 Ft.				15. DATE BORING STARTED 11-16-12 COMPLETED 11-16-12			
				16. ELEVATION TOP OF BORING -54.1 Ft.			
				17. TOTAL RECOVERY FOR BORING 100%			
				18. SIGNATURE AND TITLE OF INSPECTOR Mike FitzHarris, Geologist			
ELEV.	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS	SAMPLE	LABORATORY RESULTS		
-54.1	0.0						
-56.6	2.5		SAND, poorly-graded, mostly fine to medium-grained sand-sized quartz, trace shell fragments, gray (SP)	A	Classification: SP-SM Color: 5Y 7/1-light gray D50: 0.3177 mm % Fines: 5.8		
-59.3	5.2		SAND, silty, mostly fine-grained sand-sized quartz, some silt, gray (SM)	NS			
-63.0	8.9		CLAY, lean, mostly clay, some sandy clay lenses, gray (CL)				
-64.4	10.3		SAND, poorly-graded with clay, mostly fine-grained sand-sized quartz, little clay, trace shell fragments, gray (SP-SC)				
-67.5	13.4		SAND, poorly-graded, mostly fine-grained sand-sized quartz, trace silt, lt. gray (SP)				
			NOTES: 1. Soils are field visually classified in accordance with the Unified Soils Classification System. 2. NS = Sample not submitted for laboratory analysis from this interval. 3. Seafloor elevation calculated using sampling vessel's fathometer water depth reading and applying NOAA tidal gauge data conversion factor.				



# Project

Mississippi Barrier Island  
Restoration Project

**AVS**  
AMERICAN VIBRACORE  
SERVICES

Core Identifier BI-PBS-65-12

Date 11/16/2012

Water Depth 54.0'

## Coordinate System

Latitude / Longitude

Start Time 15:46:59

End Time 15:54:01

Penetration 14.8'

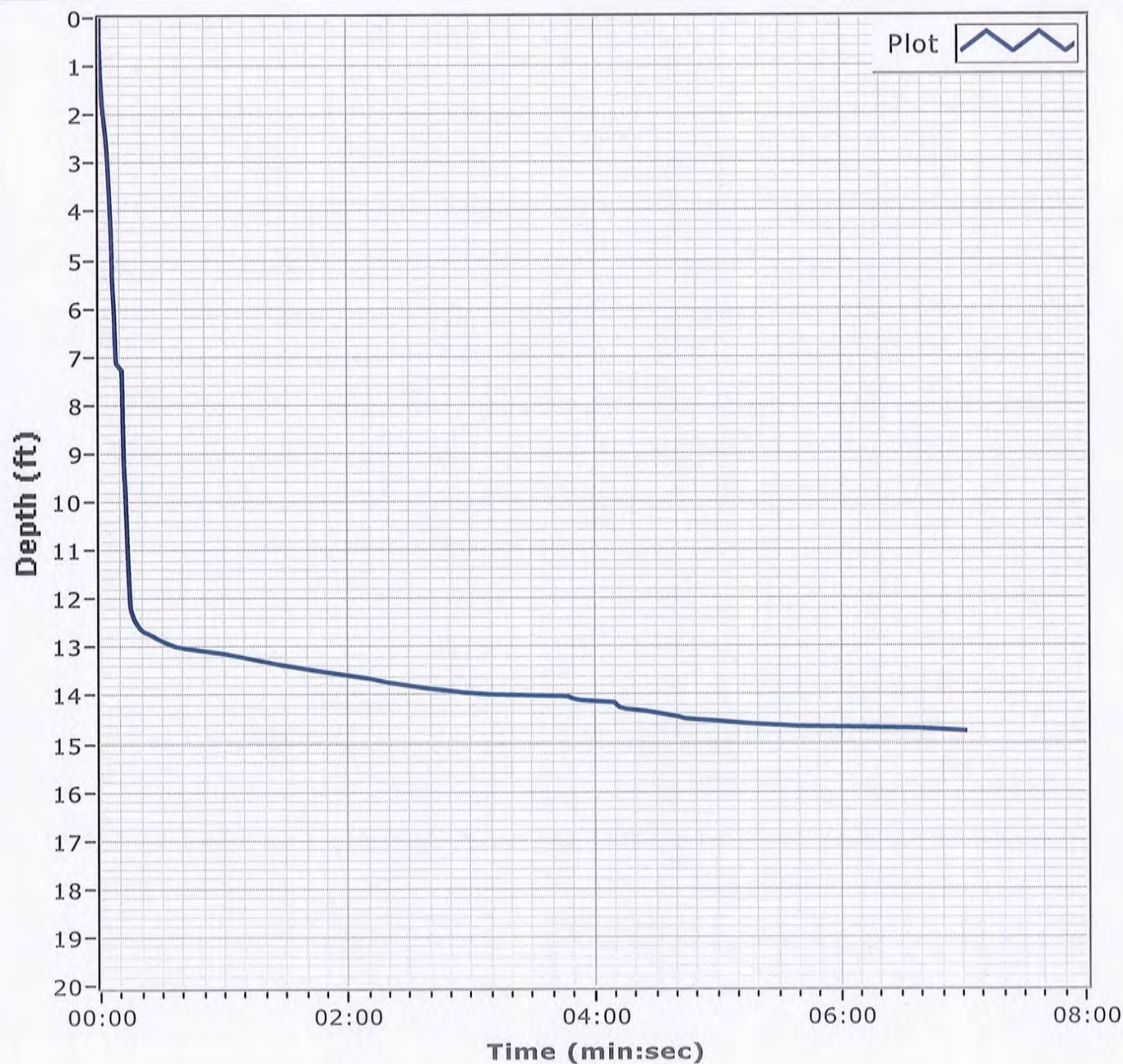
Latitude 30 09.133

Total Time 00:07:01

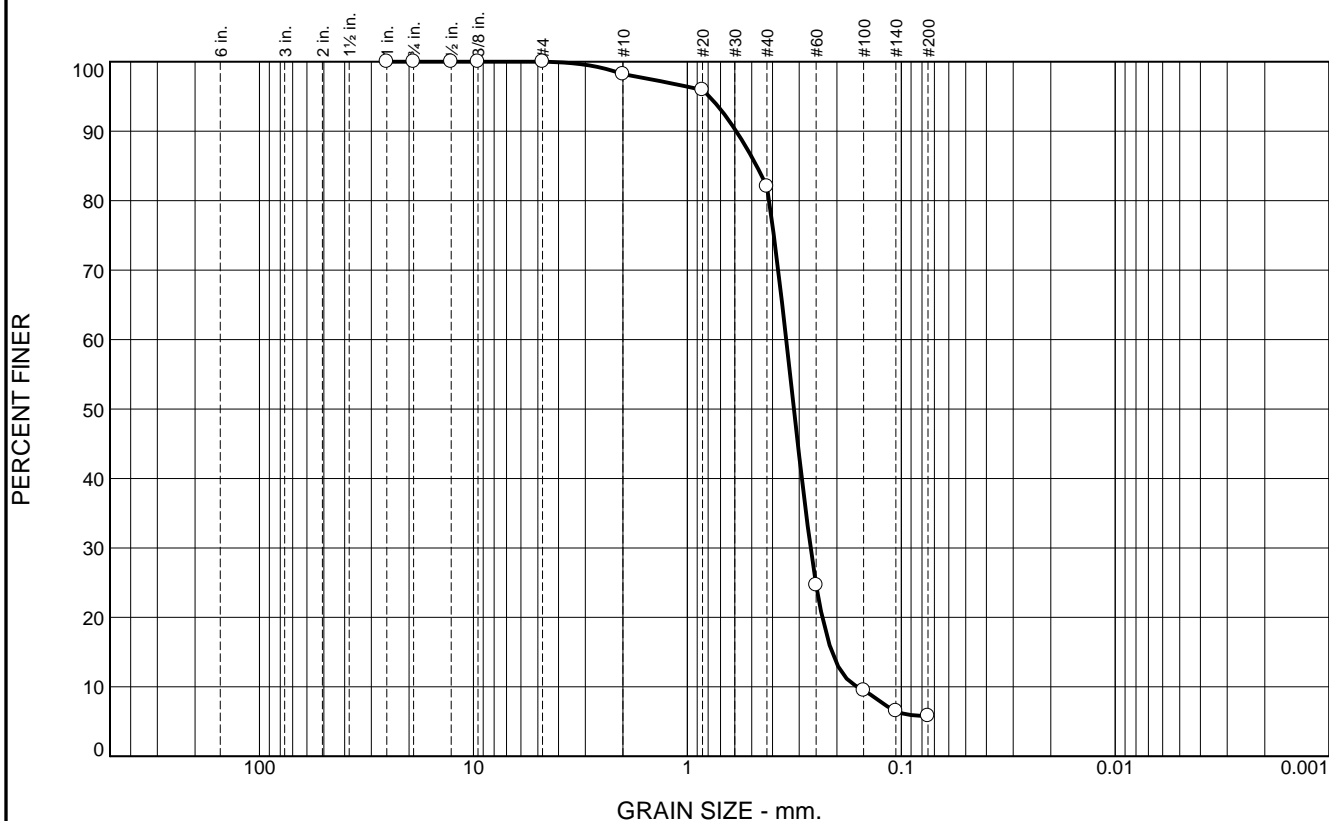
Recovery 13.5'

Longitude 88 18.627

## Comments



# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.0	1.8	16.2	76.2	5.8	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
1	100.0		
.75	100.0		
.5	100.0		
.375	100.0		
#4	100.0		
#10	98.2		
#20	95.9		
#40	82.0		
#60	24.7		
#100	9.5		
#140	6.5		
#200	5.8		

\* (no specification provided)

## Material Description

Fine to medium, SLIGHTLY SILTY SAND, with trace SHELL

## Atterberg Limits

PL= LL= PI=

## Coefficients

D<sub>90</sub>= 0.5910 D<sub>85</sub>= 0.4750 D<sub>60</sub>= 0.3451  
D<sub>50</sub>= 0.3177 D<sub>30</sub>= 0.2656 D<sub>15</sub>= 0.2110  
D<sub>10</sub>= 0.1604 C<sub>u</sub>= 2.15 C<sub>c</sub>= 1.27

## Classification

USCS= SP-SM AASHTO=

## Remarks

Location: BI-PBS-65-12 A

Sample Number: 6462

Depth: 0.0'

Date: 11/23/12

**Thompson Engineering**

**Mobile, Alabama**

Client: CDM/Thompson Engineering JV

Project: MsCIP Barrier Island Restoration GT

Project No: 1221110095

Figure

# Boring Designation BI-PBS-066-12

DRILLING LOG		DIVISION South Atlantic		INSTALLATION Mobile District		SHEET 1 OF 1 SHEETS	
1. PROJECT MsCIP Barrier Island Restoration Petit Bois Pass-OCS East				9. SIZE AND TYPE OF BIT N/A			
2. BORING DESIGNATION BI-PBS-066-12		LOCATION COORDINATES E = 1,148,519 N = 238,154		10. COORDINATE SYSTEM/DATUM State Plane, MSE (U.S. Ft.)		HORIZONTAL NAD83	
3. DRILLING AGENCY Corps of Engineers - CESAM		CONTRACTOR FILE NO.		11. MANUFACTURER'S DESIGNATION OF DRILL Vibracore		<input type="checkbox"/> AUTO HAMMER <input type="checkbox"/> MANUAL HAMMER	
4. NAME OF DRILLER American Vibracore Systems, Inc.				12. TOTAL SAMPLES		DISTURBED 0	
5. DIRECTION OF BORING <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED				13. TOTAL NUMBER CORE BOXES		14. WATER DEPTH 54 Ft.	
6. THICKNESS OF OVERBURDEN N/A				15. DATE BORING		STARTED 11-16-12	
7. DEPTH DRILLED INTO ROCK N/A				16. ELEVATION TOP OF BORING -54.3 Ft.		COMPLETED 11-16-12	
8. TOTAL DEPTH OF BORING 12.6 Ft.				17. TOTAL RECOVERY FOR BORING 100%		18. SIGNATURE AND TITLE OF INSPECTOR Mike FitzHarris, Geologist	
ELEV.	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS	SAMPLE	LABORATORY RESULTS		
-54.3	0.0						
-56.7	2.4		SAND, poorly-graded, mostly fine to medium-grained sand-sized quartz, trace shell fragments, gray (SP)	A	Classification: SP Color: 2.5Y 7/2-light gray D50: 0.3188 mm % Fines: 1.7		
-58.3	4.0		SAND, silty, mostly fine-grained sand-sized quartz, some silt, trace shell fragments, gray (SM)	NS			
-61.1	6.8		SAND, clayey, mostly fine-grained sand-sized quartz, some clay, gray (SC)				
-62.1	7.8		CLAY, lean, mostly clay, little fine-grained sand-sized quartz, gray (CL)				
-63.1	8.8		CLAY, fat, mostly clay, trace fine-grained sand-sized quartz, medium plasticity, gray (CH)				
-63.7	9.4		SAND, clayey, mostly fine-grained sand-sized quartz, some clay, dark gray (SC)				
-64.4	10.1		SAND, silty, mostly fine-grained sand-sized quartz, some silt, dark gray (SM)				
-66.9	12.6		SAND, poorly-graded, mostly fine to medium-grained sand-sized quartz, trace silt, gray (SP)				
NOTES: 1. Soils are field visually classified in accordance with the Unified Soils Classification System. 2. NS = Sample not submitted for laboratory analysis from this interval. 3. Seafloor elevation calculated using sampling vessel's fathometer water depth reading and applying NOAA tidal gauge data conversion factor.							



**Project**

Mississippi Barrier Island  
Restoration Project



**Core Identifier** BI-PBS-66-12

**Date** 11/16/2012

**Water Depth** 54.0'

**Coordinate System**

**Start Time** 14:59:57

Latitude / Longitude

**End Time** 15:03:37

**Penetration** 14.1'

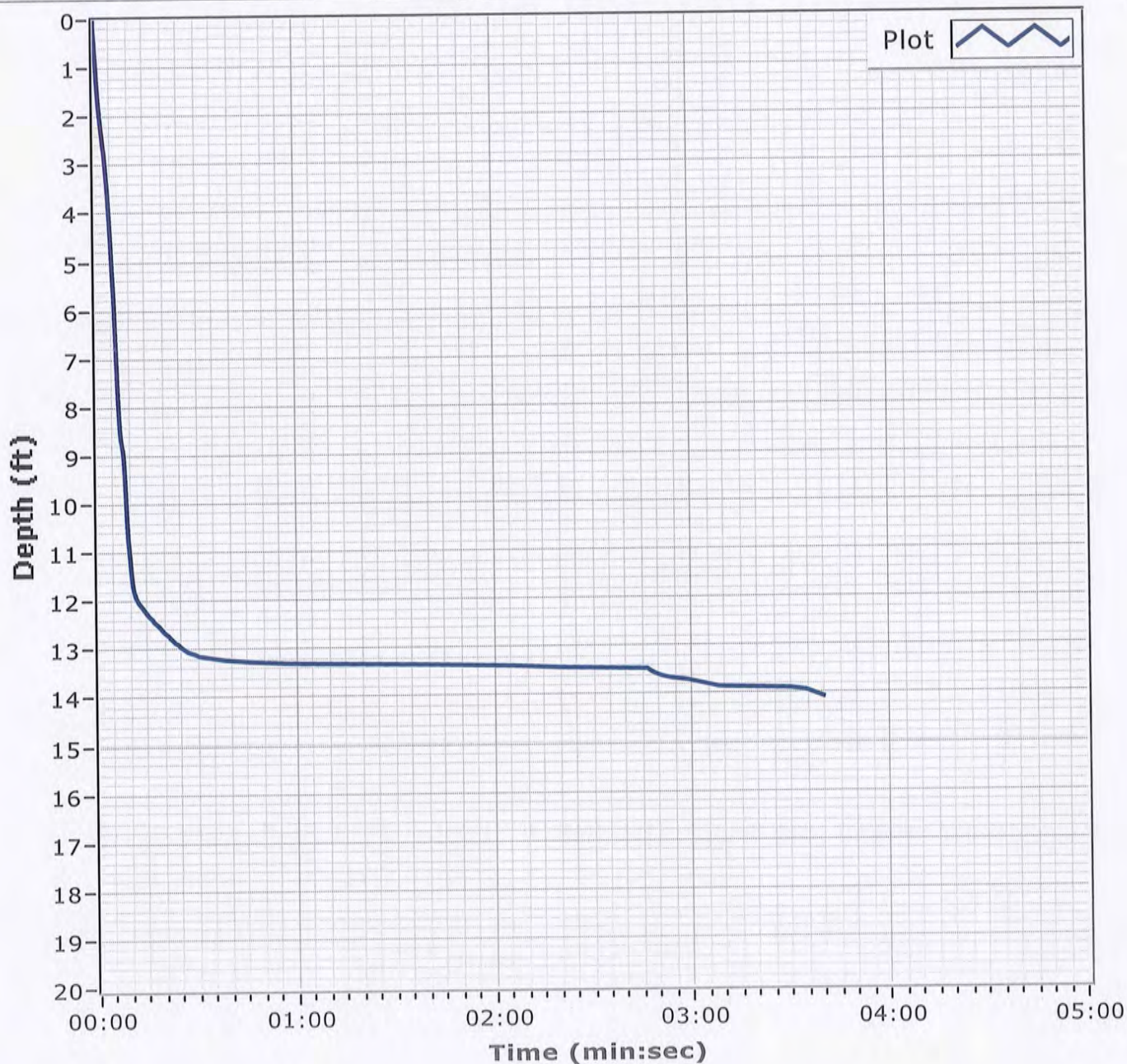
**Latitude** 30 09.231

**Total Time** 00:03:40

**Recovery** 12.8'

**Longitude** 88 18.851

**Comments**





# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.3	0.7	14.1	83.2	1.7	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
1	100.0		
.75	100.0		
.5	100.0		
.375	100.0		
#4	99.7		
#10	99.0		
#20	97.4		
#40	84.9		
#60	21.1		
#100	4.4		
#140	2.3		
#200	1.7		

\* (no specification provided)

<u>Material Description</u>		
Fine to medium grained, SAND		
PL=	<u>Atterberg Limits</u> LL=	PI=
<u>Coefficients</u>		
D <sub>90</sub> = 0.5306	D <sub>85</sub> = 0.4263	D <sub>60</sub> = 0.3434
D <sub>50</sub> = 0.3188	D <sub>30</sub> = 0.2725	D <sub>15</sub> = 0.2308
D <sub>10</sub> = 0.2096	C <sub>u</sub> = 1.64	C <sub>c</sub> = 1.03
<u>Classification</u>		
USCS= SP	AASHTO=	
<u>Remarks</u>		

Location: BI-PBS-66-12 A  
Sample Number: 6462

Depth: 0.0'

Date: 11/23/12

**Thompson Engineering**

**Mobile, Alabama**

Client: CDM/Thompson Engineering JV  
Project: MsCIP Barrier Island Restoration GT

Project No: 1221110095

Figure

# Boring Designation BI-PBS-067-12

DRILLING LOG		DIVISION South Atlantic		INSTALLATION Mobile District		SHEET 1 OF 1 SHEETS	
1. PROJECT MsCIP Barrier Island Restoration Petit Bois Pass-OCS East				9. SIZE AND TYPE OF BIT N/A			
2. BORING DESIGNATION BI-PBS-067-12		LOCATION COORDINATES E = 1,146,753 N = 233,891		10. COORDINATE SYSTEM/DATUM State Plane, MSE (U.S. Ft.)		HORIZONTAL NAD83 VERTICAL NAVD88	
3. DRILLING AGENCY Corps of Engineers - CESAM		CONTRACTOR FILE NO.		11. MANUFACTURER'S DESIGNATION OF DRILL Vibracore		<input type="checkbox"/> AUTO HAMMER <input type="checkbox"/> MANUAL HAMMER	
4. NAME OF DRILLER American Vibracore Systems, Inc.				12. TOTAL SAMPLES		DISTURBED UNDISTURBED (UD) 0	
5. DIRECTION OF BORING <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED				13. TOTAL NUMBER CORE BOXES		14. WATER DEPTH 58.3 Ft.	
6. THICKNESS OF OVERBURDEN N/A				15. DATE BORING		STARTED 11-19-12 COMPLETED 11-19-12	
7. DEPTH DRILLED INTO ROCK N/A				16. ELEVATION TOP OF BORING -58.3 Ft.		17. TOTAL RECOVERY FOR BORING 100%	
8. TOTAL DEPTH OF BORING 18.8 Ft.				18. SIGNATURE AND TITLE OF INSPECTOR John Bass, Geotechnical Engineer			
ELEV.	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS	SAMPLE	LABORATORY RESULTS		
-58.3	0.0						
			SAND, poorly-graded, mostly fine to medium-grained sand-sized quartz, trace clay, gray (SP)	A	Classification: SP-SM Color: 5Y 6/2-light olive gray D50: 0.1928 mm % Fines: 8.3		
-62.5	4.2		SAND, clayey, mostly fine-grained sand-sized quartz, some clay, few shell fragments, gray (SC)				
-65.5	7.2		CLAY, fat, mostly clay, trace fine-grained sand-sized quartz, little sandy lenses, gray (CH)				
			At El. -72.1 Ft., mostly clay, few shell fragments, lt. gray mottled with orange	NS			
-77.1	18.8						
			NOTES: 1. Soils are field visually classified in accordance with the Unified Soils Classification System. 2. NS = Sample not submitted for laboratory analysis from this interval. 3. Seafloor elevation calculated using sampling vessel's fathometer water depth reading and applying NOAA tidal gauge data conversion factor.				

**Project**

Mississippi Barrier Island  
Restoration Project

**AVS**  
**AMERICAN VIBRACORE**  
**S E R V I C E S**

**Core Identifier** BI-PBS-67-12

**Date** 11/19/2012

**Water Depth** 58.3'

**Coordinate System**

Latitude / Longitude

**Start Time** 10:57:17

**End Time** 10:58:22

**Penetration** 19.8'

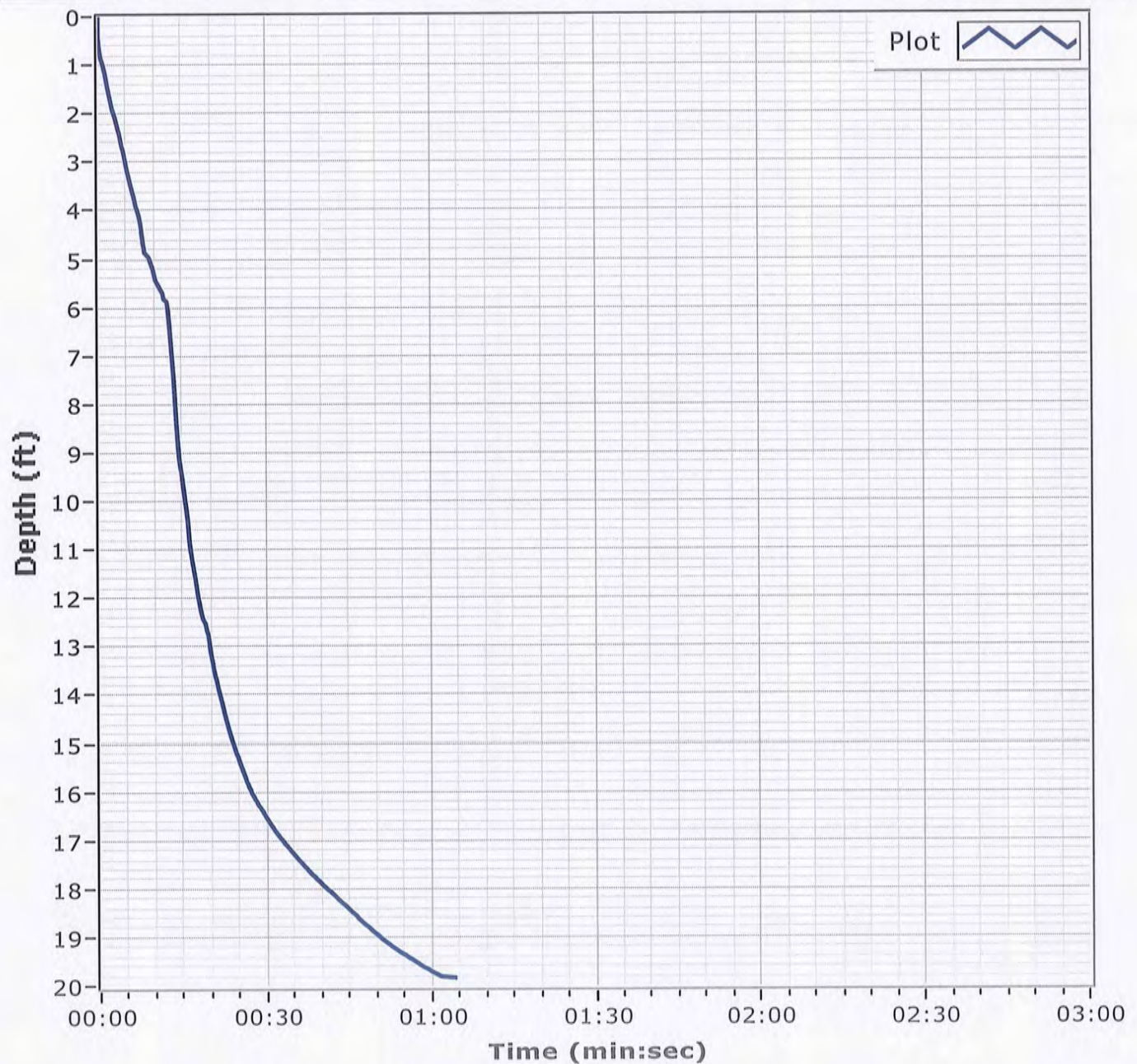
**Latitude** 30 08.529

**Total Time** 00:01:04

**Recovery** 18.8'

**Longitude** 88 19.154

**Comments**



# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.0	0.0	7.3	84.4	8.3	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
1	100.0		
.75	100.0		
.5	100.0		
.375	100.0		
#4	100.0		
#10	100.0		
#20	98.1		
#40	92.7		
#60	75.6		
#100	26.0		
#140	12.6		
#200	8.3		

\* (no specification provided)

<u><b>Material Description</b></u>		
Fine grained, SLIGHTLY SILTY SAND		
<u><b>Atterberg Limits</b></u>		
PL=	LL=	PI=
<u><b>Coefficients</b></u>		
D <sub>90</sub> = 0.3461	D <sub>85</sub> = 0.2935	D <sub>60</sub> = 0.2116
D <sub>50</sub> = 0.1928	D <sub>30</sub> = 0.1578	D <sub>15</sub> = 0.1185
D <sub>10</sub> = 0.0885	C <sub>u</sub> = 2.39	C <sub>c</sub> = 1.33
<u><b>Classification</b></u>		
USCS= SP-SM	AASHTO=	
<u><b>Remarks</b></u>		

Location: BI-PBS-67-12 A  
Sample Number: 6462

Depth: 0.0'

Date: 11/23/12

**Thompson Engineering**

**Mobile, Alabama**

Client: CDM/Thompson Engineering JV  
Project: MsCIP Barrier Island Restoration GT

Project No: 1221110095

Figure

# Boring Designation BI-PBS-068-12

DRILLING LOG		DIVISION South Atlantic		INSTALLATION Mobile District		SHEET 1 OF 2 SHEETS	
1. PROJECT MsCIP Barrier Island Restoration Petit Bois Pass-OCS East				9. SIZE AND TYPE OF BIT N/A			
2. BORING DESIGNATION BI-PBS-068-12		LOCATION COORDINATES E = 1,147,801 N = 232,732		10. COORDINATE SYSTEM/DATUM State Plane, MSE (U.S. Ft.)		HORIZONTAL NAD83	
3. DRILLING AGENCY Corps of Engineers - CESAM		CONTRACTOR FILE NO.		11. MANUFACTURER'S DESIGNATION OF DRILL Vibrocure		<input type="checkbox"/> AUTO HAMMER <input type="checkbox"/> MANUAL HAMMER	
4. NAME OF DRILLER American Vibrocure Systems, Inc.				12. TOTAL SAMPLES		DISTURBED 0	
5. DIRECTION OF BORING <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED				13. TOTAL NUMBER CORE BOXES		14. WATER DEPTH 57.8 Ft.	
6. THICKNESS OF OVERBURDEN N/A				15. DATE BORING		STARTED 11-19-12	
7. DEPTH DRILLED INTO ROCK N/A				16. ELEVATION TOP OF BORING -57.9 Ft.		COMPLETED 11-19-12	
8. TOTAL DEPTH OF BORING 19.3 Ft.				17. TOTAL RECOVERY FOR BORING 100%		18. SIGNATURE AND TITLE OF INSPECTOR John Bass, Geotechnical Engineer	
ELEV.	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS	SAMPLE	LABORATORY RESULTS		
-57.9	0.0						
-61.8	3.9		SAND, poorly-graded, mostly fine to medium-grained sand-sized quartz, few shell fragments, trace fines, gray (SP)	A	Classification: SP Color: 2.5Y 7/1-light gray D50: 0.3374 mm % Fines: 2.7		
-68.6	10.7		SAND, clayey, mostly fine-grained sand-sized quartz, some clay, trace shell fragments, gray (SC)	NS			
-77.2	19.3		CLAY, fat, mostly clay, trace fine-grained sand-sized quartz, medium plasticity, gray (CH)  At El. -74.9 Ft., mostly clay, few organic matter, gray and brown mottled At El. -75.4 Ft., mostly clay, high plasticity, very stiff, dark gray				
NOTES: 1. Soils are field visually classified in accordance with the Unified Soils Classification System. 2. NS = Sample not submitted for laboratory analysis from this interval. 3. Seafloor elevation calculated using sampling vessel's fathometer water depth reading and							

<b>DRILLING LOG (Cont. Sheet)</b>			<b>INSTALLATION</b> Mobile District		<b>SHEET 2</b> <b>OF 2 SHEETS</b>
<b>PROJECT</b> MsCIP Barrier Island Restoration			<b>COORDINATE SYSTEM/DATUM</b> State Plane, MSE (U.S. Ft.)	<b>HORIZONTAL</b> NAD83	<b>VERTICAL</b> NAVD88
<b>LOCATION COORDINATES</b> X = 1,147,801 Y = 232,732			<b>ELEVATION TOP OF BORING</b> -57.9 Ft.		
<b>ELEV.</b>	<b>DEPTH</b>	<b>LEGEND</b>	<b>CLASSIFICATION OF MATERIALS</b>	<b>SAMPLE</b>	<b>LABORATORY RESULTS</b>
			applying NOAA tidal gauge data conversion factor.		



**Project**

Mississippi Barrier Island  
Restoration Project

**AVS**  
**AMERICAN VIBRACORE**  
**S E R V I C E S**

**Core Identifier** BI-PBS-68-12

**Date** 11/19/2012

**Water Depth** 57.8'

**Coordinate System**

Latitude / Longitude

**Start Time** 13:13:12

**End Time** 13:13:57

**Penetration** 20.0'

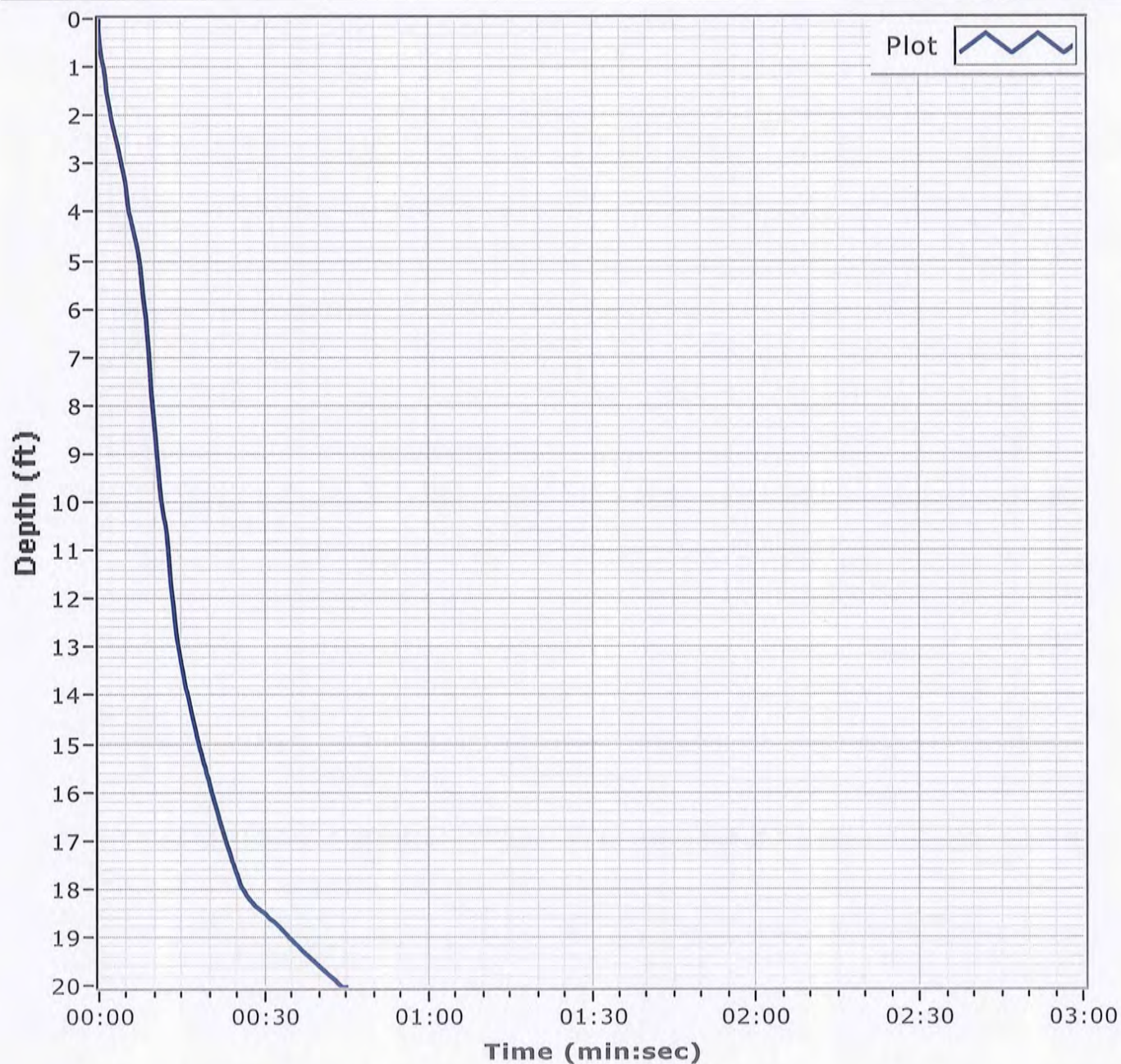
**Latitude** 30 08.337

**Total Time** 00:00:45

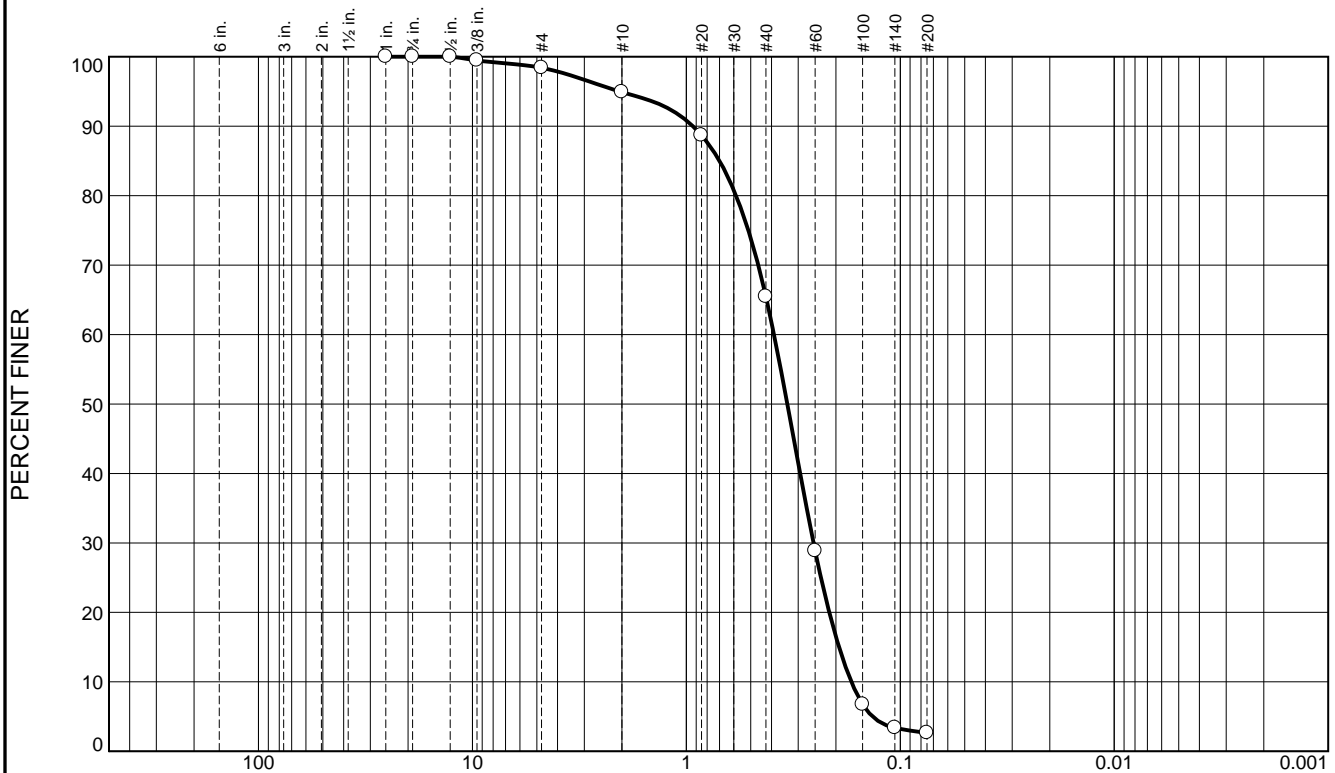
**Recovery** 19.3'

**Longitude** 88 18.956

**Comments**



# Particle Size Distribution Report





# Boring Designation BI-PBS-069-12

DRILLING LOG		DIVISION South Atlantic		INSTALLATION Mobile District		SHEET 1 OF 1 SHEETS	
1. PROJECT MsCIP Barrier Island Restoration Petit Bois Pass-OCS East				9. SIZE AND TYPE OF BIT N/A			
2. BORING DESIGNATION BI-PBS-069-12		LOCATION COORDINATES E = 1,150,215 N = 233,725		10. COORDINATE SYSTEM/DATUM State Plane, MSE (U.S. Ft.)		HORIZONTAL NAD83	
3. DRILLING AGENCY Corps of Engineers - CESAM		CONTRACTOR FILE NO.		11. MANUFACTURER'S DESIGNATION OF DRILL Vibracore		<input type="checkbox"/> AUTO HAMMER <input type="checkbox"/> MANUAL HAMMER	
4. NAME OF DRILLER American Vibracore Systems, Inc.				12. TOTAL SAMPLES		DISTURBED 0	
5. DIRECTION OF BORING <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED				13. TOTAL NUMBER CORE BOXES		14. WATER DEPTH 61.8 Ft.	
6. THICKNESS OF OVERBURDEN N/A				15. DATE BORING		STARTED 11-19-12	
7. DEPTH DRILLED INTO ROCK N/A				16. ELEVATION TOP OF BORING -61.9 Ft.		COMPLETED 11-19-12	
8. TOTAL DEPTH OF BORING 16.3 Ft.				17. TOTAL RECOVERY FOR BORING 100%		18. SIGNATURE AND TITLE OF INSPECTOR John Bass, Geotechnical Engineer	
ELEV.	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS	SAMPLE	LABORATORY RESULTS		
-61.9	0.0						
-62.3	0.4						
-63.0	1.1		CLAY, fat, mostly clay, trace sand, gray (CH)	NS A	Classification: SP-SM Color: 5Y 7/2-light gray D50: 0.2889 mm % Fines: 6.2		
			SAND, poorly-graded, mostly fine to medium-grained sand-sized quartz, trace clay, gray (SP)				
			SAND, clayey, mostly fine-grained sand-sized quartz, trace wood debris, trace shell fragments, gray (SC)	NS			
-77.1	15.2						
-78.2	16.3		SAND, poorly-graded, mostly fine-grained sand-sized quartz, trace fines, dense, lt. gray (SP)	B	Classification: SM Color: 10YR 6/2-light brownish gray D50: 0.1428 mm % Fines: 20.1		
NOTES: 1. Soils are field visually classified in accordance with the Unified Soils Classification System. 2. NS = Sample not submitted for laboratory analysis from this interval. 3. Seafloor elevation calculated using sampling vessel's fathometer water depth reading and applying NOAA tidal gauge data conversion factor.							

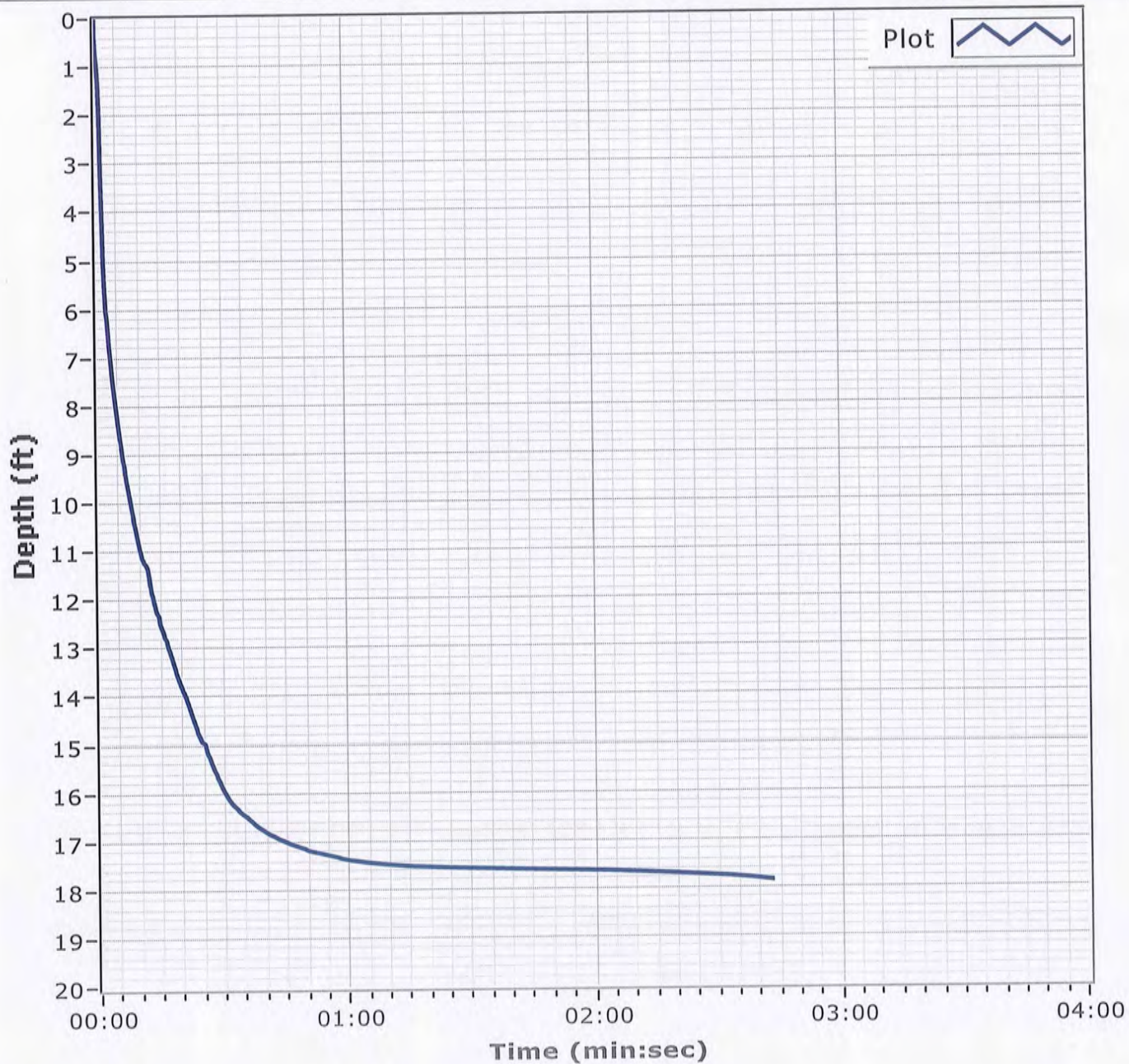
**Project**

Mississippi Barrier Island  
Restoration Project

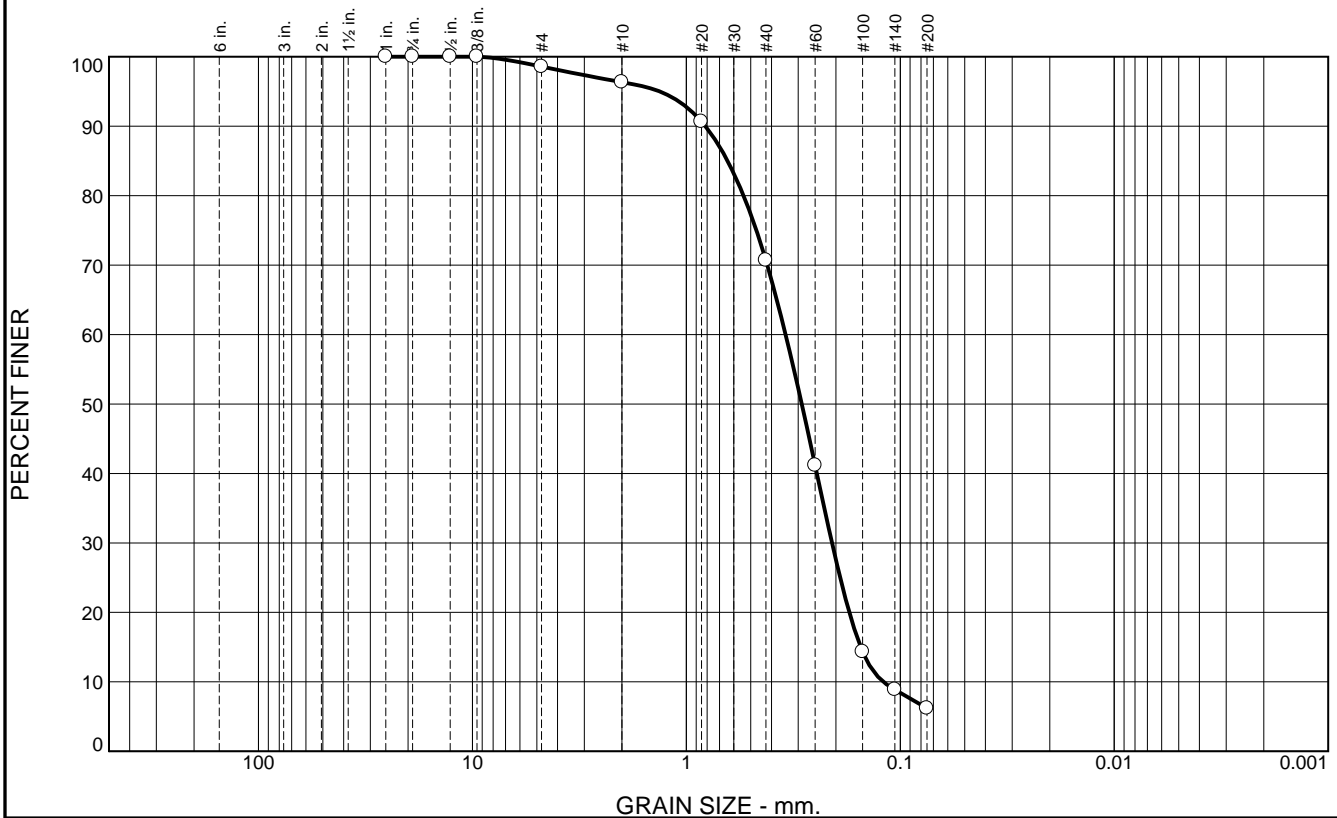
**AVS**  
**AMERICAN VIBRACORE**  
**S E R V I C E S**

**Core Identifier** BI-PBS-69-12**Date** 11/19/2012**Water Depth** 61.8'**Coordinate System**

Latitude / Longitude

**Start Time** 11:47:54**End Time** 11:50:37**Penetration** 17.9'**Latitude** 30 08.499**Total Time** 00:02:43**Recovery** 16.3'**Longitude** 88 18.497**Comments**

# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	1.4	2.3	25.6	64.5	6.2	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
1	100.0		
.75	100.0		
.5	100.0		
.375	100.0		
#4	98.6		
#10	96.3		
#20	90.6		
#40	70.7		
#60	41.2		
#100	14.3		
#140	8.9		
#200	6.2		

\* (no specification provided)

**Material Description**  
Fine to medium grained, SLIGHTLY SILTY SAND

**Atterberg Limits**  
 PL=                      LL=                      PI=

**Coefficients**  
 D<sub>90</sub>= 0.8163      D<sub>85</sub>= 0.6420      D<sub>60</sub>= 0.3437  
 D<sub>50</sub>= 0.2889      D<sub>30</sub>= 0.2085      D<sub>15</sub>= 0.1532  
 D<sub>10</sub>= 0.1201      C<sub>u</sub>= 2.86              C<sub>c</sub>= 1.05

**Classification**  
 USCS= SP-SM                      AASHTO=

**Remarks**

Location: BI-PBS-69-12 A  
Sample Number: 6462

Depth: 0.4'

Date: 11/23/12

**Thompson Engineering**

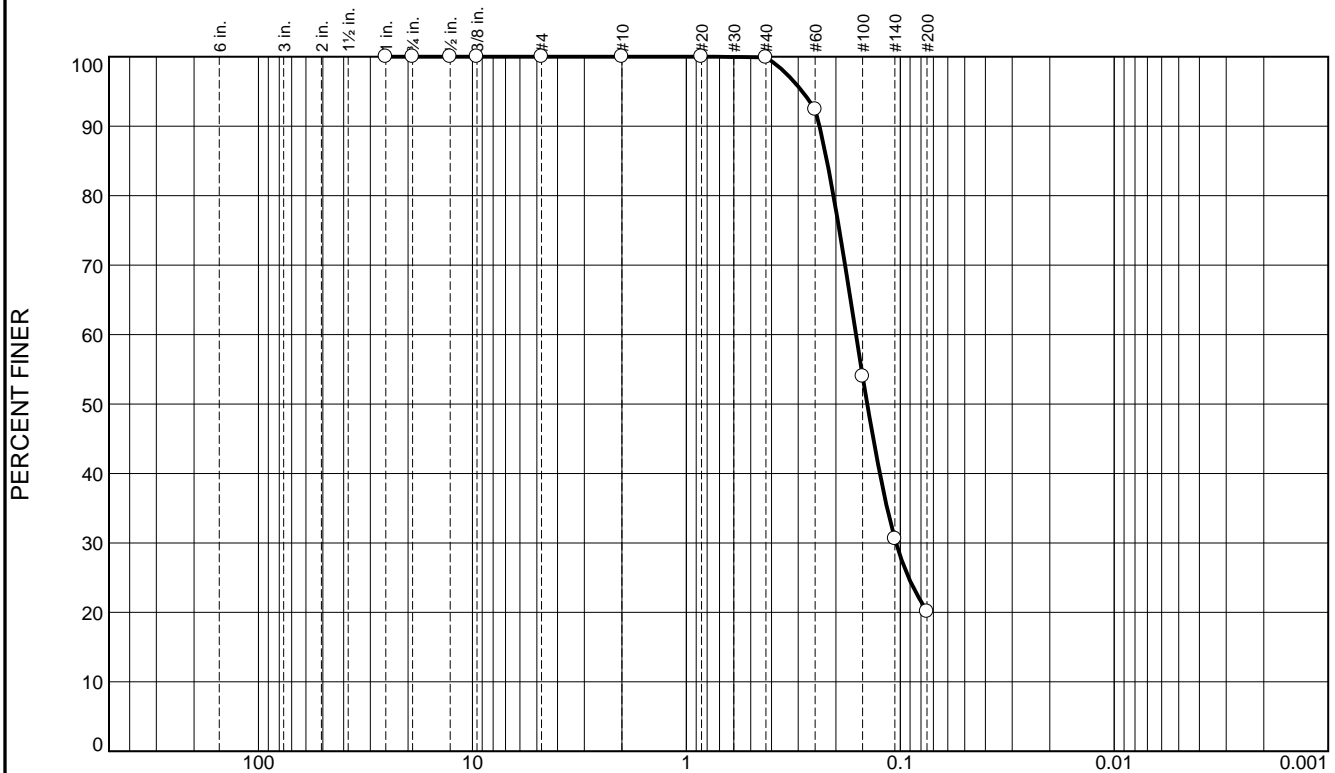
**Mobile, Alabama**

Client: CDM/Thompson Engineering JV  
Project: MsCIP Barrier Island Restoration GT

Project No: 1221110095

Figure

# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.0	0.0	0.1	79.8	20.1	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
1	100.0		
.75	100.0		
.5	100.0		
.375	100.0		
#4	100.0		
#10	100.0		
#20	100.0		
#40	99.9		
#60	92.4		
#100	54.0		
#140	30.6		
#200	20.1		

\* (no specification provided)

## Material Description

Fine grained, SILTY SAND

## Atterberg Limits

PL=

LL=

PI=

## Coefficients

D<sub>90</sub>= 0.2386

D<sub>85</sub>= 0.2201

D<sub>60</sub>= 0.1612

D<sub>50</sub>= 0.1428

D<sub>30</sub>= 0.1047

D<sub>15</sub>=

D<sub>10</sub>=

C<sub>u</sub>=

C<sub>c</sub>=

## Classification

USCS= SM

AASHTO=

## Remarks

Location: BI-PBS-69-12 B

Sample Number: 6462

Depth: 15.2'

Date: 11/23/12

**Thompson Engineering**

**Mobile, Alabama**

Client: CDM/Thompson Engineering JV

Project: MsCIP Barrier Island Restoration GT

Project No: 1221110095

Figure

# Boring Designation BI-PBS-070-12

DRILLING LOG		DIVISION South Atlantic		INSTALLATION Mobile District		SHEET 1 OF 2 SHEETS	
1. PROJECT MsCIP Barrier Island Restoration Petit Bois Pass-OCS East				9. SIZE AND TYPE OF BIT N/A			
2. BORING DESIGNATION BI-PBS-070-12		LOCATION COORDINATES E = 1,148,982 N = 235,828		10. COORDINATE SYSTEM/DATUM State Plane, MSE (U.S. Ft.)		HORIZONTAL NAD83 VERTICAL NAVD88	
3. DRILLING AGENCY Corps of Engineers - CESAM		CONTRACTOR FILE NO.		11. MANUFACTURER'S DESIGNATION OF DRILL Vibracore		<input type="checkbox"/> AUTO HAMMER <input type="checkbox"/> MANUAL HAMMER	
4. NAME OF DRILLER American Vibracore Systems, Inc.				12. TOTAL SAMPLES		DISTURBED UNDISTURBED (UD) 0	
5. DIRECTION OF BORING <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED		DEG. FROM VERTICAL		13. TOTAL NUMBER CORE BOXES			
		BEARING		14. WATER DEPTH 60 Ft.			
6. THICKNESS OF OVERBURDEN N/A				15. DATE BORING 11-19-12		STARTED COMPLETED 11-19-12	
7. DEPTH DRILLED INTO ROCK N/A				16. ELEVATION TOP OF BORING -59.9 Ft.			
8. TOTAL DEPTH OF BORING 18.3 Ft.				17. TOTAL RECOVERY FOR BORING 100%			
				18. SIGNATURE AND TITLE OF INSPECTOR John Bass, Geotechnical Engineer			

ELEV.	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS	SAMPLE	LABORATORY RESULTS
-59.9	0.0				
-62.0	2.1		SAND, clayey, mostly fine-grained sand-sized quartz, some clay, trace shell fragments, gray (SC)		
			CLAY, fat, mostly clay, trace organic matter, with some sandy clay lenses, gray (CH)		
-67.6	7.7			NS	
			SAND, clayey, mostly fine-grained sand-sized quartz, some clay, gray (SC)		
-73.2	13.3				
			SAND, poorly-graded, mostly fine-grained sand-sized quartz, few fines, lt. gray (SP)		
-77.5	17.6		At El. -75.1 Ft., mostly fine-grained sand-sized quartz, trace fines, lt. gray	A	Classification: SP-SM Color: 2.5Y 7/2-light gray D50: 0.2041 mm % Fines: 7.3
-78.2	18.3		SAND, clayey, mostly fine-grained sand-sized quartz, some clay, trace wood debris, gray (SC)		
			NOTES: 1. Soils are field visually classified in accordance with the Unified Soils Classification System. 2. NS = Sample not submitted for laboratory analysis from this interval. 3. Seafloor elevation calculated using sampling vessel's fathometer water depth reading and		

<b>DRILLING LOG (Cont. Sheet)</b>			<b>INSTALLATION</b> Mobile District		<b>SHEET 2</b> <b>OF 2 SHEETS</b>
<b>PROJECT</b> MsCIP Barrier Island Restoration			<b>COORDINATE SYSTEM/DATUM</b> State Plane, MSE (U.S. Ft.)	<b>HORIZONTAL</b> NAD83	<b>VERTICAL</b> NAVD88
<b>LOCATION COORDINATES</b> X = 1,148,982 Y = 235,828			<b>ELEVATION TOP OF BORING</b> -59.9 Ft.		
<b>ELEV.</b>	<b>DEPTH</b>	<b>LEGEND</b>	<b>CLASSIFICATION OF MATERIALS</b>	<b>SAMPLE</b>	<b>LABORATORY RESULTS</b>
			applying NOAA tidal gauge data conversion factor.		



# Project

Mississippi Barrier Island  
Restoration Project

**AVS**  
AMERICAN VIBRACORE  
SERVICES

Core Identifier BI-PBS-70-12

Date 11/19/2012

Water Depth 60.0'

## Coordinate System

Latitude / Longitude

Start Time 09:19:38

End Time 09:21:13

Penetration 20.0'

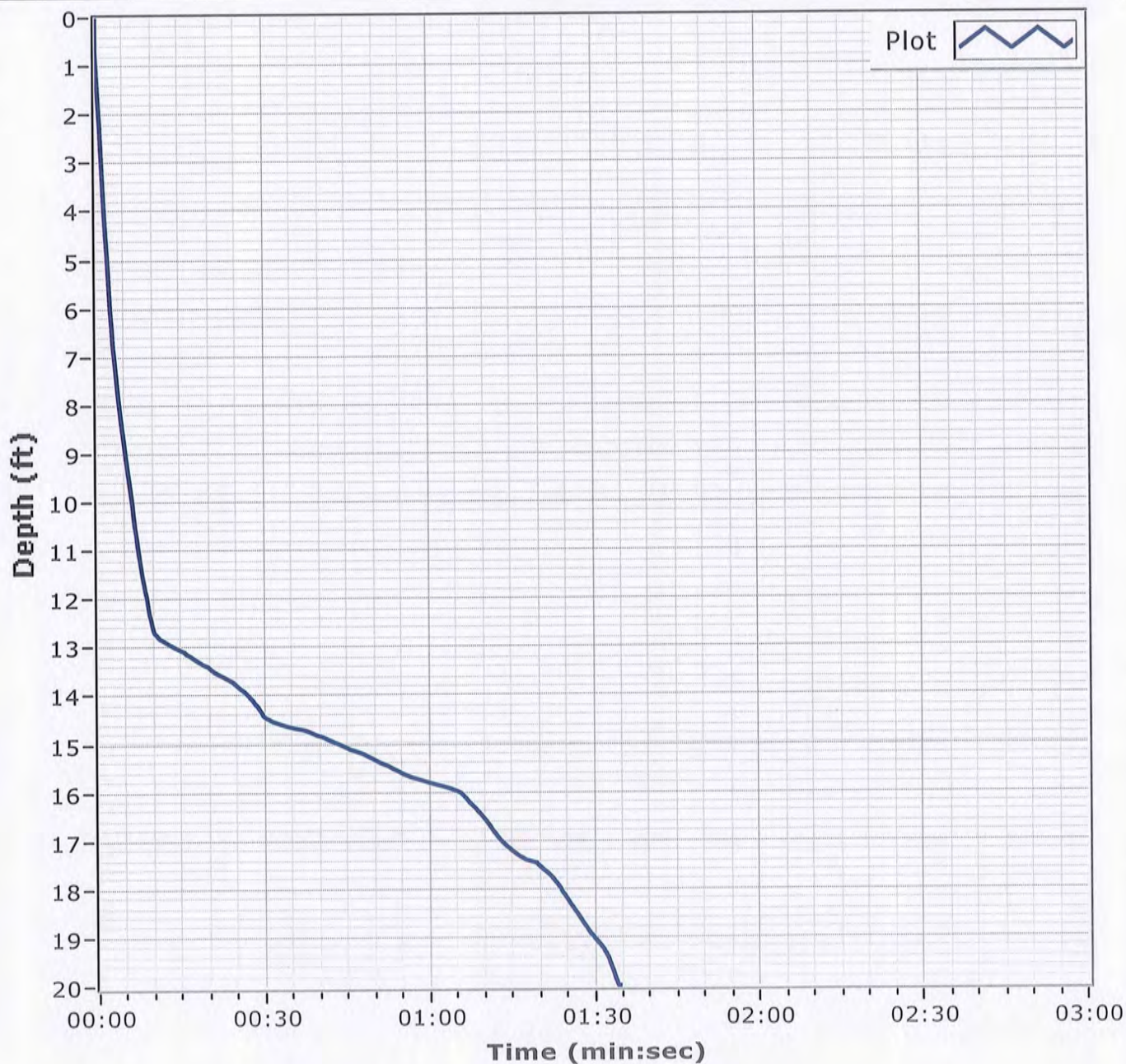
Latitude 30 08.847

Total Time 00:01:34

Recovery 18.3'

Longitude 88 18.729

## Comments



# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.2	0.5	0.5	91.5	7.3	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
1	100.0		
.75	100.0		
.5	100.0		
.375	100.0		
#4	99.8		
#10	99.3		
#20	99.2		
#40	98.8		
#60	71.1		
#100	20.8		
#140	9.9		
#200	7.3		

\* (no specification provided)

## Material Description

Fine grained, SLIGHTLY SILTY SAND

## Atterberg Limits

PL= LL= PI=

## Coefficients

D<sub>90</sub>= 0.3276 D<sub>85</sub>= 0.2996 D<sub>60</sub>= 0.2238  
D<sub>50</sub>= 0.2041 D<sub>30</sub>= 0.1682 D<sub>15</sub>= 0.1339  
D<sub>10</sub>= 0.1068 C<sub>u</sub>= 2.09 C<sub>c</sub>= 1.18

## Classification

USCS= SP-SM AASHTO=

## Remarks

Location: BI-PBS-70-12 A

Sample Number: 6462

Depth: 15.2'

Date: 11/23/12

**Thompson Engineering**

**Mobile, Alabama**

Client: CDM/Thompson Engineering JV

Project: MsCIP Barrier Island Restoration GT

Project No: 1221110095

Figure



# Boring Designation BI-PBS-071-12

DRILLING LOG		DIVISION South Atlantic		INSTALLATION Mobile District		SHEET 1 OF 1 SHEETS	
1. PROJECT MsCIP Barrier Island Restoration Petit Bois Pass-OCS East				9. SIZE AND TYPE OF BIT N/A			
2. BORING DESIGNATION BI-PBS-071-12		LOCATION COORDINATES E = 1,148,382 N = 232,181		10. COORDINATE SYSTEM/DATUM State Plane, MSE (U.S. Ft.)		HORIZONTAL NAD83 VERTICAL NAVD88	
3. DRILLING AGENCY Corps of Engineers - CESAM		CONTRACTOR FILE NO.		11. MANUFACTURER'S DESIGNATION OF DRILL Vibracore		<input type="checkbox"/> AUTO HAMMER <input type="checkbox"/> MANUAL HAMMER	
4. NAME OF DRILLER American Vibracore Systems, Inc.				12. TOTAL SAMPLES		DISTURBED UNDISTURBED (UD) 0	
5. DIRECTION OF BORING <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED		DEG. FROM VERTICAL		13. TOTAL NUMBER CORE BOXES			
		BEARING		14. WATER DEPTH 57.6 Ft.			
6. THICKNESS OF OVERBURDEN N/A				15. DATE BORING 11-19-12		STARTED COMPLETED 11-19-12	
7. DEPTH DRILLED INTO ROCK N/A				16. ELEVATION TOP OF BORING -57.7 Ft.			
8. TOTAL DEPTH OF BORING 18.4 Ft.				17. TOTAL RECOVERY FOR BORING 100%			
				18. SIGNATURE AND TITLE OF INSPECTOR John Bass, Geotechnical Engineer			
ELEV.	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS	SAMPLE	LABORATORY RESULTS		
-57.7	0.0						
			SAND, poorly-graded, mostly fine to medium-grained sand-sized quartz, few fines, few shell fragments, light gray (SP)	A	Classification: SP Color: 5Y 7/2-light gray D50: 0.2468 mm % Fines: 3.4		
-61.1	3.4						
			SAND, clayey, mostly fine-grained sand-sized quartz, some clay, few shell fragments, gray (SC)	B	Classification: SM Color: 5Y 5/2-olive gray D50: 0.209 mm % Fines: 13.2		
-62.9	5.2						
-63.6	5.9			NS			
			CLAY, fat, mostly clay, trace fine-grained sand, medium plasticity, gray (CH)				
			SAND, clayey, mostly fine-grained sand-sized quartz, some clay, few shell fragments, gray (SC)	C	Classification: SM Color: 5Y 6/2-light olive gray D50: 0.1997 mm % Fines: 15.3		
-68.2	10.5						
			CLAY, fat, mostly clay, high plasticity, dark gray mottled with grayish brown (CH)	NS			
-76.1	18.4						
			NOTES: 1. Soils are field visually classified in accordance with the Unified Soils Classification System. 2. NS = Sample not submitted for laboratory analysis from this interval. 3. Seafloor elevation calculated using sampling vessel's fathometer water depth reading and applying NOAA tidal gauge data conversion factor.				

**Project**

Mississippi Barrier Island  
Restoration Project

**AVS**  
**AMERICAN VIBRACORE**  
**S E R V I C E S**

**Core Identifier** BI-PBS-71-12

**Date** 11/19/2012

**Water Depth** 57.6'

**Coordinate System**

Latitude / Longitude

**Start Time** 14:05:31

**End Time** 14:06:16

**Penetration** 20.0'

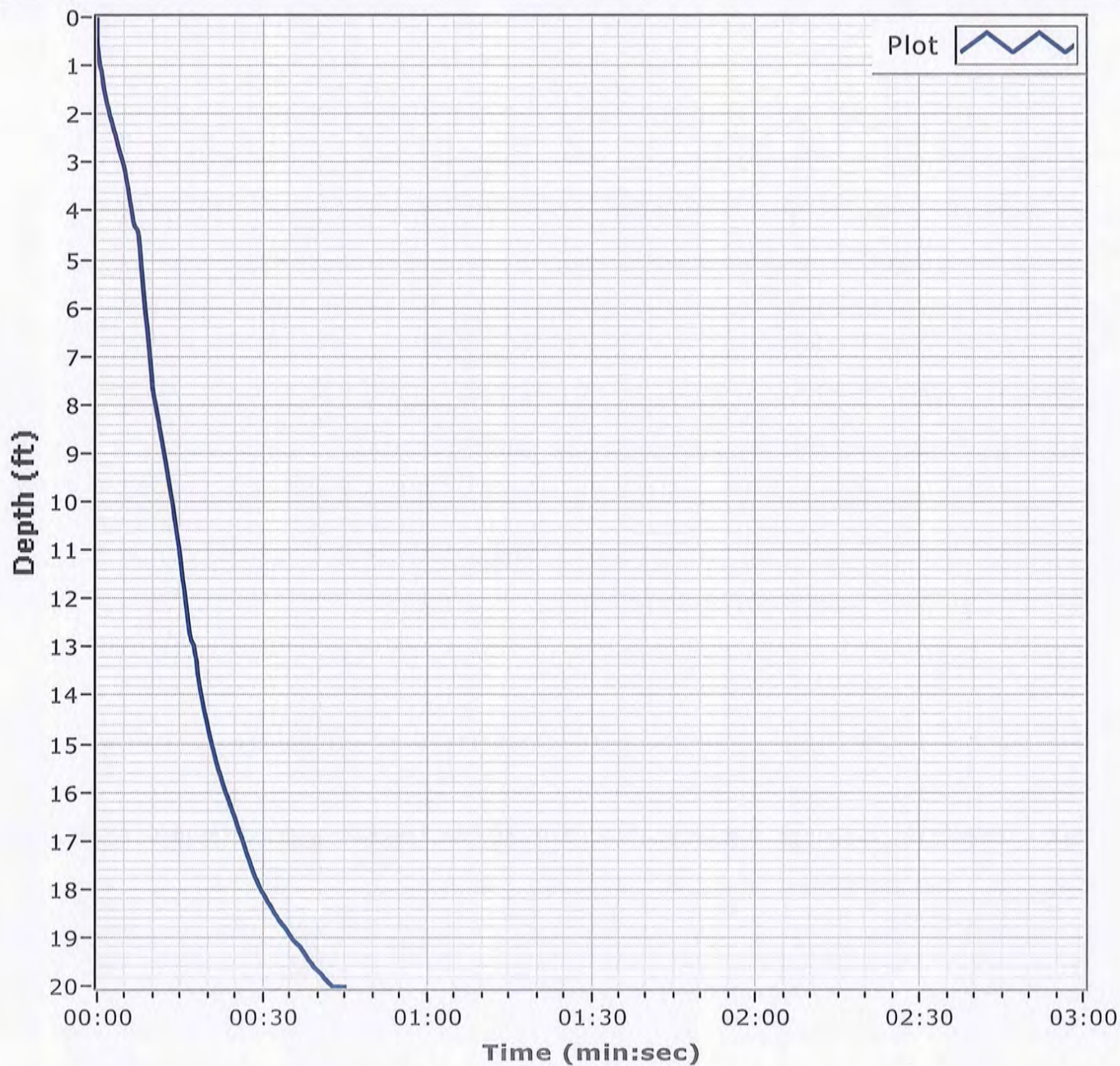
**Latitude** 30 08.246

**Total Time** 00:00:45

**Recovery** 18.4'

**Longitude** 88 18.846

**Comments**



# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	1.1	1.2	13.0	81.3	3.4	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
1	100.0		
.75	100.0		
.5	100.0		
.375	100.0		
#4	98.9		
#10	97.7		
#20	95.1		
#40	84.7		
#60	51.1		
#100	11.4		
#140	4.8		
#200	3.4		

\* (no specification provided)

## Material Description

Fine to medium grained, SAND, with trace SHELL

## Atterberg Limits

PL=      LL=      PI=

## Coefficients

D<sub>90</sub>= 0.5054      D<sub>85</sub>= 0.4284      D<sub>60</sub>= 0.2791  
D<sub>50</sub>= 0.2468      D<sub>30</sub>= 0.1965      D<sub>15</sub>= 0.1605  
D<sub>10</sub>= 0.1449      C<sub>u</sub>= 1.93      C<sub>c</sub>= 0.95

## Classification

USCS= SP      AASHTO=

## Remarks

Location: BI-PBS-71-12 A

Sample Number: 6462

Depth: 0.0'

Date: 11/23/12

**Thompson Engineering**

**Mobile, Alabama**

Client: CDM/Thompson Engineering JV

Project: MsCIP Barrier Island Restoration GT

Project No: 1221110095

Figure

# Particle Size Distribution Report



GRAIN SIZE - mm.

% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	6.0	4.2	14.6	62.0	13.2	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
1	100.0		
.75	100.0		
.5	98.6		
.375	97.0		
#4	94.0		
#10	89.8		
#20	84.7		
#40	75.2		
#60	60.1		
#100	30.1		
#140	18.1		
#200	13.2		

\* (no specification provided)

## Material Description

Fine to medium grained, SILTY SAND, with clay nodules and trace SHELL

## Atterberg Limits

PL= LL= PI=

## Coefficients

D<sub>90</sub>= 2.0738 D<sub>85</sub>= 0.8750 D<sub>60</sub>= 0.2494  
D<sub>50</sub>= 0.2090 D<sub>30</sub>= 0.1497 D<sub>15</sub>= 0.0879  
D<sub>10</sub>= C<sub>u</sub>= C<sub>c</sub>=

## Classification

USCS= SM AASHTO=

## Remarks

Location: BI-PBS-71-12 B

Sample Number: 6462

Depth: 3.4'

Date: 11/23/12

**Thompson Engineering**

**Mobile, Alabama**

Client: CDM/Thompson Engineering JV

Project: MsCIP Barrier Island Restoration GT

Project No: 1221110095

Figure

# Particle Size Distribution Report



GRAIN SIZE - mm.

% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	2.3	2.3	15.4	64.7	15.3	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
1	100.0		
.75	100.0		
.5	100.0		
.375	99.4		
#4	97.7		
#10	95.4		
#20	91.1		
#40	80.0		
#60	64.7		
#100	31.1		
#140	19.9		
#200	15.3		

\* (no specification provided)

## Material Description

Fine to medium grained, SILTY SAND, with clay nodules and trace GRAVEL

## Atterberg Limits

PL= LL= PI=

## Coefficients

D<sub>90</sub>= 0.7755 D<sub>85</sub>= 0.5652 D<sub>60</sub>= 0.2309  
D<sub>50</sub>= 0.1997 D<sub>30</sub>= 0.1469 D<sub>15</sub>=  
D<sub>10</sub>= C<sub>u</sub>= C<sub>c</sub>=

## Classification

USCS= SM AASHTO=

## Remarks

Location: BI-PBS-71-12 C

Sample Number: 6462

Depth: 5.9'

Date: 11/23/12

**Thompson Engineering**

**Mobile, Alabama**

Client: CDM/Thompson Engineering JV

Project: MsCIP Barrier Island Restoration GT

Project No: 1221110095

Figure

# Boring Designation BI-PBS-072-12

DRILLING LOG		DIVISION South Atlantic		INSTALLATION Mobile District		SHEET 1 OF 1 SHEETS	
1. PROJECT MsCIP Barrier Island Restoration Petit Bois Pass-OCS East				9. SIZE AND TYPE OF BIT N/A			
2. BORING DESIGNATION BI-PBS-072-12		LOCATION COORDINATES E = 1,146,277 N = 232,914		10. COORDINATE SYSTEM/DATUM State Plane, MSE (U.S. Ft.)		HORIZONTAL NAD83 VERTICAL NAVD88	
3. DRILLING AGENCY Corps of Engineers - CESAM		CONTRACTOR FILE NO.		11. MANUFACTURER'S DESIGNATION OF DRILL Vibracore		<input type="checkbox"/> AUTO HAMMER <input type="checkbox"/> MANUAL HAMMER	
4. NAME OF DRILLER American Vibracore Systems, Inc.				12. TOTAL SAMPLES		DISTURBED UNDISTURBED (UD) 0	
5. DIRECTION OF BORING <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED		DEG. FROM VERTICAL		13. TOTAL NUMBER CORE BOXES			
		BEARING		14. WATER DEPTH 58.7 Ft.			
6. THICKNESS OF OVERBURDEN N/A				15. DATE BORING 11-19-12		STARTED COMPLETED 11-19-12	
7. DEPTH DRILLED INTO ROCK N/A				16. ELEVATION TOP OF BORING -58.8 Ft.			
8. TOTAL DEPTH OF BORING 16.8 Ft.				17. TOTAL RECOVERY FOR BORING 100%			
				18. SIGNATURE AND TITLE OF INSPECTOR John Bass, Geotechnical Engineer			
ELEV.	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS	SAMPLE	LABORATORY RESULTS		
-58.8	0.0						
-61.1	2.3		SAND, poorly-graded, mostly fine to medium-grained quartz, trace fines, trace shell fragments, lt. gray (SP)	A	Classification: SP Color: 5Y 7/2-light gray D50: 0.3295 mm % Fines: 1.8		
-68.3	9.5		SAND, clayey, mostly fine-grained sand-sized quartz, some clay, gray (SC)	B	Classification: SM Color: 5Y 6/2-light olive gray D50: 0.1997 mm % Fines: 13.6		
-75.6	16.8		CLAY, fat, mostly clay, some silt, trace fine-grained sand-sized quartz, gray (CH)  At El. -70.3 Ft., mostly clay, trace sand, medium plasticity, light gray mottled with orange	NS			
			NOTES:  1. Soils are field visually classified in accordance with the Unified Soils Classification System.  2. NS = Sample not submitted for laboratory analysis from this interval.  3. Seafloor elevation calculated using sampling vessel's fathometer water depth reading and applying NOAA tidal gauge data conversion factor.				



**Project**

Mississippi Barrier Island  
Restoration Project

**AVS**  
**AMERICAN VIBRACORE**  
**S E R V I C E S**

**Core Identifier** BI-PBS-72-12

**Date** 11/19/2012

**Water Depth** 58.7'

**Coordinate System**

Latitude / Longitude

**Start Time** 14:44:14

**End Time** 14:44:49

**Penetration** 20.0'

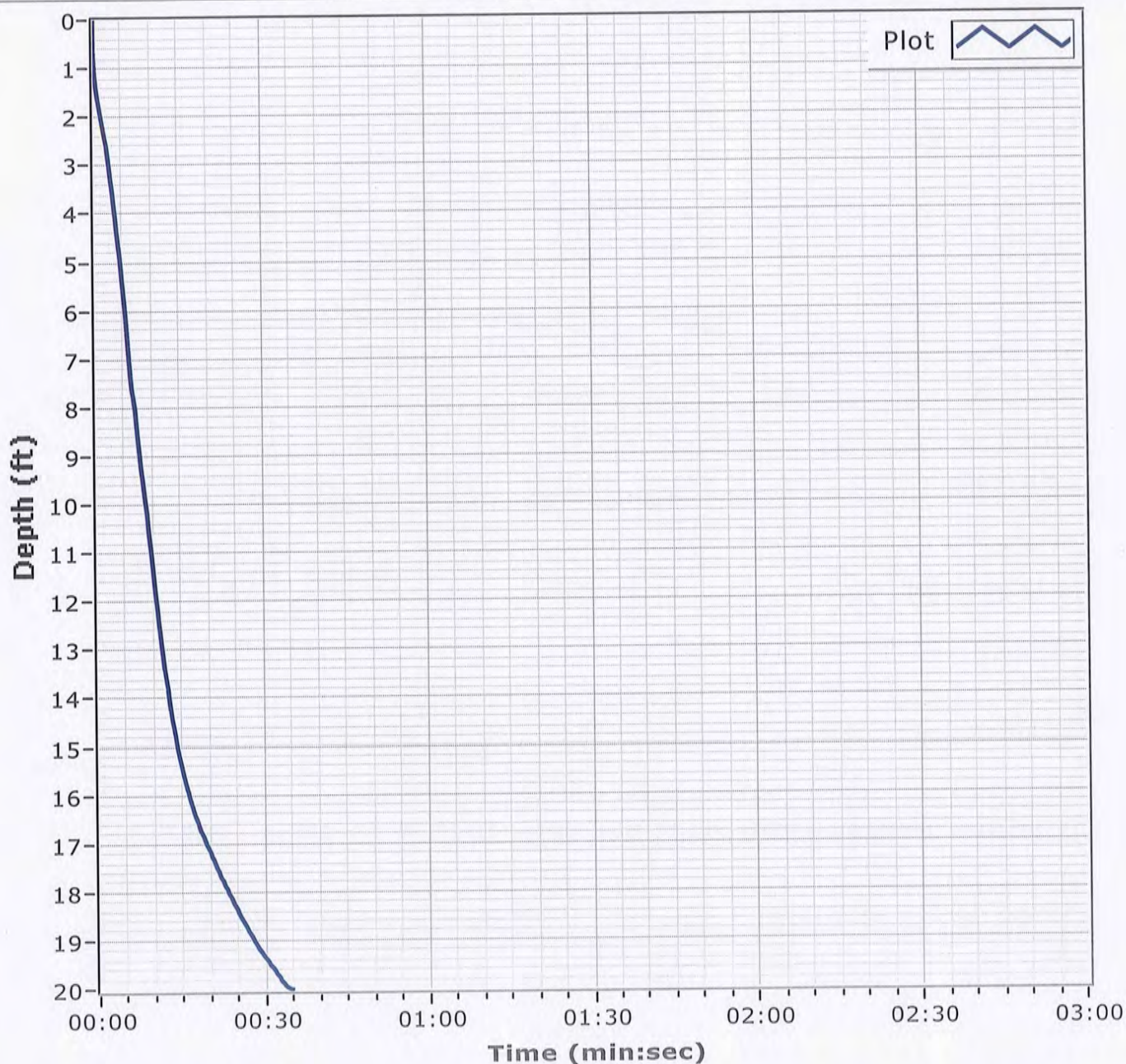
**Latitude** 30 08.368

**Total Time** 00:00:35

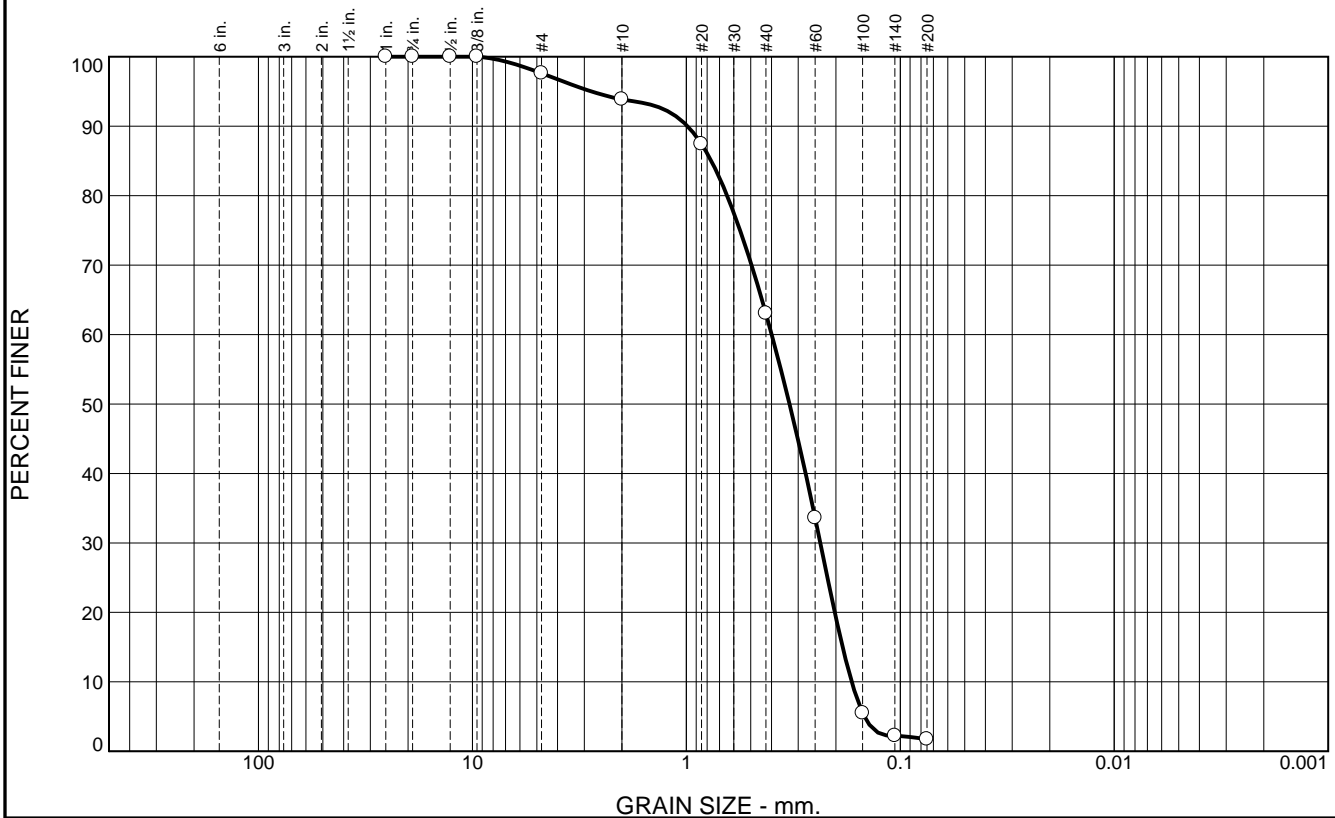
**Recovery** 16.8'

**Longitude** 88 19.245

**Comments**



# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	2.4	3.8	30.8	61.2	1.8	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
1	100.0		
.75	100.0		
.5	100.0		
.375	100.0		
#4	97.6		
#10	93.8		
#20	87.4		
#40	63.0		
#60	33.6		
#100	5.5		
#140	2.2		
#200	1.8		

\* (no specification provided)

## Material Description

Fine to medium grained, SILTY SAND, with trace SHELL

## Atterberg Limits

PL=      LL=      PI=

## Coefficients

D<sub>90</sub>= 0.9878      D<sub>85</sub>= 0.7649      D<sub>60</sub>= 0.3992  
D<sub>50</sub>= 0.3295      D<sub>30</sub>= 0.2365      D<sub>15</sub>= 0.1861  
D<sub>10</sub>= 0.1689      C<sub>u</sub>= 2.36      C<sub>c</sub>= 0.83

## Classification

USCS= SP      AASHTO=

## Remarks

Location: BI-PBS-72-12-A

Sample Number: 6462

Depth: 0.0'

Date: 11/23/12

**Thompson Engineering**

**Mobile, Alabama**

Client: CDM/Thompson Engineering JV

Project: MsCIP Barrier Island Restoration GT

Project No: 1221110095

Figure



# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	4.7	3.0	15.8	62.9	13.6	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
1	100.0		
.75	100.0		
.5	100.0		
.375	97.9		
#4	95.3		
#10	92.3		
#20	88.2		
#40	76.5		
#60	62.6		
#100	32.5		
#140	18.9		
#200	13.6		

\* (no specification provided)

**Material Description**  
 Fine to medium grained, SILTY SAND, with trace SHELL

**Atterberg Limits**  
 PL=                      LL=                      PI=

**Coefficients**  
 D<sub>90</sub>= 1.0254      D<sub>85</sub>= 0.6801      D<sub>60</sub>= 0.2370  
 D<sub>50</sub>= 0.1997      D<sub>30</sub>= 0.1430      D<sub>15</sub>= 0.0850  
 D<sub>10</sub>=                      C<sub>u</sub>=                      C<sub>c</sub>=

**Classification**  
 USCS= SM                      AASHTO=

**Remarks**

Location: BI-PBS-72-12 B  
 Sample Number: 6462

Depth: 2.3'

Date: 11/23/12

**Thompson Engineering**

**Mobile, Alabama**

Client: CDM/Thompson Engineering JV  
 Project: MsCIP Barrier Island Restoration GT

Project No: 1221110095

Figure

# Boring Designation BI-PBS-073-12

DRILLING LOG		DIVISION South Atlantic		INSTALLATION Mobile District		SHEET 1 OF 2 SHEETS	
1. PROJECT MsCIP Barrier Island Restoration Petit Bois Pass-OCS East				9. SIZE AND TYPE OF BIT N/A			
2. BORING DESIGNATION BI-PBS-073-12		LOCATION COORDINATES E = 1,145,519 N = 234,176		10. COORDINATE SYSTEM/DATUM State Plane, MSE (U.S. Ft.)		HORIZONTAL NAD83 VERTICAL NAVD88	
3. DRILLING AGENCY Corps of Engineers - CESAM		CONTRACTOR FILE NO.		11. MANUFACTURER'S DESIGNATION OF DRILL Vibrocure		<input type="checkbox"/> AUTO HAMMER <input type="checkbox"/> MANUAL HAMMER	
4. NAME OF DRILLER American Vibrocure Systems, Inc.				12. TOTAL SAMPLES		DISTURBED UNDISTURBED (UD) 0	
5. DIRECTION OF BORING <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED		DEG. FROM VERTICAL		13. TOTAL NUMBER CORE BOXES			
		BEARING		14. WATER DEPTH 55.4 Ft.			
6. THICKNESS OF OVERBURDEN N/A				15. DATE BORING 11-20-12		STARTED COMPLETED 11-20-12	
7. DEPTH DRILLED INTO ROCK N/A				16. ELEVATION TOP OF BORING -55.1 Ft.			
8. TOTAL DEPTH OF BORING 19.4 Ft.				17. TOTAL RECOVERY FOR BORING 100%			
				18. SIGNATURE AND TITLE OF INSPECTOR John Bass, Geotechnical Engineer			
ELEV.	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS	SAMPLE	LABORATORY RESULTS		
-55.1	0.0						
-58.0	2.9		SAND, poorly-graded, mostly fine to medium-grained quartz, trace fines, trace shell fragments, lt. gray (SP)	A	Classification: SP Color: 5Y 6/2-light olive gray D50: 0.2622 mm % Fines: 2.8		
-60.5	5.4		SAND, poorly-graded with silt, mostly fine-grained sand-sized quartz, few silt, few shell fragments, lt. gray (SP-SM)	B	Classification: SM Color: 5Y 5/2-olive gray D50: 0.1993 mm % Fines: 13.4		
-64.1	9.0		SAND, silty, mostly fine-grained sand-sized quartz, some silt, trace shell fragments, trace wood debris, gray (SM)	NS			
-66.1	11.0		SAND, clayey, mostly fine-grained sand-sized quartz, some clay, gray (SC)				
-67.1	12.0		CLAY, fat, mostly clay, stiff, medium to high plasticity, gray (CH)				
-74.5	19.4		CLAY, lean, mostly clay, some fine-grained sand-sized sand, low to medium plasticity, gray to dark gray (CL)  At El. -70.1 Ft., mostly clay, stiff, low to medium plasticity, lt. gray mottled with brown				
			NOTES:  1. Soils are field visually classified in accordance with the Unified Soils Classification System.  2. NS = Sample not submitted for laboratory analysis from this interval.  3. Seafloor elevation calculated using sampling vessel's fathometer water depth reading and				

<b>DRILLING LOG (Cont. Sheet)</b>			<b>INSTALLATION</b> Mobile District		<b>SHEET 2</b> <b>OF 2 SHEETS</b>
			<b>PROJECT</b> MsCIP Barrier Island Restoration		<b>COORDINATE SYSTEM/DATUM</b> State Plane, MSE (U.S. Ft.)
<b>LOCATION COORDINATES</b> X = 1,145,519 Y = 234,176			<b>ELEVATION TOP OF BORING</b> -55.1 Ft.		
ELEV.	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS	SAMPLE	LABORATORY RESULTS
			applying NOAA tidal gauge data conversion factor.		

**Project**

Mississippi Barrier Island  
Restoration Project

**AVS**  
**AMERICAN VIBRACORE**  
**S E R V I C E S**

**Core Identifier** BI-PBS-73-12

**Date** 11/20/2012

**Water Depth** 55.4'

**Coordinate System**

**Start Time** 09:50:03

Latitude / Longitude

**End Time** 09:51:03

**Penetration** 20.0'

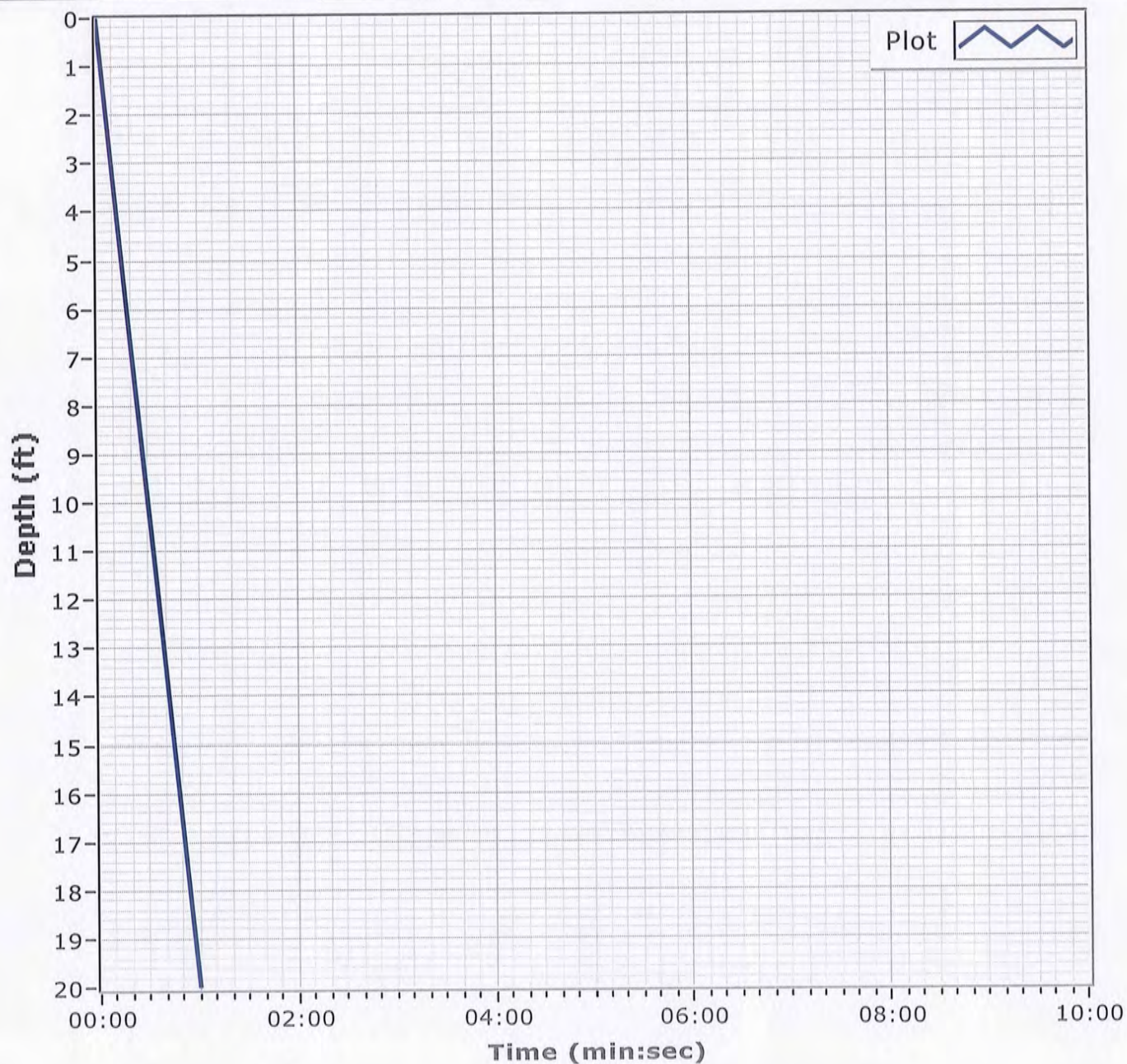
**Latitude** 30 08.577

**Total Time** 00:01:00

**Recovery** 19.4'

**Longitude** 088 19.388

**Comments**



# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.5	0.8	13.6	82.3	2.8	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
1	100.0		
.75	100.0		
.5	100.0		
.375	100.0		
#4	99.5		
#10	98.7		
#20	96.2		
#40	85.1		
#60	45.6		
#100	6.0		
#140	3.2		
#200	2.8		

\* (no specification provided)

## Material Description

Fine to medium grained, SAND, with trace SHELL

## Atterberg Limits

PL= LL= PI=

## Coefficients

D<sub>90</sub>= 0.4819 D<sub>85</sub>= 0.4239 D<sub>60</sub>= 0.2937  
D<sub>50</sub>= 0.2622 D<sub>30</sub>= 0.2117 D<sub>15</sub>= 0.1768  
D<sub>10</sub>= 0.1635 C<sub>u</sub>= 1.80 C<sub>c</sub>= 0.93

## Classification

USCS= SP AASHTO=

## Remarks

Location: BI-PBS-73-12 A  
Sample Number: 6462

Depth: 0.0'

Date: 11/23/12

**Thompson Engineering**

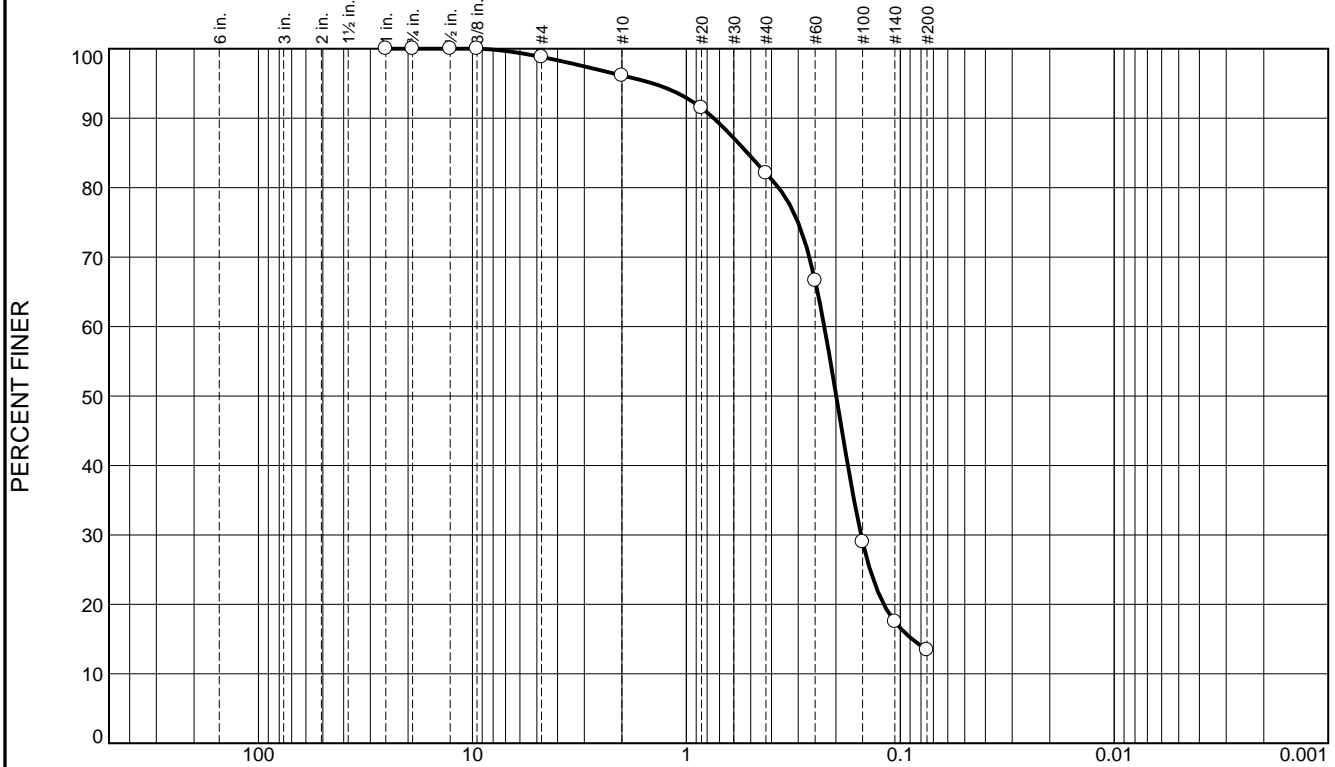
**Mobile, Alabama**

Client: CDM/Thompson Engineering JV  
Project: MsCIP Barrier Island Restoration GT

Project No: 1221110095

Figure

# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	1.2	2.6	14.1	68.7	13.4	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
1	100.0		
.75	100.0		
.5	100.0		
.375	100.0		
#4	98.8		
#10	96.2		
#20	91.5		
#40	82.1		
#60	66.6		
#100	29.0		
#140	17.5		
#200	13.4		

\* (no specification provided)

## Material Description

Fine to medium grained, SILTY SAND, with clay pockets and trace SHELL

## Atterberg Limits

PL= LL= PI=

## Coefficients

D<sub>90</sub>= 0.7452 D<sub>85</sub>= 0.5186 D<sub>60</sub>= 0.2265  
D<sub>50</sub>= 0.1993 D<sub>30</sub>= 0.1526 D<sub>15</sub>= 0.0881  
D<sub>10</sub>= C<sub>u</sub>= C<sub>c</sub>=

## Classification

USCS= SM AASHTO=

## Remarks

Location: BI-PBS-73-12 B

Sample Number: 6462

Depth: 2.9'

Date: 11/23/12

**Thompson Engineering**

**Mobile, Alabama**

Client: CDM/Thompson Engineering JV

Project: MsCIP Barrier Island Restoration GT

Project No: 1221110095

Figure

# Boring Designation BI-PBS-074-12

DRILLING LOG		DIVISION South Atlantic		INSTALLATION Mobile District		SHEET 1 OF 1 SHEETS	
1. PROJECT MsCIP Barrier Island Restoration Petit Bois Pass-OCS East				9. SIZE AND TYPE OF BIT N/A			
2. BORING DESIGNATION BI-PBS-074-12		LOCATION COORDINATES E = 1,143,560 N = 235,957		10. COORDINATE SYSTEM/DATUM State Plane, MSE (U.S. Ft.)		HORIZONTAL NAD83 VERTICAL NAVD88	
3. DRILLING AGENCY Corps of Engineers - CESAM		CONTRACTOR FILE NO.		11. MANUFACTURER'S DESIGNATION OF DRILL Vibrocure		<input type="checkbox"/> AUTO HAMMER <input type="checkbox"/> MANUAL HAMMER	
4. NAME OF DRILLER American Vibrocure Systems, Inc.				12. TOTAL SAMPLES		DISTURBED UNDISTURBED (UD) 0	
5. DIRECTION OF BORING <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED		DEG. FROM VERTICAL		13. TOTAL NUMBER CORE BOXES			
		BEARING		14. WATER DEPTH 55.9 Ft.			
6. THICKNESS OF OVERBURDEN N/A				15. DATE BORING 11-21-12		STARTED COMPLETED 11-21-12	
7. DEPTH DRILLED INTO ROCK N/A				16. ELEVATION TOP OF BORING -55.5 Ft.			
8. TOTAL DEPTH OF BORING 17.6 Ft.				17. TOTAL RECOVERY FOR BORING 100%			
				18. SIGNATURE AND TITLE OF INSPECTOR John Bass, Geotechnical Engineer			
ELEV.	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS	SAMPLE	LABORATORY RESULTS		
-55.5	0.0						
-57.7	2.2		SAND, poorly-graded, mostly fine-grained sand-sized quartz, little shell fragments, trace fines, lt. gray (SP)	A	Classification: SP Color: 5Y 7/2-light gray D50: 0.2787 mm % Fines: 2.5		
-59.9	4.4		SAND, poorly-graded with silt, mostly fine-grained sand-sized quartz, some silt, little shell fragments, gray (SP-SM)	B	Classification: SM Color: 5Y 6/2-light olive gray D50: 0.1838 mm % Fines: 19.6		
-61.0	5.5		SAND, clayey, mostly fine-grained sand-sized quartz, some clay, trace wood debris, gray (SC)	NS			
-64.0	8.5		CLAY, fat, mostly clay, trace shell fragments, trace wood debris, medium plasticity, gray (CH)				
-66.5	11.0		SAND, silty, mostly fine-grained sand-sized quartz, some silt, gray (SM)				
-73.1	17.6		SAND, clayey, mostly fine-grained sand-sized quartz, some clay, dense, lt. gray mottled with orange (SC)				
			NOTES: 1. Soils are field visually classified in accordance with the Unified Soils Classification System. 2. NS = Sample not submitted for laboratory analysis from this interval. 3. Seafloor elevation calculated using sampling vessel's fathometer water depth reading and applying NOAA tidal gauge data conversion factor.				



**Project**

Mississippi Barrier Island  
Restoration Project

**AVS**  
**AMERICAN VIBRACORE**  
**S E R V I C E S**

**Core Identifier** BI-PBS-74-12

**Date** 11/21/2012

**Water Depth** 55.9'

**Coordinate System**

Latitude / Longitude

**Start Time** 10:01:03

**End Time** 10:02:03

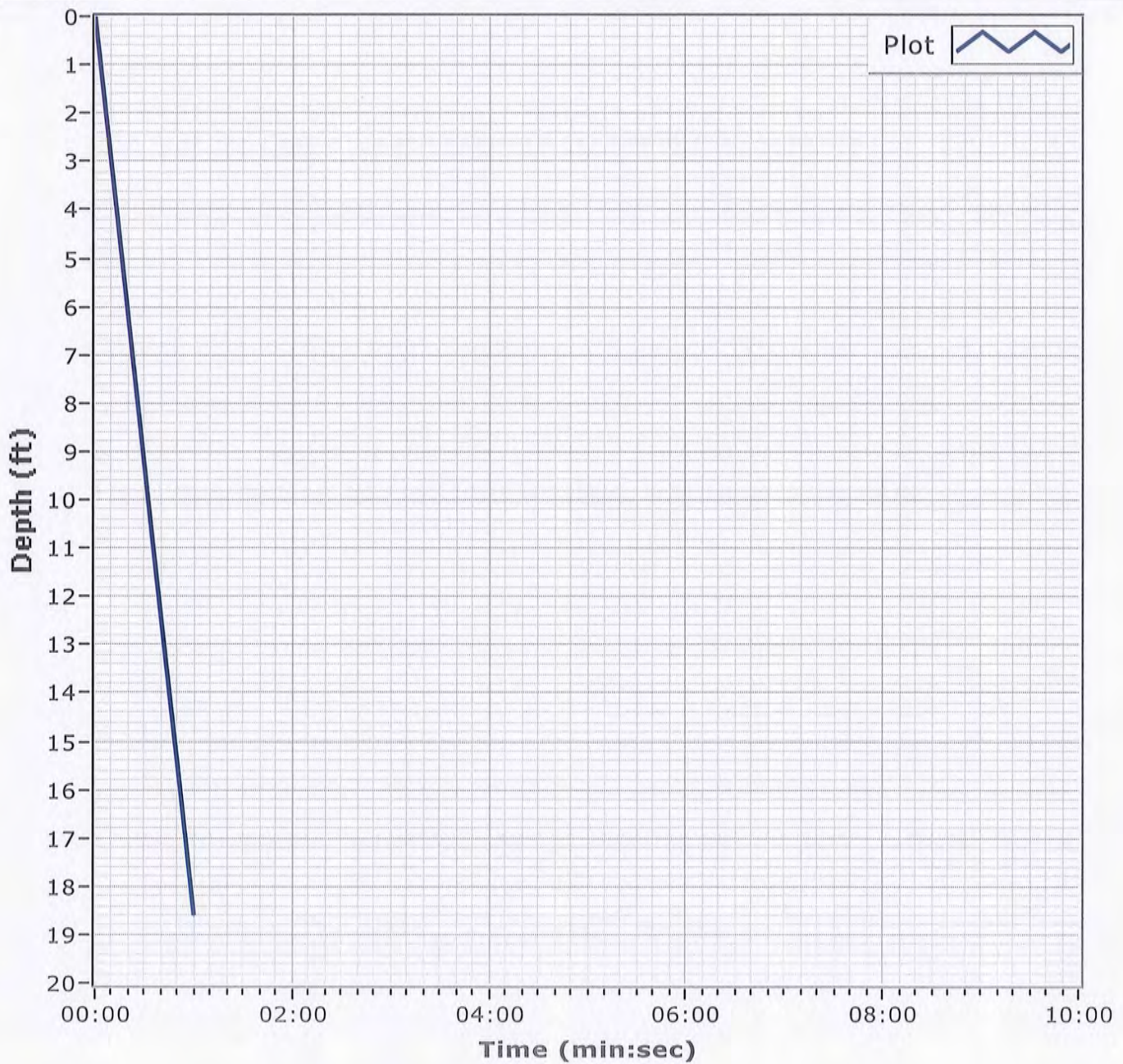
**Penetration** 18.6'

**Latitude** 30 08.872

**Total Time** 00:01:00

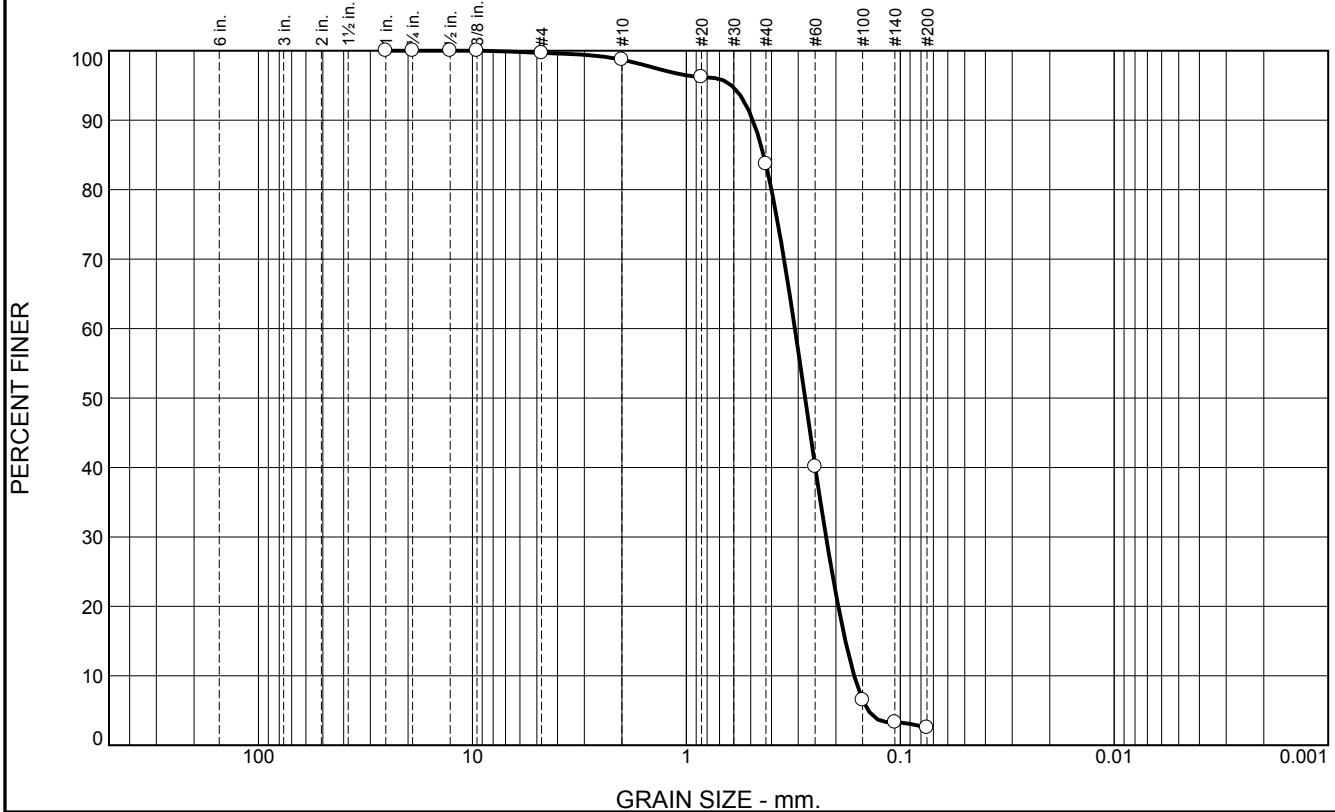
**Recovery** 17.6'

**Longitude** 088 19.758

**Comments**



# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.3	1.0	15.0	81.2	2.5	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
1	100.0		
.75	100.0		
.5	100.0		
.375	100.0		
#4	99.7		
#10	98.7		
#20	96.2		
#40	83.7		
#60	40.1		
#100	6.5		
#140	3.3		
#200	2.5		

\* (no specification provided)

<u><b>Material Description</b></u>		
Fine to medium grained, SAND		
<u><b>Atterberg Limits</b></u>		
PL=	LL=	PI=
<u><b>Coefficients</b></u>		
D <sub>90</sub> = 0.4889	D <sub>85</sub> = 0.4354	D <sub>60</sub> = 0.3111
D <sub>50</sub> = 0.2787	D <sub>30</sub> = 0.2223	D <sub>15</sub> = 0.1805
D <sub>10</sub> = 0.1643	C <sub>u</sub> = 1.89	C <sub>c</sub> = 0.97
<u><b>Classification</b></u>		
USCS= SP	AASHTO=	
<u><b>Remarks</b></u>		

Location: BI-PBS-74-12 A  
Sample Number: 6469 (3)

Depth: 0.0'

Date: 11/28/12

**Thompson Engineering**

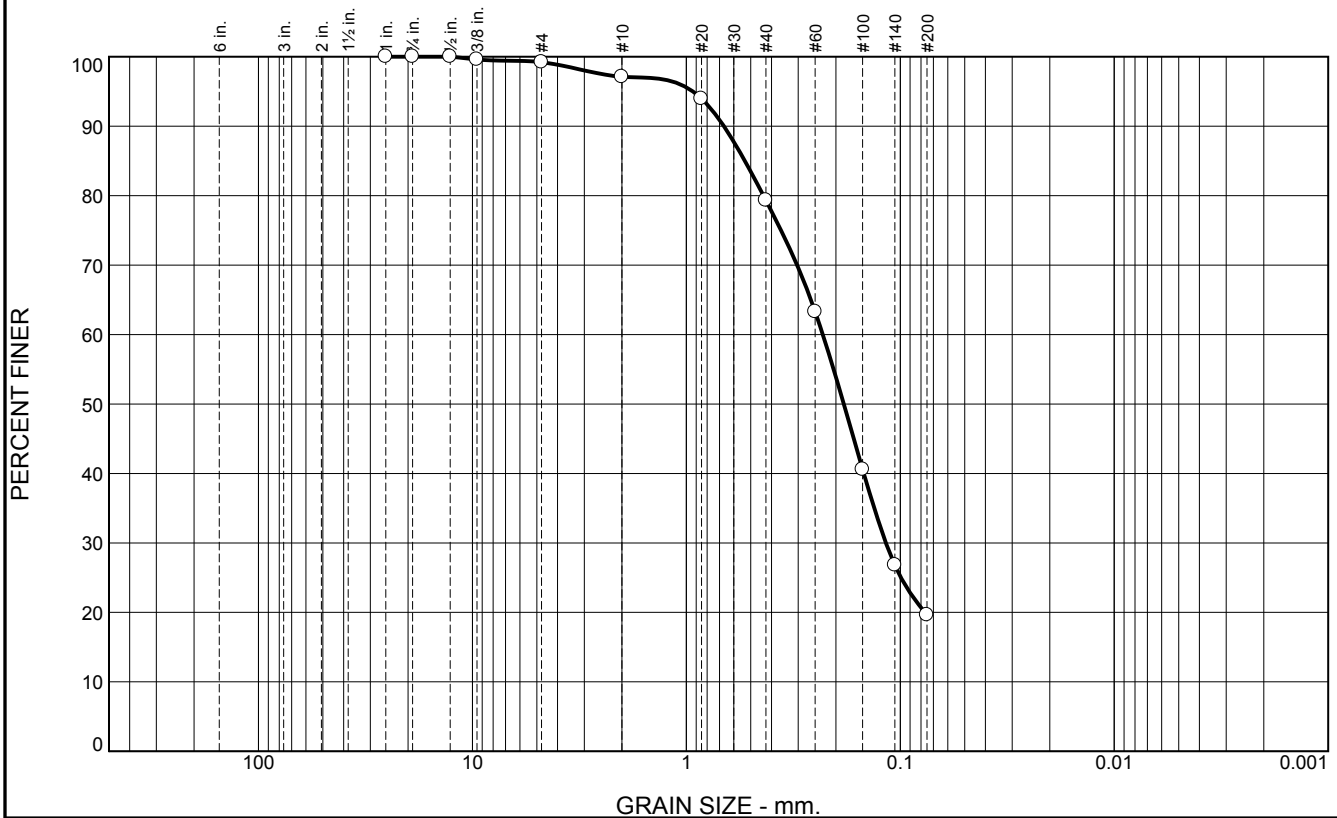
**Mobile, Alabama**

Client: CDM/Thompson Engineering JV  
Project: MsCIP Barrier Island Restoration GT

Project No: 1221110095

Figure

# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.8	2.1	17.8	59.7	19.6	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
1	100.0		
.75	100.0		
.5	100.0		
.375	99.6		
#4	99.2		
#10	97.1		
#20	94.0		
#40	79.3		
#60	63.3		
#100	40.6		
#140	26.8		
#200	19.6		

\* (no specification provided)

<u>Material Description</u>		
Fine to medium grained, SILTY SAND		
<u>Atterberg Limits</u>		
PL=	LL=	PI=
<u>Coefficients</u>		
D <sub>90</sub> = 0.6679	D <sub>85</sub> = 0.5328	D <sub>60</sub> = 0.2302
D <sub>50</sub> = 0.1838	D <sub>30</sub> = 0.1167	D <sub>15</sub> =
D <sub>10</sub> =	C <sub>u</sub> =	C <sub>c</sub> =
<u>Classification</u>		
USCS= SM	AASHTO=	
<u>Remarks</u>		

Location: BI-PBS-74-12 B  
Sample Number: 6469 (4)

Depth: 2.2'

Date: 11/28/12

**Thompson Engineering**

**Mobile, Alabama**

Client: CDM/Thompson Engineering JV  
Project: MsCIP Barrier Island Restoration GT

Project No: 1221110095

Figure

# Boring Designation BI-PBS-075-12

DRILLING LOG		DIVISION South Atlantic		INSTALLATION Mobile District		SHEET 1 OF 2 SHEETS	
1. PROJECT MsCIP Barrier Island Restoration Petit Bois Pass-OCS East				9. SIZE AND TYPE OF BIT N/A			
2. BORING DESIGNATION BI-PBS-075-12		LOCATION COORDINATES E = 1,145,942 N = 233,567		10. COORDINATE SYSTEM/DATUM State Plane, MSE (U.S. Ft.)		HORIZONTAL NAD83	
3. DRILLING AGENCY Corps of Engineers - CESAM		CONTRACTOR FILE NO.		11. MANUFACTURER'S DESIGNATION OF DRILL Vibracore		<input type="checkbox"/> AUTO HAMMER <input type="checkbox"/> MANUAL HAMMER	
4. NAME OF DRILLER American Vibracore Systems, Inc.				12. TOTAL SAMPLES		DISTURBED 0	
5. DIRECTION OF BORING <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED				13. TOTAL NUMBER CORE BOXES		14. WATER DEPTH 56.7 Ft.	
6. THICKNESS OF OVERBURDEN N/A				15. DATE BORING		STARTED 11-20-12	
7. DEPTH DRILLED INTO ROCK N/A				16. ELEVATION TOP OF BORING -56.4 Ft.		COMPLETED 11-20-12	
8. TOTAL DEPTH OF BORING 19.1 Ft.				17. TOTAL RECOVERY FOR BORING 100%			
				18. SIGNATURE AND TITLE OF INSPECTOR John Bass, Geotechnical Engineer			

ELEV.	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS	SAMPLE	LABORATORY RESULTS
-56.4	0.0				
-59.4	3.0		SAND, poorly-graded, mostly fine to medium-grained sand-sized quartz, trace fines, gray (SP)	A	Classification: SP Color: 5Y 6/2-light olive gray D50: 0.2318 mm % Fines: 3.6
-65.9	9.5		SAND, silty, mostly fine-grained sand-sized quartz, some silt, trace shell fragments, gray (SM)		
-74.8	18.4		SAND, clayey, mostly fine-grained sand-sized quartz, some clay, clayey sand bordering on sandy clay, wood fragments at 14.0', gray to dark gray (SC)	NS	
-75.5	19.1		CLAY, fat, mostly clay, little fine-grained sand-sized sand, medium plasticity, lt. gray to dark gray (CH)		
NOTES: 1. Soils are field visually classified in accordance with the Unified Soils Classification System. 2. NS = Sample not submitted for laboratory analysis from this interval. 3. Seafloor elevation calculated using sampling					

<b>DRILLING LOG (Cont. Sheet)</b>			<b>INSTALLATION</b> Mobile District		<b>SHEET 2</b>
					<b>OF 2 SHEETS</b>
<b>PROJECT</b> MsCIP Barrier Island Restoration			<b>COORDINATE SYSTEM/DATUM</b> State Plane, MSE (U.S. Ft.)	<b>HORIZONTAL</b> NAD83	<b>VERTICAL</b> NAVD88
<b>LOCATION COORDINATES</b> X = 1,145,942 Y = 233,567			<b>ELEVATION TOP OF BORING</b> -56.4 Ft.		
<b>ELEV.</b>	<b>DEPTH</b>	<b>LEGEND</b>	<b>CLASSIFICATION OF MATERIALS</b>	<b>SAMPLE</b>	<b>LABORATORY RESULTS</b>
			vessel's fathometer water depth reading and applying NOAA tidal gauge data conversion factor.		

**Project** Mississippi Barrier Island  
Restoration Project



**Core Identifier** BI-PBS-75-12

**Date** 11/20/2012

**Water Depth** 56.7'

**Coordinate System**

Latitude / Longitude

**Start Time** 09:05:19

**End Time** 09:06:07

**Penetration** 20.0'

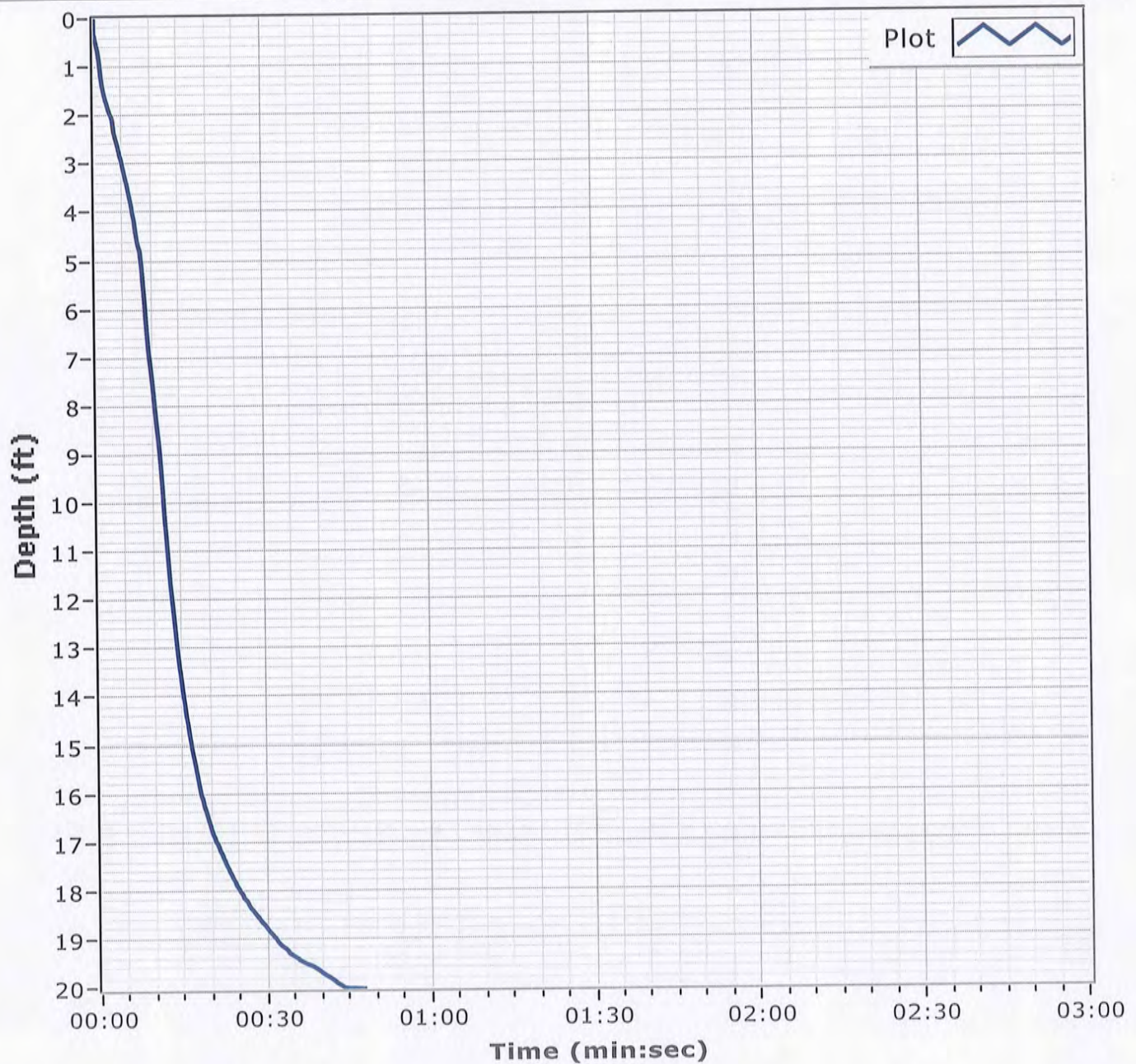
**Latitude** 30 08.476

**Total Time** 00:00:48

**Recovery** 19.1'

**Longitude** 088 19.308

**Comments**



# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	1.3	2.7	15.5	76.9	3.6	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
1	100.0		
.75	100.0		
.5	100.0		
.375	100.0		
#4	98.7		
#10	96.0		
#20	92.0		
#40	80.5		
#60	56.8		
#100	10.7		
#140	4.8		
#200	3.6		

\* (no specification provided)

<b><u>Material Description</u></b>		
Fine to medium grained, SAND, with trace SHELL		
<b><u>Atterberg Limits</u></b>		
PL=	LL=	PI=
<b><u>Coefficients</u></b>		
D <sub>90</sub> = 0.7158	D <sub>85</sub> = 0.5262	D <sub>60</sub> = 0.2605
D <sub>50</sub> = 0.2318	D <sub>30</sub> = 0.1902	D <sub>15</sub> = 0.1607
D <sub>10</sub> = 0.1480	C <sub>u</sub> = 1.76	C <sub>c</sub> = 0.94
<b><u>Classification</u></b>		
USCS= SP	AASHTO=	
<b><u>Remarks</u></b>		

Location: BI-PBS-75-12 A  
Sample Number: 6462

Depth: 0.0'

Date: 11/23/12

**Thompson Engineering**

**Mobile, Alabama**

Client: CDM/Thompson Engineering JV  
Project: MsCIP Barrier Island Restoration GT

Project No: 1221110095

Figure

# Boring Designation BI-PBS-076-12

DRILLING LOG		DIVISION South Atlantic		INSTALLATION Mobile District		SHEET 1 OF 2 SHEETS	
1. PROJECT MsCIP Barrier Island Restoration Petit Bois Pass-OCS East				9. SIZE AND TYPE OF BIT N/A			
2. BORING DESIGNATION BI-PBS-076-12		LOCATION COORDINATES E = 1,143,464 N = 234,949		10. COORDINATE SYSTEM/DATUM State Plane, MSE (U.S. Ft.)		HORIZONTAL NAD83	
3. DRILLING AGENCY Corps of Engineers - CESAM		CONTRACTOR FILE NO.		11. MANUFACTURER'S DESIGNATION OF DRILL Vibrocure		<input type="checkbox"/> AUTO HAMMER <input type="checkbox"/> MANUAL HAMMER	
4. NAME OF DRILLER American Vibrocure Systems, Inc.				12. TOTAL SAMPLES		DISTURBED 0	
5. DIRECTION OF BORING <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED				13. TOTAL NUMBER CORE BOXES		14. WATER DEPTH 52.8 Ft.	
6. THICKNESS OF OVERBURDEN N/A				15. DATE BORING		STARTED 11-21-12	
7. DEPTH DRILLED INTO ROCK N/A				16. ELEVATION TOP OF BORING -52.4 Ft.		COMPLETED 11-21-12	
8. TOTAL DEPTH OF BORING 19.4 Ft.				17. TOTAL RECOVERY FOR BORING 100%			
				18. SIGNATURE AND TITLE OF INSPECTOR John Bass, Geotechnical Engineer			
ELEV.	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS	SAMPLE	LABORATORY RESULTS		
-52.4	0.0						
-56.3	3.9		SAND, poorly-graded, mostly fine to medium-grained quartz, trace fines, trace shell fragments, lt. gray (SP)	A	Classification: SP Color: 5Y 7/2-light gray D50: 0.3173 mm % Fines: 1.8		
-61.4	9.0		SAND, poorly-graded, mostly fine-grained sand-sized quartz, little silt, trace shell fragments, trace wood debris, fines content increases with depth, gray (SP)	B	Classification: SM Color: 5Y 5/2-olive gray D50: 0.2024 mm % Fines: 14.4		
-62.9	10.5		SAND, silty, mostly fine-grained sand-sized quartz, some silt, trace shell fragments, trace wood debris, gray (SM)	NS			
-63.4	11.0		CLAY, silty, some clay, some silt, little fine-grained sand-sized quartz, gray (CL-ML)	C	Classification: SM Color: 2.5Y 5/2-grayish brown D50: 0.2085 mm % Fines: 16.9		
-65.8	13.4		SAND, silty, mostly fine-grained sand-sized quartz, some silt, trace wood debris, gray (SM)	NS			
-68.4	16.0		SAND, clayey, mostly fine-grained sand-sized quartz, some clay, trace wood debris, soft, gray mottled with lt. gray and orange (SC)				
-71.8	19.4		CLAY, lean, mostly clay, some fine-grained sand-sized quartz, trace wood debris, stiff, gray mottled with lt. gray and orange (CL)				
NOTES: 1. Soils are field visually classified in accordance with the Unified Soils Classification System. 2. NS = Sample not submitted for laboratory analysis from this interval. 3. Seafloor elevation calculated using sampling vessel's fathometer water depth reading and							

<b>DRILLING LOG (Cont. Sheet)</b>			<b>INSTALLATION</b> Mobile District		<b>SHEET 2</b> <b>OF 2 SHEETS</b>
<b>PROJECT</b> MsCIP Barrier Island Restoration			<b>COORDINATE SYSTEM/DATUM</b> State Plane, MSE (U.S. Ft.)	<b>HORIZONTAL</b> NAD83	<b>VERTICAL</b> NAVD88
<b>LOCATION COORDINATES</b> X = 1,143,464 Y = 234,949			<b>ELEVATION TOP OF BORING</b> -52.4 Ft.		
<b>ELEV.</b>	<b>DEPTH</b>	<b>LEGEND</b>	<b>CLASSIFICATION OF MATERIALS</b>	<b>SAMPLE</b>	<b>LABORATORY RESULTS</b>
			applying NOAA tidal gauge data conversion factor.		



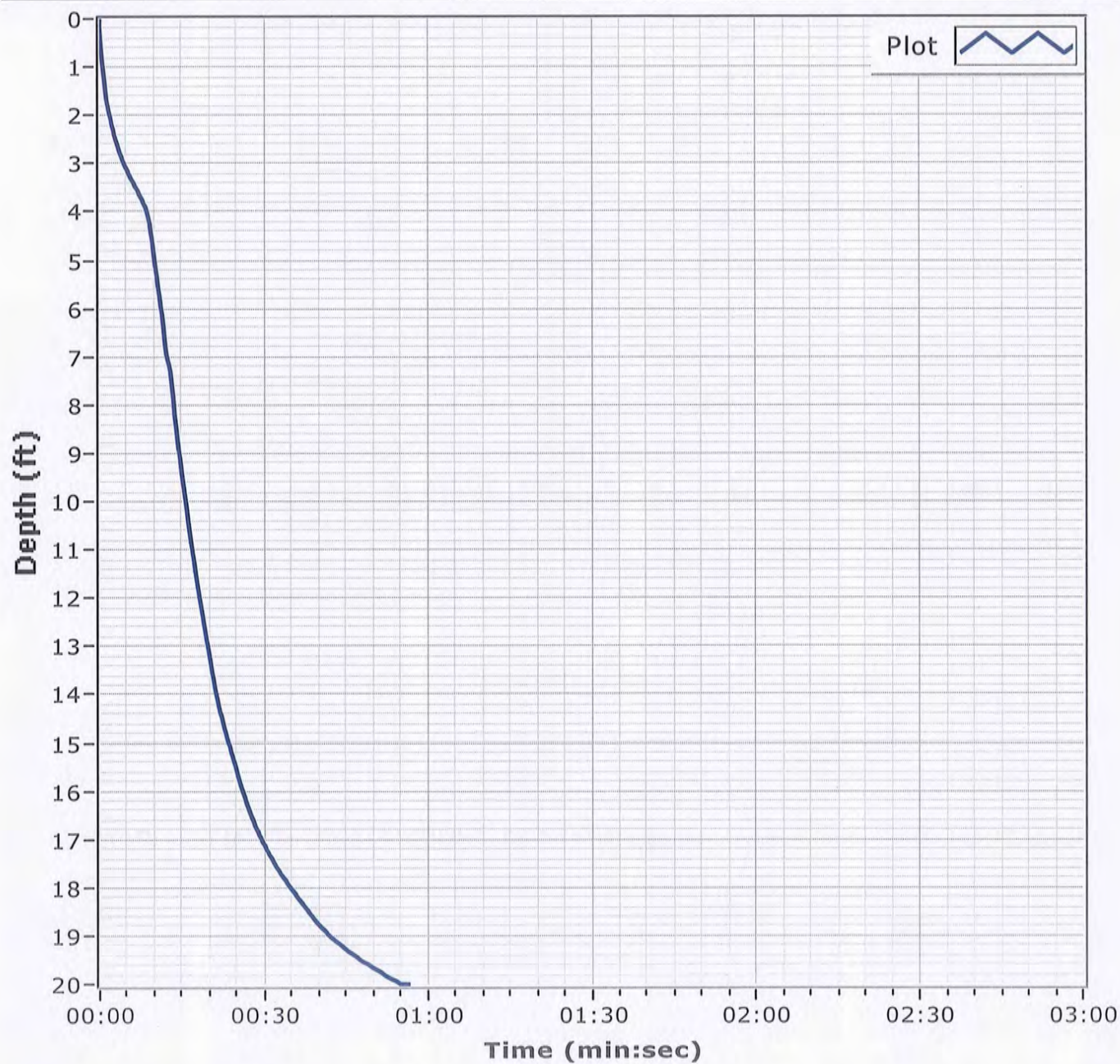
**Project**

Mississippi Barrier Island  
Restoration Project

**AVS**  
**AMERICAN VIBRACORE**  
**S E R V I C E S**

**Core Identifier** BI-PBS-76-12**Date** 11/21/2012**Water Depth** 52.8'**Coordinate System**

Latitude / Longitude

**Start Time** 10:42:53**End Time** 10:43:50**Penetration** 20.0'**Latitude** 30 08.706**Total Time** 00:00:56**Recovery** 19.4'**Longitude** 088 19.777**Comments**

# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	1.7	1.7	23.8	71.0	1.8	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
1	100.0		
.75	100.0		
.5	100.0		
.375	99.6		
#4	98.3		
#10	96.6		
#20	93.0		
#40	72.8		
#60	30.2		
#100	5.0		
#140	2.3		
#200	1.8		

\* (no specification provided)

## Material Description

Fine to medium grained, SAND, with trace SHELL

## Atterberg Limits

PL=      LL=      PI=

## Coefficients

D<sub>90</sub>= 0.6705      D<sub>85</sub>= 0.5491      D<sub>60</sub>= 0.3573  
D<sub>50</sub>= 0.3173      D<sub>30</sub>= 0.2493      D<sub>15</sub>= 0.1971  
D<sub>10</sub>= 0.1767      C<sub>u</sub>= 2.02      C<sub>c</sub>= 0.98

## Classification

USCS= SP      AASHTO=

## Remarks

Location: BI-PBS-76-12 A  
Sample Number: 6469 (5)

Depth: 0.0'

Date: 11/28/12

**Thompson Engineering**

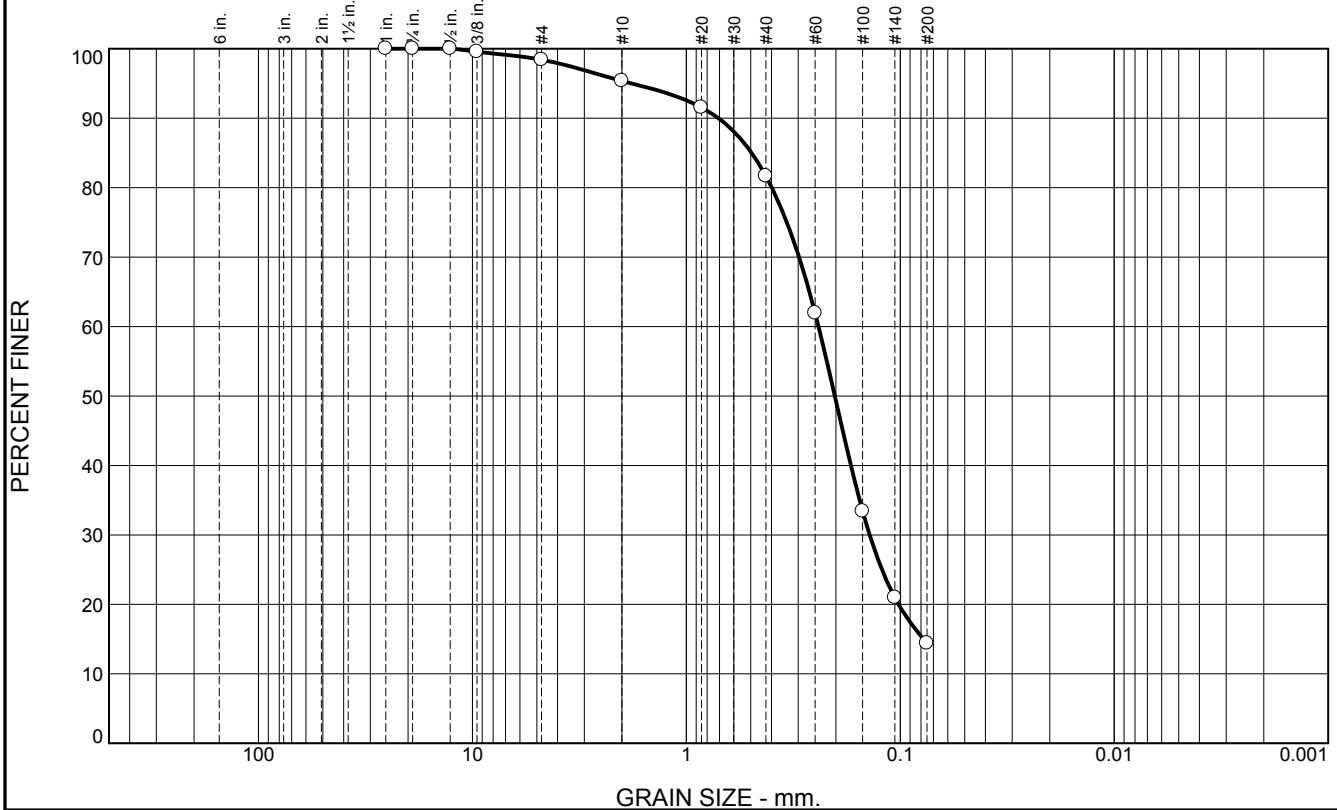
**Mobile, Alabama**

Client: CDM/Thompson Engineering JV  
Project: MsCIP Barrier Island Restoration GT

Project No: 1221110095

Figure

# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	1.6	3.0	13.7	67.3	14.4	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
1	100.0		
.75	100.0		
.5	100.0		
.375	99.6		
#4	98.4		
#10	95.4		
#20	91.5		
#40	81.7		
#60	61.9		
#100	33.4		
#140	21.0		
#200	14.4		

\* (no specification provided)

## Material Description

Fine to medium grained, SILTY SAND, with trace SHELL

## Atterberg Limits

PL= LL= PI=

## Coefficients

D<sub>90</sub>= 0.7086 D<sub>85</sub>= 0.4954 D<sub>60</sub>= 0.2411  
D<sub>50</sub>= 0.2024 D<sub>30</sub>= 0.1391 D<sub>15</sub>= 0.0779  
D<sub>10</sub>= C<sub>u</sub>= C<sub>c</sub>=

## Classification

USCS= SM AASHTO=

## Remarks

Location: BI-PBS-76-12 B  
Sample Number: 6469 (6)

Depth: 3.9'

Date: 11/28/12

**Thompson Engineering**

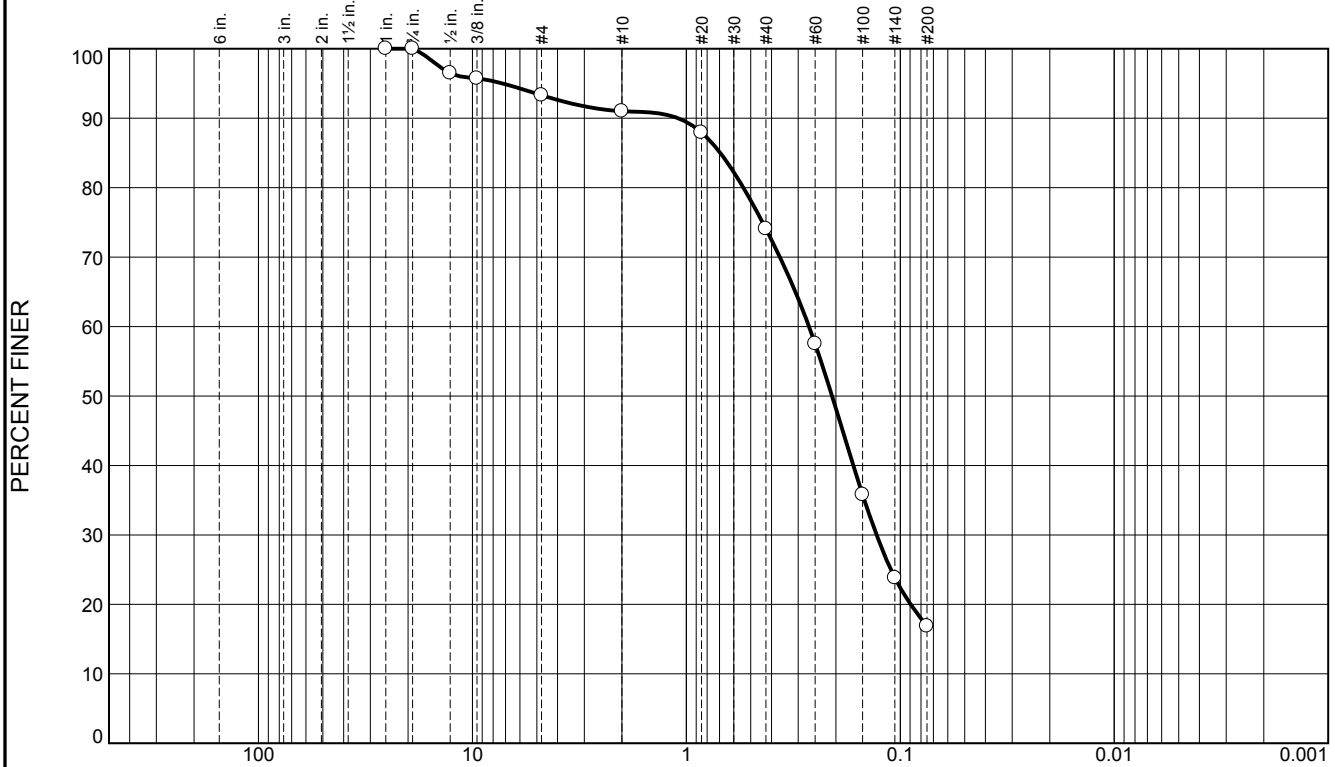
**Mobile, Alabama**

Client: CDM/Thompson Engineering JV  
Project: MsCIP Barrier Island Restoration GT

Project No: 1221110095

Figure

# Particle Size Distribution Report



GRAIN SIZE - mm.

% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	6.7	2.3	16.9	57.2	16.9	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
1	100.0		
.75	100.0		
.5	96.5		
.375	95.7		
#4	93.3		
#10	91.0		
#20	87.9		
#40	74.1		
#60	57.5		
#100	35.8		
#140	23.8		
#200	16.9		

\* (no specification provided)

## Material Description

Fine to medium grained, SILTY SAND, with trace SHELL

## Atterberg Limits

PL= LL= PI=

## Coefficients

D<sub>90</sub>= 1.0954 D<sub>85</sub>= 0.6947 D<sub>60</sub>= 0.2672  
D<sub>50</sub>= 0.2085 D<sub>30</sub>= 0.1291 D<sub>15</sub>=  
D<sub>10</sub>= C<sub>u</sub>= C<sub>c</sub>=

## Classification

USCS= SM AASHTO=

## Remarks

Location: BI-PBS-76-12 C  
Sample Number: 6469 (7)

Depth: 8.0'

Date: 11/28/12

**Thompson Engineering**

**Mobile, Alabama**

Client: CDM/Thompson Engineering JV  
Project: MsCIP Barrier Island Restoration GT

Project No: 1221110095

Figure

# Boring Designation BI-PBS-077-12

DRILLING LOG		DIVISION South Atlantic		INSTALLATION Mobile District		SHEET 1 OF 2 SHEETS	
1. PROJECT MsCIP Barrier Island Restoration Petit Bois Pass-OCS East				9. SIZE AND TYPE OF BIT N/A			
2. BORING DESIGNATION BI-PBS-077-12		LOCATION COORDINATES E = 1,147,901 N = 238,471		10. COORDINATE SYSTEM/DATUM State Plane, MSE (U.S. Ft.)		HORIZONTAL NAD83 VERTICAL NAVD88	
3. DRILLING AGENCY Corps of Engineers - CESAM		CONTRACTOR FILE NO.		11. MANUFACTURER'S DESIGNATION OF DRILL Vibracore		<input type="checkbox"/> AUTO HAMMER <input type="checkbox"/> MANUAL HAMMER	
4. NAME OF DRILLER American Vibracore Systems, Inc.				12. TOTAL SAMPLES		DISTURBED UNDISTURBED (UD) 0	
5. DIRECTION OF BORING <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED		DEG. FROM VERTICAL		BEARING		13. TOTAL NUMBER CORE BOXES	
6. THICKNESS OF OVERBURDEN N/A		7. DEPTH DRILLED INTO ROCK N/A		8. TOTAL DEPTH OF BORING 20.0 Ft.		14. WATER DEPTH 55.8 Ft.	
						15. DATE BORING STARTED 12-18-12 COMPLETED 12-18-12	
						16. ELEVATION TOP OF BORING -55.8 Ft.	
						17. TOTAL RECOVERY FOR BORING 100%	
						18. SIGNATURE AND TITLE OF INSPECTOR Mike FitzHarris, Geologist	
ELEV.	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS	SAMPLE	LABORATORY RESULTS		
-55.8	0.0						
-57.7	1.9		SAND, poorly-graded, mostly fine to medium-grained sand-sized quartz, trace silt, trace clay, trace shell fragments, gray (SP)	A	Classification: SP Color: 5Y 6/2-light olive gray D50: 0.2464 mm % Fines: 4.6		
-58.5	2.7		SAND, clayey, mostly fine-grained sand-sized quartz, some clay, little silt, trace shell fragments, gray (SC)				
-61.7	5.9		CLAY, lean, mostly clay, some sand, low to medium plasticity, gray (CL)				
			SAND, silty, mostly fine-grained sand-sized quartz, some silt, little clay lenses, gray (SM)	NS			
			At El. -67.5 Ft., mostly fine-grained sand-sized quartz, some silt, trace wood debris, gray to grayish brown				
-75.8	20.0						
NOTES: 1. Soils are field visually classified in accordance with the Unified Soils Classification System. 2. NS = Sample not submitted for laboratory analysis from this interval. 3. Seafloor elevation calculated using sampling							

<b>DRILLING LOG (Cont. Sheet)</b>			<b>INSTALLATION</b> Mobile District		<b>SHEET 2</b> <b>OF 2 SHEETS</b>
<b>PROJECT</b> MsCIP Barrier Island Restoration			<b>COORDINATE SYSTEM/DATUM</b> State Plane, MSE (U.S. Ft.)	<b>HORIZONTAL</b> NAD83	<b>VERTICAL</b> NAVD88
<b>LOCATION COORDINATES</b> X = 1,147,901 Y = 238,471			<b>ELEVATION TOP OF BORING</b> -55.8 Ft.		
<b>ELEV.</b>	<b>DEPTH</b>	<b>LEGEND</b>	<b>CLASSIFICATION OF MATERIALS</b>	<b>SAMPLE</b>	<b>LABORATORY RESULTS</b>
			vessel's fathometer water depth reading and applying NOAA tidal gauge data conversion factor.		



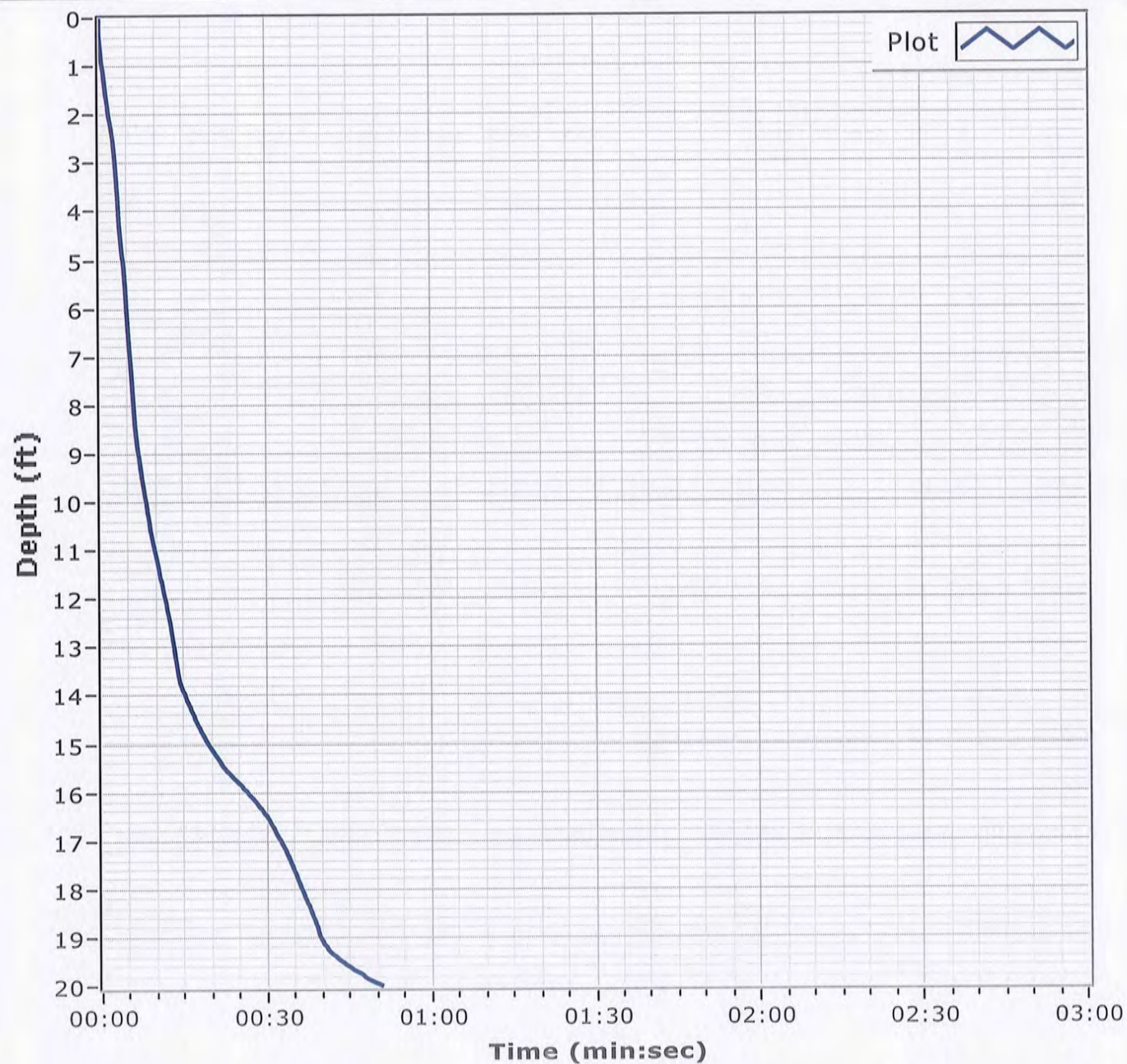
**Project**

Mississippi Barrier Island  
Restoration Project

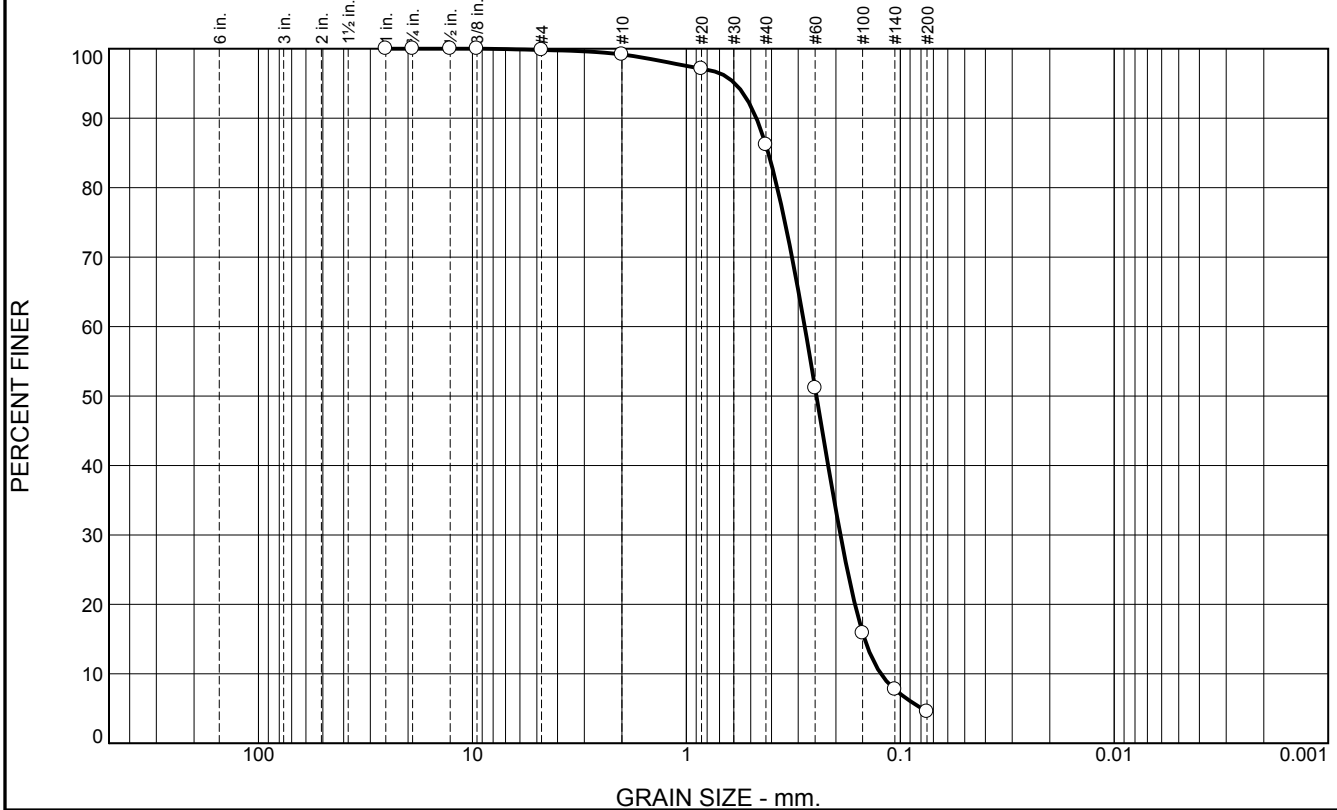
**AVS**  
**AMERICAN VIBRACORE**  
**S E R V I C E S**

**Core Identifier** BI-PBS-77-12**Date** 12/18/2012**Water Depth** 55.8'**Coordinate System**

Latitude / Longitude

**Start Time** 11:14:11**End Time** 11:15:02**Penetration** 20.0'**Latitude** 30 9.284**Total Time** 00:00:51**Recovery** 20.0'**Longitude** 88 18.932**Comments**

# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.2	0.6	13.0	81.6	4.6	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
1	100.0		
.75	100.0		
.5	100.0		
.375	100.0		
#4	99.8		
#10	99.2		
#20	97.1		
#40	86.2		
#60	51.1		
#100	15.9		
#140	7.8		
#200	4.6		

\* (no specification provided)

Material Description		
Fine to medium grained, SAND		
<div> <div> Atterberg Limits </div> <div> PL= </div> <div> LL= </div> <div> PI= </div> </div>		
<div> <div> Coefficients </div> <div> D<sub>90</sub>= 0.4708 </div> <div> D<sub>50</sub>= 0.2464 </div> <div> D<sub>10</sub>= 0.1234 </div> <div> D<sub>85</sub>= 0.4140 </div> <div> D<sub>30</sub>= 0.1905 </div> <div> C<sub>u</sub>= 2.27 </div> <div> D<sub>60</sub>= 0.2799 </div> <div> D<sub>15</sub>= 0.1469 </div> <div> C<sub>c</sub>= 1.05 </div> </div>		
<div> <div> Classification </div> <div> USCS= SP </div> <div> AASHTO= </div> </div>		
<div> <div> Remarks </div> </div>		

Location: BI-PBS-77-12 A  
Sample Number: 6494 (44)

Depth: 0.0'

Date: 12/26/12

**Thompson Engineering**

**Mobile, Alabama**

Client: CDM/Thompson Engineering JV  
Project: MsCIP Barrier Island Restoration GT

Project No: 1221110095

Figure



# Boring Designation BI-PBS-078-12

DRILLING LOG		DIVISION South Atlantic		INSTALLATION Mobile District		SHEET 1 OF 1 SHEETS	
1. PROJECT MsCIP Barrier Island Restoration Petit Bois Pass-OCS East				9. SIZE AND TYPE OF BIT N/A			
2. BORING DESIGNATION BI-PBS-078-12		LOCATION COORDINATES E = 1,146,430 N = 238,934		10. COORDINATE SYSTEM/DATUM State Plane, MSE (U.S. Ft.)		HORIZONTAL NAD83	
3. DRILLING AGENCY Corps of Engineers - CESAM		CONTRACTOR FILE NO.		11. MANUFACTURER'S DESIGNATION OF DRILL Vibracore		<input type="checkbox"/> AUTO HAMMER <input type="checkbox"/> MANUAL HAMMER	
4. NAME OF DRILLER American Vibracore Systems, Inc.				12. TOTAL SAMPLES		DISTURBED 0	
5. DIRECTION OF BORING <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED				13. TOTAL NUMBER CORE BOXES		14. WATER DEPTH 53.9 Ft.	
6. THICKNESS OF OVERBURDEN N/A				15. DATE BORING		STARTED 12-18-12	
7. DEPTH DRILLED INTO ROCK N/A				16. ELEVATION TOP OF BORING -53.9 Ft.		COMPLETED 12-18-12	
8. TOTAL DEPTH OF BORING 18.2 Ft.				17. TOTAL RECOVERY FOR BORING 100%		18. SIGNATURE AND TITLE OF INSPECTOR Mike FitzHarris, Geologist	
ELEV.	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS	SAMPLE	LABORATORY RESULTS		
-53.9	0.0						
-57.1	3.2		SAND, poorly-graded, mostly fine to medium-grained sand-sized quartz, trace silt, clayey bands at 2, 2.5, and 2.8 ft., lt. gray (SP)	A	Classification: SP-SM Color: 5Y 6/2-light olive gray D50: 0.2821 mm % Fines: 6.3		
-59.3	5.4		SAND, clayey, mostly fine-grained sand-sized quartz, some clay, grades to sandy clay, gray (SC)				
-72.1	18.2		CLAY, fat, mostly clay, trace silt, trace shell fragments, trace shell fragments, medium to high plasticity, gray (CH)	NS			
NOTES: 1. Soils are field visually classified in accordance with the Unified Soils Classification System. 2. NS = Sample not submitted for laboratory analysis from this interval. 3. Seafloor elevation calculated using sampling vessel's fathometer water depth reading and applying NOAA tidal gauge data conversion factor.							

**Project**

Mississippi Barrier Island  
Restoration Project

**AVS**  
**AMERICAN VIBRACORE**  
**S E R V I C E S**

**Core Identifier** BI-PBS-78-12

**Date** 12/18/2012

**Water Depth** 53.9'

**Coordinate System**

Latitude / Longitude

**Start Time** 10:48:19

**End Time** 10:49:15

**Penetration** 20.0'

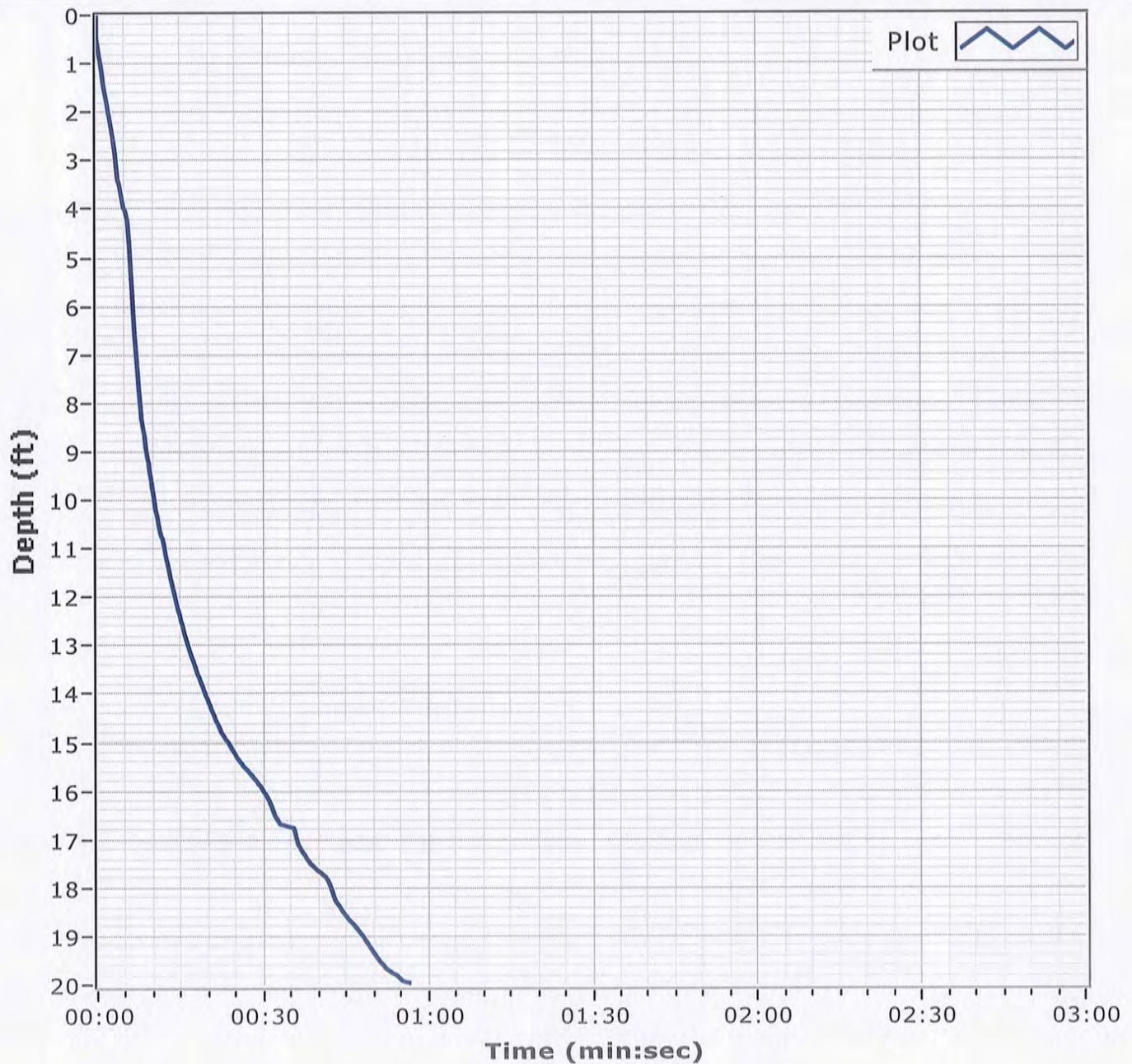
**Latitude** 30 9.361

**Total Time** 00:00:56

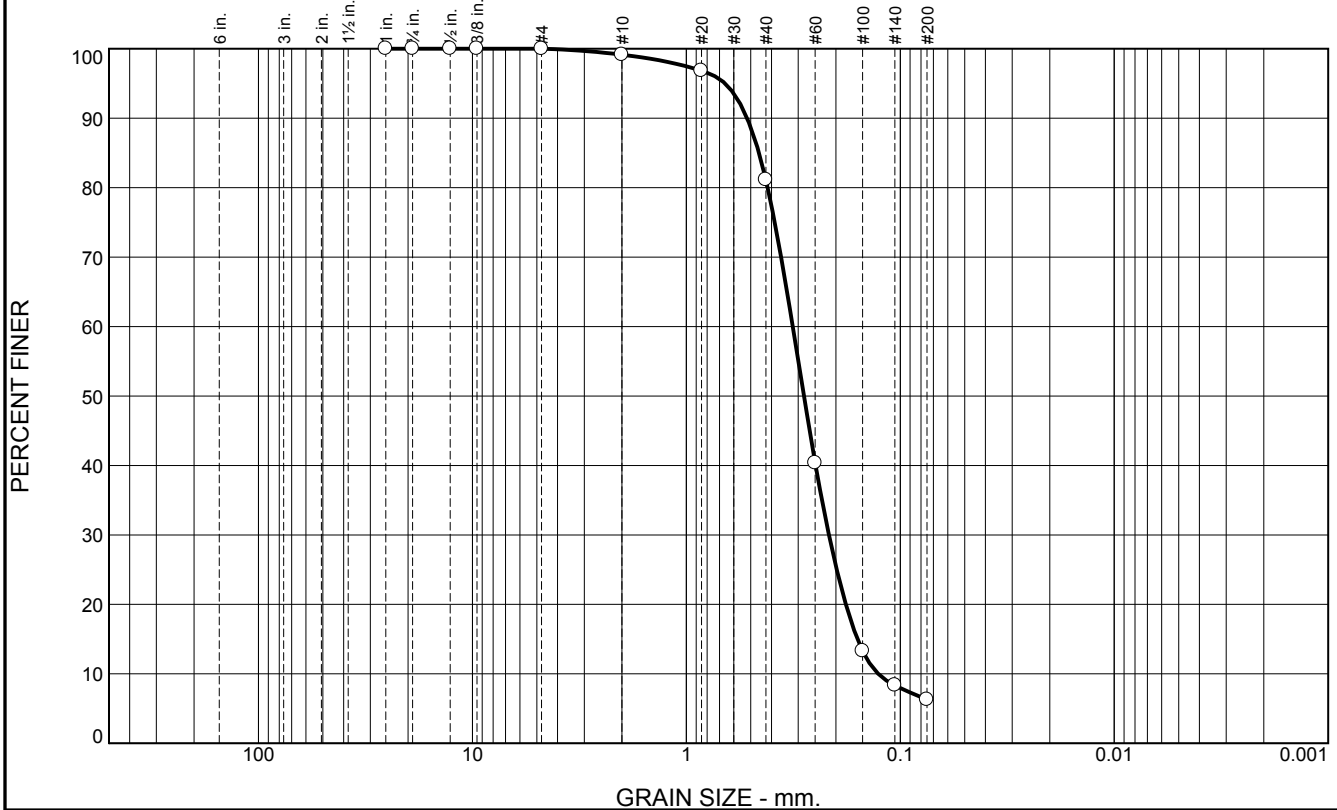
**Recovery** 18.0'

**Longitude** 88 19.211

**Comments**



# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.0	0.9	18.0	74.8	6.3	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
1	100.0		
.75	100.0		
.5	100.0		
.375	100.0		
#4	100.0		
#10	99.1		
#20	96.8		
#40	81.1		
#60	40.4		
#100	13.3		
#140	8.4		
#200	6.3		

\* (no specification provided)

<u><b>Material Description</b></u>		
Fine to medium grained, SLIGHTLY SILTY SAND		
<u><b>Atterberg Limits</b></u>		
PL=	LL=	PI=
<u><b>Coefficients</b></u>		
D <sub>90</sub> = 0.5201	D <sub>85</sub> = 0.4577	D <sub>60</sub> = 0.3182
D <sub>50</sub> = 0.2821	D <sub>30</sub> = 0.2155	D <sub>15</sub> = 0.1587
D <sub>10</sub> = 0.1268	C <sub>u</sub> = 2.51	C <sub>c</sub> = 1.15
<u><b>Classification</b></u>		
USCS= SP-SM	AASHTO=	
<u><b>Remarks</b></u>		

Location: BI-PBS-78-12 A  
Sample Number: 6494 (45)

Depth: 0.0'

Date: 12/26/12

**Thompson Engineering**

**Mobile, Alabama**

Client: CDM/Thompson Engineering JV  
Project: MsCIP Barrier Island Restoration GT

Project No: 1221110095

Figure

# Boring Designation BI-PBS-079-12

DRILLING LOG		DIVISION South Atlantic		INSTALLATION Mobile District		SHEET 1 OF 1 SHEETS	
1. PROJECT MsCIP Barrier Island Restoration Petit Bois Pass-OCS East				9. SIZE AND TYPE OF BIT N/A			
2. BORING DESIGNATION BI-PBS-079-12		LOCATION COORDINATES E = 1,145,037 N = 239,338		10. COORDINATE SYSTEM/DATUM State Plane, MSE (U.S. Ft.)		HORIZONTAL NAD83 VERTICAL NAVD88	
3. DRILLING AGENCY Corps of Engineers - CESAM		CONTRACTOR FILE NO.		11. MANUFACTURER'S DESIGNATION OF DRILL Vibracore		<input type="checkbox"/> AUTO HAMMER <input type="checkbox"/> MANUAL HAMMER	
4. NAME OF DRILLER American Vibracore Systems, Inc.				12. TOTAL SAMPLES		DISTURBED UNDISTURBED (UD) 0	
5. DIRECTION OF BORING <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED				13. TOTAL NUMBER CORE BOXES		14. WATER DEPTH 52.3 Ft.	
6. THICKNESS OF OVERBURDEN N/A				15. DATE BORING		STARTED 12-18-12 COMPLETED 12-18-12	
7. DEPTH DRILLED INTO ROCK N/A				16. ELEVATION TOP OF BORING -52.3 Ft.		17. TOTAL RECOVERY FOR BORING 100%	
8. TOTAL DEPTH OF BORING 16.4 Ft.				18. SIGNATURE AND TITLE OF INSPECTOR Mike FitzHarris, Geologist			
ELEV.	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS	SAMPLE	LABORATORY RESULTS		
-52.3	0.0						
-54.2	1.9		SAND, poorly-graded, mostly fine to medium-grained sand-sized quartz, trace shell fragments, trace clay lenses, lt. gray (SP)	A	Classification: SP Color: 5Y 6/2-light olive gray D50: 0.2701 mm % Fines: 1.9		
-55.4	3.1		SAND, poorly-graded with silt, mostly fine-grained sand-sized quartz, some silt, trace shell fragments, trace clay lenses, gray (SP-SM)	B	Classification: SP-SM Color: 5Y 5/2-olive gray D50: 0.2114 mm % Fines: 11.5		
-56.9	4.6		SAND, clayey, mostly fine-grained sand-sized quartz, trace shell fragments, gray (SC)	NS			
			CLAY, fat, mostly clay, trace shell fragments, trace wood debris, medium to high plasticity, trace sandy lenses, gray to greenish gray (CH)				
-68.7	16.4						
NOTES: 1. Soils are field visually classified in accordance with the Unified Soils Classification System. 2. NS = Sample not submitted for laboratory analysis from this interval. 3. Seafloor elevation calculated using sampling vessel's fathometer water depth reading and applying NOAA tidal gauge data conversion factor.							



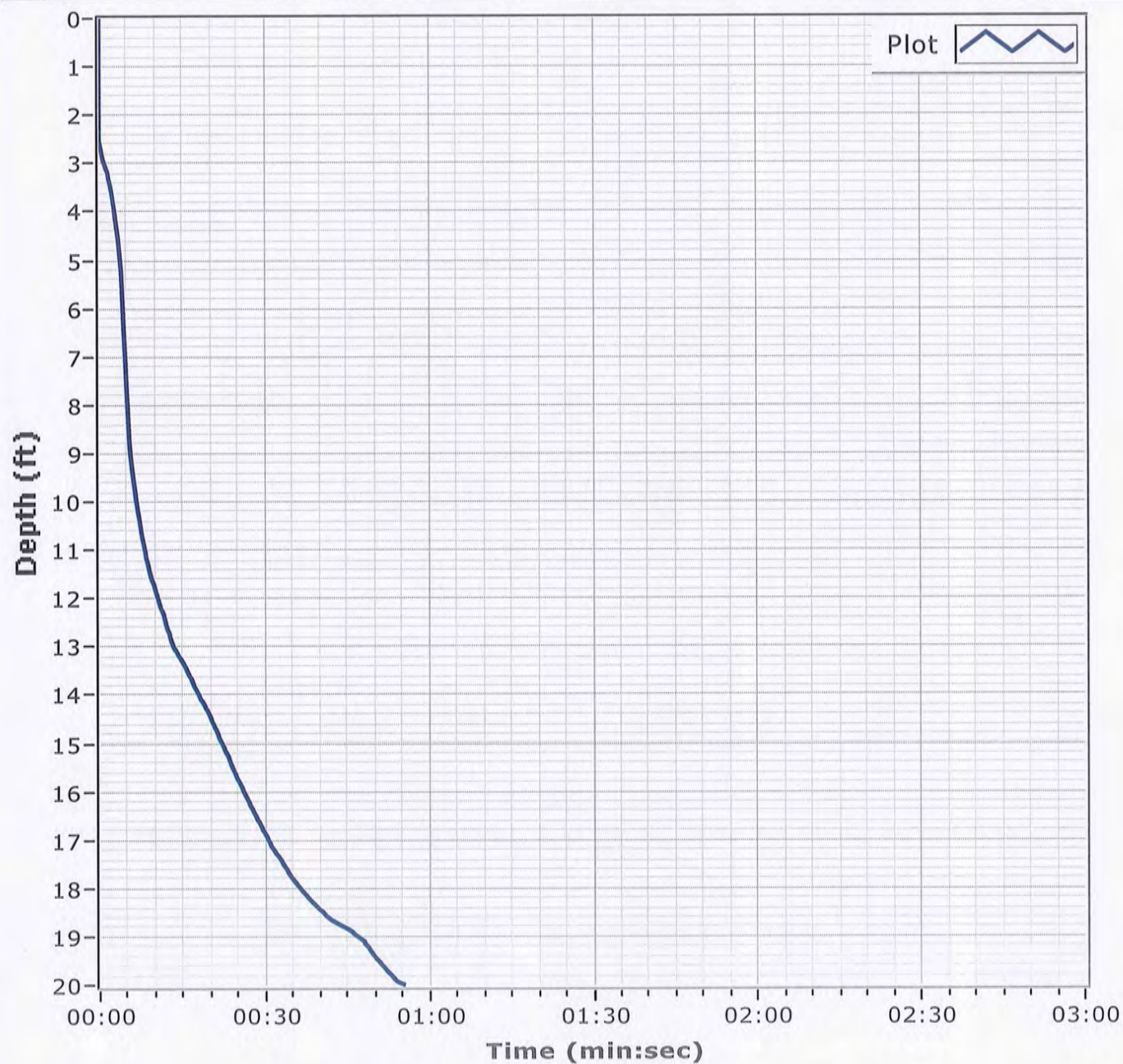
**Project**

Mississippi Barrier Island  
Restoration Project

**AVS**  
**AMERICAN VIBRACORE**  
**S E R V I C E S**

**Core Identifier** BI-PBS-79-12**Date** 12/18/2012**Water Depth** 52.3'**Coordinate System**

Latitude / Longitude

**Start Time** 09:53:10**End Time** 09:54:06**Penetration** 20.0'**Latitude** 30 9.429**Total Time** 00:00:55**Recovery** 16.5'**Longitude** 88 19.475**Comments**

# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.0	1.3	13.9	82.9	1.9	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
1	100.0		
.75	100.0		
.5	100.0		
.375	100.0		
#4	100.0		
#10	98.7		
#20	96.5		
#40	84.8		
#60	42.9		
#100	5.9		
#140	2.6		
#200	1.9		

\* (no specification provided)

<u><b>Material Description</b></u>		
Fine to medium grained, SAND		
<u><b>Atterberg Limits</b></u>		
PL=	LL=	PI=
<u><b>Coefficients</b></u>		
D <sub>90</sub> = 0.4802	D <sub>85</sub> = 0.4270	D <sub>60</sub> = 0.3020
D <sub>50</sub> = 0.2701	D <sub>30</sub> = 0.2168	D <sub>15</sub> = 0.1791
D <sub>10</sub> = 0.1649	C <sub>u</sub> = 1.83	C <sub>c</sub> = 0.94
<u><b>Classification</b></u>		
USCS= SP	AASHTO=	
<u><b>Remarks</b></u>		

Location: BI-PBS-79-12 A  
Sample Number: 6494 (46)

Depth: 0.0'

Date: 12/26/12

**Thompson Engineering**

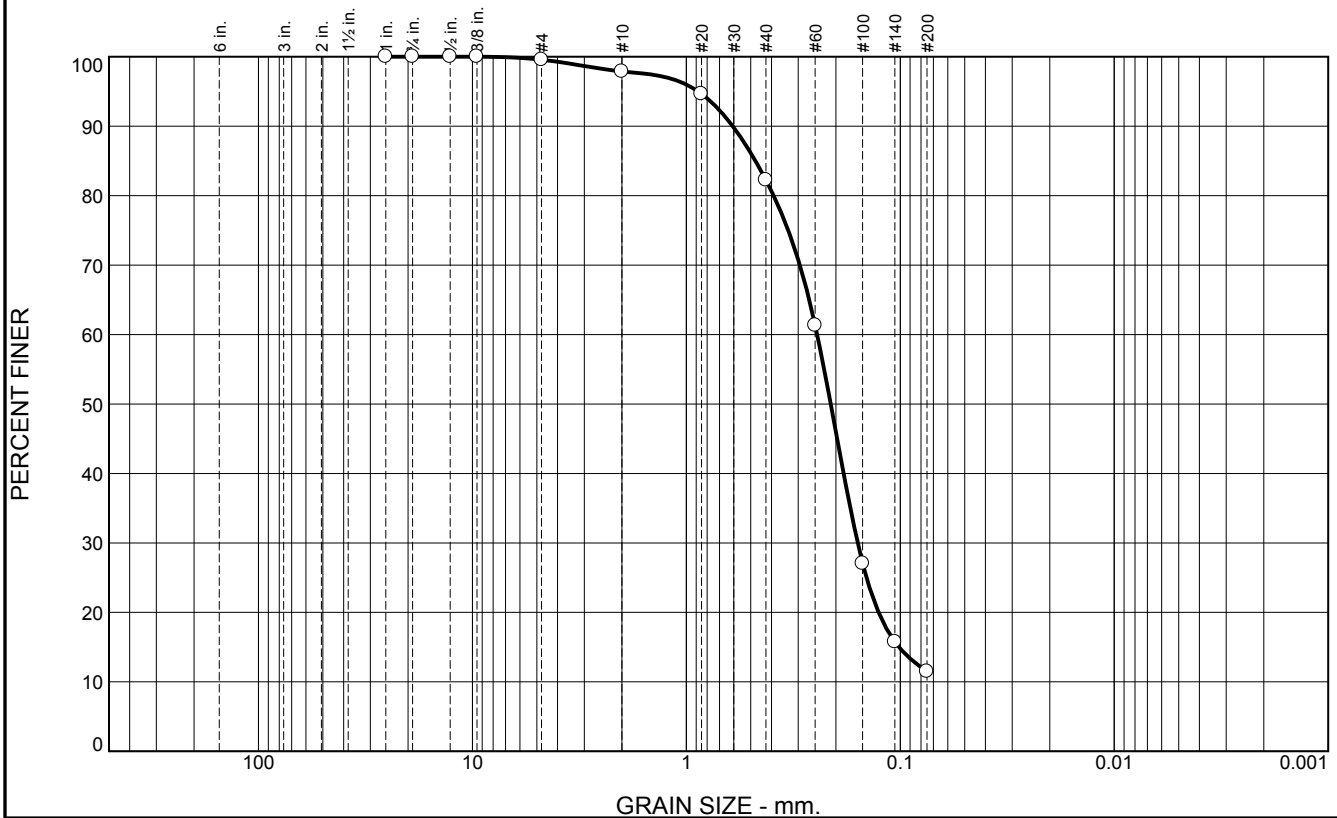
**Mobile, Alabama**

Client: CDM/Thompson Engineering JV  
Project: MsCIP Barrier Island Restoration GT

Project No: 1221110095

Figure

# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.4	1.7	15.7	70.7	11.5	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
1	100.0		
.75	100.0		
.5	100.0		
.375	100.0		
#4	99.6		
#10	97.9		
#20	94.7		
#40	82.2		
#60	61.3		
#100	27.0		
#140	15.8		
#200	11.5		

\* (no specification provided)

Material Description		
Fine to medium grained, SLIGHTLY SILTY SAND		
<div> <div> Atterberg Limits </div> <div> PL= LL= PI= </div> </div>		
<div> <div> Coefficients </div> <div> D<sub>90</sub>= 0.6072 D<sub>85</sub>= 0.4757 D<sub>60</sub>= 0.2447 D<sub>50</sub>= 0.2114 D<sub>30</sub>= 0.1582 D<sub>15</sub>= 0.1014 D<sub>10</sub>= C<sub>u</sub>= C<sub>c</sub>= </div> </div>		
<div> <div> Classification </div> <div> USCS= SP-SM AASHTO= </div> </div>		
<div> <div> Remarks </div> </div>		

Location: BI-PBS-79-12 B  
Sample Number: 6494 (47)

Depth: 1.9'

Date: 12/26/12

**Thompson Engineering**

**Mobile, Alabama**

Client: CDM/Thompson Engineering JV  
Project: MsCIP Barrier Island Restoration GT

Project No: 1221110095

Figure

# Boring Designation BI-PBS-080-12

DRILLING LOG		DIVISION South Atlantic		INSTALLATION Mobile District		SHEET 1 OF 2 SHEETS	
1. PROJECT MsCIP Barrier Island Restoration Petit Bois Pass-OCS East				9. SIZE AND TYPE OF BIT N/A			
2. BORING DESIGNATION BI-PBS-080-12		LOCATION COORDINATES E = 1,143,708 N = 239,852		10. COORDINATE SYSTEM/DATUM State Plane, MSE (U.S. Ft.)		HORIZONTAL NAD83 VERTICAL NAVD88	
3. DRILLING AGENCY Corps of Engineers - CESAM		CONTRACTOR FILE NO.		11. MANUFACTURER'S DESIGNATION OF DRILL Vibracore		<input type="checkbox"/> AUTO HAMMER <input type="checkbox"/> MANUAL HAMMER	
4. NAME OF DRILLER American Vibracore Systems, Inc.				12. TOTAL SAMPLES		DISTURBED UNDISTURBED (UD) 0	
5. DIRECTION OF BORING <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED		DEG. FROM VERTICAL		13. TOTAL NUMBER CORE BOXES			
		BEARING		14. WATER DEPTH 52.3 Ft.			
6. THICKNESS OF OVERBURDEN N/A				15. DATE BORING 12-18-12		STARTED COMPLETED 12-18-12	
7. DEPTH DRILLED INTO ROCK N/A				16. ELEVATION TOP OF BORING -52.2 Ft.			
8. TOTAL DEPTH OF BORING 19.4 Ft.				17. TOTAL RECOVERY FOR BORING 100%			
				18. SIGNATURE AND TITLE OF INSPECTOR Mike FitzHarris, Geologist			
ELEV.	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS	SAMPLE	LABORATORY RESULTS		
-52.2	0.0						
-54.2	2.0		SAND, poorly-graded, mostly fine to medium-grained sand-sized quartz, trace silt, trace shell fragments, gray (SP)	A	Classification: SP Color: 5Y 6/2-light olive gray D50: 0.2596 mm % Fines: 1.9		
-56.6	4.4		SAND, clayey, mostly fine-grained sand-sized quartz, some clay, trace shell fragments, trace clay lenses, gray (SC)	B	Classification: SP-SM Color: 5Y 5/2-olive gray D50: 0.2305 mm % Fines: 11.6		
			CLAY, fat, mostly clay, trace wood debris, medium to high plasticity, stiff, trace sandy lenses, gray (CH)	NS			
-71.6	19.4						
			NOTES: 1. Soils are field visually classified in accordance with the Unified Soils Classification System. 2. NS = Sample not submitted for laboratory analysis from this interval. 3. Seafloor elevation calculated using sampling vessel's fathometer water depth reading and				



<b>DRILLING LOG (Cont. Sheet)</b>			<b>INSTALLATION</b> Mobile District		<b>SHEET 2</b> <b>OF 2 SHEETS</b>
<b>PROJECT</b> MsCIP Barrier Island Restoration			<b>COORDINATE SYSTEM/DATUM</b> State Plane, MSE (U.S. Ft.)	<b>HORIZONTAL</b> NAD83	<b>VERTICAL</b> NAVD88
<b>LOCATION COORDINATES</b> X = 1,143,708 Y = 239,852			<b>ELEVATION TOP OF BORING</b> -52.2 Ft.		
<b>ELEV.</b>	<b>DEPTH</b>	<b>LEGEND</b>	<b>CLASSIFICATION OF MATERIALS</b>	<b>SAMPLE</b>	<b>LABORATORY RESULTS</b>
			applying NOAA tidal gauge data conversion factor.		

**Project**

Mississippi Barrier Island  
Restoration Project



**Core Identifier** BI-PBS-80-12

**Date** 12/18/2012

**Water Depth** 52.3'

**Coordinate System**

**Start Time** 09:23:20

Latitude / Longitude

**End Time** 09:24:12

**Penetration** 20.0'

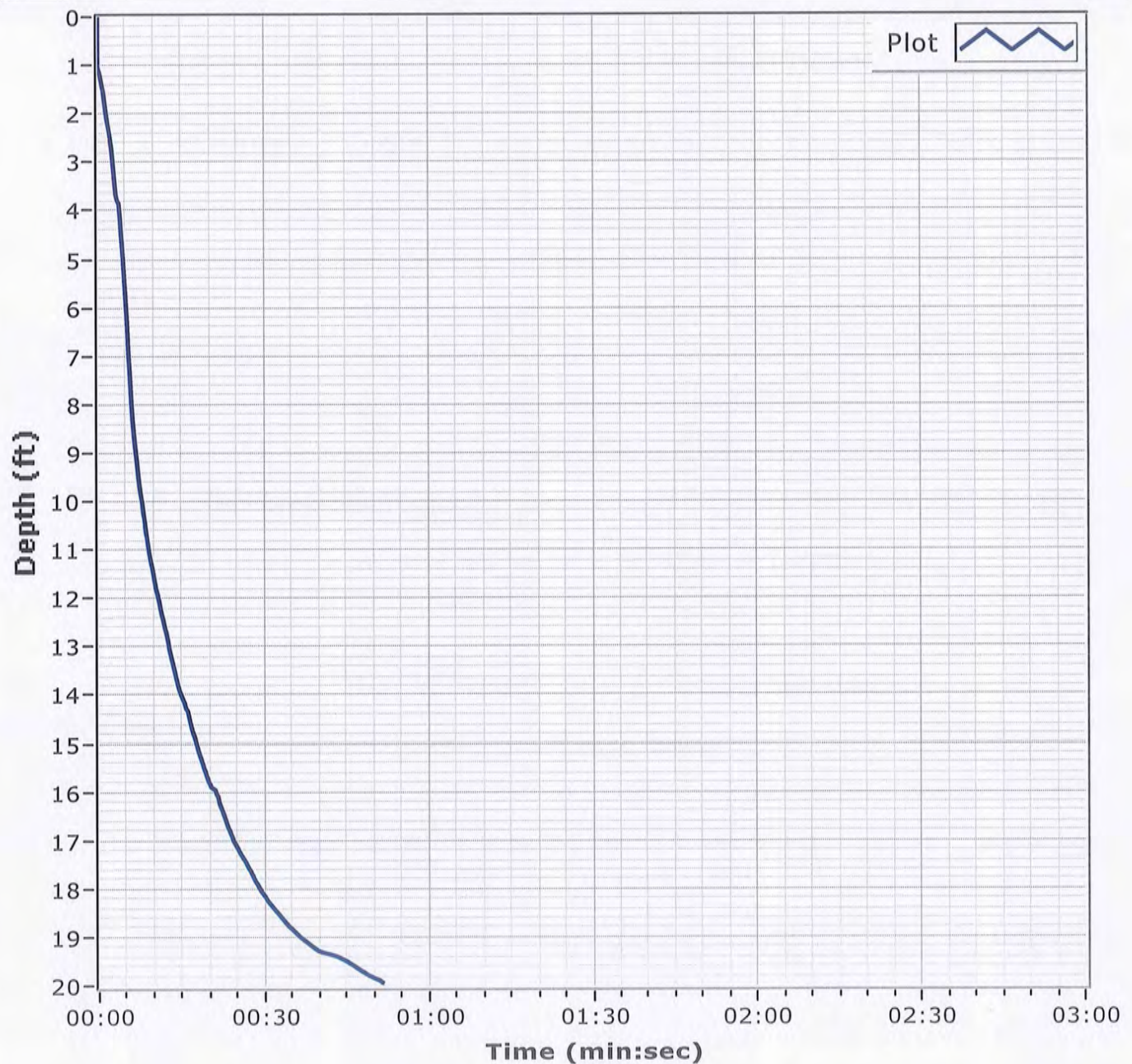
**Latitude** 30 9.515

**Total Time** 00:00:51

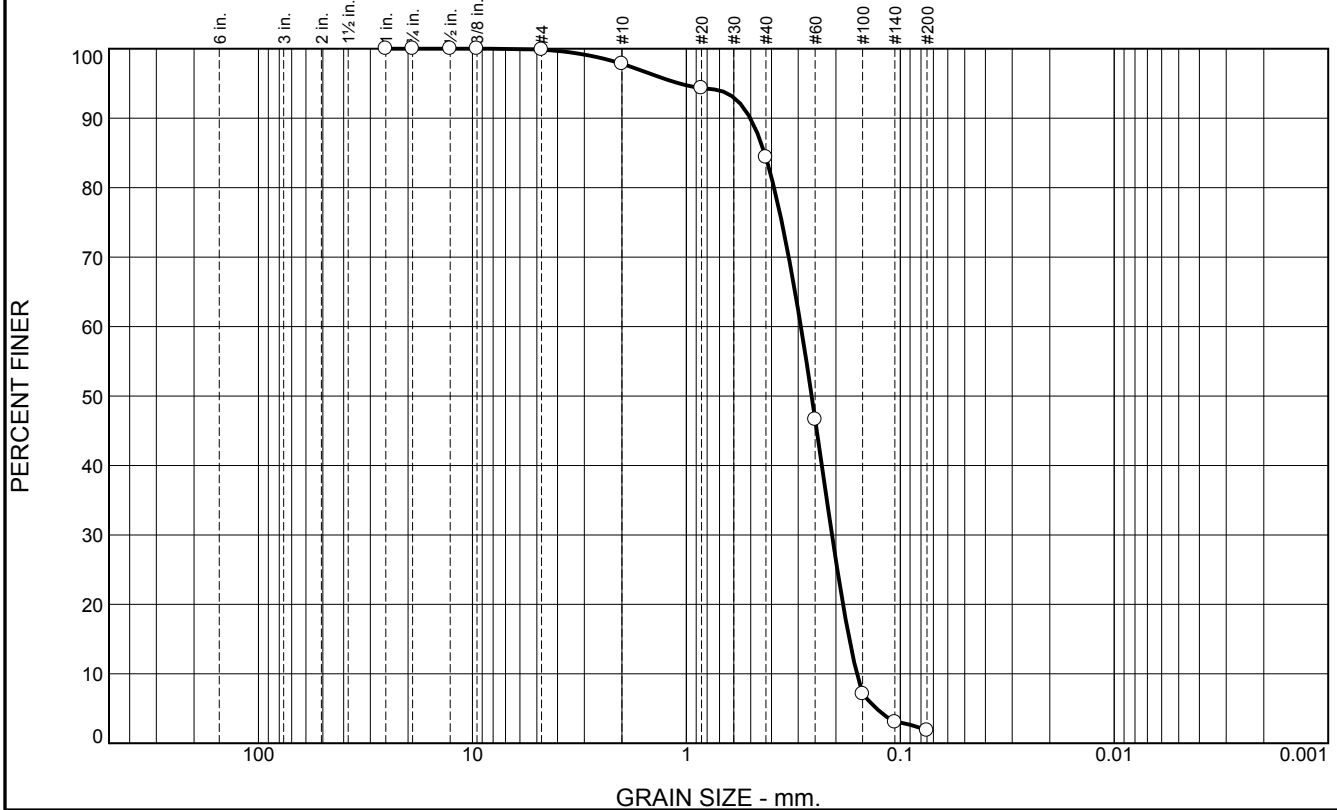
**Recovery** 19.5'

**Longitude** 88 19.727

**Comments**



# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.1	2.1	13.4	82.5	1.9	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
1	100.0		
.75	100.0		
.5	100.0		
.375	100.0		
#4	99.9		
#10	97.8		
#20	94.3		
#40	84.4		
#60	46.6		
#100	7.1		
#140	3.0		
#200	1.9		

\* (no specification provided)

<u><b>Material Description</b></u>		
Fine to medium grained, SAND		
<u><b>Atterberg Limits</b></u>		
PL=	LL=	PI=
<u><b>Coefficients</b></u>		
D <sub>90</sub> = 0.5026	D <sub>85</sub> = 0.4313	D <sub>60</sub> = 0.2917
D <sub>50</sub> = 0.2596	D <sub>30</sub> = 0.2086	D <sub>15</sub> = 0.1732
D <sub>10</sub> = 0.1596	C <sub>u</sub> = 1.83	C <sub>c</sub> = 0.93
<u><b>Classification</b></u>		
USCS= SP	AASHTO=	
<u><b>Remarks</b></u>		

Location: BI-PBS-80-12 A  
Sample Number: 6494 (48)

Depth: 0.0'

Date: 12/26/12

**Thompson Engineering**

**Mobile, Alabama**

Client: CDM/Thompson Engineering JV  
Project: MsCIP Barrier Island Restoration GT

Project No: 1221110095

Figure

# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	2.0	2.3	21.1	63.0	11.6	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
1	100.0		
.75	100.0		
.5	100.0		
.375	98.6		
#4	98.0		
#10	95.7		
#20	90.8		
#40	74.6		
#60	54.3		
#100	27.0		
#140	16.0		
#200	11.6		

\* (no specification provided)

## Material Description

Fine to medium grained, SLIGHTLY SILTY SAND, with trace SHELL

## Atterberg Limits

PL= LL= PI=

## Coefficients

D<sub>90</sub>= 0.8069 D<sub>85</sub>= 0.6250 D<sub>60</sub>= 0.2827  
D<sub>50</sub>= 0.2305 D<sub>30</sub>= 0.1600 D<sub>15</sub>= 0.1005  
D<sub>10</sub>= C<sub>u</sub>= C<sub>c</sub>=

## Classification

USCS= SP-SM AASHTO=

## Remarks

Location: BI-PBS-80-12 B  
Sample Number: 6494 (49)

Depth: 2.0'

Date: 12/26/12

**Thompson Engineering**

**Mobile, Alabama**

Client: CDM/Thompson Engineering JV  
Project: MsCIP Barrier Island Restoration GT

Project No: 1221110095

Figure

# Boring Designation BI-PBS-081-12

DRILLING LOG		DIVISION South Atlantic		INSTALLATION Mobile District		SHEET 1 OF 1 SHEETS	
1. PROJECT MsCIP Barrier Island Restoration Petit Bois Pass-OCS East				9. SIZE AND TYPE OF BIT N/A			
2. BORING DESIGNATION BI-PBS-081-12		LOCATION COORDINATES E = 1,145,995 N = 240,743		10. COORDINATE SYSTEM/DATUM State Plane, MSE (U.S. Ft.)		HORIZONTAL NAD83 VERTICAL NAVD88	
3. DRILLING AGENCY Corps of Engineers - CESAM		CONTRACTOR FILE NO.		11. MANUFACTURER'S DESIGNATION OF DRILL Vibracore		<input type="checkbox"/> AUTO HAMMER <input type="checkbox"/> MANUAL HAMMER	
4. NAME OF DRILLER American Vibracore Systems, Inc.				12. TOTAL SAMPLES		DISTURBED UNDISTURBED (UD) 0	
5. DIRECTION OF BORING <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED		DEG. FROM VERTICAL		13. TOTAL NUMBER CORE BOXES			
		BEARING		14. WATER DEPTH 52 Ft.			
6. THICKNESS OF OVERBURDEN N/A				15. DATE BORING 12-18-12		STARTED COMPLETED 12-18-12	
7. DEPTH DRILLED INTO ROCK N/A				16. ELEVATION TOP OF BORING -52.0 Ft.			
8. TOTAL DEPTH OF BORING 16.9 Ft.				17. TOTAL RECOVERY FOR BORING 100%			
				18. SIGNATURE AND TITLE OF INSPECTOR Mike FitzHarris, Geologist			
ELEV.	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS	SAMPLE	LABORATORY RESULTS		
-52.0	0.0						
-53.9	1.9		SAND, poorly-graded, mostly fine to medium-grained sand-sized quartz, trace silt, trace shell fragments, trace clay lenses, lt. gray (SP)	A	Classification: SP Color: 5Y 6/2-light olive gray D50: 0.2244 mm % Fines: 2.4		
-55.6	3.6		SAND, silty, mostly fine-grained sand-sized quartz, some silt, trace clay, trace shell fragments, gray (SM)	B	Classification: SP-SM Color: 5Y 5/2-olive gray D50: 0.1757 mm % Fines: 9.1		
-56.2	4.2		SAND, clayey, mostly fine-grained sand-sized quartz, some clay, trace shell fragments, gray (SC)				
			CLAY, fat, mostly clay, trace wood debris, medium to high plasticity, stiff, sandy lenses at 4.7 ft., gray (CH)	NS			
-68.9	16.9						
			NOTES: 1. Soils are field visually classified in accordance with the Unified Soils Classification System. 2. NS = Sample not submitted for laboratory analysis from this interval. 3. Seafloor elevation calculated using sampling vessel's fathometer water depth reading and applying NOAA tidal gauge data conversion factor.				



**Project**

Mississippi Barrier Island  
Restoration Project

**AVS**  
**AMERICAN VIBRACORE**  
**S E R V I C E S**

**Core Identifier** BI-PBS-81-12

**Date** 12/18/2012

**Water Depth** 52.0'

**Coordinate System**

Latitude / Longitude

**Start Time** 10:18:31

**End Time** 10:19:41

**Penetration** 20.0'

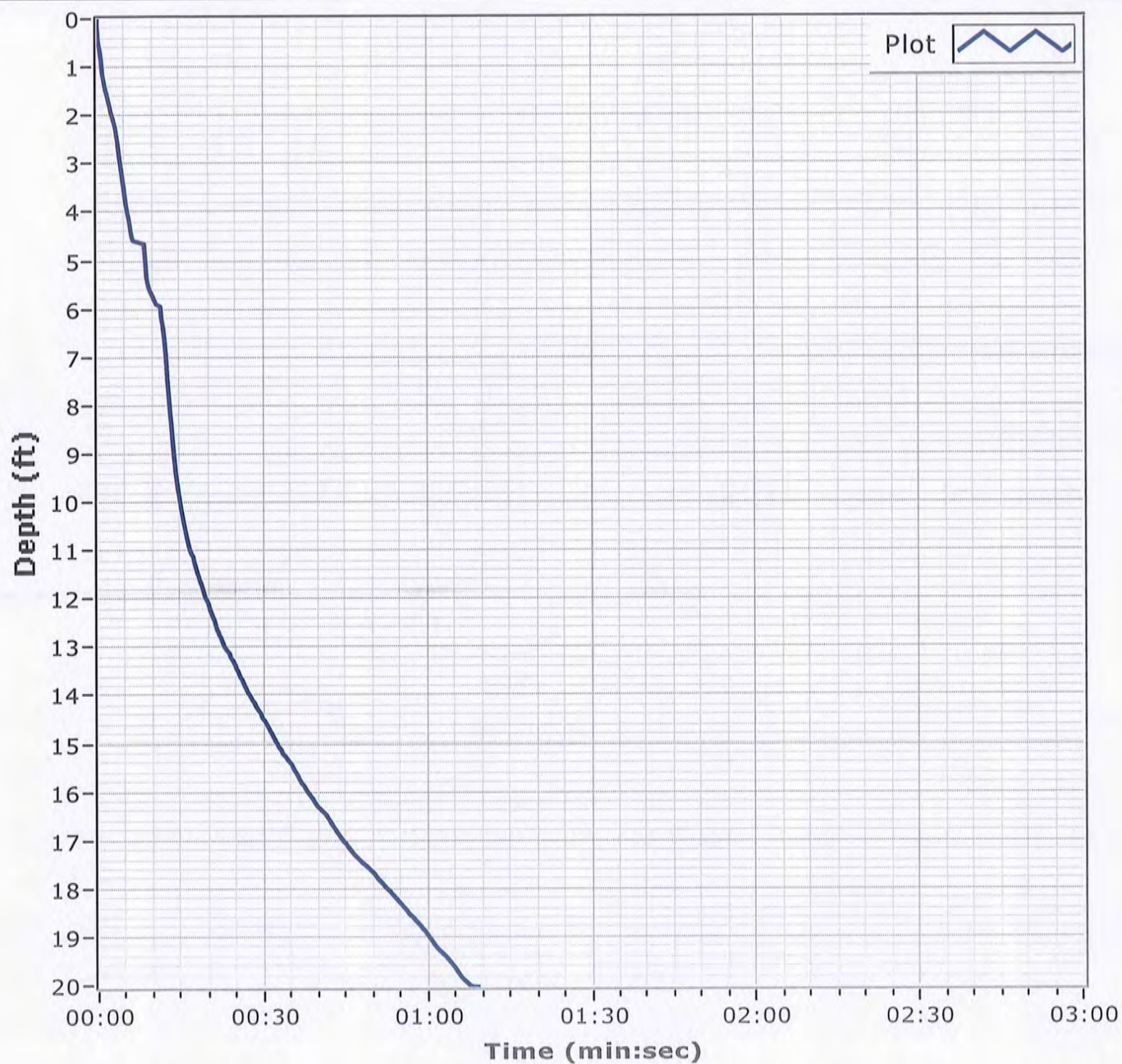
**Latitude** 30 9.660

**Total Time** 00:01:09

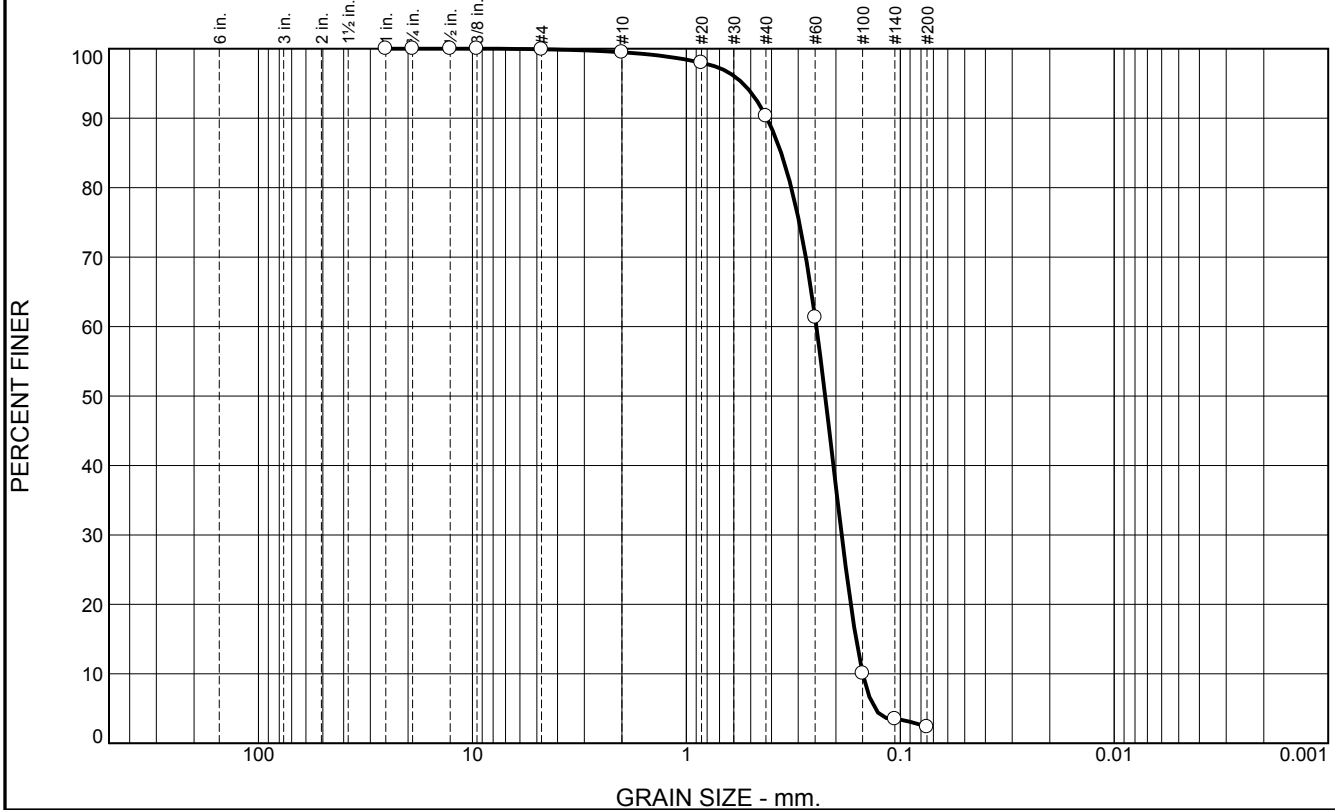
**Recovery** 16.9'

**Longitude** 88 19.292

**Comments**



# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.1	0.4	9.2	87.9	2.4	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
1	100.0		
.75	100.0		
.5	100.0		
.375	100.0		
#4	99.9		
#10	99.5		
#20	98.0		
#40	90.3		
#60	61.3		
#100	10.1		
#140	3.5		
#200	2.4		

\* (no specification provided)

Material Description		
Fine grained, SAND		
<div> <div> Atterberg Limits </div> <div> PL= </div> <div> LL= </div> <div> PI= </div> </div>		
<div> <div> Coefficients </div> <div> D<sub>90</sub>= 0.4201 </div> <div> D<sub>50</sub>= 0.2244 </div> <div> D<sub>10</sub>= 0.1499 </div> <div> D<sub>85</sub>= 0.3604 </div> <div> D<sub>30</sub>= 0.1880 </div> <div> C<sub>u</sub>= 1.65 </div> <div> D<sub>60</sub>= 0.2466 </div> <div> D<sub>15</sub>= 0.1610 </div> <div> C<sub>c</sub>= 0.96 </div> </div>		
<div> <div> Classification </div> <div> USCS= SP </div> <div> AASHTO= </div> </div>		
<div> <div> Remarks </div> </div>		

Location: BI-PBS-81-12 A  
Sample Number: 6494 (50)

Depth: 0.0'

Date: 12/26/12

**Thompson Engineering**

**Mobile, Alabama**

Client: CDM/Thompson Engineering JV  
Project: MsCIP Barrier Island Restoration GT

Project No: 1221110095

Figure

# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.5	0.7	8.5	81.2	9.1	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
1	100.0		
.75	100.0		
.5	100.0		
.375	100.0		
#4	99.5		
#10	98.8		
#20	96.9		
#40	90.3		
#60	77.4		
#100	36.7		
#140	16.4		
#200	9.1		

\* (no specification provided)

<u><b>Material Description</b></u>		
Fine grained, SLIGHTLY SILTY SAND		
<u><b>Atterberg Limits</b></u>		
PL=	LL=	PI=
<u><b>Coefficients</b></u>		
D <sub>90</sub> = 0.4129	D <sub>85</sub> = 0.3005	D <sub>60</sub> = 0.1972
D <sub>50</sub> = 0.1757	D <sub>30</sub> = 0.1369	D <sub>15</sub> = 0.1019
D <sub>10</sub> = 0.0804	C <sub>u</sub> = 2.45	C <sub>c</sub> = 1.18
<u><b>Classification</b></u>		
USCS= SP-SM	AASHTO=	
<u><b>Remarks</b></u>		

Location: BI-PBS-81-12 B  
Sample Number: 6494 (51)

Depth: 1.9'

Date: 12/26/12

**Thompson Engineering**

**Mobile, Alabama**

Client: CDM/Thompson Engineering JV  
Project: MsCIP Barrier Island Restoration GT

Project No: 1221110095

Figure



# Boring Designation BI-PBS-082-12

<b>DRILLING LOG</b>		<b>DIVISION</b> South Atlantic	<b>INSTALLATION</b> Mobile District	<b>SHEET 1</b> <b>OF 2 SHEETS</b>
<b>1. PROJECT</b> MsCIP Barrier Island Restoration Petit Bois Pass-OCS East		<b>9. SIZE AND TYPE OF BIT</b> N/A		
<b>2. BORING DESIGNATION</b> BI-PBS-082-12		<b>10. COORDINATE SYSTEM/DATUM</b> State Plane, MSE (U.S. Ft.)		
<b>3. DRILLING AGENCY</b> Corps of Engineers - CESAM		<b>11. MANUFACTURER'S DESIGNATION OF DRILL</b> Vibracore		
<b>4. NAME OF DRILLER</b> American Vibracore Systems, Inc.		<b>12. TOTAL SAMPLES</b> 0		
<b>5. DIRECTION OF BORING</b> <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED		<b>13. TOTAL NUMBER CORE BOXES</b>		
<b>6. THICKNESS OF OVERBURDEN</b> N/A		<b>14. WATER DEPTH</b> 59.6 Ft.		
<b>7. DEPTH DRILLED INTO ROCK</b> N/A		<b>15. DATE BORING</b> 12-18-12		
<b>8. TOTAL DEPTH OF BORING</b> 19.0 Ft.		<b>16. ELEVATION TOP OF BORING</b> -59.6 Ft.		
		<b>17. TOTAL RECOVERY FOR BORING</b> 100%		
		<b>18. SIGNATURE AND TITLE OF INSPECTOR</b> Mike FitzHarris, Geologist		

ELEV.	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS	SAMPLE	LABORATORY RESULTS
-59.6	0.0				
-63.4	3.8		SAND, clayey, mostly fine-grained sand-sized quartz, some clay, little shell fragments, trace silt, gray (SC)		
-68.0	8.4		SAND, silty, mostly fine-grained sand-sized quartz, some silt, little clay, trace shell fragments, gray (SM)		
-78.6	19.0		CLAY, lean, mostly clay, little fine-grained sand-sized quartz, trace silt, trace shell fragments, gray (CL)  At El. -72.1 Ft., mostly clay, trace silt, stiff, low to medium plasticity, brownish gray	NS	
			At El. -78.4 Ft., mostly clay, some silt, very stiff, lt. gray		
			NOTES: 1. Soils are field visually classified in accordance with the Unified Soils Classification System. 2. NS = Sample not submitted for laboratory analysis from this interval. 3. Seafloor elevation calculated using sampling		

<b>DRILLING LOG (Cont. Sheet)</b>			<b>INSTALLATION</b> Mobile District		<b>SHEET 2</b> <b>OF 2 SHEETS</b>
<b>PROJECT</b> MsCIP Barrier Island Restoration			<b>COORDINATE SYSTEM/DATUM</b> State Plane, MSE (U.S. Ft.)	<b>HORIZONTAL</b> NAD83	<b>VERTICAL</b> NAVD88
<b>LOCATION COORDINATES</b> X = 1,146,918 Y = 232,935			<b>ELEVATION TOP OF BORING</b> -59.6 Ft.		
<b>ELEV.</b>	<b>DEPTH</b>	<b>LEGEND</b>	<b>CLASSIFICATION OF MATERIALS</b>	<b>SAMPLE</b>	<b>LABORATORY RESULTS</b>
			vessel's fathometer water depth reading and applying NOAA tidal gauge data conversion factor.		

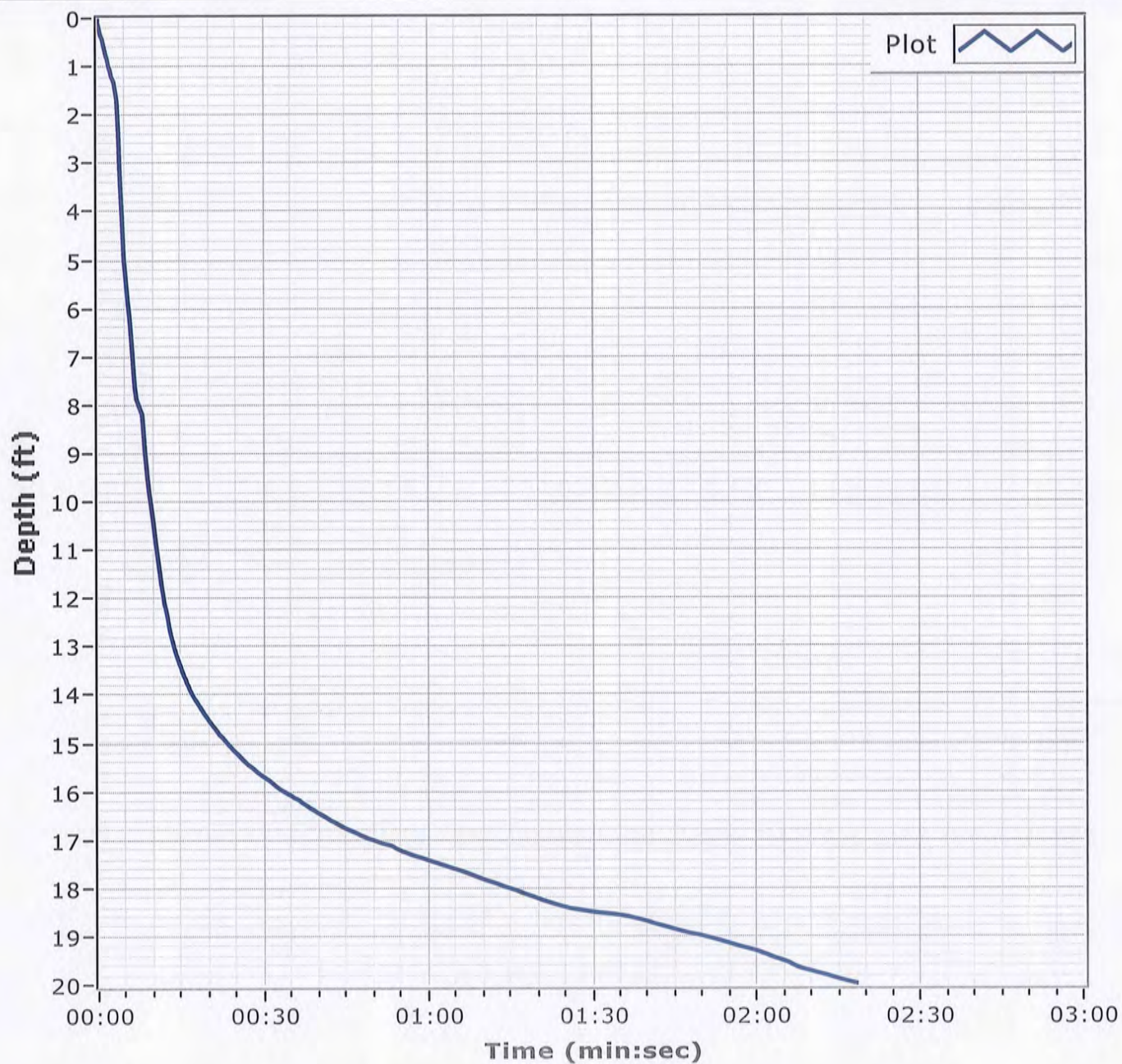
**Project**

Mississippi Barrier Island  
Restoration Project

**AVS**  
**AMERICAN VIBRACORE**  
**S E R V I C E S**

**Core Identifier** BI-PBS-82-12**Date** 12/18/2012**Water Depth** 59.6'**Coordinate System**

Latitude / Longitude

**Start Time** 11:44:47**End Time** 11:47:05**Penetration** 20.0'**Latitude** 30 8.371**Total Time** 00:02:18**Recovery** 19.0'**Longitude** 88 19.123**Comments**

# Boring Designation BI-PBS-083-12

DRILLING LOG		DIVISION South Atlantic		INSTALLATION Mobile District		SHEET 1 OF 1 SHEETS		
1. PROJECT MsCIP Barrier Island Restoration Petit Bois Pass-OCS East				9. SIZE AND TYPE OF BIT N/A				
2. BORING DESIGNATION BI-PBS-083-12		LOCATION COORDINATES E = 1,142,384 N = 232,518		10. COORDINATE SYSTEM/DATUM State Plane, MSE (U.S. Ft.)		HORIZONTAL NAD83 VERTICAL NAVD88		
3. DRILLING AGENCY Corps of Engineers - CESAM		CONTRACTOR FILE NO.		11. MANUFACTURER'S DESIGNATION OF DRILL Vibracore		<input type="checkbox"/> AUTO HAMMER <input type="checkbox"/> MANUAL HAMMER		
4. NAME OF DRILLER American Vibracore Systems, Inc.				12. TOTAL SAMPLES		DISTURBED UNDISTURBED (UD) 0		
5. DIRECTION OF BORING <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED		DEG. FROM VERTICAL		13. TOTAL NUMBER CORE BOXES				
		BEARING		14. WATER DEPTH 52.4 Ft.				
6. THICKNESS OF OVERBURDEN N/A				15. DATE BORING 12-18-12		STARTED COMPLETED 12-18-12		
7. DEPTH DRILLED INTO ROCK N/A				16. ELEVATION TOP OF BORING -52.1 Ft.				
8. TOTAL DEPTH OF BORING 19.6 Ft.				17. TOTAL RECOVERY FOR BORING 100%				
				18. SIGNATURE AND TITLE OF INSPECTOR Mike FitzHarris, Geologist				
ELEV.	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS	SAMPLE	LABORATORY RESULTS			
-52.1	0.0							
			SAND, poorly-graded, mostly fine to medium-grained sand-sized quartz, little shell fragments, trace clay, trace silt, gray (SP)	A	Classification: SP Color: 5Y 6/2-light olive gray D50: 0.3509 mm % Fines: 1			
				B	Classification: SP-SM Color: 5Y 5/2-olive gray D50: 0.2416 mm % Fines: 5.2			
-59.8	7.7							
			CLAY, lean, mostly clay, some silt, trace fine-grained sand-sized quartz, trace shell fragments, gray, orangy brown (CL)	NS				
-63.4	11.3							
-67.1	15.0							
-71.7	19.6							
			NOTES:					
			1. Soils are field visually classified in accordance with the Unified Soils Classification System.					
			2. NS = Sample not submitted for laboratory analysis from this interval.					
			3. Seafloor elevation determined from USACE hydrographic survey completed April 2014.					



**Project**

Mississippi Barrier Island  
Restoration Project

**AVS**  
AMERICAN VIBRACORE  
S E R V I C E S

**Core Identifier** BI-PBS-83-12

**Date** 12/18/2012

**Water Depth** 52.4'

**Coordinate System**

**Start Time** 12:21:37

Latitude / Longitude

**End Time** 12:23:12

**Penetration** 20.0'

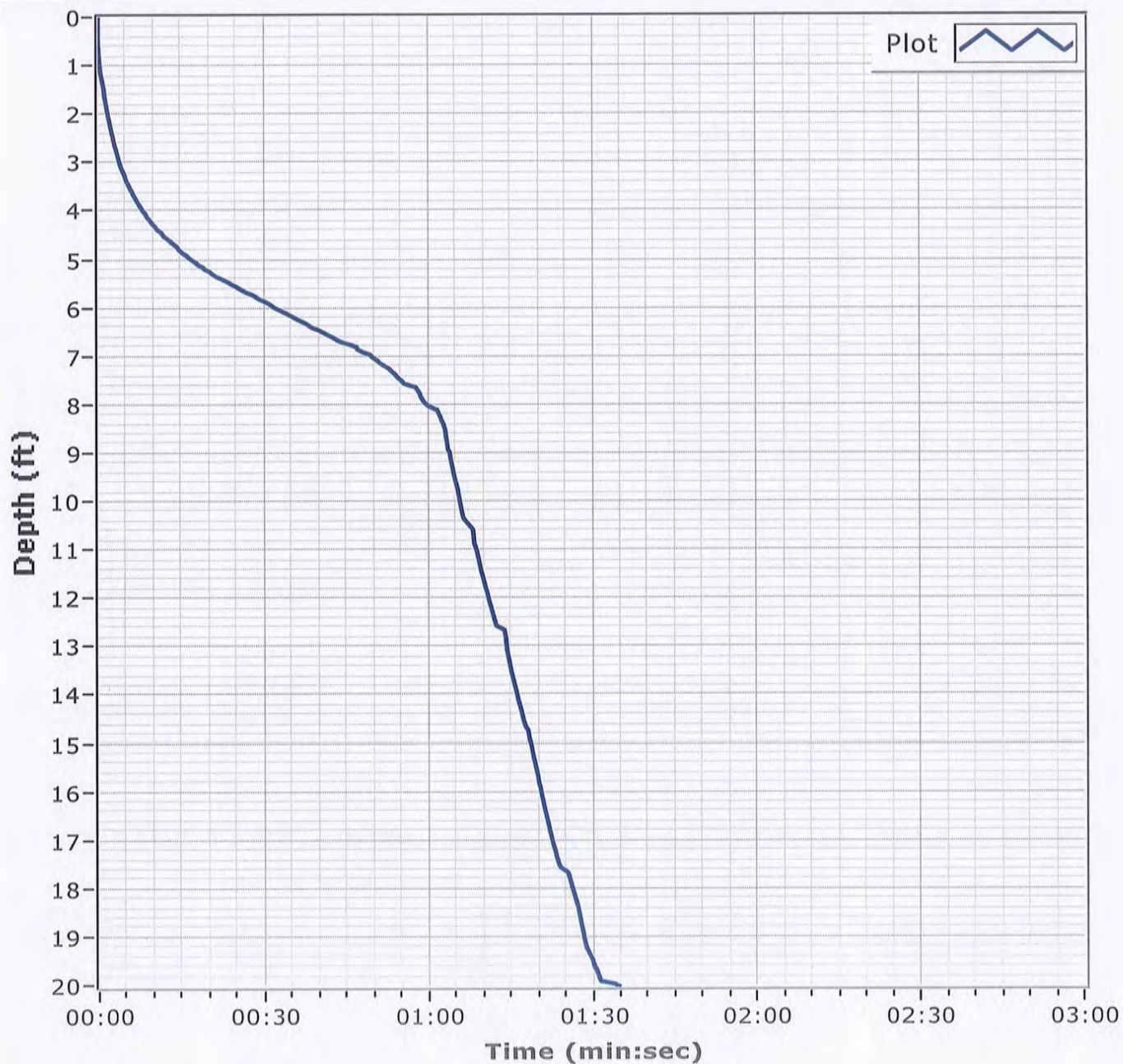
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**Total Time** 00:01:35

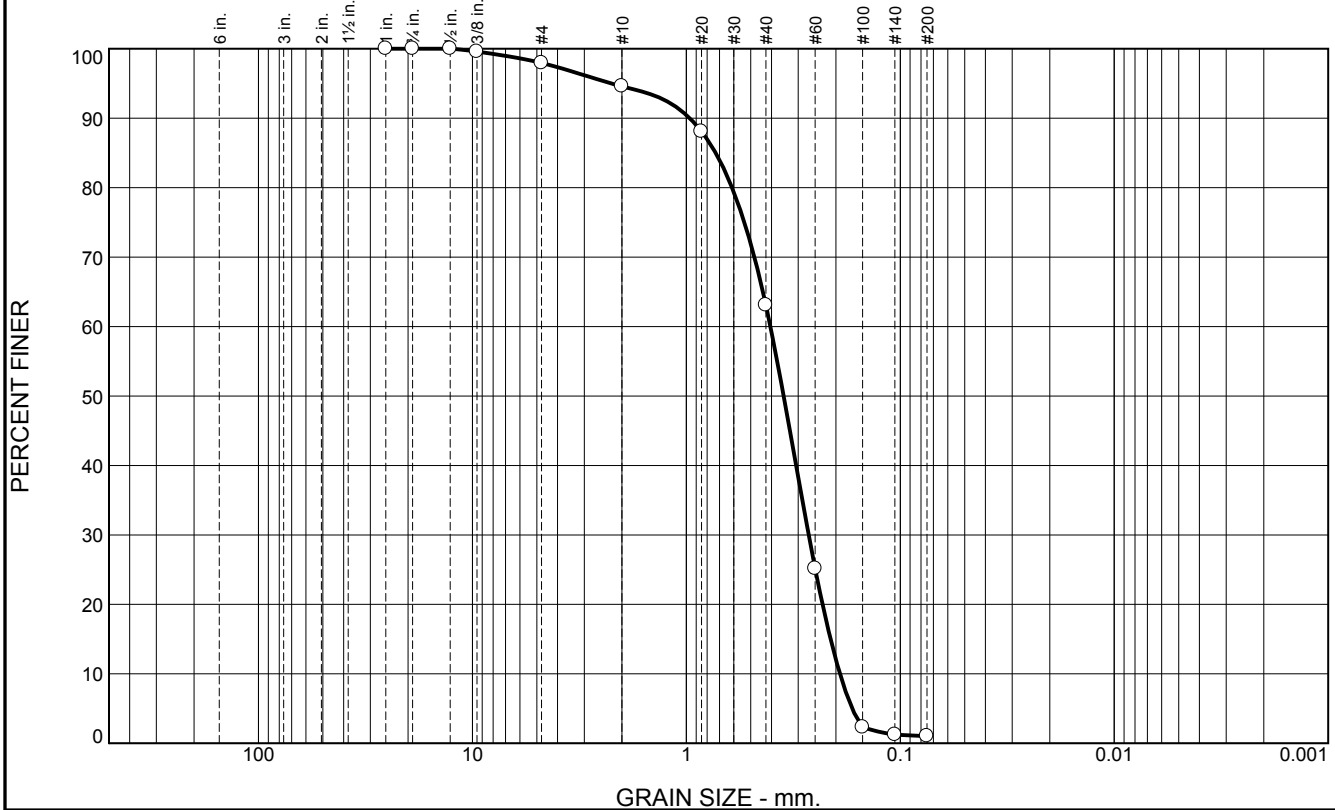
**Recovery** 19.6'

**Longitude** 88 19.984

**Comments**



# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	2.1	3.3	31.5	62.1	1.0	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
1	100.0		
.75	100.0		
.5	100.0		
.375	99.6		
#4	97.9		
#10	94.6		
#20	88.1		
#40	63.1		
#60	25.1		
#100	2.3		
#140	1.2		
#200	1.0		

\* (no specification provided)

<u><b>Material Description</b></u>		
Fine to medium grained, SAND, with trace SHELL		
<u><b>Atterberg Limits</b></u>		
PL=	LL=	PI=
<u><b>Coefficients</b></u>		
D <sub>90</sub> = 0.9650	D <sub>85</sub> = 0.7300	D <sub>60</sub> = 0.4048
D <sub>50</sub> = 0.3509	D <sub>30</sub> = 0.2681	D <sub>15</sub> = 0.2118
D <sub>10</sub> = 0.1916	C <sub>u</sub> = 2.11	C <sub>c</sub> = 0.93
<u><b>Classification</b></u>		
USCS= SP	AASHTO=	
<u><b>Remarks</b></u>		

Location: BI-PBS-83-12 A  
Sample Number: 6494 (52)

Depth: 0.0'

Date: 12/26/12

**Thompson Engineering**

**Mobile, Alabama**

Client: CDM/Thompson Engineering JV  
Project: MsCIP Barrier Island Restoration GT

Project No: 1221110095

Figure

# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	2.4	4.1	15.2	73.1	5.2	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
1	100.0		
.75	100.0		
.5	99.2		
.375	99.2		
#4	97.6		
#10	93.5		
#20	87.7		
#40	78.3		
#60	52.7		
#100	12.8		
#140	6.8		
#200	5.2		

\* (no specification provided)

## Material Description

Fine to medium grained, SLIGHTLY SILTY SAND, with trace SHELL

## Atterberg Limits

PL= LL= PI=

## Coefficients

D<sub>90</sub>= 1.1728 D<sub>85</sub>= 0.6166 D<sub>60</sub>= 0.2774  
D<sub>50</sub>= 0.2416 D<sub>30</sub>= 0.1918 D<sub>15</sub>= 0.1564  
D<sub>10</sub>= 0.1390 C<sub>u</sub>= 2.00 C<sub>c</sub>= 0.95

## Classification

USCS= SP-SM AASHTO=

## Remarks

Location: BI-PBS-83-12 B  
Sample Number: 6494 (53)

Depth: 5.0'

Date: 12/26/12

**Thompson Engineering**

**Mobile, Alabama**

Client: CDM/Thompson Engineering JV  
Project: MsCIP Barrier Island Restoration GT

Project No: 1221110095

Figure

# Boring Designation BI-PBS-084-12

DRILLING LOG		DIVISION South Atlantic		INSTALLATION Mobile District		SHEET 1 OF 1 SHEETS	
1. PROJECT MsCIP Barrier Island Restoration Petit Bois Pass-OCS East				9. SIZE AND TYPE OF BIT N/A			
2. BORING DESIGNATION BI-PBS-084-12		LOCATION COORDINATES E = 1,140,305 N = 228,596		10. COORDINATE SYSTEM/DATUM State Plane, MSE (U.S. Ft.)		HORIZONTAL NAD83	
3. DRILLING AGENCY Corps of Engineers - CESAM		CONTRACTOR FILE NO.		11. MANUFACTURER'S DESIGNATION OF DRILL Vibracore		<input type="checkbox"/> AUTO HAMMER <input type="checkbox"/> MANUAL HAMMER	
4. NAME OF DRILLER American Vibracore Systems, Inc.				12. TOTAL SAMPLES		DISTURBED 0	
5. DIRECTION OF BORING <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED				13. TOTAL NUMBER CORE BOXES		14. WATER DEPTH 63.7 Ft.	
6. THICKNESS OF OVERBURDEN N/A				15. DATE BORING		STARTED 12-18-12	
7. DEPTH DRILLED INTO ROCK N/A				16. ELEVATION TOP OF BORING -63.6 Ft.		COMPLETED 12-18-12	
8. TOTAL DEPTH OF BORING 15.5 Ft.				17. TOTAL RECOVERY FOR BORING 100%			
				18. SIGNATURE AND TITLE OF INSPECTOR Mike FitzHarris, Geologist			
ELEV.	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS	SAMPLE	LABORATORY RESULTS		
-63.6	0.0						
			SAND, silty, mostly fine-grained sand-sized quartz, some silt, little clay, trace shell fragments, trace clay lenses, dark gray (SM)	A	Classification: SM Color: 5Y 5/2-olive gray D50: 0.195 mm % Fines: 16.7		
-67.7	4.1						
			SAND, poorly-graded, mostly fine-grained sand-sized quartz, trace fines, gray (SP)	B	Classification: SP Color: 2.5Y 6/1-gray D50: 0.2799 mm % Fines: 4.6		
-69.8	6.2						
			CLAY, fat, mostly clay, trace shell fragments, medium to high plasticity, gray (CH)	NS			
-76.8	13.2						
-77.4	13.8						
			SAND, clayey, mostly fine-grained sand-sized quartz, some clay, trace shell fragments, gray (SC)				
-79.1	15.5						
			SAND, poorly-graded, mostly fine-grained sand-sized quartz, trace fines, trace shell fragments, lt. gray (SP)				
NOTES:							
1. Soils are field visually classified in accordance with the Unified Soils Classification System.							
2. NS = Sample not submitted for laboratory analysis from this interval.							
3. Seafloor elevation calculated using sampling vessel's fathometer water depth reading and applying NOAA tidal gauge data conversion factor.							



**Project**

Mississippi Barrier Island  
Restoration Project

**AVS**  
**AMERICAN VIBRACORE**  
**S E R V I C E S**

**Core Identifier** BI-PBS-84-12

**Date** 12/18/2012

**Water Depth** 63.7'

**Coordinate System**

Latitude / Longitude

**Start Time** 13:23:33

**End Time** 13:27:12

**Penetration** 16.3'

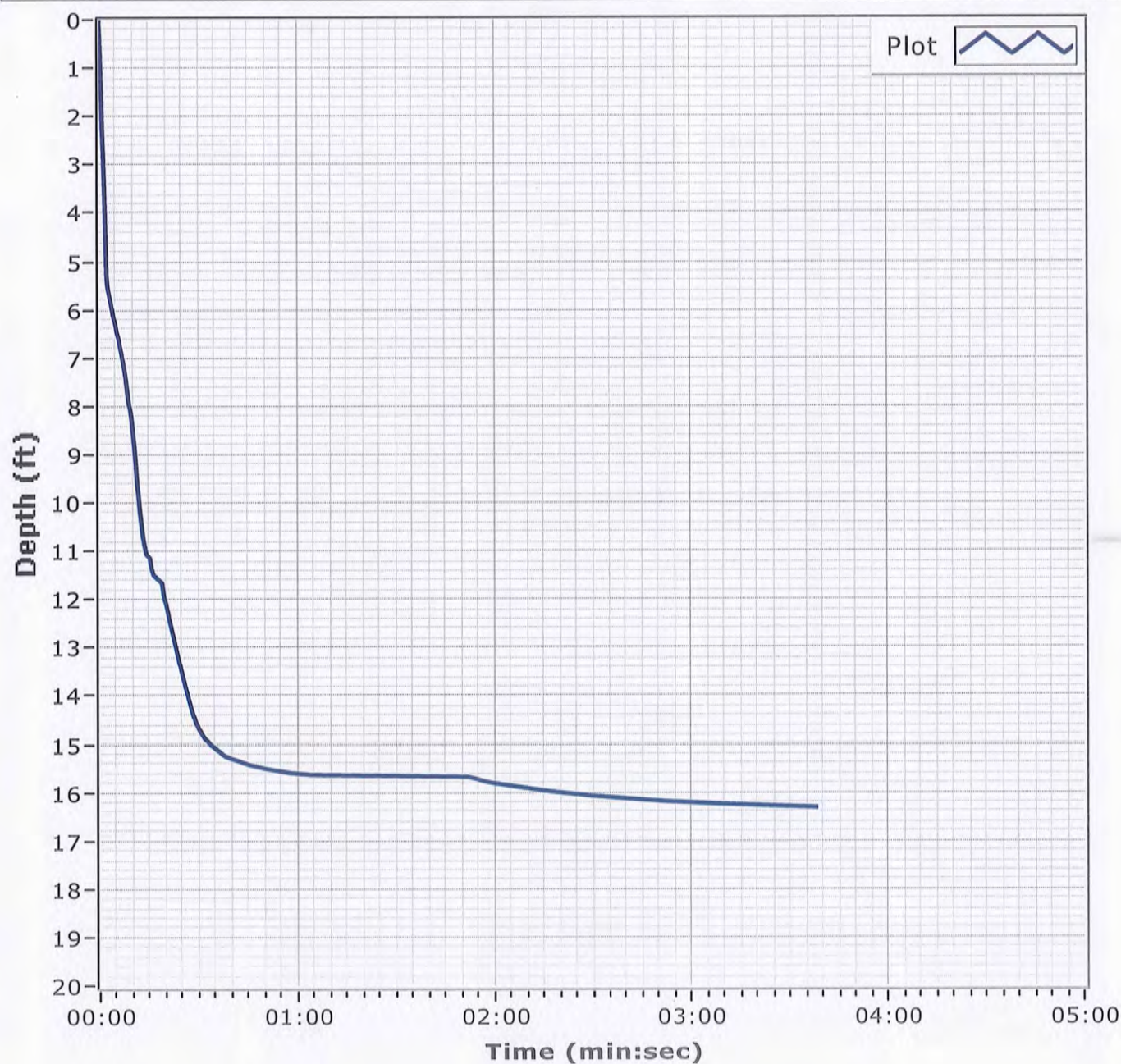
**Latitude** 30 2.660

**Total Time** 00:03:38

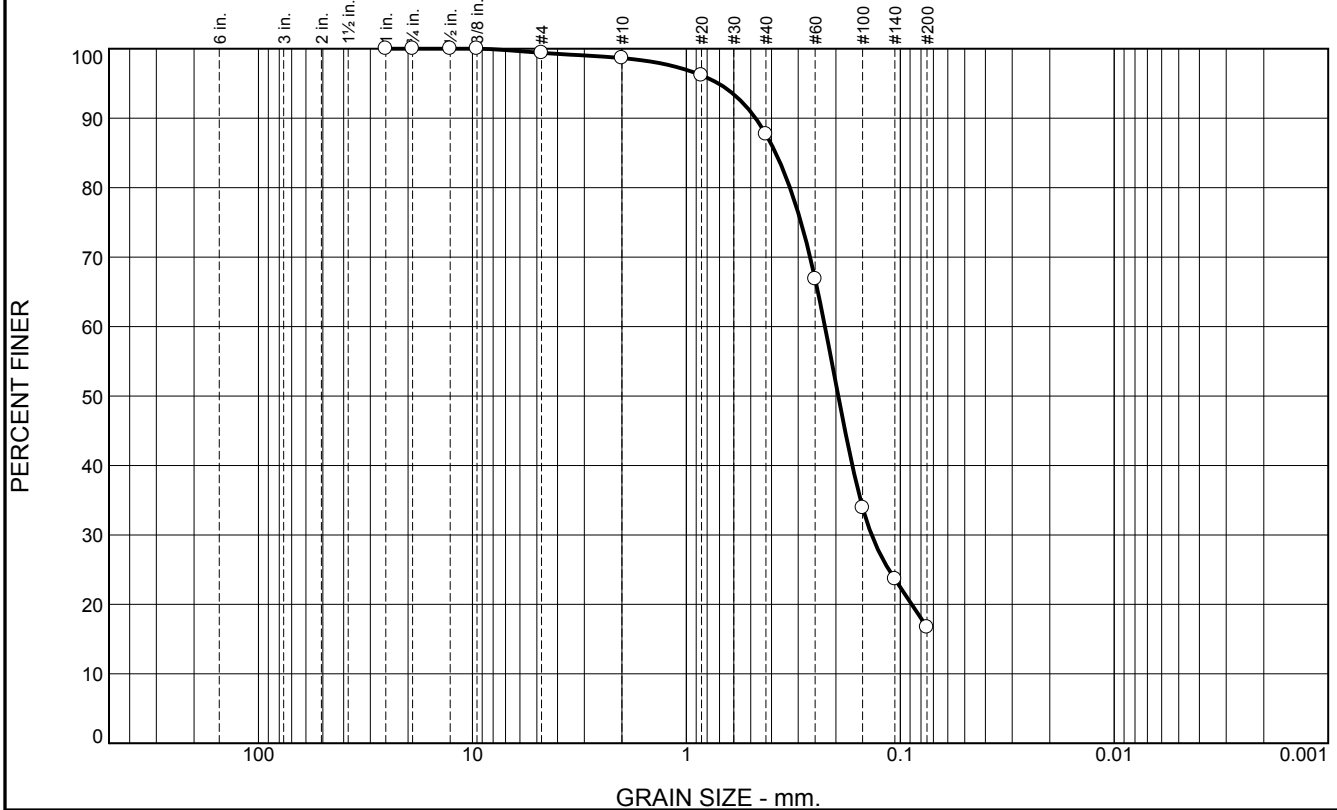
**Recovery** 15.5'

**Longitude** 88 20.382

**Comments**



# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.6	0.8	10.9	71.0	16.7	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
1	100.0		
.75	100.0		
.5	100.0		
.375	100.0		
#4	99.4		
#10	98.6		
#20	96.2		
#40	87.7		
#60	66.8		
#100	33.9		
#140	23.7		
#200	16.7		

\* (no specification provided)

Material Description		
Fine to medium grained, SILTY SAND		
<div> <div> Atterberg Limits </div> <div> PL= </div> <div> LL= </div> <div> PI= </div> </div>		
<div> <div> Coefficients </div> <div> D<sub>90</sub>= 0.4751 </div> <div> D<sub>50</sub>= 0.1950 </div> <div> D<sub>10</sub>= </div> <div> D<sub>85</sub>= 0.3824 </div> <div> D<sub>30</sub>= 0.1362 </div> <div> C<sub>u</sub>= </div> <div> D<sub>60</sub>= 0.2249 </div> <div> D<sub>15</sub>= </div> <div> C<sub>c</sub>= </div> </div>		
<div> <div> Classification </div> <div> USCS= SM </div> <div> AASHTO= </div> </div>		
<div> <div> Remarks </div> </div>		

Location: BI-PBS-84-12 A  
Sample Number: 6494 (54)

Depth: 0.0'

Date: 12/26/12

**Thompson Engineering**

**Mobile, Alabama**

Client: CDM/Thompson Engineering JV  
Project: MsCIP Barrier Island Restoration GT

Project No: 1221110095

Figure

# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.0	0.0	18.0	77.4	4.6	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
1	100.0		
.75	100.0		
.5	100.0		
.375	100.0		
#4	100.0		
#10	100.0		
#20	99.5		
#40	82.0		
#60	39.9		
#100	5.5		
#140	4.9		
#200	4.6		

\* (no specification provided)

Material Description		
Fine to medium grained, SAND		
<div> <div> Atterberg Limits </div> <div> PL= </div> <div> LL= </div> <div> PI= </div> </div>		
<div> <div> Coefficients </div> <div> D<sub>90</sub>= 0.5029 </div> <div> D<sub>85</sub>= 0.4489 </div> <div> D<sub>60</sub>= 0.3141 </div> <div> D<sub>50</sub>= 0.2799 </div> <div> D<sub>30</sub>= 0.2232 </div> <div> D<sub>15</sub>= 0.1834 </div> <div> D<sub>10</sub>= 0.1682 </div> <div> C<sub>u</sub>= 1.87 </div> <div> C<sub>c</sub>= 0.94 </div> </div>		
<div> <div> Classification </div> <div> USCS= SP </div> <div> AASHTO= </div> </div>		
<div> <div> Remarks </div> </div>		

Location: BI-PBS-84-12 B  
Sample Number: 6494 (55)

Depth: 4.1'

Date: 12/26/12

**Thompson Engineering**

**Mobile, Alabama**

Client: CDM/Thompson Engineering JV  
Project: MsCIP Barrier Island Restoration GT

Project No: 1221110095

Figure

# Boring Designation BI-PBS-085-12

DRILLING LOG		DIVISION South Atlantic		INSTALLATION Mobile District		SHEET 1 OF 1 SHEETS	
1. PROJECT MsCIP Barrier Island Restoration Petit Bois Pass-OCS East				9. SIZE AND TYPE OF BIT N/A			
2. BORING DESIGNATION BI-PBS-085-12		LOCATION COORDINATES E = 1,137,667 N = 233,280		10. COORDINATE SYSTEM/DATUM State Plane, MSE (U.S. Ft.)		HORIZONTAL NAD83 VERTICAL NAVD88	
3. DRILLING AGENCY Corps of Engineers - CESAM		CONTRACTOR FILE NO.		11. MANUFACTURER'S DESIGNATION OF DRILL Vibracore		<input type="checkbox"/> AUTO HAMMER <input type="checkbox"/> MANUAL HAMMER	
4. NAME OF DRILLER American Vibracore Systems, Inc.				12. TOTAL SAMPLES		DISTURBED UNDISTURBED (UD) 0	
5. DIRECTION OF BORING <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED		DEG. FROM VERTICAL		13. TOTAL NUMBER CORE BOXES			
		BEARING		14. WATER DEPTH 56.7 Ft.			
6. THICKNESS OF OVERBURDEN N/A				15. DATE BORING 12-18-12		STARTED COMPLETED 12-18-12	
7. DEPTH DRILLED INTO ROCK N/A				16. ELEVATION TOP OF BORING -56.0 Ft.			
8. TOTAL DEPTH OF BORING 18.6 Ft.				17. TOTAL RECOVERY FOR BORING 100%			
				18. SIGNATURE AND TITLE OF INSPECTOR Mike FitzHarris, Geologist			

ELEV.	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS	SAMPLE	LABORATORY RESULTS
-56.0	0.0				
-57.6	1.6		SAND, poorly-graded, mostly fine to medium-grained sand-sized quartz, little shell fragments, trace fines, gray (SP)	A	Classification: SP Color: 5Y 6/2-light olive gray D50: 0.2999 mm % Fines: 1.2
-63.9	7.9		CLAY, lean, mostly clay, some silt, few shell fragments, some fine-grained sand-sized quartz pockets, gray, lt. gray and orange mottle (CL)	NS	
-64.6	8.6		SAND, clayey, mostly fine-grained sand-sized quartz, some clay, little shell fragments, gray (SC)		
-72.0	16.0		CLAY, lean, mostly clay, some silt, little shell fragments, trace wood debris, gray (CL)		
-74.6	18.6		SAND, clayey, mostly fine-grained sand-sized quartz, some clay, little silt, little shell fragments, dark gray (SC)		
			NOTES: 1. Soils are field visually classified in accordance with the Unified Soils Classification System. 2. NS = Sample not submitted for laboratory analysis from this interval. 3. Seafloor elevation determined from USACE hydrographic survey completed April 2014.		



**Project**

Mississippi Barrier Island  
Restoration Project

**AVS**  
**AMERICAN VIBRACORE**  
**S E R V I C E S**

**Core Identifier** BI-PBS-85-12

**Date** 12/18/2012

**Water Depth** 56.7'

**Coordinate System**

Latitude / Longitude

**Start Time** 15:25:05

**End Time** 15:25:58

**Penetration** 20.0'

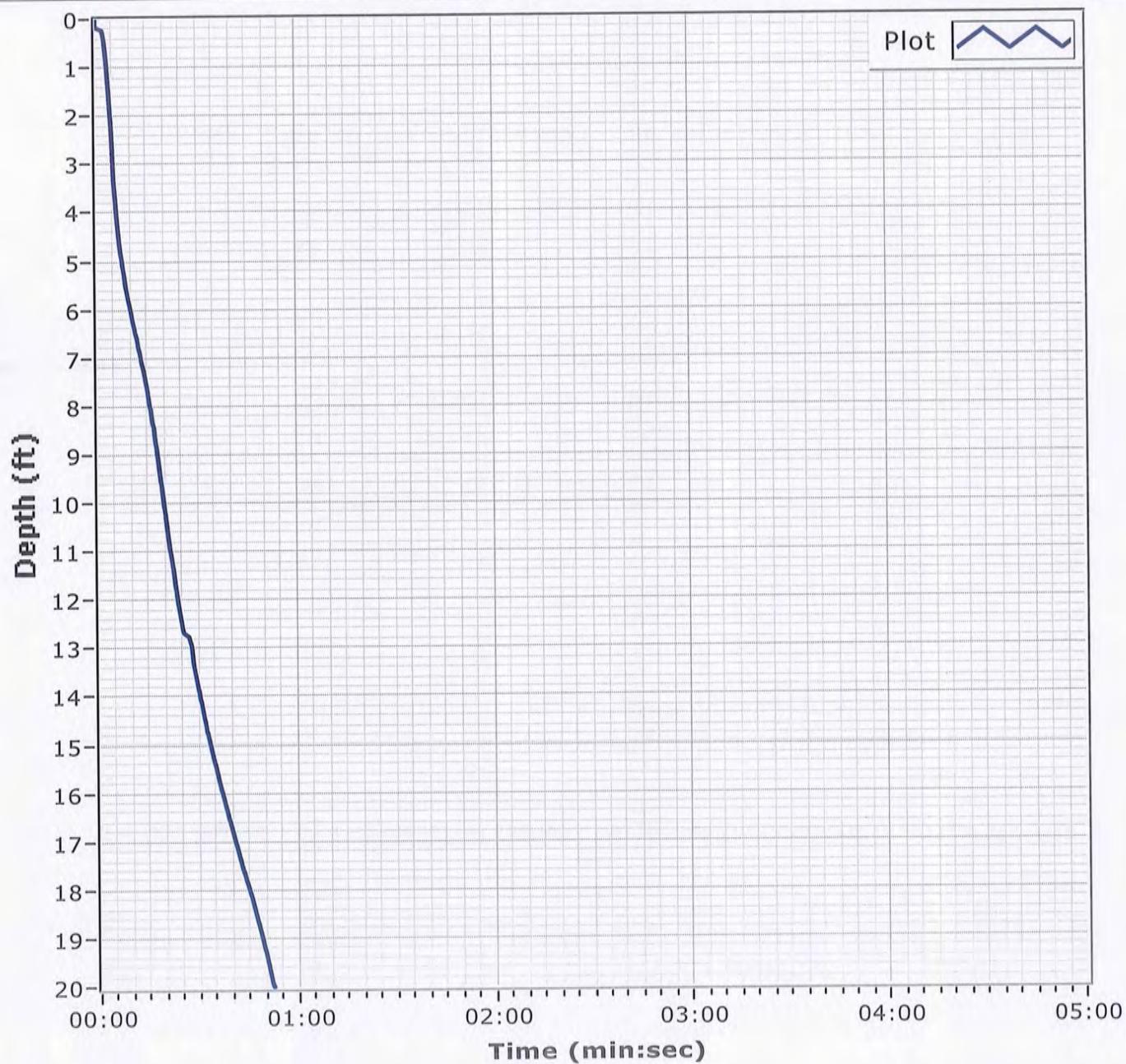
**Latitude** 30 8.435

**Total Time** 00:00:52

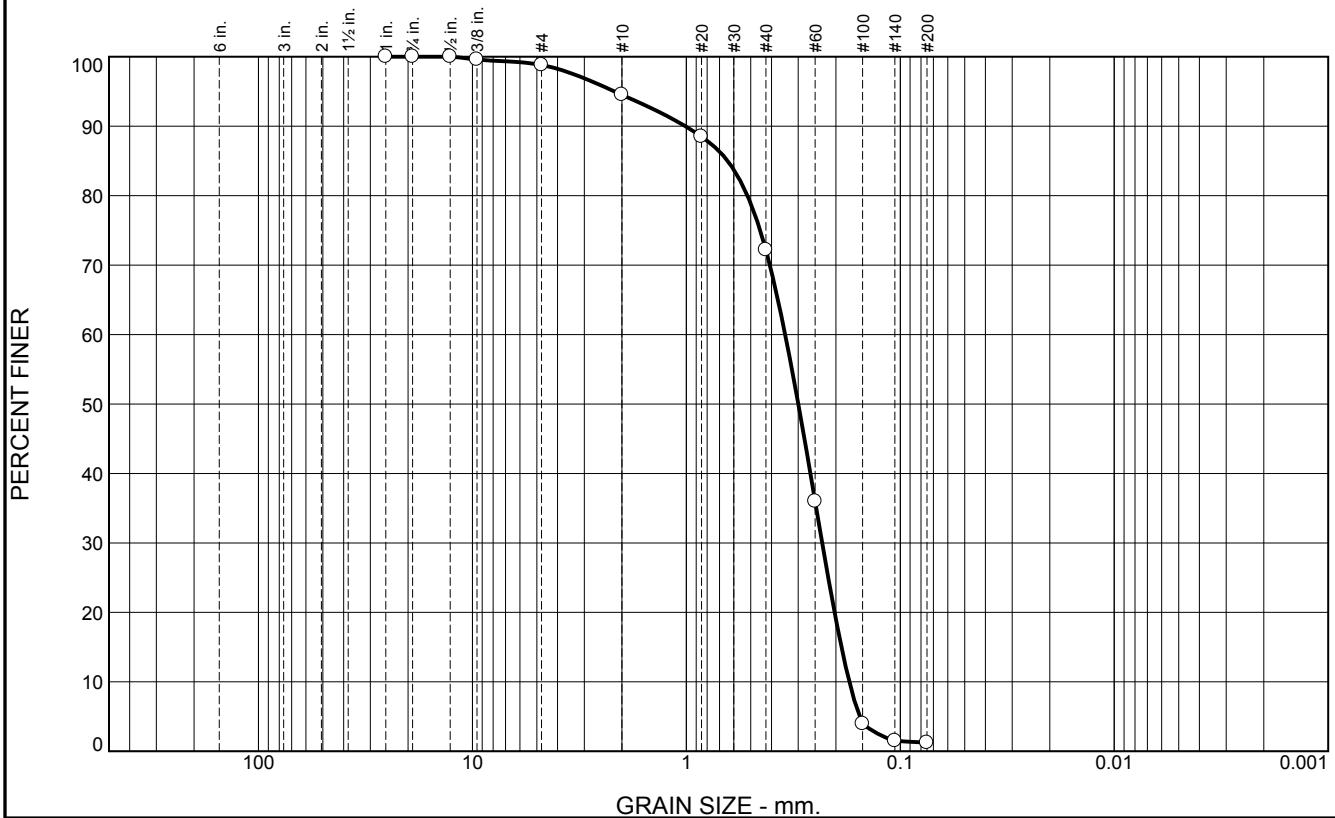
**Recovery** 17.5'

**Longitude** 88 20.879

**Comments**



# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	1.2	4.3	22.3	71.0	1.2	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
1	100.0		
.75	100.0		
.5	100.0		
.375	99.6		
#4	98.8		
#10	94.5		
#20	88.5		
#40	72.2		
#60	36.0		
#100	3.9		
#140	1.5		
#200	1.2		

\* (no specification provided)

<u><b>Material Description</b></u>		
Fine to medium grained, SAND, with trace SHELL		
<u><b>Atterberg Limits</b></u>		
PL=	LL=	PI=
<u><b>Coefficients</b></u>		
D <sub>90</sub> = 1.0127	D <sub>85</sub> = 0.6412	D <sub>60</sub> = 0.3452
D <sub>50</sub> = 0.2999	D <sub>30</sub> = 0.2317	D <sub>15</sub> = 0.1885
D <sub>10</sub> = 0.1732	C <sub>u</sub> = 1.99	C <sub>c</sub> = 0.90
<u><b>Classification</b></u>		
USCS= SP	AASHTO=	
<u><b>Remarks</b></u>		

Location: BI-PBS-85-12 A  
Sample Number: 6494 (56)

Depth: 0.0'

Date: 12/26/12

**Thompson Engineering**

**Mobile, Alabama**

Client: CDM/Thompson Engineering JV  
Project: MsCIP Barrier Island Restoration GT

Project No: 1221110095

Figure

# Boring Designation BI-PBS-086-12

DRILLING LOG		DIVISION South Atlantic		INSTALLATION Mobile District		SHEET 1 OF 1 SHEETS	
1. PROJECT MsCIP Barrier Island Restoration Petit Bois Pass-OCS East				9. SIZE AND TYPE OF BIT N/A			
2. BORING DESIGNATION BI-PBS-086-12		LOCATION COORDINATES E = 1,138,944 N = 231,129		10. COORDINATE SYSTEM/DATUM State Plane, MSE (U.S. Ft.)		HORIZONTAL NAD83	
3. DRILLING AGENCY Corps of Engineers - CESAM		CONTRACTOR FILE NO.		11. MANUFACTURER'S DESIGNATION OF DRILL Vibracore		<input type="checkbox"/> AUTO HAMMER <input type="checkbox"/> MANUAL HAMMER	
4. NAME OF DRILLER American Vibracore Systems, Inc.				12. TOTAL SAMPLES		DISTURBED 0	
5. DIRECTION OF BORING <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED				13. TOTAL NUMBER CORE BOXES		14. WATER DEPTH 54.7 Ft.	
6. THICKNESS OF OVERBURDEN N/A				15. DATE BORING		STARTED 12-18-12	
7. DEPTH DRILLED INTO ROCK N/A				16. ELEVATION TOP OF BORING -54.7 Ft.		COMPLETED 12-18-12	
8. TOTAL DEPTH OF BORING 17.8 Ft.				17. TOTAL RECOVERY FOR BORING 100%			
				18. SIGNATURE AND TITLE OF INSPECTOR Mike FitzHarris, Geologist			
ELEV.	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS	SAMPLE	LABORATORY RESULTS		
-54.7	0.0						
			SAND, poorly-graded, mostly fine to medium-grained sand-sized quartz, trace fines, trace shell fragments, gray (SP)	A	Classification: SP Color: 5Y 6/2-light olive gray D50: 0.204 mm % Fines: 3.1		
-58.3	3.6						
			SAND, silty, mostly fine-grained sand-sized quartz, some silt, little shell fragments, trace clay, gray (SM)	B	Classification: SM Color: 5Y 5/2-olive gray D50: 0.1926 mm % Fines: 13.2		
-60.6	5.9						
			CLAY, lean, mostly clay, some silt, few fine-grained sand-sized quartz, trace shell fragments, gray with some orange mottle (CL)				
-62.5	7.8						
			CLAY, fat, mostly clay, few silt, trace fine-grained sand-sized quartz, low to medium plasticity, gray, orange mottle (CH)				
-63.7	9.0						
			SAND, silty, mostly fine-grained sand-sized quartz, some silt, gray (SM)				
-64.5	9.8						
			CLAY, lean, mostly clay, some silt, little fine-grained sand-sized quartz, stiff, gray (CL)	NS			
-66.0	11.3						
			CLAY, fat, mostly clay, trace wood debris, trace shell fragments, stiff, medium to high plasticity, trace fine-grained sandy pockets, gray (CH)				
-72.5	17.8						
			NOTES: 1. Soils are field visually classified in accordance with the Unified Soils Classification System. 2. NS = Sample not submitted for laboratory analysis from this interval. 3. Seafloor elevation determined from USACE hydrographic survey completed April 2014.				



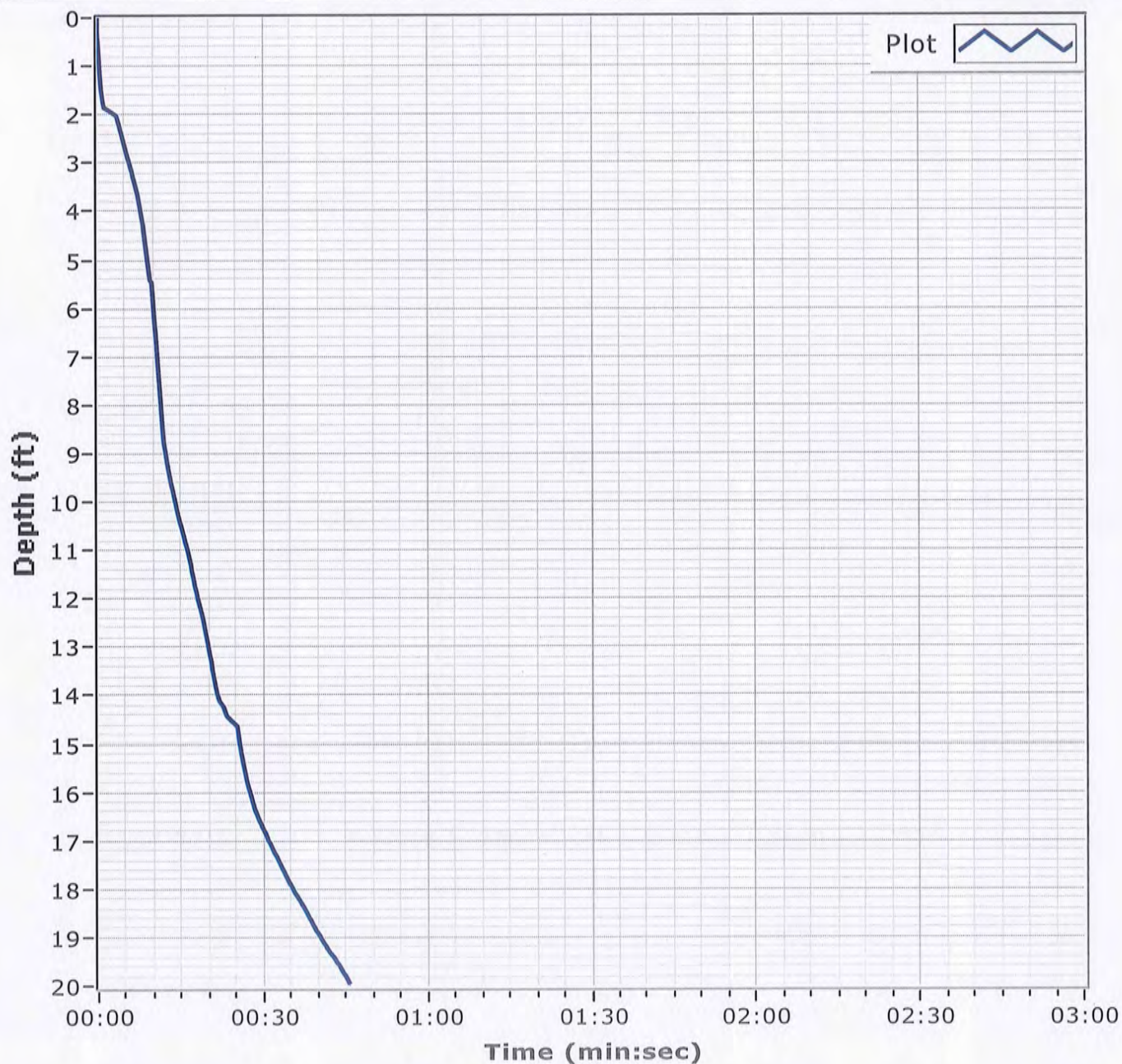
**Project**

Mississippi Barrier Island  
Restoration Project

**AVS**  
**AMERICAN VIBRACORE**  
**S E R V I C E S**

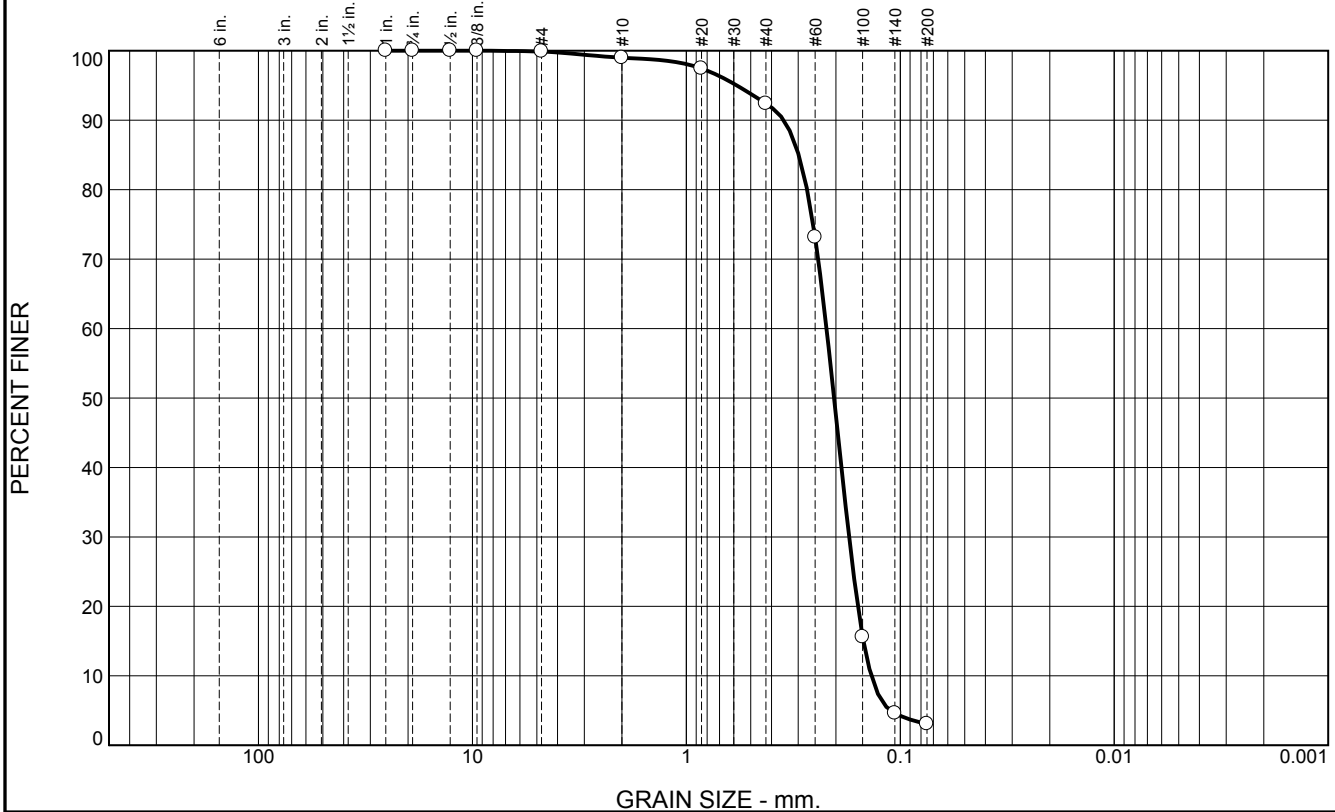
**Core Identifier** BI-PBS-86-12**Date** 12/18/2012**Water Depth** 54.7'**Coordinate System**

Latitude / Longitude

**Start Time** 14:23:55**End Time** 14:24:41**Penetration** 20.0'**Latitude** 30 8.079**Total Time** 00:00:45**Recovery** 17.5'**Longitude** 88 20.638**Comments**



# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.1	0.9	6.6	89.3	3.1	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
1	100.0		
3/4"	100.0		
1/2"	100.0		
.375	100.0		
#4	99.9		
#10	99.0		
#20	97.4		
#40	92.4		
#60	73.1		
#100	15.6		
#140	4.6		
#200	3.1		

\* (no specification provided)

<u>Material Description</u>		
Fine grained, SAND		
<u>Atterberg Limits</u>		
PL=	LL=	PI=
<u>Coefficients</u>		
D <sub>90</sub> = 0.3506	D <sub>85</sub> = 0.2987	D <sub>60</sub> = 0.2211
D <sub>50</sub> = 0.2040	D <sub>30</sub> = 0.1736	D <sub>15</sub> = 0.1488
D <sub>10</sub> = 0.1366	C <sub>u</sub> = 1.62	C <sub>c</sub> = 1.00
<u>Classification</u>		
USCS= SP	AASHTO=	
<u>Remarks</u>		

Location: BI-PBS-86-12 A  
Sample Number: 6494 (57)

Depth: 0.0'

Date: 12/26/12

**Thompson Engineering**

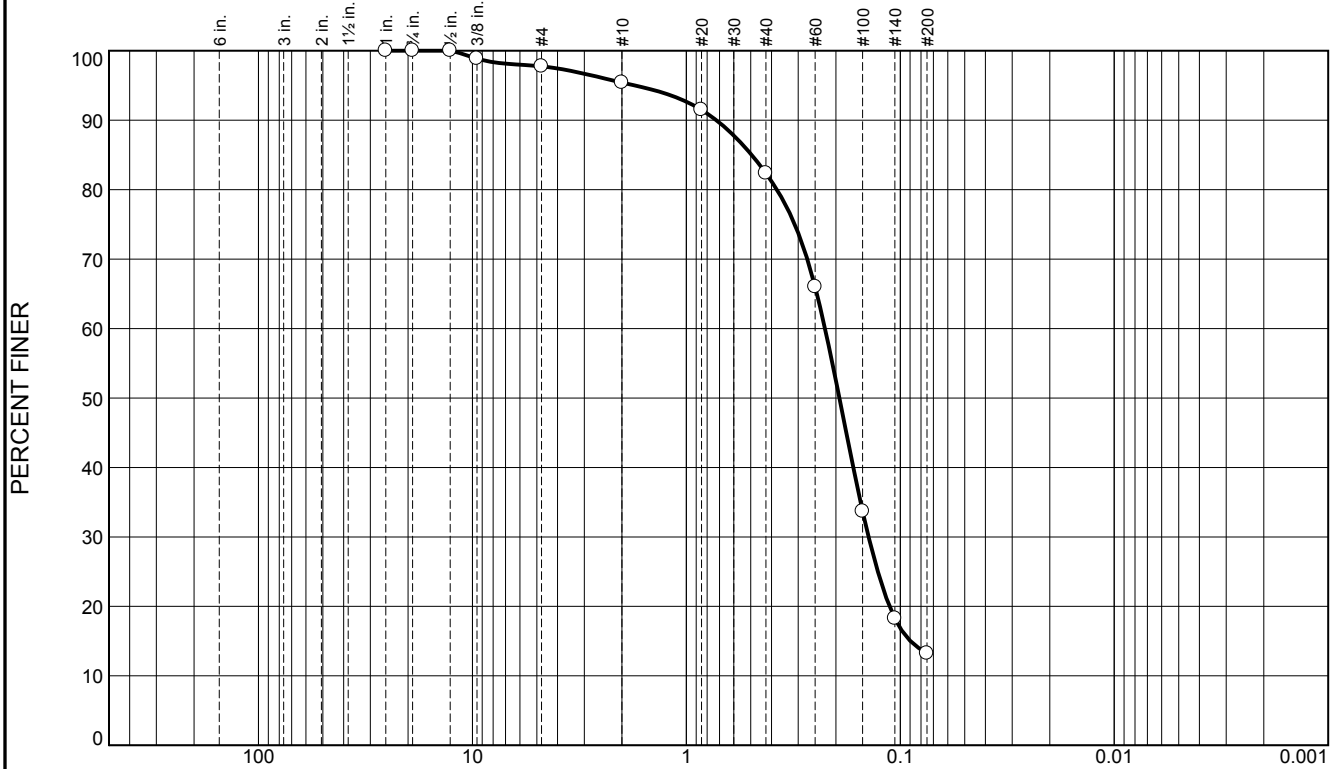
**Mobile, Alabama**

Client: CDM/Thompson Engineering JV  
Project: MsCIP Barrier Island Restoration GT

Project No: 1221110095

Figure

# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	2.3	2.3	13.0	69.2	13.2	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
1	100.0		
.75	100.0		
.5	100.0		
.375	98.9		
#4	97.7		
#10	95.4		
#20	91.5		
#40	82.4		
#60	66.0		
#100	33.7		
#140	18.3		
#200	13.2		

\* (no specification provided)

## Material Description

Fine to medium grained, SILTY SAND, with trace SHELL

## Atterberg Limits

PL=

LL=

PI=

## Coefficients

D<sub>90</sub>= 0.7251

D<sub>85</sub>= 0.4956

D<sub>60</sub>= 0.2248

D<sub>50</sub>= 0.1926

D<sub>30</sub>= 0.1407

D<sub>15</sub>= 0.0897

D<sub>10</sub>=

C<sub>u</sub>=

C<sub>c</sub>=

## Classification

USCS= SM

AASHTO=

## Remarks

Location: BI-PBS-86-12 B

Sample Number: 6494 (58)

Depth: 3.6'

Date: 12/26/12

**Thompson Engineering**

**Mobile, Alabama**

Client: CDM/Thompson Engineering JV

Project: MsCIP Barrier Island Restoration GT

Project No: 1221110095

Figure

# Boring Designation BI-PBS-087-12

DRILLING LOG		DIVISION South Atlantic		INSTALLATION Mobile District		SHEET 1 OF 1 SHEETS	
1. PROJECT MsCIP Barrier Island Restoration Petit Bois Pass-OCS East				9. SIZE AND TYPE OF BIT N/A			
2. BORING DESIGNATION BI-PBS-087-12		LOCATION COORDINATES E = 1,140,125 N = 231,570		10. COORDINATE SYSTEM/DATUM State Plane, MSE (U.S. Ft.)		HORIZONTAL NAD83 VERTICAL NAVD88	
3. DRILLING AGENCY Corps of Engineers - CESAM		CONTRACTOR FILE NO.		11. MANUFACTURER'S DESIGNATION OF DRILL Vibrocure		<input type="checkbox"/> AUTO HAMMER <input type="checkbox"/> MANUAL HAMMER	
4. NAME OF DRILLER American Vibrocure Systems, Inc.				12. TOTAL SAMPLES		DISTURBED UNDISTURBED (UD) 0	
5. DIRECTION OF BORING <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED		DEG. FROM VERTICAL		13. TOTAL NUMBER CORE BOXES			
		BEARING		14. WATER DEPTH 53.1 Ft.			
6. THICKNESS OF OVERBURDEN N/A				15. DATE BORING 12-18-12		STARTED COMPLETED 12-18-12	
7. DEPTH DRILLED INTO ROCK N/A				16. ELEVATION TOP OF BORING -53.2 Ft.			
8. TOTAL DEPTH OF BORING 18.8 Ft.				17. TOTAL RECOVERY FOR BORING 100%			
				18. SIGNATURE AND TITLE OF INSPECTOR Mike FitzHarris, Geologist			
ELEV.	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS	SAMPLE	LABORATORY RESULTS		
-53.2	0.0						
			SAND, poorly-graded, mostly fine to medium-grained sand-sized quartz, trace fines, trace shell fragments, gray (SP)	A	Classification: SP Color: 5Y 6/2-light olive gray D50: 0.258 mm % Fines: 1.5		
-58.2	5.0						
-59.6	6.4		SAND, poorly-graded, mostly fine-grained sand-sized quartz, trace fines, trace shell fragments, gray (SP)	B	Classification: SP Color: 5Y 6/2-light olive gray D50: 0.2058 mm % Fines: 4.5		
			CLAY, lean, mostly clay, some silt, some fine-grained sand-sized quartz, low to medium plasticity, stiff, gray, orangy brown mottle (CL)	NS			
-66.0	12.8						
-68.2	15.0		SAND, clayey, mostly fine-grained sand-sized quartz, some clay, some silt, borderline silty clay with fine-grained sand, gray (SC)				
			CLAY, lean, mostly clay, some silt, some fine-grained sand-sized quartz, trace shell fragments, gray (CL)				
-72.0	18.8						
			NOTES: 1. Soils are field visually classified in accordance with the Unified Soils Classification System. 2. NS = Sample not submitted for laboratory analysis from this interval. 3. Seafloor elevation determined from USACE hydrographic survey completed April 2014.				

**Project**

Mississippi Barrier Island  
Restoration Project

**AVS**  
**AMERICAN VIBRACORE**  
**S E R V I C E S**

**Core Identifier** BI-PBS-87-12

**Date** 12/18/2012

**Water Depth** 53.1'

**Coordinate System**

Latitude / Longitude

**Start Time** 14:54:33

**End Time** 14:56:22

**Penetration** 20.0'

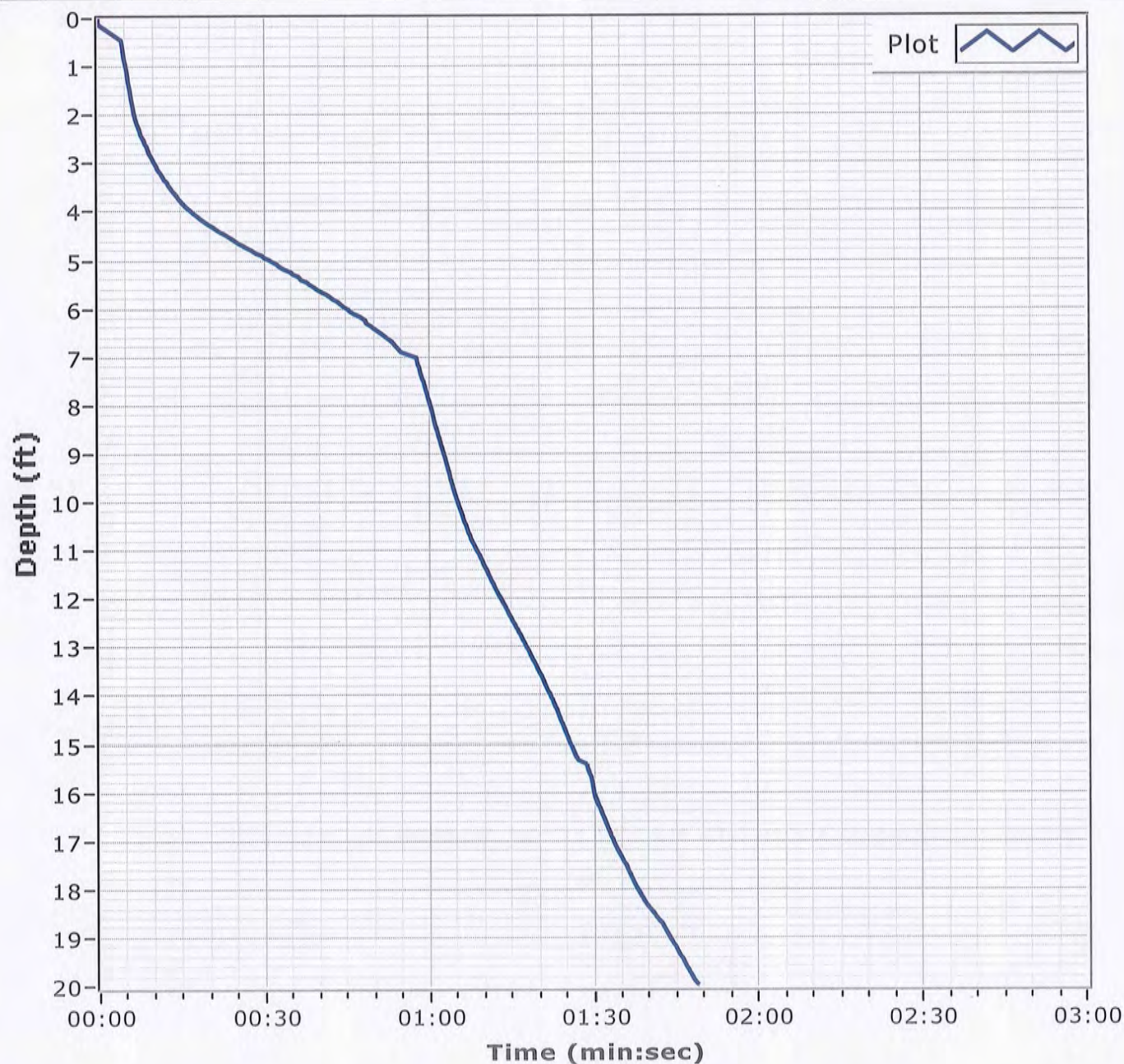
**Latitude** 30 8.151

**Total Time** 00:01:49

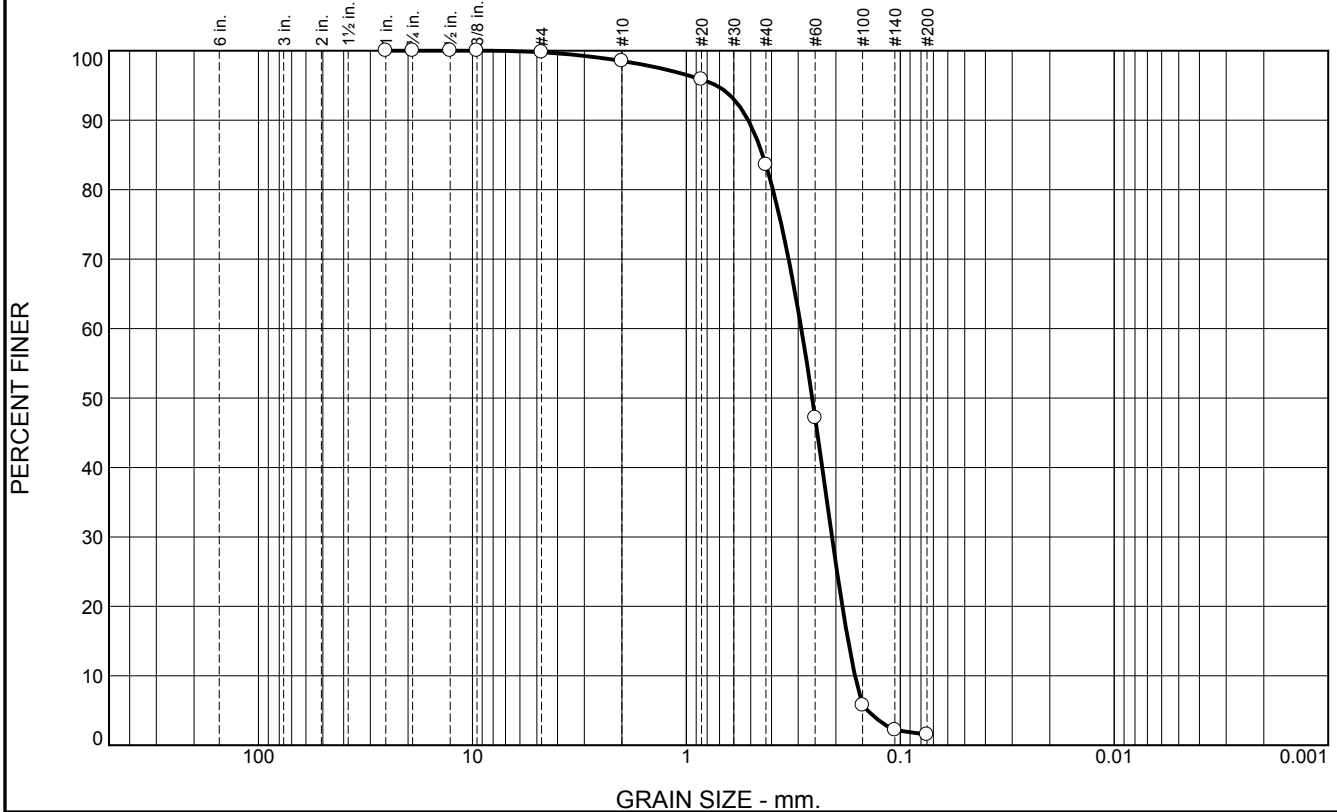
**Recovery** 17.5'

**Longitude** 88 20.414

**Comments**



# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.2	1.3	14.9	82.1	1.5	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
1	100.0		
.75	100.0		
.5	100.0		
.375	100.0		
#4	99.8		
#10	98.5		
#20	95.9		
#40	83.6		
#60	47.2		
#100	5.8		
#140	2.2		
#200	1.5		

\* (no specification provided)

<u><b>Material Description</b></u>		
Fine to medium grained, SAND		
<u><b>Atterberg Limits</b></u>		
PL=	LL=	PI=
<u><b>Coefficients</b></u>		
D <sub>90</sub> = 0.5142	D <sub>85</sub> = 0.4397	D <sub>60</sub> = 0.2904
D <sub>50</sub> = 0.2580	D <sub>30</sub> = 0.2086	D <sub>15</sub> = 0.1753
D <sub>10</sub> = 0.1630	C <sub>u</sub> = 1.78	C <sub>c</sub> = 0.92
<u><b>Classification</b></u>		
USCS= SP	AASHTO=	
<u><b>Remarks</b></u>		

Location: BI-PBS-87-12 A  
Sample Number: 6494 (59)

Depth: 0.0'

Date: 12/26/12

**Thompson Engineering**

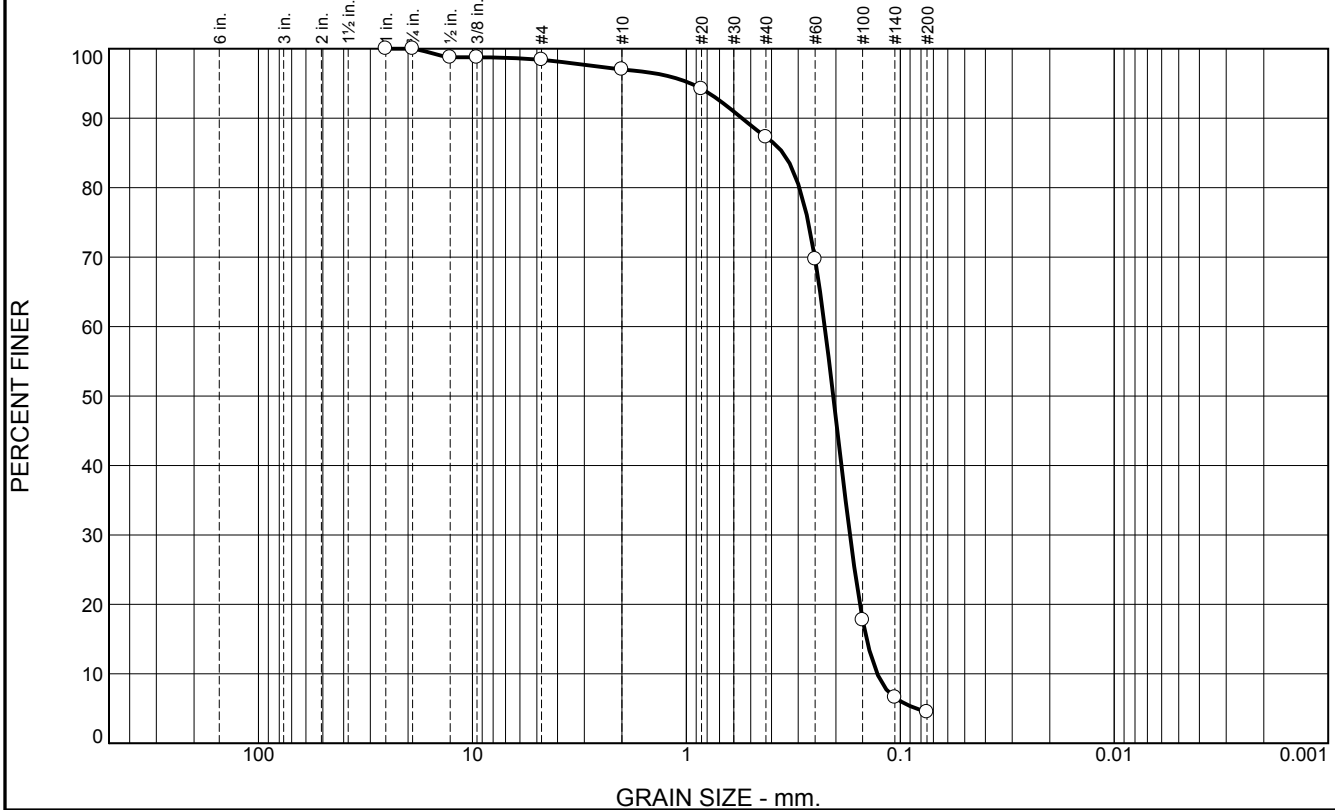
**Mobile, Alabama**

Client: CDM/Thompson Engineering JV  
Project: MsCIP Barrier Island Restoration GT

Project No: 1221110095

Figure

# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	1.6	1.4	9.7	82.8	4.5	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
1	100.0		
.75	100.0		
.5	98.8		
.375	98.8		
#4	98.4		
#10	97.0		
#20	94.2		
#40	87.3		
#60	69.7		
#100	17.8		
#140	6.6		
#200	4.5		

\* (no specification provided)

## Material Description

Fine grained, SAND, with trace SHELL

## Atterberg Limits

PL= LL= PI=

## Coefficients

D<sub>90</sub>= 0.5497 D<sub>85</sub>= 0.3532 D<sub>60</sub>= 0.2254  
D<sub>50</sub>= 0.2058 D<sub>30</sub>= 0.1721 D<sub>15</sub>= 0.1437  
D<sub>10</sub>= 0.1281 C<sub>u</sub>= 1.76 C<sub>c</sub>= 1.02

## Classification

USCS= SP AASHTO=

## Remarks

Location: BI-PBS-87-12 B  
Sample Number: 6494 (60)

Depth: 5.0'

Date: 12/26/12

**Thompson Engineering**

**Mobile, Alabama**

Client: CDM/Thompson Engineering JV  
Project: MsCIP Barrier Island Restoration GT

Project No: 1221110095

Figure

# Boring Designation BI-PBS-088-12

DRILLING LOG		DIVISION South Atlantic		INSTALLATION Mobile District		SHEET 1 OF 1 SHEETS	
1. PROJECT MsCIP Barrier Island Restoration Petit Bois Pass-OCS East				9. SIZE AND TYPE OF BIT N/A			
2. BORING DESIGNATION BI-PBS-088-12		LOCATION COORDINATES E = 1,139,419 N = 230,301		10. COORDINATE SYSTEM/DATUM State Plane, MSE (U.S. Ft.)		HORIZONTAL NAD83 VERTICAL NAVD88	
3. DRILLING AGENCY Corps of Engineers - CESAM		CONTRACTOR FILE NO.		11. MANUFACTURER'S DESIGNATION OF DRILL Vibracore		<input type="checkbox"/> AUTO HAMMER <input type="checkbox"/> MANUAL HAMMER	
4. NAME OF DRILLER American Vibracore Systems, Inc.				12. TOTAL SAMPLES		DISTURBED UNDISTURBED (UD)	
5. DIRECTION OF BORING <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED				13. TOTAL NUMBER CORE BOXES		0	
6. THICKNESS OF OVERBURDEN N/A				14. WATER DEPTH 56.3 Ft.		15. DATE BORING STARTED 12-18-12 COMPLETED 12-18-12	
7. DEPTH DRILLED INTO ROCK N/A				16. ELEVATION TOP OF BORING -56.3 Ft.		17. TOTAL RECOVERY FOR BORING 100%	
8. TOTAL DEPTH OF BORING 17.5 Ft.				18. SIGNATURE AND TITLE OF INSPECTOR Mike FitzHarris, Geologist			

ELEV.	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS	SAMPLE	LABORATORY RESULTS
-56.3	0.0				
			SAND, poorly-graded, mostly fine to medium-grained sand-sized quartz, trace fines, trace shell fragments, gray (SP)	A	Classification: SP Color: 5Y 6/2-light olive gray D50: 0.2311 mm % Fines: 2.6
-61.3	5.0				
-62.4	6.1		SAND, silty, mostly fine-grained sand-sized quartz, some silt, trace shell fragments, some clayey nodules, gray (SM)	B	Classification: SM Color: 5Y 5/2-olive gray D50: 0.2 mm % Fines: 14.4
-64.5	8.2		CLAY, lean, mostly clay, trace silt, trace fine-grained sand-sized quartz, low to medium plasticity, gray and orange mottle (CL)		
-67.3	11.0		SAND, silty, mostly fine-grained sand-sized quartz, some silt, few clay lenses, grayish brown (SM)		
				NS	
-73.8	17.5		CLAY, fat, mostly clay, trace wood debris, zones of trace fine-grained sand, medium to high plasticity, greenish gray (CH)		
			NOTES: 1. Soils are field visually classified in accordance with the Unified Soils Classification System. 2. NS = Sample not submitted for laboratory analysis from this interval. 3. Seafloor elevation determined from USACE hydrographic survey completed April 2014.		



# Project

Mississippi Barrier Island  
Restoration Project

**AVS**  
AMERICAN VIBRACORE  
S E R V I C E S

Core Identifier BI-PBS-88-12

Date 12/18/2012

Water Depth 56.3'

## Coordinate System

Latitude / Longitude

Start Time 13:54:14

End Time 13:55:04

Penetration 20.0'

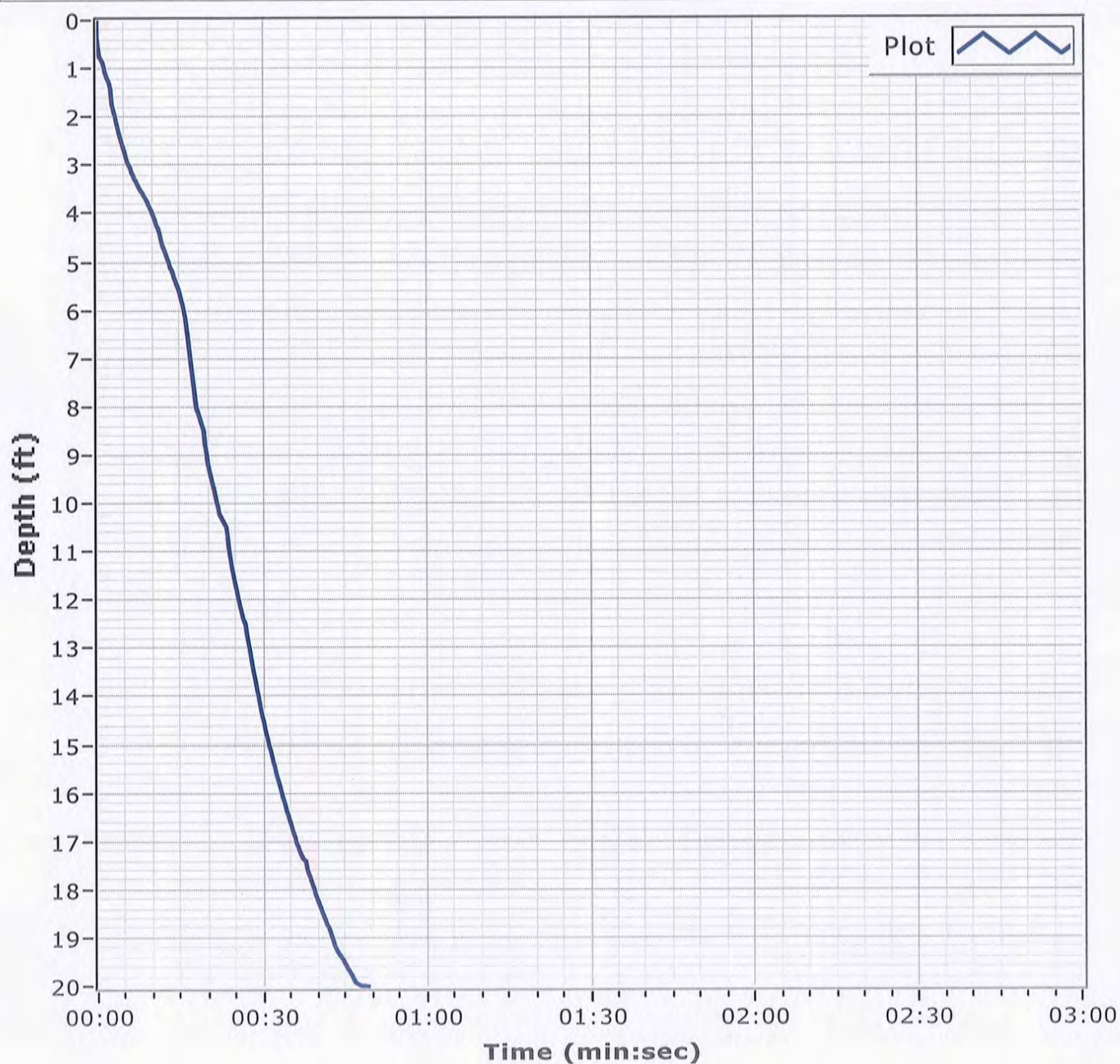
Latitude 30 7.942

Total Time 00:00:49

Recovery 17.5'

Longitude 88 20.549

## Comments





# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.2	0.8	10.7	85.7	2.6	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
1	100.0		
.75	100.0		
.5	100.0		
.375	100.0		
#4	99.8		
#10	99.0		
#20	97.1		
#40	88.3		
#60	57.4		
#100	11.8		
#140	4.3		
#200	2.6		

\* (no specification provided)

<u><b>Material Description</b></u>		
Fine to medium grained, SAND		
<u><b>Atterberg Limits</b></u>		
PL=	LL=	PI=
<u><b>Coefficients</b></u>		
D <sub>90</sub> = 0.4498	D <sub>85</sub> = 0.3872	D <sub>60</sub> = 0.2575
D <sub>50</sub> = 0.2311	D <sub>30</sub> = 0.1890	D <sub>15</sub> = 0.1580
D <sub>10</sub> = 0.1444	C <sub>u</sub> = 1.78	C <sub>c</sub> = 0.96
<u><b>Classification</b></u>		
USCS= SP	AASHTO=	
<u><b>Remarks</b></u>		

Location: BI-PBS-88-12 A  
Sample Number: 6494 (61)

Depth: 0.0'

Date: 12/26/12

**Thompson Engineering**

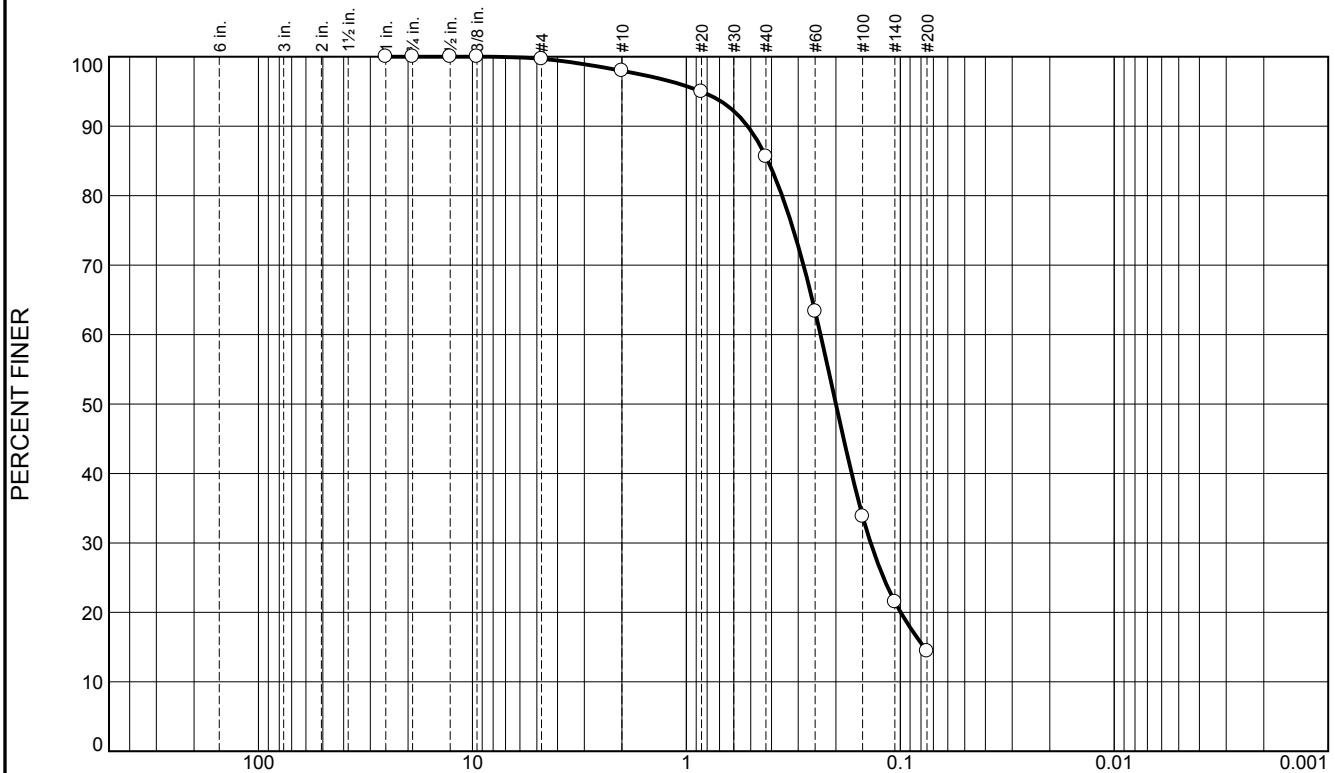
**Mobile, Alabama**

Client: CDM/Thompson Engineering JV  
Project: MsCIP Barrier Island Restoration GT

Project No: 1221110095

Figure

# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.3	1.7	12.4	71.2	14.4	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
1	100.0		
.75	100.0		
.5	100.0		
.375	100.0		
#4	99.7		
#10	98.0		
#20	95.0		
#40	85.6		
#60	63.3		
#100	33.8		
#140	21.5		
#200	14.4		

\* (no specification provided)

<b>Material Description</b> Fine to medium grained, SILTY SAND		
PL=	<b>Atterberg Limits</b> LL=	PI=
D <sub>90</sub> = 0.5171	<b>Coefficients</b> D <sub>85</sub> = 0.4155	D <sub>60</sub> = 0.2359
D <sub>50</sub> = 0.2000	D <sub>30</sub> = 0.1376	D <sub>15</sub> = 0.0774
D <sub>10</sub> =	C <sub>u</sub> =	C <sub>c</sub> =
USCS= SM	<b>Classification</b> AASHTO=	
<b>Remarks</b>		

Location: BI-PBS-88-12 B  
Sample Number: 6494 (62)

Depth: 5.1'

Date: 12/26/12

**Thompson Engineering**

**Mobile, Alabama**

Client: CDM/Thompson Engineering JV  
Project: MsCIP Barrier Island Restoration GT

Project No: 1221110095

Figure

# Boring Designation BI-PBS-094-12

DRILLING LOG		DIVISION South Atlantic		INSTALLATION Mobile District		SHEET 1 OF 1 SHEETS	
1. PROJECT MsCIP Barrier Island Restoration Petit Bois Pass-OCS West				9. SIZE AND TYPE OF BIT N/A			
2. BORING DESIGNATION BI-PBS-094-12		LOCATION COORDINATES E = 1,099,813 N = 234,812		10. COORDINATE SYSTEM/DATUM State Plane, MSE (U.S. Ft.)		HORIZONTAL NAD83 VERTICAL NAVD88	
3. DRILLING AGENCY Corps of Engineers - CESAM		CONTRACTOR FILE NO.		11. MANUFACTURER'S DESIGNATION OF DRILL Vibracore		<input type="checkbox"/> AUTO HAMMER <input type="checkbox"/> MANUAL HAMMER	
4. NAME OF DRILLER American Vibracore Systems, Inc.				12. TOTAL SAMPLES		DISTURBED UNDISTURBED (UD) 0	
5. DIRECTION OF BORING <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED				13. TOTAL NUMBER CORE BOXES		14. WATER DEPTH 40 Ft.	
6. THICKNESS OF OVERBURDEN N/A				15. DATE BORING		STARTED 01-05-13 COMPLETED 01-05-13	
7. DEPTH DRILLED INTO ROCK N/A				16. ELEVATION TOP OF BORING -40.3 Ft.		17. TOTAL RECOVERY FOR BORING 100%	
8. TOTAL DEPTH OF BORING 19.5 Ft.				18. SIGNATURE AND TITLE OF INSPECTOR Mike FitzHarris, Geologist			
ELEV.	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS	SAMPLE	LABORATORY RESULTS		
-40.3	0.0						
			SAND, poorly-graded, mostly fine to medium-grained sand-sized quartz, little shell fragments, trace fines, lt. gray (SP)	A	Classification: SP-SM Color: 5Y 6/2-light olive gray D50: 0.2448 mm % Fines: 5.4		
-44.8	4.5		SAND, poorly-graded with silt, mostly fine to medium-grained sand-sized quartz, few silt, trace shell fragments, gray (SP-SM)	B	Classification: SP Color: 5Y 7/2-light gray D50: 0.3252 mm % Fines: 1.1		
-47.3	7.0		SAND, silty, mostly fine-grained sand-sized quartz, some silt, trace shell fragments, gray (SM)	C	Classification: SP-SM Color: 5Y 5/2-olive gray D50: 0.2122 mm % Fines: 7.7		
-50.3	10.0		SILT, inorganic-L, mostly silt, some fine-grained sand-sized quartz, trace shell fragments, trace clay, gray (ML)	NS			
-55.5	15.2		CLAY, lean, mostly clay, some silt, some fine-grained sand-sized quartz, trace shell fragments, soft, gray (CL) At El. -56.9 Ft., mostly clay, trace silt, trace shell fragments, stiff, low to medium plasticity, red, orange, greenish gray, gray mottle				
-59.8	19.5		NOTES: 1. Soils are field visually classified in accordance with the Unified Soils Classification System. 2. NS = Sample not submitted for laboratory analysis from this interval. 3. Seafloor elevation determined from 10/16/2014 USACE survey.				

# Project

Mississippi Barrier Island  
Restoration Project

**AVS**  
AMERICAN VIBRACORE  
SERVICES

Core Identifier BI-PBS-94-12

Date 01/05/2013

Water Depth 40.0'

## Coordinate System

Latitude / Longitude

Start Time 14:05:29

End Time 14:10:43

Penetration 20.0'

Latitude 30 11.088 N

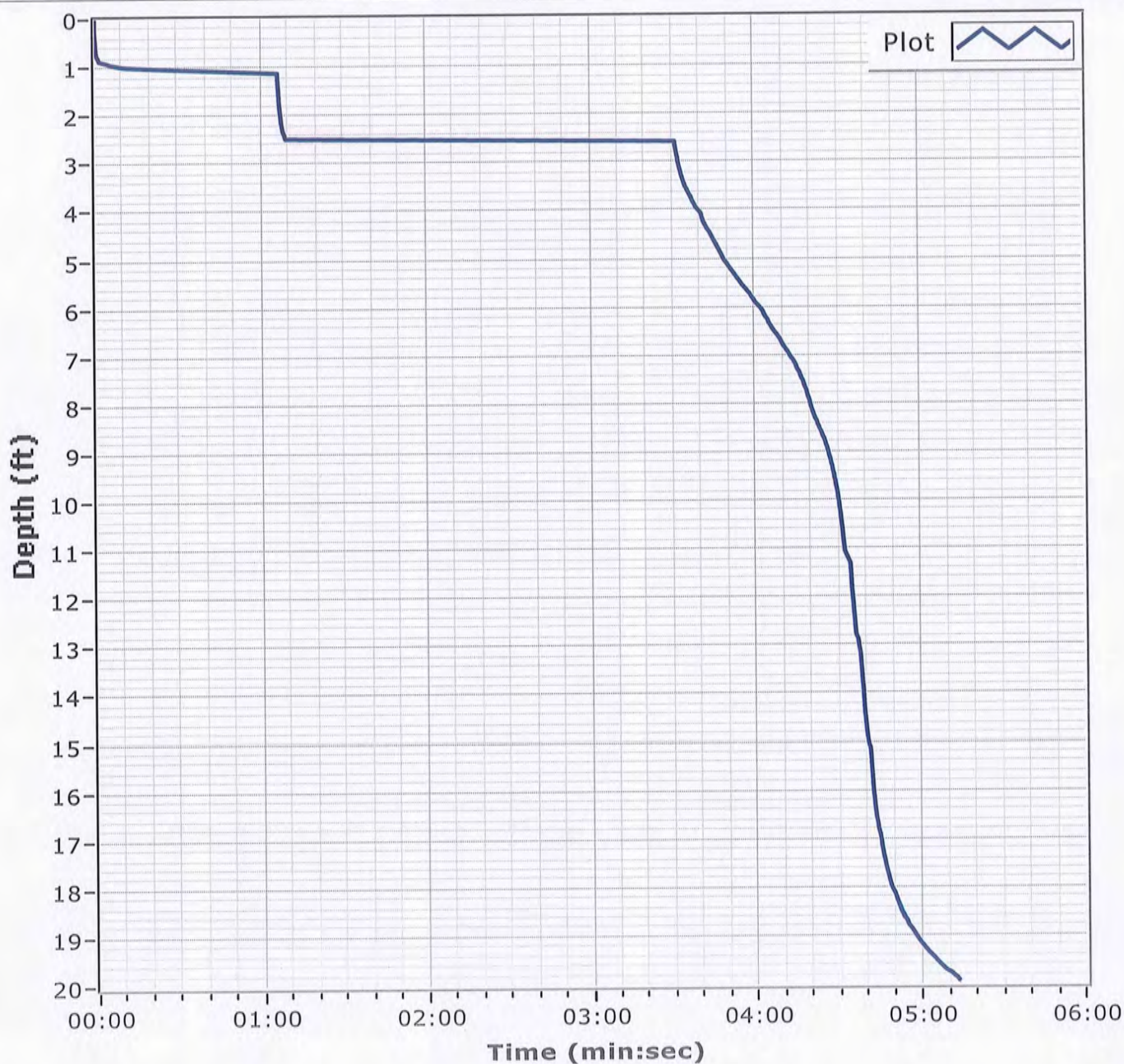
Total Time 00:05:13

Recovery 19.5'

Longitude 088 28.063 W

## Comments

NOTE: VIBRATOR QUIT THEN RESTARTED



# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	1.3	2.5	8.9	81.9	5.4	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
1	100.0		
.75	100.0		
.5	99.0		
.375	99.0		
#4	98.7		
#10	96.2		
#20	92.9		
#40	87.3		
#60	52.0		
#100	9.9		
#140	6.4		
#200	5.4		

\* (no specification provided)

## Material Description

Fine grained, SLIGHTLY SILTY SAND, with trace SHELL

## Atterberg Limits

PL= LL= PI=

## Coefficients

D<sub>90</sub>= 0.5705 D<sub>85</sub>= 0.4015 D<sub>60</sub>= 0.2737  
D<sub>50</sub>= 0.2448 D<sub>30</sub>= 0.1987 D<sub>15</sub>= 0.1650  
D<sub>10</sub>= 0.1503 C<sub>u</sub>= 1.82 C<sub>c</sub>= 0.96

## Classification

USCS= SP-SM AASHTO=

## Remarks

Location: BI-PBS-94-12 A  
Sample Number: 6503 (15)

Depth: 0.0'

Date: 1/08/13

**Thompson Engineering**

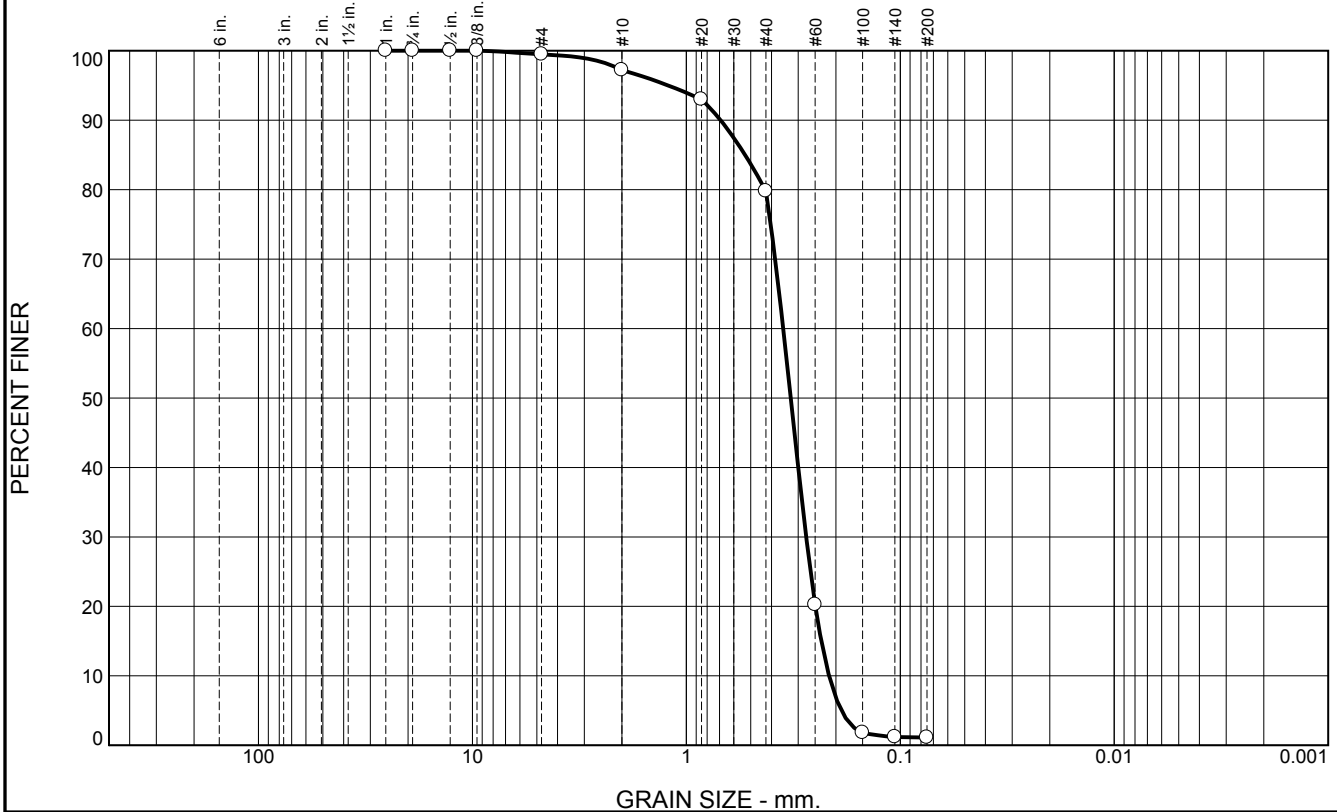
**Mobile, Alabama**

Client: CDM/Thompson Engineering JV  
Project: MsCIP Barrier Island Restoration GT

Project No: 1221110095

Figure

# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.5	2.3	17.4	78.7	1.1	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
1	100.0		
.75	100.0		
.5	100.0		
.375	100.0		
#4	99.5		
#10	97.2		
#20	93.0		
#40	79.8		
#60	20.2		
#100	1.8		
#140	1.2		
#200	1.1		

\* (no specification provided)

Material Description		
Fine grained, SAND		
PL=	Atterberg Limits LL=	PI=
D <sub>90</sub> = 0.6926	Coefficients D <sub>85</sub> = 0.5316	D <sub>60</sub> = 0.3526
D <sub>50</sub> = 0.3252	D <sub>30</sub> = 0.2755	D <sub>15</sub> = 0.2339
D <sub>10</sub> = 0.2152	C <sub>u</sub> = 1.64	C <sub>c</sub> = 1.00
USCS= SP	Classification AASHTO=	
Remarks		

Location: BI-PBS-94-12 B  
Sample Number: 6503 (16)

Depth: 4.5'

Date: 1/08/13

**Thompson Engineering**

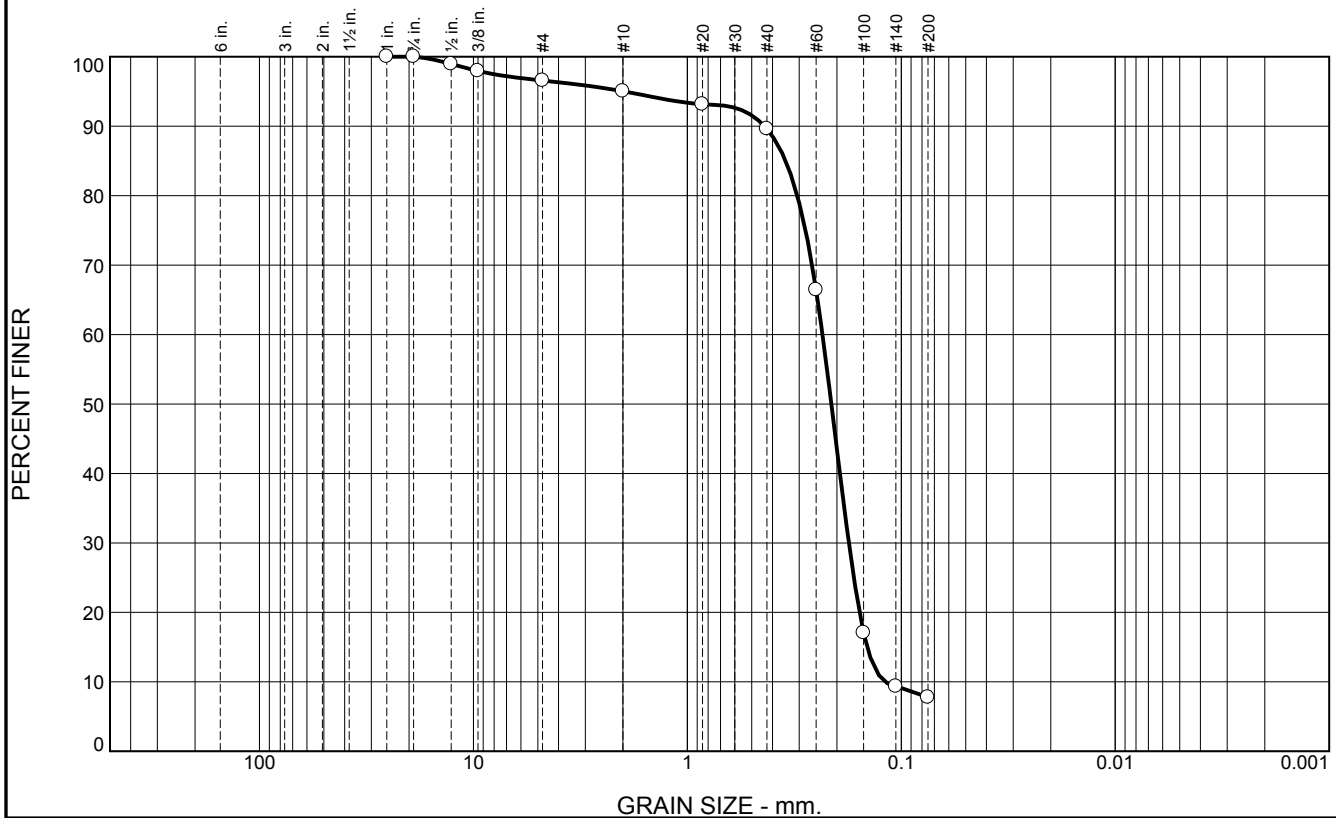
**Mobile, Alabama**

Client: CDM/Thompson Engineering JV  
Project: MsCIP Barrier Island Restoration GT

Project No: 1221110095

Figure

# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	3.4	1.6	5.4	81.9	7.7	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
1	100.0		
.75	100.0		
.5	98.9		
.375	97.9		
#4	96.6		
#10	95.0		
#20	93.2		
#40	89.6		
#60	66.4		
#100	17.0		
#140	9.3		
#200	7.7		

\* (no specification provided)

<b><u>Material Description</u></b>		
Fine grained, SLIGHTLY SILTY SAND, with trace SHELL		
<b><u>Atterberg Limits</u></b>		
PL=	LL=	PI=
<b><u>Coefficients</u></b>		
D <sub>90</sub> = 0.4367	D <sub>85</sub> = 0.3473	D <sub>60</sub> = 0.2335
D <sub>50</sub> = 0.2122	D <sub>30</sub> = 0.1759	D <sub>15</sub> = 0.1444
D <sub>10</sub> = 0.1190	C <sub>u</sub> = 1.96	C <sub>c</sub> = 1.11
<b><u>Classification</u></b>		
USCS= SP-SM	AASHTO=	
<b><u>Remarks</u></b>		

Location: BI-PBS-94-12 C  
Sample Number: 6503 (17)

Depth: 7.0'

Date: 1/08/13

**Thompson Engineering**

**Mobile, Alabama**

Client: CDM/Thompson Engineering JV  
Project: MsCIP Barrier Island Restoration GT

Project No: 1221110095

Figure

# Boring Designation BI-PBS-095-12

DRILLING LOG		DIVISION South Atlantic		INSTALLATION Mobile District		SHEET 1 OF 1 SHEETS	
1. PROJECT MsCIP Barrier Island Restoration Petit Bois Pass-OCS West				9. SIZE AND TYPE OF BIT N/A			
2. BORING DESIGNATION BI-PBS-095-12		LOCATION COORDINATES E = 1,102,745 N = 240,967		10. COORDINATE SYSTEM/DATUM State Plane, MSE (U.S. Ft.)		HORIZONTAL NAD83 VERTICAL NAVD88	
3. DRILLING AGENCY Corps of Engineers - CESAM		CONTRACTOR FILE NO.		11. MANUFACTURER'S DESIGNATION OF DRILL Vibracore		<input type="checkbox"/> AUTO HAMMER <input type="checkbox"/> MANUAL HAMMER	
4. NAME OF DRILLER American Vibracore Systems, Inc.				12. TOTAL SAMPLES		DISTURBED UNDISTURBED (UD) 0	
5. DIRECTION OF BORING <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED		DEG. FROM VERTICAL		13. TOTAL NUMBER CORE BOXES			
		BEARING		14. WATER DEPTH 43.8 Ft.			
6. THICKNESS OF OVERBURDEN N/A				15. DATE BORING 01-05-13		COMPLETED 01-05-13	
7. DEPTH DRILLED INTO ROCK N/A				16. ELEVATION TOP OF BORING -42.7 Ft.			
8. TOTAL DEPTH OF BORING 17.9 Ft.				17. TOTAL RECOVERY FOR BORING 100%			
				18. SIGNATURE AND TITLE OF INSPECTOR Mike FitzHarris, Geologist			
ELEV.	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS	SAMPLE	LABORATORY RESULTS		
-42.7	0.0						
-44.9	2.2		SAND, poorly-graded, mostly fine to medium-grained sand-sized quartz, little shell fragments, trace fines, lt. gray (SP)	A	Classification: SP Color: 5Y 6/2-light olive gray D50: 0.32 mm % Fines: 1.2		
-46.9	4.2		SAND, silty, mostly fine-grained sand-sized quartz, some silt, trace shell fragments, gray (SM)	B	Classification: SP-SM Color: 5Y 5/2-olive gray D50: 0.1954 mm % Fines: 10.5		
-51.7	9.0		SILT, inorganic-L, mostly silt, some sand, trace clay, trace shell fragments, gray (ML)	NS			
-54.4	11.7		CLAY, fat, mostly clay, trace shell fragments, trace pockets of fine-grained sand, high plasticity, gray (CH)				
-60.6	17.9		CLAY, lean, mostly clay, trace shell fragments, soft becoming very stiff at depth, also becomes siltier with depth to 15.9 ft., becomes a CH at 17 ft., lt. gray, orangy brown, and gray mottle (CL)				
			NOTES: 1. Soils are field visually classified in accordance with the Unified Soils Classification System. 2. NS = Sample not submitted for laboratory analysis from this interval. 3. Seafloor elevation determined from 10/28/2014 USACE survey.				



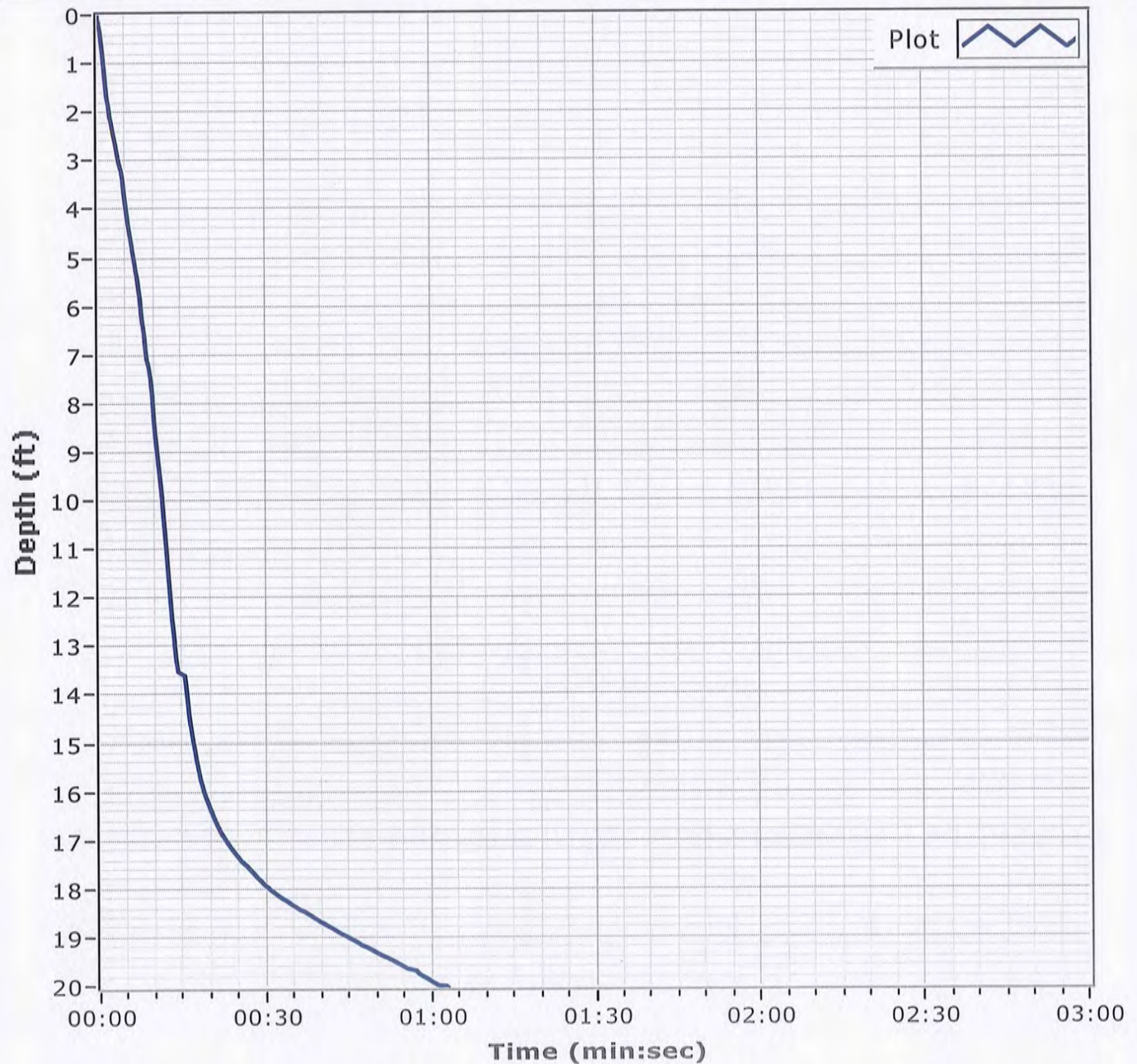
**Project**

Mississippi Barrier Island  
Restoration Project

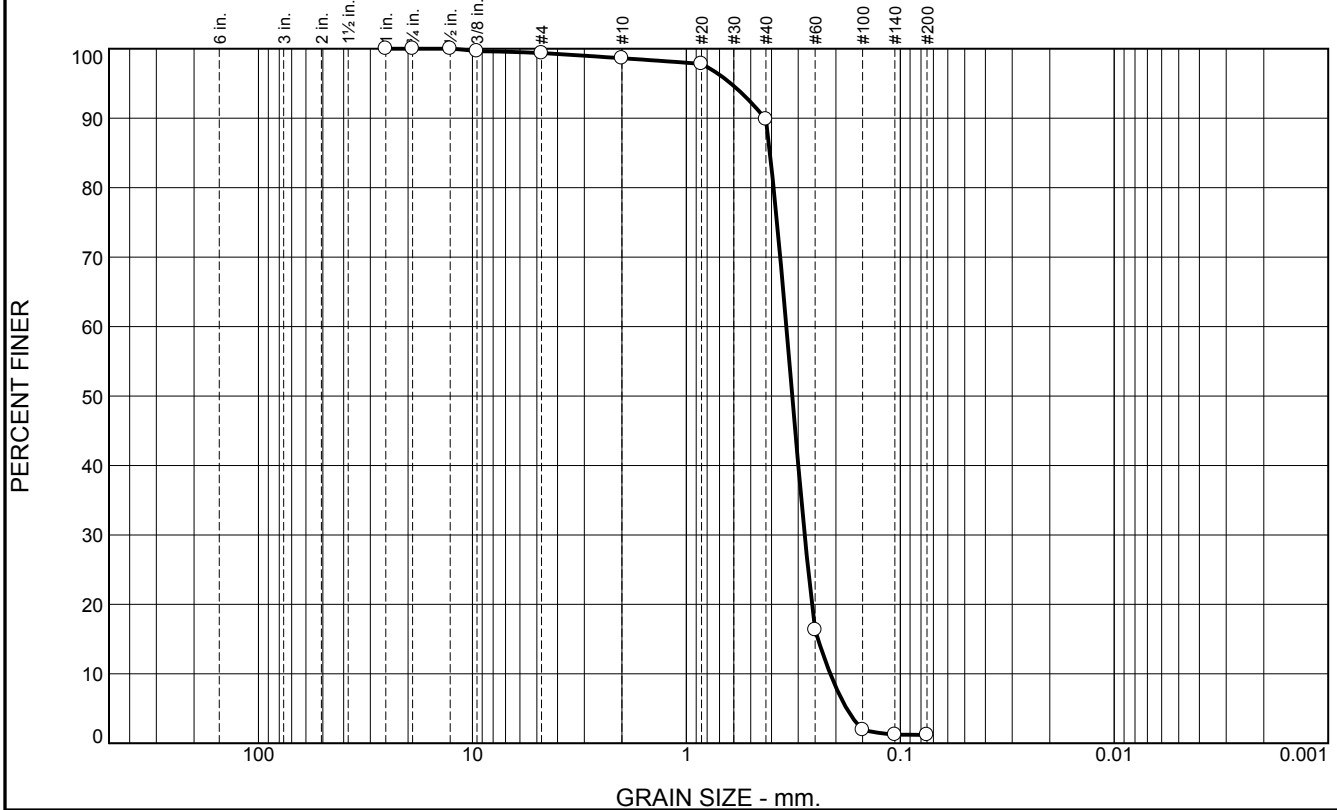
**AVS**  
**AMERICAN VIBRACORE**  
**S E R V I C E S**

**Core Identifier** BI-PBS-95-12**Date** 01/05/2013**Water Depth** 43.8'**Coordinate System**

Latitude / Longitude

**Start Time** 14:55:29**End Time** 14:56:33**Penetration** 20.2'**Latitude** 30 09.725 N**Total Time** 00:01:04**Recovery** 17.8'**Longitude** 088 27.503 W**Comments**

# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.6	0.8	8.8	88.6	1.2	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
1	100.0		
.75	100.0		
.5	100.0		
.375	99.6		
#4	99.4		
#10	98.6		
#20	97.8		
#40	89.8		
#60	16.3		
#100	1.9		
#140	1.3		
#200	1.2		

\* (no specification provided)

Material Description		
Fine grained, SAND		
<div> <div> Atterberg Limits </div> <div> PL= </div> <div> LL= </div> <div> PI= </div> </div>		
<div> <div> Coefficients </div> <div> D<sub>90</sub>= 0.4292 </div> <div> D<sub>50</sub>= 0.3200 </div> <div> D<sub>10</sub>= 0.2124 </div> <div> D<sub>85</sub>= 0.4067 </div> <div> D<sub>30</sub>= 0.2801 </div> <div> C<sub>u</sub>= 1.61 </div> <div> D<sub>60</sub>= 0.3409 </div> <div> D<sub>15</sub>= 0.2424 </div> <div> C<sub>c</sub>= 1.08 </div> </div>		
<div> <div> Classification </div> <div> USCS= SP </div> <div> AASHTO= </div> </div>		
<div> <div> Remarks </div> </div>		

Location: BI-PBS-95-12 A  
Sample Number: 6503 (18)

Depth: 0.0'

Date: 1/08/13

**Thompson Engineering**

**Mobile, Alabama**

Client: CDM/Thompson Engineering JV  
Project: MsCIP Barrier Island Restoration GT

Project No: 1221110095

Figure

# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.9	2.3	6.2	80.1	10.5	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
1	100.0		
.75	100.0		
.5	100.0		
.375	99.8		
#4	99.1		
#10	96.8		
#20	94.6		
#40	90.6		
#60	71.9		
#100	27.2		
#140	14.3		
#200	10.5		

\* (no specification provided)

<b>Material Description</b> Fine grained, SLIGHTLY SILTY SAND		
PL=	<b>Atterberg Limits</b> LL=	PI=
D <sub>90</sub> = 0.4074	<b>Coefficients</b> D <sub>85</sub> = 0.3235	D <sub>60</sub> = 0.2170
D <sub>50</sub> = 0.1954	D <sub>30</sub> = 0.1561	D <sub>15</sub> = 0.1100
D <sub>10</sub> =	C <sub>u</sub> =	C <sub>c</sub> =
USCS= SP-SM	<b>Classification</b> AASHTO=	
<b>Remarks</b>		

Location: BI-PBS-95-12 B  
Sample Number: 6503 (19)

Depth: 2.2'

Date: 1/08/13

**Thompson Engineering**

**Mobile, Alabama**

Client: CDM/Thompson Engineering JV  
Project: MsCIP Barrier Island Restoration GT

Project No: 1221110095

Figure

# Boring Designation BI-PBS-099-12

DRILLING LOG		DIVISION South Atlantic		INSTALLATION Mobile District		SHEET 1 OF 2 SHEETS	
1. PROJECT MsCIP Barrier Island Restoration Petit Bois Pass-OCS West				9. SIZE AND TYPE OF BIT N/A			
2. BORING DESIGNATION BI-PBS-099-12		LOCATION COORDINATES E = 1,114,168 N = 233,329		10. COORDINATE SYSTEM/DATUM State Plane, MSE (U.S. Ft.)		HORIZONTAL NAD83	
3. DRILLING AGENCY Corps of Engineers - CESAM		CONTRACTOR FILE NO.		11. MANUFACTURER'S DESIGNATION OF DRILL Vibrocure		<input type="checkbox"/> AUTO HAMMER <input type="checkbox"/> MANUAL HAMMER	
4. NAME OF DRILLER American Vibrocure Systems, Inc.				12. TOTAL SAMPLES		DISTURBED 0	
5. DIRECTION OF BORING <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED				13. TOTAL NUMBER CORE BOXES		14. WATER DEPTH 43.4 Ft.	
6. THICKNESS OF OVERBURDEN N/A				15. DATE BORING		STARTED 01-12-13	
7. DEPTH DRILLED INTO ROCK N/A				16. ELEVATION TOP OF BORING -44.9 Ft.		COMPLETED 01-12-13	
8. TOTAL DEPTH OF BORING 18.3 Ft.				17. TOTAL RECOVERY FOR BORING 100%		18. SIGNATURE AND TITLE OF INSPECTOR Mike FitzHarris, Geologist	
ELEV.	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS	SAMPLE	LABORATORY RESULTS		
-44.9	0.0						
			SAND, poorly-graded, mostly fine to medium-grained sand-sized quartz, trace fines, trace shell fragments, lt. gray (SP)	A	Classification: SP Color: 5Y 6/2-light olive gray D50: 0.3009 mm % Fines: 2.1		
				B	Classification: SP Color: 5Y 6/2-light olive gray D50: 0.3217 mm % Fines: 2		
-51.2	6.3						
			SAND, poorly-graded with silt, mostly fine-grained sand-sized quartz, some shell fragments, lt. gray (SP-SM)	C	Classification: SM Color: 5Y 5/2-olive gray D50: 0.2553 mm % Fines: 12.5		
-53.6	8.7						
			SAND, silty, mostly fine-grained sand-sized quartz, some silt, trace clay, trace wood debris, brown (SM)	NS			
-60.3	15.4						
			SILT, inorganic-L, mostly silt, some fine-grained sand-sized quartz, brown (ML)				
-61.8	16.9						
			SAND, poorly-graded with silt, mostly fine-grained sand-sized quartz, few silt, becomes less silty with depth, gray (SP-SM)				
-63.2	18.3						
			NOTES: 1. Soils are field visually classified in accordance with the Unified Soils Classification System. 2. NS = Sample not submitted for laboratory analysis from this interval. 3. Top 1 ft. of sample may be compromised because contractor's vibrocure unit stopped after approximately 1 ft of penetration when the				

<b>DRILLING LOG (Cont. Sheet)</b>			<b>INSTALLATION</b> Mobile District		<b>SHEET 2</b> <b>OF 2 SHEETS</b>
<b>PROJECT</b> MsCIP Barrier Island Restoration			<b>COORDINATE SYSTEM/DATUM</b> State Plane, MSE (U.S. Ft.)	<b>HORIZONTAL</b> NAD83	<b>VERTICAL</b> NAVD88
<b>LOCATION COORDINATES</b> X = 1,114,168 Y = 233,329			<b>ELEVATION TOP OF BORING</b> -44.9 Ft.		
<b>ELEV.</b>	<b>DEPTH</b>	<b>LEGEND</b>	<b>CLASSIFICATION OF MATERIALS</b>	<b>SAMPLE</b>	<b>LABORATORY RESULTS</b>
			<p>pneumatic hoses running the vibracore's vibrator got pinched off. Contractor then raised the vibracore barrel to unkink the hoses and restarted the vibrator. He let the machine run for about 3 minutes to get excess material out of the barrel, but there appeared to be a bit leftover, making recovery deeper than the penetration.</p> <p>4. Seafloor elevation determined from 12/17/2014 USACE survey.</p>		



**Project**

Mississippi Barrier Island  
Restoration Project



**Core Identifier** BI-PBS-99-12

**Date** 01/12/2013

**Water Depth** 43.4'

**Coordinate System**

**Start Time** 09:14:49

**Penetration** 18.3'

Latitude / Longitude

**End Time** 09:22:00

**Recovery** 18.3'

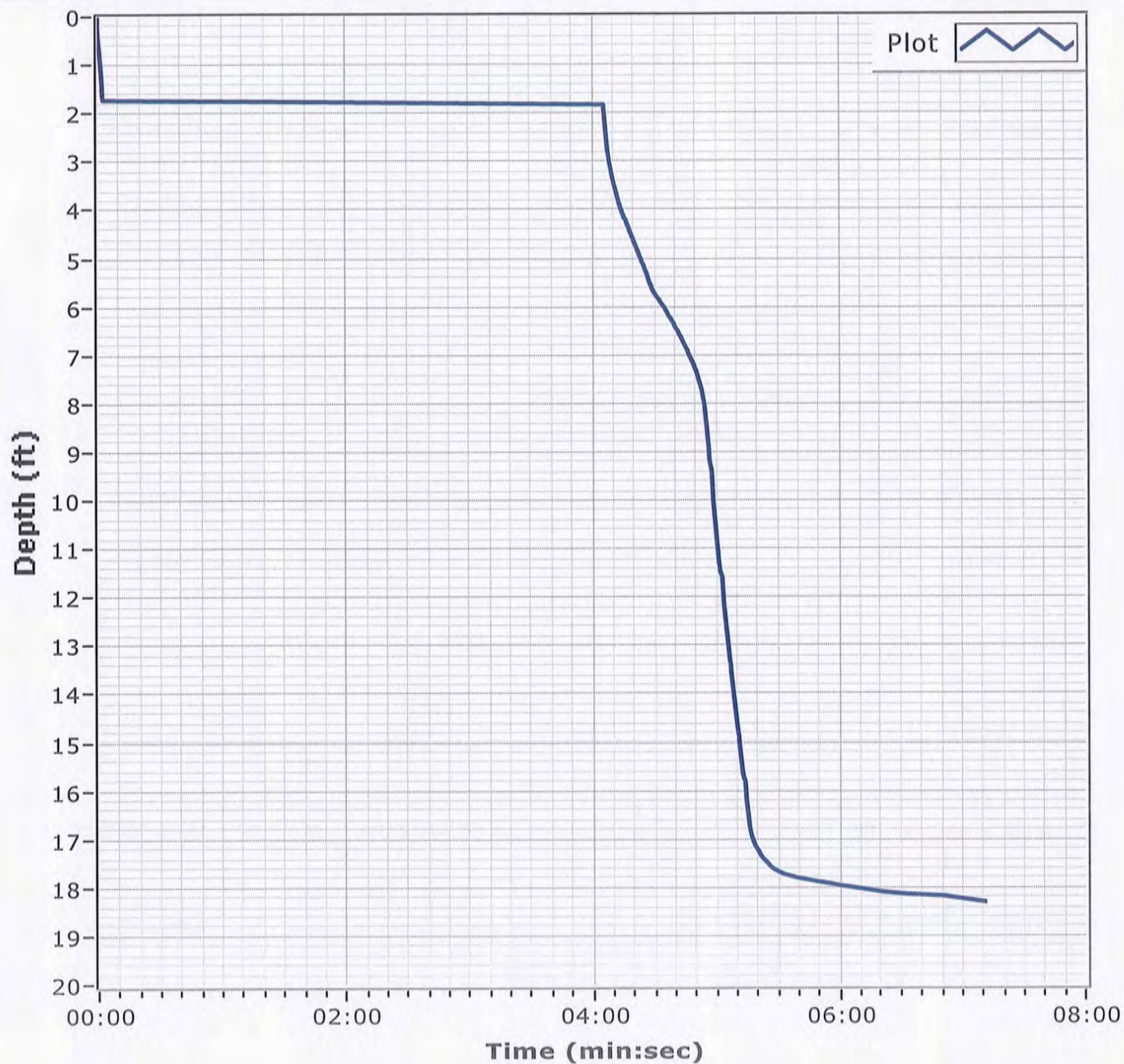
**Latitude** 30 08.458 N

**Total Time** 00:07:11

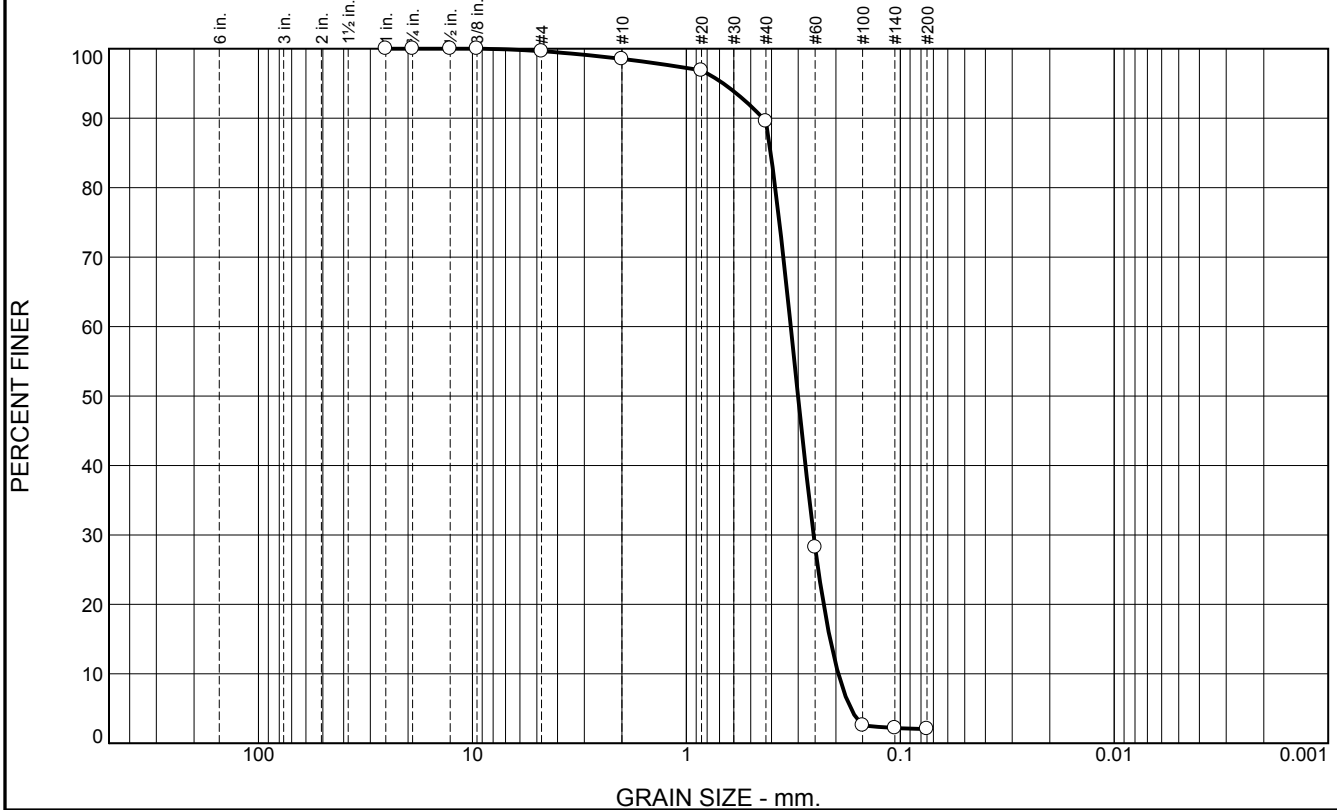
**Longitude** 088 25.339 W

**Comments**

NOTE: VIBRATOR STOPPED AND THEN RESTARTED



# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.4	1.1	8.9	87.5	2.1	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
1	100.0		
.75	100.0		
.5	100.0		
.375	100.0		
#4	99.6		
#10	98.5		
#20	96.9		
#40	89.6		
#60	28.2		
#100	2.6		
#140	2.2		
#200	2.1		

\* (no specification provided)

Material Description		
Fine grained, SAND		
<div> <div> Atterberg Limits </div> <div> PL= </div> <div> LL= </div> <div> PI= </div> </div>		
<div> <div> Coefficients </div> <div> D<sub>90</sub>= 0.4386 </div> <div> D<sub>50</sub>= 0.3009 </div> <div> D<sub>10</sub>= 0.1949 </div> <div> D<sub>85</sub>= 0.4034 </div> <div> D<sub>30</sub>= 0.2544 </div> <div> C<sub>u</sub>= 1.67 </div> <div> D<sub>60</sub>= 0.3251 </div> <div> D<sub>15</sub>= 0.2130 </div> <div> C<sub>c</sub>= 1.02 </div> </div>		
<div> <div> Classification </div> <div> USCS= SP </div> <div> AASHTO= </div> </div>		
<div> <div> Remarks </div> </div>		

Location: BI-PBS-99-12 A  
Sample Number: 6507 (1)

Depth: 0.0'

Date: 1/14/13

**Thompson Engineering**

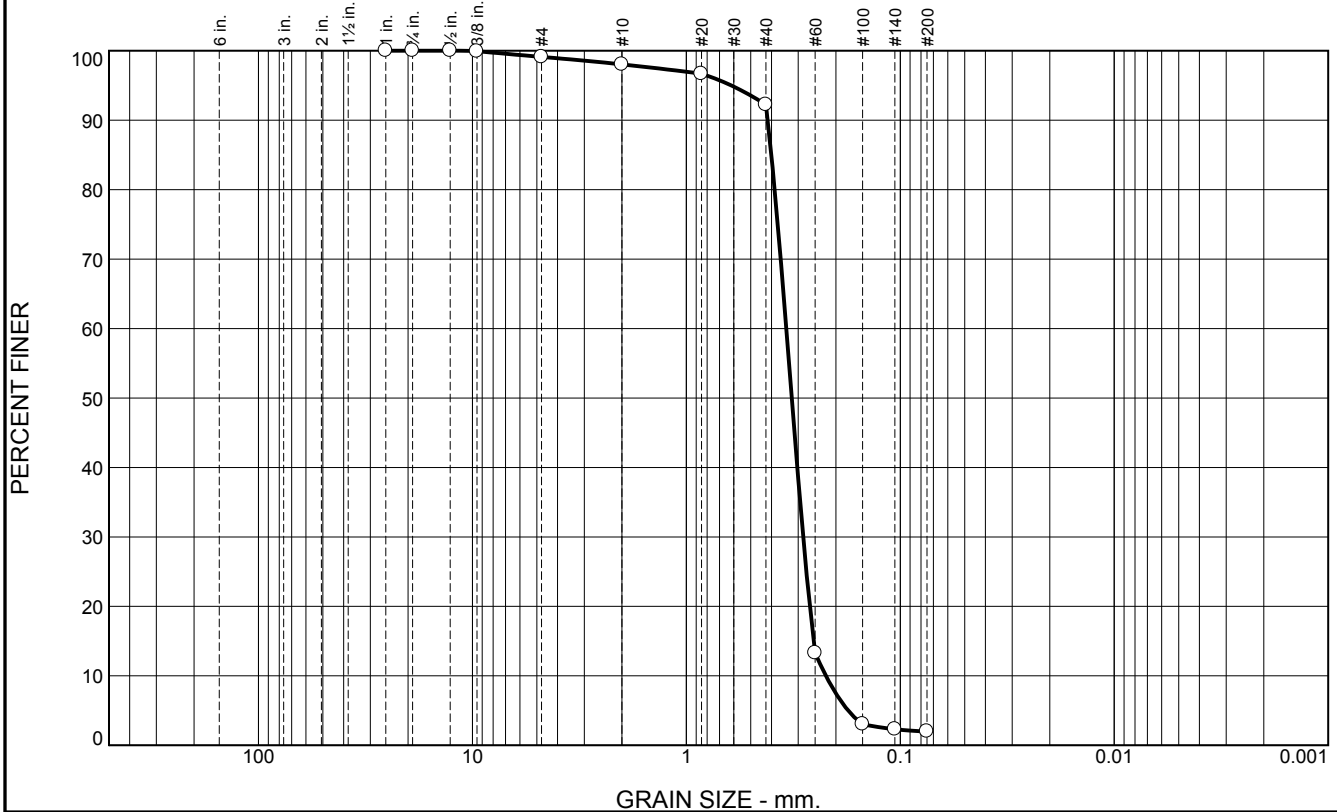
**Mobile, Alabama**

Client: CDM/Thompson Engineering JV  
Project: MsCIP Barrier Island Restoration GT

Project No: 1221110095

Figure

# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.9	1.1	5.8	90.2	2.0	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
1	100.0		
.75	100.0		
.5	100.0		
.375	99.9		
#4	99.1		
#10	98.0		
#20	96.7		
#40	92.2		
#60	13.3		
#100	3.0		
#140	2.3		
#200	2.0		

\* (no specification provided)

<u>Material Description</u>		
Fine grained, SAND		
<u>Atterberg Limits</u>		
PL=	LL=	PI=
<u>Coefficients</u>		
D <sub>90</sub> = 0.4167	D <sub>85</sub> = 0.4004	D <sub>60</sub> = 0.3411
D <sub>50</sub> = 0.3217	D <sub>30</sub> = 0.2847	D <sub>15</sub> = 0.2541
D <sub>10</sub> = 0.2227	C <sub>u</sub> = 1.53	C <sub>c</sub> = 1.07
<u>Classification</u>		
USCS= SP	AASHTO=	
<u>Remarks</u>		

Location: BI-PBS-99-12 B  
Sample Number: 6507 (2)

Depth: 3.7'

Date: 1/14/13

**Thompson Engineering**

**Mobile, Alabama**

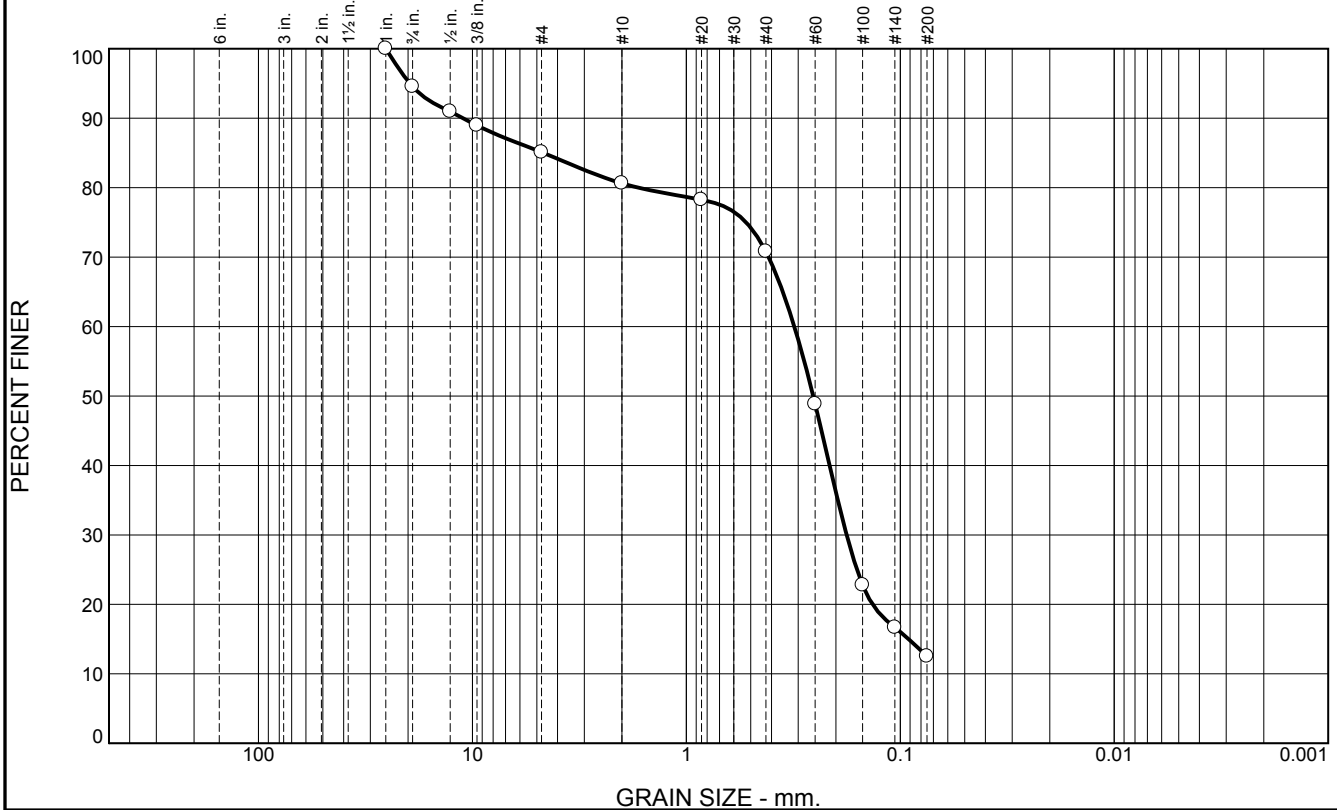
Client: CDM/Thompson Engineering JV  
Project: MsCIP Barrier Island Restoration GT

Project No: 1221110095

Figure



# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	5.5	9.4	4.5	9.8	58.3	12.5	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
1	100.0		
.75	94.5		
.5	90.9		
.375	88.9		
#4	85.1		
#10	80.6		
#20	78.2		
#40	70.8		
#60	48.9		
#100	22.8		
#140	16.7		
#200	12.5		

\* (no specification provided)

<b><u>Material Description</u></b>		
Fine grained, SILTY SAND, with some SHELL		
<b><u>Atterberg Limits</u></b>		
PL=	LL=	PI=
<b><u>Coefficients</u></b>		
D <sub>90</sub> = 11.0776	D <sub>85</sub> = 4.6678	D <sub>60</sub> = 0.3130
D <sub>50</sub> = 0.2553	D <sub>30</sub> = 0.1782	D <sub>15</sub> = 0.0916
D <sub>10</sub> =	C <sub>u</sub> =	C <sub>c</sub> =
<b><u>Classification</u></b>		
USCS= SM	AASHTO=	
<b><u>Remarks</u></b>		

Location: BI-PBS-99-12 C  
Sample Number: 6507 (3)

Depth: 6.3'

Date: 1/14/13

**Thompson Engineering**

**Mobile, Alabama**

Client: CDM/Thompson Engineering JV  
Project: MsCIP Barrier Island Restoration GT

Project No: 1221110095

Figure

# Boring Designation BI-PBS-101-12

DRILLING LOG		DIVISION South Atlantic		INSTALLATION Mobile District		SHEET 1 OF 1 SHEETS	
1. PROJECT MsCIP Barrier Island Restoration Petit Bois Pass-OCS West				9. SIZE AND TYPE OF BIT N/A			
2. BORING DESIGNATION BI-PBS-101-12		LOCATION COORDINATES E = 1,121,347 N = 230,046		10. COORDINATE SYSTEM/DATUM State Plane, MSE (U.S. Ft.)		HORIZONTAL NAD83	
3. DRILLING AGENCY Corps of Engineers - CESAM		CONTRACTOR FILE NO.		11. MANUFACTURER'S DESIGNATION OF DRILL Vibracore		<input type="checkbox"/> AUTO HAMMER <input type="checkbox"/> MANUAL HAMMER	
4. NAME OF DRILLER American Vibracore Systems, Inc.				12. TOTAL SAMPLES		DISTURBED 0	
5. DIRECTION OF BORING <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED				13. TOTAL NUMBER CORE BOXES		14. WATER DEPTH 47.3 Ft.	
6. THICKNESS OF OVERBURDEN N/A				15. DATE BORING		STARTED 01-12-13	
7. DEPTH DRILLED INTO ROCK N/A				16. ELEVATION TOP OF BORING -48.0 Ft.		COMPLETED 01-12-13	
8. TOTAL DEPTH OF BORING 15.0 Ft.				17. TOTAL RECOVERY FOR BORING 100%		18. SIGNATURE AND TITLE OF INSPECTOR Mike FitzHarris, Geologist	

ELEV.	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS	SAMPLE	LABORATORY RESULTS
-48.0	0.0				
			SAND, poorly-graded, mostly fine to medium-grained sand-sized quartz, trace fines, shelly zone at 1.2 ft., 0.5-in. clay lens at 4.6 ft., lt. gray (SP)	A	Classification: SP Color: 5Y 6/2-light olive gray D50: 0.31 mm % Fines: 1.8
				B	Classification: SP Color: 5Y 6/2-light olive gray D50: 0.3007 mm % Fines: 1.9
-54.8	6.8				
-55.0	7.0		SAND, poorly-graded with silt, mostly fine-grained sand-sized quartz, few silt, trace shell fragments, gray (SP-SM)		
			CLAY, lean, mostly clay, some fine-grained sand-sized quartz, medium to high plasticity, clayey sand veins throughout, soft but becoming gradually stiffer with depth, orangy brown, greenish gray, gray mottle (CL)	NS	
-62.3	14.3				
-63.0	15.0		SAND, clayey, mostly fine-grained sand-sized quartz, some clay, dark gray (SC)		
			NOTES: 1. Soils are field visually classified in accordance with the Unified Soils Classification System. 2. NS = Sample not submitted for laboratory analysis from this interval. 3. Seafloor elevation determined from 12/17/2014 USACE survey.		

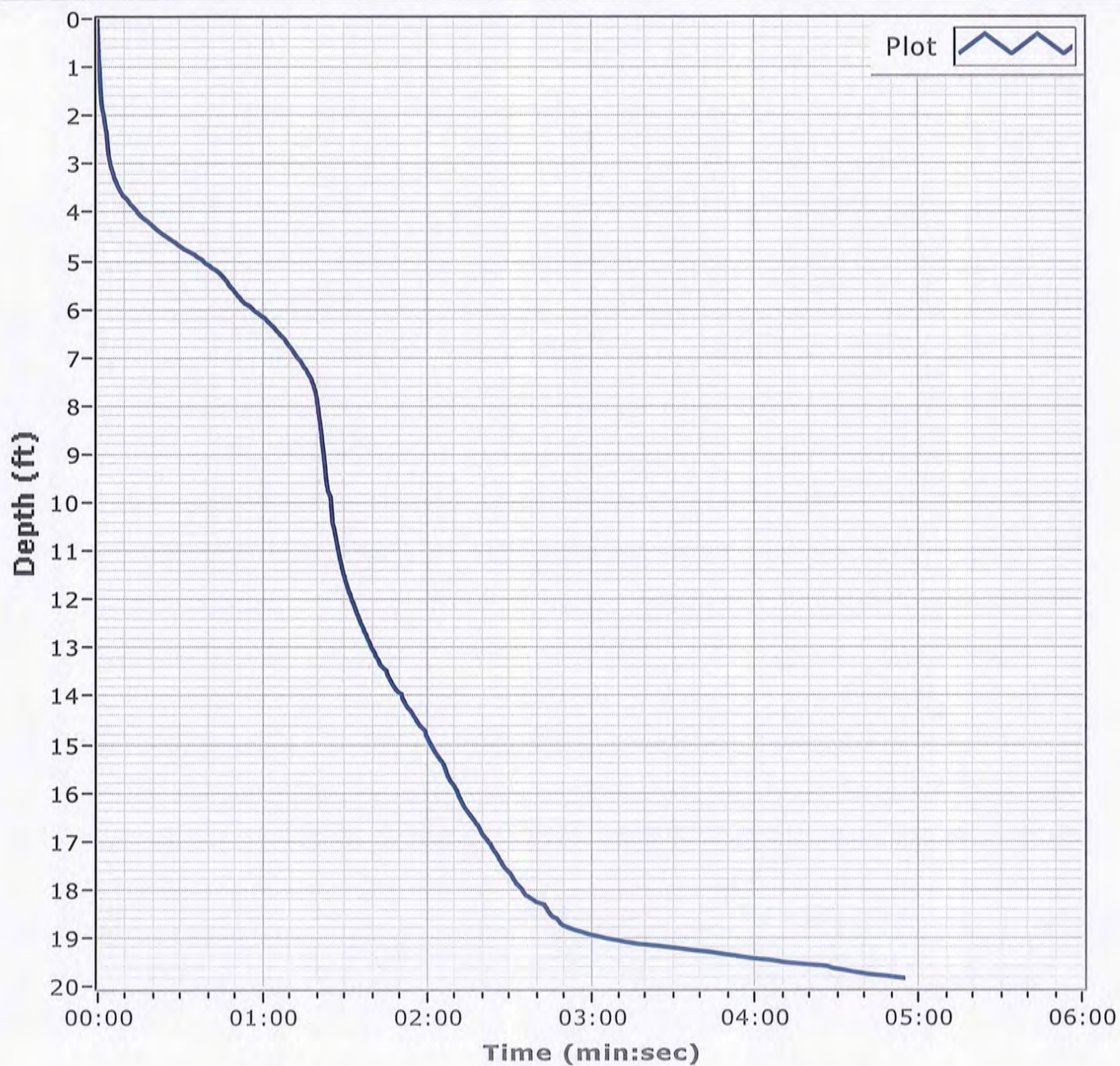
**Project**

Mississippi Barrier Island  
Restoration Project

**AVS**  
**AMERICAN VIBRACORE**  
**S E R V I C E S**

**Core Identifier** BI-PBS-101-12**Date** 01/12/2013**Water Depth** 47.3'**Coordinate System**

Latitude / Longitude

**Start Time** 10:07:18**End Time** 10:12:13**Penetration** 19.8'**Latitude** 30 07.912 N**Total Time** 00:04:55**Recovery** 15'**Longitude** 088 23.979 W**Comments**

# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.9	1.9	14.1	81.3	1.8	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
1	100.0		
.75	100.0		
.5	99.5		
.375	99.5		
#4	99.1		
#10	97.2		
#20	94.1		
#40	83.1		
#60	26.5		
#100	2.6		
#140	2.0		
#200	1.8		

\* (no specification provided)

<b><u>Material Description</u></b>		
Fine to medium grained, SAND		
<b><u>Atterberg Limits</u></b>		
PL=	LL=	PI=
<b><u>Coefficients</u></b>		
D <sub>90</sub> = 0.6194	D <sub>85</sub> = 0.4658	D <sub>60</sub> = 0.3375
D <sub>50</sub> = 0.3100	D <sub>30</sub> = 0.2592	D <sub>15</sub> = 0.2153
D <sub>10</sub> = 0.1963	C <sub>u</sub> = 1.72	C <sub>c</sub> = 1.01
<b><u>Classification</u></b>		
USCS= SP	AASHTO=	
<b><u>Remarks</u></b>		

Location: BI-PBS-101-12 A  
Sample Number: 6507 (4)

Depth: 0.0'

Date: 1/14/13

**Thompson Engineering**

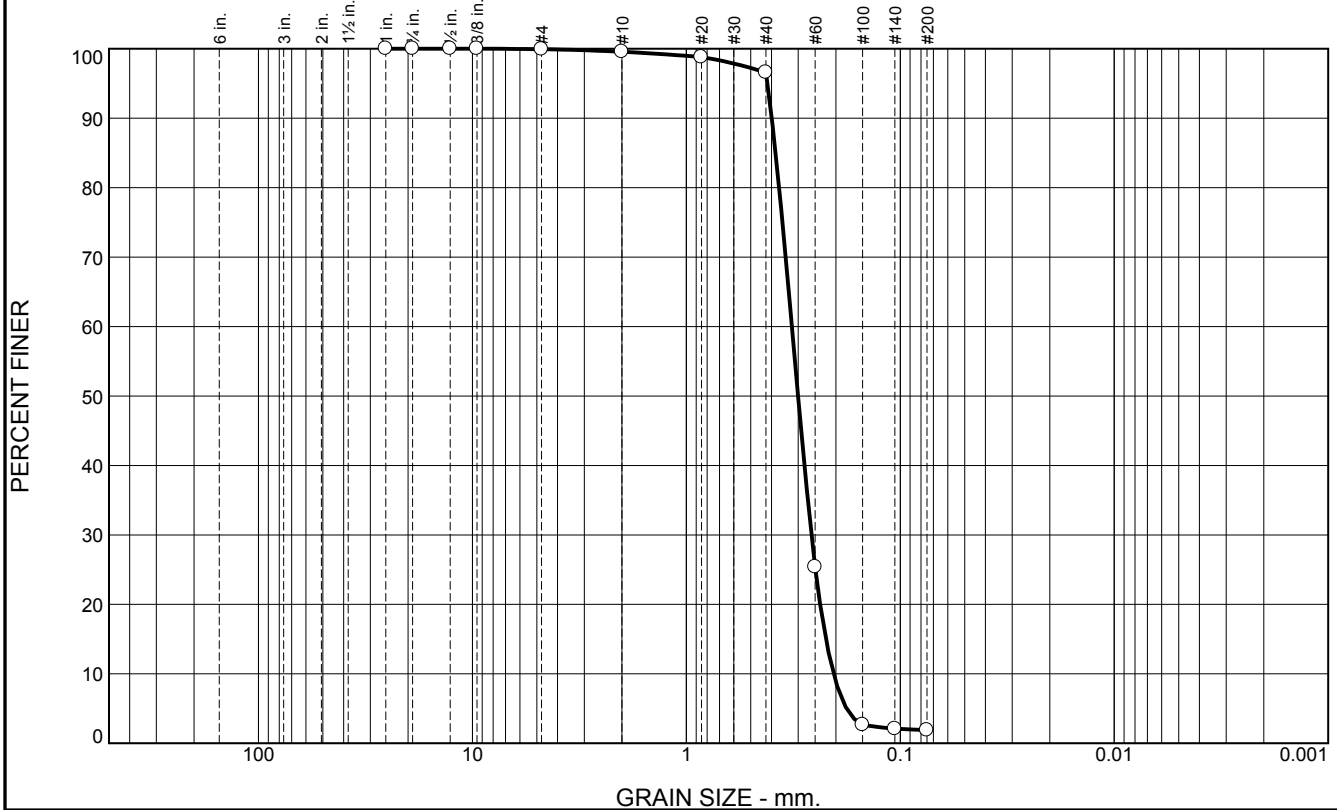
**Mobile, Alabama**

Client: CDM/Thompson Engineering JV  
Project: MsCIP Barrier Island Restoration GT

Project No: 1221110095

Figure

# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.1	0.3	3.0	94.7	1.9	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
1	100.0		
.75	100.0		
.5	100.0		
.375	100.0		
#4	99.9		
#10	99.6		
#20	98.8		
#40	96.6		
#60	25.4		
#100	2.7		
#140	2.1		
#200	1.9		

\* (no specification provided)

Material Description		
Fine grained, SAND		
<div> <div> Atterberg Limits </div> <div> PL= </div> <div> LL= </div> <div> PI= </div> </div>		
<div> <div> Coefficients </div> <div> D<sub>90</sub>= 0.3987 </div> <div> D<sub>50</sub>= 0.3007 </div> <div> D<sub>10</sub>= 0.2051 </div> <div> D<sub>85</sub>= 0.3826 </div> <div> D<sub>30</sub>= 0.2602 </div> <div> C<sub>u</sub>= 1.57 </div> <div> D<sub>60</sub>= 0.3213 </div> <div> D<sub>15</sub>= 0.2227 </div> <div> C<sub>c</sub>= 1.03 </div> </div>		
<div> <div> Classification </div> <div> USCS= SP </div> <div> AASHTO= </div> </div>		
<div> <div> Remarks </div> </div>		

Location: BI-PBS-101-12 B  
Sample Number: 6507 (5)

Depth: 5.0'

Date: 1/14/13

**Thompson Engineering**

**Mobile, Alabama**

Client: CDM/Thompson Engineering JV  
Project: MsCIP Barrier Island Restoration GT

Project No: 1221110095

Figure

# Boring Designation BI-PBS-104-12

DRILLING LOG		DIVISION South Atlantic		INSTALLATION Mobile District		SHEET 1 OF 1 SHEETS	
1. PROJECT MsCIP Barrier Island Restoration Petit Bois Pass-OCS East				9. SIZE AND TYPE OF BIT N/A			
2. BORING DESIGNATION BI-PBS-104-12		LOCATION COORDINATES E = 1,139,968 N = 229,824		10. COORDINATE SYSTEM/DATUM State Plane, MSE (U.S. Ft.)		HORIZONTAL NAD83	
3. DRILLING AGENCY Corps of Engineers - CESAM		CONTRACTOR FILE NO.		11. MANUFACTURER'S DESIGNATION OF DRILL Vibracore		<input type="checkbox"/> AUTO HAMMER <input type="checkbox"/> MANUAL HAMMER	
4. NAME OF DRILLER American Vibracore Systems, Inc.				12. TOTAL SAMPLES		DISTURBED 0	
5. DIRECTION OF BORING <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED				13. TOTAL NUMBER CORE BOXES		14. WATER DEPTH 60.1 Ft.	
6. THICKNESS OF OVERBURDEN N/A				15. DATE BORING		STARTED 01-04-13	
7. DEPTH DRILLED INTO ROCK N/A				16. ELEVATION TOP OF BORING -58.3 Ft.		COMPLETED 01-04-13	
8. TOTAL DEPTH OF BORING 18.2 Ft.				17. TOTAL RECOVERY FOR BORING 100%		18. SIGNATURE AND TITLE OF INSPECTOR Mike FitzHarris, Geologist	
ELEV.	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS	SAMPLE	LABORATORY RESULTS		
-58.3	0.0						
-59.3	1.0		SAND, poorly-graded, mostly fine-grained sand-sized quartz, trace fines, trace shell fragments, gray (SP)	A	Classification: SP Color: 5Y 6/2-light olive gray D50: 0.2759 mm % Fines: 1.9		
-62.4	4.1		SAND, silty, mostly fine-grained sand-sized quartz, some silt, few clay, trace shell fragments, gray (SM)	B	Classification: SM Color: 5Y 5/2-olive gray D50: 0.2074 mm % Fines: 12.9		
-65.0	6.7		SAND, clayey, mostly fine-grained sand-sized quartz, some clay, few silt, trace shell fragments, trace wood debris, gray (SC)	C	Classification: SM Color: 5Y 5/2-olive gray D50: 0.2412 mm % Fines: 21.9		
-71.5	13.2		CLAY, lean, mostly clay, trace wood debris, some fine-grained sandy zones, gray (CL)	NS			
-74.8	16.5		SAND, silty, mostly fine-grained sand-sized quartz, some silt, trace clay, gray (SM)				
-76.5	18.2		SAND, poorly-graded with silt, mostly fine-grained sand-sized quartz, few silt, trace shell fragments, trace wood debris, gray (SP-SM)				
NOTES: 1. Soils are field visually classified in accordance with the Unified Soils Classification System. 2. NS = Sample not submitted for laboratory analysis from this interval. 3. Seafloor elevation calculated using sampling vessel's fathometer water depth reading and applying NOAA tidal gauge data conversion factor.							



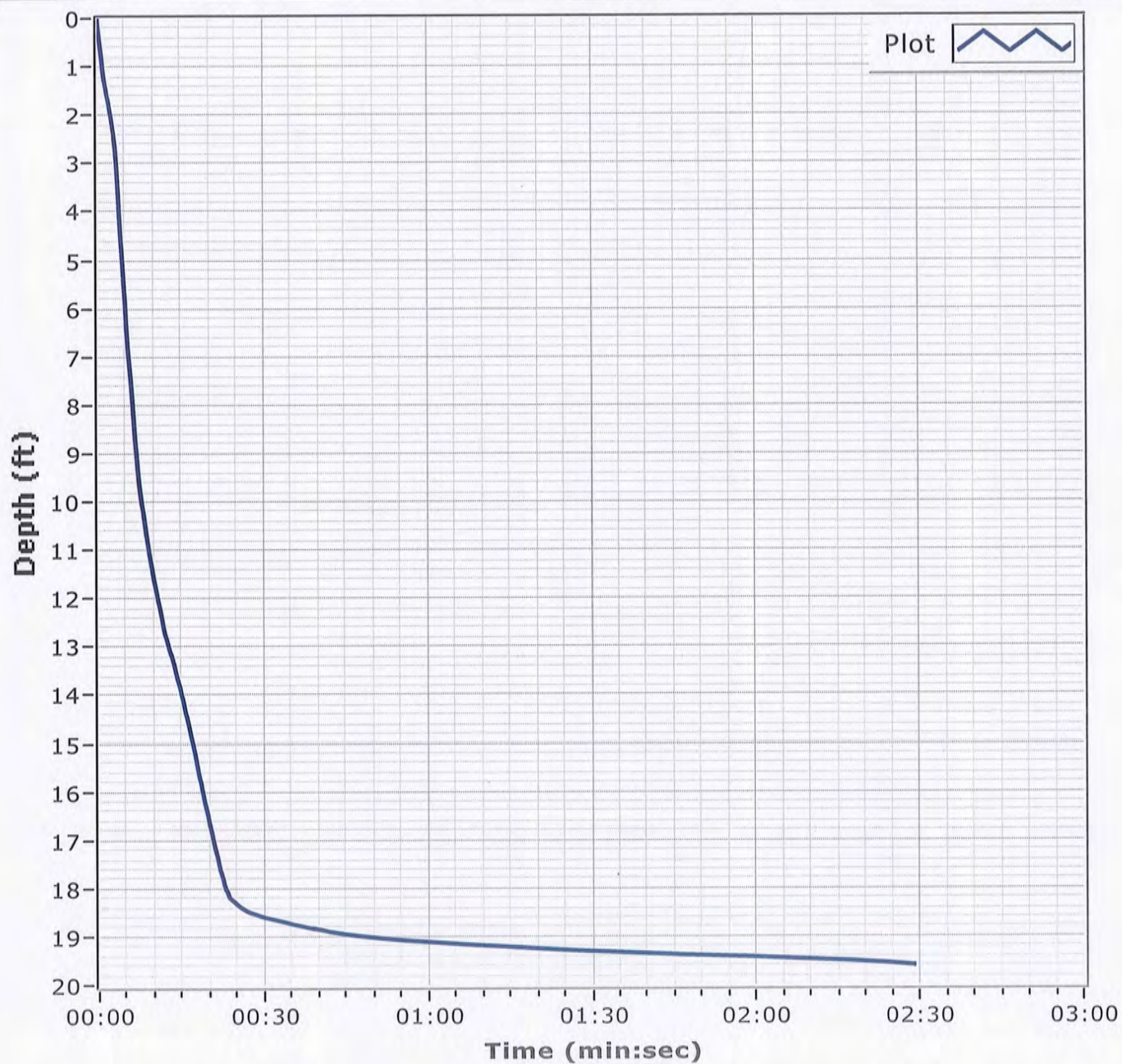
**Project**

Mississippi Barrier Island  
Restoration Project

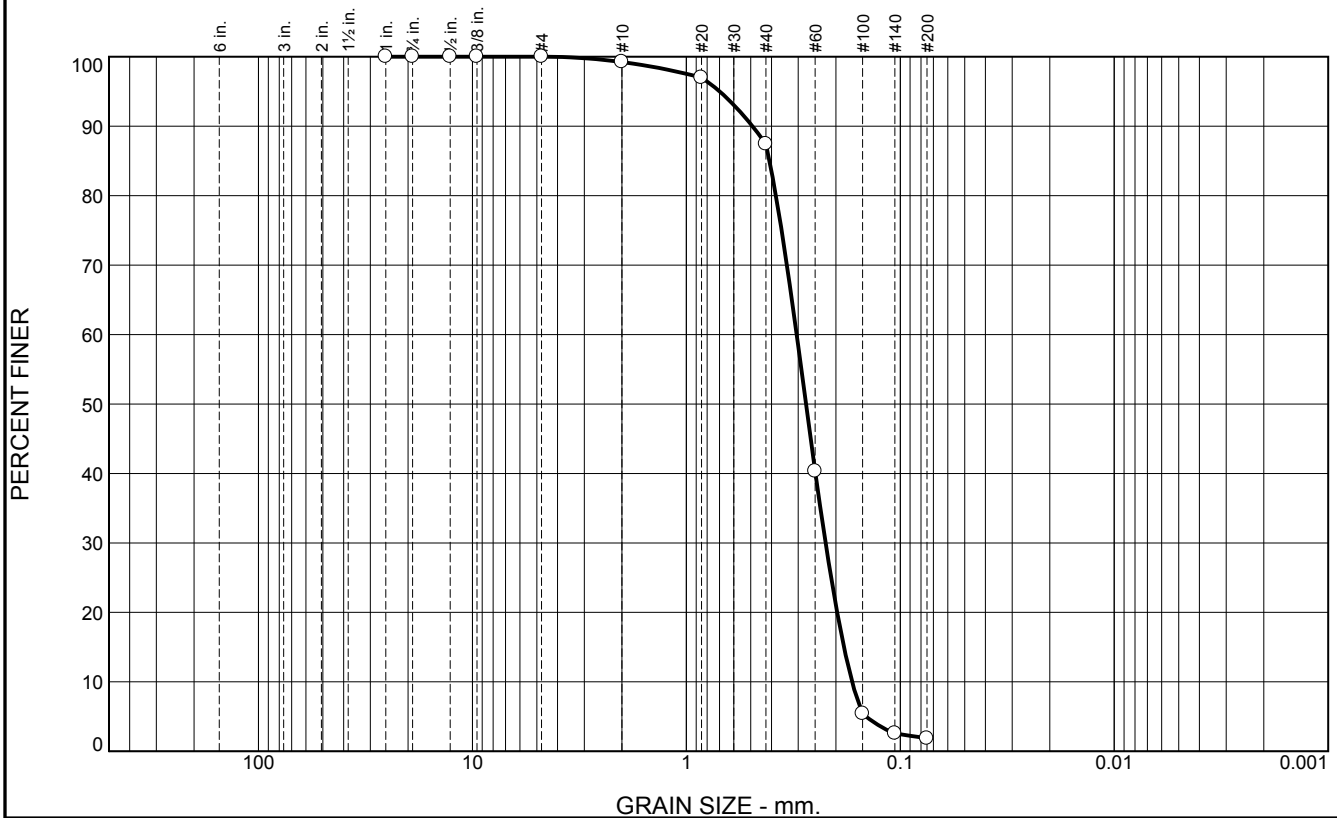
**AVS**  
**AMERICAN VIBRACORE**  
**S E R V I C E S**

**Core Identifier** BI-PBS-104-12**Date** 01/04/2013**Water Depth** 60.1'**Coordinate System**

Latitude / Longitude

**Start Time** 13:53:43**End Time** 13:56:12**Penetration** 19.6'**Latitude** 30 07.863 N**Total Time** 00:02:29**Recovery** 18.2'**Longitude** 088 20.445 W**Comments**

# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.0	0.8	11.8	85.5	1.9	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
1	100.0		
.75	100.0		
.5	100.0		
.375	100.0		
#4	100.0		
#10	99.2		
#20	97.0		
#40	87.4		
#60	40.3		
#100	5.4		
#140	2.6		
#200	1.9		

\* (no specification provided)

<u>Material Description</u>		
Fine to medium grained, SAND		
<u>Atterberg Limits</u>		
PL=	LL=	PI=
<u>Coefficients</u>		
D <sub>90</sub> = 0.4914	D <sub>85</sub> = 0.4087	D <sub>60</sub> = 0.3052
D <sub>50</sub> = 0.2759	D <sub>30</sub> = 0.2234	D <sub>15</sub> = 0.1835
D <sub>10</sub> = 0.1682	C <sub>u</sub> = 1.81	C <sub>c</sub> = 0.97
<u>Classification</u>		
USCS= SP	AASHTO=	
<u>Remarks</u>		

Location: BI-PBS-104-12 A  
Sample Number: 6503 (20)

Depth: 0.0'

Date: 1/08/13

**Thompson Engineering**

**Mobile, Alabama**

Client: CDM/Thompson Engineering JV  
Project: MsCIP Barrier Island Restoration GT

Project No: 1221110095

Figure



# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	1.7	1.3	9.7	74.4	12.9	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
1	100.0		
.75	100.0		
.5	98.8		
.375	98.8		
#4	98.3		
#10	97.0		
#20	94.9		
#40	87.3		
#60	65.4		
#100	25.0		
#140	16.4		
#200	12.9		

\* (no specification provided)

**Material Description**  
Fine grained, SILTY SAND, with trace SHELL

**Atterberg Limits**  
PL=      LL=      PI=

**Coefficients**  
D<sub>90</sub>= 0.4950      D<sub>85</sub>= 0.3851      D<sub>60</sub>= 0.2331  
D<sub>50</sub>= 0.2074      D<sub>30</sub>= 0.1627      D<sub>15</sub>= 0.0926  
D<sub>10</sub>=      C<sub>u</sub>=      C<sub>c</sub>=

**Classification**  
USCS= SM      AASHTO=

**Remarks**

Location: BI-PBS-104-12 B  
Sample Number: 6503 (21)

Depth: 1.0'

Date: 1/08/13

**Thompson Engineering**

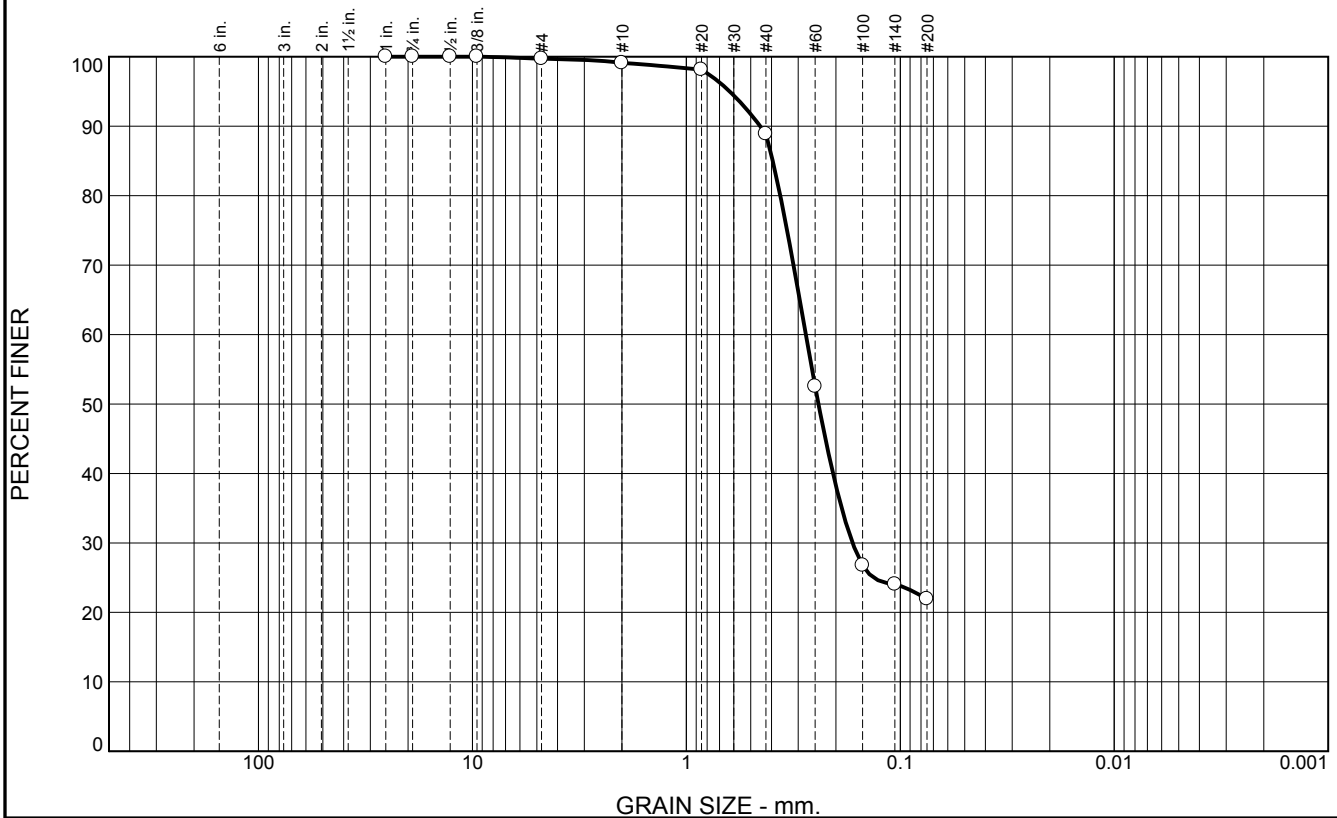
**Mobile, Alabama**

Client: CDM/Thompson Engineering JV  
Project: MsCIP Barrier Island Restoration GT

Project No: 1221110095

Figure

# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.3	0.6	10.2	67.0	21.9	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
1	100.0		
.75	100.0		
.5	100.0		
.375	100.0		
#4	99.7		
#10	99.1		
#20	98.1		
#40	88.9		
#60	52.5		
#100	26.8		
#140	24.0		
#200	21.9		

\* (no specification provided)

<u><b>Material Description</b></u>		
Fine to medium grained, SILTY SAND		
<u><b>Atterberg Limits</b></u>		
PL=	LL=	PI=
<u><b>Coefficients</b></u>		
D <sub>90</sub> = 0.4520	D <sub>85</sub> = 0.3946	D <sub>60</sub> = 0.2766
D <sub>50</sub> = 0.2412	D <sub>30</sub> = 0.1673	D <sub>15</sub> =
D <sub>10</sub> =	C <sub>u</sub> =	C <sub>c</sub> =
<u><b>Classification</b></u>		
USCS= SM	AASHTO=	
<u><b>Remarks</b></u>		

Location: BI-PBS-104-12 C  
Sample Number: 6503 (22)

Depth: 4.1'

Date: 1/08/13

**Thompson Engineering**

**Mobile, Alabama**

Client: CDM/Thompson Engineering JV  
Project: MsCIP Barrier Island Restoration GT

Project No: 1221110095

Figure

# Boring Designation BI-PBS-105-12

DRILLING LOG		DIVISION South Atlantic		INSTALLATION Mobile District		SHEET 1 OF 1 SHEETS	
1. PROJECT MsCIP Barrier Island Restoration Petit Bois Pass-OCS East				9. SIZE AND TYPE OF BIT N/A			
2. BORING DESIGNATION BI-PBS-105-12		LOCATION COORDINATES E = 1,141,273 N = 231,419		10. COORDINATE SYSTEM/DATUM State Plane, MSE (U.S. Ft.)		HORIZONTAL NAD83 VERTICAL NAVD88	
3. DRILLING AGENCY Corps of Engineers - CESAM		CONTRACTOR FILE NO.		11. MANUFACTURER'S DESIGNATION OF DRILL Vibracore		<input type="checkbox"/> AUTO HAMMER <input type="checkbox"/> MANUAL HAMMER	
4. NAME OF DRILLER American Vibracore Systems, Inc.				12. TOTAL SAMPLES		DISTURBED UNDISTURBED (UD) 0	
5. DIRECTION OF BORING <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED				13. TOTAL NUMBER CORE BOXES		14. WATER DEPTH 59.8 Ft.	
6. THICKNESS OF OVERBURDEN N/A				15. DATE BORING		STARTED 01-04-13 COMPLETED 01-04-13	
7. DEPTH DRILLED INTO ROCK N/A				16. ELEVATION TOP OF BORING -59.3 Ft.		17. TOTAL RECOVERY FOR BORING 100%	
8. TOTAL DEPTH OF BORING 18.5 Ft.				18. SIGNATURE AND TITLE OF INSPECTOR Mike FitzHarris, Geologist			

ELEV.	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS	SAMPLE	LABORATORY RESULTS
-59.3	0.0				
-60.8	1.5		SAND, poorly-graded, mostly fine to medium-grained sand-sized quartz, trace fines, trace shells, gray (SP)	A	Classification: SP Color: 5Y 6/2-light olive gray D50: 0.2602 mm % Fines: 2.1
-65.7	6.4		CLAY, lean, mostly clay, some fine-grained sand-sized quartz, some silt, few shell fragments, greenish gray, orangy brown, gray mottle (CL) At El. -62.8 Ft., mostly clay, trace fine-grained sand-sized quartz, trace shell fragments, greenish gray, orangy brown, gray mottle At El. -64.4 Ft., mostly clay, some fine-grained sand-sized quartz, trace shell fragments, some clay bands, gray	NS	
-68.5	9.2		SAND, clayey, mostly fine-grained sand-sized quartz, some clay, few shell fragments, gray (SC)		
-75.0	15.7		CLAY, lean, mostly clay, trace shell fragments, trace wood debris, some fine-grained sand between 13.7 and 15.7 ft., gray (CL)		
-77.8	18.5		CLAY, fat, mostly clay, very stiff, medium to high plasticity, lt. gray, orangy brown mottle (CH)		
			NOTES: 1. Soils are field visually classified in accordance with the Unified Soils Classification System. 2. NS = Sample not submitted for laboratory analysis from this interval. 3. Seafloor elevation determined from USACE hydrographic survey completed April 2014.		

**Project**

Mississippi Barrier Island  
Restoration Project



**Core Identifier** BI-PBS-105-12

**Date** 01/04/2013

**Water Depth** 59.8'

**Coordinate System**

Latitude / Longitude

**Start Time** 15:40:32

**End Time** 15:41:19

**Penetration** 20.0'

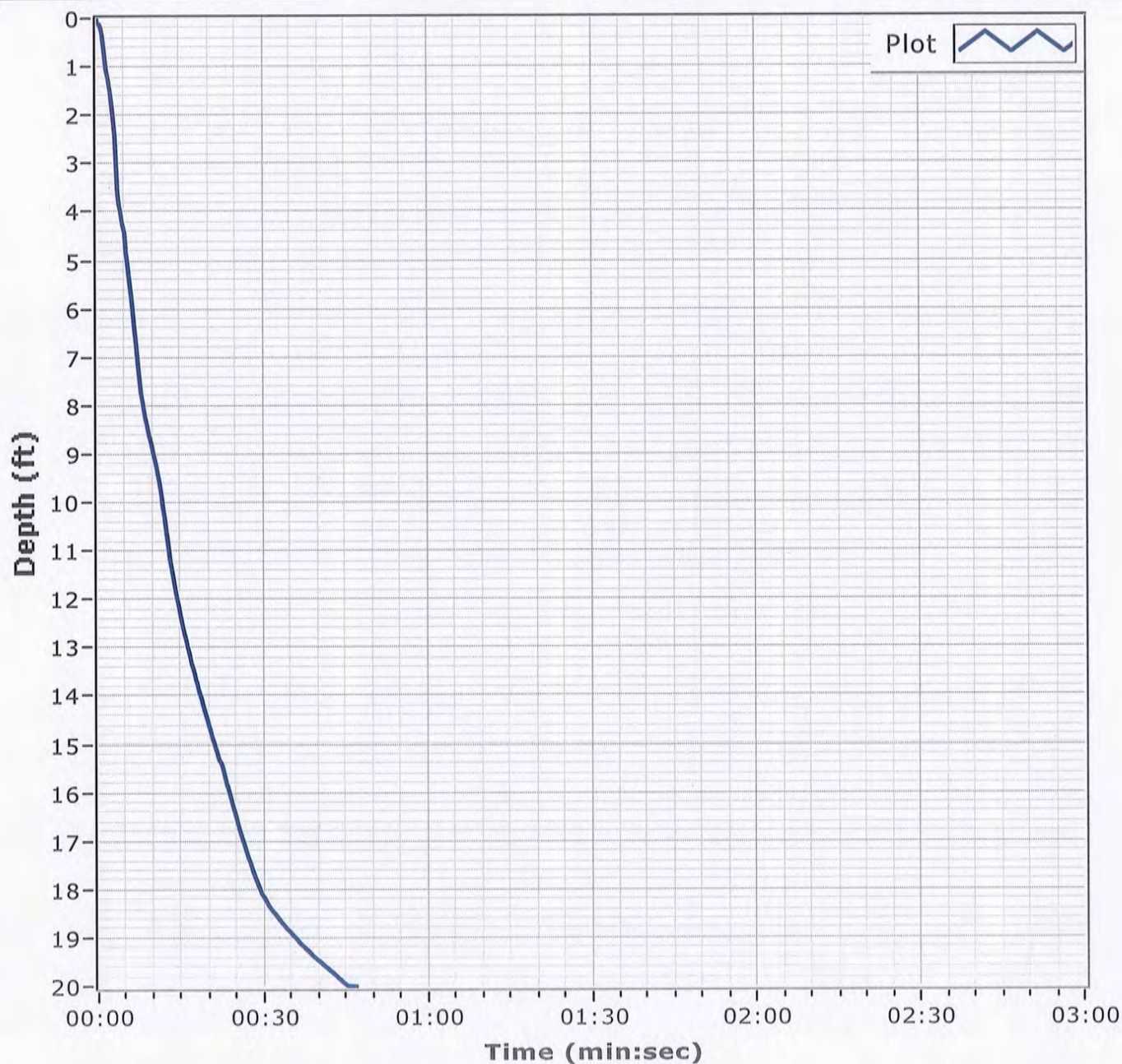
**Latitude** 30 008.125 N

**Total Time** 00:00:47

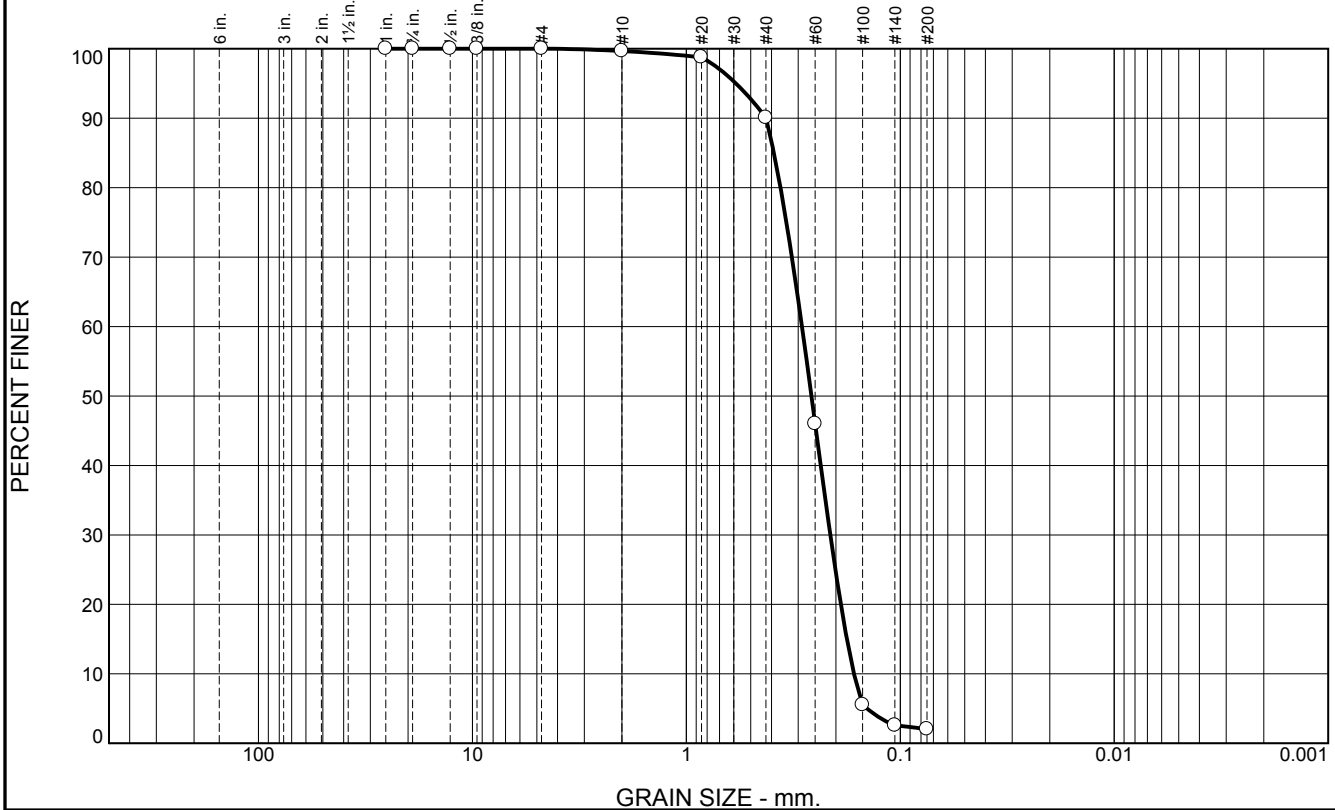
**Recovery** 18.5'

**Longitude** 088 20.196 W

**Comments**



# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.0	0.3	9.6	88.0	2.1	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
1	100.0		
.75	100.0		
.5	100.0		
.375	100.0		
#4	100.0		
#10	99.7		
#20	98.8		
#40	90.1		
#60	46.0		
#100	5.5		
#140	2.6		
#200	2.1		

\* (no specification provided)

Material Description		
Fine grained, SAND		
PL=	Atterberg Limits LL=	PI=
D <sub>90</sub> = 0.4244	Coefficients D <sub>85</sub> = 0.3897	D <sub>60</sub> = 0.2882
D <sub>50</sub> = 0.2602	D <sub>30</sub> = 0.2124	D <sub>15</sub> = 0.1778
D <sub>10</sub> = 0.1648	C <sub>u</sub> = 1.75	C <sub>c</sub> = 0.95
USCS= SP	Classification AASHTO=	
Remarks		

Location: BI-PBS-105-12 A  
Sample Number: 6503 (23)

Depth: 0.0'

Date: 1/08/13

**Thompson Engineering**

**Mobile, Alabama**

Client: CDM/Thompson Engineering JV  
Project: MsCIP Barrier Island Restoration GT

Project No: 1221110095

Figure

# Boring Designation BI-PBS-106A-12

DRILLING LOG		DIVISION South Atlantic		INSTALLATION Mobile District		SHEET 1 OF 2 SHEETS	
1. PROJECT MsCIP Barrier Island Restoration Petit Bois Pass-OCS East				9. SIZE AND TYPE OF BIT N/A			
2. BORING DESIGNATION BI-PBS-106A-12		LOCATION COORDINATES E = 1,140,300 N = 231,982		10. COORDINATE SYSTEM/DATUM State Plane, MSE (U.S. Ft.)		HORIZONTAL NAD83 VERTICAL NAVD88	
3. DRILLING AGENCY Corps of Engineers - CESAM		CONTRACTOR FILE NO.		11. MANUFACTURER'S DESIGNATION OF DRILL Vibracore		<input type="checkbox"/> AUTO HAMMER <input type="checkbox"/> MANUAL HAMMER	
4. NAME OF DRILLER American Vibracore Systems, Inc.				12. TOTAL SAMPLES		DISTURBED UNDISTURBED (UD) 0	
5. DIRECTION OF BORING <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED		DEG. FROM VERTICAL		13. TOTAL NUMBER CORE BOXES			
		BEARING		14. WATER DEPTH 58.4 Ft.			
6. THICKNESS OF OVERBURDEN N/A				15. DATE BORING 01-12-13		STARTED COMPLETED 01-12-13	
7. DEPTH DRILLED INTO ROCK N/A				16. ELEVATION TOP OF BORING -58.9 Ft.			
8. TOTAL DEPTH OF BORING 20.2 Ft.				17. TOTAL RECOVERY FOR BORING 100%			
				18. SIGNATURE AND TITLE OF INSPECTOR Mike FitzHarris, Geologist			

ELEV.	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS	SAMPLE	LABORATORY RESULTS
-58.9	0.0				
-60.0	1.1		SAND, poorly-graded, mostly fine to medium-grained sand-sized quartz, some shell fragments, trace fines, gray (SP)	A	Classification: SP Color: 5Y 6/3-pale olive D50: 0.5035 mm % Fines: 2.5
-65.6	6.7		CLAY, lean, mostly clay, trace shell fragments, pockets of clayey sand, low to medium plasticity, stiff, orangy brown, greenish gray, and gray mottle (CL)	NS	
-68.1	9.2		SAND, clayey, mostly fine-grained sand-sized quartz, some clay, little shell fragments, gray (SC)		
-79.1	20.2		CLAY, fat, mostly clay, trace shell fragments, trace wood debris, medium to high plasticity, stiff, trace fine-grained sandy zones throughout, gray (CH)  At El. -76.5 Ft., mostly clay, trace wood debris, medium to high plasticity, very stiff, some silty pockets within zone, lt. gray		
			NOTES: 1. Soils are field visually classified in accordance with the Unified Soils Classification System. 2. NS = Sample not submitted for laboratory analysis from this interval. 3. Seafloor elevation determined from USACE		

<b>DRILLING LOG (Cont. Sheet)</b>			<b>INSTALLATION</b> Mobile District		<b>SHEET 2</b> <b>OF 2 SHEETS</b>
<b>PROJECT</b> MsCIP Barrier Island Restoration			<b>COORDINATE SYSTEM/DATUM</b> State Plane, MSE (U.S. Ft.)	<b>HORIZONTAL</b> NAD83	<b>VERTICAL</b> NAVD88
<b>LOCATION COORDINATES</b> X = 1,140,300 Y = 231,982			<b>ELEVATION TOP OF BORING</b> -58.9 Ft.		
<b>ELEV.</b>	<b>DEPTH</b>	<b>LEGEND</b>	<b>CLASSIFICATION OF MATERIALS</b>	<b>SAMPLE</b>	<b>LABORATORY RESULTS</b>
			hydrographic survey completed April 2014.		



**Project**

Mississippi Barrier Island  
Restoration Project



**Core Identifier** BI-PBS-106A-12

**Date** 01/12/2013

**Water Depth** 58.4'

**Coordinate System**

Latitude / Longitude

**Start Time** 14:55:56

**End Time** 14:57:02

**Penetration** 20.0'

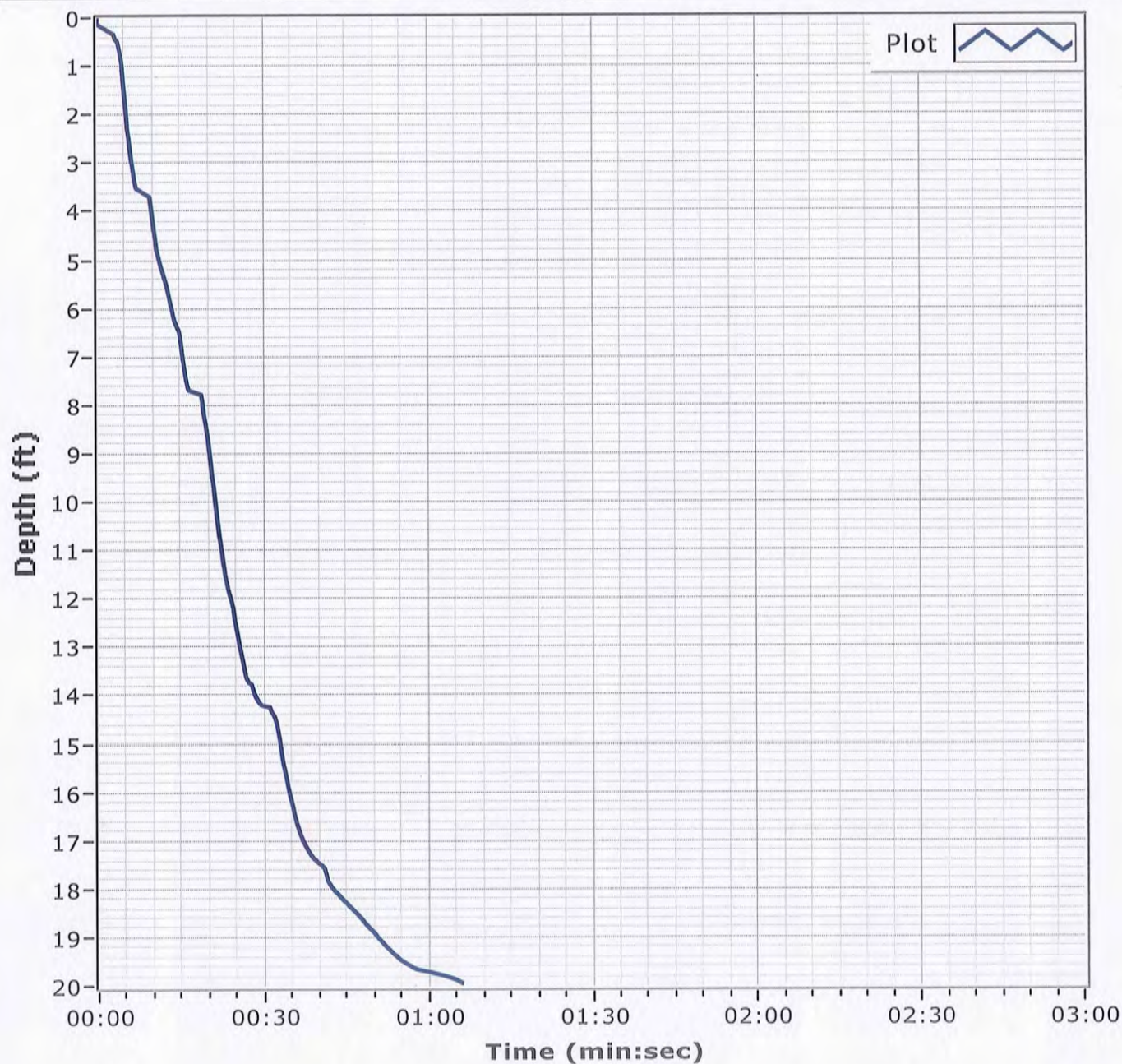
**Latitude** 30 08.219

**Total Time** 00:01:06

**Recovery** 20.0'

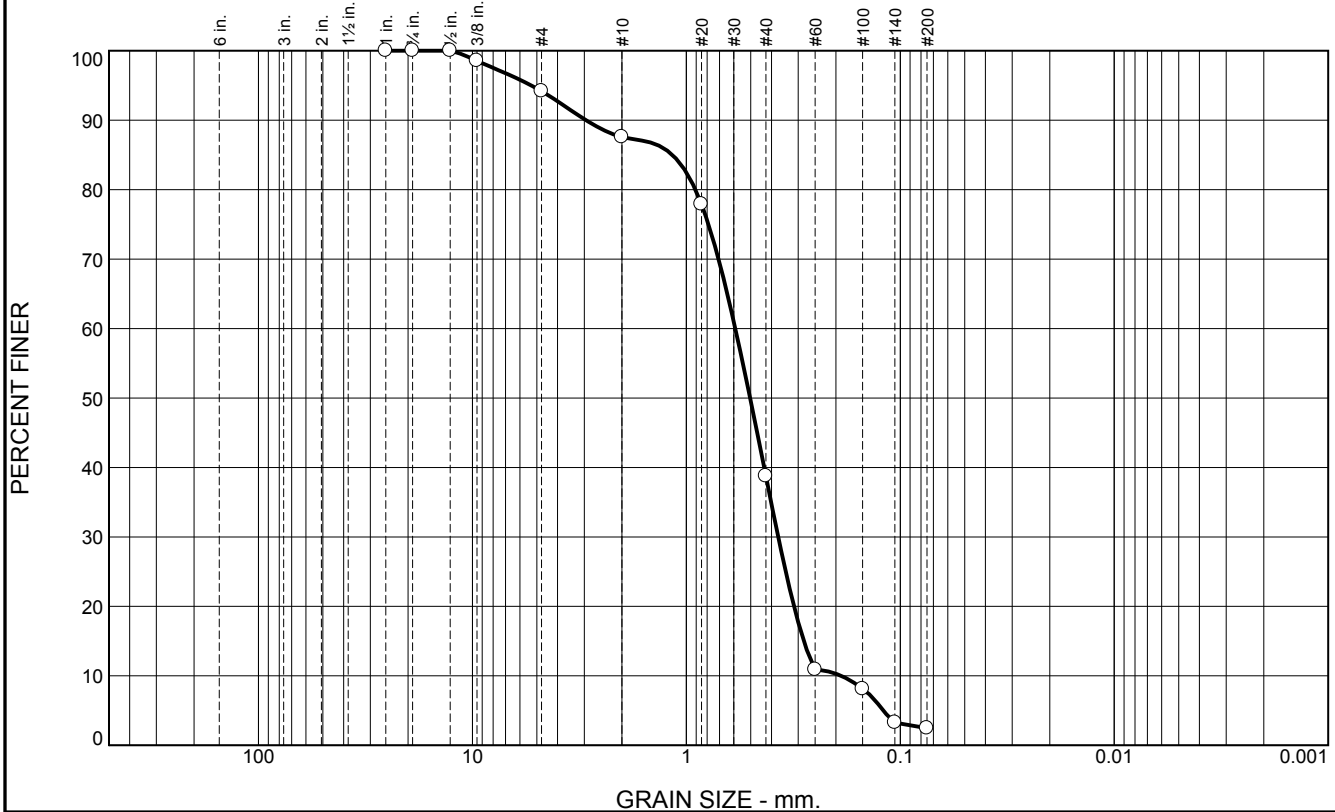
**Longitude** 088 20.380

**Comments**





# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	5.8	6.6	48.8	36.3	2.5	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
1	100.0		
.75	100.0		
.5	100.0		
.375	98.5		
#4	94.2		
#10	87.6		
#20	77.9		
#40	38.8		
#60	10.9		
#100	8.1		
#140	3.3		
#200	2.5		

\* (no specification provided)

<b><u>Material Description</u></b>		
Fine to medium grained, SAND, with trace SHELL		
<b><u>Atterberg Limits</u></b>		
PL=	LL=	PI=
<b><u>Coefficients</u></b>		
D <sub>90</sub> = 2.9447	D <sub>85</sub> = 1.1613	D <sub>60</sub> = 0.5904
D <sub>50</sub> = 0.5035	D <sub>30</sub> = 0.3720	D <sub>15</sub> = 0.2827
D <sub>10</sub> = 0.1888	C <sub>u</sub> = 3.13	C <sub>c</sub> = 1.24
<b><u>Classification</u></b>		
USCS= SP	AASHTO=	
<b><u>Remarks</u></b>		

Location: BI-PBS-106A-12 A  
Sample Number: 6507 (6)

Depth: 0.0'

Date: 1/14/13

**Thompson Engineering**

**Mobile, Alabama**

Client: CDM/Thompson Engineering JV  
Project: MsCIP Barrier Island Restoration GT

Project No: 1221110095

Figure

# Boring Designation BI-PBS-107-12

DRILLING LOG		DIVISION South Atlantic		INSTALLATION Mobile District		SHEET 1 OF 1 SHEETS	
1. PROJECT MsCIP Barrier Island Restoration Petit Bois Pass-OCS East				9. SIZE AND TYPE OF BIT N/A			
2. BORING DESIGNATION BI-PBS-107-12		LOCATION COORDINATES E = 1,133,445 N = 224,614		10. COORDINATE SYSTEM/DATUM State Plane, MSE (U.S. Ft.)		HORIZONTAL NAD83 VERTICAL NAVD88	
3. DRILLING AGENCY Corps of Engineers - CESAM		CONTRACTOR FILE NO.		11. MANUFACTURER'S DESIGNATION OF DRILL Vibracore		<input type="checkbox"/> AUTO HAMMER <input type="checkbox"/> MANUAL HAMMER	
4. NAME OF DRILLER American Vibracore Systems, Inc.				12. TOTAL SAMPLES		DISTURBED UNDISTURBED (UD) 0	
5. DIRECTION OF BORING <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED				13. TOTAL NUMBER CORE BOXES		14. WATER DEPTH 62.5 Ft.	
6. THICKNESS OF OVERBURDEN N/A				15. DATE BORING		STARTED 01-04-13 COMPLETED 01-04-13	
7. DEPTH DRILLED INTO ROCK N/A				16. ELEVATION TOP OF BORING -64.9 Ft.		17. TOTAL RECOVERY FOR BORING 100%	
8. TOTAL DEPTH OF BORING 17.3 Ft.				18. SIGNATURE AND TITLE OF INSPECTOR Mike FitzHarris, Geologist			

ELEV.	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS	SAMPLE	LABORATORY RESULTS
-64.9	0.0				
-67.5	2.6		CLAY, lean, mostly clay, low to medium plasticity, fine-grained sand pockets, stiff, brownish orange, greenish gray, and gray mottle (CL)	NS	
-68.1	3.2		SAND, poorly-graded, mostly fine-grained sand-sized quartz, trace fines, trace shell fragments, gray (SP)		
-70.2	5.3		CLAY, lean, mostly clay, some silt, some fine-grained sand-sized quartz, trace wood debris, brown (CL)		
-70.9	6.0		SAND, clayey, mostly fine-grained sand-sized quartz, some clay, trace shell fragments, gray (SC)	A	Classification: SM Color: 5Y 5/2-olive gray D50: 0.2166 mm % Fines: 15.1
-73.0	8.1		SAND, silty, mostly fine-grained sand-sized quartz, few shell fragments, trace clay, gray (SM)	NS	
-73.6	8.7		CLAY, lean, mostly clay, some fine-grained sand-sized quartz, some shell fragments, trace wood debris, gray (CL)	B	Classification: SM Color: 5Y 5/1-gray D50: 0.294 mm % Fines: 13.3
-76.0	11.1		SAND, silty, mostly fine-grained sand-sized quartz, some silt, little shell fragments, trace clay stringers, gray (SM)	C	Classification: SP-SM Color: 5Y 6/2-light olive gray D50: 0.2036 mm % Fines: 6.7
-82.2	17.3		SAND, poorly-graded, mostly fine-grained sand-sized quartz, trace fines, trace shell fragments, dense, gray (SP)		
NOTES: 1. Soils are field visually classified in accordance with the Unified Soils Classification System. 2. NS = Sample not submitted for laboratory analysis from this interval. 3. Seafloor elevation determined from 2013 USGS geophysical survey.					

**Project**

Mississippi Barrier Island  
Restoration Project



**Core Identifier** BI-PBS-107-12

**Date** 01/04/2013

**Water Depth** 62.5'

**Coordinate System**

Latitude / Longitude

**Start Time** 13:03:43

**End Time** 13:09:43

**Penetration** 17.6'

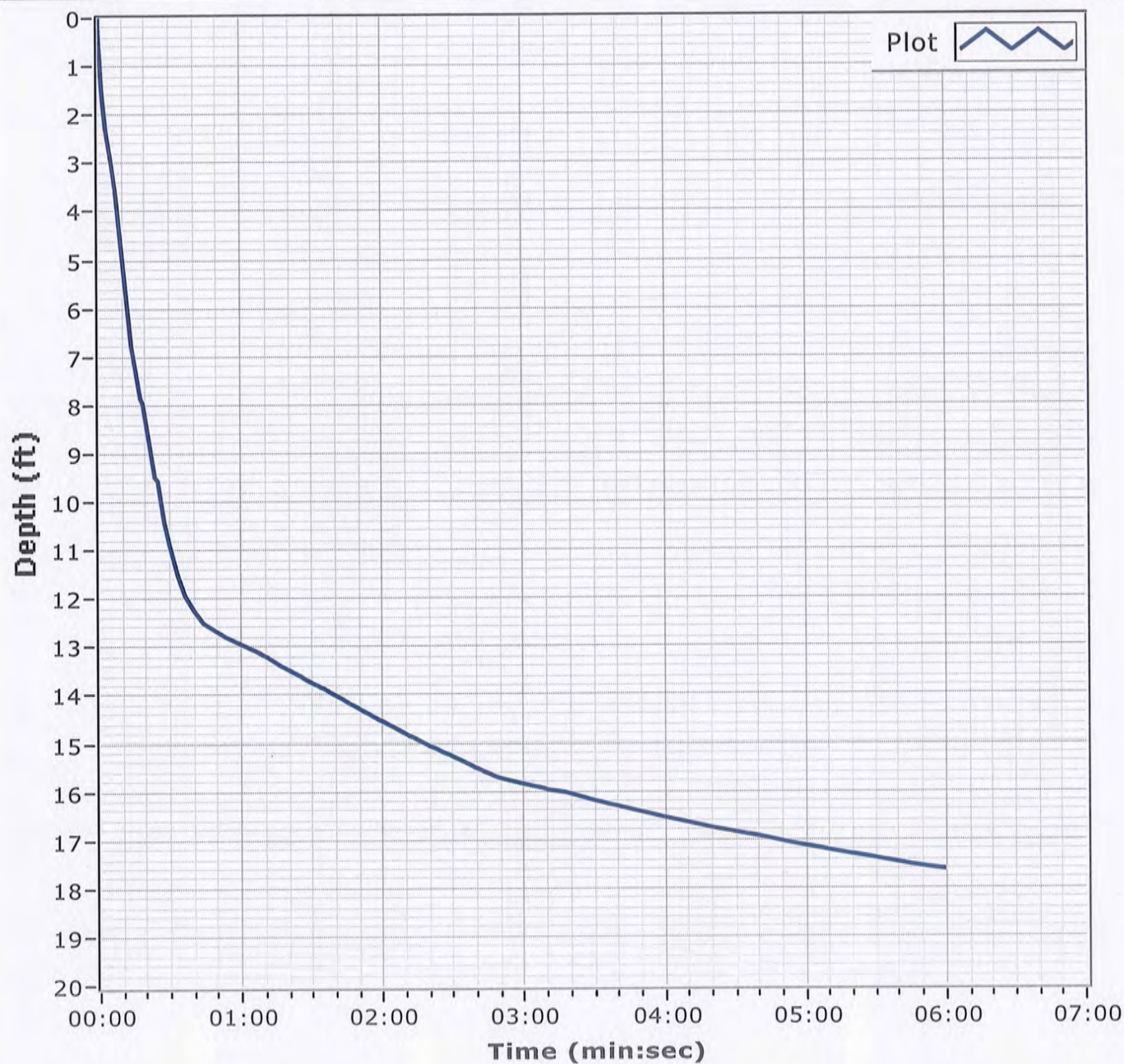
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**Total Time** 00:05:59

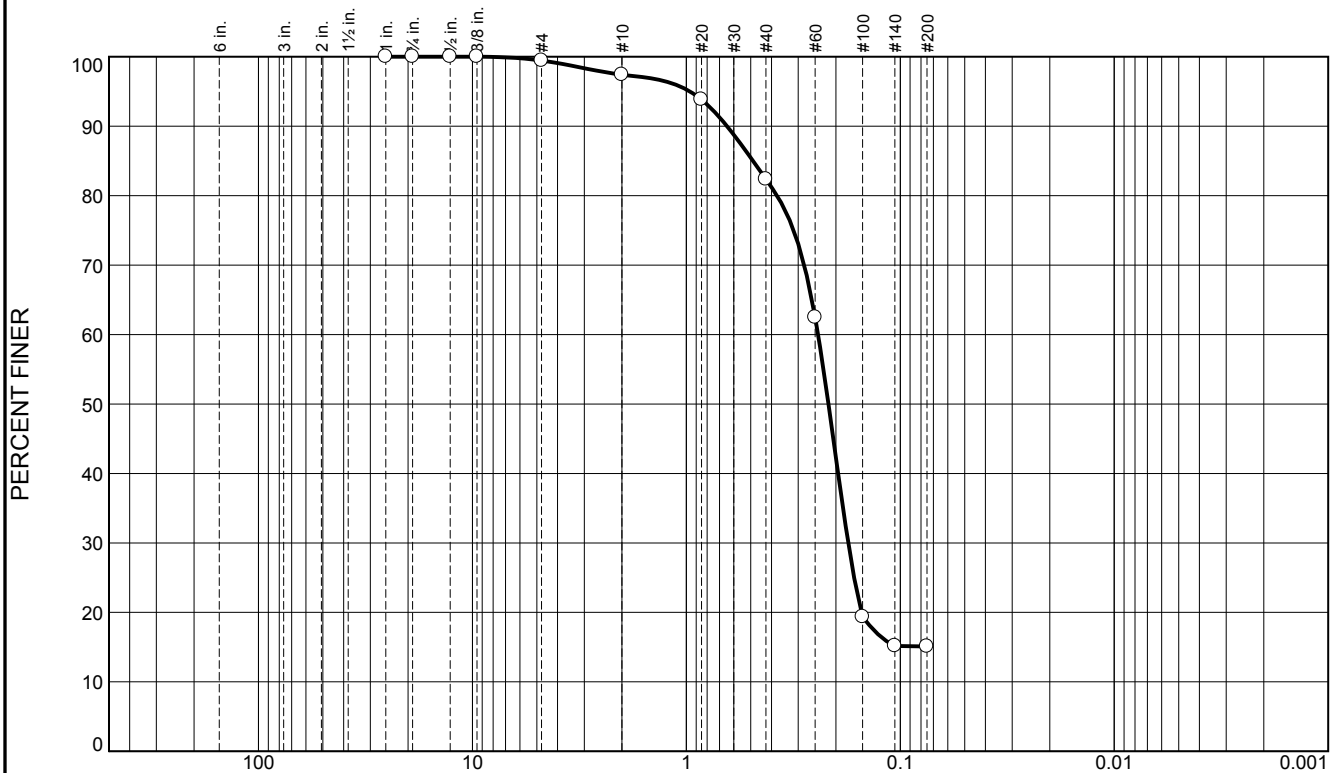
**Recovery** 17.3'

**Longitude** 088 21.687 W

**Comments**



# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.6	2.0	15.0	67.3	15.1	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
1	100.0		
.75	100.0		
.5	100.0		
.375	100.0		
#4	99.4		
#10	97.4		
#20	93.8		
#40	82.4		
#60	62.5		
#100	19.4		
#140	15.2		
#200	15.1		

\* (no specification provided)

<u><b>Material Description</b></u>		
Fine to medium grained, SILTY SAND		
<u><b>Atterberg Limits</b></u>		
PL=	LL=	PI=
<u><b>Coefficients</b></u>		
D <sub>90</sub> = 0.6459	D <sub>85</sub> = 0.4884	D <sub>60</sub> = 0.2422
D <sub>50</sub> = 0.2166	D <sub>30</sub> = 0.1752	D <sub>15</sub> =
D <sub>10</sub> =	C <sub>u</sub> =	C <sub>c</sub> =
<u><b>Classification</b></u>		
USCS= SM	AASHTO=	
<u><b>Remarks</b></u>		

Location: BI-PBS-107-12 A  
Sample Number: 6503 (24)

Depth: 6.0'

Date: 1/08/13

**Thompson Engineering**

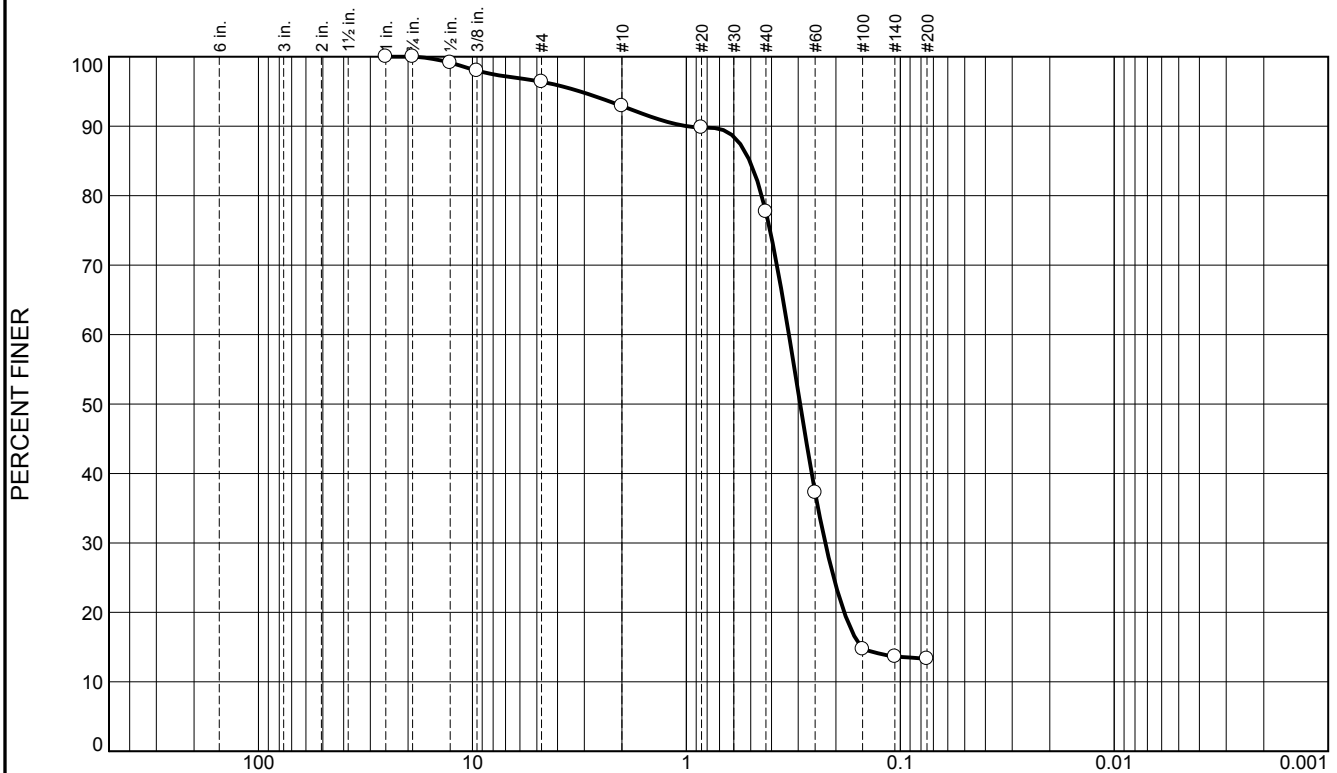
**Mobile, Alabama**

Client: CDM/Thompson Engineering JV  
Project: MsCIP Barrier Island Restoration GT

Project No: 1221110095

Figure

# Particle Size Distribution Report



GRAIN SIZE - mm.

% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	3.6	3.5	15.2	64.4	13.3	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
1	100.0		
.75	100.0		
.5	99.1		
.375	98.0		
#4	96.4		
#10	92.9		
#20	89.8		
#40	77.7		
#60	37.2		
#100	14.7		
#140	13.6		
#200	13.3		

\* (no specification provided)

## Material Description

Fine to medium grained, SILTY SAND, with trace SHELL

## Atterberg Limits

PL= LL= PI=

## Coefficients

D<sub>90</sub>= 0.9996 D<sub>85</sub>= 0.5057 D<sub>60</sub>= 0.3317  
D<sub>50</sub>= 0.2940 D<sub>30</sub>= 0.2242 D<sub>15</sub>= 0.1526  
D<sub>10</sub>= C<sub>u</sub>= C<sub>c</sub>=

## Classification

USCS= SM AASHTO=

## Remarks

Location: BI-PBS-107-12 B  
Sample Number: 6503 (25)

Depth: 8.7'

Date: 1/08/13

**Thompson Engineering**

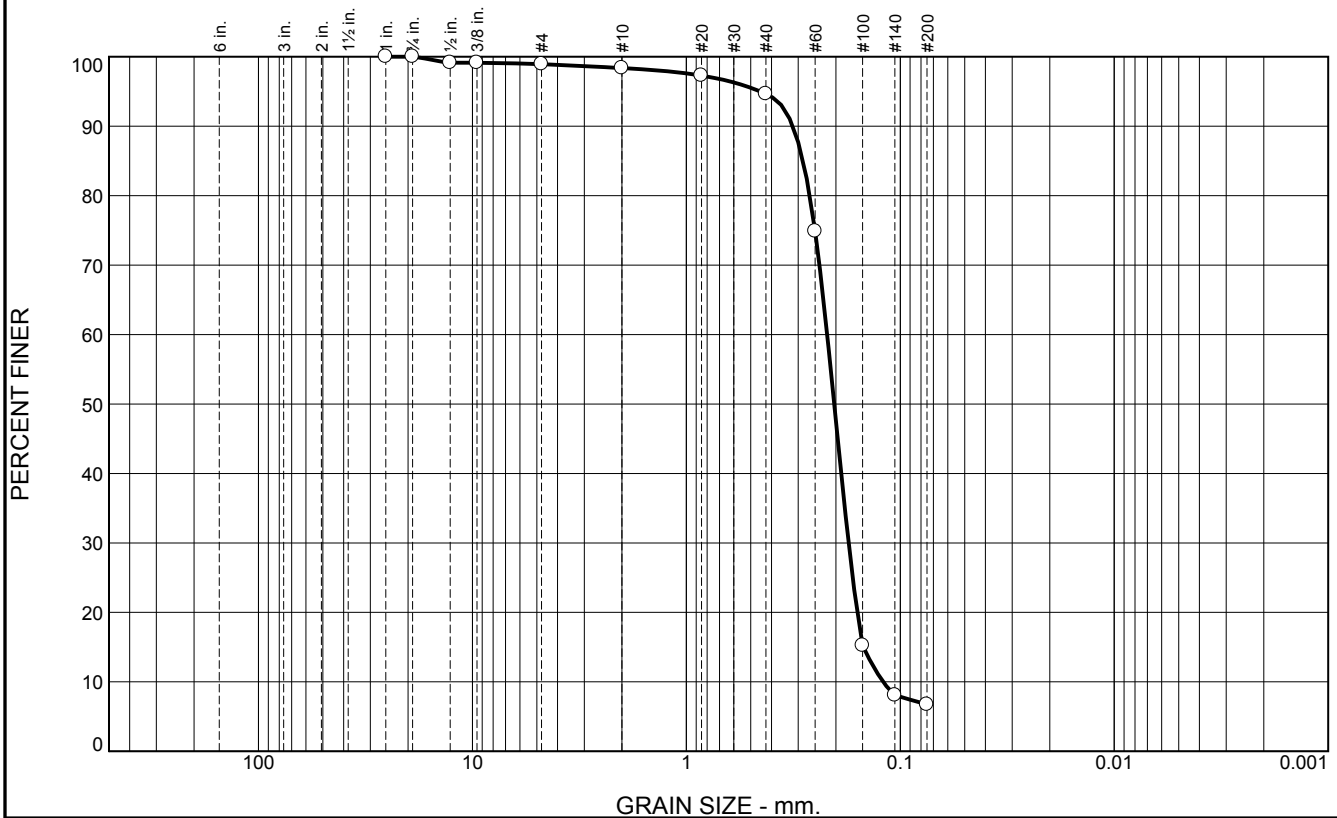
**Mobile, Alabama**

Client: CDM/Thompson Engineering JV  
Project: MsCIP Barrier Island Restoration GT

Project No: 1221110095

Figure

# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	1.1	0.5	3.8	87.9	6.7	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
1	100.0		
.75	100.0		
.5	99.1		
.375	99.1		
#4	98.9		
#10	98.4		
#20	97.3		
#40	94.6		
#60	74.9		
#100	15.2		
#140	8.1		
#200	6.7		

\* (no specification provided)

## Material Description

Fine grained, SLIGHTLY SILTY SAND, with trace SHELL

## Atterberg Limits

PL= LL= PI=

## Coefficients

D<sub>90</sub>= 0.3180 D<sub>85</sub>= 0.2852 D<sub>60</sub>= 0.2197  
D<sub>50</sub>= 0.2036 D<sub>30</sub>= 0.1745 D<sub>15</sub>= 0.1488  
D<sub>10</sub>= 0.1202 C<sub>u</sub>= 1.83 C<sub>c</sub>= 1.15

## Classification

USCS= SP-SM AASHTO=

## Remarks

Location: BI-PBS-107-12 C  
Sample Number: 6503 (26)

Depth: 11.1'

Date: 1/08/13

**Thompson Engineering**

**Mobile, Alabama**

Client: CDM/Thompson Engineering JV  
Project: MsCIP Barrier Island Restoration GT

Project No: 1221110095

Figure

# Boring Designation BI-PBS-108-12

DRILLING LOG		DIVISION South Atlantic		INSTALLATION Mobile District		SHEET 1 OF 1 SHEETS	
1. PROJECT MsCIP Barrier Island Restoration Petit Bois Pass-OCS East				9. SIZE AND TYPE OF BIT N/A			
2. BORING DESIGNATION BI-PBS-108-12		LOCATION COORDINATES E = 1,141,062 N = 230,567		10. COORDINATE SYSTEM/DATUM State Plane, MSE (U.S. Ft.)		HORIZONTAL NAD83	
3. DRILLING AGENCY Corps of Engineers - CESAM		CONTRACTOR FILE NO.		11. MANUFACTURER'S DESIGNATION OF DRILL Vibracore		<input type="checkbox"/> AUTO HAMMER <input type="checkbox"/> MANUAL HAMMER	
4. NAME OF DRILLER American Vibracore Systems, Inc.				12. TOTAL SAMPLES		DISTURBED 0	
5. DIRECTION OF BORING <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED				13. TOTAL NUMBER CORE BOXES		14. WATER DEPTH 59.1 Ft.	
6. THICKNESS OF OVERBURDEN N/A				15. DATE BORING		STARTED 01-04-13	
7. DEPTH DRILLED INTO ROCK N/A				16. ELEVATION TOP OF BORING -58.9 Ft.		COMPLETED 01-04-13	
8. TOTAL DEPTH OF BORING 17.5 Ft.				17. TOTAL RECOVERY FOR BORING 100%		18. SIGNATURE AND TITLE OF INSPECTOR Mike FitzHarris, Geologist	
ELEV.	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS	SAMPLE	LABORATORY RESULTS		
-58.9	0.0						
-61.6	2.7		SAND, poorly-graded, mostly fine to medium-grained sand-sized quartz, trace fines, trace shell fragments, gray (SP)	A	Classification: SP Color: 5Y 6/2-light olive gray D50: 0.2444 mm % Fines: 4.4		
-63.0	4.1		SAND, clayey, mostly fine-grained sand-sized quartz, some clay, few shell fragments, gray (SC)	B	Classification: SM Color: 5Y 5/2-olive gray D50: 0.2294 mm % Fines: 27.7		
-75.4	16.5		CLAY, lean, mostly clay, little silt, few shell fragments, some sandy zones, dark gray (CL)	NS			
-76.4	17.5		CLAY, fat, mostly clay, medium to high plasticity, very stiff, gets siltier near 16-16.5 ft., lt. gray (CH)				
NOTES: 1. Soils are field visually classified in accordance with the Unified Soils Classification System. 2. NS = Sample not submitted for laboratory analysis from this interval. 3. Seafloor elevation determined from USACE hydrographic survey completed April 2014.							



**Project**

Mississippi Barrier Island  
Restoration Project

**AVS**  
**AMERICAN VIBRACORE**  
**S E R V I C E S**

**Core Identifier** BI-PBS-108-12

**Date** 01/04/2013

**Water Depth** 59.1'

**Coordinate System**

Latitude / Longitude

**Start Time** 15:11:20

**End Time** 15:11:55

**Penetration** 20.0'

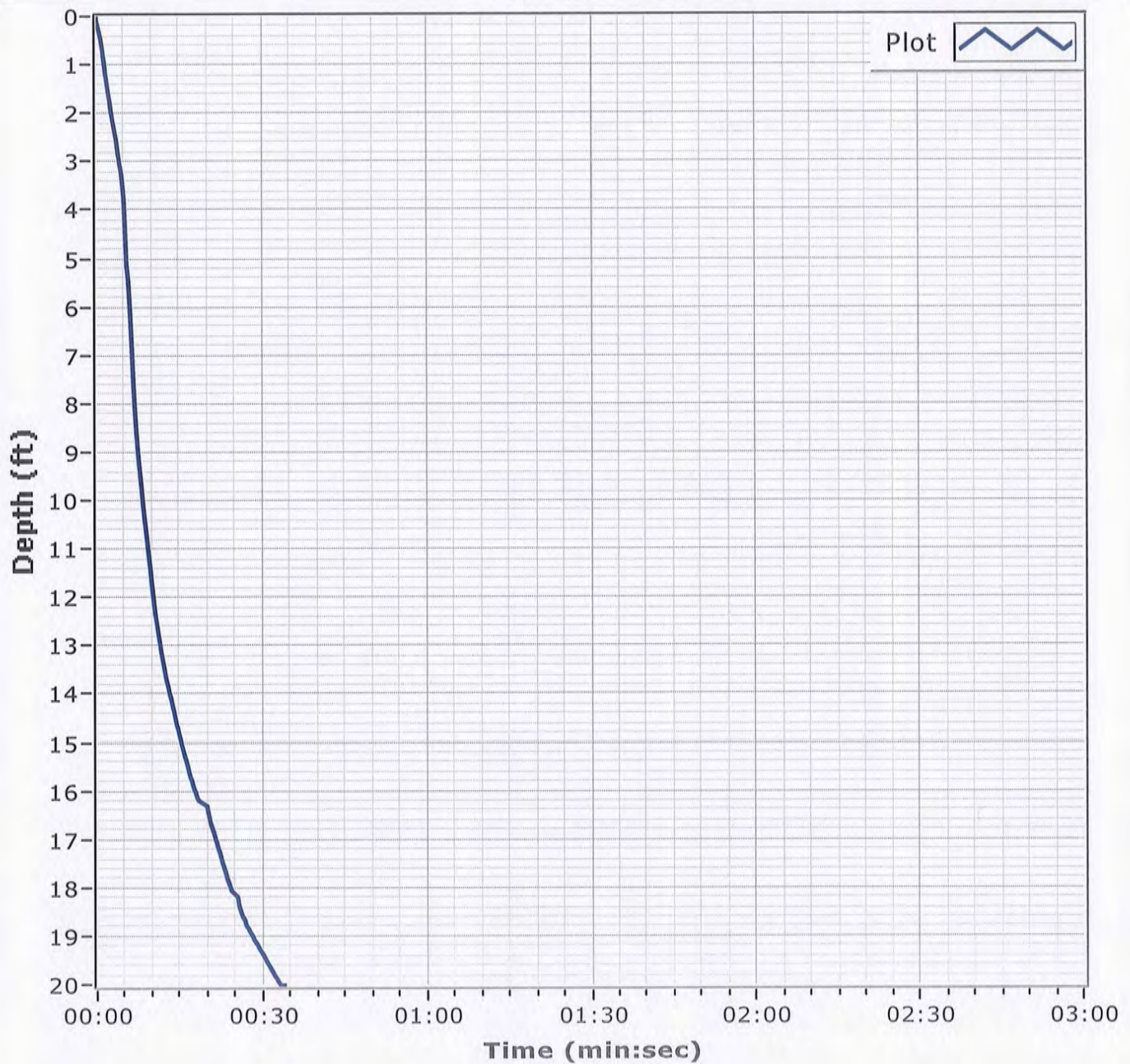
**Latitude** 30 07.799 N

**Total Time** 00:00:34

**Recovery** 17.5'

**Longitude** 088 20.237 W

**Comments**





# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.8	1.1	13.2	80.5	4.4	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
1	100.0		
.75	100.0		
.5	100.0		
.375	100.0		
#4	99.2		
#10	98.1		
#20	96.1		
#40	84.9		
#60	52.1		
#100	8.4		
#140	4.8		
#200	4.4		

\* (no specification provided)

<u><b>Material Description</b></u>		
Fine to medium grained, SAND		
<u><b>Atterberg Limits</b></u>		
PL=	LL=	PI=
<u><b>Coefficients</b></u>		
D <sub>90</sub> = 0.5037	D <sub>85</sub> = 0.4257	D <sub>60</sub> = 0.2743
D <sub>50</sub> = 0.2444	D <sub>30</sub> = 0.1993	D <sub>15</sub> = 0.1676
D <sub>10</sub> = 0.1549	C <sub>u</sub> = 1.77	C <sub>c</sub> = 0.93
<u><b>Classification</b></u>		
USCS= SP	AASHTO=	
<u><b>Remarks</b></u>		

Location: BI-PBS-108-12 A  
Sample Number: 6503 (27)

Depth: 0.0'

Date: 1/08/13

**Thompson Engineering**

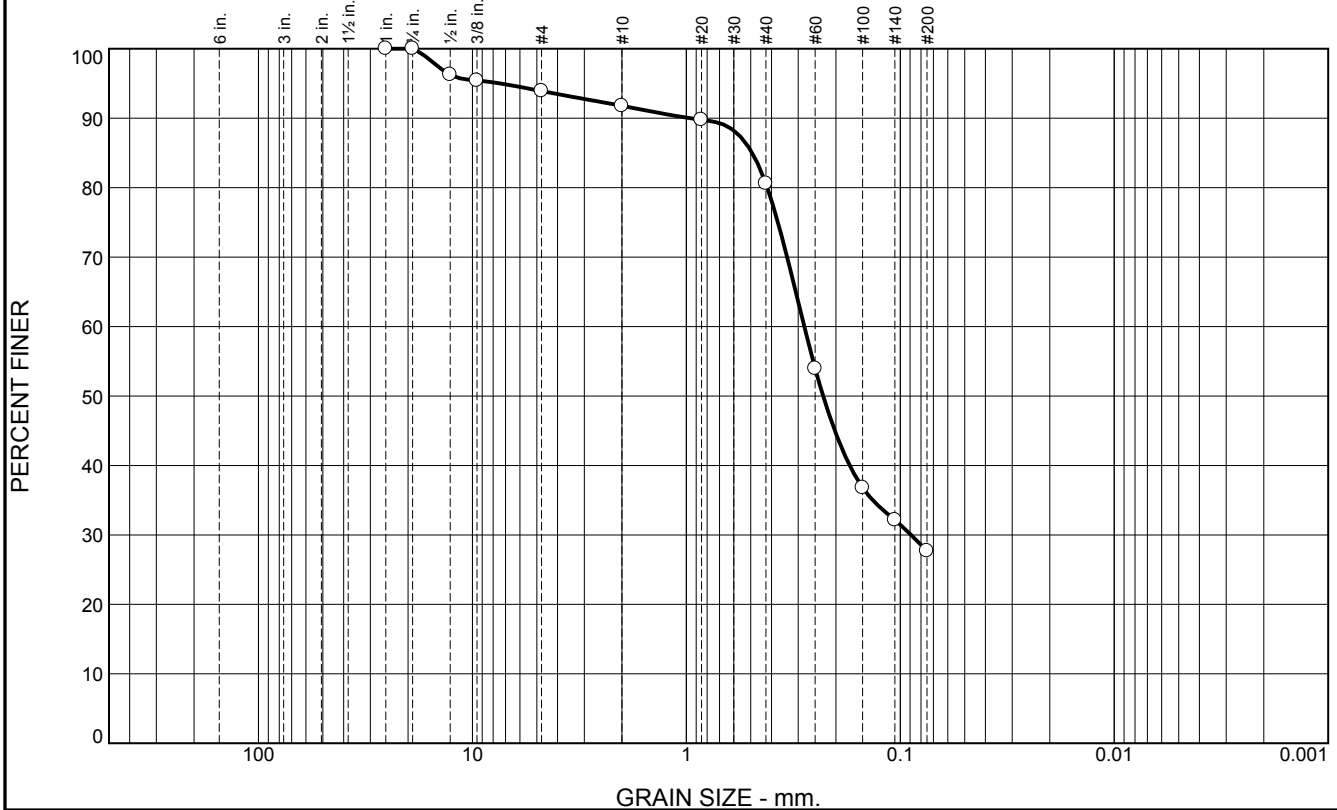
**Mobile, Alabama**

Client: CDM/Thompson Engineering JV  
Project: MsCIP Barrier Island Restoration GT

Project No: 1221110095

Figure

# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	6.1	2.1	11.2	52.9	27.7	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
1	100.0		
.75	100.0		
.5	96.3		
.375	95.4		
#4	93.9		
#10	91.8		
#20	89.8		
#40	80.6		
#60	54.0		
#100	36.8		
#140	32.2		
#200	27.7		

\* (no specification provided)

**Material Description**  
Fine to medium, SILTY SAND, with trace SHELL

**Atterberg Limits**  
 PL=                      LL=                      PI=

**Coefficients**  
 D<sub>90</sub>= 0.9627      D<sub>85</sub>= 0.4924      D<sub>60</sub>= 0.2811  
 D<sub>50</sub>= 0.2294      D<sub>30</sub>= 0.0891      D<sub>15</sub>=  
 D<sub>10</sub>=                      C<sub>u</sub>=                      C<sub>c</sub>=

**Classification**  
 USCS= SM                      AASHTO=

**Remarks**

Location: BI-PBS-108-12 B  
Sample Number: 6503 (28)

Depth: 2.7'

Date: 1/08/13

**Thompson Engineering**

**Mobile, Alabama**

Client: CDM/Thompson Engineering JV  
Project: MsCIP Barrier Island Restoration GT

Project No: 1221110095

Figure

# Boring Designation BI-PBS-109-12

DRILLING LOG		DIVISION South Atlantic		INSTALLATION Mobile District		SHEET 1 OF 1 SHEETS	
1. PROJECT MsCIP Barrier Island Restoration Petit Bois Pass-OCS East				9. SIZE AND TYPE OF BIT N/A			
2. BORING DESIGNATION BI-PBS-109-12		LOCATION COORDINATES E = 1,142,277 N = 229,445		10. COORDINATE SYSTEM/DATUM State Plane, MSE (U.S. Ft.)		HORIZONTAL NAD83 VERTICAL NAVD88	
3. DRILLING AGENCY Corps of Engineers - CESAM		CONTRACTOR FILE NO.		11. MANUFACTURER'S DESIGNATION OF DRILL Vibracore		<input type="checkbox"/> AUTO HAMMER <input type="checkbox"/> MANUAL HAMMER	
4. NAME OF DRILLER American Vibracore Systems, Inc.				12. TOTAL SAMPLES		DISTURBED UNDISTURBED (UD) 0	
5. DIRECTION OF BORING <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED				13. TOTAL NUMBER CORE BOXES		14. WATER DEPTH 60.4 Ft.	
6. THICKNESS OF OVERBURDEN N/A				15. DATE BORING		STARTED 01-04-13 COMPLETED 01-04-13	
7. DEPTH DRILLED INTO ROCK N/A				16. ELEVATION TOP OF BORING -60.3 Ft.		17. TOTAL RECOVERY FOR BORING 100%	
8. TOTAL DEPTH OF BORING 16.6 Ft.				18. SIGNATURE AND TITLE OF INSPECTOR Mike FitzHarris, Geologist			

ELEV.	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS	SAMPLE	LABORATORY RESULTS
-60.3	0.0				
-62.6	2.3		SAND, poorly-graded, mostly fine to medium-grained sand-sized quartz, trace fines, trace shell fragments, gray (SP)	A	Classification: SP Color: 5Y 5/2-olive gray D50: 0.2367 mm % Fines: 3.5
-66.2	5.9		SAND, silty, mostly fine-grained sand-sized quartz, some silt, few shell fragments, gray (SM)	B	Classification: SM Color: 5Y 5/2-olive gray D50: 0.2436 mm % Fines: 22.2
-74.7	14.4		CLAY, lean, mostly clay, some sand, little silt, trace shell fragments, gray (CL)	NS	
-75.3	15.0		SAND, poorly-graded with clay, mostly fine-grained sand-sized quartz, little silt, few clay, trace shell fragments, gray (SP-SC)		
-76.9	16.6		SAND, poorly-graded, mostly fine-grained sand-sized quartz, trace fines, gray (SP)		
NOTES: 1. Soils are field visually classified in accordance with the Unified Soils Classification System. 2. NS = Sample not submitted for laboratory analysis from this interval. 3. Seafloor elevation calculated using sampling vessel's fathometer water depth reading and applying NOAA tidal gauge data conversion factor.					

**Project**

Mississippi Barrier Island  
Restoration Project

**AVS**  
**AMERICAN VIBRACORE**  
**S E R V I C E S**

**Core Identifier** BI-PBS-109-12

**Date** 01/04/2013

**Water Depth** 60.4'

**Coordinate System**

Latitude / Longitude

**Start Time** 14:35:20

**End Time** 14:38:07

**Penetration** 17.1'

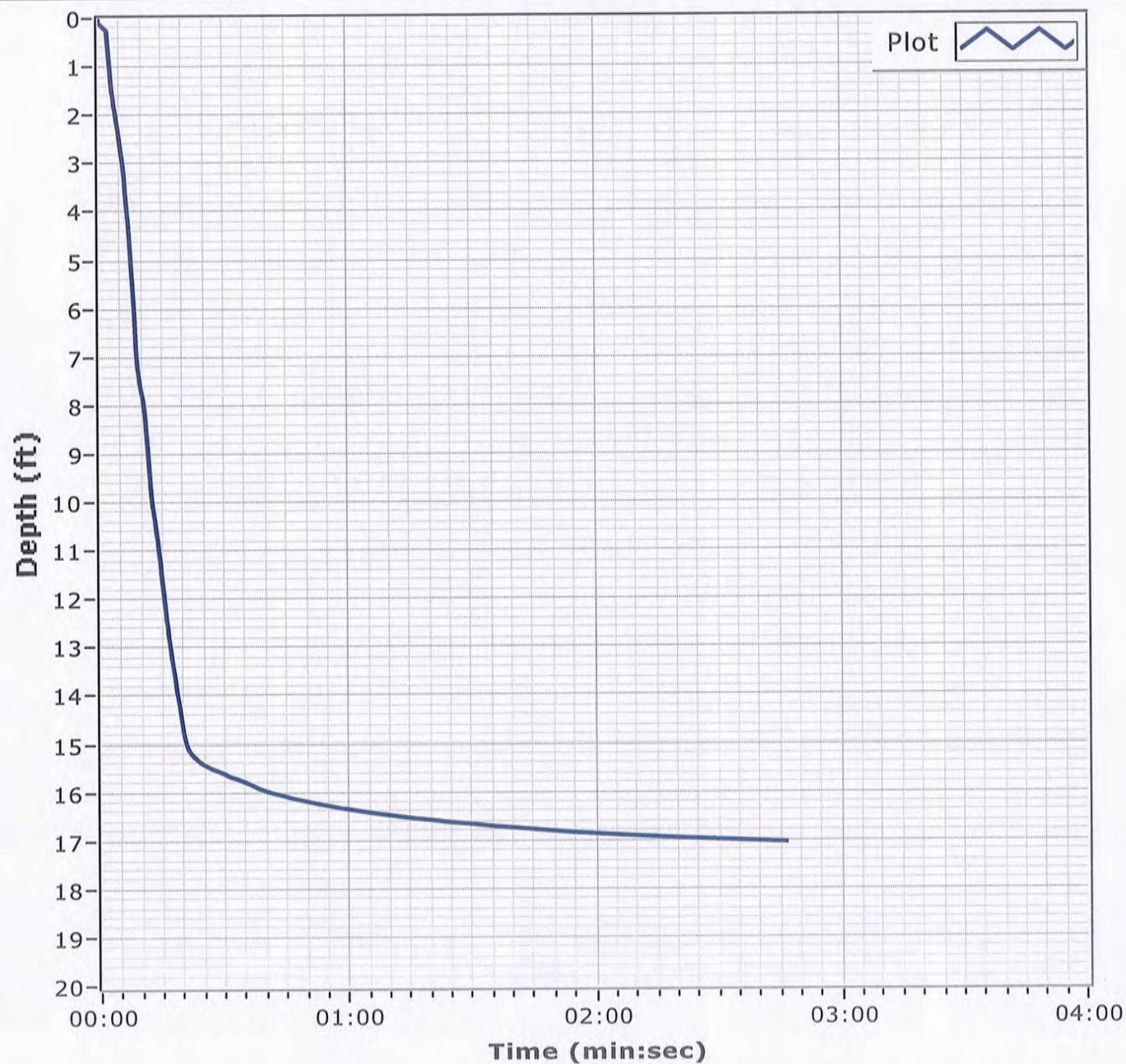
**Latitude** 30 07.799 N

**Total Time** 00:02:46

**Recovery** 16.6'

**Longitude** 088 20.007 W

**Comments**



# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.2	0.9	11.7	83.7	3.5	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
1	100.0		
.75	100.0		
.5	100.0		
.375	100.0		
#4	99.8		
#10	98.9		
#20	96.7		
#40	87.2		
#60	55.5		
#100	7.5		
#140	4.6		
#200	3.5		

\* (no specification provided)

<u><b>Material Description</b></u>		
Fine to medium grained, SAND		
<u><b>Atterberg Limits</b></u>		
PL=	LL=	PI=
<u><b>Coefficients</b></u>		
D <sub>90</sub> = 0.4702	D <sub>85</sub> = 0.3987	D <sub>60</sub> = 0.2625
D <sub>50</sub> = 0.2367	D <sub>30</sub> = 0.1967	D <sub>15</sub> = 0.1683
D <sub>10</sub> = 0.1570	C <sub>u</sub> = 1.67	C <sub>c</sub> = 0.94
<u><b>Classification</b></u>		
USCS= SP	AASHTO=	
<u><b>Remarks</b></u>		

Location: BI-PBS-109-12 A  
Sample Number: 6503 (29)

Depth: 0.0'

Date: 1/08/12

**Thompson Engineering**

**Mobile, Alabama**

Client: CDM/Thompson Engineering JV  
Project: MsCIP Barrier Island Restoration GT

Project No: 1221110095

Figure

# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	2.1	2.3	11.9	61.5	22.2	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
1	100.0		
.75	100.0		
.5	100.0		
.375	98.2		
#4	97.9		
#10	95.6		
#20	92.5		
#40	83.7		
#60	51.5		
#100	30.9		
#140	26.4		
#200	22.2		

\* (no specification provided)

<u><b>Material Description</b></u>		
Fine to medium grained, SILTY SAND, with trace SHELL		
<u><b>Atterberg Limits</b></u>		
PL=	LL=	PI=
<u><b>Coefficients</b></u>		
D <sub>90</sub> = 0.6646	D <sub>85</sub> = 0.4611	D <sub>60</sub> = 0.2859
D <sub>50</sub> = 0.2436	D <sub>30</sub> = 0.1428	D <sub>15</sub> =
D <sub>10</sub> =	C <sub>u</sub> =	C <sub>c</sub> =
<u><b>Classification</b></u>		
USCS= SM	AASHTO=	
<u><b>Remarks</b></u>		

Location: BI-PBS-109-12 B  
Sample Number: 6503 (30)

Depth: 2.3'

Date: 1/08/13

**Thompson Engineering**

**Mobile, Alabama**

Client: CDM/Thompson Engineering JV  
Project: MsCIP Barrier Island Restoration GT

Project No: 1221110095

Figure

# Boring Designation BI-PBS-110-12

DRILLING LOG		DIVISION South Atlantic		INSTALLATION Mobile District		SHEET 1 OF 1 SHEETS	
1. PROJECT MsCIP Barrier Island Restoration Petit Bois Pass-OCS East				9. SIZE AND TYPE OF BIT N/A			
2. BORING DESIGNATION BI-PBS-110-12		LOCATION COORDINATES E = 1,135,086 N = 239,132		10. COORDINATE SYSTEM/DATUM State Plane, MSE (U.S. Ft.)		HORIZONTAL NAD83 VERTICAL NAVD88	
3. DRILLING AGENCY Corps of Engineers - CESAM		CONTRACTOR FILE NO.		11. MANUFACTURER'S DESIGNATION OF DRILL Vibracore		<input type="checkbox"/> AUTO HAMMER <input type="checkbox"/> MANUAL HAMMER	
4. NAME OF DRILLER American Vibracore Systems, Inc.				12. TOTAL SAMPLES		DISTURBED UNDISTURBED (UD) 0	
5. DIRECTION OF BORING <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED		DEG. FROM VERTICAL		13. TOTAL NUMBER CORE BOXES			
		BEARING		14. WATER DEPTH 51.4 Ft.			
6. THICKNESS OF OVERBURDEN N/A				15. DATE BORING 01-12-13		STARTED COMPLETED 01-12-13	
7. DEPTH DRILLED INTO ROCK N/A				16. ELEVATION TOP OF BORING -52.5 Ft.			
8. TOTAL DEPTH OF BORING 18.3 Ft.				17. TOTAL RECOVERY FOR BORING 100%			
				18. SIGNATURE AND TITLE OF INSPECTOR Mike FitzHarris, Geologist			
ELEV.	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS	SAMPLE	LABORATORY RESULTS		
-52.5	0.0						
-54.8	2.3		SAND, poorly-graded, mostly fine to medium-grained sand-sized quartz, trace fines, trace shell fragments, gray (SP)	A	Classification: SP Color: 5Y 6/2-light olive gray D50: 0.2964 mm % Fines: 2.6		
			SAND, silty, mostly fine-grained sand-sized quartz, some silt, alternating bands of clay, dark gray (SM)	NS			
			At El. -58.1 Ft., mostly fine-grained sand-sized quartz, some silt, trace clay, dark gray	B	Classification: SM Color: 5Y 5/2-olive gray D50: 0.2127 mm % Fines: 14.5		
-65.0	12.5						
-70.8	18.3		SAND, poorly-graded with clay, mostly fine-grained sand-sized quartz, few clay, few silt, some clay intervals with poorly-graded, fine-grained sand with silt between 14.3-15.3 ft., gray (SP-SC)	NS			
			NOTES: 1. Soils are field visually classified in accordance with the Unified Soils Classification System. 2. NS = Sample not submitted for laboratory analysis from this interval. 3. Seafloor elevation determined from USACE hydrographic survey completed April 2014.				



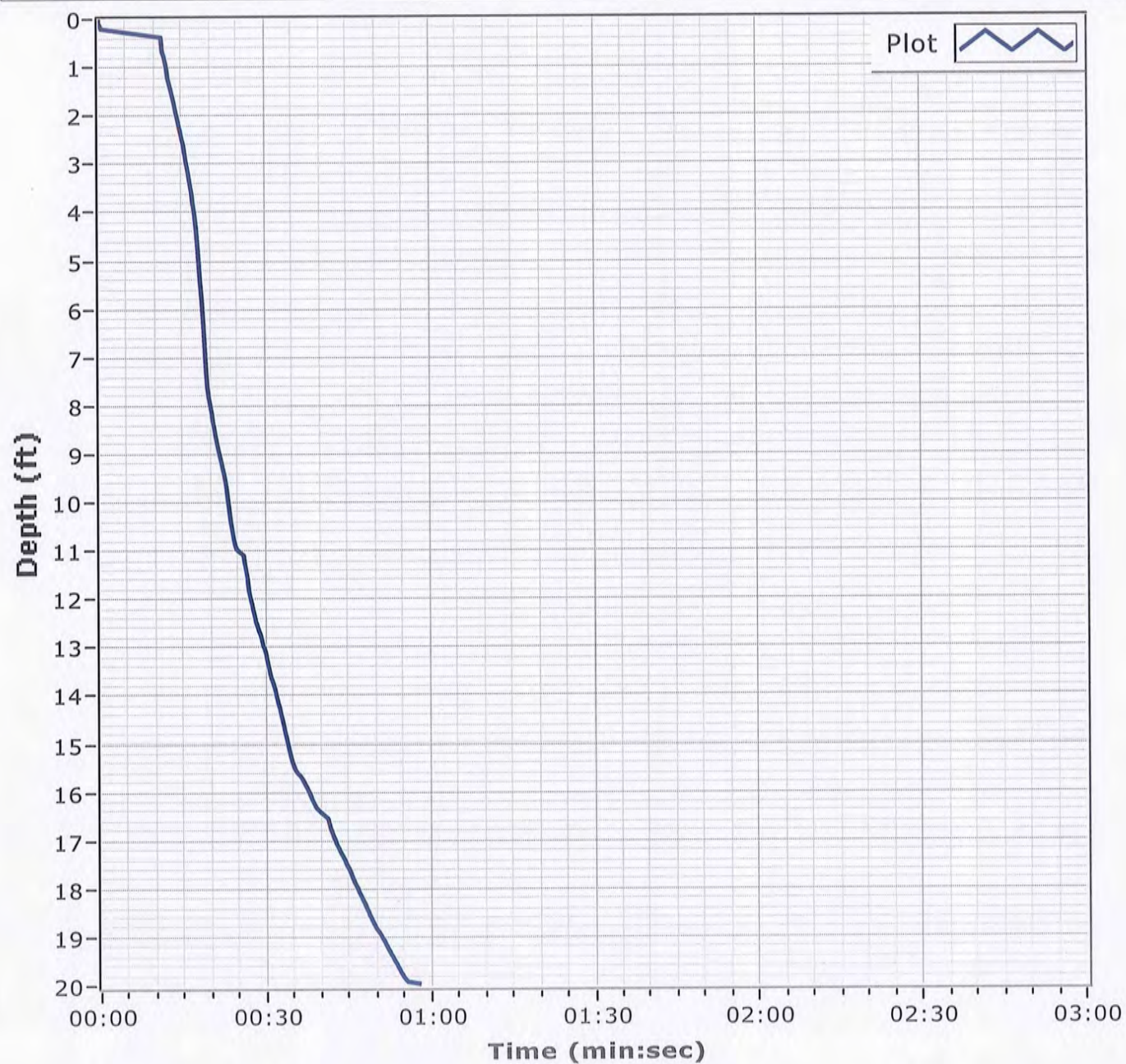
**Project**

Mississippi Barrier Island  
Restoration Project

**AVS**  
**AMERICAN VIBRACORE**  
**S E R V I C E S**

**Core Identifier** BI-PBS-110-12**Date** 01/12/2013**Water Depth** 51.4'**Coordinate System**

Latitude / Longitude

**Start Time** 11:44:29**End Time** 11:45:27**Penetration** 20.0'**Latitude** 30 09.402**Total Time** 00:00:58**Recovery** 18.3'**Longitude** 088 21.364**Comments**



# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.1	0.9	12.8	83.6	2.6	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
1	100.0		
.75	100.0		
.5	100.0		
.375	100.0		
#4	99.9		
#10	99.0		
#20	97.5		
#40	86.2		
#60	32.3		
#100	5.3		
#140	3.3		
#200	2.6		

\* (no specification provided)

Material Description		
Fine to medium grained, SAND		
<div> <div> Atterberg Limits </div> <div> PL= </div> <div> LL= </div> <div> PI= </div> </div>		
<div> <div> Coefficients </div> <div> D<sub>90</sub>= 0.5094 </div> <div> D<sub>50</sub>= 0.2964 </div> <div> D<sub>10</sub>= 0.1770 </div> <div> D<sub>85</sub>= 0.4184 </div> <div> D<sub>30</sub>= 0.2437 </div> <div> C<sub>u</sub>= 1.83 </div> <div> D<sub>60</sub>= 0.3242 </div> <div> D<sub>15</sub>= 0.1971 </div> <div> C<sub>c</sub>= 1.04 </div> </div>		
<div> <div> Classification </div> <div> USCS= SP </div> <div> AASHTO= </div> </div>		
<div> <div> Remarks </div> </div>		

Location: BI-PBS-110-12 A  
Sample Number: 6507 (7)

Depth: 0.0'

Date: 1/14/13

**Thompson Engineering**

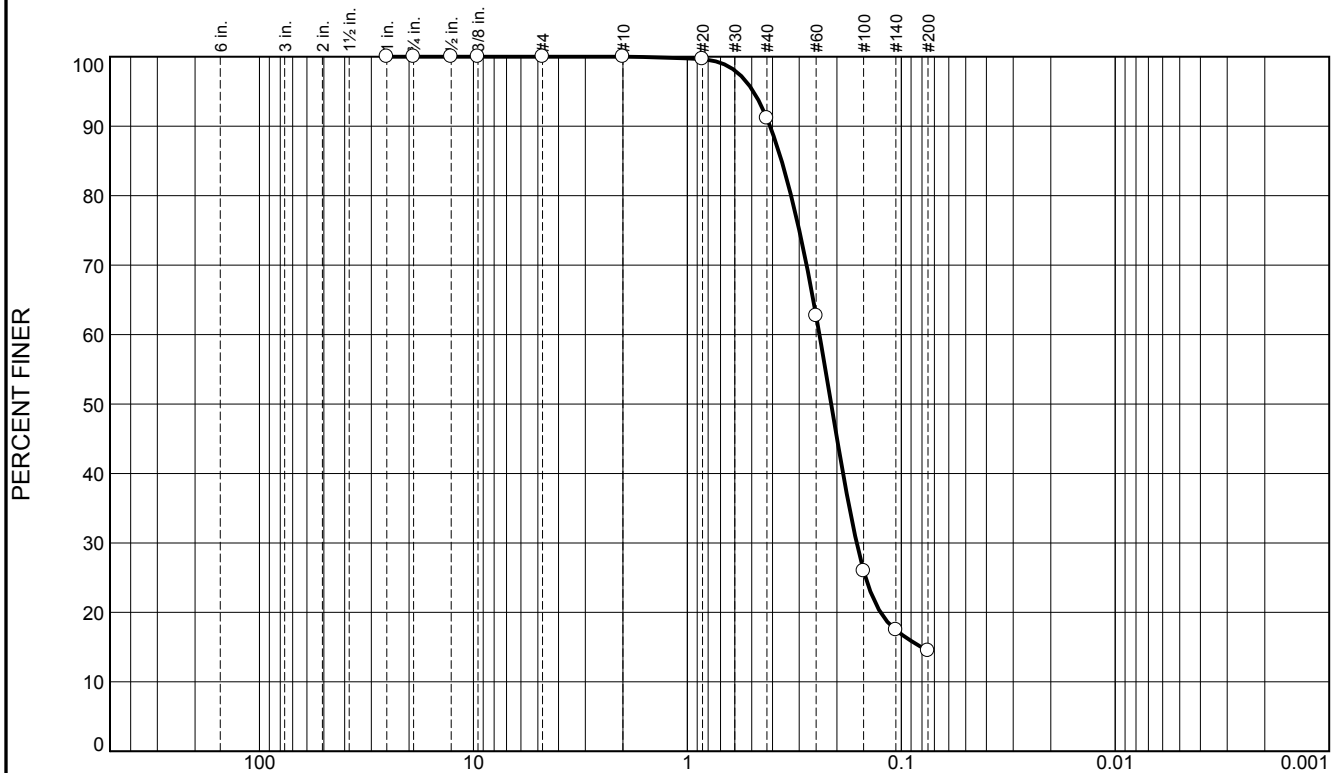
**Mobile, Alabama**

Client: CDM/Thompson Engineering JV  
Project: MsCIP Barrier Island Restoration GT

Project No: 1221110095

Figure

# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.0	0.0	8.8	76.7	14.5	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
1	100.0		
.75	100.0		
.5	100.0		
.375	100.0		
#4	100.0		
#10	100.0		
#20	99.7		
#40	91.2		
#60	62.7		
#100	26.0		
#140	17.5		
#200	14.5		

\* (no specification provided)

<u>Material Description</u>		
Fine grained, SILTY SAND		
PL=	<u>Atterberg Limits</u> LL=	PI=
<u>Coefficients</u>		
D <sub>90</sub> = 0.4106	D <sub>85</sub> = 0.3624	D <sub>60</sub> = 0.2412
D <sub>50</sub> = 0.2127	D <sub>30</sub> = 0.1618	D <sub>15</sub> = 0.0805
D <sub>10</sub> =	C <sub>u</sub> =	C <sub>c</sub> =
<u>Classification</u>		
USCS= SM	AASHTO=	
<u>Remarks</u>		

Location: BI-PBS-110-12 B  
Sample Number: 6507 (8)

Depth: 5.6'

Date: 1/14/13

**Thompson Engineering**

**Mobile, Alabama**

Client: CDM/Thompson Engineering JV  
Project: MsCIP Barrier Island Restoration GT

Project No: 1221110095

Figure

# Boring Designation BI-PBS-111-12

DRILLING LOG		DIVISION South Atlantic		INSTALLATION Mobile District		SHEET 1 OF 2 SHEETS	
1. PROJECT MsCIP Barrier Island Restoration Petit Bois Pass-OCS East				9. SIZE AND TYPE OF BIT N/A			
2. BORING DESIGNATION BI-PBS-111-12		LOCATION COORDINATES E = 1,137,855 N = 237,489		10. COORDINATE SYSTEM/DATUM State Plane, MSE (U.S. Ft.)		HORIZONTAL NAD83	
3. DRILLING AGENCY Corps of Engineers - CESAM		CONTRACTOR FILE NO.		11. MANUFACTURER'S DESIGNATION OF DRILL Vibrocure		<input type="checkbox"/> AUTO HAMMER <input type="checkbox"/> MANUAL HAMMER	
4. NAME OF DRILLER American Vibrocure Systems, Inc.				12. TOTAL SAMPLES		DISTURBED 0	
5. DIRECTION OF BORING <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED				13. TOTAL NUMBER CORE BOXES		14. WATER DEPTH 52 Ft.	
6. THICKNESS OF OVERBURDEN N/A				15. DATE BORING		STARTED 01-12-13	
7. DEPTH DRILLED INTO ROCK N/A				16. ELEVATION TOP OF BORING -51.6 Ft.		COMPLETED 01-12-13	
8. TOTAL DEPTH OF BORING 19.9 Ft.				17. TOTAL RECOVERY FOR BORING 100%		18. SIGNATURE AND TITLE OF INSPECTOR Mike FitzHarris, Geologist	
ELEV.	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS	SAMPLE	LABORATORY RESULTS		
-51.6	0.0						
			SAND, poorly-graded, mostly fine to medium-grained sand-sized quartz, trace fines, trace shell fragments, gray (SP)	A	Classification: SP Color: 5Y 6/2-light olive gray D50: 0.3011 mm % Fines: 3.7		
-55.6	4.0						
			SAND, clayey, mostly fine-grained sand-sized quartz, some clay, trace shell fragments, trace wood debris, clay bands, gray (SC)	NS			
-58.0	6.4						
			SAND, silty, mostly fine-grained sand-sized quartz, some silt, trace wood debris, few clay lenses, gray (SM)	B	Classification: SM Color: 5Y 5/2-olive gray D50: 0.1971 mm % Fines: 15.7		
-64.4	12.8						
-65.4	13.8		CLAY, silty, mostly clay, some silt, few fine-grained sand-sized quartz, low plasticity, gray (CL-ML)				
			SAND, silty, mostly fine-grained sand-sized quartz, some silt, trace clay, gray (SM)	NS			
-70.3	18.7						
-71.5	19.9		SAND, poorly-graded, mostly fine-grained sand-sized quartz, trace fines, gray (SP)				
NOTES: 1. Soils are field visually classified in accordance with the Unified Soils Classification System. 2. NS = Sample not submitted for laboratory analysis from this interval. 3. Seafloor elevation determined from 2013							

<b>DRILLING LOG (Cont. Sheet)</b>			<b>INSTALLATION</b> Mobile District		<b>SHEET 2</b>
					<b>OF 2 SHEETS</b>
<b>PROJECT</b> MsCIP Barrier Island Restoration			<b>COORDINATE SYSTEM/DATUM</b> State Plane, MSE (U.S. Ft.)	<b>HORIZONTAL</b> NAD83	<b>VERTICAL</b> NAVD88
<b>LOCATION COORDINATES</b> X = 1,137,855 Y = 237,489			<b>ELEVATION TOP OF BORING</b> -51.6 Ft.		
ELEV.	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS	SAMPLE	LABORATORY RESULTS
			USGS geophysical survey.		

**Project**

Mississippi Barrier Island  
Restoration Project

**AVS**  
**AMERICAN VIBRACORE**  
**S E R V I C E S**

**Core Identifier** BI-PBS-111-12

**Date** 01/12/2013

**Water Depth** 52.0'

**Coordinate System**

**Start Time** 12:17:09

Latitude / Longitude

**End Time** 12:19:48

**Penetration** 20.0'

**Latitude** 30 09.129

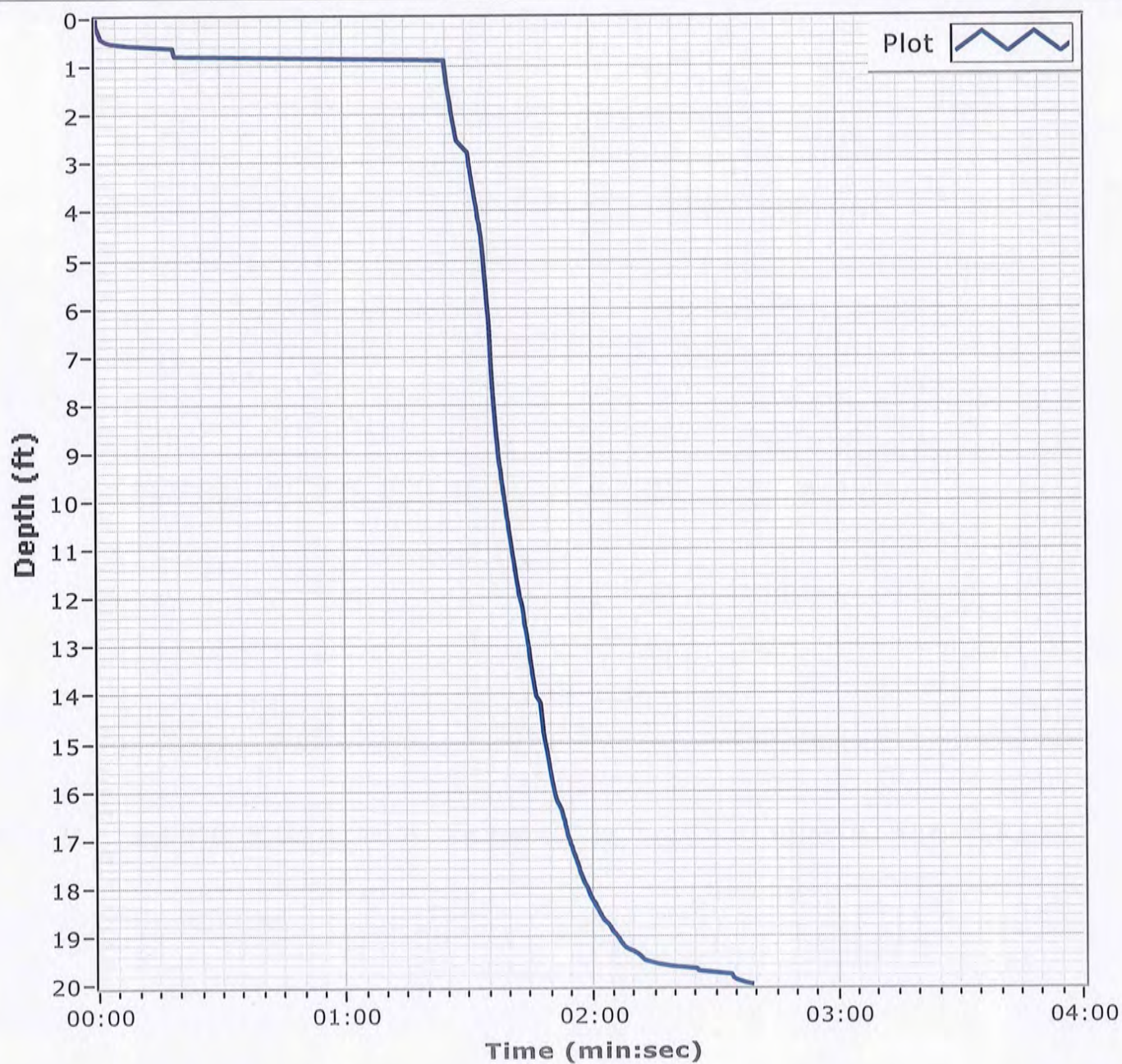
**Total Time** 00:02:39

**Recovery** 19.9'

**Longitude** 088 20.840

**Comments**

at 0.8' vibrator stopped then restarted



# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	1.5	2.4	21.4	71.0	3.7	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
1	100.0		
.75	100.0		
.5	99.1		
.375	99.1		
#4	98.5		
#10	96.1		
#20	92.5		
#40	74.7		
#60	35.2		
#100	7.0		
#140	4.3		
#200	3.7		

\* (no specification provided)

## Material Description

Fine to medium grained, SAND, with trace SHELL

## Atterberg Limits

PL=      LL=      PI=

## Coefficients

D<sub>90</sub>= 0.6764      D<sub>85</sub>= 0.5410      D<sub>60</sub>= 0.3420  
D<sub>50</sub>= 0.3011      D<sub>30</sub>= 0.2331      D<sub>15</sub>= 0.1840  
D<sub>10</sub>= 0.1648      C<sub>u</sub>= 2.08      C<sub>c</sub>= 0.96

## Classification

USCS= SP      AASHTO=

## Remarks

Location: BI-PBS-111-12 A  
Sample Number: 6507 (9)

Depth: 0.0'

Date: 1/14/13

**Thompson Engineering**

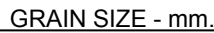
**Mobile, Alabama**

Client: CDM/Thompson Engineering JV  
Project: MsCIP Barrier Island Restoration GT

Project No: 1221110095

Figure

**PERCENT FINER**

K-441

# Boring Designation BI-PBS-112-12

DRILLING LOG		DIVISION South Atlantic		INSTALLATION Mobile District		SHEET 1 OF 2 SHEETS	
1. PROJECT MsCIP Barrier Island Restoration Petit Bois Pass-OCS East				9. SIZE AND TYPE OF BIT N/A			
2. BORING DESIGNATION BI-PBS-112-12		LOCATION COORDINATES E = 1,133,311 N = 237,913		10. COORDINATE SYSTEM/DATUM State Plane, MSE (U.S. Ft.)		HORIZONTAL NAD83	
3. DRILLING AGENCY Corps of Engineers - CESAM		CONTRACTOR FILE NO.		11. MANUFACTURER'S DESIGNATION OF DRILL Vibracore		<input type="checkbox"/> AUTO HAMMER <input type="checkbox"/> MANUAL HAMMER	
4. NAME OF DRILLER American Vibracore Systems, Inc.				12. TOTAL SAMPLES		DISTURBED 0	
5. DIRECTION OF BORING <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED				13. TOTAL NUMBER CORE BOXES		14. WATER DEPTH 49 Ft.	
6. THICKNESS OF OVERBURDEN N/A				15. DATE BORING		STARTED 01-12-13	
7. DEPTH DRILLED INTO ROCK N/A				16. ELEVATION TOP OF BORING -48.4 Ft.		COMPLETED 01-12-13	
8. TOTAL DEPTH OF BORING 20.2 Ft.				17. TOTAL RECOVERY FOR BORING 100%		18. SIGNATURE AND TITLE OF INSPECTOR Mike FitzHarris, Geologist	
ELEV.	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS	SAMPLE	LABORATORY RESULTS		
-48.4	0.0						
			SAND, poorly-graded, mostly fine to medium-grained sand-sized quartz, trace fines, trace shell fragments, lt. gray (SP)	A	Classification: SP Color: 5Y 6/2-light olive gray D50: 0.3298 mm % Fines: 2.3		
-53.4	5.0						
-55.0	6.6		SAND, poorly-graded with silt, mostly fine to medium-grained sand-sized quartz, few silt, trace clay, gray (SP-SM)	B	Classification: SP-SM Color: 5Y 5/2-olive gray D50: 0.3135 mm % Fines: 7.6		
-57.4	9.0		SAND, silty, mostly fine-grained sand-sized quartz, some silt, few clay bands, gray (SM)	NS			
-62.4	14.0		SAND, poorly-graded with silt, mostly fine-grained sand-sized quartz, few silt, trace shell fragments, gray (SP-SM)	C	Classification: SM Color: 5Y 5/1-gray D50: 0.2161 mm % Fines: 12.7		
-66.2	17.8		SAND, silty, mostly fine-grained sand-sized quartz, some silt, few shell fragments, few clay nodules, gray (SM)	D	Classification: SP-SM Color: 5Y 5/2-olive gray D50: 0.2329 mm % Fines: 11.2		
-68.6	20.2		SAND, poorly-graded, mostly fine-grained sand-sized quartz, trace fines, lt. gray (SP)	E E	Classification: SP Color: 5Y 6/2-light olive gray D50: 0.242 mm % Fines: 4.9		
NOTES: 1. Soils are field visually classified in accordance with the Unified Soils Classification System. 2. NS = Sample not submitted for laboratory analysis from this interval. 3. Seafloor elevation determined from USACE							



<b>DRILLING LOG (Cont. Sheet)</b>			<b>INSTALLATION</b> Mobile District		<b>SHEET 2</b> <b>OF 2 SHEETS</b>
<b>PROJECT</b> MsCIP Barrier Island Restoration			<b>COORDINATE SYSTEM/DATUM</b> State Plane, MSE (U.S. Ft.)	<b>HORIZONTAL</b> NAD83	<b>VERTICAL</b> NAVD88
<b>LOCATION COORDINATES</b> X = 1,133,311 Y = 237,913			<b>ELEVATION TOP OF BORING</b> -48.4 Ft.		
<b>ELEV.</b>	<b>DEPTH</b>	<b>LEGEND</b>	<b>CLASSIFICATION OF MATERIALS</b>	<b>SAMPLE</b>	<b>LABORATORY RESULTS</b>
			hydrographic survey completed April 2014.		

**Project**

Mississippi Barrier Island  
Restoration Project

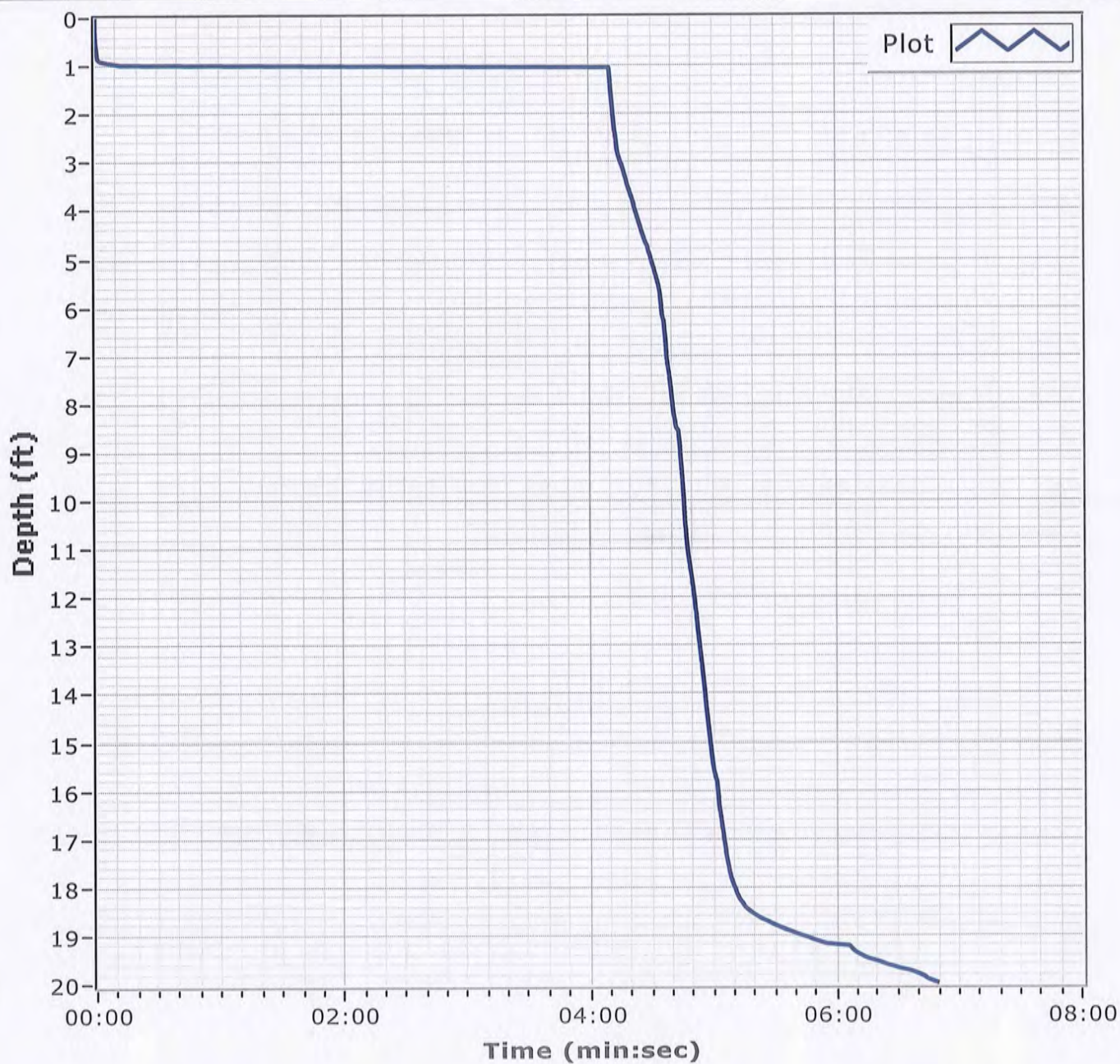
**AVS**  
**AMERICAN VIBRACORE**  
**S E R V I C E S**

**Core Identifier** BI-PBS-112-12**Date** 01/12/2013**Water Depth** 49.0'**Coordinate System**

Latitude / Longitude

**Start Time** 10:58:31**End Time** 11:05:21**Penetration** 20.0'**Latitude** 30 09.202**Total Time** 00:06:50**Recovery** 20.0'**Longitude** 088 21.702**Comments**

at 1.0' vibrator stopped then restarted



# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.7	1.9	21.7	73.4	2.3	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
1	100.0		
.75	100.0		
.5	100.0		
.375	100.0		
#4	99.3		
#10	97.4		
#20	94.3		
#40	75.7		
#60	21.7		
#100	3.6		
#140	2.6		
#200	2.3		

\* (no specification provided)

<u><b>Material Description</b></u>		
Fine to medium grained, SAND		
<u><b>Atterberg Limits</b></u>		
PL=	LL=	PI=
<u><b>Coefficients</b></u>		
D <sub>90</sub> = 0.5563	D <sub>85</sub> = 0.4901	D <sub>60</sub> = 0.3610
D <sub>50</sub> = 0.3298	D <sub>30</sub> = 0.2740	D <sub>15</sub> = 0.2268
D <sub>10</sub> = 0.2047	C <sub>u</sub> = 1.76	C <sub>c</sub> = 1.02
<u><b>Classification</b></u>		
USCS= SP	AASHTO=	
<u><b>Remarks</b></u>		

Location: BI-PBS-112-12 A  
Sample Number: 6507 (11)

Depth: 0.0'

Date: 1/14/13

**Thompson Engineering**

**Mobile, Alabama**

Client: CDM/Thompson Engineering JV  
Project: MsCIP Barrier Island Restoration GT

Project No: 1221110095

Figure

# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	2.9	4.2	25.6	59.7	7.6	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
1	100.0		
.75	100.0		
.5	100.0		
.375	99.5		
#4	97.1		
#10	92.9		
#20	86.2		
#40	67.3		
#60	35.7		
#100	11.9		
#140	9.2		
#200	7.6		

\* (no specification provided)

## Material Description

Fine to medium grained, SLIGHTLY SILTY SAND, with trace SHELL

## Atterberg Limits

PL= LL= PI=

## Coefficients

D<sub>90</sub>= 1.2257 D<sub>85</sub>= 0.7835 D<sub>60</sub>= 0.3702  
D<sub>50</sub>= 0.3135 D<sub>30</sub>= 0.2276 D<sub>15</sub>= 0.1672  
D<sub>10</sub>= 0.1321 C<sub>u</sub>= 2.80 C<sub>c</sub>= 1.06

## Classification

USCS= SP-SM AASHTO=

## Remarks

Location: BI-PBS-112 B  
Sample Number: 6507 (12)

Depth: 5.0'

Date: 1/14/13

**Thompson Engineering**

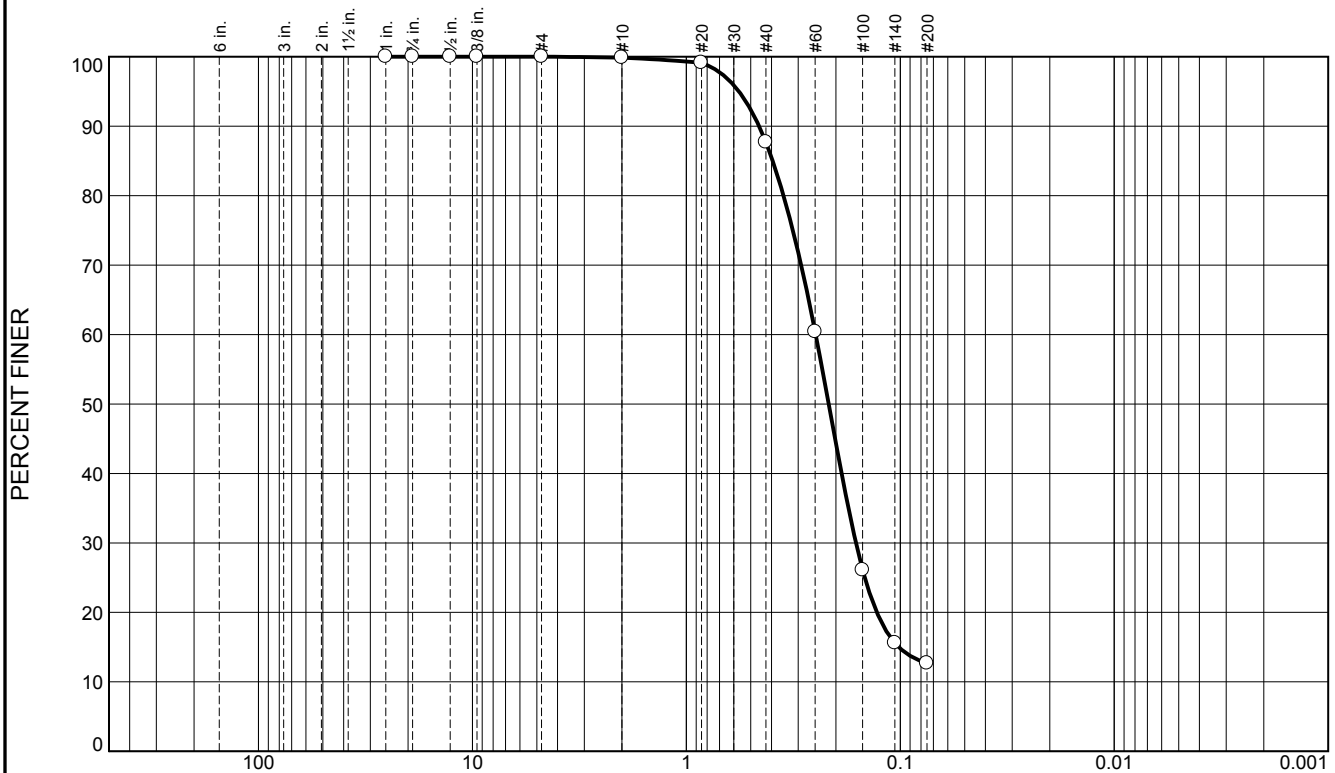
**Mobile, Alabama**

Client: CDM/Thompson Engineering JV  
Project: MsCIP Barrier Island Restoration GT

Project No: 1221110095

Figure

# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.0	0.1	12.2	75.0	12.7	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
1	100.0		
.75	100.0		
.5	100.0		
.375	100.0		
#4	100.0		
#10	99.9		
#20	99.1		
#40	87.7		
#60	60.4		
#100	26.1		
#140	15.6		
#200	12.7		

\* (no specification provided)

## Material Description

Fine to medium grained, SILTY SAND

## Atterberg Limits

PL=

LL=

PI=

## Coefficients

D<sub>90</sub>= 0.4573

D<sub>85</sub>= 0.3948

D<sub>60</sub>= 0.2485

D<sub>50</sub>= 0.2161

D<sub>30</sub>= 0.1613

D<sub>15</sub>= 0.1016

D<sub>10</sub>=

C<sub>u</sub>=

C<sub>c</sub>=

## Classification

USCS= SM

AASHTO=

## Remarks

Location: BI-PBS-112-12 C

Sample Number: 6507 (13)

Depth: 9.0'

Date: 1/14/13

**Thompson Engineering**

**Mobile, Alabama**

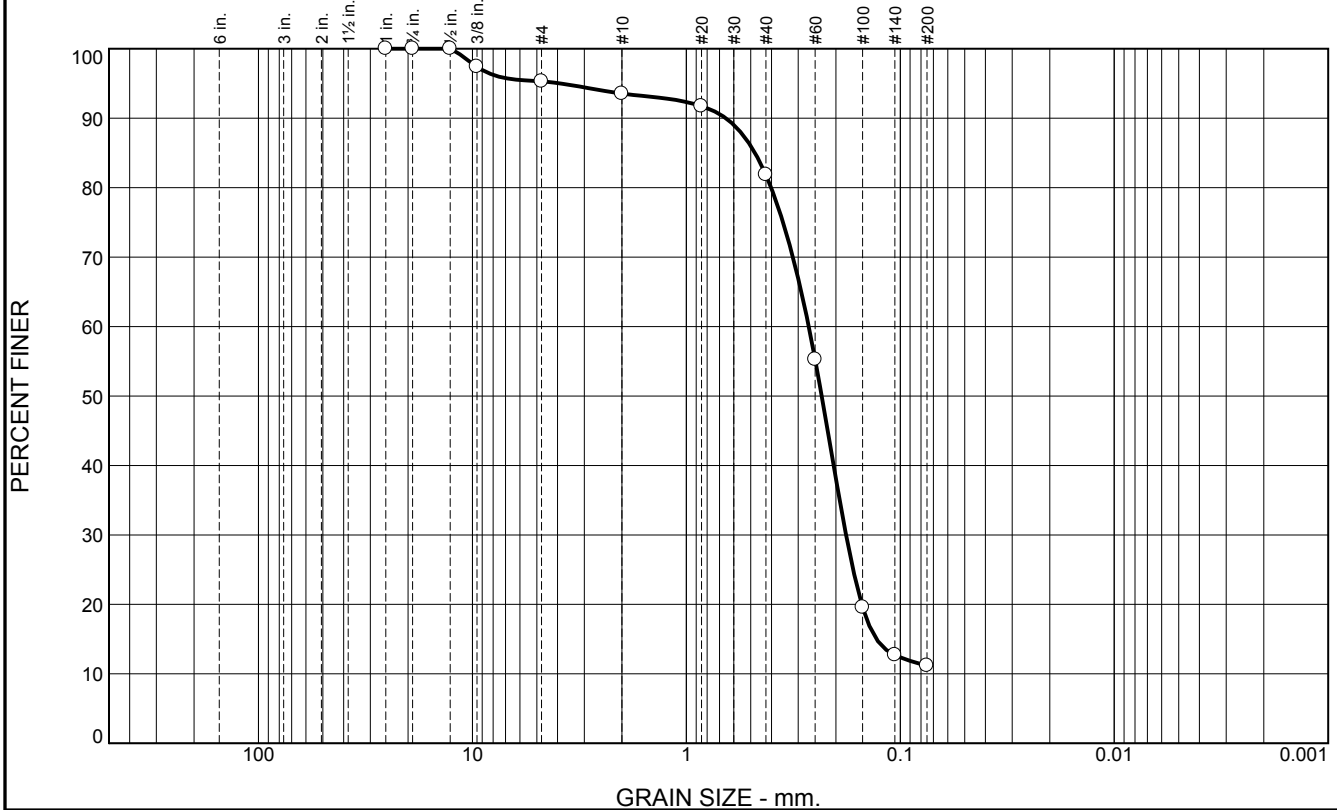
Client: CDM/Thompson Engineering JV

Project: MsCIP Barrier Island Restoration GT

Project No: 1221110095

Figure

# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	4.7	1.8	11.7	70.6	11.2	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
1	100.0		
.75	100.0		
.5	100.0		
.375	97.4		
#4	95.3		
#10	93.5		
#20	91.7		
#40	81.8		
#60	55.3		
#100	19.6		
#140	12.7		
#200	11.2		

\* (no specification provided)

## Material Description

Fine to medium grained, SLIGHTLY SILTY SAND, with trace SHELL

## Atterberg Limits

PL= LL= PI=

## Coefficients

D<sub>90</sub>= 0.6544 D<sub>85</sub>= 0.4779 D<sub>60</sub>= 0.2679  
D<sub>50</sub>= 0.2329 D<sub>30</sub>= 0.1794 D<sub>15</sub>= 0.1293  
D<sub>10</sub>= C<sub>u</sub>= C<sub>c</sub>=

## Classification

USCS= SP-SM AASHTO=

## Remarks

Location: BI-PBS-112-12 D  
Sample Number: 6507 (14)

Depth: 14.0'

Date: 1/14/13

**Thompson Engineering**

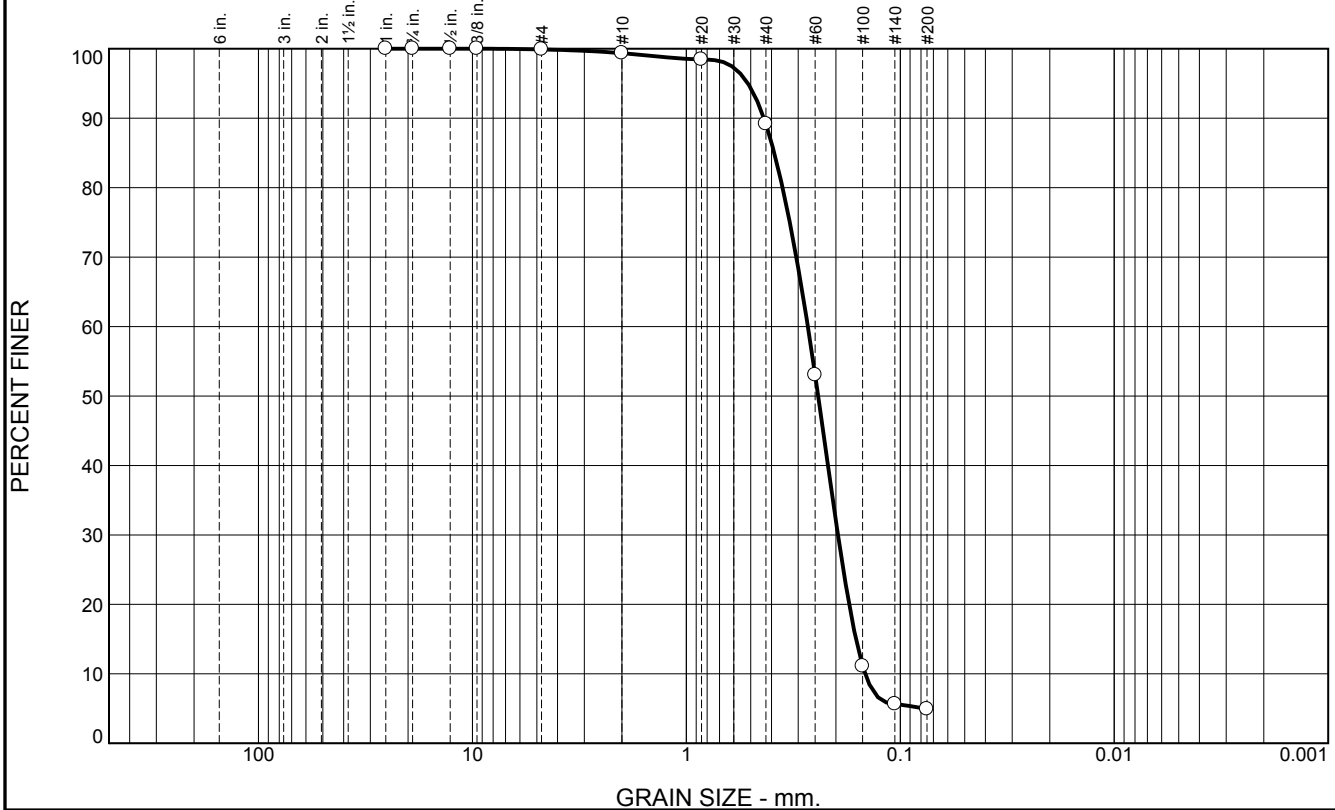
**Mobile, Alabama**

Client: CDM/Thompson Engineering JV  
Project: MsCIP Barrier Island Restoration GT

Project No: 1221110095

Figure

# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.1	0.5	10.2	84.3	4.9	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
1	100.0		
.75	100.0		
.5	100.0		
.375	100.0		
#4	99.9		
#10	99.4		
#20	98.5		
#40	89.2		
#60	53.0		
#100	11.1		
#140	5.7		
#200	4.9		

\* (no specification provided)

<u>Material Description</u>		
Fine to medium grained, SAND		
PL=	<u>Atterberg Limits</u> LL=	PI=
<u>Coefficients</u>		
D <sub>90</sub> = 0.4341	D <sub>85</sub> = 0.3881	D <sub>60</sub> = 0.2705
D <sub>50</sub> = 0.2420	D <sub>30</sub> = 0.1956	D <sub>15</sub> = 0.1613
D <sub>10</sub> = 0.1460	C <sub>u</sub> = 1.85	C <sub>c</sub> = 0.97
<u>Classification</u>		
USCS= SP	AASHTO=	
<u>Remarks</u>		

Location: BI-PBS-112-12 E  
Sample Number: 6507 (15)

Depth: 17.8'

Date: 1/14/13

**Thompson Engineering**

**Mobile, Alabama**

Client: CDM/Thompson Engineering JV  
Project: MsCIP Barrier Island Restoration GT

Project No: 1221110095

Figure

# Boring Designation BI-PBS-113-12

DRILLING LOG		DIVISION South Atlantic		INSTALLATION Mobile District		SHEET 1 OF 2 SHEETS	
1. PROJECT MsCIP Barrier Island Restoration Petit Bois Pass-OCS East				9. SIZE AND TYPE OF BIT N/A			
2. BORING DESIGNATION BI-PBS-113-12		LOCATION COORDINATES E = 1,135,613 N = 235,577		10. COORDINATE SYSTEM/DATUM State Plane, MSE (U.S. Ft.)		HORIZONTAL NAD83	
3. DRILLING AGENCY Corps of Engineers - CESAM		CONTRACTOR FILE NO.		11. MANUFACTURER'S DESIGNATION OF DRILL Vibracore		<input type="checkbox"/> AUTO HAMMER <input type="checkbox"/> MANUAL HAMMER	
4. NAME OF DRILLER American Vibracore Systems, Inc.				12. TOTAL SAMPLES		DISTURBED 0	
5. DIRECTION OF BORING <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED				13. TOTAL NUMBER CORE BOXES		14. WATER DEPTH 51 Ft.	
6. THICKNESS OF OVERBURDEN N/A				15. DATE BORING		STARTED 01-12-13	
7. DEPTH DRILLED INTO ROCK N/A				16. ELEVATION TOP OF BORING -50.8 Ft.		COMPLETED 01-12-13	
8. TOTAL DEPTH OF BORING 20.2 Ft.				17. TOTAL RECOVERY FOR BORING 100%		18. SIGNATURE AND TITLE OF INSPECTOR Mike FitzHarris, Geologist	

ELEV.	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS	SAMPLE	LABORATORY RESULTS
-50.8	0.0				
-56.0	5.2		SAND, poorly-graded, mostly fine to medium-grained sand-sized quartz, trace fines, shelly at 2.0 ft., gray (SP)	A	Classification: SP Color: 5Y 6/2-light olive gray D50: 0.2966 mm % Fines: 2.6
-59.7	8.9		SAND, clayey, mostly fine-grained sand-sized quartz, some clay, few silt, trace shell fragments, gray (SC)	B	Classification: SM Color: 5Y 5/1-gray D50: 0.2354 mm % Fines: 16
-60.3	9.5		CLAY, lean, mostly clay, some fine-grained sand-sized quartz, low to medium plasticity, gray (CL)	NS	
-68.5	17.7		SAND, clayey, mostly fine-grained sand-sized quartz, some clay, few silt, few shell fragments, gray (SC)		
-71.0	20.2		SAND, silty, mostly fine-grained sand-sized quartz, some silt, few shell fragments, trace clay, gray (SM)		
			NOTES: 1. Soils are field visually classified in accordance with the Unified Soils Classification System. 2. NS = Sample not submitted for laboratory analysis from this interval. 3. Seafloor elevation determined from USACE		



<b>DRILLING LOG (Cont. Sheet)</b>			<b>INSTALLATION</b> Mobile District		<b>SHEET 2</b> <b>OF 2 SHEETS</b>
<b>PROJECT</b> MsCIP Barrier Island Restoration			<b>COORDINATE SYSTEM/DATUM</b> State Plane, MSE (U.S. Ft.)	<b>HORIZONTAL</b> NAD83	<b>VERTICAL</b> NAVD88
<b>LOCATION COORDINATES</b> X = 1,135,613 Y = 235,577			<b>ELEVATION TOP OF BORING</b> -50.8 Ft.		
<b>ELEV.</b>	<b>DEPTH</b>	<b>LEGEND</b>	<b>CLASSIFICATION OF MATERIALS</b>	<b>SAMPLE</b>	<b>LABORATORY RESULTS</b>
			hydrographic survey completed April 2014.		

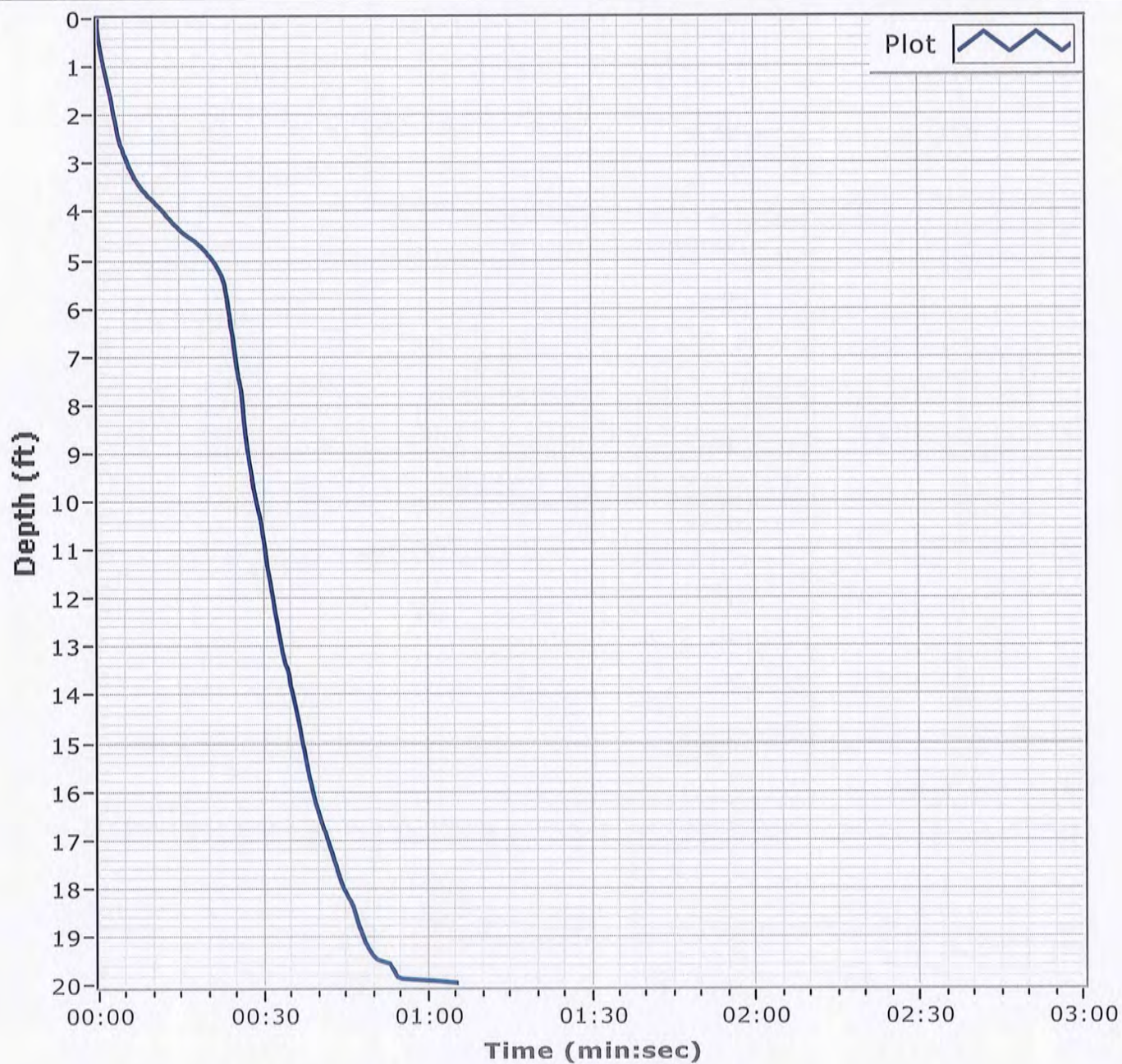
**Project**

Mississippi Barrier Island  
Restoration Project

**AVS**  
**AMERICAN VIBRACORE**  
**S E R V I C E S**

**Core Identifier** BI-PBS-113-12**Date** 01/12/2013**Water Depth** 51.0'**Coordinate System**

Latitude / Longitude

**Start Time** 13:23:16**End Time** 13:24:22**Penetration** 20.0'**Latitude** 30 08.815**Total Time** 00:01:05**Recovery** 20.0'**Longitude** 088 21.267**Comments**

# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	1.0	3.1	20.1	73.2	2.6	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
1	100.0		
.75	100.0		
.5	100.0		
.375	100.0		
#4	99.0		
#10	95.9		
#20	91.6		
#40	75.8		
#60	35.8		
#100	4.6		
#140	3.0		
#200	2.6		

\* (no specification provided)

<b>Material Description</b> Fine to medium grained, SAND, with trace SHELL		
PL=	<b>Atterberg Limits</b> LL=	PI=
D <sub>90</sub> = 0.6951 D <sub>50</sub> = 0.2966 D <sub>10</sub> = 0.1728	<b>Coefficients</b> D <sub>85</sub> = 0.5330 D <sub>30</sub> = 0.2328 C <sub>u</sub> = 1.94	D <sub>60</sub> = 0.3359 D <sub>15</sub> = 0.1889 C <sub>c</sub> = 0.93
USCS= SP	<b>Classification</b> AASHTO=	
<b>Remarks</b>		

Location: BI-PBS-113-12 A  
Sample Number: 6507 (16)

Depth: 0.0'

Date: 1/14/13

**Thompson Engineering**

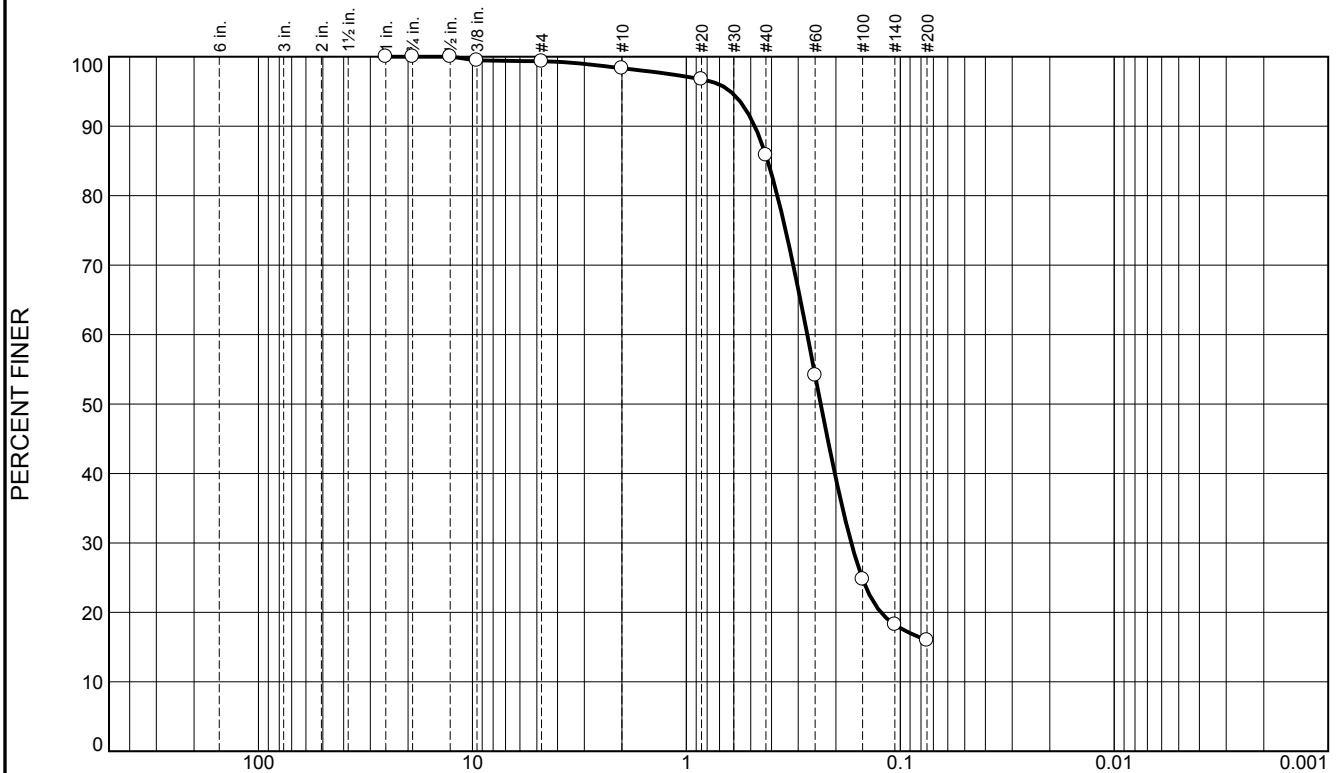
**Mobile, Alabama**

Client: CDM/Thompson Engineering JV  
Project: MsCIP Barrier Island Restoration GT

Project No: 1221110095

Figure

# Particle Size Distribution Report



GRAIN SIZE - mm.

% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.7	1.0	12.5	69.8	16.0	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
1	100.0		
.75	100.0		
.5	100.0		
.375	99.5		
#4	99.3		
#10	98.3		
#20	96.7		
#40	85.8		
#60	54.1		
#100	24.8		
#140	18.2		
#200	16.0		

\* (no specification provided)

## Material Description

Fine to medium grained, SILTY SAND

## Atterberg Limits

PL= LL= PI=

## Coefficients

D<sub>90</sub>= 0.4791 D<sub>85</sub>= 0.4167 D<sub>60</sub>= 0.2723  
D<sub>50</sub>= 0.2354 D<sub>30</sub>= 0.1696 D<sub>15</sub>=  
D<sub>10</sub>= C<sub>u</sub>= C<sub>c</sub>=

## Classification

USCS= SM AASHTO=

## Remarks

Location: BI-PBS-113-12 B  
Sample Number: 6507 (17)

Depth: 5.0'

Date: 1/14/13

**Thompson Engineering**

**Mobile, Alabama**

Client: CDM/Thompson Engineering JV  
Project: MsCIP Barrier Island Restoration GT

Project No: 1221110095

Figure

# Boring Designation BI-PBS-114-12

DRILLING LOG		DIVISION South Atlantic		INSTALLATION Mobile District		SHEET 1 OF 1 SHEETS	
1. PROJECT MsCIP Barrier Island Restoration Petit Bois Pass-OCS East				9. SIZE AND TYPE OF BIT N/A			
2. BORING DESIGNATION BI-PBS-114-12		LOCATION COORDINATES E = 1,142,473 N = 231,598		10. COORDINATE SYSTEM/DATUM State Plane, MSE (U.S. Ft.)		HORIZONTAL NAD83	
3. DRILLING AGENCY Corps of Engineers - CESAM		CONTRACTOR FILE NO.		11. MANUFACTURER'S DESIGNATION OF DRILL Vibracore		<input type="checkbox"/> AUTO HAMMER <input type="checkbox"/> MANUAL HAMMER	
4. NAME OF DRILLER American Vibracore Systems, Inc.				12. TOTAL SAMPLES		DISTURBED 0	
5. DIRECTION OF BORING <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED				13. TOTAL NUMBER CORE BOXES		14. WATER DEPTH 57.3 Ft.	
6. THICKNESS OF OVERBURDEN N/A				15. DATE BORING		STARTED 01-12-13	
7. DEPTH DRILLED INTO ROCK N/A				16. ELEVATION TOP OF BORING -57.9 Ft.		COMPLETED 01-12-13	
8. TOTAL DEPTH OF BORING 18.4 Ft.				17. TOTAL RECOVERY FOR BORING 100%			
				18. SIGNATURE AND TITLE OF INSPECTOR Mike FitzHarris, Geologist			
ELEV.	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS	SAMPLE	LABORATORY RESULTS		
-57.9	0.0						
-60.9	3.0		SAND, poorly-graded, mostly medium-grained sand-sized quartz, some shell fragments, gray (SP)	A	Classification: SP Color: 5Y 6/2-light olive gray D50: 0.6627 mm % Fines: 3.5		
-65.1	7.2		CLAY, lean, mostly clay, some fine-grained sand-sized quartz, trace shell fragments, brownish orange, greenish gray, and gray mottle (CL) At El. -61.5 Ft., mostly clay, some fine-grained sand-sized quartz, trace shell fragments, trace wood debris, gray				
-66.7	8.8		SAND, poorly-graded with silt, mostly fine-grained sand-sized quartz, few silt, alternating layers of clay within this zone, gray (SP-SM)				
-67.6	9.7		SAND, clayey, mostly fine-grained sand-sized quartz, some clay, trace shell fragments, gray (SC)				
-72.3	14.4		CLAY, fat, mostly clay, trace fine-grained sand-sized quartz, trace wood debris, medium to high plasticity, stiff, gray (CH)	NS			
-76.3	18.4		CLAY, lean, mostly clay, some fine-grained sand-sized quartz, trace shell fragments, gray (CL)				
NOTES: 1. Soils are field visually classified in accordance with the Unified Soils Classification System. 2. NS = Sample not submitted for laboratory analysis from this interval. 3. Seafloor elevation determined from USACE hydrographic survey completed April 2014.							



**Project**

Mississippi Barrier Island  
Restoration Project

**AVS**  
**AMERICAN VIBRACORE**  
**S E R V I C E S**

**Core Identifier** BI-PBS-114-12

**Date** 01/12/2013

**Water Depth** 57.3'

**Coordinate System**

Latitude / Longitude

**Start Time** 15:36:18

**End Time** 15:37:08

**Penetration** 20.0'

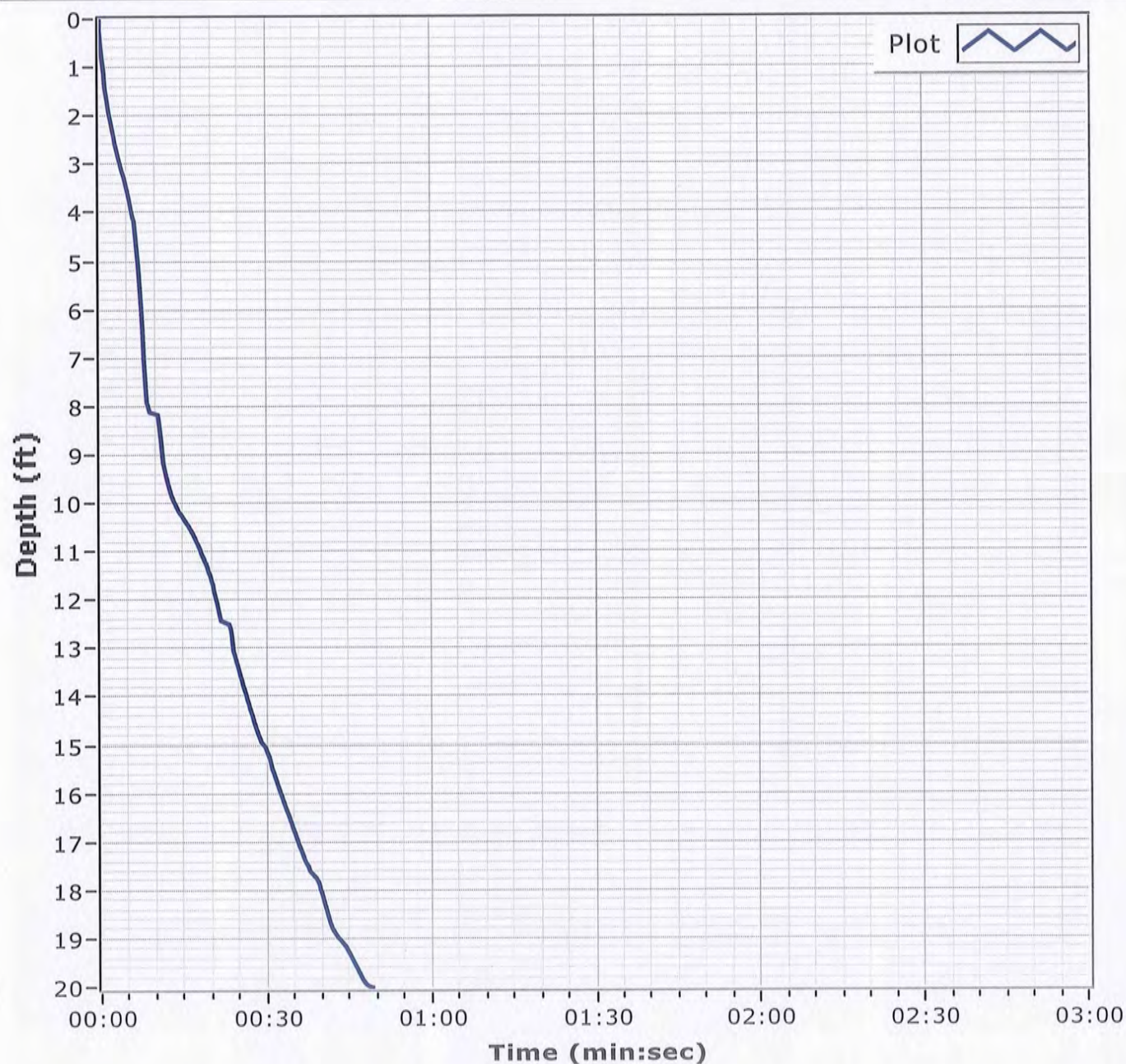
**Latitude** 30 08.154

**Total Time** 00:00:49

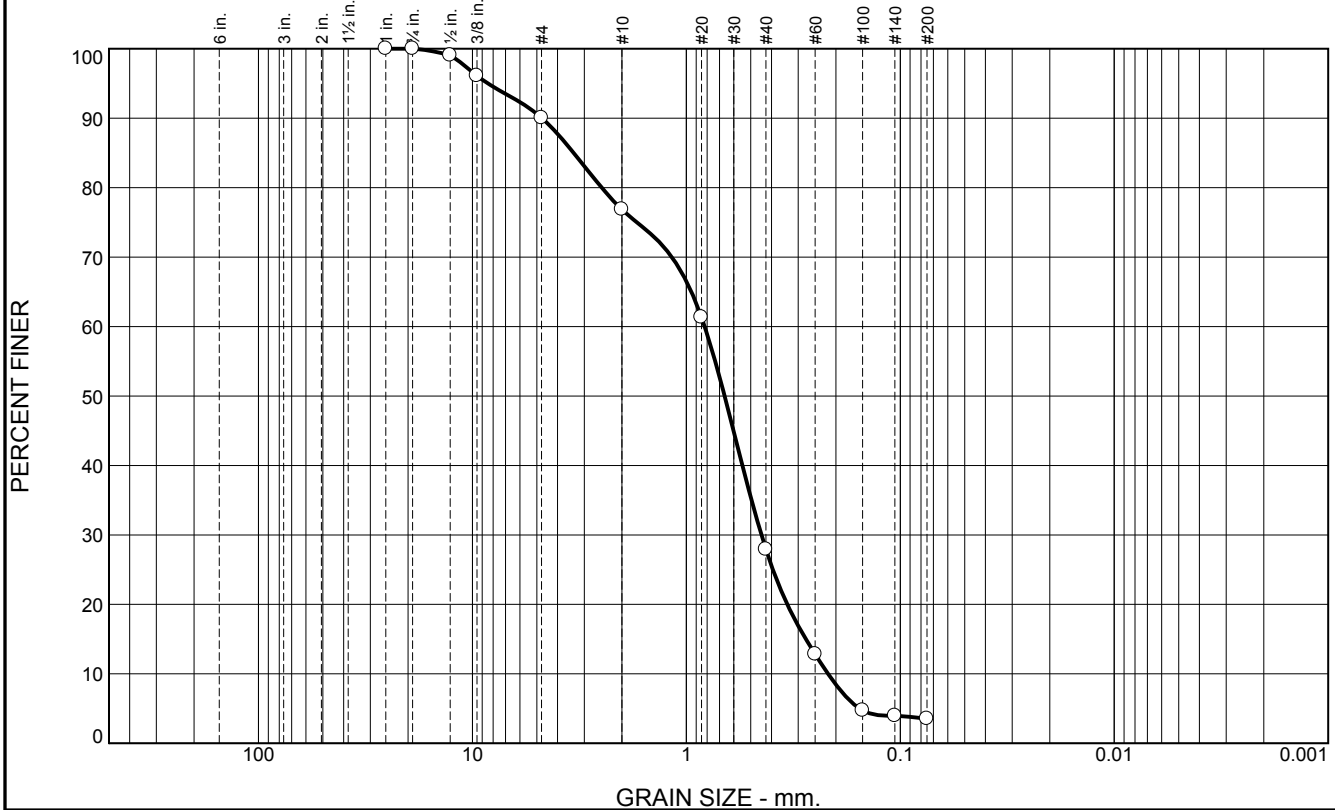
**Recovery** 18.4'

**Longitude** 088 19.968

**Comments**



# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	10.0	13.2	48.9	24.4	3.5	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
1	100.0		
.75	100.0		
.5	99.1		
.375	96.1		
#4	90.0		
#10	76.8		
#20	61.3		
#40	27.9		
#60	12.8		
#100	4.7		
#140	3.9		
#200	3.5		

\* (no specification provided)

## Material Description

Fine, medium and coarse grained, SAND, with some SHELL

## Atterberg Limits

PL= LL= PI=

## Coefficients

D<sub>90</sub>= 4.7311 D<sub>85</sub>= 3.3642 D<sub>60</sub>= 0.8215  
D<sub>50</sub>= 0.6627 D<sub>30</sub>= 0.4460 D<sub>15</sub>= 0.2764  
D<sub>10</sub>= 0.2175 C<sub>u</sub>= 3.78 C<sub>c</sub>= 1.11

## Classification

USCS= SP AASHTO=

## Remarks

Location: BI-PBS-114-12 A  
Sample Number: 6507 (18)

Depth: 0.0'

Date: 1/14/13

**Thompson Engineering**

**Mobile, Alabama**

Client: CDM/Thompson Engineering JV  
Project: MsCIP Barrier Island Restoration GT

Project No: 1221110095

Figure

# Boring Designation BI-PBS-115-12

DRILLING LOG		DIVISION South Atlantic		INSTALLATION Mobile District		SHEET 1 OF 2 SHEETS	
1. PROJECT MsCIP Barrier Island Restoration Petit Bois Pass-OCS East				9. SIZE AND TYPE OF BIT N/A			
2. BORING DESIGNATION BI-PBS-115-12		LOCATION COORDINATES E = 1,137,201 N = 235,165		10. COORDINATE SYSTEM/DATUM State Plane, MSE (U.S. Ft.)		HORIZONTAL NAD83	
3. DRILLING AGENCY Corps of Engineers - CESAM		CONTRACTOR FILE NO.		11. MANUFACTURER'S DESIGNATION OF DRILL Vibracore		<input type="checkbox"/> AUTO HAMMER <input type="checkbox"/> MANUAL HAMMER	
4. NAME OF DRILLER American Vibracore Systems, Inc.				12. TOTAL SAMPLES		DISTURBED 0	
5. DIRECTION OF BORING <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED				13. TOTAL NUMBER CORE BOXES		14. WATER DEPTH 54 Ft.	
6. THICKNESS OF OVERBURDEN N/A				15. DATE BORING		STARTED 01-12-13	
7. DEPTH DRILLED INTO ROCK N/A				16. ELEVATION TOP OF BORING -55.7 Ft.		COMPLETED 01-12-13	
8. TOTAL DEPTH OF BORING 20.0 Ft.				17. TOTAL RECOVERY FOR BORING 100%		18. SIGNATURE AND TITLE OF INSPECTOR Mike FitzHarris, Geologist	
ELEV.	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS	SAMPLE	LABORATORY RESULTS		
-55.7	0.0						
-57.4	1.7		SAND, poorly-graded, mostly fine to medium-grained sand-sized quartz, trace fines, trace shell fragments, gray (SP)	A	Classification: SP Color: 5Y 6/3-pale olive D50: 0.3711 mm % Fines: 2.1		
-61.2	5.5		CLAY, lean, mostly clay, some fine-grained sand-sized quartz, trace shell fragments, low to medium plasticity, stiff, orangy brown, gray, and greenish gray mottle (CL)	NS			
-75.7	20.0		SAND, clayey, mostly fine-grained sand-sized quartz, some clay, trace shell fragments, trace wood debris, clayey sand and silty sand zones with bands of clay throughout, gray (SC)				
NOTES: 1. Soils are field visually classified in accordance with the Unified Soils Classification System. 2. NS = Sample not submitted for laboratory analysis from this interval. 3. Seafloor elevation determined from USACE							



<b>DRILLING LOG (Cont. Sheet)</b>			<b>INSTALLATION</b> Mobile District		<b>SHEET 2</b> <b>OF 2 SHEETS</b>
<b>PROJECT</b> MsCIP Barrier Island Restoration			<b>COORDINATE SYSTEM/DATUM</b> State Plane, MSE (U.S. Ft.)	<b>HORIZONTAL</b> NAD83	<b>VERTICAL</b> NAVD88
<b>LOCATION COORDINATES</b> X = 1,137,201 Y = 235,165			<b>ELEVATION TOP OF BORING</b> -55.7 Ft.		
<b>ELEV.</b>	<b>DEPTH</b>	<b>LEGEND</b>	<b>CLASSIFICATION OF MATERIALS</b>	<b>SAMPLE</b>	<b>LABORATORY RESULTS</b>
			hydrographic survey completed April 2014.		

**Project**

Mississippi Barrier Island  
Restoration Project

**AVS**  
**AMERICAN VIBRACORE**  
**S E R V I C E S**

**Core Identifier** BI-PBS-115-12

**Date** 01/12/2013

**Water Depth** 54.0'

**Coordinate System**

Latitude / Longitude

**Start Time** 13:56:04

**End Time** 14:01:59

**Penetration** 20.0'

**Latitude** 30 08.746

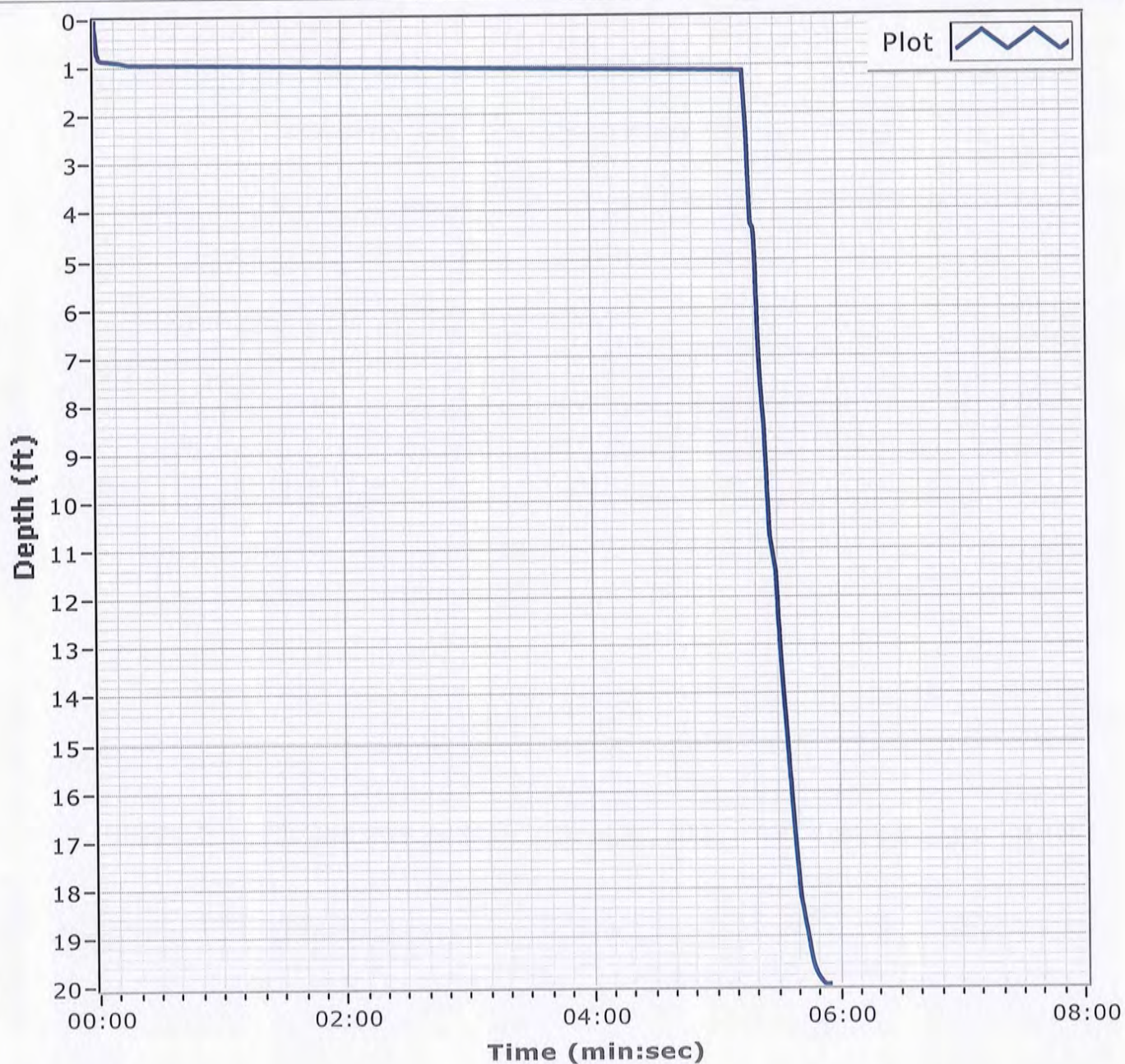
**Total Time** 00:05:55

**Recovery** 20.0'

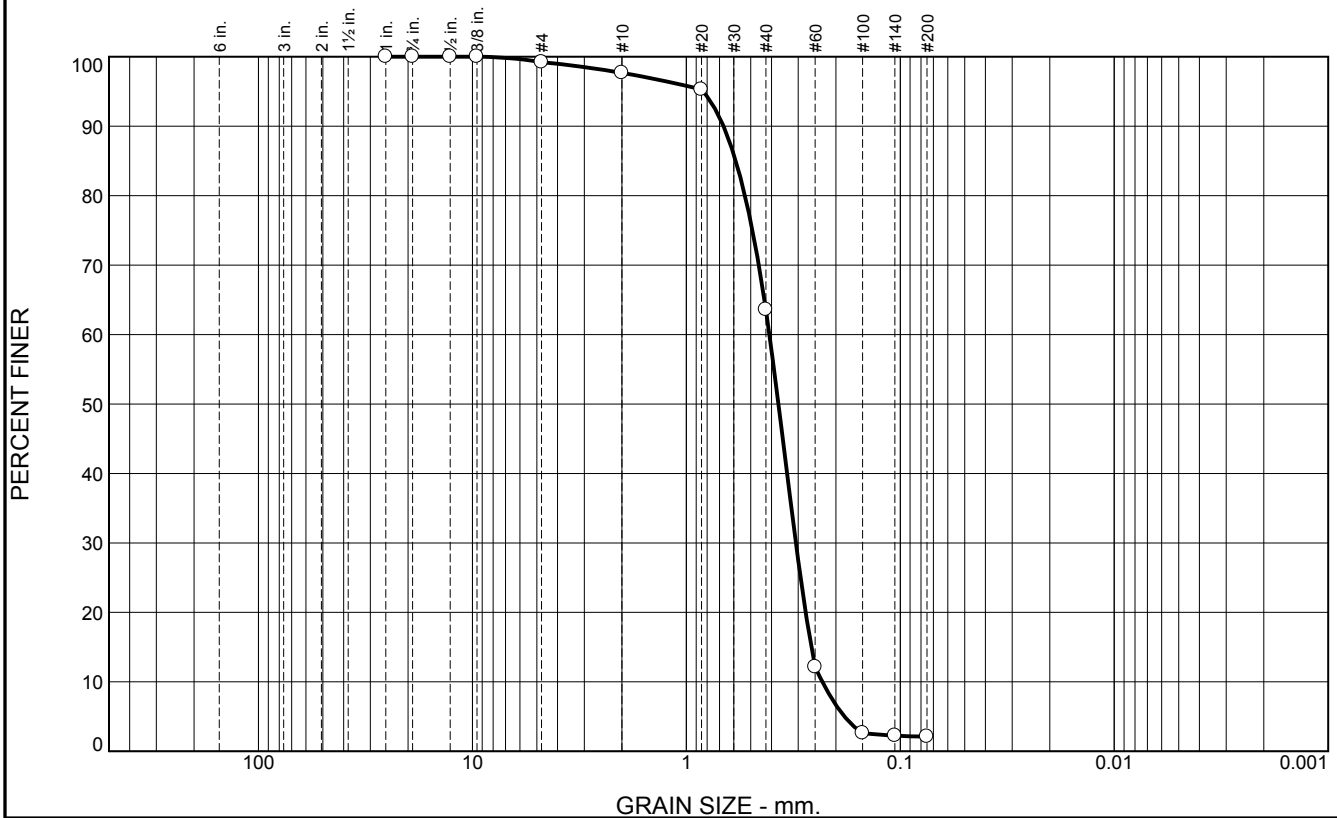
**Longitude** 088 20.966

**Comments**

@ 1.0' air hose got twisted up. Untangled air hose and continued coring.



# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.8	1.5	34.1	61.5	2.1	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
1	100.0		
.75	100.0		
.5	100.0		
.375	100.0		
#4	99.2		
#10	97.7		
#20	95.3		
#40	63.6		
#60	12.1		
#100	2.6		
#140	2.3		
#200	2.1		

\* (no specification provided)

Material Description		
Fine to medium grained, SAND		
<div> <div> Atterberg Limits </div> <div> PL= </div> <div> LL= </div> <div> PI= </div> </div>		
<div> <div> Coefficients </div> <div> D<sub>90</sub>= 0.6704 </div> <div> D<sub>50</sub>= 0.3711 </div> <div> D<sub>10</sub>= 0.2314 </div> <div> D<sub>85</sub>= 0.5872 </div> <div> D<sub>30</sub>= 0.3077 </div> <div> C<sub>u</sub>= 1.77 </div> <div> D<sub>60</sub>= 0.4092 </div> <div> D<sub>15</sub>= 0.2606 </div> <div> C<sub>c</sub>= 1.00 </div> </div>		
<div> <div> Classification </div> <div> USCS= SP </div> <div> AASHTO= </div> </div>		
<div> <div> Remarks </div> </div>		

Location: BI-PBS-115-12 A  
Sample Number: 6507 (19)

Depth: 0.0'

Date: 1/14/13

Thompson Engineering

Mobile, Alabama

Client: CDM/Thompson Engineering JV  
Project: MsCIP Barrier Island Restoration GT

Project No: 1221110095

Figure

# Boring Designation BI-PBS-120-13

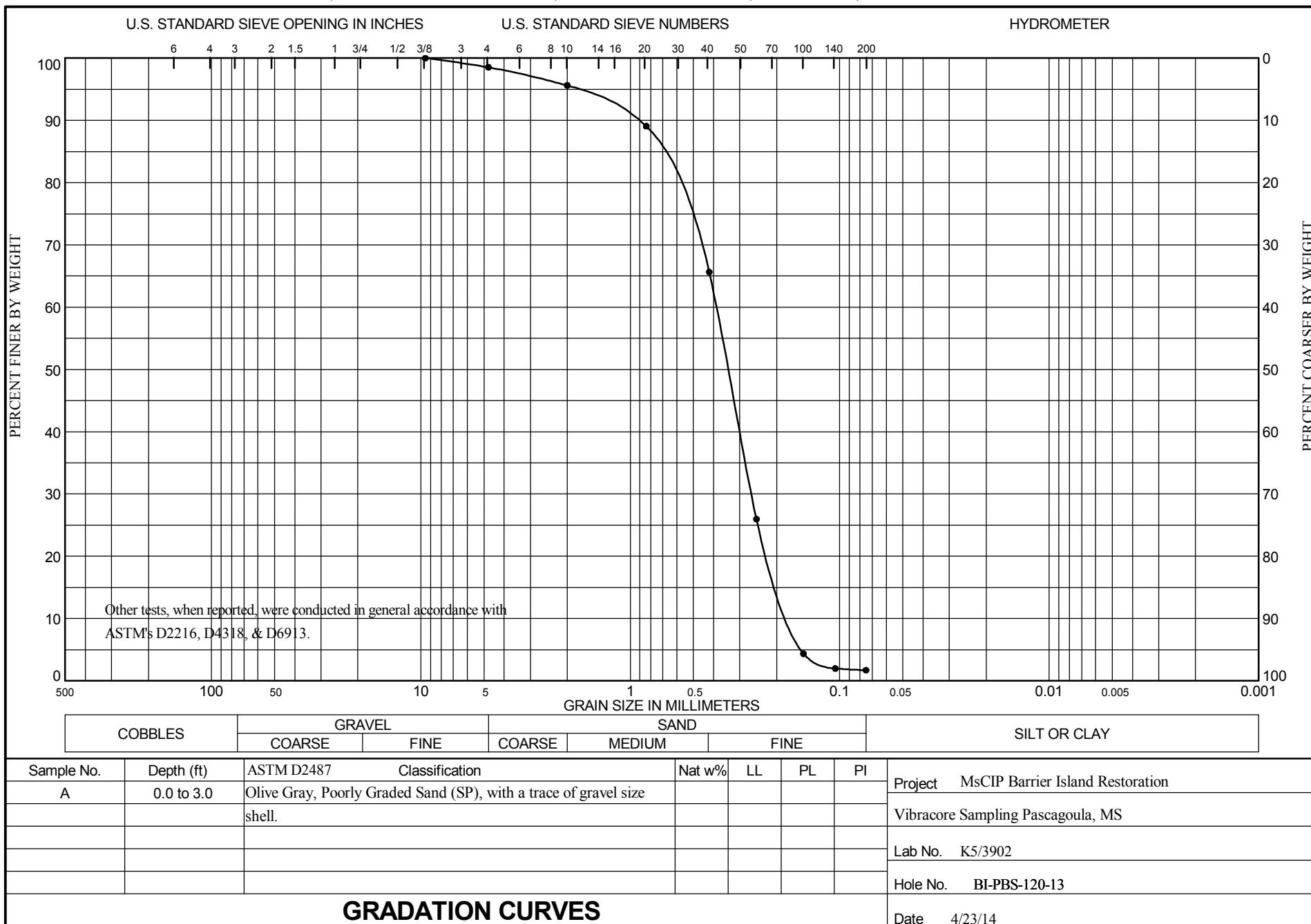
DRILLING LOG		DIVISION South Atlantic		INSTALLATION Mobile District		SHEET 1 OF 1 SHEETS		
1. PROJECT MsCIP Barrier Island Restoration Petit Bois Pass-OCS East				9. SIZE AND TYPE OF BIT N/A				
2. BORING DESIGNATION BI-PBS-120-13		LOCATION COORDINATES E = 1,135,247 N = 233,851		10. COORDINATE SYSTEM/DATUM State Plane, MSE (U.S. Ft.)		HORIZONTAL NAD83		
3. DRILLING AGENCY Corps of Engineers - CESAM		CONTRACTOR FILE NO.		11. MANUFACTURER'S DESIGNATION OF DRILL Vibrocure		<input type="checkbox"/> AUTO HAMMER <input type="checkbox"/> MANUAL HAMMER		
4. NAME OF DRILLER Construction Solutions International, Inc.				12. TOTAL SAMPLES 3		UNDISTURBED (UD) 0		
5. DIRECTION OF BORING <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED				13. TOTAL NUMBER CORE BOXES		14. WATER DEPTH 49 Ft.		
6. THICKNESS OF OVERBURDEN N/A				15. DATE BORING 12-01-13		COMPLETED 12-01-13		
7. DEPTH DRILLED INTO ROCK N/A				16. ELEVATION TOP OF BORING -48.1 Ft.		17. TOTAL RECOVERY FOR BORING 100%		
8. TOTAL DEPTH OF BORING 18.4 Ft.				18. SIGNATURE AND TITLE OF INSPECTOR Tom Powers, Geologist				
ELEV.	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS	SAMPLE	LABORATORY RESULTS			
-48.1	0.0							
			SAND, poorly-graded, mostly fine to medium-grained sand-sized quartz, some shell, lt. gray (SP)	A	Classification: SP Color: GLEY1 10Y 7/1- D50: 0.342 mm % Fines: 1.7			
				B	Classification: SP Color: GLEY1 10Y 6/1- D50: 0.31 mm % Fines: 1.9			
-54.1	6.0							
			SAND, silty, mostly fine-grained sand-sized quartz, few shell, medium gray (SM)	C	Classification: SP-SM Color: GLEY1 10Y 5/1- D50: 0.194 mm % Fines: 11.1			
-56.2	8.1							
			CLAY, lean, sandy, medium gray (CL)	NS				
-63.4	15.3							
-64.1	16.0							
			SAND, clayey, medium gray (SC)					
			CLAY, lean, sandy, medium gray (CL)					
-66.5	18.4							
		NOTES:						
		1. Soils are field visually classified in accordance with the Unified Soils Classification System.						
		2. NS = Sample not submitted for laboratory analysis from this interval.						
		3. Seafloor elevation determined from USACE hydrographic survey completed April 2014.						



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WORK ORDER: 848e

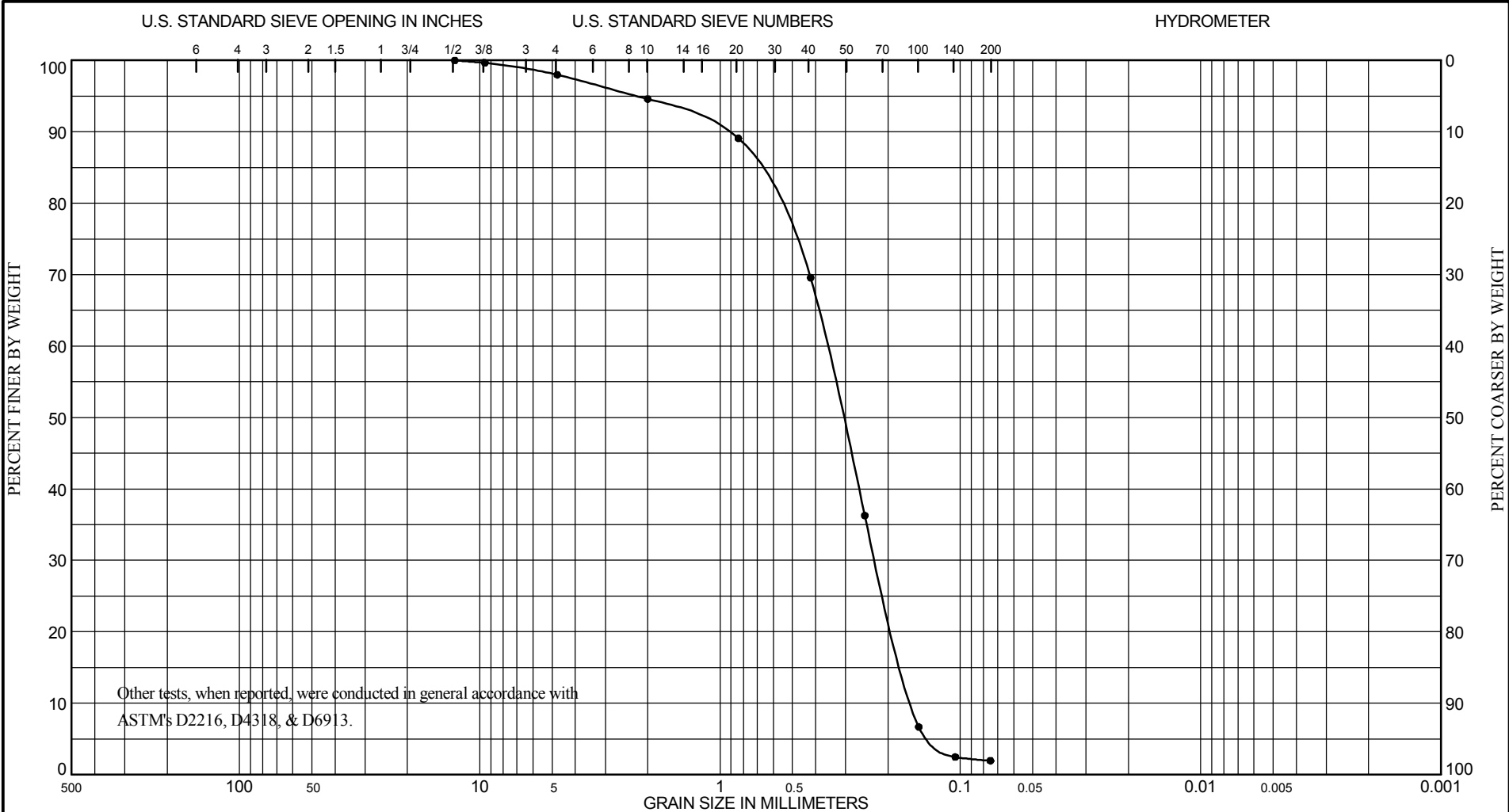
REQUISITION: W33SJG32900192





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CORPS OF ENGINEERS, 200 N. COBB PARKWAY, BLDG 400 SUITE 404, MARIETTA, GA. 30062

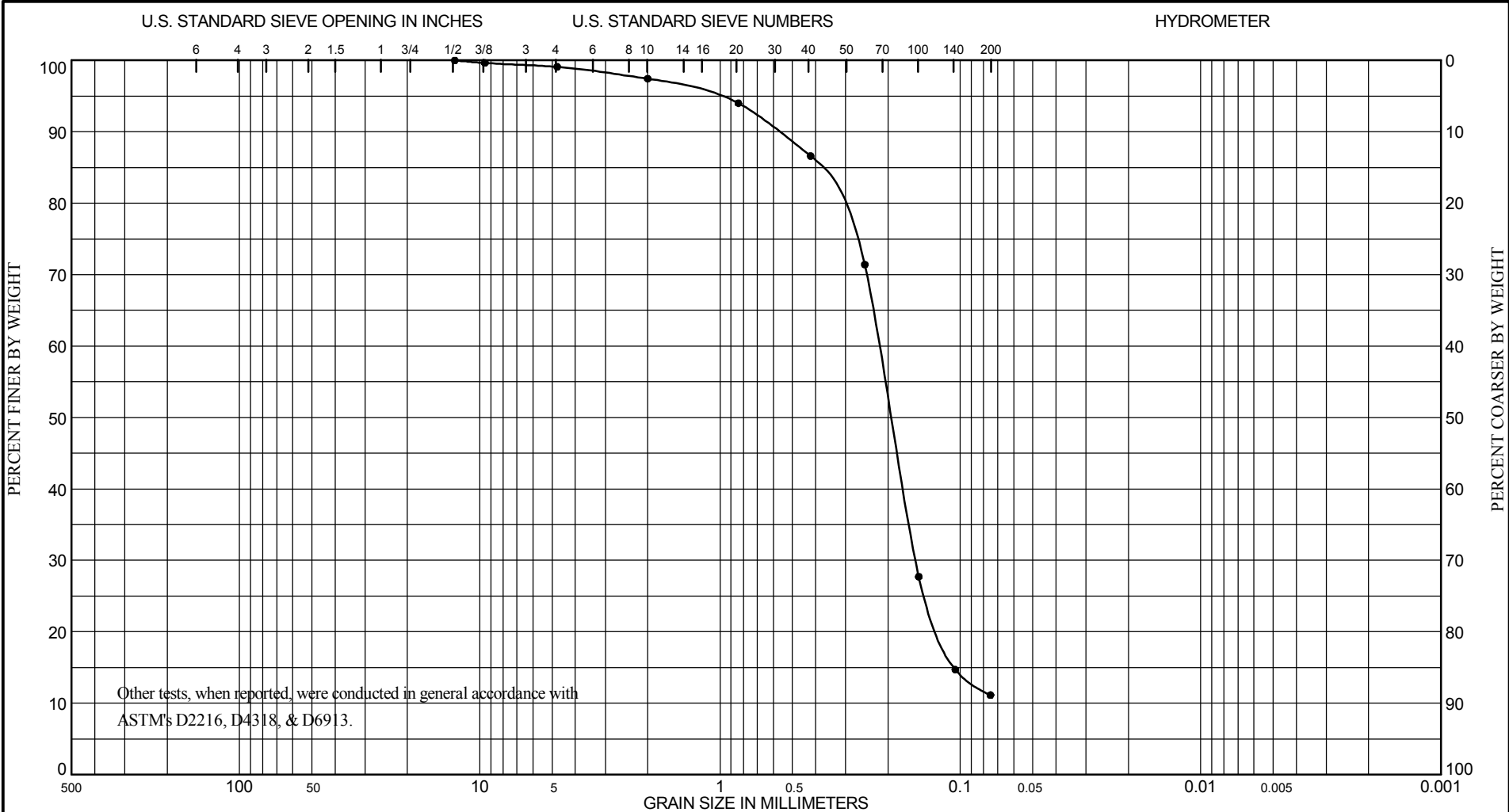
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REQUISITION: W33SJG32900192





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WORK ORDER: 848e  
REQUISITION: W33SJG32900192



COBBLES		GRAVEL		SAND			SILT OR CLAY			
		COARSE	FINE	COARSE	MEDIUM	FINE				
Sample No.	Depth (ft)	ASTM D2487 Classification			Nat w%	LL	PL	PI	Project	MsCIP Barrier Island Restoration
C	6.0 to 8.1	Dark Greenish Gray, Poorly Graded Silty Sand (SP-SM).							Vibracore Sampling Pascagoula, MS	
									Lab No.	K5/3904
									Hole No.	BI-PBS-120-13
GRADATION CURVES									Date	4/23/14

# Boring Designation BI-PBS-121-13

DRILLING LOG		DIVISION South Atlantic		INSTALLATION Mobile District		SHEET 1 OF 1 SHEETS	
1. PROJECT MsCIP Barrier Island Restoration Petit Bois Pass-OCS East				9. SIZE AND TYPE OF BIT N/A			
2. BORING DESIGNATION BI-PBS-121-13		LOCATION COORDINATES E = 1,130,200 N = 235,842		10. COORDINATE SYSTEM/DATUM State Plane, MSE (U.S. Ft.)		HORIZONTAL NAD83	
3. DRILLING AGENCY Corps of Engineers - CESAM		CONTRACTOR FILE NO.		11. MANUFACTURER'S DESIGNATION OF DRILL Vibrocure		<input type="checkbox"/> AUTO HAMMER <input type="checkbox"/> MANUAL HAMMER	
4. NAME OF DRILLER Construction Solutions International, Inc.				12. TOTAL SAMPLES 2		DISTURBED 0	
5. DIRECTION OF BORING <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED				13. TOTAL NUMBER CORE BOXES		14. WATER DEPTH 52 Ft.	
6. THICKNESS OF OVERBURDEN N/A				15. DATE BORING 12-01-13		STARTED 12-01-13	
7. DEPTH DRILLED INTO ROCK N/A				16. ELEVATION TOP OF BORING -51.1 Ft.		COMPLETED 12-01-13	
8. TOTAL DEPTH OF BORING 18.2 Ft.				17. TOTAL RECOVERY FOR BORING 100%		18. SIGNATURE AND TITLE OF INSPECTOR Tom Powers, Geologist	
ELEV.	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS	SAMPLE	LABORATORY RESULTS		
-51.1	0.0						
-53.1	2.0		SAND, poorly-graded, mostly fine-grained sand-sized quartz, little shell, lt. gray (SP)	A	Classification: SP Color: GLEY1 10Y 6/1- D50: 0.219 mm % Fines: 3.6		
-54.5	3.4		SAND, silty, mostly fine-grained sand-sized quartz, little shell, medium gray (SM)	B	Classification: SP-SM Color: GLEY1 10Y 6/1- D50: 0.198 mm % Fines: 10.5		
			CLAY, lean, few sand pockets, CL-CH, brownish gray (CL)	NS			
-69.3	18.2						
NOTES: 1. Soils are field visually classified in accordance with the Unified Soils Classification System. 2. NS = Sample not submitted for laboratory analysis from this interval. 3. Seafloor elevation calculated using sampling vessel's fathometer water depth reading and applying NOAA tidal gauge data conversion factor.							





REQUISITION: W33SJG32900192



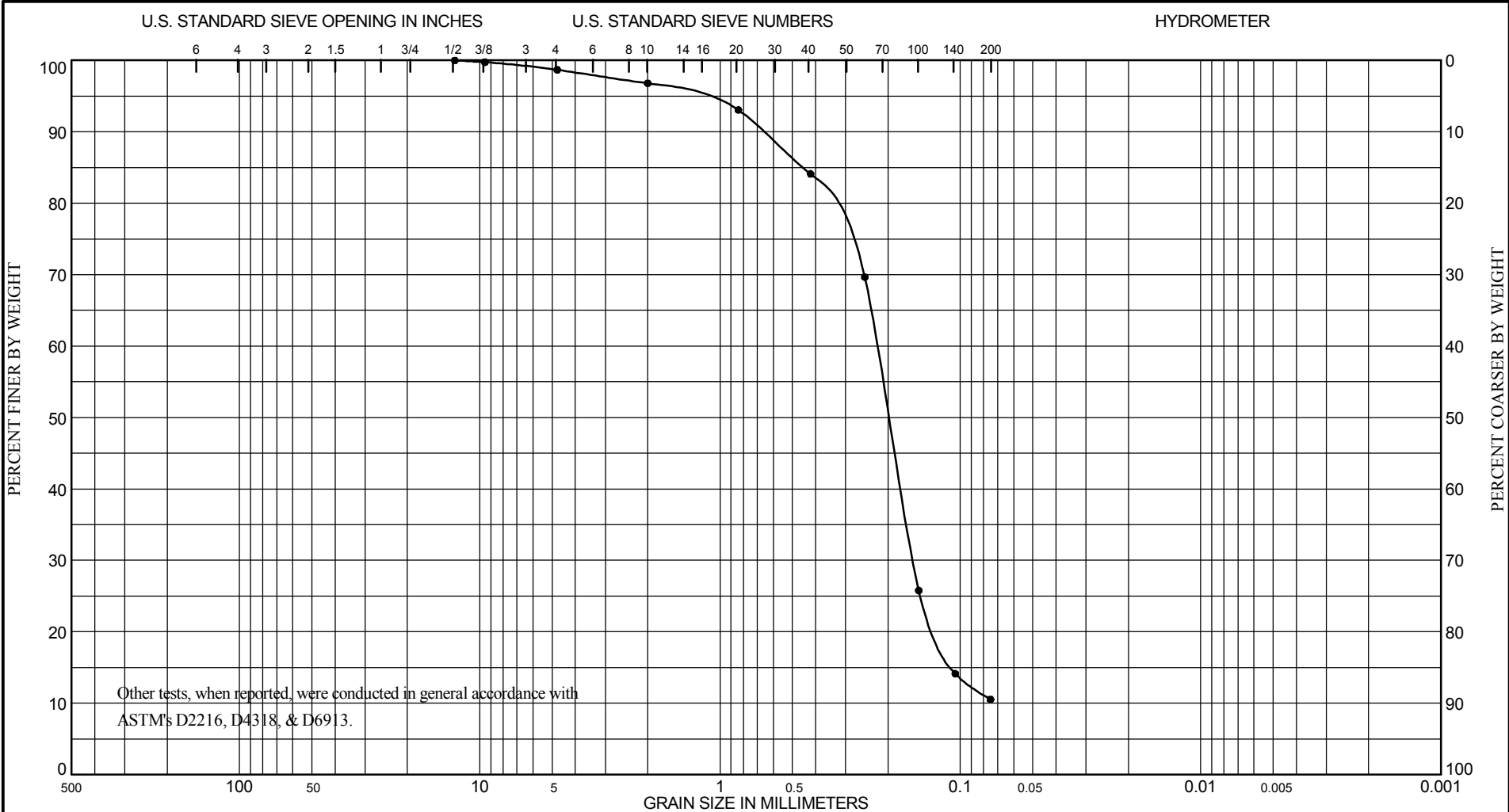
### PERCENT COARSER BY WEIGHT

Sample No.	Depth (ft)	ASTM D2487 Classification	Nat w%	LL	PL	PI	Project	MsCIP Barrier Island Restoration
A	0.0 to 2.0	Greenish Gray, Poorly Graded Sand (SP).						
								Vibracore Sampling Pascagoula, MS
							Lab No.	K5/3911
							Hole No.	BI-PBS-121-13
<b>GRADATION CURVES</b>							Date	4/23/14



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WORK ORDER: 848e  
REQUISITION: W33SJG32900192



COBBLES		GRAVEL		SAND			SILT OR CLAY		
		COARSE	FINE	COARSE	MEDIUM	FINE			
Sample No.	Depth (ft)	ASTM D2487 Classification			Nat w%	LL	PL	PI	Project    MsCIP Barrier Island Restoration
B	2.0 to 3.4	Dark Greenish Gray, Poorly Graded Silty Sand (SP-SM), with a trace of gravel size shell.							
									Vibracore Sampling Pascagoula, MS
									Lab No.    K5/3912
									Hole No.    BI-PBS-121-13
GRADATION CURVES									Date    4/23/14

GRADATION CURVES

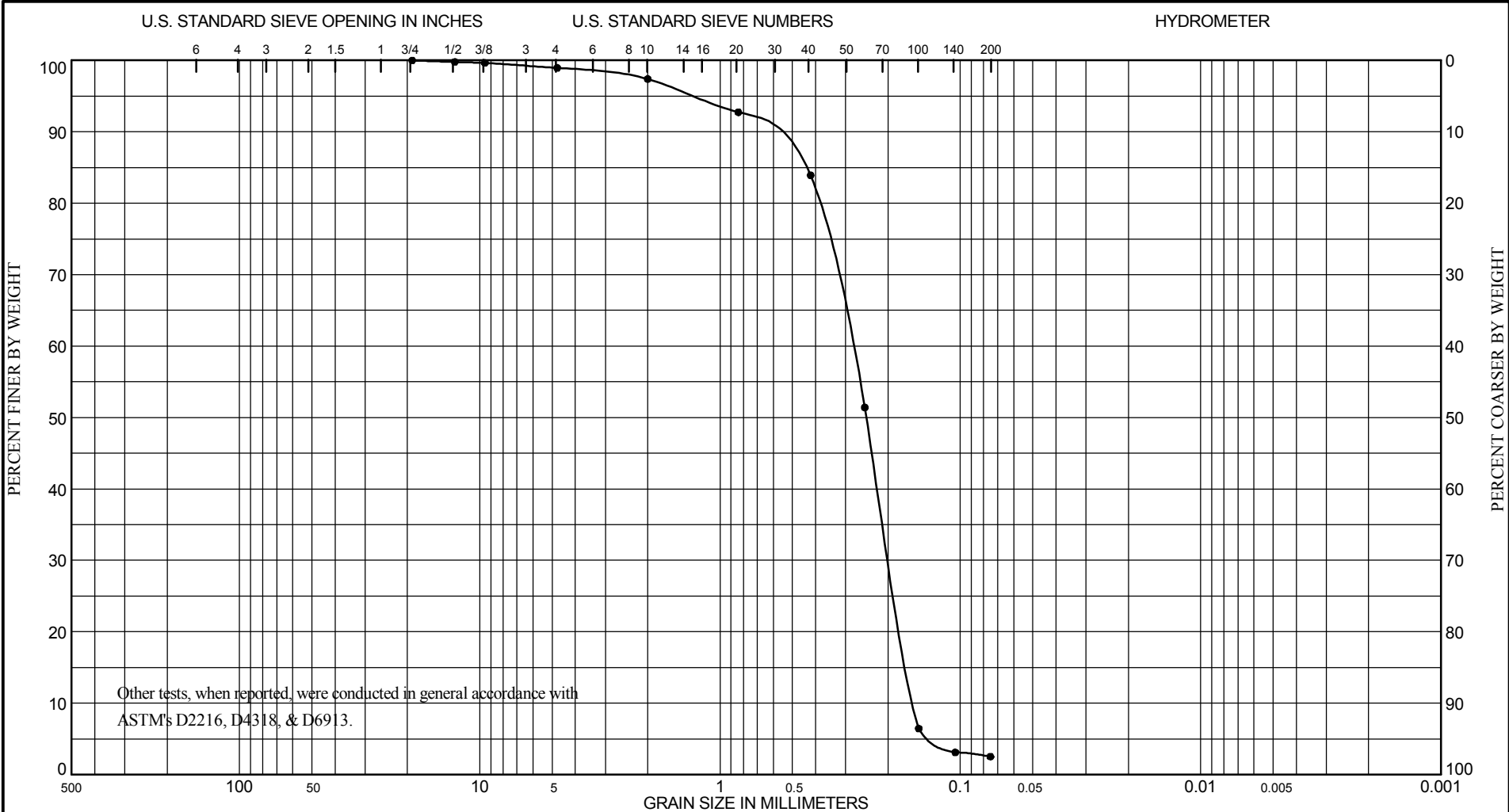
# Boring Designation BI-PBS-122-13

DRILLING LOG		DIVISION South Atlantic		INSTALLATION Mobile District		SHEET 1 OF 1 SHEETS	
1. PROJECT MsCIP Barrier Island Restoration Petit Bois Pass-OCS East				9. SIZE AND TYPE OF BIT N/A			
2. BORING DESIGNATION BI-PBS-122-13		LOCATION COORDINATES E = 1,135,969 N = 232,825		10. COORDINATE SYSTEM/DATUM State Plane, MSE (U.S. Ft.)		HORIZONTAL NAD83	
3. DRILLING AGENCY Corps of Engineers - CESAM		CONTRACTOR FILE NO.		11. MANUFACTURER'S DESIGNATION OF DRILL Vibrocure		<input type="checkbox"/> AUTO HAMMER <input type="checkbox"/> MANUAL HAMMER	
4. NAME OF DRILLER Construction Solutions International, Inc.				12. TOTAL SAMPLES 2		UNDISTURBED (UD) 0	
5. DIRECTION OF BORING <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED				13. TOTAL NUMBER CORE BOXES		14. WATER DEPTH 48 Ft.	
6. THICKNESS OF OVERBURDEN N/A				15. DATE BORING 12-01-13		STARTED 12-01-13	
7. DEPTH DRILLED INTO ROCK N/A				16. ELEVATION TOP OF BORING -48.0 Ft.		COMPLETED 12-01-13	
8. TOTAL DEPTH OF BORING 17.4 Ft.				17. TOTAL RECOVERY FOR BORING 100%			
				18. SIGNATURE AND TITLE OF INSPECTOR Tom Powers, Geologist			
ELEV.	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS	SAMPLE	LABORATORY RESULTS		
-48.0	0.0						
			SAND, poorly-graded, mostly fine to medium-grained sand-sized quartz, trace coarse-grained quartz sand, lt. gray (SP)	A	Classification: SP Color: GLEY1 10Y 6/1- D50: 0.246 mm % Fines: 2.5		
-53.0	5.0		SAND, silty, mostly fine-grained sand-sized quartz, little shell, medium gray (SM)	B	Classification: SP-SM Color: GLEY1 10Y 5/1- D50: 0.185 mm % Fines: 11.9		
-56.4	8.4		CLAY, fat, little pockets of silty sand, 1-inch thick, upper 4 feet of strata, light greenish gray (CH)	NS			
-65.4	17.4						
			NOTES: 1. Soils are field visually classified in accordance with the Unified Soils Classification System. 2. NS = Sample not submitted for laboratory analysis from this interval. 3. Seafloor elevation determined from USACE hydrographic survey completed April 2014.				



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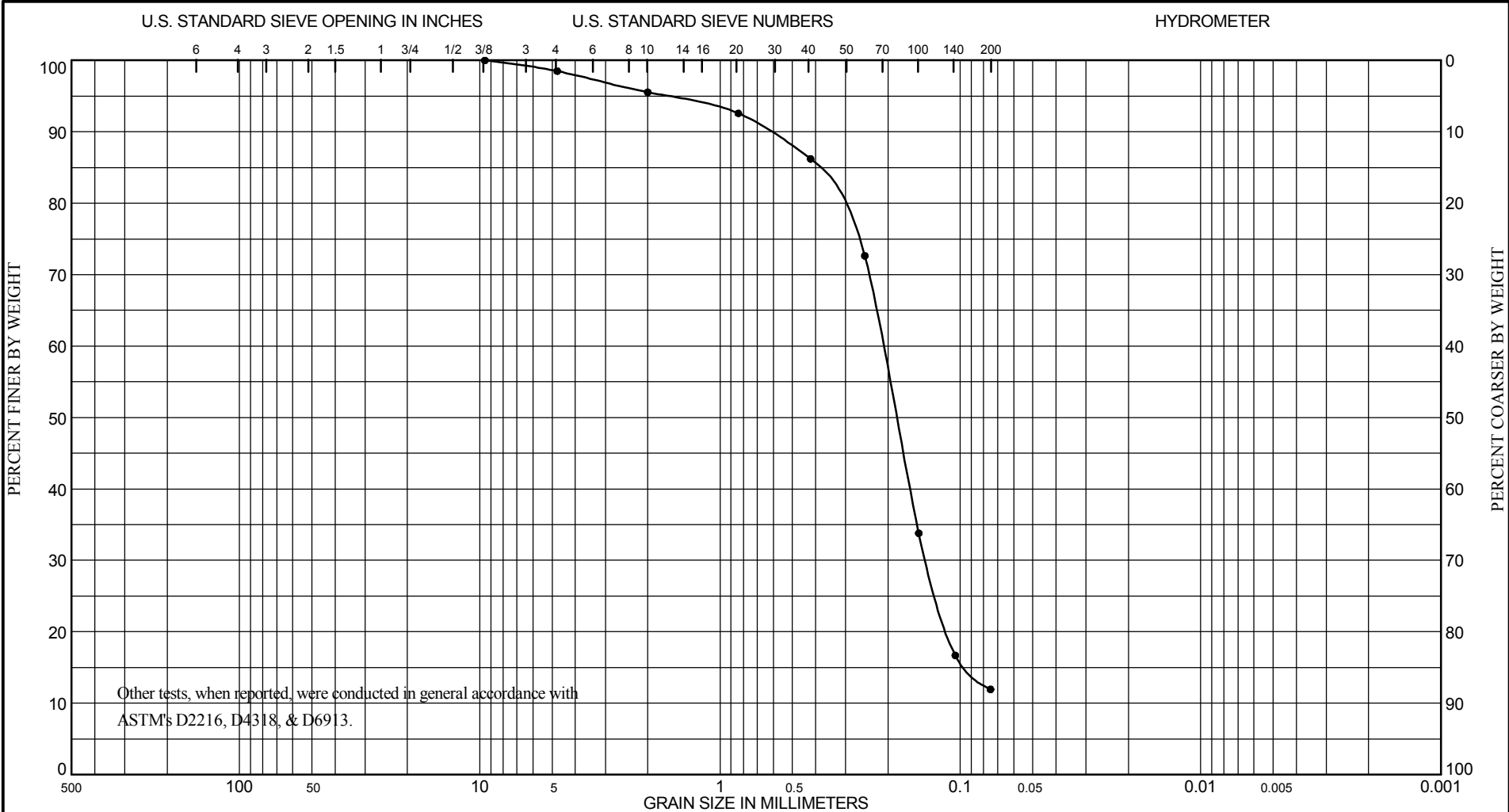
WORK ORDER: 848e  
REQUISITION: W33SJG32900192





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WORK ORDER: 848e  
REQUISITION: W33SJG32900192



COBBLES		GRAVEL		SAND			SILT OR CLAY		
		COARSE	FINE	COARSE	MEDIUM	FINE			
Sample No.	Depth (ft)	ASTM D2487 Classification			Nat w%	LL	PL	PI	Project    MsCIP Barrier Island Restoration
B	5.0 to 8.4	Very Dark Greenish Gray, Poorly Graded Silty Sand (SP-SM), with a trace of gravel size shell.							
									Vibracore Sampling Pascagoula, MS
									Lab No.    K5/3901
									Hole No.    BI-PBS-122-13
GRADATION CURVES									Date    4/23/14

GRADATION CURVES

# Boring Designation BI-PBS-123-13

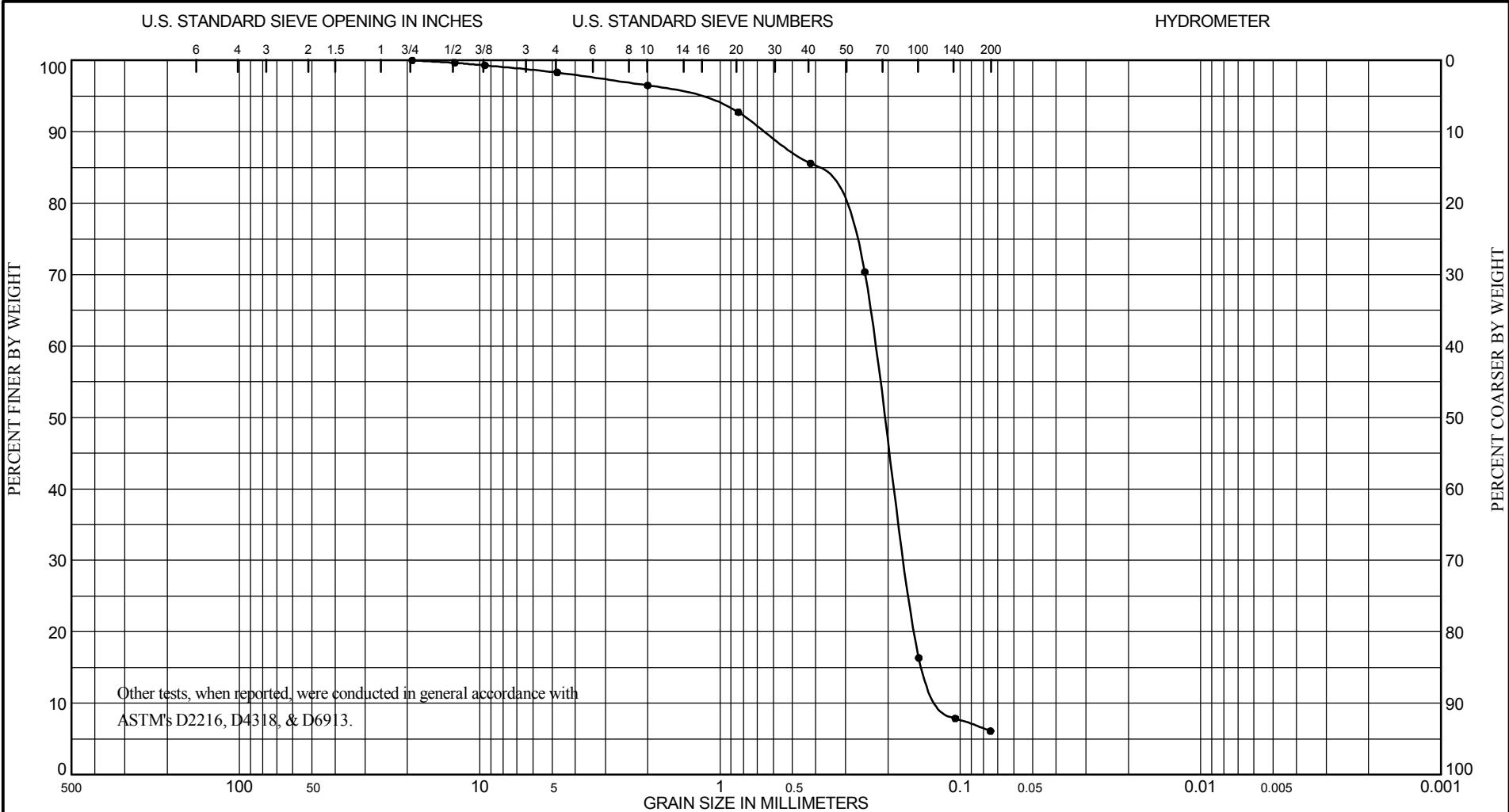
DRILLING LOG		DIVISION South Atlantic		INSTALLATION Mobile District		SHEET 1 OF 2 SHEETS	
1. PROJECT MsCIP Barrier Island Restoration Petit Bois Pass-OCS East				9. SIZE AND TYPE OF BIT N/A			
2. BORING DESIGNATION BI-PBS-123-13		LOCATION COORDINATES E = 1,131,230 N = 235,261		10. COORDINATE SYSTEM/DATUM State Plane, MSE (U.S. Ft.)		HORIZONTAL NAD83	
3. DRILLING AGENCY Corps of Engineers - CESAM		CONTRACTOR FILE NO.		11. MANUFACTURER'S DESIGNATION OF DRILL Vibrocure		<input type="checkbox"/> AUTO HAMMER <input type="checkbox"/> MANUAL HAMMER	
4. NAME OF DRILLER Construction Solutions International, Inc.				12. TOTAL SAMPLES 2		DISTURBED 0	
5. DIRECTION OF BORING <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED				13. TOTAL NUMBER CORE BOXES		14. WATER DEPTH 50 Ft.	
6. THICKNESS OF OVERBURDEN N/A				15. DATE BORING 12-01-13		STARTED 12-01-13	
7. DEPTH DRILLED INTO ROCK N/A				16. ELEVATION TOP OF BORING -49.5 Ft.		COMPLETED 12-01-13	
8. TOTAL DEPTH OF BORING 20.0 Ft.				17. TOTAL RECOVERY FOR BORING 100%			
				18. SIGNATURE AND TITLE OF INSPECTOR Tom Powers, Geologist			
ELEV.	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS	SAMPLE	LABORATORY RESULTS		
-49.5	0.0						
			SAND, silty, mostly fine-grained sand-sized quartz, little shell, medium gray (SM)	A	Classification: SP-SM Color: GLEY1 10Y 6/1- D50: 0.206 mm % Fines: 6.1		
				B	Classification: SM Color: 2.5Y 5/1-gray D50: 0.193 mm % Fines: 14.6		
-55.2	5.7						
			CLAY, lean, sandy from depth of 5.7 to 14 feet, non-sandy from 14 to depth of 20 feet, medium gray (CL)	NS			
-69.5	20.0						
			NOTES: 1. Soils are field visually classified in accordance with the Unified Soils Classification System. 2. NS = Sample not submitted for laboratory analysis from this interval. 3. Seafloor elevation determined from USACE				

<b>DRILLING LOG (Cont. Sheet)</b>			<b>INSTALLATION</b> Mobile District		<b>SHEET 2</b> <b>OF 2 SHEETS</b>
<b>PROJECT</b> MsCIP Barrier Island Restoration			<b>COORDINATE SYSTEM/DATUM</b> State Plane, MSE (U.S. Ft.)	<b>HORIZONTAL</b> NAD83	<b>VERTICAL</b> NAVD88
<b>LOCATION COORDINATES</b> X = 1,131,230 Y = 235,261			<b>ELEVATION TOP OF BORING</b> -49.5 Ft.		
<b>ELEV.</b>	<b>DEPTH</b>	<b>LEGEND</b>	<b>CLASSIFICATION OF MATERIALS</b>	<b>SAMPLE</b>	<b>LABORATORY RESULTS</b>
			hydrographic survey completed April 2014.		



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WORK ORDER: 848e  
REQUISITION: W33SJG32900192



COBBLES		GRAVEL		SAND			SILT OR CLAY		
		COARSE	FINE	COARSE	MEDIUM	FINE			
Sample No.	Depth (ft)	ASTM D2487 Classification			Nat w%	LL	PL	PI	Project    MsCIP Barrier Island Restoration
A	0.0 to 2.3	Dark Greenish Gray, Poorly Graded Silty Sand (SP-SM), with a trace of gravel size shell.							
									Vibracore Sampling Pascagoula, MS
									Lab No.    K5/3908
									Hole No.    BI-PBS-123-13
GRADATION CURVES									Date    4/23/14

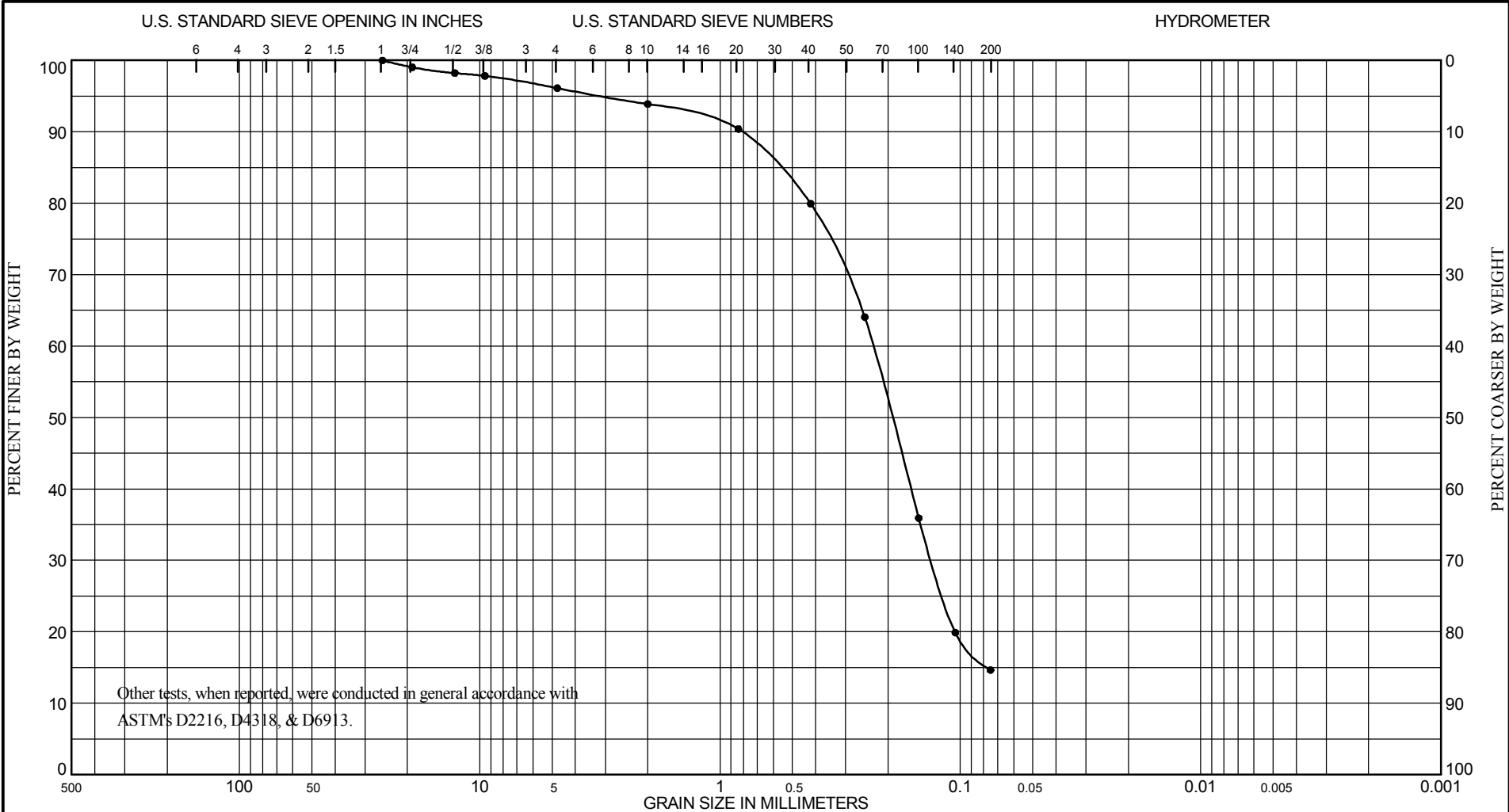
GRADATION CURVES





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WORK ORDER: 848e  
REQUISITION: W33SJG32900192



COBBLES		GRAVEL		SAND			SILT OR CLAY		
		COARSE	FINE	COARSE	MEDIUM	FINE			
Sample No.	Depth (ft)	ASTM D2487 Classification			Nat w%	LL	PL	PI	Project    MsCIP Barrier Island Restoration
B	2.3 to 5.7	Dark Greenish Gray, Silty Sand (SM), with a trace of gravel size							
		shell.							Vibracore Sampling Pascagoula, MS
									Lab No.    K5/3909
									Hole No.    BI-PBS-123-13
GRADATION CURVES									Date    4/23/14

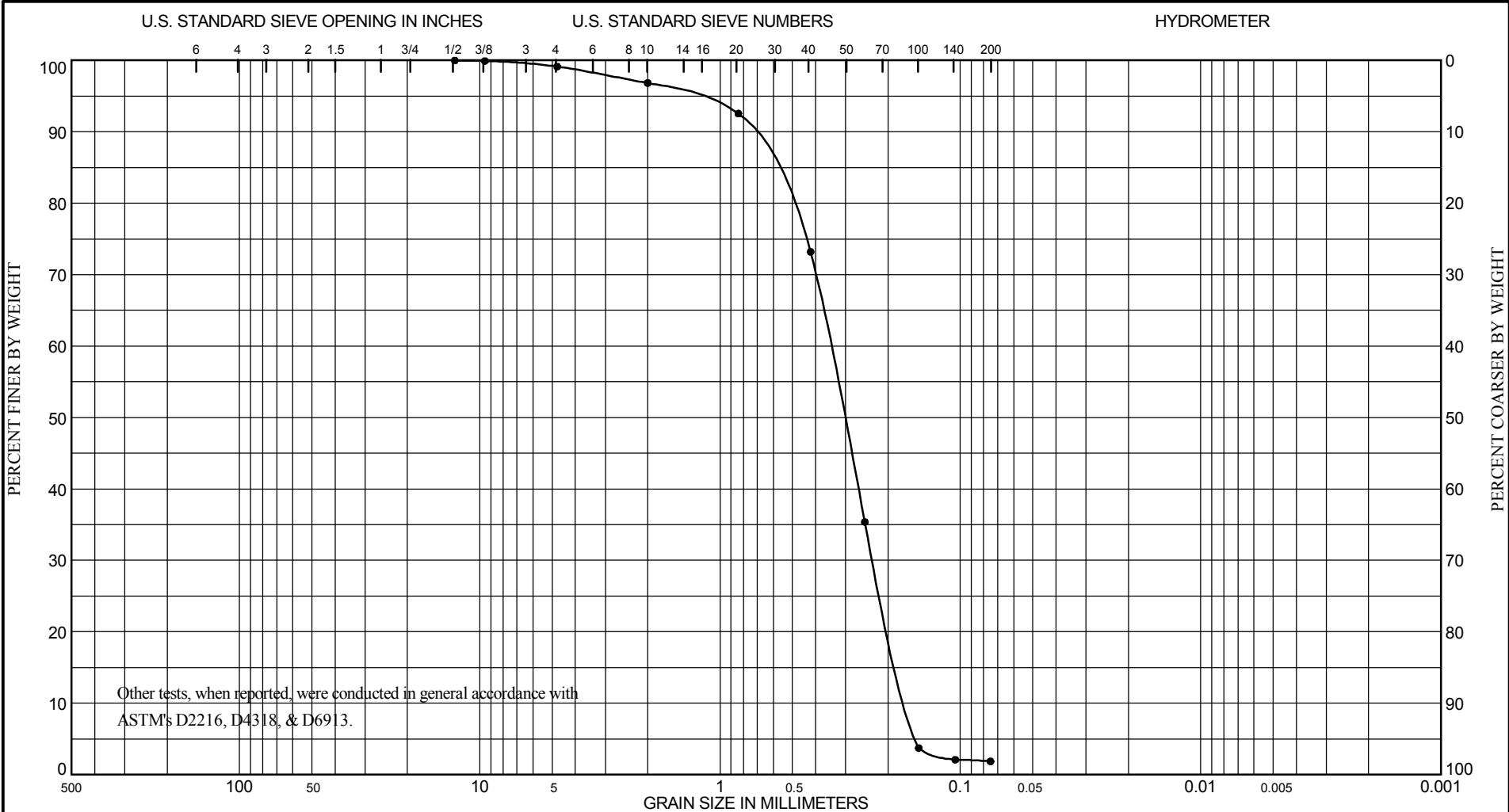
# Boring Designation BI-PBS-124-13

DRILLING LOG		DIVISION South Atlantic		INSTALLATION Mobile District		SHEET 1 OF 1 SHEETS	
1. PROJECT MsCIP Barrier Island Restoration Petit Bois Pass-OCS East				9. SIZE AND TYPE OF BIT N/A			
2. BORING DESIGNATION BI-PBS-124-13		LOCATION COORDINATES E = 1,133,046 N = 234,126		10. COORDINATE SYSTEM/DATUM State Plane, MSE (U.S. Ft.)		HORIZONTAL NAD83	
3. DRILLING AGENCY Corps of Engineers - CESAM		CONTRACTOR FILE NO.		11. MANUFACTURER'S DESIGNATION OF DRILL Vibrocure		<input type="checkbox"/> AUTO HAMMER <input type="checkbox"/> MANUAL HAMMER	
4. NAME OF DRILLER Construction Solutions International, Inc.				12. TOTAL SAMPLES 3		DISTURBED 0	
5. DIRECTION OF BORING <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED				13. TOTAL NUMBER CORE BOXES		14. WATER DEPTH 46 Ft.	
6. THICKNESS OF OVERBURDEN N/A				15. DATE BORING 12-01-13		STARTED 12-01-13	
7. DEPTH DRILLED INTO ROCK N/A				16. ELEVATION TOP OF BORING -45.5 Ft.		COMPLETED 12-01-13	
8. TOTAL DEPTH OF BORING 18.7 Ft.				17. TOTAL RECOVERY FOR BORING 100%		18. SIGNATURE AND TITLE OF INSPECTOR Tom Powers, Geologist	
ELEV.	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS	SAMPLE	LABORATORY RESULTS		
-45.5	0.0						
			SAND, poorly-graded, mostly fine to medium-grained sand-sized quartz, some shell, lt. gray (SP)	A	Classification: SP Color: GLEY1 10Y 7/1- D50: 0.306 mm % Fines: 1.8		
				B	Classification: SP Color: GLEY1 10Y 7/1- D50: 0.362 mm % Fines: 1.5		
-53.3	7.8						
			SAND, silty, mostly fine-grained sand-sized quartz, little shell, medium gray (SM)	C	Classification: SP-SM Color: GLEY1 10Y 5/1- D50: 0.193 mm % Fines: 9.2		
-56.0	10.5						
			CLAY, lean, sandy CL-CH, orangish gray down to 13.9 ft. over lt. greenish gray (CL)	NS			
-64.2	18.7						
			NOTES: 1. Soils are field visually classified in accordance with the Unified Soils Classification System. 2. NS = Sample not submitted for laboratory analysis from this interval. 3. Seafloor elevation determined from USACE hydrographic survey completed April 2014.				



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WORK ORDER: 848e  
REQUISITION: W33SJG32900192



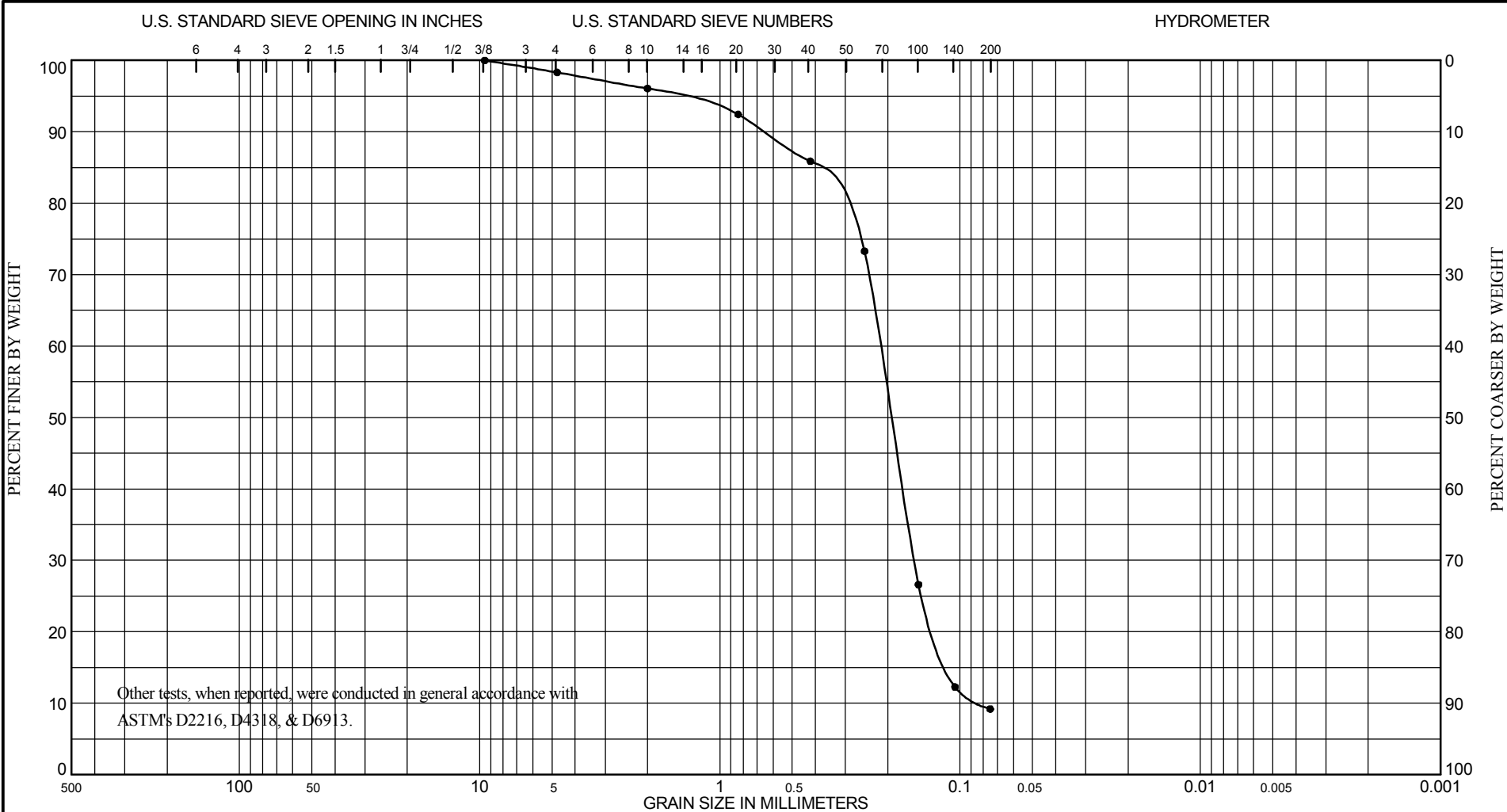
COBBLES		GRAVEL		SAND			SILT OR CLAY			
		COARSE	FINE	COARSE	MEDIUM	FINE				
Sample No.	Depth (ft)	ASTM D2487 Classification			Nat w%	LL	PL	PI	Project	MsCIP Barrier Island Restoration
A	0.0 to 4.0	Olive Gray, Poorly Graded Sand (SP).							Vibracore Sampling	Pascagoula, MS
									Lab No.	K5/3905
									Hole No.	BI-PBS-124-13
GRADATION CURVES									Date	4/23/14





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WORK ORDER: 848e  
REQUISITION: W33SJG32900192



COBBLES		GRAVEL		SAND			SILT OR CLAY			
		COARSE	FINE	COARSE	MEDIUM	FINE				
Sample No.	Depth (ft)	ASTM D2487 Classification			Nat w%	LL	PL	PI	Project	MsCIP Barrier Island Restoration
C	7.8 to 10.5	Dark Greenish Gray, Poorly Graded Silty Sand (SP-SM), with a trace of gravel size shell.							Vibracore Sampling	Pascagoula, MS
									Lab No.	K5/3907
									Hole No.	BI-PBS-124-13
GRADATION CURVES									Date	4/23/14

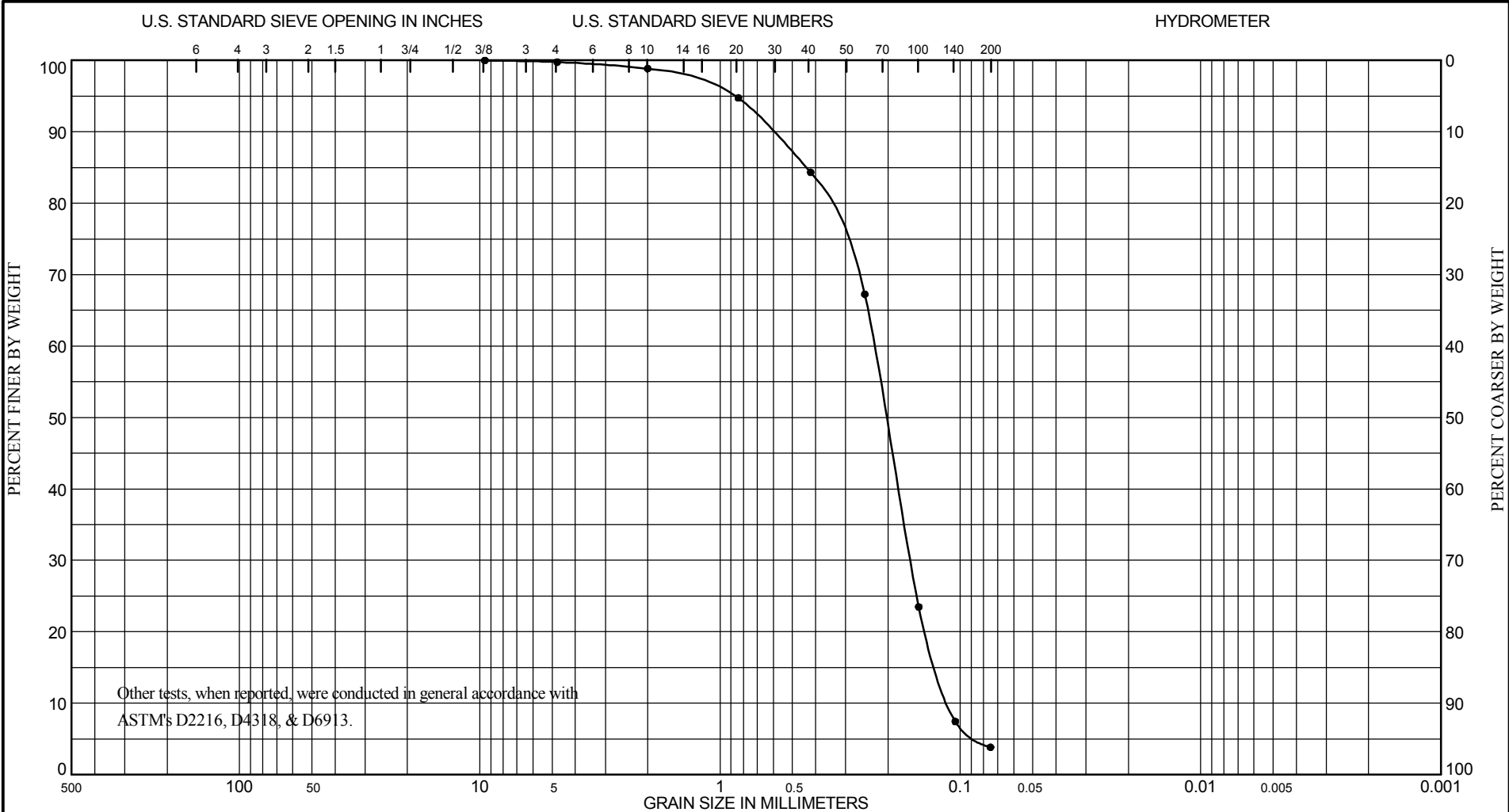
# Boring Designation BI-PBS-127-13

DRILLING LOG		DIVISION South Atlantic		INSTALLATION Mobile District		SHEET 1 OF 1 SHEETS	
1. PROJECT MsCIP Barrier Island Restoration Petit Bois Pass-OCS East				9. SIZE AND TYPE OF BIT N/A			
2. BORING DESIGNATION BI-PBS-127-13		LOCATION COORDINATES E = 1,136,897 N = 237,452		10. COORDINATE SYSTEM/DATUM State Plane, MSE (U.S. Ft.)		HORIZONTAL NAD83	
3. DRILLING AGENCY Corps of Engineers - CESAM		CONTRACTOR FILE NO.		11. MANUFACTURER'S DESIGNATION OF DRILL Vibrocure		<input type="checkbox"/> AUTO HAMMER <input type="checkbox"/> MANUAL HAMMER	
4. NAME OF DRILLER Construction Solutions International, Inc.				12. TOTAL SAMPLES 6		UNDISTURBED (UD) 0	
5. DIRECTION OF BORING <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED				13. TOTAL NUMBER CORE BOXES		14. WATER DEPTH 55 Ft.	
6. THICKNESS OF OVERBURDEN N/A				15. DATE BORING 11-30-13		COMPLETED 11-30-13	
7. DEPTH DRILLED INTO ROCK N/A				16. ELEVATION TOP OF BORING -54.9 Ft.		17. TOTAL RECOVERY FOR BORING 100%	
8. TOTAL DEPTH OF BORING 16.6 Ft.				18. SIGNATURE AND TITLE OF INSPECTOR Tom Powers, Geologist			
ELEV.	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS	SAMPLE	LABORATORY RESULTS		
-54.9	0.0						
-55.9	1.0		SAND, poorly-graded, mostly fine-grained sand-sized quartz, lt. brown (SP)	A	Classification: SP Color: 2.5Y 6/1-gray D50: 0.204 mm % Fines: 3.8		
-59.1	4.2		SAND, silty, clayey, mostly fine-grained sand-sized quartz, few wood fragments at depth of 3.6 ft., brownish gray (SC-SM)	B	Classification: SM Color: GLEY1 10Y 5/1- D50: 0.162 mm % Fines: 23.4		
-65.6	10.7		SAND, silty, mostly fine-grained sand-sized quartz, few wood fragments at depth of 6.4 ft., brownish gray (SM)	C	Classification: SM Color: 2.5Y 6/1-gray D50: 0.233 mm % Fines: 14.6		
-67.6	12.7		SAND, poorly-graded, mostly fine-grained sand-sized quartz, lt. brown (SP)	D	Classification: SP-SM Color: 2.5Y 7/1-light gray D50: 0.167 mm % Fines: 8.7		
-70.8	15.9		SAND, silty, clayey, mostly fine-grained sand-sized quartz, brownish gray (SC-SM)	E	Classification: SM Color: 2.5Y 6/1-gray D50: 0.149 mm % Fines: 23.8		
-71.5	16.6		SAND, poorly-graded, mostly fine to medium-grained sand-sized quartz, lt. brown (SP)	F	Classification: SP-SM Color: 2.5Y 6/1-gray D50: 0.389 mm % Fines: 10.8		
NOTES: 1. Soils are field visually classified in accordance with the Unified Soils Classification System. 2. NS = Sample not submitted for laboratory analysis from this interval. 3. Seafloor elevation calculated using sampling vessel's fathometer water depth reading and applying NOAA tidal gauge data conversion factor.				NS			



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WORK ORDER: 848e  
REQUISITION: W33SJG32900192



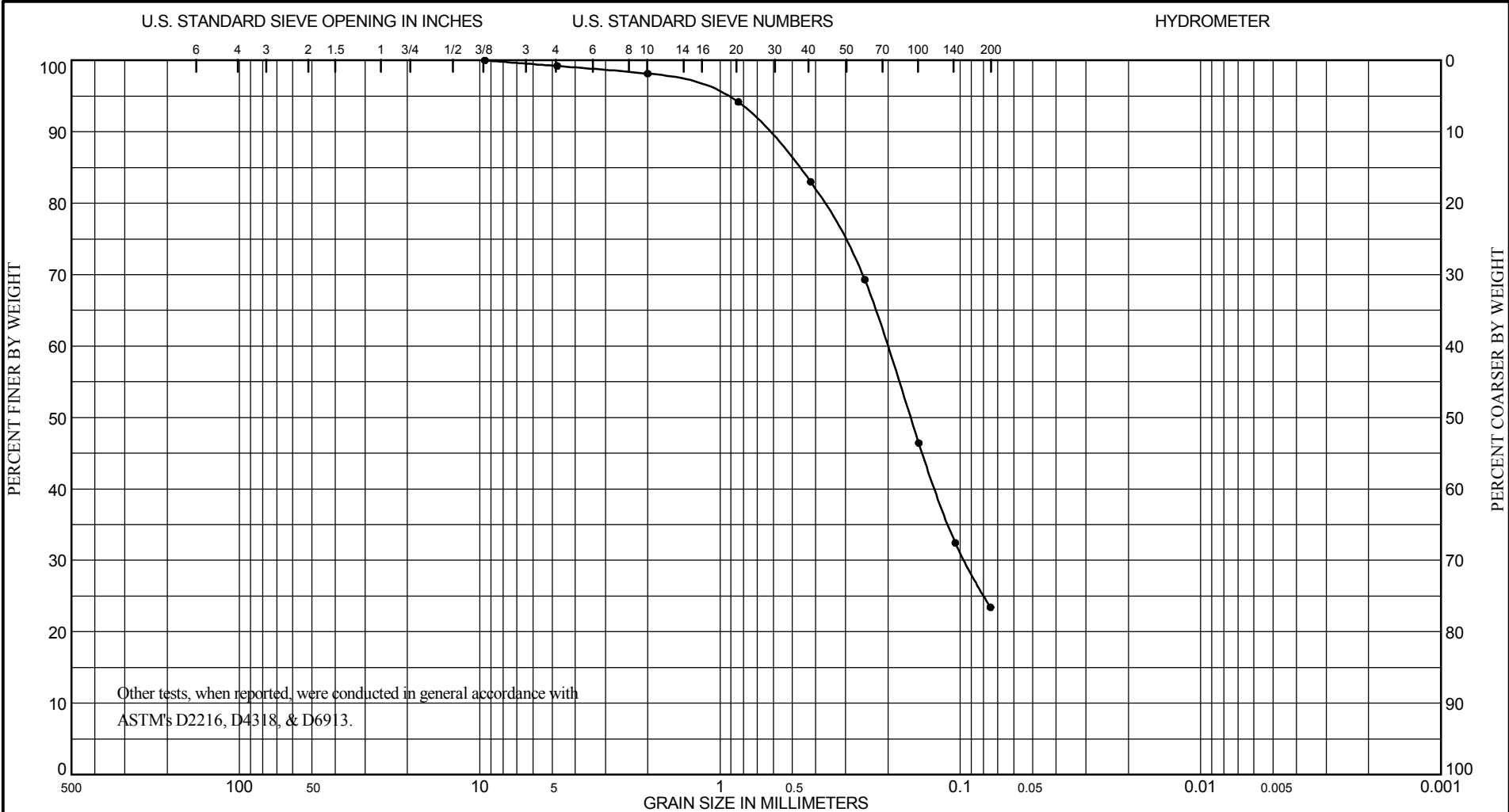
COBBLES		GRAVEL		SAND			SILT OR CLAY		
		COARSE	FINE	COARSE	MEDIUM	FINE			
Sample No.	Depth (ft)	ASTM D2487 Classification			Nat w%	LL	PL	PI	Project    MsCIP Barrier Island Restoration
A	0.0 to 1.0	Olive Gray, Poorly Graded Sand (SP).							
									Vibracore Sampling Pascagoula, MS
									Lab No.    K5/3889
									Hole No.    BI-PBS-127-13
GRADATION CURVES									Date    4/23/14

GRADATION CURVES



DEPARTMENT OF THE ARMY, SAVANNAH DISTRICT, ENVIRONMENTAL AND MATERIALS UNIT  
CORPS OF ENGINEERS, 200 N. COBB PARKWAY, BLDG 400 SUITE 404, MARIETTA, GA. 30062

WORK ORDER: 848e  
REQUISITION: W33SJG32900192

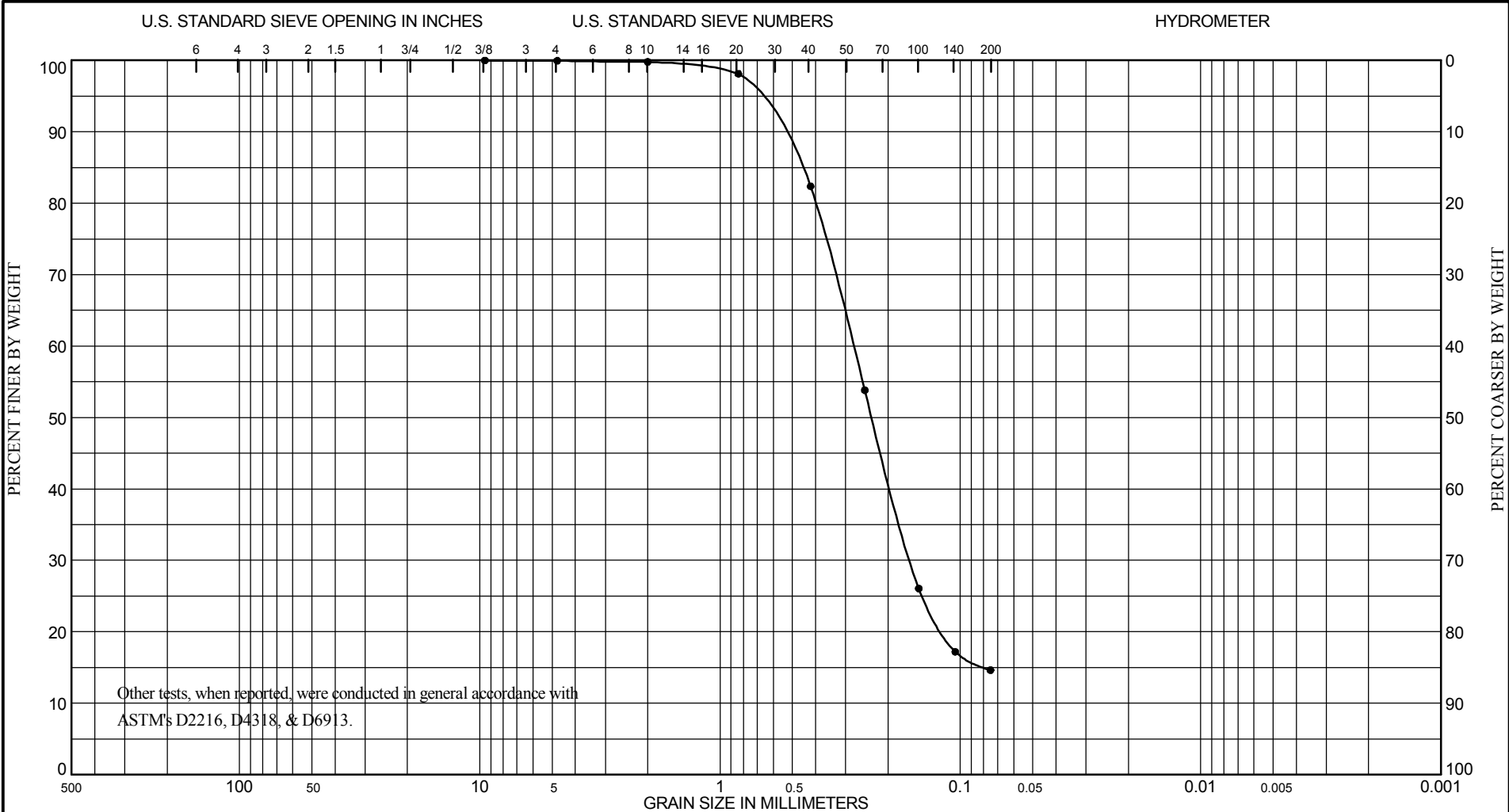


Sample No.	Depth (ft)	ASTM D2487	Classification	Nat w%	LL	PL	PI	Project	MsCIP Barrier Island Restoration
B	1.0 to 4.2	Dark Greenish Gray, Silty Sand (SM).						Vibracore Sampling	Pascagoula, MS
								Lab No.	K5/3890
								Hole No.	BI-PBS-127-13
								Date	4/23/14

GRADATION CURVES

K-482



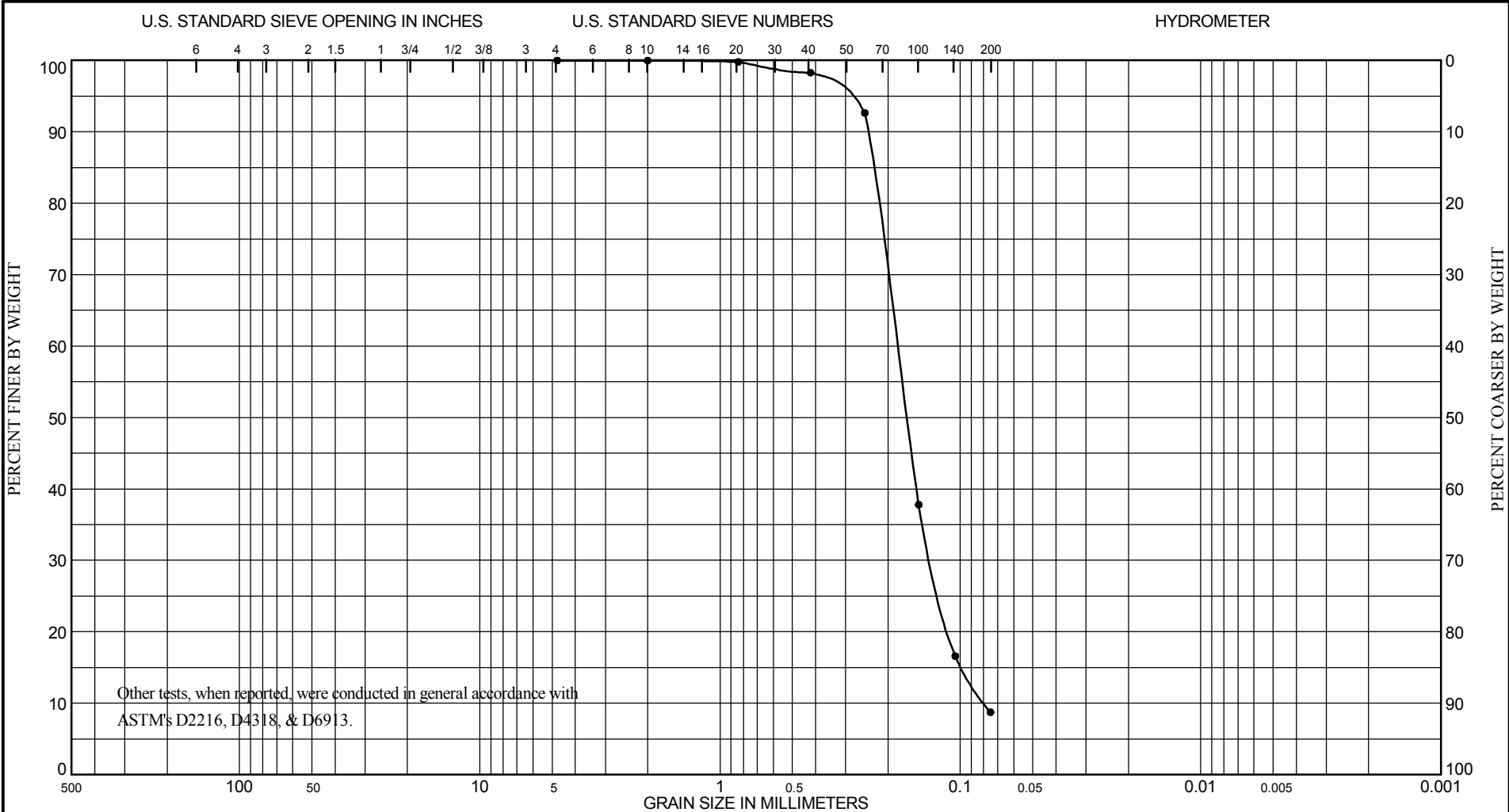


COBBLES		GRAVEL		SAND			SILT OR CLAY		
		COARSE	FINE	COARSE	MEDIUM	FINE			
Sample No.	Depth (ft)	ASTM D2487 Classification			Nat w%	LL	PL	PI	Project    MsCIP Barrier Island Restoration
C	4.2 to 10.7	Greenish Gray, Silty Sand (SM).							
									Vibracore Sampling Pascagoula, MS
									Lab No.    K5/3891
									Hole No.    BI-PBS-127-13
GRADATION CURVES									Date    4/23/14



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CORPS OF ENGINEERS, 200 N. COBB PARKWAY, BLDG 400 SUITE 404, MARIETTA, GA. 30062

WORK ORDER: 848e  
REQUISITION: W33SJG32900192

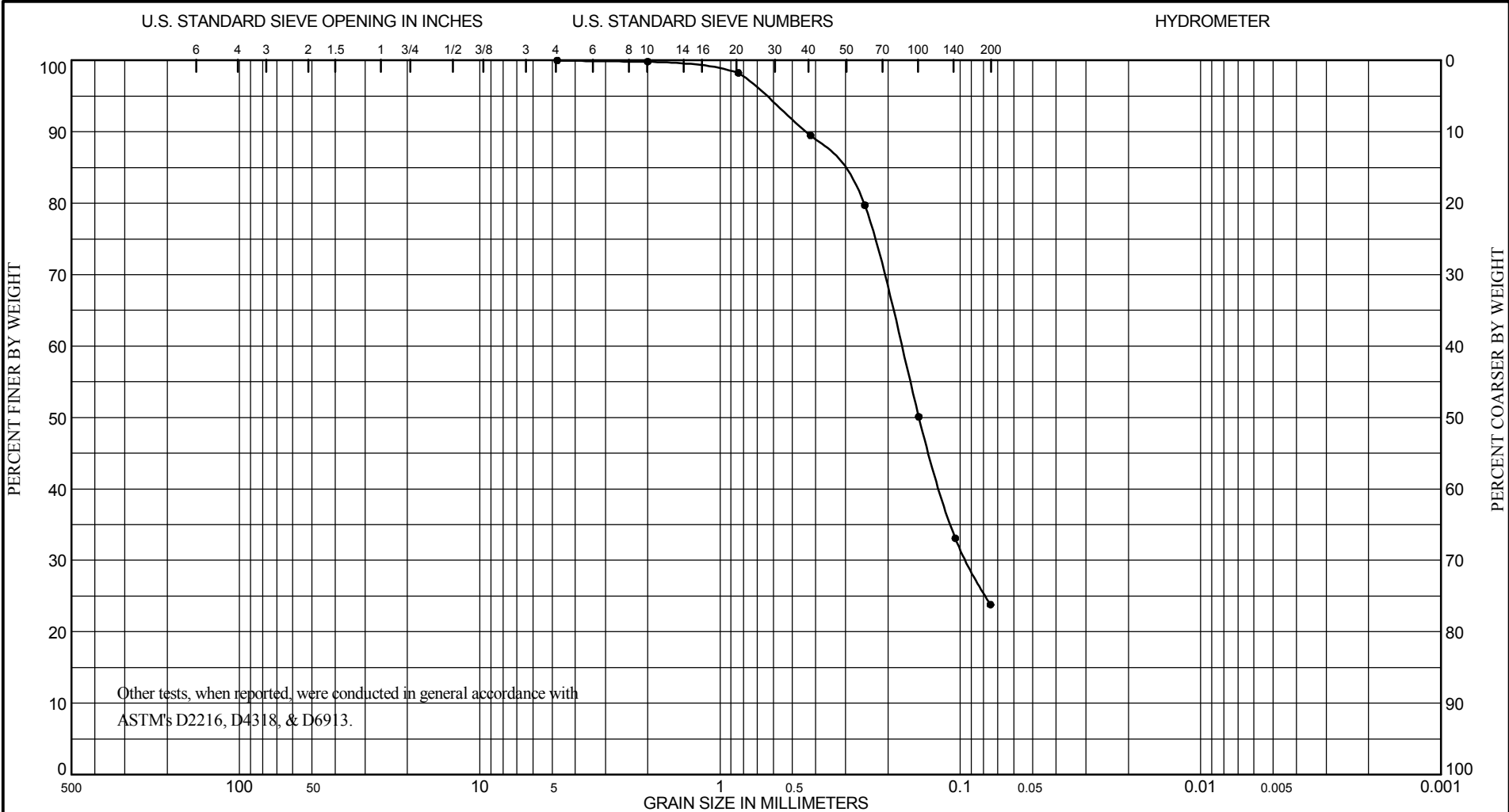


COBBLES		GRAVEL		SAND			SILT OR CLAY			
		COARSE	FINE	COARSE	MEDIUM	FINE				
Sample No.	Depth (ft)	ASTM D2487 Classification			Nat w%	LL	PL	PI	Project	MsCIP Barrier Island Restoration
D	10.7 to 12.7	Gray, Poorly Graded Silty Sand (SP-SM).								Vibracore Sampling Pascagoula, MS
									Lab No.	K5/3892
									Hole No.	BI-PBS-127-13
GRADATION CURVES									Date	4/23/14



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WORK ORDER: 848e  
REQUISITION: W33SJG32900192

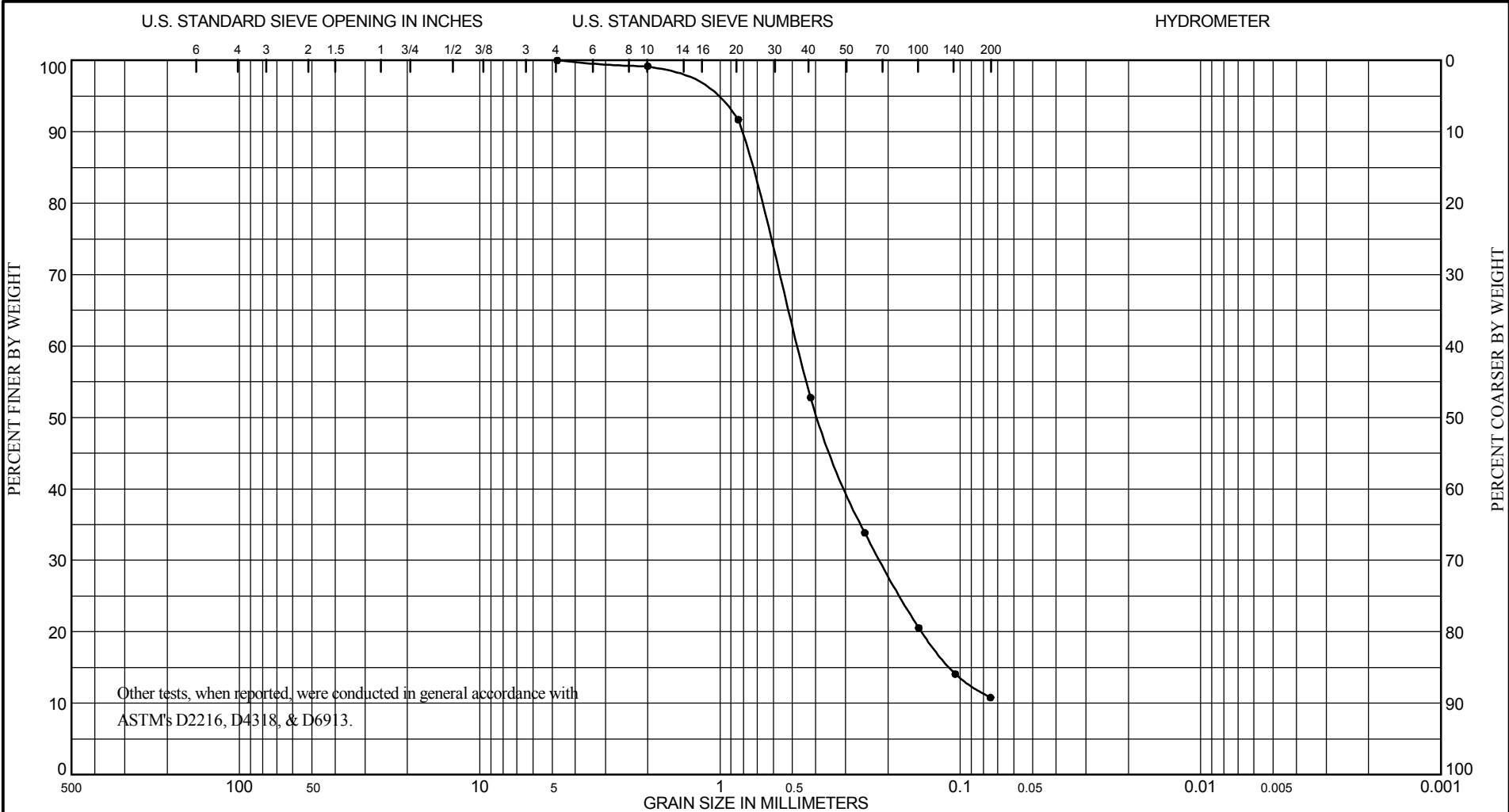


COBBLES		GRAVEL		SAND			SILT OR CLAY		
		COARSE	FINE	COARSE	MEDIUM	FINE			
Sample No.	Depth (ft)	ASTM D2487 Classification			Nat w%	LL	PL	PI	Project MsCIP Barrier Island Restoration
E	12.7 to 15.9	Greenish Gray, Silty Sand (SM).							
									Vibracore Sampling Pascagoula, MS
									Lab No. K5/3893
									Hole No. BI-PBS-127-13
GRADATION CURVES									Date 4/23/14



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WORK ORDER: 848e  
REQUISITION: W33SJG32900192



COBBLES		GRAVEL		SAND			SILT OR CLAY	
		COARSE	FINE	COARSE	MEDIUM	FINE		
Sample No.	Depth (ft)	ASTM D2487 Classification			Nat w%	LL	PL	PI
F	15.9 to 16.6	Gray, Poorly Graded Silty Sand (SP-SM).						

Project	MsCIP Barrier Island Restoration
Vibracore Sampling	Pascagoula, MS
Lab No.	K5/3894
Hole No.	BI-PBS-127-13
Date	4/23/14

GRADATION CURVES

K-486

# Boring Designation BI-PBS-128-13

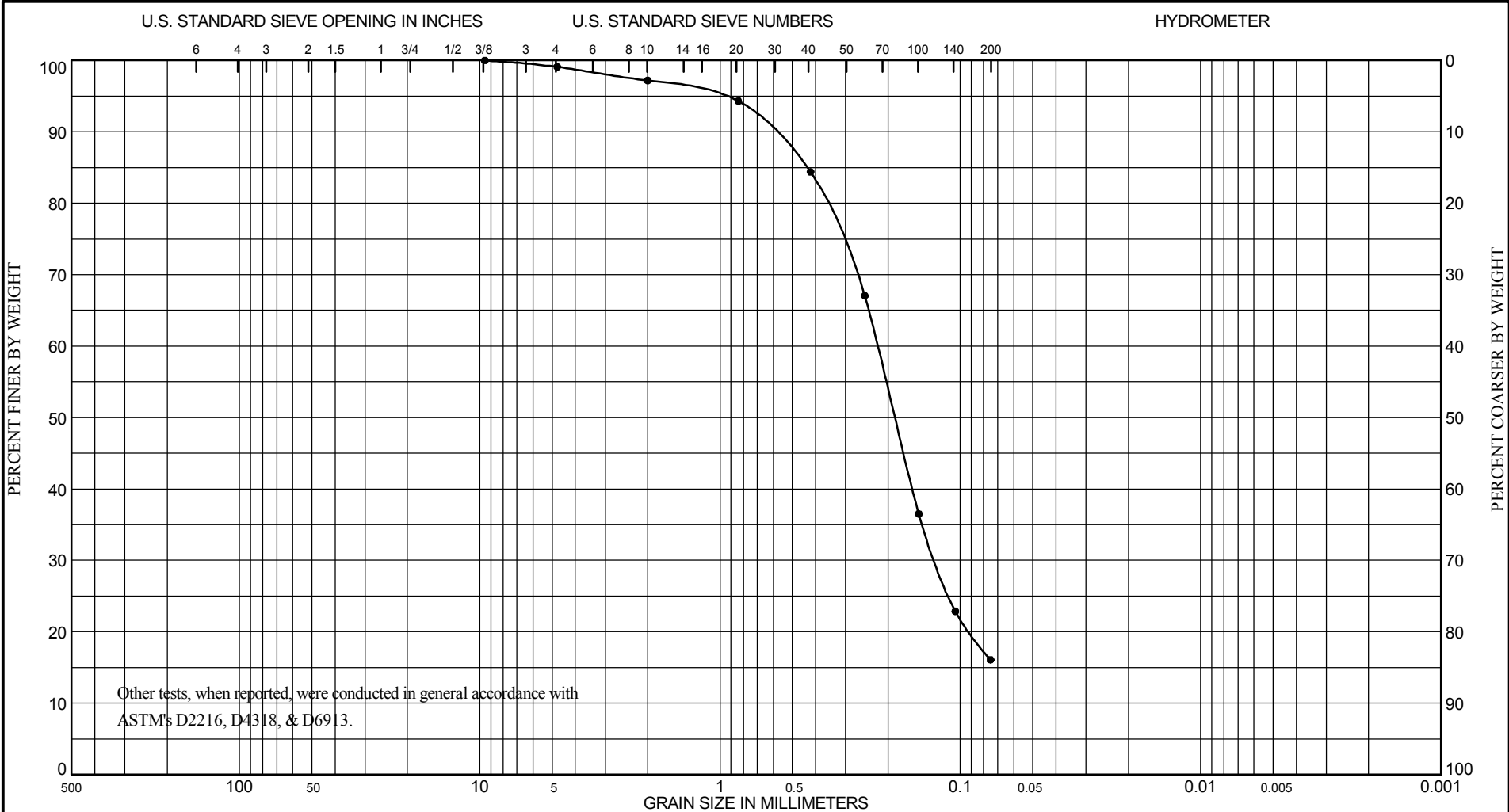
DRILLING LOG		DIVISION South Atlantic		INSTALLATION Mobile District		SHEET 1 OF 2 SHEETS	
1. PROJECT MsCIP Barrier Island Restoration Petit Bois Pass-OCS East				9. SIZE AND TYPE OF BIT N/A			
2. BORING DESIGNATION BI-PBS-128-13		LOCATION COORDINATES E = 1,137,627 N = 236,738		10. COORDINATE SYSTEM/DATUM State Plane, MSE (U.S. Ft.)		HORIZONTAL NAD83	
3. DRILLING AGENCY Corps of Engineers - CESAM		CONTRACTOR FILE NO.		11. MANUFACTURER'S DESIGNATION OF DRILL Vibrocure		<input type="checkbox"/> AUTO HAMMER <input type="checkbox"/> MANUAL HAMMER	
4. NAME OF DRILLER Construction Solutions International, Inc.				12. TOTAL SAMPLES 3		UNDISTURBED (UD) 0	
5. DIRECTION OF BORING <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED				13. TOTAL NUMBER CORE BOXES		14. WATER DEPTH 57 Ft.	
6. THICKNESS OF OVERBURDEN N/A				15. DATE BORING 11-30-13		COMPLETED 11-30-13	
7. DEPTH DRILLED INTO ROCK N/A				16. ELEVATION TOP OF BORING -56.7 Ft.		17. TOTAL RECOVERY FOR BORING 100%	
8. TOTAL DEPTH OF BORING 19.2 Ft.				18. SIGNATURE AND TITLE OF INSPECTOR Tom Powers, Geologist			
ELEV.	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS	SAMPLE	LABORATORY RESULTS		
-56.7	0.0						
			SAND, silty, mostly fine-grained sand-sized quartz, little shell, medium brown and medium gray (SM)	A	Classification: SM    Color: 2.5Y 5/1-gray D50: 0.187 mm    % Fines: 16.1		
				B	Classification: SP-SM    Color: 2.5Y 5/1-gray D50: 0.243 mm    % Fines: 11.8		
-65.5	8.8						
-66.7	10.0		SAND, poorly-graded, mostly fine-grained sand-sized quartz, lt. brown (SP)	C	Classification: SP-SM    Color: 2.5Y 6/1-gray D50: 0.21 mm    % Fines: 11		
			CLAY, lean, few wood at depth of 10.7 ft., medium to lt. brown (CL)				
-70.7	14.0						
			SILT, inorganic-L, lt. brown (ML)	NS			
-74.5	17.8						
-75.9	19.2		CLAY, fat, lt. brown (CH)				
NOTES: 1. Soils are field visually classified in accordance with the Unified Soils Classification System. 2. NS = Sample not submitted for laboratory analysis from this interval. 3. Seafloor elevation calculated using sampling vessel's fathometer water depth reading and applying NOAA tidal gauge data conversion							

<b>DRILLING LOG (Cont. Sheet)</b>			<b>INSTALLATION</b> Mobile District		<b>SHEET 2</b> <b>OF 2 SHEETS</b>
			<b>PROJECT</b> MsCIP Barrier Island Restoration		<b>COORDINATE SYSTEM/DATUM</b> State Plane, MSE (U.S. Ft.)
<b>LOCATION COORDINATES</b> X = 1,137,627 Y = 236,738			<b>ELEVATION TOP OF BORING</b> -56.7 Ft.		
<b>ELEV.</b>	<b>DEPTH</b>	<b>LEGEND</b>	<b>CLASSIFICATION OF MATERIALS</b>	<b>SAMPLE</b>	<b>LABORATORY RESULTS</b>
			factor.		



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WORK ORDER: 848e  
REQUISITION: W33SJG32900192

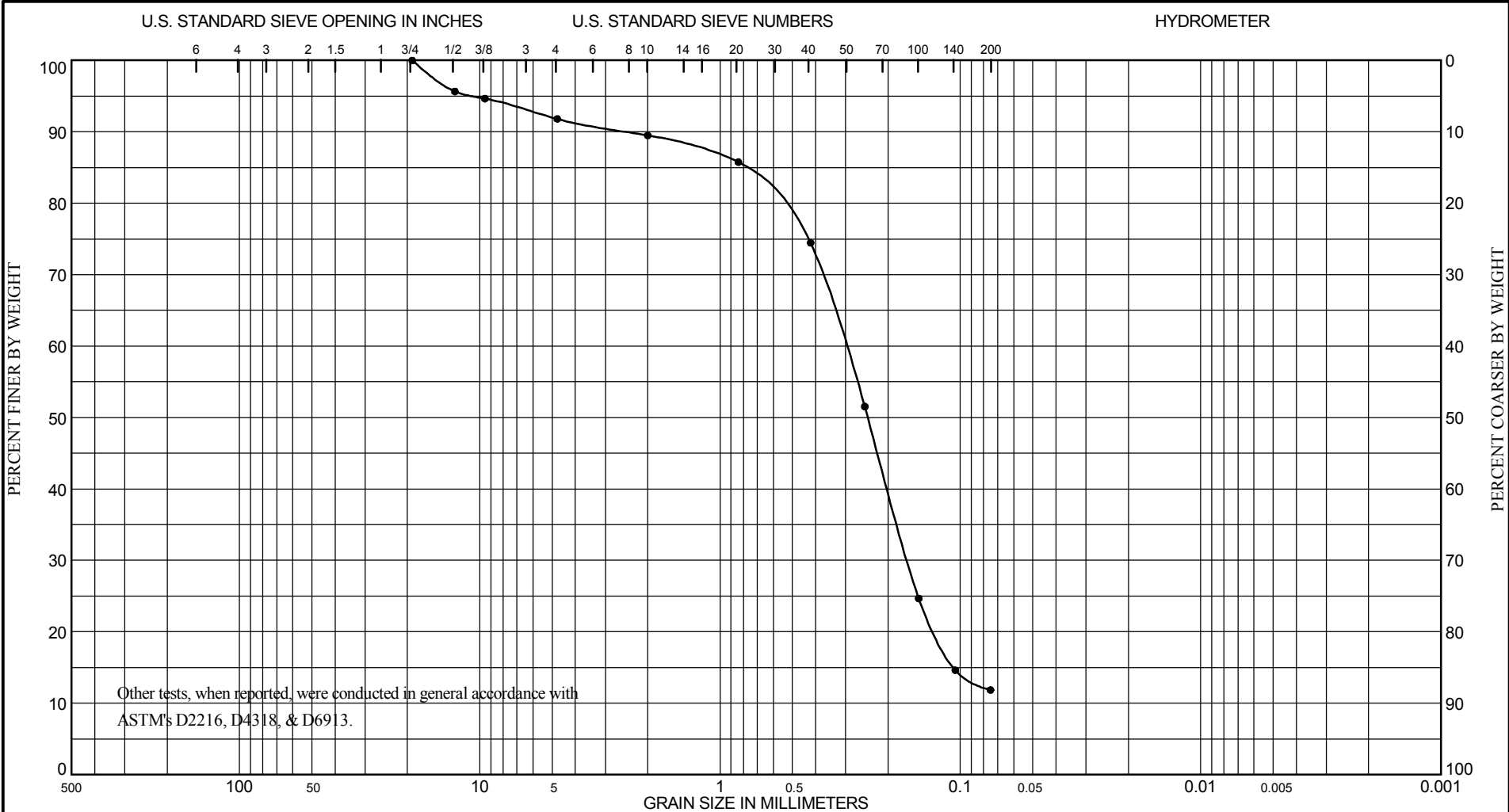


COBBLES		GRAVEL		SAND			SILT OR CLAY		
		COARSE	FINE	COARSE	MEDIUM	FINE			
Sample No.	Depth (ft)	ASTM D2487 Classification			Nat w%	LL	PL	PI	Project    MsCIP Barrier Island Restoration
A	0.0 to 4.5	Dark Greenish Gray, Silty Sand (SM).							
									Vibracore Sampling Pascagoula, MS
									Lab No.    K5/3895
									Hole No.    BI-PBS-128-13
GRADATION CURVES									Date    4/23/14



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WORK ORDER: 848e  
REQUISITION: W33SJG32900192



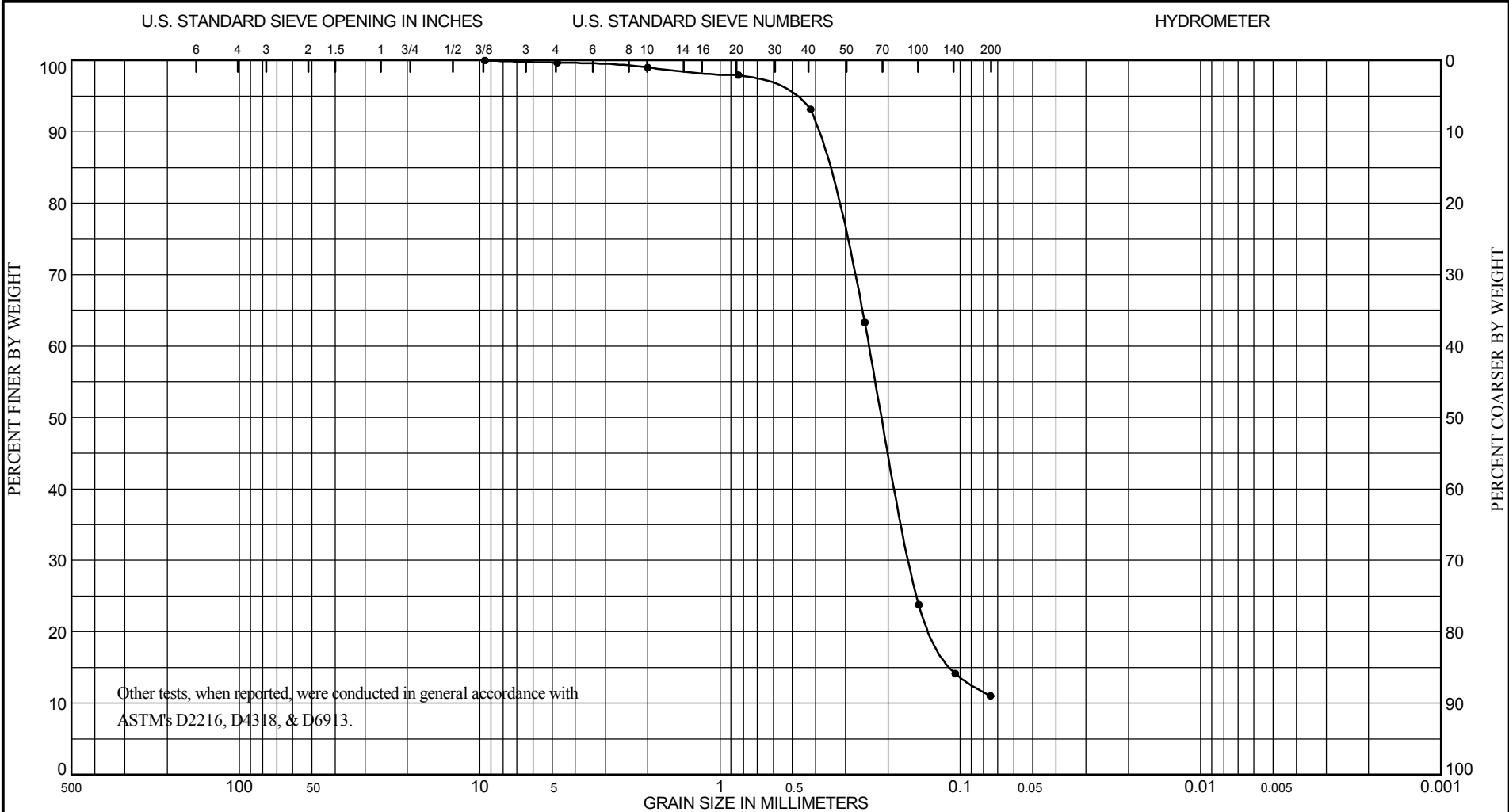
COBBLES		GRAVEL		SAND			SILT OR CLAY		
		COARSE	FINE	COARSE	MEDIUM	FINE			
Sample No.	Depth (ft)	ASTM D2487 Classification			Nat w%	LL	PL	PI	Project    MsCIP Barrier Island Restoration
B	4.5 to 8.8	Dark Greenish Gray, Poorly Graded Silty Sand (SP-SM), with a							
		trace of gravel size shell.							Vibracore Sampling Pascagoula, MS
									Lab No.    K5/3896
									Hole No.    BI-PBS-128-13
GRADATION CURVES									Date    4/23/14





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WORK ORDER: 848e  
REQUISITION: W33SJG32900192



COBBLES		GRAVEL		SAND			SILT OR CLAY		
		COARSE	FINE	COARSE	MEDIUM	FINE			
Sample No.	Depth (ft)	ASTM D2487 Classification			Nat w%	LL	PL	PI	Project    MsCIP Barrier Island Restoration  Vibracore Sampling Pascagoula, MS  Lab No.    K5/3897  Hole No.    BI-PBS-128-13  Date    4/23/14
C	8.8 to 10.0	Greenish Gray, Poorly Graded Silty Sand (SP-SM).							
GRADATION CURVES									

GRADATION CURVES

K-491

# Boring Designation BI-PBS-131-13

DRILLING LOG		DIVISION South Atlantic		INSTALLATION Mobile District		SHEET 1 OF 2 SHEETS	
1. PROJECT MsCIP Barrier Island Restoration Petit Bois Pass-OCS East				9. SIZE AND TYPE OF BIT N/A			
2. BORING DESIGNATION BI-PBS-131-13		LOCATION COORDINATES E = 1,136,650 N = 238,444		10. COORDINATE SYSTEM/DATUM State Plane, MSE (U.S. Ft.)		HORIZONTAL NAD83 VERTICAL NAVD88	
3. DRILLING AGENCY Corps of Engineers - CESAM		CONTRACTOR FILE NO.		11. MANUFACTURER'S DESIGNATION OF DRILL Vibrocure		<input type="checkbox"/> AUTO HAMMER <input type="checkbox"/> MANUAL HAMMER	
4. NAME OF DRILLER Construction Solutions International, Inc.				12. TOTAL SAMPLES 6		DISTURBED 0 UNDISTURBED (UD)	
5. DIRECTION OF BORING <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED		DEG. FROM VERTICAL		13. TOTAL NUMBER CORE BOXES			
		BEARING		14. WATER DEPTH 55 Ft.			
6. THICKNESS OF OVERBURDEN N/A				15. DATE BORING 11-30-13		STARTED 11-30-13 COMPLETED 11-30-13	
7. DEPTH DRILLED INTO ROCK N/A				16. ELEVATION TOP OF BORING -55.3 Ft.			
8. TOTAL DEPTH OF BORING 20.0 Ft.				17. TOTAL RECOVERY FOR BORING 100%			
				18. SIGNATURE AND TITLE OF INSPECTOR Tom Powers, Geologist			
ELEV.	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS	SAMPLE	LABORATORY RESULTS		
-55.3	0.0						
-58.3	3.0		SAND, silty, mostly fine-grained sand-sized quartz, medium brown (SM)	A	Classification: SM Color: 2.5Y 5/1-gray D50: 0.198 mm % Fines: 15.6		
-63.3	8.0		SAND, poorly-graded with silt, mostly fine-grained sand-sized quartz, medium brown (SP-SM)	B	Classification: SM Color: 2.5Y 5/1-gray D50: 0.138 mm % Fines: 19.1		
-75.3	20.0		SAND, poorly-graded, mostly fine to medium-grained sand-sized quartz, medium brown to 12 ft., lt. brown to 14 ft. (SP)  At El. -69.3 Ft., mostly medium-grained sand-sized quartz, lt. brown	C	Classification: SM Color: 2.5Y 6/1-gray D50: 0.208 mm % Fines: 14		
				D	Classification: SP Color: 2.5Y 7/1-light gray D50: 0.34 mm % Fines: 3		
				E	Classification: SP Color: 2.5Y 7/1-light gray D50: 0.405 mm % Fines: 1.4		
				F	Classification: SP Color: 2.5Y 7/1-light gray D50: 0.488 mm % Fines: 1.5		
			NOTES: 1. Soils are field visually classified in accordance with the Unified Soils Classification System. 2. NS = Sample not submitted for laboratory analysis from this interval. 3. Seafloor elevation calculated using sampling				

<b>DRILLING LOG (Cont. Sheet)</b>			<b>INSTALLATION</b> Mobile District		<b>SHEET 2</b> <b>OF 2 SHEETS</b>
<b>PROJECT</b> MsCIP Barrier Island Restoration			<b>COORDINATE SYSTEM/DATUM</b> State Plane, MSE (U.S. Ft.)	<b>HORIZONTAL</b> NAD83	<b>VERTICAL</b> NAVD88
<b>LOCATION COORDINATES</b> X = 1,136,650 Y = 238,444			<b>ELEVATION TOP OF BORING</b> -55.3 Ft.		
<b>ELEV.</b>	<b>DEPTH</b>	<b>LEGEND</b>	<b>CLASSIFICATION OF MATERIALS</b>	<b>SAMPLE</b>	<b>LABORATORY RESULTS</b>
			vessel's fathometer water depth reading and applying NOAA tidal gauge data conversion factor.		



REQUISITION: W33SJG32900192



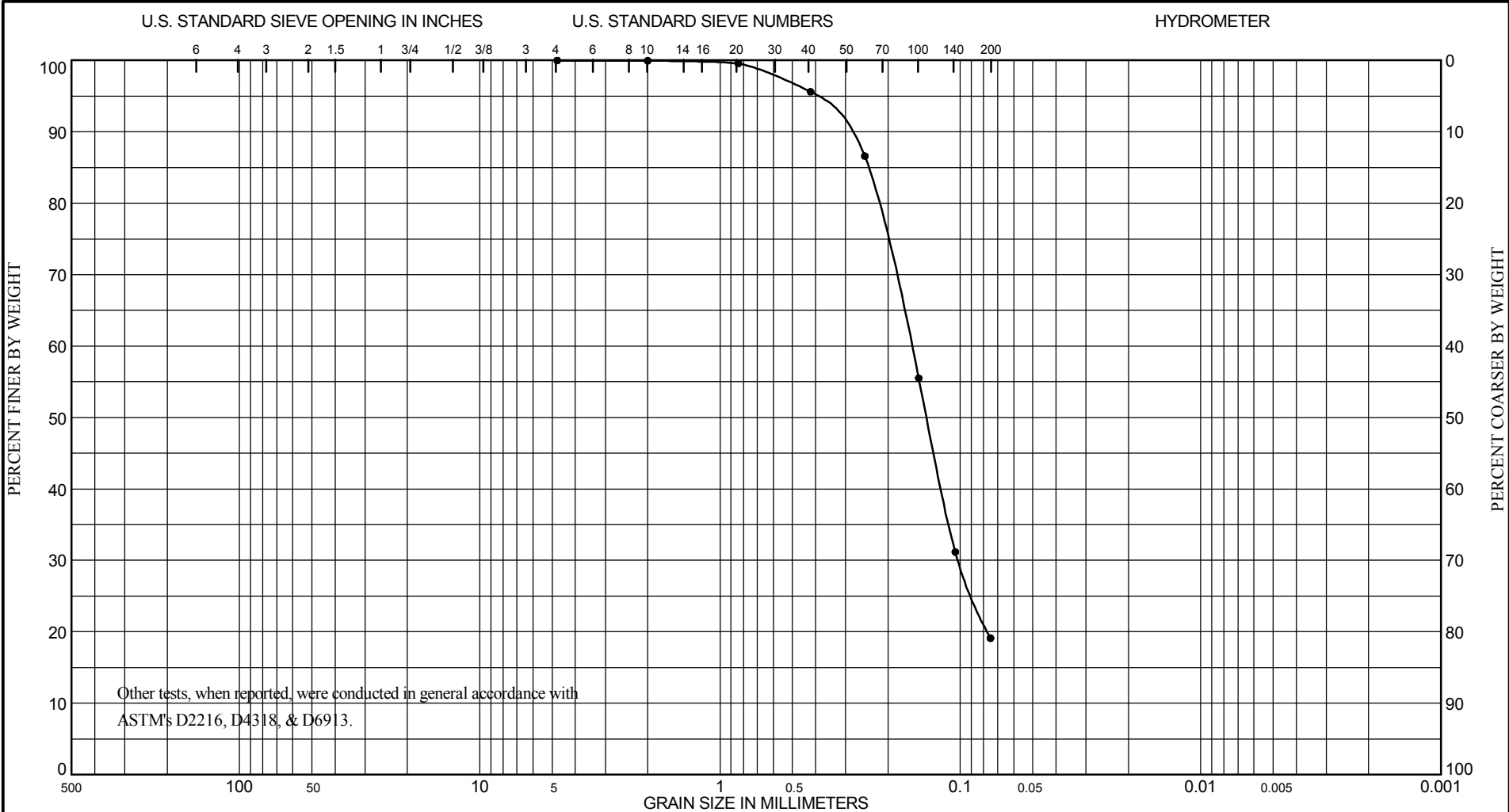
PERCENT COARSER BY WEIGHT

Sample No.	Depth (ft)	ASTM D2487 Classification	Nat w%	LL	PL	PI	<div>Project MsCIP Barrier Island Restoration</div> <div>Vibracore Sampling Pascagoula, MS</div> <div>Lab No. K5/3878</div> <div>Hole No. BI-PBS-131-13</div> <div>Date 4/23/14</div>
A	0.0 to 3.0	Dark Greenish Gray, Silty Sand (SM).					
<b>GRADATION CURVES</b>							



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WORK ORDER: 848e  
REQUISITION: W33SJG32900192



COBBLES		GRAVEL		SAND			SILT OR CLAY			
		COARSE	FINE	COARSE	MEDIUM	FINE				
Sample No.	Depth (ft)	ASTM D2487 Classification			Nat w%	LL	PL	PI	Project	MsCIP Barrier Island Restoration
B	3.0 to 8.0	Dark Greenish Gray, Silty Sand (SM).							Vibracore Sampling Pascagoula, MS	
									Lab No.	K5/3879
									Hole No.	BI-PBS-131-13
GRADATION CURVES									Date	4/23/14



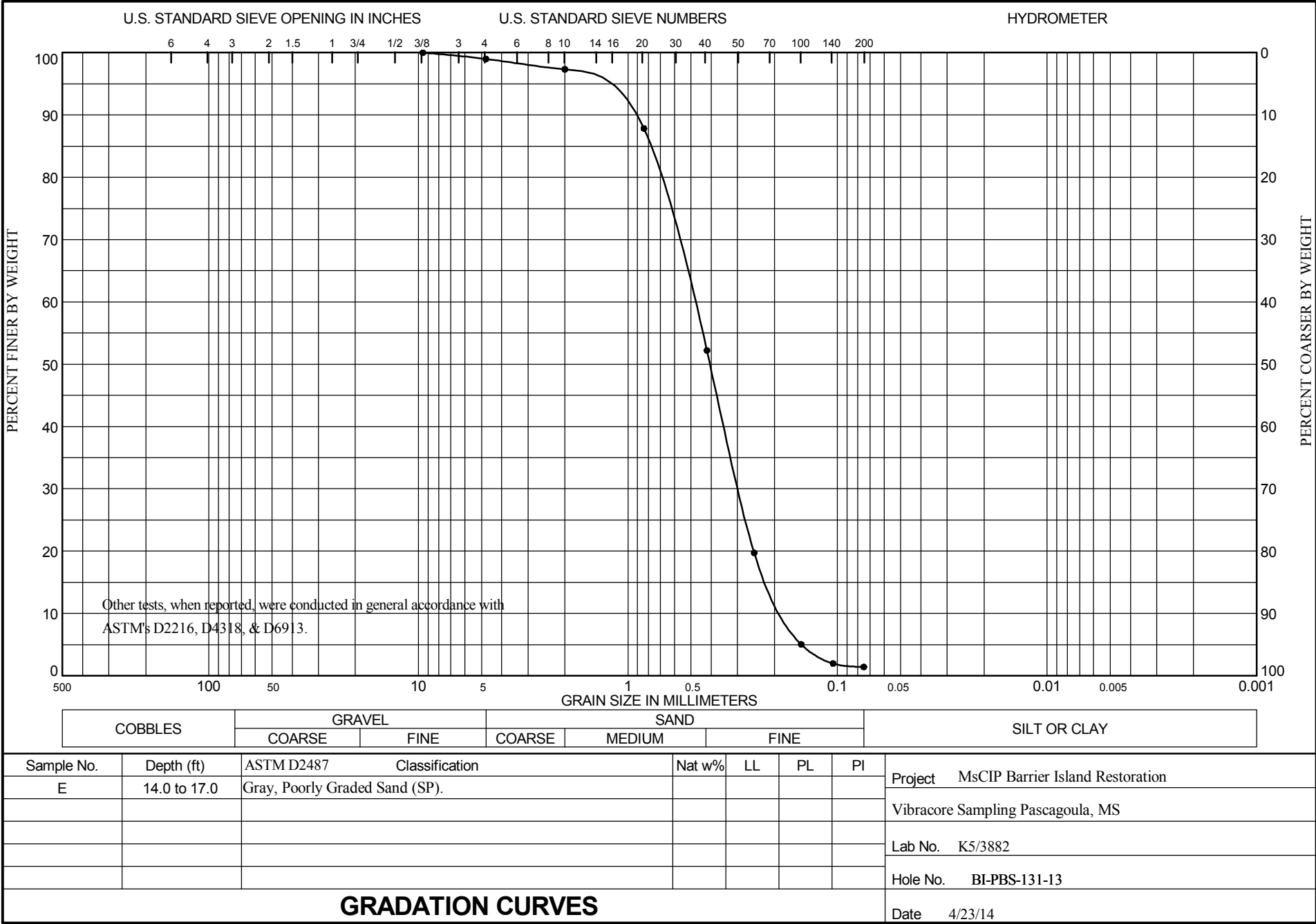


REQUISITION: W33SJG32900192



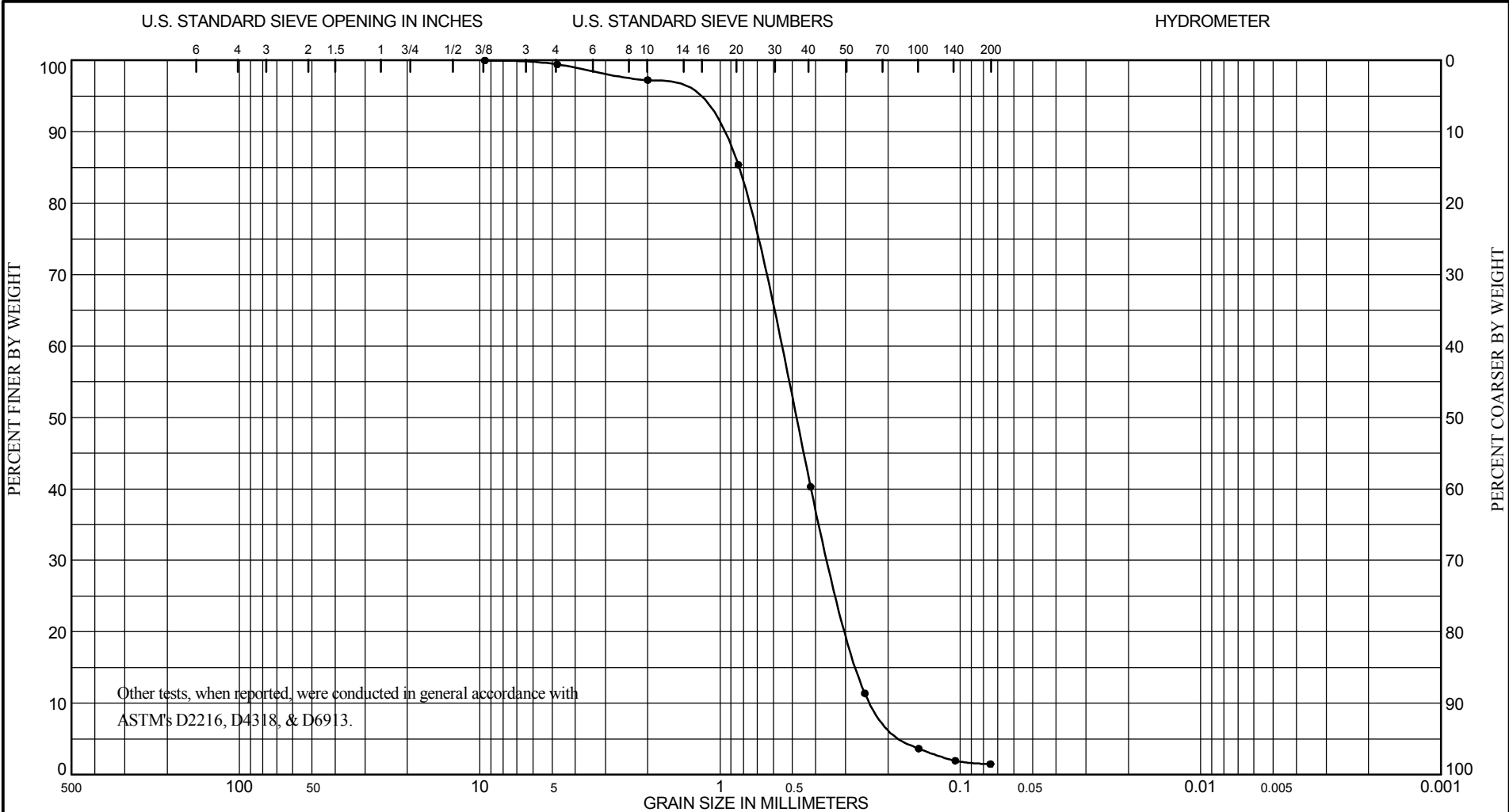
PERCENT COARSER BY WEIGHT

Sample No.	Depth (ft)	ASTM D2487 Classification	Nat w%	LL	PL	PI	Project	MsCIP Barrier Island Restoration
D	11.0 to 14.0	Gray, Poorly Graded Sand (SP).						
								Vibracore Sampling Pascagoula, MS
							Lab No.	K5/3881
							Hole No.	BI-PBS-131-13
<b>GRADATION CURVES</b>							Date	4/23/14



K-498





COBBLES		GRAVEL		SAND			SILT OR CLAY		
		COARSE	FINE	COARSE	MEDIUM	FINE			
Sample No.	Depth (ft)	ASTM D2487 Classification			Nat w%	LL	PL	PI	Project    MsCIP Barrier Island Restoration
F	17.0 to 20.0	Gray, Poorly Graded Sand (SP).							
									Vibracore Sampling Pascagoula, MS
									Lab No.    K5/3883
									Hole No.    BI-PBS-131-13
GRADATION CURVES									Date    4/23/14

K-499

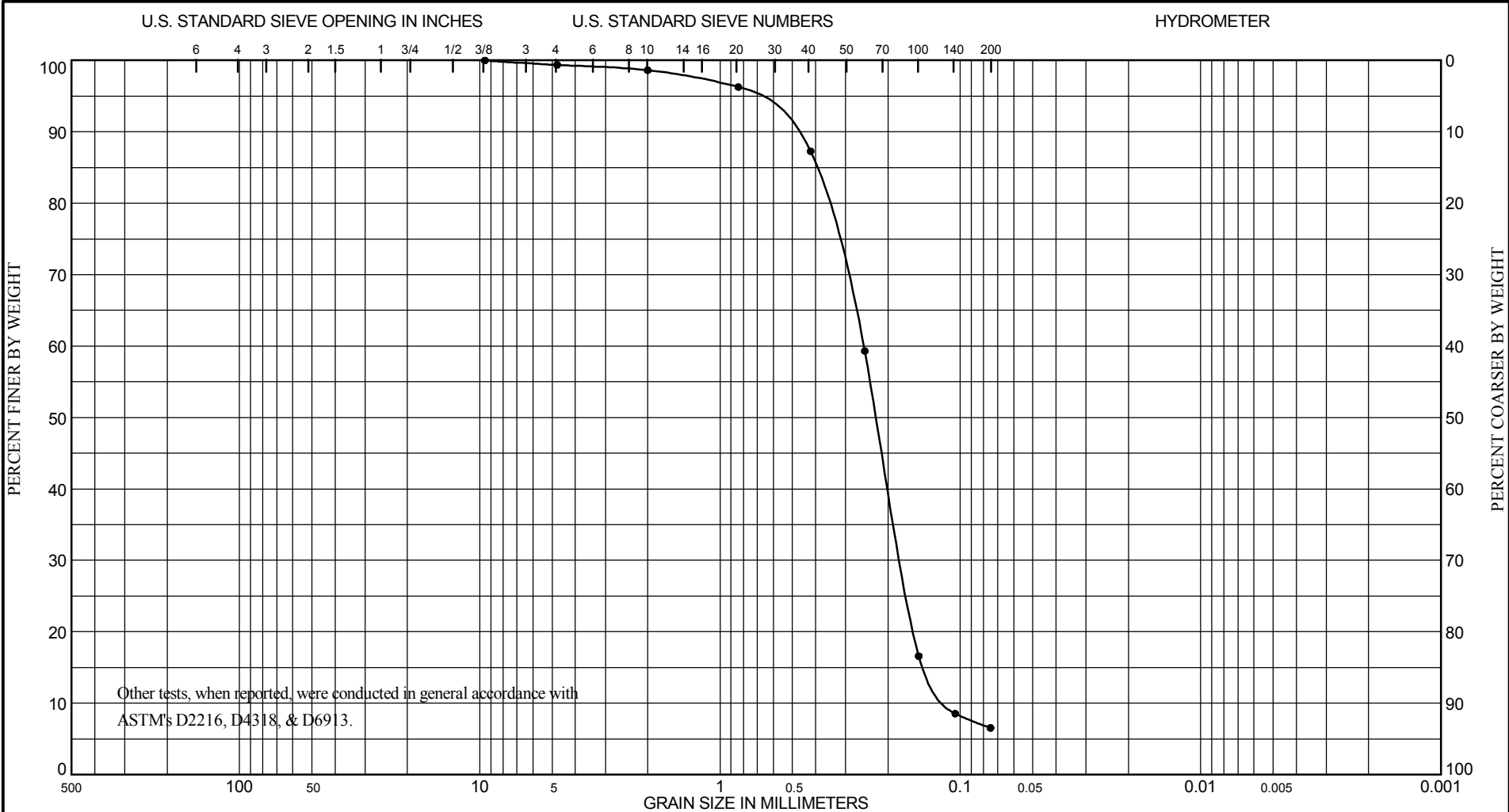
# Boring Designation BI-PBS-132-13

DRILLING LOG		DIVISION South Atlantic		INSTALLATION Mobile District		SHEET 1 OF 1 SHEETS	
1. PROJECT MsCIP Barrier Island Restoration Petit Bois Pass-OCS East				9. SIZE AND TYPE OF BIT N/A			
2. BORING DESIGNATION BI-PBS-132-13		LOCATION COORDINATES E = 1,136,226 N = 237,794		10. COORDINATE SYSTEM/DATUM State Plane, MSE (U.S. Ft.)		HORIZONTAL NAD83	
3. DRILLING AGENCY Corps of Engineers - CESAM		CONTRACTOR FILE NO.		11. MANUFACTURER'S DESIGNATION OF DRILL Vibracore		<input type="checkbox"/> AUTO HAMMER <input type="checkbox"/> MANUAL HAMMER	
4. NAME OF DRILLER Construction Solutions International, Inc.				12. TOTAL SAMPLES 5		DISTURBED 0	
5. DIRECTION OF BORING <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED				13. TOTAL NUMBER CORE BOXES		14. WATER DEPTH 55 Ft.	
6. THICKNESS OF OVERBURDEN N/A				15. DATE BORING 11-30-13		STARTED 11-30-13	
7. DEPTH DRILLED INTO ROCK N/A				16. ELEVATION TOP OF BORING -55.1 Ft.		COMPLETED 11-30-13	
8. TOTAL DEPTH OF BORING 16.1 Ft.				17. TOTAL RECOVERY FOR BORING 100%			
				18. SIGNATURE AND TITLE OF INSPECTOR Tom Powers, Geologist			
ELEV.	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS	SAMPLE	LABORATORY RESULTS		
-55.1	0.0						
-56.1	1.0		SAND, poorly-graded, mostly fine-grained sand-sized quartz, medium gray (SP)	A	Classification: SP-SM Color: GLEY1 10Y 6/1- D50: 0.223 mm % Fines: 6.5		
			SAND, silty, mostly fine-grained sand-sized quartz, few wood fragments at 1.2 to 1.8 ft., medium gray to 4 ft., grayish brown to 5.5 ft., lt. brown to 9 ft. (SM)	B	Classification: SP-SM Color: 2.5Y 5/1-gray D50: 0.213 mm % Fines: 11		
				C	Classification: SM Color: 2.5Y 6/1-gray D50: 0.255 mm % Fines: 15.1		
-64.1	9.0						
-65.3	10.2		SAND, poorly-graded, mostly fine-grained sand-sized quartz, lt. gray (SP)	D	Classification: SP-SM Color: 2.5Y 5/1-gray D50: 0.153 mm % Fines: 11.2		
-67.1	12.0		SAND, silty, mostly fine-grained sand-sized quartz, little shell fragments, lt. gray (SM)	E	Classification: SM Color: 2.5Y 5/1-gray D50: 0.124 mm % Fines: 27.4		
			SAND, clayey, little shell fragments to 14 ft., lt. gray (SC)	NS			
-71.2	16.1						
NOTES: 1. Soils are field visually classified in accordance with the Unified Soils Classification System. 2. NS = Sample not submitted for laboratory analysis from this interval. 3. Seafloor elevation calculated using sampling vessel's fathometer water depth reading and applying NOAA tidal gauge data conversion factor.							



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WORK ORDER: 848e  
REQUISITION: W33SJG32900192



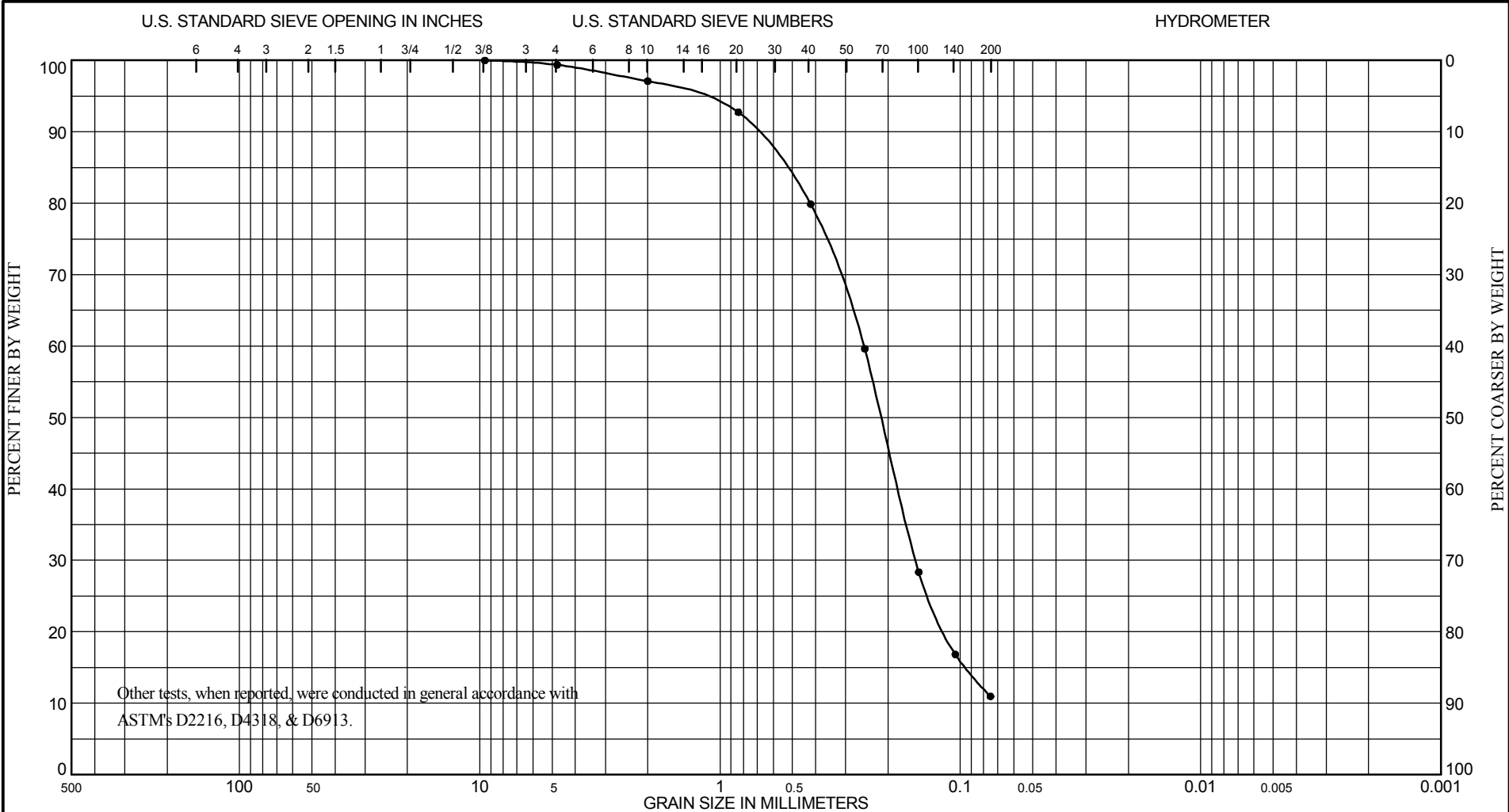
COBBLES		GRAVEL		SAND			SILT OR CLAY			
		COARSE	FINE	COARSE	MEDIUM	FINE				
Sample No.	Depth (ft)	ASTM D2487 Classification			Nat w%	LL	PL	PI	Project	MsCIP Barrier Island Restoration
A	0.0 to 1.0	Dark Greenish Gray, Poorly Graded Silty Sand (SP-SM).								Vibracore Sampling Pascagoula, MS
									Lab No.	K5/3884
									Hole No.	BI-PBS-132-13
GRADATION CURVES									Date	4/23/14

GRADATION CURVES



DEPARTMENT OF THE ARMY, SAVANNAH DISTRICT, ENVIRONMENTAL AND MATERIALS UNIT  
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WORK ORDER: 848e  
REQUISITION: W33SJG32900192



COBBLES		GRAVEL		SAND			SILT OR CLAY	
		COARSE	FINE	COARSE	MEDIUM	FINE		
Sample No.	Depth (ft)	ASTM D2487 Classification			Nat w%	LL	PL	PI
B	1.0 to 5.0	Dark Greenish Gray, Poorly Graded Silty Sand (SP-SM).						

Project	MsCIP Barrier Island Restoration
Vibracore Sampling	Pascagoula, MS
Lab No.	K5/3885
Hole No.	BI-PBS-132-13
Date	4/23/14

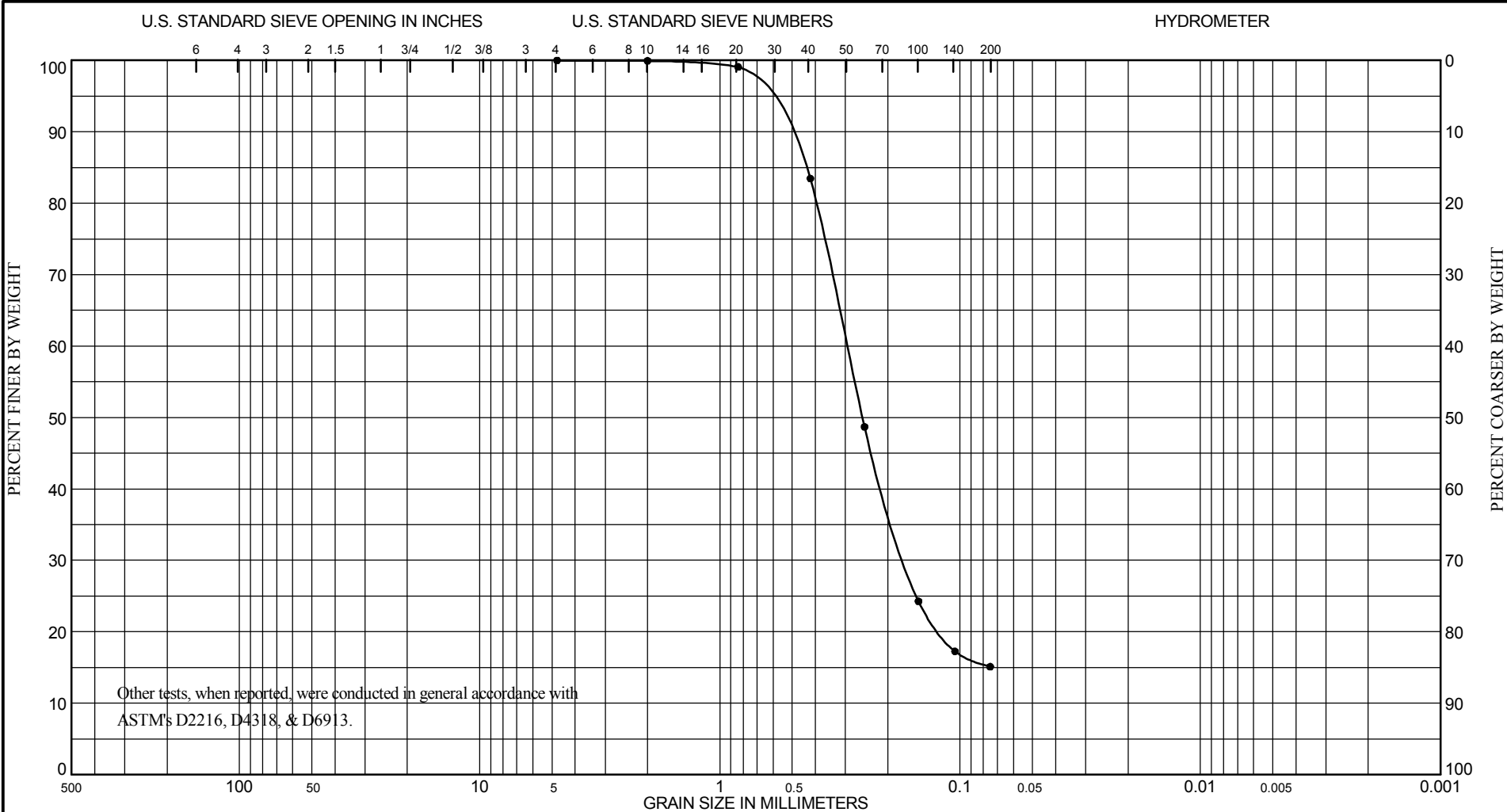
GRADATION CURVES

K-502



DEPARTMENT OF THE ARMY, SAVANNAH DISTRICT, ENVIRONMENTAL AND MATERIALS UNIT  
CORPS OF ENGINEERS, 200 N. COBB PARKWAY, BLDG 400 SUITE 404, MARIETTA, GA. 30062

WORK ORDER: 848e  
REQUISITION: W33SJG32900192



Sample No.	Depth (ft)	ASTM D2487	Classification	Nat w%	LL	PL	PI	Project	MsCIP Barrier Island Restoration
C	5.0 to 9.0	Dark Greenish Gray, Silty Sand (SM).						Vibracore Sampling	Pascagoula, MS
								Lab No.	K5/3886
								Hole No.	BI-PBS-132-13
								Date	4/23/14

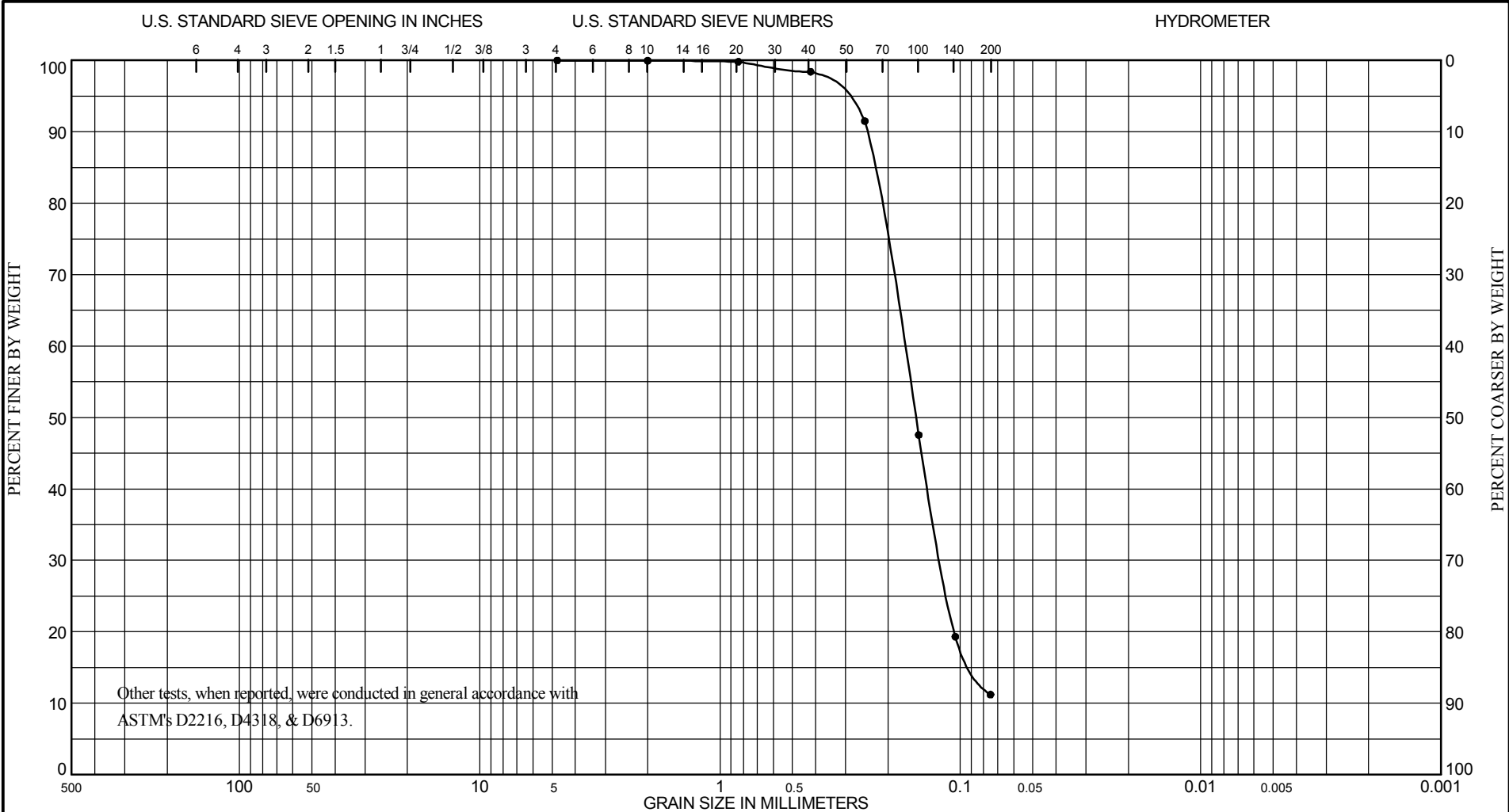
GRADATION CURVES

K-503



DEPARTMENT OF THE ARMY, SAVANNAH DISTRICT, ENVIRONMENTAL AND MATERIALS UNIT  
CORPS OF ENGINEERS, 200 N. COBB PARKWAY, BLDG 400 SUITE 404, MARIETTA, GA. 30062

WORK ORDER: 848e  
REQUISITION: W33SJG32900192



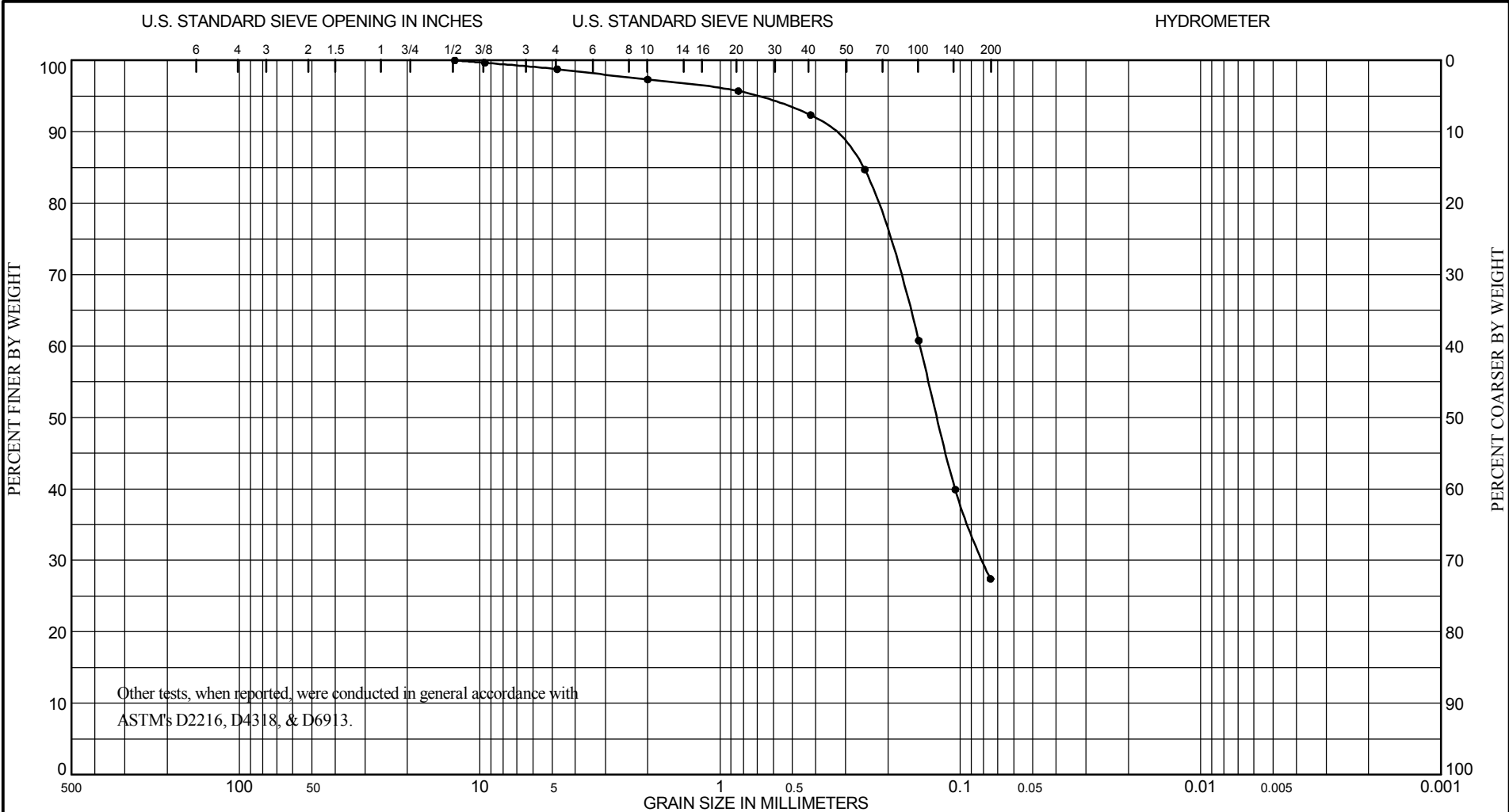
COBBLES		GRAVEL		SAND			SILT OR CLAY			
		COARSE	FINE	COARSE	MEDIUM	FINE				
Sample No.	Depth (ft)	ASTM D2487 Classification			Nat w%	LL	PL	PI	Project	MsCIP Barrier Island Restoration
D	9.0 to 10.2	Greenish Gray, Poorly Graded Silty Sand (SP-SM).							Vibracore Sampling Pascagoula, MS	
									Lab No. K5/3887	
									Hole No. BI-PBS-132-13	
GRADATION CURVES									Date	4/23/14

GRADATION CURVES



DEPARTMENT OF THE ARMY, SAVANNAH DISTRICT, ENVIRONMENTAL AND MATERIALS UNIT  
CORPS OF ENGINEERS, 200 N. COBB PARKWAY, BLDG 400 SUITE 404, MARIETTA, GA. 30062

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REQUISITION: W33SJG32900192



COBBLES		GRAVEL		SAND			SILT OR CLAY		
		COARSE	FINE	COARSE	MEDIUM	FINE			
Sample No.	Depth (ft)	ASTM D2487 Classification			Nat w%	LL	PL	PI	Project    MsCIP Barrier Island Restoration
E	10.2 to 12.0	Dark Greenish Gray, Silty Sand (SM), with a trace of gravel size							
		shell.							Vibracore Sampling Pascagoula, MS
									Lab No.    K5/3888
									Hole No.    BI-PBS-132-13
GRADATION CURVES									Date    4/23/14

# Boring Designation BI-PBS-134-13

DRILLING LOG		DIVISION South Atlantic		INSTALLATION Mobile District		SHEET 1 OF 1 SHEETS	
1. PROJECT MsCIP Barrier Island Restoration Petit Bois Pass-OCS East				9. SIZE AND TYPE OF BIT N/A			
2. BORING DESIGNATION BI-PBS-134-13		LOCATION COORDINATES E = 1,136,832 N = 236,397		10. COORDINATE SYSTEM/DATUM State Plane, MSE (U.S. Ft.)		HORIZONTAL NAD83 VERTICAL NAVD88	
3. DRILLING AGENCY Corps of Engineers - CESAM		CONTRACTOR FILE NO.		11. MANUFACTURER'S DESIGNATION OF DRILL Vibrocure		<input type="checkbox"/> AUTO HAMMER <input type="checkbox"/> MANUAL HAMMER	
4. NAME OF DRILLER Construction Solutions International, Inc.				12. TOTAL SAMPLES 0		DISTURBED 0 UNDISTURBED (UD) 0	
5. DIRECTION OF BORING <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED				13. TOTAL NUMBER CORE BOXES		14. WATER DEPTH 57 Ft.	
6. THICKNESS OF OVERBURDEN N/A				15. DATE BORING 11-30-13		STARTED 11-30-13 COMPLETED 11-30-13	
7. DEPTH DRILLED INTO ROCK N/A				16. ELEVATION TOP OF BORING -56.6 Ft.		17. TOTAL RECOVERY FOR BORING 100%	
8. TOTAL DEPTH OF BORING 18.7 Ft.				18. SIGNATURE AND TITLE OF INSPECTOR Tom Powers, Geologist			
ELEV.	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS	SAMPLE	LABORATORY RESULTS		
-56.6	0.0						
-58.6	2.0		CLAY, lean, interbedded with lenses of silty sand with few shell fragments, medium gray (CL)				
-64.2	7.6		SAND, silty, mostly fine-grained sand-sized quartz, few shell, medium gray (SM) At El. -61.2 Ft., mostly fine-grained sand-sized quartz, little shell, medium gray				
-69.7	13.1		SAND, poorly-graded, mostly fine-grained sand-sized quartz, lt. brown (SP)	NS			
-70.7	14.1		SAND, clayey, brownish gray (SC)				
-75.3	18.7		CLAY, fat, lt. brown (CH)				
			NOTES: 1. Soils are field visually classified in accordance with the Unified Soils Classification System. 2. NS = Sample not submitted for laboratory analysis from this interval. 3. Seafloor elevation calculated using sampling vessel's fathometer water depth reading and applying NOAA tidal gauge data conversion factor.				



# Boring Designation BI-PBS-135-13

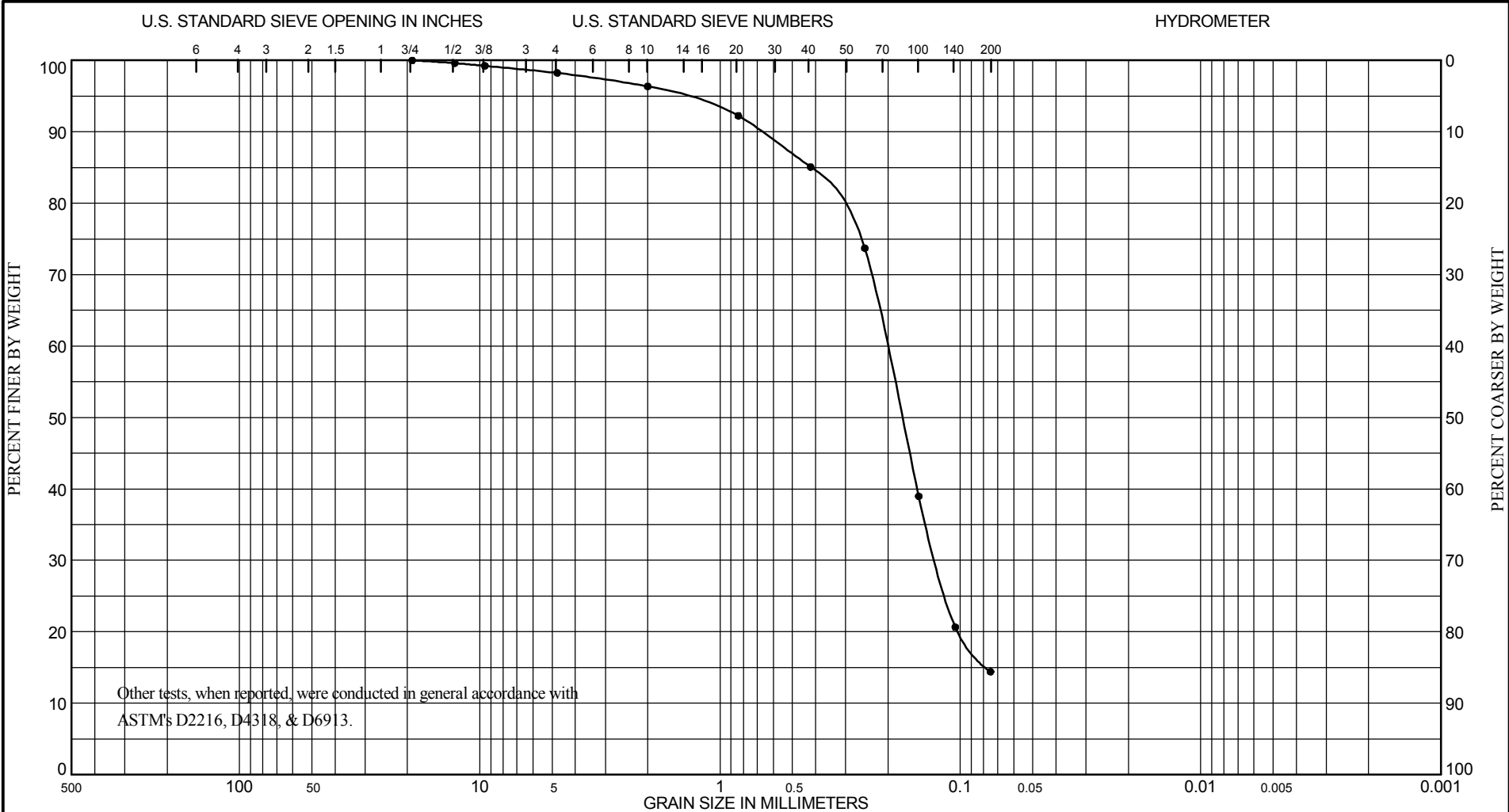
DRILLING LOG		DIVISION South Atlantic		INSTALLATION Mobile District		SHEET 1 OF 2 SHEETS	
1. PROJECT MsCIP Barrier Island Restoration Petit Bois Pass-OCS East				9. SIZE AND TYPE OF BIT N/A			
2. BORING DESIGNATION BI-PBS-135-13		LOCATION COORDINATES E = 1,129,985 N = 234,430		10. COORDINATE SYSTEM/DATUM State Plane, MSE (U.S. Ft.)		HORIZONTAL NAD83 VERTICAL NAVD88	
3. DRILLING AGENCY Corps of Engineers - CESAM		CONTRACTOR FILE NO.		11. MANUFACTURER'S DESIGNATION OF DRILL Vibrocure		<input type="checkbox"/> AUTO HAMMER <input type="checkbox"/> MANUAL HAMMER	
4. NAME OF DRILLER Construction Solutions International, Inc.				12. TOTAL SAMPLES		DISTURBED 1 UNDISTURBED (UD) 0	
5. DIRECTION OF BORING <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED		DEG. FROM VERTICAL		13. TOTAL NUMBER CORE BOXES			
		BEARING		14. WATER DEPTH 56 Ft.			
6. THICKNESS OF OVERBURDEN N/A				15. DATE BORING		STARTED 12-01-13 COMPLETED 12-01-13	
7. DEPTH DRILLED INTO ROCK N/A				16. ELEVATION TOP OF BORING -55.3 Ft.			
8. TOTAL DEPTH OF BORING 19.9 Ft.				17. TOTAL RECOVERY FOR BORING 100%			
				18. SIGNATURE AND TITLE OF INSPECTOR Tom Powers, Geologist			
ELEV.	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS	SAMPLE	LABORATORY RESULTS		
-55.3	0.0						
-56.8	1.5		SAND, silty, mostly fine-grained sand-sized quartz, little shell, medium gray (SM)	A	Classification: SM Color: GLEY1 10Y 5/1- D50: 0.176 mm % Fines: 14.4		
-58.0	2.7		SAND, clayey, little shell, medium gray (SC)				
			CLAY, lean, silty CL-CH, brownish gray (CL)	NS			
-73.6	18.3						
-75.2	19.9		SAND, silty, mostly fine-grained sand-sized quartz, lt. gray (SM)				
			NOTES: 1. Soils are field visually classified in accordance with the Unified Soils Classification System. 2. NS = Sample not submitted for laboratory analysis from this interval. 3. Seafloor elevation calculated using sampling				

<b>DRILLING LOG (Cont. Sheet)</b>			<b>INSTALLATION</b> Mobile District		<b>SHEET 2</b> <b>OF 2 SHEETS</b>
			<b>PROJECT</b> MsCIP Barrier Island Restoration		<b>COORDINATE SYSTEM/DATUM</b> State Plane, MSE (U.S. Ft.)
<b>LOCATION COORDINATES</b> X = 1,129,985 Y = 234,430			<b>ELEVATION TOP OF BORING</b> -55.3 Ft.		
<b>ELEV.</b>	<b>DEPTH</b>	<b>LEGEND</b>	<b>CLASSIFICATION OF MATERIALS</b>	<b>SAMPLE</b>	<b>LABORATORY RESULTS</b>
			vessel's fathometer water depth reading and applying NOAA tidal gauge data conversion factor.		



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CORPS OF ENGINEERS, 200 N. COBB PARKWAY, BLDG 400 SUITE 404, MARIETTA, GA. 30062

WORK ORDER: 848e  
REQUISITION: W33SJG32900192



COBBLES		GRAVEL		SAND			SILT OR CLAY		
		COARSE	FINE	COARSE	MEDIUM	FINE			
Sample No.	Depth (ft)	ASTM D2487 Classification			Nat w%	LL	PL	PI	Project    MsCIP Barrier Island Restoration
A	0.0 to 1.5	Dark Greenish Gray, Silty Sand (SM), with a trace of gravel size							
		shell.							Vibracore Sampling Pascagoula, MS
									Lab No.    K5/3910
									Hole No.    BI-PBS-135-13
GRADATION CURVES									Date    4/23/14

# Boring Designation BI-PBS-136-13

DRILLING LOG		DIVISION South Atlantic		INSTALLATION Mobile District		SHEET 1 OF 2 SHEETS	
1. PROJECT MsCIP Barrier Island Restoration Petit Bois Pass-OCS West				9. SIZE AND TYPE OF BIT N/A			
2. BORING DESIGNATION BI-PBS-136-13		LOCATION COORDINATES E = 1,100,438 N = 241,975		10. COORDINATE SYSTEM/DATUM State Plane, MSE (U.S. Ft.)		HORIZONTAL NAD83 VERTICAL NAVD88	
3. DRILLING AGENCY Corps of Engineers - CESAM		CONTRACTOR FILE NO.		11. MANUFACTURER'S DESIGNATION OF DRILL Vibrocure		<input type="checkbox"/> AUTO HAMMER <input type="checkbox"/> MANUAL HAMMER	
4. NAME OF DRILLER Construction Solutions International, Inc.				12. TOTAL SAMPLES 2		DISTURBED 2 UNDISTURBED (UD) 0	
5. DIRECTION OF BORING <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED		DEG. FROM VERTICAL		13. TOTAL NUMBER CORE BOXES			
		BEARING		14. WATER DEPTH 45.4 Ft.			
6. THICKNESS OF OVERBURDEN N/A				15. DATE BORING 12-30-13		STARTED 12-30-13 COMPLETED 12-30-13	
7. DEPTH DRILLED INTO ROCK N/A				16. ELEVATION TOP OF BORING -45.0 Ft.			
8. TOTAL DEPTH OF BORING 20.0 Ft.				17. TOTAL RECOVERY FOR BORING 100%			
				18. SIGNATURE AND TITLE OF INSPECTOR Tom Powers, Geologist			

ELEV.	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS	SAMPLE	LABORATORY RESULTS
-45.0	0.0				
-45.7	0.7		SAND, poorly-graded, mostly fine to medium-grained sand-sized quartz, little shell fragments, lt. gray (SP)	A	Classification: SP Color: 2.5Y 5/1-gray D50: 0.269 mm % Fines: 3.5
			SAND, silty, mostly fine-grained sand-sized quartz, little shell fragments, medium gray (SM)	B	Classification: SM Color: 2.5Y 5/1-gray D50: 0.165 mm % Fines: 15.1
-52.9	7.9				
-55.5	10.5		SAND, clayey, mostly fine-grained sand-sized quartz, little shell fragments, medium gray (SC)		
			CLAY, lean, few shell fragments, sandy, medium gray and pale orange (CL)	NS	
-62.5	17.5				
-65.0	20.0		CLAY, fat, sandy, lt. and medium gray and pale green (CH)		
			NOTES: 1. Soils are field visually classified in accordance with the Unified Soils Classification System. 2. NS = Sample not submitted for laboratory analysis from this interval. 3. Seafloor elevation calculated using sampling		

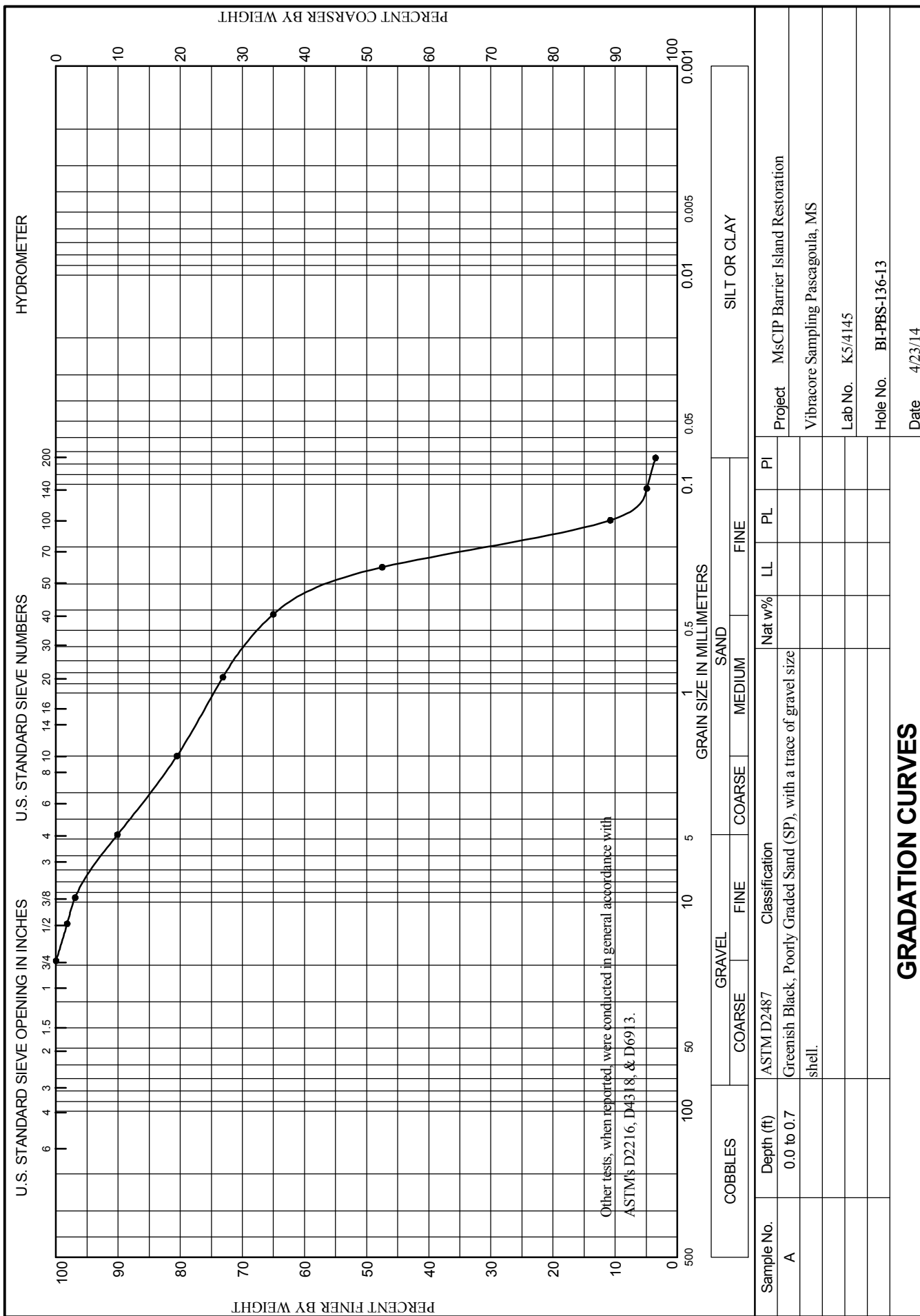
<b>DRILLING LOG (Cont. Sheet)</b>			<b>INSTALLATION</b> Mobile District		<b>SHEET 2</b> <b>OF 2 SHEETS</b>
			<b>PROJECT</b> MsCIP Barrier Island Restoration		<b>COORDINATE SYSTEM/DATUM</b> State Plane, MSE (U.S. Ft.)
<b>LOCATION COORDINATES</b> X = 1,100,438 Y = 241,975			<b>ELEVATION TOP OF BORING</b> -45.0 Ft.		
ELEV.	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS	SAMPLE	LABORATORY RESULTS
			vessel's fathometer water depth reading and applying NOAA tidal gauge data conversion factor.		



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WORK ORDER: 848e

REQUISITION: W33SJC32900192

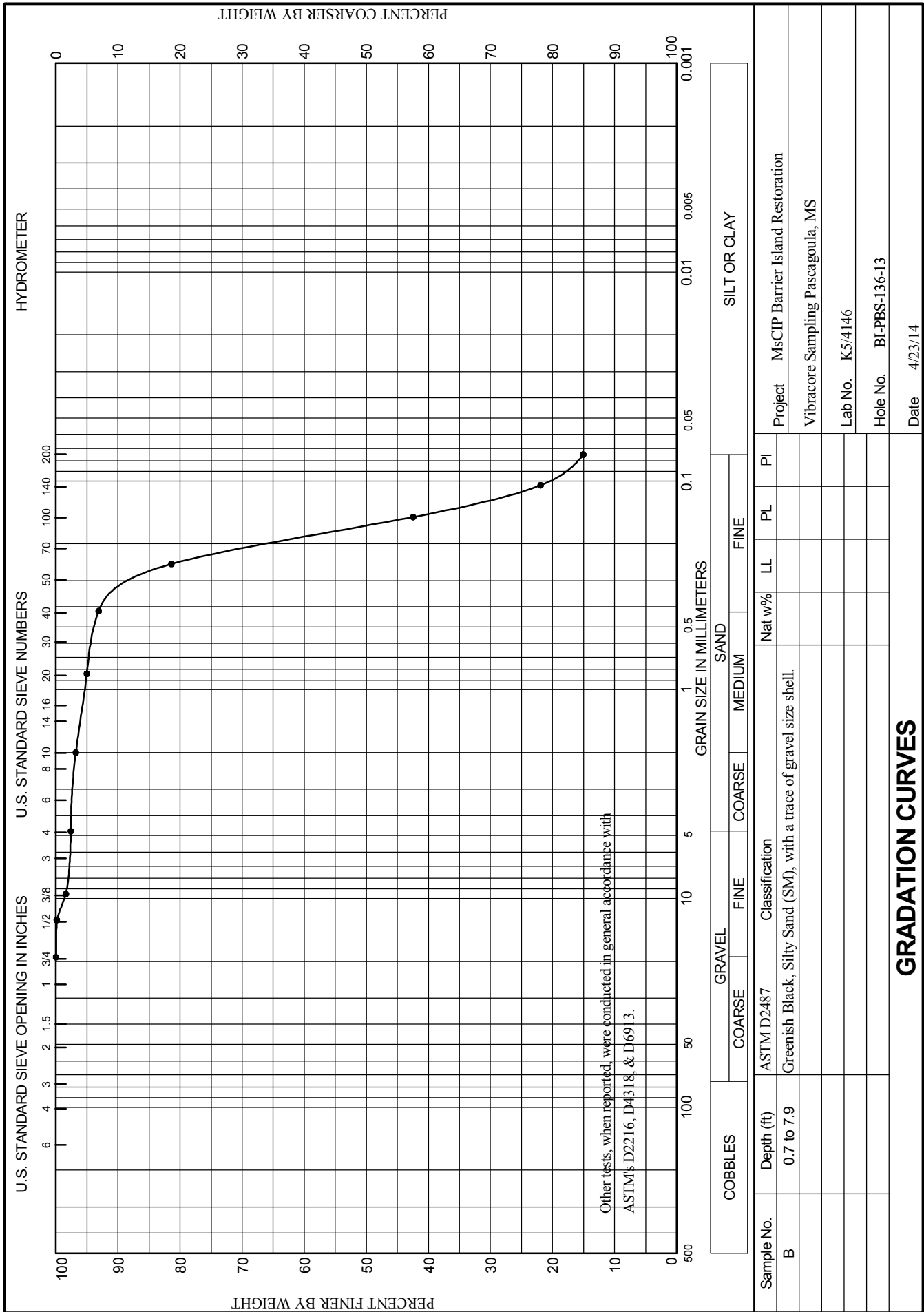




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WORK ORDER: 848e

REQUISITION: W33SJC32900192



# Boring Designation BI-PBS-137-13

DRILLING LOG		DIVISION South Atlantic		INSTALLATION Mobile District		SHEET 1 OF 1 SHEETS	
1. PROJECT MsCIP Barrier Island Restoration Petit Bois Pass-OCS West				9. SIZE AND TYPE OF BIT N/A			
2. BORING DESIGNATION BI-PBS-137-13		LOCATION COORDINATES E = 1,101,465 N = 237,941		10. COORDINATE SYSTEM/DATUM State Plane, MSE (U.S. Ft.)		HORIZONTAL NAD83 VERTICAL NAVD88	
3. DRILLING AGENCY Corps of Engineers - CESAM		CONTRACTOR FILE NO.		11. MANUFACTURER'S DESIGNATION OF DRILL Vibracore		<input type="checkbox"/> AUTO HAMMER <input type="checkbox"/> MANUAL HAMMER	
4. NAME OF DRILLER Construction Solutions International, Inc.				12. TOTAL SAMPLES 3		DISTURBED 3 UNDISTURBED (UD) 0	
5. DIRECTION OF BORING <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED		DEG. FROM VERTICAL		13. TOTAL NUMBER CORE BOXES			
		BEARING		14. WATER DEPTH 48 Ft.			
6. THICKNESS OF OVERBURDEN N/A				15. DATE BORING 12-30-13		STARTED 12-30-13 COMPLETED 12-30-13	
7. DEPTH DRILLED INTO ROCK N/A				16. ELEVATION TOP OF BORING -47.1 Ft.			
8. TOTAL DEPTH OF BORING 11.4 Ft.				17. TOTAL RECOVERY FOR BORING 100%			
				18. SIGNATURE AND TITLE OF INSPECTOR Tom Powers, Geologist			

ELEV.	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS	SAMPLE	LABORATORY RESULTS
-47.1	0.0				
-47.7	0.6			A	Classification: SP Color: 2.5Y 5/1-gray D50: 0.259 mm % Fines: 3.3
-48.6	1.5		SAND, poorly-graded, mostly fine to medium-grained sand-sized quartz, little shell fragments, lt. gray (SP)	B	Classification: SP-SM Color: 2.5Y 5/1-gray D50: 0.185 mm % Fines: 10
-49.5	2.4			C	Classification: SM Color: GLEY1 10Y 6/1- D50: 0.16 mm % Fines: 13.8
-50.2	3.1		SAND, poorly-graded with silt, mostly fine-grained sand-sized quartz, few shell fragments, lt. to medium gray (SP-SM)		
			SAND, silty, mostly fine-grained sand-sized quartz, few shell fragments, lt. to medium gray (SM)		
			SAND, clayey, mostly fine-grained sand-sized quartz, few shell fragments, medium gray (SC)	NS	
-55.1	8.0		CLAY, lean, sandy and trace shell fragments from 3.1 to 5.0 ft., medium to dark gray and pale brown (CL)		
			CLAY, fat, sandy, lt. and medium gray, pale orange, and pale green (CH)		
-58.5	11.4				

NOTES:

1. Soils are field visually classified in accordance with the Unified Soils Classification System.

2. NS = Sample not submitted for laboratory analysis from this interval.

3. Seafloor elevation calculated using sampling vessel's fathometer water depth reading and applying NOAA tidal gauge data conversion factor.

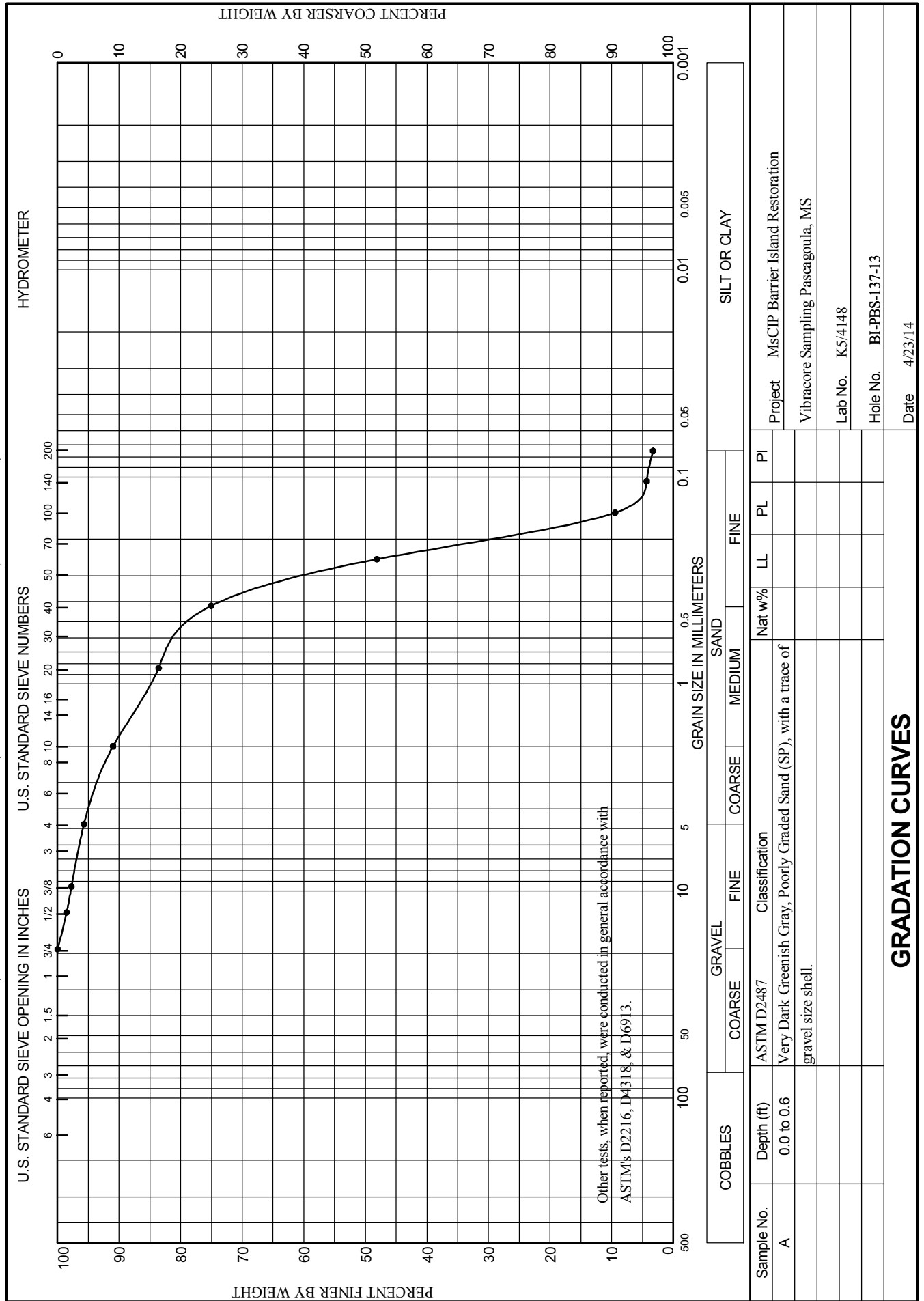




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WORK ORDER: 848e

REQUISITION: W33SJC32900192

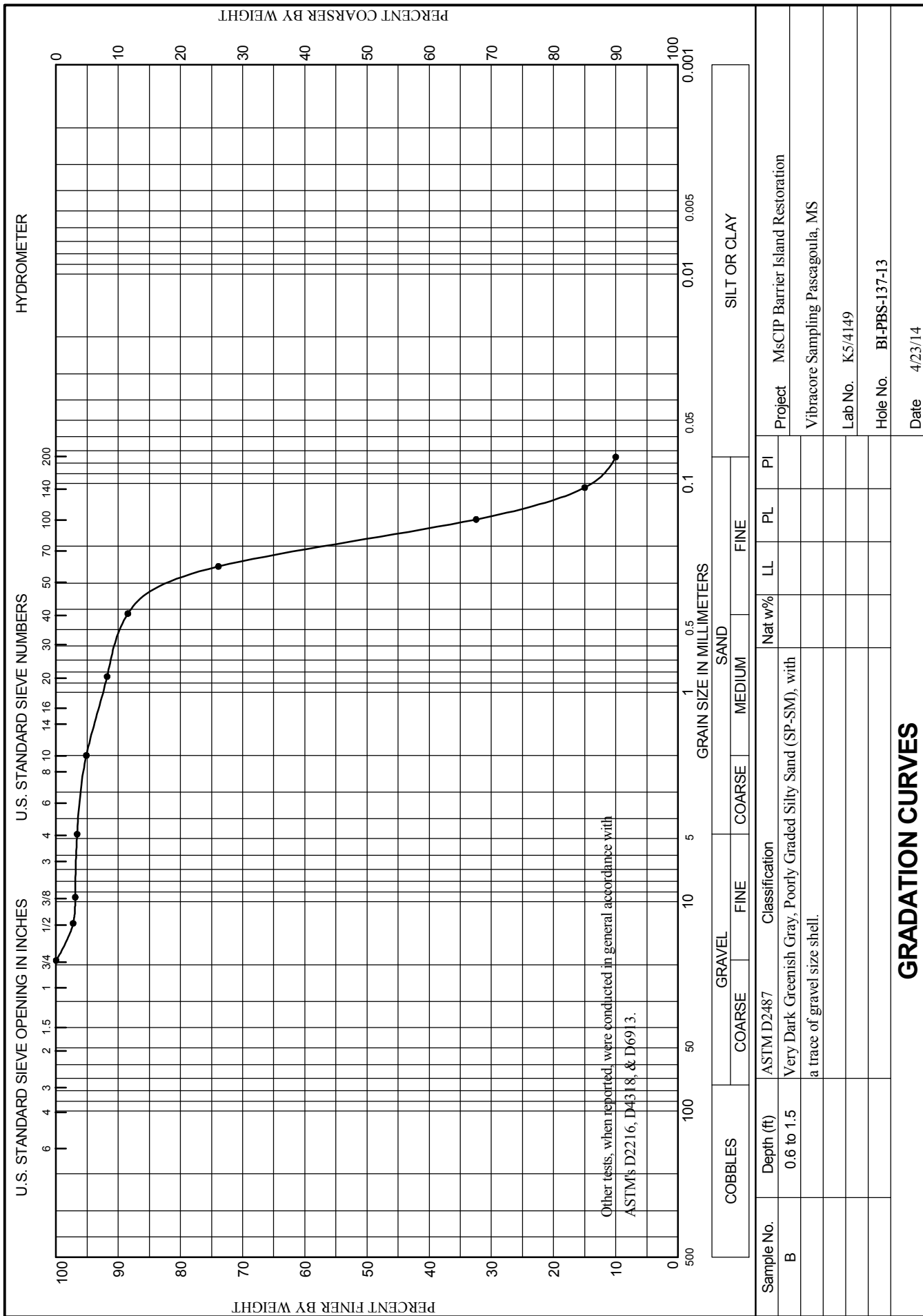




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WORK ORDER: 848e

REQUISITION: W33SJC32900192

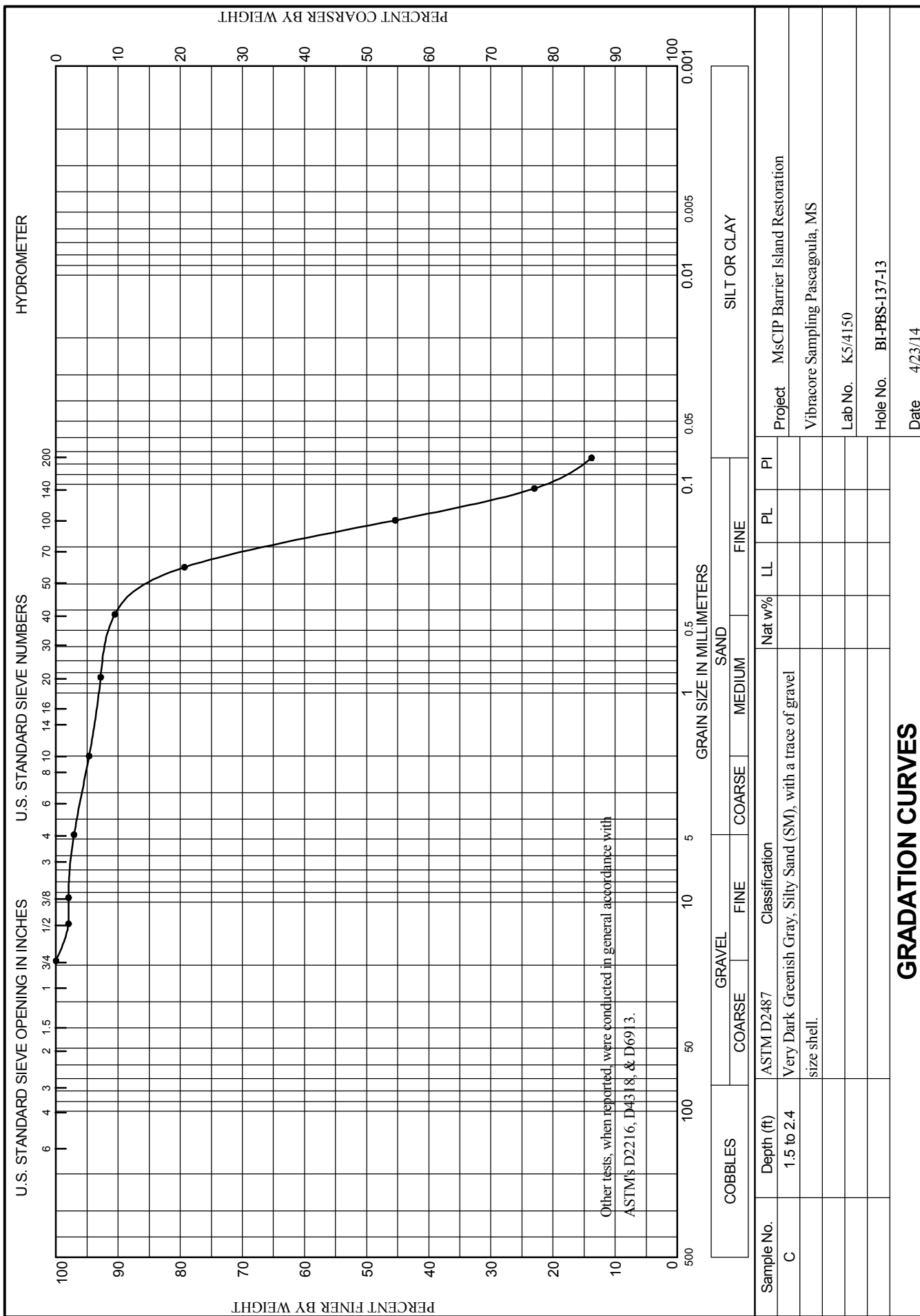




DEPARTMENT OF THE ARMY, SAVANNAH DISTRICT, ENVIRONMENTAL AND MATERIALS UNIT  
CORPS OF ENGINEERS, 200 N. COBB PARKWAY, BLDG 400 SUITE 404, MARIETTA, GA. 30062

WORK ORDER: 848e

REQUISITION: W33SJC32900192



# Boring Designation BI-PBS-138-13

DRILLING LOG		DIVISION South Atlantic		INSTALLATION Mobile District		SHEET 1 OF 2 SHEETS	
1. PROJECT MsCIP Barrier Island Restoration Petit Bois Pass-OCS West				9. SIZE AND TYPE OF BIT N/A			
2. BORING DESIGNATION BI-PBS-138-13		LOCATION COORDINATES E = 1,115,293 N = 228,227		10. COORDINATE SYSTEM/DATUM State Plane, MSE (U.S. Ft.)		HORIZONTAL NAD83	
3. DRILLING AGENCY Corps of Engineers - CESAM		CONTRACTOR FILE NO.		11. MANUFACTURER'S DESIGNATION OF DRILL Vibracore		<input type="checkbox"/> AUTO HAMMER <input type="checkbox"/> MANUAL HAMMER	
4. NAME OF DRILLER Construction Solutions International, Inc.				12. TOTAL SAMPLES		DISTURBED 0	
5. DIRECTION OF BORING <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED				13. TOTAL NUMBER CORE BOXES		UNDISTURBED (UD) 0	
6. THICKNESS OF OVERBURDEN N/A				14. WATER DEPTH		58.2 Ft.	
7. DEPTH DRILLED INTO ROCK N/A				15. DATE BORING		STARTED 12-09-13 COMPLETED 12-09-13	
8. TOTAL DEPTH OF BORING 19.9 Ft.				16. ELEVATION TOP OF BORING -58.1 Ft.		17. TOTAL RECOVERY FOR BORING 100%	
				18. SIGNATURE AND TITLE OF INSPECTOR Tom Powers, Geologist			
ELEV.	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS	SAMPLE	LABORATORY RESULTS		
-58.1	0.0		CLAY, lean, sandy and non-sandy, trace wood fragments at 5 ft. and below, pale green and lt. gray to 5 ft., medium gray below (CL)	NS			
-76.1	18.0		SAND, poorly-graded with silt, mostly fine to medium-grained sand-sized quartz, some shell, lt. gray (SP-SM)				
-78.0	19.9		NOTES: 1. Soils are field visually classified in accordance with the Unified Soils Classification System. 2. NS = Sample not submitted for laboratory analysis from this interval. 3. Seafloor elevation calculated using sampling				

<b>DRILLING LOG (Cont. Sheet)</b>			<b>INSTALLATION</b> Mobile District		<b>SHEET 2</b> <b>OF 2 SHEETS</b>
<b>PROJECT</b> MsCIP Barrier Island Restoration			<b>COORDINATE SYSTEM/DATUM</b> State Plane, MSE (U.S. Ft.)	<b>HORIZONTAL</b> NAD83	<b>VERTICAL</b> NAVD88
<b>LOCATION COORDINATES</b> X = 1,115,293 Y = 228,227			<b>ELEVATION TOP OF BORING</b> -58.1 Ft.		
<b>ELEV.</b>	<b>DEPTH</b>	<b>LEGEND</b>	<b>CLASSIFICATION OF MATERIALS</b>	<b>SAMPLE</b>	<b>LABORATORY RESULTS</b>
			vessel's fathometer water depth reading and applying NOAA tidal gauge data conversion factor.		

# Boring Designation BI-PBS-144-13

DRILLING LOG		DIVISION South Atlantic		INSTALLATION Mobile District		SHEET 1 OF 1 SHEETS	
1. PROJECT MsCIP Barrier Island Restoration Petit Bois Pass-OCS East				9. SIZE AND TYPE OF BIT N/A			
2. BORING DESIGNATION BI-PBS-144-13		LOCATION COORDINATES E = 1,133,323 N = 235,207		10. COORDINATE SYSTEM/DATUM State Plane, MSE (U.S. Ft.)		HORIZONTAL NAD83	
3. DRILLING AGENCY Corps of Engineers - CESAM		CONTRACTOR FILE NO.		11. MANUFACTURER'S DESIGNATION OF DRILL Vibracore		<input type="checkbox"/> AUTO HAMMER <input type="checkbox"/> MANUAL HAMMER	
4. NAME OF DRILLER Construction Solutions International, Inc.				12. TOTAL SAMPLES		DISTURBED 1	
5. DIRECTION OF BORING <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED		DEG. FROM VERTICAL		BEARING		UNDISTURBED (UD) 0	
6. THICKNESS OF OVERBURDEN N/A				13. TOTAL NUMBER CORE BOXES			
7. DEPTH DRILLED INTO ROCK N/A				14. WATER DEPTH 50 Ft.			
8. TOTAL DEPTH OF BORING 18.7 Ft.				15. DATE BORING 11-30-13		COMPLETED 11-30-13	
				16. ELEVATION TOP OF BORING -49.2 Ft.			
				17. TOTAL RECOVERY FOR BORING 100%			
				18. SIGNATURE AND TITLE OF INSPECTOR Tom Powers, Geologist			

ELEV.	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS	SAMPLE	LABORATORY RESULTS
-49.2	0.0				
			SAND, poorly-graded, mostly fine to coarse-grained sand-sized quartz, trace shell, medium gray (SP)	A	Classification: SP Color: GLEY1 10Y 7/1- D50: 0.334 mm % Fines: 1.4
-53.4	4.2		SAND, clayey, medium gray (SC)		
-58.0	8.8		CLAY, lean, sandy, medium gray (CL)		
-60.9	11.7		SAND, clayey, medium gray (SC)		
-63.9	14.7		CLAY, fat, trace wood fragments, medium gray (CH)		
-67.9	18.7				
			NOTES: 1. Soils are field visually classified in accordance with the Unified Soils Classification System. 2. NS = Sample not submitted for laboratory analysis from this interval. 3. Seafloor elevation determined from USACE hydrographic survey completed April 2014.		



# Boring Designation BI-PBS-153-13

DRILLING LOG		DIVISION South Atlantic		INSTALLATION Mobile District		SHEET 1 OF 2 SHEETS	
1. PROJECT MsCIP Barrier Island Restoration Petit Bois Pass-OCS West				9. SIZE AND TYPE OF BIT N/A			
2. BORING DESIGNATION BI-PBS-153-13		LOCATION COORDINATES E = 1,116,112 N = 229,041		10. COORDINATE SYSTEM/DATUM State Plane, MSE (U.S. Ft.)		HORIZONTAL NAD83 VERTICAL NAVD88	
3. DRILLING AGENCY Corps of Engineers - CESAM		CONTRACTOR FILE NO.		11. MANUFACTURER'S DESIGNATION OF DRILL Vibrocure		<input type="checkbox"/> AUTO HAMMER <input type="checkbox"/> MANUAL HAMMER	
4. NAME OF DRILLER Construction Solutions International, Inc.				12. TOTAL SAMPLES 1		DISTURBED 1 UNDISTURBED (UD) 0	
5. DIRECTION OF BORING <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED		DEG. FROM VERTICAL		13. TOTAL NUMBER CORE BOXES			
		BEARING		14. WATER DEPTH 56.3 Ft.			
6. THICKNESS OF OVERBURDEN N/A				15. DATE BORING 12-08-13		STARTED 12-08-13 COMPLETED 12-08-13	
7. DEPTH DRILLED INTO ROCK N/A				16. ELEVATION TOP OF BORING -55.9 Ft.			
8. TOTAL DEPTH OF BORING 19.2 Ft.				17. TOTAL RECOVERY FOR BORING 100%			
				18. SIGNATURE AND TITLE OF INSPECTOR Tom Powers, Geologist			

ELEV.	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS	SAMPLE	LABORATORY RESULTS
-55.9	0.0				
-56.7	0.8		SAND, silty, mostly fine-grained sand-sized quartz, few shell, lt. gray (SM)	A	Classification: SP-SM Color: GLEY1 10Y 6/1- D50: 0.208 mm % Fines: 7
-58.8	2.9		CLAY, fat, lt. gray and orange (CH)		
-59.1	3.2		SAND, clayey, mostly fine-grained sand-sized quartz, lt. gray (SC)		
			CLAY, lean, slightly sandy, trace wood at depth of 6.7 ft., lt. gray (CL)		
-63.9	8.0				
			SAND, silty, mostly fine-grained sand-sized quartz, 0.15 ft. of clay at depth of 9.25 ft., lt. gray (SM)	NS	
-70.4	14.5				
			CLAY, lean, trace sand-filled burrows (horizontal), 1/2-inch diameter, lt. gray (CL)		
-75.1	19.2				
			NOTES: 1. Soils are field visually classified in accordance with the Unified Soils Classification System. 2. NS = Sample not submitted for laboratory analysis from this interval. 3. Seafloor elevation calculated using sampling vessel's fathometer water depth reading and applying NOAA tidal gauge data conversion		



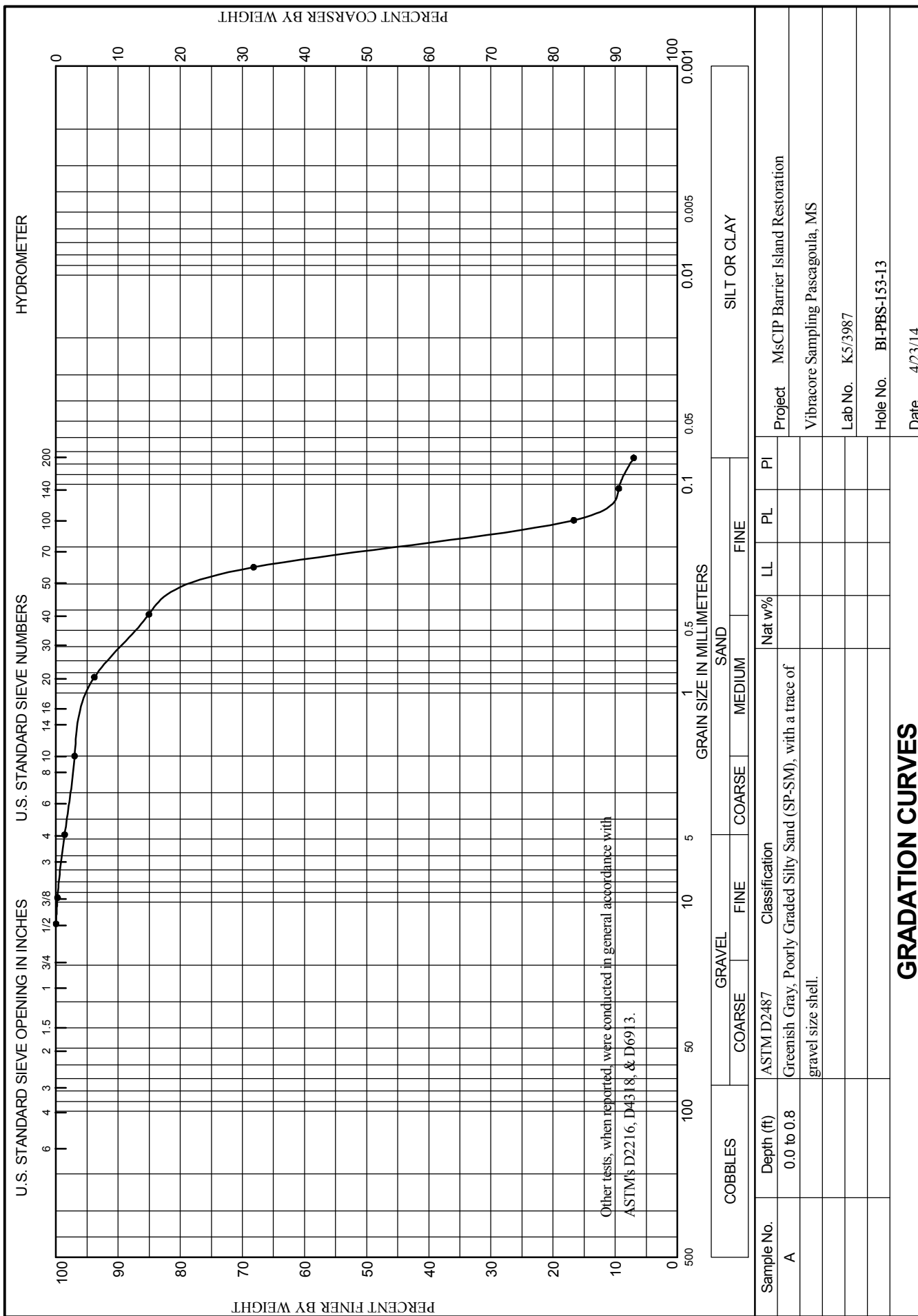
<b>DRILLING LOG (Cont. Sheet)</b>			<b>INSTALLATION</b> Mobile District		<b>SHEET 2</b> <b>OF 2 SHEETS</b>
			<b>PROJECT</b> MsCIP Barrier Island Restoration	<b>COORDINATE SYSTEM/DATUM</b> State Plane, MSE (U.S. Ft.)	<b>HORIZONTAL</b> NAD83
<b>LOCATION COORDINATES</b> X = 1,116,112 Y = 229,041			<b>ELEVATION TOP OF BORING</b> -55.9 Ft.		
<b>ELEV.</b>	<b>DEPTH</b>	<b>LEGEND</b>	<b>CLASSIFICATION OF MATERIALS</b>	<b>SAMPLE</b>	<b>LABORATORY RESULTS</b>
			factor.		



DEPARTMENT OF THE ARMY, SAVANNAH DISTRICT, ENVIRONMENTAL AND MATERIALS UNIT  
CORPS OF ENGINEERS, 200 N. COBB PARKWAY, BLDG 400 SUITE 404, MARIETTA, GA. 30062

WORK ORDER: 848e

REQUISITION: W33SJC32900192



# Boring Designation BI-PBS-154-13

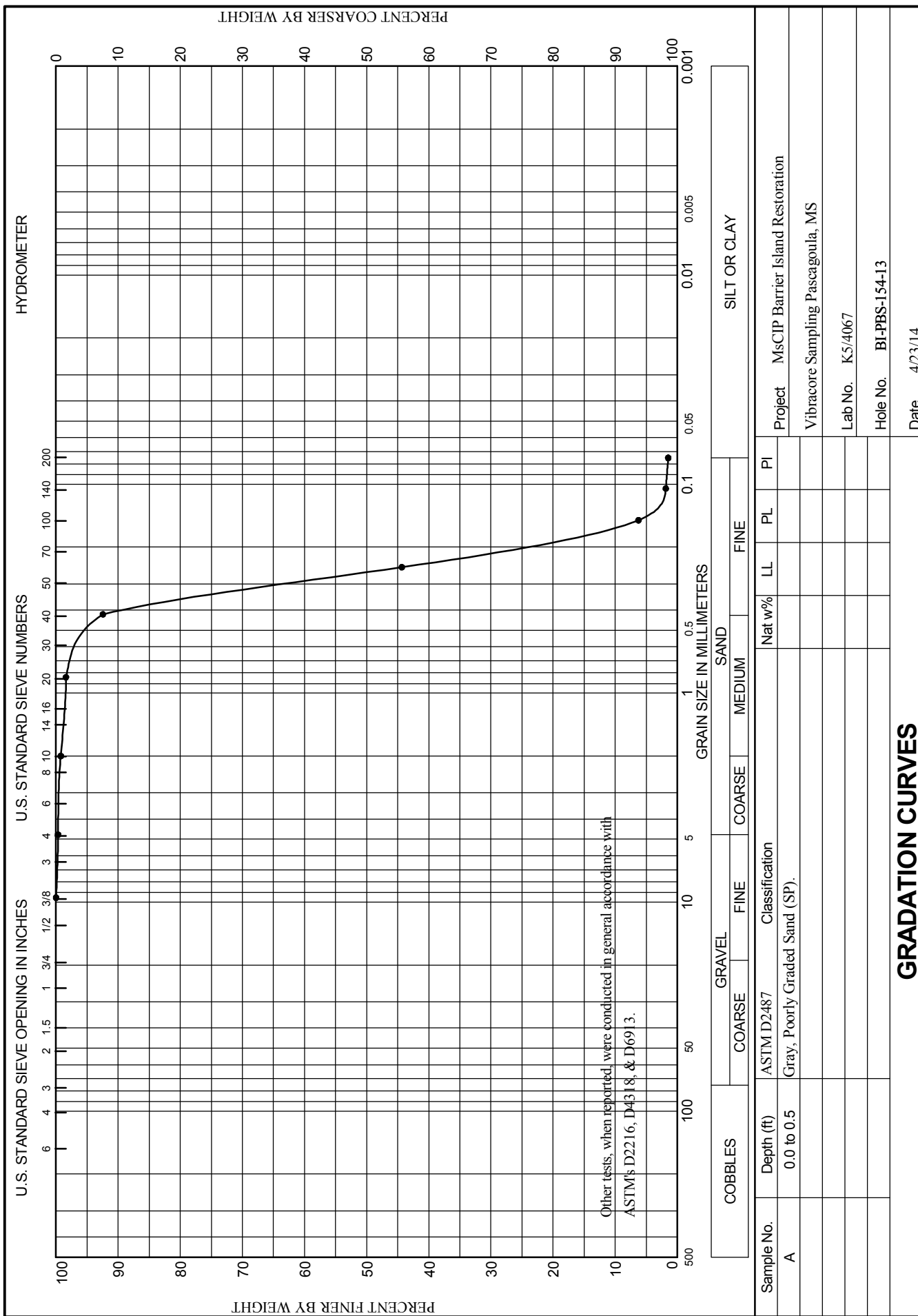
DRILLING LOG		DIVISION South Atlantic		INSTALLATION Mobile District		SHEET 1 OF 1 SHEETS	
1. PROJECT MsCIP Barrier Island Restoration Petit Bois Pass-OCS West				9. SIZE AND TYPE OF BIT N/A			
2. BORING DESIGNATION BI-PBS-154-13		LOCATION COORDINATES E = 1,100,295 N = 240,163		10. COORDINATE SYSTEM/DATUM State Plane, MSE (U.S. Ft.)		HORIZONTAL NAD83 VERTICAL NAVD88	
3. DRILLING AGENCY Corps of Engineers - CESAM		CONTRACTOR FILE NO.		11. MANUFACTURER'S DESIGNATION OF DRILL Vibrocure		<input type="checkbox"/> AUTO HAMMER <input type="checkbox"/> MANUAL HAMMER	
4. NAME OF DRILLER Construction Solutions International, Inc.				12. TOTAL SAMPLES 3		DISTURBED 3 UNDISTURBED (UD) 0	
5. DIRECTION OF BORING <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED		DEG. FROM VERTICAL		13. TOTAL NUMBER CORE BOXES			
		BEARING		14. WATER DEPTH 48.1 Ft.			
6. THICKNESS OF OVERBURDEN N/A				15. DATE BORING 12-29-13		STARTED 12-29-13 COMPLETED 12-29-13	
7. DEPTH DRILLED INTO ROCK N/A				16. ELEVATION TOP OF BORING -46.8 Ft.			
8. TOTAL DEPTH OF BORING 15.2 Ft.				17. TOTAL RECOVERY FOR BORING 100%			
				18. SIGNATURE AND TITLE OF INSPECTOR Tom Powers, Geologist			
ELEV.	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS	SAMPLE	LABORATORY RESULTS		
-46.8	0.0						
-47.3	0.5			A	Classification: SP Color: GLEY1 10Y 6/1- D50: 0.266 mm % Fines: 1.5		
-48.5	1.7		SAND, poorly-graded, mostly fine to medium-grained sand-sized quartz, trace shell fragments, lt. gray (SP)	B	Classification: SP-SM Color: GLEY1 10Y 6/1- D50: 0.254 mm % Fines: 5.7		
			SAND, poorly-graded with silt, mostly fine to medium-grained sand-sized quartz, some clay lenses from 0.5 to 0.9 ft., few shell fragments, lt. to medium gray (SP-SM)	C	Classification: SM Color: GLEY1 10Y 5/1- D50: 0.154 mm % Fines: 18.1		
-52.8	6.0		SAND, silty, mostly fine-grained sand-sized quartz, few shell fragments, medium gray (SM)				
-53.5	6.7		SAND, clayey, mostly fine-grained sand-sized quartz, few shell fragments, medium gray (SC)				
			CLAY, lean, medium to dark gray (CL)	NS			
-62.0	15.2						
			NOTES: 1. Soils are field visually classified in accordance with the Unified Soils Classification System. 2. NS = Sample not submitted for laboratory analysis from this interval. 3. Seafloor elevation calculated using sampling vessel's fathometer water depth reading and applying NOAA tidal gauge data conversion factor.				



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CORPS OF ENGINEERS, 200 N. COBB PARKWAY, BLDG 400 SUITE 404, MARIETTA, GA. 30062

WORK ORDER: 848e

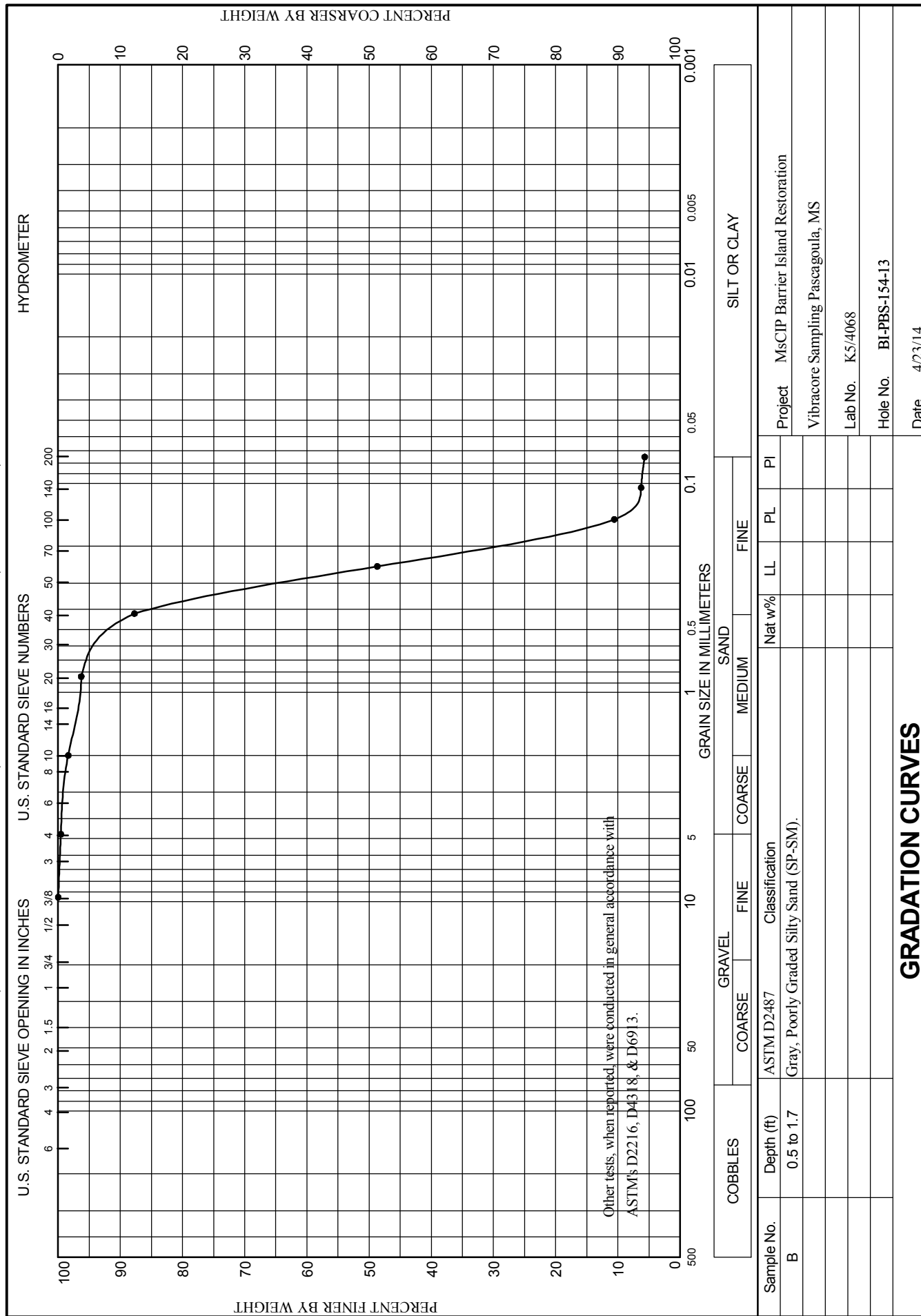
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WORK ORDER: 848e

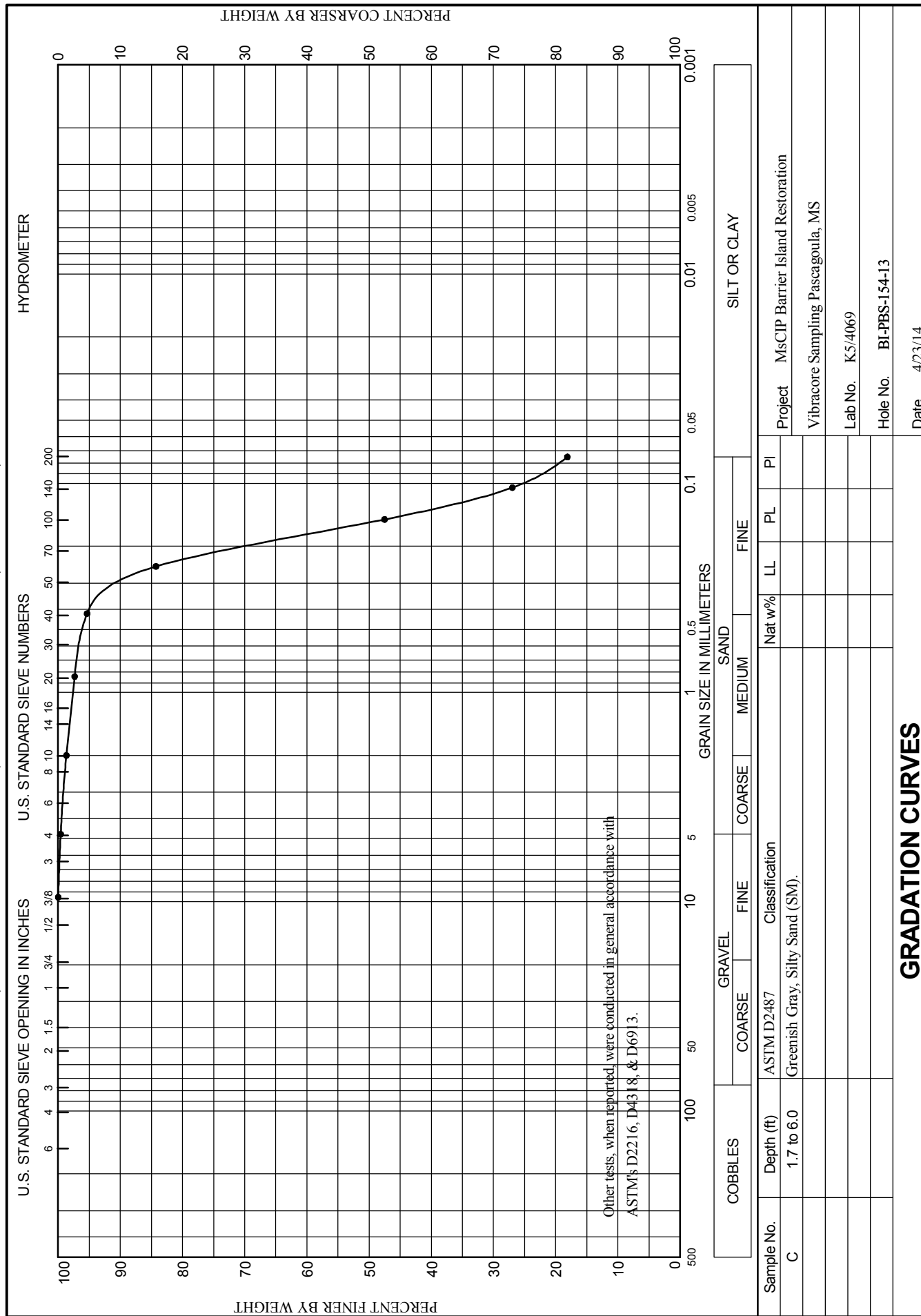
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WORK ORDER: 848e

REQUISITION: W33SJG32900192



# Boring Designation BI-PBS-155-13

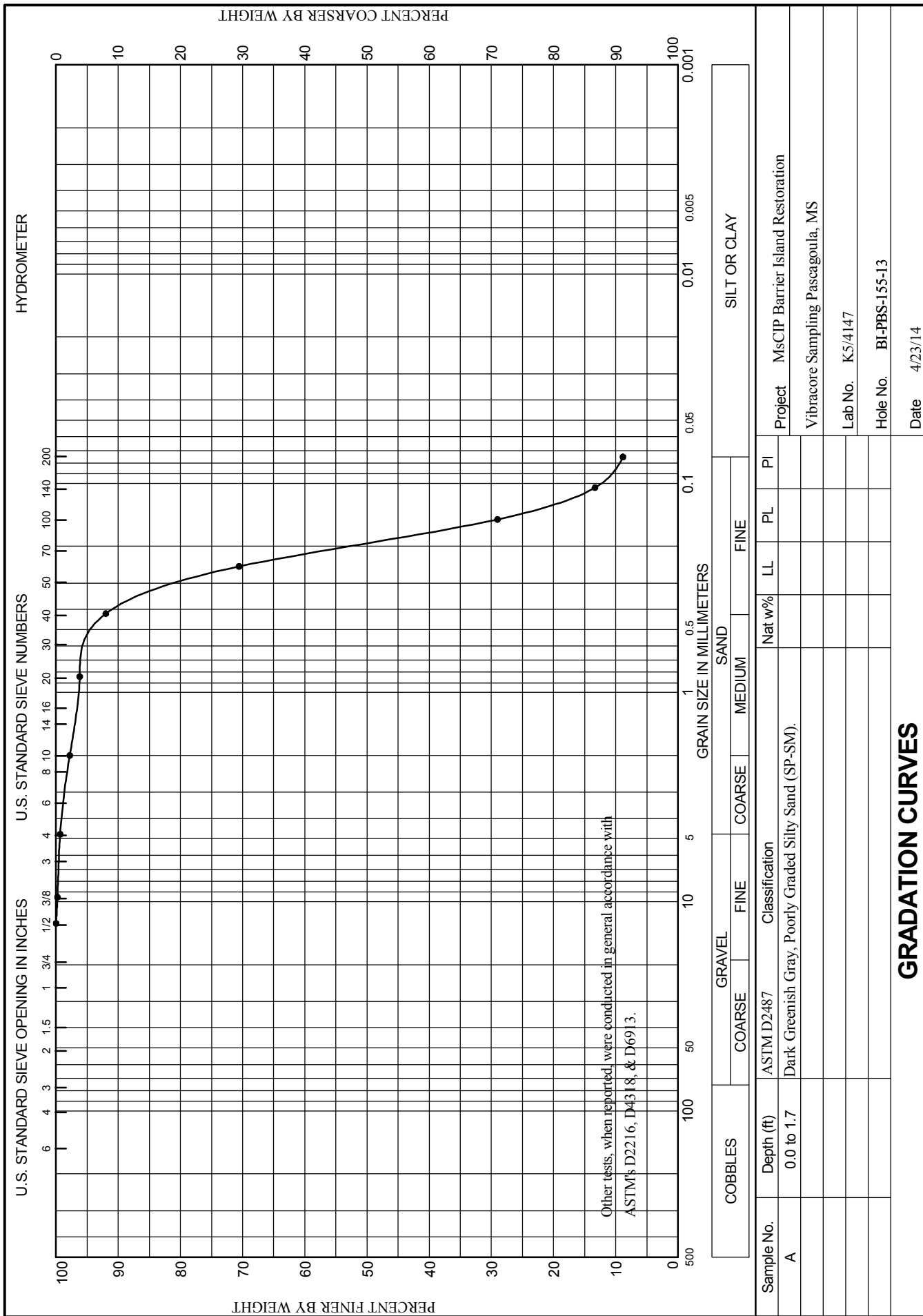
DRILLING LOG		DIVISION South Atlantic		INSTALLATION Mobile District		SHEET 1 OF 1 SHEETS	
1. PROJECT MsCIP Barrier Island Restoration Petit Bois Pass-OCS West				9. SIZE AND TYPE OF BIT N/A			
2. BORING DESIGNATION BI-PBS-155-13		LOCATION COORDINATES E = 1,101,840 N = 242,292		10. COORDINATE SYSTEM/DATUM State Plane, MSE (U.S. Ft.)		HORIZONTAL NAD83 VERTICAL NAVD88	
3. DRILLING AGENCY Corps of Engineers - CESAM		CONTRACTOR FILE NO.		11. MANUFACTURER'S DESIGNATION OF DRILL Vibracore		<input type="checkbox"/> AUTO HAMMER <input type="checkbox"/> MANUAL HAMMER	
4. NAME OF DRILLER Construction Solutions International, Inc.				12. TOTAL SAMPLES 1		DISTURBED 1 UNDISTURBED (UD) 0	
5. DIRECTION OF BORING <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED		DEG. FROM VERTICAL		13. TOTAL NUMBER CORE BOXES			
		BEARING		14. WATER DEPTH 47.1 Ft.			
6. THICKNESS OF OVERBURDEN N/A				15. DATE BORING 12-30-13		STARTED 12-30-13 COMPLETED 12-30-13	
7. DEPTH DRILLED INTO ROCK N/A				16. ELEVATION TOP OF BORING -46.5 Ft.			
8. TOTAL DEPTH OF BORING 12.1 Ft.				17. TOTAL RECOVERY FOR BORING 100%			
				18. SIGNATURE AND TITLE OF INSPECTOR Tom Powers, Geologist			
ELEV.	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS	SAMPLE	LABORATORY RESULTS		
-46.5	0.0						
-48.2	1.7		SAND, silty, mostly fine-grained sand-sized quartz, few shell fragments, lt. gray (SM)	A	Classification: SP-SM Color: 2.5Y 5/1-gray D50: 0.193 mm % Fines: 8.8		
-50.4	3.9		SAND, clayey, mostly fine-grained sand-sized quartz, little shell fragments, medium gray (SC)	NS			
-56.7	10.2		CLAY, lean, few shell fragments and sandy from 3.9 to 5.0 ft., medium gray and pale brown (CL)				
-58.6	12.1		CLAY, fat, sandy, lt. and medium gray and pale orange (CH)				
			NOTES: 1. Soils are field visually classified in accordance with the Unified Soils Classification System. 2. NS = Sample not submitted for laboratory analysis from this interval. 3. Seafloor elevation calculated using sampling vessel's fathometer water depth reading and applying NOAA tidal gauge data conversion factor.				



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WORK ORDER: 848e

REQUISITION: W33SJC32900192





# Boring Designation BI-PBS-160-13

DRILLING LOG		DIVISION South Atlantic		INSTALLATION Mobile District		SHEET 1 OF 2 SHEETS	
1. PROJECT MsCIP Barrier Island Restoration Petit Bois Pass-OCS West				9. SIZE AND TYPE OF BIT N/A			
2. BORING DESIGNATION BI-PBS-160-13		LOCATION COORDINATES E = 1,119,247 N = 227,696		10. COORDINATE SYSTEM/DATUM State Plane, MSE (U.S. Ft.)		HORIZONTAL NAD83 VERTICAL NAVD88	
3. DRILLING AGENCY Corps of Engineers - CESAM		CONTRACTOR FILE NO.		11. MANUFACTURER'S DESIGNATION OF DRILL Vibrocure		<input type="checkbox"/> AUTO HAMMER <input type="checkbox"/> MANUAL HAMMER	
4. NAME OF DRILLER Construction Solutions International, Inc.				12. TOTAL SAMPLES 3		DISTURBED 3 UNDISTURBED (UD) 0	
5. DIRECTION OF BORING <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED		DEG. FROM VERTICAL		13. TOTAL NUMBER CORE BOXES			
		BEARING		14. WATER DEPTH 53 Ft.			
6. THICKNESS OF OVERBURDEN N/A				15. DATE BORING 12-03-13		STARTED 12-03-13 COMPLETED 12-03-13	
7. DEPTH DRILLED INTO ROCK N/A				16. ELEVATION TOP OF BORING -52.3 Ft.			
8. TOTAL DEPTH OF BORING 18.5 Ft.				17. TOTAL RECOVERY FOR BORING 100%			
				18. SIGNATURE AND TITLE OF INSPECTOR Tom Powers, Geologist			

ELEV.	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS	SAMPLE	LABORATORY RESULTS
-52.3	0.0				
			SAND, poorly-graded, mostly fine to medium-grained sand-sized quartz, few shell, lt. gray (SP)	A	Classification: SP Color: GLEY1 10Y 6/1- D50: 0.328 mm % Fines: 1.6
-57.9	5.6			B	Classification: SP Color: GLEY1 10Y 6/1- D50: 0.256 mm % Fines: 4
-58.5	6.2		SAND, poorly-graded, mostly fine-grained sand-sized quartz, lt. to medium gray (SP)		
			SAND, silty, mostly fine-grained sand-sized quartz, lt. to medium gray (SM)	C	Classification: SP-SM Color: GLEY1 10Y 5/1- D50: 0.198 mm % Fines: 10.4
-61.2	8.9				
-61.5	9.2		SAND, clayey, medium gray (SC)		
			CLAY, lean, interbedded with silty sand up to 1-inch thick, medium gray, dark brown from 13 to 14 ft. depth (CL)		
-66.4	14.1			NS	
			CLAY, fat, sandy, lt. gray and orange (CH)		
-69.7	17.4				
-70.8	18.5		SAND, silty, mostly fine-grained sand-sized quartz, lt. gray and orange (SM)		
			NOTES: 1. Soils are field visually classified in accordance with the Unified Soils Classification System. 2. NS = Sample not submitted for laboratory analysis from this interval. 3. Seafloor elevation calculated using sampling vessel's fathometer water depth reading and applying NOAA tidal gauge data conversion		

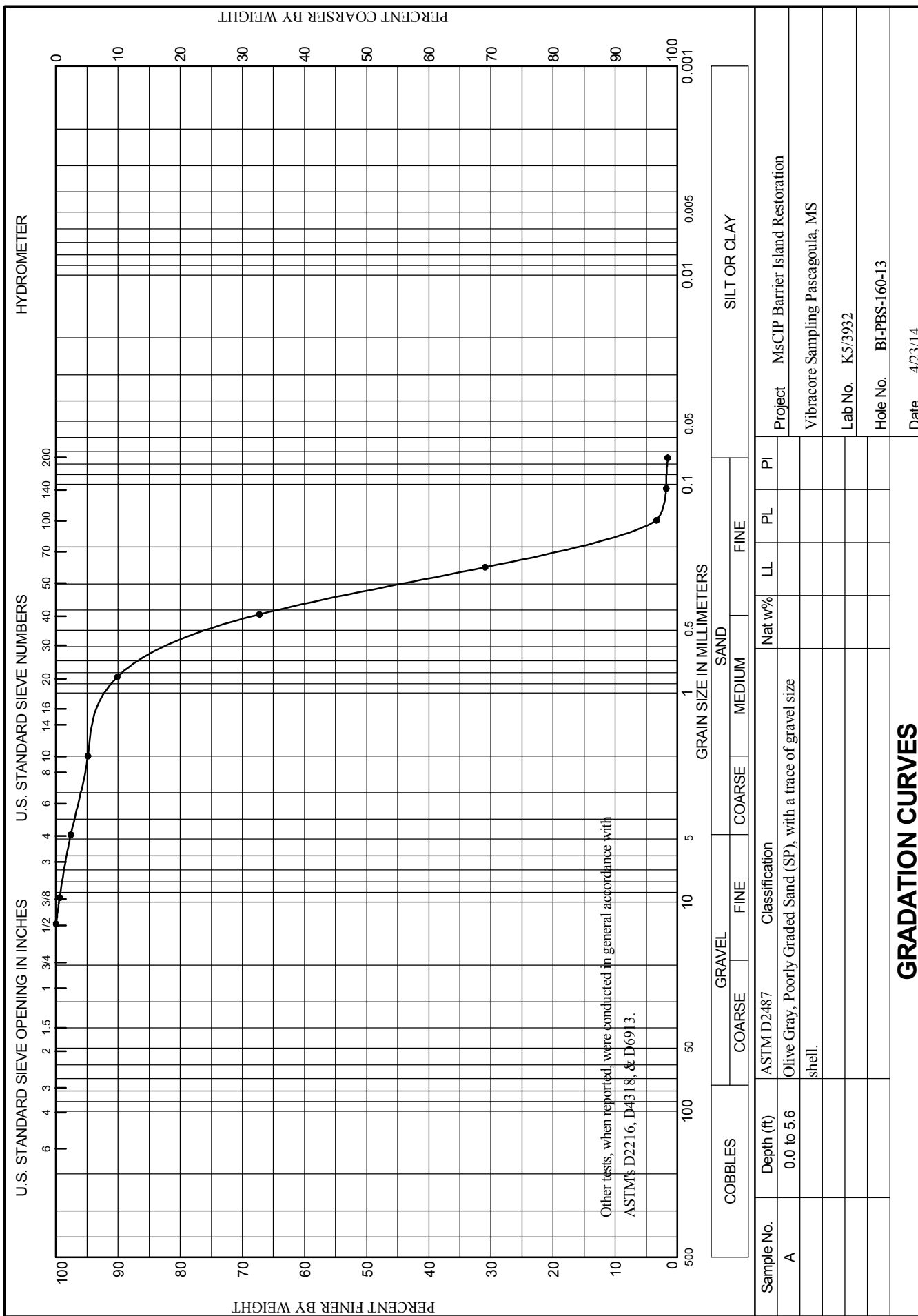
<b>DRILLING LOG (Cont. Sheet)</b>			<b>INSTALLATION</b> Mobile District		<b>SHEET 2</b> <b>OF 2 SHEETS</b>
			<b>PROJECT</b> MsCIP Barrier Island Restoration		<b>COORDINATE SYSTEM/DATUM</b> State Plane, MSE (U.S. Ft.)
<b>LOCATION COORDINATES</b> X = 1,119,247 Y = 227,696			<b>ELEVATION TOP OF BORING</b> -52.3 Ft.		
<b>ELEV.</b>	<b>DEPTH</b>	<b>LEGEND</b>	<b>CLASSIFICATION OF MATERIALS</b>	<b>SAMPLE</b>	<b>LABORATORY RESULTS</b>
			factor.		



DEPARTMENT OF THE ARMY, SAVANNAH DISTRICT, ENVIRONMENTAL AND MATERIALS UNIT  
CORPS OF ENGINEERS, 200 N. COBB PARKWAY, BLDG 400 SUITE 404, MARIETTA, GA. 30062

WORK ORDER: 848e

REQUISITION: W33SJG32900192

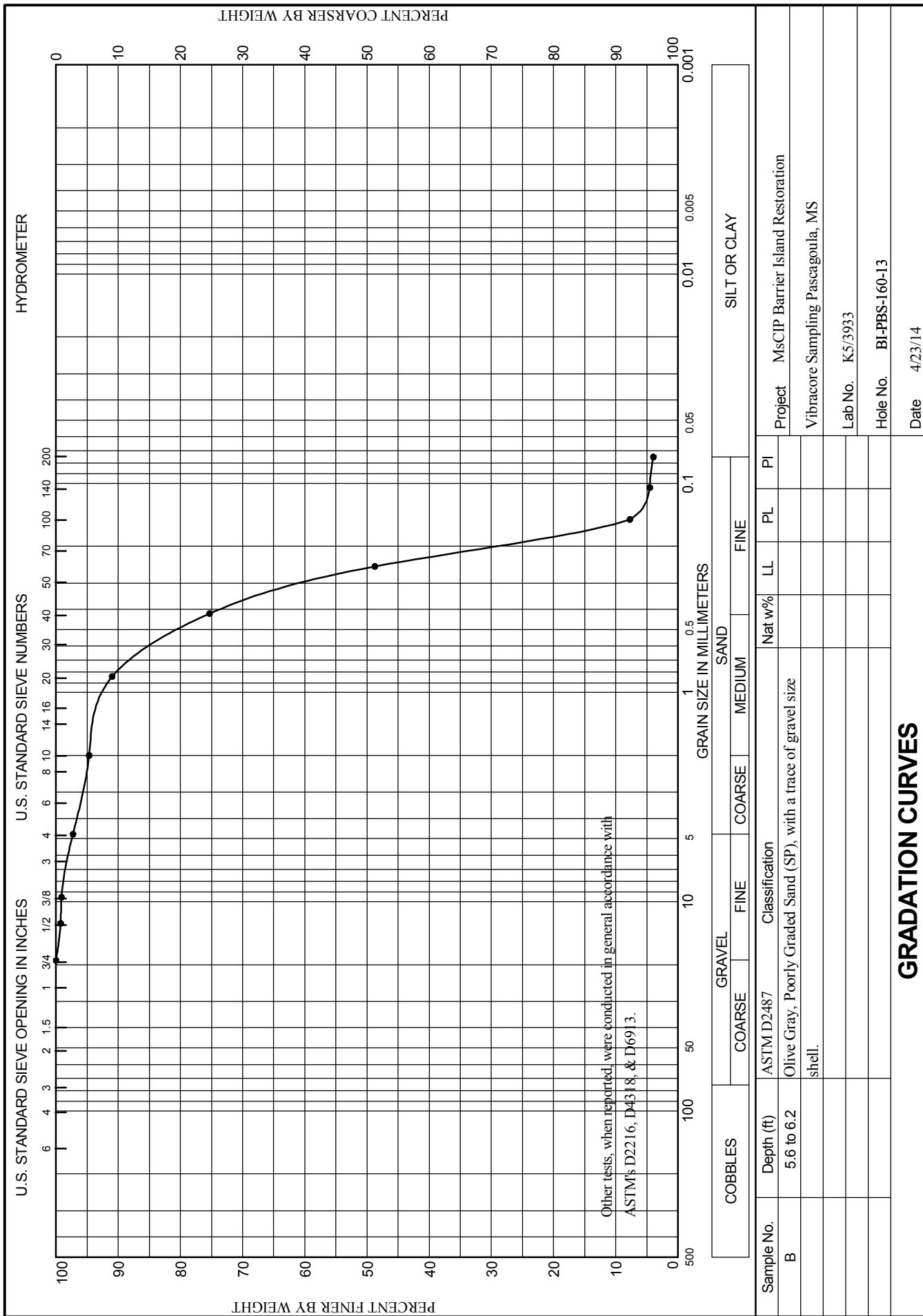




DEPARTMENT OF THE ARMY, SAVANNAH DISTRICT, ENVIRONMENTAL AND MATERIALS UNIT  
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WORK ORDER: 848e

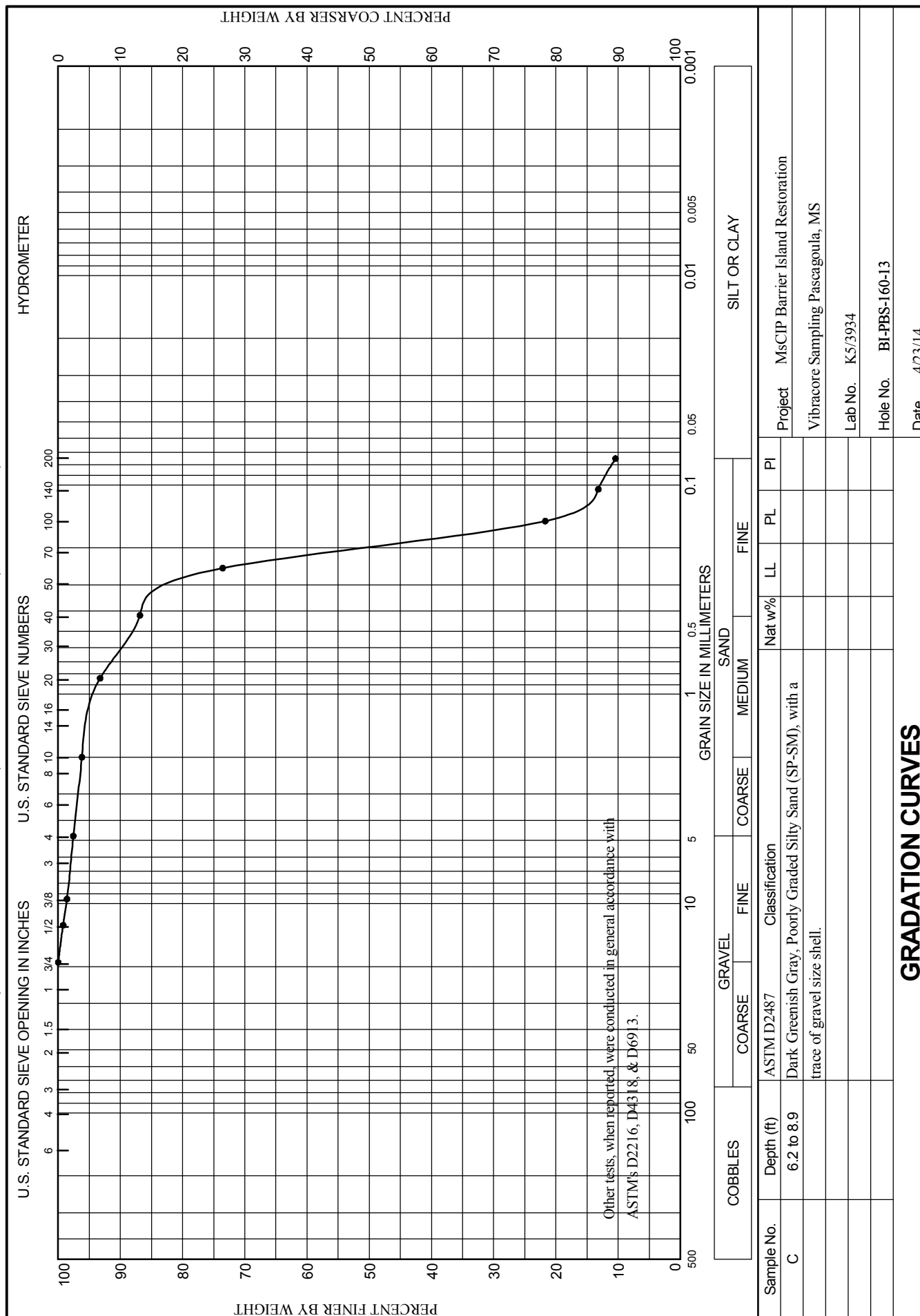
REQUISITION: W33SSJG32900192





WORK ORDER: 848e

REQUISITION: W33SJG32900192



# Boring Designation BI-PBS-161-13

DRILLING LOG		DIVISION South Atlantic		INSTALLATION Mobile District		SHEET 1 OF 1 SHEETS	
1. PROJECT MsCIP Barrier Island Restoration Petit Bois Pass-OCS West				9. SIZE AND TYPE OF BIT N/A			
2. BORING DESIGNATION BI-PBS-161-13		LOCATION COORDINATES E = 1,116,476 N = 228,115		10. COORDINATE SYSTEM/DATUM State Plane, MSE (U.S. Ft.)		HORIZONTAL NAD83 VERTICAL NAVD88	
3. DRILLING AGENCY Corps of Engineers - CESAM		CONTRACTOR FILE NO.		11. MANUFACTURER'S DESIGNATION OF DRILL Vibrocure		<input type="checkbox"/> AUTO HAMMER <input type="checkbox"/> MANUAL HAMMER	
4. NAME OF DRILLER Construction Solutions International, Inc.				12. TOTAL SAMPLES 1		DISTURBED 1 UNDISTURBED (UD) 0	
5. DIRECTION OF BORING <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED		DEG. FROM VERTICAL		13. TOTAL NUMBER CORE BOXES			
		BEARING		14. WATER DEPTH 57 Ft.			
6. THICKNESS OF OVERBURDEN N/A				15. DATE BORING 12-09-13		STARTED 12-09-13 COMPLETED 12-09-13	
7. DEPTH DRILLED INTO ROCK N/A				16. ELEVATION TOP OF BORING -57.0 Ft.			
8. TOTAL DEPTH OF BORING 18.3 Ft.				17. TOTAL RECOVERY FOR BORING 100%			
				18. SIGNATURE AND TITLE OF INSPECTOR Tom Powers, Geologist			

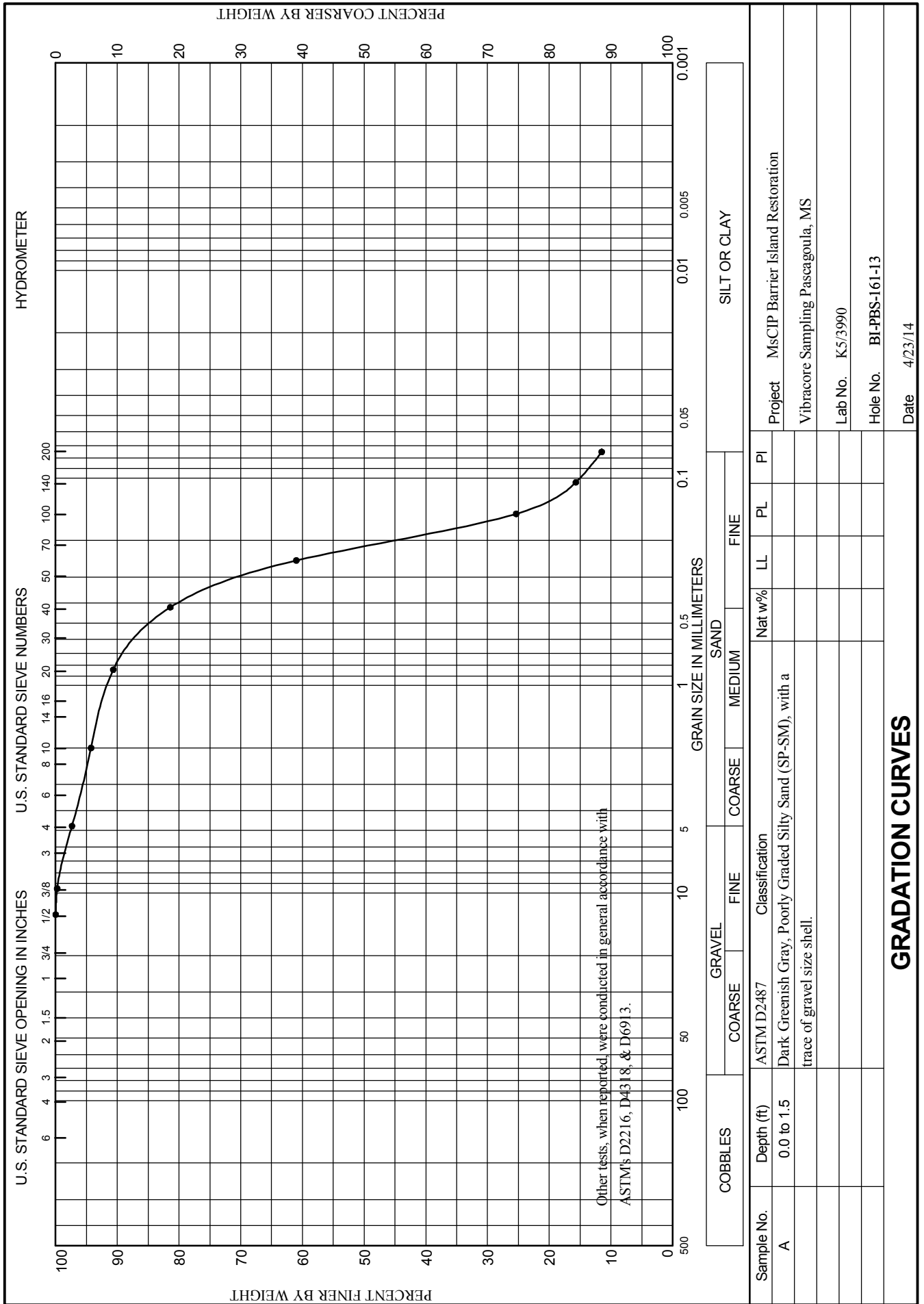
ELEV.	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS	SAMPLE	LABORATORY RESULTS
-57.0	0.0				
-58.5	1.5		SAND, silty, clayey, mostly fine-grained sand-sized quartz, little shell, slight plasticity, medium gray (SC-SM)	A	Classification: SP-SM Color: GLEY1 10Y 5/1- D50: 0.213 mm % Fines: 11.5
-61.4	4.4		CLAY, lean, sandy, sand pockets throughout, pale green and light gray (CL)		
			At El. -61.0 Ft., lt. gray to medium gray CLAY, lean, mostly fine-grained sand-sized quartz (CL)		
			At El. -65.3 Ft., mostly fine-grained sand-sized quartz, little shell	NS	
			At El. -67.5 Ft., mostly fine-grained sand-sized quartz		
-75.3	18.3				
			NOTES: 1. Soils are field visually classified in accordance with the Unified Soils Classification System. 2. NS = Sample not submitted for laboratory analysis from this interval. 3. Seafloor elevation calculated using sampling vessel's fathometer water depth reading and applying NOAA tidal gauge data conversion factor.		



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CORPS OF ENGINEERS, 200 N. COBB PARKWAY, BLDG 400 SUITE 404, MARIETTA, GA. 30062

WORK ORDER: 848e

REQUISITION: W33SJC32900192



# Boring Designation BI-PBS-162-13

DRILLING LOG		DIVISION South Atlantic		INSTALLATION Mobile District		SHEET 1 OF 2 SHEETS	
1. PROJECT MsCIP Barrier Island Restoration Petit Bois Pass-OCS West				9. SIZE AND TYPE OF BIT N/A			
2. BORING DESIGNATION BI-PBS-162-13		LOCATION COORDINATES E = 1,119,764 N = 226,509		10. COORDINATE SYSTEM/DATUM State Plane, MSE (U.S. Ft.)		HORIZONTAL NAD83	
3. DRILLING AGENCY Corps of Engineers - CESAM		CONTRACTOR FILE NO.		11. MANUFACTURER'S DESIGNATION OF DRILL Vibrocure		<input type="checkbox"/> AUTO HAMMER <input type="checkbox"/> MANUAL HAMMER	
4. NAME OF DRILLER Construction Solutions International, Inc.				12. TOTAL SAMPLES 2		UNDISTURBED (UD) 0	
5. DIRECTION OF BORING <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED				13. TOTAL NUMBER CORE BOXES		14. WATER DEPTH 57 Ft.	
6. THICKNESS OF OVERBURDEN N/A				15. DATE BORING 12-03-13		COMPLETED 12-03-13	
7. DEPTH DRILLED INTO ROCK N/A				16. ELEVATION TOP OF BORING -56.1 Ft.		17. TOTAL RECOVERY FOR BORING 100%	
8. TOTAL DEPTH OF BORING 19.3 Ft.				18. SIGNATURE AND TITLE OF INSPECTOR Tom Powers, Geologist			
ELEV.	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS	SAMPLE	LABORATORY RESULTS		
-56.1	0.0						
-59.2	3.1		SAND, poorly-graded, mostly fine to medium-grained sand-sized quartz, few shell, lt. gray (SP)	A	Classification: SP Color: GLEY1 10Y 6/1- D50: 0.214 mm % Fines: 4.2		
-61.6	5.5		SAND, silty, mostly fine-grained sand-sized quartz, little shell, light to medium gray (SM)	B	Classification: SP-SM Color: 2.5Y 6/1-gray D50: 0.202 mm % Fines: 11.1		
-71.4	15.3		CLAY, lean, with silty sand interbeds and burrows, sandy below 11.5 ft., light to medium gray to 8.3 ft., pale brown to 11.5 ft., lt. gray to 15.3 ft. (CL)	NS			
-73.6	17.5		SAND, silty, mostly fine-grained sand-sized quartz, lt. gray (SM)				
-75.4	19.3		SAND, poorly-graded, mostly fine-grained sand-sized quartz, lt. gray and pale brown (SP)				
NOTES: 1. Soils are field visually classified in accordance with the Unified Soils Classification System. 2. NS = Sample not submitted for laboratory analysis from this interval. 3. Seafloor elevation calculated using sampling vessel's fathometer water depth reading and applying NOAA tidal gauge data conversion							



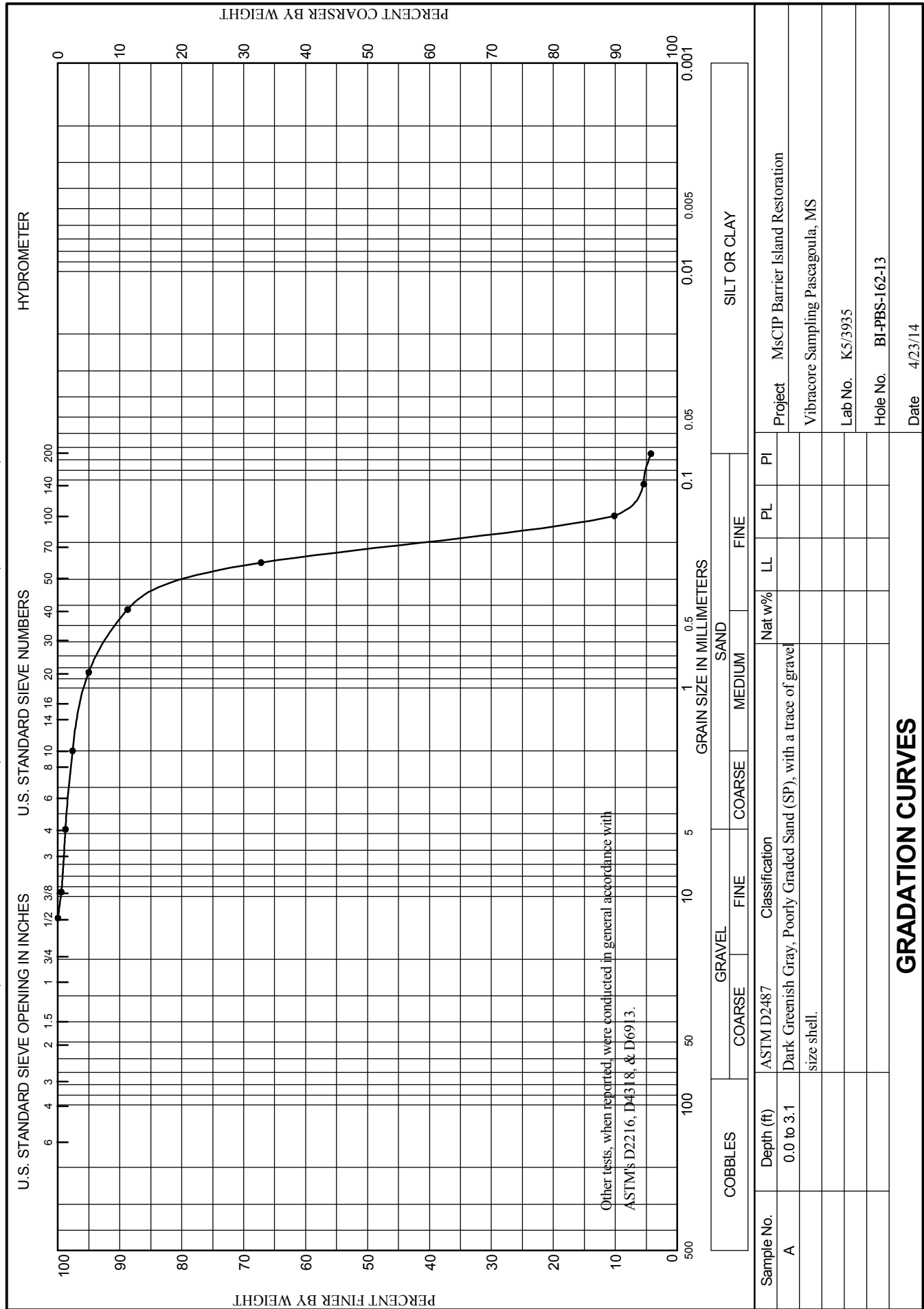
<b>DRILLING LOG (Cont. Sheet)</b>			<b>INSTALLATION</b> Mobile District		<b>SHEET 2</b> <b>OF 2 SHEETS</b>
			<b>PROJECT</b> MsCIP Barrier Island Restoration	<b>COORDINATE SYSTEM/DATUM</b> State Plane, MSE (U.S. Ft.)	<b>HORIZONTAL</b> NAD83
<b>LOCATION COORDINATES</b> X = 1,119,764 Y = 226,509			<b>ELEVATION TOP OF BORING</b> -56.1 Ft.		
<b>ELEV.</b>	<b>DEPTH</b>	<b>LEGEND</b>	<b>CLASSIFICATION OF MATERIALS</b>	<b>SAMPLE</b>	<b>LABORATORY RESULTS</b>
			factor.		



DEPARTMENT OF THE ARMY, SAVANNAH DISTRICT, ENVIRONMENTAL AND MATERIALS UNIT  
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WORK ORDER: 848e

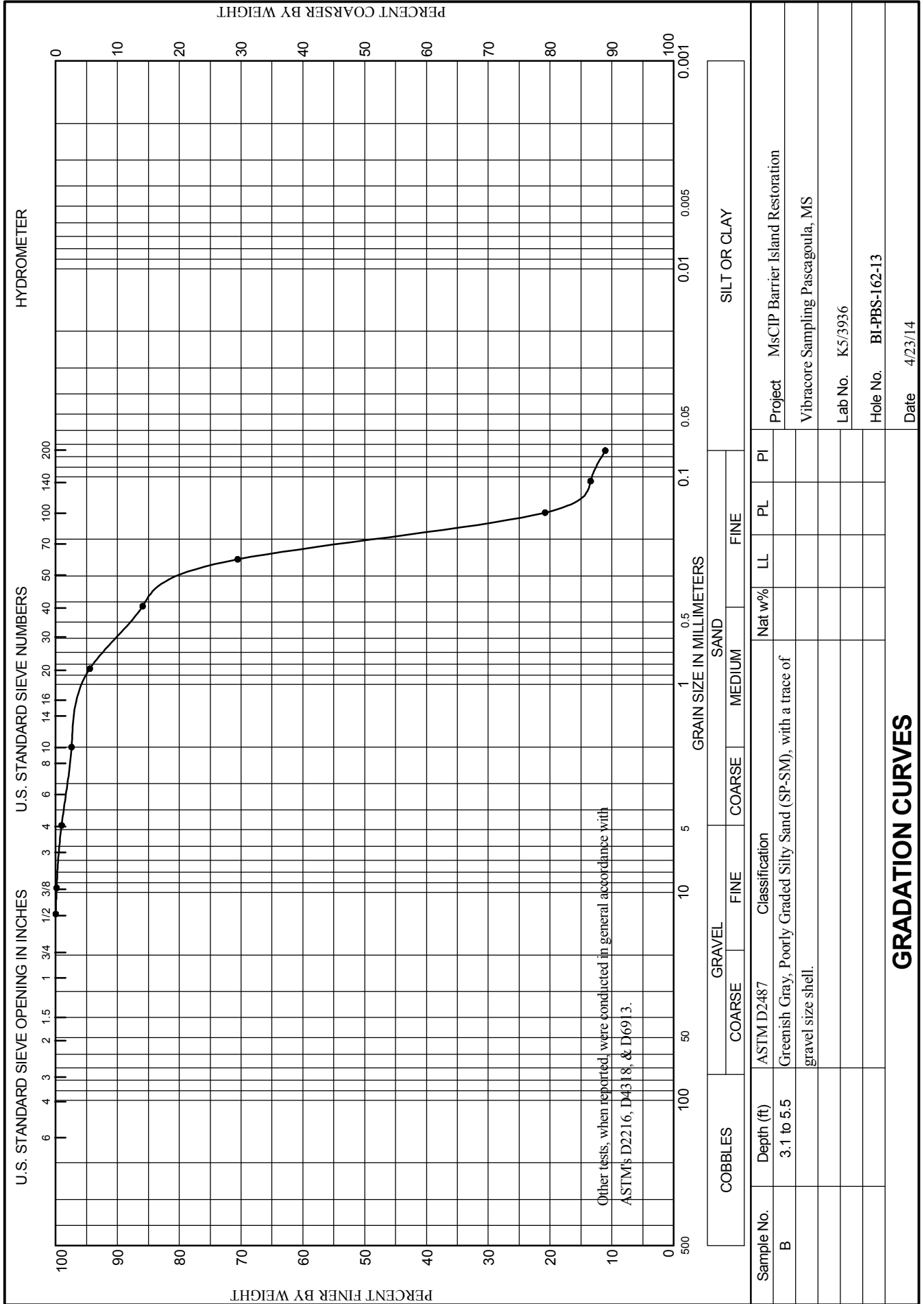
REQUISITION: W33SJC32900192





DEPARTMENT OF THE ARMY, SAVANNAH DISTRICT, ENVIRONMENTAL AND MATERIALS UNIT  
CORPS OF ENGINEERS, 200 N. COBB PARKWAY, BLDG 400 SUITE 404, MARIETTA, GA. 30062

WORK ORDER: 848e  
REQUISITION: W33SJC32900192



# Boring Designation BI-PBS-163-13

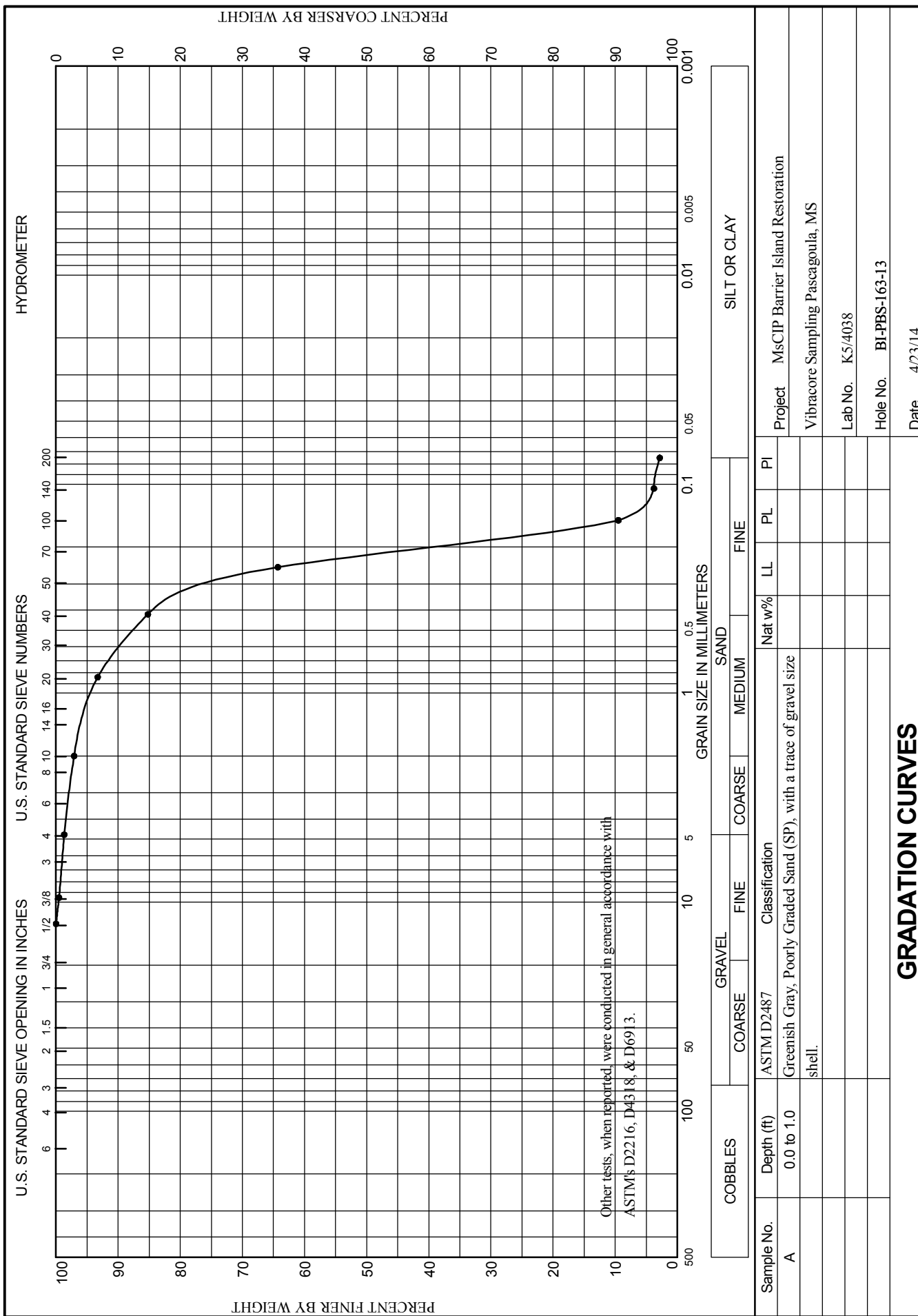
DRILLING LOG		DIVISION South Atlantic		INSTALLATION Mobile District		SHEET 1 OF 1 SHEETS	
1. PROJECT MsCIP Barrier Island Restoration Petit Bois Pass-OCS West				9. SIZE AND TYPE OF BIT N/A			
2. BORING DESIGNATION BI-PBS-163-13		LOCATION COORDINATES E = 1,123,099 N = 224,827		10. COORDINATE SYSTEM/DATUM State Plane, MSE (U.S. Ft.)		HORIZONTAL NAD83	
3. DRILLING AGENCY Corps of Engineers - CESAM		CONTRACTOR FILE NO.		11. MANUFACTURER'S DESIGNATION OF DRILL Vibrocure		<input type="checkbox"/> AUTO HAMMER <input type="checkbox"/> MANUAL HAMMER	
4. NAME OF DRILLER Construction Solutions International, Inc.				12. TOTAL SAMPLES 2		DISTURBED 0	
5. DIRECTION OF BORING <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED				13. TOTAL NUMBER CORE BOXES		14. WATER DEPTH 54.6 Ft.	
6. THICKNESS OF OVERBURDEN N/A				15. DATE BORING 12-17-13		STARTED 12-17-13	
7. DEPTH DRILLED INTO ROCK N/A				16. ELEVATION TOP OF BORING -54.6 Ft.		COMPLETED 12-17-13	
8. TOTAL DEPTH OF BORING 16.7 Ft.				17. TOTAL RECOVERY FOR BORING 100%		18. SIGNATURE AND TITLE OF INSPECTOR Tom Powers, Geologist	
ELEV.	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS	SAMPLE	LABORATORY RESULTS		
-54.6	0.0						
-55.6	1.0		SAND, poorly-graded with silt, mostly fine to medium-grained sand-sized quartz, trace shell fragments, lt. gray (SP-SM)	A	Classification: SP Color: 2.5Y 6/1-gray D50: 0.218 mm % Fines: 2.8		
-57.1	2.5		SAND, silty, mostly fine-grained sand-sized quartz, little shell fragments, medium gray (SM)	B	Classification: SP-SM Color: 2.5Y 5/1-gray D50: 0.197 mm % Fines: 9.6		
-59.6	5.0		SAND, clayey, mostly fine-grained sand-sized quartz, little shell fragments, medium gray (SC)	NS			
-60.8	6.2		CLAY, lean, medium gray (CL)				
-65.0	10.4		CLAY, fat, sandy, lt. gray and pale orange (CH)				
-71.3	16.7		CLAY, lean, sandy, trace wood at 12.8 ft., lt. to medium gray (CL)				
NOTES: 1. Soils are field visually classified in accordance with the Unified Soils Classification System. 2. NS = Sample not submitted for laboratory analysis from this interval. 3. Seafloor elevation calculated using sampling vessel's fathometer water depth reading and applying NOAA tidal gauge data conversion factor.							



DEPARTMENT OF THE ARMY, SAVANNAH DISTRICT, ENVIRONMENTAL AND MATERIALS UNIT  
CORPS OF ENGINEERS, 200 N. COBB PARKWAY, BLDG 400 SUITE 404, MARIETTA, GA. 30062

WORK ORDER: 848e

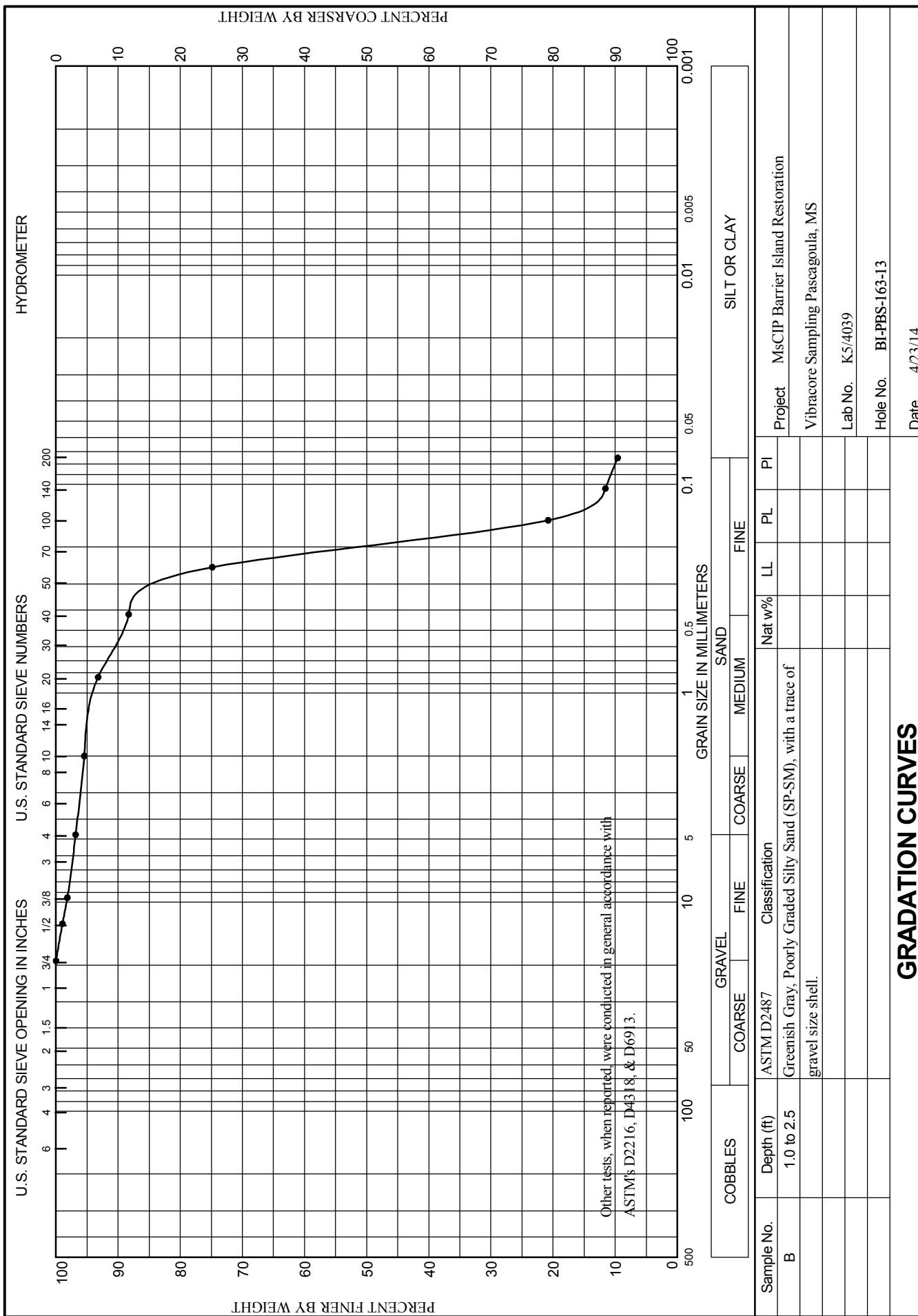
REQUISITION: W33SJC32900192





DEPARTMENT OF THE ARMY, SAVANNAH DISTRICT, ENVIRONMENTAL AND MATERIALS UNIT  
CORPS OF ENGINEERS, 200 N. COBB PARKWAY, BLDG 400 SUITE 404, MARIETTA, GA. 30062

WORK ORDER: 848e  
REQUISITION: W33SJC32900192



# Boring Designation BI-PBS-164-13

DRILLING LOG		DIVISION South Atlantic		INSTALLATION Mobile District		SHEET 1 OF 2 SHEETS	
1. PROJECT MsCIP Barrier Island Restoration Petit Bois Pass-OCS West				9. SIZE AND TYPE OF BIT N/A			
2. BORING DESIGNATION BI-PBS-164-13		LOCATION COORDINATES E = 1,123,566 N = 223,385		10. COORDINATE SYSTEM/DATUM State Plane, MSE (U.S. Ft.)		HORIZONTAL NAD83	
3. DRILLING AGENCY Corps of Engineers - CESAM		CONTRACTOR FILE NO.		11. MANUFACTURER'S DESIGNATION OF DRILL Vibracore		<input type="checkbox"/> AUTO HAMMER <input type="checkbox"/> MANUAL HAMMER	
4. NAME OF DRILLER Construction Solutions International, Inc.				12. TOTAL SAMPLES 2		DISTURBED 0	
5. DIRECTION OF BORING <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED				13. TOTAL NUMBER CORE BOXES		14. WATER DEPTH 54.3 Ft.	
6. THICKNESS OF OVERBURDEN N/A				15. DATE BORING 12-17-13		STARTED 12-17-13	
7. DEPTH DRILLED INTO ROCK N/A				16. ELEVATION TOP OF BORING -54.6 Ft.		COMPLETED 12-17-13	
8. TOTAL DEPTH OF BORING 19.2 Ft.				17. TOTAL RECOVERY FOR BORING 100%		18. SIGNATURE AND TITLE OF INSPECTOR Tom Powers, Geologist	
ELEV.	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS	SAMPLE	LABORATORY RESULTS		
-54.6	0.0						
-58.4	3.8		SAND, poorly-graded, mostly fine to medium-grained sand-sized quartz, trace shell fragments, lt. gray (SP)	A	Classification: SP Color: GLEY1 10Y 6/1- D50: 0.208 mm % Fines: 2.8		
-59.0	4.4		SAND, silty, mostly fine-grained sand-sized quartz, medium gray (SM)	B	Classification: SP-SM Color: 2.5Y 6/1-gray D50: 0.206 mm % Fines: 8.7		
-65.8	11.2		CLAY, lean, sandy, medium gray (CL)				
-73.8	19.2		CLAY, fat, sandy and silty, lt. and medium gray and pale orange (CH)	NS			
NOTES: 1. Soils are field visually classified in accordance with the Unified Soils Classification System. 2. NS = Sample not submitted for laboratory analysis from this interval. 3. Seafloor elevation calculated using sampling vessel's fathometer water depth reading and applying NOAA tidal gauge data conversion							

<b>DRILLING LOG (Cont. Sheet)</b>			<b>INSTALLATION</b> Mobile District		<b>SHEET 2</b> <b>OF 2 SHEETS</b>
			<b>PROJECT</b> MsCIP Barrier Island Restoration		<b>COORDINATE SYSTEM/DATUM</b> State Plane, MSE (U.S. Ft.)
<b>LOCATION COORDINATES</b> X = 1,123,566 Y = 223,385			<b>ELEVATION TOP OF BORING</b> -54.6 Ft.		
ELEV.	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS	SAMPLE	LABORATORY RESULTS
			factor.		

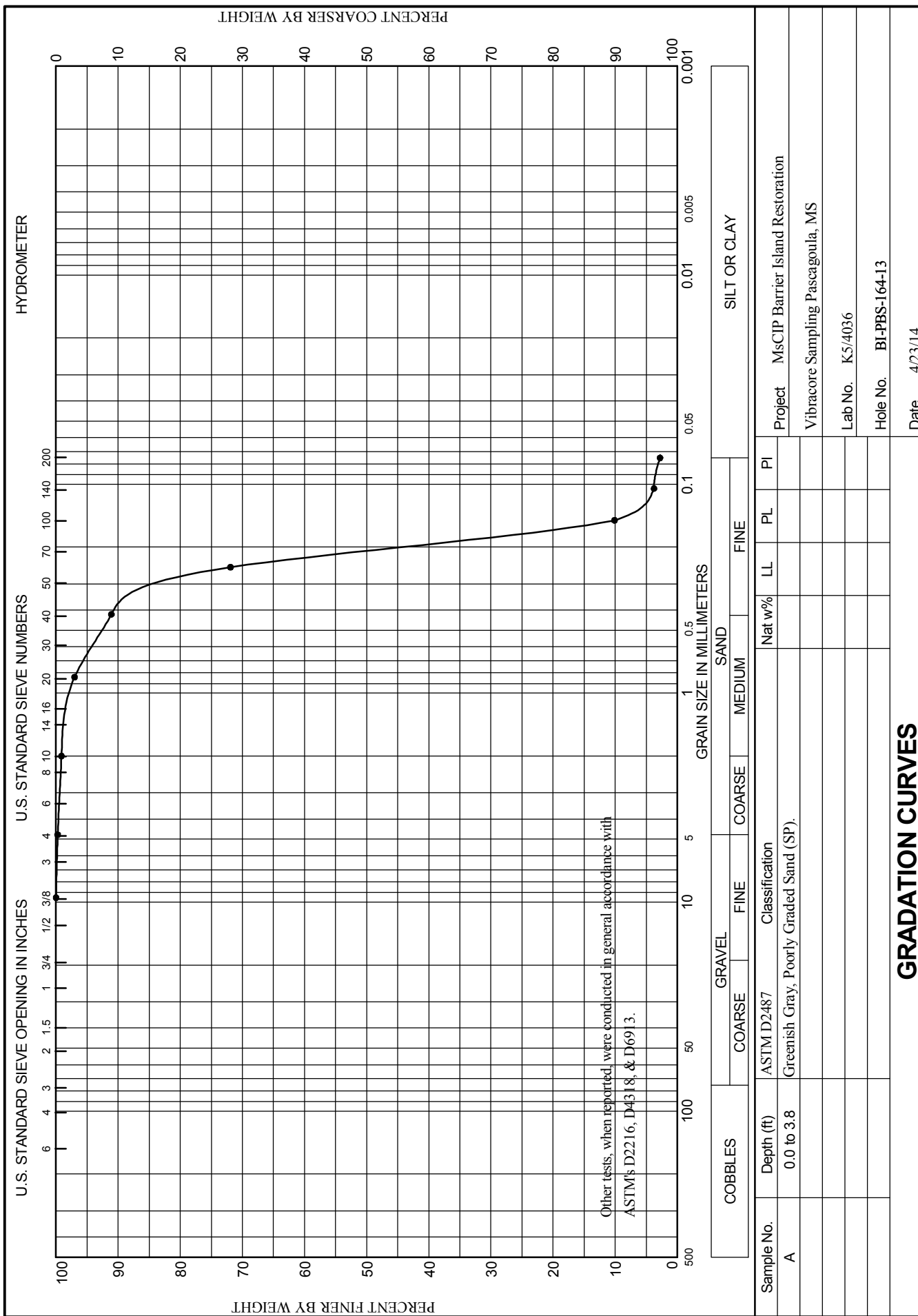




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WORK ORDER: 848e

REQUISITION: W33SJC32900192

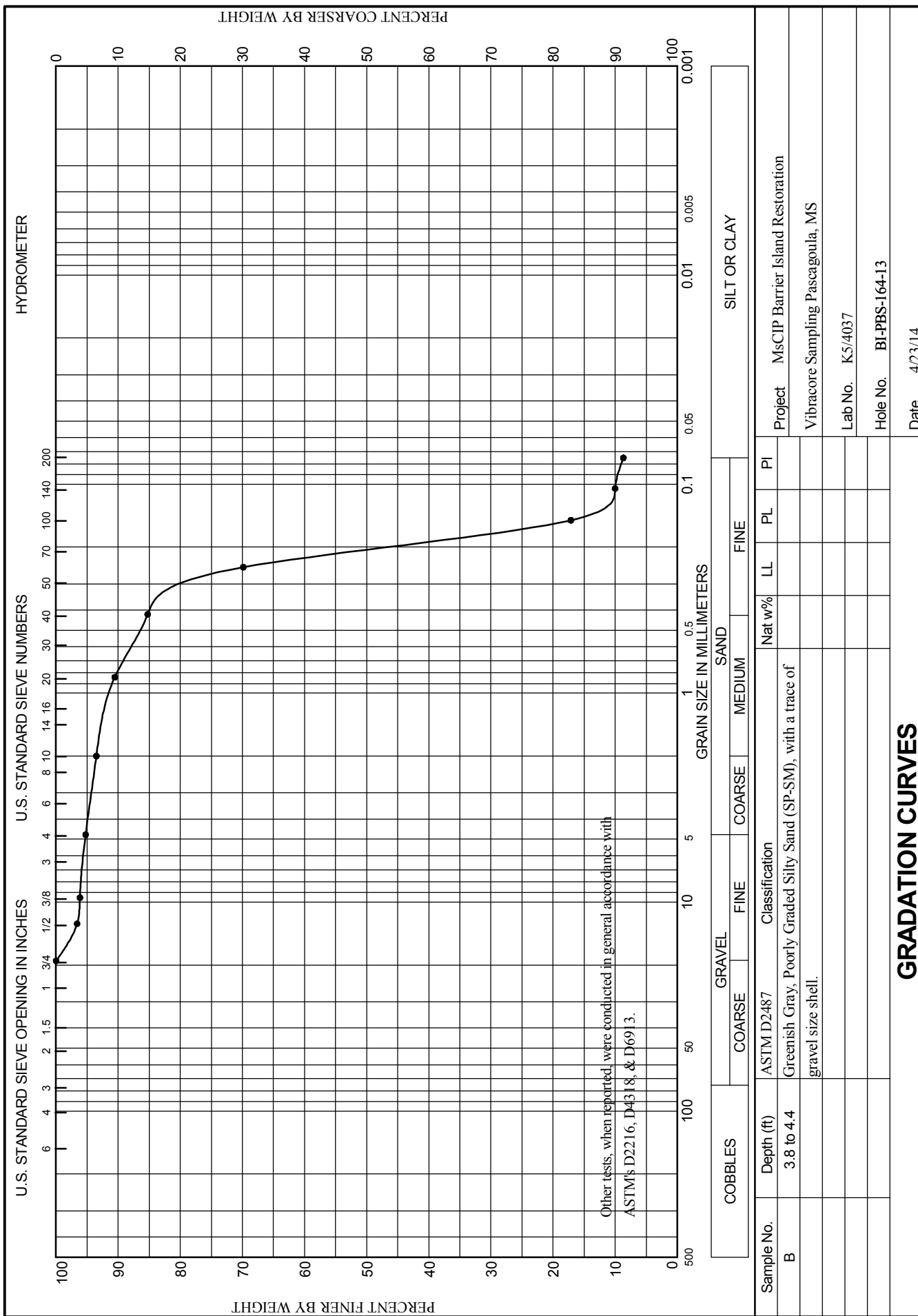




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WORK ORDER: 848e

REQUISITION: W33SJC32900192



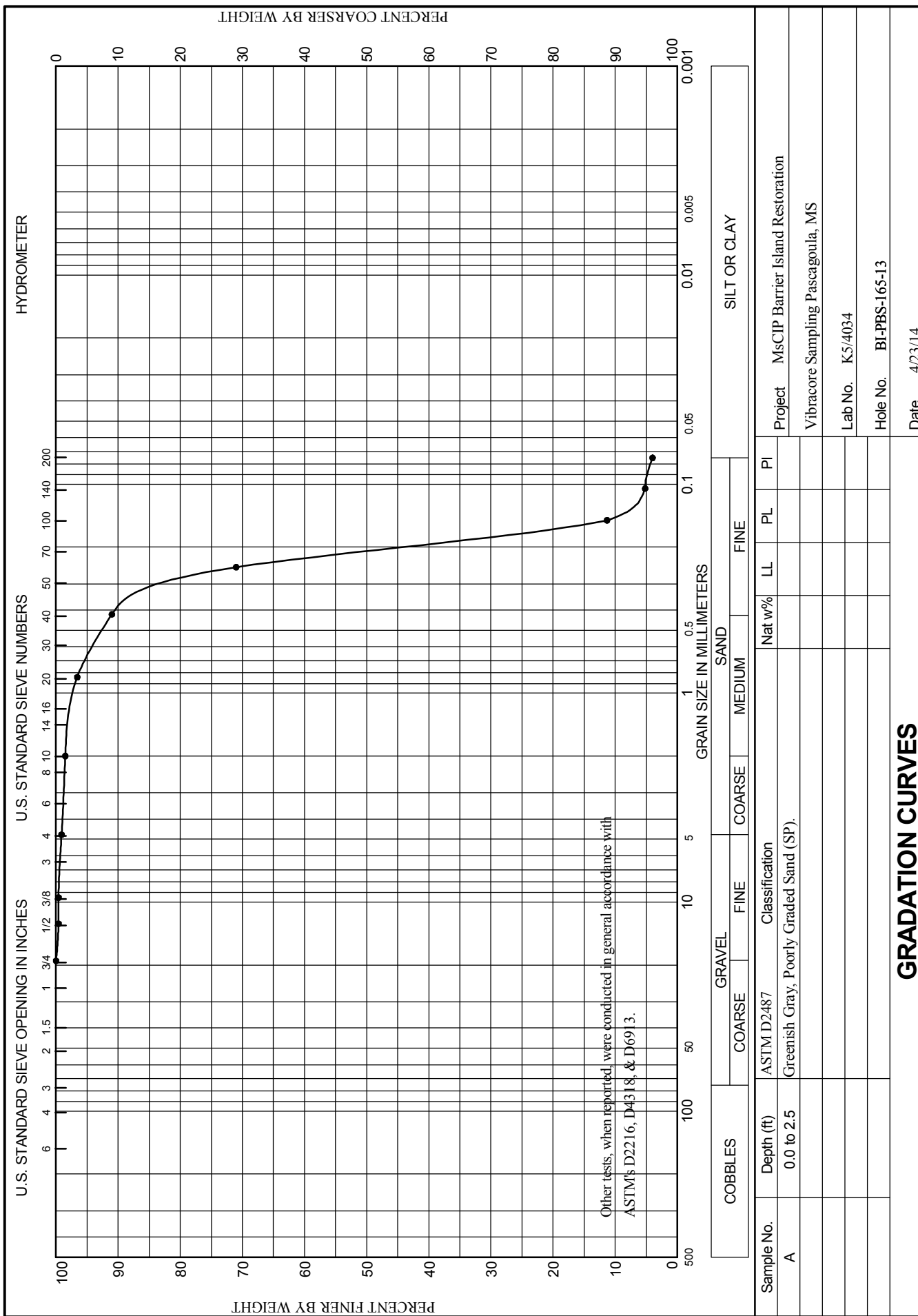
# Boring Designation BI-PBS-165-13

DRILLING LOG		DIVISION South Atlantic		INSTALLATION Mobile District		SHEET 1 OF 1 SHEETS	
1. PROJECT MsCIP Barrier Island Restoration Petit Bois Pass-OCS West				9. SIZE AND TYPE OF BIT N/A			
2. BORING DESIGNATION BI-PBS-165-13		LOCATION COORDINATES E = 1,122,044 N = 224,495		10. COORDINATE SYSTEM/DATUM State Plane, MSE (U.S. Ft.)		HORIZONTAL NAD83 VERTICAL NAVD88	
3. DRILLING AGENCY Corps of Engineers - CESAM		CONTRACTOR FILE NO.		11. MANUFACTURER'S DESIGNATION OF DRILL Vibrocure		<input type="checkbox"/> AUTO HAMMER <input type="checkbox"/> MANUAL HAMMER	
4. NAME OF DRILLER Construction Solutions International, Inc.				12. TOTAL SAMPLES 2		DISTURBED 2 UNDISTURBED (UD) 0	
5. DIRECTION OF BORING <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED		DEG. FROM VERTICAL		13. TOTAL NUMBER CORE BOXES			
		BEARING		14. WATER DEPTH 55.6 Ft.			
6. THICKNESS OF OVERBURDEN N/A				15. DATE BORING 12-17-13		STARTED 12-17-13 COMPLETED 12-17-13	
7. DEPTH DRILLED INTO ROCK N/A				16. ELEVATION TOP OF BORING -56.2 Ft.			
8. TOTAL DEPTH OF BORING 15.0 Ft.				17. TOTAL RECOVERY FOR BORING 100%			
				18. SIGNATURE AND TITLE OF INSPECTOR Tom Powers, Geologist			
ELEV.	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS	SAMPLE	LABORATORY RESULTS		
-56.2	0.0						
-58.7	2.5		SAND, poorly-graded, mostly fine to medium-grained sand-sized quartz, trace shell fragments, lt. gray (SP)	A	Classification: SP Color: GLEY1 10Y 7/1- D50: 0.208 mm % Fines: 4		
-59.0	2.8		SAND, silty, mostly fine-grained sand-sized quartz, few shell fragments, medium gray (SM)	B	Classification: SP-SM Color: 2.5Y 5/1-gray D50: 0.256 mm % Fines: 11.3		
-61.6	5.4		SAND, clayey, mostly fine-grained sand-sized quartz, pale orange and medium gray (SC)				
			CLAY, lean, trace shell fragments, partially sandy, medium gray (CL)	NS			
-71.2	15.0						
NOTES:							
1. Soils are field visually classified in accordance with the Unified Soils Classification System.							
2. NS = Sample not submitted for laboratory analysis from this interval.							
3. Seafloor elevation calculated using sampling vessel's fathometer water depth reading and applying NOAA tidal gauge data conversion factor.							



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WORK ORDER: 848e  
REQUISITION: W33SJC32900192

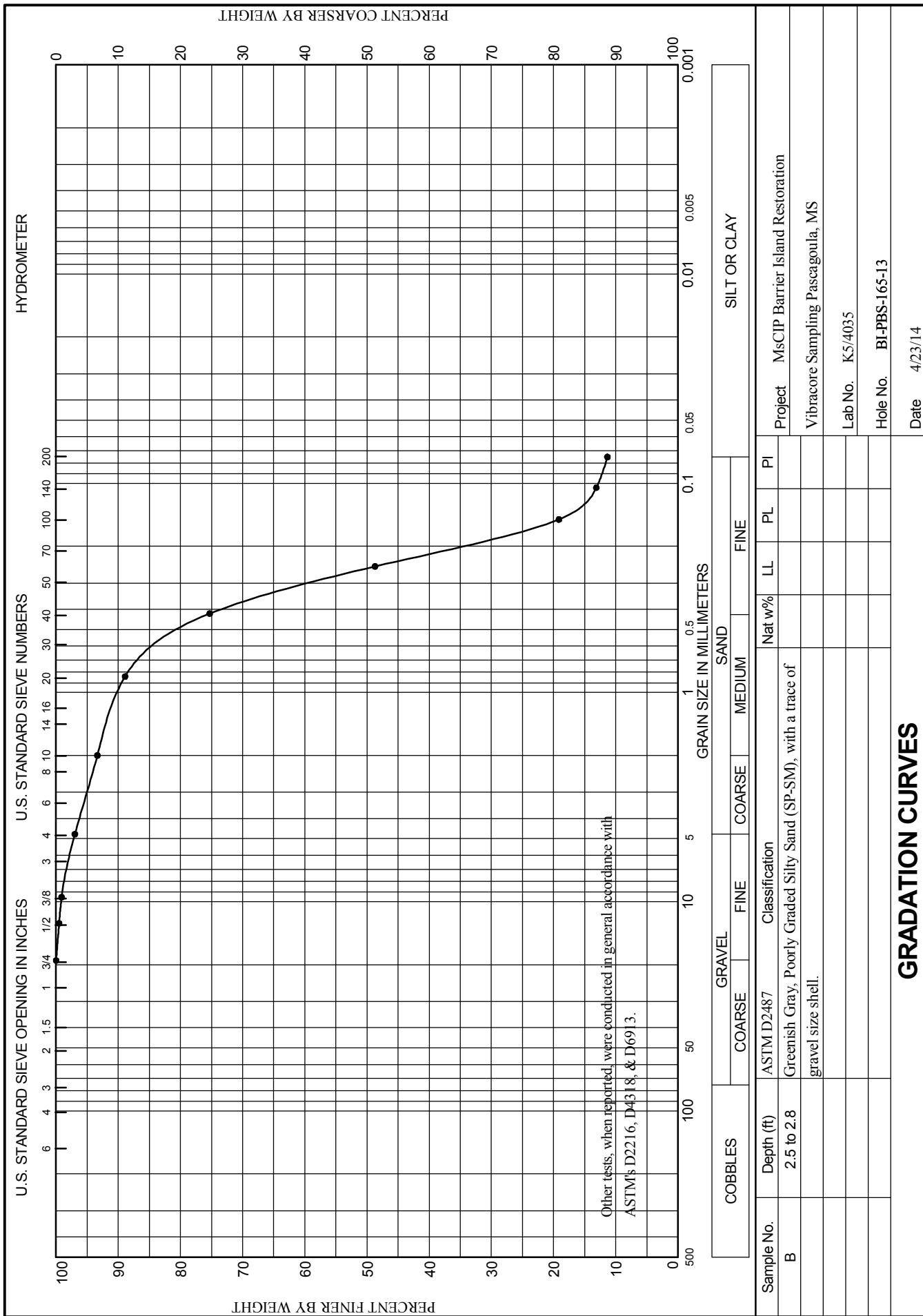




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WORK ORDER: 848e

REQUISITION: W33SJC32900192



# Boring Designation BI-PBS-166-13

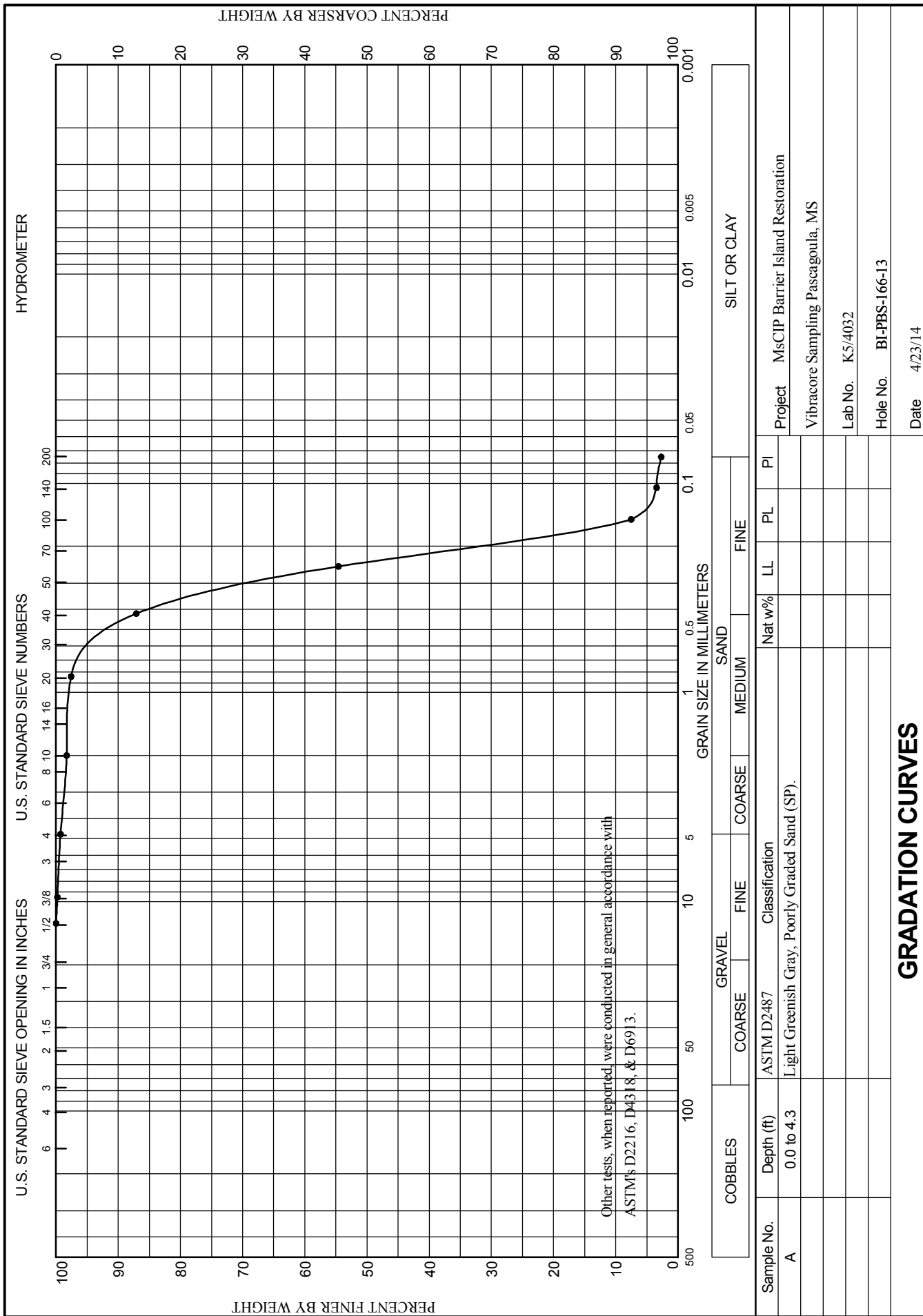
DRILLING LOG		DIVISION South Atlantic		INSTALLATION Mobile District		SHEET 1 OF 1 SHEETS	
1. PROJECT MsCIP Barrier Island Restoration Petit Bois Pass-OCS West				9. SIZE AND TYPE OF BIT N/A			
2. BORING DESIGNATION BI-PBS-166-13		LOCATION COORDINATES E = 1,120,816 N = 226,535		10. COORDINATE SYSTEM/DATUM State Plane, MSE (U.S. Ft.)		HORIZONTAL NAD83	
3. DRILLING AGENCY Corps of Engineers - CESAM		CONTRACTOR FILE NO.		11. MANUFACTURER'S DESIGNATION OF DRILL Vibrocure		<input type="checkbox"/> AUTO HAMMER <input type="checkbox"/> MANUAL HAMMER	
4. NAME OF DRILLER Construction Solutions International, Inc.				12. TOTAL SAMPLES		DISTURBED 1	
5. DIRECTION OF BORING <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED				13. TOTAL NUMBER CORE BOXES		UNDISTURBED (UD) 0	
6. THICKNESS OF OVERBURDEN N/A				14. WATER DEPTH 52.5 Ft.		15. DATE BORING 12-17-13	
7. DEPTH DRILLED INTO ROCK N/A				16. ELEVATION TOP OF BORING -53.7 Ft.		17. TOTAL RECOVERY FOR BORING 100%	
8. TOTAL DEPTH OF BORING 12.9 Ft.				18. SIGNATURE AND TITLE OF INSPECTOR Tom Powers, Geologist			
ELEV.	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS	SAMPLE	LABORATORY RESULTS		
-53.7	0.0						
-57.3	3.6		SAND, poorly-graded, mostly fine to medium-grained sand-sized quartz, few shell fragments, lt. gray to lt. brown (SP)	A	Classification: SP Color: 10Y 7/1-light greenish gray D50: 0.238 mm % Fines: 2.7		
-58.0	4.3		SAND, silty, mostly fine-grained sand-sized quartz, medium gray (SM)				
-65.5	11.8		CLAY, lean, medium gray (CL)	NS			
-66.6	12.9		SAND, silty, mostly fine-grained sand-sized quartz, brownish gray (SM)				
NOTES: 1. Soils are field visually classified in accordance with the Unified Soils Classification System. 2. NS = Sample not submitted for laboratory analysis from this interval. 3. Seafloor elevation calculated using sampling vessel's fathometer water depth reading and applying NOAA tidal gauge data conversion factor.							



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WORK ORDER: 848e

REQUISITION: W33SSJG32900192



# Boring Designation BI-PBS-169-13

DRILLING LOG		DIVISION South Atlantic		INSTALLATION Mobile District		SHEET 1 OF 1 SHEETS	
1. PROJECT MsCIP Barrier Island Restoration Petit Bois Pass-OCS West				9. SIZE AND TYPE OF BIT N/A			
2. BORING DESIGNATION BI-PBS-169-13		LOCATION COORDINATES E = 1,101,693 N = 240,851		10. COORDINATE SYSTEM/DATUM State Plane, MSE (U.S. Ft.)		HORIZONTAL NAD83	
3. DRILLING AGENCY Corps of Engineers - CESAM		CONTRACTOR FILE NO.		11. MANUFACTURER'S DESIGNATION OF DRILL Vibrocure		<input type="checkbox"/> AUTO HAMMER <input type="checkbox"/> MANUAL HAMMER	
4. NAME OF DRILLER Construction Solutions International, Inc.				12. TOTAL SAMPLES 2		DISTURBED 2	
5. DIRECTION OF BORING <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED				13. TOTAL NUMBER CORE BOXES		UNDISTURBED (UD) 0	
6. THICKNESS OF OVERBURDEN N/A				14. WATER DEPTH 45.1 Ft.		15. DATE BORING 12-29-13	
7. DEPTH DRILLED INTO ROCK N/A				16. ELEVATION TOP OF BORING -44.7 Ft.		17. TOTAL RECOVERY FOR BORING 100%	
8. TOTAL DEPTH OF BORING 17.7 Ft.				18. SIGNATURE AND TITLE OF INSPECTOR Tom Powers, Geologist			
ELEV.	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS	SAMPLE	LABORATORY RESULTS		
-44.7	0.0						
-47.4	2.7		SAND, poorly-graded, mostly fine to medium-grained sand-sized quartz, few shell fragments, lt. gray (SP)	A	Classification: SP Color: GLEY1 10Y 7/1- D50: 0.263 mm % Fines: 1.2		
-52.2	7.5		SAND, silty, mostly fine-grained sand-sized quartz, little shell fragments, medium gray (SM)	B	Classification: SP-SM Color: 2.5Y 6/1-gray D50: 0.224 mm % Fines: 9.7		
-54.9	10.2		SAND, clayey, mostly fine-grained sand-sized quartz, few shell fragments, medium gray (SC)	NS			
-60.8	16.1		CLAY, lean, medium gray, pale brown at 15 ft. (CL)				
-62.4	17.7		SILT, inorganic-L, few oyster shell fragments, less than 5% wood fragments, pale brown (ML)				
NOTES: 1. Soils are field visually classified in accordance with the Unified Soils Classification System. 2. NS = Sample not submitted for laboratory analysis from this interval. 3. Seafloor elevation calculated using sampling vessel's fathometer water depth reading and applying NOAA tidal gauge data conversion factor.							

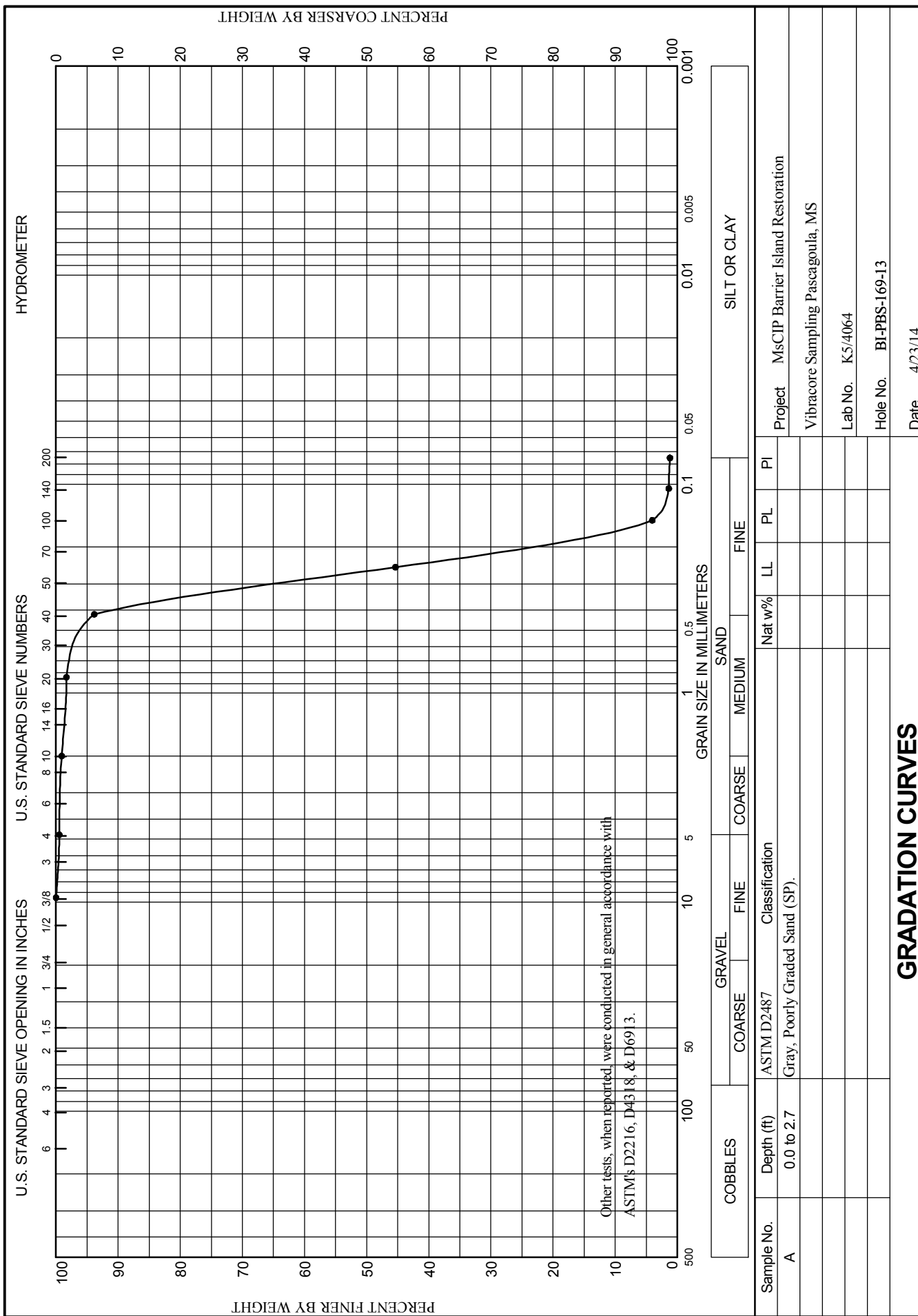




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WORK ORDER: 848e

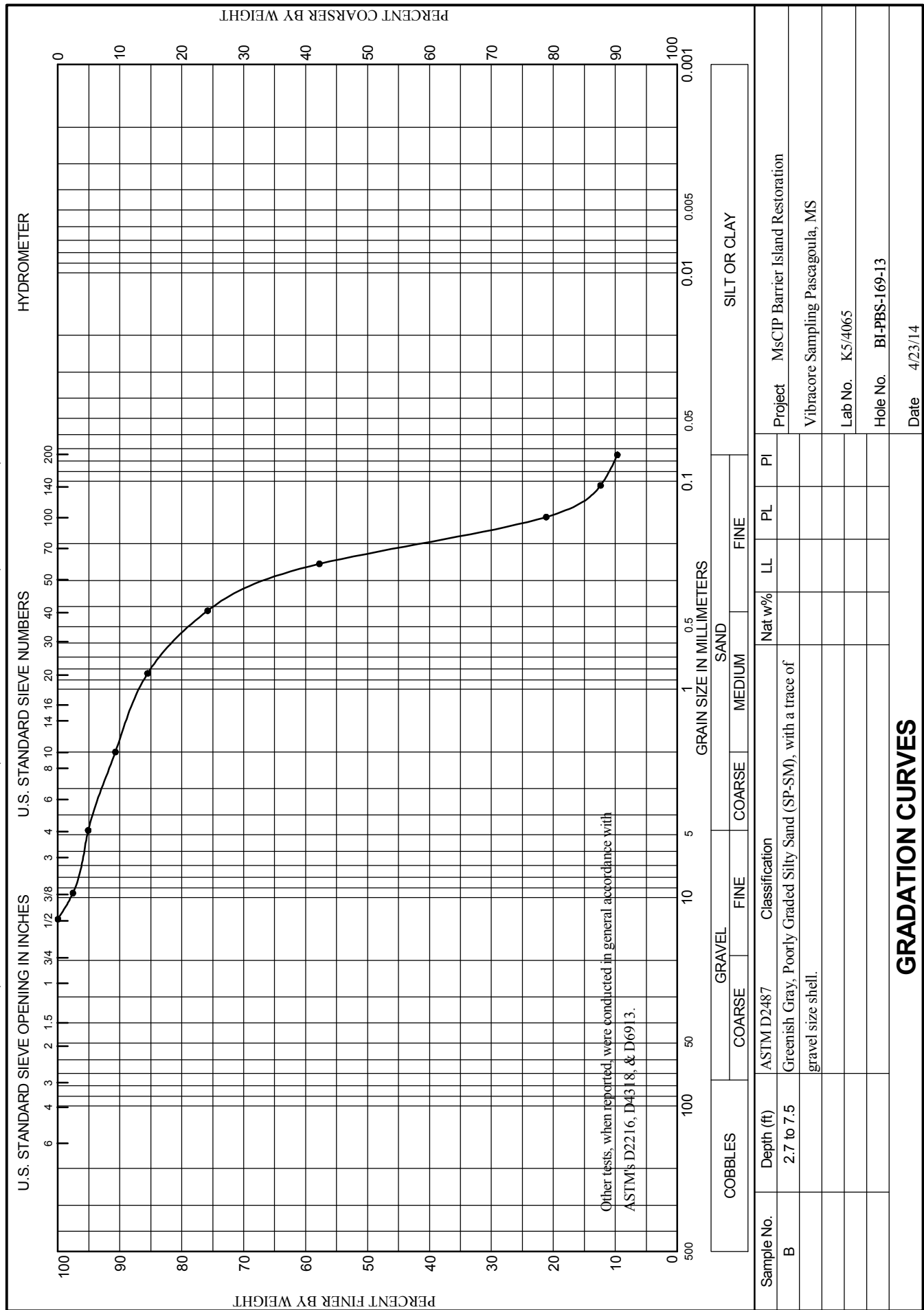
REQUISITION: W33SJC32900192





WORK ORDER: 848e

REQUISITION: W33SJG32900192



# Boring Designation BI-PBS-170-13

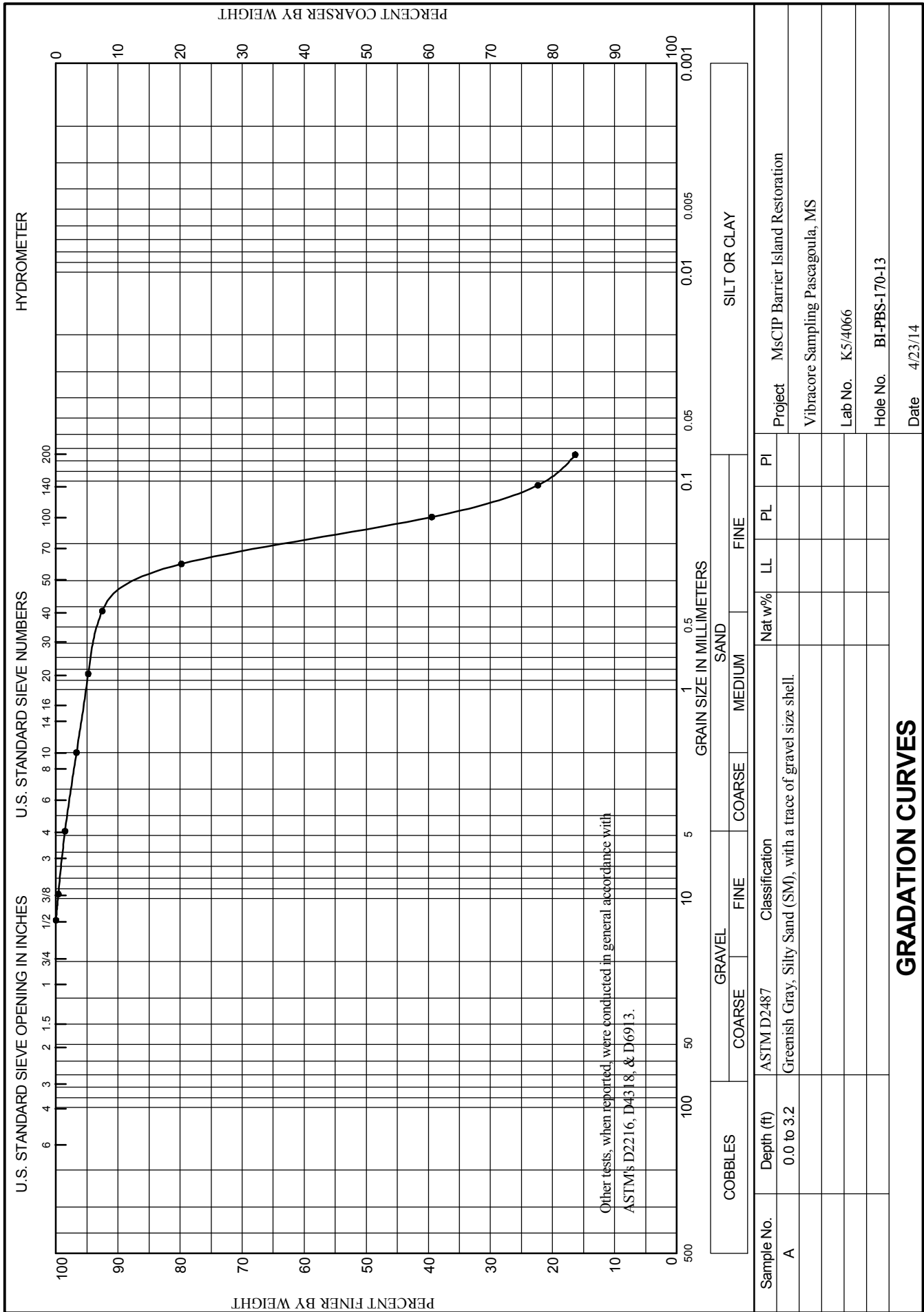
DRILLING LOG		DIVISION South Atlantic		INSTALLATION Mobile District		SHEET 1 OF 1 SHEETS	
1. PROJECT MsCIP Barrier Island Restoration Petit Bois Pass-OCS West				9. SIZE AND TYPE OF BIT N/A			
2. BORING DESIGNATION BI-PBS-170-13		LOCATION COORDINATES E = 1,101,653 N = 239,509		10. COORDINATE SYSTEM/DATUM State Plane, MSE (U.S. Ft.)		HORIZONTAL NAD83	
3. DRILLING AGENCY Corps of Engineers - CESAM		CONTRACTOR FILE NO.		11. MANUFACTURER'S DESIGNATION OF DRILL Vibrocure		<input type="checkbox"/> AUTO HAMMER <input type="checkbox"/> MANUAL HAMMER	
4. NAME OF DRILLER Construction Solutions International, Inc.				12. TOTAL SAMPLES		DISTURBED 1	
5. DIRECTION OF BORING <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED				13. TOTAL NUMBER CORE BOXES		UNDISTURBED (UD) 0	
6. THICKNESS OF OVERBURDEN N/A				14. WATER DEPTH		50 Ft.	
7. DEPTH DRILLED INTO ROCK N/A				15. DATE BORING		STARTED 12-29-13 COMPLETED 12-29-13	
8. TOTAL DEPTH OF BORING 16.5 Ft.				16. ELEVATION TOP OF BORING -49.2 Ft.		17. TOTAL RECOVERY FOR BORING 100%	
				18. SIGNATURE AND TITLE OF INSPECTOR Tom Powers, Geologist			
ELEV.	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS	SAMPLE	LABORATORY RESULTS		
-49.2	0.0						
-52.4	3.2		SAND, silty, mostly fine-grained sand-sized quartz, few shell fragments, medium gray (SM)	A	Classification: SM Color: GLEY1 10Y 5/1- D50: 0.171 mm % Fines: 16.4		
-57.5	8.3		CLAY, lean, sandy, medium gray (CL)	NS			
-65.7	16.5		CLAY, fat, sandy, lt. gray and pale orange (CH)				
			NOTES: 1. Soils are field visually classified in accordance with the Unified Soils Classification System. 2. NS = Sample not submitted for laboratory analysis from this interval. 3. Seafloor elevation calculated using sampling vessel's fathometer water depth reading and applying NOAA tidal gauge data conversion factor.				



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WORK ORDER: 848e

REQUISITION: W33SJC32900192



# Boring Designation BI-PBS-171-13

DRILLING LOG		DIVISION South Atlantic		INSTALLATION Mobile District		SHEET 1 OF 1 SHEETS	
1. PROJECT MsCIP Barrier Island Restoration Petit Bois Pass-OCS West				9. SIZE AND TYPE OF BIT N/A			
2. BORING DESIGNATION BI-PBS-171-13		LOCATION COORDINATES E = 1,103,271 N = 239,394		10. COORDINATE SYSTEM/DATUM State Plane, MSE (U.S. Ft.)		HORIZONTAL NAD83	
3. DRILLING AGENCY Corps of Engineers - CESAM		CONTRACTOR FILE NO.		11. MANUFACTURER'S DESIGNATION OF DRILL Vibracore		<input type="checkbox"/> AUTO HAMMER <input type="checkbox"/> MANUAL HAMMER	
4. NAME OF DRILLER Construction Solutions International, Inc.				12. TOTAL SAMPLES 2		DISTURBED 0	
5. DIRECTION OF BORING <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED				13. TOTAL NUMBER CORE BOXES		14. WATER DEPTH 46.8 Ft.	
6. THICKNESS OF OVERBURDEN N/A				15. DATE BORING 12-27-13		STARTED 12-27-13	
7. DEPTH DRILLED INTO ROCK N/A				16. ELEVATION TOP OF BORING -45.2 Ft.		COMPLETED 12-27-13	
8. TOTAL DEPTH OF BORING 9.8 Ft.				17. TOTAL RECOVERY FOR BORING 100%		18. SIGNATURE AND TITLE OF INSPECTOR Tom Powers, Geologist	

ELEV.	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS	SAMPLE	LABORATORY RESULTS
-45.2	0.0				
-46.0	0.8		SAND, poorly-graded, mostly fine to medium-grained sand-sized quartz, little shell fragments, lt. gray (SP)	A	Classification: SP Color: GLEY1 10Y 6/1- D50: 0.245 mm % Fines: 3.2
-46.7	1.5			B	Classification: SP-SM Color: GLEY1 10Y 5/1- D50: 0.204 mm % Fines: 9.8
-48.8	3.6		SAND, silty, mostly fine-grained sand-sized quartz, few shell fragments, medium gray (SM)		
-51.5	6.3		SILT, inorganic-L, few shell fragments, medium gray (ML)		
			CLAY, lean, few shell fragments, sandy, medium gray (CL)	NS	
			CLAY, fat, sandy, lt. and medium gray and pale orange (CH)		
-54.5	9.3				
-55.0	9.8		SAND, silty, mostly fine to medium-grained sand-sized quartz, medium brown (SM)		
NOTES: 1. Soils are field visually classified in accordance with the Unified Soils Classification System. 2. NS = Sample not submitted for laboratory analysis from this interval. 3. Seafloor elevation determined from 10/28/2014 USACE survey.					



WORK ORDER: 848e

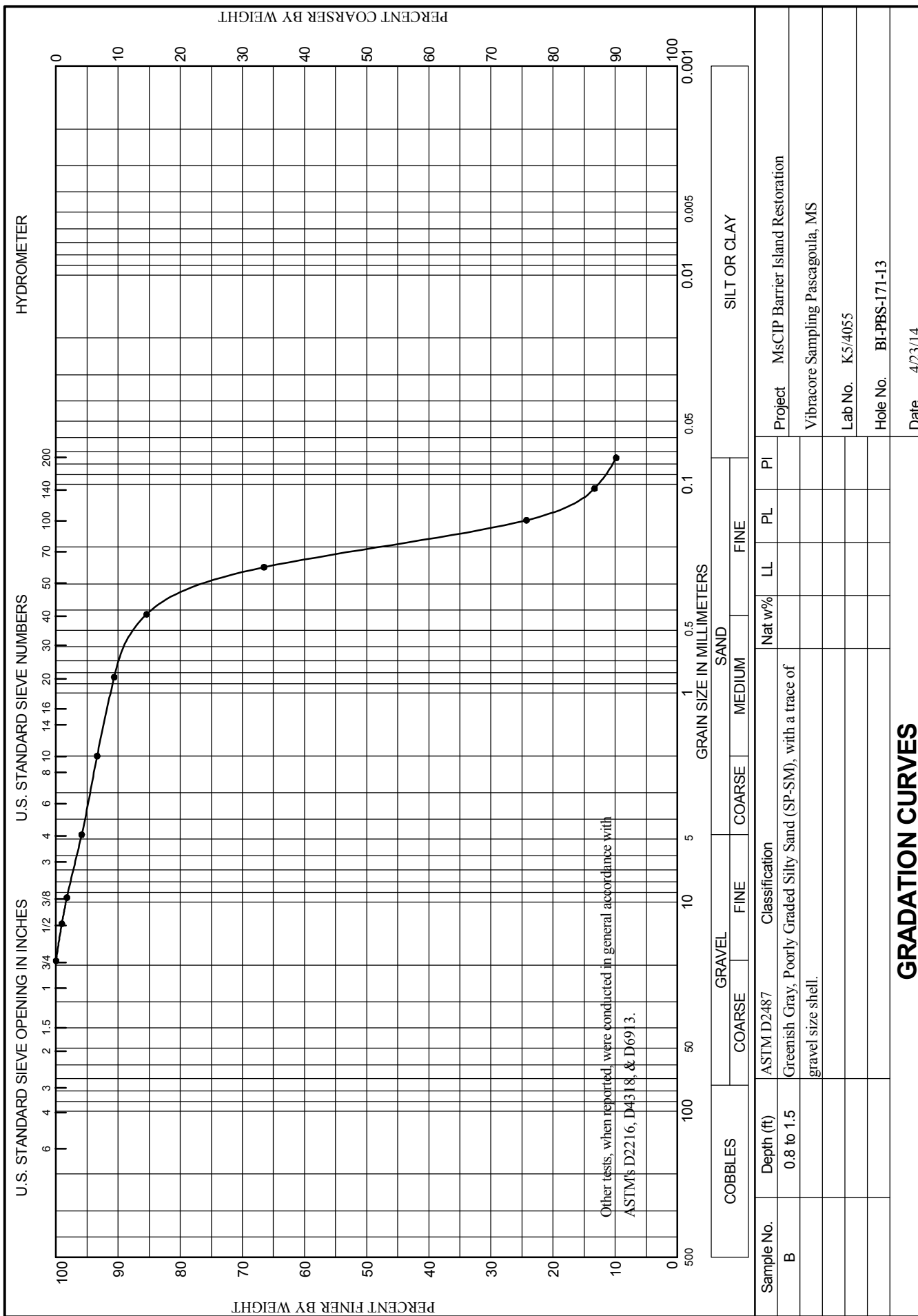
REQUISITION: W33SJG32900192





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WORK ORDER: 848e  
REQUISITION: W33SJC32900192



# Boring Designation BI-PBS-172-13

DRILLING LOG		DIVISION South Atlantic		INSTALLATION Mobile District		SHEET 1 OF 1 SHEETS	
1. PROJECT MsCIP Barrier Island Restoration Petit Bois Pass-OCS West				9. SIZE AND TYPE OF BIT N/A			
2. BORING DESIGNATION BI-PBS-172-13		LOCATION COORDINATES E = 1,093,754 N = 241,710		10. COORDINATE SYSTEM/DATUM State Plane, MSE (U.S. Ft.)		HORIZONTAL NAD83 VERTICAL NAVD88	
3. DRILLING AGENCY Corps of Engineers - CESAM		CONTRACTOR FILE NO.		11. MANUFACTURER'S DESIGNATION OF DRILL Vibrocure		<input type="checkbox"/> AUTO HAMMER <input type="checkbox"/> MANUAL HAMMER	
4. NAME OF DRILLER Construction Solutions International, Inc.				12. TOTAL SAMPLES 3		DISTURBED 3 UNDISTURBED (UD) 0	
5. DIRECTION OF BORING <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED				13. TOTAL NUMBER CORE BOXES		14. WATER DEPTH 45.1 Ft.	
6. THICKNESS OF OVERBURDEN N/A				15. DATE BORING 12-30-13		STARTED 12-30-13 COMPLETED 12-30-13	
7. DEPTH DRILLED INTO ROCK N/A				16. ELEVATION TOP OF BORING -44.9 Ft.		17. TOTAL RECOVERY FOR BORING 100%	
8. TOTAL DEPTH OF BORING 16.8 Ft.				18. SIGNATURE AND TITLE OF INSPECTOR Tom Powers, Geologist			
ELEV.	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS	SAMPLE	LABORATORY RESULTS		
-44.9	0.0						
-45.7	0.8		SAND, poorly-graded, mostly fine to medium-grained sand-sized quartz, trace shell fragments, lt. gray (SP)	A	Classification: SP Color: 2.5Y 6/1-gray D50: 0.22 mm % Fines: 1.2		
			SAND, silty, mostly fine-grained sand-sized quartz, few shell fragments, slightly plastic at 3.0 ft., medium gray (SM)	B	Classification: SP-SM Color: 2.5Y 5/1-gray D50: 0.176 mm % Fines: 10.9		
				C	Classification: SM Color: 2.5Y 5/1-gray D50: 0.146 mm % Fines: 16.8		
-55.4	10.5						
-57.0	12.1		SAND, clayey, mostly fine-grained sand-sized quartz, little shell fragments, medium gray (SC)				
			CLAY, fat, trace shell fragments, medium gray and pale brown (CH)	NS			
-61.7	16.8						
NOTES:							
1. Soils are field visually classified in accordance with the Unified Soils Classification System.							
2. NS = Sample not submitted for laboratory analysis from this interval.							
3. Seafloor elevation calculated using sampling vessel's fathometer water depth reading and applying NOAA tidal gauge data conversion factor.							

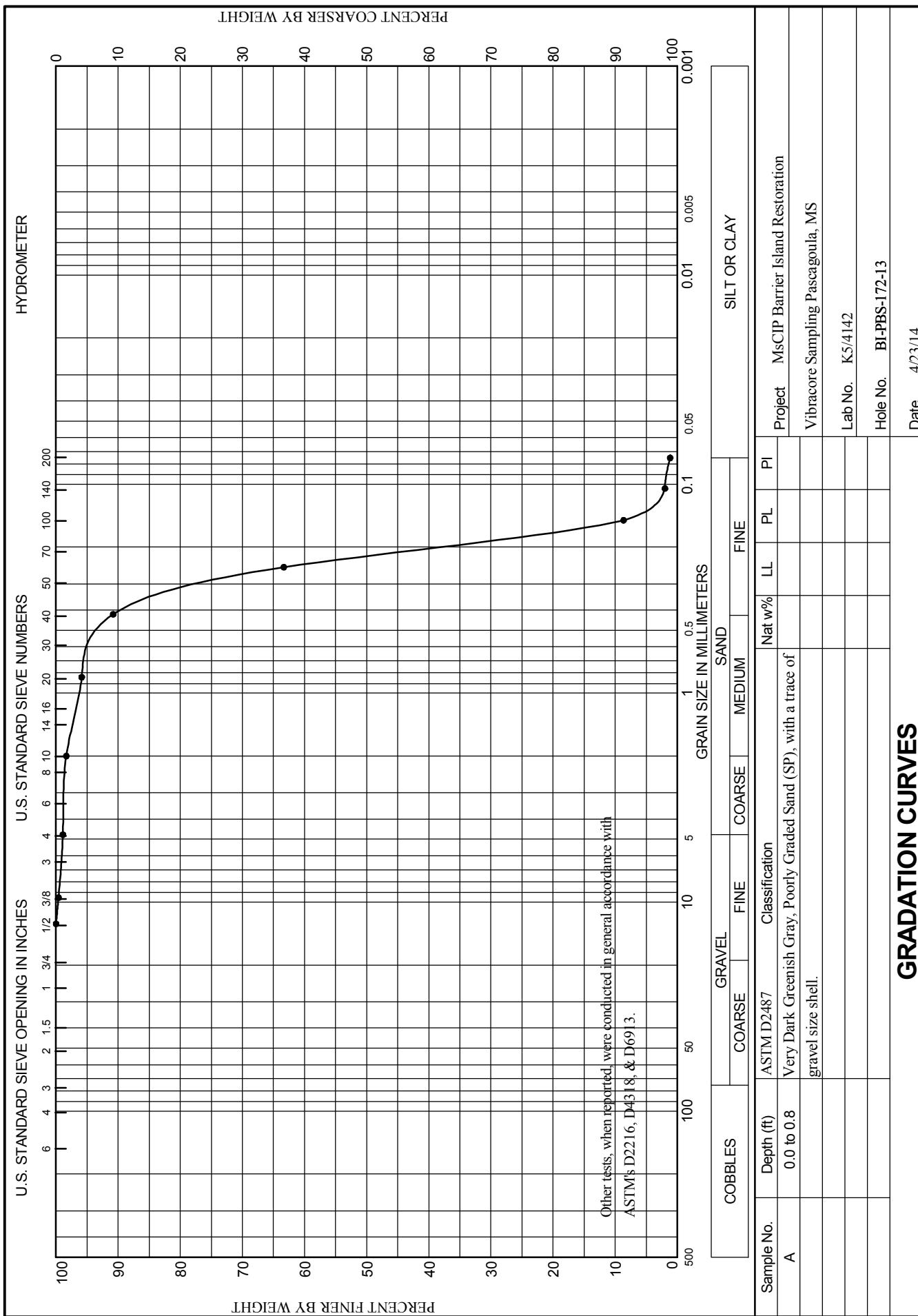




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WORK ORDER: 848e

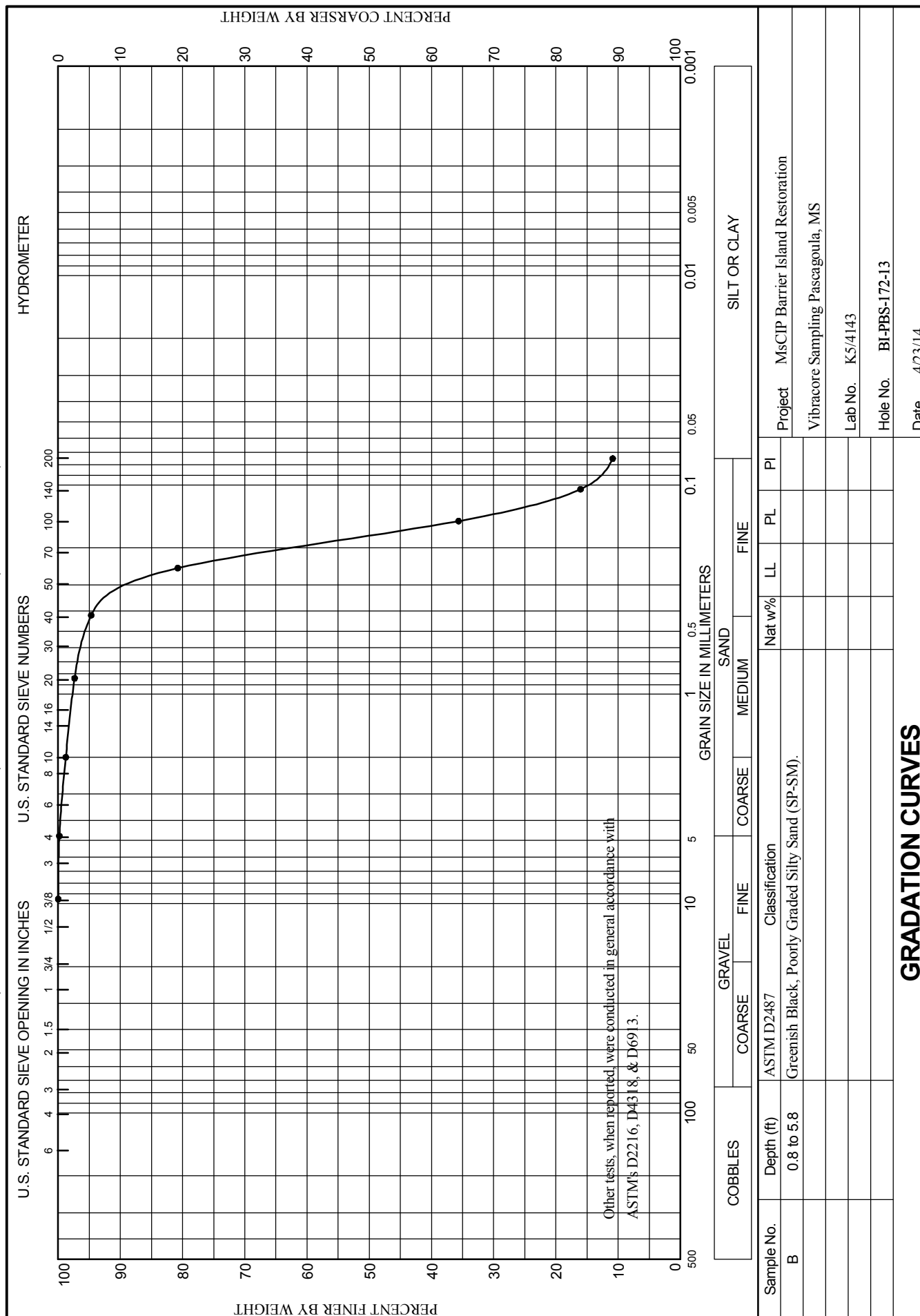
REQUISITION: W33SJC32900192





WORK ORDER: 848e

REQUISITION: W33SJG32900192

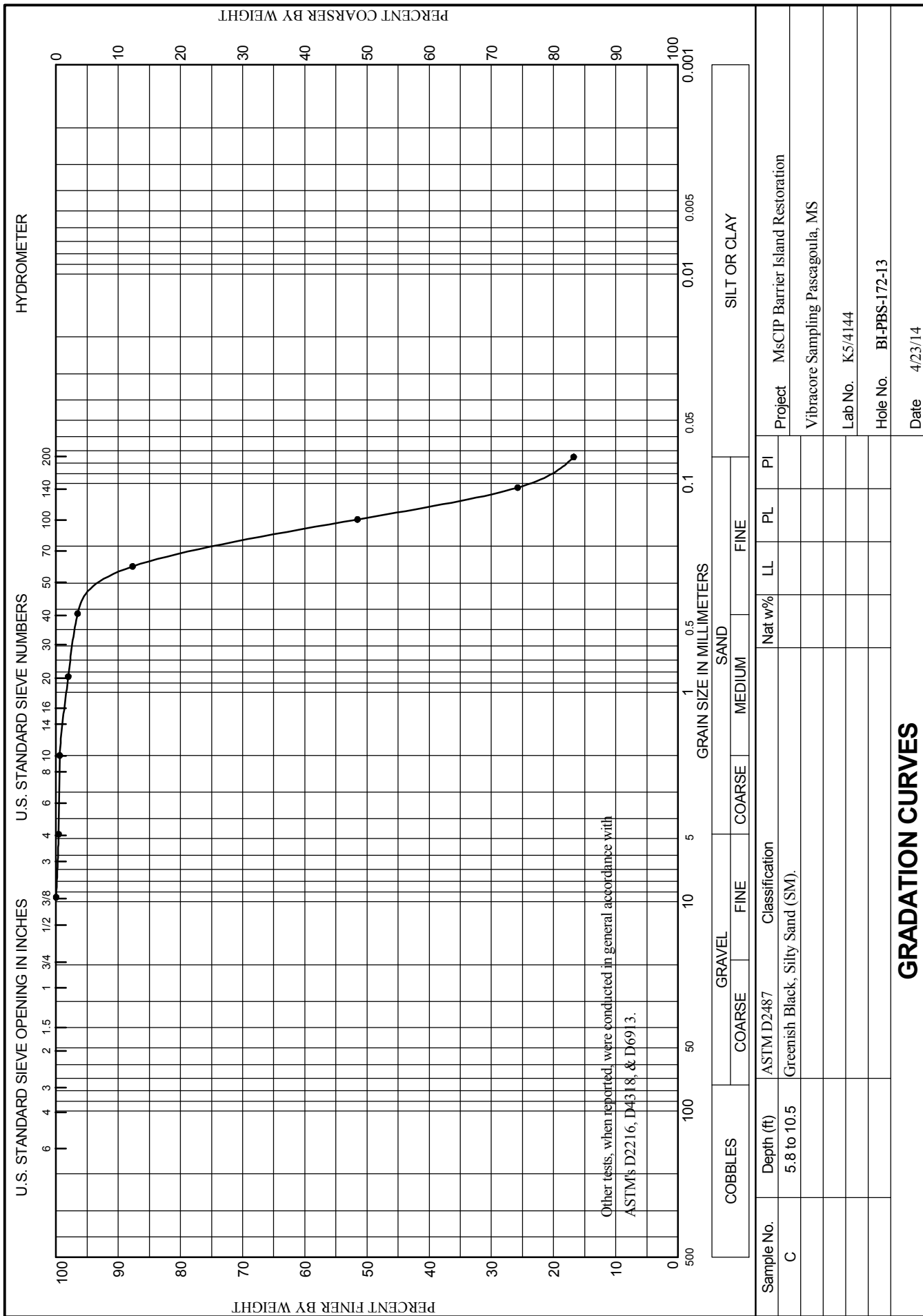




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WORK ORDER: 848e

REQUISITION: W33SJC32900192



# Boring Designation BI-PBS-173-13

DRILLING LOG		DIVISION South Atlantic		INSTALLATION Mobile District		SHEET 1 OF 1 SHEETS	
1. PROJECT MsCIP Barrier Island Restoration Petit Bois Pass-OCS West				9. SIZE AND TYPE OF BIT N/A			
2. BORING DESIGNATION BI-PBS-173-13		LOCATION COORDINATES E = 1,103,469 N = 240,675		10. COORDINATE SYSTEM/DATUM State Plane, MSE (U.S. Ft.)		HORIZONTAL NAD83 VERTICAL NAVD88	
3. DRILLING AGENCY Corps of Engineers - CESAM		CONTRACTOR FILE NO.		11. MANUFACTURER'S DESIGNATION OF DRILL Vibrocure		<input type="checkbox"/> AUTO HAMMER <input type="checkbox"/> MANUAL HAMMER	
4. NAME OF DRILLER Construction Solutions International, Inc.				12. TOTAL SAMPLES 2		DISTURBED 2 UNDISTURBED (UD) 0	
5. DIRECTION OF BORING <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED				13. TOTAL NUMBER CORE BOXES		14. WATER DEPTH 45 Ft.	
6. THICKNESS OF OVERBURDEN N/A				15. DATE BORING 12-29-13		STARTED 12-29-13 COMPLETED 12-29-13	
7. DEPTH DRILLED INTO ROCK N/A				16. ELEVATION TOP OF BORING -42.7 Ft.		17. TOTAL RECOVERY FOR BORING 100%	
8. TOTAL DEPTH OF BORING 15.3 Ft.				18. SIGNATURE AND TITLE OF INSPECTOR Tom Powers, Geologist			
ELEV.	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS	SAMPLE	LABORATORY RESULTS		
-42.7	0.0						
-45.0	2.3		SAND, poorly-graded, mostly fine to medium-grained sand-sized quartz, few shell fragments, lt. gray (SP)	A	Classification: SP Color: 2.5Y 6/1-gray D50: 0.305 mm % Fines: 1.3		
-46.9	4.2		SAND, silty, mostly fine-grained sand-sized quartz, little shell fragments, medium gray (SM)	B	Classification: SP-SM Color: GLEY1 10Y 7/1- D50: 0.201 mm % Fines: 10.8		
-50.3	7.6		SAND, clayey, mostly fine-grained sand-sized quartz, little shell fragments, medium gray (SC)	NS			
-51.9	9.2		CLAY, lean, sandy, medium to dark gray (CL)				
-58.0	15.3		CLAY, fat, sandy, pale orange, lt. gray, pale green, and pale brown (CH)				
NOTES: 1. Soils are field visually classified in accordance with the Unified Soils Classification System. 2. NS = Sample not submitted for laboratory analysis from this interval. 3. Seafloor elevation determined from 10/28/2014 USACE survey.							



WORK ORDER: 848e

REQUISITION: W33SJG32900192

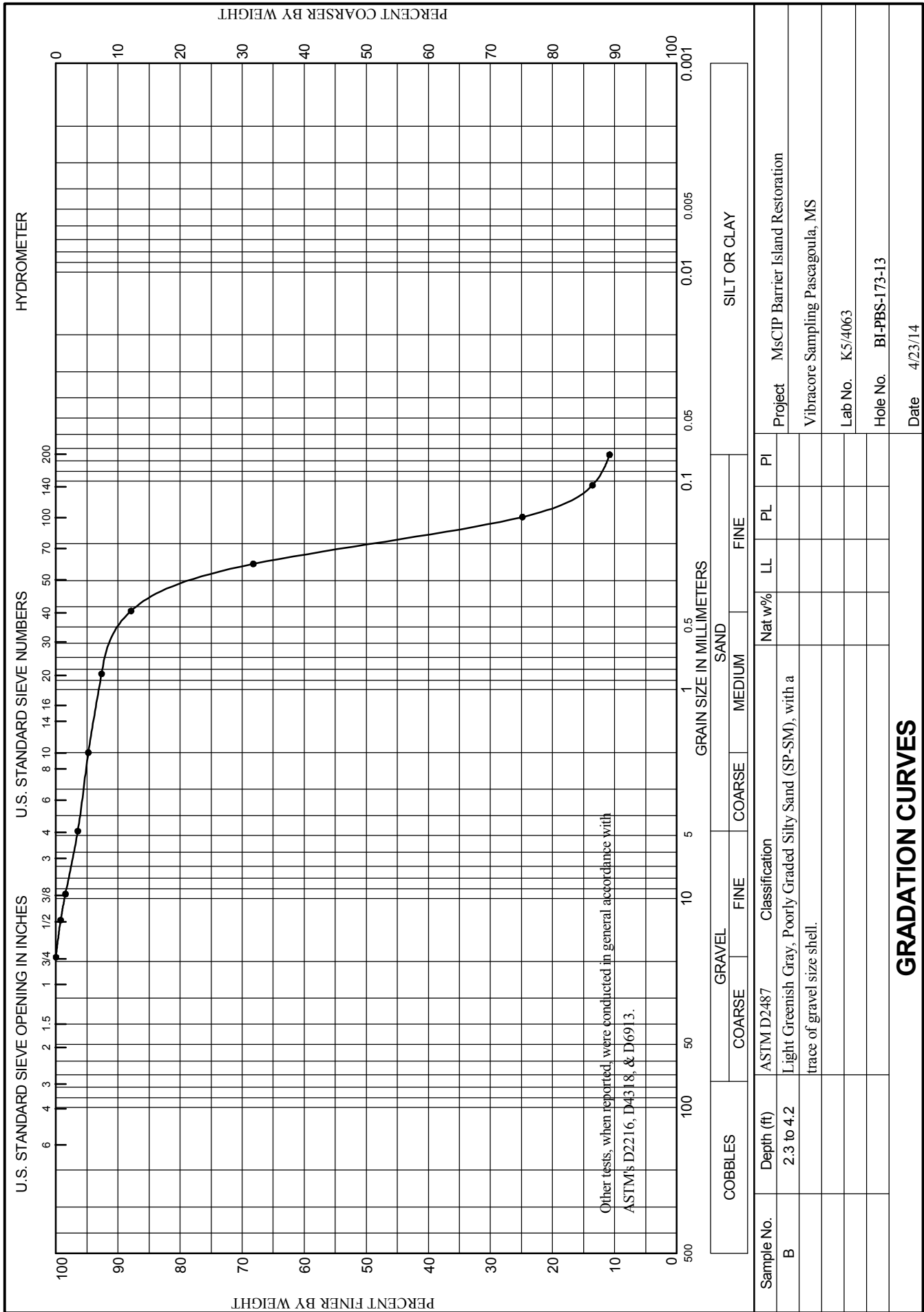




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WORK ORDER: 848e

REQUISITION: W33SJC32900192



# Boring Designation BI-PBS-174-13

DRILLING LOG		DIVISION South Atlantic		INSTALLATION Mobile District		SHEET 1 OF 1 SHEETS	
1. PROJECT MsCIP Barrier Island Restoration Petit Bois Pass-OCS West				9. SIZE AND TYPE OF BIT N/A			
2. BORING DESIGNATION BI-PBS-174-13		LOCATION COORDINATES E = 1,103,967 N = 238,364		10. COORDINATE SYSTEM/DATUM State Plane, MSE (U.S. Ft.)		HORIZONTAL NAD83 VERTICAL NAVD88	
3. DRILLING AGENCY Corps of Engineers - CESAM		CONTRACTOR FILE NO.		11. MANUFACTURER'S DESIGNATION OF DRILL Vibrocure		<input type="checkbox"/> AUTO HAMMER <input type="checkbox"/> MANUAL HAMMER	
4. NAME OF DRILLER Construction Solutions International, Inc.				12. TOTAL SAMPLES 1		DISTURBED 1 UNDISTURBED (UD) 0	
5. DIRECTION OF BORING <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED				13. TOTAL NUMBER CORE BOXES		14. WATER DEPTH 49 Ft.	
6. THICKNESS OF OVERBURDEN N/A				15. DATE BORING 12-27-13		STARTED 12-27-13 COMPLETED 12-27-13	
7. DEPTH DRILLED INTO ROCK N/A				16. ELEVATION TOP OF BORING -50.4 Ft.		17. TOTAL RECOVERY FOR BORING 100%	
8. TOTAL DEPTH OF BORING 14.7 Ft.				18. SIGNATURE AND TITLE OF INSPECTOR Tom Powers, Geologist			

ELEV.	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS	SAMPLE	LABORATORY RESULTS
-50.4	0.0				
-50.9	0.5				
-51.4	1.0		CLAY, lean, sandy, medium gray (CL)		
-52.2	1.8		SAND, silty, mostly fine-grained sand-sized quartz, little shell fragments, medium gray (SM)	A	Classification: SM Color: 2.5Y 6/1-gray D50: 0.219 mm % Fines: 15.3
-53.8	3.4		SAND, clayey, mostly fine-grained sand-sized quartz, little shell fragments, medium gray (SC)		
-55.0	4.6		CLAY, lean, sandy, medium gray (CL)		
			SAND, clayey, mostly fine-grained sand-sized quartz, medium gray (SC)		
			CLAY, fat, lt. and medium gray and pale orange (CH)	NS	
-62.8	12.4				
-65.1	14.7		SAND, clayey, mostly fine-grained sand-sized quartz, trace wood fragments at 14.0, little oyster shell fragments from 14.1 ft. down, medium and lt. gray (SC)		
NOTES: 1. Soils are field visually classified in accordance with the Unified Soils Classification System. 2. NS = Sample not submitted for laboratory analysis from this interval. 3. Seafloor elevation determined from 2013 USGS geophysical survey.					



WORK ORDER: 848e

REQUISITION: W33SJG32900192





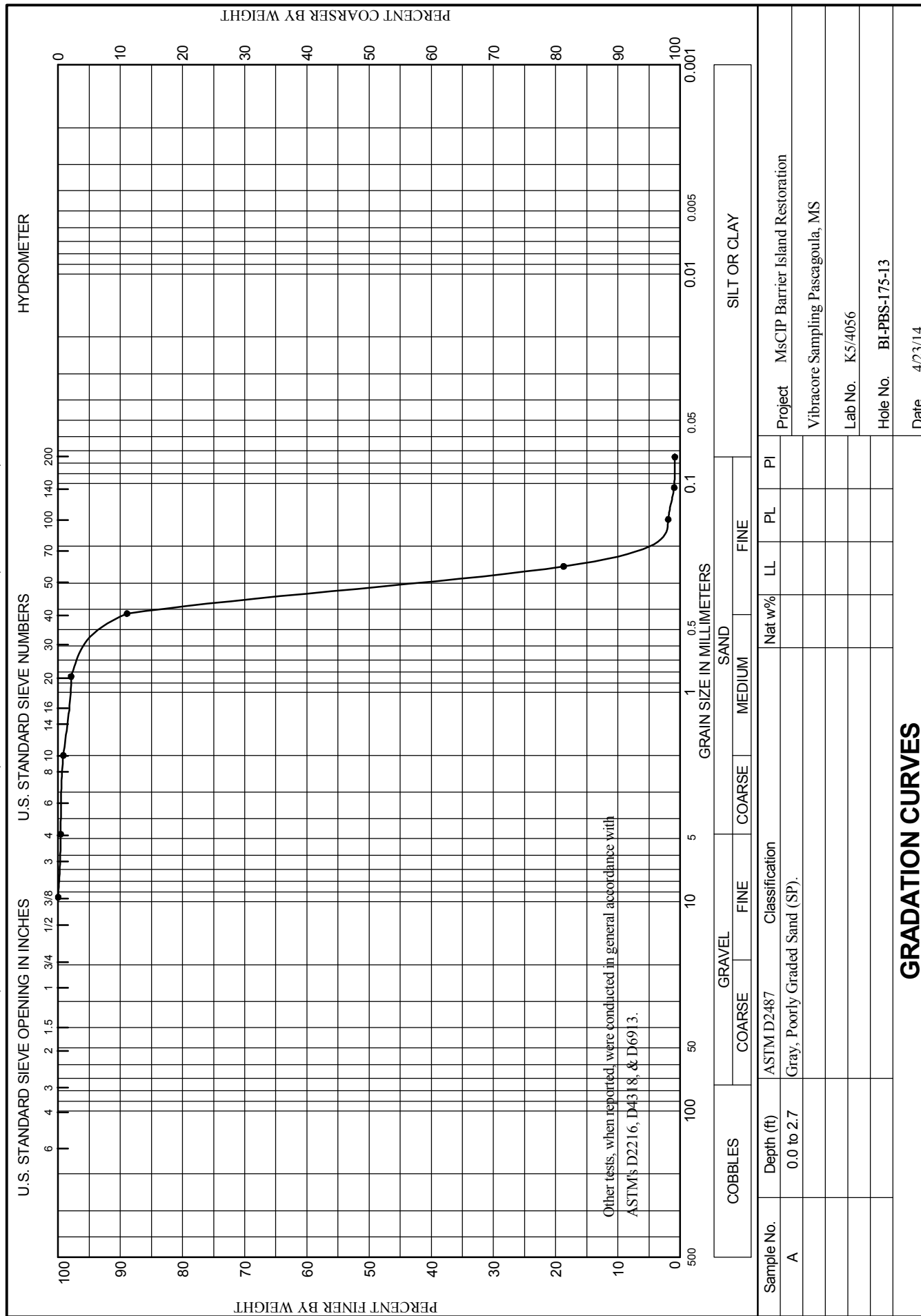
# Boring Designation BI-PBS-175-13

DRILLING LOG		DIVISION South Atlantic		INSTALLATION Mobile District		SHEET 1 OF 1 SHEETS	
1. PROJECT MsCIP Barrier Island Restoration Petit Bois Pass-OCS West				9. SIZE AND TYPE OF BIT N/A			
2. BORING DESIGNATION BI-PBS-175-13		LOCATION COORDINATES E = 1,104,880 N = 239,520		10. COORDINATE SYSTEM/DATUM State Plane, MSE (U.S. Ft.)		HORIZONTAL NAD83	
3. DRILLING AGENCY Corps of Engineers - CESAM		CONTRACTOR FILE NO.		11. MANUFACTURER'S DESIGNATION OF DRILL Vibrocure		<input type="checkbox"/> AUTO HAMMER <input type="checkbox"/> MANUAL HAMMER	
4. NAME OF DRILLER Construction Solutions International, Inc.				12. TOTAL SAMPLES 3		DISTURBED 0	
5. DIRECTION OF BORING <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED				13. TOTAL NUMBER CORE BOXES		14. WATER DEPTH 44.8 Ft.	
6. THICKNESS OF OVERBURDEN N/A				15. DATE BORING 12-27-13		STARTED 12-27-13	
7. DEPTH DRILLED INTO ROCK N/A				16. ELEVATION TOP OF BORING -42.9 Ft.		COMPLETED 12-27-13	
8. TOTAL DEPTH OF BORING 16.6 Ft.				17. TOTAL RECOVERY FOR BORING 100%		18. SIGNATURE AND TITLE OF INSPECTOR Tom Powers, Geologist	
ELEV.	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS	SAMPLE	LABORATORY RESULTS		
-42.9	0.0		SAND, poorly-graded, mostly fine to medium-grained sand-sized quartz, few shell fragments, lt. gray (SP)	A	Classification: SP Color: GLEY1 10Y 7/1- D50: 0.315 mm % Fines: 0.8		
-48.3	5.4		At El. -46.4 Ft., little shell fragments	B	Classification: SP Color: GLEY1 10Y 7/1- D50: 0.334 mm % Fines: 0.8		
-51.9	9.0		SAND, silty, mostly fine-grained sand-sized quartz, little shell fragments, medium gray (SM)	C	Classification: SM Color: GLEY1 10Y 5/1- D50: 0.176 mm % Fines: 15.4		
-57.6	14.7		CLAY, lean, trace shell fragments, sandy, medium gray (CL)	NS			
-59.5	16.6		CLAY, fat, sandy, lt. to medium gray (CH)				
NOTES: 1. Soils are field visually classified in accordance with the Unified Soils Classification System. 2. NS = Sample not submitted for laboratory analysis from this interval. 3. Seafloor elevation determined from 10/28/2014 USACE survey.							



WORK ORDER: 848e

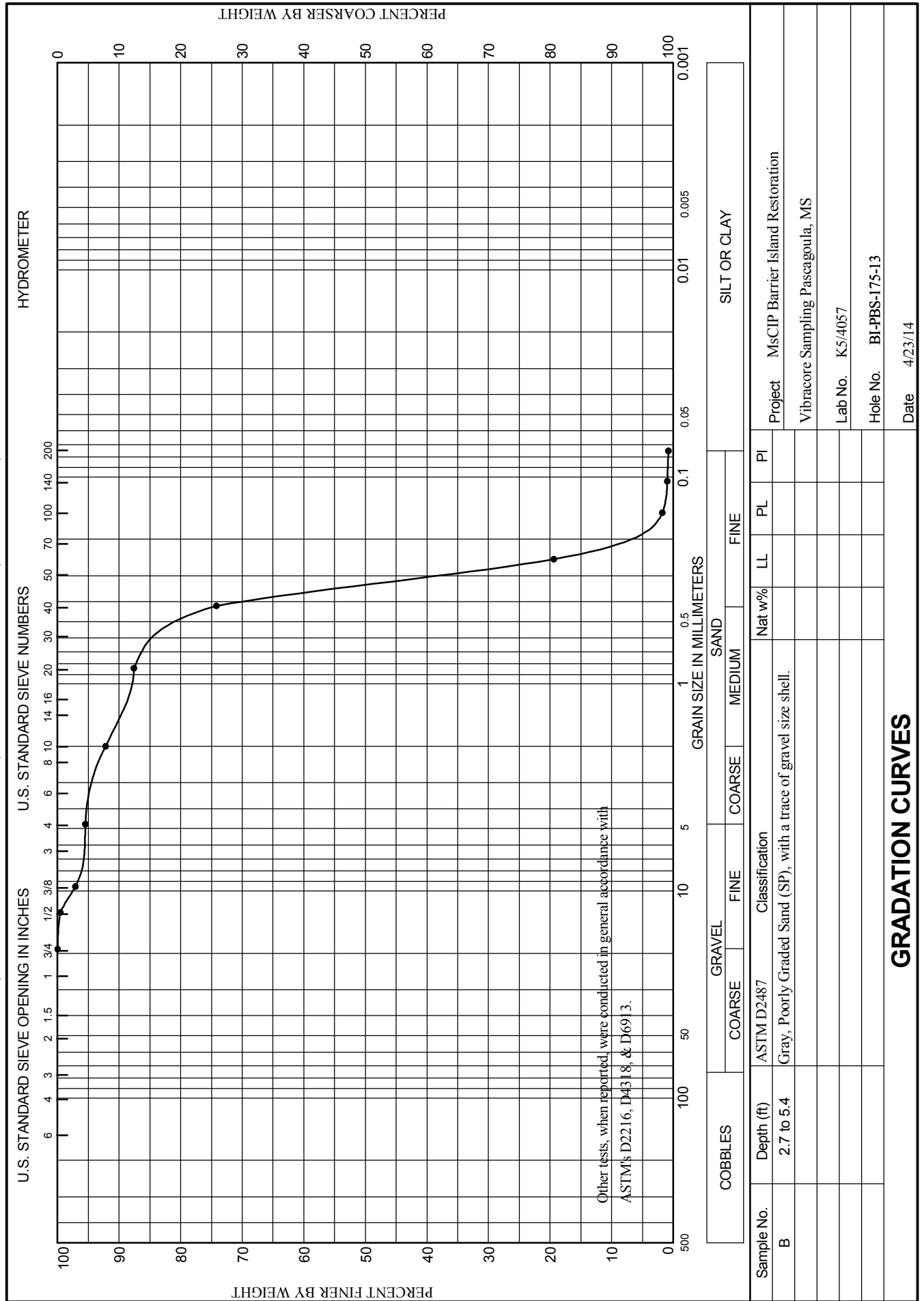
REQUISITION: W33SJG32900192





WORK ORDER: 848e

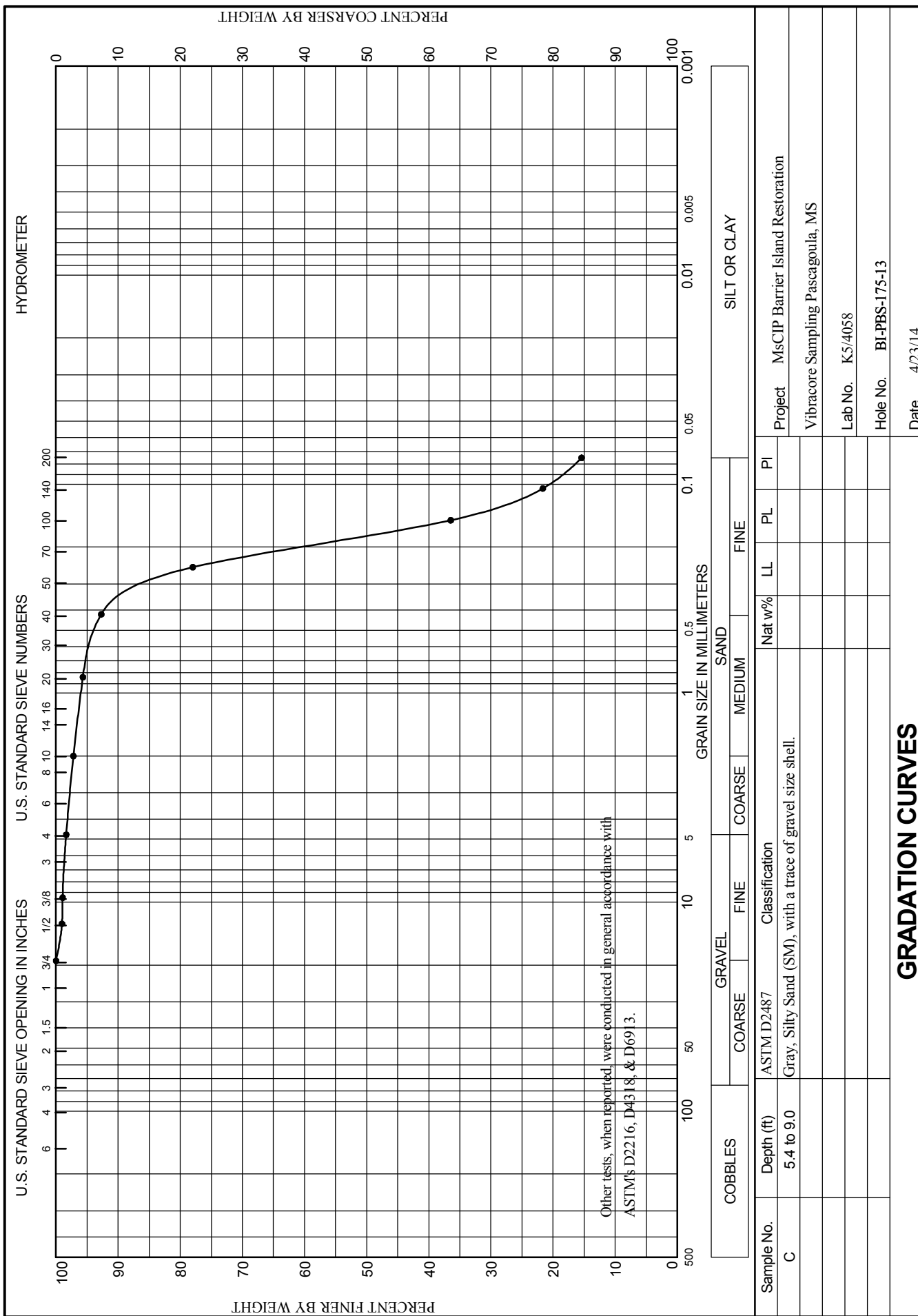
REQUISITION: W33SJG32900192





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WORK ORDER: 848e  
REQUISITION: W33SJC32900192



# Boring Designation BI-PBS-176-13

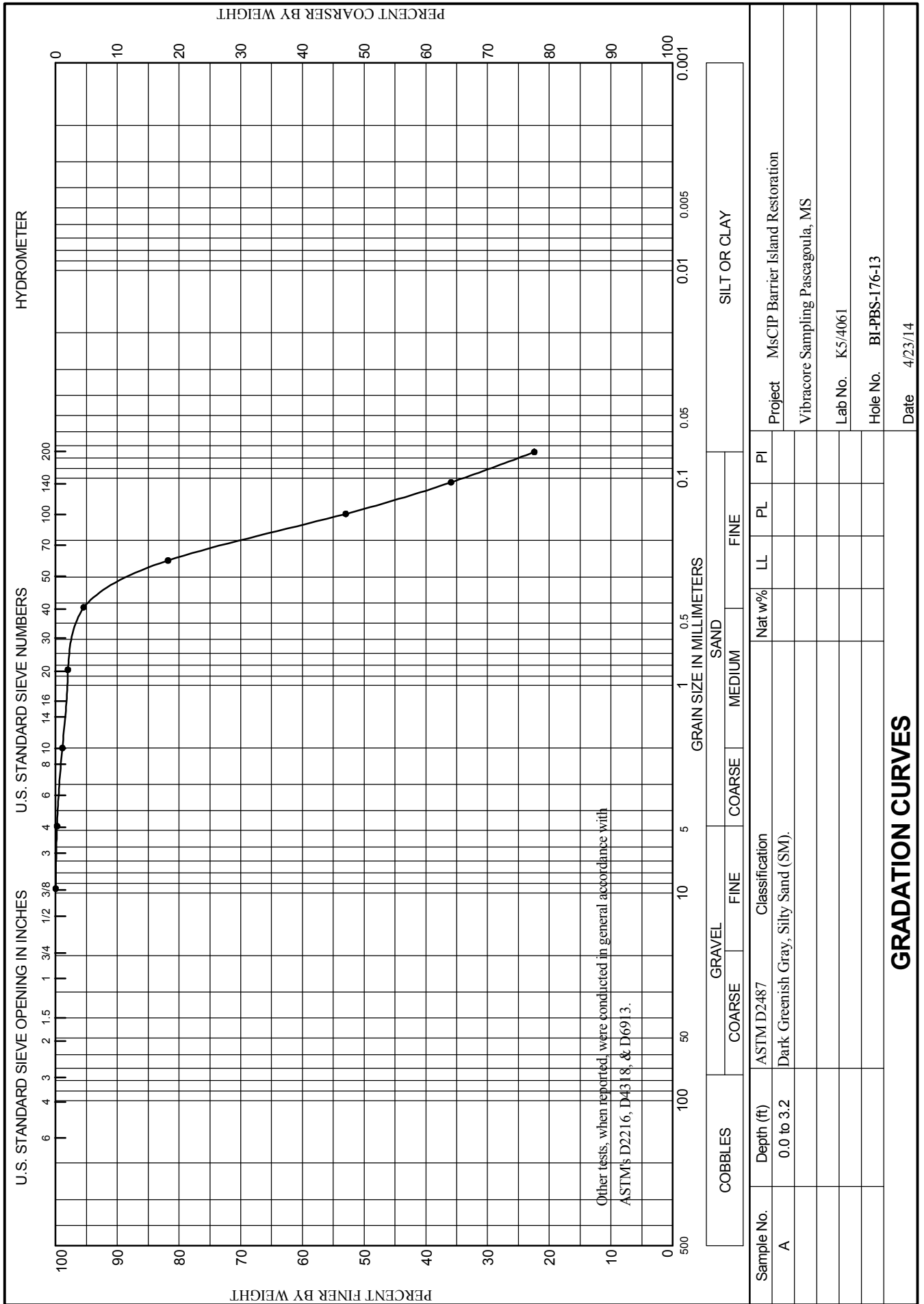
DRILLING LOG		DIVISION South Atlantic		INSTALLATION Mobile District		SHEET 1 OF 1 SHEETS	
1. PROJECT MsCIP Barrier Island Restoration Petit Bois Pass-OCS West				9. SIZE AND TYPE OF BIT N/A			
2. BORING DESIGNATION BI-PBS-176-13		LOCATION COORDINATES E = 1,105,840 N = 240,439		10. COORDINATE SYSTEM/DATUM State Plane, MSE (U.S. Ft.)		HORIZONTAL NAD83 VERTICAL NAVD88	
3. DRILLING AGENCY Corps of Engineers - CESAM		CONTRACTOR FILE NO.		11. MANUFACTURER'S DESIGNATION OF DRILL Vibracore		<input type="checkbox"/> AUTO HAMMER <input type="checkbox"/> MANUAL HAMMER	
4. NAME OF DRILLER Construction Solutions International, Inc.				12. TOTAL SAMPLES 1		DISTURBED 1 UNDISTURBED (UD) 0	
5. DIRECTION OF BORING <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED		DEG. FROM VERTICAL		13. TOTAL NUMBER CORE BOXES			
		BEARING		14. WATER DEPTH 50.1 Ft.			
6. THICKNESS OF OVERBURDEN N/A				15. DATE BORING 12-29-13		STARTED 12-29-13 COMPLETED 12-29-13	
7. DEPTH DRILLED INTO ROCK N/A				16. ELEVATION TOP OF BORING -48.6 Ft.			
8. TOTAL DEPTH OF BORING 19.8 Ft.				17. TOTAL RECOVERY FOR BORING 100%			
				18. SIGNATURE AND TITLE OF INSPECTOR Tom Powers, Geologist			
ELEV.	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS	SAMPLE	LABORATORY RESULTS		
-48.6	0.0						
			SAND, silty, mostly fine-grained sand-sized quartz, little shell fragments, medium gray (SM)	A	Classification: SM Color: GLEY1 10Y 5/1- D50: 0.14 mm % Fines: 22.4		
-51.8	3.2						
-53.3	4.7		SAND, clayey, mostly fine-grained sand-sized quartz, little shell fragments, medium gray (SC)				
			CLAY, lean, few shell fragments, medium gray (CL)				
-59.1	10.5						
			CLAY, fat, sandy, lt. gray, pale green, pale orange, and pale brown (CH)	NS			
-68.4	19.8						
			NOTES: 1. Soils are field visually classified in accordance with the Unified Soils Classification System. 2. NS = Sample not submitted for laboratory analysis from this interval. 3. Seafloor elevation determined from 10/28/2014 USACE survey.				



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WORK ORDER: 848e

REQUISITION: W33SJC32900192



# Boring Designation BI-PBS-177-13

DRILLING LOG		DIVISION South Atlantic		INSTALLATION Mobile District		SHEET 1 OF 1 SHEETS	
1. PROJECT MsCIP Barrier Island Restoration Petit Bois Pass-OCS West				9. SIZE AND TYPE OF BIT N/A			
2. BORING DESIGNATION BI-PBS-177-13		LOCATION COORDINATES E = 1,107,601 N = 239,362		10. COORDINATE SYSTEM/DATUM State Plane, MSE (U.S. Ft.)		HORIZONTAL NAD83	
3. DRILLING AGENCY Corps of Engineers - CESAM		CONTRACTOR FILE NO.		11. MANUFACTURER'S DESIGNATION OF DRILL Vibracore		<input type="checkbox"/> AUTO HAMMER <input type="checkbox"/> MANUAL HAMMER	
4. NAME OF DRILLER Construction Solutions International, Inc.				12. TOTAL SAMPLES		DISTURBED 1	
5. DIRECTION OF BORING <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED				13. TOTAL NUMBER CORE BOXES		UNDISTURBED (UD) 0	
6. THICKNESS OF OVERBURDEN N/A				14. WATER DEPTH		50.4 Ft.	
7. DEPTH DRILLED INTO ROCK N/A				15. DATE BORING		STARTED 12-16-13 COMPLETED 12-16-13	
8. TOTAL DEPTH OF BORING 11.5 Ft.				16. ELEVATION TOP OF BORING -49.2 Ft.		17. TOTAL RECOVERY FOR BORING 100%	
				18. SIGNATURE AND TITLE OF INSPECTOR Tom Powers, Geologist			

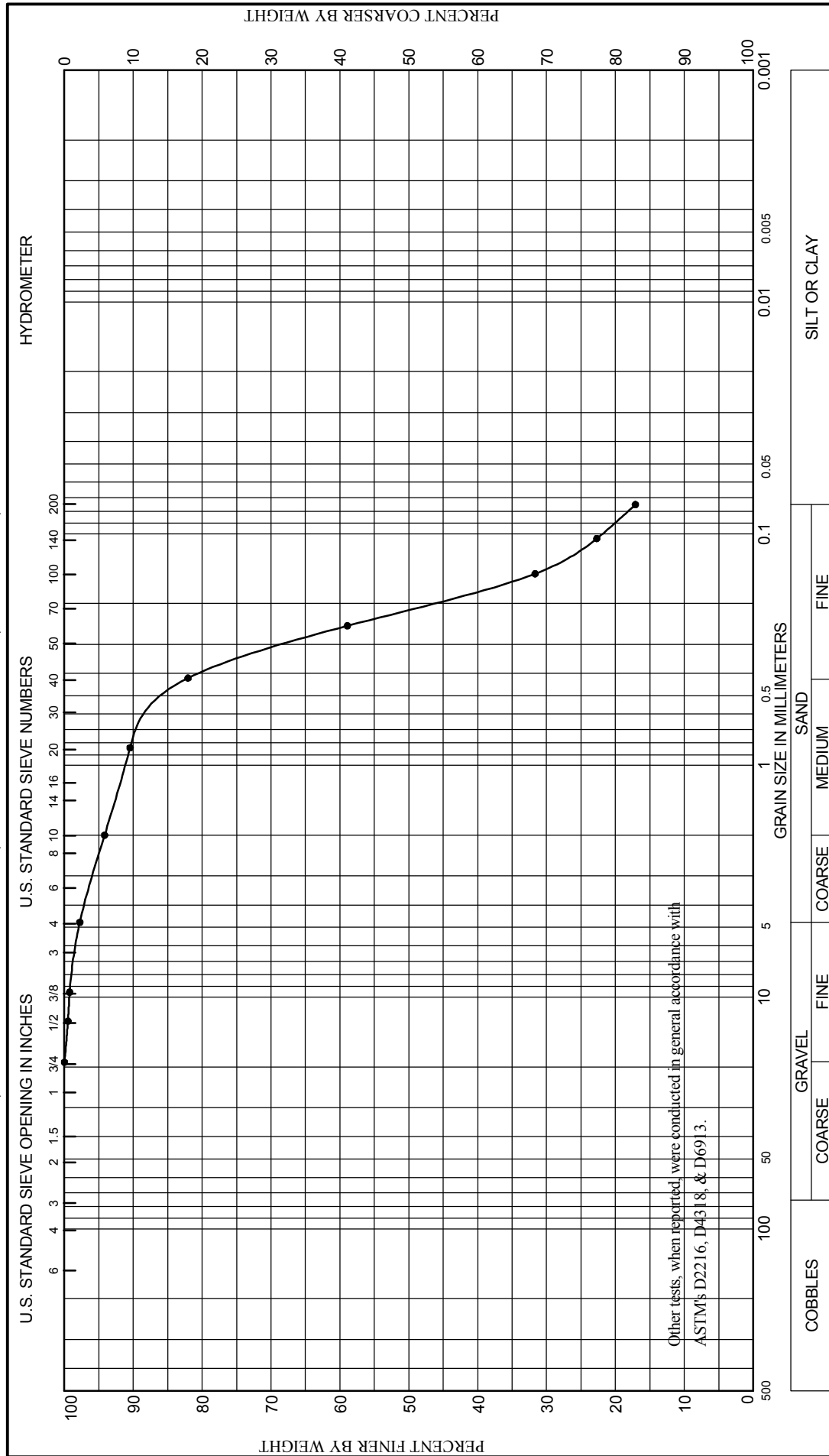
ELEV.	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS	SAMPLE	LABORATORY RESULTS
-49.2	0.0				
-49.5	0.3		SAND, silty, mostly fine-grained sand-sized quartz, lt. to medium gray (SM)	A	Classification: SM Color: GLEY1 10Y 5/1- D50: 0.211 mm % Fines: 17.1
			CLAY, lean, lt. to medium gray and pale orange (CL)		
			At El. -54.0 Ft., trace woody fines	NS	
-60.2	11.0				
-60.7	11.5		SAND, silty, mostly fine-grained sand-sized quartz, little shell fragments, medium gray (SM)		
NOTES: 1. Soils are field visually classified in accordance with the Unified Soils Classification System. 2. NS = Sample not submitted for laboratory analysis from this interval. 3. Seafloor elevation determined from 10/28/2014 USACE survey.					



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WORK ORDER: 848e

REQUISITION: W33SJC32900192



Sample No.	Depth (ft)	ASTM D2487	Classification	Nat w%	LL	PL	PI	Project	MsCIP Barrier Island Restoration
A	0.0 to 0.3	Greenish Gray & Light Greenish Gray, Silty Sand (SM), with a trace of gravel size shell.						Vibracore Sampling Pascagoula, MS	
								Lab No.	K5/4019
								Hole No.	BI-PBS-177-13
								Date	4/23/14

GRADATION CURVES



# Boring Designation BI-PBS-178-13

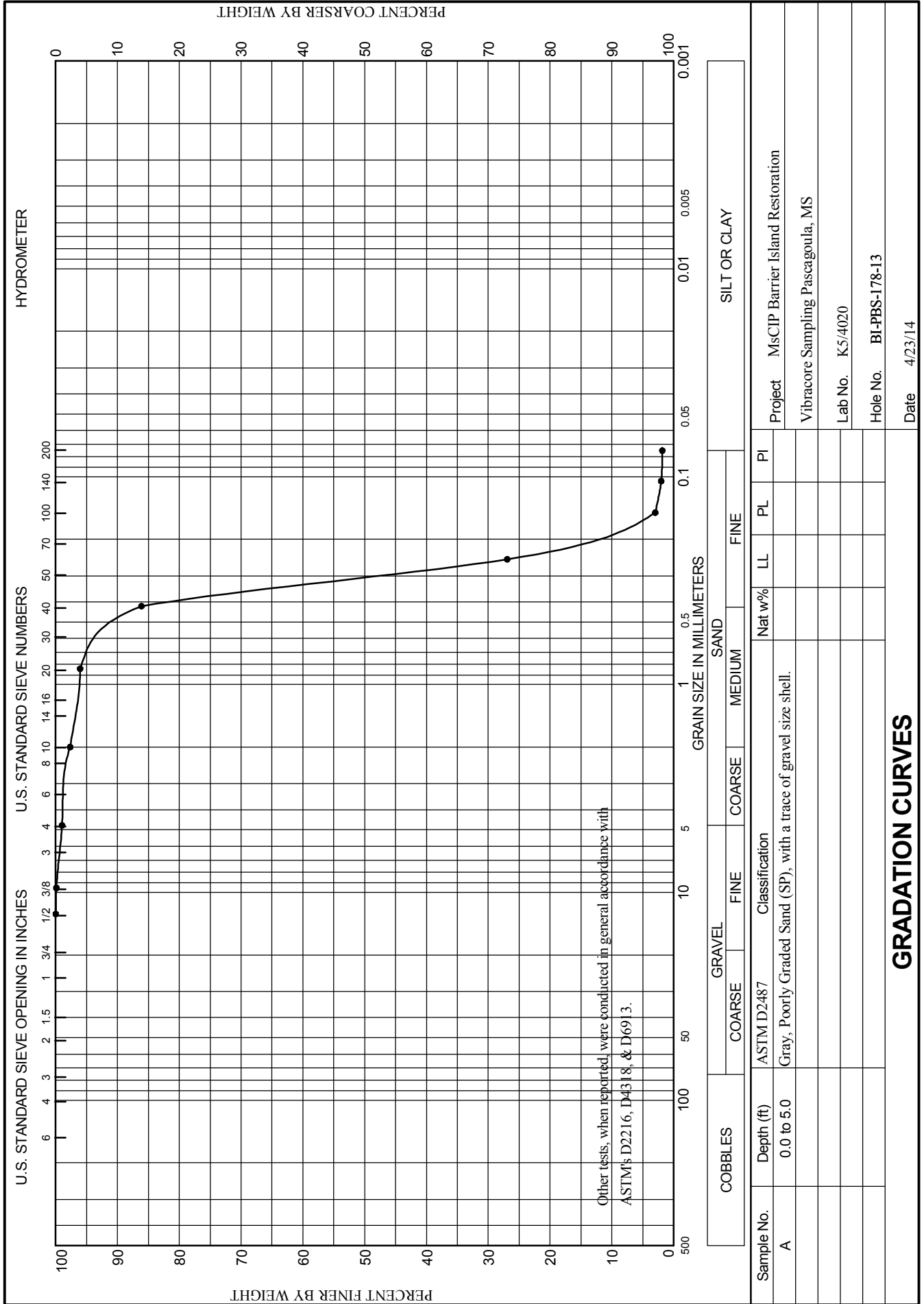
DRILLING LOG		DIVISION South Atlantic		INSTALLATION Mobile District		SHEET 1 OF 1 SHEETS	
1. PROJECT MsCIP Barrier Island Restoration Petit Bois Pass-OCS West				9. SIZE AND TYPE OF BIT N/A			
2. BORING DESIGNATION BI-PBS-178-13		LOCATION COORDINATES E = 1,107,742 N = 237,886		10. COORDINATE SYSTEM/DATUM State Plane, MSE (U.S. Ft.)		HORIZONTAL NAD83	
3. DRILLING AGENCY Corps of Engineers - CESAM		CONTRACTOR FILE NO.		11. MANUFACTURER'S DESIGNATION OF DRILL Vibrocure		<input type="checkbox"/> AUTO HAMMER <input type="checkbox"/> MANUAL HAMMER	
4. NAME OF DRILLER Construction Solutions International, Inc.				12. TOTAL SAMPLES 2		DISTURBED 0	
5. DIRECTION OF BORING <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED				13. TOTAL NUMBER CORE BOXES		14. WATER DEPTH 44.8 Ft.	
6. THICKNESS OF OVERBURDEN N/A				15. DATE BORING 12-16-13		STARTED 12-16-13	
7. DEPTH DRILLED INTO ROCK N/A				16. ELEVATION TOP OF BORING -43.4 Ft.		COMPLETED 12-16-13	
8. TOTAL DEPTH OF BORING 19.3 Ft.				17. TOTAL RECOVERY FOR BORING 100%			
				18. SIGNATURE AND TITLE OF INSPECTOR Tom Powers, Geologist			
ELEV.	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS	SAMPLE	LABORATORY RESULTS		
-43.4	0.0						
			SAND, poorly-graded, mostly fine to medium-grained sand-sized quartz, few shell fragments, lt. gray (SP)	A	Classification: SP Color: GLEY1 10Y 6/1- D50: 0.306 mm % Fines: 1.8		
-48.4	5.0						
-49.9	6.5		SAND, silty, mostly fine-grained sand-sized quartz, trace shell fragments, lt. gray (SM)	B	Classification: SM Color: 2.5Y 6/1-gray D50: 0.164 mm % Fines: 18.1		
			CLAY, lean, sandy, medium gray (CL) At El. -50.9 Ft., medium gray At El. -52.4 Ft., sandy and silty, medium gray At El. -55.9 Ft., trace woody fines	NS			
-58.4	15.0						
			CLAY, fat, lt. gray and pale orange (CH)				
-62.7	19.3						
			NOTES: 1. Soils are field visually classified in accordance with the Unified Soils Classification System. 2. NS = Sample not submitted for laboratory analysis from this interval. 3. Seafloor elevation determined from 2014 USACE survey.				



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WORK ORDER: 848e

REQUISITION: W33SJC32900192

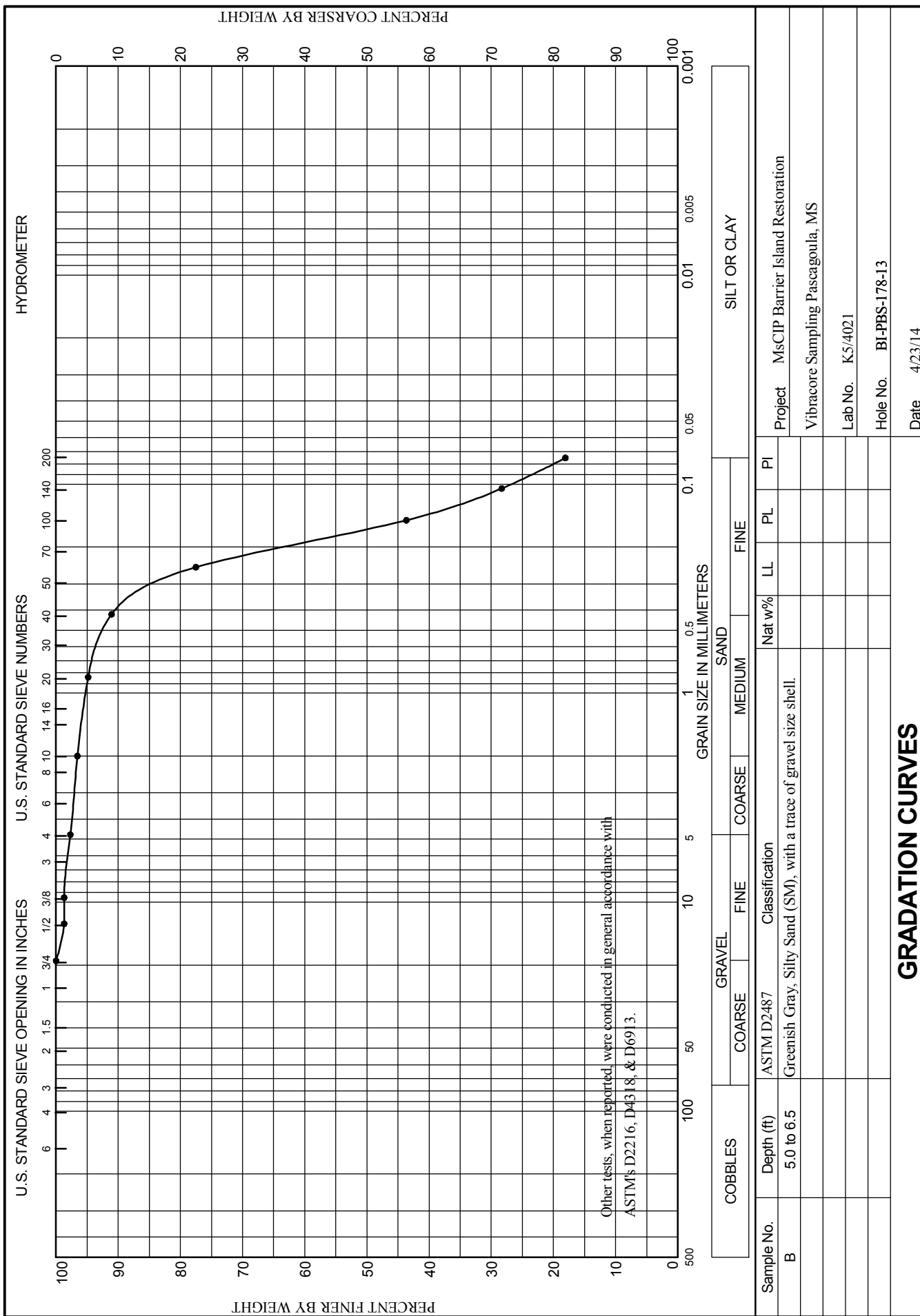




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CORPS OF ENGINEERS, 200 N. COBB PARKWAY, BLDG 400 SUITE 404, MARIETTA, GA. 30062

WORK ORDER: 848e

REQUISITION: W33SJC32900192



# Boring Designation BI-PBS-179-13

DRILLING LOG		DIVISION South Atlantic		INSTALLATION Mobile District		SHEET 1 OF 1 SHEETS	
1. PROJECT MsCIP Barrier Island Restoration Petit Bois Pass-OCS West				9. SIZE AND TYPE OF BIT N/A			
2. BORING DESIGNATION BI-PBS-179-13		LOCATION COORDINATES E = 1,108,748 N = 236,671		10. COORDINATE SYSTEM/DATUM State Plane, MSE (U.S. Ft.)		HORIZONTAL NAD83 VERTICAL NAVD88	
3. DRILLING AGENCY Corps of Engineers - CESAM		CONTRACTOR FILE NO.		11. MANUFACTURER'S DESIGNATION OF DRILL Vibracore		<input type="checkbox"/> AUTO HAMMER <input type="checkbox"/> MANUAL HAMMER	
4. NAME OF DRILLER Construction Solutions International, Inc.				12. TOTAL SAMPLES		DISTURBED 1 UNDISTURBED (UD) 0	
5. DIRECTION OF BORING <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED				13. TOTAL NUMBER CORE BOXES		14. WATER DEPTH 47.4 Ft.	
6. THICKNESS OF OVERBURDEN N/A				15. DATE BORING		STARTED 12-16-13 COMPLETED 12-16-13	
7. DEPTH DRILLED INTO ROCK N/A				16. ELEVATION TOP OF BORING -46.3 Ft.		17. TOTAL RECOVERY FOR BORING 100%	
8. TOTAL DEPTH OF BORING 13.6 Ft.				18. SIGNATURE AND TITLE OF INSPECTOR Tom Powers, Geologist			

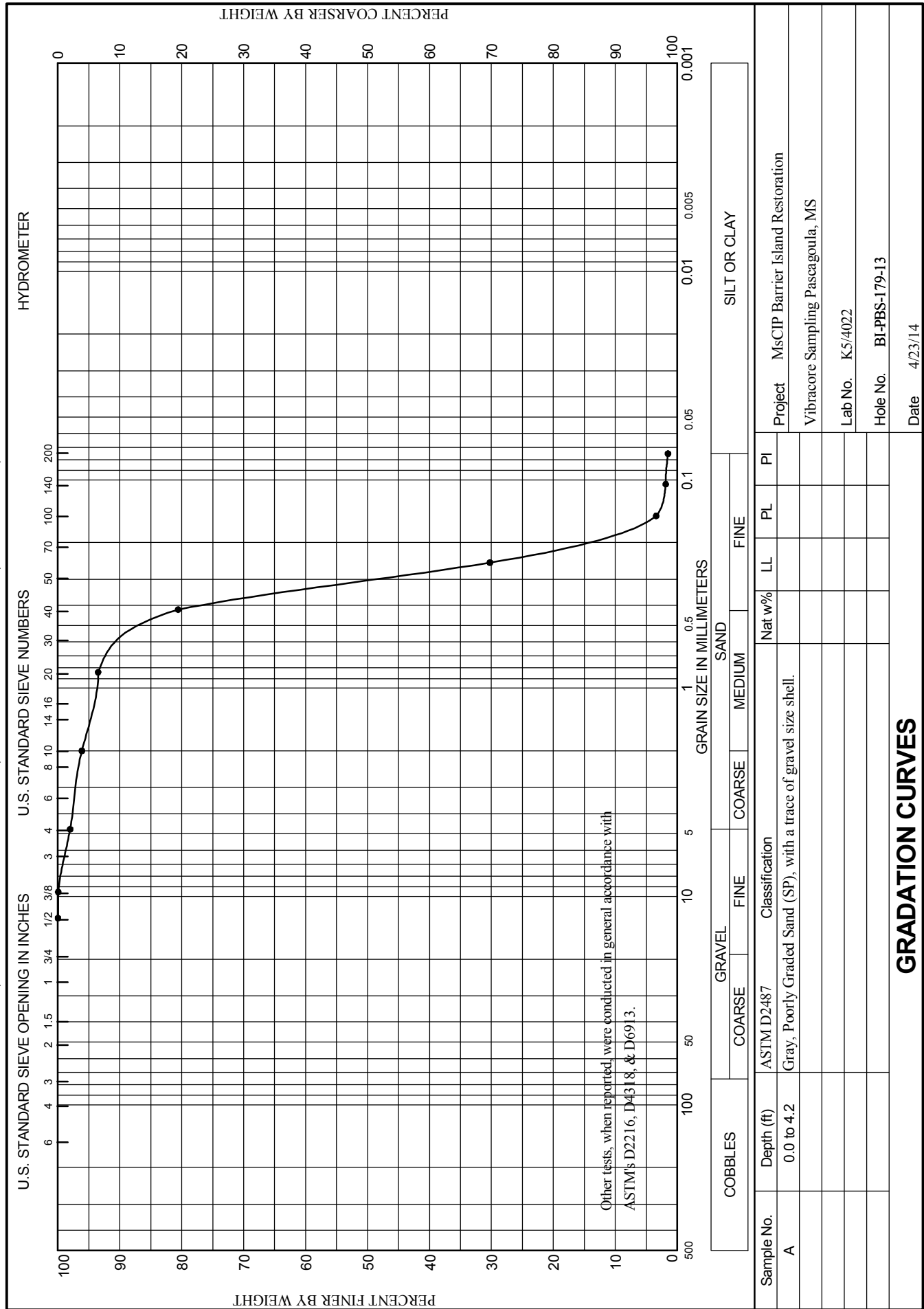
ELEV.	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS	SAMPLE	LABORATORY RESULTS
-46.3	0.0				
-50.1	3.8		SAND, poorly-graded, mostly fine to medium-grained sand-sized quartz, trace shell fragments, lt. gray (SP)	A	Classification: SP Color: 2.5Y 6/1-gray D50: 0.306 mm % Fines: 1.5
-50.5	4.2		SAND, silty, mostly fine-grained sand-sized quartz, medium gray (SM)		
-55.5	9.2		CLAY, lean, sandy down to 5 ft., lt. to medium gray (CL)		
-56.7	10.4		At El. -54.9 Ft., oyster shell	NS	
-59.6	13.3		SAND, clayey, mostly fine-grained sand-sized quartz, medium gray and pale orange (SC)		
-59.9	13.6		CLAY, lean, sandy, lt. to medium gray (CL)		
			SAND, silty, mostly fine-grained sand-sized quartz, medium gray (SM)		
NOTES: 1. Soils are field visually classified in accordance with the Unified Soils Classification System. 2. NS = Sample not submitted for laboratory analysis from this interval. 3. Seafloor elevation determined from 2014 USACE survey.					



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CORPS OF ENGINEERS, 200 N. COBB PARKWAY, BLDG 400 SUITE 404, MARIETTA, GA. 30062

WORK ORDER: 848e

REQUISITION: W33SJC32900192



# Boring Designation BI-PBS-180-13

DRILLING LOG		DIVISION South Atlantic		INSTALLATION Mobile District		SHEET 1 OF 1 SHEETS	
1. PROJECT MsCIP Barrier Island Restoration Petit Bois Pass-OCS West				9. SIZE AND TYPE OF BIT N/A			
2. BORING DESIGNATION BI-PBS-180-13		LOCATION COORDINATES E = 1,107,904 N = 235,762		10. COORDINATE SYSTEM/DATUM State Plane, MSE (U.S. Ft.)		HORIZONTAL NAD83 VERTICAL NAVD88	
3. DRILLING AGENCY Corps of Engineers - CESAM		CONTRACTOR FILE NO.		11. MANUFACTURER'S DESIGNATION OF DRILL Vibrocure		<input type="checkbox"/> AUTO HAMMER <input type="checkbox"/> MANUAL HAMMER	
4. NAME OF DRILLER Construction Solutions International, Inc.				12. TOTAL SAMPLES 1		DISTURBED 1 UNDISTURBED (UD) 0	
5. DIRECTION OF BORING <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED		DEG. FROM VERTICAL		13. TOTAL NUMBER CORE BOXES			
		BEARING		14. WATER DEPTH 48.4 Ft.			
6. THICKNESS OF OVERBURDEN N/A				15. DATE BORING 12-19-13		STARTED 12-19-13 COMPLETED 12-19-13	
7. DEPTH DRILLED INTO ROCK N/A				16. ELEVATION TOP OF BORING -48.9 Ft.			
8. TOTAL DEPTH OF BORING 14.8 Ft.				17. TOTAL RECOVERY FOR BORING 100%			
				18. SIGNATURE AND TITLE OF INSPECTOR Tom Powers, Geologist			

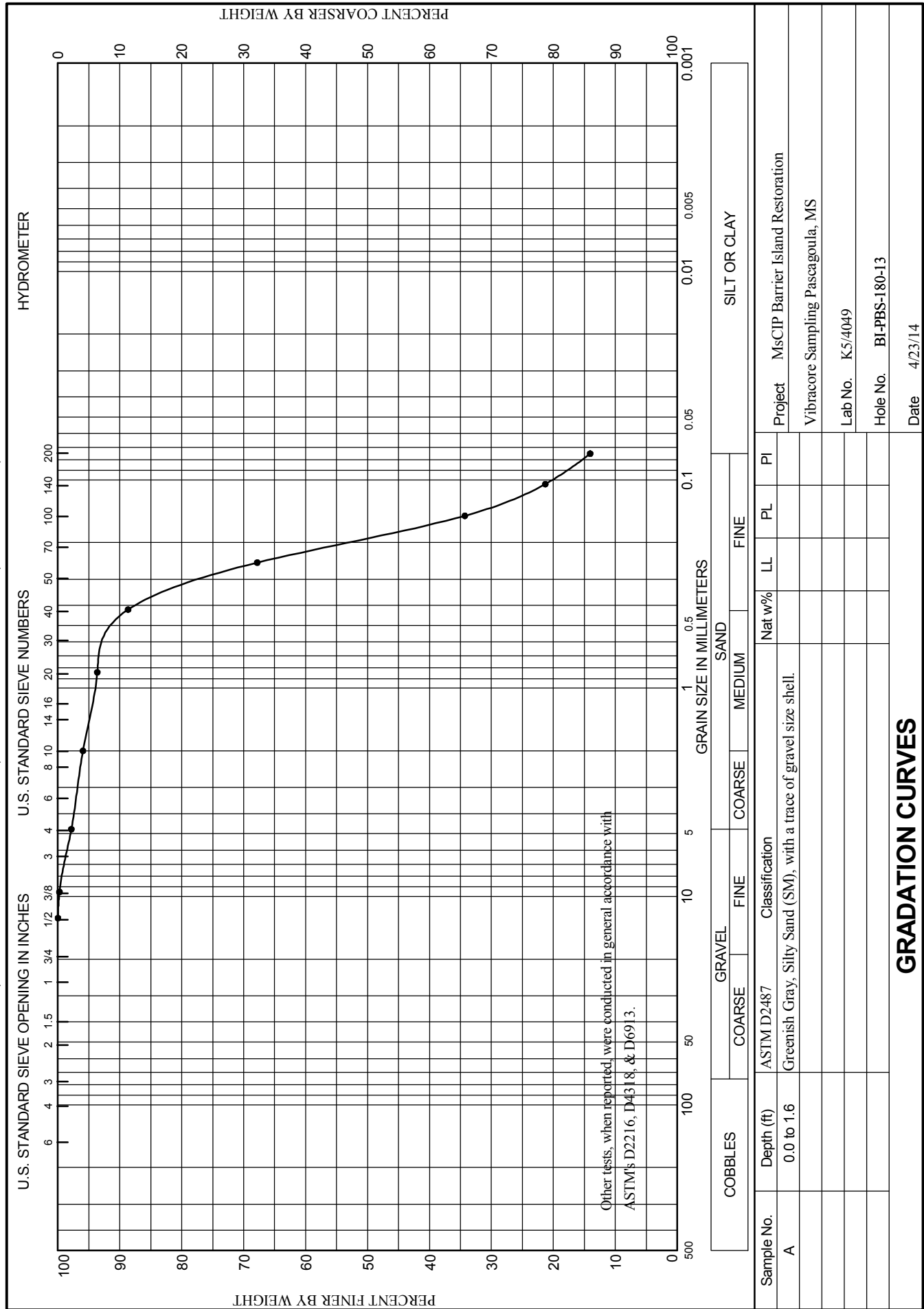
ELEV.	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS	SAMPLE	LABORATORY RESULTS
-48.9	0.0				
-49.3	0.4				
-50.5	1.6		SAND, poorly-graded, mostly fine to medium-grained sand-sized quartz, trace shell fragments, lt. gray (SP)	A	Classification: SM Color: 2.5Y 5/1-gray D50: 0.19 mm % Fines: 14.1
			SAND, silty, mostly fine-grained sand-sized quartz, few shell fragments, lt. to medium gray (SM)		
			CLAY, lean, sandy, trace wood at 12 and 14 ft., lt. and medium gray and pale orange (CL)	NS	
-63.7	14.8				
			NOTES: 1. Soils are field visually classified in accordance with the Unified Soils Classification System. 2. NS = Sample not submitted for laboratory analysis from this interval. 3. Seafloor elevation determined from 2013 USGS geophysical survey.		



DEPARTMENT OF THE ARMY, SAVANNAH DISTRICT, ENVIRONMENTAL AND MATERIALS UNIT  
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WORK ORDER: 848e

REQUISITION: W33SJC32900192



# Boring Designation BI-PBS-181-13

DRILLING LOG		DIVISION South Atlantic		INSTALLATION Mobile District		SHEET 1 OF 1 SHEETS	
1. PROJECT MsCIP Barrier Island Restoration Petit Bois Pass-OCS West				9. SIZE AND TYPE OF BIT N/A			
2. BORING DESIGNATION BI-PBS-181-13		LOCATION COORDINATES E = 1,109,544 N = 237,925		10. COORDINATE SYSTEM/DATUM State Plane, MSE (U.S. Ft.)		HORIZONTAL NAD83 VERTICAL NAVD88	
3. DRILLING AGENCY Corps of Engineers - CESAM		CONTRACTOR FILE NO.		11. MANUFACTURER'S DESIGNATION OF DRILL Vibrocure		<input type="checkbox"/> AUTO HAMMER <input type="checkbox"/> MANUAL HAMMER	
4. NAME OF DRILLER Construction Solutions International, Inc.				12. TOTAL SAMPLES		DISTURBED 1 UNDISTURBED (UD) 0	
5. DIRECTION OF BORING <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED				13. TOTAL NUMBER CORE BOXES		14. WATER DEPTH 49.4 Ft.	
6. THICKNESS OF OVERBURDEN N/A				15. DATE BORING		STARTED 12-16-13 COMPLETED 12-16-13	
7. DEPTH DRILLED INTO ROCK N/A				16. ELEVATION TOP OF BORING -50.8 Ft.		17. TOTAL RECOVERY FOR BORING 100%	
8. TOTAL DEPTH OF BORING 18.8 Ft.				18. SIGNATURE AND TITLE OF INSPECTOR Tom Powers, Geologist			

ELEV.	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS	SAMPLE	LABORATORY RESULTS
-50.8	0.0				
-52.3	1.5		SAND, silty, mostly fine-grained sand-sized quartz, little shell fragments, medium gray (SM)	A	Classification: SP-SM Color: 2.5Y 5/1-gray D50: 0.259 mm % Fines: 11.3
-53.3	2.5		SAND, clayey, mostly fine-grained sand-sized quartz, trace shell fragments, medium gray (SC)		
-56.6	5.8		CLAY, lean, trace wood and oyster shell, sandy, medium gray (CL)		
-57.6	6.8		SILT, inorganic-L, sandy, pale brown, medium gray (ML)		
-59.1	8.3		SAND, silty, mostly fine-grained sand-sized quartz, medium brown (SM)		
-59.8	9.0		SILT, inorganic-L, sandy, organic fines, pale brown, medium gray (ML)		
-60.8	10.0		SAND, silty, mostly fine-grained sand-sized quartz, medium dark gray (SM)	NS	
			SAND, poorly-graded, mostly fine to medium-grained sand-sized quartz, medium gray (SP) At El. -61.3 Ft., fine grained woody material		
-69.6	18.8				
NOTES: 1. Soils are field visually classified in accordance with the Unified Soils Classification System. 2. NS = Sample not submitted for laboratory analysis from this interval. 3. Seafloor elevation determined from 2013 USGS geophysical survey.					

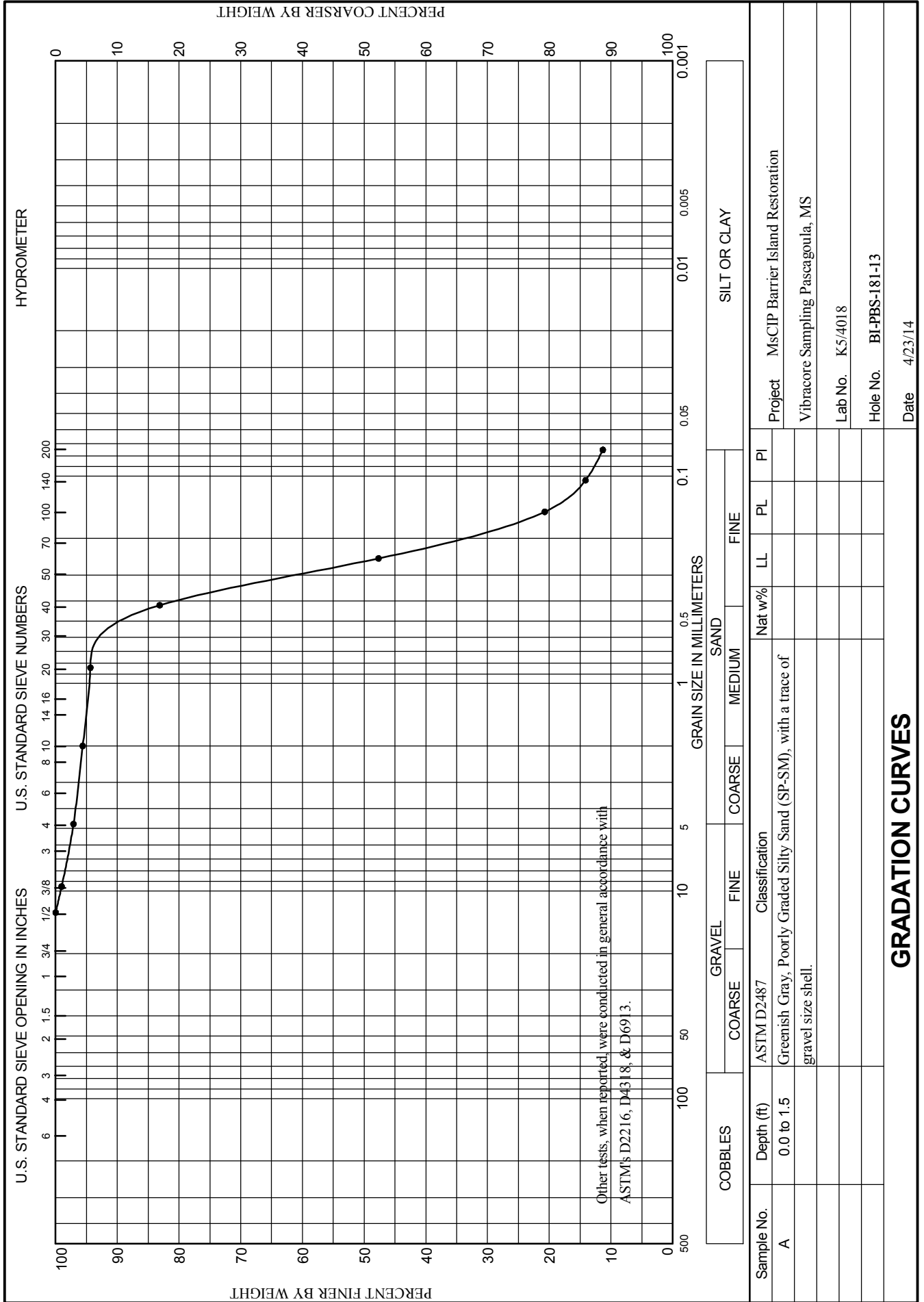




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WORK ORDER: 848e

REQUISITION: W33SJC32900192



# Boring Designation BI-PBS-182-13

DRILLING LOG		DIVISION South Atlantic		INSTALLATION Mobile District		SHEET 1 OF 1 SHEETS	
1. PROJECT MsCIP Barrier Island Restoration Petit Bois Pass-OCS West				9. SIZE AND TYPE OF BIT N/A			
2. BORING DESIGNATION BI-PBS-182-13		LOCATION COORDINATES E = 1,109,865 N = 235,536		10. COORDINATE SYSTEM/DATUM State Plane, MSE (U.S. Ft.)		HORIZONTAL NAD83	
3. DRILLING AGENCY Corps of Engineers - CESAM		CONTRACTOR FILE NO.		11. MANUFACTURER'S DESIGNATION OF DRILL Vibracore		<input type="checkbox"/> AUTO HAMMER <input type="checkbox"/> MANUAL HAMMER	
4. NAME OF DRILLER Construction Solutions International, Inc.				12. TOTAL SAMPLES 2		DISTURBED 0	
5. DIRECTION OF BORING <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED				13. TOTAL NUMBER CORE BOXES		14. WATER DEPTH 49 Ft.	
6. THICKNESS OF OVERBURDEN N/A				15. DATE BORING 12-18-13		STARTED 12-18-13	
7. DEPTH DRILLED INTO ROCK N/A				16. ELEVATION TOP OF BORING -48.4 Ft.		COMPLETED 12-18-13	
8. TOTAL DEPTH OF BORING 18.7 Ft.				17. TOTAL RECOVERY FOR BORING 100%		18. SIGNATURE AND TITLE OF INSPECTOR Tom Powers, Geologist	

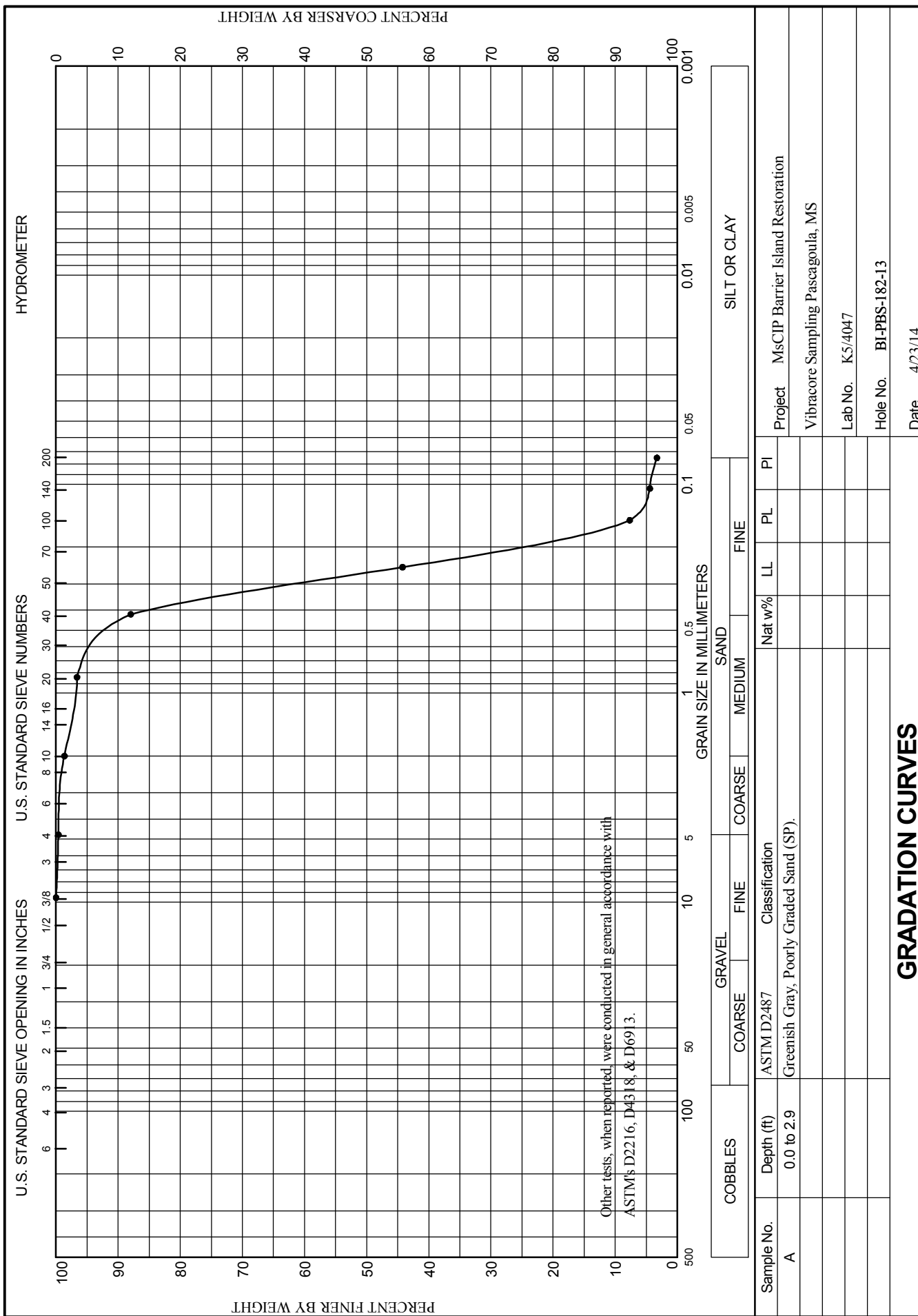
ELEV.	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS	SAMPLE	LABORATORY RESULTS
-48.4	0.0				
-51.3	2.9		SAND, poorly-graded, mostly fine to medium-grained sand-sized quartz, trace shell fragments, lt. gray (SP)	A	Classification: SP Color: GLEY1 10Y 6/1- D50: 0.268 mm % Fines: 3.3
-52.9	4.5		CLAY, lean, sandy, medium gray (CL)	NS	
-53.4	5.0		SAND, poorly-graded with silt, mostly fine to medium-grained sand-sized quartz, little shell fragments, brownish gray (SP-SM)	B	Classification: SP Color: 2.5Y 6/1-gray D50: 0.305 mm % Fines: 4.8
			CLAY, lean, sandy, medium gray (CL)	NS	
-66.0	17.6				
-67.1	18.7		SAND, poorly-graded, mostly fine-grained sand-sized quartz, brownish gray (SP)		
NOTES: 1. Soils are field visually classified in accordance with the Unified Soils Classification System. 2. NS = Sample not submitted for laboratory analysis from this interval. 3. Seafloor elevation determined from 2013 USGS geophysical survey.					



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WORK ORDER: 848e

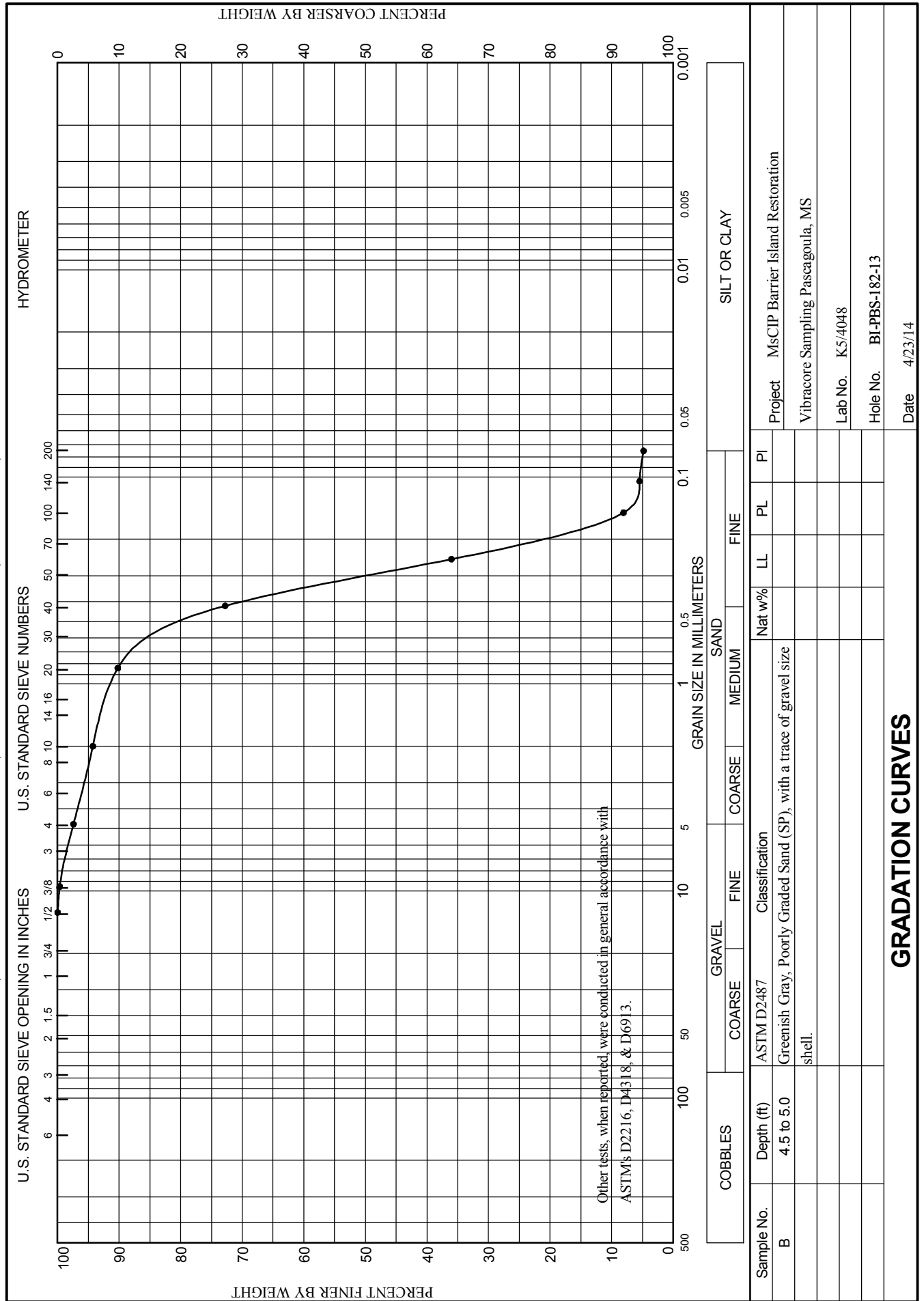
REQUISITION: W33SJC32900192





WORK ORDER: 848e

REQUISITION: W33SJG32900192



# Boring Designation BI-PBS-184-13

DRILLING LOG		DIVISION South Atlantic		INSTALLATION Mobile District		SHEET 1 OF 1 SHEETS	
1. PROJECT MsCIP Barrier Island Restoration Petit Bois Pass-OCS West				9. SIZE AND TYPE OF BIT N/A			
2. BORING DESIGNATION BI-PBS-184-13		LOCATION COORDINATES E = 1,101,352 N = 228,921		10. COORDINATE SYSTEM/DATUM State Plane, MSE (U.S. Ft.)		HORIZONTAL NAD83 VERTICAL NAVD88	
3. DRILLING AGENCY Corps of Engineers - CESAM		CONTRACTOR FILE NO.		11. MANUFACTURER'S DESIGNATION OF DRILL Vibrocure		<input type="checkbox"/> AUTO HAMMER <input type="checkbox"/> MANUAL HAMMER	
4. NAME OF DRILLER Construction Solutions International, Inc.				12. TOTAL SAMPLES 2		DISTURBED 2 UNDISTURBED (UD) 0	
5. DIRECTION OF BORING <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED				13. TOTAL NUMBER CORE BOXES		14. WATER DEPTH 52 Ft.	
6. THICKNESS OF OVERBURDEN N/A				15. DATE BORING 01-20-14		STARTED 01-20-14 COMPLETED 01-20-14	
7. DEPTH DRILLED INTO ROCK N/A				16. ELEVATION TOP OF BORING -52.6 Ft.		17. TOTAL RECOVERY FOR BORING 100%	
8. TOTAL DEPTH OF BORING 12.9 Ft.				18. SIGNATURE AND TITLE OF INSPECTOR Tom Powers, Geologist			

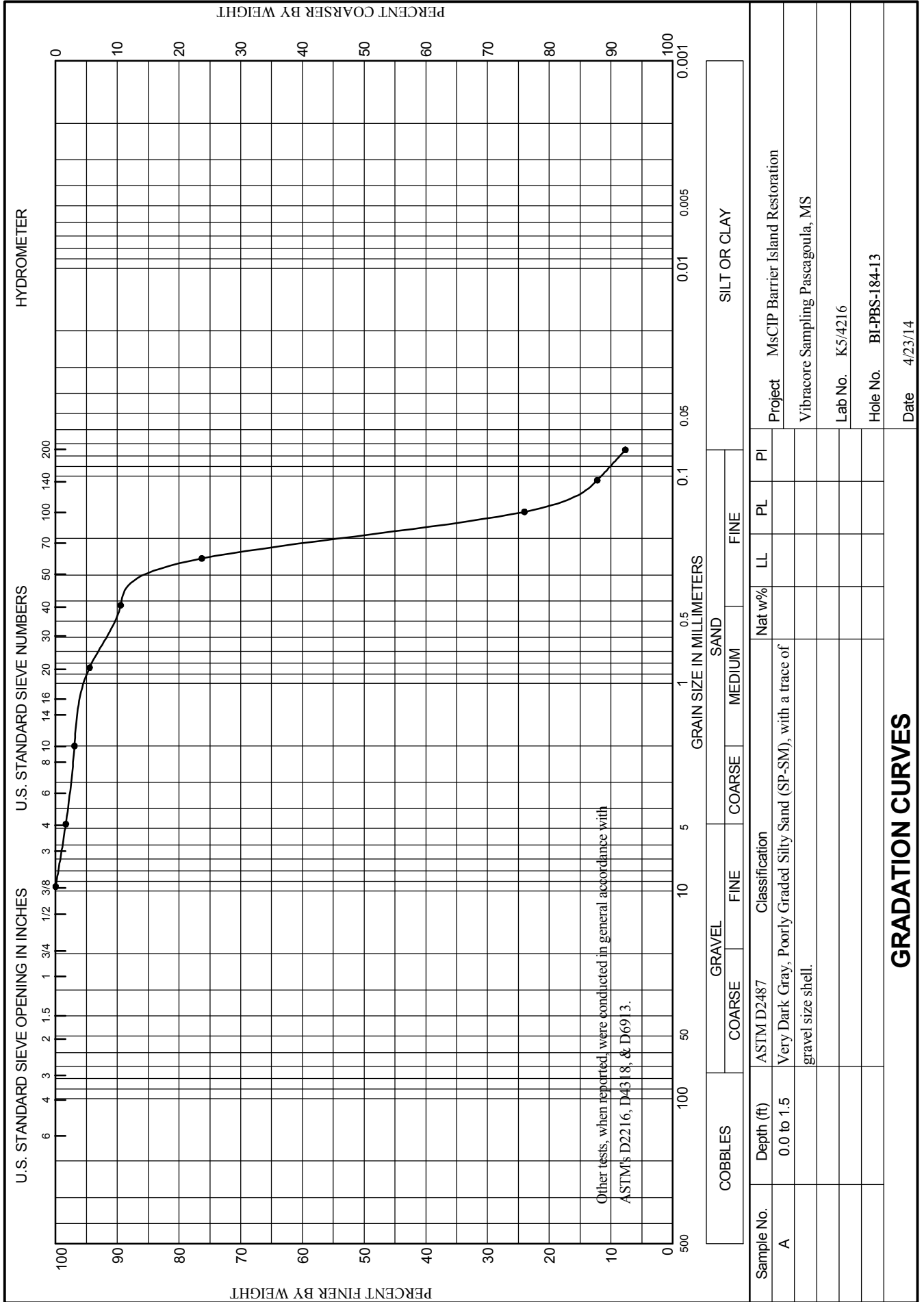
  

ELEV.	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS	SAMPLE	LABORATORY RESULTS
-52.6	0.0				
-54.1	1.5		SAND, poorly-graded with silt, mostly fine-grained sand-sized quartz, few shell fragments, medium gray (SP-SM)	A	Classification: SP-SM Color: GLEY1 10Y 5/1- D50: 0.193 mm % Fines: 7.7
-55.6	3.0		SAND, silty, mostly fine-grained sand-sized quartz, few shell fragments, medium gray (SM)	B	Classification: SM Color: 2.5Y 6/1-gray D50: 0.141 mm % Fines: 15.4
-62.3	9.7		CLAY, lean, sandy, medium to dark gray; brownish orange from 9 to 9.7 ft. (CL) At El. -57.5 Ft., 0.1 ft. shell lag zone At El. -59.3 Ft., 0.1 ft. shell lag zone At El. -60.4 Ft., 0.1 ft. shell lag zone	NS	
-65.4	12.9		CLAY, fat, orangish brown, lt. gray, pale green (CH) At El. -62.0 Ft., 0.1 ft. shell lag zone		
			CLAY, lean, very sandy, lt. gray (CL)		
NOTES: 1. Soils are field visually classified in accordance with the Unified Soils Classification System. 2. NS = Sample not submitted for laboratory analysis from this interval. 3. Seafloor elevation calculated using sampling vessel's fathometer water depth reading and applying NOAA tidal gauge data conversion factor.					



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WORK ORDER: 848e  
REQUISITION: W33SJC32900192





WORK ORDER: 848e

REQUISITION: W33SJG32900192



# Boring Designation BI-PBS-185-13

DRILLING LOG		DIVISION South Atlantic		INSTALLATION Mobile District		SHEET 1 OF 2 SHEETS	
1. PROJECT MsCIP Barrier Island Restoration Petit Bois Pass-OCS West				9. SIZE AND TYPE OF BIT N/A			
2. BORING DESIGNATION BI-PBS-185-13		LOCATION COORDINATES E = 1,110,875 N = 236,914		10. COORDINATE SYSTEM/DATUM State Plane, MSE (U.S. Ft.)		HORIZONTAL NAD83	
3. DRILLING AGENCY Corps of Engineers - CESAM		CONTRACTOR FILE NO.		11. MANUFACTURER'S DESIGNATION OF DRILL Vibrocure		<input type="checkbox"/> AUTO HAMMER <input type="checkbox"/> MANUAL HAMMER	
4. NAME OF DRILLER Construction Solutions International, Inc.				12. TOTAL SAMPLES 5		DISTURBED 0	
5. DIRECTION OF BORING <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED				13. TOTAL NUMBER CORE BOXES		14. WATER DEPTH 50 Ft.	
6. THICKNESS OF OVERBURDEN N/A				15. DATE BORING 12-16-13		STARTED 12-16-13	
7. DEPTH DRILLED INTO ROCK N/A				16. ELEVATION TOP OF BORING -51.1 Ft.		COMPLETED 12-16-13	
8. TOTAL DEPTH OF BORING 20.0 Ft.				17. TOTAL RECOVERY FOR BORING 100%		18. SIGNATURE AND TITLE OF INSPECTOR Tom Powers, Geologist	
ELEV.	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS	SAMPLE	LABORATORY RESULTS		
-51.1	0.0						
			SAND, silty, mostly fine-grained sand-sized quartz, trace wood, trace thin clay lenses, medium to light gray (SM)	A	Classification: SM    Color: 2.5Y 5/1-gray D50: 0.225 mm    % Fines: 20.5		
-56.0	4.9						
			SAND, poorly-graded, mostly fine to medium-grained sand-sized quartz, lt. gray (SP)	B	Classification: SP    Color: 2.5Y 6/1-gray D50: 0.371 mm    % Fines: 3.2		
				C	Classification: SP    Color: 2.5Y 6/1-gray D50: 0.347 mm    % Fines: 2.7		
			At El. -66.1 Ft., few shell fragments to 16 ft.	D	Classification: SP    Color: 2.5Y 7/1-light gray D50: 0.373 mm    % Fines: 3.2		
-69.4	18.3						
-71.1	20.0		SAND, poorly-graded with silt, mostly fine to medium-grained sand-sized quartz, trace shell fragments, medium to light gray (SP-SM)	E	Classification: SP-SM    Color: 2.5Y 5/1-gray D50: 0.318 mm    % Fines: 9		
			NOTES: 1. Soils are field visually classified in accordance with the Unified Soils Classification System. 2. NS = Sample not submitted for laboratory analysis from this interval. 3. Seafloor elevation determined from 2013				

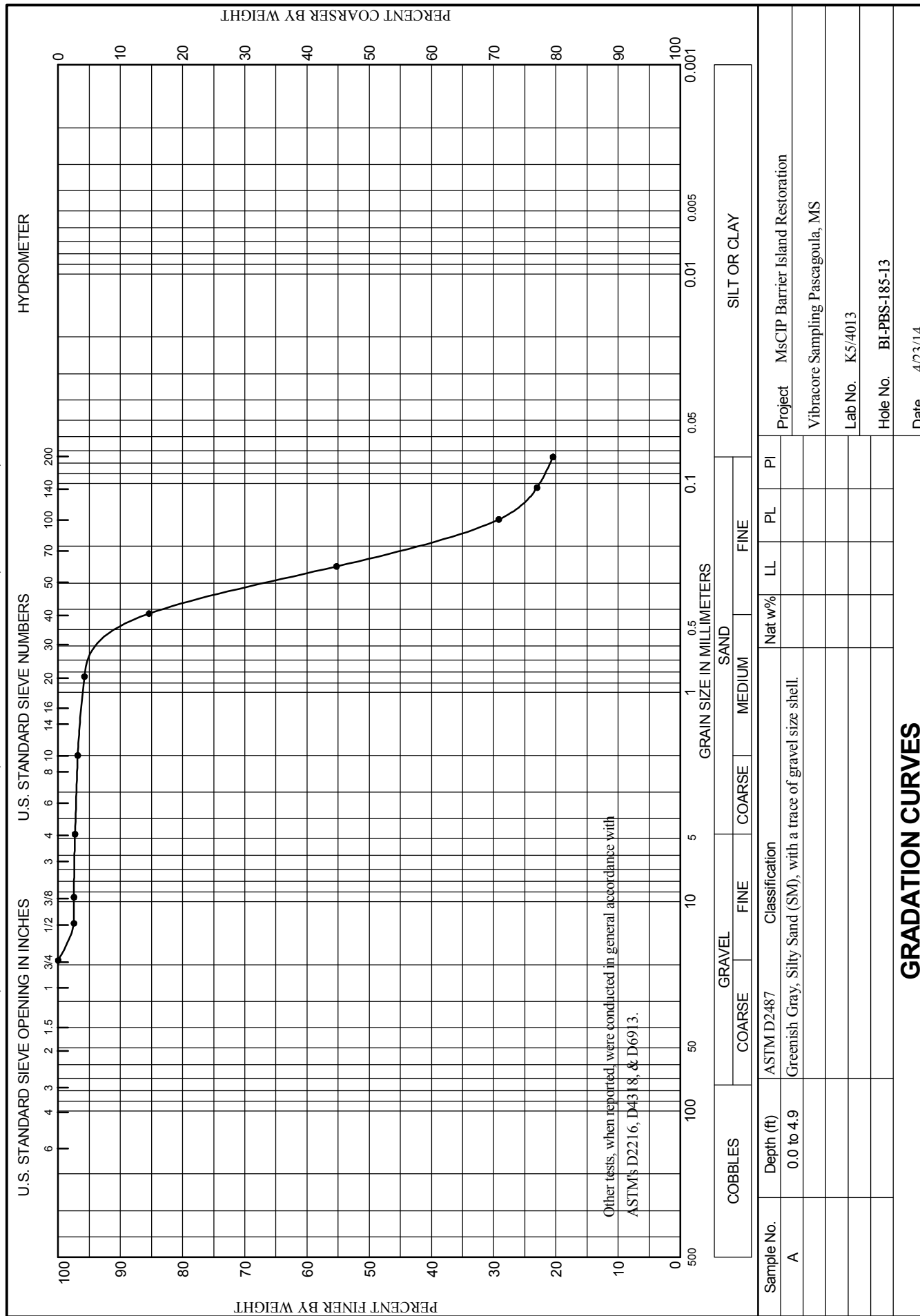


<b>DRILLING LOG (Cont. Sheet)</b>			<b>INSTALLATION</b> Mobile District		<b>SHEET 2</b>
					<b>OF 2 SHEETS</b>
<b>PROJECT</b> MsCIP Barrier Island Restoration			<b>COORDINATE SYSTEM/DATUM</b> State Plane, MSE (U.S. Ft.)	<b>HORIZONTAL</b> NAD83	<b>VERTICAL</b> NAVD88
<b>LOCATION COORDINATES</b> X = 1,110,875 Y = 236,914			<b>ELEVATION TOP OF BORING</b> -51.1 Ft.		
<b>ELEV.</b>	<b>DEPTH</b>	<b>LEGEND</b>	<b>CLASSIFICATION OF MATERIALS</b>	<b>SAMPLE</b>	<b>LABORATORY RESULTS</b>
			USGS geophysical survey.		



WORK ORDER: 848e

REQUISITION: W33SJG32900192

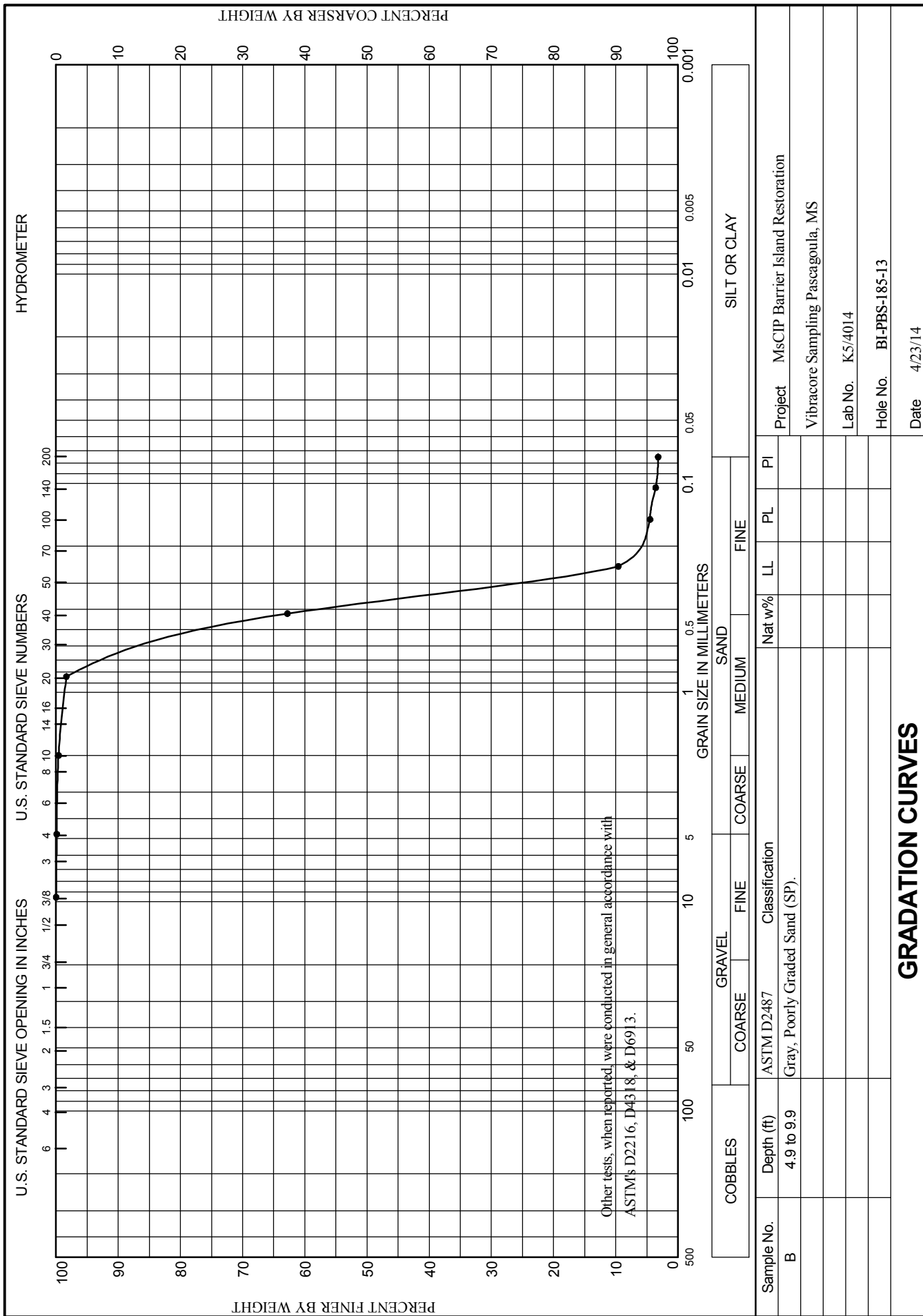




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WORK ORDER: 848e

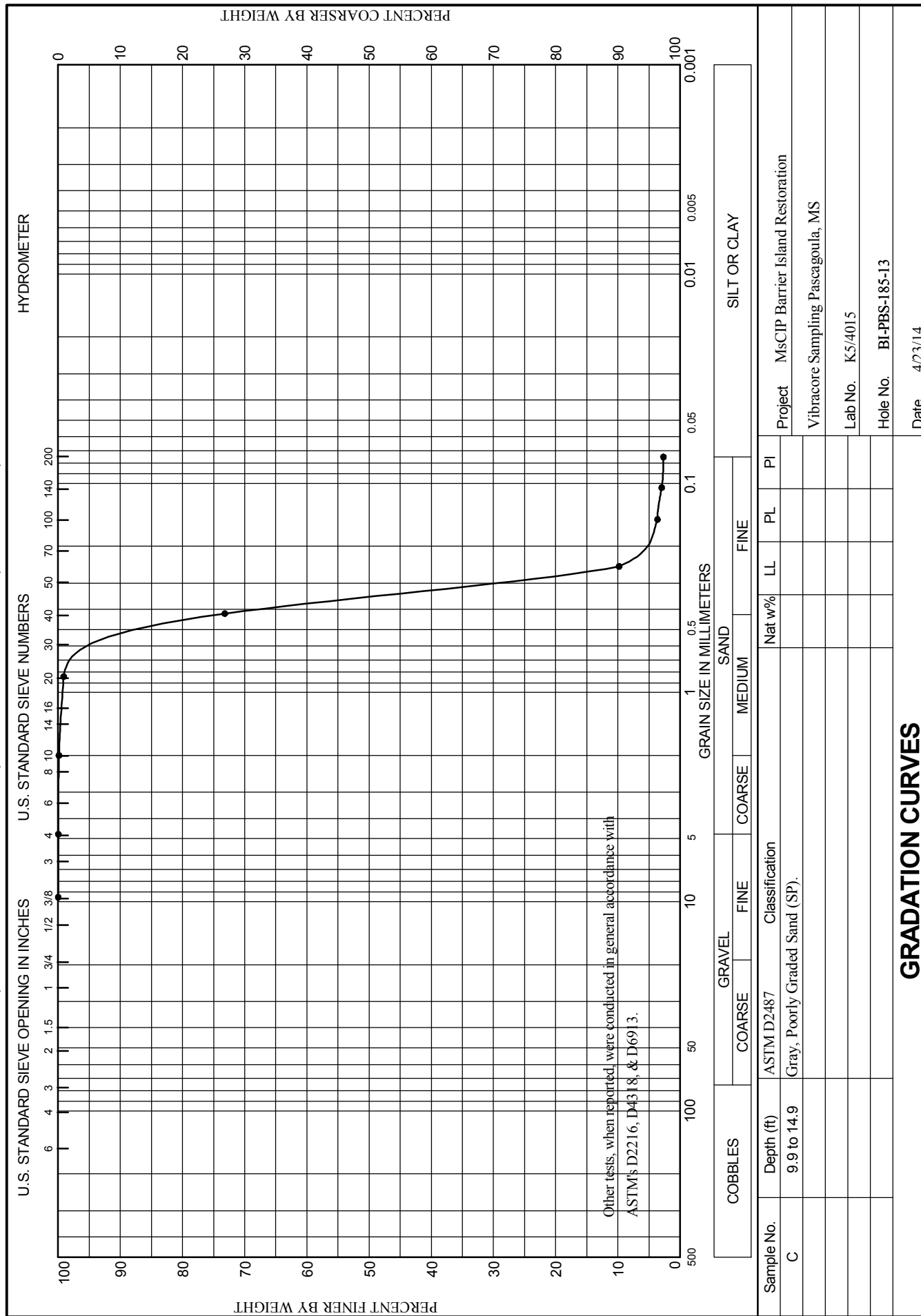
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WORK ORDER: 848e

REQUISITION: W33SJG32900192

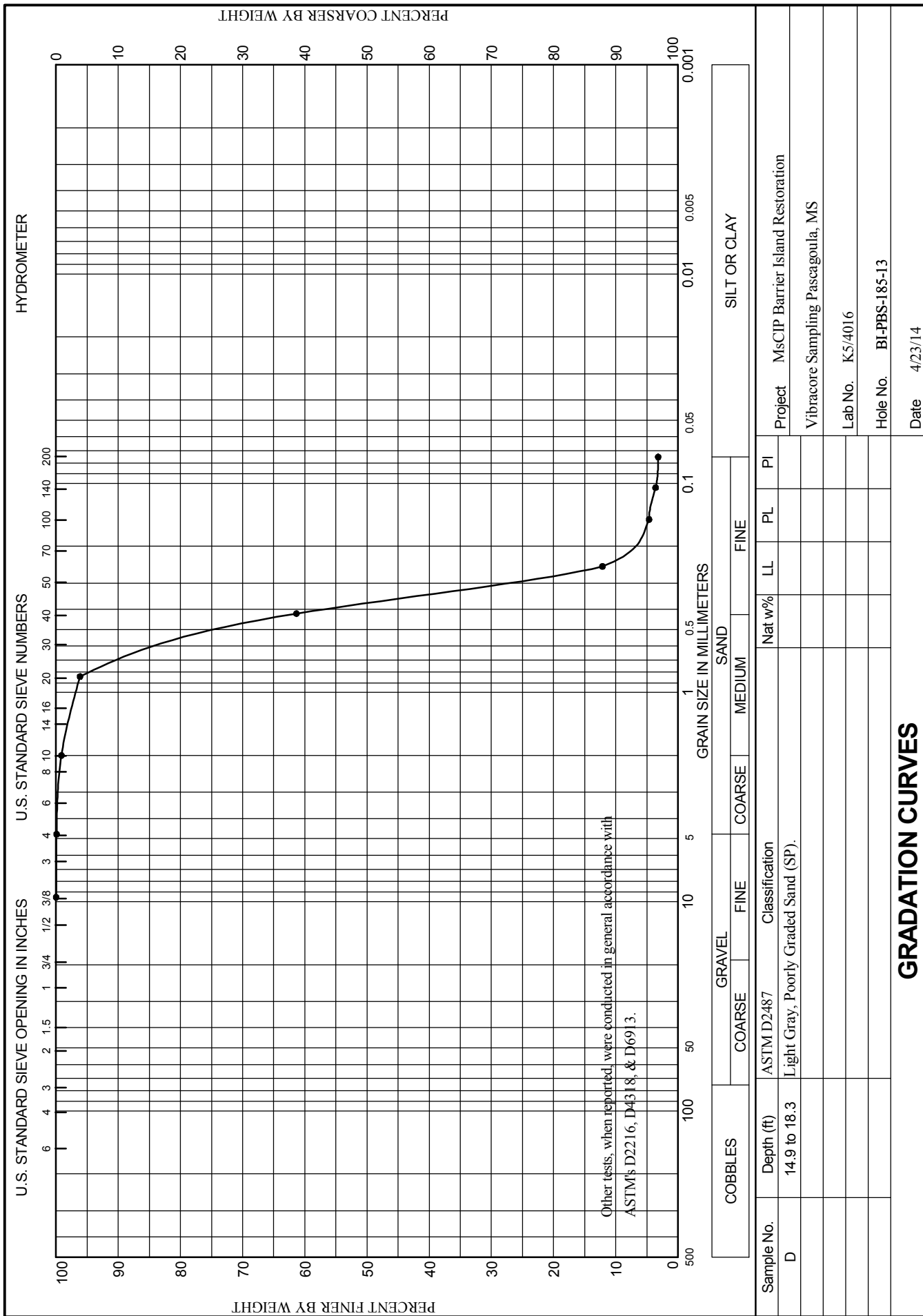




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WORK ORDER: 848e

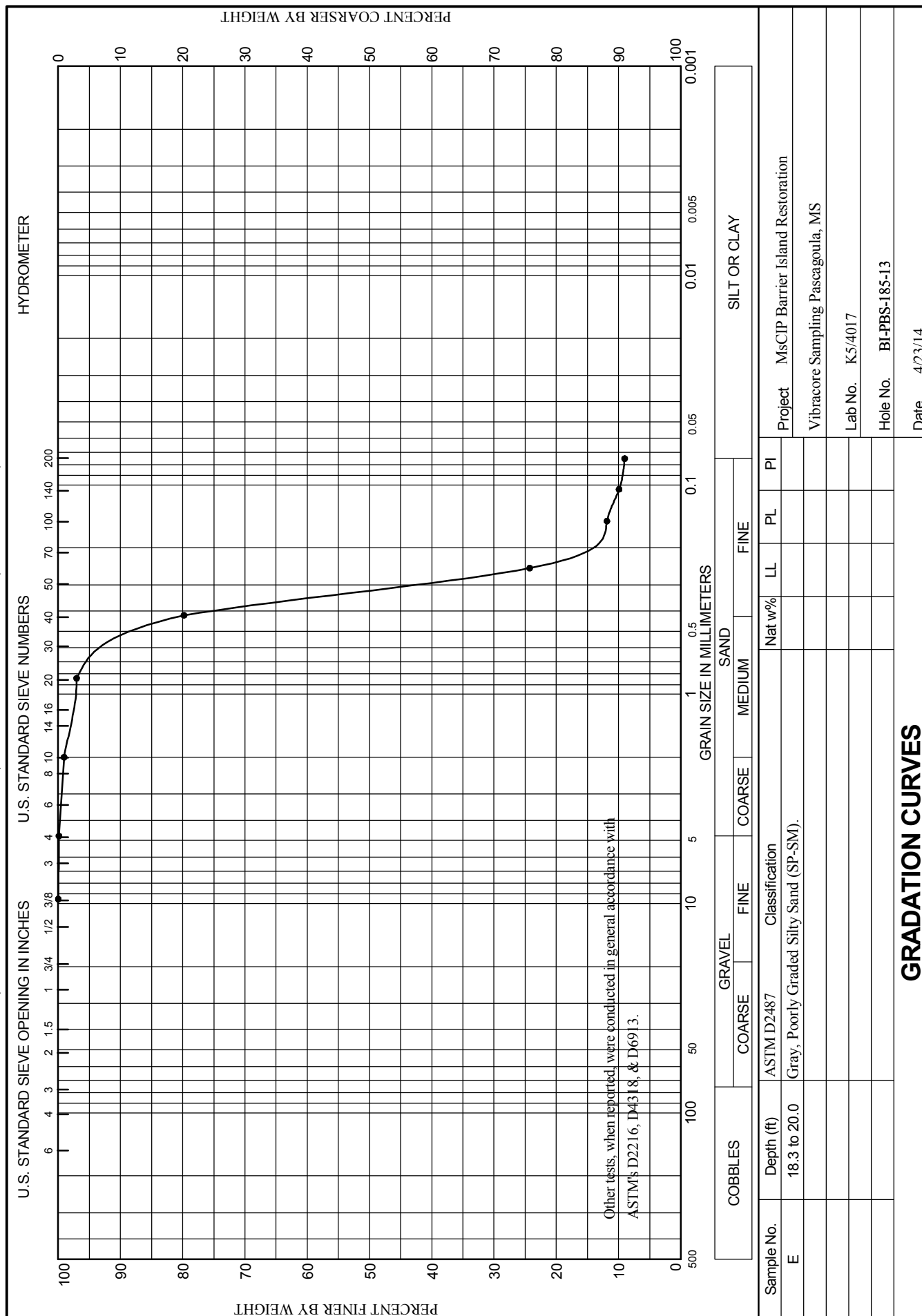
REQUISITION: W33SJC32900192





WORK ORDER: 848e

REQUISITION: W33SJG32900192



# Boring Designation BI-PBS-186-13

DRILLING LOG		DIVISION South Atlantic		INSTALLATION Mobile District		SHEET 1 OF 1 SHEETS	
1. PROJECT MsCIP Barrier Island Restoration Petit Bois Pass-OCS West				9. SIZE AND TYPE OF BIT N/A			
2. BORING DESIGNATION BI-PBS-186-13		LOCATION COORDINATES E = 1,108,889 N = 234,380		10. COORDINATE SYSTEM/DATUM State Plane, MSE (U.S. Ft.)		HORIZONTAL NAD83 VERTICAL NAVD88	
3. DRILLING AGENCY Corps of Engineers - CESAM		CONTRACTOR FILE NO.		11. MANUFACTURER'S DESIGNATION OF DRILL Vibrocure		<input type="checkbox"/> AUTO HAMMER <input type="checkbox"/> MANUAL HAMMER	
4. NAME OF DRILLER Construction Solutions International, Inc.				12. TOTAL SAMPLES 1		DISTURBED 1 UNDISTURBED (UD) 0	
5. DIRECTION OF BORING <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED		DEG. FROM VERTICAL		13. TOTAL NUMBER CORE BOXES			
		BEARING		14. WATER DEPTH 48.4 Ft.			
6. THICKNESS OF OVERBURDEN N/A				15. DATE BORING 12-18-13		STARTED 12-18-13 COMPLETED 12-18-13	
7. DEPTH DRILLED INTO ROCK N/A				16. ELEVATION TOP OF BORING -47.9 Ft.			
8. TOTAL DEPTH OF BORING 16.4 Ft.				17. TOTAL RECOVERY FOR BORING 100%			
				18. SIGNATURE AND TITLE OF INSPECTOR Tom Powers, Geologist			

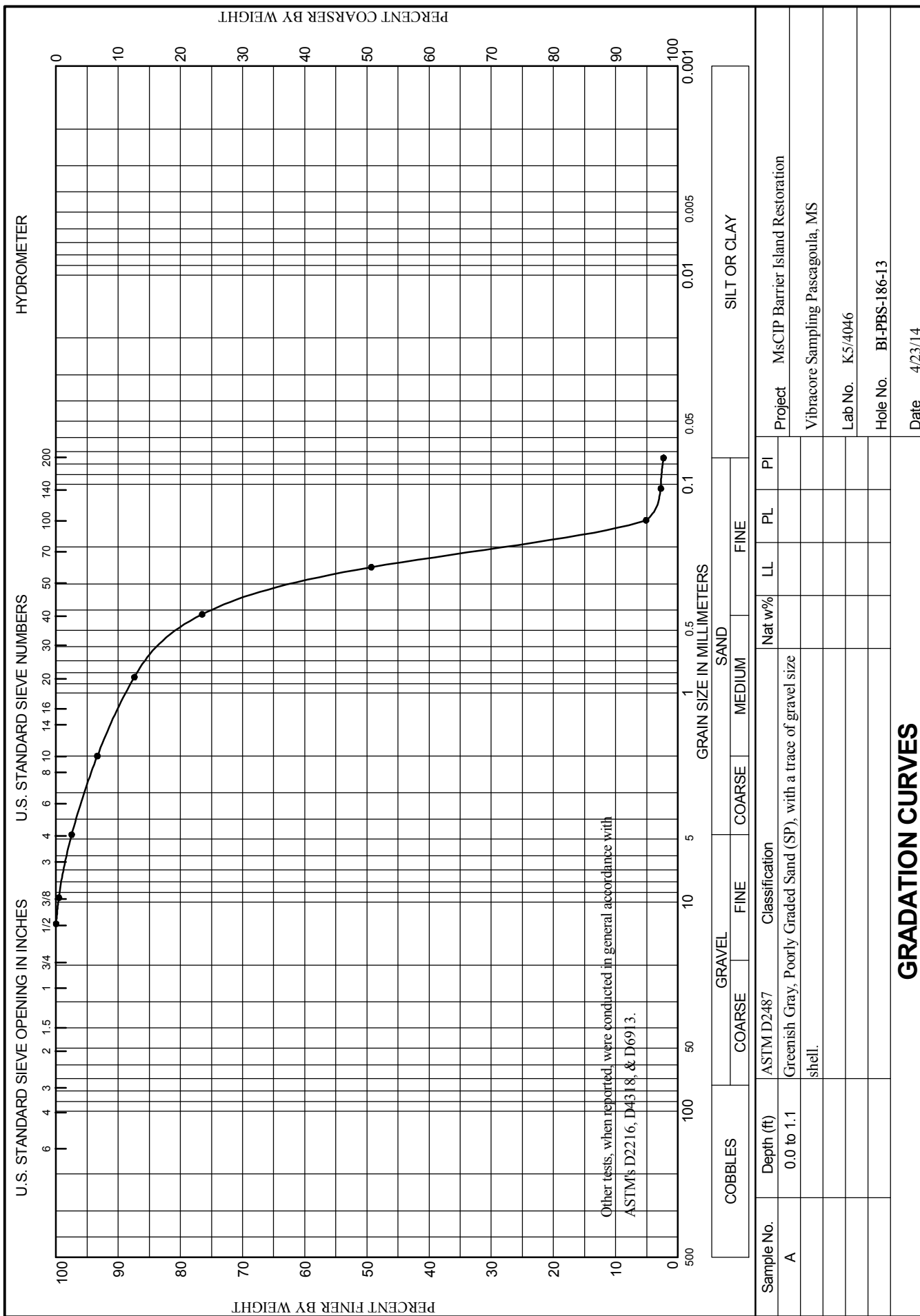
ELEV.	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS	SAMPLE	LABORATORY RESULTS
-47.9	0.0				
-49.0	1.1		SAND, poorly-graded, mostly fine to medium-grained sand-sized quartz, little shell fragments, lt. gray (SP)	A	Classification: SP Color: GLEY1 10Y 6/1- D50: 0.253 mm % Fines: 2.3
-49.7	1.8		SAND, clayey, mostly fine to medium-grained sand-sized quartz, little shell fragments, lt. to medium gray (SC)		
-52.1	4.2		CLAY, lean, little shell fragments, lt. and medium gray (CL)		
-53.4	5.5		SAND, clayey, mostly fine-grained sand-sized quartz, lt. and medium gray (SC)		
			CLAY, lean, sandy, lt. and medium gray and pale orange (CL)	NS	
-63.8	15.9				
-64.3	16.4		SAND, poorly-graded with silt, mostly fine-grained sand-sized quartz, medium gray (SP-SM)		
			NOTES:		
			1. Soils are field visually classified in accordance with the Unified Soils Classification System.		
			2. NS = Sample not submitted for laboratory analysis from this interval.		
			3. Seafloor elevation determined from 2013 USGS geophysical survey.		



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WORK ORDER: 848e

REQUISITION: W33SJC32900192





# Boring Designation BI-PBS-188-13

DRILLING LOG		DIVISION South Atlantic		INSTALLATION Mobile District		SHEET 1 OF 1 SHEETS	
1. PROJECT MsCIP Barrier Island Restoration Petit Bois Pass-OCS West				9. SIZE AND TYPE OF BIT N/A			
2. BORING DESIGNATION BI-PBS-188-13		LOCATION COORDINATES E = 1,102,609 N = 230,242		10. COORDINATE SYSTEM/DATUM State Plane, MSE (U.S. Ft.)		HORIZONTAL NAD83	
3. DRILLING AGENCY Corps of Engineers - CESAM		CONTRACTOR FILE NO.		11. MANUFACTURER'S DESIGNATION OF DRILL Vibrocure		<input type="checkbox"/> AUTO HAMMER <input type="checkbox"/> MANUAL HAMMER	
4. NAME OF DRILLER Construction Solutions International, Inc.				12. TOTAL SAMPLES		DISTURBED 3	
5. DIRECTION OF BORING <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED				13. TOTAL NUMBER CORE BOXES		UNDISTURBED (UD) 0	
6. THICKNESS OF OVERBURDEN N/A				14. WATER DEPTH		48.1 Ft.	
7. DEPTH DRILLED INTO ROCK N/A				15. DATE BORING		STARTED 01-18-14	
8. TOTAL DEPTH OF BORING 18.8 Ft.				16. ELEVATION TOP OF BORING		COMPLETED 01-18-14	
				17. TOTAL RECOVERY FOR BORING		100%	
				18. SIGNATURE AND TITLE OF INSPECTOR		Mike FitzHarris, Geologist	

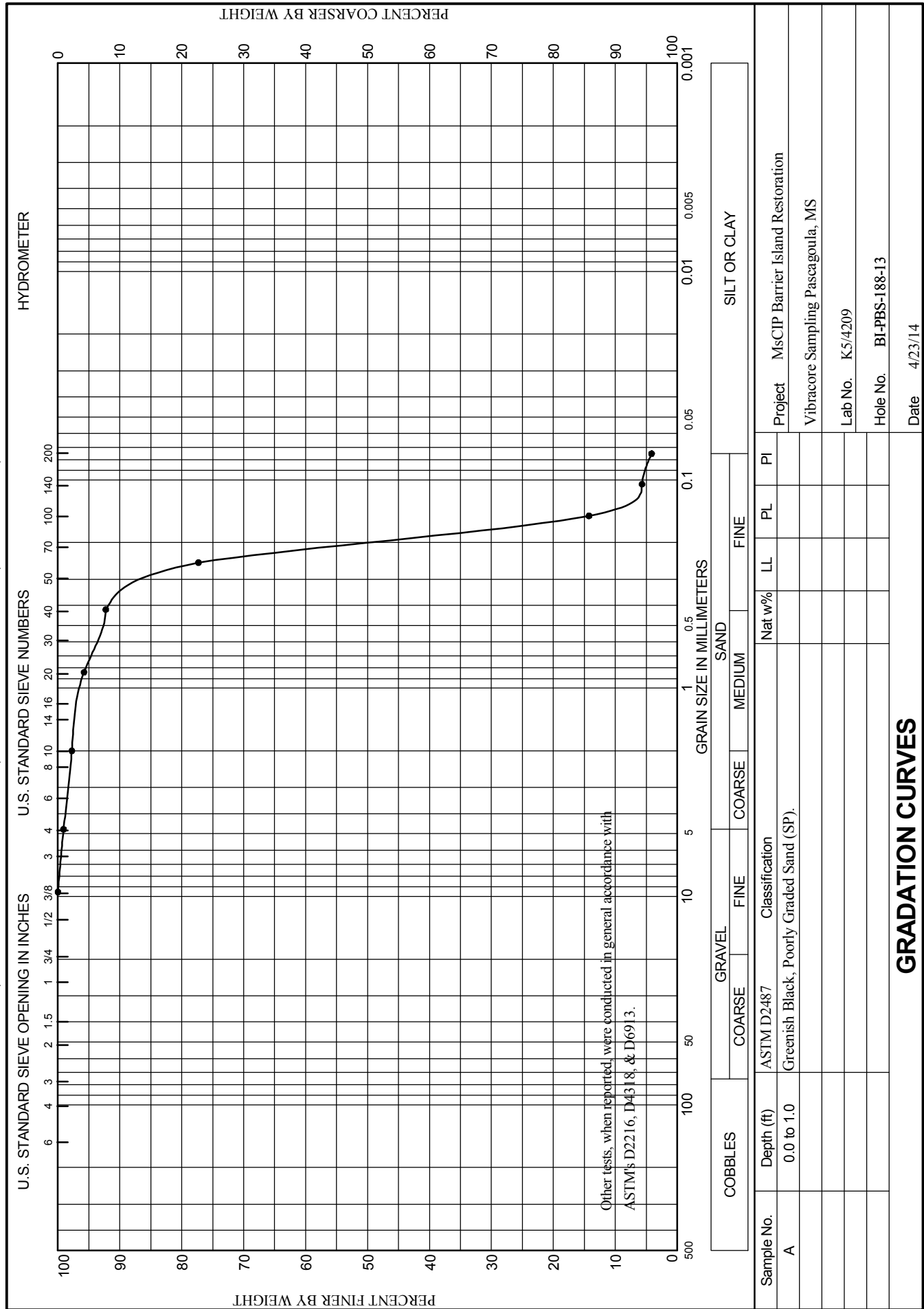
ELEV.	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS	SAMPLE	LABORATORY RESULTS
-48.6	0.0				
-49.6	1.0		SAND, poorly-graded, mostly fine-grained sand-sized quartz, trace shell, gray (SP)	A	Classification: SP Color: GLEY1 10Y 6/1- D50: 0.2 mm % Fines: 4.1
-51.0	2.4		SAND, poorly-graded with silt, mostly fine-grained sand-sized quartz, trace shell, gray (SP-SM)	B	Classification: SM Color: 2.5Y 5/1-gray D50: 0.163 mm % Fines: 13.7
-51.6	3.0		SAND, silty, mostly fine-grained sand-sized quartz, trace clay, gray (SM)		
-54.8	6.2		CLAY, lean, some fine-grained sand, trace shell, gray (CL)		
-59.0	10.4		CLAY, fat, trace sand, gray with brown, mottled (CH)	NS	
-67.4	18.8		SAND, poorly-graded, mostly fine-grained sand-sized quartz, oxidation stains, lt. brown (SP)		
			At El. -61.2 Ft., mostly fine-grained sand-sized quartz, high quality sand, lt. gray to gray	C	Classification: SP Color: 2.5Y 7/2-light gray D50: 0.216 mm % Fines: 3.4
				NS	
NOTES:					
1. Soils are field visually classified in accordance with the Unified Soils Classification System.					
2. NS = Sample not submitted for laboratory analysis from this interval.					
3. Seafloor elevation calculated using sampling vessel's fathometer water depth reading and applying NOAA tidal gauge data conversion factor.					



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WORK ORDER: 848e

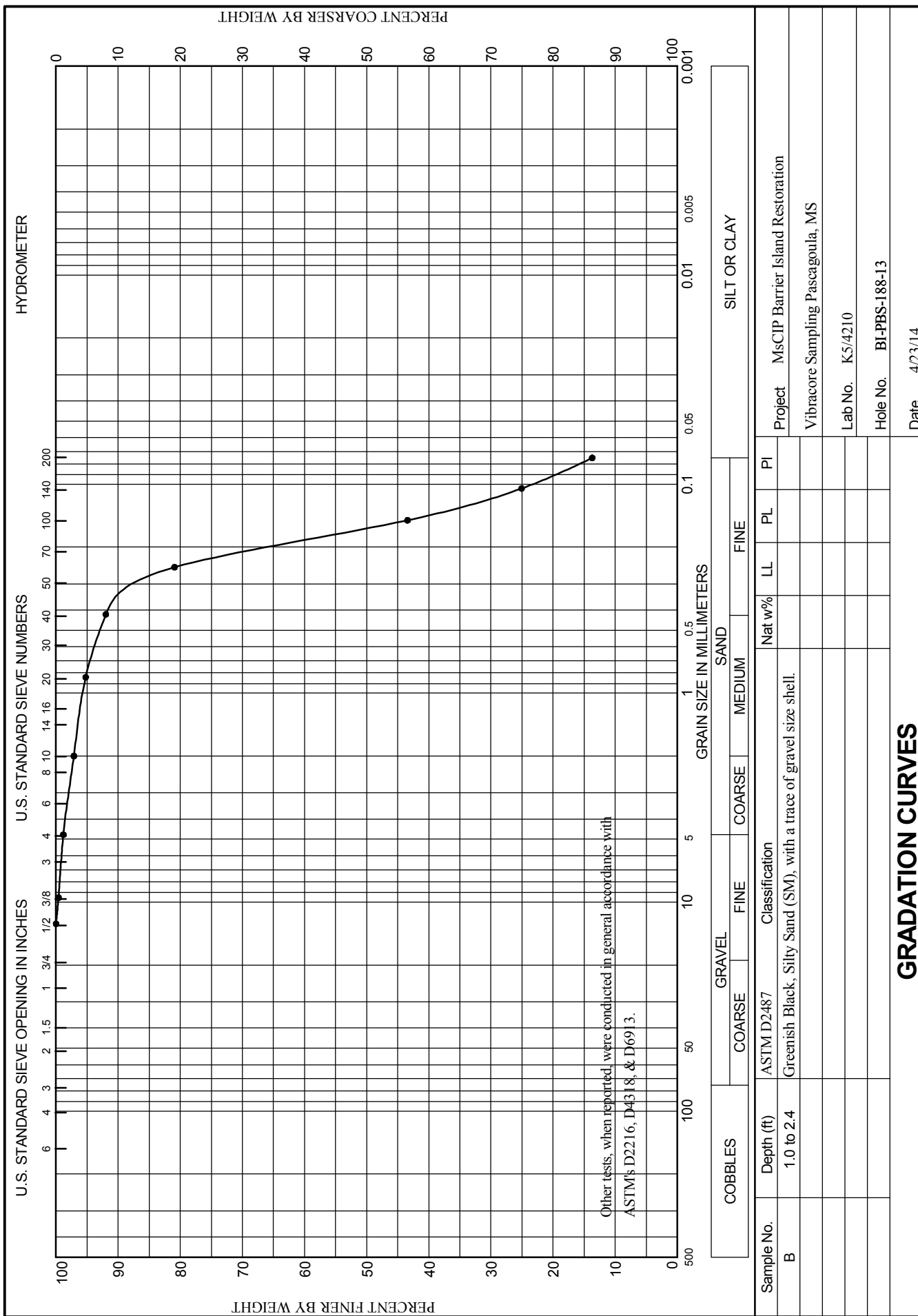
REQUISITION: W33SJC32900192





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WORK ORDER: 848e  
REQUISITION: W33SJC32900192

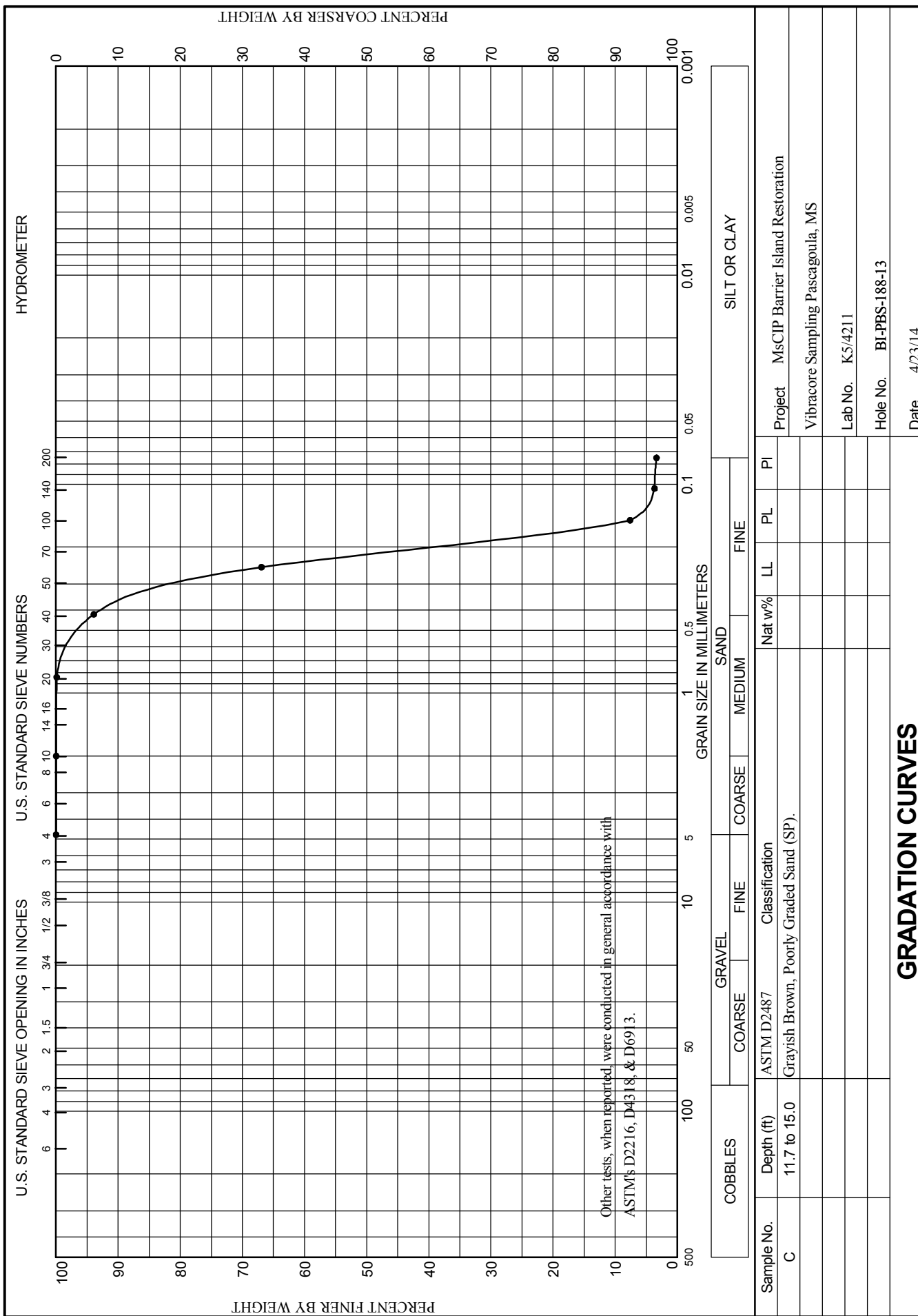




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CORPS OF ENGINEERS, 200 N. COBB PARKWAY, BLDG 400 SUITE 404, MARIETTA, GA. 30062

WORK ORDER: 848e

REQUISITION: W33SJG32900192



# Boring Designation BI-PBS-190-13

DRILLING LOG		DIVISION South Atlantic		INSTALLATION Mobile District		SHEET 1 OF 1 SHEETS	
1. PROJECT MsCIP Barrier Island Restoration Petit Bois Pass-OCS West				9. SIZE AND TYPE OF BIT N/A			
2. BORING DESIGNATION BI-PBS-190-13		LOCATION COORDINATES E = 1,113,398 N = 234,752		10. COORDINATE SYSTEM/DATUM State Plane, MSE (U.S. Ft.)		HORIZONTAL NAD83	
3. DRILLING AGENCY Corps of Engineers - CESAM		CONTRACTOR FILE NO.		11. MANUFACTURER'S DESIGNATION OF DRILL Vibrocure		<input type="checkbox"/> AUTO HAMMER <input type="checkbox"/> MANUAL HAMMER	
4. NAME OF DRILLER Construction Solutions International, Inc.				12. TOTAL SAMPLES 5		DISTURBED 0	
5. DIRECTION OF BORING <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED				13. TOTAL NUMBER CORE BOXES		14. WATER DEPTH 51.3 Ft.	
6. THICKNESS OF OVERBURDEN N/A				15. DATE BORING 12-09-13		STARTED 12-09-13	
7. DEPTH DRILLED INTO ROCK N/A				16. ELEVATION TOP OF BORING -49.3 Ft.		COMPLETED 12-09-13	
8. TOTAL DEPTH OF BORING 17.3 Ft.				17. TOTAL RECOVERY FOR BORING 100%			
				18. SIGNATURE AND TITLE OF INSPECTOR Tom Powers, Geologist			
ELEV.	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS	SAMPLE	LABORATORY RESULTS		
-49.3	0.0						
			SAND, poorly-graded, mostly fine to medium-grained sand-sized quartz, lt. gray (SP) At El. -50.7 Ft., fine-grained sand	A	Classification: SP Color: GLEY1 10Y 7/1- D50: 0.368 mm % Fines: 1.5		
-52.3	3.0						
-52.5	3.2		SAND, silty, mostly fine-grained sand-sized quartz, lt. to medium gray (SM)	B	Classification: SM Color: 2.5Y 7/1-light gray D50: 0.238 mm % Fines: 13.8		
-53.9	4.6		SAND, silty, clayey, mostly fine-grained sand-sized quartz, lt. to medium gray (SC-SM)				
			SAND, poorly-graded, mostly fine-grained sand-sized quartz, lt. to medium gray (SP) At El. -54.6 Ft., trace silty sand and wood At El. -54.9 Ft., discontinue silty sand and wood	C	Classification: SP Color: 2.5Y 6/1-gray D50: 0.308 mm % Fines: 2.6		
				D	Classification: SP Color: 2.5Y 7/1-light gray D50: 0.314 mm % Fines: 2.9		
				E	Classification: SP Color: 2.5Y 7/1-light gray D50: 0.337 mm % Fines: 2.2		
-66.6	17.3						
NOTES: 1. Soils are field visually classified in accordance with the Unified Soils Classification System. 2. NS = Sample not submitted for laboratory analysis from this interval. 3. Seafloor elevation determined from 12/17/2014 USACE survey.							

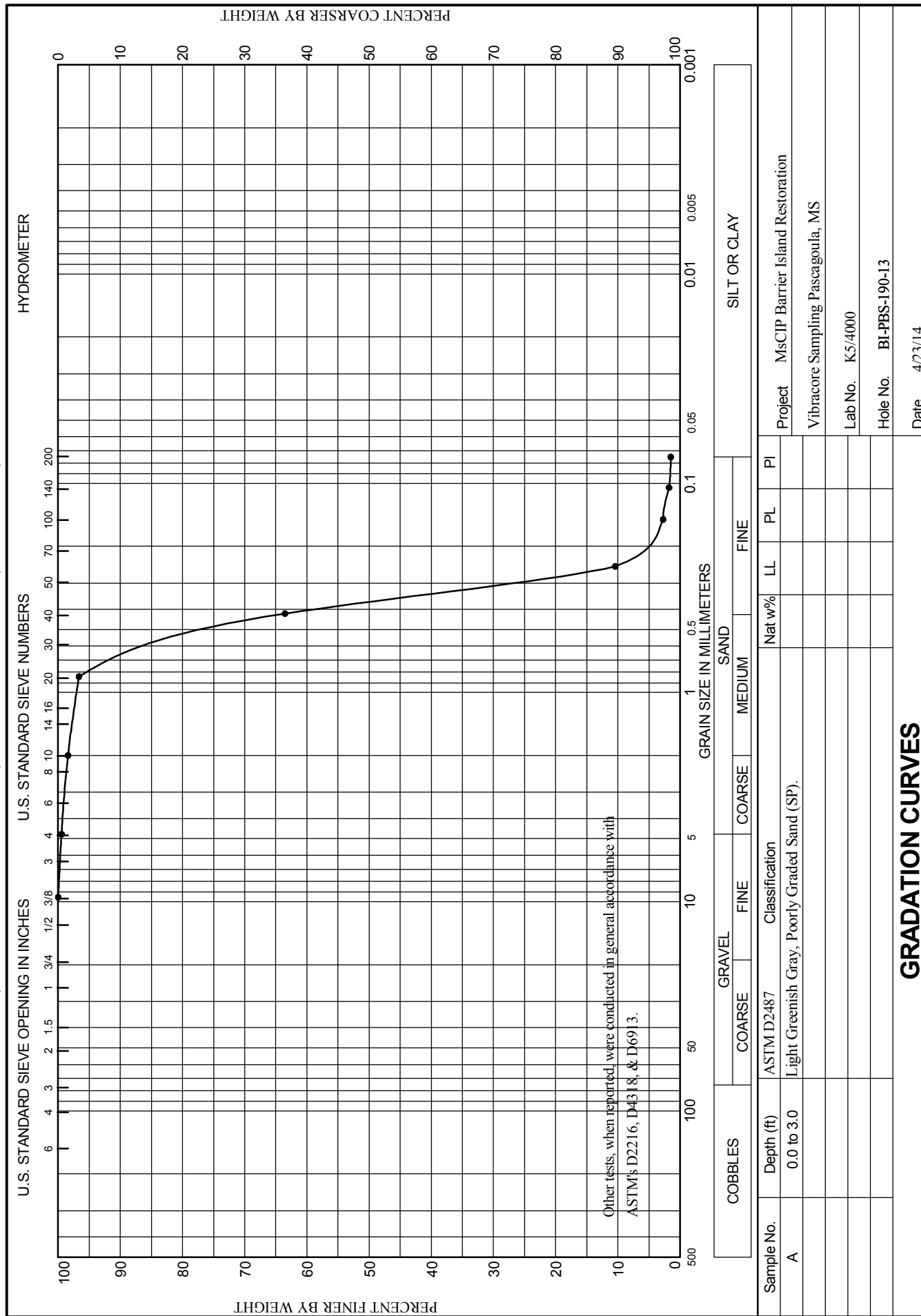
# Boring Designation BI-PBS-190-13

DRILLING LOG		DIVISION South Atlantic		INSTALLATION Mobile District		SHEET 1 OF 1 SHEETS	
1. PROJECT Barrier Island Restoration Petit Bois Island South				9. SIZE AND TYPE OF BIT N/A			
2. BORING DESIGNATION BI-PBS-190-13		LOCATION COORDINATES E = 1,113,398 N = 234,752		10. COORDINATE SYSTEM/DATUM State Plane, MSE (U.S. Ft.)		HORIZONTAL NAD83	
3. DRILLING AGENCY Corps of Engineers - CESAM		CONTRACTOR FILE NO.		11. MANUFACTURER'S DESIGNATION OF DRILL Vibrocure		<input type="checkbox"/> AUTO HAMMER <input type="checkbox"/> MANUAL HAMMER	
4. NAME OF DRILLER Construction Solutions International, Inc.				12. TOTAL SAMPLES		DISTURBED 5	
5. DIRECTION OF BORING <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED				13. TOTAL NUMBER CORE BOXES		UNDISTURBED (UD) 0	
6. THICKNESS OF OVERBURDEN N/A				14. WATER DEPTH		51.3 Ft.	
7. DEPTH DRILLED INTO ROCK N/A				15. DATE BORING		STARTED 12-09-13 COMPLETED 12-09-13	
8. TOTAL DEPTH OF BORING 17.3 Ft.				16. ELEVATION TOP OF BORING -49.3 Ft.		17. TOTAL RECOVERY FOR BORING 100%	
				18. SIGNATURE AND TITLE OF INSPECTOR Tom Powers, Geologist			
ELEV.	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS	SAMPLE	LABORATORY RESULTS		
-49.3	0.0						
			SAND, poorly-graded, mostly fine to medium-grained sand-sized quartz, lt. gray (SP) At El. -50.7 Ft., fine-grained sand	A	Classification: SP Color: GLEY1 10Y 7/1- D50: 0.368 mm % Fines: 1.5		
-52.3	3.0						
-52.5	3.2		SAND, silty, mostly fine-grained sand-sized quartz, lt. to medium gray (SM)	B	Classification: SM Color: 2.5Y 7/1-light gray D50: 0.238 mm % Fines: 13.8		
-53.9	4.6		SAND, silty, clayey, mostly fine-grained sand-sized quartz, lt. to medium gray (SC-SM)				
			SAND, poorly-graded, mostly fine-grained sand-sized quartz, lt. to medium gray (SP) At El. -54.6 Ft., trace silty sand and wood At El. -54.9 Ft., discontinue silty sand and wood	C	Classification: SP Color: 2.5Y 6/1-gray D50: 0.308 mm % Fines: 2.6		
				D	Classification: SP Color: 2.5Y 7/1-light gray D50: 0.314 mm % Fines: 2.9		
				E	Classification: SP Color: 2.5Y 7/1-light gray D50: 0.337 mm % Fines: 2.2		
-66.6	17.3						
NOTES: 1. Soils are field visually classified in accordance with the Unified Soils Classification System. 2. NS = Sample not submitted for laboratory analysis from this interval. 3. Seafloor elevation determined from 12/17/2014 USACE survey.							



WORK ORDER: 848e

REQUISITION: W33SJG32900192

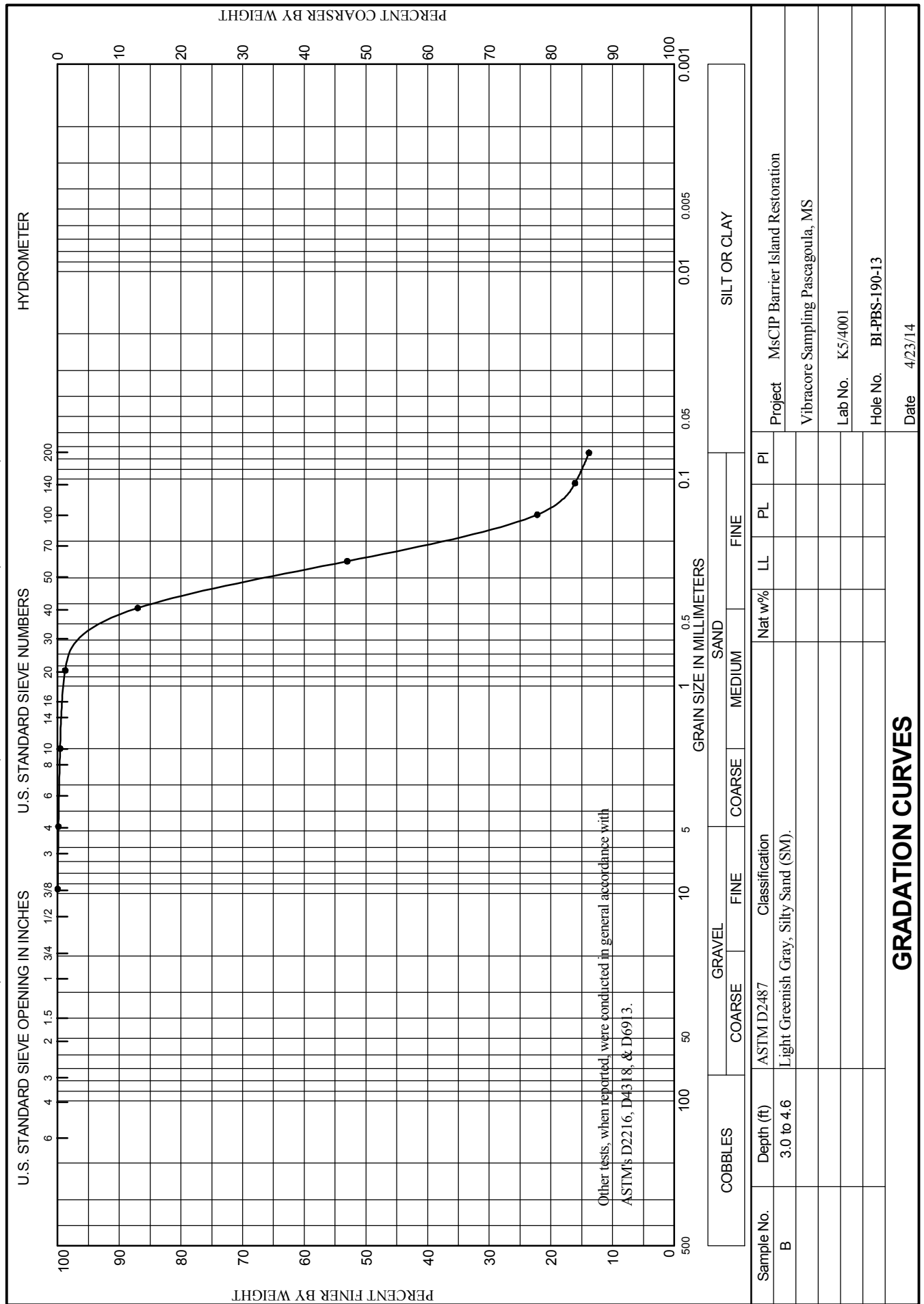




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WORK ORDER: 848e

REQUISITION: W33SJC32900192



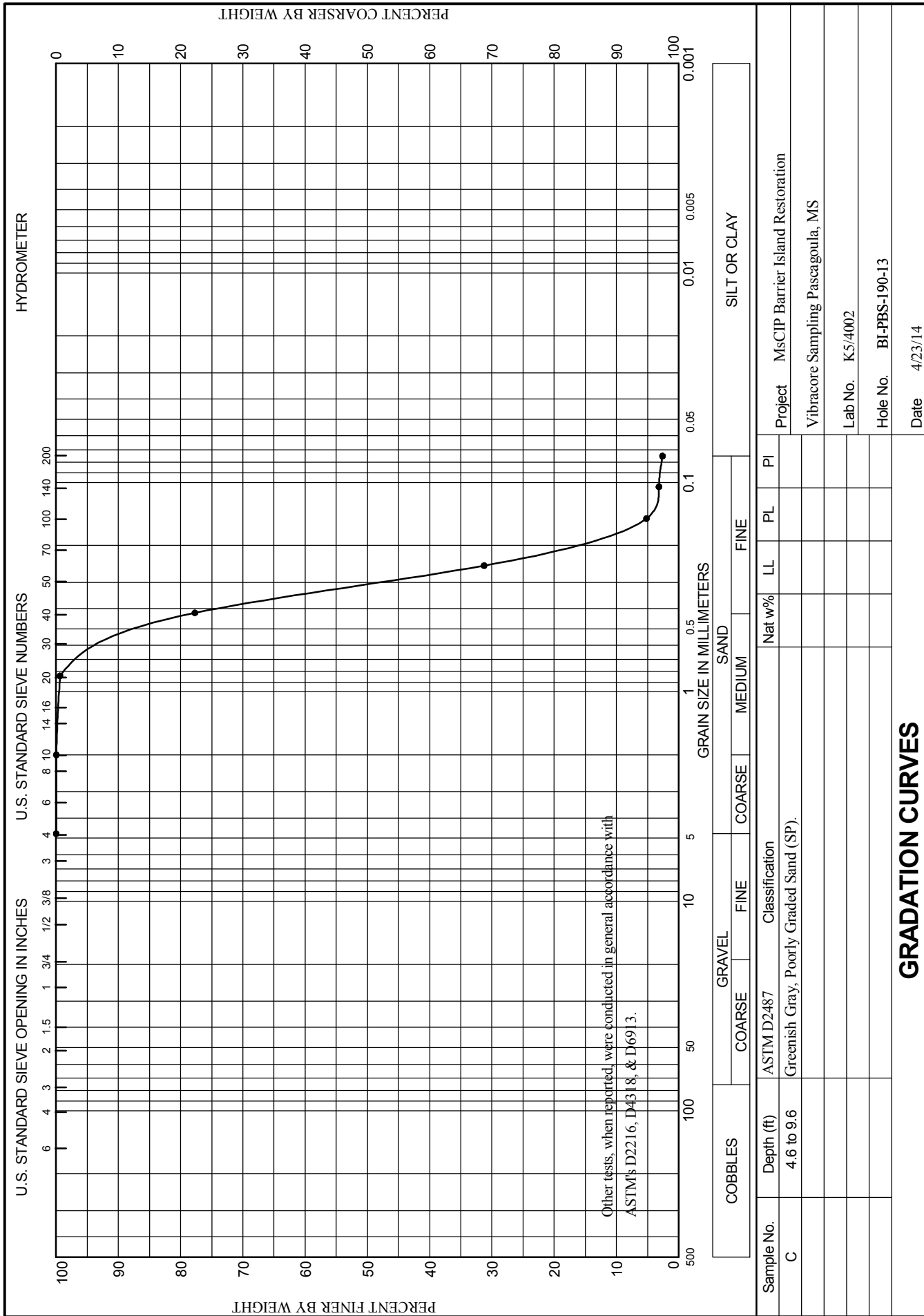




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WORK ORDER: 848e

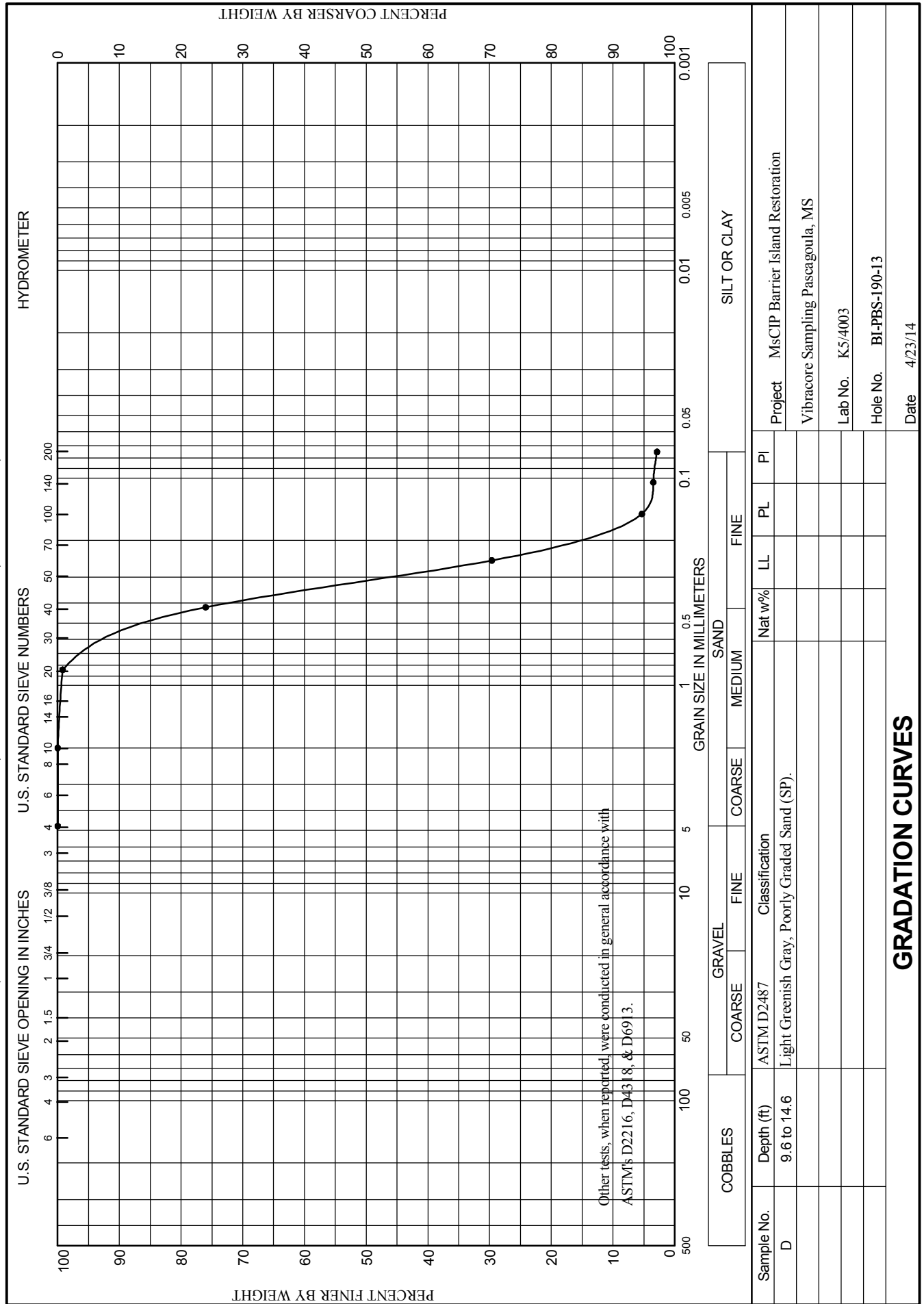
REQUISITION: W33SJC32900192





WORK ORDER: 848e

REQUISITION: W33SJG32900192

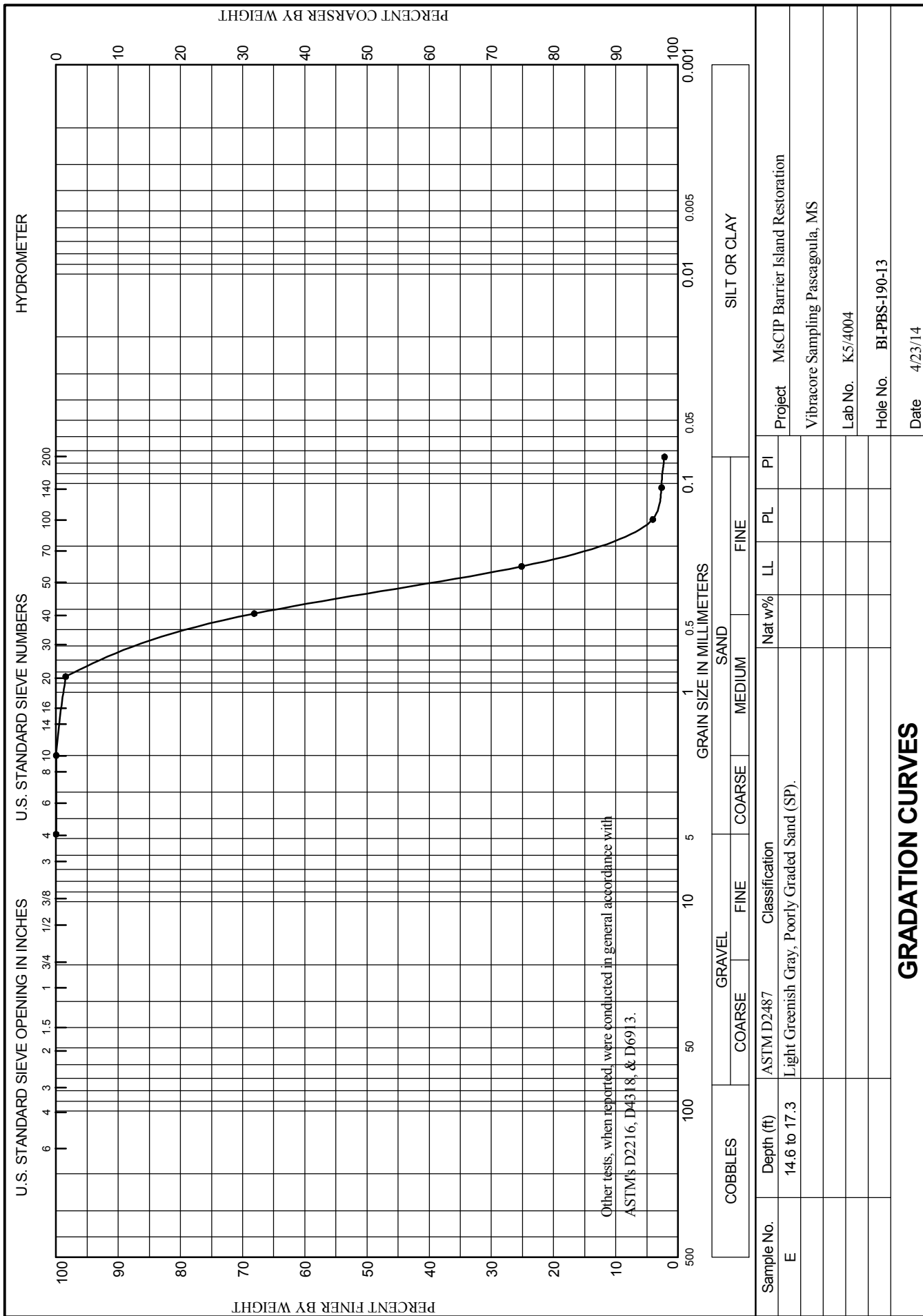




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WORK ORDER: 848e

REQUISITION: W33SJC32900192



# Boring Designation BI-PBS-194-13

DRILLING LOG		DIVISION South Atlantic		INSTALLATION Mobile District		SHEET 1 OF 1 SHEETS	
1. PROJECT MsCIP Barrier Island Restoration Petit Bois Pass-OCS West				9. SIZE AND TYPE OF BIT N/A			
2. BORING DESIGNATION BI-PBS-194-13		LOCATION COORDINATES E = 1,114,658 N = 234,222		10. COORDINATE SYSTEM/DATUM State Plane, MSE (U.S. Ft.)		HORIZONTAL NAD83 VERTICAL NAVD88	
3. DRILLING AGENCY Corps of Engineers - CESAM		CONTRACTOR FILE NO.		11. MANUFACTURER'S DESIGNATION OF DRILL Vibrocure		<input type="checkbox"/> AUTO HAMMER <input type="checkbox"/> MANUAL HAMMER	
4. NAME OF DRILLER Construction Solutions International, Inc.				12. TOTAL SAMPLES 4		DISTURBED 4 UNDISTURBED (UD) 0	
5. DIRECTION OF BORING <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED		DEG. FROM VERTICAL		13. TOTAL NUMBER CORE BOXES			
		BEARING		14. WATER DEPTH 51 Ft.			
6. THICKNESS OF OVERBURDEN N/A				15. DATE BORING 12-09-13		STARTED 12-09-13 COMPLETED 12-09-13	
7. DEPTH DRILLED INTO ROCK N/A				16. ELEVATION TOP OF BORING -49.8 Ft.			
8. TOTAL DEPTH OF BORING 14.4 Ft.				17. TOTAL RECOVERY FOR BORING 100%			
				18. SIGNATURE AND TITLE OF INSPECTOR Tom Powers, Geologist			
ELEV.	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS	SAMPLE	LABORATORY RESULTS		
-49.8	0.0						
-51.3	1.5		SAND, poorly-graded, mostly fine to medium-grained sand-sized quartz, little shell, lt. gray (SP)	A	Classification: SP Color: 2.5Y 7/1-light gray D50: 0.427 mm % Fines: 1.1		
-55.0	5.2		SAND, silty, mostly fine-grained sand-sized quartz, medium gray (SM)	B	Classification: SM Color: 2.5Y 5/1-gray D50: 0.233 mm % Fines: 13.2		
			SAND, poorly-graded, mostly fine to medium-grained sand-sized quartz, medium gray (SP)	C	Classification: SP Color: 2.5Y 6/1-gray D50: 0.335 mm % Fines: 3.9		
-64.2	14.4			D	Classification: SP Color: 2.5Y 7/1-light gray D50: 0.326 mm % Fines: 3		
			NOTES: 1. Soils are field visually classified in accordance with the Unified Soils Classification System. 2. NS = Sample not submitted for laboratory analysis from this interval. 3. Seafloor elevation determined from 12/17/2014 USACE survey.				



WORK ORDER: 848e

REQUISITION: W33SJG32900192

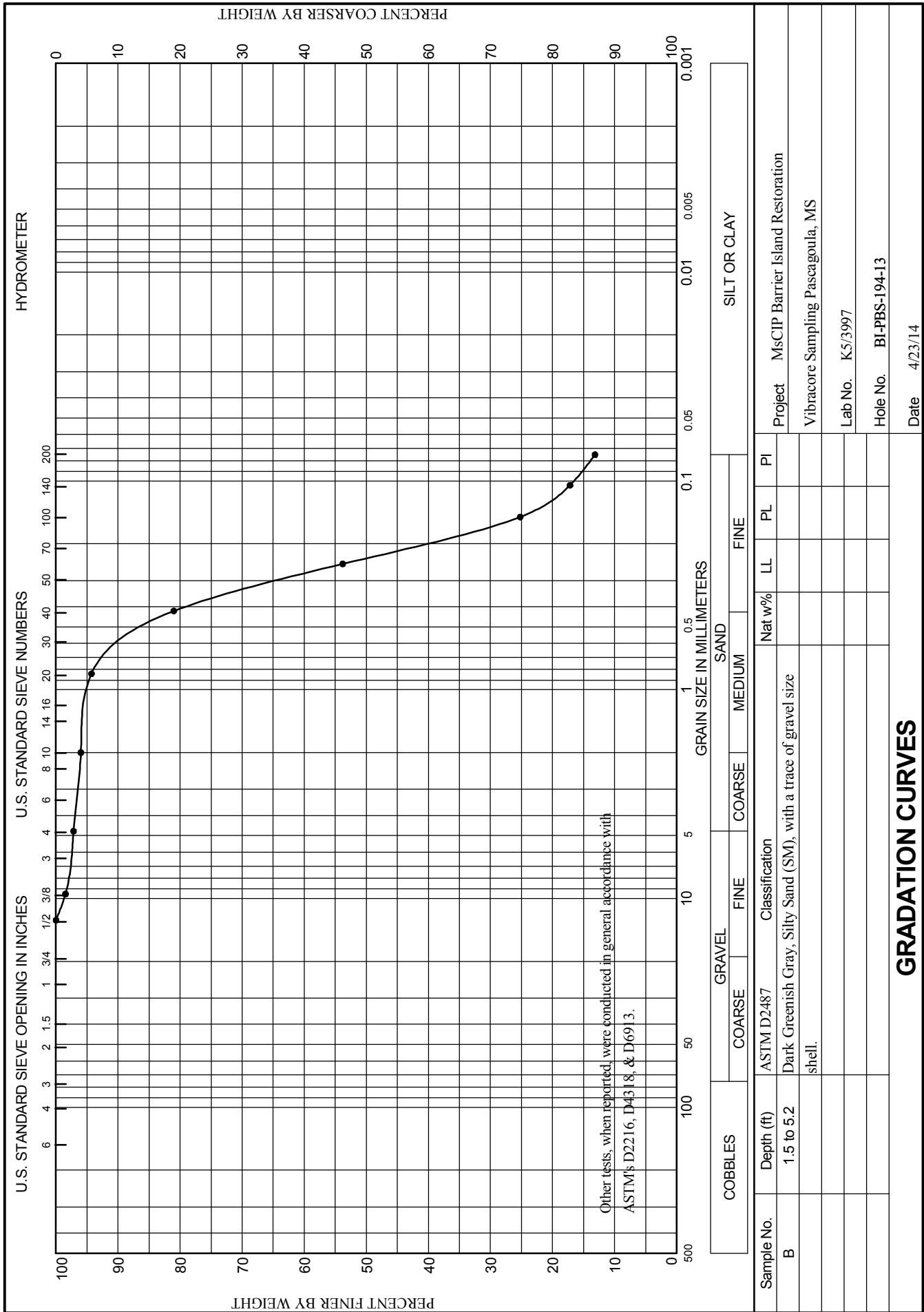




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WORK ORDER: 848e

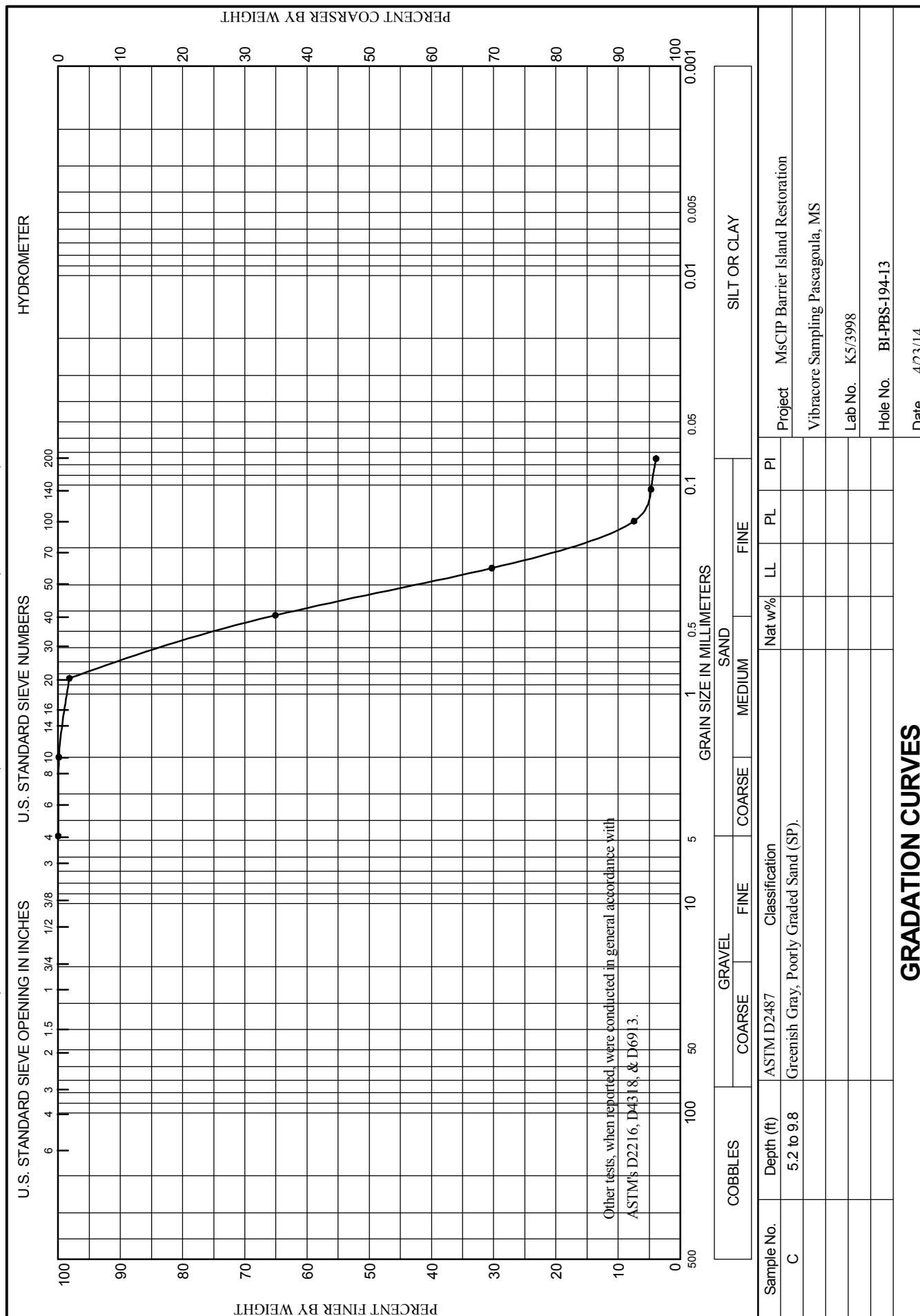
REQUISITION: W33SJC32900192





WORK ORDER: 848e

REQUISITION: W33SJG32900192

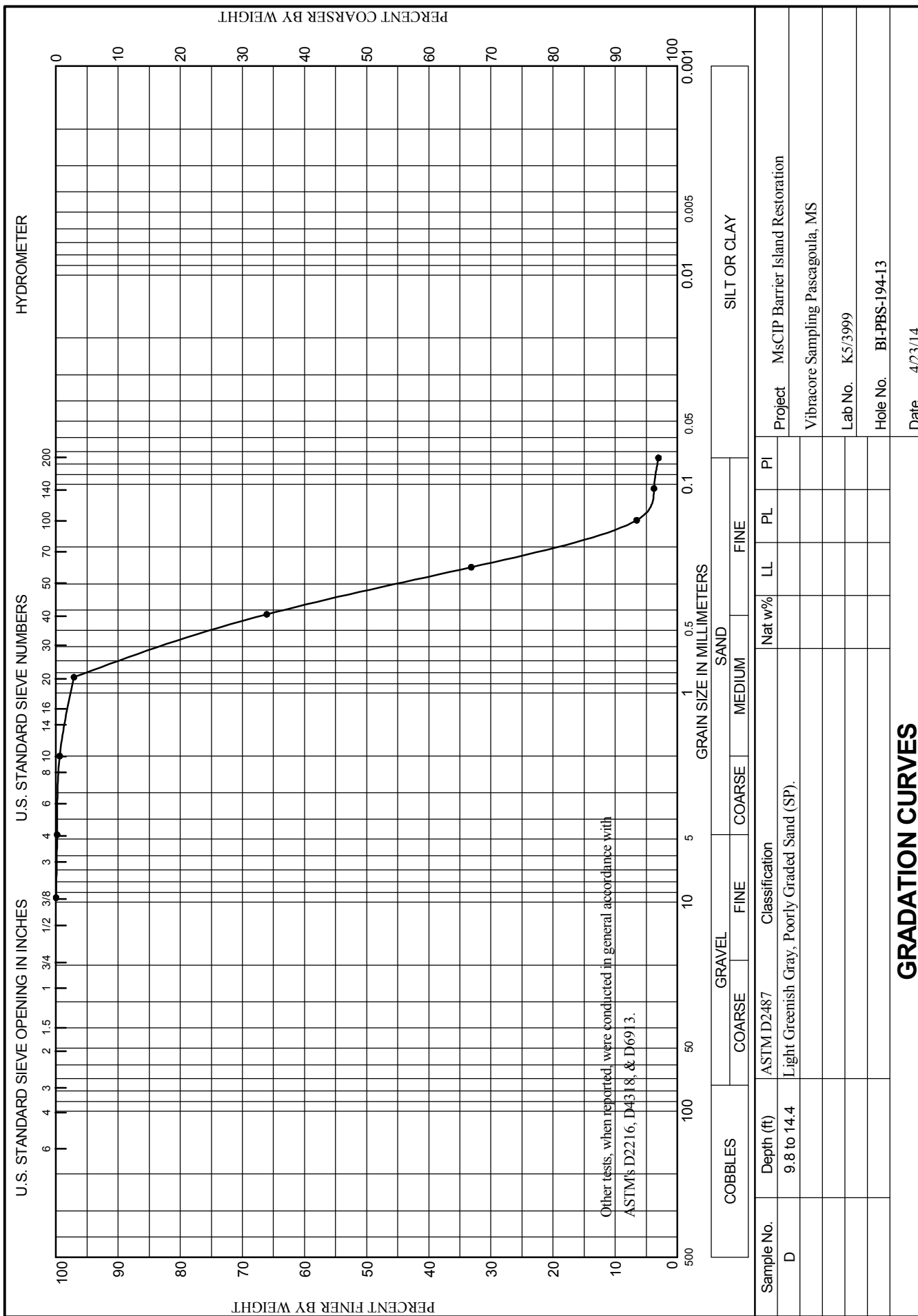




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WORK ORDER: 848e

REQUISITION: W33SJC32900192





# Boring Designation BI-PBS-195-13

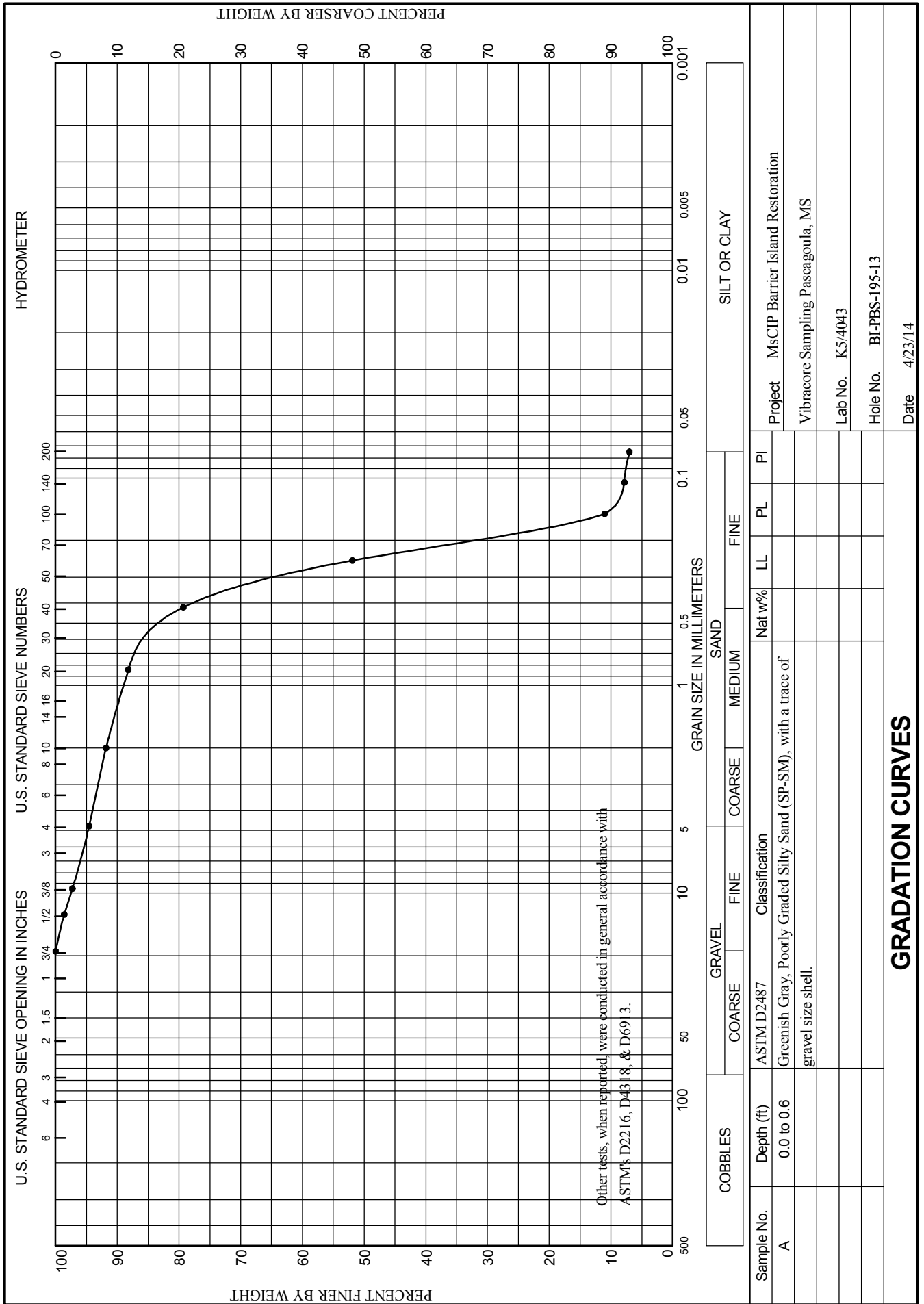
DRILLING LOG		DIVISION South Atlantic		INSTALLATION Mobile District		SHEET 1 OF 2 SHEETS	
1. PROJECT MsCIP Barrier Island Restoration Petit Bois Pass-OCS West				9. SIZE AND TYPE OF BIT N/A			
2. BORING DESIGNATION BI-PBS-195-13		LOCATION COORDINATES E = 1,113,378 N = 232,512		10. COORDINATE SYSTEM/DATUM State Plane, MSE (U.S. Ft.)		HORIZONTAL NAD83 VERTICAL NAVD88	
3. DRILLING AGENCY Corps of Engineers - CESAM		CONTRACTOR FILE NO.		11. MANUFACTURER'S DESIGNATION OF DRILL Vibracore		<input type="checkbox"/> AUTO HAMMER <input type="checkbox"/> MANUAL HAMMER	
4. NAME OF DRILLER Construction Solutions International, Inc.				12. TOTAL SAMPLES 1		DISTURBED 1 UNDISTURBED (UD) 0	
5. DIRECTION OF BORING <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED		DEG. FROM VERTICAL		13. TOTAL NUMBER CORE BOXES			
		BEARING		14. WATER DEPTH 49.7 Ft.			
6. THICKNESS OF OVERBURDEN N/A				15. DATE BORING 12-18-13		STARTED 12-18-13 COMPLETED 12-18-13	
7. DEPTH DRILLED INTO ROCK N/A				16. ELEVATION TOP OF BORING -49.7 Ft.			
8. TOTAL DEPTH OF BORING 20.0 Ft.				17. TOTAL RECOVERY FOR BORING 100%			
				18. SIGNATURE AND TITLE OF INSPECTOR Tom Powers, Geologist			
ELEV.	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS	SAMPLE	LABORATORY RESULTS		
-49.7	0.0						
-50.3	0.6		SAND, poorly-graded with silt, mostly fine-grained sand-sized quartz, little shell fragments, medium to lt. gray (SP-SM)	A	Classification: SP-SM Color: GLEY1 10Y 5/1- D50: 0.244 mm % Fines: 7		
-51.8	2.1		CLAY, lean, sandy, medium to dark gray (CL)				
-52.5	2.8		SAND, clayey, mostly fine-grained sand-sized quartz, medium gray (SC)				
-54.7	5.0		CLAY, lean, medium gray (CL)				
-58.7	9.0		SAND, clayey, mostly fine-grained sand-sized quartz, wood fragments from 8 to 9 ft., medium gray and medium brown (SC)				
-61.8	12.1		CLAY, lean, wood fragments from 10 to 12 ft., medium gray (CL)	NS			
-64.7	15.0		SAND, poorly-graded with silt, mostly fine-grained sand-sized quartz, medium gray (SP-SM)				
-66.1	16.4		SAND, silty, mostly fine-grained sand-sized quartz, medium gray (SM)				
-68.6	18.9		SAND, clayey, mostly fine-grained sand-sized quartz, medium to lt. gray (SC)				
-69.7	20.0		CLAY, lean, sandy, medium gray (CL)				
NOTES: 1. Soils are field visually classified in accordance with the Unified Soils Classification System. 2. NS = Sample not submitted for laboratory analysis from this interval. 3. Seafloor elevation determined from 2013							

<b>DRILLING LOG (Cont. Sheet)</b>			<b>INSTALLATION</b> Mobile District		<b>SHEET 2</b>
					<b>OF 2 SHEETS</b>
<b>PROJECT</b> MsCIP Barrier Island Restoration			<b>COORDINATE SYSTEM/DATUM</b> State Plane, MSE (U.S. Ft.)	<b>HORIZONTAL</b> NAD83	<b>VERTICAL</b> NAVD88
<b>LOCATION COORDINATES</b> X = 1,113,378 Y = 232,512			<b>ELEVATION TOP OF BORING</b> -49.7 Ft.		
<b>ELEV.</b>	<b>DEPTH</b>	<b>LEGEND</b>	<b>CLASSIFICATION OF MATERIALS</b>	<b>SAMPLE</b>	<b>LABORATORY RESULTS</b>
			USGS geophysical survey.		



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WORK ORDER: 848e  
REQUISITION: W33SJC32900192



# Boring Designation BI-PBS-197-13

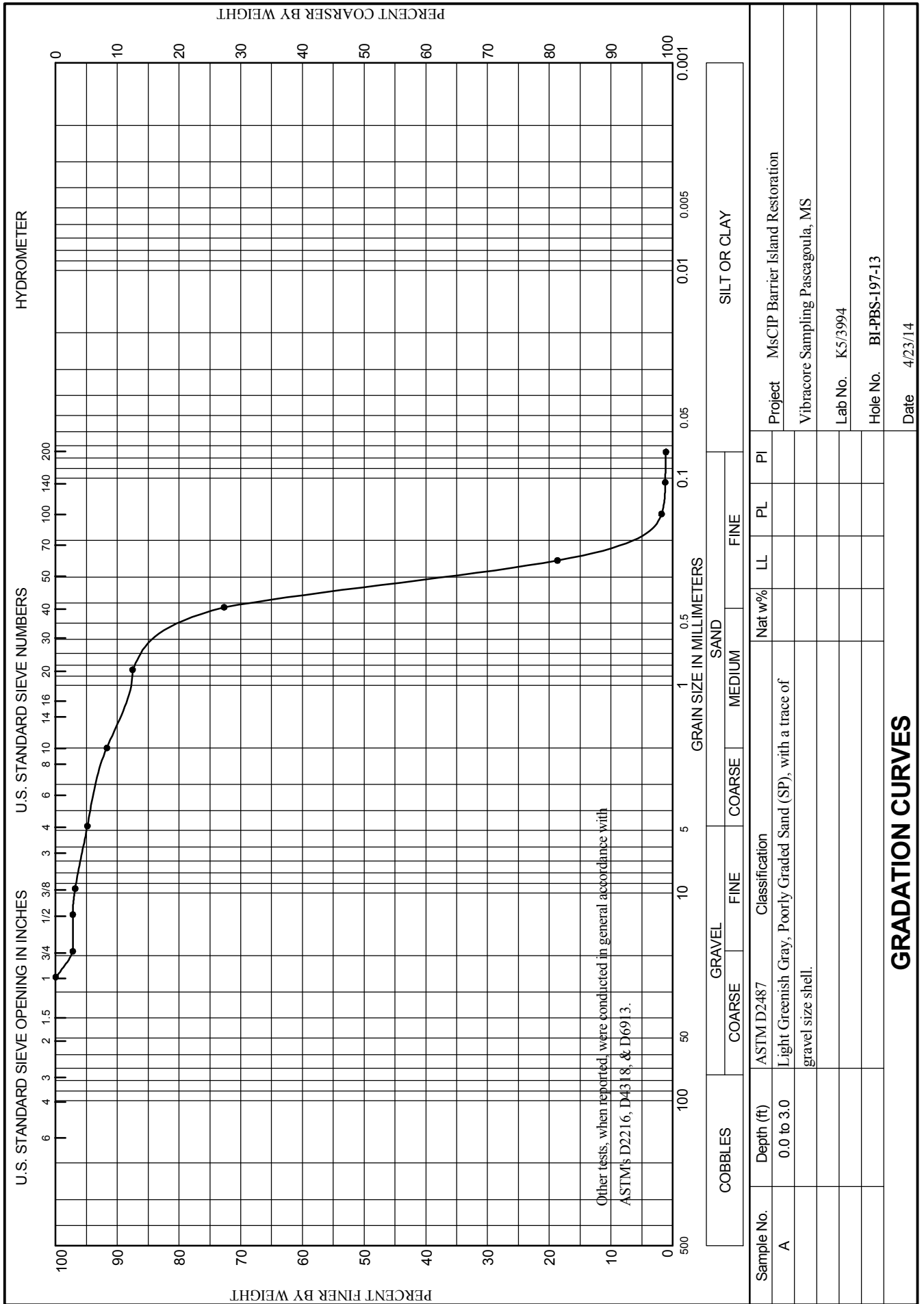
DRILLING LOG		DIVISION South Atlantic		INSTALLATION Mobile District		SHEET 1 OF 1 SHEETS	
1. PROJECT MsCIP Barrier Island Restoration Petit Bois Pass-OCS West				9. SIZE AND TYPE OF BIT N/A			
2. BORING DESIGNATION BI-PBS-197-13		LOCATION COORDINATES E = 1,116,344 N = 233,032		10. COORDINATE SYSTEM/DATUM State Plane, MSE (U.S. Ft.)		HORIZONTAL NAD83	
3. DRILLING AGENCY Corps of Engineers - CESAM		CONTRACTOR FILE NO.		11. MANUFACTURER'S DESIGNATION OF DRILL Vibrocure		<input type="checkbox"/> AUTO HAMMER <input type="checkbox"/> MANUAL HAMMER	
4. NAME OF DRILLER Construction Solutions International, Inc.				12. TOTAL SAMPLES 2		UNDISTURBED (UD) 0	
5. DIRECTION OF BORING <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED				13. TOTAL NUMBER CORE BOXES		14. WATER DEPTH 49 Ft.	
6. THICKNESS OF OVERBURDEN N/A				15. DATE BORING 12-09-13		COMPLETED 12-09-13	
7. DEPTH DRILLED INTO ROCK N/A				16. ELEVATION TOP OF BORING -47.3 Ft.		17. TOTAL RECOVERY FOR BORING 100%	
8. TOTAL DEPTH OF BORING 13.7 Ft.				18. SIGNATURE AND TITLE OF INSPECTOR Tom Powers, Geologist			
ELEV.	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS	SAMPLE	LABORATORY RESULTS		
-47.3	0.0						
-50.3	3.0		SAND, poorly-graded, mostly fine to medium-grained sand-sized quartz, little shell, lt. gray (SP)	A	Classification: SP Color: GLEY1 10Y 7/1- D50: 0.338 mm % Fines: 1.1		
-51.4	4.1		SAND, silty, mostly fine-grained sand-sized quartz, little shell, lt. to medium gray (SM)	B	Classification: SP-SM Color: 2.5Y 6/1-gray D50: 0.232 mm % Fines: 5.8		
-53.5	6.2		SAND, clayey, mostly fine-grained sand-sized quartz, trace shell, trace wood fragments, lt. to medium gray (SC)	NS			
-59.2	11.9		CLAY, lean, trace wood, lt. to medium and dark gray (CL)				
-61.0	13.7		SAND, silty, mostly fine-grained sand-sized quartz, medium gray (SM)				
NOTES: 1. Soils are field visually classified in accordance with the Unified Soils Classification System. 2. NS = Sample not submitted for laboratory analysis from this interval. 3. Seafloor elevation determined from 12/17/2014 USACE survey.							



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CORPS OF ENGINEERS, 200 N. COBB PARKWAY, BLDG 400 SUITE 404, MARIETTA, GA. 30062

WORK ORDER: 848e

REQUISITION: W33SJC32900192

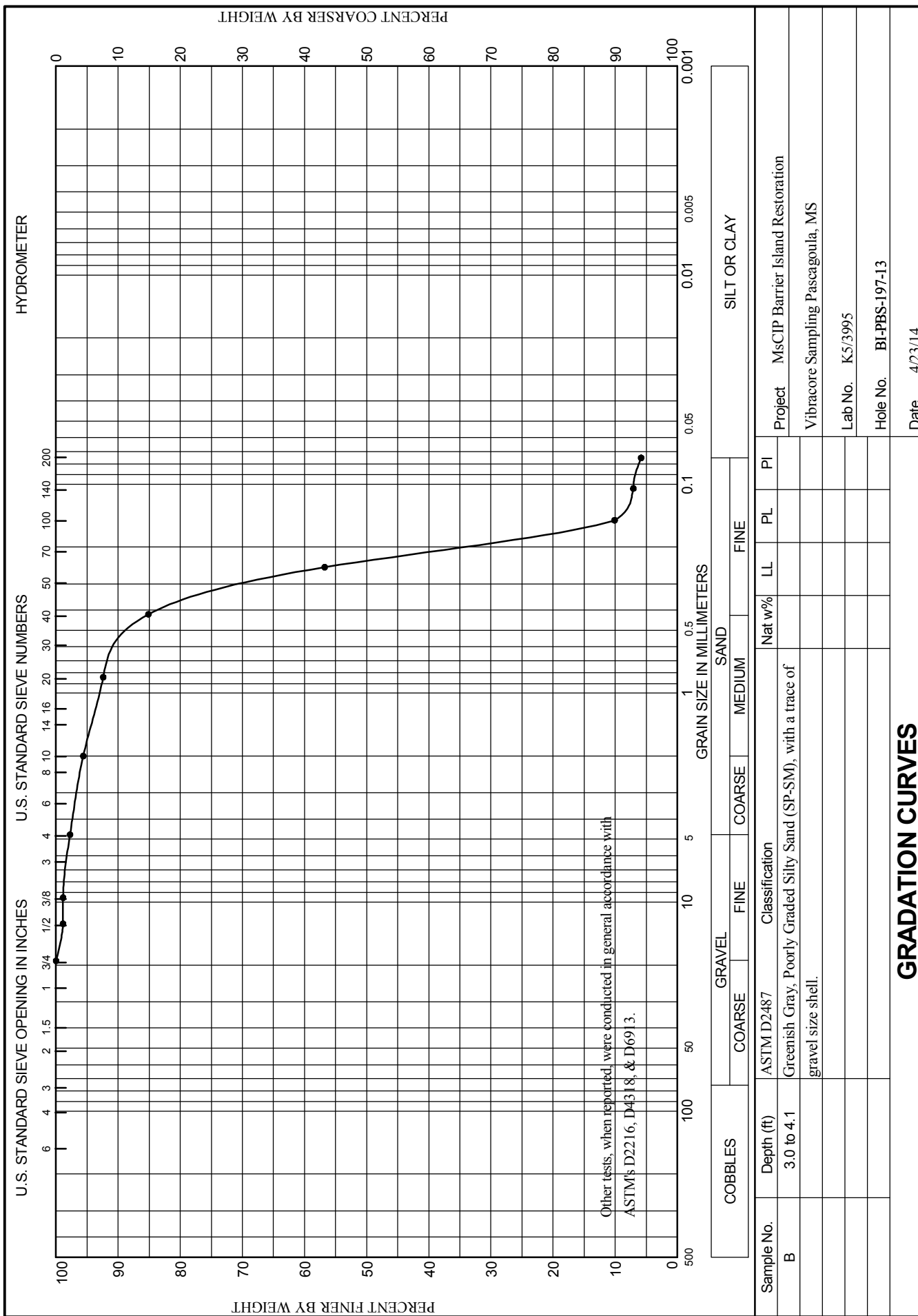




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CORPS OF ENGINEERS, 200 N. COBB PARKWAY, BLDG 400 SUITE 404, MARIETTA, GA. 30062

WORK ORDER: 848e

REQUISITION: W33SJC32900192



# Boring Designation BI-PBS-198-13

DRILLING LOG		DIVISION South Atlantic		INSTALLATION Mobile District		SHEET 1 OF 1 SHEETS	
1. PROJECT MsCIP Barrier Island Restoration Petit Bois Pass-OCS West				9. SIZE AND TYPE OF BIT N/A			
2. BORING DESIGNATION BI-PBS-198-13		LOCATION COORDINATES E = 1,118,790 N = 231,448		10. COORDINATE SYSTEM/DATUM State Plane, MSE (U.S. Ft.)		HORIZONTAL NAD83 VERTICAL NAVD88	
3. DRILLING AGENCY Corps of Engineers - CESAM		CONTRACTOR FILE NO.		11. MANUFACTURER'S DESIGNATION OF DRILL Vibrocure		<input type="checkbox"/> AUTO HAMMER <input type="checkbox"/> MANUAL HAMMER	
4. NAME OF DRILLER Construction Solutions International, Inc.				12. TOTAL SAMPLES 1		DISTURBED 1 UNDISTURBED (UD) 0	
5. DIRECTION OF BORING <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED				13. TOTAL NUMBER CORE BOXES		14. WATER DEPTH 49 Ft.	
6. THICKNESS OF OVERBURDEN N/A				15. DATE BORING 12-04-13		STARTED 12-04-13 COMPLETED 12-04-13	
7. DEPTH DRILLED INTO ROCK N/A				16. ELEVATION TOP OF BORING -49.0 Ft.		17. TOTAL RECOVERY FOR BORING 100%	
8. TOTAL DEPTH OF BORING 9.6 Ft.				18. SIGNATURE AND TITLE OF INSPECTOR Tom Powers, Geologist			

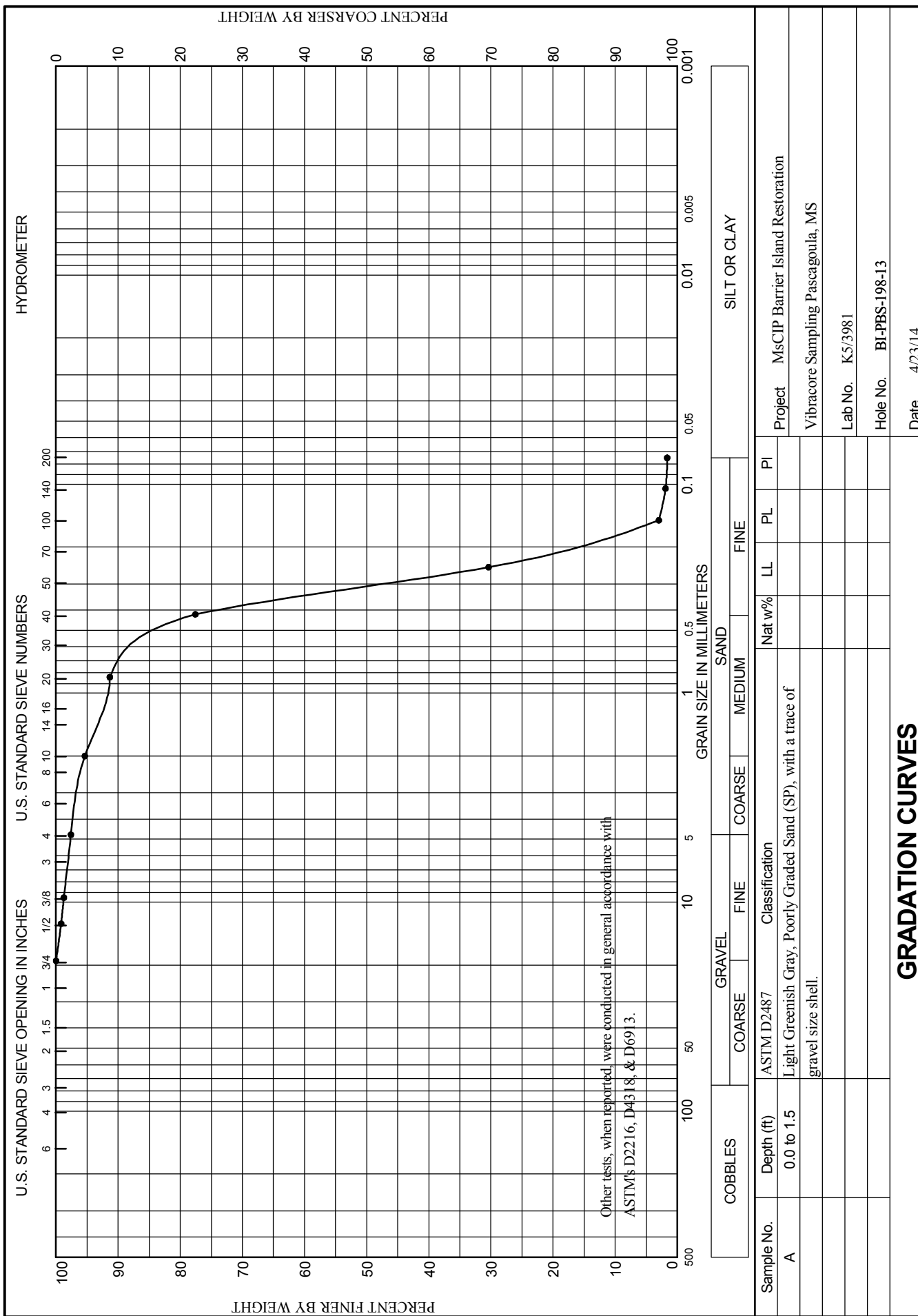
ELEV.	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS	SAMPLE	LABORATORY RESULTS
-49.0	0.0				
-50.4	1.4		SAND, poorly-graded, mostly fine to medium-grained sand-sized quartz, little shell, lt. gray (SP)	A	Classification: SP Color: 2.5Y 7/1-light gray D50: 0.31 mm % Fines: 1.6
-51.6	2.6		SAND, silty, clayey, mostly fine-grained sand-sized quartz, few shell, medium gray (SC-SM)		
-52.7	3.7		CLAY, lean, interbedded with shell-laden SM and SP, lt. gray and orange (CL)		
-53.6	4.6		SAND, silty, high fines content, lt. gray (SM)		
-57.0	8.0		CLAY, lean, burrows filled with sand, lt. and medium gray (CL)	NS	
-58.6	9.6		SAND, poorly-graded with silt, mostly fine-grained sand-sized quartz, medium gray (SP-SM)		
NOTES: 1. Soils are field visually classified in accordance with the Unified Soils Classification System. 2. NS = Sample not submitted for laboratory analysis from this interval. 3. Seafloor elevation determined from 2013 USGS geophysical survey.					



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WORK ORDER: 848e

REQUISITION: W33SJC32900192





# Boring Designation BI-PBS-200-13

DRILLING LOG		DIVISION South Atlantic		INSTALLATION Mobile District		SHEET 1 OF 1 SHEETS	
1. PROJECT MsCIP Barrier Island Restoration Petit Bois Pass-OCS West				9. SIZE AND TYPE OF BIT N/A			
2. BORING DESIGNATION BI-PBS-200-13		LOCATION COORDINATES E = 1,121,515 N = 232,429		10. COORDINATE SYSTEM/DATUM State Plane, MSE (U.S. Ft.)		HORIZONTAL NAD83	
3. DRILLING AGENCY Corps of Engineers - CESAM		CONTRACTOR FILE NO.		11. MANUFACTURER'S DESIGNATION OF DRILL Vibracore		<input type="checkbox"/> AUTO HAMMER <input type="checkbox"/> MANUAL HAMMER	
4. NAME OF DRILLER Construction Solutions International, Inc.				12. TOTAL SAMPLES		DISTURBED 0	
5. DIRECTION OF BORING <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED				13. TOTAL NUMBER CORE BOXES		UNDISTURBED (UD) 0	
6. THICKNESS OF OVERBURDEN N/A				14. WATER DEPTH		57 Ft.	
7. DEPTH DRILLED INTO ROCK N/A				15. DATE BORING		STARTED 12-03-13 COMPLETED 12-03-13	
8. TOTAL DEPTH OF BORING 18.8 Ft.				16. ELEVATION TOP OF BORING -57.2 Ft.		17. TOTAL RECOVERY FOR BORING 100%	
				18. SIGNATURE AND TITLE OF INSPECTOR Tom Powers, Geologist			

ELEV.	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS	SAMPLE	LABORATORY RESULTS
-57.2	0.0				
-58.4	1.2		SAND, clayey, with 1-inch thick wood layer, medium to dark gray (SC)		
			CLAY, lean, interbedded with fine to medium grained SC-SM, medium to dark gray (CL)		
-61.4	4.2				
-62.2	5.0		SAND, poorly-graded, mostly fine to medium-grained sand-sized quartz, medium to lt. gray (SP)		
			SAND, poorly-graded with silt, mostly fine to medium-grained sand-sized quartz, few shell, medium gray (SP-SM)	NS	
-73.0	15.8				
			SAND, clayey, medium and dark gray (SC)		
-76.0	18.8				
			NOTES: 1. Soils are field visually classified in accordance with the Unified Soils Classification System. 2. NS = Sample not submitted for laboratory analysis from this interval. 3. Seafloor elevation calculated using sampling vessel's fathometer water depth reading and applying NOAA tidal gauge data conversion factor.		

# Boring Designation BI-PBS-201-13

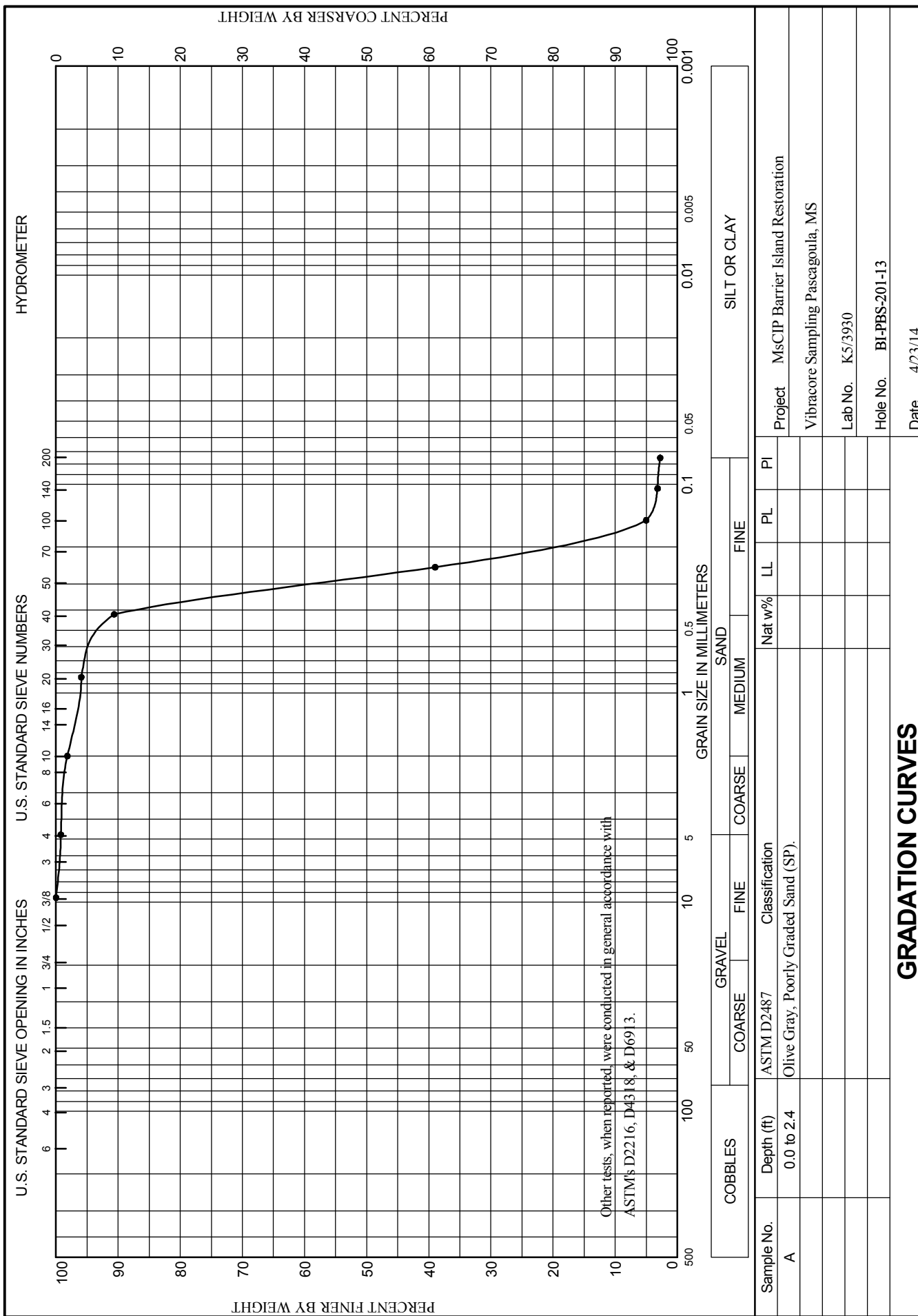
DRILLING LOG		DIVISION South Atlantic		INSTALLATION Mobile District		SHEET 1 OF 1 SHEETS	
1. PROJECT MsCIP Barrier Island Restoration Petit Bois Pass-OCS West				9. SIZE AND TYPE OF BIT N/A			
2. BORING DESIGNATION BI-PBS-201-13		LOCATION COORDINATES E = 1,119,851 N = 230,215		10. COORDINATE SYSTEM/DATUM State Plane, MSE (U.S. Ft.)		HORIZONTAL NAD83	
3. DRILLING AGENCY Corps of Engineers - CESAM		CONTRACTOR FILE NO.		11. MANUFACTURER'S DESIGNATION OF DRILL Vibrocure		<input type="checkbox"/> AUTO HAMMER <input type="checkbox"/> MANUAL HAMMER	
4. NAME OF DRILLER Construction Solutions International, Inc.				12. TOTAL SAMPLES		DISTURBED 2	
5. DIRECTION OF BORING <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED				13. TOTAL NUMBER CORE BOXES		UNDISTURBED (UD) 0	
6. THICKNESS OF OVERBURDEN N/A				14. WATER DEPTH		52 Ft.	
7. DEPTH DRILLED INTO ROCK N/A				15. DATE BORING		STARTED 12-03-13 COMPLETED 12-03-13	
8. TOTAL DEPTH OF BORING 19.4 Ft.				16. ELEVATION TOP OF BORING -49.9 Ft.		17. TOTAL RECOVERY FOR BORING 100%	
				18. SIGNATURE AND TITLE OF INSPECTOR Tom Powers, Geologist			
ELEV.	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS	SAMPLE	LABORATORY RESULTS		
-49.9	0.0						
-52.3	2.4		SAND, poorly-graded, mostly fine-grained sand-sized quartz, trace shell, lt. gray (SP)	A	Classification: SP Color: GLEY1 10Y 6/1- D50: 0.279 mm % Fines: 2.8		
-53.8	3.9		SAND, silty, mostly fine-grained sand-sized quartz, few shell, medium gray (SM)	B	Classification: SM Color: 2.5Y 5/1-gray D50: 0.179 mm % Fines: 29.6		
-63.1	13.2		CLAY, lean, CL-CH, lt. gray and orange, lt. gray toward base (CL)	NS			
-69.3	19.4		SAND, poorly-graded, mostly fine-grained sand-sized quartz, no shell, medium gray (SP)				
NOTES: 1. Soils are field visually classified in accordance with the Unified Soils Classification System. 2. NS = Sample not submitted for laboratory analysis from this interval. 3. Seafloor elevation determined from 12/17/2014 USACE survey.							



DEPARTMENT OF THE ARMY, SAVANNAH DISTRICT, ENVIRONMENTAL AND MATERIALS UNIT  
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WORK ORDER: 848e

REQUISITION: W33SJG32900192

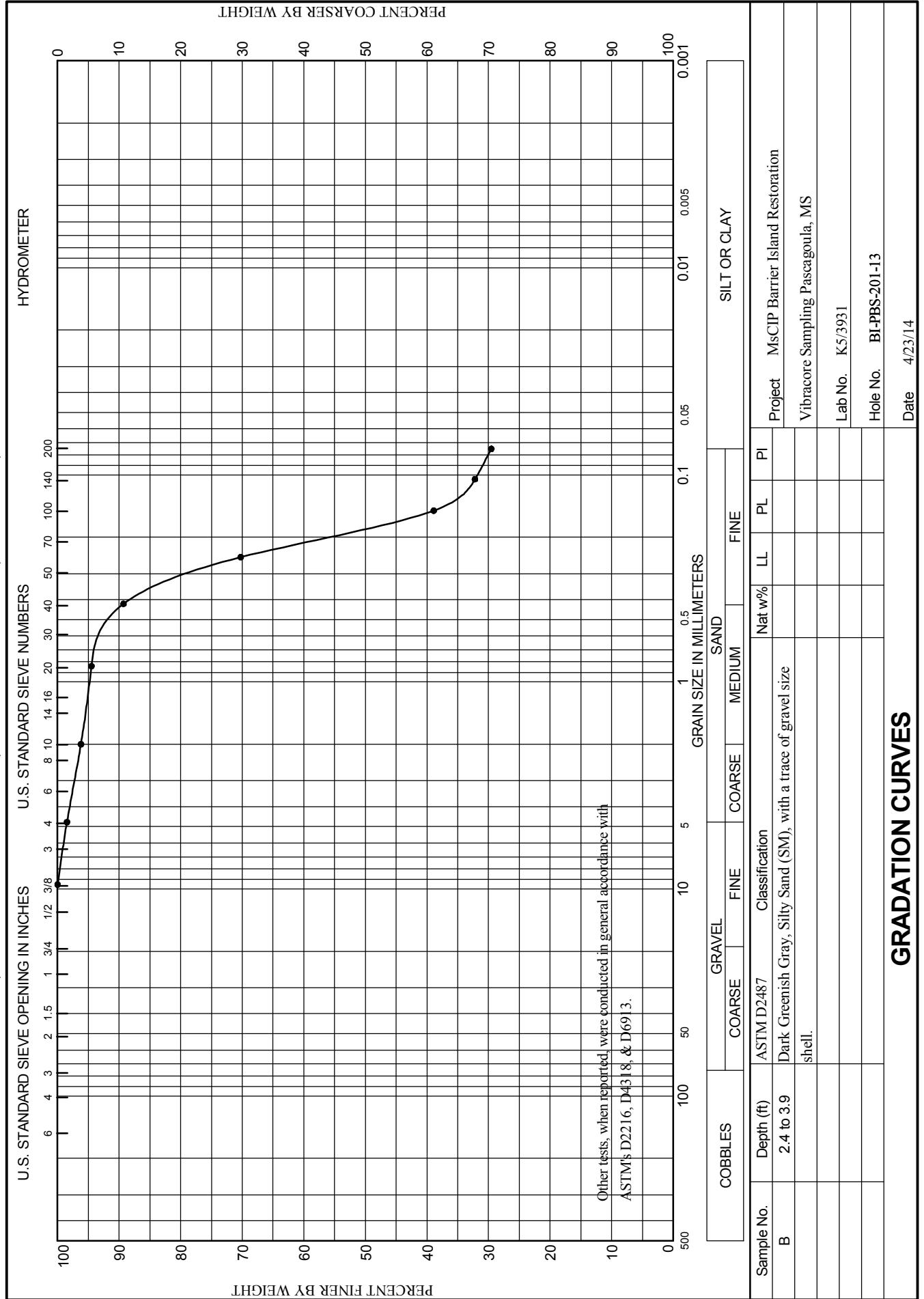




DEPARTMENT OF THE ARMY, SAVANNAH DISTRICT, ENVIRONMENTAL AND MATERIALS UNIT  
CORPS OF ENGINEERS, 200 N. COBB PARKWAY, BLDG 400 SUITE 404, MARIETTA, GA. 30062

WORK ORDER: 848e

REQUISITION: W33SJC32900192



# Boring Designation BI-PBS-202-13

DRILLING LOG		DIVISION South Atlantic		INSTALLATION Mobile District		SHEET 1 OF 1 SHEETS	
1. PROJECT MsCIP Barrier Island Restoration Petit Bois Pass-OCS West				9. SIZE AND TYPE OF BIT N/A			
2. BORING DESIGNATION BI-PBS-202-13		LOCATION COORDINATES E = 1,120,276 N = 231,472		10. COORDINATE SYSTEM/DATUM State Plane, MSE (U.S. Ft.)		HORIZONTAL NAD83	
3. DRILLING AGENCY Corps of Engineers - CESAM		CONTRACTOR FILE NO.		11. MANUFACTURER'S DESIGNATION OF DRILL Vibracore		<input type="checkbox"/> AUTO HAMMER <input type="checkbox"/> MANUAL HAMMER	
4. NAME OF DRILLER Construction Solutions International, Inc.				12. TOTAL SAMPLES		DISTURBED 1	
5. DIRECTION OF BORING <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED				13. TOTAL NUMBER CORE BOXES		UNDISTURBED (UD) 0	
6. THICKNESS OF OVERBURDEN N/A				14. WATER DEPTH		50 Ft.	
7. DEPTH DRILLED INTO ROCK N/A				15. DATE BORING		STARTED 12-03-13	
8. TOTAL DEPTH OF BORING 16.0 Ft.				16. ELEVATION TOP OF BORING -48.9 Ft.		COMPLETED 12-03-13	
				17. TOTAL RECOVERY FOR BORING 100%			
				18. SIGNATURE AND TITLE OF INSPECTOR Tom Powers, Geologist			

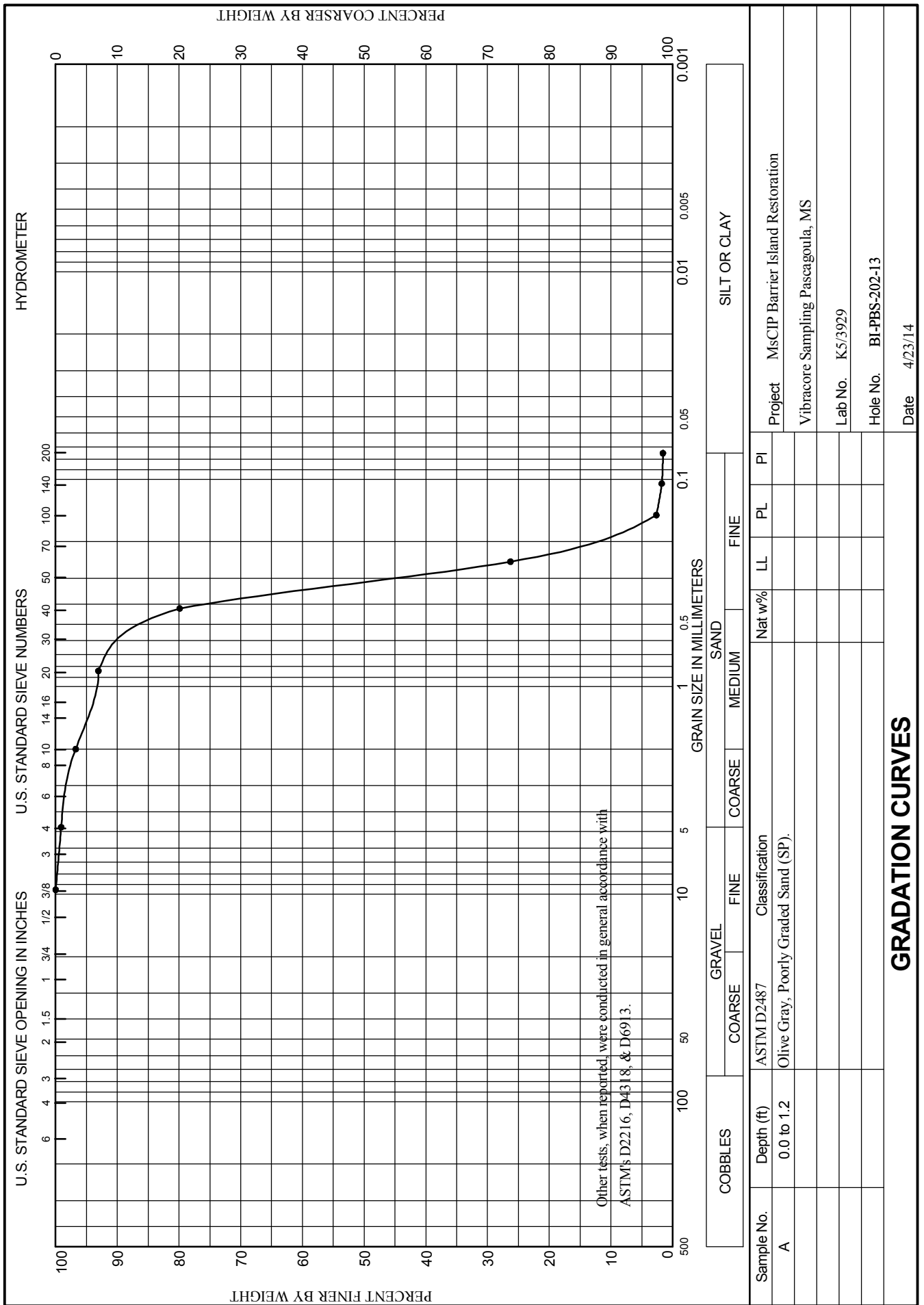
ELEV.	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS	SAMPLE	LABORATORY RESULTS
-48.9	0.0				
-50.1	1.2		SAND, poorly-graded, mostly fine to medium-grained sand-sized quartz, few shell, lt. brown and lt. gray (SP)	A	Classification: SP Color: GLEY1 10Y 6/1- D50: 0.314 mm % Fines: 1.6
-51.8	2.9		CLAY, fat, pale greenish gray (CH)		
-53.9	5.0		CLAY, silty, trace very dark gray organics, lt. to medium gray and orange (CL-ML)		
-55.4	6.5		SAND, silty, mostly fine-grained sand-sized quartz, trace wood, shell, medium to dark gray (SM)		
-56.1	7.2		CLAY, lean, sandy, medium gray (CL)		
-60.0	11.1		SAND, silty, mostly fine-grained sand-sized quartz, interbedded with clay, medium gray (SM)	NS	
-62.9	14.0		SAND, poorly-graded, mostly fine to medium-grained sand-sized quartz, little shell, medium gray (SP)		
-64.9	16.0		SAND, silty, medium gray (SM)		
NOTES:					
1. Soils are field visually classified in accordance with the Unified Soils Classification System.					
2. NS = Sample not submitted for laboratory analysis from this interval.					
3. Seafloor elevation determined from 12/17/2014 USACE survey.					



DEPARTMENT OF THE ARMY, SAVANNAH DISTRICT, ENVIRONMENTAL AND MATERIALS UNIT  
CORPS OF ENGINEERS, 200 N. COBB PARKWAY, BLDG 400 SUITE 404, MARIETTA, GA. 30062

WORK ORDER: 848e

REQUISITION: W33SJC32900192



# Boring Designation BI-PBS-205-13

DRILLING LOG		DIVISION South Atlantic		INSTALLATION Mobile District		SHEET 1 OF 2 SHEETS	
1. PROJECT MsCIP Barrier Island Restoration Petit Bois Pass-OCS West				9. SIZE AND TYPE OF BIT N/A			
2. BORING DESIGNATION BI-PBS-205-13		LOCATION COORDINATES E = 1,118,337 N = 228,460		10. COORDINATE SYSTEM/DATUM State Plane, MSE (U.S. Ft.)		HORIZONTAL NAD83 VERTICAL NAVD88	
3. DRILLING AGENCY Corps of Engineers - CESAM		CONTRACTOR FILE NO.		11. MANUFACTURER'S DESIGNATION OF DRILL Vibrocure		<input type="checkbox"/> AUTO HAMMER <input type="checkbox"/> MANUAL HAMMER	
4. NAME OF DRILLER Construction Solutions International, Inc.				12. TOTAL SAMPLES 2		DISTURBED 2 UNDISTURBED (UD) 0	
5. DIRECTION OF BORING <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED		DEG. FROM VERTICAL		13. TOTAL NUMBER CORE BOXES			
		BEARING		14. WATER DEPTH 54.3 Ft.			
6. THICKNESS OF OVERBURDEN N/A				15. DATE BORING 12-08-13		STARTED 12-08-13 COMPLETED 12-08-13	
7. DEPTH DRILLED INTO ROCK N/A				16. ELEVATION TOP OF BORING -53.9 Ft.			
8. TOTAL DEPTH OF BORING 20.0 Ft.				17. TOTAL RECOVERY FOR BORING 100%			
				18. SIGNATURE AND TITLE OF INSPECTOR Tom Powers, Geologist			

ELEV.	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS	SAMPLE	LABORATORY RESULTS
-53.9	0.0				
-54.9	1.0		SAND, poorly-graded, mostly fine to medium-grained sand-sized quartz, little shell, lt. gray (SP)	A	Classification: SP Color: GLEY1 10Y 6/1- D50: 0.225 mm % Fines: 4.7
-57.1	3.2		SAND, poorly-graded with silt, mostly fine-grained sand-sized quartz, lt. to medium gray (SP-SM)	B	Classification: SP-SM Color: GLEY1 10Y 6/1- D50: 0.209 mm % Fines: 6.8
-65.6	11.7		CLAY, fat, sandy; sand-filled voids over depths 3.2 to 4.6 ft., lt. gray to depth of 5.2 ft., pale green and orange to 11.7 ft. (CH)	NS	
-68.4	14.5		CLAY, lean, silty sand interbeds, 1/2 to 1-inch thick, medium gray (CL)		
-71.4	17.5		SAND, poorly-graded, mostly fine-grained sand-sized quartz, little shell, starting at 15.8 ft., brownish gray (SP)		
-73.9	20.0		SAND, silty, mostly fine-grained sand-sized quartz, little shell, brownish gray (SM)		
			NOTES: 1. Soils are field visually classified in accordance with the Unified Soils Classification System. 2. NS = Sample not submitted for laboratory analysis from this interval. 3. Seafloor elevation calculated using sampling		

<b>DRILLING LOG (Cont. Sheet)</b>			<b>INSTALLATION</b> Mobile District		<b>SHEET 2</b> <b>OF 2 SHEETS</b>
<b>PROJECT</b> MsCIP Barrier Island Restoration			<b>COORDINATE SYSTEM/DATUM</b> State Plane, MSE (U.S. Ft.)	<b>HORIZONTAL</b> NAD83	<b>VERTICAL</b> NAVD88
<b>LOCATION COORDINATES</b> X = 1,118,337 Y = 228,460			<b>ELEVATION TOP OF BORING</b> -53.9 Ft.		
<b>ELEV.</b>	<b>DEPTH</b>	<b>LEGEND</b>	<b>CLASSIFICATION OF MATERIALS</b>	<b>SAMPLE</b>	<b>LABORATORY RESULTS</b>
			vessel's fathometer water depth reading and applying NOAA tidal gauge data conversion factor.		

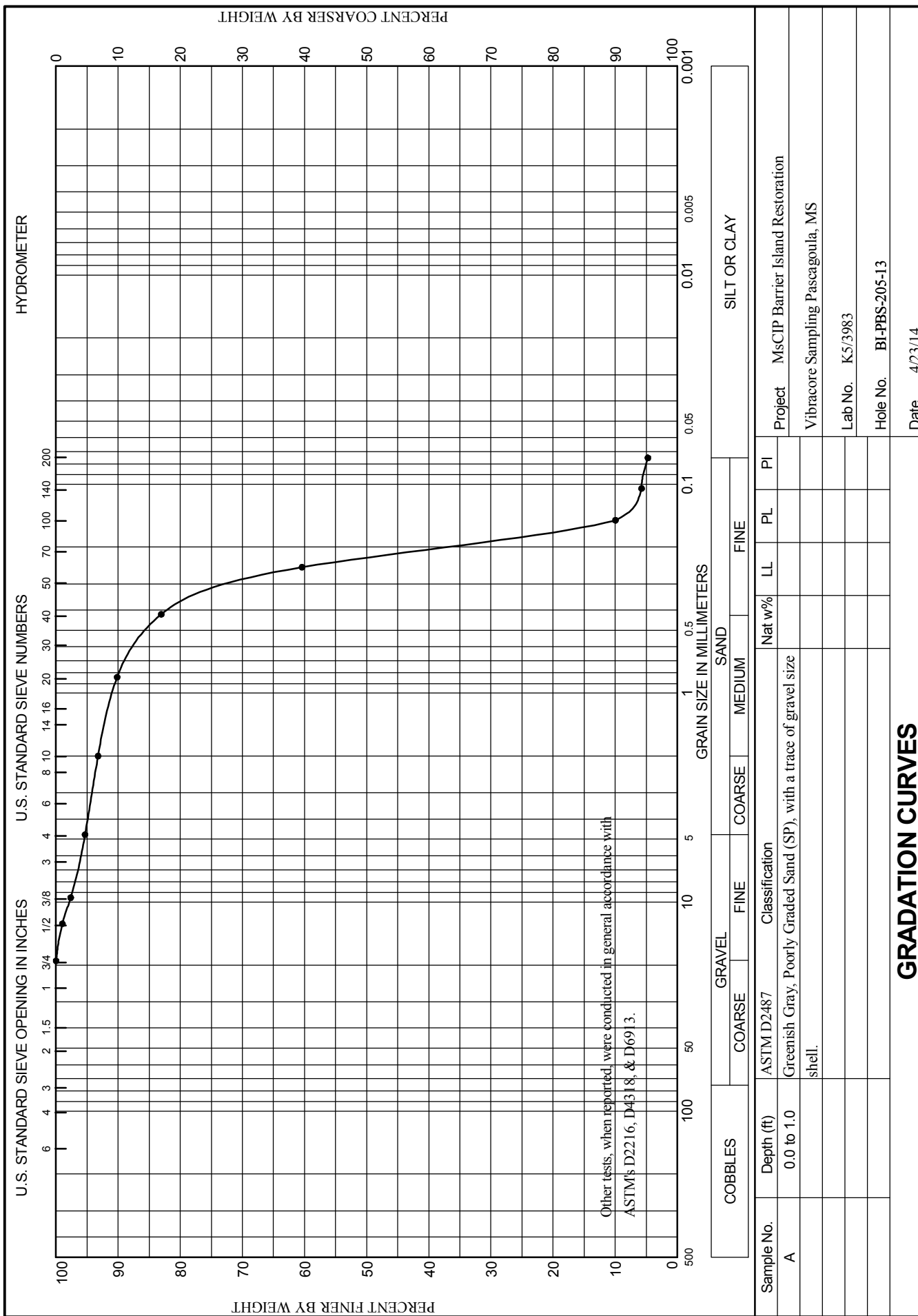




DEPARTMENT OF THE ARMY, SAVANNAH DISTRICT, ENVIRONMENTAL AND MATERIALS UNIT  
CORPS OF ENGINEERS, 200 N. COBB PARKWAY, BLDG 400 SUITE 404, MARIETTA, GA. 30062

WORK ORDER: 848e

REQUISITION: W33SJC32900192

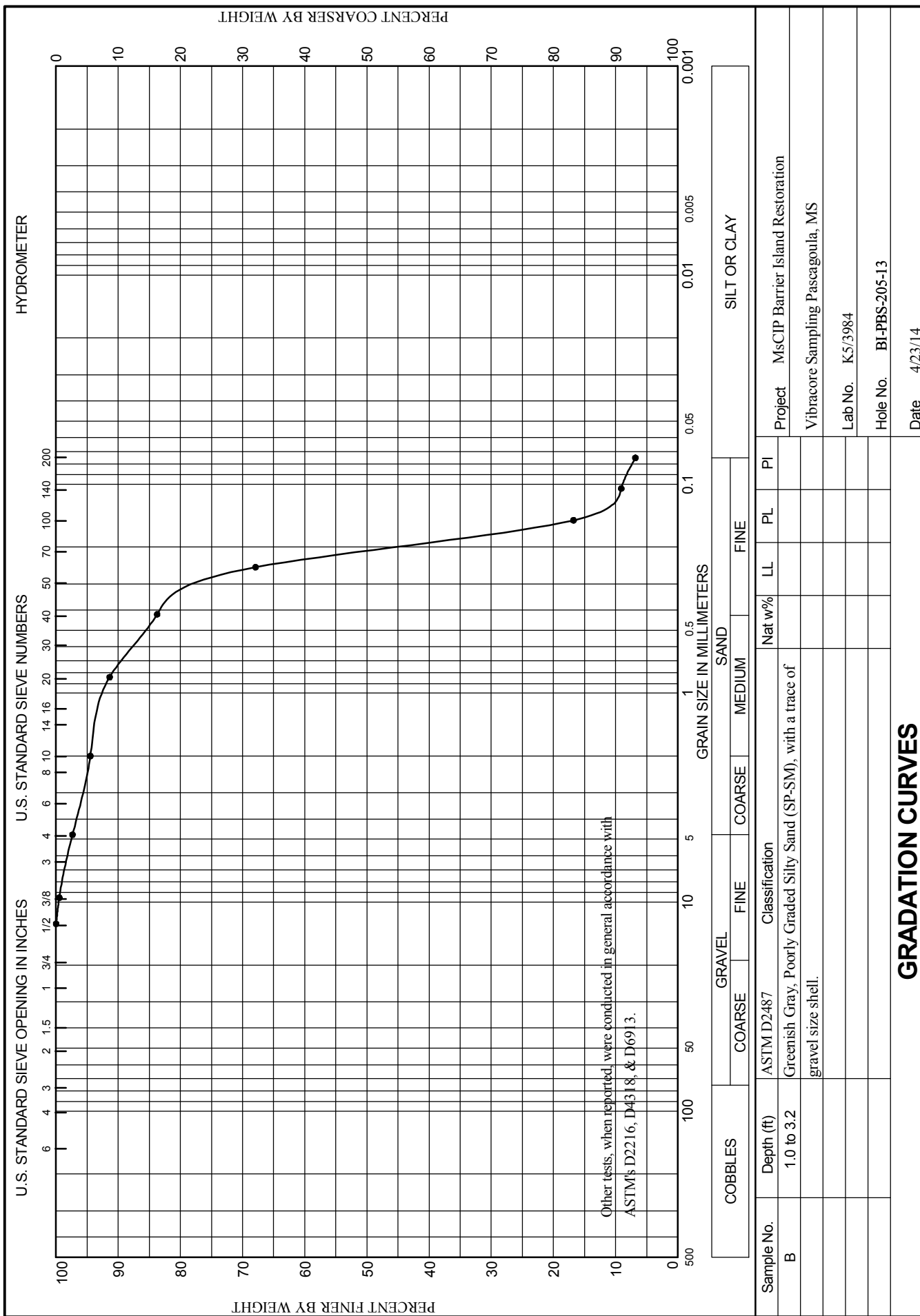




DEPARTMENT OF THE ARMY, SAVANNAH DISTRICT, ENVIRONMENTAL AND MATERIALS UNIT  
CORPS OF ENGINEERS, 200 N. COBB PARKWAY, BLDG 400 SUITE 404, MARIETTA, GA. 30062

WORK ORDER: 848e

REQUISITION: W33SJC32900192



# Boring Designation BI-PBS-206-13

DRILLING LOG		DIVISION South Atlantic		INSTALLATION Mobile District		SHEET 1 OF 2 SHEETS	
1. PROJECT MsCIP Barrier Island Restoration Petit Bois Pass-OCS West				9. SIZE AND TYPE OF BIT N/A			
2. BORING DESIGNATION BI-PBS-206-13		LOCATION COORDINATES E = 1,119,905 N = 232,609		10. COORDINATE SYSTEM/DATUM State Plane, MSE (U.S. Ft.)		HORIZONTAL NAD83 VERTICAL NAVD88	
3. DRILLING AGENCY Corps of Engineers - CESAM		CONTRACTOR FILE NO.		11. MANUFACTURER'S DESIGNATION OF DRILL Vibracore		<input type="checkbox"/> AUTO HAMMER <input type="checkbox"/> MANUAL HAMMER	
4. NAME OF DRILLER Construction Solutions International, Inc.				12. TOTAL SAMPLES 0		DISTURBED 0 UNDISTURBED (UD) 0	
5. DIRECTION OF BORING <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED		DEG. FROM VERTICAL		13. TOTAL NUMBER CORE BOXES			
		BEARING		14. WATER DEPTH 55.5 Ft.			
6. THICKNESS OF OVERBURDEN N/A				15. DATE BORING 12-03-13		STARTED 12-03-13 COMPLETED 12-03-13	
7. DEPTH DRILLED INTO ROCK N/A				16. ELEVATION TOP OF BORING -55.5 Ft.			
8. TOTAL DEPTH OF BORING 20.0 Ft.				17. TOTAL RECOVERY FOR BORING 100%			
				18. SIGNATURE AND TITLE OF INSPECTOR Tom Powers, Geologist			
ELEV.	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS	SAMPLE	LABORATORY RESULTS		
-55.5	0.0						
-57.9	2.4		SAND, clayey, mostly fine-grained sand-sized quartz, few shell, medium gray (SC)				
-60.4	4.9		CLAY, lean, few shell, sandy with trace of wood, medium gray (CL)				
-63.0	7.5		SAND, silty, mostly fine-grained sand-sized quartz, little shell, trace of wood, medium gray (SM)				
-71.8	16.3		SAND, poorly-graded, mostly fine to medium-grained sand-sized quartz, little shell, medium gray (SP)	NS			
-75.5	20.0		SAND, silty, mostly fine-grained sand-sized quartz, few shell, medium gray (SM)				
			NOTES: 1. Soils are field visually classified in accordance with the Unified Soils Classification System. 2. NS = Sample not submitted for laboratory analysis from this interval. 3. Seafloor elevation determined from 2013				

**SAM FORM 1836 - MsCIP** **Lat = 30.13893° Long = -88.40418°**  
MAY 2010

# Boring Designation BI-PBS-207-13

DRILLING LOG		DIVISION South Atlantic		INSTALLATION Mobile District		SHEET 1 OF 2 SHEETS	
1. PROJECT MsCIP Barrier Island Restoration Petit Bois Pass-OCS West				9. SIZE AND TYPE OF BIT N/A			
2. BORING DESIGNATION BI-PBS-207-13		LOCATION COORDINATES E = 1,117,339 N = 228,900		10. COORDINATE SYSTEM/DATUM State Plane, MSE (U.S. Ft.)		HORIZONTAL NAD83	
3. DRILLING AGENCY Corps of Engineers - CESAM		CONTRACTOR FILE NO.		11. MANUFACTURER'S DESIGNATION OF DRILL Vibracore		<input type="checkbox"/> AUTO HAMMER <input type="checkbox"/> MANUAL HAMMER	
4. NAME OF DRILLER Construction Solutions International, Inc.				12. TOTAL SAMPLES 2		DISTURBED 0	
5. DIRECTION OF BORING <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED				13. TOTAL NUMBER CORE BOXES		14. WATER DEPTH 55 Ft.	
6. THICKNESS OF OVERBURDEN N/A				15. DATE BORING 12-08-13		STARTED 12-08-13	
7. DEPTH DRILLED INTO ROCK N/A				16. ELEVATION TOP OF BORING -54.6 Ft.		COMPLETED 12-08-13	
8. TOTAL DEPTH OF BORING 19.7 Ft.				17. TOTAL RECOVERY FOR BORING 100%			
				18. SIGNATURE AND TITLE OF INSPECTOR Tom Powers, Geologist			
ELEV.	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS	SAMPLE	LABORATORY RESULTS		
-54.6	0.0						
-55.7	1.1		SAND, poorly-graded, mostly fine to medium-grained sand-sized quartz, little shell, lt. gray (SP)	A	Classification: SP Color: GLEY1 10Y 6/1- D50: 0.239 mm % Fines: 3.6		
-57.1	2.5		SAND, silty, mostly fine-grained sand-sized quartz, little shell, lt. gray (SM)	B	Classification: SM Color: GLEY1 10Y 6/1- D50: 0.207 mm % Fines: 13.7		
			CLAY, fat, sandy, sand-filled voids from depth of 2.5 to 3.0 ft., pale green and lt. gray (CH)				
-61.1	6.5						
-61.9	7.3		SAND, poorly-graded with silt, mostly fine to medium-grained sand-sized quartz, lt. gray (SP-SM)				
-63.3	8.7						
-64.1	9.5		SAND, clayey, mostly fine-grained sand-sized quartz, little wood debris, lt. and medium gray (SC)				
			SAND, poorly-graded, mostly fine-grained sand-sized quartz, lt. gray (SP)	NS			
			SAND, silty, mostly fine-grained sand-sized quartz, clay at top of layer and at depth of 12.1 ft., little shell fragments from depth of 14.5 to base of strata, lt. gray (SM)				
-74.3	19.7						
NOTES: 1. Soils are field visually classified in accordance with the Unified Soils Classification System. 2. NS = Sample not submitted for laboratory analysis from this interval. 3. Seafloor elevation calculated using sampling vessel's fathometer water depth reading and							

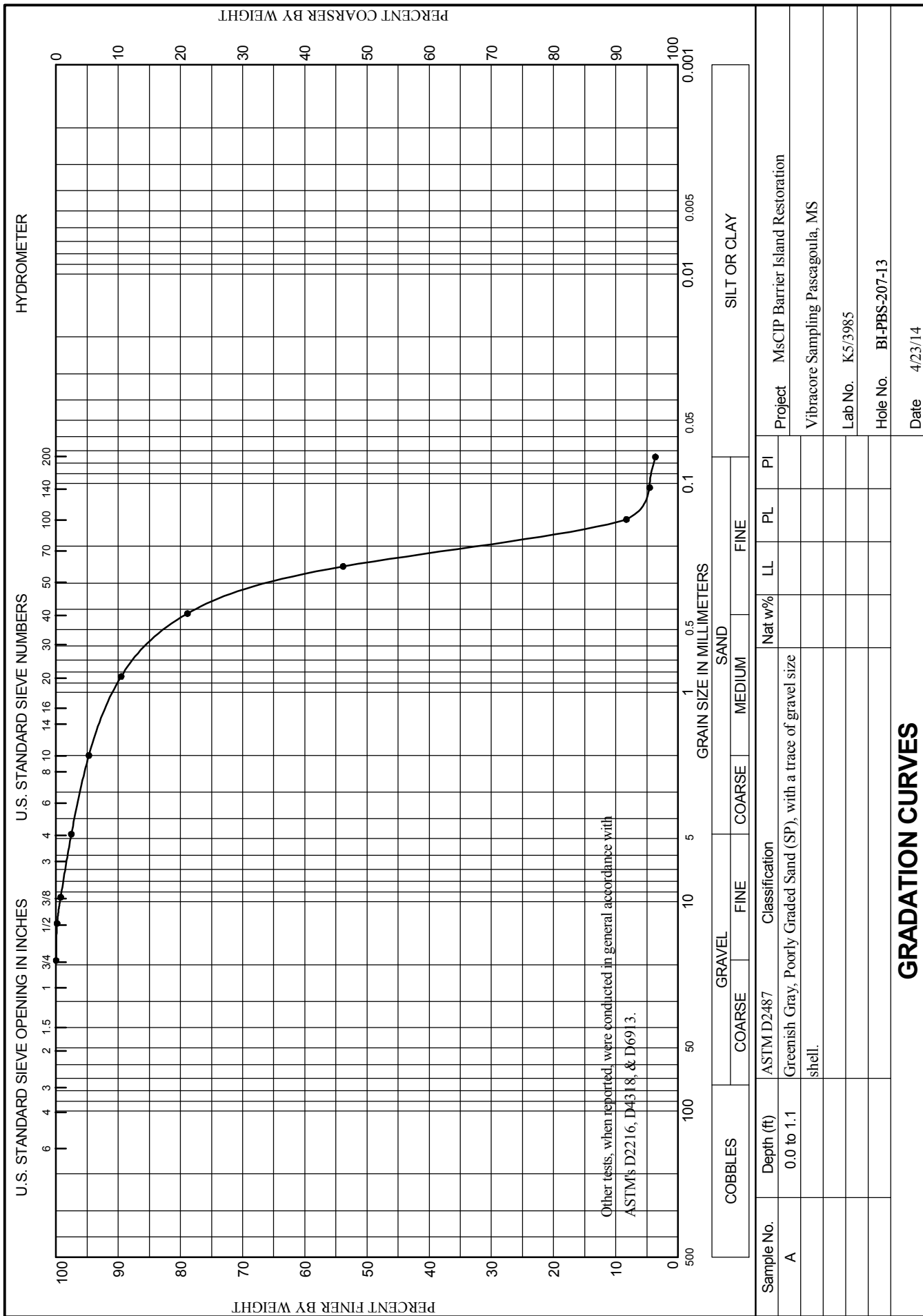
<b>DRILLING LOG (Cont. Sheet)</b>			<b>INSTALLATION</b> Mobile District		<b>SHEET 2</b> <b>OF 2 SHEETS</b>
			<b>PROJECT</b> MsCIP Barrier Island Restoration		<b>COORDINATE SYSTEM/DATUM</b> State Plane, MSE (U.S. Ft.) <b>HORIZONTAL</b> NAD83 <b>VERTICAL</b> NAVD88
<b>LOCATION COORDINATES</b> X = 1,117,339 Y = 228,900			<b>ELEVATION TOP OF BORING</b> -54.6 Ft.		
ELEV.	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS	SAMPLE	LABORATORY RESULTS
			applying NOAA tidal gauge data conversion factor.		



DEPARTMENT OF THE ARMY, SAVANNAH DISTRICT, ENVIRONMENTAL AND MATERIALS UNIT  
CORPS OF ENGINEERS, 200 N. COBB PARKWAY, BLDG 400 SUITE 404, MARIETTA, GA. 30062

WORK ORDER: 848e

REQUISITION: W33SJC32900192

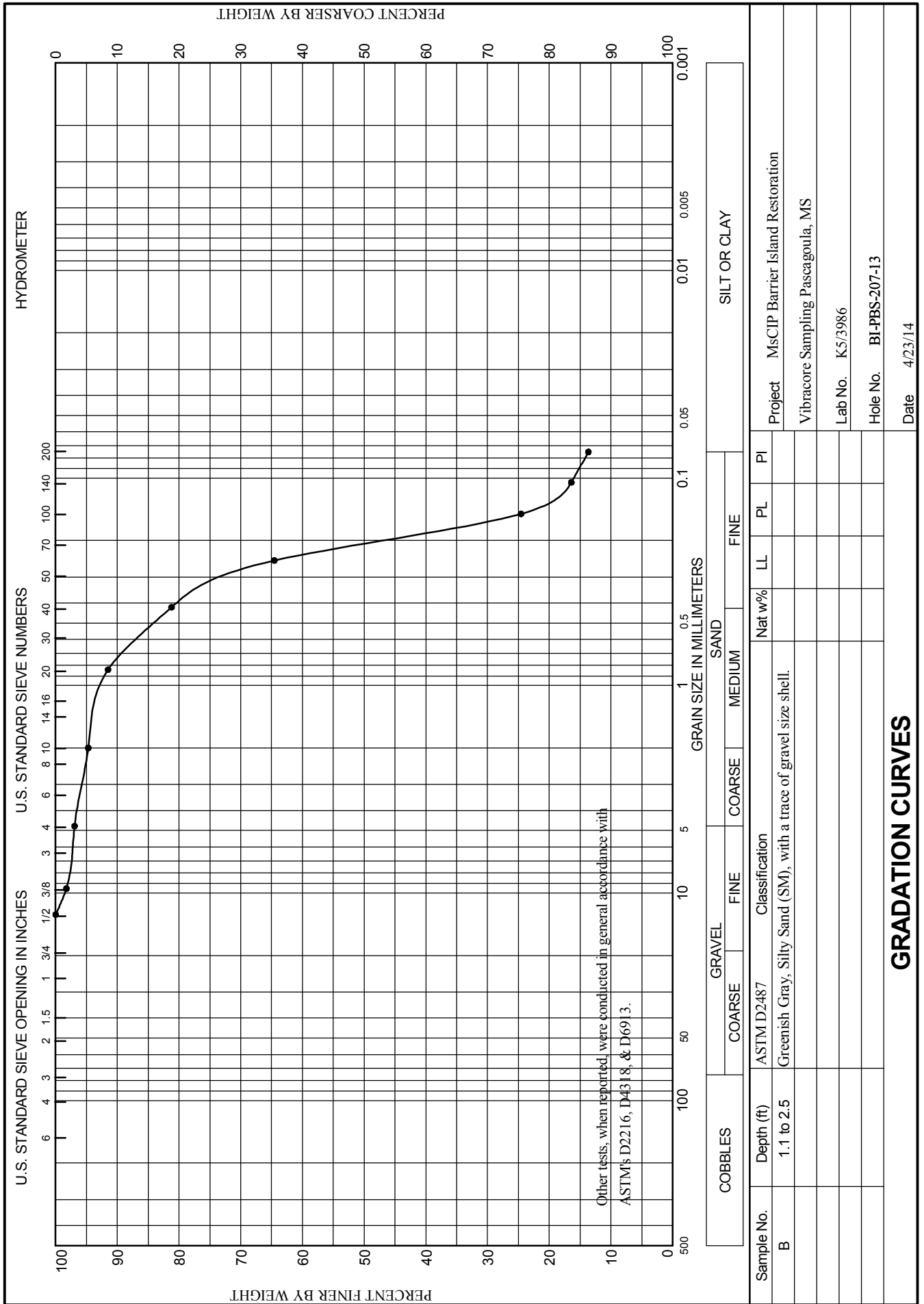




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WORK ORDER: 848e

REQUISITION: W33SJC32900192





# Boring Designation BI-PBS-210-13

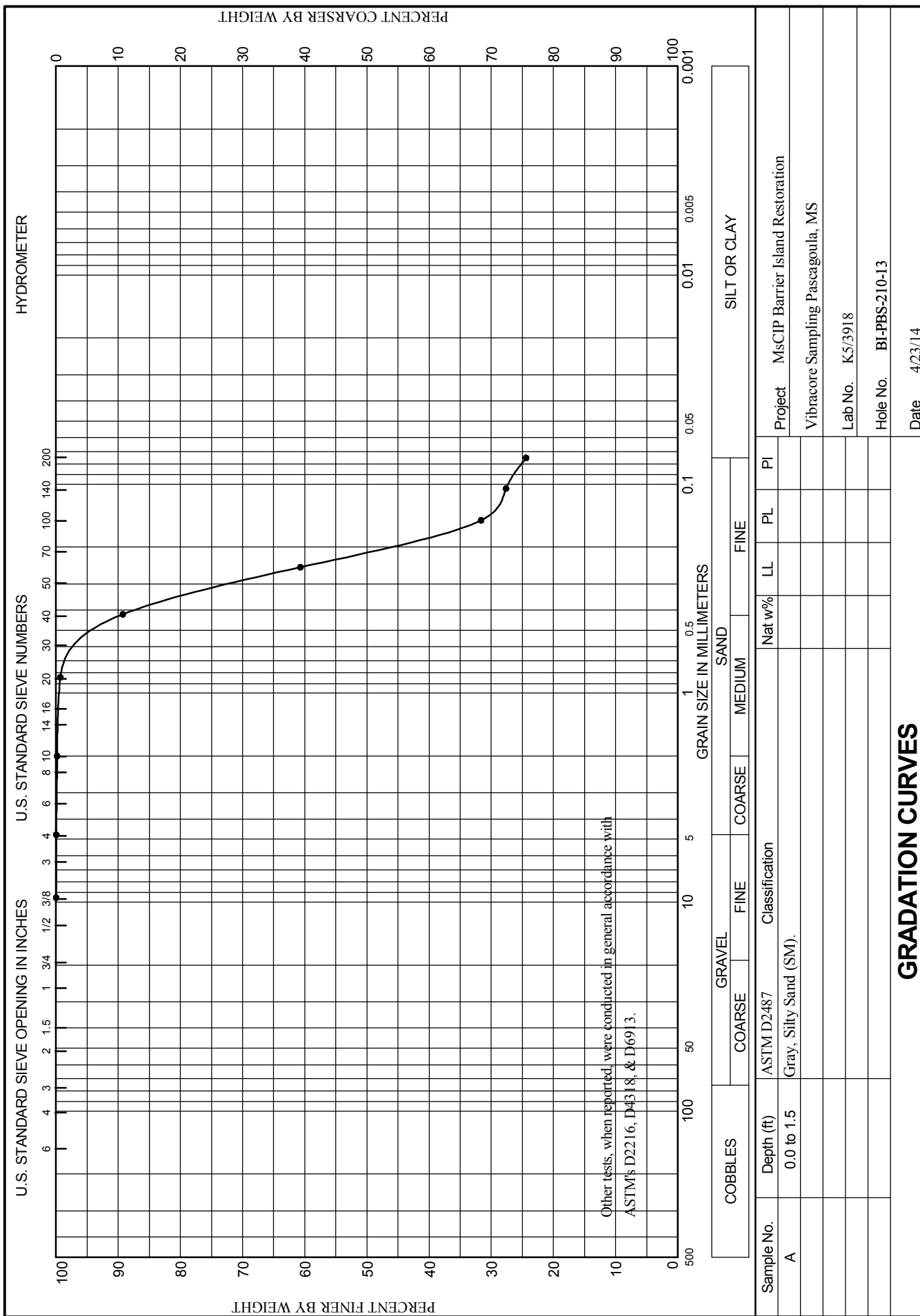
DRILLING LOG		DIVISION South Atlantic		INSTALLATION Mobile District		SHEET 1 OF 1 SHEETS	
1. PROJECT MsCIP Barrier Island Restoration Petit Bois Pass-OCS West				9. SIZE AND TYPE OF BIT N/A			
2. BORING DESIGNATION BI-PBS-210-13		LOCATION COORDINATES E = 1,123,437 N = 230,702		10. COORDINATE SYSTEM/DATUM State Plane, MSE (U.S. Ft.)		HORIZONTAL NAD83	
3. DRILLING AGENCY Corps of Engineers - CESAM		CONTRACTOR FILE NO.		11. MANUFACTURER'S DESIGNATION OF DRILL Vibrocure		<input type="checkbox"/> AUTO HAMMER <input type="checkbox"/> MANUAL HAMMER	
4. NAME OF DRILLER Construction Solutions International, Inc.				12. TOTAL SAMPLES 6		UNDISTURBED (UD) 0	
5. DIRECTION OF BORING <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED				13. TOTAL NUMBER CORE BOXES		14. WATER DEPTH 56 Ft.	
6. THICKNESS OF OVERBURDEN N/A				15. DATE BORING 12-02-13		COMPLETED 12-02-13	
7. DEPTH DRILLED INTO ROCK N/A				16. ELEVATION TOP OF BORING -54.6 Ft.		17. TOTAL RECOVERY FOR BORING 100%	
8. TOTAL DEPTH OF BORING 19.8 Ft.				18. SIGNATURE AND TITLE OF INSPECTOR Tom Powers, Geologist			
ELEV.	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS	SAMPLE	LABORATORY RESULTS		
-54.6	0.0						
-56.1	1.5		SAND, silty, clayey, mostly fine-grained sand-sized quartz, few shell, lt. gray (SC-SM)	A	Classification: SM Color: 2.5Y 6/1-gray D50: 0.207 mm % Fines: 24.4		
-58.0	3.4		SAND, clayey, mostly fine-grained sand-sized quartz, lt. gray (SC)	B	Classification: SC Color: 2.5Y 7/1-light gray D50: 0.085 mm % Fines: 48.2		
-60.0	5.4		CLAY, lean, sandy, medium gray (CL)	NS			
-65.6	11.0		SAND, poorly-graded with silt, mostly fine-grained sand-sized quartz, few shell, medium gray (SP-SM)	C	Classification: SP-SM Color: 2.5Y 6/1-gray D50: 0.226 mm % Fines: 8.5		
-67.6	13.0		SAND, poorly-graded, mostly fine-grained sand-sized quartz, few shell, brownish gray (SP)	D	Classification: SP-SM Color: 2.5Y 6/1-gray D50: 0.211 mm % Fines: 6.8		
-68.6	14.0		SAND, poorly-graded with silt, mostly fine-grained sand-sized quartz, few shell, brownish gray (SP-SM)	E	Classification: SP-SM Color: 2.5Y 6/1-gray D50: 0.193 mm % Fines: 9.2		
-74.4	19.8		SAND, silty, mostly fine-grained sand-sized quartz, few shell, brownish gray (SM)	F	Classification: SM Color: 2.5Y 6/1-gray D50: 0.178 mm % Fines: 12.4		
			NOTES: 1. Soils are field visually classified in accordance with the Unified Soils Classification System. 2. NS = Sample not submitted for laboratory analysis from this interval. 3. Seafloor elevation determined from 12/17/2014 USACE survey.	NS			



DEPARTMENT OF THE ARMY, SAVANNAH DISTRICT, ENVIRONMENTAL AND MATERIALS UNIT  
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WORK ORDER: 848e

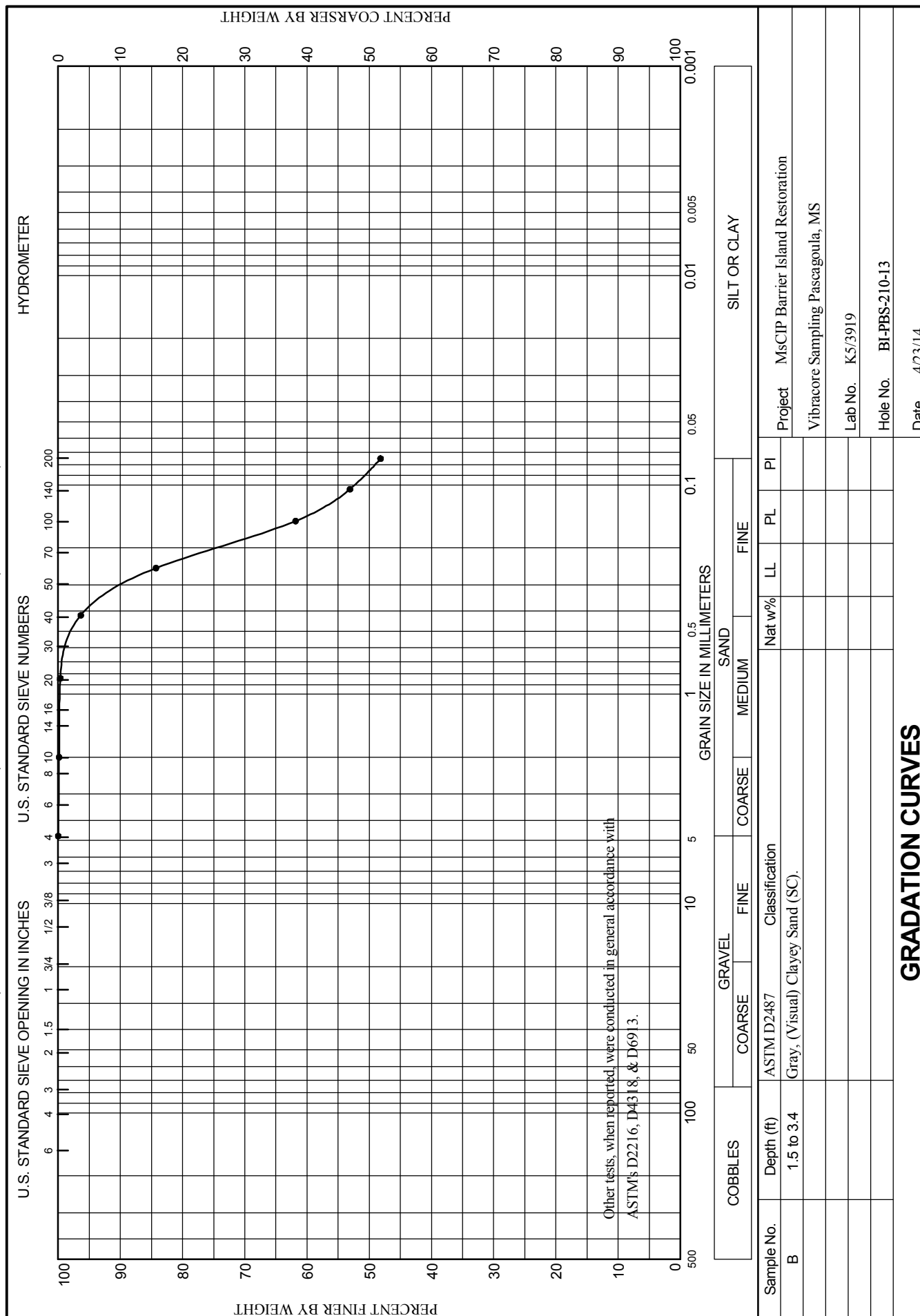
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WORK ORDER: 848e

REQUISITION: W33SJG32900192

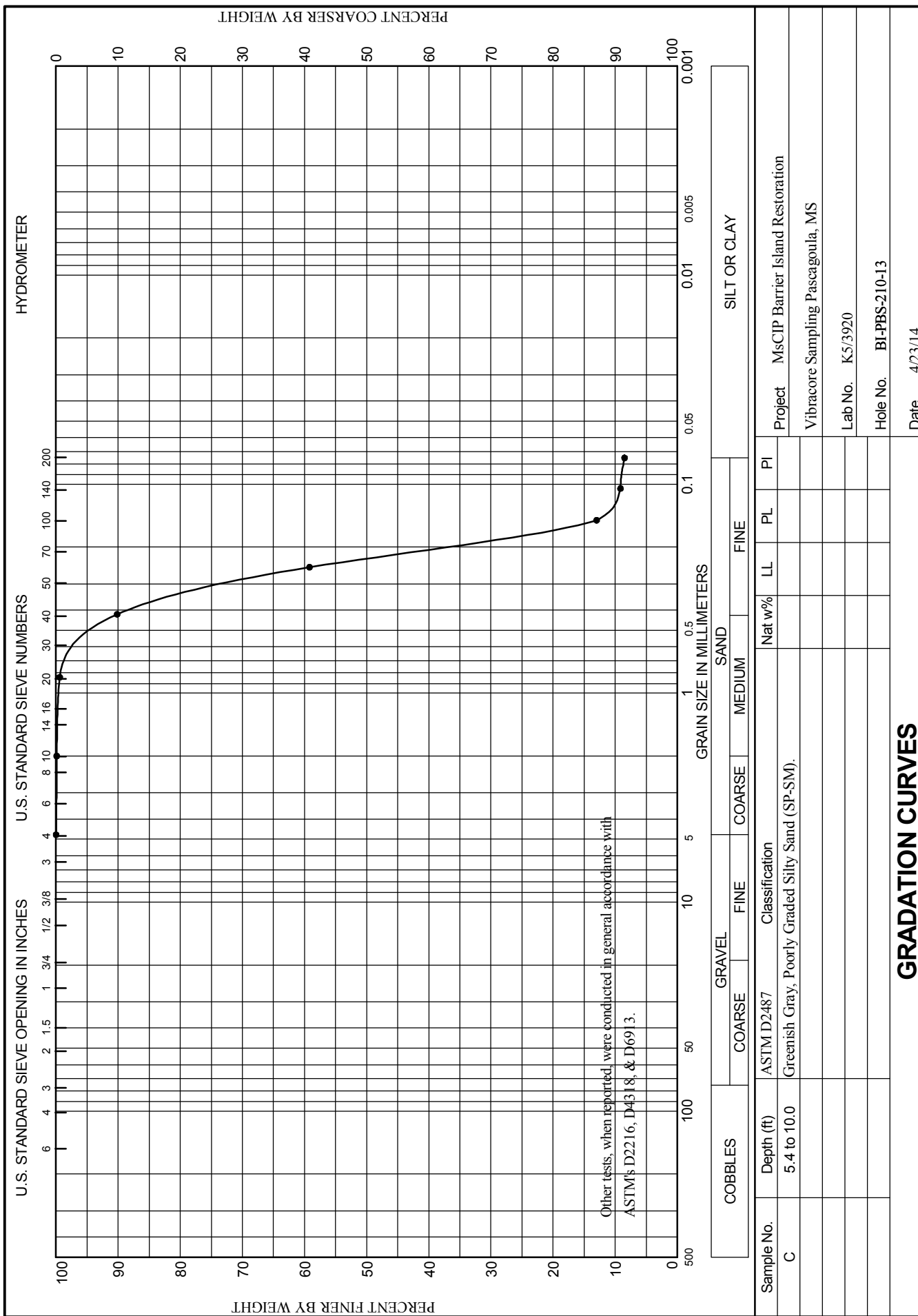




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WORK ORDER: 848e

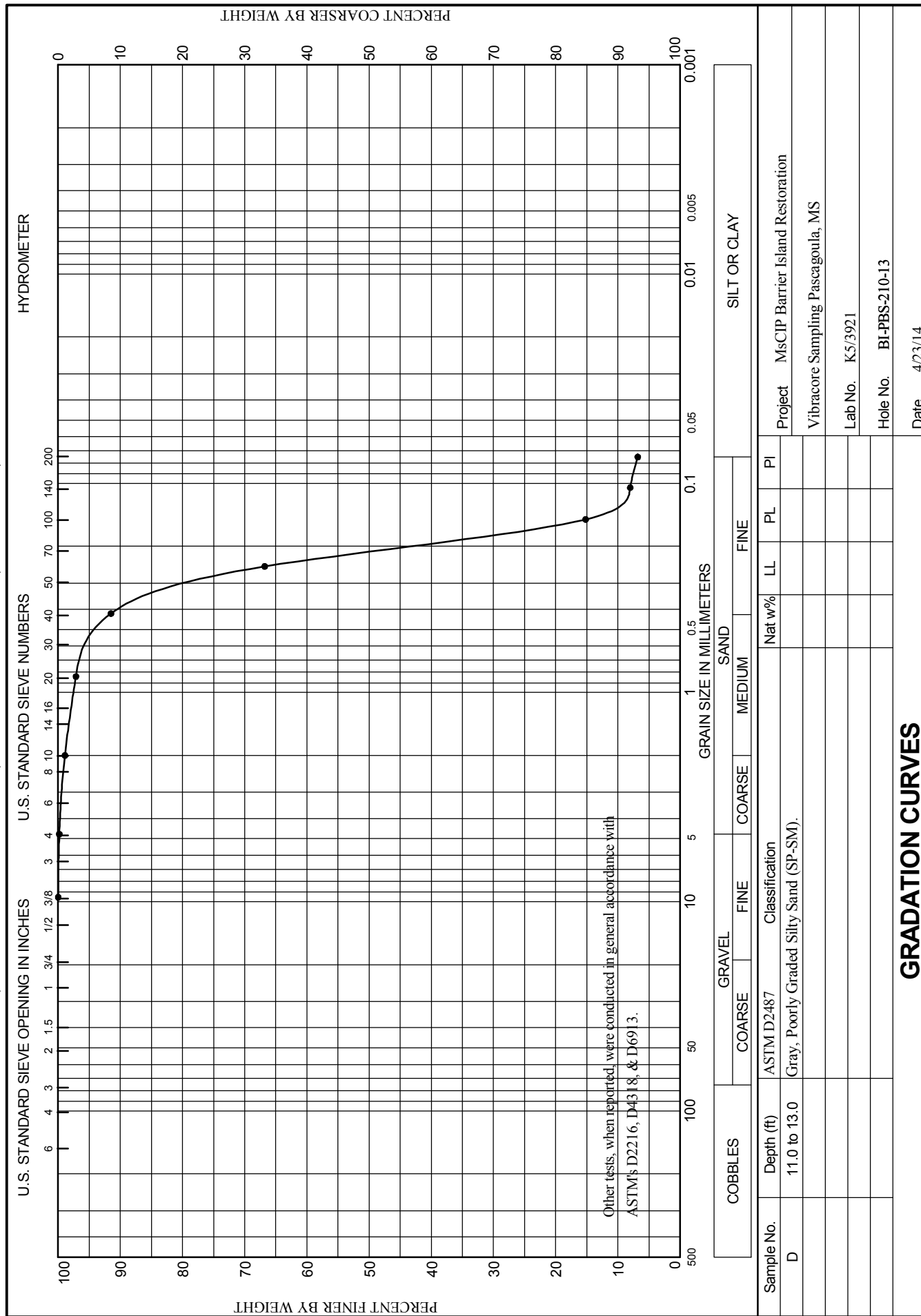
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WORK ORDER: 848e

REQUISITION: W33SJG32900192

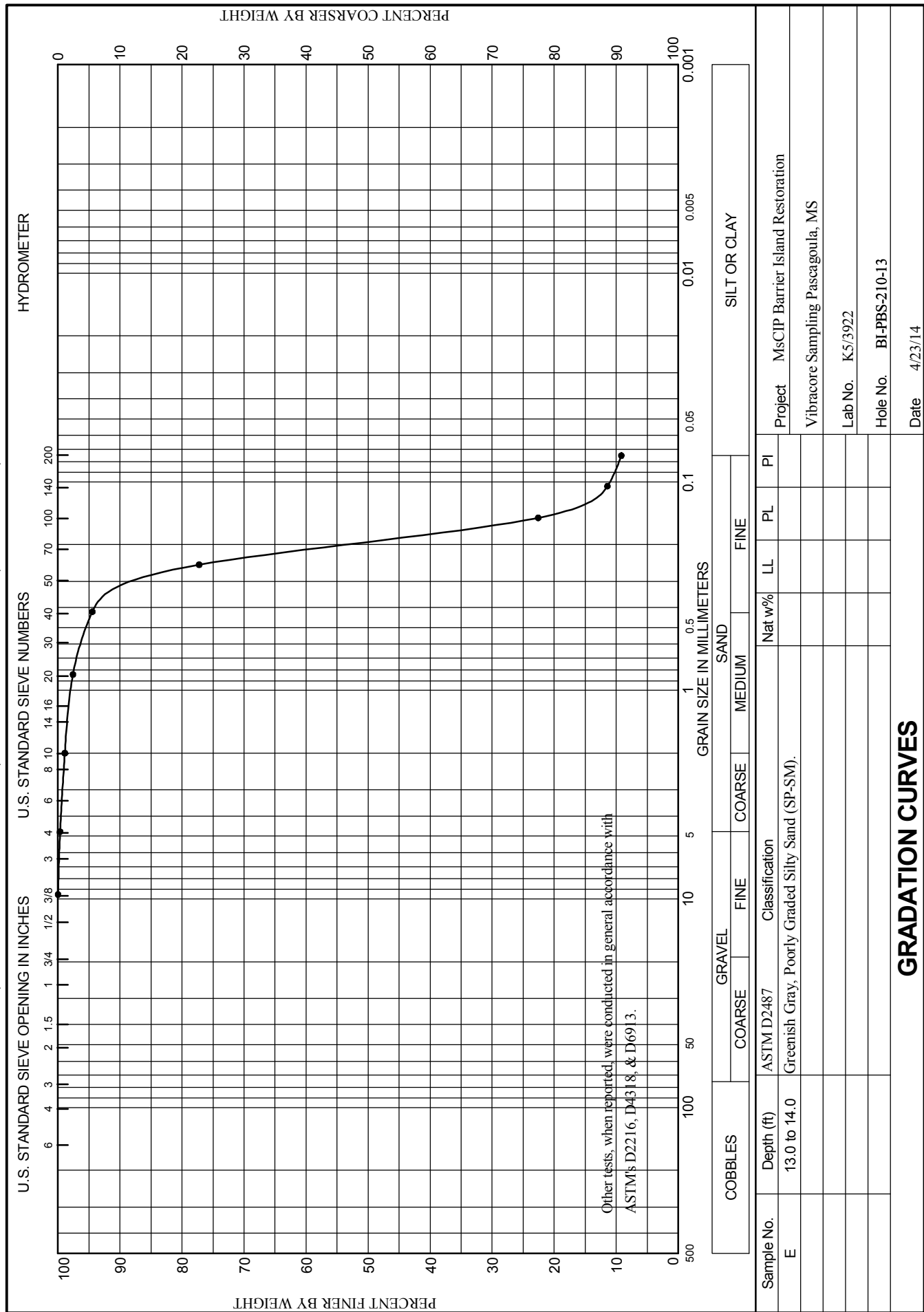




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WORK ORDER: 848e

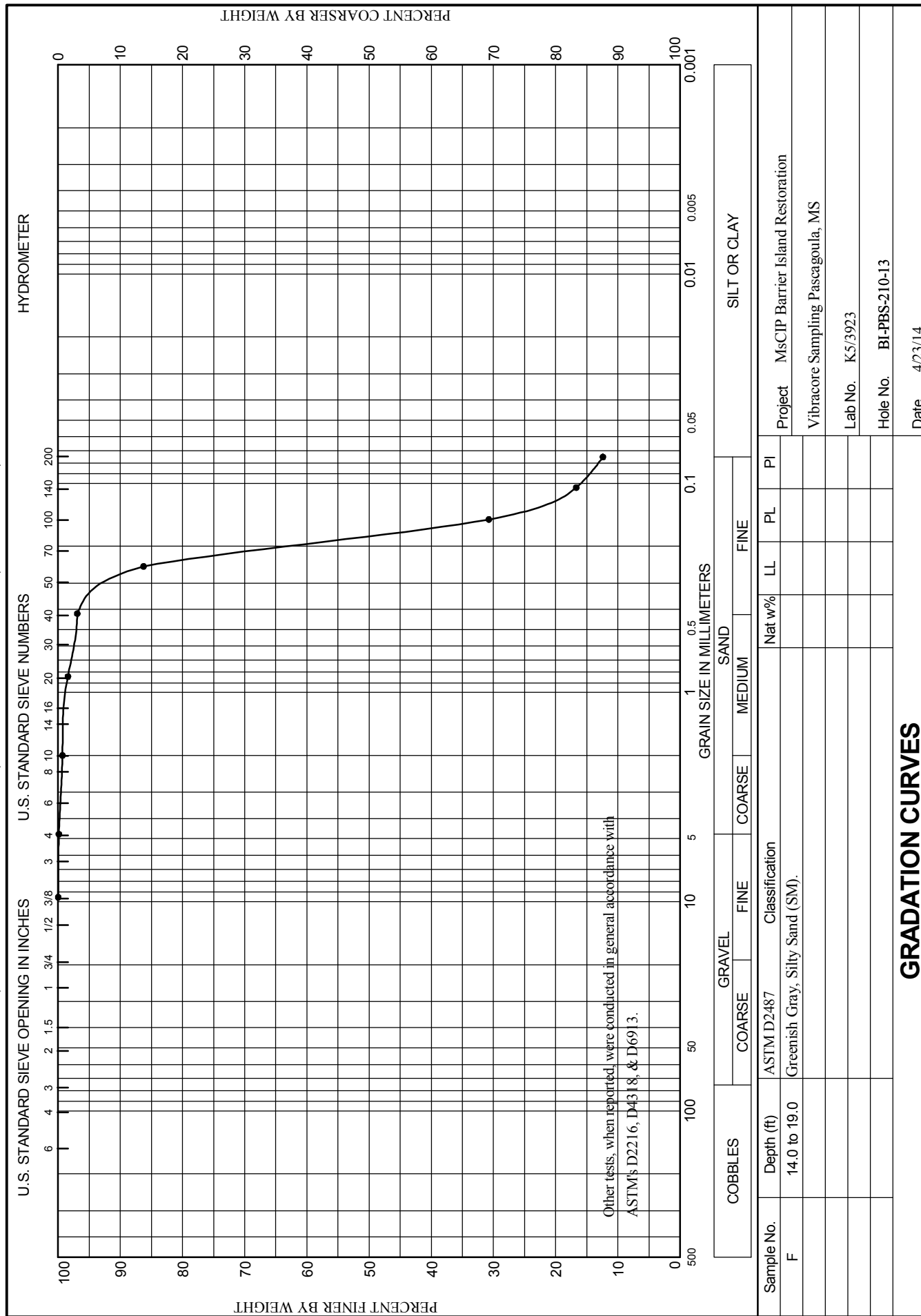
REQUISITION: W33SJC32900192





WORK ORDER: 848e

REQUISITION: W33SJG32900192



# Boring Designation BI-PBS-212-13

DRILLING LOG		DIVISION South Atlantic		INSTALLATION Mobile District		SHEET 1 OF 1 SHEETS	
1. PROJECT MsCIP Barrier Island Restoration Petit Bois Pass-OCS West				9. SIZE AND TYPE OF BIT N/A			
2. BORING DESIGNATION BI-PBS-212-13		LOCATION COORDINATES E = 1,116,601 N = 231,149		10. COORDINATE SYSTEM/DATUM State Plane, MSE (U.S. Ft.)		HORIZONTAL NAD83 VERTICAL NAVD88	
3. DRILLING AGENCY Corps of Engineers - CESAM		CONTRACTOR FILE NO.		11. MANUFACTURER'S DESIGNATION OF DRILL Vibracore		<input type="checkbox"/> AUTO HAMMER <input type="checkbox"/> MANUAL HAMMER	
4. NAME OF DRILLER Construction Solutions International, Inc.				12. TOTAL SAMPLES 2		DISTURBED 2 UNDISTURBED (UD) 0	
5. DIRECTION OF BORING <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED		DEG. FROM VERTICAL		13. TOTAL NUMBER CORE BOXES			
		BEARING		14. WATER DEPTH 53 Ft.			
6. THICKNESS OF OVERBURDEN N/A				15. DATE BORING 12-09-13		STARTED 12-09-13 COMPLETED 12-09-13	
7. DEPTH DRILLED INTO ROCK N/A				16. ELEVATION TOP OF BORING -52.8 Ft.			
8. TOTAL DEPTH OF BORING 11.9 Ft.				17. TOTAL RECOVERY FOR BORING 100%			
				18. SIGNATURE AND TITLE OF INSPECTOR Tom Powers, Geologist			

ELEV.	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS	SAMPLE	LABORATORY RESULTS
-52.8	0.0				
-53.8	1.0		SAND, poorly-graded, mostly fine to medium-grained sand-sized quartz, little shell, lt. gray (SP)	A	Classification: SP Color: 2.5Y 7/1-light gray D50: 0.297 mm % Fines: 1.5
-54.5	1.7		SAND, silty, mostly fine-grained sand-sized quartz, few shell, lt. to medium gray (SM)	B	Classification: SM Color: 2.5Y 5/1-gray D50: 0.218 mm % Fines: 13.5
-54.8	2.0		SAND, clayey, mostly fine-grained sand-sized quartz, trace shell, medium gray (SC)		
-59.3	6.5		CLAY, lean, sandy, pale green, lt. and medium gray (CL)		
-60.0	7.2		SAND, clayey, mostly fine-grained sand-sized quartz, medium gray (SC)	NS	
-61.3	8.5		SAND, poorly-graded with silt, mostly fine to medium-grained sand-sized quartz, little shell, lt. to medium gray (SP-SM)		
-64.7	11.9		SAND, silty, mostly fine-grained sand-sized quartz, little shell, medium gray (SM)		
NOTES: 1. Soils are field visually classified in accordance with the Unified Soils Classification System. 2. NS = Sample not submitted for laboratory analysis from this interval. 3. Seafloor elevation calculated using sampling vessel's fathometer water depth reading and applying NOAA tidal gauge data conversion factor.					

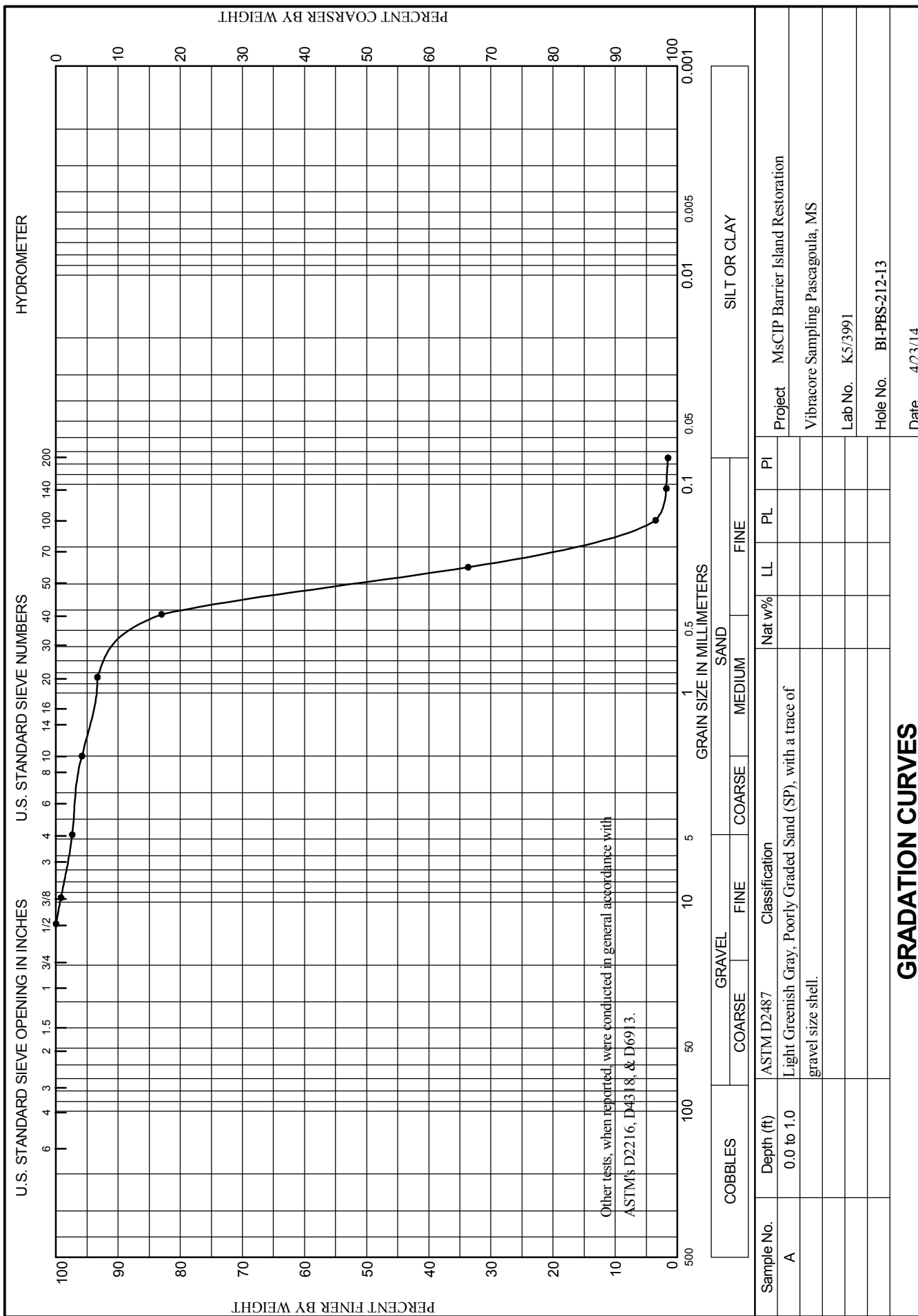




DEPARTMENT OF THE ARMY, SAVANNAH DISTRICT, ENVIRONMENTAL AND MATERIALS UNIT  
CORPS OF ENGINEERS, 200 N. COBB PARKWAY, BLDG 400 SUITE 404, MARIETTA, GA. 30062

WORK ORDER: 848e

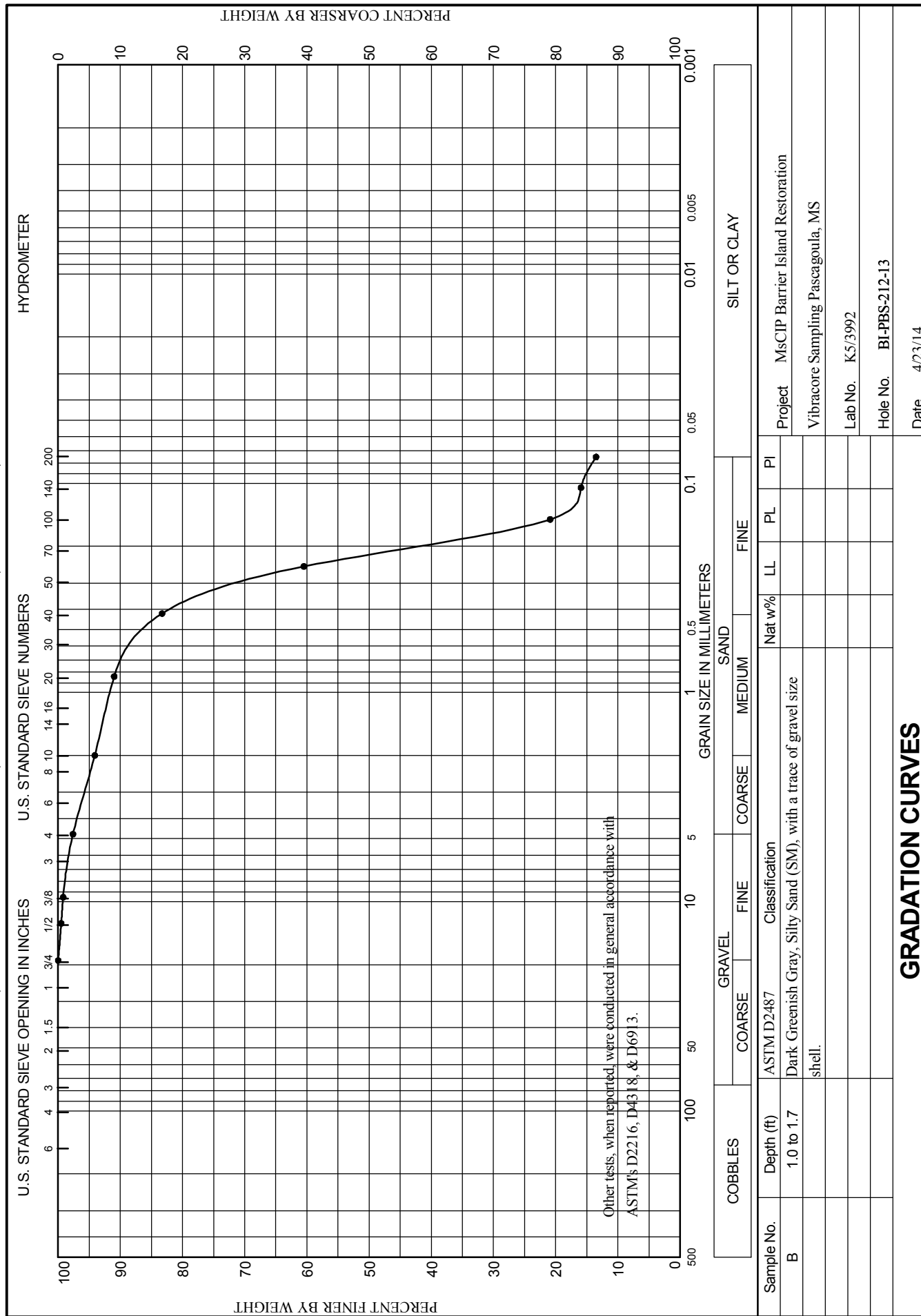
REQUISITION: W33SJC32900192





WORK ORDER: 848e

REQUISITION: W33SJG32900192



# Boring Designation BI-PBS-214-13

DRILLING LOG		DIVISION South Atlantic		INSTALLATION Mobile District		SHEET 1 OF 1 SHEETS	
1. PROJECT MsCIP Barrier Island Restoration Petit Bois Pass-OCS West				9. SIZE AND TYPE OF BIT N/A			
2. BORING DESIGNATION BI-PBS-214-13		LOCATION COORDINATES E = 1,122,557 N = 229,244		10. COORDINATE SYSTEM/DATUM State Plane, MSE (U.S. Ft.)		HORIZONTAL NAD83	
3. DRILLING AGENCY Corps of Engineers - CESAM		CONTRACTOR FILE NO.		11. MANUFACTURER'S DESIGNATION OF DRILL Vibracore		<input type="checkbox"/> AUTO HAMMER <input type="checkbox"/> MANUAL HAMMER	
4. NAME OF DRILLER Construction Solutions International, Inc.				12. TOTAL SAMPLES 3		UNDISTURBED (UD) 0	
5. DIRECTION OF BORING <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED				13. TOTAL NUMBER CORE BOXES		14. WATER DEPTH 49 Ft.	
6. THICKNESS OF OVERBURDEN N/A				15. DATE BORING 12-02-13		STARTED 12-02-13	
7. DEPTH DRILLED INTO ROCK N/A				16. ELEVATION TOP OF BORING -48.6 Ft.		COMPLETED 12-02-13	
8. TOTAL DEPTH OF BORING 19.8 Ft.				17. TOTAL RECOVERY FOR BORING 100%			
				18. SIGNATURE AND TITLE OF INSPECTOR Tom Powers, Geologist			

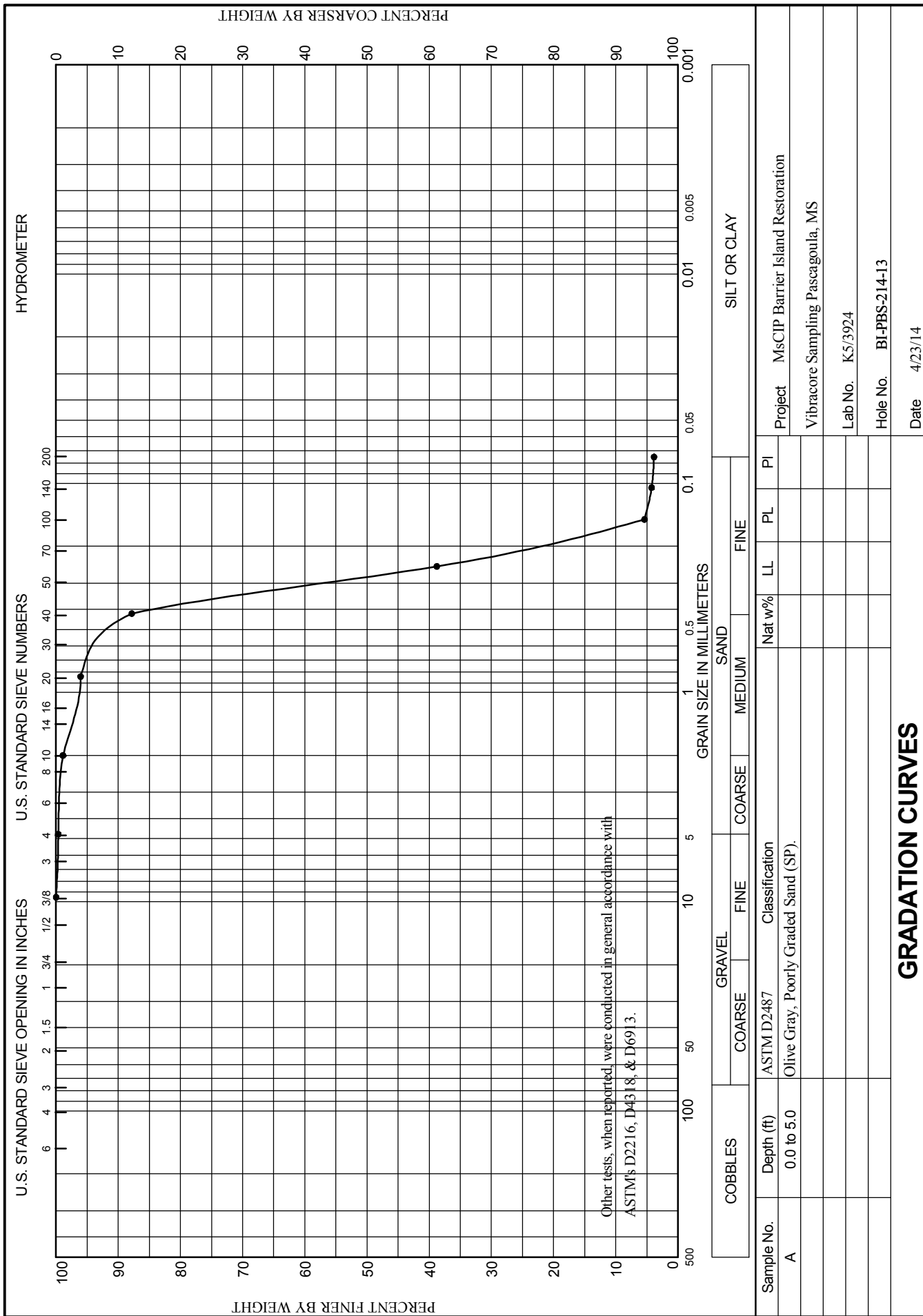
ELEV.	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS	SAMPLE	LABORATORY RESULTS
-48.6	0.0				
			SAND, poorly-graded, mostly fine to medium-grained sand-sized quartz, few shell, lt. gray (SP)	A	Classification: SP Color: GLEY1 10Y 6/1- D50: 0.281 mm % Fines: 3.9
				B	Classification: SP Color: GLEY1 10Y 6/1- D50: 0.298 mm % Fines: 1.9
-55.8	7.2				
-56.3	7.7		SAND, silty, mostly fine-grained sand-sized quartz, little shell, medium gray (SM)	C	Classification: SM Color: GLEY1 10Y 5/1- D50: 0.209 mm % Fines: 16.7
-57.6	9.0		SAND, clayey, little shell, medium gray (SC)		
-58.4	9.8		CLAY, lean, few shell, sandy, medium gray (CL)		
			CLAY, fat, little sand, lt. gray over greenish gray; orange streaks throughout (CH)		
-61.9	13.3				
-62.9	14.3		SILT, inorganic-L, sandy, lt. gray (ML)		
			CLAY, fat, silty and non-silty, pale green (CH)	NS	
-65.6	17.0				
			SAND, silty, mostly fine-grained sand-sized quartz, little shell, medium gray (SM)		
-68.4	19.8				
NOTES: 1. Soils are field visually classified in accordance with the Unified Soils Classification System. 2. NS = Sample not submitted for laboratory analysis from this interval. 3. Seafloor elevation determined from 12/17/2014 USACE survey.					



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WORK ORDER: 848e

REQUISITION: W33SJC32900192

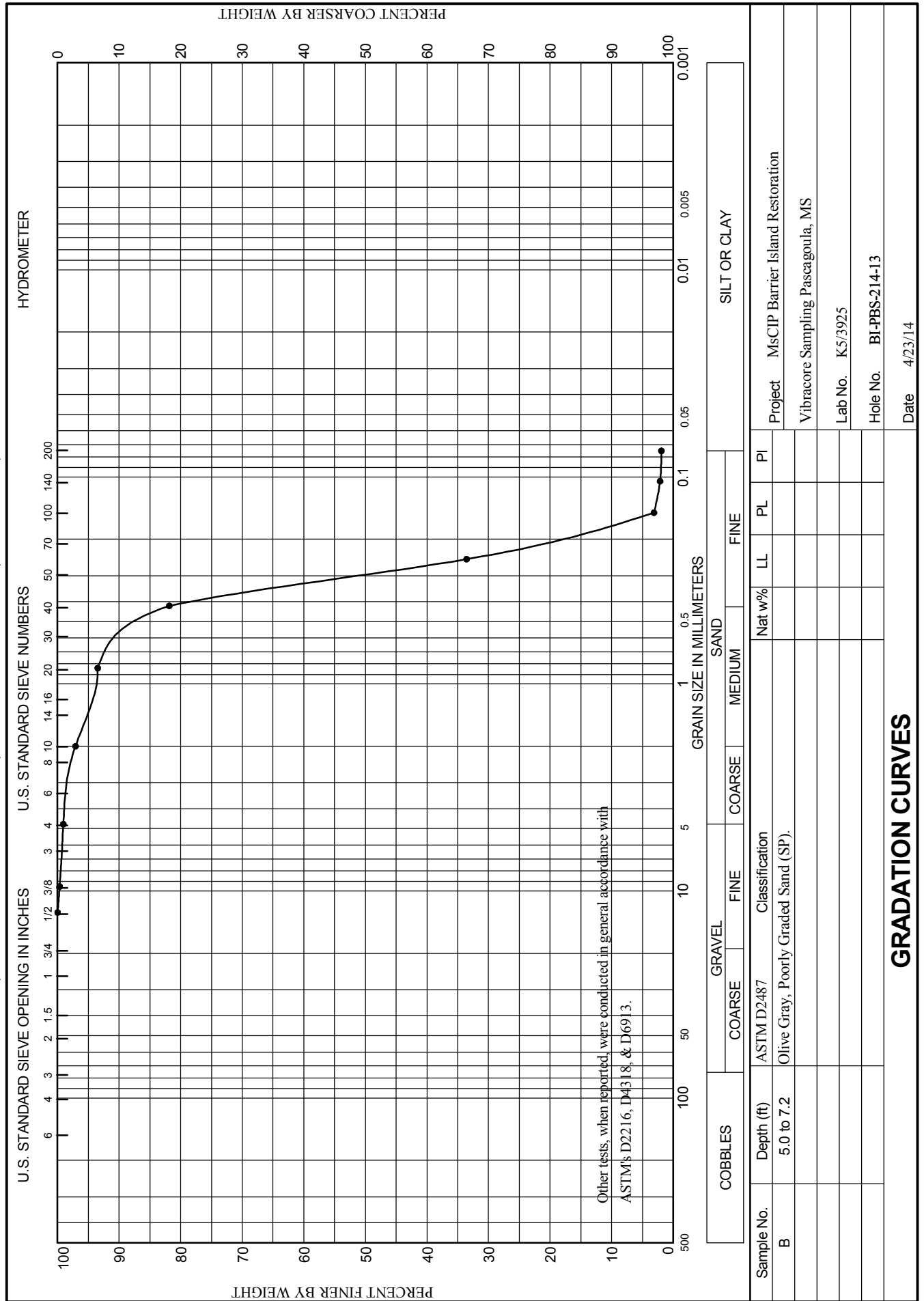




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WORK ORDER: 848e

REQUISITION: W33SJC32900192





WORK ORDER: 848e

REQUISITION: W33SJG32900192



# Boring Designation BI-PBS-215-13

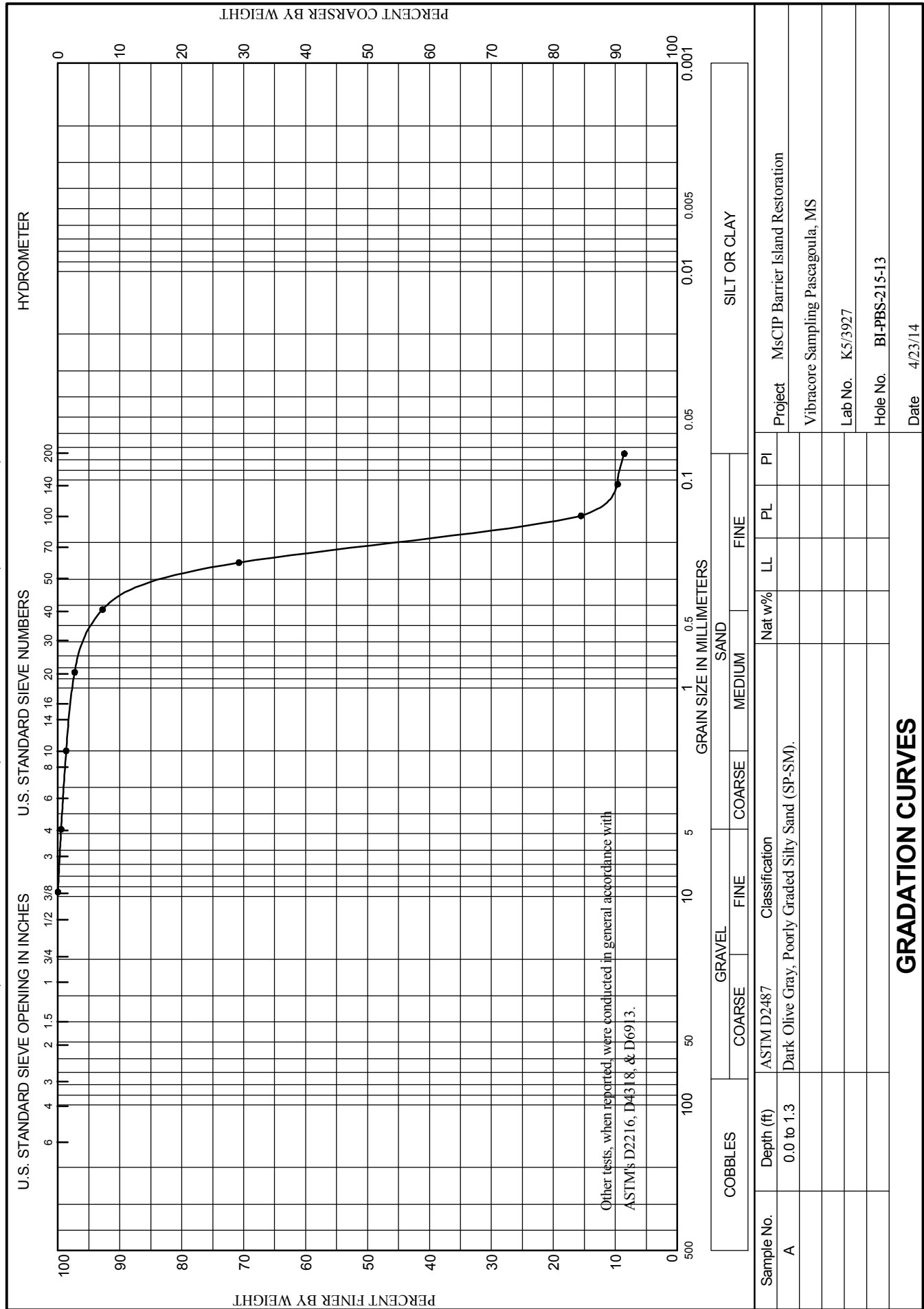
DRILLING LOG		DIVISION South Atlantic		INSTALLATION Mobile District		SHEET 1 OF 1 SHEETS	
1. PROJECT MsCIP Barrier Island Restoration Petit Bois Pass-OCS West				9. SIZE AND TYPE OF BIT N/A			
2. BORING DESIGNATION BI-PBS-215-13		LOCATION COORDINATES E = 1,120,997 N = 228,914		10. COORDINATE SYSTEM/DATUM State Plane, MSE (U.S. Ft.)		HORIZONTAL NAD83	
3. DRILLING AGENCY Corps of Engineers - CESAM		CONTRACTOR FILE NO.		11. MANUFACTURER'S DESIGNATION OF DRILL Vibrocure		<input type="checkbox"/> AUTO HAMMER <input type="checkbox"/> MANUAL HAMMER	
4. NAME OF DRILLER Construction Solutions International, Inc.				12. TOTAL SAMPLES		DISTURBED 1	
5. DIRECTION OF BORING <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED				13. TOTAL NUMBER CORE BOXES		UNDISTURBED (UD) 0	
6. THICKNESS OF OVERBURDEN N/A				14. WATER DEPTH 56.5 Ft.		15. DATE BORING 12-02-13	
7. DEPTH DRILLED INTO ROCK N/A				16. ELEVATION TOP OF BORING -56.0 Ft.		COMPLETED 12-02-13	
8. TOTAL DEPTH OF BORING 18.7 Ft.				17. TOTAL RECOVERY FOR BORING 100%		18. SIGNATURE AND TITLE OF INSPECTOR Tom Powers, Geologist	
ELEV.	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS	SAMPLE	LABORATORY RESULTS		
-56.0	0.0						
-57.3	1.3		SAND, silty, mostly fine-grained sand-sized quartz, little shell, medium gray (SM)	A	Classification: SP-SM Color: GLEY1 10Y 6/1- D50: 0.206 mm % Fines: 8.5		
-58.6	2.6		CLAY, lean, interbedded with 1-inch thick layers of silty sand, medium gray (CL)				
			CLAY, fat, pale green over medium gray (CH)				
-64.1	8.1						
			SAND, poorly-graded with silt, mostly fine-grained sand-sized quartz, little shell, lt. gray (SP-SM)	NS			
-67.5	11.5						
			SAND, silty, mostly fine-grained sand-sized quartz, few shell, lt. gray (SM)				
-74.7	18.7						
NOTES: 1. Soils are field visually classified in accordance with the Unified Soils Classification System. 2. NS = Sample not submitted for laboratory analysis from this interval. 3. Seafloor elevation determined from 12/17/2014 USACE survey.							



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WORK ORDER: 848e

REQUISITION: W33SJC32900192





# Boring Designation BI-PBS-216-13

<b>DRILLING LOG</b>		<b>DIVISION</b> South Atlantic	<b>INSTALLATION</b> Mobile District	<b>SHEET 1</b> <b>OF 1 SHEETS</b>
<b>1. PROJECT</b> MsCIP Barrier Island Restoration Petit Bois Pass-OCS West			<b>9. SIZE AND TYPE OF BIT</b> N/A	
<b>2. BORING DESIGNATION</b> BI-PBS-216-13		<b>10. COORDINATE SYSTEM/DATUM</b> State Plane, MSE (U.S. Ft.)		<b>HORIZONTAL</b> NAD83
<b>3. DRILLING AGENCY</b> Corps of Engineers - CESAM		<b>11. MANUFACTURER'S DESIGNATION OF DRILL</b> Vibracore		<b>VERTICAL</b> NAVD88
<b>4. NAME OF DRILLER</b> Construction Solutions International, Inc.		<b>12. TOTAL SAMPLES</b> 2		<b>UNDISTURBED (UD)</b> 0
<b>5. DIRECTION OF BORING</b> <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED		<b>13. TOTAL NUMBER CORE BOXES</b>		<b>14. WATER DEPTH</b> 50 Ft.
<b>6. THICKNESS OF OVERBURDEN</b> N/A		<b>15. DATE BORING</b> 12-18-13		<b>STARTED</b> 12-18-13
<b>7. DEPTH DRILLED INTO ROCK</b> N/A		<b>16. ELEVATION TOP OF BORING</b> -49.9 Ft.		<b>COMPLETED</b> 12-18-13
<b>8. TOTAL DEPTH OF BORING</b> 19.7 Ft.		<b>17. TOTAL RECOVERY FOR BORING</b> 100%		<b>18. SIGNATURE AND TITLE OF INSPECTOR</b> Tom Powers, Geologist

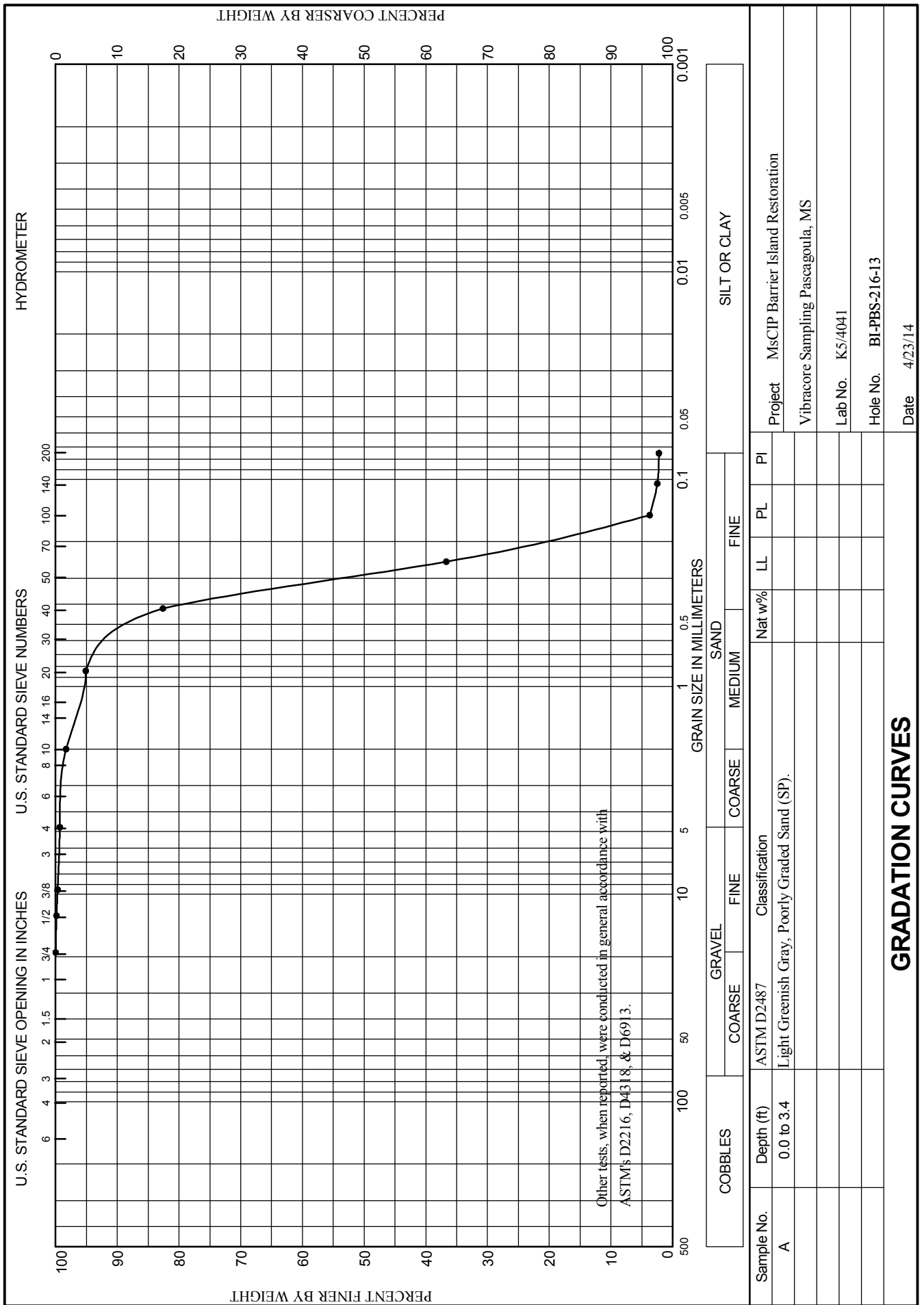
ELEV.	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS	SAMPLE	LABORATORY RESULTS
-49.9	0.0				
-53.3	3.4		SAND, poorly-graded, mostly fine to medium-grained sand-sized quartz, trace shell fragments, lt. gray (SP)	A	Classification: SP Color: 2.5Y 7/1-light gray D50: 0.291 mm % Fines: 2.2
-53.6	3.7		SAND, silty, mostly fine-grained sand-sized quartz, little shell fragments, medium gray (SM)	B	Classification: SP-SM Color: 2.5Y 5/1-gray D50: 0.235 mm % Fines: 8.3
-60.6	10.7		CLAY, lean, sandy, medium gray (CL)  At El. -56.9 Ft., sandy, very loose - (liquefied?), medium to lt. gray	NS	
-65.4	15.5		CLAY, fat, sandy with vertical burrows filled with pale brown silty sand, lt. gray and pale orange (CH)		
-66.6	16.7		SAND, silty, mostly fine-grained sand-sized quartz, lt. gray and pale orange (SM)		
-69.6	19.7		SAND, poorly-graded, mostly fine-grained sand-sized quartz, few shell fragments, white and medium gray (SP)		
			NOTES:  1. Soils are field visually classified in accordance with the Unified Soils Classification System.  2. NS = Sample not submitted for laboratory analysis from this interval.  3. Seafloor elevation determined from 12/17/2014 USACE survey.		



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WORK ORDER: 848e

REQUISITION: W33SJC32900192





REQUISITION: W33SJG32900192



# Boring Designation BI-PBS-217-13

DRILLING LOG		DIVISION South Atlantic		INSTALLATION Mobile District		SHEET 1 OF 1 SHEETS	
1. PROJECT MsCIP Barrier Island Restoration Petit Bois Pass-OCS West				9. SIZE AND TYPE OF BIT N/A			
2. BORING DESIGNATION BI-PBS-217-13		LOCATION COORDINATES E = 1,117,527 N = 232,098		10. COORDINATE SYSTEM/DATUM State Plane, MSE (U.S. Ft.)		HORIZONTAL NAD83	
3. DRILLING AGENCY Corps of Engineers - CESAM		CONTRACTOR FILE NO.		11. MANUFACTURER'S DESIGNATION OF DRILL Vibrocure		<input type="checkbox"/> AUTO HAMMER <input type="checkbox"/> MANUAL HAMMER	
4. NAME OF DRILLER Construction Solutions International, Inc.				12. TOTAL SAMPLES		DISTURBED 1	
5. DIRECTION OF BORING <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED				13. TOTAL NUMBER CORE BOXES		UNDISTURBED (UD) 0	
6. THICKNESS OF OVERBURDEN N/A				14. WATER DEPTH		48.7 Ft.	
7. DEPTH DRILLED INTO ROCK N/A				15. DATE BORING		STARTED 12-04-13	
8. TOTAL DEPTH OF BORING 11.5 Ft.				16. ELEVATION TOP OF BORING		COMPLETED 12-04-13	
				17. TOTAL RECOVERY FOR BORING		100%	
				18. SIGNATURE AND TITLE OF INSPECTOR Tom Powers, Geologist			

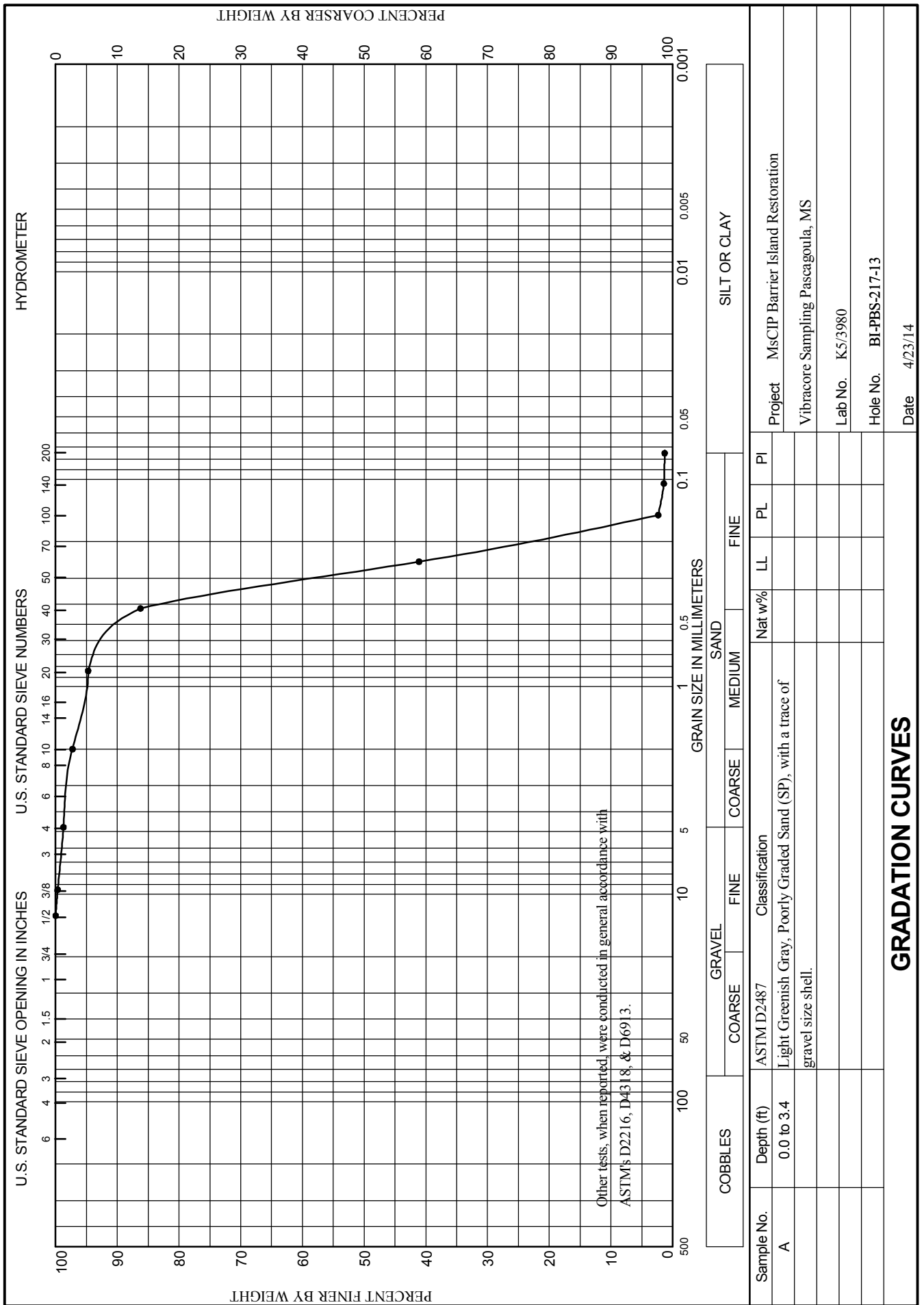
ELEV.	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS	SAMPLE	LABORATORY RESULTS
-48.7	0.0				
-49.8	1.1		SAND, poorly-graded, mostly fine to medium-grained sand-sized quartz, little shell, lt. gray (SP)	A	Classification: SP Color: GLEY1 10Y 7/1- D50: 0.277 mm % Fines: 1.3
-52.1	3.4		SAND, poorly-graded, mostly fine-grained sand-sized quartz, little shell between depth of 3 to 3.4 ft., lt. gray (SP)		
-54.6	5.9		CLAY, fat, sandy, interbedded with 3/4-inch thick layers of SM between depths of 4 to 5.9 ft., lt. gray and orange (CH)	NS	
-56.1	7.4		CLAY, lean, some shell, lt. gray (CL)		
-59.2	10.5		CLAY, fat, trace wood, trace white concretions or indistinguishable shell material, pale green, medium gray (CH)		
-60.2	11.5		SAND, silty, mostly fine-grained sand-sized quartz, little shell, medium gray (SM)		
NOTES: 1. Soils are field visually classified in accordance with the Unified Soils Classification System. 2. NS = Sample not submitted for laboratory analysis from this interval. 3. Seafloor elevation determined from 2013 USGS geophysical survey.					



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WORK ORDER: 848e

REQUISITION: W33SJC32900192



# Boring Designation BI-PBS-218-13

DRILLING LOG		DIVISION South Atlantic		INSTALLATION Mobile District		SHEET 1 OF 2 SHEETS	
1. PROJECT MsCIP Barrier Island Restoration Petit Bois Pass-OCS West				9. SIZE AND TYPE OF BIT N/A			
2. BORING DESIGNATION BI-PBS-218-13		LOCATION COORDINATES E = 1,117,966 N = 230,412		10. COORDINATE SYSTEM/DATUM State Plane, MSE (U.S. Ft.)		HORIZONTAL NAD83 VERTICAL NAVD88	
3. DRILLING AGENCY Corps of Engineers - CESAM		CONTRACTOR FILE NO.		11. MANUFACTURER'S DESIGNATION OF DRILL Vibrocure		<input type="checkbox"/> AUTO HAMMER <input type="checkbox"/> MANUAL HAMMER	
4. NAME OF DRILLER Construction Solutions International, Inc.				12. TOTAL SAMPLES 1		DISTURBED 1 UNDISTURBED (UD) 0	
5. DIRECTION OF BORING <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED		DEG. FROM VERTICAL		13. TOTAL NUMBER CORE BOXES			
		BEARING		14. WATER DEPTH 55 Ft.			
6. THICKNESS OF OVERBURDEN N/A				15. DATE BORING 12-04-13		STARTED 12-04-13 COMPLETED 12-04-13	
7. DEPTH DRILLED INTO ROCK N/A				16. ELEVATION TOP OF BORING -54.1 Ft.			
8. TOTAL DEPTH OF BORING 19.5 Ft.				17. TOTAL RECOVERY FOR BORING 100%			
				18. SIGNATURE AND TITLE OF INSPECTOR Tom Powers, Geologist			

ELEV.	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS	SAMPLE	LABORATORY RESULTS
-54.1	0.0				
-54.4	0.3			A	Classification: SP-SM Color: 2.5Y 6/1-gray D50: 0.244 mm % Fines: 9.9
-57.1	3.0		SAND, poorly-graded with silt, mostly fine-grained sand-sized quartz, little shell, medium gray (SP-SM)		
			CLAY, lean, little sand pockets, lt. gray, pale orange (CL)		
			CLAY, fat, sandy to depth of 6 ft., lt. gray, pale orange (CH)		
-62.1	8.0				
-63.5	9.4		CLAY, lean, lt. gray (CL)		
			SAND, silty, mostly fine-grained sand-sized quartz, little shell, medium gray (SM)	NS	
-69.6	15.5				
			SAND, poorly-graded, mostly fine-grained sand-sized quartz, little shell, medium gray (SP)		
-73.6	19.5				
			NOTES: 1. Soils are field visually classified in accordance with the Unified Soils Classification System. 2. NS = Sample not submitted for laboratory analysis from this interval. 3. Seafloor elevation calculated using sampling vessel's fathometer water depth reading and		

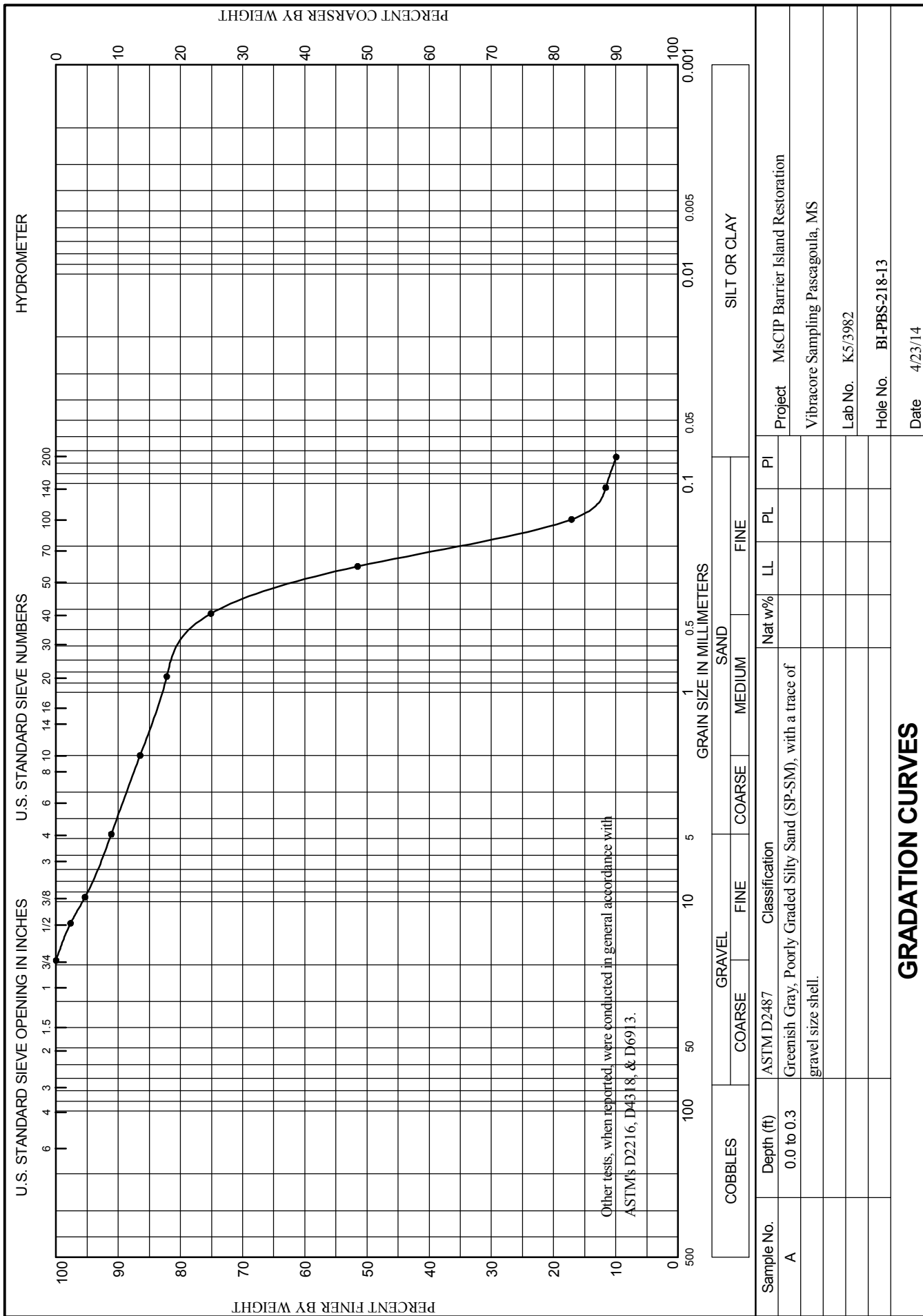
<b>DRILLING LOG (Cont. Sheet)</b>			<b>INSTALLATION</b> Mobile District		<b>SHEET 2</b> <b>OF 2 SHEETS</b>
<b>PROJECT</b> MsCIP Barrier Island Restoration			<b>COORDINATE SYSTEM/DATUM</b> State Plane, MSE (U.S. Ft.)	<b>HORIZONTAL</b> NAD83	<b>VERTICAL</b> NAVD88
<b>LOCATION COORDINATES</b> X = 1,117,966 Y = 230,412			<b>ELEVATION TOP OF BORING</b> -54.1 Ft.		
<b>ELEV.</b>	<b>DEPTH</b>	<b>LEGEND</b>	<b>CLASSIFICATION OF MATERIALS</b>	<b>SAMPLE</b>	<b>LABORATORY RESULTS</b>
			applying NOAA tidal gauge data conversion factor.		



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WORK ORDER: 848e

REQUISITION: W33SJC32900192





# Boring Designation BI-PBS-219-13

DRILLING LOG		DIVISION South Atlantic		INSTALLATION Mobile District		SHEET 1 OF 1 SHEETS	
1. PROJECT MsCIP Barrier Island Restoration Petit Bois Pass-OCS West				9. SIZE AND TYPE OF BIT N/A			
2. BORING DESIGNATION BI-PBS-219-13		LOCATION COORDINATES E = 1,121,443 N = 225,555		10. COORDINATE SYSTEM/DATUM State Plane, MSE (U.S. Ft.)		HORIZONTAL NAD83 VERTICAL NAVD88	
3. DRILLING AGENCY Corps of Engineers - CESAM		CONTRACTOR FILE NO.		11. MANUFACTURER'S DESIGNATION OF DRILL Vibracore		<input type="checkbox"/> AUTO HAMMER <input type="checkbox"/> MANUAL HAMMER	
4. NAME OF DRILLER Construction Solutions International, Inc.				12. TOTAL SAMPLES 1		DISTURBED 1 UNDISTURBED (UD) 0	
5. DIRECTION OF BORING <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED		DEG. FROM VERTICAL		13. TOTAL NUMBER CORE BOXES			
		BEARING		14. WATER DEPTH 53 Ft.			
6. THICKNESS OF OVERBURDEN N/A				15. DATE BORING 12-17-13		STARTED 12-17-13 COMPLETED 12-17-13	
7. DEPTH DRILLED INTO ROCK N/A				16. ELEVATION TOP OF BORING -54.0 Ft.			
8. TOTAL DEPTH OF BORING 17.5 Ft.				17. TOTAL RECOVERY FOR BORING 100%			
				18. SIGNATURE AND TITLE OF INSPECTOR Tom Powers, Geologist			

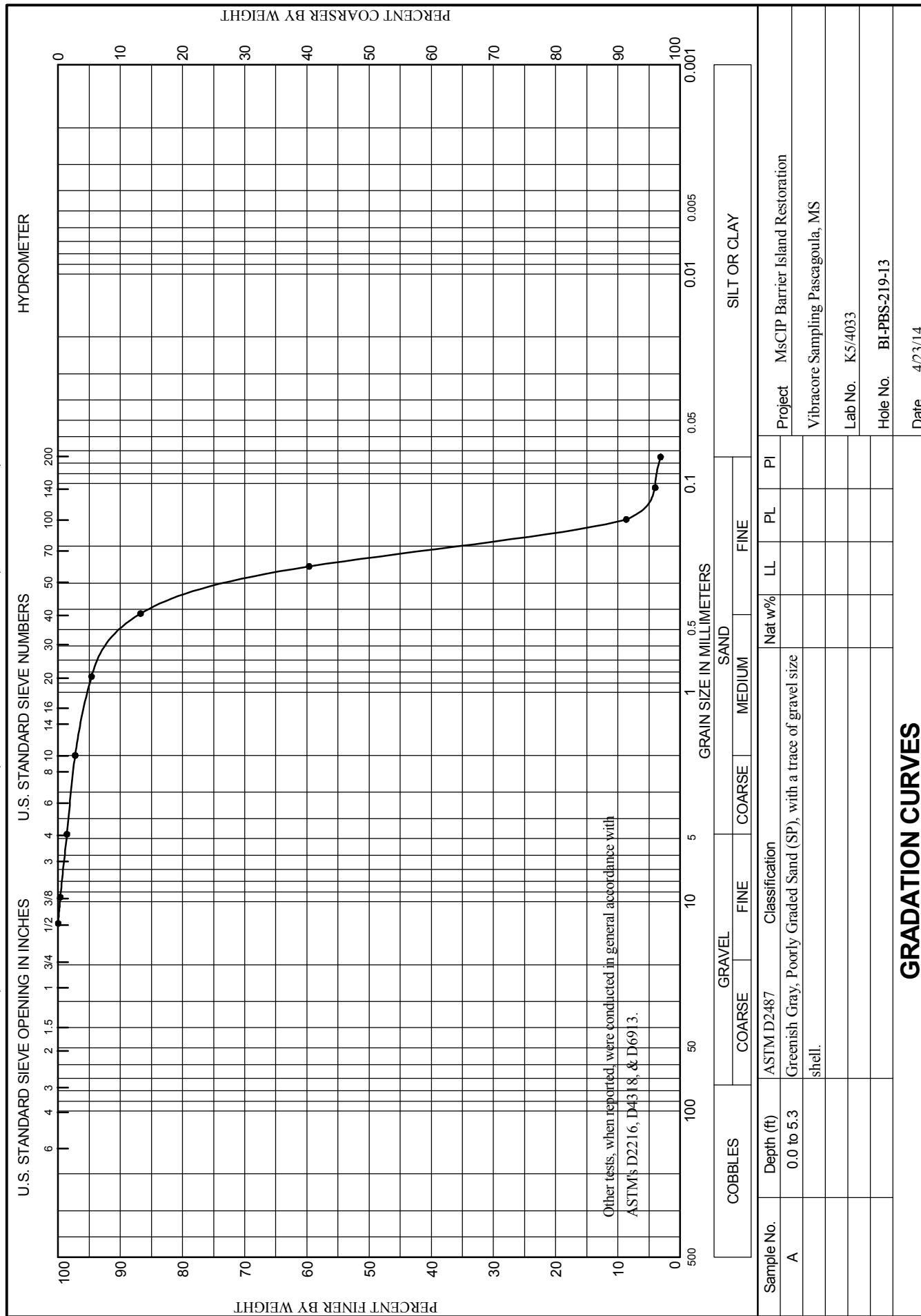
  

ELEV.	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS	SAMPLE	LABORATORY RESULTS
-54.0	0.0				
-58.5	4.5		SAND, poorly-graded, mostly fine to medium-grained sand-sized quartz, few shell fragments, brownish gray (SP)	A	Classification: SP Color: GLEY1 10Y 6/1- D50: 0.227 mm % Fines: 3.1
-59.3	5.3		SAND, poorly-graded with silt, mostly fine-grained sand-sized quartz, few shell fragments, brownish gray (SP-SM)		
-64.0	10.0		CLAY, fat, sandy, lt. gray and pale orange (CH)	NS	
-65.0	11.0		SAND, poorly-graded, mostly fine-grained sand-sized quartz, lt. gray and pale orange (SP)		
-65.2	11.2		SILT, inorganic-L, sandy, fine-grained, lt. gray and pale orange (ML)		
-70.4	16.4		CLAY, lean, lt. gray to medium gray (CL)		
-71.5	17.5		SAND, silty, clayey, mostly fine to medium-grained sand-sized quartz, little shell fragments, medium gray (SC-SM)		
			NOTES: 1. Soils are field visually classified in accordance with the Unified Soils Classification System. 2. NS = Sample not submitted for laboratory analysis from this interval. 3. Seafloor elevation calculated using sampling vessel's fathometer water depth reading and applying NOAA tidal gauge data conversion factor.		



WORK ORDER: 848e

REQUISITION: W33SJG32900192



# Boring Designation BI-PBS-220-13

DRILLING LOG		DIVISION South Atlantic		INSTALLATION Mobile District		SHEET 1 OF 2 SHEETS	
1. PROJECT MsCIP Barrier Island Restoration Petit Bois Pass-OCS West				9. SIZE AND TYPE OF BIT N/A			
2. BORING DESIGNATION BI-PBS-220-13		LOCATION COORDINATES E = 1,123,523 N = 232,157		10. COORDINATE SYSTEM/DATUM State Plane, MSE (U.S. Ft.)		HORIZONTAL NAD83 VERTICAL NAVD88	
3. DRILLING AGENCY Corps of Engineers - CESAM		CONTRACTOR FILE NO.		11. MANUFACTURER'S DESIGNATION OF DRILL Vibrocure		<input type="checkbox"/> AUTO HAMMER <input type="checkbox"/> MANUAL HAMMER	
4. NAME OF DRILLER Construction Solutions International, Inc.				12. TOTAL SAMPLES 5		DISTURBED 5 UNDISTURBED (UD) 0	
5. DIRECTION OF BORING <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED		DEG. FROM VERTICAL		13. TOTAL NUMBER CORE BOXES			
		BEARING		14. WATER DEPTH 59 Ft.			
6. THICKNESS OF OVERBURDEN N/A				15. DATE BORING 12-02-13		STARTED 12-02-13 COMPLETED 12-02-13	
7. DEPTH DRILLED INTO ROCK N/A				16. ELEVATION TOP OF BORING -59.7 Ft.			
8. TOTAL DEPTH OF BORING 20.0 Ft.				17. TOTAL RECOVERY FOR BORING 100%			
				18. SIGNATURE AND TITLE OF INSPECTOR Tom Powers, Geologist			

ELEV.	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS	SAMPLE	LABORATORY RESULTS
-59.7	0.0				
-60.8	1.1		SAND, silty, mostly fine-grained sand-sized quartz, few shell, brownish gray (SM)	A	Classification: SC Color: 2.5Y 5/1-gray D50: 0.168 mm % Fines: 34.6
-61.3	1.6			NS	
-61.9	2.2		CLAY, lean, sandy, medium gray (CL)	B	Classification: SP-SM Color: 2.5Y 6/1-gray D50: 0.276 mm % Fines: 10.9
			SAND, silty, mostly fine-grained sand-sized quartz, little shell, medium gray (SM)		
			SAND, poorly-graded, mostly fine-grained sand-sized quartz, few shell, medium gray (SP)	C	Classification: SP-SM Color: 2.5Y 6/1-gray D50: 0.225 mm % Fines: 9
-66.7	7.0				
			SAND, poorly-graded with silt, mostly fine-grained sand-sized quartz, few shell, medium gray (SP-SM)	D	Classification: SP-SM Color: 2.5Y 6/1-gray D50: 0.183 mm % Fines: 11.6
-69.2	9.5				
			SAND, silty, few shell, medium gray (SM)	E	Classification: SM Color: 2.5Y 6/1-gray D50: 0.15 mm % Fines: 16.7
-75.2	15.5				
			SAND, clayey, few shell, medium gray (SC)	NS	
-79.7	20.0				
			NOTES: 1. Soils are field visually classified in accordance with the Unified Soils Classification System. 2. NS = Sample not submitted for laboratory analysis from this interval. 3. Seafloor elevation calculated using sampling		

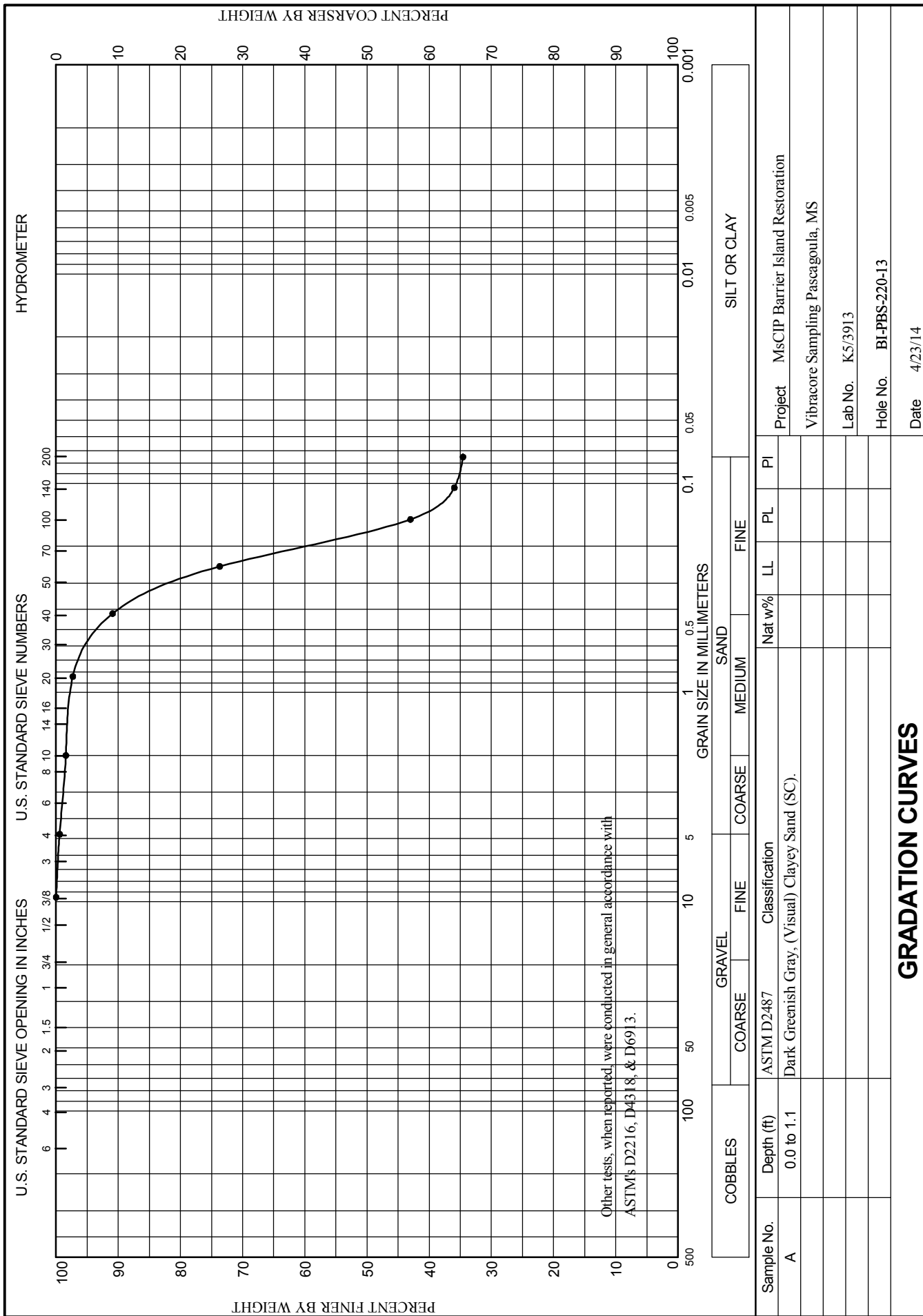
<b>DRILLING LOG (Cont. Sheet)</b>			<b>INSTALLATION</b> Mobile District		<b>SHEET 2</b> <b>OF 2 SHEETS</b>
<b>PROJECT</b> MsCIP Barrier Island Restoration			<b>COORDINATE SYSTEM/DATUM</b> State Plane, MSE (U.S. Ft.)	<b>HORIZONTAL</b> NAD83	<b>VERTICAL</b> NAVD88
<b>LOCATION COORDINATES</b> X = 1,123,523 Y = 232,157			<b>ELEVATION TOP OF BORING</b> -59.7 Ft.		
<b>ELEV.</b>	<b>DEPTH</b>	<b>LEGEND</b>	<b>CLASSIFICATION OF MATERIALS</b>	<b>SAMPLE</b>	<b>LABORATORY RESULTS</b>
			vessel's fathometer water depth reading and applying NOAA tidal gauge data conversion factor.		



DEPARTMENT OF THE ARMY, SAVANNAH DISTRICT, ENVIRONMENTAL AND MATERIALS UNIT  
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WORK ORDER: 848e

REQUISITION: W33SJC32900192

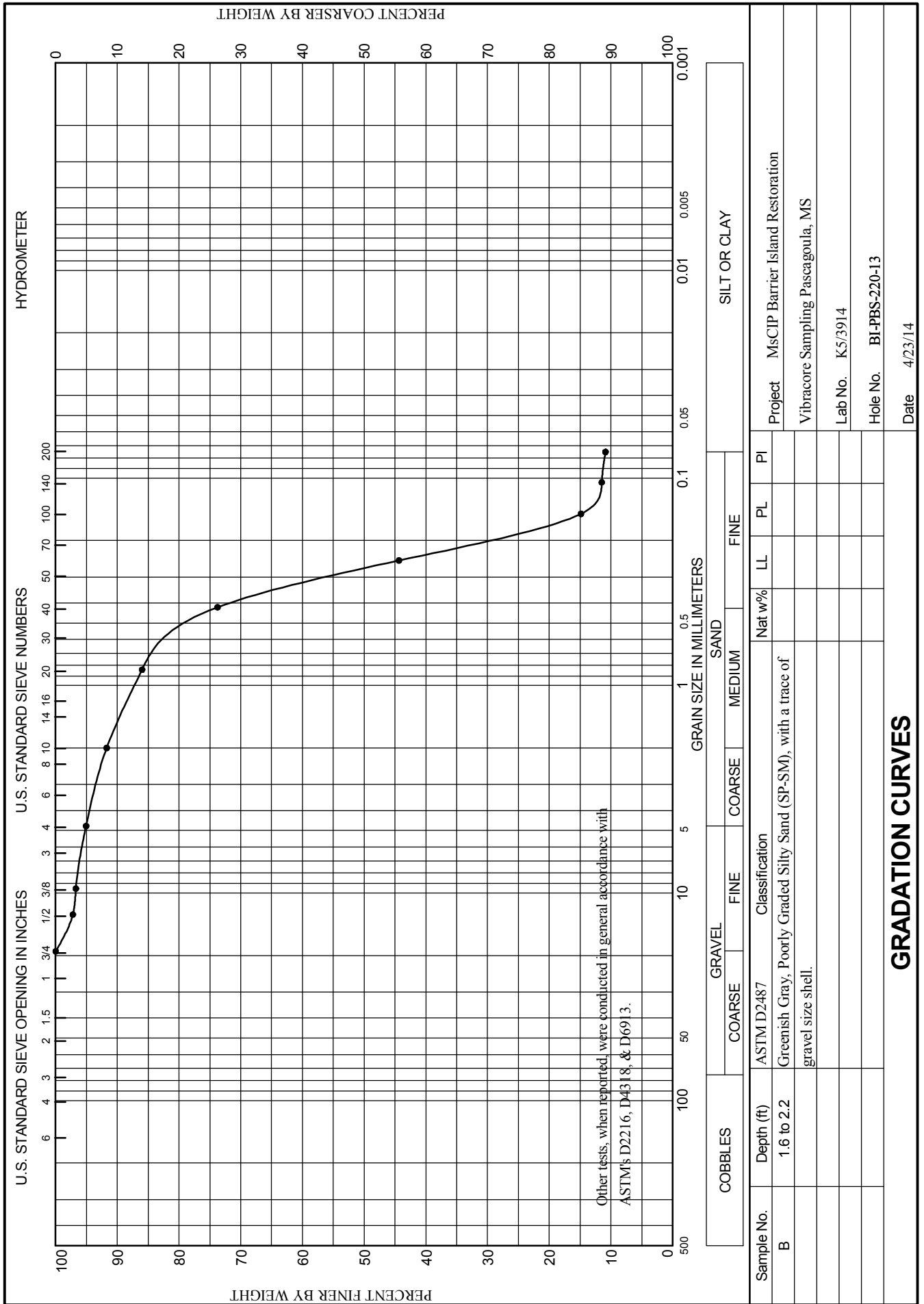




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WORK ORDER: 848e

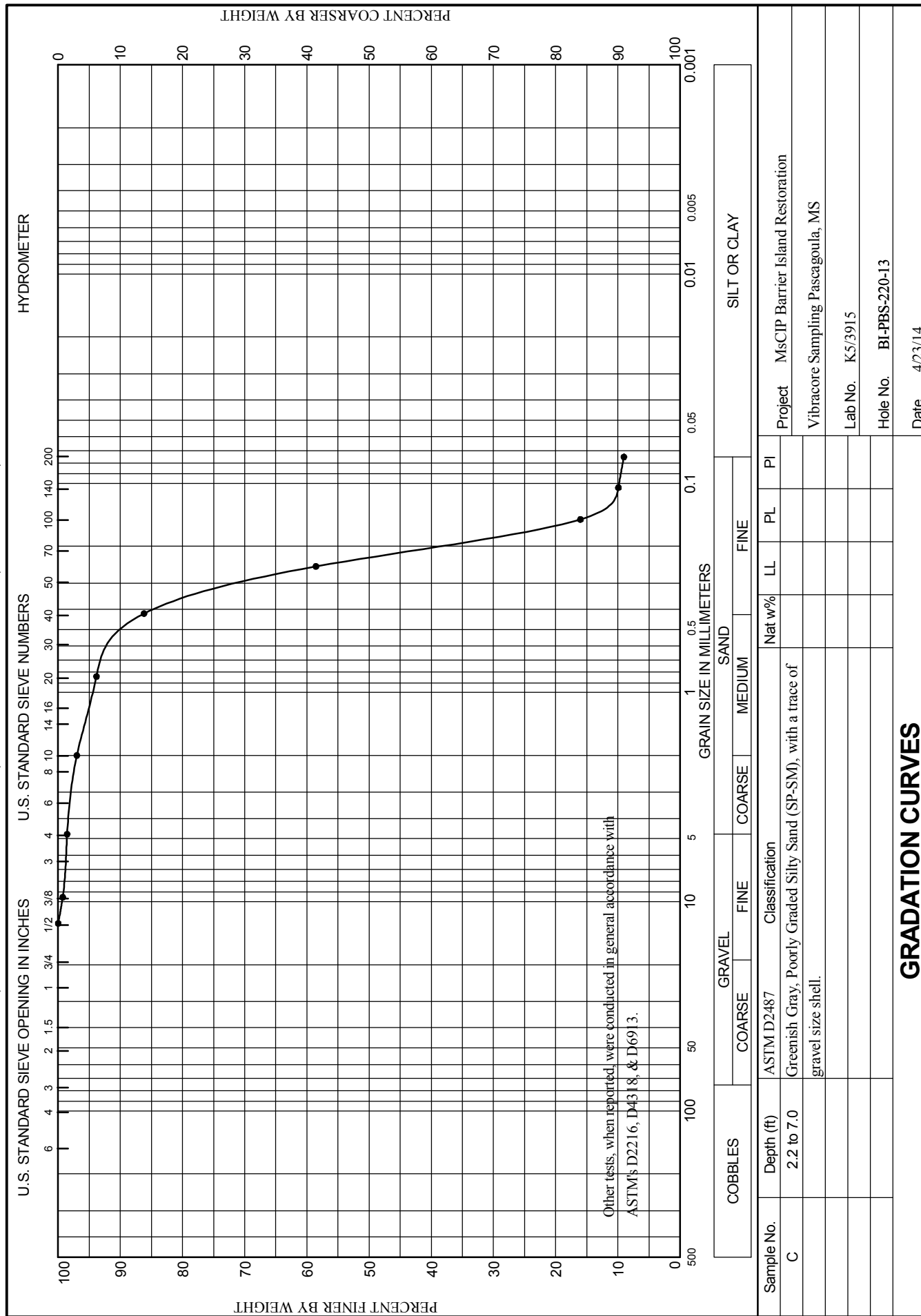
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WORK ORDER: 848e

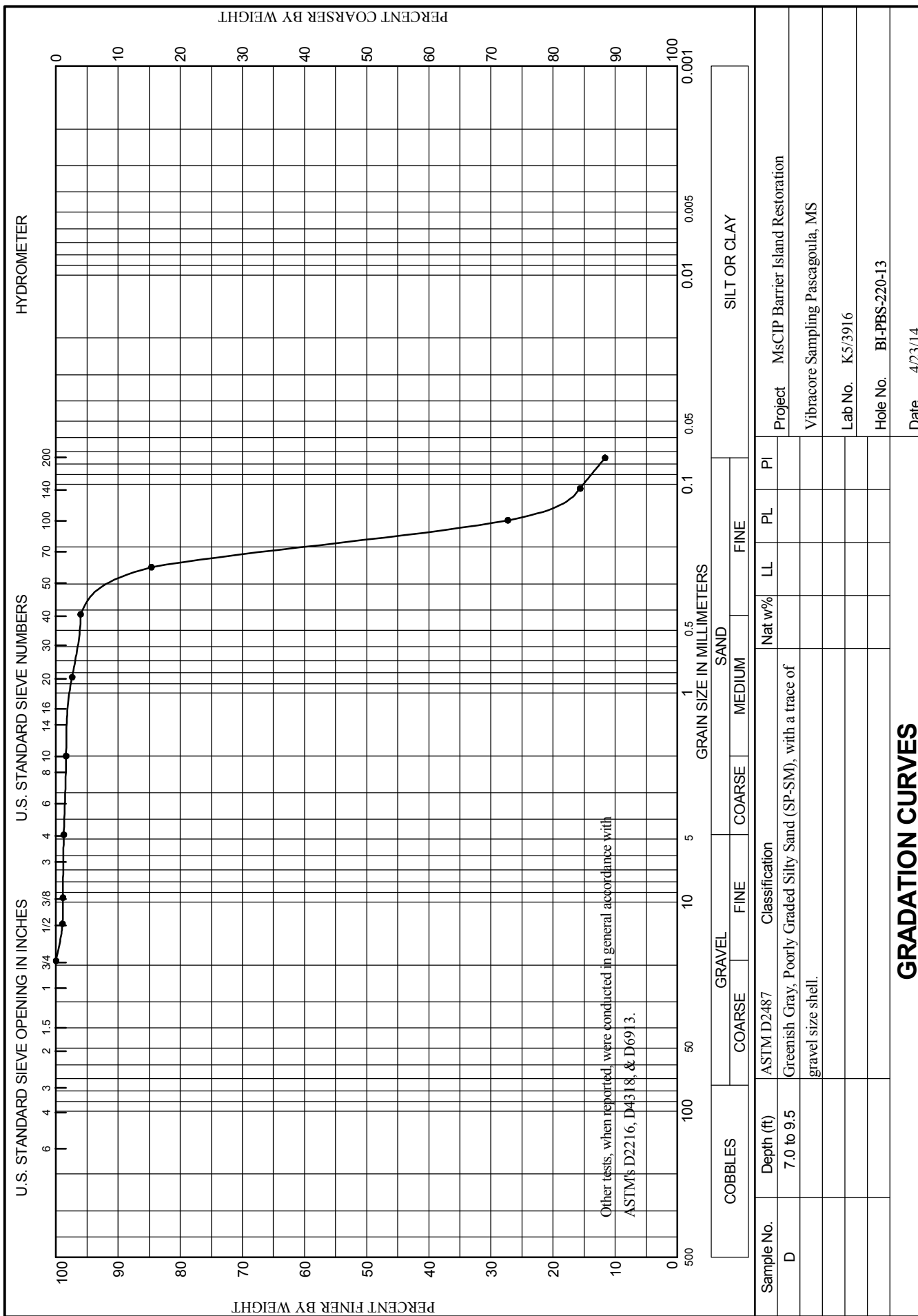
REQUISITION: W33SJG32900192





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WORK ORDER: 848e  
REQUISITION: W33SJC32900192



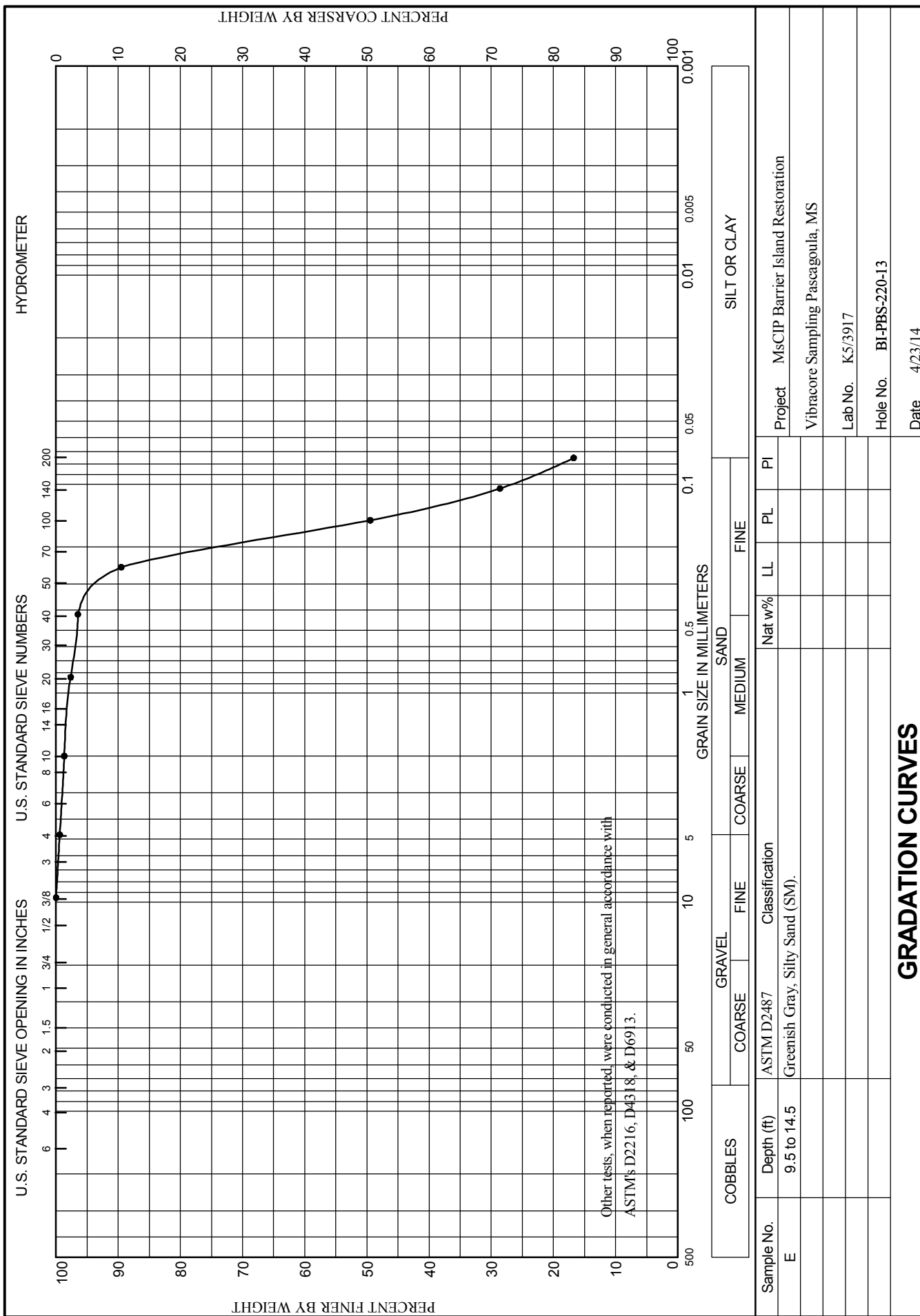




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WORK ORDER: 848e

REQUISITION: W33SJC32900192



# Boring Designation BI-PBS-222-13

DRILLING LOG		DIVISION South Atlantic		INSTALLATION Mobile District		SHEET 1 OF 2 SHEETS	
1. PROJECT MsCIP Barrier Island Restoration Petit Bois Pass-OCS West				9. SIZE AND TYPE OF BIT N/A			
2. BORING DESIGNATION BI-PBS-222-13		LOCATION COORDINATES E = 1,116,523 N = 229,894		10. COORDINATE SYSTEM/DATUM State Plane, MSE (U.S. Ft.)		HORIZONTAL NAD83	
3. DRILLING AGENCY Corps of Engineers - CESAM		CONTRACTOR FILE NO.		11. MANUFACTURER'S DESIGNATION OF DRILL Vibrocure		<input type="checkbox"/> AUTO HAMMER <input type="checkbox"/> MANUAL HAMMER	
4. NAME OF DRILLER Construction Solutions International, Inc.				12. TOTAL SAMPLES 2		DISTURBED 0	
5. DIRECTION OF BORING <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED				13. TOTAL NUMBER CORE BOXES		14. WATER DEPTH 54 Ft.	
6. THICKNESS OF OVERBURDEN N/A				15. DATE BORING 12-08-13		STARTED 12-08-13	
7. DEPTH DRILLED INTO ROCK N/A				16. ELEVATION TOP OF BORING -53.4 Ft.		COMPLETED 12-08-13	
8. TOTAL DEPTH OF BORING 20.0 Ft.				17. TOTAL RECOVERY FOR BORING 100%		18. SIGNATURE AND TITLE OF INSPECTOR Tom Powers, Geologist	

ELEV.	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS	SAMPLE	LABORATORY RESULTS
-53.4	0.0				
-54.3	0.9		SAND, poorly-graded, mostly fine to medium-grained sand-sized quartz, little shell, lt. gray (SP)	A	Classification: SP Color: GLEY1 10Y 6/1- D50: 0.271 mm % Fines: 3.7
-55.3	1.9		SAND, silty, mostly fine-grained sand-sized quartz, little shell, lt. to medium gray (SM)	B	Classification: SP-SM Color: GLEY1 10Y 5/1- D50: 0.213 mm % Fines: 10
-59.9	6.5		CLAY, fat, sandy, pale green, lt. gray, orange (CH)	NS	
-62.0	8.6		CLAY, lean, trace wood at base of strata, lt. greenish gray (CL)		
-64.4	11.0		SAND, poorly-graded, mostly fine-grained sand-sized quartz, lt. to medium gray (SP)		
-66.3	12.9		SAND, poorly-graded with silt, mostly fine-grained sand-sized quartz, little shell, lt. to medium gray (SP-SM)		
-73.4	20.0		SAND, silty, mostly fine-grained sand-sized quartz, little shell, medium gray (SM)		
			NOTES: 1. Soils are field visually classified in accordance with the Unified Soils Classification System. 2. NS = Sample not submitted for laboratory analysis from this interval. 3. Seafloor elevation calculated using sampling		

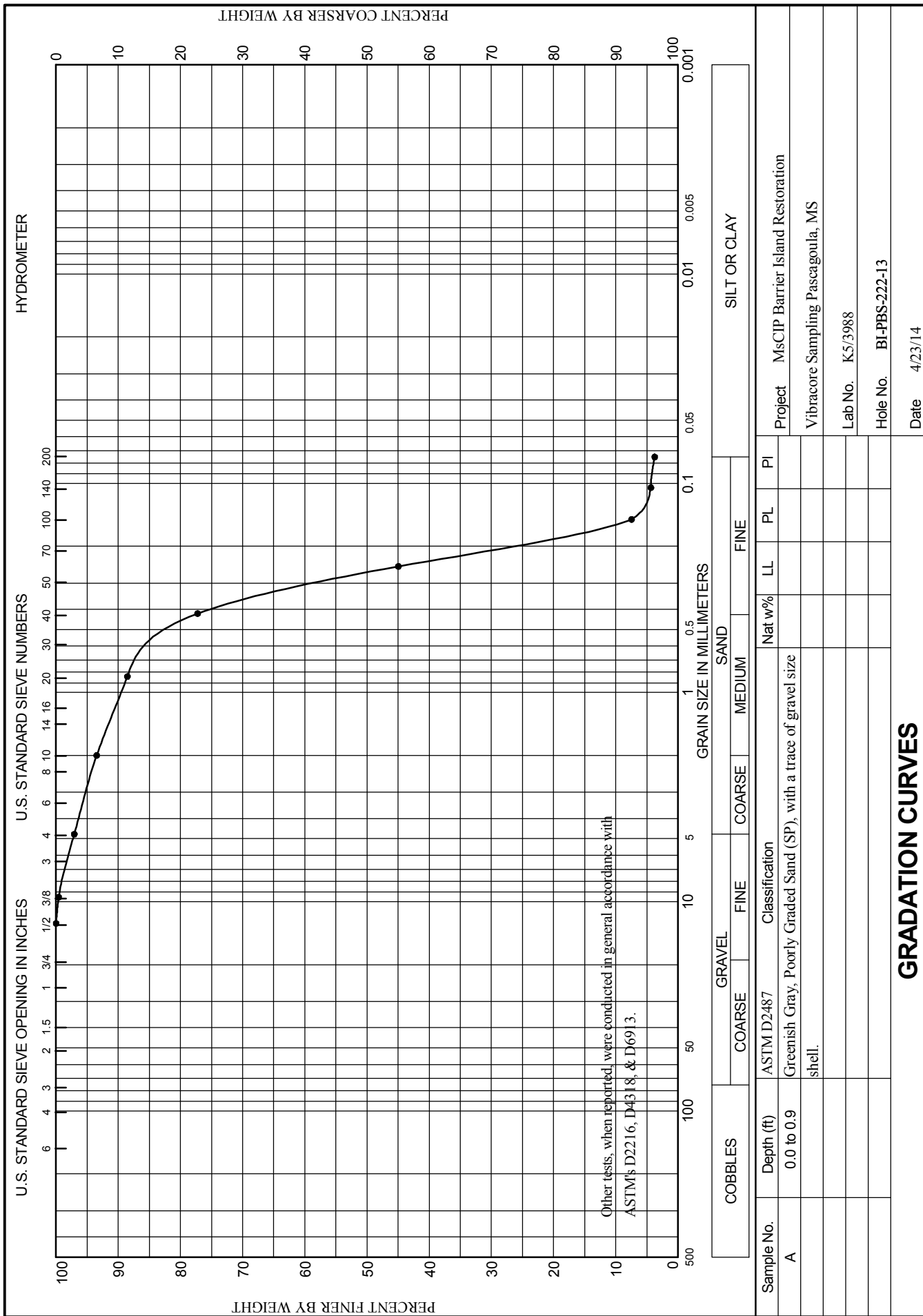
<b>DRILLING LOG (Cont. Sheet)</b>			<b>INSTALLATION</b> Mobile District		<b>SHEET 2</b> <b>OF 2 SHEETS</b>
<b>PROJECT</b> MsCIP Barrier Island Restoration			<b>COORDINATE SYSTEM/DATUM</b> State Plane, MSE (U.S. Ft.)	<b>HORIZONTAL</b> NAD83	<b>VERTICAL</b> NAVD88
<b>LOCATION COORDINATES</b> X = 1,116,523 Y = 229,894			<b>ELEVATION TOP OF BORING</b> -53.4 Ft.		
<b>ELEV.</b>	<b>DEPTH</b>	<b>LEGEND</b>	<b>CLASSIFICATION OF MATERIALS</b>	<b>SAMPLE</b>	<b>LABORATORY RESULTS</b>
			vessel's fathometer water depth reading and applying NOAA tidal gauge data conversion factor.		



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WORK ORDER: 848e

REQUISITION: W33SJG32900192

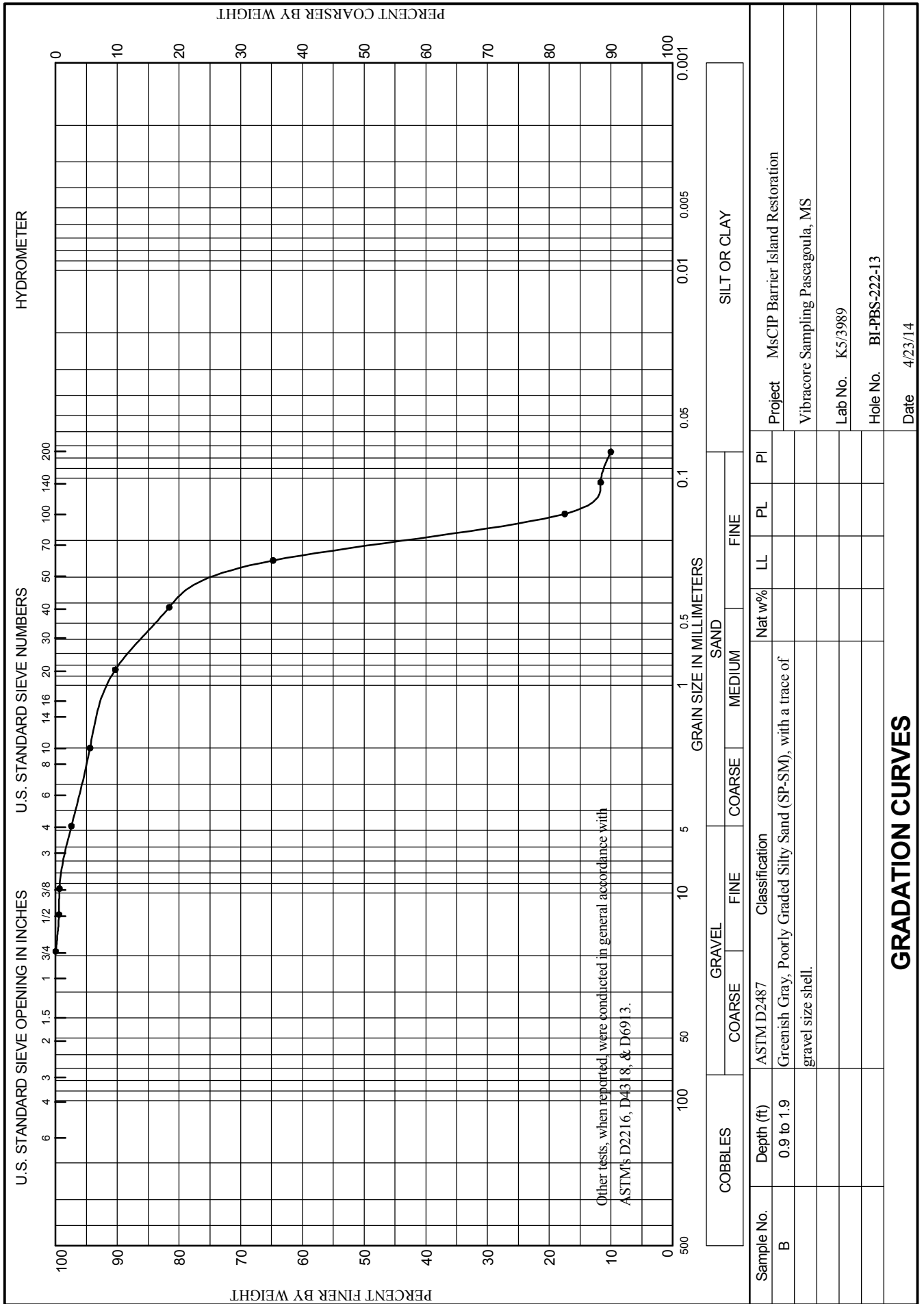




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WORK ORDER: 848e

REQUISITION: W33SJC32900192



# Boring Designation BI-PBS-223-13

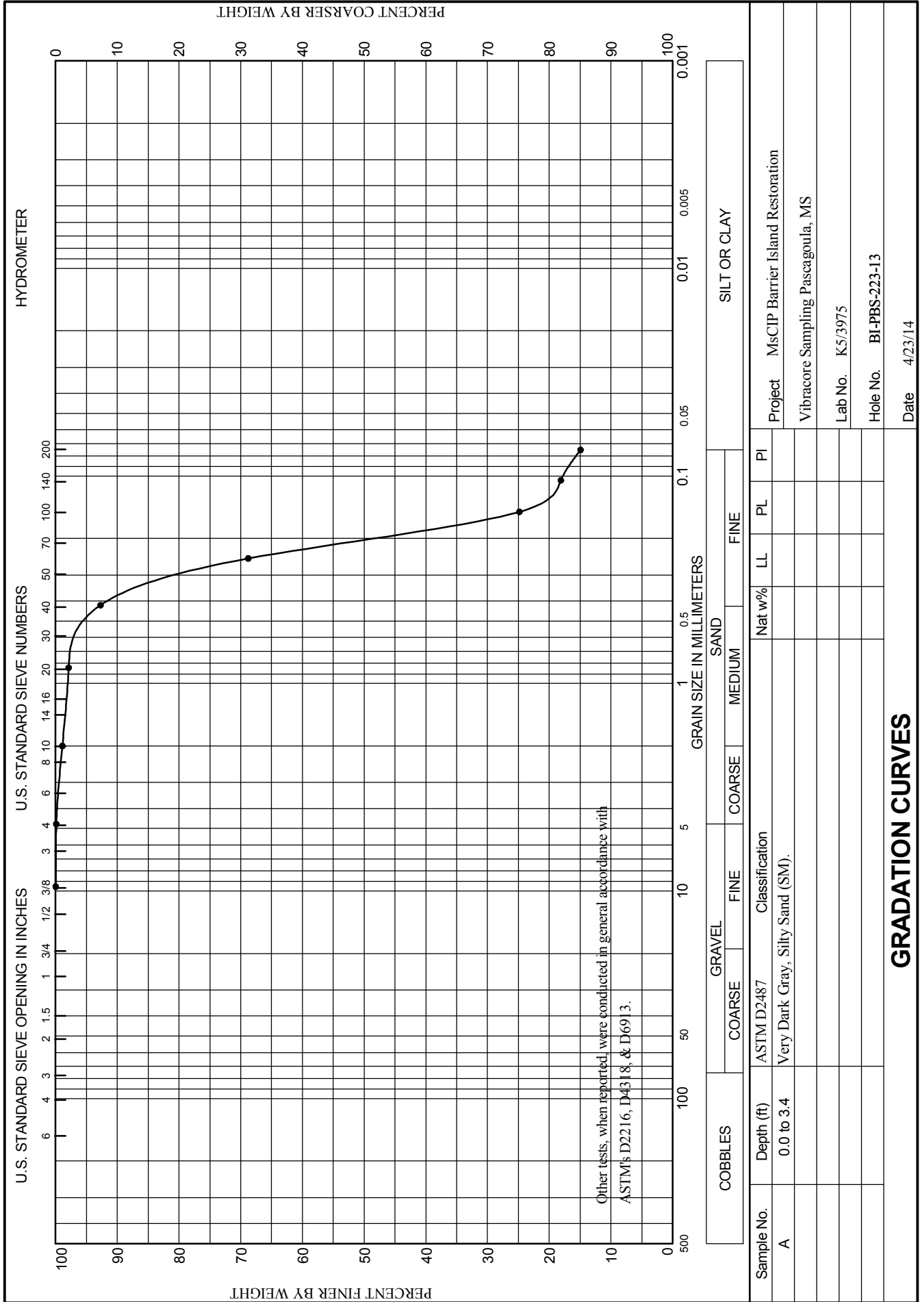
DRILLING LOG		DIVISION South Atlantic		INSTALLATION Mobile District		SHEET 1 OF 1 SHEETS	
1. PROJECT MsCIP Barrier Island Restoration Petit Bois Pass-OCS West				9. SIZE AND TYPE OF BIT N/A			
2. BORING DESIGNATION BI-PBS-223-13		LOCATION COORDINATES E = 1,118,733 N = 233,146		10. COORDINATE SYSTEM/DATUM State Plane, MSE (U.S. Ft.)		HORIZONTAL NAD83	
3. DRILLING AGENCY Corps of Engineers - CESAM		CONTRACTOR FILE NO.		11. MANUFACTURER'S DESIGNATION OF DRILL Vibrocure		<input type="checkbox"/> AUTO HAMMER <input type="checkbox"/> MANUAL HAMMER	
4. NAME OF DRILLER Construction Solutions International, Inc.				12. TOTAL SAMPLES 3		UNDISTURBED (UD) 0	
5. DIRECTION OF BORING <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED				13. TOTAL NUMBER CORE BOXES		14. WATER DEPTH 56 Ft.	
6. THICKNESS OF OVERBURDEN N/A				15. DATE BORING 12-04-13		STARTED 12-04-13	
7. DEPTH DRILLED INTO ROCK N/A				16. ELEVATION TOP OF BORING -55.2 Ft.		COMPLETED 12-04-13	
8. TOTAL DEPTH OF BORING 19.0 Ft.				17. TOTAL RECOVERY FOR BORING 100%			
				18. SIGNATURE AND TITLE OF INSPECTOR Tom Powers, Geologist			
ELEV.	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS	SAMPLE	LABORATORY RESULTS		
-55.2	0.0						
			SAND, silty, mostly fine-grained sand-sized quartz, lt. to medium gray, brownish below 1 ft., medium to lt. gray below 2 ft. (SM)	A	Classification: SM    Color: 2.5Y 5/1-gray D50: 0.2 mm    % Fines: 14.9		
-58.6	3.4		CLAY, lean, interbedded with 1/2-inch sand lenses, medium gray (CL)	NS			
-60.3	5.1		SAND, silty, mostly fine to medium-grained sand-sized quartz, little shell, lt. gray (SM)				
-60.8	5.6		SAND, poorly-graded, mostly fine-grained sand-sized quartz, little shell, lt. gray (SP)	B	Classification: SP-SM    Color: 2.5Y 5/1-gray D50: 0.208 mm    % Fines: 7.4		
-64.0	8.8		SAND, silty, mostly fine-grained sand-sized quartz, lt. gray (SM)				
-64.3	9.1		SAND, silty, mostly fine-grained sand-sized quartz, lt. gray (SM)				
-65.5	10.3		SAND, poorly-graded, mostly fine to medium-grained sand-sized quartz, little shell, lt. gray (SP)	C	Classification: SP-SM    Color: 2.5Y 6/1-gray D50: 0.189 mm    % Fines: 7.2		
-71.2	16.0		SAND, poorly-graded with silt, mostly fine-grained sand-sized quartz, little shell, brownish gray (SP-SM)				
-71.9	16.7		SAND, silty, mostly fine-grained sand-sized quartz, little shell, brownish gray (SM)	NS			
-74.2	19.0		SAND, clayey, mostly fine-grained sand-sized quartz, few shell, medium brownish gray (SC)				
NOTES: 1. Soils are field visually classified in accordance with the Unified Soils Classification System. 2. NS = Sample not submitted for laboratory analysis from this interval. 3. Seafloor elevation determined from 2013 USGS geophysical survey.							



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WORK ORDER: 848e

REQUISITION: W33SJC32900192





WORK ORDER: 848e

REQUISITION: W33SJG32900192

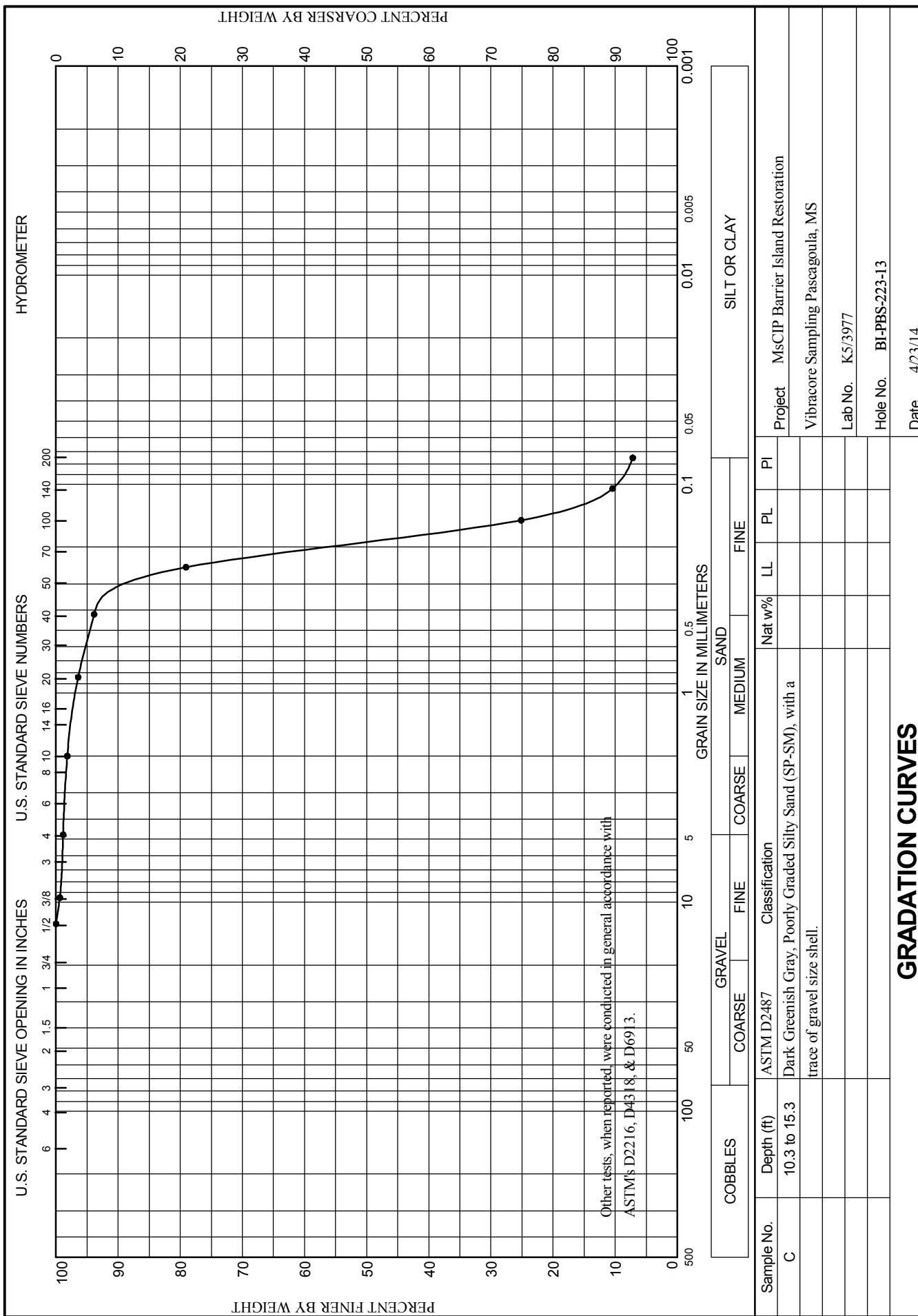






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WORK ORDER: 848e  
REQUISITION: W33SJC32900192



# Boring Designation BI-PBS-224-13

DRILLING LOG		DIVISION South Atlantic		INSTALLATION Mobile District		SHEET 1 OF 2 SHEETS	
1. PROJECT MsCIP Barrier Island Restoration Petit Bois Pass-OCS West				9. SIZE AND TYPE OF BIT N/A			
2. BORING DESIGNATION BI-PBS-224-13		LOCATION COORDINATES E = 1,117,483 N = 233,672		10. COORDINATE SYSTEM/DATUM State Plane, MSE (U.S. Ft.)		HORIZONTAL NAD83	
3. DRILLING AGENCY Corps of Engineers - CESAM		CONTRACTOR FILE NO.		11. MANUFACTURER'S DESIGNATION OF DRILL Vibrocure		<input type="checkbox"/> AUTO HAMMER <input type="checkbox"/> MANUAL HAMMER	
4. NAME OF DRILLER Construction Solutions International, Inc.				12. TOTAL SAMPLES 2		DISTURBED 0	
5. DIRECTION OF BORING <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED				13. TOTAL NUMBER CORE BOXES		14. WATER DEPTH 56 Ft.	
6. THICKNESS OF OVERBURDEN N/A				15. DATE BORING 12-04-13		STARTED 12-04-13	
7. DEPTH DRILLED INTO ROCK N/A				16. ELEVATION TOP OF BORING -56.2 Ft.		COMPLETED 12-04-13	
8. TOTAL DEPTH OF BORING 19.5 Ft.				17. TOTAL RECOVERY FOR BORING 100%		18. SIGNATURE AND TITLE OF INSPECTOR Tom Powers, Geologist	

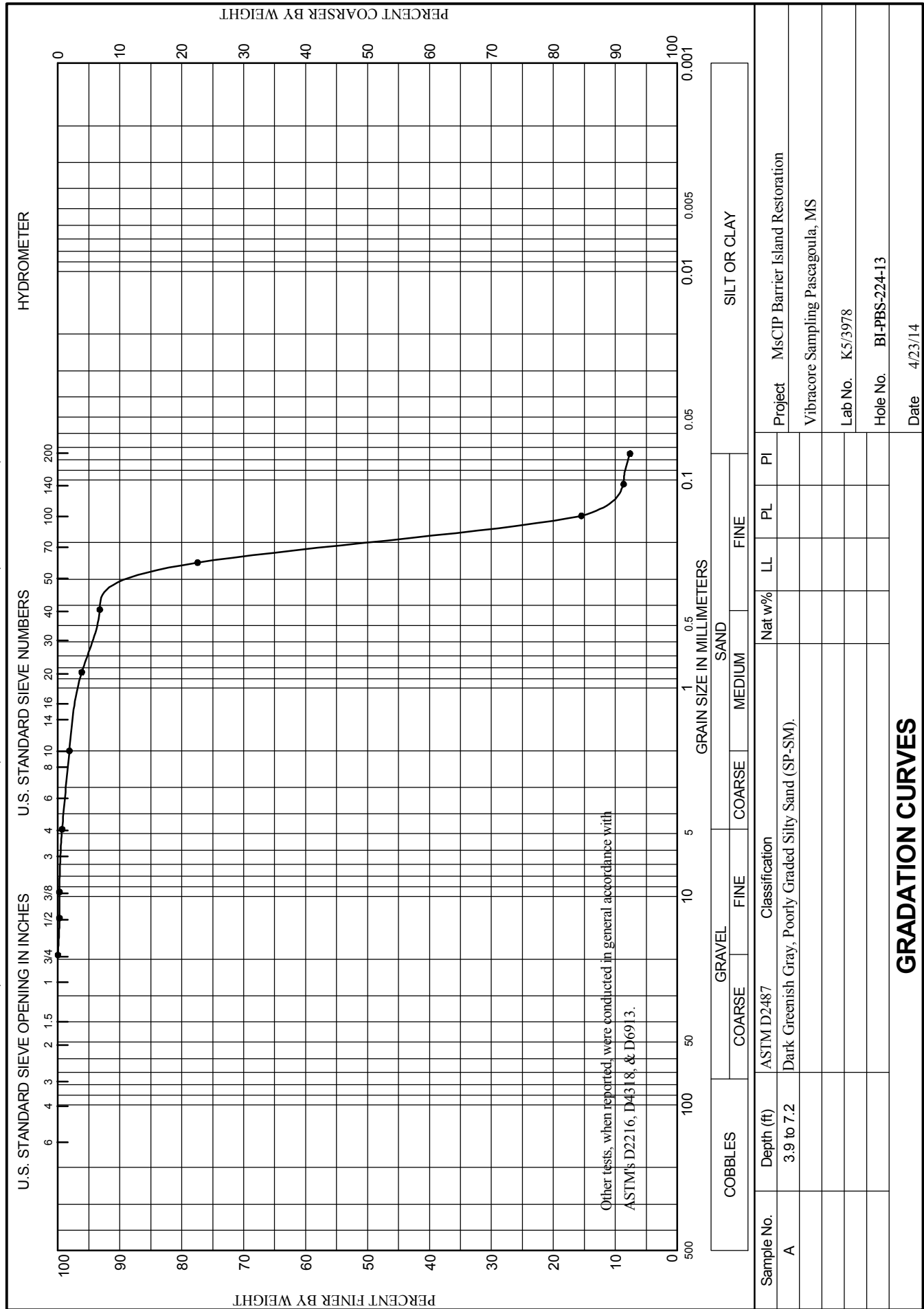
ELEV.	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS	SAMPLE	LABORATORY RESULTS
-56.2	0.0				
-59.5	3.3		CLAY, lean, trace wood, sandy, medium gray (CL)	NS	
-60.1	3.9		SAND, silty, mostly fine-grained sand-sized quartz, medium gray (SM)		
-63.4	7.2		SAND, poorly-graded with silt, mostly fine-grained sand-sized quartz, little shell, medium gray (SP-SM)	A	Classification: SP-SM Color: 2.5Y 5/1-gray D50: 0.199 mm % Fines: 7.6
-68.7	12.5		SAND, poorly-graded, mostly fine-grained sand-sized quartz, little shell, lt. gray (SP)	B	Classification: SP-SM Color: 2.5Y 6/1-gray D50: 0.201 mm % Fines: 5.8
-70.7	14.5		SAND, silty, mostly fine-grained sand-sized quartz, trace shell, lt. to medium gray (SM)		
-74.2	18.0		SAND, clayey, mostly fine-grained sand-sized quartz, trace shell, lt. to medium gray (SC)	NS	
-75.7	19.5		SAND, silty, mostly fine-grained sand-sized quartz, trace shell, lt. to medium gray (SM)		
NOTES: 1. Soils are field visually classified in accordance with the Unified Soils Classification System. 2. NS = Sample not submitted for laboratory analysis from this interval. 3. Seafloor elevation calculated using sampling vessel's fathometer water depth reading and					

<b>DRILLING LOG (Cont. Sheet)</b>			<b>INSTALLATION</b> Mobile District		<b>SHEET 2</b> <b>OF 2 SHEETS</b>
<b>PROJECT</b> MsCIP Barrier Island Restoration			<b>COORDINATE SYSTEM/DATUM</b> State Plane, MSE (U.S. Ft.)	<b>HORIZONTAL</b> NAD83	<b>VERTICAL</b> NAVD88
<b>LOCATION COORDINATES</b> X = 1,117,483 Y = 233,672			<b>ELEVATION TOP OF BORING</b> -56.2 Ft.		
<b>ELEV.</b>	<b>DEPTH</b>	<b>LEGEND</b>	<b>CLASSIFICATION OF MATERIALS</b>	<b>SAMPLE</b>	<b>LABORATORY RESULTS</b>
			applying NOAA tidal gauge data conversion factor.		



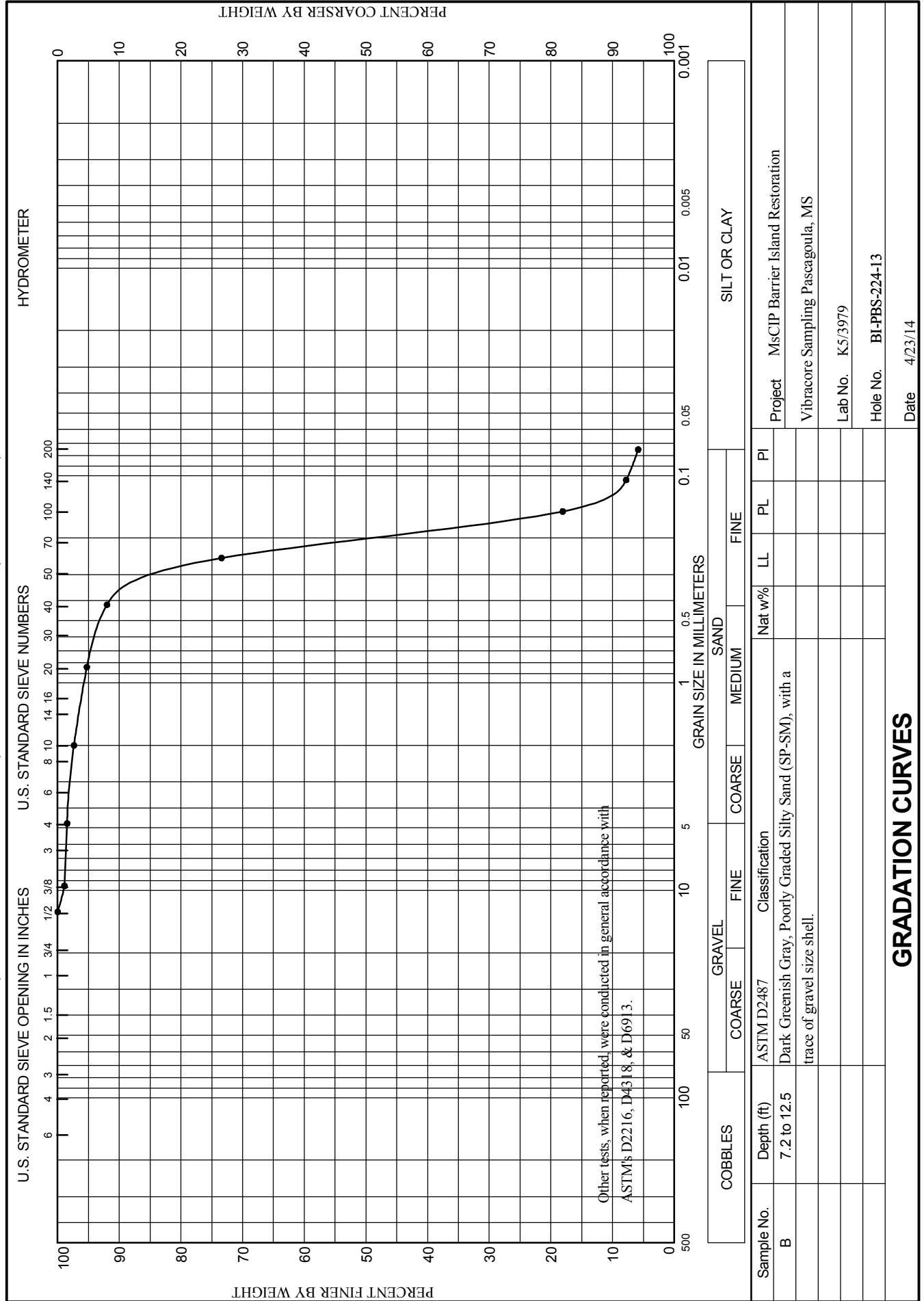
WORK ORDER: 848e

REQUISITION: W33SJG32900192





REQUISITION: W33SJG32900192



# Boring Designation BI-PBS-225-13

DRILLING LOG		DIVISION South Atlantic		INSTALLATION Mobile District		SHEET 1 OF 2 SHEETS	
1. PROJECT MsCIP Barrier Island Restoration Petit Bois Pass-OCS West				9. SIZE AND TYPE OF BIT N/A			
2. BORING DESIGNATION BI-PBS-225-13		LOCATION COORDINATES E = 1,110,452 N = 233,873		10. COORDINATE SYSTEM/DATUM State Plane, MSE (U.S. Ft.)		HORIZONTAL NAD83	
3. DRILLING AGENCY Corps of Engineers - CESAM		CONTRACTOR FILE NO.		11. MANUFACTURER'S DESIGNATION OF DRILL Vibrocure		<input type="checkbox"/> AUTO HAMMER <input type="checkbox"/> MANUAL HAMMER	
4. NAME OF DRILLER Construction Solutions International, Inc.				12. TOTAL SAMPLES 2		UNDISTURBED (UD) 0	
5. DIRECTION OF BORING <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED				13. TOTAL NUMBER CORE BOXES		14. WATER DEPTH 48.7 Ft.	
6. THICKNESS OF OVERBURDEN N/A				15. DATE BORING 12-18-13		COMPLETED 12-18-13	
7. DEPTH DRILLED INTO ROCK N/A				16. ELEVATION TOP OF BORING -47.8 Ft.		17. TOTAL RECOVERY FOR BORING 100%	
8. TOTAL DEPTH OF BORING 20.0 Ft.				18. SIGNATURE AND TITLE OF INSPECTOR Tom Powers, Geologist			

ELEV.	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS	SAMPLE	LABORATORY RESULTS
-47.8	0.0				
-48.7	0.9		SAND, poorly-graded, mostly fine to medium-grained sand-sized quartz, little shell fragments, lt. gray (SP)	A	Classification: SP Color: 2.5Y 6/1-gray D50: 0.313 mm % Fines: 3.1
-49.2	1.4		SAND, silty, mostly fine-grained sand-sized quartz, little shell fragments, medium gray (SM)	B	Classification: SM Color: GLEY1 10Y 5/1- D50: 0.209 mm % Fines: 13.6
			CLAY, lean, little shell fragments, medium gray (CL)		
-56.3	8.5				
			SAND, clayey, mostly fine-grained sand-sized quartz, lt. and medium gray and pale orange (SC)	NS	
-60.7	12.9				
			CLAY, lean, trace wood fragments, sandy, medium gray (CL)		
-66.7	18.9				
-67.8	20.0		SAND, silty, clayey, mostly fine-grained sand-sized quartz, fine-grained wood fragments at 19.2 ft., lt. gray (SC-SM)		
NOTES: 1. Soils are field visually classified in accordance with the Unified Soils Classification System. 2. NS = Sample not submitted for laboratory analysis from this interval.					

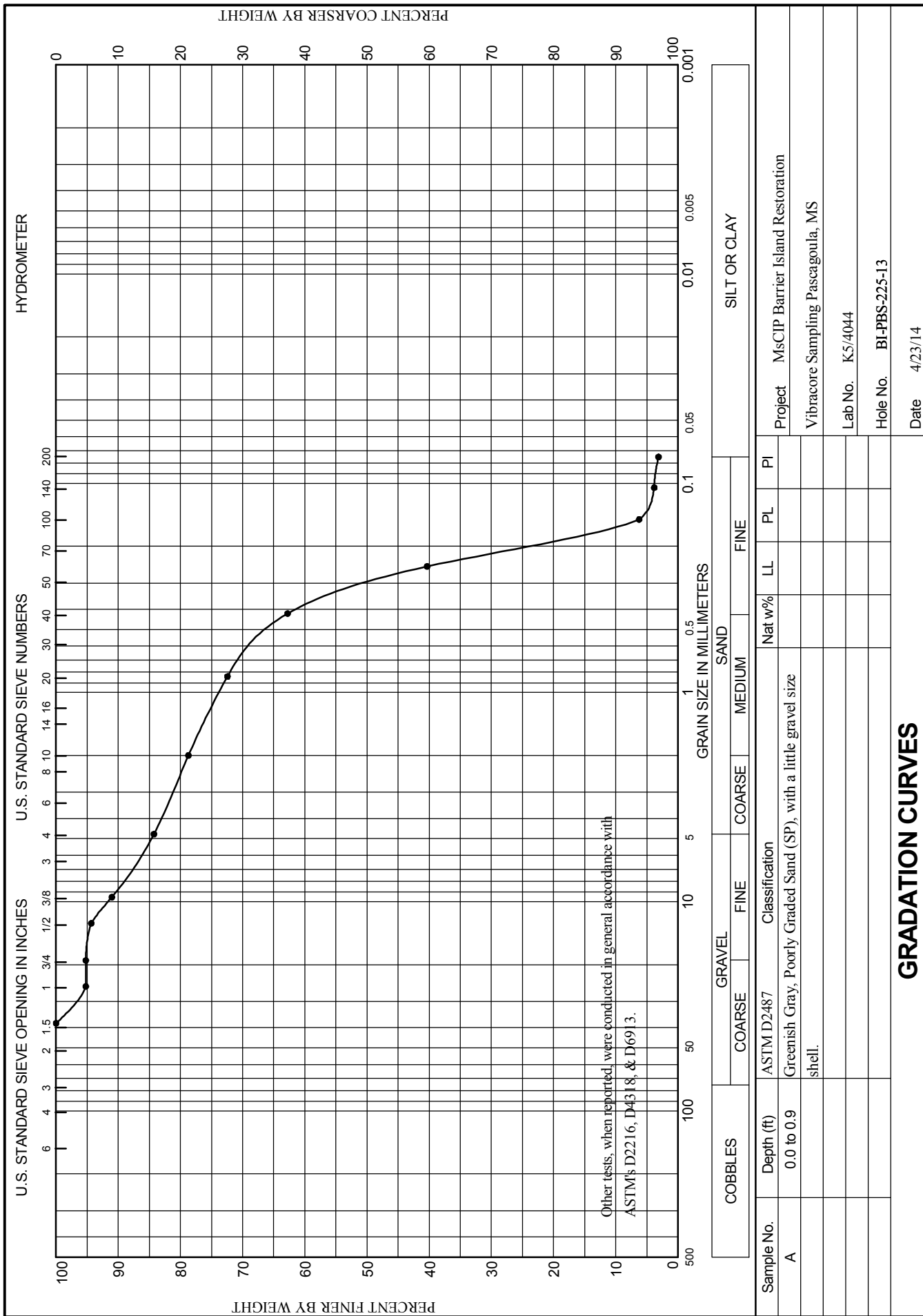
<b>DRILLING LOG (Cont. Sheet)</b>			<b>INSTALLATION</b> Mobile District		<b>SHEET 2</b> <b>OF 2 SHEETS</b>
			<b>PROJECT</b> MsCIP Barrier Island Restoration		<b>COORDINATE SYSTEM/DATUM</b> State Plane, MSE (U.S. Ft.)
<b>LOCATION COORDINATES</b> X = 1,110,452 Y = 233,873			<b>ELEVATION TOP OF BORING</b> -47.8 Ft.		
ELEV.	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS	SAMPLE	LABORATORY RESULTS
			3. Seafloor elevation determined from 12/17/2014 USACE survey.		



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WORK ORDER: 848e

REQUISITION: W33SJC32900192



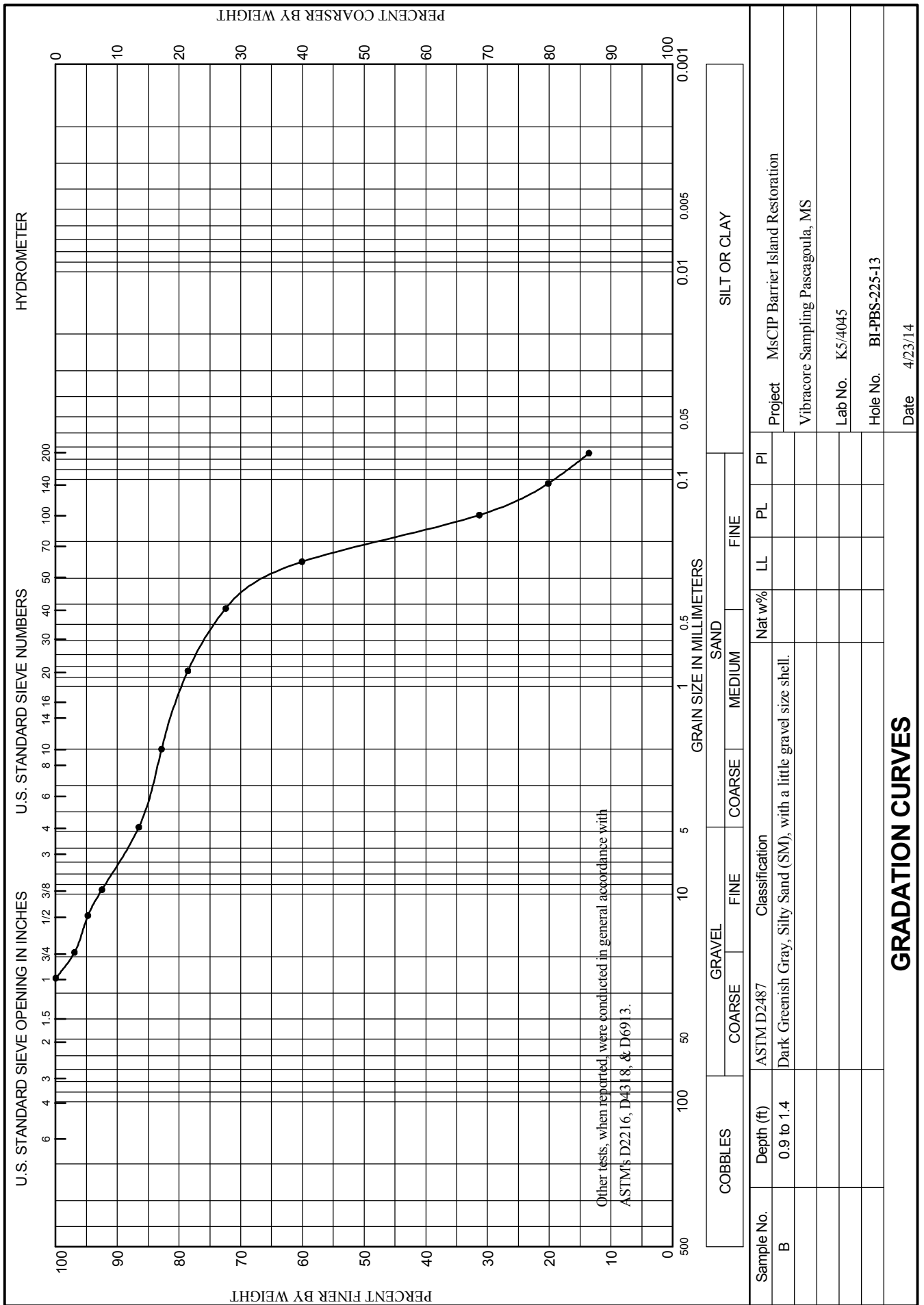




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WORK ORDER: 848e

REQUISITION: W33SJC32900192



# Boring Designation BI-PBS-228-13

DRILLING LOG		DIVISION South Atlantic		INSTALLATION Mobile District		SHEET 1 OF 2 SHEETS	
1. PROJECT MsCIP Barrier Island Restoration Petit Bois Pass-OCS West				9. SIZE AND TYPE OF BIT N/A			
2. BORING DESIGNATION BI-PBS-228-13		LOCATION COORDINATES E = 1,112,266 N = 235,730		10. COORDINATE SYSTEM/DATUM State Plane, MSE (U.S. Ft.)		HORIZONTAL NAD83	
3. DRILLING AGENCY Corps of Engineers - CESAM		CONTRACTOR FILE NO.		11. MANUFACTURER'S DESIGNATION OF DRILL Vibrocure		<input type="checkbox"/> AUTO HAMMER <input type="checkbox"/> MANUAL HAMMER	
4. NAME OF DRILLER Construction Solutions International, Inc.				12. TOTAL SAMPLES 5		DISTURBED 0	
5. DIRECTION OF BORING <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED				13. TOTAL NUMBER CORE BOXES		14. WATER DEPTH 53 Ft.	
6. THICKNESS OF OVERBURDEN N/A				15. DATE BORING 12-16-13		STARTED 12-16-13	
7. DEPTH DRILLED INTO ROCK N/A				16. ELEVATION TOP OF BORING -52.9 Ft.		COMPLETED 12-16-13	
8. TOTAL DEPTH OF BORING 20.0 Ft.				17. TOTAL RECOVERY FOR BORING 100%		18. SIGNATURE AND TITLE OF INSPECTOR Tom Powers, Geologist	
ELEV.	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS	SAMPLE	LABORATORY RESULTS		
-52.9	0.0						
			SAND, silty, mostly fine-grained sand-sized quartz, trace shell fragments, medium gray (SM)	A	Classification: SM Color: 2.5Y 5/1-gray D50: 0.248 mm % Fines: 19.8		
-56.8	3.9						
			SAND, poorly-graded, mostly fine to medium-grained sand-sized quartz, trace wood, lt. gray (SP)	B	Classification: SP Color: 2.5Y 6/1-gray D50: 0.342 mm % Fines: 2.6		
				C	Classification: SP Color: GLEY1 10Y 6/1- D50: 0.324 mm % Fines: 3.1		
				D	Classification: SP Color: 2.5Y 6/1-gray D50: 0.511 mm % Fines: 3.7		
-71.8	18.9		At El. -69.9 Ft., trace shell fragments				
-72.9	20.0		SAND, silty, mostly fine-grained sand-sized quartz, medium gray (SM)	E	Classification: SM Color: GLEY1 10Y 6/1- D50: 0.189 mm % Fines: 14		
			NOTES: 1. Soils are field visually classified in accordance with the Unified Soils Classification System. 2. NS = Sample not submitted for laboratory analysis from this interval. 3. Seafloor elevation determined from				

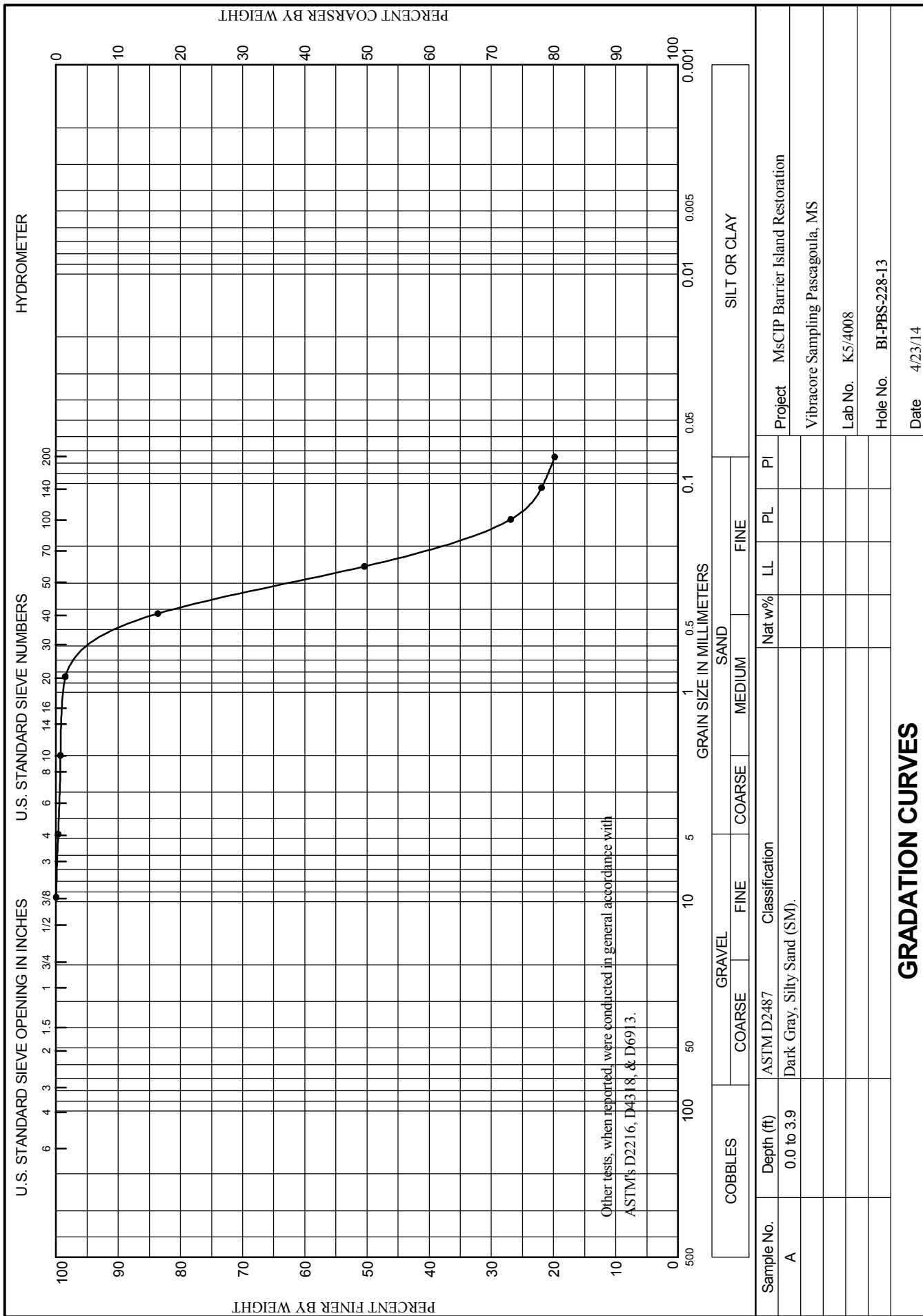
<b>DRILLING LOG (Cont. Sheet)</b>			<b>INSTALLATION</b> Mobile District		<b>SHEET 2</b> <b>OF 2 SHEETS</b>
<b>PROJECT</b> MsCIP Barrier Island Restoration			<b>COORDINATE SYSTEM/DATUM</b> State Plane, MSE (U.S. Ft.)	<b>HORIZONTAL</b> NAD83	<b>VERTICAL</b> NAVD88
<b>LOCATION COORDINATES</b> X = 1,112,266 Y = 235,730			<b>ELEVATION TOP OF BORING</b> -52.9 Ft.		
<b>ELEV.</b>	<b>DEPTH</b>	<b>LEGEND</b>	<b>CLASSIFICATION OF MATERIALS</b>	<b>SAMPLE</b>	<b>LABORATORY RESULTS</b>
			12/17/2014 USACE survey.		



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WORK ORDER: 848e

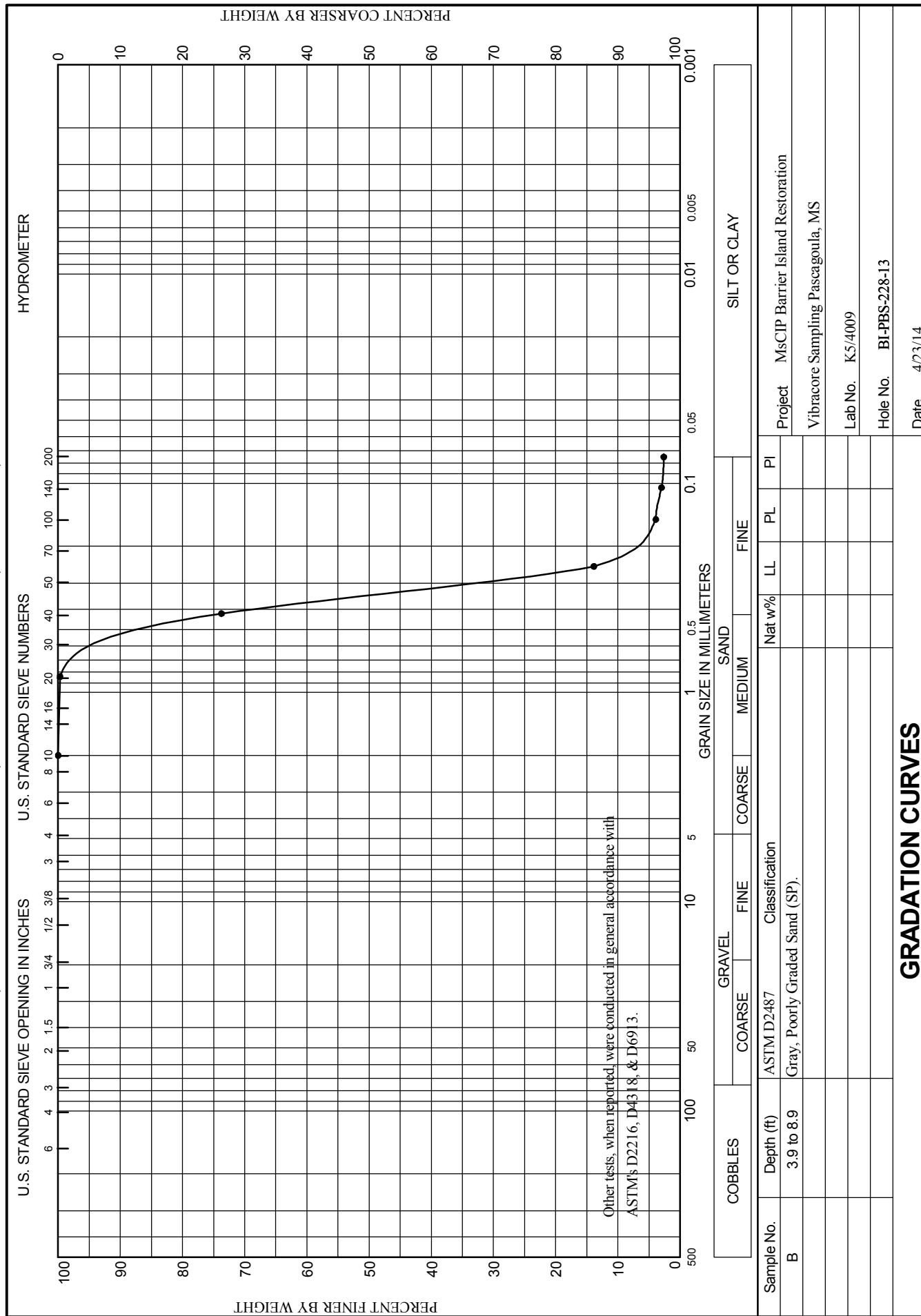
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WORK ORDER: 848e

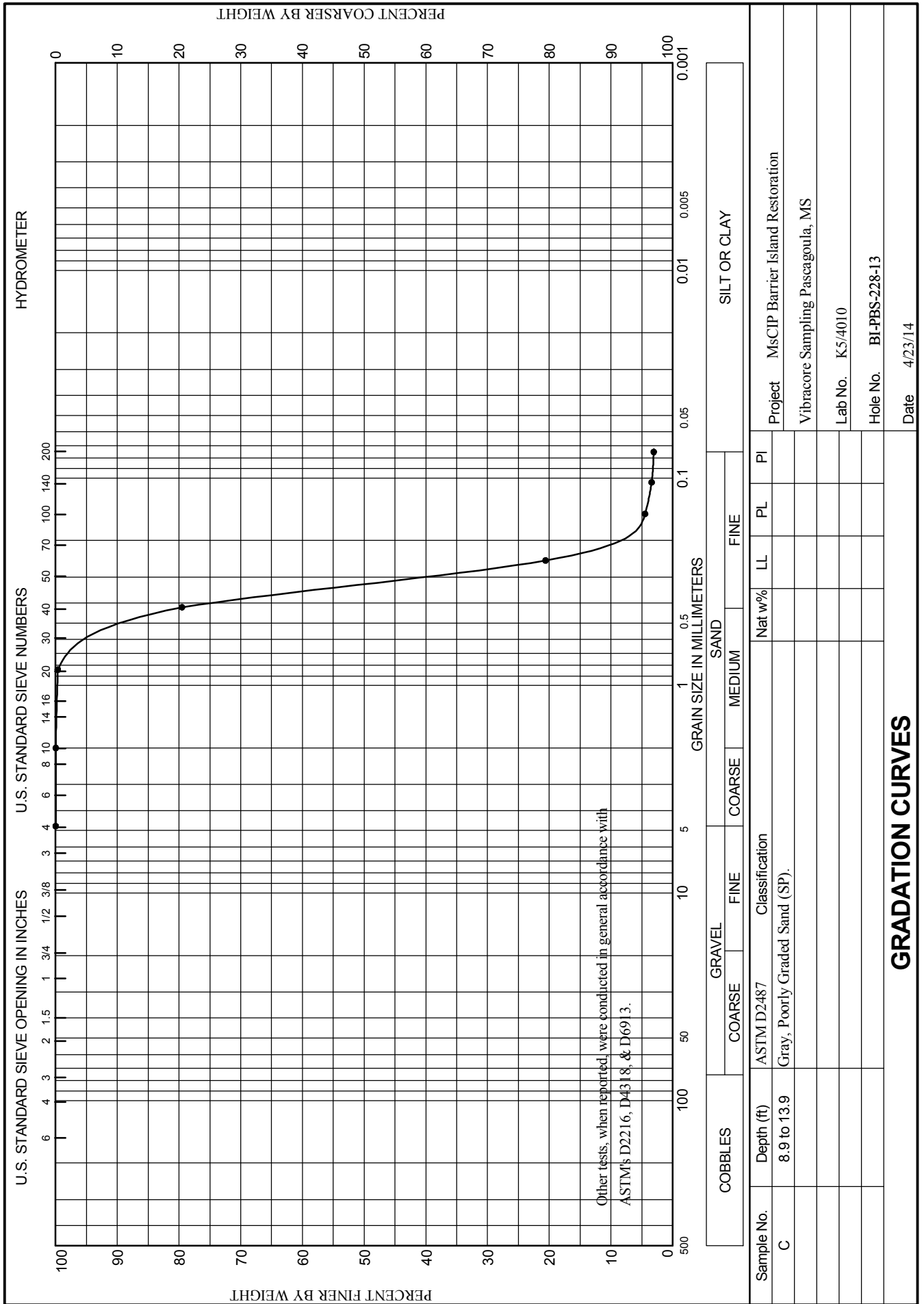
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WORK ORDER: 848e

REQUISITION: W33SJG32900192

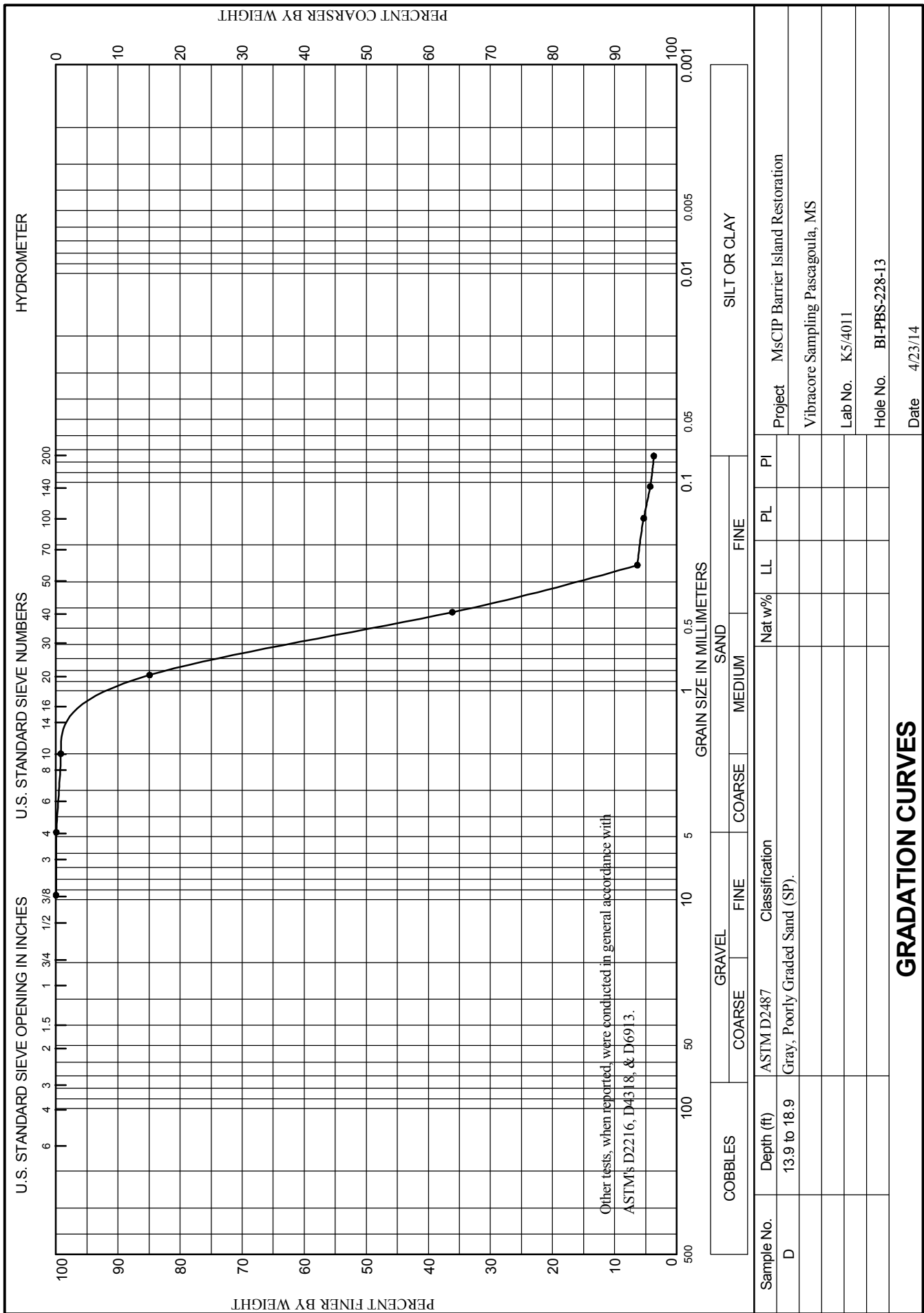




DEPARTMENT OF THE ARMY, SAVANNAH DISTRICT, ENVIRONMENTAL AND MATERIALS UNIT  
CORPS OF ENGINEERS, 200 N. COBB PARKWAY, BLDG 400 SUITE 404, MARIETTA, GA. 30062

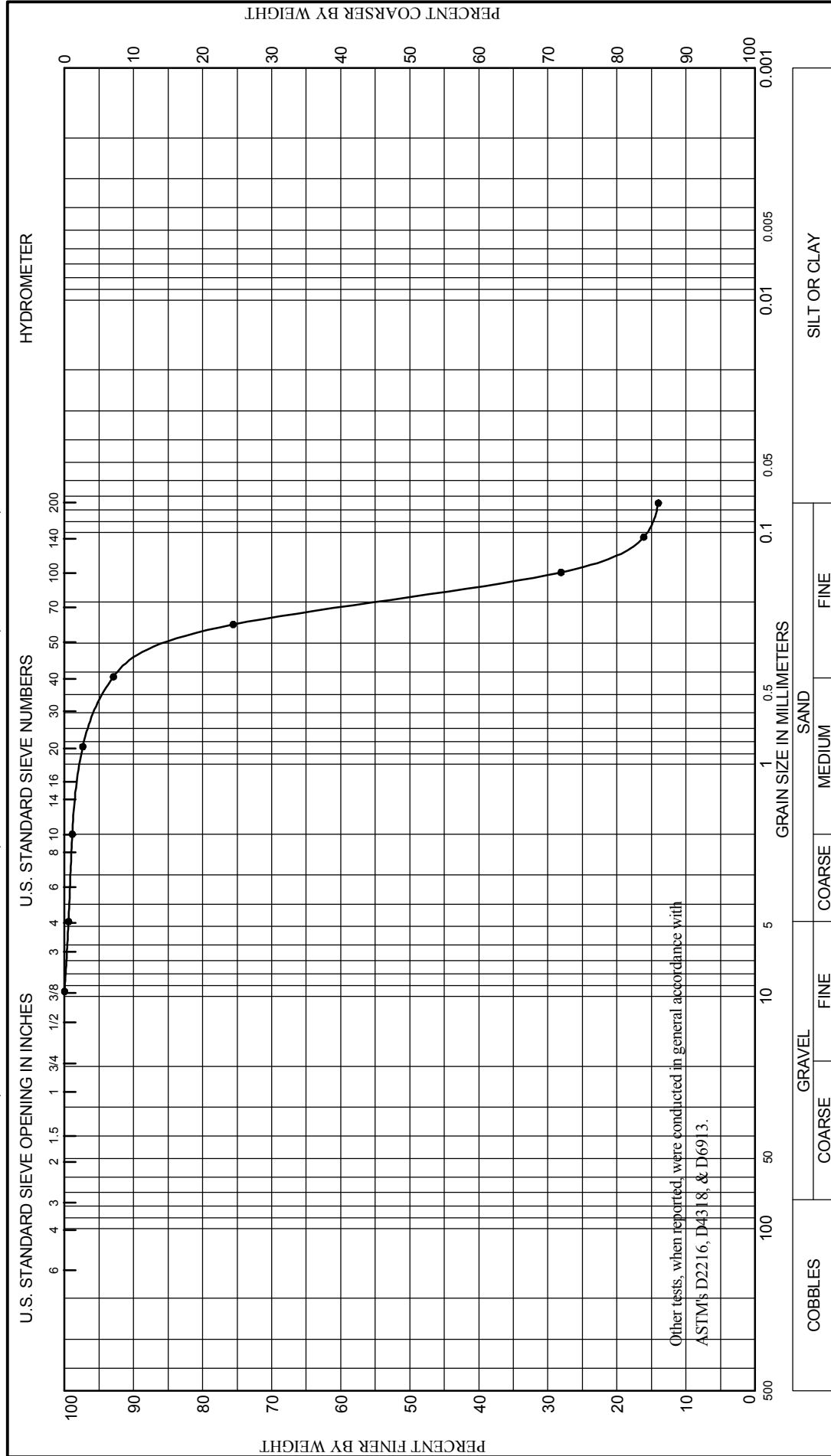
WORK ORDER: 848e

REQUISITION: W33SJG32900192





REQUISITION: W33SJG32900192



Sample No.	Depth (ft)	ASTM D2487	Classification	Nat w%	LL	PL	PI
E	18.9 to 20.0	Gray, Silty Sand (SM).					

**GRADATION CURVES**

Project	MsCIP Barrier Island Restoration
Vibracore Sampling Pascagoula, MS	
Lab No.	K5/4012
Hole No.	BI-PBS-228-13
Date	4/23/14



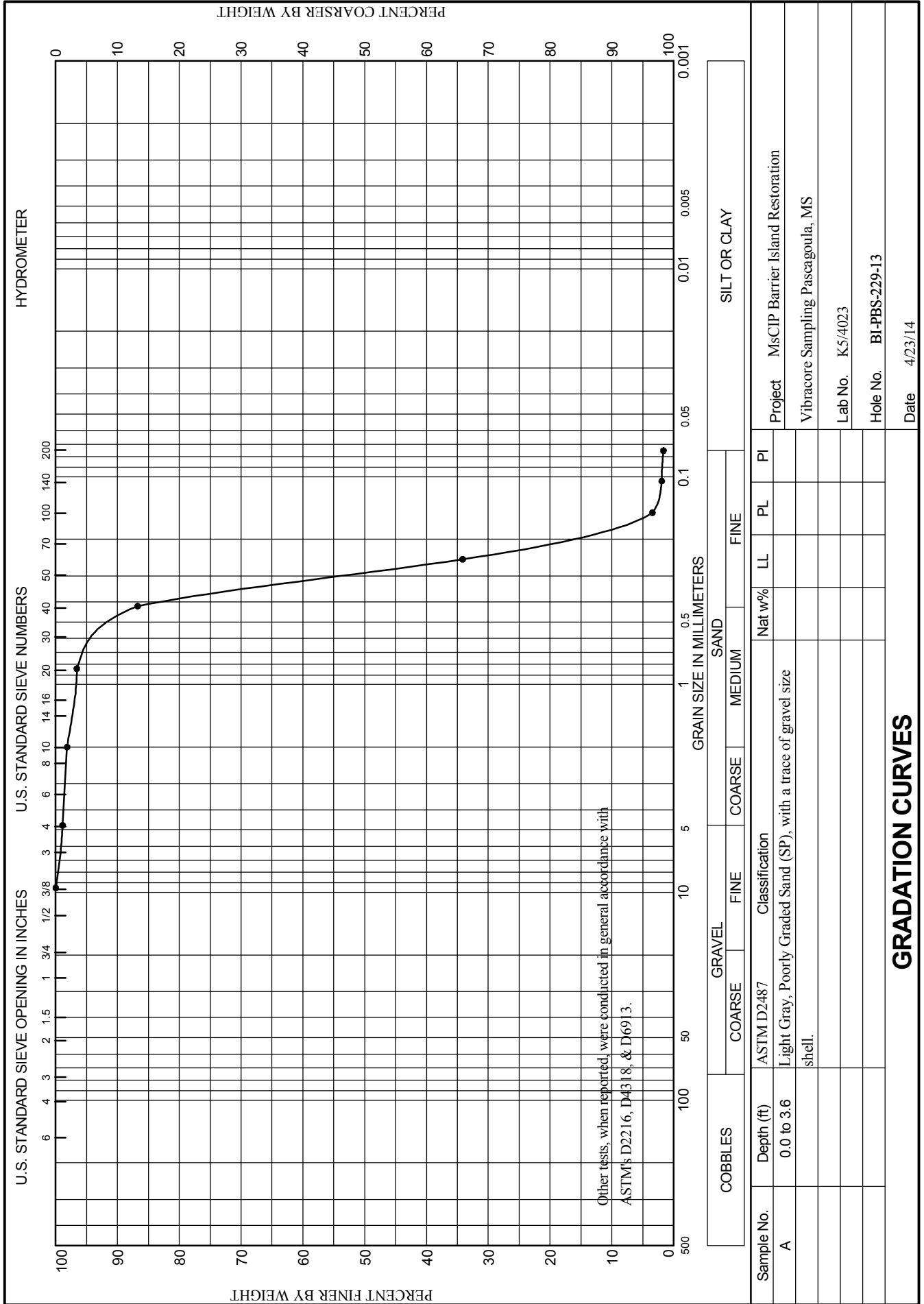
# Boring Designation BI-PBS-229-13

DRILLING LOG		DIVISION South Atlantic		INSTALLATION Mobile District		SHEET 1 OF 1 SHEETS	
1. PROJECT MsCIP Barrier Island Restoration Petit Bois Pass-OCS West				9. SIZE AND TYPE OF BIT N/A			
2. BORING DESIGNATION BI-PBS-229-13		LOCATION COORDINATES E = 1,111,305 N = 234,923		10. COORDINATE SYSTEM/DATUM State Plane, MSE (U.S. Ft.)		HORIZONTAL NAD83	
3. DRILLING AGENCY Corps of Engineers - CESAM		CONTRACTOR FILE NO.		11. MANUFACTURER'S DESIGNATION OF DRILL Vibracore		<input type="checkbox"/> AUTO HAMMER <input type="checkbox"/> MANUAL HAMMER	
4. NAME OF DRILLER Construction Solutions International, Inc.				12. TOTAL SAMPLES 5		UNDISTURBED (UD) 0	
5. DIRECTION OF BORING <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED				13. TOTAL NUMBER CORE BOXES		14. WATER DEPTH 48.7 Ft.	
6. THICKNESS OF OVERBURDEN N/A				15. DATE BORING 12-16-13		COMPLETED 12-16-13	
7. DEPTH DRILLED INTO ROCK N/A				16. ELEVATION TOP OF BORING -47.0 Ft.		17. TOTAL RECOVERY FOR BORING 100%	
8. TOTAL DEPTH OF BORING 17.5 Ft.				18. SIGNATURE AND TITLE OF INSPECTOR Tom Powers, Geologist			
ELEV.	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS	SAMPLE	LABORATORY RESULTS		
-47.0	0.0						
			SAND, poorly-graded, mostly fine to medium-grained sand-sized quartz, lt. gray (SP)	A	Classification: SP Color: 2.5Y 7/1-light gray D50: 0.292 mm % Fines: 1.7		
-50.6	3.6						
-51.8	4.8		SAND, silty, mostly fine-grained sand-sized quartz, medium gray (SM)	B	Classification: SM Color: 2.5Y 5/1-gray D50: 0.22 mm % Fines: 17		
-53.2	6.2		SAND, clayey, mostly fine-grained sand-sized quartz, medium gray (SC)	NS			
-54.8	7.8		SAND, silty, mostly fine-grained sand-sized quartz, medium gray (SM)	C	Classification: SM Color: 2.5Y 4/1-dark gray D50: 0.227 mm % Fines: 14.1		
-55.5	8.5		CLAY, lean, sandy, medium gray (CL)	NS			
			SAND, poorly-graded, mostly fine to medium-grained sand-sized quartz, medium to lt. gray (SP)	D	Classification: SP Color: 2.5Y 6/1-gray D50: 0.27 mm % Fines: 4.3		
				E	Classification: SP Color: 2.5Y 7/1-light gray D50: 0.2 mm % Fines: 3.2		
-64.5	17.5						
NOTES: 1. Soils are field visually classified in accordance with the Unified Soils Classification System. 2. NS = Sample not submitted for laboratory analysis from this interval. 3. Seafloor elevation determined from 12/17/2014 USACE survey.							



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CORPS OF ENGINEERS, 200 N. COBB PARKWAY, BLDG 400 SUITE 404, MARIETTA, GA. 30062

WORK ORDER: 848e  
REQUISITION: W33SJC32900192

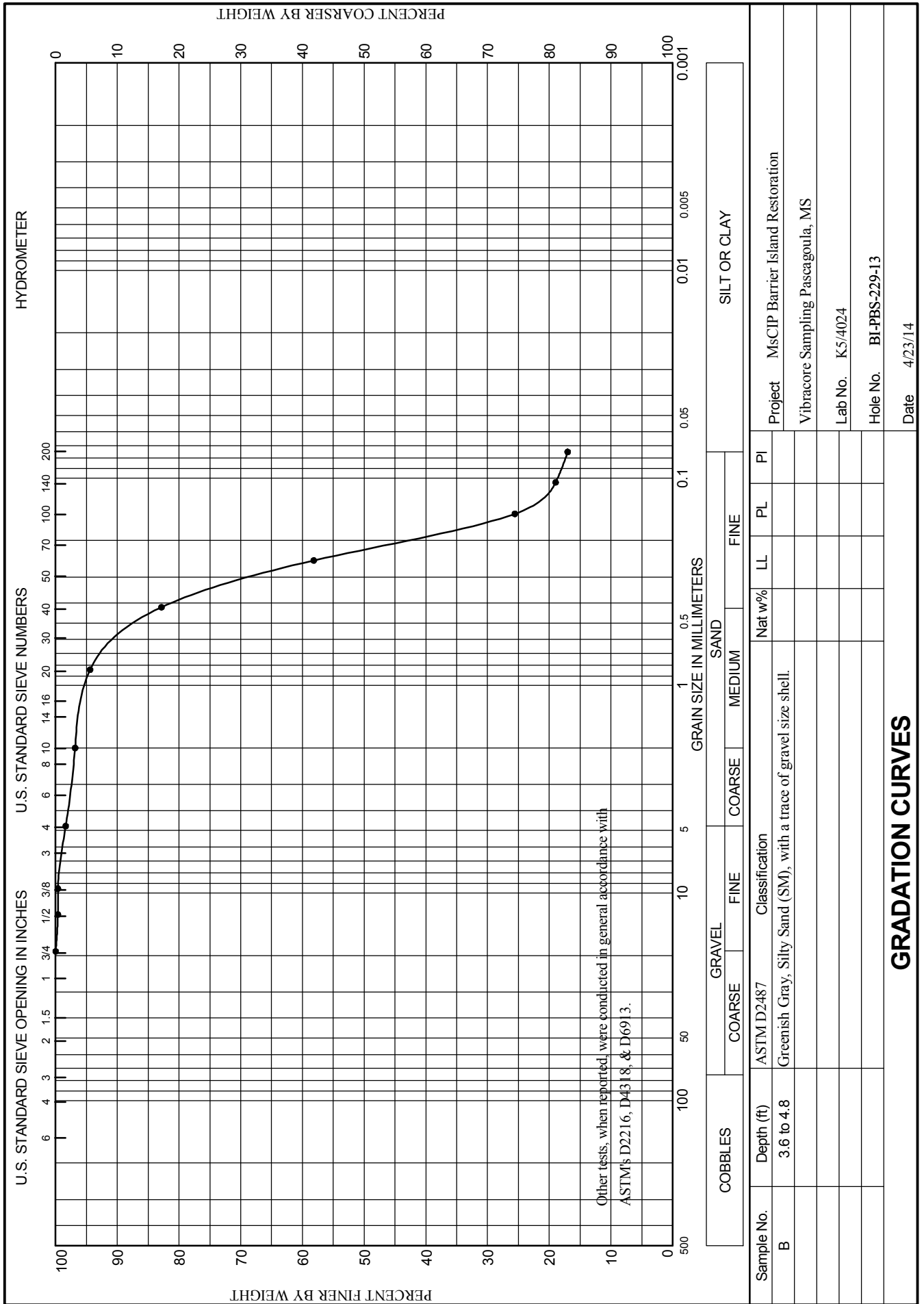




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CORPS OF ENGINEERS, 200 N. COBB PARKWAY, BLDG 400 SUITE 404, MARIETTA, GA. 30062

WORK ORDER: 848e

REQUISITION: W33SJC32900192

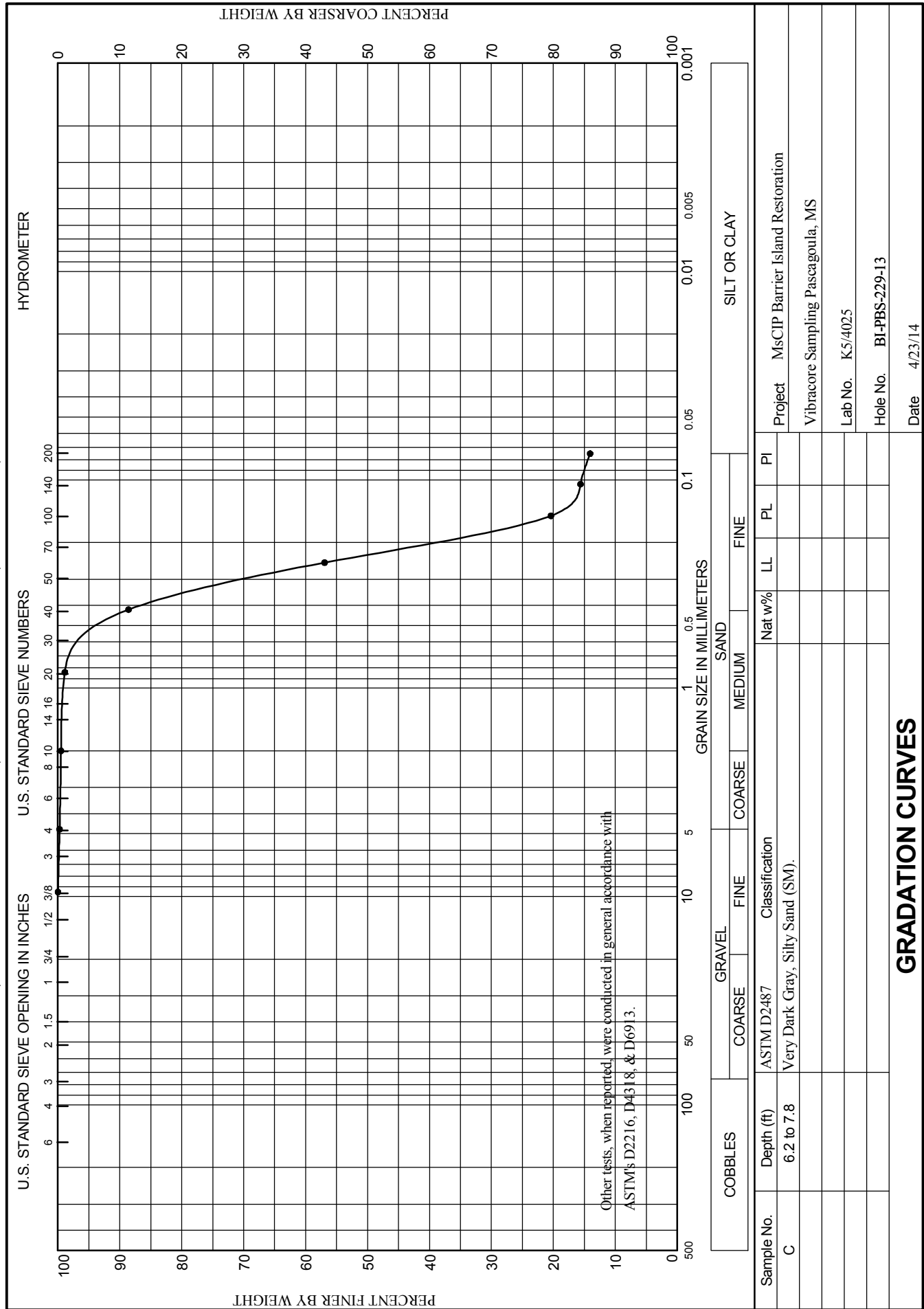




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CORPS OF ENGINEERS, 200 N. COBB PARKWAY, BLDG 400 SUITE 404, MARIETTA, GA. 30062

WORK ORDER: 848e

REQUISITION: W33SJC32900192

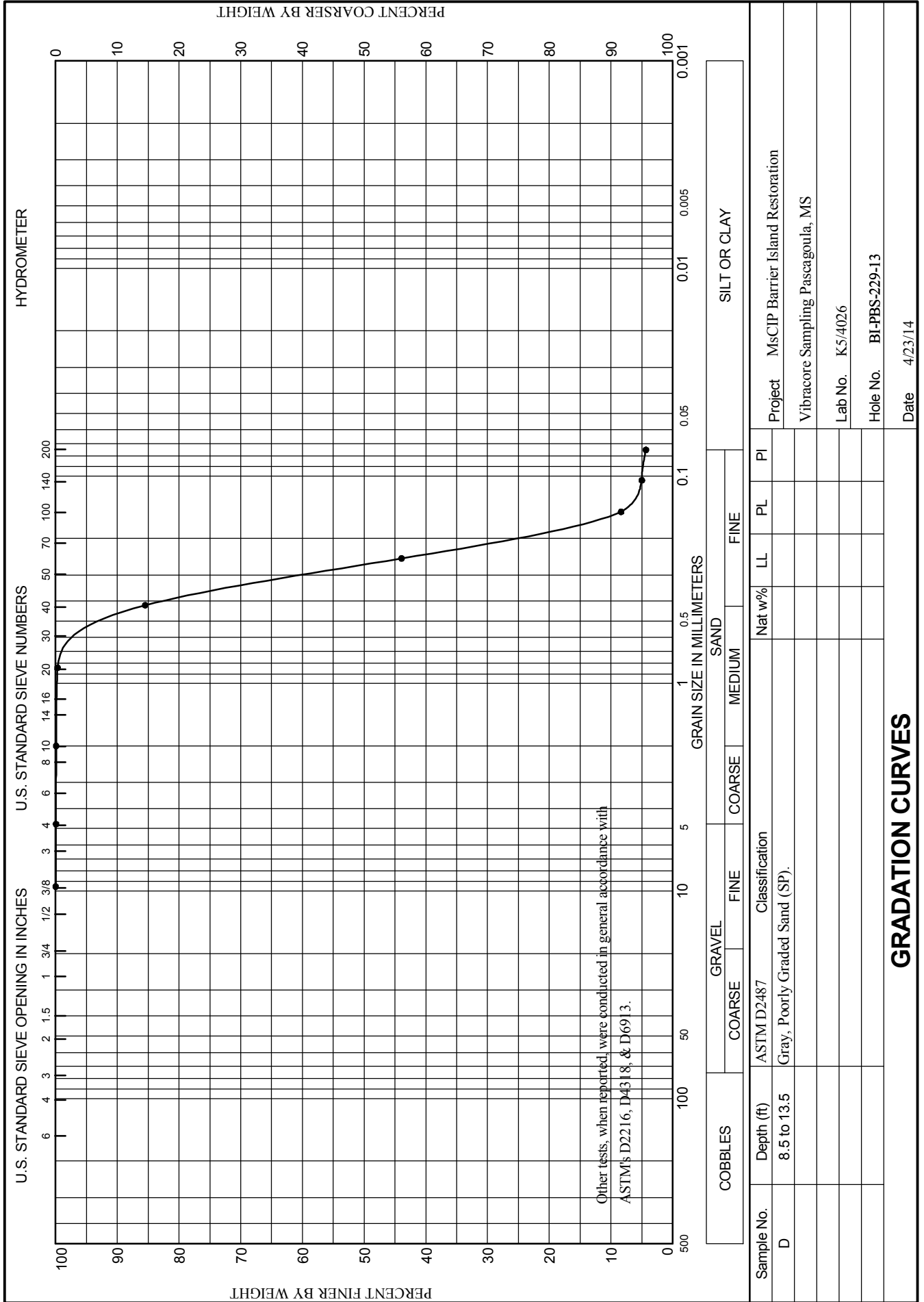




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CORPS OF ENGINEERS, 200 N. COBB PARKWAY, BLDG 400 SUITE 404, MARIETTA, GA. 30062

WORK ORDER: 848e

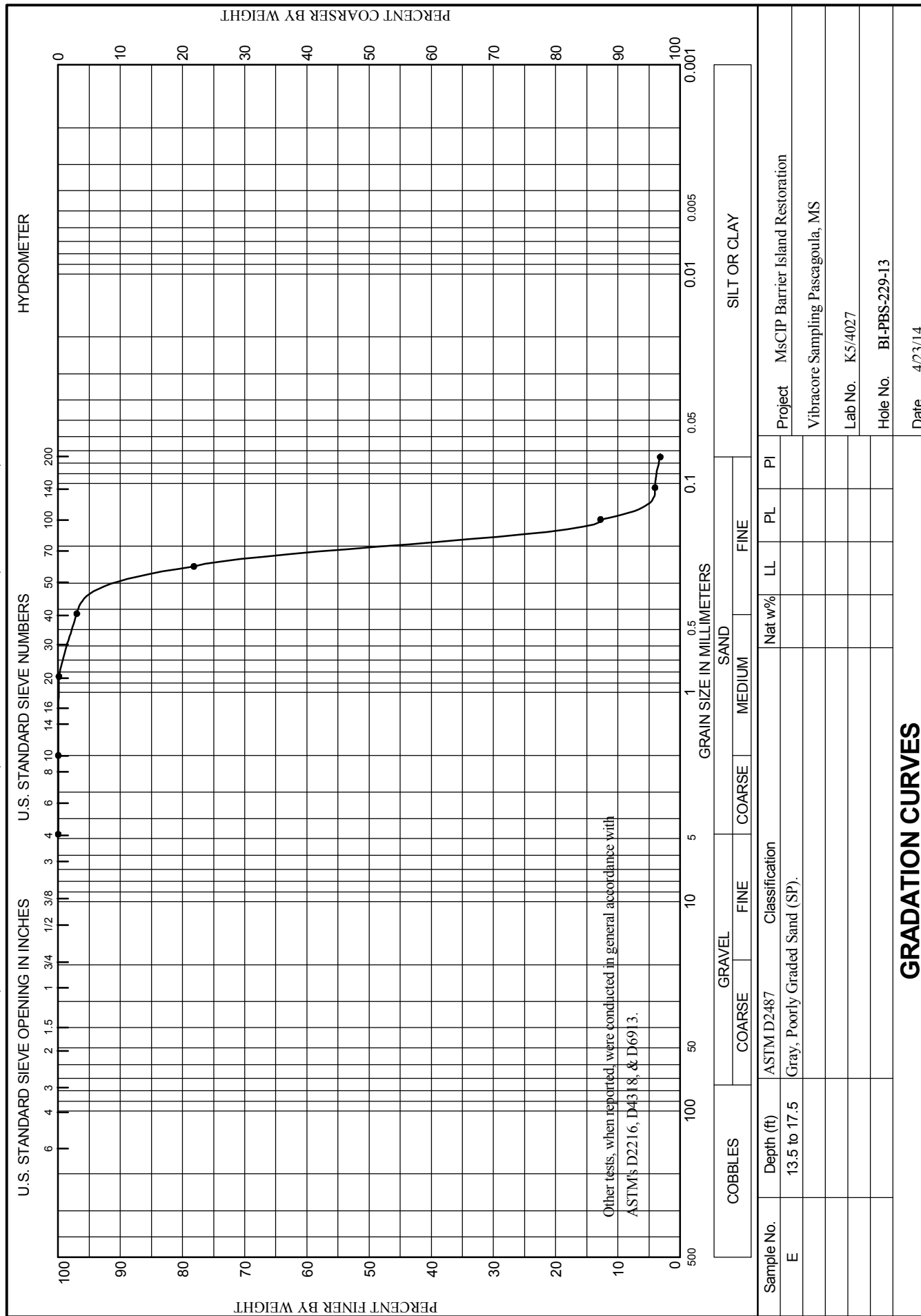
REQUISITION: W33SJG32900192





WORK ORDER: 848e

REQUISITION: W33SJG32900192



# Boring Designation BI-PBS-230-13

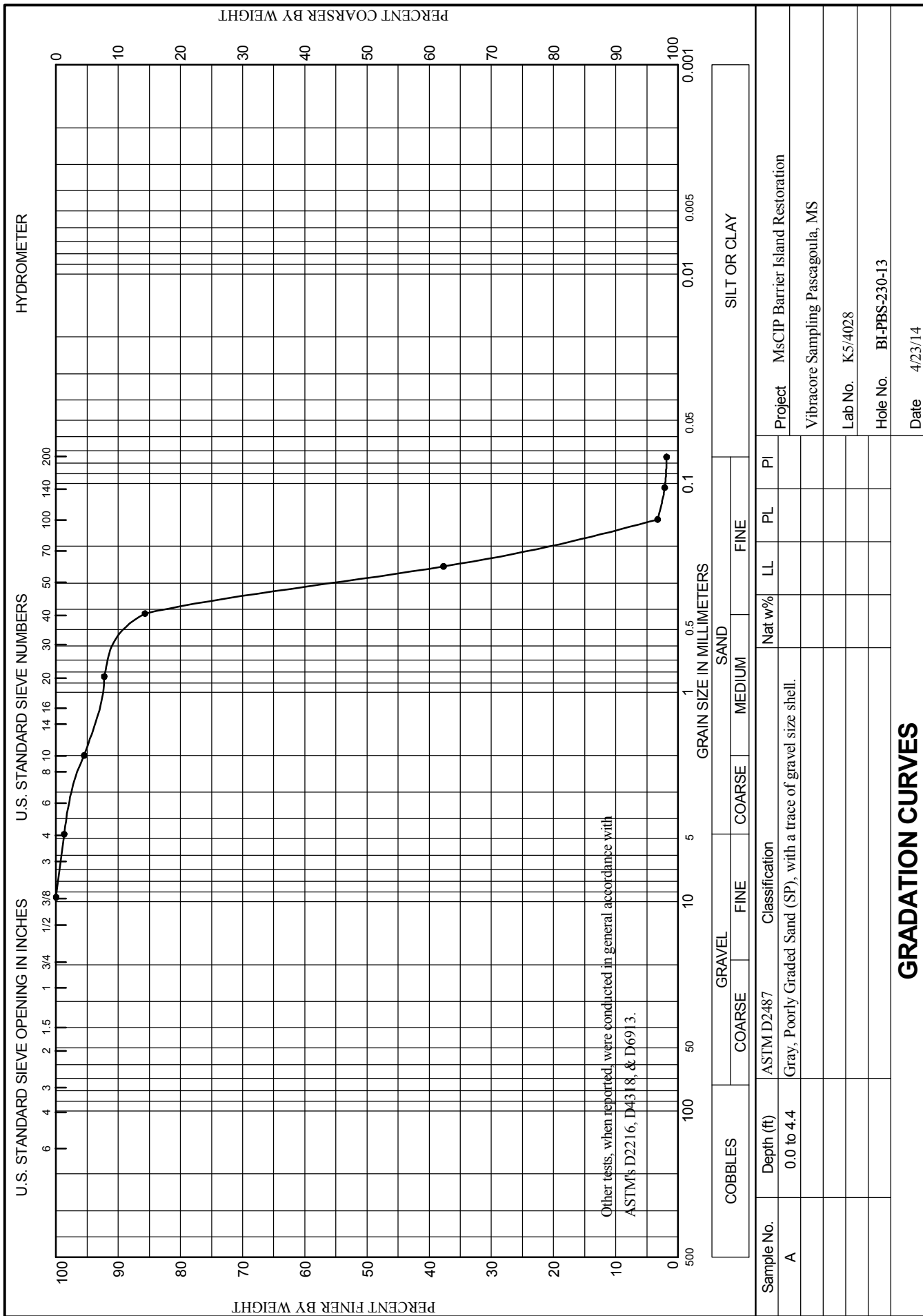
DRILLING LOG		DIVISION South Atlantic		INSTALLATION Mobile District		SHEET 1 OF 1 SHEETS	
1. PROJECT MsCIP Barrier Island Restoration Petit Bois Pass-OCS West				9. SIZE AND TYPE OF BIT N/A			
2. BORING DESIGNATION BI-PBS-230-13		LOCATION COORDINATES E = 1,112,434 N = 233,770		10. COORDINATE SYSTEM/DATUM State Plane, MSE (U.S. Ft.)		HORIZONTAL NAD83	
3. DRILLING AGENCY Corps of Engineers - CESAM		CONTRACTOR FILE NO.		11. MANUFACTURER'S DESIGNATION OF DRILL Vibracore		<input type="checkbox"/> AUTO HAMMER <input type="checkbox"/> MANUAL HAMMER	
4. NAME OF DRILLER Construction Solutions International, Inc.				12. TOTAL SAMPLES 4		UNDISTURBED (UD) 0	
5. DIRECTION OF BORING <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED				13. TOTAL NUMBER CORE BOXES		14. WATER DEPTH 45.4 Ft.	
6. THICKNESS OF OVERBURDEN N/A				15. DATE BORING 12-17-13		COMPLETED 12-17-13	
7. DEPTH DRILLED INTO ROCK N/A				16. ELEVATION TOP OF BORING -45.7 Ft.		17. TOTAL RECOVERY FOR BORING 100%	
8. TOTAL DEPTH OF BORING 18.2 Ft.				18. SIGNATURE AND TITLE OF INSPECTOR Tom Powers, Geologist			
ELEV.	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS	SAMPLE	LABORATORY RESULTS		
-45.7	0.0		SAND, poorly-graded, mostly fine to medium-grained sand-sized quartz, trace shell fragments, lt. gray (SP)	A	Classification: SP Color: GLEY1 10Y 6/1- D50: 0.286 mm % Fines: 1.8		
-50.1	4.4		GRAVEL, poorly-graded, mostly fine gravel-sized shell fragments, medium gray (GP)	B	Classification: SP Color: GLEY1 10Y 5/1- D50: 2.596 mm % Fines: 2.7		
-50.7	5.0		SAND, silty, mostly fine-grained sand-sized quartz, few clay lenses 1/4-inch thick, medium gray (SM)	C	Classification: SM Color: 2.5Y 5/1-gray D50: 0.2 mm % Fines: 21.5		
-52.5	6.8		WOOD, mostly wood fragments, medium brown	NS			
-53.9	8.2		SAND, silty, mostly fine-grained sand-sized quartz, medium gray (SM)	D	Classification: SM Color: 2.5Y 5/1-gray D50: 0.195 mm % Fines: 21		
-55.5	9.8		WOOD, mostly wood fragments, medium brown	NS			
-56.8	11.1		SAND, clayey, mostly fine-grained sand-sized quartz, lt. grayish brown (SC)	NS			
-58.4	12.7		SAND, poorly-graded, mostly fine to medium-grained sand-sized quartz, lt. to medium gray (SP)	NS			
-61.7	16.0		SAND, silty, clayey, mostly fine-grained sand-sized quartz, lt. to medium gray (SC-SM)	NS			
-63.9	18.2		NOTES: 1. Soils are field visually classified in accordance with the Unified Soils Classification System. 2. NS = Sample not submitted for laboratory analysis from this interval. 3. Seafloor elevation determined from 12/17/2014 USACE survey.				



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CORPS OF ENGINEERS, 200 N. COBB PARKWAY, BLDG 400 SUITE 404, MARIETTA, GA. 30062

WORK ORDER: 848e

REQUISITION: W33SJC32900192

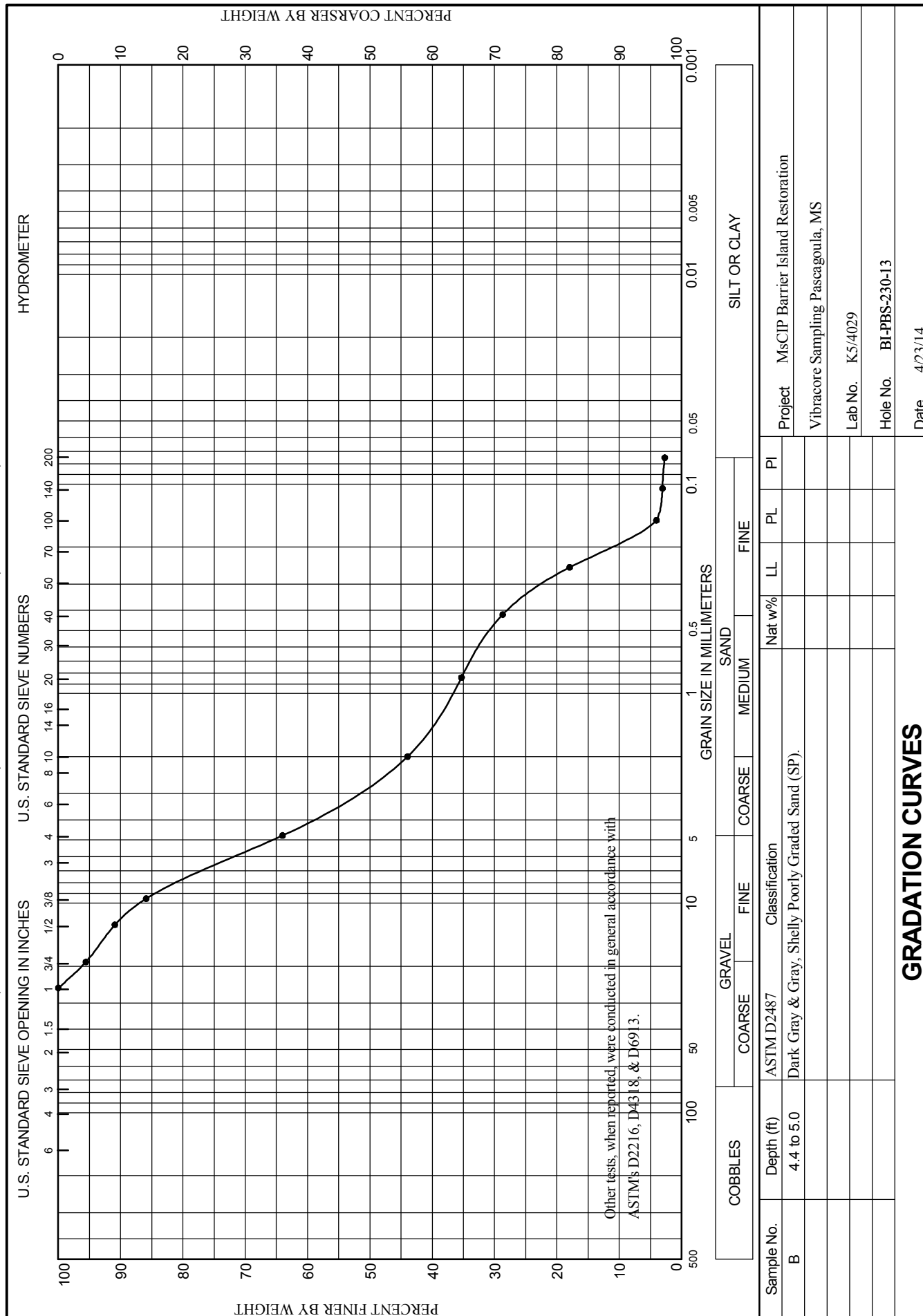






WORK ORDER: 848e

REQUISITION: W33SJG32900192

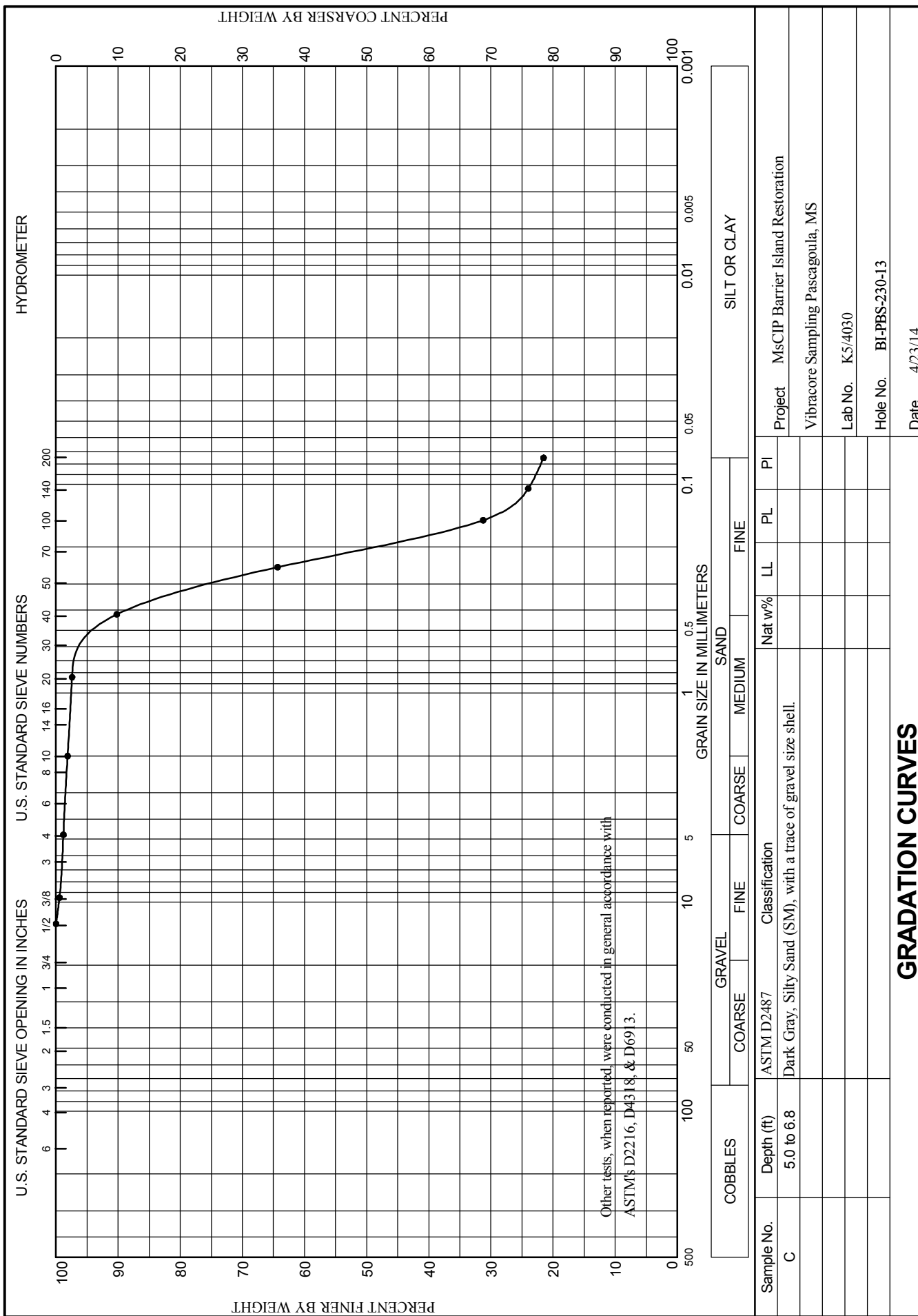




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CORPS OF ENGINEERS, 200 N. COBB PARKWAY, BLDG 400 SUITE 404, MARIETTA, GA. 30062

WORK ORDER: 848e

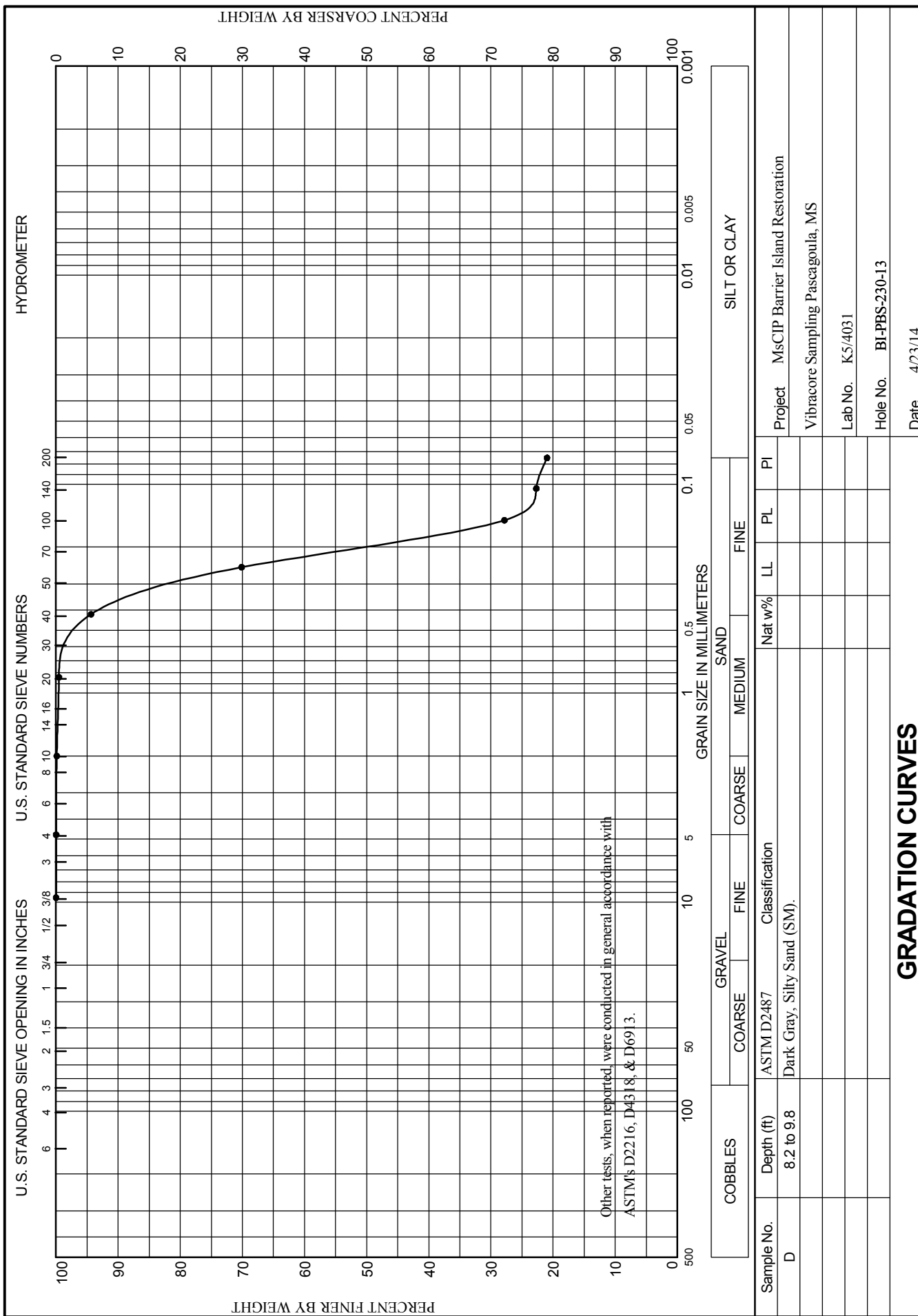
REQUISITION: W33SJC32900192





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WORK ORDER: 848e  
REQUISITION: W33SJC32900192



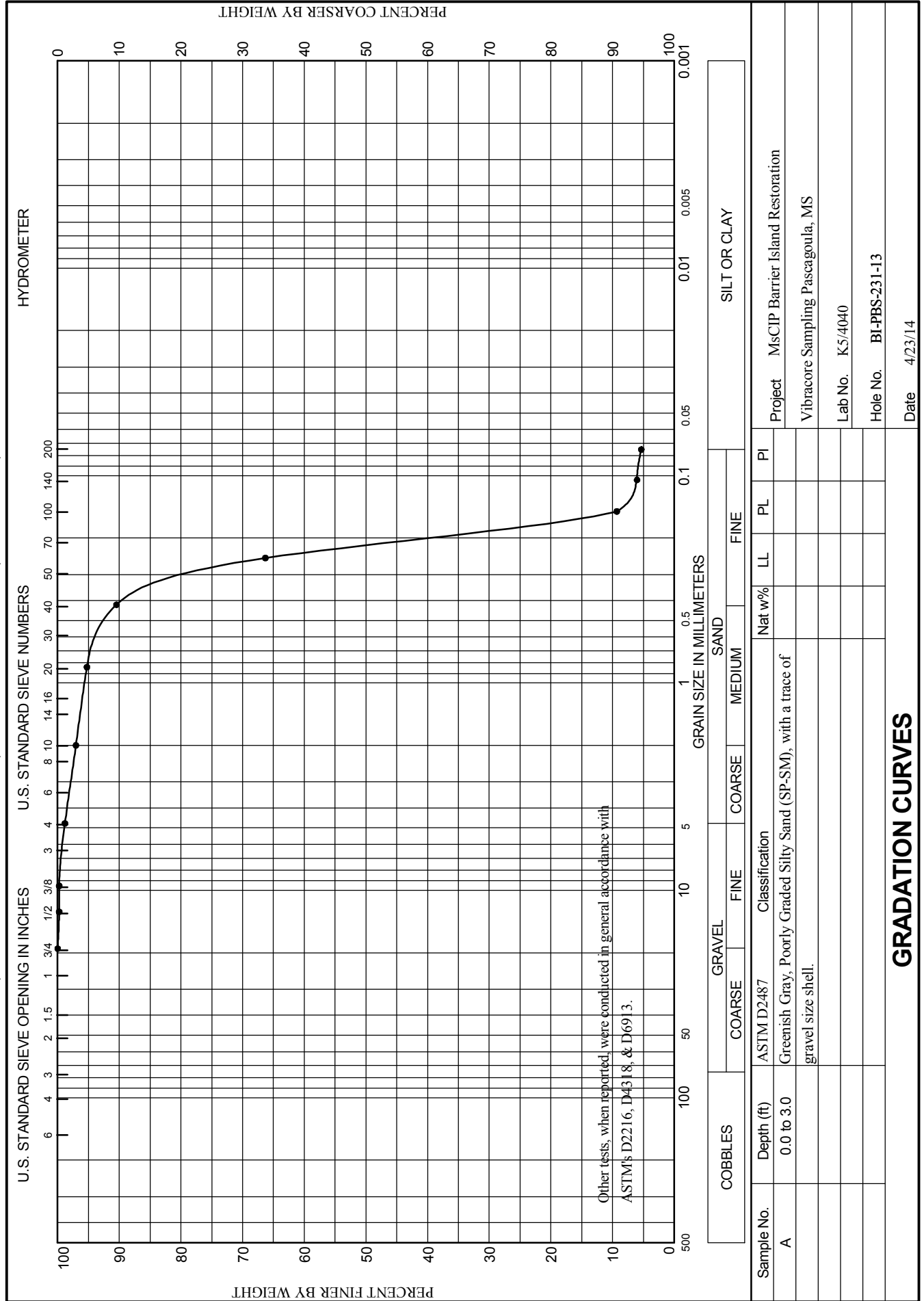
# Boring Designation BI-PBS-231-13

DRILLING LOG		DIVISION South Atlantic		INSTALLATION Mobile District		SHEET 1 OF 1 SHEETS	
1. PROJECT MsCIP Barrier Island Restoration Petit Bois Pass-OCS West				9. SIZE AND TYPE OF BIT N/A			
2. BORING DESIGNATION BI-PBS-231-13		LOCATION COORDINATES E = 1,123,825 N = 227,517		10. COORDINATE SYSTEM/DATUM State Plane, MSE (U.S. Ft.)		HORIZONTAL NAD83 VERTICAL NAVD88	
3. DRILLING AGENCY Corps of Engineers - CESAM		CONTRACTOR FILE NO.		11. MANUFACTURER'S DESIGNATION OF DRILL Vibracore		<input type="checkbox"/> AUTO HAMMER <input type="checkbox"/> MANUAL HAMMER	
4. NAME OF DRILLER Construction Solutions International, Inc.				12. TOTAL SAMPLES 1		DISTURBED 1 UNDISTURBED (UD) 0	
5. DIRECTION OF BORING <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED		DEG. FROM VERTICAL		13. TOTAL NUMBER CORE BOXES			
		BEARING		14. WATER DEPTH 54.6 Ft.			
6. THICKNESS OF OVERBURDEN N/A				15. DATE BORING 12-18-13		STARTED 12-18-13 COMPLETED 12-18-13	
7. DEPTH DRILLED INTO ROCK N/A				16. ELEVATION TOP OF BORING -55.1 Ft.			
8. TOTAL DEPTH OF BORING 19.7 Ft.				17. TOTAL RECOVERY FOR BORING 100%			
				18. SIGNATURE AND TITLE OF INSPECTOR Tom Powers, Geologist			
ELEV.	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS	SAMPLE	LABORATORY RESULTS		
-55.1	0.0						
-58.1	3.0		SAND, poorly-graded, mostly fine to medium-grained sand-sized quartz, few shell fragments, lt. gray (SP)	A	Classification: SP-SM Color: GLEY1 10Y 6/1- D50: 0.216 mm % Fines: 5.3		
-59.6	4.5		CLAY, lean, sandy, medium gray (CL)				
-60.6	5.5		SAND, clayey, mostly fine to medium-grained sand-sized quartz, little shell fragments, medium gray (SC)				
-67.7	12.6		CLAY, fat, lt. to medium gray and pale orange (CH)	NS			
-69.1	14.0		SAND, silty, clayey, mostly fine to medium-grained sand-sized quartz, lt. gray and lt. brown (SC-SM)				
-74.8	19.7		SAND, poorly-graded with silt, mostly fine to medium-grained sand-sized quartz, lt. and medium gray and lt. brown (SP-SM)				
NOTES: 1. Soils are field visually classified in accordance with the Unified Soils Classification System. 2. NS = Sample not submitted for laboratory analysis from this interval. 3. Seafloor elevation determined from 12/17/2014 USACE survey.							



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CORPS OF ENGINEERS, 200 N. COBB PARKWAY, BLDG 400 SUITE 404, MARIETTA, GA. 30062

WORK ORDER: 848e  
REQUISITION: W33SJC32900192



# Boring Designation BI-PBS-233-13

DRILLING LOG		DIVISION South Atlantic		INSTALLATION Mobile District		SHEET 1 OF 1 SHEETS	
1. PROJECT MsCIP Barrier Island Restoration Petit Bois Pass-OCS West				9. SIZE AND TYPE OF BIT N/A			
2. BORING DESIGNATION BI-PBS-233-13		LOCATION COORDINATES E = 1,115,256 N = 232,289		10. COORDINATE SYSTEM/DATUM State Plane, MSE (U.S. Ft.)		HORIZONTAL NAD83 VERTICAL NAVD88	
3. DRILLING AGENCY Corps of Engineers - CESAM		CONTRACTOR FILE NO.		11. MANUFACTURER'S DESIGNATION OF DRILL Vibrocure		<input type="checkbox"/> AUTO HAMMER <input type="checkbox"/> MANUAL HAMMER	
4. NAME OF DRILLER Construction Solutions International, Inc.				12. TOTAL SAMPLES		DISTURBED 1 UNDISTURBED (UD) 0	
5. DIRECTION OF BORING <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED		DEG. FROM VERTICAL		13. TOTAL NUMBER CORE BOXES			
		BEARING		14. WATER DEPTH 50 Ft.			
6. THICKNESS OF OVERBURDEN N/A				15. DATE BORING		STARTED 12-09-13 COMPLETED 12-09-13	
7. DEPTH DRILLED INTO ROCK N/A				16. ELEVATION TOP OF BORING -47.5 Ft.			
8. TOTAL DEPTH OF BORING 14.1 Ft.				17. TOTAL RECOVERY FOR BORING 100%			
				18. SIGNATURE AND TITLE OF INSPECTOR Tom Powers, Geologist			

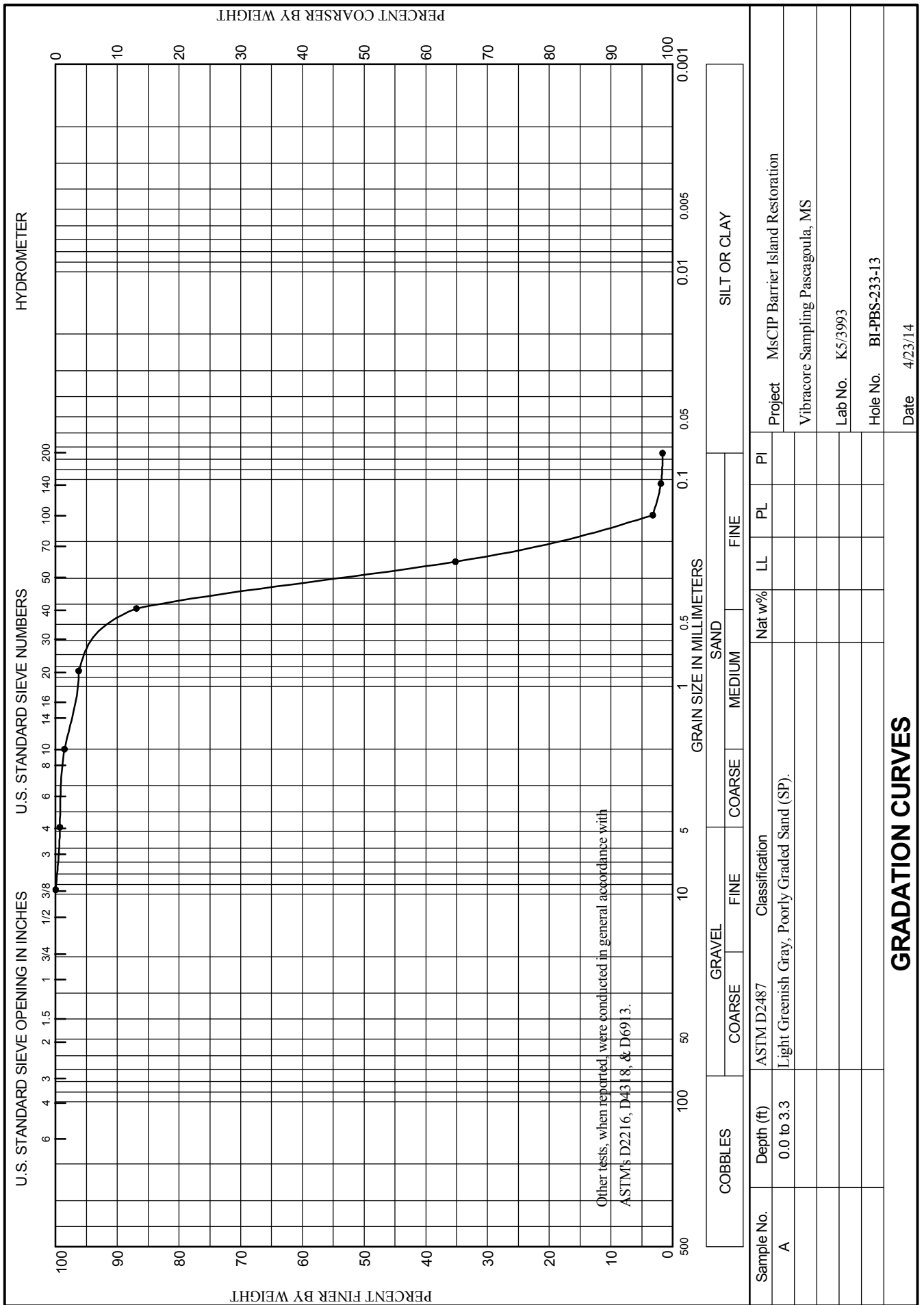
ELEV.	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS	SAMPLE	LABORATORY RESULTS
-47.5	0.0				
			SAND, poorly-graded, mostly fine to medium-grained sand-sized quartz, little shell, lt. gray (SP)	A	Classification: SP Color: GLEY1 10Y 7/1- D50: 0.29 mm % Fines: 1.6
-50.8	3.3		CLAY, lean, sandy, trace of wood fragments, pale brown, medium gray (CL)		
			At El. -56.0 Ft., sandy, medium gray	NS	
-57.5	10.0				
-57.8	10.3		SAND, clayey, mostly fine-grained sand-sized quartz, medium gray (SC)		
			SAND, poorly-graded with silt, mostly fine-grained sand-sized quartz, medium gray (SP-SM)		
-60.8	13.3				
-61.6	14.1		SAND, poorly-graded, mostly fine to medium-grained sand-sized quartz, little shell, lt. gray (SP)		
			NOTES: 1. Soils are field visually classified in accordance with the Unified Soils Classification System. 2. NS = Sample not submitted for laboratory analysis from this interval. 3. Seafloor elevation determined from 12/17/2014 USACE survey.		



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CORPS OF ENGINEERS, 200 N. COBB PARKWAY, BLDG 400 SUITE 404, MARIETTA, GA. 30062

WORK ORDER: 848e

REQUISITION: W33SJC32900192



# Boring Designation BI-PBS-234-13

DRILLING LOG		DIVISION South Atlantic		INSTALLATION Mobile District		SHEET 1 OF 1 SHEETS	
1. PROJECT MsCIP Barrier Island Restoration Petit Bois Pass-OCS West				9. SIZE AND TYPE OF BIT N/A			
2. BORING DESIGNATION BI-PBS-234-13		LOCATION COORDINATES E = 1,100,118 N = 236,318		10. COORDINATE SYSTEM/DATUM State Plane, MSE (U.S. Ft.)		HORIZONTAL NAD83	
3. DRILLING AGENCY Corps of Engineers - CESAM		CONTRACTOR FILE NO.		11. MANUFACTURER'S DESIGNATION OF DRILL Vibracore		<input type="checkbox"/> AUTO HAMMER <input type="checkbox"/> MANUAL HAMMER	
4. NAME OF DRILLER Construction Solutions International, Inc.				12. TOTAL SAMPLES 3		UNDISTURBED (UD) 0	
5. DIRECTION OF BORING <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED				13. TOTAL NUMBER CORE BOXES		14. WATER DEPTH 48.1 Ft.	
6. THICKNESS OF OVERBURDEN N/A				15. DATE BORING 01-08-14		STARTED 01-08-14	
7. DEPTH DRILLED INTO ROCK N/A				16. ELEVATION TOP OF BORING -46.5 Ft.		COMPLETED 01-08-14	
8. TOTAL DEPTH OF BORING 13.7 Ft.				17. TOTAL RECOVERY FOR BORING 100%		18. SIGNATURE AND TITLE OF INSPECTOR Tom Powers, Geologist	
ELEV.	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS	SAMPLE	LABORATORY RESULTS		
-46.5	0.0						
-49.1	2.6		SAND, poorly-graded, mostly fine to coarse-grained sand-sized quartz, little shell fragments, shell increases from 15 to 25% at 2.0 ft. depth, lt. gray (SP)	A	Classification: SP Color: GLEY1 10Y 6/1- D50: 0.39 mm % Fines: 1.3		
-49.8	3.3		SAND, poorly-graded, mostly fine-grained sand-sized quartz, few shell fragments, shell estimated to be <5% below 2.9 ft., lt. to medium gray (SP)	B	Classification: SP-SM Color: 2.5Y 6/1-gray D50: 0.206 mm % Fines: 5.1		
-53.5	7.0		SAND, silty, mostly fine-grained sand-sized quartz, few shell fragments, lt. to medium gray (SM)	C	Classification: SM Color: GLEY1 10Y 5/1- D50: 0.149 mm % Fines: 16.3		
-56.3	9.8		CLAY, lean, few shell fragments, sandy, medium gray (CL)	NS			
-60.2	13.7		CLAY, fat, sandy, lt. gray, pale orange (CH)				
NOTES: 1. Soils are field visually classified in accordance with the Unified Soils Classification System. 2. NS = Sample not submitted for laboratory analysis from this interval. 3. Seafloor elevation determined from 10/16/2014 USACE survey.							

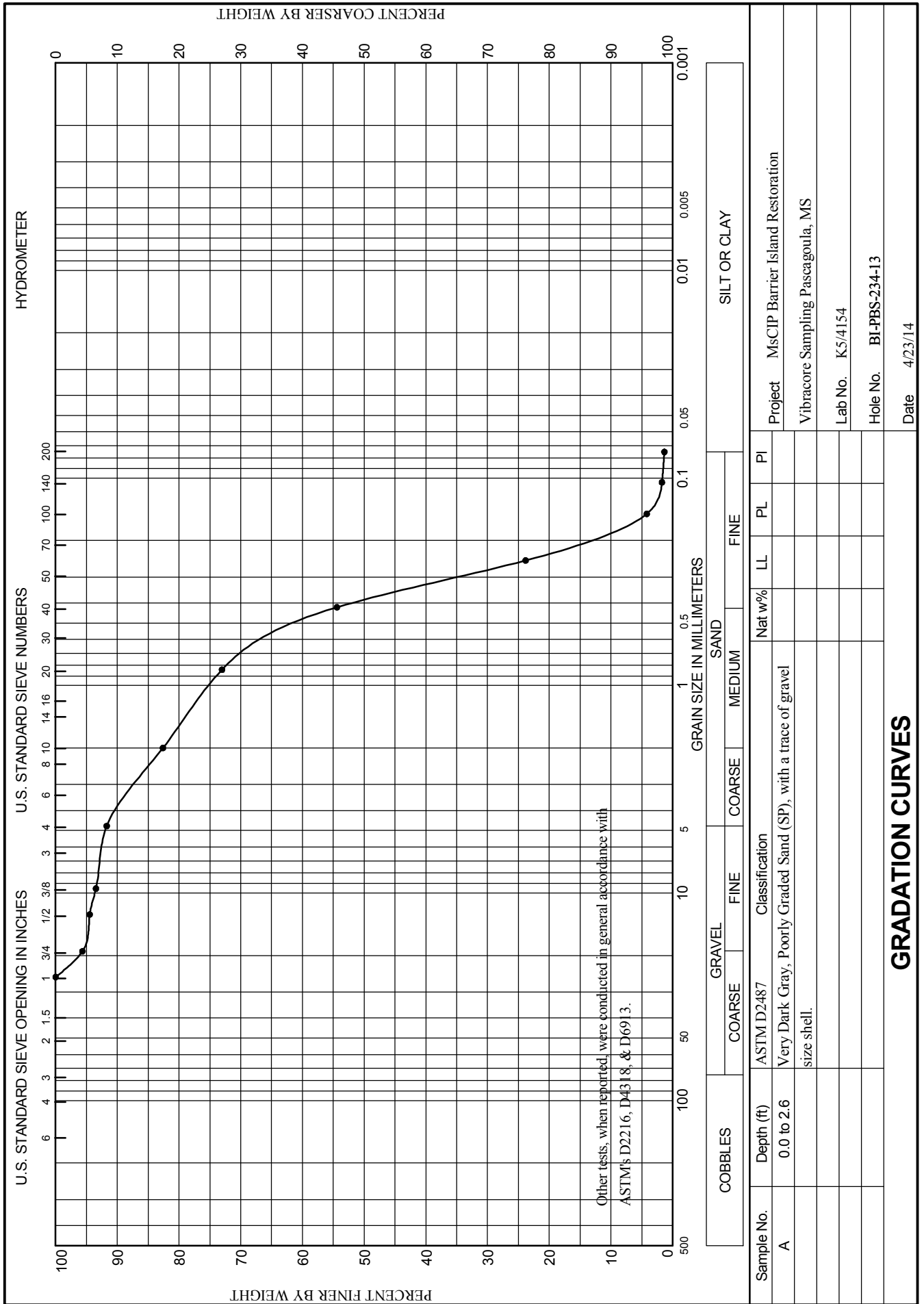




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WORK ORDER: 848e

REQUISITION: W33SJC32900192

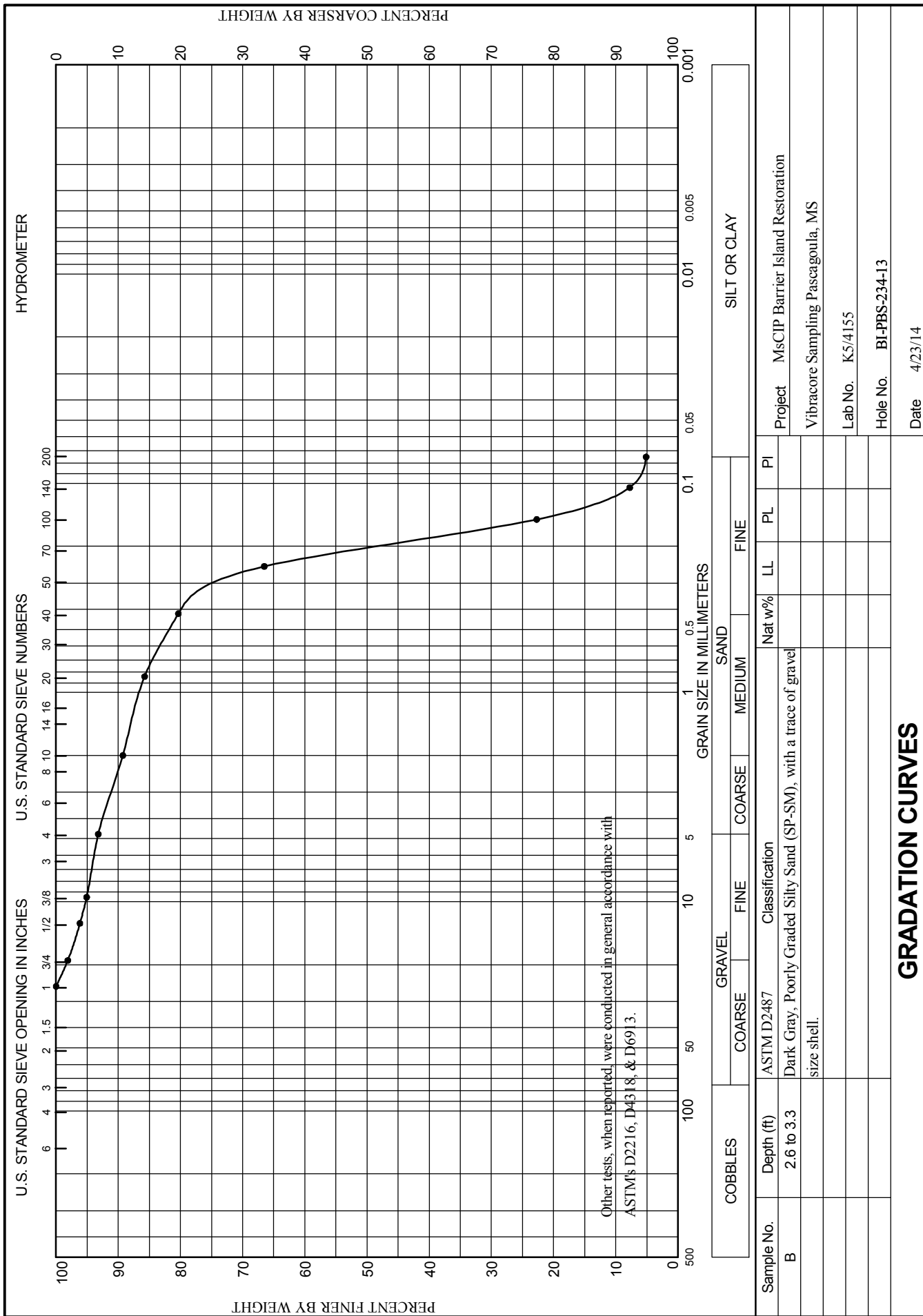




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WORK ORDER: 848e

REQUISITION: W33SJC32900192

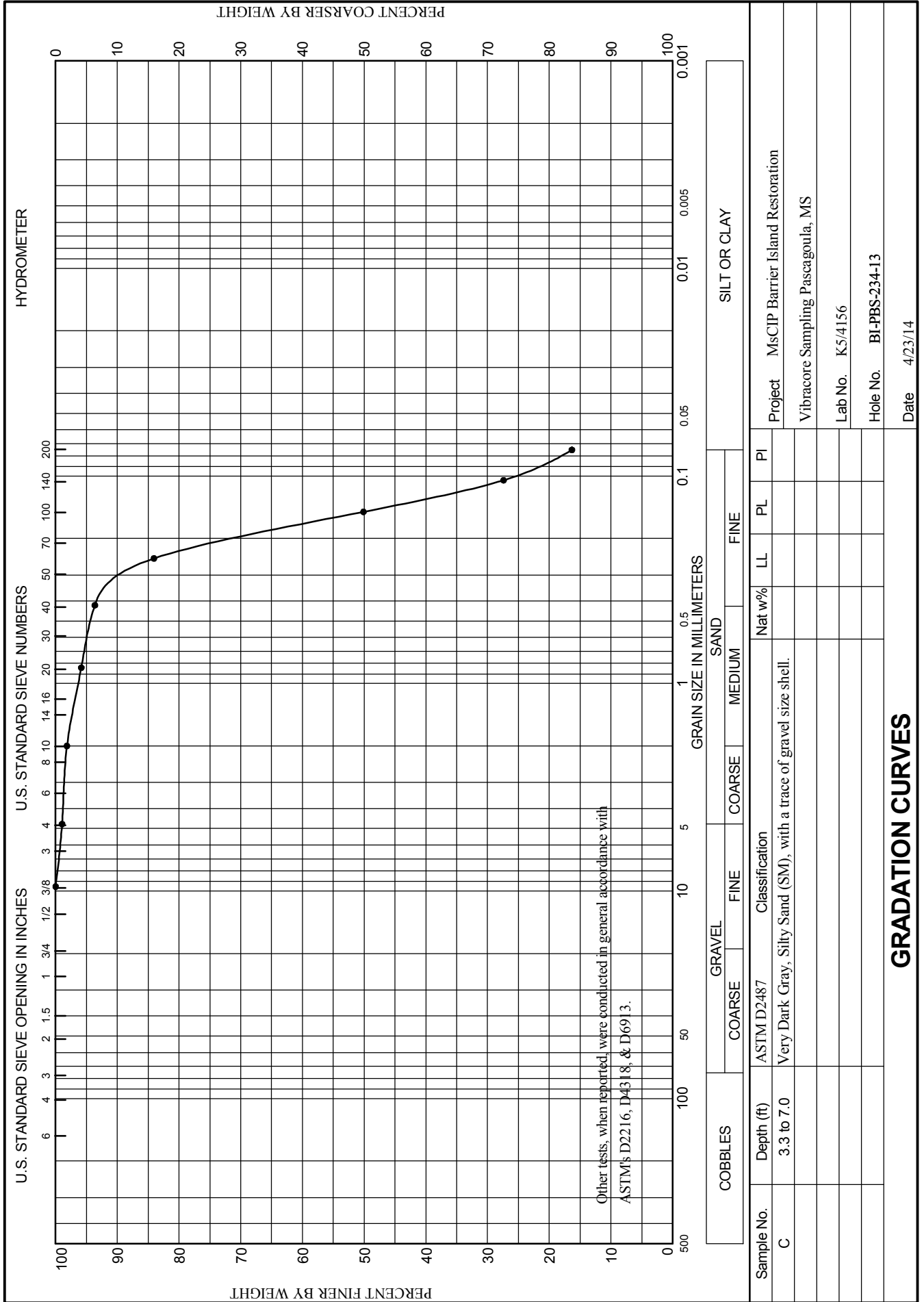




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WORK ORDER: 848e

REQUISITION: W33SJC32900192



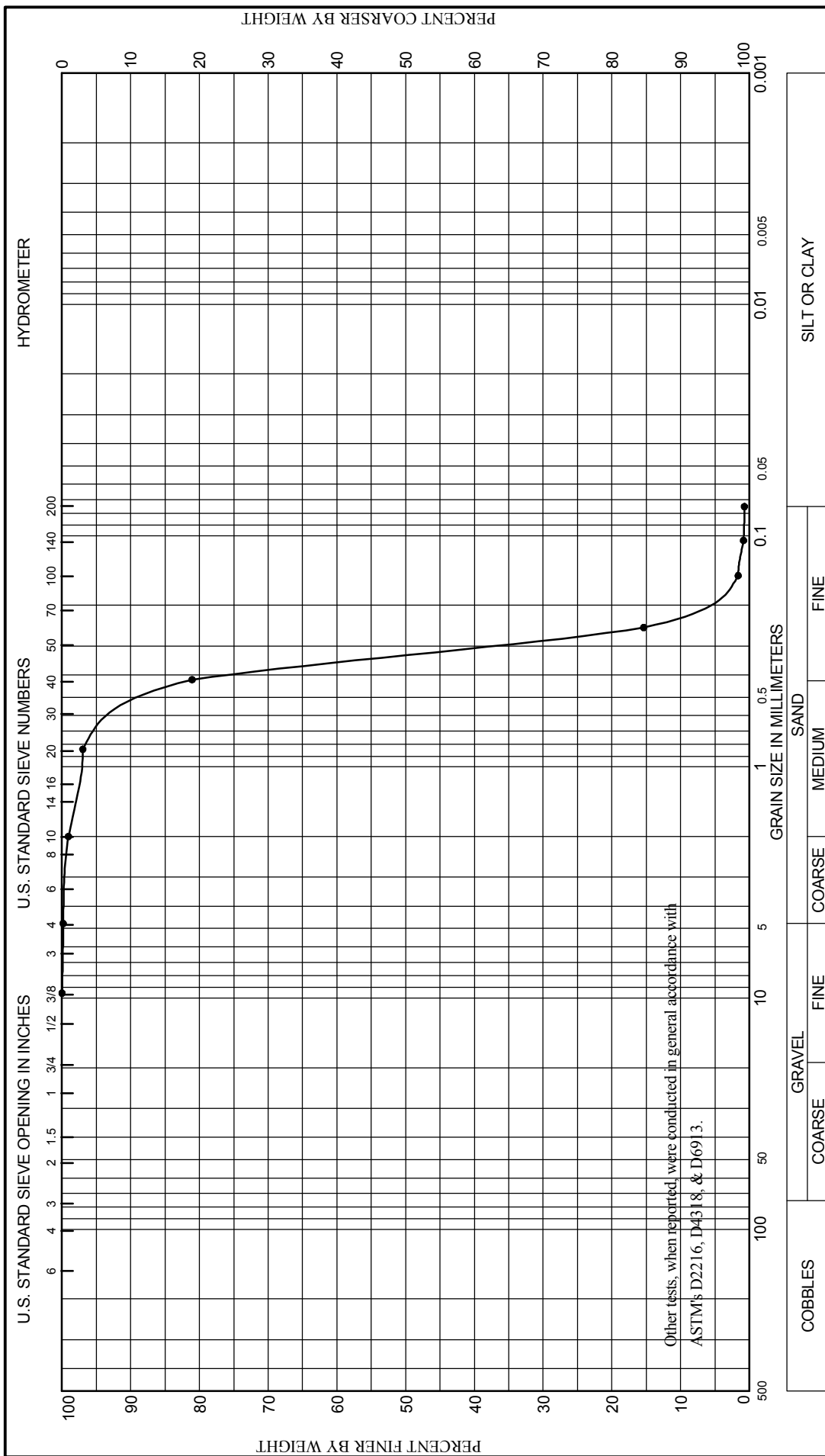
# Boring Designation BI-PBS-235-13

DRILLING LOG		DIVISION South Atlantic		INSTALLATION Mobile District		SHEET 1 OF 1 SHEETS	
1. PROJECT MsCIP Barrier Island Restoration Petit Bois Pass-OCS West				9. SIZE AND TYPE OF BIT N/A			
2. BORING DESIGNATION BI-PBS-235-13		LOCATION COORDINATES E = 1,106,130 N = 238,920		10. COORDINATE SYSTEM/DATUM State Plane, MSE (U.S. Ft.)		HORIZONTAL NAD83 VERTICAL NAVD88	
3. DRILLING AGENCY Corps of Engineers - CESAM		CONTRACTOR FILE NO.		11. MANUFACTURER'S DESIGNATION OF DRILL Vibrocure		<input type="checkbox"/> AUTO HAMMER <input type="checkbox"/> MANUAL HAMMER	
4. NAME OF DRILLER Construction Solutions International, Inc.				12. TOTAL SAMPLES 2		DISTURBED 2 UNDISTURBED (UD) 0	
5. DIRECTION OF BORING <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED				13. TOTAL NUMBER CORE BOXES		14. WATER DEPTH 45.6 Ft.	
6. THICKNESS OF OVERBURDEN N/A				15. DATE BORING 12-27-13		STARTED 12-27-13 COMPLETED 12-27-13	
7. DEPTH DRILLED INTO ROCK N/A				16. ELEVATION TOP OF BORING -42.5 Ft.		17. TOTAL RECOVERY FOR BORING 100%	
8. TOTAL DEPTH OF BORING 18.2 Ft.				18. SIGNATURE AND TITLE OF INSPECTOR Tom Powers, Geologist			
ELEV.	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS	SAMPLE	LABORATORY RESULTS		
-42.5	0.0						
			SAND, poorly-graded, mostly fine to medium-grained sand-sized quartz, few shell fragments, lt. gray (SP)	A	Classification: SP Color: GLEY1 10Y 7/1- D50: 0.329 mm % Fines: 0.7		
-47.5	5.0						
			SAND, silty, mostly fine-grained sand-sized quartz, little shell fragments, medium gray (SM)	B	Classification: SM Color: GLEY1 10Y 5/1- D50: 0.189 mm % Fines: 13.3		
-50.1	7.6						
			CLAY, lean, few shell fragments, sandy, medium gray (CL)				
-54.7	12.2						
			CLAY, fat, sandy, lt. and medium gray and pale green and pale orange (CH)	NS			
-60.7	18.2						
NOTES: 1. Soils are field visually classified in accordance with the Unified Soils Classification System. 2. NS = Sample not submitted for laboratory analysis from this interval. 3. Seafloor elevation determined from 10/28/2014 USACE survey.							



DEPARTMENT OF THE ARMY, SAVANNAH DISTRICT, ENVIRONMENTAL AND MATERIALS UNIT  
CORPS OF ENGINEERS, 200 N. COBB PARKWAY, BLDG 400 SUITE 404, MARIETTA, GA. 30062

WORK ORDER: 848e  
REQUISITION: W33SJG32900192



Sample No.	Depth (ft)	ASTM D2487	Classification	Nat w%	LL	PL	PI	Project	MsCIP Barrier Island Restoration
A	0.0 to 5.0	Gray, Poorly Graded Sand (SP).						Vibracore Sampling Pascagoula, MS	
								Lab No.	K5/4059
								Hole No.	BI-PBS-235-13
								Date	4/23/14

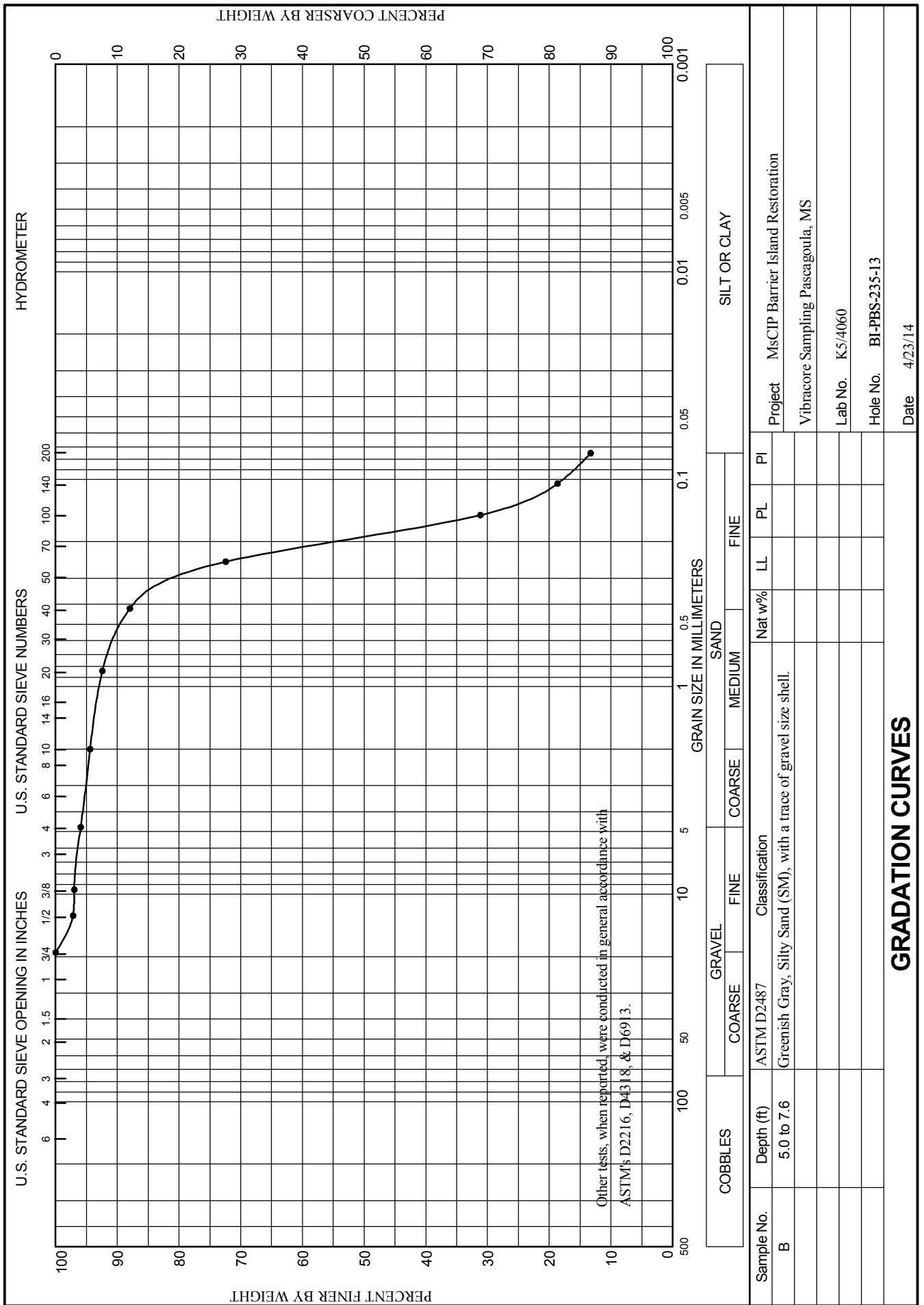
GRADATION CURVES



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WORK ORDER: 848e

REQUISITION: W33SJC32900192



# Boring Designation BI-PBS-236-13

DRILLING LOG		DIVISION South Atlantic		INSTALLATION Mobile District		SHEET 1 OF 1 SHEETS	
1. PROJECT MsCIP Barrier Island Restoration Petit Bois Pass-OCS West				9. SIZE AND TYPE OF BIT N/A			
2. BORING DESIGNATION BI-PBS-236-13		LOCATION COORDINATES E = 1,105,676 N = 237,686		10. COORDINATE SYSTEM/DATUM State Plane, MSE (U.S. Ft.)		HORIZONTAL NAD83	
3. DRILLING AGENCY Corps of Engineers - CESAM		CONTRACTOR FILE NO.		11. MANUFACTURER'S DESIGNATION OF DRILL Vibracore		<input type="checkbox"/> AUTO HAMMER <input type="checkbox"/> MANUAL HAMMER	
4. NAME OF DRILLER Construction Solutions International, Inc.				12. TOTAL SAMPLES 2		UNDISTURBED (UD) 0	
5. DIRECTION OF BORING <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED				13. TOTAL NUMBER CORE BOXES		14. WATER DEPTH 49.3 Ft.	
6. THICKNESS OF OVERBURDEN N/A				15. DATE BORING 12-27-13		STARTED 12-27-13	
7. DEPTH DRILLED INTO ROCK N/A				16. ELEVATION TOP OF BORING -47.8 Ft.		COMPLETED 12-27-13	
8. TOTAL DEPTH OF BORING 19.8 Ft.				17. TOTAL RECOVERY FOR BORING 100%			
				18. SIGNATURE AND TITLE OF INSPECTOR Tom Powers, Geologist			

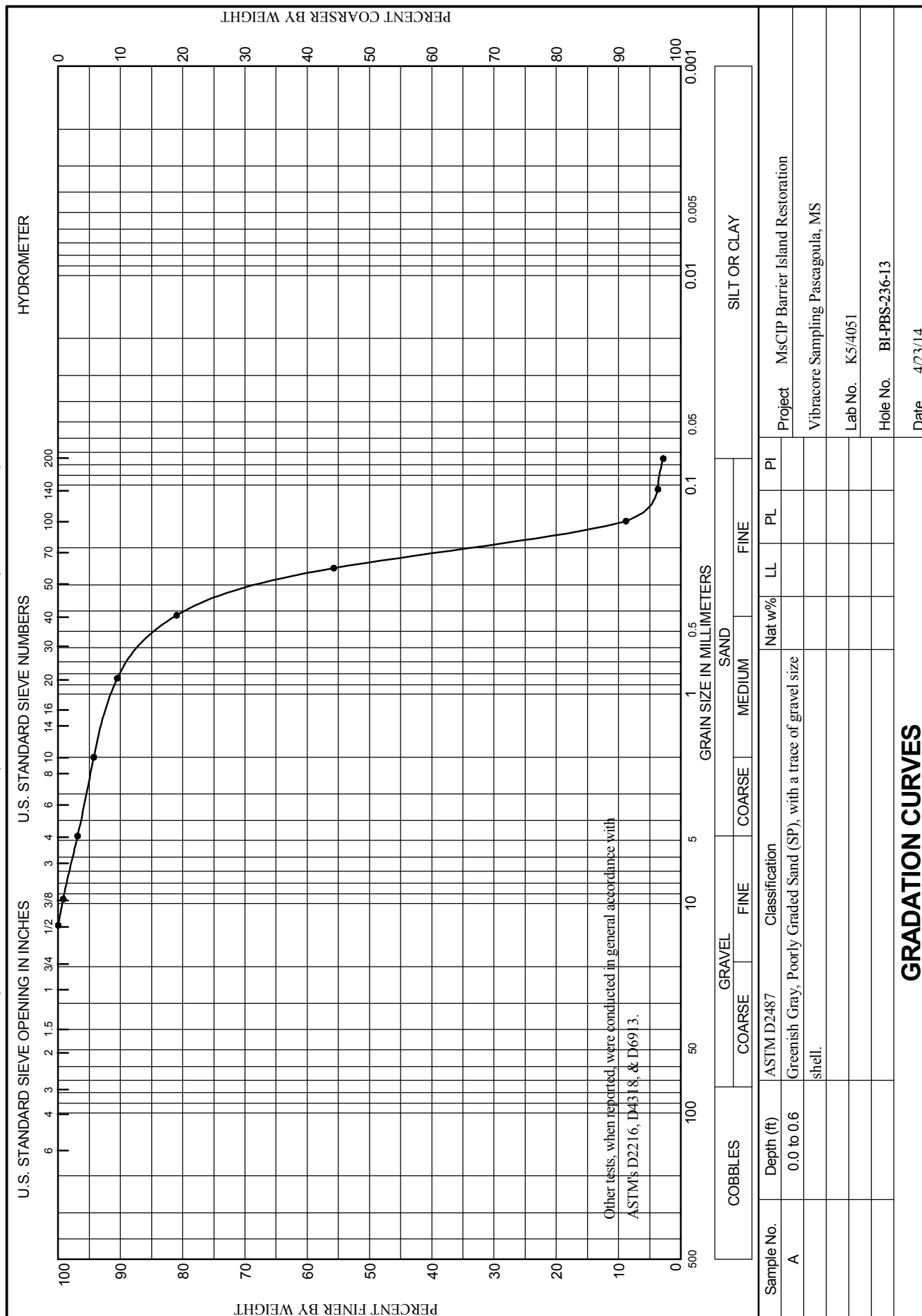
  

ELEV.	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS	SAMPLE	LABORATORY RESULTS
-47.8	0.0				
-48.4	0.6			A	Classification: SP Color: GLEY1 10Y 6/1- D50: 0.235 mm % Fines: 2.8
-50.7	2.9		SAND, poorly-graded, mostly fine to medium-grained sand-sized quartz, little shell fragments, lt. gray (SP)	B	Classification: SM Color: 2.5Y 5/1-gray D50: 0.206 mm % Fines: 12.1
-52.7	4.9		SAND, silty, mostly fine-grained sand-sized quartz, little shell fragments, lt. to medium gray (SM)	NS	
-53.7	5.9		SAND, clayey, mostly fine-grained sand-sized quartz, few shell fragments, lt. to medium gray (SC)		
-55.8	8.0		CLAY, lean, sandy, lt. gray (CL)		
-56.6	8.8		SAND, clayey, mostly fine-grained sand-sized quartz, little shell fragments, lt. to medium gray (SC)		
-58.0	10.2		CLAY, lean, sandy, lt. gray (CL)		
-59.8	12.0		SAND, clayey, mostly fine-grained sand-sized quartz, lt. to medium gray (SC)		
-67.6	19.8		CLAY, lean, lt. to medium gray (CL) At El. -59.1 Ft., sandy, very loose consistency, lt. gray  CLAY, fat, sandy, lt. and medium gray and pale orange (CH)		
NOTES: 1. Soils are field visually classified in accordance with the Unified Soils Classification System. 2. NS = Sample not submitted for laboratory analysis from this interval. 3. Seafloor elevation determined from 10/28/2014 USACE survey.					



WORK ORDER: 848e

REQUISITION: W33SJG32900192



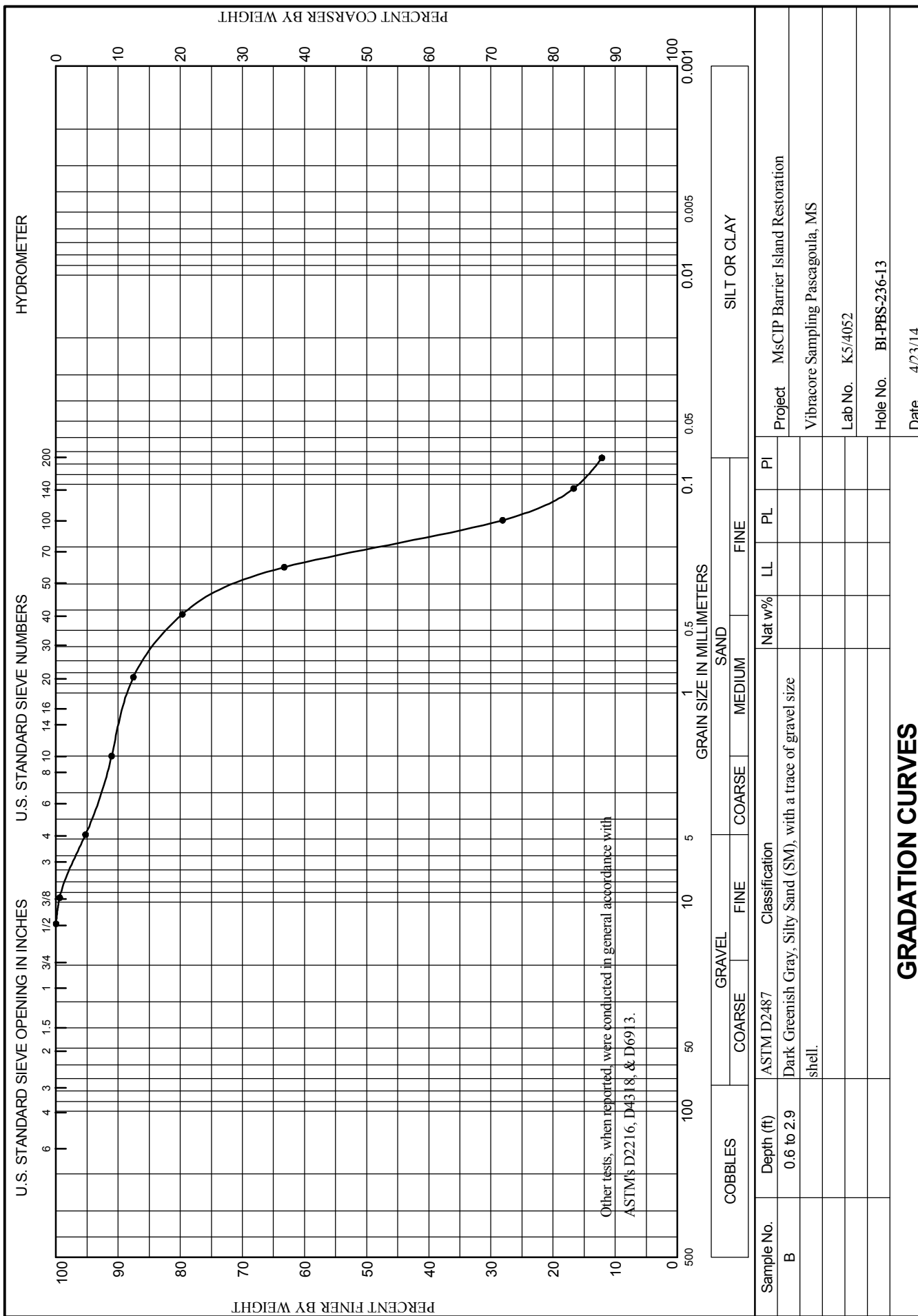




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WORK ORDER: 848e

REQUISITION: W33SJC32900192



# Boring Designation BI-PBS-237-13

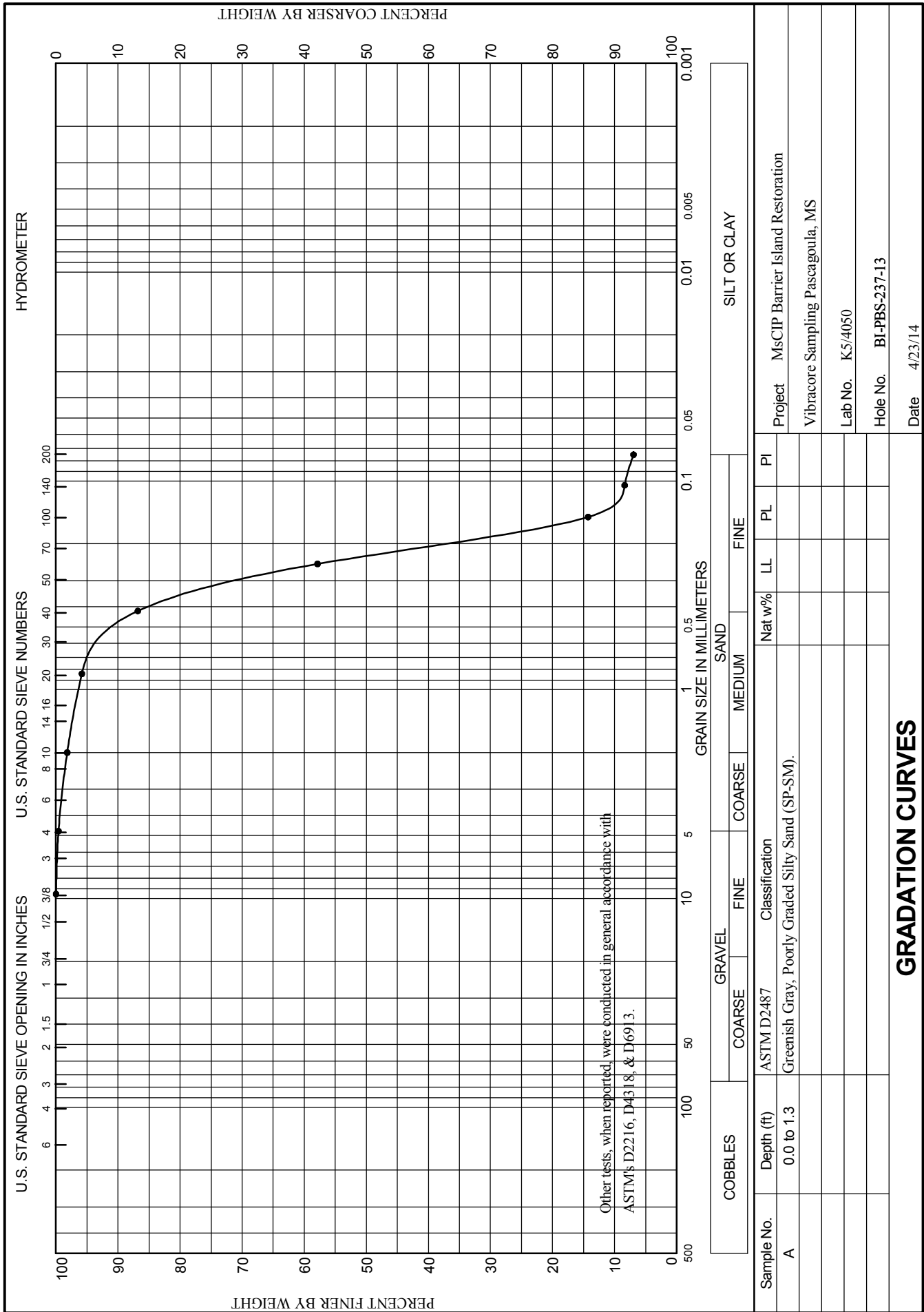
DRILLING LOG		DIVISION South Atlantic		INSTALLATION Mobile District		SHEET 1 OF 1 SHEETS	
1. PROJECT MsCIP Barrier Island Restoration Petit Bois Pass-OCS West				9. SIZE AND TYPE OF BIT N/A			
2. BORING DESIGNATION BI-PBS-237-13		LOCATION COORDINATES E = 1,106,930 N = 236,835		10. COORDINATE SYSTEM/DATUM State Plane, MSE (U.S. Ft.)		HORIZONTAL NAD83	
3. DRILLING AGENCY Corps of Engineers - CESAM		CONTRACTOR FILE NO.		11. MANUFACTURER'S DESIGNATION OF DRILL Vibracore		<input type="checkbox"/> AUTO HAMMER <input type="checkbox"/> MANUAL HAMMER	
4. NAME OF DRILLER Construction Solutions International, Inc.				12. TOTAL SAMPLES		DISTURBED 1	
5. DIRECTION OF BORING <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED				13. TOTAL NUMBER CORE BOXES		UNDISTURBED (UD) 0	
6. THICKNESS OF OVERBURDEN N/A				14. WATER DEPTH 49.7 Ft.		15. DATE BORING 12-19-13	
7. DEPTH DRILLED INTO ROCK N/A				16. ELEVATION TOP OF BORING -47.5 Ft.		17. TOTAL RECOVERY FOR BORING 100%	
8. TOTAL DEPTH OF BORING 19.7 Ft.				18. SIGNATURE AND TITLE OF INSPECTOR Tom Powers, Geologist			
ELEV.	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS	SAMPLE	LABORATORY RESULTS		
-47.5	0.0						
-48.8	1.3		SAND, poorly-graded with silt, mostly fine-grained sand-sized quartz, few shell fragments, lt. gray (SP-SM)	A	Classification: SP-SM Color: 2.5Y 6/1-gray D50: 0.228 mm % Fines: 7		
			CLAY, lean, trace shell fragments, sandy, lt. to medium gray and pale orange (CL)	NS			
			At El. -60.0 Ft., trace wood				
-65.4	17.9						
-67.2	19.7		SAND, clayey, little shell fragments (SC)				
NOTES: 1. Soils are field visually classified in accordance with the Unified Soils Classification System. 2. NS = Sample not submitted for laboratory analysis from this interval. 3. Seafloor elevation determined from 2014 USACE survey.							



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WORK ORDER: 848e

REQUISITION: W33SJC32900192



# Boring Designation BI-PBS-238-13

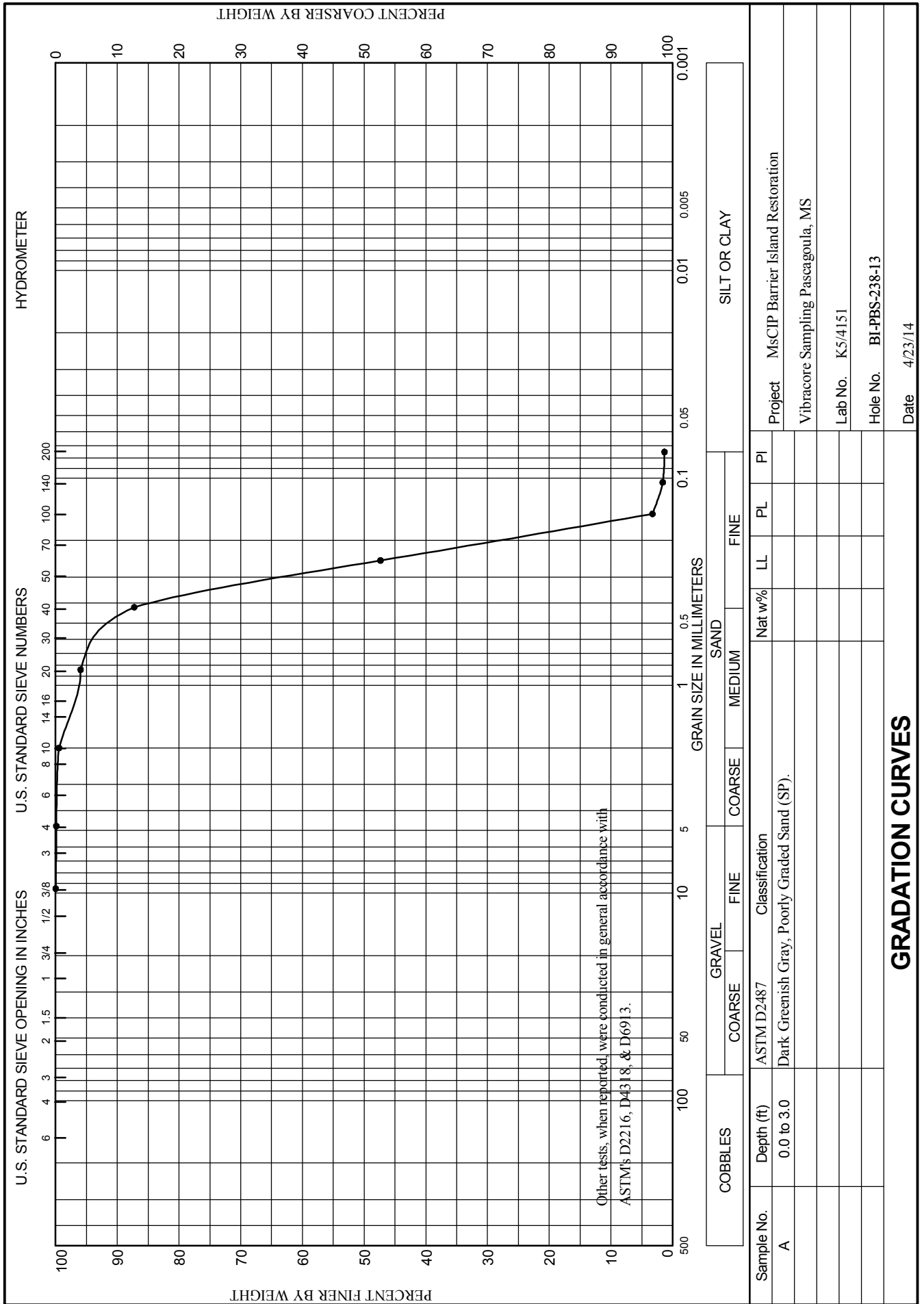
DRILLING LOG		DIVISION South Atlantic		INSTALLATION Mobile District		SHEET 1 OF 1 SHEETS	
1. PROJECT MsCIP Barrier Island Restoration Petit Bois Pass-OCS West				9. SIZE AND TYPE OF BIT N/A			
2. BORING DESIGNATION BI-PBS-238-13		LOCATION COORDINATES E = 1,104,458 N = 236,965		10. COORDINATE SYSTEM/DATUM State Plane, MSE (U.S. Ft.)		HORIZONTAL NAD83	
3. DRILLING AGENCY Corps of Engineers - CESAM		CONTRACTOR FILE NO.		11. MANUFACTURER'S DESIGNATION OF DRILL Vibrocure		<input type="checkbox"/> AUTO HAMMER <input type="checkbox"/> MANUAL HAMMER	
4. NAME OF DRILLER Construction Solutions International, Inc.				12. TOTAL SAMPLES 3		DISTURBED 0	
5. DIRECTION OF BORING <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED				13. TOTAL NUMBER CORE BOXES		14. WATER DEPTH 45.8 Ft.	
6. THICKNESS OF OVERBURDEN N/A				15. DATE BORING 01-08-14		STARTED 01-08-14	
7. DEPTH DRILLED INTO ROCK N/A				16. ELEVATION TOP OF BORING -46.7 Ft.		17. TOTAL RECOVERY FOR BORING 100%	
8. TOTAL DEPTH OF BORING 18.1 Ft.				18. SIGNATURE AND TITLE OF INSPECTOR Tom Powers, Geologist			
ELEV.	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS	SAMPLE	LABORATORY RESULTS		
-46.7	0.0						
			SAND, poorly-graded, mostly fine to medium-grained sand-sized quartz, few shell fragments, lt. gray (SP)	A	Classification: SP Color: 2.5Y 6/1-gray D50: 0.259 mm % Fines: 1.3		
				B	Classification: SP Color: GLEY1 10Y 6/1- D50: 0.261 mm % Fines: 1.3		
-52.7	6.0						
-53.7	7.0		SAND, silty, mostly fine-grained sand-sized quartz, few shell fragments, medium gray (SM) At El. -53.0 Ft., trace of clay and fine to medium-grained sand	C	Classification: SP-SM Color: 2.5Y 5/1-gray D50: 0.229 mm % Fines: 8		
-55.3	8.6						
			SAND, clayey, mostly fine-grained sand-sized quartz, medium gray (SC)				
-58.1	11.4		CLAY, lean, sandy, medium gray (CL)				
			CLAY, fat, sandy, lt. gray, pale orange, and pale brown (CH)	NS			
-64.8	18.1						
NOTES: 1. Soils are field visually classified in accordance with the Unified Soils Classification System. 2. NS = Sample not submitted for laboratory analysis from this interval. 3. Seafloor elevation calculated using sampling vessel's fathometer water depth reading and applying NOAA tidal gauge data conversion factor.							



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WORK ORDER: 848e

REQUISITION: W33SJC32900192

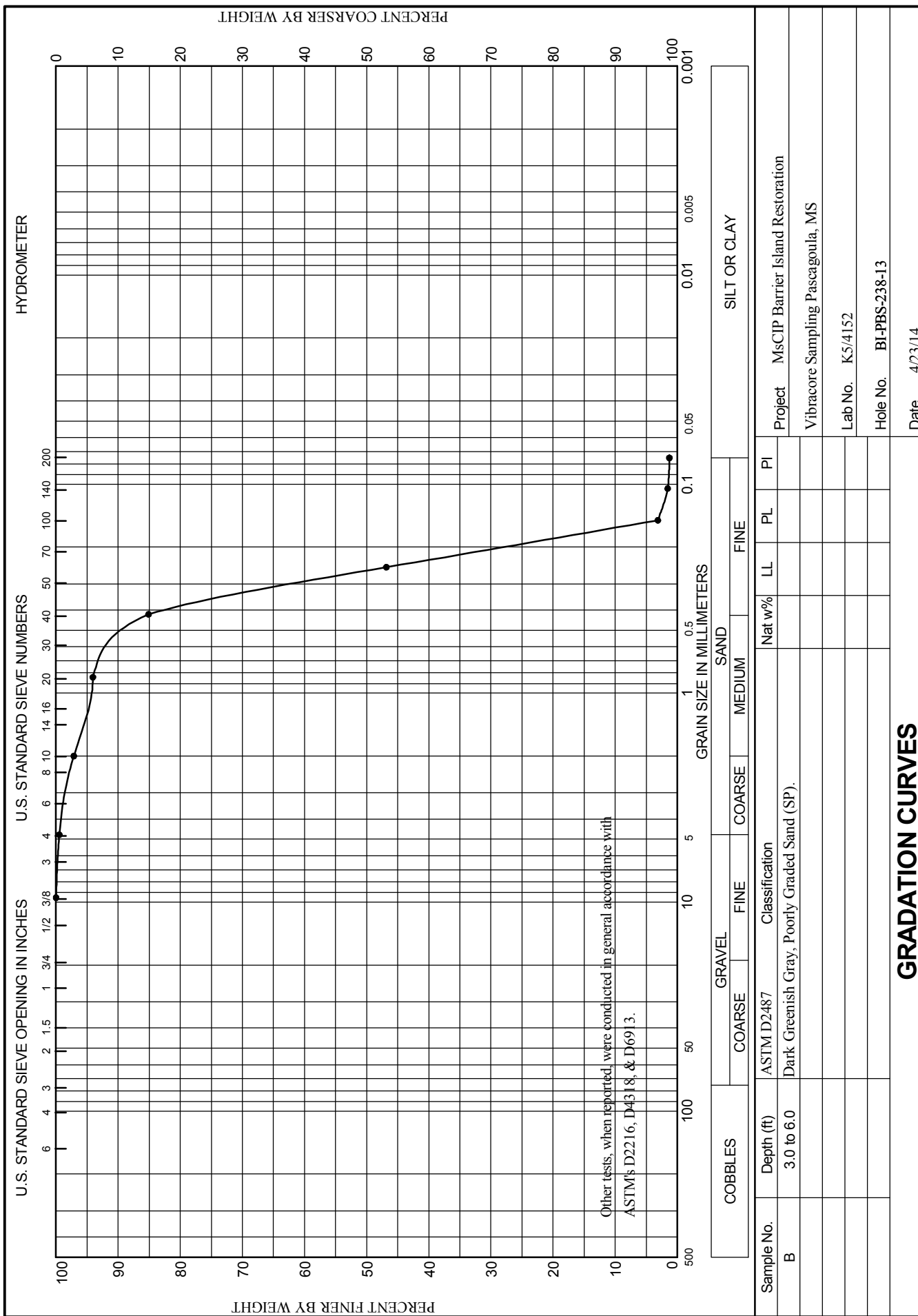




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WORK ORDER: 848e

REQUISITION: W33SJC32900192

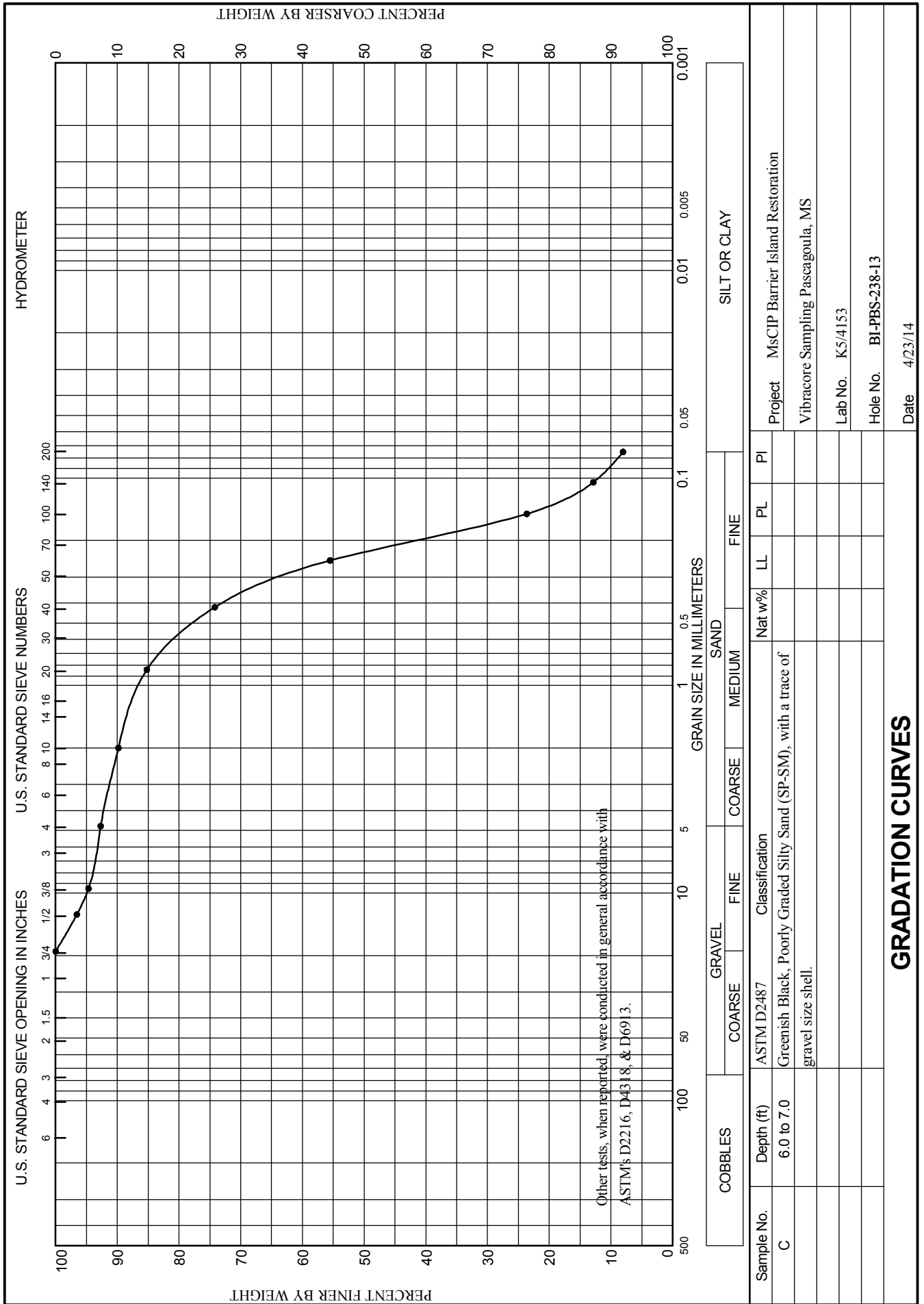




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WORK ORDER: 848e

REQUISITION: W33SJC32900192



# Boring Designation BI-PBS-239-13

DRILLING LOG		DIVISION South Atlantic		INSTALLATION Mobile District		SHEET 1 OF 2 SHEETS	
1. PROJECT MsCIP Barrier Island Restoration Petit Bois Pass-OCS West				9. SIZE AND TYPE OF BIT N/A			
2. BORING DESIGNATION BI-PBS-239-13		LOCATION COORDINATES E = 1,122,038 N = 231,060		10. COORDINATE SYSTEM/DATUM State Plane, MSE (U.S. Ft.)		HORIZONTAL NAD83	
3. DRILLING AGENCY Corps of Engineers - CESAM		CONTRACTOR FILE NO.		11. MANUFACTURER'S DESIGNATION OF DRILL Vibracore		<input type="checkbox"/> AUTO HAMMER <input type="checkbox"/> MANUAL HAMMER	
4. NAME OF DRILLER Construction Solutions International, Inc.				12. TOTAL SAMPLES		DISTURBED 1	
5. DIRECTION OF BORING <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED				13. TOTAL NUMBER CORE BOXES		UNDISTURBED (UD) 0	
6. THICKNESS OF OVERBURDEN N/A				14. WATER DEPTH		54 Ft.	
7. DEPTH DRILLED INTO ROCK N/A				15. DATE BORING		STARTED 12-02-13 COMPLETED 12-02-13	
8. TOTAL DEPTH OF BORING 19.9 Ft.				16. ELEVATION TOP OF BORING -52.5 Ft.		17. TOTAL RECOVERY FOR BORING 100%	
				18. SIGNATURE AND TITLE OF INSPECTOR Tom Powers, Geologist			
ELEV.	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS	SAMPLE	LABORATORY RESULTS		
-52.5	0.0						
-54.4	1.9		SAND, silty, mostly fine to medium-grained sand-sized quartz, medium gray (SM)	A	Classification: SM Color: GLEY1 10Y 5/1- D50: 0.219 mm % Fines: 17.9		
-55.4	2.9		SAND, clayey, mostly fine-grained sand-sized quartz, medium gray (SC)	NS			
			CLAY, fat, lt. grayish green with orange streaks (CH)				
-62.2	9.7						
-63.8	11.3		CLAY, lean, sandy, medium gray (CL)				
			SAND, poorly-graded, mostly fine to medium-grained sand-sized quartz, few shell, brownish gray (SP)				
-70.0	17.5						
-72.4	19.9		SAND, silty, mostly fine to medium-grained sand-sized quartz, little shell, brownish gray (SM)				
			NOTES: 1. Soils are field visually classified in accordance with the Unified Soils Classification System. 2. NS = Sample not submitted for laboratory analysis from this interval. 3. Seafloor elevation determined from				



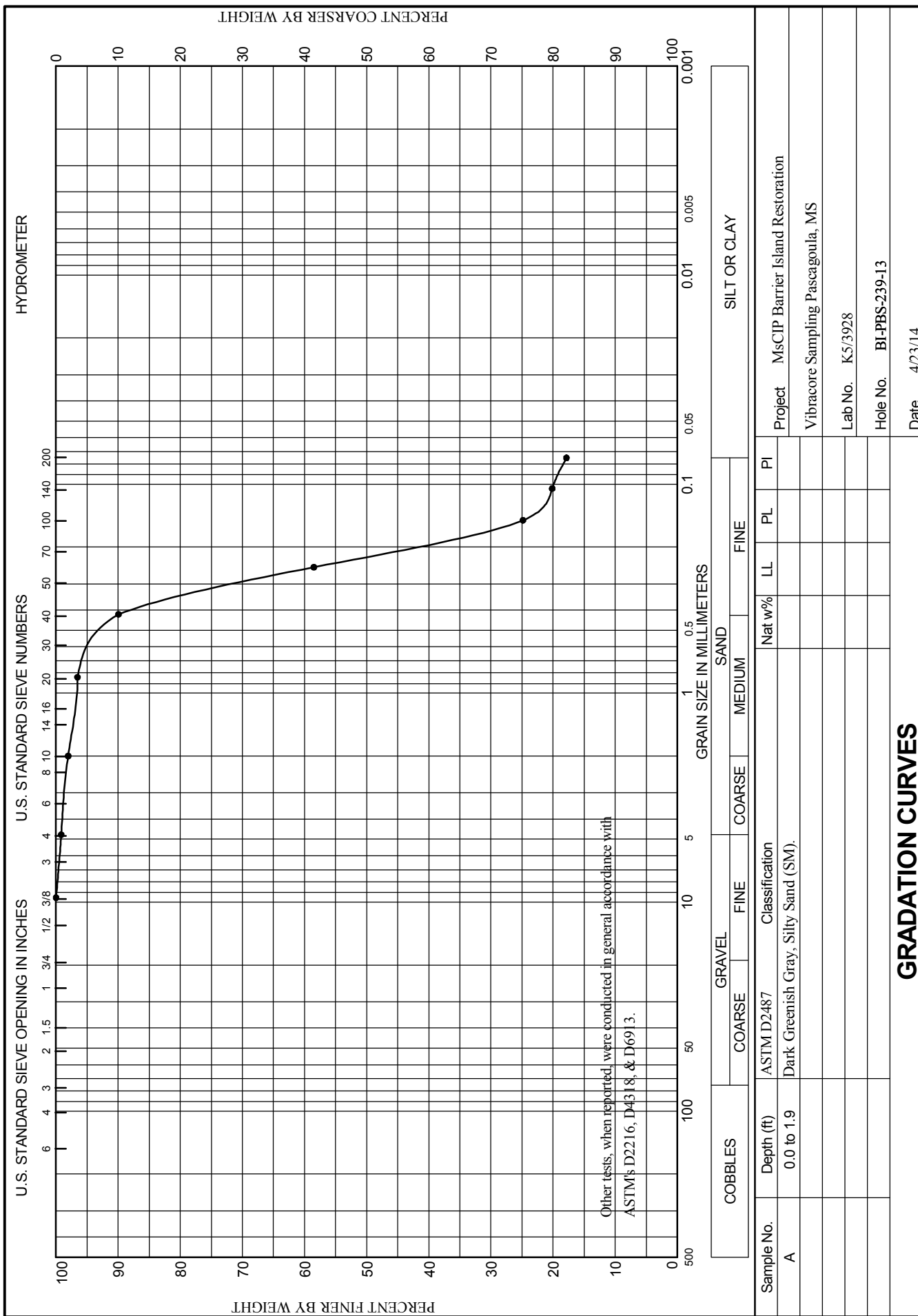
<b>DRILLING LOG (Cont. Sheet)</b>			<b>INSTALLATION</b> Mobile District		<b>SHEET 2</b>
					<b>OF 2 SHEETS</b>
<b>PROJECT</b> MsCIP Barrier Island Restoration			<b>COORDINATE SYSTEM/DATUM</b> State Plane, MSE (U.S. Ft.)	<b>HORIZONTAL</b> NAD83	<b>VERTICAL</b> NAVD88
<b>LOCATION COORDINATES</b> X = 1,122,038 Y = 231,060			<b>ELEVATION TOP OF BORING</b> -52.5 Ft.		
<b>ELEV.</b>	<b>DEPTH</b>	<b>LEGEND</b>	<b>CLASSIFICATION OF MATERIALS</b>	<b>SAMPLE</b>	<b>LABORATORY RESULTS</b>
			10/28/2014 USACE survey.		



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WORK ORDER: 848e

REQUISITION: W33SJC32900192



# Boring Designation BI-PBS-243-13

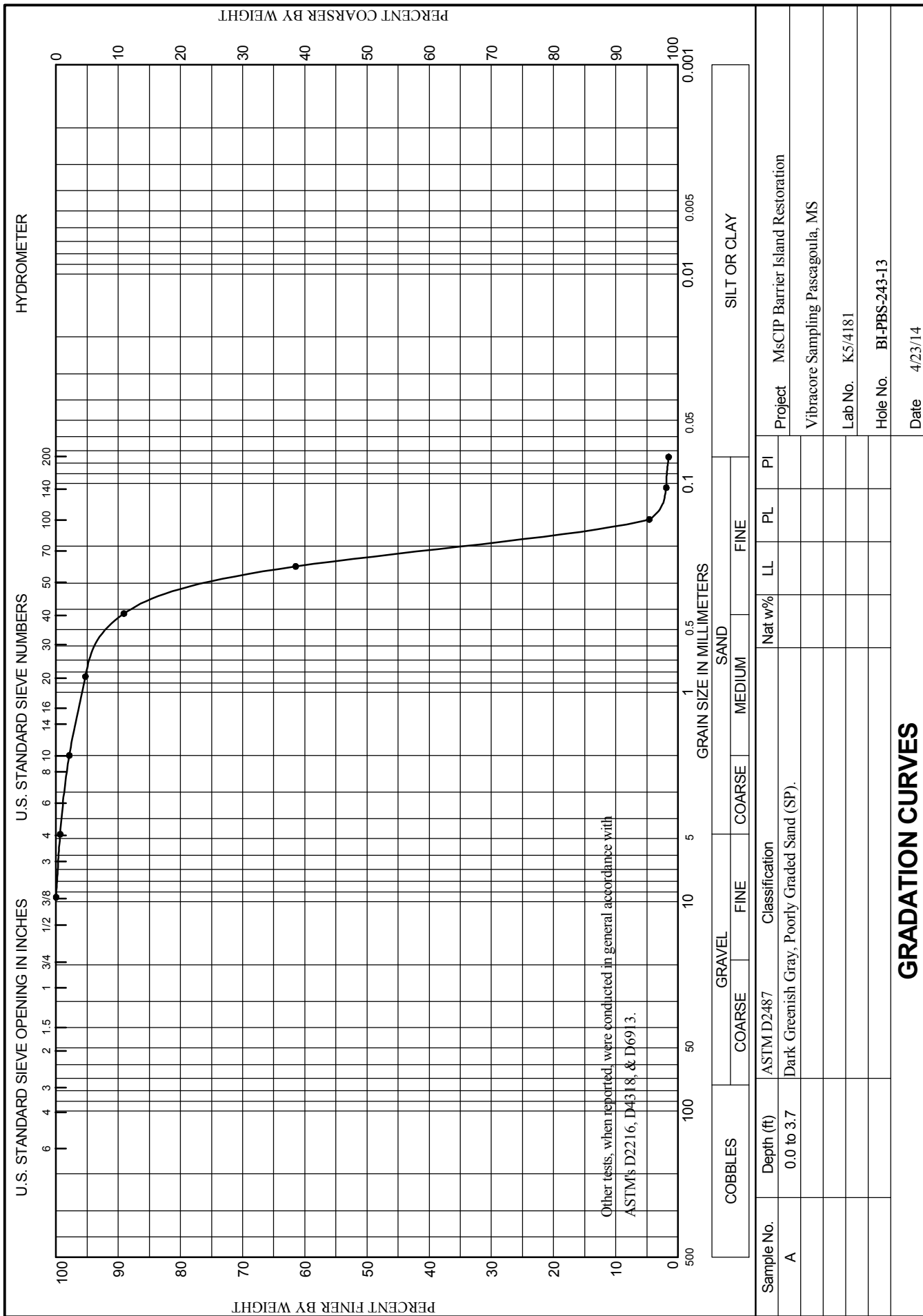
DRILLING LOG		DIVISION South Atlantic		INSTALLATION Mobile District		SHEET 1 OF 1 SHEETS	
1. PROJECT MsCIP Barrier Island Restoration Petit Bois Pass-OCS West				9. SIZE AND TYPE OF BIT N/A			
2. BORING DESIGNATION BI-PBS-243-13		LOCATION COORDINATES E = 1,109,959 N = 226,688		10. COORDINATE SYSTEM/DATUM State Plane, MSE (U.S. Ft.)		HORIZONTAL NAD83	
3. DRILLING AGENCY Corps of Engineers - CESAM		CONTRACTOR FILE NO.		11. MANUFACTURER'S DESIGNATION OF DRILL Vibrocure		<input type="checkbox"/> AUTO HAMMER <input type="checkbox"/> MANUAL HAMMER	
4. NAME OF DRILLER Construction Solutions International, Inc.				12. TOTAL SAMPLES 3		DISTURBED 0	
5. DIRECTION OF BORING <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED				13. TOTAL NUMBER CORE BOXES		14. WATER DEPTH 47.7 Ft.	
6. THICKNESS OF OVERBURDEN N/A				15. DATE BORING 01-13-14		STARTED 01-13-14	
7. DEPTH DRILLED INTO ROCK N/A				16. ELEVATION TOP OF BORING -47.6 Ft.		COMPLETED 01-13-14	
8. TOTAL DEPTH OF BORING 12.2 Ft.				17. TOTAL RECOVERY FOR BORING 100%		18. SIGNATURE AND TITLE OF INSPECTOR Tom Powers, Geologist	
ELEV.	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS	SAMPLE	LABORATORY RESULTS		
-47.6	0.0						
-51.3	3.7		SAND, poorly-graded, mostly fine to medium-grained sand-sized quartz, little shell fragments, lt. gray (SP)	A	Classification: SP Color: 2.5Y 7/1-light gray D50: 0.225 mm % Fines: 1.5		
-52.8	5.2		SAND, poorly-graded, mostly fine-grained sand-sized quartz, few shell fragments, lt. to medium gray (SP)	B	Classification: SP-SM Color: GLEY1 10Y 5/1- D50: 0.189 mm % Fines: 5		
-53.4	5.8			C	Classification: SM Color: 2.5Y 5/1-gray D50: 0.181 mm % Fines: 16.4		
-59.5	11.9		SAND, silty, mostly fine-grained sand-sized quartz, few shell fragments, medium gray (SM)	NS			
-59.8	12.2		CLAY, fat, hard, lt. gray, pale orange, pale green (CH)				
			CLAY, lean, sandy, lt. gray (CL)				
NOTES:							
1. Soils are field visually classified in accordance with the Unified Soils Classification System.							
2. NS = Sample not submitted for laboratory analysis from this interval.							
3. Seafloor elevation calculated using sampling vessel's fathometer water depth reading and applying NOAA tidal gauge data conversion factor.							



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WORK ORDER: 848e

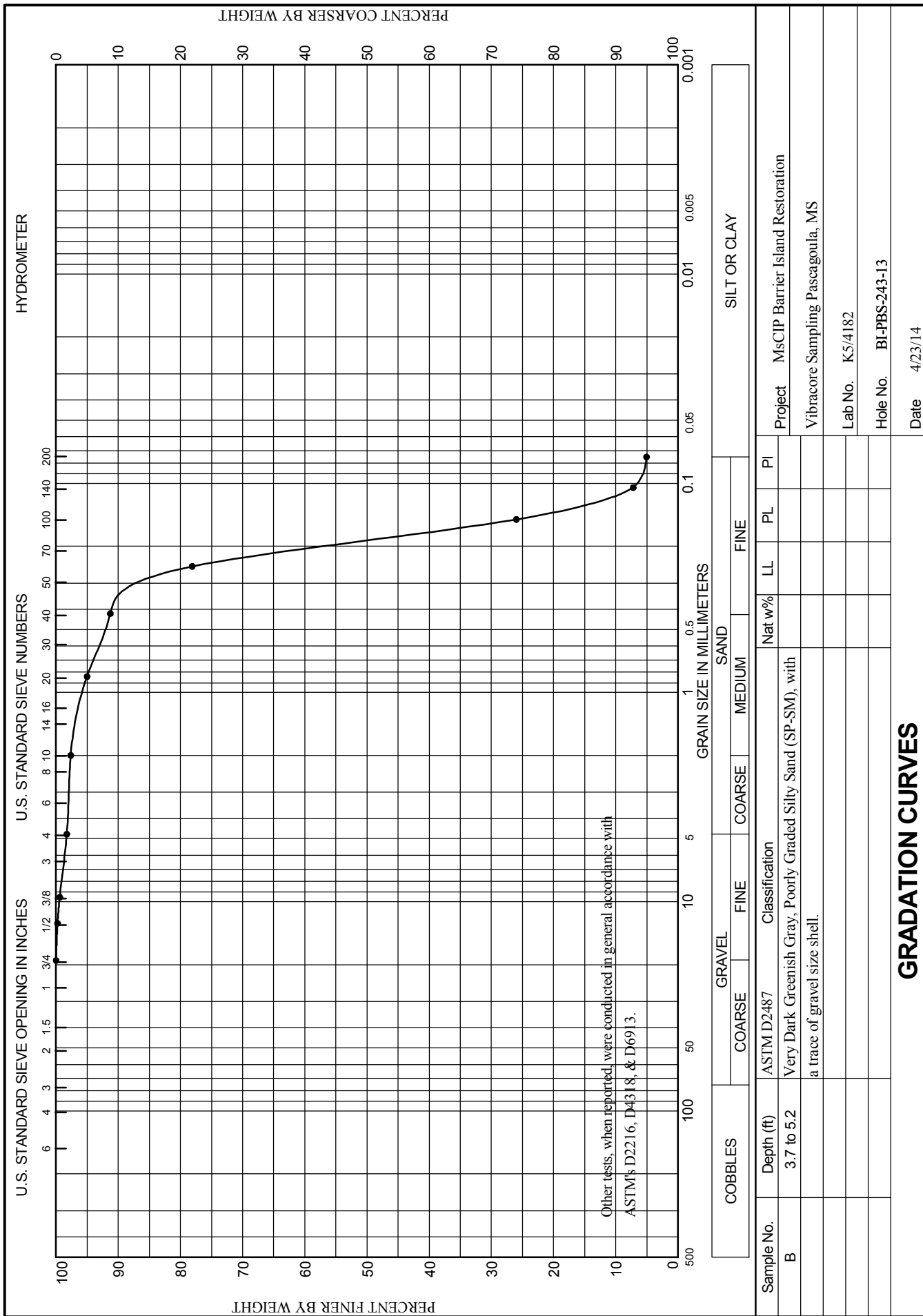
REQUISITION: W33SJC32900192





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WORK ORDER: 848e  
REQUISITION: W33SJC32900192

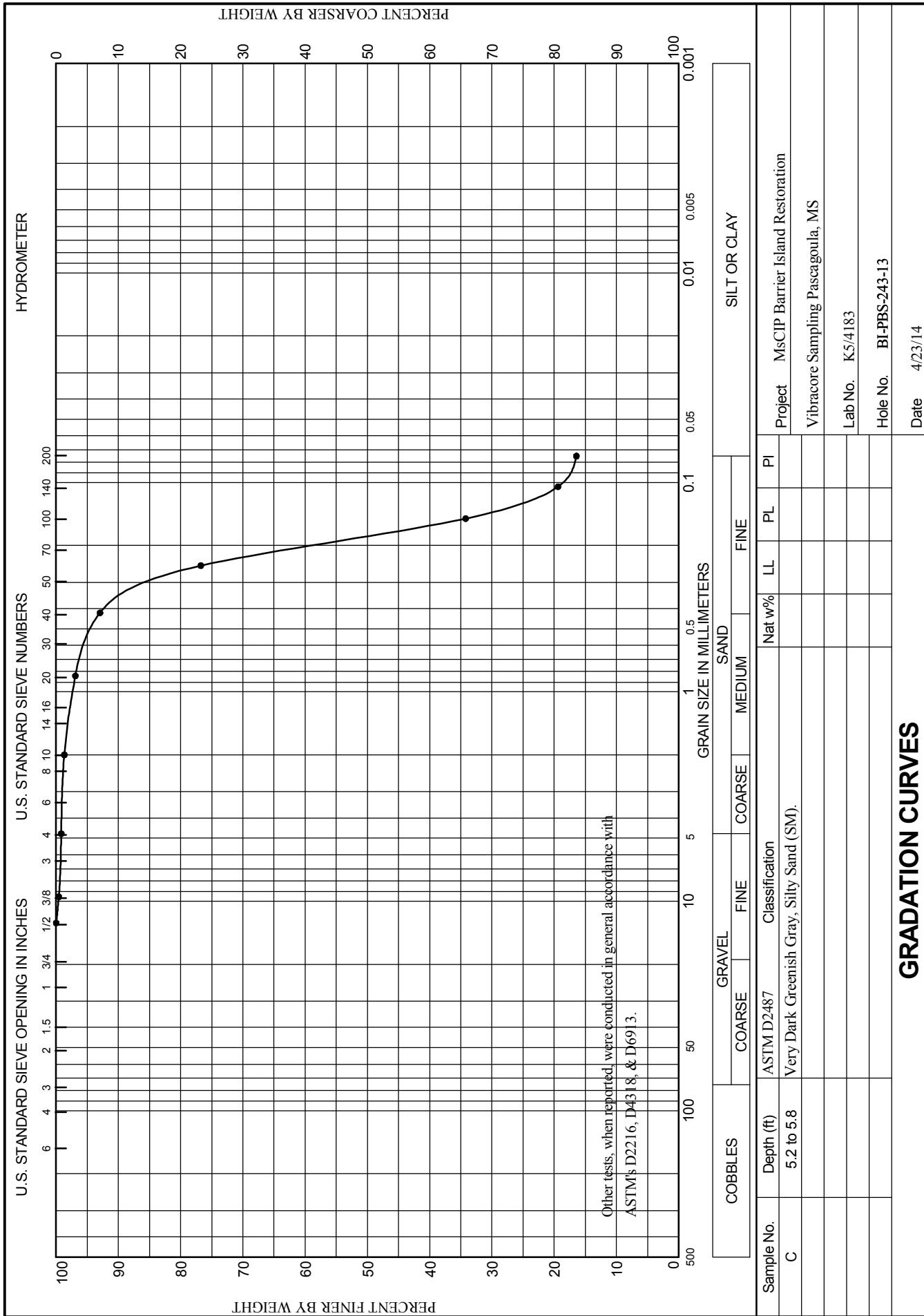




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WORK ORDER: 848e

REQUISITION: W33SJC32900192



# Boring Designation BI-PBS-244-13

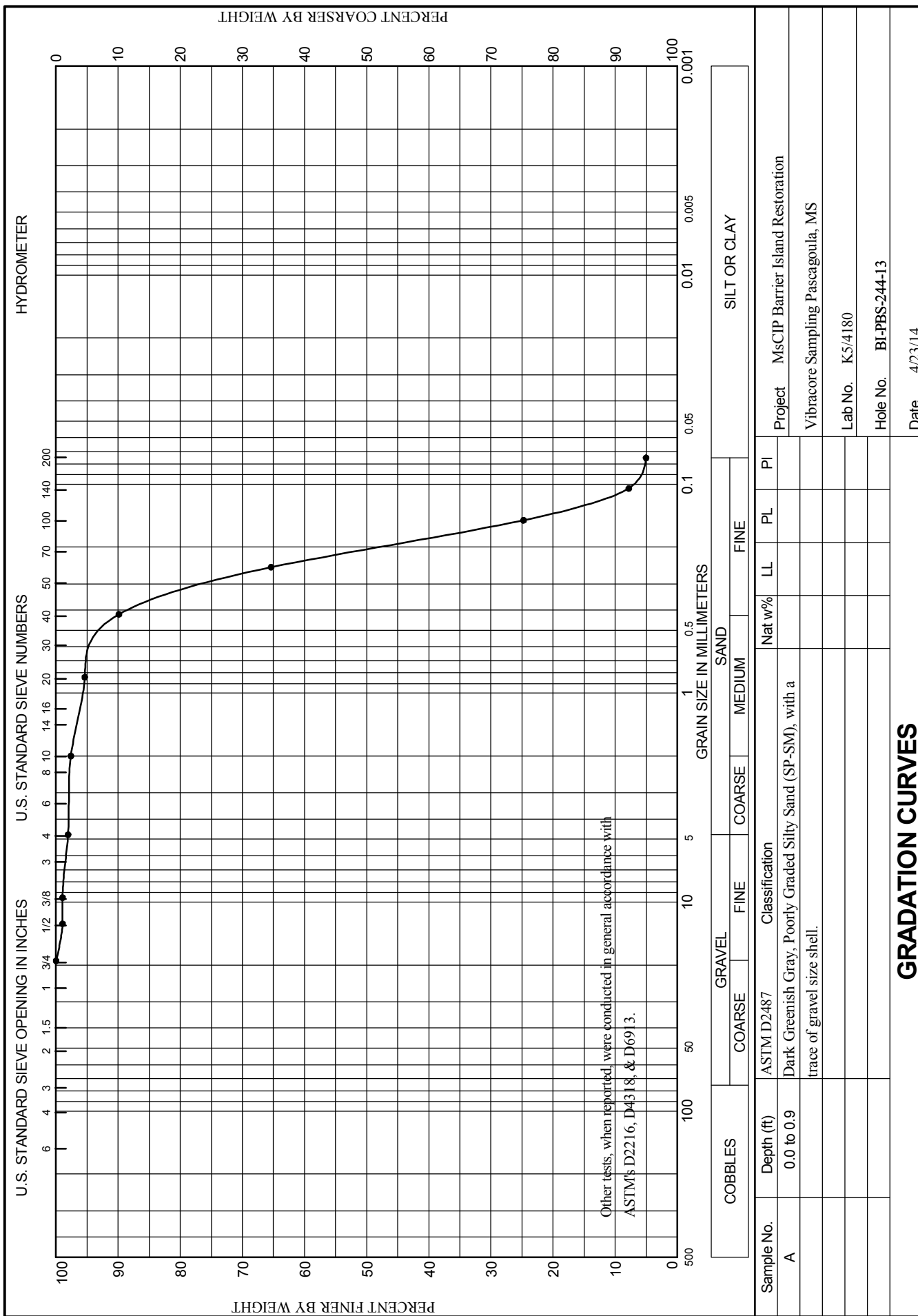
DRILLING LOG		DIVISION South Atlantic		INSTALLATION Mobile District		SHEET 1 OF 1 SHEETS	
1. PROJECT MsCIP Barrier Island Restoration Petit Bois Pass-OCS West				9. SIZE AND TYPE OF BIT N/A			
2. BORING DESIGNATION BI-PBS-244-13		LOCATION COORDINATES E = 1,110,997 N = 228,132		10. COORDINATE SYSTEM/DATUM State Plane, MSE (U.S. Ft.)		HORIZONTAL NAD83 VERTICAL NAVD88	
3. DRILLING AGENCY Corps of Engineers - CESAM		CONTRACTOR FILE NO.		11. MANUFACTURER'S DESIGNATION OF DRILL Vibracore		<input type="checkbox"/> AUTO HAMMER <input type="checkbox"/> MANUAL HAMMER	
4. NAME OF DRILLER Construction Solutions International, Inc.				12. TOTAL SAMPLES		DISTURBED 1 UNDISTURBED (UD) 0	
5. DIRECTION OF BORING <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED				13. TOTAL NUMBER CORE BOXES		14. WATER DEPTH 53.3 Ft.	
6. THICKNESS OF OVERBURDEN N/A				15. DATE BORING		STARTED 01-12-14 COMPLETED 01-12-14	
7. DEPTH DRILLED INTO ROCK N/A				16. ELEVATION TOP OF BORING -52.9 Ft.		17. TOTAL RECOVERY FOR BORING 100%	
8. TOTAL DEPTH OF BORING 10.7 Ft.				18. SIGNATURE AND TITLE OF INSPECTOR Tom Powers, Geologist			
ELEV.	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS	SAMPLE	LABORATORY RESULTS		
-52.9	0.0						
-53.8	0.9		SAND, poorly-graded with silt, mostly fine-grained sand-sized quartz, few shell fragments, medium gray (SP-SM)	A	Classification: SP-SM Color: 2.5Y 5/1-gray D50: 0.206 mm % Fines: 5		
-54.9	2.0		CLAY, lean, few shell fragments, sandy, lt. to medium gray, pale orange (CL)				
			CLAY, fat, sandy, lt. gray, orange, pale brown, pale orange (CH)	NS			
-60.2	7.3						
			CLAY, lean, sandy with interbeds of SC, medium gray (CL)				
-63.6	10.7						
NOTES: 1. Soils are field visually classified in accordance with the Unified Soils Classification System. 2. NS = Sample not submitted for laboratory analysis from this interval. 3. Seafloor elevation calculated using sampling vessel's fathometer water depth reading and applying NOAA tidal gauge data conversion factor.							



DEPARTMENT OF THE ARMY, SAVANNAH DISTRICT, ENVIRONMENTAL AND MATERIALS UNIT  
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WORK ORDER: 848e

REQUISITION: W33SJC32900192





# Boring Designation BI-PBS-245-13

DRILLING LOG		DIVISION South Atlantic		INSTALLATION Mobile District		SHEET 1 OF 2 SHEETS	
1. PROJECT MsCIP Barrier Island Restoration Petit Bois Pass-OCS West				9. SIZE AND TYPE OF BIT N/A			
2. BORING DESIGNATION BI-PBS-245-13		LOCATION COORDINATES E = 1,109,960 N = 229,107		10. COORDINATE SYSTEM/DATUM State Plane, MSE (U.S. Ft.)		HORIZONTAL NAD83	
3. DRILLING AGENCY Corps of Engineers - CESAM		CONTRACTOR FILE NO.		11. MANUFACTURER'S DESIGNATION OF DRILL Vibracore		<input type="checkbox"/> AUTO HAMMER <input type="checkbox"/> MANUAL HAMMER	
4. NAME OF DRILLER Construction Solutions International, Inc.				12. TOTAL SAMPLES		DISTURBED 1	
5. DIRECTION OF BORING <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED				13. TOTAL NUMBER CORE BOXES		UNDISTURBED (UD) 0	
6. THICKNESS OF OVERBURDEN N/A				14. WATER DEPTH		52 Ft.	
7. DEPTH DRILLED INTO ROCK N/A				15. DATE BORING		STARTED 01-12-14	
8. TOTAL DEPTH OF BORING 18.3 Ft.				16. ELEVATION TOP OF BORING		COMPLETED 01-12-14	
				17. TOTAL RECOVERY FOR BORING		100%	
				18. SIGNATURE AND TITLE OF INSPECTOR Tom Powers, Geologist			

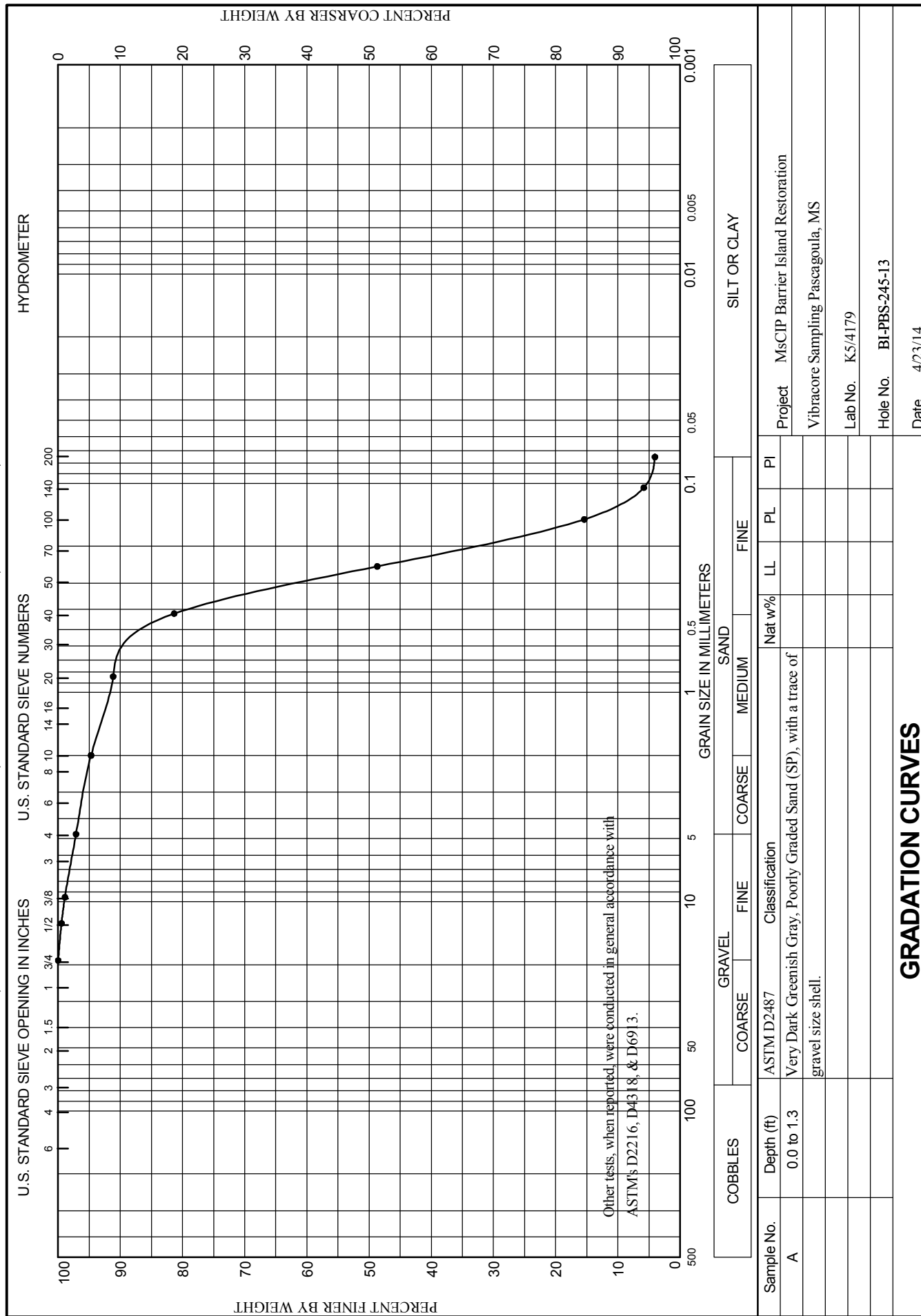
ELEV.	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS	SAMPLE	LABORATORY RESULTS
-51.9	0.0				
-52.3	0.4				
-53.2	1.3		SAND, poorly-graded, mostly fine to medium-grained sand-sized quartz, little shell fragments, lt. gray (SP)	A	Classification: SP Color: 2.5Y 5/1-gray D50: 0.255 mm % Fines: 4
			SAND, silty, mostly fine-grained sand-sized quartz, little shell fragments, medium gray (SM)		
			CLAY, fat, voids (desiccation cracks?) filled with fine-grained quartz sand from depths of 1.3 to 4 ft., oyster fragments from depths of 4.5 to 5.5 ft., sandy below 6.6 ft., lt. gray, pale green, pale orange, pale brownish gray (CH)		
-62.3	10.4				
			CLAY, lean, trace shell fragments, sandy, medium gray (CL)		
-66.8	14.9				
			SAND, clayey, little shell fragments, medium gray (SC)		
-69.4	17.5				
-70.2	18.3		CLAY, fat, few circular sand-filled voids (burrows on vertical cut), medium gray (CH)		
			NOTES: 1. Soils are field visually classified in accordance with the Unified Soils Classification System. 2. NS = Sample not submitted for laboratory analysis from this interval. 3. Seafloor elevation calculated using sampling vessel's fathometer water depth reading and applying NOAA tidal gauge data conversion		

<b>DRILLING LOG (Cont. Sheet)</b>			<b>INSTALLATION</b> Mobile District		<b>SHEET 2</b> <b>OF 2 SHEETS</b>
			<b>PROJECT</b> MsCIP Barrier Island Restoration	<b>COORDINATE SYSTEM/DATUM</b> State Plane, MSE (U.S. Ft.)	<b>HORIZONTAL</b> NAD83
<b>LOCATION COORDINATES</b> X = 1,109,960 Y = 229,107			<b>ELEVATION TOP OF BORING</b> -51.9 Ft.		
<b>ELEV.</b>	<b>DEPTH</b>	<b>LEGEND</b>	<b>CLASSIFICATION OF MATERIALS</b>	<b>SAMPLE</b>	<b>LABORATORY RESULTS</b>
			factor.		



WORK ORDER: 848e

REQUISITION: W33SJG32900192



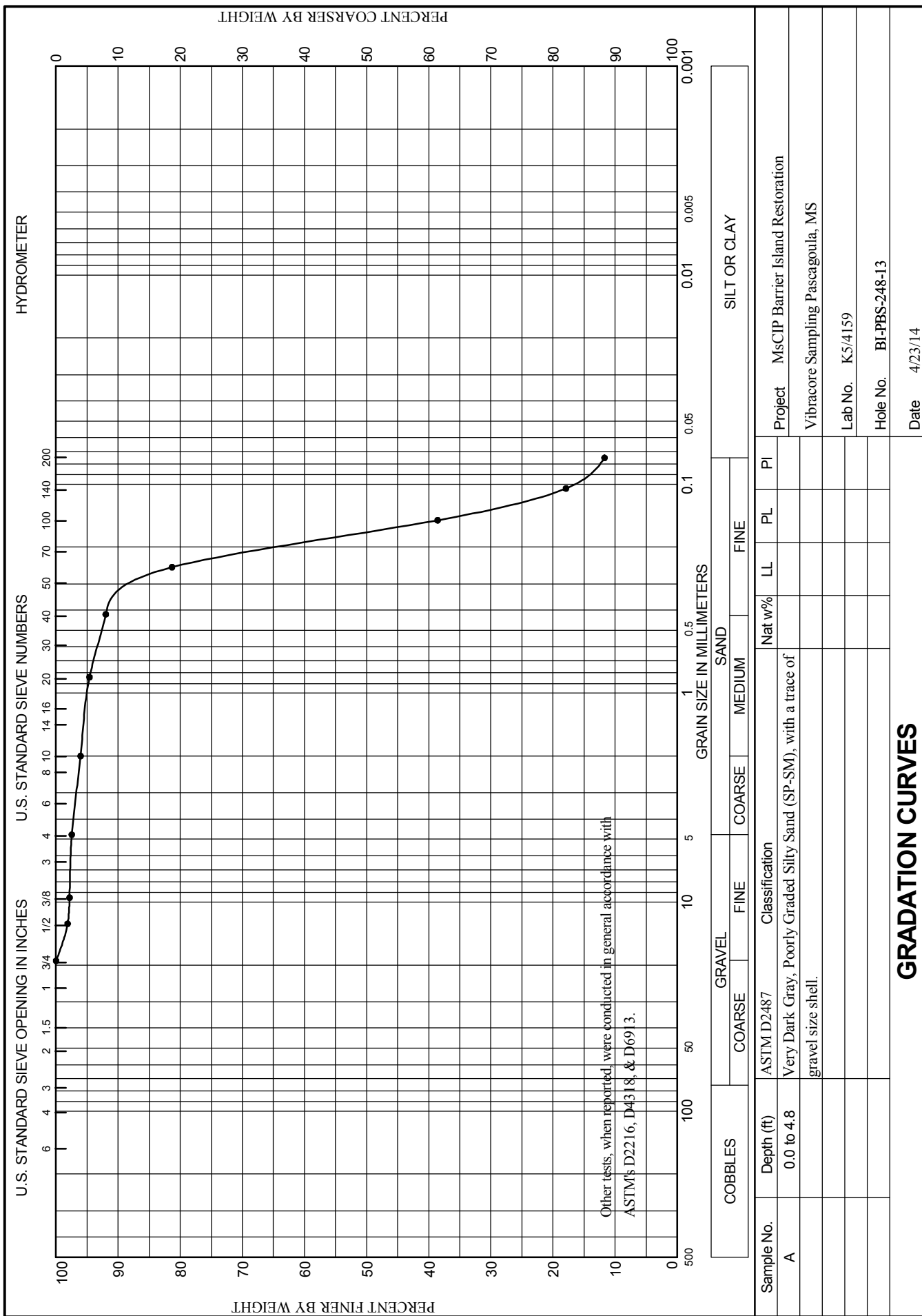
# Boring Designation BI-PBS-248-13

DRILLING LOG		DIVISION South Atlantic		INSTALLATION Mobile District		SHEET 1 OF 1 SHEETS	
1. PROJECT MsCIP Barrier Island Restoration Petit Bois Pass-OCS West				9. SIZE AND TYPE OF BIT N/A			
2. BORING DESIGNATION BI-PBS-248-13		LOCATION COORDINATES E = 1,098,163 N = 238,814		10. COORDINATE SYSTEM/DATUM State Plane, MSE (U.S. Ft.)		HORIZONTAL NAD83	
3. DRILLING AGENCY Corps of Engineers - CESAM		CONTRACTOR FILE NO.		11. MANUFACTURER'S DESIGNATION OF DRILL Vibrocure		<input type="checkbox"/> AUTO HAMMER <input type="checkbox"/> MANUAL HAMMER	
4. NAME OF DRILLER Construction Solutions International, Inc.				12. TOTAL SAMPLES 2		DISTURBED 0	
5. DIRECTION OF BORING <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED				13. TOTAL NUMBER CORE BOXES		14. WATER DEPTH 46.1 Ft.	
6. THICKNESS OF OVERBURDEN N/A				15. DATE BORING 01-08-14		STARTED 01-08-14	
7. DEPTH DRILLED INTO ROCK N/A				16. ELEVATION TOP OF BORING -46.0 Ft.		17. TOTAL RECOVERY FOR BORING 100%	
8. TOTAL DEPTH OF BORING 18.1 Ft.				18. SIGNATURE AND TITLE OF INSPECTOR Tom Powers, Geologist			
ELEV.	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS	SAMPLE	LABORATORY RESULTS		
-46.0	0.0						
			SAND, poorly-graded, mostly fine-grained sand-sized quartz, few shell fragments, lt. to medium gray (SP)	A	Classification: SP-SM Color: 2.5Y 5/1-gray D50: 0.171 mm % Fines: 11.7		
-50.8	4.8						
-52.5	6.5		SAND, silty, mostly fine-grained sand-sized quartz, few shell fragments, medium gray (SM)	B	Classification: SM Color: GLEY1 10Y 5/1- D50: 0.125 mm % Fines: 21.7		
-54.0	8.0		SAND, clayey, mostly fine-grained sand-sized quartz, few shell fragments, medium gray (SC)				
			CLAY, lean, no shell fragments, medium gray (CL)				
-57.0	11.0						
			CLAY, fat, medium gray and pale brown (CH)	NS			
-64.1	18.1						
			NOTES: 1. Soils are field visually classified in accordance with the Unified Soils Classification System. 2. NS = Sample not submitted for laboratory analysis from this interval. 3. Seafloor elevation calculated using sampling vessel's fathometer water depth reading and applying NOAA tidal gauge data conversion factor.				



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WORK ORDER: 848e  
REQUISITION: W33SJC32900192

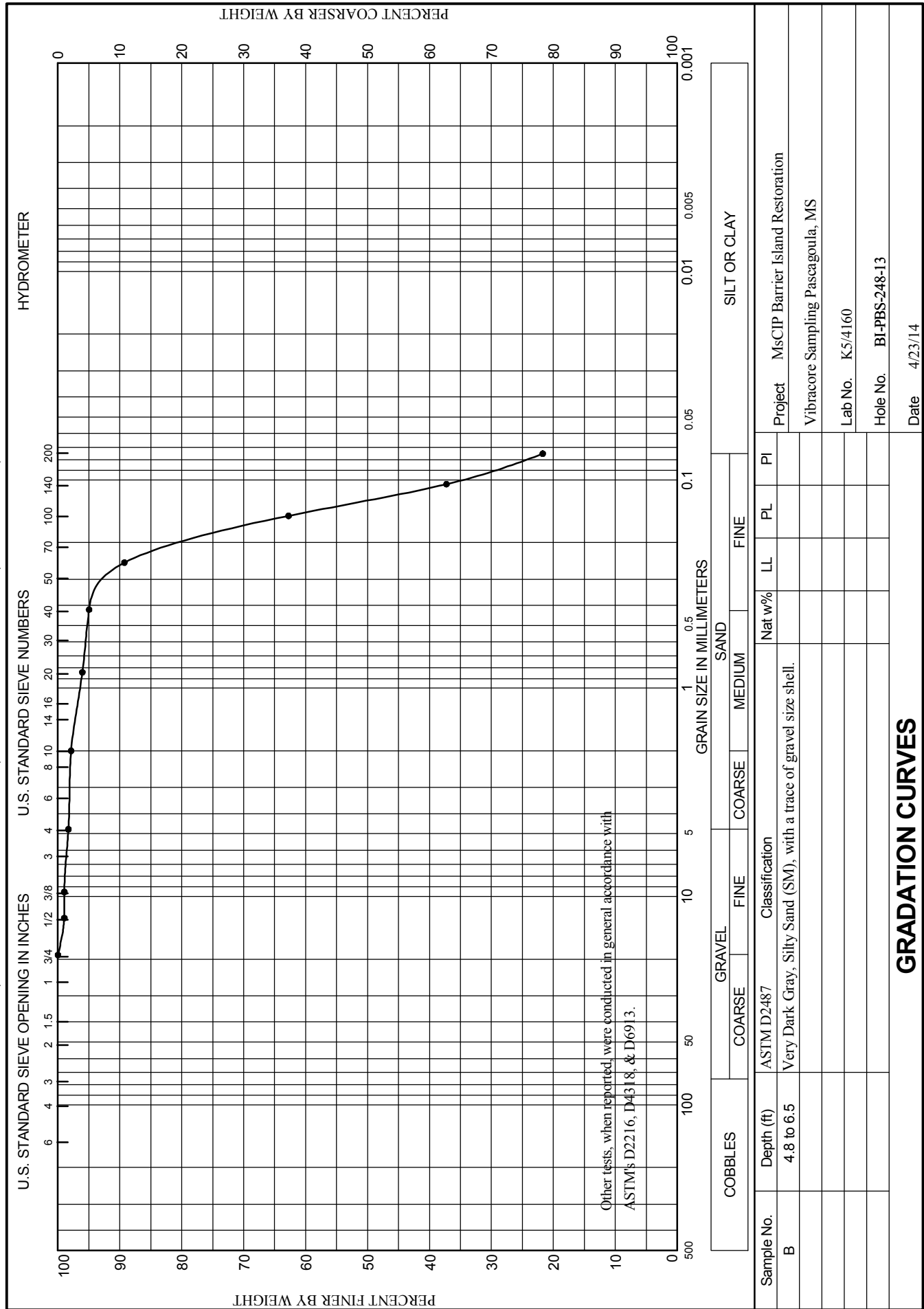




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WORK ORDER: 848e

REQUISITION: W33SJG32900192



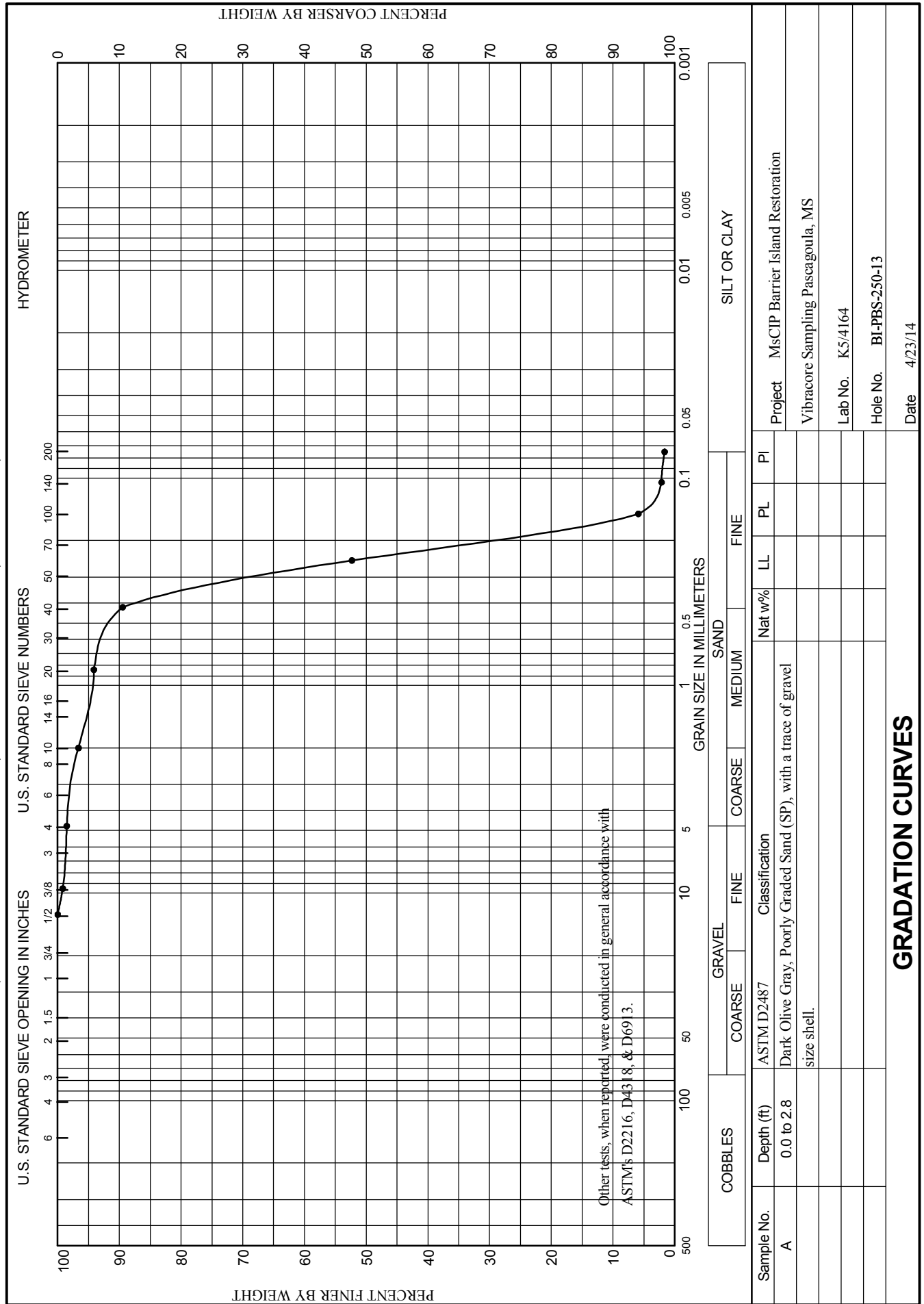
# Boring Designation BI-PBS-250-13

DRILLING LOG		DIVISION South Atlantic		INSTALLATION Mobile District		SHEET 1 OF 1 SHEETS	
1. PROJECT MsCIP Barrier Island Restoration Petit Bois Pass-OCS West				9. SIZE AND TYPE OF BIT N/A			
2. BORING DESIGNATION BI-PBS-250-13		LOCATION COORDINATES E = 1,096,532 N = 236,692		10. COORDINATE SYSTEM/DATUM State Plane, MSE (U.S. Ft.)		HORIZONTAL NAD83	
3. DRILLING AGENCY Corps of Engineers - CESAM		CONTRACTOR FILE NO.		11. MANUFACTURER'S DESIGNATION OF DRILL Vibracore		<input type="checkbox"/> AUTO HAMMER <input type="checkbox"/> MANUAL HAMMER	
4. NAME OF DRILLER Construction Solutions International, Inc.				12. TOTAL SAMPLES 2		DISTURBED 0	
5. DIRECTION OF BORING <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED				13. TOTAL NUMBER CORE BOXES		14. WATER DEPTH 44.5 Ft.	
6. THICKNESS OF OVERBURDEN N/A				15. DATE BORING 01-08-14		STARTED 01-08-14	
7. DEPTH DRILLED INTO ROCK N/A				16. ELEVATION TOP OF BORING -45.4 Ft.		COMPLETED 01-08-14	
8. TOTAL DEPTH OF BORING 15.7 Ft.				17. TOTAL RECOVERY FOR BORING 100%		18. SIGNATURE AND TITLE OF INSPECTOR Tom Powers, Geologist	
ELEV.	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS	SAMPLE	LABORATORY RESULTS		
-45.4	0.0						
-48.2	2.8		SAND, poorly-graded, mostly fine to medium-grained sand-sized quartz, few shell fragments, lt. gray (SP)	A	Classification: SP Color: GLEY1 10Y 6/1- D50: 0.244 mm % Fines: 1.6		
-49.6	4.2		SAND, silty, mostly fine-grained sand-sized quartz, few shell fragments, lt. to medium gray (SM)	B	Classification: SP-SM Color: GLEY1 10Y 5/1- D50: 0.195 mm % Fines: 7.2		
-56.6	11.2		SAND, clayey, mostly fine-grained sand-sized quartz, few shell fragments, medium gray (SC)	NS			
-61.1	15.7		CLAY, fat, sandy, lt. gray, pale orange, pale red (CH)				
NOTES: 1. Soils are field visually classified in accordance with the Unified Soils Classification System. 2. NS = Sample not submitted for laboratory analysis from this interval. 3. Seafloor elevation determined from 2013 USGS geophysical survey.							



WORK ORDER: 848e

REQUISITION: W33SJG32900192







WORK ORDER: 848e

REQUISITION: W33SJG32900192



# Boring Designation BI-PBS-251-13

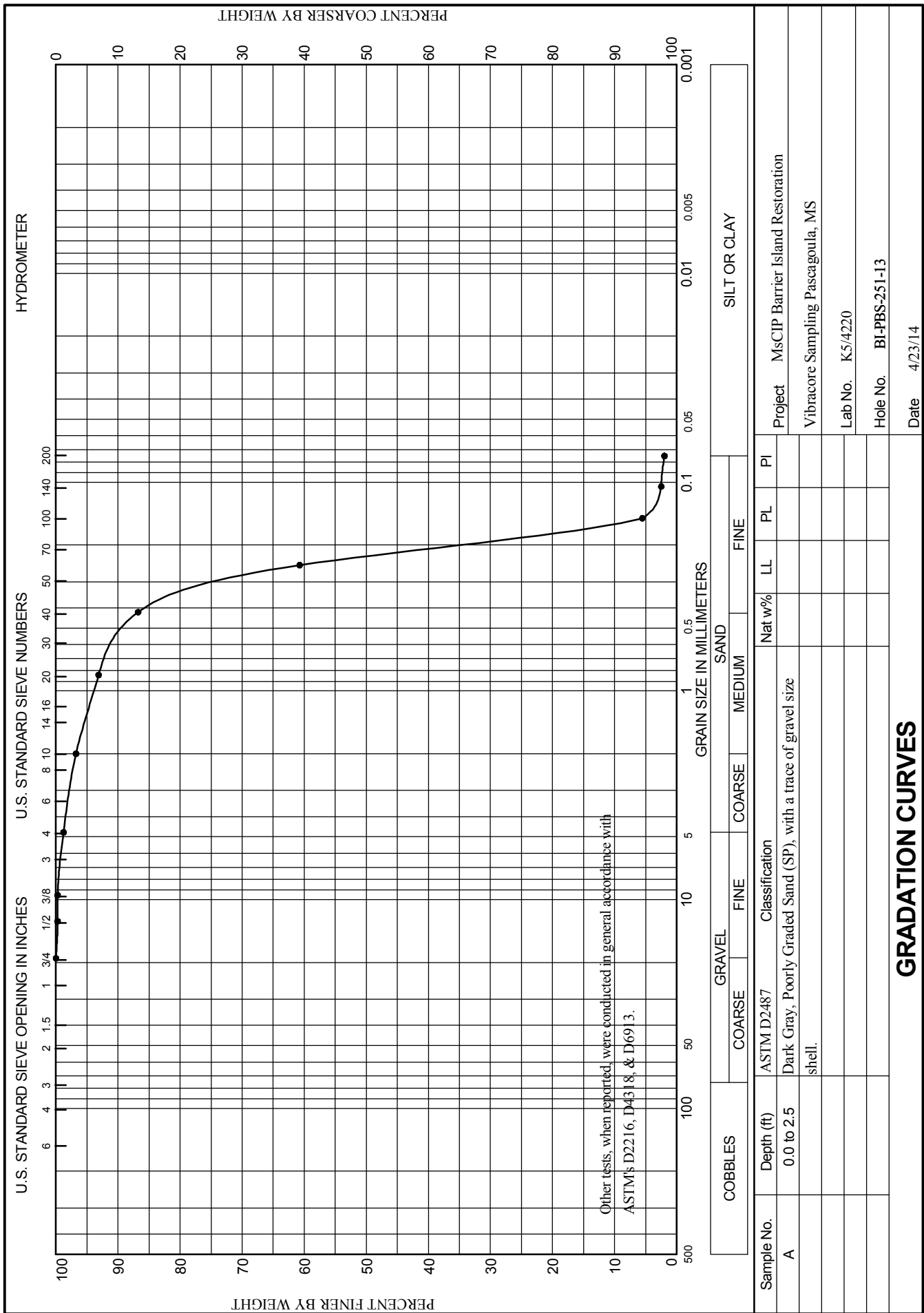
DRILLING LOG		DIVISION South Atlantic		INSTALLATION Mobile District		SHEET 1 OF 1 SHEETS	
1. PROJECT MsCIP Barrier Island Restoration Petit Bois Pass-OCS West				9. SIZE AND TYPE OF BIT N/A			
2. BORING DESIGNATION BI-PBS-251-13		LOCATION COORDINATES E = 1,107,268 N = 227,628		10. COORDINATE SYSTEM/DATUM State Plane, MSE (U.S. Ft.)		HORIZONTAL NAD83 VERTICAL NAVD88	
3. DRILLING AGENCY Corps of Engineers - CESAM		CONTRACTOR FILE NO.		11. MANUFACTURER'S DESIGNATION OF DRILL Vibracore		<input type="checkbox"/> AUTO HAMMER <input type="checkbox"/> MANUAL HAMMER	
4. NAME OF DRILLER Construction Solutions International, Inc.				12. TOTAL SAMPLES 2		DISTURBED 2 UNDISTURBED (UD) 0	
5. DIRECTION OF BORING <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED		DEG. FROM VERTICAL		13. TOTAL NUMBER CORE BOXES			
		BEARING		14. WATER DEPTH 48.4 Ft.			
6. THICKNESS OF OVERBURDEN N/A				15. DATE BORING 01-20-14		STARTED 01-20-14 COMPLETED 01-20-14	
7. DEPTH DRILLED INTO ROCK N/A				16. ELEVATION TOP OF BORING -48.7 Ft.			
8. TOTAL DEPTH OF BORING 14.8 Ft.				17. TOTAL RECOVERY FOR BORING 100%			
				18. SIGNATURE AND TITLE OF INSPECTOR Tom Powers, Geologist			
ELEV.	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS	SAMPLE	LABORATORY RESULTS		
-48.7	0.0						
-51.2	2.5		SAND, poorly-graded, mostly fine to medium-grained sand-sized quartz, few shell fragments, lt. gray (SP)	A	Classification: SP Color: 2.5Y 6/1-gray D50: 0.226 mm % Fines: 2		
-51.9	3.2		SAND, poorly-graded with silt, mostly fine-grained sand-sized quartz, few shell fragments, lt. to medium gray (SP-SM)	B	Classification: SP-SM Color: 2.5Y 5/1-gray D50: 0.2 mm % Fines: 7		
-53.3	4.6		SAND, silty, mostly fine-grained sand-sized quartz, few shell fragments, medium gray (SM)				
-56.9	8.2		CLAY, lean, few shell fragments, sandy, medium to dark gray (CL)				
-63.5	14.8		CLAY, fat, sandy, hard, lt. gray, pale orange, pale green (CH)	NS			
NOTES: 1. Soils are field visually classified in accordance with the Unified Soils Classification System. 2. NS = Sample not submitted for laboratory analysis from this interval. 3. Seafloor elevation calculated using sampling vessel's fathometer water depth reading and applying NOAA tidal gauge data conversion factor.							



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WORK ORDER: 848e

REQUISITION: W33SJC32900192

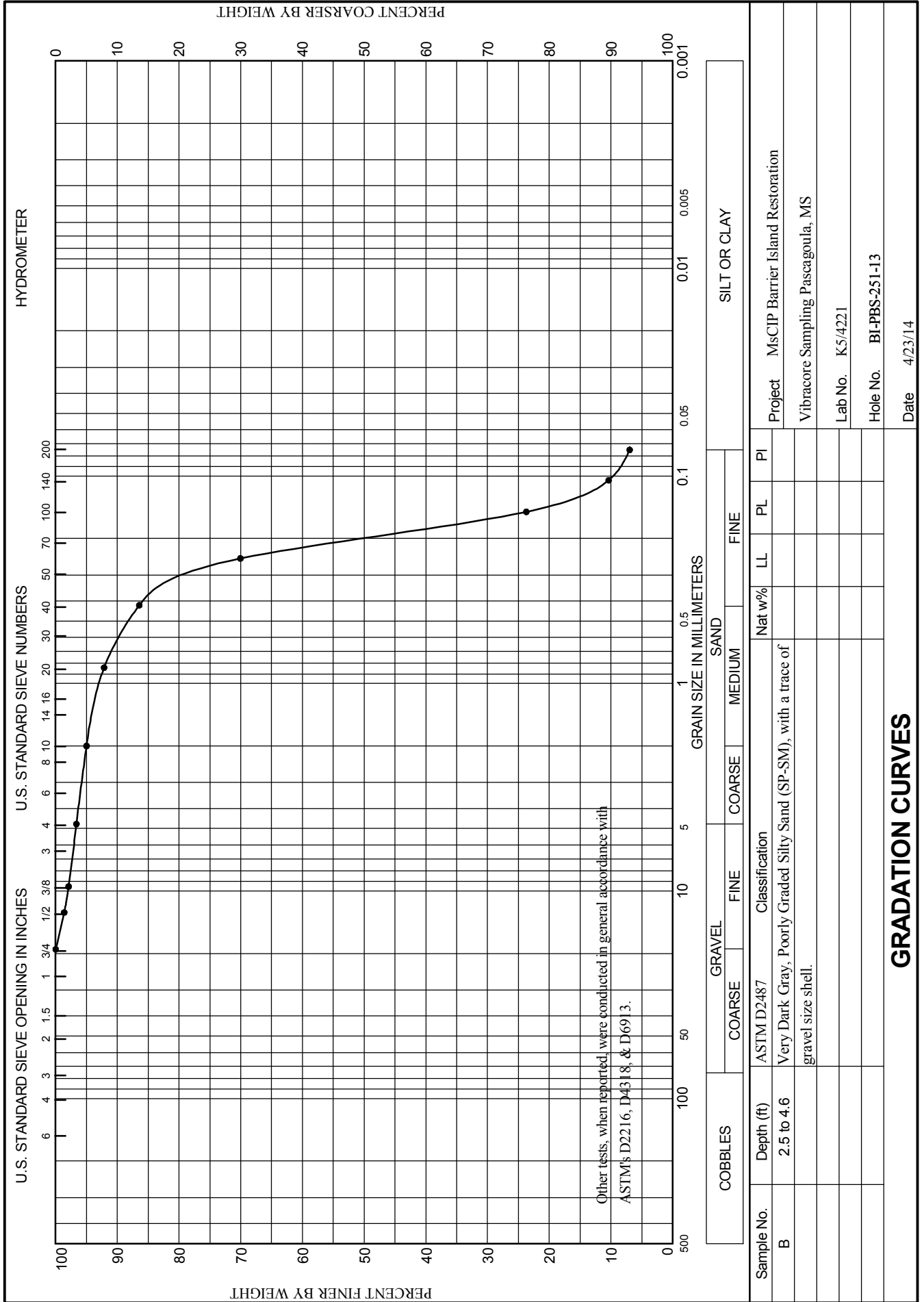




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WORK ORDER: 848e

REQUISITION: W33SJC32900192



# Boring Designation BI-PBS-252-13

DRILLING LOG		DIVISION South Atlantic		INSTALLATION Mobile District		SHEET 1 OF 1 SHEETS	
1. PROJECT MsCIP Barrier Island Restoration Petit Bois Pass-OCS West				9. SIZE AND TYPE OF BIT N/A			
2. BORING DESIGNATION BI-PBS-252-13		LOCATION COORDINATES E = 1,109,130 N = 227,794		10. COORDINATE SYSTEM/DATUM State Plane, MSE (U.S. Ft.)		HORIZONTAL NAD83 VERTICAL NAVD88	
3. DRILLING AGENCY Corps of Engineers - CESAM		CONTRACTOR FILE NO.		11. MANUFACTURER'S DESIGNATION OF DRILL Vibrocure		<input type="checkbox"/> AUTO HAMMER <input type="checkbox"/> MANUAL HAMMER	
4. NAME OF DRILLER Construction Solutions International, Inc.				12. TOTAL SAMPLES 2		DISTURBED 2 UNDISTURBED (UD) 0	
5. DIRECTION OF BORING <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED				13. TOTAL NUMBER CORE BOXES		14. WATER DEPTH 48.1 Ft.	
6. THICKNESS OF OVERBURDEN N/A				15. DATE BORING 01-13-14		STARTED 01-13-14 COMPLETED 01-13-14	
7. DEPTH DRILLED INTO ROCK N/A				16. ELEVATION TOP OF BORING -47.7 Ft.		17. TOTAL RECOVERY FOR BORING 100%	
8. TOTAL DEPTH OF BORING 15.5 Ft.				18. SIGNATURE AND TITLE OF INSPECTOR Tom Powers, Geologist			

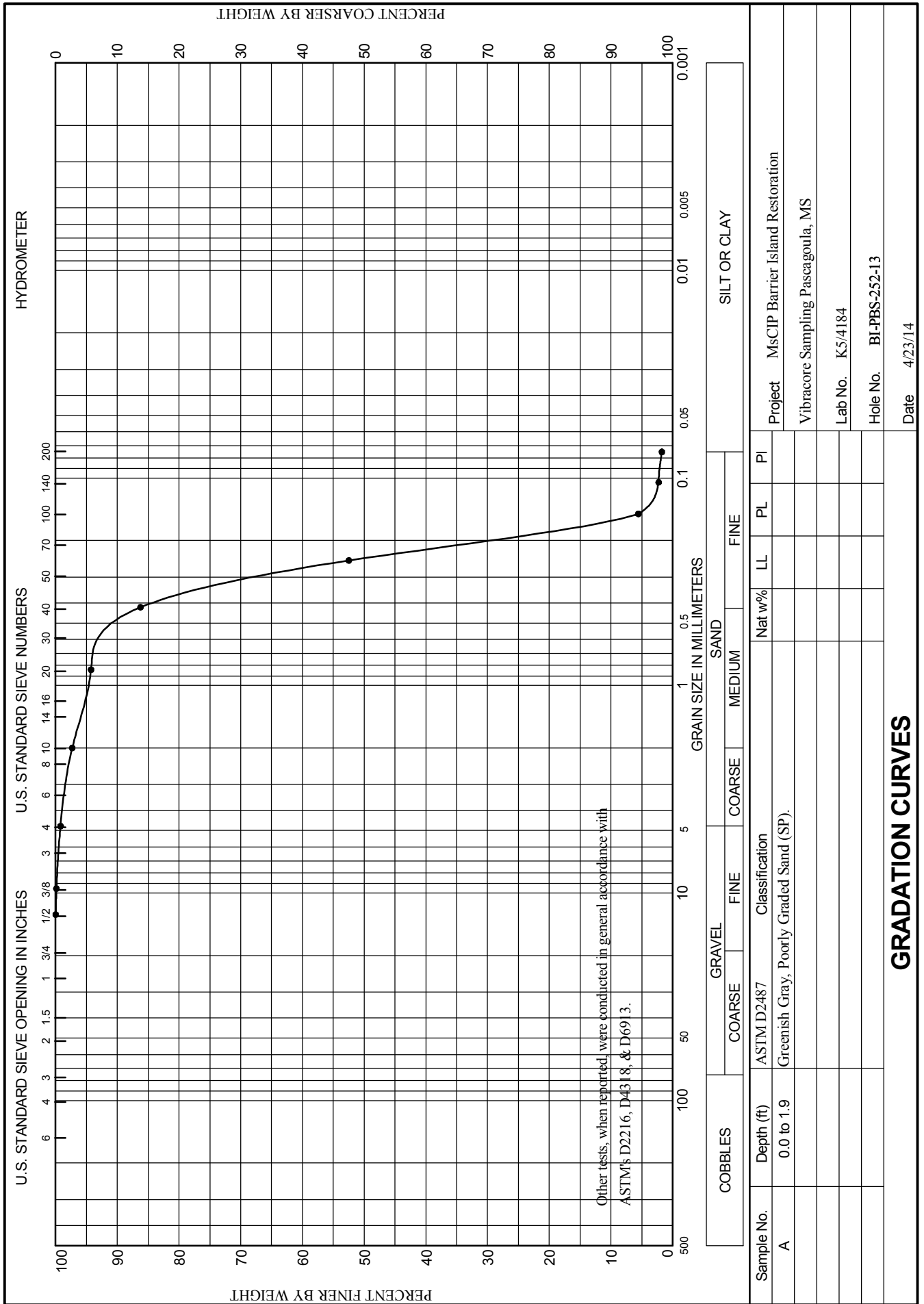
ELEV.	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS	SAMPLE	LABORATORY RESULTS
-47.7	0.0				
-49.2	1.5		SAND, poorly-graded, mostly fine to medium-grained sand-sized quartz, few shell fragments, lt. gray (SP)	A	Classification: SP Color: 2.5Y 7/1-light gray D50: 0.243 mm % Fines: 1.7
-49.6	1.9		SAND, poorly-graded, mostly fine-grained sand-sized quartz, few shell fragments, medium gray (SP)	B	Classification: SP-SM Color: 2.5Y 5/1-gray D50: 0.19 mm % Fines: 8
-50.5	2.8		SAND, silty, mostly fine-grained sand-sized quartz, few shell fragments, medium gray (SM)		
-51.3	3.6		SAND, clayey, mostly fine-grained sand-sized quartz, trace shell fragments, medium gray (SC)		
			CLAY, fat, sandy, lt. gray, pale orange (CH)		
-58.1	10.4			NS	
			CLAY, lean, trace wood fragments at depth of 11.5 ft., medium gray (CL)		
-63.2	15.5				
NOTES: 1. Soils are field visually classified in accordance with the Unified Soils Classification System. 2. NS = Sample not submitted for laboratory analysis from this interval. 3. Seafloor elevation calculated using sampling vessel's fathometer water depth reading and applying NOAA tidal gauge data conversion factor.					



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WORK ORDER: 848e

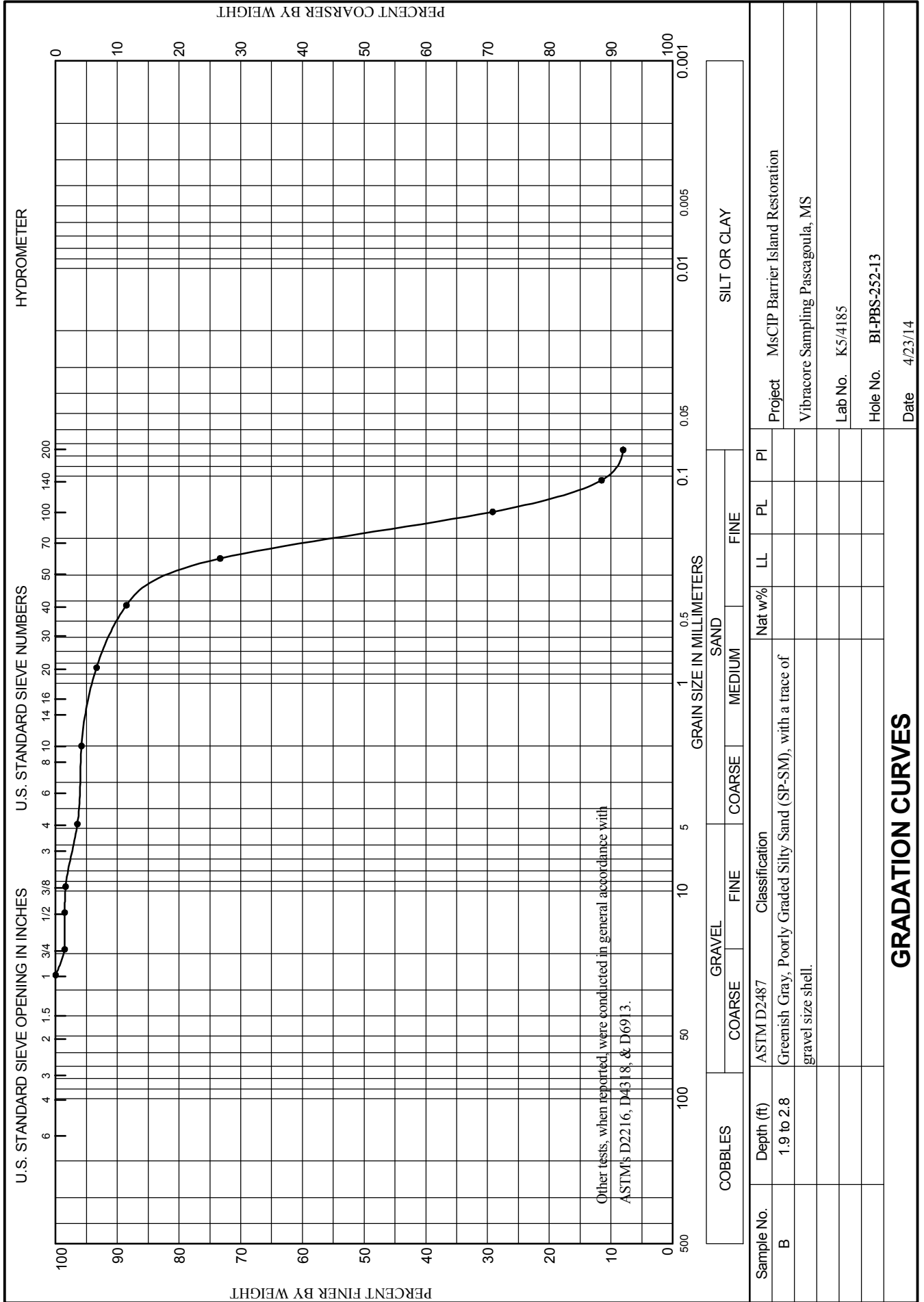
REQUISITION: W33SJG32900192





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WORK ORDER: 848e  
REQUISITION: W33SJC32900192



# Boring Designation BI-PBS-253-13

DRILLING LOG		DIVISION South Atlantic		INSTALLATION Mobile District		SHEET 1 OF 1 SHEETS	
1. PROJECT MsCIP Barrier Island Restoration Petit Bois Pass-OCS West				9. SIZE AND TYPE OF BIT N/A			
2. BORING DESIGNATION BI-PBS-253-13		LOCATION COORDINATES E = 1,108,019 N = 228,925		10. COORDINATE SYSTEM/DATUM State Plane, MSE (U.S. Ft.)		HORIZONTAL NAD83 VERTICAL NAVD88	
3. DRILLING AGENCY Corps of Engineers - CESAM		CONTRACTOR FILE NO.		11. MANUFACTURER'S DESIGNATION OF DRILL Vibracore		<input type="checkbox"/> AUTO HAMMER <input type="checkbox"/> MANUAL HAMMER	
4. NAME OF DRILLER Construction Solutions International, Inc.				12. TOTAL SAMPLES 3		DISTURBED 0 UNDISTURBED (UD)	
5. DIRECTION OF BORING <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED				13. TOTAL NUMBER CORE BOXES		14. WATER DEPTH 48.1 Ft.	
6. THICKNESS OF OVERBURDEN N/A				15. DATE BORING 01-16-14		STARTED 01-16-14 COMPLETED 01-16-14	
7. DEPTH DRILLED INTO ROCK N/A				16. ELEVATION TOP OF BORING -48.2 Ft.		17. TOTAL RECOVERY FOR BORING 100%	
8. TOTAL DEPTH OF BORING 11.7 Ft.				18. SIGNATURE AND TITLE OF INSPECTOR Tom Powers, Geologist			

ELEV.	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS	SAMPLE	LABORATORY RESULTS
-48.2	0.0				
-49.3	1.1		SAND, poorly-graded, mostly fine to medium-grained sand-sized quartz, few shell fragments, lt. gray (SP)	A	Classification: SP Color: 2.5Y 7/1-light gray D50: 0.316 mm % Fines: 0.8
-49.9	1.7			B	Classification: SP Color: GLEY1 10Y 6/1- D50: 0.233 mm % Fines: 4.9
-50.6	2.4		SAND, poorly-graded with silt, mostly fine-grained sand-sized quartz, few shell fragments, medium gray (SP-SM)	C	Classification: SP-SM Color: GLEY1 10Y 6/1- D50: 0.216 mm % Fines: 5.6
-52.9	4.7		SAND, silty, mostly fine-grained sand-sized quartz, few shell fragments, medium gray (SM)		
			CLAY, lean, sandy, dark gray (CL)		
			CLAY, fat, sandy, hard, lt. gray, pale orange (CH)	NS	
-59.6	11.4				
-59.9	11.7		CLAY, lean, sandy, medium to dark gray (CL)		
NOTES: 1. Soils are field visually classified in accordance with the Unified Soils Classification System. 2. NS = Sample not submitted for laboratory analysis from this interval. 3. Seafloor elevation calculated using sampling vessel's fathometer water depth reading and applying NOAA tidal gauge data conversion factor.					

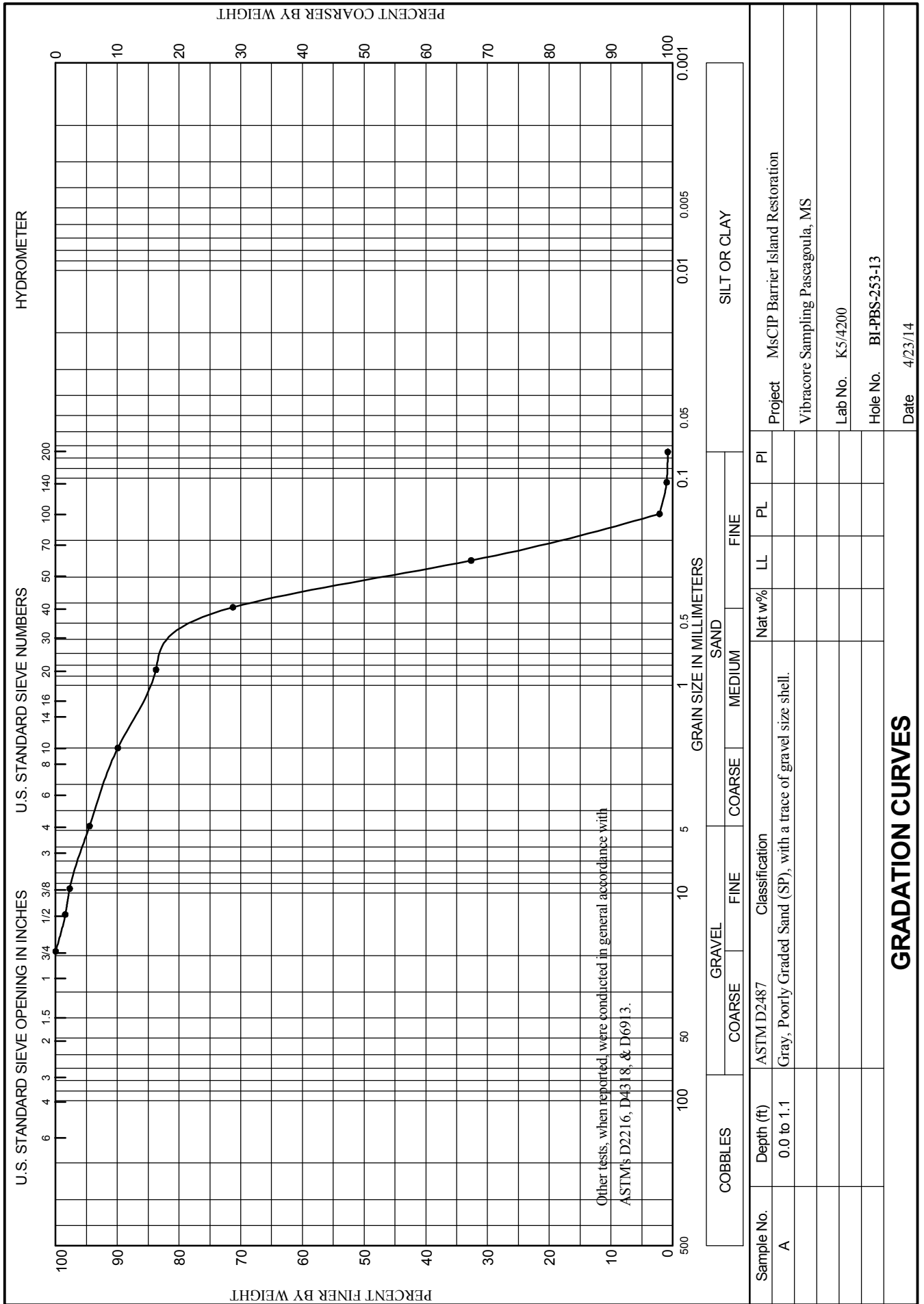




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CORPS OF ENGINEERS, 200 N. COBB PARKWAY, BLDG 400 SUITE 404, MARIETTA, GA. 30062

WORK ORDER: 848e

REQUISITION: W33SJG32900192

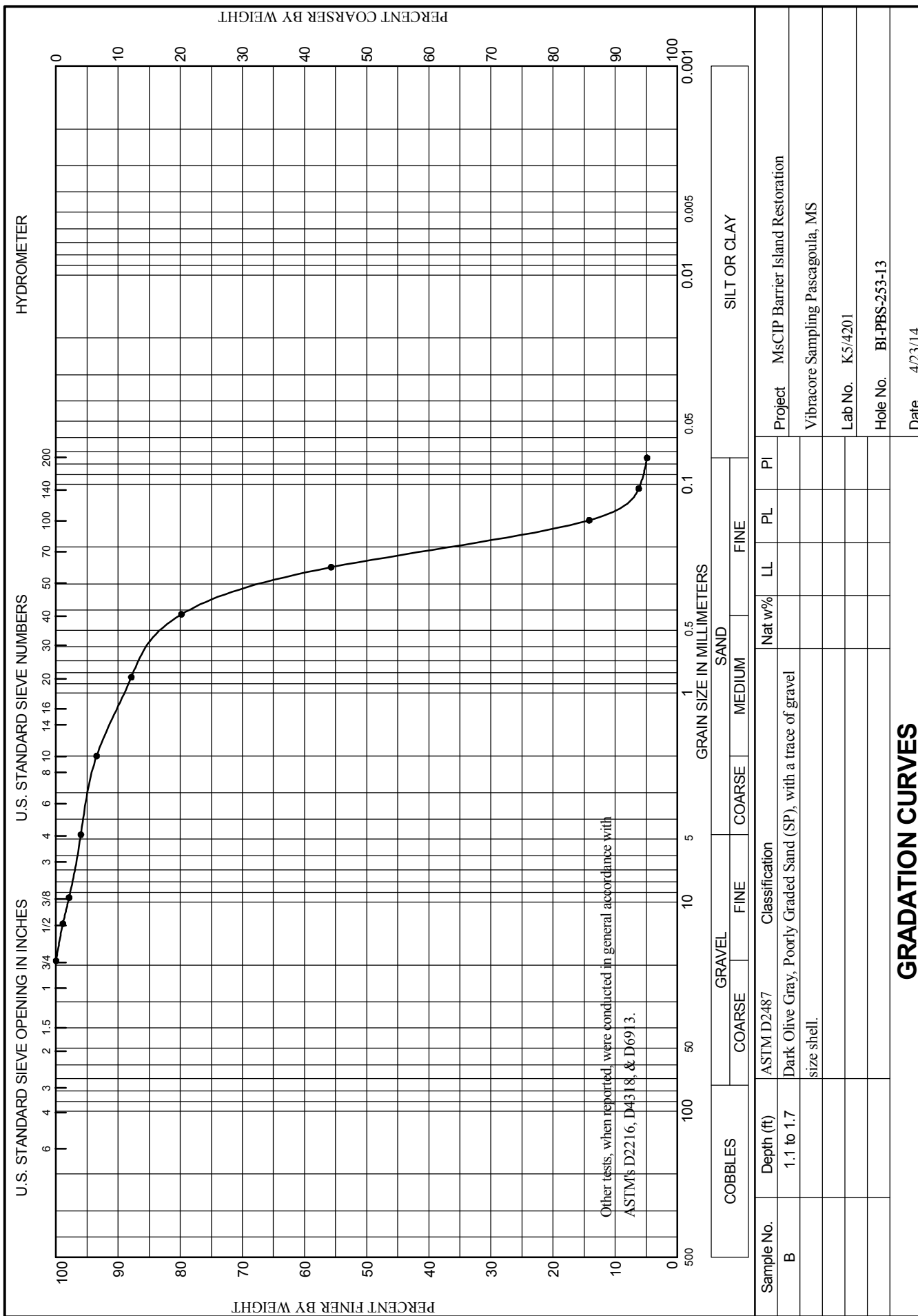




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WORK ORDER: 848e

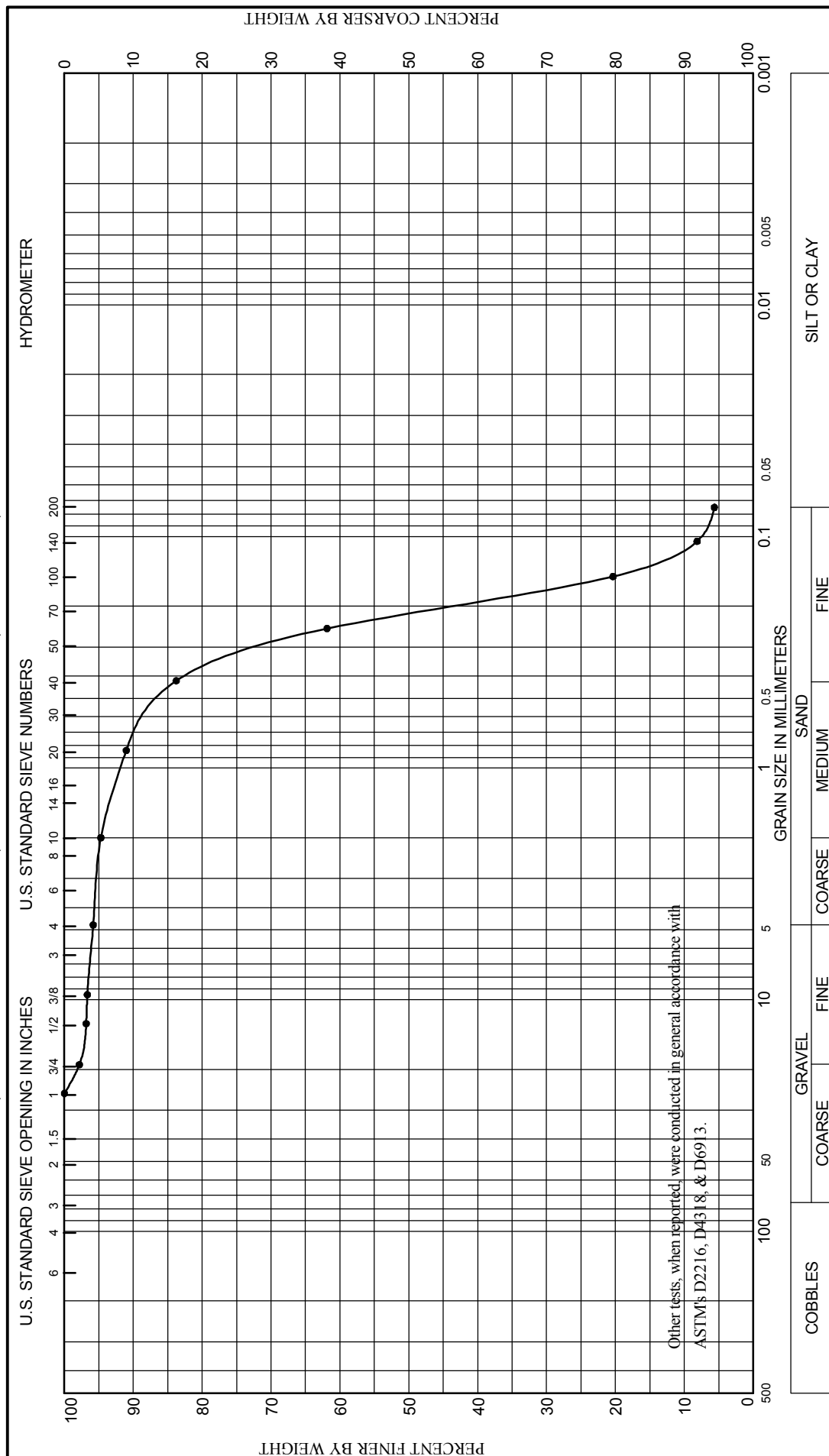
REQUISITION: W33SJC32900192





WORK ORDER: 848e

REQUISITION: W33SJG32900192

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# Boring Designation BI-PBS-254-13

<b>DRILLING LOG</b>		<b>DIVISION</b> South Atlantic	<b>INSTALLATION</b> Mobile District	<b>SHEET 1</b> <b>OF 2 SHEETS</b>
<b>1. PROJECT</b> MsCIP Barrier Island Restoration Petit Bois Pass-OCS West			<b>9. SIZE AND TYPE OF BIT</b> N/A	
<b>2. BORING DESIGNATION</b> BI-PBS-254-13		<b>10. COORDINATE SYSTEM/DATUM</b> State Plane, MSE (U.S. Ft.)		<b>HORIZONTAL</b> NAD83
<b>3. DRILLING AGENCY</b> Corps of Engineers - CESAM		<b>11. MANUFACTURER'S DESIGNATION OF DRILL</b> Vibrocure		<b>VERTICAL</b> NAVD88
<b>4. NAME OF DRILLER</b> Construction Solutions International, Inc.		<b>12. TOTAL SAMPLES</b>		<b>DISTURBED</b> 1
<b>5. DIRECTION OF BORING</b> <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED		<b>13. TOTAL NUMBER CORE BOXES</b>		<b>UNDISTURBED (UD)</b> 0
<b>6. THICKNESS OF OVERBURDEN</b> N/A		<b>14. WATER DEPTH</b> 52 Ft.		
<b>7. DEPTH DRILLED INTO ROCK</b> N/A		<b>15. DATE BORING</b>		<b>STARTED</b> 01-12-14
<b>8. TOTAL DEPTH OF BORING</b> 16.4 Ft.		<b>16. ELEVATION TOP OF BORING</b> -52.1 Ft.		<b>COMPLETED</b> 01-12-14
		<b>17. TOTAL RECOVERY FOR BORING</b> 100%		
		<b>18. SIGNATURE AND TITLE OF INSPECTOR</b> Tom Powers, Geologist		

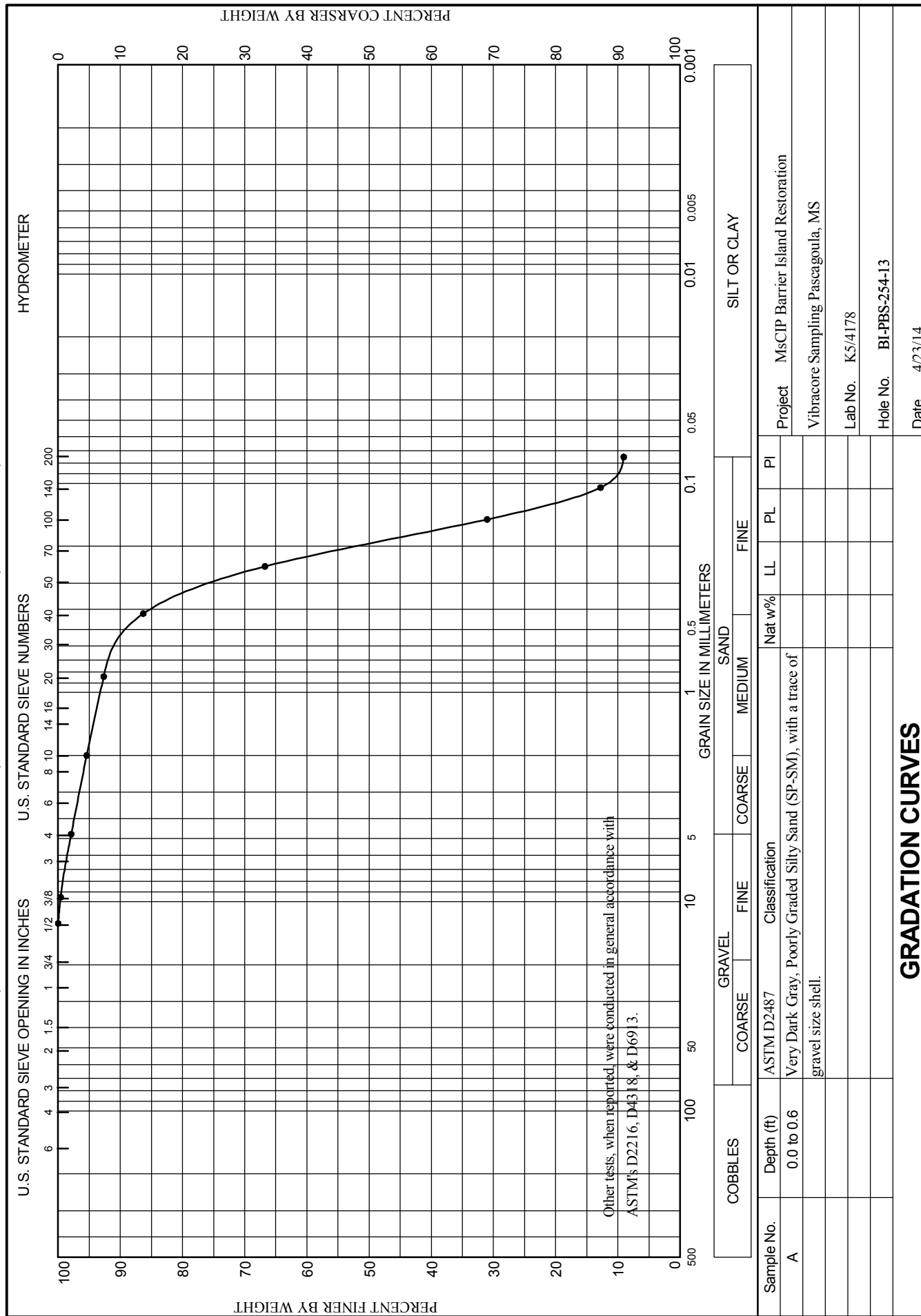
ELEV.	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS	SAMPLE	LABORATORY RESULTS
-52.1	0.0				
-52.7	0.6			A	Classification: SP-SM Color: 2.5Y 5/1-gray D50: 0.196 mm % Fines: 9.1
-53.1	1.0		SAND, silty, mostly fine-grained sand-sized quartz, few shell fragments, medium gray (SM)		
			SAND, clayey, mostly fine-grained sand-sized quartz, trace shell fragments, medium gray (SC)		
			CLAY, fat, sandy, lt. gray, pale orange (CH)		
-60.1	8.0			NS	
			CLAY, lean, medium gray (CL)		
-62.8	10.7				
-63.0	10.9		GRAVEL, poorly-graded, mostly shell fragments, little quartz sand, medium to dark gray (GP)		
-64.5	12.4				
-65.3	13.2		SAND, silty, mostly fine-grained sand-sized quartz, little shell fragments, medium gray (SM)		
-66.7	14.6				
-68.5	16.4		SAND, poorly-graded with silt, mostly fine-grained sand-sized quartz, few shell fragments, medium brownish gray (SP-SM)		
			SAND, clayey, mostly fine-grained sand-sized quartz, medium gray (SC)		
			CLAY, fat, with pockets (burrows?) of SP-SM, medium gray (CH)		
			NOTES: 1. Soils are field visually classified in accordance with the Unified Soils Classification System. 2. NS = Sample not submitted for laboratory analysis from this interval. 3. Seafloor elevation calculated using sampling vessel's fathometer water depth reading and		

<b>DRILLING LOG (Cont. Sheet)</b>			<b>INSTALLATION</b> Mobile District		<b>SHEET 2</b> <b>OF 2 SHEETS</b>
<b>PROJECT</b> MsCIP Barrier Island Restoration			<b>COORDINATE SYSTEM/DATUM</b> State Plane, MSE (U.S. Ft.)	<b>HORIZONTAL</b> NAD83	<b>VERTICAL</b> NAVD88
<b>LOCATION COORDINATES</b> X = 1,108,797 Y = 230,026			<b>ELEVATION TOP OF BORING</b> -52.1 Ft.		
<b>ELEV.</b>	<b>DEPTH</b>	<b>LEGEND</b>	<b>CLASSIFICATION OF MATERIALS</b>	<b>SAMPLE</b>	<b>LABORATORY RESULTS</b>
			applying NOAA tidal gauge data conversion factor.		



WORK ORDER: 848e

REQUISITION: W33SJG32900192



# Boring Designation BI-PBS-255-13

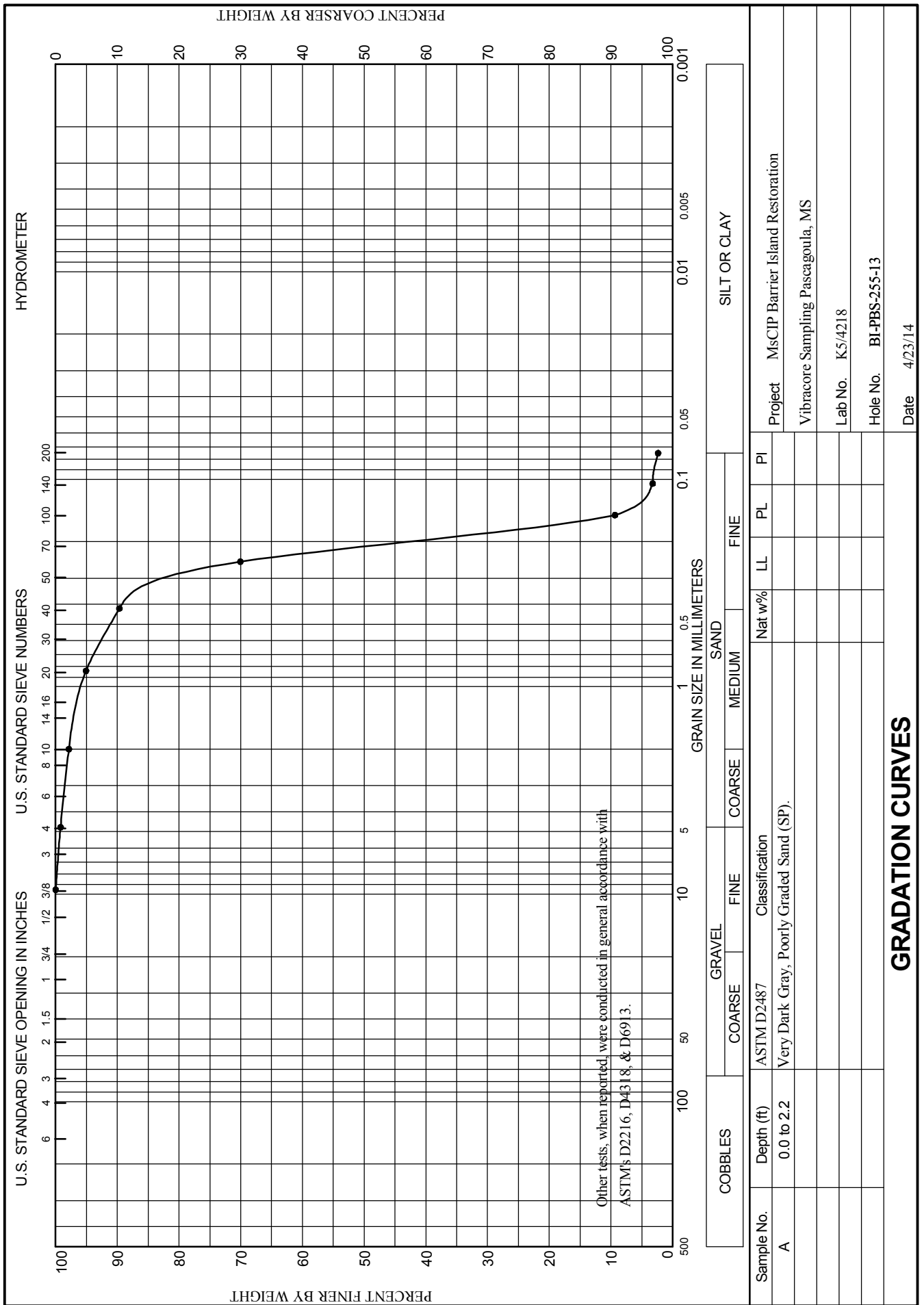
DRILLING LOG		DIVISION South Atlantic		INSTALLATION Mobile District		SHEET 1 OF 1 SHEETS	
1. PROJECT MsCIP Barrier Island Restoration Petit Bois Pass-OCS West				9. SIZE AND TYPE OF BIT N/A			
2. BORING DESIGNATION BI-PBS-255-13		LOCATION COORDINATES E = 1,105,282 N = 228,040		10. COORDINATE SYSTEM/DATUM State Plane, MSE (U.S. Ft.)		HORIZONTAL NAD83	
3. DRILLING AGENCY Corps of Engineers - CESAM		CONTRACTOR FILE NO.		11. MANUFACTURER'S DESIGNATION OF DRILL Vibrocure		<input type="checkbox"/> AUTO HAMMER <input type="checkbox"/> MANUAL HAMMER	
4. NAME OF DRILLER Construction Solutions International, Inc.				12. TOTAL SAMPLES 2		UNDISTURBED (UD) 0	
5. DIRECTION OF BORING <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED				13. TOTAL NUMBER CORE BOXES		14. WATER DEPTH 49 Ft.	
6. THICKNESS OF OVERBURDEN N/A				15. DATE BORING 01-20-14		COMPLETED 01-20-14	
7. DEPTH DRILLED INTO ROCK N/A				16. ELEVATION TOP OF BORING -49.4 Ft.		17. TOTAL RECOVERY FOR BORING 100%	
8. TOTAL DEPTH OF BORING 16.7 Ft.				18. SIGNATURE AND TITLE OF INSPECTOR Tom Powers, Geologist			
ELEV.	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS	SAMPLE	LABORATORY RESULTS		
-49.4	0.0						
-51.6	2.2		SAND, poorly-graded, mostly fine to medium-grained sand-sized quartz, few shell fragments, lt. gray (SP)	A	Classification: SP Color: 2.5Y 6/1-gray D50: 0.211 mm % Fines: 2.4		
-51.8	2.4		SAND, poorly-graded with silt, mostly fine-grained sand-sized quartz, few shell fragments, lt. to medium gray (SP-SM)	B	Classification: SM Color: 2.5Y 5/1-gray D50: 0.18 mm % Fines: 12.5		
-53.6	4.2		SAND, silty, mostly fine-grained sand-sized quartz, few shell fragments, medium gray (SM)				
-58.4	9.0		CLAY, lean, sandy, medium to dark gray (CL) At El. -55.4 Ft., fine sand pocket At El. -56.1 Ft., fine sand pocket with shell At El. -57.1 Ft., dark brown At El. -57.4 Ft., very sandy				
-66.1	16.7		CLAY, fat, sandy, hard, lt. gray, pale orange, pale green, medium gray, medium brown (CH)	NS			
NOTES: 1. Soils are field visually classified in accordance with the Unified Soils Classification System. 2. NS = Sample not submitted for laboratory analysis from this interval. 3. Seafloor elevation calculated using sampling vessel's fathometer water depth reading and applying NOAA tidal gauge data conversion factor.							



DEPARTMENT OF THE ARMY, SAVANNAH DISTRICT, ENVIRONMENTAL AND MATERIALS UNIT  
CORPS OF ENGINEERS, 200 N. COBB PARKWAY, BLDG 400 SUITE 404, MARIETTA, GA. 30062

WORK ORDER: 848e

REQUISITION: W33SJG32900192

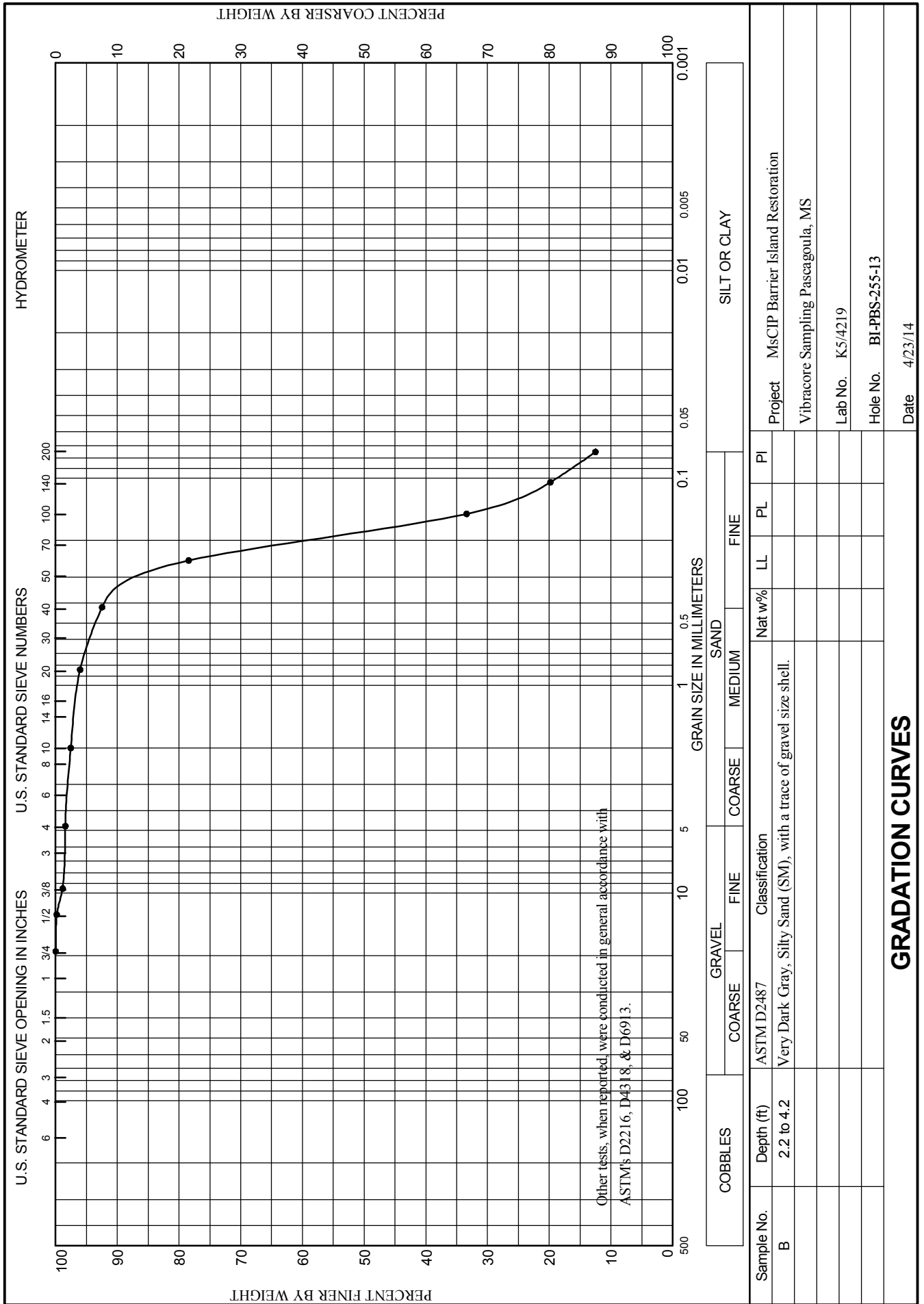






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CORPS OF ENGINEERS, 200 N. COBB PARKWAY, BLDG 400 SUITE 404, MARIETTA, GA. 30062

WORK ORDER: 848e  
REQUISITION: W33SJC32900192



# Boring Designation BI-PBS-257-13

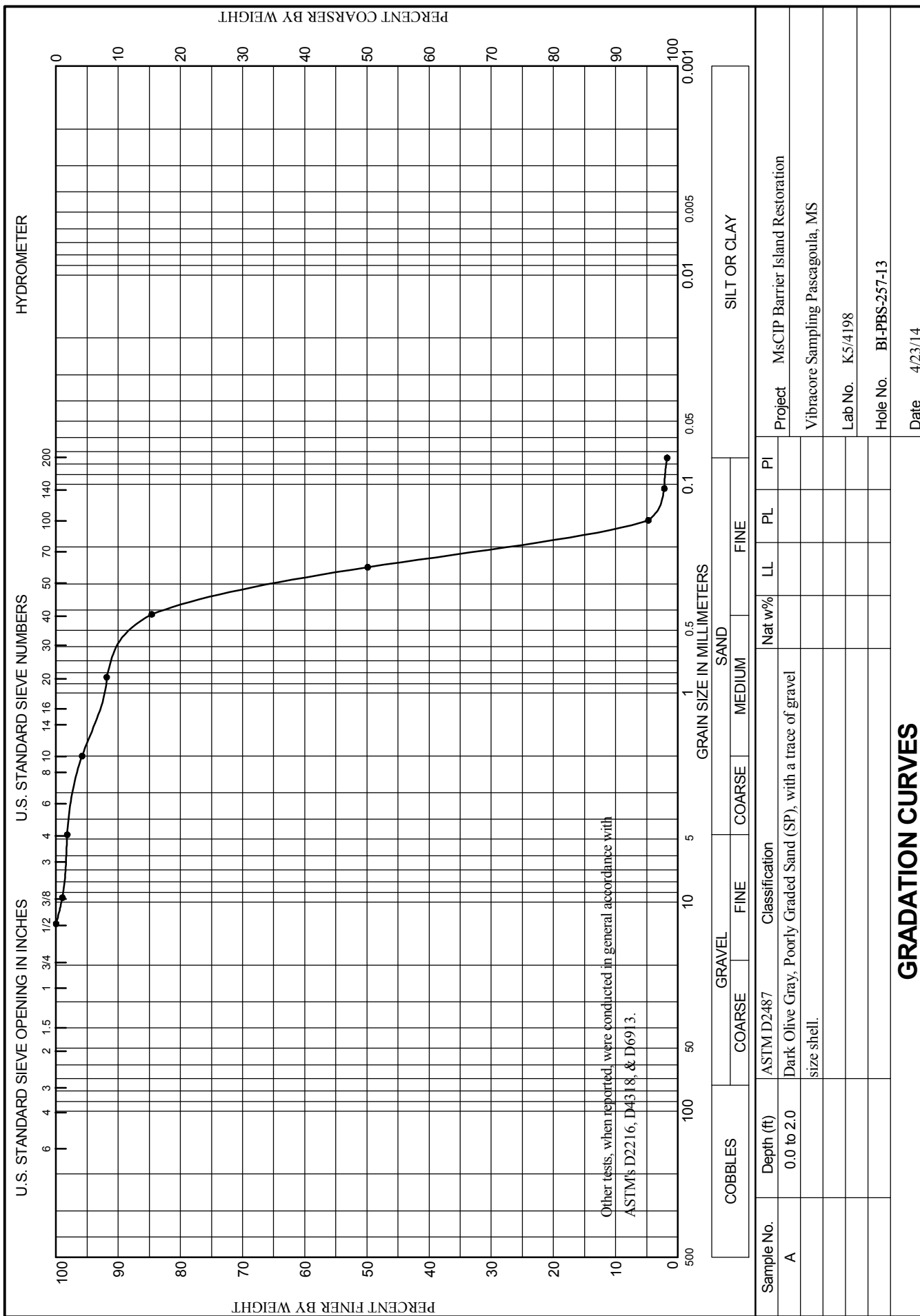
DRILLING LOG		DIVISION South Atlantic		INSTALLATION Mobile District		SHEET 1 OF 1 SHEETS	
1. PROJECT MsCIP Barrier Island Restoration Petit Bois Pass-OCS West				9. SIZE AND TYPE OF BIT N/A			
2. BORING DESIGNATION BI-PBS-257-13		LOCATION COORDINATES E = 1,106,127 N = 229,595		10. COORDINATE SYSTEM/DATUM State Plane, MSE (U.S. Ft.)		HORIZONTAL NAD83 VERTICAL NAVD88	
3. DRILLING AGENCY Corps of Engineers - CESAM		CONTRACTOR FILE NO.		11. MANUFACTURER'S DESIGNATION OF DRILL Vibracore		<input type="checkbox"/> AUTO HAMMER <input type="checkbox"/> MANUAL HAMMER	
4. NAME OF DRILLER Construction Solutions International, Inc.				12. TOTAL SAMPLES 2		DISTURBED 2 UNDISTURBED (UD) 0	
5. DIRECTION OF BORING <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED		DEG. FROM VERTICAL		13. TOTAL NUMBER CORE BOXES			
		BEARING		14. WATER DEPTH 47.1 Ft.			
6. THICKNESS OF OVERBURDEN N/A				15. DATE BORING 01-16-14		STARTED 01-16-14 COMPLETED 01-16-14	
7. DEPTH DRILLED INTO ROCK N/A				16. ELEVATION TOP OF BORING -47.3 Ft.			
8. TOTAL DEPTH OF BORING 9.3 Ft.				17. TOTAL RECOVERY FOR BORING 100%			
				18. SIGNATURE AND TITLE OF INSPECTOR Tom Powers, Geologist			
ELEV.	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS	SAMPLE	LABORATORY RESULTS		
-47.3	0.0						
-49.3	2.0		SAND, poorly-graded, mostly fine to medium-grained sand-sized quartz, few shell fragments, lt. gray (SP)	A	Classification: SP Color: 2.5Y 6/1-gray D50: 0.25 mm % Fines: 1.7		
-49.8	2.5		SAND, silty, mostly fine-grained sand-sized quartz, few shell fragments, medium gray (SM)	B	Classification: SP Color: GLEY1 10Y 6/1- D50: 0.209 mm % Fines: 4.8		
-50.6	3.3		CLAY, lean, trace shell fragments, sandy, dark gray (CL)				
			CLAY, fat, sandy, lt. gray, pale orange, lt. brown (CH) At El. -53.0 Ft., little oyster shell fragments to 6.3 ft.	NS			
-56.6	9.3						
NOTES:							
1. Soils are field visually classified in accordance with the Unified Soils Classification System.							
2. NS = Sample not submitted for laboratory analysis from this interval.							
3. Seafloor elevation calculated using sampling vessel's fathometer water depth reading and applying NOAA tidal gauge data conversion factor.							



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WORK ORDER: 848e

REQUISITION: W33SJC32900192

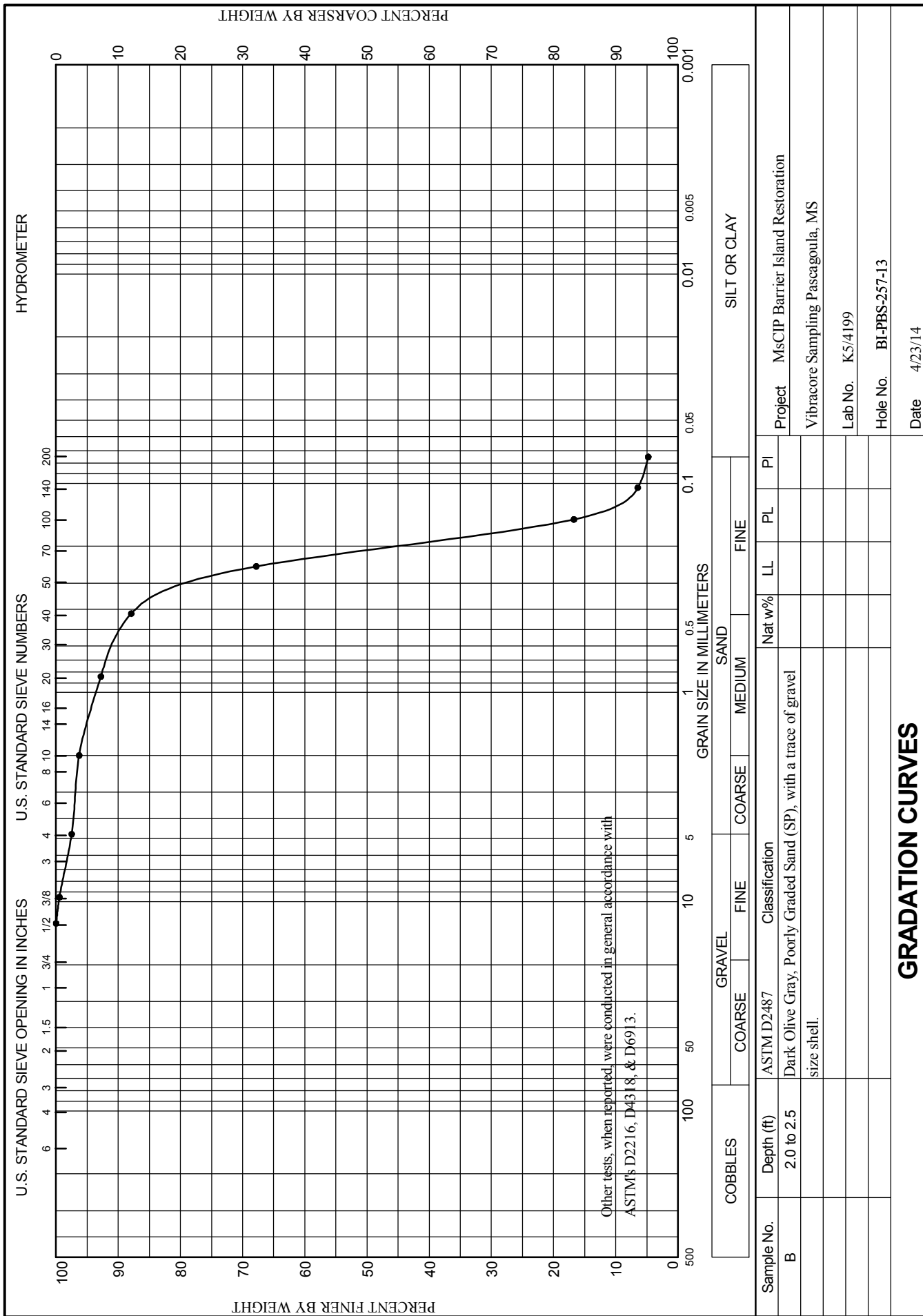




DEPARTMENT OF THE ARMY, SAVANNAH DISTRICT, ENVIRONMENTAL AND MATERIALS UNIT  
CORPS OF ENGINEERS, 200 N. COBB PARKWAY, BLDG 400 SUITE 404, MARIETTA, GA. 30062

WORK ORDER: 848e

REQUISITION: W33SJC32900192



# Boring Designation BI-PBS-258-13

DRILLING LOG		DIVISION South Atlantic		INSTALLATION Mobile District		SHEET 1 OF 2 SHEETS	
1. PROJECT MsCIP Barrier Island Restoration Petit Bois Pass-OCS West				9. SIZE AND TYPE OF BIT N/A			
2. BORING DESIGNATION BI-PBS-258-13		LOCATION COORDINATES E = 1,107,389 N = 231,236		10. COORDINATE SYSTEM/DATUM State Plane, MSE (U.S. Ft.)		HORIZONTAL NAD83 VERTICAL NAVD88	
3. DRILLING AGENCY Corps of Engineers - CESAM		CONTRACTOR FILE NO.		11. MANUFACTURER'S DESIGNATION OF DRILL Vibracore		<input type="checkbox"/> AUTO HAMMER <input type="checkbox"/> MANUAL HAMMER	
4. NAME OF DRILLER Construction Solutions International, Inc.				12. TOTAL SAMPLES 0		DISTURBED 0 UNDISTURBED (UD) 0	
5. DIRECTION OF BORING <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED		DEG. FROM VERTICAL		13. TOTAL NUMBER CORE BOXES			
		BEARING		14. WATER DEPTH 51.7 Ft.			
6. THICKNESS OF OVERBURDEN N/A				15. DATE BORING 01-12-14		STARTED 01-12-14 COMPLETED 01-12-14	
7. DEPTH DRILLED INTO ROCK N/A				16. ELEVATION TOP OF BORING -52.1 Ft.			
8. TOTAL DEPTH OF BORING 18.1 Ft.				17. TOTAL RECOVERY FOR BORING 100%			
				18. SIGNATURE AND TITLE OF INSPECTOR Tom Powers, Geologist			
ELEV.	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS	SAMPLE	LABORATORY RESULTS		
-52.1	0.0						
-54.6	2.5		CLAY, lean, few shell fragments, sandy with lenses of SC, medium gray (CL)				
-60.6	8.5		CLAY, fat, sandy, oyster shell fragments from depths of 5.9 to 6.3 ft., lt. gray, pale orange, pale green (CH)				
-69.1	17.0		CLAY, lean, sandy, medium gray (CL)	NS			
-70.2	18.1		SAND, poorly-graded with silt, mostly fine-grained sand-sized quartz, few shell fragments, brownish gray (SP-SM)				
			NOTES: 1. Soils are field visually classified in accordance with the Unified Soils Classification System. 2. NS = Sample not submitted for laboratory analysis from this interval. 3. Seafloor elevation calculated using sampling vessel's fathometer water depth reading and applying NOAA tidal gauge data conversion				

<b>DRILLING LOG (Cont. Sheet)</b>			<b>INSTALLATION</b> Mobile District		<b>SHEET 2</b> <b>OF 2 SHEETS</b>
			<b>PROJECT</b> MsCIP Barrier Island Restoration		<b>COORDINATE SYSTEM/DATUM</b> State Plane, MSE (U.S. Ft.)
<b>LOCATION COORDINATES</b> X = 1,107,389 Y = 231,236			<b>ELEVATION TOP OF BORING</b> -52.1 Ft.		
ELEV.	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS	SAMPLE	LABORATORY RESULTS
			factor.		

# Boring Designation BI-PBS-259-13

DRILLING LOG		DIVISION South Atlantic		INSTALLATION Mobile District		SHEET 1 OF 1 SHEETS	
1. PROJECT MsCIP Barrier Island Restoration Petit Bois Pass-OCS West				9. SIZE AND TYPE OF BIT N/A			
2. BORING DESIGNATION BI-PBS-259-13		LOCATION COORDINATES E = 1,097,511 N = 233,895		10. COORDINATE SYSTEM/DATUM State Plane, MSE (U.S. Ft.)		HORIZONTAL NAD83 VERTICAL NAVD88	
3. DRILLING AGENCY Corps of Engineers - CESAM		CONTRACTOR FILE NO.		11. MANUFACTURER'S DESIGNATION OF DRILL Vibracore		<input type="checkbox"/> AUTO HAMMER <input type="checkbox"/> MANUAL HAMMER	
4. NAME OF DRILLER Construction Solutions International, Inc.				12. TOTAL SAMPLES		DISTURBED 1 UNDISTURBED (UD) 0	
5. DIRECTION OF BORING <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED		DEG. FROM VERTICAL		13. TOTAL NUMBER CORE BOXES			
		BEARING		14. WATER DEPTH 46.8 Ft.			
6. THICKNESS OF OVERBURDEN N/A				15. DATE BORING 01-18-14		STARTED 01-18-14 COMPLETED 01-18-14	
7. DEPTH DRILLED INTO ROCK N/A				16. ELEVATION TOP OF BORING -46.9 Ft.			
8. TOTAL DEPTH OF BORING 14.2 Ft.				17. TOTAL RECOVERY FOR BORING 100%			
				18. SIGNATURE AND TITLE OF INSPECTOR Mike FitzHarris, Geologist			

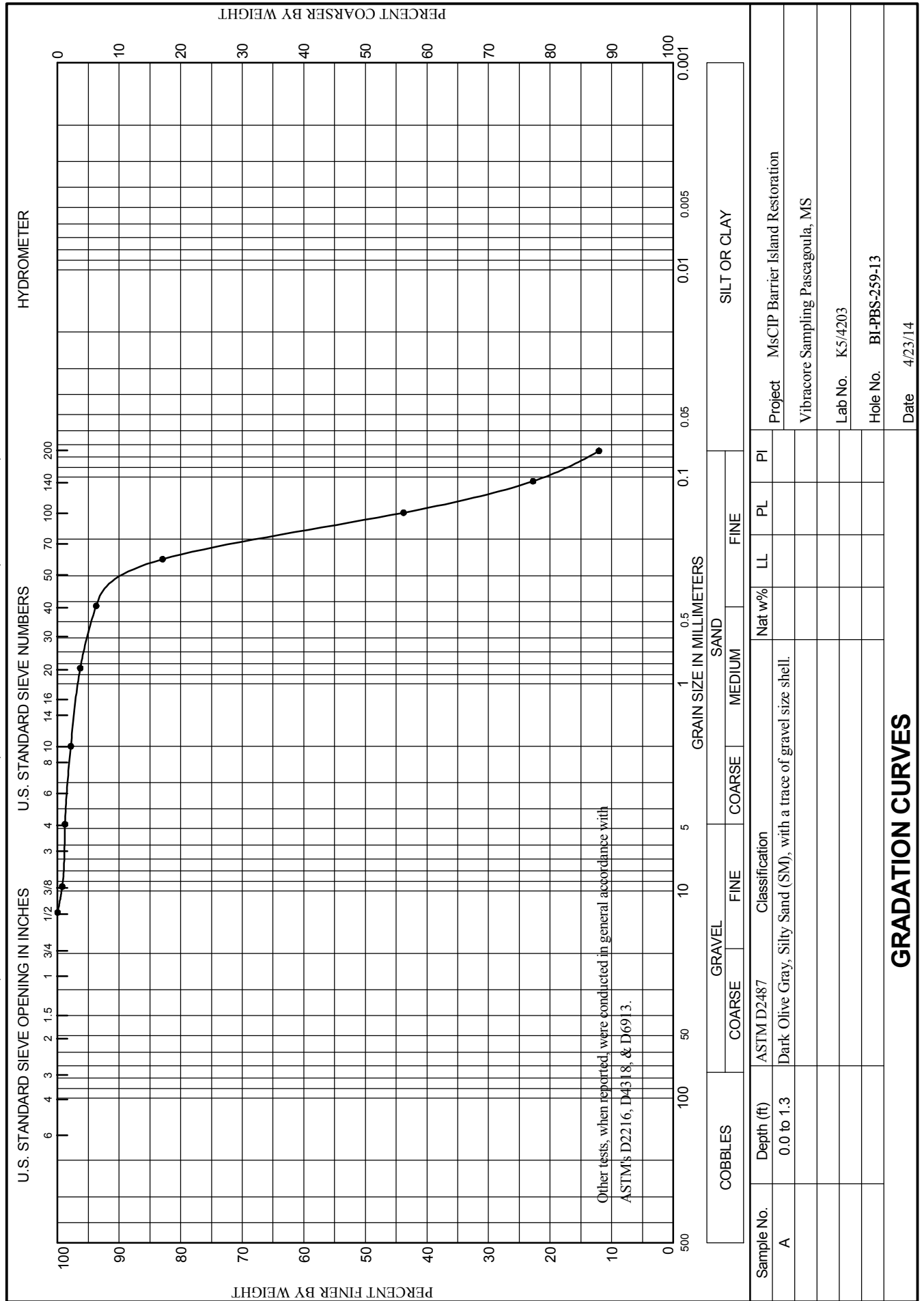
ELEV.	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS	SAMPLE	LABORATORY RESULTS
-46.9	0.0				
-48.2	1.3		SAND, poorly-graded, mostly fine-grained sand-sized quartz, gray (SP)	A	Classification: SM Color: 2.5Y 5/1-gray D50: 0.162 mm % Fines: 12.1
-48.6	1.7		SAND, silty, mostly fine-grained sand-sized quartz, gray (SM)  CLAY, lean, trace sand, dark gray (CL)		
				NS	
-61.1	14.2		At El. -59.4 Ft., sandy, trace organics, organic odor, dark gray with brown		
NOTES:					
1. Soils are field visually classified in accordance with the Unified Soils Classification System.					
2. NS = Sample not submitted for laboratory analysis from this interval.					
3. Seafloor elevation determined from 2013 USGS geophysical survey.					



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CORPS OF ENGINEERS, 200 N. COBB PARKWAY, BLDG 400 SUITE 404, MARIETTA, GA. 30062

WORK ORDER: 848e

REQUISITION: W33SJG32900192





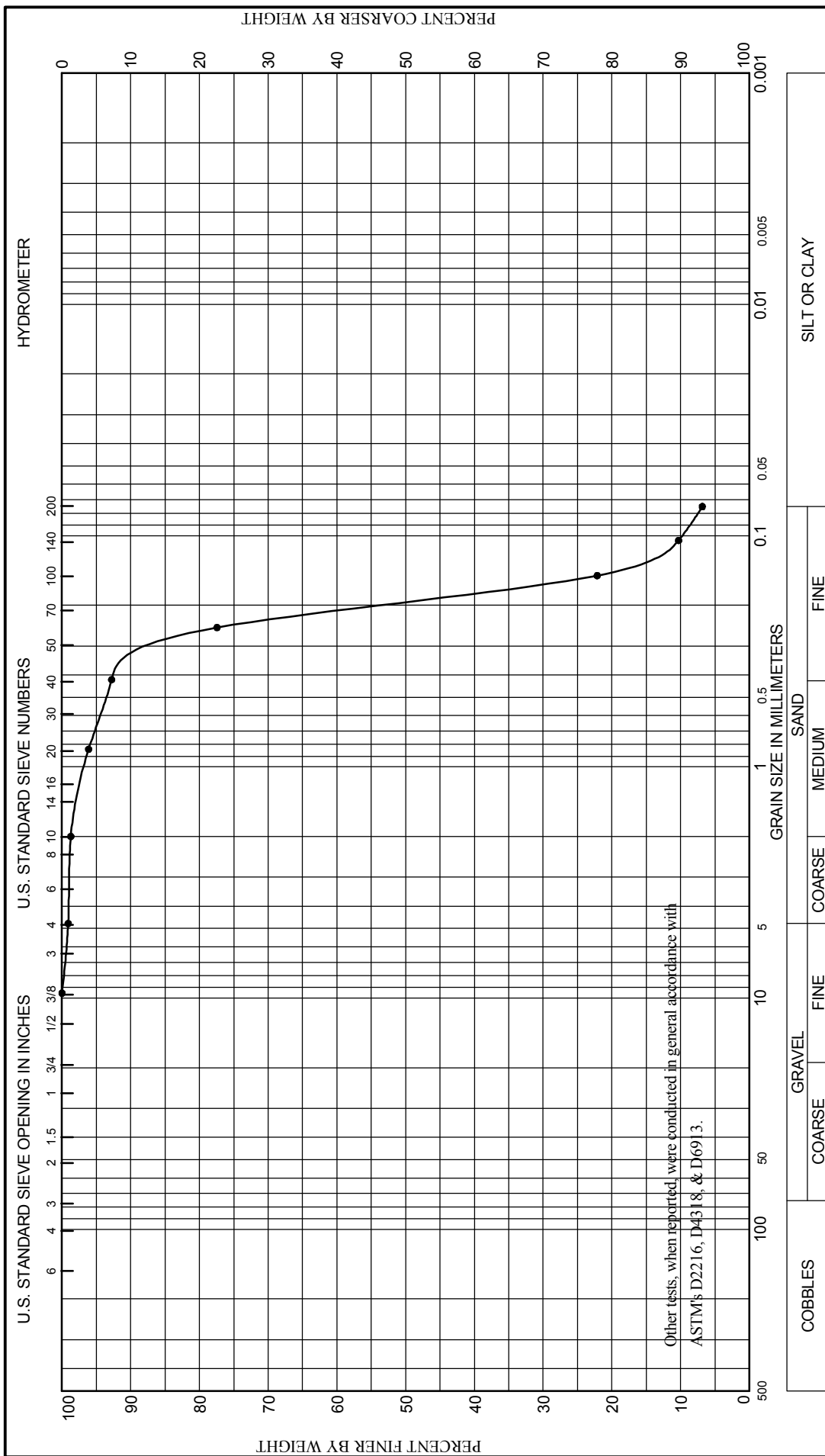
# Boring Designation BI-PBS-260-13

DRILLING LOG		DIVISION South Atlantic		INSTALLATION Mobile District		SHEET 1 OF 1 SHEETS	
1. PROJECT MsCIP Barrier Island Restoration Petit Bois Pass-OCS West				9. SIZE AND TYPE OF BIT N/A			
2. BORING DESIGNATION BI-PBS-260-13		LOCATION COORDINATES E = 1,100,132 N = 231,678		10. COORDINATE SYSTEM/DATUM State Plane, MSE (U.S. Ft.)		HORIZONTAL NAD83	
3. DRILLING AGENCY Corps of Engineers - CESAM		CONTRACTOR FILE NO.		11. MANUFACTURER'S DESIGNATION OF DRILL Vibrocure		<input type="checkbox"/> AUTO HAMMER <input type="checkbox"/> MANUAL HAMMER	
4. NAME OF DRILLER Construction Solutions International, Inc.				12. TOTAL SAMPLES 2		DISTURBED 0	
5. DIRECTION OF BORING <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED				13. TOTAL NUMBER CORE BOXES		14. WATER DEPTH 47.4 Ft.	
6. THICKNESS OF OVERBURDEN N/A				15. DATE BORING 01-18-14		STARTED 01-18-14	
7. DEPTH DRILLED INTO ROCK N/A				16. ELEVATION TOP OF BORING -48.2 Ft.		COMPLETED 01-18-14	
8. TOTAL DEPTH OF BORING 16.9 Ft.				17. TOTAL RECOVERY FOR BORING 100%		18. SIGNATURE AND TITLE OF INSPECTOR Mike FitzHarris, Geologist	
ELEV.	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS	SAMPLE	LABORATORY RESULTS		
-48.2	0.0						
-49.7	1.5		SAND, poorly-graded, mostly fine-grained sand-sized quartz, trace shell, gray (SP)	A	Classification: SP-SM Color: GLEY1 10Y 6/1- D50: 0.193 mm % Fines: 6.8		
-51.8	3.6		SAND, poorly-graded with silt, mostly fine-grained sand-sized quartz, trace shell fragments, gray (SP-SM)	B	Classification: SM Color: GLEY1 10Y 5/1- D50: 0.123 mm % Fines: 19.7		
-60.9	12.7		CLAY, lean, trace shell fragments, soft, mottled from 5 to 5.5 ft., gray (CL)  At El. -53.7 Ft., trace sand, stiff, lt. gray, green, gray, lt. brown, mottled	NS			
-61.6	13.4		CLAY, fat, soft, dark gray (CH)				
-65.1	16.9		SAND, silty, trace clay, gray (SM)  At El. -63.5 Ft., trace shell fragments, with clayey lenses, gray				
NOTES:  1. Soils are field visually classified in accordance with the Unified Soils Classification System.  2. NS = Sample not submitted for laboratory analysis from this interval.  3. Seafloor elevation calculated using sampling vessel's fathometer water depth reading and applying NOAA tidal gauge data conversion factor.							



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WORK ORDER: 848e  
REQUISITION: W33SJC32900192

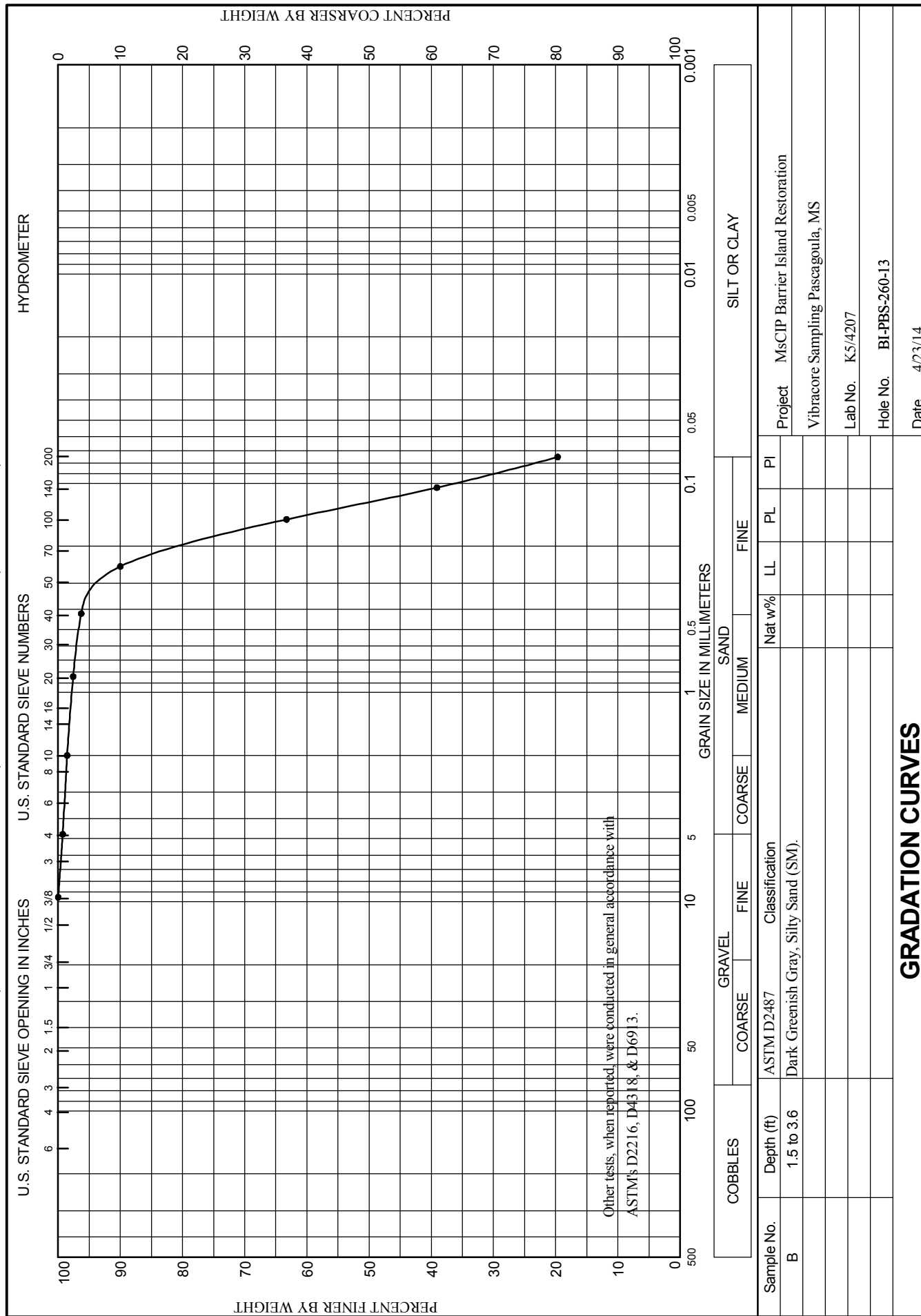


GRADATION CURVES



WORK ORDER: 848e

REQUISITION: W33SJG32900192



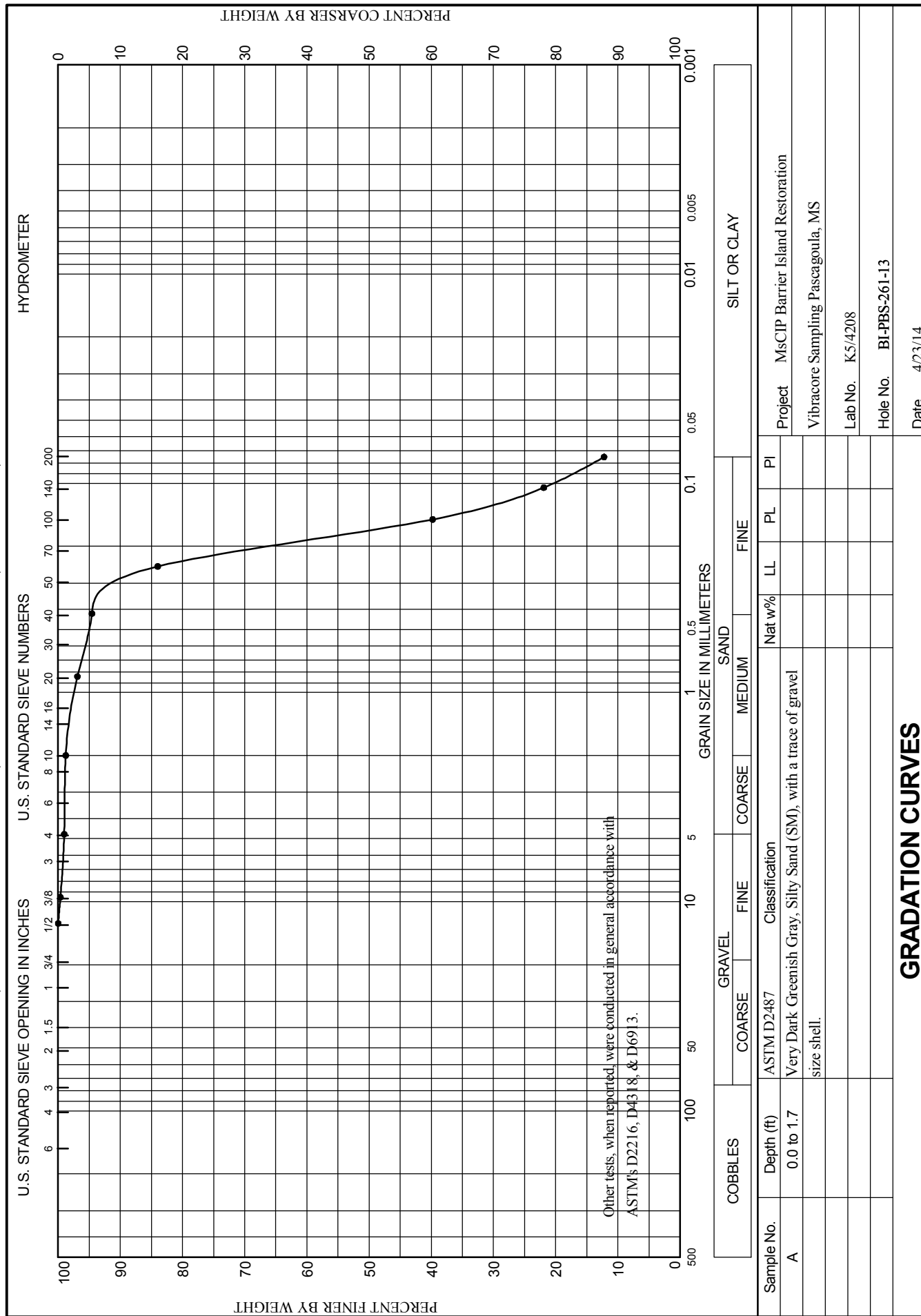
# Boring Designation BI-PBS-261-13

DRILLING LOG		DIVISION South Atlantic		INSTALLATION Mobile District		SHEET 1 OF 1 SHEETS	
1. PROJECT MsCIP Barrier Island Restoration Petit Bois Pass-OCS West				9. SIZE AND TYPE OF BIT N/A			
2. BORING DESIGNATION BI-PBS-261-13		LOCATION COORDINATES E = 1,101,144 N = 230,608		10. COORDINATE SYSTEM/DATUM State Plane, MSE (U.S. Ft.)		HORIZONTAL NAD83 VERTICAL NAVD88	
3. DRILLING AGENCY Corps of Engineers - CESAM		CONTRACTOR FILE NO.		11. MANUFACTURER'S DESIGNATION OF DRILL Vibracore		<input type="checkbox"/> AUTO HAMMER <input type="checkbox"/> MANUAL HAMMER	
4. NAME OF DRILLER Construction Solutions International, Inc.				12. TOTAL SAMPLES 1		DISTURBED 1 UNDISTURBED (UD) 0	
5. DIRECTION OF BORING <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED		DEG. FROM VERTICAL		13. TOTAL NUMBER CORE BOXES			
		BEARING		14. WATER DEPTH 48.1 Ft.			
6. THICKNESS OF OVERBURDEN N/A				15. DATE BORING 01-18-14		STARTED 01-18-14 COMPLETED 01-18-14	
7. DEPTH DRILLED INTO ROCK N/A				16. ELEVATION TOP OF BORING -48.8 Ft.			
8. TOTAL DEPTH OF BORING 12.4 Ft.				17. TOTAL RECOVERY FOR BORING 100%			
				18. SIGNATURE AND TITLE OF INSPECTOR Mike FitzHarris, Geologist			
ELEV.	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS	SAMPLE	LABORATORY RESULTS		
-48.8	0.0						
-50.5	1.7		SAND, poorly-graded, mostly fine-grained sand-sized quartz, trace shell fragments, gray (SP)	A	Classification: SM Color: 2.5Y 5/1-gray D50: 0.168 mm % Fines: 12.2		
-51.5	2.7		CLAY, lean, sandy, soft, gray (CL)	NS			
			CLAY, fat, sandy, stiff, mottled gray with brown (CH)				
-55.9	7.1						
-59.6	10.8		SAND, poorly-graded, mostly fine-grained sand-sized quartz, gray (SP) At El. -58.7 Ft., clay lenses to 10.5 ft.				
-61.2	12.4		CLAY, lean, sandy pockets, soft, gray (CL)				
			NOTES: 1. Soils are field visually classified in accordance with the Unified Soils Classification System. 2. NS = Sample not submitted for laboratory analysis from this interval. 3. Seafloor elevation calculated using sampling vessel's fathometer water depth reading and applying NOAA tidal gauge data conversion factor.				



WORK ORDER: 848e

REQUISITION: W33SJG32900192



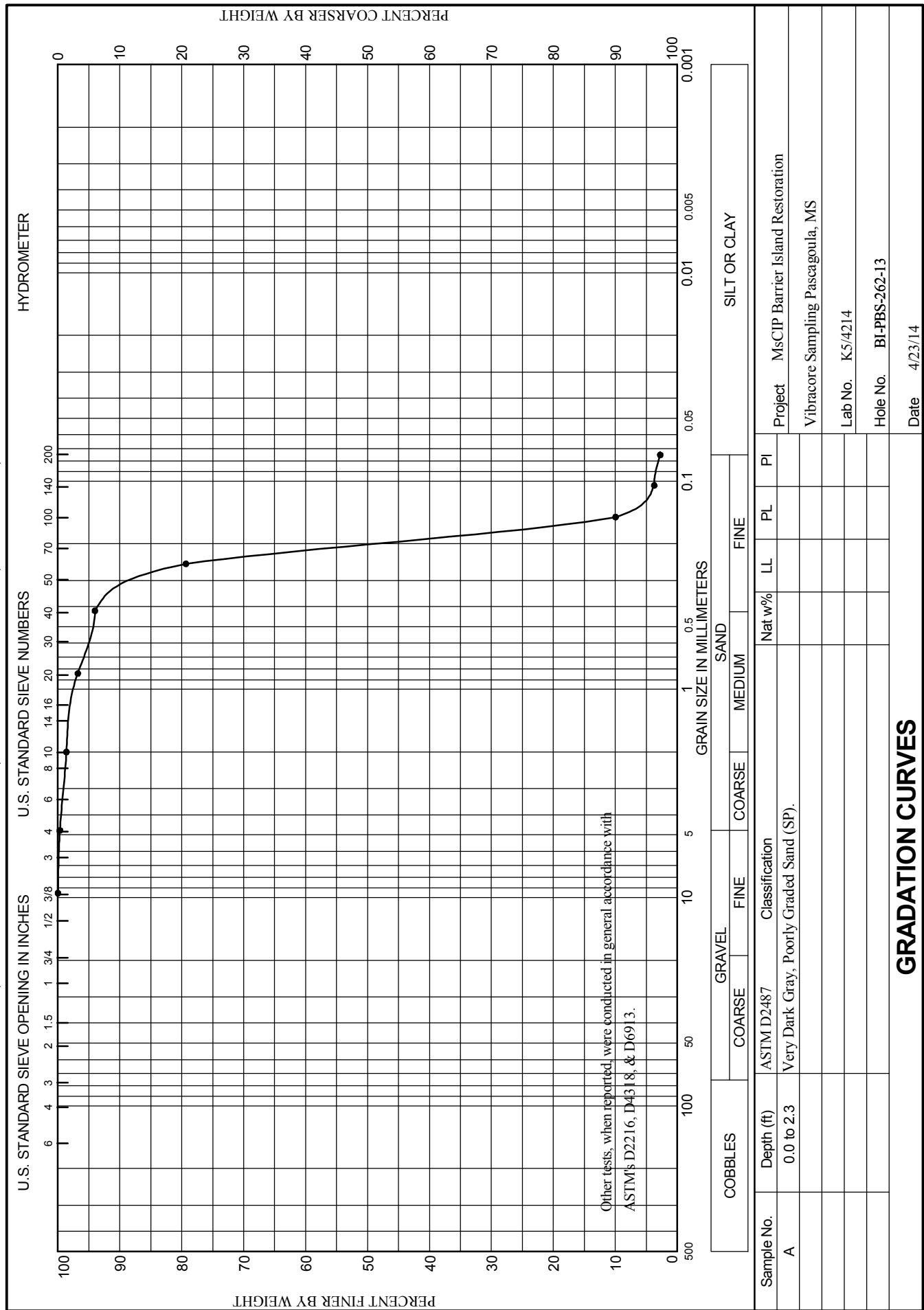
# Boring Designation BI-PBS-262-13

DRILLING LOG		DIVISION South Atlantic		INSTALLATION Mobile District		SHEET 1 OF 1 SHEETS	
1. PROJECT MsCIP Barrier Island Restoration Petit Bois Pass-OCS West				9. SIZE AND TYPE OF BIT N/A			
2. BORING DESIGNATION BI-PBS-262-13		LOCATION COORDINATES E = 1,103,171 N = 228,491		10. COORDINATE SYSTEM/DATUM State Plane, MSE (U.S. Ft.)		HORIZONTAL NAD83 VERTICAL NAVD88	
3. DRILLING AGENCY Corps of Engineers - CESAM		CONTRACTOR FILE NO.		11. MANUFACTURER'S DESIGNATION OF DRILL Vibracore		<input type="checkbox"/> AUTO HAMMER <input type="checkbox"/> MANUAL HAMMER	
4. NAME OF DRILLER Construction Solutions International, Inc.				12. TOTAL SAMPLES 2		DISTURBED 2 UNDISTURBED (UD) 0	
5. DIRECTION OF BORING <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED		DEG. FROM VERTICAL		13. TOTAL NUMBER CORE BOXES			
		BEARING		14. WATER DEPTH 49.4 Ft.			
6. THICKNESS OF OVERBURDEN N/A				15. DATE BORING 01-18-14		STARTED 01-18-14 COMPLETED 01-18-14	
7. DEPTH DRILLED INTO ROCK N/A				16. ELEVATION TOP OF BORING -49.6 Ft.			
8. TOTAL DEPTH OF BORING 14.0 Ft.				17. TOTAL RECOVERY FOR BORING 100%			
				18. SIGNATURE AND TITLE OF INSPECTOR Mike FitzHarris, Geologist			
ELEV.	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS	SAMPLE	LABORATORY RESULTS		
-49.6	0.0						
-51.9	2.3		SAND, poorly-graded, mostly fine-grained sand-sized quartz, trace shell, gray (SP)	A	Classification: SP Color: GLEY1 10Y 6/1- D50: 0.201 mm % Fines: 2.7		
-53.6	4.0		SAND, poorly-graded with silt, mostly fine-grained sand-sized quartz, gray (SP-SM)	B	Classification: SP-SM Color: GLEY1 10Y 6/1- D50: 0.176 mm % Fines: 10.8		
-58.6	9.0		CLAY, lean, trace fine-grained sand, gray to dark gray (CL)	NS			
-63.0	13.4		CLAY, fat, stiff, mottled lt. gray and lt. brown (CH)				
-63.6	14.0		SAND, poorly-graded, mostly fine-grained sand-sized quartz, lt. gray (SP)				
NOTES: 1. Soils are field visually classified in accordance with the Unified Soils Classification System. 2. NS = Sample not submitted for laboratory analysis from this interval. 3. Seafloor elevation calculated using sampling vessel's fathometer water depth reading and applying NOAA tidal gauge data conversion factor.							



WORK ORDER: 848e

REQUISITION: W33SJG32900192

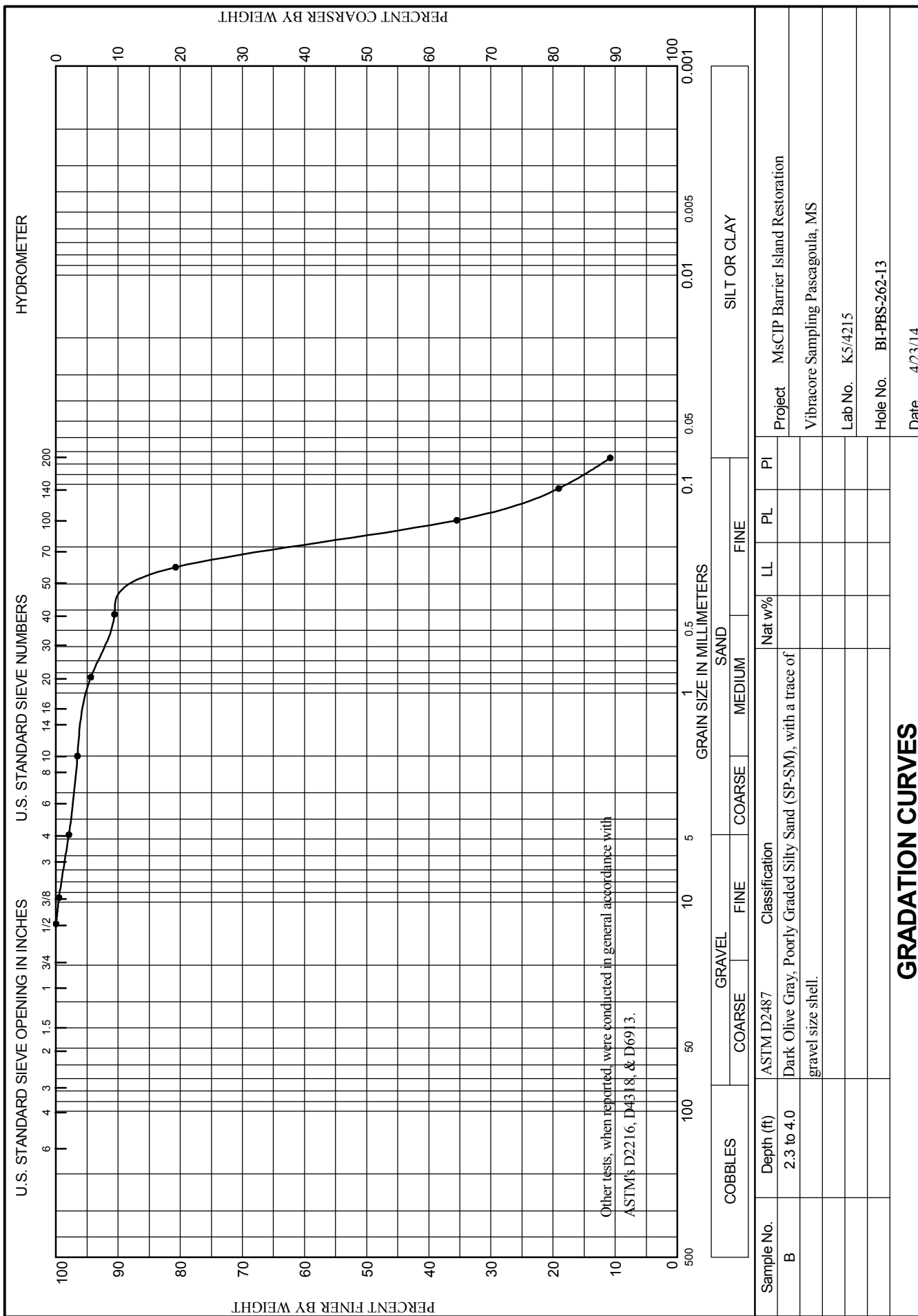




DEPARTMENT OF THE ARMY, SAVANNAH DISTRICT, ENVIRONMENTAL AND MATERIALS UNIT  
CORPS OF ENGINEERS, 200 N. COBB PARKWAY, BLDG 400 SUITE 404, MARIETTA, GA. 30062

WORK ORDER: 848e

REQUISITION: W33SJC32900192





# Boring Designation BI-PBS-263-13

DRILLING LOG		DIVISION South Atlantic		INSTALLATION Mobile District		SHEET 1 OF 1 SHEETS	
1. PROJECT MsCIP Barrier Island Restoration Petit Bois Pass-OCS West				9. SIZE AND TYPE OF BIT N/A			
2. BORING DESIGNATION BI-PBS-263-13		LOCATION COORDINATES E = 1,098,520 N = 236,750		10. COORDINATE SYSTEM/DATUM State Plane, MSE (U.S. Ft.)		HORIZONTAL NAD83 VERTICAL NAVD88	
3. DRILLING AGENCY Corps of Engineers - CESAM		CONTRACTOR FILE NO.		11. MANUFACTURER'S DESIGNATION OF DRILL Vibrocure		<input type="checkbox"/> AUTO HAMMER <input type="checkbox"/> MANUAL HAMMER	
4. NAME OF DRILLER Construction Solutions International, Inc.				12. TOTAL SAMPLES 3		DISTURBED 3 UNDISTURBED (UD) 0	
5. DIRECTION OF BORING <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED				13. TOTAL NUMBER CORE BOXES		14. WATER DEPTH 45.4 Ft.	
6. THICKNESS OF OVERBURDEN N/A				15. DATE BORING 01-09-14		STARTED 01-09-14 COMPLETED 01-09-14	
7. DEPTH DRILLED INTO ROCK N/A				16. ELEVATION TOP OF BORING -45.0 Ft.		17. TOTAL RECOVERY FOR BORING 100%	
8. TOTAL DEPTH OF BORING 18.2 Ft.				18. SIGNATURE AND TITLE OF INSPECTOR Tom Powers, Geologist			

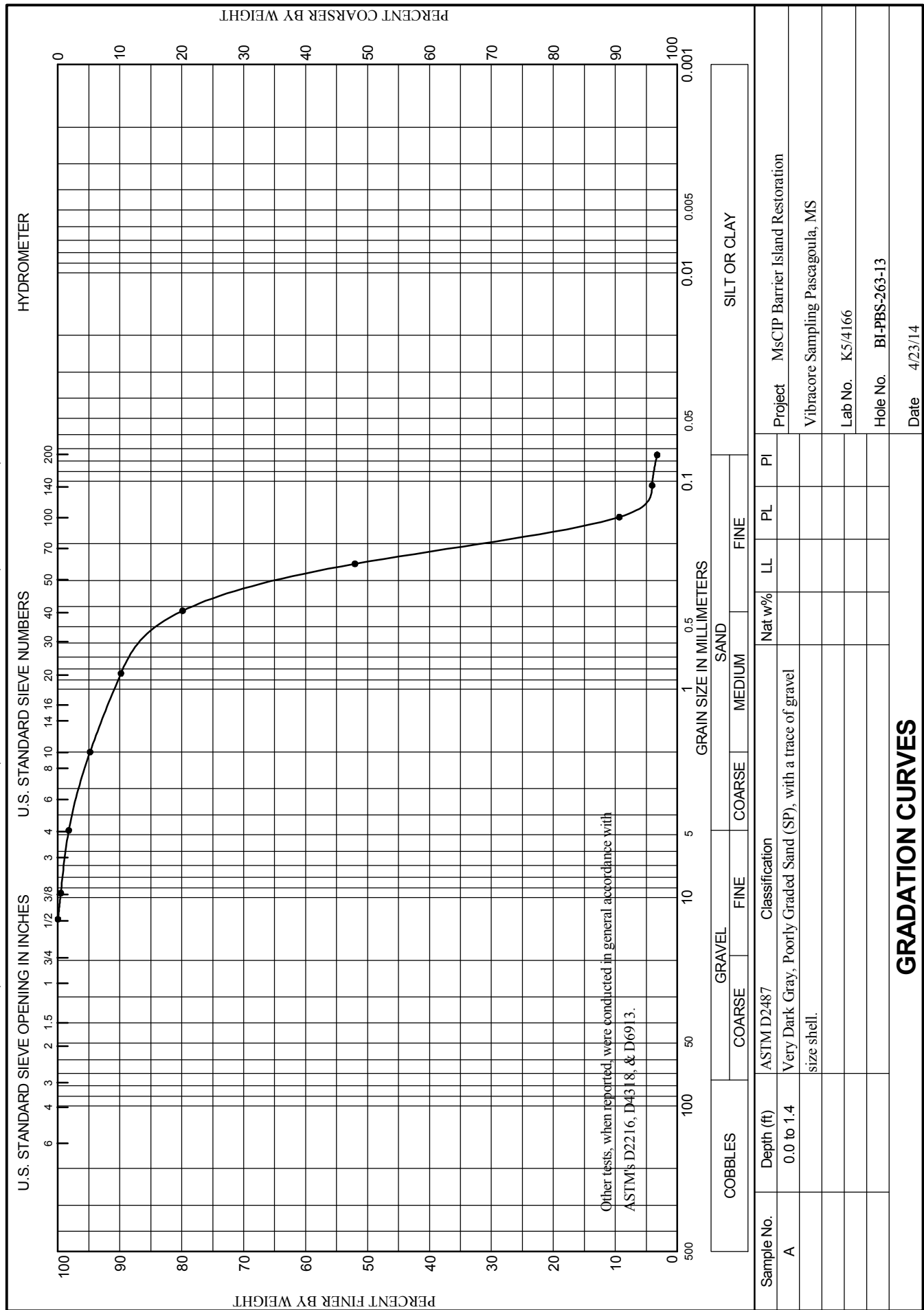
  

ELEV.	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS	SAMPLE	LABORATORY RESULTS
-45.0	0.0				
-46.4	1.4		SAND, poorly-graded, mostly fine to medium-grained sand-sized quartz, few shell fragments, lt. gray (SP)	A	Classification: SP Color: GLEY1 10Y 6/1- D50: 0.244 mm % Fines: 3.2
-47.6	2.6		SAND, poorly-graded with silt, mostly fine-grained sand-sized quartz, few shell fragments, lt. gray (SP-SM)	B	Classification: SP Color: 2.5Y 5/1-gray D50: 0.202 mm % Fines: 4.7
-54.2	9.2		SAND, silty, mostly fine-grained sand-sized quartz, few shell fragments, lt. to medium gray (SM)	C	Classification: SP-SM Color: 2.5Y 5/1-gray D50: 0.171 mm % Fines: 10.5
-54.6	9.6		SAND, clayey, mostly fine-grained sand-sized quartz, trace shell fragments, medium gray (SC)		
-59.0	14.0		CLAY, lean, sandy, medium gray (CL)	NS	
-63.2	18.2		CLAY, fat, pale brown (CH)		
NOTES: 1. Soils are field visually classified in accordance with the Unified Soils Classification System. 2. NS = Sample not submitted for laboratory analysis from this interval. 3. Seafloor elevation determined from 10/16/2014 USACE survey.					



WORK ORDER: 848e

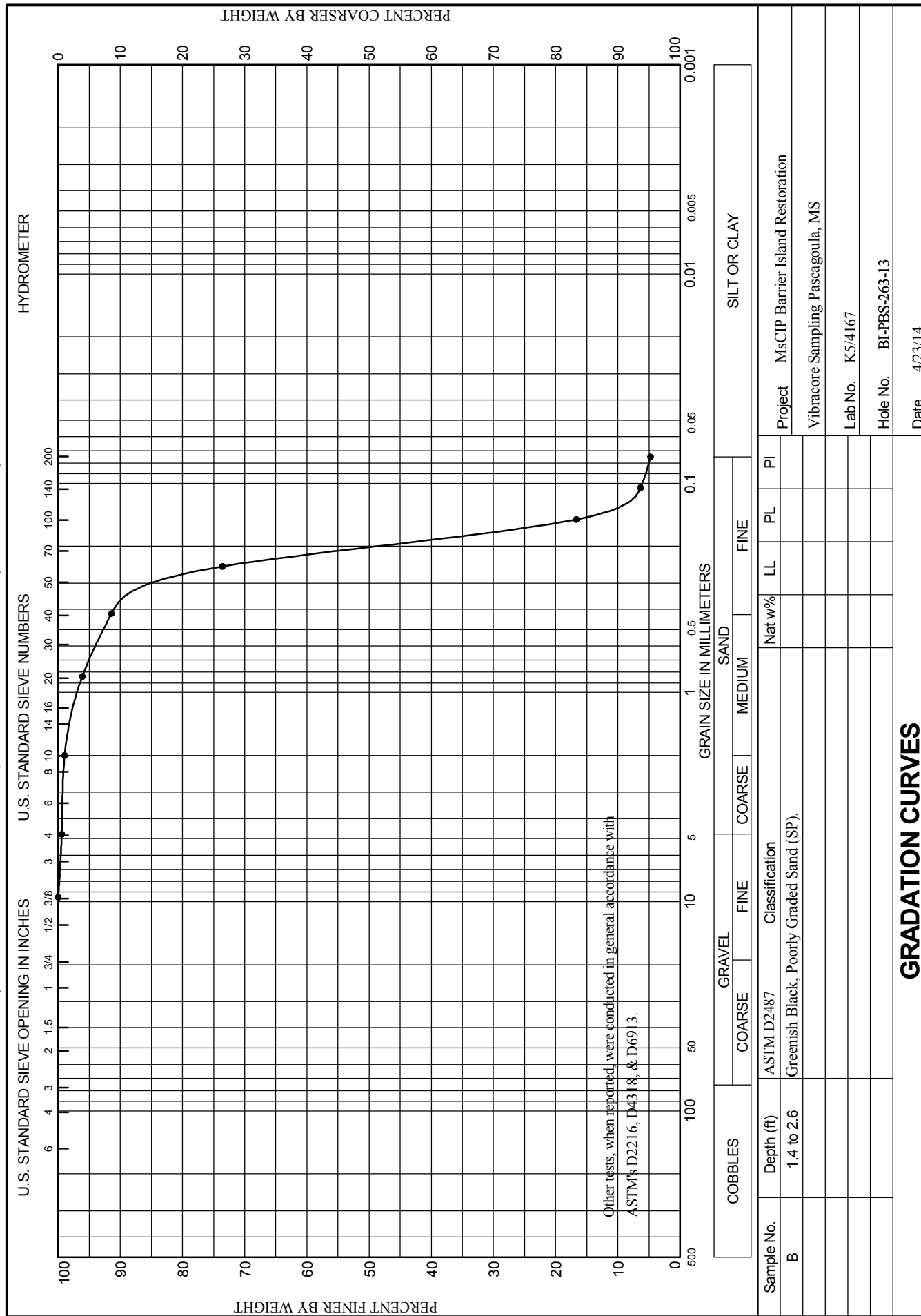
REQUISITION: W33SJG32900192





WORK ORDER: 848e

REQUISITION: W33SJG32900192





WORK ORDER: 848e

REQUISITION: W33SJG32900192



# Boring Designation BI-PBS-264-13

DRILLING LOG		DIVISION South Atlantic		INSTALLATION Mobile District		SHEET 1 OF 2 SHEETS	
1. PROJECT MsCIP Barrier Island Restoration Petit Bois Pass-OCS West				9. SIZE AND TYPE OF BIT N/A			
2. BORING DESIGNATION BI-PBS-264-13		LOCATION COORDINATES E = 1,099,439 N = 238,040		10. COORDINATE SYSTEM/DATUM State Plane, MSE (U.S. Ft.)		HORIZONTAL NAD83	
3. DRILLING AGENCY Corps of Engineers - CESAM		CONTRACTOR FILE NO.		11. MANUFACTURER'S DESIGNATION OF DRILL Vibrocure		<input type="checkbox"/> AUTO HAMMER <input type="checkbox"/> MANUAL HAMMER	
4. NAME OF DRILLER Construction Solutions International, Inc.				12. TOTAL SAMPLES 2		DISTURBED 0	
5. DIRECTION OF BORING <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED				13. TOTAL NUMBER CORE BOXES		14. WATER DEPTH 47.4 Ft.	
6. THICKNESS OF OVERBURDEN N/A				15. DATE BORING 01-08-14		STARTED 01-08-14	
7. DEPTH DRILLED INTO ROCK N/A				16. ELEVATION TOP OF BORING -47.6 Ft.		COMPLETED 01-08-14	
8. TOTAL DEPTH OF BORING 20.0 Ft.				17. TOTAL RECOVERY FOR BORING 100%		18. SIGNATURE AND TITLE OF INSPECTOR Tom Powers, Geologist	
ELEV.	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS	SAMPLE	LABORATORY RESULTS		
-47.6	0.0						
			SAND, poorly-graded with silt, mostly fine-grained sand-sized quartz, little shell fragments, lt. to medium gray (SP-SM)	A	Classification: SP-SM    Color: 2.5Y 5/1-gray D50: 0.172 mm    % Fines: 11.9		
-51.4	3.8		SAND, silty, mostly fine-grained sand-sized quartz, few shell fragments, lt. to medium gray (SM)	B	Classification: SM    Color: GLEY1 10Y 5/1- D50: 0.141 mm    % Fines: 18.1		
-56.6	9.0		SAND, clayey, mostly fine-grained sand-sized quartz, trace shell fragments, medium gray (SC)				
-58.4	10.8		CLAY, lean, sandy, medium gray (CL)				
-62.2	14.6		CLAY, fat, sandy, lt. gray, pale orange, pale brown (CH)	NS			
-67.6	20.0						
NOTES:							
1. Soils are field visually classified in accordance with the Unified Soils Classification System.							
2. NS = Sample not submitted for laboratory analysis from this interval.							
3. Seafloor elevation calculated using sampling							

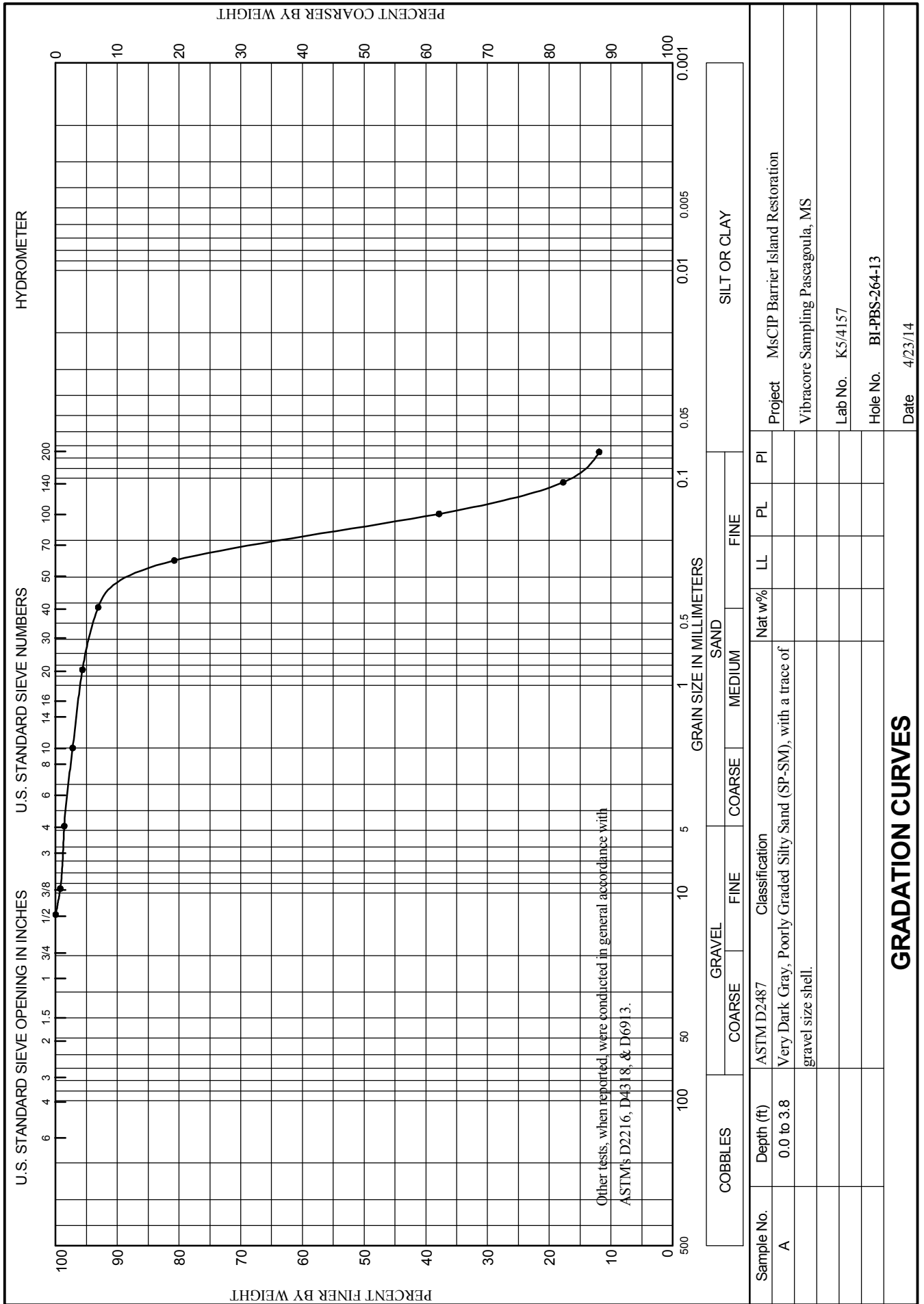
<b>DRILLING LOG (Cont. Sheet)</b>			<b>INSTALLATION</b> Mobile District		<b>SHEET 2</b>
					<b>OF 2 SHEETS</b>
<b>PROJECT</b> MsCIP Barrier Island Restoration			<b>COORDINATE SYSTEM/DATUM</b> State Plane, MSE (U.S. Ft.)	<b>HORIZONTAL</b> NAD83	<b>VERTICAL</b> NAVD88
<b>LOCATION COORDINATES</b> X = 1,099,439 Y = 238,040			<b>ELEVATION TOP OF BORING</b> -47.6 Ft.		
ELEV.	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS	SAMPLE	LABORATORY RESULTS
			vessel's fathometer water depth reading and applying NOAA tidal gauge data conversion factor.		



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WORK ORDER: 848e

REQUISITION: W33SJC32900192

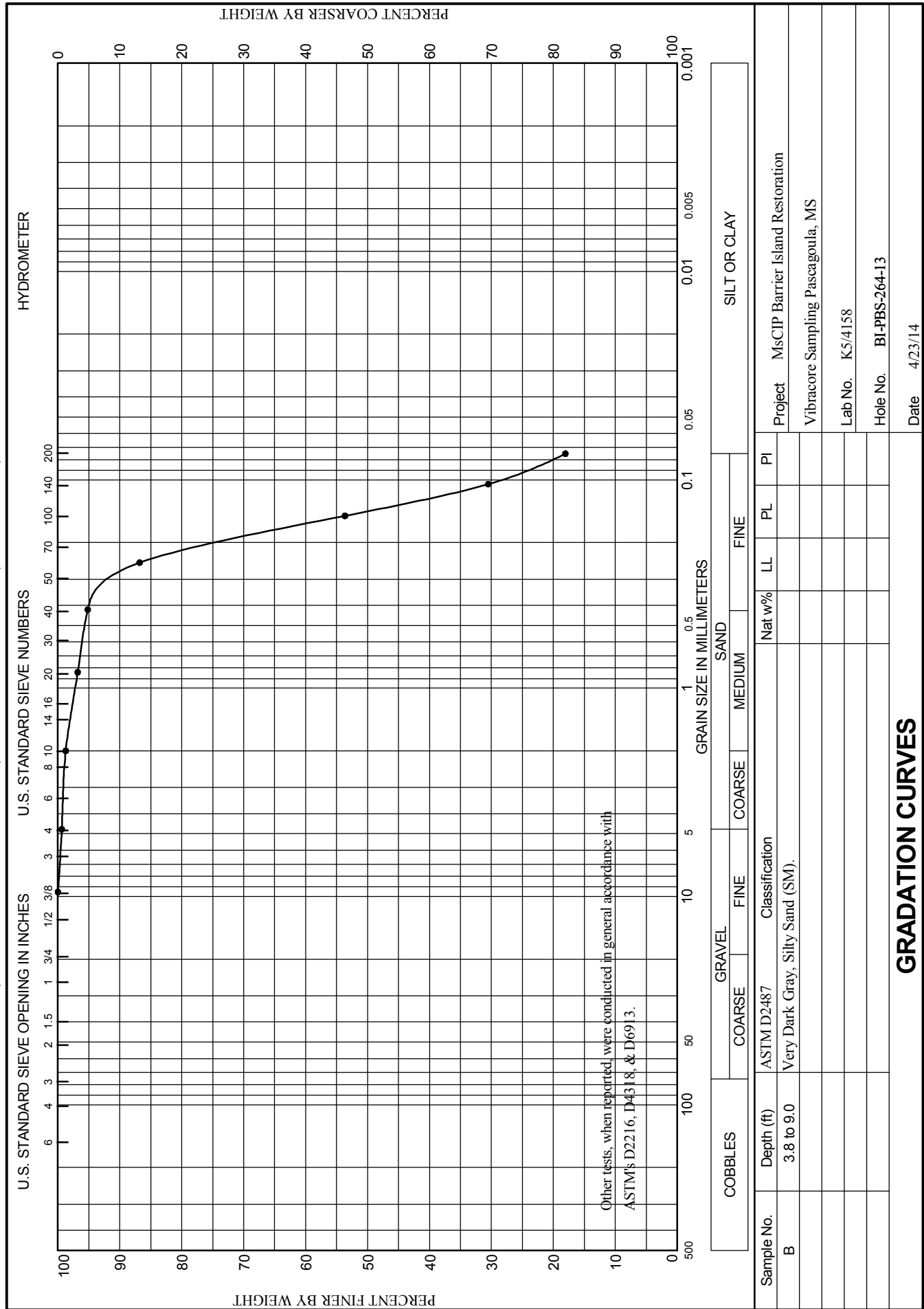




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CORPS OF ENGINEERS, 200 N. COBB PARKWAY, BLDG 400 SUITE 404, MARIETTA, GA. 30062

WORK ORDER: 848e

REQUISITION: W33SJC32900192





# Boring Designation BI-PBS-265-13

DRILLING LOG		DIVISION South Atlantic		INSTALLATION Mobile District		SHEET 1 OF 1 SHEETS	
1. PROJECT MsCIP Barrier Island Restoration Petit Bois Pass-OCS West				9. SIZE AND TYPE OF BIT N/A			
2. BORING DESIGNATION BI-PBS-265-13		LOCATION COORDINATES E = 1,097,832 N = 235,347		10. COORDINATE SYSTEM/DATUM State Plane, MSE (U.S. Ft.)		HORIZONTAL NAD83 VERTICAL NAVD88	
3. DRILLING AGENCY Corps of Engineers - CESAM		CONTRACTOR FILE NO.		11. MANUFACTURER'S DESIGNATION OF DRILL Vibracore		<input type="checkbox"/> AUTO HAMMER <input type="checkbox"/> MANUAL HAMMER	
4. NAME OF DRILLER Construction Solutions International, Inc.				12. TOTAL SAMPLES 3		DISTURBED 3 UNDISTURBED (UD) 0	
5. DIRECTION OF BORING <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED				13. TOTAL NUMBER CORE BOXES		14. WATER DEPTH 44.1 Ft.	
6. THICKNESS OF OVERBURDEN N/A				15. DATE BORING 01-20-14		STARTED 01-20-14 COMPLETED 01-20-14	
7. DEPTH DRILLED INTO ROCK N/A				16. ELEVATION TOP OF BORING -43.4 Ft.		17. TOTAL RECOVERY FOR BORING 100%	
8. TOTAL DEPTH OF BORING 14.4 Ft.				18. SIGNATURE AND TITLE OF INSPECTOR Tom Powers, Geologist			

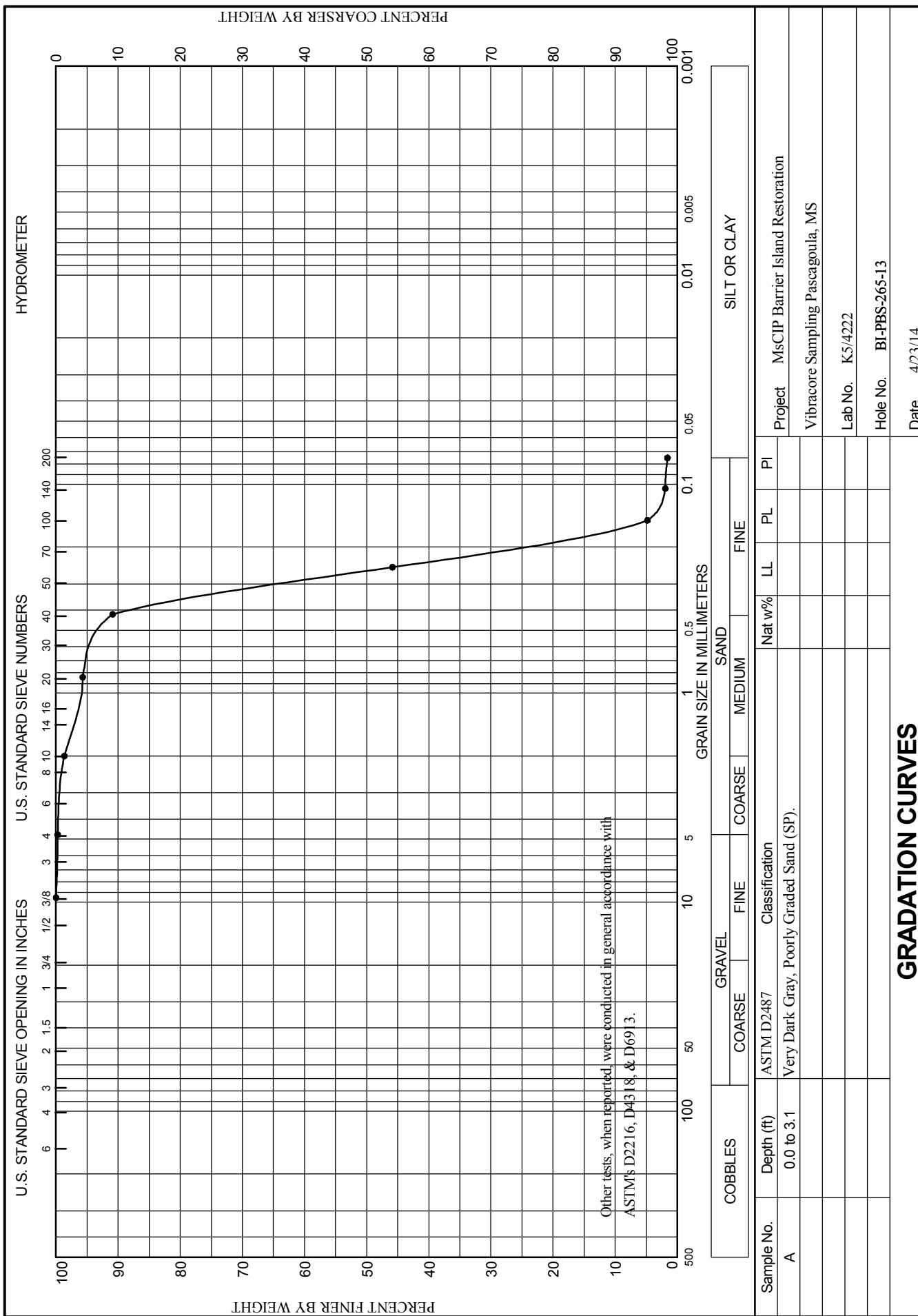
ELEV.	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS	SAMPLE	LABORATORY RESULTS
-43.4	0.0				
			SAND, poorly-graded, mostly fine to medium-grained sand-sized quartz, few shell fragments, lt. gray (SP)	A	Classification: SP Color: 2.5Y 6/1-gray D50: 0.262 mm % Fines: 1.6
-46.5	3.1				
-47.4	4.0		SAND, silty, mostly fine-grained sand-sized quartz, few shell fragments, medium gray (SM)	B	Classification: SP-SM Color: 2.5Y 5/1-gray D50: 0.198 mm % Fines: 6.7
-47.7	4.3			NS	
-48.7	5.3		SAND, clayey, mostly fine-grained sand-sized quartz, few shell fragments, medium gray (SC)		
			CLAY, lean, few shell fragments, sandy, medium to dark gray (CL)	C	Classification: SM Color: 2.5Y 5/1-gray D50: 0.138 mm % Fines: 19.5
-51.4	8.0				
-52.1	8.7		SAND, silty, mostly fine-grained sand-sized quartz, trace shell fragments, medium gray (SM)		
			SAND, clayey, mostly fine-grained sand-sized quartz, few shell fragments, medium to dark gray (SC)	NS	
			CLAY, lean, sandy; CL is interbedded with 0.5-inch thick layers of SM from 8.7 to 9.4 ft. depth, dark gray (CL)		
-57.8	14.4		At El. -53.6 Ft., 0.5-inch sand lens At El. -54.1 Ft., 0.5-inch sand lens		
NOTES: 1. Soils are field visually classified in accordance with the Unified Soils Classification System. 2. NS = Sample not submitted for laboratory analysis from this interval. 3. Seafloor elevation determined from 10/16/2014 USACE survey.					



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WORK ORDER: 848e

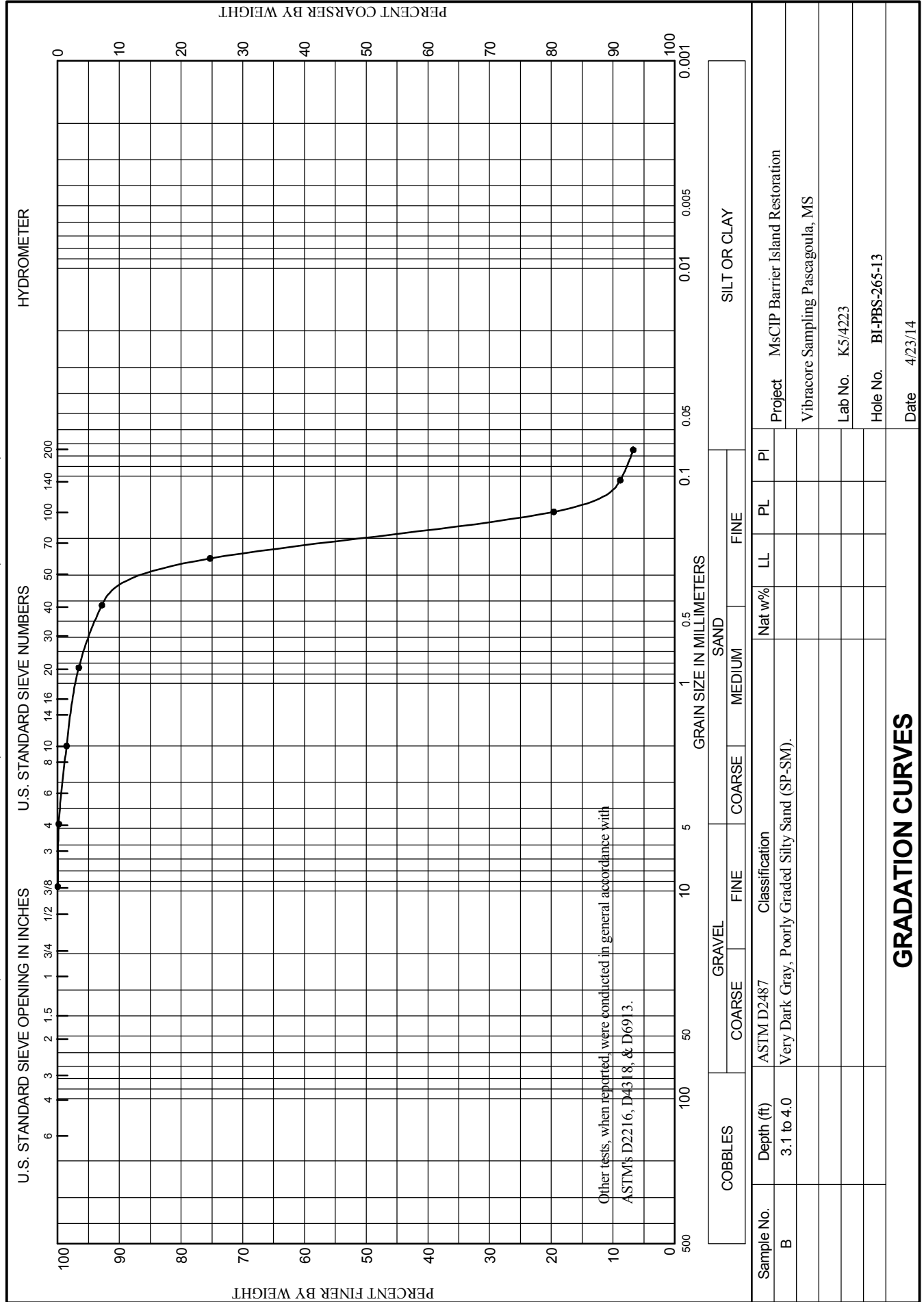
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WORK ORDER: 848e

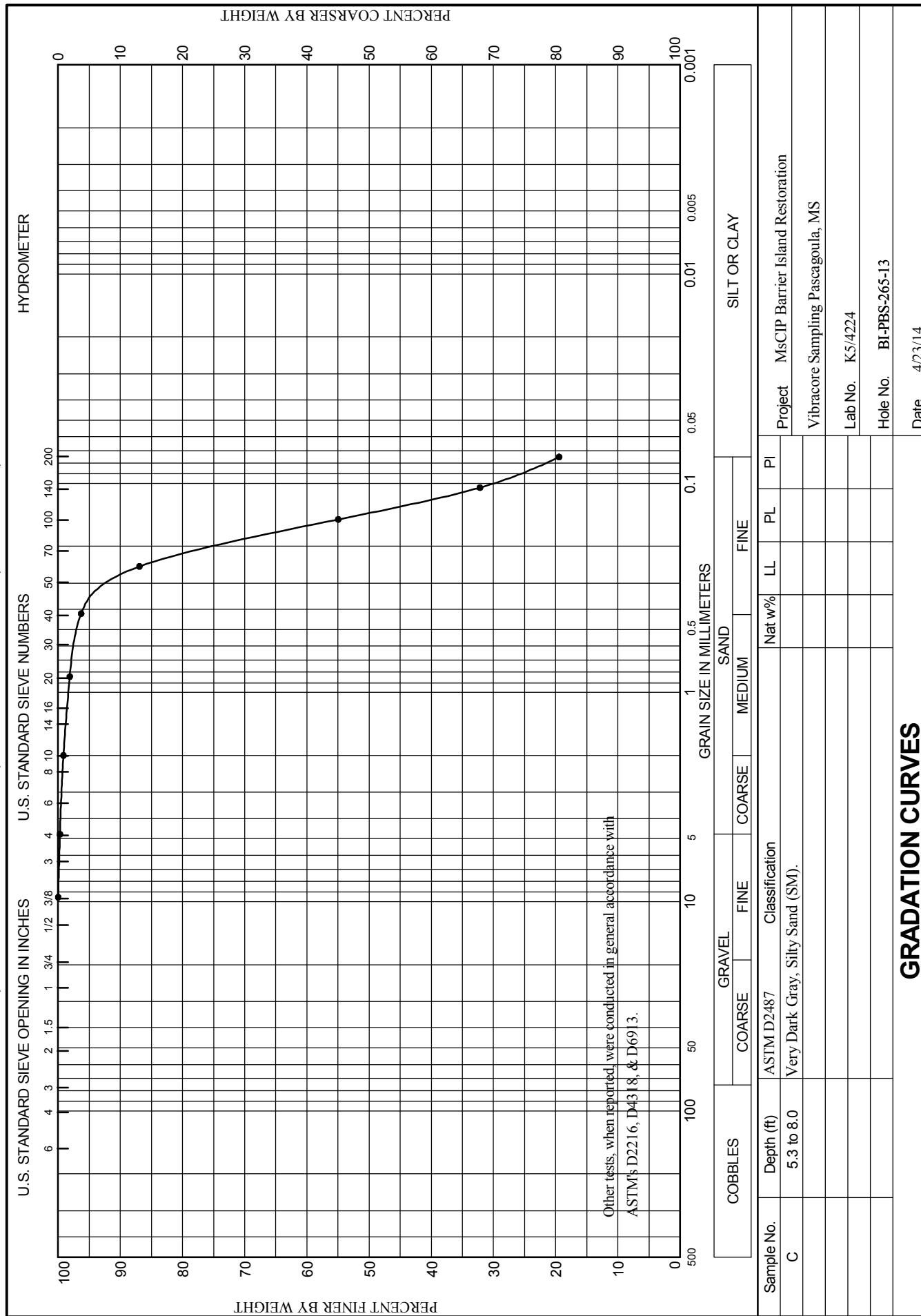
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WORK ORDER: 848e

REQUISITION: W33SJG32900192



# Boring Designation BI-PBS-266-13

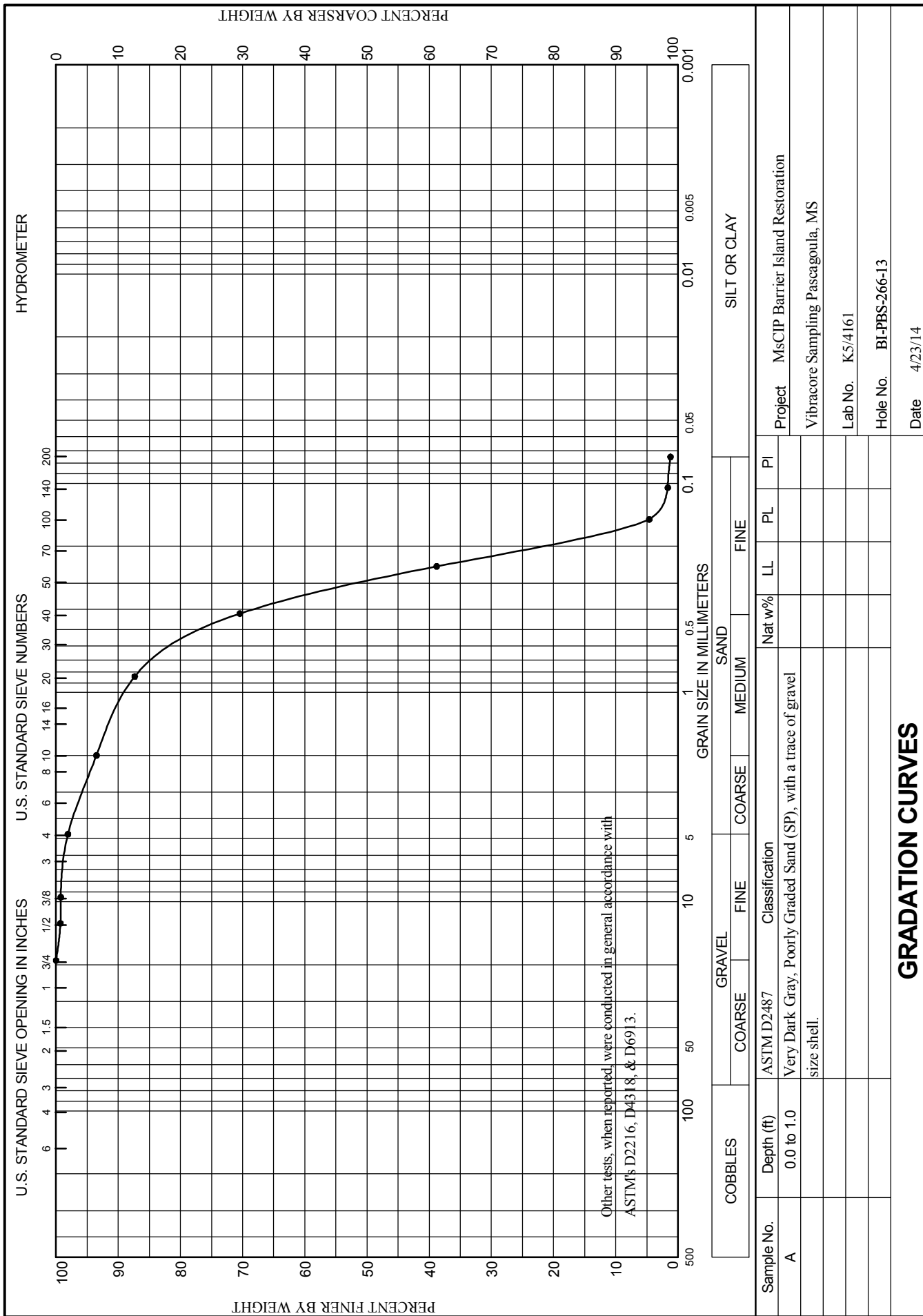
DRILLING LOG		DIVISION South Atlantic		INSTALLATION Mobile District		SHEET 1 OF 1 SHEETS	
1. PROJECT MsCIP Barrier Island Restoration Petit Bois Pass-OCS West				9. SIZE AND TYPE OF BIT N/A			
2. BORING DESIGNATION BI-PBS-266-13		LOCATION COORDINATES E = 1,096,434 N = 238,754		10. COORDINATE SYSTEM/DATUM State Plane, MSE (U.S. Ft.)		HORIZONTAL NAD83 VERTICAL NAVD88	
3. DRILLING AGENCY Corps of Engineers - CESAM		CONTRACTOR FILE NO.		11. MANUFACTURER'S DESIGNATION OF DRILL Vibrocure		<input type="checkbox"/> AUTO HAMMER <input type="checkbox"/> MANUAL HAMMER	
4. NAME OF DRILLER Construction Solutions International, Inc.				12. TOTAL SAMPLES 3		DISTURBED 3 UNDISTURBED (UD) 0	
5. DIRECTION OF BORING <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED		DEG. FROM VERTICAL		13. TOTAL NUMBER CORE BOXES			
		BEARING		14. WATER DEPTH 44.5 Ft.			
6. THICKNESS OF OVERBURDEN N/A				15. DATE BORING 01-08-14		STARTED 01-08-14 COMPLETED 01-08-14	
7. DEPTH DRILLED INTO ROCK N/A				16. ELEVATION TOP OF BORING -44.2 Ft.			
8. TOTAL DEPTH OF BORING 17.7 Ft.				17. TOTAL RECOVERY FOR BORING 100%			
				18. SIGNATURE AND TITLE OF INSPECTOR Tom Powers, Geologist			
ELEV.	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS	SAMPLE	LABORATORY RESULTS		
-44.2	0.0						
-45.2	1.0		SAND, poorly-graded, mostly fine to medium-grained sand-sized quartz, few shell fragments, lt. gray (SP)	A	Classification: SP Color: 2.5Y 6/1-gray D50: 0.3 mm % Fines: 1.2		
			SAND, silty, mostly fine-grained sand-sized quartz, few shell fragments, lt. to medium gray (SM)	B	Classification: SP-SM Color: GLEY1 10Y 5/1- D50: 0.186 mm % Fines: 9.1		
				C	Classification: SM Color: 2.5Y 5/1-gray D50: 0.135 mm % Fines: 19.2		
-54.9	10.7						
-56.6	12.4		SAND, clayey, mostly fine-grained sand-sized quartz, trace shell fragments, lt. to medium gray (SC)				
			CLAY, fat, sandy, no shell fragments, lt. gray, pale orange (CH)	NS			
-61.9	17.7						
			NOTES: 1. Soils are field visually classified in accordance with the Unified Soils Classification System. 2. NS = Sample not submitted for laboratory analysis from this interval. 3. Seafloor elevation calculated using sampling vessel's fathometer water depth reading and applying NOAA tidal gauge data conversion factor.				



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WORK ORDER: 848e

REQUISITION: W33SJC32900192

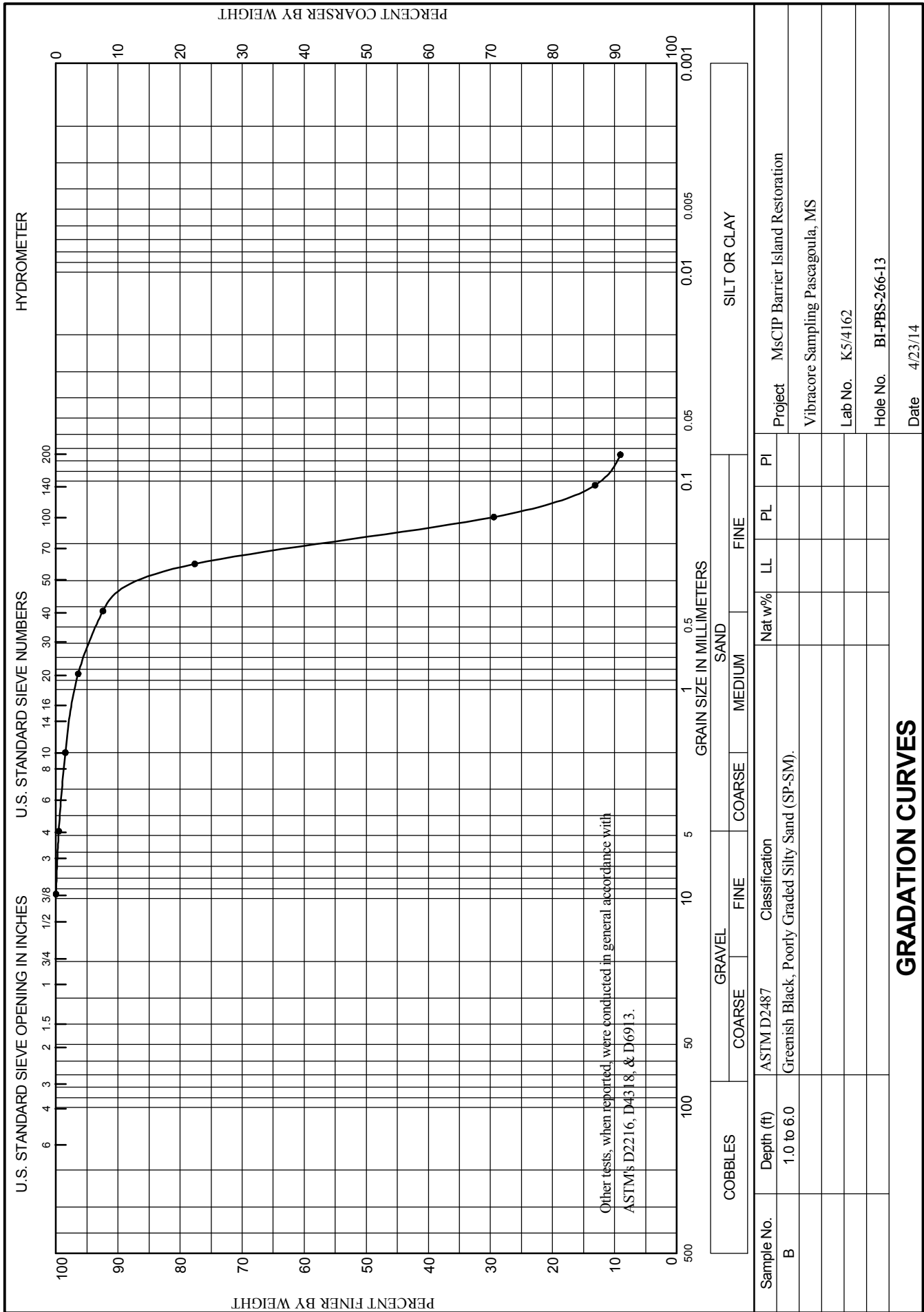




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WORK ORDER: 848e

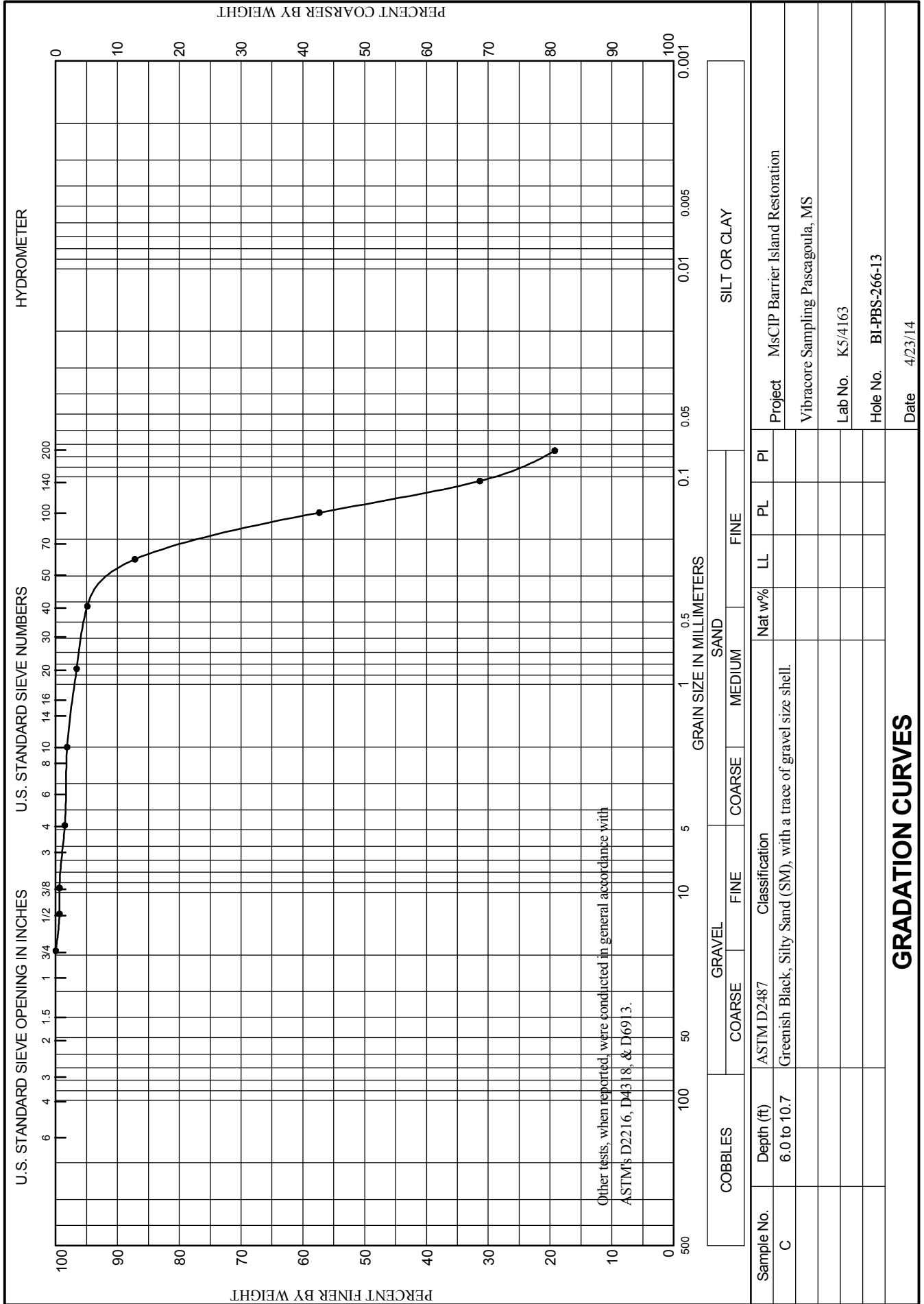
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WORK ORDER: 848e  
REQUISITION: W33SJC32900192





# Boring Designation BI-PBS-267-13

DRILLING LOG		DIVISION South Atlantic		INSTALLATION Mobile District		SHEET 1 OF 2 SHEETS	
1. PROJECT MsCIP Barrier Island Restoration Petit Bois Pass-OCS West				9. SIZE AND TYPE OF BIT N/A			
2. BORING DESIGNATION BI-PBS-267-13		LOCATION COORDINATES E = 1,101,110 N = 235,252		10. COORDINATE SYSTEM/DATUM State Plane, MSE (U.S. Ft.)		HORIZONTAL NAD83	
3. DRILLING AGENCY Corps of Engineers - CESAM		CONTRACTOR FILE NO.		11. MANUFACTURER'S DESIGNATION OF DRILL Vibrocure		<input type="checkbox"/> AUTO HAMMER <input type="checkbox"/> MANUAL HAMMER	
4. NAME OF DRILLER Construction Solutions International, Inc.				12. TOTAL SAMPLES 3		UNDISTURBED (UD) 0	
5. DIRECTION OF BORING <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED				13. TOTAL NUMBER CORE BOXES		14. WATER DEPTH 50 Ft.	
6. THICKNESS OF OVERBURDEN N/A				15. DATE BORING 01-09-14		COMPLETED 01-09-14	
7. DEPTH DRILLED INTO ROCK N/A				16. ELEVATION TOP OF BORING -48.7 Ft.		17. TOTAL RECOVERY FOR BORING 100%	
8. TOTAL DEPTH OF BORING 20.0 Ft.				18. SIGNATURE AND TITLE OF INSPECTOR Tom Powers, Geologist			

ELEV.	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS	SAMPLE	LABORATORY RESULTS
-48.7	0.0				
-49.6	0.9		SAND, poorly-graded, mostly fine to medium-grained sand-sized quartz, few shell fragments, lt. gray (SP)	A	Classification: SP Color: 2.5Y 7/1-light gray D50: 0.316 mm % Fines: 1
-50.7	2.0		SAND, poorly-graded with silt, mostly fine-grained sand-sized quartz, few shell fragments, lt. gray (SP-SM)	B	Classification: SP-SM Color: GLEY1 10Y 5/1- D50: 0.19 mm % Fines: 8.4
-53.7	5.0		SAND, silty, mostly fine-grained sand-sized quartz, few shell fragments, lt. to medium gray (SM)	C	Classification: SM Color: GLEY1 10Y 6/1- D50: 0.149 mm % Fines: 14.4
-54.2	5.5		SAND, clayey, mostly fine-grained sand-sized quartz, trace shell fragments, lt. to medium gray (SC)		
			CLAY, lean, trace wood fragments, sandy to 9 ft. depth, lt. gray, pale brown (CL)		
-62.0	13.3		SAND, clayey, mostly fine-grained sand-sized quartz, lt. gray (SC)	NS	
-65.4	16.7		CLAY, fat, interbedded with fine-grained sand-sized clayey sand, lt. gray and pale orange (CH)		
-68.7	20.0				
NOTES: 1. Soils are field visually classified in accordance with the Unified Soils Classification System. 2. NS = Sample not submitted for laboratory analysis from this interval. 3. Seafloor elevation determined from					

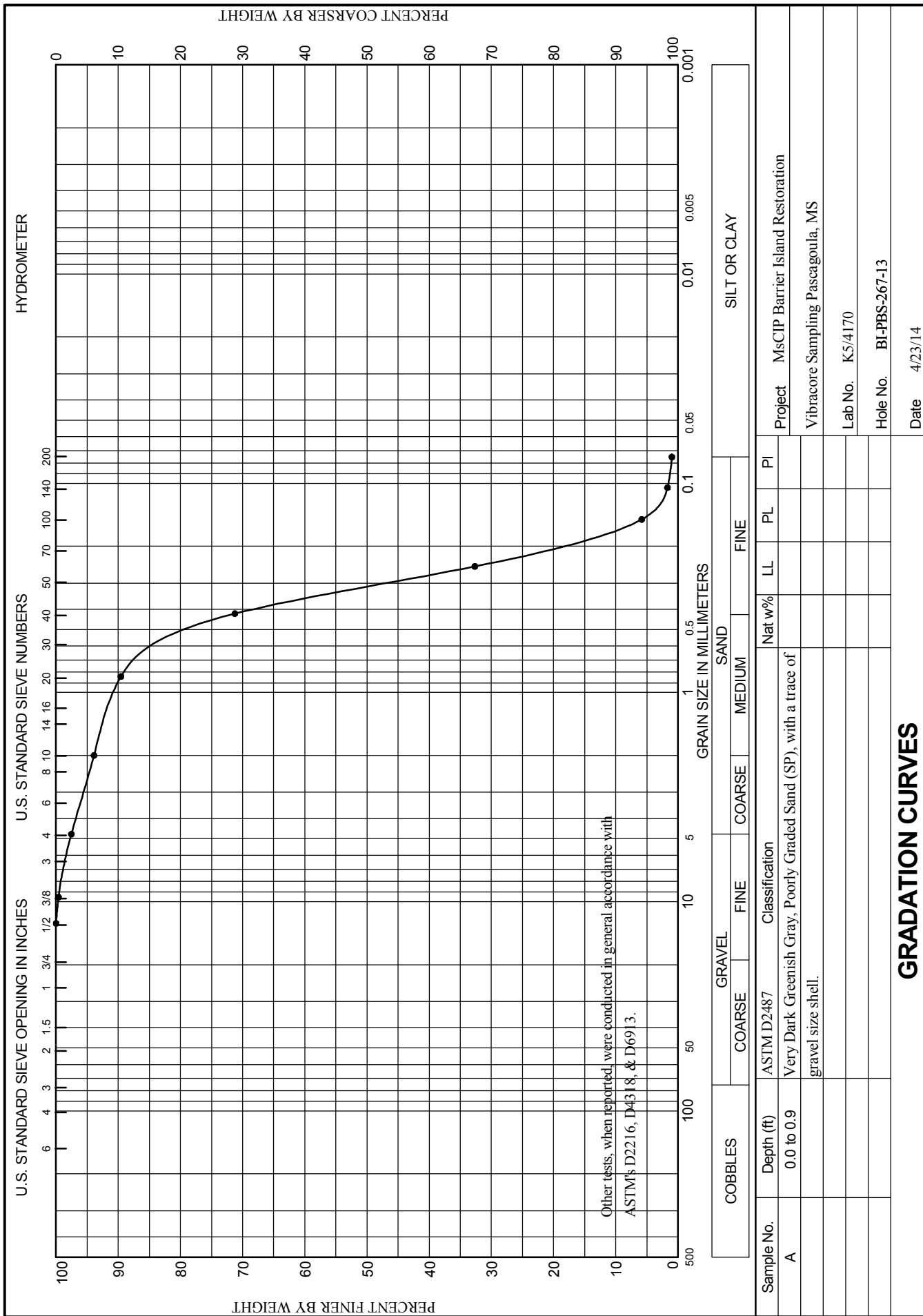
<b>DRILLING LOG (Cont. Sheet)</b>			<b>INSTALLATION</b> Mobile District		<b>SHEET 2</b> <b>OF 2 SHEETS</b>
<b>PROJECT</b> MsCIP Barrier Island Restoration			<b>COORDINATE SYSTEM/DATUM</b> State Plane, MSE (U.S. Ft.)	<b>HORIZONTAL</b> NAD83	<b>VERTICAL</b> NAVD88
<b>LOCATION COORDINATES</b> X = 1,101,110 Y = 235,252			<b>ELEVATION TOP OF BORING</b> -48.7 Ft.		
<b>ELEV.</b>	<b>DEPTH</b>	<b>LEGEND</b>	<b>CLASSIFICATION OF MATERIALS</b>	<b>SAMPLE</b>	<b>LABORATORY RESULTS</b>
			10/16/2014 USACE survey.		



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WORK ORDER: 848e

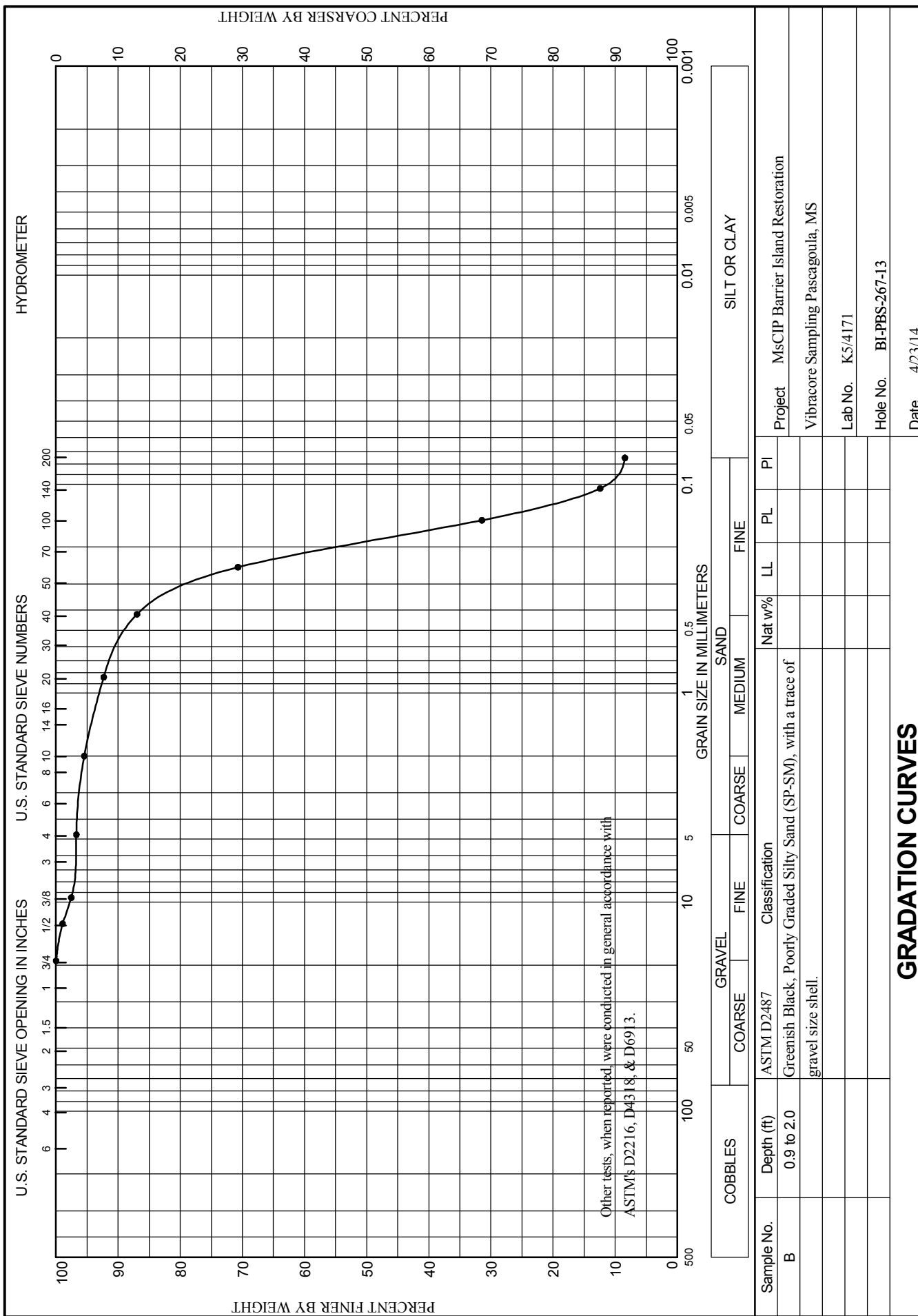
REQUISITION: W33SJC32900192





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WORK ORDER: 848e  
REQUISITION: W33SJC32900192

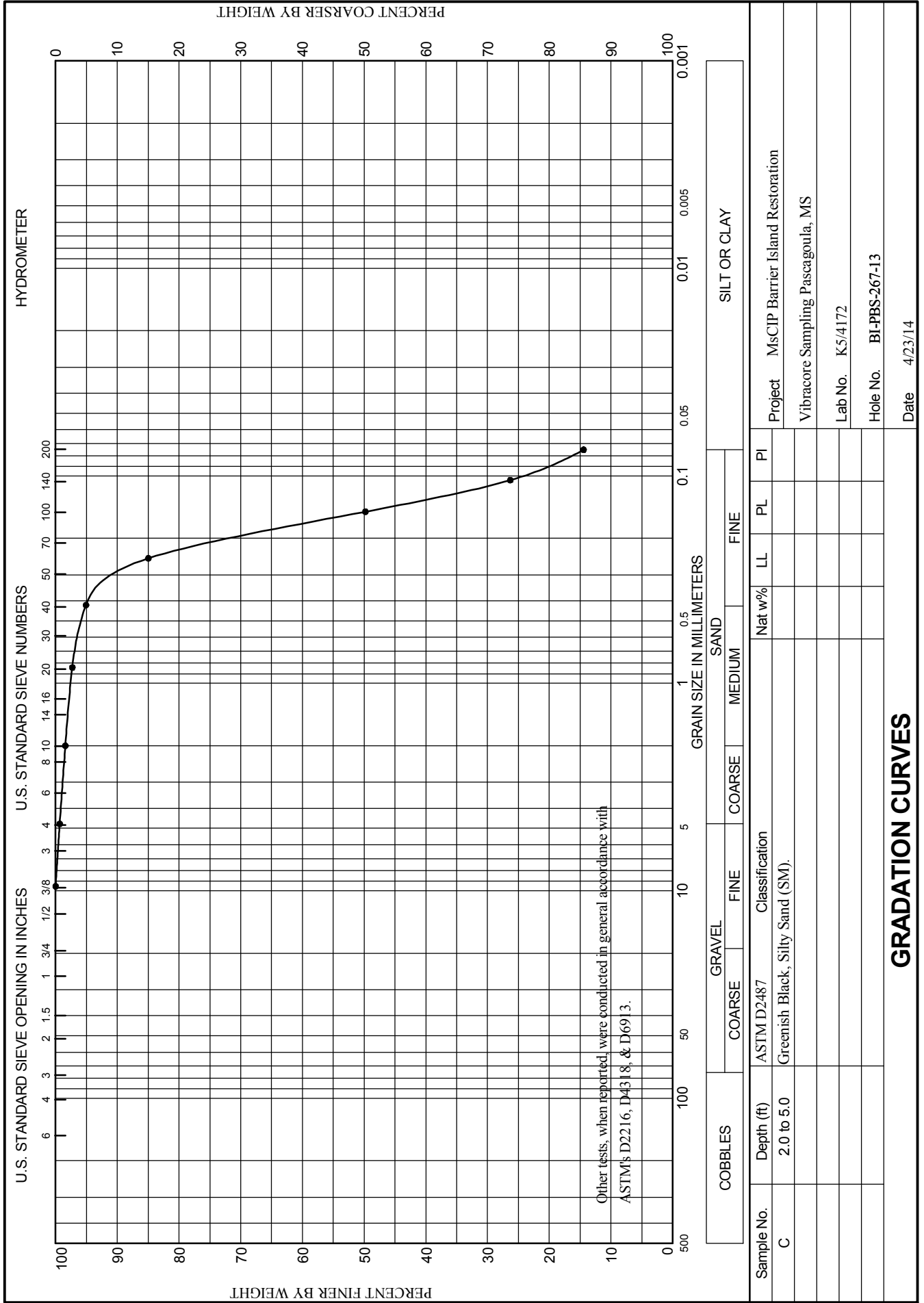




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WORK ORDER: 848e

REQUISITION: W33SJG32900192



# Boring Designation BI-PBS-268-13

DRILLING LOG		DIVISION South Atlantic		INSTALLATION Mobile District		SHEET 1 OF 1 SHEETS	
1. PROJECT MsCIP Barrier Island Restoration Petit Bois Pass-OCS West				9. SIZE AND TYPE OF BIT N/A			
2. BORING DESIGNATION BI-PBS-268-13		LOCATION COORDINATES E = 1,101,182 N = 233,499		10. COORDINATE SYSTEM/DATUM State Plane, MSE (U.S. Ft.)		HORIZONTAL NAD83 VERTICAL NAVD88	
3. DRILLING AGENCY Corps of Engineers - CESAM		CONTRACTOR FILE NO.		11. MANUFACTURER'S DESIGNATION OF DRILL Vibracore		<input type="checkbox"/> AUTO HAMMER <input type="checkbox"/> MANUAL HAMMER	
4. NAME OF DRILLER Construction Solutions International, Inc.				12. TOTAL SAMPLES 4		DISTURBED 4 UNDISTURBED (UD) 0	
5. DIRECTION OF BORING <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED				13. TOTAL NUMBER CORE BOXES		14. WATER DEPTH 42.5 Ft.	
6. THICKNESS OF OVERBURDEN N/A				15. DATE BORING 01-16-14		STARTED 01-16-14 COMPLETED 01-16-14	
7. DEPTH DRILLED INTO ROCK N/A				16. ELEVATION TOP OF BORING -42.3 Ft.		17. TOTAL RECOVERY FOR BORING 100%	
8. TOTAL DEPTH OF BORING 14.6 Ft.				18. SIGNATURE AND TITLE OF INSPECTOR Tom Powers, Geologist			

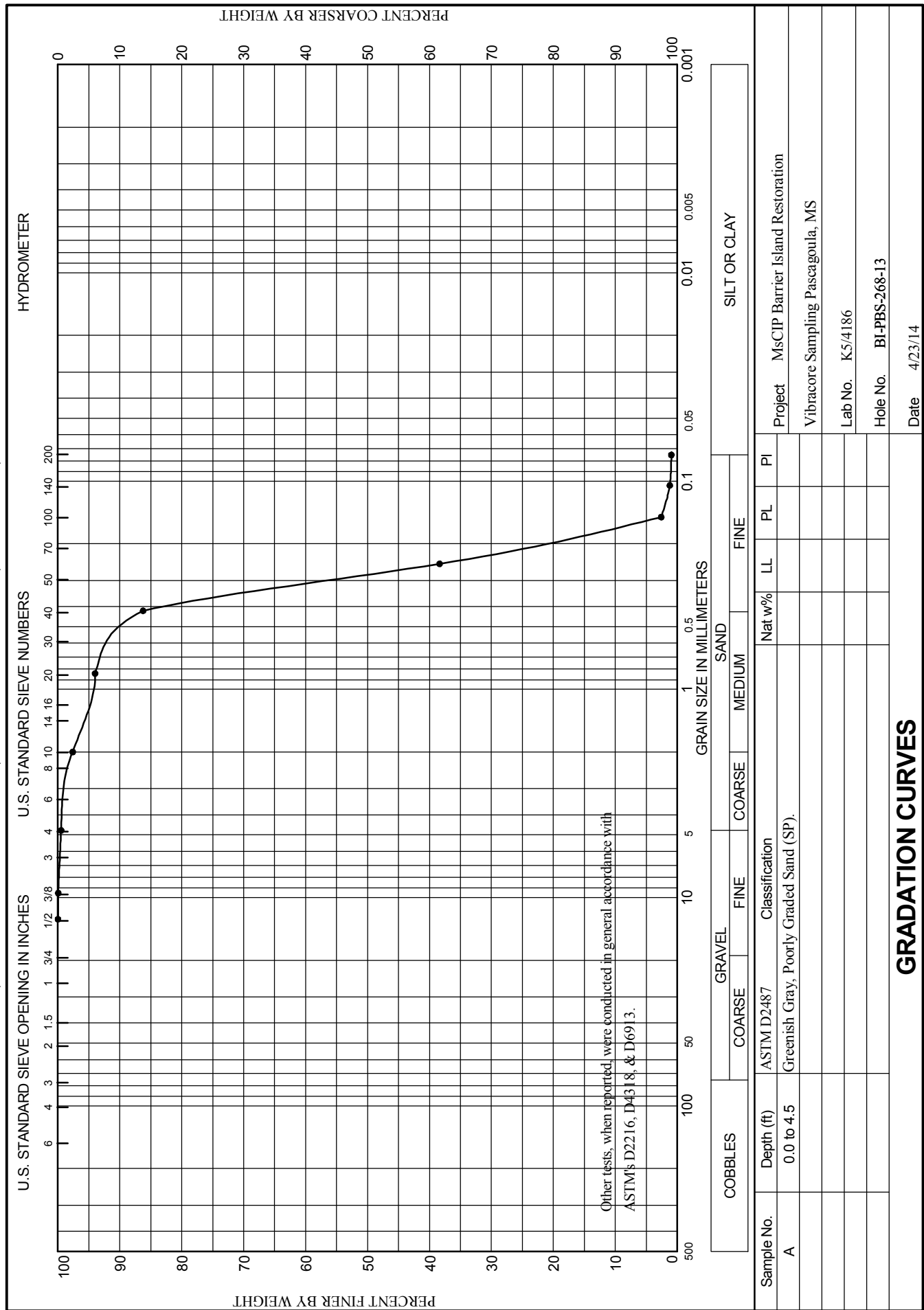
  

ELEV.	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS	SAMPLE	LABORATORY RESULTS
-42.3	0.0				
			SAND, poorly-graded, mostly fine to medium-grained sand-sized quartz, few shell fragments, lt. gray (SP)	A	Classification: SP Color: GLEY1 10Y 7/1- D50: 0.284 mm % Fines: 0.9
-46.8	4.5			B	Classification: SP Color: 2.5Y 6/1-gray D50: 0.25 mm % Fines: 3.4
-47.6	5.3		SAND, poorly-graded with silt, mostly fine to medium-grained sand-sized quartz, few shell fragments, lt. to medium gray (SP-SM)	C	Classification: SP Color: 2.5Y 6/1-gray D50: 0.253 mm % Fines: 2.2
-48.7	6.4			D	Classification: SP-SM Color: 2.5Y 5/1-gray D50: 0.201 mm % Fines: 6.3
-50.6	8.3		SAND, poorly-graded, mostly fine to medium-grained sand-sized quartz, few shell fragments, lt. to medium gray (SP)		
-51.2	8.9				
-52.4	10.1		SAND, silty, mostly fine-grained sand-sized quartz, few shell fragments, medium to dark gray (SM)		
			SAND, clayey, mostly fine-grained sand-sized quartz, trace shell fragments, medium to dark gray (SC)	NS	
-56.3	14.0		CLAY, lean, sandy, no shell fragments, medium to dark gray (CL)		
-56.9	14.6		CLAY, fat, sandy, lt. gray, pale orange (CH)		
			SAND, clayey, mostly fine-grained sand-sized quartz, lt. gray (SC)		
NOTES: 1. Soils are field visually classified in accordance with the Unified Soils Classification System. 2. NS = Sample not submitted for laboratory analysis from this interval. 3. Seafloor elevation determined from 10/16/2014 USACE survey.					



WORK ORDER: 848e

REQUISITION: W33SJG32900192

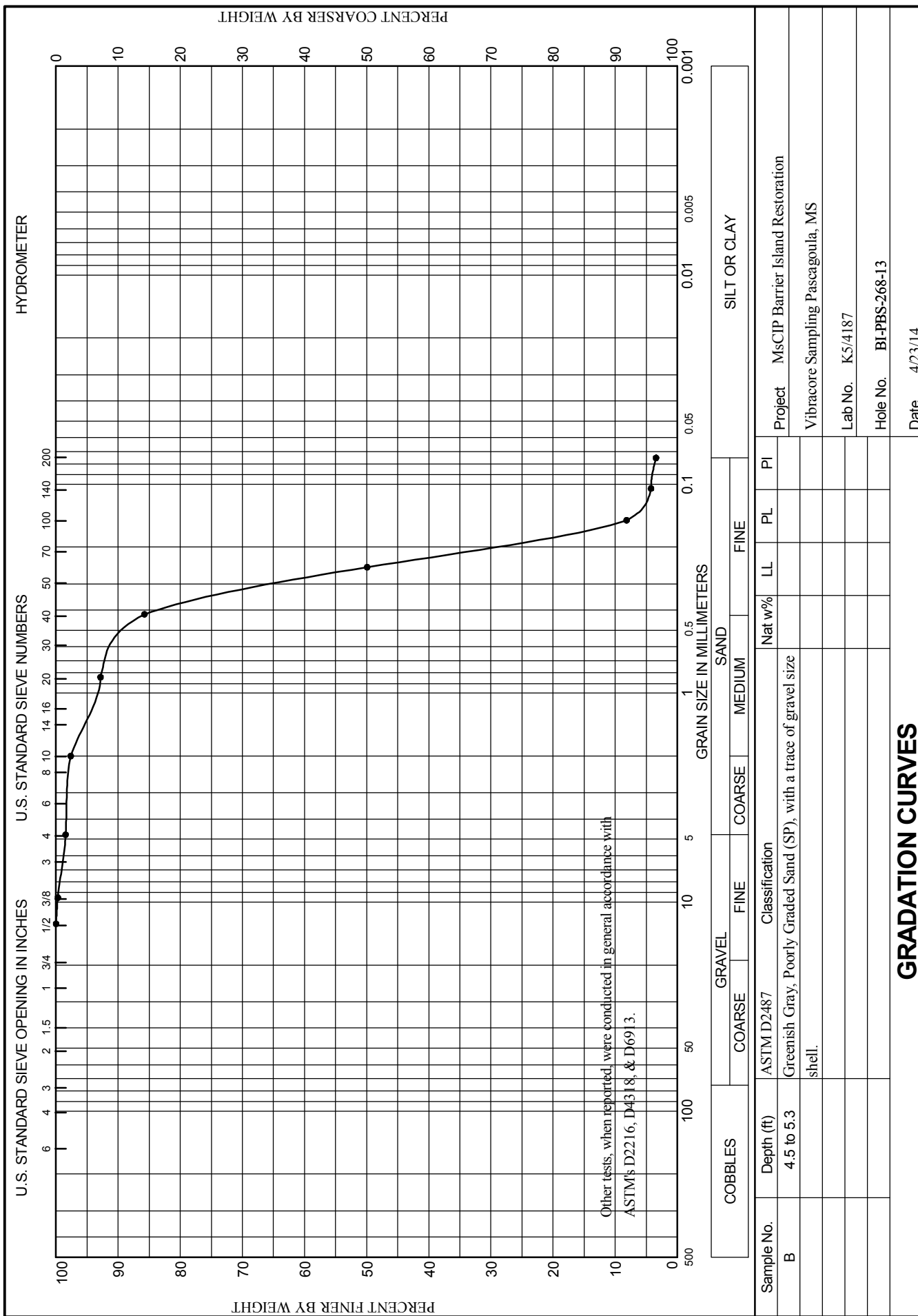




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WORK ORDER: 848e

REQUISITION: W33SJC32900192



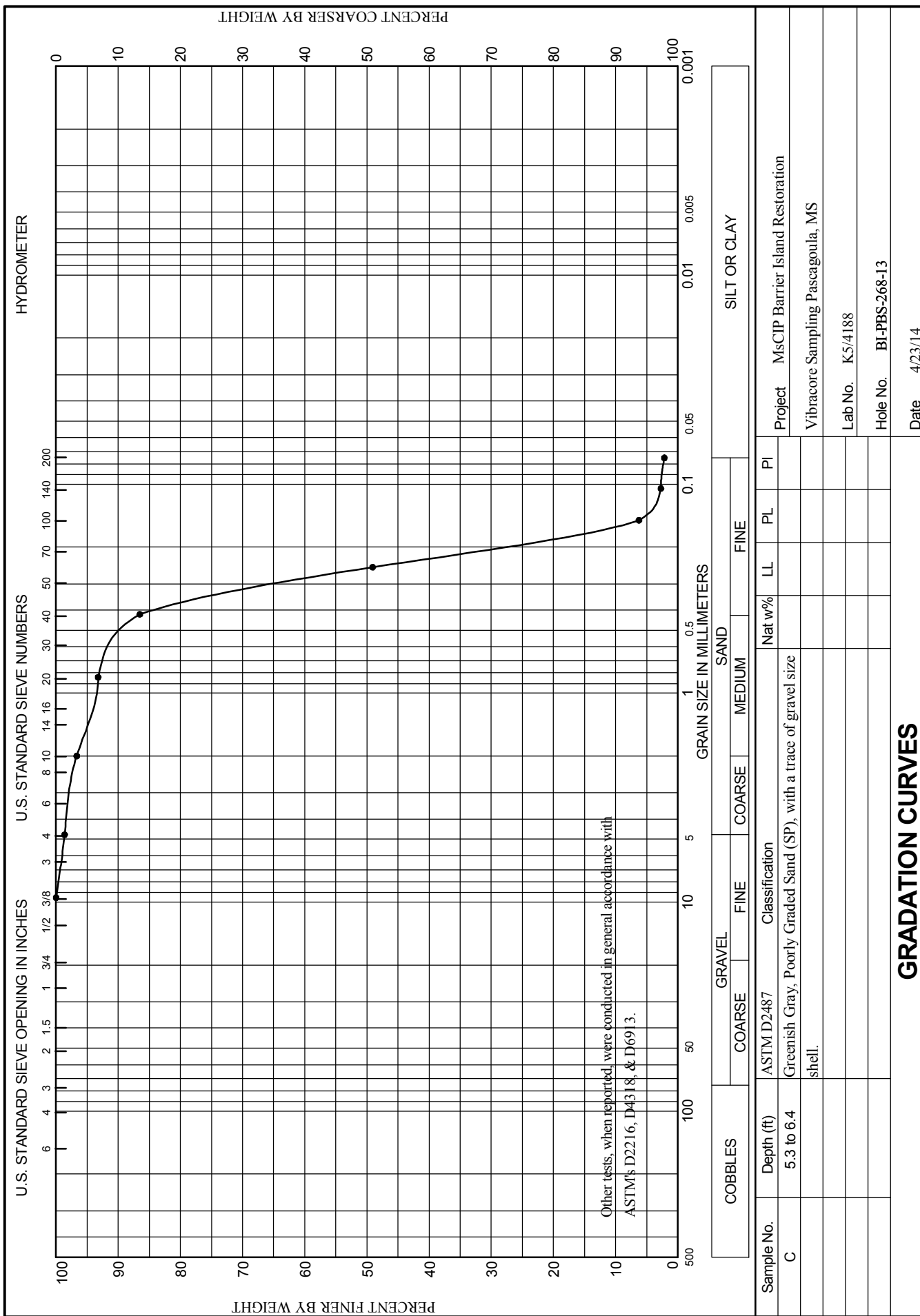




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WORK ORDER: 848e

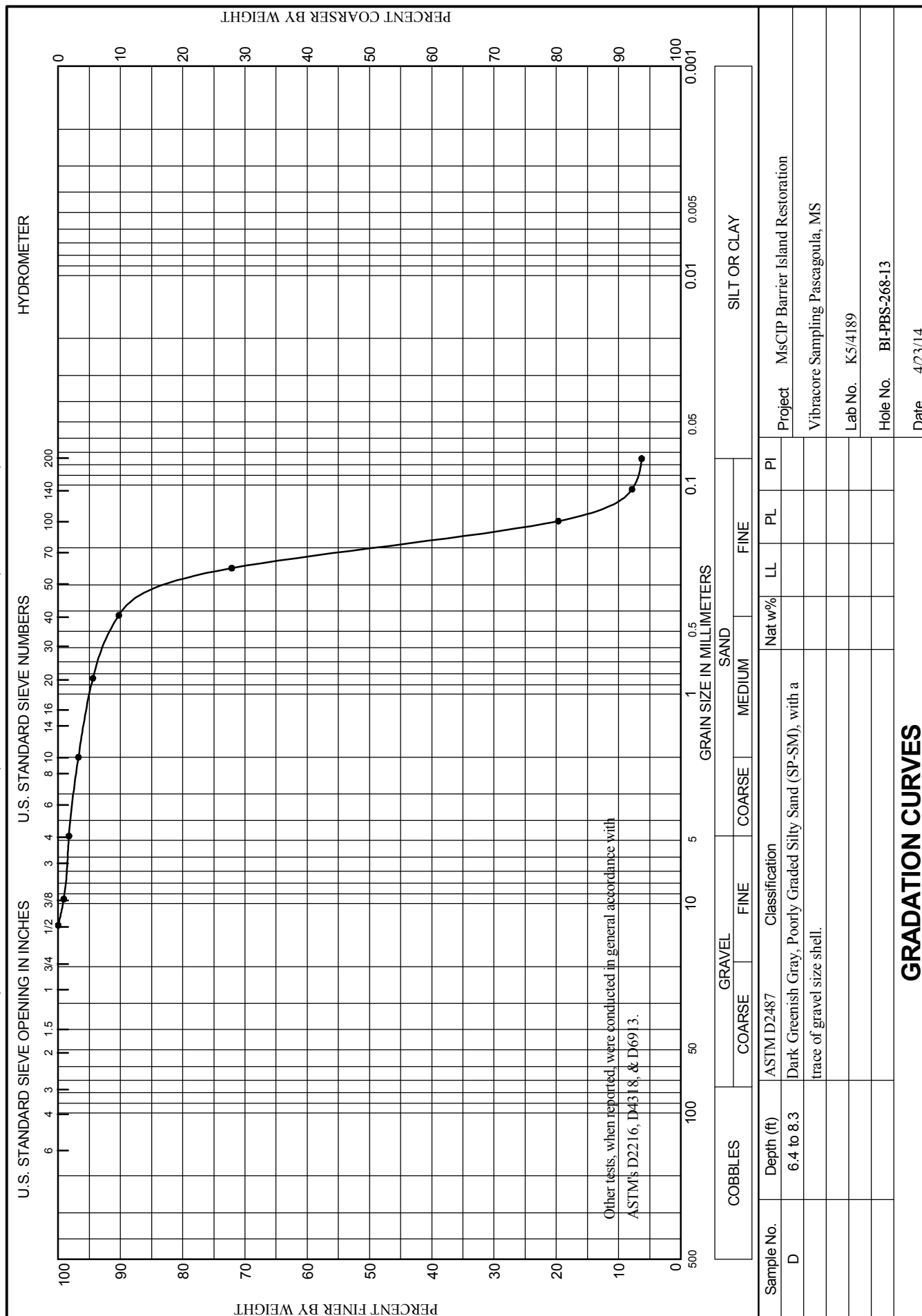
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WORK ORDER: 848e

REQUISITION: W33SJG32900192



# Boring Designation BI-PBS-269-13

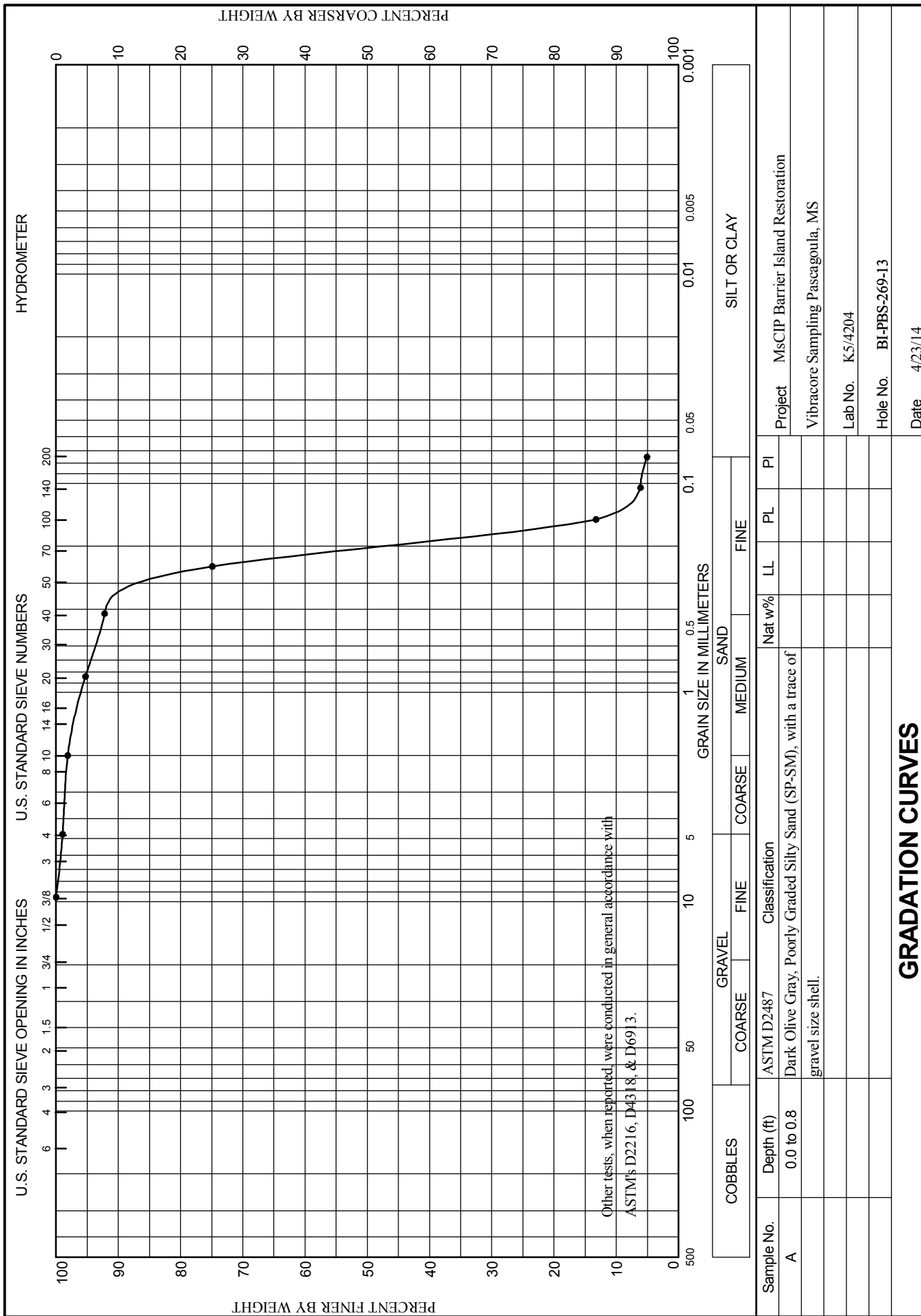
DRILLING LOG		DIVISION South Atlantic		INSTALLATION Mobile District		SHEET 1 OF 1 SHEETS	
1. PROJECT MsCIP Barrier Island Restoration Petit Bois Pass-OCS West				9. SIZE AND TYPE OF BIT N/A			
2. BORING DESIGNATION BI-PBS-269-13		LOCATION COORDINATES E = 1,099,035 N = 232,922		10. COORDINATE SYSTEM/DATUM State Plane, MSE (U.S. Ft.)		HORIZONTAL NAD83	
3. DRILLING AGENCY Corps of Engineers - CESAM		CONTRACTOR FILE NO.		11. MANUFACTURER'S DESIGNATION OF DRILL Vibracore		<input type="checkbox"/> AUTO HAMMER <input type="checkbox"/> MANUAL HAMMER	
4. NAME OF DRILLER Construction Solutions International, Inc.				12. TOTAL SAMPLES 2		UNDISTURBED (UD) 0	
5. DIRECTION OF BORING <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED				13. TOTAL NUMBER CORE BOXES		14. WATER DEPTH 46.8 Ft.	
6. THICKNESS OF OVERBURDEN N/A				15. DATE BORING 01-18-14		STARTED 01-18-14	
7. DEPTH DRILLED INTO ROCK N/A				16. ELEVATION TOP OF BORING -47.2 Ft.		COMPLETED 01-18-14	
8. TOTAL DEPTH OF BORING 16.0 Ft.				17. TOTAL RECOVERY FOR BORING 100%			
				18. SIGNATURE AND TITLE OF INSPECTOR Mike FitzHarris, Geologist			
ELEV.	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS	SAMPLE	LABORATORY RESULTS		
-47.2	0.0						
-48.0	0.8		SAND, poorly-graded, mostly fine-grained sand-sized quartz, trace shell, gray (SP)	A	Classification: SP-SM Color: 2.5Y 6/1-gray D50: 0.203 mm % Fines: 5.1		
-50.6	3.4		SAND, poorly-graded with silt, mostly fine-grained sand-sized quartz, gray (SP-SM)	B	Classification: SM Color: 2.5Y 6/1-gray D50: 0.135 mm % Fines: 16.3		
-52.4	5.2		SAND, silty, mostly fine-grained sand-sized quartz, with clayey lenses, gray (SM)	NS			
-54.2	7.0		CLAY, lean, clay with some fine-grained sand, gray (CL)				
-56.0	8.8		SAND, silty, mostly fine-grained sand-sized quartz, with clayey lenses, gray with lt. brown streaks (SM)				
-59.1	11.9		CLAY, lean, stiff, with sandy intervals, lenses, mottled (CL)				
-63.2	16.0		SAND, poorly-graded with silt, mostly fine-grained sand-sized quartz, trace clay stringers, brown-gray (SP-SM)				
NOTES: 1. Soils are field visually classified in accordance with the Unified Soils Classification System. 2. NS = Sample not submitted for laboratory analysis from this interval. 3. Seafloor elevation determined from 2013 USGS geophysical survey.							



DEPARTMENT OF THE ARMY, SAVANNAH DISTRICT, ENVIRONMENTAL AND MATERIALS UNIT  
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WORK ORDER: 848e

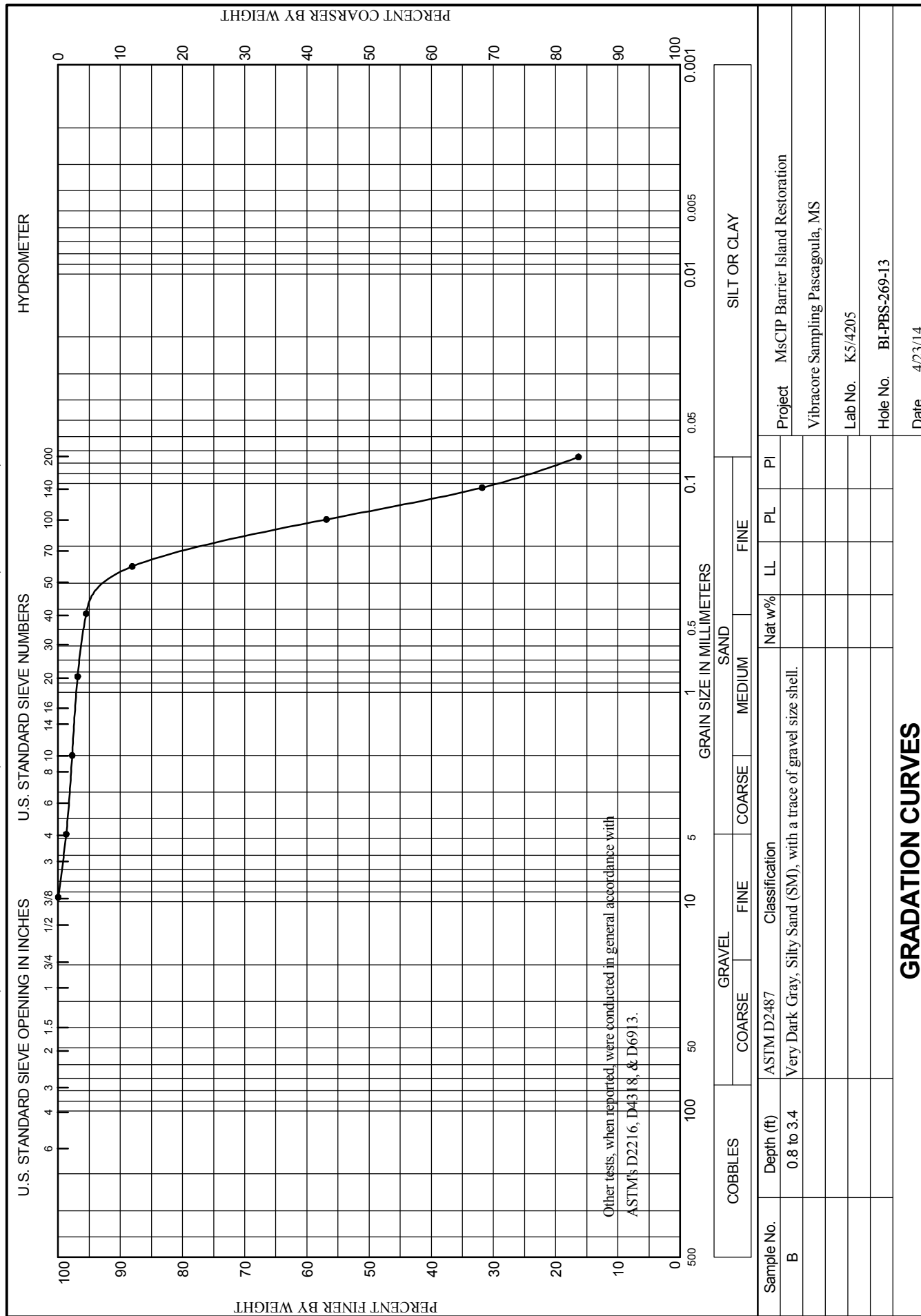
REQUISITION: W33SJC32900192





WORK ORDER: 848e

REQUISITION: W33SJG32900192



# Boring Designation BI-PBS-270-13

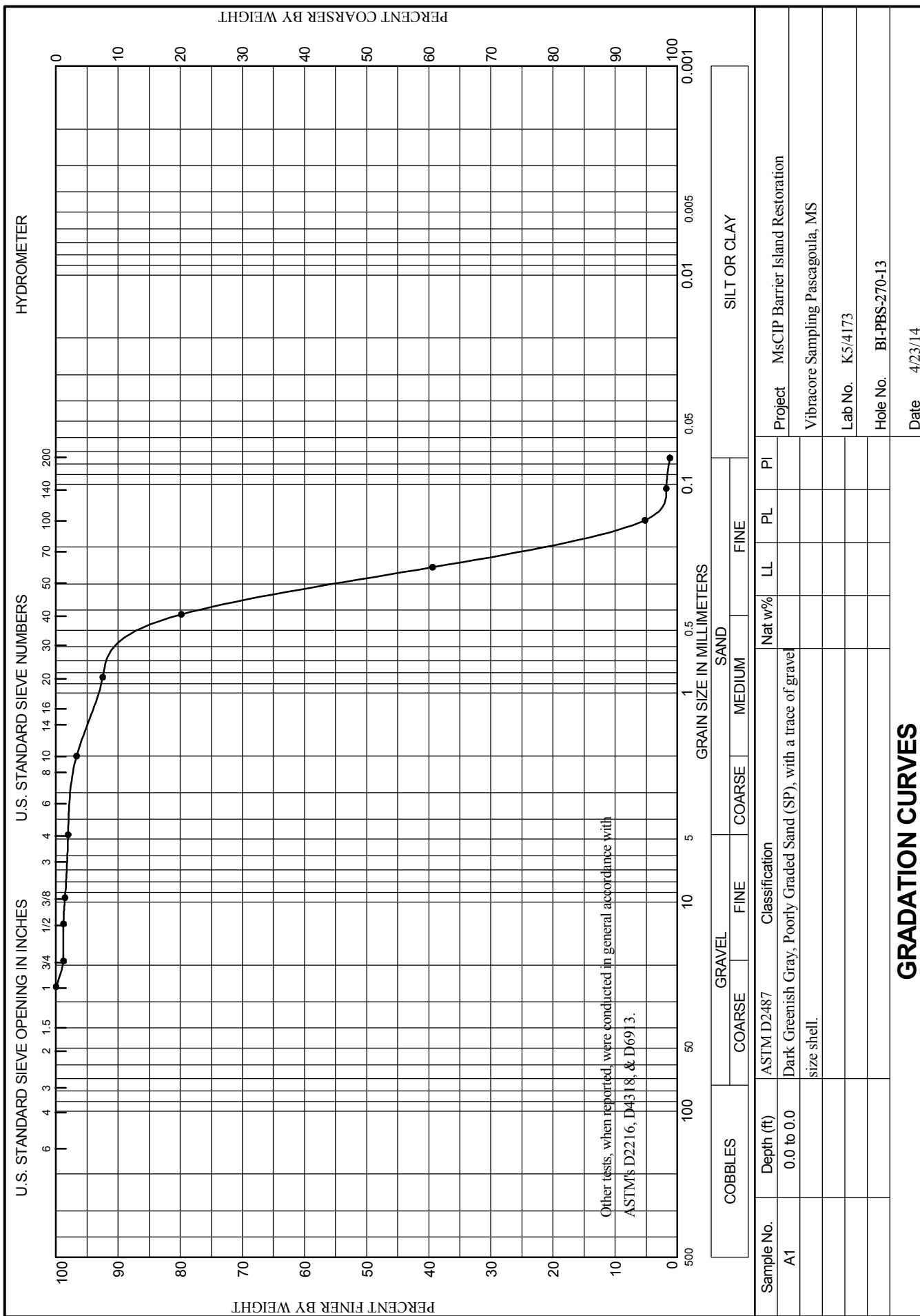
DRILLING LOG		DIVISION South Atlantic		INSTALLATION Mobile District		SHEET 1 OF 1 SHEETS	
1. PROJECT MsCIP Barrier Island Restoration Petit Bois Pass-OCS West				9. SIZE AND TYPE OF BIT N/A			
2. BORING DESIGNATION BI-PBS-270-13		LOCATION COORDINATES E = 1,102,399 N = 234,598		10. COORDINATE SYSTEM/DATUM State Plane, MSE (U.S. Ft.)		HORIZONTAL NAD83	
3. DRILLING AGENCY Corps of Engineers - CESAM		CONTRACTOR FILE NO.		11. MANUFACTURER'S DESIGNATION OF DRILL Vibracore		<input type="checkbox"/> AUTO HAMMER <input type="checkbox"/> MANUAL HAMMER	
4. NAME OF DRILLER Construction Solutions International, Inc.				12. TOTAL SAMPLES 2		DISTURBED 0	
5. DIRECTION OF BORING <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED				13. TOTAL NUMBER CORE BOXES		14. WATER DEPTH 51 Ft.	
6. THICKNESS OF OVERBURDEN N/A				15. DATE BORING 01-09-14		STARTED 01-09-14	
7. DEPTH DRILLED INTO ROCK N/A				16. ELEVATION TOP OF BORING -49.1 Ft.		17. TOTAL RECOVERY FOR BORING 100%	
8. TOTAL DEPTH OF BORING 8.5 Ft.				18. SIGNATURE AND TITLE OF INSPECTOR Tom Powers, Geologist			
ELEV.	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS	SAMPLE	LABORATORY RESULTS		
-49.1	0.0						
-50.4	1.3		SAND, silty, mostly fine-grained sand-sized quartz, few shell fragments, lt. to medium gray (SM)	A1 A2	Classification: SP Color: GLEY1 10Y 6/1- D50: 0.286 mm % Fines: 1.2 Classification: SP-SM Color: GLEY1 10Y 5/1- D50: 0.188 mm % Fines: 8.1		
-54.3	5.2		CLAY, lean, few shell fragments, sandy, medium gray (CL)	NS			
-57.6	8.5		CLAY, fat, very hard with sandy clay lenses, lt. gray, pale orange (CH)				
NOTES: 1. Soils are field visually classified in accordance with the Unified Soils Classification System. 2. NS = Sample not submitted for laboratory analysis from this interval. 3. Seafloor elevation determined from 2013 USGS geophysical survey.							



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WORK ORDER: 848e

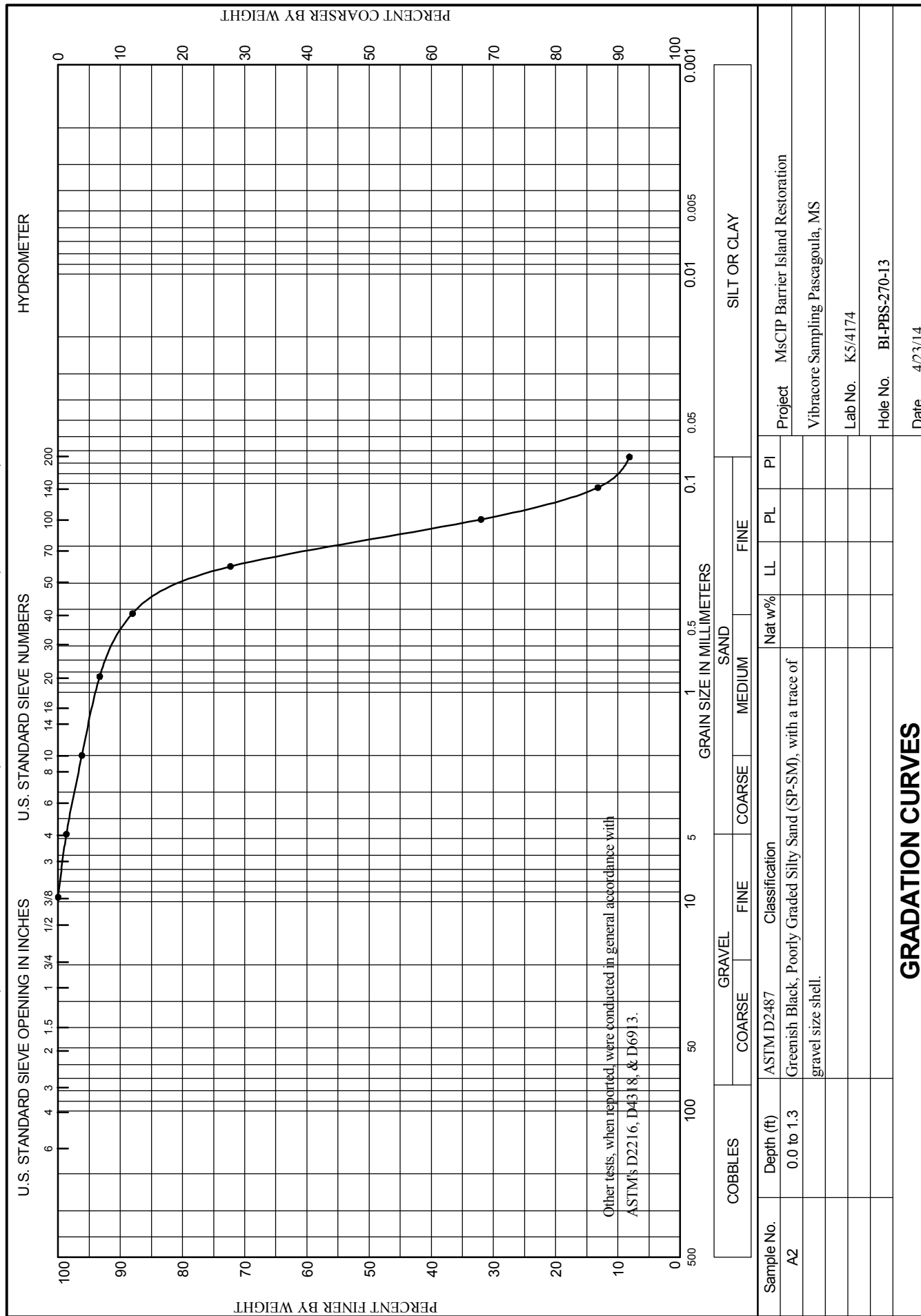
REQUISITION: W33SJC32900192





WORK ORDER: 848e

REQUISITION: W33SJG32900192





# Boring Designation BI-PBS-271-13

DRILLING LOG		DIVISION South Atlantic		INSTALLATION Mobile District		SHEET 1 OF 1 SHEETS	
1. PROJECT MsCIP Barrier Island Restoration Petit Bois Pass-OCS West				9. SIZE AND TYPE OF BIT N/A			
2. BORING DESIGNATION BI-PBS-271-13		LOCATION COORDINATES E = 1,103,769 N = 231,253		10. COORDINATE SYSTEM/DATUM State Plane, MSE (U.S. Ft.)		HORIZONTAL NAD83 VERTICAL NAVD88	
3. DRILLING AGENCY Corps of Engineers - CESAM		CONTRACTOR FILE NO.		11. MANUFACTURER'S DESIGNATION OF DRILL Vibracore		<input type="checkbox"/> AUTO HAMMER <input type="checkbox"/> MANUAL HAMMER	
4. NAME OF DRILLER Construction Solutions International, Inc.				12. TOTAL SAMPLES 3		DISTURBED 3 UNDISTURBED (UD) 0	
5. DIRECTION OF BORING <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED		DEG. FROM VERTICAL		13. TOTAL NUMBER CORE BOXES			
		BEARING		14. WATER DEPTH 45.1 Ft.			
6. THICKNESS OF OVERBURDEN N/A				15. DATE BORING 01-16-14		STARTED 01-16-14 COMPLETED 01-16-14	
7. DEPTH DRILLED INTO ROCK N/A				16. ELEVATION TOP OF BORING -44.7 Ft.			
8. TOTAL DEPTH OF BORING 8.6 Ft.				17. TOTAL RECOVERY FOR BORING 100%			
				18. SIGNATURE AND TITLE OF INSPECTOR Tom Powers, Geologist			

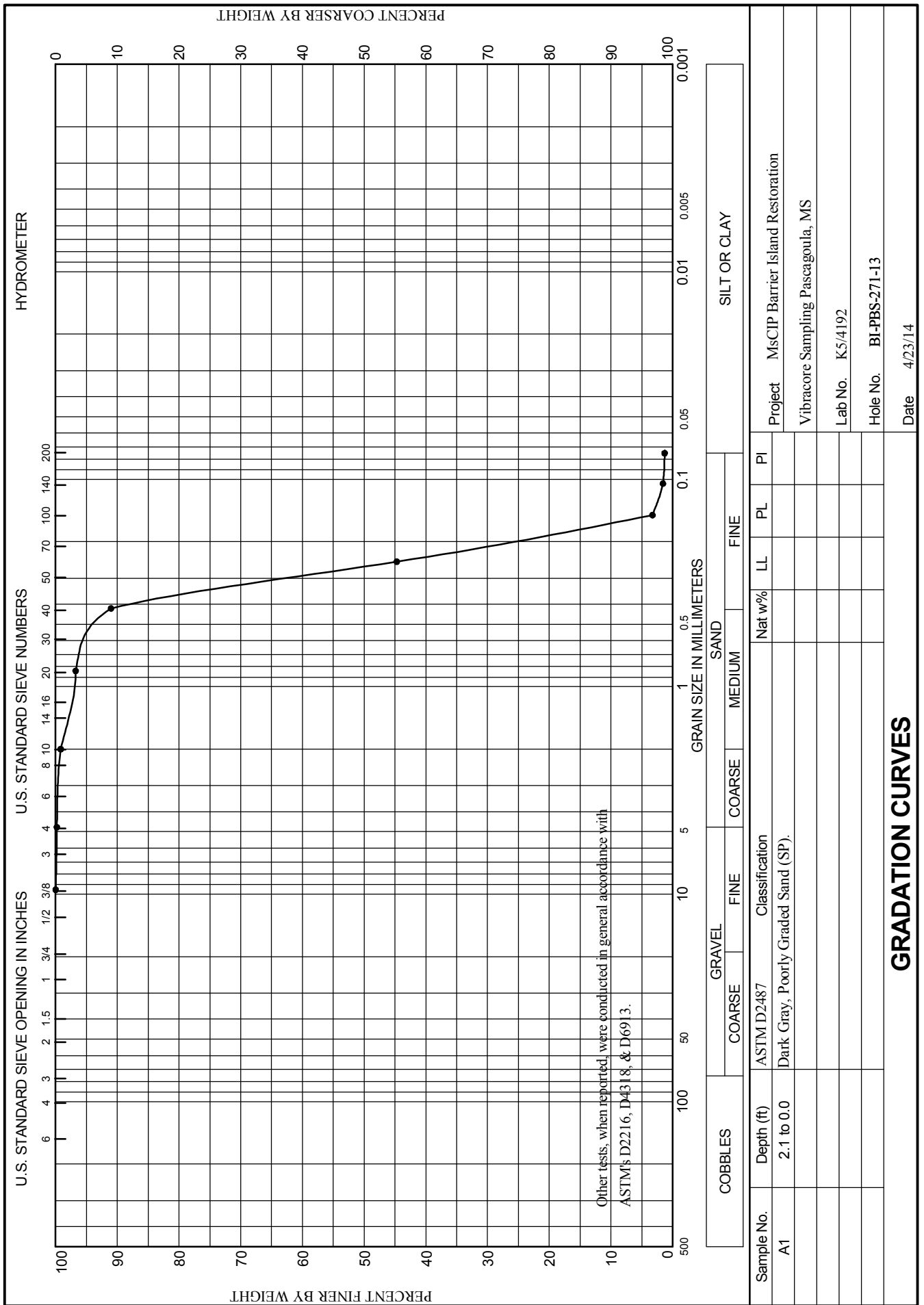
ELEV.	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS	SAMPLE	LABORATORY RESULTS
-44.7	0.0				
-47.0	2.3		SAND, poorly-graded, mostly fine to medium-grained sand-sized quartz, few shell fragments, lt. gray (SP)	A1	Classification: SP Color: GLEY1 10Y 7/1- D50: 0.265 mm % Fines: 1.3
-48.1	3.4		SAND, silty, mostly fine-grained sand-sized quartz, few shell fragments, medium gray (SM)	A2	Classification: SP Color: 2.5Y 6/1-gray D50: 0.25 mm % Fines: 2
-50.4	5.7		CLAY, lean, trace shell fragments, sandy, medium gray (CL)	B	Classification: SP-SM Color: 2.5Y 6/1-gray D50: 0.203 mm % Fines: 6.3
-50.8	6.1		CLAY, fat, orangish gray (CH)	NS	
-51.0	6.3		SAND, clayey, mostly fine-grained sand-sized quartz, little shell fragments, lt. brown (SC)		
-53.3	8.6		CLAY, fat, sandy, no shell fragments, lt. gray, pale orange (CH)		
NOTES: 1. Soils are field visually classified in accordance with the Unified Soils Classification System. 2. NS = Sample not submitted for laboratory analysis from this interval. 3. Seafloor elevation determined from 10/16/2014 USACE survey.					



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WORK ORDER: 848e

REQUISITION: W33SJC32900192

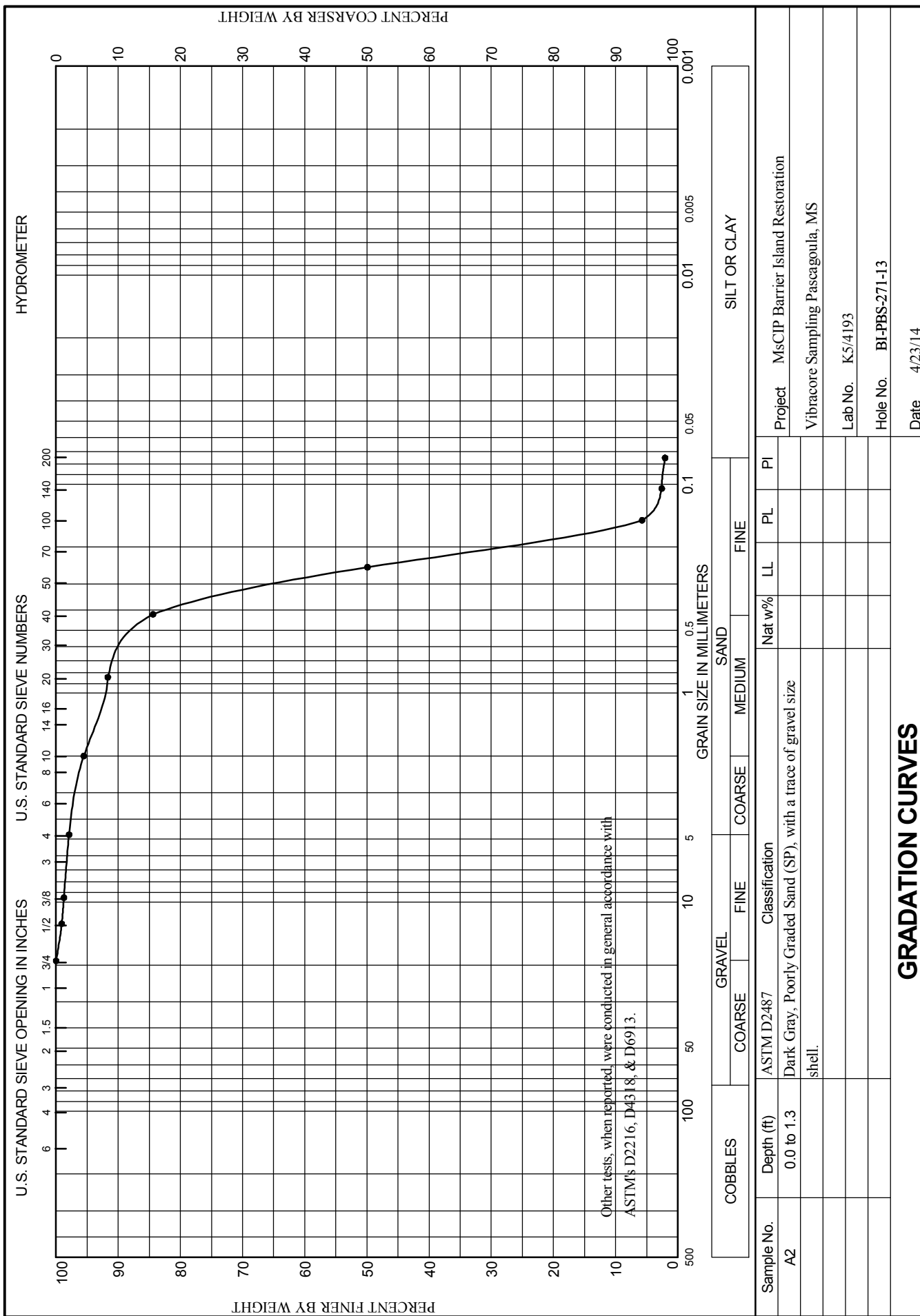




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CORPS OF ENGINEERS, 200 N. COBB PARKWAY, BLDG 400 SUITE 404, MARIETTA, GA. 30062

WORK ORDER: 848e

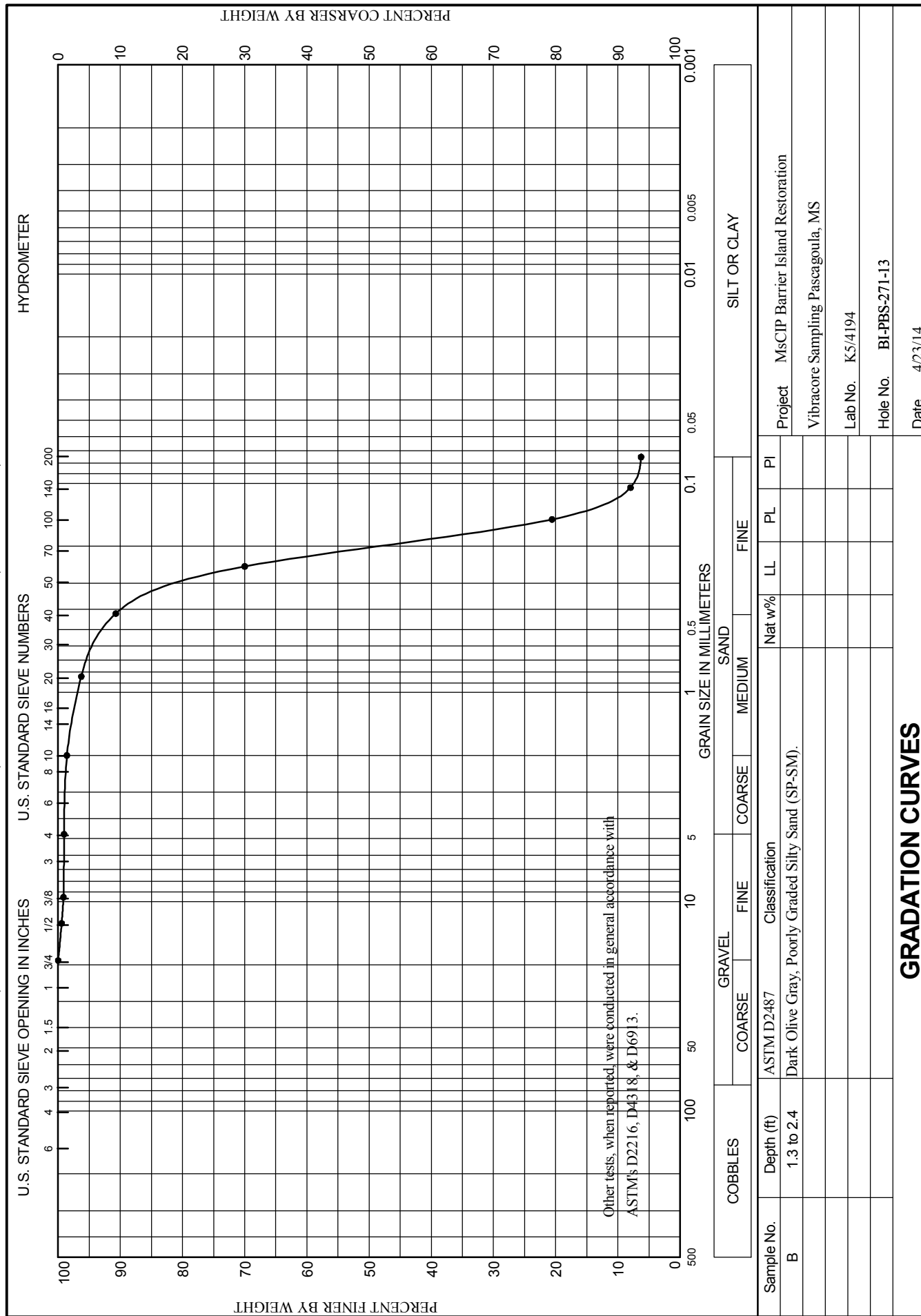
REQUISITION: W33SJC32900192





WORK ORDER: 848e

REQUISITION: W33SJG32900192



# Boring Designation BI-PBS-272-13

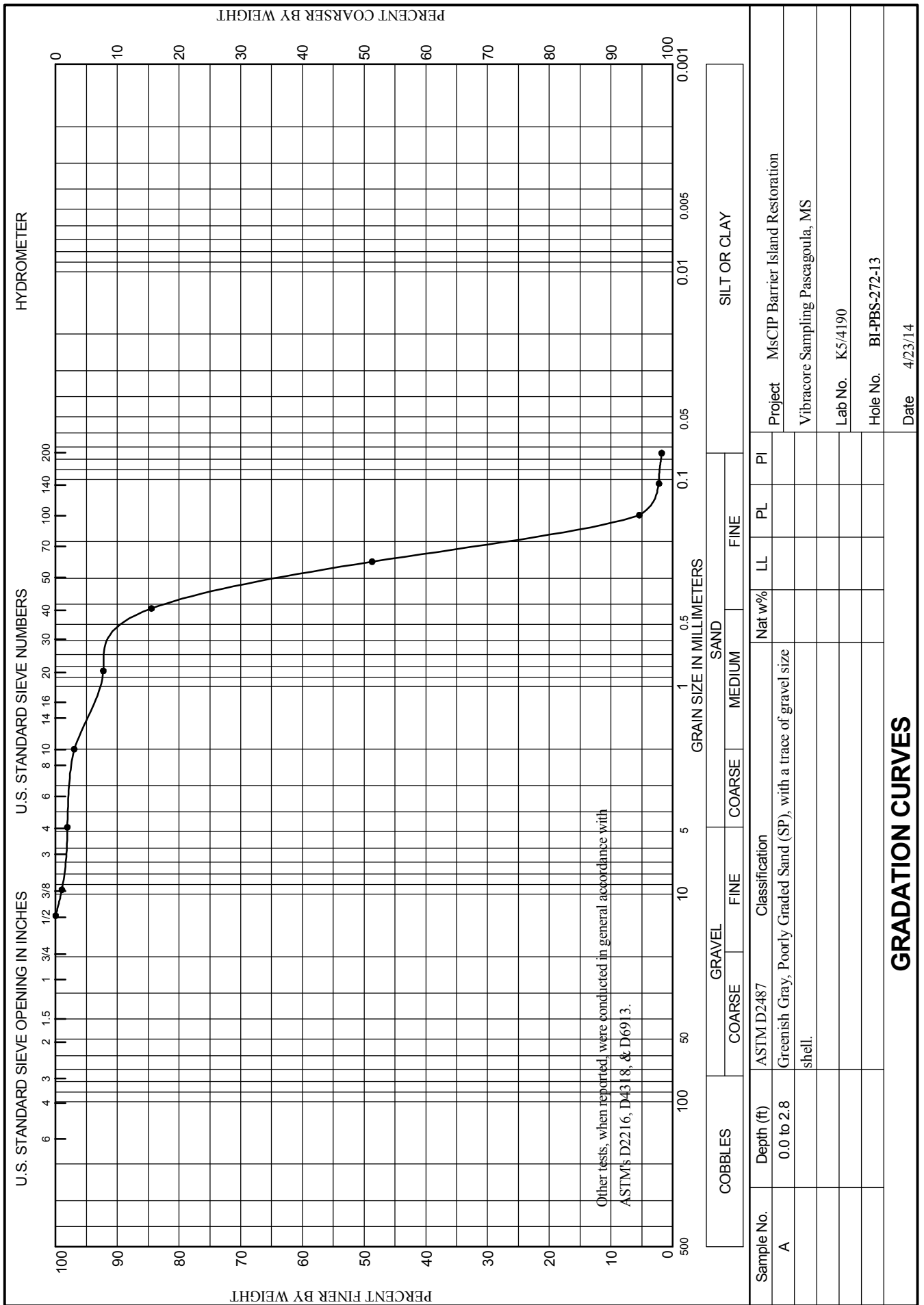
DRILLING LOG		DIVISION South Atlantic		INSTALLATION Mobile District		SHEET 1 OF 1 SHEETS	
1. PROJECT MsCIP Barrier Island Restoration Petit Bois Pass-OCS West				9. SIZE AND TYPE OF BIT N/A			
2. BORING DESIGNATION BI-PBS-272-13		LOCATION COORDINATES E = 1,102,573 N = 232,468		10. COORDINATE SYSTEM/DATUM State Plane, MSE (U.S. Ft.)		HORIZONTAL NAD83	
3. DRILLING AGENCY Corps of Engineers - CESAM		CONTRACTOR FILE NO.		11. MANUFACTURER'S DESIGNATION OF DRILL Vibrocure		<input type="checkbox"/> AUTO HAMMER <input type="checkbox"/> MANUAL HAMMER	
4. NAME OF DRILLER Construction Solutions International, Inc.				12. TOTAL SAMPLES 2		UNDISTURBED (UD) 0	
5. DIRECTION OF BORING <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED				13. TOTAL NUMBER CORE BOXES		14. WATER DEPTH 44.1 Ft.	
6. THICKNESS OF OVERBURDEN N/A				15. DATE BORING 01-16-14		STARTED 01-16-14	
7. DEPTH DRILLED INTO ROCK N/A				16. ELEVATION TOP OF BORING -43.8 Ft.		COMPLETED 01-16-14	
8. TOTAL DEPTH OF BORING 13.9 Ft.				17. TOTAL RECOVERY FOR BORING 100%		18. SIGNATURE AND TITLE OF INSPECTOR Tom Powers, Geologist	
ELEV.	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS	SAMPLE	LABORATORY RESULTS		
-43.8	0.0						
-46.6	2.8		SAND, poorly-graded, mostly fine to medium-grained sand-sized quartz, few shell fragments, lt. gray (SP)	A	Classification: SP Color: 2.5Y 5/1-gray D50: 0.255 mm % Fines: 1.8		
-49.1	5.3		SAND, silty, mostly fine-grained sand-sized quartz, few shell fragments, medium gray (SM)	B	Classification: SP-SM Color: 2.5Y 5/1-gray D50: 0.198 mm % Fines: 8.4		
-52.3	8.5		SAND, clayey, mostly fine-grained sand-sized quartz, few sandy clay interbeds, shell fragments, medium gray (SC)	NS			
-56.1	12.3		CLAY, fat, sandy, hard, lt. gray, pale orange, pale green (CH)				
-57.7	13.9		SAND, poorly-graded, mostly fine to medium-grained sand-sized quartz, trace shell fragments, lt. brownish gray (SP)				
NOTES: 1. Soils are field visually classified in accordance with the Unified Soils Classification System. 2. NS = Sample not submitted for laboratory analysis from this interval. 3. Seafloor elevation determined from 10/16/2014 USACE survey.							



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WORK ORDER: 848e

REQUISITION: W33SJC32900192

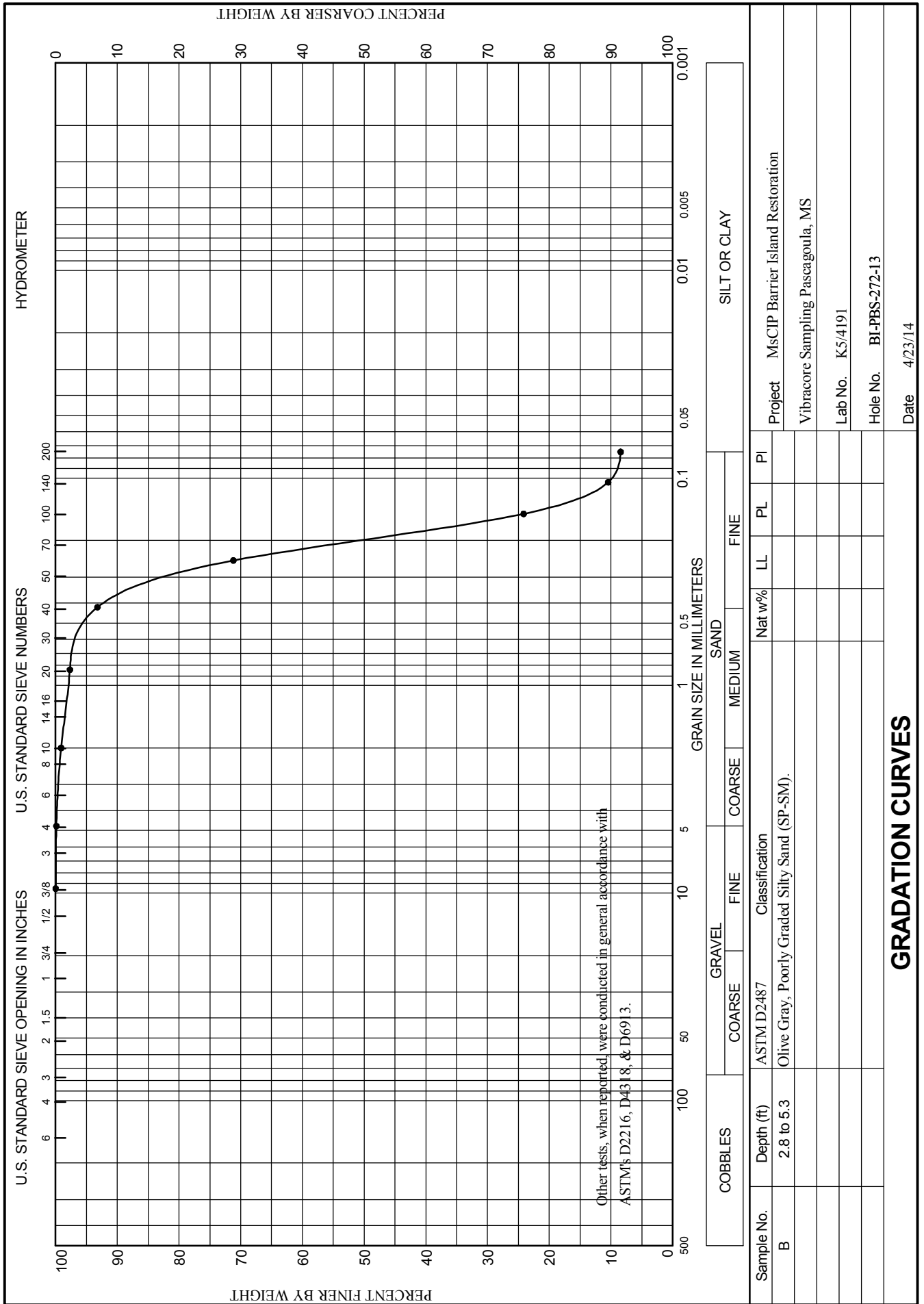




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WORK ORDER: 848e

REQUISITION: W33SJC32900192



# Boring Designation BI-PBS-273-13

DRILLING LOG		DIVISION South Atlantic		INSTALLATION Mobile District		SHEET 1 OF 1 SHEETS	
1. PROJECT MsCIP Barrier Island Restoration Petit Bois Pass-OCS West				9. SIZE AND TYPE OF BIT N/A			
2. BORING DESIGNATION BI-PBS-273-13		LOCATION COORDINATES E = 1,104,147 N = 233,571		10. COORDINATE SYSTEM/DATUM State Plane, MSE (U.S. Ft.)		HORIZONTAL NAD83 VERTICAL NAVD88	
3. DRILLING AGENCY Corps of Engineers - CESAM		CONTRACTOR FILE NO.		11. MANUFACTURER'S DESIGNATION OF DRILL Vibrocure		<input type="checkbox"/> AUTO HAMMER <input type="checkbox"/> MANUAL HAMMER	
4. NAME OF DRILLER Construction Solutions International, Inc.				12. TOTAL SAMPLES 2		DISTURBED 2 UNDISTURBED (UD) 0	
5. DIRECTION OF BORING <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED		DEG. FROM VERTICAL		13. TOTAL NUMBER CORE BOXES			
		BEARING		14. WATER DEPTH 50 Ft.			
6. THICKNESS OF OVERBURDEN N/A				15. DATE BORING 01-09-14		STARTED 01-09-14 COMPLETED 01-09-14	
7. DEPTH DRILLED INTO ROCK N/A				16. ELEVATION TOP OF BORING -49.3 Ft.			
8. TOTAL DEPTH OF BORING 14.5 Ft.				17. TOTAL RECOVERY FOR BORING 100%			
				18. SIGNATURE AND TITLE OF INSPECTOR Tom Powers, Geologist			

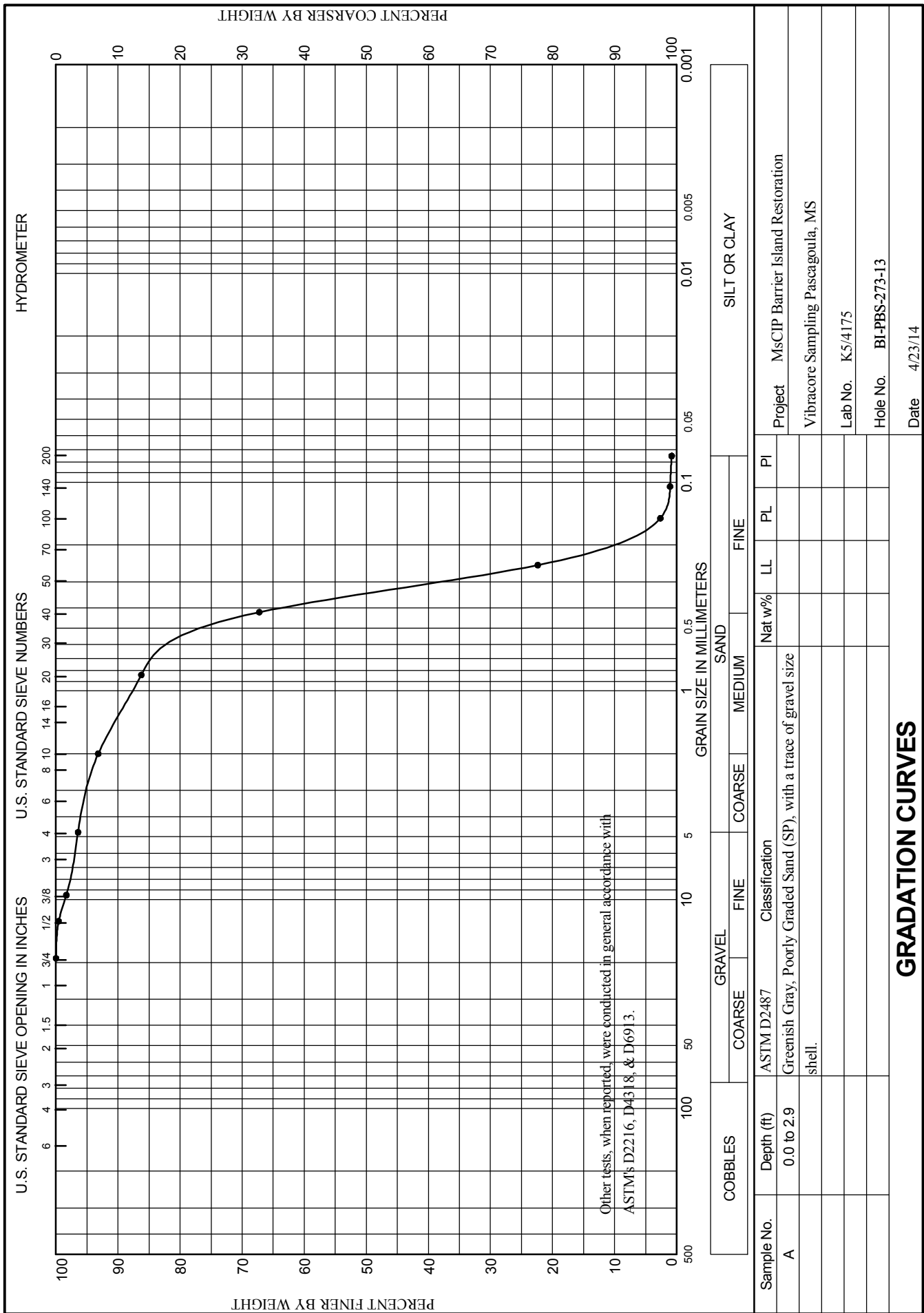
ELEV.	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS	SAMPLE	LABORATORY RESULTS
-49.3	0.0				
-52.2	2.9		SAND, poorly-graded, mostly fine to medium-grained sand-sized quartz, little shell fragments, lt. gray (SP)	A	Classification: SP Color: 2.5Y 6/1-gray D50: 0.344 mm % Fines: 0.8
-52.6	3.3		SAND, silty, mostly fine-grained sand-sized quartz, few shell fragments, medium gray (SM)	B	Classification: SP-SM Color: GLEY1 10Y 6/1- D50: 0.23 mm % Fines: 9.1
-55.4	6.1		CLAY, lean, sandy, medium to dark gray (CL)		
-61.4	12.1		CLAY, fat, very hard, lt. gray, pale orange (CH)	NS	
-62.4	13.1		CLAY, lean, sandy, medium dark gray, orangish brown (CL)		
-63.8	14.5		SAND, silty, mostly fine-grained sand-sized quartz, few shell fragments, medium gray (SM)		
NOTES: 1. Soils are field visually classified in accordance with the Unified Soils Classification System. 2. NS = Sample not submitted for laboratory analysis from this interval. 3. Seafloor elevation calculated using sampling vessel's fathometer water depth reading and applying NOAA tidal gauge data conversion factor.					





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WORK ORDER: 848e  
REQUISITION: W33SJG32900192

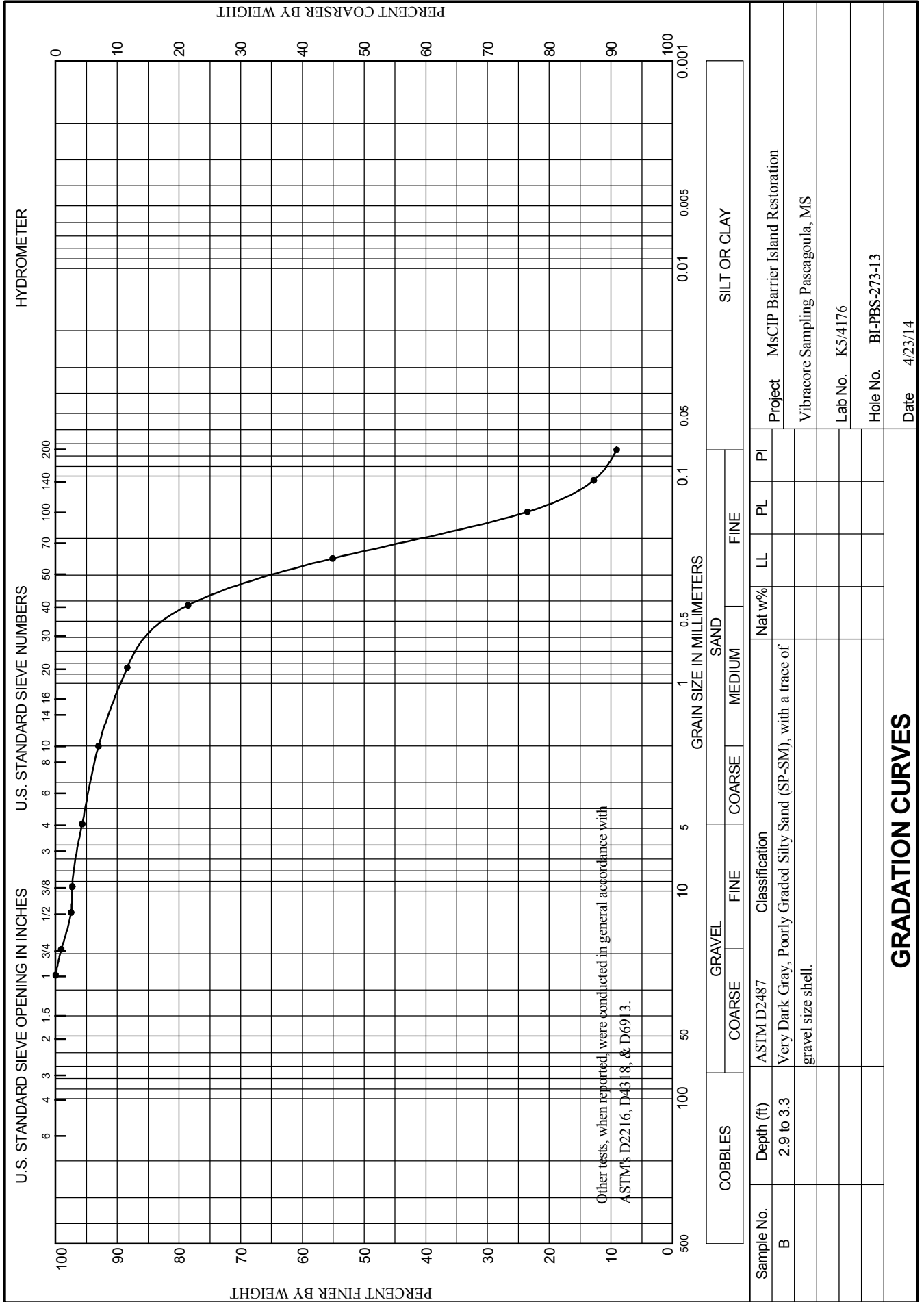




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CORPS OF ENGINEERS, 200 N. COBB PARKWAY, BLDG 400 SUITE 404, MARIETTA, GA. 30062

WORK ORDER: 848e

REQUISITION: W33SJC32900192



# Boring Designation BI-PBS-274-13

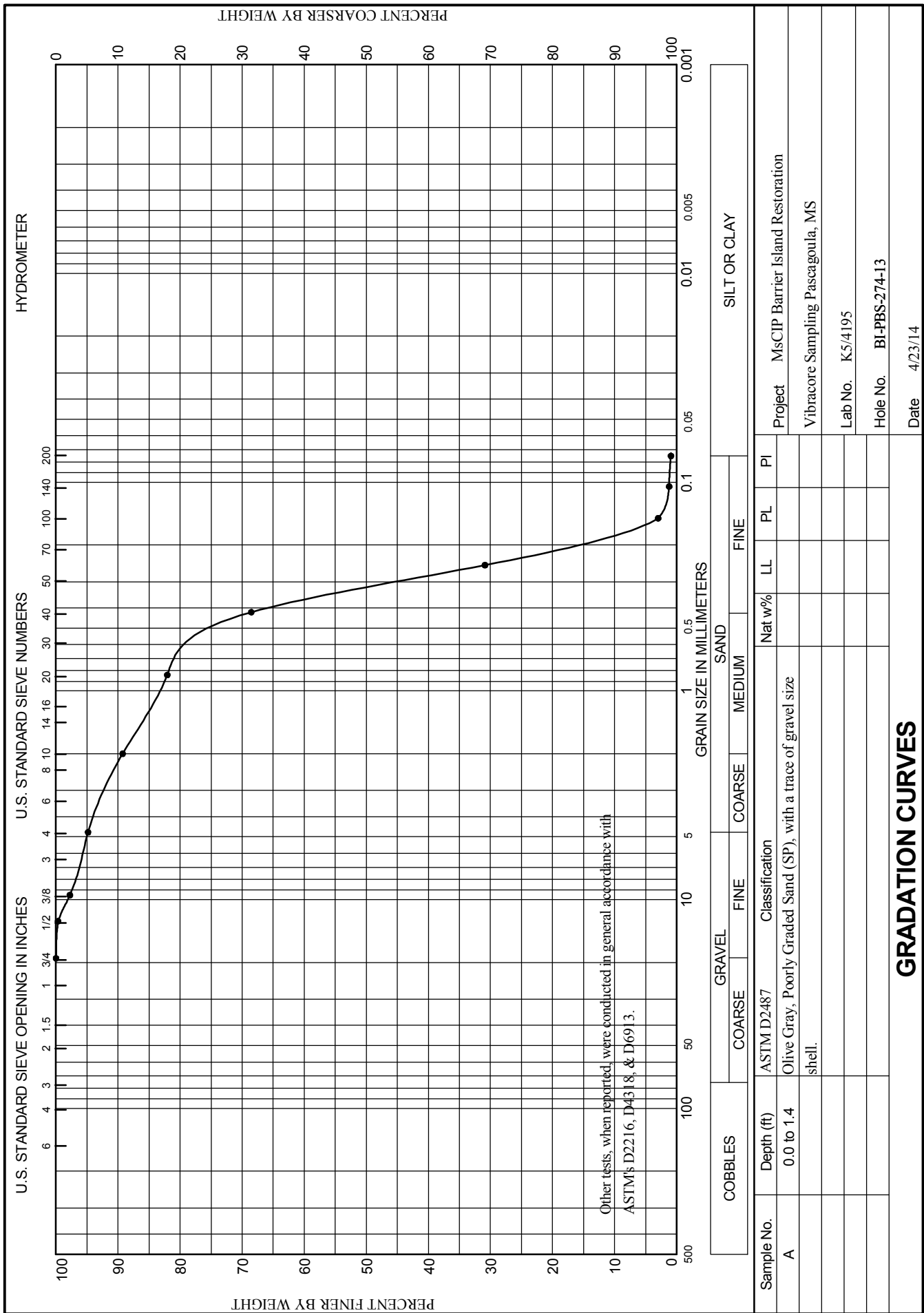
DRILLING LOG		DIVISION South Atlantic		INSTALLATION Mobile District		SHEET 1 OF 1 SHEETS	
1. PROJECT MsCIP Barrier Island Restoration Petit Bois Pass-OCS West				9. SIZE AND TYPE OF BIT N/A			
2. BORING DESIGNATION BI-PBS-274-13		LOCATION COORDINATES E = 1,105,631 N = 231,150		10. COORDINATE SYSTEM/DATUM State Plane, MSE (U.S. Ft.)		HORIZONTAL NAD83	
3. DRILLING AGENCY Corps of Engineers - CESAM		CONTRACTOR FILE NO.		11. MANUFACTURER'S DESIGNATION OF DRILL Vibracore		<input type="checkbox"/> AUTO HAMMER <input type="checkbox"/> MANUAL HAMMER	
4. NAME OF DRILLER Construction Solutions International, Inc.				12. TOTAL SAMPLES 3		DISTURBED 0	
5. DIRECTION OF BORING <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED				13. TOTAL NUMBER CORE BOXES		14. WATER DEPTH 46.8 Ft.	
6. THICKNESS OF OVERBURDEN N/A				15. DATE BORING 01-16-14		STARTED 01-16-14	
7. DEPTH DRILLED INTO ROCK N/A				16. ELEVATION TOP OF BORING -47.2 Ft.		COMPLETED 01-16-14	
8. TOTAL DEPTH OF BORING 8.9 Ft.				17. TOTAL RECOVERY FOR BORING 100%		18. SIGNATURE AND TITLE OF INSPECTOR Tom Powers, Geologist	
ELEV.	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS	SAMPLE	LABORATORY RESULTS		
-47.2	0.0						
-48.6	1.4		SAND, poorly-graded, mostly fine to medium-grained sand-sized quartz, little shell fragments, lt. gray (SP)	A	Classification: SP Color: 2.5Y 7/1-light gray D50: 0.325 mm % Fines: 0.9		
-49.8	2.6		SAND, poorly-graded, mostly fine-grained sand-sized quartz, few shell fragments, lt. gray (SP)	B	Classification: SP Color: GLEY1 10Y 6/1- D50: 0.207 mm % Fines: 3.9		
-50.7	3.5		SAND, silty, mostly fine-grained sand-sized quartz, few shell fragments, trace wood debris, medium gray (SM)	C	Classification: SP-SM Color: GLEY1 10Y 6/1- D50: 0.198 mm % Fines: 8.3		
-51.3	4.1		CLAY, lean, trace shell fragments, sandy, medium to dark gray (CL)	NS			
			CLAY, fat, sandy, hard, lt. gray, pale green, pale orange (CH)				
-56.9	8.9		CLAY, lean, sandy, lt. gray (CL)				
NOTES: 1. Soils are field visually classified in accordance with the Unified Soils Classification System. 2. NS = Sample not submitted for laboratory analysis from this interval. 3. Seafloor elevation calculated using sampling vessel's fathometer water depth reading and applying NOAA tidal gauge data conversion factor.							



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WORK ORDER: 848e

REQUISITION: W33SJC32900192

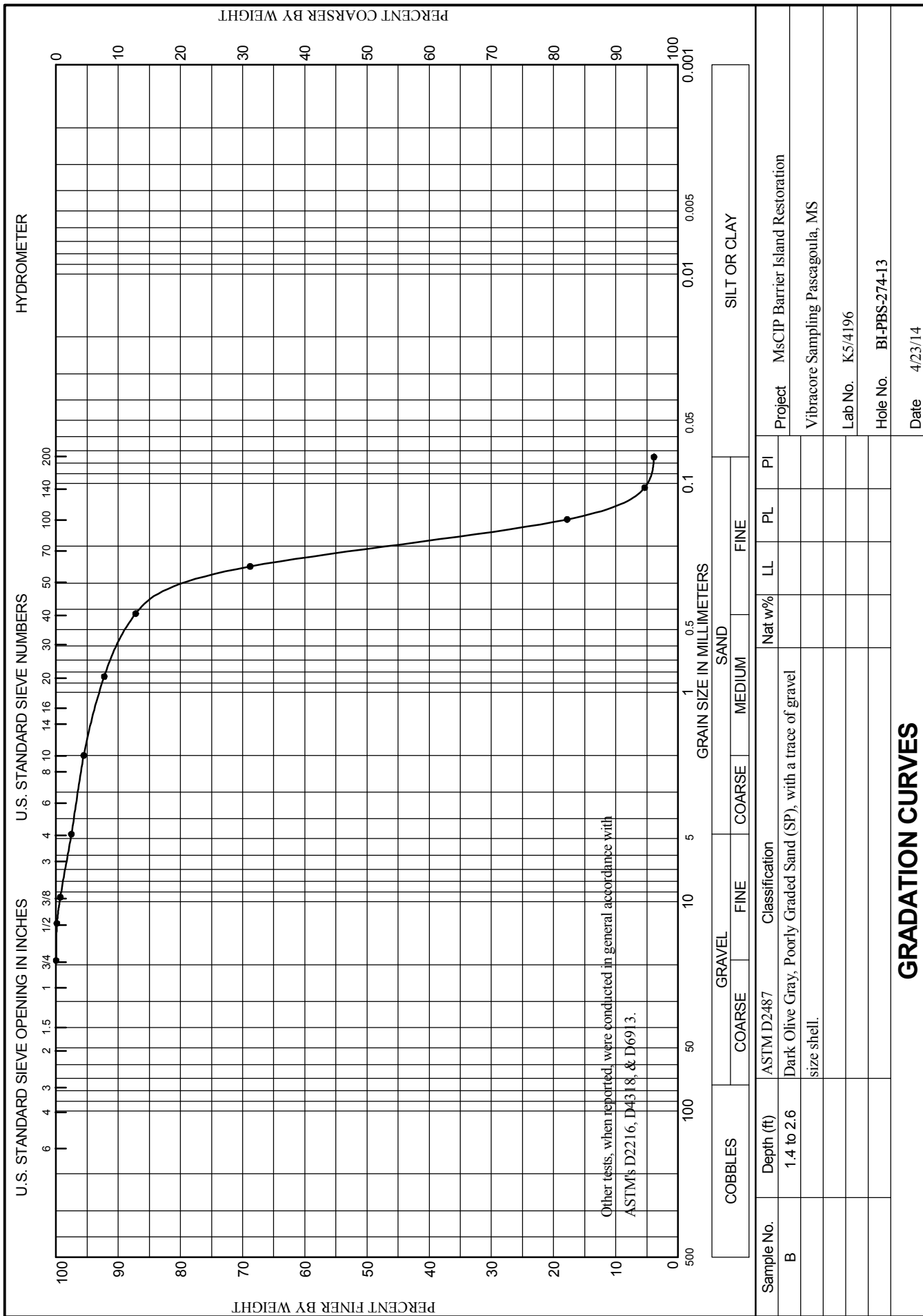




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WORK ORDER: 848e

REQUISITION: W33SSJG32900192

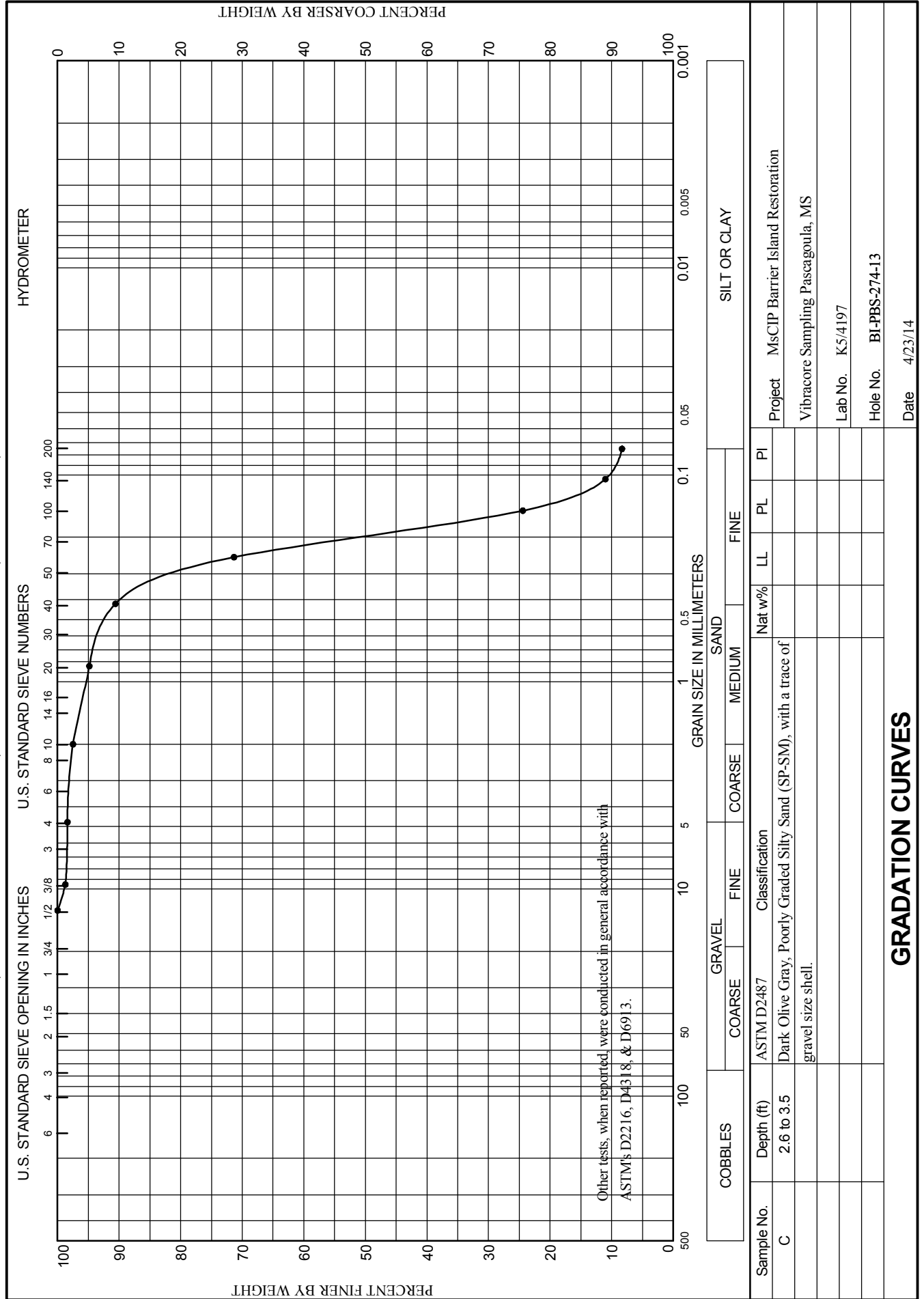




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CORPS OF ENGINEERS, 200 N. COBB PARKWAY, BLDG 400 SUITE 404, MARIETTA, GA. 30062

WORK ORDER: 848e

REQUISITION: W33SJC32900192



# Boring Designation BI-PBS-275-13

<b>DRILLING LOG</b>		<b>DIVISION</b> South Atlantic	<b>INSTALLATION</b> Mobile District	<b>SHEET 1</b> <b>OF 2 SHEETS</b>
<b>1. PROJECT</b> MsCIP Barrier Island Restoration Petit Bois Pass-OCS West		<b>9. SIZE AND TYPE OF BIT</b> N/A		
<b>2. BORING DESIGNATION</b> BI-PBS-275-13		<b>10. COORDINATE SYSTEM/DATUM</b> State Plane, MSE (U.S. Ft.)		
<b>3. DRILLING AGENCY</b> Corps of Engineers - CESAM		<b>11. MANUFACTURER'S DESIGNATION OF DRILL</b> Vibracore		
<b>4. NAME OF DRILLER</b> Construction Solutions International, Inc.		<b>12. TOTAL SAMPLES</b> 1		
<b>5. DIRECTION OF BORING</b> <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED		<b>13. TOTAL NUMBER CORE BOXES</b> 50.7 Ft.		
<b>6. THICKNESS OF OVERBURDEN</b> N/A		<b>14. WATER DEPTH</b> 50.7 Ft.		
<b>7. DEPTH DRILLED INTO ROCK</b> N/A		<b>15. DATE BORING</b> 01-12-14		
<b>8. TOTAL DEPTH OF BORING</b> 16.9 Ft.		<b>16. ELEVATION TOP OF BORING</b> -51.4 Ft.		
		<b>17. TOTAL RECOVERY FOR BORING</b> 100%		
		<b>18. SIGNATURE AND TITLE OF INSPECTOR</b> Tom Powers, Geologist		

ELEV.	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS	SAMPLE	LABORATORY RESULTS
-51.4	0.0				
-53.0	1.6		SAND, poorly-graded with silt, mostly fine-grained sand-sized quartz, few shell fragments, medium gray (SP-SM)	A	Classification: SM Color: 2.5Y 5/1-gray D50: 0.173 mm % Fines: 14.1
-53.4	2.0		SAND, clayey, mostly fine-grained sand-sized quartz, trace shell fragments, medium gray (SC)		
			CLAY, lean, few shell fragments, interbedded with lenses of fine-grained SM and SC, medium gray (CL)		
-60.7	9.3		CLAY, fat, sandy, lt. gray, pale orange (CH)	NS	
-67.0	15.6		At El. -65.8 Ft., grayish brown below this depth		
-67.3	15.9		GRAVEL, poorly-graded, mostly shell fragments, dark gray (GP)		
-68.3	16.9		SAND, poorly-graded with silt, mostly fine-grained sand-sized quartz, little shell fragments, medium gray (SP-SM)		
NOTES: 1. Soils are field visually classified in accordance with the Unified Soils Classification System. 2. NS = Sample not submitted for laboratory analysis from this interval. 3. Seafloor elevation calculated using sampling vessel's fathometer water depth reading and applying NOAA tidal gauge data conversion					

<b>DRILLING LOG (Cont. Sheet)</b>			<b>INSTALLATION</b> Mobile District		<b>SHEET 2</b> <b>OF 2 SHEETS</b>
<b>PROJECT</b> MsCIP Barrier Island Restoration			<b>COORDINATE SYSTEM/DATUM</b> State Plane, MSE (U.S. Ft.)	<b>HORIZONTAL</b> NAD83	<b>VERTICAL</b> NAVD88
<b>LOCATION COORDINATES</b> X = 1,105,496 Y = 232,757			<b>ELEVATION TOP OF BORING</b> -51.4 Ft.		
<b>ELEV.</b>	<b>DEPTH</b>	<b>LEGEND</b>	<b>CLASSIFICATION OF MATERIALS</b>	<b>SAMPLE</b>	<b>LABORATORY RESULTS</b>
			factor.		





WORK ORDER: 848e

REQUISITION: W33SJG32900192



# Boring Designation BI-PBS-276-13

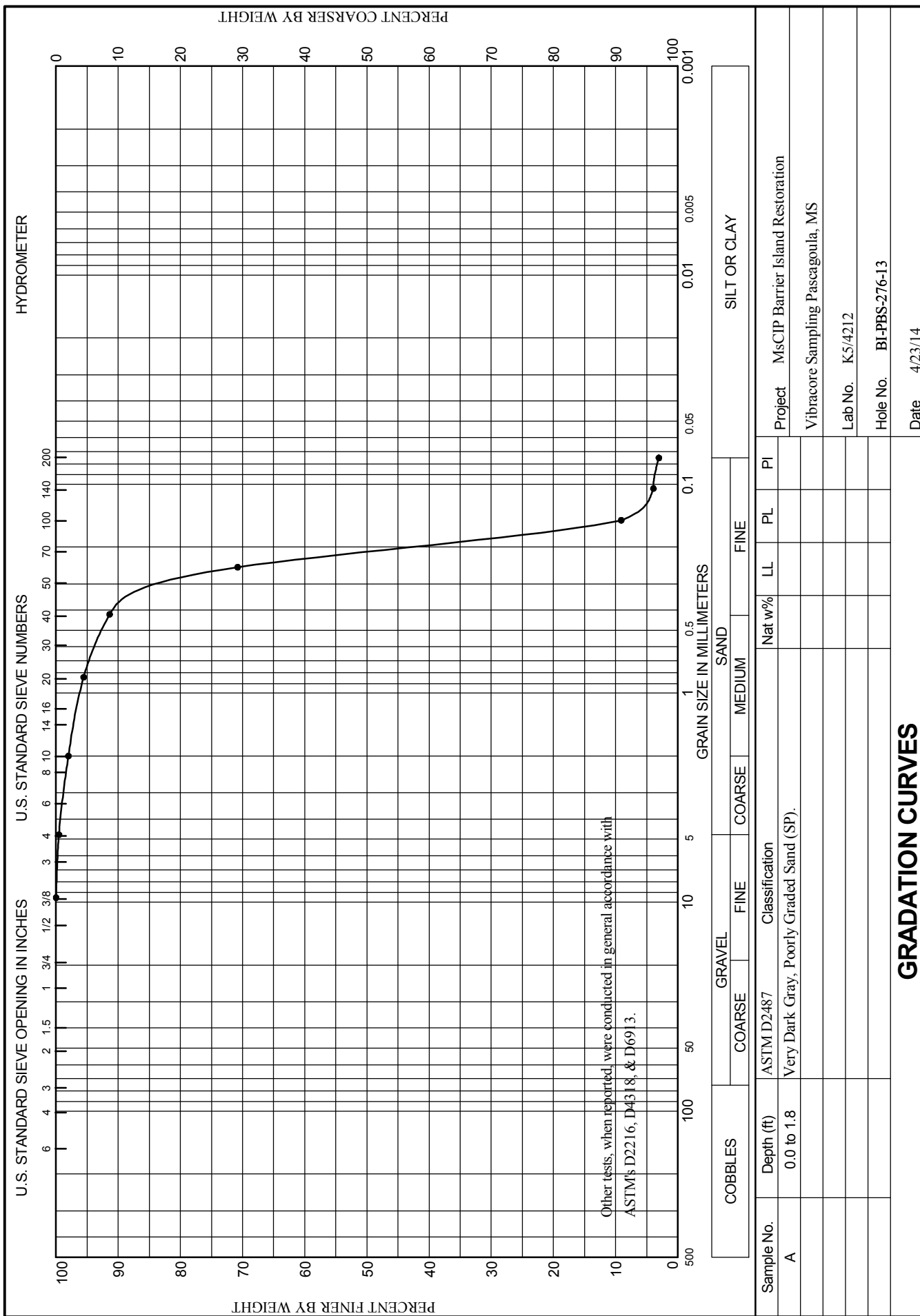
DRILLING LOG		DIVISION South Atlantic		INSTALLATION Mobile District		SHEET 1 OF 1 SHEETS	
1. PROJECT MsCIP Barrier Island Restoration Petit Bois Pass-OCS West				9. SIZE AND TYPE OF BIT N/A			
2. BORING DESIGNATION BI-PBS-276-13		LOCATION COORDINATES E = 1,104,125 N = 229,723		10. COORDINATE SYSTEM/DATUM State Plane, MSE (U.S. Ft.)		HORIZONTAL NAD83	
3. DRILLING AGENCY Corps of Engineers - CESAM		CONTRACTOR FILE NO.		11. MANUFACTURER'S DESIGNATION OF DRILL Vibrocure		<input type="checkbox"/> AUTO HAMMER <input type="checkbox"/> MANUAL HAMMER	
4. NAME OF DRILLER Construction Solutions International, Inc.				12. TOTAL SAMPLES 2		DISTURBED 0	
5. DIRECTION OF BORING <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED				13. TOTAL NUMBER CORE BOXES		14. WATER DEPTH 47.7 Ft.	
6. THICKNESS OF OVERBURDEN N/A				15. DATE BORING 01-18-14		STARTED 01-18-14	
7. DEPTH DRILLED INTO ROCK N/A				16. ELEVATION TOP OF BORING -48.0 Ft.		COMPLETED 01-18-14	
8. TOTAL DEPTH OF BORING 14.6 Ft.				17. TOTAL RECOVERY FOR BORING 100%		18. SIGNATURE AND TITLE OF INSPECTOR Mike FitzHarris, Geologist	
ELEV.	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS	SAMPLE	LABORATORY RESULTS		
-48.0	0.0						
-49.8	1.8		SAND, poorly-graded, mostly fine-grained sand-sized quartz, trace shell, gray (SP)	A	Classification: SP Color: 2.5Y 6/1-gray D50: 0.21 mm % Fines: 3		
-53.4	5.4		SAND, silty, mostly fine-grained sand-sized quartz, trace shell, trace clay, gray (SM)	B	Classification: SP-SM Color: 2.5Y 5/1-gray D50: 0.187 mm % Fines: 10.1		
-53.7	6.7		SAND, clayey, mostly fine-grained sand-sized quartz, gray (SC)	NS			
-57.9	9.9		CLAY, lean, trace fine-grained sand, soft, gray (CL)				
-62.6	14.6		CLAY, fat, stiff, mottled gray and lt. brown (CH)				
NOTES: 1. Soils are field visually classified in accordance with the Unified Soils Classification System. 2. NS = Sample not submitted for laboratory analysis from this interval. 3. Seafloor elevation calculated using sampling vessel's fathometer water depth reading and applying NOAA tidal gauge data conversion factor.							



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CORPS OF ENGINEERS, 200 N. COBB PARKWAY, BLDG 400 SUITE 404, MARIETTA, GA. 30062

WORK ORDER: 848e

REQUISITION: W33SJC32900192

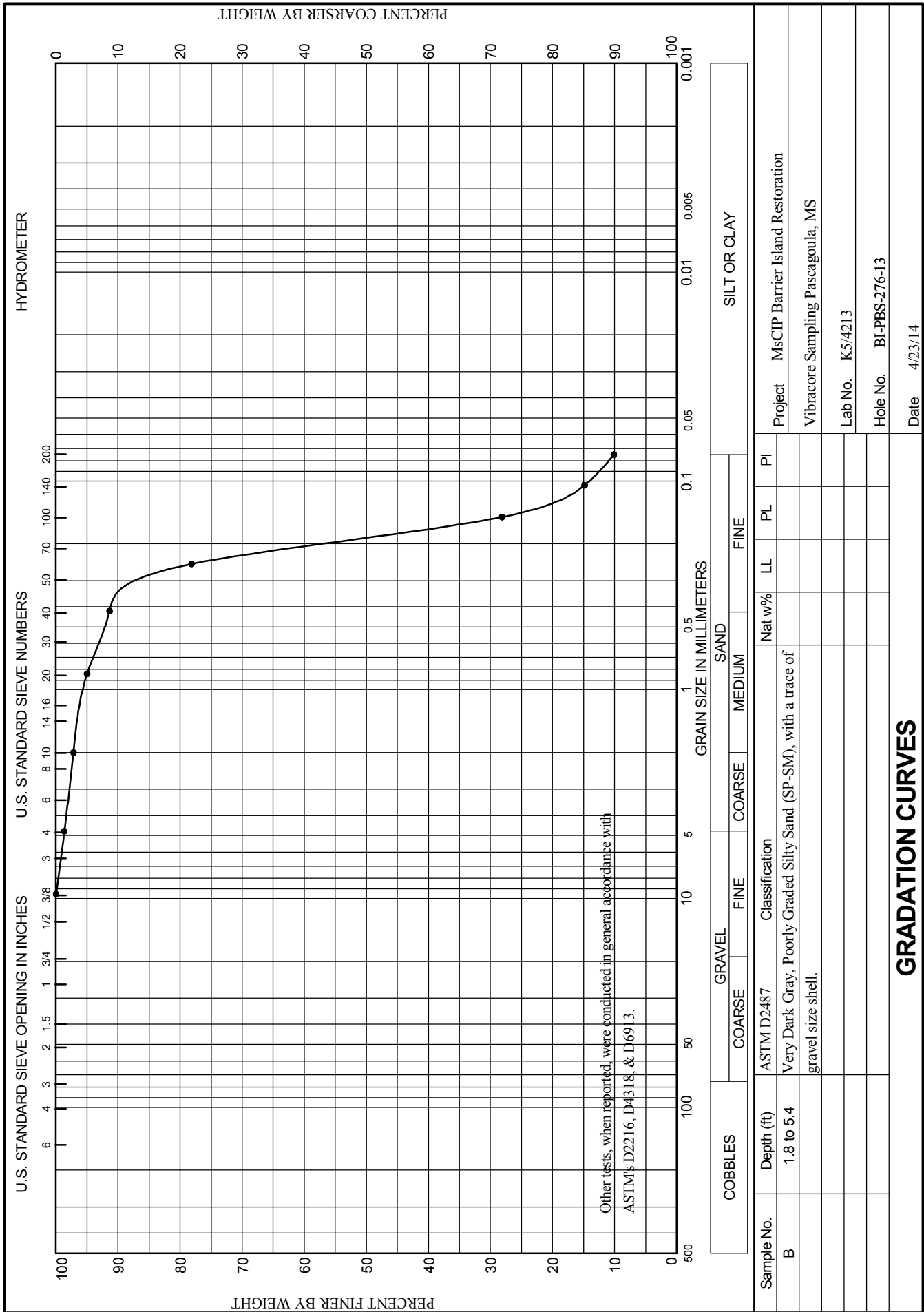




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WORK ORDER: 848e

REQUISITION: W33SJC32900192



# Boring Designation BI-PBS-277-13

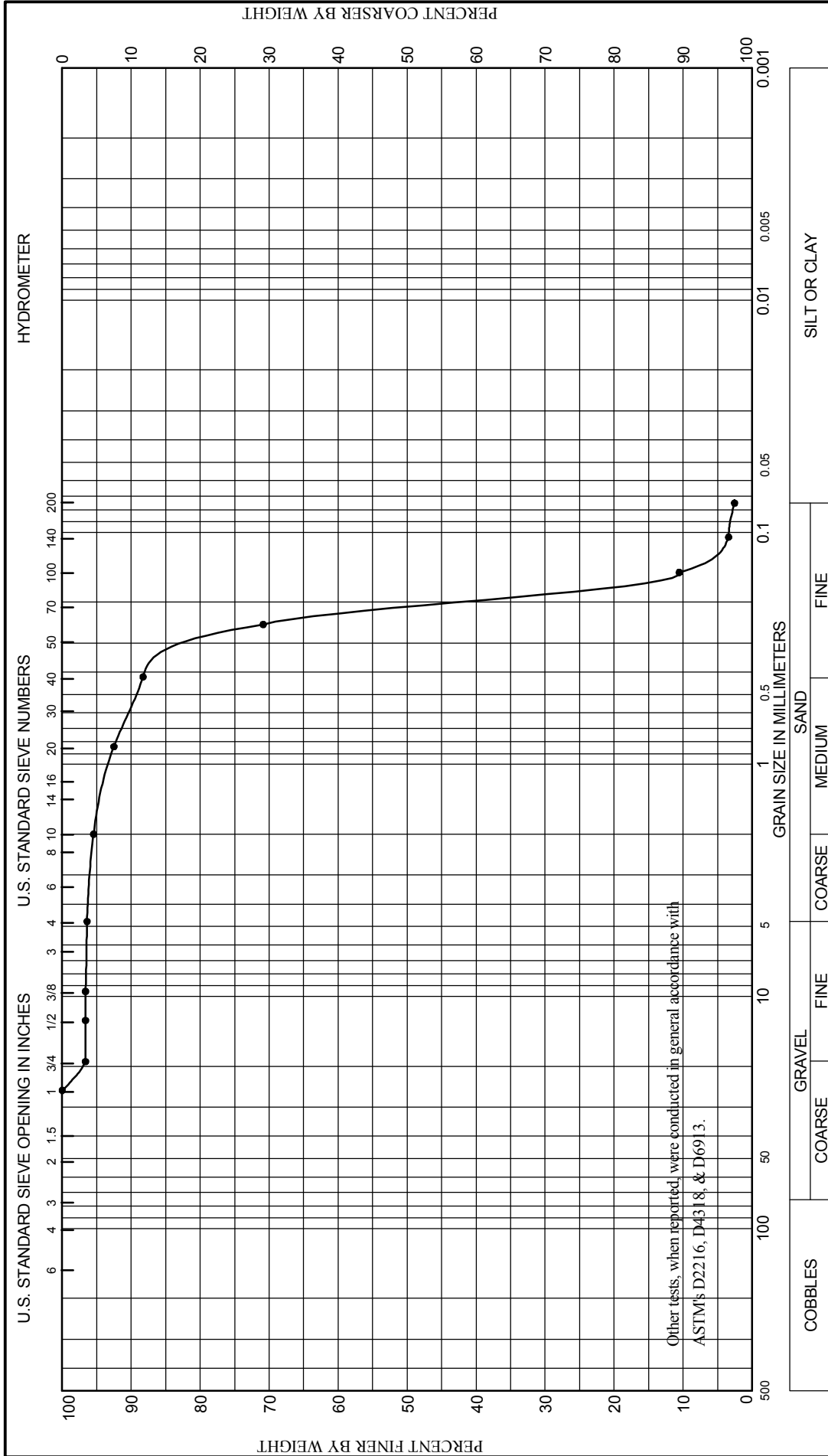
DRILLING LOG		DIVISION South Atlantic		INSTALLATION Mobile District		SHEET 1 OF 1 SHEETS	
1. PROJECT MsCIP Barrier Island Restoration Petit Bois Pass-OCS West				9. SIZE AND TYPE OF BIT N/A			
2. BORING DESIGNATION BI-PBS-277-13		LOCATION COORDINATES E = 1,093,622 N = 224,984		10. COORDINATE SYSTEM/DATUM State Plane, MSE (U.S. Ft.)		HORIZONTAL NAD83	
3. DRILLING AGENCY Corps of Engineers - CESAM		CONTRACTOR FILE NO.		11. MANUFACTURER'S DESIGNATION OF DRILL Vibrocure		<input type="checkbox"/> AUTO HAMMER <input type="checkbox"/> MANUAL HAMMER	
4. NAME OF DRILLER Construction Solutions International, Inc.				12. TOTAL SAMPLES 3		UNDISTURBED (UD) 0	
5. DIRECTION OF BORING <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED				13. TOTAL NUMBER CORE BOXES		14. WATER DEPTH 48.4 Ft.	
6. THICKNESS OF OVERBURDEN N/A				15. DATE BORING 01-27-14		COMPLETED 01-27-14	
7. DEPTH DRILLED INTO ROCK N/A				16. ELEVATION TOP OF BORING -48.1 Ft.		17. TOTAL RECOVERY FOR BORING 100%	
8. TOTAL DEPTH OF BORING 14.6 Ft.				18. SIGNATURE AND TITLE OF INSPECTOR Tom Powers, Geologist			
ELEV.	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS	SAMPLE	LABORATORY RESULTS		
-48.1	0.0						
-50.5	2.4		SAND, poorly-graded, mostly fine to medium-grained sand-sized quartz, few shell fragments, lt. gray (SP) At El. -49.5 Ft., fine grained to base of unit	A	Classification: SP Color: 2.5Y 5/1-gray D50: 0.209 mm % Fines: 2.5		
-52.2	4.1		SAND, poorly-graded with silt, mostly fine-grained sand-sized quartz, few shell fragments, lt. to medium gray (SP-SM)	B	Classification: SP Color: 2.5Y 5/1-gray D50: 0.202 mm % Fines: 4.1		
-54.4	6.3		SAND, silty, mostly fine-grained sand-sized quartz, few shell fragments, medium gray (SM)	C	Classification: SM Color: 2.5Y 5/1-gray D50: 0.147 mm % Fines: 13		
-55.4	7.3		SAND, silty, clayey, mostly fine-grained sand-sized quartz, few shell fragments, medium to dark gray (SC-SM)	NS			
-56.1	8.0		CLAY, lean, few shell fragments, sandy, medium to dark gray (CL)				
-59.5	11.4		CLAY, fat, few sand, lt. gray, pale orange, pale green (CH)				
-61.0	12.9		CLAY, lean, sandy, medium to lt. gray (CL)				
-62.7	14.6		CLAY, fat, sandy, medium to lt. gray (CH)				
NOTES: 1. Soils are field visually classified in accordance with the Unified Soils Classification System. 2. NS = Sample not submitted for laboratory analysis from this interval. 3. Seafloor elevation calculated using sampling vessel's fathometer water depth reading and applying NOAA tidal gauge data conversion factor.							



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WORK ORDER: 848e

REQUISITION: W33SJC32900192



Sample No.	Depth (ft)	ASTM D2487	Classification	Nat w%	LL	PL	PI	Project	MsCIP Barrier Island Restoration
A	0.0 to 2.4	Dark Gray, Poorly Graded Sand (SP), with a trace of gravel size shell.						Vibracore Sampling Pascagoula, MS	
								Lab No.	K5/4570
								Hole No.	BI-PBS-277-13
								Date	4/23/14

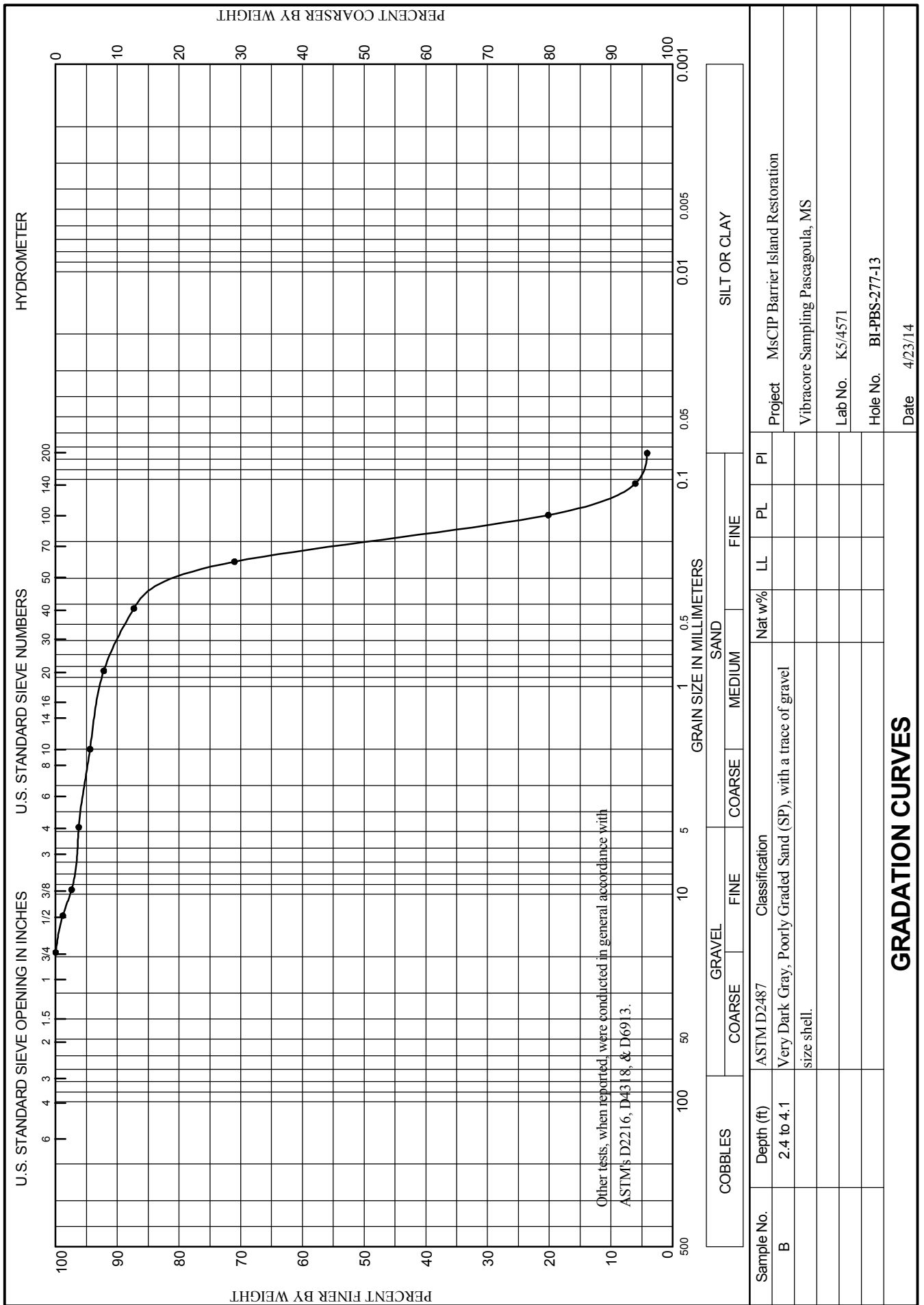
GRADATION CURVES



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WORK ORDER: 848e

REQUISITION: W33SJC32900192

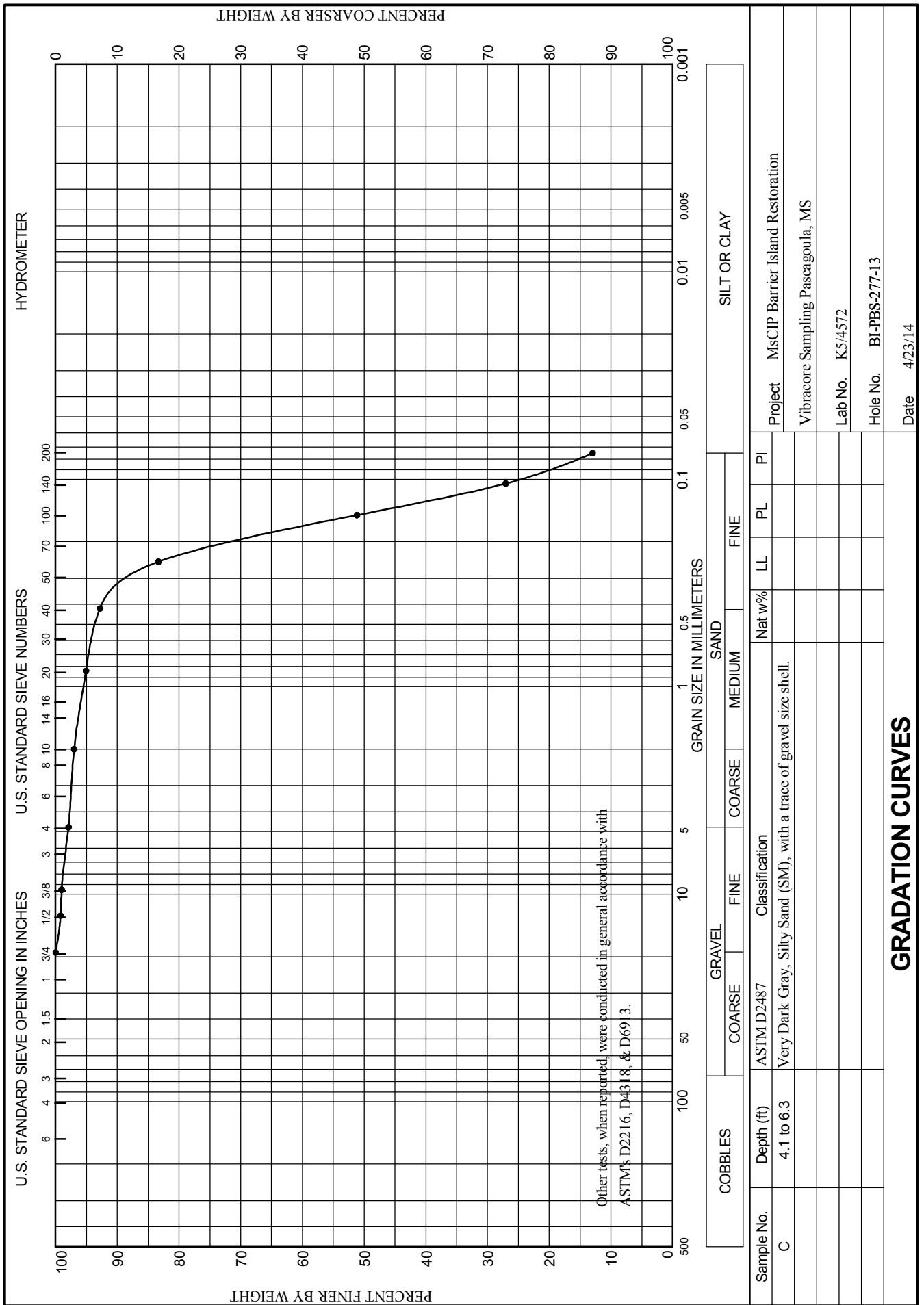




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WORK ORDER: 848e

REQUISITION: W33SJG32900192





# Boring Designation BI-PBS-278-13

DRILLING LOG		DIVISION South Atlantic		INSTALLATION Mobile District		SHEET 1 OF 2 SHEETS	
1. PROJECT MsCIP Barrier Island Restoration Petit Bois Pass-OCS West				9. SIZE AND TYPE OF BIT N/A			
2. BORING DESIGNATION BI-PBS-278-13		LOCATION COORDINATES E = 1,086,726 N = 227,389		10. COORDINATE SYSTEM/DATUM State Plane, MSE (U.S. Ft.)		HORIZONTAL NAD83	
3. DRILLING AGENCY Corps of Engineers - CESAM		CONTRACTOR FILE NO.		11. MANUFACTURER'S DESIGNATION OF DRILL Vibrocure		<input type="checkbox"/> AUTO HAMMER <input type="checkbox"/> MANUAL HAMMER	
4. NAME OF DRILLER Construction Solutions International, Inc.				12. TOTAL SAMPLES 3		UNDISTURBED (UD) 0	
5. DIRECTION OF BORING <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED				13. TOTAL NUMBER CORE BOXES		14. WATER DEPTH 50.7 Ft.	
6. THICKNESS OF OVERBURDEN N/A				15. DATE BORING 01-27-14		STARTED 01-27-14	
7. DEPTH DRILLED INTO ROCK N/A				16. ELEVATION TOP OF BORING -50.1 Ft.		COMPLETED 01-27-14	
8. TOTAL DEPTH OF BORING 19.1 Ft.				17. TOTAL RECOVERY FOR BORING 100%		18. SIGNATURE AND TITLE OF INSPECTOR Tom Powers, Geologist	
ELEV.	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS	SAMPLE	LABORATORY RESULTS		
-50.1	0.0						
-53.6	3.5		SAND, silty, mostly fine-grained sand-sized quartz, few shell fragments, medium gray (SM)	A	Classification: SP-SM    Color: 2.5Y 5/1-gray D50: 0.178 mm    % Fines: 7.2		
-55.1	5.0		SAND, poorly-graded with silt, mostly fine-grained sand-sized quartz, few shell fragments, lt. to medium gray (SP-SM)	B	Classification: SP-SM    Color: 2.5Y 5/1-gray D50: 0.18 mm    % Fines: 7.3		
-60.3	10.2		SAND, silty, mostly fine-grained sand-sized quartz, trace shell fragments, lt. to medium gray (SM)	C	Classification: SM    Color: 2.5Y 5/1-gray D50: 0.113 mm    % Fines: 16.9		
-69.2	19.1		CLAY, lean, soft between depths of 10.2 to 14.3 ft., firm beneath to depth of 19.1 ft., medium dark gray (CL)	NS			
NOTES:							
1. Soils are field visually classified in accordance with the Unified Soils Classification System.							
2. NS = Sample not submitted for laboratory analysis from this interval.							
3. Seafloor elevation calculated using sampling vessel's fathometer water depth reading and applying NOAA tidal gauge data conversion							

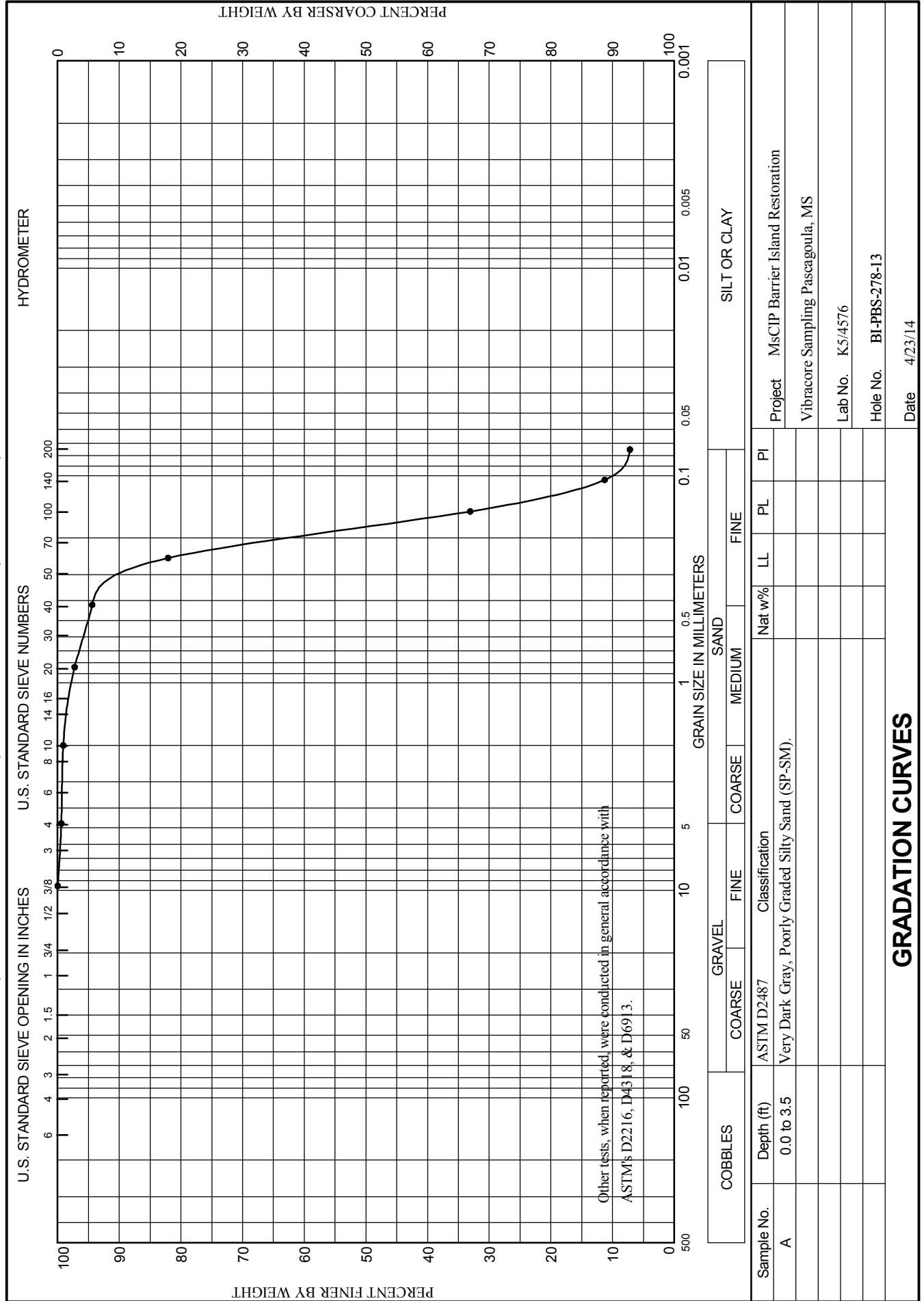
<b>DRILLING LOG (Cont. Sheet)</b>			<b>INSTALLATION</b> Mobile District		<b>SHEET 2</b> <b>OF 2 SHEETS</b>
			<b>PROJECT</b> MsCIP Barrier Island Restoration		<b>COORDINATE SYSTEM/DATUM</b> State Plane, MSE (U.S. Ft.)
<b>LOCATION COORDINATES</b> X = 1,086,726 Y = 227,389			<b>ELEVATION TOP OF BORING</b> -50.1 Ft.		
ELEV.	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS	SAMPLE	LABORATORY RESULTS
			factor.		



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WORK ORDER: 848e

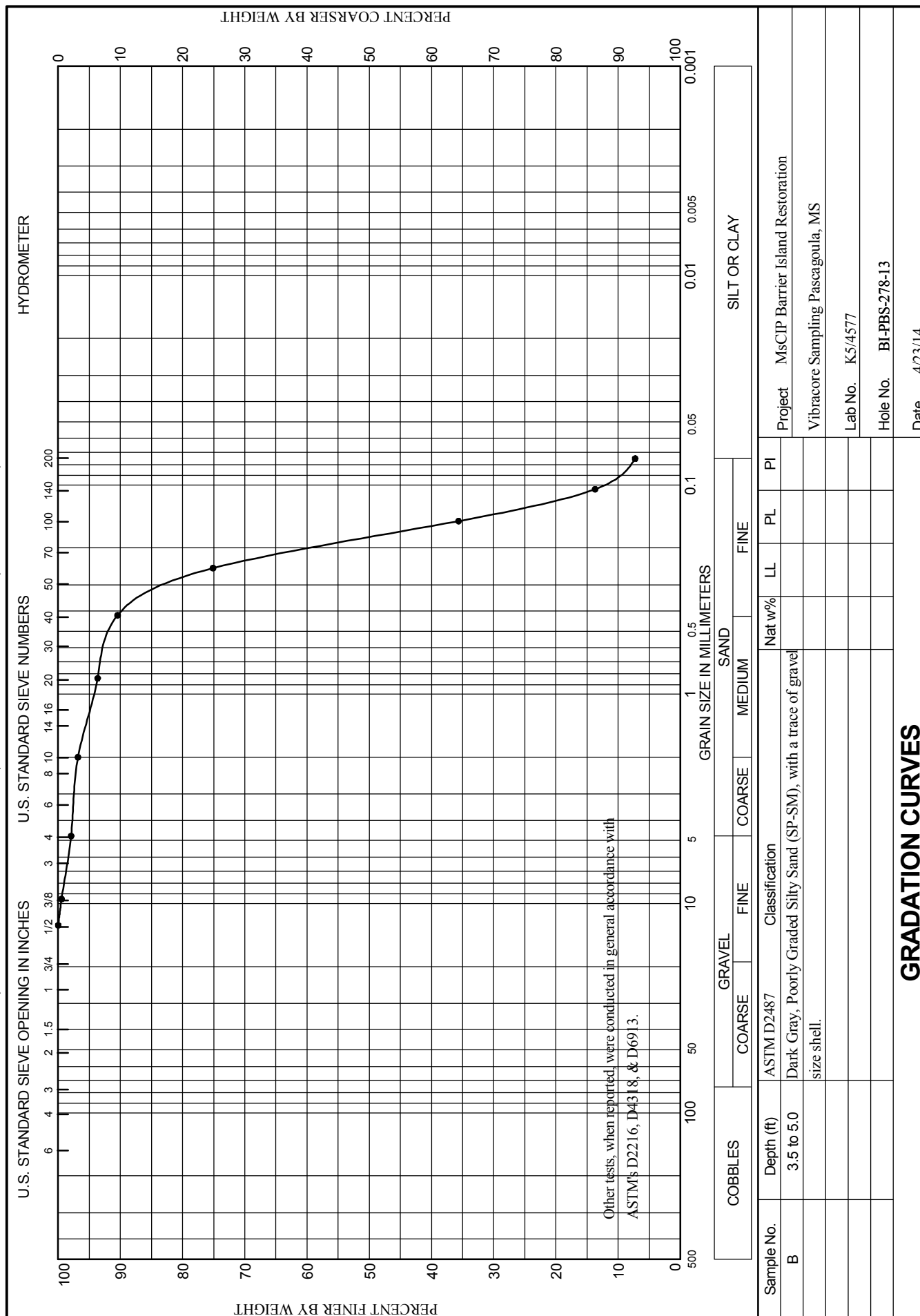
REQUISITION: W33SJC32900192





WORK ORDER: 848e

REQUISITION: W33SJG32900192

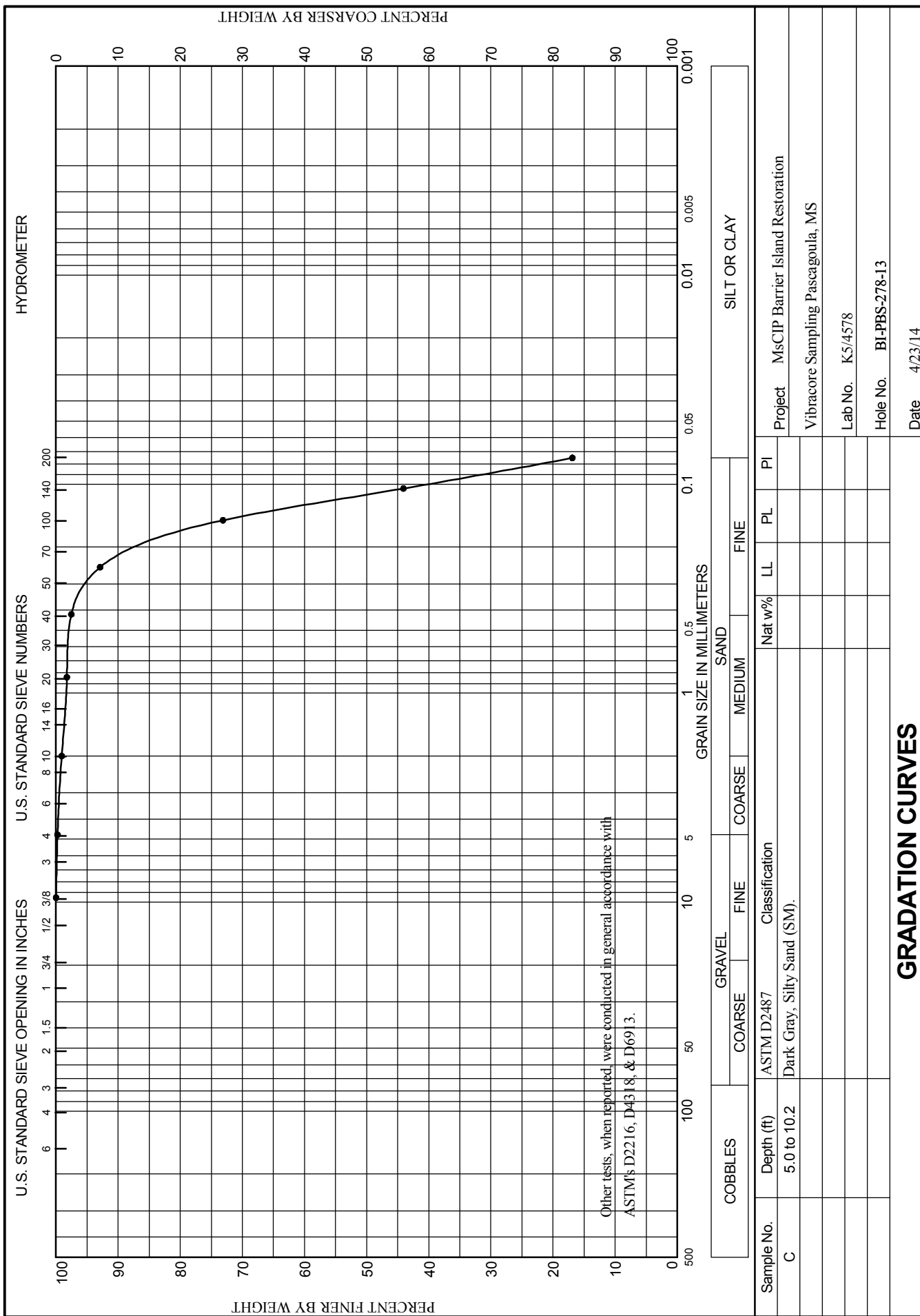




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WORK ORDER: 848e

REQUISITION: W33SJC32900192



# Boring Designation BI-PBS-279-13

DRILLING LOG		DIVISION South Atlantic		INSTALLATION Mobile District		SHEET 1 OF 1 SHEETS	
1. PROJECT MsCIP Barrier Island Restoration Petit Bois Pass-OCS West				9. SIZE AND TYPE OF BIT N/A			
2. BORING DESIGNATION BI-PBS-279-13		LOCATION COORDINATES E = 1,094,971 N = 226,453		10. COORDINATE SYSTEM/DATUM State Plane, MSE (U.S. Ft.)		HORIZONTAL NAD83 VERTICAL NAVD88	
3. DRILLING AGENCY Corps of Engineers - CESAM		CONTRACTOR FILE NO.		11. MANUFACTURER'S DESIGNATION OF DRILL Vibrocure		<input type="checkbox"/> AUTO HAMMER <input type="checkbox"/> MANUAL HAMMER	
4. NAME OF DRILLER Construction Solutions International, Inc.				12. TOTAL SAMPLES 1		DISTURBED 1 UNDISTURBED (UD) 0	
5. DIRECTION OF BORING <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED		DEG. FROM VERTICAL		13. TOTAL NUMBER CORE BOXES			
		BEARING		14. WATER DEPTH 49.7 Ft.			
6. THICKNESS OF OVERBURDEN N/A				15. DATE BORING 01-27-14		STARTED 01-27-14 COMPLETED 01-27-14	
7. DEPTH DRILLED INTO ROCK N/A				16. ELEVATION TOP OF BORING -49.7 Ft.			
8. TOTAL DEPTH OF BORING 7.3 Ft.				17. TOTAL RECOVERY FOR BORING 100%			
				18. SIGNATURE AND TITLE OF INSPECTOR Tom Powers, Geologist			

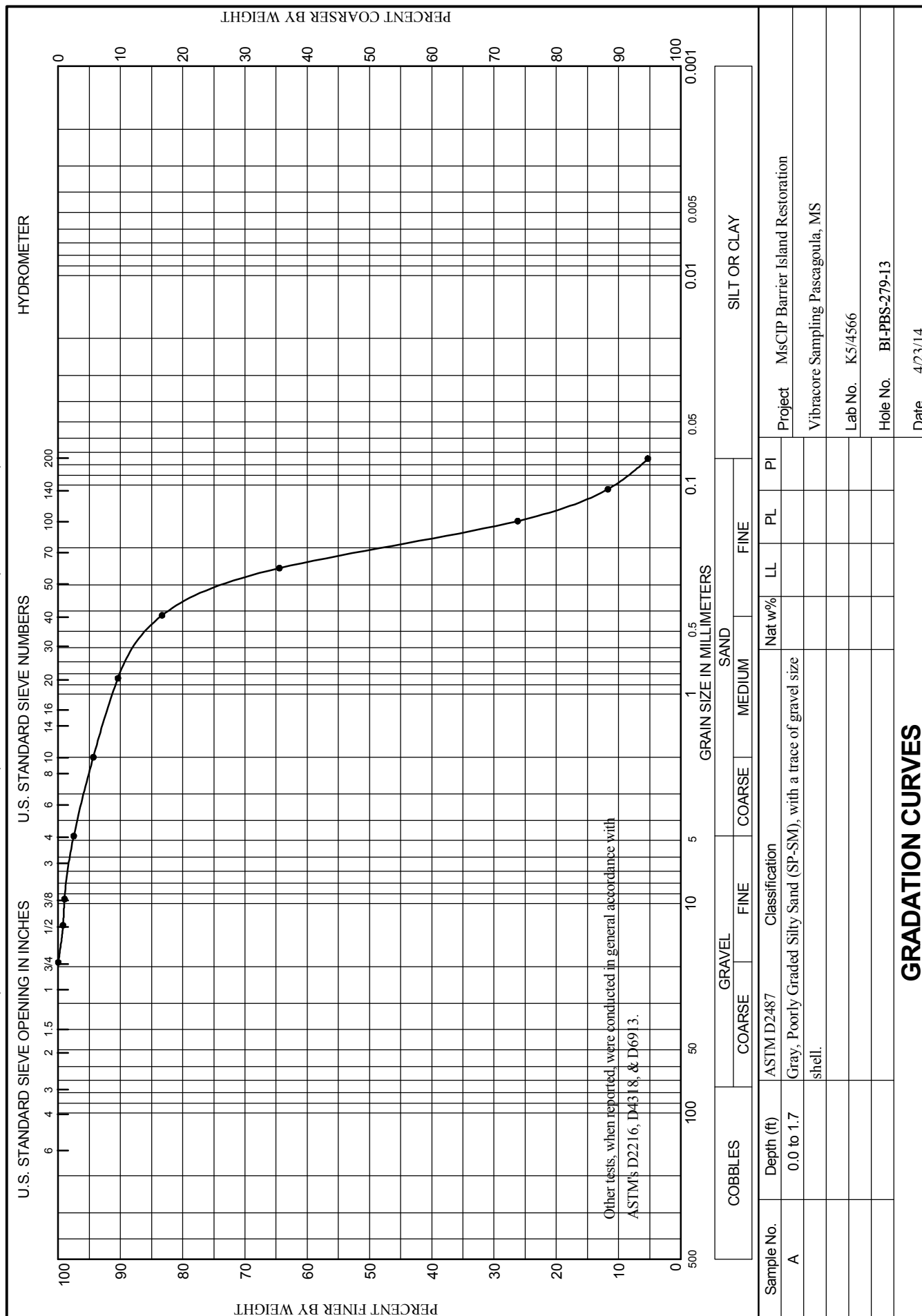
  

ELEV.	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS	SAMPLE	LABORATORY RESULTS
-49.7	0.0				
-50.4	0.7				
-51.4	1.7				
-51.7	2.0				
			SAND, poorly-graded with silt, mostly fine to medium-grained sand-sized quartz, little shell fragments, lt. to medium gray (SP-SM)	A	Classification: SP-SM Color: 2.5Y 6/1-gray D50: 0.206 mm % Fines: 5.3
			SAND, poorly-graded with silt, mostly fine-grained sand-sized quartz, trace shell fragments, grayish brown (SP-SM)		
			SAND, silty, mostly fine-grained sand-sized quartz, few shell fragments, medium gray (SM)	NS	
-55.0	5.3		CLAY, lean, sandy, medium dark gray (CL) At El. -53.2 Ft., lt. brown		
-57.0	7.3		CLAY, fat, sandy, red, lt. brown, lt. gray (CH)		
NOTES: 1. Soils are field visually classified in accordance with the Unified Soils Classification System. 2. NS = Sample not submitted for laboratory analysis from this interval. 3. Seafloor elevation calculated using sampling vessel's fathometer water depth reading and applying NOAA tidal gauge data conversion factor.					



WORK ORDER: 848e

REQUISITION: W33SJG32900192



# Boring Designation BI-PBS-281-13

DRILLING LOG		DIVISION South Atlantic		INSTALLATION Mobile District		SHEET 1 OF 1 SHEETS	
1. PROJECT MsCIP Barrier Island Restoration Petit Bois Pass-OCS West				9. SIZE AND TYPE OF BIT N/A			
2. BORING DESIGNATION BI-PBS-281-13		LOCATION COORDINATES E = 1,093,394 N = 227,212		10. COORDINATE SYSTEM/DATUM State Plane, MSE (U.S. Ft.)		HORIZONTAL NAD83 VERTICAL NAVD88	
3. DRILLING AGENCY Corps of Engineers - CESAM		CONTRACTOR FILE NO.		11. MANUFACTURER'S DESIGNATION OF DRILL Vibrocure		<input type="checkbox"/> AUTO HAMMER <input type="checkbox"/> MANUAL HAMMER	
4. NAME OF DRILLER Construction Solutions International, Inc.				12. TOTAL SAMPLES		DISTURBED 2 UNDISTURBED (UD) 0	
5. DIRECTION OF BORING <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED				13. TOTAL NUMBER CORE BOXES		14. WATER DEPTH 48.7 Ft.	
6. THICKNESS OF OVERBURDEN N/A				15. DATE BORING		STARTED 01-22-14 COMPLETED 01-22-14	
7. DEPTH DRILLED INTO ROCK N/A				16. ELEVATION TOP OF BORING -48.7 Ft.		17. TOTAL RECOVERY FOR BORING 100%	
8. TOTAL DEPTH OF BORING 12.5 Ft.				18. SIGNATURE AND TITLE OF INSPECTOR Tom Powers, Geologist			
ELEV.	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS	SAMPLE	LABORATORY RESULTS		
-48.7	0.0						
			SAND, poorly-graded, mostly fine to medium-grained sand-sized quartz, few shell fragments, lt. gray (SP)	A	Classification: SP Color: 10Y 8/1-light greenish gray D50: 0.225 mm % Fines: 2.1		
-52.0	3.3		SAND, silty, mostly fine-grained sand-sized quartz, few shell fragments, medium gray (SM)	B	Classification: SM Color: 10Y 7/1-light greenish gray D50: 0.14 mm % Fines: 12.2		
-56.9	8.2		CLAY, fat, sandy, hard, sand-filled voids to 9.8 ft. depth, lt. gray, pale orange (CH)	NS			
-60.6	11.9						
-61.2	12.5		SAND, silty, mostly fine to medium-grained sand-sized quartz, very slight plasticity, lt. gray (SM)				
NOTES: 1. Soils are field visually classified in accordance with the Unified Soils Classification System. 2. NS = Sample not submitted for laboratory analysis from this interval. 3. Seafloor elevation calculated using sampling vessel's fathometer water depth reading and applying NOAA tidal gauge data conversion factor.							

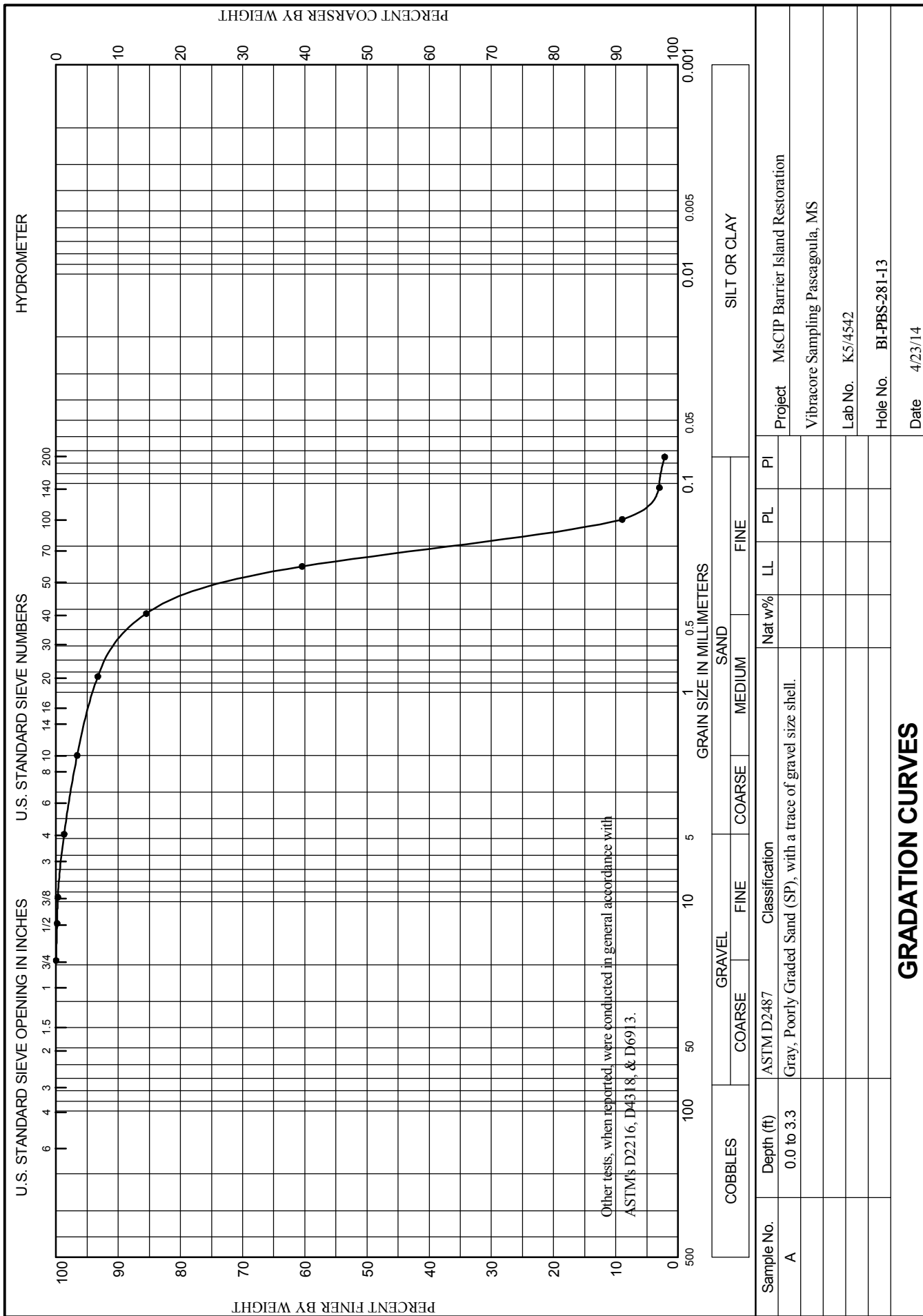




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WORK ORDER: 848e

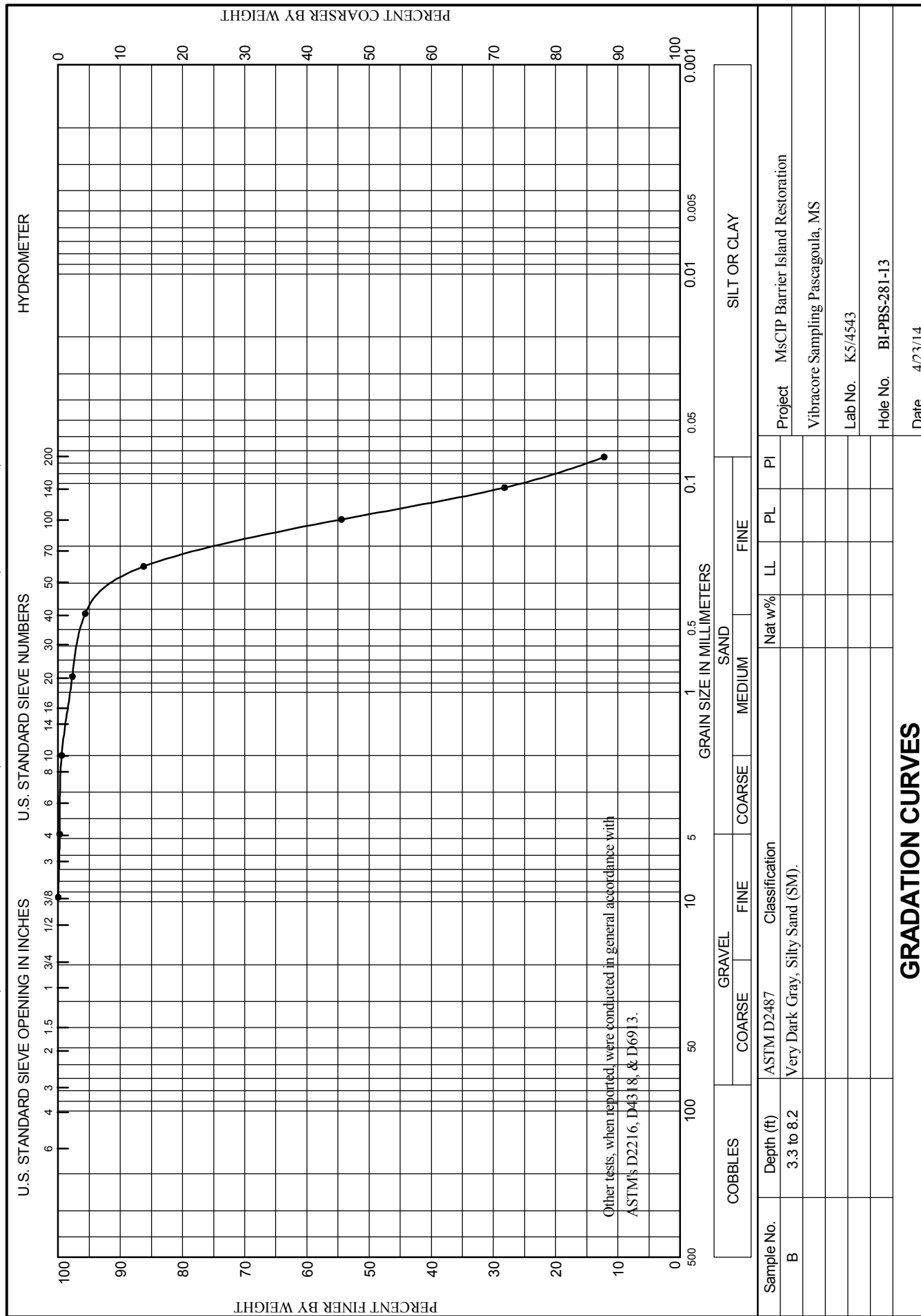
REQUISITION: W33SJC32900192





WORK ORDER: 848e

REQUISITION: W33SJG32900192



# Boring Designation BI-PBS-282-13

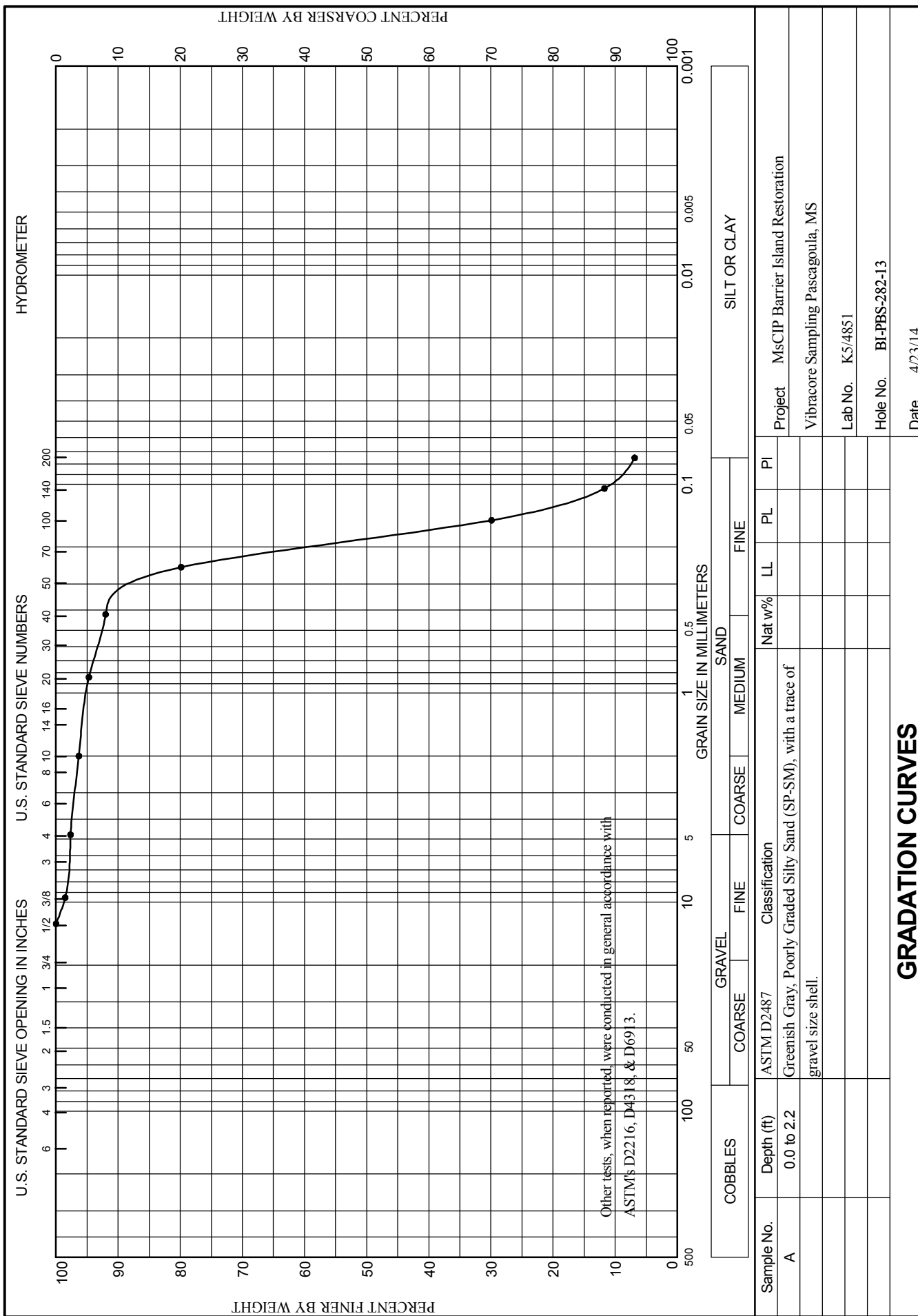
DRILLING LOG		DIVISION South Atlantic		INSTALLATION Mobile District		SHEET 1 OF 1 SHEETS	
1. PROJECT MsCIP Barrier Island Restoration Petit Bois Pass-OCS West				9. SIZE AND TYPE OF BIT N/A			
2. BORING DESIGNATION BI-PBS-282-13		LOCATION COORDINATES E = 1,091,333 N = 224,853		10. COORDINATE SYSTEM/DATUM State Plane, MSE (U.S. Ft.)		HORIZONTAL NAD83	
3. DRILLING AGENCY Corps of Engineers - CESAM		CONTRACTOR FILE NO.		11. MANUFACTURER'S DESIGNATION OF DRILL Vibrocure		<input type="checkbox"/> AUTO HAMMER <input type="checkbox"/> MANUAL HAMMER	
4. NAME OF DRILLER Construction Solutions International, Inc.				12. TOTAL SAMPLES		DISTURBED 1	
5. DIRECTION OF BORING <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED				13. TOTAL NUMBER CORE BOXES		UNDISTURBED (UD) 0	
6. THICKNESS OF OVERBURDEN N/A				14. WATER DEPTH 49.3 Ft.		15. DATE BORING 02-18-14	
7. DEPTH DRILLED INTO ROCK N/A				16. ELEVATION TOP OF BORING -49.0 Ft.		17. TOTAL RECOVERY FOR BORING 100%	
8. TOTAL DEPTH OF BORING 7.4 Ft.				18. SIGNATURE AND TITLE OF INSPECTOR Tom Powers, Geologist			
ELEV.	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS	SAMPLE	LABORATORY RESULTS		
-49.0	0.0						
-51.2	2.2		SAND, silty, mostly fine-grained sand-sized quartz, few shell fragments, lt. to medium gray (SM)	A	Classification: SP-SM    Color: 2.5Y 6/1-gray D50: 0.183 mm    % Fines: 6.9		
-56.4	7.4		CLAY, lean, trace shell fragments, soft to 4.5 ft., firm to base of unit; erosional contact with overlying SM, 45 degrees, medium gray (CL)	NS			
			NOTES: 1. Soils are field visually classified in accordance with the Unified Soils Classification System. 2. NS = Sample not submitted for laboratory analysis from this interval. 3. Seafloor elevation calculated using sampling vessel's fathometer water depth reading and applying NOAA tidal gauge data conversion factor.				



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WORK ORDER: 848e

REQUISITION: W33SJC32900192



# Boring Designation BI-PBS-283-13

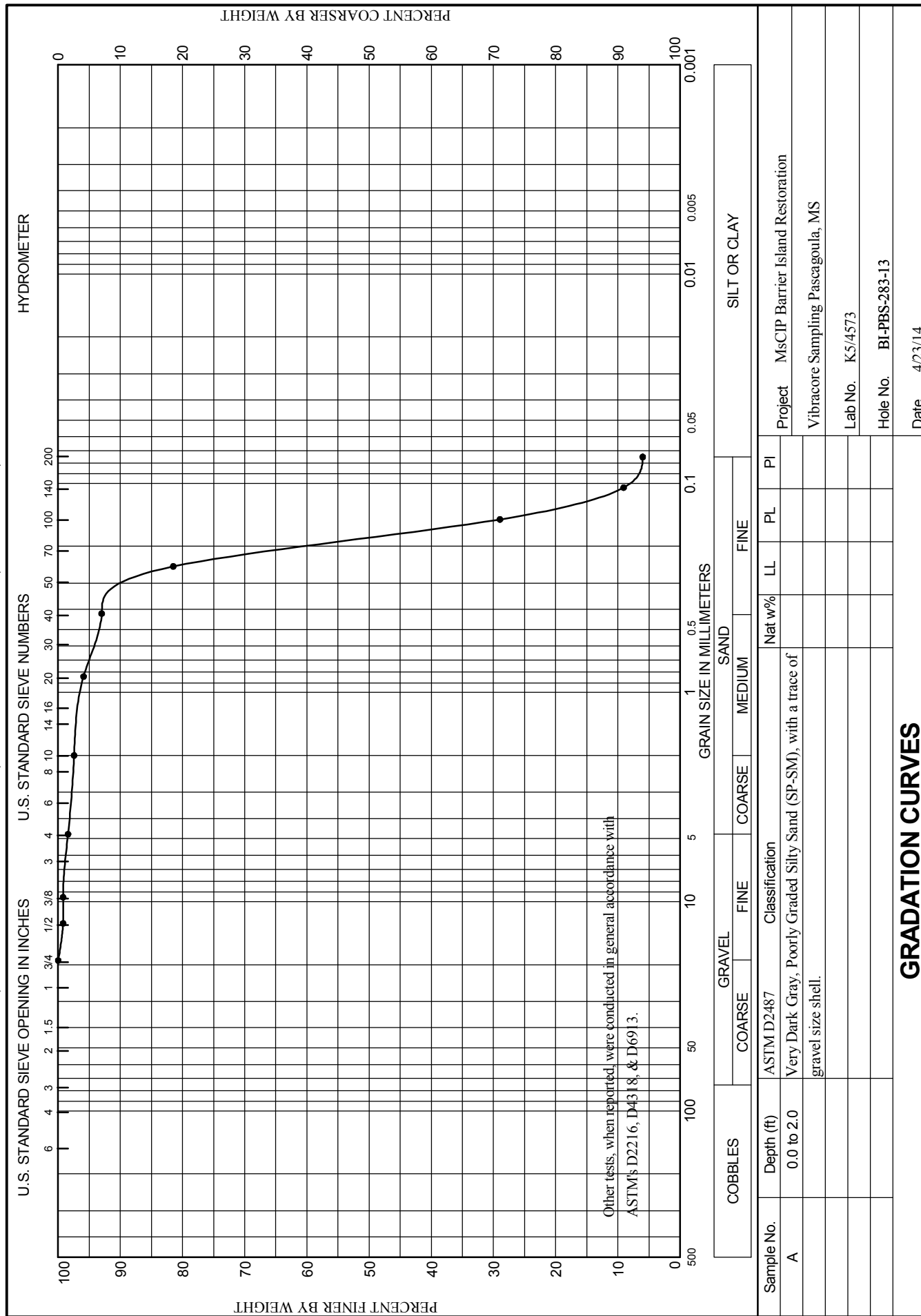
DRILLING LOG		DIVISION South Atlantic		INSTALLATION Mobile District		SHEET 1 OF 2 SHEETS	
1. PROJECT MsCIP Barrier Island Restoration Petit Bois Pass-OCS West				9. SIZE AND TYPE OF BIT N/A			
2. BORING DESIGNATION BI-PBS-283-13		LOCATION COORDINATES E = 1,089,620 N = 225,714		10. COORDINATE SYSTEM/DATUM State Plane, MSE (U.S. Ft.)		HORIZONTAL NAD83 VERTICAL NAVD88	
3. DRILLING AGENCY Corps of Engineers - CESAM		CONTRACTOR FILE NO.		11. MANUFACTURER'S DESIGNATION OF DRILL Vibracore		<input type="checkbox"/> AUTO HAMMER <input type="checkbox"/> MANUAL HAMMER	
4. NAME OF DRILLER Construction Solutions International, Inc.				12. TOTAL SAMPLES 3		DISTURBED 3 UNDISTURBED (UD) 0	
5. DIRECTION OF BORING <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED		DEG. FROM VERTICAL		13. TOTAL NUMBER CORE BOXES			
		BEARING		14. WATER DEPTH 50.4 Ft.			
6. THICKNESS OF OVERBURDEN N/A				15. DATE BORING 01-27-14		STARTED 01-27-14 COMPLETED 01-27-14	
7. DEPTH DRILLED INTO ROCK N/A				16. ELEVATION TOP OF BORING -49.9 Ft.			
8. TOTAL DEPTH OF BORING 19.9 Ft.				17. TOTAL RECOVERY FOR BORING 100%			
				18. SIGNATURE AND TITLE OF INSPECTOR Tom Powers, Geologist			
ELEV.	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS	SAMPLE	LABORATORY RESULTS		
-49.9	0.0						
-51.9	2.0		SAND, poorly-graded with silt, mostly fine-grained sand-sized quartz, few shell fragments, lt. to medium gray (SP-SM)	A	Classification: SP-SM Color: 2.5Y 5/1-gray D50: 0.183 mm % Fines: 6		
			SAND, silty, mostly fine-grained sand-sized quartz, few shell fragments, lt. to medium gray (SM)	B	Classification: SP-SM Color: 2.5Y 5/1-gray D50: 0.152 mm % Fines: 11		
-59.4	9.5			C	Classification: SM Color: 2.5Y 5/1-gray D50: 0.111 mm % Fines: 19		
			CLAY, lean, sandy, soft, very loose between 10 and 12 ft. depth, medium dark gray (CL)	NS			
-68.4	18.5						
-69.8	19.9		CLAY, fat, firm, dark gray (CH)				
			NOTES: 1. Soils are field visually classified in accordance with the Unified Soils Classification System. 2. NS = Sample not submitted for laboratory analysis from this interval. 3. Seafloor elevation calculated using sampling				

<b>DRILLING LOG (Cont. Sheet)</b>			<b>INSTALLATION</b> Mobile District		<b>SHEET 2</b> <b>OF 2 SHEETS</b>
<b>PROJECT</b> MsCIP Barrier Island Restoration			<b>COORDINATE SYSTEM/DATUM</b> State Plane, MSE (U.S. Ft.)	<b>HORIZONTAL</b> NAD83	<b>VERTICAL</b> NAVD88
<b>LOCATION COORDINATES</b> X = 1,089,620 Y = 225,714			<b>ELEVATION TOP OF BORING</b> -49.9 Ft.		
<b>ELEV.</b>	<b>DEPTH</b>	<b>LEGEND</b>	<b>CLASSIFICATION OF MATERIALS</b>	<b>SAMPLE</b>	<b>LABORATORY RESULTS</b>
			vessel's fathometer water depth reading and applying NOAA tidal gauge data conversion factor.		



WORK ORDER: 848e

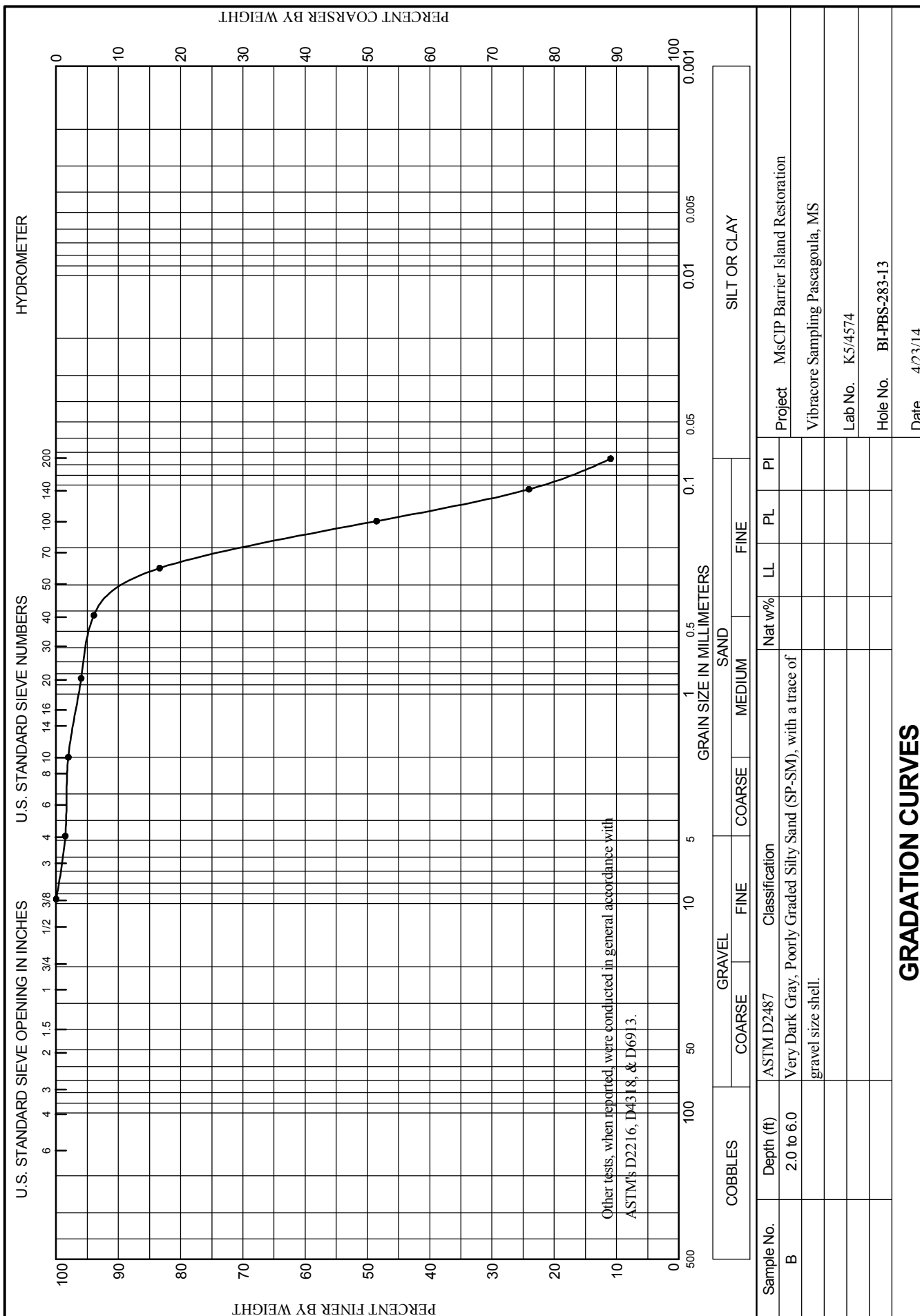
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WORK ORDER: 848e

REQUISITION: W33SJG32900192



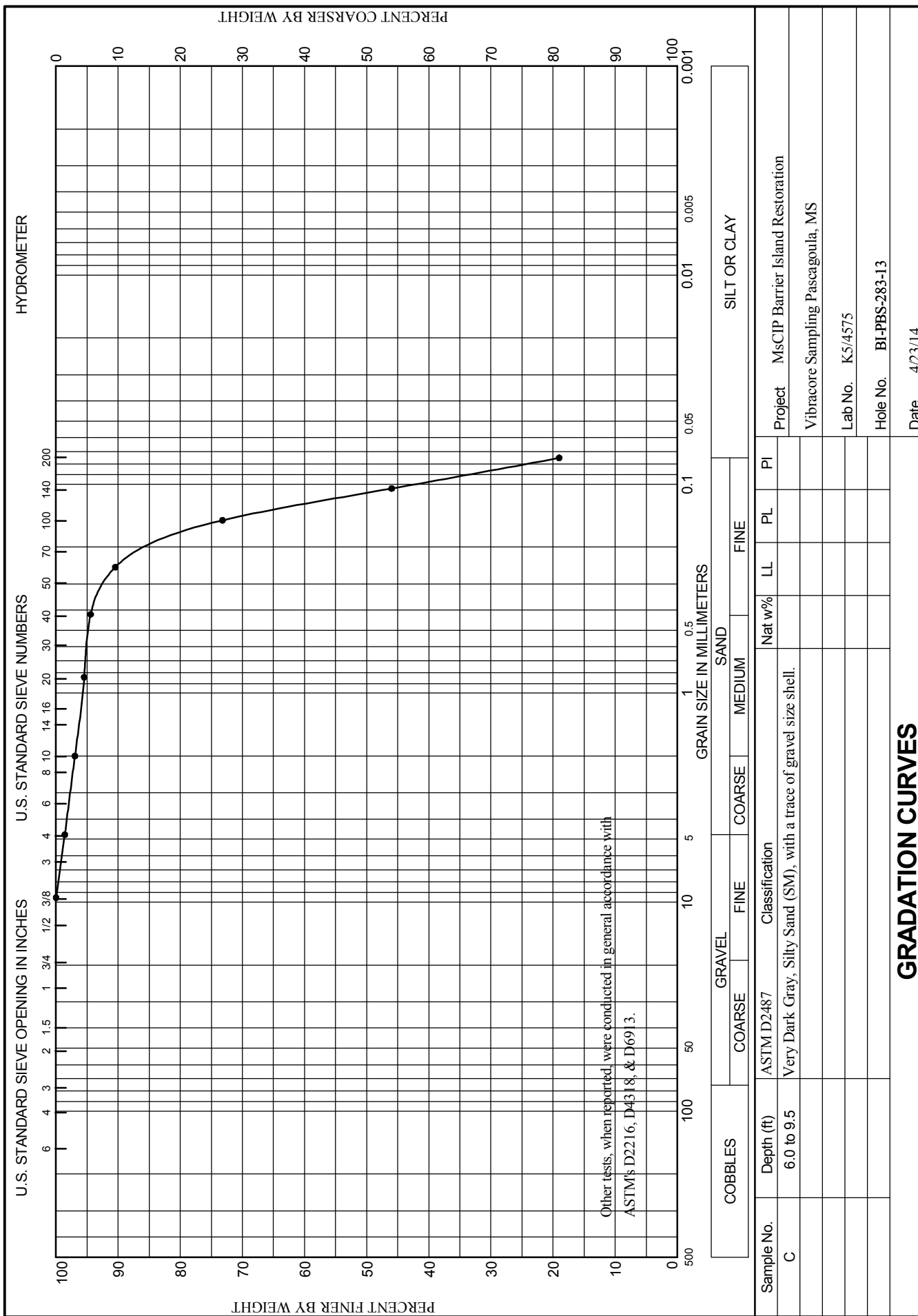




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WORK ORDER: 848e

REQUISITION: W33SJC32900192



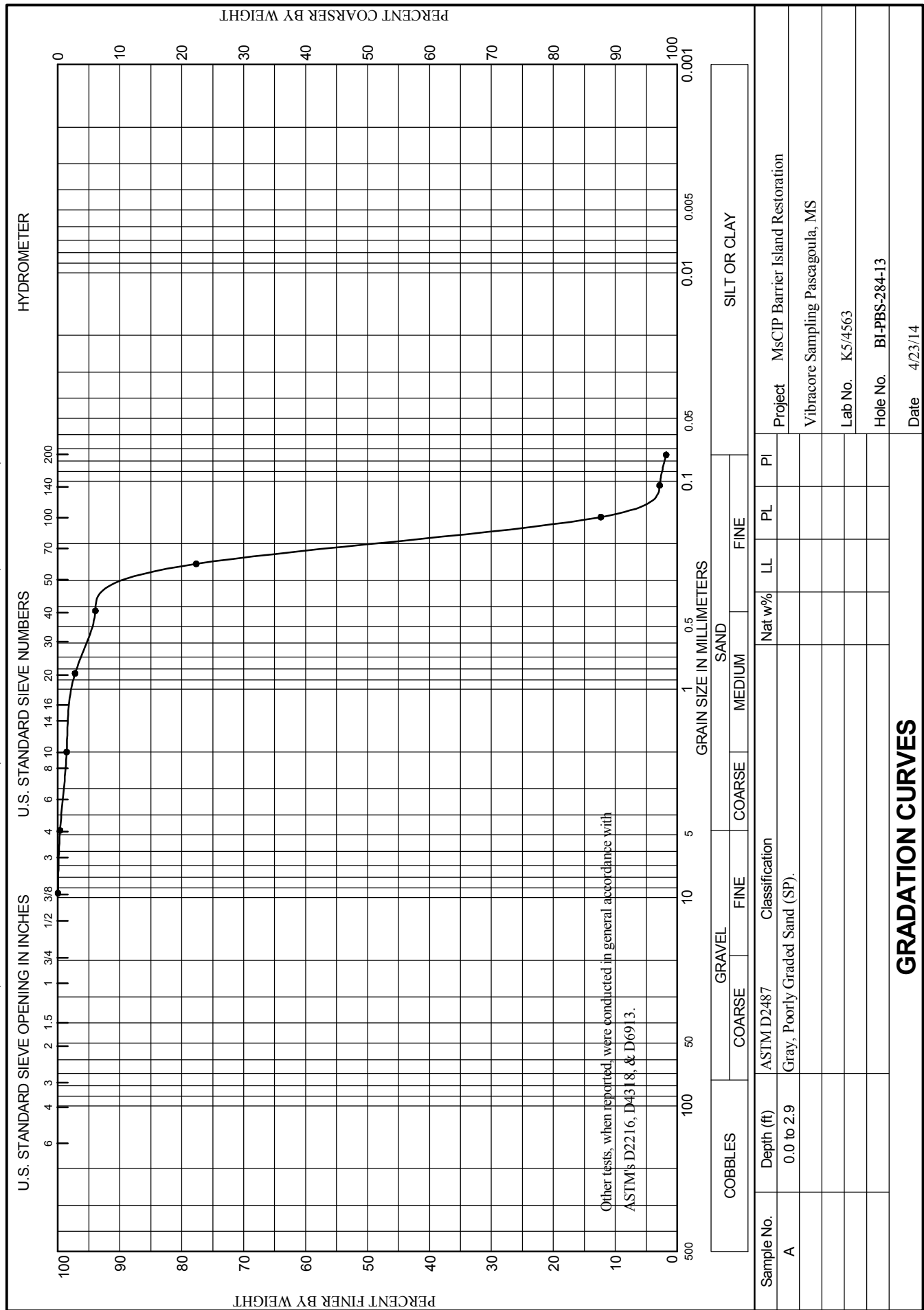
# Boring Designation BI-PBS-284-13

DRILLING LOG		DIVISION South Atlantic		INSTALLATION Mobile District		SHEET 1 OF 1 SHEETS	
1. PROJECT MsCIP Barrier Island Restoration Petit Bois Pass-OCS West				9. SIZE AND TYPE OF BIT N/A			
2. BORING DESIGNATION BI-PBS-284-13		LOCATION COORDINATES E = 1,090,648 N = 226,593		10. COORDINATE SYSTEM/DATUM State Plane, MSE (U.S. Ft.)		HORIZONTAL NAD83	
3. DRILLING AGENCY Corps of Engineers - CESAM		CONTRACTOR FILE NO.		11. MANUFACTURER'S DESIGNATION OF DRILL Vibrocure		<input type="checkbox"/> AUTO HAMMER <input type="checkbox"/> MANUAL HAMMER	
4. NAME OF DRILLER Construction Solutions International, Inc.				12. TOTAL SAMPLES 3		UNDISTURBED (UD) 0	
5. DIRECTION OF BORING <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED				13. TOTAL NUMBER CORE BOXES		14. WATER DEPTH 48.4 Ft.	
6. THICKNESS OF OVERBURDEN N/A				15. DATE BORING 01-26-14		STARTED 01-26-14	
7. DEPTH DRILLED INTO ROCK N/A				16. ELEVATION TOP OF BORING -47.2 Ft.		COMPLETED 01-26-14	
8. TOTAL DEPTH OF BORING 17.5 Ft.				17. TOTAL RECOVERY FOR BORING 100%		18. SIGNATURE AND TITLE OF INSPECTOR Tom Powers, Geologist	
ELEV.	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS	SAMPLE	LABORATORY RESULTS		
-47.2	0.0						
-50.1	2.9		SAND, poorly-graded, mostly fine to medium-grained sand-sized quartz, trace shell fragments, becomes fine-grained in lower half of unit, lt. gray (SP)	A	Classification: SP Color: 2.5Y 6/1-gray D50: 0.201 mm % Fines: 1.8		
-57.7	10.5		SAND, silty, mostly fine-grained sand-sized quartz, few shell fragments, brownish gray (SM)	B	Classification: SP-SM Color: 2.5Y 6/1-gray D50: 0.194 mm % Fines: 5.6		
-58.3	11.1		SILT, inorganic-L, few shell fragments, brownish gray (ML)	C	Classification: SM Color: 2.5Y 6/1-gray D50: 0.133 mm % Fines: 13		
-64.7	17.5		CLAY, lean, few shell fragments, sandy, medium to dark gray (CL) At El. -60.4 Ft., very sandy to 14.1 ft.	NS			
NOTES: 1. Soils are field visually classified in accordance with the Unified Soils Classification System. 2. NS = Sample not submitted for laboratory analysis from this interval. 3. Seafloor elevation calculated using sampling vessel's fathometer water depth reading and applying NOAA tidal gauge data conversion factor.							



WORK ORDER: 848e

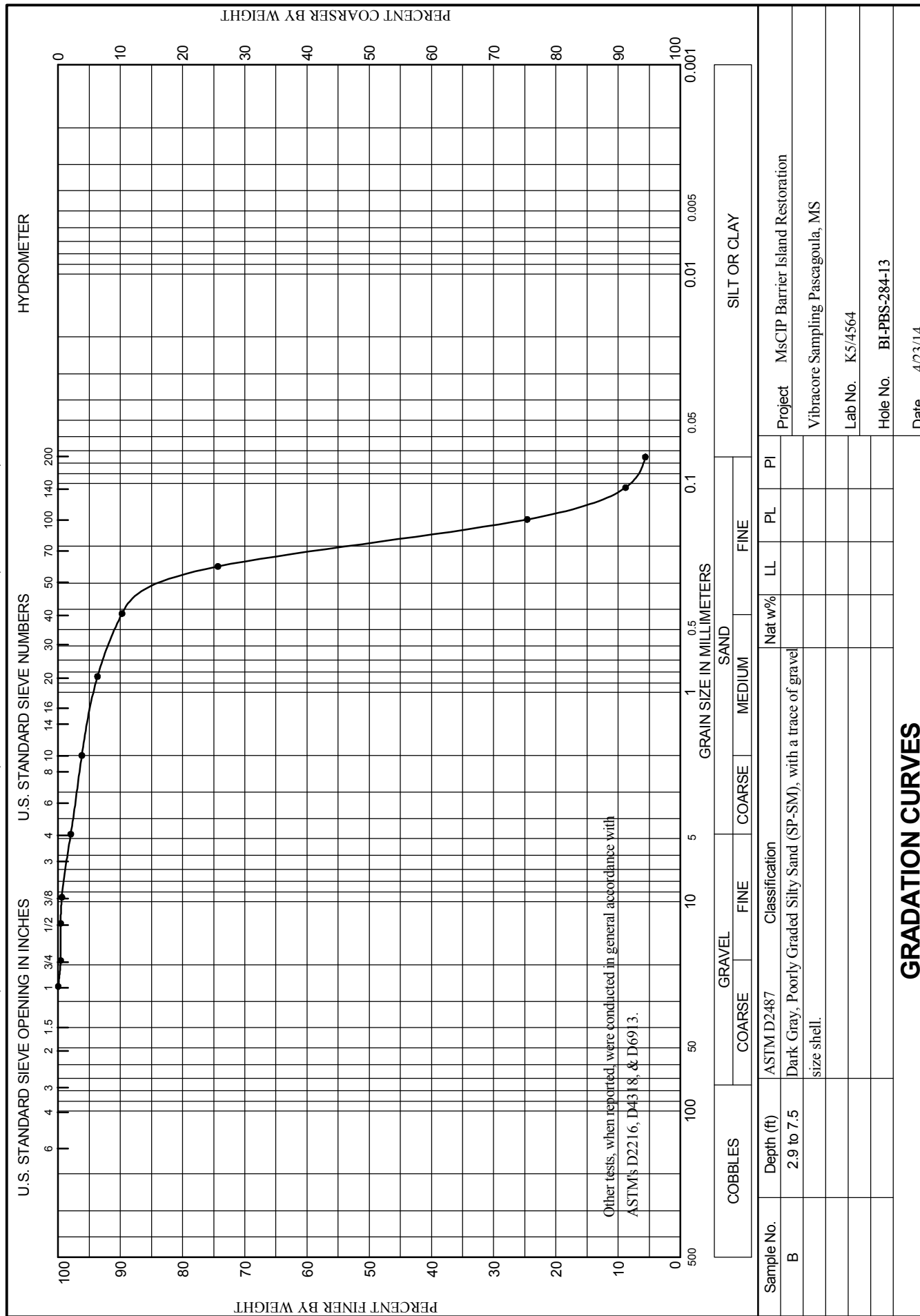
REQUISITION: W33SJG32900192





WORK ORDER: 848e

REQUISITION: W33SJG32900192

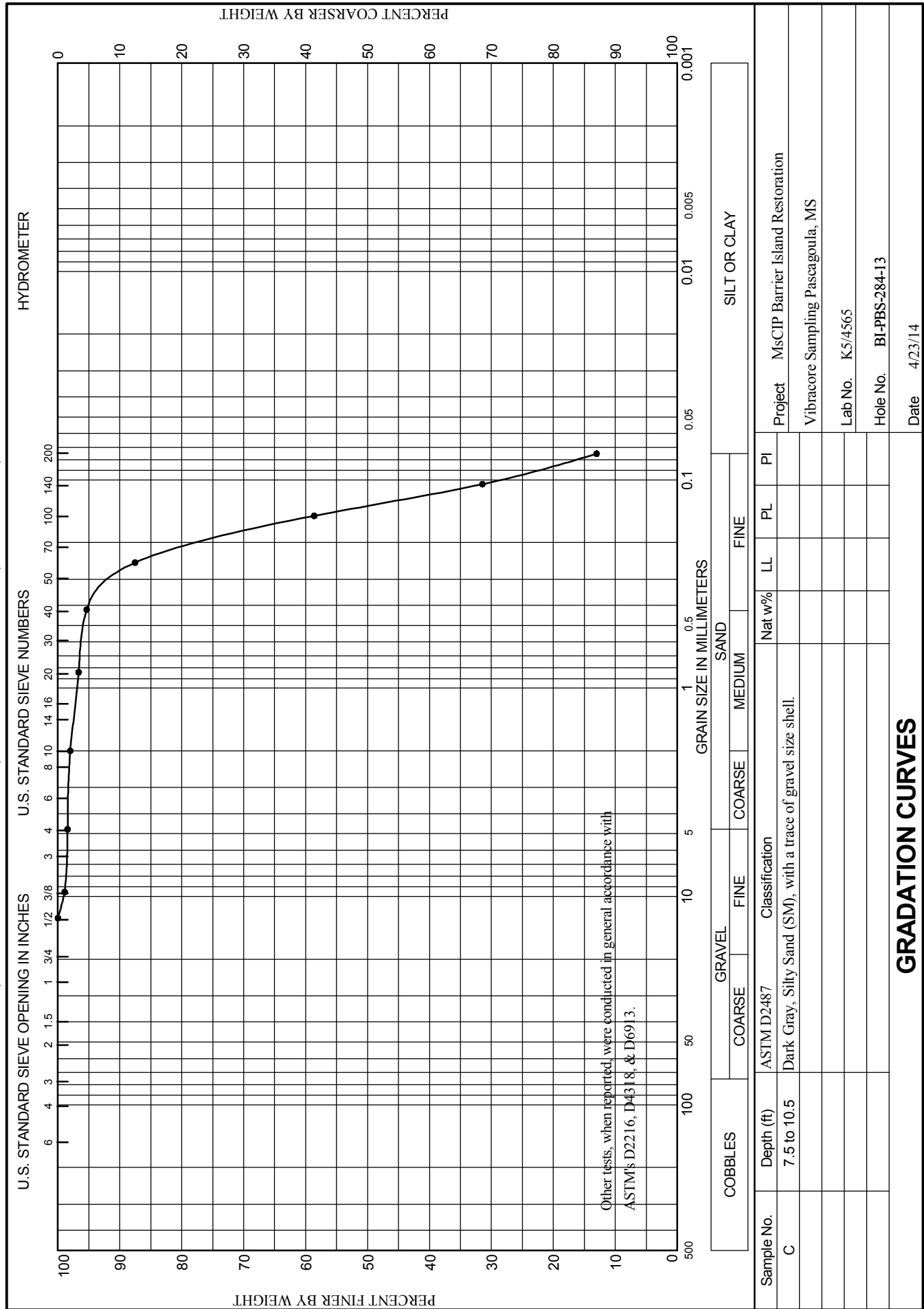




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WORK ORDER: 848e

REQUISITION: W33SJG32900192



# Boring Designation BI-PBS-285-13

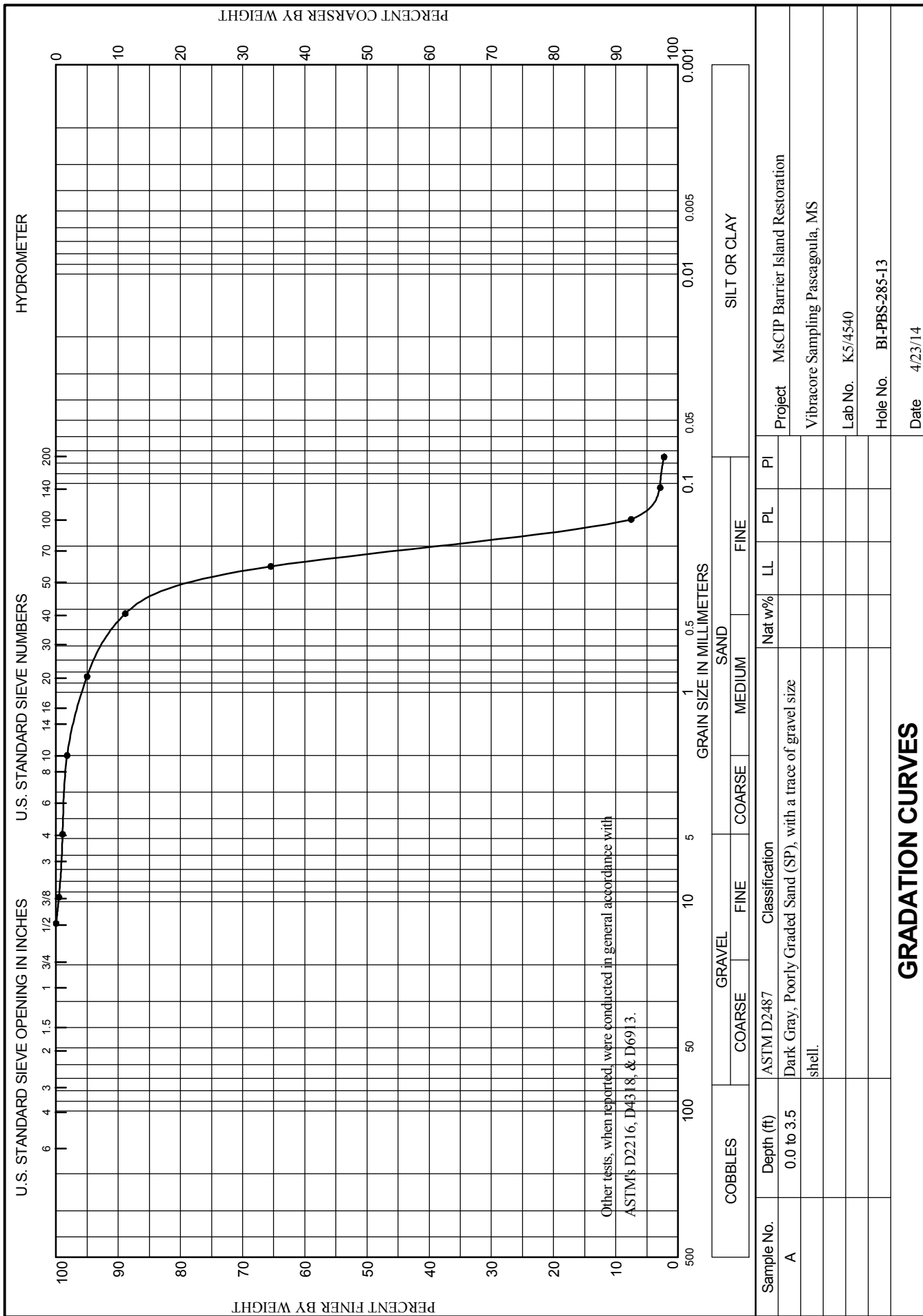
DRILLING LOG		DIVISION South Atlantic		INSTALLATION Mobile District		SHEET 1 OF 1 SHEETS	
1. PROJECT MsCIP Barrier Island Restoration Petit Bois Pass-OCS West				9. SIZE AND TYPE OF BIT N/A			
2. BORING DESIGNATION BI-PBS-285-13		LOCATION COORDINATES E = 1,091,878 N = 227,677		10. COORDINATE SYSTEM/DATUM State Plane, MSE (U.S. Ft.)		HORIZONTAL NAD83 VERTICAL NAVD88	
3. DRILLING AGENCY Corps of Engineers - CESAM		CONTRACTOR FILE NO.		11. MANUFACTURER'S DESIGNATION OF DRILL Vibrocure		<input type="checkbox"/> AUTO HAMMER <input type="checkbox"/> MANUAL HAMMER	
4. NAME OF DRILLER Construction Solutions International, Inc.				12. TOTAL SAMPLES 2		DISTURBED 0 UNDISTURBED (UD)	
5. DIRECTION OF BORING <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED				13. TOTAL NUMBER CORE BOXES		14. WATER DEPTH 47.7 Ft.	
6. THICKNESS OF OVERBURDEN N/A				15. DATE BORING 01-22-14		STARTED 01-22-14 COMPLETED 01-22-14	
7. DEPTH DRILLED INTO ROCK N/A				16. ELEVATION TOP OF BORING -47.7 Ft.		17. TOTAL RECOVERY FOR BORING 100%	
8. TOTAL DEPTH OF BORING 16.7 Ft.				18. SIGNATURE AND TITLE OF INSPECTOR Tom Powers, Geologist			
ELEV.	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS	SAMPLE	LABORATORY RESULTS		
-47.7	0.0						
			SAND, poorly-graded, mostly fine to medium-grained sand-sized quartz, few shell fragments, lt. gray (SP)	A	Classification: SP Color: 10Y 8/1-light greenish gray D50: 0.218 mm % Fines: 2.2		
-51.2	3.5						
			SAND, silty, mostly fine-grained sand-sized quartz, few shell fragments, lt. to medium gray (SM)	B	Classification: SM Color: 10Y 7/1-light greenish gray D50: 0.142 mm % Fines: 12.2		
-55.9	8.2						
-56.8	9.1		SAND, silty, clayey, mostly fine-grained sand-sized quartz, few shell fragments, very slightly plastic, medium gray (SC-SM)				
-58.9	11.2		CLAY, lean, sandy, medium dark gray (CL)				
-60.2	12.5		SAND, silty, clayey, mostly fine-grained sand-sized quartz, few shell fragments, very slightly plastic, medium gray (SC-SM)	NS			
			CLAY, fat, lt. gray, pale orange (CH)				
-64.4	16.7						
NOTES: 1. Soils are field visually classified in accordance with the Unified Soils Classification System. 2. NS = Sample not submitted for laboratory analysis from this interval. 3. Seafloor elevation calculated using sampling vessel's fathometer water depth reading and applying NOAA tidal gauge data conversion factor.							



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WORK ORDER: 848e

REQUISITION: W33SJC32900192

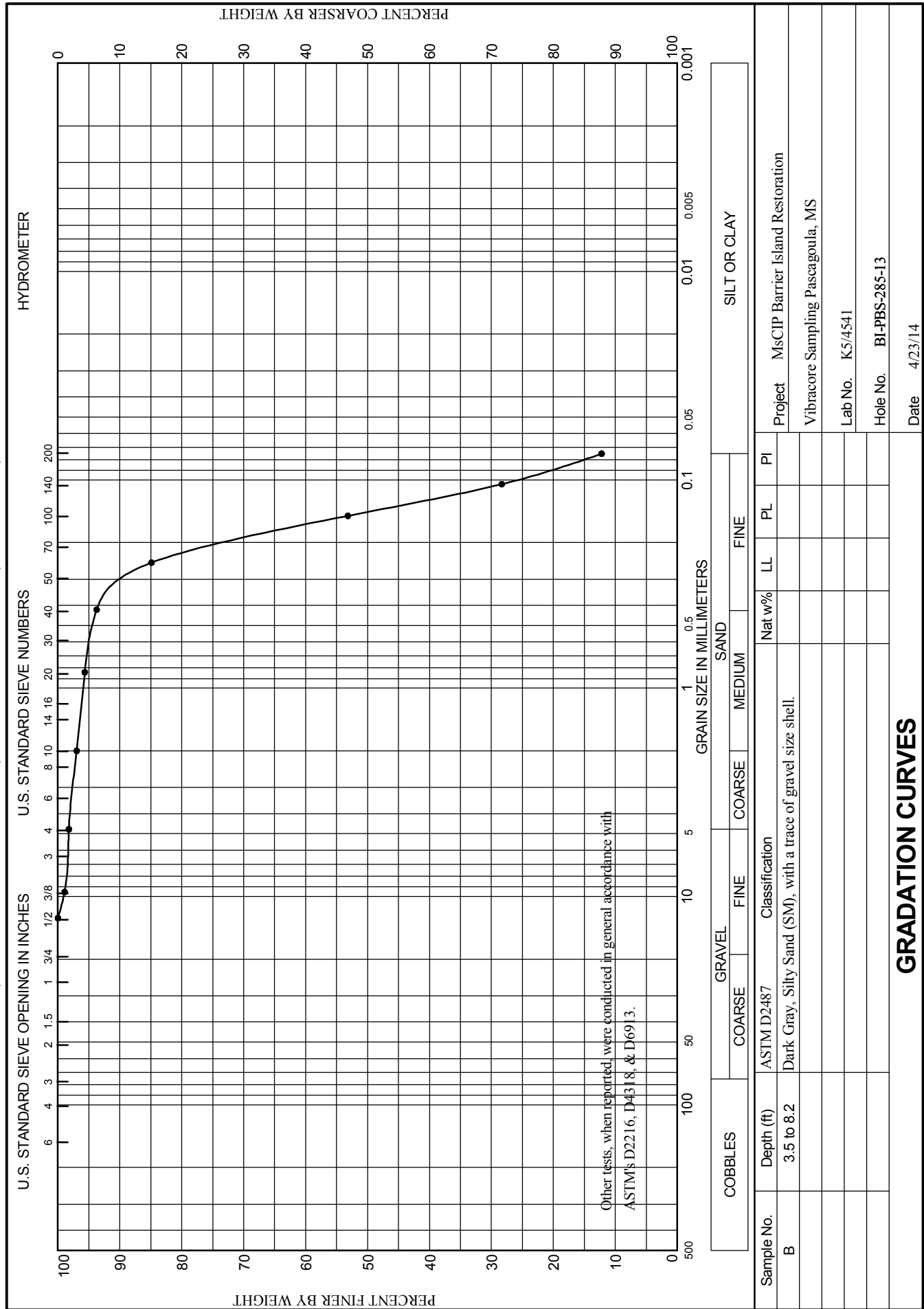




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CORPS OF ENGINEERS, 200 N. COBB PARKWAY, BLDG 400 SUITE 404, MARIETTA, GA. 30062

WORK ORDER: 848e

REQUISITION: W33SJC32900192





# Boring Designation BI-PBS-286-13

DRILLING LOG		DIVISION South Atlantic		INSTALLATION Mobile District		SHEET 1 OF 2 SHEETS	
1. PROJECT MsCIP Barrier Island Restoration Petit Bois Pass-OCS West				9. SIZE AND TYPE OF BIT N/A			
2. BORING DESIGNATION BI-PBS-286-13		LOCATION COORDINATES E = 1,090,091 N = 227,839		10. COORDINATE SYSTEM/DATUM State Plane, MSE (U.S. Ft.)		HORIZONTAL NAD83	
3. DRILLING AGENCY Corps of Engineers - CESAM		CONTRACTOR FILE NO.		11. MANUFACTURER'S DESIGNATION OF DRILL Vibrocure		<input type="checkbox"/> AUTO HAMMER <input type="checkbox"/> MANUAL HAMMER	
4. NAME OF DRILLER Construction Solutions International, Inc.				12. TOTAL SAMPLES 3		UNDISTURBED (UD) 0	
5. DIRECTION OF BORING <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED				13. TOTAL NUMBER CORE BOXES		14. WATER DEPTH 47.7 Ft.	
6. THICKNESS OF OVERBURDEN N/A				15. DATE BORING 01-26-14		COMPLETED 01-26-14	
7. DEPTH DRILLED INTO ROCK N/A				16. ELEVATION TOP OF BORING -46.7 Ft.		17. TOTAL RECOVERY FOR BORING 100%	
8. TOTAL DEPTH OF BORING 19.2 Ft.				18. SIGNATURE AND TITLE OF INSPECTOR Tom Powers, Geologist			

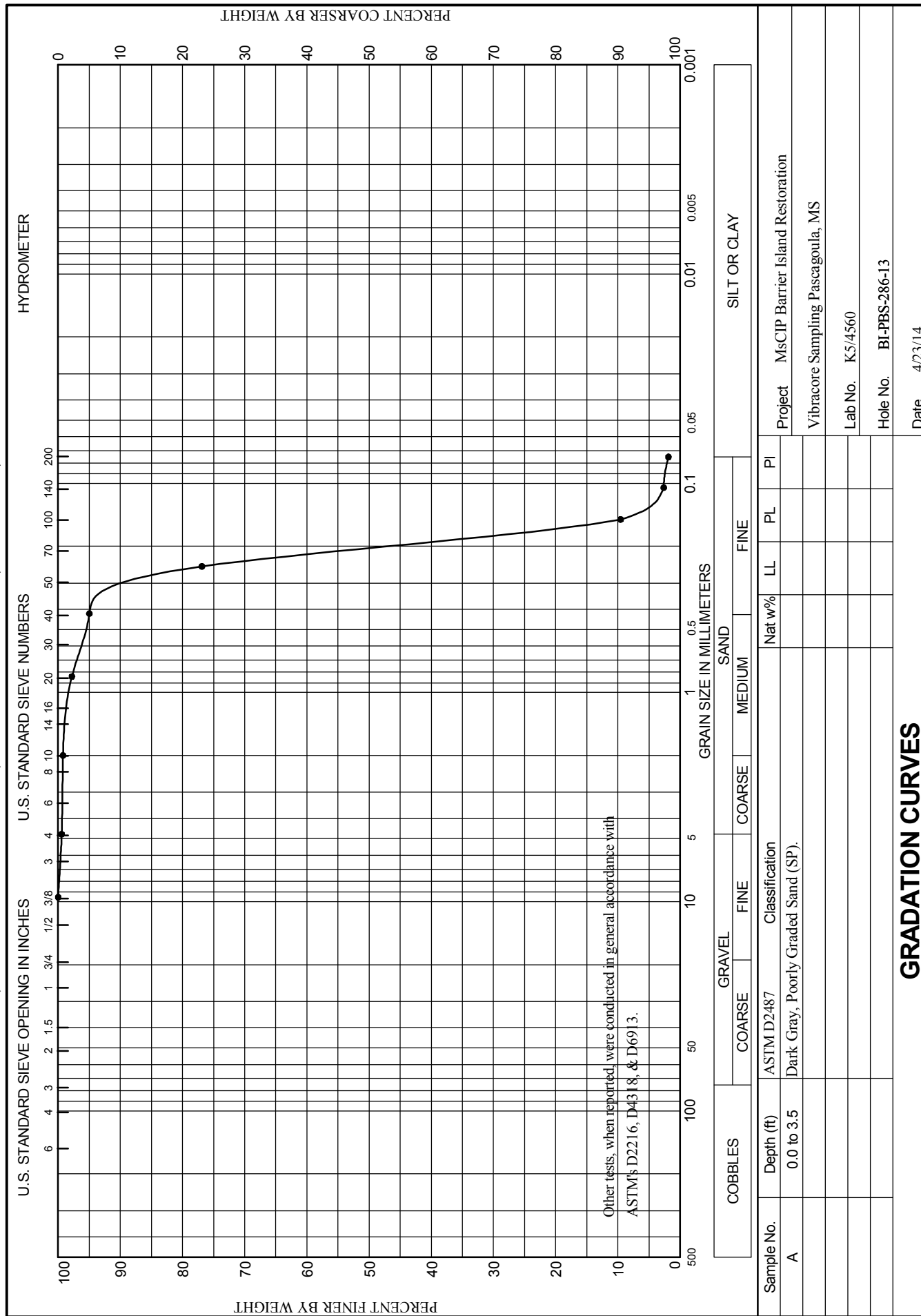
ELEV.	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS	SAMPLE	LABORATORY RESULTS
-46.7	0.0				
			SAND, poorly-graded, mostly fine to medium-grained sand-sized quartz, few shell fragments, brownish gray (SP)	A	Classification: SP Color: 2.5Y 6/1-gray D50: 0.203 mm % Fines: 1.9
			At El. -51.7 Ft., fine grained sand below this depth	B	Classification: SP-SM Color: 2.5Y 6/1-gray D50: 0.192 mm % Fines: 5.1
-53.7	7.0				
			SAND, silty, mostly fine-grained sand-sized quartz, trace shell fragments, brownish gray (SM)	C	Classification: SM Color: 2.5Y 6/1-gray D50: 0.122 mm % Fines: 15.7
-60.3	13.6				
-61.1	14.4		SAND, clayey, mostly fine-grained sand-sized quartz, trace shell fragments, medium gray (SC)	NS	
			CLAY, lean, trace shell fragments, sandy, medium dark gray (CL)		
-65.9	19.2				
NOTES: 1. Soils are field visually classified in accordance with the Unified Soils Classification System. 2. NS = Sample not submitted for laboratory analysis from this interval. 3. Seafloor elevation calculated using sampling vessel's fathometer water depth reading and applying NOAA tidal gauge data conversion					

<b>DRILLING LOG (Cont. Sheet)</b>			<b>INSTALLATION</b> Mobile District		<b>SHEET 2</b> <b>OF 2 SHEETS</b>
			<b>PROJECT</b> MsCIP Barrier Island Restoration		<b>COORDINATE SYSTEM/DATUM</b> State Plane, MSE (U.S. Ft.)
<b>LOCATION COORDINATES</b> X = 1,090,091 Y = 227,839			<b>ELEVATION TOP OF BORING</b> -46.7 Ft.		
<b>ELEV.</b>	<b>DEPTH</b>	<b>LEGEND</b>	<b>CLASSIFICATION OF MATERIALS</b>	<b>SAMPLE</b>	<b>LABORATORY RESULTS</b>
			factor.		



WORK ORDER: 848e

REQUISITION: W33SJG32900192

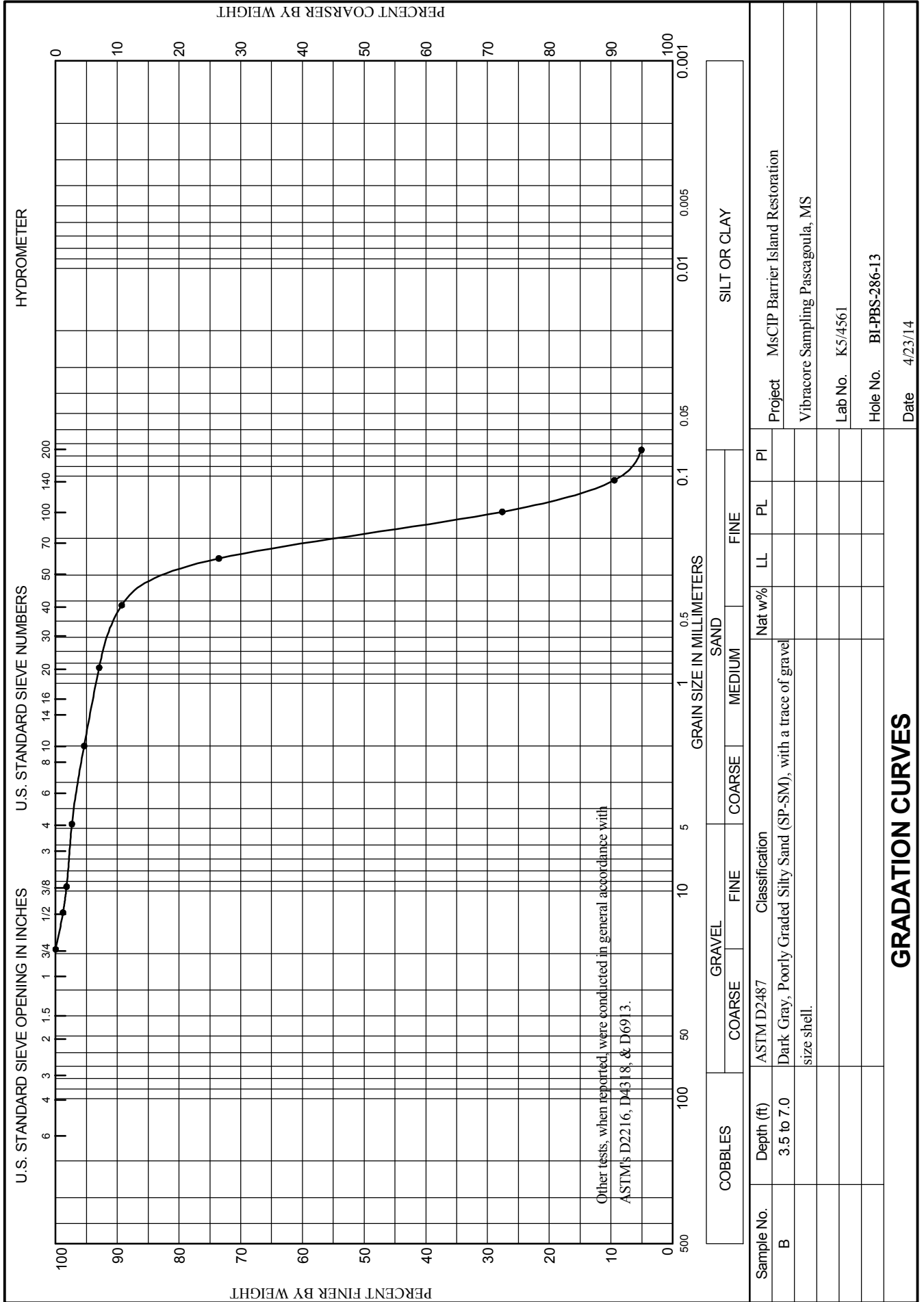




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WORK ORDER: 848e

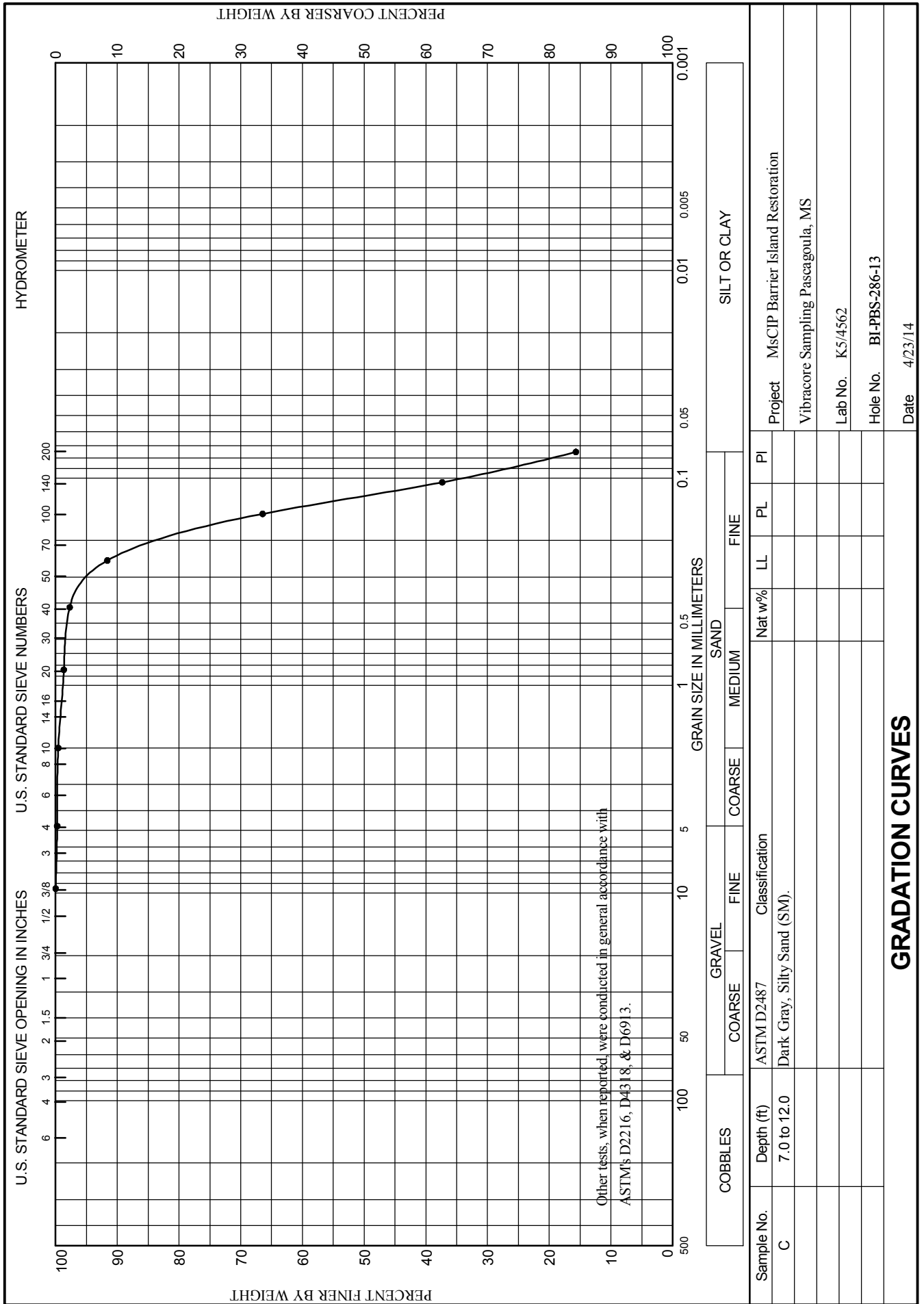
REQUISITION: W33SJC32900192





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WORK ORDER: 848e  
REQUISITION: W33SJG32900192



# Boring Designation BI-PBS-287-13

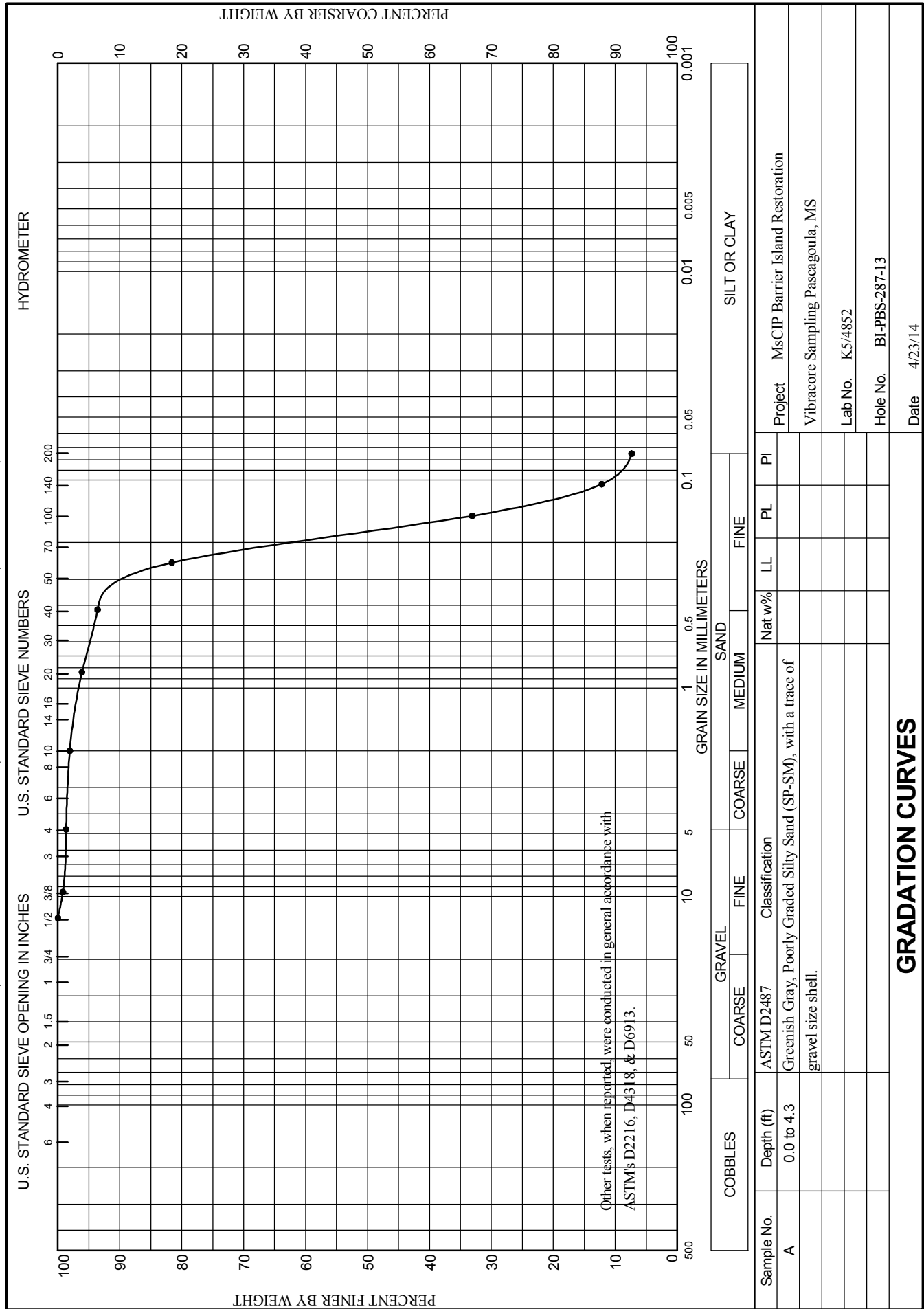
DRILLING LOG		DIVISION South Atlantic		INSTALLATION Mobile District		SHEET 1 OF 1 SHEETS	
1. PROJECT MsCIP Barrier Island Restoration Petit Bois Pass-OCS West				9. SIZE AND TYPE OF BIT N/A			
2. BORING DESIGNATION BI-PBS-287-13		LOCATION COORDINATES E = 1,087,968 N = 226,334		10. COORDINATE SYSTEM/DATUM State Plane, MSE (U.S. Ft.)		HORIZONTAL NAD83 VERTICAL NAVD88	
3. DRILLING AGENCY Corps of Engineers - CESAM		CONTRACTOR FILE NO.		11. MANUFACTURER'S DESIGNATION OF DRILL Vibrocure		<input type="checkbox"/> AUTO HAMMER <input type="checkbox"/> MANUAL HAMMER	
4. NAME OF DRILLER Construction Solutions International, Inc.				12. TOTAL SAMPLES 1		DISTURBED 1 UNDISTURBED (UD) 0	
5. DIRECTION OF BORING <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED		DEG. FROM VERTICAL		13. TOTAL NUMBER CORE BOXES			
		BEARING		14. WATER DEPTH 50 Ft.			
6. THICKNESS OF OVERBURDEN N/A				15. DATE BORING 02-18-14		STARTED 02-18-14 COMPLETED 02-18-14	
7. DEPTH DRILLED INTO ROCK N/A				16. ELEVATION TOP OF BORING -49.7 Ft.			
8. TOTAL DEPTH OF BORING 8.2 Ft.				17. TOTAL RECOVERY FOR BORING 100%			
				18. SIGNATURE AND TITLE OF INSPECTOR Tom Powers, Geologist			
ELEV.	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS	SAMPLE	LABORATORY RESULTS		
-49.7	0.0						
			SAND, silty, mostly fine-grained sand-sized quartz, few shell fragments, medium gray (SM)	A	Classification: SP-SM D50: 0.178 mm Color: 2.5Y 6/1-gray % Fines: 7.4		
-54.0	4.3						
-56.0	6.3		SILT, inorganic-L, trace shell fragments, sandy, medium gray (ML)	NS			
-57.9	8.2		CLAY, lean, soft to 6.6 ft., firm to 8.0 ft., erosional contact with overlying ML, medium gray (CL)				
			NOTES: 1. Soils are field visually classified in accordance with the Unified Soils Classification System. 2. NS = Sample not submitted for laboratory analysis from this interval. 3. Seafloor elevation calculated using sampling vessel's fathometer water depth reading and applying NOAA tidal gauge data conversion factor.				



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WORK ORDER: 848e

REQUISITION: W33SJC32900192



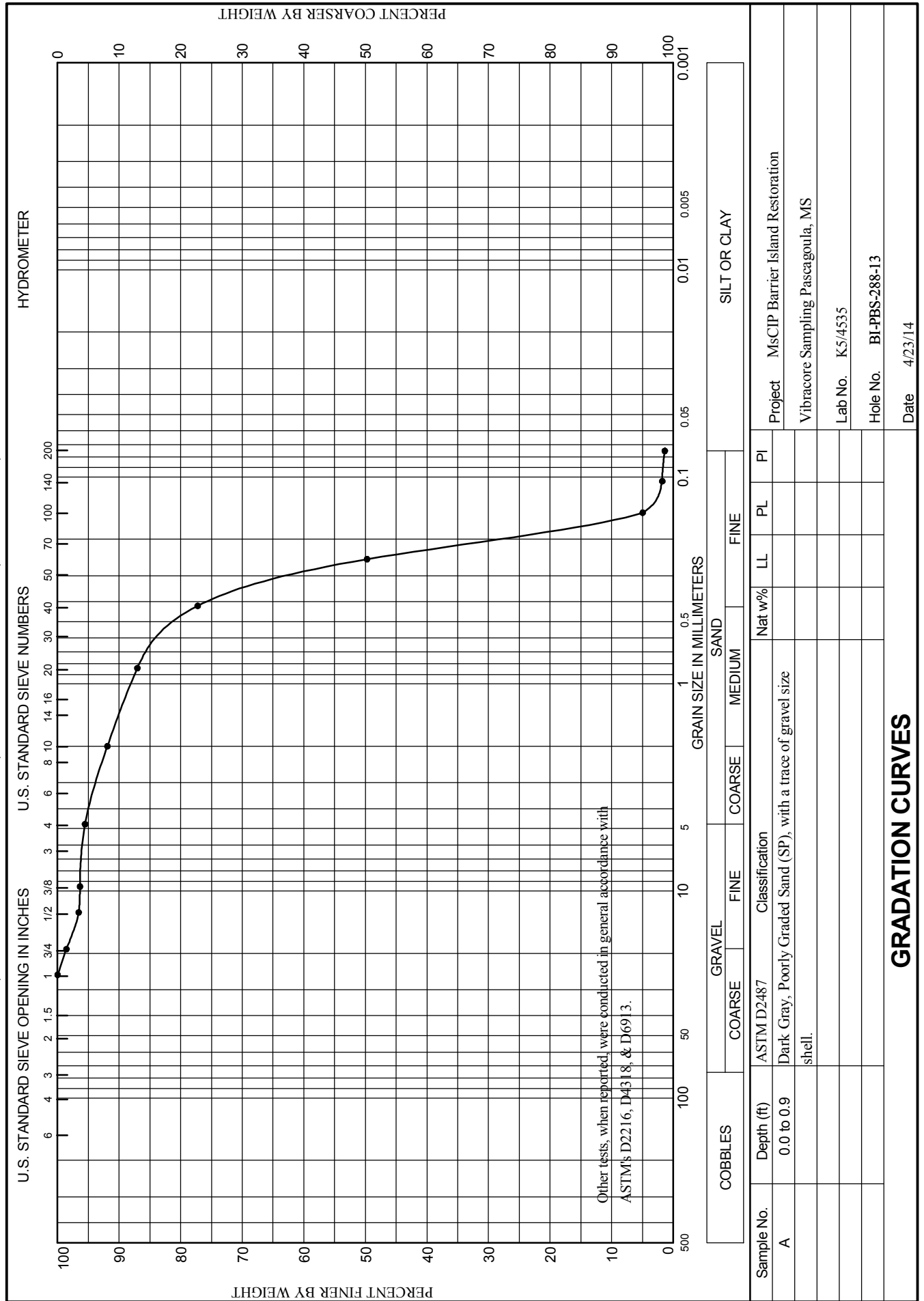
# Boring Designation BI-PBS-288-13

DRILLING LOG		DIVISION South Atlantic		INSTALLATION Mobile District		SHEET 1 OF 1 SHEETS	
1. PROJECT MsCIP Barrier Island Restoration Petit Bois Pass-OCS West				9. SIZE AND TYPE OF BIT N/A			
2. BORING DESIGNATION BI-PBS-288-13		LOCATION COORDINATES E = 1,091,077 N = 229,082		10. COORDINATE SYSTEM/DATUM State Plane, MSE (U.S. Ft.)		HORIZONTAL NAD83	
3. DRILLING AGENCY Corps of Engineers - CESAM		CONTRACTOR FILE NO.		11. MANUFACTURER'S DESIGNATION OF DRILL Vibrocure		<input type="checkbox"/> AUTO HAMMER <input type="checkbox"/> MANUAL HAMMER	
4. NAME OF DRILLER Construction Solutions International, Inc.				12. TOTAL SAMPLES		DISTURBED 5	
5. DIRECTION OF BORING <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED				13. TOTAL NUMBER CORE BOXES		UNDISTURBED (UD) 0	
6. THICKNESS OF OVERBURDEN N/A				14. WATER DEPTH		47.7 Ft.	
7. DEPTH DRILLED INTO ROCK N/A				15. DATE BORING		STARTED 01-22-14	
8. TOTAL DEPTH OF BORING 14.7 Ft.				16. ELEVATION TOP OF BORING		COMPLETED 01-22-14	
				17. TOTAL RECOVERY FOR BORING		100%	
				18. SIGNATURE AND TITLE OF INSPECTOR		Tom Powers, Geologist	
ELEV.	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS	SAMPLE	LABORATORY RESULTS		
-47.7	0.0						
-48.6	0.9		SAND, poorly-graded, mostly fine to medium-grained sand-sized quartz, few shell fragments, lt. gray (SP)	A	Classification: SP Color: 10Y 8/1-light greenish gray D50: 0.251 mm % Fines: 1.4		
-49.7	2.0		SAND, poorly-graded, mostly fine-grained sand-sized quartz, few shell fragments, lt. to medium gray (SP)	B	Classification: SP Color: 10Y 7/1-light greenish gray D50: 0.226 mm % Fines: 3.1		
-51.2	3.5		SAND, poorly-graded with silt, mostly fine-grained sand-sized quartz, few shell fragments, lt. to medium gray (SP-SM)	C	Classification: SP-SM Color: 10Y 7/1-light greenish gray D50: 0.185 mm % Fines: 6.5		
-53.7	6.0		SAND, silty, mostly fine-grained sand-sized quartz, trace shell fragments, medium dark gray (SM)	D	Classification: SP-SM Color: 10Y 7/1-light greenish gray D50: 0.137 mm % Fines: 9.5		
-55.1	7.4		SAND, silty, clayey, mostly fine-grained sand-sized quartz, few shell fragments, medium dark gray (SC-SM)	NS			
-58.0	10.3		CLAY, lean, trace shell fragments, sandy, medium dark gray (CL)				
-62.4	14.7		SAND, silty, mostly fine-grained sand-sized quartz, trace shell fragments, grayish medium brown (SM) At El. -60.3 Ft., medium brown to base of unit	E	Classification: SM Color: 10Y 8/1-light greenish gray D50: 0.151 mm % Fines: 12.7		
NOTES: 1. Soils are field visually classified in accordance with the Unified Soils Classification System. 2. NS = Sample not submitted for laboratory analysis from this interval. 3. Seafloor elevation calculated using sampling vessel's fathometer water depth reading and applying NOAA tidal gauge data conversion factor.							





REQUISITION: W33SJG32900192

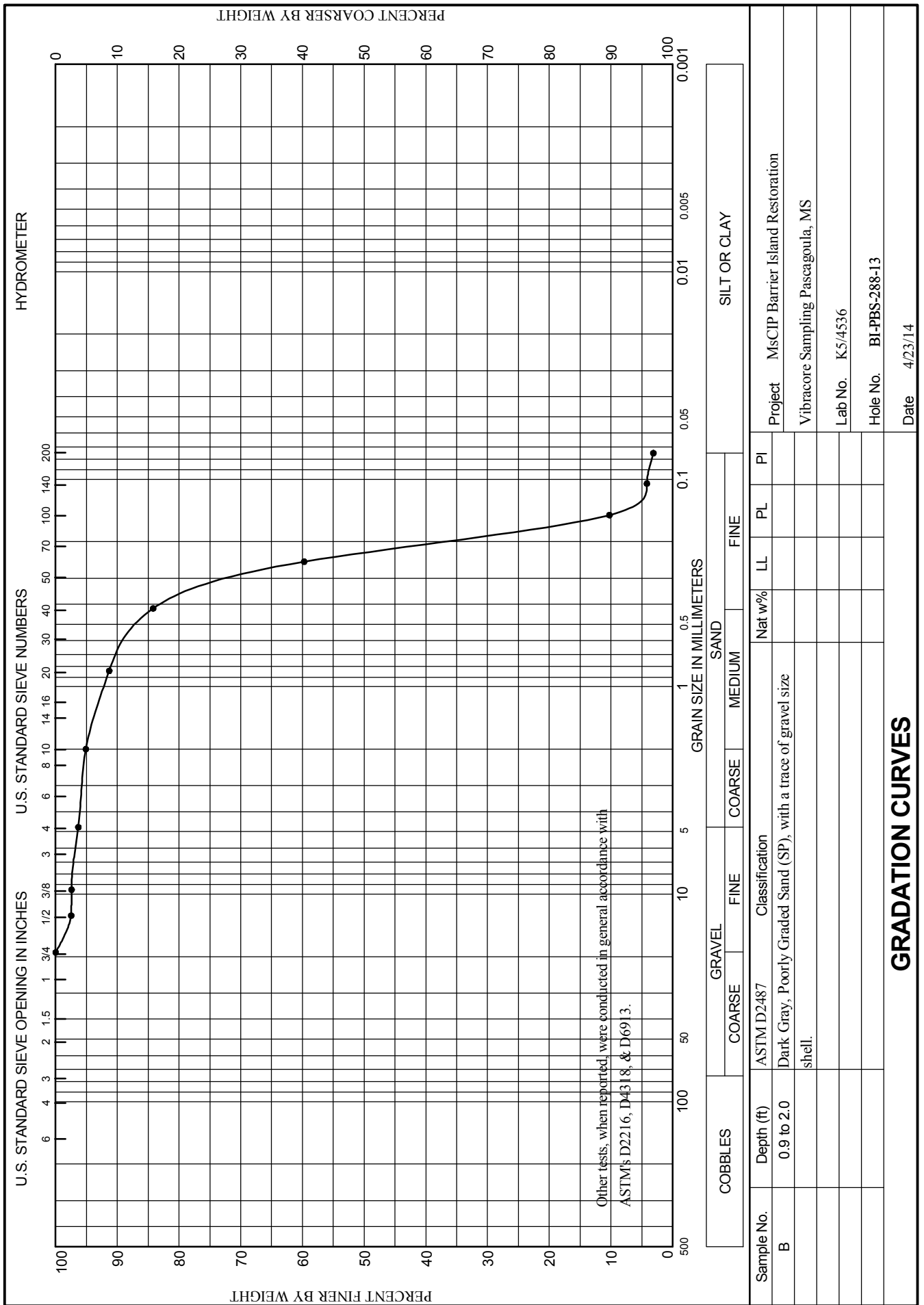




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WORK ORDER: 848e

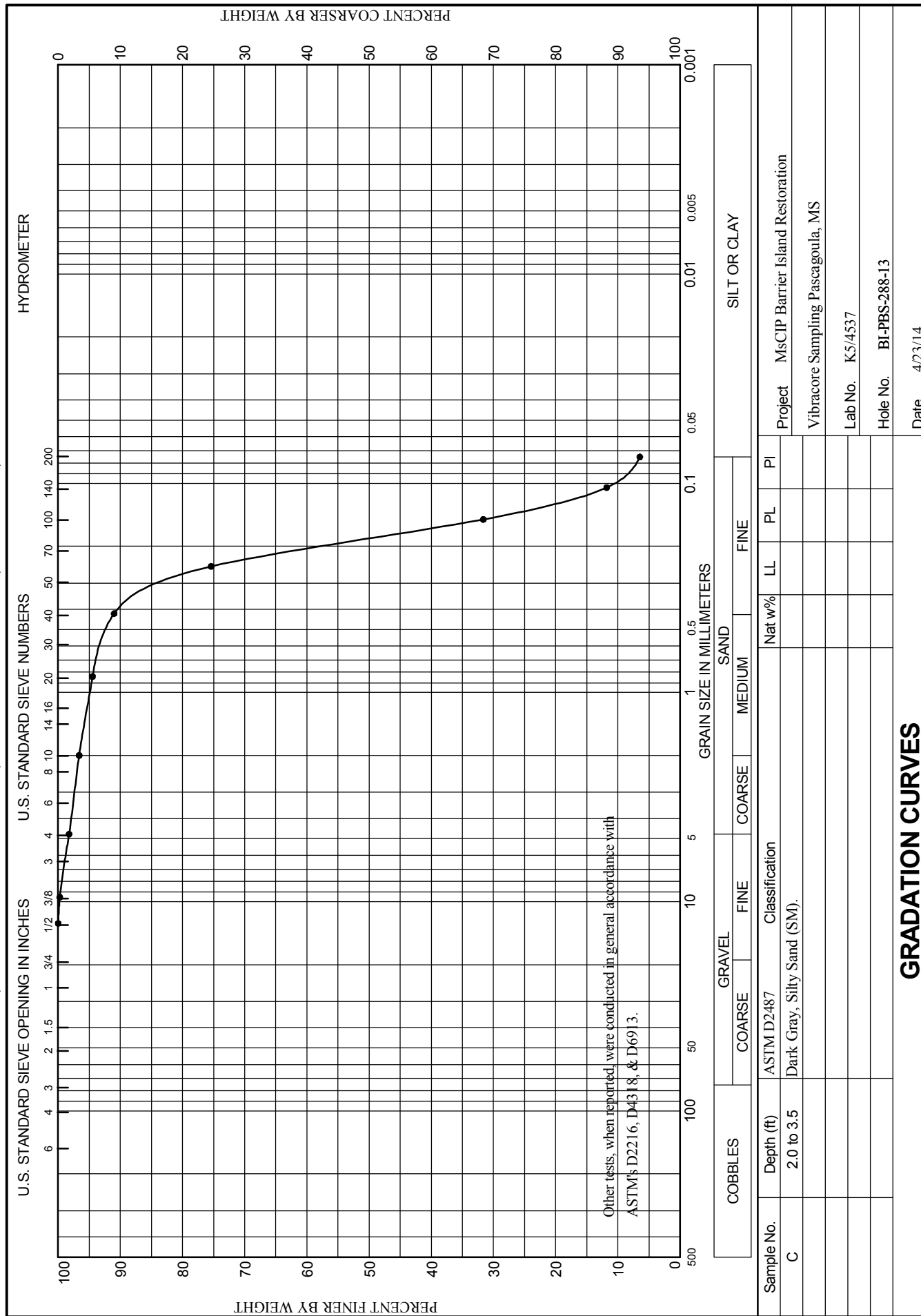
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WORK ORDER: 848e

REQUISITION: W33SJG32900192

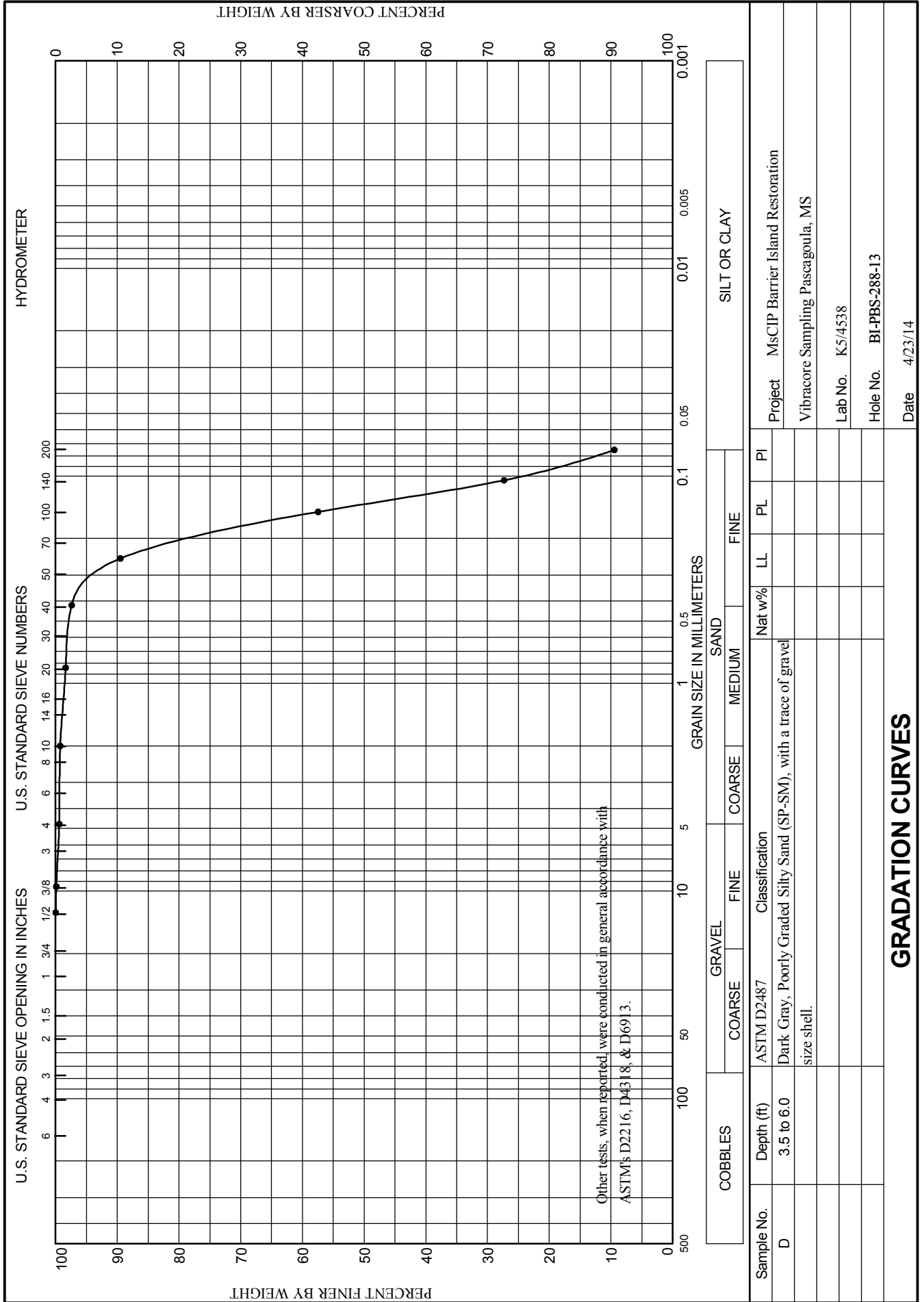




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WORK ORDER: 848e

REQUISITION: W33SJC32900192

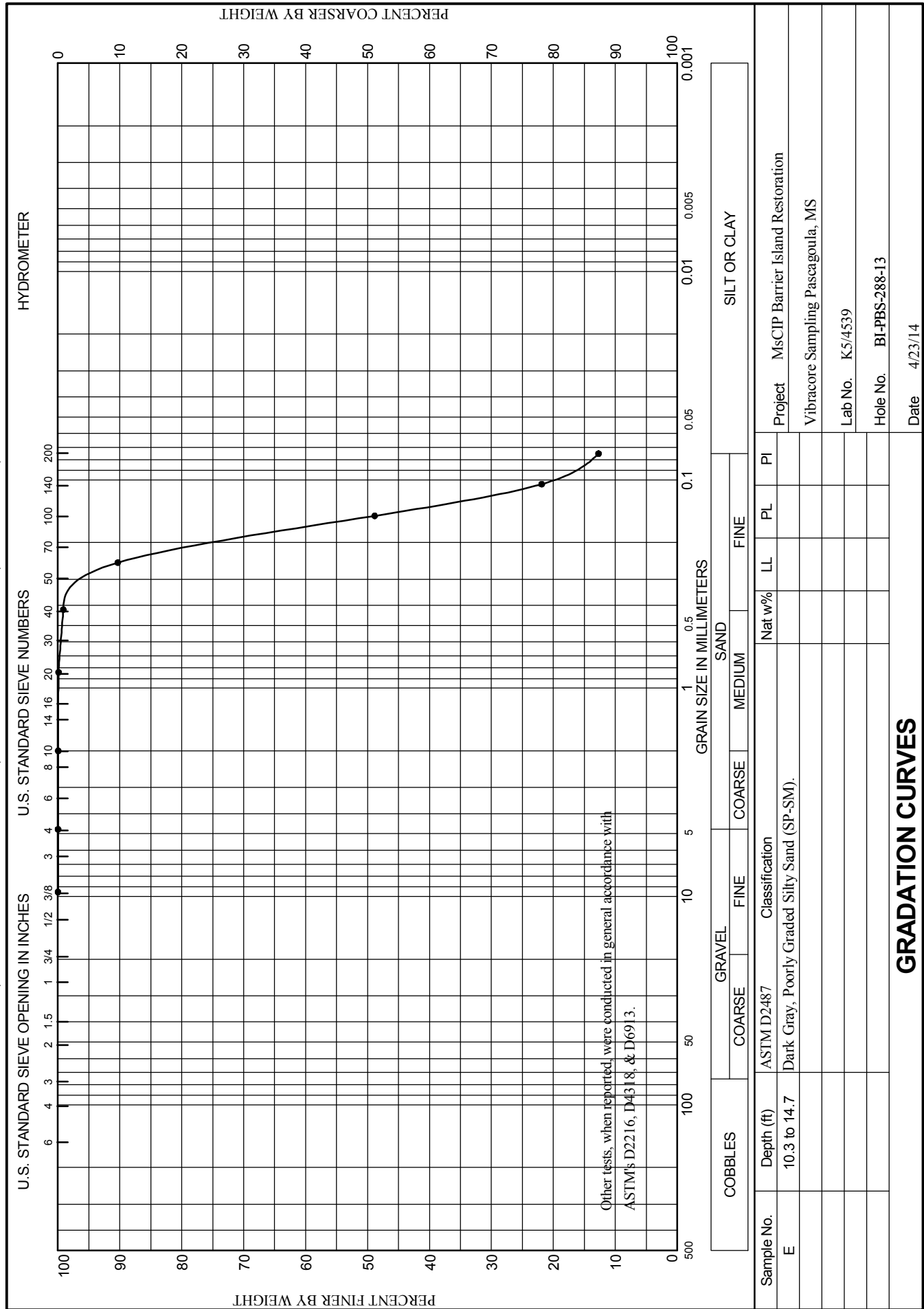




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WORK ORDER: 848e

REQUISITION: W33SJC32900192



# Boring Designation BI-PBS-290-13

DRILLING LOG		DIVISION South Atlantic		INSTALLATION Mobile District		SHEET 1 OF 1 SHEETS	
1. PROJECT MsCIP Barrier Island Restoration Petit Bois Pass-OCS West				9. SIZE AND TYPE OF BIT N/A			
2. BORING DESIGNATION BI-PBS-290-13		LOCATION COORDINATES E = 1,088,950 N = 229,127		10. COORDINATE SYSTEM/DATUM State Plane, MSE (U.S. Ft.)		HORIZONTAL NAD83 VERTICAL NAVD88	
3. DRILLING AGENCY Corps of Engineers - CESAM		CONTRACTOR FILE NO.		11. MANUFACTURER'S DESIGNATION OF DRILL Vibrocure		<input type="checkbox"/> AUTO HAMMER <input type="checkbox"/> MANUAL HAMMER	
4. NAME OF DRILLER Construction Solutions International, Inc.				12. TOTAL SAMPLES 3		DISTURBED 3 UNDISTURBED (UD) 0	
5. DIRECTION OF BORING <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED				13. TOTAL NUMBER CORE BOXES		14. WATER DEPTH 47.4 Ft.	
6. THICKNESS OF OVERBURDEN N/A				15. DATE BORING 01-26-14		STARTED 01-26-14 COMPLETED 01-26-14	
7. DEPTH DRILLED INTO ROCK N/A				16. ELEVATION TOP OF BORING -46.6 Ft.		17. TOTAL RECOVERY FOR BORING 100%	
8. TOTAL DEPTH OF BORING 15.9 Ft.				18. SIGNATURE AND TITLE OF INSPECTOR Tom Powers, Geologist			

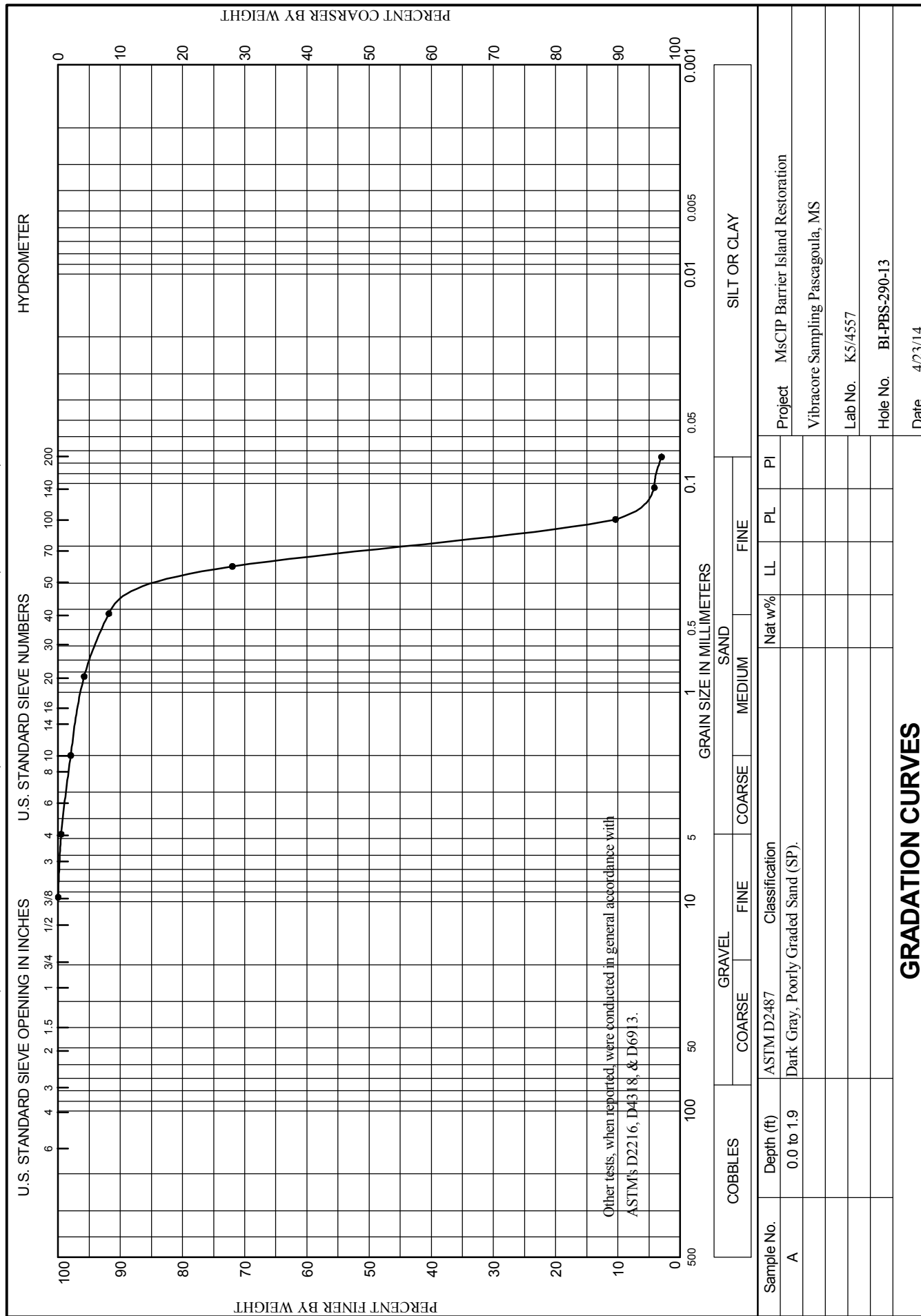
  

ELEV.	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS	SAMPLE	LABORATORY RESULTS
-46.6	0.0				
-48.5	1.9		SAND, poorly-graded, mostly fine to medium-grained sand-sized quartz, few shell fragments, lt. gray (SP)	A	Classification: SP Color: 2.5Y 5/1-gray D50: 0.208 mm % Fines: 3
-49.1	2.5		At El. -47.5 Ft., trace clay lenses to 1.1 ft. At El. -47.7 Ft., trace SM to 1.2 ft.	B	Classification: SP Color: 2.5Y 5/1-gray D50: 0.203 mm % Fines: 4.8
			SAND, poorly-graded with silt, mostly fine-grained sand-sized quartz, few shell fragments, brownish gray (SP-SM)	C	Classification: SP-SM Color: 2.5Y 5/1-gray D50: 0.184 mm % Fines: 5.8
			SAND, silty, mostly fine-grained sand-sized quartz, few shell fragments, brownish gray (SM)		
			At El. -54.1 Ft., finer-grained, siltier, and trace only of shell fragments below this depth	NS	
-60.1	13.5				
-60.8	14.2		SILT, inorganic-L, trace shell fragments, medium gray (ML)		
-62.5	15.9		CLAY, lean, trace shell fragments, sandy, medium dark gray (CL)		
NOTES: 1. Soils are field visually classified in accordance with the Unified Soils Classification System. 2. NS = Sample not submitted for laboratory analysis from this interval. 3. Seafloor elevation calculated using sampling vessel's fathometer water depth reading and applying NOAA tidal gauge data conversion factor.					



WORK ORDER: 848e

REQUISITION: W33SJG32900192

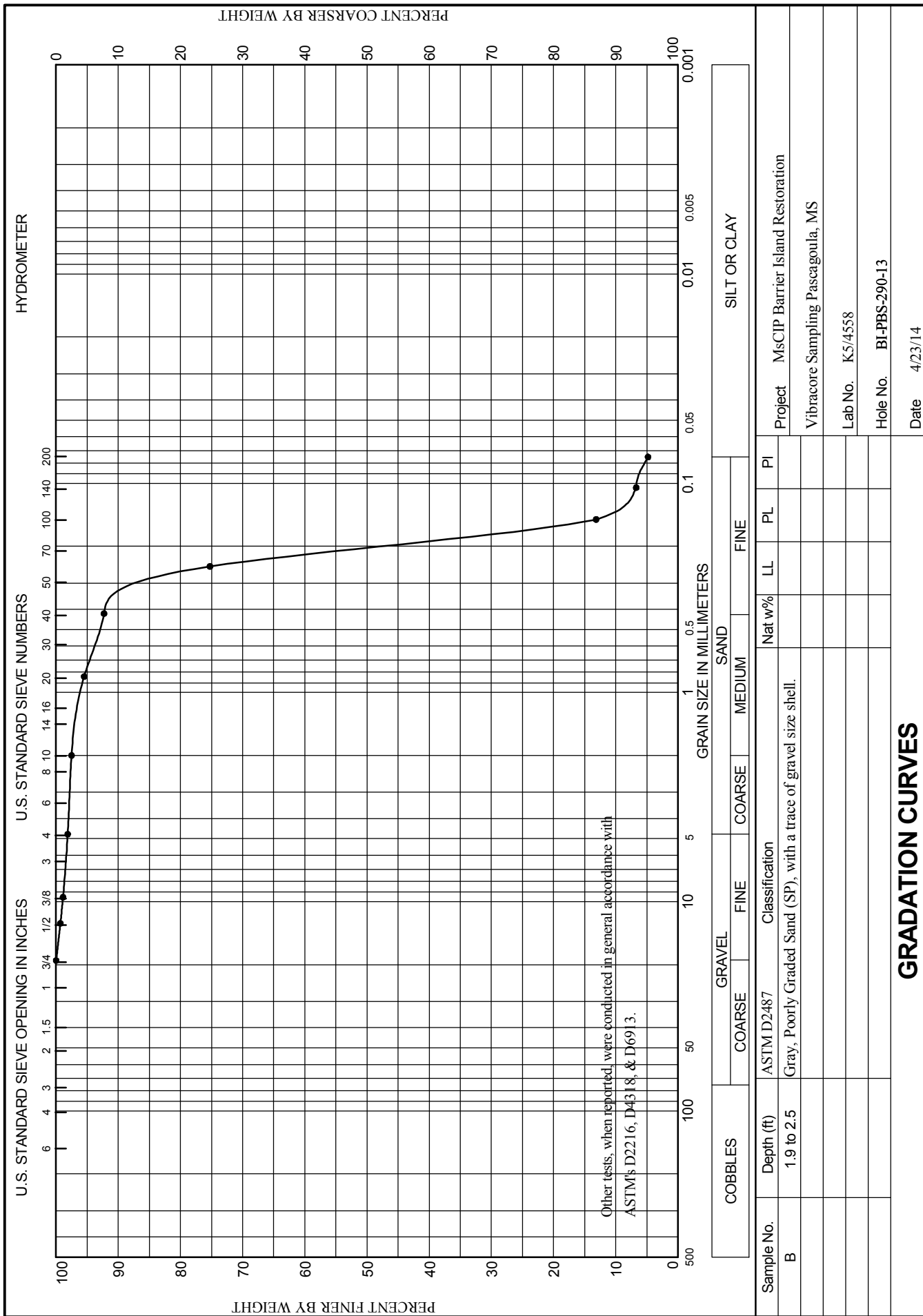




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WORK ORDER: 848e

REQUISITION: W33SJC32900192



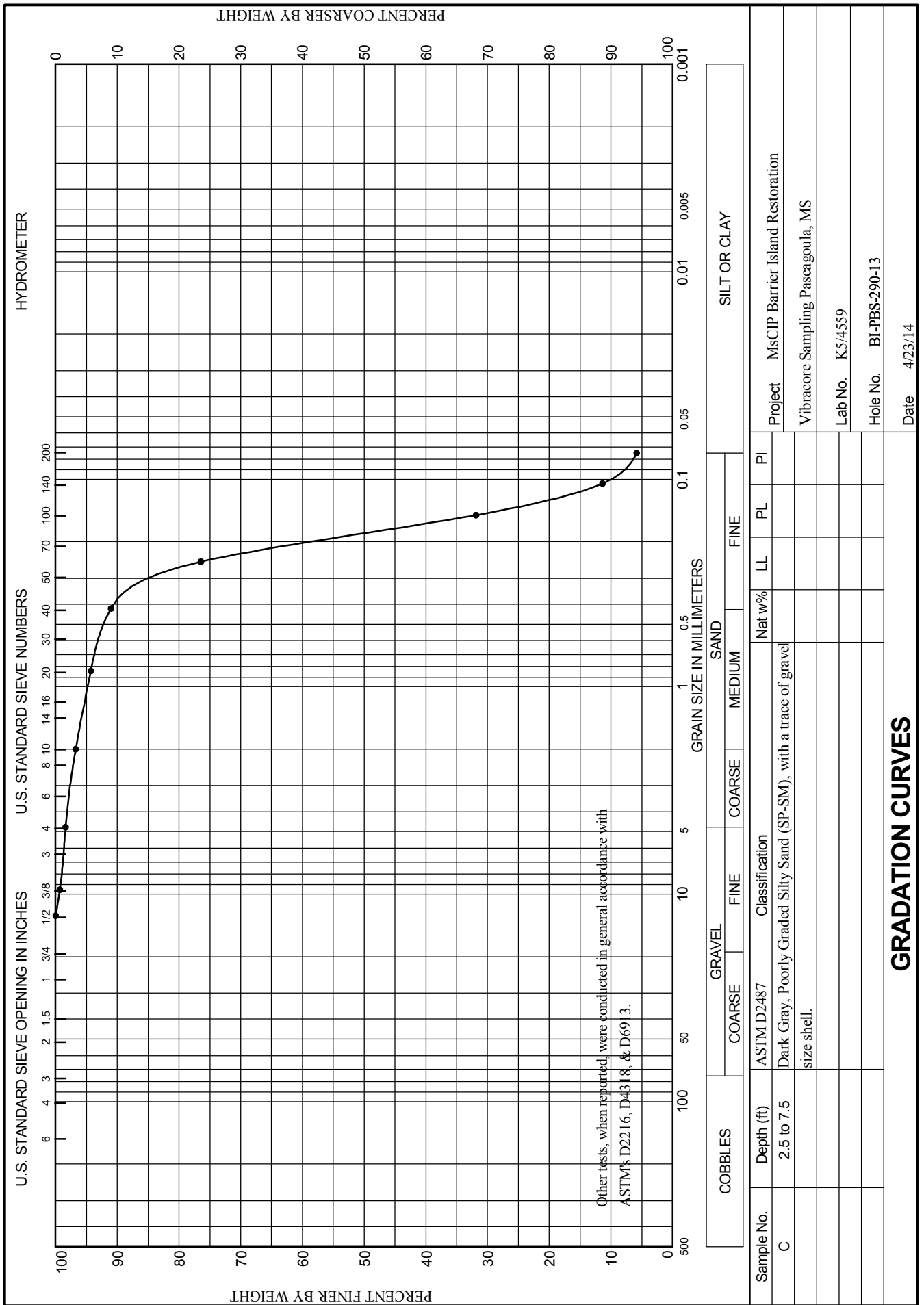




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CORPS OF ENGINEERS, 200 N. COBB PARKWAY, BLDG 400 SUITE 404, MARIETTA, GA. 30062

WORK ORDER: 848e

REQUISITION: W33SJC32900192



# Boring Designation BI-PBS-291-13

DRILLING LOG		DIVISION South Atlantic		INSTALLATION Mobile District		SHEET 1 OF 1 SHEETS	
1. PROJECT MsCIP Barrier Island Restoration Petit Bois Pass-OCS West				9. SIZE AND TYPE OF BIT N/A			
2. BORING DESIGNATION BI-PBS-291-13		LOCATION COORDINATES E = 1,089,980 N = 230,334		10. COORDINATE SYSTEM/DATUM State Plane, MSE (U.S. Ft.)		HORIZONTAL NAD83 VERTICAL NAVD88	
3. DRILLING AGENCY Corps of Engineers - CESAM		CONTRACTOR FILE NO.		11. MANUFACTURER'S DESIGNATION OF DRILL Vibracore		<input type="checkbox"/> AUTO HAMMER <input type="checkbox"/> MANUAL HAMMER	
4. NAME OF DRILLER Construction Solutions International, Inc.				12. TOTAL SAMPLES 3		DISTURBED 3 UNDISTURBED (UD) 0	
5. DIRECTION OF BORING <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED		DEG. FROM VERTICAL		13. TOTAL NUMBER CORE BOXES			
		BEARING		14. WATER DEPTH 47.7 Ft.			
6. THICKNESS OF OVERBURDEN N/A				15. DATE BORING 01-22-14		STARTED 01-22-14 COMPLETED 01-22-14	
7. DEPTH DRILLED INTO ROCK N/A				16. ELEVATION TOP OF BORING -47.9 Ft.			
8. TOTAL DEPTH OF BORING 17.6 Ft.				17. TOTAL RECOVERY FOR BORING 100%			
				18. SIGNATURE AND TITLE OF INSPECTOR Tom Powers, Geologist			
ELEV.	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS	SAMPLE	LABORATORY RESULTS		
-47.9	0.0						
-50.1	2.2		SAND, poorly-graded, mostly fine to medium-grained sand-sized quartz, few shell fragments, lt. gray (SP)	A	Classification: SP Color: 10Y 8/1-light greenish gray D50: 0.226 mm % Fines: 3		
-51.9	4.0		SAND, poorly-graded with silt, mostly fine-grained sand-sized quartz, few shell fragments, medium gray (SP-SM)	B	Classification: SP-SM Color: 10Y 7/1-light greenish gray D50: 0.16 mm % Fines: 9.1		
-55.3	7.4		SAND, silty, mostly fine-grained sand-sized quartz, trace shell fragments, medium gray (SM)	C	Classification: SM Color: 10Y 7/1-light greenish gray D50: 0.119 mm % Fines: 18		
-60.9	13.0		CLAY, lean, trace shell fragments to depth of 8.5 ft., sandy, sand pockets and burrows to 9.6 ft., dark gray (CL)	NS			
-64.0	16.1		SAND, silty, mostly fine-grained sand-sized quartz, trace shell fragments, medium brown at 15.5 ft. to base of unit, dark gray (SM)				
-65.5	17.6		SAND, clayey, mostly fine-grained sand-sized quartz, trace shell fragments, orange, medium brown (SC)				
NOTES:							
1. Soils are field visually classified in accordance with the Unified Soils Classification System.							
2. NS = Sample not submitted for laboratory analysis from this interval.							
3. Seafloor elevation calculated using sampling vessel's fathometer water depth reading and applying NOAA tidal gauge data conversion factor.							



WORK ORDER: 848e

REQUISITION: W33SJG32900192

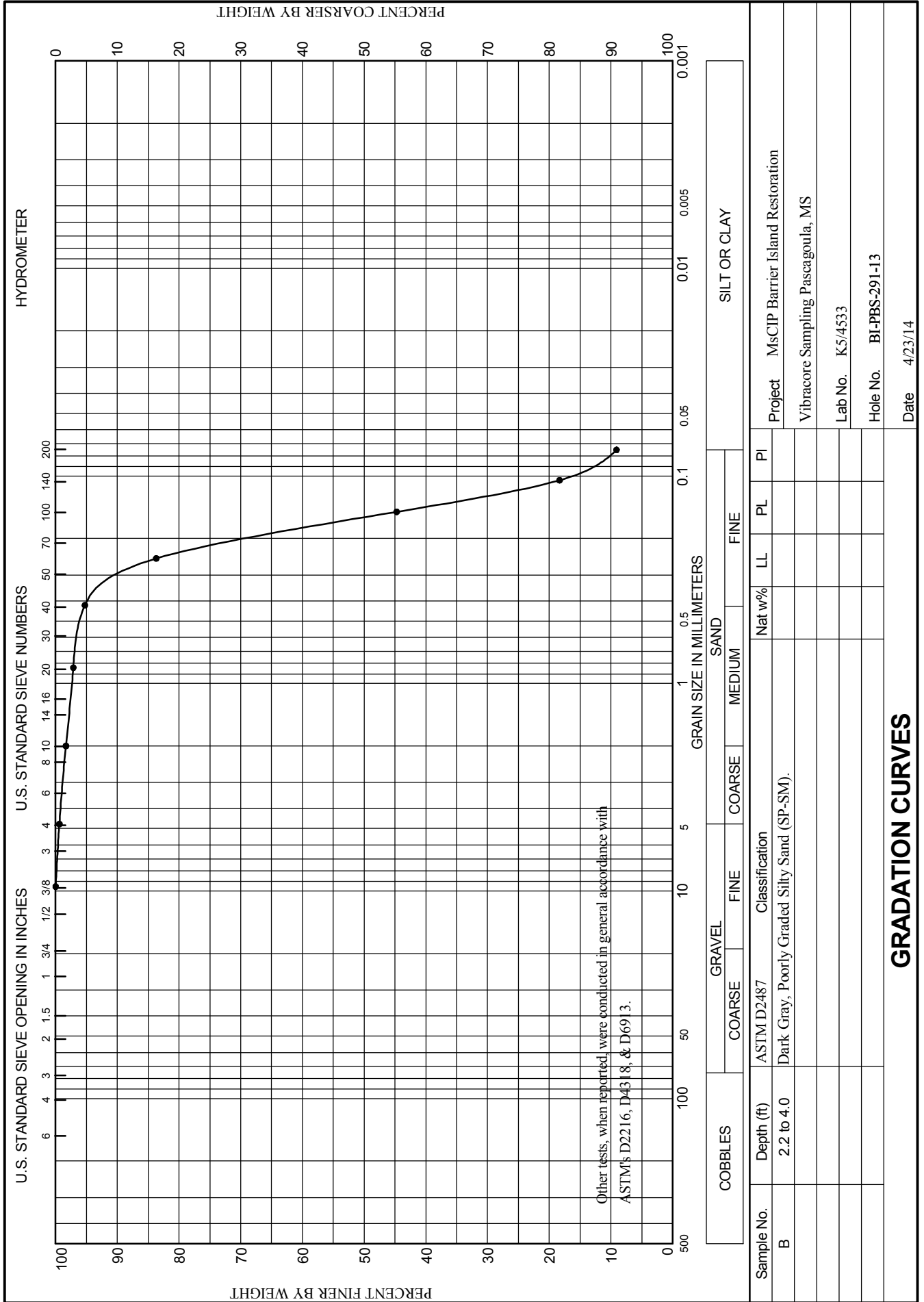




DEPARTMENT OF THE ARMY, SAVANNAH DISTRICT, ENVIRONMENTAL AND MATERIALS UNIT  
CORPS OF ENGINEERS, 200 N. COBB PARKWAY, BLDG 400 SUITE 404, MARIETTA, GA. 30062

WORK ORDER: 848e

REQUISITION: W33SJC32900192

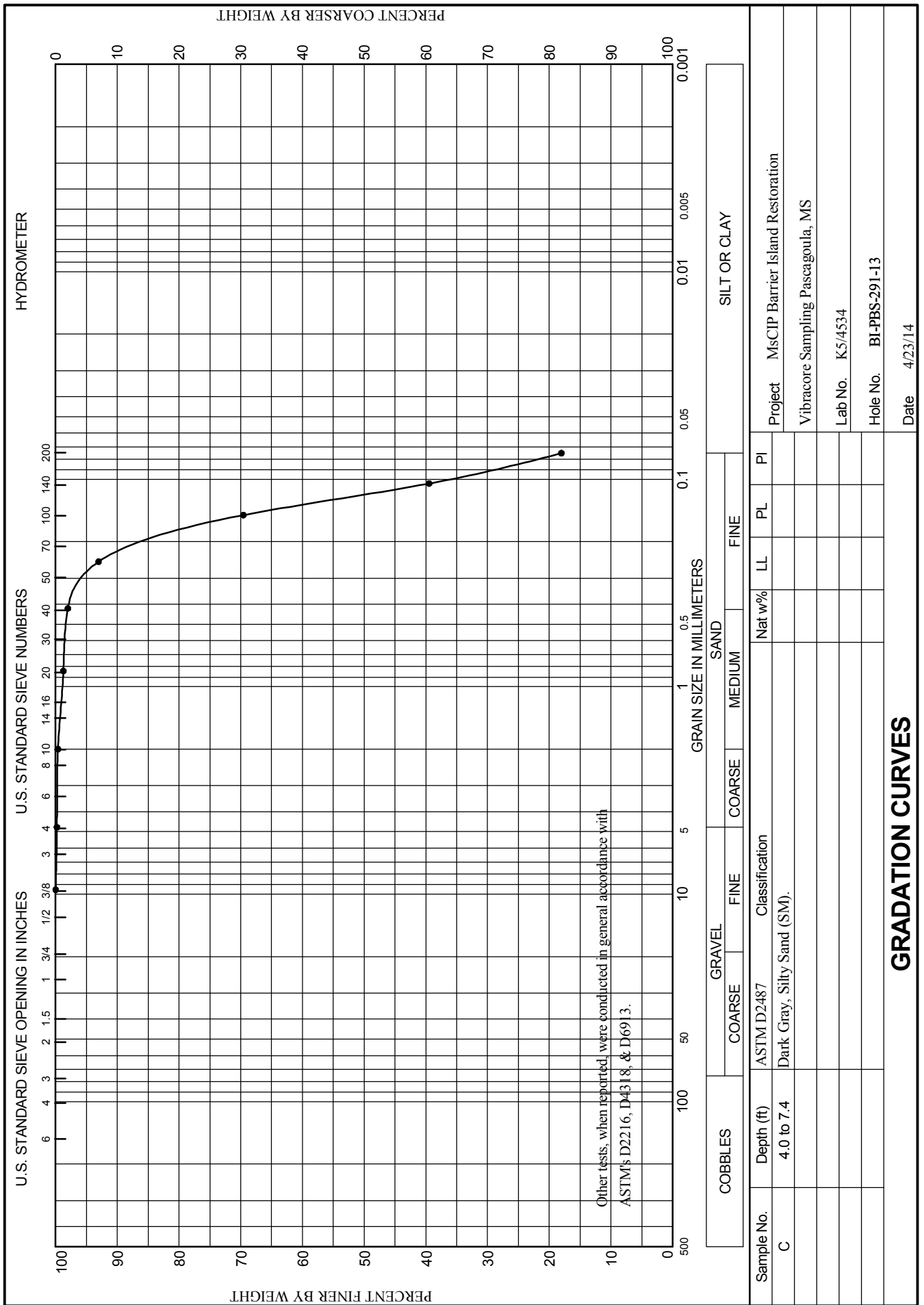




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WORK ORDER: 848e

REQUISITION: W33SJG32900192



# Boring Designation BI-PBS-292-13

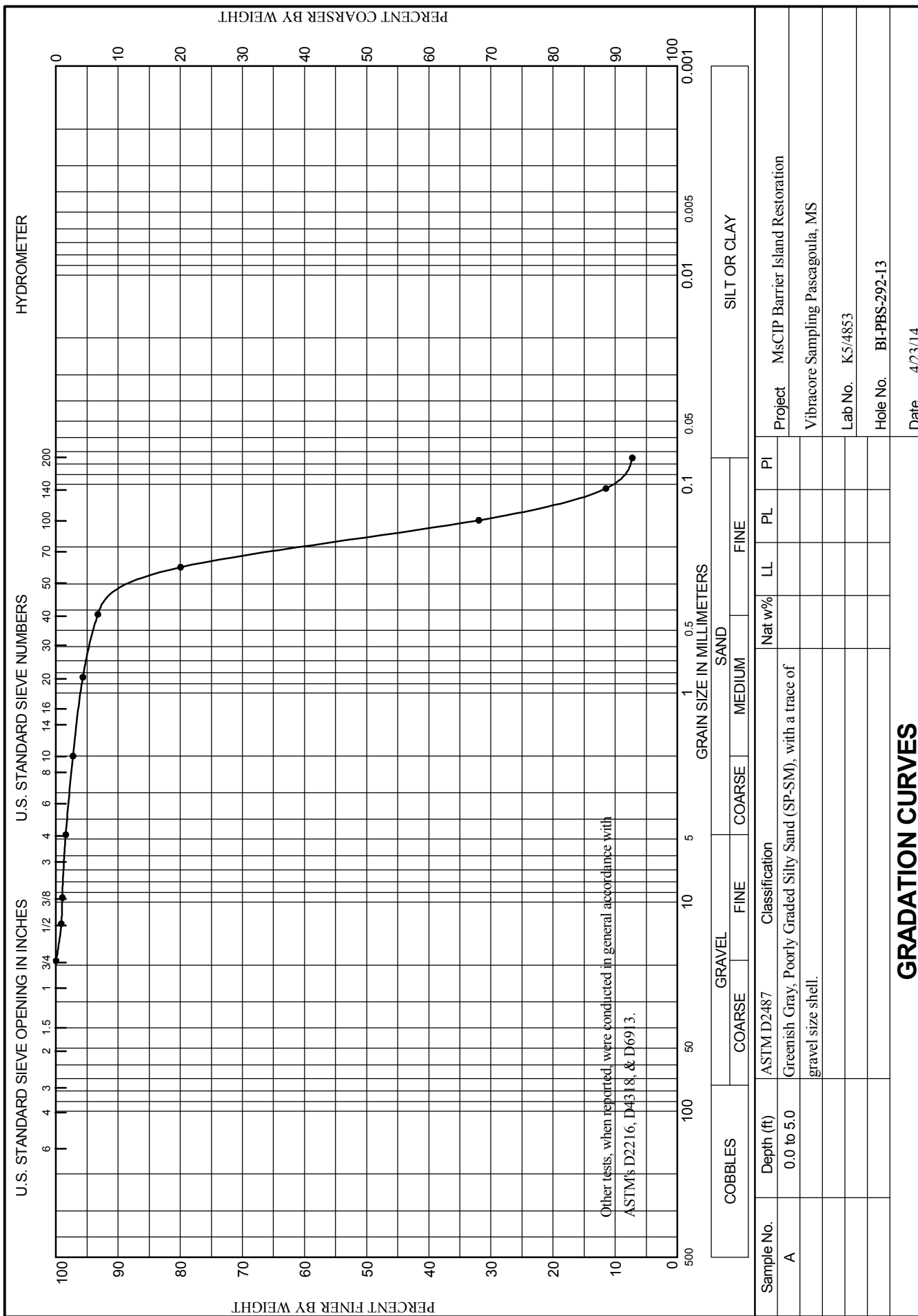
DRILLING LOG		DIVISION South Atlantic		INSTALLATION Mobile District		SHEET 1 OF 2 SHEETS	
1. PROJECT MsCIP Barrier Island Restoration Petit Bois Pass-OCS West				9. SIZE AND TYPE OF BIT N/A			
2. BORING DESIGNATION BI-PBS-292-13		LOCATION COORDINATES E = 1,086,254 N = 228,930		10. COORDINATE SYSTEM/DATUM State Plane, MSE (U.S. Ft.)		HORIZONTAL NAD83	
3. DRILLING AGENCY Corps of Engineers - CESAM		CONTRACTOR FILE NO.		11. MANUFACTURER'S DESIGNATION OF DRILL Vibracore		<input type="checkbox"/> AUTO HAMMER <input type="checkbox"/> MANUAL HAMMER	
4. NAME OF DRILLER Construction Solutions International, Inc.				12. TOTAL SAMPLES 2		DISTURBED 0	
5. DIRECTION OF BORING <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED				13. TOTAL NUMBER CORE BOXES		14. WATER DEPTH 48.5 Ft.	
6. THICKNESS OF OVERBURDEN N/A				15. DATE BORING 02-18-14		STARTED 02-18-14	
7. DEPTH DRILLED INTO ROCK N/A				16. ELEVATION TOP OF BORING -48.3 Ft.		COMPLETED 02-18-14	
8. TOTAL DEPTH OF BORING 19.0 Ft.				17. TOTAL RECOVERY FOR BORING 100%		18. SIGNATURE AND TITLE OF INSPECTOR Tom Powers, Geologist	
ELEV.	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS	SAMPLE	LABORATORY RESULTS		
-48.3	0.0		SAND, silty, mostly fine-grained sand-sized quartz, few shell fragments, medium gray (SM)	A	Classification: SP-SM    Color: 2.5Y 6/1-gray D50: 0.181 mm    % Fines: 7.2		
				B	Classification: SM    Color: 2.5Y 6/1-gray D50: 0.125 mm    % Fines: 17.7		
-58.3	10.0		SILT, inorganic-L, few shell fragments, sandy, medium gray (ML)				
-62.7	14.4		CLAY, lean, discontinue shell fragments, sandy, sand pockets, sand-filled burrows, soft and firm, medium gray (CL)	NS			
-67.3	19.0						
			NOTES: 1. Soils are field visually classified in accordance with the Unified Soils Classification System. 2. NS = Sample not submitted for laboratory analysis from this interval. 3. Seafloor elevation calculated using sampling vessel's fathometer water depth reading and applying NOAA tidal gauge data conversion				

<b>DRILLING LOG (Cont. Sheet)</b>			<b>INSTALLATION</b> Mobile District		<b>SHEET 2</b> <b>OF 2 SHEETS</b>
			<b>PROJECT</b> MsCIP Barrier Island Restoration		<b>COORDINATE SYSTEM/DATUM</b> State Plane, MSE (U.S. Ft.)
<b>LOCATION COORDINATES</b> X = 1,086,254 Y = 228,930			<b>ELEVATION TOP OF BORING</b> -48.3 Ft.		
<b>ELEV.</b>	<b>DEPTH</b>	<b>LEGEND</b>	<b>CLASSIFICATION OF MATERIALS</b>	<b>SAMPLE</b>	<b>LABORATORY RESULTS</b>
			factor.		



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CORPS OF ENGINEERS, 200 N. COBB PARKWAY, BLDG 400 SUITE 404, MARIETTA, GA. 30062

WORK ORDER: 848e  
REQUISITION: W33SJC32900192

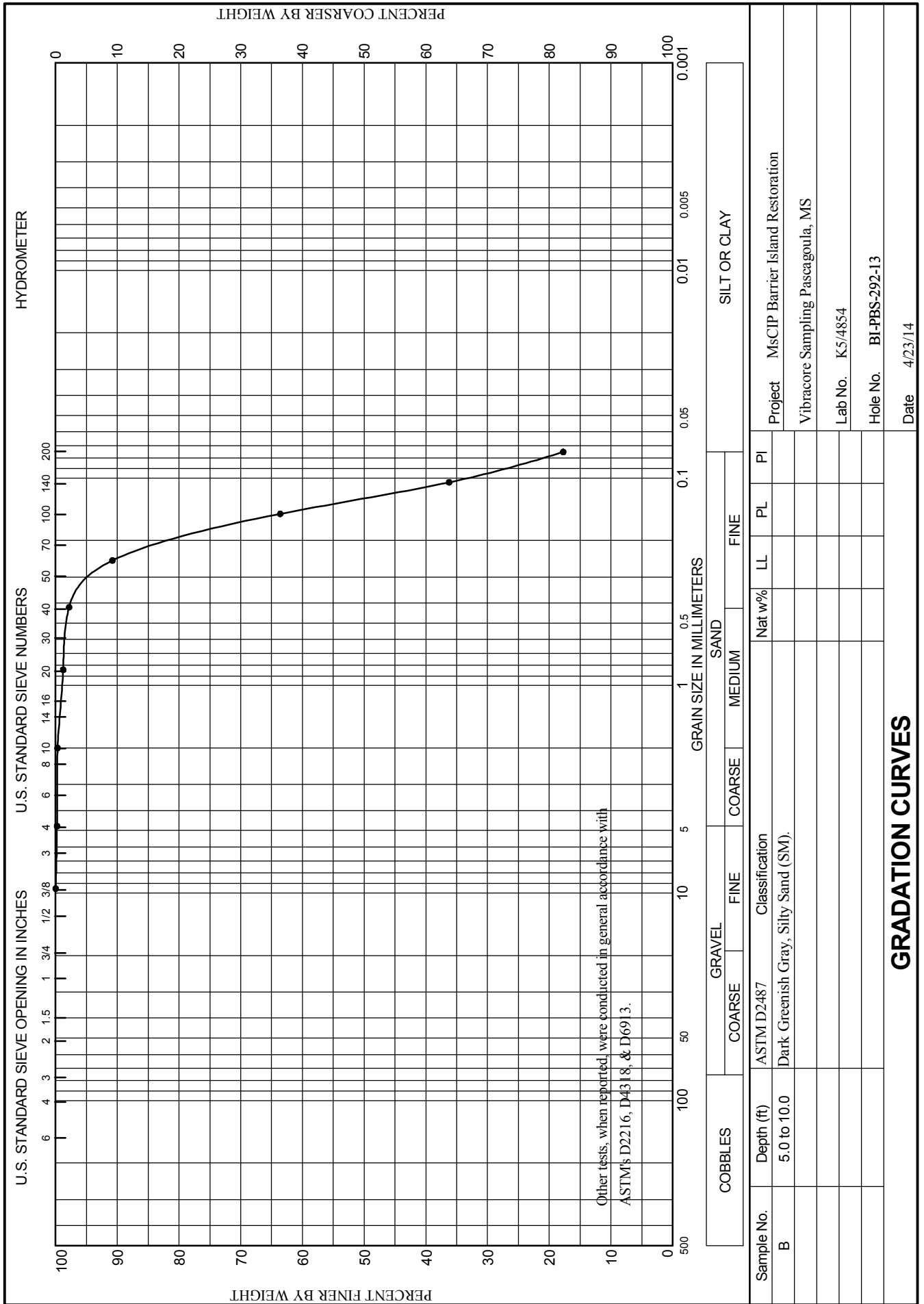






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CORPS OF ENGINEERS, 200 N. COBB PARKWAY, BLDG 400 SUITE 404, MARIETTA, GA. 30062

WORK ORDER: 848e  
REQUISITION: W33SJC32900192



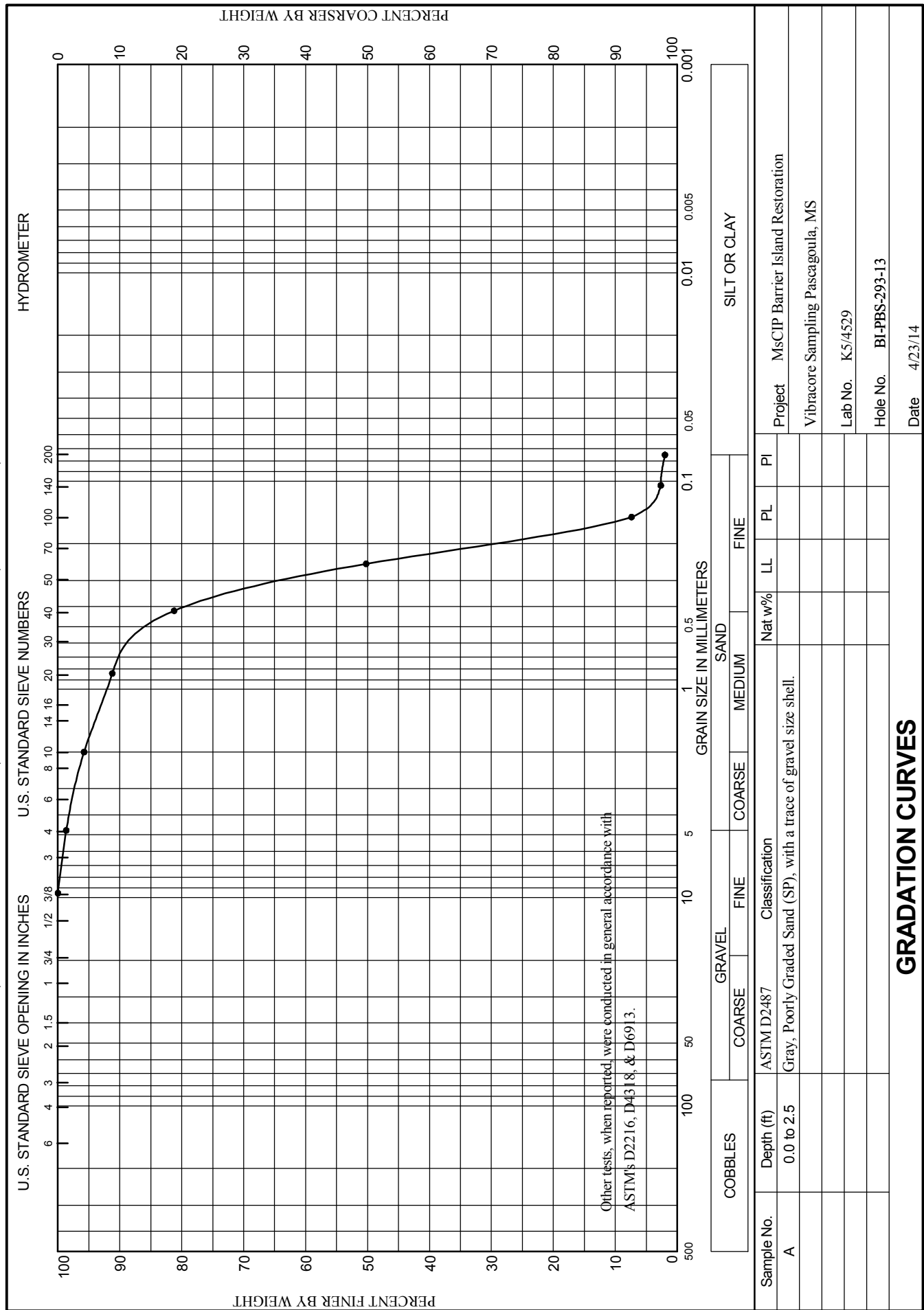
# Boring Designation BI-PBS-293-13

DRILLING LOG		DIVISION South Atlantic		INSTALLATION Mobile District		SHEET 1 OF 1 SHEETS	
1. PROJECT MsCIP Barrier Island Restoration Petit Bois Pass-OCS West				9. SIZE AND TYPE OF BIT N/A			
2. BORING DESIGNATION BI-PBS-293-13		LOCATION COORDINATES E = 1,089,040 N = 231,626		10. COORDINATE SYSTEM/DATUM State Plane, MSE (U.S. Ft.)		HORIZONTAL NAD83	
3. DRILLING AGENCY Corps of Engineers - CESAM		CONTRACTOR FILE NO.		11. MANUFACTURER'S DESIGNATION OF DRILL Vibrocure		<input type="checkbox"/> AUTO HAMMER <input type="checkbox"/> MANUAL HAMMER	
4. NAME OF DRILLER Construction Solutions International, Inc.				12. TOTAL SAMPLES 3		UNDISTURBED (UD) 0	
5. DIRECTION OF BORING <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED				13. TOTAL NUMBER CORE BOXES		14. WATER DEPTH 48.1 Ft.	
6. THICKNESS OF OVERBURDEN N/A				15. DATE BORING 01-22-14		COMPLETED 01-22-14	
7. DEPTH DRILLED INTO ROCK N/A				16. ELEVATION TOP OF BORING -48.4 Ft.		17. TOTAL RECOVERY FOR BORING 100%	
8. TOTAL DEPTH OF BORING 15.7 Ft.				18. SIGNATURE AND TITLE OF INSPECTOR Tom Powers, Geologist			
ELEV.	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS	SAMPLE	LABORATORY RESULTS		
-48.4	0.0						
-50.9	2.5		SAND, poorly-graded, mostly fine to medium-grained sand-sized quartz, few shell fragments, fine-grained sand from 2.5 to base of unit, lt. gray (SP)	A	Classification: SP Color: 10Y 8/1-light greenish gray D50: 0.249 mm % Fines: 2		
-51.9	3.5		SAND, poorly-graded with silt, mostly fine-grained sand-sized quartz, few shell fragments, lt. gray (SP-SM)	B	Classification: SP-SM Color: 10Y 7/1-light greenish gray D50: 0.188 mm % Fines: 6.5		
-57.9	9.5		SAND, silty, mostly fine-grained sand-sized quartz, few shell fragments, medium gray (SM)	C	Classification: SM Color: 10Y 7/1-light greenish gray D50: 0.111 mm % Fines: 18.8		
-64.1	15.7		CLAY, lean, few shell fragments, sandy, sand pockets and burrows between 9.5 and 11.4 ft. depth, medium dark gray (CL)	NS			
NOTES: 1. Soils are field visually classified in accordance with the Unified Soils Classification System. 2. NS = Sample not submitted for laboratory analysis from this interval. 3. Seafloor elevation calculated using sampling vessel's fathometer water depth reading and applying NOAA tidal gauge data conversion factor.							



WORK ORDER: 848e

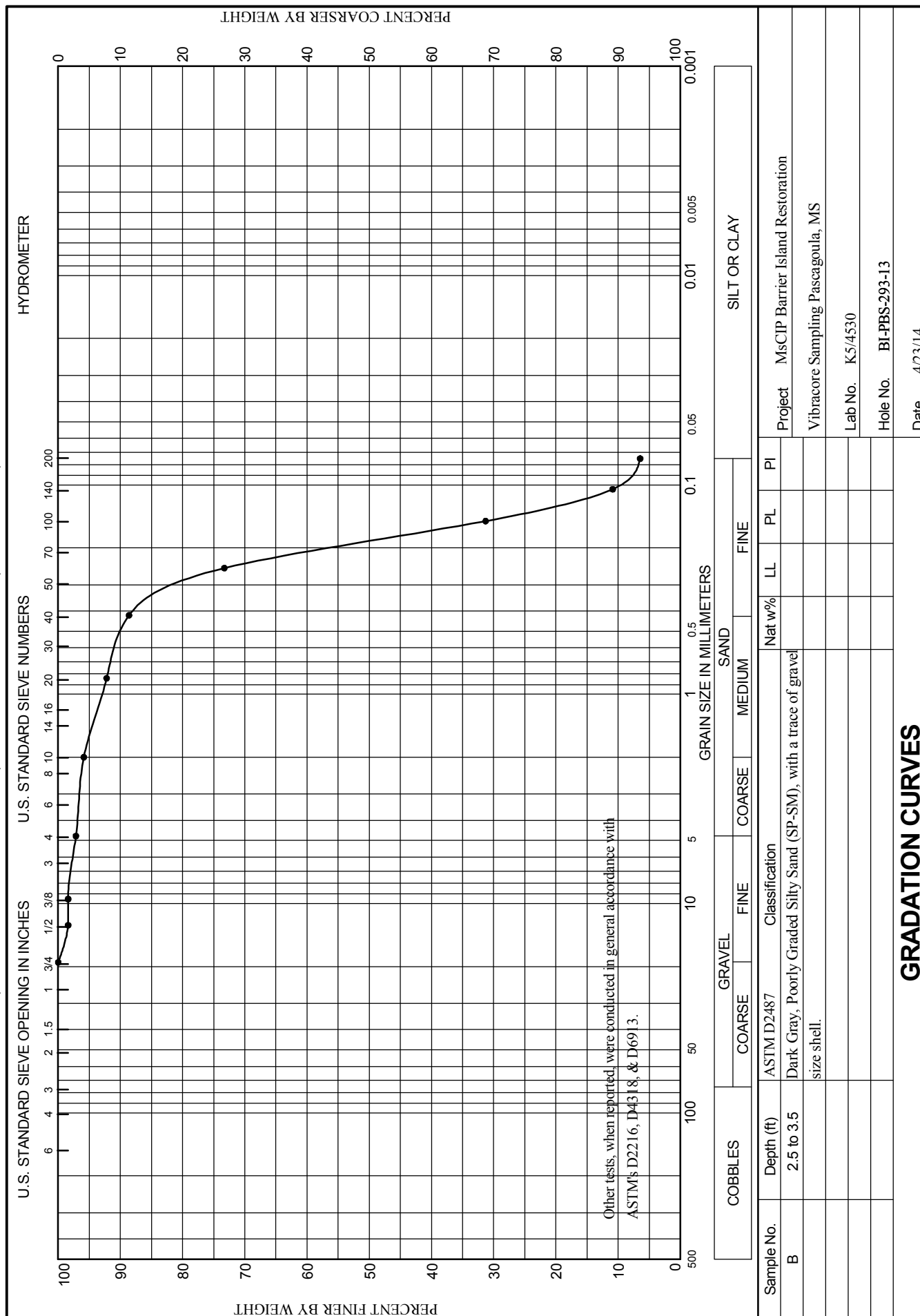
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WORK ORDER: 848e

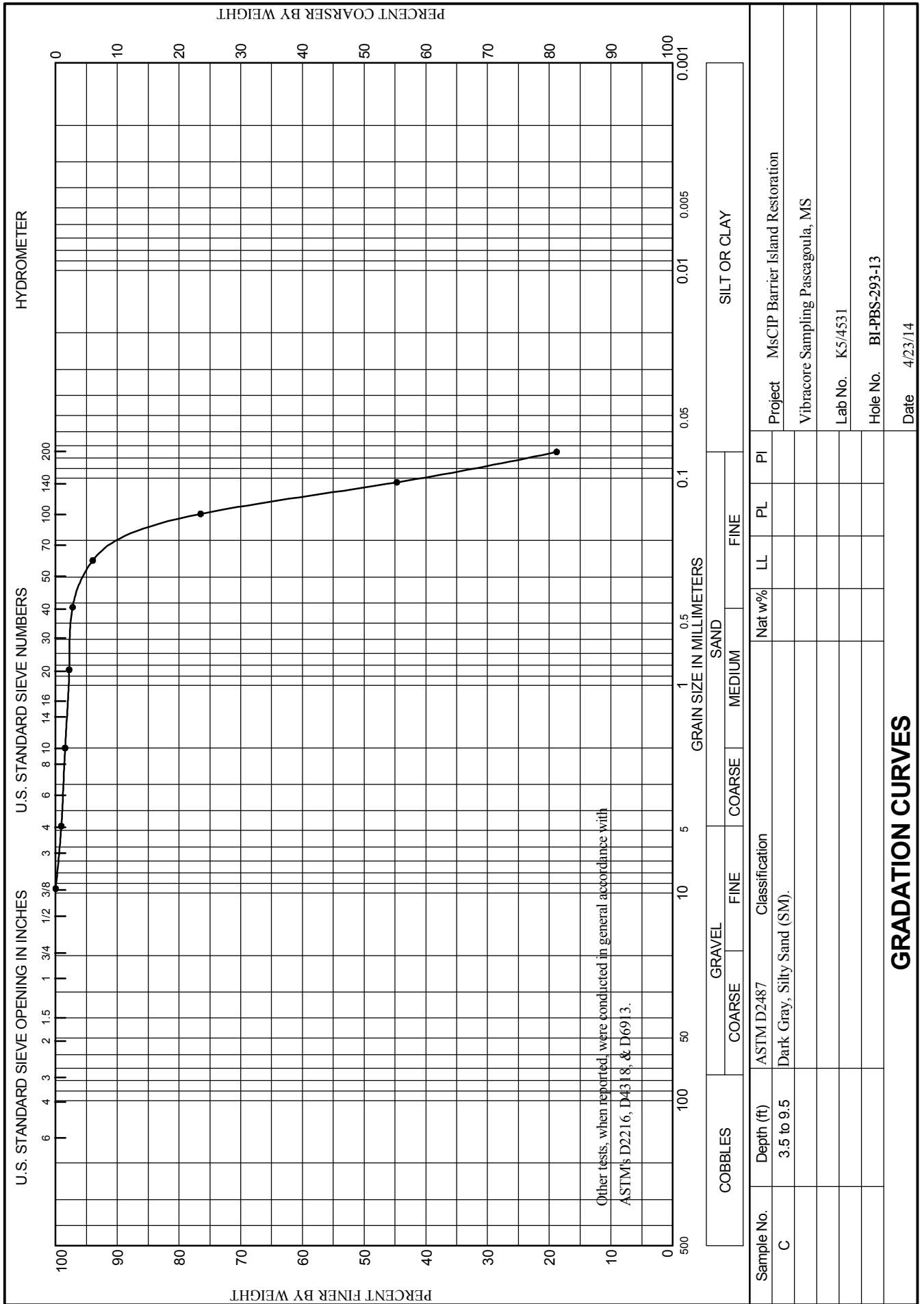
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WORK ORDER: 848e  
REQUISITION: W33SJC32900192



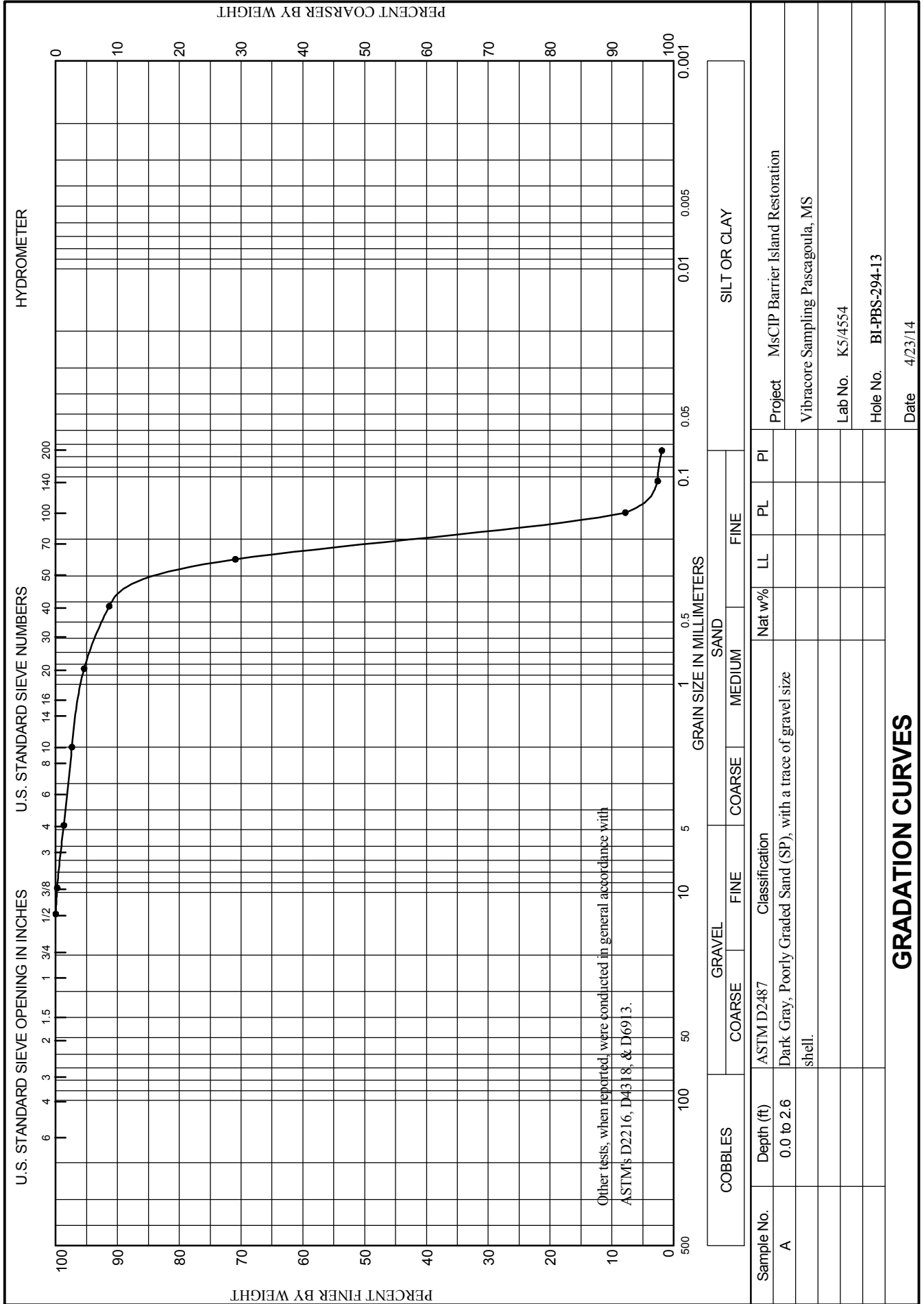
# Boring Designation BI-PBS-294-13

DRILLING LOG		DIVISION South Atlantic		INSTALLATION Mobile District		SHEET 1 OF 1 SHEETS	
1. PROJECT MsCIP Barrier Island Restoration Petit Bois Pass-OCS West				9. SIZE AND TYPE OF BIT N/A			
2. BORING DESIGNATION BI-PBS-294-13		LOCATION COORDINATES E = 1,087,901 N = 230,008		10. COORDINATE SYSTEM/DATUM State Plane, MSE (U.S. Ft.)		HORIZONTAL NAD83	
3. DRILLING AGENCY Corps of Engineers - CESAM		CONTRACTOR FILE NO.		11. MANUFACTURER'S DESIGNATION OF DRILL Vibrocure		<input type="checkbox"/> AUTO HAMMER <input type="checkbox"/> MANUAL HAMMER	
4. NAME OF DRILLER Construction Solutions International, Inc.				12. TOTAL SAMPLES 3		DISTURBED 0	
5. DIRECTION OF BORING <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED				13. TOTAL NUMBER CORE BOXES		14. WATER DEPTH 46.8 Ft.	
6. THICKNESS OF OVERBURDEN N/A				15. DATE BORING 01-26-14		STARTED 01-26-14	
7. DEPTH DRILLED INTO ROCK N/A				16. ELEVATION TOP OF BORING -46.5 Ft.		COMPLETED 01-26-14	
8. TOTAL DEPTH OF BORING 18.4 Ft.				17. TOTAL RECOVERY FOR BORING 100%		18. SIGNATURE AND TITLE OF INSPECTOR Tom Powers, Geologist	
ELEV.	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS	SAMPLE	LABORATORY RESULTS		
-46.5	0.0						
-49.1	2.6		SAND, poorly-graded, mostly fine to medium-grained sand-sized quartz, few shell fragments, trace clay lenses 0.8 to 1.0 ft., lt. gray (SP) At El. -47.5 Ft.	A	Classification: SP Color: 10Y 8/1-light greenish gray D50: 0.211 mm % Fines: 1.9		
-50.2	3.7		SAND, poorly-graded with silt, mostly fine-grained sand-sized quartz, few shell fragments, lt. to medium gray (SP-SM)	B	Classification: SP Color: 10Y 7/1-light greenish gray D50: 0.207 mm % Fines: 3.4		
-61.5	15.0		SAND, silty, mostly fine-grained sand-sized quartz, few shell fragments, lt. to medium gray (SM)	C	Classification: SP-SM Color: 10Y 7/1-light greenish gray D50: 0.167 mm % Fines: 6.8		
-62.5	16.0		SILT, inorganic-L, few shell fragments, medium gray (ML)	NS			
-64.9	18.4		CLAY, lean, sandy, medium dark gray (CL)				
NOTES: 1. Soils are field visually classified in accordance with the Unified Soils Classification System. 2. NS = Sample not submitted for laboratory analysis from this interval. 3. Seafloor elevation calculated using sampling vessel's fathometer water depth reading and applying NOAA tidal gauge data conversion factor.							



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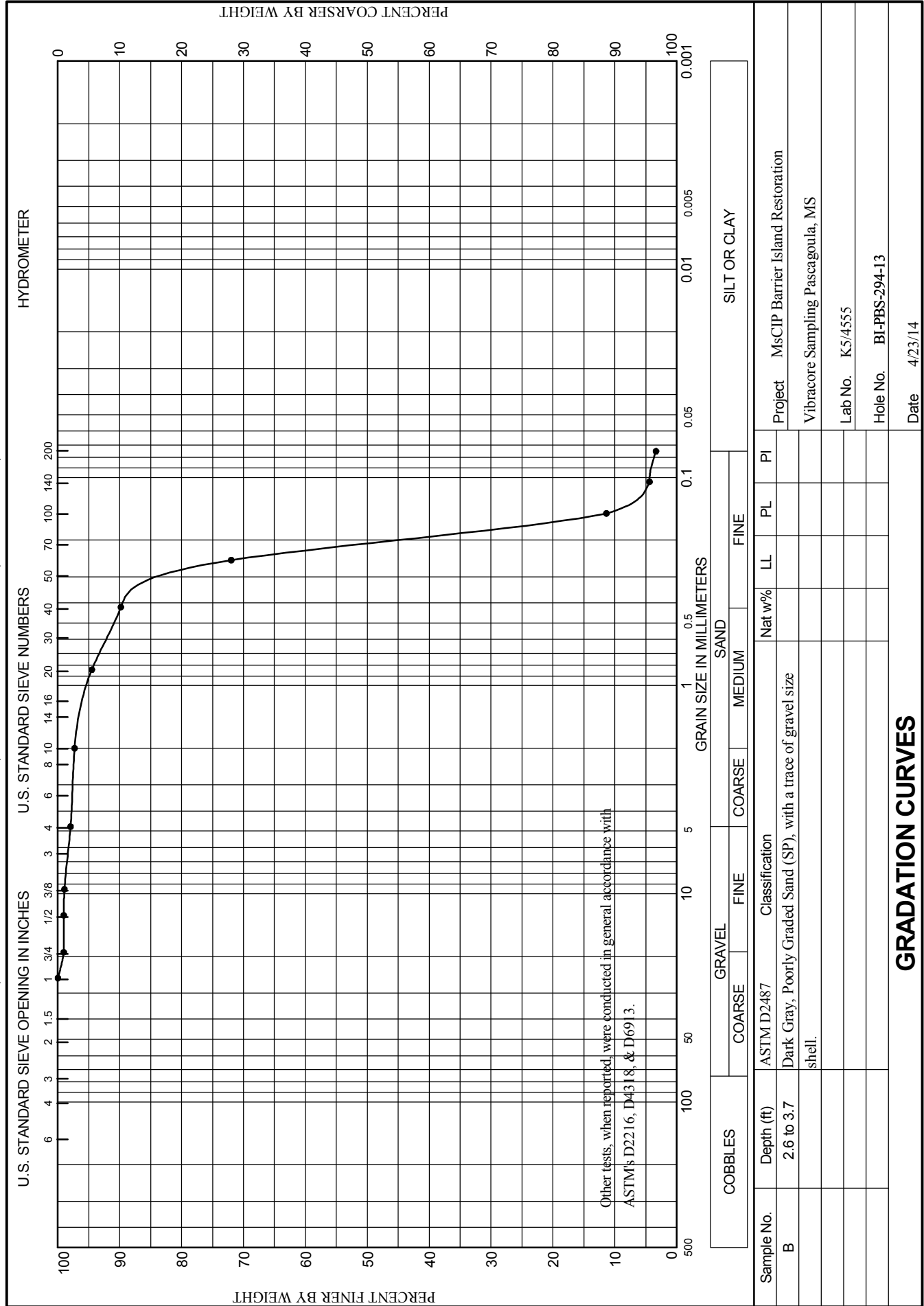
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REQUISITION: W33SJC32900192





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WORK ORDER: 848e  
REQUISITION: W33SJC32900192



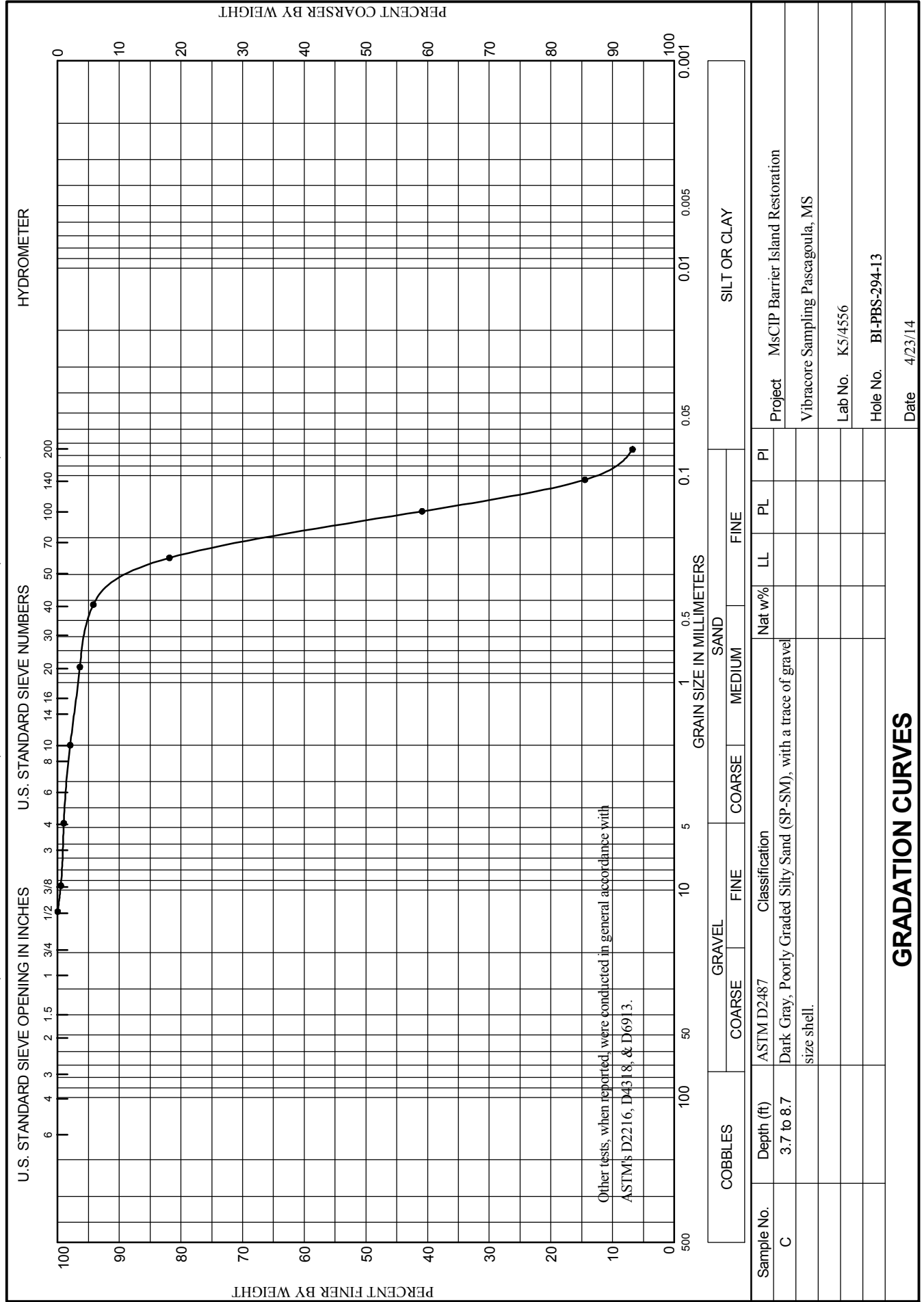




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CORPS OF ENGINEERS, 200 N. COBB PARKWAY, BLDG 400 SUITE 404, MARIETTA, GA. 30062

WORK ORDER: 848e

REQUISITION: W33SJG32900192



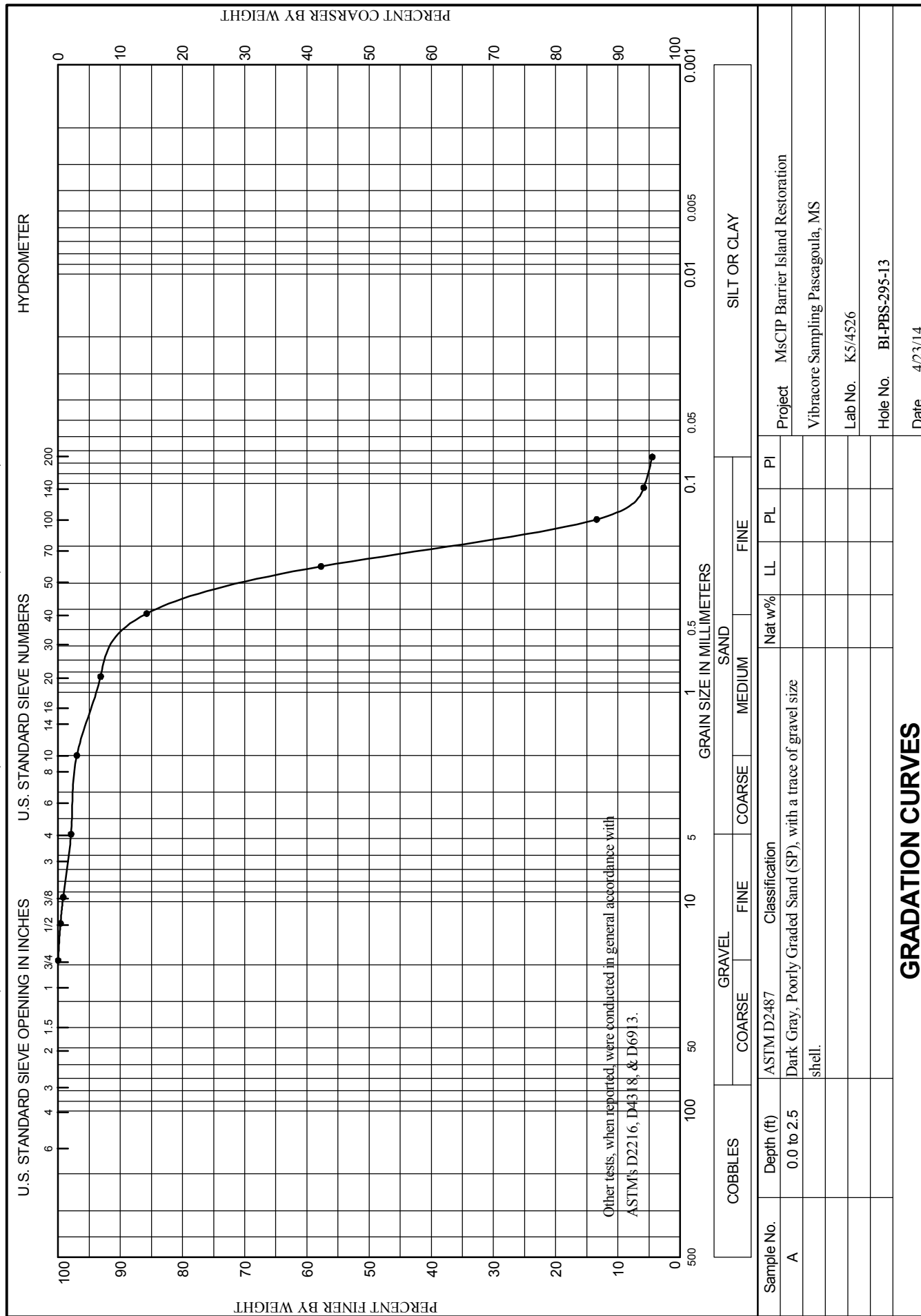
# Boring Designation BI-PBS-295-13

DRILLING LOG		DIVISION South Atlantic		INSTALLATION Mobile District		SHEET 1 OF 1 SHEETS	
1. PROJECT MsCIP Barrier Island Restoration Petit Bois Pass-OCS West				9. SIZE AND TYPE OF BIT N/A			
2. BORING DESIGNATION BI-PBS-295-13		LOCATION COORDINATES E = 1,088,146 N = 232,718		10. COORDINATE SYSTEM/DATUM State Plane, MSE (U.S. Ft.)		HORIZONTAL NAD83 VERTICAL NAVD88	
3. DRILLING AGENCY Corps of Engineers - CESAM		CONTRACTOR FILE NO.		11. MANUFACTURER'S DESIGNATION OF DRILL Vibrocure		<input type="checkbox"/> AUTO HAMMER <input type="checkbox"/> MANUAL HAMMER	
4. NAME OF DRILLER Construction Solutions International, Inc.				12. TOTAL SAMPLES 3		DISTURBED 3 UNDISTURBED (UD) 0	
5. DIRECTION OF BORING <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED		DEG. FROM VERTICAL		13. TOTAL NUMBER CORE BOXES			
		BEARING		14. WATER DEPTH 48.1 Ft.			
6. THICKNESS OF OVERBURDEN N/A				15. DATE BORING 01-22-14		STARTED 01-22-14 COMPLETED 01-22-14	
7. DEPTH DRILLED INTO ROCK N/A				16. ELEVATION TOP OF BORING -48.5 Ft.			
8. TOTAL DEPTH OF BORING 14.9 Ft.				17. TOTAL RECOVERY FOR BORING 100%			
				18. SIGNATURE AND TITLE OF INSPECTOR Tom Powers, Geologist			
ELEV.	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS	SAMPLE	LABORATORY RESULTS		
-48.5	0.0						
-51.0	2.5		SAND, poorly-graded, mostly fine to medium-grained sand-sized quartz, few shell fragments, lt. gray (SP)	A	Classification: SP Color: 10Y 7/1-light greenish gray D50: 0.228 mm % Fines: 4.5		
-52.0	3.5		SAND, poorly-graded with silt, mostly fine-grained sand-sized quartz, few shell fragments, lt. gray (SP-SM)	B	Classification: SP Color: 10Y 7/1-light greenish gray D50: 0.214 mm % Fines: 4.1		
-54.3	5.8		SAND, silty, mostly fine-grained sand-sized quartz, few shell fragments, medium gray (SM)	C	Classification: SP-SM Color: 10Y 7/1-light greenish gray D50: 0.158 mm % Fines: 10.7		
-58.8	10.3		SAND, silty, clayey, mostly fine-grained sand-sized quartz, trace shell fragments, medium dark gray (SC-SM)	NS			
-63.4	14.9		CLAY, lean, trace shell fragments, sandy, sand pockets between depths of 10.3 and 11.8 ft., medium dark gray (CL)				
			NOTES: 1. Soils are field visually classified in accordance with the Unified Soils Classification System. 2. NS = Sample not submitted for laboratory analysis from this interval. 3. Seafloor elevation calculated using sampling vessel's fathometer water depth reading and applying NOAA tidal gauge data conversion factor.				



WORK ORDER: 848e

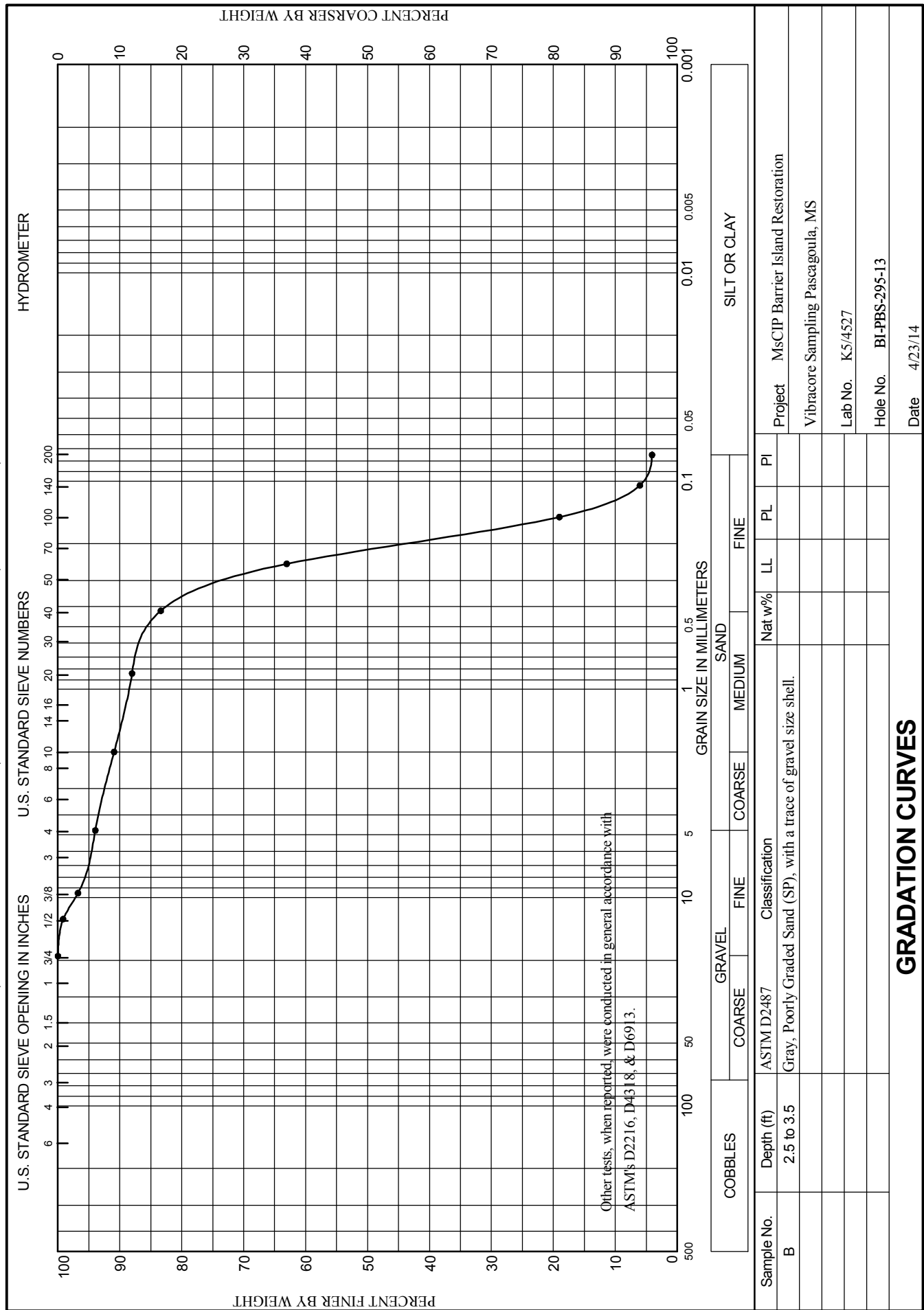
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WORK ORDER: 848e

REQUISITION: W33SJG32900192

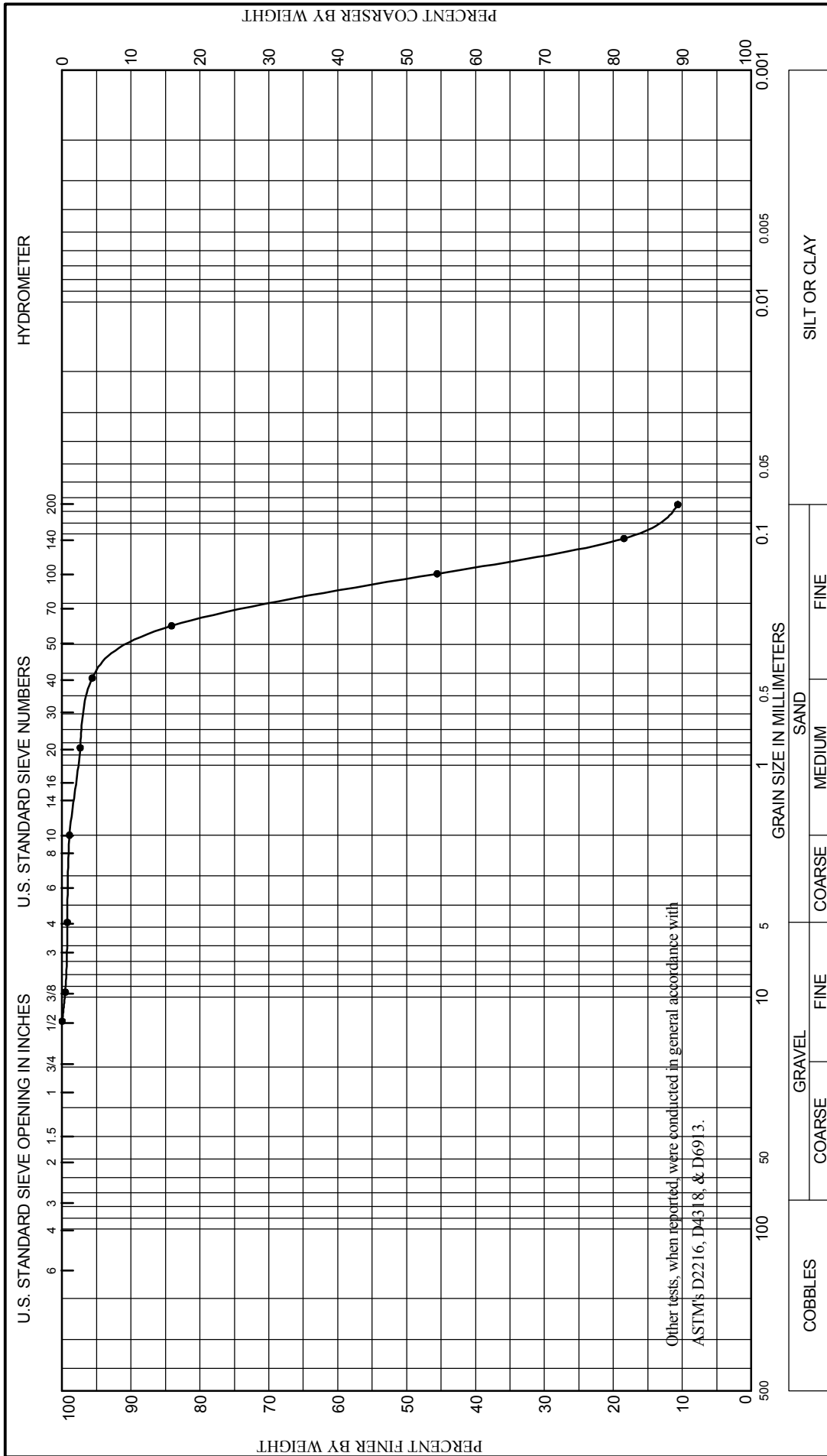




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WORK ORDER: 848e

REQUISITION: W33SJG32900192



Sample No.	Depth (ft)	ASTM D2487	Classification	Nat w%	LL	PL	PI	Project	MsCIP Barrier Island Restoration	
C	3.5 to 5.8	Dark Gray, Poorly Graded Silty Sand (SP-SM).						Vibracore Sampling Pascagoula, MS		
								Lab No.	K5/4528	
								Hole No.	BI-PBS-295-13	
GRADATION CURVES									Date	4/23/14

GRADATION CURVES

# Boring Designation BI-PBS-296-13

<b>DRILLING LOG</b>		<b>DIVISION</b> South Atlantic	<b>INSTALLATION</b> Mobile District	<b>SHEET 1</b> <b>OF 1 SHEETS</b>
<b>1. PROJECT</b> MsCIP Barrier Island Restoration Petit Bois Pass-OCS West			<b>9. SIZE AND TYPE OF BIT</b> N/A	
<b>2. BORING DESIGNATION</b> BI-PBS-296-13			<b>10. COORDINATE SYSTEM/DATUM</b> State Plane, MSE (U.S. Ft.)	
<b>3. DRILLING AGENCY</b> Corps of Engineers - CESAM			<b>11. MANUFACTURER'S DESIGNATION OF DRILL</b> Vibracore	
<b>4. NAME OF DRILLER</b> Construction Solutions International, Inc.			<b>12. TOTAL SAMPLES</b> 1	
<b>5. DIRECTION OF BORING</b> <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED			<b>13. TOTAL NUMBER CORE BOXES</b> 48.5 Ft.	
<b>6. THICKNESS OF OVERBURDEN</b> N/A			<b>14. WATER DEPTH</b> 48.5 Ft.	
<b>7. DEPTH DRILLED INTO ROCK</b> N/A			<b>15. DATE BORING</b> 02-19-14	
<b>8. TOTAL DEPTH OF BORING</b> 16.0 Ft.			<b>16. ELEVATION TOP OF BORING</b> -48.0 Ft.	
			<b>17. TOTAL RECOVERY FOR BORING</b> 100%	
			<b>18. SIGNATURE AND TITLE OF INSPECTOR</b> Tom Powers, Geologist	

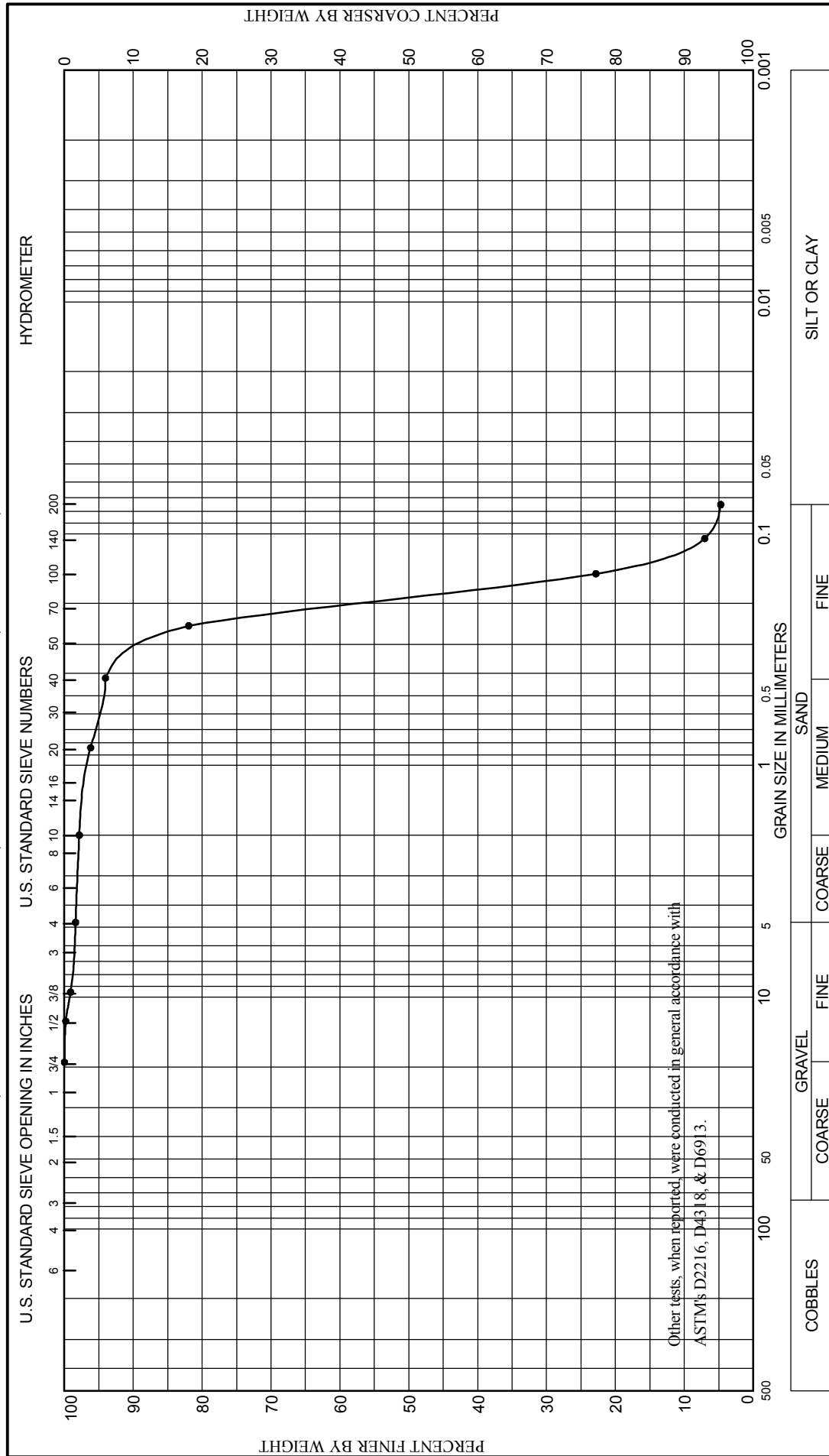
ELEV.	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS	SAMPLE	LABORATORY RESULTS
-48.0	0.0				
-52.0	4.0		SAND, silty, mostly fine-grained sand-sized quartz, trace shell fragments, fines content increases below 1.7 ft. depth, medium gray (SM)	A	Classification: SP Color: 2.5Y 6/1-gray D50: 0.189 mm % Fines: 4.7
-58.0	10.0		SILT, inorganic-L, few shell fragments, sandy, medium gray (ML)	NS	
-59.6	11.6		CLAY, silty, trace shell fragments, medium gray (CL-ML)		
-64.0	16.0		CLAY, lean, discontinuous shell fragments, pockets filled with ML in upper 1.2 ft. of unit, medium gray (CL)		
			NOTES: 1. Soils are field visually classified in accordance with the Unified Soils Classification System. 2. NS = Sample not submitted for laboratory analysis from this interval. 3. Seafloor elevation calculated using sampling vessel's fathometer water depth reading and applying NOAA tidal gauge data conversion factor.		



DEPARTMENT OF THE ARMY, SAVANNAH DISTRICT, ENVIRONMENTAL AND MATERIALS UNIT  
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WORK ORDER: 848e

REQUISITION: W33SJG32900192



Sample No.	Depth (ft)	ASTM D2487	Classification	Nat w%	LL	PL	PI	Project	MsCIP Barrier Island Restoration	
A	0.0 to 1.7	Greenish Gray, Poorly Graded Sand (SP), with a trace of gravel size shell.						Vibracore Sampling Pascagoula, MS		
								Lab No.	K5/4858	
								Hole No.	BI-PBS-296-13	
GRADATION CURVES									Date	4/23/14

GRADATION CURVES

# Boring Designation BI-PBS-297-13

DRILLING LOG		DIVISION South Atlantic		INSTALLATION Mobile District		SHEET 1 OF 2 SHEETS	
1. PROJECT MsCIP Barrier Island Restoration Petit Bois Pass-OCS West				9. SIZE AND TYPE OF BIT N/A			
2. BORING DESIGNATION BI-PBS-297-13		LOCATION COORDINATES E = 1,086,949 N = 231,289		10. COORDINATE SYSTEM/DATUM State Plane, MSE (U.S. Ft.)		HORIZONTAL NAD83 VERTICAL NAVD88	
3. DRILLING AGENCY Corps of Engineers - CESAM		CONTRACTOR FILE NO.		11. MANUFACTURER'S DESIGNATION OF DRILL Vibracore		<input type="checkbox"/> AUTO HAMMER <input type="checkbox"/> MANUAL HAMMER	
4. NAME OF DRILLER Construction Solutions International, Inc.				12. TOTAL SAMPLES 3		DISTURBED 0 UNDISTURBED (UD)	
5. DIRECTION OF BORING <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED		DEG. FROM VERTICAL		13. TOTAL NUMBER CORE BOXES			
		BEARING		14. WATER DEPTH 46.8 Ft.			
6. THICKNESS OF OVERBURDEN N/A				15. DATE BORING 01-26-14		STARTED 01-26-14 COMPLETED 01-26-14	
7. DEPTH DRILLED INTO ROCK N/A				16. ELEVATION TOP OF BORING -46.7 Ft.			
8. TOTAL DEPTH OF BORING 19.3 Ft.				17. TOTAL RECOVERY FOR BORING 100%			
				18. SIGNATURE AND TITLE OF INSPECTOR Tom Powers, Geologist			

ELEV.	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS	SAMPLE	LABORATORY RESULTS
-46.7	0.0				
-48.5	1.8		SAND, poorly-graded, mostly fine to medium-grained sand-sized quartz, few shell fragments, brownish gray (SP)	A	Classification: SP Color: 10Y 8/1-light greenish gray D50: 0.209 mm % Fines: 2.6
-53.7	7.0		SAND, poorly-graded with silt, mostly fine-grained sand-sized quartz, few shell fragments, brownish gray (SP-SM)	B	Classification: SP Color: 10Y 8/1-light greenish gray D50: 0.194 mm % Fines: 4
-58.7	12.0		SAND, silty, mostly fine-grained sand-sized quartz, few shell fragments, brownish gray (SM)	C	Classification: SM Color: 10Y 7/1-light greenish gray D50: 0.134 mm % Fines: 14.2
-64.9	18.2		SILT, inorganic-L, trace shell fragments, medium gray (ML)	NS	
-66.0	19.3		SAND, silty, clayey, mostly fine-grained sand-sized quartz, few shell fragments, medium dark gray (SC-SM)		
NOTES: 1. Soils are field visually classified in accordance with the Unified Soils Classification System. 2. NS = Sample not submitted for laboratory analysis from this interval. 3. Seafloor elevation calculated using sampling					

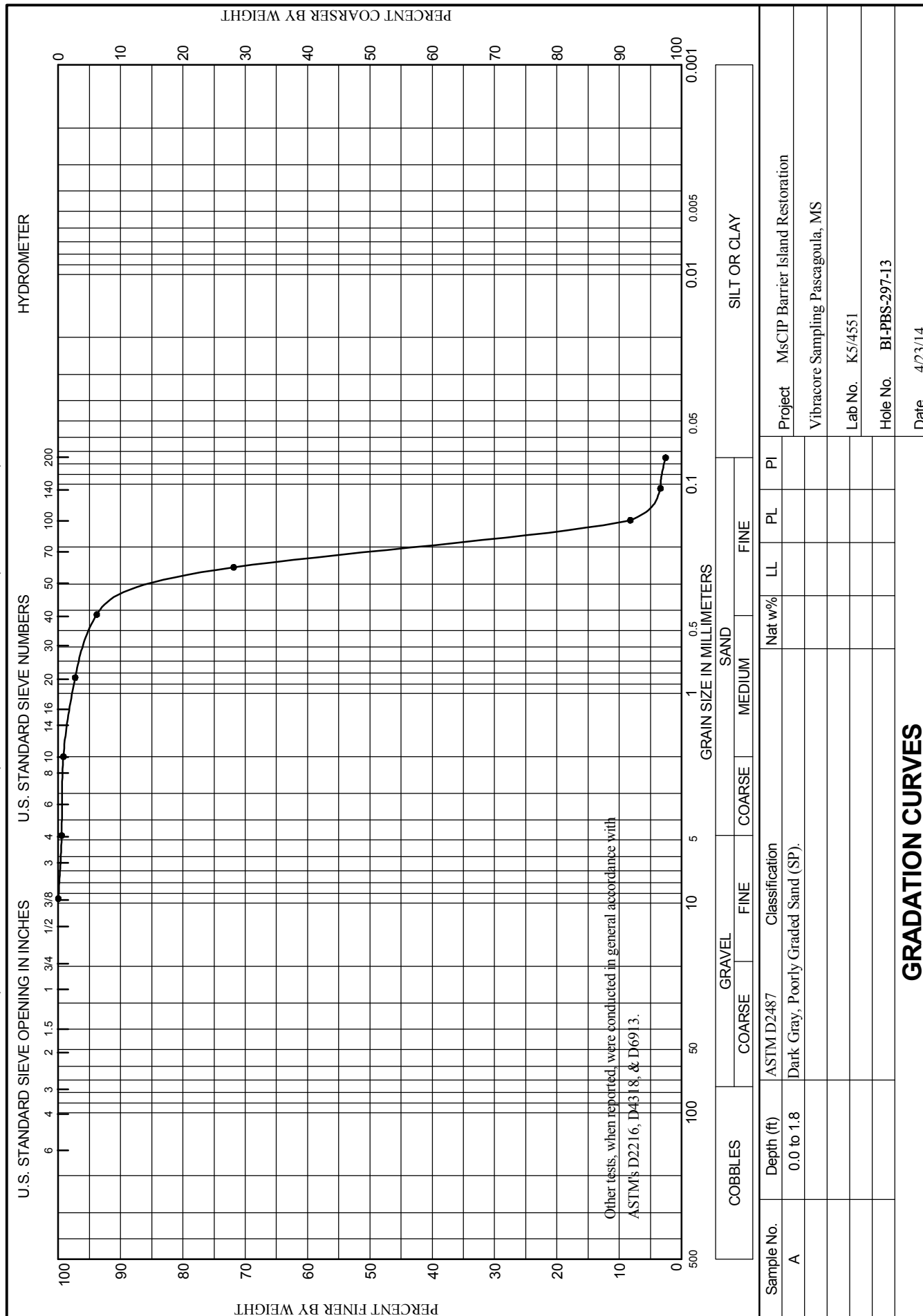


<b>DRILLING LOG (Cont. Sheet)</b>			<b>INSTALLATION</b> Mobile District		<b>SHEET 2</b> <b>OF 2 SHEETS</b>
<b>PROJECT</b> MsCIP Barrier Island Restoration			<b>COORDINATE SYSTEM/DATUM</b> State Plane, MSE (U.S. Ft.)	<b>HORIZONTAL</b> NAD83	<b>VERTICAL</b> NAVD88
<b>LOCATION COORDINATES</b> X = 1,086,949 Y = 231,289			<b>ELEVATION TOP OF BORING</b> -46.7 Ft.		
<b>ELEV.</b>	<b>DEPTH</b>	<b>LEGEND</b>	<b>CLASSIFICATION OF MATERIALS</b>	<b>SAMPLE</b>	<b>LABORATORY RESULTS</b>
			vessel's fathometer water depth reading and applying NOAA tidal gauge data conversion factor.		



WORK ORDER: 848e

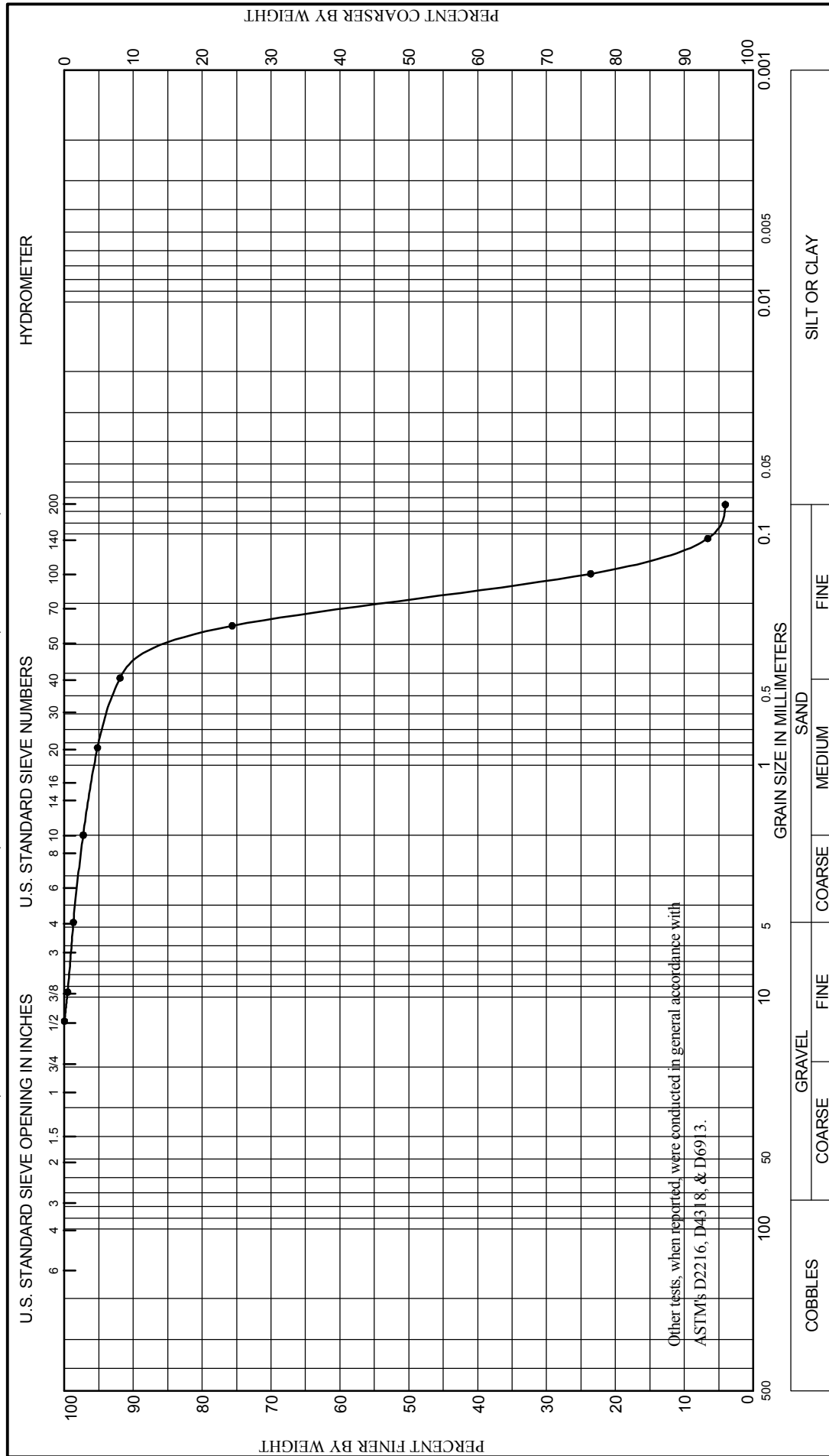
REQUISITION: W33SJG32900192





WORK ORDER: 848e

REQUISITION: W33SJG32900192



Sample No.	Depth (ft)	ASTM D2487	Classification	Nat w%	LL	PL	PI	Project
B	1.8 to 7.0	Dark Gray, Poorly Graded Sand (SP), with a trace of gravel size shell.						MsCIP Barrier Island Restoration
								Vibracore Sampling Pascagoula, MS
								Lab No. K5/4552
								Hole No. BI-PBS-297-13
								Date 4/23/14
<b>GRADATION CURVES</b>								



WORK ORDER: 848e

REQUISITION: W33SJG32900192



# Boring Designation BI-PBS-298-13

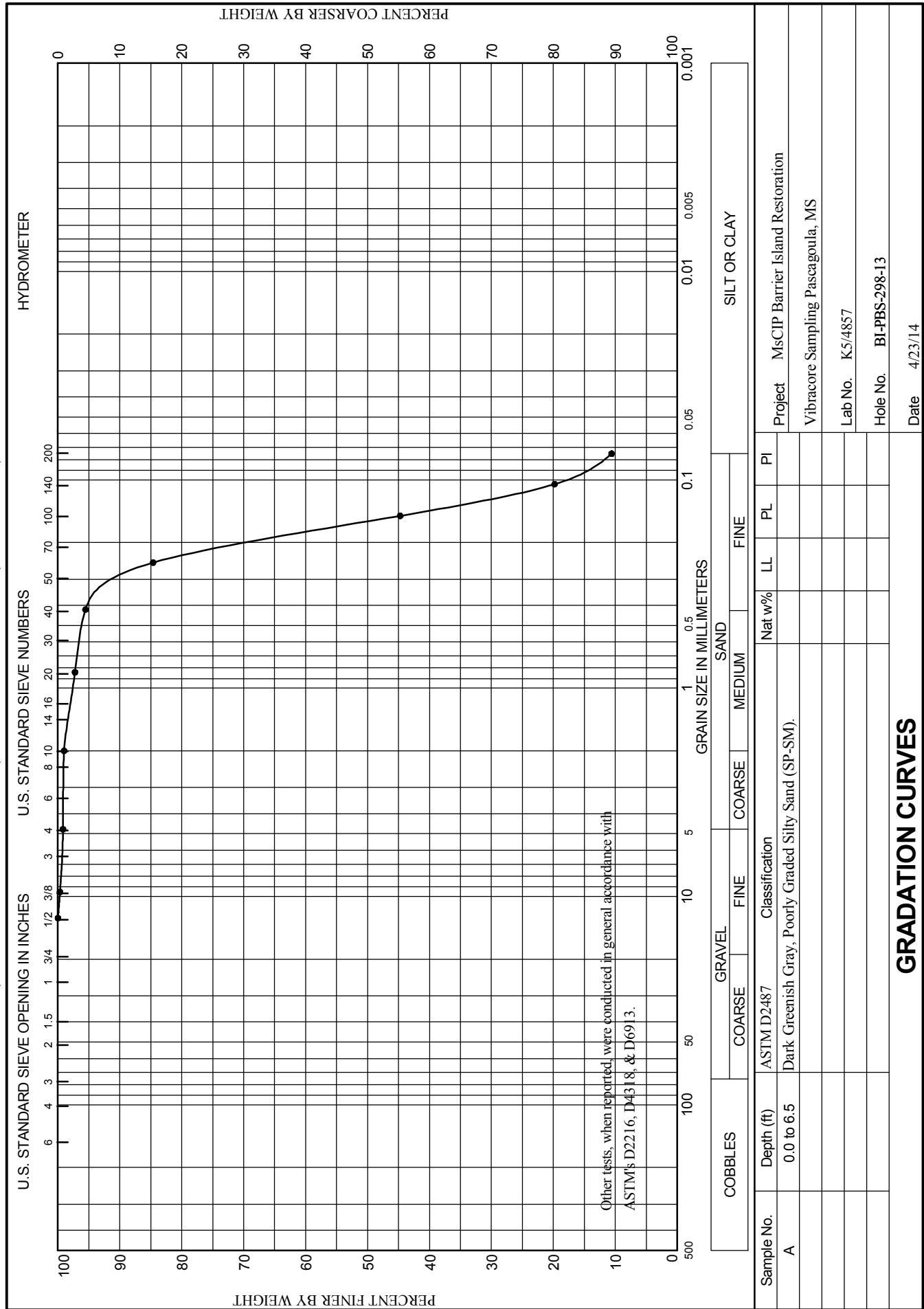
DRILLING LOG		DIVISION South Atlantic		INSTALLATION Mobile District		SHEET 1 OF 1 SHEETS	
1. PROJECT MsCIP Barrier Island Restoration Petit Bois Pass-OCS West				9. SIZE AND TYPE OF BIT N/A			
2. BORING DESIGNATION BI-PBS-298-13		LOCATION COORDINATES E = 1,084,092 N = 230,939		10. COORDINATE SYSTEM/DATUM State Plane, MSE (U.S. Ft.)		HORIZONTAL NAD83 VERTICAL NAVD88	
3. DRILLING AGENCY Corps of Engineers - CESAM		CONTRACTOR FILE NO.		11. MANUFACTURER'S DESIGNATION OF DRILL Vibrocure		<input type="checkbox"/> AUTO HAMMER <input type="checkbox"/> MANUAL HAMMER	
4. NAME OF DRILLER Construction Solutions International, Inc.				12. TOTAL SAMPLES 1		DISTURBED 1 UNDISTURBED (UD) 0	
5. DIRECTION OF BORING <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED		DEG. FROM VERTICAL		13. TOTAL NUMBER CORE BOXES			
		BEARING		14. WATER DEPTH 48.5 Ft.			
6. THICKNESS OF OVERBURDEN N/A				15. DATE BORING 02-19-14		STARTED 02-19-14 COMPLETED 02-19-14	
7. DEPTH DRILLED INTO ROCK N/A				16. ELEVATION TOP OF BORING -48.0 Ft.			
8. TOTAL DEPTH OF BORING 17.5 Ft.				17. TOTAL RECOVERY FOR BORING 100%			
				18. SIGNATURE AND TITLE OF INSPECTOR Tom Powers, Geologist			
ELEV.	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS	SAMPLE	LABORATORY RESULTS		
-48.0	0.0						
			SAND, silty, mostly fine-grained sand-sized quartz, few shell fragments, medium gray (SM)	A	Classification: SP-SM Color: 2.5Y 6/1-gray D50: 0.16 mm % Fines: 10.6		
-54.5	6.5						
			SILT, inorganic-L, few shell fragments, sandy, medium gray (ML)				
-60.1	12.1			NS			
			CLAY, lean, voids filled with shell fragments and ML, firm and soft, medium gray (CL)				
-65.5	17.5						
			NOTES: 1. Soils are field visually classified in accordance with the Unified Soils Classification System. 2. NS = Sample not submitted for laboratory analysis from this interval. 3. Seafloor elevation calculated using sampling vessel's fathometer water depth reading and applying NOAA tidal gauge data conversion factor.				



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WORK ORDER: 848e

REQUISITION: W33SJC32900192



# Boring Designation BI-PBS-299-13

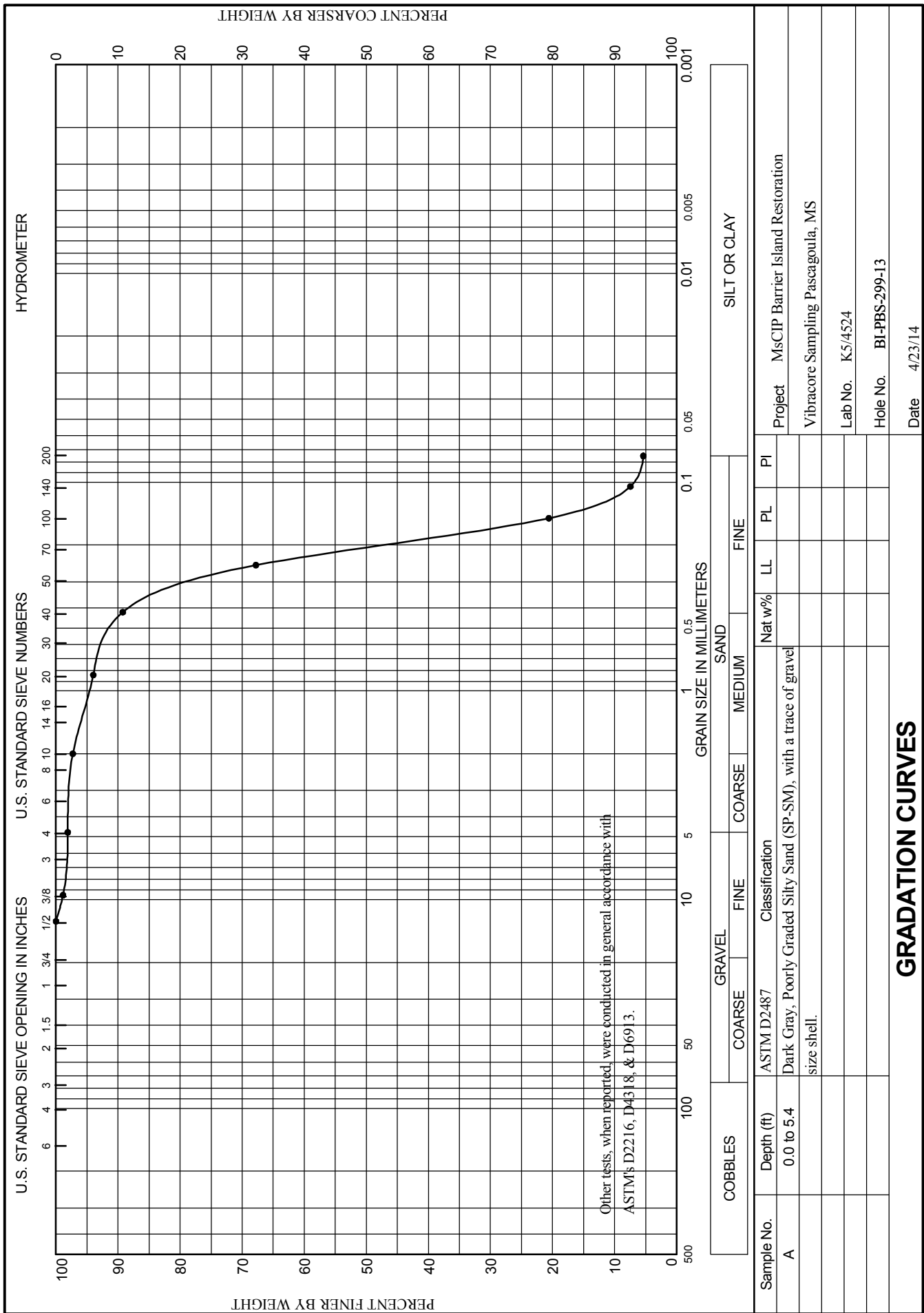
DRILLING LOG		DIVISION South Atlantic		INSTALLATION Mobile District		SHEET 1 OF 1 SHEETS	
1. PROJECT MsCIP Barrier Island Restoration Petit Bois Pass-OCS West				9. SIZE AND TYPE OF BIT N/A			
2. BORING DESIGNATION BI-PBS-299-13		LOCATION COORDINATES E = 1,086,658 N = 233,441		10. COORDINATE SYSTEM/DATUM State Plane, MSE (U.S. Ft.)		HORIZONTAL NAD83	
3. DRILLING AGENCY Corps of Engineers - CESAM		CONTRACTOR FILE NO.		11. MANUFACTURER'S DESIGNATION OF DRILL Vibrocure		<input type="checkbox"/> AUTO HAMMER <input type="checkbox"/> MANUAL HAMMER	
4. NAME OF DRILLER Construction Solutions International, Inc.				12. TOTAL SAMPLES 2		UNDISTURBED (UD) 0	
5. DIRECTION OF BORING <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED		DEG. FROM VERTICAL		13. TOTAL NUMBER CORE BOXES		14. WATER DEPTH 47.4 Ft.	
6. THICKNESS OF OVERBURDEN N/A		7. DEPTH DRILLED INTO ROCK N/A		15. DATE BORING 01-22-14		COMPLETED 01-22-14	
8. TOTAL DEPTH OF BORING 18.8 Ft.				16. ELEVATION TOP OF BORING -48.0 Ft.		17. TOTAL RECOVERY FOR BORING 100%	
				18. SIGNATURE AND TITLE OF INSPECTOR Tom Powers, Geologist			
ELEV.	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS	SAMPLE	LABORATORY RESULTS		
-48.0	0.0						
			SAND, poorly-graded with silt, mostly fine-grained sand-sized quartz, few shell fragments, upper 1.5 ft. is less silty than remainder below, lt. to medium gray (SP-SM)	A	Classification: SP-SM Color: 10Y 7/1-light greenish gray D50: 0.206 mm % Fines: 5.4		
-53.4	5.4		SAND, poorly-graded with silt, mostly fine-grained sand-sized quartz, few shell fragments, lt. to medium gray (SP-SM)	B	Classification: SP-SM Color: 10Y 7/1-light greenish gray D50: 0.159 mm % Fines: 9.7		
-55.5	7.5		SAND, silty, mostly fine-grained sand-sized quartz, few shell fragments, lt. to medium gray (SM)				
-57.0	9.0		SAND, silty, clayey, mostly fine-grained sand-sized quartz, trace shell fragments, lt. to medium gray (SC-SM)	NS			
-63.9	15.9						
-66.8	18.8		CLAY, lean, sandy, few shell fragments from 17.5 ft. depth to base of unit, medium to dark gray (CL)				
			NOTES: 1. Soils are field visually classified in accordance with the Unified Soils Classification System. 2. NS = Sample not submitted for laboratory analysis from this interval. 3. Seafloor elevation calculated using sampling vessel's fathometer water depth reading and applying NOAA tidal gauge data conversion factor.				



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WORK ORDER: 848e

REQUISITION: W33SJC32900192



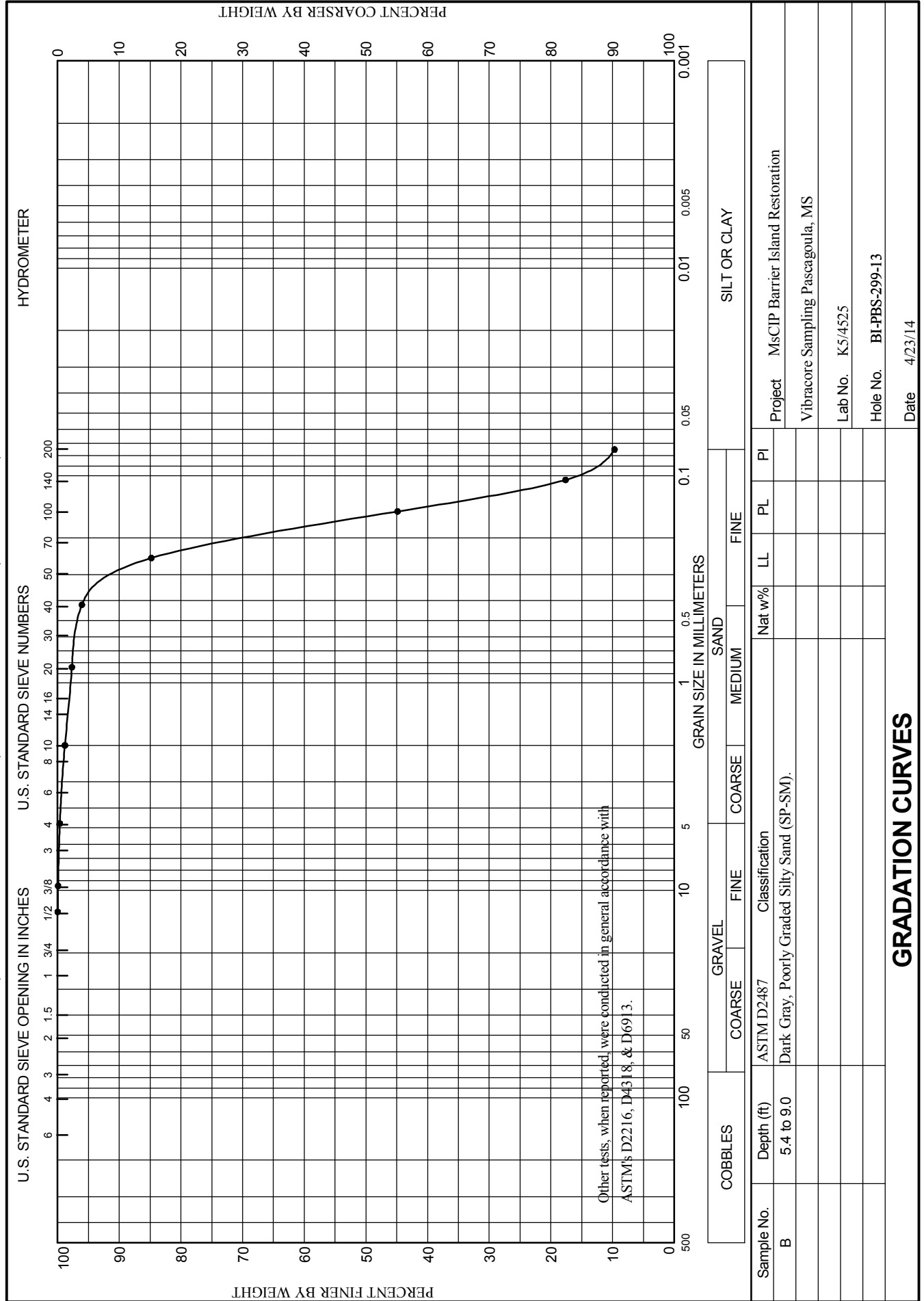




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WORK ORDER: 848e

REQUISITION: W33SJC32900192



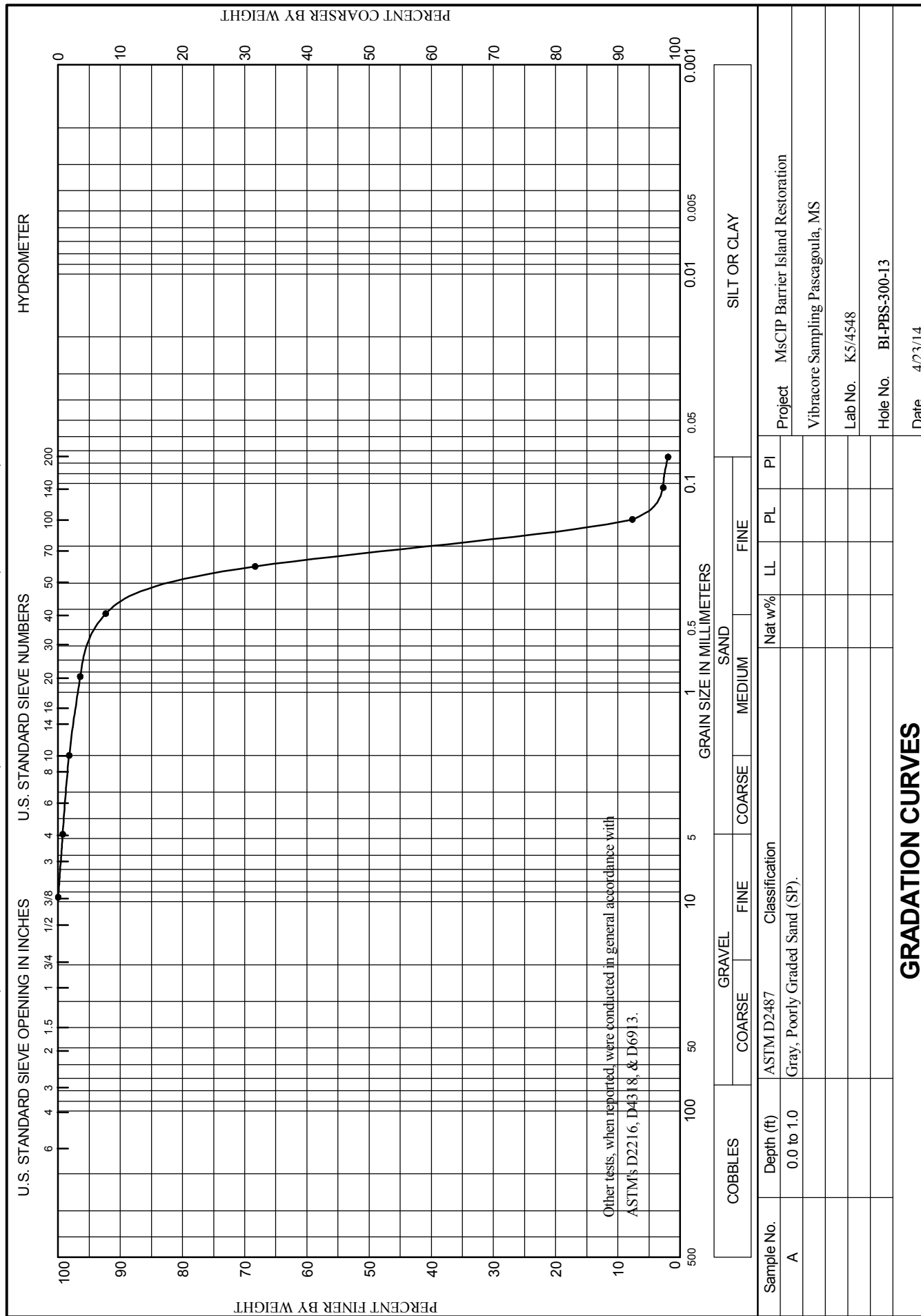
# Boring Designation BI-PBS-300-13

DRILLING LOG		DIVISION South Atlantic		INSTALLATION Mobile District		SHEET 1 OF 1 SHEETS	
1. PROJECT MsCIP Barrier Island Restoration Petit Bois Pass-OCS West				9. SIZE AND TYPE OF BIT N/A			
2. BORING DESIGNATION BI-PBS-300-13		LOCATION COORDINATES E = 1,085,776 N = 232,314		10. COORDINATE SYSTEM/DATUM State Plane, MSE (U.S. Ft.)		HORIZONTAL NAD83 VERTICAL NAVD88	
3. DRILLING AGENCY Corps of Engineers - CESAM		CONTRACTOR FILE NO.		11. MANUFACTURER'S DESIGNATION OF DRILL Vibracore		<input type="checkbox"/> AUTO HAMMER <input type="checkbox"/> MANUAL HAMMER	
4. NAME OF DRILLER Construction Solutions International, Inc.				12. TOTAL SAMPLES 3		DISTURBED 3 UNDISTURBED (UD) 0	
5. DIRECTION OF BORING <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED		DEG. FROM VERTICAL		13. TOTAL NUMBER CORE BOXES			
		BEARING		14. WATER DEPTH 46.4 Ft.			
6. THICKNESS OF OVERBURDEN N/A				15. DATE BORING 01-26-14		STARTED 01-26-14 COMPLETED 01-26-14	
7. DEPTH DRILLED INTO ROCK N/A				16. ELEVATION TOP OF BORING -46.5 Ft.			
8. TOTAL DEPTH OF BORING 16.8 Ft.				17. TOTAL RECOVERY FOR BORING 100%			
				18. SIGNATURE AND TITLE OF INSPECTOR Tom Powers, Geologist			
ELEV.	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS	SAMPLE	LABORATORY RESULTS		
-46.5	0.0						
-47.5	1.0		SAND, poorly-graded, mostly fine to medium-grained sand-sized quartz, few shell fragments, brownish gray (SP)	A	Classification: SP Color: 10Y 8/1-light greenish gray D50: 0.214 mm % Fines: 1.9		
			SAND, poorly-graded with silt, mostly fine-grained sand-sized quartz, few shell fragments, brownish gray (SP-SM)	B	Classification: SP Color: 10Y 7/1-light greenish gray D50: 0.192 mm % Fines: 4.8		
-53.2	6.7		SAND, silty, mostly fine-grained sand-sized quartz, trace shell fragments, brownish gray (SM)	C	Classification: SM Color: 10Y 7/1-light greenish gray D50: 0.139 mm % Fines: 12.1		
			At El. -56.0 Ft., few shell fragments, very fine grained SM-ML, brownish gray	NS			
-63.3	16.8						
			NOTES: 1. Soils are field visually classified in accordance with the Unified Soils Classification System. 2. NS = Sample not submitted for laboratory analysis from this interval. 3. Seafloor elevation calculated using sampling vessel's fathometer water depth reading and applying NOAA tidal gauge data conversion factor.				



WORK ORDER: 848e

REQUISITION: W33SJG32900192

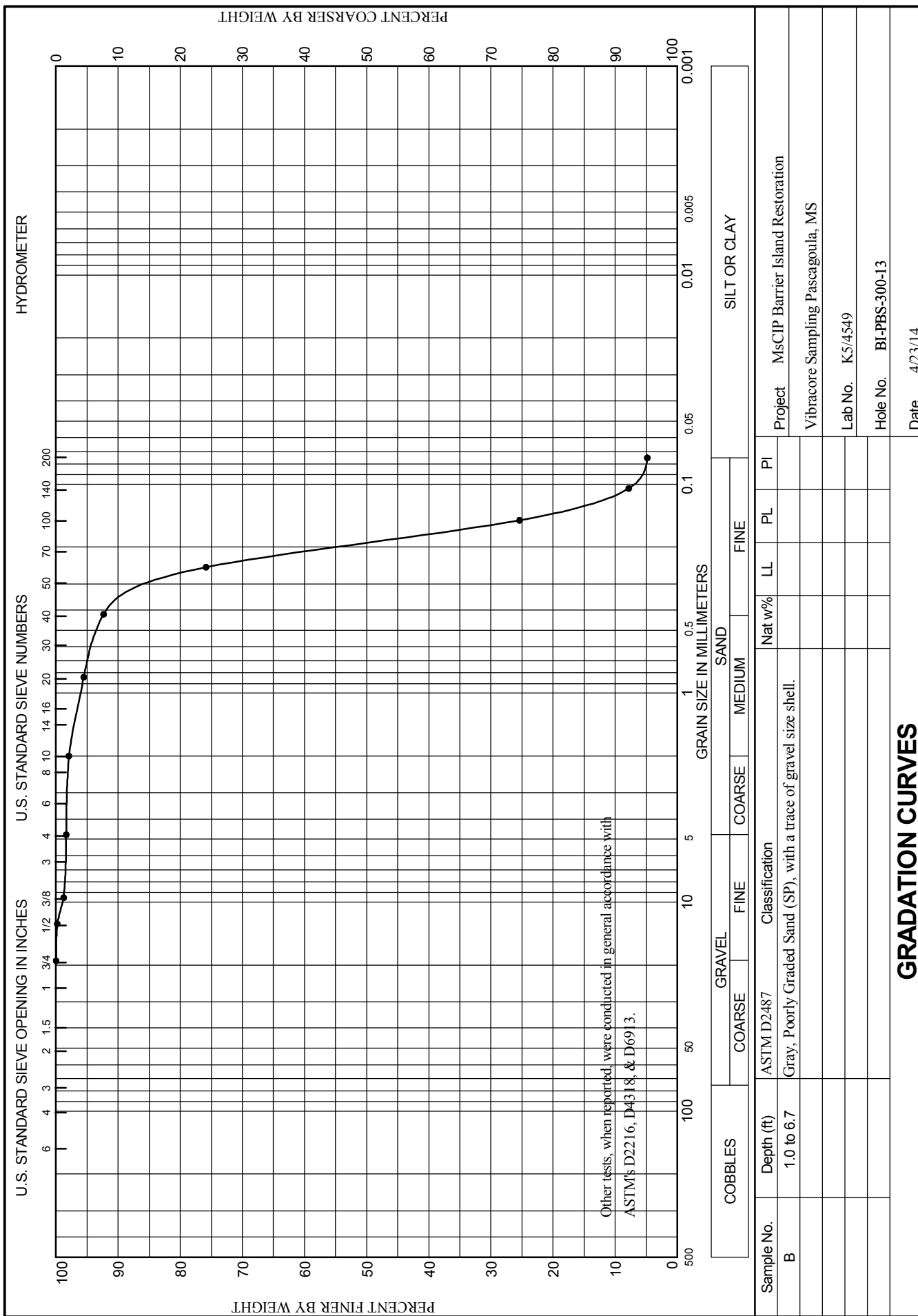




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WORK ORDER: 848e

REQUISITION: W33SJC32900192

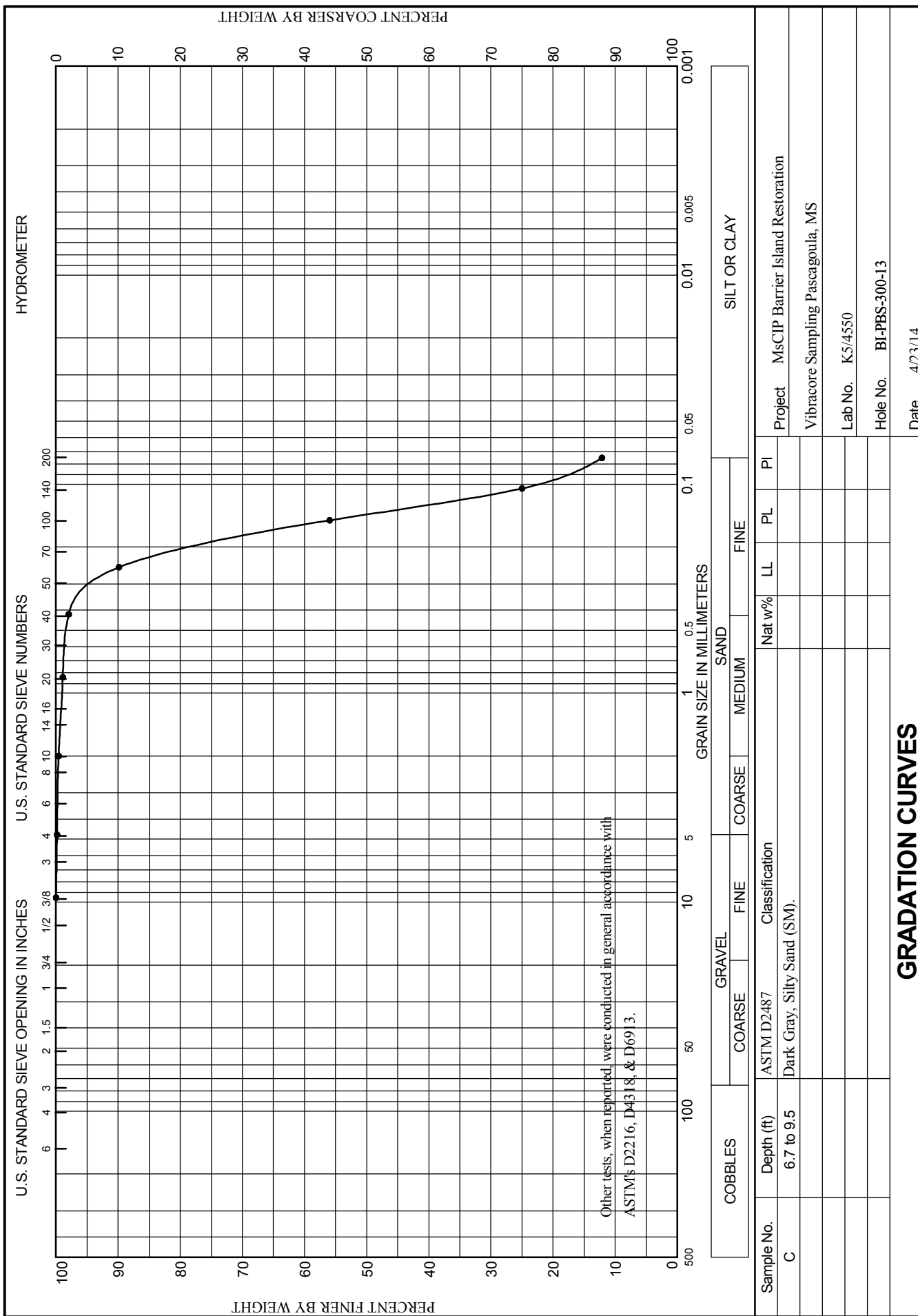




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WORK ORDER: 848e

REQUISITION: W33SJG32900192



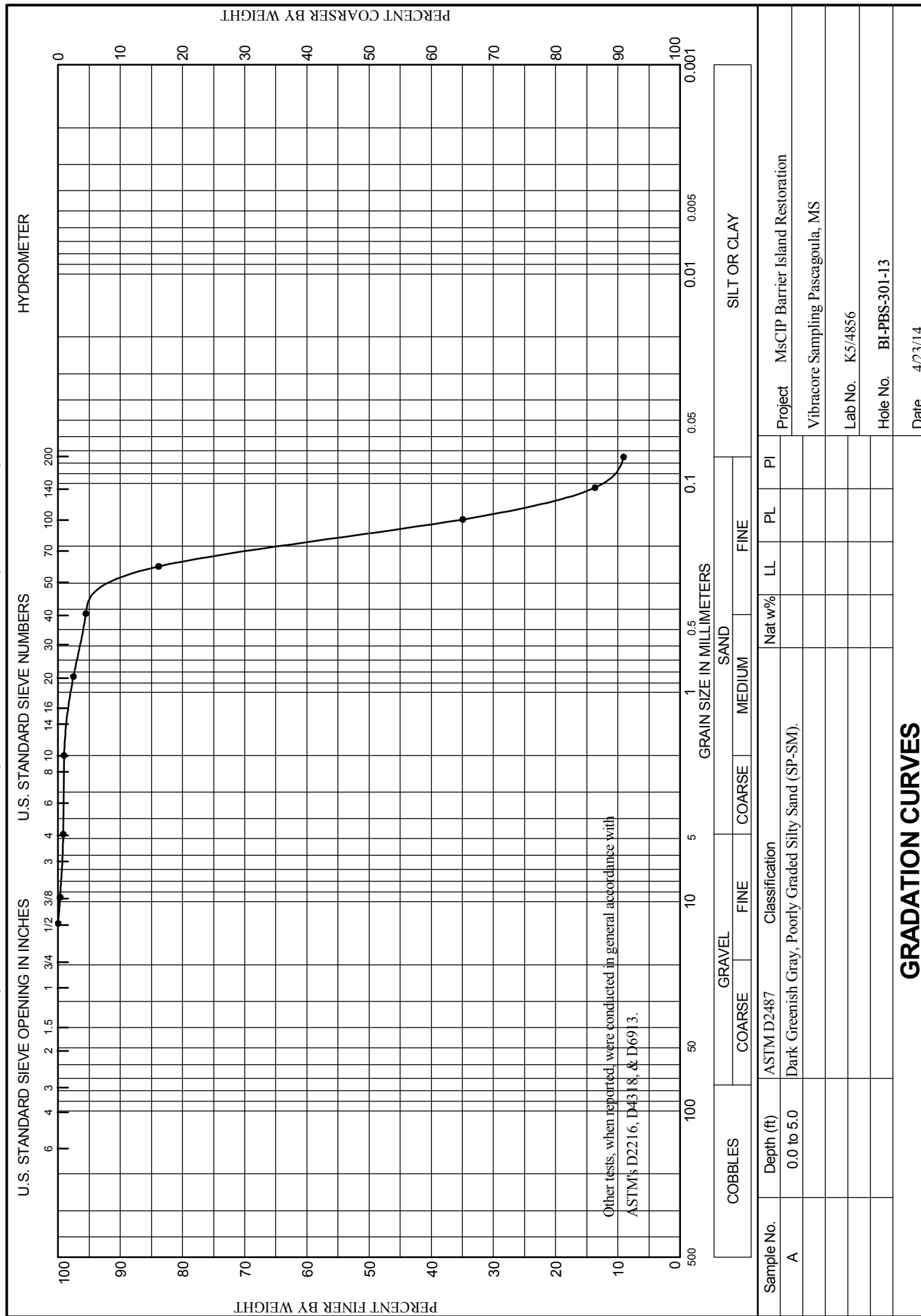
# Boring Designation BI-PBS-301-13

DRILLING LOG		DIVISION South Atlantic		INSTALLATION Mobile District		SHEET 1 OF 1 SHEETS	
1. PROJECT MsCIP Barrier Island Restoration Petit Bois Pass-OCS West				9. SIZE AND TYPE OF BIT N/A			
2. BORING DESIGNATION BI-PBS-301-13		LOCATION COORDINATES E = 1,083,194 N = 232,136		10. COORDINATE SYSTEM/DATUM State Plane, MSE (U.S. Ft.)		HORIZONTAL NAD83	
3. DRILLING AGENCY Corps of Engineers - CESAM		CONTRACTOR FILE NO.		11. MANUFACTURER'S DESIGNATION OF DRILL Vibracore		<input type="checkbox"/> AUTO HAMMER <input type="checkbox"/> MANUAL HAMMER	
4. NAME OF DRILLER Construction Solutions International, Inc.				12. TOTAL SAMPLES 1		UNDISTURBED (UD) 0	
5. DIRECTION OF BORING <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED				13. TOTAL NUMBER CORE BOXES		14. WATER DEPTH 48.1 Ft.	
6. THICKNESS OF OVERBURDEN N/A				15. DATE BORING 02-19-14		STARTED 02-19-14	
7. DEPTH DRILLED INTO ROCK N/A				16. ELEVATION TOP OF BORING -47.6 Ft.		COMPLETED 02-19-14	
8. TOTAL DEPTH OF BORING 14.6 Ft.				17. TOTAL RECOVERY FOR BORING 100%			
				18. SIGNATURE AND TITLE OF INSPECTOR Tom Powers, Geologist			
ELEV.	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS	SAMPLE	LABORATORY RESULTS		
-47.6	0.0						
			SAND, silty, mostly fine-grained sand-sized quartz, few shell fragments, medium gray (SM)	A	Classification: SP-SM    Color: 2.5Y 6/1-gray D50: 0.175 mm    % Fines: 9.1		
-52.6	5.0						
			SILT, inorganic-L, trace shell fragments, sandy, non-sandy in lower half of unit, slight plasticity over lower 0.5 ft., medium gray (ML)	NS			
-59.7	12.1						
			CLAY, lean, ML- and shell fragment-filled burrows, medium gray (CL)				
-62.2	14.6						
			NOTES: 1. Soils are field visually classified in accordance with the Unified Soils Classification System. 2. NS = Sample not submitted for laboratory analysis from this interval. 3. Seafloor elevation calculated using sampling vessel's fathometer water depth reading and applying NOAA tidal gauge data conversion factor.				



WORK ORDER: 848e

REQUISITION: W33SJG32900192



# Boring Designation BI-PBS-302-13

DRILLING LOG		DIVISION South Atlantic		INSTALLATION Mobile District		SHEET 1 OF 2 SHEETS	
1. PROJECT MsCIP Barrier Island Restoration Petit Bois Pass-OCS West				9. SIZE AND TYPE OF BIT N/A			
2. BORING DESIGNATION BI-PBS-302-13		LOCATION COORDINATES E = 1,084,485 N = 232,885		10. COORDINATE SYSTEM/DATUM State Plane, MSE (U.S. Ft.)		HORIZONTAL NAD83 VERTICAL NAVD88	
3. DRILLING AGENCY Corps of Engineers - CESAM		CONTRACTOR FILE NO.		11. MANUFACTURER'S DESIGNATION OF DRILL Vibrocure		<input type="checkbox"/> AUTO HAMMER <input type="checkbox"/> MANUAL HAMMER	
4. NAME OF DRILLER Construction Solutions International, Inc.				12. TOTAL SAMPLES 4		DISTURBED 4 UNDISTURBED (UD) 0	
5. DIRECTION OF BORING <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED		DEG. FROM VERTICAL		13. TOTAL NUMBER CORE BOXES			
		BEARING		14. WATER DEPTH 46.1 Ft.			
6. THICKNESS OF OVERBURDEN N/A				15. DATE BORING 01-26-14		STARTED 01-26-14 COMPLETED 01-26-14	
7. DEPTH DRILLED INTO ROCK N/A				16. ELEVATION TOP OF BORING -46.4 Ft.			
8. TOTAL DEPTH OF BORING 18.8 Ft.				17. TOTAL RECOVERY FOR BORING 100%			
				18. SIGNATURE AND TITLE OF INSPECTOR Tom Powers, Geologist			

ELEV.	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS	SAMPLE	LABORATORY RESULTS
-46.4	0.0				
-48.2	1.8		SAND, poorly-graded with silt, mostly fine-grained sand-sized quartz, few shell fragments, trace clay lenses 1.0 to 1.2 ft., brownish gray (SP-SM)	A	Classification: SP Color: 10Y 8/1-light greenish gray D50: 0.203 mm % Fines: 3.3
			SAND, silty, mostly fine-grained sand-sized quartz, few shell fragments, brownish gray (SM)	B	Classification: SP-SM Color: 10Y 7/1-light greenish gray D50: 0.185 mm % Fines: 7.3
				C	Classification: SM Color: 10Y 7/1-light greenish gray D50: 0.139 mm % Fines: 12.5
-57.2	10.8		SAND, silty, clayey, mostly fine-grained sand-sized quartz, few shell fragments, medium gray (SC-SM)	D	Classification: SM Color: 10Y 7/1-light greenish gray D50: 0.097 mm % Fines: 26.2
-61.9	15.5				
-62.6	16.2		SAND, clayey, mostly fine-grained sand-sized quartz, few shell fragments, medium dark gray (SC)	NS	
-65.2	18.8		CLAY, lean, sandy, sand pockets 16.2 to 17.5 ft., soft to firm clay, medium dark gray (CL)		
			NOTES: 1. Soils are field visually classified in accordance with the Unified Soils Classification System. 2. NS = Sample not submitted for laboratory analysis from this interval. 3. Seafloor elevation calculated using sampling vessel's fathometer water depth reading and applying NOAA tidal gauge data conversion		



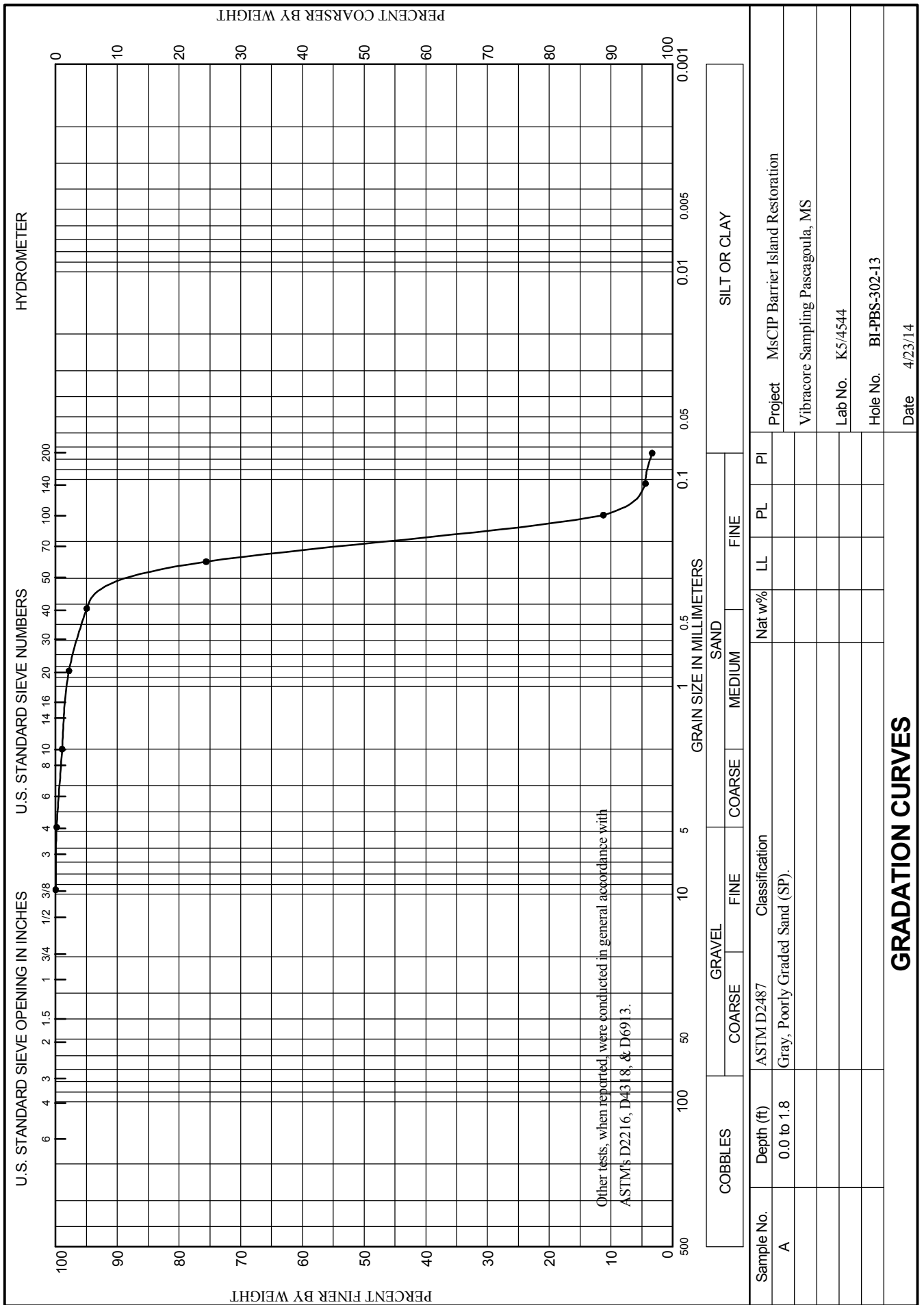
<b>DRILLING LOG (Cont. Sheet)</b>			<b>INSTALLATION</b> Mobile District		<b>SHEET 2</b> <b>OF 2 SHEETS</b>
			<b>PROJECT</b> MsCIP Barrier Island Restoration		<b>COORDINATE SYSTEM/DATUM</b> State Plane, MSE (U.S. Ft.) <b>HORIZONTAL</b> NAD83 <b>VERTICAL</b> NAVD88
<b>LOCATION COORDINATES</b> X = 1,084,485 Y = 232,885			<b>ELEVATION TOP OF BORING</b> -46.4 Ft.		
ELEV.	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS	SAMPLE	LABORATORY RESULTS
			factor.		



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WORK ORDER: 848e

REQUISITION: W33SJC32900192





WORK ORDER: 848e

REQUISITION: W33SJG32900192

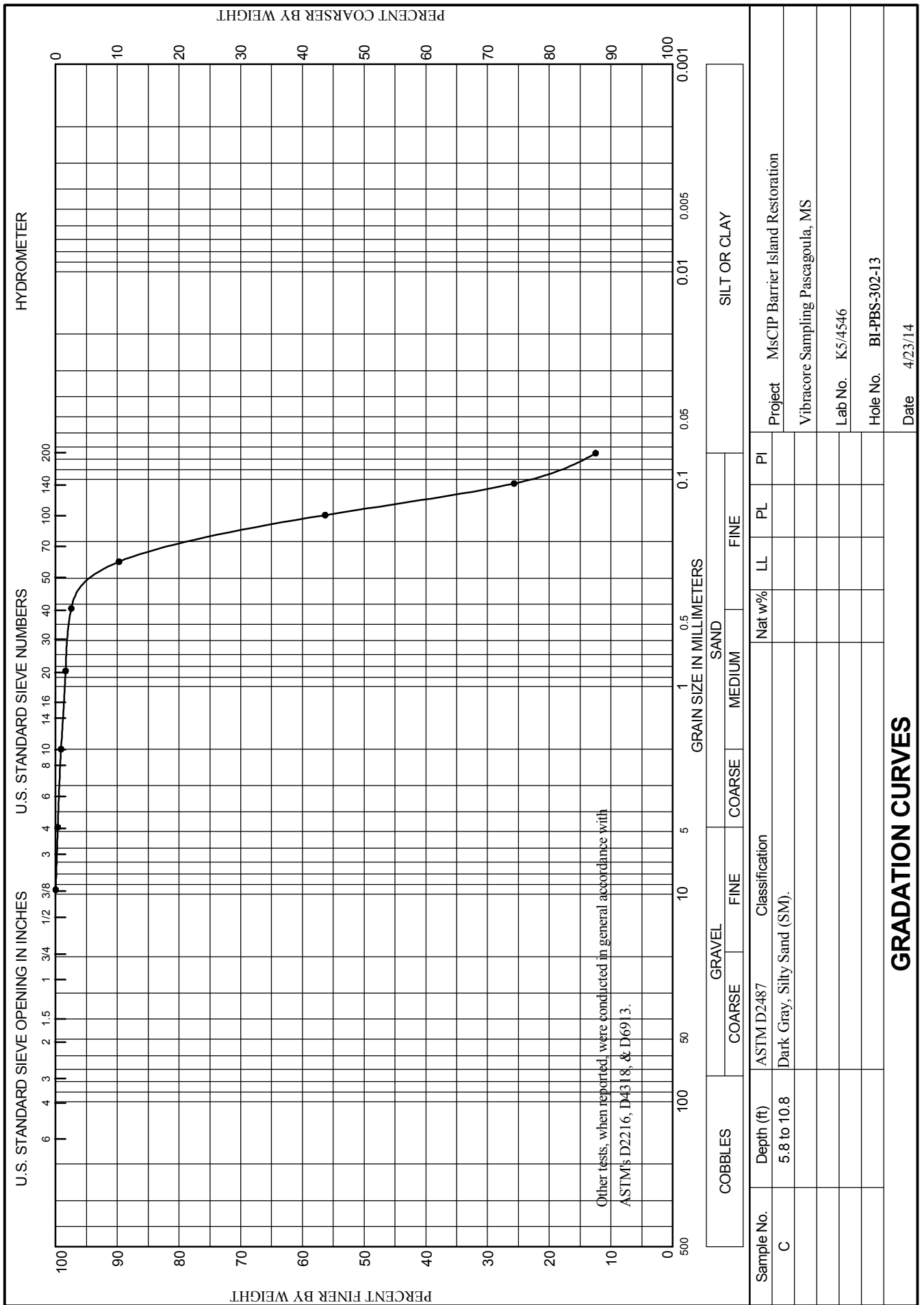




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WORK ORDER: 848e

REQUISITION: W33SJC32900192

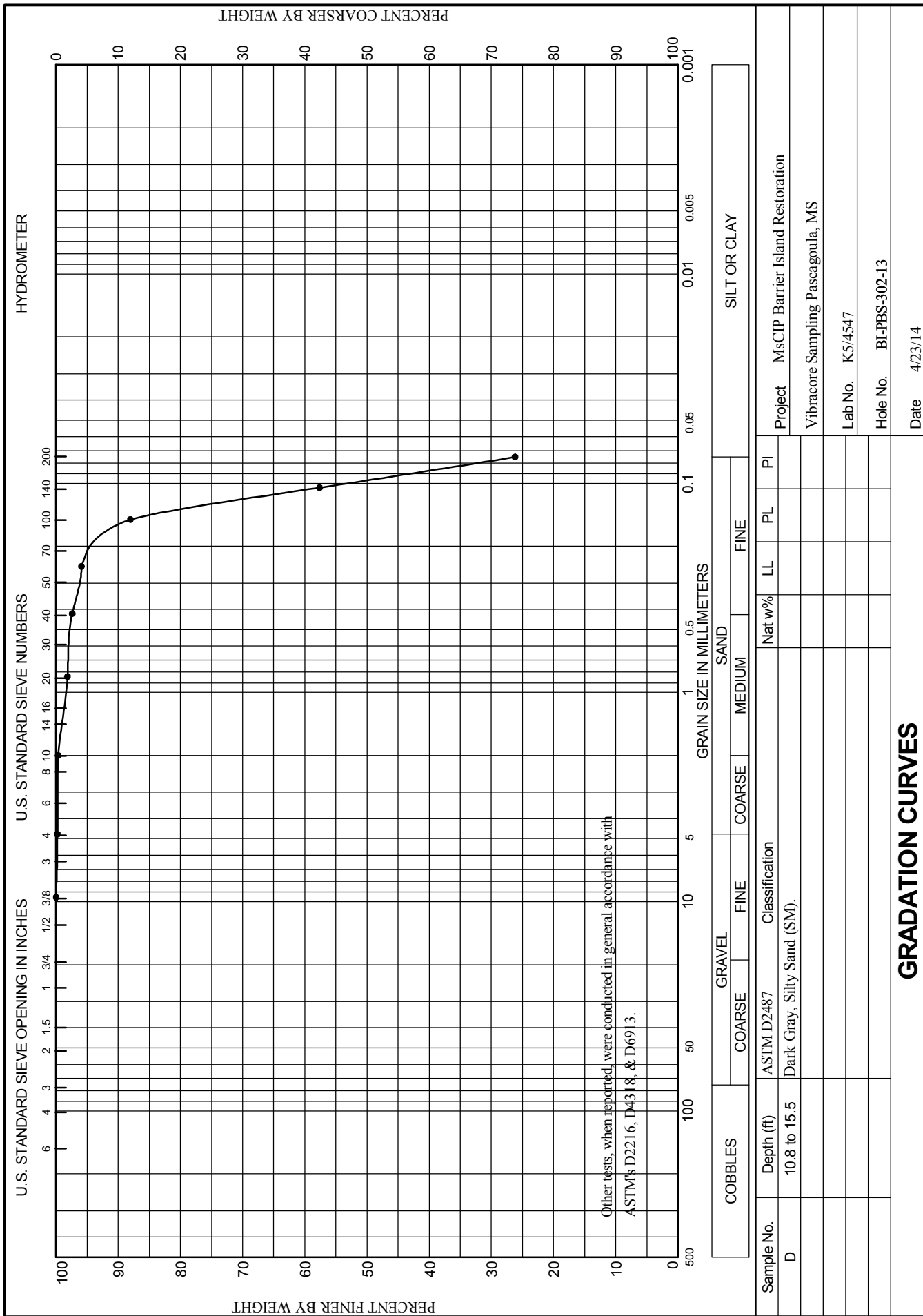




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WORK ORDER: 848e

REQUISITION: W33SJC32900192



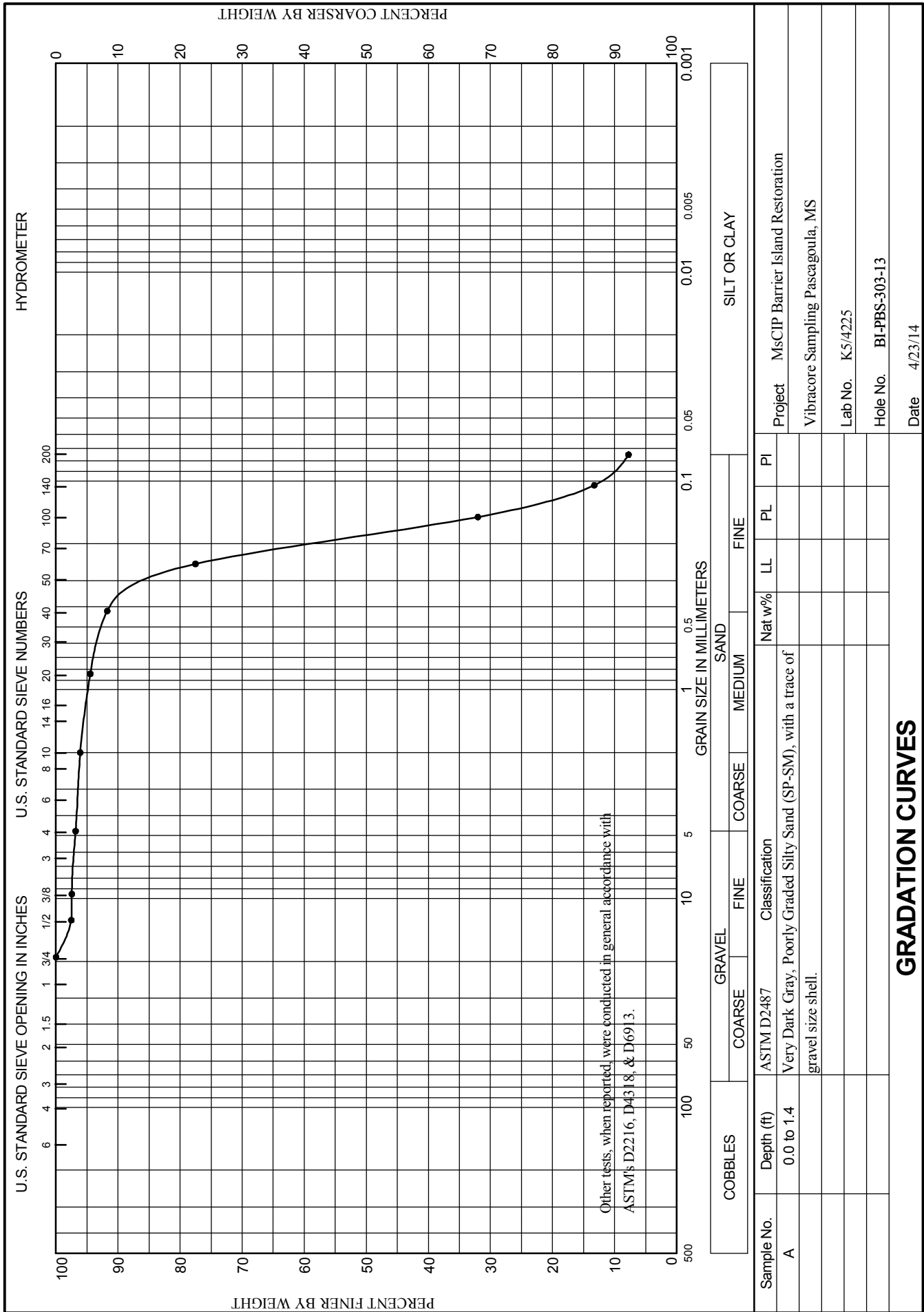
# Boring Designation BI-PBS-303-13

DRILLING LOG		DIVISION South Atlantic		INSTALLATION Mobile District		SHEET 1 OF 1 SHEETS	
1. PROJECT MsCIP Barrier Island Restoration Petit Bois Pass-OCS West				9. SIZE AND TYPE OF BIT N/A			
2. BORING DESIGNATION BI-PBS-303-13		LOCATION COORDINATES E = 1,085,243 N = 234,091		10. COORDINATE SYSTEM/DATUM State Plane, MSE (U.S. Ft.)		HORIZONTAL NAD83 VERTICAL NAVD88	
3. DRILLING AGENCY Corps of Engineers - CESAM		CONTRACTOR FILE NO.		11. MANUFACTURER'S DESIGNATION OF DRILL Vibracore		<input type="checkbox"/> AUTO HAMMER <input type="checkbox"/> MANUAL HAMMER	
4. NAME OF DRILLER Construction Solutions International, Inc.				12. TOTAL SAMPLES 2		DISTURBED 2 UNDISTURBED (UD) 0	
5. DIRECTION OF BORING <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED				13. TOTAL NUMBER CORE BOXES		14. WATER DEPTH 46.4 Ft.	
6. THICKNESS OF OVERBURDEN N/A				15. DATE BORING 01-20-14		STARTED 01-20-14 COMPLETED 01-20-14	
7. DEPTH DRILLED INTO ROCK N/A				16. ELEVATION TOP OF BORING -46.6 Ft.		17. TOTAL RECOVERY FOR BORING 100%	
8. TOTAL DEPTH OF BORING 12.8 Ft.				18. SIGNATURE AND TITLE OF INSPECTOR Tom Powers, Geologist			
ELEV.	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS	SAMPLE	LABORATORY RESULTS		
-46.6	0.0						
-48.0	1.4		SAND, poorly-graded, mostly fine to medium-grained sand-sized quartz, little shell fragments, lt. gray (SP)	A	Classification: SP-SM Color: 2.5Y 6/1-gray D50: 0.183 mm % Fines: 7.8		
-50.7	4.1		SAND, poorly-graded with silt, mostly fine-grained sand-sized quartz, few shell fragments, lt. to medium gray (SP-SM)	B	Classification: SP Color: 2.5Y 5/1-gray D50: 0.279 mm % Fines: 1.8		
-51.0	4.4		SAND, silty, mostly fine-grained sand-sized quartz, trace shell fragments, lt. to medium gray (SM)	NS			
			SAND, silty, clayey, mostly fine-grained sand-sized quartz, few shell fragments, medium gray (SC-SM)				
-56.4	9.8		CLAY, lean, few shell fragments, sandy, medium gray (CL)				
-59.4	12.8		NOTES: 1. Soils are field visually classified in accordance with the Unified Soils Classification System. 2. NS = Sample not submitted for laboratory analysis from this interval. 3. Seafloor elevation calculated using sampling vessel's fathometer water depth reading and applying NOAA tidal gauge data conversion factor.				



DEPARTMENT OF THE ARMY, SAVANNAH DISTRICT, ENVIRONMENTAL AND MATERIALS UNIT  
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WORK ORDER: 848e  
REQUISITION: W33SJC32900192

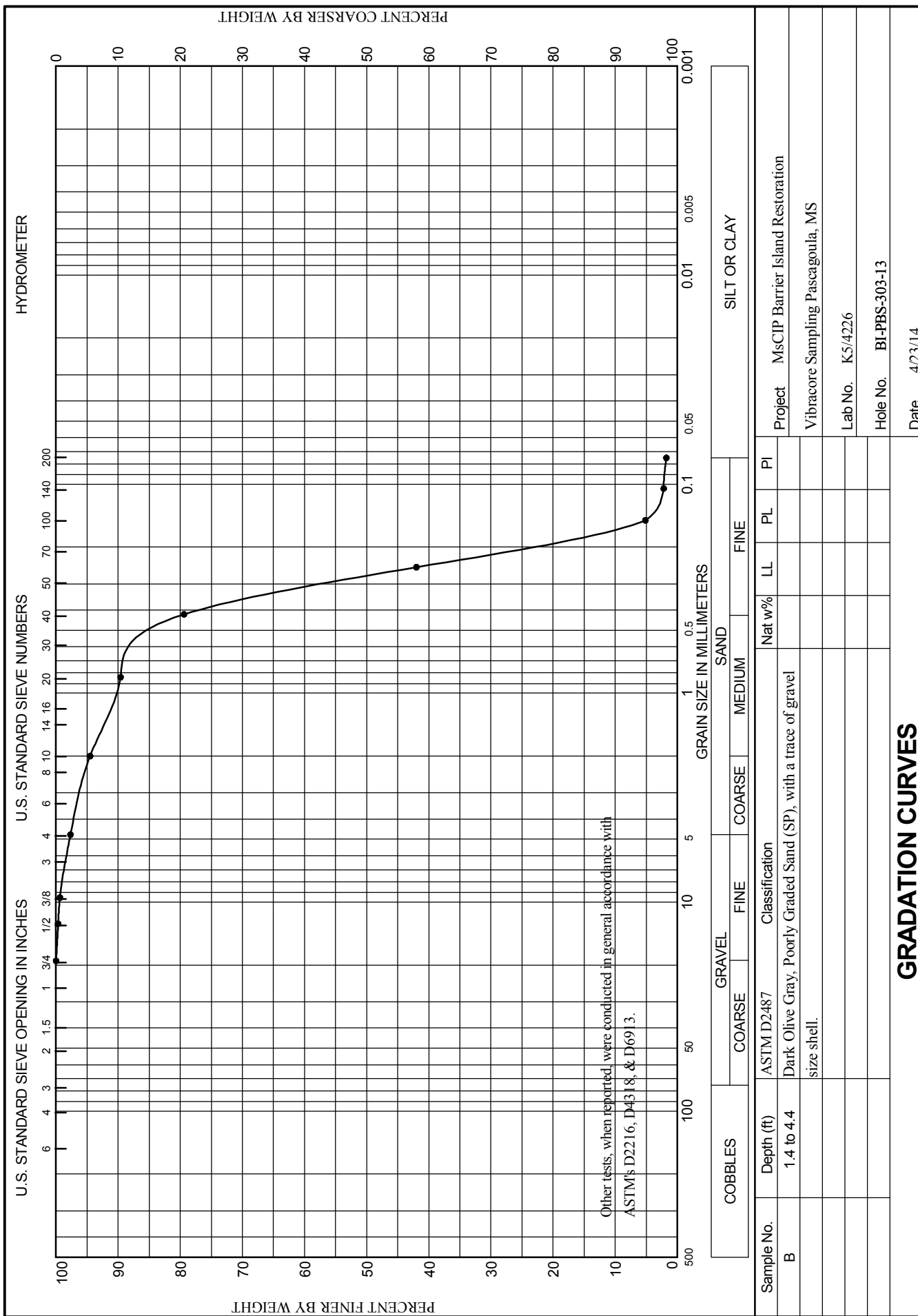




DEPARTMENT OF THE ARMY, SAVANNAH DISTRICT, ENVIRONMENTAL AND MATERIALS UNIT  
CORPS OF ENGINEERS, 200 N. COBB PARKWAY, BLDG 400 SUITE 404, MARIETTA, GA. 30062

WORK ORDER: 848e

REQUISITION: W33SJG32900192





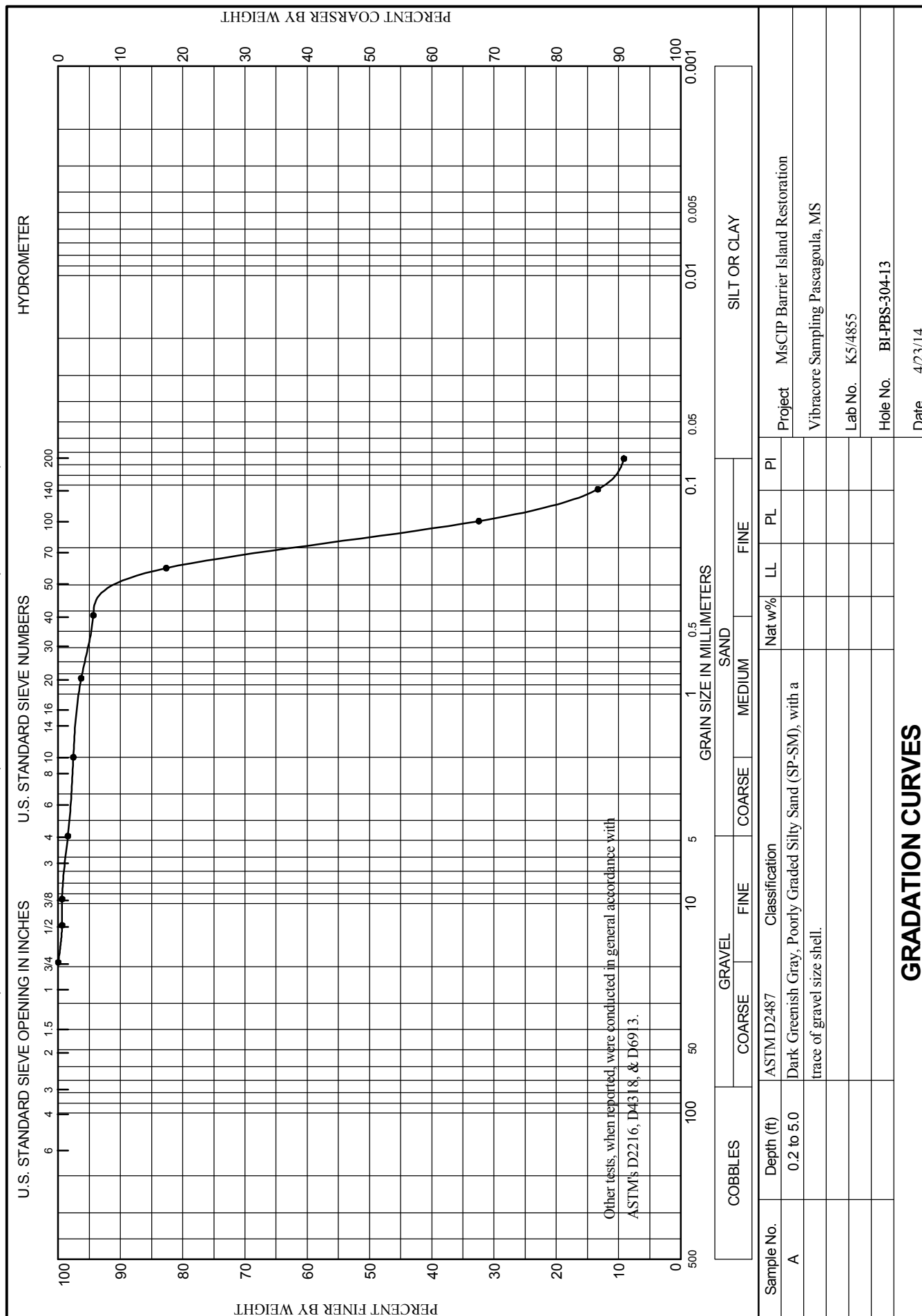
# Boring Designation BI-PBS-304-13

DRILLING LOG		DIVISION South Atlantic		INSTALLATION Mobile District		SHEET 1 OF 1 SHEETS	
1. PROJECT MsCIP Barrier Island Restoration Petit Bois Pass-OCS West				9. SIZE AND TYPE OF BIT N/A			
2. BORING DESIGNATION BI-PBS-304-13		LOCATION COORDINATES E = 1,082,173 N = 233,366		10. COORDINATE SYSTEM/DATUM State Plane, MSE (U.S. Ft.)		HORIZONTAL NAD83	
3. DRILLING AGENCY Corps of Engineers - CESAM		CONTRACTOR FILE NO.		11. MANUFACTURER'S DESIGNATION OF DRILL Vibracore		<input type="checkbox"/> AUTO HAMMER <input type="checkbox"/> MANUAL HAMMER	
4. NAME OF DRILLER Construction Solutions International, Inc.				12. TOTAL SAMPLES 1		UNDISTURBED (UD) 0	
5. DIRECTION OF BORING <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED				13. TOTAL NUMBER CORE BOXES		14. WATER DEPTH 47.7 Ft.	
6. THICKNESS OF OVERBURDEN N/A				15. DATE BORING 02-19-14		COMPLETED 02-19-14	
7. DEPTH DRILLED INTO ROCK N/A				16. ELEVATION TOP OF BORING -47.2 Ft.		17. TOTAL RECOVERY FOR BORING 100%	
8. TOTAL DEPTH OF BORING 17.6 Ft.				18. SIGNATURE AND TITLE OF INSPECTOR Tom Powers, Geologist			
ELEV.	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS	SAMPLE	LABORATORY RESULTS		
-47.2	0.0						
-47.4	0.2		CLAY, lean, sandy, medium to dark gray (CL)	NS			
			SAND, silty, mostly fine-grained sand-sized quartz, few shell fragments, trace CL at 0.5 ft., medium gray (SM)	A	Classification: SP-SM    Color: 2.5Y 6/1-gray D50: 0.179 mm    % Fines: 9.1		
-53.2	6.0		SILT, inorganic-L, few shell fragments, sandy, medium gray (ML)				
-58.2	11.0		CLAY, silty, few shell fragments, sandy, medium gray (CL-ML)	NS			
-63.2	16.0		CLAY, lean, sand pockets, sand-filled burrows; firm, medium gray (CL)				
-64.8	17.6						
NOTES: 1. Soils are field visually classified in accordance with the Unified Soils Classification System. 2. NS = Sample not submitted for laboratory analysis from this interval. 3. Seafloor elevation calculated using sampling vessel's fathometer water depth reading and applying NOAA tidal gauge data conversion factor.							



WORK ORDER: 848e

REQUISITION: W33SJG32900192



# Boring Designation BI-PBS-306-13

<b>DRILLING LOG</b>		<b>DIVISION</b> South Atlantic	<b>INSTALLATION</b> Mobile District	<b>SHEET 1</b> <b>OF 1 SHEETS</b>
<b>1. PROJECT</b> MsCIP Barrier Island Restoration Petit Bois Pass-OCS West		<b>9. SIZE AND TYPE OF BIT</b> N/A		
<b>2. BORING DESIGNATION</b> BI-PBS-306-13		<b>10. COORDINATE SYSTEM/DATUM</b> State Plane, MSE (U.S. Ft.)		<b>HORIZONTAL</b> NAD83
<b>3. DRILLING AGENCY</b> Corps of Engineers - CESAM		<b>11. MANUFACTURER'S DESIGNATION OF DRILL</b> Vibracore		<b>VERTICAL</b> NAVD88
<b>4. NAME OF DRILLER</b> Construction Solutions International, Inc.		<b>12. TOTAL SAMPLES</b> 2		
<b>5. DIRECTION OF BORING</b> <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED		<b>13. TOTAL NUMBER CORE BOXES</b> 0		
<b>6. THICKNESS OF OVERBURDEN</b> N/A		<b>14. WATER DEPTH</b> 46.1 Ft.		
<b>7. DEPTH DRILLED INTO ROCK</b> N/A		<b>15. DATE BORING</b> 01-20-14		
<b>8. TOTAL DEPTH OF BORING</b> 13.3 Ft.		<b>16. ELEVATION TOP OF BORING</b> -46.2 Ft.		
		<b>17. TOTAL RECOVERY FOR BORING</b> 100%		
		<b>18. SIGNATURE AND TITLE OF INSPECTOR</b> Tom Powers, Geologist		

ELEV.	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS	SAMPLE	LABORATORY RESULTS
-46.2	0.0				
			SAND, poorly-graded with silt, mostly fine-grained sand-sized quartz, few shell fragments, lt. gray (SP-SM)	A	Classification: SP-SM D50: 0.19 mm Color: 2.5Y 5/1-gray % Fines: 5.8
-50.2	4.0				
			SAND, silty, mostly fine-grained sand-sized quartz, few shell fragments, lt. to medium gray (SM)	B	Classification: SM D50: 0.11 mm Color: 2.5Y 6/1-gray % Fines: 24.2
-54.5	8.3				
-55.2	9.0		SAND, clayey, mostly fine-grained sand-sized quartz, few shell fragments, medium gray (SC)	NS	
			CLAY, lean, trace shell fragments, sandy; fine-grained sand-filled burrows between 9 and 10.9 ft., medium gray (CL)		
-59.5	13.3				
			NOTES: 1. Soils are field visually classified in accordance with the Unified Soils Classification System. 2. NS = Sample not submitted for laboratory analysis from this interval. 3. Seafloor elevation calculated using sampling vessel's fathometer water depth reading and applying NOAA tidal gauge data conversion factor.		

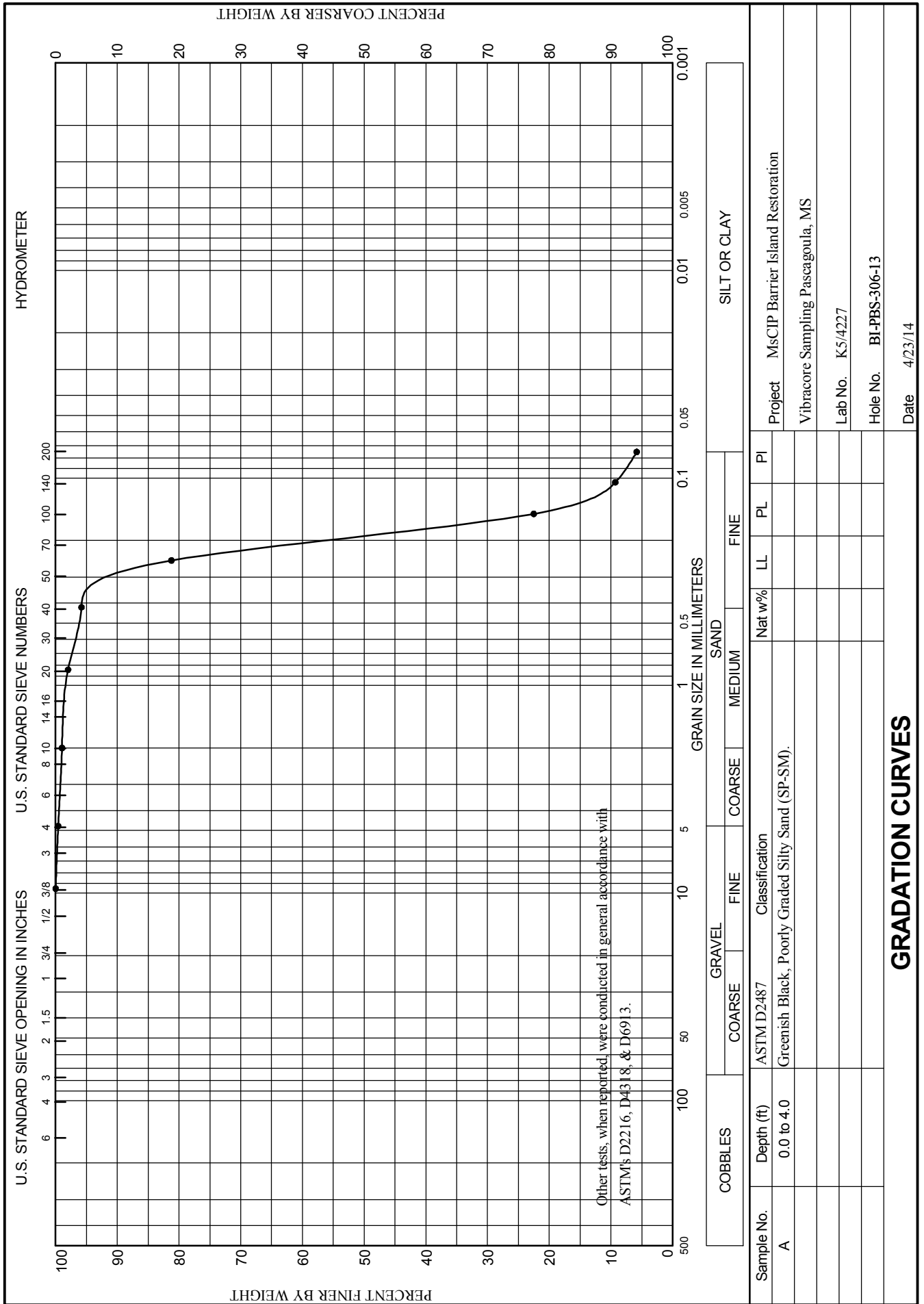
# Boring Designation BI-PBS-306-13

DRILLING LOG		DIVISION South Atlantic		INSTALLATION Mobile District		SHEET 1 OF 1 SHEETS	
1. PROJECT MsCIP Barrier Island Restoration Petit Bois Pass-OCS West				9. SIZE AND TYPE OF BIT N/A			
2. BORING DESIGNATION BI-PBS-306-13		LOCATION COORDINATES E = 1,083,474 N = 233,774		10. COORDINATE SYSTEM/DATUM State Plane, MSE (U.S. Ft.)		HORIZONTAL NAD83	
3. DRILLING AGENCY Corps of Engineers - CESAM		CONTRACTOR FILE NO.		11. MANUFACTURER'S DESIGNATION OF DRILL Vibracore		<input type="checkbox"/> AUTO HAMMER <input type="checkbox"/> MANUAL HAMMER	
4. NAME OF DRILLER Construction Solutions International, Inc.				12. TOTAL SAMPLES 2		UNDISTURBED (UD) 0	
5. DIRECTION OF BORING <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED				13. TOTAL NUMBER CORE BOXES		14. WATER DEPTH 46.1 Ft.	
6. THICKNESS OF OVERBURDEN N/A				15. DATE BORING 01-20-14		STARTED 01-20-14	
7. DEPTH DRILLED INTO ROCK N/A				16. ELEVATION TOP OF BORING -46.2 Ft.		COMPLETED 01-20-14	
8. TOTAL DEPTH OF BORING 13.3 Ft.				17. TOTAL RECOVERY FOR BORING 100%			
				18. SIGNATURE AND TITLE OF INSPECTOR Tom Powers, Geologist			
ELEV.	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS	SAMPLE	LABORATORY RESULTS		
-46.2	0.0						
			SAND, poorly-graded with silt, mostly fine-grained sand-sized quartz, few shell fragments, lt. gray (SP-SM)	A	Classification: SP-SM    Color: 2.5Y 5/1-gray D50: 0.19 mm    % Fines: 5.8		
-50.2	4.0		SAND, silty, mostly fine-grained sand-sized quartz, few shell fragments, lt. to medium gray (SM)	B	Classification: SM    Color: 2.5Y 6/1-gray D50: 0.11 mm    % Fines: 24.2		
-54.5	8.3		SAND, clayey, mostly fine-grained sand-sized quartz, few shell fragments, medium gray (SC)				
-55.2	9.0		CLAY, lean, trace shell fragments, sandy; fine-grained sand-filled burrows between 9 and 10.9 ft., medium gray (CL)	NS			
-59.5	13.3						
NOTES: 1. Soils are field visually classified in accordance with the Unified Soils Classification System. 2. NS = Sample not submitted for laboratory analysis from this interval. 3. Seafloor elevation calculated using sampling vessel's fathometer water depth reading and applying NOAA tidal gauge data conversion factor.							



DEPARTMENT OF THE ARMY, SAVANNAH DISTRICT, ENVIRONMENTAL AND MATERIALS UNIT  
CORPS OF ENGINEERS, 200 N. COBB PARKWAY, BLDG 400 SUITE 404, MARIETTA, GA. 30062

WORK ORDER: 848e  
REQUISITION: W33SJC32900192

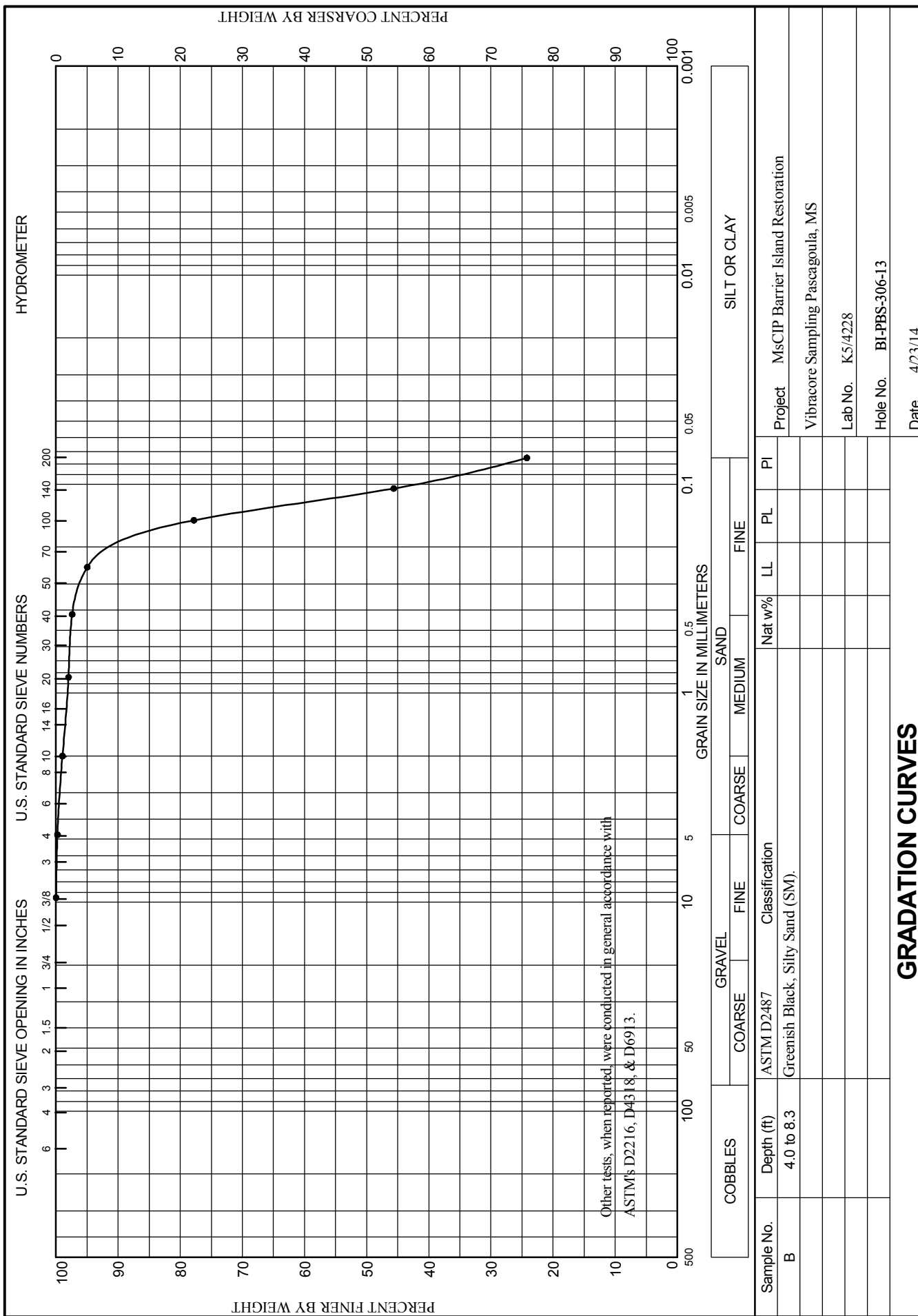




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CORPS OF ENGINEERS, 200 N. COBB PARKWAY, BLDG 400 SUITE 404, MARIETTA, GA. 30062

WORK ORDER: 848e

REQUISITION: W33SJG32900192



# Boring Designation BI-PBS-307-13

DRILLING LOG		DIVISION South Atlantic		INSTALLATION Mobile District		SHEET 1 OF 2 SHEETS	
1. PROJECT MsCIP Barrier Island Restoration Petit Bois Pass-OCS West				9. SIZE AND TYPE OF BIT N/A			
2. BORING DESIGNATION BI-PBS-307-13		LOCATION COORDINATES E = 1,095,758 N = 225,350		10. COORDINATE SYSTEM/DATUM State Plane, MSE (U.S. Ft.)		HORIZONTAL NAD83 VERTICAL NAVD88	
3. DRILLING AGENCY Corps of Engineers - CESAM		CONTRACTOR FILE NO.		11. MANUFACTURER'S DESIGNATION OF DRILL Vibracore		<input type="checkbox"/> AUTO HAMMER <input type="checkbox"/> MANUAL HAMMER	
4. NAME OF DRILLER Construction Solutions International, Inc.				12. TOTAL SAMPLES 3		DISTURBED 3 UNDISTURBED (UD) 0	
5. DIRECTION OF BORING <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED		DEG. FROM VERTICAL		13. TOTAL NUMBER CORE BOXES			
		BEARING		14. WATER DEPTH 50.4 Ft.			
6. THICKNESS OF OVERBURDEN N/A				15. DATE BORING 01-27-14		STARTED 01-27-14 COMPLETED 01-27-14	
7. DEPTH DRILLED INTO ROCK N/A				16. ELEVATION TOP OF BORING -50.3 Ft.			
8. TOTAL DEPTH OF BORING 20.0 Ft.				17. TOTAL RECOVERY FOR BORING 100%			
				18. SIGNATURE AND TITLE OF INSPECTOR Tom Powers, Geologist			

ELEV.	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS	SAMPLE	LABORATORY RESULTS
-50.3	0.0				
-52.5	2.2		SAND, poorly-graded, mostly fine to medium-grained sand-sized quartz, little shell fragments, lt. gray (SP)	A	Classification: SP Color: 2.5Y 6/1-gray D50: 0.216 mm % Fines: 4.7
-54.3	4.0		SAND, poorly-graded with silt, mostly fine-grained sand-sized quartz, few shell fragments, lt. to medium gray (SP-SM)	B	Classification: SP-SM Color: 2.5Y 5/1-gray D50: 0.136 mm % Fines: 11.6
-56.2	5.9		SAND, silty, mostly fine-grained sand-sized quartz, few shell fragments, lt. to medium gray (SM)	C	Classification: SM Color: 2.5Y 5/1-gray D50: 0.124 mm % Fines: 16.3
-61.2	10.9		CLAY, lean, few shell fragments, sandy layers and sand-filled voids, medium dark gray (CL)	NS	
-70.3	20.0		CLAY, fat, trace shell fragments, medium dark gray (CH)  At El. -67.7 Ft., sandy, orange, lt. brown, lt. gray		
			NOTES: 1. Soils are field visually classified in accordance with the Unified Soils Classification System. 2. NS = Sample not submitted for laboratory analysis from this interval. 3. Seafloor elevation calculated using sampling		

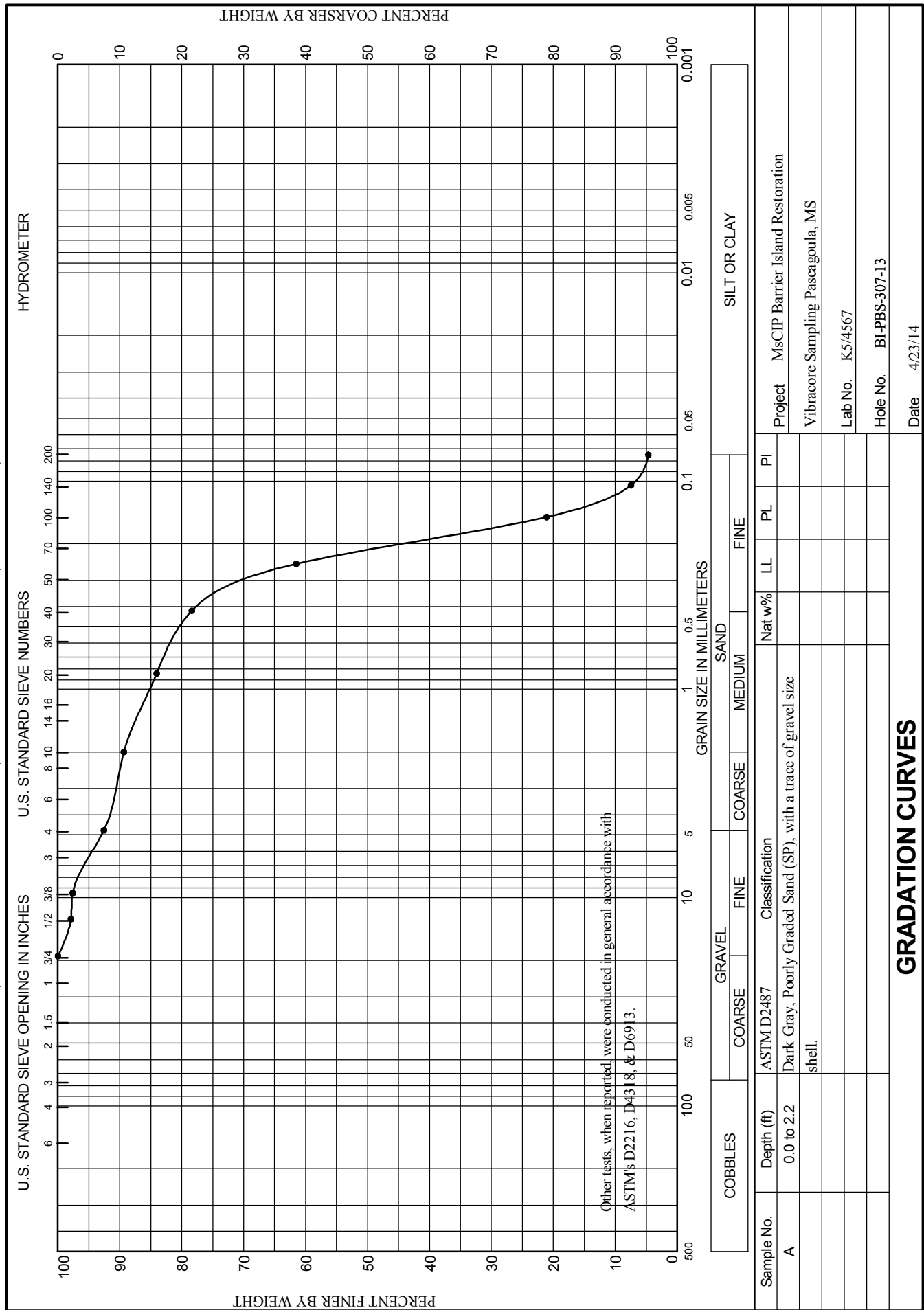
<b>DRILLING LOG (Cont. Sheet)</b>			<b>INSTALLATION</b> Mobile District		<b>SHEET 2</b>
					<b>OF 2 SHEETS</b>
<b>PROJECT</b> MsCIP Barrier Island Restoration			<b>COORDINATE SYSTEM/DATUM</b> State Plane, MSE (U.S. Ft.)	<b>HORIZONTAL</b> NAD83	<b>VERTICAL</b> NAVD88
<b>LOCATION COORDINATES</b> X = 1,095,758 Y = 225,350			<b>ELEVATION TOP OF BORING</b> -50.3 Ft.		
<b>ELEV.</b>	<b>DEPTH</b>	<b>LEGEND</b>	<b>CLASSIFICATION OF MATERIALS</b>	<b>SAMPLE</b>	<b>LABORATORY RESULTS</b>
			vessel's fathometer water depth reading and applying NOAA tidal gauge data conversion factor.		





WORK ORDER: 848e

REQUISITION: W33SJG32900192

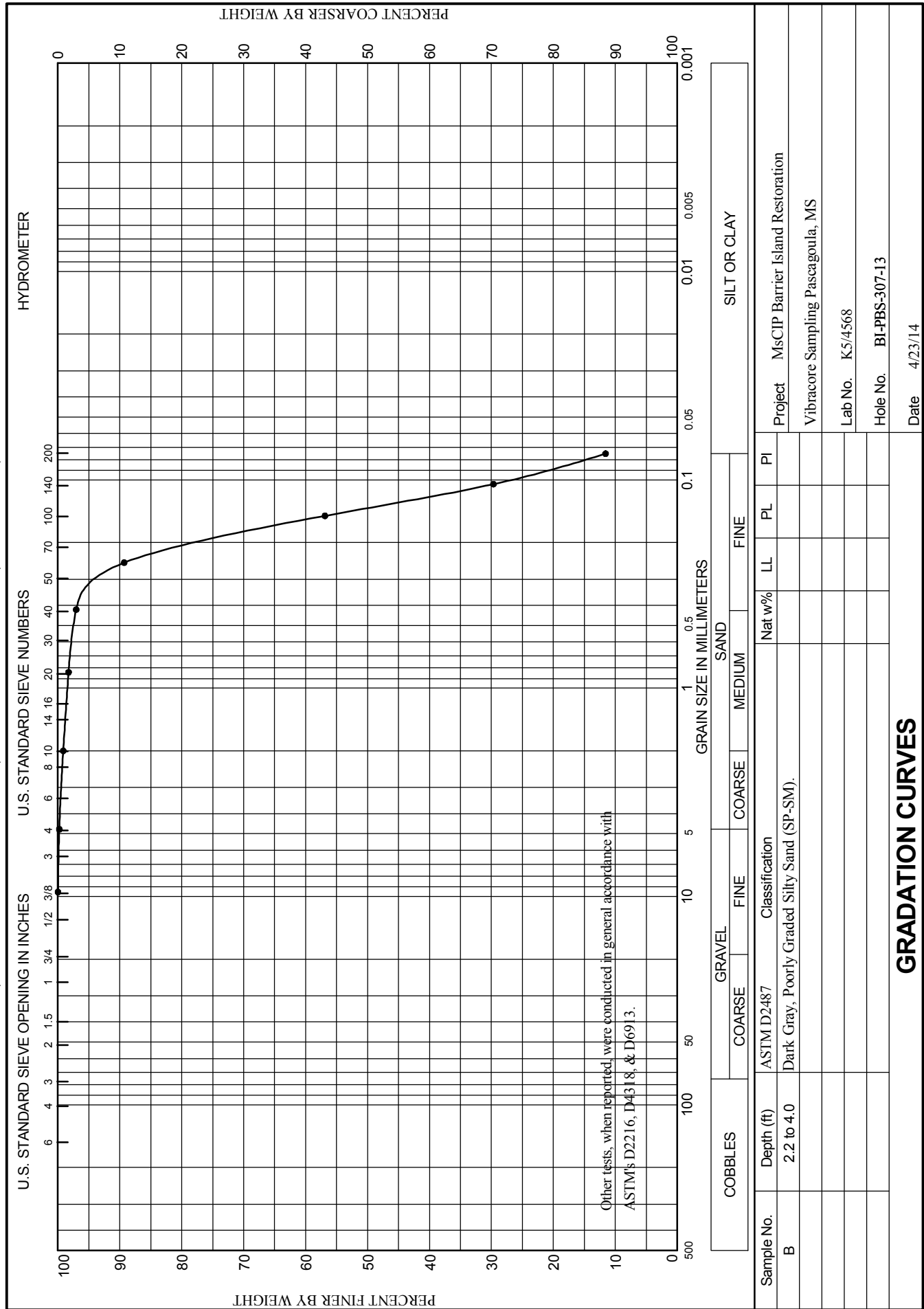




DEPARTMENT OF THE ARMY, SAVANNAH DISTRICT, ENVIRONMENTAL AND MATERIALS UNIT  
CORPS OF ENGINEERS, 200 N. COBB PARKWAY, BLDG 400 SUITE 404, MARIETTA, GA. 30062

WORK ORDER: 848e

REQUISITION: W33SJC32900192

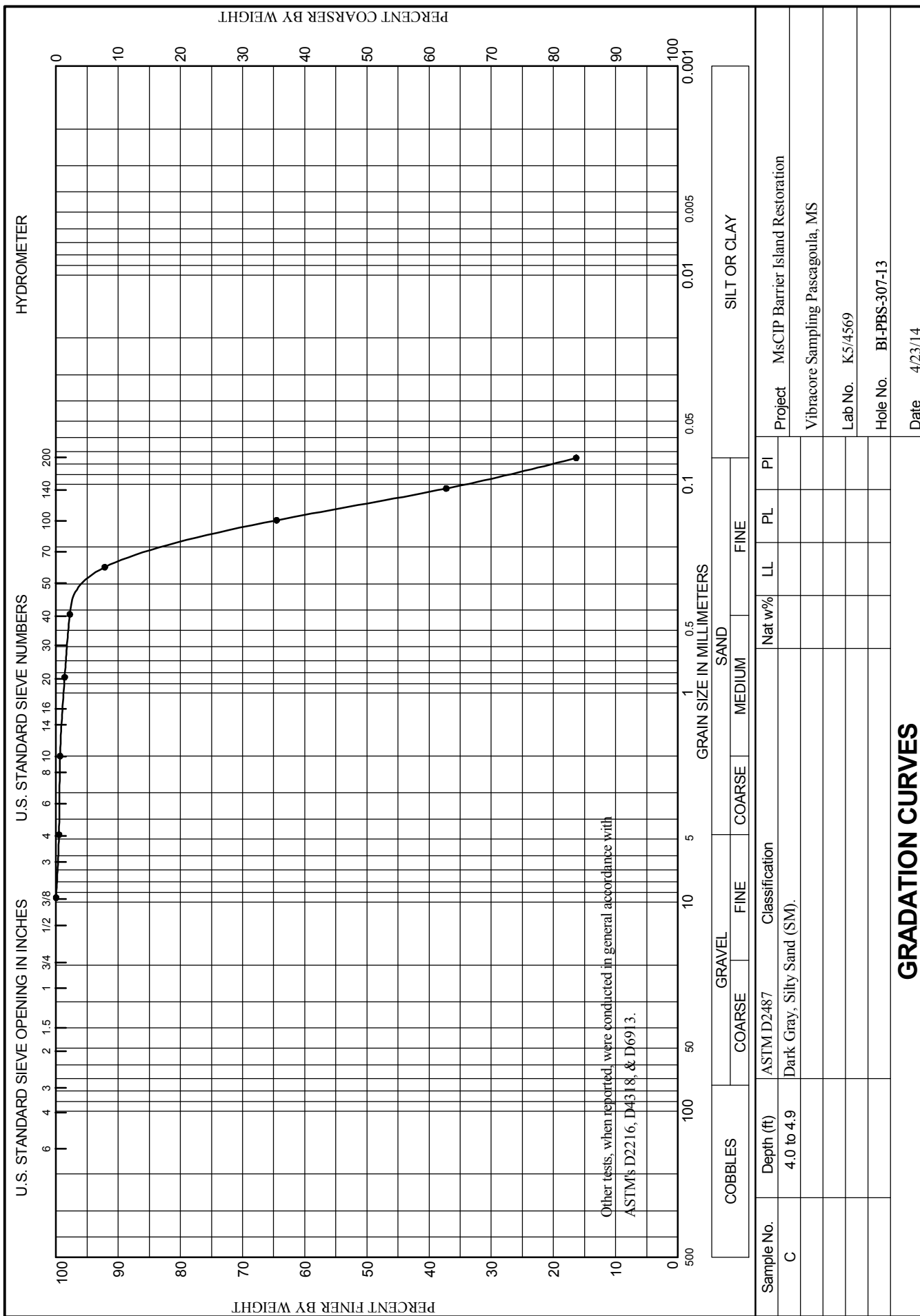




DEPARTMENT OF THE ARMY, SAVANNAH DISTRICT, ENVIRONMENTAL AND MATERIALS UNIT  
CORPS OF ENGINEERS, 200 N. COBB PARKWAY, BLDG 400 SUITE 404, MARIETTA, GA. 30062

WORK ORDER: 848e

REQUISITION: W33SJG32900192



# Boring Designation BI-PBS-308-13

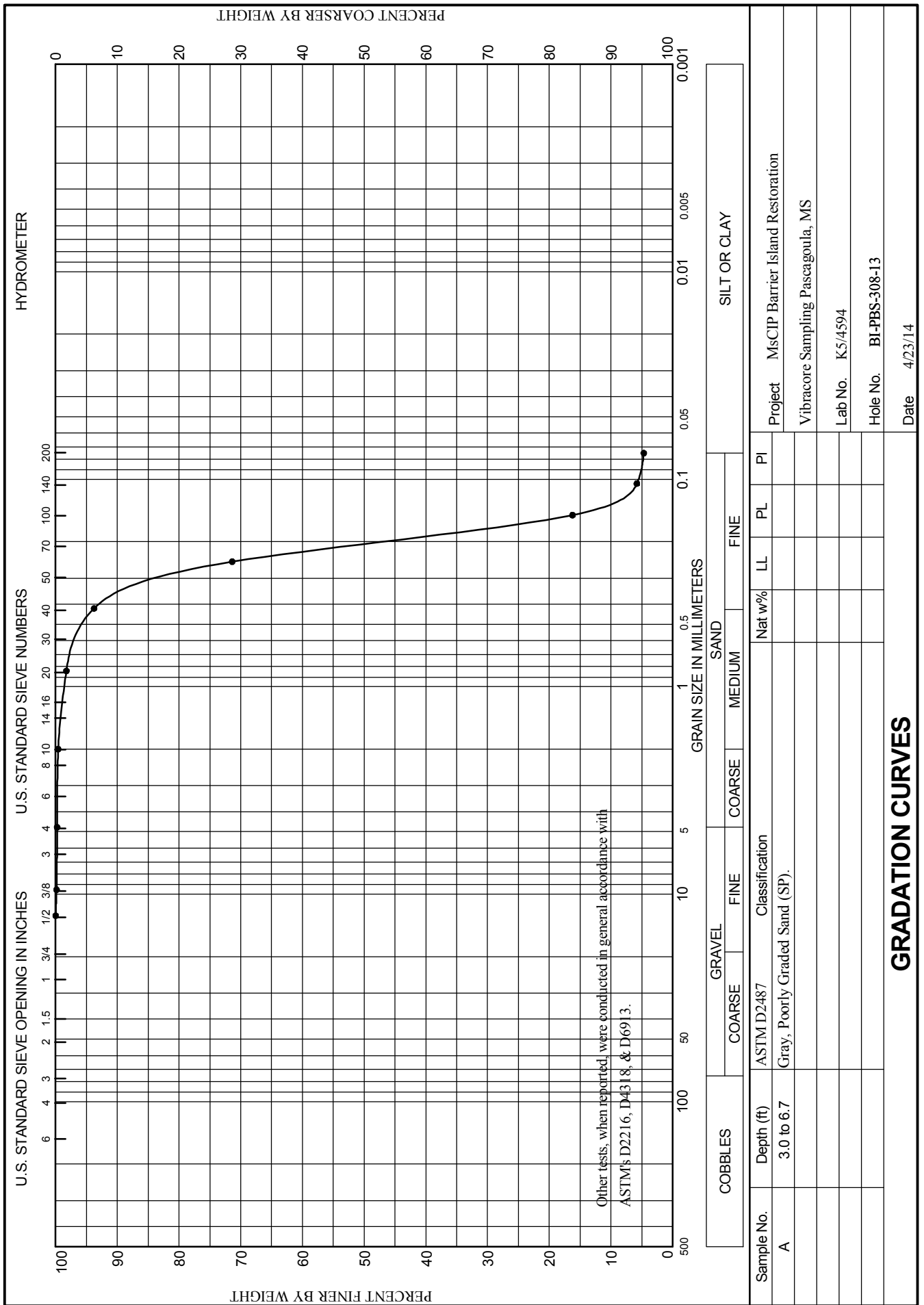
DRILLING LOG		DIVISION South Atlantic		INSTALLATION Mobile District		SHEET 1 OF 1 SHEETS	
1. PROJECT MsCIP Barrier Island Restoration Petit Bois Pass-OCS West				9. SIZE AND TYPE OF BIT N/A			
2. BORING DESIGNATION BI-PBS-308-13		LOCATION COORDINATES E = 1,120,207 N = 233,883		10. COORDINATE SYSTEM/DATUM State Plane, MSE (U.S. Ft.)		HORIZONTAL NAD83	
3. DRILLING AGENCY Corps of Engineers - CESAM		CONTRACTOR FILE NO.		11. MANUFACTURER'S DESIGNATION OF DRILL Vibrocure		<input type="checkbox"/> AUTO HAMMER <input type="checkbox"/> MANUAL HAMMER	
4. NAME OF DRILLER Construction Solutions International, Inc.				12. TOTAL SAMPLES		DISTURBED 1	
5. DIRECTION OF BORING <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED				DEG. FROM VERTICAL		BEARING	
6. THICKNESS OF OVERBURDEN N/A				13. TOTAL NUMBER CORE BOXES		UNDISTURBED (UD) 0	
7. DEPTH DRILLED INTO ROCK N/A				14. WATER DEPTH 58.2 Ft.		15. DATE BORING 01-31-14	
8. TOTAL DEPTH OF BORING 14.5 Ft.				16. ELEVATION TOP OF BORING -58.4 Ft.		17. TOTAL RECOVERY FOR BORING 100%	
				18. SIGNATURE AND TITLE OF INSPECTOR Tom Powers, Geologist			
ELEV.	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS	SAMPLE	LABORATORY RESULTS		
-58.4	0.0						
			CLAY, lean, sandy, very soft to 0.6 ft., firm to 3.0 ft. depth, medium gray (CL)	NS			
-61.4	3.0						
			SAND, poorly-graded, mostly fine to medium-grained sand-sized quartz, trace shell fragments, lt. gray (SP)	A	Classification: SP Color: 10Y 7/1-light greenish gray D50: 0.205 mm % Fines: 4.7		
-65.1	6.7						
			SAND, silty, mostly fine-grained sand-sized quartz, trace shell fragments, medium gray (SM)				
-67.4	9.0						
-68.4	10.0		SAND, silty, clayey, mostly fine-grained sand-sized quartz, trace shell fragments, medium gray (SC-SM)	NS			
			SAND, clayey, mostly fine-grained sand-sized quartz, trace shell fragments, medium gray (SC)				
-72.9	14.5						
NOTES: 1. Soils are field visually classified in accordance with the Unified Soils Classification System. 2. NS = Sample not submitted for laboratory analysis from this interval. 3. Seafloor elevation calculated using sampling vessel's fathometer water depth reading and applying NOAA tidal gauge data conversion factor.							



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CORPS OF ENGINEERS, 200 N. COBB PARKWAY, BLDG 400 SUITE 404, MARIETTA, GA. 30062

WORK ORDER: 848e

REQUISITION: W33SJC32900192



# Boring Designation BI-PBS-309-13

DRILLING LOG		DIVISION South Atlantic		INSTALLATION Mobile District		SHEET 1 OF 1 SHEETS	
1. PROJECT MsCIP Barrier Island Restoration Petit Bois Pass-OCS West				9. SIZE AND TYPE OF BIT N/A			
2. BORING DESIGNATION BI-PBS-309-13		LOCATION COORDINATES E = 1,122,062 N = 233,100		10. COORDINATE SYSTEM/DATUM State Plane, MSE (U.S. Ft.)		HORIZONTAL NAD83	
3. DRILLING AGENCY Corps of Engineers - CESAM		CONTRACTOR FILE NO.		11. MANUFACTURER'S DESIGNATION OF DRILL Vibracore		<input type="checkbox"/> AUTO HAMMER <input type="checkbox"/> MANUAL HAMMER	
4. NAME OF DRILLER Construction Solutions International, Inc.				12. TOTAL SAMPLES 0		DISTURBED 0	
5. DIRECTION OF BORING <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED				13. TOTAL NUMBER CORE BOXES		14. WATER DEPTH 58.9 Ft.	
6. THICKNESS OF OVERBURDEN N/A				15. DATE BORING 01-31-14		STARTED 01-31-14	
7. DEPTH DRILLED INTO ROCK N/A				16. ELEVATION TOP OF BORING -59.0 Ft.		COMPLETED 01-31-14	
8. TOTAL DEPTH OF BORING 12.5 Ft.				17. TOTAL RECOVERY FOR BORING 100%		18. SIGNATURE AND TITLE OF INSPECTOR Tom Powers, Geologist	
ELEV.	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS	SAMPLE	LABORATORY RESULTS		
-59.0	0.0		CLAY, lean, trace shell fragments, sandy, more sandy from 1.4 to 4.1 ft., soft to 1.4 ft. (CL)				
-63.1	4.1		At El. -62.3 Ft., clay interbedded with SC				
-64.1	5.1		SAND, poorly-graded, mostly fine to medium-grained sand-sized quartz, few shell fragments, lt. gray (SP)				
-69.0	10.0		SAND, silty, mostly fine-grained sand-sized quartz, few shell fragments, trace shell fragments below 7.3 ft. depth, medium gray (SM)	NS			
-71.5	12.5		SAND, silty, clayey, mostly fine-grained sand-sized quartz, trace shell fragments, medium gray (SC-SM)				
NOTES: 1. Soils are field visually classified in accordance with the Unified Soils Classification System. 2. NS = Sample not submitted for laboratory analysis from this interval. 3. Seafloor elevation calculated using sampling vessel's fathometer water depth reading and applying NOAA tidal gauge data conversion factor.							

# Boring Designation BI-PBS-310-13

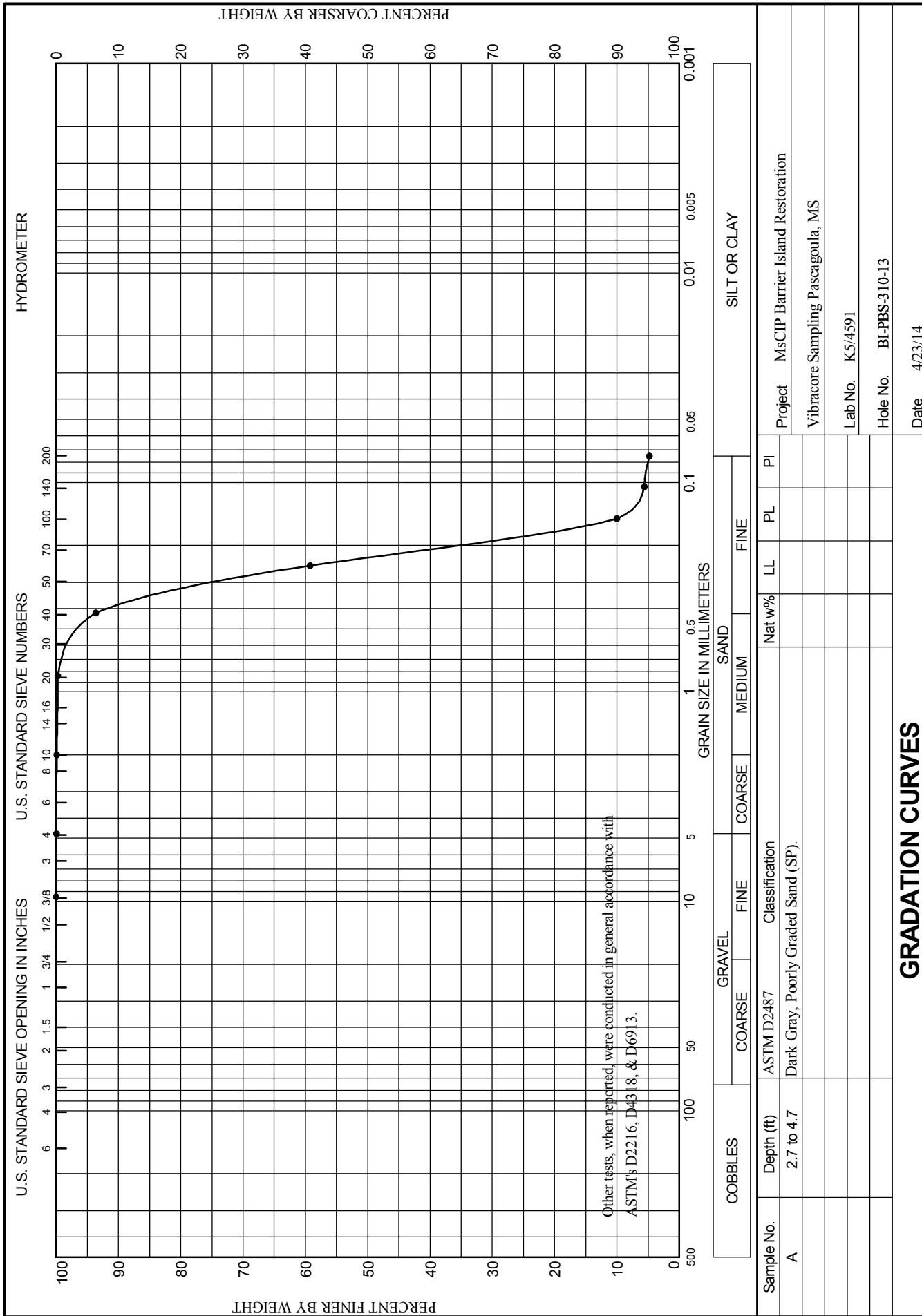
DRILLING LOG		DIVISION South Atlantic		INSTALLATION Mobile District		SHEET 1 OF 1 SHEETS	
1. PROJECT MsCIP Barrier Island Restoration Petit Bois Pass-OCS West				9. SIZE AND TYPE OF BIT N/A			
2. BORING DESIGNATION BI-PBS-310-13		LOCATION COORDINATES E = 1,118,547 N = 234,706		10. COORDINATE SYSTEM/DATUM State Plane, MSE (U.S. Ft.)		HORIZONTAL NAD83 VERTICAL NAVD88	
3. DRILLING AGENCY Corps of Engineers - CESAM		CONTRACTOR FILE NO.		11. MANUFACTURER'S DESIGNATION OF DRILL Vibrocure		<input type="checkbox"/> AUTO HAMMER <input type="checkbox"/> MANUAL HAMMER	
4. NAME OF DRILLER Construction Solutions International, Inc.				12. TOTAL SAMPLES		DISTURBED 3 UNDISTURBED (UD) 0	
5. DIRECTION OF BORING <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED				13. TOTAL NUMBER CORE BOXES		14. WATER DEPTH 57.2 Ft.	
6. THICKNESS OF OVERBURDEN N/A				15. DATE BORING		STARTED 01-31-14 COMPLETED 01-31-14	
7. DEPTH DRILLED INTO ROCK N/A				16. ELEVATION TOP OF BORING -57.6 Ft.		17. TOTAL RECOVERY FOR BORING 100%	
8. TOTAL DEPTH OF BORING 18.6 Ft.				18. SIGNATURE AND TITLE OF INSPECTOR Tom Powers, Geologist			
ELEV.	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS	SAMPLE	LABORATORY RESULTS		
-57.6	0.0						
-59.8	2.2		CLAY, lean, trace shell fragments, sandy, fine-grained; soft to 1.0 ft., firm to 2.2 ft., medium to dark gray (CL)	NS			
-60.3	2.7		SAND, clayey, mostly fine-grained sand-sized quartz, trace shell fragments, medium gray (SC)	A	Classification: SP Color: 10Y 7/1-light greenish gray D50: 0.227 mm % Fines: 4.8		
-62.3	4.7		SAND, poorly-graded, mostly fine-grained sand-sized quartz, trace shell fragments, trace wood from 3.3 to 3.7 ft. depth, lt. to medium gray (SP)	B	Classification: SP Color: 10Y 7/1-light greenish gray D50: 0.199 mm % Fines: 4.9		
-63.8	6.2		SAND, poorly-graded with silt, mostly fine-grained sand-sized quartz, trace shell fragments, lt. to medium gray (SP-SM)	C	Classification: SP Color: 10Y 7/1-light greenish gray D50: 0.195 mm % Fines: 4.5		
-67.6	10.0		SAND, silty, mostly fine-grained sand-sized quartz, few shell fragments, lt. to medium gray (SM) At El. -65.8 Ft., mostly fine-grained sand-sized quartz, few shell fragments, higher silt content than overlying SM, medium gray	NS			
-76.2	18.6		SAND, silty, clayey, mostly fine-grained sand-sized quartz, few shell fragments, medium gray (SC-SM)				
NOTES: 1. Soils are field visually classified in accordance with the Unified Soils Classification System. 2. NS = Sample not submitted for laboratory analysis from this interval. 3. Seafloor elevation calculated using sampling vessel's fathometer water depth reading and applying NOAA tidal gauge data conversion factor.							



DEPARTMENT OF THE ARMY, SAVANNAH DISTRICT, ENVIRONMENTAL AND MATERIALS UNIT  
CORPS OF ENGINEERS, 200 N. COBB PARKWAY, BLDG 400 SUITE 404, MARIETTA, GA. 30062

WORK ORDER: 848e

REQUISITION: W33SJC32900192

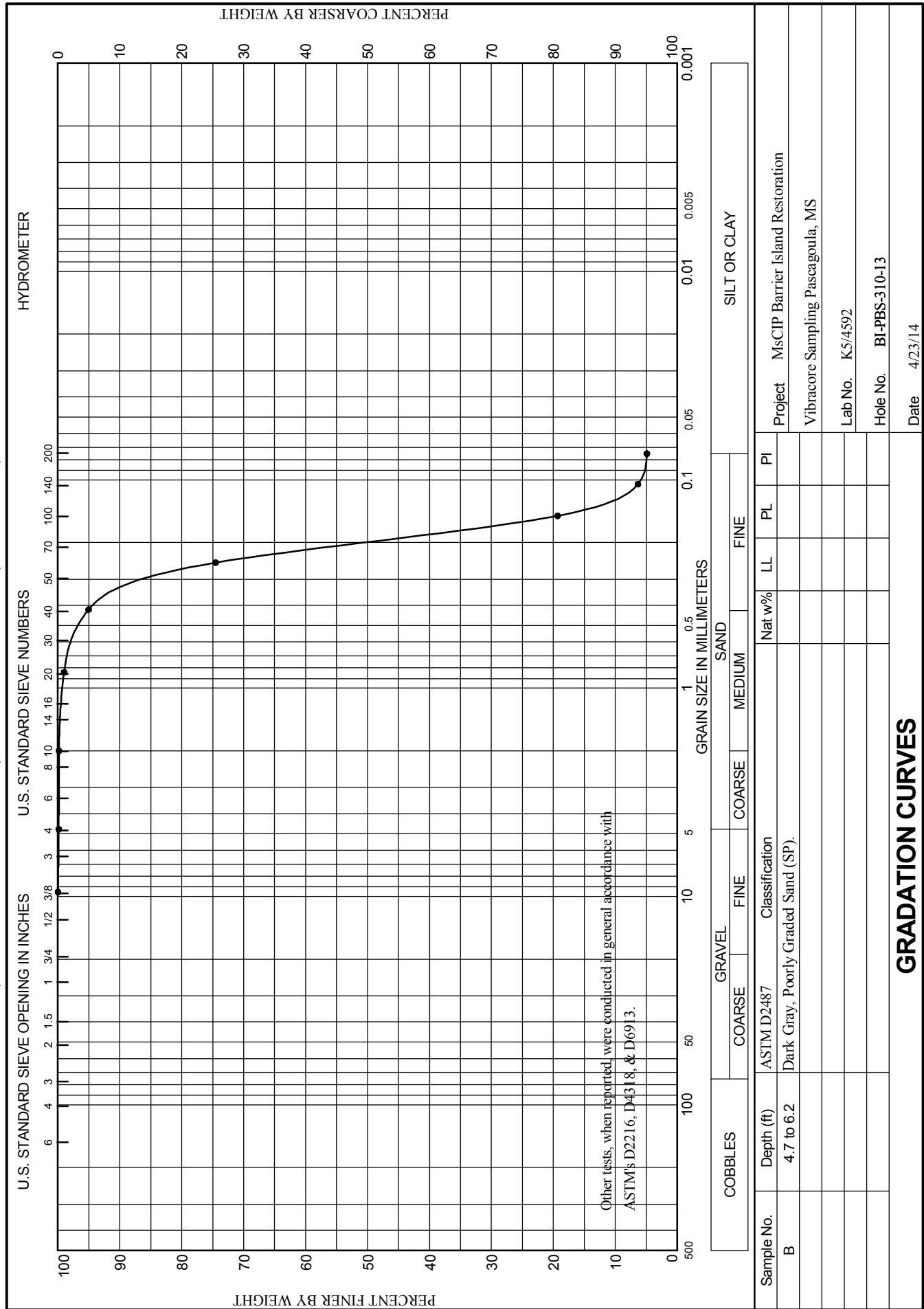






WORK ORDER: 848e

REQUISITION: W33SJG32900192

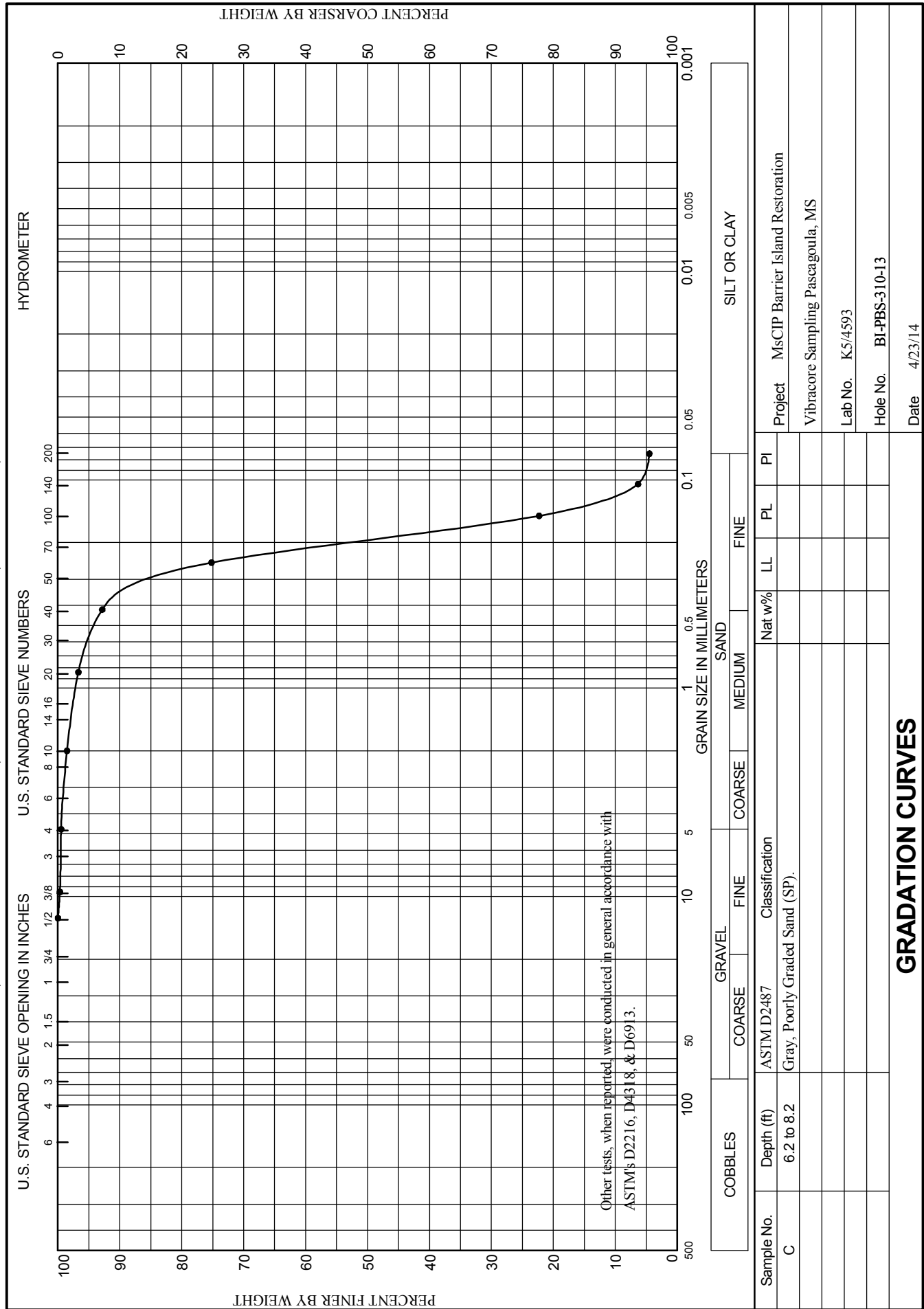




DEPARTMENT OF THE ARMY, SAVANNAH DISTRICT, ENVIRONMENTAL AND MATERIALS UNIT  
CORPS OF ENGINEERS, 200 N. COBB PARKWAY, BLDG 400 SUITE 404, MARIETTA, GA. 30062

WORK ORDER: 848e

REQUISITION: W33SJC32900192



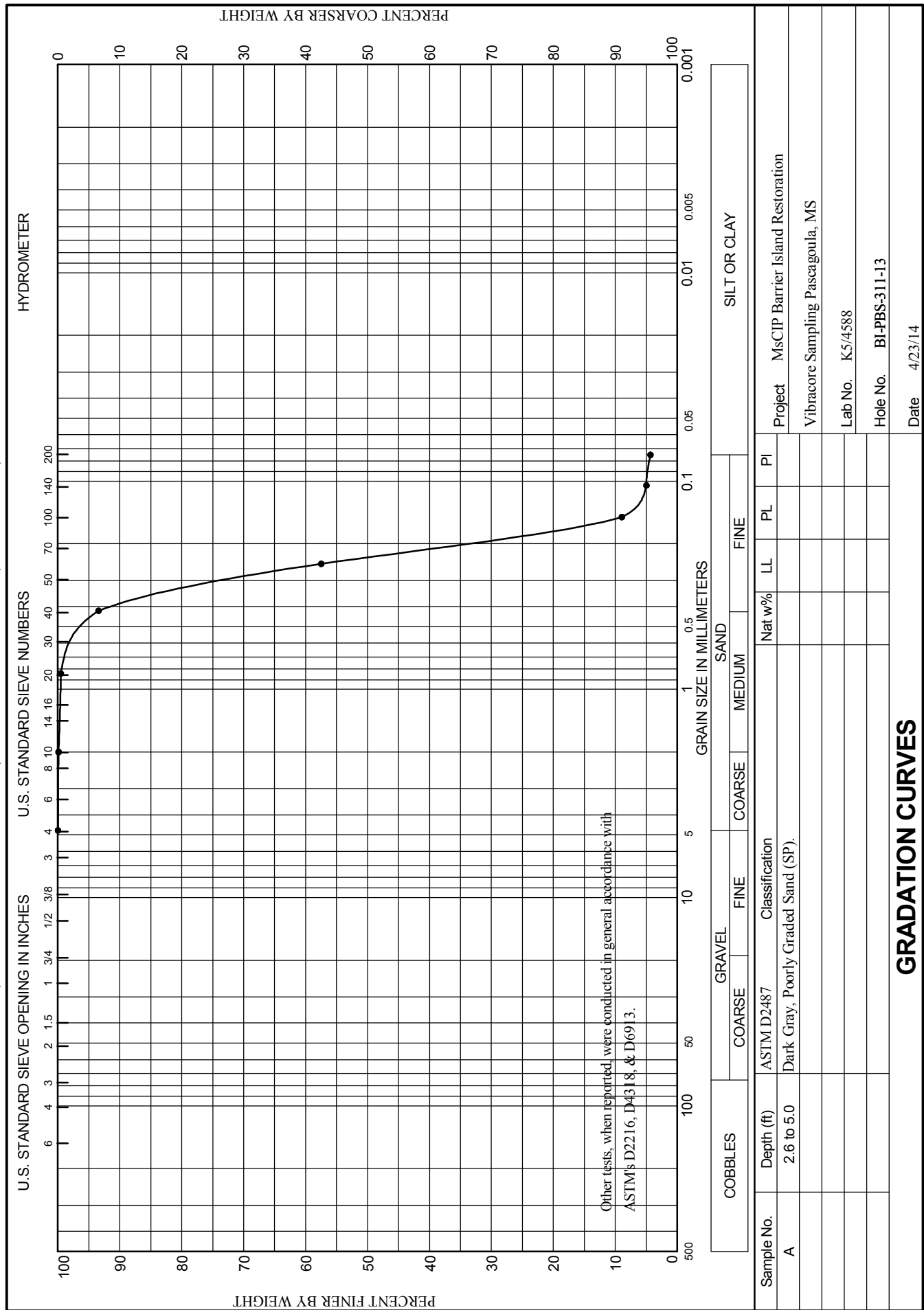
# Boring Designation BI-PBS-311-13

DRILLING LOG		DIVISION South Atlantic		INSTALLATION Mobile District		SHEET 1 OF 1 SHEETS	
1. PROJECT MsCIP Barrier Island Restoration Petit Bois Pass-OCS West				9. SIZE AND TYPE OF BIT N/A			
2. BORING DESIGNATION BI-PBS-311-13		LOCATION COORDINATES E = 1,116,671 N = 235,371		10. COORDINATE SYSTEM/DATUM State Plane, MSE (U.S. Ft.)		HORIZONTAL NAD83	
3. DRILLING AGENCY Corps of Engineers - CESAM		CONTRACTOR FILE NO.		11. MANUFACTURER'S DESIGNATION OF DRILL Vibrocure		<input type="checkbox"/> AUTO HAMMER <input type="checkbox"/> MANUAL HAMMER	
4. NAME OF DRILLER Construction Solutions International, Inc.				12. TOTAL SAMPLES 3		DISTURBED 0	
5. DIRECTION OF BORING <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED				13. TOTAL NUMBER CORE BOXES		14. WATER DEPTH 56.3 Ft.	
6. THICKNESS OF OVERBURDEN N/A				15. DATE BORING 01-31-14		STARTED 01-31-14	
7. DEPTH DRILLED INTO ROCK N/A				16. ELEVATION TOP OF BORING -59.4 Ft.		COMPLETED 01-31-14	
8. TOTAL DEPTH OF BORING 15.5 Ft.				17. TOTAL RECOVERY FOR BORING 100%		18. SIGNATURE AND TITLE OF INSPECTOR Tom Powers, Geologist	
ELEV.	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS	SAMPLE	LABORATORY RESULTS		
-59.4	0.0						
			SAND, silty, clayey, mostly fine-grained sand-sized quartz, trace shell fragments, very loose, medium gray (SC-SM)	NS			
-62.0	2.6						
			SAND, poorly-graded with silt, mostly fine-grained sand-sized quartz, few shell fragments, no shell below 7 ft., lt. to medium gray (SP-SM)	A	Classification: SP Color: 10Y 7/1-light greenish gray D50: 0.231 mm % Fines: 4.3		
				B	Classification: SP Color: 10Y 7/1-light greenish gray D50: 0.208 mm % Fines: 3.1		
-67.8	8.4						
			SAND, silty, mostly fine-grained sand-sized quartz, few shell fragments, medium gray (SM)	C	Classification: SP Color: 10Y 7/1-light greenish gray D50: 0.187 mm % Fines: 4.5		
-73.4	14.0						
			SAND, clayey, mostly fine-grained sand-sized quartz, few shell fragments, brownish medium gray (SC)	NS			
-74.9	15.5						
NOTES:							
1. Soils are field visually classified in accordance with the Unified Soils Classification System.							
2. NS = Sample not submitted for laboratory analysis from this interval.							
3. Seafloor elevation determined from 2013 USGS geophysical survey.							



WORK ORDER: 848e

REQUISITION: W33SJG32900192

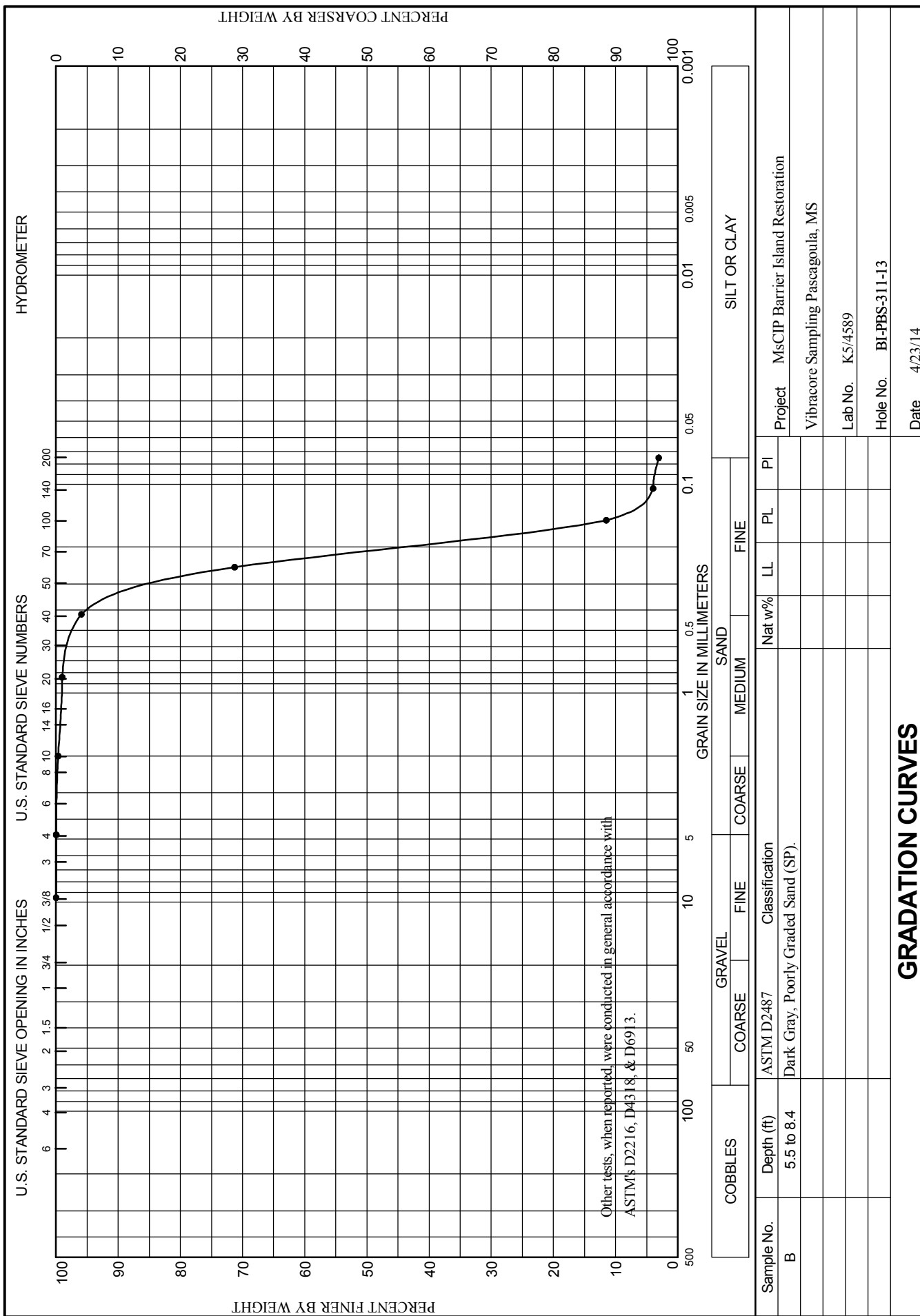




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WORK ORDER: 848e

REQUISITION: W33SJC32900192

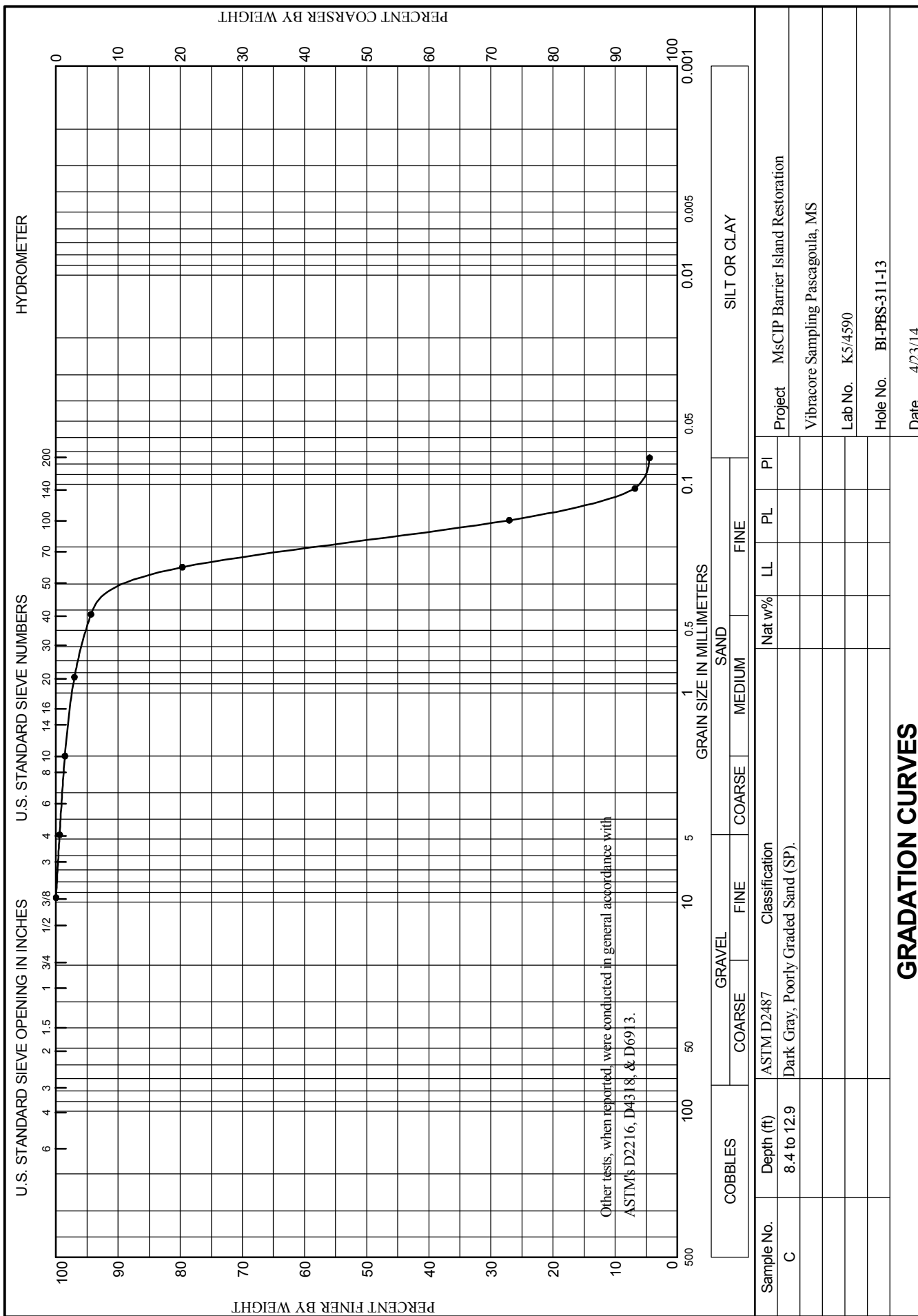




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WORK ORDER: 848e

REQUISITION: W33SJC32900192



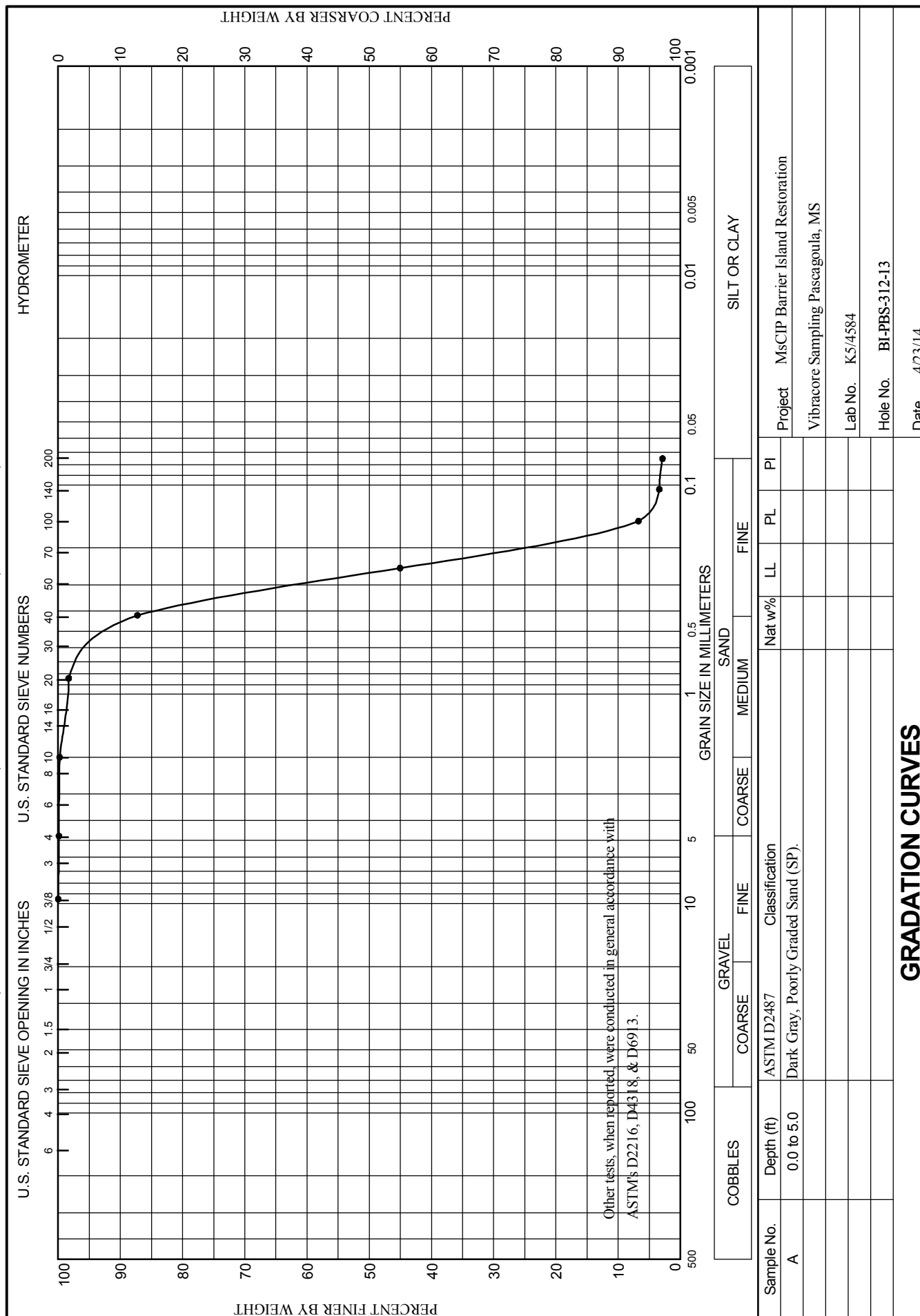
# Boring Designation BI-PBS-312-13

DRILLING LOG		DIVISION South Atlantic		INSTALLATION Mobile District		SHEET 1 OF 1 SHEETS	
1. PROJECT MsCIP Barrier Island Restoration Petit Bois Pass-OCS West				9. SIZE AND TYPE OF BIT N/A			
2. BORING DESIGNATION BI-PBS-312-13		LOCATION COORDINATES E = 1,114,696 N = 236,026		10. COORDINATE SYSTEM/DATUM State Plane, MSE (U.S. Ft.)		HORIZONTAL NAD83	
3. DRILLING AGENCY Corps of Engineers - CESAM		CONTRACTOR FILE NO.		11. MANUFACTURER'S DESIGNATION OF DRILL Vibracore		<input type="checkbox"/> AUTO HAMMER <input type="checkbox"/> MANUAL HAMMER	
4. NAME OF DRILLER Construction Solutions International, Inc.				12. TOTAL SAMPLES 4		UNDISTURBED (UD) 0	
5. DIRECTION OF BORING <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED				13. TOTAL NUMBER CORE BOXES		14. WATER DEPTH 55.3 Ft.	
6. THICKNESS OF OVERBURDEN N/A				15. DATE BORING 01-31-14		STARTED 01-31-14	
7. DEPTH DRILLED INTO ROCK N/A				16. ELEVATION TOP OF BORING -54.6 Ft.		COMPLETED 01-31-14	
8. TOTAL DEPTH OF BORING 17.7 Ft.				17. TOTAL RECOVERY FOR BORING 100%		18. SIGNATURE AND TITLE OF INSPECTOR Tom Powers, Geologist	
ELEV.	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS	SAMPLE	LABORATORY RESULTS		
-54.6	0.0		SAND, poorly-graded, mostly fine to medium-grained sand-sized quartz, trace shell fragments, trace lt. brown clay from 7.0 to 7.1 ft. depth, lt. gray (SP)	A	Classification: SP Color: 10Y 7/1-light greenish gray D50: 0.266 mm % Fines: 2.9		
			At El. -59.6 Ft., fine-grained sand	B	Classification: SP Color: 10Y 7/1-light greenish gray D50: 0.241 mm % Fines: 3		
-62.6	8.0		SAND, poorly-graded with silt, mostly fine to medium-grained sand-sized quartz, trace shell fragments, lt. gray (SP-SM)	C	Classification: SP Color: 10Y 7/1-light greenish gray D50: 0.201 mm % Fines: 3.6		
-64.7	10.1		SAND, silty, mostly fine-grained sand-sized quartz, few shell fragments, lt. to medium gray (SM)	D	Classification: SP Color: 10Y 7/1-light greenish gray D50: 0.192 mm % Fines: 4.8		
-70.3	15.7		At El. -66.2 Ft., mostly fine-grained sand-sized quartz, few shell fragments, higher silt content than overlying SM, medium gray	NS			
-71.1	16.5		SAND, clayey, mostly fine-grained sand-sized quartz, few shell fragments, medium gray (SC)				
-72.3	17.7		CLAY, lean, trace shell fragments, sandy, medium to dark gray (CL)				
NOTES: 1. Soils are field visually classified in accordance with the Unified Soils Classification System. 2. NS = Sample not submitted for laboratory analysis from this interval. 3. Seafloor elevation determined from 10/29/2014 USACE survey.							



WORK ORDER: 848e

REQUISITION: W33SJG32900192







REQUISITION: W33SJG32900192

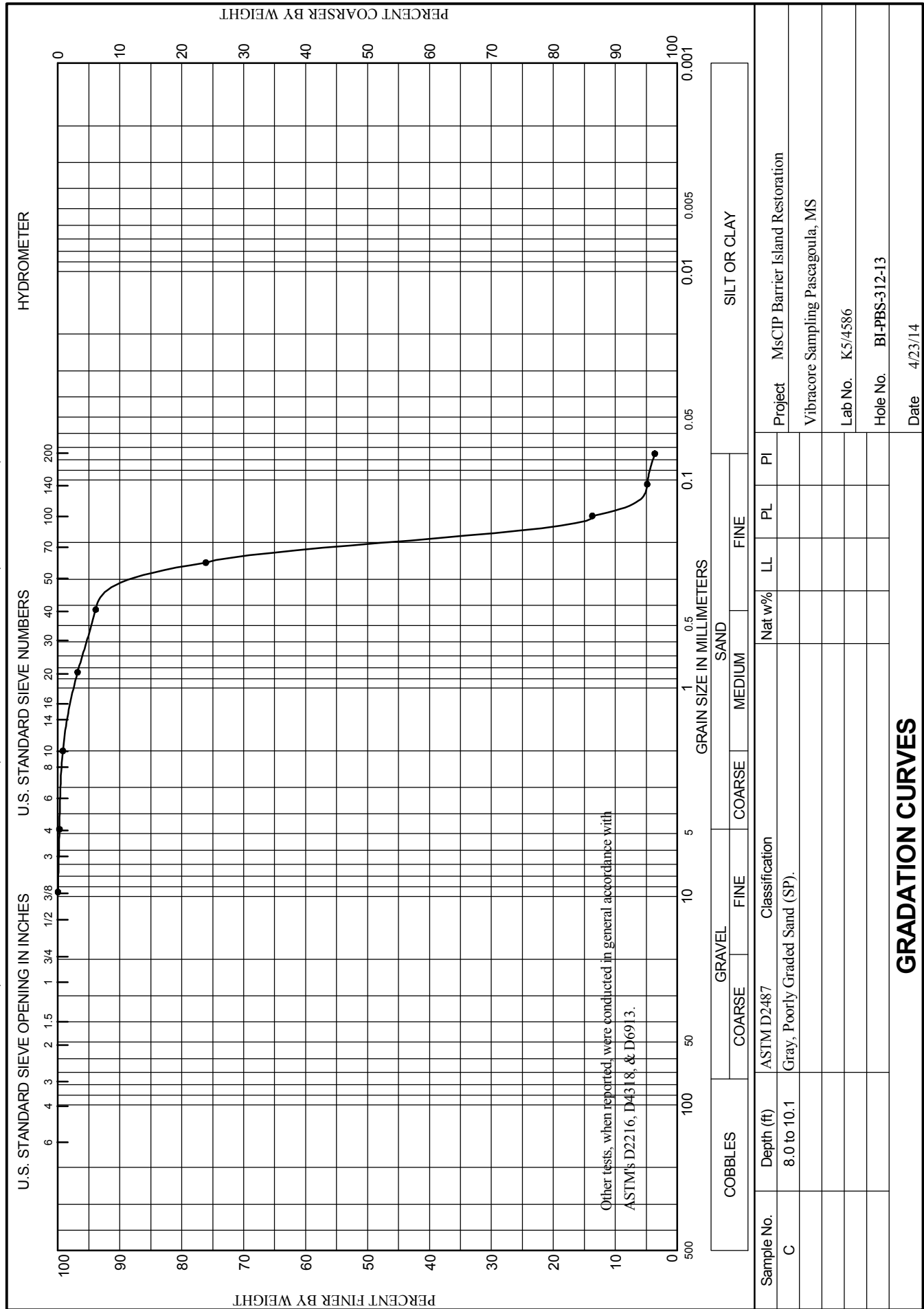




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WORK ORDER: 848e

REQUISITION: W33SJC32900192

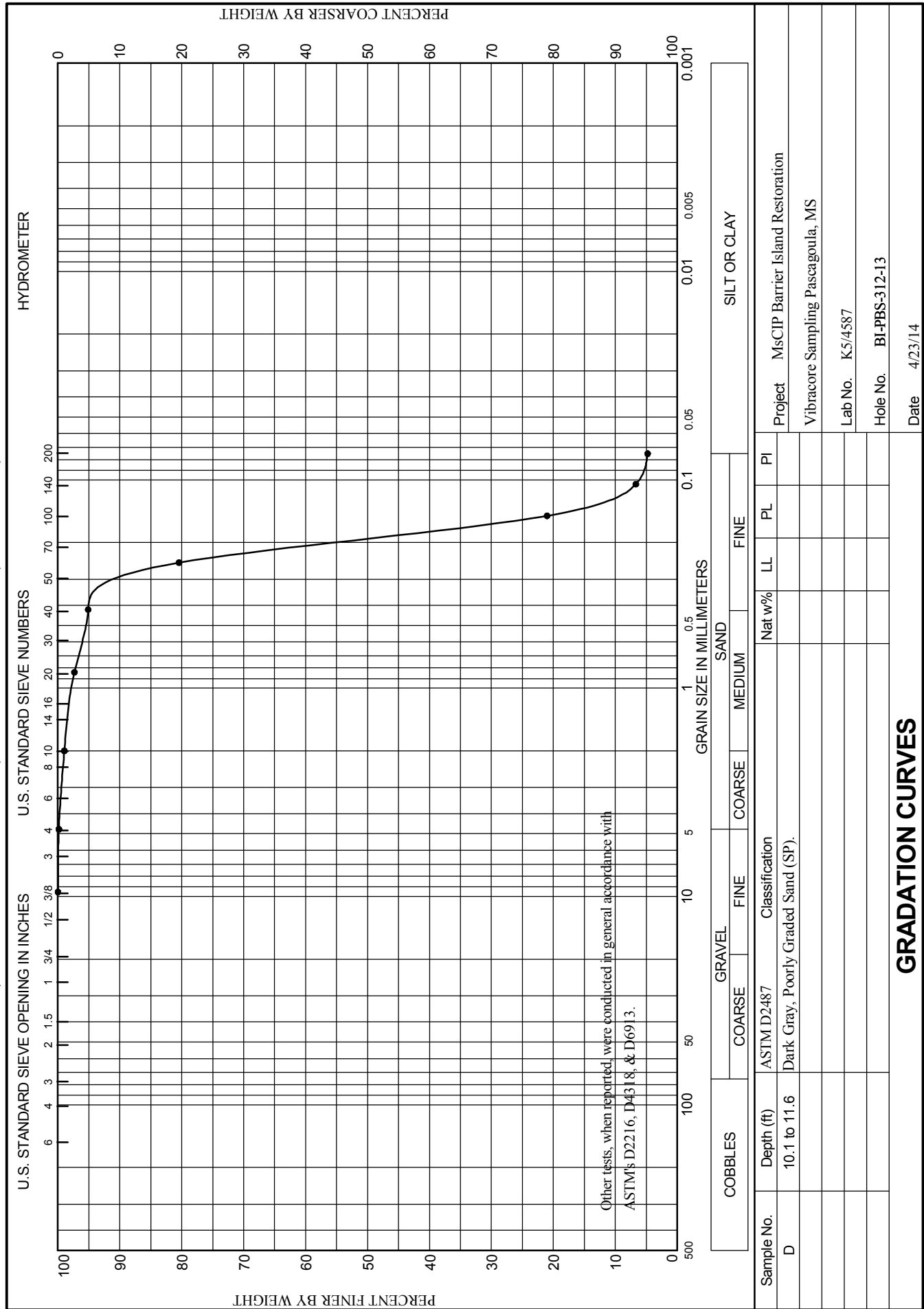




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CORPS OF ENGINEERS, 200 N. COBB PARKWAY, BLDG 400 SUITE 404, MARIETTA, GA. 30062

WORK ORDER: 848e

REQUISITION: W33SJC32900192



# Boring Designation BI-PBS-313-13

DRILLING LOG		DIVISION South Atlantic		INSTALLATION Mobile District		SHEET 1 OF 2 SHEETS	
1. PROJECT MsCIP Barrier Island Restoration Petit Bois Pass-OCS West				9. SIZE AND TYPE OF BIT N/A			
2. BORING DESIGNATION BI-PBS-313-13		LOCATION COORDINATES E = 1,113,118 N = 236,966		10. COORDINATE SYSTEM/DATUM State Plane, MSE (U.S. Ft.)		HORIZONTAL NAD83	
3. DRILLING AGENCY Corps of Engineers - CESAM		CONTRACTOR FILE NO.		11. MANUFACTURER'S DESIGNATION OF DRILL Vibrocure		<input type="checkbox"/> AUTO HAMMER <input type="checkbox"/> MANUAL HAMMER	
4. NAME OF DRILLER Construction Solutions International, Inc.				12. TOTAL SAMPLES		DISTURBED 0	
5. DIRECTION OF BORING <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED				13. TOTAL NUMBER CORE BOXES		14. WATER DEPTH 54 Ft.	
6. THICKNESS OF OVERBURDEN N/A				15. DATE BORING		STARTED 01-31-14	
7. DEPTH DRILLED INTO ROCK N/A				16. ELEVATION TOP OF BORING -53.9 Ft.		COMPLETED 01-31-14	
8. TOTAL DEPTH OF BORING 20.0 Ft.				17. TOTAL RECOVERY FOR BORING 100%		18. SIGNATURE AND TITLE OF INSPECTOR Tom Powers, Geologist	

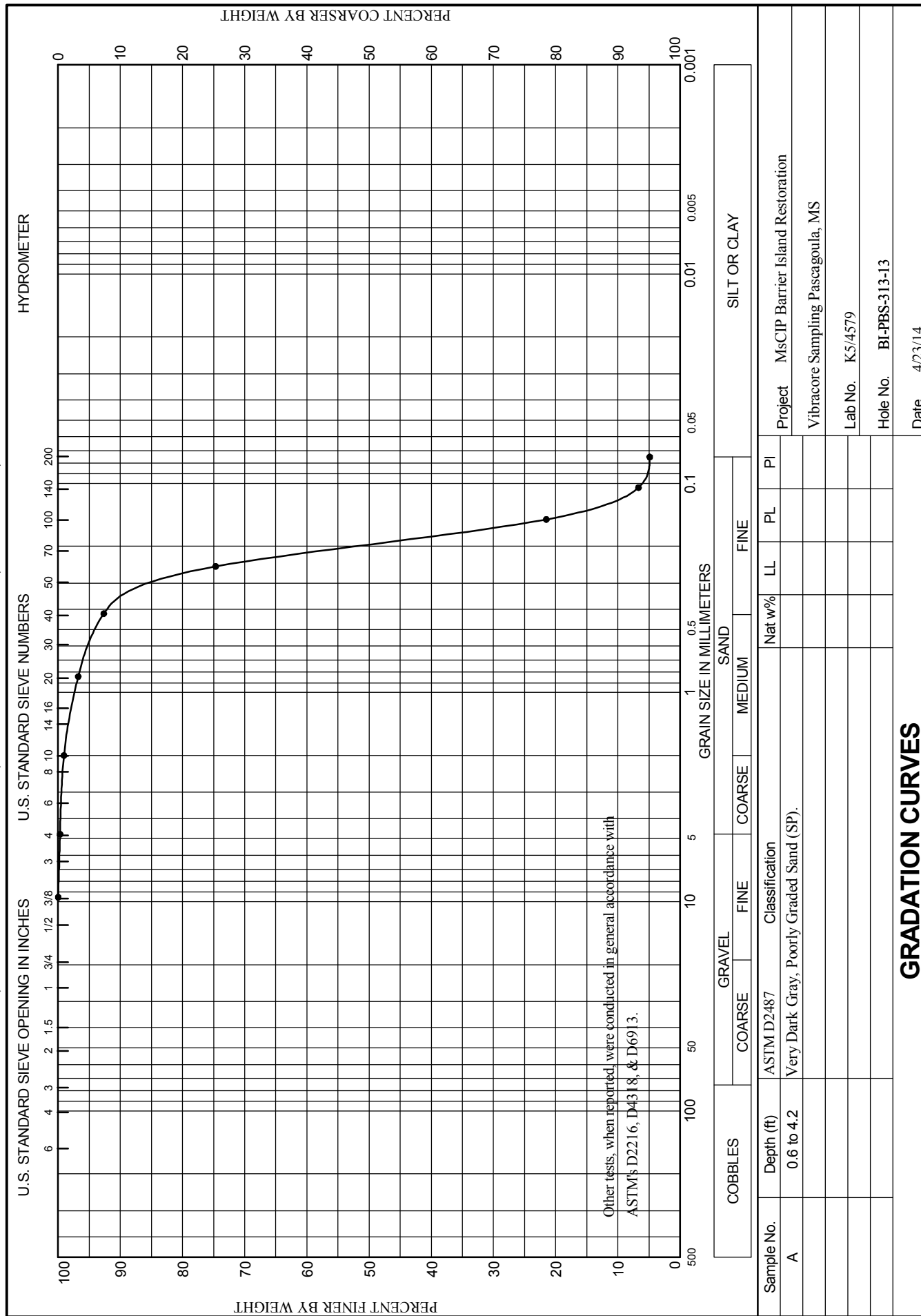
ELEV.	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS	SAMPLE	LABORATORY RESULTS
-53.9	0.0				
-54.5	0.6		SAND, clayey, mostly fine to medium-grained sand-sized quartz, medium gray (SC)	NS	
-57.4	3.5		SAND, poorly-graded with silt, mostly fine to medium-grained sand-sized quartz, trace shell fragments, grain size becomes finer with depth, medium gray (SP-SM)	A	Classification: SP Color: 2.5Y 5/1-gray D50: 0.197 mm % Fines: 4.9
-58.1	4.2				
-58.9	5.0		SAND, poorly-graded, mostly fine-grained sand-sized quartz, trace shell fragments, lt. to medium gray (SP)	B	Classification: SP-SM Color: 2.5Y 5/1-gray D50: 0.201 mm % Fines: 6.8
-63.6	9.7		SAND, silty, mostly fine-grained sand-sized quartz, trace shell fragments, lt. to medium gray (SM)	C	Classification: SP Color: 10Y 7/1-light greenish gray D50: 0.222 mm % Fines: 3.9
-66.6	12.7		SAND, poorly-graded, mostly fine-grained sand-sized quartz, trace shell fragments, lt. gray (SP)	D	Classification: SP Color: 10Y 7/1-light greenish gray D50: 0.204 mm % Fines: 3.7
-71.9	18.0		SAND, silty, mostly fine-grained sand-sized quartz, few shell fragments, lt. to medium gray (SM)	E	Classification: SP-SM Color: 10Y 7/1-light greenish gray D50: 0.188 mm % Fines: 5.6
-73.9	20.0		SAND, clayey, mostly fine-grained sand-sized quartz, few shell fragments, slight plasticity, medium gray (SC)	NS	
NOTES: 1. Soils are field visually classified in accordance with the Unified Soils Classification System. 2. NS = Sample not submitted for laboratory analysis from this interval. 3. Seafloor elevation determined from					

<b>DRILLING LOG (Cont. Sheet)</b>			<b>INSTALLATION</b> Mobile District		<b>SHEET 2</b>
					<b>OF 2 SHEETS</b>
<b>PROJECT</b> MsCIP Barrier Island Restoration			<b>COORDINATE SYSTEM/DATUM</b> State Plane, MSE (U.S. Ft.)	<b>HORIZONTAL</b> NAD83	<b>VERTICAL</b> NAVD88
<b>LOCATION COORDINATES</b> X = 1,113,118 Y = 236,966			<b>ELEVATION TOP OF BORING</b> -53.9 Ft.		
<b>ELEV.</b>	<b>DEPTH</b>	<b>LEGEND</b>	<b>CLASSIFICATION OF MATERIALS</b>	<b>SAMPLE</b>	<b>LABORATORY RESULTS</b>
			10/29/2014 USACE survey.		



WORK ORDER: 848e

REQUISITION: W33SJG32900192





WORK ORDER: 848e

REQUISITION: W33SJG32900192

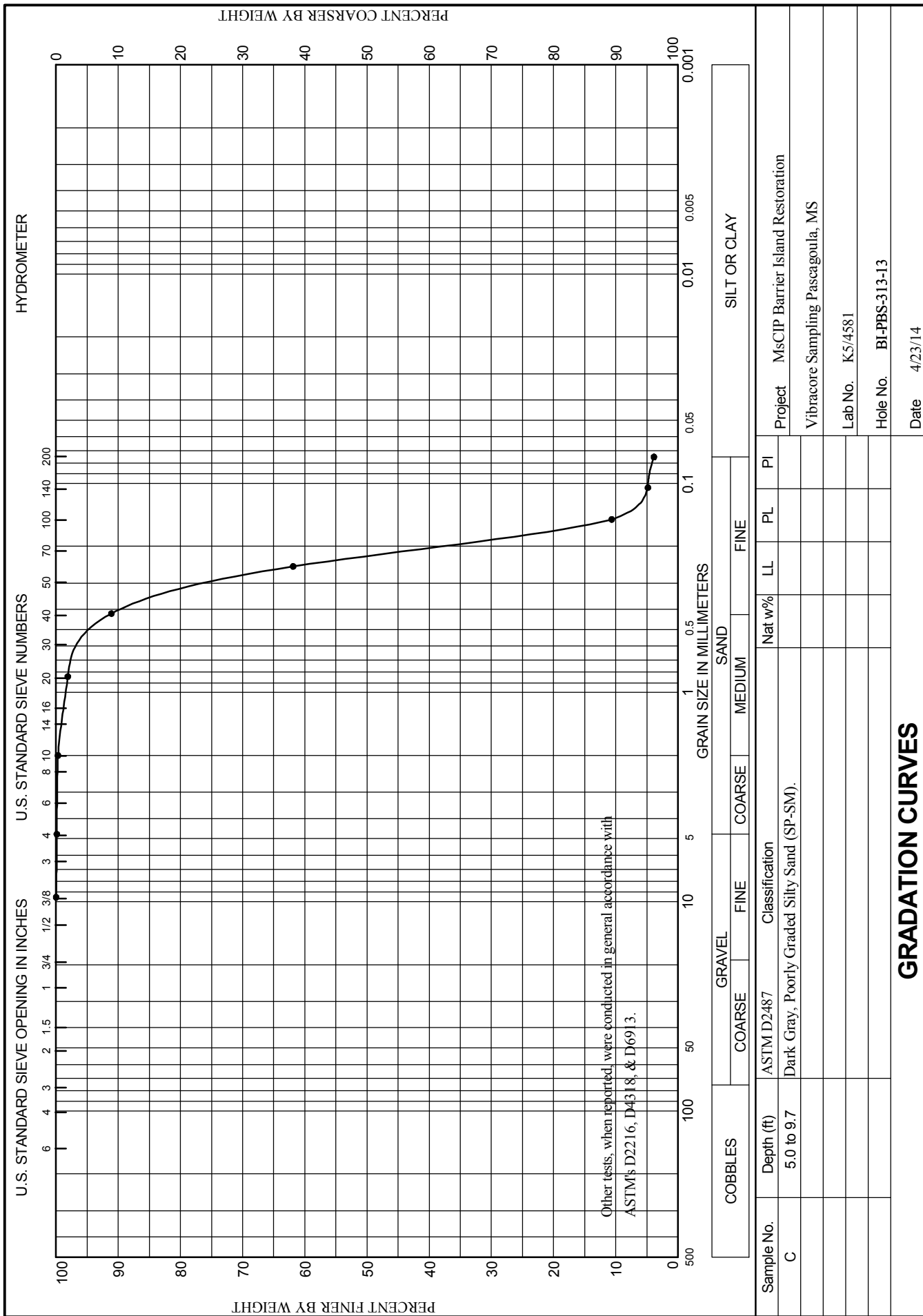




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WORK ORDER: 848e

REQUISITION: W33SJC32900192

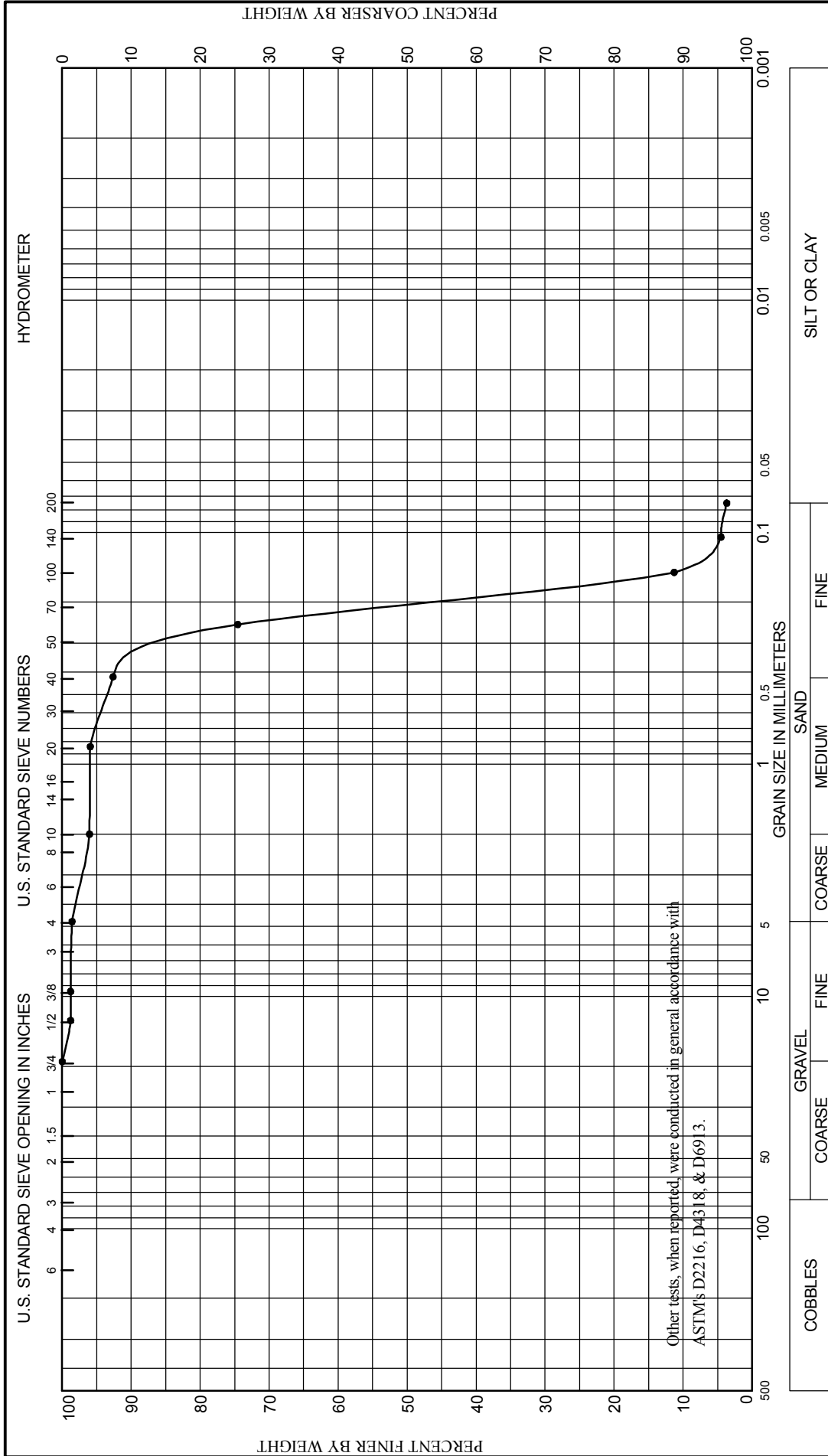






WORK ORDER: 848e

REQUISITION: W33SJG32900192

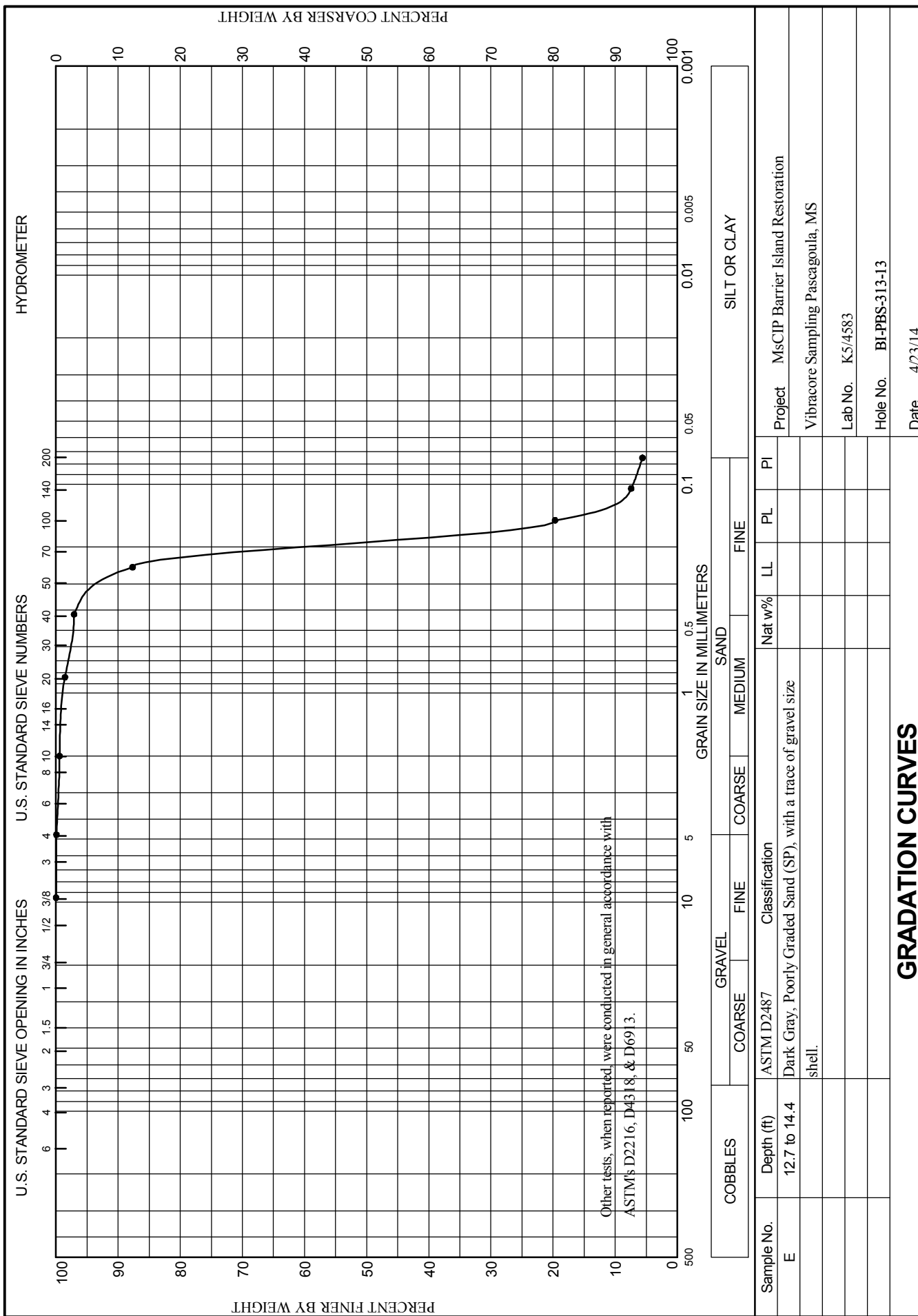
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WORK ORDER: 848e

REQUISITION: W33SJC32900192



# Boring Designation BI-PBS-314-13

DRILLING LOG		DIVISION South Atlantic		INSTALLATION Mobile District		SHEET 1 OF 1 SHEETS	
1. PROJECT MsCIP Barrier Island Restoration Petit Bois Pass-OCS West				9. SIZE AND TYPE OF BIT N/A			
2. BORING DESIGNATION BI-PBS-314-13		LOCATION COORDINATES E = 1,116,114 N = 234,537		10. COORDINATE SYSTEM/DATUM State Plane, MSE (U.S. Ft.)		HORIZONTAL NAD83 VERTICAL NAVD88	
3. DRILLING AGENCY Corps of Engineers - CESAM		CONTRACTOR FILE NO.		11. MANUFACTURER'S DESIGNATION OF DRILL Vibracore		<input type="checkbox"/> AUTO HAMMER <input type="checkbox"/> MANUAL HAMMER	
4. NAME OF DRILLER Construction Solutions International, Inc.				12. TOTAL SAMPLES 4		DISTURBED 0 UNDISTURBED (UD)	
5. DIRECTION OF BORING <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED		DEG. FROM VERTICAL		13. TOTAL NUMBER CORE BOXES			
		BEARING		14. WATER DEPTH 57.9 Ft.			
6. THICKNESS OF OVERBURDEN N/A				15. DATE BORING 01-31-14		STARTED 01-31-14 COMPLETED 01-31-14	
7. DEPTH DRILLED INTO ROCK N/A				16. ELEVATION TOP OF BORING -58.0 Ft.			
8. TOTAL DEPTH OF BORING 10.7 Ft.				17. TOTAL RECOVERY FOR BORING 100%			
				18. SIGNATURE AND TITLE OF INSPECTOR Tom Powers, Geologist			

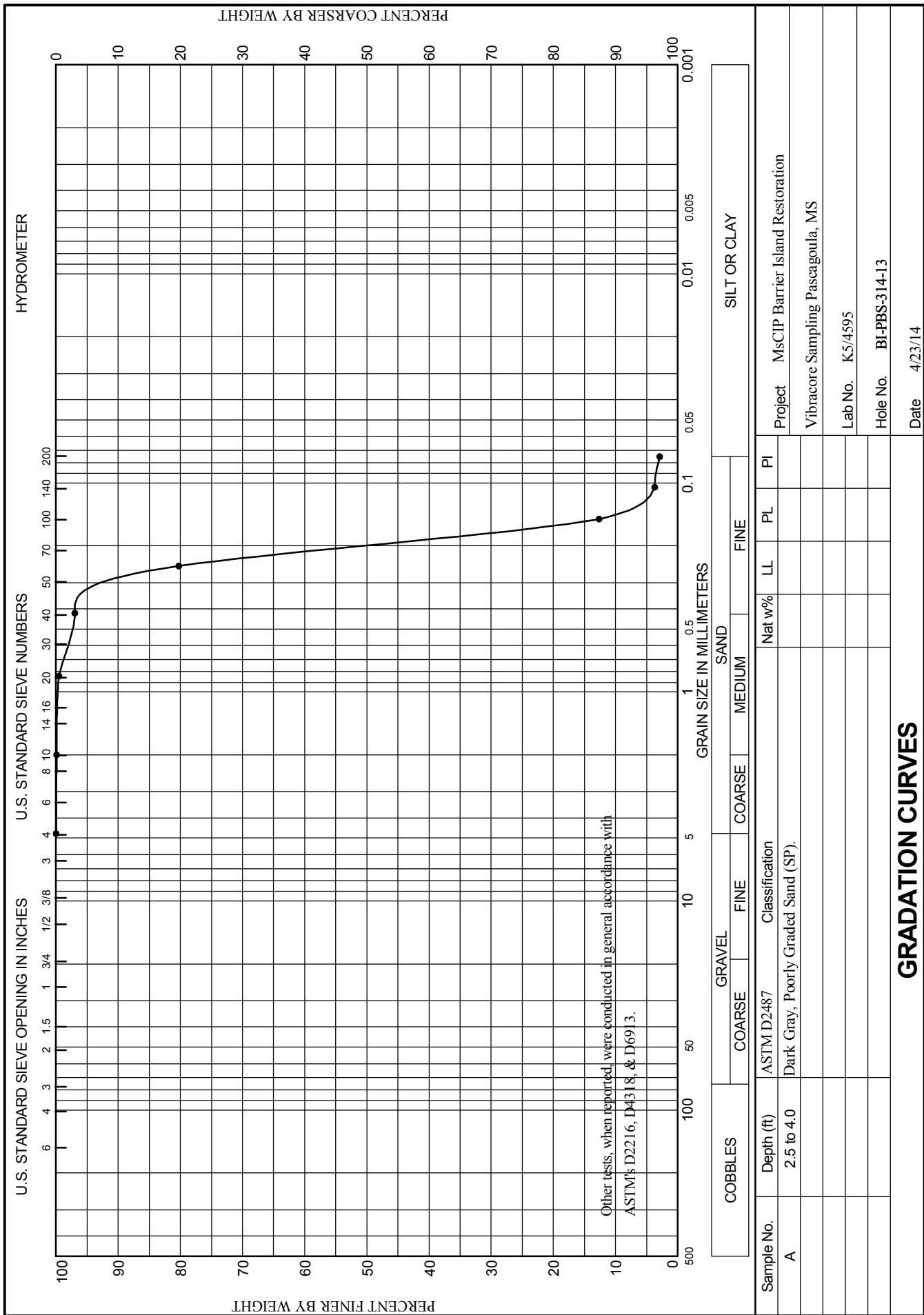
  

ELEV.	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS	SAMPLE	LABORATORY RESULTS
-58.0	0.0				
-59.6	1.6		CLAY, lean, few shell fragments, sandy, trace wood 0.95 to 1.1 ft. depth, medium gray (CL)	NS	
-59.9	1.9				
-60.5	2.5		SAND, silty, apparent gap - material is SM and wood fragments - liquefied?, brownish gray (SM)	A	Classification: SP Color: 10Y 7/1-light greenish gray D50: 0.198 mm % Fines: 2.9
-62.0	4.0		SAND, silty, mostly fine-grained sand-sized quartz, medium gray (SM)	B	Classification: SP Color: 10Y 7/1-light greenish gray D50: 0.216 mm % Fines: 4.5
-63.3	5.3				
-64.0	6.0		SAND, poorly-graded, mostly fine-grained sand-sized quartz, trace shell fragments, lt. to medium gray (SP)	C	Classification: SP Color: 10Y 7/1-light greenish gray D50: 0.236 mm % Fines: 3.9
			SAND, silty, mostly fine-grained sand-sized quartz, trace shell fragments, lt. to medium gray (SM)	D	Classification: SP-SM Color: 10Y 7/1-light greenish gray D50: 0.195 mm % Fines: 6.5
-68.7	10.7		SAND, poorly-graded with silt, mostly fine-grained sand-sized quartz, trace shell fragments, lt. to medium gray (SP-SM)	NS	
			SAND, silty, mostly fine-grained sand-sized quartz, trace shell fragments, trace wood 7.7 to 7.8 ft. depth, medium gray (SM) At El. -66.0 Ft., mostly fine-grained sand-sized quartz, few shell fragments, high fines content, medium gray		
NOTES: 1. Soils are field visually classified in accordance with the Unified Soils Classification System. 2. NS = Sample not submitted for laboratory analysis from this interval. 3. Seafloor elevation calculated using sampling vessel's fathometer water depth reading and applying NOAA tidal gauge data conversion factor.					



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WORK ORDER: 848e  
REQUISITION: W33SJC32900192

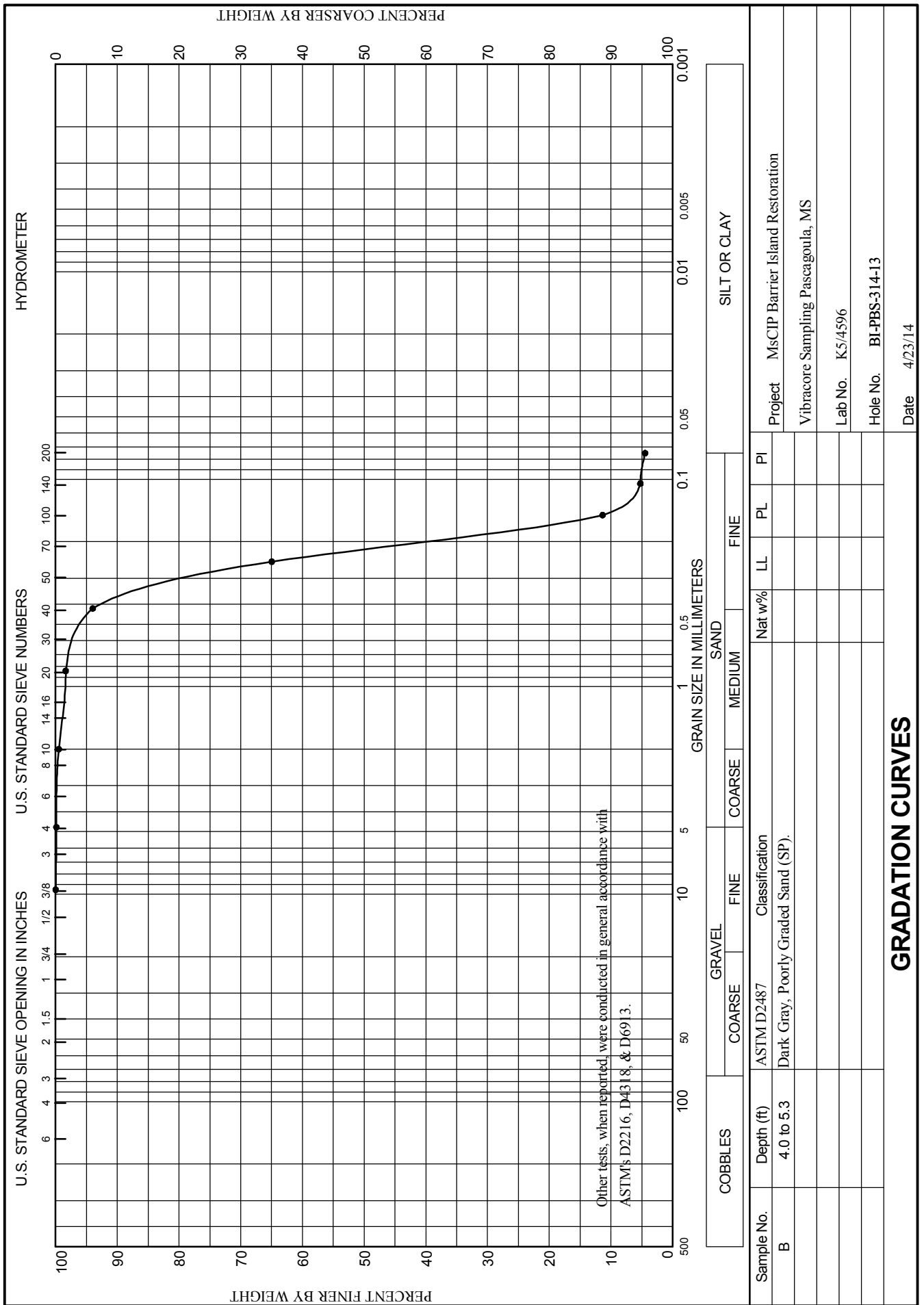




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WORK ORDER: 848e

REQUISITION: W33SJC32900192

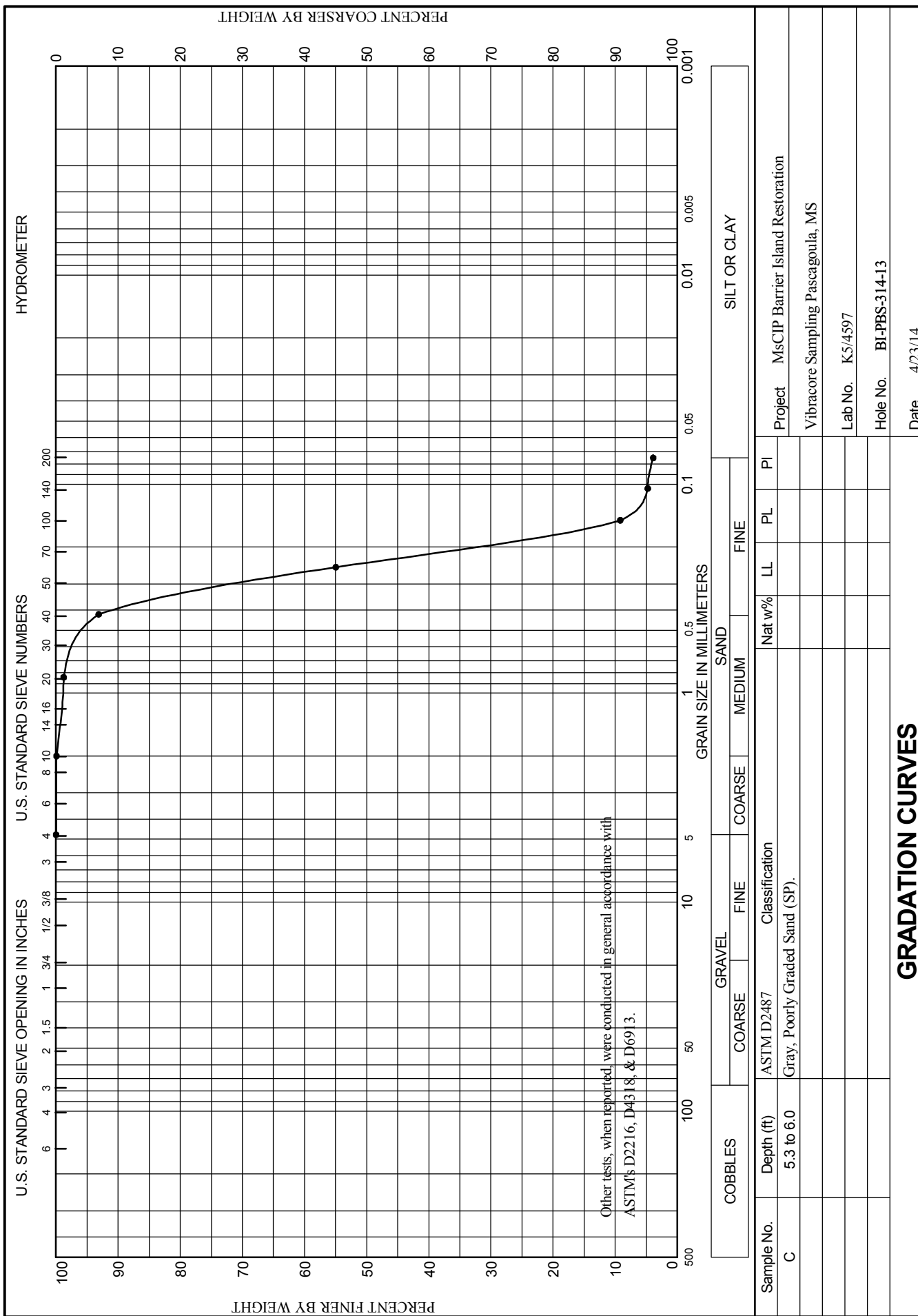




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CORPS OF ENGINEERS, 200 N. COBB PARKWAY, BLDG 400 SUITE 404, MARIETTA, GA. 30062

WORK ORDER: 848e

REQUISITION: W33SJC32900192

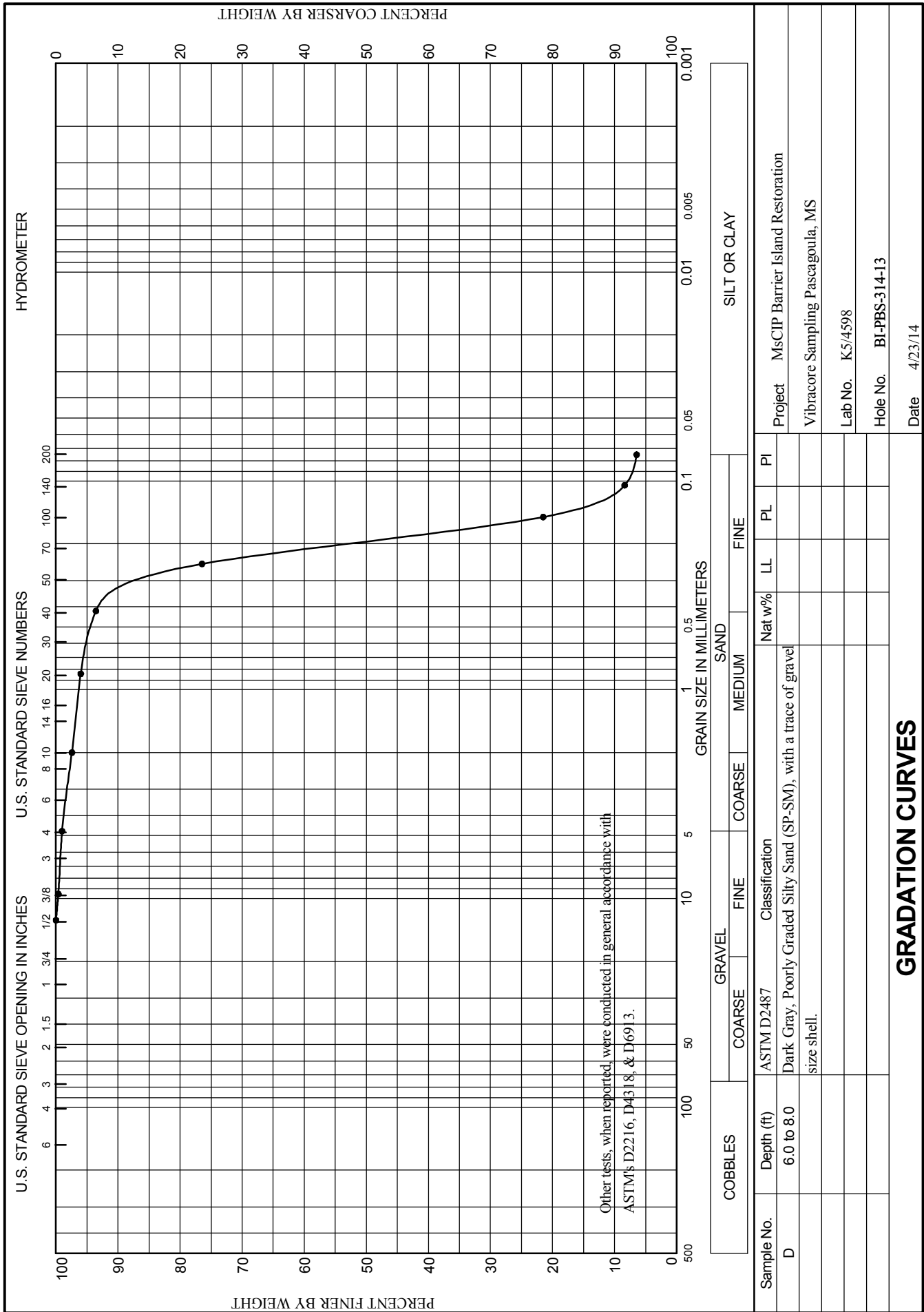




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CORPS OF ENGINEERS, 200 N. COBB PARKWAY, BLDG 400 SUITE 404, MARIETTA, GA. 30062

WORK ORDER: 848e

REQUISITION: W33SJG32900192



# Boring Designation BI-PBS-315-13

DRILLING LOG		DIVISION South Atlantic		INSTALLATION Mobile District		SHEET 1 OF 1 SHEETS	
1. PROJECT MsCIP Barrier Island Restoration Petit Bois Pass-OCS West				9. SIZE AND TYPE OF BIT N/A			
2. BORING DESIGNATION BI-PBS-315-13		LOCATION COORDINATES E = 1,114,189 N = 235,450		10. COORDINATE SYSTEM/DATUM State Plane, MSE (U.S. Ft.)		HORIZONTAL NAD83	
3. DRILLING AGENCY Corps of Engineers - CESAM		CONTRACTOR FILE NO.		11. MANUFACTURER'S DESIGNATION OF DRILL Vibrocure		<input type="checkbox"/> AUTO HAMMER <input type="checkbox"/> MANUAL HAMMER	
4. NAME OF DRILLER Construction Solutions International, Inc.				12. TOTAL SAMPLES		DISTURBED 1	
5. DIRECTION OF BORING <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED				13. TOTAL NUMBER CORE BOXES		UNDISTURBED (UD) 0	
6. THICKNESS OF OVERBURDEN N/A				14. WATER DEPTH		55.3 Ft.	
7. DEPTH DRILLED INTO ROCK N/A				15. DATE BORING		STARTED 02-01-14	
8. TOTAL DEPTH OF BORING 18.6 Ft.				16. ELEVATION TOP OF BORING		COMPLETED 02-01-14	
				17. TOTAL RECOVERY FOR BORING		100%	
				18. SIGNATURE AND TITLE OF INSPECTOR Tom Powers, Geologist			

ELEV.	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS	SAMPLE	LABORATORY RESULTS
-54.3	0.0				
-58.8	4.5		CLAY, lean, trace shell fragments, sandy, interbedded with SC layers up to 1" thick to depth of 4.5 ft., soft to 4.0 ft., firm to 4.5 ft. depth, medium gray (CL)	NS	
-59.8	5.5		SAND, silty, mostly fine-grained sand-sized quartz, trace clay at 4.8 ft. depth, lt. gray (SM)		
-70.3	16.0		SAND, poorly-graded, mostly fine to medium-grained sand-sized quartz, trace shell fragments, trace clay at 7.0 ft. depth, lt. gray (SP)	A	Classification: SP Color: 2.5Y 6/1-gray D50: 0.221 mm % Fines: 2.3
-72.9	18.6		SAND, silty, mostly fine-grained sand-sized quartz, trace shell fragments, low silt content, lt. to medium gray (SM)	NS	
NOTES: 1. Soils are field visually classified in accordance with the Unified Soils Classification System. 2. NS = Sample not submitted for laboratory analysis from this interval. 3. Seafloor elevation determined from 10/29/2014 USACE survey.					

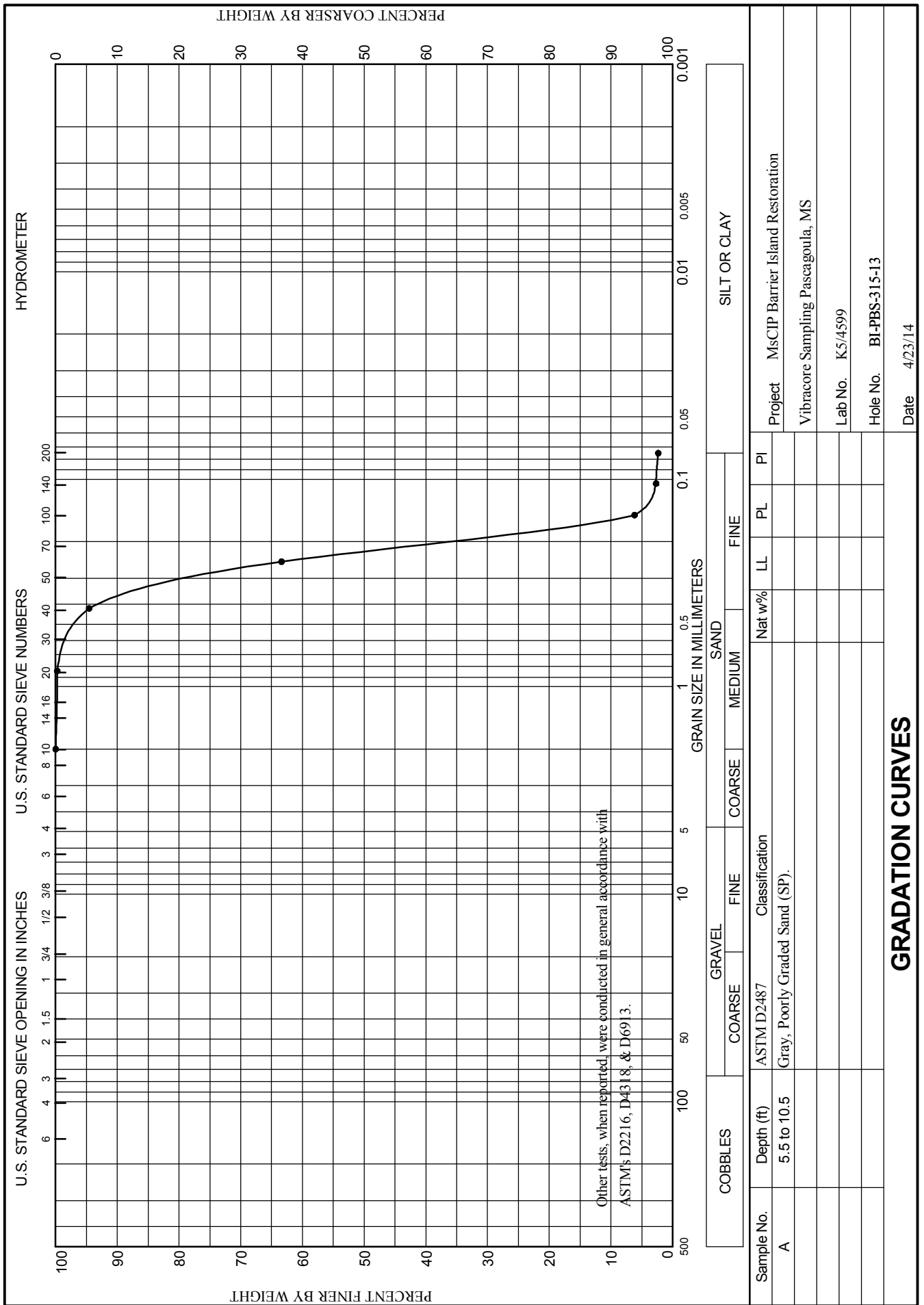




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CORPS OF ENGINEERS, 200 N. COBB PARKWAY, BLDG 400 SUITE 404, MARIETTA, GA. 30062

WORK ORDER: 848e

REQUISITION: W33SJC32900192



# Boring Designation BI-PBS-316-13

DRILLING LOG		DIVISION South Atlantic		INSTALLATION Mobile District		SHEET 1 OF 1 SHEETS	
1. PROJECT MsCIP Barrier Island Restoration Petit Bois Pass-OCS West				9. SIZE AND TYPE OF BIT N/A			
2. BORING DESIGNATION BI-PBS-316-13		LOCATION COORDINATES E = 1,113,143 N = 235,497		10. COORDINATE SYSTEM/DATUM State Plane, MSE (U.S. Ft.)		HORIZONTAL NAD83	
3. DRILLING AGENCY Corps of Engineers - CESAM		CONTRACTOR FILE NO.		11. MANUFACTURER'S DESIGNATION OF DRILL Vibrocure		<input type="checkbox"/> AUTO HAMMER <input type="checkbox"/> MANUAL HAMMER	
4. NAME OF DRILLER Construction Solutions International, Inc.				12. TOTAL SAMPLES 4		UNDISTURBED (UD) 0	
5. DIRECTION OF BORING <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED				13. TOTAL NUMBER CORE BOXES		14. WATER DEPTH 54 Ft.	
6. THICKNESS OF OVERBURDEN N/A				15. DATE BORING 02-02-14		COMPLETED 02-02-14	
7. DEPTH DRILLED INTO ROCK N/A				16. ELEVATION TOP OF BORING -52.4 Ft.		17. TOTAL RECOVERY FOR BORING 100%	
8. TOTAL DEPTH OF BORING 19.4 Ft.				18. SIGNATURE AND TITLE OF INSPECTOR Tom Powers, Geologist			

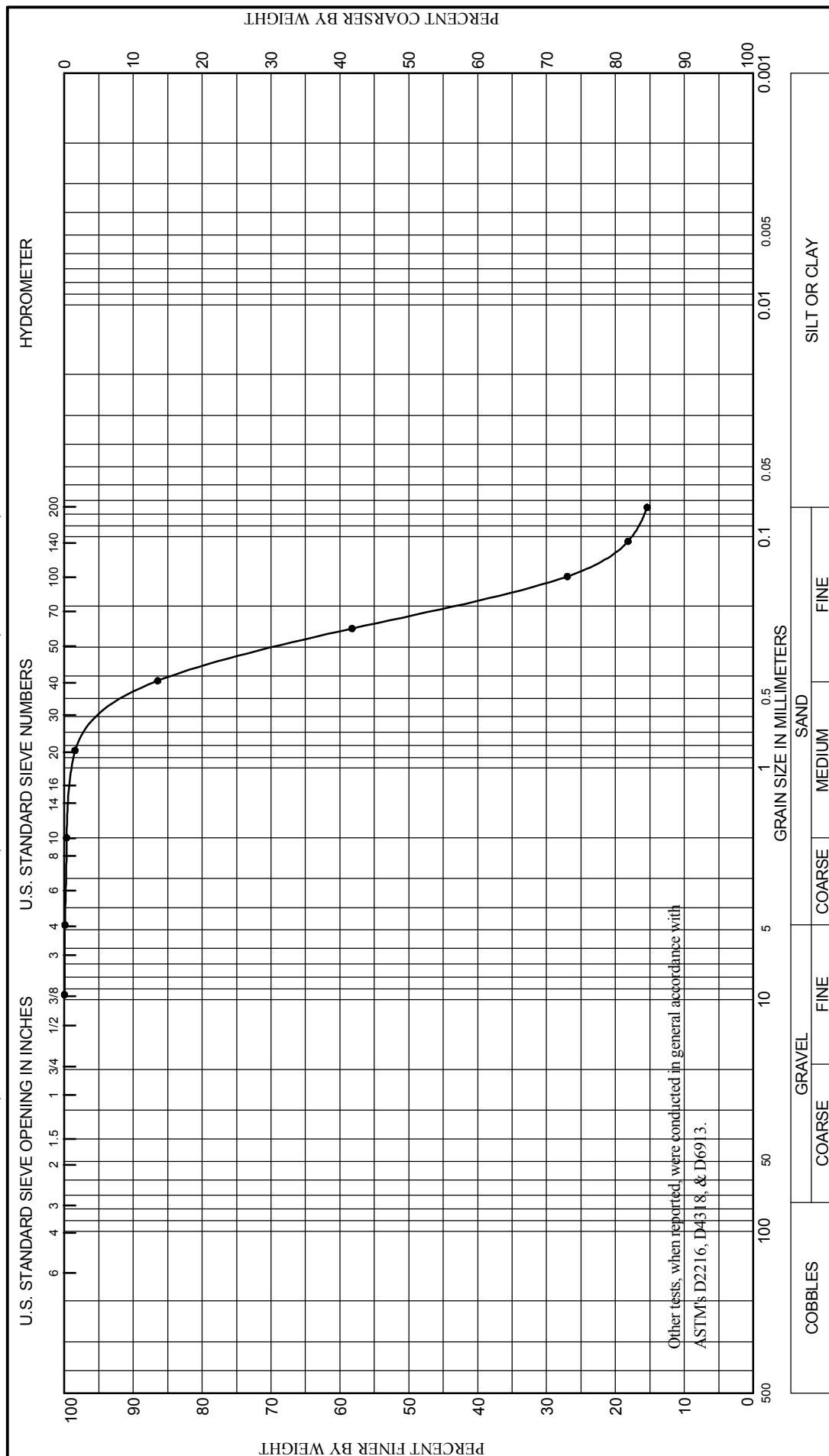
  

ELEV.	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS	SAMPLE	LABORATORY RESULTS
-52.4	0.0				
			SAND, silty, clayey, mostly fine to medium-grained sand-sized quartz, few shell fragments, medium gray (SC-SM)	A	Classification: SM Color: 10Y 5/1-greenish gray D50: 0.218 mm % Fines: 15.4
-56.5	4.1				
-57.6	5.2		CLAY, lean, sandy, medium gray (CL)	NS	
-58.7	6.3		SAND, silty, mostly fine to medium-grained sand-sized quartz, medium gray (SM)	B	Classification: SP-SM Color: 10Y 5/1-greenish gray D50: 0.217 mm % Fines: 10.9
-59.7	7.3			NS	
-60.2	7.8		CLAY, lean, soft, medium gray (CL)		
			SAND, silty, mostly fine to medium-grained sand-sized quartz, medium dark gray (SM)		
			SAND, poorly-graded with silt, mostly fine to medium-grained sand-sized quartz, lt. to medium gray (SP-SM)	C	Classification: SP Color: 10Y 5/1-greenish gray D50: 0.217 mm % Fines: 4.7
				D	Classification: SP Color: 10Y 6/1-greenish gray D50: 0.201 mm % Fines: 4.2
-71.8	19.4				
NOTES:					
1. Soils are field visually classified in accordance with the Unified Soils Classification System.					
2. NS = Sample not submitted for laboratory analysis from this interval.					
3. Seafloor elevation determined from 12/17/2014 USACE survey.					



WORK ORDER: 848e

REQUISITION: W33SJG32900192

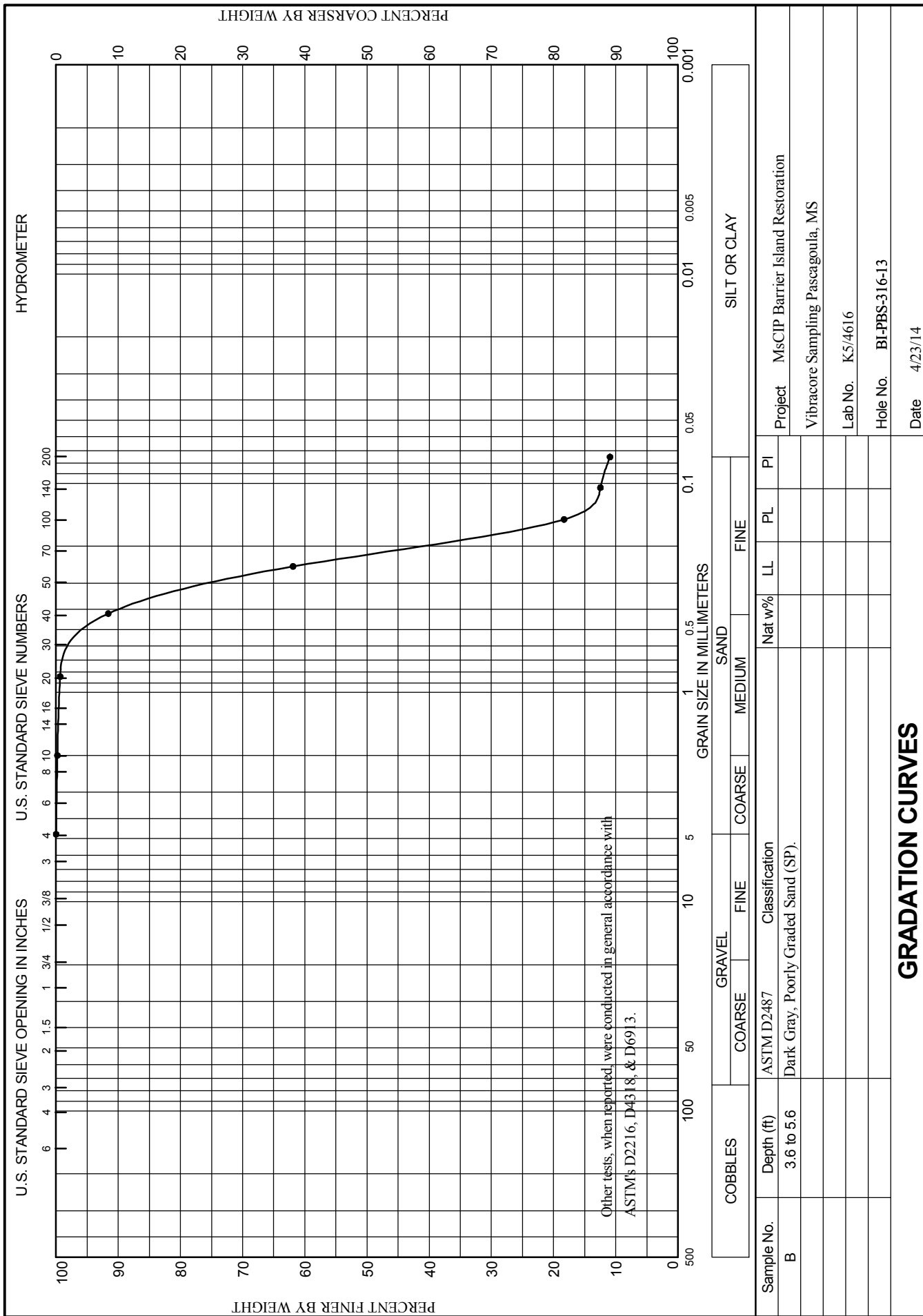
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WORK ORDER: 848e

REQUISITION: W33SJC32900192

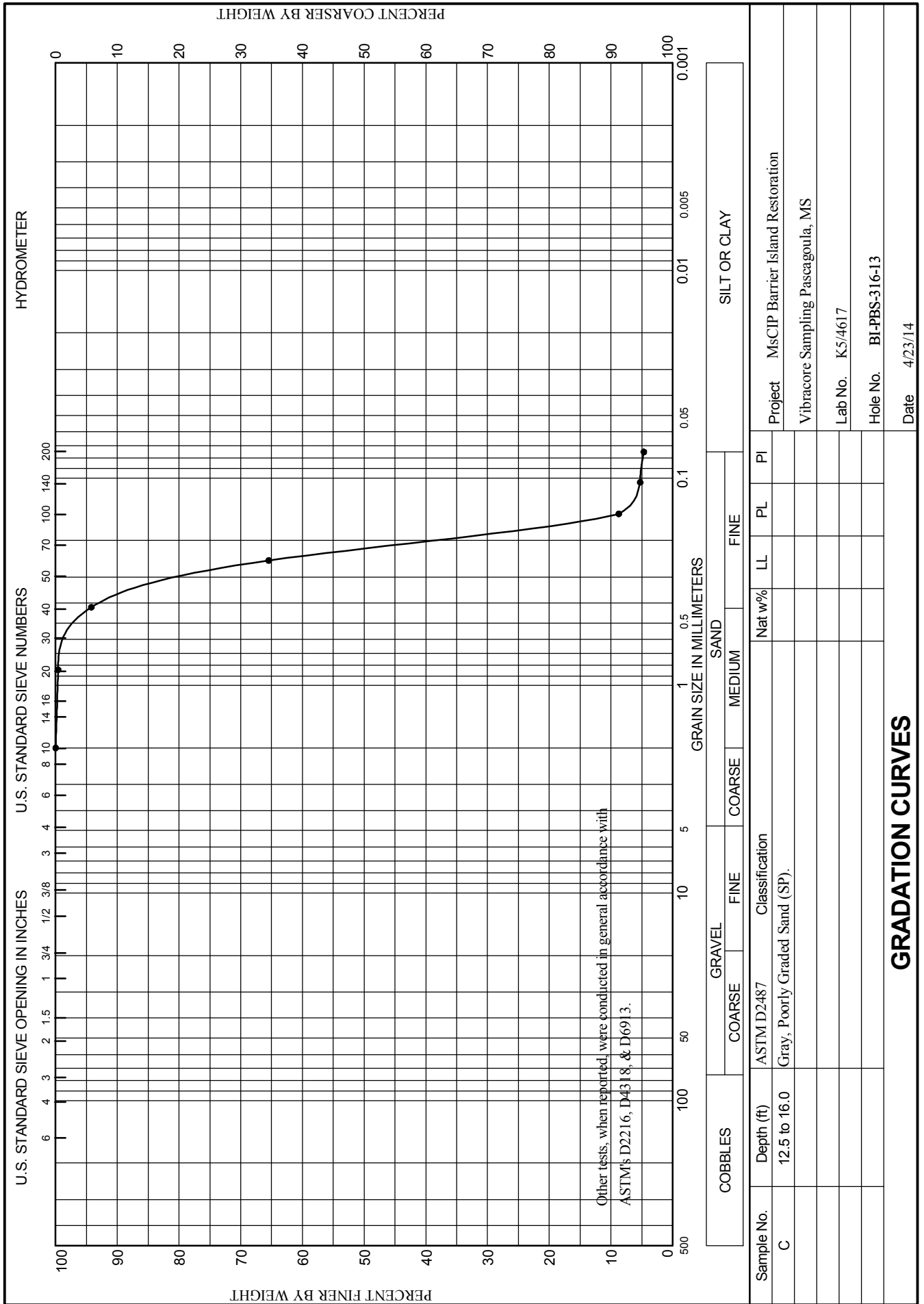




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WORK ORDER: 848e

REQUISITION: W33SJC32900192

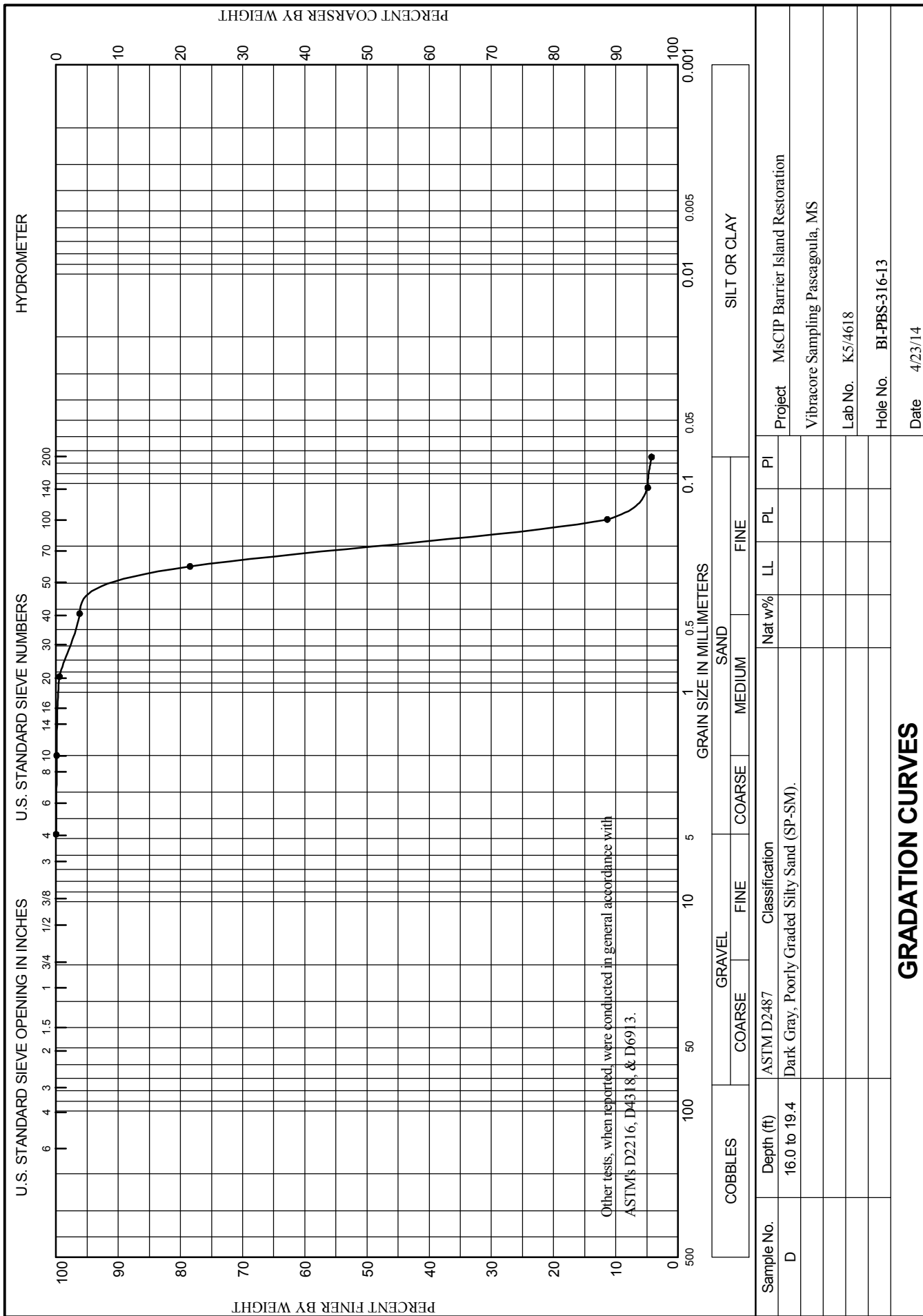




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CORPS OF ENGINEERS, 200 N. COBB PARKWAY, BLDG 400 SUITE 404, MARIETTA, GA. 30062

WORK ORDER: 848e

REQUISITION: W33SJC32900192



# Boring Designation BI-PBS-317-13

DRILLING LOG		DIVISION South Atlantic		INSTALLATION Mobile District		SHEET 1 OF 1 SHEETS	
1. PROJECT MsCIP Barrier Island Restoration Petit Bois Pass-OCS West				9. SIZE AND TYPE OF BIT N/A			
2. BORING DESIGNATION BI-PBS-317-13		LOCATION COORDINATES E = 1,112,080 N = 236,613		10. COORDINATE SYSTEM/DATUM State Plane, MSE (U.S. Ft.)		HORIZONTAL NAD83	
3. DRILLING AGENCY Corps of Engineers - CESAM		CONTRACTOR FILE NO.		11. MANUFACTURER'S DESIGNATION OF DRILL Vibracore		<input type="checkbox"/> AUTO HAMMER <input type="checkbox"/> MANUAL HAMMER	
4. NAME OF DRILLER Construction Solutions International, Inc.				12. TOTAL SAMPLES 0		DISTURBED 0	
5. DIRECTION OF BORING <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED				13. TOTAL NUMBER CORE BOXES		14. WATER DEPTH 53 Ft.	
6. THICKNESS OF OVERBURDEN N/A				15. DATE BORING 02-01-14		STARTED 02-01-14	
7. DEPTH DRILLED INTO ROCK N/A				16. ELEVATION TOP OF BORING -51.7 Ft.		COMPLETED 02-01-14	
8. TOTAL DEPTH OF BORING 18.7 Ft.				17. TOTAL RECOVERY FOR BORING 100%		18. SIGNATURE AND TITLE OF INSPECTOR Tom Powers, Geologist	

ELEV.	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS	SAMPLE	LABORATORY RESULTS
-51.7	0.0				
-52.4	0.7		SAND, silty, mostly fine-grained sand-sized quartz, few shell fragments, medium gray (SM)		
-53.6	1.9		CLAY, lean, trace shell fragments, sandy, soft, medium dark gray (CL)		
-56.0	4.3		SAND, clayey, mostly fine-grained sand-sized quartz, few shell fragments, medium dark gray (SC)		
-56.9	5.2		CLAY, lean, brownish medium gray (CL)		
-57.5	5.8		SAND, clayey, dark gray (SC)		
-58.2	6.5		SAND, poorly-graded, mostly fine to medium-grained sand-sized quartz, trace shell fragments, lt. gray (SP)		
-59.9	8.2		SAND, silty, mostly fine-grained sand-sized quartz, medium gray (SM)		
-60.5	8.8		SAND, poorly-graded, lt. gray (SP)		
-61.2	9.5		SAND, poorly-graded with silt, lt. to medium gray (SP-SM)		
-63.7	12.0		SAND, poorly-graded, lt. to medium gray (SP)		
-66.7	15.0		SAND, poorly-graded with silt, lt. to medium gray (SP-SM)		
-68.4	16.7		SAND, silty, medium gray (SM)		
-70.4	18.7		SAND, clayey, medium gray (SC)		
			NOTES:		
			1. Soils are field visually classified in accordance with the Unified Soils Classification System.		
			2. NS = Sample not submitted for laboratory analysis from this interval.		
			3. Seafloor elevation determined from 2013 USGS geophysical survey.		

# Boring Designation BI-PBS-318-13

DRILLING LOG		DIVISION South Atlantic		INSTALLATION Mobile District		SHEET 1 OF 1 SHEETS	
1. PROJECT MsCIP Barrier Island Restoration Petit Bois Pass-OCS West				9. SIZE AND TYPE OF BIT N/A			
2. BORING DESIGNATION BI-PBS-318-13		LOCATION COORDINATES E = 1,111,771 N = 237,329		10. COORDINATE SYSTEM/DATUM State Plane, MSE (U.S. Ft.)		HORIZONTAL NAD83	
3. DRILLING AGENCY Corps of Engineers - CESAM		CONTRACTOR FILE NO.		11. MANUFACTURER'S DESIGNATION OF DRILL Vibrocure		<input type="checkbox"/> AUTO HAMMER <input type="checkbox"/> MANUAL HAMMER	
4. NAME OF DRILLER Construction Solutions International, Inc.				12. TOTAL SAMPLES 2		DISTURBED 2	
5. DIRECTION OF BORING <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED				13. TOTAL NUMBER CORE BOXES		UNDISTURBED (UD) 0	
6. THICKNESS OF OVERBURDEN N/A				14. WATER DEPTH 54.3 Ft.		15. DATE BORING 02-01-14	
7. DEPTH DRILLED INTO ROCK N/A				16. ELEVATION TOP OF BORING -55.2 Ft.		17. TOTAL RECOVERY FOR BORING 100%	
8. TOTAL DEPTH OF BORING 19.1 Ft.				18. SIGNATURE AND TITLE OF INSPECTOR Tom Powers, Geologist			
ELEV.	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS	SAMPLE	LABORATORY RESULTS		
-55.2	0.0						
-57.5	2.3		CLAY, lean, sandy, firm, contains 0.25 ft. of wood, lt. to dark gray (CL)	NS			
-58.2	3.0		SAND, clayey, medium gray (SC)				
-63.2	8.0		SAND, poorly-graded with silt, mostly fine to medium-grained sand-sized quartz, trace shell fragments, trace wood 6.0 - 6.8 ft., lt. to medium gray (SP-SM)	A	Classification: SP Color: 10Y 7/1-light greenish gray D50: 0.216 mm % Fines: 2.9		
-68.2	13.0		SAND, silty, mostly fine-grained sand-sized quartz, lt. to medium gray (SM)	B	Classification: SP Color: 10Y 7/1-light greenish gray D50: 0.194 mm % Fines: 2.7		
-69.5	14.3		SAND, silty, clayey, mostly fine-grained sand-sized quartz, medium gray (SC-SM)	NS			
-74.3	19.1		SAND, silty, mostly fine-grained sand-sized quartz, little shell fragments, trace clay at 16.6 and 17.8 ft., medium to dark gray (SM)	NS			
NOTES: 1. Soils are field visually classified in accordance with the Unified Soils Classification System. 2. NS = Sample not submitted for laboratory analysis from this interval. 3. Seafloor elevation determined from 2013 USGS geophysical survey.							

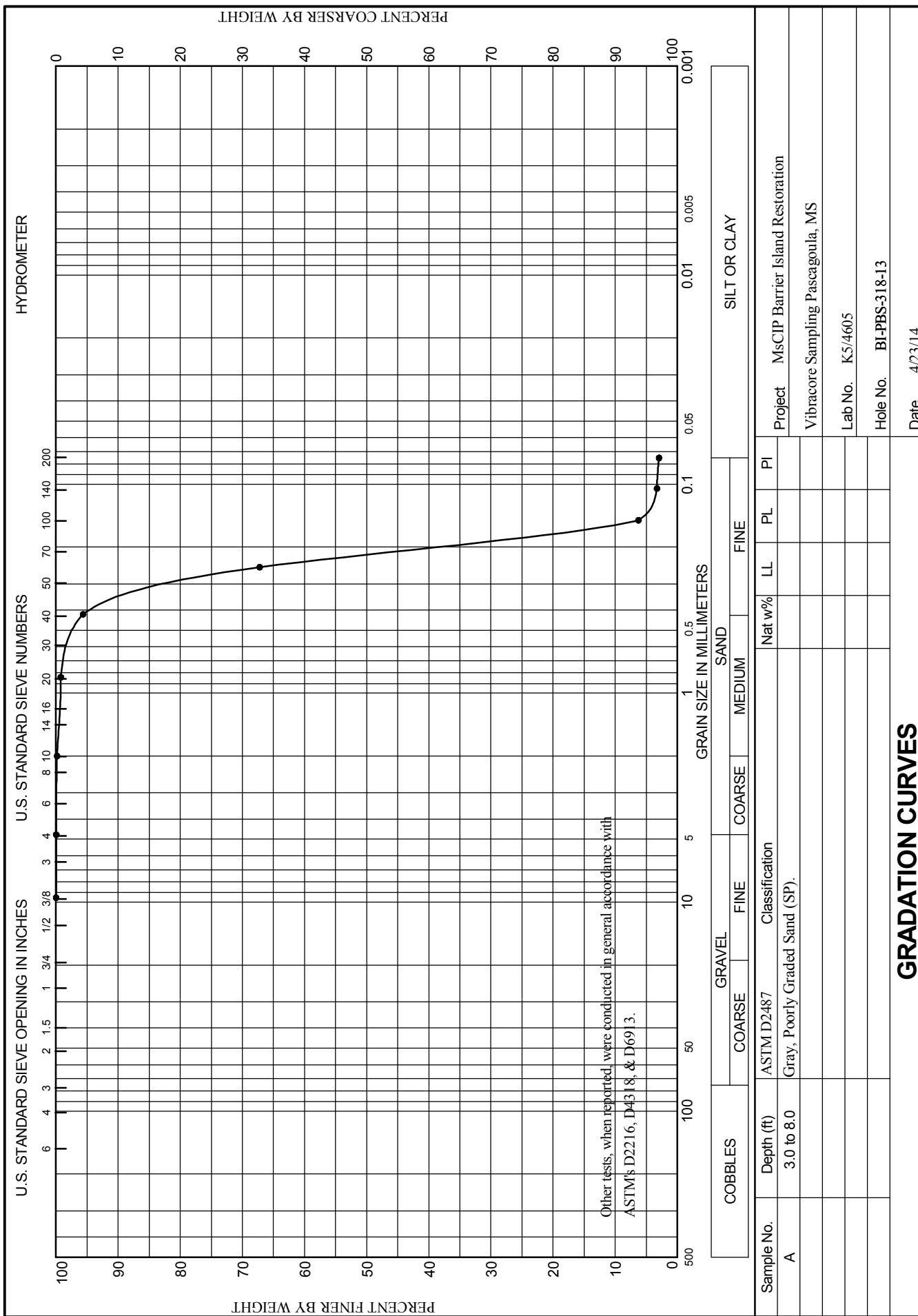




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CORPS OF ENGINEERS, 200 N. COBB PARKWAY, BLDG 400 SUITE 404, MARIETTA, GA. 30062

WORK ORDER: 848e

REQUISITION: W33SJC32900192

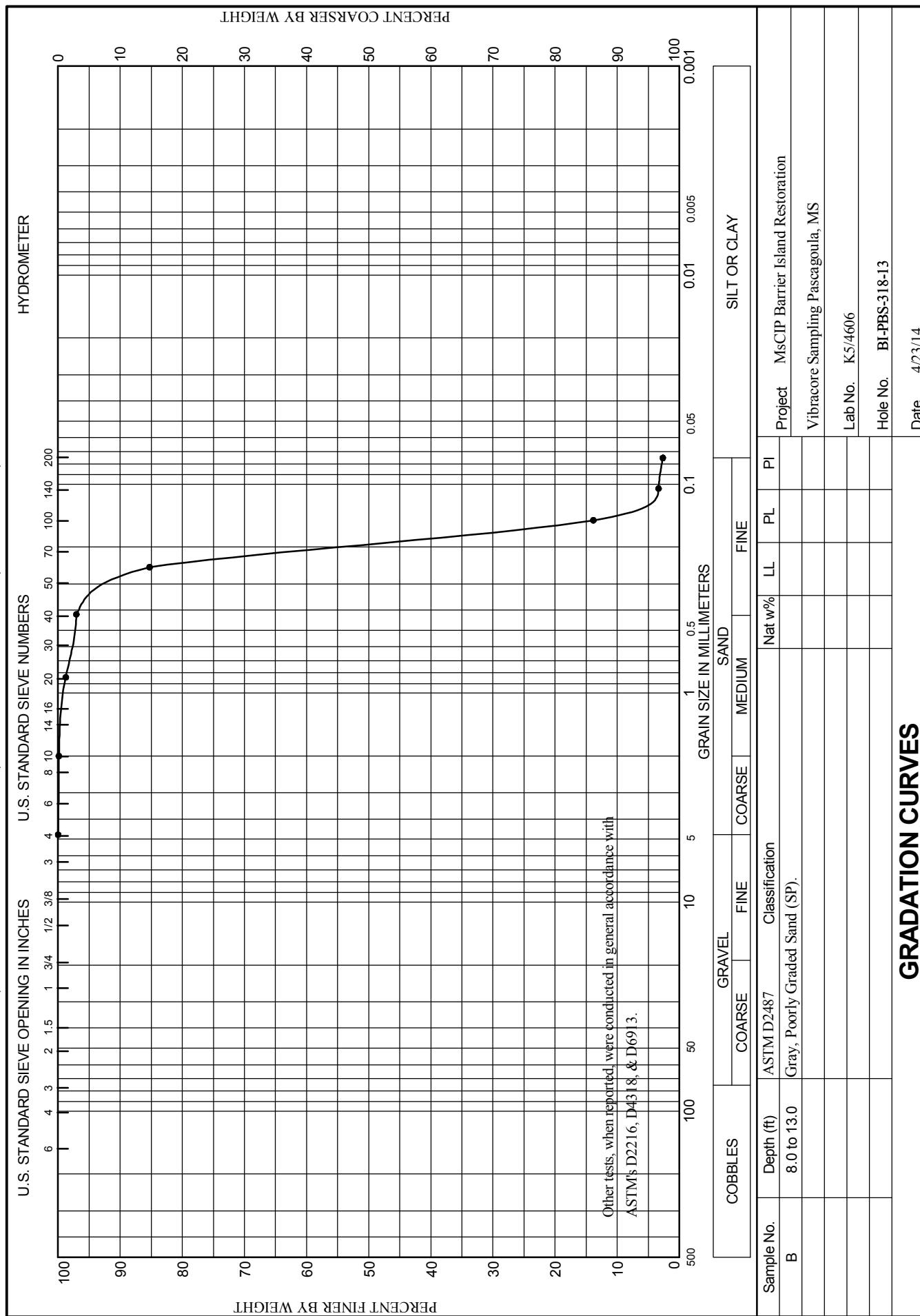




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CORPS OF ENGINEERS, 200 N. COBB PARKWAY, BLDG 400 SUITE 404, MARIETTA, GA. 30062

WORK ORDER: 848e

REQUISITION: W33SJC32900192



# Boring Designation BI-PBS-319-13

DRILLING LOG		DIVISION South Atlantic		INSTALLATION Mobile District		SHEET 1 OF 1 SHEETS	
1. PROJECT MsCIP Barrier Island Restoration Petit Bois Pass-OCS West				9. SIZE AND TYPE OF BIT N/A			
2. BORING DESIGNATION BI-PBS-319-13		LOCATION COORDINATES E = 1,117,908 N = 235,816		10. COORDINATE SYSTEM/DATUM State Plane, MSE (U.S. Ft.)		HORIZONTAL NAD83 VERTICAL NAVD88	
3. DRILLING AGENCY Corps of Engineers - CESAM		CONTRACTOR FILE NO.		11. MANUFACTURER'S DESIGNATION OF DRILL Vibrocure		<input type="checkbox"/> AUTO HAMMER <input type="checkbox"/> MANUAL HAMMER	
4. NAME OF DRILLER Construction Solutions International, Inc.				12. TOTAL SAMPLES 3		DISTURBED 3 UNDISTURBED (UD) 0	
5. DIRECTION OF BORING <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED		DEG. FROM VERTICAL		13. TOTAL NUMBER CORE BOXES			
		BEARING		14. WATER DEPTH 55.3 Ft.			
6. THICKNESS OF OVERBURDEN N/A				15. DATE BORING 02-08-14		STARTED 02-08-14 COMPLETED 02-08-14	
7. DEPTH DRILLED INTO ROCK N/A				16. ELEVATION TOP OF BORING -55.3 Ft.			
8. TOTAL DEPTH OF BORING 16.9 Ft.				17. TOTAL RECOVERY FOR BORING 100%			
				18. SIGNATURE AND TITLE OF INSPECTOR Tom Powers, Geologist			

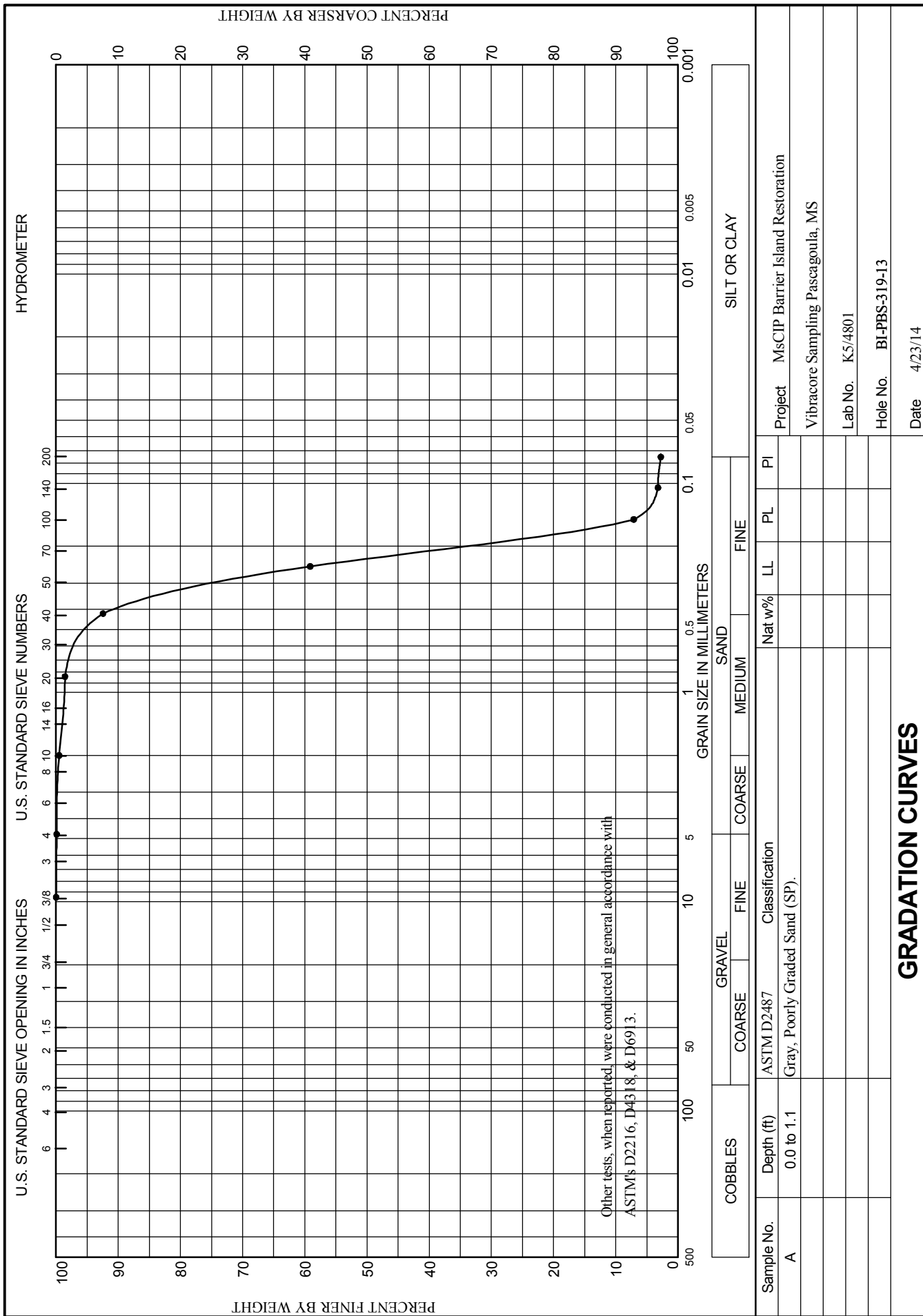
ELEV.	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS	SAMPLE	LABORATORY RESULTS
-55.3	0.0				
-56.4	1.1		SAND, poorly-graded, mostly fine-grained sand-sized quartz, few shell fragments, lt. gray (SP)	A	Classification: SP Color: 2.5Y 6/1-gray D50: 0.228 mm % Fines: 2.8
-58.8	3.5		SAND, poorly-graded with silt, mostly fine to medium-grained sand-sized quartz, few shell fragments, lt. gray (SP-SM)	B	Classification: SP Color: 2.5Y 6/1-gray D50: 0.214 mm % Fines: 3.7
			SAND, silty, mostly fine-grained sand-sized quartz, few shell fragments, lt. to medium gray (SM) At El. -58.9 Ft., trace clay At El. -60.8 Ft., high fines content to base of unit	C	Classification: SP Color: 2.5Y 6/1-gray D50: 0.194 mm % Fines: 4.8
-66.6	11.3			NS	
-67.4	12.1		SAND, clayey, mostly fine-grained sand-sized quartz, trace shell fragments, medium gray (SC)		
-68.4	13.1		CLAY, lean, trace shell fragments, sandy, medium gray (CL)		
-72.2	16.9		SAND, clayey, mostly fine-grained sand-sized quartz, trace shell fragments, medium gray (SC)		
NOTES: 1. Soils are field visually classified in accordance with the Unified Soils Classification System. 2. NS = Sample not submitted for laboratory analysis from this interval. 3. Seafloor elevation calculated using sampling vessel's fathometer water depth reading and applying NOAA tidal gauge data conversion factor.					



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REQUISITION: W33SJC32900192





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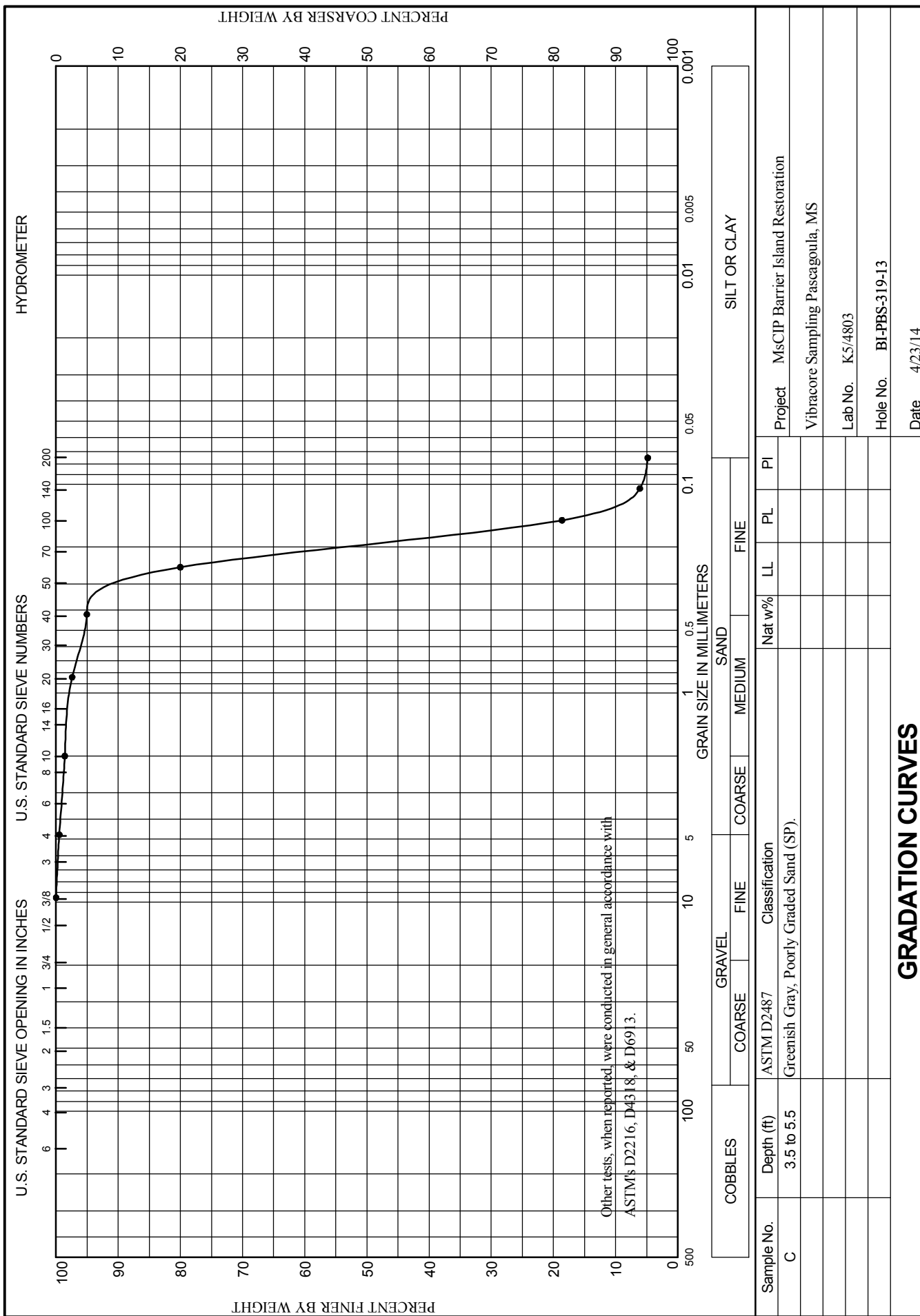




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WORK ORDER: 848e

REQUISITION: W33SJC32900192



# Boring Designation BI-PBS-321-13

<b>DRILLING LOG</b>		<b>DIVISION</b> South Atlantic	<b>INSTALLATION</b> Mobile District	<b>SHEET 1</b> <b>OF 1 SHEETS</b>
<b>1. PROJECT</b> MsCIP Barrier Island Restoration Petit Bois Pass-OCS West		<b>9. SIZE AND TYPE OF BIT</b> N/A		
<b>2. BORING DESIGNATION</b> BI-PBS-321-13		<b>10. COORDINATE SYSTEM/DATUM</b> State Plane, MSE (U.S. Ft.)		
<b>3. DRILLING AGENCY</b> Corps of Engineers - CESAM		<b>11. MANUFACTURER'S DESIGNATION OF DRILL</b> Vibrocure		
<b>4. NAME OF DRILLER</b> Construction Solutions International, Inc.		<b>12. TOTAL SAMPLES</b> 5		
<b>5. DIRECTION OF BORING</b> <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED		<b>13. TOTAL NUMBER CORE BOXES</b> 54 Ft.		
<b>6. THICKNESS OF OVERBURDEN</b> N/A		<b>14. WATER DEPTH</b> 54 Ft.		
<b>7. DEPTH DRILLED INTO ROCK</b> N/A		<b>15. DATE BORING</b> 02-01-14		
<b>8. TOTAL DEPTH OF BORING</b> 19.6 Ft.		<b>16. ELEVATION TOP OF BORING</b> -52.8 Ft.		
		<b>17. TOTAL RECOVERY FOR BORING</b> 100%		
		<b>18. SIGNATURE AND TITLE OF INSPECTOR</b> Tom Powers, Geologist		

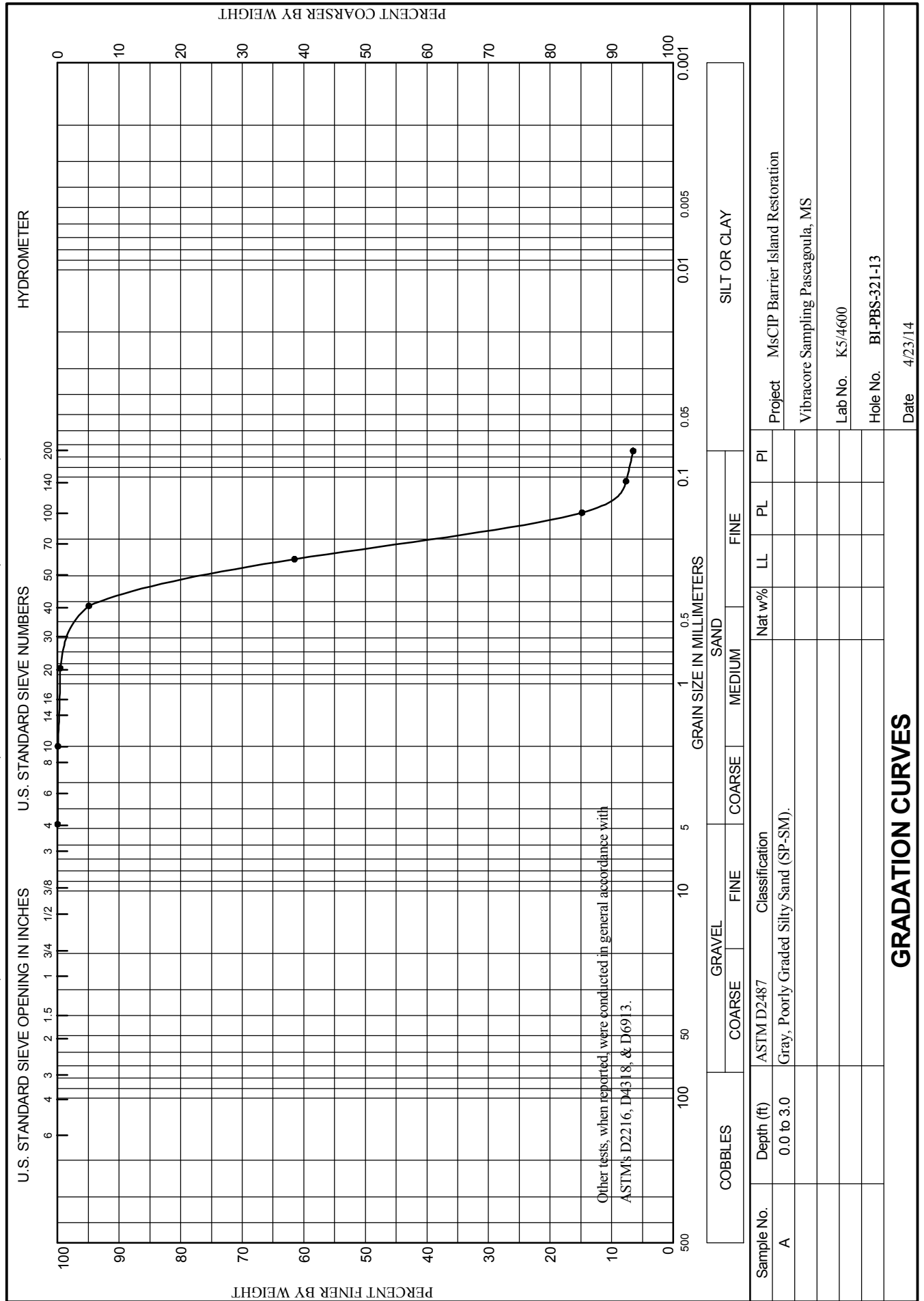
ELEV.	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS	SAMPLE	LABORATORY RESULTS
-52.8	0.0				
			SAND, silty, mostly fine-grained sand-sized quartz, trace shell fragments, medium gray (SM)	A	Classification: SP-SM Color: 10Y 7/1-light greenish gray D50: 0.22 mm % Fines: 6.5
				B	Classification: SP Color: 10Y 7/1-light greenish gray D50: 0.187 mm % Fines: 4.5
-59.1	6.3				
			SAND, poorly-graded, mostly fine to medium-grained sand-sized quartz, trace shell fragments, lt. to medium gray (SP)	C	Classification: SP Color: 10Y 7/1-light greenish gray D50: 0.222 mm % Fines: 3.8
				D	Classification: SP Color: 10Y 7/1-light greenish gray D50: 0.218 mm % Fines: 2.2
-68.8	16.0				
			SAND, silty, mostly fine-grained sand-sized quartz, few shell fragments, medium to dark gray (SM)	E	Classification: SP Color: 10Y 7/1-light greenish gray D50: 0.19 mm % Fines: 4.6
-72.4	19.6				
			NOTES: 1. Soils are field visually classified in accordance with the Unified Soils Classification System. 2. NS = Sample not submitted for laboratory analysis from this interval. 3. Seafloor elevation determined from 10/29/2014 USACE survey.		



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WORK ORDER: 848e

REQUISITION: W33SJC32900192



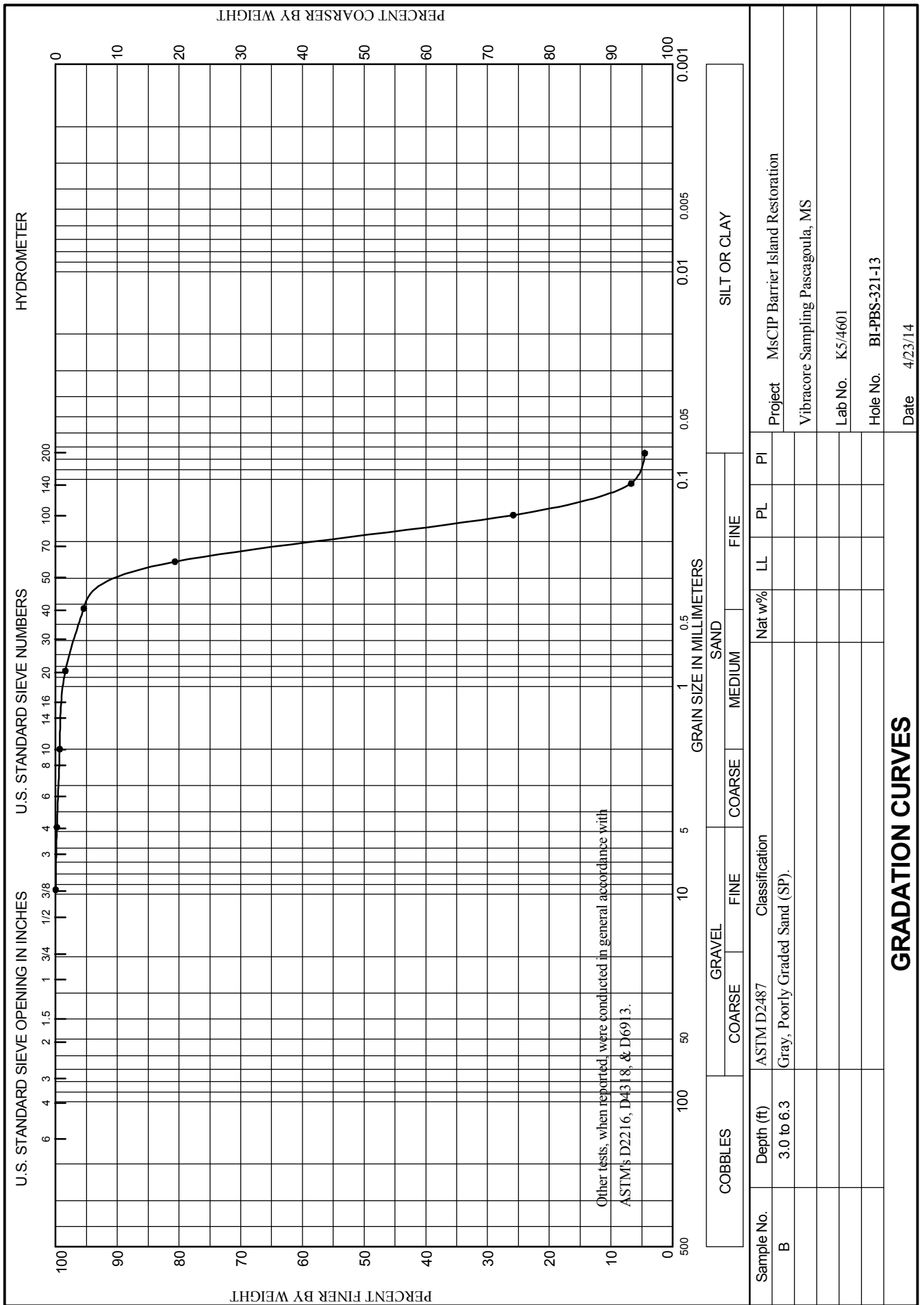




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WORK ORDER: 848e

REQUISITION: W33SJC32900192

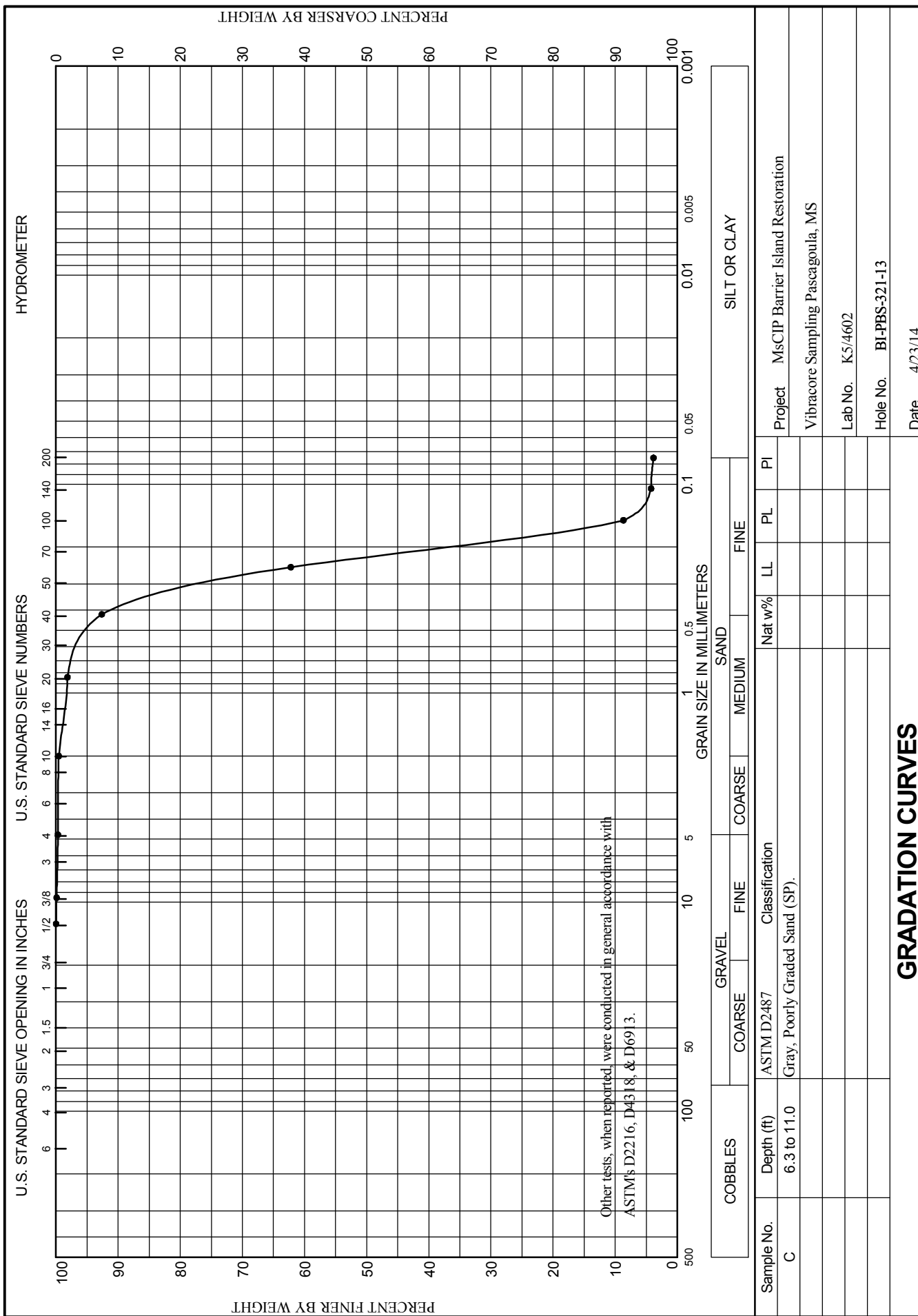




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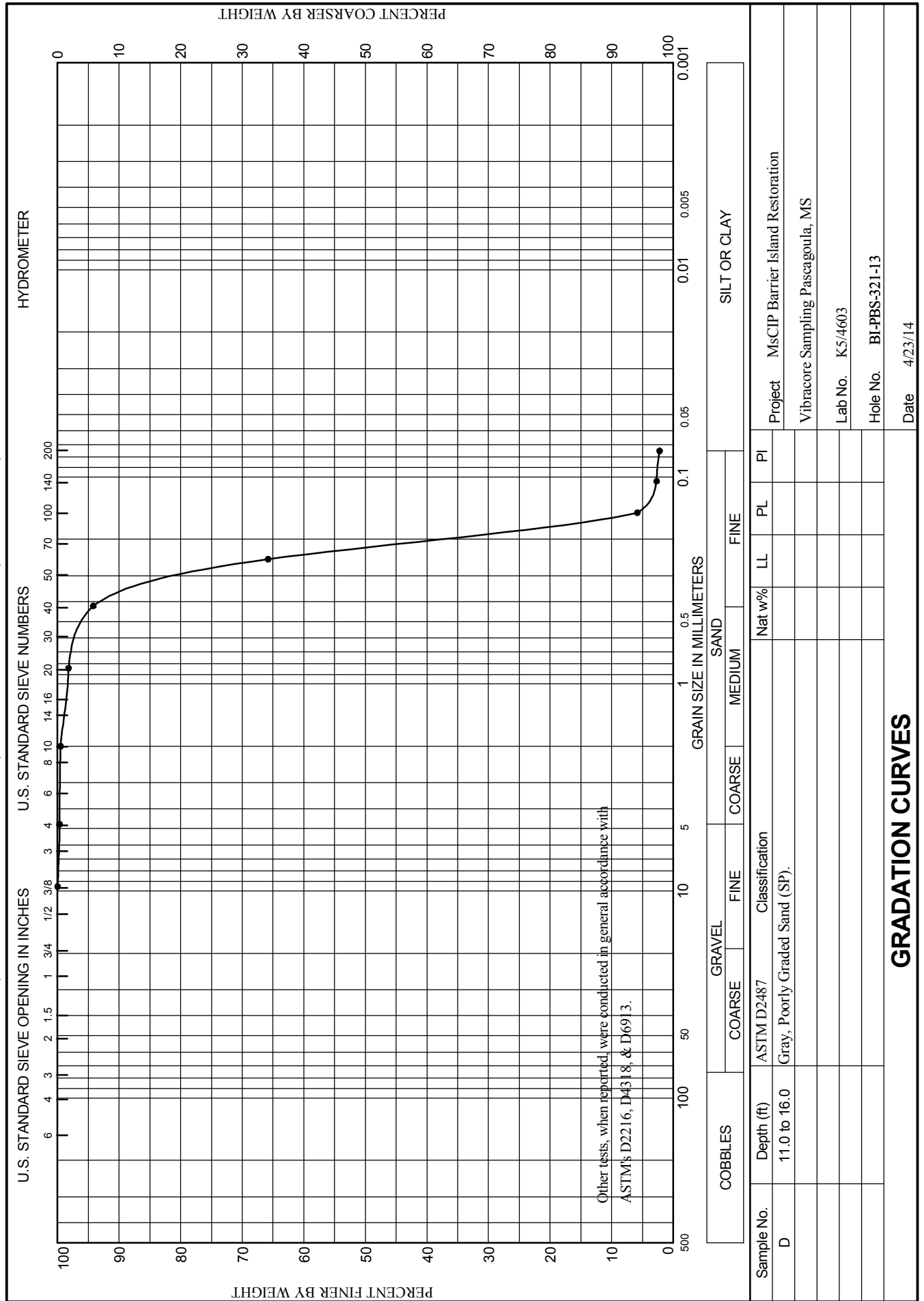
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WORK ORDER: 848e

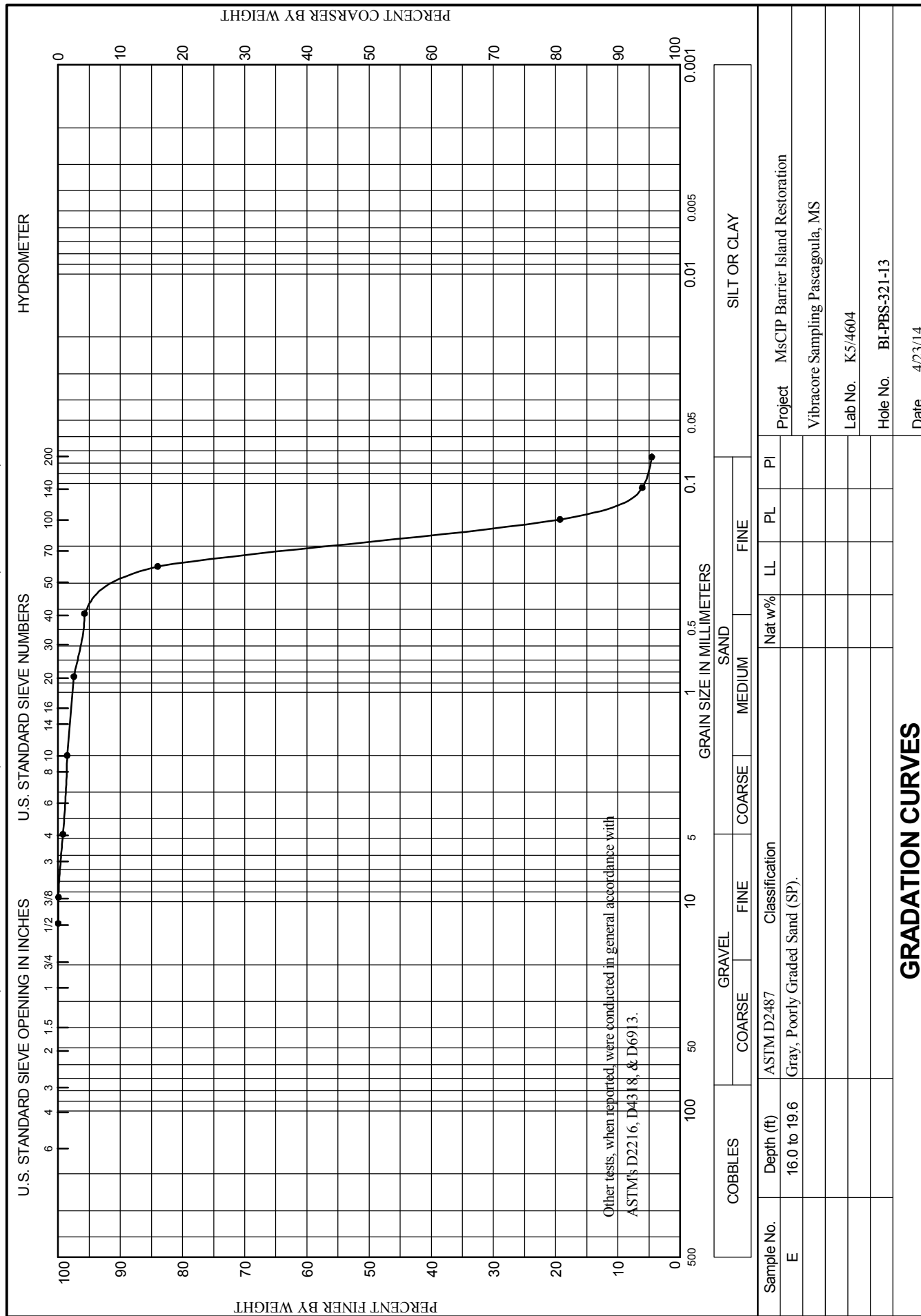
REQUISITION: W33SJG32900192





WORK ORDER: 848e

REQUISITION: W33SJG32900192



# Boring Designation BI-PBS-322-13

DRILLING LOG		DIVISION South Atlantic		INSTALLATION Mobile District		SHEET 1 OF 2 SHEETS	
1. PROJECT MsCIP Barrier Island Restoration Petit Bois Pass-OCS West				9. SIZE AND TYPE OF BIT N/A			
2. BORING DESIGNATION BI-PBS-322-13		LOCATION COORDINATES E = 1,114,123 N = 237,228		10. COORDINATE SYSTEM/DATUM State Plane, MSE (U.S. Ft.)		HORIZONTAL NAD83	
3. DRILLING AGENCY Corps of Engineers - CESAM		CONTRACTOR FILE NO.		11. MANUFACTURER'S DESIGNATION OF DRILL Vibracore		<input type="checkbox"/> AUTO HAMMER <input type="checkbox"/> MANUAL HAMMER	
4. NAME OF DRILLER Construction Solutions International, Inc.				12. TOTAL SAMPLES 5		UNDISTURBED (UD) 0	
5. DIRECTION OF BORING <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED		DEG. FROM VERTICAL		13. TOTAL NUMBER CORE BOXES			
		BEARING		14. WATER DEPTH 55 Ft.			
6. THICKNESS OF OVERBURDEN N/A				15. DATE BORING 02-02-14		COMPLETED 02-02-14	
7. DEPTH DRILLED INTO ROCK N/A				16. ELEVATION TOP OF BORING -53.3 Ft.			
8. TOTAL DEPTH OF BORING 20.0 Ft.				17. TOTAL RECOVERY FOR BORING 100%			
				18. SIGNATURE AND TITLE OF INSPECTOR Tom Powers, Geologist			
ELEV.	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS	SAMPLE	LABORATORY RESULTS		
-53.3	0.0						
-54.5	1.2		CLAY, lean, sandy, trace shell fragments, trace wood, medium gray (CL)	NS			
-54.7	1.4		SAND, clayey, mostly fine to medium-grained sand-sized quartz, few shell fragments, dark gray (SC)	A	Classification: SP Color: 10Y 5/1-greenish gray D50: 0.232 mm % Fines: 4.8		
-58.0	4.7		SAND, silty, mostly fine-grained sand-sized quartz, slight plasticity at depth of 3 ft., medium gray (SM)				
-62.3	9.0		SAND, poorly-graded with silt, mostly fine to medium-grained sand-sized quartz, few shell fragments, medium to lt. gray (SP-SM)	B	Classification: SP Color: 10Y 5/1-greenish gray D50: 0.243 mm % Fines: 3.8		
-64.3	11.0		SAND, poorly-graded, mostly fine to medium-grained sand-sized quartz, few shell fragments, lt. gray (SP)	C	Classification: SP Color: 10Y 5/1-greenish gray D50: 0.239 mm % Fines: 2.6		
-66.3	13.0		SAND, poorly-graded with silt, mostly fine to medium-grained sand-sized quartz, few shell fragments, lt. gray (SP-SM)	D	Classification: SP Color: 10Y 5/1-greenish gray D50: 0.373 mm % Fines: 2.5		
-73.3	20.0		SAND, silty, mostly fine-grained sand-sized quartz, little shell fragments, low fines content, lt. to medium gray (SM)	E	Classification: SP Color: 10Y 6/1-greenish gray D50: 0.206 mm % Fines: 3.1		
			At El. -68.7 Ft., mostly fine-grained sand-sized quartz, few shell fragments, high fines content, medium to dark gray	NS			
NOTES: 1. Soils are field visually classified in accordance with the Unified Soils Classification System. 2. NS = Sample not submitted for laboratory analysis from this interval. 3. Seafloor elevation determined from							

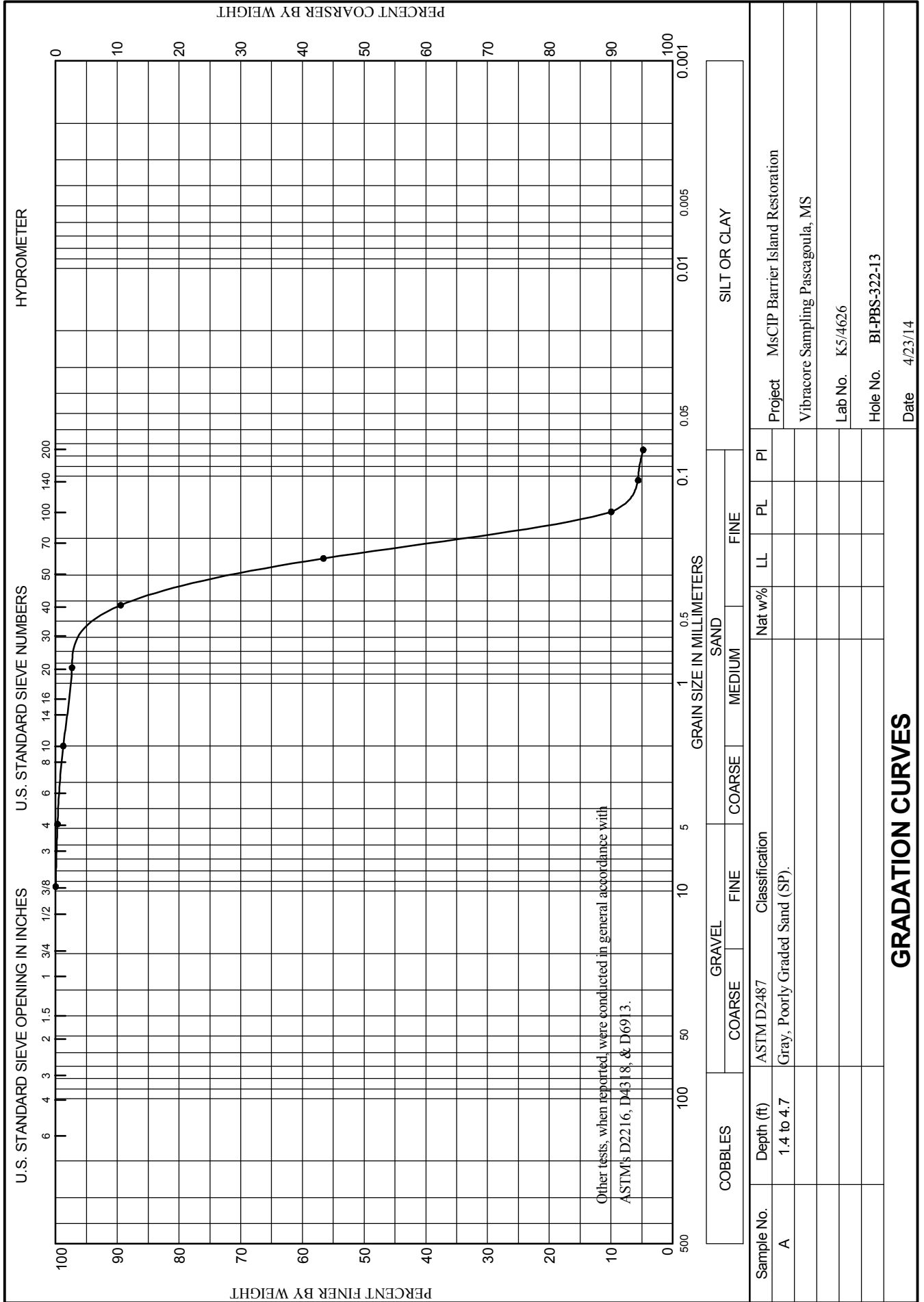
<b>DRILLING LOG (Cont. Sheet)</b>			<b>INSTALLATION</b> Mobile District		<b>SHEET 2</b>
					<b>OF 2 SHEETS</b>
<b>PROJECT</b> MsCIP Barrier Island Restoration			<b>COORDINATE SYSTEM/DATUM</b> State Plane, MSE (U.S. Ft.)	<b>HORIZONTAL</b> NAD83	<b>VERTICAL</b> NAVD88
<b>LOCATION COORDINATES</b> X = 1,114,123 Y = 237,228			<b>ELEVATION TOP OF BORING</b> -53.3 Ft.		
<b>ELEV.</b>	<b>DEPTH</b>	<b>LEGEND</b>	<b>CLASSIFICATION OF MATERIALS</b>	<b>SAMPLE</b>	<b>LABORATORY RESULTS</b>
			10/29/2014 USACE survey.		



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CORPS OF ENGINEERS, 200 N. COBB PARKWAY, BLDG 400 SUITE 404, MARIETTA, GA. 30062

WORK ORDER: 848e

REQUISITION: W33SJC32900192

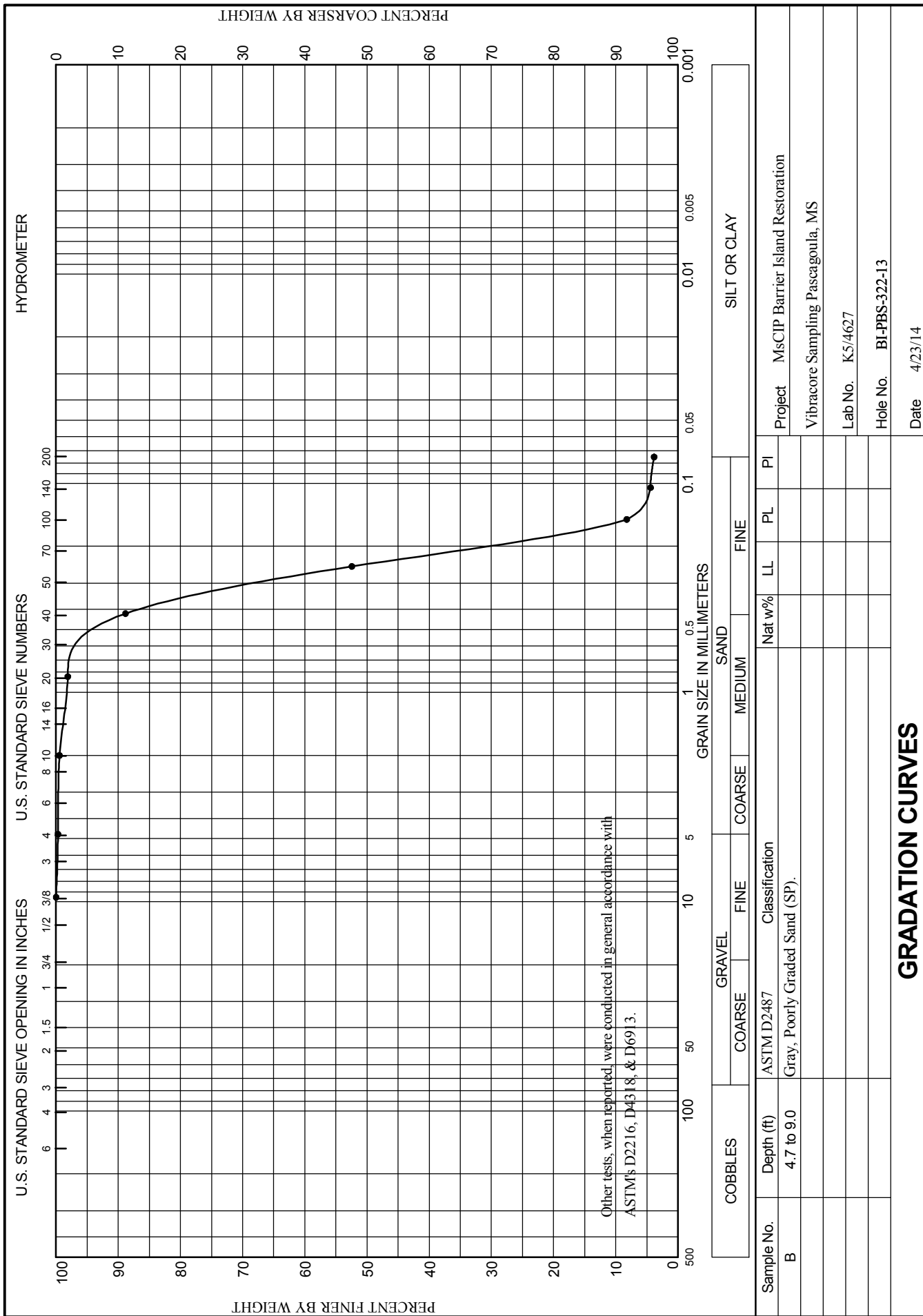




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CORPS OF ENGINEERS, 200 N. COBB PARKWAY, BLDG 400 SUITE 404, MARIETTA, GA. 30062

WORK ORDER: 848e

REQUISITION: W33SJG32900192



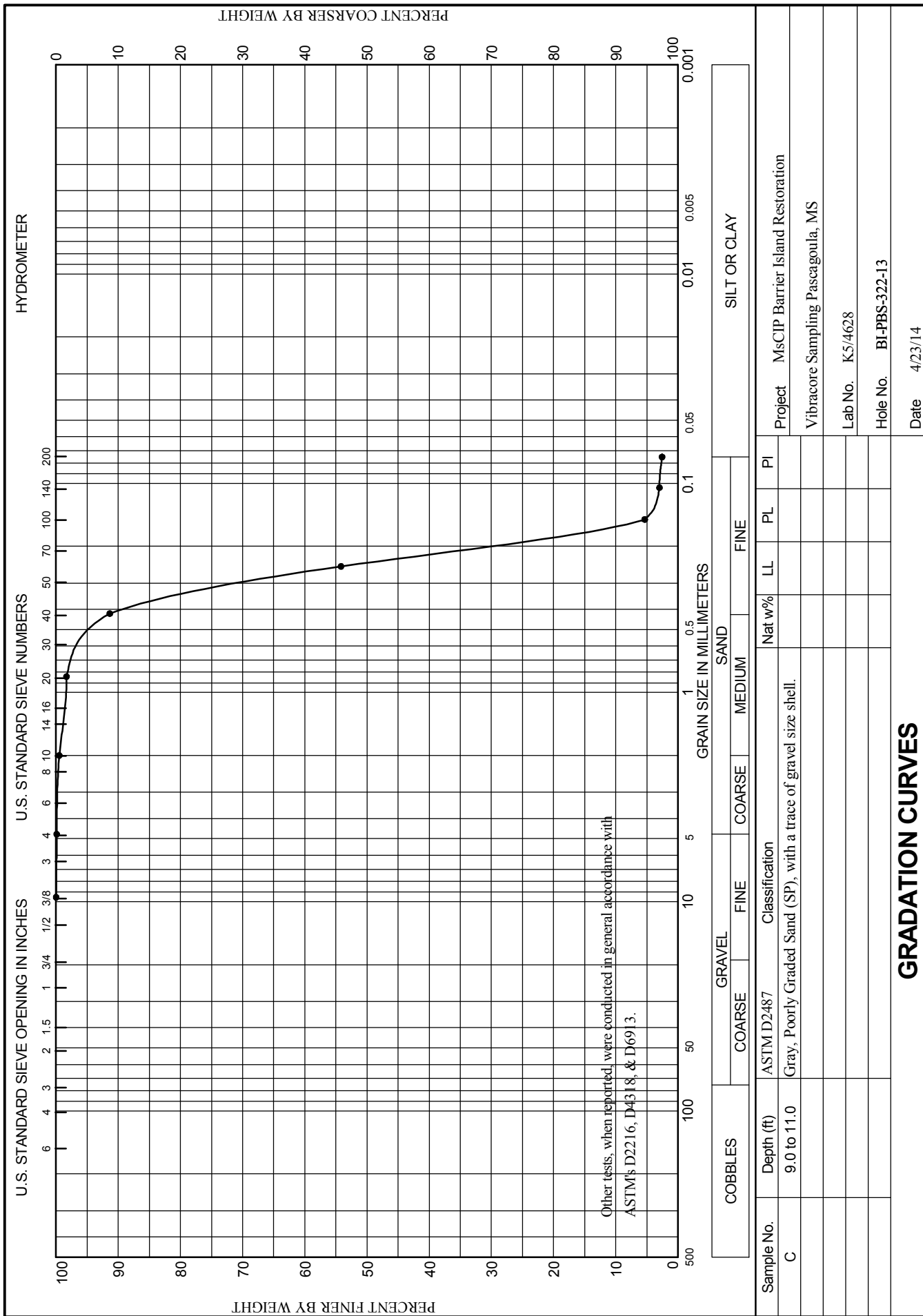




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CORPS OF ENGINEERS, 200 N. COBB PARKWAY, BLDG 400 SUITE 404, MARIETTA, GA. 30062

WORK ORDER: 848e

REQUISITION: W33SJC32900192

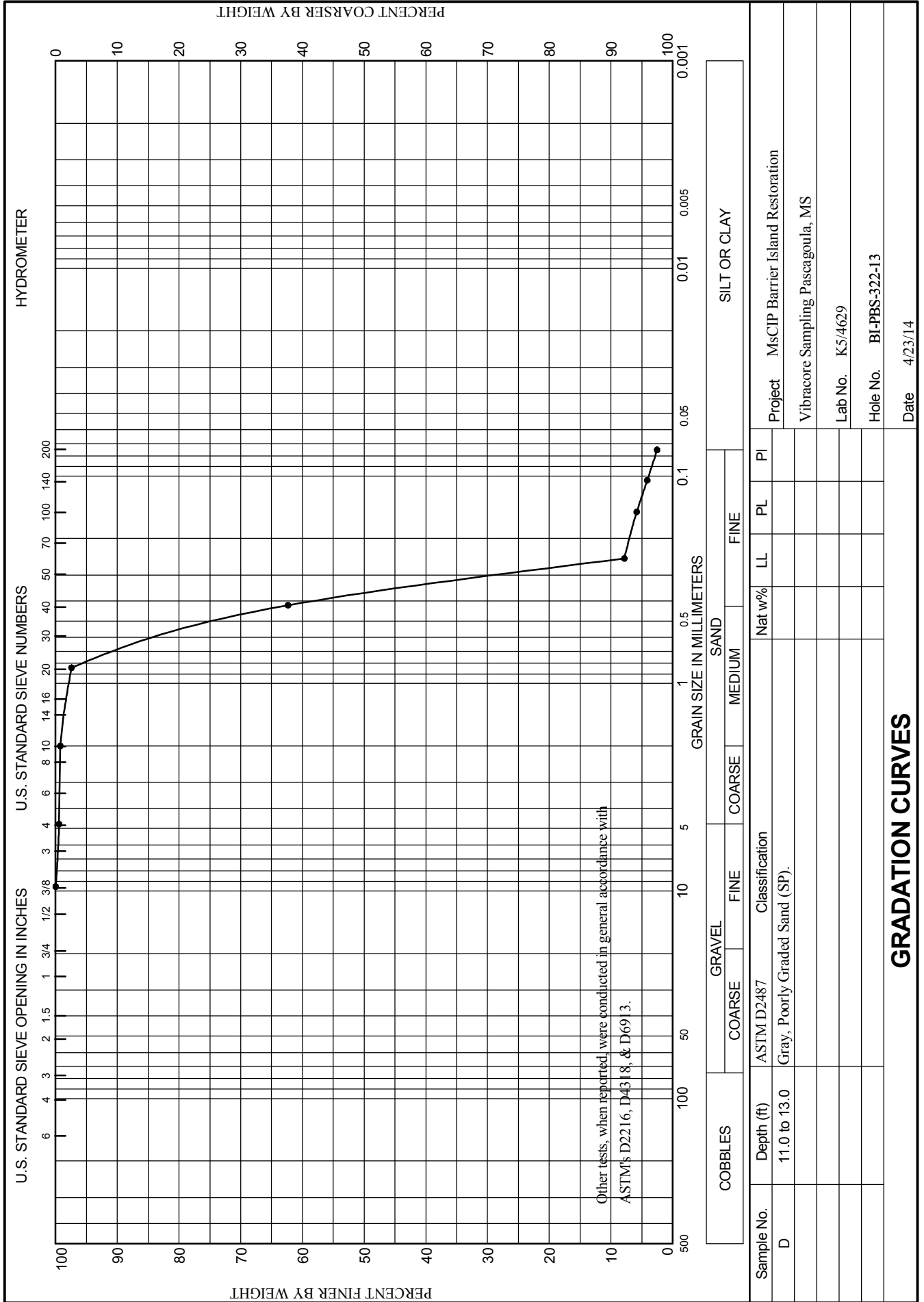




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CORPS OF ENGINEERS, 200 N. COBB PARKWAY, BLDG 400 SUITE 404, MARIETTA, GA. 30062

WORK ORDER: 848e

REQUISITION: W33SJG32900192

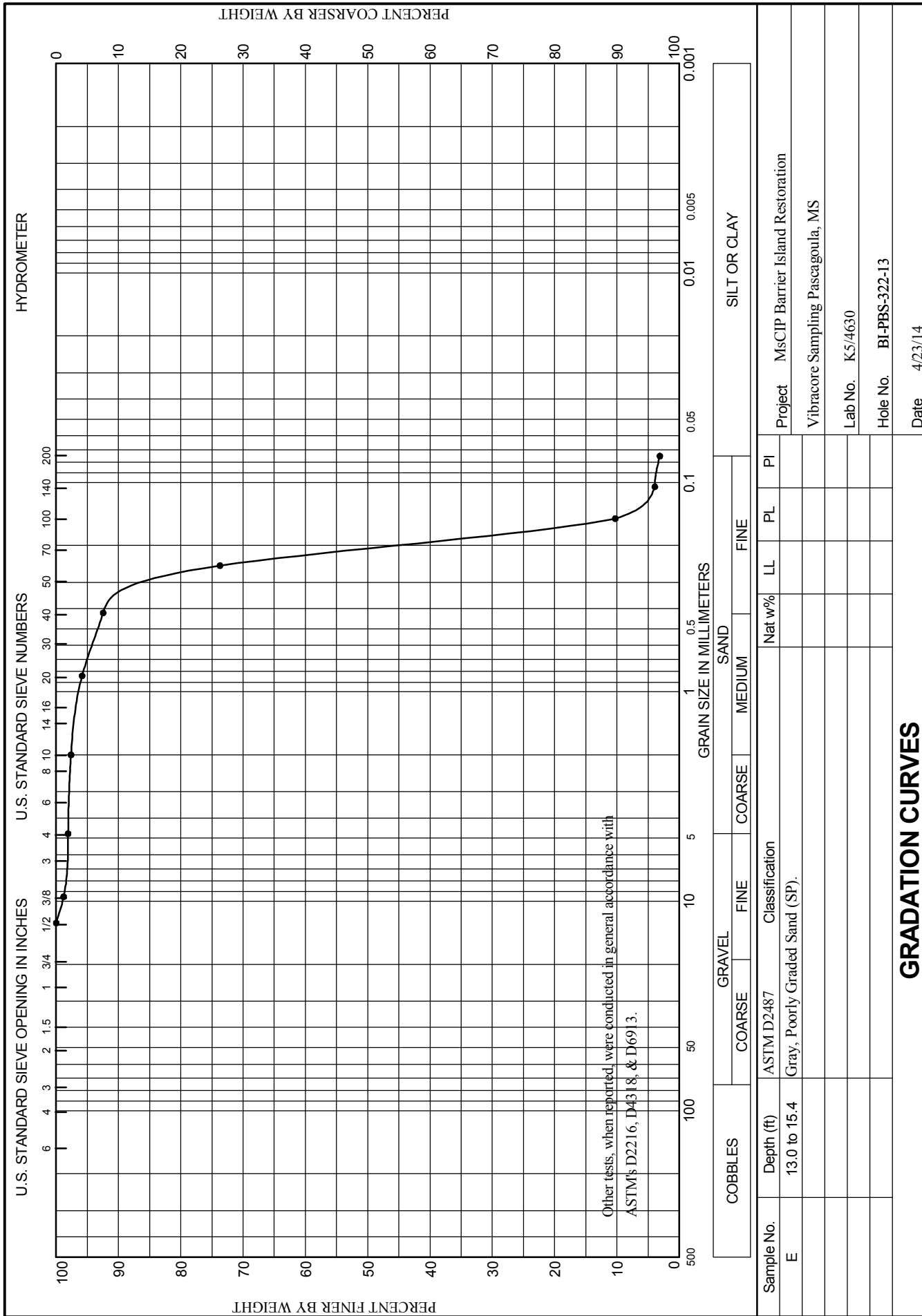




DEPARTMENT OF THE ARMY, SAVANNAH DISTRICT, ENVIRONMENTAL AND MATERIALS UNIT  
CORPS OF ENGINEERS, 200 N. COBB PARKWAY, BLDG 400 SUITE 404, MARIETTA, GA. 30062

WORK ORDER: 848e

REQUISITION: W33SJC32900192



# Boring Designation BI-PBS-323-13

DRILLING LOG		DIVISION South Atlantic		INSTALLATION Mobile District		SHEET 1 OF 1 SHEETS	
1. PROJECT MsCIP Barrier Island Restoration Petit Bois Pass-OCS West				9. SIZE AND TYPE OF BIT N/A			
2. BORING DESIGNATION BI-PBS-323-13		LOCATION COORDINATES E = 1,113,668 N = 236,270		10. COORDINATE SYSTEM/DATUM State Plane, MSE (U.S. Ft.)		HORIZONTAL NAD83	
3. DRILLING AGENCY Corps of Engineers - CESAM		CONTRACTOR FILE NO.		11. MANUFACTURER'S DESIGNATION OF DRILL Vibrocure		<input type="checkbox"/> AUTO HAMMER <input type="checkbox"/> MANUAL HAMMER	
4. NAME OF DRILLER Construction Solutions International, Inc.				12. TOTAL SAMPLES 3		UNDISTURBED (UD) 0	
5. DIRECTION OF BORING <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED				13. TOTAL NUMBER CORE BOXES		14. WATER DEPTH 55.6 Ft.	
6. THICKNESS OF OVERBURDEN N/A				15. DATE BORING 02-02-14		STARTED 02-02-14	
7. DEPTH DRILLED INTO ROCK N/A				16. ELEVATION TOP OF BORING -54.9 Ft.		COMPLETED 02-02-14	
8. TOTAL DEPTH OF BORING 18.6 Ft.				17. TOTAL RECOVERY FOR BORING 100%			
				18. SIGNATURE AND TITLE OF INSPECTOR Tom Powers, Geologist			

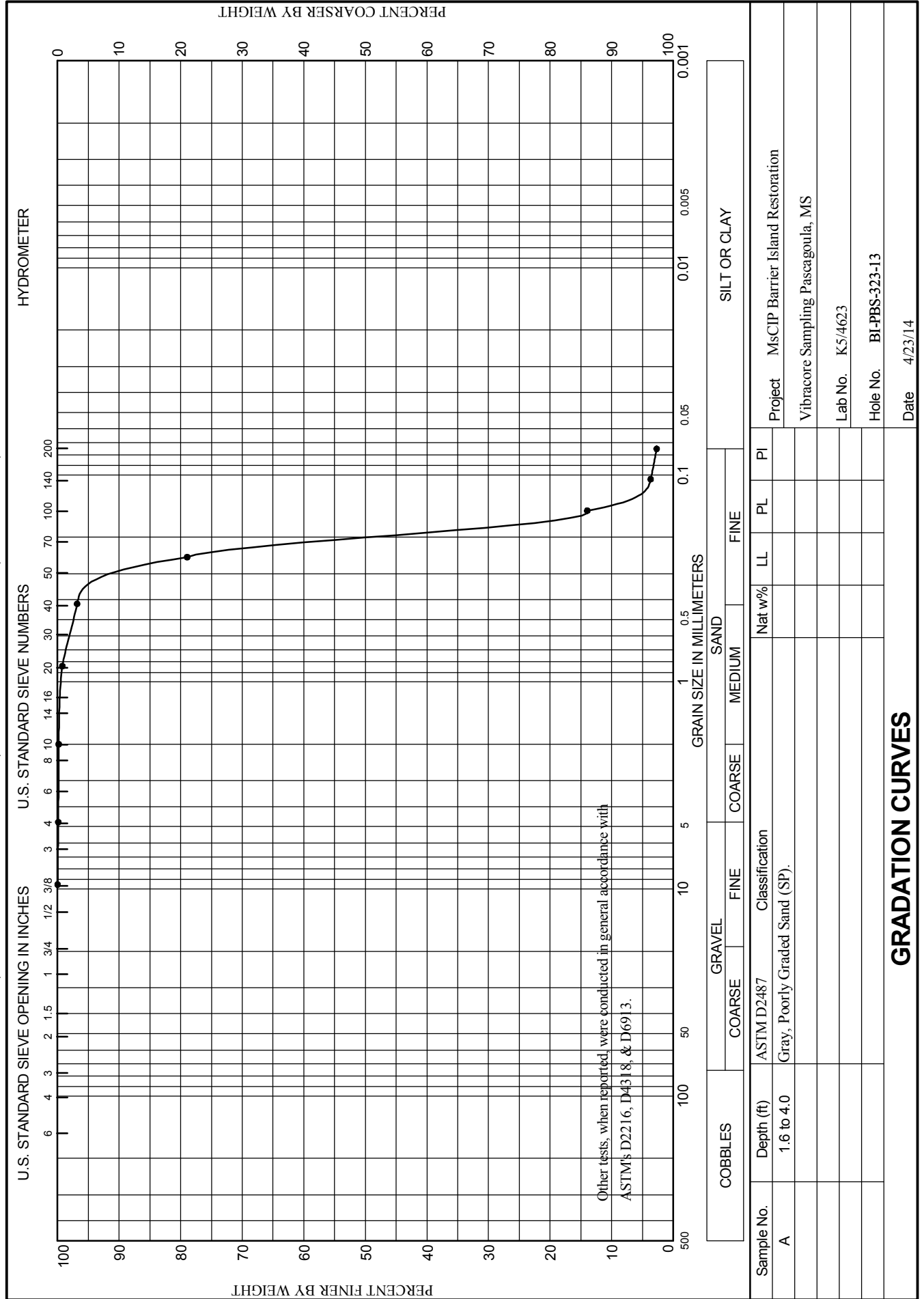
ELEV.	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS	SAMPLE	LABORATORY RESULTS
-54.9	0.0				
-56.3	1.4		CLAY, lean, sandy, firm, medium grayish brown (CL)	NS	
-56.5	1.6		SAND, clayey, mostly fine-grained sand-sized quartz, dark medium gray (SC)	A	Classification: SP Color: 10Y 6/1-greenish gray D50: 0.199 mm % Fines: 2.7
-58.9	4.0		SAND, poorly-graded, mostly fine-grained sand-sized quartz, few shell fragments, lt. gray (SP)	B	Classification: SP Color: 10Y 6/1-greenish gray D50: 0.201 mm % Fines: 3.7
-61.9	7.0		SAND, silty, mostly fine-grained sand-sized quartz, few shell fragments, lt. gray (SM) At El. -60.4 Ft., fine- to medium-grained sand	C	Classification: SP Color: 10Y 6/1-greenish gray D50: 0.209 mm % Fines: 3.8
-67.4	12.5		SAND, poorly-graded with silt, mostly fine to medium-grained sand-sized quartz, few shell fragments, lt. to medium gray (SP-SM)		
-71.9	17.0		SAND, silty, mostly fine-grained sand-sized quartz, few shell fragments, high fines content, medium gray (SM)	NS	
-73.5	18.6		SAND, silty, clayey, mostly fine-grained sand-sized quartz, trace shell fragments, medium gray (SC-SM)		
NOTES: 1. Soils are field visually classified in accordance with the Unified Soils Classification System. 2. NS = Sample not submitted for laboratory analysis from this interval. 3. Seafloor elevation determined from 10/29/2014 USACE survey.					



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WORK ORDER: 848e

REQUISITION: W33SJC32900192

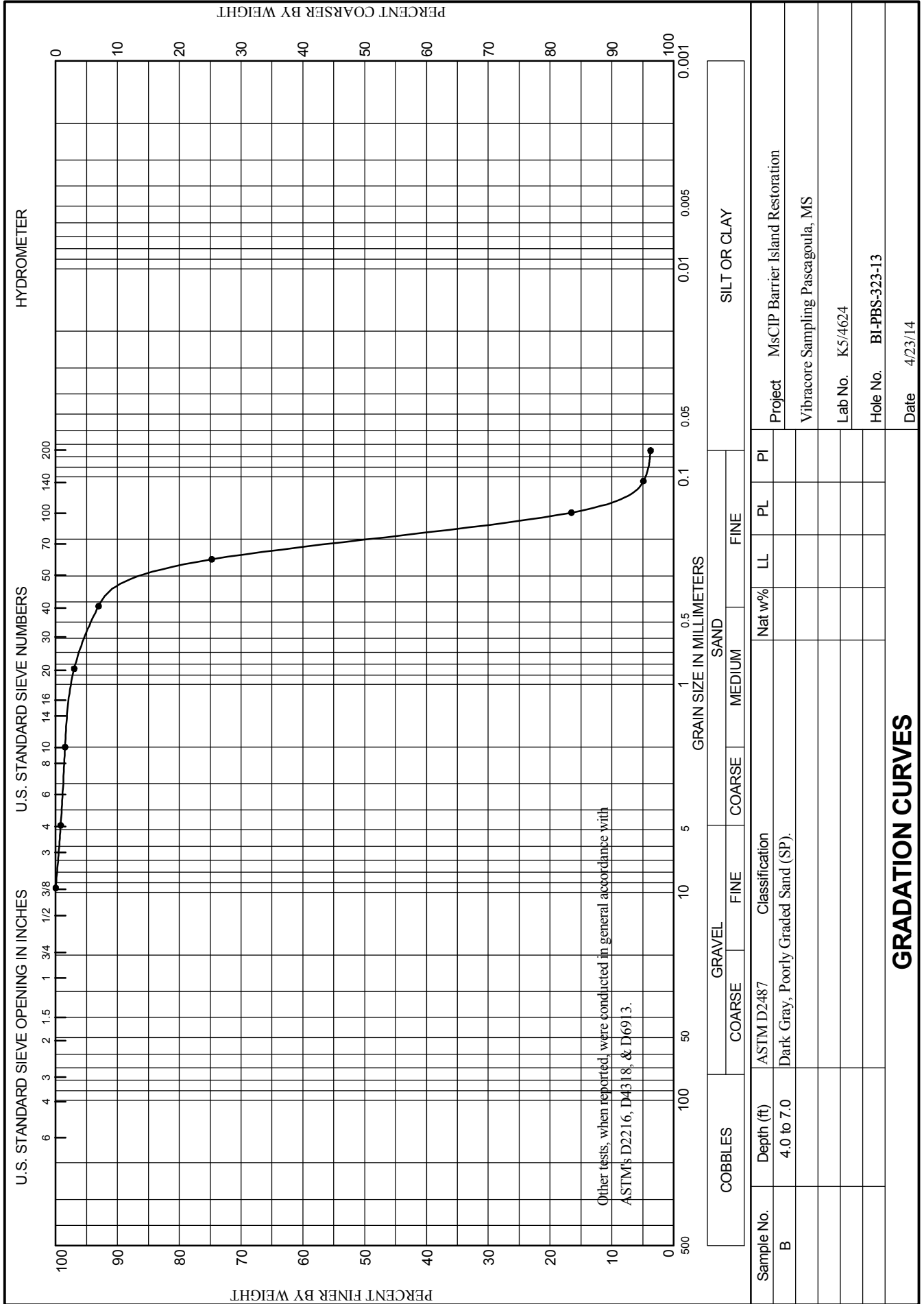




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WORK ORDER: 848e

REQUISITION: W33SJC32900192

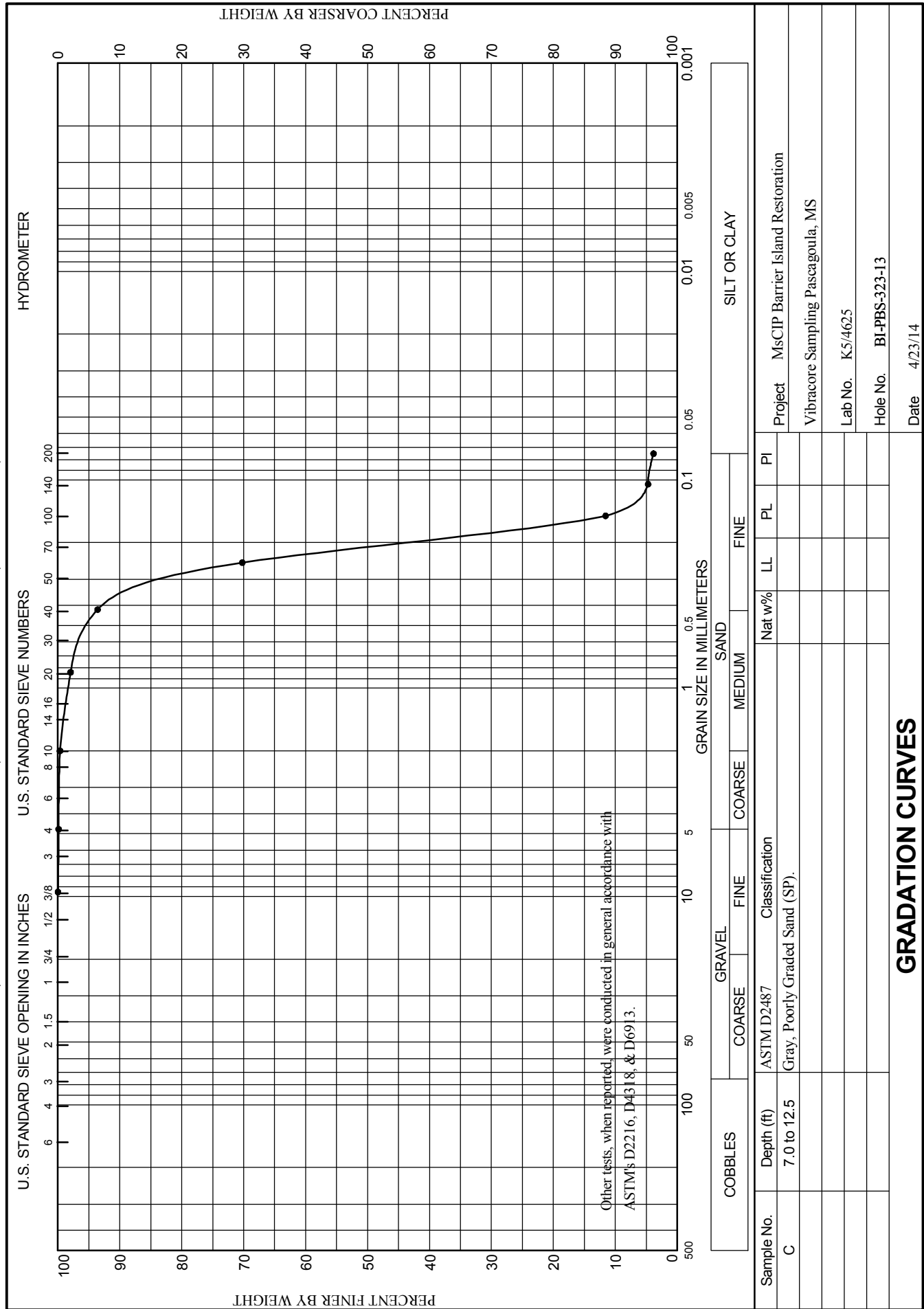




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CORPS OF ENGINEERS, 200 N. COBB PARKWAY, BLDG 400 SUITE 404, MARIETTA, GA. 30062

WORK ORDER: 848e

REQUISITION: W33SJC32900192



# Boring Designation BI-PBS-324-13

DRILLING LOG		DIVISION South Atlantic		INSTALLATION Mobile District		SHEET 1 OF 1 SHEETS	
1. PROJECT MsCIP Barrier Island Restoration Petit Bois Pass-OCS West				9. SIZE AND TYPE OF BIT N/A			
2. BORING DESIGNATION BI-PBS-324-13		LOCATION COORDINATES E = 1,111,080 N = 236,006		10. COORDINATE SYSTEM/DATUM State Plane, MSE (U.S. Ft.)		HORIZONTAL NAD83 VERTICAL NAVD88	
3. DRILLING AGENCY Corps of Engineers - CESAM		CONTRACTOR FILE NO.		11. MANUFACTURER'S DESIGNATION OF DRILL Vibrocure		<input type="checkbox"/> AUTO HAMMER <input type="checkbox"/> MANUAL HAMMER	
4. NAME OF DRILLER Construction Solutions International, Inc.				12. TOTAL SAMPLES 4		DISTURBED 0 UNDISTURBED (UD)	
5. DIRECTION OF BORING <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED				13. TOTAL NUMBER CORE BOXES		14. WATER DEPTH 52.7 Ft.	
6. THICKNESS OF OVERBURDEN N/A				15. DATE BORING 02-01-14		STARTED 02-01-14 COMPLETED 02-01-14	
7. DEPTH DRILLED INTO ROCK N/A				16. ELEVATION TOP OF BORING -51.3 Ft.		17. TOTAL RECOVERY FOR BORING 100%	
8. TOTAL DEPTH OF BORING 18.8 Ft.				18. SIGNATURE AND TITLE OF INSPECTOR Tom Powers, Geologist			
ELEV.	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS	SAMPLE	LABORATORY RESULTS		
-51.3	0.0						
-53.3	2.0		CLAY, lean, sandy, interbedded with fine- to medium-grained SC, medium gray (CL)	NS			
-54.7	3.4		SAND, clayey, mostly quartz, interbedded with CL, medium to lt. gray (SC)				
			SAND, silty, mostly fine to medium-grained sand-sized quartz, trace wood 5.0 - 6.3 ft. depth, pale brown and brownish gray (SM)	A	Classification: SP-SM Color: 2.5Y 5/1-gray D50: 0.264 mm % Fines: 9.9		
				B	Classification: SP Color: 2.5Y 5/1-gray D50: 0.282 mm % Fines: 4.6		
-60.8	9.5						
			SAND, poorly-graded with silt, mostly fine to medium-grained sand-sized quartz, medium gray (SP-SM)	C	Classification: SP Color: 2.5Y 5/1-gray D50: 0.329 mm % Fines: 2.4		
				D	Classification: SP Color: 10Y 5/1-greenish gray D50: 0.255 mm % Fines: 1.6		
-69.3	18.0						
-70.1	18.8		SAND, silty, mostly quartz, medium gray (SM)	NS			
			NOTES: 1. Soils are field visually classified in accordance with the Unified Soils Classification System. 2. NS = Sample not submitted for laboratory analysis from this interval. 3. Seafloor elevation determined from 12/17/2014 USACE survey.				

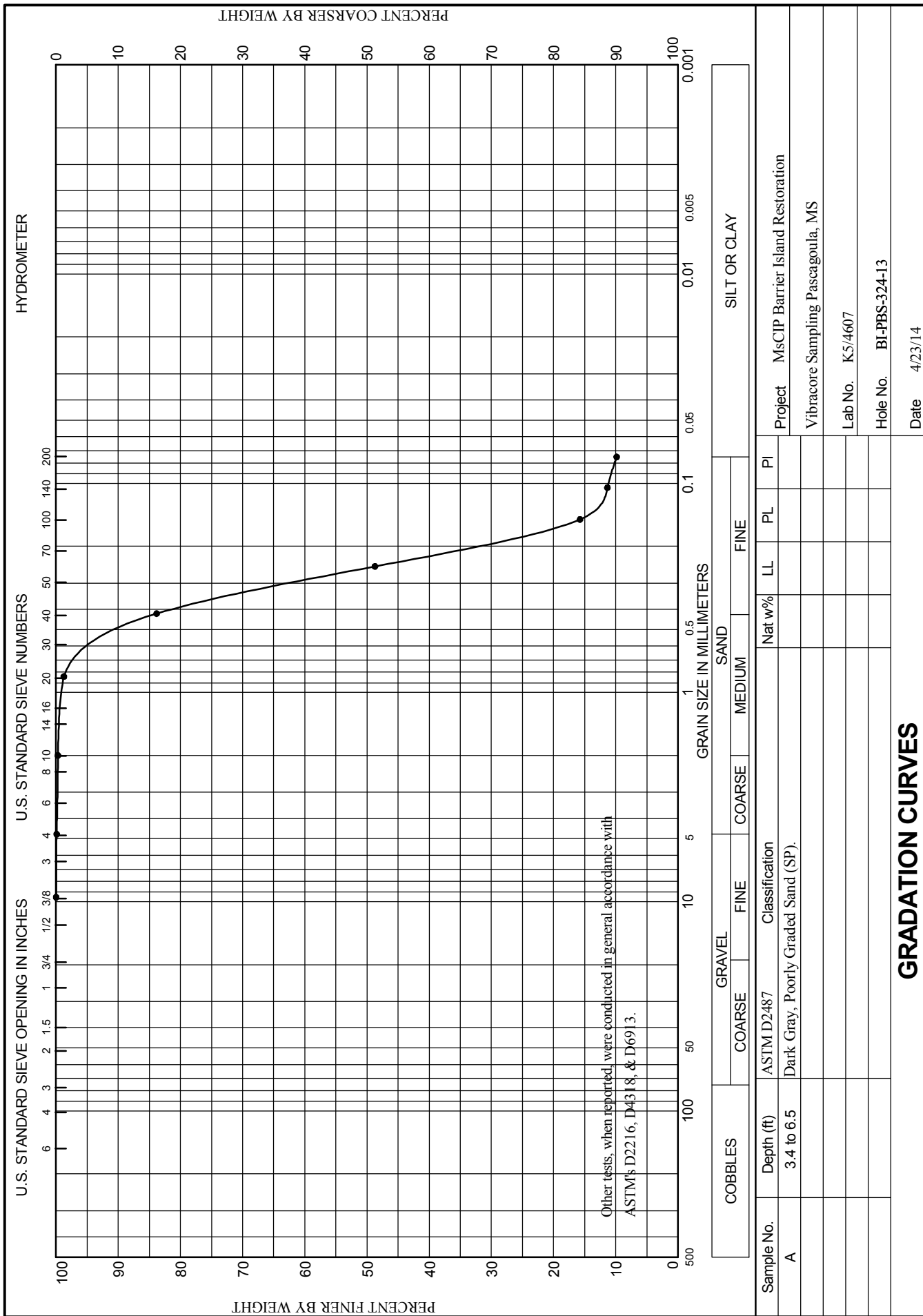




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WORK ORDER: 848e

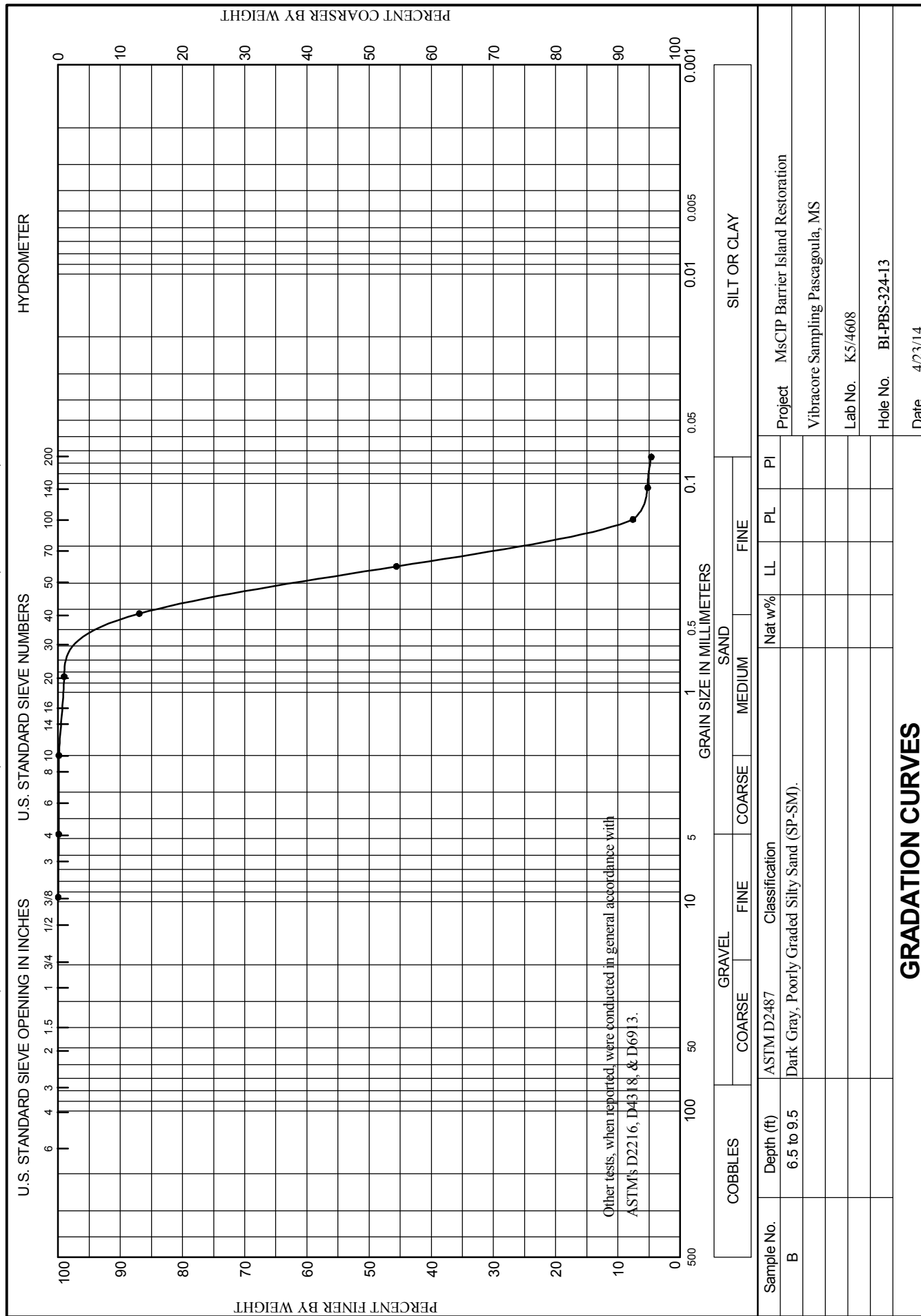
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WORK ORDER: 848e

REQUISITION: W33SJG32900192

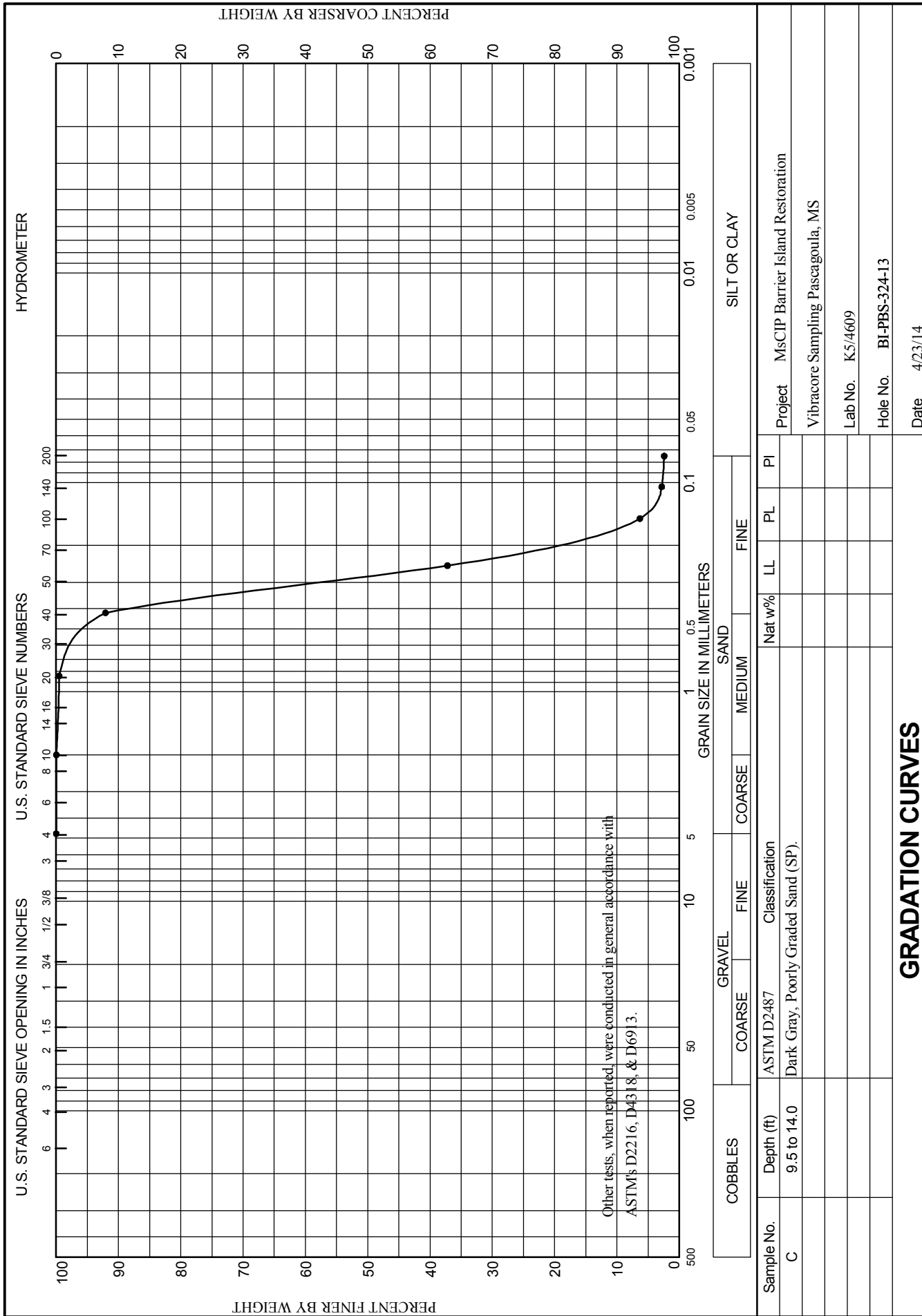




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WORK ORDER: 848e

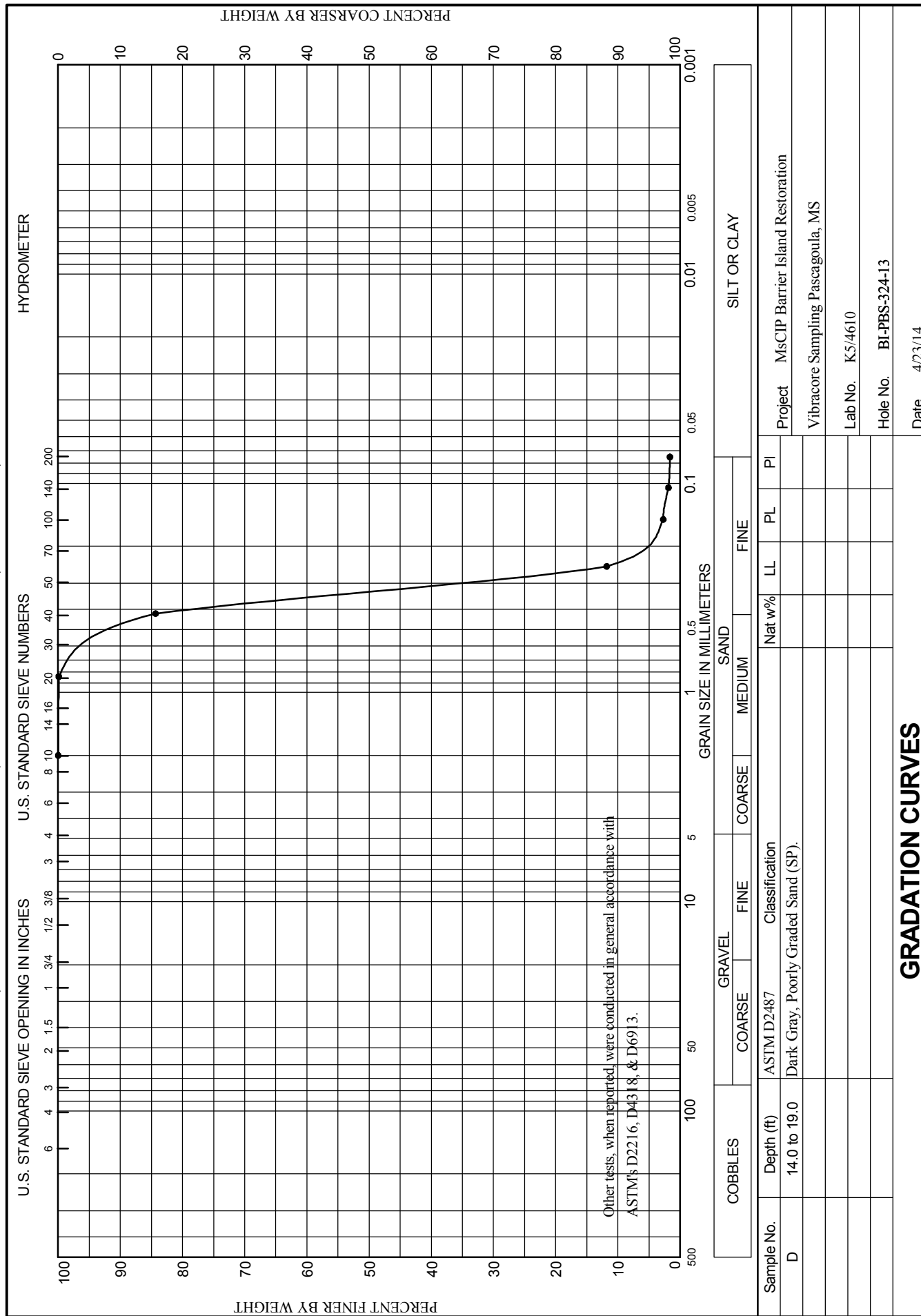
REQUISITION: W33SJC32900192





WORK ORDER: 848e

REQUISITION: W33SJG32900192



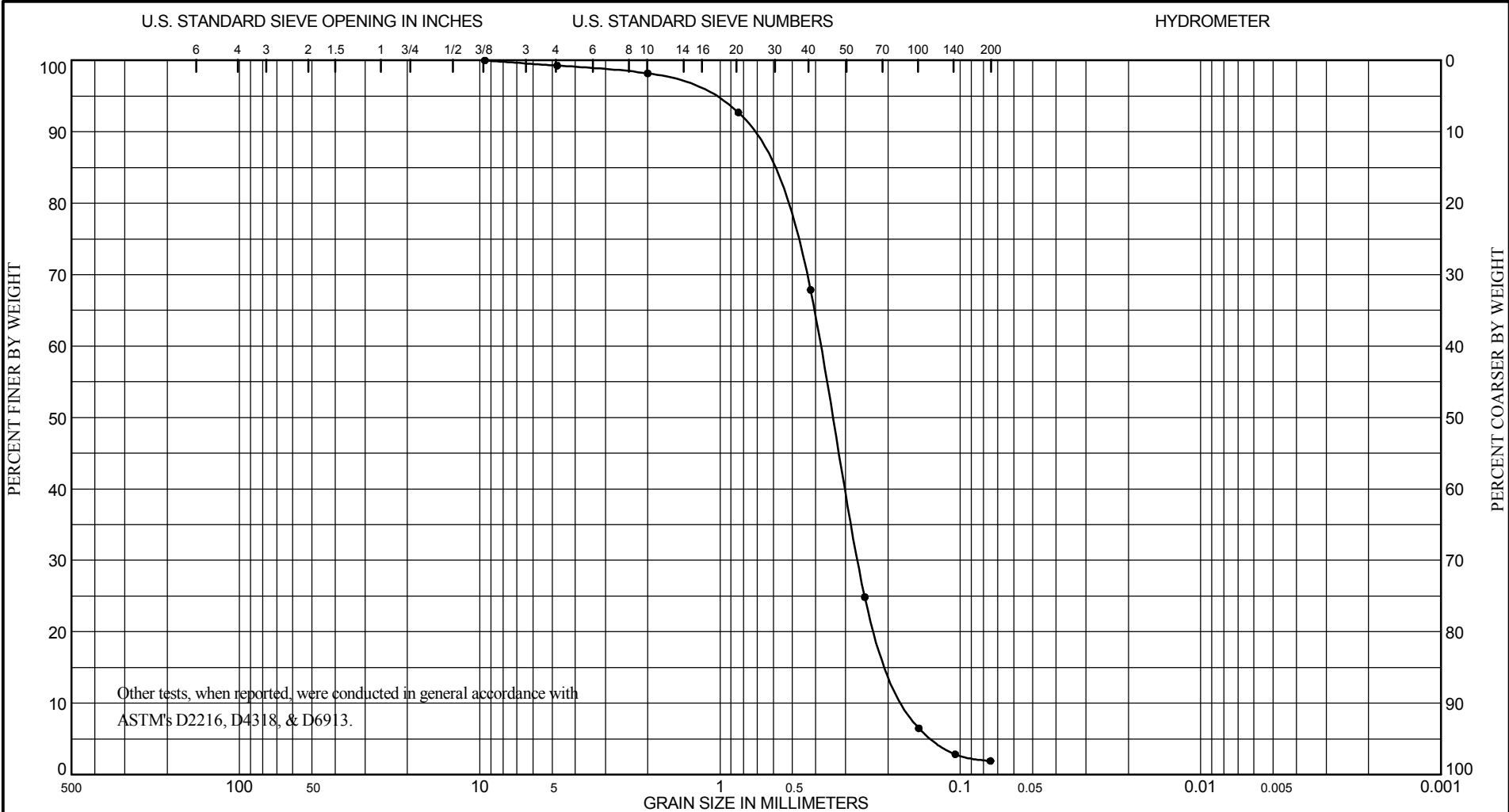
# Boring Designation BI-PBS-325-13

DRILLING LOG		DIVISION South Atlantic		INSTALLATION Mobile District		SHEET 1 OF 1 SHEETS	
1. PROJECT MsCIP Barrier Island Restoration Petit Bois Pass-OCS East				9. SIZE AND TYPE OF BIT N/A			
2. BORING DESIGNATION BI-PBS-325-13		LOCATION COORDINATES E = 1,132,189 N = 238,647		10. COORDINATE SYSTEM/DATUM State Plane, MSE (U.S. Ft.)		HORIZONTAL NAD83 VERTICAL NAVD88	
3. DRILLING AGENCY Corps of Engineers - CESAM		CONTRACTOR FILE NO.		11. MANUFACTURER'S DESIGNATION OF DRILL Vibracore		<input type="checkbox"/> AUTO HAMMER <input type="checkbox"/> MANUAL HAMMER	
4. NAME OF DRILLER Construction Solutions International, Inc.				12. TOTAL SAMPLES 2		DISTURBED 0 UNDISTURBED (UD)	
5. DIRECTION OF BORING <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED		DEG. FROM VERTICAL		13. TOTAL NUMBER CORE BOXES			
		BEARING		14. WATER DEPTH 50.7 Ft.			
6. THICKNESS OF OVERBURDEN N/A				15. DATE BORING 02-10-14		STARTED 02-10-14 COMPLETED 02-10-14	
7. DEPTH DRILLED INTO ROCK N/A				16. ELEVATION TOP OF BORING -49.1 Ft.			
8. TOTAL DEPTH OF BORING 18.4 Ft.				17. TOTAL RECOVERY FOR BORING 100%			
				18. SIGNATURE AND TITLE OF INSPECTOR Tom Powers, Geologist			
ELEV.	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS	SAMPLE	LABORATORY RESULTS		
-49.1	0.0						
-51.0	1.9		SAND, poorly-graded, mostly fine to medium-grained sand-sized quartz, few shell fragments, lt. greenish gray (SP)	A	Classification: SP Color: 2.5Y 6/1-gray D50: 0.339 mm % Fines: 1.9		
-51.2	2.1						
-52.1	3.0		SAND, silty, mostly fine-grained sand-sized quartz, trace shell fragments, medium greenish gray (SM)	NS			
-54.0	4.9		SAND, clayey, mostly fine-grained sand-sized quartz, few shell fragments, medium dark greenish gray (SC)				
-55.1	6.0						
-55.6	6.5		CLAY, lean, sandy, soft, medium dark greenish gray (CL)	B	Classification: SP-SM Color: 2.5Y 6/1-gray D50: 0.269 mm % Fines: 6.8		
			SAND, silty, mostly fine-grained sand-sized quartz, trace shell fragments, dark greenish gray (SM)				
			SAND, poorly-graded, mostly fine to medium-grained sand-sized quartz, trace shell fragments, lt. brown (SP)				
-61.6	12.5		SAND, silty, mostly fine-grained sand-sized quartz, trace shell fragments, medium brown (SM)	NS			
-65.1	16.0		SAND, poorly-graded with silt, mostly fine to medium-grained sand-sized quartz, trace shell fragments, lt. brown (SP-SM)				
-67.5	18.4		SAND, silty, mostly fine-grained sand-sized quartz, trace shell fragments, lt. brown and medium gray (SM)				
			NOTES: 1. Soils are field visually classified in accordance with the Unified Soils Classification System. 2. NS = Sample not submitted for laboratory analysis from this interval. 3. Seafloor elevation determined from USACE hydrographic survey completed April 2014.				



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WORK ORDER: 848e  
REQUISITION: W33SJG32900192



COBBLES		GRAVEL		SAND			SILT OR CLAY	
		COARSE	FINE	COARSE	MEDIUM	FINE		
Sample No.	Depth (ft)	ASTM D2487 Classification			Nat w%	LL	PL	PI
A	0.0 to 1.9	Gray, Poorly Graded Sand (SP).						

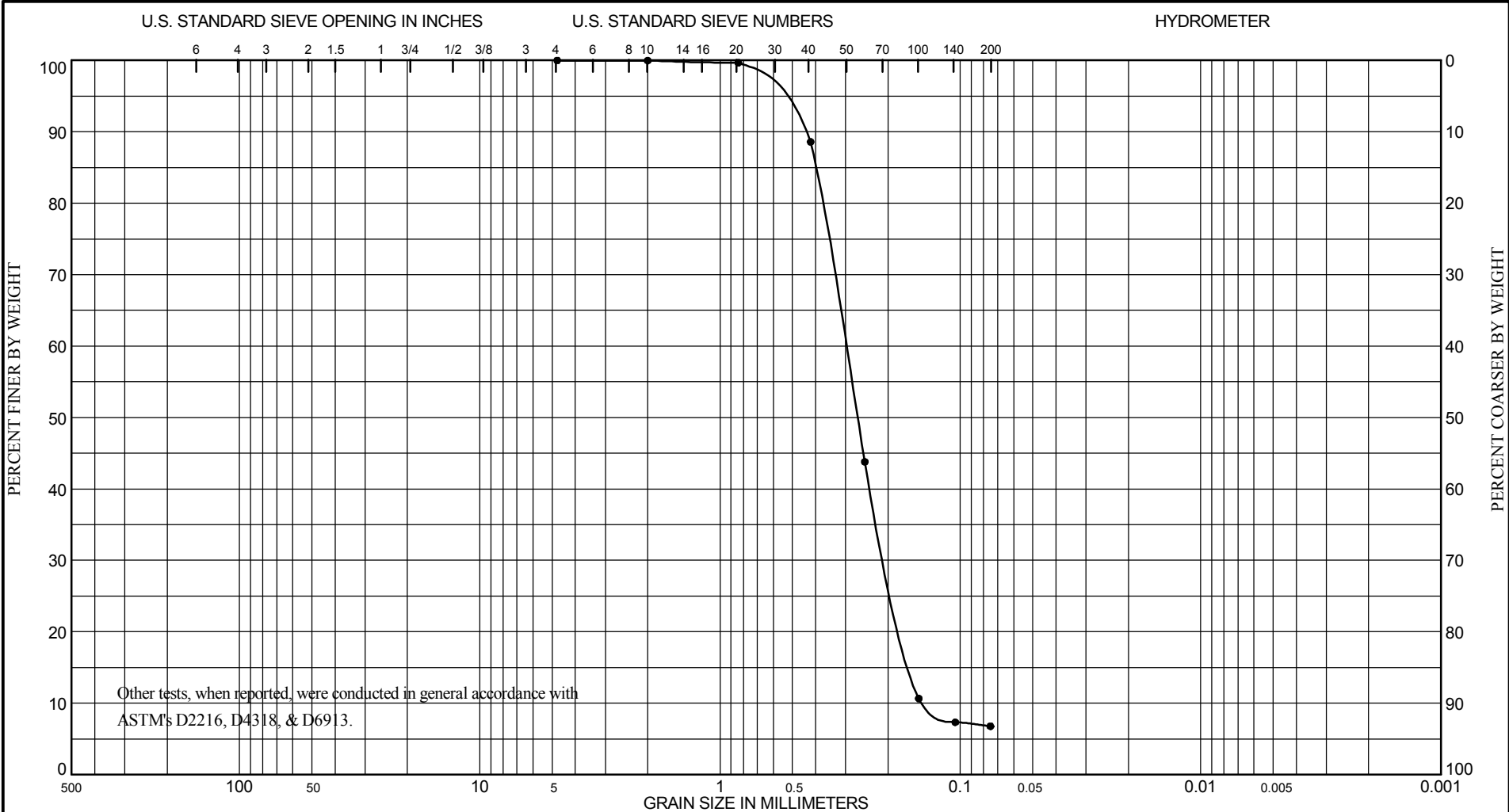
Project	MsCIP Barrier Island Restoration
Vibracore Sampling	Pascagoula, MS
Lab No.	K5/4832
Hole No.	BI-PBS-325-13
Date	4/23/14

GRADATION CURVES



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WORK ORDER: 848e  
REQUISITION: W33SJG32900192



COBBLES		GRAVEL		SAND			SILT OR CLAY			
		COARSE	FINE	COARSE	MEDIUM	FINE				
Sample No.	Depth (ft)	ASTM D2487 Classification			Nat w%	LL	PL	PI	Project	MsCIP Barrier Island Restoration
B	6.0 to 7.0	Dark Gray, Poorly Graded Silty Sand (SP-SM).								
										Vibracore Sampling Pascagoula, MS
									Lab No.	K5/4833
									Hole No.	BI-PBS-325-13
GRADATION CURVES									Date	4/23/14

# Boring Designation BI-PBS-326-13

DRILLING LOG		DIVISION South Atlantic		INSTALLATION Mobile District		SHEET 1 OF 1 SHEETS	
1. PROJECT MsCIP Barrier Island Restoration Petit Bois Pass-OCS East				9. SIZE AND TYPE OF BIT N/A			
2. BORING DESIGNATION BI-PBS-326-13		LOCATION COORDINATES E = 1,131,355 N = 239,567		10. COORDINATE SYSTEM/DATUM State Plane, MSE (U.S. Ft.)		HORIZONTAL NAD83	
3. DRILLING AGENCY Corps of Engineers - CESAM		CONTRACTOR FILE NO.		11. MANUFACTURER'S DESIGNATION OF DRILL Vibracore		<input type="checkbox"/> AUTO HAMMER <input type="checkbox"/> MANUAL HAMMER	
4. NAME OF DRILLER Construction Solutions International, Inc.				12. TOTAL SAMPLES		DISTURBED 1	
5. DIRECTION OF BORING <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED				13. TOTAL NUMBER CORE BOXES		UNDISTURBED (UD) 0	
6. THICKNESS OF OVERBURDEN N/A				14. WATER DEPTH 53.3 Ft.		15. DATE BORING 02-10-14	
7. DEPTH DRILLED INTO ROCK N/A				16. ELEVATION TOP OF BORING -52.6 Ft.		17. TOTAL RECOVERY FOR BORING 100%	
8. TOTAL DEPTH OF BORING 17.6 Ft.				18. SIGNATURE AND TITLE OF INSPECTOR Tom Powers, Geologist			

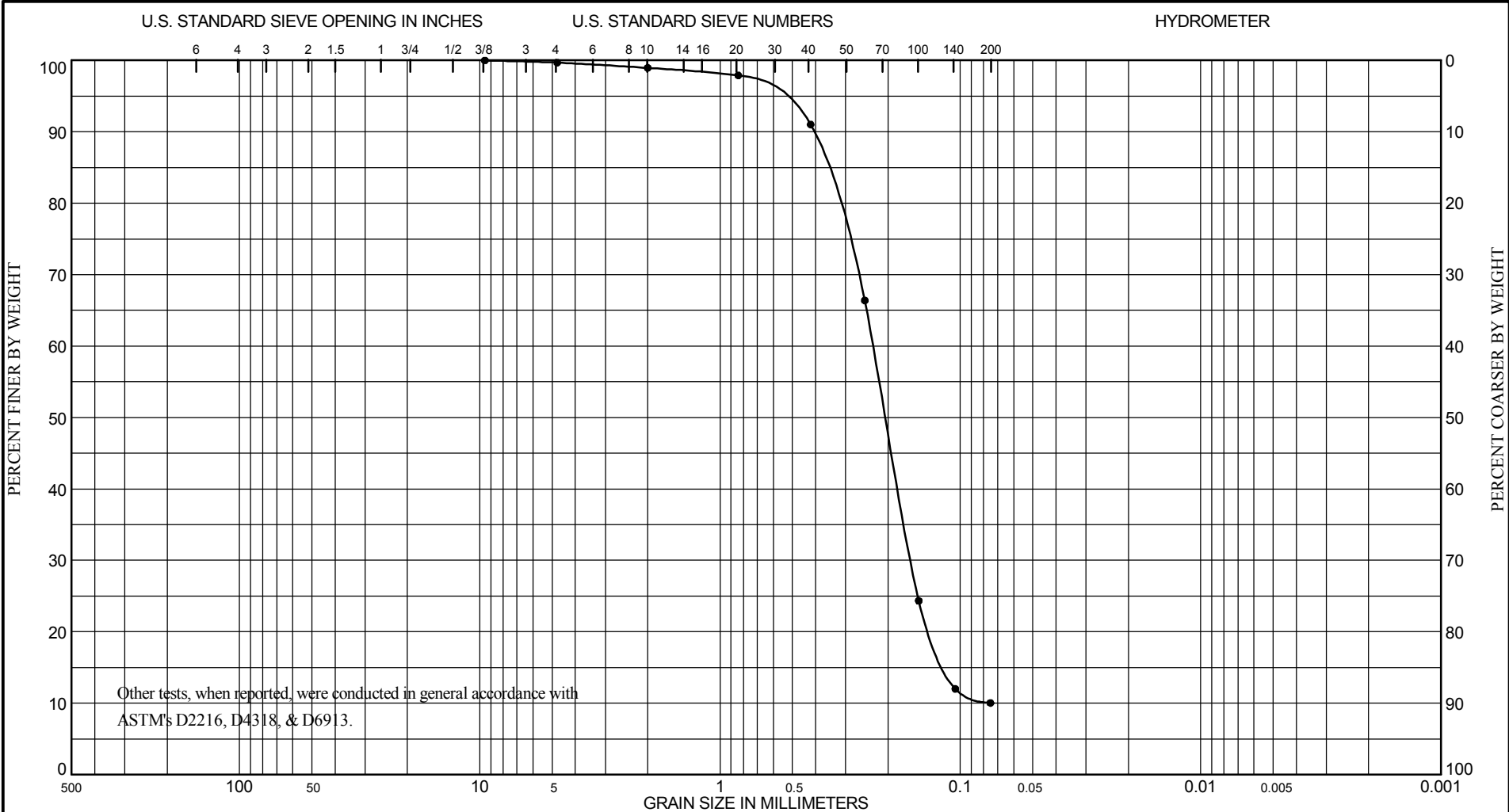
ELEV.	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS	SAMPLE	LABORATORY RESULTS
-52.6	0.0				
-54.1	1.5		SAND, silty, mostly fine-grained sand-sized quartz, few shell fragments, medium greenish gray (SM)	A	Classification: SP-SM Color: 2.5Y 5/1-gray D50: 0.204 mm % Fines: 10
-58.8	6.2		SAND, silty, clayey, mostly fine-grained sand-sized quartz, few shell fragments, medium greenish gray (SC-SM)	NS	
-59.4	6.8				
-60.1	7.5		SAND, silty, mostly fine-grained sand-sized quartz, trace shell fragments, medium gray (SM)		
-62.6	10.0		SAND, poorly-graded with silt, mostly fine-grained sand-sized quartz, trace shell fragments, lt. gray (SP-SM)		
-67.2	14.6		SAND, silty, mostly fine-grained sand-sized quartz, trace shell fragments, medium gray (SM) SILT, inorganic-L, trace shell fragments, interbedded with CL lenses, medium gray (ML)		
-70.2	17.6		CLAY, lean, trace shell fragments, sandy, firm, medium gray (CL)		
NOTES: 1. Soils are field visually classified in accordance with the Unified Soils Classification System. 2. NS = Sample not submitted for laboratory analysis from this interval. 3. Seafloor elevation determined from USACE hydrographic survey completed April 2014.					





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WORK ORDER: 848e  
REQUISITION: W33SJG32900192



COBBLES		GRAVEL		SAND			SILT OR CLAY			
		COARSE	FINE	COARSE	MEDIUM	FINE				
Sample No.	Depth (ft)	ASTM D2487 Classification			Nat w%	LL	PL	PI	Project	MsCIP Barrier Island Restoration
A	0.0 to 1.5	Dark Greenish Gray, Poorly Graded Silty Sand (SP-SM).								Vibracore Sampling Pascagoula, MS
									Lab No.	K5/4829
									Hole No.	BI-PBS-326-13
GRADATION CURVES									Date	4/23/14

# Boring Designation BI-PBS-327-13

DRILLING LOG		DIVISION South Atlantic		INSTALLATION Mobile District		SHEET 1 OF 1 SHEETS	
1. PROJECT MsCIP Barrier Island Restoration Petit Bois Pass-OCS East				9. SIZE AND TYPE OF BIT N/A			
2. BORING DESIGNATION BI-PBS-327-13		LOCATION COORDINATES E = 1,130,315 N = 240,232		10. COORDINATE SYSTEM/DATUM State Plane, MSE (U.S. Ft.)		HORIZONTAL NAD83	
3. DRILLING AGENCY Corps of Engineers - CESAM		CONTRACTOR FILE NO.		11. MANUFACTURER'S DESIGNATION OF DRILL Vibrocure		<input type="checkbox"/> AUTO HAMMER <input type="checkbox"/> MANUAL HAMMER	
4. NAME OF DRILLER Construction Solutions International, Inc.				12. TOTAL SAMPLES		DISTURBED 0	
5. DIRECTION OF BORING <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED				13. TOTAL NUMBER CORE BOXES		UNDISTURBED (UD) 0	
6. THICKNESS OF OVERBURDEN N/A				14. WATER DEPTH		52.3 Ft.	
7. DEPTH DRILLED INTO ROCK N/A				15. DATE BORING		STARTED 02-10-14	
8. TOTAL DEPTH OF BORING 19.8 Ft.				16. ELEVATION TOP OF BORING		COMPLETED 02-10-14	
				17. TOTAL RECOVERY FOR BORING		100%	
				18. SIGNATURE AND TITLE OF INSPECTOR Tom Powers, Geologist			

ELEV.	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS	SAMPLE	LABORATORY RESULTS
-51.4	0.0				
-51.9	0.5				
-53.2	1.8		SAND, poorly-graded with silt, mostly fine-grained sand-sized quartz, few shell fragments, lt. greenish gray (SP-SM)		
			SAND, silty, mostly fine-grained sand-sized quartz, few shell fragments, high fines content, medium gray (SM)		
-57.4	6.0		SAND, silty, clayey, mostly fine-grained sand-sized quartz, few shell fragments, slightly plastic, medium gray (SC-SM)		
			SAND, clayey, mostly fine-grained sand-sized quartz, discontinue shell fragments, interbedded with numerous CL lenses, medium to dark gray (SC)		
-61.2	9.8			NS	
			CLAY, lean, sandy, firm; hard at base, medium to dark gray (CL)		
-71.2	19.8				
NOTES: 1. Soils are field visually classified in accordance with the Unified Soils Classification System. 2. NS = Sample not submitted for laboratory analysis from this interval. 3. Seafloor elevation determined from USACE hydrographic survey completed April 2014.					

# Boring Designation BI-PBS-328-13

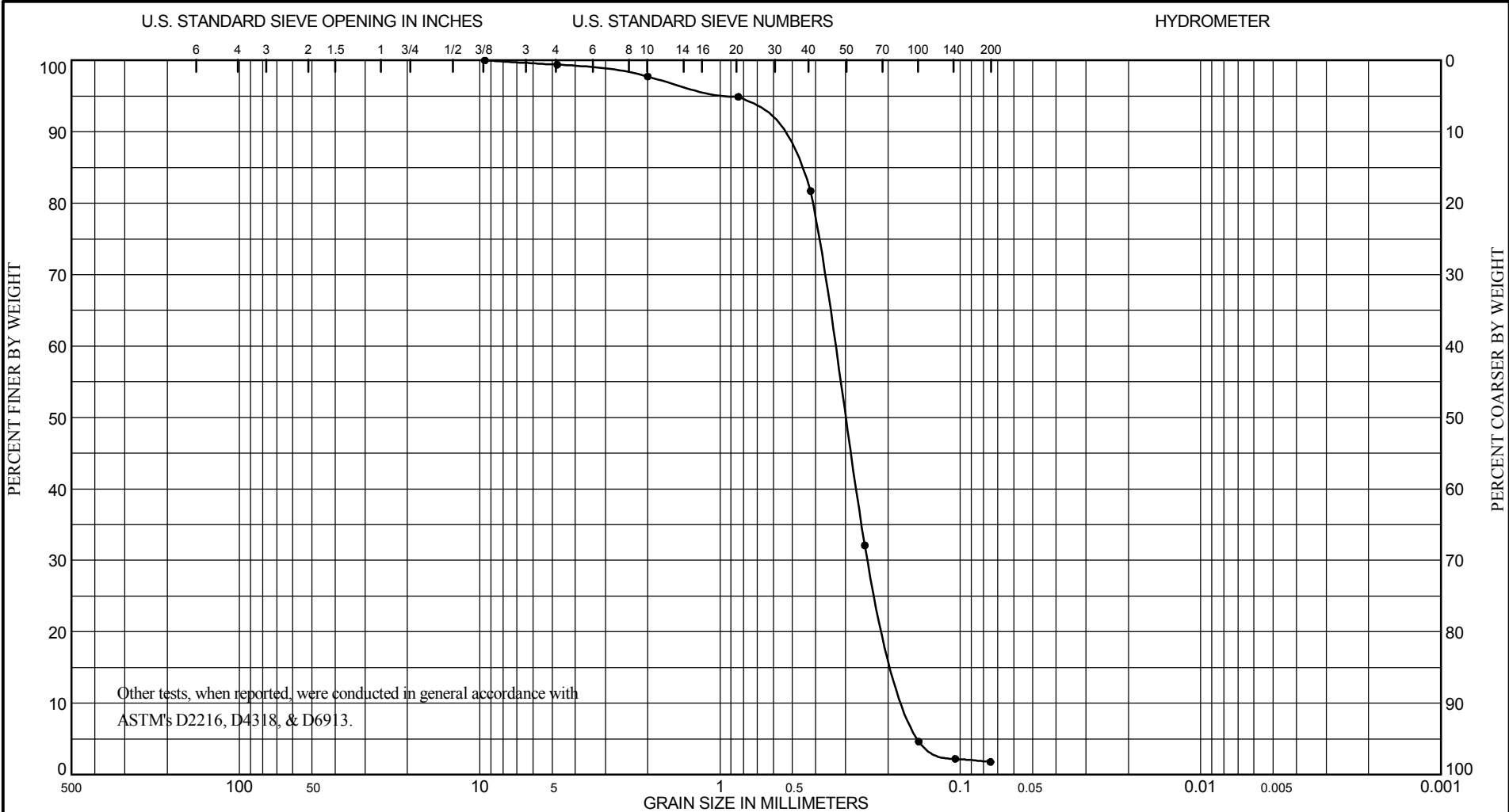
DRILLING LOG		DIVISION South Atlantic		INSTALLATION Mobile District		SHEET 1 OF 2 SHEETS	
1. PROJECT MsCIP Barrier Island Restoration Petit Bois Pass-OCS East				9. SIZE AND TYPE OF BIT N/A			
2. BORING DESIGNATION BI-PBS-328-13		LOCATION COORDINATES E = 1,130,422 N = 239,589		10. COORDINATE SYSTEM/DATUM State Plane, MSE (U.S. Ft.)		HORIZONTAL NAD83	
3. DRILLING AGENCY Corps of Engineers - CESAM		CONTRACTOR FILE NO.		11. MANUFACTURER'S DESIGNATION OF DRILL Vibrocure		<input type="checkbox"/> AUTO HAMMER <input type="checkbox"/> MANUAL HAMMER	
4. NAME OF DRILLER Construction Solutions International, Inc.				12. TOTAL SAMPLES		DISTURBED 2	
5. DIRECTION OF BORING <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED				13. TOTAL NUMBER CORE BOXES		UNDISTURBED (UD) 0	
6. THICKNESS OF OVERBURDEN N/A				14. WATER DEPTH		50 Ft.	
7. DEPTH DRILLED INTO ROCK N/A				15. DATE BORING		STARTED 02-10-14	
8. TOTAL DEPTH OF BORING 19.9 Ft.				16. ELEVATION TOP OF BORING -48.8 Ft.		COMPLETED 02-10-14	
				17. TOTAL RECOVERY FOR BORING 100%			
				18. SIGNATURE AND TITLE OF INSPECTOR Tom Powers, Geologist			
ELEV.	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS	SAMPLE	LABORATORY RESULTS		
-48.8	0.0						
-49.6	0.8		SAND, poorly-graded, mostly fine to medium-grained sand-sized quartz, few shell fragments, lt. greenish gray (SP)	A	Classification: SP Color: 2.5Y 6/1-gray D50: 0.301 mm % Fines: 1.8		
-52.3	3.5		SAND, silty, mostly fine-grained sand-sized quartz, few shell fragments, high fines content at 3.0 ft. depth, medium greenish gray (SM)	B	Classification: SP Color: 2.5Y 5/1-gray D50: 0.232 mm % Fines: 3.9		
-54.8	6.0		SAND, clayey, mostly fine-grained sand-sized quartz, few shell fragments, medium greenish gray (SC)	NS			
-56.2	7.4		CLAY, lean, trace shell fragments, sandy, trace wood from 4.6 to 4.8 ft. depths, medium to dark gray (CL)				
-58.2	9.4		SAND, silty, mostly fine-grained sand-sized quartz, few shell fragments, high fines content, medium to dark gray (SM)				
-60.2	11.4		SAND, clayey, mostly fine-grained sand-sized quartz, few shell fragments, high fines content, medium to dark gray (SC)				
-65.8	17.0		SAND, silty, mostly fine-grained sand-sized quartz, few shell fragments, high fines content, medium to dark gray (SM)				
-68.7	19.9		CLAY, lean, trace shell fragments, sandy, interbeds of SC, medium gray (CL)				
NOTES: 1. Soils are field visually classified in accordance with the Unified Soils Classification System. 2. NS = Sample not submitted for laboratory analysis from this interval. 3. Seafloor elevation determined from USACE							

<b>DRILLING LOG (Cont. Sheet)</b>			<b>INSTALLATION</b> Mobile District		<b>SHEET 2</b> <b>OF 2 SHEETS</b>
<b>PROJECT</b> MsCIP Barrier Island Restoration			<b>COORDINATE SYSTEM/DATUM</b> State Plane, MSE (U.S. Ft.)	<b>HORIZONTAL</b> NAD83	<b>VERTICAL</b> NAVD88
<b>LOCATION COORDINATES</b> X = 1,130,422 Y = 239,589			<b>ELEVATION TOP OF BORING</b> -48.8 Ft.		
<b>ELEV.</b>	<b>DEPTH</b>	<b>LEGEND</b>	<b>CLASSIFICATION OF MATERIALS</b>	<b>SAMPLE</b>	<b>LABORATORY RESULTS</b>
			hydrographic survey completed April 2014.		



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WORK ORDER: 848e  
REQUISITION: W33SJG32900192



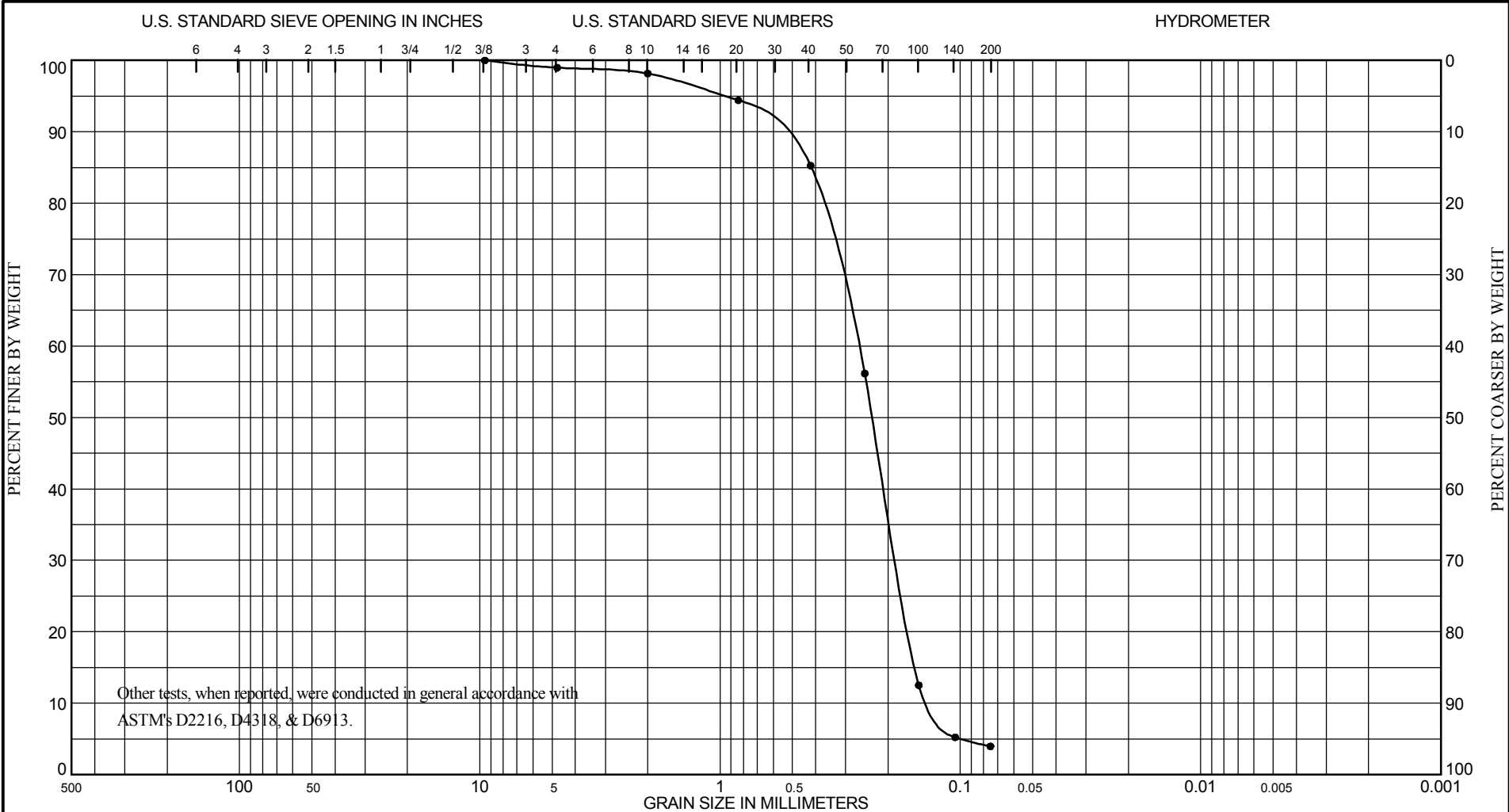
COBBLES		GRAVEL		SAND			SILT OR CLAY			
		COARSE	FINE	COARSE	MEDIUM	FINE				
Sample No.	Depth (ft)	ASTM D2487 Classification			Nat w%	LL	PL	PI	Project	MsCIP Barrier Island Restoration
A	0.0 to 0.8	Greenish Gray, Poorly Graded Sand (SP).							Vibracore Sampling	Pascagoula, MS
									Lab No.	K5/4827
									Hole No.	BI-PBS-328-13
GRADATION CURVES									Date	4/23/14

GRADATION CURVES



DEPARTMENT OF THE ARMY, SAVANNAH DISTRICT, ENVIRONMENTAL AND MATERIALS UNIT  
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WORK ORDER: 848e  
REQUISITION: W33SJG32900192



COBBLES		GRAVEL		SAND			SILT OR CLAY			
		COARSE	FINE	COARSE	MEDIUM	FINE				
Sample No.	Depth (ft)	ASTM D2487 Classification			Nat w%	LL	PL	PI	Project	MsCIP Barrier Island Restoration
B	0.8 to 3.5	Dark Greenish Gray, Poorly Graded Sand (SP).							Vibracore Sampling Pascagoula, MS	
									Lab No.	K5/4828
									Hole No.	BI-PBS-328-13
GRADATION CURVES									Date	4/23/14

# Boring Designation BI-PBS-329-13

DRILLING LOG		DIVISION South Atlantic		INSTALLATION Mobile District		SHEET 1 OF 1 SHEETS	
1. PROJECT MsCIP Barrier Island Restoration Petit Bois Pass-OCS East				9. SIZE AND TYPE OF BIT N/A			
2. BORING DESIGNATION BI-PBS-329-13		LOCATION COORDINATES E = 1,131,275 N = 238,901		10. COORDINATE SYSTEM/DATUM State Plane, MSE (U.S. Ft.)		HORIZONTAL NAD83 VERTICAL NAVD88	
3. DRILLING AGENCY Corps of Engineers - CESAM		CONTRACTOR FILE NO.		11. MANUFACTURER'S DESIGNATION OF DRILL Vibrocure		<input type="checkbox"/> AUTO HAMMER <input type="checkbox"/> MANUAL HAMMER	
4. NAME OF DRILLER Construction Solutions International, Inc.				12. TOTAL SAMPLES 2		DISTURBED 0 UNDISTURBED (UD)	
5. DIRECTION OF BORING <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED				13. TOTAL NUMBER CORE BOXES		14. WATER DEPTH 50.4 Ft.	
6. THICKNESS OF OVERBURDEN N/A				15. DATE BORING 02-10-14		STARTED 02-10-14 COMPLETED 02-10-14	
7. DEPTH DRILLED INTO ROCK N/A				16. ELEVATION TOP OF BORING -49.1 Ft.		17. TOTAL RECOVERY FOR BORING 100%	
8. TOTAL DEPTH OF BORING 17.6 Ft.				18. SIGNATURE AND TITLE OF INSPECTOR Tom Powers, Geologist			

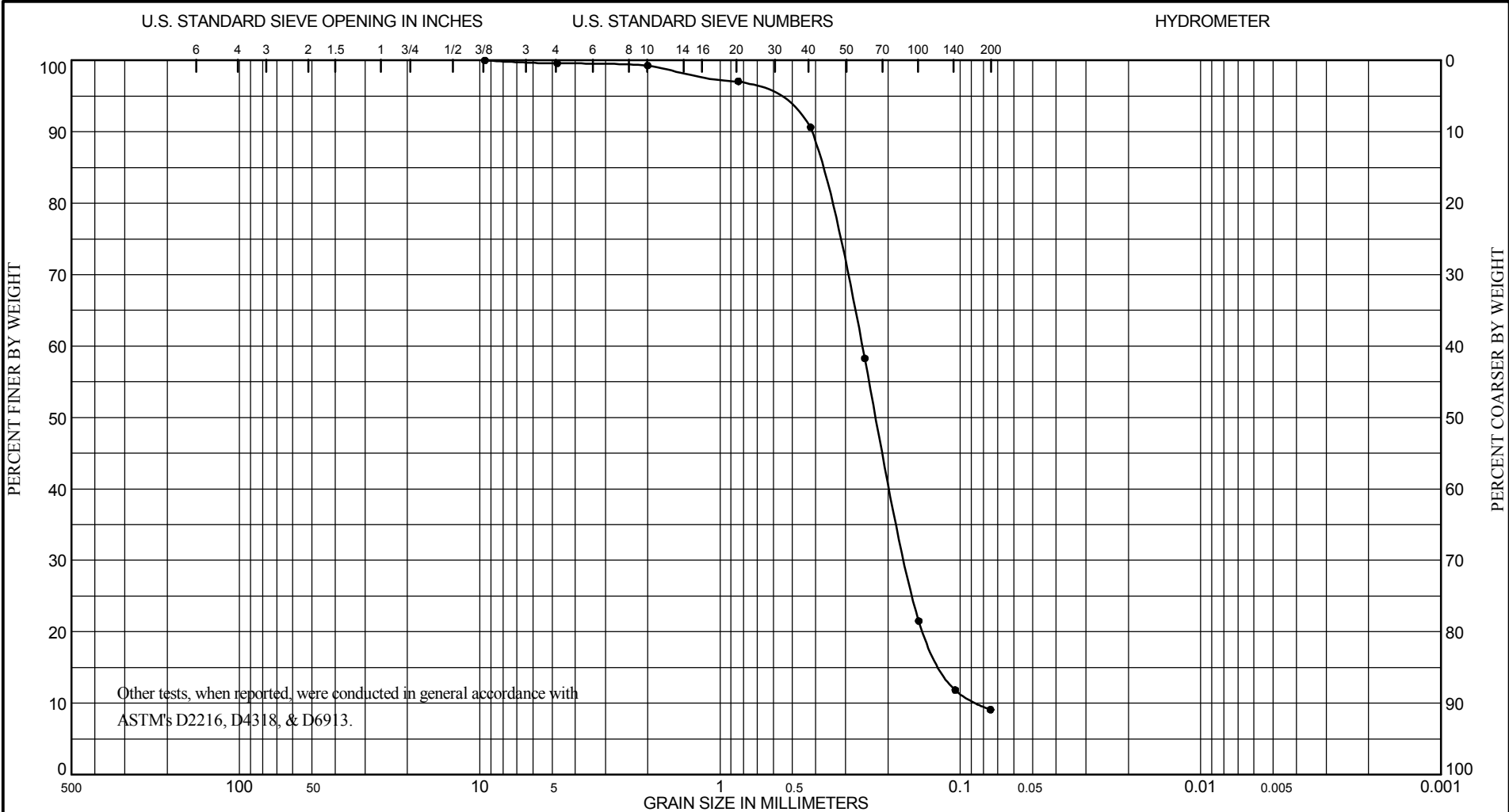
  

ELEV.	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS	SAMPLE	LABORATORY RESULTS
-49.1	0.0				
-49.4	0.3				
-50.8	1.7		SAND, poorly-graded, mostly fine to medium-grained sand-sized quartz, few shell fragments, lt. gray (SP)	A	Classification: SP-SM Color: GLEY1 10Y 6/1- D50: 0.223 mm % Fines: 9.1
-52.5	3.4		SAND, silty, mostly fine-grained sand-sized quartz, few shell fragments, high fines content, lt. greenish gray (SM)	NS	
-53.8	4.7		SAND, clayey, mostly fine-grained sand-sized quartz, few shell fragments, medium greenish gray (SC)		
-54.3	5.2		CLAY, lean, trace shell fragments, soft, medium greenish gray (CL)		
-58.6	9.5		SAND, silty, clayey, mostly fine-grained sand-sized quartz, trace shell fragments, medium greenish gray (SC-SM)		
-61.2	12.1		SAND, silty, mostly fine-grained sand-sized quartz, trace shell fragments, high fines content, medium greenish gray (SM)		
-63.4	14.3		SAND, silty, clayey, mostly fine-grained sand-sized quartz, trace shell fragments, high fines content, medium greenish gray (SC-SM)	B	Classification: SP Color: 2.5Y 6/1-gray D50: 0.282 mm % Fines: 2.7
-66.7	17.6		SAND, silty, mostly fine-grained sand-sized quartz, trace shell fragments, pale brown (SM)		
			NOTES: 1. Soils are field visually classified in accordance with the Unified Soils Classification System. 2. NS = Sample not submitted for laboratory analysis from this interval. 3. Seafloor elevation determined from USACE hydrographic survey completed April 2014.		



DEPARTMENT OF THE ARMY, SAVANNAH DISTRICT, ENVIRONMENTAL AND MATERIALS UNIT  
CORPS OF ENGINEERS, 200 N. COBB PARKWAY, BLDG 400 SUITE 404, MARIETTA, GA. 30062

WORK ORDER: 848e  
REQUISITION: W33SJG32900192



COBBLES		GRAVEL		SAND			SILT OR CLAY			
		COARSE	FINE	COARSE	MEDIUM	FINE				
Sample No.	Depth (ft)	ASTM D2487 Classification			Nat w%	LL	PL	PI	Project	MsCIP Barrier Island Restoration
A	0.0 to 1.7	Dark Greenish Gray, Poorly Graded Silty Sand (SP-SM).								Vibracore Sampling Pascagoula, MS
									Lab No.	K5/4830
									Hole No.	BI-PBS-329-13
GRADATION CURVES									Date	4/23/14

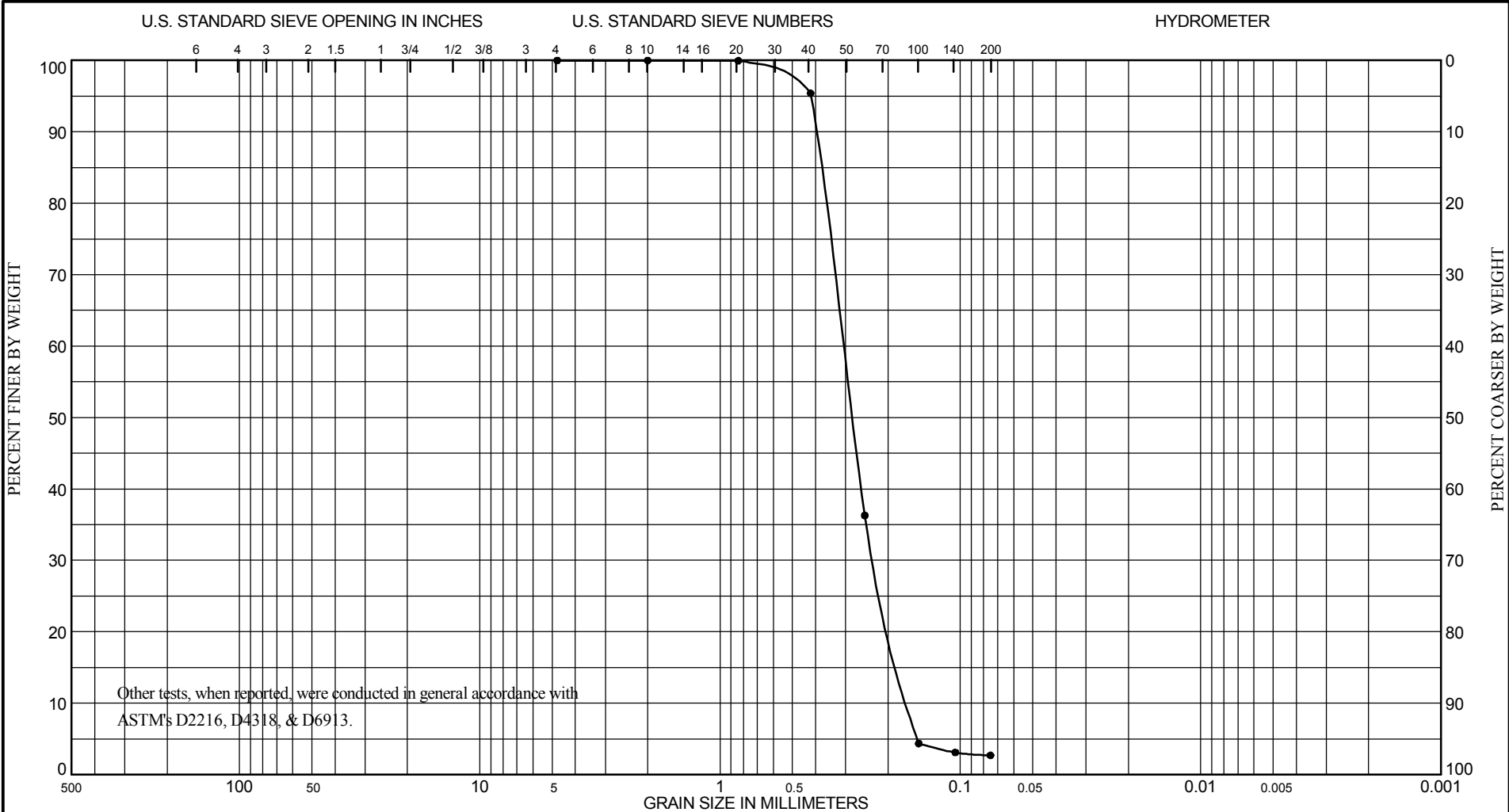
GRADATION CURVES





DEPARTMENT OF THE ARMY, SAVANNAH DISTRICT, ENVIRONMENTAL AND MATERIALS UNIT  
CORPS OF ENGINEERS, 200 N. COBB PARKWAY, BLDG 400 SUITE 404, MARIETTA, GA. 30062

WORK ORDER: 848e  
REQUISITION: W33SJG32900192



COBBLES		GRAVEL		SAND			SILT OR CLAY			
		COARSE	FINE	COARSE	MEDIUM	FINE				
Sample No.	Depth (ft)	ASTM D2487 Classification			Nat w%	LL	PL	PI	Project	MsCIP Barrier Island Restoration
B	14.3 to 17.6	Gray, Poorly Graded Sand (SP).							Vibracore Sampling	Pascagoula, MS
									Lab No.	K5/4831
									Hole No.	BI-PBS-329-13
GRADATION CURVES									Date	4/23/14

K-1011

# Boring Designation BI-PBS-330-13

DRILLING LOG		DIVISION South Atlantic		INSTALLATION Mobile District		SHEET 1 OF 1 SHEETS	
1. PROJECT MsCIP Barrier Island Restoration Petit Bois Pass-OCS West				9. SIZE AND TYPE OF BIT N/A			
2. BORING DESIGNATION BI-PBS-330-13		LOCATION COORDINATES E = 1,115,507 N = 233,636		10. COORDINATE SYSTEM/DATUM State Plane, MSE (U.S. Ft.)		HORIZONTAL NAD83 VERTICAL NAVD88	
3. DRILLING AGENCY Corps of Engineers - CESAM		CONTRACTOR FILE NO.		11. MANUFACTURER'S DESIGNATION OF DRILL Vibrocure		<input type="checkbox"/> AUTO HAMMER <input type="checkbox"/> MANUAL HAMMER	
4. NAME OF DRILLER Construction Solutions International, Inc.				12. TOTAL SAMPLES		DISTURBED 1 UNDISTURBED (UD) 0	
5. DIRECTION OF BORING <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED				13. TOTAL NUMBER CORE BOXES		14. WATER DEPTH 50.7 Ft.	
6. THICKNESS OF OVERBURDEN N/A				15. DATE BORING		STARTED 02-03-14 COMPLETED 02-03-14	
7. DEPTH DRILLED INTO ROCK N/A				16. ELEVATION TOP OF BORING -48.7 Ft.		17. TOTAL RECOVERY FOR BORING 100%	
8. TOTAL DEPTH OF BORING 12.2 Ft.				18. SIGNATURE AND TITLE OF INSPECTOR Tom Powers, Geologist			

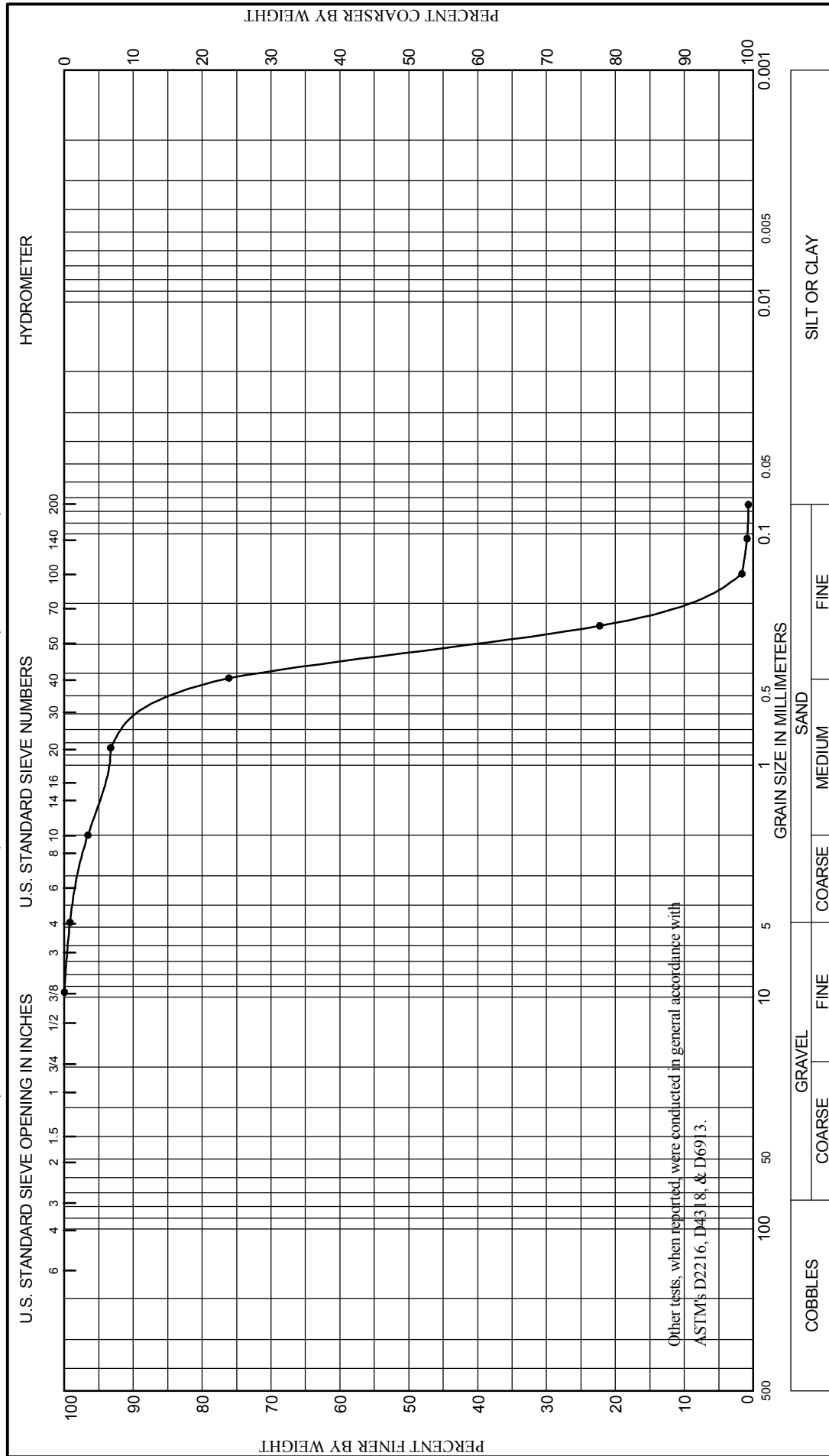
ELEV.	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS	SAMPLE	LABORATORY RESULTS
-48.7	0.0				
-50.8	2.1		SAND, poorly-graded, mostly fine to medium-grained sand-sized quartz, lt. gray (SP)	A	Classification: SP Color: 10Y 6/1-greenish gray D50: 0.327 mm % Fines: 0.7
-53.4	4.7		CLAY, lean, sandy, interbedded with SC, fine-grained, some wood fragments between 3.6 and 5.2 ft. depths, medium gray (CL)		
-54.2	5.5		SAND, clayey, mostly fine-grained sand-sized quartz, few shell fragments, medium gray (SC)		
-56.0	7.3		SAND, silty, clayey, mostly fine-grained sand-sized quartz, wood between depths of 7.0 and 7.5 ft., medium gray (SC-SM)	NS	
-56.8	8.1				
-57.8	9.1		CLAY, lean, sandy, firm, medium dark gray (CL)		
-60.9	12.2		SAND, silty, clayey, mostly fine-grained sand-sized quartz, trace shell fragments, medium gray (SC-SM)		
			SAND, poorly-graded with silt, mostly fine to medium-grained sand-sized quartz, trace shell fragments, medium to lt. gray (SP-SM)		
NOTES: 1. Soils are field visually classified in accordance with the Unified Soils Classification System. 2. NS = Sample not submitted for laboratory analysis from this interval. 3. Seafloor elevation determined from 12/17/2014 USACE survey.					



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WORK ORDER: 848e

REQUISITION: W33SJC32900192



Sample No.	Depth (ft)	ASTM D2487	Classification	Nat w%	LL	PL	PI	Project
A	0.0 to 2.1	Gray, Poorly Graded Sand (SP).						MsCIP Barrier Island Restoration
								Vibracore Sampling Pascagoula, MS
								Lab No. K5/4635
								Hole No. BI-PBS-330-13
								Date 4/23/14

GRADATION CURVES

# Boring Designation BI-PBS-331-13

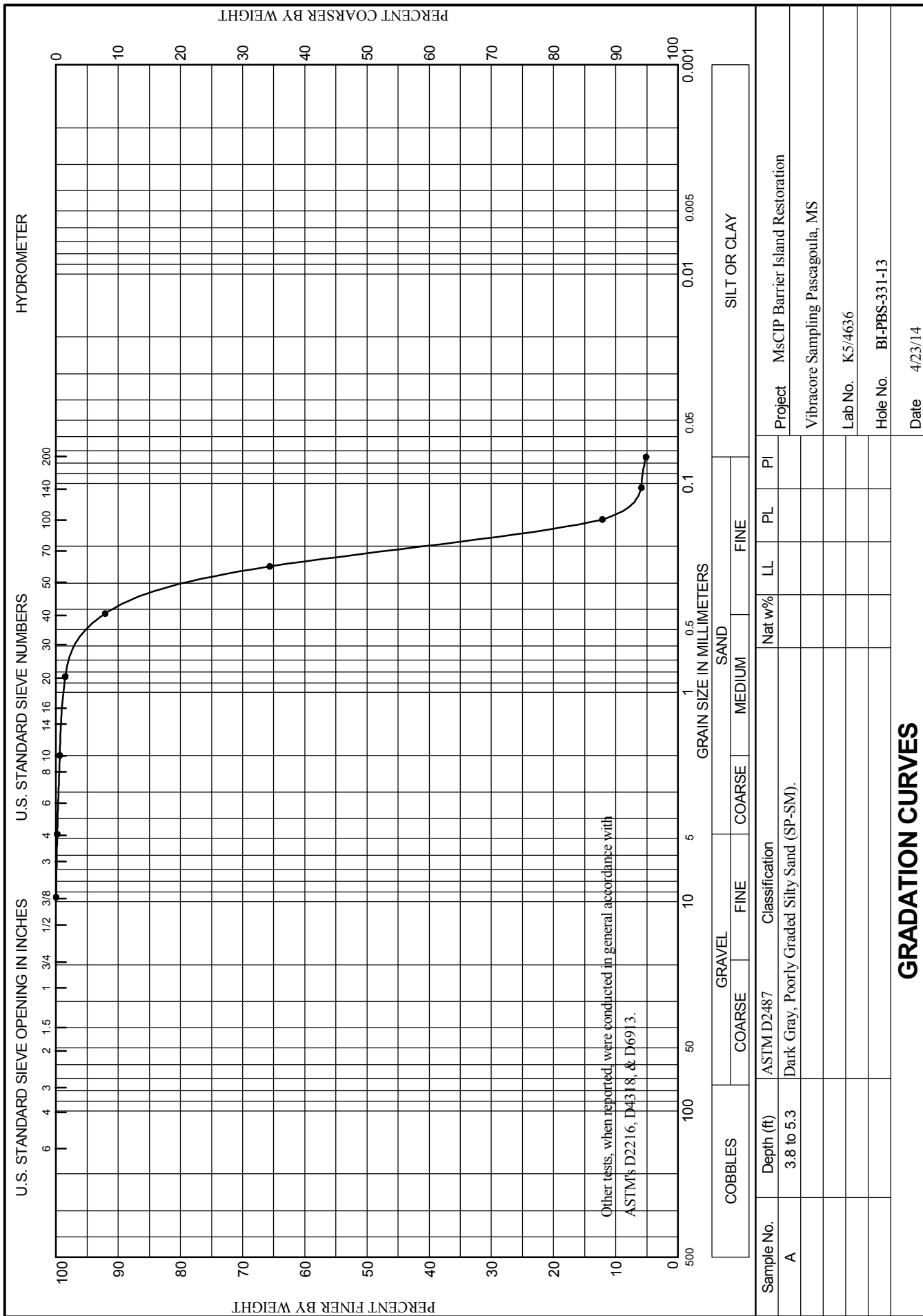
DRILLING LOG		DIVISION South Atlantic		INSTALLATION Mobile District		SHEET 1 OF 1 SHEETS	
1. PROJECT MsCIP Barrier Island Restoration Petit Bois Pass-OCS West				9. SIZE AND TYPE OF BIT N/A			
2. BORING DESIGNATION BI-PBS-331-13		LOCATION COORDINATES E = 1,116,192 N = 234,882		10. COORDINATE SYSTEM/DATUM State Plane, MSE (U.S. Ft.)		HORIZONTAL NAD83	
3. DRILLING AGENCY Corps of Engineers - CESAM		CONTRACTOR FILE NO.		11. MANUFACTURER'S DESIGNATION OF DRILL Vibracore		<input type="checkbox"/> AUTO HAMMER <input type="checkbox"/> MANUAL HAMMER	
4. NAME OF DRILLER Construction Solutions International, Inc.				12. TOTAL SAMPLES 3		UNDISTURBED (UD) 0	
5. DIRECTION OF BORING <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED				13. TOTAL NUMBER CORE BOXES		14. WATER DEPTH 57.2 Ft.	
6. THICKNESS OF OVERBURDEN N/A				15. DATE BORING 02-03-14		COMPLETED 02-03-14	
7. DEPTH DRILLED INTO ROCK N/A				16. ELEVATION TOP OF BORING -56.9 Ft.		17. TOTAL RECOVERY FOR BORING 100%	
8. TOTAL DEPTH OF BORING 16.1 Ft.				18. SIGNATURE AND TITLE OF INSPECTOR Tom Powers, Geologist			
ELEV.	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS	SAMPLE	LABORATORY RESULTS		
-56.9	0.0						
-59.3	2.4		CLAY, lean, few shell fragments, sandy, soft, dark olive (CL) At El. -58.1 Ft., sandy, firm, few wood fragments, olive gray	NS			
-60.7	3.8		SAND, silty, clayey, mostly fine-grained sand-sized quartz, trace shell fragments, medium gray (SC-SM)	A	Classification: SP-SM Color: 10Y 5/1-greenish gray D50: 0.215 mm % Fines: 5.1		
-62.2	5.3		SAND, silty, mostly fine to medium-grained sand-sized quartz, trace shell fragments, lt. to medium gray (SM)	B	Classification: SP Color: 10Y 6/1-greenish gray D50: 0.275 mm % Fines: 2		
-64.8	7.9		SAND, poorly-graded with silt, mostly fine to medium-grained sand-sized quartz, few shell fragments, lt. gray (SP-SM) At El. -63.4 Ft., trace shell fragments to base of unit	C	Classification: SP-SM Color: 10Y 5/1-greenish gray D50: 0.189 mm % Fines: 8.4		
-70.4	13.5		SAND, silty, mostly fine-grained sand-sized quartz, trace shell fragments, high fines content, medium gray (SM)				
-73.0	16.1		SILT, inorganic-L, few shell fragments, sandy, lt. greenish gray (ML)	NS			
NOTES: 1. Soils are field visually classified in accordance with the Unified Soils Classification System. 2. NS = Sample not submitted for laboratory analysis from this interval. 3. Seafloor elevation determined from 2013 USGS geophysical survey.							



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WORK ORDER: 848e

REQUISITION: W33SJC32900192

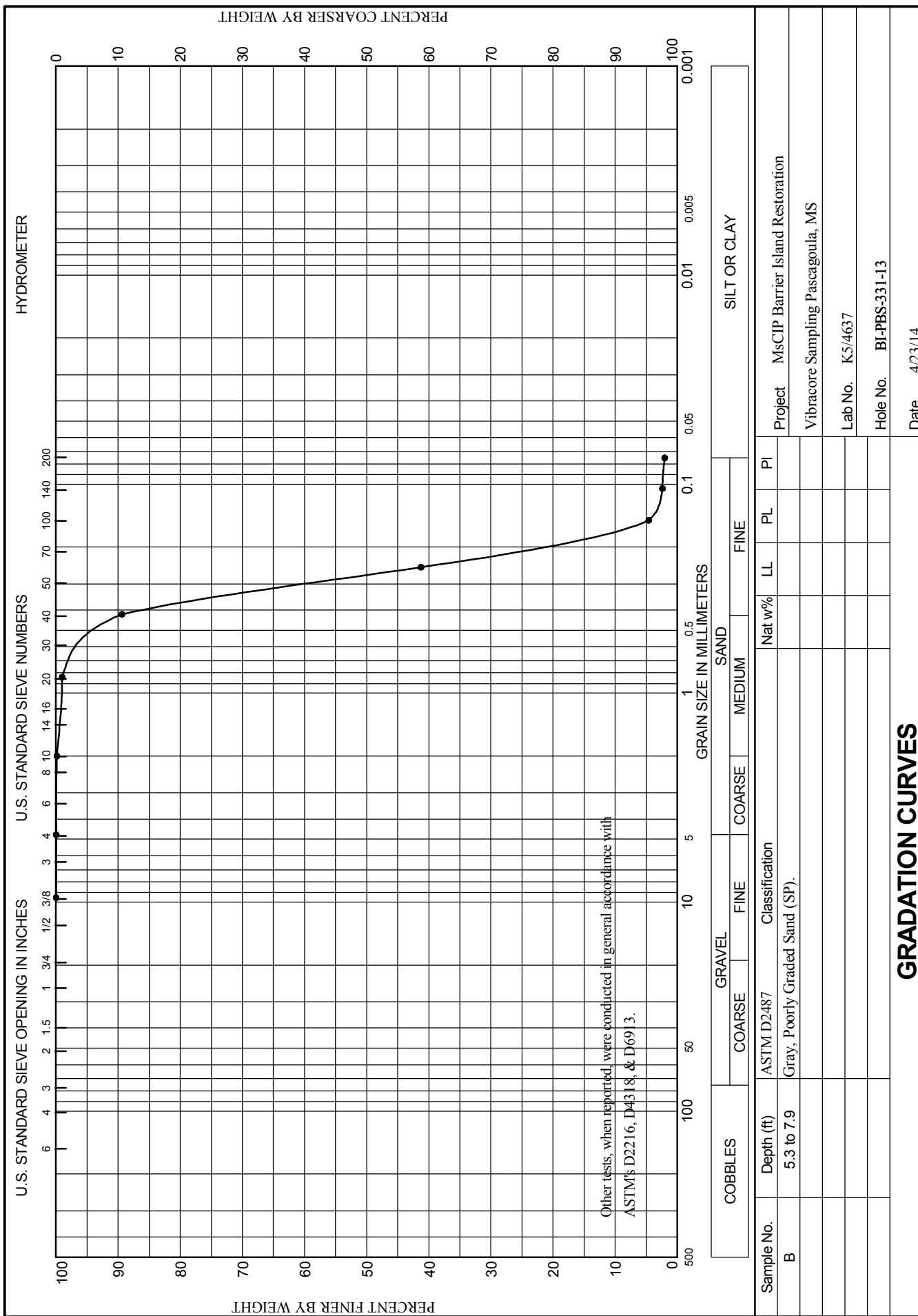




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WORK ORDER: 848e

REQUISITION: W33SJC32900192

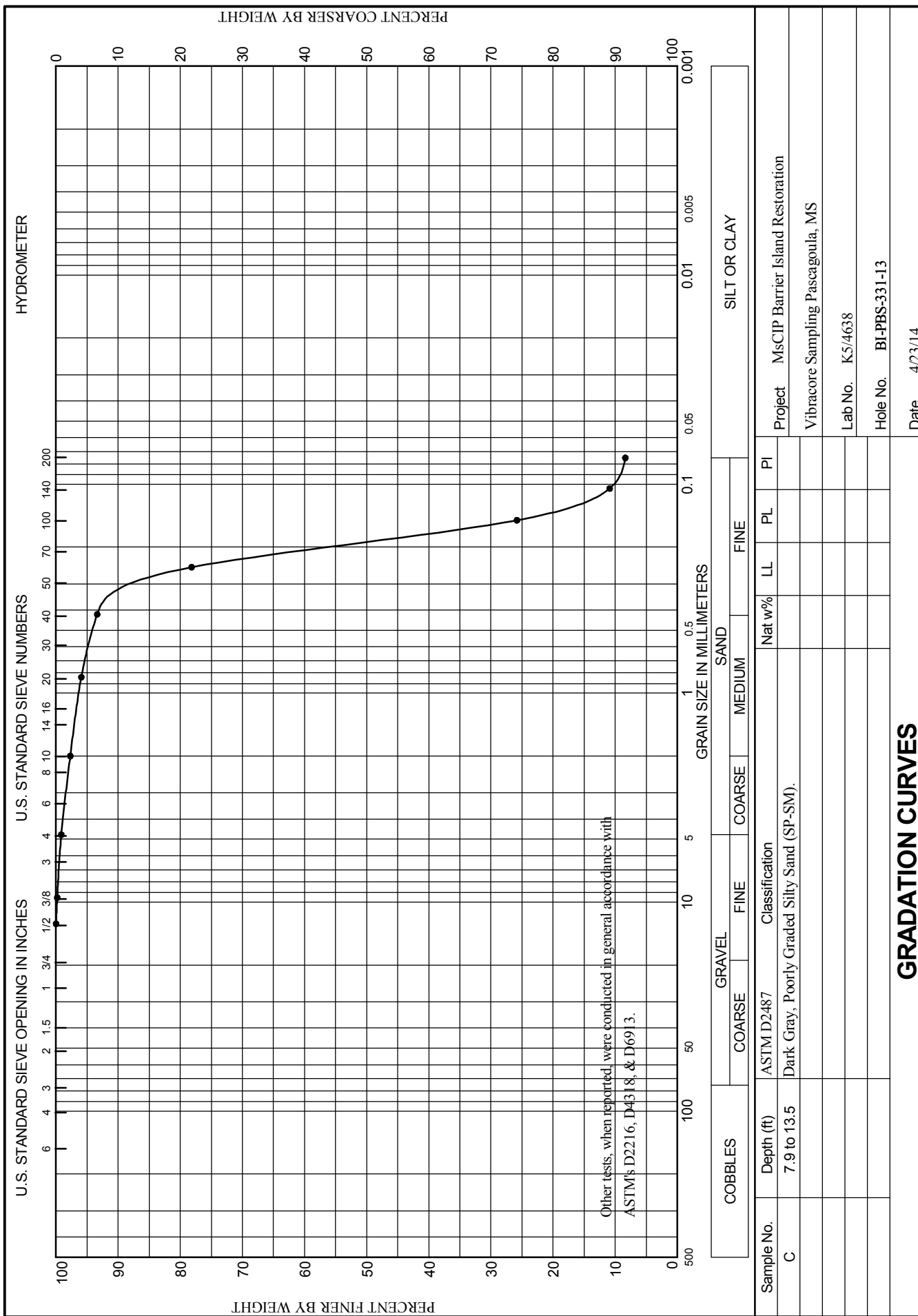




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CORPS OF ENGINEERS, 200 N. COBB PARKWAY, BLDG 400 SUITE 404, MARIETTA, GA. 30062

WORK ORDER: 848e

REQUISITION: W33SJC32900192



# Boring Designation BI-PBS-332-13

DRILLING LOG		DIVISION South Atlantic		INSTALLATION Mobile District		SHEET 1 OF 1 SHEETS	
1. PROJECT MsCIP Barrier Island Restoration Petit Bois Pass-OCS West				9. SIZE AND TYPE OF BIT N/A			
2. BORING DESIGNATION BI-PBS-332-13		LOCATION COORDINATES E = 1,115,699 N = 235,619		10. COORDINATE SYSTEM/DATUM State Plane, MSE (U.S. Ft.)		HORIZONTAL NAD83	
3. DRILLING AGENCY Corps of Engineers - CESAM		CONTRACTOR FILE NO.		11. MANUFACTURER'S DESIGNATION OF DRILL Vibrocure		<input type="checkbox"/> AUTO HAMMER <input type="checkbox"/> MANUAL HAMMER	
4. NAME OF DRILLER Construction Solutions International, Inc.				12. TOTAL SAMPLES		DISTURBED 0	
5. DIRECTION OF BORING <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED				13. TOTAL NUMBER CORE BOXES		14. WATER DEPTH 56.3 Ft.	
6. THICKNESS OF OVERBURDEN N/A				15. DATE BORING		STARTED 02-03-14	
7. DEPTH DRILLED INTO ROCK N/A				16. ELEVATION TOP OF BORING -55.3 Ft.		COMPLETED 02-03-14	
8. TOTAL DEPTH OF BORING 18.9 Ft.				17. TOTAL RECOVERY FOR BORING 100%		18. SIGNATURE AND TITLE OF INSPECTOR Tom Powers, Geologist	
ELEV.	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS	SAMPLE	LABORATORY RESULTS		
-55.3	0.0						
-56.0	0.7		CLAY, lean, sandy; this 0.7 ft. thick layer was discovered above the 0 ft. tape measure mark, sample depths are adjusted downward after field work was completed., olive gray (CL)	NS			
-60.5	5.2		SAND, poorly-graded with silt, mostly fine to medium-grained sand-sized quartz, few shell fragments, lt. gray (SP-SM)	A	Classification: SP-SM Color: 10Y 5/1-greenish gray D50: 0.272 mm % Fines: 5.4		
-65.0	9.7		SAND, poorly-graded, mostly fine to medium-grained sand-sized quartz, few shell fragments, lt. gray (SP)	B	Classification: SP Color: 10Y 5/1-greenish gray D50: 0.287 mm % Fines: 1.6		
-66.5	11.2		SAND, poorly-graded with silt, mostly fine to medium-grained sand-sized quartz, few shell fragments, lt. gray (SP-SM)	C	Classification: SP Color: 10Y 5/1-greenish gray D50: 0.262 mm % Fines: 2.2		
-72.5	17.2		SAND, silty, mostly fine-grained sand-sized quartz, trace shell fragments, lt. to medium gray (SM)	D	Classification: SP-SM Color: 10Y 5/1-greenish gray D50: 0.194 mm % Fines: 5.8		
-74.2	18.9		SILT, inorganic-L, few shell fragments, medium gray (ML)	NS			
NOTES: 1. Soils are field visually classified in accordance with the Unified Soils Classification System. 2. NS = Sample not submitted for laboratory analysis from this interval. 3. Seafloor elevation determined from 10/29/2014 USACE survey.							

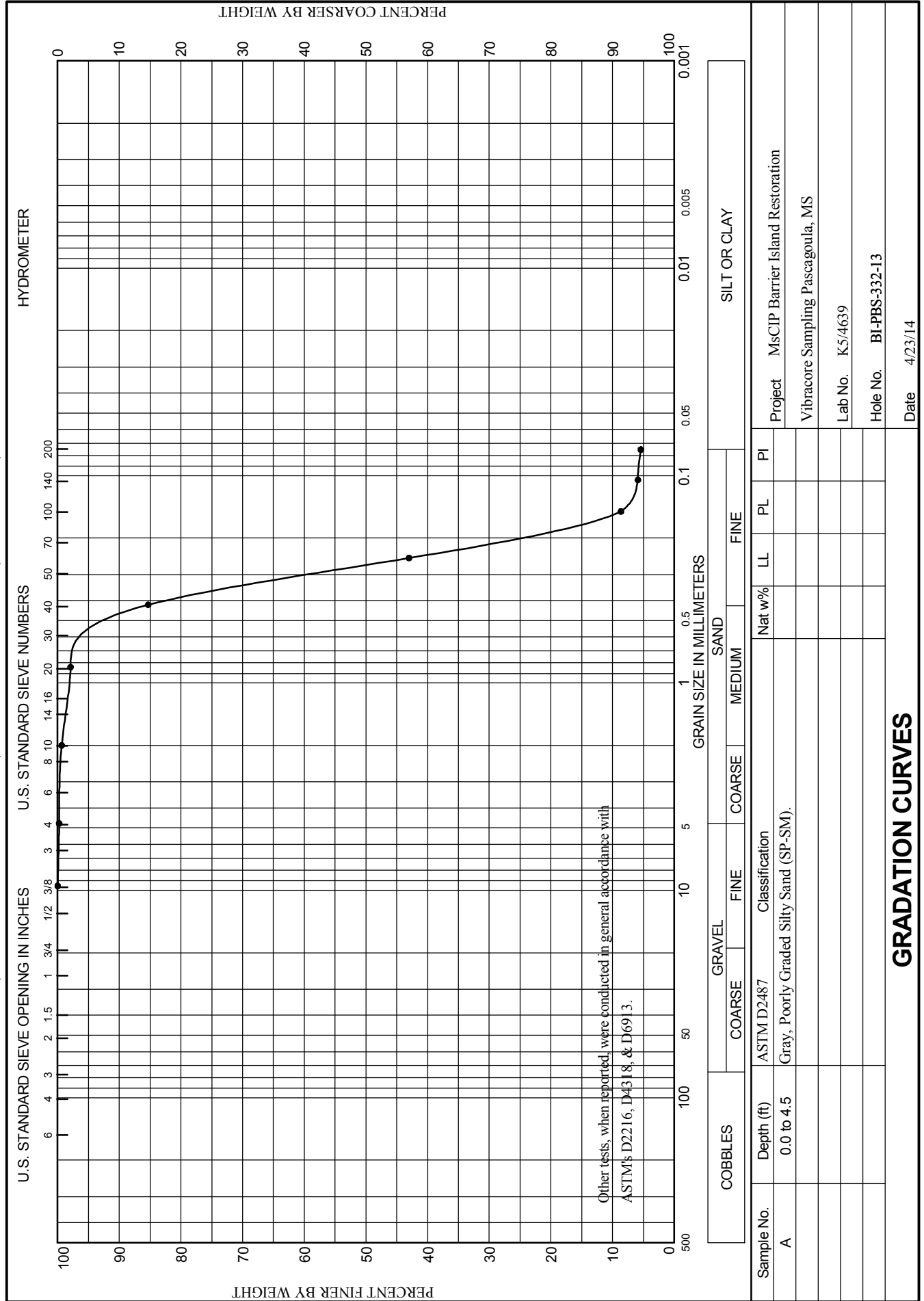




DEPARTMENT OF THE ARMY, SAVANNAH DISTRICT, ENVIRONMENTAL AND MATERIALS UNIT  
CORPS OF ENGINEERS, 200 N. COBB PARKWAY, BLDG 400 SUITE 404, MARIETTA, GA. 30062

WORK ORDER: 848e

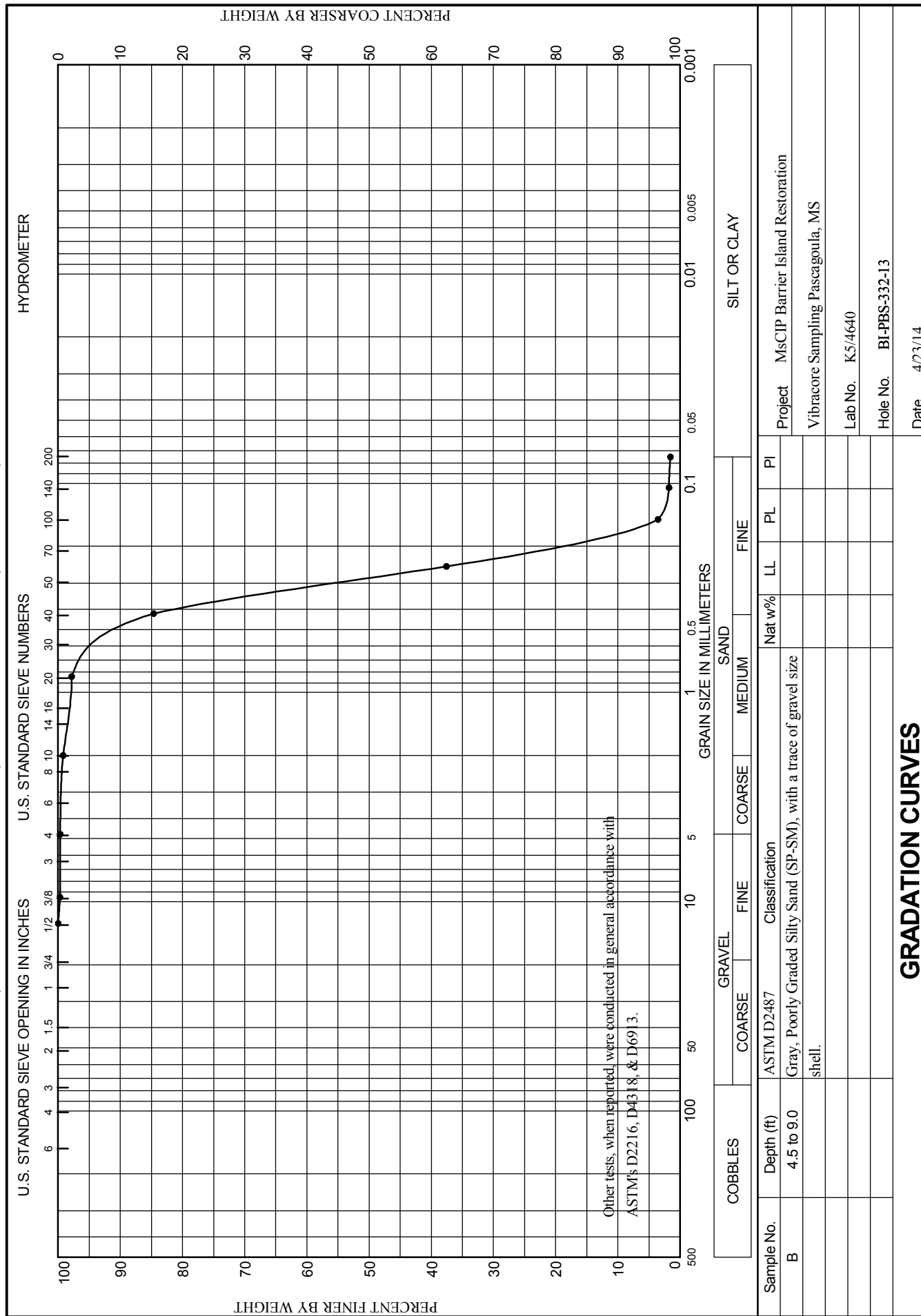
REQUISITION: W33SJC32900192





WORK ORDER: 848e

REQUISITION: W33SJG32900192

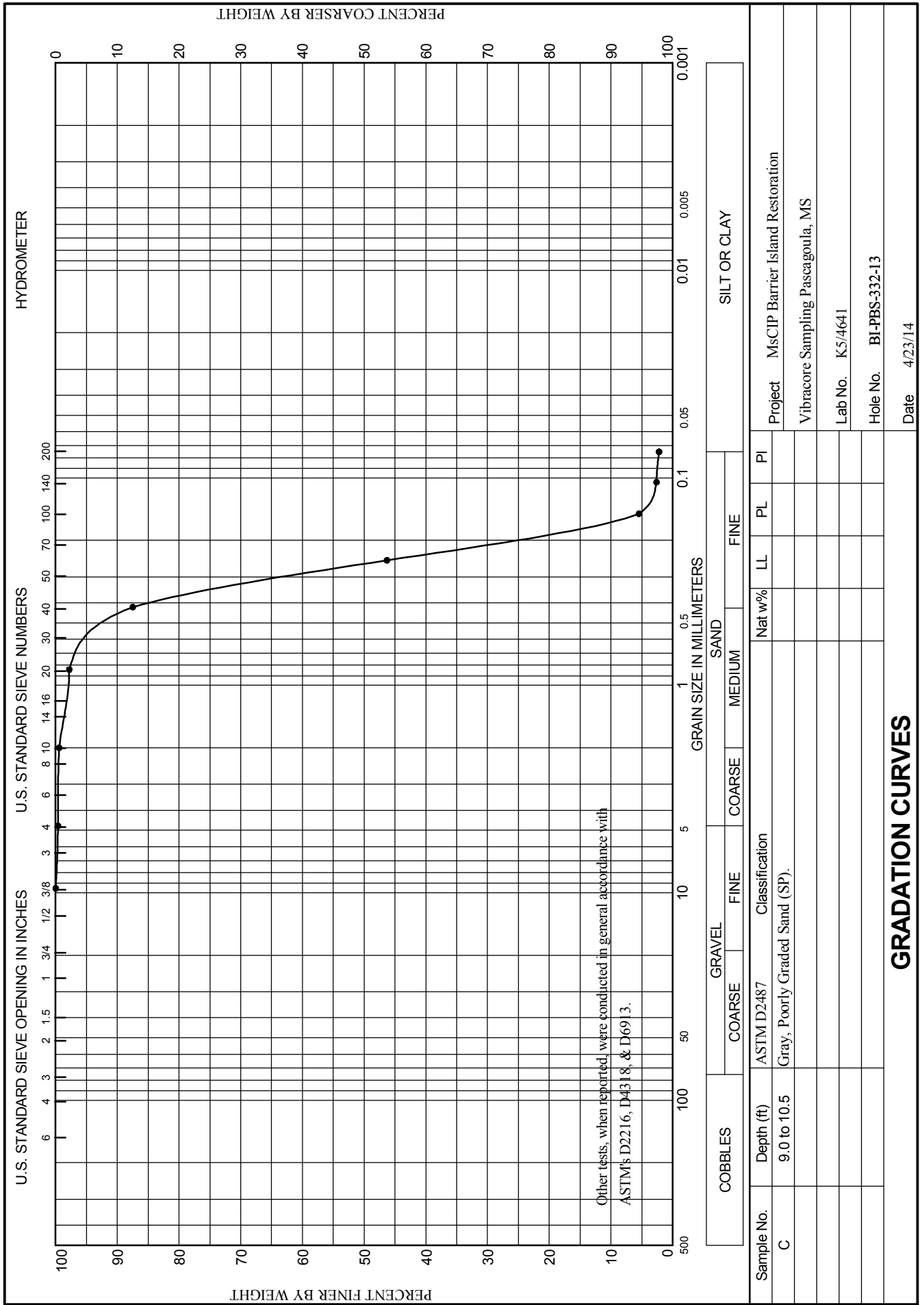




DEPARTMENT OF THE ARMY, SAVANNAH DISTRICT, ENVIRONMENTAL AND MATERIALS UNIT  
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WORK ORDER: 848e

REQUISITION: W33SJG32900192

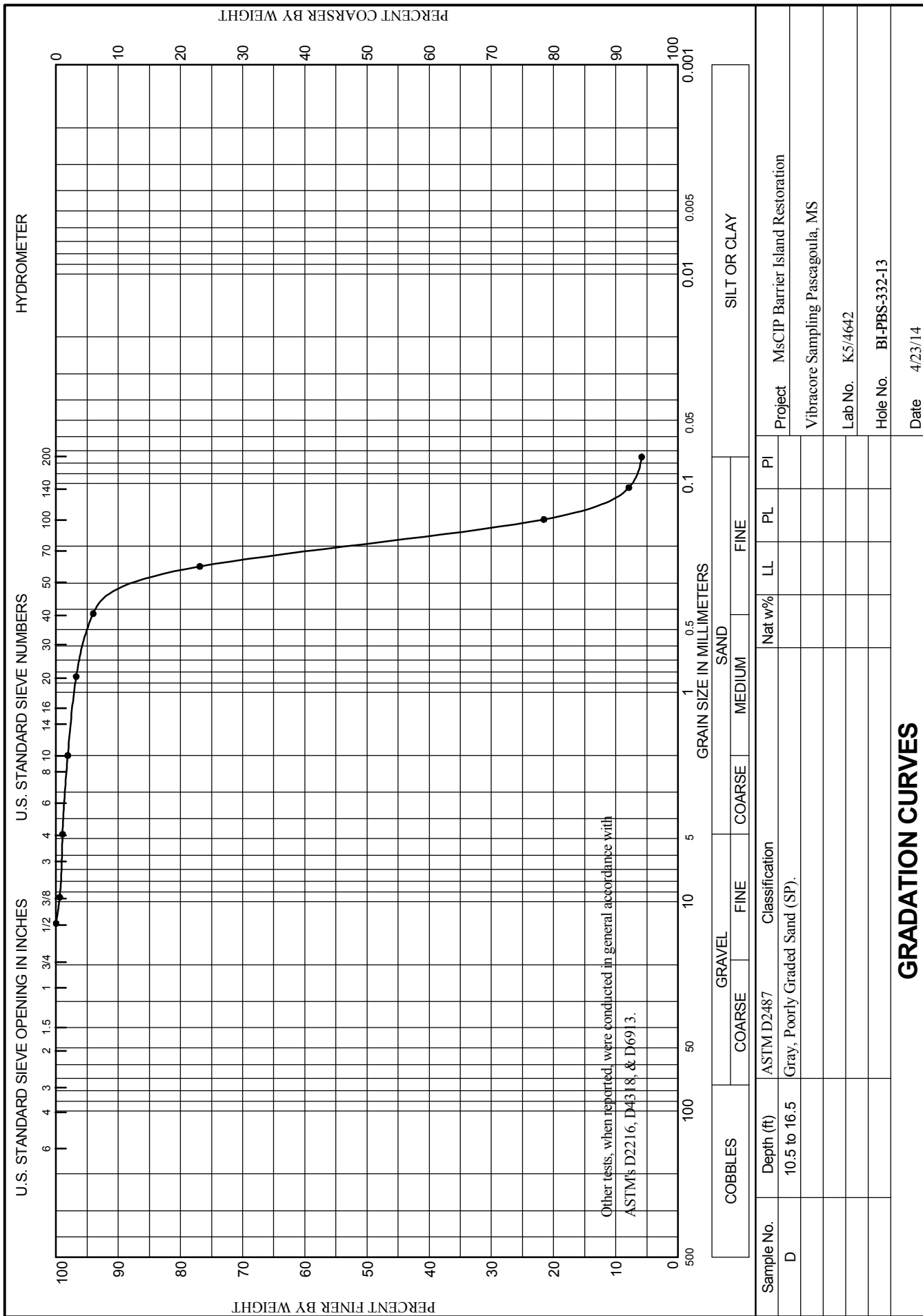




DEPARTMENT OF THE ARMY, SAVANNAH DISTRICT, ENVIRONMENTAL AND MATERIALS UNIT  
CORPS OF ENGINEERS, 200 N. COBB PARKWAY, BLDG 400 SUITE 404, MARIETTA, GA. 30062

WORK ORDER: 848e

REQUISITION: W33SJC32900192



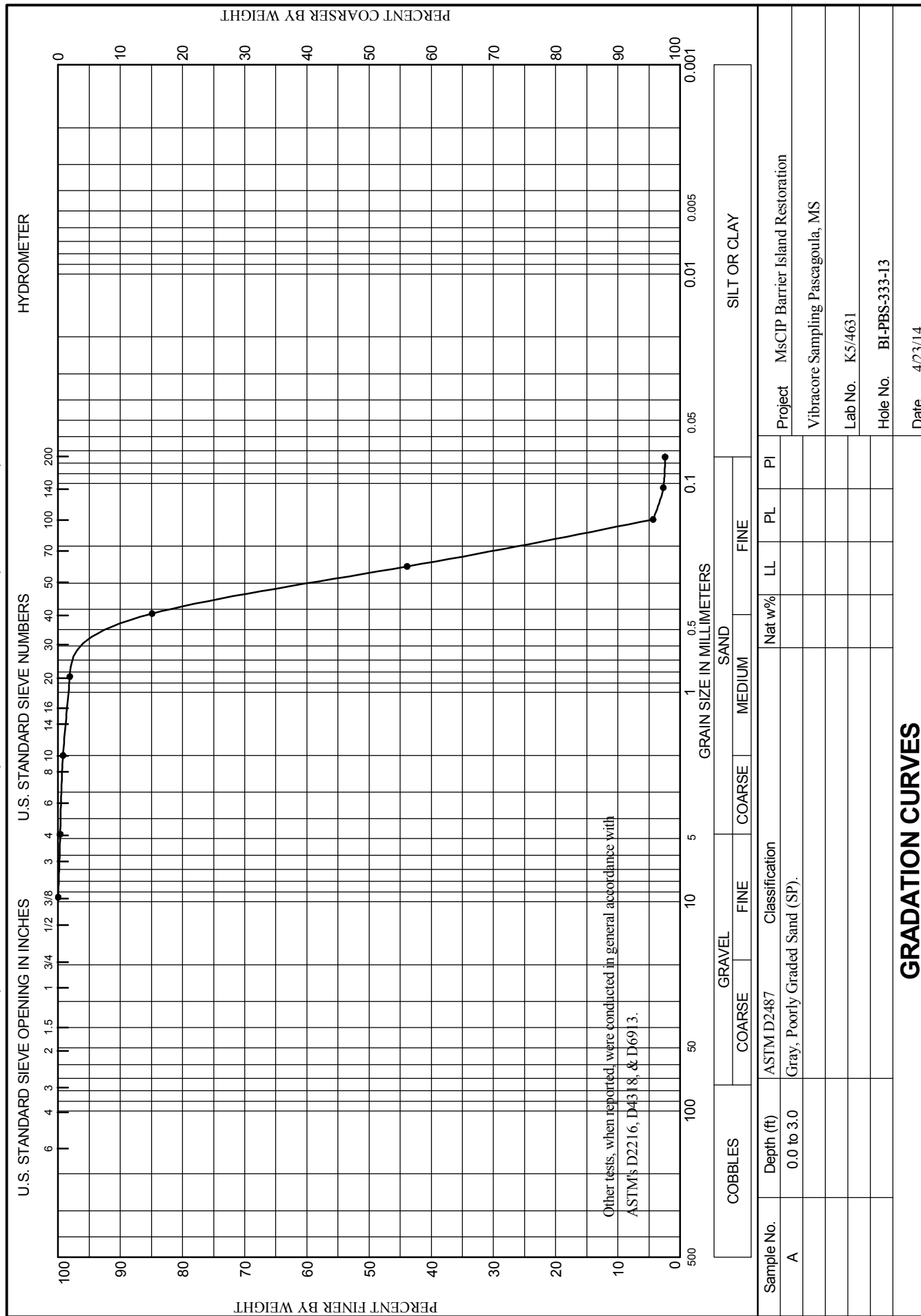
# Boring Designation BI-PBS-333-13

DRILLING LOG		DIVISION South Atlantic		INSTALLATION Mobile District		SHEET 1 OF 1 SHEETS	
1. PROJECT MsCIP Barrier Island Restoration Petit Bois Pass-OCS West				9. SIZE AND TYPE OF BIT N/A			
2. BORING DESIGNATION BI-PBS-333-13		LOCATION COORDINATES E = 1,114,968 N = 236,689		10. COORDINATE SYSTEM/DATUM State Plane, MSE (U.S. Ft.)		HORIZONTAL NAD83	
3. DRILLING AGENCY Corps of Engineers - CESAM		CONTRACTOR FILE NO.		11. MANUFACTURER'S DESIGNATION OF DRILL Vibrocure		<input type="checkbox"/> AUTO HAMMER <input type="checkbox"/> MANUAL HAMMER	
4. NAME OF DRILLER Construction Solutions International, Inc.				12. TOTAL SAMPLES 4		UNDISTURBED (UD) 0	
5. DIRECTION OF BORING <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED				13. TOTAL NUMBER CORE BOXES		14. WATER DEPTH 55 Ft.	
6. THICKNESS OF OVERBURDEN N/A				15. DATE BORING 02-03-14		STARTED 02-03-14	
7. DEPTH DRILLED INTO ROCK N/A				16. ELEVATION TOP OF BORING -53.8 Ft.		COMPLETED 02-03-14	
8. TOTAL DEPTH OF BORING 16.5 Ft.				17. TOTAL RECOVERY FOR BORING 100%			
				18. SIGNATURE AND TITLE OF INSPECTOR Tom Powers, Geologist			
ELEV.	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS	SAMPLE	LABORATORY RESULTS		
-53.8	0.0		SAND, poorly-graded, mostly fine to medium-grained sand-sized quartz, few shell fragments, trace wood 2.6 to 7 ft. depth, lt. gray (SP)	A	Classification: SP Color: 10Y 6/1-greenish gray D50: 0.27 mm % Fines: 2.4		
			At El. -56.8 Ft., fine-grained sand size to base of unit	B	Classification: SP Color: 10Y 6/1-greenish gray D50: 0.229 mm % Fines: 2.7		
-60.8	7.0						
-61.6	7.8		SAND, poorly-graded with silt, mostly fine to medium-grained sand-sized quartz, lt. gray (SP-SM)	C	Classification: SP-SM Color: 10Y 6/1-greenish gray D50: 0.207 mm % Fines: 5.3		
-63.4	9.6		SAND, silty, mostly fine-grained sand-sized quartz, low fines content, lt. to medium gray (SM)	D	Classification: SP Color: 10Y 5/1-greenish gray D50: 0.194 mm % Fines: 4.9		
-66.3	12.5		At El. -62.3 Ft., fine- to medium-grained to 9.0 ft. depth				
			SAND, silty, mostly fine-grained sand-sized quartz, high fines content, lt. to medium gray (SM)	NS			
-70.3	16.5		SILT, inorganic-L, few shell fragments, sandy, medium gray (ML)				
NOTES:							
1. Soils are field visually classified in accordance with the Unified Soils Classification System.							
2. NS = Sample not submitted for laboratory analysis from this interval.							
3. Seafloor elevation determined from 10/29/2014 USACE survey.							



WORK ORDER: 848e

REQUISITION: W33SJG32900192

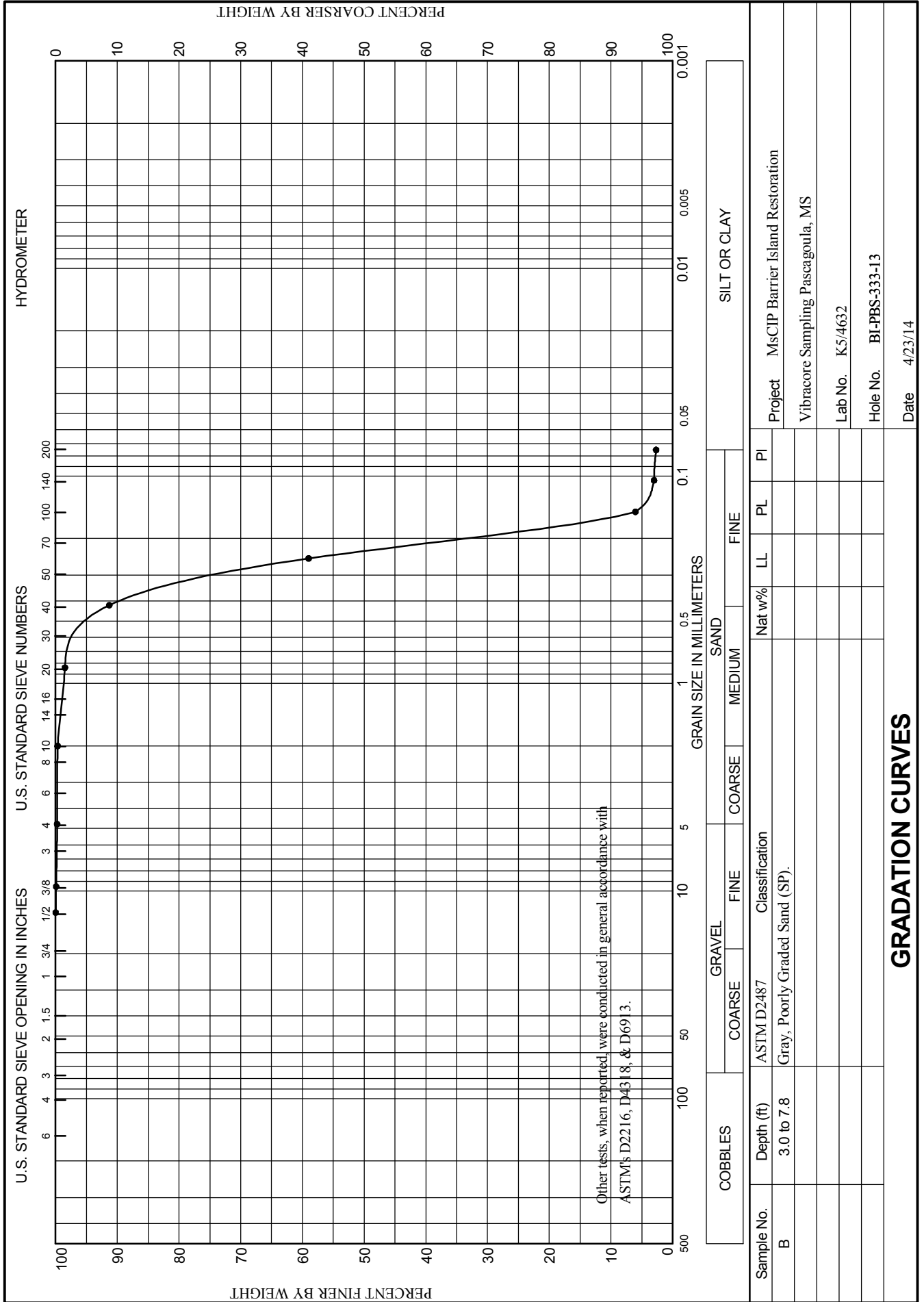




DEPARTMENT OF THE ARMY, SAVANNAH DISTRICT, ENVIRONMENTAL AND MATERIALS UNIT  
CORPS OF ENGINEERS, 200 N. COBB PARKWAY, BLDG 400 SUITE 404, MARIETTA, GA. 30062

WORK ORDER: 848e

REQUISITION: W33SSJG32900192

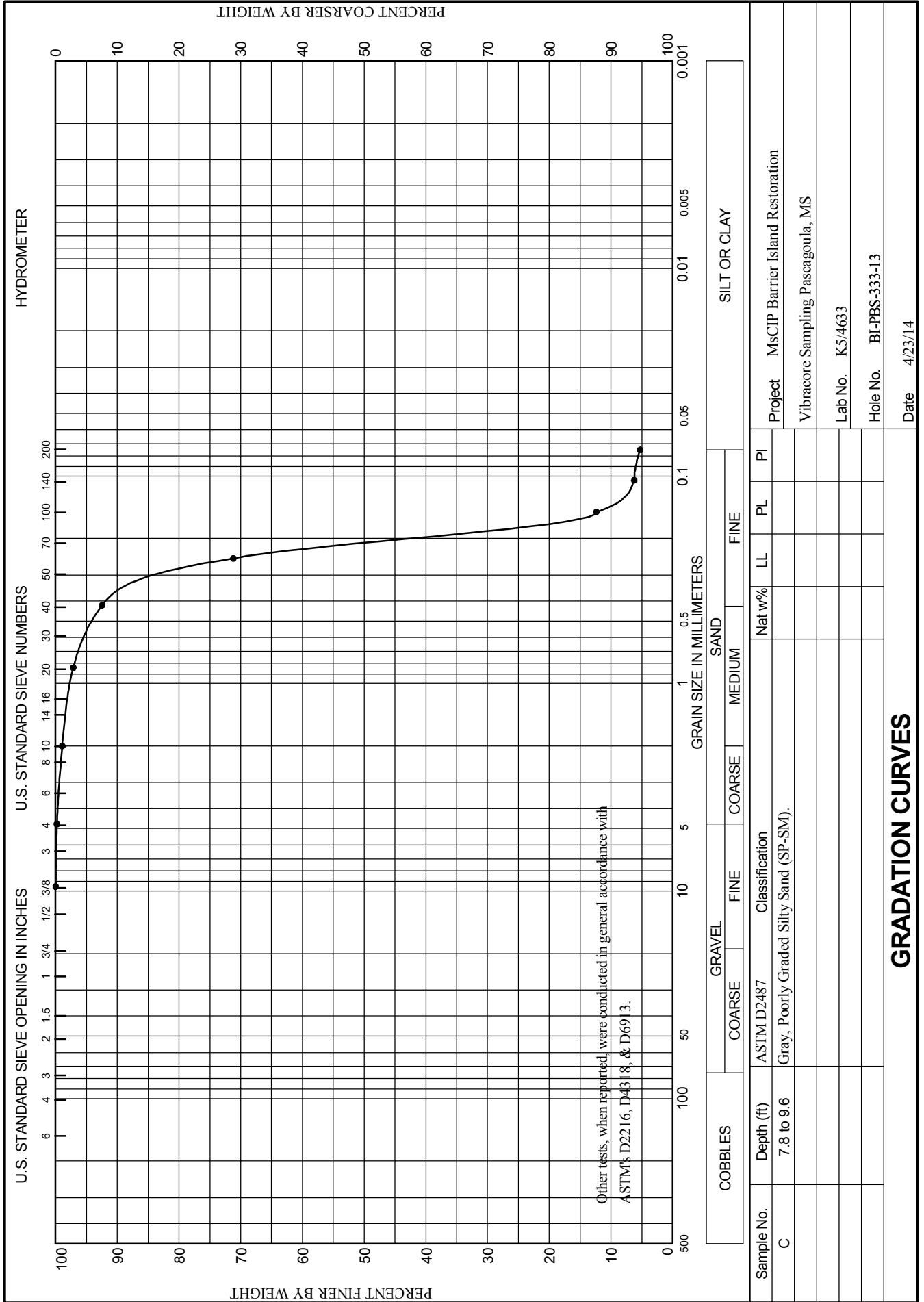




DEPARTMENT OF THE ARMY, SAVANNAH DISTRICT, ENVIRONMENTAL AND MATERIALS UNIT  
CORPS OF ENGINEERS, 200 N. COBB PARKWAY, BLDG 400 SUITE 404, MARIETTA, GA. 30062

WORK ORDER: 848e

REQUISITION: W33SJC32900192



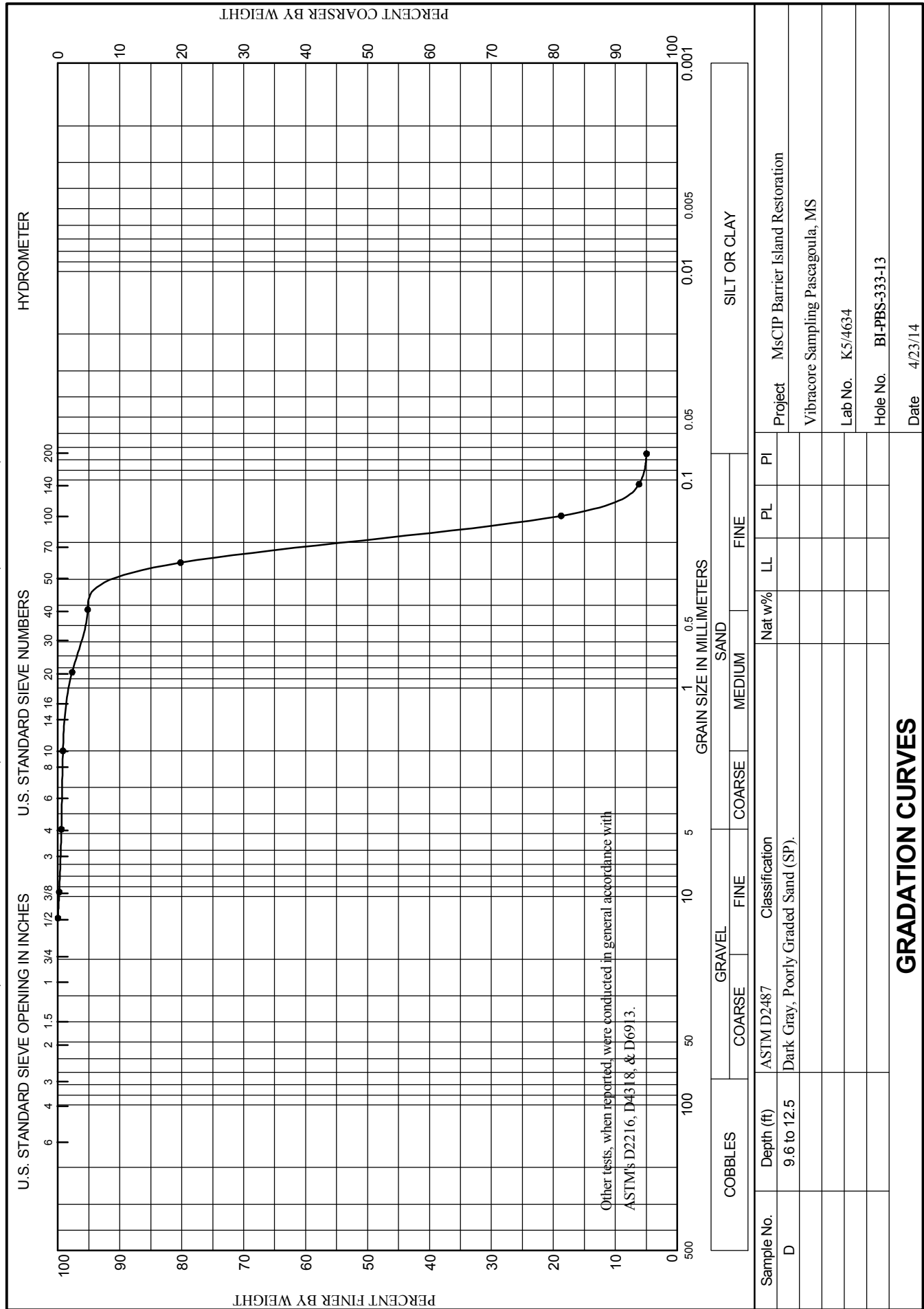




DEPARTMENT OF THE ARMY, SAVANNAH DISTRICT, ENVIRONMENTAL AND MATERIALS UNIT  
CORPS OF ENGINEERS, 200 N. COBB PARKWAY, BLDG 400 SUITE 404, MARIETTA, GA. 30062

WORK ORDER: 848e

REQUISITION: W33SJC32900192



# Boring Designation BI-PBS-334-13

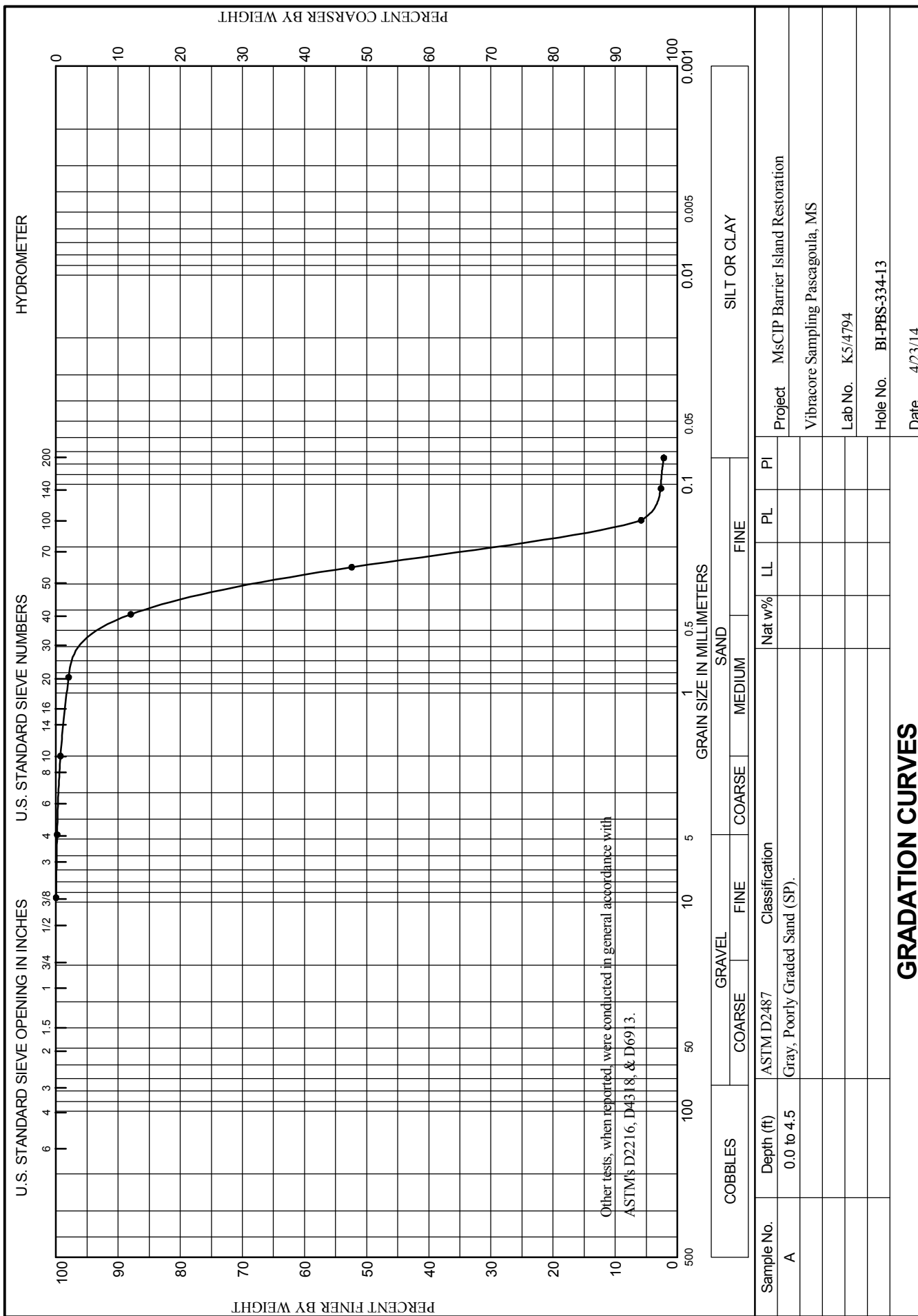
DRILLING LOG		DIVISION South Atlantic		INSTALLATION Mobile District		SHEET 1 OF 1 SHEETS	
1. PROJECT MsCIP Barrier Island Restoration Petit Bois Pass-OCS West				9. SIZE AND TYPE OF BIT N/A			
2. BORING DESIGNATION BI-PBS-334-13		LOCATION COORDINATES E = 1,116,032 N = 236,257		10. COORDINATE SYSTEM/DATUM State Plane, MSE (U.S. Ft.)		HORIZONTAL NAD83	
3. DRILLING AGENCY Corps of Engineers - CESAM		CONTRACTOR FILE NO.		11. MANUFACTURER'S DESIGNATION OF DRILL Vibracore		<input type="checkbox"/> AUTO HAMMER <input type="checkbox"/> MANUAL HAMMER	
4. NAME OF DRILLER Construction Solutions International, Inc.				12. TOTAL SAMPLES 4		UNDISTURBED (UD) 0	
5. DIRECTION OF BORING <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED				13. TOTAL NUMBER CORE BOXES		14. WATER DEPTH 55.3 Ft.	
6. THICKNESS OF OVERBURDEN N/A				15. DATE BORING 02-08-14		STARTED 02-08-14	
7. DEPTH DRILLED INTO ROCK N/A				16. ELEVATION TOP OF BORING -54.4 Ft.		COMPLETED 02-08-14	
8. TOTAL DEPTH OF BORING 17.8 Ft.				17. TOTAL RECOVERY FOR BORING 100%			
				18. SIGNATURE AND TITLE OF INSPECTOR Tom Powers, Geologist			
ELEV.	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS	SAMPLE	LABORATORY RESULTS		
-54.4	0.0						
			SAND, poorly-graded, mostly fine to medium-grained sand-sized quartz, few shell fragments, lt. gray (SP)	A	Classification: SP Color: 2.5Y 7/1-light gray D50: 0.243 mm % Fines: 2.2		
			At El. -59.4 Ft., trace clay	B	Classification: SP Color: 2.5Y 6/1-gray D50: 0.224 mm % Fines: 2.3		
			At El. -61.6 Ft., fine-grained sand-sized				
-63.4	9.0						
-65.2	10.8		SAND, poorly-graded with silt, mostly fine-grained sand-sized quartz, few shell fragments, lt. to medium gray (SP-SM)	C	Classification: SP Color: 2.5Y 6/1-gray D50: 0.207 mm % Fines: 4.1		
			SAND, silty, mostly fine to medium-grained sand-sized quartz, little shell fragments, medium gray (SM)	D	Classification: SP-SM Color: 2.5Y 6/1-gray D50: 0.183 mm % Fines: 6		
			At El. -66.4 Ft., fine-grained sand-sized, trace shell fragments				
			At El. -70.4 Ft., high fines content	NS			
-72.2	17.8						
			At El. -72.2 Ft., slight plasticity at base				
			NOTES: 1. Soils are field visually classified in accordance with the Unified Soils Classification System. 2. NS = Sample not submitted for laboratory analysis from this interval. 3. Seafloor elevation determined from 10/29/2014 USACE survey.				



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WORK ORDER: 848e

REQUISITION: W33SJC32900192

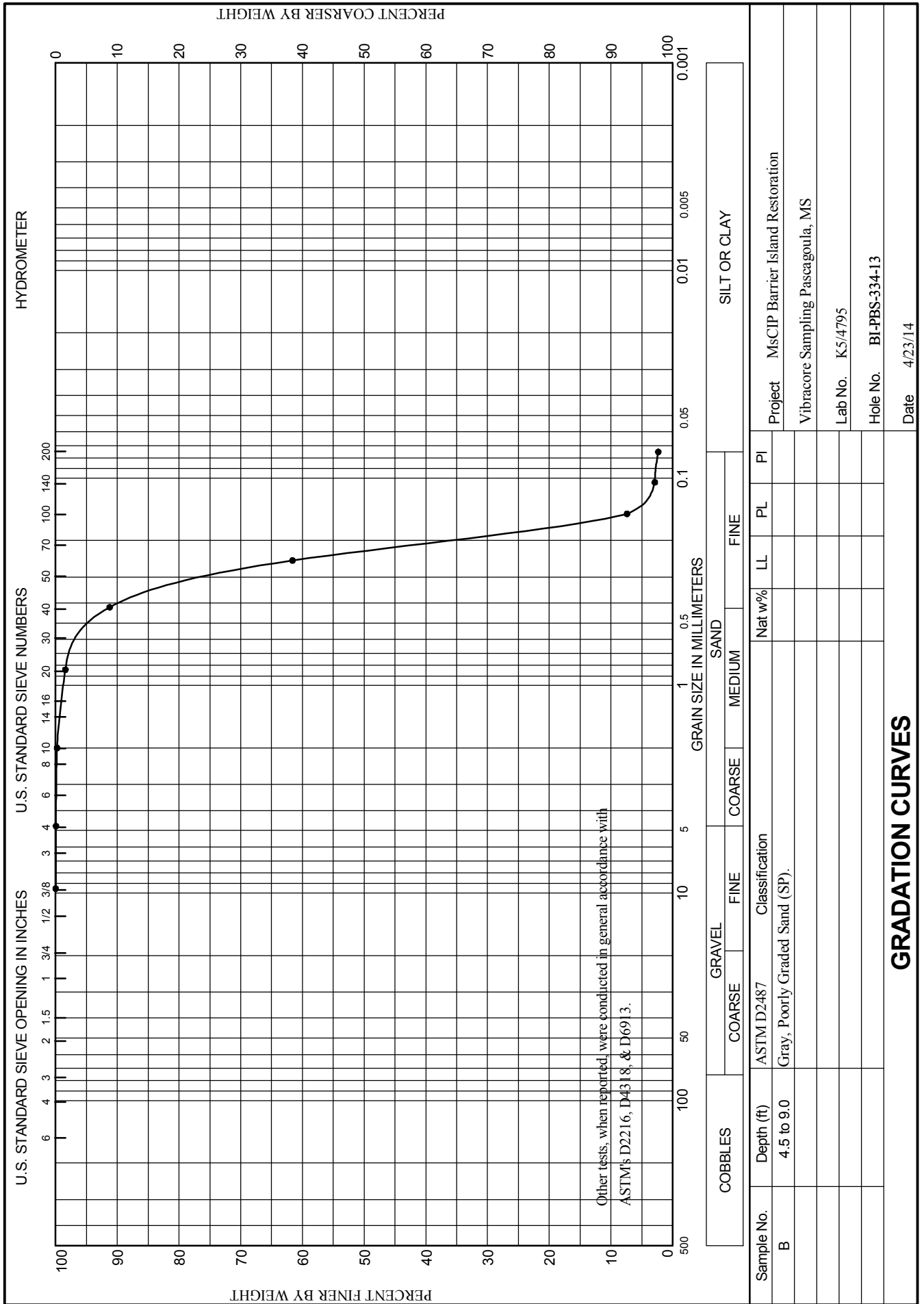




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WORK ORDER: 848e

REQUISITION: W33SJG32900192

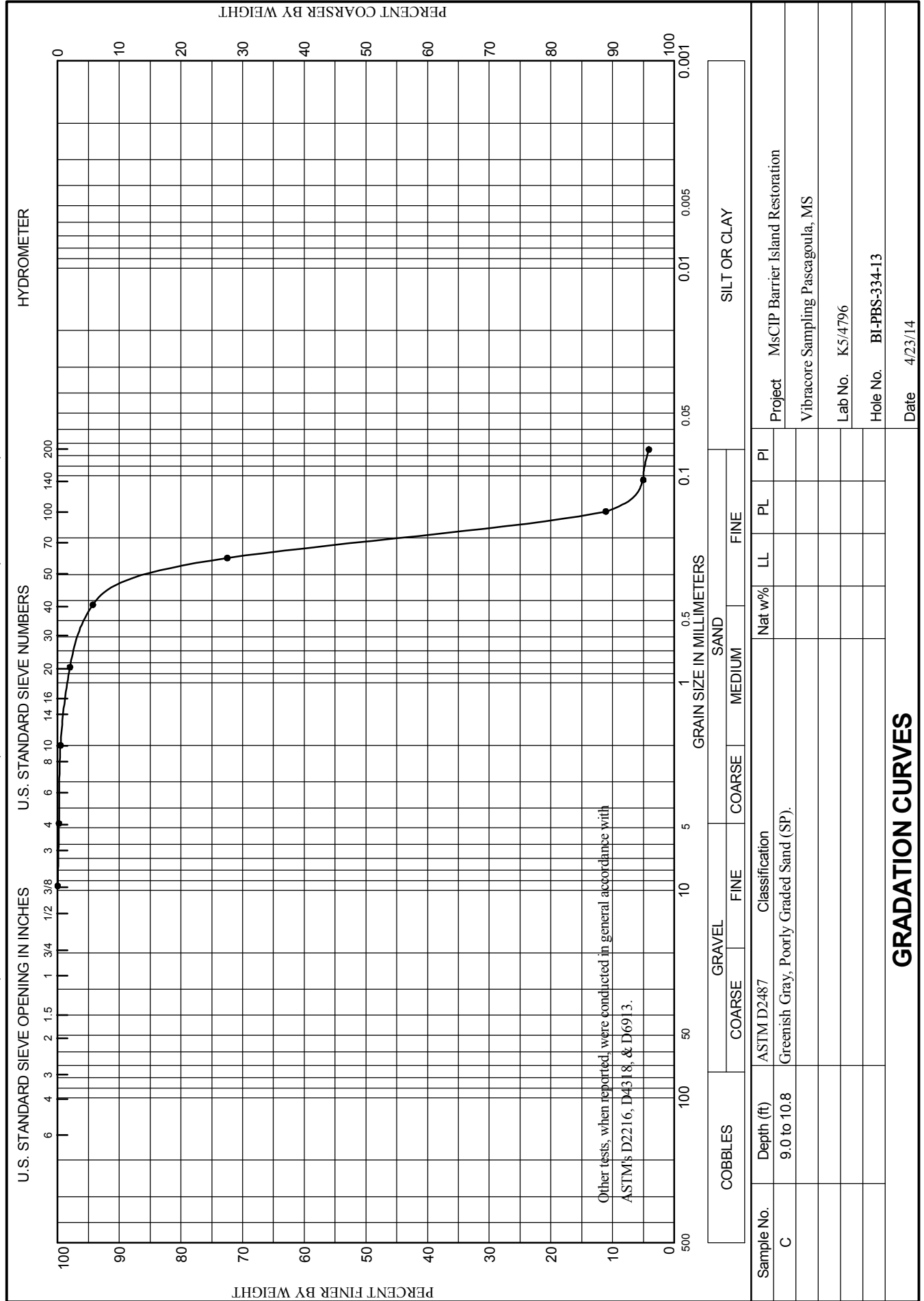




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WORK ORDER: 848e

REQUISITION: W33SJG32900192

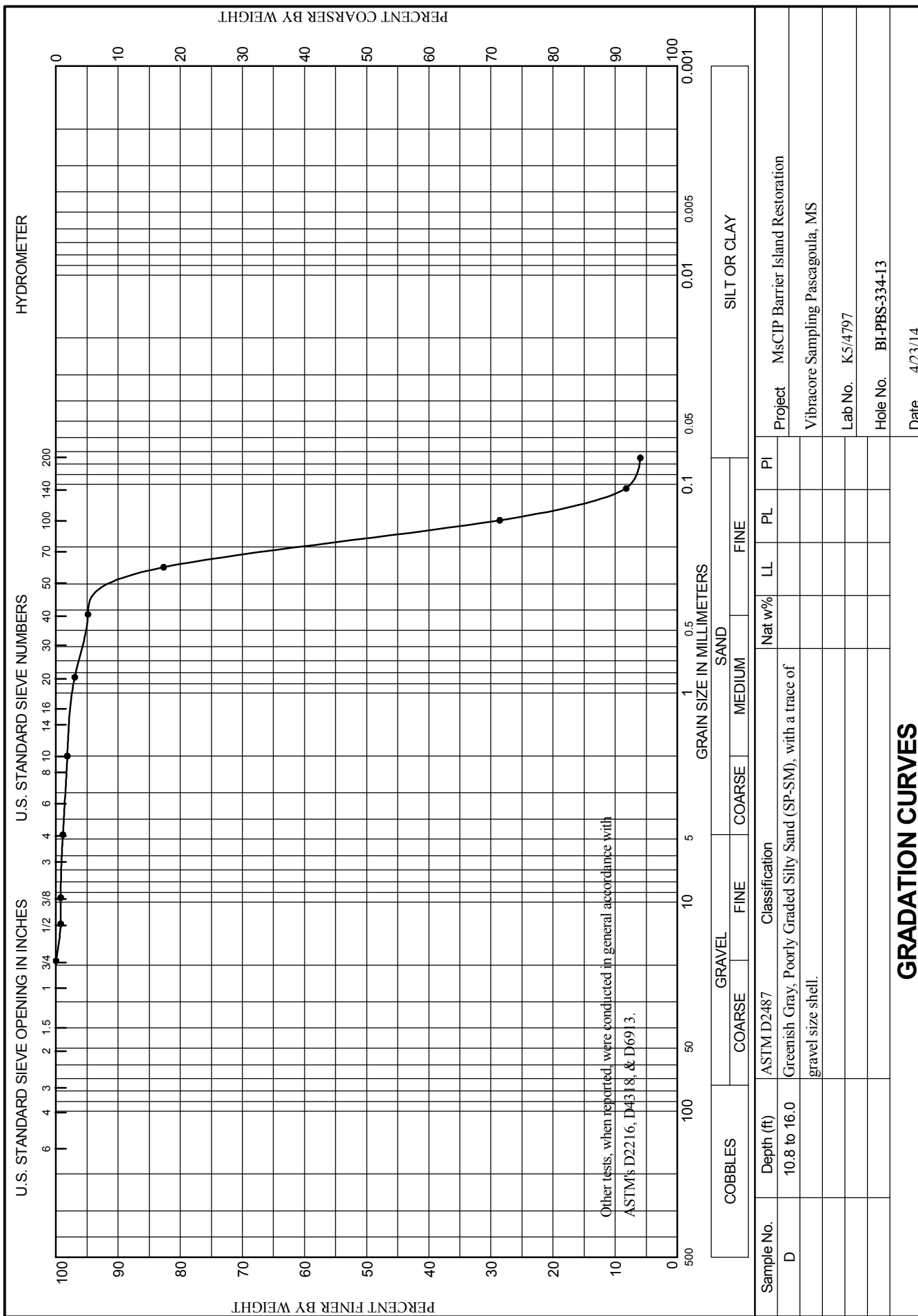




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CORPS OF ENGINEERS, 200 N. COBB PARKWAY, BLDG 400 SUITE 404, MARIETTA, GA. 30062

WORK ORDER: 848e

REQUISITION: W33SJC32900192



# Boring Designation BI-PBS-335-13

DRILLING LOG		DIVISION South Atlantic		INSTALLATION Mobile District		SHEET 1 OF 1 SHEETS	
1. PROJECT MsCIP Barrier Island Restoration Petit Bois Pass-OCS West				9. SIZE AND TYPE OF BIT N/A			
2. BORING DESIGNATION BI-PBS-335-13		LOCATION COORDINATES E = 1,118,798 N = 235,452		10. COORDINATE SYSTEM/DATUM State Plane, MSE (U.S. Ft.)		HORIZONTAL NAD83	
3. DRILLING AGENCY Corps of Engineers - CESAM		CONTRACTOR FILE NO.		11. MANUFACTURER'S DESIGNATION OF DRILL Vibrocure		<input type="checkbox"/> AUTO HAMMER <input type="checkbox"/> MANUAL HAMMER	
4. NAME OF DRILLER Construction Solutions International, Inc.				12. TOTAL SAMPLES		DISTURBED 0	
5. DIRECTION OF BORING <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED				13. TOTAL NUMBER CORE BOXES		UNDISTURBED (UD) 0	
6. THICKNESS OF OVERBURDEN N/A				14. WATER DEPTH 56.2 Ft.		15. DATE BORING 02-17-14	
7. DEPTH DRILLED INTO ROCK N/A				16. ELEVATION TOP OF BORING -56.2 Ft.		17. TOTAL RECOVERY FOR BORING 100%	
8. TOTAL DEPTH OF BORING 15.7 Ft.				18. SIGNATURE AND TITLE OF INSPECTOR Tom Powers, Geologist			
ELEV.	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS	SAMPLE	LABORATORY RESULTS		
-56.2	0.0		CLAY, lean, sandy and soft in upper half, firm in lower half of unit, trace to few sand-filled voids, olive gray (CL)	NS			
-60.9	4.7		SAND, silty, mostly fine to medium-grained sand-sized quartz, few shell fragments, lt. to medium gray (SM)				
-62.2	6.0		CLAY, lean, discontinue shell fragments, olive gray (CL)				
-62.7	6.5		SAND, silty, mostly fine-grained sand-sized quartz, few shell fragments, pale olive gray (SM)				
-66.0	9.8		SAND, clayey, mostly fine-grained sand-sized quartz, few shell fragments, pale olive gray (SC)				
-69.2	13.0		SILT, inorganic-L, few shell fragments, sandy, clayey, pale olive gray (ML)				
-71.9	15.7		NOTES: 1. Soils are field visually classified in accordance with the Unified Soils Classification System. 2. NS = Sample not submitted for laboratory analysis from this interval. 3. Seafloor elevation calculated using sampling vessel's fathometer water depth reading and applying NOAA tidal gauge data conversion factor.				

# Boring Designation BI-PBS-337-13

DRILLING LOG		DIVISION South Atlantic		INSTALLATION Mobile District		SHEET 1 OF 2 SHEETS	
1. PROJECT MsCIP Barrier Island Restoration Petit Bois Pass-OCS West				9. SIZE AND TYPE OF BIT N/A			
2. BORING DESIGNATION BI-PBS-337-13		LOCATION COORDINATES E = 1,116,940 N = 236,082		10. COORDINATE SYSTEM/DATUM State Plane, MSE (U.S. Ft.)		HORIZONTAL NAD83	
3. DRILLING AGENCY Corps of Engineers - CESAM		CONTRACTOR FILE NO.		11. MANUFACTURER'S DESIGNATION OF DRILL Vibrocure		<input type="checkbox"/> AUTO HAMMER <input type="checkbox"/> MANUAL HAMMER	
4. NAME OF DRILLER Construction Solutions International, Inc.				12. TOTAL SAMPLES 3		UNDISTURBED (UD) 0	
5. DIRECTION OF BORING <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED				13. TOTAL NUMBER CORE BOXES		14. WATER DEPTH 55.6 Ft.	
6. THICKNESS OF OVERBURDEN N/A				15. DATE BORING 02-08-14		STARTED 02-08-14	
7. DEPTH DRILLED INTO ROCK N/A				16. ELEVATION TOP OF BORING -54.6 Ft.		COMPLETED 02-08-14	
8. TOTAL DEPTH OF BORING 19.9 Ft.				17. TOTAL RECOVERY FOR BORING 100%			
				18. SIGNATURE AND TITLE OF INSPECTOR Tom Powers, Geologist			

ELEV.	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS	SAMPLE	LABORATORY RESULTS
-54.6	0.0				
-54.8	0.2		CLAY, lean, sandy, medium gray (CL)	NS	
-57.0	2.4		SAND, silty, mostly fine-grained sand-sized quartz, trace shell fragments, lt. to medium gray (SM)	A	Classification: SP Color: 2.5Y 6/1-gray D50: 0.247 mm % Fines: 4.1
-60.8	6.2		SAND, poorly-graded with silt, mostly fine to medium-grained sand-sized quartz, trace shell fragments, lt. to medium gray (SP-SM)	B	Classification: SP-SM Color: 2.5Y 6/1-gray D50: 0.244 mm % Fines: 5.5
-63.1	8.5		SAND, silty, mostly fine-grained sand-sized quartz, few shell fragments, lt. to medium gray (SM)	C	Classification: SP Color: 2.5Y 6/1-gray D50: 0.204 mm % Fines: 4
-63.7	9.1		CLAY, lean, sandy, medium gray (CL)		
-69.1	14.5		SAND, silty, mostly fine-grained sand-sized quartz, few shell fragments, medium gray (SM)		
-69.6	15.0				
-70.1	15.5		SILT, inorganic-L, few shell fragments, medium gray (ML)		
-74.5	19.9		SAND, clayey, mostly fine-grained sand-sized quartz, few shell fragments, medium gray (SC) CLAY, lean, trace shell fragments, sandy, medium to dark gray (CL) At El. -72.4 Ft., few shell fragments		
NOTES: 1. Soils are field visually classified in accordance with the Unified Soils Classification System. 2. NS = Sample not submitted for laboratory analysis from this interval. 3. Seafloor elevation determined from					



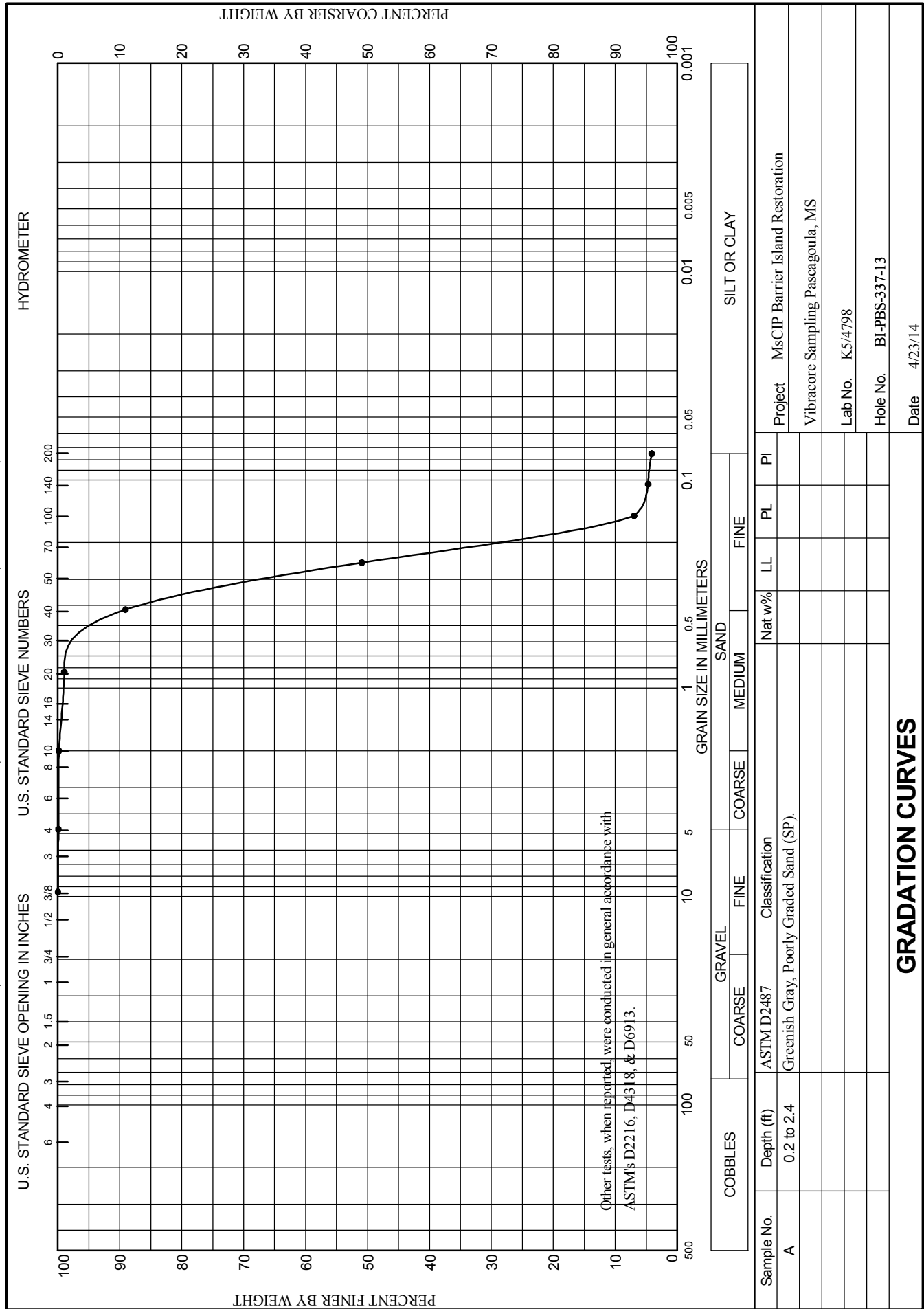
<b>DRILLING LOG (Cont. Sheet)</b>			<b>INSTALLATION</b> Mobile District		<b>SHEET 2</b> <b>OF 2 SHEETS</b>
			<b>PROJECT</b> MsCIP Barrier Island Restoration		<b>COORDINATE SYSTEM/DATUM</b> State Plane, MSE (U.S. Ft.)
<b>LOCATION COORDINATES</b> X = 1,116,940 Y = 236,082			<b>ELEVATION TOP OF BORING</b> -54.6 Ft.		
<b>ELEV.</b>	<b>DEPTH</b>	<b>LEGEND</b>	<b>CLASSIFICATION OF MATERIALS</b>	<b>SAMPLE</b>	<b>LABORATORY RESULTS</b>
			10/29/2014 USACE survey.		



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WORK ORDER: 848e

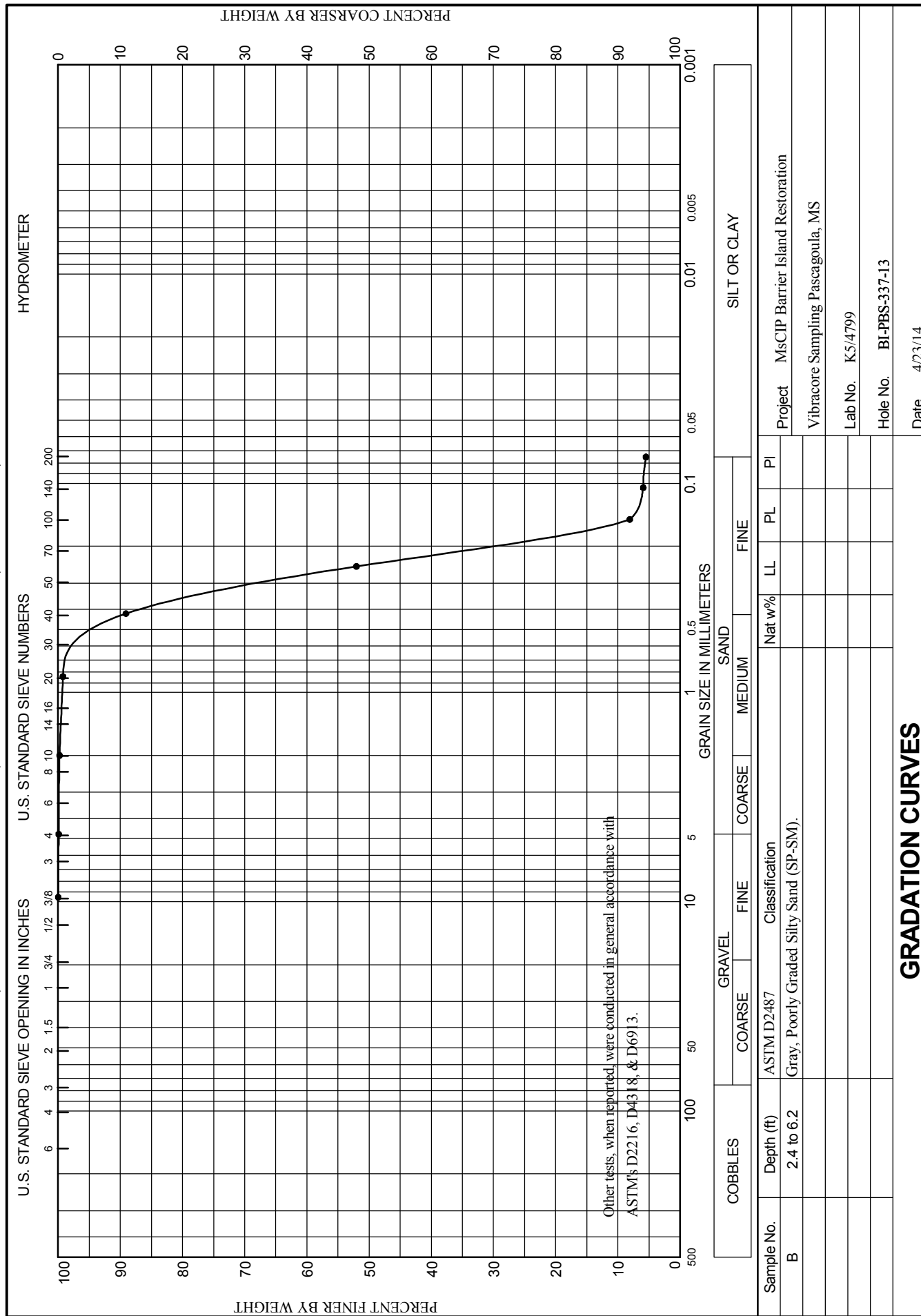
REQUISITION: W33SJC32900192





WORK ORDER: 848e

REQUISITION: W33SJG32900192

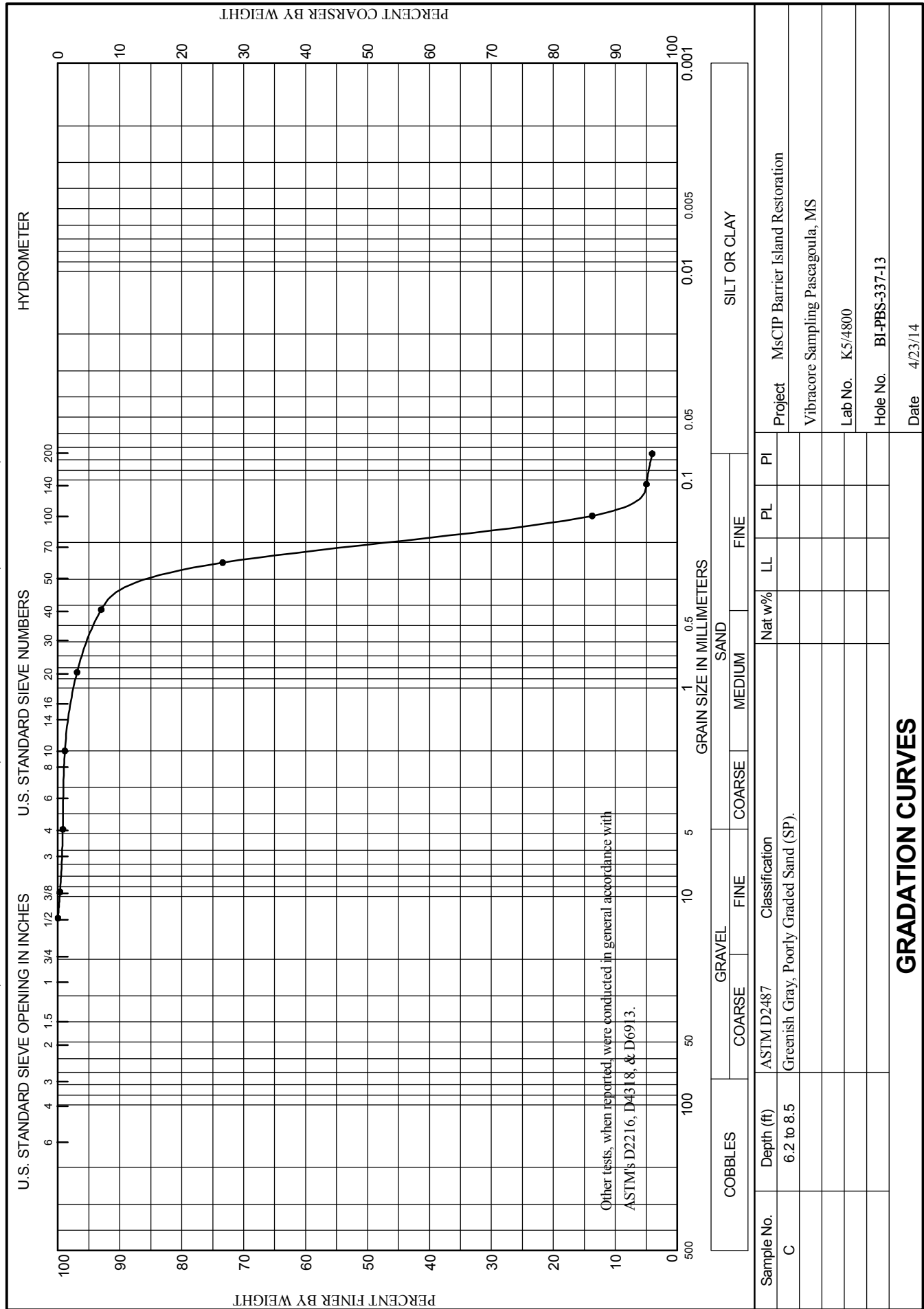




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WORK ORDER: 848e

REQUISITION: W33SJC32900192



# Boring Designation BI-PBS-338-13

DRILLING LOG		DIVISION South Atlantic		INSTALLATION Mobile District		SHEET 1 OF 1 SHEETS	
1. PROJECT MsCIP Barrier Island Restoration Petit Bois Pass-OCS West				9. SIZE AND TYPE OF BIT N/A			
2. BORING DESIGNATION BI-PBS-338-13		LOCATION COORDINATES E = 1,111,853 N = 235,430		10. COORDINATE SYSTEM/DATUM State Plane, MSE (U.S. Ft.)		HORIZONTAL NAD83 VERTICAL NAVD88	
3. DRILLING AGENCY Corps of Engineers - CESAM		CONTRACTOR FILE NO.		11. MANUFACTURER'S DESIGNATION OF DRILL Vibracore		<input type="checkbox"/> AUTO HAMMER <input type="checkbox"/> MANUAL HAMMER	
4. NAME OF DRILLER Construction Solutions International, Inc.				12. TOTAL SAMPLES 4		DISTURBED 0 UNDISTURBED (UD)	
5. DIRECTION OF BORING <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED		DEG. FROM VERTICAL		13. TOTAL NUMBER CORE BOXES			
		BEARING		14. WATER DEPTH 51 Ft.			
6. THICKNESS OF OVERBURDEN N/A				15. DATE BORING 02-01-14		STARTED 02-01-14 COMPLETED 02-01-14	
7. DEPTH DRILLED INTO ROCK N/A				16. ELEVATION TOP OF BORING -49.9 Ft.			
8. TOTAL DEPTH OF BORING 17.8 Ft.				17. TOTAL RECOVERY FOR BORING 100%			
				18. SIGNATURE AND TITLE OF INSPECTOR Tom Powers, Geologist			

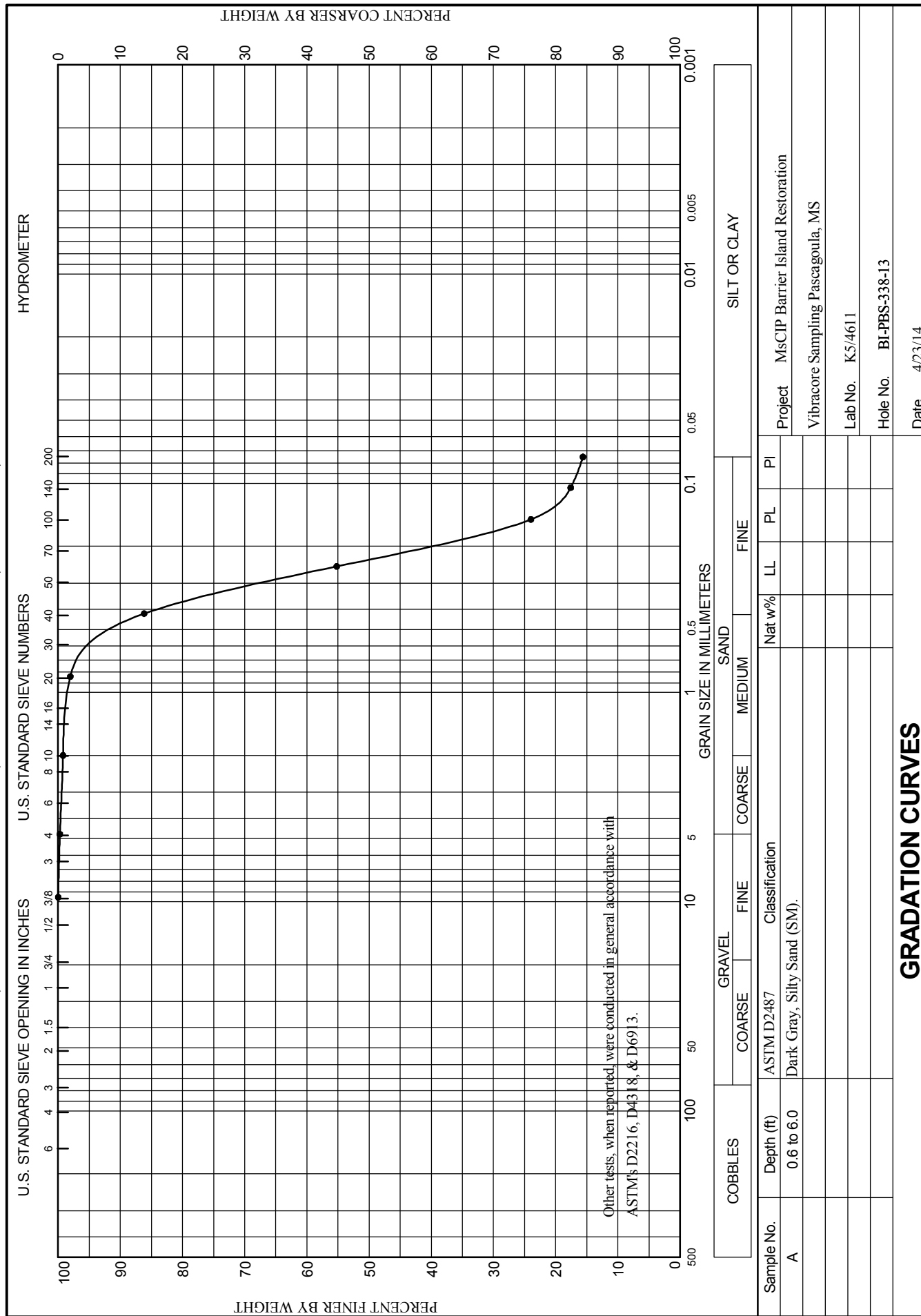
  

ELEV.	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS	SAMPLE	LABORATORY RESULTS
-49.9	0.0				
-50.5	0.6			NS	
			SAND, poorly-graded, mostly fine to medium-grained sand-sized quartz, trace shell fragments, lt. gray (SP)		
			SAND, silty, clayey, mostly fine to medium-grained sand-sized quartz, few shell fragments, trace clay, medium gray (SC-SM)	A	Classification: SM Color: 10Y 5/1-greenish gray D50: 0.229 mm % Fines: 15.6
-55.9	6.0				
-57.5	7.6		CLAY, lean, few wood debris, trace shell fragments, interbedded with SC., brownish gray (CL)	NS	
			SAND, silty, mostly fine to medium-grained sand-sized quartz, trace wood debris, trace shell fragments, dark gray (SM)	B	Classification: SP Color: 10Y 5/1-greenish gray D50: 0.338 mm % Fines: 4.8
-60.8	10.9				
			SAND, poorly-graded with silt, mostly fine to medium-grained sand-sized quartz, trace shell fragments, dark gray (SP-SM)	C	Classification: SP Color: 10Y 5/1-greenish gray D50: 0.359 mm % Fines: 1.3
-63.4	13.5				
			SAND, poorly-graded, mostly fine to medium-grained sand-sized quartz, trace shell fragments, trace wood at base of layer, medium to lt. gray (SP)	D	Classification: SP Color: 10Y 5/1-greenish gray D50: 0.345 mm % Fines: 1.2
-67.7	17.8				
			NOTES: 1. Soils are field visually classified in accordance with the Unified Soils Classification System. 2. NS = Sample not submitted for laboratory analysis from this interval. 3. Seafloor elevation determined from 12/17/2014 USACE survey.		



WORK ORDER: 848e

REQUISITION: W33SJG32900192

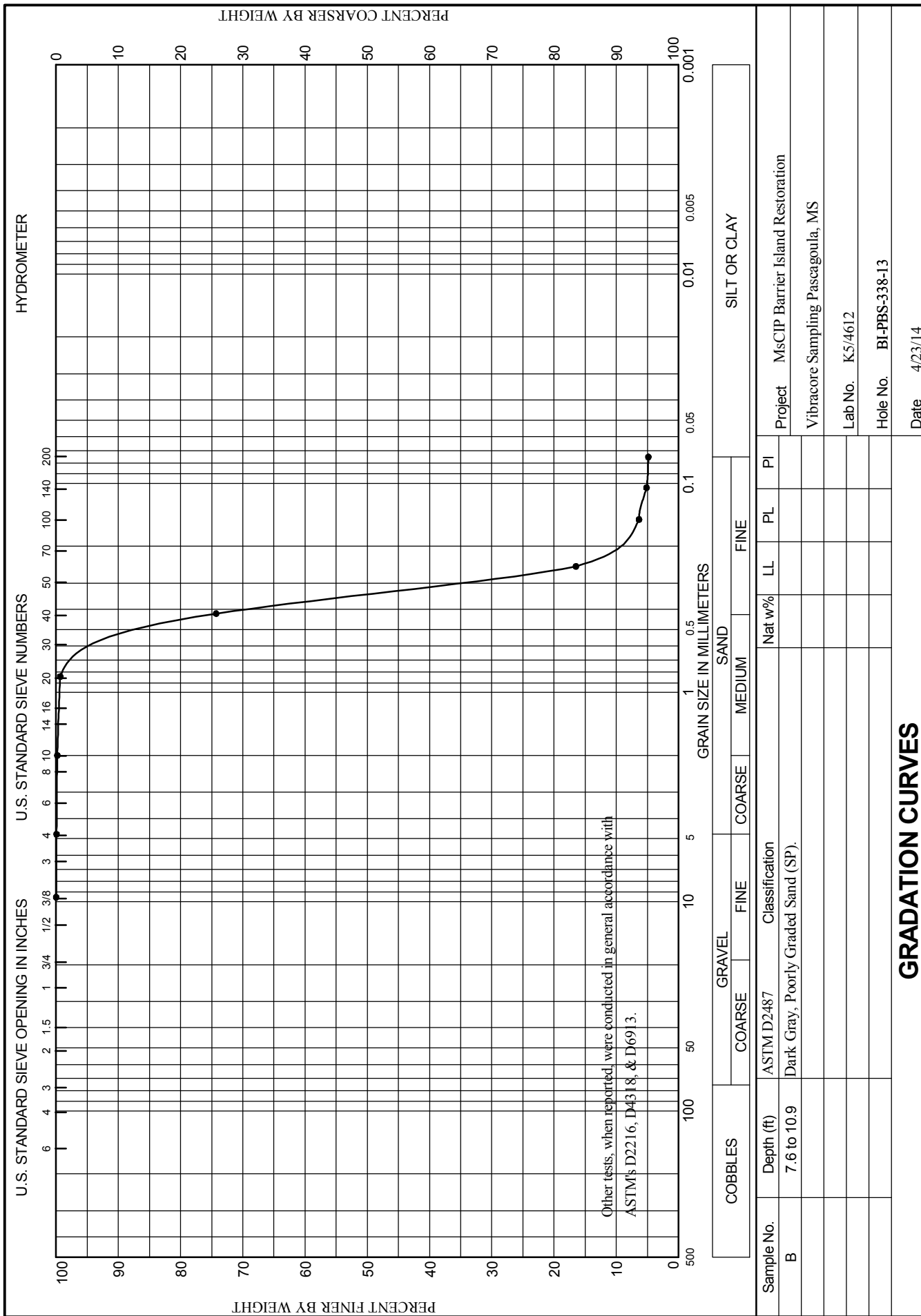




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WORK ORDER: 848e

REQUISITION: W33SJC32900192

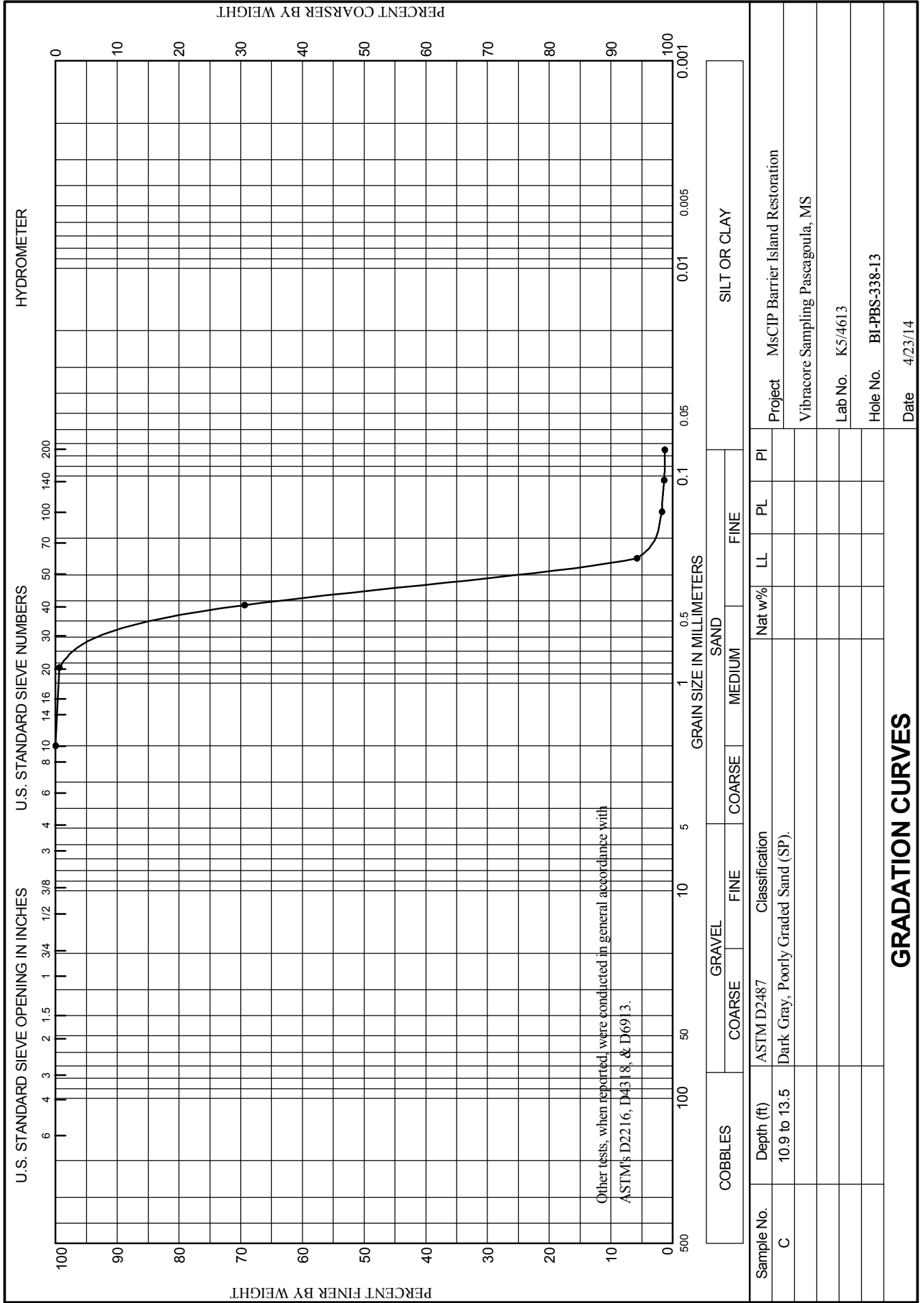




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WORK ORDER: 848e

REQUISITION: W33SJC32900192



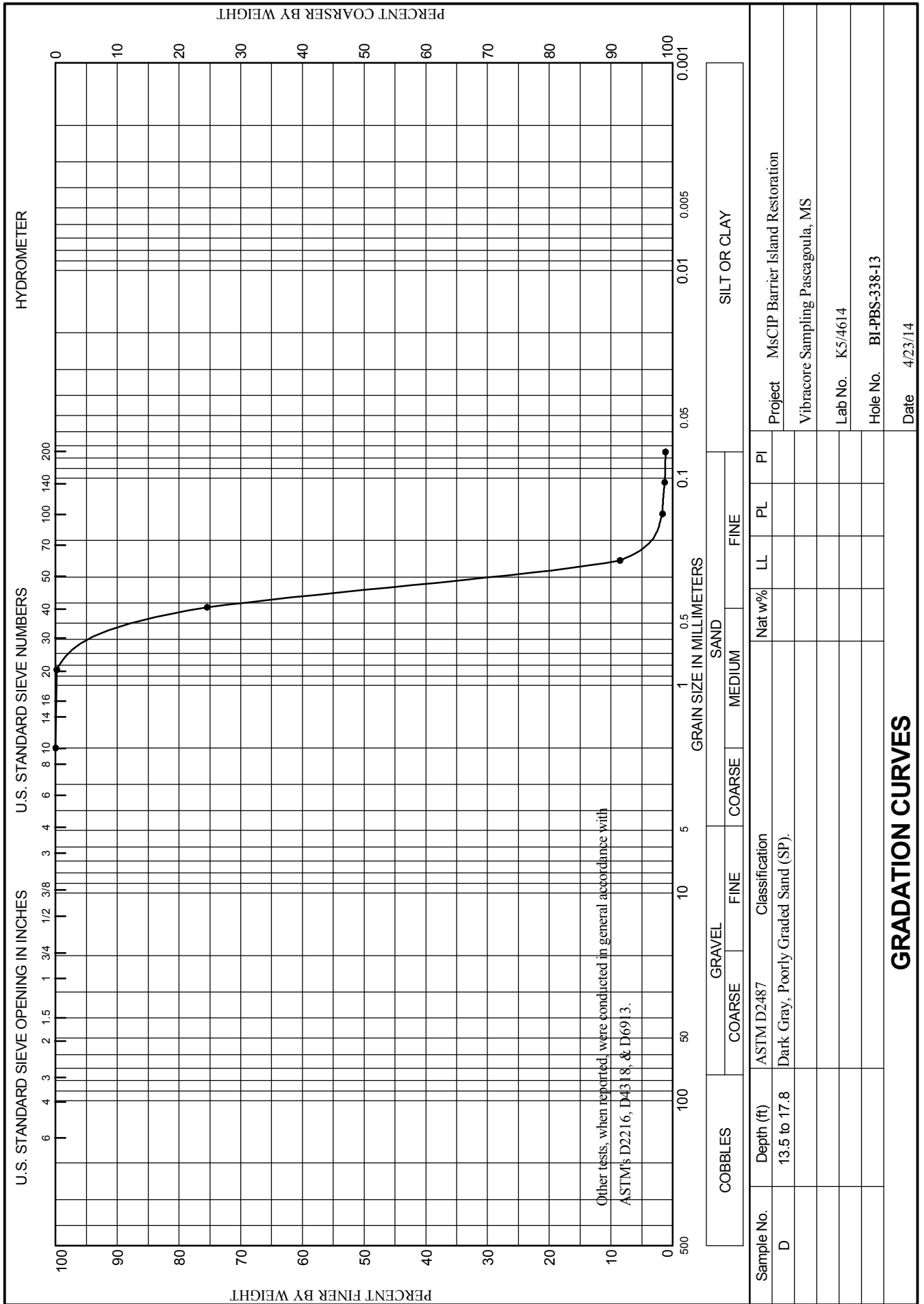




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WORK ORDER: 848e

REQUISITION: W33SJC32900192



# Boring Designation BI-PBS-339-13

DRILLING LOG		DIVISION South Atlantic		INSTALLATION Mobile District		SHEET 1 OF 2 SHEETS	
1. PROJECT MsCIP Barrier Island Restoration Petit Bois Pass-OCS West				9. SIZE AND TYPE OF BIT N/A			
2. BORING DESIGNATION BI-PBS-339-13		LOCATION COORDINATES E = 1,117,528 N = 235,124		10. COORDINATE SYSTEM/DATUM State Plane, MSE (U.S. Ft.)		HORIZONTAL NAD83 VERTICAL NAVD88	
3. DRILLING AGENCY Corps of Engineers - CESAM		CONTRACTOR FILE NO.		11. MANUFACTURER'S DESIGNATION OF DRILL Vibrocure		<input type="checkbox"/> AUTO HAMMER <input type="checkbox"/> MANUAL HAMMER	
4. NAME OF DRILLER Construction Solutions International, Inc.				12. TOTAL SAMPLES 3		DISTURBED 3 UNDISTURBED (UD) 0	
5. DIRECTION OF BORING <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED				13. TOTAL NUMBER CORE BOXES		14. WATER DEPTH 57.2 Ft.	
6. THICKNESS OF OVERBURDEN N/A				15. DATE BORING 02-08-14		STARTED 02-08-14 COMPLETED 02-08-14	
7. DEPTH DRILLED INTO ROCK N/A				16. ELEVATION TOP OF BORING -56.8 Ft.		17. TOTAL RECOVERY FOR BORING 100%	
8. TOTAL DEPTH OF BORING 18.6 Ft.				18. SIGNATURE AND TITLE OF INSPECTOR Tom Powers, Geologist			

ELEV.	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS	SAMPLE	LABORATORY RESULTS
-56.8	0.0				
-58.5	1.7		SAND, silty, mostly fine-grained sand-sized quartz, trace shell fragments, trace clay, lt. to medium gray (SM)	A	Classification: SP Color: 2.5Y 6/1-gray D50: 0.241 mm % Fines: 4
-62.4	5.6		SAND, poorly-graded with silt, mostly fine-grained sand-sized quartz, trace shell fragments, lt. gray (SP-SM)	B	Classification: SP Color: 2.5Y 6/1-gray D50: 0.213 mm % Fines: 2.5
-70.5	13.7		SAND, silty, mostly fine-grained sand-sized quartz, few shell fragments, medium gray (SM)	C	Classification: SP-SM Color: 2.5Y 6/1-gray D50: 0.187 mm % Fines: 5.7
-73.0	16.2		SAND, clayey, mostly fine-grained sand-sized quartz, trace shell fragments, medium gray (SC)	NS	
-73.8	17.0		CLAY, lean, trace shell fragments, sandy, medium gray (CL)		
-75.4	18.6		SAND, clayey, mostly fine-grained sand-sized quartz, trace shell fragments, medium gray (SC)		
NOTES: 1. Soils are field visually classified in accordance with the Unified Soils Classification System. 2. NS = Sample not submitted for laboratory analysis from this interval. 3. Seafloor elevation calculated using sampling vessel's fathometer water depth reading and					

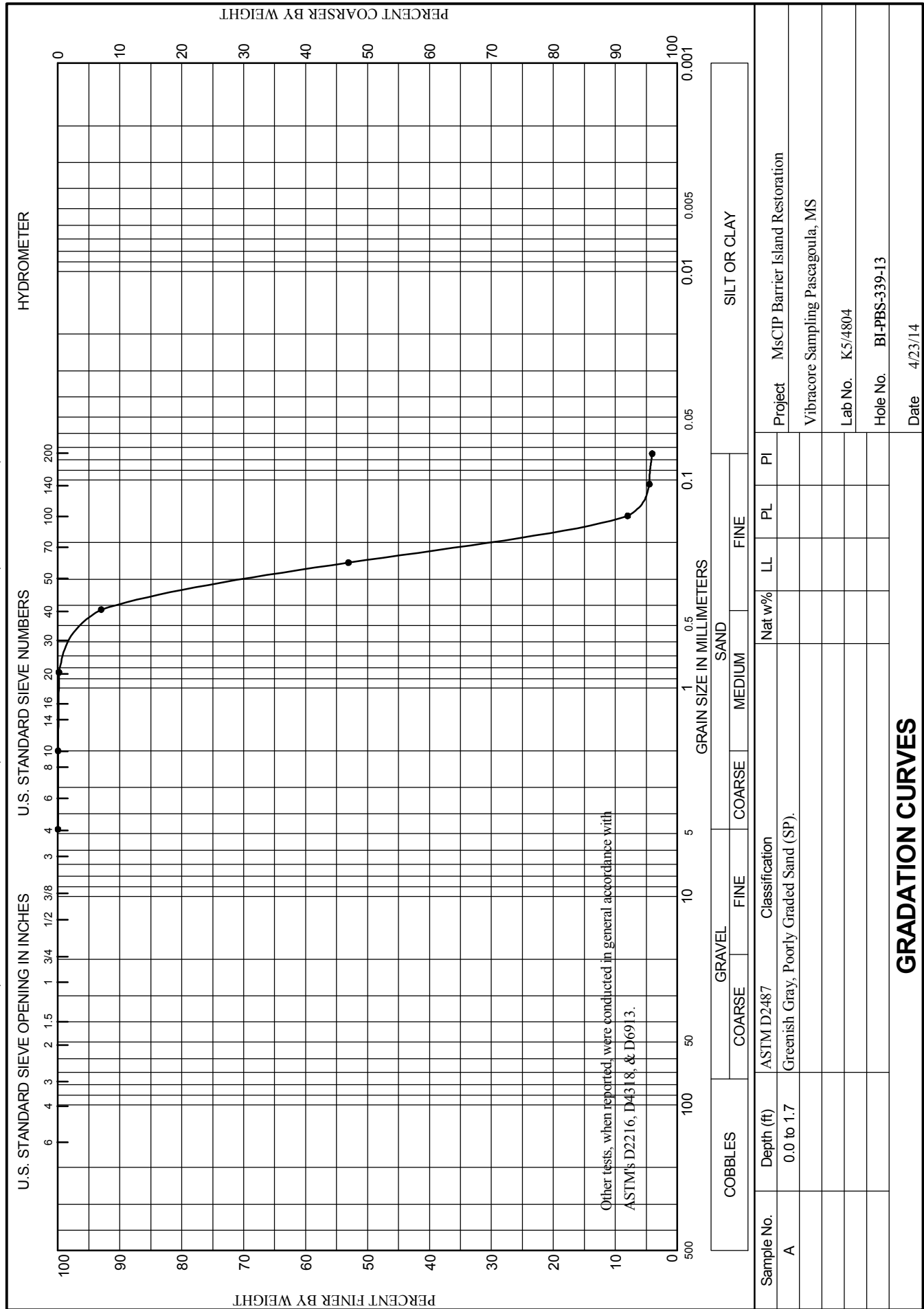
<b>DRILLING LOG (Cont. Sheet)</b>			<b>INSTALLATION</b> Mobile District		<b>SHEET 2</b> <b>OF 2 SHEETS</b>
<b>PROJECT</b> MsCIP Barrier Island Restoration			<b>COORDINATE SYSTEM/DATUM</b> State Plane, MSE (U.S. Ft.)	<b>HORIZONTAL</b> NAD83	<b>VERTICAL</b> NAVD88
<b>LOCATION COORDINATES</b> X = 1,117,528 Y = 235,124			<b>ELEVATION TOP OF BORING</b> -56.8 Ft.		
<b>ELEV.</b>	<b>DEPTH</b>	<b>LEGEND</b>	<b>CLASSIFICATION OF MATERIALS</b>	<b>SAMPLE</b>	<b>LABORATORY RESULTS</b>
			applying NOAA tidal gauge data conversion factor.		



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WORK ORDER: 848e

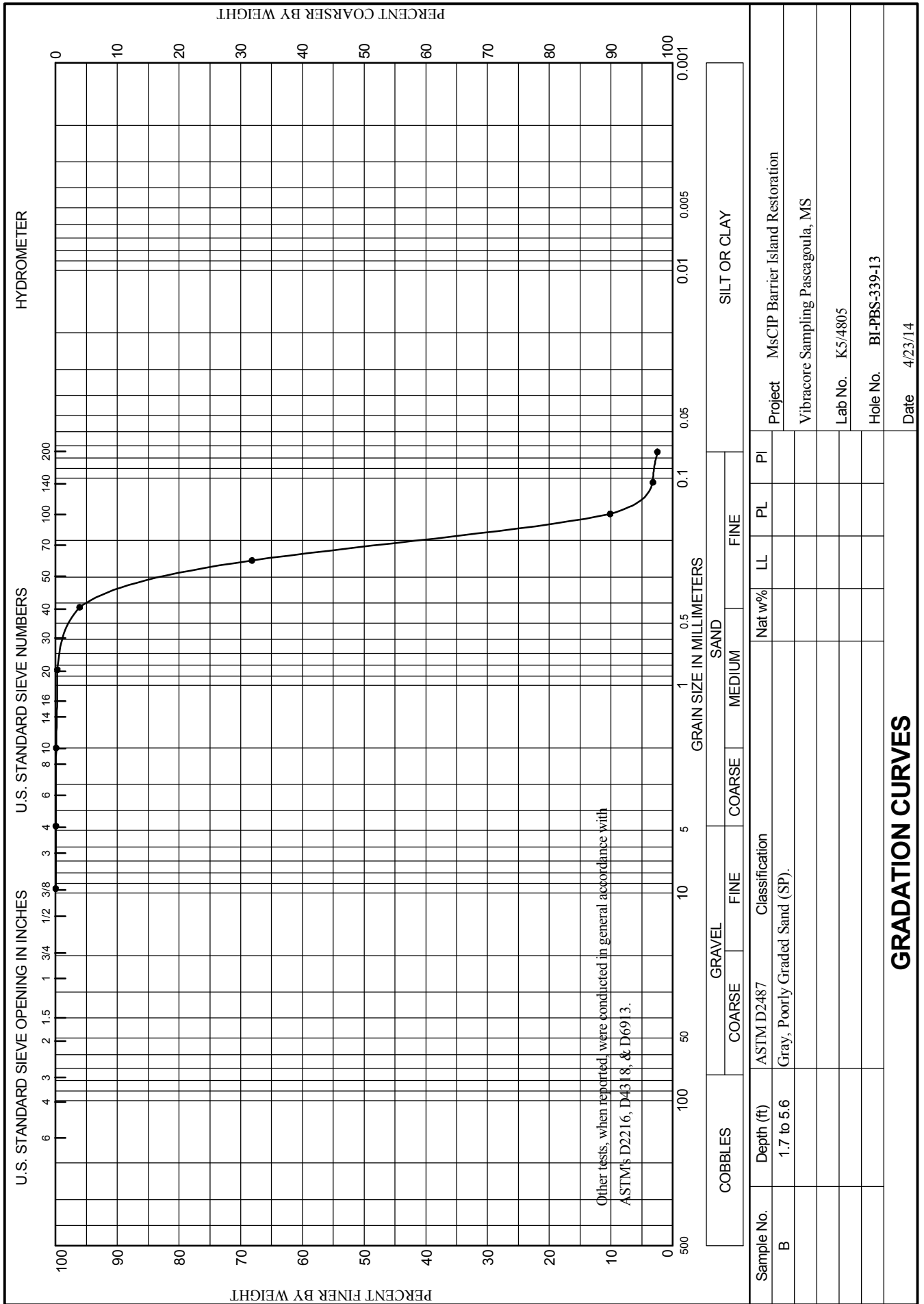
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WORK ORDER: 848e

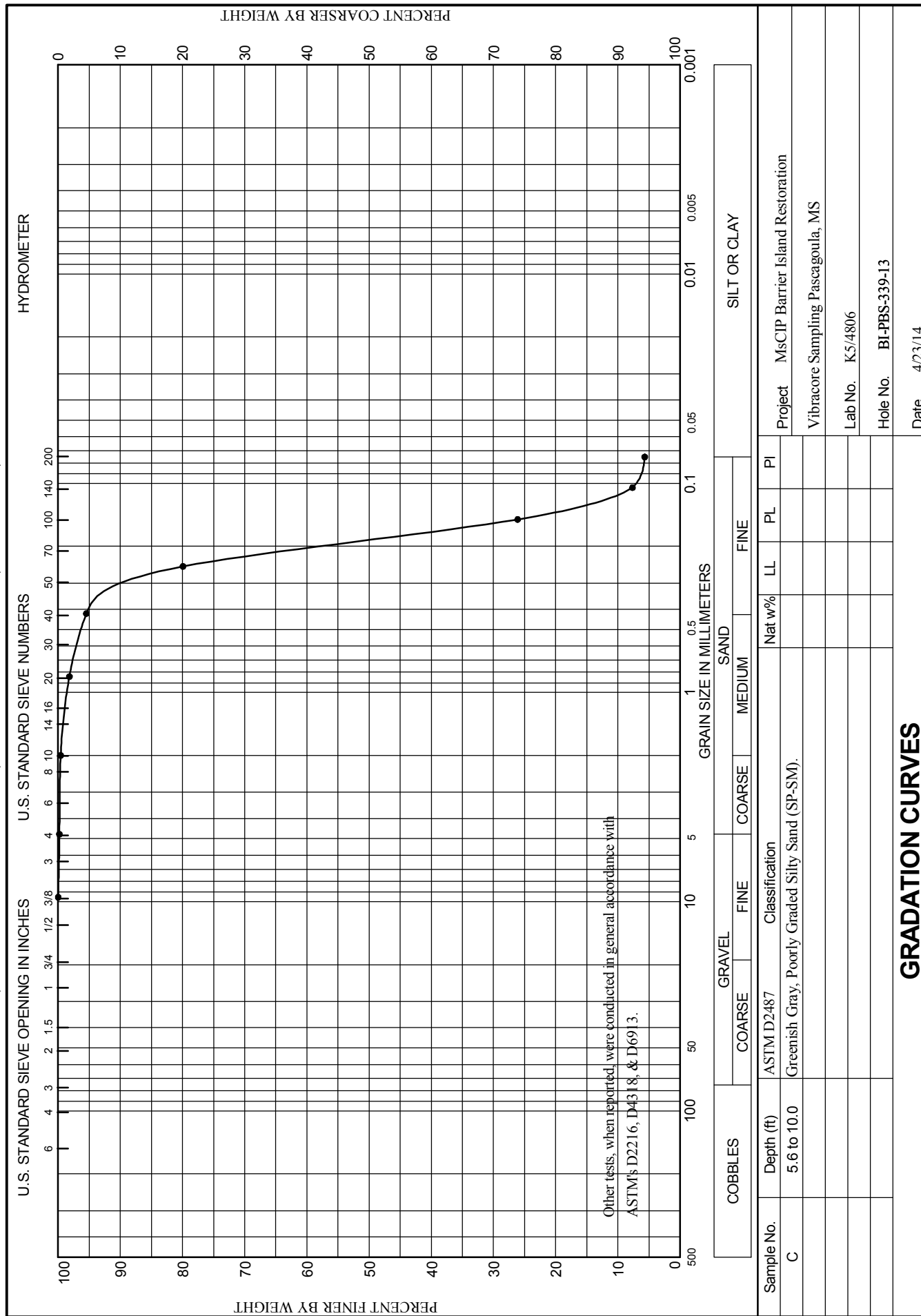
REQUISITION: W33SJG32900192





WORK ORDER: 848e

REQUISITION: W33SJG32900192



# Boring Designation BI-PBS-340-13

DRILLING LOG		DIVISION South Atlantic		INSTALLATION Mobile District		SHEET 1 OF 1 SHEETS	
1. PROJECT MsCIP Barrier Island Restoration Petit Bois Pass-OCS West				9. SIZE AND TYPE OF BIT N/A			
2. BORING DESIGNATION BI-PBS-340-13		LOCATION COORDINATES E = 1,116,558 N = 234,145		10. COORDINATE SYSTEM/DATUM State Plane, MSE (U.S. Ft.)		HORIZONTAL NAD83 VERTICAL NAVD88	
3. DRILLING AGENCY Corps of Engineers - CESAM		CONTRACTOR FILE NO.		11. MANUFACTURER'S DESIGNATION OF DRILL Vibracore		<input type="checkbox"/> AUTO HAMMER <input type="checkbox"/> MANUAL HAMMER	
4. NAME OF DRILLER Construction Solutions International, Inc.				12. TOTAL SAMPLES 0		DISTURBED 0 UNDISTURBED (UD) 0	
5. DIRECTION OF BORING <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED		DEG. FROM VERTICAL		13. TOTAL NUMBER CORE BOXES			
		BEARING		14. WATER DEPTH 57 Ft.			
6. THICKNESS OF OVERBURDEN N/A				15. DATE BORING 02-03-14		STARTED 02-03-14 COMPLETED 02-03-14	
7. DEPTH DRILLED INTO ROCK N/A				16. ELEVATION TOP OF BORING -57.1 Ft.			
8. TOTAL DEPTH OF BORING 14.2 Ft.				17. TOTAL RECOVERY FOR BORING 100%			
				18. SIGNATURE AND TITLE OF INSPECTOR Tom Powers, Geologist			
ELEV.	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS	SAMPLE	LABORATORY RESULTS		
-57.1	0.0						
-57.7	0.6		SAND, clayey, mostly fine to medium-grained sand-sized quartz, some shell fragments, medium to dark gray (SC)				
-60.8	3.7		CLAY, lean, interbedded with SC, firm, trace wood over 2.4 to 2.5 ft. and 3.0 to 3.6 ft., medium gray (CL)				
-69.6	12.5		SAND, silty, mostly fine-grained sand-sized quartz, few shell fragments, medium to lt. gray (SM)	NS			
-71.3	14.2		SILT, inorganic-L, few shell fragments, sandy, medium gray (ML)				
NOTES:							
1. Soils are field visually classified in accordance with the Unified Soils Classification System.							
2. NS = Sample not submitted for laboratory analysis from this interval.							
3. Seafloor elevation calculated using sampling vessel's fathometer water depth reading and applying NOAA tidal gauge data conversion factor.							

# Boring Designation BI-PBS-341-13

DRILLING LOG		DIVISION South Atlantic		INSTALLATION Mobile District		SHEET 1 OF 1 SHEETS	
1. PROJECT MsCIP Barrier Island Restoration Petit Bois Pass-OCS West				9. SIZE AND TYPE OF BIT N/A			
2. BORING DESIGNATION BI-PBS-341-13		LOCATION COORDINATES E = 1,112,866 N = 234,325		10. COORDINATE SYSTEM/DATUM State Plane, MSE (U.S. Ft.)		HORIZONTAL NAD83	
3. DRILLING AGENCY Corps of Engineers - CESAM		CONTRACTOR FILE NO.		11. MANUFACTURER'S DESIGNATION OF DRILL Vibrocure		<input type="checkbox"/> AUTO HAMMER <input type="checkbox"/> MANUAL HAMMER	
4. NAME OF DRILLER Construction Solutions International, Inc.				12. TOTAL SAMPLES 4		UNDISTURBED (UD) 0	
5. DIRECTION OF BORING <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED				13. TOTAL NUMBER CORE BOXES		14. WATER DEPTH 47.7 Ft.	
6. THICKNESS OF OVERBURDEN N/A				15. DATE BORING 02-02-14		COMPLETED 02-02-14	
7. DEPTH DRILLED INTO ROCK N/A				16. ELEVATION TOP OF BORING -46.4 Ft.		17. TOTAL RECOVERY FOR BORING 100%	
8. TOTAL DEPTH OF BORING 19.4 Ft.				18. SIGNATURE AND TITLE OF INSPECTOR Tom Powers, Geologist			
ELEV.	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS	SAMPLE	LABORATORY RESULTS		
-46.4	0.0						
			SAND, poorly-graded, mostly fine to coarse-grained sand-sized quartz, little shell fragments, lt. gray (SP)	A	Classification: SP Color: 10Y 6/1-greenish gray D50: 0.342 mm % Fines: 0.7		
-50.0	3.6		At El. -48.4 Ft., fine- to medium-grained sand from 2.0 to 3.6-ft. depth				
-51.4	5.0		SAND, poorly-graded with silt, mostly fine to medium-grained sand-sized quartz, few shell fragments, lt. gray (SP-SM)	B	Classification: SP Color: 10Y 6/1-greenish gray D50: 0.223 mm % Fines: 2.3		
-52.5	6.1		SAND, silty, mostly fine-grained sand-sized quartz, trace shell fragments, lt. gray (SM)				
-53.3	6.9		At El. -52.0 Ft., interbedded with clay				
			GRAVEL, silty, mostly shell fragments, few clay, dark gray (GM)	NS			
-56.1	9.7		SAND, silty, mostly fine-grained sand-sized quartz, high fines content, dark gray (SM)				
-57.4	11.0		CLAY, lean, grayish brown (CL)				
-58.9	12.5		SAND, silty, high fines content (SM)				
			SAND, silty, mostly fine to medium-grained sand-sized quartz, trace shell fragments, medium gray (SM)	C	Classification: SP Color: 10Y 5/1-greenish gray D50: 0.213 mm % Fines: 3.1		
			At El. -62.4 Ft., mostly fine-grained sand-sized quartz, trace shell fragments, medium gray	D	Classification: SP Color: 10Y 5/1-greenish gray D50: 0.192 mm % Fines: 4.4		
-65.8	19.4						
NOTES: 1. Soils are field visually classified in accordance with the Unified Soils Classification System. 2. NS = Sample not submitted for laboratory analysis from this interval. 3. Seafloor elevation determined from 12/17/2014 USACE survey.							

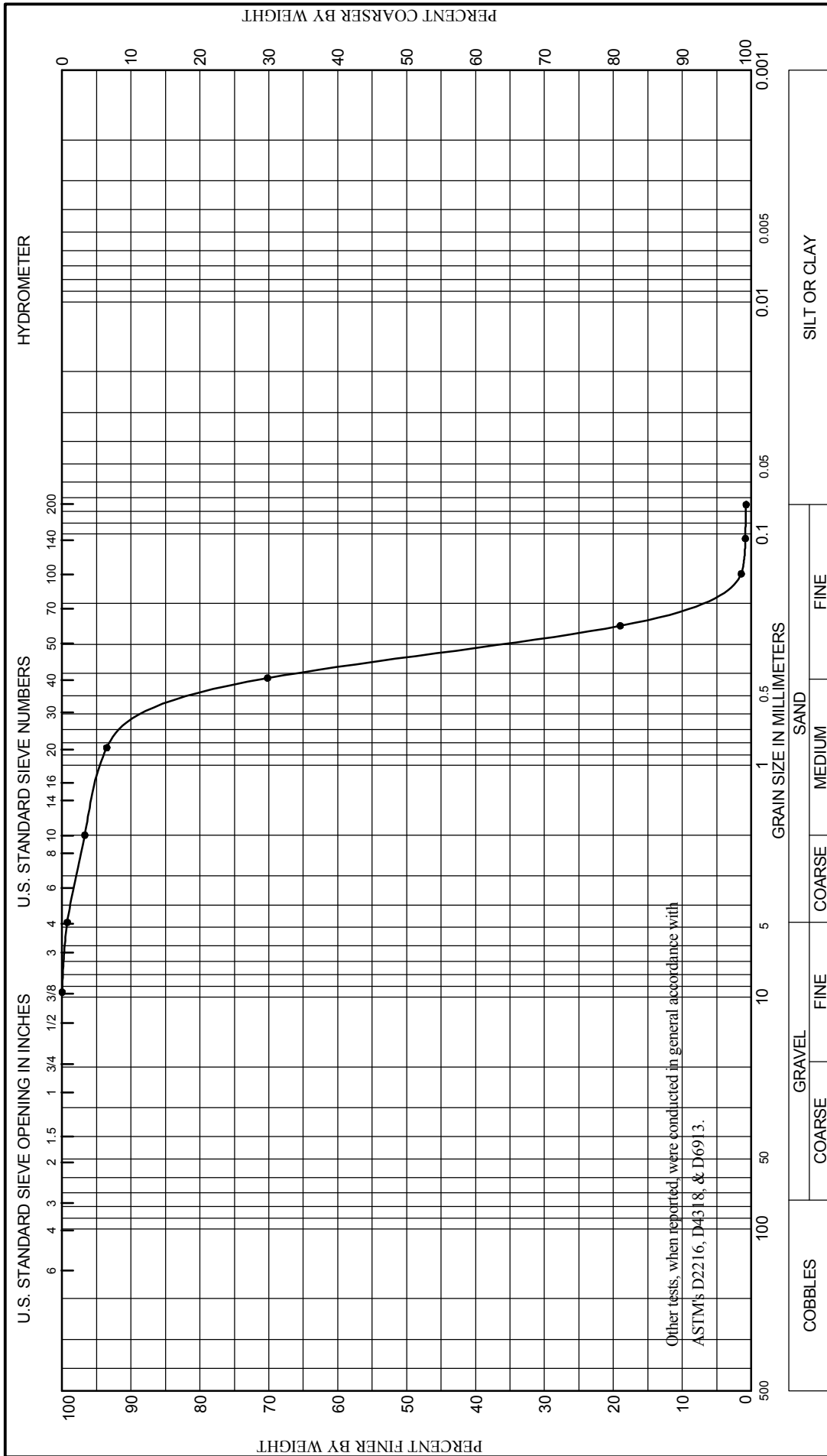




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WORK ORDER: 848e

REQUISITION: W33SJC32900192



Sample No.	Depth (ft)	ASTM D2487	Classification	Nat w%	LL	PL	PI	Project
A	0.0 to 3.6	Gray, Poorly Graded Sand (SP).						MsCIP Barrier Island Restoration
								Vibracore Sampling Pascagoula, MS
								Lab No. K5/4619
								Hole No. BI-PBS-341-13
								Date 4/23/14

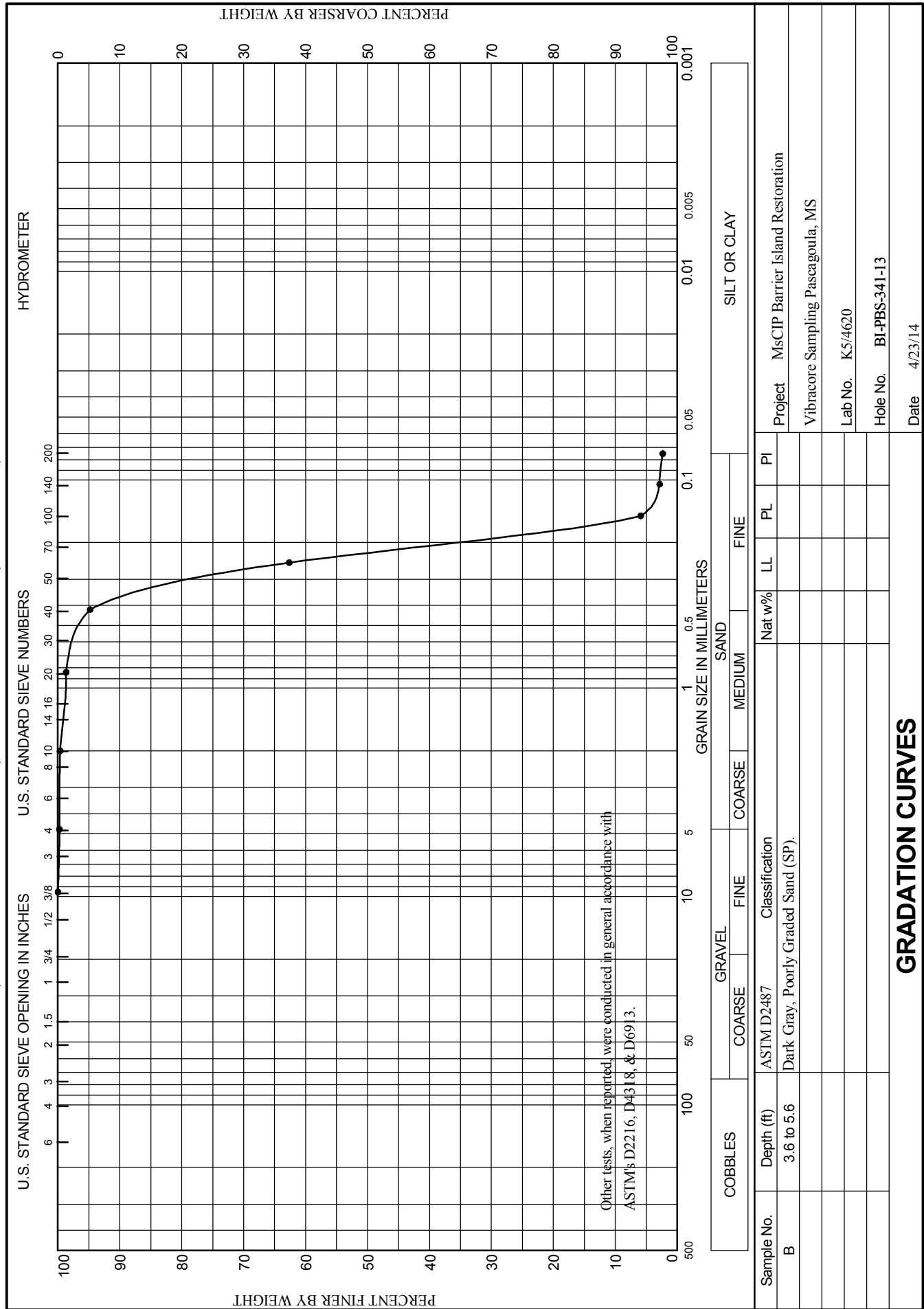
GRADATION CURVES



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WORK ORDER: 848e

REQUISITION: W33SJC32900192

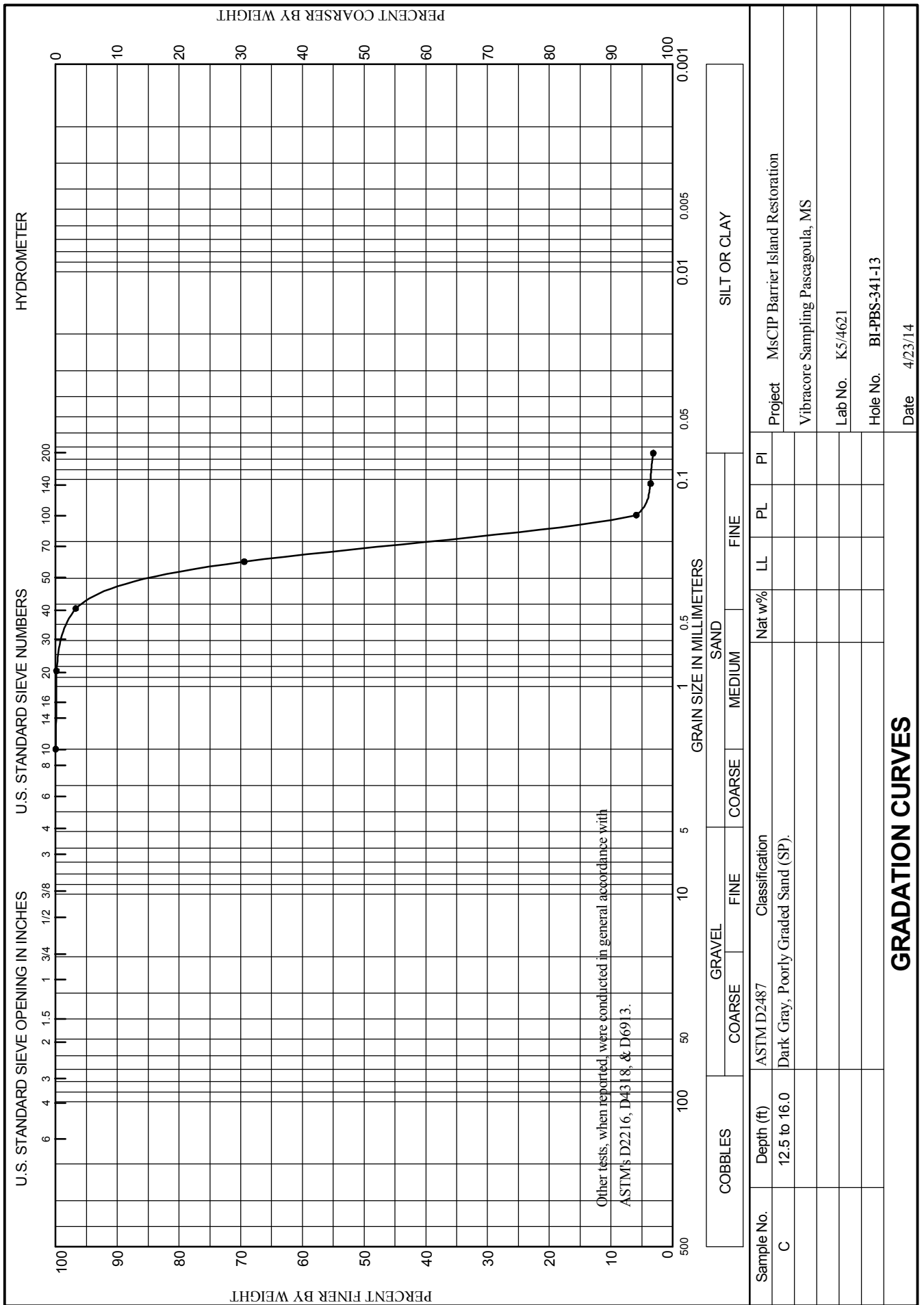




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WORK ORDER: 848e

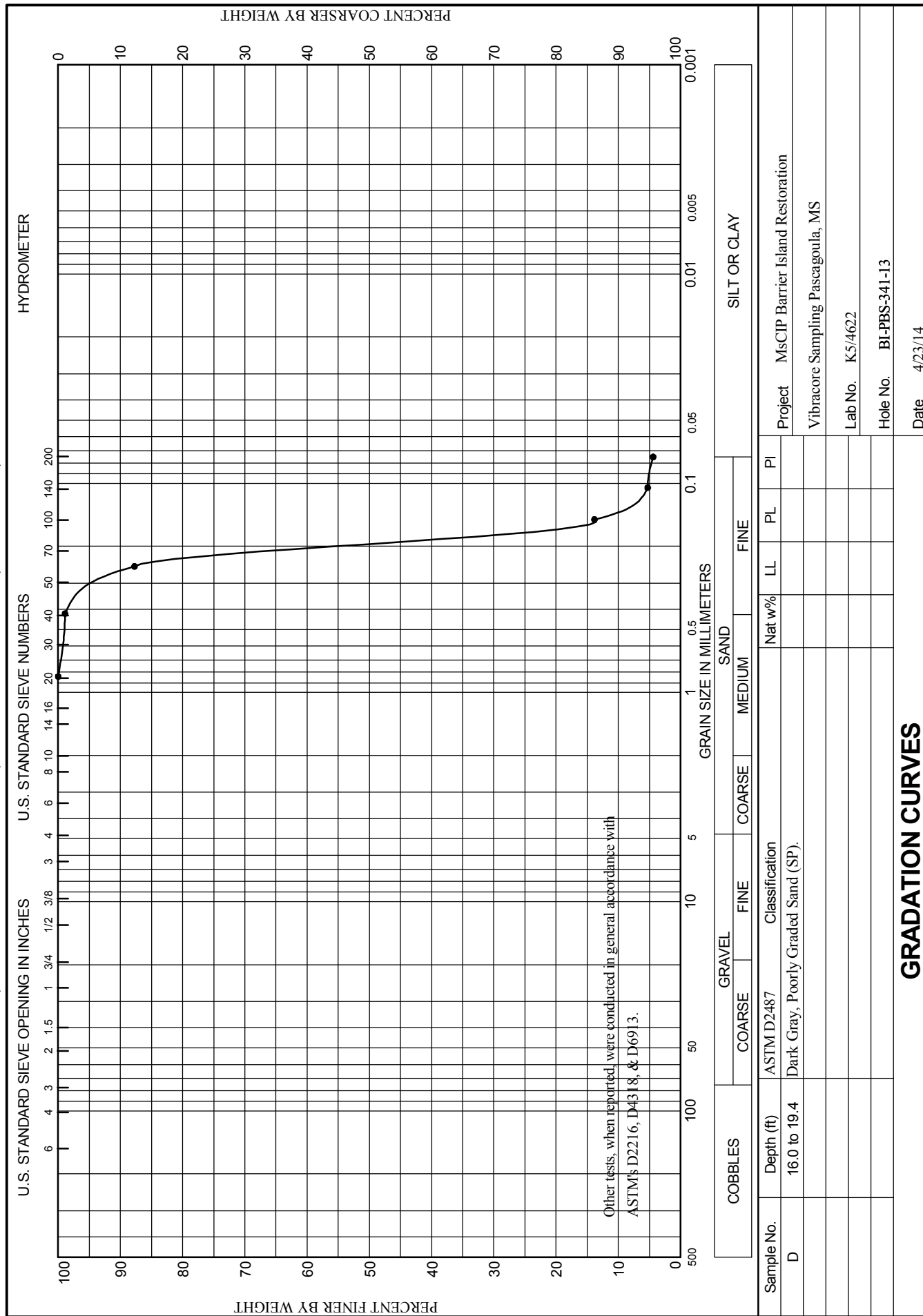
REQUISITION: W33SJG32900192





WORK ORDER: 848e

REQUISITION: W33SJG32900192



# Boring Designation BI-PBS-342-13

<b>DRILLING LOG</b>		<b>DIVISION</b> South Atlantic	<b>INSTALLATION</b> Mobile District		<b>SHEET 1</b> <b>OF 1 SHEETS</b>
<b>1. PROJECT</b> MsCIP Barrier Island Restoration Petit Bois Pass-OCS West			<b>9. SIZE AND TYPE OF BIT</b> N/A		
<b>2. BORING DESIGNATION</b> BI-PBS-342-13		<b>LOCATION COORDINATES</b> E = 1,115,634 N = 236,968		<b>10. COORDINATE SYSTEM/DATUM</b> State Plane, MSE (U.S. Ft.)	<b>HORIZONTAL</b> NAD83 <b>VERTICAL</b> NAVD88
<b>3. DRILLING AGENCY</b> Corps of Engineers - CESAM		<b>CONTRACTOR FILE NO.</b>		<b>11. MANUFACTURER'S DESIGNATION OF DRILL</b> Vibracore <input type="checkbox"/> AUTO HAMMER <input type="checkbox"/> MANUAL HAMMER	
<b>4. NAME OF DRILLER</b> Construction Solutions International, Inc.		<b>12. TOTAL SAMPLES</b>		<b>DISTURBED</b> 3	<b>UNDISTURBED (UD)</b> 0
<b>5. DIRECTION OF BORING</b> <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED		<b>DEG. FROM VERTICAL</b>	<b>BEARING</b>	<b>13. TOTAL NUMBER CORE BOXES</b>	
<b>6. THICKNESS OF OVERBURDEN</b> N/A		<b>14. WATER DEPTH</b> 55.3 Ft.		<b>15. DATE BORING</b> <b>STARTED</b> 02-08-14 <b>COMPLETED</b> 02-08-14	
<b>7. DEPTH DRILLED INTO ROCK</b> N/A		<b>16. ELEVATION TOP OF BORING</b> -53.5 Ft.		<b>17. TOTAL RECOVERY FOR BORING</b> 100%	
<b>8. TOTAL DEPTH OF BORING</b> 18.6 Ft.		<b>18. SIGNATURE AND TITLE OF INSPECTOR</b> Tom Powers, Geologist			

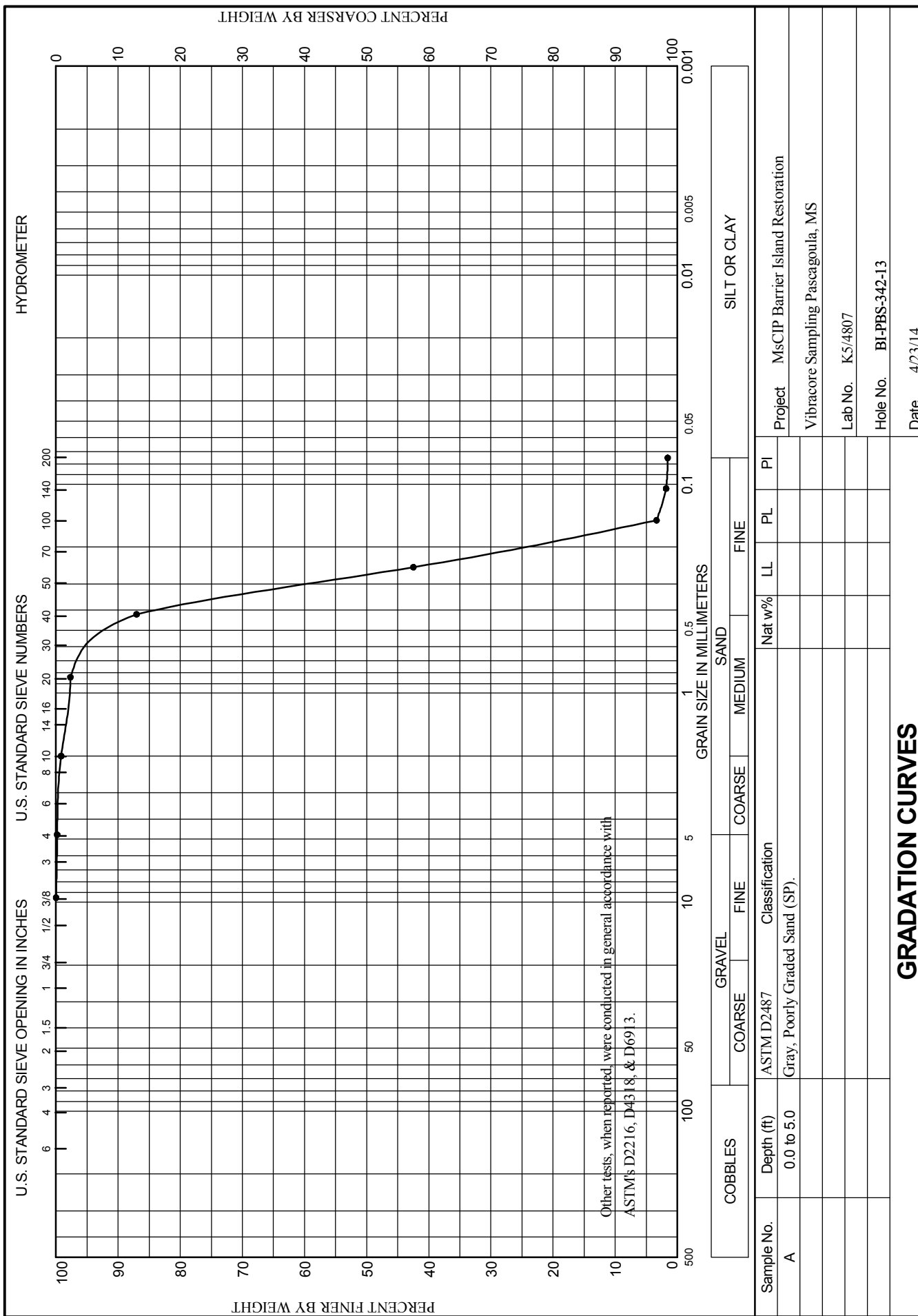
ELEV.	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS	SAMPLE	LABORATORY RESULTS
-53.5	0.0				
			SAND, poorly-graded, mostly fine to medium-grained sand-sized quartz, few shell fragments, lt. gray (SP)	A	Classification: SP Color: 2.5Y 7/1-light gray D50: 0.273 mm % Fines: 1.5
			At El. -58.3 Ft., trace clay 4.8 to 5.0 ft.	B	Classification: SP Color: 2.5Y 7/1-light gray D50: 0.242 mm % Fines: 2
-64.0	10.5				
-64.7	11.2		SAND, poorly-graded with silt, mostly fine to medium-grained sand-sized quartz, few shell fragments, lt. gray (SP-SM)	C	Classification: SP-SM Color: 2.5Y 6/1-gray D50: 0.199 mm % Fines: 5.1
			SAND, silty, trace shell fragments, medium gray (SM)	NS	
			At El. -67.5 Ft., high fines content to base of unit		
-71.8	18.3				
-72.7	18.6		CLAY, lean, trace shell fragments, sandy, lt. gray (CL)		
			NOTES: 1. Soils are field visually classified in accordance with the Unified Soils Classification System. 2. NS = Sample not submitted for laboratory analysis from this interval. 3. Seafloor elevation determined from 10/29/2014 USACE survey.		



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WORK ORDER: 848e

REQUISITION: W33SJC32900192

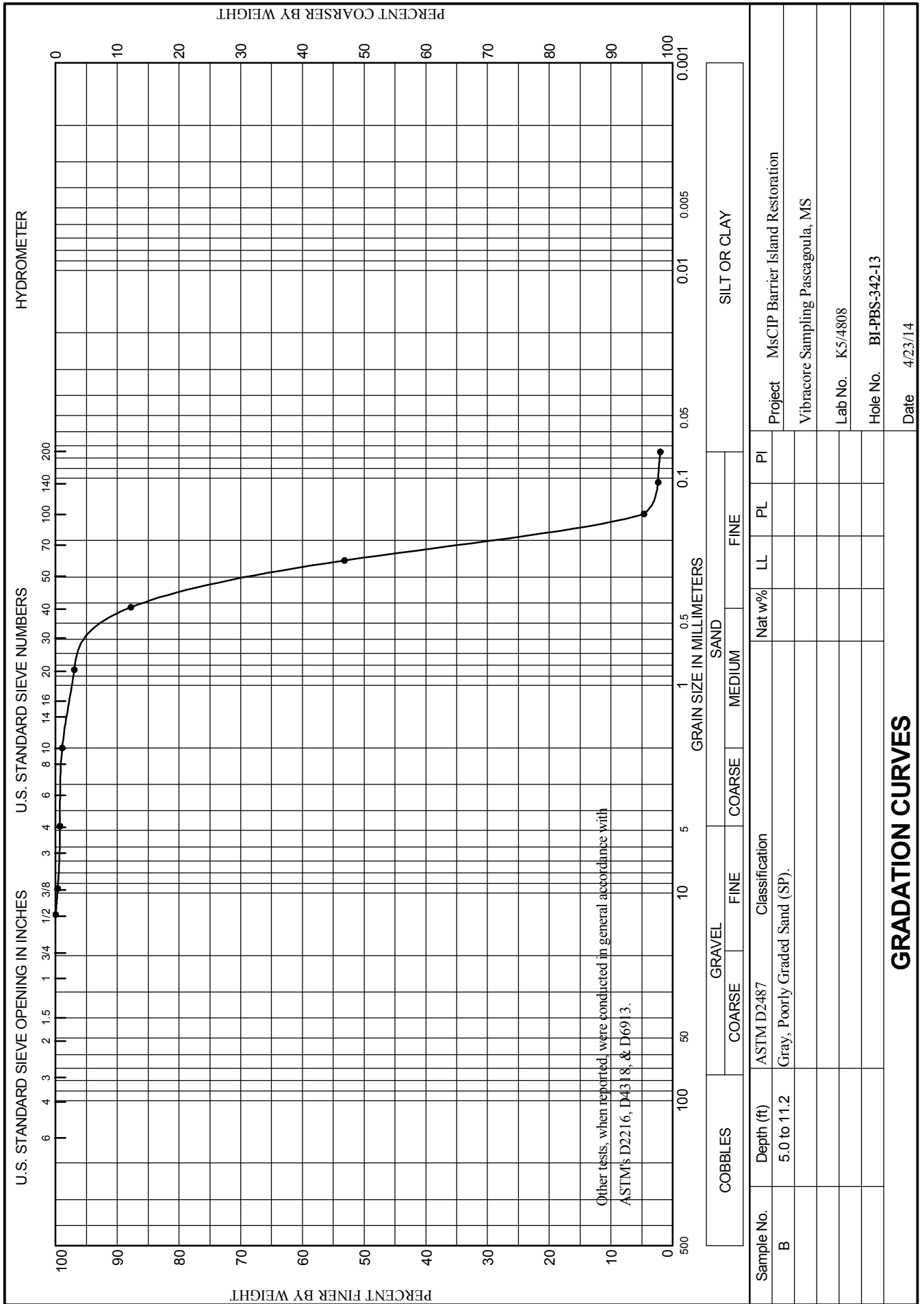




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WORK ORDER: 848e

REQUISITION: W33SJC32900192

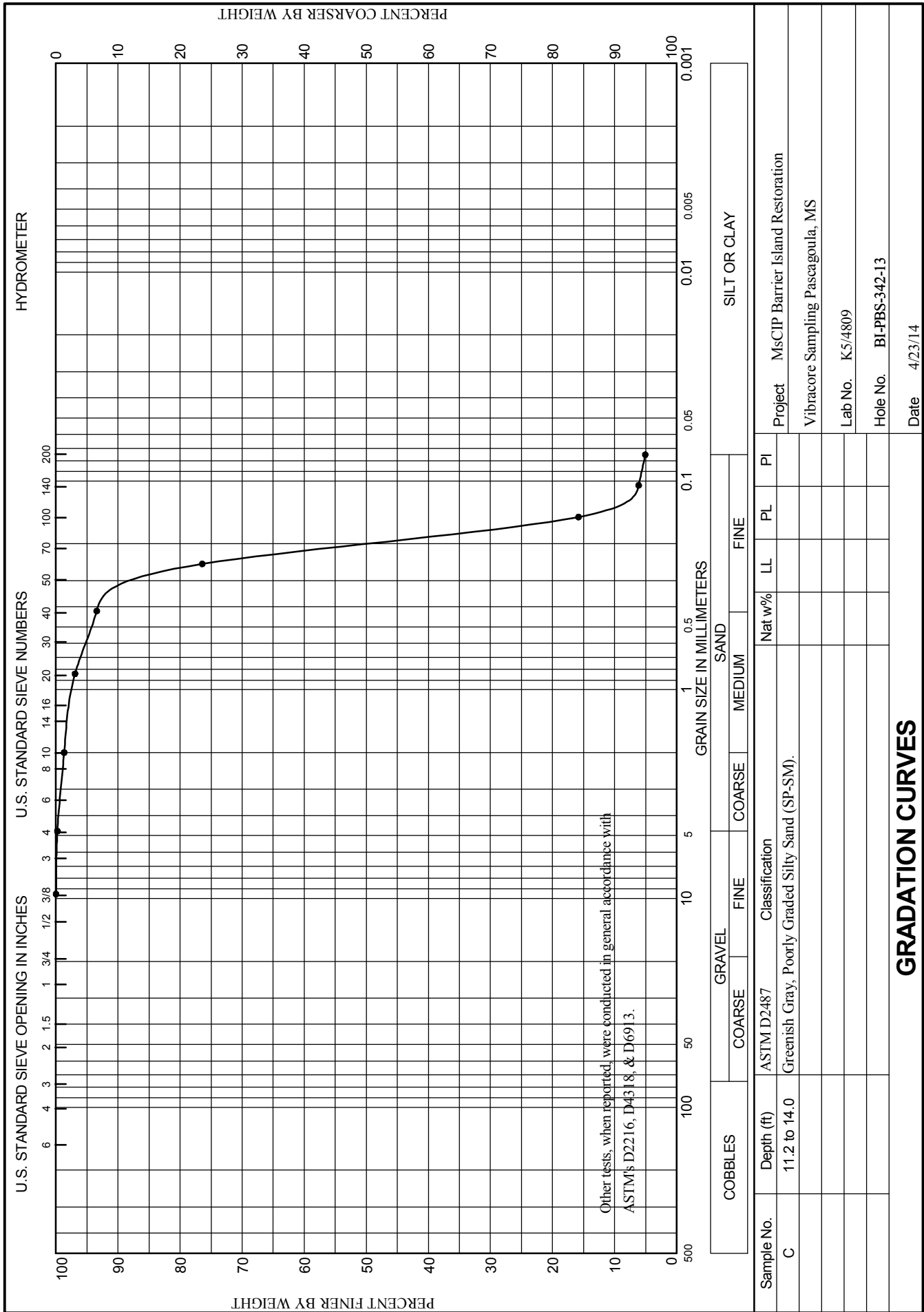




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WORK ORDER: 848e

REQUISITION: W33SJC32900192





# Boring Designation BI-PBS-343-13

DRILLING LOG		DIVISION South Atlantic		INSTALLATION Mobile District		SHEET 1 OF 1 SHEETS	
1. PROJECT MsCIP Barrier Island Restoration Petit Bois Pass-OCS West				9. SIZE AND TYPE OF BIT N/A			
2. BORING DESIGNATION BI-PBS-343-13		LOCATION COORDINATES E = 1,116,757 N = 236,757		10. COORDINATE SYSTEM/DATUM State Plane, MSE (U.S. Ft.)		HORIZONTAL NAD83	
3. DRILLING AGENCY Corps of Engineers - CESAM		CONTRACTOR FILE NO.		11. MANUFACTURER'S DESIGNATION OF DRILL Vibrocure		<input type="checkbox"/> AUTO HAMMER <input type="checkbox"/> MANUAL HAMMER	
4. NAME OF DRILLER Construction Solutions International, Inc.				12. TOTAL SAMPLES 3		UNDISTURBED (UD) 0	
5. DIRECTION OF BORING <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED				13. TOTAL NUMBER CORE BOXES		14. WATER DEPTH 55 Ft.	
6. THICKNESS OF OVERBURDEN N/A				15. DATE BORING 02-08-14		COMPLETED 02-08-14	
7. DEPTH DRILLED INTO ROCK N/A				16. ELEVATION TOP OF BORING -54.3 Ft.		17. TOTAL RECOVERY FOR BORING 100%	
8. TOTAL DEPTH OF BORING 17.7 Ft.				18. SIGNATURE AND TITLE OF INSPECTOR Tom Powers, Geologist			

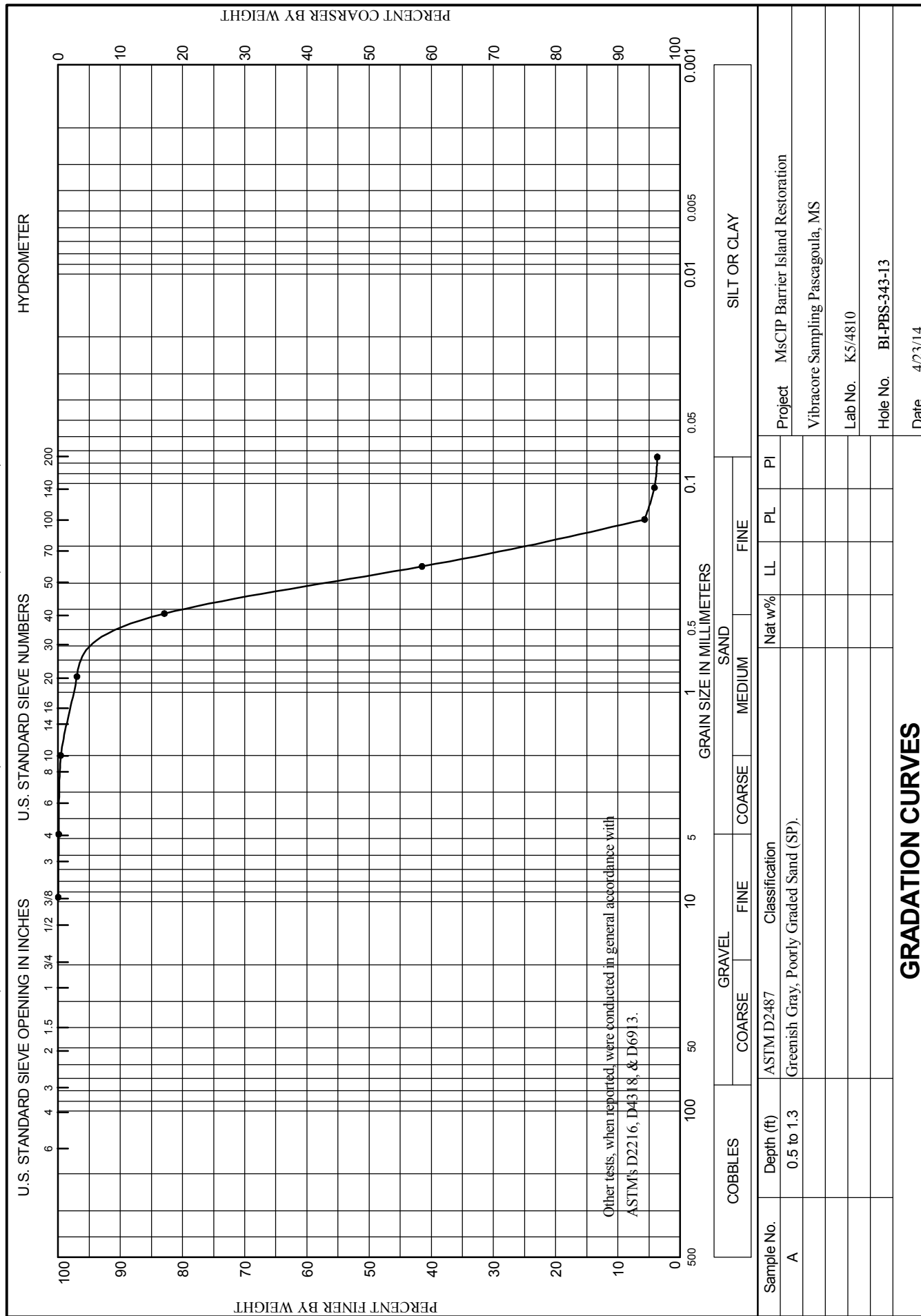
  

ELEV.	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS	SAMPLE	LABORATORY RESULTS
-54.3	0.0				
-54.8	0.5			NS	
-55.6	1.3		SAND, silty, mostly fine to medium-grained sand-sized quartz, few shell fragments, brownish medium gray (SM)	A	Classification: SP Color: 2.5Y 6/1-gray D50: 0.278 mm % Fines: 3.7
-58.3	4.0		SAND, poorly-graded with silt, mostly fine to medium-grained sand-sized quartz, few shell fragments, lt. to medium gray (SP-SM)	B	Classification: SP Color: 2.5Y 7/1-light gray D50: 0.254 mm % Fines: 3.1
-61.3	7.0		SAND, poorly-graded, mostly fine to medium-grained sand-sized quartz, trace shell fragments, lt. gray (SP)	C	Classification: SP Color: 2.5Y 6/1-gray D50: 0.22 mm % Fines: 2.2
-66.8	12.5		SAND, poorly-graded with silt, mostly fine-grained sand-sized quartz, trace shell fragments, lt. to medium gray (SP-SM)	NS	
			SAND, silty, mostly fine to medium-grained sand-sized quartz, trace shell fragments, high fines content to base of unit, trace clay at 7.3 ft. depth, medium gray (SM) At El. -62.3 Ft., fine-grained sand-sized		
-72.0	17.7		SAND, clayey, mostly fine-grained sand-sized quartz, trace shell fragments, medium to dark gray (SC)		
NOTES: 1. Soils are field visually classified in accordance with the Unified Soils Classification System. 2. NS = Sample not submitted for laboratory analysis from this interval. 3. Seafloor elevation determined from 10/29/2014 USACE survey.					



WORK ORDER: 848e

REQUISITION: W33SJG32900192

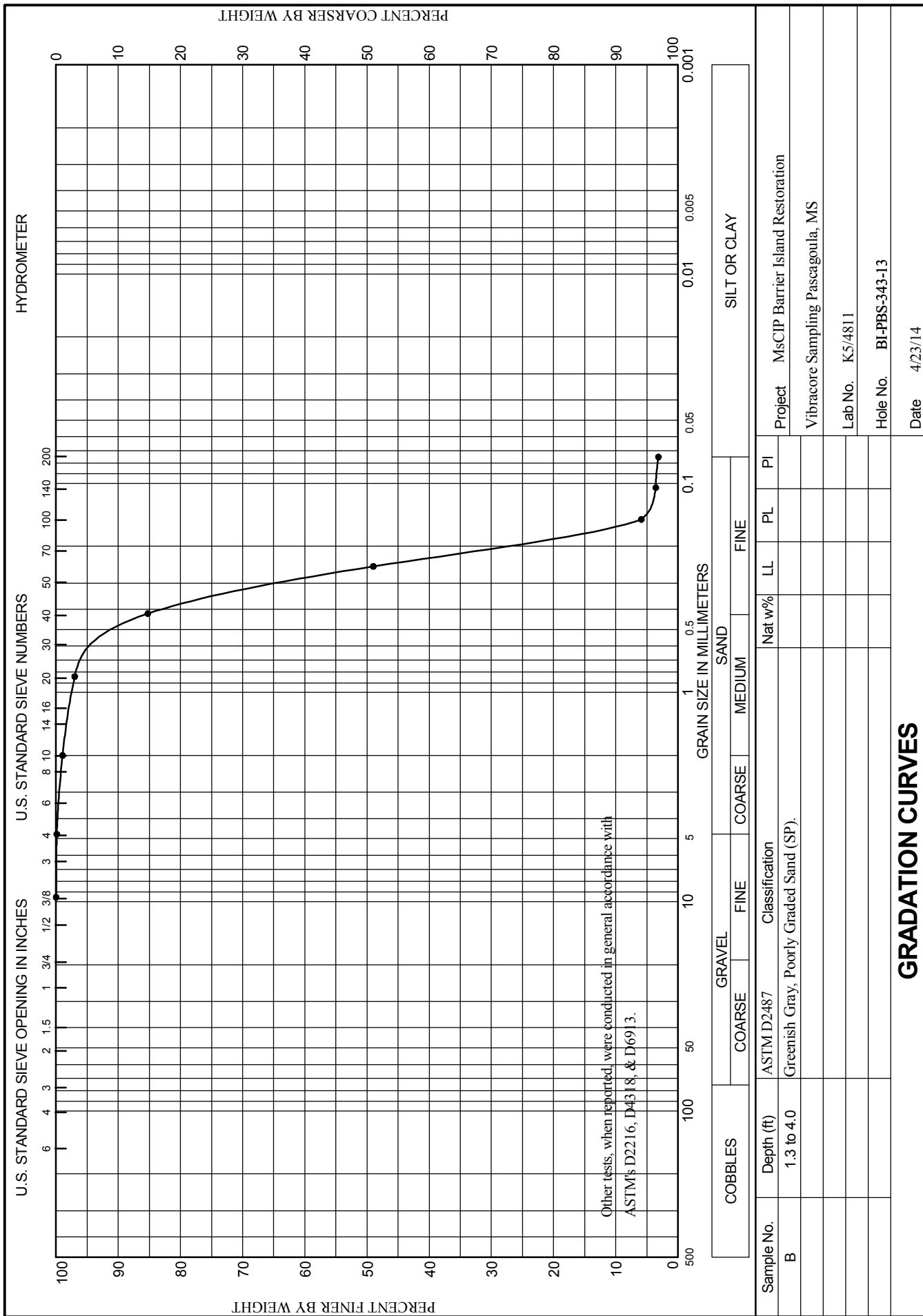




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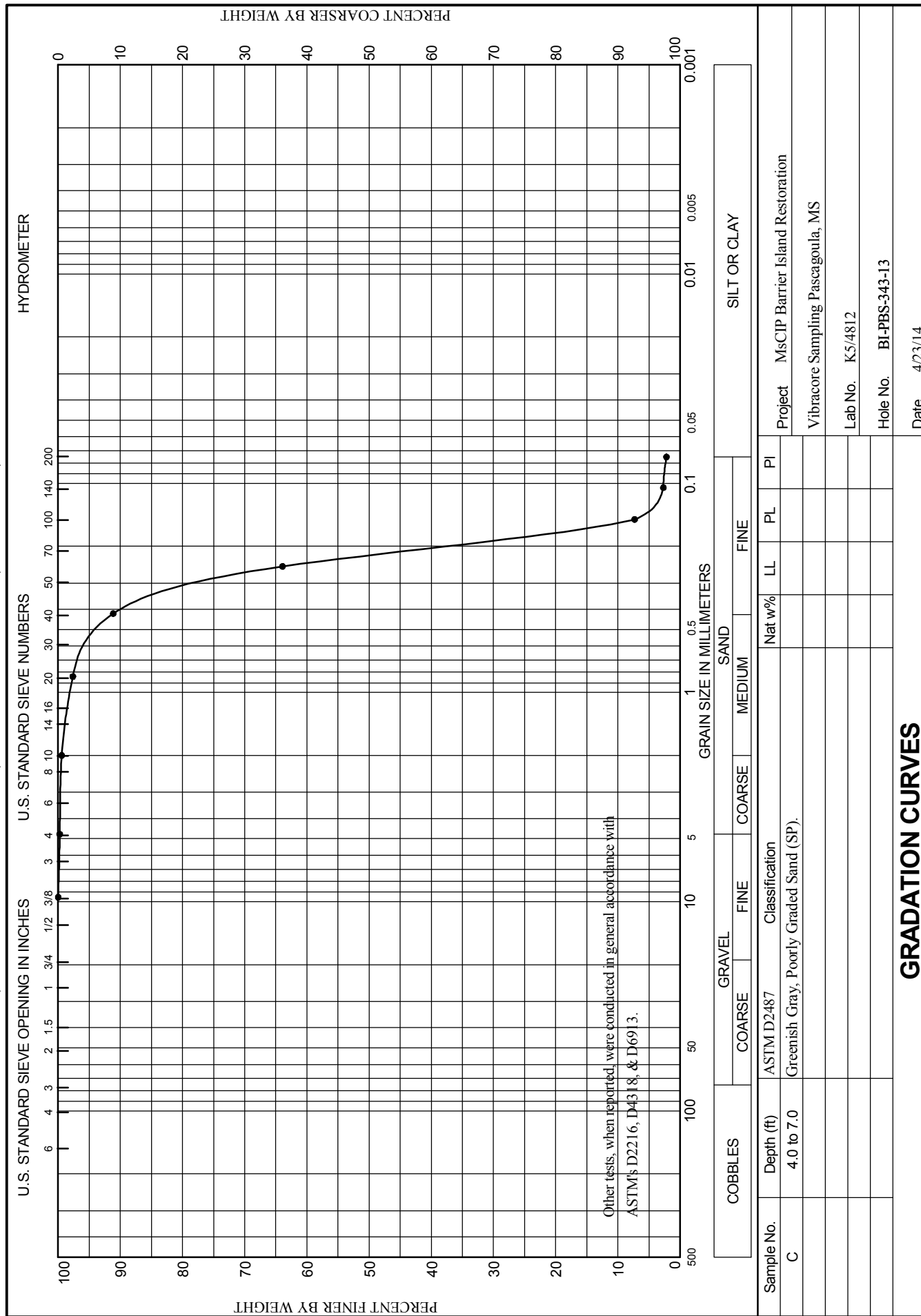
REQUISITION: W33SJC32900192





WORK ORDER: 848e

REQUISITION: W33SJG32900192



# Boring Designation BI-PBS-344-13

DRILLING LOG		DIVISION South Atlantic		INSTALLATION Mobile District		SHEET 1 OF 2 SHEETS	
1. PROJECT MsCIP Barrier Island Restoration Petit Bois Pass-OCS West				9. SIZE AND TYPE OF BIT N/A			
2. BORING DESIGNATION BI-PBS-344-13		LOCATION COORDINATES E = 1,117,615 N = 236,495		10. COORDINATE SYSTEM/DATUM State Plane, MSE (U.S. Ft.)		HORIZONTAL NAD83	
3. DRILLING AGENCY Corps of Engineers - CESAM		CONTRACTOR FILE NO.		11. MANUFACTURER'S DESIGNATION OF DRILL Vibrocure		<input type="checkbox"/> AUTO HAMMER <input type="checkbox"/> MANUAL HAMMER	
4. NAME OF DRILLER Construction Solutions International, Inc.				12. TOTAL SAMPLES 3		UNDISTURBED (UD) 0	
5. DIRECTION OF BORING <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED				13. TOTAL NUMBER CORE BOXES		14. WATER DEPTH 54.6 Ft.	
6. THICKNESS OF OVERBURDEN N/A				15. DATE BORING 02-09-14		STARTED 02-09-14	
7. DEPTH DRILLED INTO ROCK N/A				16. ELEVATION TOP OF BORING -56.5 Ft.		COMPLETED 02-09-14	
8. TOTAL DEPTH OF BORING 20.0 Ft.				17. TOTAL RECOVERY FOR BORING 100%			
				18. SIGNATURE AND TITLE OF INSPECTOR Tom Powers, Geologist			

ELEV.	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS	SAMPLE	LABORATORY RESULTS
-56.5	0.0				
-57.3	0.8		CLAY, lean, firm to soft, medium gray (CL)	NS	
-57.6	1.1		SAND, clayey, mostly fine-grained sand-sized quartz, medium gray (SC)		
			SAND, silty, mostly fine to medium-grained sand-sized quartz, few shell fragments, lt. to medium gray (SM)	A	Classification: SP Color: 2.5Y 6/1-gray D50: 0.213 mm % Fines: 3.3
			At El. -61.5 Ft., trace clay 5.0 to 5.3 ft.		
-63.5	7.0				
-65.0	8.5		SAND, poorly-graded with silt, mostly fine-grained sand-sized quartz, few shell fragments, lt. gray (SP-SM)	B	Classification: SP Color: 2.5Y 6/1-gray D50: 0.199 mm % Fines: 3.9
			SAND, silty, mostly fine-grained sand-sized quartz, few shell fragments, medium gray (SM)	C	Classification: SP Color: 2.5Y 6/1-gray D50: 0.194 mm % Fines: 4.7
			At El. -66.5 Ft., high fines content to base of unit		
-69.5	13.0				
-70.5	14.0		SILT, inorganic-L, trace shell fragments, sandy, medium to dark gray (ML)		
			SAND, clayey, mostly fine-grained sand-sized quartz, trace shell fragments, medium to dark gray (SC)	NS	
-75.5	19.0				
-76.5	20.0		CLAY, lean, trace shell fragments, sandy, medium to dark gray (CL)		
NOTES: 1. Soils are field visually classified in accordance with the Unified Soils Classification System. 2. NS = Sample not submitted for laboratory analysis from this interval.					

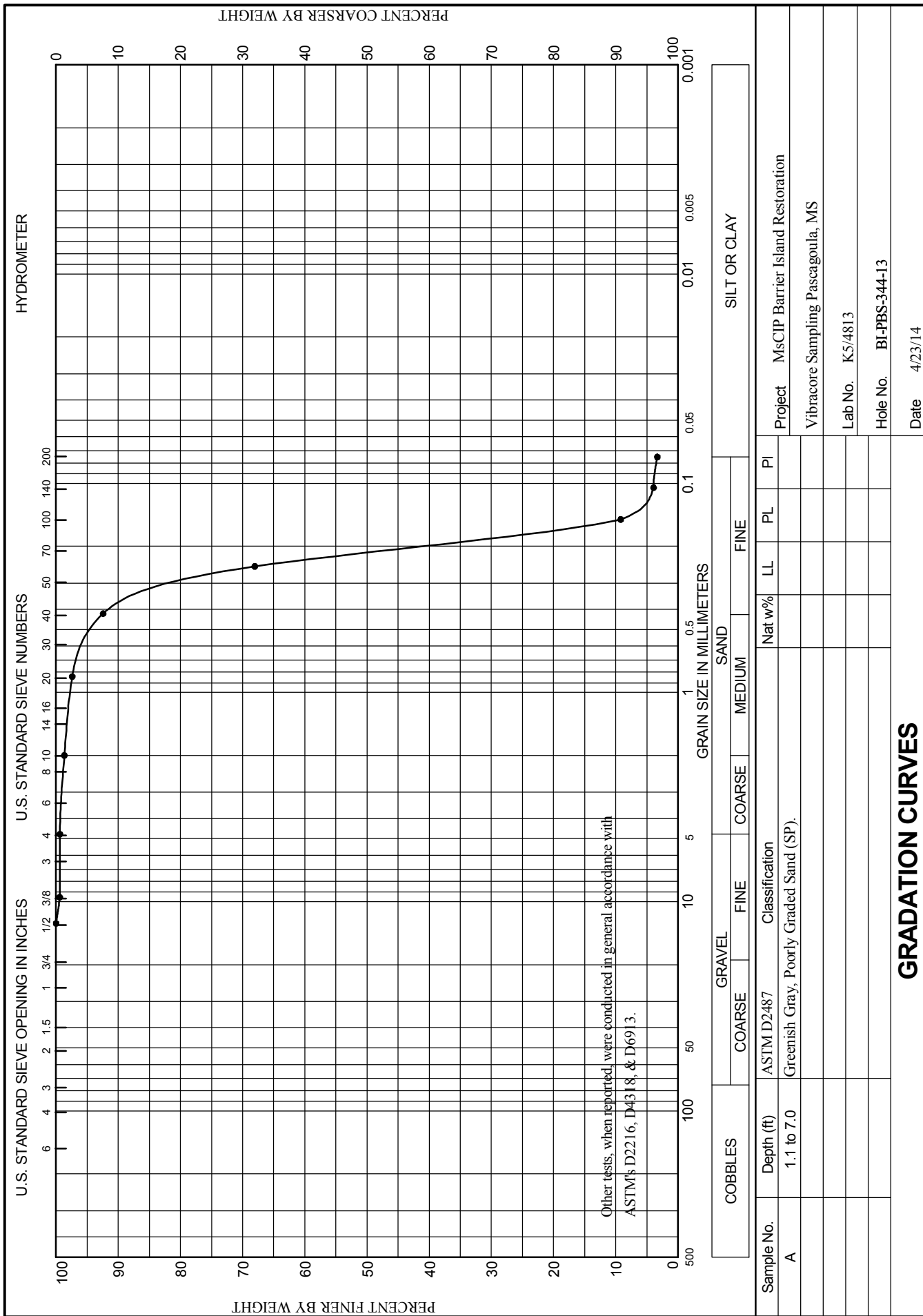
<b>DRILLING LOG (Cont. Sheet)</b>			<b>INSTALLATION</b> Mobile District		<b>SHEET 2</b> <b>OF 2 SHEETS</b>
<b>PROJECT</b> MsCIP Barrier Island Restoration			<b>COORDINATE SYSTEM/DATUM</b> State Plane, MSE (U.S. Ft.)	<b>HORIZONTAL</b> NAD83	<b>VERTICAL</b> NAVD88
<b>LOCATION COORDINATES</b> X = 1,117,615 Y = 236,495			<b>ELEVATION TOP OF BORING</b> -56.5 Ft.		
<b>ELEV.</b>	<b>DEPTH</b>	<b>LEGEND</b>	<b>CLASSIFICATION OF MATERIALS</b>	<b>SAMPLE</b>	<b>LABORATORY RESULTS</b>
			3. Seafloor elevation determined from 2013 USGS geophysical survey.		



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WORK ORDER: 848e

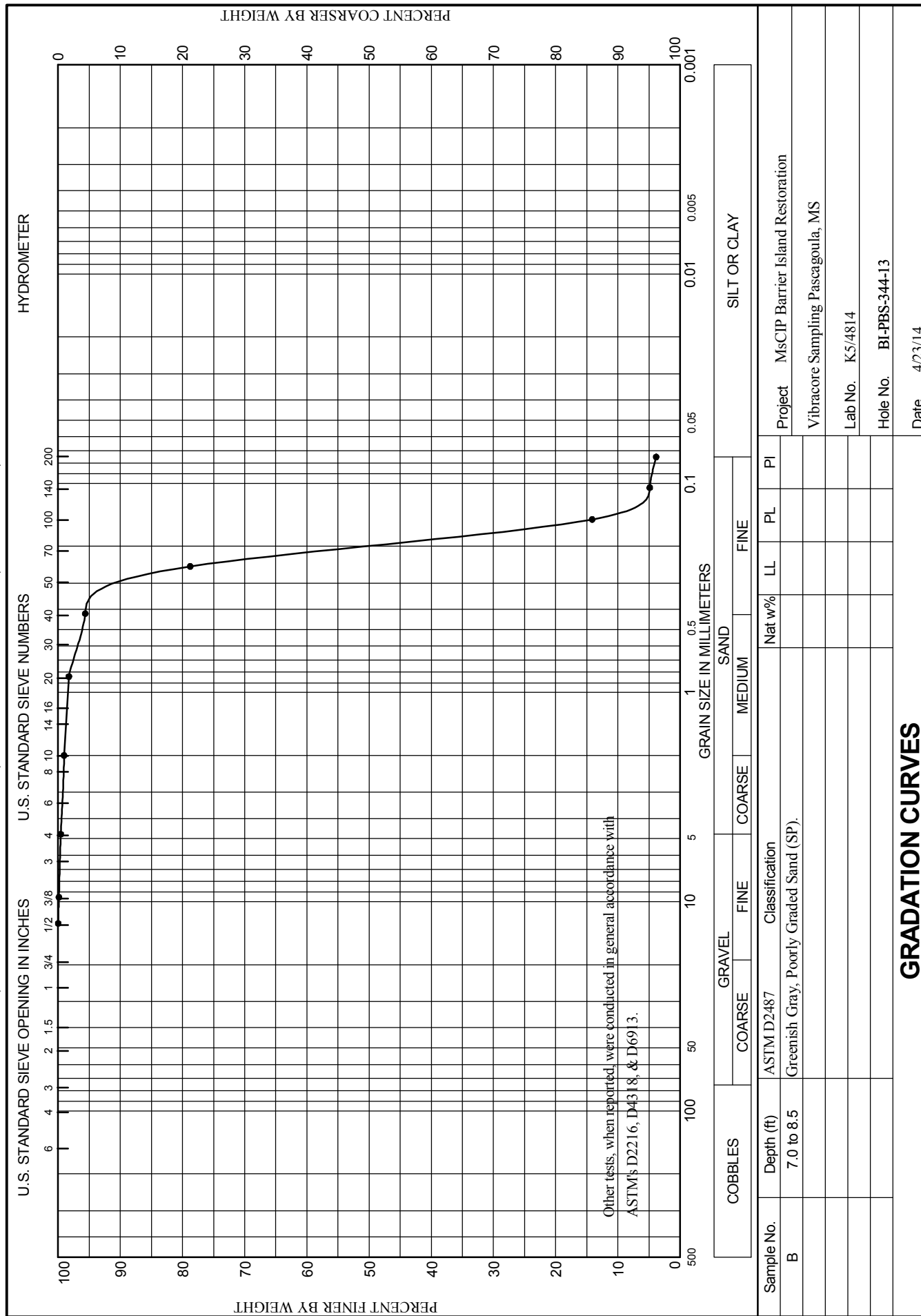
REQUISITION: W33SJC32900192





WORK ORDER: 848e

REQUISITION: W33SJG32900192

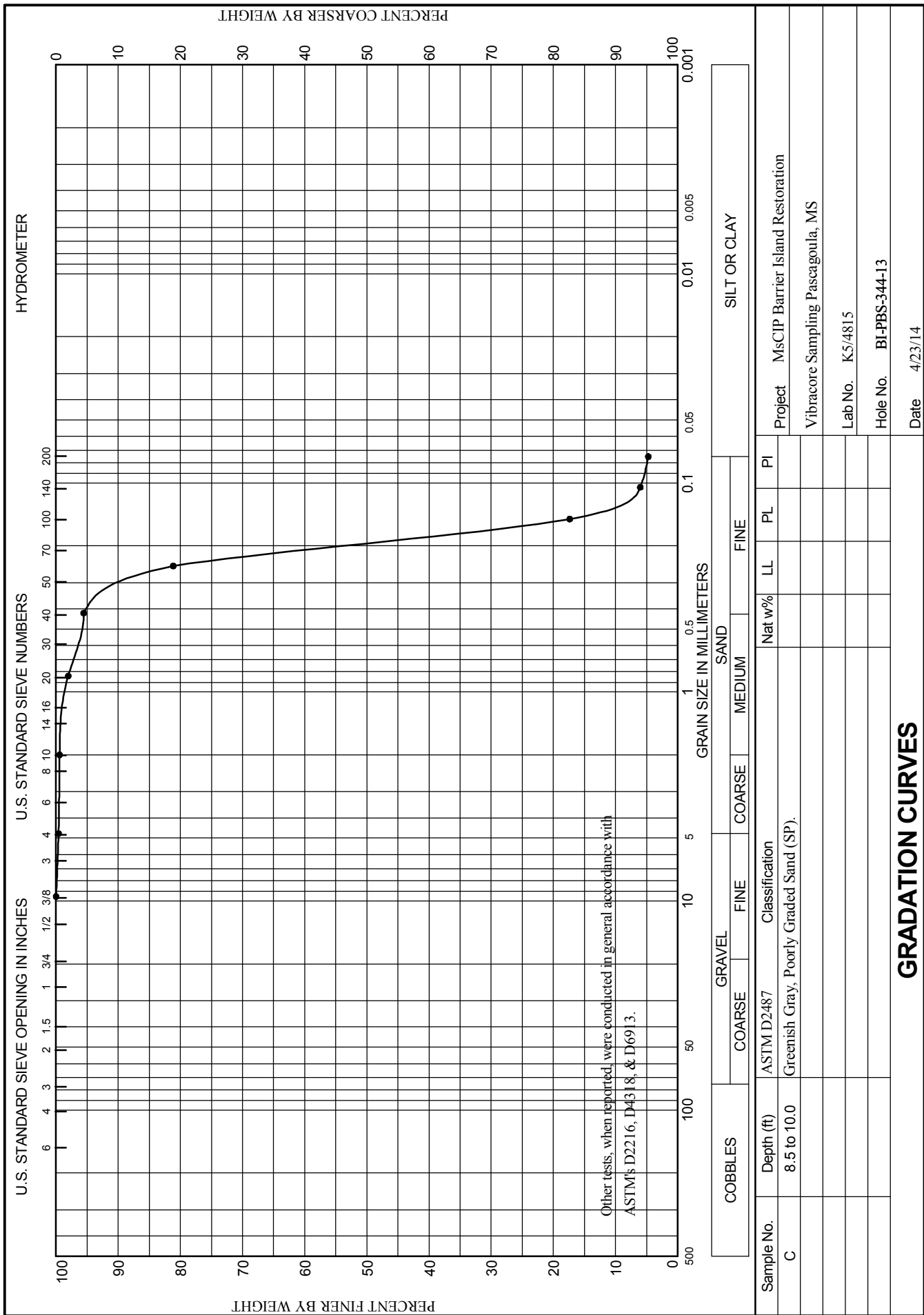






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WORK ORDER: 848e  
REQUISITION: W33SJC32900192



# Boring Designation BI-PBS-345-13

DRILLING LOG		DIVISION South Atlantic		INSTALLATION Mobile District		SHEET 1 OF 2 SHEETS	
1. PROJECT MsCIP Barrier Island Restoration Petit Bois Pass-OCS West				9. SIZE AND TYPE OF BIT N/A			
2. BORING DESIGNATION BI-PBS-345-13		LOCATION COORDINATES E = 1,118,602 N = 236,193		10. COORDINATE SYSTEM/DATUM State Plane, MSE (U.S. Ft.)		HORIZONTAL NAD83	
3. DRILLING AGENCY Corps of Engineers - CESAM		CONTRACTOR FILE NO.		11. MANUFACTURER'S DESIGNATION OF DRILL Vibrocure		<input type="checkbox"/> AUTO HAMMER <input type="checkbox"/> MANUAL HAMMER	
4. NAME OF DRILLER Construction Solutions International, Inc.				12. TOTAL SAMPLES 0		DISTURBED 0	
5. DIRECTION OF BORING <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED				13. TOTAL NUMBER CORE BOXES		14. WATER DEPTH 55.3 Ft.	
6. THICKNESS OF OVERBURDEN N/A				15. DATE BORING 02-09-14		STARTED 02-09-14	
7. DEPTH DRILLED INTO ROCK N/A				16. ELEVATION TOP OF BORING -55.4 Ft.		COMPLETED 02-09-14	
8. TOTAL DEPTH OF BORING 20.0 Ft.				17. TOTAL RECOVERY FOR BORING 100%		18. SIGNATURE AND TITLE OF INSPECTOR Tom Powers, Geologist	

ELEV.	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS	SAMPLE	LABORATORY RESULTS
-55.4	0.0				
-61.3	5.9		CLAY, lean, trace shell fragments, soft to 2.5 ft. depth, firm to base of unit, sandy and non-sandy, medium gray (CL)		
-71.4	16.0		SAND, silty, mostly fine to medium-grained sand-sized quartz, few shell fragments, medium to lt. gry (SM) At El. -63.4 Ft., fine-grained sand-sized to base of unit At El. -68.4 Ft., medium dark At El. -69.4 Ft., high fines content to base of unit	NS	
-75.4	20.0		SAND, clayey, mostly fine-grained sand-sized quartz, trace shell fragments, medium dark gray (SC)		
			NOTES: 1. Soils are field visually classified in accordance with the Unified Soils Classification System. 2. NS = Sample not submitted for laboratory analysis from this interval. 3. Seafloor elevation calculated using sampling		

<b>DRILLING LOG (Cont. Sheet)</b>			<b>INSTALLATION</b> Mobile District		<b>SHEET 2</b> <b>OF 2 SHEETS</b>
<b>PROJECT</b> MsCIP Barrier Island Restoration			<b>COORDINATE SYSTEM/DATUM</b> State Plane, MSE (U.S. Ft.)	<b>HORIZONTAL</b> NAD83	<b>VERTICAL</b> NAVD88
<b>LOCATION COORDINATES</b> X = 1,118,602 Y = 236,193			<b>ELEVATION TOP OF BORING</b> -55.4 Ft.		
<b>ELEV.</b>	<b>DEPTH</b>	<b>LEGEND</b>	<b>CLASSIFICATION OF MATERIALS</b>	<b>SAMPLE</b>	<b>LABORATORY RESULTS</b>
			vessel's fathometer water depth reading and applying NOAA tidal gauge data conversion factor.		

# Boring Designation BI-PBS-354-13

DRILLING LOG		DIVISION South Atlantic		INSTALLATION Mobile District		SHEET 1 OF 1 SHEETS	
1. PROJECT MsCIP Barrier Island Restoration Petit Bois Pass-OCS West				9. SIZE AND TYPE OF BIT N/A			
2. BORING DESIGNATION BI-PBS-354-13		LOCATION COORDINATES E = 1,111,973 N = 238,173		10. COORDINATE SYSTEM/DATUM State Plane, MSE (U.S. Ft.)		HORIZONTAL NAD83 VERTICAL NAVD88	
3. DRILLING AGENCY Corps of Engineers - CESAM		CONTRACTOR FILE NO.		11. MANUFACTURER'S DESIGNATION OF DRILL Vibrocure		<input type="checkbox"/> AUTO HAMMER <input type="checkbox"/> MANUAL HAMMER	
4. NAME OF DRILLER Construction Solutions International, Inc.				12. TOTAL SAMPLES 3		DISTURBED 0 UNDISTURBED (UD)	
5. DIRECTION OF BORING <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED				13. TOTAL NUMBER CORE BOXES		14. WATER DEPTH 53.3 Ft.	
6. THICKNESS OF OVERBURDEN N/A				15. DATE BORING 02-09-14		STARTED 02-09-14 COMPLETED 02-09-14	
7. DEPTH DRILLED INTO ROCK N/A				16. ELEVATION TOP OF BORING -52.3 Ft.		17. TOTAL RECOVERY FOR BORING 100%	
8. TOTAL DEPTH OF BORING 16.9 Ft.				18. SIGNATURE AND TITLE OF INSPECTOR Tom Powers, Geologist			

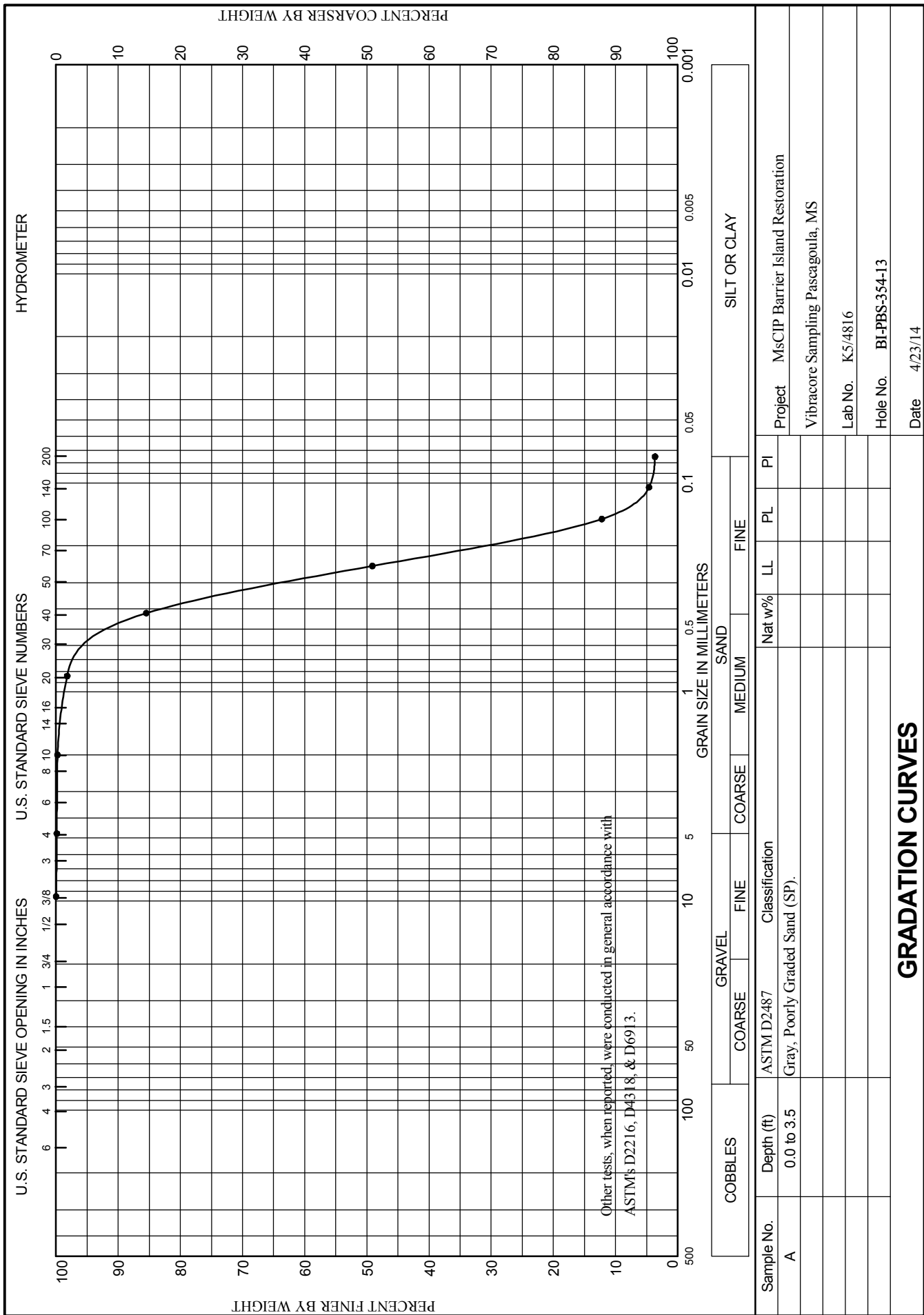
ELEV.	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS	SAMPLE	LABORATORY RESULTS
-52.3	0.0				
			SAND, silty, mostly fine-grained sand-sized quartz, few shell fragments, lt. to medium gray (SM)	A	Classification: SP Color: 2.5Y 6/1-gray D50: 0.253 mm % Fines: 3.6
-55.8	3.5				
			SAND, poorly-graded with silt, mostly fine-grained sand-sized quartz, few shell fragments, lt. to medium gray (SP-SM) At El. -57.3 Ft., lt. gray to depth of 8.5 ft.	B	Classification: SP Color: 2.5Y 7/1-light gray D50: 0.259 mm % Fines: 2
-60.8	8.5				
			SAND, poorly-graded with silt, mostly fine-grained sand-sized quartz, few shell fragments, lt. to medium gray (SP-SM)	C	Classification: SP Color: 2.5Y 6/1-gray D50: 0.232 mm % Fines: 3
-63.3	11.0				
			At El. -62.8 Ft., trace shell fragments to base of unit		
-65.3	13.0				
			SAND, silty, mostly fine-grained sand-sized quartz, trace shell fragments, medium gray (SM) At El. -64.3 Ft., high fines content to base of unit	NS	
-68.3	16.0				
			SILT, inorganic-L, trace shell fragments, sandy, medium gray (ML)		
-69.2	16.9				
			SAND, clayey, mostly fine-grained sand-sized quartz, trace shell fragments, medium gray (SC)		
NOTES: 1. Soils are field visually classified in accordance with the Unified Soils Classification System. 2. NS = Sample not submitted for laboratory analysis from this interval. 3. Seafloor elevation determined from 10/29/2014 USACE survey.					



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WORK ORDER: 848e

REQUISITION: W33SJC32900192

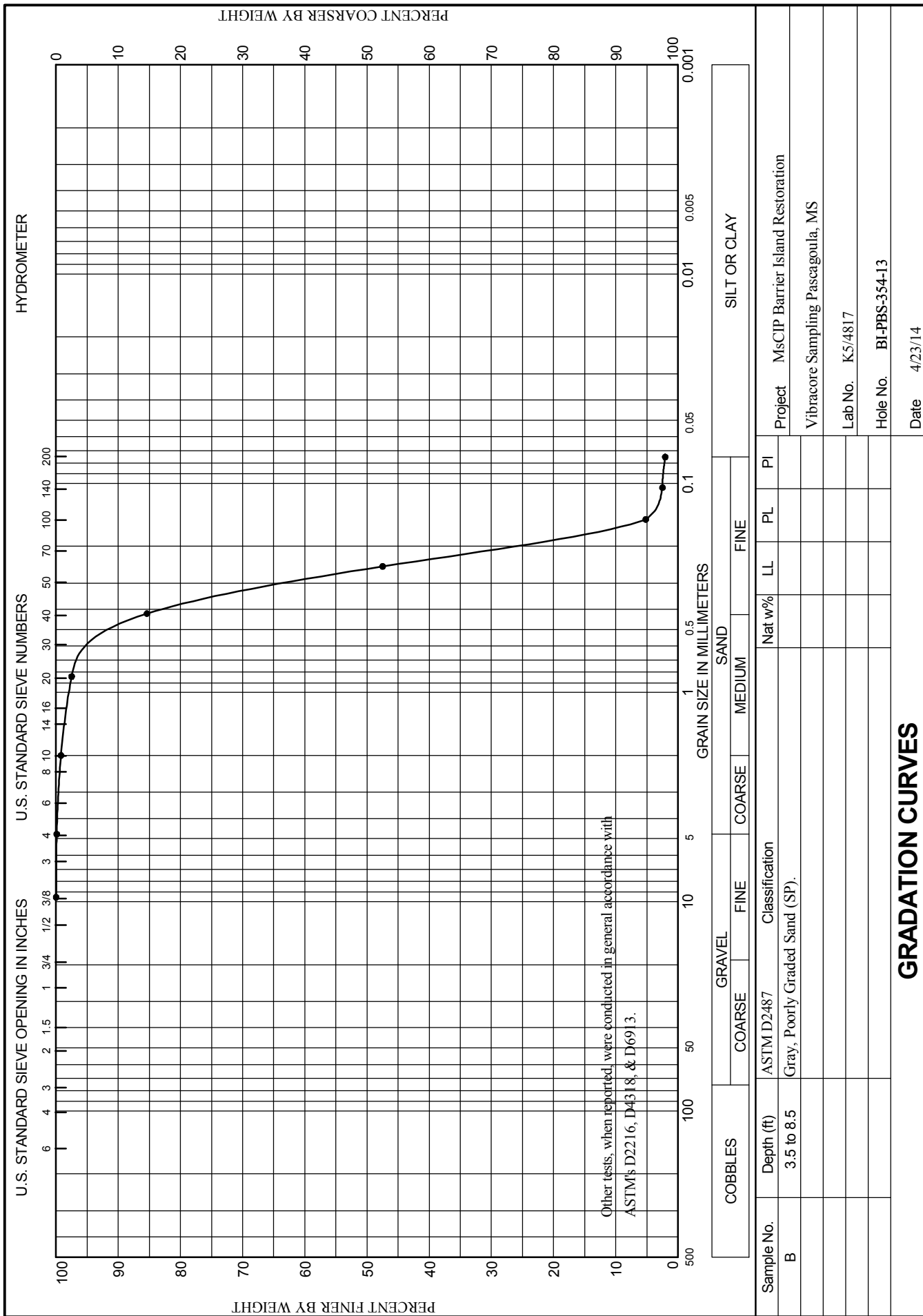




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CORPS OF ENGINEERS, 200 N. COBB PARKWAY, BLDG 400 SUITE 404, MARIETTA, GA. 30062

WORK ORDER: 848e

REQUISITION: W33SJG32900192

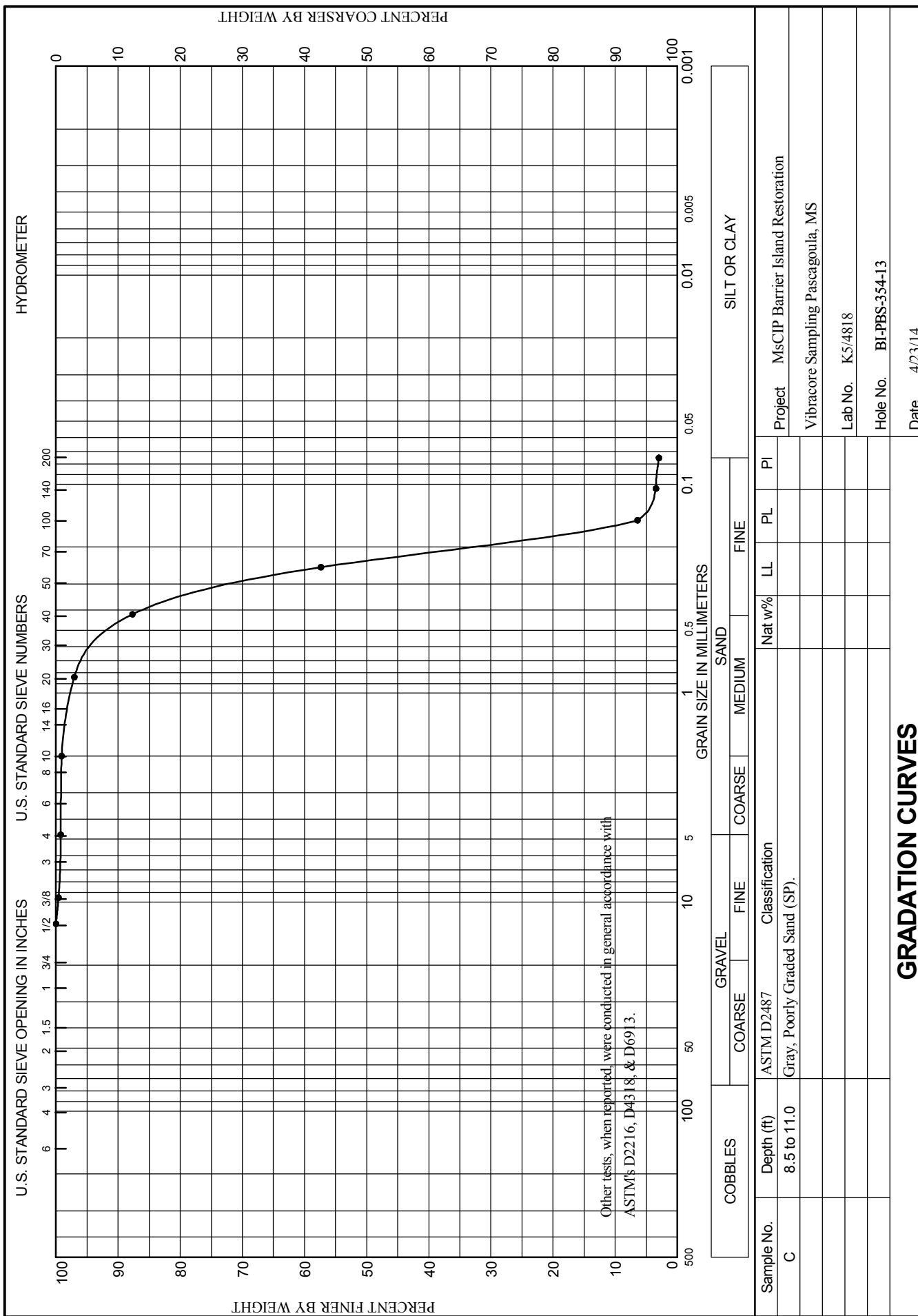




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WORK ORDER: 848e

REQUISITION: W33SJG32900192



# Boring Designation BI-PBS-355-13

DRILLING LOG		DIVISION South Atlantic		INSTALLATION Mobile District		SHEET 1 OF 1 SHEETS	
1. PROJECT MsCIP Barrier Island Restoration Petit Bois Pass-OCS West				9. SIZE AND TYPE OF BIT N/A			
2. BORING DESIGNATION BI-PBS-355-13		LOCATION COORDINATES E = 1,113,639 N = 238,066		10. COORDINATE SYSTEM/DATUM State Plane, MSE (U.S. Ft.)		HORIZONTAL NAD83 VERTICAL NAVD88	
3. DRILLING AGENCY Corps of Engineers - CESAM		CONTRACTOR FILE NO.		11. MANUFACTURER'S DESIGNATION OF DRILL Vibrocure		<input type="checkbox"/> AUTO HAMMER <input type="checkbox"/> MANUAL HAMMER	
4. NAME OF DRILLER Construction Solutions International, Inc.				12. TOTAL SAMPLES 4		DISTURBED 4 UNDISTURBED (UD) 0	
5. DIRECTION OF BORING <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED				13. TOTAL NUMBER CORE BOXES		14. WATER DEPTH 53.3 Ft.	
6. THICKNESS OF OVERBURDEN N/A				15. DATE BORING 02-09-14		STARTED 02-09-14 COMPLETED 02-09-14	
7. DEPTH DRILLED INTO ROCK N/A				16. ELEVATION TOP OF BORING -53.1 Ft.		17. TOTAL RECOVERY FOR BORING 100%	
8. TOTAL DEPTH OF BORING 18.0 Ft.				18. SIGNATURE AND TITLE OF INSPECTOR Tom Powers, Geologist			
ELEV.	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS	SAMPLE	LABORATORY RESULTS		
-53.1	0.0						
-56.7	3.6		SAND, poorly-graded with silt, mostly fine-grained sand-sized quartz, trace shell fragments, lt. to medium gray (SP-SM)	A	Classification: SP Color: 2.5Y 6/1-gray D50: 0.297 mm % Fines: 3		
-61.7	8.6		SAND, poorly-graded with silt, mostly fine to medium-grained sand-sized quartz, few shell fragments, lt. gray (SP-SM)	B	Classification: SP Color: 2.5Y 6/1-gray D50: 0.309 mm % Fines: 2.5		
-65.6	12.5		SAND, poorly-graded, mostly fine-grained sand-sized quartz, few shell fragments, lt. gray (SP)	C	Classification: SP Color: 2.5Y 6/1-gray D50: 0.254 mm % Fines: 2.5		
-69.1	16.0		SAND, silty, mostly fine-grained sand-sized quartz, trace shell fragments, medium gray (SM)	D	Classification: SP-SM Color: 2.5Y 6/1-gray D50: 0.196 mm % Fines: 6.2		
-71.1	18.0		SILT, inorganic-L, few shell fragments, sandy, medium dark gray (ML)	NS			
			NOTES: 1. Soils are field visually classified in accordance with the Unified Soils Classification System. 2. NS = Sample not submitted for laboratory analysis from this interval. 3. Seafloor elevation determined from 10/29/2014 USACE survey.				

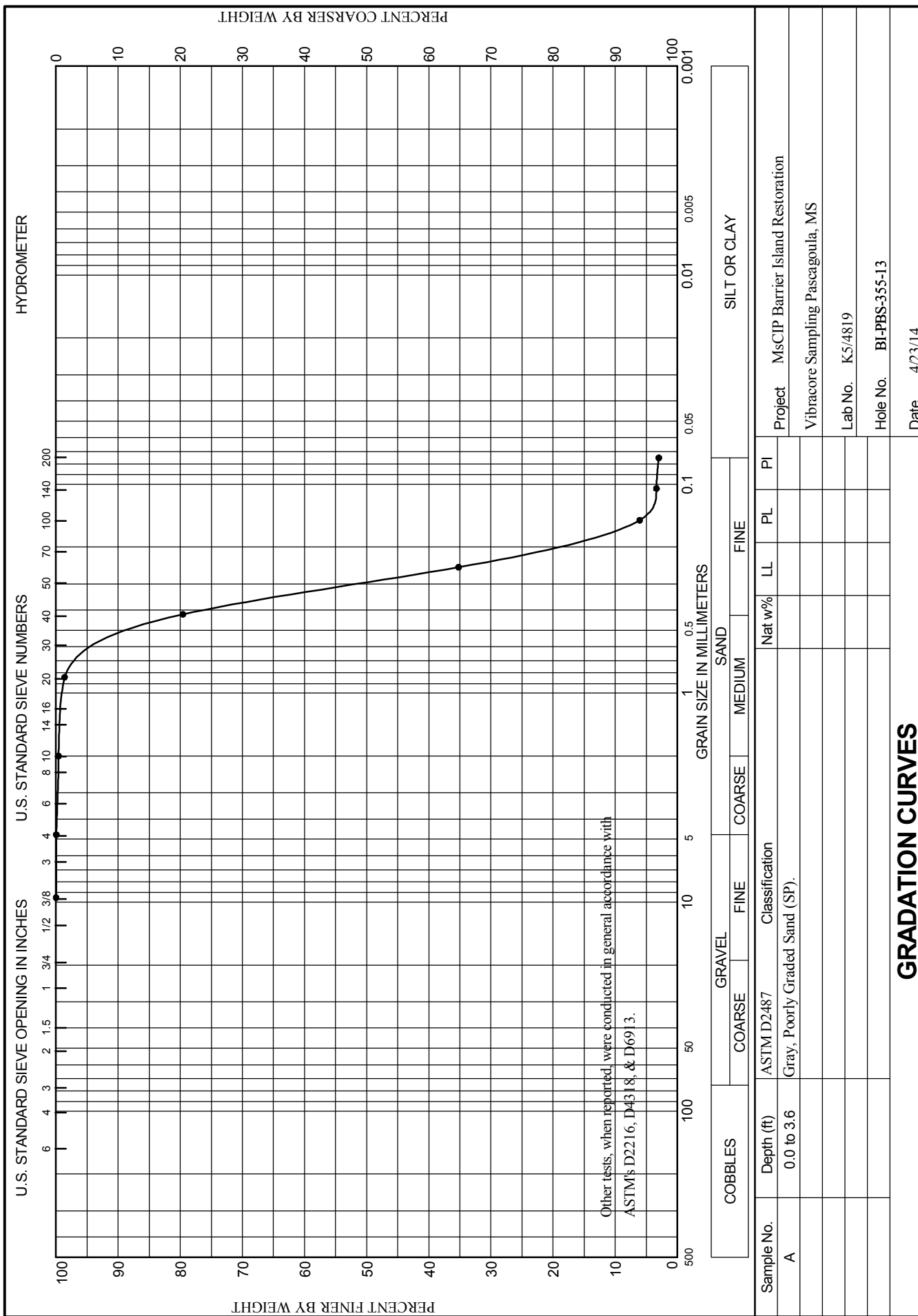




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WORK ORDER: 848e

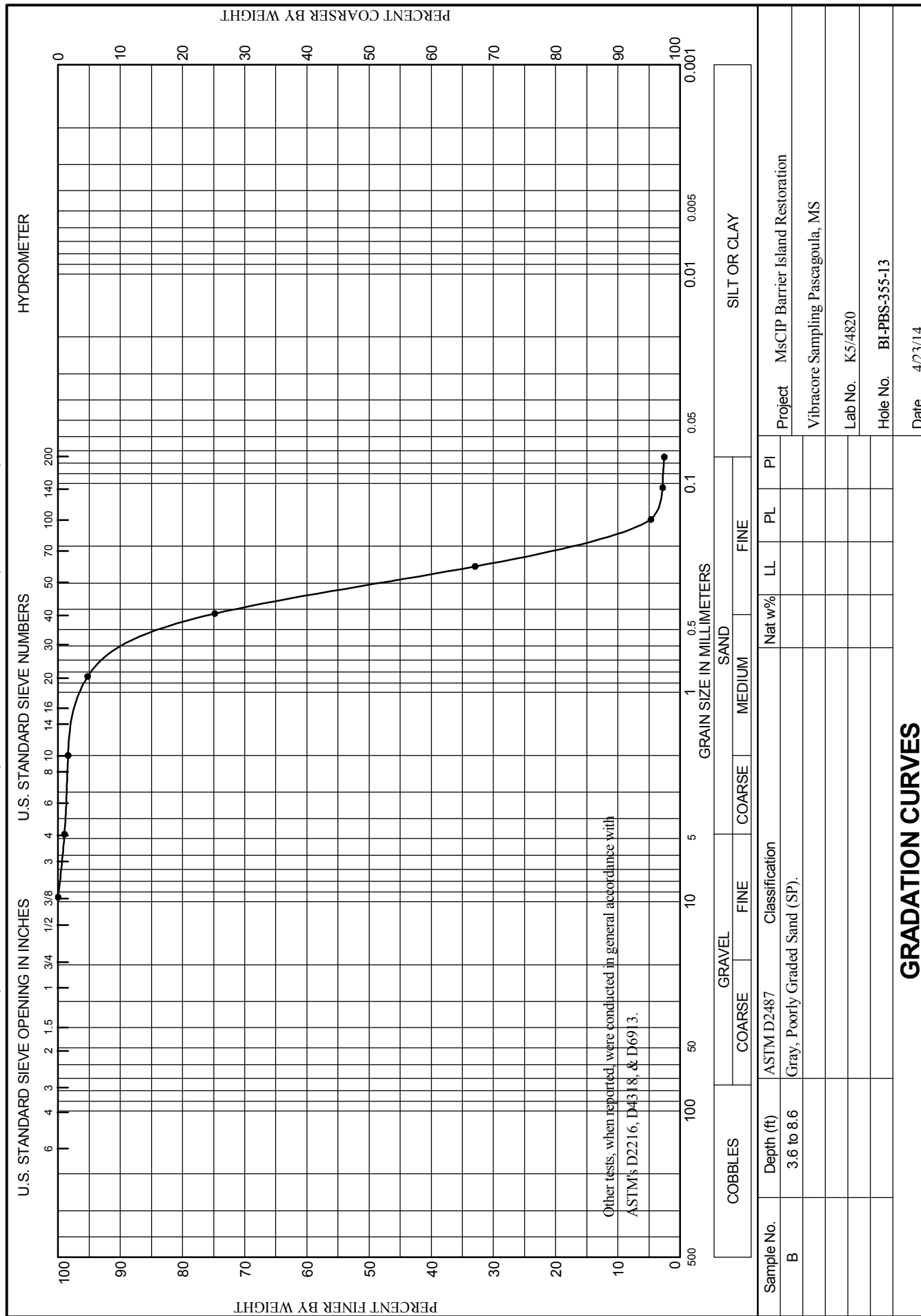
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WORK ORDER: 848e

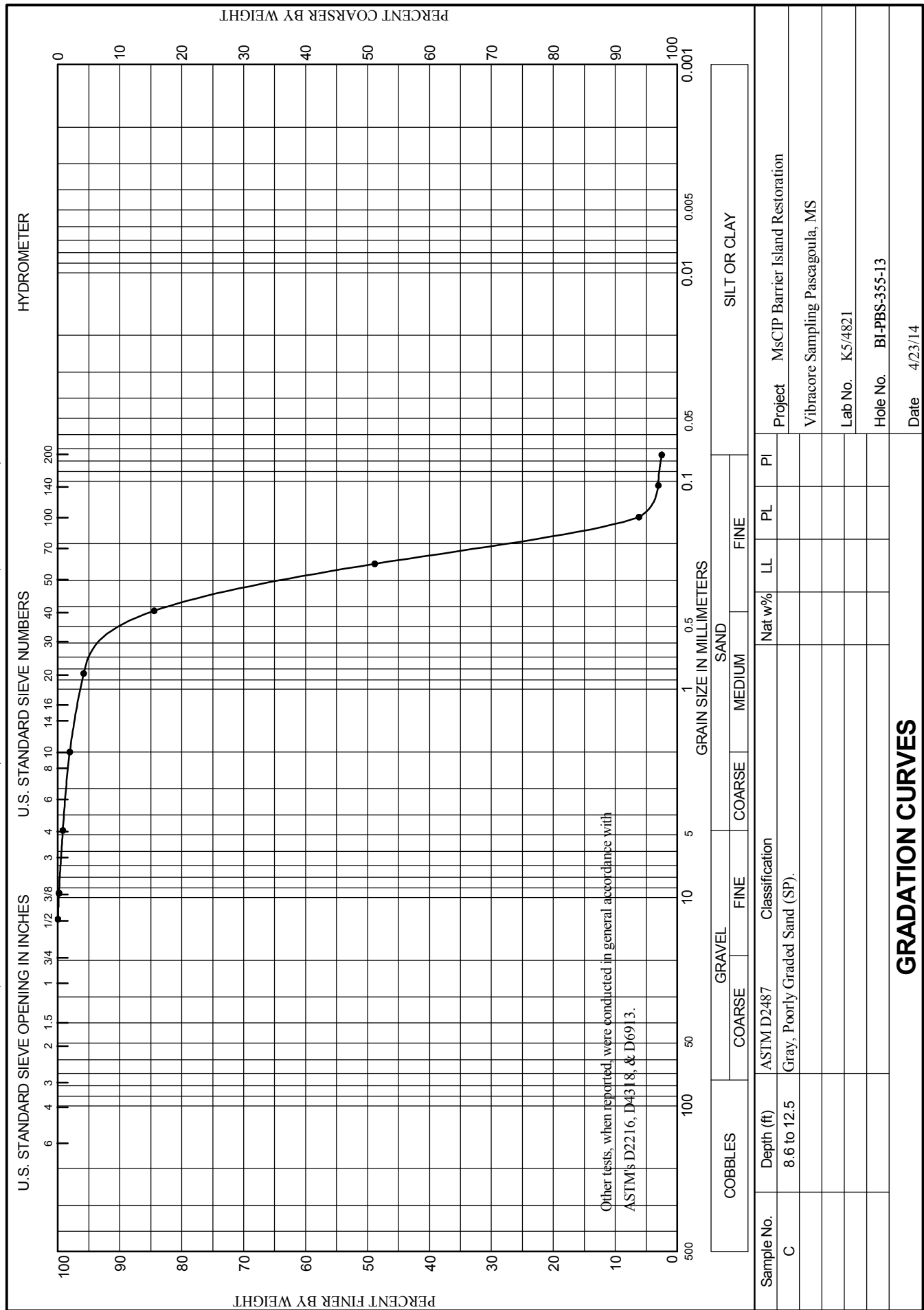
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WORK ORDER: 848e

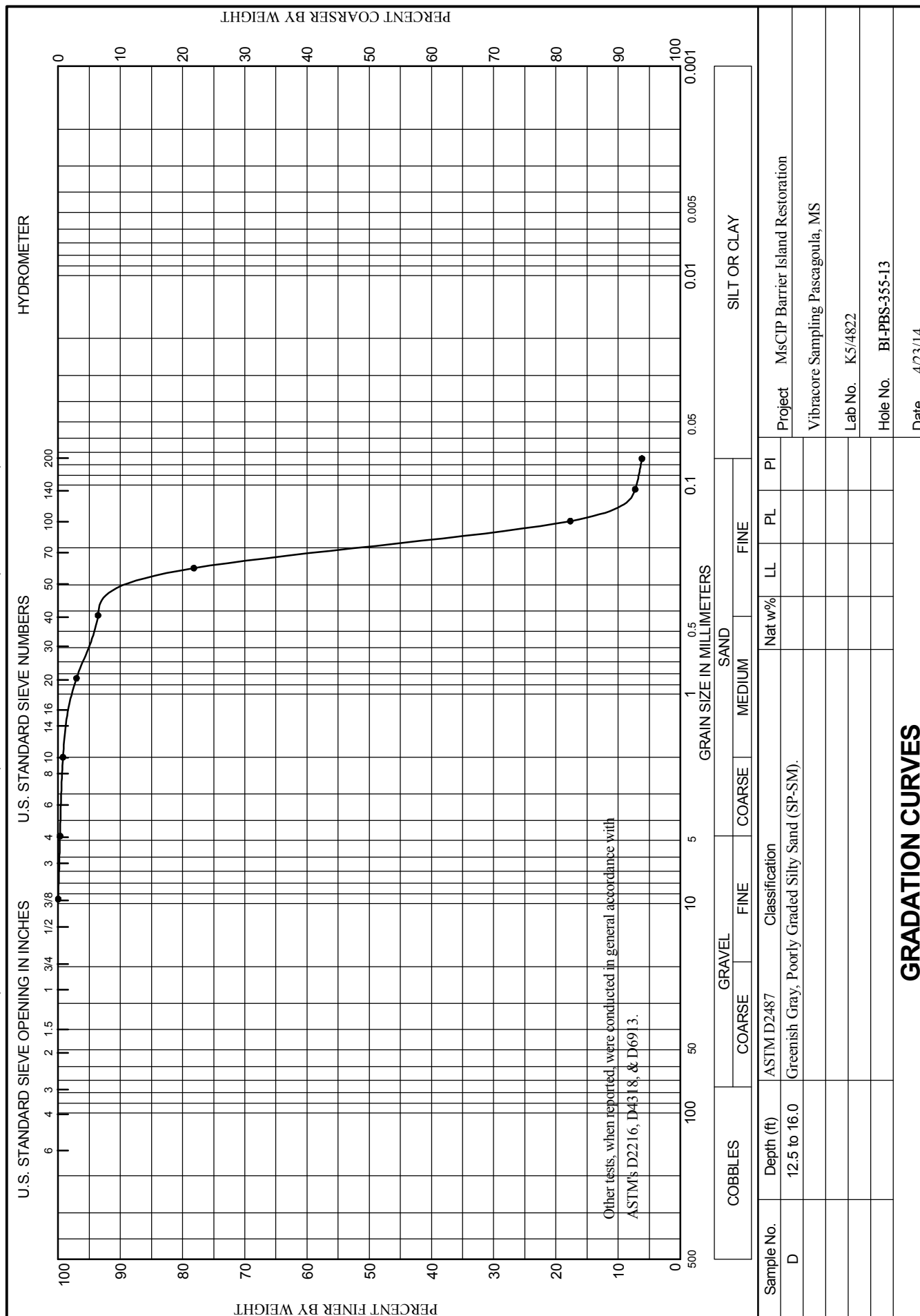
REQUISITION: W33SJG32900192





WORK ORDER: 848e

REQUISITION: W33SJG32900192



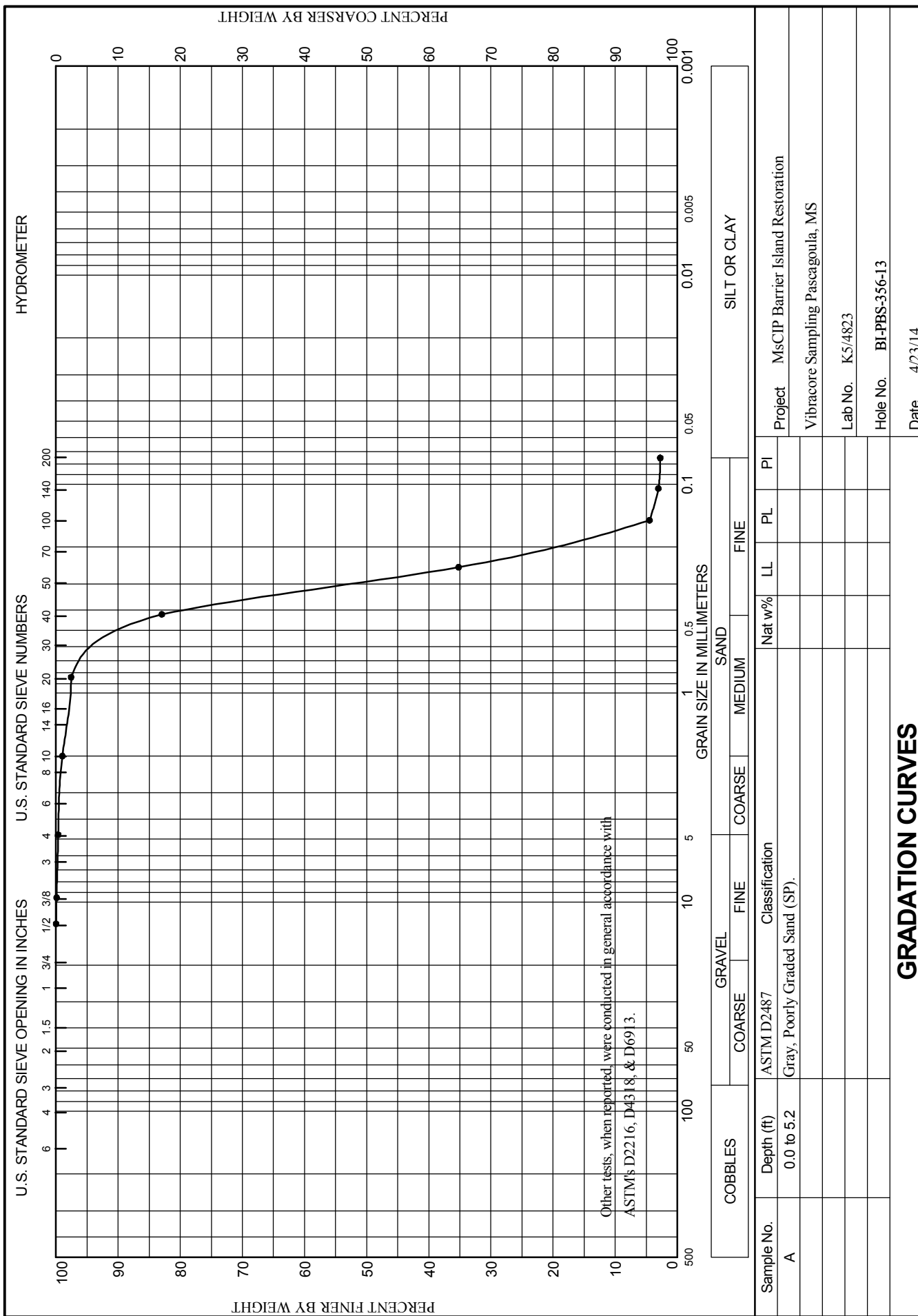
# Boring Designation BI-PBS-356-13

DRILLING LOG		DIVISION South Atlantic		INSTALLATION Mobile District		SHEET 1 OF 1 SHEETS	
1. PROJECT MsCIP Barrier Island Restoration Petit Bois Pass-OCS West				9. SIZE AND TYPE OF BIT N/A			
2. BORING DESIGNATION BI-PBS-356-13		LOCATION COORDINATES E = 1,115,018 N = 237,853		10. COORDINATE SYSTEM/DATUM State Plane, MSE (U.S. Ft.)		HORIZONTAL NAD83	
3. DRILLING AGENCY Corps of Engineers - CESAM		CONTRACTOR FILE NO.		11. MANUFACTURER'S DESIGNATION OF DRILL Vibracore		<input type="checkbox"/> AUTO HAMMER <input type="checkbox"/> MANUAL HAMMER	
4. NAME OF DRILLER Construction Solutions International, Inc.				12. TOTAL SAMPLES 4		UNDISTURBED (UD) 0	
5. DIRECTION OF BORING <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED				13. TOTAL NUMBER CORE BOXES		14. WATER DEPTH 55 Ft.	
6. THICKNESS OF OVERBURDEN N/A				15. DATE BORING 02-09-14		STARTED 02-09-14	
7. DEPTH DRILLED INTO ROCK N/A				16. ELEVATION TOP OF BORING -52.4 Ft.		COMPLETED 02-09-14	
8. TOTAL DEPTH OF BORING 17.1 Ft.				17. TOTAL RECOVERY FOR BORING 100%			
				18. SIGNATURE AND TITLE OF INSPECTOR Tom Powers, Geologist			
ELEV.	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS	SAMPLE	LABORATORY RESULTS		
-52.4	0.0						
			SAND, poorly-graded with silt, mostly fine-grained sand-sized quartz, few shell fragments, lt. grayish brown (SP-SM)	A	Classification: SP Color: 2.5Y 7/1-light gray D50: 0.294 mm % Fines: 2.7		
-57.6	5.2		SAND, poorly-graded, mostly fine to medium-grained sand-sized quartz, little shell fragments, lt. gray (SP)	B	Classification: SP Color: 2.5Y 6/1-gray D50: 0.388 mm % Fines: 2.2		
			At El. -62.3 Ft., mostly fine to medium-grained sand-sized quartz, trace shell fragments, lt. gray	C	Classification: SP Color: 2.5Y 6/1-gray D50: 0.27 mm % Fines: 2.1		
-64.4	12.0		SAND, silty, mostly fine-grained sand-sized quartz, trace shell fragments, medium to dark gray (SM)	D	Classification: SP-SM Color: 2.5Y 6/1-gray D50: 0.204 mm % Fines: 6.2		
			At El. -66.4 Ft., high fines to base of unit	NS			
-67.7	15.3		SAND, clayey, mostly fine-grained sand-sized quartz, trace shell fragments, medium to dark gray (SC)				
-69.5	17.1						
NOTES: 1. Soils are field visually classified in accordance with the Unified Soils Classification System. 2. NS = Sample not submitted for laboratory analysis from this interval. 3. Seafloor elevation determined from 10/29/2014 USACE survey.							



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WORK ORDER: 848e  
REQUISITION: W33SJG32900192

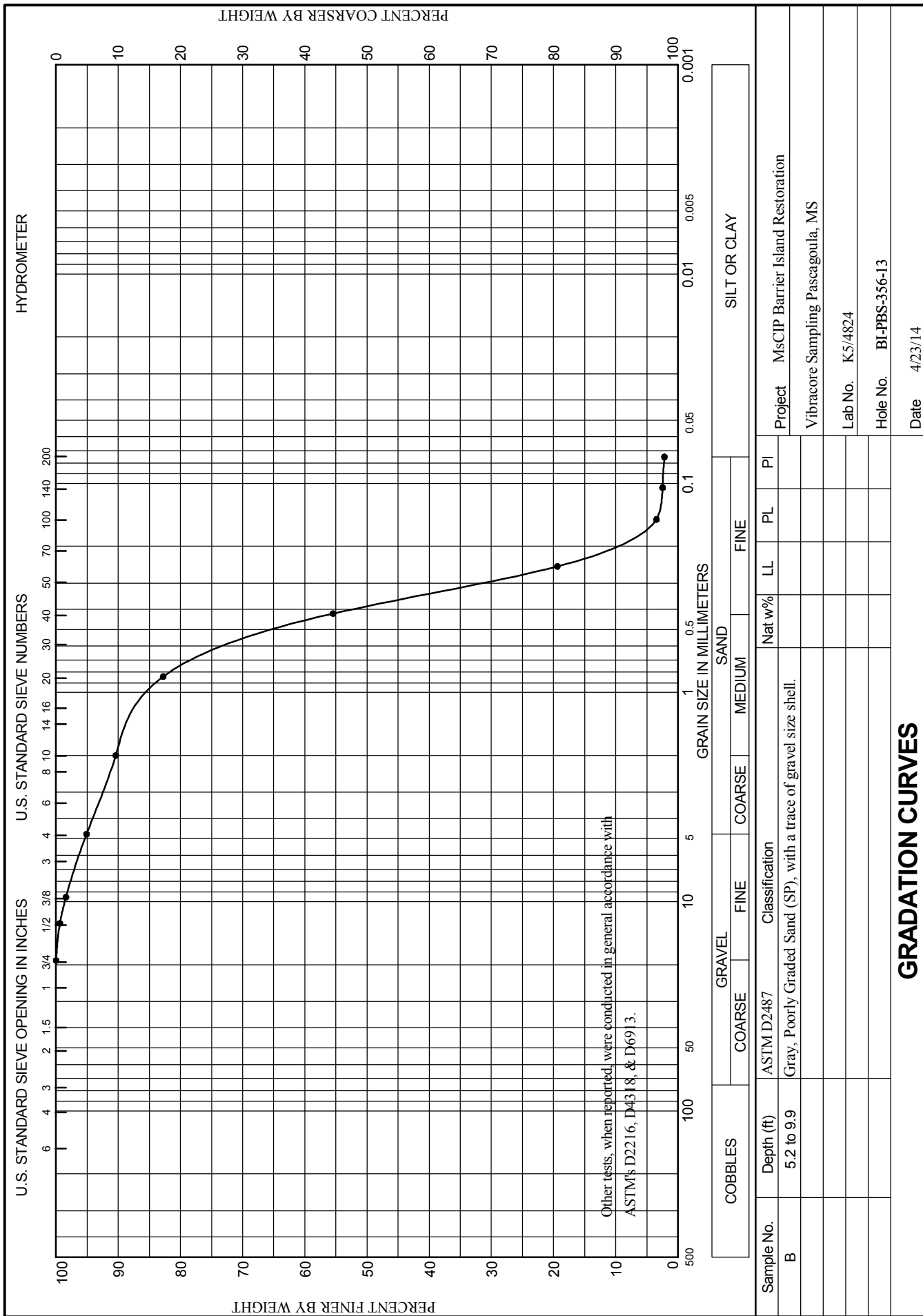




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WORK ORDER: 848e

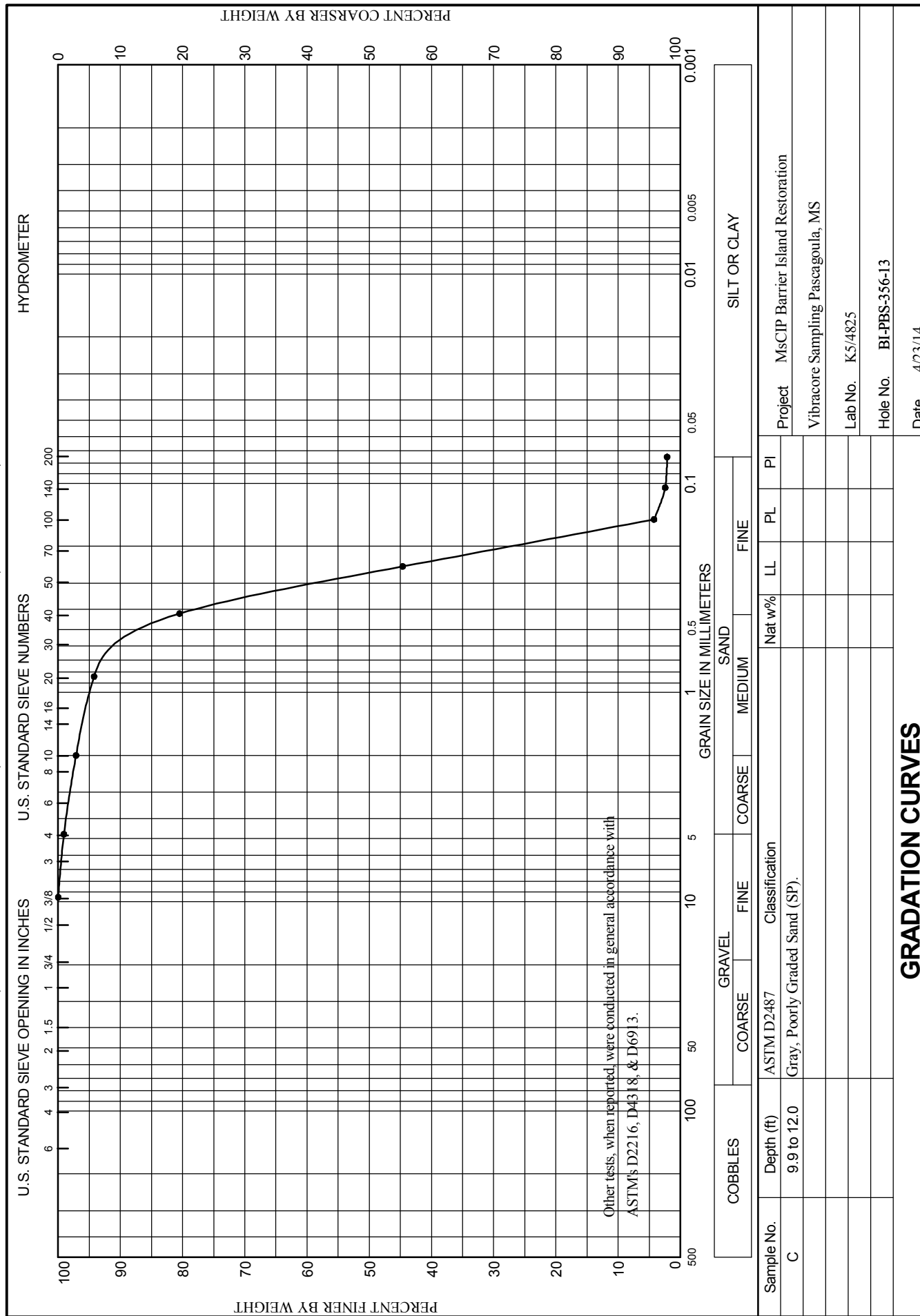
REQUISITION: W33SJC32900192





WORK ORDER: 848e

REQUISITION: W33SJG32900192



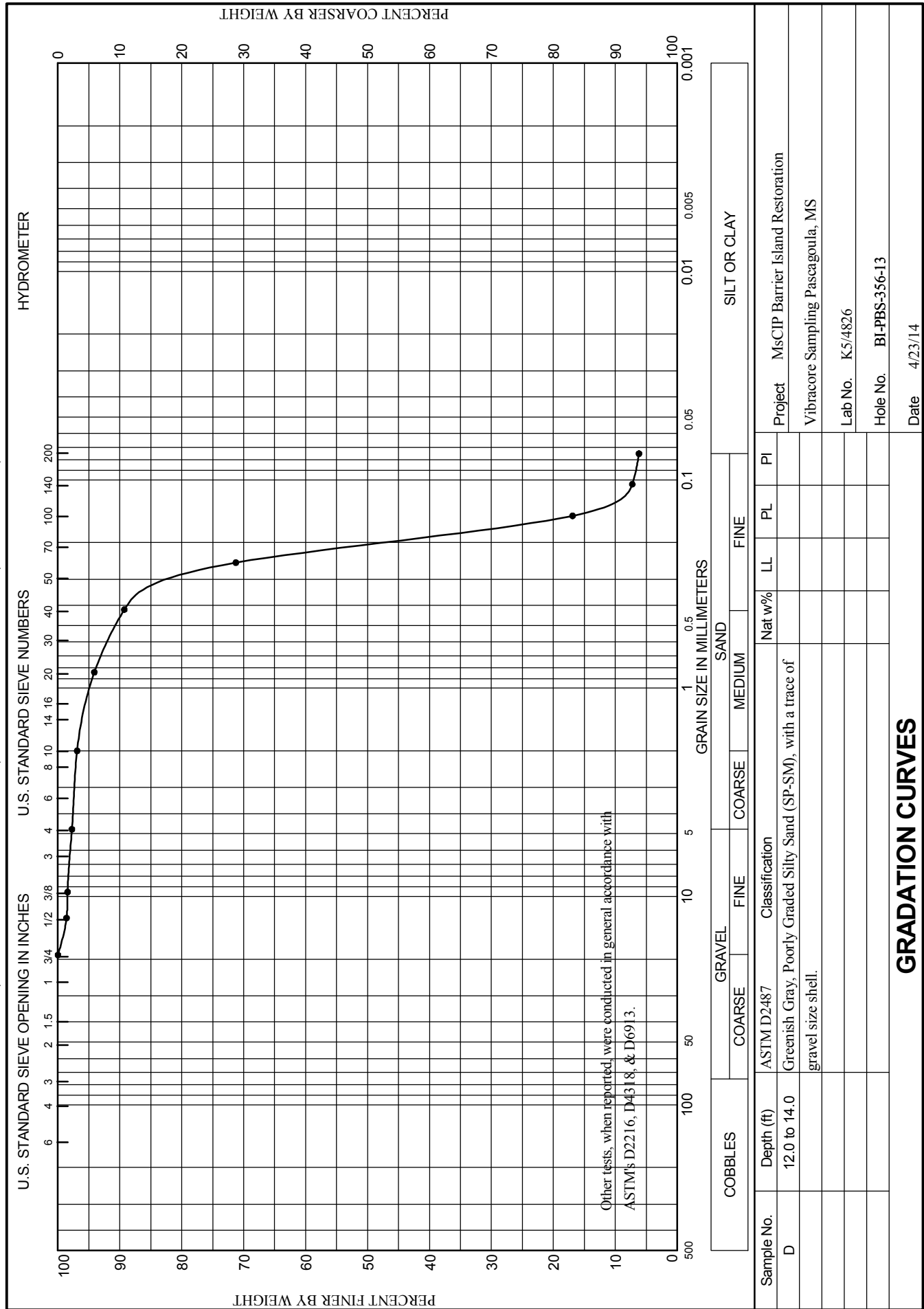




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WORK ORDER: 848e

REQUISITION: W33SJC32900192



# Boring Designation BI-PBS-357-13

DRILLING LOG		DIVISION South Atlantic		INSTALLATION Mobile District		SHEET 1 OF 2 SHEETS	
1. PROJECT MsCIP Barrier Island Restoration Petit Bois Pass-OCS West				9. SIZE AND TYPE OF BIT N/A			
2. BORING DESIGNATION BI-PBS-357-13		LOCATION COORDINATES E = 1,116,388 N = 237,502		10. COORDINATE SYSTEM/DATUM State Plane, MSE (U.S. Ft.)		HORIZONTAL NAD83	
3. DRILLING AGENCY Corps of Engineers - CESAM		CONTRACTOR FILE NO.		11. MANUFACTURER'S DESIGNATION OF DRILL Vibrocure		<input type="checkbox"/> AUTO HAMMER <input type="checkbox"/> MANUAL HAMMER	
4. NAME OF DRILLER Construction Solutions International, Inc.				12. TOTAL SAMPLES 0		DISTURBED 0	
5. DIRECTION OF BORING <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED				13. TOTAL NUMBER CORE BOXES		14. WATER DEPTH 54.3 Ft.	
6. THICKNESS OF OVERBURDEN N/A				15. DATE BORING 02-09-14		STARTED 02-09-14	
7. DEPTH DRILLED INTO ROCK N/A				16. ELEVATION TOP OF BORING -53.0 Ft.		COMPLETED 02-09-14	
8. TOTAL DEPTH OF BORING 20.0 Ft.				17. TOTAL RECOVERY FOR BORING 100%			
				18. SIGNATURE AND TITLE OF INSPECTOR Tom Powers, Geologist			
ELEV.	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS	SAMPLE	LABORATORY RESULTS		
-53.0	0.0		CLAY, lean, trace shell fragments, sandy, soft to 4 ft. depth, firm beneath, medium gray (CL)	NS			
-59.2	6.2		SAND, silty, mostly fine-grained sand-sized quartz, few shell fragments, liquefied?, medium gray (SM)				
-62.7	9.7		SAND, poorly-graded with silt, and fine- to medium-grained sand-sized, lt. gray (SP-SM)				
-69.0	16.0		SAND, silty, few shell fragments, medium gray (SM)				
-71.2	18.2		SAND, clayey, trace shell fragments, medium gray (SC)				
-73.0	20.0		NOTES: 1. Soils are field visually classified in accordance with the Unified Soils Classification System. 2. NS = Sample not submitted for laboratory analysis from this interval. 3. Seafloor elevation determined from				

<b>DRILLING LOG (Cont. Sheet)</b>			<b>INSTALLATION</b> Mobile District		<b>SHEET 2</b>
					<b>OF 2 SHEETS</b>
<b>PROJECT</b> MsCIP Barrier Island Restoration			<b>COORDINATE SYSTEM/DATUM</b> State Plane, MSE (U.S. Ft.)	<b>HORIZONTAL</b> NAD83	<b>VERTICAL</b> NAVD88
<b>LOCATION COORDINATES</b> X = 1,116,388 Y = 237,502			<b>ELEVATION TOP OF BORING</b> -53.0 Ft.		
<b>ELEV.</b>	<b>DEPTH</b>	<b>LEGEND</b>	<b>CLASSIFICATION OF MATERIALS</b>	<b>SAMPLE</b>	<b>LABORATORY RESULTS</b>
			10/29/2014 USACE survey.		

# Boring Designation BI-PBS-361-13

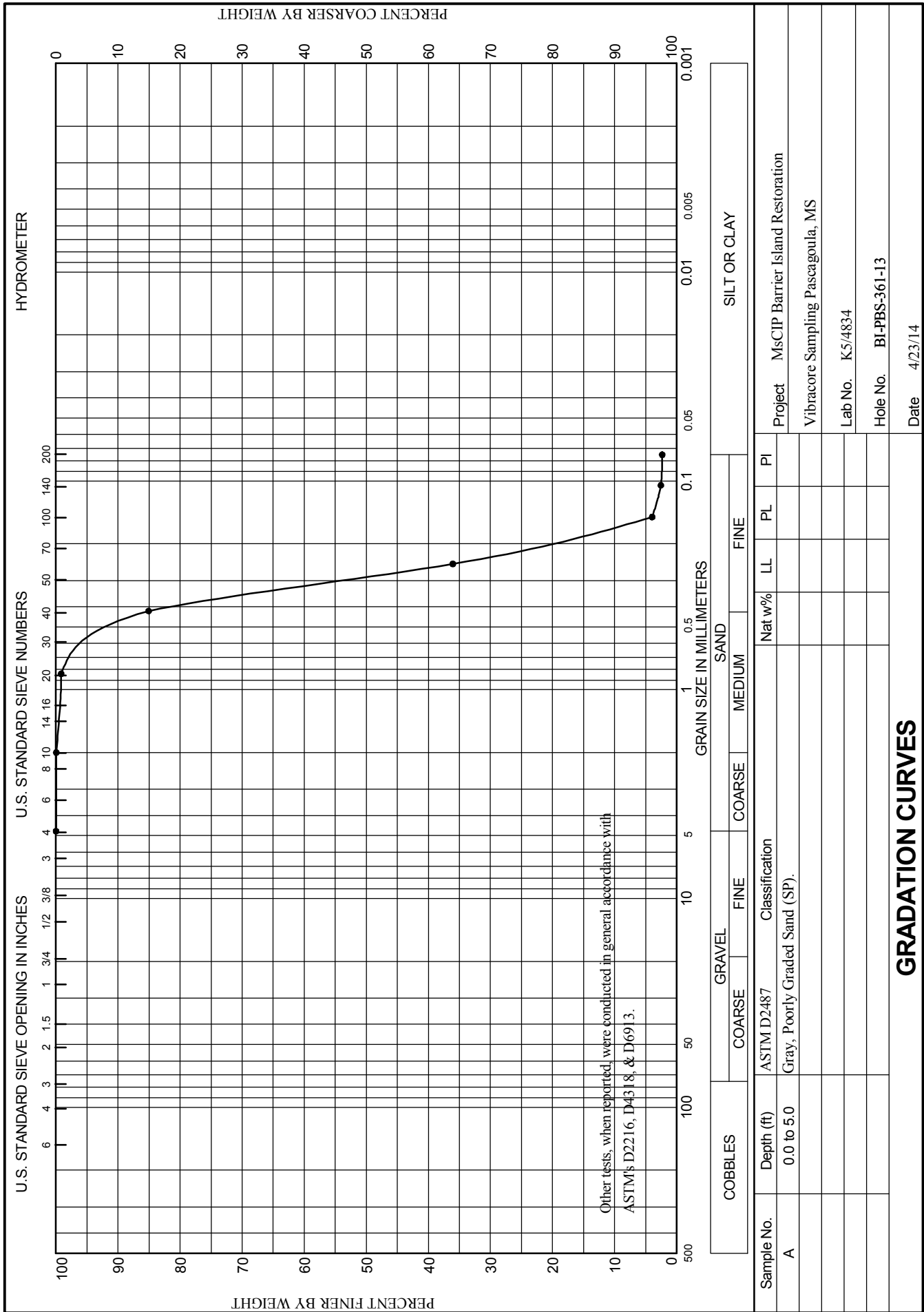
DRILLING LOG		DIVISION South Atlantic		INSTALLATION Mobile District		SHEET 1 OF 1 SHEETS	
1. PROJECT MsCIP Barrier Island Restoration Petit Bois Pass-OCS West				9. SIZE AND TYPE OF BIT N/A			
2. BORING DESIGNATION BI-PBS-361-13		LOCATION COORDINATES E = 1,112,866 N = 238,682		10. COORDINATE SYSTEM/DATUM State Plane, MSE (U.S. Ft.)		HORIZONTAL NAD83 VERTICAL NAVD88	
3. DRILLING AGENCY Corps of Engineers - CESAM		CONTRACTOR FILE NO.		11. MANUFACTURER'S DESIGNATION OF DRILL Vibrocure		<input type="checkbox"/> AUTO HAMMER <input type="checkbox"/> MANUAL HAMMER	
4. NAME OF DRILLER Construction Solutions International, Inc.				12. TOTAL SAMPLES 3		DISTURBED 3 UNDISTURBED (UD) 0	
5. DIRECTION OF BORING <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED		DEG. FROM VERTICAL		13. TOTAL NUMBER CORE BOXES			
		BEARING		14. WATER DEPTH 51.7 Ft.			
6. THICKNESS OF OVERBURDEN N/A				15. DATE BORING 02-16-14		STARTED 02-16-14 COMPLETED 02-16-14	
7. DEPTH DRILLED INTO ROCK N/A				16. ELEVATION TOP OF BORING -51.0 Ft.			
8. TOTAL DEPTH OF BORING 16.9 Ft.				17. TOTAL RECOVERY FOR BORING 100%			
				18. SIGNATURE AND TITLE OF INSPECTOR Tom Powers, Geologist			
ELEV.	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS	SAMPLE	LABORATORY RESULTS		
-51.0	0.0						
			SAND, poorly-graded, mostly fine to medium-grained sand-sized quartz, lt. to medium gray (SP)	A	Classification: SP Color: 2.5Y 6/1-gray D50: 0.29 mm % Fines: 2.3		
-56.0	5.0						
			SAND, poorly-graded with silt, mostly fine to medium-grained sand-sized quartz, few shell fragments, lt. to medium gray (SP-SM)	B	Classification: SP Color: 2.5Y 6/1-gray D50: 0.301 mm % Fines: 3.3		
				C	Classification: SP Color: 2.5Y 6/1-gray D50: 0.247 mm % Fines: 3.3		
-63.0	12.0						
			SILT, inorganic-L, sandy, trace shell fragments, slightly plastic over bottom 1 ft., medium gray (ML)	NS			
-67.9	16.9						
			NOTES: 1. Soils are field visually classified in accordance with the Unified Soils Classification System. 2. NS = Sample not submitted for laboratory analysis from this interval. 3. Seafloor elevation determined from 10/29/2014 USACE survey.				



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WORK ORDER: 848e

REQUISITION: W33SJC32900192

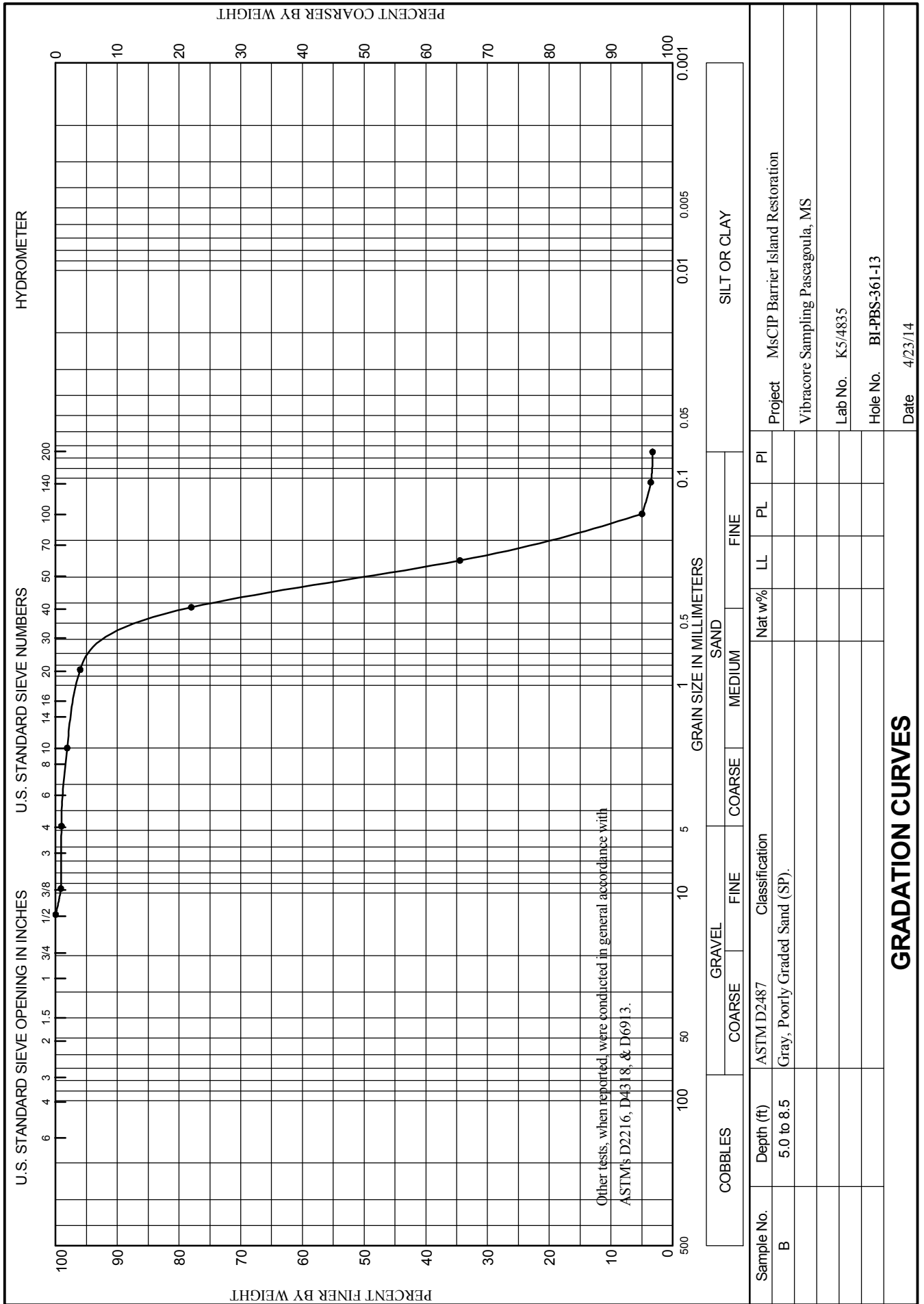




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WORK ORDER: 848e

REQUISITION: W33SJC32900192

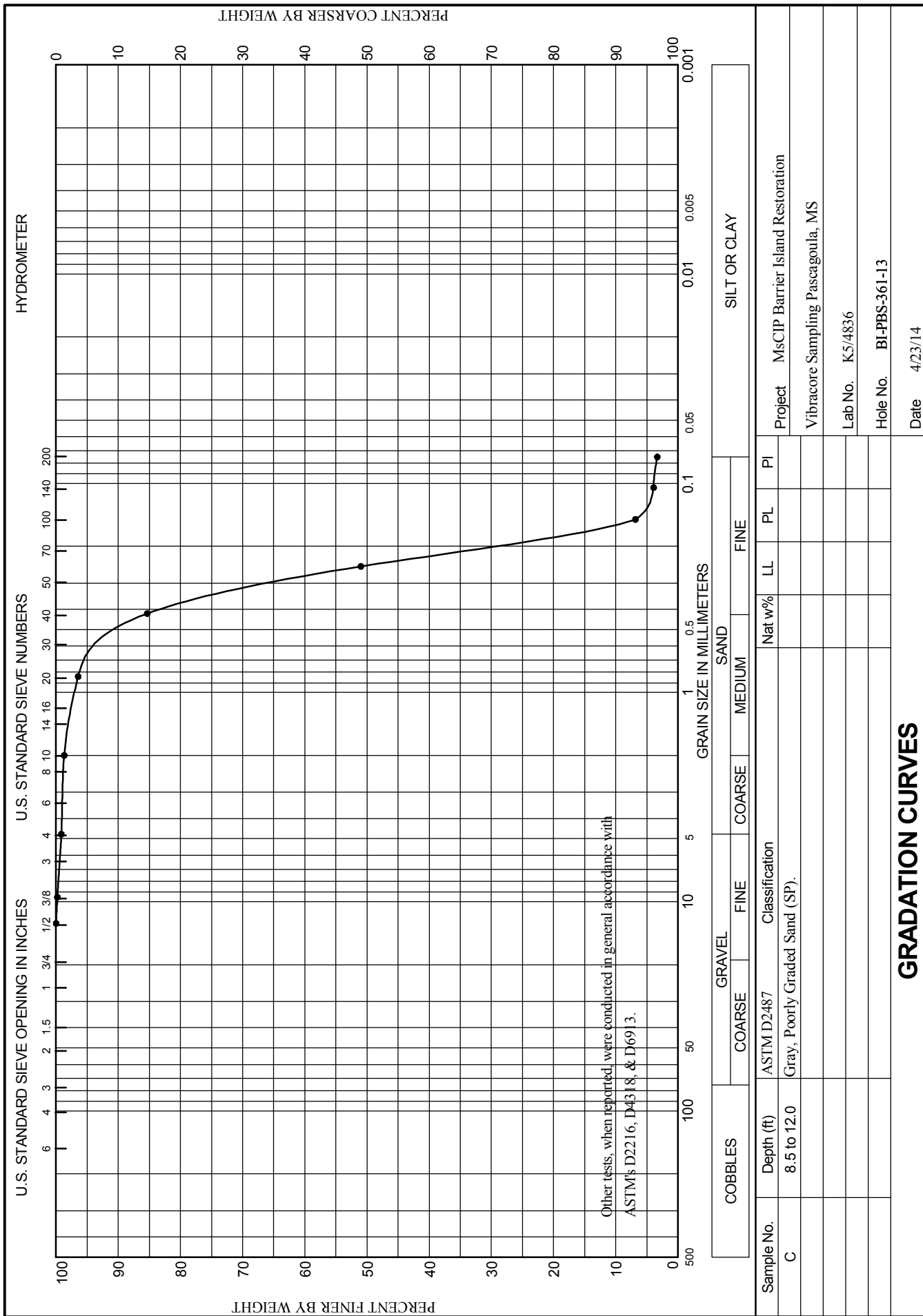




DEPARTMENT OF THE ARMY, SAVANNAH DISTRICT, ENVIRONMENTAL AND MATERIALS UNIT  
CORPS OF ENGINEERS, 200 N. COBB PARKWAY, BLDG 400 SUITE 404, MARIETTA, GA. 30062

WORK ORDER: 848e

REQUISITION: W33SJC32900192



# Boring Designation BI-PBS-362-13

DRILLING LOG		DIVISION South Atlantic		INSTALLATION Mobile District		SHEET 1 OF 1 SHEETS	
1. PROJECT MsCIP Barrier Island Restoration Petit Bois Pass-OCS West				9. SIZE AND TYPE OF BIT N/A			
2. BORING DESIGNATION BI-PBS-362-13		LOCATION COORDINATES E = 1,111,072 N = 238,272		10. COORDINATE SYSTEM/DATUM State Plane, MSE (U.S. Ft.)		HORIZONTAL NAD83	
3. DRILLING AGENCY Corps of Engineers - CESAM		CONTRACTOR FILE NO.		11. MANUFACTURER'S DESIGNATION OF DRILL Vibrocure		<input type="checkbox"/> AUTO HAMMER <input type="checkbox"/> MANUAL HAMMER	
4. NAME OF DRILLER Construction Solutions International, Inc.				12. TOTAL SAMPLES		DISTURBED 0	
5. DIRECTION OF BORING <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED				13. TOTAL NUMBER CORE BOXES		UNDISTURBED (UD) 0	
6. THICKNESS OF OVERBURDEN N/A				14. WATER DEPTH		52.7 Ft.	
7. DEPTH DRILLED INTO ROCK N/A				15. DATE BORING		STARTED 02-16-14	
8. TOTAL DEPTH OF BORING 17.2 Ft.				16. ELEVATION TOP OF BORING		COMPLETED 02-16-14	
				17. TOTAL RECOVERY FOR BORING		100%	
				18. SIGNATURE AND TITLE OF INSPECTOR		Tom Powers, Geologist	
ELEV.	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS	SAMPLE	LABORATORY RESULTS		
-54.9	0.0						
-56.8	1.9		CLAY, lean, sandy and non-sandy clay, soft or firm throughout, trace wood fragments between 1.6 and 1.9 ft. depth, lt. to medium gray (CL)				
-62.6	7.7		SAND, silty, clayey, mostly fine-grained sand-sized quartz, trace shell fragments, loose, medium to dark gray (SC-SM)				
-64.9	10.0		SAND, silty, mostly fine to medium-grained sand-sized quartz, discontinuous shell fragments, medium gray (SM)	NS			
-66.5	11.6		SAND, poorly-graded with silt, mostly fine to medium-grained sand-sized quartz, trace shell fragments, medium to lt. gray (SP-SM)				
-72.1	17.2		SAND, silty, mostly fine to medium-grained sand-sized quartz, trace shell fragments, medium gray (SM) At El. -68.9 Ft., fine-grained sand-sized, few shell fragments At El. -69.9 Ft., high fines content				
NOTES: 1. Soils are field visually classified in accordance with the Unified Soils Classification System. 2. NS = Sample not submitted for laboratory analysis from this interval. 3. Seafloor elevation determined from 2013 USGS geophysical survey.							



# Boring Designation BI-PBS-363-13

DRILLING LOG		DIVISION South Atlantic		INSTALLATION Mobile District		SHEET 1 OF 2 SHEETS	
1. PROJECT MsCIP Barrier Island Restoration Petit Bois Pass-OCS West				9. SIZE AND TYPE OF BIT N/A			
2. BORING DESIGNATION BI-PBS-363-13		LOCATION COORDINATES E = 1,114,424 N = 238,607		10. COORDINATE SYSTEM/DATUM State Plane, MSE (U.S. Ft.)		HORIZONTAL NAD83 VERTICAL NAVD88	
3. DRILLING AGENCY Corps of Engineers - CESAM		CONTRACTOR FILE NO.		11. MANUFACTURER'S DESIGNATION OF DRILL Vibrocure		<input type="checkbox"/> AUTO HAMMER <input type="checkbox"/> MANUAL HAMMER	
4. NAME OF DRILLER Construction Solutions International, Inc.				12. TOTAL SAMPLES 0		DISTURBED 0 UNDISTURBED (UD) 0	
5. DIRECTION OF BORING <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED				13. TOTAL NUMBER CORE BOXES		14. WATER DEPTH 52.3 Ft.	
6. THICKNESS OF OVERBURDEN N/A				15. DATE BORING 02-17-14		STARTED 02-17-14 COMPLETED 02-17-14	
7. DEPTH DRILLED INTO ROCK N/A				16. ELEVATION TOP OF BORING -51.8 Ft.		17. TOTAL RECOVERY FOR BORING 100%	
8. TOTAL DEPTH OF BORING 19.5 Ft.				18. SIGNATURE AND TITLE OF INSPECTOR Tom Powers, Geologist			

ELEV.	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS	SAMPLE	LABORATORY RESULTS
-51.8	0.0				
-53.0	1.2		CLAY, lean, few shell fragments, sandy, whole shells at base of unit, olive gray (CL)		
-53.8	2.0		SAND, clayey, mostly fine-grained sand-sized quartz, few shell fragments, olive gray (SC)		
-55.9	4.1		CLAY, lean, discontinue shell fragments, 20% interbeds of SC up to 1" thick, trace of SP-filled burrows, medium gray (CL)		
-58.8	7.0		SAND, silty, mostly fine-grained sand-sized quartz, very loose, medium gray (SM) At El. -56.3 Ft., mostly fine-grained sand-sized quartz, medium to lt. gray		
			SAND, poorly-graded with silt, mostly fine to medium-grained sand-sized quartz, lt. gray (SP-SM)	NS	
-64.3	12.5				
-65.1	13.3		SAND, poorly-graded, mostly fine to medium-grained sand-sized quartz, lt. gray (SP)		
			SAND, poorly-graded with silt, mostly fine to medium-grained sand-sized quartz, lt. gray (SP-SM)		
-70.5	18.7				
-71.3	19.5		SAND, silty, mostly fine-grained sand-sized quartz, few shell fragments, medium gray (SM)		
			NOTES: 1. Soils are field visually classified in accordance with the Unified Soils Classification System. 2. NS = Sample not submitted for laboratory analysis from this interval. 3. Seafloor elevation determined from		

<b>DRILLING LOG (Cont. Sheet)</b>			<b>INSTALLATION</b> Mobile District		<b>SHEET 2</b>
					<b>OF 2 SHEETS</b>
<b>PROJECT</b> MsCIP Barrier Island Restoration			<b>COORDINATE SYSTEM/DATUM</b> State Plane, MSE (U.S. Ft.)	<b>HORIZONTAL</b> NAD83	<b>VERTICAL</b> NAVD88
<b>LOCATION COORDINATES</b> X = 1,114,424 Y = 238,607			<b>ELEVATION TOP OF BORING</b> -51.8 Ft.		
<b>ELEV.</b>	<b>DEPTH</b>	<b>LEGEND</b>	<b>CLASSIFICATION OF MATERIALS</b>	<b>SAMPLE</b>	<b>LABORATORY RESULTS</b>
			10/29/2014 USACE survey.		

# Boring Designation BI-PBS-368-13

DRILLING LOG		DIVISION South Atlantic		INSTALLATION Mobile District		SHEET 1 OF 1 SHEETS	
1. PROJECT MsCIP Barrier Island Restoration Petit Bois Pass-OCS West				9. SIZE AND TYPE OF BIT N/A			
2. BORING DESIGNATION BI-PBS-368-13		LOCATION COORDINATES E = 1,118,438 N = 236,960		10. COORDINATE SYSTEM/DATUM State Plane, MSE (U.S. Ft.)		HORIZONTAL NAD83 VERTICAL NAVD88	
3. DRILLING AGENCY Corps of Engineers - CESAM		CONTRACTOR FILE NO.		11. MANUFACTURER'S DESIGNATION OF DRILL Vibrocure		<input type="checkbox"/> AUTO HAMMER <input type="checkbox"/> MANUAL HAMMER	
4. NAME OF DRILLER Construction Solutions International, Inc.				12. TOTAL SAMPLES		DISTURBED 0 UNDISTURBED (UD) 0	
5. DIRECTION OF BORING <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED				13. TOTAL NUMBER CORE BOXES		14. WATER DEPTH 55 Ft.	
6. THICKNESS OF OVERBURDEN N/A				15. DATE BORING		STARTED 02-10-14 COMPLETED 02-10-14	
7. DEPTH DRILLED INTO ROCK N/A				16. ELEVATION TOP OF BORING -54.4 Ft.		17. TOTAL RECOVERY FOR BORING 100%	
8. TOTAL DEPTH OF BORING 18.7 Ft.				18. SIGNATURE AND TITLE OF INSPECTOR Tom Powers, Geologist			
ELEV.	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS	SAMPLE	LABORATORY RESULTS		
-54.4	0.0		CLAY, lean, trace wood, sandy, soft to 3.5 depth, firm to 7.5 ft. depth, v. sandy with concretions (including sections of cemented, sand-filled crab burrows) from depth of 9 to 9.5 ft., medium gray (CL)	NS			
-63.9	9.5		SAND, silty, mostly fine to medium-grained sand-sized quartz, medium gray (SM)				
-66.0	11.6		SAND, silty, clayey, mostly fine-grained sand-sized quartz, few shell fragments, medium gray (SC-SM)				
-68.0	13.6		CLAY, lean, trace shell fragments, sandy, medium gray (CL)				
-69.9	15.5		SAND, silty, clayey, discontinue shell fragments, medium gray (SC-SM)				
-73.1	18.7		NOTES: 1. Soils are field visually classified in accordance with the Unified Soils Classification System. 2. NS = Sample not submitted for laboratory analysis from this interval. 3. Seafloor elevation calculated using sampling vessel's fathometer water depth reading and applying NOAA tidal gauge data conversion factor.				

# Boring Designation BI-PBS-369-13

DRILLING LOG		DIVISION South Atlantic		INSTALLATION Mobile District		SHEET 1 OF 1 SHEETS	
1. PROJECT MsCIP Barrier Island Restoration Petit Bois Pass-OCS West				9. SIZE AND TYPE OF BIT N/A			
2. BORING DESIGNATION BI-PBS-369-13		LOCATION COORDINATES E = 1,111,735 N = 233,161		10. COORDINATE SYSTEM/DATUM State Plane, MSE (U.S. Ft.)		HORIZONTAL NAD83 VERTICAL NAVD88	
3. DRILLING AGENCY Corps of Engineers - CESAM		CONTRACTOR FILE NO.		11. MANUFACTURER'S DESIGNATION OF DRILL Vibrocure		<input type="checkbox"/> AUTO HAMMER <input type="checkbox"/> MANUAL HAMMER	
4. NAME OF DRILLER Construction Solutions International, Inc.				12. TOTAL SAMPLES		DISTURBED 1 UNDISTURBED (UD) 0	
5. DIRECTION OF BORING <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED		DEG. FROM VERTICAL		13. TOTAL NUMBER CORE BOXES			
		BEARING		14. WATER DEPTH 49.7 Ft.			
6. THICKNESS OF OVERBURDEN N/A				15. DATE BORING		STARTED 02-17-14 COMPLETED 02-17-14	
7. DEPTH DRILLED INTO ROCK N/A				16. ELEVATION TOP OF BORING -50.3 Ft.			
8. TOTAL DEPTH OF BORING 15.4 Ft.				17. TOTAL RECOVERY FOR BORING 100%			
				18. SIGNATURE AND TITLE OF INSPECTOR Tom Powers, Geologist			

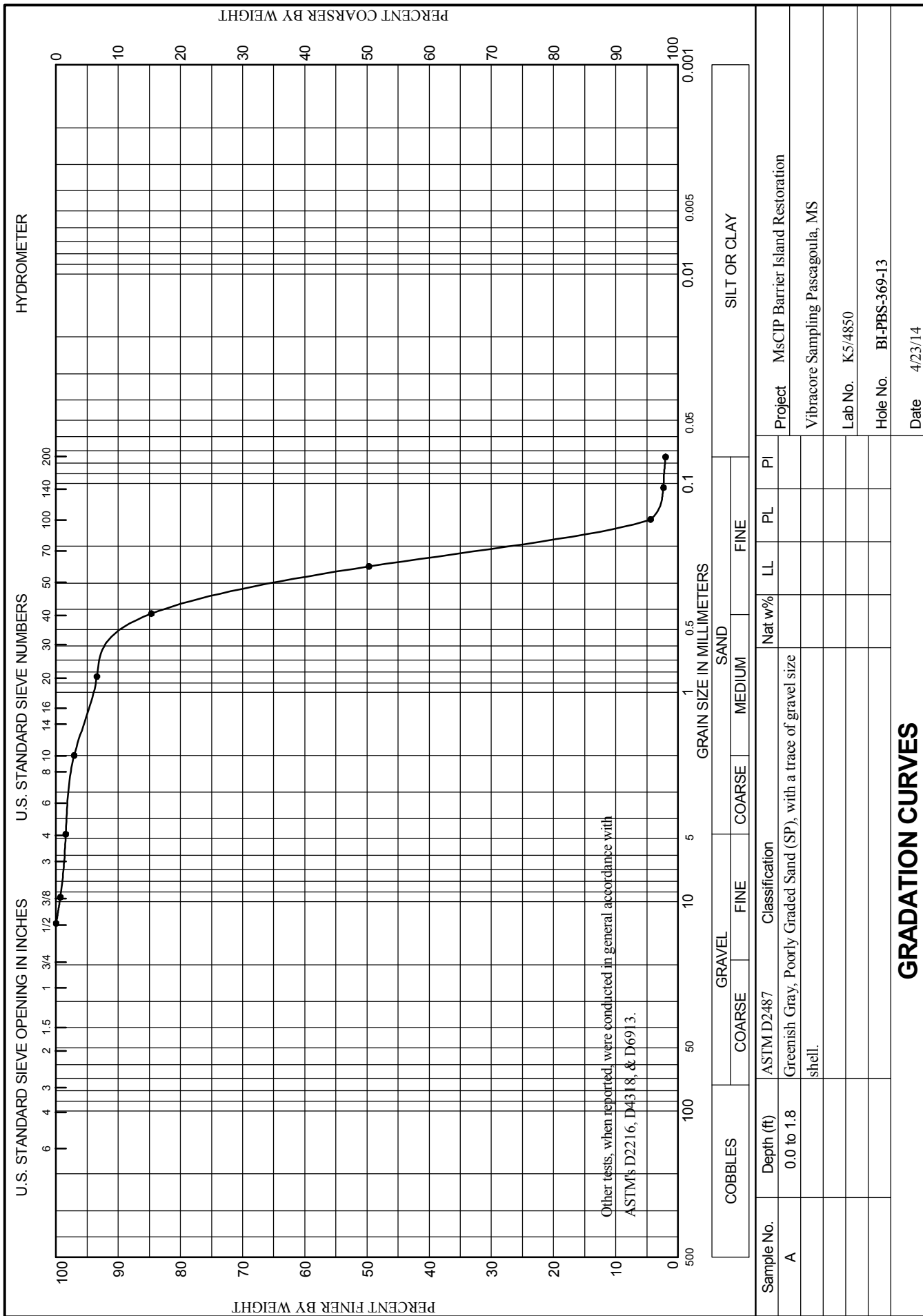
ELEV.	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS	SAMPLE	LABORATORY RESULTS
-50.3	0.0				
-52.1	1.8		SAND, poorly-graded with silt, mostly fine to medium-grained sand-sized quartz, few shell fragments, lt. gray (SP-SM)	A	Classification: SP Color: 2.5Y 6/1-gray D50: 0.251 mm % Fines: 2
-52.5	2.2				
-53.5	3.2		SAND, silty, mostly fine-grained sand-sized quartz, discontinuous shell fragments, high fines content, lt. to medium gray (SM)		
			CLAY, lean, sandy, SC interbeds, lt. to medium gray (CL)		
-56.6	6.3		SAND, clayey, mostly fine to medium-grained sand-sized quartz, interbedded with clay, trace wood, lt. to medium gray (SC)		
			CLAY, lean, sandy, soft; firm over bottom 1 ft. of unit, medium gray (CL)	NS	
-59.3	9.0				
-60.8	10.5		SAND, silty, mostly fine to medium-grained sand-sized quartz, medium gray (SM)		
-62.0	11.7		SAND, poorly-graded with silt, mostly fine-grained sand-sized quartz, medium to lt. gray (SP-SM)		
-62.3	12.0				
-63.4	13.1		SAND, silty, mostly fine-grained sand-sized quartz, high fines content, medium gray (SM)		
-64.8	14.5		CLAY, lean, medium gray (CL)		
-65.7	15.4		SAND, clayey, mostly fine-grained sand-sized quartz, medium gray (SC)		
			CLAY, lean, sandy, firm, medium gray (CL)		
NOTES: 1. Soils are field visually classified in accordance with the Unified Soils Classification System. 2. NS = Sample not submitted for laboratory analysis from this interval. 3. Seafloor elevation determined from 2013 USGS geophysical survey.					



DEPARTMENT OF THE ARMY, SAVANNAH DISTRICT, ENVIRONMENTAL AND MATERIALS UNIT  
CORPS OF ENGINEERS, 200 N. COBB PARKWAY, BLDG 400 SUITE 404, MARIETTA, GA. 30062

WORK ORDER: 848e

REQUISITION: W33SJC32900192



# Boring Designation BI-PBS-370-13

<b>DRILLING LOG</b>		<b>DIVISION</b> South Atlantic	<b>INSTALLATION</b> Mobile District	<b>SHEET 1</b> <b>OF 2 SHEETS</b>
<b>1. PROJECT</b> MsCIP Barrier Island Restoration Petit Bois Pass-OCS West		<b>9. SIZE AND TYPE OF BIT</b> N/A		
<b>2. BORING DESIGNATION</b> BI-PBS-370-13		<b>10. COORDINATE SYSTEM/DATUM</b> State Plane, MSE (U.S. Ft.)		
<b>3. DRILLING AGENCY</b> Corps of Engineers - CESAM		<b>11. MANUFACTURER'S DESIGNATION OF DRILL</b> Vibracore		
<b>4. NAME OF DRILLER</b> Construction Solutions International, Inc.		<b>12. TOTAL SAMPLES</b> 1		
<b>5. DIRECTION OF BORING</b> <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED		<b>13. TOTAL NUMBER CORE BOXES</b> 50.7 Ft.		
<b>6. THICKNESS OF OVERBURDEN</b> N/A		<b>14. WATER DEPTH</b> 50.7 Ft.		
<b>7. DEPTH DRILLED INTO ROCK</b> N/A		<b>15. DATE BORING</b> 02-16-14		
<b>8. TOTAL DEPTH OF BORING</b> 17.2 Ft.		<b>16. ELEVATION TOP OF BORING</b> -52.7 Ft.		
		<b>17. TOTAL RECOVERY FOR BORING</b> 100%		
		<b>18. SIGNATURE AND TITLE OF INSPECTOR</b> Tom Powers, Geologist		

ELEV.	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS	SAMPLE	LABORATORY RESULTS
-52.7	0.0				
-54.2	1.5		SAND, silty, clayey, mostly fine to medium-grained sand-sized quartz, trace shell fragments, trace wood, medium gray (SC-SM)	NS	
-56.0	3.3		CLAY, lean, discontinue shell fragments, trace wood, medium to lt. gray (CL)		
-56.5	3.8				
-57.1	4.4		SAND, clayey, mostly fine to medium-grained sand-sized quartz, medium to dark gray (SC)		
-57.6	4.9				
-59.2	6.5		SAND, silty, mostly fine to medium-grained sand-sized quartz, medium to dark gray (SM)	A	Classification: SP Color: 2.5Y 6/1-gray D50: 0.224 mm % Fines: 4.1
-60.9	8.2		SAND, poorly-graded with silt, mostly fine to medium-grained sand-sized quartz, medium gray (SP-SM)		
-62.9	10.2		SAND, silty, mostly fine to medium-grained sand-sized quartz, medium gray (SM)		
-64.5	11.8		SAND, poorly-graded with silt, mostly fine to medium-grained sand-sized quartz, medium gray (SP-SM)		
			SAND, silty, mostly fine to medium-grained sand-sized quartz, medium to dark gray (SM)	NS	
-68.1	15.4		SAND, poorly-graded with silt, mostly fine to medium-grained sand-sized quartz, medium gray (SP-SM)		
-69.9	17.2		SAND, silty, mostly fine to medium-grained sand-sized quartz, medium to dark gray (SM)		
			At El. -67.2 Ft., mostly fine to medium-grained sand-sized quartz, few shell fragments, medium gray		
			SAND, silty, clayey, mostly fine to medium-grained sand-sized quartz, trace shell fragments, trace clay over depth 15.4 to 15.7 ft., medium gray (SC-SM)		
NOTES: 1. Soils are field visually classified in accordance with the Unified Soils Classification System. 2. NS = Sample not submitted for laboratory analysis from this interval.					

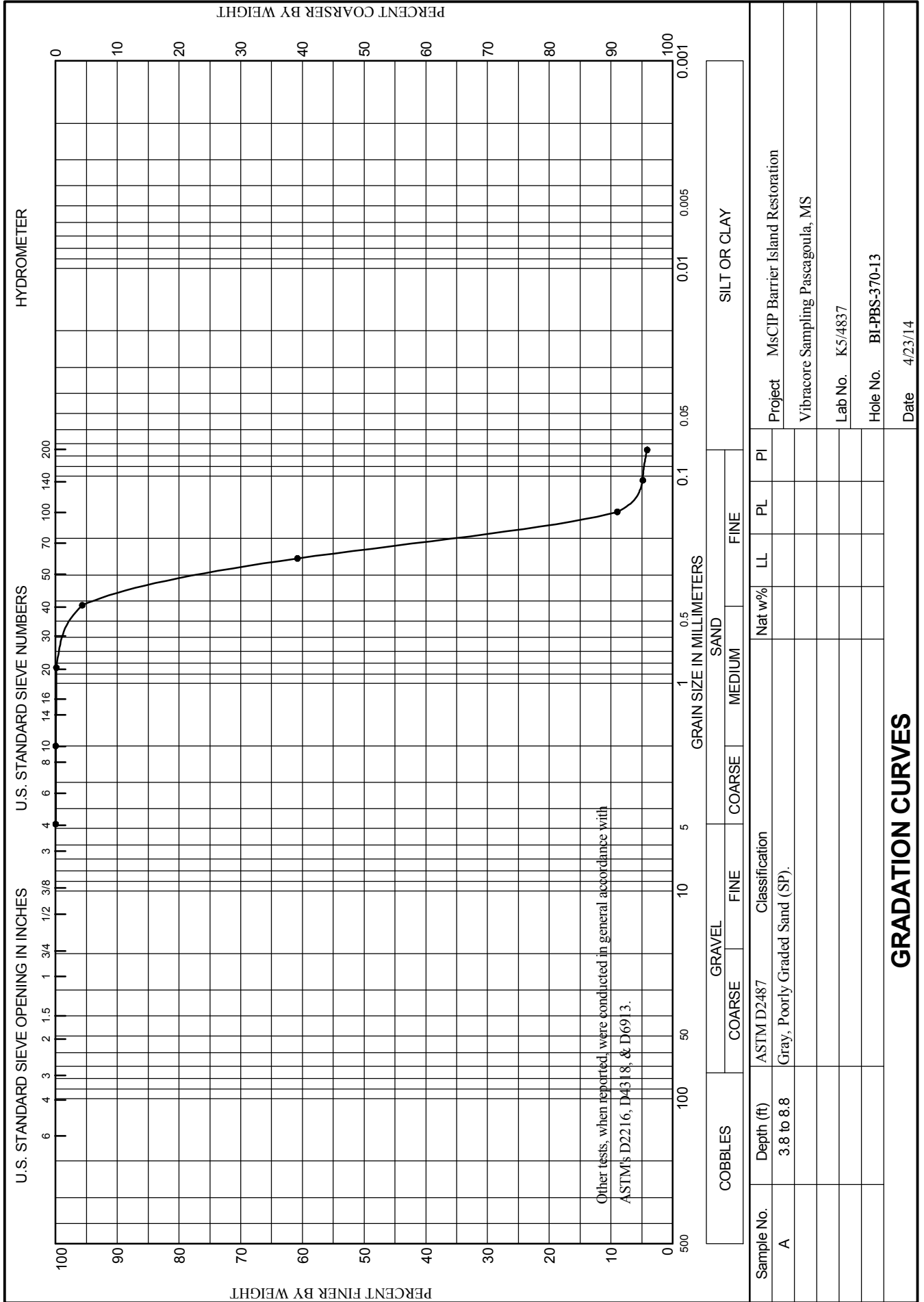
<b>DRILLING LOG (Cont. Sheet)</b>			<b>INSTALLATION</b> Mobile District		<b>SHEET 2</b> <b>OF 2 SHEETS</b>
<b>PROJECT</b> MsCIP Barrier Island Restoration			<b>COORDINATE SYSTEM/DATUM</b> State Plane, MSE (U.S. Ft.)	<b>HORIZONTAL</b> NAD83	<b>VERTICAL</b> NAVD88
<b>LOCATION COORDINATES</b> X = 1,110,721 Y = 239,129			<b>ELEVATION TOP OF BORING</b> -52.7 Ft.		
<b>ELEV.</b>	<b>DEPTH</b>	<b>LEGEND</b>	<b>CLASSIFICATION OF MATERIALS</b>	<b>SAMPLE</b>	<b>LABORATORY RESULTS</b>
			3. Seafloor elevation determined from 2013 USGS geophysical survey.		



DEPARTMENT OF THE ARMY, SAVANNAH DISTRICT, ENVIRONMENTAL AND MATERIALS UNIT  
CORPS OF ENGINEERS, 200 N. COBB PARKWAY, BLDG 400 SUITE 404, MARIETTA, GA. 30062

WORK ORDER: 848e

REQUISITION: W33SJC32900192





# Boring Designation BI-PBS-371-13

DRILLING LOG		DIVISION South Atlantic		INSTALLATION Mobile District		SHEET 1 OF 1 SHEETS	
1. PROJECT MsCIP Barrier Island Restoration Petit Bois Pass-OCS West				9. SIZE AND TYPE OF BIT N/A			
2. BORING DESIGNATION BI-PBS-371-13		LOCATION COORDINATES E = 1,109,075 N = 239,069		10. COORDINATE SYSTEM/DATUM State Plane, MSE (U.S. Ft.)		HORIZONTAL NAD83 VERTICAL NAVD88	
3. DRILLING AGENCY Corps of Engineers - CESAM		CONTRACTOR FILE NO.		11. MANUFACTURER'S DESIGNATION OF DRILL Vibracore		<input type="checkbox"/> AUTO HAMMER <input type="checkbox"/> MANUAL HAMMER	
4. NAME OF DRILLER Construction Solutions International, Inc.				12. TOTAL SAMPLES 0		DISTURBED 0 UNDISTURBED (UD) 0	
5. DIRECTION OF BORING <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED		DEG. FROM VERTICAL		13. TOTAL NUMBER CORE BOXES			
		BEARING		14. WATER DEPTH 52.3 Ft.			
6. THICKNESS OF OVERBURDEN N/A				15. DATE BORING 02-17-14		STARTED 02-17-14 COMPLETED 02-17-14	
7. DEPTH DRILLED INTO ROCK N/A				16. ELEVATION TOP OF BORING -52.5 Ft.			
8. TOTAL DEPTH OF BORING 16.3 Ft.				17. TOTAL RECOVERY FOR BORING 100%			
				18. SIGNATURE AND TITLE OF INSPECTOR Tom Powers, Geologist			

ELEV.	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS	SAMPLE	LABORATORY RESULTS
-52.5	0.0				
-55.1	2.6		CLAY, lean, trace shell fragments, sandy, interbeds of SC, medium gray (CL)		
-57.9	5.4		SAND, clayey, mostly fine-grained sand-sized quartz, trace shell fragments, lt. and medium gray (SC)		
-58.7	6.2		CLAY, lean, discontinue shell fragments, sandy, interbeds of SC, lt. and medium gray and dark brown (CL)		
-59.3	6.8		SAND, clayey, mostly fine to medium-grained sand-sized quartz, medium to dark gray (SC)		
			SAND, silty, mostly fine to medium-grained sand-sized quartz, medium gray (SM)	NS	
			At El. -63.5 Ft., fine-grained sand-sized		
-66.4	13.9				
-68.8	16.3		CLAY, lean, few shell fragments, very sandy, lt. olive gray (CL)		
			NOTES: 1. Soils are field visually classified in accordance with the Unified Soils Classification System. 2. NS = Sample not submitted for laboratory analysis from this interval. 3. Seafloor elevation determined from 2013 USGS geophysical survey.		

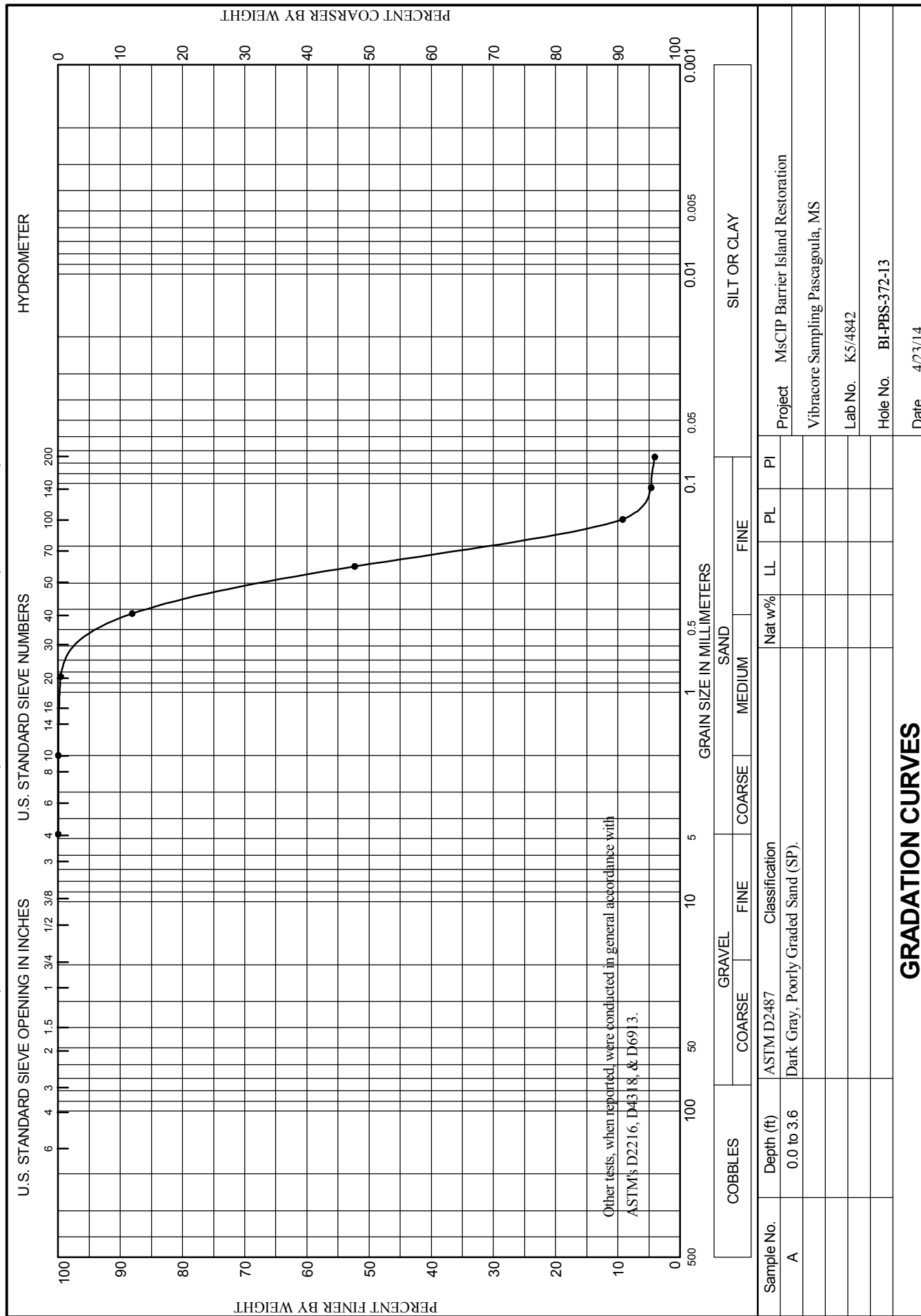
# Boring Designation BI-PBS-372-13

DRILLING LOG		DIVISION South Atlantic		INSTALLATION Mobile District		SHEET 1 OF 1 SHEETS	
1. PROJECT MsCIP Barrier Island Restoration Petit Bois Pass-OCS West				9. SIZE AND TYPE OF BIT N/A			
2. BORING DESIGNATION BI-PBS-372-13		LOCATION COORDINATES E = 1,111,683 N = 239,820		10. COORDINATE SYSTEM/DATUM State Plane, MSE (U.S. Ft.)		HORIZONTAL NAD83 VERTICAL NAVD88	
3. DRILLING AGENCY Corps of Engineers - CESAM		CONTRACTOR FILE NO.		11. MANUFACTURER'S DESIGNATION OF DRILL Vibracore		<input type="checkbox"/> AUTO HAMMER <input type="checkbox"/> MANUAL HAMMER	
4. NAME OF DRILLER Construction Solutions International, Inc.				12. TOTAL SAMPLES 5		DISTURBED 5 UNDISTURBED (UD) 0	
5. DIRECTION OF BORING <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED		DEG. FROM VERTICAL		13. TOTAL NUMBER CORE BOXES			
		BEARING		14. WATER DEPTH 50.7 Ft.			
6. THICKNESS OF OVERBURDEN N/A				15. DATE BORING 02-16-14		STARTED 02-16-14 COMPLETED 02-16-14	
7. DEPTH DRILLED INTO ROCK N/A				16. ELEVATION TOP OF BORING -50.8 Ft.			
8. TOTAL DEPTH OF BORING 17.8 Ft.				17. TOTAL RECOVERY FOR BORING 100%			
				18. SIGNATURE AND TITLE OF INSPECTOR Tom Powers, Geologist			
ELEV.	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS	SAMPLE	LABORATORY RESULTS		
-50.8	0.0						
			SAND, poorly-graded with silt, mostly fine to medium-grained sand-sized quartz, medium to lt. gray (SP-SM)	A	Classification: SP Color: 2.5Y 5/1-gray D50: 0.243 mm % Fines: 4.1		
-54.4	3.6		SAND, poorly-graded, mostly fine to medium-grained sand-sized quartz, lt. gray (SP)	B	Classification: SP Color: 2.5Y 6/1-gray D50: 0.254 mm % Fines: 2.3		
-57.4	6.6		SAND, poorly-graded with silt, mostly fine to medium-grained sand-sized quartz, lt. gray (SP-SM)	C	Classification: SP Color: 2.5Y 6/1-gray D50: 0.249 mm % Fines: 2.5		
-62.6	11.8		SAND, silty, mostly fine to medium-grained sand-sized quartz, lt. to medium gray (SM)	D	Classification: SP Color: 2.5Y 6/1-gray D50: 0.257 mm % Fines: 1.9		
-65.0	14.2		At El. -64.4 Ft., mostly fine-grained sand-sized quartz, high fines content, medium to lt. gray	E	Classification: SP-SM Color: 2.5Y 6/1-gray D50: 0.23 mm % Fines: 7.4		
-68.6	17.8		SAND, silty, clayey, mostly fine-grained sand-sized quartz, trace shell fragments, medium to lt. gray (SC-SM) At El. -67.2 Ft., few shell fragments	NS			
NOTES:							
1. Soils are field visually classified in accordance with the Unified Soils Classification System.							
2. NS = Sample not submitted for laboratory analysis from this interval.							
3. Seafloor elevation determined from 10/29/2014 USACE survey.							



WORK ORDER: 848e

REQUISITION: W33SJG32900192

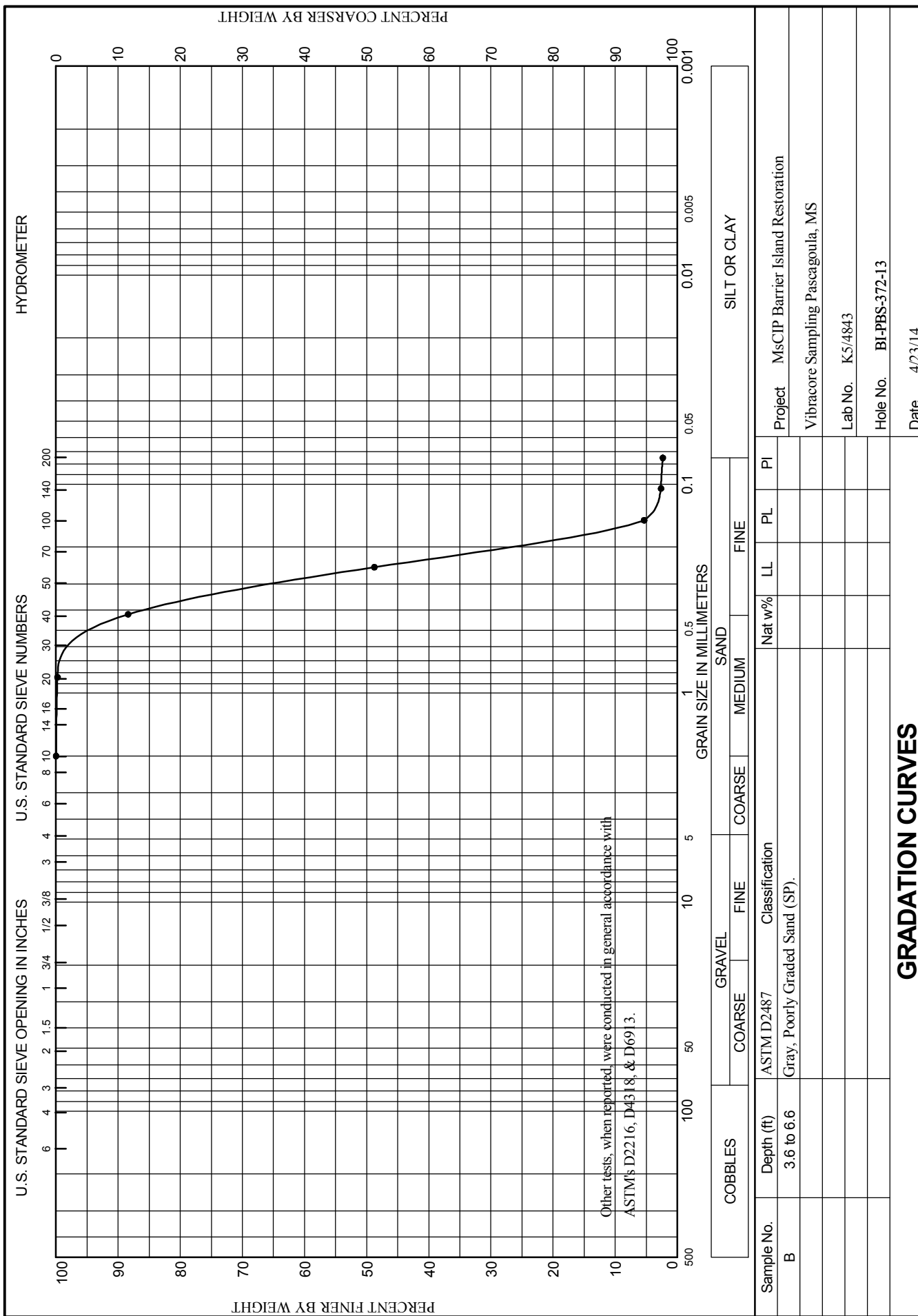




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WORK ORDER: 848e

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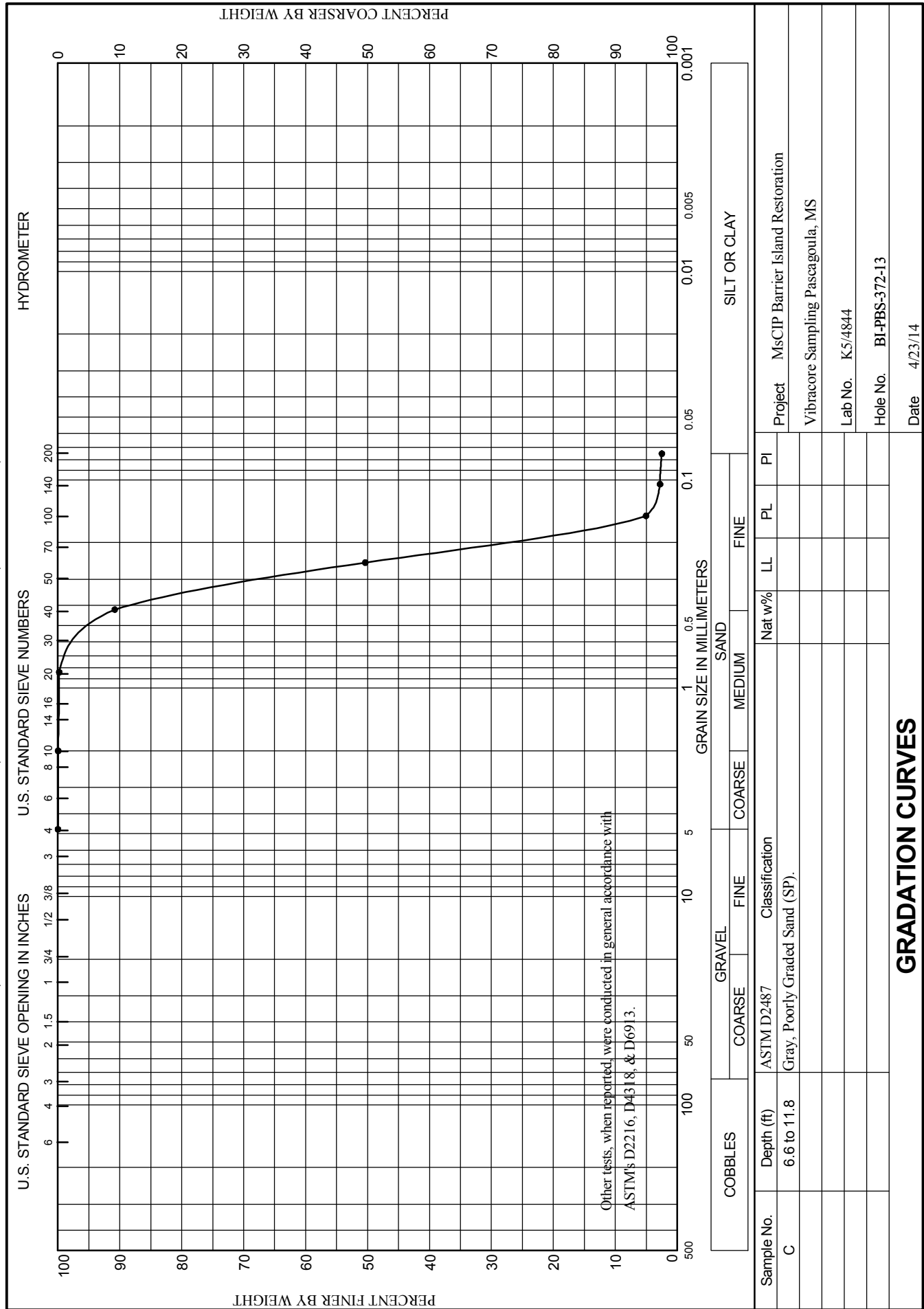




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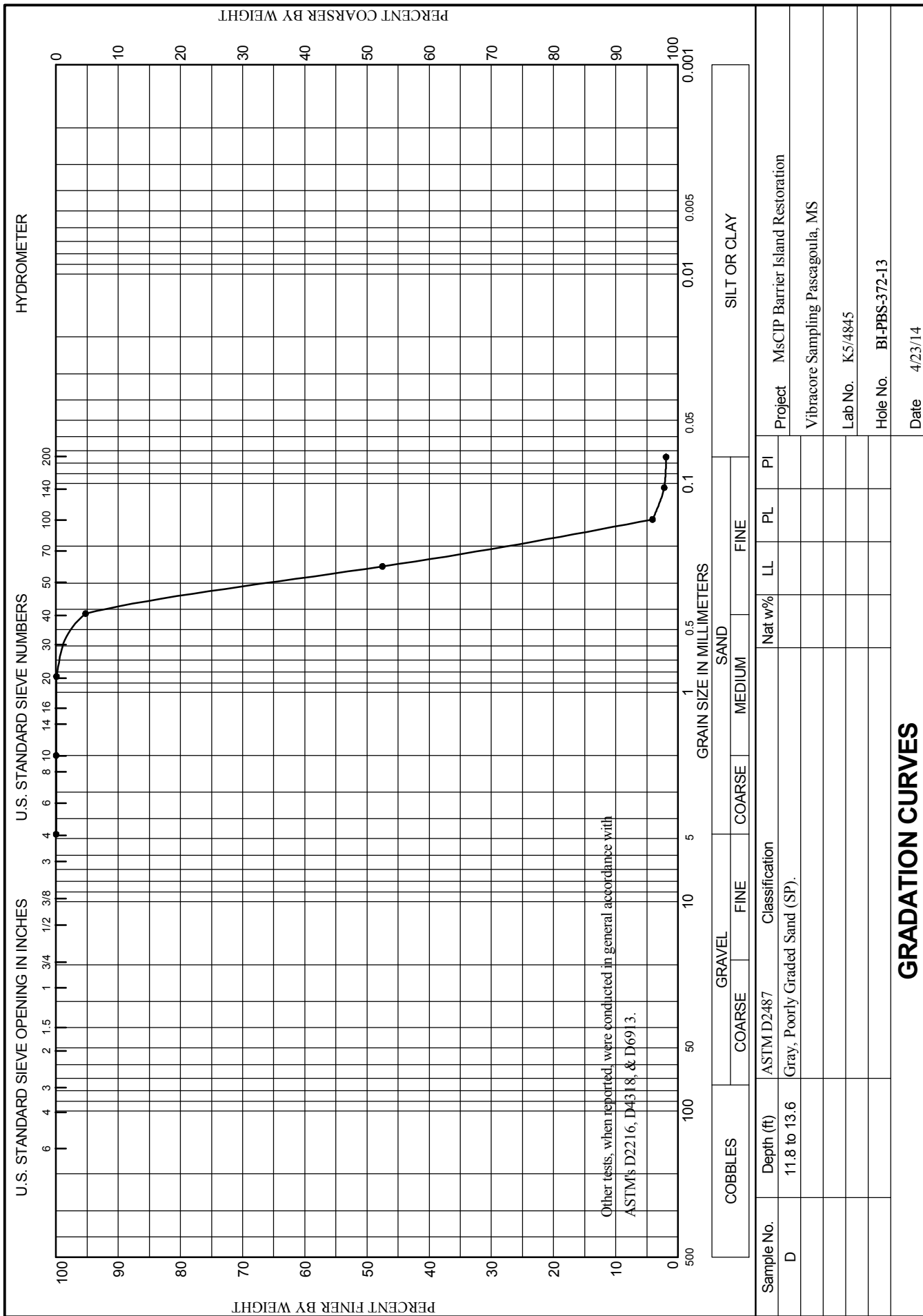




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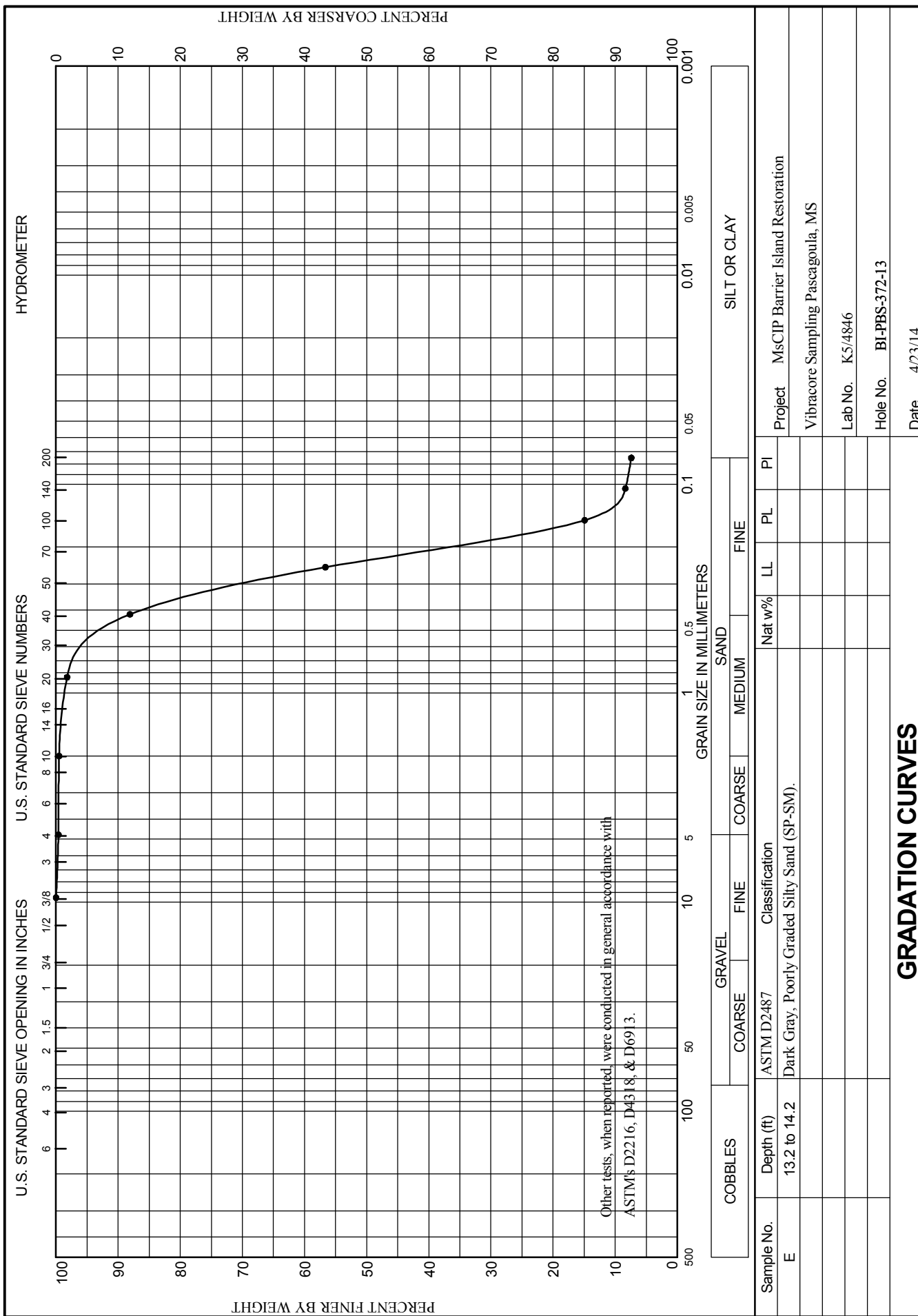
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CORPS OF ENGINEERS, 200 N. COBB PARKWAY, BLDG 400 SUITE 404, MARIETTA, GA. 30062

WORK ORDER: 848e  
REQUISITION: W33SJC32900192



# Boring Designation BI-PBS-373-13

DRILLING LOG		DIVISION South Atlantic		INSTALLATION Mobile District		SHEET 1 OF 2 SHEETS	
1. PROJECT MsCIP Barrier Island Restoration Petit Bois Pass-OCS West				9. SIZE AND TYPE OF BIT N/A			
2. BORING DESIGNATION BI-PBS-373-13		LOCATION COORDINATES E = 1,112,995 N = 240,610		10. COORDINATE SYSTEM/DATUM State Plane, MSE (U.S. Ft.)		HORIZONTAL NAD83	
3. DRILLING AGENCY Corps of Engineers - CESAM		CONTRACTOR FILE NO.		11. MANUFACTURER'S DESIGNATION OF DRILL Vibracore		<input type="checkbox"/> AUTO HAMMER <input type="checkbox"/> MANUAL HAMMER	
4. NAME OF DRILLER Construction Solutions International, Inc.				12. TOTAL SAMPLES		DISTURBED 1	
5. DIRECTION OF BORING <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED				13. TOTAL NUMBER CORE BOXES		UNDISTURBED (UD) 0	
6. THICKNESS OF OVERBURDEN N/A				14. WATER DEPTH		49.7 Ft.	
7. DEPTH DRILLED INTO ROCK N/A				15. DATE BORING		STARTED 02-17-14	
8. TOTAL DEPTH OF BORING 19.1 Ft.				16. ELEVATION TOP OF BORING		COMPLETED 02-17-14	
				17. TOTAL RECOVERY FOR BORING		100%	
				18. SIGNATURE AND TITLE OF INSPECTOR Tom Powers, Geologist			

ELEV.	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS	SAMPLE	LABORATORY RESULTS
-51.3	0.0				
-51.6	0.3				
-52.3	1.0		CLAY, lean, sandy, soft, brownish gray (CL)		
-53.3	2.0		SAND, clayey, mostly fine to medium-grained sand-sized quartz, few shell fragments, 0.5-inch interbeds of CL, brownish gray (SC)		
-53.7	2.4				
-56.3	5.0		SAND, silty, clayey, mostly fine-grained sand-sized quartz, few shell fragments, brownish gray (SC-SM)	NS	
-57.8	6.5		SAND, clayey, mostly fine-grained sand-sized quartz, few shell fragments, medium gray (SC)		
-59.8	8.5		CLAY, lean, discontinue shell fragments, soft, few 0.25-inch interbeds of SC, medium gray (CL)		
-60.8	9.5		SAND, silty, mostly fine-grained sand-sized quartz, medium gray (SM)	A	Classification: SP Color: 2.5Y 6/1-gray D50: 0.246 mm % Fines: 4
-62.3	11.0		At El. -57.1 Ft., mostly fine-grained sand-sized quartz, medium gray		
-64.8	13.5		SAND, poorly-graded, mostly fine to medium-grained sand-sized quartz, lt. gray (SP)		
-66.8	15.5		SAND, poorly-graded with silt, mostly fine to medium-grained sand-sized quartz, lt. to medium gray (SP-SM)		
-70.4	19.1		SAND, silty, mostly fine to medium-grained sand-sized quartz, medium gray (SM)	NS	
			SAND, poorly-graded with silt, mostly fine to medium-grained sand-sized quartz, medium to lt. gray (SP-SM)		
			At El. -63.3 Ft., dense to base of vibracore		
			SAND, poorly-graded, mostly fine-grained sand-sized quartz, lt. gray (SP)		
			SAND, poorly-graded with silt, mostly fine-grained sand-sized quartz, lt. gray (SP-SM)		

NOTES:

- Soils are field visually classified in accordance with the Unified Soils Classification System.
- NS = Sample not submitted for laboratory analysis from this interval.



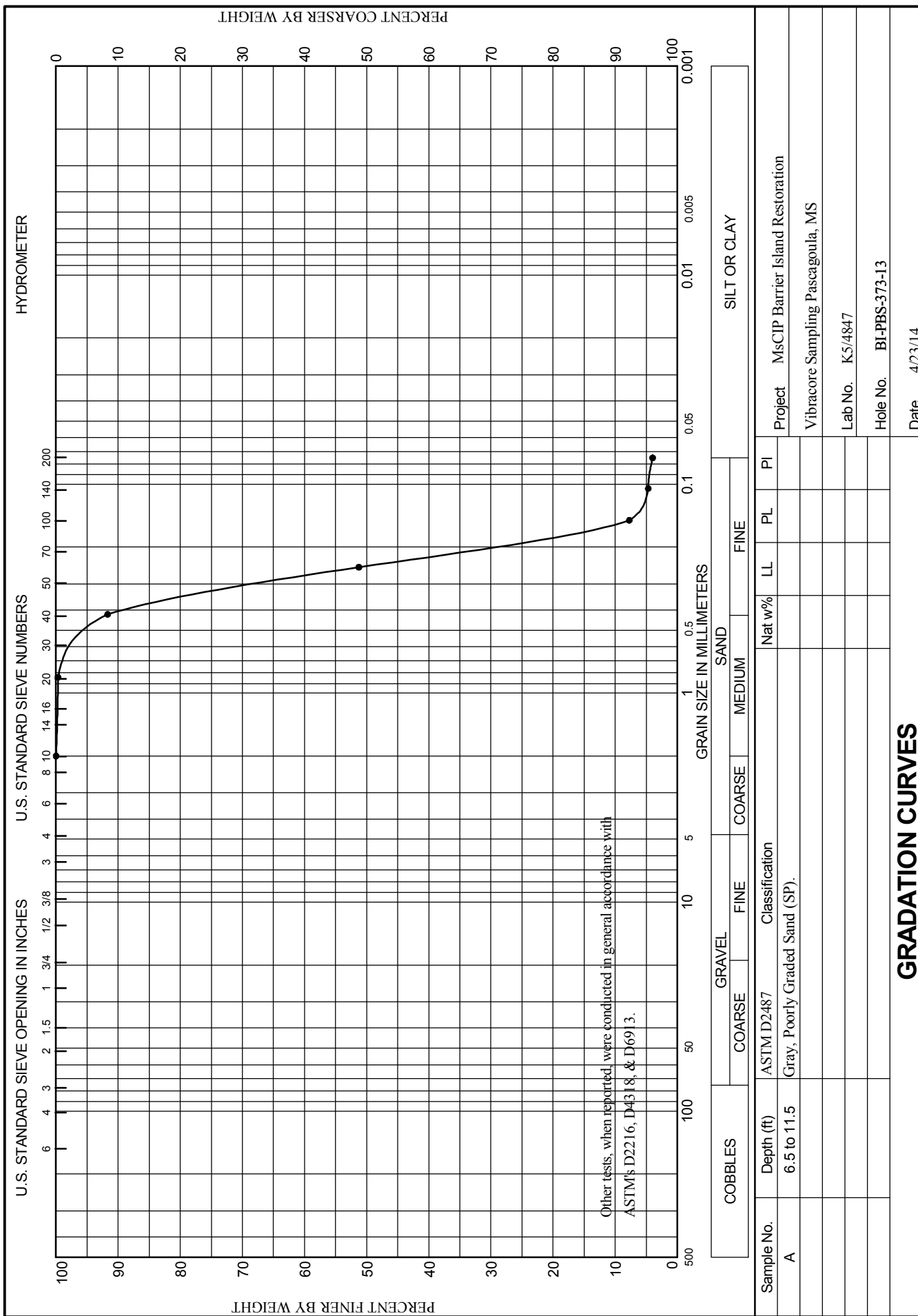
<b>DRILLING LOG (Cont. Sheet)</b>			<b>INSTALLATION</b> Mobile District		<b>SHEET 2</b> <b>OF 2 SHEETS</b>
			<b>COORDINATE SYSTEM/DATUM</b> State Plane, MSE (U.S. Ft.)		<b>HORIZONTAL</b> NAD83
<b>PROJECT</b> MsCIP Barrier Island Restoration					
<b>LOCATION COORDINATES</b> X = 1,112,995 Y = 240,610			<b>ELEVATION TOP OF BORING</b> -51.3 Ft.		
ELEV.	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS	SAMPLE	LABORATORY RESULTS
			3. Seafloor elevation determined from 2013 USGS geophysical survey.		



DEPARTMENT OF THE ARMY, SAVANNAH DISTRICT, ENVIRONMENTAL AND MATERIALS UNIT  
CORPS OF ENGINEERS, 200 N. COBB PARKWAY, BLDG 400 SUITE 404, MARIETTA, GA. 30062

WORK ORDER: 848e

REQUISITION: W33SJG32900192



# Boring Designation BI-PBS-374-13

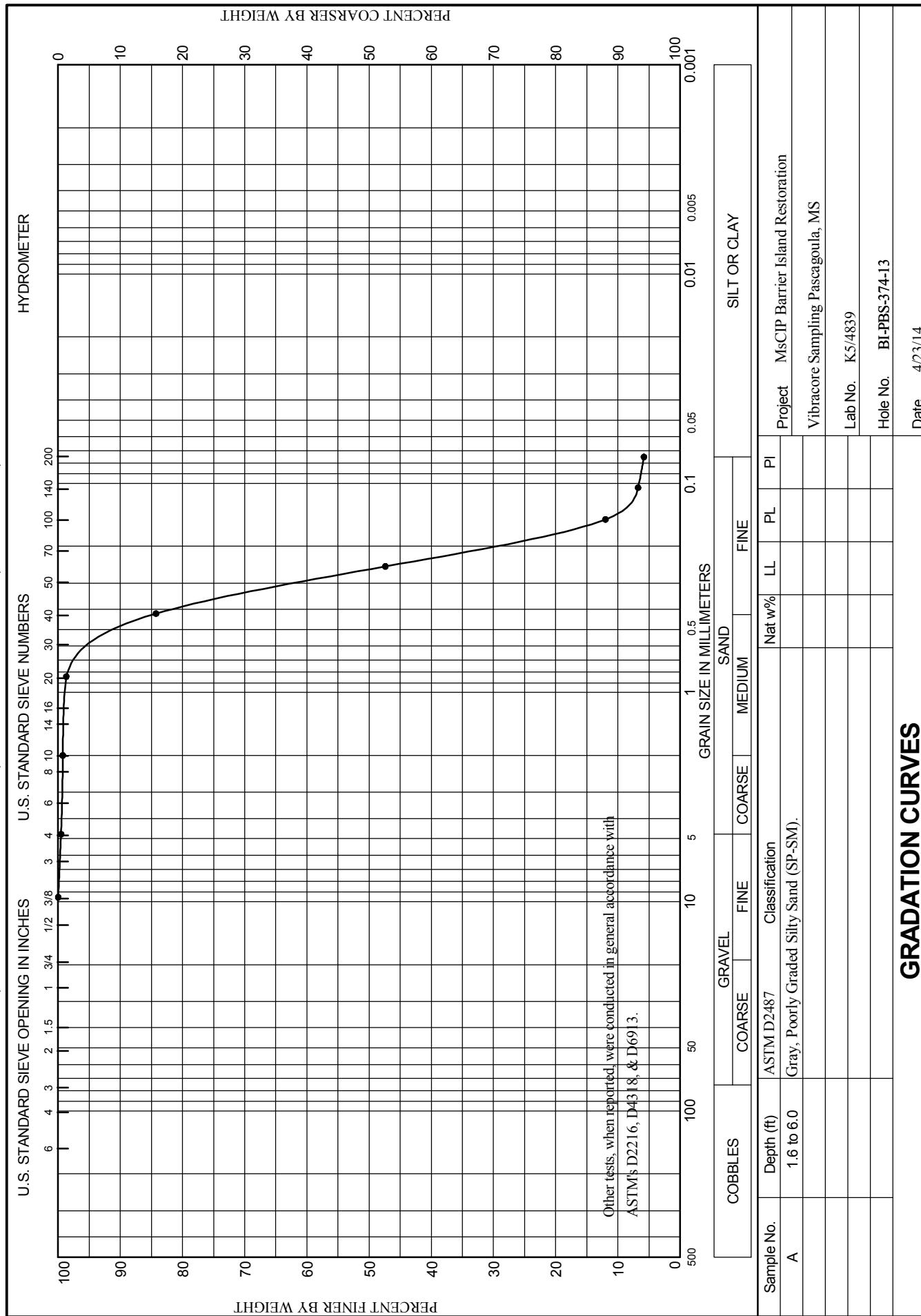
DRILLING LOG		DIVISION South Atlantic		INSTALLATION Mobile District		SHEET 1 OF 2 SHEETS	
1. PROJECT MsCIP Barrier Island Restoration Petit Bois Pass-OCS West				9. SIZE AND TYPE OF BIT N/A			
2. BORING DESIGNATION BI-PBS-374-13		LOCATION COORDINATES E = 1,110,805 N = 240,504		10. COORDINATE SYSTEM/DATUM State Plane, MSE (U.S. Ft.)		HORIZONTAL NAD83	
3. DRILLING AGENCY Corps of Engineers - CESAM		CONTRACTOR FILE NO.		11. MANUFACTURER'S DESIGNATION OF DRILL Vibracore		<input type="checkbox"/> AUTO HAMMER <input type="checkbox"/> MANUAL HAMMER	
4. NAME OF DRILLER Construction Solutions International, Inc.				12. TOTAL SAMPLES 3		DISTURBED 0	
5. DIRECTION OF BORING <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED				13. TOTAL NUMBER CORE BOXES		14. WATER DEPTH 50 Ft.	
6. THICKNESS OF OVERBURDEN N/A				15. DATE BORING 02-16-14		STARTED 02-16-14	
7. DEPTH DRILLED INTO ROCK N/A				16. ELEVATION TOP OF BORING -49.4 Ft.		COMPLETED 02-16-14	
8. TOTAL DEPTH OF BORING 20.0 Ft.				17. TOTAL RECOVERY FOR BORING 100%		18. SIGNATURE AND TITLE OF INSPECTOR Tom Powers, Geologist	
ELEV.	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS	SAMPLE	LABORATORY RESULTS		
-49.4	0.0						
-51.0	1.6		SAND, clayey, mostly fine to medium-grained sand-sized quartz, medium gray (SC)	NS			
-55.4	6.0		SAND, silty, mostly fine-grained sand-sized quartz, very loose, medium gray (SM) At El. -51.6 Ft., mostly fine-grained sand-sized quartz, medium gray	A	Classification: SP-SM Color: 2.5Y 6/1-gray D50: 0.259 mm % Fines: 5.8		
-65.7	16.3		SAND, poorly-graded, mostly fine-grained sand-sized quartz, lt. to medium gray (SP)	B	Classification: SP Color: 2.5Y 7/1-light gray D50: 0.227 mm % Fines: 2.4		
-66.1	16.7			C	Classification: SP Color: 2.5Y 7/1-light gray D50: 0.226 mm % Fines: 2.3		
-69.4	20.0		SAND, silty, mostly fine-grained sand-sized quartz, medium gray (SM) SAND, silty, clayey, mostly fine-grained sand-sized quartz, few shell fragments over bottom 2 ft. of unit, medium gray (SC-SM)	NS			
NOTES: 1. Soils are field visually classified in accordance with the Unified Soils Classification System. 2. NS = Sample not submitted for laboratory analysis from this interval. 3. Seafloor elevation determined from							

<b>DRILLING LOG (Cont. Sheet)</b>			<b>INSTALLATION</b> Mobile District		<b>SHEET 2</b>
					<b>OF 2 SHEETS</b>
<b>PROJECT</b> MsCIP Barrier Island Restoration			<b>COORDINATE SYSTEM/DATUM</b> State Plane, MSE (U.S. Ft.)	<b>HORIZONTAL</b> NAD83	<b>VERTICAL</b> NAVD88
<b>LOCATION COORDINATES</b> X = 1,110,805 Y = 240,504			<b>ELEVATION TOP OF BORING</b> -49.4 Ft.		
<b>ELEV.</b>	<b>DEPTH</b>	<b>LEGEND</b>	<b>CLASSIFICATION OF MATERIALS</b>	<b>SAMPLE</b>	<b>LABORATORY RESULTS</b>
			10/29/2014 USACE survey.		



WORK ORDER: 848e

REQUISITION: W33SJG32900192

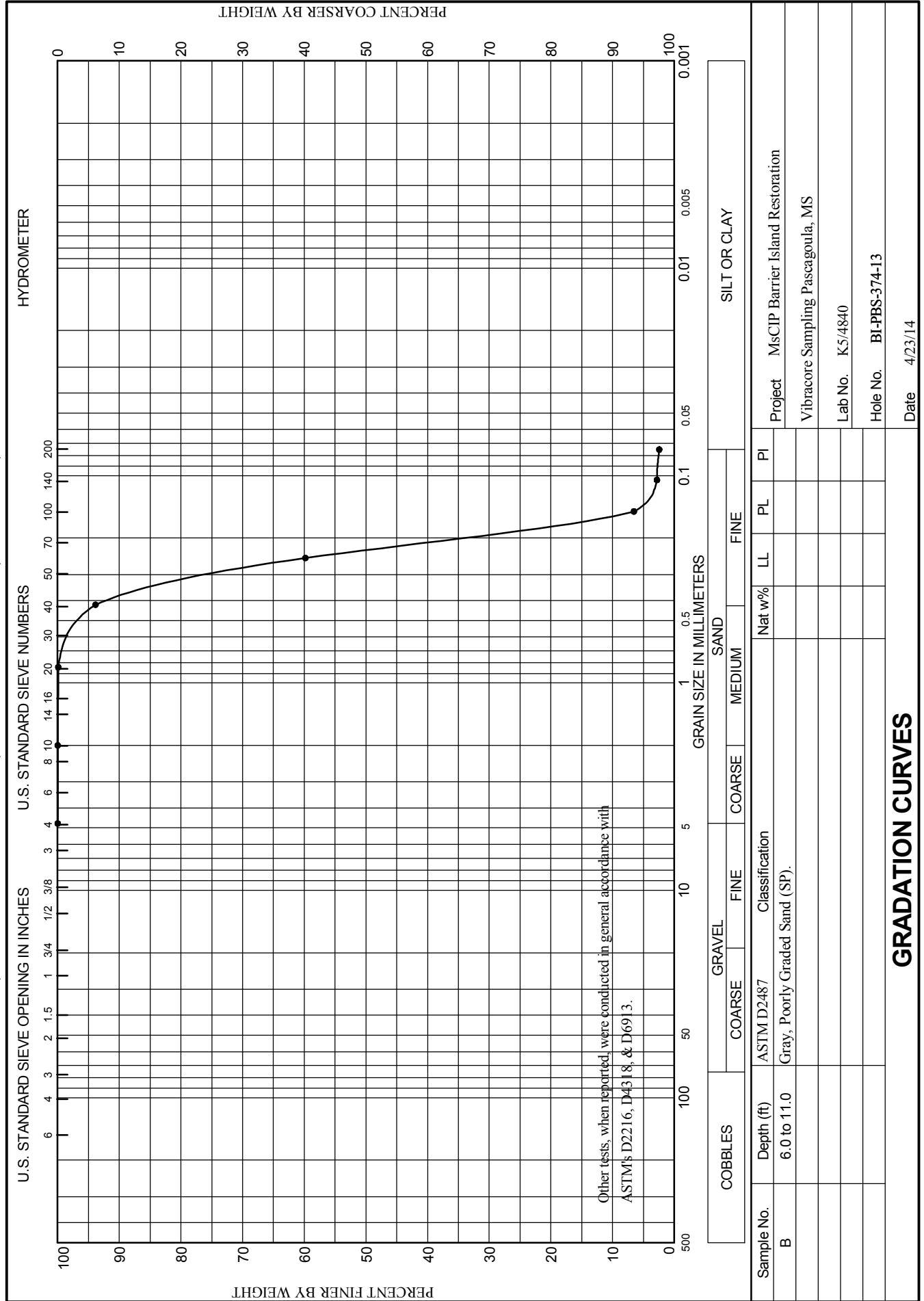




DEPARTMENT OF THE ARMY, SAVANNAH DISTRICT, ENVIRONMENTAL AND MATERIALS UNIT  
CORPS OF ENGINEERS, 200 N. COBB PARKWAY, BLDG 400 SUITE 404, MARIETTA, GA. 30062

WORK ORDER: 848e

REQUISITION: W33SJC32900192

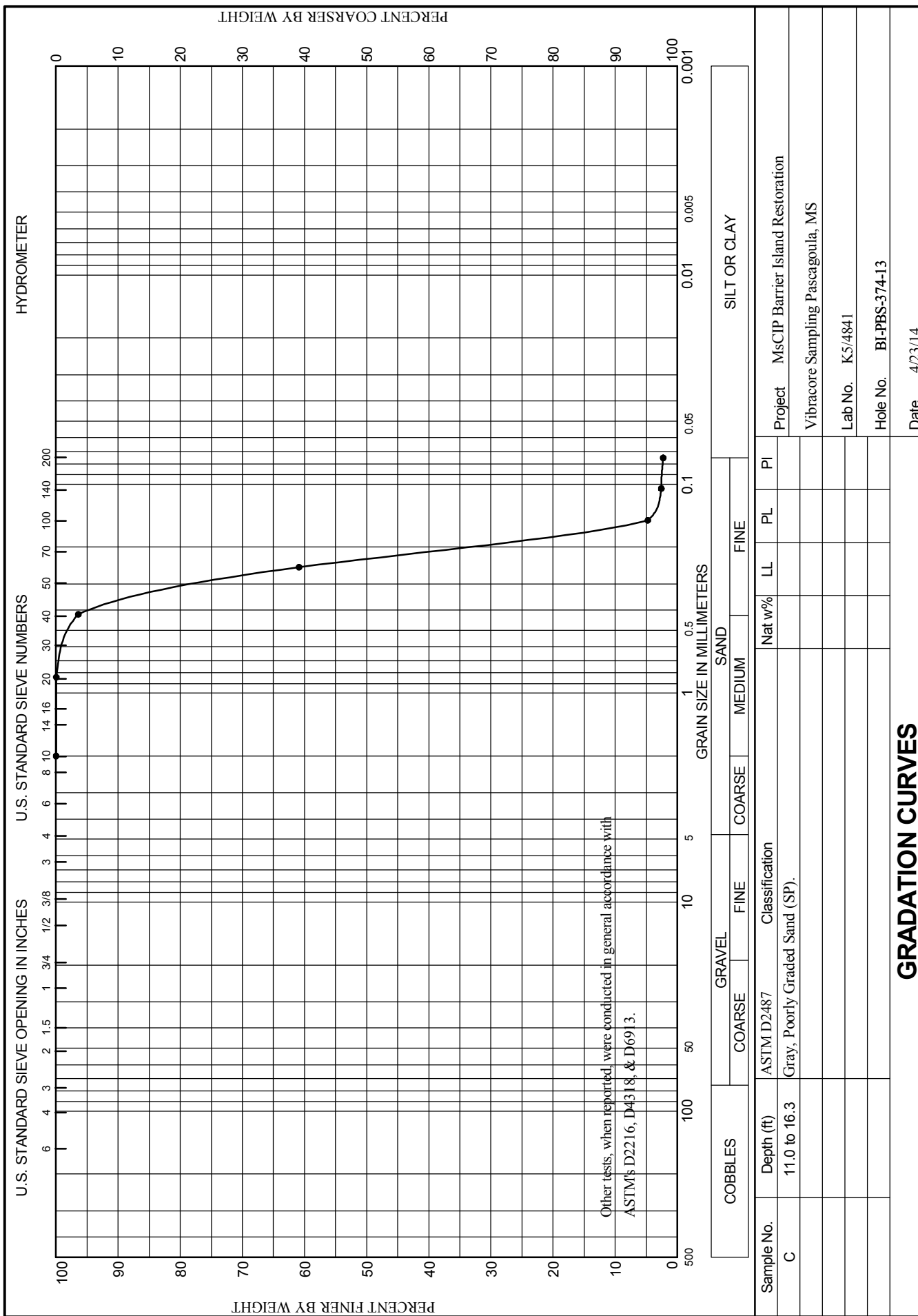




DEPARTMENT OF THE ARMY, SAVANNAH DISTRICT, ENVIRONMENTAL AND MATERIALS UNIT  
CORPS OF ENGINEERS, 200 N. COBB PARKWAY, BLDG 400 SUITE 404, MARIETTA, GA. 30062

WORK ORDER: 848e

REQUISITION: W33SJC32900192



# Boring Designation BI-PBS-375-13

DRILLING LOG		DIVISION South Atlantic		INSTALLATION Mobile District		SHEET 1 OF 1 SHEETS	
1. PROJECT MsCIP Barrier Island Restoration Petit Bois Pass-OCS West				9. SIZE AND TYPE OF BIT N/A			
2. BORING DESIGNATION BI-PBS-375-13		LOCATION COORDINATES E = 1,107,348 N = 240,445		10. COORDINATE SYSTEM/DATUM State Plane, MSE (U.S. Ft.)		HORIZONTAL NAD83	
3. DRILLING AGENCY Corps of Engineers - CESAM		CONTRACTOR FILE NO.		11. MANUFACTURER'S DESIGNATION OF DRILL Vibracore		<input type="checkbox"/> AUTO HAMMER <input type="checkbox"/> MANUAL HAMMER	
4. NAME OF DRILLER Construction Solutions International, Inc.				12. TOTAL SAMPLES		DISTURBED 0	
5. DIRECTION OF BORING <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED				13. TOTAL NUMBER CORE BOXES		UNDISTURBED (UD) 0	
6. THICKNESS OF OVERBURDEN N/A				14. WATER DEPTH		51.3 Ft.	
7. DEPTH DRILLED INTO ROCK N/A				15. DATE BORING		STARTED 02-18-14	
8. TOTAL DEPTH OF BORING 13.8 Ft.				16. ELEVATION TOP OF BORING		COMPLETED 02-18-14	
				17. TOTAL RECOVERY FOR BORING		100%	
				18. SIGNATURE AND TITLE OF INSPECTOR		Tom Powers, Geologist	
ELEV.	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS	SAMPLE	LABORATORY RESULTS		
-51.6	0.0						
-53.6	2.0		CLAY, lean, few shell fragments, sandy, void fill of SC, soft to 1.4 ft., firm to 2.0, medium gray (CL)				
-58.9	7.3		CLAY, fat, sandy, hard, lt. gray, pale green, pale orange (CH)	NS			
-62.1	10.5		SAND, silty, clayey, mostly fine-grained sand-sized quartz, few shell fragments, medium gray (SC-SM)				
-65.4	13.8		CLAY, silty, few shell fragments, medium gray (CL-ML)				
NOTES: 1. Soils are field visually classified in accordance with the Unified Soils Classification System. 2. NS = Sample not submitted for laboratory analysis from this interval. 3. Seafloor elevation determined from 2013 USGS geophysical survey.							



# Boring Designation BI-PBS-376-13

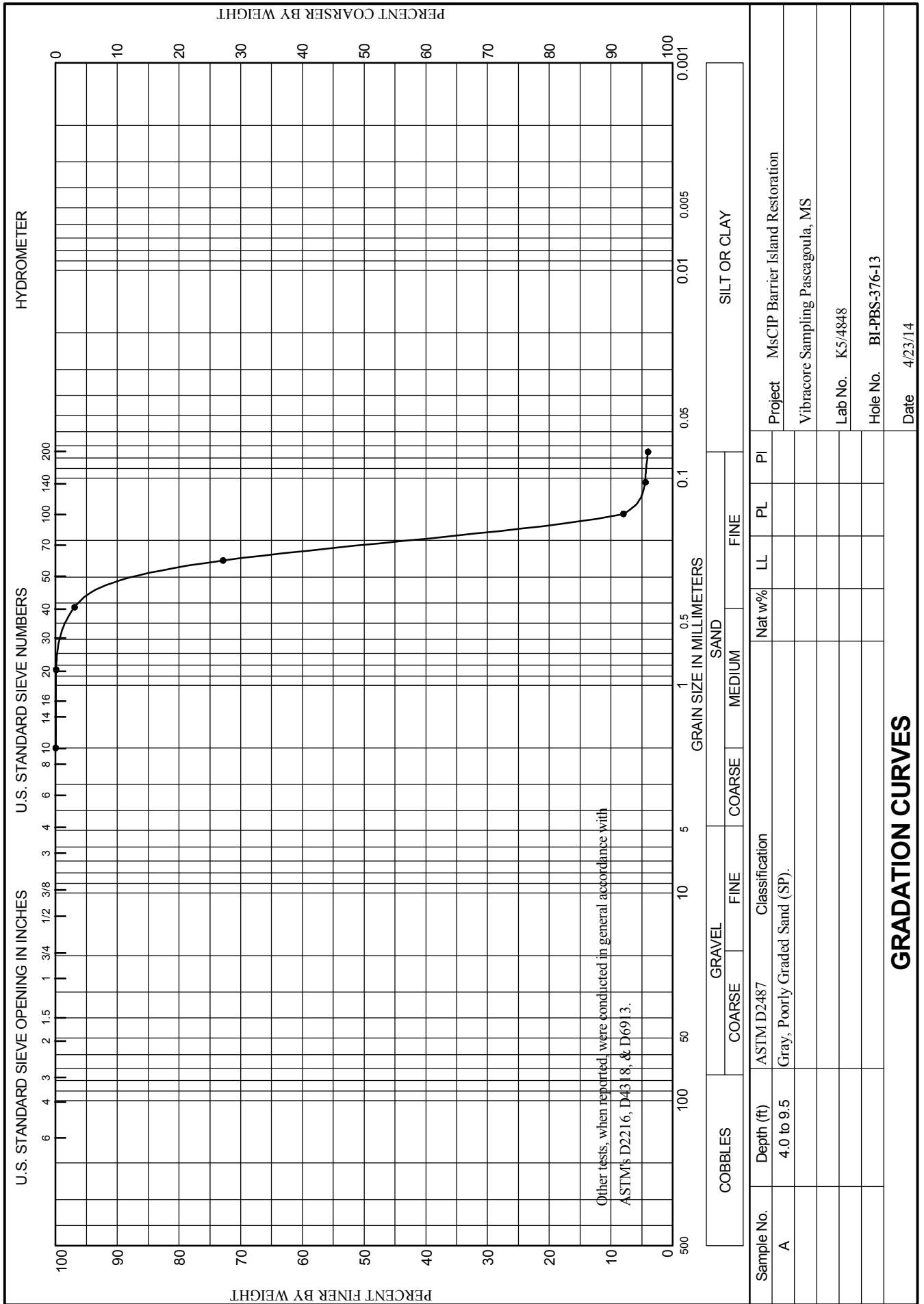
DRILLING LOG		DIVISION South Atlantic		INSTALLATION Mobile District		SHEET 1 OF 1 SHEETS	
1. PROJECT MsCIP Barrier Island Restoration Petit Bois Pass-OCS West				9. SIZE AND TYPE OF BIT N/A			
2. BORING DESIGNATION BI-PBS-376-13		LOCATION COORDINATES E = 1,113,657 N = 239,394		10. COORDINATE SYSTEM/DATUM State Plane, MSE (U.S. Ft.)		HORIZONTAL NAD83	
3. DRILLING AGENCY Corps of Engineers - CESAM		CONTRACTOR FILE NO.		11. MANUFACTURER'S DESIGNATION OF DRILL Vibrocure		<input type="checkbox"/> AUTO HAMMER <input type="checkbox"/> MANUAL HAMMER	
4. NAME OF DRILLER Construction Solutions International, Inc.				12. TOTAL SAMPLES 2		DISTURBED 0	
5. DIRECTION OF BORING <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED				13. TOTAL NUMBER CORE BOXES		14. WATER DEPTH 51.3 Ft.	
6. THICKNESS OF OVERBURDEN N/A				15. DATE BORING 02-17-14		STARTED 02-17-14	
7. DEPTH DRILLED INTO ROCK N/A				16. ELEVATION TOP OF BORING -51.3 Ft.		COMPLETED 02-17-14	
8. TOTAL DEPTH OF BORING 15.3 Ft.				17. TOTAL RECOVERY FOR BORING 100%			
				18. SIGNATURE AND TITLE OF INSPECTOR Tom Powers, Geologist			
ELEV.	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS	SAMPLE	LABORATORY RESULTS		
-51.3	0.0						
-52.8	1.5		CLAY, lean, few shell fragments, sandy, olive gray (CL)	NS			
-53.2	1.9		SAND, clayey, mostly fine-grained sand-sized quartz, few shell fragments, olive medium gray (SC)				
-55.3	4.0		CLAY, lean, discontinue shell fragments, firm, trace SC interbeds, 0.25-inch thick, trace wood, medium gray (CL)	A	Classification: SP Color: 2.5Y 6/1-gray D50: 0.208 mm % Fines: 4		
-57.3	6.0		SAND, silty, mostly fine-grained sand-sized quartz, dense, lt. to medium gray (SM) SAND, poorly-graded with silt, mostly fine-grained sand-sized quartz, dense, lt. to medium gray (SP-SM)				
-62.3	11.0		SAND, silty, mostly fine-grained sand-sized quartz, dense, lt. to medium gray (SM)	B	Classification: SP-SM Color: 2.5Y 6/1-gray D50: 0.205 mm % Fines: 5.2		
-63.3	12.0		SAND, poorly-graded with silt, mostly fine-grained sand-sized quartz, dense, lt. to medium gray (SP-SM)				
-66.6	15.3			NS			
NOTES: 1. Soils are field visually classified in accordance with the Unified Soils Classification System. 2. NS = Sample not submitted for laboratory analysis from this interval. 3. Seafloor elevation determined from 2013 USGS geophysical survey.				NS			



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CORPS OF ENGINEERS, 200 N. COBB PARKWAY, BLDG 400 SUITE 404, MARIETTA, GA. 30062

WORK ORDER: 848e

REQUISITION: W33SJC32900192

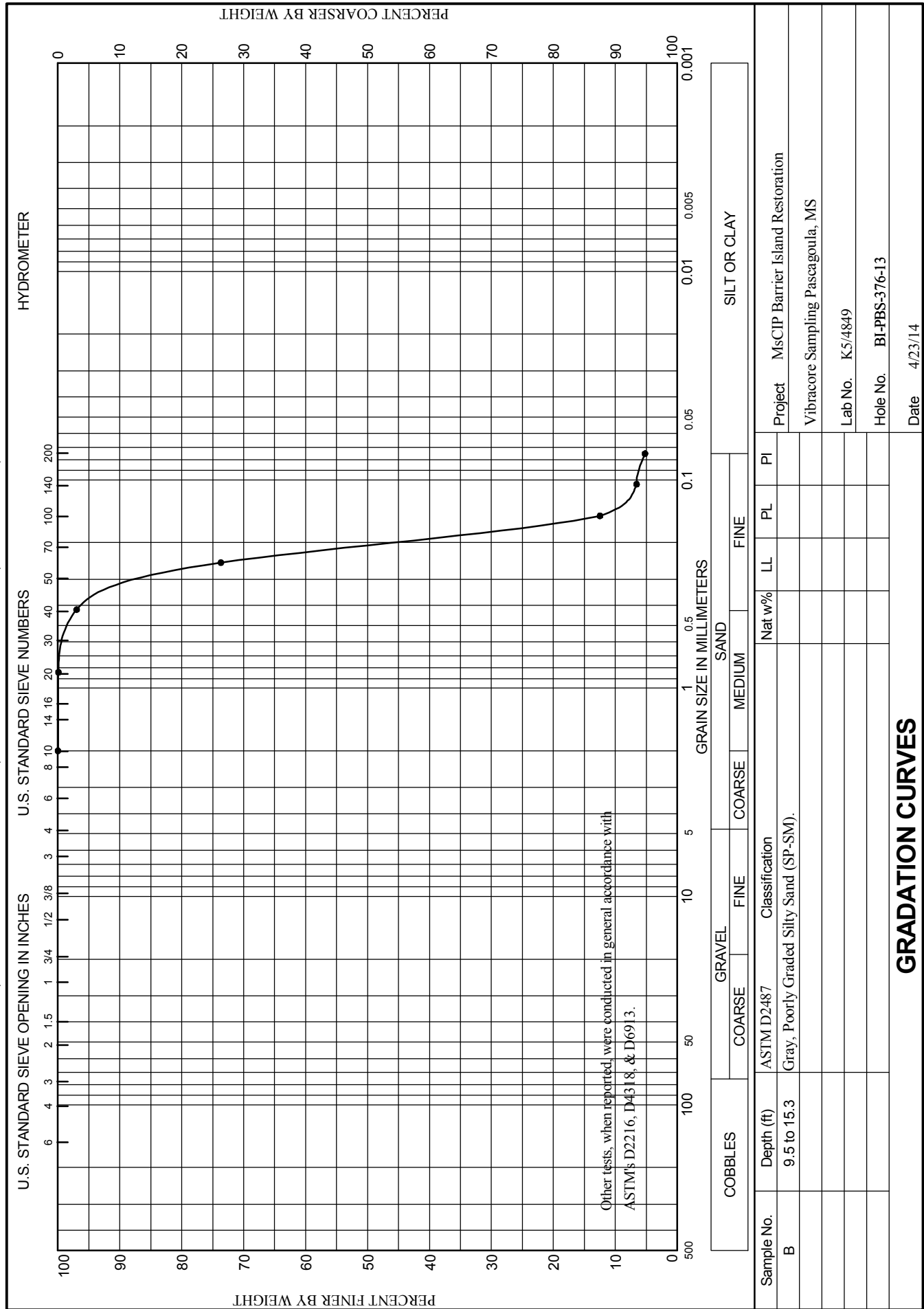




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CORPS OF ENGINEERS, 200 N. COBB PARKWAY, BLDG 400 SUITE 404, MARIETTA, GA. 30062

WORK ORDER: 848e

REQUISITION: W33SJG32900192



# Boring Designation BI-PBS-377-13

DRILLING LOG		DIVISION South Atlantic		INSTALLATION Mobile District		SHEET 1 OF 2 SHEETS	
1. PROJECT MsCIP Barrier Island Restoration Petit Bois Pass-OCS West				9. SIZE AND TYPE OF BIT N/A			
2. BORING DESIGNATION BI-PBS-377-13		LOCATION COORDINATES E = 1,109,809 N = 239,824		10. COORDINATE SYSTEM/DATUM State Plane, MSE (U.S. Ft.)		HORIZONTAL NAD83 VERTICAL NAVD88	
3. DRILLING AGENCY Corps of Engineers - CESAM		CONTRACTOR FILE NO.		11. MANUFACTURER'S DESIGNATION OF DRILL Vibrocure		<input type="checkbox"/> AUTO HAMMER <input type="checkbox"/> MANUAL HAMMER	
4. NAME OF DRILLER Construction Solutions International, Inc.				12. TOTAL SAMPLES 1		DISTURBED 1 UNDISTURBED (UD) 0	
5. DIRECTION OF BORING <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED		DEG. FROM VERTICAL		13. TOTAL NUMBER CORE BOXES			
		BEARING		14. WATER DEPTH 51 Ft.			
6. THICKNESS OF OVERBURDEN N/A				15. DATE BORING 02-16-14		STARTED 02-16-14 COMPLETED 02-16-14	
7. DEPTH DRILLED INTO ROCK N/A				16. ELEVATION TOP OF BORING -51.5 Ft.			
8. TOTAL DEPTH OF BORING 20.0 Ft.				17. TOTAL RECOVERY FOR BORING 100%			
				18. SIGNATURE AND TITLE OF INSPECTOR Tom Powers, Geologist			

ELEV.	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS	SAMPLE	LABORATORY RESULTS
-51.5	0.0		CLAY, lean, sandy, soft from 0 to 1.5 ft. depth, firm from 1.5 to 3.6 ft., medium gray, dark gray at base (CL)	NS	
-55.1	3.6				
-55.8	4.3		SAND, silty, mostly fine to medium-grained sand-sized quartz, medium gray (SM)		
-56.5	5.0				
-56.9	5.4		CLAY, lean, medium and dark gray (CL)		
-57.5	6.0				
			SAND, clayey, mostly fine to medium-grained sand-sized quartz, medium gray (SC)	A	Classification: SP Color: 2.5Y 5/1-gray D50: 0.25 mm % Fines: 4.9
-60.5	9.0		SAND, poorly-graded with silt, mostly fine to medium-grained sand-sized quartz, trace wood fragments, medium gray (SP-SM)		
			SAND, silty, mostly fine to medium-grained sand-sized quartz, medium dark gray (SM)		
-65.2	13.7				
-66.6	15.1		SAND, poorly-graded with silt, mostly fine-grained sand-sized quartz, medium gray (SP-SM)		
			SAND, silty, mostly fine-grained sand-sized quartz, medium dark gray (SM)	NS	
			CLAY, lean, trace shell fragments, very sandy, medium gray (CL)		
-71.5	20.0				
			NOTES: 1. Soils are field visually classified in accordance with the Unified Soils Classification System. 2. NS = Sample not submitted for laboratory analysis from this interval. 3. Seafloor elevation determined from 2013		

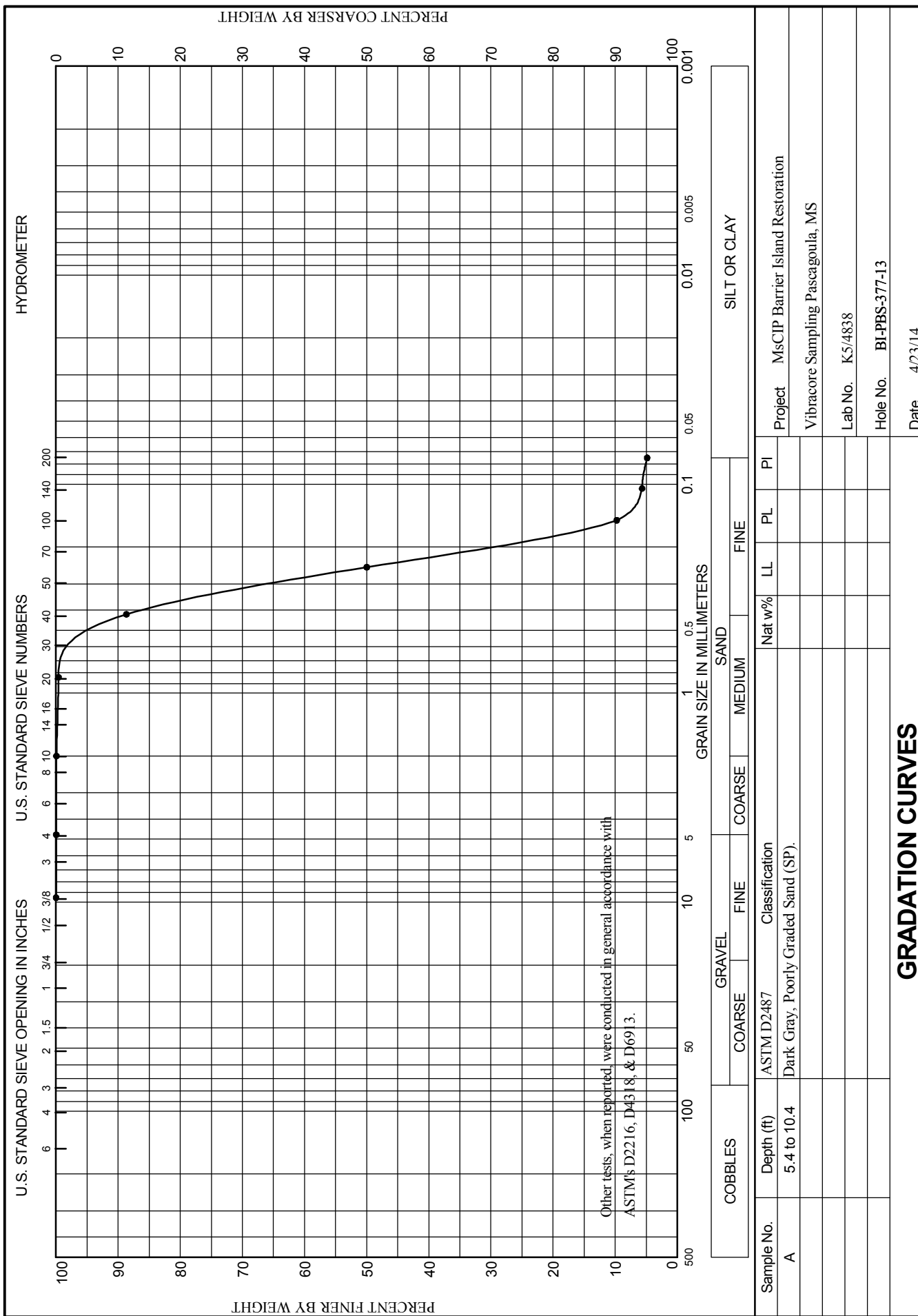
<b>DRILLING LOG (Cont. Sheet)</b>			<b>INSTALLATION</b> Mobile District		<b>SHEET 2</b> <b>OF 2 SHEETS</b>
<b>PROJECT</b> MsCIP Barrier Island Restoration			<b>COORDINATE SYSTEM/DATUM</b> State Plane, MSE (U.S. Ft.)	<b>HORIZONTAL</b> NAD83	<b>VERTICAL</b> NAVD88
<b>LOCATION COORDINATES</b> X = 1,109,809 Y = 239,824			<b>ELEVATION TOP OF BORING</b> -51.5 Ft.		
<b>ELEV.</b>	<b>DEPTH</b>	<b>LEGEND</b>	<b>CLASSIFICATION OF MATERIALS</b>	<b>SAMPLE</b>	<b>LABORATORY RESULTS</b>
			USGS geophysical survey.		



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CORPS OF ENGINEERS, 200 N. COBB PARKWAY, BLDG 400 SUITE 404, MARIETTA, GA. 30062

WORK ORDER: 848e

REQUISITION: W33SJC32900192



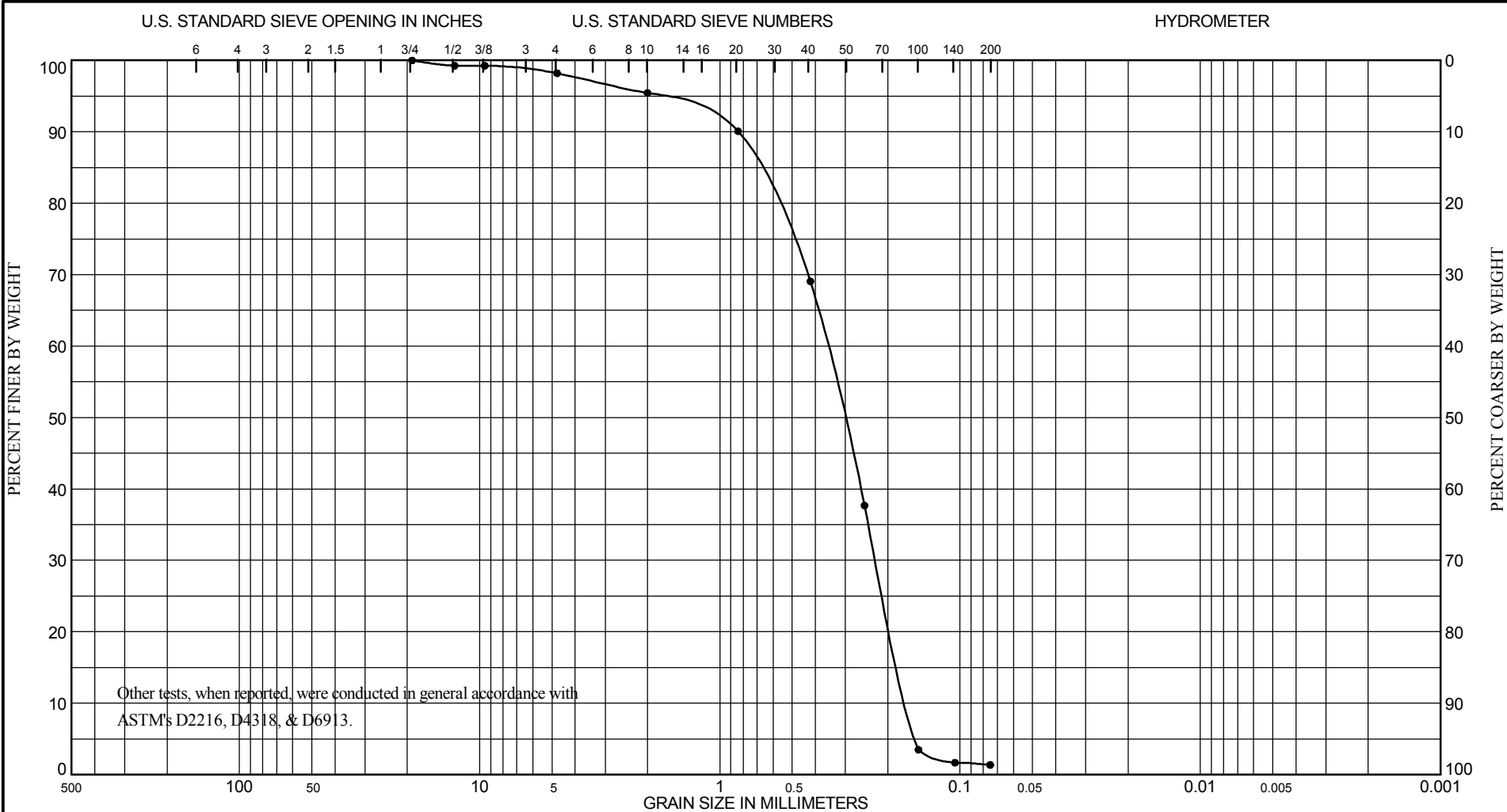
# Boring Designation BI-PBS-378-13

DRILLING LOG		DIVISION South Atlantic		INSTALLATION Mobile District		SHEET 1 OF 1 SHEETS	
1. PROJECT MsCIP Barrier Island Restoration Petit Bois Pass-OCS East				9. SIZE AND TYPE OF BIT N/A			
2. BORING DESIGNATION BI-PBS-378-13		LOCATION COORDINATES E = 1,132,503 N = 236,193		10. COORDINATE SYSTEM/DATUM State Plane, MSE (U.S. Ft.)		HORIZONTAL NAD83	
3. DRILLING AGENCY Corps of Engineers - CESAM		CONTRACTOR FILE NO.		11. MANUFACTURER'S DESIGNATION OF DRILL Vibrocure		<input type="checkbox"/> AUTO HAMMER <input type="checkbox"/> MANUAL HAMMER	
4. NAME OF DRILLER Construction Solutions International, Inc.				12. TOTAL SAMPLES		DISTURBED 1	
5. DIRECTION OF BORING <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED				13. TOTAL NUMBER CORE BOXES		UNDISTURBED (UD) 0	
6. THICKNESS OF OVERBURDEN N/A				14. WATER DEPTH		51.3 Ft.	
7. DEPTH DRILLED INTO ROCK N/A				15. DATE BORING		STARTED 02-22-14	
8. TOTAL DEPTH OF BORING 18.1 Ft.				16. ELEVATION TOP OF BORING		COMPLETED 02-22-14	
				17. TOTAL RECOVERY FOR BORING		100%	
				18. SIGNATURE AND TITLE OF INSPECTOR Tom Powers, Geologist			
ELEV.	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS	SAMPLE	LABORATORY RESULTS		
-49.1	0.0						
			SAND, poorly-graded, mostly fine to medium-grained sand-sized quartz, little shell fragments, lt. gray (SP)	A	Classification: SP Color: 2.5Y 6/1-gray D50: 0.306 mm % Fines: 1.3		
-52.5	3.4						
			SAND, silty, mostly fine-grained sand-sized quartz, few shell fragments, high fines content, medium gray (SM)				
-55.1	6.0						
-56.1	7.0		SAND, silty, clayey, mostly fine-grained sand-sized quartz, medium gray (SC-SM)				
-57.6	8.5		CLAY, lean, sandy, firm, medium gray (CL)				
			SAND, clayey, mostly fine-grained sand-sized quartz, trace shell fragments, medium gray (SC)				
-60.1	11.0			NS			
			CLAY, lean, sandy between 11 to 13.4 ft. and 17 to 18.1 ft. with few shell fragments in the sandy zones, medium gray (CL)				
-67.2	18.1						
			NOTES: 1. Soils are field visually classified in accordance with the Unified Soils Classification System. 2. NS = Sample not submitted for laboratory analysis from this interval. 3. Seafloor elevation determined from USACE hydrographic survey completed April 2014.				



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CORPS OF ENGINEERS, 200 N. COBB PARKWAY, BLDG 400 SUITE 404, MARIETTA, GA. 30062

WORK ORDER: 848e  
REQUISITION: W33SJG32900192



Sample No.	Depth (ft)	ASTM D2487	Classification	Nat w%	LL	PL	PI	Project	MsCIP Barrier Island Restoration
A	0.0 to 3.4	Greenish Gray, Poorly Graded Sand (SP), with a trace of gravel size shell.						Vibracore Sampling Pascagoula, MS	
								Lab No.	K5/4862
								Hole No.	BI-PBS-378-13
								Date	4/23/14

GRADATION CURVES

K-1122



# Boring Designation BI-PBS-379-13

DRILLING LOG		DIVISION South Atlantic		INSTALLATION Mobile District		SHEET 1 OF 1 SHEETS	
1. PROJECT MsCIP Barrier Island Restoration Petit Bois Pass-OCS East				9. SIZE AND TYPE OF BIT N/A			
2. BORING DESIGNATION BI-PBS-379-13		LOCATION COORDINATES E = 1,134,184 N = 232,600		10. COORDINATE SYSTEM/DATUM State Plane, MSE (U.S. Ft.)		HORIZONTAL NAD83	
3. DRILLING AGENCY Corps of Engineers - CESAM		CONTRACTOR FILE NO.		11. MANUFACTURER'S DESIGNATION OF DRILL Vibrocure		<input type="checkbox"/> AUTO HAMMER <input type="checkbox"/> MANUAL HAMMER	
4. NAME OF DRILLER Construction Solutions International, Inc.				12. TOTAL SAMPLES		DISTURBED 1	
5. DIRECTION OF BORING <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED				13. TOTAL NUMBER CORE BOXES		UNDISTURBED (UD) 0	
6. THICKNESS OF OVERBURDEN N/A				14. WATER DEPTH		55 Ft.	
7. DEPTH DRILLED INTO ROCK N/A				15. DATE BORING		STARTED 02-22-14	
8. TOTAL DEPTH OF BORING 18.3 Ft.				16. ELEVATION TOP OF BORING		COMPLETED 02-22-14	
				17. TOTAL RECOVERY FOR BORING		100%	
				18. SIGNATURE AND TITLE OF INSPECTOR		Tom Powers, Geologist	

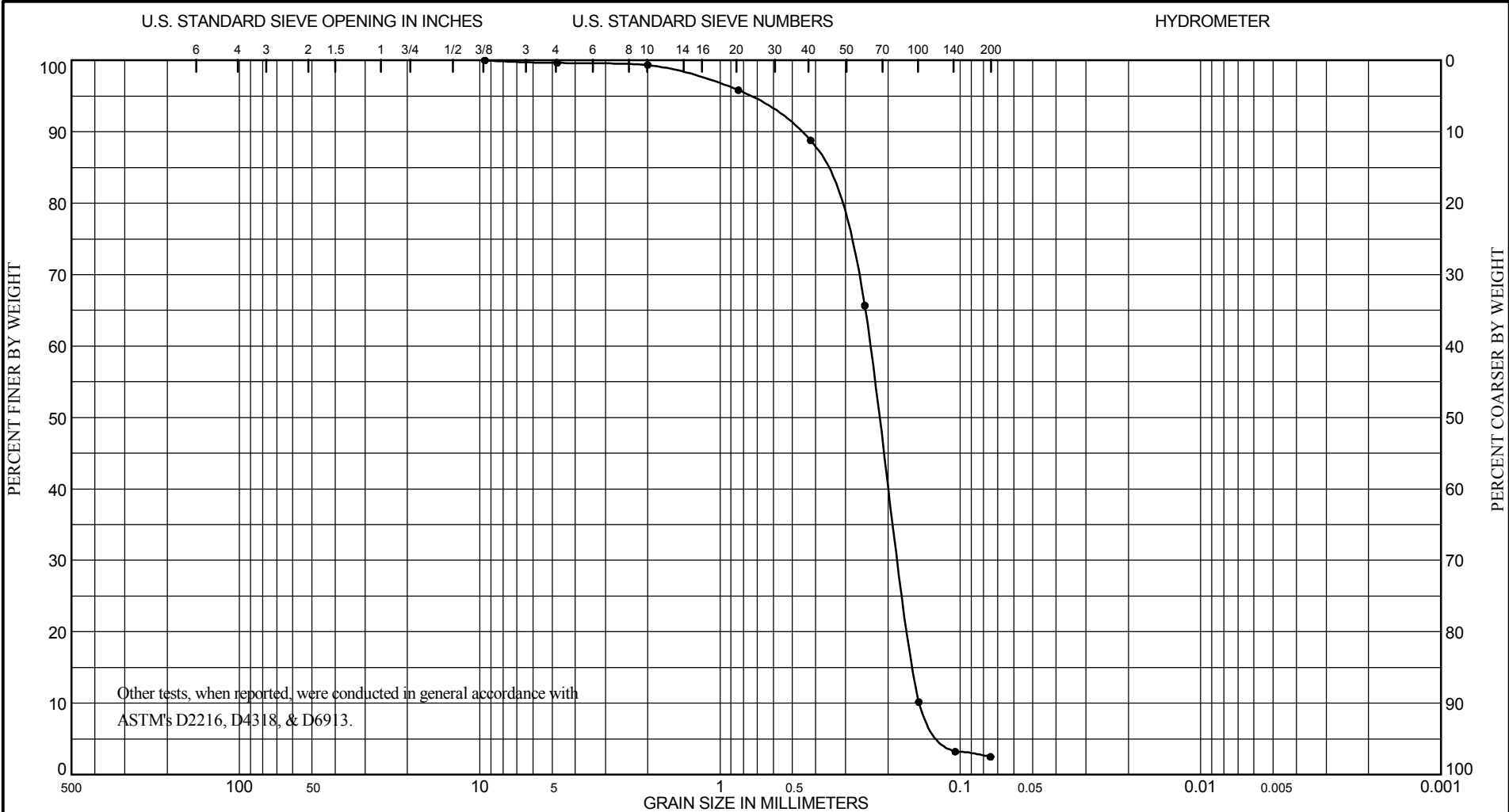
  

ELEV.	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS	SAMPLE	LABORATORY RESULTS
-53.3	0.0				
			SAND, silty, mostly fine-grained sand-sized quartz, trace shell fragments, medium gray (SM) At El. -54.9 Ft., high fines content to base of unit, few shell fragments	A	Classification: SP Color: 2.5Y 6/1-gray D50: 0.216 mm % Fines: 2.5
-57.8	4.5				
-58.8	5.5		SILT, inorganic-L, few shell fragments, sandy, medium gray (ML)		
-60.2	6.9		CLAY, silty, few shell fragments, medium gray (CL-ML)		
			CLAY, lean, trace wood fragments, sandy between 13.4 and 14.3 ft. depths, firm to depth of 17.0 ft., soft to depth of 18.3 ft., medium gray (CL)	NS	
-71.6	18.3				
NOTES: 1. Soils are field visually classified in accordance with the Unified Soils Classification System. 2. NS = Sample not submitted for laboratory analysis from this interval. 3. Seafloor elevation determined from USACE hydrographic survey completed April 2014.					



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WORK ORDER: 848e  
REQUISITION: W33SJG32900192



COBBLES		GRAVEL		SAND			SILT OR CLAY			
		COARSE	FINE	COARSE	MEDIUM	FINE				
Sample No.	Depth (ft)	ASTM D2487 Classification			Nat w%	LL	PL	PI	Project	MsCIP Barrier Island Restoration
A	0.0 to 1.6	Greenish Gray, Poorly Graded Sand (SP).								Vibracore Sampling Pascagoula, MS
									Lab No.	K5/4861
									Hole No.	BI-PBS-379-13
GRADATION CURVES									Date	4/23/14

K-1124

# Boring Designation BI-PBS-380-13

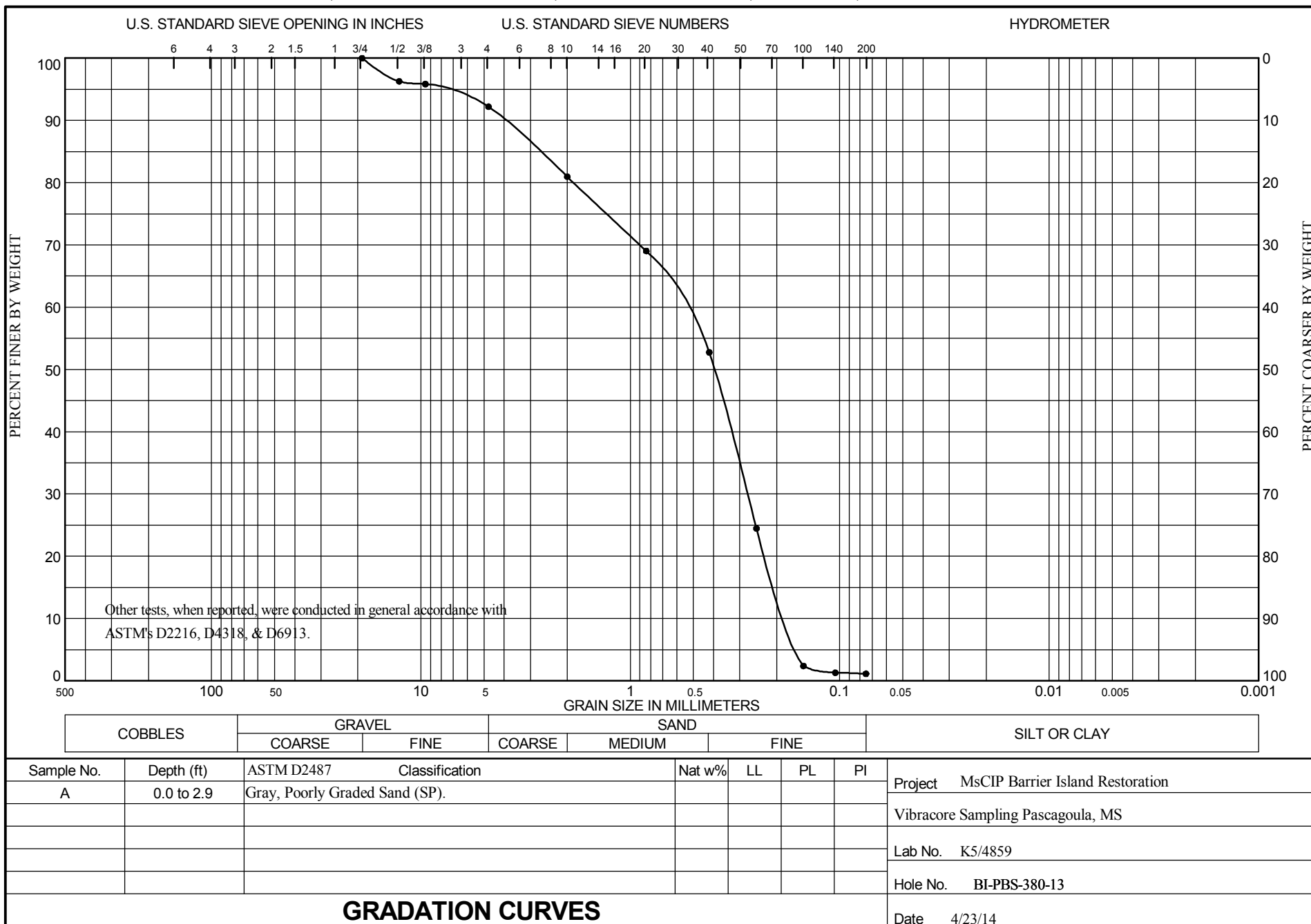
DRILLING LOG		DIVISION South Atlantic		INSTALLATION Mobile District		SHEET 1 OF 1 SHEETS	
1. PROJECT MsCIP Barrier Island Restoration Petit Bois Pass-OCS East				9. SIZE AND TYPE OF BIT N/A			
2. BORING DESIGNATION BI-PBS-380-13		LOCATION COORDINATES E = 1,137,169 N = 233,049		10. COORDINATE SYSTEM/DATUM State Plane, MSE (U.S. Ft.)		HORIZONTAL NAD83 VERTICAL NAVD88	
3. DRILLING AGENCY Corps of Engineers - CESAM		CONTRACTOR FILE NO.		11. MANUFACTURER'S DESIGNATION OF DRILL Vibrocure		<input type="checkbox"/> AUTO HAMMER <input type="checkbox"/> MANUAL HAMMER	
4. NAME OF DRILLER Construction Solutions International, Inc.				12. TOTAL SAMPLES 2		DISTURBED 2 UNDISTURBED (UD) 0	
5. DIRECTION OF BORING <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED				13. TOTAL NUMBER CORE BOXES		14. WATER DEPTH 55.6 Ft.	
6. THICKNESS OF OVERBURDEN N/A				15. DATE BORING 02-22-14		STARTED 02-22-14 COMPLETED 02-22-14	
7. DEPTH DRILLED INTO ROCK N/A				16. ELEVATION TOP OF BORING -52.1 Ft.		17. TOTAL RECOVERY FOR BORING 100%	
8. TOTAL DEPTH OF BORING 18.5 Ft.				18. SIGNATURE AND TITLE OF INSPECTOR Tom Powers, Geologist			
ELEV.	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS	SAMPLE	LABORATORY RESULTS		
-52.1	0.0						
			SAND, poorly-graded, mostly fine to coarse-grained sand-sized quartz, little shell fragments, lt. gray (SP)	A	Classification: SP Color: 2.5Y 6/1-gray D50: 0.399 mm % Fines: 1.1		
-55.0	2.9						
-56.1	4.0		SAND, silty, mostly fine-grained sand-sized quartz, trace shell fragments, high fines content, medium gray (SM)	B	Classification: SP-SM Color: 2.5Y 5/1-gray D50: 0.204 mm % Fines: 9.6		
-58.0	5.9		SAND, clayey, mostly fine-grained sand-sized quartz, few shell fragments, medium gray (SC)	NS			
			CLAY, fat, discontinue shell fragments, sandy, firm, pale orange, pale green (CH)				
-63.1	11.0						
-64.6	12.5		CLAY, lean, trace shell fragments, sandy, medium gray (CL)				
-66.5	14.4		SAND, clayey, mostly fine to medium-grained sand-sized quartz, little shell fragments, medium gray (SC)				
			CLAY, fat, hard, medium gray (CH)				
-70.6	18.5						
NOTES: 1. Soils are field visually classified in accordance with the Unified Soils Classification System. 2. NS = Sample not submitted for laboratory analysis from this interval. 3. Seafloor elevation determined from USACE hydrographic survey completed April 2014.							



DEPARTMENT OF THE ARMY, SAVANNAH DISTRICT, ENVIRONMENTAL AND MATERIALS UNIT  
CORPS OF ENGINEERS, 200 N. COBB PARKWAY, BLDG 400 SUITE 404, MARIETTA, GA. 30062

WORK ORDER: 848e

REQUISITION: W33SJG32900192



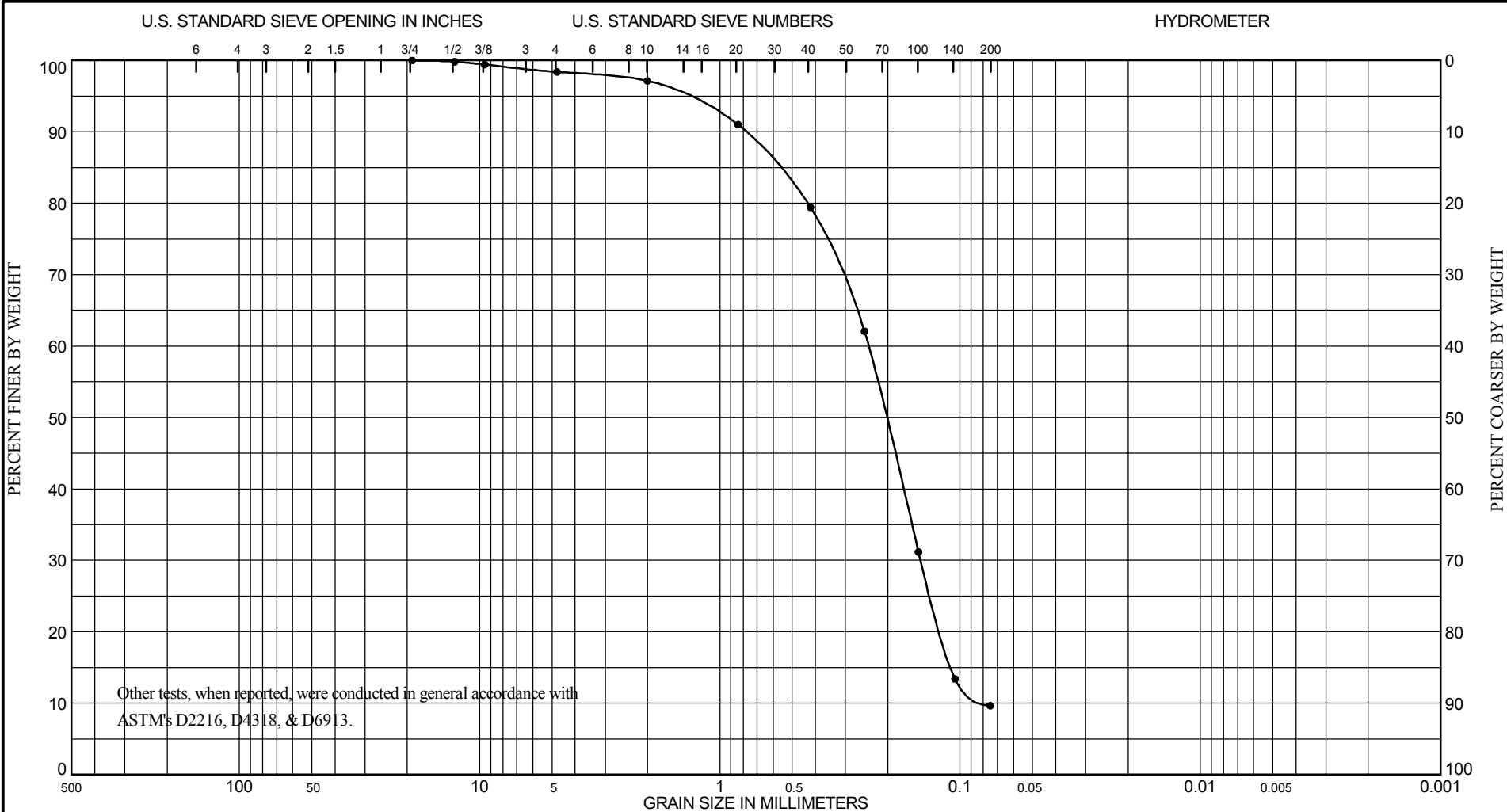
GRADATION CURVES

Project MsCIP Barrier Island Restoration  
Vibracore Sampling Pascagoula, MS  
Lab No. K5/4859  
Hole No. BI-PBS-380-13  
Date 4/23/14



DEPARTMENT OF THE ARMY, SAVANNAH DISTRICT, ENVIRONMENTAL AND MATERIALS UNIT  
CORPS OF ENGINEERS, 200 N. COBB PARKWAY, BLDG 400 SUITE 404, MARIETTA, GA. 30062

WORK ORDER: 848e  
REQUISITION: W33SJG32900192



COBBLES		GRAVEL		SAND			SILT OR CLAY			
		COARSE	FINE	COARSE	MEDIUM	FINE				
Sample No.	Depth (ft)	ASTM D2487 Classification			Nat w%	LL	PL	PI	Project	MsCIP Barrier Island Restoration
B	2.9 to 4.0	Dark Greenish Gray, Poorly Graded Silty Sand (SP-SM), with a								
		trace of gravel size shell.								Vibracore Sampling Pascagoula, MS
									Lab No.	K5/4860
									Hole No.	BI-PBS-380-13
GRADATION CURVES									Date	4/23/14

# Boring Designation BI-PBS-381-13

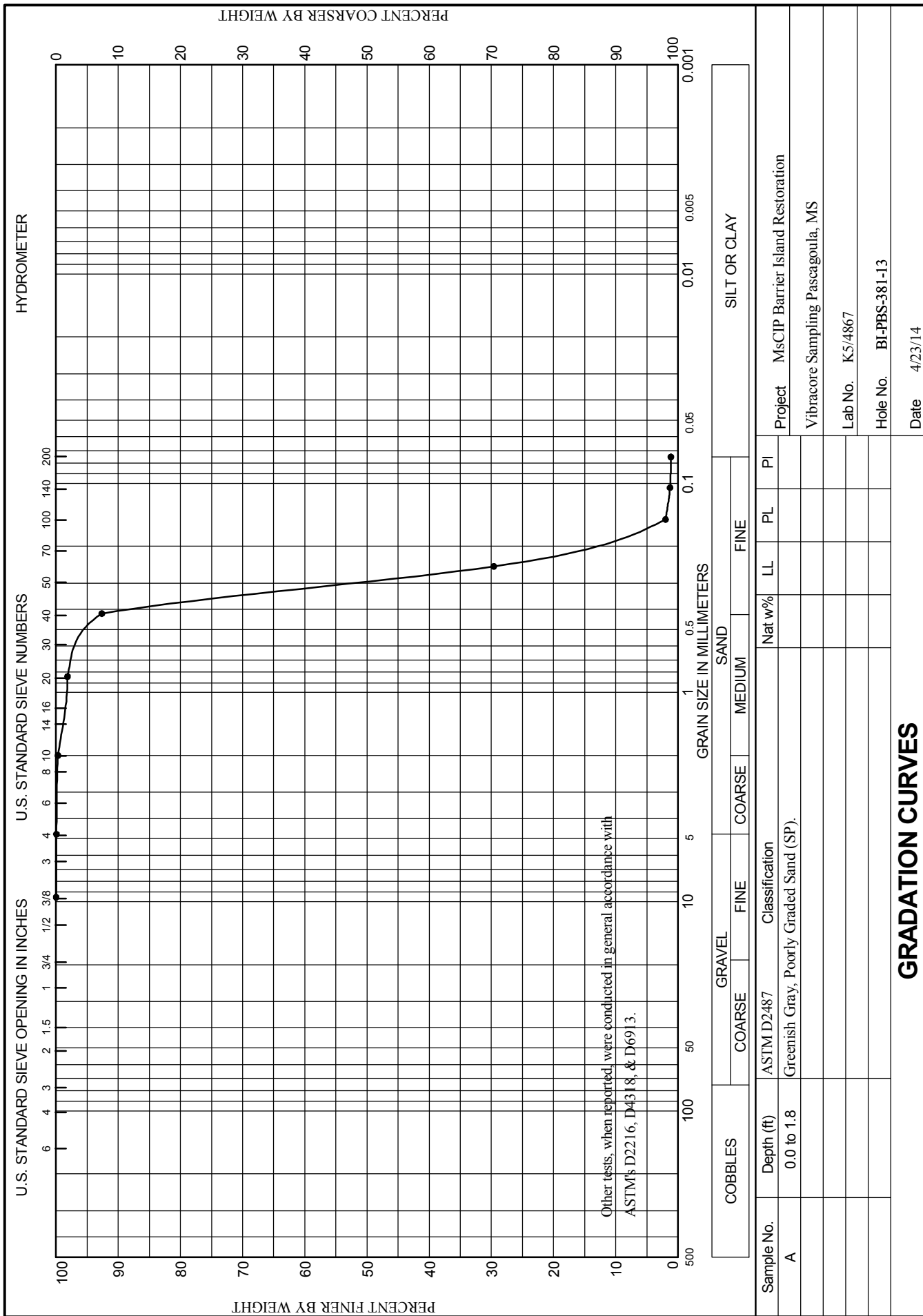
DRILLING LOG		DIVISION South Atlantic		INSTALLATION Mobile District		SHEET 1 OF 1 SHEETS	
1. PROJECT MsCIP Barrier Island Restoration Petit Bois Pass-OCS West				9. SIZE AND TYPE OF BIT N/A			
2. BORING DESIGNATION BI-PBS-381-13		LOCATION COORDINATES E = 1,110,048 N = 234,628		10. COORDINATE SYSTEM/DATUM State Plane, MSE (U.S. Ft.)		HORIZONTAL NAD83 VERTICAL NAVD88	
3. DRILLING AGENCY Corps of Engineers - CESAM		CONTRACTOR FILE NO.		11. MANUFACTURER'S DESIGNATION OF DRILL Vibrocure		<input type="checkbox"/> AUTO HAMMER <input type="checkbox"/> MANUAL HAMMER	
4. NAME OF DRILLER Construction Solutions International, Inc.				12. TOTAL SAMPLES 2		DISTURBED 2 UNDISTURBED (UD) 0	
5. DIRECTION OF BORING <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED				13. TOTAL NUMBER CORE BOXES		14. WATER DEPTH 48.7 Ft.	
6. THICKNESS OF OVERBURDEN N/A				15. DATE BORING 02-22-14		STARTED 02-22-14 COMPLETED 02-22-14	
7. DEPTH DRILLED INTO ROCK N/A				16. ELEVATION TOP OF BORING -46.8 Ft.		17. TOTAL RECOVERY FOR BORING 100%	
8. TOTAL DEPTH OF BORING 18.8 Ft.				18. SIGNATURE AND TITLE OF INSPECTOR Tom Powers, Geologist			
ELEV.	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS	SAMPLE	LABORATORY RESULTS		
-46.8	0.0						
-48.6	1.8		SAND, poorly-graded, mostly fine-grained sand-sized quartz, lt. gray (SP)	A	Classification: SP Color: 2.5Y 7/1-light gray D50: 0.296 mm % Fines: 1.1		
-49.7	2.9		SAND, silty, mostly fine-grained sand-sized quartz, high fines content at 2.5 ft., lt. to medium gray (SM)	B	Classification: SP-SM Color: 2.5Y 6/1-gray D50: 0.242 mm % Fines: 7.5		
-54.0	7.2		CLAY, lean, few shell fragments, sandy, interbedded with SM between 2.9 and 3.2 ft., medium gray, pale orange (CL)	NS			
-55.4	8.6		SAND, clayey, mostly fine to medium-grained sand-sized quartz, discontinue shell fragments, medium to lt. gray (SC)				
-61.8	15.0		CLAY, lean, trace shell fragments, medium to lt. gray (CL)				
-62.9	16.1		SAND, clayey, mostly fine to medium-grained sand-sized quartz, few shell fragments, medium to lt. gray (SC)				
-65.6	18.8		CLAY, lean, medium gray (CL)				
NOTES: 1. Soils are field visually classified in accordance with the Unified Soils Classification System. 2. NS = Sample not submitted for laboratory analysis from this interval. 3. Seafloor elevation determined from 2013 USGS geophysical survey.							



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CORPS OF ENGINEERS, 200 N. COBB PARKWAY, BLDG 400 SUITE 404, MARIETTA, GA. 30062

WORK ORDER: 848e

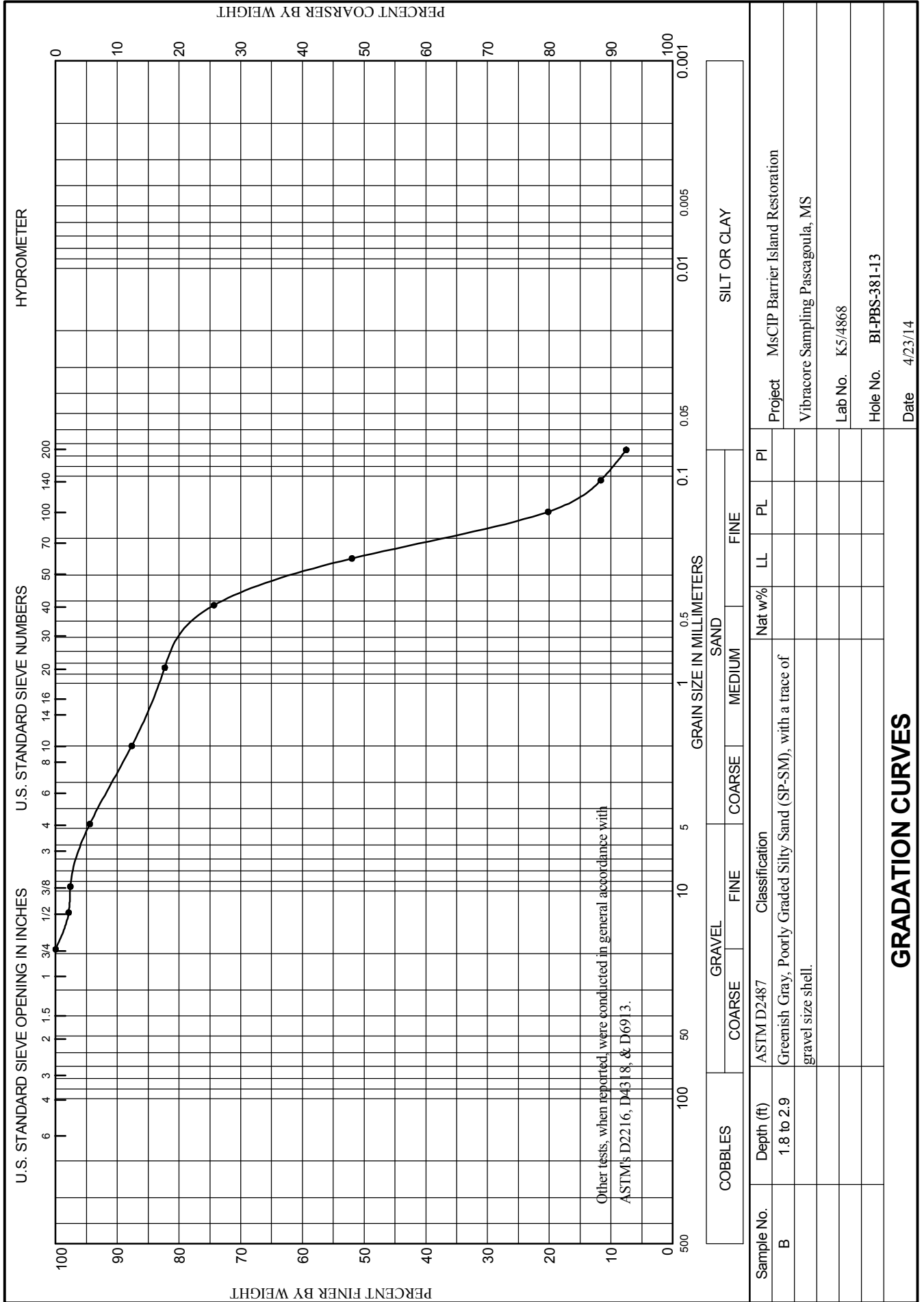
REQUISITION: W33SJG32900192





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WORK ORDER: 848e  
REQUISITION: W33SJC32900192





# Boring Designation BI-PBS-382-13

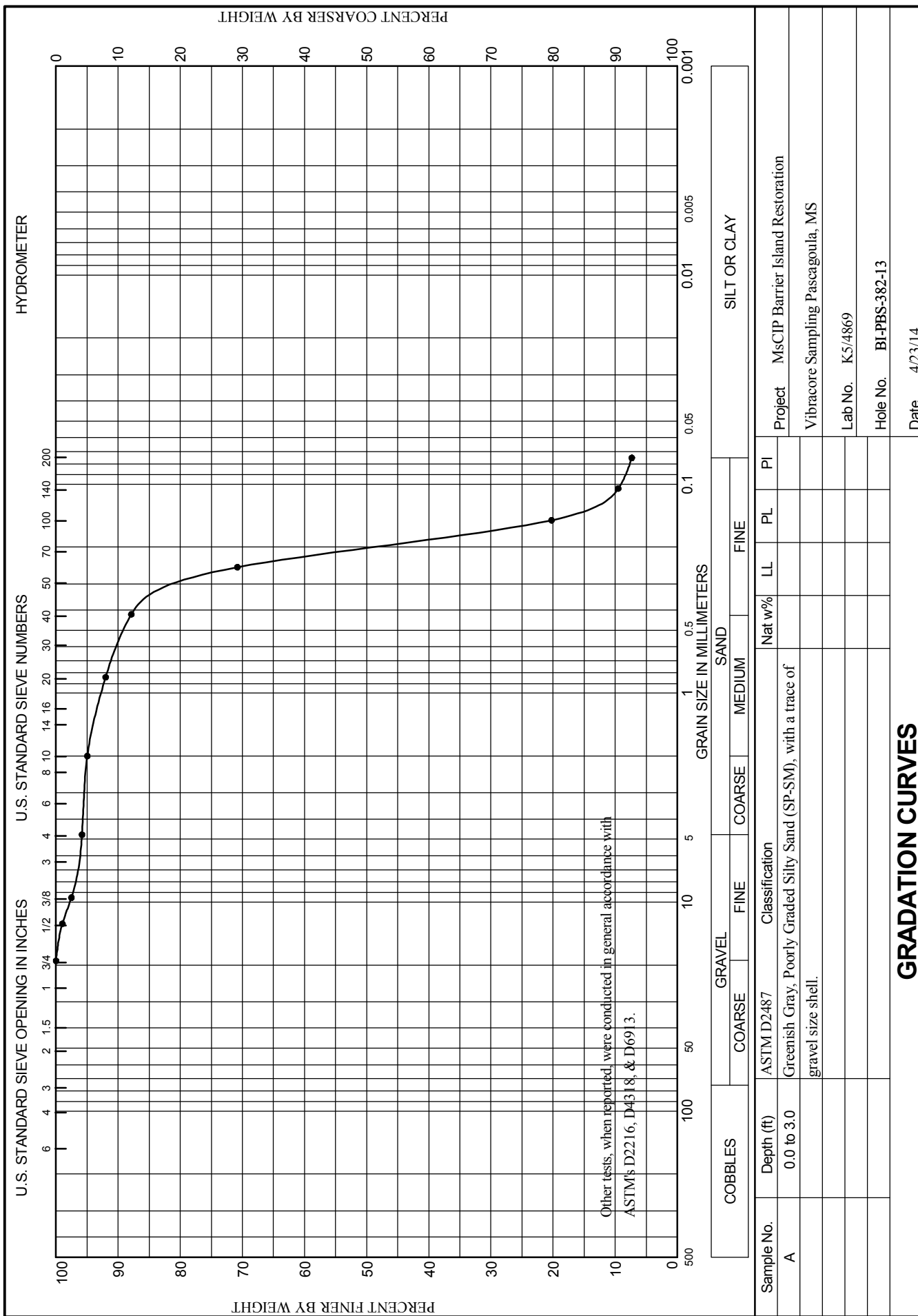
DRILLING LOG		DIVISION South Atlantic		INSTALLATION Mobile District		SHEET 1 OF 1 SHEETS	
1. PROJECT MsCIP Barrier Island Restoration Petit Bois Pass-OCS West				9. SIZE AND TYPE OF BIT N/A			
2. BORING DESIGNATION BI-PBS-382-13		LOCATION COORDINATES E = 1,101,281 N = 232,321		10. COORDINATE SYSTEM/DATUM State Plane, MSE (U.S. Ft.)		HORIZONTAL NAD83	
3. DRILLING AGENCY Corps of Engineers - CESAM		CONTRACTOR FILE NO.		11. MANUFACTURER'S DESIGNATION OF DRILL Vibrocure		<input type="checkbox"/> AUTO HAMMER <input type="checkbox"/> MANUAL HAMMER	
4. NAME OF DRILLER Construction Solutions International, Inc.				12. TOTAL SAMPLES 1		UNDISTURBED (UD) 0	
5. DIRECTION OF BORING <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED				13. TOTAL NUMBER CORE BOXES		14. WATER DEPTH 47.4 Ft.	
6. THICKNESS OF OVERBURDEN N/A				15. DATE BORING 02-22-14		COMPLETED 02-22-14	
7. DEPTH DRILLED INTO ROCK N/A				16. ELEVATION TOP OF BORING -45.3 Ft.		17. TOTAL RECOVERY FOR BORING 100%	
8. TOTAL DEPTH OF BORING 19.3 Ft.				18. SIGNATURE AND TITLE OF INSPECTOR Tom Powers, Geologist			
ELEV.	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS	SAMPLE	LABORATORY RESULTS		
-45.3	0.0						
-45.6	0.3		SAND, poorly-graded, mostly fine to medium-grained sand-sized quartz, few shell fragments, lt. gray (SP)	A	Classification: SP-SM Color: 2.5Y 6/1-gray D50: 0.202 mm % Fines: 7.3		
-48.3	3.0		SAND, silty, mostly fine-grained sand-sized quartz, few shell fragments, lt. to medium gray (SM)				
-51.0	5.7		SILT, inorganic-L, trace shell fragments, sandy, medium gray (ML)				
-52.1	6.8		CLAY, lean, SM-filled voids between 5.9 to 6.8 ft., medium gray (CL)				
			CLAY, fat, sandy, hard, soft in sandy void-fill, lt. gray, pale orange, lt. green (CH)	NS			
-58.0	12.7		SAND, silty, little shell fragments between 13.3 to 15.6-ft. depths, pale orange, lt. gray, medium gray (SM)				
			At El. -61.9 Ft., fine- to medium-grained sand-sized to base of boring				
-64.6	19.3						
NOTES: 1. Soils are field visually classified in accordance with the Unified Soils Classification System. 2. NS = Sample not submitted for laboratory analysis from this interval. 3. Seafloor elevation determined from 10/16/2014 USACE survey.							



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WORK ORDER: 848e

REQUISITION: W33SJC32900192



# Boring Designation BI-PBS-384-13

DRILLING LOG		DIVISION South Atlantic		INSTALLATION Mobile District		SHEET 1 OF 1 SHEETS	
1. PROJECT MsCIP Barrier Island Restoration Petit Bois Pass-OCS East				9. SIZE AND TYPE OF BIT N/A			
2. BORING DESIGNATION BI-PBS-384-13		LOCATION COORDINATES E = 1,133,493 N = 239,180		10. COORDINATE SYSTEM/DATUM State Plane, MSE (U.S. Ft.)		HORIZONTAL NAD83	
3. DRILLING AGENCY Corps of Engineers - CESAM		CONTRACTOR FILE NO.		11. MANUFACTURER'S DESIGNATION OF DRILL Vibracore		<input type="checkbox"/> AUTO HAMMER <input type="checkbox"/> MANUAL HAMMER	
4. NAME OF DRILLER Construction Solutions International, Inc.				12. TOTAL SAMPLES 4		UNDISTURBED (UD) 0	
5. DIRECTION OF BORING <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED				13. TOTAL NUMBER CORE BOXES		14. WATER DEPTH 56.3 Ft.	
6. THICKNESS OF OVERBURDEN N/A				15. DATE BORING 02-22-14		STARTED 02-22-14	
7. DEPTH DRILLED INTO ROCK N/A				16. ELEVATION TOP OF BORING -53.6 Ft.		COMPLETED 02-22-14	
8. TOTAL DEPTH OF BORING 17.5 Ft.				17. TOTAL RECOVERY FOR BORING 100%			
				18. SIGNATURE AND TITLE OF INSPECTOR Tom Powers, Geologist			
ELEV.	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS	SAMPLE	LABORATORY RESULTS		
-53.6	0.0						
-55.9	2.3		SAND, silty, mostly fine-grained sand-sized quartz, trace CL at 0.8 ft. and at 1.9 ft. High fines content below 1.0 ft., medium gray (SM)	A	Classification: SM Color: 2.5Y 5/1-gray D50: 0.279 mm % Fines: 19.7		
-56.5	2.9		CLAY, lean, firm, subhorizontal sand-filled voids, medium gray (CL)	NS			
			SAND, silty, mostly fine-grained sand-sized quartz, slightly plastic to 3.2 ft. depth, medium gray (SM)	B	Classification: SP-SM Color: 2.5Y 5/1-gray D50: 0.251 mm % Fines: 11.7		
				C	Classification: SP-SM Color: 2.5Y 6/1-gray D50: 0.231 mm % Fines: 8.9		
-67.3	13.7						
-71.1	17.5		SAND, poorly-graded with silt, mostly fine to medium-grained sand-sized quartz, fewer fines below 15.2 ft., trace wood from 14.0 to 14.2 ft., trace CL from 15.2 to 15.3 ft., lt. gray (SP-SM)	D	Classification: SP Color: 2.5Y 7/1-light gray D50: 0.222 mm % Fines: 3.9		
			NOTES: 1. Soils are field visually classified in accordance with the Unified Soils Classification System. 2. NS = Sample not submitted for laboratory analysis from this interval. 3. Seafloor elevation determined from USACE hydrographic survey completed April 2014.				



REQUISITION: W33SJG32900192



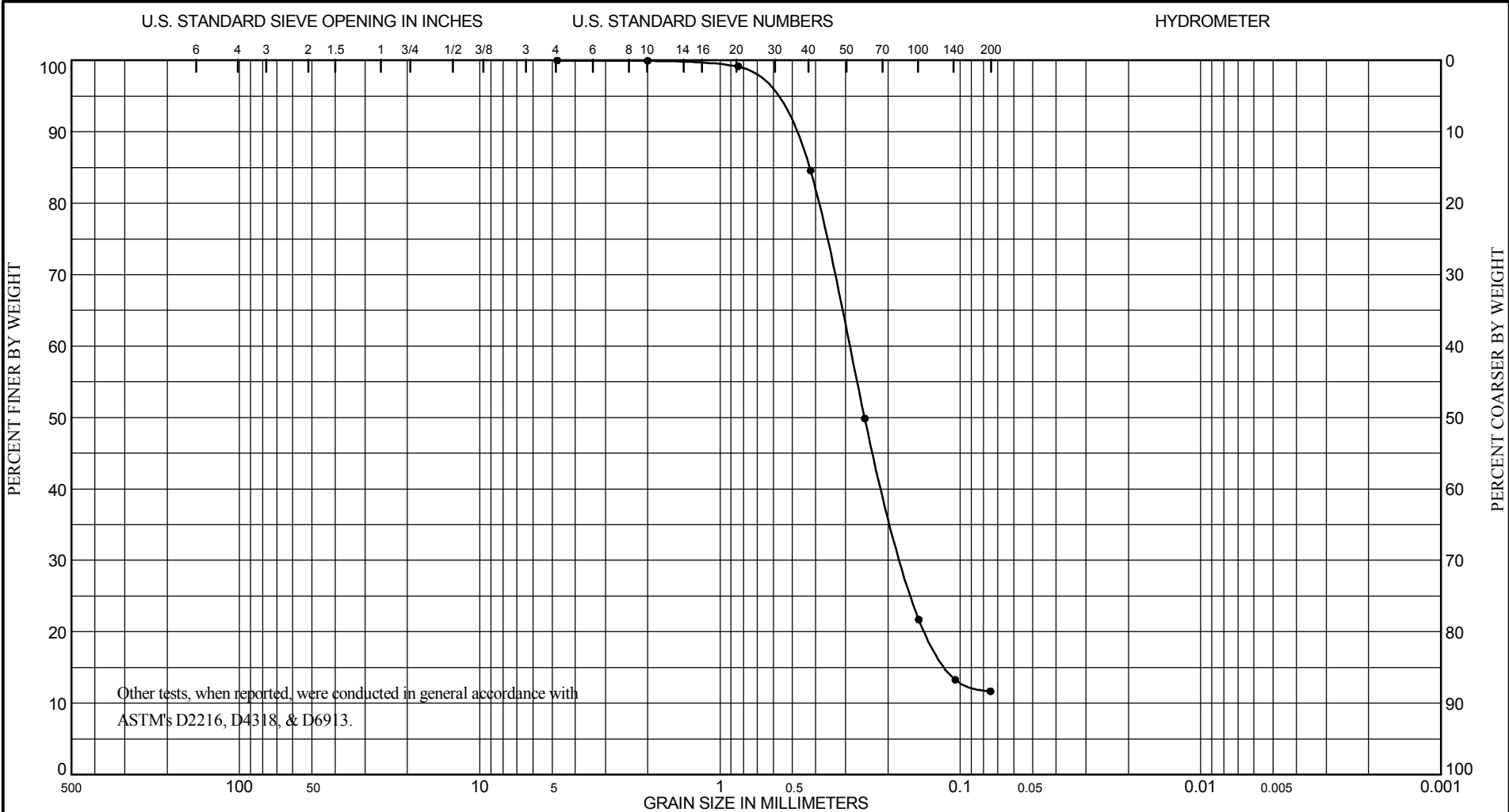
PERCENT COARSER BY WEIGHT

Sample No.	Depth (ft)	ASTM D2487 Classification	Nat w%	LL	PL	PI	Project
A	0.0 to 2.3	Very Dark Gray, Silty Sand (SM), with a trace of gravel size shell.					MsCIP Barrier Island Restoration
							Vibracore Sampling Pascagoula, MS
							Lab No. K5/4863
							Hole No. BI-PBS-384-13
<b>GRADATION CURVES</b>							Date 4/23/14



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WORK ORDER: 848e  
REQUISITION: W33SJG32900192



Sample No.	Depth (ft)	ASTM D2487	Classification	Nat w%	LL	PL	PI	Project	MsCIP Barrier Island Restoration
B	2.9 to 8.0		Dark Greenish Gray, Poorly Graded Silty Sand (SP-SM).					Vibracore Sampling	Pascagoula, MS
								Lab No.	K5/4864
								Hole No.	BI-PBS-384-13
								Date	4/23/14

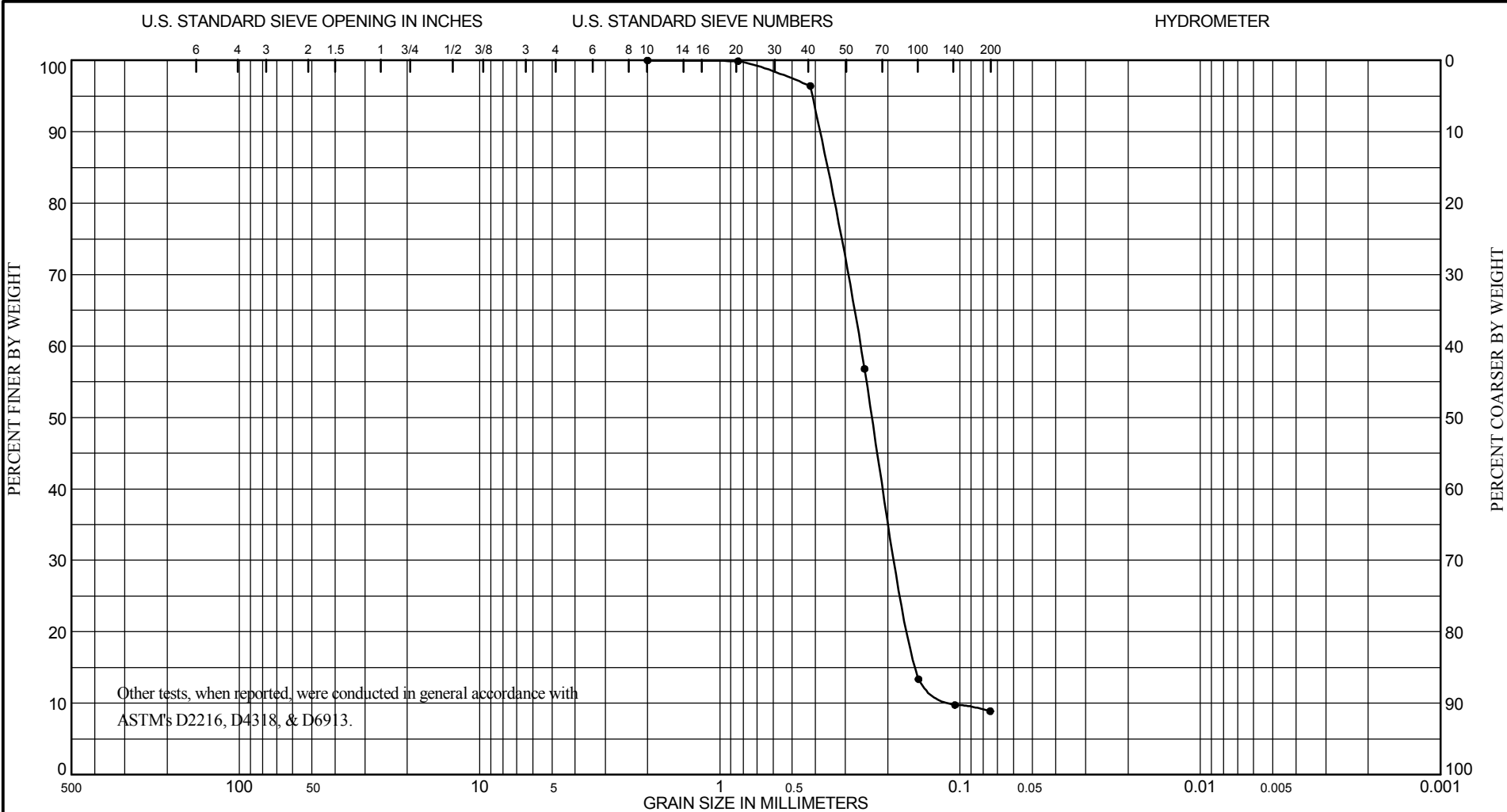
GRADATION CURVES

K-1135



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WORK ORDER: 848e  
REQUISITION: W33SJG32900192



COBBLES		GRAVEL		SAND			SILT OR CLAY			
		COARSE	FINE	COARSE	MEDIUM	FINE				
Sample No.	Depth (ft)	ASTM D2487 Classification			Nat w%	LL	PL	PI	Project	MsCIP Barrier Island Restoration
C	8.0 to 13.7	Greenish Gray, Poorly Graded Silty Sand (SP-SM).							Vibracore Sampling Pascagoula, MS	
									Lab No.	K5/4865
									Hole No.	BI-PBS-384-13
GRADATION CURVES									Date	4/23/14

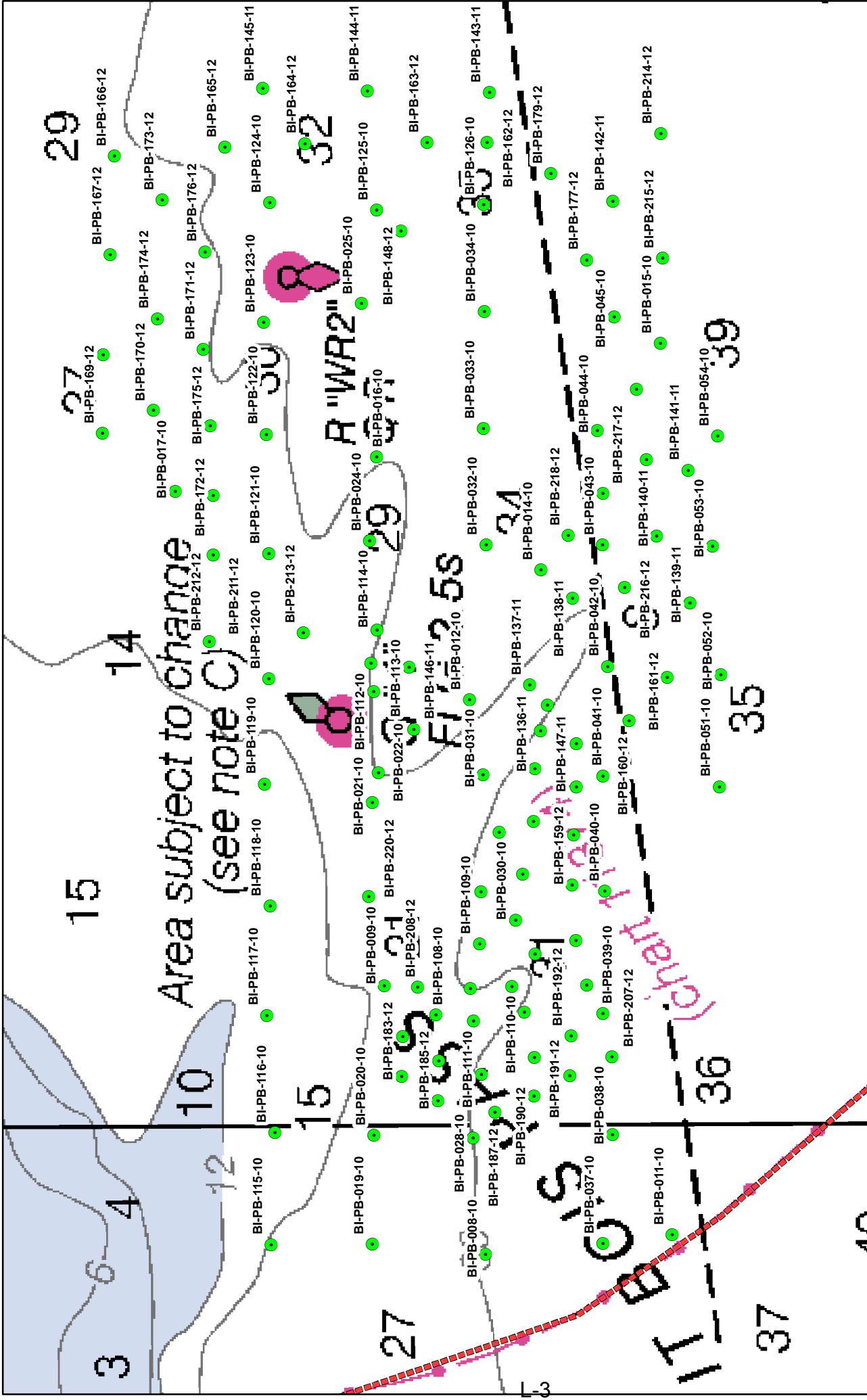


## **Appendix L**

### **Petit Bois Pass-Alabama Vibracores and Lab Results**



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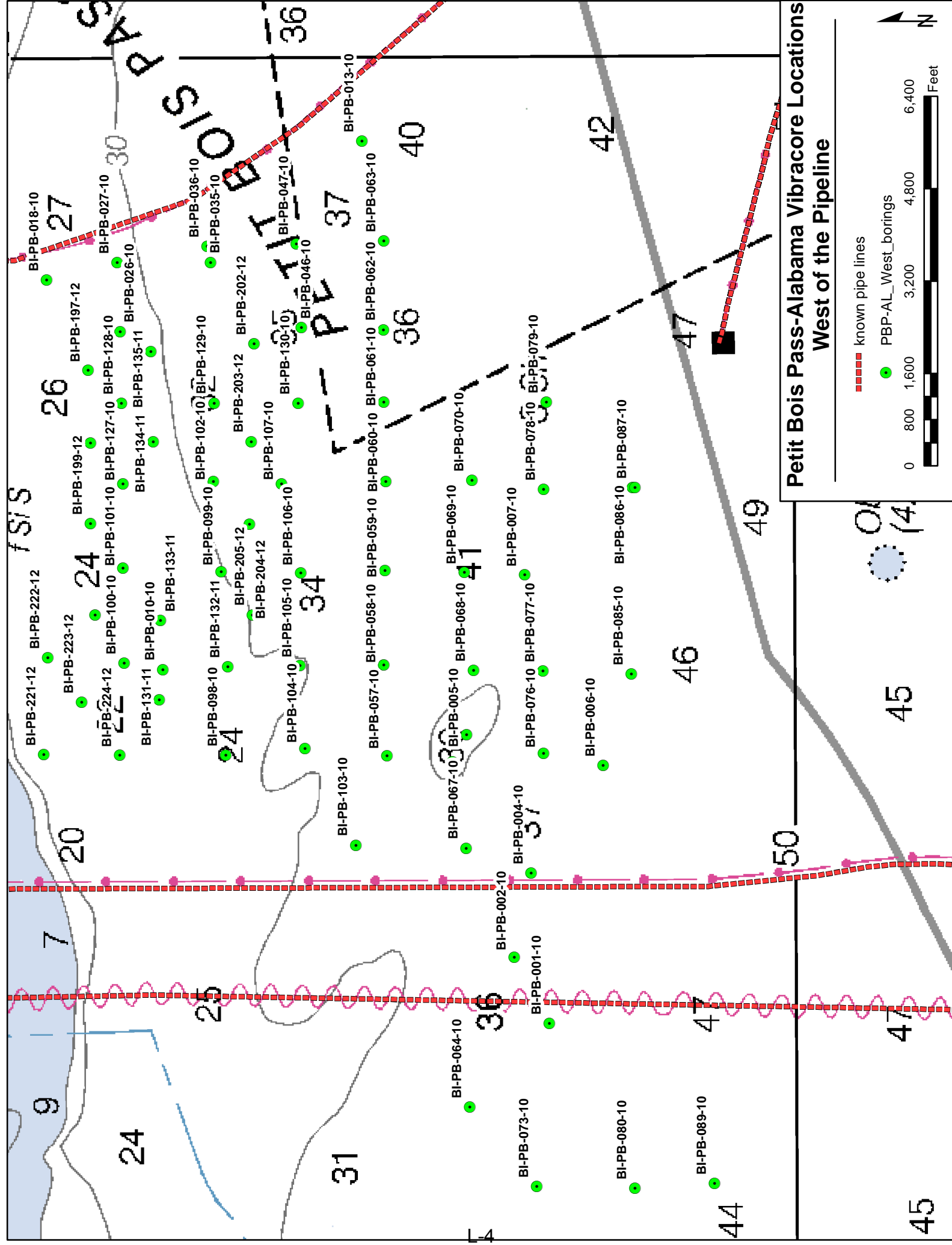


Petit Bois Pass-Alabama Vibracore Locations  
East of the Pipeline



40 42 39 35 32 29 30 31 33 34 35 36 37 38 39 40 41 42 43 44 45 46 47 48 49 50 51 52 53 54 55 56 57 58 59 60 61 62 63 64 65 66 67 68 69 70 71 72 73 74 75 76 77 78 79 80 81 82 83 84 85 86 87 88 89 90 91 92 93 94 95 96 97 98 99 100

THREE NAUTICAL MILE LINE (see note C)



Petit Bois Pass-Alabama Vibracore Locations  
West of the Pipeline

known pipe lines

PBP-AL\_West\_borings

0 800 1,600 3,200 4,800 6,400 Feet

N

Vibracore / Sample ID	Investigation Area	Sample Event	Date of Sample	Time_CST	Latitude	Longitude	Northing_Y	Easting_X	Sample Method	Water Depth (feet)	Boring Depth (feet below seafloor surface )	Sample Depth (Feet below seafloor surface)	Sample Thickness (feet)	Field USCS	Lab USCS	Angularity	Wet Munsell Color	Wet Munsell Color Code	Wet Munsell Value	Dry Munsell Color	Dry Munsell Color Code	Dry Munsell Value	CaCO3	D50 (mm)	Graphic Mean (mm)	% Fines	Cu (D60/D10)	Cc (D30)*2 / (D10*D60)
BI-PB-001-10	PETIT BOIS PASS- ALABAMA WEST	2010	6/25/2010	9:20 AM	30.17841	-88.38620	246988.62530	1125532.25600	20-ft Vibracore	44.0	15.7																	
BI-PB-001-10A	PETIT BOIS PASS- ALABAMA WEST	2010	6/25/2010	9:20 AM	30.17841	-88.38620	246988.62530	1125532.25600	20-ft Vibracore	44.0	15.7	6.0 - 10.3	4.3	SM	SM	SUBANGULAR TO ROUNDED	DK GRAYISH BROWN	2.5Y 4/2	4	LT BROWNISH GRAY	2.5Y 6/2	6	NO	0.25	0.25	13.3	#VALUE!	#VALUE!
BI-PB-001-10B	PETIT BOIS PASS- ALABAMA WEST	2010	6/25/2010	9:20 AM	30.17841	-88.38620	246988.62530	1125532.25600	20-ft Vibracore	44.0	15.7	10.3 - 15.7	5.4	SP	SP	SUBANGULAR TO ROUNDED	GRAY	2.5Y 6/1	6	LT GRAY	2.5Y 7/1	7	NO	0.26	0.27	2.9	1.7	1.0
BI-PB-002-10	PETIT BOIS PASS- ALABAMA WEST	2010	6/25/2010	10:10 AM	30.18007	-88.38155	247598.13770	1126999.15400	20-ft Vibracore	43.0	15.5																	
BI-PB-002-10A	PETIT BOIS PASS- ALABAMA WEST	2010	6/25/2010	10:10 AM	30.18007	-88.38155	247598.13770	1126999.15400	20-ft Vibracore	43.0	15.5	7.6 - 13.3	5.7	SM	SM	SUBANGULAR TO ROUNDED	DK GRAYISH BROWN	2.5Y 4/2	4	GRAYISH BROWN	2.5Y 6/2	6	NO	0.24	0.24	14.6	#VALUE!	#VALUE!
BI-PB-003-10	PETIT BOIS PASS- ALABAMA WEST	2010	6/25/2010	11:20 AM	30.18298	-88.37183	248668.77000	1130066.11200	20-ft Vibracore	33.0	18.4																	
BI-PB-003-10A	PETIT BOIS PASS- ALABAMA WEST	2010	6/25/2010	11:20 AM	30.18298	-88.37183	248668.77000	1130066.11200	20-ft Vibracore	33.0	18.4	0.0 - 3.5	3.5	SP	SP	SUBANGULAR TO ROUNDED	GRAY	2.5Y 5/1	5	LT GRAY	2.5Y 7/1	7	NO	0.25	0.29	2.3	1.8	0.9
BI-PB-003-10B	PETIT BOIS PASS- ALABAMA WEST	2010	6/25/2010	11:20 AM	30.18298	-88.37183	248668.77000	1130066.11200	20-ft Vibracore	33.0	18.4	3.0 - 6.7	3.7	SM	SC	SUBANGULAR TO ROUNDED	VERY DK GRAYISH BROWN	2.5Y 3/2	3	GRAYISH BROWN	2.5Y 5/2	5	NO	0.21	#VALUE!	16.8	#VALUE!	#VALUE!
BI-PB-004-10	PETIT BOIS PASS- ALABAMA WEST	2010	6/25/2010	10:40 AM	30.17924	-88.37780	247300.99500	1128185.25300	20-ft Vibracore	43.0	20.0																	
BI-PB-004-10A	PETIT BOIS PASS- ALABAMA WEST	2010	6/25/2010	10:40 AM	30.17924	-88.37780	247300.99500	1128185.25300	20-ft Vibracore	43.0	20.0	8.0 - 12.0	4.0	SM	SM	SUBANGULAR TO ROUNDED	DK GRAYISH BROWN	2.5Y 4/2	4	GRAYISH BROWN	2.5Y 5/2	5	NO	0.25	#VALUE!	16.2	#VALUE!	#VALUE!
BI-PB-004-10B	PETIT BOIS PASS- ALABAMA WEST	2010	6/25/2010	10:40 AM	30.17924	-88.37780	247300.99500	1128185.25300	20-ft Vibracore	43.0	20.0	12.0 - 17.7	5.7	SP	SM	SUBANGULAR TO ROUNDED	DK GRAY	2.5Y 4/1	4	LT BROWNISH GRAY	2.5Y 6/2	6	NO	0.19	0.19	12.1	#VALUE!	#VALUE!
BI-PB-004-10C	PETIT BOIS PASS- ALABAMA WEST	2010	6/25/2010	10:40 AM	30.17924	-88.37780	247300.99500	1128185.25300	20-ft Vibracore	43.0	20.0	17.7 - 20.0	2.3	SM	SM	SUBANGULAR TO ROUNDED	DK GRAY	2.5Y 4/1	4	GRAYISH BROWN	2.5Y 5/2	5	NO	0.19	#VALUE!	19.1	#VALUE!	#VALUE!
BI-PB-005-10	PETIT BOIS PASS- ALABAMA WEST	2010	6/26/2010	9:15 AM	30.18230	-88.37035	248423.36020	1130534.74100	20-ft Vibracore	31.0	19.5																	
BI-PB-005-10A	PETIT BOIS PASS- ALABAMA WEST	2010	6/26/2010	9:15 AM	30.18230	-88.37035	248423.36020	1130534.74100	20-ft Vibracore	31.0	19.5	0.0 - 6.6	6.6	SP	SP	SUBANGULAR TO ROUNDED	GRAY	2.5Y 5/1	5	LT GRAY	2.5Y 7/2	7	NO	0.28	0.32	1.9	1.9	0.9
BI-PB-006-10	PETIT BOIS PASS- ALABAMA WEST	2010	6/26/2010	8:45 AM	30.17579	-88.37206	246053.57340	1130004.02300	20-ft Vibracore	45.0	18.6																	
BI-PB-006-10A	PETIT BOIS PASS- ALABAMA WEST	2010	6/26/2010	8:45 AM	30.17579	-88.37206	246053.57340	1130004.02300	20-ft Vibracore	45.0	18.6	4.2 - 8.2	4.0	SM	SM	SUBANGULAR TO ROUNDED	DK GRAYISH BROWN	2.5Y 4/2	4	GRAYISH BROWN	2.5Y 5/2	5	NO	0.24	#VALUE!	16.1	#VALUE!	#VALUE!
BI-PB-006-10B	PETIT BOIS PASS- ALABAMA WEST	2010	6/26/2010	8:45 AM	30.17579	-88.37206	246053.57340	1130004.02300	20-ft Vibracore	45.0	18.6	8.2 - 13.2	5.0	SP	SP	SUBANGULAR TO ROUNDED	GRAY	2.5Y 6/1	6	LT GRAY	2.5Y 7/1	7	NO	0.28	0.28	3.4	1.8	1.0
BI-PB-006-10C	PETIT BOIS PASS- ALABAMA WEST	2010	6/26/2010	8:45 AM	30.17579	-88.37206	246053.57340	1130004.02300	20-ft Vibracore	45.0	18.6	13.2 - 18.6	5.4	SP	SP-SM	SUBANGULAR TO ROUNDED	GRAY	2.5Y 6/1	6	LT GRAY	2.5Y 7/1	7	NO	0.29	0.29	5.0	1.9	1.1
BI-PB-007-10	PETIT BOIS PASS- ALABAMA WEST	2010	6/26/2010	12:35 PM	30.17950	-88.36157	247416.41560	1133313.12600	20-ft Vibracore	36.0	19.3																	
BI-PB-007-10A	PETIT BOIS PASS- ALABAMA WEST	2010	6/26/2010	12:35 PM	30.17950	-88.36157	247416.41560	1133313.12600	20-ft Vibracore	36.0	19.3	0.0 - 3.5	3.5	SP	SP	SUBANGULAR TO ROUNDED	GRAYISH BROWN	2.5Y 5/2	5	LT GRAY	2.5Y 7/1	7	NO	0.28	0.30	1.6	1.8	1.0
BI-PB-007-10B	PETIT BOIS PASS- ALABAMA WEST	2010	6/26/2010	12:35 PM	30.17950	-88.36157	247416.41560	1133313.12600	20-ft Vibracore	36.0	19.3	3.5 - 7.5	4.0	SP	SP	SUBANGULAR TO ROUNDED	GRAYISH BROWN	2.5Y 5/2	5	LT GRAY	2.5Y 7/1	7	NO	0.32	0.35	1.5	2.0	1.0
BI-PB-008-10	PETIT BOIS PASS- ALABAMA EAST	2010	6/26/2010	10:45 AM	30.19848	-88.33844	254350.19690	1140591.62100	20-ft Vibracore	33.0	16.9																	
BI-PB-008-10A	PETIT BOIS PASS- ALABAMA EAST	2010	6/26/2010	10:45 AM	30.19848	-88.33844	254350.19690	1140591.62100	20-ft Vibracore	33.0	16.9	0.0 - 6.0	6.0	SP	SP	SUBANGULAR TO ROUNDED	LT GRAY	2.5Y 7/1	7	WHITE	2.5Y 8/1	8	NO	0.38	0.41	1.7	1.5	0.9
BI-PB-008-10B	PETIT BOIS PASS- ALABAMA EAST	2010	6/26/2010	10:45 AM	30.19848	-88.33844	254350.19690	1140591.62100	20-ft Vibracore	33.0	16.9	6.0 - 12.0	6.0	SP	SP	SUBANGULAR TO ROUNDED	LT GRAY	2.5Y 7/1	7	WHITE	2.5Y 8/1	8	NO	0.40	0.43	1.7	1.6	0.9
BI-PB-008-10C	PETIT BOIS PASS- ALABAMA EAST	2010	6/26/2010	10:45 AM	30.19848	-88.33844	254350.19690	1140591.62100	20-ft Vibracore	33.0	16.9	12.0 - 16.9	4.9	SP	SP	SUBANGULAR TO ROUNDED	GRAYISH BROWN	2.5Y 5/2	5	LT BROWNISH GRAY	2.5Y 6/2	6	NO	0.37	0.40	4.3	2.4	0.9
BI-PB-009-10	PETIT BOIS PASS- ALABAMA EAST	2010	6/26/2010	11:00 AM	30.20201	-88.32751	255649.18460	1144038.85700	20-ft Vibracore	23.0	15.2																	
BI-PB-009-10A	PETIT BOIS PASS- ALABAMA EAST	2010	6/26/2010	11:00 AM	30.20201	-88.32751	255649.18460	1144038.85700	20-ft Vibracore	23.0	15.2	0.0 - 6.7	6.7	SP	SP	SUBANGULAR TO ROUNDED	GRAYISH BROWN	2.5Y 5/2	5	LT GRAY	2.5Y 7/2	7	NO	0.29	0.29	3.0	2.1	1.2
BI-PB-009-10B	PETIT BOIS PASS- ALABAMA EAST	2010	6/26/2010	11:00 AM	30.20201	-88.32751	255649.18460	1144038.85700	20-ft Vibracore	23.0	15.2	7.6 -12.6	5.0	SP	SP	SUBANGULAR TO ROUNDED	LT BROWNISH GRAY	2.5Y 6/2	6	LT GRAY	2.5Y 7/2	7	NO	0.34	0.36	2.5	1.7	1.0
BI-PB-009-10C	PETIT BOIS PASS- ALABAMA EAST	2010	6/26/2010	11:00 AM	30.20201	-88.32751	255649.18460	1144038.85700	20-ft Vibracore	23.0	15.2	12.6 - 15.2	2.6	SP	SP	SUBANGULAR TO ROUNDED	GRAYISH BROWN	2.5Y 5/2	5	LT GRAY	2.5Y 7/2	7	NO	0.35	0.38	2.4	1.8	1.1
BI-PB-010-10	PETIT BOIS PASS- ALABAMA WEST	2010	6/26/2010	9:40 AM	30.19676	-88.36670	253686.97380	1131666.47300	20-ft Vibracore	27.0	14.6																	
BI-PB-010-10A	PETIT BOIS PASS- ALABAMA WEST	2010	6/26/2010	9:40 AM	30.19676	-88.36670	253686.97380	1131666.47300	20-ft Vibracore	27.0	14.6	0.0 - 3.5	3.5	SP	SP	SUBANGULAR TO ROUNDED	GRAYISH BROWN	2.5Y 5/2	5	LT BROWNISH GRAY	2.5Y 6/2	6	NO	0.28	0.29	4.9	2.2	1.1
BI-PB-010-10B	PETIT BOIS PASS- ALABAMA WEST	2010	6/26/2010	9:40 AM	30.19676	-88.36670	253686.97380	1131666.47300	20-ft Vibracore	27.0	14.6	3.5 - 7.0	3.5	SP	SP-SM	SUBANGULAR TO ROUNDED	GRAYISH BROWN	2.5Y 5/2	5	LT BROWNISH GRAY	2.5Y 6/2	6	NO	0.30	0.30	6.3	1.9	1.1
BI-PB-011-10	PETIT BOIS PASS- ALABAMA EAST	2010	6/26/2010	10:30 AM	30.19180	-88.33768	251921.80640	1140842.28600	20-ft Vibracore	37.0	18.3	NO SAMPLE TAKEN		CL	NO SAMPLE TESTED													
BI-PB-012-10	PETIT BOIS PASS- ALABAMA EAST	2010	6/25/2010	2:10 PM	30.19896	-88.31590	254556.40970	1147711.52800	20-ft Vibracore	35.0	18.4																	
BI-PB-012-10A	PETIT BOIS PASS- ALABAMA EAST	2010	6/25/2010	2:10 PM	30.19896	-88.31590	254556.40970	1147711.52800	20-ft Vibracore	35.0	18.4	0.0 - 6.0	6.0	SP	SP-SM	SUBANGULAR TO ROUNDED	LT GRAY	2.5Y 7/2	7	LT GRAY	2.5Y 7/2	7	NO	0.33	0.34	6.3	2.1	1.3
BI-PB-012-10B	PETIT BOIS PASS- ALABAMA EAST	2010	6/25/2010	2:10 PM	30.19896	-88.31590	254556.40970	1147711.52800	20-ft Vibracore	35.0	18.4	6.0 - 12.0	6.0	SP	SP	SUBANGULAR TO ROUNDED	LT GRAY	2.5Y 7/2	7	WHITE	2.5Y 8/1	8	NO	0.33	0.34	4.3	1.8	1.1
BI-PB-012-10C	PETIT BOIS PASS- ALABAMA EAST	2010	6/25/2010	2:10 PM	30.19896	-88.31590	254556.40970	1147711.52800	20-ft Vibracore	35.0	18.4	12.0 - 18.3	6.3	SP	SP	SUBANGULAR TO ROUNDED	WHITE	2.5Y 8/1	8	WHITE	2.5Y 8/1	8	NO	0.33	0.33	2.0	1.5	1.0
BI-PB-013-10	PETIT BOIS PASS- ALABAMA WEST	2010	6/26/2010	10:10 AM	30.18716	-88.33778	250234.15910	1140818.03200	20-ft Vibracore	40.0	18.2	NO SAMPLE TAKEN		CL	NO SAMPLE TESTED													
BI-PB-014-10	PETIT BOIS PASS- ALABAMA EAST	2010	6/26/2010	12:30 PM	30.19641	-88.31064	253636.59050	1149377.48400	20-ft Vibracore	38.0	17.4																	
BI-PB-014-10A	PETIT BOIS PASS- ALABAMA EAST	2010	6/26/2010	12:30 PM	30.19641	-88.31064	253636.59050	1149377.48400	20-ft Vibracore	38.0	17.4	0.0 - 6.0	6.0	SP	SP	SUBANGULAR TO ROUNDED	LT GRAY	2.5Y 7/2	7	LT GRAY	2.5Y 7/2	7	NO	0.35	0.37	3.5	1.8	1.1
BI-PB-014-10B	PETIT BOIS PASS- ALABAMA EAST	2010	6/26/2010	12:30 PM	30.19641	-88.31064	253636.59050	1149377.48400	20-ft Vibracore	38.0	17.4	6.0 - 12.0	6.0	SP	SP	SUBANGULAR TO ROUNDED	LT GRAY	2.5Y 7/1	7	WHITE	2.5Y 8/1	8	NO	0.37	0.40	2.7	1.7	1.0
BI-PB-014-10C	PETIT BOIS PASS- ALABAMA EAST	2010	6/26/2010	12:30 PM	30.19641	-88.31064	253636.59050	1149377.48400	20-ft Vibracore	38.0	17.4	12.0 - 17.4	5.4	SP	SP	SUBANGULAR TO ROUNDED	GRAY	10YR 6/1	6	LT GRAY	2.5Y 7/1	7	NO	0.35	0.38	4.6	1.9	1.1
BI-PB-015-10	PETIT BOIS PASS- ALABAMA EAST	20																										

Vibracore / Sample ID	Investigation Area	Sample Event	Date of Sample	Time_CST	Latitude	Longitude	Northing_Y	Easting_X	Sample Method	Water Depth (feet)	Boring Depth (feet below seafloor surface )	Sample Depth (Feet below seafloor surface)	Sample Thickness (feet)	Field USCS	Lab USCS	Angularity	Wet Munsell Color	Wet Munsell Color Code	Wet Munsell Value	Dry Munsell Color	Dry Munsell Color Code	Dry Munsell Value	CaCO3	D50 (mm)	Graphic Mean (mm)	% Fines	Cu (D60/D10)	Cc (D30)^2 / (D10*D60)
BI-PB-017-10	PETIT BOIS PASS- ALABAMA EAST	2010	6/26/2010	11:45 AM	30.20932	-88.30739	258336.54230	1150382.54500	20-ft Vibracore	28.0	20.0	NO SAMPLE TAKEN		CH	NO SAMPLE TESTED													
BI-PB-018-10	PETIT BOIS PASS- ALABAMA WEST	2010	7/9/2010	3:20 PM	30.20221	-88.34531	255697.38850	1138415.48200	20-ft Vibracore	27.0	15.8																	
BI-PB-018-10A	PETIT BOIS PASS- ALABAMA WEST	2010	7/9/2010	3:20 PM	30.20221	-88.34531	255697.38850	1138415.48200	20-ft Vibracore	27.0	15.8	0.0 - 3.3	3.3	SP	SP	SUBANGULAR TO ROUNDED	YELLOWISH BROWN	10YR 5/3	5	LT BROWNISH GRAY	10YR 6/2	6	NO	0.31	0.32	3.4	1.9	1.1
BI-PB-018-10B	PETIT BOIS PASS- ALABAMA WEST	2010	7/9/2010	3:20 PM	30.20221	-88.34531	255697.38850	1138415.48200	20-ft Vibracore	27.0	15.8	3.3 - 6.6	3.3	SP	SP	SUBANGULAR TO ROUNDED	YELLOWISH BROWN	10YR 5/3	5	LT BROWNISH GRAY	10YR 6/2	6	NO	0.30	0.30	4.1	1.6	1.1
BI-PB-019-10	PETIT BOIS PASS- ALABAMA EAST	2010	7/10/2010	9:05 AM	30.20248	-88.33801	255805.53960	1140721.13800	20-ft Vibracore	30.0	18.0																	
BI-PB-019-10A	PETIT BOIS PASS- ALABAMA EAST	2010	7/10/2010	9:05 AM	30.20248	-88.33801	255805.53960	1140721.13800	20-ft Vibracore	30.0	18.0	0.0 - 4.3	4.3	SP	SP	SUBANGULAR TO ROUNDED	LT GRAY	2.5Y 7/1	7	LT GRAY	2.5Y 7/2	7	NO	0.34	0.35	1.9	1.8	1.1
BI-PB-019-10B	PETIT BOIS PASS- ALABAMA EAST	2010	7/10/2010	9:05 AM	30.20248	-88.33801	255805.53960	1140721.13800	20-ft Vibracore	30.0	18.0	4.3 - 8.6	4.3	SP	SP	SUBANGULAR TO ROUNDED	LT GRAY	2.5Y 7/1	7	WHITE	2.5Y 8/1	8	NO	0.33	0.35	2.0	1.7	1.1
BI-PB-020-10	PETIT BOIS PASS- ALABAMA EAST	2010	7/10/2010	9:45 AM	30.20240	-88.33336	255782.86300	1142190.20500	20-ft Vibracore	27.0	17.0																	
BI-PB-020-10A	PETIT BOIS PASS- ALABAMA EAST	2010	7/10/2010	9:45 AM	30.20240	-88.33336	255782.86300	1142190.20500	20-ft Vibracore	27.0	17.0	0.0 - 4.4	4.4	SP	SP	SUBANGULAR TO ROUNDED	GRAY	2.5Y 6/1	6	LT GRAY	2.5Y 7/2	7	NO	0.32	0.33	2.3	1.7	1.0
BI-PB-020-10B	PETIT BOIS PASS- ALABAMA EAST	2010	7/10/2010	9:45 AM	30.20240	-88.33336	255782.86300	1142190.20500	20-ft Vibracore	27.0	17.0	4.0 - 8.0	4.0	SP	SP	SUBANGULAR TO ROUNDED	LT GRAY	2.5Y 7/1	7	LT GRAY	2.5Y 7/2	7	NO	0.33	0.35	1.9	1.7	1.0
BI-PB-020-10C	PETIT BOIS PASS- ALABAMA EAST	2010	7/10/2010	9:45 AM	30.20240	-88.33336	255782.86300	1142190.20500	20-ft Vibracore	27.0	17.0	8.0 - 12.0	4.0	SP	SP	SUBANGULAR TO ROUNDED	LT GRAY	5Y 7/1	7	LT GRAY	2.5Y 7/2	7	NO	0.32	0.33	2.0	1.7	1.0
BI-PB-020-10D	PETIT BOIS PASS- ALABAMA EAST	2010	7/10/2010	9:45 AM	30.20240	-88.33336	255782.86300	1142190.20500	20-ft Vibracore	27.0	17.0	12.0 - 17.0	5.0	SP	SP	SUBANGULAR TO ROUNDED	GRAY	2.5Y 6/1	6	LT GRAY	2.5Y 7/1	7	NO	0.30	0.30	3.4	1.7	1.1
BI-PB-021-10	PETIT BOIS PASS- ALABAMA EAST	2010	7/10/2010	10:25 AM	30.20242	-88.32005	255808.84040	1146394.82000	20-ft Vibracore	33.0	18.5																	
BI-PB-021-10A	PETIT BOIS PASS- ALABAMA EAST	2010	7/10/2010	10:25 AM	30.20242	-88.32005	255808.84040	1146394.82000	20-ft Vibracore	33.0	18.5	0.0 - 4.0	4.0	SP	SP	SUBANGULAR TO ROUNDED	LT GRAY	2.5Y 7/1	7	LT GRAY	2.5Y 7/1	7	NO	0.34	0.37	1.7	1.7	1.1
BI-PB-021-10B	PETIT BOIS PASS- ALABAMA EAST	2010	7/10/2010	10:25 AM	30.20242	-88.32005	255808.84040	1146394.82000	20-ft Vibracore	33.0	18.5	4.0 - 8.0	4.0	SP	SP	SUBANGULAR TO ROUNDED	LT GRAY	2.5Y 7/1	7	LT GRAY	2.5Y 7/1	7	NO	0.33	0.36	1.9	1.6	1.0
BI-PB-021-10C	PETIT BOIS PASS- ALABAMA EAST	2010	7/10/2010	10:25 AM	30.20242	-88.32005	255808.84040	1146394.82000	20-ft Vibracore	33.0	18.5	8.0 - 11.4	3.4	SP	SP	SUBANGULAR TO ROUNDED	LT GRAY	2.5Y 7/1	7	LT GRAY	2.5Y 7/2	7	NO	0.33	0.35	2.9	1.9	1.2
BI-PB-021-10D	PETIT BOIS PASS- ALABAMA EAST	2010	7/10/2010	10:25 AM	30.20242	-88.32005	255808.84040	1146394.82000	20-ft Vibracore	33.0	18.5	11.4 - 14.5	3.1	SM	SP	SUBANGULAR TO ROUNDED	LT BROWNISH GRAY	2.5Y 6/2	6	LT GRAY	2.5Y 7/2	7	NO	0.32	0.33	6.3	2.0	1.3
BI-PB-021-10E	PETIT BOIS PASS- ALABAMA EAST	2010	7/10/2010	10:25 AM	30.20242	-88.32005	255808.84040	1146394.82000	20-ft Vibracore	33.0	18.5	14.5 - 18.5	4.0	SM	SP-SM	SUBANGULAR TO ROUNDED	LT GRAY	2.5Y 7/1	7	LT GRAY	2.5Y 7/2	7	NO	0.38	0.41	8.9	2.5	1.3
BI-PB-022-10	PETIT BOIS PASS- ALABAMA EAST	2010	7/10/2010	11:06 AM	30.20220	-88.31886	255730.52500	1146771.10400	20-ft Vibracore	33.0	18.6																	
BI-PB-022-10A	PETIT BOIS PASS- ALABAMA EAST	2010	7/10/2010	11:06 AM	30.20220	-88.31886	255730.52500	1146771.10400	20-ft Vibracore	33.0	18.6	0.0 - 5.3	5.3	SP	SP	SUBANGULAR TO ROUNDED	GRAY	2.5Y 6/1	6	LT GRAY	2.5Y 7/1	7	NO	0.34	0.37	2.6	1.8	1.0
BI-PB-022-10B	PETIT BOIS PASS- ALABAMA EAST	2010	7/10/2010	11:06 AM	30.20220	-88.31886	255730.52500	1146771.10400	20-ft Vibracore	33.0	18.6	5.3 - 10.6	5.3	SP	SP	SUBANGULAR TO ROUNDED	LT GR	2.5Y 7/1	7	LT GRAY	2.5Y 7/1	7	NO	0.36	0.39	2.3	1.8	1.0
BI-PB-022-10C	PETIT BOIS PASS- ALABAMA EAST	2010	7/10/2010	11:06 AM	30.20220	-88.31886	255730.52500	1146771.10400	20-ft Vibracore	33.0	18.6	10.6 - 13.6	3.0	SM	SP-SM	SUBANGULAR TO ROUNDED	LT GRAY	2.5Y 7/1	7	LT GRAY	2.5Y 7/2	7	NO	0.33	0.35	6.5	1.7	1.1
BI-PB-022-10D	PETIT BOIS PASS- ALABAMA EAST	2010	7/10/2010	11:06 AM	30.20220	-88.31886	255730.52500	1146771.10400	20-ft Vibracore	33.0	18.6	13.6 - 17.0	3.4	SM	SP-SM	SUBANGULAR TO ROUNDED	LT GRAY	2.5Y 7/1	7	LT GRAY	2.5Y 7/2	7	NO	0.39	0.42	10.1	#VALUE!	#VALUE!
BI-PB-022-10E	PETIT BOIS PASS- ALABAMA EAST	2010	7/10/2010	11:06 AM	30.20220	-88.31886	255730.52500	1146771.10400	20-ft Vibracore	33.0	18.6	17.0 - 18.6	1.6	SM	SP-SM	SUBANGULAR TO ROUNDED	LT GRAY	2.5Y 7/2	7	WHITE	2.5Y 8/1	8	NO	0.38	0.41	5.8	1.6	1.0
BI-PB-023-10	PETIT BOIS PASS- ALABAMA EAST	2010	7/10/2010	12:25 PM	30.20243	-88.31441	255820.55100	1148176.48800	20-ft Vibracore	32.0	17.8																	
BI-PB-023-10A	PETIT BOIS PASS- ALABAMA EAST	2010	7/10/2010	12:25 PM	30.20243	-88.31441	255820.55100	1148176.48800	20-ft Vibracore	32.0	17.8	0.0 - 3.2	3.2	SP-SM	SP-SM	SUBANGULAR TO ROUNDED	LT BROWNISH GRAY	2.5Y 6/2	6	LT GRAY	2.5Y 7/1	7	NO	0.35	0.36	6.1	2.3	1.3
BI-PB-023-10B	PETIT BOIS PASS- ALABAMA EAST	2010	7/10/2010	12:25 PM	30.20243	-88.31441	255820.55100	1148176.48800	20-ft Vibracore	32.0	17.8	3.2 - 6.4	3.2	SP-SM	SP-SM	SUBANGULAR TO ROUNDED	GRAY	2.5Y 6/1	6	LT GRAY	2.5Y 7/1	7	NO	0.36	0.39	5.9	1.9	1.1
BI-PB-024-10	PETIT BOIS PASS- ALABAMA EAST	2010	7/10/2010	1:08 PM	30.20246	-88.30944	255838.64940	1149746.46900	20-ft Vibracore	31.0	18.2																	
BI-PB-024-10A	PETIT BOIS PASS- ALABAMA EAST	2010	7/10/2010	1:08 PM	30.20246	-88.30944	255838.64940	1149746.46900	20-ft Vibracore	31.0	18.2	0.0 - 3.6	3.6	SP	SP	SUBANGULAR TO ROUNDED	LT BROWNISH GRAY	2.5Y 6/2	6	LT GRAY	2.5Y 7/2	7	NO	0.34	0.36	2.0	1.4	1.0
BI-PB-024-10B	PETIT BOIS PASS- ALABAMA EAST	2010	7/10/2010	1:08 PM	30.20246	-88.30944	255838.64940	1149746.46900	20-ft Vibracore	31.0	18.2	3.6 - 8.6	5.0	SP-SM	SP-SM	SUBANGULAR TO ROUNDED	GRAY	2.5Y 6/1	6	LT GRAY	2.5Y 7/2	7	NO	0.33	0.35	6.4	1.9	1.3
BI-PB-024-10C	PETIT BOIS PASS- ALABAMA EAST	2010	7/10/2010	1:08 PM	30.20246	-88.30944	255838.64940	1149746.46900	20-ft Vibracore	31.0	18.2	8.6 - 13.6	5.0	SP-SM	SP-SM	SUBANGULAR TO ROUNDED	LT GRAY	2.5Y 7/2	7	LT GRAY	2.5Y 7/2	7	NO	0.34	0.37	5.3	1.5	1.0
BI-PB-024-10D	PETIT BOIS PASS- ALABAMA EAST	2010	7/10/2010	1:08 PM	30.20246	-88.30944	255838.64940	1149746.46900	20-ft Vibracore	31.0	18.2	13.6 - 18.2	4.6	SP-SM	SP	SUBANGULAR TO ROUNDED	LT GRAY	2.5Y 7/1	7	LT GRAY	2.5Y 7/2	7	NO	0.35	0.38	4.8	1.5	1.0
BI-PB-025-10	PETIT BOIS PASS- ALABAMA EAST	2010	7/10/2010	1:45 PM	30.20272	-88.29980	255947.34560	1152791.31900	20-ft Vibracore	35.0	15.8																	
BI-PB-025-10A	PETIT BOIS PASS- ALABAMA EAST	2010	7/10/2010	1:45 PM	30.20272	-88.29980	255947.34560	1152791.31900	20-ft Vibracore	35.0	15.8	0.0 - 0.3	0.3	SP	SP-SM	SUBANGULAR TO ROUNDED	LT BROWNISH GRAY	2.5Y 6/2	6	LT GRAY	2.5Y 7/2	7	NO	0.35	0.38	7.2	3.8	2.0
BI-PB-025-10B	PETIT BOIS PASS- ALABAMA EAST	2010	7/10/2010	1:45 PM	30.20272	-88.29980	255947.34560	1152791.31900	20-ft Vibracore	35.0	15.8	0.3 - 4.3	4.0	SM	SM	SUBANGULAR TO ROUNDED	GRAY	2.5Y 5/1	5	GRAYISH BROWN	2.5Y 5/2	5	NO	0.32	0.29	13.6	#VALUE!	#VALUE!
BI-PB-025-10C	PETIT BOIS PASS- ALABAMA EAST	2010	7/10/2010	1:45 PM	30.20272	-88.29980	255947.34560	1152791.31900	20-ft Vibracore	35.0	15.8	4.3 - 8.3	4.0	SM	SP-SM	SUBANGULAR TO ROUNDED	GRAY	2.5Y 5/1	5	LT BROWNISH GRAY	2.5Y 6/2	6	NO	0.33	0.33	6.1	1.4	1.0
BI-PB-025-10D	PETIT BOIS PASS- ALABAMA EAST	2010	7/10/2010	1:45 PM	30.20272	-88.29980	255947.34560	1152791.31900	20-ft Vibracore	35.0	15.8	8.3 - 12.3	4.0	SM	SM	SUBANGULAR TO ROUNDED	DK GRAY	2.5Y 4/1	4	GRAYISH BROWN	2.5Y 5/2	5	NO	0.32	0.31	12.3	#VALUE!	#VALUE!
BI-PB-025-10E	PETIT BOIS PASS- ALABAMA EAST	2010	7/10/2010	1:45 PM	30.20272	-88.29980	255947.34560	1152791.31900	20-ft Vibracore	35.0	15.8	12.3 - 15.8	3.5	SM	SP-SM	SUBANGULAR TO ROUNDED	DK GRAY	2.5Y 4/1	4	GRAYISH BROWN	2.5Y 5/2	5	NO	0.32	0.31	11.0	#VALUE!	#VALUE!
BI-PB-026-10	PETIT BOIS PASS- ALABAMA WEST	2010	7/19/2010	12:45 PM	30.19872	-88.34816	254424.27160	1137520.57000	20-ft Vibracore	30.0	20.0																	
BI-PB-026-10A	PETIT BOIS PASS- ALABAMA WEST	2010	7/19/2010	12:45 PM	30.19872	-88.34816	254424.27160	1137520.57000	20-ft Vibracore	30.0	20.0	0.0 - 2.0	2.0	SM	SP-SM	SUBANGULAR TO ROUNDED	BLACK	2.5Y 2.5/1	3	VERY DK GRAYISH BROWN	2.5Y 3/2	3	NO	0.28	0.28	6.0	2.2	1.2
BI-PB-026-10B	PETIT BOIS PASS- ALABAMA WEST	2010	7/19/2010	12:45 PM	30.19872	-88.34816	254424.27160	1137520.57000	20-ft Vibracore	30.0	20.0	2.0 - 7.0	5.0	SP	SP-SM	SUBANGULAR TO ROUNDED	VERY DK GRAYISH BROWN	2.5Y 3/2	3	DARK GRAYISH BROWN	2.5Y 4/2	4	NO	0.25	0.25	6.5	3.2	1.3
BI-PB-026-10C	PETIT BOIS PASS- ALABAMA WEST																											

Vibracore / Sample ID	Investigation Area	Sample Event	Date of Sample	Time_CST	Latitude	Longitude	Northing_Y	Easting_X	Sample Method	Water Depth (feet)	Boring Depth (feet below seafloor surface )	Sample Depth (Feet below seafloor surface)	Sample Thickness (feet)	Field USCS	Lab USCS	Angularity	Wet Munsell Color	Wet Munsell Color Code	Wet Munsell Value	Dry Munsell Color	Dry Munsell Color Code	Dry Munsell Value	CaCO3	D50 (mm)	Graphic Mean (mm)	% Fines	Cu (D60/D10)	Cc (D30)*2 / (D10*D60)
BI-PB-029-10	PETIT BOIS PASS-ALABAMA EAST	2010	7/16/2010	9:50 AM	30.19887	-88.32897	254505.15790	1143582.69600	20-ft Vibracore	30.0	11.5																	
BI-PB-029-10A	PETIT BOIS PASS-ALABAMA EAST	2010	7/16/2010	9:50 AM	30.19887	-88.32897	254505.15790	1143582.69600	20-ft Vibracore	30.0	11.5	0.0 - 1.4	1.4	SP	SP	SUBANGULAR TO ROUNDED	GRAYISH BROWN	2.5Y 5/2	5	LT GRAY	2.5Y 7/2	7	NO	0.32	0.35	1.2	1.7	1.0
BI-PB-030-10	PETIT BOIS PASS-ALABAMA EAST	2010	7/16/2010	3:12 PM	30.19859	-88.32372	254410.70730	1145241.69400	20-ft Vibracore	33.0	18.8																	
BI-PB-030-10A	PETIT BOIS PASS-ALABAMA EAST	2010	7/16/2010	3:12 PM	30.19859	-88.32372	254410.70730	1145241.69400	20-ft Vibracore	33.0	18.8	0.0 - 5.0	5.0	SP	SP	SUBANGULAR TO ROUNDED	LT BROWNISH GRAY	2.5Y 6/2	6	LT GRAY	2.5Y 7/1	7	NO	0.41	0.45	2.0	1.7	0.9
BI-PB-030-10B	PETIT BOIS PASS-ALABAMA EAST	2010	7/16/2010	3:12 PM	30.19859	-88.32372	254410.70730	1145241.69400	20-ft Vibracore	33.0	18.8	5.0 - 10.0	5.0	SP	SP	SUBANGULAR TO ROUNDED	WHITE	N 8.5/1	9	WHITE	N 9/1	9	NO	0.38	0.41	1.8	1.6	0.9
BI-PB-030-10C	PETIT BOIS PASS-ALABAMA EAST	2010	7/16/2010	3:12 PM	30.19859	-88.32372	254410.70730	1145241.69400	20-ft Vibracore	33.0	18.8	10.0 - 14.9	4.9	SP	SP	SUBANGULAR TO ROUNDED	GRAY	2.5Y 6/1	6	LT GRAY	2.5Y 7/1	7	NO	0.39	0.43	2.0	1.9	1.0
BI-PB-031-10	PETIT BOIS PASS-ALABAMA EAST	2010	7/12/2010	2:30 PM	30.19849	-88.31895	254381.11190	1146748.76600	20-ft Vibracore	29.0	18.4																	
BI-PB-031-10A	PETIT BOIS PASS-ALABAMA EAST	2010	7/12/2010	2:30 PM	30.19849	-88.31895	254381.11190	1146748.76600	20-ft Vibracore	29.0	18.4	0.0 - 4.0	4.0	SP	SP-SM	SUBANGULAR TO ROUNDED	LT BROWNISH GRAY	2.5Y 6/2	6	LT GRAY	2.5Y 7/2	7	NO	0.28	0.29	6.2	2.4	1.2
BI-PB-031-10B	PETIT BOIS PASS-ALABAMA EAST	2010	7/12/2010	2:30 PM	30.19849	-88.31895	254381.11190	1146748.76600	20-ft Vibracore	29.0	18.4	4.0 - 7.0	3.0	SP	SP-SM	SUBANGULAR TO ROUNDED	GRAY	2.5Y 6/1	6	LT GRAY	2.5Y 7/1	7	NO	0.32	0.38	6.2	2.4	1.0
BI-PB-031-10C	PETIT BOIS PASS-ALABAMA EAST	2010	7/12/2010	2:30 PM	30.19849	-88.31895	254381.11190	1146748.76600	20-ft Vibracore	29.0	18.4	7.0 - 8.7	1.7	SP	SP	SUBANGULAR TO ROUNDED	LT BROWNISH GRAY	2.5Y 6/2	6	LT GRAY	2.5Y 7/1	7	NO	0.38	0.41	3.0	2.1	1.2
BI-PB-031-10D	PETIT BOIS PASS-ALABAMA EAST	2010	7/12/2010	2:30 PM	30.19849	-88.31895	254381.11190	1146748.76600	20-ft Vibracore	29.0	18.4	8.7 - 12.9	4.2	SM	SP-SM	SUBANGULAR TO ROUNDED	GRAYISH BROWN	2.5Y 5/2	5	GRAYISH BROWN	2.5Y 5/2	5	NO	0.33	0.34	8.9	3.2	1.6
BI-PB-032-10	PETIT BOIS PASS-ALABAMA EAST	2010	7/12/2010	1:40 PM	30.19836	-88.30961	254347.27810	1149699.62200	20-ft Vibracore	34.0	19.8																	
BI-PB-032-10A	PETIT BOIS PASS-ALABAMA EAST	2010	7/12/2010	1:40 PM	30.19836	-88.30961	254347.27810	1149699.62200	20-ft Vibracore	34.0	19.8	0.5 - 1.1	0.6	SP	SP-SM	SUBANGULAR TO ROUNDED	GRAYISH BROWN	2.5Y 5/2	5	LT BROWNISH GRAY	10YR 6/2	6	NO	0.38	0.41	5.4	2.2	1.0
BI-PB-032-10B	PETIT BOIS PASS-ALABAMA EAST	2010	7/12/2010	1:40 PM	30.19836	-88.30961	254347.27810	1149699.62200	20-ft Vibracore	34.0	19.8	1.1 - 6.1	5.0	SP-SM	SP-SM	SUBANGULAR TO ROUNDED	LT BROWNISH GRAY	2.5Y 6/2	6	LT GRAY	2.5Y 7/2	7	NO	0.38	0.41	6.8	2.0	1.0
BI-PB-032-10C	PETIT BOIS PASS-ALABAMA EAST	2010	7/12/2010	1:40 PM	30.19836	-88.30961	254347.27810	1149699.62200	20-ft Vibracore	34.0	19.8	6.1 - 11.1	5.0	SP-SM	SP	SUBANGULAR TO ROUNDED	LT GRAY	2.5Y 7/2	7	VERY PALE BROWN	10YR 8/2	8	NO	0.42	0.45	4.6	2.4	1.2
BI-PB-032-10D	PETIT BOIS PASS-ALABAMA EAST	2010	7/12/2010	1:40 PM	30.19836	-88.30961	254347.27810	1149699.62200	20-ft Vibracore	34.0	19.8	11.1 - 15.8	4.7	SP-SM	SP	SUBANGULAR TO ROUNDED	LT GRAY	2.5Y 7/2	7	LT GRAY	2.5Y 7/2	7	NO	0.46	0.48	3.0	2.0	1.0
BI-PB-032-10E	PETIT BOIS PASS-ALABAMA EAST	2010	7/12/2010	1:40 PM	30.19836	-88.30961	254347.27810	1149699.62200	20-ft Vibracore	34.0	19.8	15.8 - 19.8	4.0	SP	SP	SUBANGULAR TO ROUNDED	GRAY	2.5Y 6/1	6	WHITE	2.5Y 8/1	8	NO	0.48	0.50	4.0	1.9	1.0
BI-PB-033-10	PETIT BOIS PASS-ALABAMA EAST	2010	7/12/2010	12:50 PM	30.19843	-88.30490	254379.60850	1151187.46300	20-ft Vibracore	37.0	19.1																	
BI-PB-033-10A	PETIT BOIS PASS-ALABAMA EAST	2010	7/12/2010	12:50 PM	30.19843	-88.30490	254379.60850	1151187.46300	20-ft Vibracore	37.0	19.1	0.0 - 2.0	2.0	SP	SP	SUBANGULAR TO ROUNDED	DK GRAY	10YR 4/1	4	GRAY	2.5Y 6/1	6	NO	0.37	0.40	3.9	1.9	1.1
BI-PB-033-10B	PETIT BOIS PASS-ALABAMA EAST	2010	7/12/2010	12:50 PM	30.19843	-88.30490	254379.60850	1151187.46300	20-ft Vibracore	37.0	19.1	2.0 - 7.0	5.0	SM	SP-SM	SUBANGULAR TO ROUNDED	DK GRAY	2.5Y 4/1	4	GRAY	2.5Y 5/1	5	NO	0.33	0.34	7.0	1.9	1.1
BI-PB-033-10C	PETIT BOIS PASS-ALABAMA EAST	2010	7/12/2010	12:50 PM	30.19843	-88.30490	254379.60850	1151187.46300	20-ft Vibracore	37.0	19.1	7.0 - 11.0	4.0	SM	SP-SM	SUBANGULAR TO ROUNDED	VERY DK GRAY	2.5Y 3/1	3	GRAY	2.5Y 5/1	5	NO	0.33	0.34	6.4	1.8	1.1
BI-PB-033-10D	PETIT BOIS PASS-ALABAMA EAST	2010	7/12/2010	12:50 PM	30.19843	-88.30490	254379.60850	1151187.46300	20-ft Vibracore	37.0	19.1	11.0 - 13.3	2.3	SP	SP	SUBANGULAR TO ROUNDED	GRAY	2.5Y 5/1	5	GRAY	2.5Y 6/1	6	NO	0.32	0.34	3.8	1.7	1.0
BI-PB-033-10E	PETIT BOIS PASS-ALABAMA EAST	2010	7/12/2010	12:50 PM	30.19843	-88.30490	254379.60850	1151187.46300	20-ft Vibracore	37.0	19.1	13.3 - 19.1	5.8	SM	SP-SM	SUBANGULAR TO ROUNDED	VERY DK GRAYISH BROWN	2.5Y 3/2	3	GRAY	2.5Y 5/1	5	NO	0.32	0.34	8.0	1.9	1.1
BI-PB-034-10	PETIT BOIS PASS-ALABAMA EAST	2010	7/12/2010	11:35 AM	30.19838	-88.30013	254368.44650	1152694.46100	20-ft Vibracore	37.0	19.1																	
BI-PB-034-10A	PETIT BOIS PASS-ALABAMA EAST	2010	7/12/2010	11:35 AM	30.19838	-88.30013	254368.44650	1152694.46100	20-ft Vibracore	37.0	19.1	0.0 - 1.9	1.9	SP	SP	SUBANGULAR TO ROUNDED	GRAY	2.5Y 5/1	5	LT GRAY	2.5Y 7/1	7	NO	0.32	0.34	3.9	1.9	1.0
BI-PB-034-10B	PETIT BOIS PASS-ALABAMA EAST	2010	7/12/2010	11:35 AM	30.19838	-88.30013	254368.44650	1152694.46100	20-ft Vibracore	37.0	19.1	3.6 - 5.3	1.7	SP-SM	SP-SM	SUBANGULAR TO ROUNDED	DK GRAY	2.5Y 4/1	4	GRAY	2.5Y 5/1	5	NO	0.28	0.29	8.0	2.1	1.0
BI-PB-034-10C	PETIT BOIS PASS-ALABAMA EAST	2010	7/12/2010	11:35 AM	30.19838	-88.30013	254368.44650	1152694.46100	20-ft Vibracore	37.0	19.1	5.3 - 10.3	5.0	SM	SP-SM	SUBANGULAR TO ROUNDED	VERY DK GRAYISH BROWN	2.5Y 3/2	3	GRAY	2.5Y 5/1	5	NO	0.32	0.33	7.5	1.9	1.1
BI-PB-034-10D	PETIT BOIS PASS-ALABAMA EAST	2010	7/12/2010	11:35 AM	30.19838	-88.30013	254368.44650	1152694.46100	20-ft Vibracore	37.0	19.1	10.3 - 15.3	5.0	SM	SP-SM	SUBANGULAR TO ROUNDED	VERY DK GRAYISH BROWN	2.5Y 3/2	3	GRAY	2.5Y 5/1	5	NO	0.31	0.33	8.0	2.0	1.1
BI-PB-034-10E	PETIT BOIS PASS-ALABAMA EAST	2010	7/12/2010	11:35 AM	30.19838	-88.30013	254368.44650	1152694.46100	20-ft Vibracore	37.0	19.1	15.3 - 19.1	3.8	SM	SP-SM	SUBANGULAR TO ROUNDED	BLACK	2.5Y 2.5/1	3	DK GRAY	2.5Y 4/1	4	NO	0.31	0.31	7.5	1.8	1.1
BI-PB-035-10	PETIT BOIS PASS-ALABAMA WEST	2010	7/19/2010	2:45 PM	30.19439	-88.34438	252854.61010	1138721.47900	20-ft Vibracore	30.0	18.0																	
BI-PB-035-10A	PETIT BOIS PASS-ALABAMA WEST	2010	7/19/2010	2:45 PM	30.19439	-88.34438	252854.61010	1138721.47900	20-ft Vibracore	30.0	18.0	0.0 - 5.0	5.0	SM	SP	SUBANGULAR TO ROUNDED	DARK BROWN	10YR 3/3	3	BROWN	10Y 5/3	5	NO	0.35	0.36	1.5	1.6	1.0
BI-PB-035-10B	PETIT BOIS PASS-ALABAMA WEST	2010	7/19/2010	2:45 PM	30.19439	-88.34438	252854.61010	1138721.47900	20-ft Vibracore	30.0	18.0	5.0 - 10.0	5.0	SM	SP	SUBANGULAR TO ROUNDED	LIGHT OLIVE BROWN	2.5Y 5/3	5	LIGHT GRAY	2.5Y 7/1	7	NO	0.31	0.32	1.1	1.6	1.0
BI-PB-036-10	PETIT BOIS PASS-ALABAMA WEST	2010	7/19/2010	3:25 PM	30.19455	-88.34351	252913.98090	1138996.08500	20-ft Vibracore	33.0	19.5																	
BI-PB-036-10A	PETIT BOIS PASS-ALABAMA WEST	2010	7/19/2010	3:25 PM	30.19455	-88.34351	252913.98090	1138996.08500	20-ft Vibracore	33.0	19.5	0.0 - 5.0	5.0	SP	SP	SUBANGULAR TO ROUNDED	LIGHT BROWNISH GRAY	2.5Y 6/2	6	LIGHT GRAY	2.5Y 7/1	7	NO	0.29	0.29	1.9	1.7	1.0
BI-PB-036-10B	PETIT BOIS PASS-ALABAMA WEST	2010	7/19/2010	3:25 PM	30.19455	-88.34351	252913.98090	1138996.08500	20-ft Vibracore	33.0	19.5	5.0 - 10.0	5.0	SP	SP	SUBANGULAR TO ROUNDED	LIGHT BROWNISH GRAY	2.5Y 6/2	6	LIGHT GRAY	2.5Y 7/1	7	NO	0.32	0.34	2.0	2.2	1.2
BI-PB-036-10C	PETIT BOIS PASS-ALABAMA WEST	2010	7/19/2010	3:25 PM	30.19455	-88.34351	252913.98090	1138996.08500	20-ft Vibracore	33.0	19.5	10.0 - 14.5	4.5	SP	SP	SUBANGULAR TO ROUNDED	DARK GRAYISH BROWN	2.5Y 4/2	4	LIGHT GRAY	2.5Y 7/1	7	NO	0.34	0.37	3.9	1.9	1.0
BI-PB-037-10	PETIT BOIS PASS-ALABAMA EAST	2010	7/27/2010	3:00 PM	30.19434	-88.33804	252845.07840	1140724.53300	20-ft Vibracore	34.0	16.0																	
BI-PB-037-10A	PETIT BOIS PASS-ALABAMA EAST	2010	7/27/2010	3:00 PM	30.19434	-88.33804	252845.07840	1140724.53300	20-ft Vibracore	34.0	16.0	0.0 - 5.0	5.0	SP	SP-SM	SUBANGULAR TO ROUNDED	GRAYISH BROWN	2.5Y 5/2	5	LT BROWNISH GRAY	2.5Y 6/2	6	NO	0.30	0.31	7.0	2.6	1.3
BI-PB-037-10B	PETIT BOIS PASS-ALABAMA EAST	2010	7/27/2010	3:00 PM	30.19434	-88.33804	252845.07840	1140724.53300	20-ft Vibracore	34.0	16.0	5.0 - 10.0	5.0	SP	SP	SUBANGULAR TO ROUNDED	LT BROWNISH GRAY	2.5Y 6/2	6	LT GRAY	2.5Y 7/1	7	NO	0.34	0.36	2.0	1.7	1.1
BI-PB-037-10C	PETIT BOIS PASS-ALABAMA EAST	2010	7/27/2010	3:00 PM	30.19434	-88.33804	252845.07840	1140724.53300	20-ft Vibracore	34.0	16.0	10.0 - 15.0	5.0	SP	SP	SUBANGULAR TO ROUNDED	GRAY	2.5Y 6/1	6	LT GRAY	2.5Y 7/1	7	NO	0.30	0.31	3.9	1.7	1.1
BI-PB-038-10	PETIT BOIS PASS-ALABAMA EAST	2010	7/28/2010	9:30 AM	30.19398	-88.33360	252720.27680	1142127.82300	20-ft Vibracore	35.0	18.5																	
BI-PB-038-10A	PETIT BOIS PASS-ALABAMA EAST	2010	7/28/2010	9:30 AM	30.19398	-88.33360	252720.27680	1142127.82300	2																			



Vibracore / Sample ID	Investigation Area	Sample Event	Date of Sample	Time_CST	Latitude	Longitude	Northing_Y	Easting_X	Sample Method	Water Depth (feet)	Boring Depth (feet below seafloor surface )	Sample Depth (Feet below seafloor surface)	Sample Thickness (feet)	Field USCS	Lab USCS	Angularity	Wet Munsell Color	Wet Munsell Color Code	Wet Munsell Value	Dry Munsell Color	Dry Munsell Color Code	Dry Munsell Value	CaCO3	D50 (mm)	Graphic Mean (mm)	% Fines	Cu (D60/D10)	Cc (D30)*2 / (D10*D60)
BI-PB-042-10A	PETIT BOIS PASS-ALABAMA EAST	2010	7/28/2010	1:30 PM	30.19408	-88.31458	252783.50650	1148136.61500	20-ft Vibracore	33.0	15.5	0.0 - 5.0	5.0	SP	SP-SM	SUBANGULAR TO ROUNDED	VERY DK GRAYISH BROWN	2.5Y 3/3	3	GRAYISH BROWN	2.5Y 5/2	5	NO	0.24	0.27	6.5	2.3	1.2
BI-PB-042-10B	PETIT BOIS PASS-ALABAMA EAST	2010	7/28/2010	1:30 PM	30.19408	-88.31458	252783.50650	1148136.61500	20-ft Vibracore	33.0	15.5	5.0 - 10.0	5.0	SP	SP-SM	SUBANGULAR TO ROUNDED	DK GRAY	2.5Y 4/1	4	LT BROWNISH GRAY	2.5Y 6/2	6	NO	0.27	0.27	5.2	1.9	1.0
BI-PB-042-10C	PETIT BOIS PASS-ALABAMA EAST	2010	7/28/2010	1:30 PM	30.19408	-88.31458	252783.50650	1148136.61500	20-ft Vibracore	33.0	15.5	10.0 - 15.0	5.0	SP	SP	SUBANGULAR TO ROUNDED	GRAY	5Y 6/1	6	WHITE	5Y 8/1	8	NO	0.26	0.27	3.7	1.7	1.0
BI-PB-043-10	PETIT BOIS PASS-ALABAMA EAST	2010	7/28/2010	2:05 PM	30.19424	-88.30964	252848.83730	1149697.03300	20-ft Vibracore	38.0	20.0																	
BI-PB-043-10A	PETIT BOIS PASS-ALABAMA EAST	2010	7/28/2010	2:05 PM	30.19424	-88.30964	252848.83730	1149697.03300	20-ft Vibracore	38.0	20.0	0.0 - 5.0	5.0	SP	SP-SM	SUBANGULAR TO ROUNDED	GRAYISH BROWN	2.5Y 5/2	5	LT GRAY	2.5Y 7/2	7	NO	0.33	0.35	5.8	2.2	1.2
BI-PB-043-10B	PETIT BOIS PASS-ALABAMA EAST	2010	7/28/2010	2:05 PM	30.19424	-88.30964	252848.83730	1149697.03300	20-ft Vibracore	38.0	20.0	5.0 - 10.0	5.0	SP	SM	SUBANGULAR TO ROUNDED	LT BROWNISH GRAY	2.5Y 6/2	6	LT GRAY	2.5Y 7/2	7	NO	0.31	0.31	12.4	#VALUE!	#VALUE!
BI-PB-043-10C	PETIT BOIS PASS-ALABAMA EAST	2010	7/28/2010	2:05 PM	30.19424	-88.30964	252848.83730	1149697.03300	20-ft Vibracore	38.0	20.0	15.0 - 20.0	5.0	SC	SP	SUBANGULAR TO ROUNDED	GRAY	2.5Y 5/1	5	LT GRAY	2.5Y 7/1	7	NO	0.22	0.23	3.7	1.9	1.1
BI-PB-044-10	PETIT BOIS PASS-ALABAMA EAST	2010	7/28/2010	2:50 PM	30.19441	-88.30499	252917.44770	1151165.81100	20-ft Vibracore	38.0	20.0																	
BI-PB-044-10A	PETIT BOIS PASS-ALABAMA EAST	2010	7/28/2010	2:50 PM	30.19441	-88.30499	252917.44770	1151165.81100	20-ft Vibracore	38.0	20.0	0.0 - 5.0	5.0	SP	SP	SUBANGULAR TO ROUNDED	GRAYISH BROWN	2.5Y 5/2	5	GRAY	2.5Y 6/1	6	NO	0.33	0.36	2.0	1.7	1.1
BI-PB-044-10B	PETIT BOIS PASS-ALABAMA EAST	2010	7/28/2010	2:50 PM	30.19441	-88.30499	252917.44770	1151165.81100	20-ft Vibracore	38.0	20.0	5.0 - 10.0	5.0	SP	SP	SUBANGULAR TO ROUNDED	GRAY	2.5Y 6/1	6	LT GRAY	2.5Y 7/1	7	NO	0.34	0.37	2.1	1.7	1.1
BI-PB-044-10C	PETIT BOIS PASS-ALABAMA EAST	2010	7/28/2010	2:50 PM	30.19441	-88.30499	252917.44770	1151165.81100	20-ft Vibracore	38.0	20.0	10.0 - 15.0	5.0	SP	SP	SUBANGULAR TO ROUNDED	GRAY	2.5Y 7/2	7	LT GRAY	2.5Y 7/1	7	NO	0.33	0.35	2.3	1.7	1.1
BI-PB-044-10D	PETIT BOIS PASS-ALABAMA EAST	2010	7/28/2010	2:50 PM	30.19441	-88.30499	252917.44770	1151165.81100	20-ft Vibracore	38.0	20.0	15.0 - 20.0	5.0	SP	SP	SUBANGULAR TO ROUNDED	LT BROWNISH GRAY	2.5Y 6/2	6	LT GRAY	2.5Y 7/1	7	NO	0.36	0.38	3.6	2.0	1.2
BI-PB-045-10	PETIT BOIS PASS-ALABAMA EAST	2010	7/29/2010	9:30 AM	30.19380	-88.30038	252702.38170	1152623.27500	20-ft Vibracore	37.0	20.0																	
BI-PB-045-10A	PETIT BOIS PASS-ALABAMA EAST	2010	7/29/2010	9:30 AM	30.19380	-88.30038	252702.38170	1152623.27500	20-ft Vibracore	37.0	20.0	0.0 - 5.0	5.0	SP	SP-SM	SUBANGULAR TO ROUNDED	VERY DK GRAYISH BROWN	5Y 3/2	3	GRAYISH BROWN	5Y 5/2	5	NO	0.39	0.43	6.0	2.2	1.0
BI-PB-046-10	PETIT BOIS PASS-ALABAMA WEST	2010	8/6/2010	10:10 AM	30.19009	-88.34798	251285.89100	1137590.80600	20-ft Vibracore	37.0	20.0	NO SAMPLE TAKEN		CH	NO SAMPLE TESTED													
BI-PB-047-10	PETIT BOIS PASS-ALABAMA WEST	2010	8/6/2010	10:55 AM	30.19031	-88.34341	251372.08180	1139034.30900	20-ft Vibracore	36.0	18.0																	
BI-PB-047-10A	PETIT BOIS PASS-ALABAMA WEST	2010	8/6/2010	10:55 AM	30.19031	-88.34341	251372.08180	1139034.30900	20-ft Vibracore	36.0	18.0	0.0 - 2.0	2.0	SP	SP	SUBANGULAR TO ROUNDED	OLIVE BROWN	2.5Y 4/3	4	LIGHT BROWNISH GRAY	2.5Y 6/2	6	NO	0.34	0.37	2.1	2.3	1.2
BI-PB-047-10B	PETIT BOIS PASS-ALABAMA WEST	2010	8/6/2010	10:55 AM	30.19031	-88.34341	251372.08180	1139034.30900	20-ft Vibracore	36.0	18.0	2.0 - 6.0	4.0	SP	SM	SUBANGULAR TO ROUNDED	BLACK	2.5Y 2.5/1	3	DARK GRAYISH BROWN	2.5Y 4/2	4	NO	0.19	#VALUE!	23.4	#VALUE!	#VALUE!
BI-PB-051-10	PETIT BOIS PASS-ALABAMA EAST	2010	8/6/2010	2:00 PM	30.19016	-88.31949	251350.81880	1146591.83700	20-ft Vibracore	36.0	14.7																	
BI-PB-051-10A	PETIT BOIS PASS-ALABAMA EAST	2010	8/6/2010	2:00 PM	30.19016	-88.31949	251350.81880	1146591.83700	20-ft Vibracore	36.0	14.7	0.0 - 4.0	4.0	SP-SM	SP-SM	SUBANGULAR TO ROUNDED	DARK GRAYISH BROWN	2.5Y 4/2	4	LIGHT BROWNISH GRAY	2.5Y 6/2	6	NO	0.23	0.28	5.3	2.0	1.1
BI-PB-052-10	PETIT BOIS PASS-ALABAMA EAST	2010	8/6/2010	3:15 PM	30.19009	-88.31494	251331.87260	1148029.48400	20-ft Vibracore	40.0	20.0																	
BI-PB-052-10A	PETIT BOIS PASS-ALABAMA EAST	2010	8/6/2010	3:15 PM	30.19009	-88.31494	251331.87260	1148029.48400	20-ft Vibracore	40.0	20.0	5.0 - 10.0	5.0	SP	SP	SUBANGULAR TO ROUNDED	GRAYISH BROWN	2.5Y 5/2	5	LIGHT GRAY	2.5Y 7/1	7	NO	0.22	0.23	1.2	1.6	1.0
BI-PB-052-10B	PETIT BOIS PASS-ALABAMA EAST	2010	8/6/2010	3:15 PM	30.19009	-88.31494	251331.87260	1148029.48400	20-ft Vibracore	40.0	20.0	10.0 - 15.0	5.0	SP	SP-SM	SUBANGULAR TO ROUNDED	LIGHT BROWNISH GRAY	2.5Y 6/2	6	WHITE	2.5Y 8/1	8	NO	0.19	0.20	6.1	2.1	1.4
BI-PB-053-10	PETIT BOIS PASS-ALABAMA EAST	2010	8/7/2010	9:00 AM	30.19036	-88.30971	251437.62460	1149681.40400	20-ft Vibracore	39.0	18.0																	
BI-PB-053-10A	PETIT BOIS PASS-ALABAMA EAST	2010	8/7/2010	9:00 AM	30.19036	-88.30971	251437.62460	1149681.40400	20-ft Vibracore	39.0	18.0	0.0 - 5.0	5.0	SP	SM	SUBANGULAR TO ROUNDED	VERY DK GRAYISH BROWN	2.5Y 3/2	3	GRAYISH BROWN	2.5Y 5/2	5	NO	0.23	#VALUE!	25.3	#VALUE!	#VALUE!
BI-PB-053-10B	PETIT BOIS PASS-ALABAMA EAST	2010	8/7/2010	9:00 AM	30.19036	-88.30971	251437.62460	1149681.40400	20-ft Vibracore	39.0	18.0	5.0 - 10.0	5.0	SP	SP	SUBANGULAR TO ROUNDED	LIGHT GRAY	2.5Y 7/1	7	WHITE	2.5Y 8/1	8	NO	0.28	0.29	3.1	1.8	1.0
BI-PB-053-10C	PETIT BOIS PASS-ALABAMA EAST	2010	8/7/2010	9:00 AM	30.19036	-88.30971	251437.62460	1149681.40400	20-ft Vibracore	39.0	18.0	10.0 - 15.0	5.0	SP	SP	SUBANGULAR TO ROUNDED	LIGHT BROWNISH GRAY	2.5Y 6/2	6	WHITE	2.5Y 8/1	8	NO	0.25	0.26	4.1	2.3	1.1
BI-PB-053-10D	PETIT BOIS PASS-ALABAMA EAST	2010	8/7/2010	9:00 AM	30.19036	-88.30971	251437.62460	1149681.40400	20-ft Vibracore	39.0	18.0	15.0 - 18.0	3.0	SP	SP-SM	SUBANGULAR TO ROUNDED	GRAYISH BROWN	2.5Y 5/2	5	WHITE	2.5Y 8/1	8	NO	0.21	0.22	6.3	2.1	1.3
BI-PB-054-10	PETIT BOIS PASS-ALABAMA EAST	2010	8/9/2010	11:45 AM	30.19016	-88.30524	251371.40510	1151093.99400	20-ft Vibracore	40.0	17.5																	
BI-PB-054-10A	PETIT BOIS PASS-ALABAMA EAST	2010	8/9/2010	11:45 AM	30.19016	-88.30524	251371.40510	1151093.99400	20-ft Vibracore	40.0	17.5	0.0 - 1.5	1.5	SP	SP	SUBANGULAR TO ROUNDED	VERY DK GRAYISH BROWN	2.5Y 3/2	3	LIGHT BROWNISH GRAY	2.5Y 6/2	6	YES	0.27	0.30	4.2	2.5	1.1
BI-PB-057-10	PETIT BOIS PASS-ALABAMA WEST	2010	8/6/2010	9:25 AM	30.18609	-88.37147	249800.29530	1130175.27400	20-ft Vibracore	38.0	15.3	NO SAMPLE TAKEN		CH	NO SAMPLE TESTED													
BI-PB-058-10	PETIT BOIS PASS-ALABAMA WEST	2010	8/4/2010	3:00 PM	30.18622	-88.36650	249853.97350	1131745.36400	20-ft Vibracore	36.0	20.0																	
BI-PB-058-10A	PETIT BOIS PASS-ALABAMA WEST	2010	8/4/2010	3:00 PM	30.18622	-88.36650	249853.97350	1131745.36400	20-ft Vibracore	36.0	20.0	10.0 - 14.0	4.0	SP	SP-SM	SUBANGULAR TO ROUNDED	DARK GRAYISH BROWN	2.5Y 4/2	4	LIGHT BROWNISH GRAY	2.5Y 6/2	6	NO	0.26	0.26	5.2	2.5	1.2
BI-PB-059-10	PETIT BOIS PASS-ALABAMA WEST	2010	8/4/2010	2:30 PM	30.18615	-88.36133	249835.24470	1133378.94200	20-ft Vibracore	35.0	19.0																	
BI-PB-059-10A	PETIT BOIS PASS-ALABAMA WEST	2010	8/4/2010	2:30 PM	30.18615	-88.36133	249835.24470	1133378.94200	20-ft Vibracore	35.0	19.0	10.0 - 13.0	3.0	SP	SP	SUBANGULAR TO ROUNDED	GRAYISH BROWN	2.5Y 5/2	5	LIGHT GRAY	2.5Y 7/1	7	NO	0.25	0.26	4.4	2.2	1.1
BI-PB-060-10	PETIT BOIS PASS-ALABAMA WEST	2010	8/4/2010	1:45 PM	30.18609	-88.35645	249819.84320	1134920.88200	20-ft Vibracore	37.0	18.0																	
BI-PB-060-10A	PETIT BOIS PASS-ALABAMA WEST	2010	8/4/2010	1:45 PM	30.18609	-88.35645	249819.84320	1134920.88200	20-ft Vibracore	37.0	18.0	0.0 - 2.0	2.0	SP	CL	SUBANGULAR TO ROUNDED	BLACK	2.5Y 2.5/1	3	DARK GRAYISH BROWN	2.5Y 4/2	4	NO	*	#VALUE!	51.4	#VALUE!	#VALUE!
BI-PB-061-10	PETIT BOIS PASS-ALABAMA WEST	2010	8/4/2010	1:15 PM	30.18618	-88.35209	249858.36660	1136298.29800	20-ft Vibracore	36.0	18.5	NO SAMPLE TAKEN		CH	NO SAMPLE TESTED													
BI-PB-062-10	PETIT BOIS PASS-ALABAMA WEST	2010	8/6/2010	1:00 PM	30.18617	-88.34811	249860.06250	1137555.80500	20-ft Vibracore	38.0	20.0																	
BI-PB-062-10A	PETIT BOIS PASS-ALABAMA WEST	2010	8/6/2010	1:00 PM	30.18617	-88.34811	249860.06250	1137555.80500	20-ft Vibracore	38.0	20.0	0.0 - 1.5	1.5	SP	SM	SUBANGULAR TO ROUNDED	VERY DK GRAYISH BROWN	2.5Y 3/2	3	GRAYISH BROWN	2.5Y 5/2	5	YES	0.14	#VALUE!	18.0	#VALUE!	#VALUE!
BI-PB-063-10	PETIT BOIS PASS-ALABAMA WEST	2010	8/6/2010	12:20 PM	30.18615	-88.34326	249859.34670	1139088.20700	20-ft Vibracore	39.0	16.0	NO SAMPLE TAKEN		CH	NO SAMPLE TESTED													
BI-PB-064-10	PETIT BOIS PASS-ALABAMA WEST	2010	7/9/2010	2:30 PM	30.18222	-88.39075	248368.65590	1124089.18100	20-ft Vibracore	39.0	18.5																	
BI-PB-064-10A	PETIT BOIS PASS-ALABAMA WEST	2010	7/9/2010	2:30 PM	30.18222	-88.39075	248368.65590	1124089.18100	20-ft Vibracore	39.0	18.5	11.0 - 12.8	1.8	SM	SM	SUBANGULAR TO ROUNDED	DK GRAY	2.5Y 4/1	4	GRAYISH BROWN	2.5Y 5/2	5	NO	0.30	0.28	12.9	#VALUE!	#VALUE!
BI-PB-064-10B	PETIT BOIS PASS-ALABAMA WEST	2010	7/9/2010	2:30 PM	30.18222	-88.39075	248368.65590	1124089.18100																				

Vibracore / Sample ID	Investigation Area	Sample Event	Date of Sample	Time_CST	Latitude	Longitude	Northing_Y	Easting_X	Sample Method	Water Depth (feet)	Boring Depth (feet below seafloor surface )	Sample Depth (Feet below seafloor surface)	Sample Thickness (feet)	Field USCS	Lab USCS	Angularity	Wet Munsell Color	Wet Munsell Color Code	Wet Munsell Value	Dry Munsell Color	Dry Munsell Color Code	Dry Munsell Value	CaCO3	D50 (mm)	Graphic Mean (mm)	% Fines	Cu (D60/D10)	Cc (D30)^2 / (D10*D60)	
BI-PB-068-10B	PETIT BOIS PASS- ALABAMA WEST	2010	8/5/2010	10:20 AM	30.18195	-88.36682	248300.61850	1131650.61700	20-ft Vibracore	36.0	20.0	10.0 - 15.0	5.0	SP	SP	SUBANGULAR TO ROUNDED	GRAYISH BROWN	2.5Y 5/2	5	LIGHT GRAY	2.5Y 7/1	7	NO	0.26	0.26	2.5	1.9	1.0	
BI-PB-068-10C	PETIT BOIS PASS- ALABAMA WEST	2010	8/5/2010	10:20 AM	30.18195	-88.36682	248300.61850	1131650.61700	20-ft Vibracore	36.0	20.0	15.0 - 20.0	5.0	SP	SP	SUBANGULAR TO ROUNDED	GRAYISH BROWN	2.5Y 5/2	5	LIGHT GRAY	2.5Y 7/1	7	NO	0.25	0.26	4.4	2.3	1.2	
BI-PB-069-10	PETIT BOIS PASS- ALABAMA WEST	2010	8/7/2010	1:25 PM	30.18238	-88.36146	248463.97630	1133343.54600	20-ft Vibracore	40.0	20.0	NO SAMPLE TAKEN		CH	NO SAMPLE TESTED														
BI-PB-070-10	PETIT BOIS PASS- ALABAMA WEST	2010	8/5/2010	2:20 PM	30.18200	-88.35640	248332.43090	1134942.90500	20-ft Vibracore	40.0	20.0																		
BI-PB-070-10A	PETIT BOIS PASS- ALABAMA WEST	2010	8/5/2010	2:20 PM	30.18200	-88.35640	248332.43090	1134942.90500	20-ft Vibracore	40.0	20.0	7.0 - 10.0	3.0	SP	SP	SUBANGULAR TO ROUNDED	GRAYISH BROWN	2.5Y 5/2	5	LIGHT BROWNISH GRAY	2.5Y 6/2	6	NO	0.22	0.24	4.1	2.0	1.1	
BI-PB-073-10	PETIT BOIS PASS- ALABAMA WEST	2010	7/9/2010	11:15 AM	30.17877	-88.39512	247108.60500	1122713.24100	20-ft Vibracore	43.0	18.3																		
BI-PB-073-10A	PETIT BOIS PASS- ALABAMA WEST	2010	7/9/2010	11:15 AM	30.17877	-88.39512	247108.60500	1122713.24100	20-ft Vibracore	43.0	18.3	13.8 - 18.3	4.5	SP	SP-SM	SUBANGULAR TO ROUNDED	GRAY	2.5Y 6/1	6	LT GRAY	2.5Y 7/1	7	NO	0.20	0.21	6.1	2.0	1.3	
BI-PB-076-10	PETIT BOIS PASS- ALABAMA WEST	2010	8/5/2010	3:15 PM	30.17863	-88.37138	247087.31150	1130214.70700	20-ft Vibracore	40.0	18.0	NO SAMPLE TAKEN		CH	NO SAMPLE TESTED														
BI-PB-077-10	PETIT BOIS PASS- ALABAMA WEST	2010	8/5/2010	1:45 PM	30.17866	-88.36686	247104.03920	1131642.87600	20-ft Vibracore	41.0	18.0	NO SAMPLE TAKEN		CH	NO SAMPLE TESTED														
BI-PB-078-10	PETIT BOIS PASS- ALABAMA WEST	2010	8/5/2010	12:45 PM	30.17859	-88.35692	247091.57280	1134783.78700	20-ft Vibracore	38.0	18.5																		
BI-PB-078-10A	PETIT BOIS PASS- ALABAMA WEST	2010	8/5/2010	12:45 PM	30.17859	-88.35692	247091.57280	1134783.78700	20-ft Vibracore	38.0	18.5	0.0 - 2.0	2.0	SP	SP-SM	SUBANGULAR TO ROUNDED	OLIVE BROWN	2.5Y 4/3	4	LIGHT BROWNISH GRAY	2.5Y 6/2	6	NO	0.28	0.34	6.0	3.4	1.1	
BI-PB-078-10B	PETIT BOIS PASS- ALABAMA WEST	2010	8/5/2010	12:45 PM	30.17859	-88.35692	247091.57280	1134783.78700	20-ft Vibracore	38.0	18.5	7.0 - 10.0	3.0	SP	SP-SM	SUBANGULAR TO ROUNDED	DARK GRAYISH BROWN	2.5Y 4/2	4	LIGHT BROWNISH GRAY	2.5Y 6/2	6	NO	0.20	0.20	6.9	2.5	1.4	
BI-PB-078-10C	PETIT BOIS PASS- ALABAMA WEST	2010	8/5/2010	12:45 PM	30.17859	-88.35692	247091.57280	1134783.78700	20-ft Vibracore	38.0	18.5	10.0 - 13.5	3.5	SP	SM	SUBANGULAR TO ROUNDED	VERY DK GRAYISH BROWN	2.5Y 3/2	3	GRAYISH BROWN	2.5Y 5/2	5	NO	0.16	#VALUE!	18.3	#VALUE!	#VALUE!	
BI-PB-079-10	PETIT BOIS PASS- ALABAMA WEST	2010	8/5/2010	11:10 AM	30.17843	-88.35213	247039.74140	1136297.56100	20-ft Vibracore	43.0	17.5	NO SAMPLE TAKEN		CH	NO SAMPLE TESTED														
BI-PB-080-10	PETIT BOIS PASS- ALABAMA WEST	2010	7/9/2010	12:20 PM	30.17437	-88.39525	245508.23190	1122678.31500	20-ft Vibracore	43.5	19.4																		
BI-PB-080-10A	PETIT BOIS PASS- ALABAMA WEST	2010	7/9/2010	12:20 PM	30.17437	-88.39525	245508.23190	1122678.31500	20-ft Vibracore	43.5	19.4	9.4 - 14.4	5.0	SP	SP	SUBANGULAR TO ROUNDED	GRAY	2.5Y 6/1	6	LT GRAY	2.5Y 7/1	7	NO	0.21	0.22	4.4	2.3	1.3	
BI-PB-080-10B	PETIT BOIS PASS- ALABAMA WEST	2010	7/9/2010	12:20 PM	30.17437	-88.39525	245508.23190	1122678.31500	20-ft Vibracore	43.5	19.4	14.4 - 19.4	5.0	SP	SP-SM	SUBANGULAR TO ROUNDED	LT GRAY	2.5Y 7/1	7	LT GRAY	2.5Y 7/1	7	NO	0.17	0.17	9.1	2.4	1.2	
BI-PB-085-10	PETIT BOIS PASS- ALABAMA WEST	2010	8/10/2010	8:45 AM	30.17444	-88.36705	245569.03870	1131589.11900	20-ft Vibracore	46.0	20.0	NO SAMPLE TAKEN		CH	NO SAMPLE TESTED														
BI-PB-086-10	PETIT BOIS PASS- ALABAMA WEST	2010	8/10/2010	12:40 PM	30.17434	-88.36176	245539.54670	1133260.85500	20-ft Vibracore	46.0	17.0	NO SAMPLE TAKEN		CH	NO SAMPLE TESTED														
BI-PB-087-10	PETIT BOIS PASS- ALABAMA WEST	2010	8/10/2010	3:15 PM	30.17422	-88.35683	245502.38280	1134818.86900	20-ft Vibracore	46.0	20.0	NO SAMPLE TAKEN		CH	NO SAMPLE TESTED														
BI-PB-089-10	PETIT BOIS PASS- ALABAMA WEST	2010	7/9/2010	1:41 PM	30.17057	-88.39507	244126.44730	1122740.50600	20-ft Vibracore	43.0	16.6																		
BI-PB-089-10A	PETIT BOIS PASS- ALABAMA WEST	2010	7/9/2010	1:41 PM	30.17057	-88.39507	244126.44730	1122740.50600	20-ft Vibracore	43.0	16.6	0.0 - 1.4	1.4	SP	SP	SUBANGULAR TO ROUNDED	GRAY	2.5Y 5/1	5	LT GRAY	2.5Y 7/1	7	NO	0.35	0.39	3.4	1.7	1.0	
BI-PB-098-10	PETIT BOIS PASS- ALABAMA WEST	2010	8/3/2010	11:25 AM	30.19377	-88.37141	252593.48530	1130182.90700	20-ft Vibracore	25.0	17.5																		
BI-PB-098-10A	PETIT BOIS PASS- ALABAMA WEST	2010	8/3/2010	11:25 AM	30.19377	-88.37141	252593.48530	1130182.90700	20-ft Vibracore	25.0	17.5	0.0 - 5.0	5.0	SP	SP	SUBANGULAR TO ROUNDED	DARK GRAYISH BROWN	2.5Y 4/2	4	LIGHT BROWNISH GRAY	2.5Y 6/2	6	NO	0.33	0.34	4.2	2.3	1.4	
BI-PB-098-10B	PETIT BOIS PASS- ALABAMA WEST	2010	8/3/2010	11:25 AM	30.19377	-88.37141	252593.48530	1130182.90700	20-ft Vibracore	25.0	17.5	5.0 - 10.0	5.0	SP	SP-SM	SUBANGULAR TO ROUNDED	VERY DK GRAYISH BROWN	2.5Y 3/2	3	GRAYISH BROWN	2.5Y 5/2	5	NO	0.27	0.28	7.4	3.4	1.3	
BI-PB-098-10C	PETIT BOIS PASS- ALABAMA WEST	2010	8/3/2010	11:25 AM	30.19377	-88.37141	252593.48530	1130182.90700	20-ft Vibracore	25.0	17.5	10.0 - 15.0	5.0	SP	SP	SUBANGULAR TO ROUNDED	DARK GRAYISH BROWN	2.5Y 4/2	4	LIGHT BROWNISH GRAY	2.5Y 6/2	6	NO	0.32	0.31	4.5	3.5	2.1	
BI-PB-098-10D	PETIT BOIS PASS- ALABAMA WEST	2010	8/3/2010	11:25 AM	30.19377	-88.37141	252593.48530	1130182.90700	20-ft Vibracore	25.0	17.5	15.0 - 17.5	2.5	SP	SP	SUBANGULAR TO ROUNDED	DARK GRAYISH BROWN	2.5Y 4/2	4	LIGHT BROWNISH GRAY	2.5Y 6/2	6	NO	0.29	0.29	4.9	2.1	1.2	
BI-PB-099-10	PETIT BOIS PASS- ALABAMA WEST	2010	8/3/2010	1:10 PM	30.19397	-88.36133	252679.27610	1133367.16000	20-ft Vibracore	30.0	20.0																		
BI-PB-099-10A	PETIT BOIS PASS- ALABAMA WEST	2010	8/3/2010	1:10 PM	30.19397	-88.36133	252679.27610	1133367.16000	20-ft Vibracore	30.0	20.0	1.0 - 5.0	4.0	SP	SP-SM	SUBANGULAR TO ROUNDED	DARK GRAYISH BROWN	2.5Y 4/2	4	GRAYISH BROWN	2.5Y 5/2	5	NO	0.30	0.27	5.5	3.7	2.1	
BI-PB-099-10B	PETIT BOIS PASS- ALABAMA WEST	2010	8/3/2010	1:10 PM	30.19397	-88.36133	252679.27610	1133367.16000	20-ft Vibracore	30.0	20.0	5.0 - 10.0	5.0	SP	SP-SM	SUBANGULAR TO ROUNDED	DARK GRAYISH BROWN	2.5Y 4/2	4	LIGHT BROWNISH GRAY	2.5Y 6/2	6	NO	0.28	0.27	5.4	3.1	1.6	
BI-PB-100-10	PETIT BOIS PASS- ALABAMA WEST	2010	8/3/2010	12:25 PM	30.19860	-88.36634	254356.62420	1131777.46100	20-ft Vibracore	25.0	13.0																		
BI-PB-100-10A	PETIT BOIS PASS- ALABAMA WEST	2010	8/3/2010	12:25 PM	30.19860	-88.36634	254356.62420	1131777.46100	20-ft Vibracore	25.0	13.0	0.0 - 5.0	5.0	SP	SP	SUBANGULAR TO ROUNDED	VERY DK GRAYISH BROWN	2.5Y 3/2	3	DARK GRAYISH BROWN	2.5Y 4/2	4	NO	0.30	0.31	4.7	2.3	1.3	
BI-PB-100-10B	PETIT BOIS PASS- ALABAMA WEST	2010	8/3/2010	12:25 PM	30.19860	-88.36634	254356.62420	1131777.46100	20-ft Vibracore	25.0	13.0	5.0 - 10.0	5.0	SP	SP-SM	SUBANGULAR TO ROUNDED	VERY DK GRAYISH BROWN	2.5Y 3/2	3	GRAYISH BROWN	2.5Y 5/2	5	NO	0.30	0.29	6.5	2.8	1.7	
BI-PB-100-10C	PETIT BOIS PASS- ALABAMA WEST	2010	8/3/2010	12:25 PM	30.19860	-88.36634	254356.62420	1131777.46100	20-ft Vibracore	25.0	13.0	10.0 - 15.0	5.0	SP	SM	SUBANGULAR TO ROUNDED	DARK OLIVE GRAY	5Y 3/2	3	GRAY	5Y 5/1	5	NO	0.21	#VALUE!	16.4	#VALUE!	#VALUE!	
BI-PB-101-10	PETIT BOIS PASS- ALABAMA WEST	2010	7/31/2010	12:30 PM	30.19863	-88.36113	254374.32040	1133423.32000	20-ft Vibracore	27.0	16.0																		
BI-PB-101-10A	PETIT BOIS PASS- ALABAMA WEST	2010	7/31/2010	12:30 PM	30.19863	-88.36113	254374.32040	1133423.32000	20-ft Vibracore	27.0	16.0	0.0 - 5.0	5.0	SP	SP	SUBANGULAR TO ROUNDED	BLACK	2.5Y 2.5/1	3	VERY DK GRAYISH BROWN	2.5Y 3/3	3	NO	0.38	0.41	1.4	1.6	0.9	
BI-PB-101-10B	PETIT BOIS PASS- ALABAMA WEST	2010	7/31/2010	12:30 PM	30.19863	-88.36113	254374.32040	1133423.32000	20-ft Vibracore	27.0	16.0	5.0 - 10.0	5.0	SP	SP-SM	SUBANGULAR TO ROUNDED	VERY DARK BROWN	10YR 2/2	2	BLACK	2.5Y 2.5/1	3	NO	0.28	0.27	5.5	2.6	1.3	
BI-PB-101-10C	PETIT BOIS PASS- ALABAMA WEST	2010	7/31/2010	12:30 PM	30.19863	-88.36113	254374.32040	1133423.32000	20-ft Vibracore	27.0	16.0	10.0 - 11.0	1.0	CH	SP-SM	SUBANGULAR TO ROUNDED	VERY DK GRAYISH BROWN	2.5Y 3/2	3	GRAY	2.5Y 5/1	5	NO	0.29	0.28	5.4	2.1	1.2	
BI-PB-102-10	PETIT BOIS PASS- ALABAMA WEST	2010	8/3/2010	2:00 PM	30.19432	-88.35639	252813.06670	1134927.30900	20-ft Vibracore	31.0	20.0																		
BI-PB-102-10A	PETIT BOIS PASS- ALABAMA WEST	2010	8/3/2010	2:00 PM	30.19432	-88.35639	252813.06670	1134927.30900	20-ft Vibracore	31.0	20.0	0.0 - 4.0	4.0	SP	SP-SM	SUBANGULAR TO ROUNDED	VERY DK GRAYISH BROWN	2.5Y 3/2	3	GRAYISH BROWN	2.5Y 5/2	5	NO	0.33	0.33	7.1	4.1	2.2	
BI-PB-102-10B	PETIT BOIS PASS- ALABAMA WEST	2010	8/3/2010	2:00 PM	30.19432	-88.35639	252813.06670	1134927.30900	20-ft Vibracore	31.0	20.0	4.0 - 8.0	4.0	SP	SP	SUBANGULAR TO ROUNDED	DARK GRAYISH BROWN	2.5Y 4/2	4	LIGHT BROWNISH GRAY	2.5Y 6/2	6	NO	0.33	0.34	3.1	2.3	1.3	
BI-PB-102-10C	PETIT BOIS PASS- ALABAMA WEST	2010	8/3/2010	2:00 PM	30.19432	-88.35639	252813.06670	1134927.30900	20-ft Vibracore	31.0	20.0	8.0 - 11.0	3.0	SP	SP-SM	SUBANGULAR TO ROUNDED	DARK GRAYISH BROWN	2.5Y 4/2	4	LIGHT BROWNISH GRAY	2.5Y 6/2	6	NO	0.26	0.24	7.3	3.7	0.8	
BI-PB-103-10	PETIT BOIS PASS- ALABAMA WEST	2010	8/4/2010	10:00 AM	30.18760	-88.37637																							



Vibracore / Sample ID	Investigation Area	Sample Event	Date of Sample	Time_CST	Latitude	Longitude	Northing_Y	Easting_X	Sample Method	Water Depth (feet)	Boring Depth (feet below seafloor surface )	Sample Depth (Feet below seafloor surface)	Sample Thickness (feet)	Field USCS	Lab USCS	Angularity	Wet Munsell Color	Wet Munsell Color Code	Wet Munsell Value	Dry Munsell Color	Dry Munsell Color Code	Dry Munsell Value	CaCO3	D50 (mm)	Graphic Mean (mm)	% Fines	Cu (D60/D10)	Cc (D30)*2 / (D10*D60)
BI-PB-106-10A	PETIT BOIS PASS- ALABAMA WEST	2010	8/4/2010	12:45 PM	30.19016	-88.36144	251293.48470	1133338.14800	20-ft Vibracore	33.0	9.5	2.0 - 5.0	3.0	SP	SP-SM	SUBANGULAR TO ROUNDED	VERY DARK GRAY	2.5Y 3/1	3	DARK GRAYISH BROWN	2.5Y 4/2	4	NO	0.25	0.30	9.2	4.1	0.7
BI-PB-106-10B	PETIT BOIS PASS- ALABAMA WEST	2010	8/4/2010	12:45 PM	30.19016	-88.36144	251293.48470	1133338.14800	20-ft Vibracore	33.0	9.5	5.0 - 9.5	4.5	SP	SM	SUBANGULAR TO ROUNDED	DARK OLIVE GRAY	5Y 3/2	3	OLIVE GRAY	5Y 5/2	5	YES	0.26	#VALUE!	19.3	#VALUE!	#VALUE!
BI-PB-107-10	PETIT BOIS PASS- ALABAMA WEST	2010	8/3/2010	2:45 PM	30.19107	-88.35654	251630.88510	1134884.86700	20-ft Vibracore	32.0	13.5	NO SAMPLE TAKEN		CH	NO SAMPLE TESTED													
BI-PB-108-10	PETIT BOIS PASS- ALABAMA EAST	2010	7/29/2010	11:00 AM	30.20020	-88.32870	254989.24110	1143665.85000	20-ft Vibracore	31.0	16.0	NO SAMPLE TAKEN		CH	NO SAMPLE TESTED													
BI-PB-109-10	PETIT BOIS PASS- ALABAMA EAST	2010	7/29/2010	10:25 AM	30.19865	-88.32584	254429.53840	1144571.85900	20-ft Vibracore	32.0	16.5																	
BI-PB-109-10A	PETIT BOIS PASS- ALABAMA EAST	2010	7/29/2010	10:25 AM	30.19865	-88.32584	254429.53840	1144571.85900	20-ft Vibracore	32.0	16.5	0.0 - 5.0	5.0	SP	SP	SUBANGULAR TO ROUNDED	DK GRAYISH BROWN	5Y 4/2	4	LT GRAY	5Y 7/2	7	NO	0.37	0.43	2.5	1.9	1.0
BI-PB-109-10B	PETIT BOIS PASS- ALABAMA EAST	2010	7/29/2010	10:25 AM	30.19865	-88.32584	254429.53840	1144571.85900	20-ft Vibracore	32.0	16.5	5.0 - 10.0	5.0	SP	SP	SUBANGULAR TO ROUNDED	GRAY	2.5Y 6/1	6	LT GRAY	2.5Y 7/1	7	NO	0.33	0.36	2.4	1.7	1.1
BI-PB-109-10C	PETIT BOIS PASS- ALABAMA EAST	2010	7/29/2010	10:25 AM	30.19865	-88.32584	254429.53840	1144571.85900	20-ft Vibracore	32.0	16.5	10.0 - 13.0	3.0	SP	SP	SUBANGULAR TO ROUNDED	GRAYISH BROWN	2.5Y 5/2	5	LT GRAY	2.5Y 7/1	7	NO	0.33	0.35	2.8	1.9	1.2
BI-PB-110-10	PETIT BOIS PASS- ALABAMA EAST	2010	7/30/2010	9:15 AM	30.19708	-88.32862	253854.64580	1143696.15000	20-ft Vibracore	31.0	12.0	NO SAMPLE TAKEN		CH	NO SAMPLE TESTED													
BI-PB-111-10	PETIT BOIS PASS- ALABAMA EAST	2010	7/29/2010	3:00 PM	30.19861	-88.33113	254407.58390	1142900.74200	20-ft Vibracore	31.0	20.0	NO SAMPLE TAKEN		CH	NO SAMPLE TESTED													
BI-PB-112-10	PETIT BOIS PASS- ALABAMA EAST	2010	7/30/2010	12:30 PM	30.20235	-88.31556	255789.80250	1147813.33300	20-ft Vibracore	31.0	11.0																	
BI-PB-112-10A	PETIT BOIS PASS- ALABAMA EAST	2010	7/30/2010	12:30 PM	30.20235	-88.31556	255789.80250	1147813.33300	20-ft Vibracore	31.0	11.0	1.0 - 5.0	4.0	SP	SP-SM	SUBANGULAR TO ROUNDED	GRAY	5Y 6/1	6	LT GRAY	2.5Y 7/1	7	NO	0.30	0.30	9.8	4.3	2.1
BI-PB-112-10B	PETIT BOIS PASS- ALABAMA EAST	2010	7/30/2010	12:30 PM	30.20235	-88.31556	255789.80250	1147813.33300	20-ft Vibracore	31.0	11.0	5.0 - 9.0	4.0	SP	SP-SM	SUBANGULAR TO ROUNDED	LT BROWNISH GRAY	2.5Y 6/2	6	LT GRAY	2.5Y 7/2	7	NO	0.33	0.34	6.2	2.3	1.4
BI-PB-112-10C	PETIT BOIS PASS- ALABAMA EAST	2010	7/30/2010	12:30 PM	30.20235	-88.31556	255789.80250	1147813.33300	20-ft Vibracore	31.0	11.0	9.0 - 11.0	2.0	SP	SP-SM	SUBANGULAR TO ROUNDED	GRAY	2.5Y 6/1	6	LT GRAY	2.5Y 7/2	7	NO	0.33	0.34	6.6	2.0	1.2
BI-PB-113-10	PETIT BOIS PASS- ALABAMA EAST	2010	7/30/2010	9:55 AM	30.20109	-88.31458	255332.96340	1148125.00400	20-ft Vibracore	32.0	17.5																	
BI-PB-113-10A	PETIT BOIS PASS- ALABAMA EAST	2010	7/30/2010	9:55 AM	30.20109	-88.31458	255332.96340	1148125.00400	20-ft Vibracore	32.0	17.5	0.0 - 5.0	5.0	SP	SM	SUBANGULAR TO ROUNDED	GRAY	5Y 2.5/1	3	VERY DK GRAYISH BROWN	2.5Y 3/1	3	NO	0.29	#VALUE!	17.2	#VALUE!	#VALUE!
BI-PB-113-10B	PETIT BOIS PASS- ALABAMA EAST	2010	7/30/2010	9:55 AM	30.20109	-88.31458	255332.96340	1148125.00400	20-ft Vibracore	32.0	17.5	5.0 - 10.0	5.0	SP	SM	SUBANGULAR TO ROUNDED	DK GRAYISH BROWN	5Y 4/2	4	GRAYISH BROWN	5Y 5/2	5	NO	0.29	#VALUE!	19.4	#VALUE!	#VALUE!
BI-PB-113-10C	PETIT BOIS PASS- ALABAMA EAST	2010	7/30/2010	9:55 AM	30.20109	-88.31458	255332.96340	1148125.00400	20-ft Vibracore	32.0	17.5	10.0 - 15.0	5.0	SP	SM	SUBANGULAR TO ROUNDED	DK GRAYISH BROWN	2.5Y 4/2	4	GRAY	2.5Y 6/1	6	NO	0.27	#VALUE!	20.8	#VALUE!	#VALUE!
BI-PB-113-10D	PETIT BOIS PASS- ALABAMA EAST	2010	7/30/2010	9:55 AM	30.20109	-88.31458	255332.96340	1148125.00400	20-ft Vibracore	32.0	17.5	15.0 - 17.5	2.5	SP	SP-SM	SUBANGULAR TO ROUNDED	GRAY	2.5Y 5/1	5	GRAY	2.5Y 6/1	6	NO	0.31	0.31	9.9	4.5	2.2
BI-PB-114-10	PETIT BOIS PASS- ALABAMA EAST	2010	7/30/2010	10:40 AM	30.20222	-88.31305	255746.13640	1148606.46300	20-ft Vibracore	30.0	19.0																	
BI-PB-114-10A	PETIT BOIS PASS- ALABAMA EAST	2010	7/30/2010	10:40 AM	30.20222	-88.31305	255746.13640	1148606.46300	20-ft Vibracore	30.0	19.0	0.0 - 5.0	5.0	SP	SM	SUBANGULAR TO ROUNDED	DARK OLIVE GRAY	5Y 3/2	3	OLIVE GRAY	5Y 5/2	5	NO	0.23	#VALUE!	26.9	#VALUE!	#VALUE!
BI-PB-114-10B	PETIT BOIS PASS- ALABAMA EAST	2010	7/30/2010	10:40 AM	30.20222	-88.31305	255746.13640	1148606.46300	20-ft Vibracore	30.0	19.0	5.0 - 10.0	5.0	SP	SP-SM	SUBANGULAR TO ROUNDED	GRAYISH BROWN	2.5Y 5/2	5	LT GRAY	2.5Y 7/2	7	NO	0.34	0.35	6.7	2.1	1.2
BI-PB-114-10C	PETIT BOIS PASS- ALABAMA EAST	2010	7/30/2010	10:40 AM	30.20222	-88.31305	255746.13640	1148606.46300	20-ft Vibracore	30.0	19.0	10.0 - 15.0	5.0	SP	SP-SM	SUBANGULAR TO ROUNDED	VERY DK GRAYISH BROWN	2.5Y 3/2	3	GRAY	2.5Y 5/1	5	NO	0.33	0.34	6.6	2.0	1.2
BI-PB-114-10D	PETIT BOIS PASS- ALABAMA EAST	2010	7/30/2010	10:40 AM	30.20222	-88.31305	255746.13640	1148606.46300	20-ft Vibracore	30.0	19.0	15.0 - 19.0	4.0	SP	SM	SUBANGULAR TO ROUNDED	GRAY	2.5Y 2.5/1	3	DK GRAY	2.5Y 4/1	4	NO	0.30	0.27	13.8	#VALUE!	#VALUE!
BI-PB-115-10	PETIT BOIS PASS- ALABAMA EAST	2010	7/29/2010	2:25 PM	30.20605	-88.33801	257103.90680	1140715.49100	20-ft Vibracore	18.0	15.0																	
BI-PB-115-10A	PETIT BOIS PASS- ALABAMA EAST	2010	7/29/2010	2:25 PM	30.20605	-88.33801	257103.90680	1140715.49100	20-ft Vibracore	18.0	15.0	0.0 - 4.0	4.0	SP	SP	SUBANGULAR TO ROUNDED	DK GRAYISH BROWN	2.5Y 4/2	4	LT BROWNISH GRAY	2.5Y 6/2	6	YES	0.24	0.26	2.2	1.8	0.9
BI-PB-115-10B	PETIT BOIS PASS- ALABAMA EAST	2010	7/29/2010	2:25 PM	30.20605	-88.33801	257103.90680	1140715.49100	20-ft Vibracore	18.0	15.0	4.0 - 8.0	4.0	SP	SP	SUBANGULAR TO ROUNDED	GRAYISH BROWN	2.5Y 5/2	5	LT BROWNISH GRAY	2.5Y 6/2	6	NO	0.22	0.24	4.8	2.1	1.0
BI-PB-115-10C	PETIT BOIS PASS- ALABAMA EAST	2010	7/29/2010	2:25 PM	30.20605	-88.33801	257103.90680	1140715.49100	20-ft Vibracore	18.0	15.0	8.0 - 11.5	3.5	SP	SP-SM	SUBANGULAR TO ROUNDED	DK GRAYISH BROWN	5Y 4/2	4	LT BROWNISH GRAY	5Y 6/2	6	NO	0.29	0.29	5.5	2.1	1.1
BI-PB-116-10	PETIT BOIS PASS- ALABAMA EAST	2010	7/29/2010	1:35 PM	30.20590	-88.33345	257055.64770	1142156.18600	20-ft Vibracore	16.0	15.0																	
BI-PB-116-10A	PETIT BOIS PASS- ALABAMA EAST	2010	7/29/2010	1:35 PM	30.20590	-88.33345	257055.64770	1142156.18600	20-ft Vibracore	16.0	15.0	0.0 - 5.0	5.0	SP	SP	SUBANGULAR TO ROUNDED	OLIVE BROWN	2.5Y 4/3	4	LT BROWNISH GRAY	2.5Y 6/2	6	NO	0.34	0.37	2.7	1.7	1.0
BI-PB-116-10B	PETIT BOIS PASS- ALABAMA EAST	2010	7/29/2010	1:35 PM	30.20590	-88.33345	257055.64770	1142156.18600	20-ft Vibracore	16.0	15.0	5.0 - 7.0	2.0	SP	SP	SUBANGULAR TO ROUNDED	GRAYISH BROWN	2.5Y 5/2	5	LT GRAY	2.5Y 7/1	7	NO	0.28	0.28	4.6	2.1	1.1
BI-PB-117-10	PETIT BOIS PASS- ALABAMA EAST	2010	7/29/2010	12:30 PM	30.20617	-88.32869	257160.47530	1143659.38800	20-ft Vibracore	16.0	20.0																	
BI-PB-117-10A	PETIT BOIS PASS- ALABAMA EAST	2010	7/29/2010	12:30 PM	30.20617	-88.32869	257160.47530	1143659.38800	20-ft Vibracore	16.0	20.0	0.0 - 5.0	5.0	SP	SP	SUBANGULAR TO ROUNDED	GRAY	2.5Y 6/1	6	LT GRAY	2.5Y 7/1	7	NO	0.32	0.33	1.7	1.7	1.0
BI-PB-117-10B	PETIT BOIS PASS- ALABAMA EAST	2010	7/29/2010	12:30 PM	30.20617	-88.32869	257160.47530	1143659.38800	20-ft Vibracore	16.0	20.0	5.0 - 10.0	5.0	SP	SP	SUBANGULAR TO ROUNDED	GRAYISH BROWN	5Y 5/2	5	LT GRAY	5Y 7/1	7	YES	0.31	0.32	1.8	1.6	1.0
BI-PB-117-10C	PETIT BOIS PASS- ALABAMA EAST	2010	7/29/2010	12:30 PM	30.20617	-88.32869	257160.47530	1143659.38800	20-ft Vibracore	16.0	20.0	10.0 - 15.0	5.0	SP	SP	SUBANGULAR TO ROUNDED	GRAY	2.5Y 5/1	5	LT GRAY	2.5Y 7/1	7	YES	0.26	0.27	4.5	2.2	1.1
BI-PB-117-10D	PETIT BOIS PASS- ALABAMA EAST	2010	7/29/2010	12:30 PM	30.20617	-88.32869	257160.47530	1143659.38800	20-ft Vibracore	16.0	20.0	15.0 - 20.0	5.0	SP	SP-SM	SUBANGULAR TO ROUNDED	VERY DK GRAY	2.5Y 3/1	3	GRAYISH BROWN	2.5Y 5/2	5	NO	0.20	0.21	9.8	3.0	1.5
BI-PB-118-10	PETIT BOIS PASS- ALABAMA EAST	2010	7/30/2010	1:00 PM	30.20604	-88.32426	257119.42420	1145058.98900	20-ft Vibracore	16.0	20.0																	
BI-PB-118-10A	PETIT BOIS PASS- ALABAMA EAST	2010	7/30/2010	1:00 PM	30.20604	-88.32426	257119.42420	1145058.98900	20-ft Vibracore	16.0	20.0	0.0 - 5.0	5.0	SW	SP	SUBANGULAR TO ROUNDED	GRAY	2.5Y 5/1	5	LT GRAY	2.5Y 7/1	7	NO	0.31	0.31	1.6	1.8	1.1
BI-PB-118-10B	PETIT BOIS PASS- ALABAMA EAST	2010	7/30/2010	1:00 PM	30.20604	-88.32426	257119.42420	1145058.98900	20-ft Vibracore	16.0	20.0	5.0 - 10.0	5.0	SW	SP-SM	SUBANGULAR TO ROUNDED	GRAYISH BROWN	2.5Y 5/2	5	LT GRAY	2.5Y 7/1	7	NO	0.31	0.31	6.1	1.9	1.1
BI-PB-118-10C	PETIT BOIS PASS- ALABAMA EAST	2010	7/30/2010	1:00 PM	30.20604	-88.32426	257119.42420	1145058.98900	20-ft Vibracore	16.0	20.0	10.0- 15.0	5.0	SW	SP	SUBANGULAR TO ROUNDED	GRAYISH BROWN	5Y 5/2	5	LT GRAY	5Y 7/1	7	NO	0.36	0.38	1.8	1.8	1.0
BI-PB-118-10D	PETIT BOIS PASS- ALABAMA EAST	2010	7/30/2010	1:00 PM	30.20604	-88.32426	257119.42420	1145058.98900	20-ft Vibracore	16.0	20.0	15.0 - 20.0	5.0	SW	SP	SUBANGULAR TO ROUNDED	GRAYISH BROWN	5Y 5/2	5	LT GRAY	5Y 7/1	7	NO	0.29	0.30	2.5	1.8	1.0
BI-PB-119-10	PETIT BOIS PASS- ALABAMA EAST	2010	7/30/2010	2:05 PM	30.20621	-88.31930	257188.28950	1146625.52400	20-ft Vibracore	16.0	20.0																	

Vibracore / Sample ID	Investigation Area	Sample Event	Date of Sample	Time_CST	Latitude	Longitude	Northing_Y	Easting_X	Sample Method	Water Depth (feet)	Boring Depth (feet below seafloor surface )	Sample Depth (Feet below seafloor surface)	Sample Thickness (feet)	Field USCS	Lab USCS	Angularity	Wet Munsell Color	Wet Munsell Color Code	Wet Munsell Value	Dry Munsell Color	Dry Munsell Color Code	Dry Munsell Value	CaCO3	D50 (mm)	Graphic Mean (mm)	% Fines	Cu (D60/D10)	Cc (D30)^2 / (D10*D60)
BI-PB-121-10	PETIT BOIS PASS-ALABAMA EAST	2010	7/31/2010	9:20 AM	30.20603	-88.30993	257136.30770	1149585.71000	20-ft Vibracore	29.0	20.0																	
BI-PB-121-10A	PETIT BOIS PASS-ALABAMA EAST	2010	7/31/2010	9:20 AM	30.20603	-88.30993	257136.30770	1149585.71000	20-ft Vibracore	29.0	20.0	0.0 - 5.0	5.0	SW	SP	SUBANGULAR TO ROUNDED	GRAYISH BROWN	2.5Y 5/2	5	LT GRAY	2.5Y 7/1	7	NO	0.28	0.29	4.6	1.9	1.0
BI-PB-121-10B	PETIT BOIS PASS-ALABAMA EAST	2010	7/31/2010	9:20 AM	30.20603	-88.30993	257136.30770	1149585.71000	20-ft Vibracore	29.0	20.0	5.0 - 10.0	5.0	SW	SP-SM	SUBANGULAR TO ROUNDED	OLIVE BROWN	2.5Y 4/3	4	LT GRAY	2.5Y 7/1	7	NO	0.27	0.27	10.4	#VALUE!	#VALUE!
BI-PB-121-10D	PETIT BOIS PASS-ALABAMA EAST	2010	7/31/2010	9:20 AM	30.20603	-88.30993	257136.30770	1149585.71000	20-ft Vibracore	29.0	20.0	10.0 - 15.0	5.0	SW	SP-SM	SUBANGULAR TO ROUNDED	GRAYISH BROWN	2.5Y 5/2	5	LT GRAY	2.5Y 7/2	7	NO	0.31	0.32	6.2	1.8	1.1
BI-PB-121-10E	PETIT BOIS PASS-ALABAMA EAST	2010	7/31/2010	9:20 AM	30.20603	-88.30993	257136.30770	1149585.71000	20-ft Vibracore	29.0	20.0	15.0 - 20.0	5.0	SP	SP-SM	SUBANGULAR TO ROUNDED	GRAYISH BROWN	2.5Y 5/2	5	LT GRAY	2.5Y 7/2	7	NO	0.31	0.30	6.1	2.0	1.2
BI-PB-122-10	PETIT BOIS PASS-ALABAMA EAST	2010	7/31/2010	10:00 AM	30.20609	-88.30508	257165.20320	1151117.67700	20-ft Vibracore	30.0	18.5																	
BI-PB-122-10A	PETIT BOIS PASS-ALABAMA EAST	2010	7/31/2010	10:00 AM	30.20609	-88.30508	257165.20320	1151117.67700	20-ft Vibracore	30.0	18.5	1.0 - 5.0	4.0	SW	SP-SM	SUBANGULAR TO ROUNDED	GRAY	2.5Y 5/1	5	LT BROWNISH GRAY	2.5Y 6/2	6	NO	0.32	0.33	5.5	1.9	1.1
BI-PB-122-10B	PETIT BOIS PASS-ALABAMA EAST	2010	7/31/2010	10:00 AM	30.20609	-88.30508	257165.20320	1151117.67700	20-ft Vibracore	30.0	18.5	5.0 - 10.0	5.0	SW	SM	SUBANGULAR TO ROUNDED	GRAY	2.5Y 5/1	5	LT GRAY	2.5Y 7/1	7	NO	0.26	0.25	12.8	#VALUE!	#VALUE!
BI-PB-122-10C	PETIT BOIS PASS-ALABAMA EAST	2010	7/31/2010	10:00 AM	30.20609	-88.30508	257165.20320	1151117.67700	20-ft Vibracore	30.0	18.5	10.0 - 15.0	5.0	SW	SP-SM	SUBANGULAR TO ROUNDED	LT BROWNISH GRAY	2.5Y 6/2	6	LT GRAY	2.5Y 7/2	7	NO	0.32	0.34	6.5	1.8	1.1
BI-PB-122-10D	PETIT BOIS PASS-ALABAMA EAST	2010	7/31/2010	10:00 AM	30.20609	-88.30508	257165.20320	1151117.67700	20-ft Vibracore	30.0	18.5	15.0 - 16.5	1.5	SW	SP	SUBANGULAR TO ROUNDED	GRAY	2.5Y 5/1	5	LT GRAY	2.5Y 7/1	7	NO	0.33	0.34	4.3	2.3	1.4
BI-PB-123-10	PETIT BOIS PASS-ALABAMA EAST	2010	7/31/2010	10:40 AM	30.20617	-88.30053	257200.99430	1152554.84100	20-ft Vibracore	31.0	16.0																	
BI-PB-123-10A	PETIT BOIS PASS-ALABAMA EAST	2010	7/31/2010	10:40 AM	30.20617	-88.30053	257200.99430	1152554.84100	20-ft Vibracore	31.0	16.0	0.0 - 5.0	5.0	SW	SP	SUBANGULAR TO ROUNDED	LT BROWNISH GRAY	2.5Y 6/2	6	LT GRAY	2.5Y 7/2	7	NO	0.35	0.37	4.9	1.8	1.0
BI-PB-123-10B	PETIT BOIS PASS-ALABAMA EAST	2010	7/31/2010	10:40 AM	30.20617	-88.30053	257200.99430	1152554.84100	20-ft Vibracore	31.0	16.0	5.0 - 10.0	5.0	SW	SP	SUBANGULAR TO ROUNDED	LT GRAY	2.5Y 7/1	7	WHITE	2.5Y 8/1	8	NO	0.30	0.30	3.2	1.9	1.1
BI-PB-123-10C	PETIT BOIS PASS-ALABAMA EAST	2010	7/31/2010	10:40 AM	30.20617	-88.30053	257200.99430	1152554.84100	20-ft Vibracore	31.0	16.0	10.0 - 15.0	5.0	SW	SP	SUBANGULAR TO ROUNDED	LT GRAY	2.5Y 7/1	7	WHITE	2.5Y 8/1	8	NO	0.30	0.30	4.5	2.1	1.1
BI-PB-124-10	PETIT BOIS PASS-ALABAMA EAST	2010	8/7/2010	12:15 PM	30.20593	-88.29567	257120.92440	1154090.47900	20-ft Vibracore	32.0	13.6																	
BI-PB-124-10A	PETIT BOIS PASS-ALABAMA EAST	2010	8/7/2010	12:15 PM	30.20593	-88.29567	257120.92440	1154090.47900	20-ft Vibracore	32.0	13.6	0.0 - 4.0	4.0	SP	SP	SUBANGULAR TO ROUNDED	GRAYISH BROWN	2.5Y 5/2	5	LIGHT GRAY	2.5Y 7/2	7	NO	0.34	0.37	4.8	2.1	1.1
BI-PB-124-10B	PETIT BOIS PASS-ALABAMA EAST	2010	8/7/2010	12:15 PM	30.20593	-88.29567	257120.92440	1154090.47900	20-ft Vibracore	32.0	13.6	4.0 - 8.0	4.0	SP	SP	SUBANGULAR TO ROUNDED	GRAYISH BROWN	2.5Y 5/2	5	LIGHT GRAY	2.5Y 7/2	7	NO	0.33	0.34	3.8	1.9	1.1
BI-PB-125-10	PETIT BOIS PASS-ALABAMA EAST	2010	8/7/2010	10:45 AM	30.20216	-88.29599	255749.33800	1153995.86300	20-ft Vibracore	37.0	10.5																	
BI-PB-125-10A	PETIT BOIS PASS-ALABAMA EAST	2010	8/7/2010	10:45 AM	30.20216	-88.29599	255749.33800	1153995.86300	20-ft Vibracore	37.0	10.5	0.0 - 5.0	5.0	SP	SP-SM	SUBANGULAR TO ROUNDED	VERY DK GRAYISH BROWN	2.5Y 3/2	3	GRAYISH BROWN	2.5Y 5/2	5	NO	0.26	0.27	8.9	3.0	1.6
BI-PB-125-10B	PETIT BOIS PASS-ALABAMA EAST	2010	8/7/2010	10:45 AM	30.20216	-88.29599	255749.33800	1153995.86300	20-ft Vibracore	37.0	10.5	5.0 - 10.0	5.0	SP	SP-SM	SUBANGULAR TO ROUNDED	VERY DK GRAYISH BROWN	2.5Y 3/2	3	GRAY	2.5Y 5/1	5	NO	0.30	0.29	9.4	4.0	2.5
BI-PB-126-10	PETIT BOIS PASS-ALABAMA EAST	2010	8/7/2010	9:45 AM	30.19839	-88.29581	254378.49780	1154059.19600	20-ft Vibracore	36.0	14.7																	
BI-PB-126-10A	PETIT BOIS PASS-ALABAMA EAST	2010	8/7/2010	9:45 AM	30.19839	-88.29581	254378.49780	1154059.19600	20-ft Vibracore	36.0	14.7	0.0 - 5.0	5.0	SP	SP-SM	SUBANGULAR TO ROUNDED	DARK OLIVE BROWN	2.5Y 3/3	3	GRAYISH BROWN	2.5Y 5/2	5	NO	0.33	0.33	9.1	4.4	2.3
BI-PB-126-10B	PETIT BOIS PASS-ALABAMA EAST	2010	8/7/2010	9:45 AM	30.19839	-88.29581	254378.49780	1154059.19600	20-ft Vibracore	36.0	14.7	5.0 - 10.0	5.0	SP	SP-SM	SUBANGULAR TO ROUNDED	VERY DK GRAYISH BROWN	2.5Y 3/2	3	GRAY	2.5Y 5/1	5	NO	0.32	0.33	6.2	1.7	1.0
BI-PB-126-10C	PETIT BOIS PASS-ALABAMA EAST	2010	8/7/2010	9:45 AM	30.19839	-88.29581	254378.49780	1154059.19600	20-ft Vibracore	36.0	14.7	10.0 - 14.7	4.7	SP	SP-SM	SUBANGULAR TO ROUNDED	DARK GRAYISH BROWN	2.5Y 4/2	4	GRAY	2.5Y 5/1	5	NO	0.32	0.31	11.0	#VALUE!	#VALUE!
BI-PB-127-10	PETIT BOIS PASS-ALABAMA WEST	2010	8/9/2010	2:45 PM	30.19862	-88.35651	254376.76370	1134882.85200	20-ft Vibracore	29.0	15.5																	
BI-PB-127-10A	PETIT BOIS PASS-ALABAMA WEST	2010	8/9/2010	2:45 PM	30.19862	-88.35651	254376.76370	1134882.85200	20-ft Vibracore	29.0	15.5	0.0 - 5.0	5.0	SP	SP	SUBANGULAR TO ROUNDED	VERY DARK GRAYISH BROWN	10YR 3/2	3	DRAK GRAYISH BROWN	10YR 4/2	4	NO	0.29	0.29	2.4	2.4	1.3
BI-PB-127-10B	PETIT BOIS PASS-ALABAMA WEST	2010	8/9/2010	2:45 PM	30.19862	-88.35651	254376.76370	1134882.85200	20-ft Vibracore	29.0	15.5	5.0 - 10.0	5.0	SP	SP	SUBANGULAR TO ROUNDED	DARK OLIVE BROWN	2.5Y 3/3	3	GRAYISH BROWN	2.5Y 5/2	5	NO	0.28	0.27	4.5	2.6	1.3
BI-PB-128-10	PETIT BOIS PASS-ALABAMA WEST	2010	8/9/2010	2:05 PM	30.19868	-88.35211	254404.43060	1136272.77600	20-ft Vibracore	30.0	14.0																	
BI-PB-128-10A	PETIT BOIS PASS-ALABAMA WEST	2010	8/9/2010	2:05 PM	30.19868	-88.35211	254404.43060	1136272.77600	20-ft Vibracore	30.0	14.0	1.0 - 6.0	5.0	SP	SP	SUBANGULAR TO ROUNDED	DARK OLIVE BROWN	2.5Y 3/3	3	GRAYISH BROWN	2.5Y 5/2	5	NO	0.27	0.27	3.8	2.4	1.3
BI-PB-129-10	PETIT BOIS PASS-ALABAMA WEST	2010	8/9/2010	1:25 PM	30.19426	-88.35211	252796.93190	1136279.56700	20-ft Vibracore	33.0	17.8																	
BI-PB-129-10A	PETIT BOIS PASS-ALABAMA WEST	2010	8/9/2010	1:25 PM	30.19426	-88.35211	252796.93190	1136279.56700	20-ft Vibracore	33.0	17.8	1.0 - 4.0	3.0	SP	SP	SUBANGULAR TO ROUNDED	OLIVE BROWN	2.5Y 4/3	4	LIGHT BROWNISH GRAY	2.5Y 6/2	6	NO	0.34	0.36	3.4	1.9	1.2
BI-PB-129-10B	PETIT BOIS PASS-ALABAMA WEST	2010	8/9/2010	1:25 PM	30.19426	-88.35211	252796.93190	1136279.56700	20-ft Vibracore	33.0	17.8	4.0 - 8.0	4.0	SP	SP	SUBANGULAR TO ROUNDED	OLIVE BROWN	2.5Y 4/3	4	LIGHT BROWNISH GRAY	2.5Y 6/2	6	NO	0.30	0.29	4.7	2.9	1.7
BI-PB-130-10	PETIT BOIS PASS-ALABAMA WEST	2010	8/9/2010	12:45 PM	30.19027	-88.35214	251345.77980	1136276.21900	20-ft Vibracore	36.0	16.9	NO SAMPLE TAKEN		CH	NO SAMPLE TESTED													
BI-PB-131-11	PETIT BOIS PASS-ALABAMA WEST	2011	6/30/2011	10:24 AM	30.19693	-88.36834	253746.68190	1131148.11500	20-ft Vibracore	28.5	14.3																	
BI-PB-131-11A	PETIT BOIS PASS-ALABAMA WEST	2011	6/30/2011	10:24 AM	30.19693	-88.36834	253746.68190	1131148.11500	20-ft Vibracore	28.5	14.3	0.0 - 3.3	3.3	SP	SP-SM	SUBANGULAR TO SUBROUNDED	LT OLIVE GREY	5Y 6/2	6	LT GREY	5Y 7/1	7	NA	0.31	0.31	6.5	2.1	1.3
BI-PB-131-11B	PETIT BOIS PASS-ALABAMA WEST	2011	6/30/2011	10:24 AM	30.19693	-88.36834	253746.68190	1131148.11500	20-ft Vibracore	28.5	14.3	3.3 - 8.3	5.0	SP-SM	SP-SM	SUBANGULAR TO SUBROUNDED	OLIVE GREY	5Y 5/2	5	LT BROWNISH GREY	2.5Y 6/2	6	NA	0.30	0.29	7.2	2.5	1.4
BI-PB-132-11	PETIT BOIS PASS-ALABAMA WEST	2011	6/30/2011	9:26 AM	30.19366	-88.36657	252559.71230	1131712.16200	20-ft Vibracore	33.0	18.0																	
BI-PB-132-11A	PETIT BOIS PASS-ALABAMA WEST	2011	6/30/2011	9:26 AM	30.19366	-88.36657	252559.71230	1131712.16200	20-ft Vibracore	33.0	18.0	0.0 - 5.0	5.0	SP	SP	SUBANGULAR TO SUBROUNDED	DARK GREY	5Y 4/1	4	LT BROWNISH GREY	2.5Y 6/2	6	NA	0.31	0.32	4.0	2.1	1.2
BI-PB-132-11B	PETIT BOIS PASS-ALABAMA WEST	2011	6/30/2011	9:26 AM	30.19366	-88.36657	252559.71230	1131712.16200	20-ft Vibracore	33.0	18.0	5.0 - 10.0	5.0	SP	SP-SM	SUBANGULAR TO SUBROUNDED	GREY	5Y 5/1	5	LT BROWNISH GREY	2.5Y 6/2	6	NA	0.31	0.32	5.0	2.3	1.3
BI-PB-132-11C	PETIT BOIS PASS-ALABAMA WEST	2011	6/30/2011	9:26 AM	30.19366	-88.36657	252559.71230	1131712.16200	20-ft Vibracore	33.0	18.0	10.0 - 14.8	4.8	SP	SP	SUBANGULAR TO SUBROUNDED	OLIVE GREY	5Y 5/2	5	LT GREY WITH SOME YELLOW	2.5Y 7/1	7	NA	0.32	0.32	2.5	1.7	1.1
BI-PB-133-11	PETIT BOIS PASS-ALABAMA WEST	2011	6/30/2011	11:07 AM	30.19686	-88.36402	253726.82080	1132512.98500	20-ft Vibracore	29.5	18.4																	
BI-PB-133-11A	PETIT BOIS PASS-ALABAMA WEST	2011	6/30/2011	11:07 AM	30.19686	-88.36402	253726.82080	1132512.98500	20-ft Vibracore	29.5	18.4	0.0 - 4.0	4.0	SP	SP-SM	SUBANGULAR TO SUBROUNDED	LT GREY TO MED GREY	2.5Y 5/1	5	LT GREY WITH SOME YELLOW	2.5Y 7/1	7	NA	0.27	0.29	6.6	2.2	1.1
BI-PB-133-11B	PETIT BOIS PASS-ALABAMA WEST	2011	6/30/2011	11:07 AM	30.19686	-88.36402	253726.82080	1132512.98500	20-ft Vibracore	29.5	18.4																	

Vibracore / Sample ID	Investigation Area	Sample Event	Date of Sample	Time_CST	Latitude	Longitude	Northing_Y	Easting_X	Sample Method	Water Depth (feet)	Boring Depth (feet below seafloor surface )	Sample Depth (Feet below seafloor surface)	Sample Thickness (feet)	Field USCS	Lab USCS	Angularity	Wet Munsell Color	Wet Munsell Color Code	Wet Munsell Value	Dry Munsell Color	Dry Munsell Color Code	Dry Munsell Value	CaCO3	D50 (mm)	Graphic Mean (mm)	% Fines	Cu (D60/D10)	Cc (D30)*2 / (D10*D60)	
BI-PB-136-11	PETIT BOIS PASS-ALABAMA EAST	2011	6/30/2011	1:55 PM	30.19666	-88.31871	253715.90450	1146827.59200	20-ft Vibracore	32.0	14.9																		
BI-PB-136-11A	PETIT BOIS PASS-ALABAMA EAST	2011	6/30/2011	1:55 PM	30.19666	-88.31871	253715.90450	1146827.59200	20-ft Vibracore	32.0	14.9	0.0 - 3.0	3.0	SP-SM	SP-SM	SUBANGULAR TO SUBROUNDED	DARK GREYISH BROWN	5Y 4/2	4	LT OLIVE GREY	5Y 6/2	6	NA	0.26	0.29	5.0	1.9	0.9	
BI-PB-136-11B	PETIT BOIS PASS-ALABAMA EAST	2011	6/30/2011	1:55 PM	30.19666	-88.31871	253715.90450	1146827.59200	20-ft Vibracore	32.0	14.9	3.0 - 6.5	3.5	SP	SP-SM	SUBANGULAR TO SUBROUNDED	DARK GREYISH BROWN	5Y 4/2	4	LT OLIVE GREY	5Y 6/2	6	NA	0.30	0.32	7.2	2.4	1.2	
BI-PB-137-11	PETIT BOIS PASS-ALABAMA EAST	2011	6/30/2011	1:26 PM	30.19683	-88.31532	253782.58580	1147898.28000	20-ft Vibracore	32.0	16.9																		
BI-PB-137-11A	PETIT BOIS PASS-ALABAMA EAST	2011	6/30/2011	1:26 PM	30.19683	-88.31532	253782.58580	1147898.28000	20-ft Vibracore	32.0	16.9	0.0 - 4.0	4.0	SP	SP	SUBANGULAR TO SUBROUNDED	GREYISH BROWN	5Y 5/2	5	LT TO MED GREY	5Y 7/1	7	NA	0.29	0.32	2.9	1.9	0.9	
BI-PB-137-11B	PETIT BOIS PASS-ALABAMA EAST	2011	6/30/2011	1:26 PM	30.19683	-88.31532	253782.58580	1147898.28000	20-ft Vibracore	32.0	16.9	4.0 - 8.0	4.0	SP-SM	SP-SM	SUBANGULAR TO SUBROUNDED	GREY	5Y 5/1	5	LT BROWNISH GREY	2.5Y 6/2	6	NA	0.26	0.28	6.6	2.8	1.3	
BI-PB-137-11C	PETIT BOIS PASS-ALABAMA EAST	2011	6/30/2011	1:26 PM	30.19683	-88.31532	253782.58580	1147898.28000	20-ft Vibracore	32.0	16.9	8.0 - 12.0	4.0	SP-SM	SP	SUBANGULAR TO SUBROUNDED	LT TO MED GREY	5Y 6/1	6	LT GREY WITH SOME BROWN	2.5Y 7/2	7	NA	0.30	0.31	4.9	1.9	1.1	
BI-PB-137-11D	PETIT BOIS PASS-ALABAMA EAST	2011	6/30/2011	1:26 PM	30.19683	-88.31532	253782.58580	1147898.28000	20-ft Vibracore	32.0	16.9	12.0 - 16.9	4.9	SP	SP	SUBANGULAR TO SUBROUNDED	LT TO MED GREY	5Y 6/1	6	WHITE	2.5Y 8/1	8	NA	0.29	0.30	4.4	1.9	1.1	
BI-PB-138-11	PETIT BOIS PASS-ALABAMA EAST	2011	6/30/2011	2:17 PM	30.19531	-88.31180	253234.85340	1149012.84800	20-ft Vibracore	37.5	18.5																		
BI-PB-138-11A	PETIT BOIS PASS-ALABAMA EAST	2011	6/30/2011	2:17 PM	30.19531	-88.31180	253234.85340	1149012.84800	20-ft Vibracore	37.5	18.5	0.0 - 5.0	5.0	SP	SP-SM	SUBANGULAR TO SUBROUNDED	LT TO MED GREY	2.5Y 6/1	6	MED GREY	5Y 6/1	6	NA	0.29	0.30	8.6	3.6	1.6	
BI-PB-138-11B	PETIT BOIS PASS-ALABAMA EAST	2011	6/30/2011	2:17 PM	30.19531	-88.31180	253234.85340	1149012.84800	20-ft Vibracore	37.5	18.5	5.0 - 10.0	5.0	SP	SP	SUBANGULAR TO SUBROUNDED	LT TO MED GREY	2.5Y 6/1	6	MED GREY	5Y 6/1	6	NA	0.32	0.34	3.2	1.9	1.0	
BI-PB-138-11C	PETIT BOIS PASS-ALABAMA EAST	2011	6/30/2011	2:17 PM	30.19531	-88.31180	253234.85340	1149012.84800	20-ft Vibracore	37.5	18.5	10.0 - 15.0	5.0	SP-SM	SP	SUBANGULAR TO SUBROUNDED	LT TO MED GREY	2.5Y 6/1	6	LT GREY WITH SOME YELLOW	2.5Y 7/1	7	NA	0.33	0.34	2.9	1.8	1.0	
BI-PB-138-11D	PETIT BOIS PASS-ALABAMA EAST	2011	6/30/2011	2:17 PM	30.19531	-88.31180	253234.85340	1149012.84800	20-ft Vibracore	37.5	18.5	15.0 - 16.5	1.5	SP	SP-SM	SUBANGULAR TO SUBROUNDED	GREY	2.5Y 5/1	5	LT GREY WITH SOME YELLOW	2.5Y 7/1	7	NA	0.31	0.32	5.7	2.0	1.1	
BI-PB-138-11E	PETIT BOIS PASS-ALABAMA EAST	2011	6/30/2011	2:17 PM	30.19531	-88.31180	253234.85340	1149012.84800	20-ft Vibracore	37.5	18.5	16.5 - 18.5	2.0	SP	SP-SM	SUBANGULAR TO SUBROUNDED	GREY	2.5Y 5/1	5	LT GREY WITH SOME YELLOW	2.5Y 7/1	7	NA	0.27	0.28	11.4	#VALUE!	#VALUE!	
BI-PB-139-11	PETIT BOIS PASS-ALABAMA EAST	2011	7/1/2011	4:44 PM	30.19117	-88.31200	251728.89420	1148956.55300	20-ft Vibracore	39.0	6.0																		
BI-PB-139-11A	PETIT BOIS PASS-ALABAMA EAST	2011	7/1/2011	4:44 PM	30.19117	-88.31200	251728.89420	1148956.55300	20-ft Vibracore	39.0	6.0	0.0 - 2.0	2.0	SP	SP	SUBANGULAR TO SUBROUNDED	LIGHT GREY	5Y 7/1	7	WHITE	2.5Y 8/1	8	NA	0.26	0.27	2.7	1.8	1.0	
BI-PB-139-11B	PETIT BOIS PASS-ALABAMA EAST	2011	7/1/2011	4:44 PM	30.19117	-88.31200	251728.89420	1148956.55300	20-ft Vibracore	39.0	6.0	2.0 - 4.0	2.0	SP	SP	SUBANGULAR TO SUBROUNDED	LT GREY	5Y 7/1	7	WHITE	2.5Y 8/1	8	NA	0.27	0.28	1.6	1.8	1.0	
BI-PB-139-11C	PETIT BOIS PASS-ALABAMA EAST	2011	7/1/2011	4:44 PM	30.19117	-88.31200	251728.89420	1148956.55300	20-ft Vibracore	39.0	6.0	4.0 - 6.0	2.0	SP	SP	SUBANGULAR TO SUBROUNDED	LT GREY	5Y 7/1	7	WHITE	2.5Y 8/1	8	NA	0.26	0.27	2.9	1.8	1.0	
BI-PB-140-11	PETIT BOIS PASS-ALABAMA EAST	2011	7/1/2011	8:28 AM	30.19233	-88.30930	252154.68620	1149807.64400	20-ft Vibracore	38.0	19.4																		
BI-PB-140-11A	PETIT BOIS PASS-ALABAMA EAST	2011	7/1/2011	8:28 AM	30.19233	-88.30930	252154.68620	1149807.64400	20-ft Vibracore	38.0	19.4	0.0 - 1.5	1.5	SP	SP-SM	SUBANGULAR TO SUBROUNDED	LIGHT GREY	5Y 7/1	7	WHITE	2.5Y 8/1	8	NA	0.26	0.31	9.1	3.7	1.5	
BI-PB-140-11B	PETIT BOIS PASS-ALABAMA EAST	2011	7/1/2011	8:28 AM	30.19233	-88.30930	252154.68620	1149807.64400	20-ft Vibracore	38.0	19.4	1.5 - 5.2	3.7	SM	SP	SUBANGULAR TO SUBROUNDED	LT GREY	5Y 7/1	7	WHITE	2.5Y 8/1	8	NA	0.32	0.33	3.9	1.8	1.0	
BI-PB-140-11C	PETIT BOIS PASS-ALABAMA EAST	2011	7/1/2011	8:28 AM	30.19233	-88.30930	252154.68620	1149807.64400	20-ft Vibracore	38.0	19.4	5.2 - 10.5	5.3	SM	SP	SUBANGULAR TO SUBROUNDED	LT GREY	5Y 7/1	7	WHITE	2.5Y 8/1	8	NA	0.30	0.30	3.9	1.8	1.0	
BI-PB-141-11	PETIT BOIS PASS-ALABAMA EAST	2011	7/1/2011	4:12 PM	30.19121	-88.30662	251751.25970	1150656.23000	20-ft Vibracore	40.5	18.1	NO SAMPLE TAKEN		CH	NO SAMPLE TESTED														
BI-PB-142-11	PETIT BOIS PASS-ALABAMA EAST	2011	7/1/2011	9:26 AM	30.19382	-88.29568	252716.63270	1154108.11000	20-ft Vibracore	41.0	15.1																		
BI-PB-142-11A	PETIT BOIS PASS-ALABAMA EAST	2011	7/1/2011	9:26 AM	30.19382	-88.29568	252716.63270	1154108.11000	20-ft Vibracore	41.0	15.1	0.0 - 2.8	2.8	SP-SM	SP-SM	SUBANGULAR TO SUBROUNDED	DARK OLIVE GREY	5Y 3/2	3	LT OLIVE GREY	5Y 6/2	6	NA	0.35	0.38	6.1	1.9	1.0	
BI-PB-142-11B	PETIT BOIS PASS-ALABAMA EAST	2011	7/1/2011	9:26 AM	30.19382	-88.29568	252716.63270	1154108.11000	20-ft Vibracore	41.0	15.1	2.8 - 7.8	5.0	SP-SM	SP	SUBANGULAR TO SUBROUNDED	DARK OLIVE GREY	5Y 3/2	3	GREYISH BROWN	5Y 5/2	5	NA	0.39	0.41	4.6	1.7	1.0	
BI-PB-142-11C	PETIT BOIS PASS-ALABAMA EAST	2011	7/1/2011	9:26 AM	30.19382	-88.29568	252716.63270	1154108.11000	20-ft Vibracore	41.0	15.1	7.8 - 12.0	4.2	SP	SP-SM	SUBANGULAR TO SUBROUNDED	DARK GREY	5Y 4/1	4	GREYISH BROWN	5Y 5/2	5	NA	0.36	0.39	7.5	2.0	1.2	
BI-PB-142-11D	PETIT BOIS PASS-ALABAMA EAST	2011	7/1/2011	9:26 AM	30.19382	-88.29568	252716.63270	1154108.11000	20-ft Vibracore	41.0	15.1	12.0 - 15.2	3.2	SP	SP	SUBANGULAR TO SUBROUNDED	GREY	5Y 5/1	5	MED GREY	5Y 6/1	6	NA	0.36	0.39	4.0	1.7	1.0	
BI-PB-143-11	PETIT BOIS PASS-ALABAMA EAST	2011	7/1/2011	9:50 AM	30.19816	-88.29124	254301.69120	1155503.32600	20-ft Vibracore	41.5	19.5	NO SAMPLE TAKEN		CH	NO SAMPLE TESTED														
BI-PB-144-11	PETIT BOIS PASS-ALABAMA EAST	2011	7/1/2011	3:07 AM	30.20246	-88.29115	255865.69100	1155524.31400	20-ft Vibracore	35.0	16.2																		
BI-PB-144-11A	PETIT BOIS PASS-ALABAMA EAST	2011	7/1/2011	3:07 AM	30.20246	-88.29115	255865.69100	1155524.31400	20-ft Vibracore	35.0	16.2	0.0 - 4.0	4.0	SP	SP-SM	SUBANGULAR TO SUBROUNDED	GREY	5Y 5/1	5	LT OLIVE BROWN	2.5Y 7/1	7		0.27	0.33	7.1	2.7	1.1	
BI-PB-144-11B	PETIT BOIS PASS-ALABAMA EAST	2011	7/1/2011	3:07 AM	30.20246	-88.29115	255865.69100	1155524.31400	20-ft Vibracore	35.0	16.2	4.0 - 8.0	4.0	SP-SM	SP-SM	SUBANGULAR TO SUBROUNDED	DARK GREY	5Y 4/1	4	LT OLIVE BROWN	2.5Y 6/2	6		0.25	0.27	5.9	1.9	1.0	
BI-PB-144-11C	PETIT BOIS PASS-ALABAMA EAST	2011	7/1/2011	3:07 AM	30.20246	-88.29115	255865.69100	1155524.31400	20-ft Vibracore	35.0	16.2	8.0 - 12.0	4.0	SP-SM	SM	SUBANGULAR TO SUBROUNDED	DARK GREYISH BROWN	5Y 4/2	4	OLIVE BROWN	2.5Y 5/1	5		0.24	#VALUE!	18.8	#VALUE!	#VALUE!	
BI-PB-144-11D	PETIT BOIS PASS-ALABAMA EAST	2011	7/1/2011	3:07 AM	30.20246	-88.29115	255865.69100	1155524.31400	20-ft Vibracore	35.0	16.2	12.0 - 16.2	4.2	SP-SM	SM	SUBANGULAR TO SUBROUNDED	DARK GREYISH BROWN	5Y 4/2	4	LIGHT OLIVE YELLOW BROWN	2.5Y 5/2	5		0.34	#VALUE!	17.9	#VALUE!	#VALUE!	
BI-PB-145-11	PETIT BOIS PASS-ALABAMA EAST	2011	7/1/2011	3:30 AM	30.20616	-88.29102	257211.53810	1155558.97400	20-ft Vibracore	36.6	16.4																		
BI-PB-145-11A	PETIT BOIS PASS-ALABAMA EAST	2011	7/1/2011	3:30 AM	30.20616	-88.29102	257211.53810	1155558.97400	20-ft Vibracore	36.6	16.4	0.0 - 4.0	4.0	SP	SP	SUBANGULAR TO SUBROUNDED	LT TO MED GREY	5Y 6/1	6	LT OLIVE BROWN	5Y 7/1	7		0.33	0.34	4.1	1.8	1.0	
BI-PB-145-11B	PETIT BOIS PASS-ALABAMA EAST	2011	7/1/2011	3:30 AM	30.20616	-88.29102	257211.53810	1155558.97400	20-ft Vibracore	36.6	16.4	4.0 - 7.3	3.3	SP	SP	SUBANGULAR TO SUBROUNDED	LT TO MED GREY	5Y 6/1	6	LT OLIVE BROWN	5Y 7/1	7		0.35	0.38	2.9	1.9	1.1	
BI-PB-145-11C	PETIT BOIS PASS-ALABAMA EAST	2011	7/1/2011	3:30 AM	30.20616	-88.29102	257211.53810	1155558.97400	20-ft Vibracore	36.6	16.4	7.3 - 11.3	4.0	SC	SM	SUBANGULAR TO SUBROUNDED	DARK OLIVE GREY	5Y 3/2	3	OLIVE BROWN	2.5Y 5/1	5		0.19	#VALUE!	21.2	#VALUE!	#VALUE!	
BI-PB-146-11	PETIT BOIS PASS-ALABAMA EAST	2011	6/30/2011	1:01 PM	30.20093	-88.31710	255271.15610	1147329.18500	20-ft Vibracore	35.0	18.9																		
BI-PB-146-11A	PETIT BOIS PASS-ALABAMA EAST	2011	6/30/2011	1:01 PM	30.20093	-88.31710	255271.15610	1147329.18500	20-ft Vibracore	35.0	18.9	0.0 - 4.0	4.0	SP	SP	SUBANGULAR TO SUBROUNDED	LT TO MED GREY	5Y 6/1	6	LT OLIVE BROWN	2.5Y 7/1	7		0.35	0.37	3.8	1.9	1.1	
BI-PB-146-11B	PETIT BOIS PASS-ALABAMA EAST	2011	6/30/2011	1:01 PM	30.20093	-88.31710	255271.15610	1147329.18500	20-ft Vibracore	35.0	18.9	4.0 - 8.0	4.0	SP	SP-SM	SUBANGULAR TO SUBROUNDED	LT GREY WITH SOME YELLOW	2.5Y 7/1	7	LT OLIVE BROWN	2.5Y 7/1	7		0.35	0.37	5.3	2.0	1.2	
BI-PB-146-11C	PETIT BOIS PASS-ALABAMA EAST	2011	6/30/2011	1:01 PM	30.20093	-88.31710	255271.15610	1147329.18500	20-ft Vibracore	35.0	18.9	8.0 - 12.0	4.0	SP	SP	SUBANGULAR TO SUBROUNDED	LT GREY WITH SOME YELLOW	2.5Y 7/1	7	LT OLIVE BROWN	2.5Y 7/1	7		0.35	0.37	3.5	1.8	1.1	
BI																													



Vibracore / Sample ID	Investigation Area	Sample Event	Date of Sample	Time_CST	Latitude	Longitude	Northing_Y	Easting_X	Sample Method	Water Depth (feet)	Boring Depth (feet below seafloor surface )	Sample Depth (Feet below seafloor surface)	Sample Thickness (feet)	Field USCS	Lab USCS	Angularity	Wet Munsell Color	Wet Munsell Color Code	Wet Munsell Value	Dry Munsell Color	Dry Munsell Color Code	Dry Munsell Value	CaCO3	D50 (mm)	Graphic Mean (mm)	% Fines	Cu (D60/D10)	Cc (D30)^*2 / (D10*D60)
BI-PB-148-12B	PETIT BOIS PASS-ALABAMA EAST	2012	12/6/2012	11:30 AM	30.20130	-88.29687	255435.25470	1153719.34200	20-ft Vibracore	38.4	17.1	7-12	5.0	SP-SM	SP-SM	SUBANGULAR TO SUBROUNDED	OLIVE GRAY	5Y 5/2	5	LT BROWNISH GRAY	2.5Y 6/2	6	NO	0.32	0.32	6.2	1.9	1.2
BI-PB-148-12C	PETIT BOIS PASS-ALABAMA EAST	2012	12/6/2012	11:30 AM	30.20130	-88.29687	255435.25470	1153719.34200	20-ft Vibracore	38.4	17.1	12-16	4.0	SP-SM	SP-SM	SUBANGULAR TO SUBROUNDED	GRAYISH BROWN	2.5Y 5/2	5	GRAY	2.5Y 6/1	6		0.32	0.32	6.1	1.8	1.2
BI-PB-149-12	PETIT BOIS PASS-ALABAMA EAST	2012	12/6/2012	11:26 AM	30.19520	-88.31772	253186.33380	1147142.75700	20-ft Vibracore	37.6	14.7	NO SAMPLE TAKEN		SC	NO SAMPLE TESTED													
BI-PB-150-12	PETIT BOIS PASS-ALABAMA EAST	2012	12/12/2012	12:34 PM	30.19530	-88.32142	253217.43080	1145973.67200	20-ft Vibracore	39.2	17.4	NO SAMPLE TAKEN		CH	NO SAMPLE TESTED													
BI-PB-151-12	PETIT BOIS PASS-ALABAMA EAST	2012	12/12/2012	10:32 AM	30.19673	-88.32087	253738.28630	1146145.09100	20-ft Vibracore	35.9	20.0		8.5															
BI-PB-151-12A	PETIT BOIS PASS-ALABAMA EAST	2012	12/12/2012	10:32 AM	30.19673	-88.32087	253738.28630	1146145.09100	20-ft Vibracore	35.9	20.0	1.5-5	3.5	SP	SP	SUBANGULAR TO SUBROUNDED	LT OLIVE GRAY	5Y 6/2	6	LT GRAY	5Y 7/2	7		0.35	0.38	4.3	1.8	1.0
BI-PB-151-12B	PETIT BOIS PASS-ALABAMA EAST	2012	12/12/2012	10:32 AM	30.19673	-88.32087	253738.28630	1146145.09100	20-ft Vibracore	35.9	20.0	5-10	5.0	SP	SP	SUBANGULAR TO SUBROUNDED	LT GRAY	5Y 7/1	7	WHITE	5Y 8/1	8		0.38	0.41	2.0	1.8	1.0
BI-PB-152-12	PETIT BOIS PASS-ALABAMA EAST	2012	12/12/2012	9:54 AM	30.19793	-88.32130	254174.10150	1146007.28400	20-ft Vibracore	33.6	18.8		11.1															
BI-PB-152-12A	PETIT BOIS PASS-ALABAMA EAST	2012	12/12/2012	9:54 AM	30.19791	-88.32130	254166.82770	1146007.31600	20-ft Vibracore	33.6	18.8	0-1.2	1.2	SP	SP	SUBANGULAR TO SUBROUNDED	LT OLIVE GRAY	5Y 6/2	6	LT GRAY	5Y 7/2	7		0.29	0.32	2.0	1.9	0.9
BI-PB-152-12B	PETIT BOIS PASS-ALABAMA EAST	2012	12/12/2012	9:54 AM	30.19791	-88.32130	254166.82770	1146007.31600	20-ft Vibracore	33.6	18.8	2.8-5.9	3.1	SP	SP	SUBANGULAR TO SUBROUNDED	LT OLIVE GRAY	5Y 6/2	6	LT GRAY	5Y 7/2	7		0.34	0.37	3.1	1.8	1.0
BI-PB-152-12C	PETIT BOIS PASS-ALABAMA EAST	2012	12/12/2012	9:54 AM	30.19791	-88.32130	254166.82770	1146007.31600	20-ft Vibracore	33.6	18.8	5.9-10.9	5.0	SP	SP	SUBANGULAR TO SUBROUNDED	GRAY	5Y 6/1	6	LT GRAY	5Y 7/1	7		0.34	0.36	2.5	1.7	1.0
BI-PB-152-12D	PETIT BOIS PASS-ALABAMA EAST	2012	12/12/2012	9:54 AM	30.19791	-88.32130	254166.82770	1146007.31600	20-ft Vibracore	33.6	18.8	12.0-13.8	1.8	SP-SM	SP-SM	SUBANGULAR TO SUBROUNDED	GRAY	5Y 5/1	6	LT GRAY	5Y 7/1	7		0.29	0.29	10.7	#VALUE!	#VALUE!
BI-PB-153-12	PETIT BOIS PASS-ALABAMA EAST	2012	12/12/2012	11:00 AM	30.19520	-88.31947	253183.83560	1146589.88800	20-ft Vibracore	38.7	20.0	NO SAMPLE TAKEN		CH	NO SAMPLE TESTED													
BI-PB-154-12	PETIT BOIS PASS-ALABAMA EAST	2012	12/11/2012	2:07 PM	30.19668	-88.32627	253712.46760	1144439.20600	20-ft Vibracore	33.4	15.0		2.3															
BI-PB-154-12A	PETIT BOIS PASS-ALABAMA EAST	2012	12/11/2012	2:07 PM	30.19668	-88.32627	253712.46760	1144439.20600	20-ft Vibracore	33.4	15.0	0-2.3	2.3	SP	SP	SUBANGULAR TO SUBROUNDED	OLIVE GRAY	5Y 5/2	5	LT GRAY	5Y 7/2	7		0.30	0.33	2.9	2.0	1.0
BI-PB-155-12	PETIT BOIS PASS-ALABAMA EAST	2012	12/7/2012	2:42 PM	30.19898	-88.32765	254547.01250	1143999.52300	20-ft Vibracore	35.1	13.4		5.0															
BI-PB-155-12A	PETIT BOIS PASS-ALABAMA EAST	2012	12/7/2012	2:42 PM	30.19898	-88.32765	254547.01250	1143999.52300	20-ft Vibracore	35.1	13.4	8.4-13.4	5.0	SP	SP	SUBANGULAR TO SUBROUNDED	OLIVE	5Y 4/4	4	PALE OLIVE	5Y 6/4	6		0.29	0.30	3.3	1.8	1.0
BI-PB-156-12	PETIT BOIS PASS-ALABAMA EAST	2012	12/19/2012	1:33 PM	30.19525	-88.32573	253193.15330	1144612.12000	20-ft Vibracore	35.4	15.6		1.6															
BI-PB-156-12A	PETIT BOIS PASS-ALABAMA EAST	2012	12/19/2012	1:33 PM	30.19525	-88.32573	253193.15330	1144612.12000	20-ft Vibracore	35.4	15.6	0.0-1.6	1.6	SP	SP	SUBANGULAR TO SUBROUNDED	OLIVE GRAY	5Y 5/2	5	LT GRAY	5Y 7/2	7		0.29	0.30	1.5	1.8	1.0
BI-PB-157-12	PETIT BOIS PASS-ALABAMA EAST	2012	12/11/2012	2:36 PM	30.19737	-88.32490	253965.34170	1144870.89600	20-ft Vibracore	36.7	19.8		7.8															
BI-PB-157-12A	PETIT BOIS PASS-ALABAMA EAST	2012	12/11/2012	2:36 PM	30.19737	-88.32490	253965.34170	1144870.89600	20-ft Vibracore	36.7	19.8	0-5	5.0	SP	SP	SUBANGULAR TO SUBROUNDED	LT BROWNISH GRAY	2.5Y 6/2	6	LT GRAY	2.5Y 7/2	7		0.34	0.36	2.4	1.4	1.0
BI-PB-157-12B	PETIT BOIS PASS-ALABAMA EAST	2012	12/11/2012	2:36 PM	30.19737	-88.32490	253965.34170	1144870.89600	20-ft Vibracore	36.7	19.8	5-7.8	2.8	SP	SP	SUBANGULAR TO SUBROUNDED	LT GRAY	2.5Y 7/1	7	WHITE	2.5Y 8/1	8		0.35	0.38	1.9	1.7	1.0
BI-PB-158-12	PETIT BOIS PASS-ALABAMA EAST	2012	12/12/2012	9:18 AM	30.19712	-88.32303	253877.06130	1145462.06900	20-ft Vibracore	36.4	19.7		9.7															
BI-PB-158-12A	PETIT BOIS PASS-ALABAMA EAST	2012	12/12/2012	9:18 AM	30.19712	-88.32303	253877.06130	1145462.06900	20-ft Vibracore	36.4	19.7	0-1.4	1.4	SP	SP	SUBANGULAR TO SUBROUNDED	LT OLIVE GRAY	5Y 6/2	6	LT GRAY	5Y 7/2	7		0.41	0.47	2.1	2.2	1.0
BI-PB-158-12B	PETIT BOIS PASS-ALABAMA EAST	2012	12/12/2012	9:18 AM	30.19712	-88.32303	253877.06130	1145462.06900	20-ft Vibracore	36.4	19.7	1.4-4.7	3.3	SP	SP-SM	SUBANGULAR TO SUBROUNDED	LT GRAY	2.5Y 7/1	7	WHITE	2.5Y 8/1	8		0.36	0.38	5.8	1.5	1.0
BI-PB-158-12C	PETIT BOIS PASS-ALABAMA EAST	2012	12/12/2012	9:18 AM	30.19712	-88.32303	253877.06130	1145462.06900	20-ft Vibracore	36.4	19.7	4.7-7.3	2.6	SP-SM	SP	SUBANGULAR TO SUBROUNDED	LT GRAY	2.5Y 7/1	7	WHITE	2.5Y 8/1	8		0.34	0.34	1.8	1.4	1.0
BI-PB-158-12D	PETIT BOIS PASS-ALABAMA EAST	2012	12/12/2012	9:18 AM	30.19712	-88.32303	253877.06130	1145462.06900	20-ft Vibracore	36.4	19.7	7.3-9.7	2.4	SM	SP-SM	SUBANGULAR TO SUBROUNDED	OLIVE GRAY	5Y 4/2	4	OLIVE GRAY	5Y 5/2	5		0.26	0.27	8.9	2.3	1.1
BI-PB-159-12	PETIT BOIS PASS-ALABAMA EAST	2012	12/19/2012	1:02 PM	30.19537	-88.32348	253239.97030	1145322.75400	20-ft Vibracore	36.2	17.0	NO SAMPLE TAKEN		CH	NO SAMPLE TESTED													
BI-PB-160-12	PETIT BOIS PASS-ALABAMA EAST	2012	12/12/2012	2:17 PM	30.19333	-88.31678	252507.58200	1147442.80900	20-ft Vibracore	39.8	19.2	NO SAMPLE TAKEN		CH	NO SAMPLE TESTED													
BI-PB-161-12	PETIT BOIS PASS-ALABAMA EAST	2012	12/12/2012	2:50 PM	30.19198	-88.31505	252019.08520	1147991.60300	20-ft Vibracore	41.7	11.6	NO SAMPLE TAKEN		CH	NO SAMPLE TESTED													
BI-PB-162-12	PETIT BOIS PASS-ALABAMA EAST	2012	12/6/2012	1:25 PM	30.19825	-88.29327	254331.37690	1154861.86200	20-ft Vibracore	40.6	20.0		15.0															
BI-PB-162-12A	PETIT BOIS PASS-ALABAMA EAST	2012	12/6/2012	1:25 PM	30.19825	-88.29327	254331.37690	1154861.86200	20-ft Vibracore	40.6	20.0	0-5	5.0	SP	SP	SUBANGULAR TO SUBROUNDED	GRAYISH BROWN	2.5Y 5/2	5	LT BROWNISH GRAY	2.5Y 6/2	6		0.33	0.34	4.8	1.7	1.0
BI-PB-162-12B	PETIT BOIS PASS-ALABAMA EAST	2012	12/6/2012	1:25 PM	30.19825	-88.29327	254331.37690	1154861.86200	20-ft Vibracore	40.6	20.0	5-10	5.0	SP-SM	SP	SUBANGULAR TO SUBROUNDED	DK GRAYISH BROWN	2.5Y 4/2	4	GRAYISH BROWN	2.5Y 5/2	5		0.32	0.33	4.7	1.7	1.0
BI-PB-162-12C	PETIT BOIS PASS-ALABAMA EAST	2012	12/6/2012	1:25 PM	30.19825	-88.29327	254331.37690	1154861.86200	20-ft Vibracore	40.6	20.0	10-15	5.0	SP-SM	SP-SM	SUBANGULAR TO SUBROUNDED	GRAYSIH BROWN	2.5Y 5/1.5	5	GRAY	2.5Y 6/1	6		0.31	0.30	7.8	1.9	1.3
BI-PB-163-12	PETIT BOIS PASS-ALABAMA EAST	2012	12/6/2012	12:18 PM	30.20037	-88.29327	255102.39820	1154858.20600	20-ft Vibracore	38.2	20.0		13.2															
BI-PB-163-12A	PETIT BOIS PASS-ALABAMA EAST	2012	12/6/2012	12:18 PM	30.20037	-88.29327	255102.39820	1154858.20600	20-ft Vibracore	38.2	20.0	0-5	5.0	SP-SM	SP-SM	SUBANGULAR TO SUBROUNDED	GRAYISH BROWN	2.5Y 5/2	5	LT BROWNISH GRAY	2.5Y 6/2	6	NO	0.30	0.31	7.2	1.9	1.1
BI-PB-163-12B	PETIT BOIS PASS-ALABAMA EAST	2012	12/6/2012	12:18 PM	30.20037	-88.29327	255102.39820	1154858.20600	20-ft Vibracore	38.2	20.0	5-10	5.0	SP-SM	SP-SM	SUBANGULAR TO SUBROUNDED	DK GRAYISH BROWN	2.5Y 4/2	4	GRAYISH BROWN	2.5Y 5/2	5		0.31	0.31	5.7	1.7	1.1
BI-PB-163-12C	PETIT BOIS PASS-ALABAMA EAST	2012	12/6/2012	12:18 PM	30.20037	-88.29327	255102.39820	1154858.20600	20-ft Vibracore	38.2	20.0	10-13.2	3.2	SP-SM	SP-SM	SUBANGULAR TO SUBROUNDED	GRAY	2.5Y 5/1	5	GRAY	2.5Y 6/1	6	NO	0.31	0.31	6.9	1.7	1.1
BI-PB-164-12	PETIT BOIS PASS-ALABAMA EAST	2012	12/6/2012	10:38 AM	30.20468	-88.29327	256669.89980	1154850.77300	20-ft Vibracore	34.0	20.0		10.0															
BI-PB-164-12A	PETIT BOIS PASS-ALABAMA EAST	2012	12/6/2012	10:38 AM	30.20468	-88.29327	256669.89980	1154850.77300	20-ft Vibracore	34.0	20.0	0-2.6	3.9	SP	SP	SUBANGULAR TO SUBROUNDED	OLIVE GRAY	5Y 5/2	5	LT OLIVE GRAY	5Y 6/2	6		0.34	0.35	2.0	1.7	1.0
BI-PB-164-12B	PETIT BOIS PASS-ALABAMA EAST	2012	12/6/2012	10:38 AM	30.20468	-88.29327	256669.89980	1154850.77300	20-ft Vibracore	34.0	20.0	2.6-5	1.1	SP	SP	SUBANGULAR TO SUBROUNDED	LT BROWNISH GRAY	2.5Y 6/2	6	LT GRAY	2.5Y 7/2	7		0.34	0.36	4.2	1.6	1.0
BI-PB-164-12C	PETIT BOIS PASS-ALABAMA EAST	2012	12/6/2012	10:38 AM	30.20468	-88.29327	256669.89980	1154850.77300	20-ft Vibracore	34.0	20.0	5-8.7	5.0	SP	SP	SUBANGULAR TO SUBROUNDED	LT BROWNISH GRAY	5Y 6/2	6	LT GRAY	5Y 7/2	7		0.33	0.35	3.0	1.6	1.0
BI-PB-164-12D	PETIT BOIS PASS-ALABAMA EAST	2012	12/6/2012	10:38 AM	30.20468	-88.29327	256669.89980	1154850.77300	20-ft Vibracore	34.0	20.0	8.7-10	1.3	SP-SC	SP-SM	SUBANGULAR TO SUBROUNDED	GRAYISH BROWN	2.5Y 5/2	5	LT BROWNISH GRAY	2.5Y 6/2	6	NO	0.31	0.32	5.6	2.1	1.1
BI-PB-165-12	PETIT BOIS PASS-ALABAMA EAST	2012	12/6/2012	9:35 AM																								

Vibracore / Sample ID	Investigation Area	Sample Event	Date of Sample	Time_CST	Latitude	Longitude	Northing_Y	Easting_X	Sample Method	Water Depth (feet)	Boring Depth (feet below seafloor surface)	Sample Depth (Feet below seafloor surface)	Sample Thickness (feet)	Field USCS	Lab USCS	Angularity	Wet Munsell Color	Wet Munsell Color Code	Wet Munsell Value	Dry Munsell Color	Dry Munsell Color Code	Dry Munsell Value	CaCO3	D50 (mm)	Graphic Mean (mm)	% Fines	Cu (D60/D10)	Cc (D30)*2 / (D10*D60)
BI-PB-167-12	PETIT BOIS PASS-ALABAMA EAST	2012	11/29/2012	1:51 PM	30.21157	-88.29777	259169.00830	1153417.46100	20-ft Vibracore	29.7	15.5	NO SAMPLE TAKEN		CH	NO SAMPLE TESTED													
BI-PB-168-12	PETIT BOIS PASS-ALABAMA EAST	2012	11/29/2012	12:58 PM	30.21183	-88.30185	259257.52880	1152128.25800	20-ft Vibracore	29.2	16.6		2.5															
BI-PB-168-12A	PETIT BOIS PASS-ALABAMA EAST	2012	11/29/2012	12:58 PM	30.21183	-88.30185	259257.52880	1152128.25800	20-ft Vibracore	29.2	16.6	13.5-16	2.5	SP	SP	SUBANGULAR TO SUBROUNDED	GRAYISH BROWN	2.5Y 5/2	5	LT GRAYISH BROWN	2.5Y 6/2	6	NO	0.35	0.36	4.1	1.7	1.1
BI-PB-169-12	PETIT BOIS PASS-ALABAMA EAST	2012	11/29/2012	12:19 PM	30.21187	-88.30502	259267.41630	1151126.87700	20-ft Vibracore	28.7	14.9		2.4															
BI-PB-169-12A	PETIT BOIS PASS-ALABAMA EAST	2012	11/29/2012	12:19 PM	30.21187	-88.30502	259267.41630	1151126.87700	20-ft Vibracore	28.7	14.9	0.2-2.4	2.4	SM	SM	SUBANGULAR TO SUBROUNDED	OLIVE GRAY	5Y 4/2	4	OLIVE GRAY	5Y 5/2	5	YES	0.19	#VALUE!	17.3	#VALUE!	#VALUE!
BI-PB-170-12	PETIT BOIS PASS-ALABAMA EAST	2012	12/5/2012	10:06 AM	30.21007	-88.30410	258614.12460	1151420.52200	20-ft Vibracore	31.7	11.5	NO SAMPLE TAKEN		CH	NO SAMPLE TESTED													
BI-PB-171-12	PETIT BOIS PASS-ALABAMA EAST	2012	12/5/2012	3:06 PM	30.20830	-88.30163	257974.02880	1152203.74500	20-ft Vibracore	31.6	20.0		10.0															
BI-PB-171-12A	PETIT BOIS PASS-ALABAMA EAST	2012	12/5/2012	3:06 PM	30.20830	-88.30163	257974.02880	1152203.74500	20-ft Vibracore	31.6	20.0	1.7-2.7	2.0	SP-SC	SM	SUBANGULAR TO SUBROUNDED	GRAYISH BROWN	2.5Y 4.5/2	5	LT BROWNISH GRAY	2.5Y 5.5/2	6	NO	0.32	0.28	14.8	#VALUE!	#VALUE!
BI-PB-171-12B	PETIT BOIS PASS-ALABAMA EAST	2012	12/5/2012	3:06 PM	30.20830	-88.30163	257974.02880	1152203.74500	20-ft Vibracore	31.6	20.0	2.7-5	1.3	SP	SP-SM	SUBANGULAR TO SUBROUNDED	GRAY	2.5Y 5/1	5	GRAY	2.5Y 6/1	6	NO	0.31	0.32	9.2	2.7	1.5
BI-PB-171-12C	PETIT BOIS PASS-ALABAMA EAST	2012	12/5/2012	3:06 PM	30.20830	-88.30163	257974.02880	1152203.74500	20-ft Vibracore	31.6	20.0	5-10	6.3	SP	SP-SM	SUBANGULAR TO SUBROUNDED	GRAYISH BROWN	2.5Y 5/2	5	LT BROWNISH GRAY	2.5Y 6/2	6	NO	0.33	0.35	8.2	2.9	1.3
BI-PB-171-12D	PETIT BOIS PASS-ALABAMA EAST	2012	12/5/2012	3:06 PM	30.20830	-88.30163	257974.02880	1152203.74500	20-ft Vibracore	31.6	20.0	14.2-16.3	2.1	SP	SP-SM	SUBANGULAR TO SUBROUNDED	LT BROWNISH GRAY	2.5Y 6/2	6	PALE BROWN	2.5Y 7.5/2	8	NO	0.38	0.41	10.8	#VALUE!	#VALUE!
BI-PB-172-12	PETIT BOIS PASS-ALABAMA EAST	2012	12/5/2012	1:11 PM	30.20797	-88.30757	257845.29900	1150327.95400	20-ft Vibracore	30.1	10.9		11.8															
BI-PB-172-12A	PETIT BOIS PASS-ALABAMA EAST	2012	12/5/2012	1:11 PM	30.20797	-88.30757	257845.29900	1150327.95400	20-ft Vibracore	30.1	10.9	0-5	0.5	SP	SP	SUBANGULAR TO SUBROUNDED	LT GRAY	2.5Y 6.5/2	7	LT GRAY	2.5Y 7/2	7	YES	0.35	0.38	0.3	1.8	1.0
BI-PB-172-12B	PETIT BOIS PASS-ALABAMA EAST	2012	12/5/2012	1:11 PM	30.20797	-88.30757	257845.29900	1150327.95400	20-ft Vibracore	30.1	10.9	3.1-3.6	0.5	SP-SC	SC	SUBANGULAR TO SUBROUNDED	DK GRAYISH BROWN	2.5Y 4/2	4	LT BROWNISH GRAY	2.5Y 5.5/2	6	NO	0.30	#VALUE!	19.9	#VALUE!	#VALUE!
BI-PB-172-12C	PETIT BOIS PASS-ALABAMA EAST	2012	12/5/2012	1:11 PM	30.20797	-88.30757	257845.29900	1150327.95400	20-ft Vibracore	30.1	10.9	3.6-5.2	1.6	SP-SM	SP	SUBANGULAR TO SUBROUNDED	LT BROWNISH GRAY	2.5Y 5.5/2	6	LT BROWNISH GRAY	2.5Y 6/2	6	NO	0.30	0.30	2.9	1.7	1.0
BI-PB-172-12D	PETIT BOIS PASS-ALABAMA EAST	2012	12/5/2012	1:11 PM	30.20797	-88.30757	257845.29900	1150327.95400	20-ft Vibracore	30.1	10.9	5.2-10.9	5.7	SP	SP-SM	SUBANGULAR TO SUBROUNDED	LT GRAY	2.5Y 7/1	7	LT GRAY	2.5Y 7/1	7	NO	0.29	0.29	7.1	1.9	1.1
BI-PB-173-12	PETIT BOIS PASS-ALABAMA EAST	2012	11/29/2012	3:10 PM	30.20973	-88.29555	258503.12420	1154121.85900	20-ft Vibracore	31.1	13.6		3.6															
BI-PB-173-12A	PETIT BOIS PASS-ALABAMA EAST	2012	11/29/2012	3:10 PM	30.20973	-88.29555	258503.12420	1154121.85900	20-ft Vibracore	31.1	13.6	0.0-0.8	0.8	SP	SP	SUBANGULAR TO SUBROUNDED	LT GRAY	2.5Y 7/2	7	LT GRAY	2.5Y 7/2	7	NO	0.36	0.39	1.4	1.5	1.0
BI-PB-173-12B	PETIT BOIS PASS-ALABAMA EAST	2012	11/29/2012	3:10 PM	30.20973	-88.29555	258503.12420	1154121.85900	20-ft Vibracore	31.1	13.6	1.9-3.1	1.2	SP-SC	SM	SUBANGULAR TO SUBROUNDED	GRAY	2.5Y 5/1	5	LT BROWNISH GRAY	2.5Y 6/2	6	NO	0.31	#VALUE!	17.8	#VALUE!	#VALUE!
BI-PB-173-12C	PETIT BOIS PASS-ALABAMA EAST	2012	11/29/2012	3:10 PM	30.20973	-88.29555	258503.12420	1154121.85900	20-ft Vibracore	31.1	13.6	3.1-8.6	5.0	SP	SP	SUBANGULAR TO SUBROUNDED	LT GRAY	2.5Y 7/2	7	PALE BROWN	2.5Y 8/2	8	NO	0.35	0.37	2.0	1.7	1.0
BI-PB-173-12D	PETIT BOIS PASS-ALABAMA EAST	2012	11/29/2012	3:10 PM	30.20973	-88.29555	258503.12420	1154121.85900	20-ft Vibracore	31.1	13.6	8.6-13.6	5.0	SP	SP	SUBANGULAR TO SUBROUNDED	WHITE	5Y 8/1	8	WHITE	5Y 8/1	8	NO	0.33	0.35	1.7	1.9	1.0
BI-PB-174-12	PETIT BOIS PASS-ALABAMA EAST	2012	11/29/2012	3:54 PM	30.20992	-88.30038	258565.05190	1152595.84200	20-ft Vibracore	30.9	7.3	NO SAMPLE TAKEN		CH	NO SAMPLE TESTED													
BI-PB-175-12	PETIT BOIS PASS-ALABAMA EAST	2012	12/5/2012	2:05 PM	30.20807	-88.30473	257885.82120	1151224.89600	20-ft Vibracore	30.1	15.8		11.6															
BI-PB-175-12A	PETIT BOIS PASS-ALABAMA EAST	2012	12/5/2012	2:05 PM	30.20807	-88.30473	257885.82120	1151224.89600	20-ft Vibracore	30.1	15.8	4.2-5.8	1.6	SP-SM	SM	SUBANGULAR TO SUBROUNDED	GRAYISH BROWN	2.5Y 5/2	5	LT BROWNISH GRAY	2.5Y 6/2	6	NO	0.31	0.30	12.1	#VALUE!	#VALUE!
BI-PB-175-12B	PETIT BOIS PASS-ALABAMA EAST	2012	12/5/2012	2:05 PM	30.20807	-88.30473	257885.82120	1151224.89600	20-ft Vibracore	30.1	15.8	5.8-8.3	2.5	SP	SP-SM					LT GRAY				0.30	0.31	5.7	2.0	1.1
BI-PB-175-12C	PETIT BOIS PASS-ALABAMA EAST	2012	12/5/2012	2:05 PM	30.20807	-88.30473	257885.82120	1151224.89600	20-ft Vibracore	30.1	15.8	8.3-11.3	3.0	SP	SP	SUBANGULAR TO SUBROUNDED	LT BROWNISH GRAY	2.5Y 6/2	6	LT GRAY	2.5Y 7/2	7		0.32	0.33	2.7	1.7	1.0
BI-PB-175-12D	PETIT BOIS PASS-ALABAMA EAST	2012	12/5/2012	2:05 PM	30.20807	-88.30473	257885.82120	1151224.89600	20-ft Vibracore	30.1	15.8	11.3-15.8	4.5	SP	SP	SUBANGULAR TO SUBROUNDED	WHITE	2.5Y 8/1	8	WHITE	2.5Y 8/1	8	NO	0.31	0.31	3.8	1.8	1.1
BI-PB-176-12	PETIT BOIS PASS-ALABAMA EAST	2012	12/5/2012	4:04 PM	30.20822	-88.29765	257950.82590	1153461.09700	20-ft Vibracore	33.7	14.3		11.7															
BI-PB-176-12A	PETIT BOIS PASS-ALABAMA EAST	2012	12/5/2012	4:04 PM	30.20822	-88.29765	257950.82590	1153461.09700	20-ft Vibracore	33.7	14.3	0-1	1.0	SP	SP-SM	SUBANGULAR TO SUBROUNDED	LT BROWNISH GRAY	2.5Y 5.5/2	6	LT GRAY	2.5Y 7/2	7	NO	0.31	0.30	10.9	#VALUE!	#VALUE!
BI-PB-176-12B	PETIT BOIS PASS-ALABAMA EAST	2012	12/5/2012	4:04 PM	30.20822	-88.29765	257950.82590	1153461.09700	20-ft Vibracore	33.7	14.3	2.6-3.7	0.1	SM	SP-SM	SUBANGULAR TO SUBROUNDED	GRAYISH BROWN	2.5Y 5/1.5	5	GRAY	2.5Y 6/1	6	NO	0.32	0.33	10.5	#VALUE!	#VALUE!
BI-PB-176-12C	PETIT BOIS PASS-ALABAMA EAST	2012	12/5/2012	4:04 PM	30.20822	-88.29765	257950.82590	1153461.09700	20-ft Vibracore	33.7	14.3	3.7-4.8	1.1	SP-SM	SP-SM	SUBANGULAR TO SUBROUNDED	LT BROWNISH GRAY	2.5Y 6/1.5	6	LT GRAY	2.5Y 7/1	8		0.33	0.35	6.3	1.8	1.1
BI-PB-176-12D	PETIT BOIS PASS-ALABAMA EAST	2012	12/5/2012	4:04 PM	30.20822	-88.29765	257950.82590	1153461.09700	20-ft Vibracore	33.7	14.3	4.8-9.3	4.5	SP	SP	SUBANGULAR TO SUBROUNDED	PALE BROWN	2.5Y 7.5/2	8	WHITE	2.5Y 8/1	8	NO	0.34	0.36	0.5	1.8	1.0
BI-PB-176-12E	PETIT BOIS PASS-ALABAMA EAST	2012	12/5/2012	4:04 PM	30.20822	-88.29765	257950.82590	1153461.09700	20-ft Vibracore	33.7	14.3	9.3-14.3	5.0	SP	SP	SUBANGULAR TO SUBROUNDED	WHITE	2.5Y 8/1	8	WHITE	2.5Y 8/1	8		0.32	0.33	1.8	1.7	1.0
BI-PB-177-12	PETIT BOIS PASS-ALABAMA EAST	2012	12/19/2012	9:53 AM	30.19475	-88.29807	253051.30770	1153351.44900	20-ft Vibracore	40.7	19.3		19.3															
BI-PB-177-12A	PETIT BOIS PASS-ALABAMA EAST	2012	12/19/2012	9:53 AM	30.19475	-88.29807	253051.30770	1153351.44900	20-ft Vibracore	40.7	19.3	0.0-4.3	4.3	SP-SM	SP-SM	SUBANGULAR TO SUBROUNDED	DK GRAYISH BROWN	2.5Y 4/2	4	GRAYISH BROWN	2.5Y 5/2	5		0.35	0.38	5.9	1.8	1.0
BI-PB-177-12B	PETIT BOIS PASS-ALABAMA EAST	2012	12/19/2012	9:53 AM	30.19475	-88.29807	253051.30770	1153351.44900	20-ft Vibracore	40.7	19.3	4.3-9.3	5.0	SP	SP	SUBANGULAR TO SUBROUNDED	GRAY	2.5Y 6/1	6	LT GRAY	2.5Y 7/1	7		0.36	0.38	1.9	1.6	1.0
BI-PB-177-12C	PETIT BOIS PASS-ALABAMA EAST	2012	12/19/2012	9:53 AM	30.19475	-88.29807	253051.30770	1153351.44900	20-ft Vibracore	40.7	19.3	9.3-14.3	5.0	SP	SP	SUBANGULAR TO SUBROUNDED	GRAY	5Y 6/1	6	LT GRAY	5Y 7/1	7		0.36	0.38	0.7	1.5	1.0
BI-PB-177-12D	PETIT BOIS PASS-ALABAMA EAST	2012	12/19/2012	9:53 AM	30.19475	-88.29807	253051.30770	1153351.44900	20-ft Vibracore	40.7	19.3	14.3-19.3	5.0	SP	SP	SUBANGULAR TO SUBROUNDED	GRAY	5Y 6/1	6	LT GRAY	5Y 7/1	7		0.38	0.41	1.6	1.5	0.9
BI-PB-179-12	PETIT BOIS PASS-ALABAMA EAST	2012	12/19/2012	9:24 AM	30.19600	-88.29455	253511.16140	1154461.36100	20-ft Vibracore	37.1	19.1		17.2															
BI-PB-179-12A	PETIT BOIS PASS-ALABAMA EAST	2012	12/19/2012	9:24 AM	30.19600	-88.29455	253511.16140	1154461.36100	20-ft Vibracore	37.1	19.1	0.0-2.2	2.2	SP	SP	SUBANGULAR TO SUBROUNDED	LT BROWNISH GRAY	2.5Y 6/2	6	LT GRAY	2.5Y 7/2	7		0.37	0.41	0.9	1.7	1.0
BI-PB-179-12B	PETIT BOIS PASS-ALABAMA EAST	2012	12/19/2012	9:24 AM	30.19600	-88.29455	253511.16140	1154461.36100	20-ft Vibracore	37.1	19.1	2.2-7.2	5.0	SP-SM	SP-SM	SUBANGULAR TO SUBROUNDED	DK GRAYISH BROWN	2.5Y 4/2	4	GRAYISH BROWN	2.5Y 5/2	5		0.32	0.33	8.2	1.9	1.2
BI-PB-179-12C	PETIT BOIS PASS-ALABAMA EAST	2012	12/19/2012	9:24 AM	30.19600	-88.29455	253511.16140	1154461.36100	20-ft Vibracore	37.1	19.1	7.2-12.2	5.0	SP-SM	SP-SM	SUBANGULAR TO SUBROUNDED	GRAY	2.5Y 5/1	5	GRAY	2.5Y 6/1	6		0.31	0.31	5.8	1.7	1.1
BI-PB-179-12D	PETIT BOIS PASS-ALABAMA EAST	2012	12/19/2012																									

Vibracore / Sample ID	Investigation Area	Sample Event	Date of Sample	Time_CST	Latitude	Longitude	Northing_Y	Easting_X	Sample Method	Water Depth (feet)	Boring Depth (feet below seafloor surface )	Sample Depth (Feet below seafloor surface)	Sample Thickness (feet)	Field USCS	Lab USCS	Angularity	Wet Munsell Color	Wet Munsell Color Code	Wet Munsell Value	Dry Munsell Color	Dry Munsell Color Code	Dry Munsell Value	CaCO3	D50 (mm)	Graphic Mean (mm)	% Fines	Cu (D60/D10)	Cc (D30)*2 / (D10*D60)
BI-PB-182-12B	PETIT BOIS PASS-ALABAMA EAST	2012	12/12/2012	3:50 AM	30.19268	-88.30618	252286.52470	1150792.76900	20-ft Vibracore	38.4	12.0	3-8-5	1.2	SP	SP-SM	SUBANGULAR TO SUBROUNDED	GRAY	5Y 5/1	5	GRAY	5Y 6/1	6		0.28	0.28	6.9	1.9	1.1
BI-PB-182-12C	PETIT BOIS PASS-ALABAMA EAST	2012	12/12/2012	3:50 AM	30.19268	-88.30618	252286.52470	1150792.76900	20-ft Vibracore	38.4	12.0	7-12	5.0	SP	SP	SUBANGULAR TO SUBROUNDED	GRAY	5Y 6/1	6	LT GRAY	5Y 7/1	7		0.26	0.27	2.7	1.7	1.0
BI-PB-183-12	PETIT BOIS PASS-ALABAMA EAST	2012	12/7/2012	11:45 AM	30.20143	-88.33120	255433.08720	1142874.10700	20-ft Vibracore	27.0	12.6		12.2															
BI-PB-183-12A	PETIT BOIS PASS-ALABAMA EAST	2012	12/7/2012	11:45 AM	30.20143	-88.33120	255433.08720	1142874.10700	20-ft Vibracore	27.0	12.6	0-2-2	2.2	SP	SP	SUBANGULAR TO SUBROUNDED	LT OLIVE GRAY	5Y 6/2	6	LT GRAY	5Y 7/2	7		0.39	0.44	1.3	1.9	1.0
BI-PB-183-12B	PETIT BOIS PASS-ALABAMA EAST	2012	12/7/2012	11:45 AM	30.20143	-88.33120	255433.08720	1142874.10700	20-ft Vibracore	27.0	12.6	2-2-7-2	5.0	SP	SP	SUBANGULAR TO SUBROUNDED	OLIVE GRAY	5Y 5/2	5	LT GRAY	5Y 7/2	7		0.26	0.28	2.0	1.7	0.9
BI-PB-183-12C	PETIT BOIS PASS-ALABAMA EAST	2012	12/7/2012	11:45 AM	30.20143	-88.33120	255433.08720	1142874.10700	20-ft Vibracore	27.0	12.6	7.2-12-2	5.0	SP	SP	SUBANGULAR TO SUBROUNDED	LT GRAY	2.5Y 7/1	7	WHITE	2.5Y 8/1	8		0.30	0.31	1.2	1.7	1.0
BI-PB-184-12	PETIT BOIS PASS-ALABAMA EAST	2012	12/7/2012	10:55 AM	30.20137	-88.32958	255413.52580	1143385.96800	20-ft Vibracore	28.2	18.5		12.7															
BI-PB-184-12A	PETIT BOIS PASS-ALABAMA EAST	2012	12/7/2012	10:55 AM	30.20137	-88.32958	255413.52580	1143385.96800	20-ft Vibracore	28.2	18.5	0-2-8	2.8	SP	SP	SUBANGULAR TO SUBROUNDED	LT OLIVE GRAY	5Y 6/2	6	LT GRAY	5Y 7/2	7		0.34	0.36	1.6	1.8	1.0
BI-PB-184-12B	PETIT BOIS PASS-ALABAMA EAST	2012	12/7/2012	10:55 AM	30.20137	-88.32958	255413.52580	1143385.96800	20-ft Vibracore	28.2	18.5	2-8-6-1	3.6	SP-SC	SP	SUBANGULAR TO SUBROUNDED	OLIVE	5Y 5/3	5	PALE OLIVE	5Y 6/3	6		0.28	0.29	4.0	1.8	1.0
BI-PB-184-12C	PETIT BOIS PASS-ALABAMA EAST	2012	12/7/2012	10:55 AM	30.20137	-88.32958	255413.52580	1143385.96800	20-ft Vibracore	28.2	18.5	6.1-8-5	2.4	SP	SP	SUBANGULAR TO SUBROUNDED	LT GRAY	5Y 7/1	7	WHITE	5Y 8/1	8		0.27	0.28	1.6	1.7	1.0
BI-PB-184-12D	PETIT BOIS PASS-ALABAMA EAST	2012	12/7/2012	10:55 AM	30.20137	-88.32958	255413.52580	1143385.96800	20-ft Vibracore	28.2	18.5	8-5-12-4	3.9	SP	SP	SUBANGULAR TO SUBROUNDED	LT BROWNISH GRAY	2.5Y 6/2	6	LT GRAY	2.5Y 7/2	7		0.28	0.29	1.9	1.7	1.0
BI-PB-185-12	PETIT BOIS PASS-ALABAMA EAST	2012	12/7/2012	1:11 PM	30.20015	-88.33220	254966.17490	1142560.25100	20-ft Vibracore	31.0	5.1		5.1															
BI-PB-185-12A	PETIT BOIS PASS-ALABAMA EAST	2012	12/7/2012	1:11 PM	30.20015	-88.33220	254966.17490	1142560.25100	20-ft Vibracore	31.0	5.1	0-2-1	2.1	SP	SP	SUBANGULAR TO SUBROUNDED	OLIVE GRAY	5Y 5/2	5	LT OLIVE GRAY	5Y 6/2	6		0.26	0.30	2.0	2.0	0.9
BI-PB-185-12B	PETIT BOIS PASS-ALABAMA EAST	2012	12/7/2012	1:11 PM	30.20015	-88.33220	254966.17490	1142560.25100	20-ft Vibracore	31.0	5.1	2.1-5-1	3.0	SP	SP	SUBANGULAR TO SUBROUNDED	LT GRAY	2.5Y 7/1	7	WHITE	2.5Y 8/1	8		0.32	0.32	1.3	1.6	1.0
BI-PB-186-12	PETIT BOIS PASS-ALABAMA EAST	2012	12/7/2012	1:52 AM	30.20010	-88.33057	254950.25980	1143075.26200	20-ft Vibracore	28.8	18.9		8.7															
BI-PB-186-12A	PETIT BOIS PASS-ALABAMA EAST	2012	12/7/2012	1:52 AM	30.20010	-88.33057	254950.25980	1143075.26200	20-ft Vibracore	28.8	18.9	0-3-9	3.9	SP	SP	SUBANGULAR TO SUBROUNDED	PALE OLIVE	5Y 6/3	6	PALE YELLOW	5Y 7/3	7		0.31	0.32	1.5	1.8	1.0
BI-PB-186-12B	PETIT BOIS PASS-ALABAMA EAST	2012	12/7/2012	1:52 AM	30.20010	-88.33057	254950.25980	1143075.26200	20-ft Vibracore	28.8	18.9	3-9-6-9	3.0	SP	SP	SUBANGULAR TO SUBROUNDED	GRAYISH BROWN	2.5Y 5/2	5	LT BROWNISH GRAY	2.5Y 6/2	6		0.22	0.25	4.5	1.9	1.0
BI-PB-186-12C	PETIT BOIS PASS-ALABAMA EAST	2012	12/7/2012	1:52 AM	30.20010	-88.33057	254950.25980	1143075.26200	20-ft Vibracore	28.8	18.9	6-9-8-7	1.8	SP	SP	SUBANGULAR TO SUBROUNDED	OLIVE GRAY	5Y 5/2	5	LT OLIVE GRAY	5Y 6/2	6		0.33	0.37	3.3	2.2	1.0
BI-PB-187-12	PETIT BOIS PASS-ALABAMA EAST	2012	12/11/2012	9:19 AM	30.19813	-88.33268	254230.85800	1142411.84400	20-ft Vibracore	33.7	15.5		14.4															
BI-PB-187-12A	PETIT BOIS PASS-ALABAMA EAST	2012	12/11/2012	9:19 AM	30.19813	-88.33268	254230.85800	1142411.84400	20-ft Vibracore	33.7	15.5	1.1-2-2	1.1	SP-SM	SP-SM	SUBANGULAR TO SUBROUNDED	OLIVE	5Y 5/3	5	PALE OLIVE	5Y 6/3	6		0.29	0.30	5.3	3.0	1.3
BI-PB-187-12B	PETIT BOIS PASS-ALABAMA EAST	2012	12/11/2012	9:19 AM	30.19813	-88.33268	254230.85800	1142411.84400	20-ft Vibracore	33.7	15.5	2-2-7-2	5.0	SP	SP	SUBANGULAR TO SUBROUNDED	LT BROWNISH GRAY	2.5Y 6/2	6	LT GRAY	2.5Y 7/2	7		0.35	0.36	1.2	1.7	1.0
BI-PB-187-12C	PETIT BOIS PASS-ALABAMA EAST	2012	12/11/2012	9:19 AM	30.19813	-88.33268	254230.85800	1142411.84400	20-ft Vibracore	33.7	15.5	7-2-12-2	5.0	SP	SP	SUBANGULAR TO SUBROUNDED	LT GRAY	2.5Y 7/1	7	WHITE	2.5Y 8/1	8		0.33	0.35	3.0	1.7	1.0
BI-PB-187-12D	PETIT BOIS PASS-ALABAMA EAST	2012	12/11/2012	9:19 AM	30.19813	-88.33268	254230.85800	1142411.84400	20-ft Vibracore	33.7	15.5	12.2-15.5	3.3	SP	SP	SUBANGULAR TO SUBROUNDED	LT GRAY	2.5Y 7/1	7	WHITE	2.5Y 8/1	8		0.38	0.41	1.6	1.7	1.0
BI-PB-189-12	PETIT BOIS PASS-ALABAMA EAST	2012	12/11/2012	11:24 AM	30.19548	-88.33122	253269.11490	1142877.32800	20-ft Vibracore	36.4	15.6	NO SAMPLE TAKEN		ML	NO SAMPLE TESTED													
BI-PB-190-12	PETIT BOIS PASS-ALABAMA EAST	2012	12/11/2012	10:10 AM	30.19675	-88.33203	253729.87160	1142619.39700	20-ft Vibracore	34.5	18.2		8.9															
BI-PB-190-12A	PETIT BOIS PASS-ALABAMA EAST	2012	12/11/2012	10:10 AM	30.19675	-88.33203	253729.87160	1142619.39700	20-ft Vibracore	34.5	18.2	1.4-3-2	1.8	SM	SP-SM	ANGULAR TO SUBROUNDED	OLIVE GRAY	5Y 4/2	4	LT OLIVE GRAY	5Y 6/2	6		0.27	0.30	7.7	2.6	1.2
BI-PB-190-12B	PETIT BOIS PASS-ALABAMA EAST	2012	12/11/2012	10:10 AM	30.19675	-88.33203	253729.87160	1142619.39700	20-ft Vibracore	34.5	18.2	3-2-8	4.8	SP	SP	SUBANGULAR TO SUBROUNDED	LT GRAY	5Y 7/1	7	WHITE	5Y 8/1	8		0.31	0.31	2.3	1.6	1.0
BI-PB-190-12C	PETIT BOIS PASS-ALABAMA EAST	2012	12/11/2012	10:10 AM	30.19675	-88.33203	253729.87160	1142619.39700	20-ft Vibracore	34.5	18.2	8-10-3	2.3	SP	SP	SUBANGULAR TO SUBROUNDED	LT GRAY	2.5Y 7/1	7	WHITE	2.5Y 8/1	8		0.28	0.29	2.7	1.7	1.0
BI-PB-191-12	PETIT BOIS PASS-ALABAMA EAST	2012	12/11/2012	10:49 AM	30.19673	-88.33047	253724.77010	1143112.26300	20-ft Vibracore	34.8	15.8	NO SAMPLE TAKEN		ML	NO SAMPLE TESTED													
BI-PB-192-12	PETIT BOIS PASS-ALABAMA EAST	2012	12/11/2012	12:02 PM	30.19543	-88.32960	253253.19000	1143389.20400	20-ft Vibracore	36.4	15.3	NO SAMPLE TAKEN		CL-ML	NO SAMPLE TESTED													
BI-PB-197-12	PETIT BOIS PASS-ALABAMA WEST	2012	12/22/2012	9:11 AM	30.20025	-88.35030	254977.84050	1136842.15700	20-ft Vibracore	28.2	17.7		9.4															
BI-PB-197-12A	PETIT BOIS PASS-ALABAMA WEST	2012	12/22/2012	9:11 AM	30.20025	-88.35030	254977.84050	1136842.15700	20-ft Vibracore	28.2	17.7	0-0-3-9.	3.9	SP-SM	SP-SM	SUBANGULAR TO SUBROUNDED	DK GRAYISH BROWN	2.5Y 4/2	4	GRAYISH BROWN	2.5Y 5/2	5		0.29	0.29	5.5	1.9	1.1
BI-PB-197-12B	PETIT BOIS PASS-ALABAMA WEST	2012	12/22/2012	9:11 AM	30.20025	-88.35030	254977.84050	1136842.15700	20-ft Vibracore	28.2	17.7	3-9-5-2	1.3	SP	SP	SUBANGULAR TO SUBROUNDED	GRAYISH BROWN	2.5Y 5/2	5	LT BROWNISH GRAY	2.5Y 6/2	6		0.30	0.31	2.4	1.6	1.0
BI-PB-197-12C	PETIT BOIS PASS-ALABAMA WEST	2012	12/22/2012	9:11 AM	30.20025	-88.35030	254977.84050	1136842.15700	20-ft Vibracore	28.2	17.7	5-2-7-6	2.4	SM	SP-SM	SUBANGULAR TO SUBROUNDED	VERY DK GRAYISH BROWN	2.5Y 3/2	3	DK GRAYISH BROWN	2.5Y 4/2	4		0.30	0.30	5.9	2.3	1.4
BI-PB-197-12D	PETIT BOIS PASS-ALABAMA WEST	2012	12/22/2012	9:11 AM	30.20025	-88.35030	254977.84050	1136842.15700	20-ft Vibracore	28.2	17.7	7-6-9-4	1.8	SM	SP-SM	SUBANGULAR TO SUBROUNDED	DK OLIVE GRAY	5Y 3/2	3	OLIVE GRAY	5Y 5/2	5		0.22	0.23	7.6	2.2	1.2
BI-PB-198-12	PETIT BOIS PASS-ALABAMA WEST	2012	12/22/2012	9:44 AM	30.20015	-88.35428	254936.16160	1135584.99700	20-ft Vibracore	27.6	18.8		11.0															
BI-PB-198-12A	PETIT BOIS PASS-ALABAMA WEST	2012	12/22/2012	9:44 AM	30.20015	-88.35428	254936.16160	1135584.99700	20-ft Vibracore	27.6	18.8	0-0-1-5	1.5	SP	SP	SUBANGULAR TO SUBROUNDED	OLIVE GRAY	5Y 5/2	5	LT OLIVE GRAY	5Y 6/2	6		0.28	0.29	1.5	1.8	1.0
BI-PB-198-12B	PETIT BOIS PASS-ALABAMA WEST	2012	12/22/2012	9:44 AM	30.20015	-88.35428	254936.16160	1135584.99700	20-ft Vibracore	27.6	18.8	1.5-6-0	4.5	SP-SM	SP	SUBANGULAR TO SUBROUNDED	DK GRAYISH BROWN	2.5Y 4/2	4	GRAYISH BROWN	2.5Y 5/2	5		0.29	0.29	2.5	1.7	1.0
BI-PB-198-12C	PETIT BOIS PASS-ALABAMA WEST	2012	12/22/2012	9:44 AM	30.20015	-88.35428	254936.16160	1135584.99700	20-ft Vibracore	27.6	18.8	6-0-11-0	5.0	SM	SP-SM	SUBANGULAR TO SUBROUNDED	VERY DK GRAYISH BROWN	2.5Y 3/2	3	GRAYISH BROWN	2.5Y 5/2	5		0.28	0.28	5.3	2.0	1.1
BI-PB-199-12	PETIT BOIS PASS-ALABAMA WEST	2012	12/13/2012	11:38 AM	30.20017	-88.35868	254937.61600	1134194.97200	20-ft Vibracore	27.0	20.0		10.2															
BI-PB-199-12A	PETIT BOIS PASS-ALABAMA WEST	2012	12/13/2012	11:38 AM	30.20017	-88.35868	254937.61600	1134194.97200	20-ft Vibracore	27.0	20.0	0-5	5.0	SP	SP	SUBANGULAR TO SUBROUNDED	GRAYISH BROWN	2.5Y 5/2	5	LT BROWNISH GRAY	2.5Y 6/2	6		0.31	0.31	2.3	1.5	1.0
BI-PB-199-12B	PETIT BOIS PASS-ALABAMA WEST	2012	12/13/2012	11:38 AM	30.20017	-88.35868	254937.61600	1134194.97200	20-ft Vibracore	27.0	20.0	5-10-2	5.2	SP	SP	SUBANGULAR TO SUBROUNDED	GRAYISH BROWN	2.5Y 5/2	5	LT BROWNISH GRAY	2.5Y 6/2	6		0.29	0.29	2.8	1.7	1.1
BI-PB-200-12	PETIT BOIS PASS-ALABAMA WEST	2012	12/13/2012	11:03 AM	30.19998	-88.36372																						

Vibracore / Sample ID	Investigation Area	Sample Event	Date of Sample	Time_CST	Latitude	Longitude	Northing_Y	Easting_X	Sample Method	Water Depth (feet)	Boring Depth (feet below seafloor surface )	Sample Depth (Feet below seafloor surface)	Sample Thickness (feet)	Field USCS	Lab USCS	Angularity	Wet Munsell Color	Wet Munsell Color Code	Wet Munsell Value	Dry Munsell Color	Dry Munsell Color Code	Dry Munsell Value	CaCO3	D50 (mm)	Graphic Mean (mm)	% Fines	Cu (D60/D10)	Cc (D30) <sup>2</sup> / (D10 <sup>3</sup> D60)	
BI-PB-203-12	PETIT BOIS PASS-ALABAMA WEST	2012	12/19/2012	2:33 PM	30.19250	-88.35423	252154.01940	1135612.49400	20-ft Vibracore	35.1	19.6		2.9																
BI-PB-203-12A	PETIT BOIS PASS-ALABAMA WEST	2012	12/19/2012	2:33 PM	30.19250	-88.35423	252154.01940	1135612.49400	20-ft Vibracore	35.1	19.6	3.0-5.9	2.9	SP	SP	SUBANGULAR TO SUBROUNDED	GRAYISH BROWN	2.5Y 5/2		LT BROWNISH GRAY	2.5Y 6/2			0.31	0.40	4.5	2.8	1.1	
BI-PB-204-12	PETIT BOIS PASS-ALABAMA WEST	2012	12/19/2012	3:05 PM	30.19260	-88.35875	252184.41110	1134184.32900	20-ft Vibracore	34.7	19.3		10.0																
BI-PB-204-12A	PETIT BOIS PASS-ALABAMA WEST	2012	12/19/2012	3:05 PM	30.19260	-88.35875	252184.41110	1134184.32900	20-ft Vibracore	34.7	19.3	3.0-4.6	1.6	SM	SP-SM	SUBANGULAR TO SUBROUNDED	DK GRAYISH BROWN	2.5Y 4/2	4	GRAYISH BROWN	2.5Y 5/2	5		0.26	0.27	9.5	3.6	1.6	
BI-PB-204-12B	PETIT BOIS PASS-ALABAMA WEST	2012	12/19/2012	3:05 PM	30.19260	-88.35875	252184.41110	1134184.32900	20-ft Vibracore	34.7	19.3	4.6-9.6	5.0	SP	SP	SUBANGULAR TO SUBROUNDED	GRAYISH BROWN	2.5Y 5/2	5	LT BROWNISH GRAY	2.5Y 6/2	6		0.32	0.33	3.8	1.8	1.1	
BI-PB-204-12C	PETIT BOIS PASS-ALABAMA WEST	2012	12/19/2012	3:05 PM	30.19260	-88.35875	252184.41110	1134184.32900	20-ft Vibracore	34.7	19.3	11.9-15.3	3.4	SP	SP	SUBANGULAR TO SUBROUNDED	GRAY	2.5Y 6/1	6	LT GRAY	2,5Y 7/1	7		0.29	0.29	1.8	1.7	1.0	
BI-PB-205-12	PETIT BOIS PASS-ALABAMA WEST	2012	12/19/2012	3:35 PM	30.19247	-88.36373	252130.61210	1132611.18300	20-ft Vibracore	32.7	19.1		13.9																
BI-PB-205-12A	PETIT BOIS PASS-ALABAMA WEST	2012	12/19/2012	3:35 PM	30.19247	-88.36373	252130.61210	1132611.18300	20-ft Vibracore	32.7	19.1	0.0-2.6	2.6	SP	SP	SUBANGULAR TO SUBROUNDED	LT BROWNISH GRAY	2.5Y 6/2	6	LT GRAY	2.5Y 7/2	7		0.25	0.29	3.9	1.8	0.9	
BI-PB-205-12B	PETIT BOIS PASS-ALABAMA WEST	2012	12/19/2012	3:35 PM	30.19247	-88.36373	252130.61210	1132611.18300	20-ft Vibracore	32.7	19.1	3.3-7.2	3.9	SM	SP-SM	SUBANGULAR TO SUBROUNDED	DK GRAYISH BROWN	2.5Y 4/2	4	GRAYISH BROWN	2.5Y 5/2	5		0.26	0.29	6.2	3.0	1.0	
BI-PB-205-12C	PETIT BOIS PASS-ALABAMA WEST	2012	12/19/2012	3:35 PM	30.19247	-88.36373	252130.61210	1132611.18300	20-ft Vibracore	32.7	19.1	7.2-14.6	7.4	SP	SP	SUBANGULAR TO SUBROUNDED	LT BROWNISH GRAY	2.5Y 6/2	6	LT GRAY	2.5Y 7/2	7		0.31	0.32	3.3	1.9	1.1	
BI-PB-207-12	PETIT BOIS PASS-ALABAMA EAST	2012	12/11/2012	1:04 PM	30.19400	-88.33045	252731.92980	1143122.96500	20-ft Vibracore	37.5	16.6	NO SAMPLE TAKEN		SC	NO SAMPLE TESTED														
BI-PB-208-12	PETIT BOIS PASS-ALABAMA EAST	2012	12/6/2012	3:57 PM	30.20085	-88.32758	255227.20780	1144018.61700	20-ft Vibracore	32.8	11.9		7.0																
BI-PB-208-12A	PETIT BOIS PASS-ALABAMA EAST	2012	12/6/2012	3:57 PM	30.20085	-88.32758	255227.20780	1144018.61700	20-ft Vibracore	32.8	11.9	0-2.6	2.6	SP-SM	SP	SUBANGULAR TO SUBROUNDED	LT GRAY	2.5Y 6.5/2	7	LT GRAY	2.5Y 7/2	7	NO	0.34	0.37	3.6	2.0	1.0	
BI-PB-208-12B	PETIT BOIS PASS-ALABAMA EAST	2012	12/6/2012	3:57 PM	30.20085	-88.32758	255227.20780	1144018.61700	20-ft Vibracore	32.8	11.9	2.6-4.3	1.7	SP	SP	SUBANGULAR TO SUBROUNDED	PALE BROWN	2.5Y 8/2	8	PALE BROWN	2.5Y 8/1.5	8	NO	0.45	0.48	0.8	1.8	0.9	
BI-PB-208-12C	PETIT BOIS PASS-ALABAMA EAST	2012	12/6/2012	3:57 PM	30.20085	-88.32758	255227.20780	1144018.61700	20-ft Vibracore	32.8	11.9	4.3-7	2.7	SP	SP	SUBANGULAR TO SUBROUNDED	LT GRAY	2.5Y 7/1	7	WHITE	2.5Y 8/1	8		0.40	0.43	1.2	1.6	0.9	
BI-PB-209-12	PETIT BOIS PASS-ALABAMA EAST	2012	12/7/2012	3:25 AM	30.19752	-88.32757	254016.13980	1144027.15400	20-ft Vibracore	32.6	17.2		15.4																
BI-PB-209-12A	PETIT BOIS PASS-ALABAMA EAST	2012	12/7/2012	3:25 AM	30.19752	-88.32757	254016.13980	1144027.15400	20-ft Vibracore	32.6	17.2	0-1.8	1.8	SP	SP	SUBANGULAR TO SUBROUNDED	LT OLIVE GRAY	5Y 6/2	6	LT GRAY	5Y 7/2	7		0.32	0.33	1.3	1.6	1.0	
BI-PB-209-12B	PETIT BOIS PASS-ALABAMA EAST	2012	12/7/2012	3:25 AM	30.19752	-88.32757	254016.13980	1144027.15400	20-ft Vibracore	32.6	17.2	2.3-3.5	1.2	SC	SP-SM	SUBANGULAR TO SUBROUNDED	OLIVE BROWN	2.5Y 4/3	4	LT OLIVE BROWN	2.5Y 5/3	5		0.21	0.23	9.1	2.5	1.4	
BI-PB-209-12C	PETIT BOIS PASS-ALABAMA EAST	2012	12/7/2012	3:25 AM	30.19752	-88.32757	254016.13980	1144027.15400	20-ft Vibracore	32.6	17.2	4.8-5.4	0.6	SP-SM	SP-SM	SUBANGULAR TO SUBROUNDED	OLIVE	5Y 4/3	4	OLIVE	5Y 5/3	5		0.30	0.30	11.2	#VALUE!	#VALUE!	
BI-PB-209-12D	PETIT BOIS PASS-ALABAMA EAST	2012	12/7/2012	3:25 AM	30.19752	-88.32757	254016.13980	1144027.15400	20-ft Vibracore	32.6	17.2	5.4-7.2	1.8	SP	SP	SUBANGULAR TO SUBROUNDED	GRAYISH BROWN	2.5Y 5/2	5	LT BROWNISH GRAY	2.5Y 6/2	6		0.32	0.32	3.4	1.6	1.0	
BI-PB-209-12E	PETIT BOIS PASS-ALABAMA EAST	2012	12/7/2012	3:25 AM	30.19752	-88.32757	254016.13980	1144027.15400	20-ft Vibracore	32.6	17.2	7.2-12.2	5.0	SP	SP	SUBANGULAR TO SUBROUNDED	OLIVE	5Y 4/3	4	OLIVE	5Y 5/3	5		0.28	0.29	4.4	1.8	1.0	
BI-PB-209-12F	PETIT BOIS PASS-ALABAMA EAST	2012	12/7/2012	3:25 AM	30.19752	-88.32757	254016.13980	1144027.15400	20-ft Vibracore	32.6	17.2	12.2-17.2	5.0	SM	SP-SM	SUBANGULAR TO SUBROUNDED	OLIVE	5Y 4/3	4	OLIVE	5Y 5/3	5		0.22	0.24	9.8	3.0	1.6	
BI-PB-210-12	PETIT BOIS PASS-ALABAMA EAST	2012	12/11/2012	1:38 PM	30.19487	-88.32755	253052.39440	1144037.75200	20-ft Vibracore	37.6	15.3	NO SAMPLE TAKEN		ML	NO SAMPLE TESTED														
BI-PB-211-12	PETIT BOIS PASS-ALABAMA EAST	2012	12/5/2012	11:41 AM	30.20798	-88.30997	257845.44360	1149569.81500	20-ft Vibracore	31.1	15.7		8.1																
BI-PB-211-12A	PETIT BOIS PASS-ALABAMA EAST	2012	12/5/2012	11:41 AM	30.20798	-88.30997	257845.44360	1149569.81500	20-ft Vibracore	31.1	15.7	0-1.1	1.1	SP	SP	SUBANGULAR TO SUBROUNDED	LT BROWNISH GRAY	2.5Y 6/2	6	LT GRAY	2.5Y 7/2	7	YES	0.31	0.34	3.2	2.3	1.1	
BI-PB-211-12B	PETIT BOIS PASS-ALABAMA EAST	2012	12/5/2012	11:41 AM	30.20798	-88.30997	257845.44360	1149569.81500	20-ft Vibracore	31.1	15.7	5.1-7.2	2.1	SP-SC	SP	SUBANGULAR TO SUBROUNDED	LT OLIVE BROWN	2.5Y 5/6	5	OLIVE YELLOW	2.5Y 6/6	6		0.35	0.38	0.3	1.4	1.0	
BI-PB-211-12C	PETIT BOIS PASS-ALABAMA EAST	2012	12/5/2012	11:41 AM	30.20798	-88.30997	257845.44360	1149569.81500	20-ft Vibracore	31.1	15.7	7.2-12.1	4.9	SP	SP	SUBANGULAR TO SUBROUNDED	LT GRAY	2.5Y 7/1	7	PALE BROWN	2.5Y 7.5/2	8		0.35	0.36	3.6	1.6	1.0	
BI-PB-212-12	PETIT BOIS PASS-ALABAMA EAST	2012	12/5/2012	10:57 AM	30.20813	-88.31348	257894.91820	1148460.81300	20-ft Vibracore	26.4	14.8		2.7																
BI-PB-212-12A	PETIT BOIS PASS-ALABAMA EAST	2012	12/5/2012	10:57 AM	30.20813	-88.31348	257894.91820	1148460.81300	20-ft Vibracore	26.4	14.8	0-2.7	2.7	SP	SP	SUBANGULAR TO SUBROUNDED	GRAYISH BROWN	2.5Y 5/2	5	LT GRAY	2.5Y 7/2	7		0.30	0.33	2.0	2.0	1.0	
BI-PB-213-12	PETIT BOIS PASS-ALABAMA EAST	2012	12/6/2012	2:20 PM	30.20482	-88.31317	256691.55450	1148564.23600	20-ft Vibracore	29.4	7.7		7.7																
BI-PB-213-12A	PETIT BOIS PASS-ALABAMA EAST	2012	12/6/2012	2:20 PM	30.20482	-88.31317	256691.55450	1148564.23600	20-ft Vibracore	29.4	7.7	0-4.3	4.3	SP-SM	SP	SUBANGULAR TO SUBROUNDED	LT BROWNISH GRAY	2.5Y 6/2	6	LT GRAY	2.5Y 7/2	7		0.31	0.32	2.2	1.7	1.0	
BI-PB-213-12B	PETIT BOIS PASS-ALABAMA EAST	2012	12/6/2012	2:20 PM	30.20482	-88.31317	256691.55450	1148564.23600	20-ft Vibracore	29.4	7.7	4.3-7.7	3.4	SP	SP	SUBANGULAR TO SUBROUNDED	LT GRAY	2.5Y 7/1	7	WHITE	2.5Y 8/1	8		0.30	0.32	2.4	1.9	1.0	
BI-PB-214-12	PETIT BOIS PASS-ALABAMA EAST	2012	12/19/2012	11:35 AM	30.19212	-88.29295	252102.44230	1154973.53000	20-ft Vibracore	38.4	15.8		13.1																
BI-PB-214-12A	PETIT BOIS PASS-ALABAMA EAST	2012	12/19/2012	11:35 AM	30.19212	-88.29295	252102.44230	1154973.53000	20-ft Vibracore	38.4	15.8	0.0-2.6	2.6	SP	SP	SUBANGULAR TO SUBROUNDED	LT OLIVE GRAY	5Y 6/2	6	LT GRAY	5Y 7/2	7		0.31	0.32	1.3	1.8	1.0	
BI-PB-214-12B	PETIT BOIS PASS-ALABAMA EAST	2012	12/19/2012	11:35 AM	30.19212	-88.29295	252102.44230	1154973.53000	20-ft Vibracore	38.4	15.8	3.3-5.4	2.1	SP-SM	SP-SM	SUBANGULAR TO SUBROUNDED	OLIVE GRAY	5Y 5/2	5	LT OLIVE GRAY	5Y 6/2	6		0.35	0.37	6.3	2.0	1.2	
BI-PB-214-12C	PETIT BOIS PASS-ALABAMA EAST	2012	12/19/2012	11:35 AM	30.19212	-88.29295	252102.44230	1154973.53000	20-ft Vibracore	38.4	15.8	5.4-10.5	5.0	SP	SP	SUBANGULAR TO SUBROUNDED	LT GRAY	2.5Y 7/1	7	WHITE	2.5Y 8/1	8		0.38	0.41	1.2	1.6	0.9	
BI-PB-214-12D	PETIT BOIS PASS-ALABAMA EAST	2012	12/19/2012	11:35 AM	30.19212	-88.29295	252102.44230	1154973.53000	20-ft Vibracore	38.4	15.8	10.4-13.8	3.4	SP	SP	SUBANGULAR TO SUBROUNDED	LT BROWNISH GRAY	2.5Y 6/2	6	LT GRAY	2.5Y 7/2	7		0.39	0.42	2.0	1.7	0.9	
BI-PB-215-12	PETIT BOIS PASS-ALABAMA EAST	2012	12/19/2012	10:58 AM	30.19208	-88.29800	252080.36240	1153378.12700	20-ft Vibracore	40.1	19.1		5.3																
BI-PB-215-12A	PETIT BOIS PASS-ALABAMA EAST	2012	12/19/2012	10:58 AM	30.19208	-88.29800	252080.36240	1153378.12700	20-ft Vibracore	40.1	19.1	0.0-1.8	1.8	SP	SP	SUBANGULAR TO SUBROUNDED	OLIVE GRAY	5Y 5/2	5	LT OLIVE GRAY	5Y 6/2	6		0.30	0.32	3.2	1.9	1.0	
BI-PB-215-12B	PETIT BOIS PASS-ALABAMA EAST	2012	12/19/2012	10:58 AM	30.19208	-88.29800	252080.36240	1153378.12700	20-ft Vibracore	40.1	19.1	2.7-4.1	1.4	SP	SP	SUBANGULAR TO SUBROUNDED	OLIVE GRAY	5Y 5/2	5	LT OLIVE GRAY	5Y 6/2	6		0.35	0.38	3.8	2.1	1.0	
BI-PB-215-12C	PETIT BOIS PASS-ALABAMA EAST	2012	12/19/2012	10:58 AM	30.19208	-88.29800	252080.36240	1153378.12700	20-ft Vibracore	40.1	19.1	4.1-6.2	2.1	SP	SP	SUBANGULAR TO SUBROUNDED	LT BROWNISH GRAY	2.5Y 6/2	6	LT GRAY	2.5Y 7/2	7		0.39	0.42	4.9	1.8	1.0	
BI-PB-216-12	PETIT BOIS PASS-ALABAMA EAST	2012	12/12/2012	1:46 PM	30.19347	-88.31138	252566.27430	1149148.60200	20-ft Vibracore	35.8	14.4		14.4																
BI-PB-216-12A	PETIT BOIS PASS-ALABAMA EAST	2012	12/12/2012	1:46 PM	30.19347	-88.31138	252566.27430	1																					



Vibracore / Sample ID	Investigation Area	Sample Event	Date of Sample	Time_CST	Latitude	Longitude	Northing_Y	Easting_X	Sample Method	Water Depth (feet)	Boring Depth (feet below seafloor surface )	Sample Depth (Feet below seafloor surface)	Sample Thickness (feet)	Field USCS	Lab USCS	Angularity	Wet Munsell Color	Wet Munsell Color Code	Wet Munsell Value	Dry Munsell Color	Dry Munsell Color Code	Dry Munsell Value	CaCO3	D50 (mm)	Graphic Mean (mm)	% Fines	Cu (D60/D10)	Cc (D30)^2 / (D10*D60)
BI-PB-218-12A	PETIT BOIS PASS-ALABAMA EAST	2012	12/12/2012	1:03 PM	30.19545	-88.30927	253289.43800	1149811.90200	20-ft Vibracore	37.3	17.3	0-5	5.0	SP	SP-SM	SUBANGULAR TO SUBROUNDED	LT BROWNISH GRAY	2.5Y 6/2	6	LT GRAY	2.5Y 7/2	7		0.32	0.33	9.7	3.1	1.6
BI-PB-218-12B	PETIT BOIS PASS-ALABAMA EAST	2012	12/12/2012	1:03 PM	30.19545	-88.30927	253289.43800	1149811.90200	20-ft Vibracore	37.3	17.3	5-8.8	3.8	SP	SP	SUBANGULAR TO SUBROUNDED	LT BROWNISH GRAY	2.5Y 6/2	6	LT GRAY	2.5Y 7/2	7		0.34	0.36	4.4	1.7	1.0
BI-PB-218-12C	PETIT BOIS PASS-ALABAMA EAST	2012	12/12/2012	1:03 PM	30.19545	-88.30927	253289.43800	1149811.90200	20-ft Vibracore	37.3	17.3	8.8-13.8	5.0	SP	SP	SUBANGULAR TO SUBROUNDED	LT GRAY	2.5Y 7/2	7	PALE YELLOW	2.5Y 8/2	8		0.32	0.34	2.1	1.7	1.0
BI-PB-218-12D	PETIT BOIS PASS-ALABAMA EAST	2012	12/12/2012	1:03 PM	30.19545	-88.30927	253289.43800	1149811.90200	20-ft Vibracore	37.3	17.3	13.8-15.7	1.9	SP	SP-SM	SUBANGULAR TO SUBROUNDED	LT GRAY	2.5Y 7/2	7	PALE YELLOW	2.5Y 8/2	8		0.26	0.27	6.2	1.8	1.0
BI-PB-219-12	PETIT BOIS PASS-ALABAMA EAST	2012	12/12/2012	11:57 AM	30.19622	-88.31615	253559.54440	1147637.07400	20-ft Vibracore	31.4	15.9		15.9															
BI-PB-219-12A	PETIT BOIS PASS-ALABAMA EAST	2012	12/12/2012	11:57 AM	30.19622	-88.31615	253559.54440	1147637.07400	20-ft Vibracore	31.4	15.9	0-5.9	5.9	SP	SP	SUBANGULAR TO SUBROUNDED	OLIVE GRAY	5Y 5/2	5	LT GRAY	5Y 7/2	7		0.27	0.30	2.1	1.8	0.9
BI-PB-219-12B	PETIT BOIS PASS-ALABAMA EAST	2012	12/12/2012	11:57 AM	30.19622	-88.31615	253559.54440	1147637.07400	20-ft Vibracore	31.4	15.9	5.9-10.9	5.0	SP-SM	SP-SM	SUBANGULAR TO SUBROUNDED	OLIVE GRAY	5Y 5/2	5	LT OLIVE GRAY	5Y 6/2	6		0.25	0.27	7.3	2.2	1.0
BI-PB-219-12C	PETIT BOIS PASS-ALABAMA EAST	2012	12/12/2012	11:57 AM	30.19622	-88.31615	253559.54440	1147637.07400	20-ft Vibracore	31.4	15.9	10.9-15.9	5.0	SP	SP	SUBANGULAR TO SUBROUNDED	LT GRAY	2.5Y 7/1	7	WHITE	2.5Y 8/1	8		0.31	0.32	2.1	1.6	1.0
BI-PB-220-12	PETIT BOIS PASS-ALABAMA EAST	2012	12/6/2012	3:06 PM	30.20255	-88.32390	255850.65930	1145178.38700	20-ft Vibracore	26.1	11.8		11.8															
BI-PB-220-12A	PETIT BOIS PASS-ALABAMA EAST	2012	12/6/2012	3:06 PM	30.20255	-88.32390	255850.65930	1145178.38700	20-ft Vibracore	26.1	11.8	0-4.2	4.2	SP	SP	SUBANGULAR TO SUBROUNDED	LT BROWNISH GRAY	2.5Y 6/2	6	LT GRAY	2.5Y 7/2	7		0.32	0.33	1.1	1.5	1.0
BI-PB-220-12B	PETIT BOIS PASS-ALABAMA EAST	2012	12/6/2012	3:06 PM	30.20255	-88.32390	255850.65930	1145178.38700	20-ft Vibracore	26.1	11.8	4.2-6.8	2.6	SP	SP	SUBANGULAR TO SUBROUNDED	GRAY	5Y 5/1	5	LT GRAY	5Y 7/1	7		0.24	0.26	2.3	1.8	1.0
BI-PB-220-12C	PETIT BOIS PASS-ALABAMA EAST	2012	12/6/2012	3:06 PM	30.20255	-88.32390	255850.65930	1145178.38700	20-ft Vibracore	26.1	11.8	6.8-11.8	5.0	SP	SP	SUBANGULAR TO SUBROUNDED	LT GRAY	5Y 6.5/1	7	LT GRAY	5Y 7/1	7		0.22	0.23	1.9	1.5	1.0
BI-PB-221-12	PETIT BOIS PASS-ALABAMA WEST	2012	12/13/2012	9:53 AM	30.20243	-88.37135	255743.09210	1130189.08900	20-ft Vibracore	22.0	16.3		16.3															
BI-PB-221-12A	PETIT BOIS PASS-ALABAMA WEST	2012	12/13/2012	9:53 AM	30.20243	-88.37135	255743.09210	1130189.08900	20-ft Vibracore	22.0	16.3	0-5	5.0	SP	SP	SUBANGULAR TO SUBROUNDED	LT BROWNISH GRAY	2.5Y 6/2	6	LT GRAY	2.5Y 7/2	7		0.32	0.35	1.7	1.7	1.0
BI-PB-221-12B	PETIT BOIS PASS-ALABAMA WEST	2012	12/13/2012	9:53 AM	30.20243	-88.37135	255743.09210	1130189.08900	20-ft Vibracore	22.0	16.3	5-10	5.0	SP	SP	SUBANGULAR TO SUBROUNDED	LT GRAY	2.5Y 7/1	7	WHITE	2.5Y 8/1	8		0.29	0.29	1.9	1.7	1.0
BI-PB-221-12C	PETIT BOIS PASS-ALABAMA WEST	2012	12/13/2012	9:53 AM	30.20243	-88.37135	255743.09210	1130189.08900	20-ft Vibracore	22.0	16.3	10-16.3	6.3	SP	SP	SUBANGULAR TO SUBROUNDED	GRAY	5Y 6/1	6	LT GRAY	5Y 7/1	7		0.29	0.29	1.7	1.7	1.0
BI-PB-222-12	PETIT BOIS PASS-ALABAMA WEST	2012	12/13/2012	10:26 AM	30.20223	-88.36605	255677.18500	1131863.65900	20-ft Vibracore	22.8	16.6		16.0															
BI-PB-222-12A	PETIT BOIS PASS-ALABAMA WEST	2012	12/13/2012	10:26 AM	30.20223	-88.36605	255677.18500	1131863.65900	20-ft Vibracore	22.8	16.6	0-5	5.0	SP	SP	SUBANGULAR TO SUBROUNDED	LT BROWNISH GRAY	2.5Y 6/2	6	LT GRAY	2.5Y 7/2	7		0.37	0.40	1.5	1.6	1.0
BI-PB-222-12B	PETIT BOIS PASS-ALABAMA WEST	2012	12/13/2012	10:26 AM	30.20223	-88.36605	255677.18500	1131863.65900	20-ft Vibracore	22.8	16.6	5-10	5.0	SP	SP	SUBANGULAR TO SUBROUNDED	GRAYISH BROWN	2.5Y 5/2	5	LT BROWNISH GRAY	2.5Y 6/2	6		0.31	0.32	2.5	1.6	1.0
BI-PB-222-12C	PETIT BOIS PASS-ALABAMA WEST	2012	12/13/2012	10:26 AM	30.20223	-88.36605	255677.18500	1131863.65900	20-ft Vibracore	22.8	16.6	10-12.7	2.7	SP	SP	SUBANGULAR TO SUBROUNDED	GRAYISH BROWN	2.5Y 5/2	5	LT BROWNISH GRAY	2.5Y 6/2	6		0.31	0.31	3.0	1.6	1.0
BI-PB-222-12D	PETIT BOIS PASS-ALABAMA WEST	2012	12/13/2012	10:26 AM	30.20223	-88.36605	255677.18500	1131863.65900	20-ft Vibracore	22.8	16.6	12.7-16.0	3.3	SP-SM	SP-SM	SUBANGULAR TO SUBROUNDED	DK GRAYISH BROWN	2.5Y 4/2	4	GRAYISH BROWN	2.5Y 5/2	5		0.29	0.29	6.2	2.1	1.2
BI-PB-223-12	PETIT BOIS PASS-ALABAMA WEST	2012	12/13/2012	9:22 AM	30.20063	-88.36848	255092.14400	1131098.39500	20-ft Vibracore	25.0	20.0		11.4															
BI-PB-223-12A	PETIT BOIS PASS-ALABAMA WEST	2012	12/13/2012	9:22 AM	30.20063	-88.36848	255092.14400	1131098.39500	20-ft Vibracore	25.0	20.0	0-5	5.0	SP	SP	SUBANGULAR TO SUBROUNDED	LT GRAY	2.5Y 7/1	7	WHITE	2.5Y 8/1	8		0.28	0.29	1.2	1.7	1.0
BI-PB-223-12B	PETIT BOIS PASS-ALABAMA WEST	2012	12/13/2012	9:22 AM	30.20063	-88.36848	255092.14400	1131098.39500	20-ft Vibracore	25.0	20.0	5-10	5.0	SP	SP	SUBANGULAR TO SUBROUNDED	GRAYISH BROWN	2.5Y 5/2	5	LT BROWNISH GRAY	2.5Y 6/2	6		0.18	0.18	2.5	1.6	1.0
BI-PB-223-12C	PETIT BOIS PASS-ALABAMA WEST	2012	12/13/2012	9:22 AM	30.20063	-88.36848	255092.14400	1131098.39500	20-ft Vibracore	25.0	20.0	10-11.4	1.4	SP-SM	SP	SUBANGULAR TO SUBROUNDED	DK GRAYISH BROWN	2.5Y 4/2	4	GRAYISH BROWN	2.5Y 5/2	5		0.24	0.25	4.4	1.8	1.0
BI-PB-224-12	PETIT BOIS PASS-ALABAMA WEST	2012	12/13/2012	8:45 AM	30.19883	-88.37140	254433.75410	1130178.60400	20-ft Vibracore	23.8	20.0		14.0															
BI-PB-224-12A	PETIT BOIS PASS-ALABAMA WEST	2012	12/13/2012	8:45 AM	30.19883	-88.37140	254433.75410	1130178.60400	20-ft Vibracore	23.8	20.0	0-5	5.0	SP	SP	SUBANGULAR TO SUBROUNDED	LT GRAY	2.5Y 7/1	7	WHITE	2.5Y 8/1	8		0.35	0.37	1.0	1.5	1.0
BI-PB-224-12B	PETIT BOIS PASS-ALABAMA WEST	2012	12/13/2012	8:45 AM	30.19883	-88.37140	254433.75410	1130178.60400	20-ft Vibracore	23.8	20.0	5-10	5.0	SP	SP	SUBANGULAR TO SUBROUNDED	LT GRAY	2.5Y 7/1	7	WHITE	2.5Y 8/1	8		0.35	0.37	0.8	1.5	1.0
BI-PB-224-12C	PETIT BOIS PASS-ALABAMA WEST	2012	12/13/2012	8:45 AM	30.19883	-88.37140	254433.75410	1130178.60400	20-ft Vibracore	23.8	20.0	10-14	4.0	SP-SM	SP	SUBANGULAR TO SUBROUNDED	GRAYISH BROWN	2.5Y 5/2	5	LT BROWNISH GRAY	2.5Y 6/2	6		0.30	0.30	3.6	1.7	1.1

Cu: Coefficient of Uniformity  
Cc: Coefficient of Curvature  
The "#Value!" error message indicates that data was not available for that calculation.

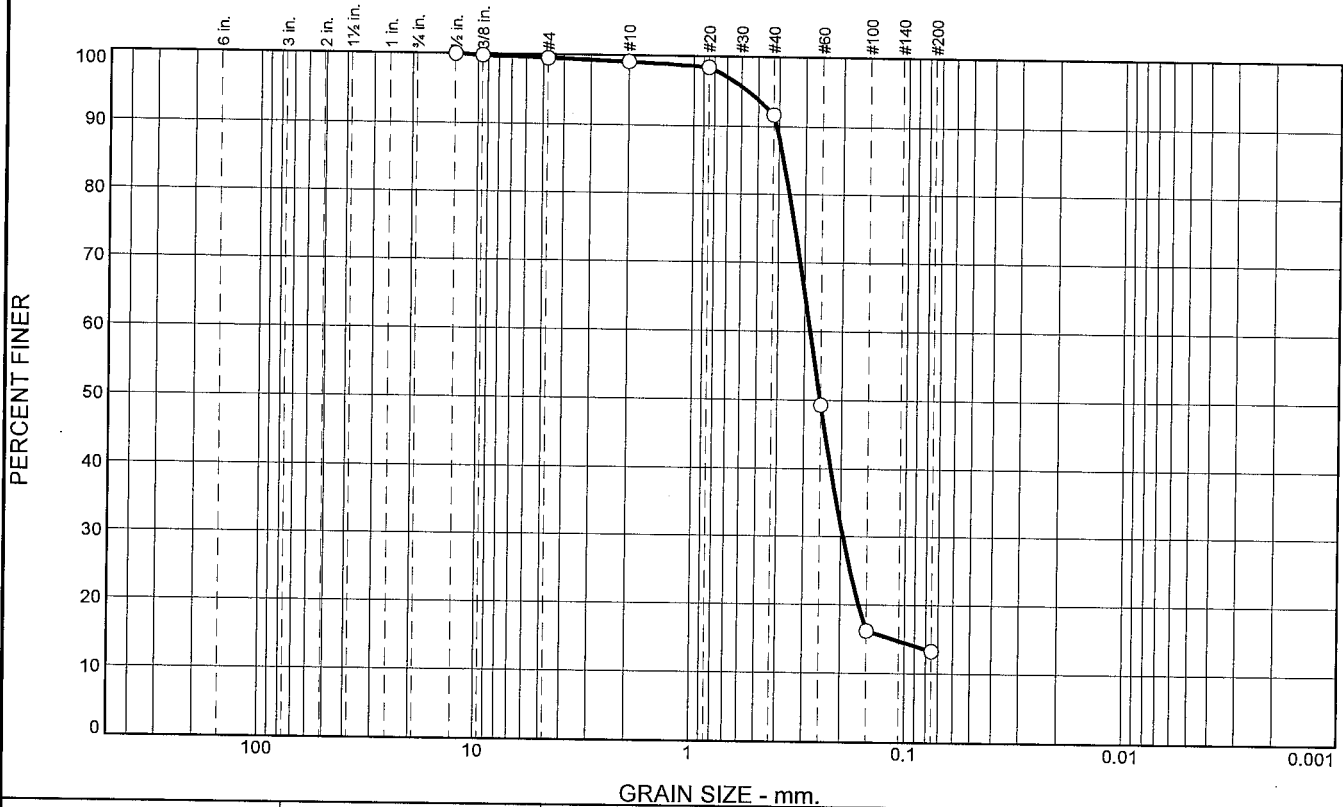


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# Boring Designation BI-PB-001-10

DRILLING LOG		DIVISION South Atlantic		INSTALLATION Mobile District		SHEET 1 OF 1 SHEETS	
1. PROJECT MsCIP Barrier Island Restoration Petit Bois Pass- AL West				9. SIZE AND TYPE OF BIT N/A			
2. BORING DESIGNATION BI-PB-001-10		LOCATION COORDINATES E = 1,125,532 N = 246,989		10. COORDINATE SYSTEM/DATUM State Plane, MSE (U.S. Ft.)		HORIZONTAL NAD83	
3. DRILLING AGENCY Corps of Engineers - CESAM		CONTRACTOR FILE NO.		11. MANUFACTURER'S DESIGNATION OF DRILL Vibrocure		<input type="checkbox"/> AUTO HAMMER <input type="checkbox"/> MANUAL HAMMER	
4. NAME OF DRILLER Construction Solutions International, Inc.				12. TOTAL SAMPLES 2		UNDISTURBED (UD) 0	
5. DIRECTION OF BORING <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED		DEG. FROM VERTICAL		13. TOTAL NUMBER CORE BOXES			
		BEARING		14. WATER DEPTH 44 Ft.			
6. THICKNESS OF OVERBURDEN N/A				15. DATE BORING 06-25-10		COMPLETED 06-25-10	
7. DEPTH DRILLED INTO ROCK N/A				16. ELEVATION TOP OF BORING -42.2 Ft.			
8. TOTAL DEPTH OF BORING 15.7 Ft.				17. TOTAL RECOVERY FOR BORING 100%			
				18. SIGNATURE AND TITLE OF INSPECTOR Marty Gates, Geologist			
ELEV.	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS	SAMPLE	LABORATORY RESULTS		
-42.2	0.0		CLAY, lean, dark gray (CL)	NS			
-48.2	6.0		SAND, silty, mostly fine to medium-grained sand-sized quartz, some silt, gray (SM)	A	Classification: SM Color: 2.5Y 6/2-light brownish gray D50: 0.2522 mm % Fines: 13.3		
-52.5	10.3		SAND, poorly-graded, mostly fine to medium-grained sand-sized quartz, trace silt, trace wood debris, lt. gray (SP)	B	Classification: SP Color: 2.5Y 7/1-light gray D50: 0.2622 mm % Fines: 2.9		
-57.9	15.7		NOTES: 1. Soils are field visually classified in accordance with the Unified Soils Classification System. 2. NS = Sample not submitted for laboratory analysis from this interval. 3. Seafloor elevation calculated using sampling vessel's fathometer water depth reading and applying NOAA tidal gauge data conversion factor.				

# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.5	0.4	7.4	78.4	13.3	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
.500	100.0		
.375	99.8		
#4	99.5		
#10	99.1		
#20	98.4		
#40	91.7		
#60	49.3		
#100	16.2		
#200	13.3		

\* (no specification provided)

**Material Description**  
SILTY SAND, (SM), fine grained, with some clay pockets

**Atterberg Limits**  
PL=      LL=      PI=

**Coefficients**  
D<sub>90</sub>= 0.4121      D<sub>85</sub>= 0.3808      D<sub>60</sub>= 0.2821  
D<sub>50</sub>= 0.2522      D<sub>30</sub>= 0.1951      D<sub>15</sub>= 0.1133  
D<sub>10</sub>=      C<sub>u</sub>=      C<sub>c</sub>=

**Classification**  
USCS= SM      AASHTO=

**Remarks**  
CADD CODE = CH10D965

Location: USACE Sample # BI-PB-1-10A  
Sample Number: TE Lab ID: 4569.01

Depth: 6.0 - 10.3 (ft.)

Date: 7/8/10

**Thompson Engineering**

**Mobile, Alabama**

Client: US Army Corps of Engineers

Project: Contract No. W91278-10-D-0026 - Task 03  
Mississippi Barrier Island Restoration Project

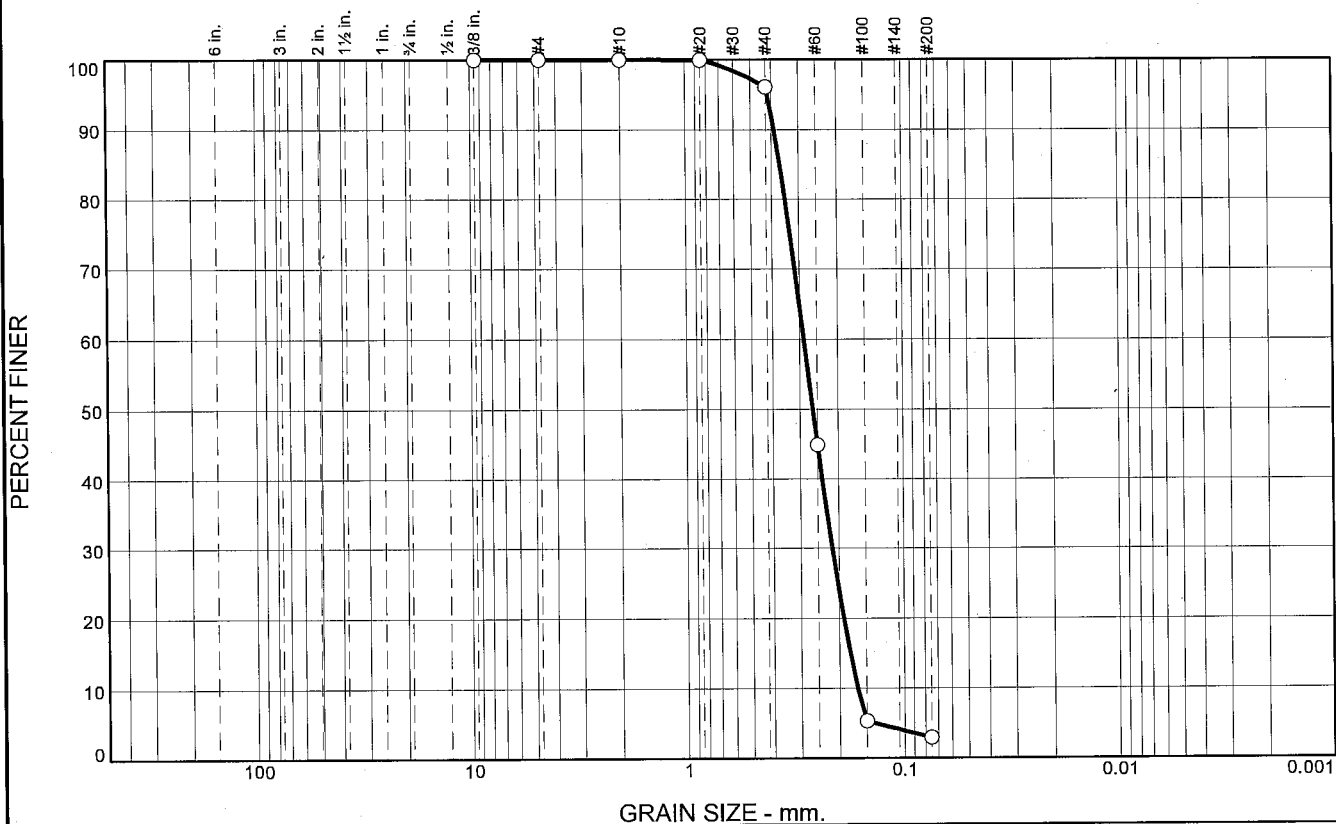
Project No: 10-2123-0009

Report No.

Tested By: R.Martin

Checked By: R.Byrd

# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.0	0.0	3.9	93.2	2.9	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
.375	100.0		
#4	100.0		
#10	100.0		
#20	99.9		
#40	96.1		
#60	44.9		
#100	5.3		
#200	2.9		

\* (no specification provided)

## Material Description

SAND, (SP), fine grained

## Atterberg Limits

PL=

LL=

PI=

## Coefficients

D<sub>90</sub>= 0.3891

D<sub>85</sub>= 0.3666

D<sub>60</sub>= 0.2873

D<sub>50</sub>= 0.2622

D<sub>30</sub>= 0.2149

D<sub>15</sub>= 0.1784

D<sub>10</sub>= 0.1648

C<sub>u</sub>= 1.74

C<sub>c</sub>= 0.98

## Classification

USCS= SP

AASHTO=

## Remarks

CADD CODE = CH10D965

Location: USACE Sample # BI-PB-1-10B  
Sample Number: TE Lab ID: 4569.02

Depth: 10.3 - 15.7 (ft.)

Date: 7/8/10

**Thompson Engineering**

**Mobile, Alabama**

Client: US Army Corps of Engineers

Project: Contract No. W91278-10-D-0026 - Task 03  
Mississippi Barrier Island Restoration Project

Project No: 10-2123-0009

Figure

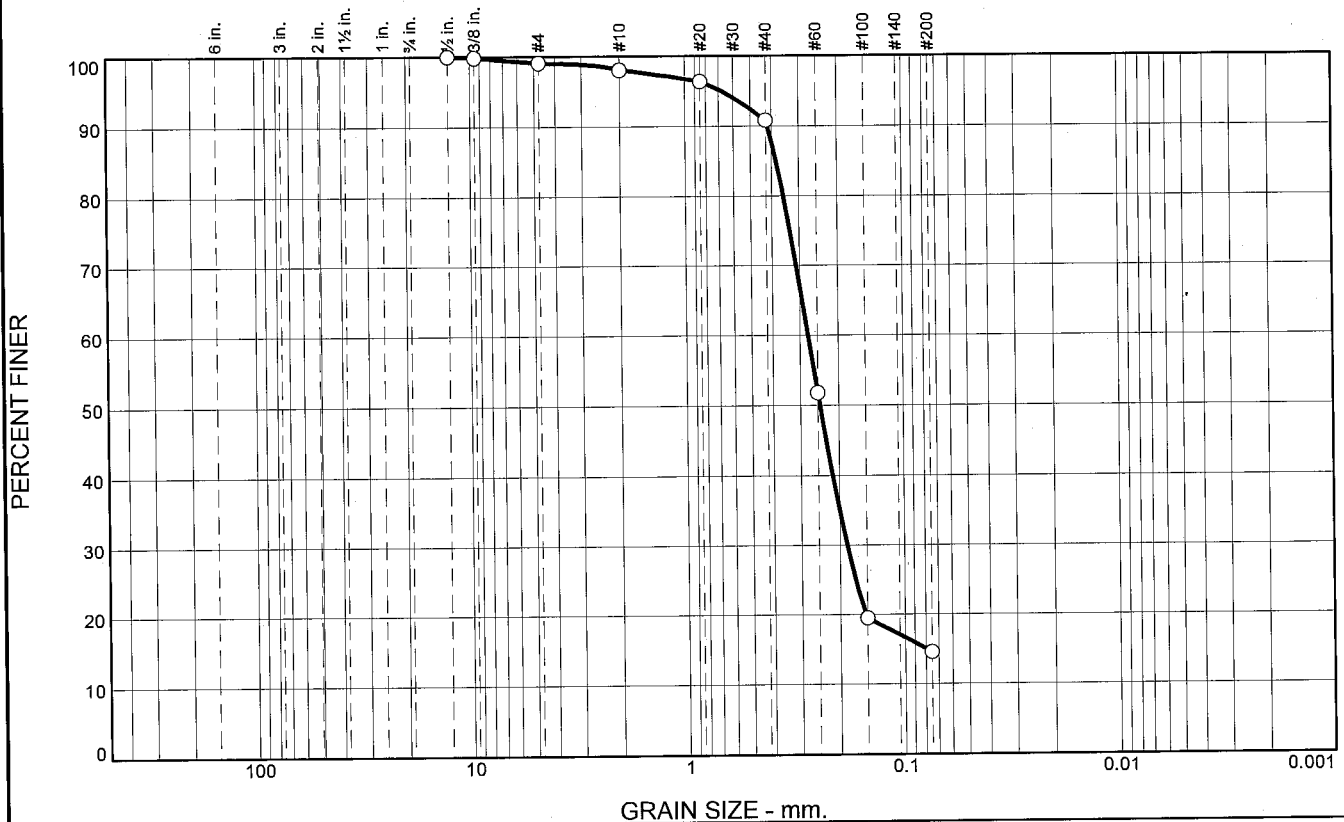
Tested By: R.Martin

Checked By: R.Byrd

# Boring Designation BI-PB-002-10

DRILLING LOG		DIVISION South Atlantic		INSTALLATION Mobile District		SHEET 1 OF 1 SHEETS	
1. PROJECT MsCIP Barrier Island Restoration Petit Bois Pass- AL West				9. SIZE AND TYPE OF BIT N/A			
2. BORING DESIGNATION BI-PB-002-10		LOCATION COORDINATES E = 1,126,999 N = 247,598		10. COORDINATE SYSTEM/DATUM State Plane, MSE (U.S. Ft.)		HORIZONTAL NAD83 VERTICAL NAVD88	
3. DRILLING AGENCY Corps of Engineers - CESAM		CONTRACTOR FILE NO.		11. MANUFACTURER'S DESIGNATION OF DRILL Vibracore		<input type="checkbox"/> AUTO HAMMER <input type="checkbox"/> MANUAL HAMMER	
4. NAME OF DRILLER Construction Solutions International, Inc.				12. TOTAL SAMPLES		DISTURBED 1 UNDISTURBED (UD) 0	
5. DIRECTION OF BORING <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED		DEG. FROM VERTICAL		13. TOTAL NUMBER CORE BOXES			
		BEARING		14. WATER DEPTH 43 Ft.			
6. THICKNESS OF OVERBURDEN N/A				15. DATE BORING		STARTED 06-25-10 COMPLETED 06-25-10	
7. DEPTH DRILLED INTO ROCK N/A				16. ELEVATION TOP OF BORING -41.4 Ft.			
8. TOTAL DEPTH OF BORING 15.5 Ft.				17. TOTAL RECOVERY FOR BORING 100%			
				18. SIGNATURE AND TITLE OF INSPECTOR Marty Gates, Geologist			
ELEV.	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS	SAMPLE	LABORATORY RESULTS		
-41.4	0.0		CLAY, lean, dark gray (CL)	NS			
-49.0	7.6		SAND, silty, mostly fine to medium-grained sand-sized quartz, some silt, gray (SM)	A	Classification: SM Color: 2.5Y 65/2- D50: 0.2445 mm % Fines: 14.6		
-54.7	13.3		CLAY, lean, dark gray (CL)	NS			
-56.9	15.5		NOTES: 1. Soils are field visually classified in accordance with the Unified Soils Classification System. 2. NS = Sample not submitted for laboratory analysis from this interval. 3. Seafloor elevation calculated using sampling vessel's fathometer water depth reading and applying NOAA tidal gauge data conversion factor.				

# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.9	1.0	7.3	76.2	14.6	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
.500	100.0		
.375	99.8		
#4	99.1		
#10	98.1		
#20	96.4		
#40	90.8		
#60	51.8		
#100	19.5		
#200	14.6		

\* (no specification provided)

**Material Description**  
SILTY SAND, (SM), fine grained, with little clay pockets

**Atterberg Limits**  
 PL=      LL=      PI=

**Coefficients**  
 D<sub>90</sub>= 0.4176      D<sub>85</sub>= 0.3819      D<sub>60</sub>= 0.2759  
 D<sub>50</sub>= 0.2445      D<sub>30</sub>= 0.1852      D<sub>15</sub>= 0.0797  
 D<sub>10</sub>=      C<sub>u</sub>=      C<sub>c</sub>=

**Classification**  
 USCS= SM      AASHTO=

**Remarks**  
 CADD CODE = CH10D965

Location: USACE Sample # BI-PB-2-10A  
 Sample Number: TE Lab ID: 4569.04

Depth: 7.6 - 13.3 (ft.)

Date: 7/8/10

**Thompson Engineering**  
  
**Mobile, Alabama**

Client: US Army Corps of Engineers  
 Project: Contract No. W91278-10-D-0026 - Task 03  
 Mississippi Barrier Island Restoration Project  
 Project No: 10-2123-0009

Figure

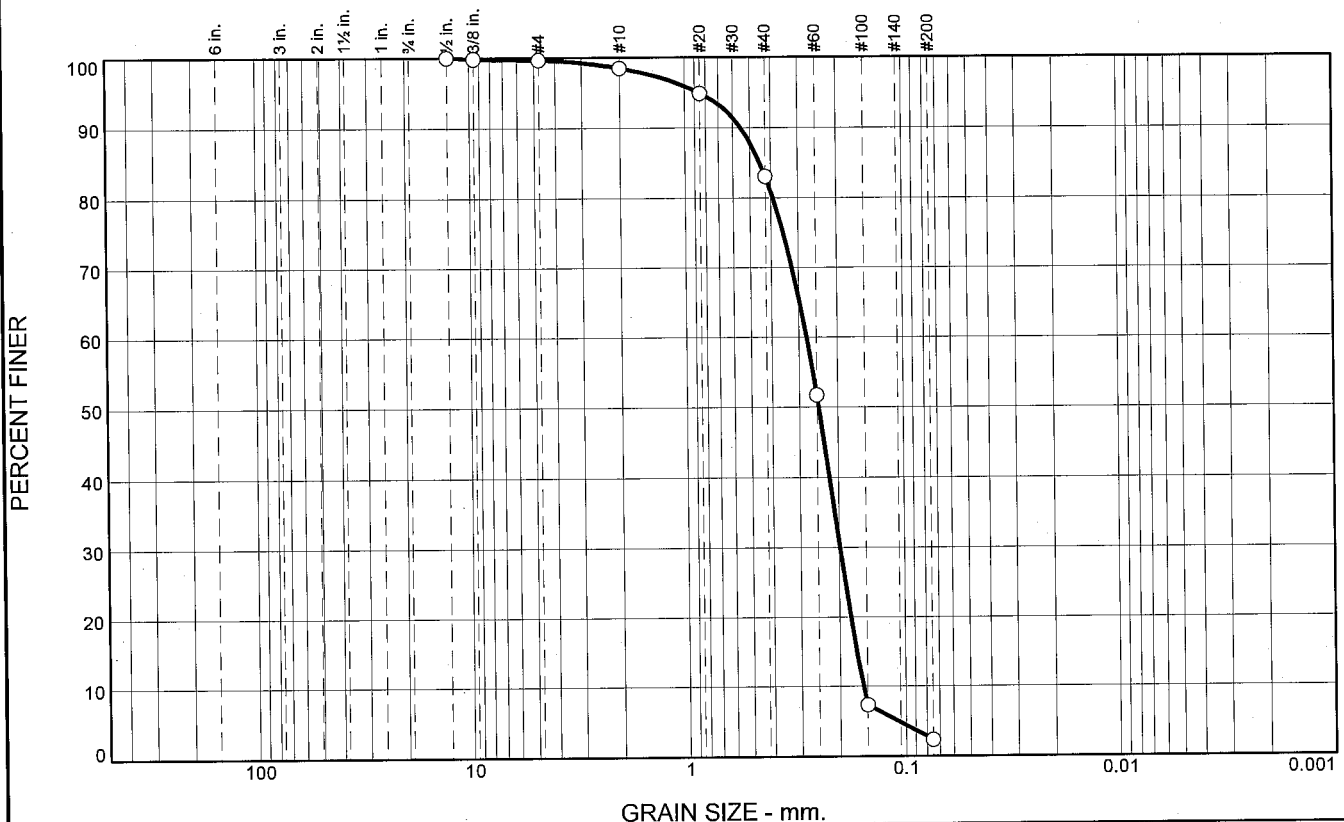
Tested By: R.Martin

Checked By: R.Byrd

# Boring Designation BI-PB-003-10

DRILLING LOG		DIVISION South Atlantic		INSTALLATION Mobile District		SHEET 1 OF 1 SHEETS	
1. PROJECT MsCIP Barrier Island Restoration Petit Bois Pass- AL West				9. SIZE AND TYPE OF BIT N/A			
2. BORING DESIGNATION BI-PB-003-10		LOCATION COORDINATES E = 1,130,066 N = 248,669		10. COORDINATE SYSTEM/DATUM State Plane, MSE (U.S. Ft.)		HORIZONTAL NAD83	
3. DRILLING AGENCY Corps of Engineers - CESAM		CONTRACTOR FILE NO.		11. MANUFACTURER'S DESIGNATION OF DRILL Vibrocure		<input type="checkbox"/> AUTO HAMMER <input type="checkbox"/> MANUAL HAMMER	
4. NAME OF DRILLER Construction Solutions International, Inc.				12. TOTAL SAMPLES		DISTURBED 0	
5. DIRECTION OF BORING <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED				13. TOTAL NUMBER CORE BOXES		14. WATER DEPTH 33 Ft.	
6. THICKNESS OF OVERBURDEN N/A				15. DATE BORING		STARTED 06-25-10	
7. DEPTH DRILLED INTO ROCK N/A				16. ELEVATION TOP OF BORING -31.5 Ft.		COMPLETED 06-25-10	
8. TOTAL DEPTH OF BORING 18.4 Ft.				17. TOTAL RECOVERY FOR BORING 100%			
				18. SIGNATURE AND TITLE OF INSPECTOR Marty Gates, Geologist			
ELEV.	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS	SAMPLE	LABORATORY RESULTS		
-31.5	0.0						
-35.0	3.5		SAND, poorly-graded, mostly fine to medium-grained sand-sized quartz, trace silt, trace shell fragments, lt. gray (SP)	A	Classification: SP Color: 2.5Y 7/1-light gray D50: 0.2451 mm % Fines: 2.3		
-38.2	6.7		SAND, silty, mostly fine to medium-grained sand-sized quartz, some silt, trace shell fragments, gray (SM)	B	Classification: SC Color: 2.5Y 5/2-grayish brown D50: 0.2086 mm % Fines: 16.8		
-45.2	13.7		CLAY, lean, dark gray (CL)	NS			
-49.9	18.4		SAND, poorly-graded, mostly fine to medium-grained sand-sized quartz, trace silt, lt. gray (SP)				
			NOTES: 1. Soils are field visually classified in accordance with the Unified Soils Classification System. 2. NS = Sample not submitted for laboratory analysis from this interval. 3. Seafloor elevation calculated using sampling vessel's fathometer water depth reading and applying NOAA tidal gauge data conversion factor.				

# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.4	1.1	15.4	80.8	2.3	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
.500	100.0		
.375	99.8		
#4	99.6		
#10	98.5		
#20	94.9		
#40	83.1		
#60	51.7		
#100	7.3		
#200	2.3		

\* (no specification provided)

**Material Description**

SAND, (SP), medium to fine grained

**Atterberg Limits**

PL=      LL=      PI=

**Coefficients**

D<sub>90</sub>= 0.5509      D<sub>85</sub>= 0.4502      D<sub>60</sub>= 0.2770  
D<sub>50</sub>= 0.2451      D<sub>30</sub>= 0.1982      D<sub>15</sub>= 0.1674  
D<sub>10</sub>= 0.1565      C<sub>u</sub>= 1.77      C<sub>c</sub>= 0.91

**Classification**

USCS= SP      AASHTO=

**Remarks**

CADD CODE = CH10D965

Location: USACE Sample # BI-PB-3-10A  
Sample Number: TE Lab ID: 4569.05

Depth: 0.0 - 3.5 (ft.)

Date: 7/8/10

**Thompson Engineering**

**Mobile, Alabama**

Client: US Army Corps of Engineers

Project: Contract No. W91278-10-D-0026 - Task 03  
Mississippi Barrier Island Restoration Project

Project No: 10-2123-0009

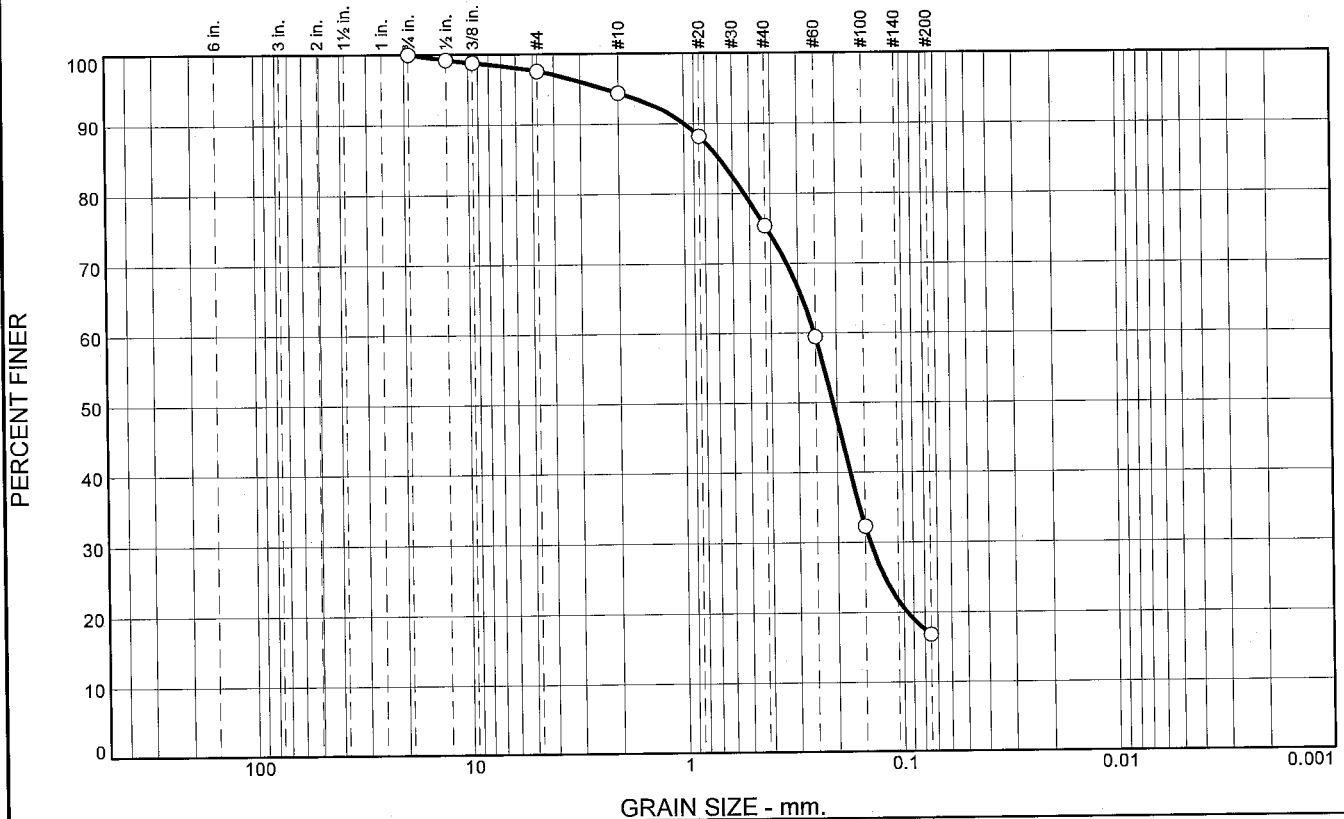
Figure

Tested By: R.Martin

Checked By: R.Byrd



# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	2.4	3.2	19.0	58.6	16.8	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
.750	100.0		
.500	99.2		
.375	98.8		
#4	97.6		
#10	94.4		
#20	88.2		
#40	75.4		
#60	59.5		
#100	32.3		
#200	16.8		

\* (no specification provided)

## Material Description

CLAYEY SAND, (SC), medium to fine grained, with little clay pockets and trace shell

## Atterberg Limits

PL= LL= PI=

## Coefficients

D<sub>90</sub>= 0.9957 D<sub>85</sub>= 0.6906 D<sub>60</sub>= 0.2530  
D<sub>50</sub>= 0.2086 D<sub>30</sub>= 0.1420 D<sub>15</sub>=  
D<sub>10</sub>= C<sub>u</sub>= C<sub>c</sub>=

## Classification

USCS= SC AASHTO=

## Remarks

CADD CODE = CH10D965

Location: USACE Sample # BI-PB-3-10B  
Sample Number: TE Lab ID: 4569.06

Depth: 3.0 - 6.7 (ft.)

Date: 7/8/10

**Thompson Engineering**

**Mobile, Alabama**

Client: US Army Corps of Engineers

Project: Contract No. W91278-10-D-0026 - Task 03  
Mississippi Barrier Island Restoration Project

Project No: 10-2123-0009

Figure

Tested By: R.Martin

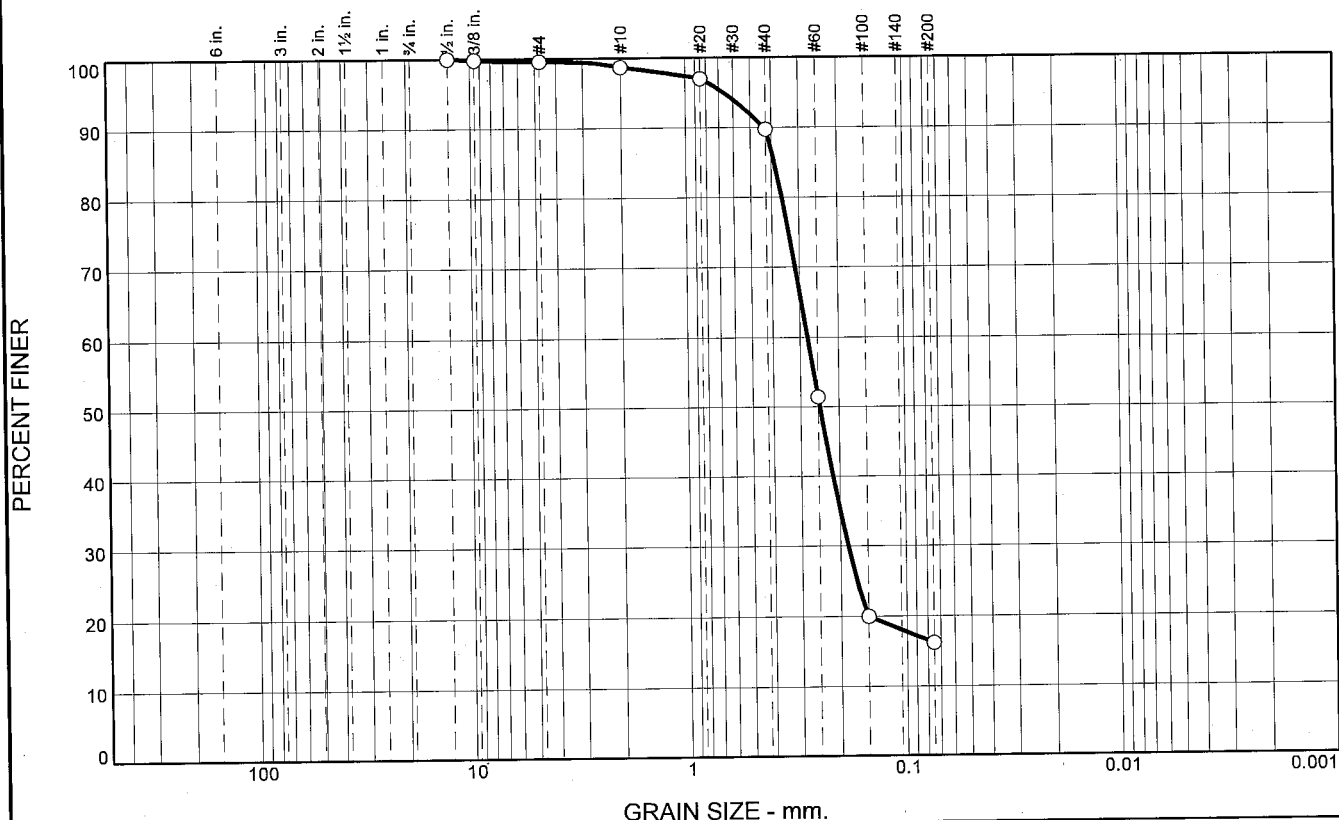
Checked By: R.Byrd

# Boring Designation BI-PB-004-10

DRILLING LOG		DIVISION South Atlantic		INSTALLATION Mobile District		SHEET 1 OF 2 SHEETS	
1. PROJECT MsCIP Barrier Island Restoration Petit Bois Pass- AL West				9. SIZE AND TYPE OF BIT N/A			
2. BORING DESIGNATION BI-PB-004-10		LOCATION COORDINATES E = 1,128,185 N = 247,301		10. COORDINATE SYSTEM/DATUM State Plane, MSE (U.S. Ft.)		HORIZONTAL NAD83	
3. DRILLING AGENCY Corps of Engineers - CESAM		CONTRACTOR FILE NO.		11. MANUFACTURER'S DESIGNATION OF DRILL Vibracore		<input type="checkbox"/> AUTO HAMMER <input type="checkbox"/> MANUAL HAMMER	
4. NAME OF DRILLER Construction Solutions International, Inc.				12. TOTAL SAMPLES 3		UNDISTURBED (UD) 0	
5. DIRECTION OF BORING <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED		DEG. FROM VERTICAL		13. TOTAL NUMBER CORE BOXES			
		BEARING		14. WATER DEPTH 43 Ft.			
6. THICKNESS OF OVERBURDEN N/A				15. DATE BORING 06-25-10		COMPLETED 06-25-10	
7. DEPTH DRILLED INTO ROCK N/A				16. ELEVATION TOP OF BORING -41.4 Ft.			
8. TOTAL DEPTH OF BORING 20.0 Ft.				17. TOTAL RECOVERY FOR BORING 100%			
				18. SIGNATURE AND TITLE OF INSPECTOR Marty Gates, Geologist			
ELEV.	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS	SAMPLE	LABORATORY RESULTS		
-41.4	0.0		CLAY, lean, dark gray (CL)	NS			
-49.4	8.0		SAND, silty, mostly fine to medium-grained sand-sized quartz, some silt, gray (SM)	A	Classification: SM Color: 2.5Y 5/2-grayish brown D50: 0.2455 mm % Fines: 16.2		
-53.4	12.0		SAND, poorly-graded, mostly fine to medium-grained sand-sized quartz, little silt, lt. gray (SP)	B	Classification: SM Color: 2.5Y 6/2-light brownish gray D50: 0.1947 mm % Fines: 12.1		
-59.1	17.7		SAND, silty, mostly fine to medium-grained sand-sized quartz, some silt, gray (SM)	C	Classification: SM Color: 2.5Y 5/2-grayish brown D50: 0.1898 mm % Fines: 19.1		
-61.4	20.0		NOTES: 1. Soils are field visually classified in accordance with the Unified Soils Classification System. 2. NS = Sample not submitted for laboratory analysis from this interval. 3. Seafloor elevation calculated using sampling				

<b>DRILLING LOG (Cont. Sheet)</b>			<b>INSTALLATION</b> Mobile District		<b>SHEET 2</b> <b>OF 2 SHEETS</b>
<b>PROJECT</b> MsCIP Barrier Island Restoration			<b>COORDINATE SYSTEM/DATUM</b> State Plane, MSE (U.S. Ft.)	<b>HORIZONTAL</b> NAD83	<b>VERTICAL</b> NAVD88
<b>LOCATION COORDINATES</b> X = 1,128,185 Y = 247,301			<b>ELEVATION TOP OF BORING</b> -41.4 Ft.		
<b>ELEV.</b>	<b>DEPTH</b>	<b>LEGEND</b>	<b>CLASSIFICATION OF MATERIALS</b>	<b>SAMPLE</b>	<b>LABORATORY RESULTS</b>
			vessel's fathometer water depth reading and applying NOAA tidal gauge data conversion factor.		

# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.4	0.9	9.0	73.5	16.2	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
.500	100.0		
.375	99.8		
#4	99.6		
#10	98.7		
#20	97.0		
#40	89.7		
#60	51.4		
#100	20.0		
#200	16.2		

\* (no specification provided)

**Material Description**  
SILTY SAND, (SM), fine grained, with some clay pockets

**Atterberg Limits**  
 PL=      LL=      PI=

**Coefficients**  
 D<sub>90</sub>= 0.4333      D<sub>85</sub>= 0.3889      D<sub>60</sub>= 0.2779  
 D<sub>50</sub>= 0.2455      D<sub>30</sub>= 0.1847      D<sub>15</sub>=  
 D<sub>10</sub>=      C<sub>u</sub>=      C<sub>c</sub>=

**Classification**  
 USCS= SM      AASHTO=

**Remarks**  
 CADD CODE = CH10D965

Location: USACE Sample # BI-PB-4-10A  
 Sample Number: TE Lab ID: 4569.07

Depth: 8.0 - 12.0 (ft.)

Date: 7/8/10

**Thompson Engineering**

**Mobile, Alabama**

Client: US Army Corps of Engineers

Project: Contract No. W91278-10-D-0026 - Task 03  
 Mississippi Barrier Island Restoration Project

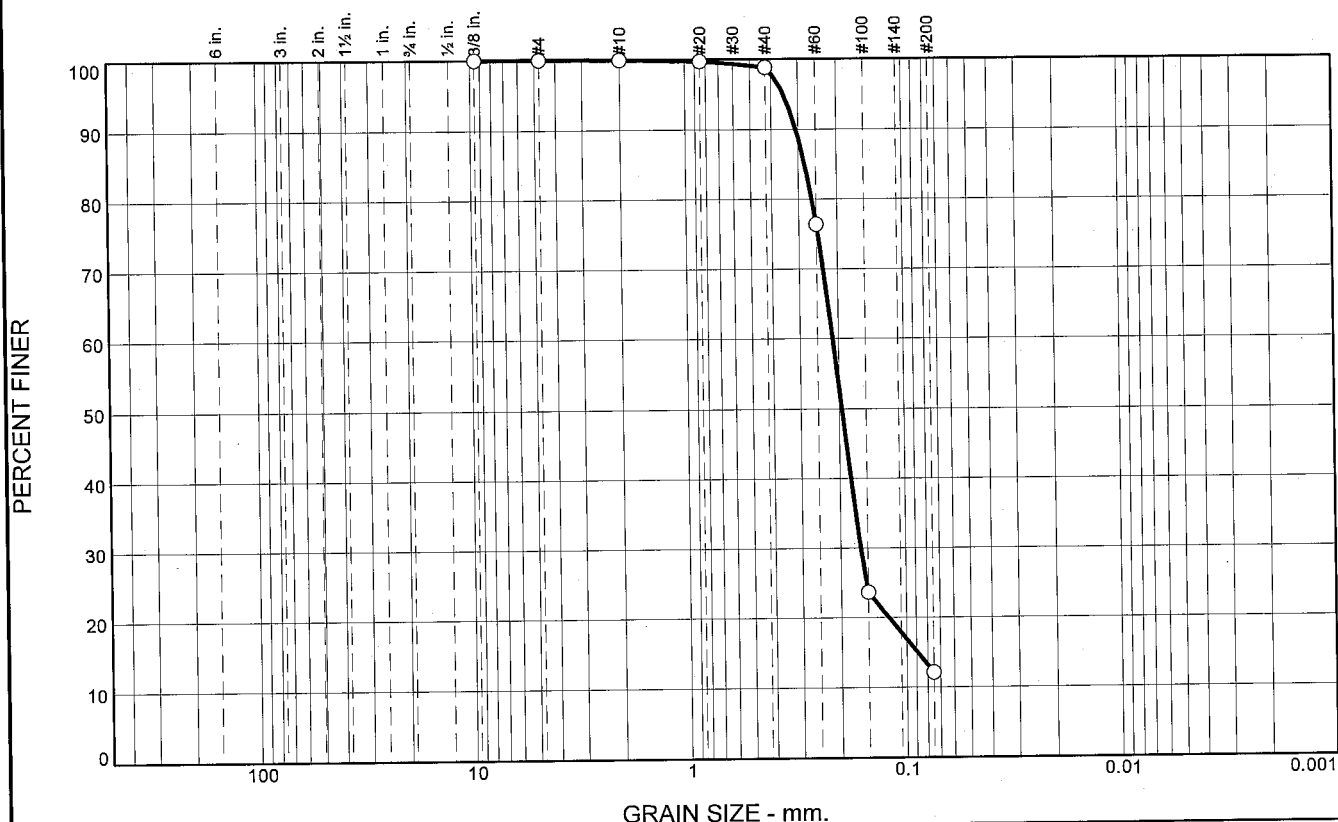
Project No: 10-2123-0009

Figure

Tested By: R.Martin

Checked By: R.Byrd

# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.0	0.1	1.1	86.7	12.1	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
.375	100.0		
#4	100.0		
#10	99.9		
#20	99.7		
#40	98.8		
#60	76.4		
#100	23.6		
#200	12.1		

\* (no specification provided)

## Material Description

SILTY SAND, (SM), fine grained, with some clay pockets

## Atterberg Limits

PL= LL= PI=

## Coefficients

D<sub>90</sub>= 0.3072 D<sub>85</sub>= 0.2806 D<sub>60</sub>= 0.2127  
D<sub>50</sub>= 0.1947 D<sub>30</sub>= 0.1615 D<sub>15</sub>= 0.0893  
D<sub>10</sub>= C<sub>u</sub>= C<sub>c</sub>=

## Classification

USCS= SM AASHTO=

## Remarks

CADD CODE = CH10D965

Location: USACE Sample # BI-PB-4-10B  
Sample Number: TE Lab ID: 4569.08

Depth: 12.0 - 17.7 (ft.)

Date: 7/8/10

**Thompson Engineering**

**Mobile, Alabama**

Client: US Army Corps of Engineers

Project: Contract No. W91278-10-D-0026 - Task 03  
Mississippi Barrier Island Restoration Project

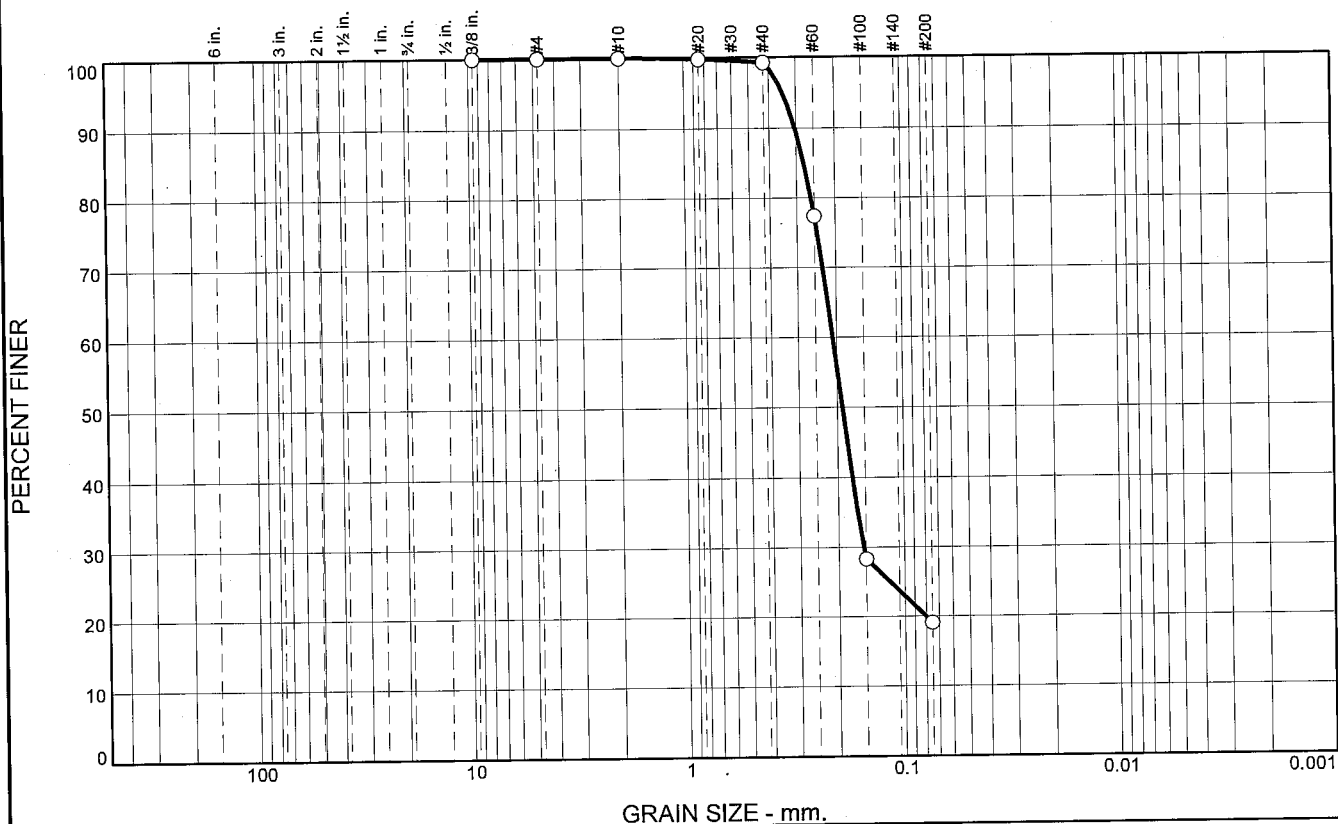
Project No: 10-2123-0009

Figure

Tested By: R.Martin

Checked By: R.Byrd

# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.0	0.0	0.7	80.2	19.1	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
.375	100.0		
#4	100.0		
#10	100.0		
#20	99.8		
#40	99.3		
#60	77.4		
#100	28.3		
#200	19.1		

\* (no specification provided)

## Material Description

SILTY SAND, (SM), fine grained, with clay pockets

## Atterberg Limits

PL=

LL=

PI=

## Coefficients

D<sub>90</sub>= 0.3041

D<sub>85</sub>= 0.2777

D<sub>60</sub>= 0.2086

D<sub>50</sub>= 0.1898

D<sub>30</sub>= 0.1535

D<sub>15</sub>=

D<sub>10</sub>=

C<sub>u</sub>=

C<sub>c</sub>=

## Classification

USCS= SM

AASHTO=

## Remarks

CADD CODWE = CH10D965

Location: USACE Sample # BI-PB-4-10C  
Sample Number: TE Lab ID: 4569.09

Depth: 17.7 - 20.0 (ft.)

Date: 7/8/10

**Thompson Engineering**

**Mobile, Alabama**

Client: US Army Corps of Engineers

Project: Contract No. W91278-10-D-0026 - Task 03  
Mississippi Barrier Island Restoration Project

Project No: 10-2123-0009

Figure

Tested By: R.Martin

Checked By: R.Byrd

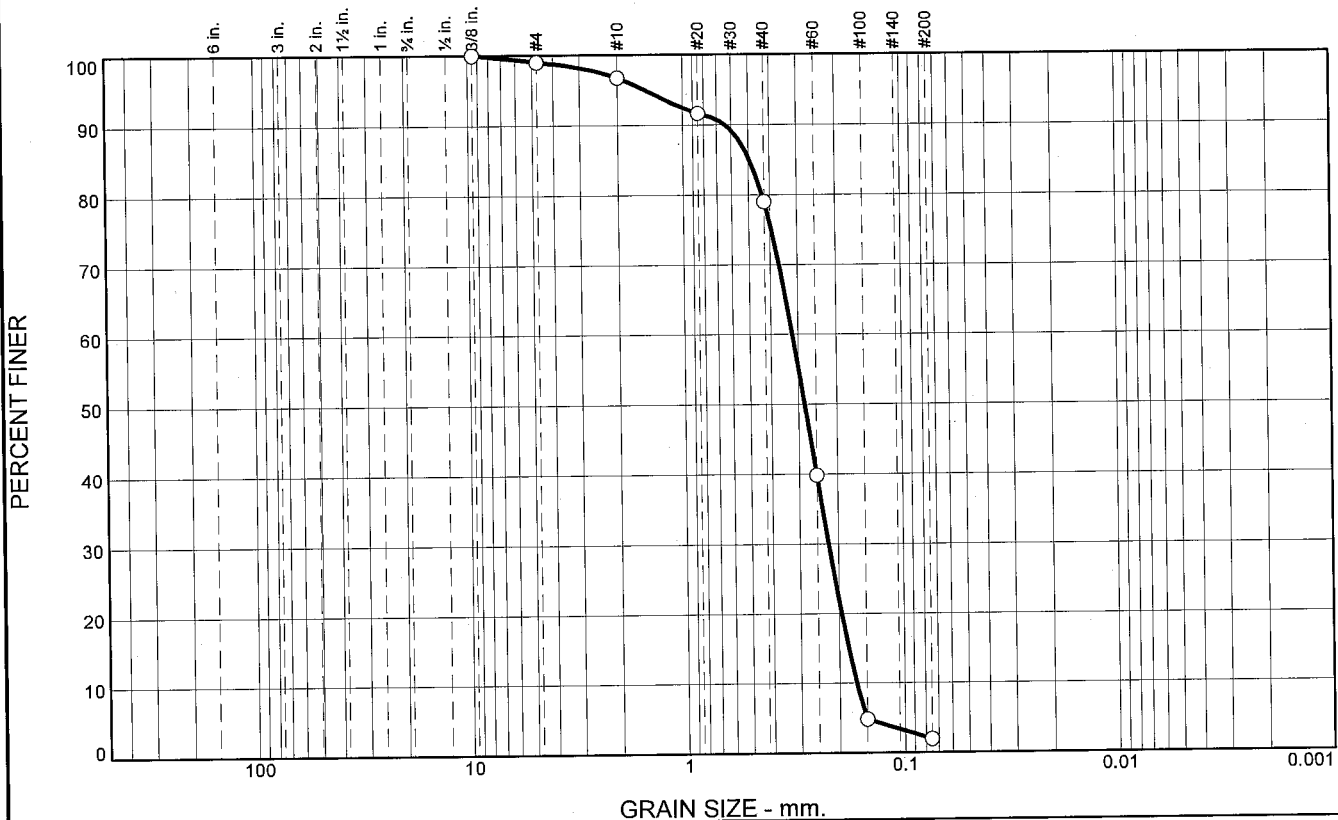
# Boring Designation BI-PB-005-10

DRILLING LOG		DIVISION South Atlantic		INSTALLATION Mobile District		SHEET 1 OF 2 SHEETS	
1. PROJECT MsCIP Barrier Island Restoration Petit Bois Pass- AL West				9. SIZE AND TYPE OF BIT N/A			
2. BORING DESIGNATION BI-PB-005-10		LOCATION COORDINATES E = 1,130,535 N = 248,423		10. COORDINATE SYSTEM/DATUM State Plane, MSE (U.S. Ft.)		HORIZONTAL NAD83 VERTICAL NAVD88	
3. DRILLING AGENCY Corps of Engineers - CESAM		CONTRACTOR FILE NO.		11. MANUFACTURER'S DESIGNATION OF DRILL Vibrocure		<input type="checkbox"/> AUTO HAMMER <input type="checkbox"/> MANUAL HAMMER	
4. NAME OF DRILLER Construction Solutions International, Inc.				12. TOTAL SAMPLES 1		DISTURBED 1 UNDISTURBED (UD) 0	
5. DIRECTION OF BORING <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED		DEG. FROM VERTICAL		13. TOTAL NUMBER CORE BOXES			
		BEARING		14. WATER DEPTH 31 Ft.			
6. THICKNESS OF OVERBURDEN N/A				15. DATE BORING 06-26-10		STARTED 06-26-10 COMPLETED 06-26-10	
7. DEPTH DRILLED INTO ROCK N/A				16. ELEVATION TOP OF BORING -29.4 Ft.			
8. TOTAL DEPTH OF BORING 19.5 Ft.				17. TOTAL RECOVERY FOR BORING 100%			
				18. SIGNATURE AND TITLE OF INSPECTOR Marty Gates, Geologist			
ELEV.	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS	SAMPLE	LABORATORY RESULTS		
-29.4	0.0						
			SAND, poorly-graded, mostly medium-grained sand-sized quartz, trace silt, trace shell fragments, lt. gray (SP)	A	Classification: SP Color: 2.5Y 7/2-light gray D50: 0.2821 mm % Fines: 1.9		
-36.0	6.6						
			CLAY, lean, dark gray (CL)	NS			
-44.2	14.8						
			SAND, silty, mostly fine to medium-grained sand-sized quartz, some silt, trace shell fragments, gray (SM)				
-46.7	17.3						
			SAND, poorly-graded, mostly fine to medium-grained sand-sized quartz, trace silt, trace shell fragments, lt. gray (SP)				
-48.9	19.5						
			NOTES: 1. Soils are field visually classified in accordance with the Unified Soils Classification System. 2. NS = Sample not submitted for laboratory analysis from this interval. 3. Seafloor elevation calculated using sampling vessel's fathometer water depth reading and				

<b>DRILLING LOG (Cont. Sheet)</b>			<b>INSTALLATION</b> Mobile District		<b>SHEET 2</b> <b>OF 2 SHEETS</b>
<b>PROJECT</b> MsCIP Barrier Island Restoration			<b>COORDINATE SYSTEM/DATUM</b> State Plane, MSE (U.S. Ft.)	<b>HORIZONTAL</b> NAD83	<b>VERTICAL</b> NAVD88
<b>LOCATION COORDINATES</b> X = 1,130,535 Y = 248,423			<b>ELEVATION TOP OF BORING</b> -29.4 Ft.		
<b>ELEV.</b>	<b>DEPTH</b>	<b>LEGEND</b>	<b>CLASSIFICATION OF MATERIALS</b>	<b>SAMPLE</b>	<b>LABORATORY RESULTS</b>
			applying NOAA tidal gauge data conversion factor.		



# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	1.0	2.3	17.7	77.1	1.9	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
.375	100.0		
#4	99.0		
#10	96.7		
#20	91.7		
#40	79.0		
#60	39.8		
#100	4.8		
#200	1.9		

\* (no specification provided)

**Material Description**  
SAND, (SP), medium to fine grained, with trace shell

**Atterberg Limits**  
 PL=      LL=      PI=

**Coefficients**  
 D<sub>90</sub>= 0.6383      D<sub>85</sub>= 0.4938      D<sub>60</sub>= 0.3190  
 D<sub>50</sub>= 0.2821      D<sub>30</sub>= 0.2220      D<sub>15</sub>= 0.1813  
 D<sub>10</sub>= 0.1670      C<sub>u</sub>= 1.91      C<sub>c</sub>= 0.93

**Classification**  
 USCS= SP      AASHTO=

**Remarks**  
 CADD CODE = CH10D965

Location: USACE Sample # BI-PB-5-10A  
 Sample Number: TE Lab ID: 4569.10

Depth: 0.0 - 6.6 (ft.)

Date: 7/8/10

**Thompson Engineering**  
  
**Mobile, Alabama**

Client: US Army Corps of Engineers  
 Project: Contract No. W91278-10-D-0026 - Task 03  
 Mississippi Barrier Island Restoration Project  
 Project No: 10-2123-0009

Figure

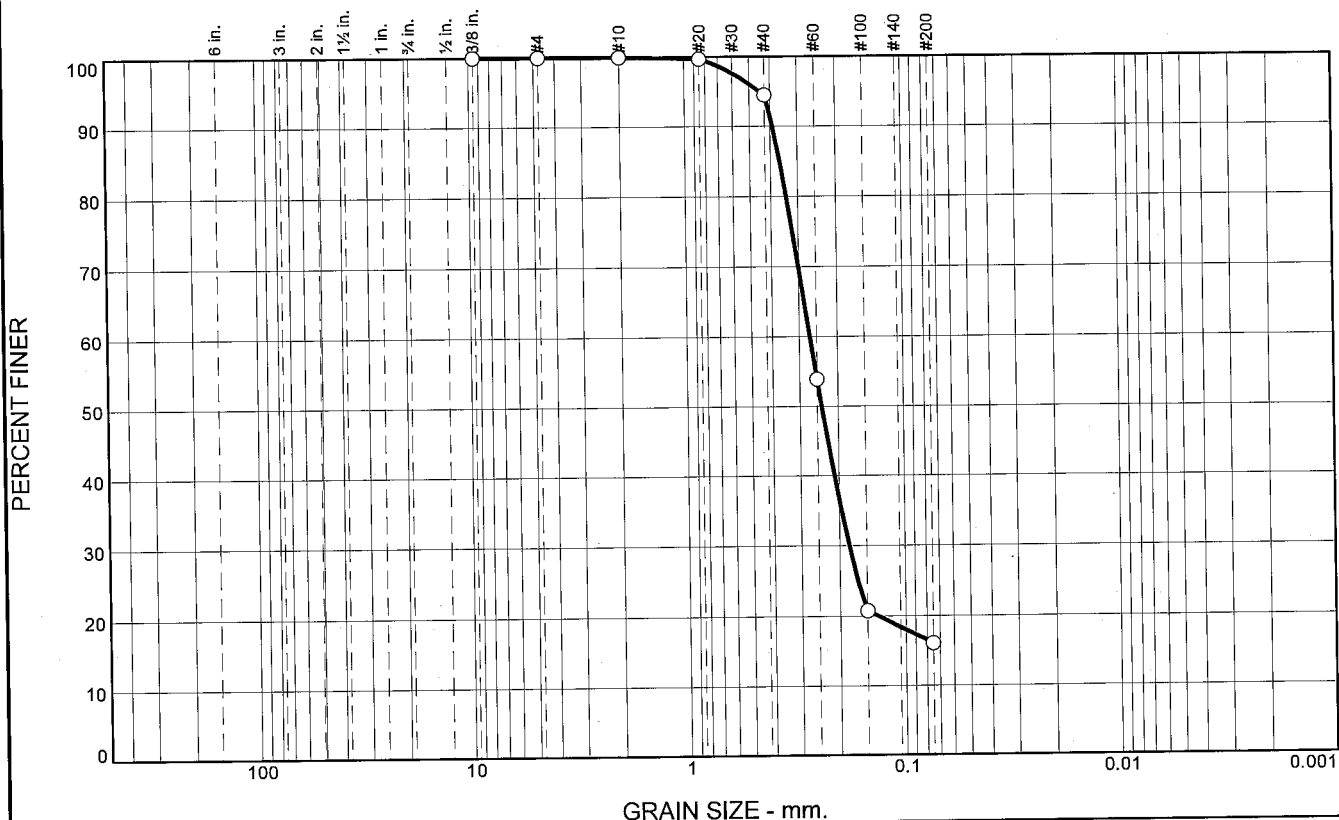
Tested By: R.Martin

Checked By: R.Byrd

# Boring Designation BI-PB-006-10

DRILLING LOG		DIVISION South Atlantic		INSTALLATION Mobile District		SHEET 1 OF 1 SHEETS	
1. PROJECT MsCIP Barrier Island Restoration Petit Bois Pass- AL West				9. SIZE AND TYPE OF BIT N/A			
2. BORING DESIGNATION BI-PB-006-10		LOCATION COORDINATES E = 1,130,004 N = 246,054		10. COORDINATE SYSTEM/DATUM State Plane, MSE (U.S. Ft.)		HORIZONTAL NAD83 VERTICAL NAVD88	
3. DRILLING AGENCY Corps of Engineers - CESAM		CONTRACTOR FILE NO.		11. MANUFACTURER'S DESIGNATION OF DRILL Vibracore		<input type="checkbox"/> AUTO HAMMER <input type="checkbox"/> MANUAL HAMMER	
4. NAME OF DRILLER Construction Solutions International, Inc.				12. TOTAL SAMPLES 3		DISTURBED 3 UNDISTURBED (UD) 0	
5. DIRECTION OF BORING <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED		DEG. FROM VERTICAL		13. TOTAL NUMBER CORE BOXES			
		BEARING		14. WATER DEPTH 45 Ft.			
6. THICKNESS OF OVERBURDEN N/A				15. DATE BORING 06-26-10		STARTED 06-26-10 COMPLETED 06-26-10	
7. DEPTH DRILLED INTO ROCK N/A				16. ELEVATION TOP OF BORING -43.4 Ft.			
8. TOTAL DEPTH OF BORING 18.6 Ft.				17. TOTAL RECOVERY FOR BORING 100%			
				18. SIGNATURE AND TITLE OF INSPECTOR Marty Gates, Geologist			
ELEV.	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS	SAMPLE	LABORATORY RESULTS		
-43.4	0.0						
			CLAY, lean, dark gray (CL)	NS			
-47.6	4.2						
			SAND, silty, mostly fine to medium-grained sand-sized quartz, some silt, gray (SM)	A	Classification: SM Color: 2.5Y 5/2-grayish brown D50: 0.2386 mm % Fines: 16.1		
-51.6	8.2						
			SAND, poorly-graded, mostly fine to medium-grained sand-sized quartz, trace silt, lt. gray (SP)	B	Classification: SP Color: 2.5Y 7/1-light gray D50: 0.2785 mm % Fines: 3.4		
				C	Classification: SP-SM Color: - D50: 0.2879 mm % Fines: 5		
-62.0	18.6						
			NOTES: 1. Soils are field visually classified in accordance with the Unified Soils Classification System. 2. NS = Sample not submitted for laboratory analysis from this interval. 3. Seafloor elevation calculated using sampling vessel's fathometer water depth reading and applying NOAA tidal gauge data conversion factor.				

# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.0	0.0	5.5	78.4	16.1	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
.375	100.0		
#4	100.0		
#10	100.0		
#20	99.7		
#40	94.5		
#60	53.9		
#100	20.8		
#200	16.1		

\* (no specification provided)

<u>Material Description</u>		
SILTY SAND, (SM), fine grained		
<u>Atterberg Limits</u>		
PL=	LL=	PI=
<u>Coefficients</u>		
D <sub>90</sub> = 0.3915	D <sub>85</sub> = 0.3632	D <sub>60</sub> = 0.2684
D <sub>50</sub> = 0.2386	D <sub>30</sub> = 0.1808	D <sub>15</sub> =
D <sub>10</sub> =	C <sub>u</sub> =	C <sub>c</sub> =
<u>Classification</u>		
USCS= SM	AASHTO=	
<u>Remarks</u>		
CADD CODE = CH10D965		

Location: USACE Sample # BI-PB-6-10A  
Sample Number: TE Lab ID: 4569.11

Depth: 4.2 - 8.2 (ft.)

Date: 7/8/10

**Thompson Engineering**

**Mobile, Alabama**

Client: US Army Corps of Engineers

Project: Contract No. W91278-10-D-0026 - Task 03  
Mississippi Barrier Island Restoration Project

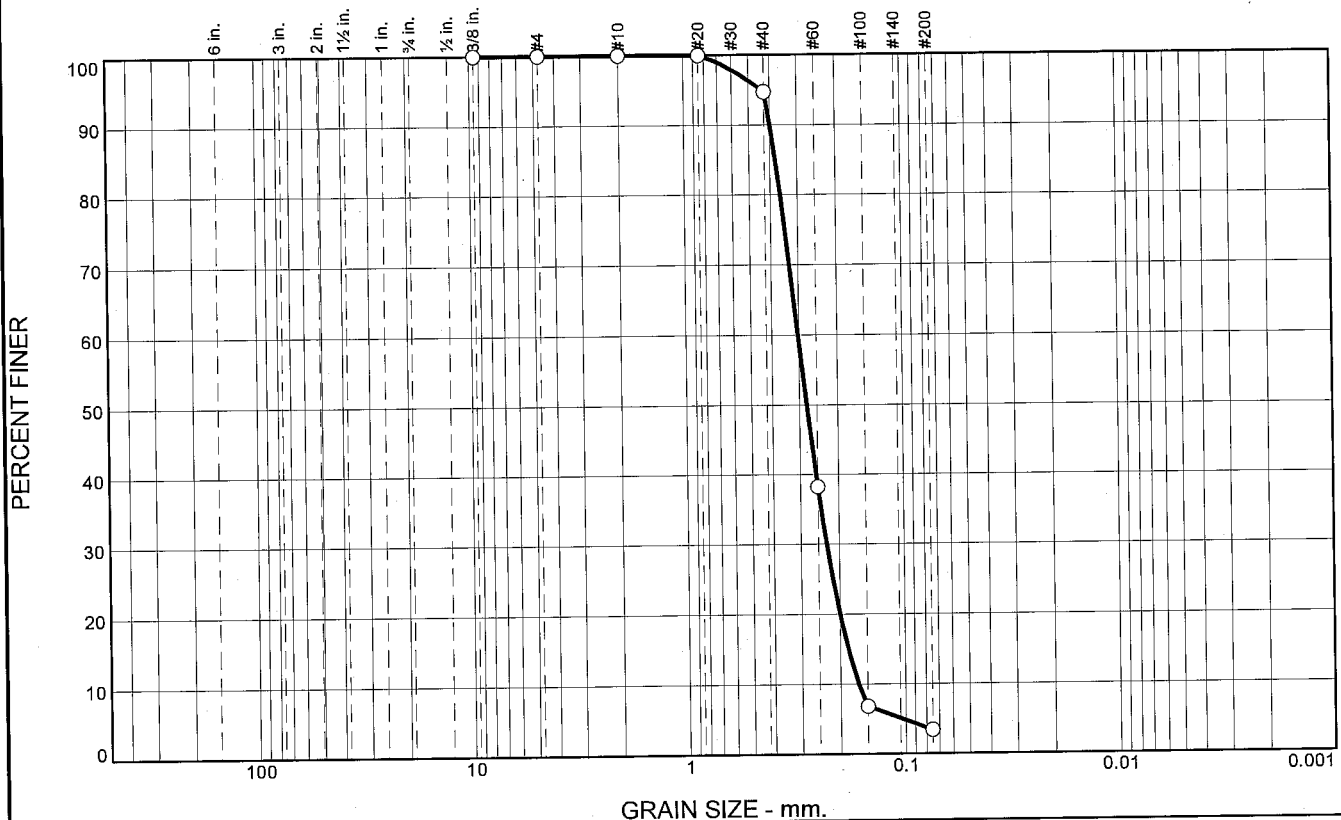
Project No: 10-2123-0009

Figure

Tested By: R.Martin

Checked By: R.Byrd

# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.0	0.0	5.3	91.3	3.4	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
.375	100.0		
#4	100.0		
#10	100.0		
#20	99.9		
#40	94.7		
#60	38.2		
#100	6.8		
#200	3.4		

\* (no specification provided)

## Material Description

SAND, (SP), fine grained

## Atterberg Limits

PL= LL= PI=

## Coefficients

D<sub>90</sub>= 0.4001 D<sub>85</sub>= 0.3789 D<sub>60</sub>= 0.3032  
D<sub>50</sub>= 0.2785 D<sub>30</sub>= 0.2288 D<sub>15</sub>= 0.1839  
D<sub>10</sub>= 0.1648 C<sub>u</sub>= 1.84 C<sub>c</sub>= 1.05

## Classification

USCS= SP AASHTO=

## Remarks

CADD CODE = CH10D965

Location: USACE Sample # BI-PB-6-10B  
Sample Number: TE Lab ID: 4569.12

Depth: 8.2 - 13.2 (ft.)

Date: 7/8/10

**Thompson Engineering**

**Mobile, Alabama**

Client: US Army Corps of Engineers

Project: Contract No. W91278-10-D-0026 - Task 03  
Mississippi Barrier Island Restoration Project

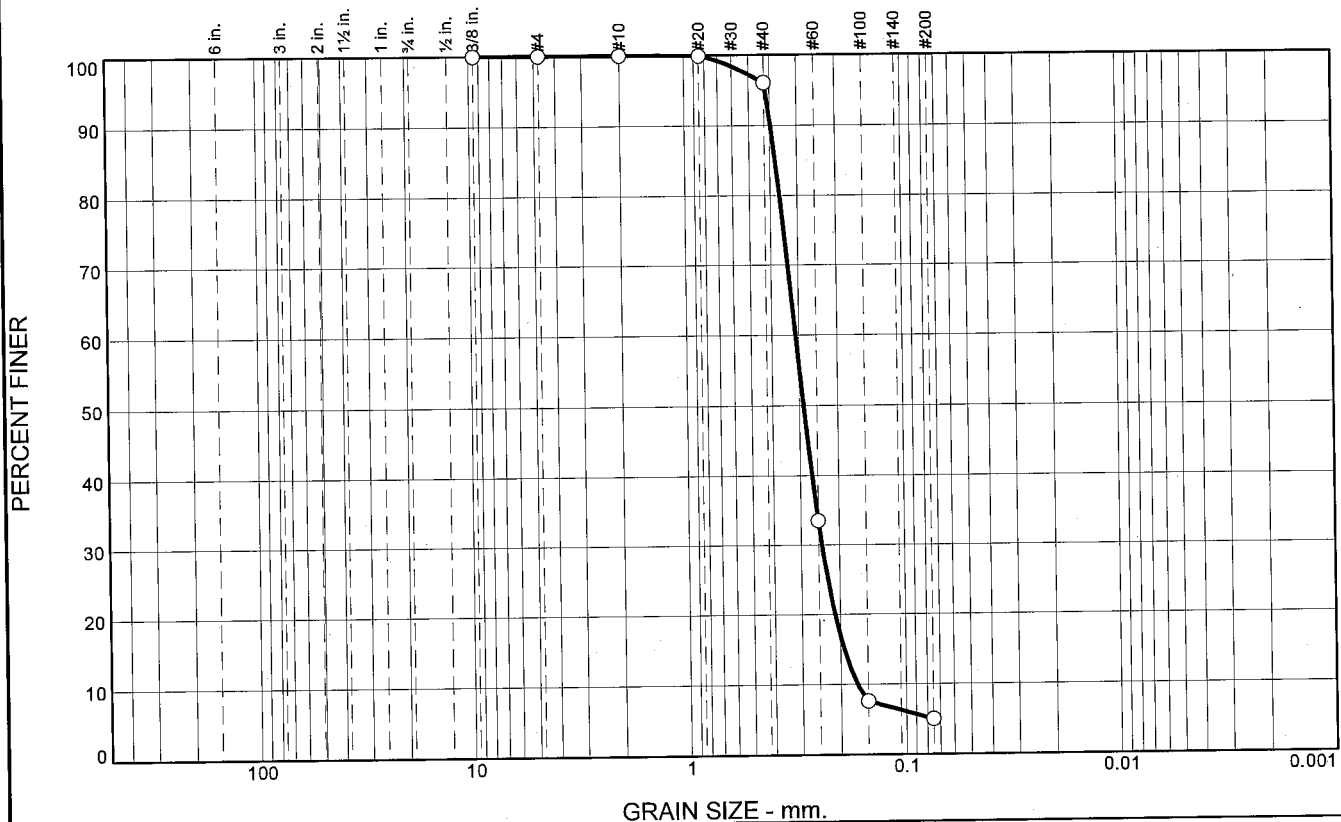
Project No: 10-2123-0009

Figure

Tested By: R.Martin

Checked By: R.Byrd

# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.0	0.0	3.9	91.1	5.0	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
.375	100.0		
#4	100.0		
#10	100.0		
#20	99.9		
#40	96.1		
#60	33.5		
#100	7.6		
#200	5.0		

\* (no specification provided)

## Material Description

SAND, (SP-SM), fine grained

## Atterberg Limits

PL=

LL=

PI=

## Coefficients

D<sub>90</sub>= 0.3973

D<sub>85</sub>= 0.3791

D<sub>60</sub>= 0.3108

D<sub>50</sub>= 0.2879

D<sub>30</sub>= 0.2411

D<sub>15</sub>= 0.1929

D<sub>10</sub>= 0.1676

C<sub>u</sub>= 1.85

C<sub>c</sub>= 1.12

## Classification

USCS= SP-SM

AASHTO=

## Remarks

CADD CODE = CH10D965

Location: USACE Sample # BI-PB-6-10C  
Sample Number: TE Lab ID: 4569.13

Depth: 13.2 - 18.6 (ft.)

Date: 7/8/10

**Thompson Engineering**

**Mobile, Alabama**

Client: US Army Corps of Engineers

Project: Contract No. W91278-10-D-0026 - Task 03  
Mississippi Barrier Island Restoration Project

Project No: 10-2123-0009

Figure

Tested By: R.Martin

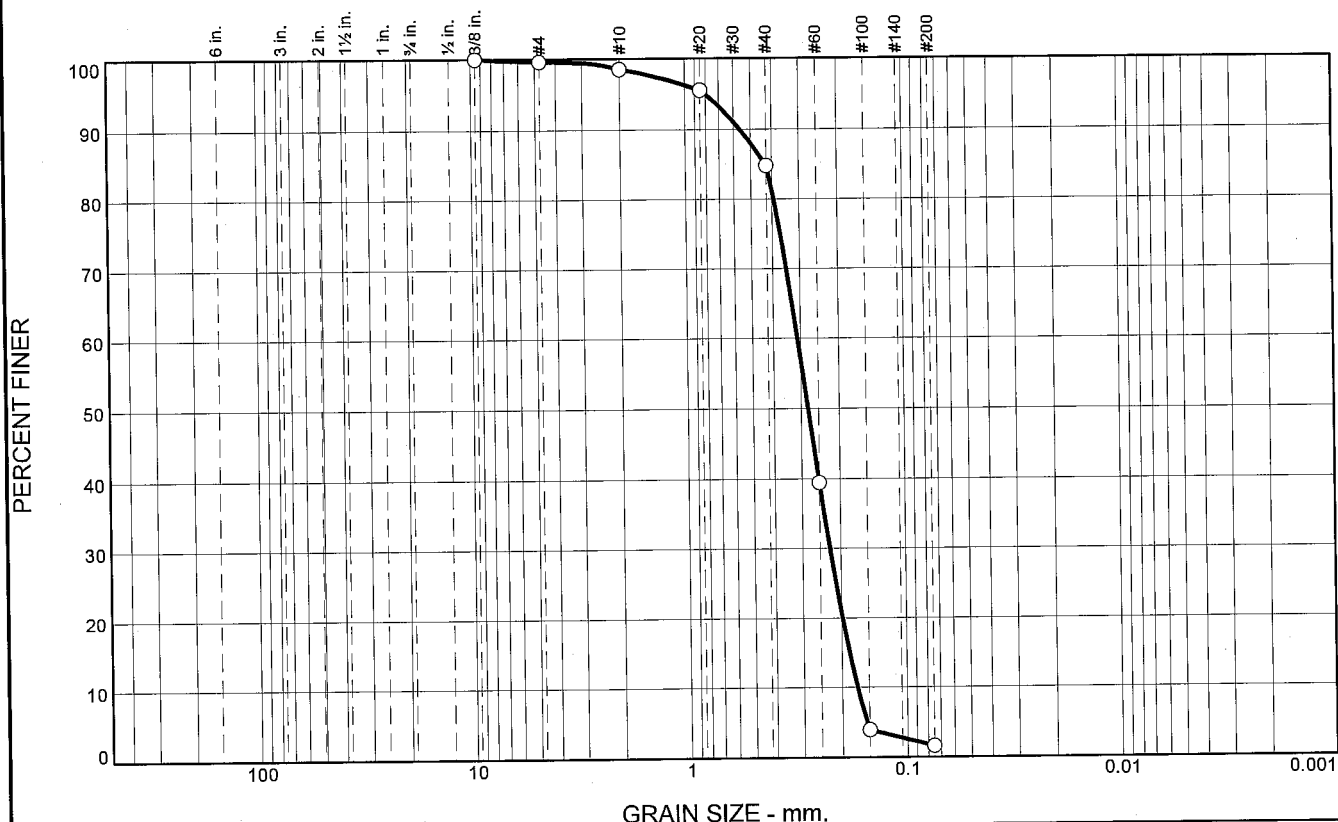
Checked By: R.Byrd

# Boring Designation BI-PB-007-10

DRILLING LOG		DIVISION South Atlantic		INSTALLATION Mobile District		SHEET 1 OF 2 SHEETS	
1. PROJECT MsCIP Barrier Island Restoration Petit Bois Pass- AL West				9. SIZE AND TYPE OF BIT N/A			
2. BORING DESIGNATION BI-PB-007-10		LOCATION COORDINATES E = 1,133,313 N = 247,416		10. COORDINATE SYSTEM/DATUM State Plane, MSE (U.S. Ft.)		HORIZONTAL NAD83 VERTICAL NAVD88	
3. DRILLING AGENCY Corps of Engineers - CESAM		CONTRACTOR FILE NO.		11. MANUFACTURER'S DESIGNATION OF DRILL Vibrocure		<input type="checkbox"/> AUTO HAMMER <input type="checkbox"/> MANUAL HAMMER	
4. NAME OF DRILLER Construction Solutions International, Inc.				12. TOTAL SAMPLES 2		DISTURBED 2 UNDISTURBED (UD) 0	
5. DIRECTION OF BORING <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED		DEG. FROM VERTICAL		13. TOTAL NUMBER CORE BOXES			
		BEARING		14. WATER DEPTH 36 Ft.			
6. THICKNESS OF OVERBURDEN N/A				15. DATE BORING 06-26-10		STARTED 06-26-10 COMPLETED 06-26-10	
7. DEPTH DRILLED INTO ROCK N/A				16. ELEVATION TOP OF BORING -34.6 Ft.			
8. TOTAL DEPTH OF BORING 19.3 Ft.				17. TOTAL RECOVERY FOR BORING 100%			
				18. SIGNATURE AND TITLE OF INSPECTOR Marty Gates, Geologist			
ELEV.	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS	SAMPLE	LABORATORY RESULTS		
-34.6	0.0						
			SAND, poorly-graded, mostly medium-grained sand-sized quartz, trace silt, trace shell fragments (SP)	A	Classification: SP Color: 2.5Y 7/1-light gray D50: 0.2794 mm % Fines: 1.6		
				B	Classification: SP Color: 2.5Y 7/1-light gray D50: 0.3157 mm % Fines: 1.5		
-42.1	7.5		CLAY, lean, dark gray (CL)				
				NS			
-51.3	16.7						
			SAND, poorly-graded, mostly fine to medium-grained sand-sized quartz, little silt, lt. gray (SP)				
-53.9	19.3						
			NOTES: 1. Soils are field visually classified in accordance with the Unified Soils Classification System. 2. NS = Sample not submitted for laboratory analysis from this interval. 3. Seafloor elevation calculated using sampling vessel's fathometer water depth reading and applying NOAA tidal gauge data conversion				

<b>DRILLING LOG (Cont. Sheet)</b>			<b>INSTALLATION</b> Mobile District		<b>SHEET 2</b> <b>OF 2 SHEETS</b>
<b>PROJECT</b> MsCIP Barrier Island Restoration			<b>COORDINATE SYSTEM/DATUM</b> State Plane, MSE (U.S. Ft.)	<b>HORIZONTAL</b> NAD83	<b>VERTICAL</b> NAVD88
<b>LOCATION COORDINATES</b> X = 1,133,313 Y = 247,416			<b>ELEVATION TOP OF BORING</b> -34.6 Ft.		
<b>ELEV.</b>	<b>DEPTH</b>	<b>LEGEND</b>	<b>CLASSIFICATION OF MATERIALS</b>	<b>SAMPLE</b>	<b>LABORATORY RESULTS</b>
			factor.		

# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.4	1.1	13.7	83.2	1.6	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
.375	100.0		
#4	99.6		
#10	98.5		
#20	95.5		
#40	84.8		
#60	39.5		
#100	4.0		
#200	1.6		

\* (no specification provided)

**Material Description**  
SAND, (SP), medium to fine grained

**Atterberg Limits**  
 PL=                      LL=                      PI=

**Coefficients**  
 D<sub>90</sub>= 0.5608      D<sub>85</sub>= 0.4287      D<sub>60</sub>= 0.3104  
 D<sub>50</sub>= 0.2794      D<sub>30</sub>= 0.2247      D<sub>15</sub>= 0.1846  
 D<sub>10</sub>= 0.1702      C<sub>u</sub>= 1.82      C<sub>c</sub>= 0.96

**Classification**  
 USCS= SP                      AASHTO=

**Remarks**  
 CADD CODE = CH10D965

Location: USACE Sample # BI-PB-7-10A  
 Sample Number: TE Lab ID: 4569.14

Depth: 0.0 - 3.5 (ft.)

Date: 7/8/10

**Thompson Engineering**  
  
**Mobile, Alabama**

Client: US Army Corps of Engineers  
 Project: Contract No. W91278-10-D-0026 - Task 03  
 Mississippi Barrier Island Restoration Project  
 Project No: 10-2123-0009

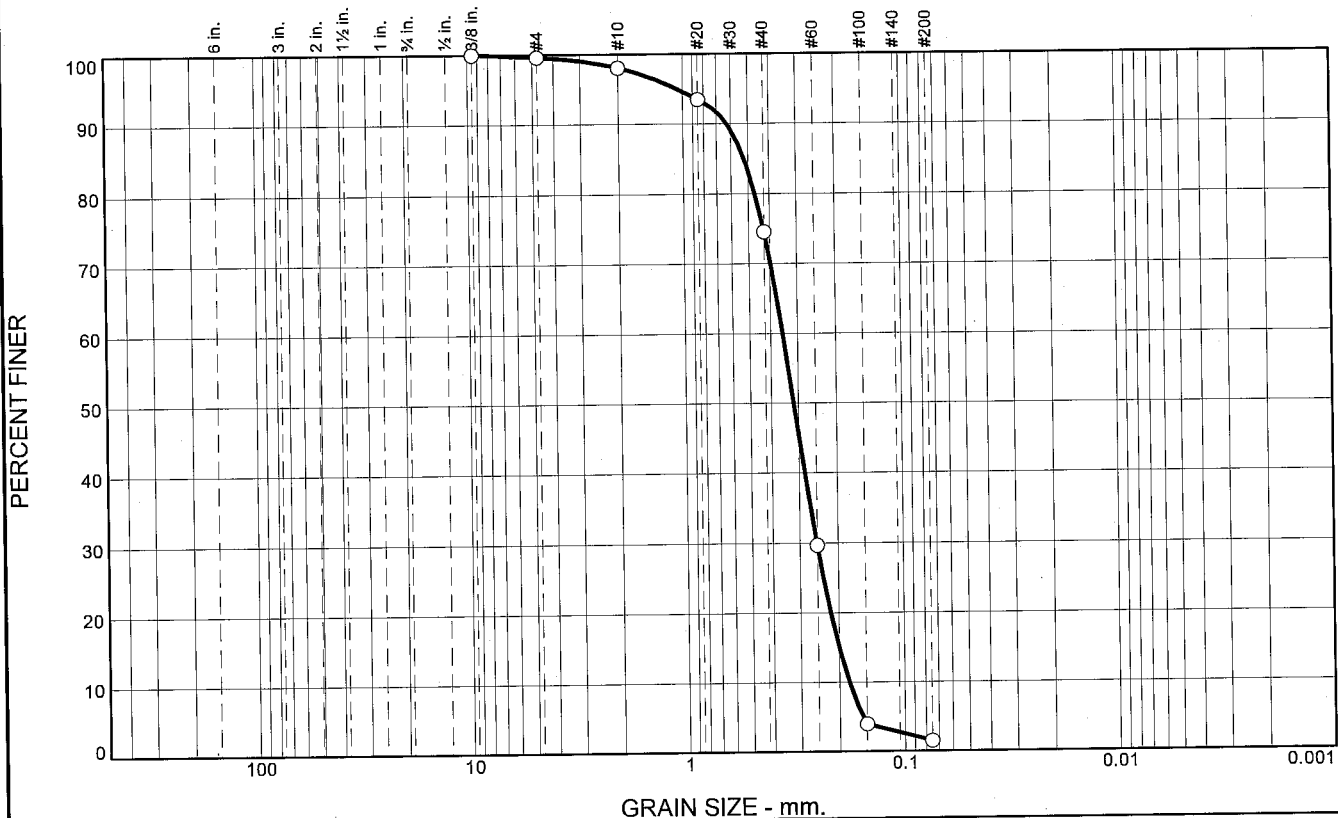
Figure

Tested By: R.Martin

Checked By: R.Byrd



# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.4	1.5	23.6	73.0	1.5	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
.375	100.0		
#4	99.6		
#10	98.1		
#20	93.5		
#40	74.5		
#60	29.7		
#100	3.9		
#200	1.5		

\* (no specification provided)

**Material Description**  
SAND, (SP), medium to fine grained

**Atterberg Limits**  
 PL=      LL=      PI=

**Coefficients**  
 D<sub>90</sub>= 0.6273      D<sub>85</sub>= 0.5227      D<sub>60</sub>= 0.3528  
 D<sub>50</sub>= 0.3157      D<sub>30</sub>= 0.2511      D<sub>15</sub>= 0.1998  
 D<sub>10</sub>= 0.1799      C<sub>u</sub>= 1.96      C<sub>c</sub>= 0.99

**Classification**  
 USCS= SP      AASHTO=

**Remarks**  
 CADD CODE = CH10D965

Location: USACE Sample # BI-PB-7-10B  
 Sample Number: TE Lab ID: 4569.15

Depth: 3.5 - 7.5 (ft.)

Date: 7/8/10

**Thompson Engineering**  
  
**Mobile, Alabama**


**Client:** US Army Corps of Engineers  
**Project:** Contract No. W91278-10-D-0026 - Task 03  
 Mississippi Barrier Island Restoration Project  
**Project No:** 10-2123-0009

**Figure**

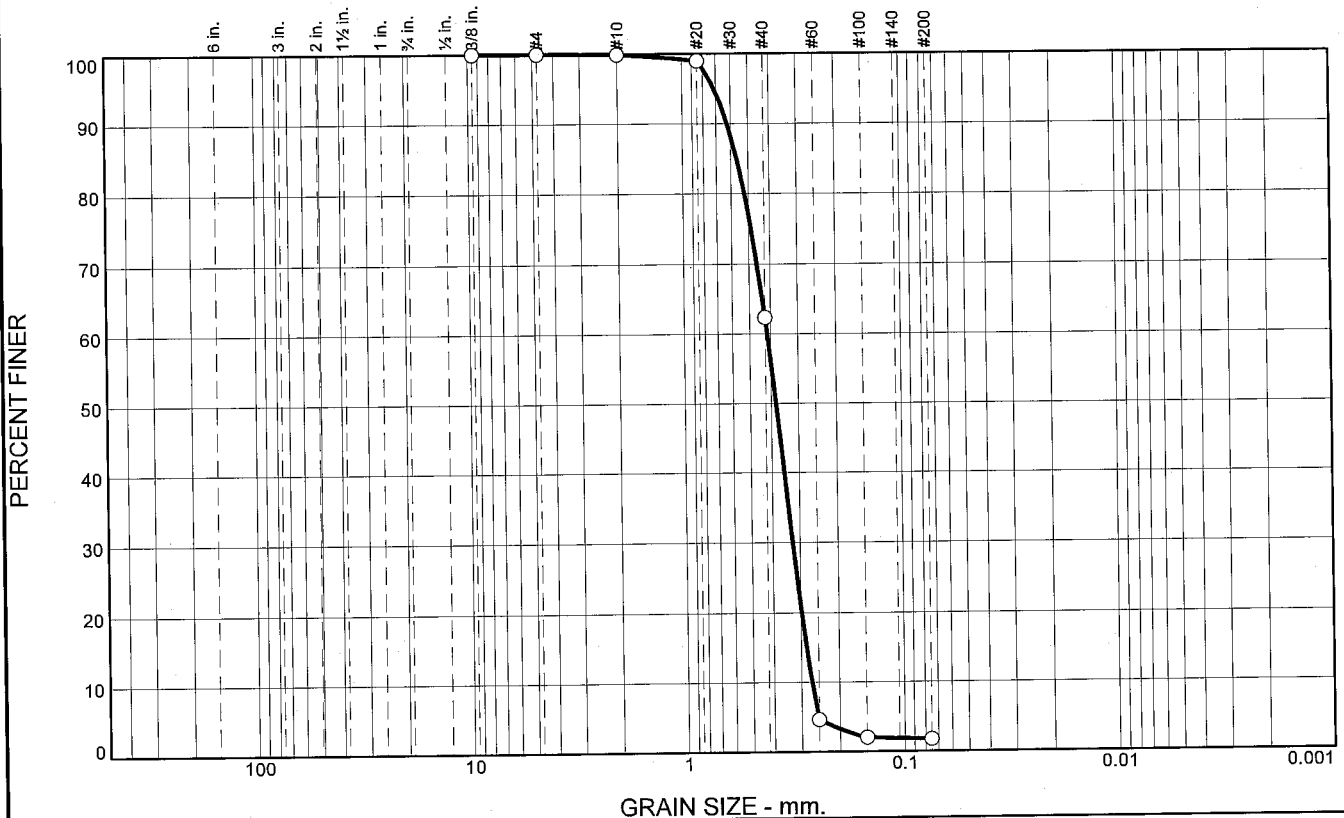
Tested By: R.Martin

Checked By: R.Byrd

# Boring Designation BI-PB-008-10

DRILLING LOG		DIVISION South Atlantic		INSTALLATION Mobile District		SHEET 1 OF 1 SHEETS	
1. PROJECT MsCIP Barrier Island Restoration Petit Bois Pass- AL East				9. SIZE AND TYPE OF BIT N/A			
2. BORING DESIGNATION BI-PB-008-10		LOCATION COORDINATES E = 1,140,592 N = 254,350		10. COORDINATE SYSTEM/DATUM State Plane, MSE (U.S. Ft.)		HORIZONTAL NAD83 VERTICAL NAVD88	
3. DRILLING AGENCY Corps of Engineers - CESAM		CONTRACTOR FILE NO.		11. MANUFACTURER'S DESIGNATION OF DRILL Vibrocure		<input type="checkbox"/> AUTO HAMMER <input type="checkbox"/> MANUAL HAMMER	
4. NAME OF DRILLER Construction Solutions International, Inc.				12. TOTAL SAMPLES 3		DISTURBED 0 UNDISTURBED (UD) 0	
5. DIRECTION OF BORING <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED		DEG. FROM VERTICAL		13. TOTAL NUMBER CORE BOXES			
		BEARING		14. WATER DEPTH 33 Ft.			
6. THICKNESS OF OVERBURDEN N/A				15. DATE BORING 06-26-10		STARTED 06-26-10 COMPLETED 06-26-10	
7. DEPTH DRILLED INTO ROCK N/A				16. ELEVATION TOP OF BORING -31.5 Ft.			
8. TOTAL DEPTH OF BORING 16.9 Ft.				17. TOTAL RECOVERY FOR BORING 100%			
				18. SIGNATURE AND TITLE OF INSPECTOR Marty Gates, Geologist			
ELEV.	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS	SAMPLE	LABORATORY RESULTS		
-31.5	0.0						
			SAND, poorly-graded, mostly fine to medium-grained sand-sized quartz, trace silt, lt. gray (SP)	A	Classification: SP Color: 2.5Y 8/1-white D50: 0.3816 mm % Fines: 1.7		
				B	Classification: SP Color: 2.5Y 8/1-white D50: 0.397 mm % Fines: 1.7		
				C	Classification: SP Color: 2.5Y 6/2-light brownish gray D50: 0.3718 mm % Fines: 4.3		
-48.4	16.9						
			NOTES:  1. Soils are field visually classified in accordance with the Unified Soils Classification System.  2. NS = Sample not submitted for laboratory analysis from this interval.  3. Seafloor elevation calculated using sampling vessel's fathometer water depth reading and applying NOAA tidal gauge data conversion factor.				

# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.0	0.1	37.6	60.6	1.7	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
.375	100.0		
#4	100.0		
#10	99.9		
#20	98.9		
#40	62.3		
#60	4.6		
#100	2.1		
#200	1.7		

\* (no specification provided)

## Material Description

SAND, (SP), medium to fine grained

## Atterberg Limits

PL= LL= PI=

## Coefficients

D<sub>90</sub>= 0.6221 D<sub>85</sub>= 0.5637 D<sub>60</sub>= 0.4159  
D<sub>50</sub>= 0.3816 D<sub>30</sub>= 0.3245 D<sub>15</sub>= 0.2837  
D<sub>10</sub>= 0.2688 C<sub>u</sub>= 1.55 C<sub>c</sub>= 0.94

## Classification

USCS= SP AASHTO=

## Remarks

CADD CODE = CH10D965

Location: USACE Sample # BI-PB-8-10A  
Sample Number: TE Lab ID: 4569.16

Depth: 0.0 - 6.0 (ft.)

Date: 7/8/10

**Thompson Engineering**

**Mobile, Alabama**

Client: US Army Corps of Engineers

Project: Contract No. W91278-10-D-0026 - Task 03  
Mississippi Barrier Island Restoration Project

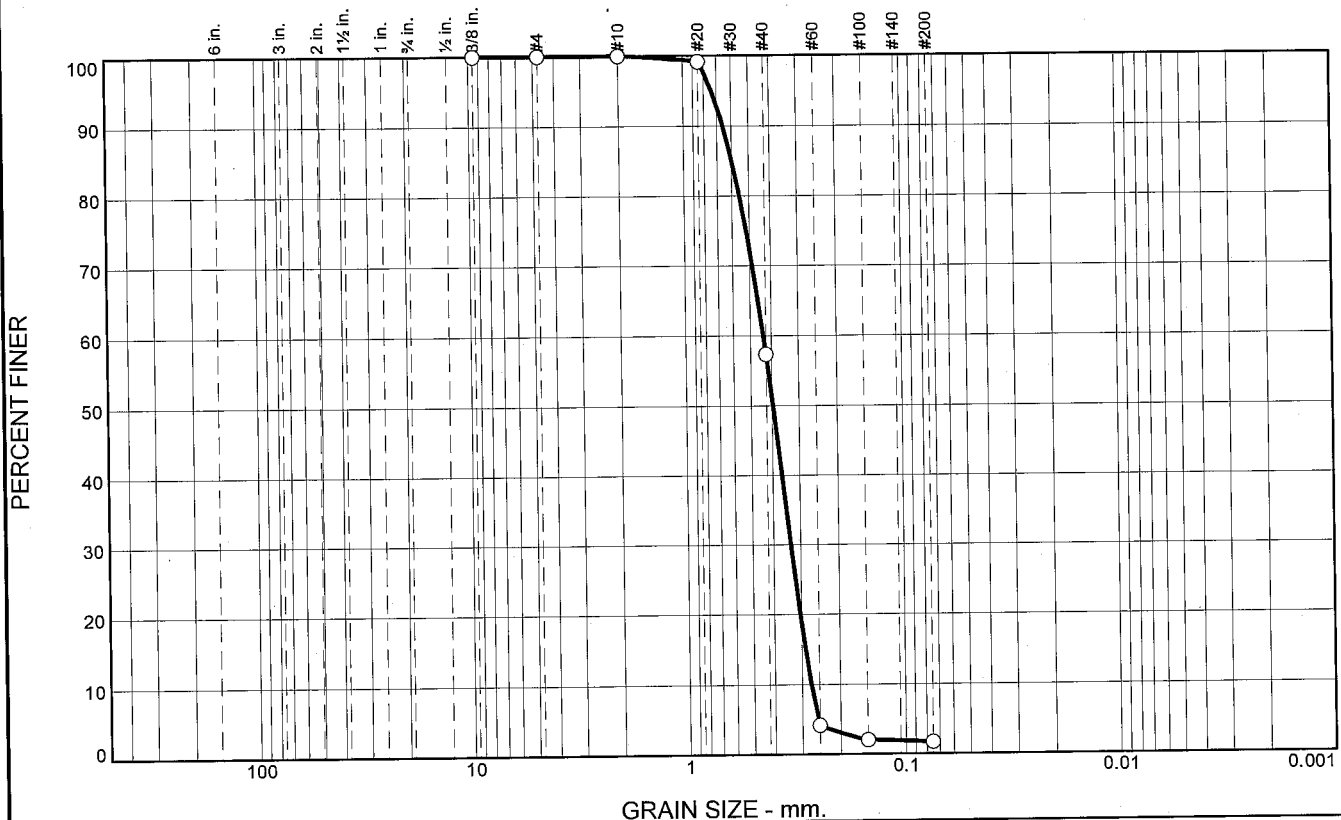
Project No: 10-2123-0009

Figure

Tested By: R.Martin

Checked By: R.Byrd

# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.0	0.0	42.6	55.7	1.7	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
.375	100.0		
#4	100.0		
#10	100.0		
#20	99.2		
#40	57.4		
#60	4.2		
#100	2.1		
#200	1.7		

\* (no specification provided)

**Material Description**  
SAND, (SP), medium to fine grained

**Atterberg Limits**  
PL=      LL=      PI=

**Coefficients**  
D<sub>90</sub>= 0.6566      D<sub>85</sub>= 0.5984      D<sub>60</sub>= 0.4361  
D<sub>50</sub>= 0.3970      D<sub>30</sub>= 0.3333      D<sub>15</sub>= 0.2886  
D<sub>10</sub>= 0.2724      C<sub>u</sub>= 1.60      C<sub>c</sub>= 0.93

**Classification**  
USCS= SP      AASHTO=

**Remarks**  
CADD CODE = CH10D965

Location: USACE Sample # BI-PB-8-10B  
Sample Number: TE Lab ID: 4569.17

Depth: 6.0 - 12.0 (ft.)

Date: 7/8/10

**Thompson Engineering**  
**Mobile, Alabama**

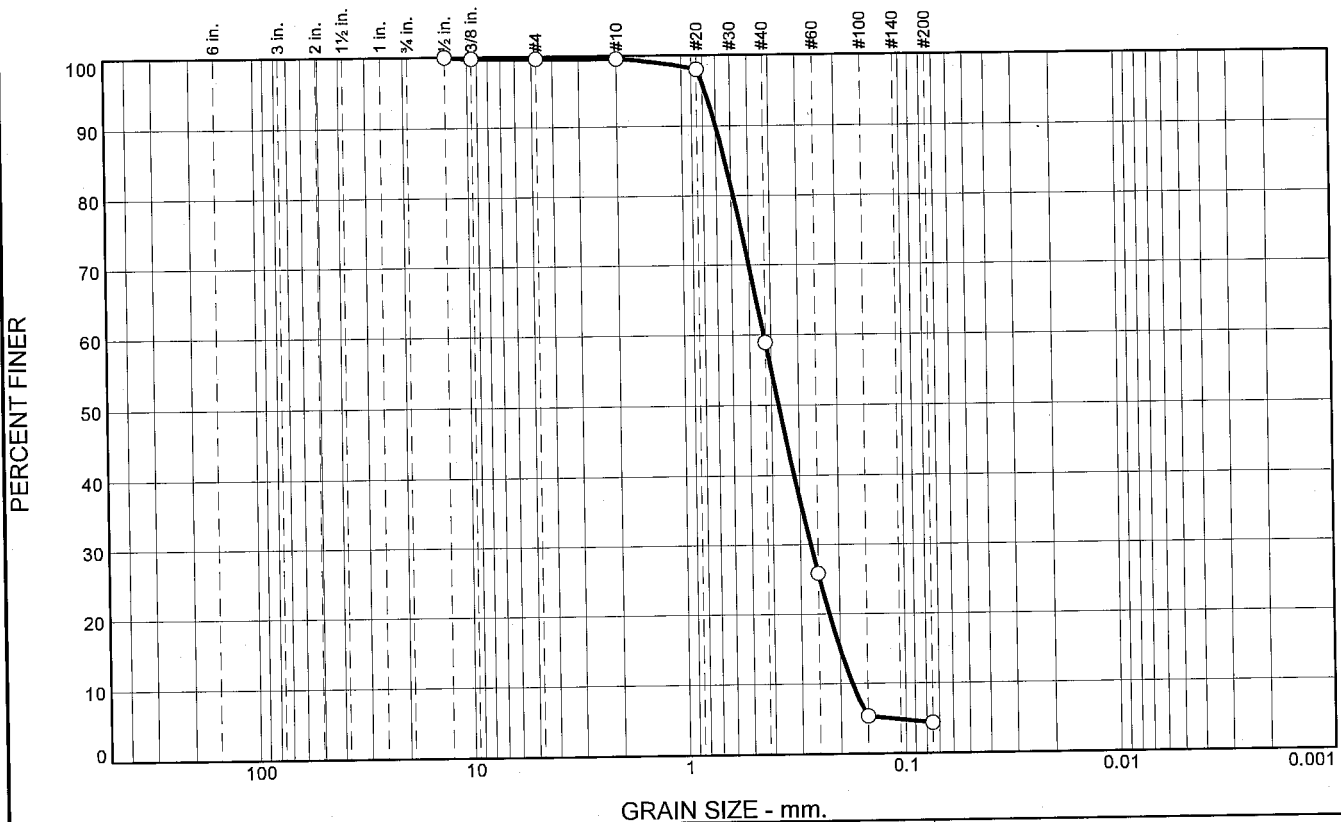
Client: US Army Corps of Engineers  
Project: Contract No. W91278-10-D-0026 - Task 03  
Mississippi Barrier Island Restoration Project  
Project No: 10-2123-0009

Figure

Tested By: R.Martin

Checked By: R.Byrd

# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.4	0.0	40.7	54.6	4.3	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
.500	100.0		
.375	99.7		
#4	99.6		
#10	99.6		
#20	98.0		
#40	58.9		
#60	25.9		
#100	5.3		
#200	4.3		

\* (no specification provided)

**Material Description**  
SAND, (SP), medium to fine grained

**Atterberg Limits**  
PL= LL= PI=

**Coefficients**  
D<sub>90</sub>= 0.6990 D<sub>85</sub>= 0.6366 D<sub>60</sub>= 0.4319  
D<sub>50</sub>= 0.3718 D<sub>30</sub>= 0.2692 D<sub>15</sub>= 0.2006  
D<sub>10</sub>= 0.1767 C<sub>u</sub>= 2.44 C<sub>c</sub>= 0.95

**Classification**  
USCS= SP AASHTO=

**Remarks**  
CADD CODE = CH10D965

Location: USACE Sample # BI-PB-8-10C  
Sample Number: TE Lab ID: 4569.18

Depth: 12.0 - 16.9 (ft.)

Date: 7/8/10

**Thompson Engineering**  
**Mobile, Alabama**

Client: US Army Corps of Engineers  
Project: Contract No. W91278-10-D-0026 - Task 03  
Mississippi Barrier Island Restoration Project  
Project No: 10-2123-0009

Figure

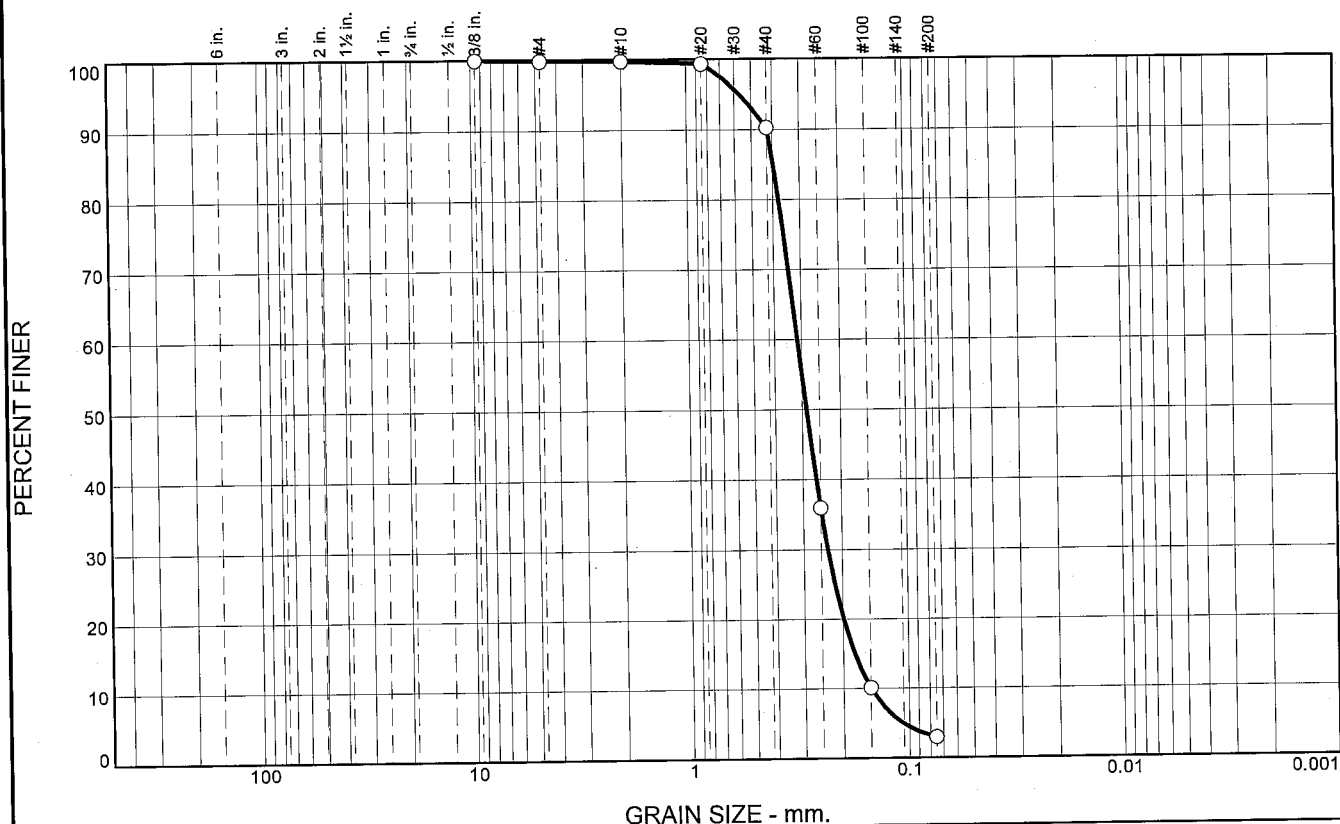
Tested By: R.Martin

Checked By: R.Byrd

# Boring Designation BI-PB-009-10

DRILLING LOG		DIVISION South Atlantic		INSTALLATION Mobile District		SHEET 1 OF 1 SHEETS	
1. PROJECT MsCIP Barrier Island Restoration Petit Bois Pass- AL East				9. SIZE AND TYPE OF BIT N/A			
2. BORING DESIGNATION BI-PB-009-10		LOCATION COORDINATES E = 1,144,039 N = 255,649		10. COORDINATE SYSTEM/DATUM State Plane, MSE (U.S. Ft.)		HORIZONTAL NAD83 VERTICAL NAVD88	
3. DRILLING AGENCY Corps of Engineers - CESAM		CONTRACTOR FILE NO.		11. MANUFACTURER'S DESIGNATION OF DRILL Vibracore		<input type="checkbox"/> AUTO HAMMER <input type="checkbox"/> MANUAL HAMMER	
4. NAME OF DRILLER Construction Solutions International, Inc.				12. TOTAL SAMPLES 3		DISTURBED 0 UNDISTURBED (UD) 0	
5. DIRECTION OF BORING <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED		DEG. FROM VERTICAL		13. TOTAL NUMBER CORE BOXES			
		BEARING		14. WATER DEPTH 23 Ft.			
6. THICKNESS OF OVERBURDEN N/A				15. DATE BORING 06-26-10		STARTED 06-26-10 COMPLETED 06-26-10	
7. DEPTH DRILLED INTO ROCK N/A				16. ELEVATION TOP OF BORING -21.5 Ft.			
8. TOTAL DEPTH OF BORING 15.2 Ft.				17. TOTAL RECOVERY FOR BORING 100%			
				18. SIGNATURE AND TITLE OF INSPECTOR Marty Gates, Geologist			
ELEV.	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS	SAMPLE	LABORATORY RESULTS		
-21.5	0.0						
			SAND, poorly-graded, mostly medium-grained sand-sized quartz, trace silt, lt. gray (SP)	A	Classification: SP Color: 2.5Y 7/2-light gray D50: 0.2871 mm % Fines: 3		
-28.2	6.7						
-29.1	7.6		CLAY, lean, dark gray (CL)	NS			
			SAND, poorly-graded, mostly medium-grained sand-sized quartz, trace silt, trace shell fragments, lt. gray (SP)	B	Classification: SP Color: 2.5Y 7/2-light gray D50: 0.3432 mm % Fines: 2.5		
				C	Classification: SP Color: 2.5Y 7/2-light gray D50: 0.3513 mm % Fines: 2.4		
-36.7	15.2						
			NOTES: 1. Soils are field visually classified in accordance with the Unified Soils Classification System. 2. NS = Sample not submitted for laboratory analysis from this interval. 3. Seafloor elevation calculated using sampling vessel's fathometer water depth reading and applying NOAA tidal gauge data conversion factor.				

# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.2	0.1	9.4	87.3	3.0	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
.375	100.0		
#4	99.8		
#10	99.7		
#20	99.3		
#40	90.3		
#60	35.9		
#100	10.2		
#200	3.0		

\* (no specification provided)

## Material Description

SAND, (SP), fine grained

## Atterberg Limits

PL= LL= PI=

## Coefficients

D<sub>90</sub>= 0.4235 D<sub>85</sub>= 0.3980 D<sub>60</sub>= 0.3138  
D<sub>50</sub>= 0.2871 D<sub>30</sub>= 0.2328 D<sub>15</sub>= 0.1769  
D<sub>10</sub>= 0.1490 C<sub>u</sub>= 2.11 C<sub>c</sub>= 1.16

## Classification

USCS= SP AASHTO=

## Remarks

CADD CODE = CH10965

Location: USACE Sample # BI-PB-9-10A  
Sample Number: TE Lab ID: 4569.19

Depth: 0.0 - 6.7 (ft.)

Date: 7/8/10

**Thompson Engineering**

**Mobile, Alabama**

Client: US Army Corps of Engineers

Project: Contract No. W91278-10-D-0026 - Task 03  
Mississippi Barrier Island Restoration Project

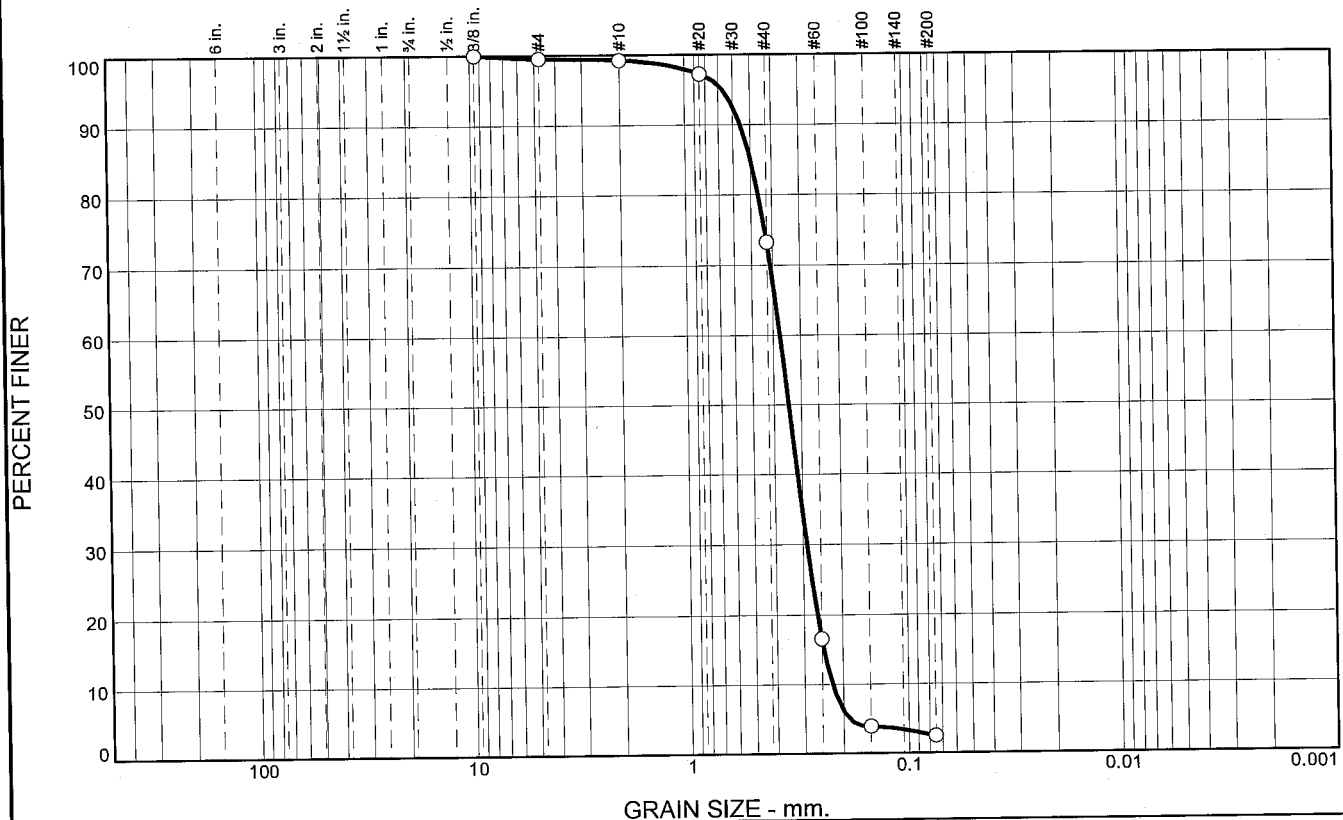
Project No: 10-2123-0009

Figure

Tested By: R.Martin

Checked By: R.Byrd

# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.5	0.3	25.9	70.8	2.5	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
.375	100.0		
#4	99.5		
#10	99.2		
#20	97.2		
#40	73.3		
#60	16.6		
#100	3.9		
#200	2.5		

\* (no specification provided)

**Material Description**  
SAND, (SP), medium to fine grained

**Atterberg Limits**  
PL=      LL=      PI=

**Coefficients**  
D<sub>90</sub>= 0.5545      D<sub>85</sub>= 0.4991      D<sub>60</sub>= 0.3739  
D<sub>50</sub>= 0.3432      D<sub>30</sub>= 0.2887      D<sub>15</sub>= 0.2445  
D<sub>10</sub>= 0.2240      C<sub>u</sub>= 1.67      C<sub>c</sub>= 1.00

**Classification**  
USCS= SP      AASHTO=

**Remarks**  
CADD CODE = CH10D965

Location: USACE Sample # BI-PB-9-10B  
Sample Number: TE Lab ID: 4569.20

Depth: 7.6 12.6 (ft.)

Date: 7/8/10

**Thompson Engineering**  
**Mobile, Alabama**

Client: US Army Corps of Engineers  
Project: Contract No. W91278-10-D-0026 - Task 03  
Mississippi Barrier Island Restoration Project  
Project No: 10-2123-0009

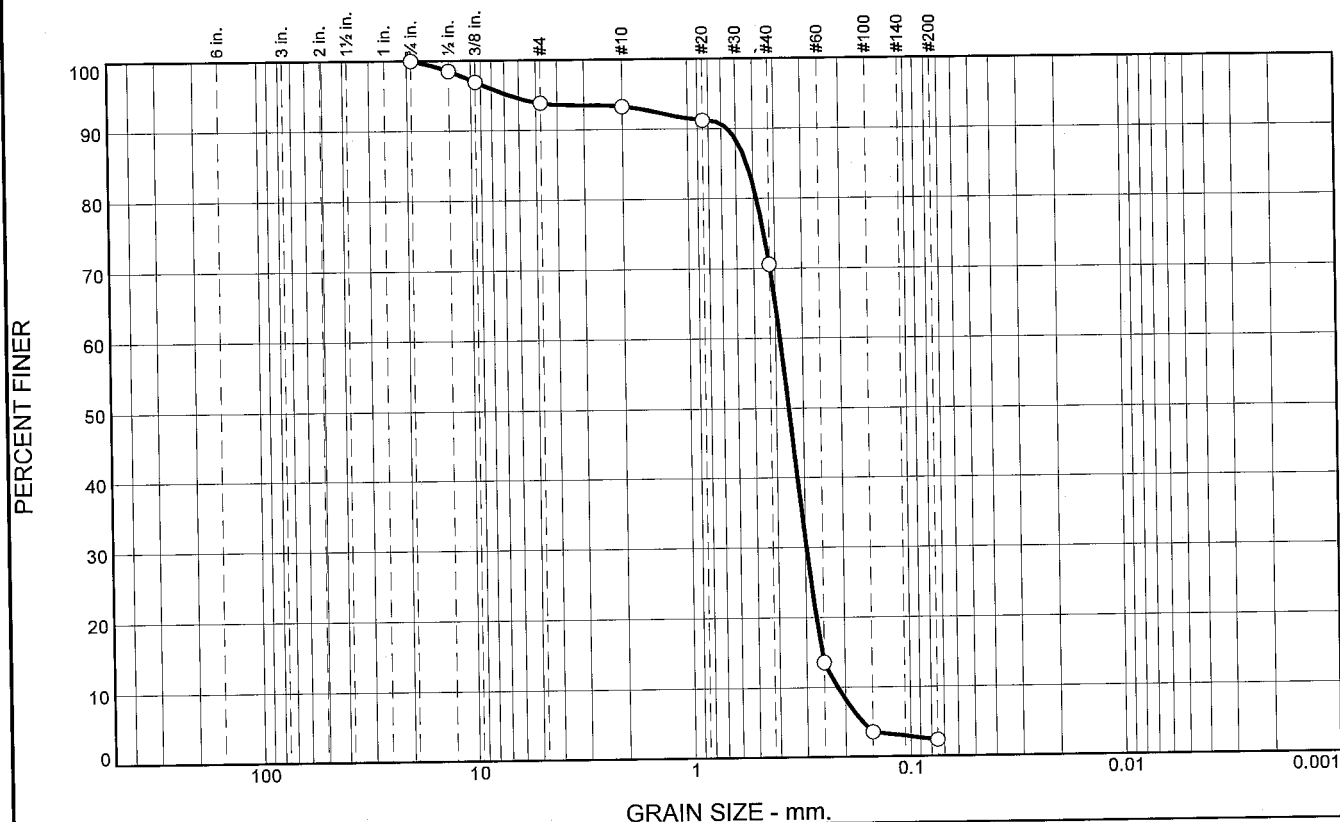
Figure

Tested By: R.Martin

Checked By: R.Byrd



# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	6.1	0.6	22.7	68.2	2.4	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
.750	100.0		
.500	98.5		
.375	97.0		
#4	93.9		
#10	93.3		
#20	91.2		
#40	70.6		
#60	13.6		
#100	3.6		
#200	2.4		

\* (no specification provided)

**Material Description**  
SAND, (SP), fine grained, with trace shell

**Atterberg Limits**  
PL= LL= PI=

**Coefficients**  
D<sub>90</sub>= 0.6529 D<sub>85</sub>= 0.5341 D<sub>60</sub>= 0.3828  
D<sub>50</sub>= 0.3513 D<sub>30</sub>= 0.2968 D<sub>15</sub>= 0.2547  
D<sub>10</sub>= 0.2167 C<sub>u</sub>= 1.77 C<sub>c</sub>= 1.06

**Classification**  
USCS= SP AASHTO=

**Remarks**  
CADD CODE = CH10D965

Location: USACE Sample # BI-PB-9-10C  
Sample Number: TE Lab ID: 4569.21

Depth: 12.6 - 15.2 (ft.)

Date: 7/8/10

**Thompson Engineering**

**Mobile, Alabama**

Client: US Army Corps of Engineers

Project: Contract No. W91278-10-D-0026 - Task 03  
Mississippi Barrier Island Restoration Project

Project No: 10-2123-0009

Figure

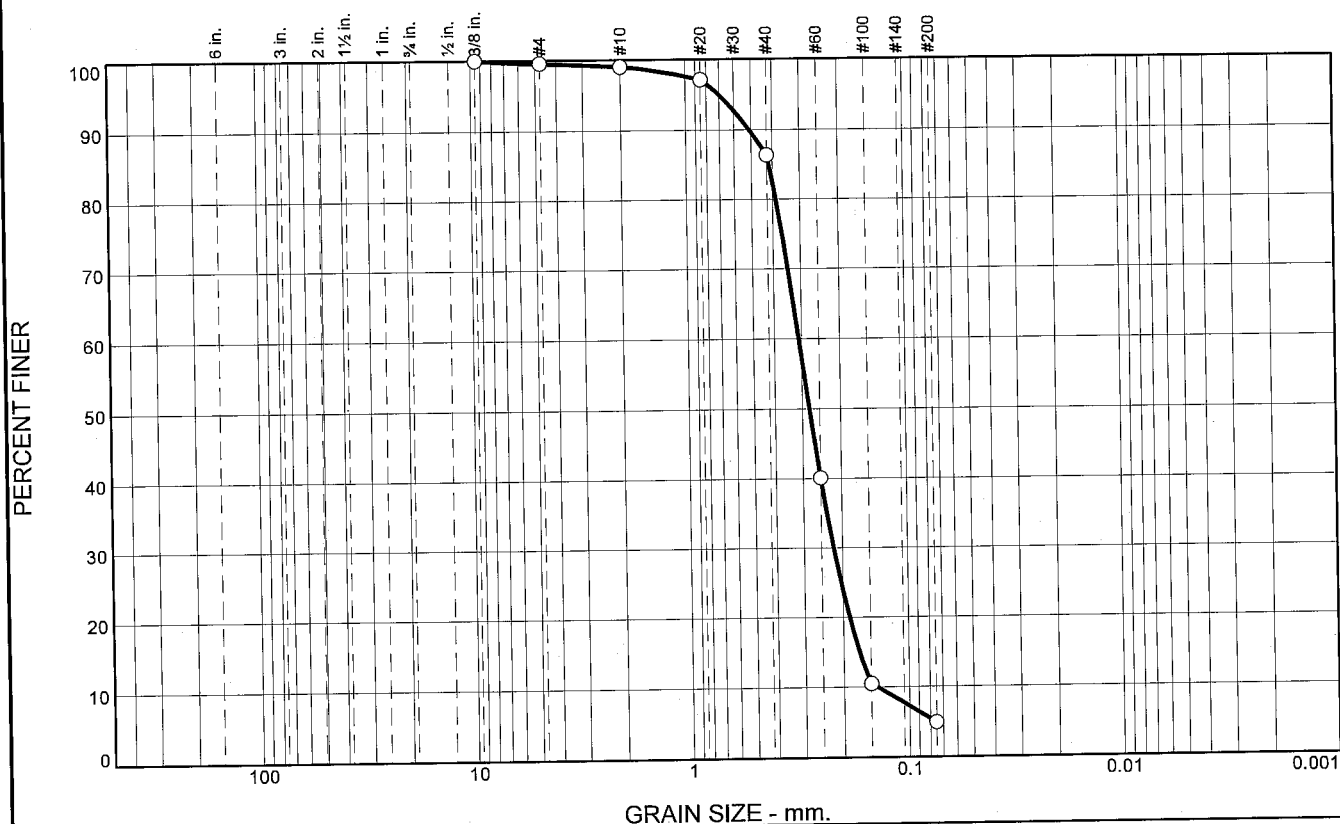
Tested By: R.Martin

Checked By: R.Byrd

# Boring Designation BI-PB-010-10

DRILLING LOG		DIVISION South Atlantic		INSTALLATION Mobile District		SHEET 1 OF 1 SHEETS	
1. PROJECT MsCIP Barrier Island Restoration Petit Bois Pass- AL West				9. SIZE AND TYPE OF BIT N/A			
2. BORING DESIGNATION BI-PB-010-10		LOCATION COORDINATES E = 1,131,666 N = 253,687		10. COORDINATE SYSTEM/DATUM State Plane, MSE (U.S. Ft.)		HORIZONTAL NAD83 VERTICAL NAVD88	
3. DRILLING AGENCY Corps of Engineers - CESAM		CONTRACTOR FILE NO.		11. MANUFACTURER'S DESIGNATION OF DRILL Vibracore		<input type="checkbox"/> AUTO HAMMER <input type="checkbox"/> MANUAL HAMMER	
4. NAME OF DRILLER Construction Solutions International, Inc.				12. TOTAL SAMPLES 2		DISTURBED 2 UNDISTURBED (UD) 0	
5. DIRECTION OF BORING <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED		DEG. FROM VERTICAL		13. TOTAL NUMBER CORE BOXES			
		BEARING		14. WATER DEPTH 27 Ft.			
6. THICKNESS OF OVERBURDEN N/A				15. DATE BORING 06-26-10		STARTED 06-26-10 COMPLETED 06-26-10	
7. DEPTH DRILLED INTO ROCK N/A				16. ELEVATION TOP OF BORING -26.8 Ft.			
8. TOTAL DEPTH OF BORING 14.6 Ft.				17. TOTAL RECOVERY FOR BORING 100%			
				18. SIGNATURE AND TITLE OF INSPECTOR Marty Gates, Geologist			
ELEV.	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS	SAMPLE	LABORATORY RESULTS		
-26.8	0.0						
			SAND, poorly-graded, mostly fine to medium-grained sand-sized quartz, trace silt, trace shell fragments, lt. gray (SP)	A	Classification: SP Color: 2.5Y 6/2-light brownish gray D50: 0.2788 mm % Fines: 4.9		
				B	Classification: SP-SM Color: 2.5Y 6/2-light brownish gray D50: 0.3014 mm % Fines: 6.3		
-33.8	7.0						
			CLAY, lean, dark gray (CL)				
-36.7	9.9						
			SAND, silty, mostly fine to medium-grained sand-sized quartz, some silt (SM)	NS			
-38.4	11.6						
			CLAY, lean, dark gray (CL)				
-41.4	14.6						
			NOTES: 1. Soils are field visually classified in accordance with the Unified Soils Classification System. 2. NS = Sample not submitted for laboratory analysis from this interval. 3. Seafloor elevation determined from 2010 USACE survey.				

# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.5	0.5	12.6	81.5	4.9	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
.375	100.0		
#4	99.5		
#10	99.0		
#20	97.2		
#40	86.4		
#60	40.1		
#100	10.5		
#200	4.9		

\* (no specification provided)

## Material Description

SAND, (SP), medium to fine grained

## Atterberg Limits

PL=

LL=

PI=

## Coefficients

D<sub>90</sub>= 0.5096

D<sub>85</sub>= 0.4158

D<sub>60</sub>= 0.3095

D<sub>50</sub>= 0.2788

D<sub>30</sub>= 0.2197

D<sub>15</sub>= 0.1692

D<sub>10</sub>= 0.1410

C<sub>u</sub>= 2.20

C<sub>c</sub>= 1.11

## Classification

USCS= SP

AASHTO=

## Remarks

CADD CODE = CH10D965

Location: USACE Sample # BI-PB-10-10A  
Sample Number: TE Lab ID: 4569.22

Depth: 0.0 - 3.5 (ft.)

Date: 7/8/10

**Thompson Engineering**

**Mobile, Alabama**

Client: US Army Corps of Engineers

Project: Contract No. W91278-10-D-0026 - Task 03  
Mississippi Barrier Island Restoration Project

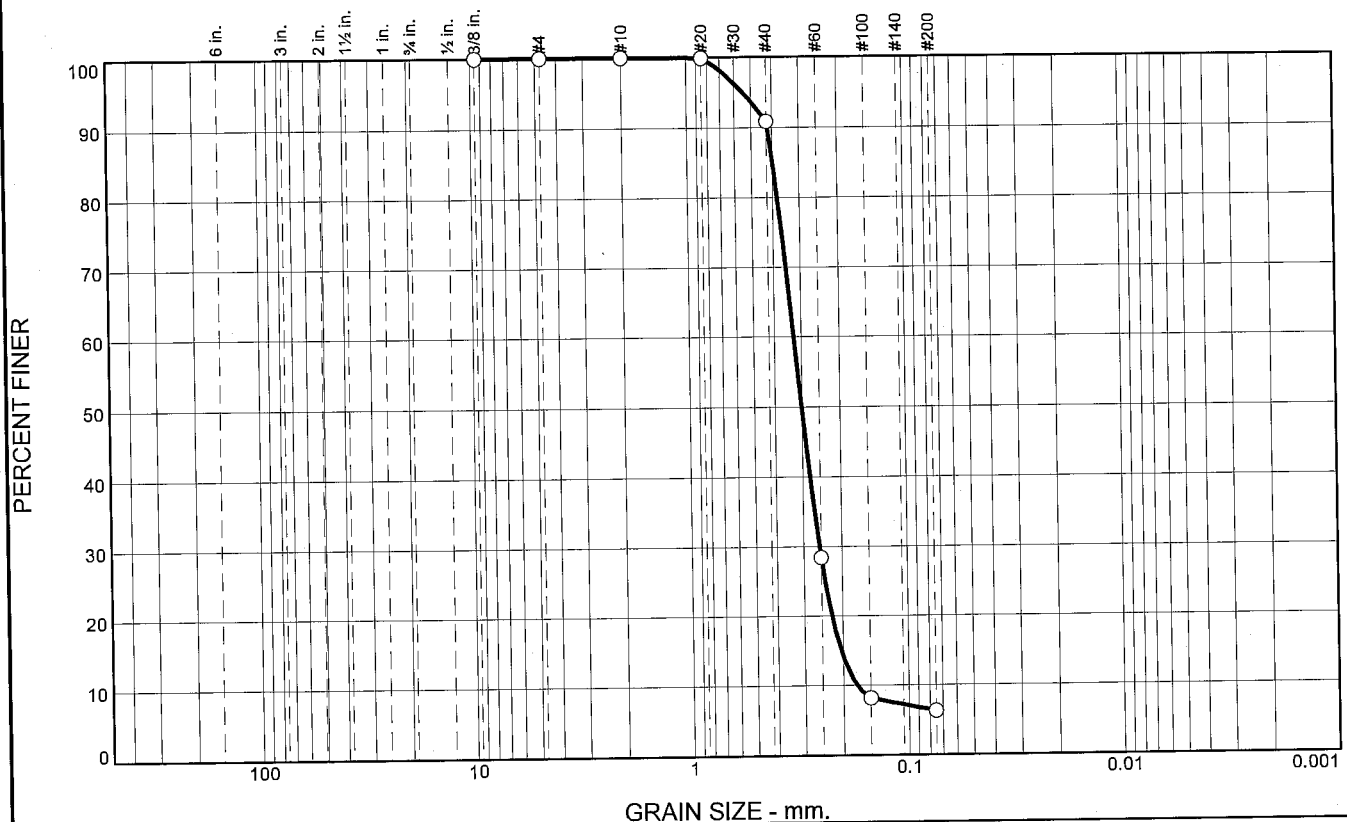
Project No: 10-2123-0009

Figure

Tested By: R.Martin

Checked By: R.Byrd

# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.0	0.0	9.1	84.6	6.3	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
.375	100.0		
#4	100.0		
#10	100.0		
#20	99.9		
#40	90.9		
#60	28.4		
#100	8.1		
#200	6.3		

\* (no specification provided)

## Material Description

SAND, (SP-SM), fine grained

## Atterberg Limits

PL= LL= PI=

## Coefficients

D<sub>90</sub>= 0.4207 D<sub>85</sub>= 0.3993 D<sub>60</sub>= 0.3253  
D<sub>50</sub>= 0.3014 D<sub>30</sub>= 0.2541 D<sub>15</sub>= 0.2045  
D<sub>10</sub>= 0.1731 C<sub>u</sub>= 1.88 C<sub>c</sub>= 1.15

## Classification

USCS= SP-SM AASHTO=

## Remarks

CADD CODE = CH10D965

Location: USACE Sample # BI-PB-10-10B  
Sample Number: TE Lab ID: 4569.23

Depth: 3.5 - 7.0 (ft.)

Date: 7/8/10

**Thompson Engineering**

**Mobile, Alabama**

Client: US Army Corps of Engineers

Project: Contract No. W91278-10-D-0026 - Task 03  
Mississippi Barrier Island Restoration Project

Project No: 10-2123-0009

Figure


Tested By: R.Martin

Checked By: R.Byrd

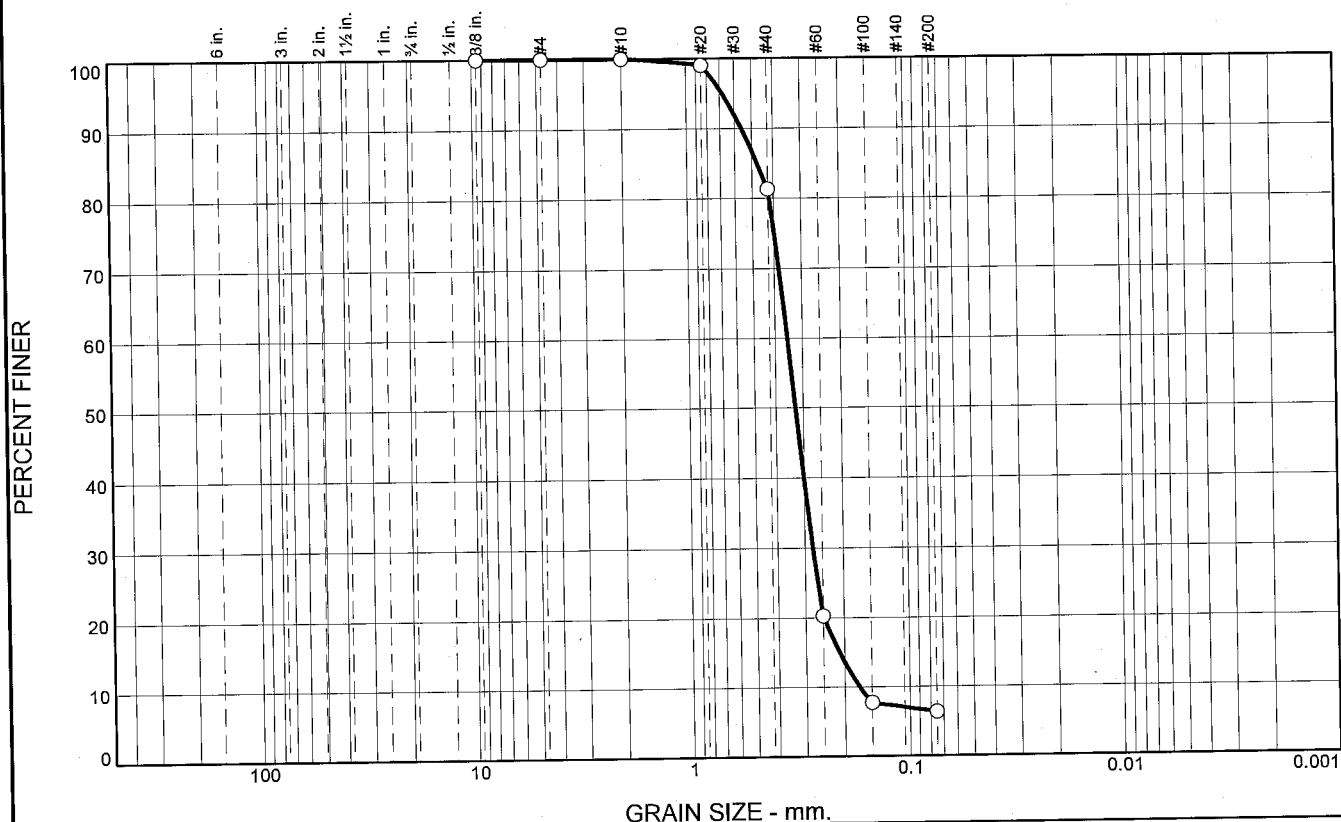
# Boring Designation BI-PB-011-10

DRILLING LOG		DIVISION South Atlantic		INSTALLATION Mobile District		SHEET 1 OF 1 SHEETS	
1. PROJECT MsCIP Barrier Island Restoration Petit Bois Pass- AL East				9. SIZE AND TYPE OF BIT N/A			
2. BORING DESIGNATION BI-PB-011-10		LOCATION COORDINATES E = 1,140,842 N = 251,922		10. COORDINATE SYSTEM/DATUM State Plane, MSE (U.S. Ft.)		HORIZONTAL NAD83	
11. MANUFACTURER'S DESIGNATION OF DRILL Vibrocure		12. TOTAL SAMPLES 0		DISTURBED 0		VERTICAL NAVD88	
3. DRILLING AGENCY Corps of Engineers - CESAM		CONTRACTOR FILE NO.		13. TOTAL NUMBER CORE BOXES		14. WATER DEPTH 37 Ft.	
4. NAME OF DRILLER Construction Solutions International, Inc.		5. DIRECTION OF BORING <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED		15. DATE BORING 06-26-10		COMPLETED 06-26-10	
6. THICKNESS OF OVERBURDEN N/A		7. DEPTH DRILLED INTO ROCK N/A		16. ELEVATION TOP OF BORING -35.5 Ft.		17. TOTAL RECOVERY FOR BORING 100%	
8. TOTAL DEPTH OF BORING 18.3 Ft.				18. SIGNATURE AND TITLE OF INSPECTOR Marty Gates, Geologist			
ELEV.	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS	SAMPLE	LABORATORY RESULTS		
-35.5	0.0						
-36.1	0.6		SAND, poorly-graded, mostly medium-grained sand-sized quartz, trace silt, lt. gray (SP)				
			CLAY, lean, dark gray (CL)				
-45.5	10.0			NS			
			SAND, poorly-graded, mostly fine to medium-grained sand-sized quartz, trace silt, trace shell fragments, lt. gray (SP)				
-53.8	18.3						
NOTES: 1. Soils are field visually classified in accordance with the Unified Soils Classification System. 2. NS = Sample not submitted for laboratory analysis from this interval. 3. Seafloor elevation calculated using sampling vessel's fathometer water depth reading and applying NOAA tidal gauge data conversion factor.							

# Boring Designation BI-PB-012-10

DRILLING LOG		DIVISION South Atlantic		INSTALLATION Mobile District		SHEET 1 OF 1 SHEETS	
1. PROJECT MsCIP Barrier Island Restoration Petit Bois Pass- AL East				9. SIZE AND TYPE OF BIT N/A			
2. BORING DESIGNATION BI-PB-012-10		LOCATION COORDINATES E = 1,147,712 N = 254,556		10. COORDINATE SYSTEM/DATUM State Plane, MSE (U.S. Ft.)		HORIZONTAL NAD83	
3. DRILLING AGENCY Corps of Engineers - CESAM		CONTRACTOR FILE NO.		11. MANUFACTURER'S DESIGNATION OF DRILL Vibracore		<input type="checkbox"/> AUTO HAMMER <input type="checkbox"/> MANUAL HAMMER	
4. NAME OF DRILLER Construction Solutions International, Inc.				12. TOTAL SAMPLES 3		UNDISTURBED (UD) 0	
5. DIRECTION OF BORING <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED		DEG. FROM VERTICAL		13. TOTAL NUMBER CORE BOXES		14. WATER DEPTH 35 Ft.	
6. THICKNESS OF OVERBURDEN N/A		7. DEPTH DRILLED INTO ROCK N/A		15. DATE BORING 06-25-10		STARTED 06-25-10	
8. TOTAL DEPTH OF BORING 18.4 Ft.				16. ELEVATION TOP OF BORING -34.8 Ft.		17. TOTAL RECOVERY FOR BORING 100%	
				18. SIGNATURE AND TITLE OF INSPECTOR Marty Gates, Geologist			
ELEV.	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS	SAMPLE	LABORATORY RESULTS		
-34.8	0.0						
			SAND, poorly-graded, mostly fine to medium-grained sand-sized quartz, trace silt, lt. gray (SP)	A	Classification: SP-SM    Color: 2.5Y 7/2-light gray D50: 0.3257 mm    % Fines: 6.3		
				B	Classification: SP    Color: 2.5Y 8/1-white D50: 0.3292 mm    % Fines: 4.3		
				C	Classification: SP    Color: 2.5Y 8/1-white D50: 0.3286 mm    % Fines: 2		
-53.2	18.4						
			NOTES:				
			1. Soils are field visually classified in accordance with the Unified Soils Classification System.				
			2. NS = Sample not submitted for laboratory analysis from this interval.				
			3. Seafloor elevation determined from 2010 USACE survey.				

# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.0	0.0	18.7	75.0	6.3	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
.375	100.0		
#4	100.0		
#10	100.0		
#20	99.0		
#40	81.3		
#60	20.3		
#100	7.7		
#200	6.3		

\* (no specification provided)

## Material Description

SAND, (SP-SM), medium to fine grained

## Atterberg Limits

PL= LL= PI=

## Coefficients

D<sub>90</sub>= 0.5565 D<sub>85</sub>= 0.4724 D<sub>60</sub>= 0.3520  
D<sub>50</sub>= 0.3257 D<sub>30</sub>= 0.2764 D<sub>15</sub>= 0.2106  
D<sub>10</sub>= 0.1709 C<sub>u</sub>= 2.06 C<sub>c</sub>= 1.27

## Classification

USCS= SP-SM AASHTO=

## Remarks

CADD CODE = CH10D965

Location: USACE Sample # BI-PB-12-10A  
Sample Number: TE Lab ID: 4569.24

Depth: 0.0 - 6.0 (ft.)

Date: 7/8/10

**Thompson Engineering**

**Mobile, Alabama**

Client: US Army Corps of Engineers

Project: Contract No. W91278-10-D-0026 - Task 03  
Mississippi Barrier Island Restoration Project

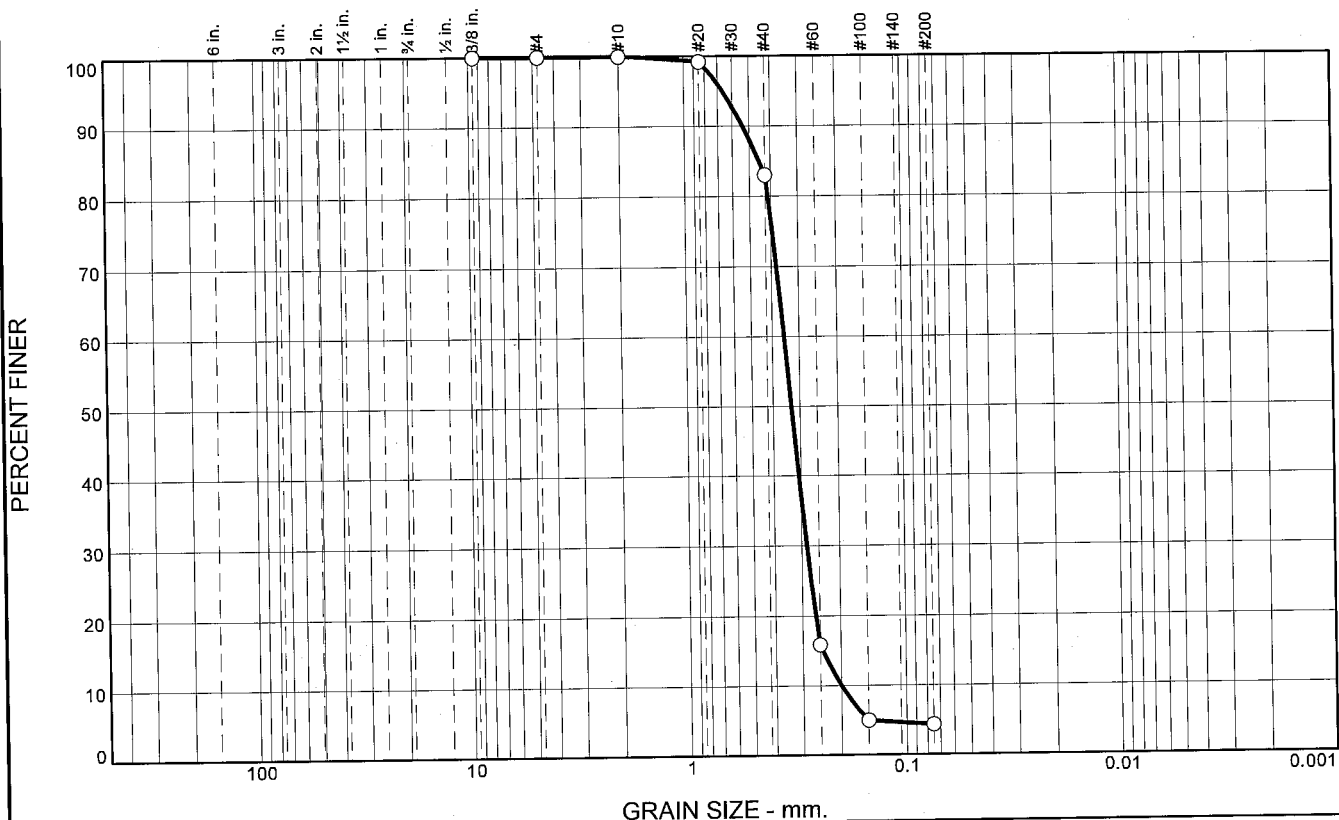
Project No: 10-2123-0009

Figure

Tested By: R.Martin

Checked By: R.Byrd

# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.0	0.0	17.0	78.7	4.3	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
.375	100.0		
#4	100.0		
#10	100.0		
#20	99.2		
#40	83.0		
#60	15.9		
#100	5.0		
#200	4.3		

\* (no specification provided)

## Material Description

SAND, (SP), medium to fine grained

## Atterberg Limits

PL= LL= PI=

## Coefficients

D<sub>90</sub>= 0.5361 D<sub>85</sub>= 0.4517 D<sub>60</sub>= 0.3532  
D<sub>50</sub>= 0.3292 D<sub>30</sub>= 0.2847 D<sub>15</sub>= 0.2426  
D<sub>10</sub>= 0.1996 C<sub>u</sub>= 1.77 C<sub>c</sub>= 1.15

## Classification

USCS= SP AASHTO=

## Remarks

CADD CODE = CH10D965

Location: USACE Sample # BI-PB-12-10B  
Sample Number: TE Lab ID: 4569.25

Depth: 6.0 - 12.0 (ft.)

Date: 7/8/10

**Thompson Engineering**

**Mobile, Alabama**

Client: US Army Corps of Engineers

Project: Contract No. W91278-10-D-0026 - Task 03  
Mississippi Barrier Island Restoration Project

Project No: 10-2123-0009

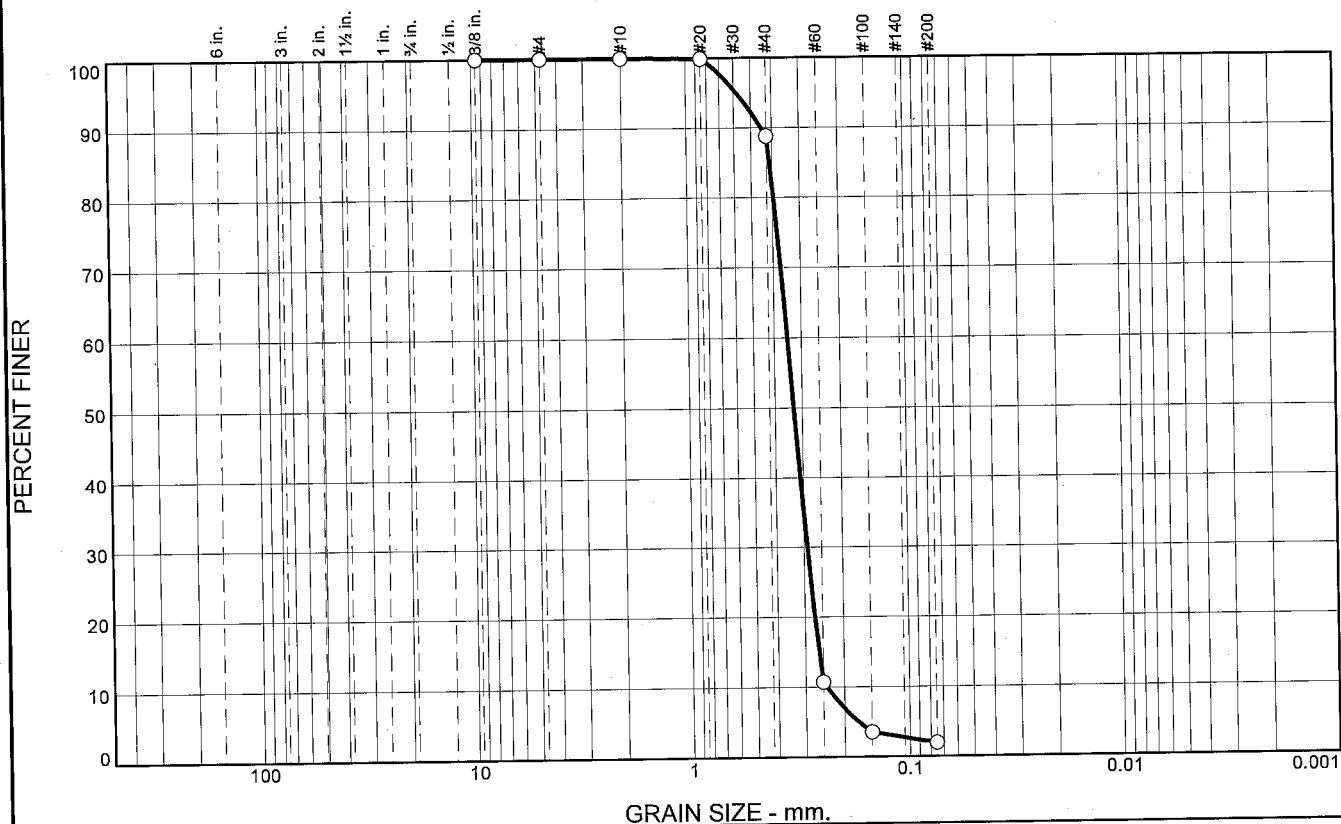
Figure

Tested By: R.Martin

Checked By: R.Byrd



# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.0	0.0	11.2	86.8	2.0	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
.375	100.0		
#4	100.0		
#10	100.0		
#20	99.9		
#40	88.8		
#60	10.7		
#100	3.5		
#200	2.0		

\* (no specification provided)

## Material Description

SAND, (SP), medium to fine grained

## Atterberg Limits

PL=

LL=

PI=

## Coefficients

D<sub>90</sub>= 0.4483

D<sub>85</sub>= 0.4117

D<sub>60</sub>= 0.3487

D<sub>50</sub>= 0.3286

D<sub>30</sub>= 0.2907

D<sub>15</sub>= 0.2603

D<sub>10</sub>= 0.2403

C<sub>u</sub>= 1.45

C<sub>c</sub>= 1.01

## Classification

USCS= SP

AASHTO=

## Remarks

CADD CODE = CH10D965

Location: USACE Sample # BI-PB-12-10C  
Sample Number: TE Lab ID: 4569.26

Depth: 12.0 - 18.3 (ft.)

Date: 7/8/10

**Thompson Engineering**

**Mobile, Alabama**

Client: US Army Corps of Engineers

Project: Contract No. W91278-10-D-0026 - Task 03  
Mississippi Barrier Island Restoration Project

Project No: 10-2123-0009

Figure

Tested By: R.Martin

Checked By: R.Byrd

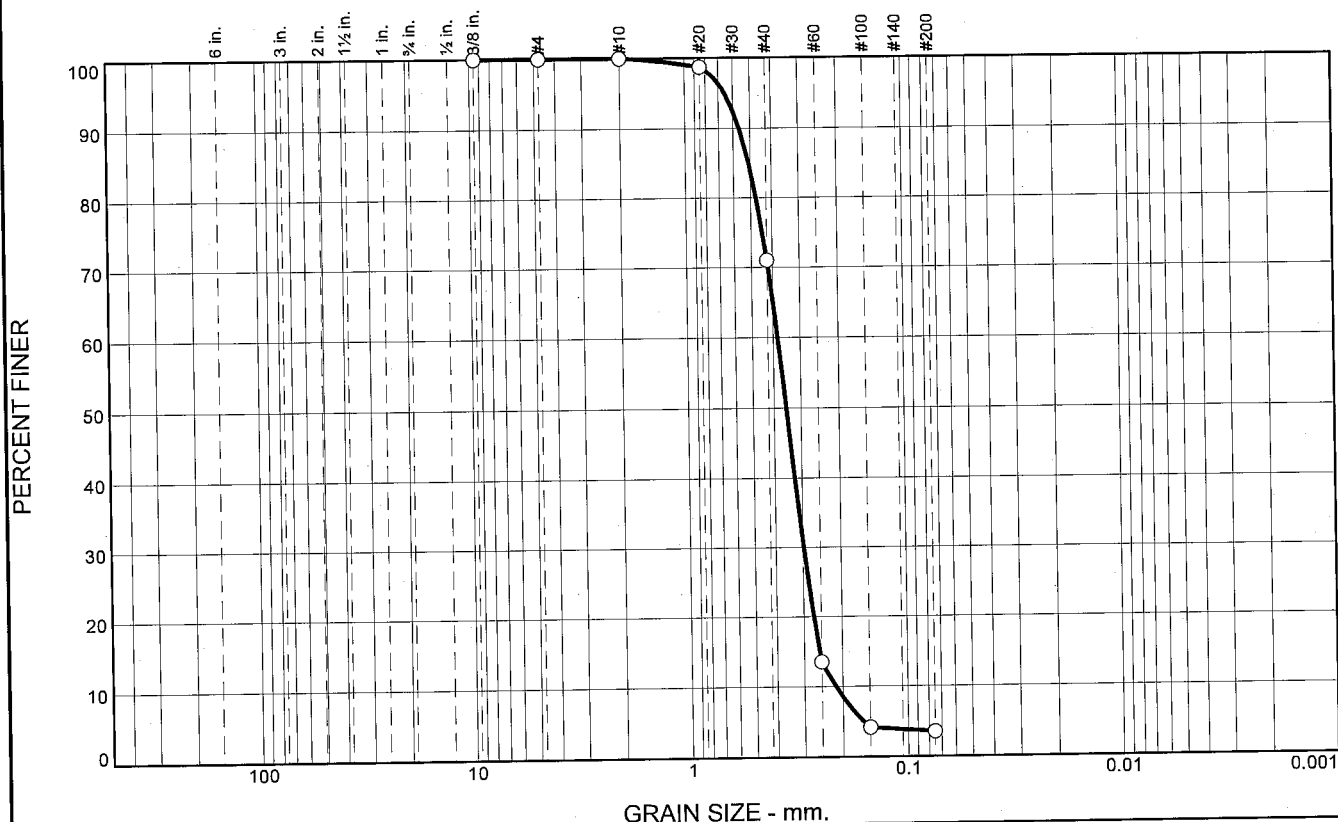
# Boring Designation BI-PB-013-10

DRILLING LOG		DIVISION South Atlantic		INSTALLATION Mobile District		SHEET 1 OF 1 SHEETS	
1. PROJECT MsCIP Barrier Island Restoration Petit Bois Pass- AL West				9. SIZE AND TYPE OF BIT N/A			
2. BORING DESIGNATION BI-PB-013-10		LOCATION COORDINATES E = 1,140,818 N = 250,234		10. COORDINATE SYSTEM/DATUM State Plane, MSE (U.S. Ft.)		HORIZONTAL NAD83 VERTICAL NAVD88	
3. DRILLING AGENCY Corps of Engineers - CESAM		CONTRACTOR FILE NO.		11. MANUFACTURER'S DESIGNATION OF DRILL Vibracore		<input type="checkbox"/> AUTO HAMMER <input type="checkbox"/> MANUAL HAMMER	
4. NAME OF DRILLER Construction Solutions International, Inc.				12. TOTAL SAMPLES 0		DISTURBED 0 UNDISTURBED (UD) 0	
5. DIRECTION OF BORING <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED		DEG. FROM VERTICAL		13. TOTAL NUMBER CORE BOXES			
		BEARING		14. WATER DEPTH 40 Ft.			
6. THICKNESS OF OVERBURDEN N/A				15. DATE BORING 06-26-10		STARTED 06-26-10 COMPLETED 06-26-10	
7. DEPTH DRILLED INTO ROCK N/A				16. ELEVATION TOP OF BORING -38.4 Ft.			
8. TOTAL DEPTH OF BORING 18.2 Ft.				17. TOTAL RECOVERY FOR BORING 100%			
				18. SIGNATURE AND TITLE OF INSPECTOR Marty Gates, Geologist			
ELEV.	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS	SAMPLE	LABORATORY RESULTS		
-38.4	0.0		CLAY, lean, dark gray (CL)	NS			
-48.8	10.4		SAND, poorly-graded, mostly fine to medium-grained sand-sized quartz, trace silt, lt. gray (SP)				
-56.6	18.2						
			NOTES: 1. Soils are field visually classified in accordance with the Unified Soils Classification System. 2. NS = Sample not submitted for laboratory analysis from this interval. 3. Seafloor elevation calculated using sampling vessel's fathometer water depth reading and applying NOAA tidal gauge data conversion factor.				

# Boring Designation BI-PB-014-10

DRILLING LOG		DIVISION South Atlantic		INSTALLATION Mobile District		SHEET 1 OF 1 SHEETS	
1. PROJECT MsCIP Barrier Island Restoration Petit Bois Pass- AL East				9. SIZE AND TYPE OF BIT N/A			
2. BORING DESIGNATION BI-PB-014-10		LOCATION COORDINATES E = 1,149,377 N = 253,637		10. COORDINATE SYSTEM/DATUM State Plane, MSE (U.S. Ft.)		HORIZONTAL NAD83 VERTICAL NAVD88	
3. DRILLING AGENCY Corps of Engineers - CESAM		CONTRACTOR FILE NO.		11. MANUFACTURER'S DESIGNATION OF DRILL Vibrocure		<input type="checkbox"/> AUTO HAMMER <input type="checkbox"/> MANUAL HAMMER	
4. NAME OF DRILLER Construction Solutions International, Inc.				12. TOTAL SAMPLES 3		DISTURBED 3 UNDISTURBED (UD) 0	
5. DIRECTION OF BORING <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED		DEG. FROM VERTICAL		13. TOTAL NUMBER CORE BOXES			
		BEARING		14. WATER DEPTH 38 Ft.			
6. THICKNESS OF OVERBURDEN N/A				15. DATE BORING 06-26-10		STARTED 06-26-10 COMPLETED 06-26-10	
7. DEPTH DRILLED INTO ROCK N/A				16. ELEVATION TOP OF BORING -36.8 Ft.			
8. TOTAL DEPTH OF BORING 17.4 Ft.				17. TOTAL RECOVERY FOR BORING 100%			
				18. SIGNATURE AND TITLE OF INSPECTOR Marty Gates, Geologist			
ELEV.	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS	SAMPLE	LABORATORY RESULTS		
-36.8	0.0						
			SAND, poorly-graded, mostly medium-grained sand-sized quartz, trace silt, trace shell fragments, lt. gray (SP)	A	Classification: SP Color: 2.5Y 7/2-light gray D50: 0.3521 mm % Fines: 3.5		
				B	Classification: SP Color: 2.5Y 8/1-white D50: 0.371 mm % Fines: 2.7		
				C	Classification: SP Color: 2.5Y 7/1-light gray D50: 0.3535 mm % Fines: 4.6		
-54.2	17.4						
			NOTES: 1. Soils are field visually classified in accordance with the Unified Soils Classification System. 2. NS = Sample not submitted for laboratory analysis from this interval. 3. Seafloor elevation determined from 2010 USACE survey.				

# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.0	0.0	29.0	67.5	3.5	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
.375	100.0		
#4	100.0		
#10	100.0		
#20	98.7		
#40	71.0		
#60	13.5		
#100	4.2		
#200	3.5		

\* (no specification provided)

## Material Description

SAND, (SP), medium to fine grained

## Atterberg Limits

PL= LL= PI=

## Coefficients

D<sub>90</sub>= 0.5625 D<sub>85</sub>= 0.5098 D<sub>60</sub>= 0.3831  
D<sub>50</sub>= 0.3521 D<sub>30</sub>= 0.2977 D<sub>15</sub>= 0.2550  
C<sub>u</sub>= 1.78 C<sub>c</sub>= 1.08

## Classification

USCS= SP AASHTO=

## Remarks

CADD CODE = CH10D965

Location: USACE Sample # BI-PB-14-10A  
Sample Number: TE Lab ID: 4569.27

Depth: 0.0 - 6.0 (ft.)

Date: 7/8/10

**Thompson Engineering**

**Mobile, Alabama**

Client: US Army Corps of Engineers

Project: Contract No. W91278-10-D-0026 - Task 03  
Mississippi Barrier Island Restoration Project

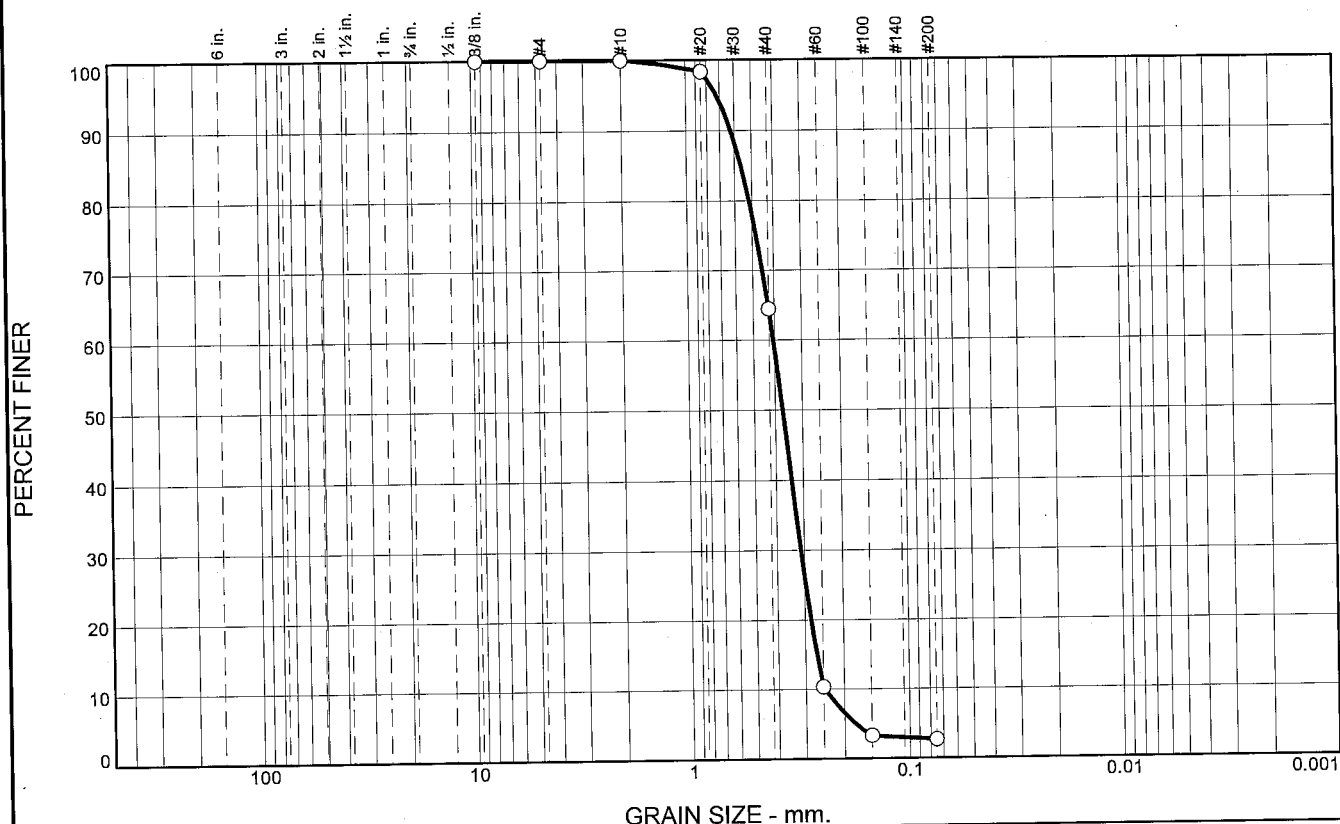
Project No: 10-2123-0009

Figure

Tested By: R.Martin

Checked By: R.Byrd

# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.0	0.0	35.5	61.8	2.7	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
.375	100.0		
#4	100.0		
#10	100.0		
#20	98.3		
#40	64.5		
#60	10.3		
#100	3.3		
#200	2.7		

\* (no specification provided)

**Material Description**  
SAND, (SP), medium to fine grained

**Atterberg Limits**  
PL= LL= PI=

**Coefficients**  
D<sub>90</sub>= 0.6226 D<sub>85</sub>= 0.5601 D<sub>60</sub>= 0.4064  
D<sub>50</sub>= 0.3710 D<sub>30</sub>= 0.3110 D<sub>15</sub>= 0.2665  
D<sub>10</sub>= 0.2455 C<sub>u</sub>= 1.66 C<sub>c</sub>= 0.97

**Classification**  
USCS= SP AASHTO=

**Remarks**  
CADD CODE = CH10D965

Location: USACE Sample # BI-PB-14-10B  
Sample Number: TE Lab ID: 4569.28

Depth: 6.0 - 12.0 (ft.)

Date: 7/8/10

**Thompson Engineering**

**Mobile, Alabama**

Client: US Army Corps of Engineers

Project: Contract No. W91278-10-D-0026 - Task 03  
Mississippi Barrier Island Restoration Project

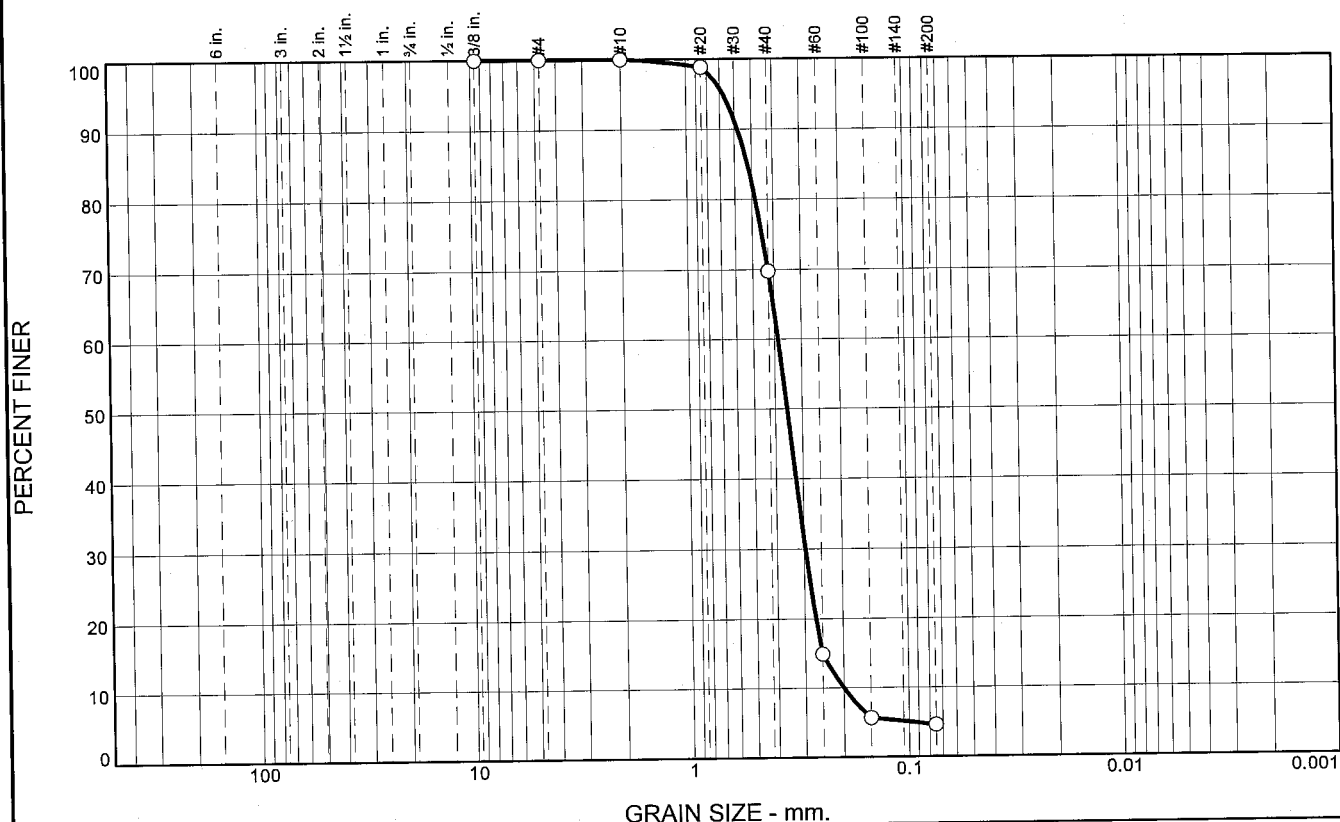
Project No: 10-2123-0009

Figure

Tested By: R.Martin

Checked By: R.Byrd

# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.0	0.0	30.2	65.2	4.6	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
.375	100.0		
#4	100.0		
#10	100.0		
#20	98.8		
#40	69.8		
#60	14.9		
#100	5.7		
#200	4.6		

\* (no specification provided)

## Material Description

SAND, (SP), medium to fine grained

## Atterberg Limits

PL= LL= PI=

## Coefficients

D<sub>90</sub>= 0.5779 D<sub>85</sub>= 0.5217 D<sub>60</sub>= 0.3862  
D<sub>50</sub>= 0.3535 D<sub>30</sub>= 0.2963 D<sub>15</sub>= 0.2505  
D<sub>10</sub>= 0.2002 C<sub>u</sub>= 1.93 C<sub>c</sub>= 1.14

## Classification

USCS= SP AASHTO=

## Remarks

CADD CODE = CH10D965

Location: USACE Sample # BI-PB-14-10C  
Sample Number: TE Lab ID: 4569.29

Depth: 12.0 - 17.4 (ft.)

Date: 7/8/10

**Thompson Engineering**

**Mobile, Alabama**

Client: US Army Corps of Engineers

Project: Contract No. W91278-10-D-0026 - Task 03  
Mississippi Barrier Island Restoration Project

Project No: 10-2123-0009

Figure

Tested By: R.Martin

Checked By: R.Byrd

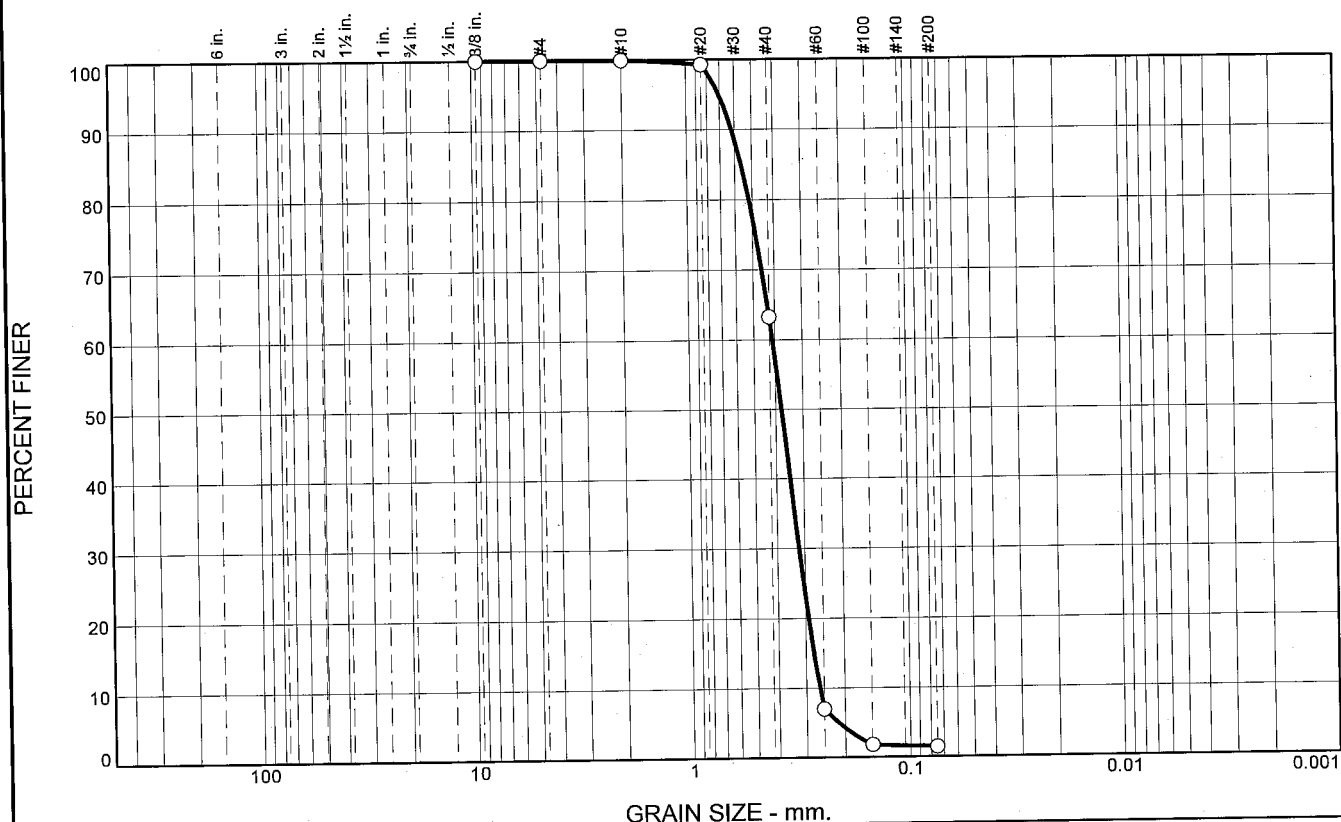
# Boring Designation BI-PB-015-10

DRILLING LOG		DIVISION South Atlantic		INSTALLATION Mobile District		SHEET 1 OF 2 SHEETS	
1. PROJECT MsCIP Barrier Island Restoration Petit Bois Pass- AL East				9. SIZE AND TYPE OF BIT N/A			
2. BORING DESIGNATION BI-PB-015-10		LOCATION COORDINATES E = 1,152,285 N = 252,108		10. COORDINATE SYSTEM/DATUM State Plane, MSE (U.S. Ft.)		HORIZONTAL NAD83 VERTICAL NAVD88	
3. DRILLING AGENCY Corps of Engineers - CESAM		CONTRACTOR FILE NO.		11. MANUFACTURER'S DESIGNATION OF DRILL Vibracore		<input type="checkbox"/> AUTO HAMMER <input type="checkbox"/> MANUAL HAMMER	
4. NAME OF DRILLER Construction Solutions International, Inc.				12. TOTAL SAMPLES 2		DISTURBED 2 UNDISTURBED (UD) 0	
5. DIRECTION OF BORING <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED		DEG. FROM VERTICAL		13. TOTAL NUMBER CORE BOXES			
		BEARING		14. WATER DEPTH 42 Ft.			
6. THICKNESS OF OVERBURDEN N/A				15. DATE BORING 06-26-10		STARTED 06-26-10 COMPLETED 06-26-10	
7. DEPTH DRILLED INTO ROCK N/A				16. ELEVATION TOP OF BORING -40.7 Ft.			
8. TOTAL DEPTH OF BORING 19.1 Ft.				17. TOTAL RECOVERY FOR BORING 100%			
				18. SIGNATURE AND TITLE OF INSPECTOR Marty Gates, Geologist			
ELEV.	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS	SAMPLE	LABORATORY RESULTS		
-40.7	0.0		CLAY, lean, dark gray (CL)	NS			
-45.4	4.7		SAND, poorly-graded, mostly medium-grained sand-sized quartz, trace silt, lt. gray (SP)	A	Classification: SP Color: 2.5Y 8/1-white D50: 0.3772 mm % Fines: 1.5		
-52.8	12.1			B	Classification: SP Color: 2.5Y 7/1-light gray D50: 0.35 mm % Fines: 1.9		
-55.5	14.8		CLAY, lean, dark gray (CL)	NS			
-59.8	19.1		SAND, silty, mostly medium-grained sand-sized quartz, some silt, gray (SM)	NS			
NOTES:							
1. Soils are field visually classified in accordance with the Unified Soils Classification System.							
2. NS = Sample not submitted for laboratory analysis from this interval.							
3. Seafloor elevation calculated using sampling vessel's fathometer water depth reading and applying NOAA tidal gauge data conversion							

<b>DRILLING LOG (Cont. Sheet)</b>			<b>INSTALLATION</b> Mobile District		<b>SHEET 2</b> <b>OF 2 SHEETS</b>
<b>PROJECT</b> MsCIP Barrier Island Restoration			<b>COORDINATE SYSTEM/DATUM</b> State Plane, MSE (U.S. Ft.)	<b>HORIZONTAL</b> NAD83	<b>VERTICAL</b> NAVD88
<b>LOCATION COORDINATES</b> X = 1,152,285 Y = 252,108			<b>ELEVATION TOP OF BORING</b> -40.7 Ft.		
<b>ELEV.</b>	<b>DEPTH</b>	<b>LEGEND</b>	<b>CLASSIFICATION OF MATERIALS</b>	<b>SAMPLE</b>	<b>LABORATORY RESULTS</b>
			factor.		



# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.0	0.0	36.7	61.8	1.5	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
.375	100.0		
#4	100.0		
#10	100.0		
#20	99.3		
#40	63.3		
#60	7.0		
#100	1.8		
#200	1.5		

\* (no specification provided)

**Material Description**  
SAND, (SP), medium to fine grained

**Atterberg Limits**  
PL=      LL=      PI=

**Coefficients**  
D<sub>90</sub>= 0.6172      D<sub>85</sub>= 0.5597      D<sub>60</sub>= 0.4119  
D<sub>50</sub>= 0.3772      D<sub>30</sub>= 0.3189      D<sub>15</sub>= 0.2767  
D<sub>10</sub>= 0.2609      C<sub>u</sub>= 1.58      C<sub>c</sub>= 0.95

**Classification**  
USCS= SP      AASHTO=

**Remarks**  
CADD CODE = CH10D965

Location: USACE Sample # BI-PB-15-10A  
Sample Number: TE Lab ID: 4569.30

Depth: 4.7 - 9.0 (ft.)

Date: 7/8/10

**Thompson Engineering**

**Mobile, Alabama**

Client: US Army Corps of Engineers

Project: Contract No. W91278-10-D-0026 - Task 03  
Mississippi Barrier Island Restoration Project

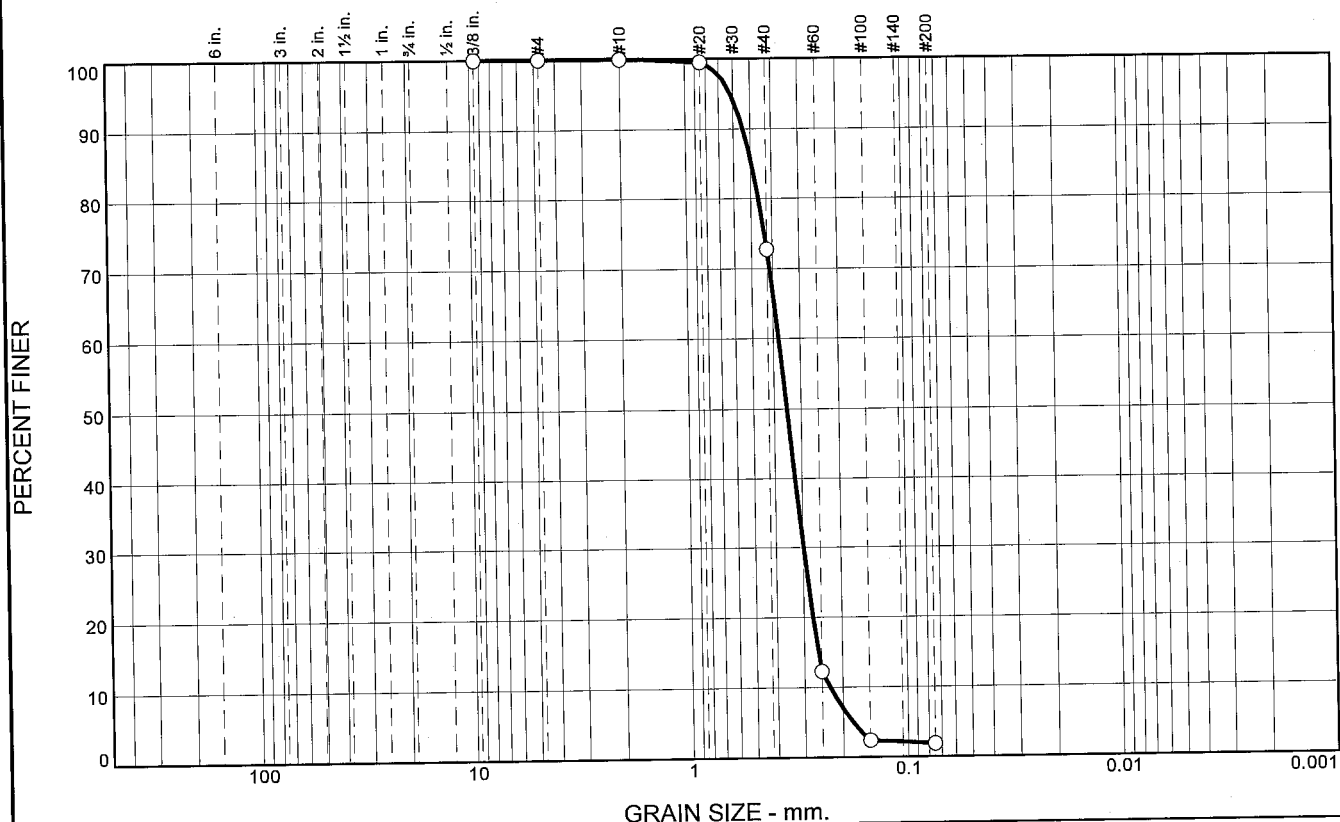
Project No: 10-2123-0009

Figure

Tested By: R.Martin

Checked By: R.Byrd

# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.0	0.0	27.3	70.8	1.9	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
.375	100.0		
#4	100.0		
#10	100.0		
#20	99.5		
#40	72.7		
#60	12.3		
#100	2.4		
#200	1.9		

\* (no specification provided)

## Material Description

SAND, (SP), fine grained, with trace clay pockets

## Atterberg Limits

PL= LL= PI=

## Coefficients

D<sub>90</sub>= 0.5398 D<sub>85</sub>= 0.4941 D<sub>60</sub>= 0.3791  
D<sub>50</sub>= 0.3500 D<sub>30</sub>= 0.2984 D<sub>15</sub>= 0.2585  
D<sub>10</sub>= 0.2288 C<sub>u</sub>= 1.66 C<sub>c</sub>= 1.03

## Classification

USCS= SP AASHTO=

## Remarks

CADD CODE = CH10D965

Location: USACE Sample # BI-PB-15-10B  
Sample Number: TE Lab ID: 4569.31

Depth: 9.0 - 12.1 (ft.)

Date: 7/8/10

**Thompson Engineering**

**Mobile, Alabama**

Client: US Army Corps of Engineers

Project: Contract No. W91278-10-D-0026 - Task 03  
Mississippi Barrier Island Restoration Project

Project No: 10-2123-0009

Figure

Tested By: R.Martin

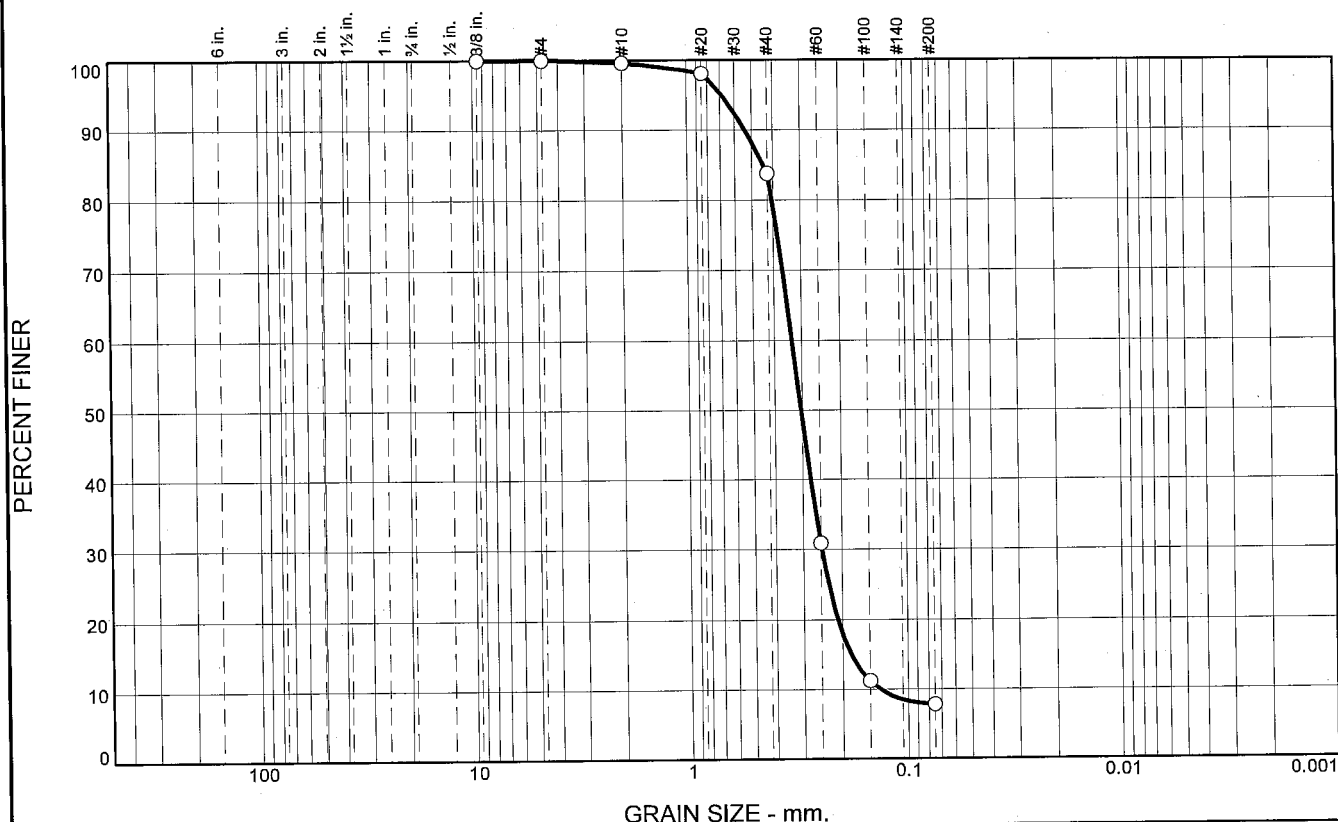
Checked By: R.Byrd

# Boring Designation BI-PB-016-10

DRILLING LOG		DIVISION South Atlantic		INSTALLATION Mobile District		SHEET 1 OF 2 SHEETS	
1. PROJECT MsCIP Barrier Island Restoration Petit Bois Pass- AL East				9. SIZE AND TYPE OF BIT N/A			
2. BORING DESIGNATION BI-PB-016-10		LOCATION COORDINATES E = 1,150,827 N = 255,753		10. COORDINATE SYSTEM/DATUM State Plane, MSE (U.S. Ft.)		HORIZONTAL NAD83 VERTICAL NAVD88	
3. DRILLING AGENCY Corps of Engineers - CESAM		CONTRACTOR FILE NO.		11. MANUFACTURER'S DESIGNATION OF DRILL Vibrocure		<input type="checkbox"/> AUTO HAMMER <input type="checkbox"/> MANUAL HAMMER	
4. NAME OF DRILLER Construction Solutions International, Inc.				12. TOTAL SAMPLES 4		DISTURBED 0 UNDISTURBED (UD)	
5. DIRECTION OF BORING <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED		DEG. FROM VERTICAL		13. TOTAL NUMBER CORE BOXES			
		BEARING		14. WATER DEPTH 34 Ft.			
6. THICKNESS OF OVERBURDEN N/A				15. DATE BORING 06-26-10		STARTED 06-26-10 COMPLETED 06-26-10	
7. DEPTH DRILLED INTO ROCK N/A				16. ELEVATION TOP OF BORING -32.7 Ft.			
8. TOTAL DEPTH OF BORING 20.0 Ft.				17. TOTAL RECOVERY FOR BORING 100%			
				18. SIGNATURE AND TITLE OF INSPECTOR Marty Gates, Geologist			
ELEV.	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS	SAMPLE	LABORATORY RESULTS		
-32.7	0.0						
-35.2	2.5		SAND, silty, mostly medium-grained sand-sized quartz, some silt, brown (SM)	A	Classification: SP-SM Color: 2.5Y 6/2-light brownish gray D50: 0.304 mm % Fines: 7.8		
			SAND, poorly-graded, mostly fine to medium-grained sand-sized quartz, trace clay, white (SP)	B	Classification: SP-SM Color: 2.5Y 7/2-light gray D50: 0.3312 mm % Fines: 6.8		
				C	Classification: SP-SM Color: 2.5Y 7/2-light gray D50: 0.3364 mm % Fines: 5.1		
-47.7	15.0		SAND, silty, mostly fine to medium-grained sand-sized quartz, some silt, brown (SM)	D	Classification: SP-SM Color: 2.5Y 6/2-light brownish gray D50: 0.3067 mm % Fines: 7.4		
-52.7	20.0						
			NOTES: 1. Soils are field visually classified in accordance with the Unified Soils Classification System. 2. NS = Sample not submitted for laboratory analysis from this interval. 3. Seafloor elevation determined from 2010				

<b>DRILLING LOG (Cont. Sheet)</b>			<b>INSTALLATION</b> Mobile District		<b>SHEET 2</b> <b>OF 2 SHEETS</b>
<b>PROJECT</b> MsCIP Barrier Island Restoration			<b>COORDINATE SYSTEM/DATUM</b> State Plane, MSE (U.S. Ft.)	<b>HORIZONTAL</b> NAD83	<b>VERTICAL</b> NAVD88
<b>LOCATION COORDINATES</b> X = 1,150,827 Y = 255,753			<b>ELEVATION TOP OF BORING</b> -32.7 Ft.		
<b>ELEV.</b>	<b>DEPTH</b>	<b>LEGEND</b>	<b>CLASSIFICATION OF MATERIALS</b>	<b>SAMPLE</b>	<b>LABORATORY RESULTS</b>
			USACE survey.		

# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.0	0.4	15.8	76.0	7.8	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
.375	100.0		
#4	100.0		
#10	99.6		
#20	98.1		
#40	83.8		
#60	30.9		
#100	11.3		
#200	7.8		

\* (no specification provided)

**Material Description**  
SAND, (SP-SM), medium to fine grained

**Atterberg Limits**  
 PL=                      LL=                      PI=

**Coefficients**  
 D<sub>90</sub>= 0.5387      D<sub>85</sub>= 0.4434      D<sub>60</sub>= 0.3329  
 D<sub>50</sub>= 0.3040      D<sub>30</sub>= 0.2472      D<sub>15</sub>= 0.1830  
 D<sub>10</sub>= 0.1339      C<sub>u</sub>= 2.49              C<sub>c</sub>= 1.37

**Classification**  
 USCS= SP-SM                      AASHTO=

**Remarks**  
 CADD CODE = CH10D965

Location: USACE Sample # BI-PB-16-10A  
 Sample Number: TE Lab ID: 4569.32

Depth: 0.0 - 2.5 (ft.)

Date: 7/8/10

**Thompson Engineering**

**Mobile, Alabama**

Client: US Army Corps of Engineers

Project: Contract No. W91278-10-D-0026 - Task 03  
 Mississippi Barrier Island Restoration Project

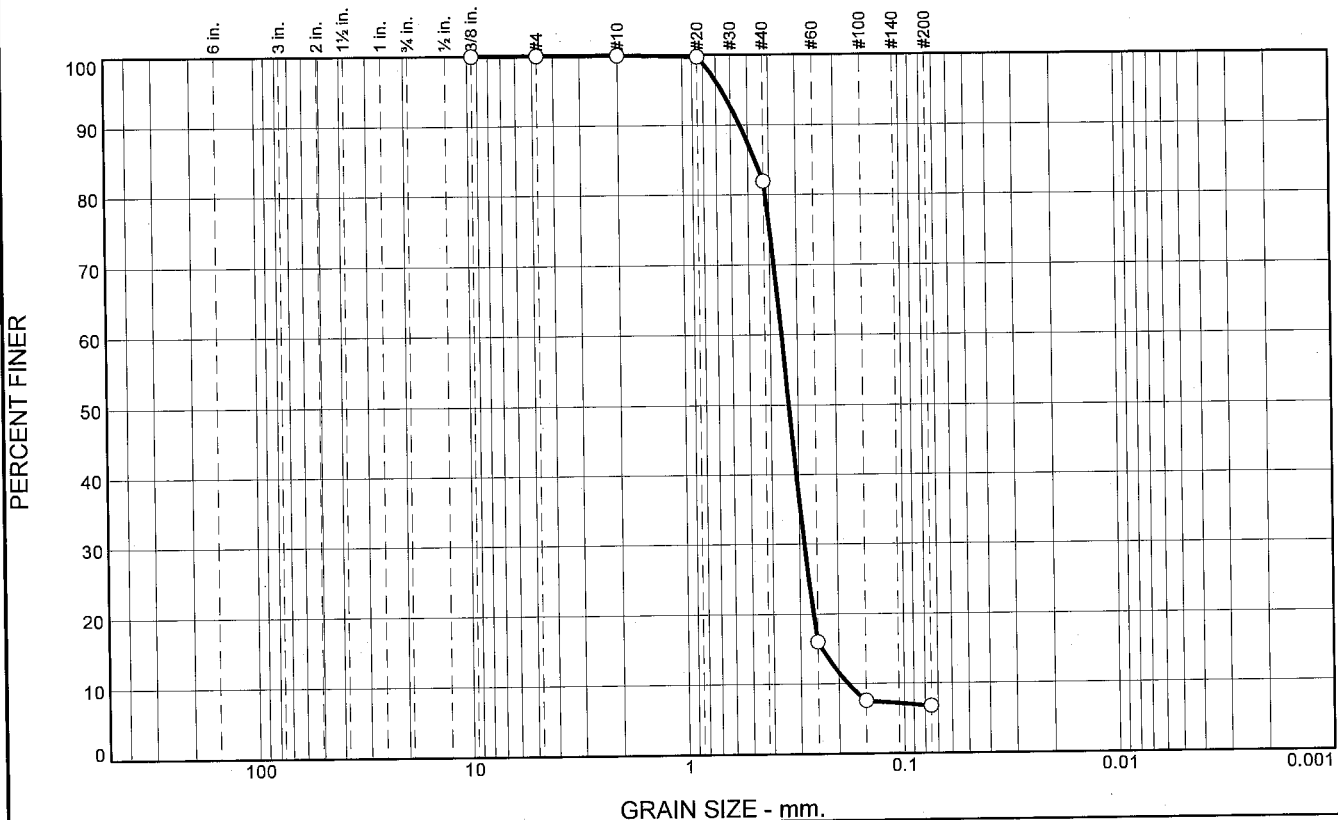
Project No: 10-2123-0009

Figure

Tested By: R.Martin

Checked By: R.Byrd

# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.0	0.0	18.1	75.1	6.8	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
.375	100.0		
#4	100.0		
#10	100.0		
#20	99.7		
#40	81.9		
#60	16.0		
#100	7.6		
#200	6.8		

\* (no specification provided)

<u><b>Material Description</b></u>		
SAND, (SP-SM), medium to fine grained		
<u><b>Atterberg Limits</b></u>		
PL=	LL=	PI=
<u><b>Coefficients</b></u>		
D <sub>90</sub> = 0.5426	D <sub>85</sub> = 0.4633	D <sub>60</sub> = 0.3557
D <sub>50</sub> = 0.3312	D <sub>30</sub> = 0.2856	D <sub>15</sub> = 0.2387
D <sub>10</sub> = 0.1819	C <sub>u</sub> = 1.96	C <sub>c</sub> = 1.26
<u><b>Classification</b></u>		
USCS= SP-SM	AASHTO=	
<u><b>Remarks</b></u>		
CADD CODE = CH10D965		

Location: USACE Sample # BI-PB-16-10B  
Sample Number: TE Lab ID: 4569.33

Depth: 2.5 - 8.5 (ft.)

Date: 7/8/10

**Thompson Engineering**

**Mobile, Alabama**

Client: US Army Corps of Engineers

Project: Contract No. W91278-10-D-0026 - Task 03  
Mississippi Barrier Island Restoration Project

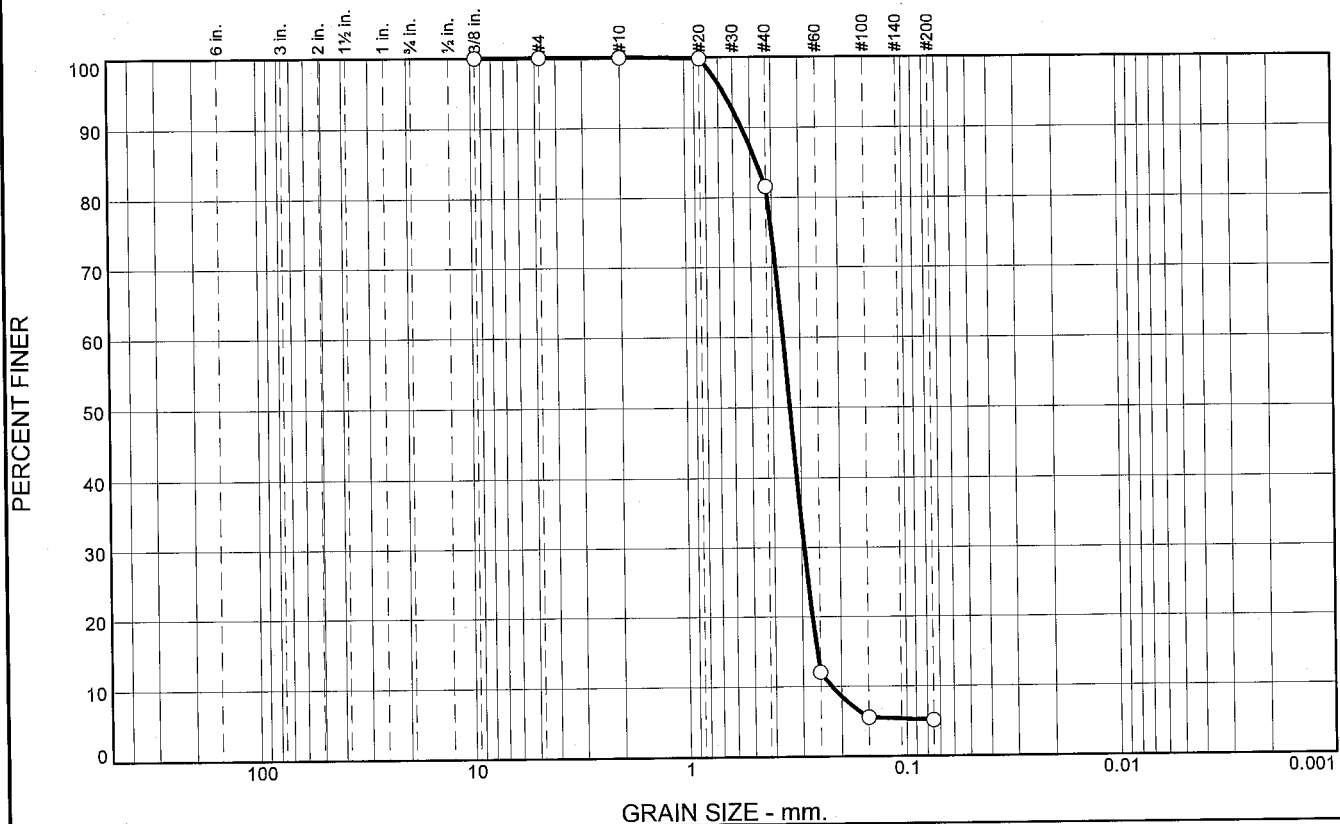
Project No: 10-2123-0009

Figure

Tested By: R.Martin

Checked By: R.Byrd

# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.0	0.0	18.4	76.5	5.1	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
.375	100.0		
#4	100.0		
#10	100.0		
#20	99.8		
#40	81.6		
#60	12.0		
#100	5.6		
#200	5.1		

\* (no specification provided)

## Material Description

SAND, (SP-SM), medium to fine grained, with trace clay nodules

## Atterberg Limits

PL= LL= PI=

## Coefficients

D<sub>90</sub>= 0.5450 D<sub>85</sub>= 0.4666 D<sub>60</sub>= 0.3598  
D<sub>50</sub>= 0.3364 D<sub>30</sub>= 0.2931 D<sub>15</sub>= 0.2583  
D<sub>10</sub>= 0.2212 C<sub>u</sub>= 1.63 C<sub>c</sub>= 1.08

## Classification

USCS= SP-SM AASHTO=

## Remarks

CADD CODE = CH10D965

Location: USACE Sample # BI-PB-16-10C  
Sample Number: TE Lab ID: 4569.34

Depth: 8.5 - 15.0 (ft.)

Date: 7/8/10

**Thompson Engineering**

**Mobile, Alabama**

Client: US Army Corps of Engineers

Project: Contract No. W91278-10-D-0026 - Task 03  
Mississippi Barrier Island Restoration Project

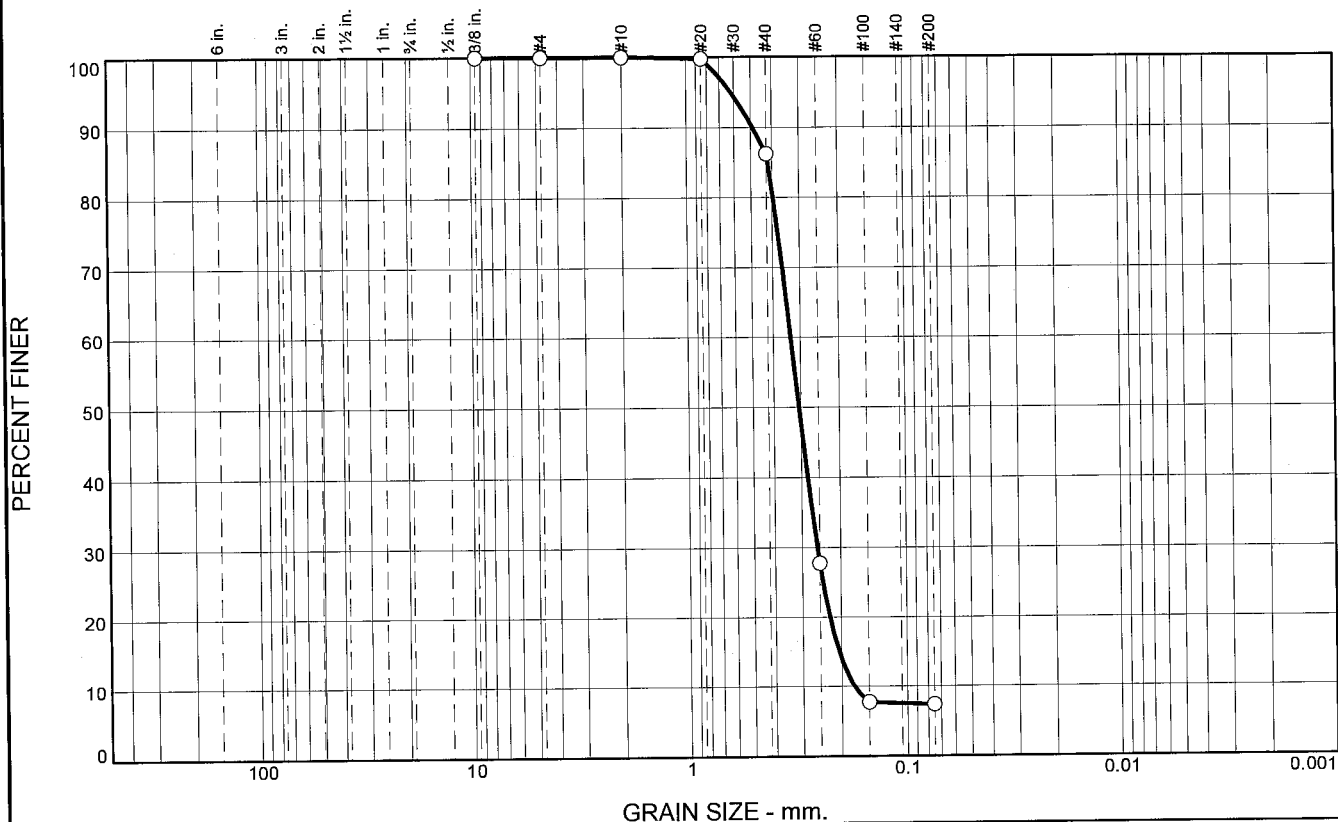
Project No: 10-2123-0009

Figure

Tested By: R.Martin

Checked By: R.Byrd

# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.0	0.0	13.7	78.9	7.4	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
.375	100.0		
#4	100.0		
#10	100.0		
#20	99.7		
#40	86.3		
#60	27.8		
#100	7.7		
#200	7.4		

\* (no specification provided)

<b><u>Material Description</u></b>		
SAND, (SP-SM), medium to fine grained		
<b><u>Atterberg Limits</u></b>		
PL=	LL=	PI=
<b><u>Coefficients</u></b>		
D <sub>90</sub> = 0.4898	D <sub>85</sub> = 0.4186	D <sub>60</sub> = 0.3329
D <sub>50</sub> = 0.3067	D <sub>30</sub> = 0.2561	D <sub>15</sub> = 0.2052
D <sub>10</sub> = 0.1753	C <sub>u</sub> = 1.90	C <sub>c</sub> = 1.12
<b><u>Classification</u></b>		
USCS= SP-SM	AASHTO=	
<b><u>Remarks</u></b>		
CADD CODE = CH10D965		

Location: USACE Sample # BI-PB-16-10D  
Sample Number: TE Lab ID: 4569.03

Depth: 15.0 - 20.0 (ft.)

Date: 7/8/10

**Thompson Engineering**

**Mobile, Alabama**

Client: US Army Corps of Engineers

Project: Contract No. W91278-10-D-0026 - Task 03  
Mississippi Barrier Island Restoration Project

Project No: 10-2123-0009

Figure

Tested By: R.Martin

Checked By: R.Byrd



# Boring Designation BI-PB-017-10

DRILLING LOG		DIVISION South Atlantic		INSTALLATION Mobile District		SHEET 1 OF 2 SHEETS	
1. PROJECT MsCIP Barrier Island Restoration Petit Bois Pass- AL East				9. SIZE AND TYPE OF BIT N/A			
2. BORING DESIGNATION BI-PB-017-10		LOCATION COORDINATES E = 1,150,383 N = 258,337		10. COORDINATE SYSTEM/DATUM State Plane, MSE (U.S. Ft.)		HORIZONTAL NAD83	
3. DRILLING AGENCY Corps of Engineers - CESAM		CONTRACTOR FILE NO.		11. MANUFACTURER'S DESIGNATION OF DRILL Vibrocure		<input type="checkbox"/> AUTO HAMMER <input type="checkbox"/> MANUAL HAMMER	
4. NAME OF DRILLER Construction Solutions International, Inc.				12. TOTAL SAMPLES		DISTURBED 0	
5. DIRECTION OF BORING <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED				13. TOTAL NUMBER CORE BOXES		UNDISTURBED (UD) 0	
6. THICKNESS OF OVERBURDEN N/A				14. WATER DEPTH		28 Ft.	
7. DEPTH DRILLED INTO ROCK N/A				15. DATE BORING		STARTED 06-26-10	
8. TOTAL DEPTH OF BORING 20.0 Ft.				16. ELEVATION TOP OF BORING		COMPLETED 06-26-10	
				17. TOTAL RECOVERY FOR BORING		100%	
				18. SIGNATURE AND TITLE OF INSPECTOR Marty Gates, Geologist			

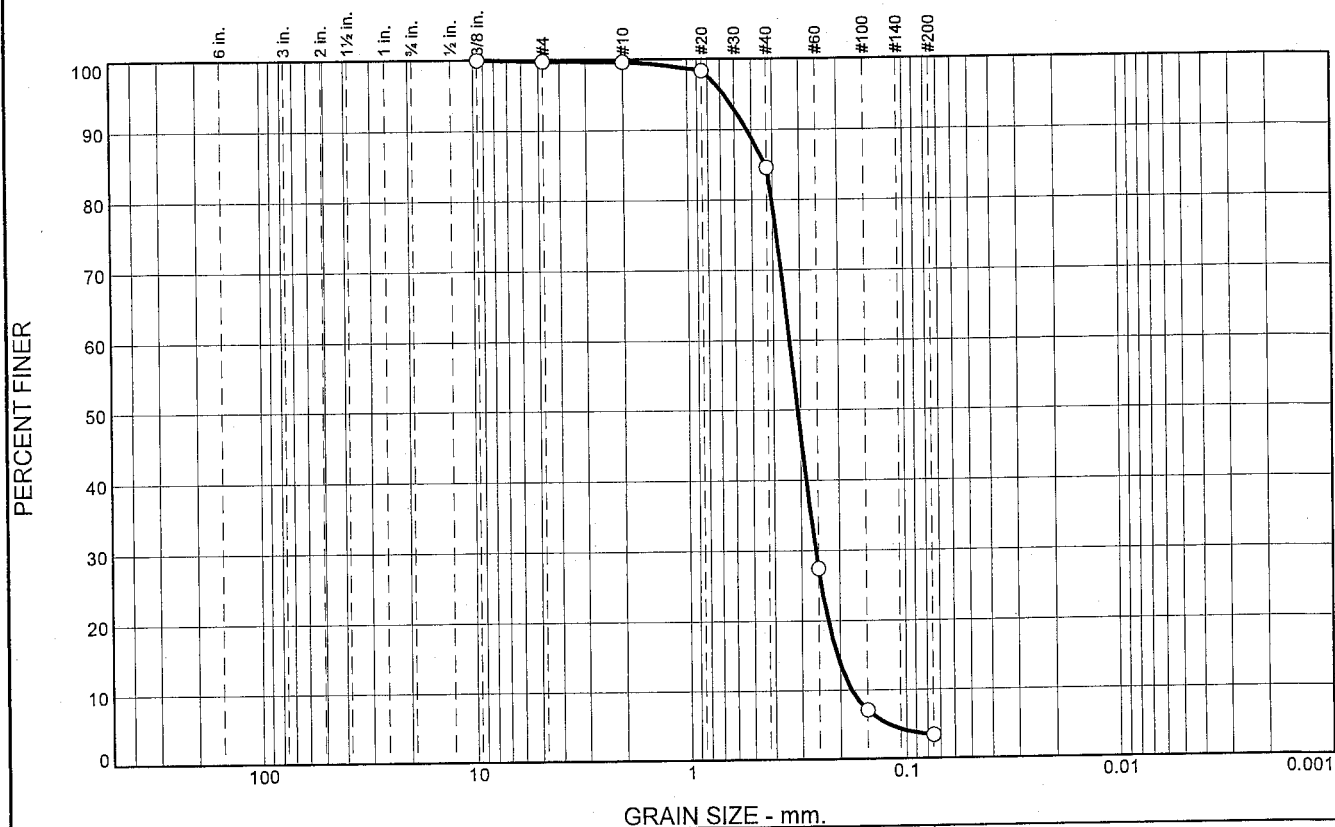
ELEV.	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS	SAMPLE	LABORATORY RESULTS
-26.6	0.0				
			CLAY, lean, dark gray (CL)		
				NS	
-45.6	19.0				
-46.6	20.0		SAND, silty, mostly medium-grained sand-sized quartz, some silt, gray (SM)		
			NOTES: 1. Soils are field visually classified in accordance with the Unified Soils Classification System. 2. NS = Sample not submitted for laboratory analysis from this interval.		

<b>DRILLING LOG (Cont. Sheet)</b>			<b>INSTALLATION</b> Mobile District		<b>SHEET 2</b> <b>OF 2 SHEETS</b>
<b>PROJECT</b> MsCIP Barrier Island Restoration			<b>COORDINATE SYSTEM/DATUM</b> State Plane, MSE (U.S. Ft.)	<b>HORIZONTAL</b> NAD83	<b>VERTICAL</b> NAVD88
<b>LOCATION COORDINATES</b> X = 1,150,383 Y = 258,337			<b>ELEVATION TOP OF BORING</b> -26.6 Ft.		
<b>ELEV.</b>	<b>DEPTH</b>	<b>LEGEND</b>	<b>CLASSIFICATION OF MATERIALS</b>	<b>SAMPLE</b>	<b>LABORATORY RESULTS</b>
			3. Seafloor elevation calculated using sampling vessel's fathometer water depth reading and applying NOAA tidal gauge data conversion factor.		

# Boring Designation BI-PB-018-10

DRILLING LOG		DIVISION South Atlantic		INSTALLATION Mobile District		SHEET 1 OF 1 SHEETS	
1. PROJECT MsCIP Barrier Island Restoration Petit Bois Pass- AL West				9. SIZE AND TYPE OF BIT N/A			
2. BORING DESIGNATION BI-PB-018-10		LOCATION COORDINATES E = 1,138,415 N = 255,697		10. COORDINATE SYSTEM/DATUM State Plane, MSE (U.S. Ft.)		HORIZONTAL NAD83 VERTICAL NAVD88	
3. DRILLING AGENCY Corps of Engineers - CESAM		CONTRACTOR FILE NO.		11. MANUFACTURER'S DESIGNATION OF DRILL Vibracore		<input type="checkbox"/> AUTO HAMMER <input type="checkbox"/> MANUAL HAMMER	
4. NAME OF DRILLER Construction Solutions International, Inc.				12. TOTAL SAMPLES 2		DISTURBED 0 UNDISTURBED (UD)	
5. DIRECTION OF BORING <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED		DEG. FROM VERTICAL		13. TOTAL NUMBER CORE BOXES			
		BEARING		14. WATER DEPTH 27 Ft.			
6. THICKNESS OF OVERBURDEN N/A				15. DATE BORING 07-09-10		STARTED 07-09-10 COMPLETED 07-09-10	
7. DEPTH DRILLED INTO ROCK N/A				16. ELEVATION TOP OF BORING -26.8 Ft.			
8. TOTAL DEPTH OF BORING 15.8 Ft.				17. TOTAL RECOVERY FOR BORING 100%			
				18. SIGNATURE AND TITLE OF INSPECTOR Valerie Morrow, Geotechnical Engineer			
ELEV.	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS	SAMPLE	LABORATORY RESULTS		
-26.8	0.0						
			SAND, poorly-graded, mostly fine-grained sand-sized quartz, lt. brown (SP)	A	Classification: SP Color: 10YR 6/2-light brownish gray D50: 0.309 mm % Fines: 3.4		
				B	Classification: SP Color: 10YR 6/2-light brownish gray D50: 0.3036 mm % Fines: 4.1		
-33.4	6.6						
			CLAY, fat, trace fine-grained sand-sized quartz, dk. blue gray (CH) At El. -33.8 Ft., dk. blue gray	NS			
-42.6	15.8						
			NOTES: 1. Soils are field visually classified in accordance with the Unified Soils Classification System. 2. NS = Sample not submitted for laboratory analysis from this interval. 3. Seafloor elevation calculated using sampling vessel's fathometer water depth reading and applying NOAA tidal gauge data conversion factor.				

# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.2	0.1	15.1	81.2	3.4	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
.375	100.0		
#4	99.8		
#10	99.7		
#20	98.4		
#40	84.6		
#60	27.4		
#100	7.1		
#200	3.4		

**Material Description**  
SAND, (SP), medium to fine grained

**Atterberg Limits**  
PL=      LL=      PI=

**Coefficients**  
 D<sub>90</sub>= 0.5255      D<sub>85</sub>= 0.4318      D<sub>60</sub>= 0.3360  
 D<sub>50</sub>= 0.3090      D<sub>30</sub>= 0.2572      D<sub>15</sub>= 0.2060  
 D<sub>10</sub>= 0.1777      C<sub>u</sub>= 1.89      C<sub>c</sub>= 1.11

**Classification**  
USCS= SP      AASHTO=

**Remarks**  
CADD CODE = CH10D965

\* (no specification provided)

Location: USACE Sample # BI-PB-18-10A  
Sample Number: TE Lab ID: 4578.08

Depth: 0.0 - 3.3 (ft.)

Date: 7/16/10

**Thompson Engineering**  
  
**Mobile, Alabama**

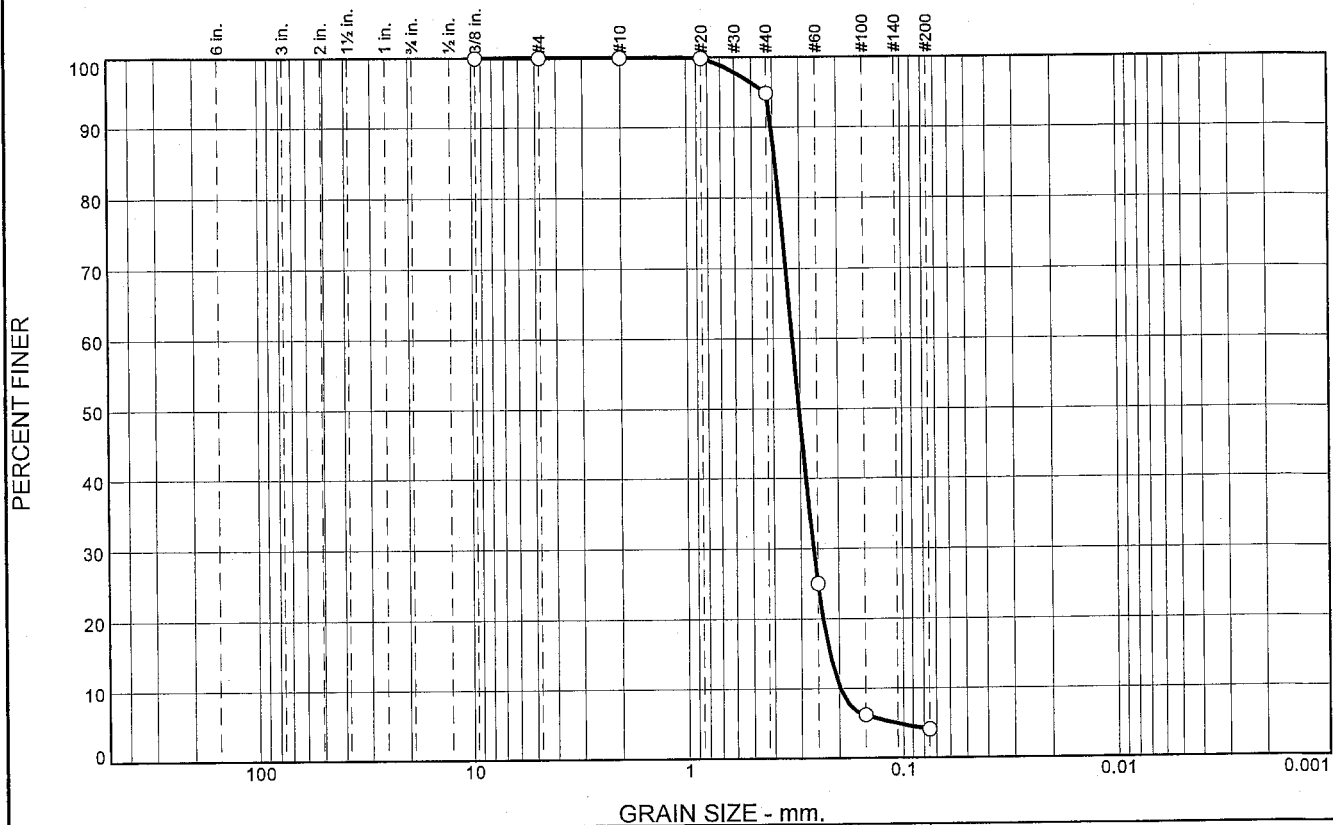
Client: US Army Corps of Engineers  
Project: Contract No. W91278-10-D-0026 - Task 03  
Mississippi Barrier Island Restoration Project  
Project No: 10-2123-0009

Figure

Tested By: G.Fancher

Checked By: R.Byrd

# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.0	0.0	5.1	90.8	4.1	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
.375	100.0		
#4	100.0		
#10	100.0		
#20	99.9		
#40	94.9		
#60	25.0		
#100	6.2		
#200	4.1		

\* (no specification provided)

**Material Description**  
SAND, (SP), fine grained

**Atterberg Limits**  
PL= LL= PI=

**Coefficients**  
D<sub>90</sub>= 0.4051 D<sub>85</sub>= 0.3882 D<sub>60</sub>= 0.3248  
D<sub>50</sub>= 0.3036 D<sub>30</sub>= 0.2617 D<sub>15</sub>= 0.2205  
D<sub>10</sub>= 0.1977 C<sub>u</sub>= 1.64 C<sub>c</sub>= 1.07

**Classification**  
USCS= SP AASHTO=

**Remarks**  
CADD CODE = CH10D965

Location: USACE Sample # BI-PB-18-10B  
Sample Number: TE Lab ID: 4578.09

Depth: 3.3 - 6.6 (ft.)

Date: 7/16/10

**Thompson Engineering**

**Mobile, Alabama**

Client: US Army Corps of Engineers

Project: Contract No. W91278-10-D-0026 - Task 03  
Mississippi Barrier Island Restoration Project

Project No: 10-2123-0009

Figure

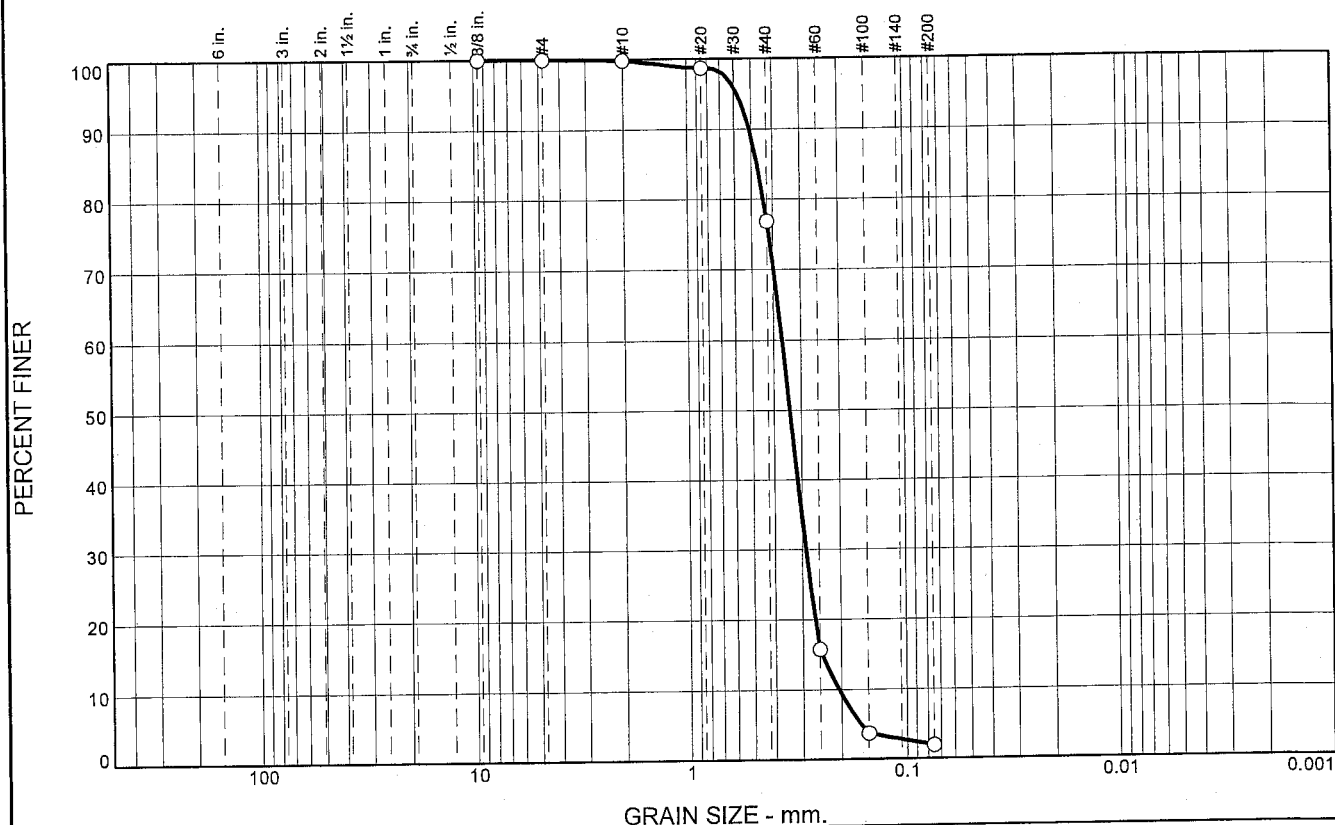
Tested By: G.Fancher

Checked By: R.Byrd

# Boring Designation BI-PB-019-10

DRILLING LOG		DIVISION South Atlantic		INSTALLATION Mobile District		SHEET 1 OF 1 SHEETS	
1. PROJECT MsCIP Barrier Island Restoration Petit Bois Pass- AL East				9. SIZE AND TYPE OF BIT N/A			
2. BORING DESIGNATION BI-PB-019-10		LOCATION COORDINATES E = 1,140,721 N = 255,806		10. COORDINATE SYSTEM/DATUM State Plane, MSE (U.S. Ft.)		HORIZONTAL NAD83 VERTICAL NAVD88	
3. DRILLING AGENCY Corps of Engineers - CESAM		CONTRACTOR FILE NO.		11. MANUFACTURER'S DESIGNATION OF DRILL Vibrocure		<input type="checkbox"/> AUTO HAMMER <input type="checkbox"/> MANUAL HAMMER	
4. NAME OF DRILLER Construction Solutions International, Inc.				12. TOTAL SAMPLES 2		DISTURBED 2 UNDISTURBED (UD) 0	
5. DIRECTION OF BORING <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED		DEG. FROM VERTICAL		13. TOTAL NUMBER CORE BOXES			
		BEARING		14. WATER DEPTH 30 Ft.			
6. THICKNESS OF OVERBURDEN N/A				15. DATE BORING 07-10-10		STARTED 07-10-10 COMPLETED 07-10-10	
7. DEPTH DRILLED INTO ROCK N/A				16. ELEVATION TOP OF BORING -28.3 Ft.			
8. TOTAL DEPTH OF BORING 18.0 Ft.				17. TOTAL RECOVERY FOR BORING 100%			
				18. SIGNATURE AND TITLE OF INSPECTOR Valerie Morrow, Geotechnical Engineer			
ELEV.	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS	SAMPLE	LABORATORY RESULTS		
-28.3	0.0						
			SAND, poorly-graded, mostly fine to medium-grained sand-sized quartz, lt. gray (SP)	A	Classification: SP Color: 2.5Y 7/2-light gray D50: 0.3382 mm % Fines: 1.9		
				B	Classification: SP Color: 2.5Y 8/1-white D50: 0.3338 mm % Fines: 2		
-36.9	8.6						
-39.2	10.9		SAND, clayey, mostly fine to medium-grained sand-sized quartz, some clay, gray (SC)				
			CLAY, fat, trace silt, dark gray (CH)	NS			
-46.3	18.0						
NOTES:							
1. Soils are field visually classified in accordance with the Unified Soils Classification System.							
2. NS = Sample not submitted for laboratory analysis from this interval.							
3. Seafloor elevation calculated using sampling vessel's fathometer water depth reading and applying NOAA tidal gauge data conversion factor.							

# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.0	0.2	23.0	74.9	1.9	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
.375	100.0		
#4	100.0		
#10	99.8		
#20	98.7		
#40	76.8		
#60	15.7		
#100	3.7		
#200	1.9		

\* (no specification provided)

## Material Description

SAND, (SP), medium to fine grained

## Atterberg Limits

PL=

LL=

PI=

## Coefficients

D<sub>90</sub>= 0.5095

D<sub>85</sub>= 0.4692

D<sub>60</sub>= 0.3658

D<sub>50</sub>= 0.3382

D<sub>30</sub>= 0.2883

D<sub>15</sub>= 0.2445

D<sub>10</sub>= 0.2052

C<sub>u</sub>= 1.78

C<sub>c</sub>= 1.11

## Classification

USCS= SP

AASHTO=

## Remarks

CADD CODE = CH10D965

Location: USACE Sample # BI-PB-19-10A  
Sample Number: TE Lab ID: 4578.10

Depth: 0.0 - 4.3 (ft.)

Date: 7/16/10

**Thompson Engineering**

**Mobile, Alabama**

Client: US Army Corps of Engineers

Project: Contract No. W91278-10-D-0026 - Task 03  
Mississippi Barrier Island Restoration Project

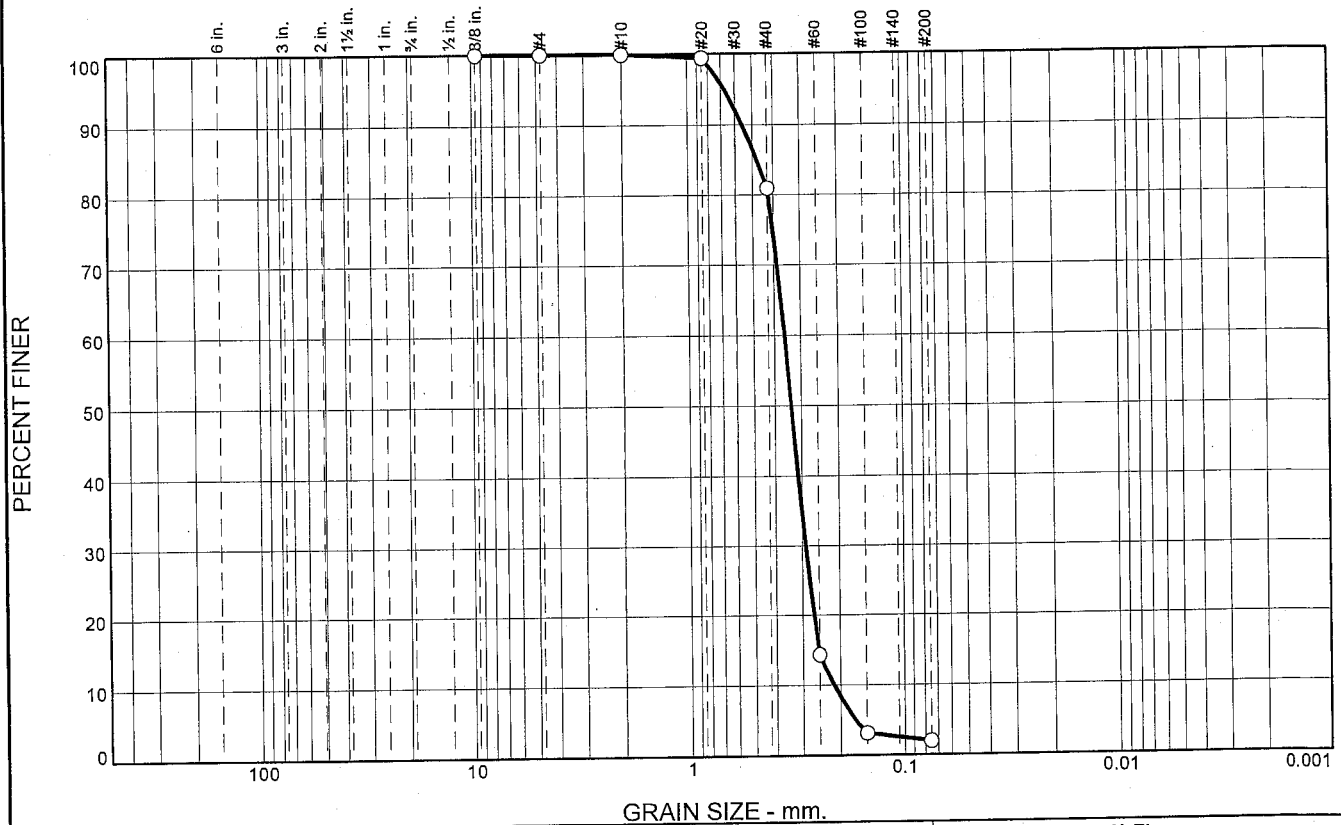
Project No: 10-2123-0009

Figure

Tested By: G.Fancher

Checked By: R.Byrd

# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.0	0.0	19.0	79.0	2.0	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
.375	100.0		
#4	100.0		
#10	100.0		
#20	99.4		
#40	81.0		
#60	14.3		
#100	3.1		
#200	2.0		

## Material Description

SAND, (SP), medium to fine grained

## Atterberg Limits

PL= LL= PI=

## Coefficients

D<sub>90</sub>= 0.5555 D<sub>85</sub>= 0.4749 D<sub>60</sub>= 0.3584  
D<sub>50</sub>= 0.3338 D<sub>30</sub>= 0.2886 D<sub>15</sub>= 0.2520  
D<sub>10</sub>= 0.2143 C<sub>u</sub>= 1.67 C<sub>c</sub>= 1.08

## Classification

USCS= SP AASHTO=

## Remarks

CADD CODE = CH10D965

\* (no specification provided)

Location: USACE Sample # BI-PB-19-10B  
Sample Number: TE Lab ID: 4578.11

Depth: 4.3 - 8.6 (ft.)

Date: 7/16/10

**Thompson Engineering**  
**Mobile, Alabama**

Client: US Army Corps of Engineers  
Project: Contract No. W91278-10-D-0026 - Task 03  
Mississippi Barrier Island Restoration Project  
Project No: 10-2123-0009

Figure

Tested By: G.Fancher

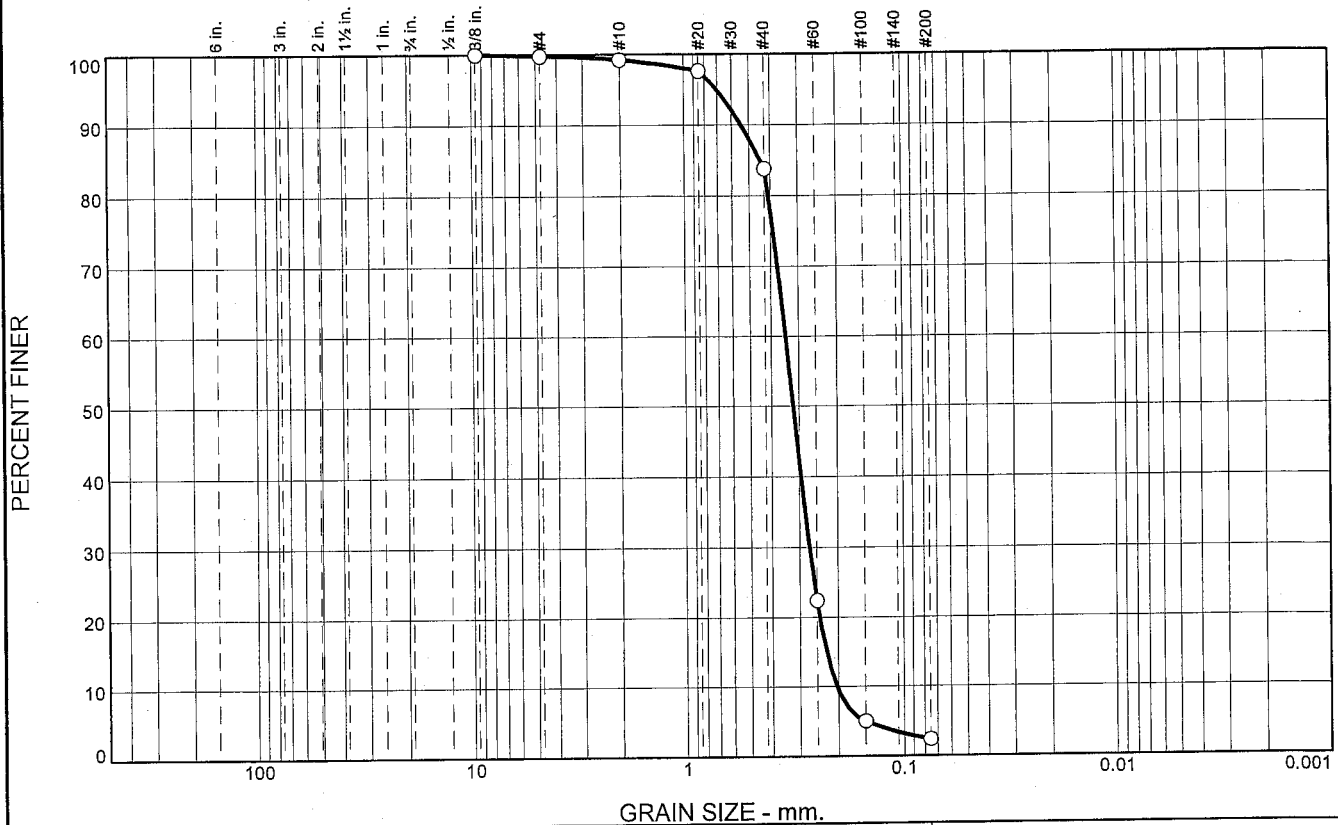
Checked By: R.Byrd



# Boring Designation BI-PB-020-10

DRILLING LOG		DIVISION South Atlantic		INSTALLATION Mobile District		SHEET 1 OF 1 SHEETS	
1. PROJECT MsCIP Barrier Island Restoration Petit Bois Pass- AL East				9. SIZE AND TYPE OF BIT N/A			
2. BORING DESIGNATION BI-PB-020-10		LOCATION COORDINATES E = 1,142,190 N = 255,783		10. COORDINATE SYSTEM/DATUM State Plane, MSE (U.S. Ft.)		HORIZONTAL NAD83 VERTICAL NAVD88	
3. DRILLING AGENCY Corps of Engineers - CESAM		CONTRACTOR FILE NO.		11. MANUFACTURER'S DESIGNATION OF DRILL Vibrocure		<input type="checkbox"/> AUTO HAMMER <input type="checkbox"/> MANUAL HAMMER	
4. NAME OF DRILLER Construction Solutions International, Inc.				12. TOTAL SAMPLES 4		DISTURBED 4 UNDISTURBED (UD) 0	
5. DIRECTION OF BORING <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED		DEG. FROM VERTICAL		13. TOTAL NUMBER CORE BOXES			
		BEARING		14. WATER DEPTH 27 Ft.			
6. THICKNESS OF OVERBURDEN N/A				15. DATE BORING 07-10-10		STARTED 07-10-10 COMPLETED 07-10-10	
7. DEPTH DRILLED INTO ROCK N/A				16. ELEVATION TOP OF BORING -25.3 Ft.			
8. TOTAL DEPTH OF BORING 17.0 Ft.				17. TOTAL RECOVERY FOR BORING 100%			
				18. SIGNATURE AND TITLE OF INSPECTOR Valerie Morrow, Geotechnical Engineer			
ELEV.	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS	SAMPLE	LABORATORY RESULTS		
-25.3	0.0						
			SAND, poorly-graded, mostly fine to medium-grained sand-sized quartz, lt. gray (SP)	A	Classification: SP Color: 2.5Y 7/2-light gray D50: 0.3183 mm % Fines: 2.3		
				B	Classification: SP Color: 2.5Y 7/2-light gray D50: 0.3265 mm % Fines: 1.9		
				C	Classification: SP Color: 2.5Y 7/2-light gray D50: 0.3176 mm % Fines: 2		
				D	Classification: SP Color: 2.5Y 7/1-light gray D50: 0.3032 mm % Fines: 3.4		
-42.3	17.0						
			NOTES: 1. Soils are field visually classified in accordance with the Unified Soils Classification System. 2. NS = Sample not submitted for laboratory analysis from this interval. 3. Seafloor elevation calculated using sampling vessel's fathometer water depth reading and applying NOAA tidal gauge data conversion factor.				

# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.2	0.6	15.4	81.5	2.3	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
.375	100.0		
#4	99.8		
#10	99.2		
#20	97.7		
#40	83.8		
#60	22.4		
#100	5.0		
#200	2.3		

\* (no specification provided)

**Material Description**  
SAND, (SP), medium to fine grained

**Atterberg Limits**  
PL=      LL=      PI=

**Coefficients**  
D<sub>90</sub>= 0.5434      D<sub>85</sub>= 0.4442      D<sub>60</sub>= 0.3439  
D<sub>50</sub>= 0.3183      D<sub>30</sub>= 0.2700      D<sub>15</sub>= 0.2260  
D<sub>10</sub>= 0.2033      C<sub>u</sub>= 1.69      C<sub>c</sub>= 1.04

**Classification**  
USCS= SP      AASHTO=

**Remarks**  
CADD CODE = CH10D965

Location: USACE Sample # BI-PB-20-10A  
Sample Number: TE Lab ID: 4578.12

Depth: 0.0 - 4.4 (ft.)

Date: 7/16/10

**Thompson Engineering**  
**Mobile, Alabama**

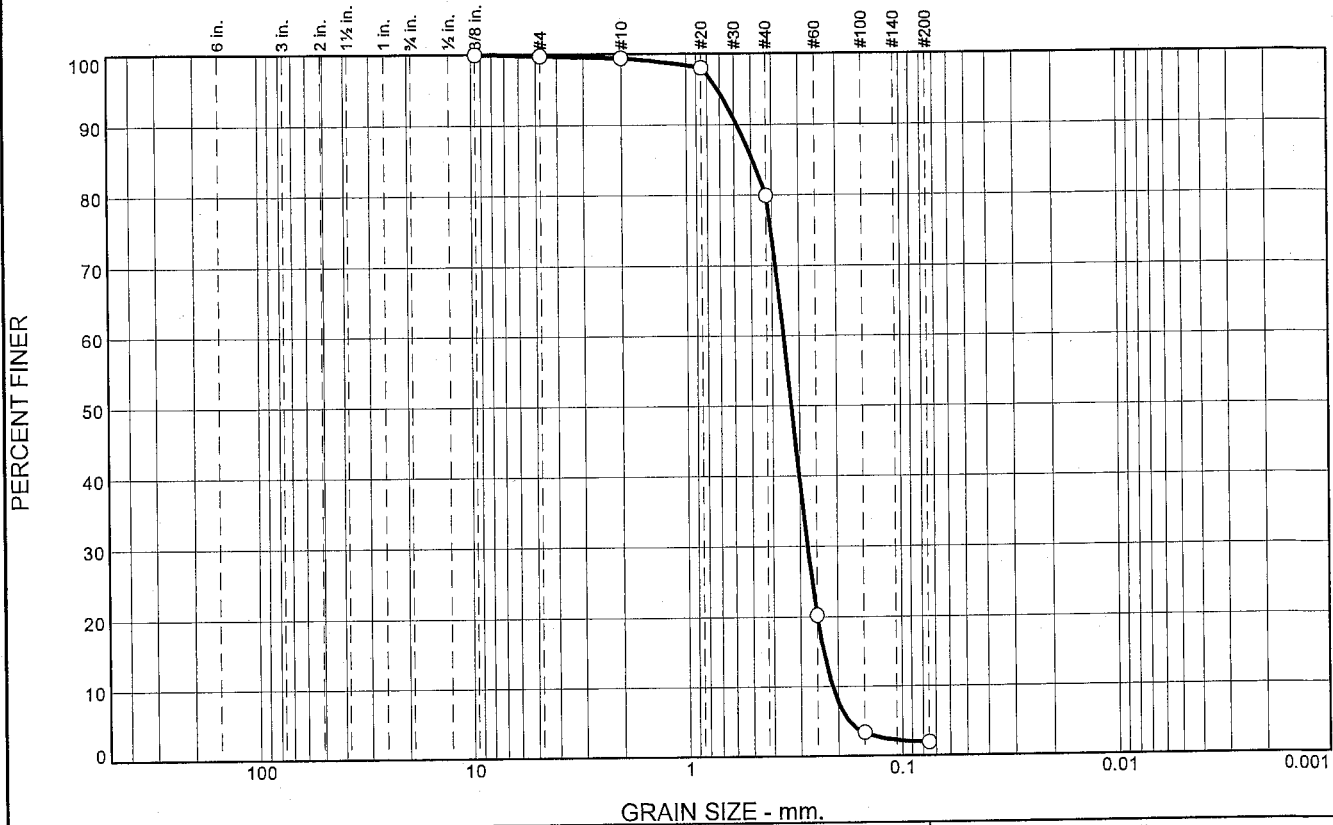
Client: US Army Corps of Engineers  
Project: Contract No. W91278-10-D-0026 - Task 03  
Mississippi Barrier Island Restoration Project  
Project No: 10-2123-0009

Figure

Tested By: G.Fancher

Checked By: R.Byrd

# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.2	0.4	19.5	78.0	1.9	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
.375	100.0		
#4	99.8		
#10	99.4		
#20	98.1		
#40	79.9		
#60	20.2		
#100	3.4		
#200	1.9		

\* (no specification provided)

**Material Description**  
SAND, (SP), medium to fine grained

**Atterberg Limits**  
PL=      LL=      PI=

**Coefficients**  
D<sub>90</sub>= 0.5814      D<sub>85</sub>= 0.4919      D<sub>60</sub>= 0.3539  
D<sub>50</sub>= 0.3265      D<sub>30</sub>= 0.2763      D<sub>15</sub>= 0.2331  
D<sub>10</sub>= 0.2126      C<sub>u</sub>= 1.66      C<sub>c</sub>= 1.01

**Classification**  
USCS= SP      AASHTO=

**Remarks**  
CADD CODE = CH10D965

Location: USACE Sample # BI-PB-20-10B  
Sample Number: TE Lab ID: 4578.13

Depth: 4.0 - 8.0 (ft.)

Date: 7/16/10

**Thompson Engineering**  
  
**Mobile, Alabama**

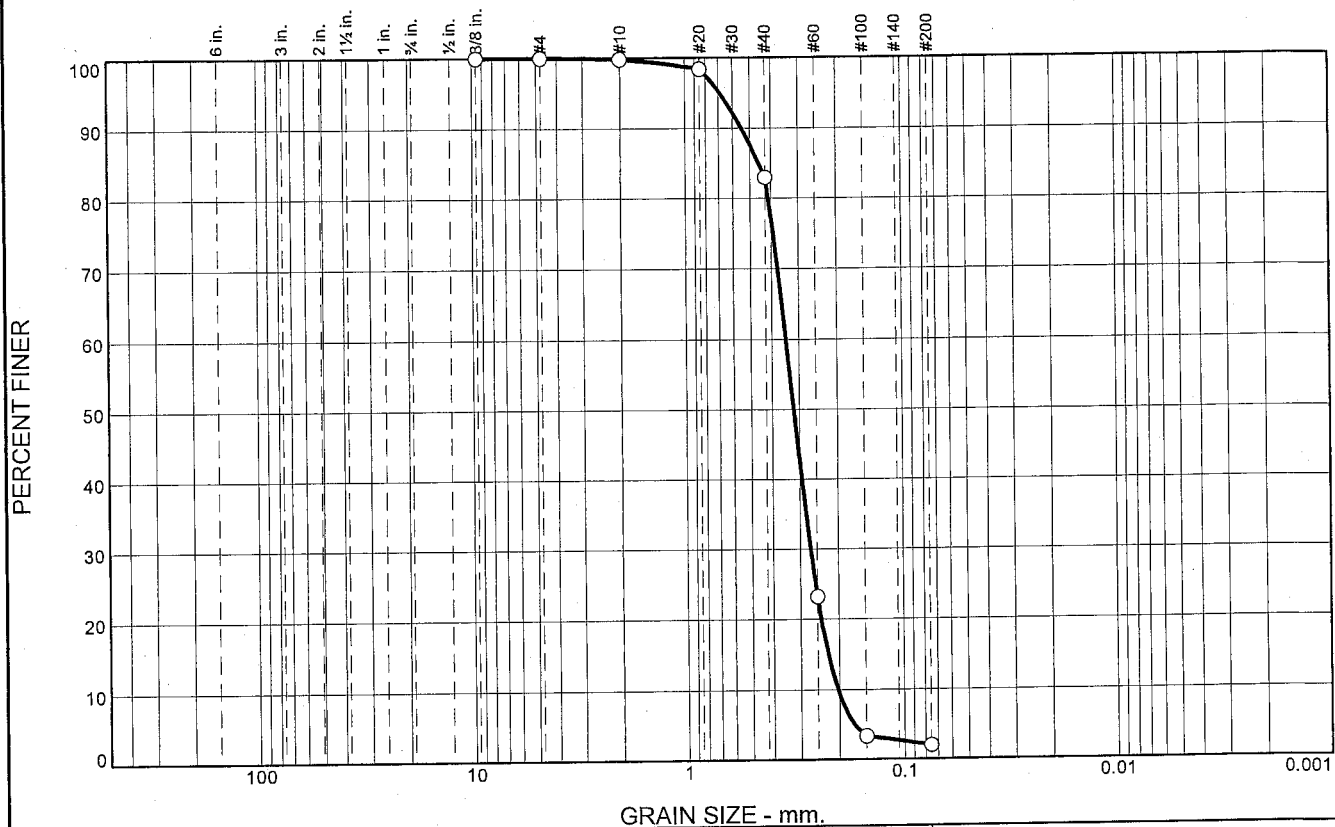
Client: US Army Corps of Engineers  
Project: Contract No. W91278-10-D-0026 - Task 03  
Mississippi Barrier Island Restoration Project  
Project No: 10-2123-0009

Figure

Tested By: G.Fancher

Checked By: R.Byrd

# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.0	0.2	16.9	80.9	2.0	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
.375	100.0		
#4	100.0		
#10	99.8		
#20	98.4		
#40	82.9		
#60	23.2		
#100	3.4		
#200	2.0		

\* (no specification provided)

**Material Description**  
SAND, (SP), medium to fine grained, with clay nodules

**Atterberg Limits**  
PL= LL= PI=

**Coefficients**  
D<sub>90</sub>= 0.5461 D<sub>85</sub>= 0.4546 D<sub>60</sub>= 0.3441  
D<sub>50</sub>= 0.3176 D<sub>30</sub>= 0.2681 D<sub>15</sub>= 0.2242  
D<sub>10</sub>= 0.2033 C<sub>u</sub>= 1.69 C<sub>c</sub>= 1.03

**Classification**  
USCS= SP AASHTO=

**Remarks**  
CADD CODE = CH10D965

Location: USACE Sample # BI-PB-20-10C  
Sample Number: TE Lab ID: 4578.14

Depth: 8.0 - 12.0 (ft.)

Date: 7/16/10

**Thompson Engineering**  
**Mobile, Alabama**

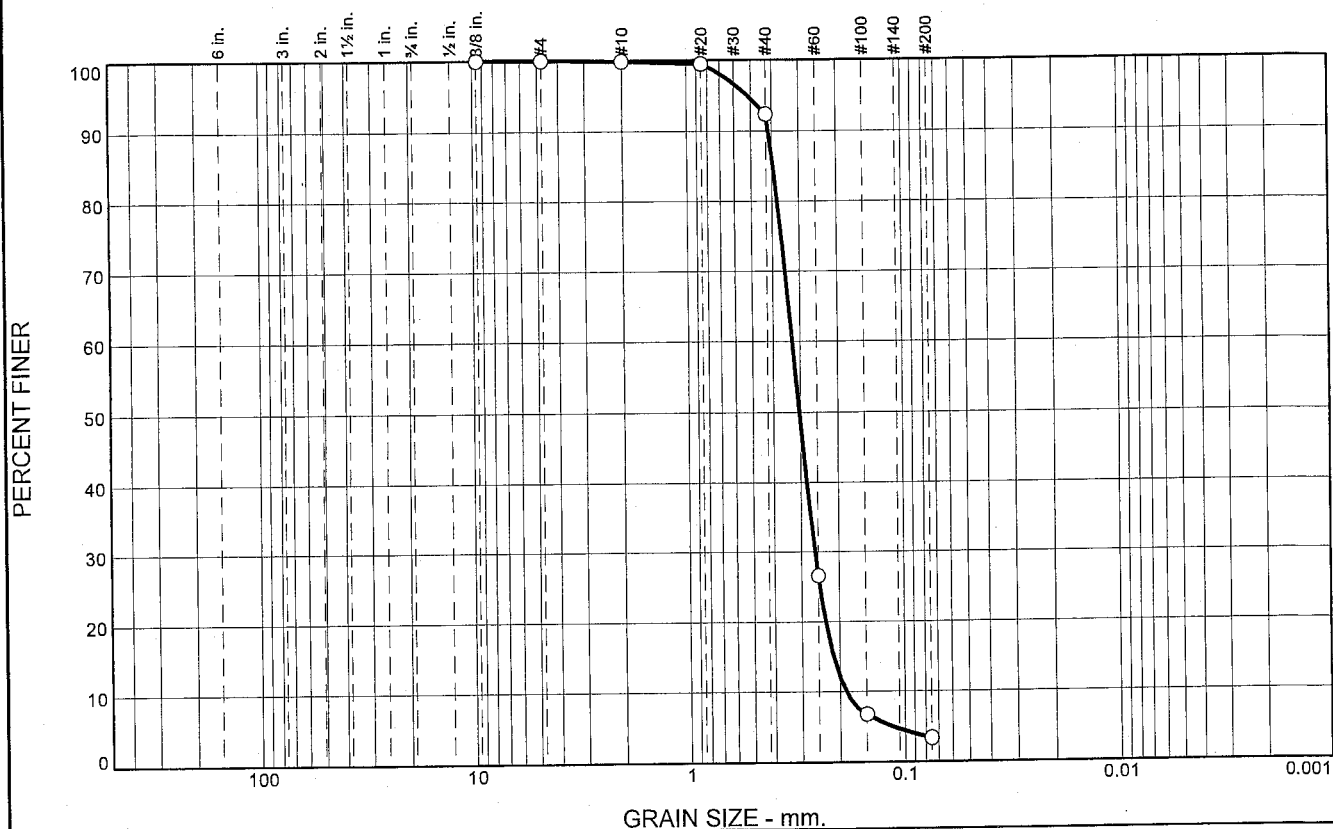
Client: US Army Corps of Engineers  
Project: Contract No. W91278-10-D-0026 - Task 03  
Mississippi Barrier Island Restoration Project  
Project No: 10-2123-0009

Figure

Tested By: G.Fancher

Checked By: R.Byrd

# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.0	0.2	7.4	89.0	3.4	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
.375	100.0		
#4	100.0		
#10	99.8		
#20	99.5		
#40	92.4		
#60	26.5		
#100	6.8		
#200	3.4		

**Material Description**  
SAND, (SP), fine grained

**Atterberg Limits**  
PL=      LL=      PI=

**Coefficients**  
D<sub>90</sub>= 0.4142      D<sub>85</sub>= 0.3949      D<sub>60</sub>= 0.3258  
D<sub>50</sub>= 0.3032      D<sub>30</sub>= 0.2586      D<sub>15</sub>= 0.2136  
D<sub>10</sub>= 0.1875      C<sub>u</sub>= 1.74      C<sub>c</sub>= 1.09

**Classification**  
USCS= SP      AASHTO=

**Remarks**  
CADD CODE = CH10D965

\* (no specification provided)

Location: USACE Sample # BI-PB-20-10D  
Sample Number: TE Lab ID: 4578.15

Depth: 12.0 - 17.0 (ft.)

Date: 7/16/10

**Thompson Engineering**  
**Mobile, Alabama**

Client: US Army Corps of Engineers  
Project: Contract No. W91278-10-D-0026 - Task 03  
Mississippi Barrier Island Restoration Project  
Project No: 10-2123-0009

Figure

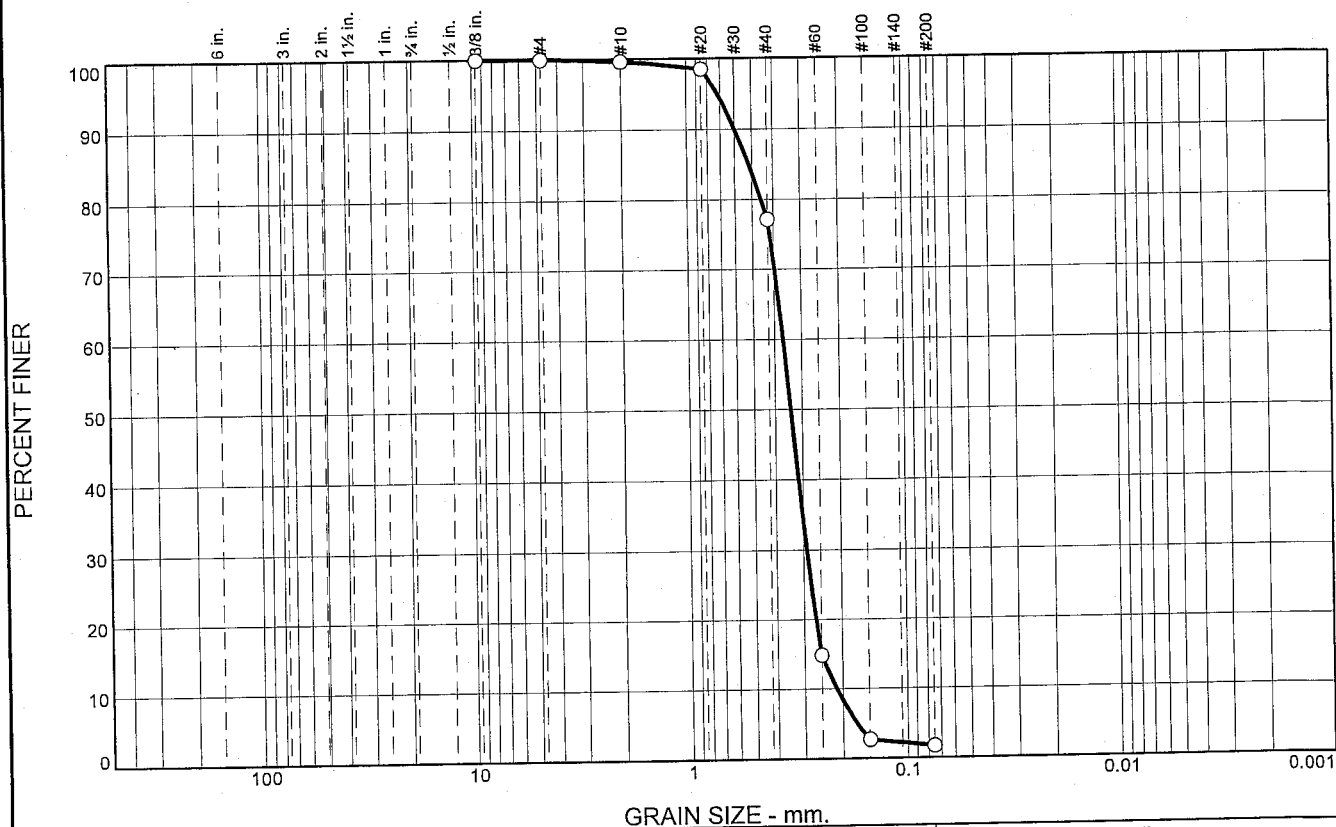
Tested By: G.Fancher

Checked By: R.Byrd

# Boring Designation BI-PB-021-10

DRILLING LOG		DIVISION South Atlantic		INSTALLATION Mobile District		SHEET 1 OF 1 SHEETS	
1. PROJECT MsCIP Barrier Island Restoration Petit Bois Pass- AL East				9. SIZE AND TYPE OF BIT N/A			
2. BORING DESIGNATION BI-PB-021-10		LOCATION COORDINATES E = 1,146,395 N = 255,809		10. COORDINATE SYSTEM/DATUM State Plane, MSE (U.S. Ft.)		HORIZONTAL NAD83 VERTICAL NAVD88	
3. DRILLING AGENCY Corps of Engineers - CESAM		CONTRACTOR FILE NO.		11. MANUFACTURER'S DESIGNATION OF DRILL Vibrocure		<input type="checkbox"/> AUTO HAMMER <input type="checkbox"/> MANUAL HAMMER	
4. NAME OF DRILLER Construction Solutions International, Inc.				12. TOTAL SAMPLES 5		DISTURBED 0 UNDISTURBED (UD)	
5. DIRECTION OF BORING <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED		DEG. FROM VERTICAL		13. TOTAL NUMBER CORE BOXES			
		BEARING		14. WATER DEPTH 33 Ft.			
6. THICKNESS OF OVERBURDEN N/A				15. DATE BORING 07-10-10		STARTED 07-10-10 COMPLETED 07-10-10	
7. DEPTH DRILLED INTO ROCK N/A				16. ELEVATION TOP OF BORING -31.2 Ft.			
8. TOTAL DEPTH OF BORING 18.5 Ft.				17. TOTAL RECOVERY FOR BORING 100%			
				18. SIGNATURE AND TITLE OF INSPECTOR Valerie Morrow, Geotechnical Engineer			
ELEV.	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS	SAMPLE	LABORATORY RESULTS		
-31.2	0.0						
			SAND, poorly-graded, mostly fine to medium-grained sand-sized quartz, lt. gray (SP)	A	Classification: SP Color: 2.5Y 7/1-light gray D50: 0.3387 mm % Fines: 1.7		
				B	Classification: SP Color: 2.5Y 7/1-light gray D50: 0.3309 mm % Fines: 1.9		
				C	Classification: SP Color: 2.5Y 7/2-light gray D50: 0.3319 mm % Fines: 2.9		
-42.6	11.4		SAND, silty, mostly fine to medium-grained sand-sized quartz, some silt, lt. gray (SM)	D	Classification: SP-SM Color: 2.5Y 7/2-light gray D50: 0.3225 mm % Fines: 6.3		
				E	Classification: SP-SM Color: 2.5Y 7/2-light gray D50: 0.3838 mm % Fines: 8.9		
-49.7	18.5						
			NOTES:				
			1. Soils are field visually classified in accordance with the Unified Soils Classification System.				
			2. NS = Sample not submitted for laboratory analysis from this interval.				
			3. Seafloor elevation determined from 2010 USACE survey.				

# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.0	0.4	22.5	75.4	1.7	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
.375	100.0		
#4	100.0		
#10	99.6		
#20	98.5		
#40	77.1		
#60	14.8		
#100	2.7		
#200	1.7		

\* (no specification provided)

## Material Description

SAND, (SP), medium to fine grained

PL=      Atterberg Limits      LL=      PI=

Coefficients  
D<sub>90</sub>= 0.5989      D<sub>85</sub>= 0.5165      D<sub>60</sub>= 0.3658  
D<sub>50</sub>= 0.3387      D<sub>30</sub>= 0.2898      D<sub>15</sub>= 0.2506  
D<sub>10</sub>= 0.2133      C<sub>u</sub>= 1.72      C<sub>c</sub>= 1.08

Classification  
USCS= SP      AASHTO=

Remarks  
CADD CODE = CH10D965

Location: USACE Sample # BI-PB-21-10A  
Sample Number: TE Lab ID: 4578.16

Depth: 0.0 - 4.0 (ft.)

Date: 7/16/10

**Thompson Engineering**

**Mobile, Alabama**

Client: US Army Corps of Engineers  
Project: Contract No. W91278-10-D-0026 - Task 03  
Mississippi Barrier Island Restoration Project

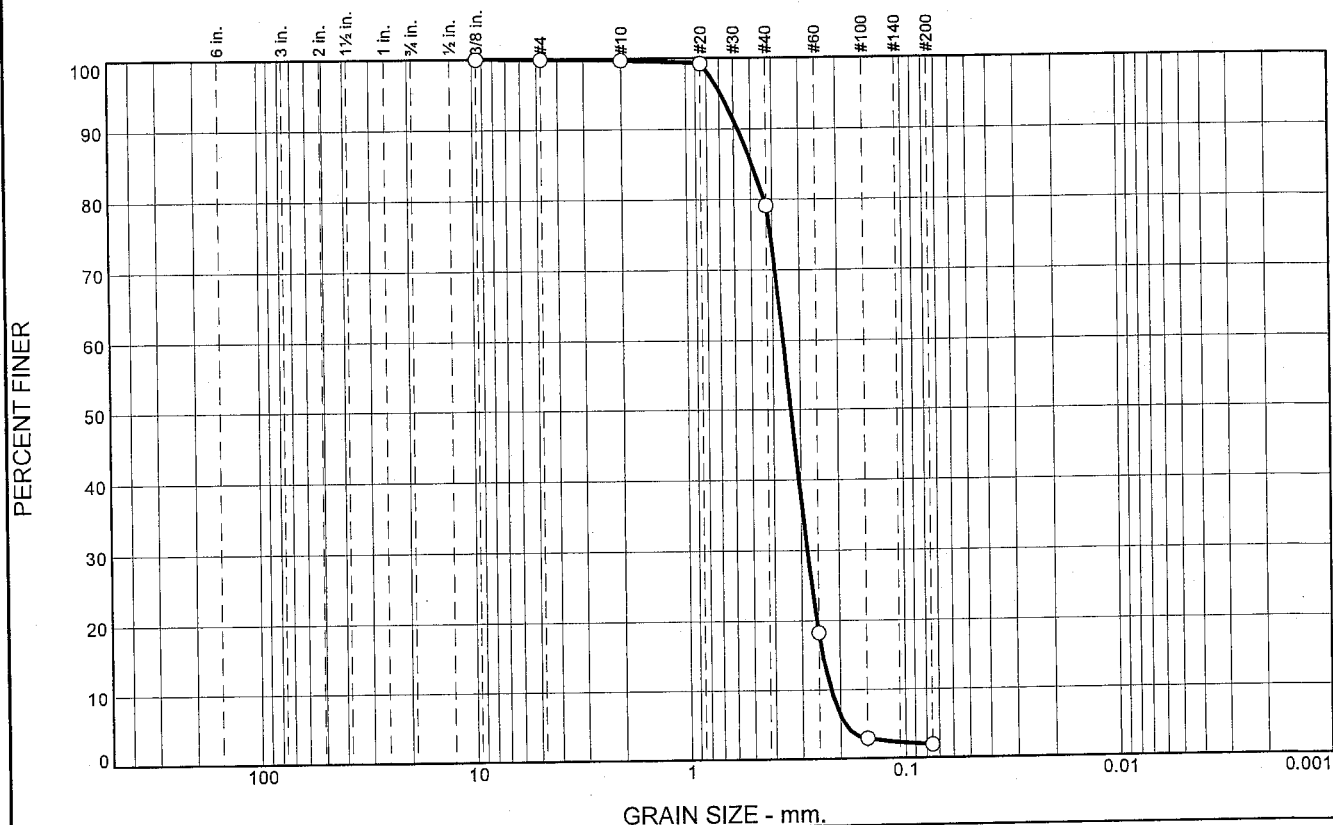
Project No: 10-2123-0009

Figure

Tested By: G.Fancher

Checked By: R.Byrd

# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.1	0.2	20.6	77.2	1.9	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
.375	100.0		
#4	99.9		
#10	99.7		
#20	99.3		
#40	79.1		
#60	18.2		
#100	2.9		
#200	1.9		

\* (no specification provided)

## Material Description

SAND, (SP), medium to fine grained

## Atterberg Limits

PL=

LL=

PI=

## Coefficients

D<sub>90</sub>= 0.5737

D<sub>85</sub>= 0.4943

D<sub>60</sub>= 0.3581

D<sub>50</sub>= 0.3309

D<sub>30</sub>= 0.2813

D<sub>15</sub>= 0.2398

D<sub>10</sub>= 0.2206

C<sub>u</sub>= 1.62

C<sub>c</sub>= 1.00

## Classification

USCS= SP

AASHTO=

## Remarks

CADD CODE = CH10D965

Location: USACE Sample # BI-PB-21-10B  
Sample Number: TE Lab ID: 4578.17

Depth: 4.0 - 8.0 (ft.)

Date: 7/16/10

**Thompson Engineering**

**Mobile, Alabama**

Client: US Army Corps of Engineers

Project: Contract No. W91278-10-D-0026 - Task 03  
Mississippi Barrier Island Restoration Project

Project No: 10-2123-0009

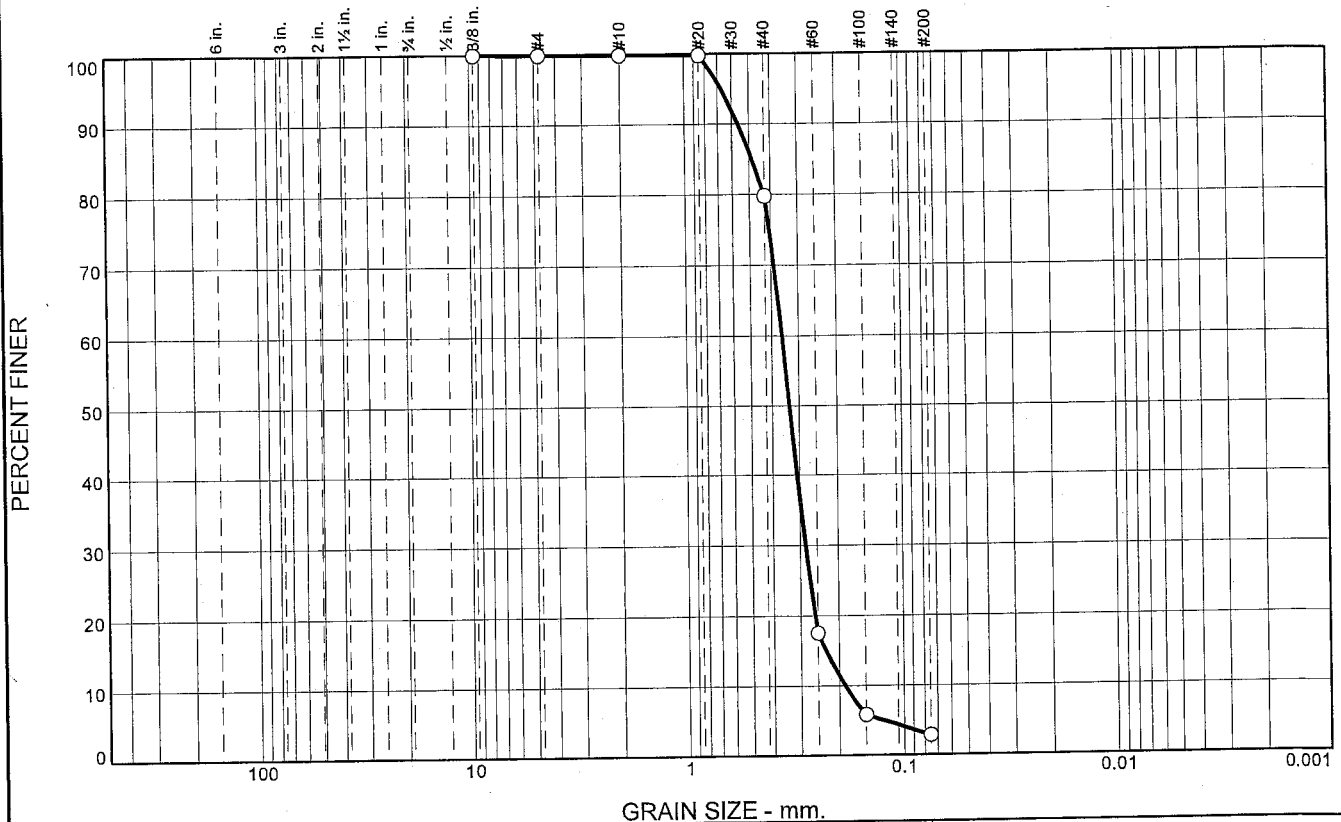
Figure

Tested By: G.Fancher

Checked By: R.Byrd



# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.1	0.0	20.2	76.8	2.9	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
.375	100.0		
#4	99.9		
#10	99.9		
#20	99.8		
#40	79.7		
#60	17.5		
#100	5.8		
#200	2.9		

\* (no specification provided)

**Material Description**  
SAND, (SP), medium to fine grained

**Atterberg Limits**  
PL=      LL=      PI=

**Coefficients**  
D<sub>90</sub>= 0.5624      D<sub>85</sub>= 0.4858      D<sub>60</sub>= 0.3582  
D<sub>50</sub>= 0.3319      D<sub>30</sub>= 0.2833      D<sub>15</sub>= 0.2293  
D<sub>10</sub>= 0.1879      C<sub>u</sub>= 1.91      C<sub>c</sub>= 1.19

**Classification**  
USCS= SP      AASHTO=

**Remarks**  
CADD CODE = CH10D965

Location: USACE Sample # BI-PB-21-10C  
Sample Number: TE Lab ID: 4578.18

Depth: 8.0 - 11.4 (ft.)

Date: 7/16/10

**Thompson Engineering**  
  
**Mobile, Alabama**

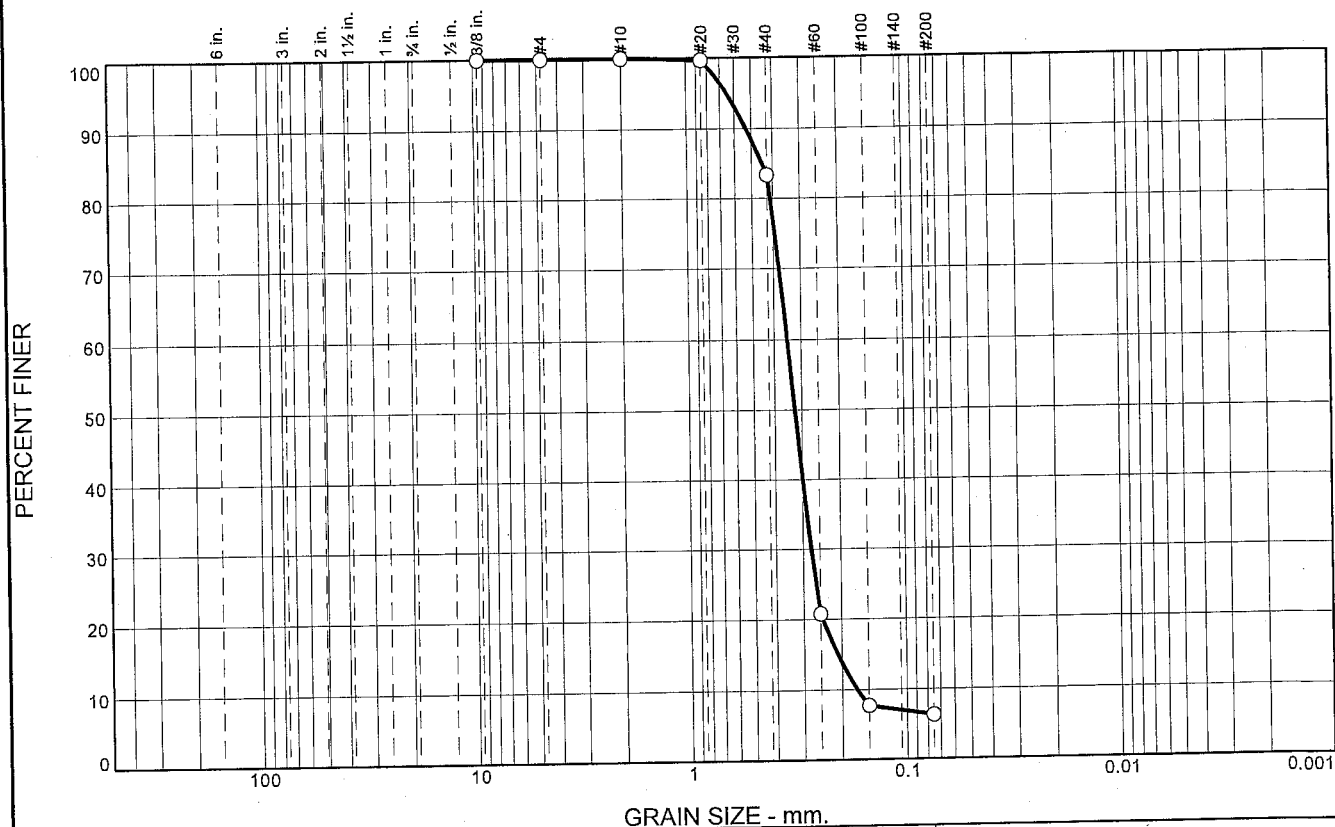
Client: US Army Corps of Engineers  
Project: Contract No. W91278-10-D-0026 - Task 03  
Mississippi Barrier Island Restoration Project  
Project No: 10-2123-0009

Figure

Tested By: G.Fancher

Checked By: R.Byrd

# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.0	0.0	16.7	77.0	6.3	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
.375	100.0		
#4	100.0		
#10	100.0		
#20	99.7		
#40	83.3		
#60	20.8		
#100	7.7		
#200	6.3		

\* (no specification provided)

**Material Description**  
SAND, (SP-SM), medium to fine grained

**Atterberg Limits**  
PL= LL= PI=

**Coefficients**  
 D<sub>90</sub>= 0.5284 D<sub>85</sub>= 0.4473 D<sub>60</sub>= 0.3478  
 D<sub>50</sub>= 0.3225 D<sub>30</sub>= 0.2746 D<sub>15</sub>= 0.2088  
 D<sub>10</sub>= 0.1704 C<sub>u</sub>= 2.04 C<sub>c</sub>= 1.27

**Classification**  
USCS= SP-SM AASHTO=

**Remarks**  
CADD CODE = CH10D965

Location: USACE Sample # BI-PB-21-10D  
Sample Number: TE Lab ID: 4578.19

Depth: 11.4 - 14.5 (ft.)

Date: 7/16/10

**Thompson Engineering**  
**Mobile, Alabama**

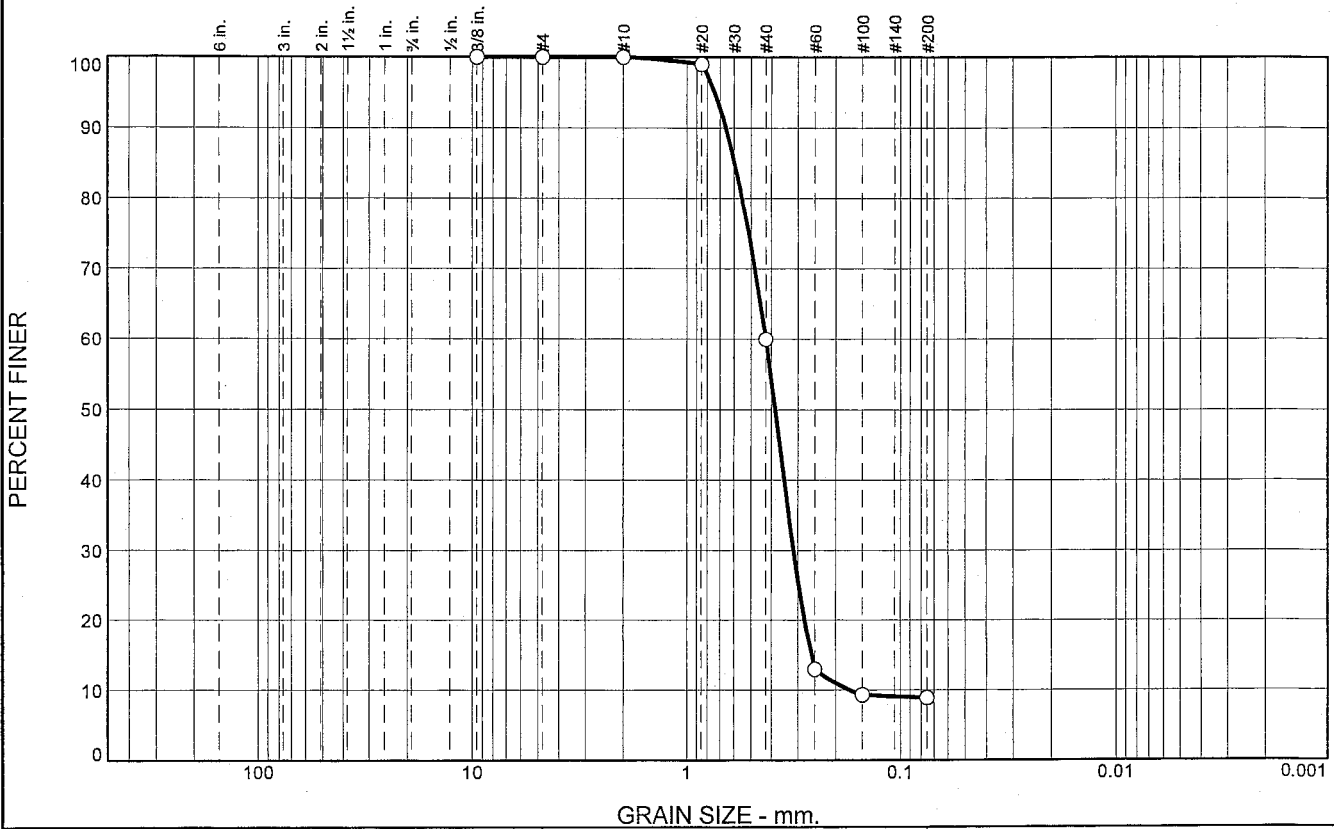
Client: US Army Corps of Engineers  
Project: Contract No. W91278-10-D-0026 - Task 03  
Mississippi Barrier Island Restoration Project  
Project No: 10-2123-0009

Figure

Tested By: G.Fancher

Checked By: R.Byrd

# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.0	0.0	40.1	51.0	8.9	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
.375	100.0		
#4	100.0		
#10	100.0		
#20	99.0		
#40	59.9		
#60	12.9		
#100	9.3		
#200	8.9		

**Material Description**  
SAND, (SP-SM), medium to fine grained

**Atterberg Limits**  
 PL=      LL=      PI=

**Coefficients**  
 D<sub>90</sub>= 0.6561      D<sub>85</sub>= 0.5957      D<sub>60</sub>= 0.4254  
 D<sub>50</sub>= 0.3838      D<sub>30</sub>= 0.3139      D<sub>15</sub>= 0.2596  
 D<sub>10</sub>= 0.1722      C<sub>u</sub>= 2.47      C<sub>c</sub>= 1.35

**Classification**  
 USCS= SP-SM      AASHTO=

**Remarks**  
 CADD CODE = CH10D965

\* (no specification provided)

Location: USACE Sample # BI-PB-21-10E  
 Sample Number: TE Lab ID: 4578.20

Depth: 14.5 - 18.5 (ft.)

Date: 7/16/10

**Thompson Engineering**  
  
**Mobile, Alabama**

**Client:** US Army Corps of Engineers  
**Project:** Contract No. W91278-10-D-0026 - Task 03  
 Mississippi Barrier Island Restoration Project  
**Project No:** 10-2123-0009

**Figure**

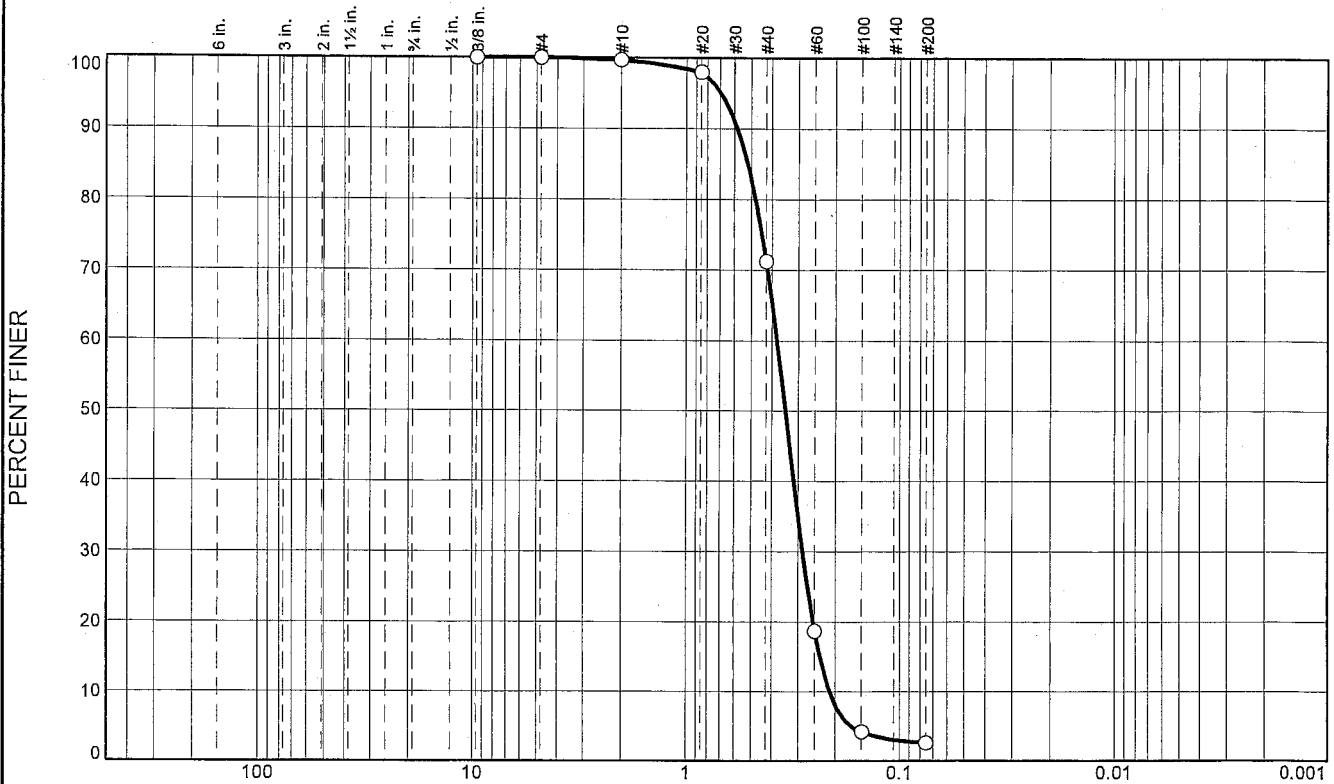
Tested By: G.Fancher

Checked By: R.Byrd

# Boring Designation BI-PB-022-10

DRILLING LOG		DIVISION South Atlantic		INSTALLATION Mobile District		SHEET 1 OF 1 SHEETS	
1. PROJECT MsCIP Barrier Island Restoration Petit Bois Pass- AL East				9. SIZE AND TYPE OF BIT N/A			
2. BORING DESIGNATION BI-PB-022-10		LOCATION COORDINATES E = 1,146,771 N = 255,731		10. COORDINATE SYSTEM/DATUM State Plane, MSE (U.S. Ft.)		HORIZONTAL NAD83	
3. DRILLING AGENCY Corps of Engineers - CESAM		CONTRACTOR FILE NO.		11. MANUFACTURER'S DESIGNATION OF DRILL Vibrocure		<input type="checkbox"/> AUTO HAMMER <input type="checkbox"/> MANUAL HAMMER	
4. NAME OF DRILLER Construction Solutions International, Inc.				12. TOTAL SAMPLES 5		UNDISTURBED (UD) 0	
5. DIRECTION OF BORING <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED		DEG. FROM VERTICAL		13. TOTAL NUMBER CORE BOXES		14. WATER DEPTH 33 Ft.	
6. THICKNESS OF OVERBURDEN N/A		7. DEPTH DRILLED INTO ROCK N/A		15. DATE BORING 07-10-10		STARTED 07-10-10	
8. TOTAL DEPTH OF BORING 18.6 Ft.				16. ELEVATION TOP OF BORING -31.9 Ft.		17. TOTAL RECOVERY FOR BORING 100%	
				18. SIGNATURE AND TITLE OF INSPECTOR Valerie Morrow, Geotechnical Engineer			
ELEV.	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS	SAMPLE	LABORATORY RESULTS		
-31.9	0.0		SAND, poorly-graded, mostly fine to medium-grained sand-sized quartz, lt. gray (SP)	A	Classification: SP Color: 2.5Y 7/1-light gray D50: 0.3445 mm % Fines: 2.6		
				B	Classification: SP Color: 2.5Y 7/1-light gray D50: 0.3622 mm % Fines: 2.3		
-42.5	10.6		SAND, silty, mostly fine to medium-grained sand-sized quartz, some silt, lt. gray (SM)	C	Classification: SP-SM Color: 2.5Y 7/2-light gray D50: 0.3345 mm % Fines: 6.5		
				D	Classification: SP-SM Color: 2.5Y 7/2-light gray D50: 0.3895 mm % Fines: 10.1		
-48.9	17.0						
-50.5	18.6		SAND, poorly-graded, mostly fine to medium-grained sand-sized quartz, lt. gray (SP)	E	Classification: SP-SM Color: 2.5Y 8/1-white D50: 0.3815 mm % Fines: 5.8		
			NOTES: 1. Soils are field visually classified in accordance with the Unified Soils Classification System. 2. NS = Sample not submitted for laboratory analysis from this interval. 3. Seafloor elevation determined from 2010 USACE survey.				

# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.0	0.3	28.5	68.6	2.6	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
.375	100.0		
#4	100.0		
#10	99.7		
#20	98.0		
#40	71.2		
#60	18.7		
#100	4.2		
#200	2.6		

**Material Description**  
SAND, (SP), medium to fine grained

**Atterberg Limits**  
 PL=                      LL=                      PI=

**Coefficients**  
 D<sub>90</sub>= 0.5800      D<sub>85</sub>= 0.5192      D<sub>60</sub>= 0.3783  
 D<sub>50</sub>= 0.3445      D<sub>30</sub>= 0.2851      D<sub>15</sub>= 0.2362  
 D<sub>10</sub>= 0.2126      C<sub>u</sub>= 1.78          C<sub>c</sub>= 1.01

**Classification**  
 USCS= SP                      AASHTO=

**Remarks**  
 CADD CODE = CH10D965

\* (no specification provided)

Location: USACE Sample # BI-PB-22-10A  
 Sample Number: TE Lab ID: 4578.21

Depth: 0.0 - 5.3 (ft.)

Date: 7/16/10

**Thompson Engineering**  
  
**Mobile, Alabama**

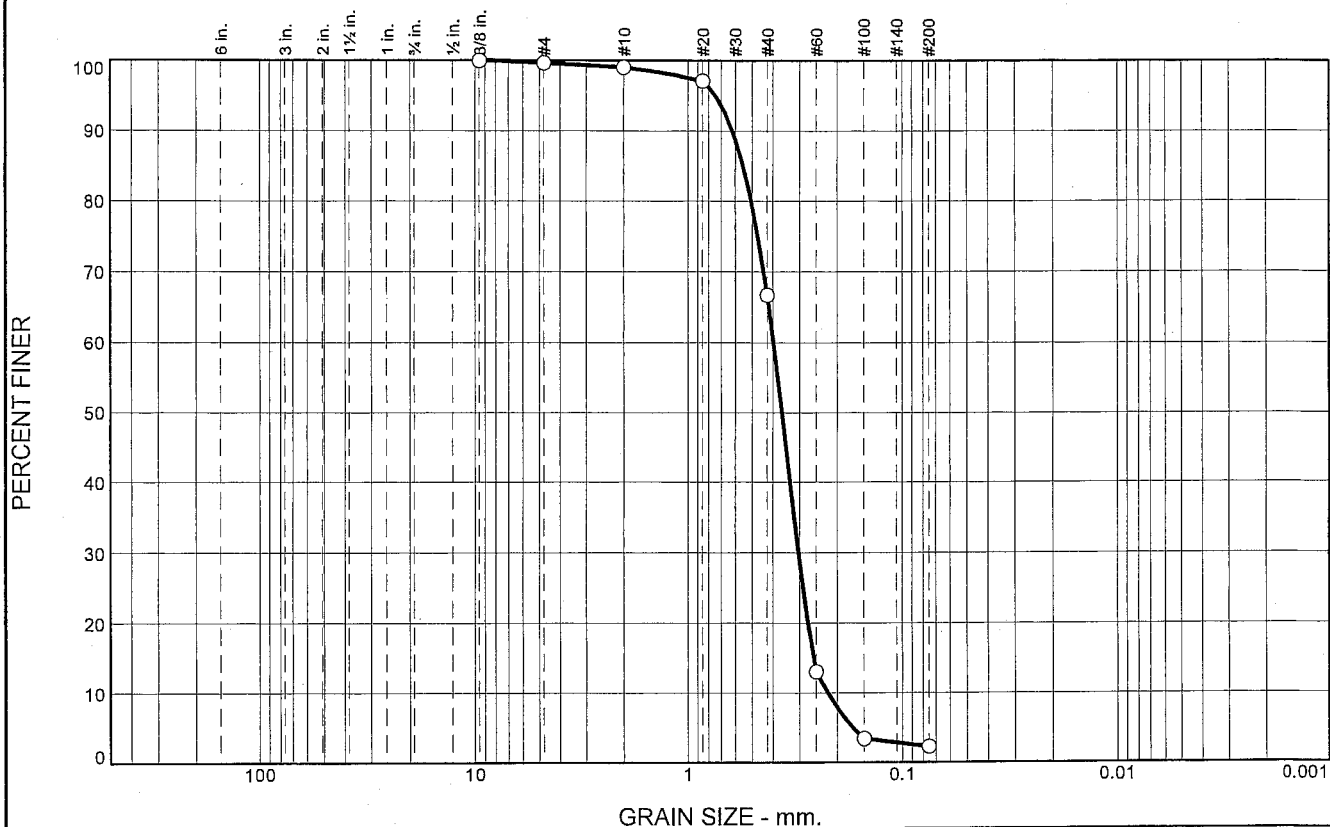
Client: US Army Corps of Engineers  
 Project: Contract No. W91278-10-D-0026 - Task 03  
 Mississippi Barrier Island Restoration Project  
 Project No: 10-2123-0009

Figure

Tested By: G.Fancher

Checked By: R.Byrd

# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.4	0.6	32.3	64.4	2.3	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
.375	100.0		
#4	99.6		
#10	99.0		
#20	97.1		
#40	66.7		
#60	13.0		
#100	3.4		
#200	2.3		

\* (no specification provided)

**Material Description**  
SAND, (SP), medium to fine grained

**Atterberg Limits**  
 PL=      LL=      PI=

**Coefficients**  
 D<sub>90</sub>= 0.6195      D<sub>85</sub>= 0.5513      D<sub>60</sub>= 0.3971  
 D<sub>50</sub>= 0.3622      D<sub>30</sub>= 0.3026      D<sub>15</sub>= 0.2571  
 D<sub>10</sub>= 0.2206      C<sub>u</sub>= 1.80      C<sub>c</sub>= 1.04

**Classification**  
 USCS= SP      AASHTO=

**Remarks**  
 CADD CODE = CH10D965

Location: USACE Sample # BI-PB-22-10B  
 Sample Number: TE Lab ID: 4578.22

Depth: 5.3 - 10.6 (ft.)

Date: 7/16/10

**Thompson Engineering**

**Mobile, Alabama**

Client: US Army Corps of Engineers

Project: Contract No. W91278-10-D-0026 - Task 03  
 Mississippi Barrier Island Restoration Project

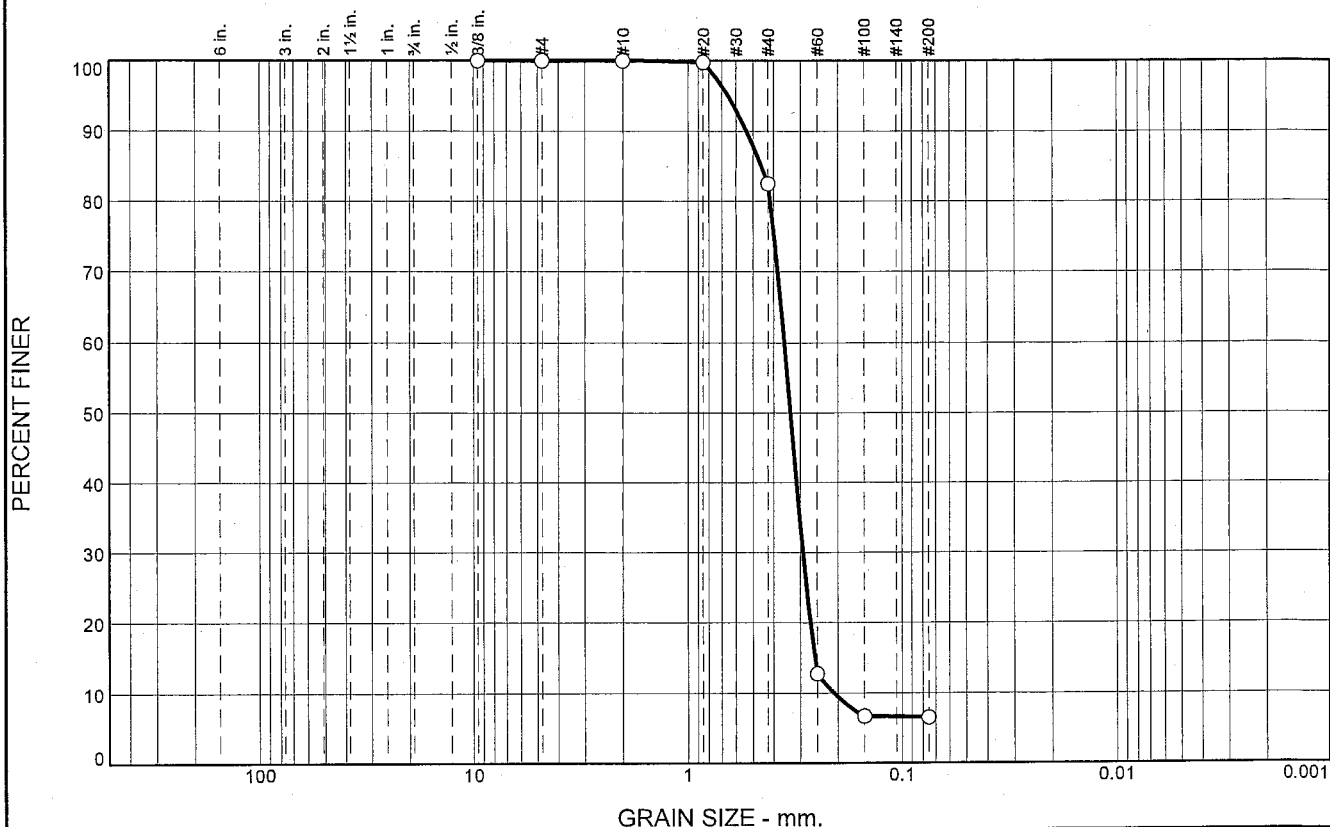
Project No: 10-2123-0009

Figure

Tested By: G.Fancher

Checked By: R.Byrd

# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.0	0.0	17.5	76.0	6.5	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
.375	100.0		
#4	100.0		
#10	100.0		
#20	99.8		
#40	82.5		
#60	12.8		
#100	6.7		
#200	6.5		

\* (no specification provided)

**Material Description**  
SAND, (SP-SM), medium to fine grained

**Atterberg Limits**  
 PL=                      LL=                      PI=

**Coefficients**  
 D<sub>90</sub>= 0.5364      D<sub>85</sub>= 0.4567      D<sub>60</sub>= 0.3576  
 D<sub>50</sub>= 0.3345      D<sub>30</sub>= 0.2914      D<sub>15</sub>= 0.2563  
 D<sub>10</sub>= 0.2082      C<sub>u</sub>= 1.72              C<sub>c</sub>= 1.14

**Classification**  
 USCS= SP-SM                      AASHTO=

**Remarks**  
 CADD CODE = CH10D965

Location: USACE Sample # BI-PB-22-10C  
 Sample Number: TE Lab ID: 4578.23

Depth: 10.6 - 13.6 (ft.)

Date: 7/16/10

**Thompson Engineering**  
  
**Mobile, Alabama**

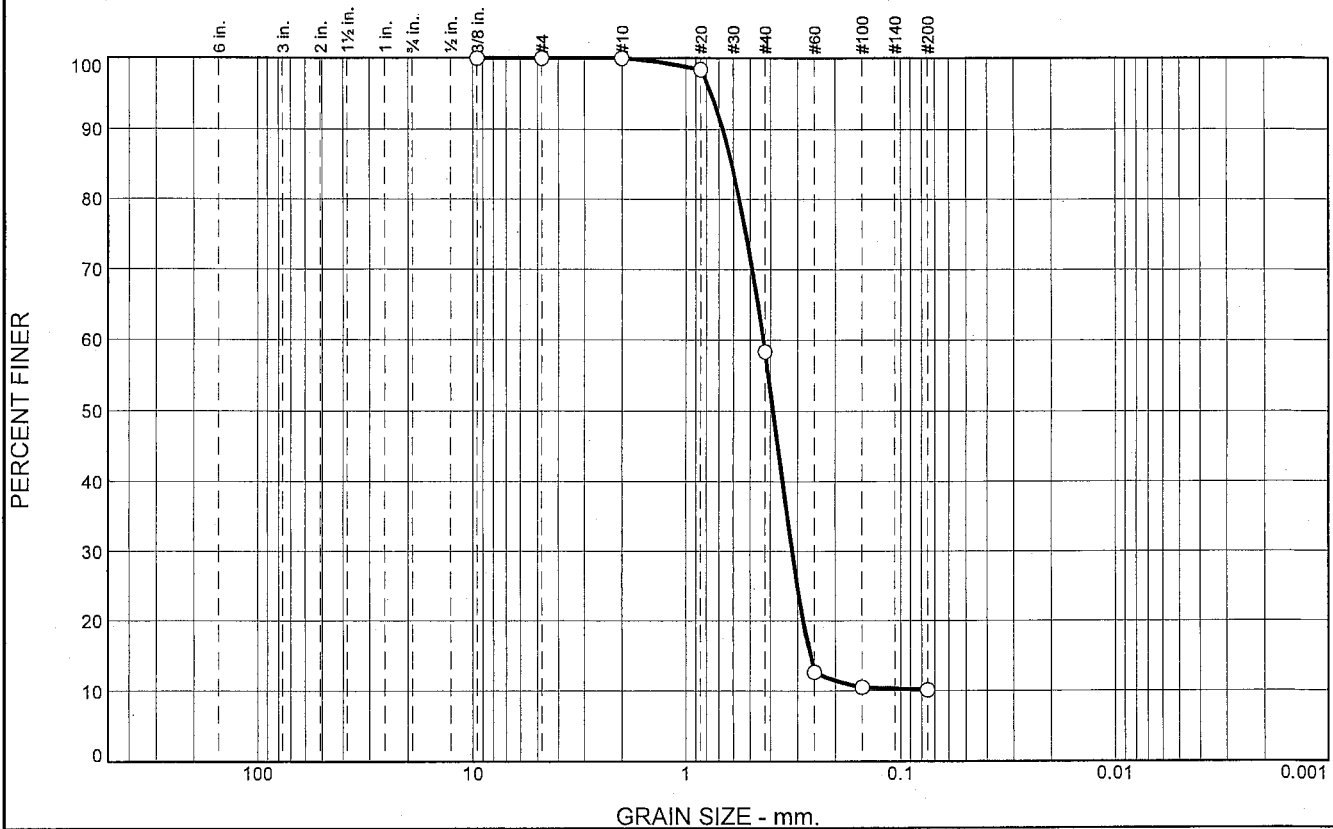
Client: US Army Corps of Engineers  
 Project: Contract No. W91278-10-D-0026 - Task 03  
 Mississippi Barrier Island Restoration Project  
 Project No: 10-2123-0009

Figure

Tested By: G.Fancher

Checked By: R.Byrd

# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.0	0.0	41.6	48.3	10.1	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
.375	100.0		
#4	100.0		
#10	100.0		
#20	98.4		
#40	58.4		
#60	12.6		
#100	10.5		
#200	10.1		

<u><b>Material Description</b></u>		
SAND, (SP-SM), medium to fine grained		
<u><b>Atterberg Limits</b></u>		
PL=	LL=	PI=
<u><b>Coefficients</b></u>		
D <sub>90</sub> = 0.6720	D <sub>85</sub> = 0.6096	D <sub>60</sub> = 0.4327
D <sub>50</sub> = 0.3895	D <sub>30</sub> = 0.3174	D <sub>15</sub> = 0.2615
D <sub>10</sub> =	C <sub>u</sub> =	C <sub>c</sub> =
<u><b>Classification</b></u>		
USCS= SP-SM	AASHTO=	
<u><b>Remarks</b></u>		
CADD CODE = CH10D965		

\* (no specification provided)

Location: USACE Sample # BI-PB-22-10D  
Sample Number: TE Lab ID: 4578.24

Depth: 13.6 - 17.0 (ft.)

Date: 7/16/10

**Thompson Engineering**  
  
**Mobile, Alabama**

Client: US Army Corps of Engineers  
Project: Contract No. W91278-10-D-0026 - Task 03  
Mississippi Barrier Island Restoration Project  
Project No: 10-2123-0009

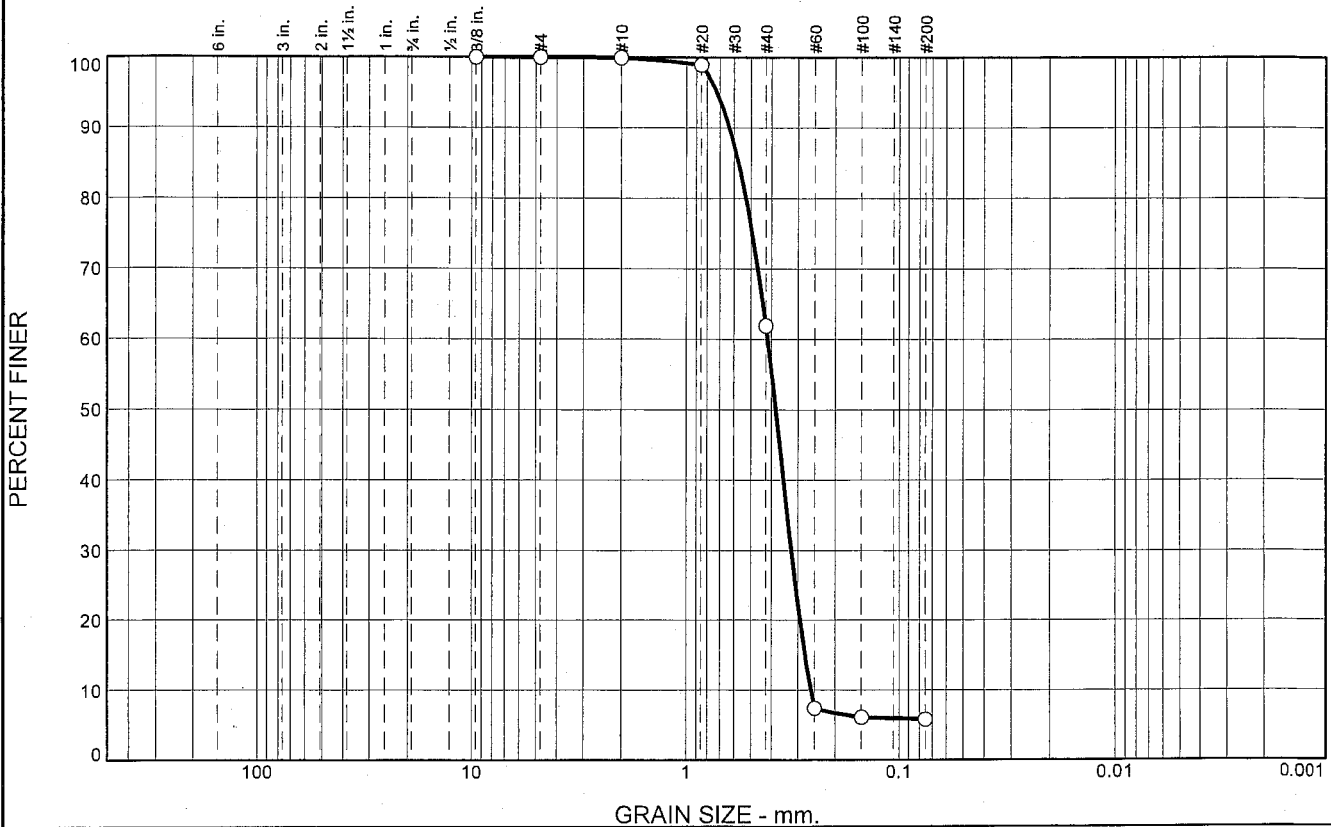
Figure

Tested By: G.Fancher

Checked By: R.Byrd



# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.0	0.1	38.0	56.1	5.8	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
.375	100.0		
#4	100.0		
#10	99.9		
#20	98.9		
#40	61.9		
#60	7.4		
#100	6.1		
#200	5.8		

\* (no specification provided)

**Material Description**  
SAND, (SP-SM), medium to fine grained

**Atterberg Limits**  
 PL=                      LL=                      PI=

**Coefficients**  
 D<sub>90</sub>= 0.6308      D<sub>85</sub>= 0.5713      D<sub>60</sub>= 0.4175  
 D<sub>50</sub>= 0.3815      D<sub>30</sub>= 0.3215      D<sub>15</sub>= 0.2775  
 D<sub>10</sub>= 0.2605      C<sub>u</sub>= 1.60          C<sub>c</sub>= 0.95

**Classification**  
 USCS= SP-SM                      AASHTO=

**Remarks**  
 CADD CODE = CH10D965

Location: USACE Sample # BI-PB-22-10E  
 Sample Number: TE Lab ID: 4578.25

Depth: 17.0 - 18.6 (ft.)

Date: 7/16/10

**Thompson Engineering**  
  
**Mobile, Alabama**

**Client:** US Army Corps of Engineers  
**Project:** Contract No. W91278-10-D-0026 - Task 03  
 Mississippi Barrier Island Restoration Project  
**Project No:** 10-2123-0009

**Figure**

Tested By: G.Fancher

Checked By: R.Byrd

# Boring Designation BI-PB-023-10

DRILLING LOG		DIVISION South Atlantic		INSTALLATION Mobile District		SHEET 1 OF 1 SHEETS	
1. PROJECT MsCIP Barrier Island Restoration Petit Bois Pass- AL East				9. SIZE AND TYPE OF BIT N/A			
2. BORING DESIGNATION BI-PB-023-10		LOCATION COORDINATES E = 1,148,176 N = 255,821		10. COORDINATE SYSTEM/DATUM State Plane, MSE (U.S. Ft.)		HORIZONTAL NAD83 VERTICAL NAVD88	
3. DRILLING AGENCY Corps of Engineers - CESAM		CONTRACTOR FILE NO.		11. MANUFACTURER'S DESIGNATION OF DRILL Vibrocure		<input type="checkbox"/> AUTO HAMMER <input type="checkbox"/> MANUAL HAMMER	
4. NAME OF DRILLER Construction Solutions International, Inc.				12. TOTAL SAMPLES 2		DISTURBED 2 UNDISTURBED (UD) 0	
5. DIRECTION OF BORING <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED		DEG. FROM VERTICAL		13. TOTAL NUMBER CORE BOXES			
		BEARING		14. WATER DEPTH 32 Ft.			
6. THICKNESS OF OVERBURDEN N/A				15. DATE BORING 07-10-10		STARTED 07-10-10 COMPLETED 07-10-10	
7. DEPTH DRILLED INTO ROCK N/A				16. ELEVATION TOP OF BORING -30.6 Ft.			
8. TOTAL DEPTH OF BORING 17.8 Ft.				17. TOTAL RECOVERY FOR BORING 100%			
				18. SIGNATURE AND TITLE OF INSPECTOR Valerie Morrow, Geotechnical Engineer			
ELEV.	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS	SAMPLE	LABORATORY RESULTS		
-30.6	0.0		SAND, poorly-graded with silt, lt. gray (SP-SM)	A	Classification: SP-SM Color: 2.5Y 7/1-light gray D50: 0.3479 mm % Fines: 6.1		
				B	Classification: SP-SM Color: 2.5Y 7/1-light gray D50: 0.3649 mm % Fines: 5.9		
-37.0	6.4		CLAY, lean, gray (CL)	NS			
-46.2	15.6						
-48.4	17.8		SAND, clayey, mostly fine to medium-grained sand-sized quartz, some clay, gray (SC)				
			NOTES: 1. Soils are field visually classified in accordance with the Unified Soils Classification System. 2. NS = Sample not submitted for laboratory analysis from this interval. 3. Seafloor elevation calculated using sampling vessel's fathometer water depth reading and applying NOAA tidal gauge data conversion factor.				

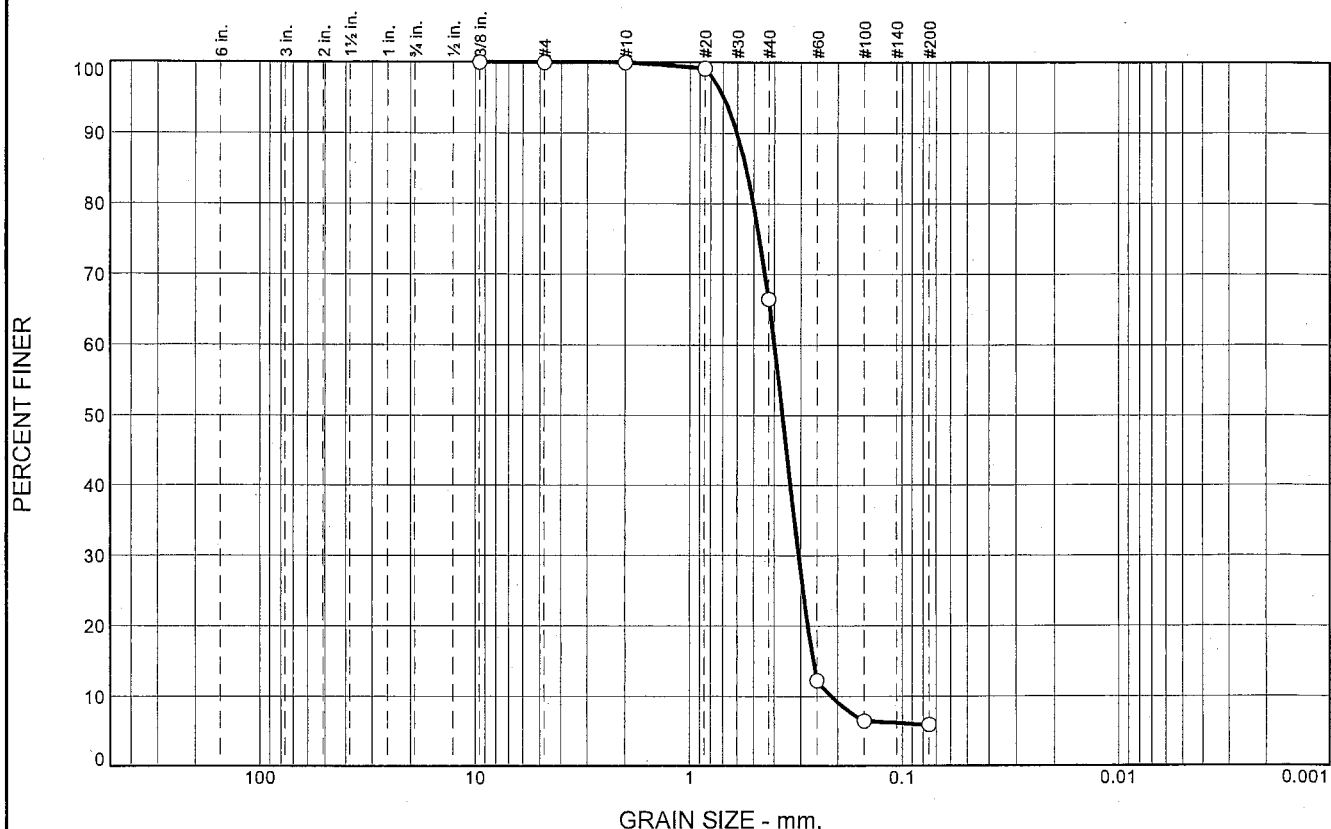
## PERCENT FINER



SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
.375	100.0		
#4	100.0		
#10	99.9		
#20	98.7		
#40	70.3		
#60	18.7		
#100	8.3		
#200	6.1		

L-100

# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.0	0.0	33.6	60.5	5.9	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
.375	100.0		
#4	100.0		
#10	100.0		
#20	99.1		
#40	66.4		
#60	12.2		
#100	6.5		
#200	5.9		

\* (no specification provided)

## Material Description

SAND, (SP-SM), medium to fine grained

## Atterberg Limits

PL= LL= PI=

## Coefficients

D<sub>90</sub>= 0.6017 D<sub>85</sub>= 0.5438 D<sub>60</sub>= 0.3992  
D<sub>50</sub>= 0.3649 D<sub>30</sub>= 0.3059 D<sub>15</sub>= 0.2603  
D<sub>10</sub>= 0.2138 C<sub>u</sub>= 1.87 C<sub>c</sub>= 1.10

## Classification

USCS= SP-SM AASHTO=

## Remarks

CADD CODE = CH10D965

Location: USACE Sample # BI-PB-23-10B  
Sample Number: TE Lab ID: 4578.27

Depth: 3.2 - 6.4 (ft.)

Date: 7/16/10

**Thompson Engineering**

**Mobile, Alabama**

Client: US Army Corps of Engineers

Project: Contract No. W91278-10-D-0026 - Task 03  
Mississippi Barrier Island Restoration Project

Project No: 10-2123-0009

Figure

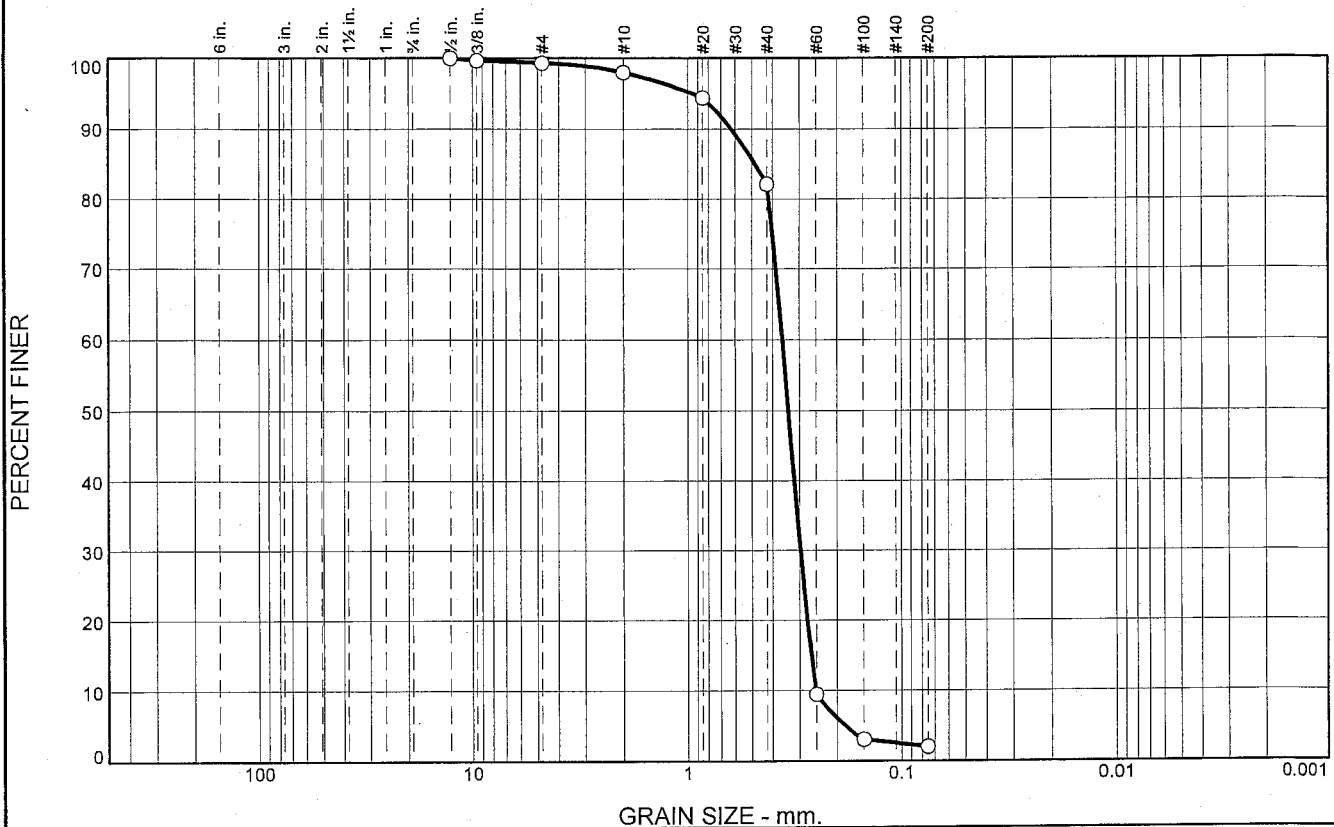
Tested By: G.Fancher

Checked By: R.Byrd

# Boring Designation BI-PB-024-10

DRILLING LOG		DIVISION South Atlantic		INSTALLATION Mobile District		SHEET 1 OF 1 SHEETS	
1. PROJECT MsCIP Barrier Island Restoration Petit Bois Pass- AL East				9. SIZE AND TYPE OF BIT N/A			
2. BORING DESIGNATION BI-PB-024-10		LOCATION COORDINATES E = 1,149,746 N = 255,839		10. COORDINATE SYSTEM/DATUM State Plane, MSE (U.S. Ft.)		HORIZONTAL NAD83 VERTICAL NAVD88	
3. DRILLING AGENCY Corps of Engineers - CESAM		CONTRACTOR FILE NO.		11. MANUFACTURER'S DESIGNATION OF DRILL Vibrocure		<input type="checkbox"/> AUTO HAMMER <input type="checkbox"/> MANUAL HAMMER	
4. NAME OF DRILLER Construction Solutions International, Inc.				12. TOTAL SAMPLES 4		DISTURBED 0 UNDISTURBED (UD)	
5. DIRECTION OF BORING <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED		DEG. FROM VERTICAL		13. TOTAL NUMBER CORE BOXES			
		BEARING		14. WATER DEPTH 31 Ft.			
6. THICKNESS OF OVERBURDEN N/A				15. DATE BORING 07-10-10		STARTED 07-10-10 COMPLETED 07-10-10	
7. DEPTH DRILLED INTO ROCK N/A				16. ELEVATION TOP OF BORING -29.7 Ft.			
8. TOTAL DEPTH OF BORING 18.2 Ft.				17. TOTAL RECOVERY FOR BORING 100%			
				18. SIGNATURE AND TITLE OF INSPECTOR Valerie Morrow, Geotechnical Engineer			
ELEV.	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS	SAMPLE	LABORATORY RESULTS		
-29.7	0.0						
			SAND, poorly-graded, mostly fine to medium-grained sand-sized quartz, trace shell fragments, gray (SP)	A	Classification: SP Color: 2.5Y 7/2-light gray D50: 0.3373 mm % Fines: 2		
-33.3	3.6						
			SAND, poorly-graded with silt, lt. gray (SP-SM)	B	Classification: SP-SM Color: 2.5Y 7/2-light gray D50: 0.3315 mm % Fines: 6.4		
				C	Classification: SP-SM Color: 2.5Y 7/2-light gray D50: 0.3435 mm % Fines: 5.3		
				D	Classification: SP Color: 2.5Y 7/2-light gray D50: 0.3472 mm % Fines: 4.8		
-47.9	18.2						
			NOTES: 1. Soils are field visually classified in accordance with the Unified Soils Classification System. 2. NS = Sample not submitted for laboratory analysis from this interval. 3. Seafloor elevation determined from 2010 USACE survey.				

# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.7	1.3	15.9	80.1	2.0	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
.500	100.0		
.375	99.6		
#4	99.3		
#10	98.0		
#20	94.4		
#40	82.1		
#60	9.4		
#100	3.0		
#200	2.0		

\* (no specification provided)

## Material Description

SAND, (SP), medium to fine grained

PL=      Atterberg Limits      LL=      PI=

Coefficients  
D<sub>90</sub>= 0.6258      D<sub>85</sub>= 0.4830      D<sub>60</sub>= 0.3598  
D<sub>50</sub>= 0.3373      D<sub>30</sub>= 0.2962      D<sub>15</sub>= 0.2642  
D<sub>10</sub>= 0.2516      C<sub>u</sub>= 1.43      C<sub>c</sub>= 0.97

Classification  
USCS= SP      AASHTO=

Remarks  
CADD CODE = CH10D965

Location: USACE Sample # BI-PB-24-10A  
Sample Number: TE Lab ID: 4578.28

Depth: 0.0 - 3.6 (ft.)

Date: 7/16/10

**Thompson Engineering**

**Mobile, Alabama**

Client: US Army Corps of Engineers

Project: Contract No. W91278-10-D-0026 - Task 03  
Mississippi Barrier Island Restoration Project

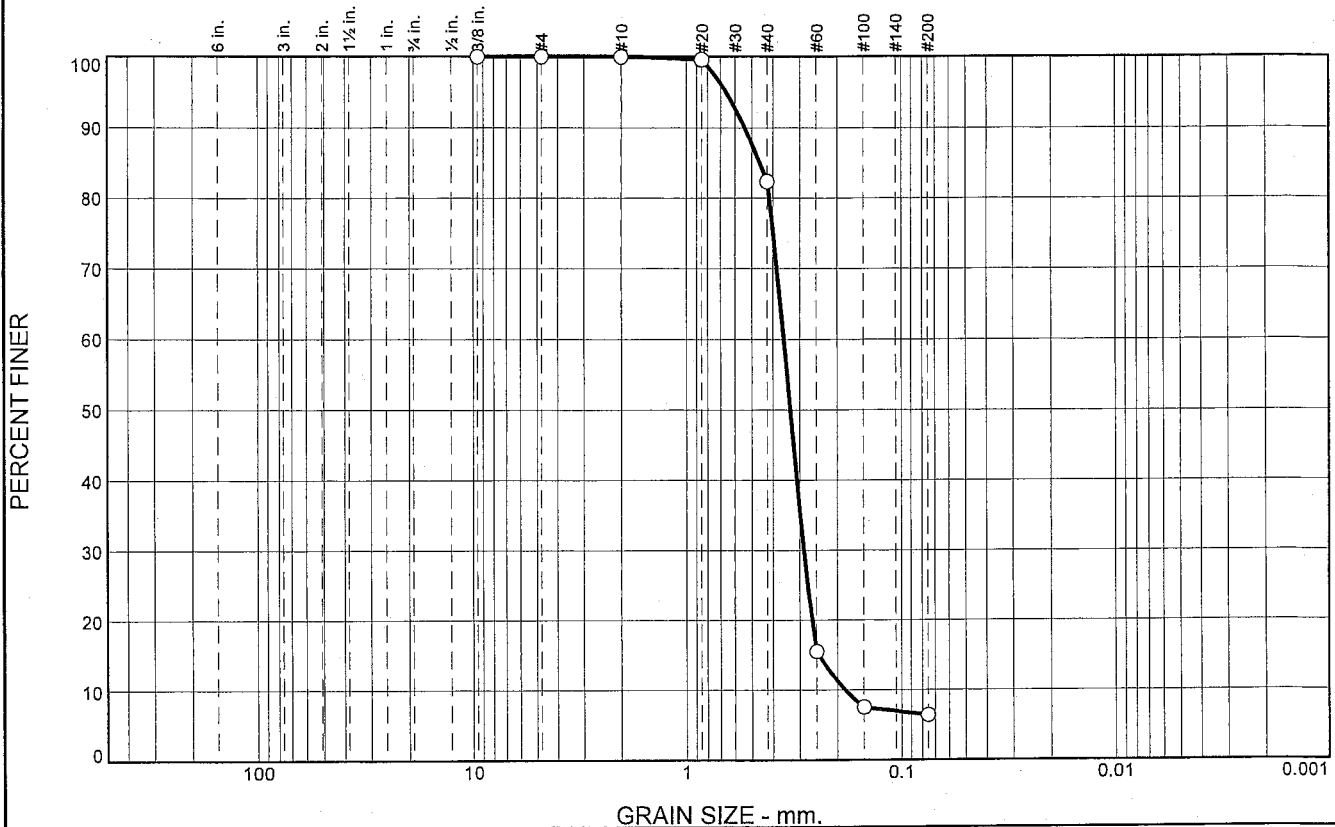
Project No: 10-2123-0009

Figure

Tested By: G.Fancher

Checked By: R.Byrd

# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.0	0.0	17.7	75.9	6.4	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
.375	100.0		
#4	100.0		
#10	100.0		
#20	99.6		
#40	82.3		
#60	15.4		
#100	7.5		
#200	6.4		

\* (no specification provided)

<b>Material Description</b>		
SAND, (SP-SM), medium to fine grained		
<b>Atterberg Limits</b>		
PL=	LL=	PI=
<b>Coefficients</b>		
D <sub>90</sub> = 0.5403	D <sub>85</sub> = 0.4595	D <sub>60</sub> = 0.3555
D <sub>50</sub> = 0.3315	D <sub>30</sub> = 0.2866	D <sub>15</sub> = 0.2448
D <sub>10</sub> = 0.1846	C <sub>u</sub> = 1.93	C <sub>c</sub> = 1.25
<b>Classification</b>		
USCS= SP-SM	AASHTO=	
<b>Remarks</b>		
CADD CODE = CH10D965		

Location: USACE Sample # BI-PB-24-10B  
Sample Number: TE Lab ID: 4578.29

Depth: 3.6 - 8.6 (ft.)

Date: 7/16/10

**Thompson Engineering**  
**Mobile, Alabama**

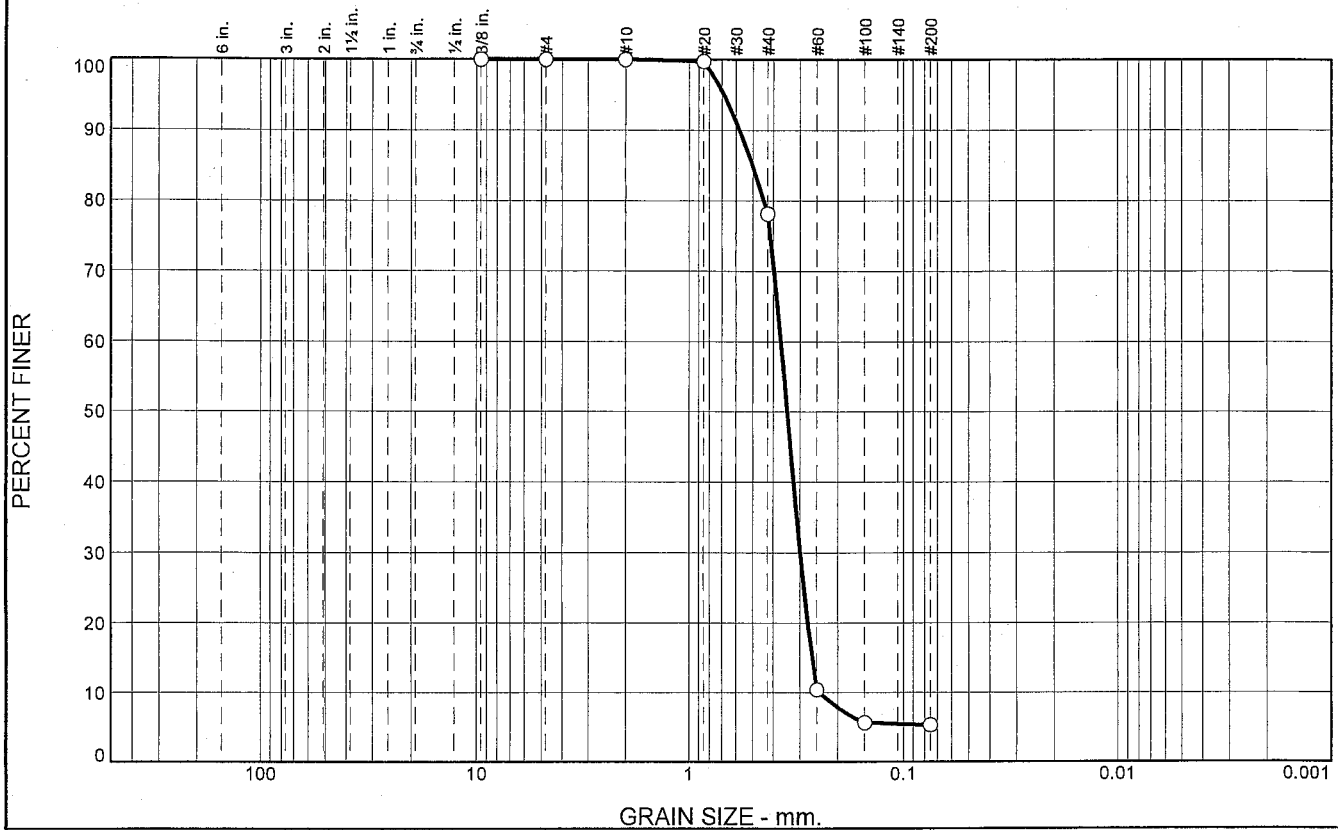
Client: US Army Corps of Engineers  
Project: Contract No. W91278-10-D-0026 - Task 03  
Mississippi Barrier Island Restoration Project  
Project No: 10-2123-0009

Figure

Tested By: G.Fancher

Checked By: R.Byrd

# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.0	0.0	21.9	72.8	5.3	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
.375	100.0		
#4	100.0		
#10	100.0		
#20	99.7		
#40	78.1		
#60	10.4		
#100	5.6		
#200	5.3		

\* (no specification provided)

## Material Description

SAND, (SP-SM), medium to fine grained

## Atterberg Limits

PL= LL= PI=

## Coefficients

D<sub>90</sub>= 0.5771 D<sub>85</sub>= 0.5014 D<sub>60</sub>= 0.3683  
D<sub>50</sub>= 0.3435 D<sub>30</sub>= 0.2985 D<sub>15</sub>= 0.2632  
D<sub>10</sub>= 0.2425 C<sub>u</sub>= 1.52 C<sub>c</sub>= 1.00

## Classification

USCS= SP-SM AASHTO=

## Remarks

CADD CODE = CH10D965

Location: USACE Sample # BI-PB-24-10C  
Sample Number: TE Lab ID: 4578.30

Depth: 8.6 - 13.6 (ft.)

Date: 7/16/10

**Thompson Engineering**

**Mobile, Alabama**

Client: US Army Corps of Engineers

Project: Contract No. W91278-10-D-0026 - Task 03  
Mississippi Barrier Island Restoration Project

Project No: 10-2123-0009

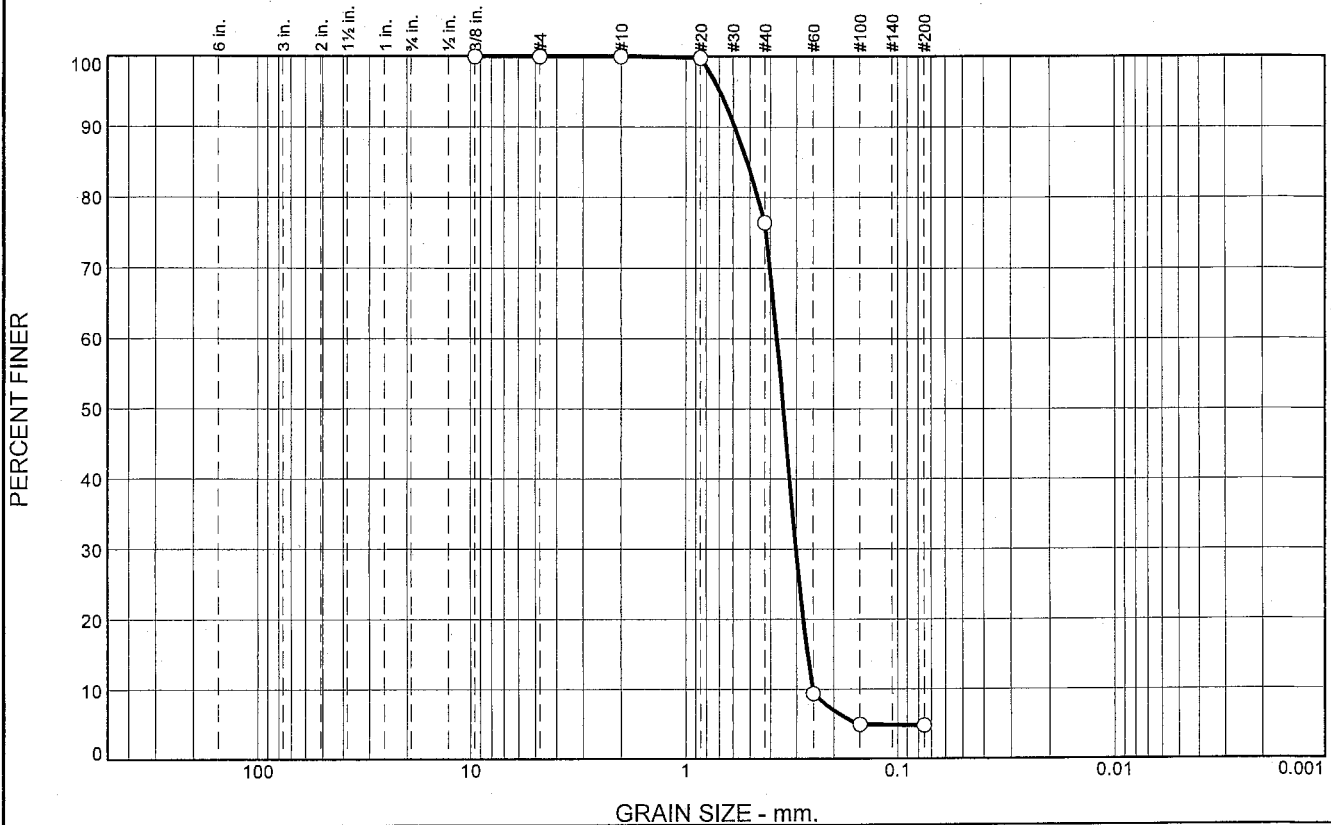
Figure

Tested By: G.Fancher

Checked By: R.Byrd



# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.0	0.0	23.6	71.6	4.8	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
.375	100.0		
#4	100.0		
#10	100.0		
#20	99.8		
#40	76.4		
#60	9.4		
#100	4.9		
#200	4.8		

\* (no specification provided)

## Material Description

SAND, (SP), medium to fine grained

## Atterberg Limits

PL= LL= PI=

## Coefficients

D<sub>90</sub>= 0.5885 D<sub>85</sub>= 0.5151 D<sub>60</sub>= 0.3726  
D<sub>50</sub>= 0.3472 D<sub>30</sub>= 0.3015 D<sub>15</sub>= 0.2661  
D<sub>10</sub>= 0.2520 C<sub>u</sub>= 1.48 C<sub>c</sub>= 0.97

## Classification

USCS= SP AASHTO=

## Remarks

CADD CODE = CH10D965

Location: USACE Sample # BI-PB-24-10D  
Sample Number: TE Lab ID: 4578.31

Depth: 13.6 - 18.2 (ft.)

Date: 7/16/10

**Thompson Engineering**

**Mobile, Alabama**

Client: US Army Corps of Engineers

Project: Contract No. W91278-10-D-0026 - Task 03  
Mississippi Barrier Island Restoration Project

Project No: 10-2123-0009

Figure

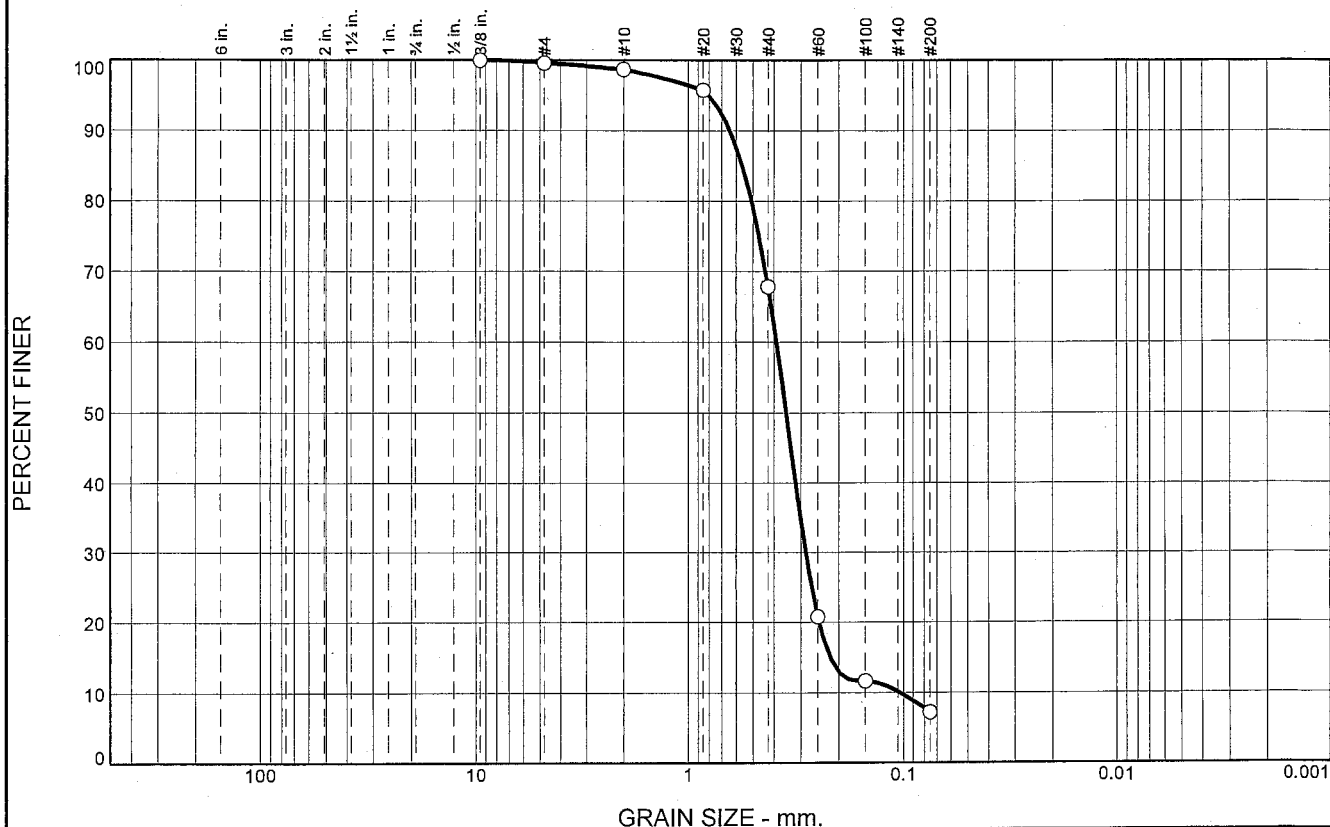
Tested By: G.Fancher

Checked By: R.Byrd

# Boring Designation BI-PB-025-10

DRILLING LOG		DIVISION South Atlantic		INSTALLATION Mobile District		SHEET 1 OF 1 SHEETS	
1. PROJECT MsCIP Barrier Island Restoration Petit Bois Pass- AL East				9. SIZE AND TYPE OF BIT N/A			
2. BORING DESIGNATION BI-PB-025-10		LOCATION COORDINATES E = 1,152,791 N = 255,947		10. COORDINATE SYSTEM/DATUM State Plane, MSE (U.S. Ft.)		HORIZONTAL NAD83	
3. DRILLING AGENCY Corps of Engineers - CESAM		CONTRACTOR FILE NO.		11. MANUFACTURER'S DESIGNATION OF DRILL Vibracore		<input type="checkbox"/> AUTO HAMMER <input type="checkbox"/> MANUAL HAMMER	
4. NAME OF DRILLER Construction Solutions International, Inc.				12. TOTAL SAMPLES 5		DISTURBED 0	
5. DIRECTION OF BORING <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED				13. TOTAL NUMBER CORE BOXES		14. WATER DEPTH 35 Ft.	
6. THICKNESS OF OVERBURDEN N/A				15. DATE BORING 07-10-10		STARTED 07-10-10	
7. DEPTH DRILLED INTO ROCK N/A				16. ELEVATION TOP OF BORING -35.2 Ft.		17. TOTAL RECOVERY FOR BORING 100%	
8. TOTAL DEPTH OF BORING 15.8 Ft.				18. SIGNATURE AND TITLE OF INSPECTOR Valerie Morrow, Geotechnical Engineer			
ELEV.	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS	SAMPLE	LABORATORY RESULTS		
-35.2	0.0						
-35.5	0.3		SAND, poorly-graded, mostly fine-grained sand-sized quartz, trace shell fragments, tan (SP)	A	Classification: SP-SM Color: 2.5Y 7/2-light gray D50: 0.3509 mm % Fines: 7.2		
			SAND, silty, mostly fine-grained sand-sized quartz, some silt, gray (SM)	B	Classification: SM Color: 2.5Y 5/2-grayish brown D50: 0.32 mm % Fines: 13.6		
				C	Classification: SP-SM Color: 2.5Y 6/2-light brownish gray D50: 0.33 mm % Fines: 6.1		
				D	Classification: SM Color: 2.5Y 5/2-grayish brown D50: 0.3195 mm % Fines: 12.3		
				E	Classification: SP-SM Color: 2.5Y 5/2-grayish brown D50: 0.3191 mm % Fines: 11		
-51.0	15.8						
NOTES:							
1. Soils are field visually classified in accordance with the Unified Soils Classification System.							
2. NS = Sample not submitted for laboratory analysis from this interval.							
3. Seafloor elevation determined from 2010 USACE survey.							

# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.4	0.9	30.9	60.6	7.2	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
.375	100.0		
#4	99.6		
#10	98.7		
#20	95.8		
#40	67.8		
#60	20.8		
#100	11.7		
#200	7.2		

\* (no specification provided)

**Material Description**  
SAND, (SP-SM), medium to fine grained

**Atterberg Limits**  
PL= LL= PI=

**Coefficients**  
D<sub>90</sub>= 0.6420 D<sub>85</sub>= 0.5609 D<sub>60</sub>= 0.3890  
D<sub>50</sub>= 0.3509 D<sub>30</sub>= 0.2840 D<sub>15</sub>= 0.2189  
D<sub>10</sub>= 0.1035 C<sub>u</sub>= 3.76 C<sub>c</sub>= 2.00

**Classification**  
USCS= SP-SM AASHTO=

**Remarks**  
CADD CODE = CH10D965

Location: USACE Sample # BI-PB-25-10A  
Sample Number: TE Lab ID: 4578.32

Depth: 0.0 - 0.3 (ft.)

Date: 7/16/10

**Thompson Engineering**

**Mobile, Alabama**

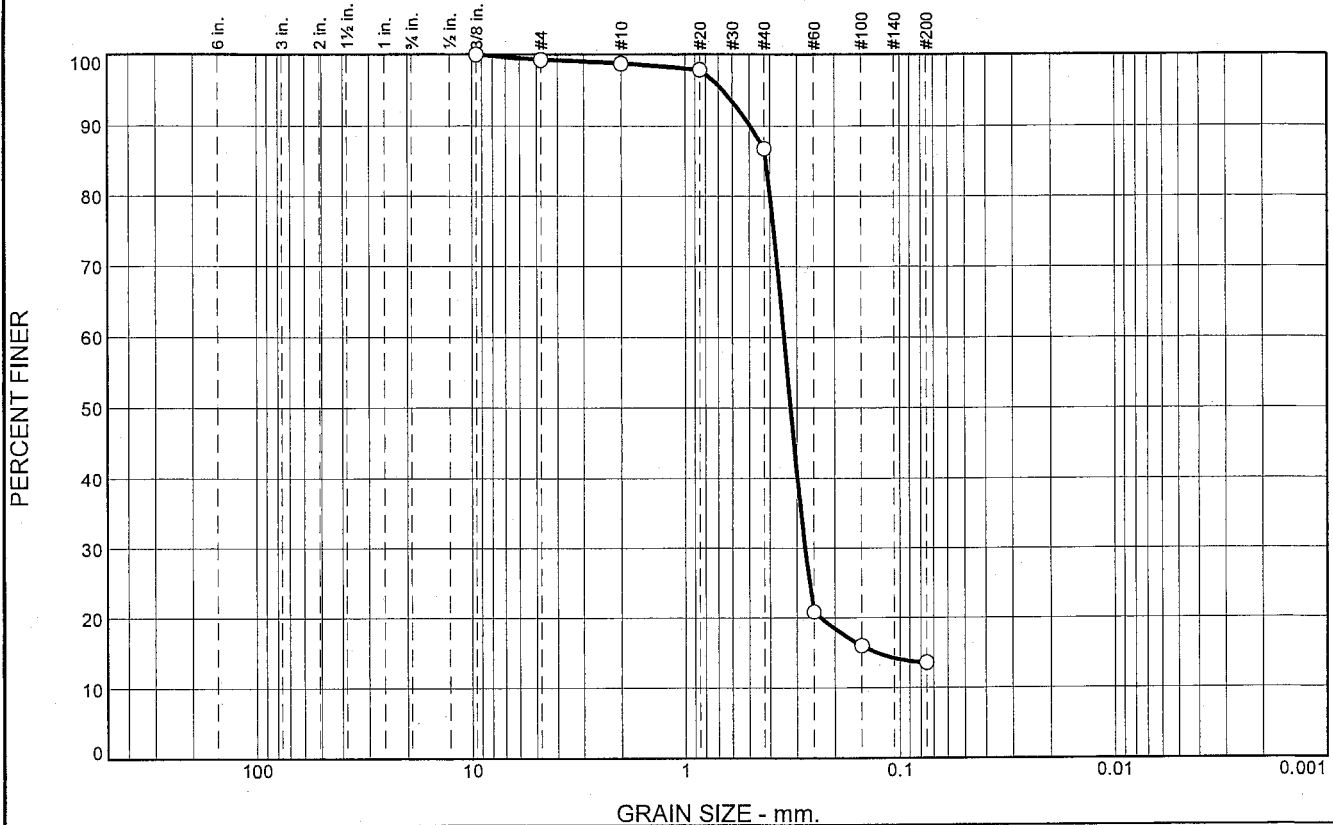
Client: US Army Corps of Engineers  
Project: Contract No. W91278-10-D-0026 - Task 03  
Mississippi Barrier Island Restoration Project  
Project No: 10-2123-0009

Figure

Tested By: G.Fancher

Checked By: R.Byrd

# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.7	0.6	11.9	73.2	13.6	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
.375	100.0		
#4	99.3		
#10	98.7		
#20	97.9		
#40	86.8		
#60	20.9		
#100	16.0		
#200	13.6		

\* (no specification provided)

## Material Description

SILTY SAND, (SM), medium to fine grained

## Atterberg Limits

PL= LL= PI=

## Coefficients

D<sub>90</sub>= 0.4945 D<sub>85</sub>= 0.4175 D<sub>60</sub>= 0.3432  
D<sub>50</sub>= 0.3200 D<sub>30</sub>= 0.2746 D<sub>15</sub>= 0.1279  
D<sub>10</sub>= C<sub>u</sub>= C<sub>c</sub>=

## Classification

USCS= SM AASHTO=

## Remarks

CADD CODE = CH10D965

Location: USACE Sample # BI-PB-25-10B  
Sample Number: TE Lab ID: 4578.33

Depth: 0.3 - 4.3 (ft.)

Date: 7/16/10

**Thompson Engineering**

**Mobile, Alabama**

Client: US Army Corps of Engineers

Project: Contract No. W91278-10-D-0026 - Task 03  
Mississippi Barrier Island Restoration Project

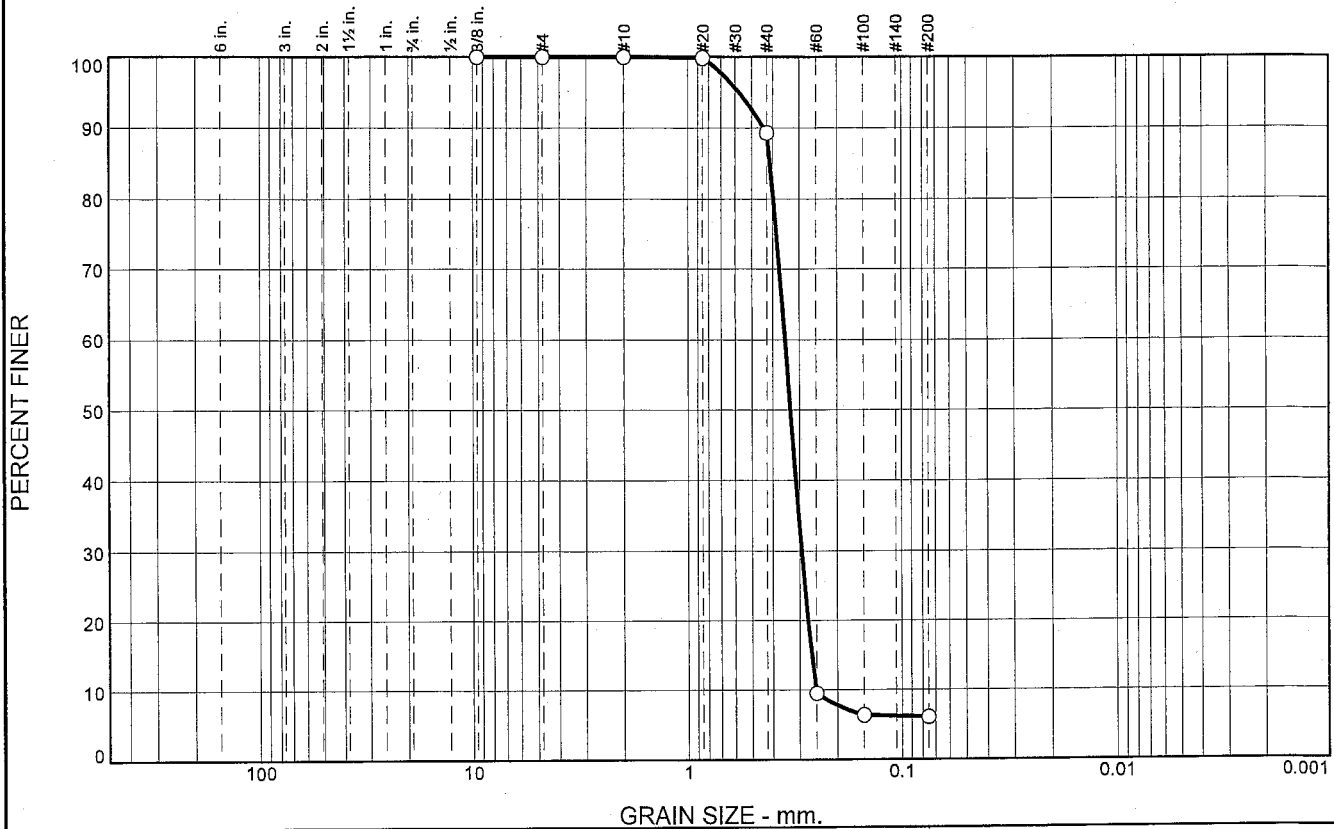
Project No: 10-2123-0009

Figure

Tested By: G.Fancher

Checked By: R.Byrd

# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.0	0.0	10.7	83.2	6.1	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
.375	100.0		
#4	100.0		
#10	100.0		
#20	99.9		
#40	89.3		
#60	9.5		
#100	6.3		
#200	6.1		

\* (no specification provided)

**Material Description**  
SAND, (SP-SM), medium to fine grained

PL= **Atterberg Limits** LL= PI=

**Coefficients**  
D<sub>90</sub>= 0.4395 D<sub>85</sub>= 0.4106 D<sub>60</sub>= 0.3496  
D<sub>50</sub>= 0.3300 D<sub>30</sub>= 0.2929 D<sub>15</sub>= 0.2632  
D<sub>10</sub>= 0.2513 C<sub>u</sub>= 1.39 C<sub>c</sub>= 0.98

**Classification**  
USCS= SP-SM AASHTO=

**Remarks**  
CADD CODE = CH10D965

Location: USACE Sample # BI-PB-25-10C  
Sample Number: TE Lab ID: 4578.34

Depth: 4.3 - 8.3 (ft.)

Date: 7/16/10

**Thompson Engineering**

**Mobile, Alabama**

Client: US Army Corps of Engineers

Project: Contract No. W91278-10-D-0026 - Task 03  
Mississippi Barrier Island Restoration Project

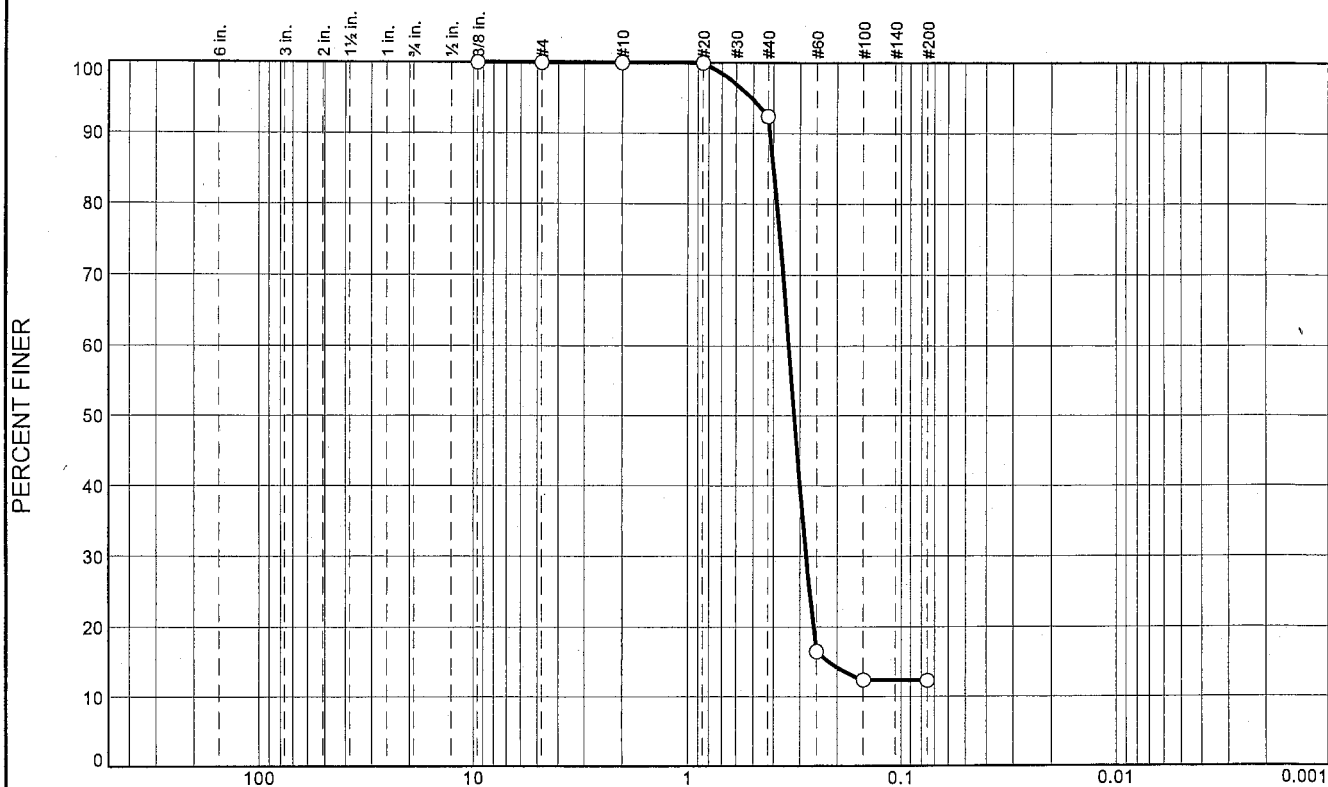
Project No: 10-2123-0009

Figure

Tested By: G.Fancher

Checked By: R.Byrd

# Particle Size Distribution Report



GRAIN SIZE - mm.

% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.0	0.0	7.6	80.1	12.3	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
.375	100.0		
#4	100.0		
#10	100.0		
#20	100.0		
#40	92.4		
#60	16.5		
#100	12.3		
#200	12.3		

\* (no specification provided)

<b>Material Description</b>		
SILTY SAND, (SM), fine grained		
<b>Atterberg Limits</b>		
PL=	LL=	PI=
<b>Coefficients</b>		
D <sub>90</sub> = 0.4161	D <sub>85</sub> = 0.3998	D <sub>60</sub> = 0.3395
D <sub>50</sub> = 0.3195	D <sub>30</sub> = 0.2806	D <sub>15</sub> = 0.2171
D <sub>10</sub> =	C <sub>u</sub> =	C <sub>c</sub> =
<b>Classification</b>		
USCS= SM	AASHTO=	
<b>Remarks</b>		
CADD CODE = CH10D965		

Location: USACE Sample # BI-PB-25-10D  
Sample Number: TE Lab ID: 4578.35

Depth: 8.3 - 12.3 (ft.)

Date: 7/16/10

**Thompson Engineering**

**Mobile, Alabama**

Client: US Army Corps of Engineers

Project: Contract No. W91278-10-D-0026 - Task 03  
Mississippi Barrier Island Restoration Project

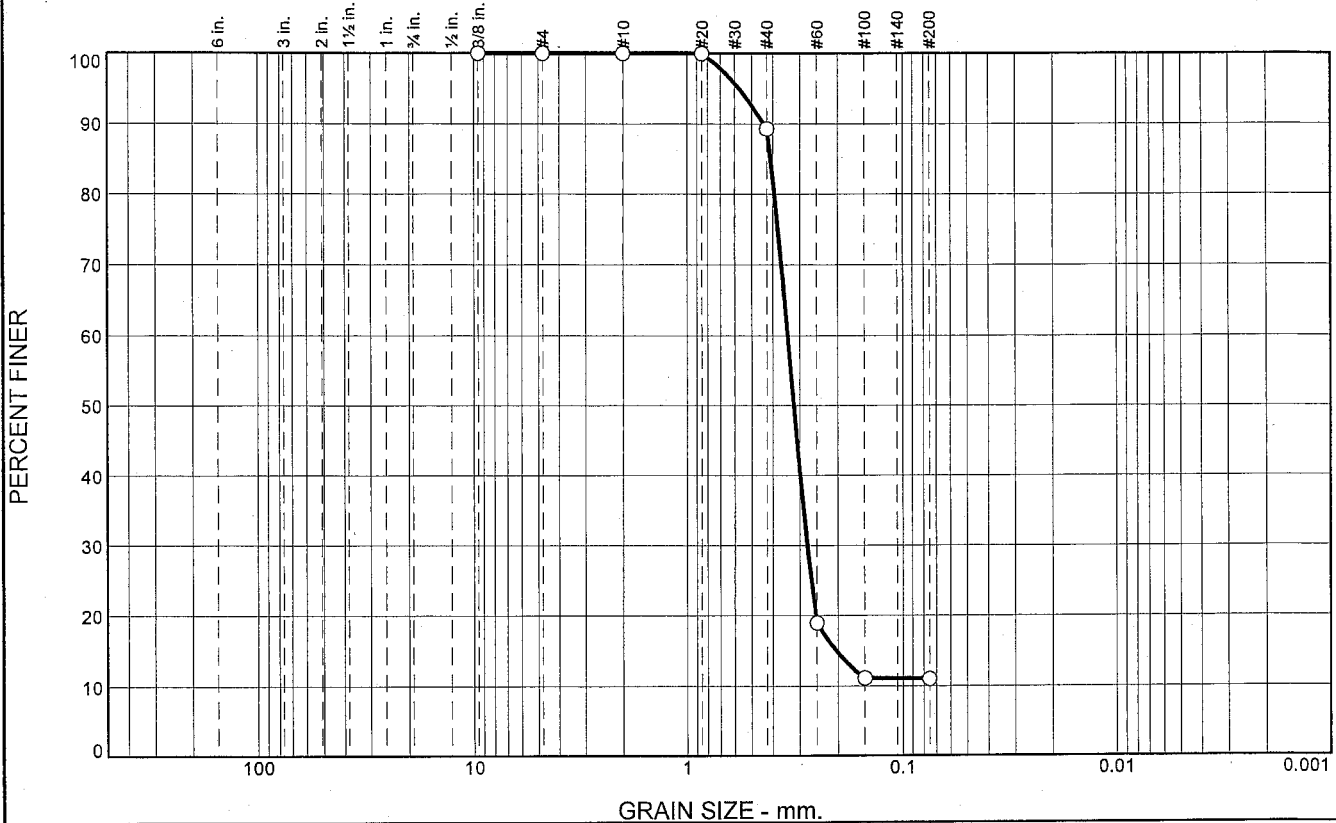
Project No: 10-2123-0009

Figure

Tested By: G.Fancher

Checked By: R.Byrd

# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.0	0.0	10.7	78.3	11.0	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
.375	100.0		
#4	100.0		
#10	100.0		
#20	100.0		
#40	89.3		
#60	18.9		
#100	11.1		
#200	11.0		

**Material Description**  
SAND, (SP-SM), medium to fine grained

**Atterberg Limits**  
 PL=      LL=      PI=

**Coefficients**  
 D<sub>90</sub>= 0.4395      D<sub>85</sub>= 0.4087      D<sub>60</sub>= 0.3409  
 D<sub>50</sub>= 0.3191      D<sub>30</sub>= 0.2769      D<sub>15</sub>= 0.2034  
 D<sub>10</sub>=      C<sub>u</sub>=      C<sub>c</sub>=

**Classification**  
 USCS= SP-SM      AASHTO=

**Remarks**  
 CADD CODE = CH10D965

\* (no specification provided)

Location: USACE Sample # BI-PB-25-10E  
 Sample Number: TE Lab ID: 4578.36

Depth: 12.3 - 15.8 (ft.)

Date: 7/16/10

**Thompson Engineering**  
  
**Mobile, Alabama**

Client: US Army Corps of Engineers  
 Project: Contract No. W91278-10-D-0026 - Task 03  
 Mississippi Barrier Island Restoration Project  
 Project No: 10-2123-0009

Figure

Tested By: G.Fancher

Checked By: R.Byrd

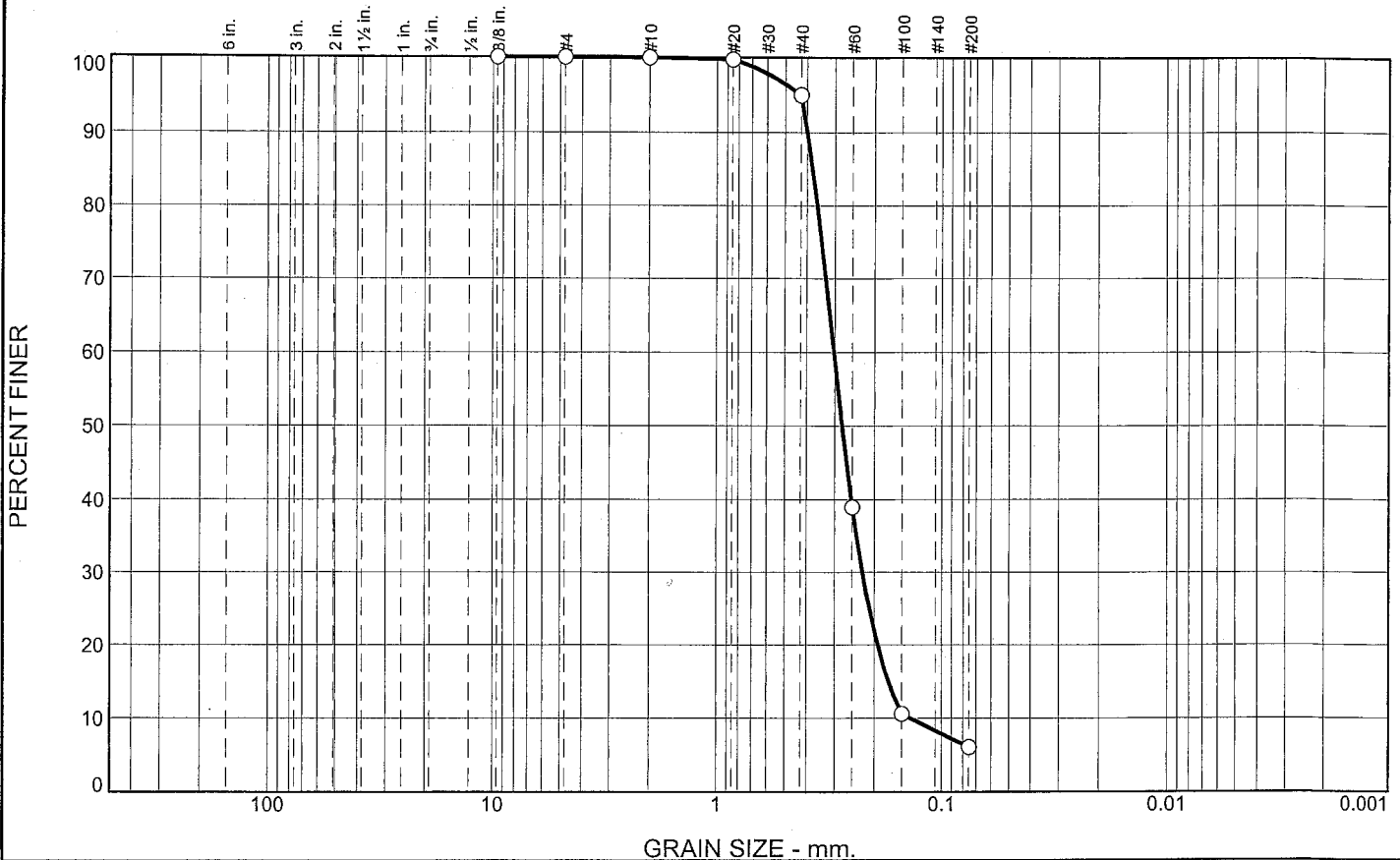
# Boring Designation BI-PB-026-10

DRILLING LOG		DIVISION South Atlantic		INSTALLATION Mobile District		SHEET 1 OF 2 SHEETS	
1. PROJECT MsCIP Barrier Island Restoration Petit Bois Pass- AL West				9. SIZE AND TYPE OF BIT N/A			
2. BORING DESIGNATION BI-PB-026-10		LOCATION COORDINATES E = 1,137,521 N = 254,424		10. COORDINATE SYSTEM/DATUM State Plane, MSE (U.S. Ft.)		HORIZONTAL NAD83 VERTICAL NAVD88	
3. DRILLING AGENCY Corps of Engineers - CESAM		CONTRACTOR FILE NO.		11. MANUFACTURER'S DESIGNATION OF DRILL Vibracore		<input type="checkbox"/> AUTO HAMMER <input type="checkbox"/> MANUAL HAMMER	
4. NAME OF DRILLER Construction Solutions International, Inc.				12. TOTAL SAMPLES 3		DISTURBED 0 UNDISTURBED (UD)	
5. DIRECTION OF BORING <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED		DEG. FROM VERTICAL		13. TOTAL NUMBER CORE BOXES			
		BEARING		14. WATER DEPTH 30 Ft.			
6. THICKNESS OF OVERBURDEN N/A				15. DATE BORING 07-19-10		STARTED 07-19-10 COMPLETED 07-19-10	
7. DEPTH DRILLED INTO ROCK N/A				16. ELEVATION TOP OF BORING -30.5 Ft.			
8. TOTAL DEPTH OF BORING 20.0 Ft.				17. TOTAL RECOVERY FOR BORING 100%			
				18. SIGNATURE AND TITLE OF INSPECTOR Chris Gillentine, Geologist			
ELEV.	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS	SAMPLE	LABORATORY RESULTS		
-30.5	0.0						
-32.1	1.6		SAND, silty, mostly fine-grained sand-sized quartz, some silt, brown (SM)	A	Classification: SP-SM Color: 2.5Y 3/2-very dark grayish brown D50: 0.2776 mm % Fines: 6		
-32.5	2.0		SAND, silty, mostly medium-grained sand-sized quartz, some silt, dk. brown (SM)	B	Classification: SP-SM Color: 2.5Y 4/2-dark grayish brown D50: 0.2524 mm % Fines: 6.5		
			SAND, poorly-graded, mostly fine to medium-grained sand-sized quartz, trace silt, brown (SP)	C	Classification: SP Color: 2.5Y 5/2-grayish brown D50: 0.2625 mm % Fines: 3.9		
-42.5	12.0		CLAY, fat, gray (CH)	NS			
-50.5	20.0						
NOTES:							
1. Soils are field visually classified in accordance with the Unified Soils Classification System.							
2. NS = Sample not submitted for laboratory analysis from this interval.							
3. Seafloor elevation determined from 2010							



<b>DRILLING LOG (Cont. Sheet)</b>			<b>INSTALLATION</b> Mobile District		<b>SHEET 2</b> <b>OF 2 SHEETS</b>
<b>PROJECT</b> MsCIP Barrier Island Restoration			<b>COORDINATE SYSTEM/DATUM</b> State Plane, MSE (U.S. Ft.)	<b>HORIZONTAL</b> NAD83	<b>VERTICAL</b> NAVD88
<b>LOCATION COORDINATES</b> X = 1,137,521 Y = 254,424			<b>ELEVATION TOP OF BORING</b> -30.5 Ft.		
<b>ELEV.</b>	<b>DEPTH</b>	<b>LEGEND</b>	<b>CLASSIFICATION OF MATERIALS</b>	<b>SAMPLE</b>	<b>LABORATORY RESULTS</b>
			USACE survey.		

# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.0	0.0	5.0	89.0	6.0	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
.375	100.0		
#4	100.0		
#10	100.0		
#20	99.7		
#40	95.0		
#60	38.9		
#100	10.6		
#200	6.0		

\* (no specification provided)

<u>Material Description</u>		
SAND, (SP-SM), fine grained		
<u>Atterberg Limits</u>		
PL=	LL=	PI=
<u>Coefficients</u>		
D <sub>90</sub> = 0.3988	D <sub>85</sub> = 0.3780	D <sub>60</sub> = 0.3026
D <sub>50</sub> = 0.2776	D <sub>30</sub> = 0.2255	D <sub>15</sub> = 0.1728
D <sub>10</sub> = 0.1371	C <sub>u</sub> = 2.21	C <sub>c</sub> = 1.23
<u>Classification</u>		
USCS= SP-SM	AASHTO=	
<u>Remarks</u>		
CADD CODE = CH10D965		

Location: USACE Sample # BI-PB-26-10A  
Sample Number: TE Lab ID: 4609.01

Depth: 0.0 - 2.0 (ft.)

Date: 8/4/10

**Thompson Engineering**

**Mobile, Alabama**

Client: US Army Corps of Engineers

Project: Contract No. W91278-10-D-0026 - Task 03  
Mississippi Barrier Island Restoration Project

Project No: 10-2123-0009

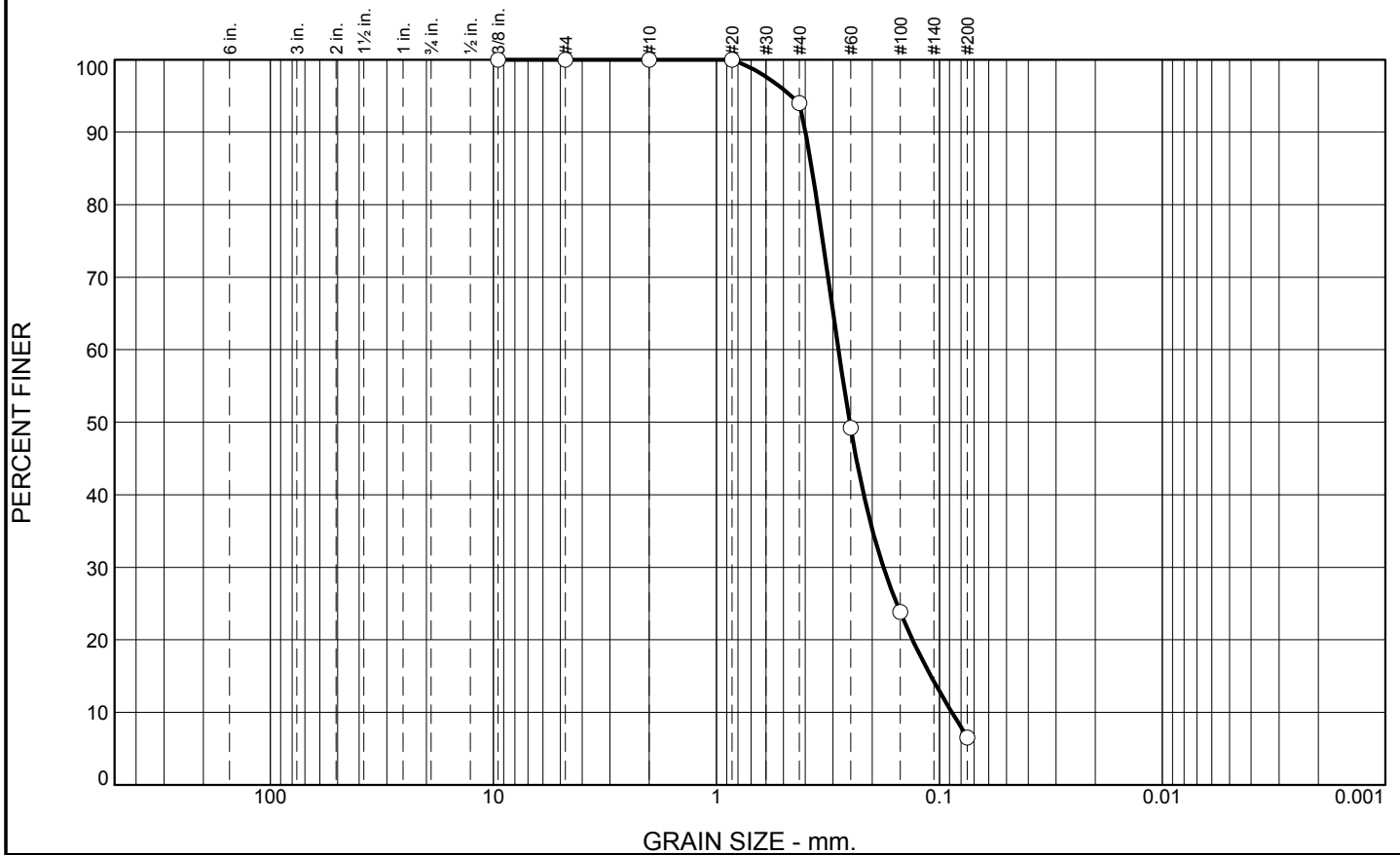
Report No.

Tested By: R.Martin

Checked By: R.Byrd

L-115

# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.0	0.0	6.0	87.5	6.5	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
.375	100.0		
#4	100.0		
#10	100.0		
#20	100.0		
#40	94.0		
#60	49.2		
#100	23.9		
#200	6.5		

\* (no specification provided)

**Material Description**  
SAND, (SP-SM), fine grained

**Atterberg Limits**  
 PL=      LL=      PI=

**Coefficients**  
 D<sub>90</sub>= 0.3992      D<sub>85</sub>= 0.3737      D<sub>60</sub>= 0.2835  
 D<sub>50</sub>= 0.2524      D<sub>30</sub>= 0.1783      D<sub>15</sub>= 0.1091  
 D<sub>10</sub>= 0.0879      C<sub>u</sub>= 3.22      C<sub>c</sub>= 1.28

**Classification**  
 USCS= SP-SM      AASHTO=

**Remarks**  
 CADD CODE = CH10D965

Location: USACE Sample # BI-PB-26-10B  
 Sample Number: TE Lab ID: 4609.02

Depth: 2.0 - 7.0 (ft.)

Date: 8/4/10

**Thompson Engineering**

**Mobile, Alabama**

Client: US Army Corps of Engineers

Project: Contract No. W91278-10-D-0026 - Task 03  
 Mississippi Barrier Island Restoration Project

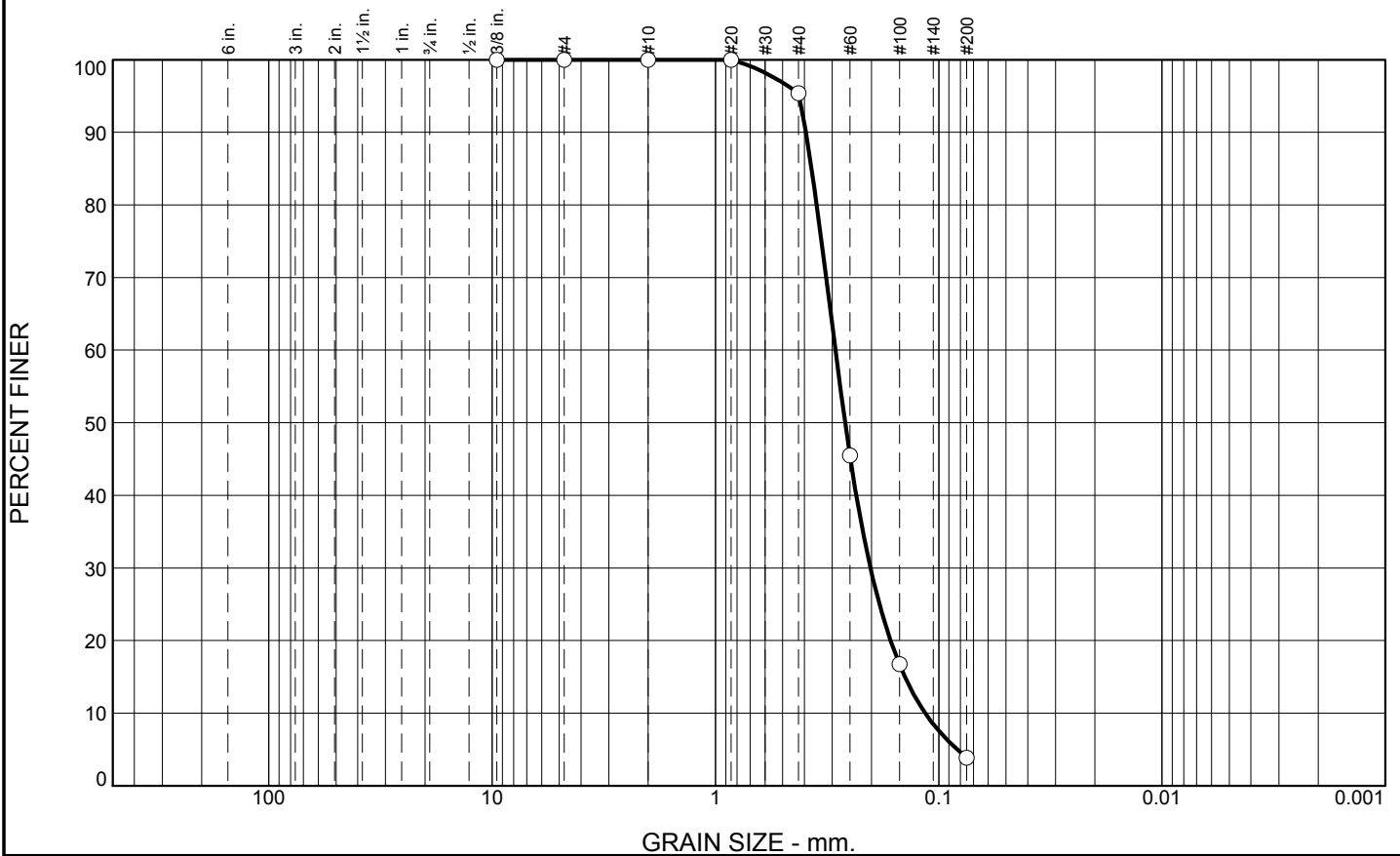
Project No: 10-2123-0009

Report No. Revised 8/20

Tested By: R.Martin

Checked By: R.Byrd

# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.0	0.0	4.6	91.5	3.9	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
.375	100.0		
#4	100.0		
#10	100.0		
#20	100.0		
#40	95.4		
#60	45.5		
#100	16.7		
#200	3.9		

\* (no specification provided)

**Material Description**  
SAND, (SP), fine grained, with trace clay nodules

**Atterberg Limits**  
 PL=      LL=      PI=

**Coefficients**  
 D<sub>90</sub>= 0.3939      D<sub>85</sub>= 0.3714      D<sub>60</sub>= 0.2900  
 D<sub>50</sub>= 0.2625      D<sub>30</sub>= 0.2024      D<sub>15</sub>= 0.1417  
 D<sub>10</sub>= 0.1151      C<sub>u</sub>= 2.52      C<sub>c</sub>= 1.23

**Classification**  
 USCS= SP      AASHTO=

**Remarks**  
 CADD CODE = CH10D965

Location: USACE Sample # BI-PB-26-10C  
 Sample Number: TE Lab ID: 4609.03

Depth: 7.0 - 12.0 (ft.)

Date: 8/4/10

**Thompson Engineering**

**Mobile, Alabama**

Client: US Army Corps of Engineers

Project: Contract No. W91278-10-D-0026 - Task 03  
 Mississippi Barrier Island Restoration Project

Project No: 10-2123-0009

Report No. Revised 8/20

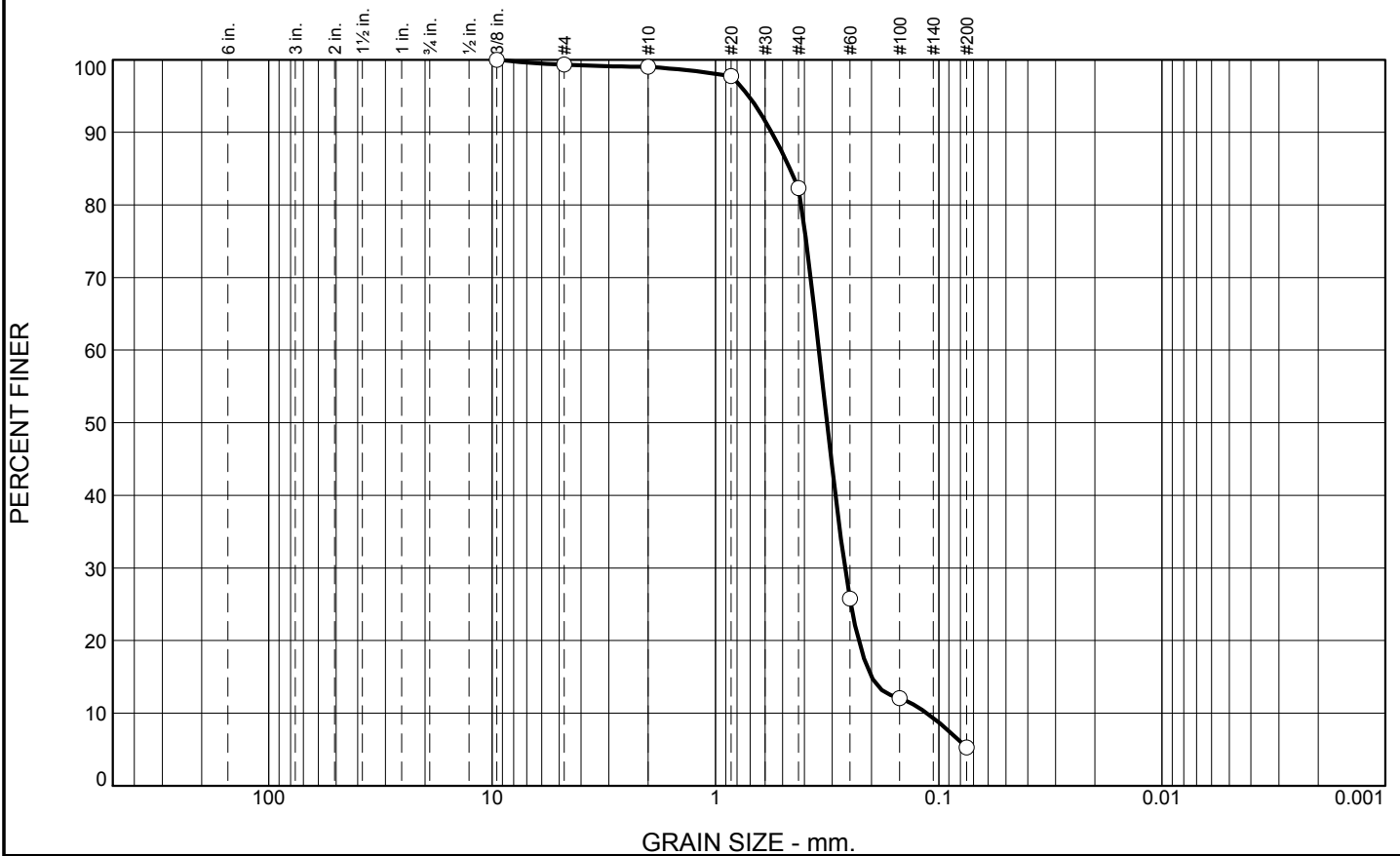
Tested By: R.Martin

Checked By: R.Byrd

# Boring Designation BI-PB-027-10

DRILLING LOG		DIVISION South Atlantic		INSTALLATION Mobile District		SHEET 1 OF 1 SHEETS	
1. PROJECT MsCIP Barrier Island Restoration Petit Bois Pass- AL West				9. SIZE AND TYPE OF BIT N/A			
2. BORING DESIGNATION BI-PB-027-10		LOCATION COORDINATES E = 1,138,715 N = 254,477		10. COORDINATE SYSTEM/DATUM State Plane, MSE (U.S. Ft.)		HORIZONTAL NAD83	
3. DRILLING AGENCY Corps of Engineers - CESAM		CONTRACTOR FILE NO.		11. MANUFACTURER'S DESIGNATION OF DRILL Vibracore		<input type="checkbox"/> AUTO HAMMER <input type="checkbox"/> MANUAL HAMMER	
4. NAME OF DRILLER Construction Solutions International, Inc.				12. TOTAL SAMPLES 2		DISTURBED 0	
5. DIRECTION OF BORING <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED				13. TOTAL NUMBER CORE BOXES		14. WATER DEPTH 30 Ft.	
6. THICKNESS OF OVERBURDEN N/A				15. DATE BORING 07-19-10		STARTED 07-19-10	
7. DEPTH DRILLED INTO ROCK N/A				16. ELEVATION TOP OF BORING -29.9 Ft.		COMPLETED 07-19-10	
8. TOTAL DEPTH OF BORING 18.0 Ft.				17. TOTAL RECOVERY FOR BORING 100%			
				18. SIGNATURE AND TITLE OF INSPECTOR Chris Gillentine, Geologist			
ELEV.	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS	SAMPLE	LABORATORY RESULTS		
-29.9	0.0						
			SAND, poorly-graded, mostly fine to medium-grained sand-sized quartz, trace shell fragments, brownish tan (SP)	A	Classification: SP-SM Color: 2.5Y 6/2-light brownish gray D50: 0.3163 mm % Fines: 5.3		
				B	Classification: SP Color: 2.5Y 7/2-light gray D50: 0.3179 mm % Fines: 2.9		
-39.9	10.0						
			CLAY, fat, dark gray (CH)	NS			
-47.9	18.0						
			NOTES: 1. Soils are field visually classified in accordance with the Unified Soils Classification System. 2. NS = Sample not submitted for laboratory analysis from this interval. 3. Seafloor elevation calculated using sampling vessel's fathometer water depth reading and applying NOAA tidal gauge data conversion factor.				

# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.7	0.3	16.7	77.0	5.3	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
.375	100.0		
#4	99.3		
#10	99.0		
#20	97.7		
#40	82.3		
#60	25.8		
#100	12.1		
#200	5.3		

\* (no specification provided)

**Material Description**  
SAND, (SP-SM), medium to fine grained, with trace clay nodules

**Atterberg Limits**  
 PL=      LL=      PI=

**Coefficients**  
 D<sub>90</sub>= 0.5599      D<sub>85</sub>= 0.4641      D<sub>60</sub>= 0.3439  
 D<sub>50</sub>= 0.3163      D<sub>30</sub>= 0.2628      D<sub>15</sub>= 0.1999  
 D<sub>10</sub>= 0.1132      C<sub>u</sub>= 3.04      C<sub>c</sub>= 1.77

**Classification**  
 USCS= SP-SM      AASHTO=

**Remarks**  
 CADD CODE = CH10D965

Location: USACE Sample # BI-PB-27-10A  
 Sample Number: TE Lab ID: 4609.04

Depth: 0.0 - 5.0 (ft.)

Date: 8/4/10

**Thompson Engineering**

**Mobile, Alabama**

Client: US Army Corps of Engineers

Project: Contract No. W91278-10-D-0026 - Task 03  
 Mississippi Barrier Island Restoration Project

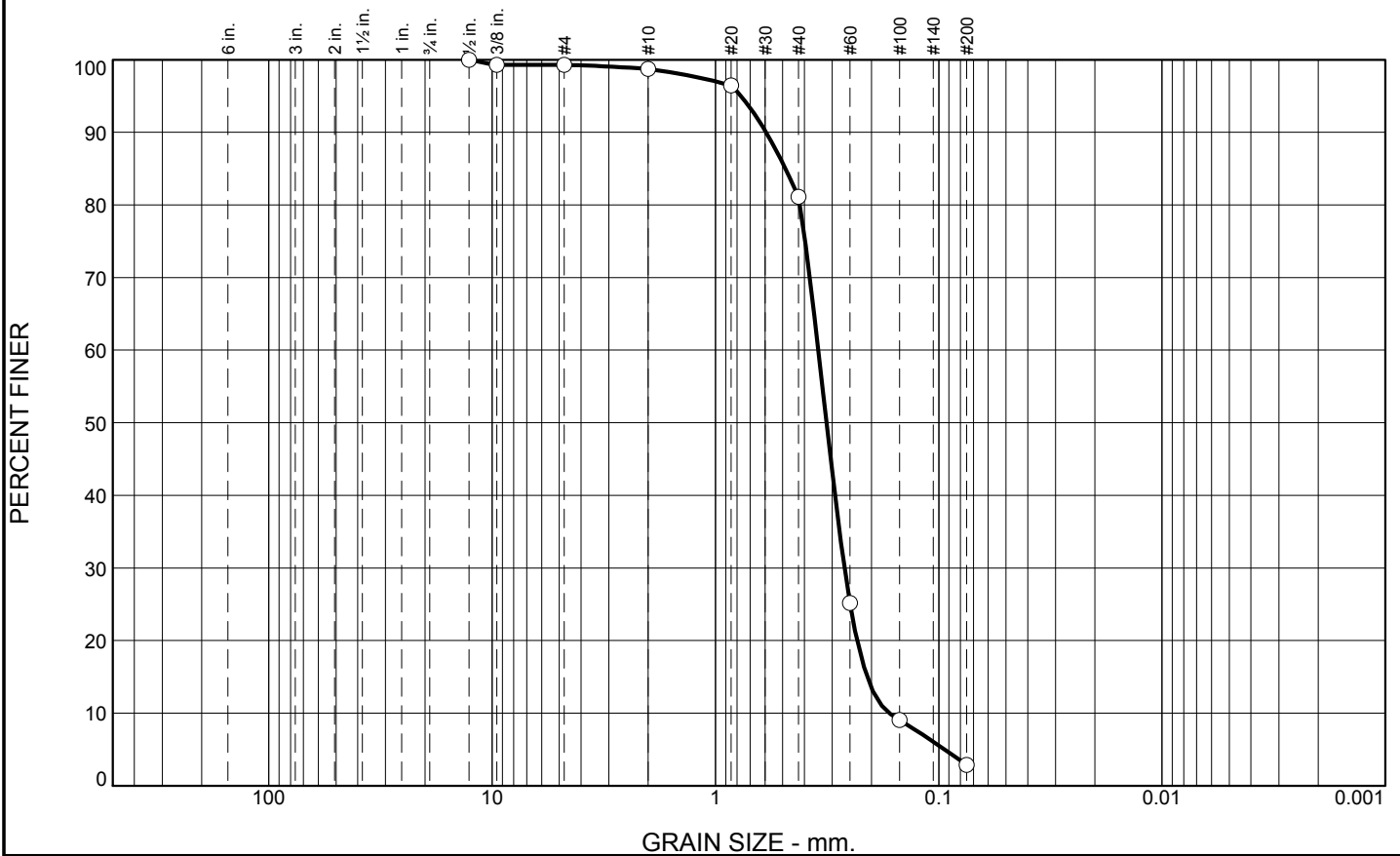
Project No: 10-2123-0009

Report No. Revised 8/20

Tested By: R.Martin

Checked By: R.Byrd

# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.7	0.6	17.6	78.2	2.9	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
.500	100.0		
.375	99.3		
#4	99.3		
#10	98.7		
#20	96.5		
#40	81.1		
#60	25.2		
#100	9.1		
#200	2.9		

\* (no specification provided)

**Material Description**  
SAND, (SP), medium to fine grained

**Atterberg Limits**  
 PL=      LL=      PI=

**Coefficients**  
 D<sub>90</sub>= 0.5932      D<sub>85</sub>= 0.4857      D<sub>60</sub>= 0.3462  
 D<sub>50</sub>= 0.3179      D<sub>30</sub>= 0.2643      D<sub>15</sub>= 0.2093  
 D<sub>10</sub>= 0.1666      C<sub>u</sub>= 2.08      C<sub>c</sub>= 1.21

**Classification**  
 USCS= SP      AASHTO=

**Remarks**  
 CADD CODE = CH10D965

Location: USACE Sample # BI-PB-27-10B  
 Sample Number: TE Lab ID: 4609.05

Depth: 5.0 - 10.0 (FT.)

Date: 8/4/10

**Thompson Engineering**

**Mobile, Alabama**

Client: US Army Corps of Engineers

Project: Contract No. W91278-10-D-0026 - Task 03  
 Mississippi Barrier Island Restoration Project

Project No: 10-2123-0009

Report No. Revised 8/20

Tested By: R.Martin

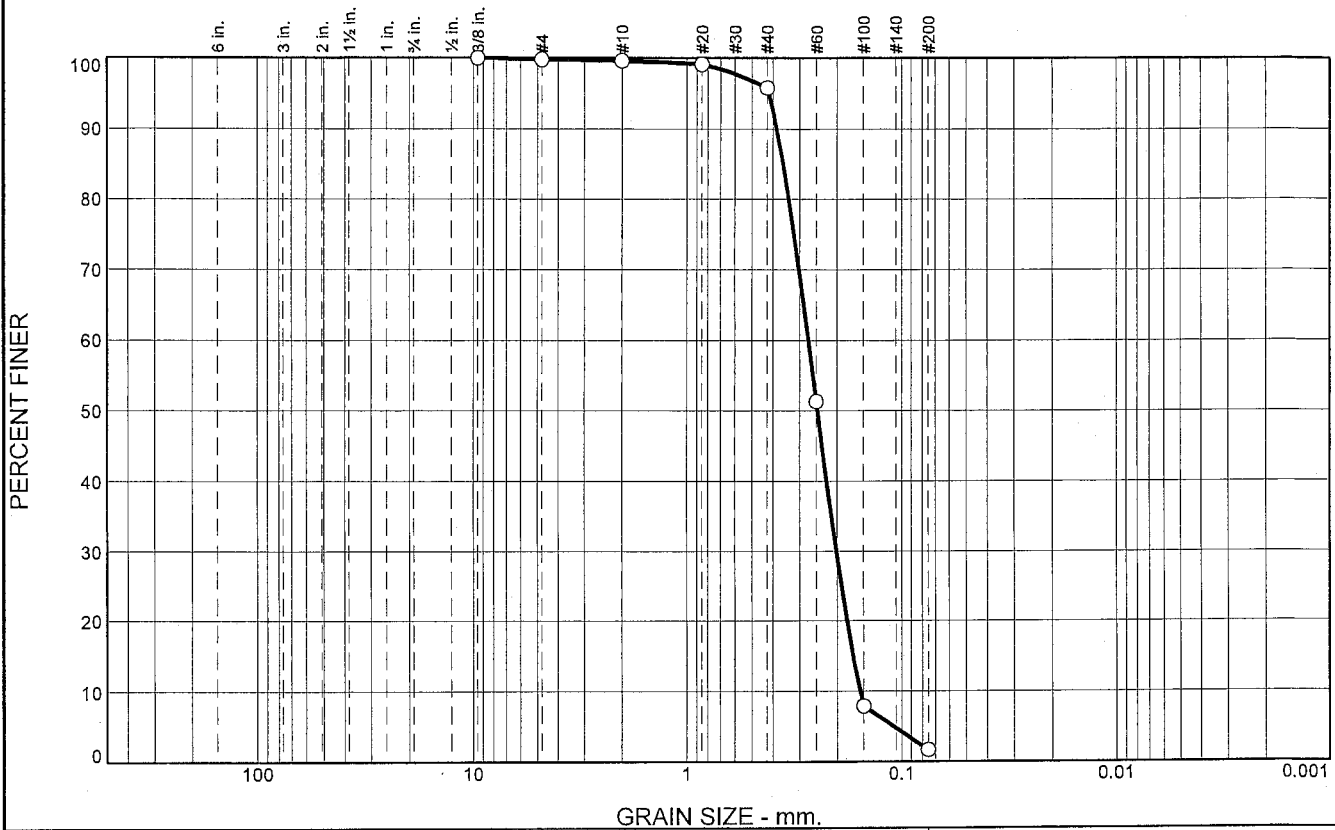
Checked By: R.Byrd

# Boring Designation BI-PB-028-10

DRILLING LOG		DIVISION South Atlantic		INSTALLATION Mobile District		SHEET 1 OF 1 SHEETS	
1. PROJECT MsCIP Barrier Island Restoration Petit Bois Pass- AL East				9. SIZE AND TYPE OF BIT N/A			
2. BORING DESIGNATION BI-PB-028-10		LOCATION COORDINATES E = 1,142,088 N = 254,513		10. COORDINATE SYSTEM/DATUM State Plane, MSE (U.S. Ft.)		HORIZONTAL NAD83	
3. DRILLING AGENCY Corps of Engineers - CESAM		CONTRACTOR FILE NO.		11. MANUFACTURER'S DESIGNATION OF DRILL Vibrocure		<input type="checkbox"/> AUTO HAMMER <input type="checkbox"/> MANUAL HAMMER	
4. NAME OF DRILLER Construction Solutions International, Inc.				12. TOTAL SAMPLES 4		DISTURBED 0	
5. DIRECTION OF BORING <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED				13. TOTAL NUMBER CORE BOXES		14. WATER DEPTH 32 Ft.	
6. THICKNESS OF OVERBURDEN N/A				15. DATE BORING 07-16-10		STARTED 07-16-10	
7. DEPTH DRILLED INTO ROCK N/A				16. ELEVATION TOP OF BORING -31.6 Ft.		17. TOTAL RECOVERY FOR BORING 100%	
8. TOTAL DEPTH OF BORING 18.6 Ft.				18. SIGNATURE AND TITLE OF INSPECTOR John Baehr, Geologist			
ELEV.	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS	SAMPLE	LABORATORY RESULTS		
-31.6	0.0						
			SAND, poorly-graded, mostly fine-grained sand-sized quartz, trace shell fragments, lt. gray (SP)	A	Classification: SP Color: 2.5Y 7/1-light gray D50: 0.2468 mm % Fines: 1.7		
				B	Classification: SP Color: 2.5Y 7/1-light gray D50: 0.2646 mm % Fines: 1.9		
				C	Classification: SP Color: 2.5Y 7/1-light gray D50: 0.2917 mm % Fines: 2.5		
				D	Classification: SP Color: 2.5Y 7/1-light gray D50: 0.3289 mm % Fines: 1.8		
-50.2	18.6						
			NOTES: 1. Soils are field visually classified in accordance with the Unified Soils Classification System. 2. NS = Sample not submitted for laboratory analysis from this interval. 3. Seafloor elevation calculated using sampling vessel's fathometer water depth reading and applying NOAA tidal gauge data conversion factor.				



# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.2	0.2	3.8	94.1	1.7	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
.375	100.0		
#4	99.8		
#10	99.6		
#20	99.1		
#40	95.8		
#60	51.3		
#100	7.9		
#200	1.7		

\* (no specification provided)

## Material Description

SAND, (SP), fine grained

PL=      Atterberg Limits      LL=      PI=

Coefficients  
D<sub>90</sub>= 0.3841      D<sub>85</sub>= 0.3583      D<sub>60</sub>= 0.2724  
D<sub>50</sub>= 0.2468      D<sub>30</sub>= 0.2013      D<sub>15</sub>= 0.1681  
D<sub>10</sub>= 0.1557      C<sub>u</sub>= 1.75      C<sub>c</sub>= 0.96

USCS= SP      Classification      AASHTO=

Remarks  
CADD CODE = CH10D965

Location: USACE Sample # BI-PB-28-10A  
Sample Number: TE Lab ID: 4593.60

Depth: 0.0 - 5.0 (ft.)

Date: 7/26/10

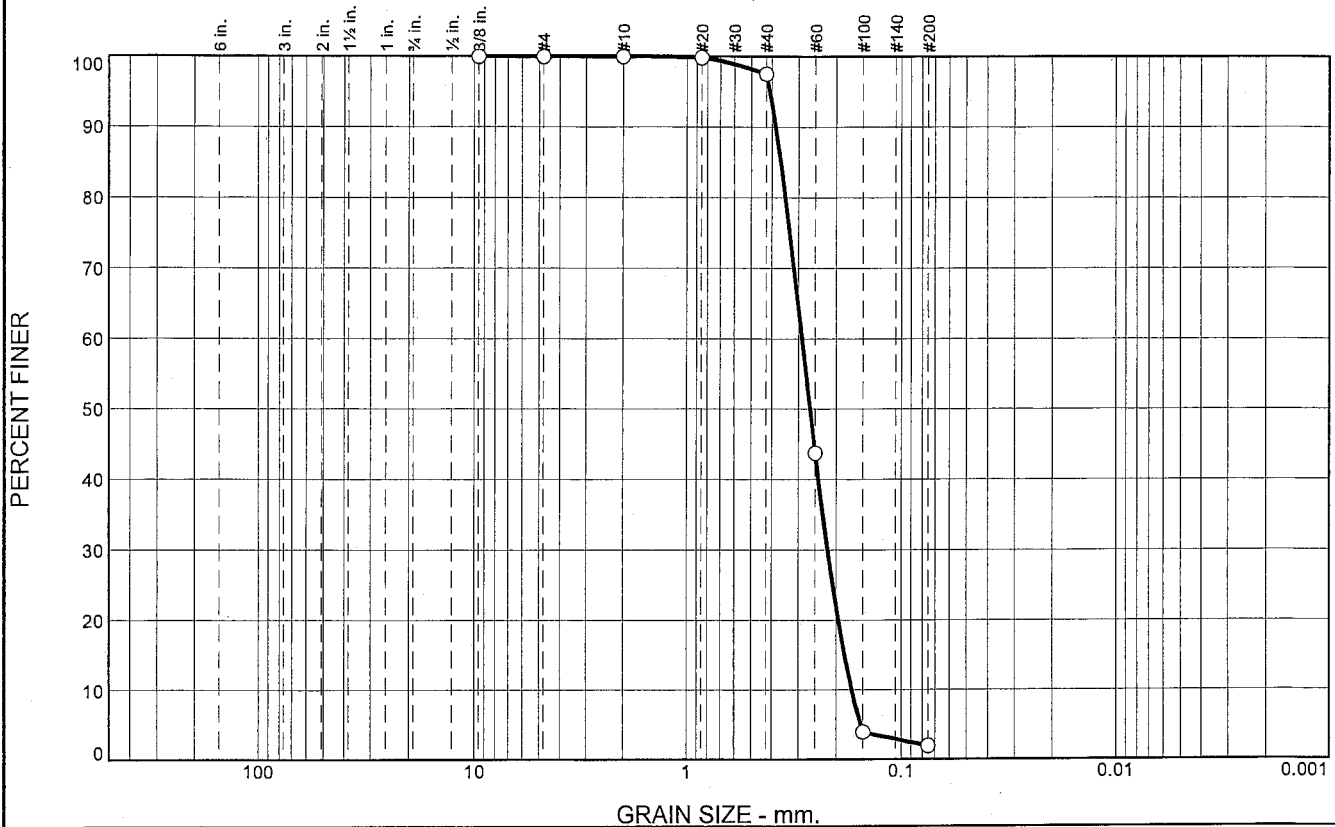
**Thompson Engineering**  
  
**Mobile, Alabama**

Client: US Army Corps of Engineers  
Project: Contract No. W91278-10-D-0026 - Task 03  
Mississippi Barrier Island Restoration Project  
Project No: 10-2123-0009      Report No.

Tested By: G.Fancher

Checked By: R.Byrd

# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.0	0.0	2.5	95.6	1.9	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
.375	100.0		
#4	100.0		
#10	100.0		
#20	99.9		
#40	97.5		
#60	43.7		
#100	3.9		
#200	1.9		

<u>Material Description</u>		
SAND, (SP), fine grained		
<u>Atterberg Limits</u>		
PL=	LL=	PI=
<u>Coefficients</u>		
D <sub>90</sub> = 0.3837	D <sub>85</sub> = 0.3632	D <sub>60</sub> = 0.2887
D <sub>50</sub> = 0.2646	D <sub>30</sub> = 0.2186	D <sub>15</sub> = 0.1825
D <sub>10</sub> = 0.1692	C <sub>u</sub> = 1.71	C <sub>c</sub> = 0.98
<u>Classification</u>		
USCS= SP	AASHTO=	
<u>Remarks</u>		
CADD CODE = CH10D965		

\* (no specification provided)

Location: USACE Sample # BI-PB-28-10B  
Sample Number: TE Lab ID: 4593.61

Depth: 5.0 - 10.0 (ft.)

Date: 7/26/10

**Thompson Engineering**

**Mobile, Alabama**

Client: US Army Corps of Engineers

Project: Contract No. W91278-10-D-0026 - Task 03  
Mississippi Barrier Island Restoration Project

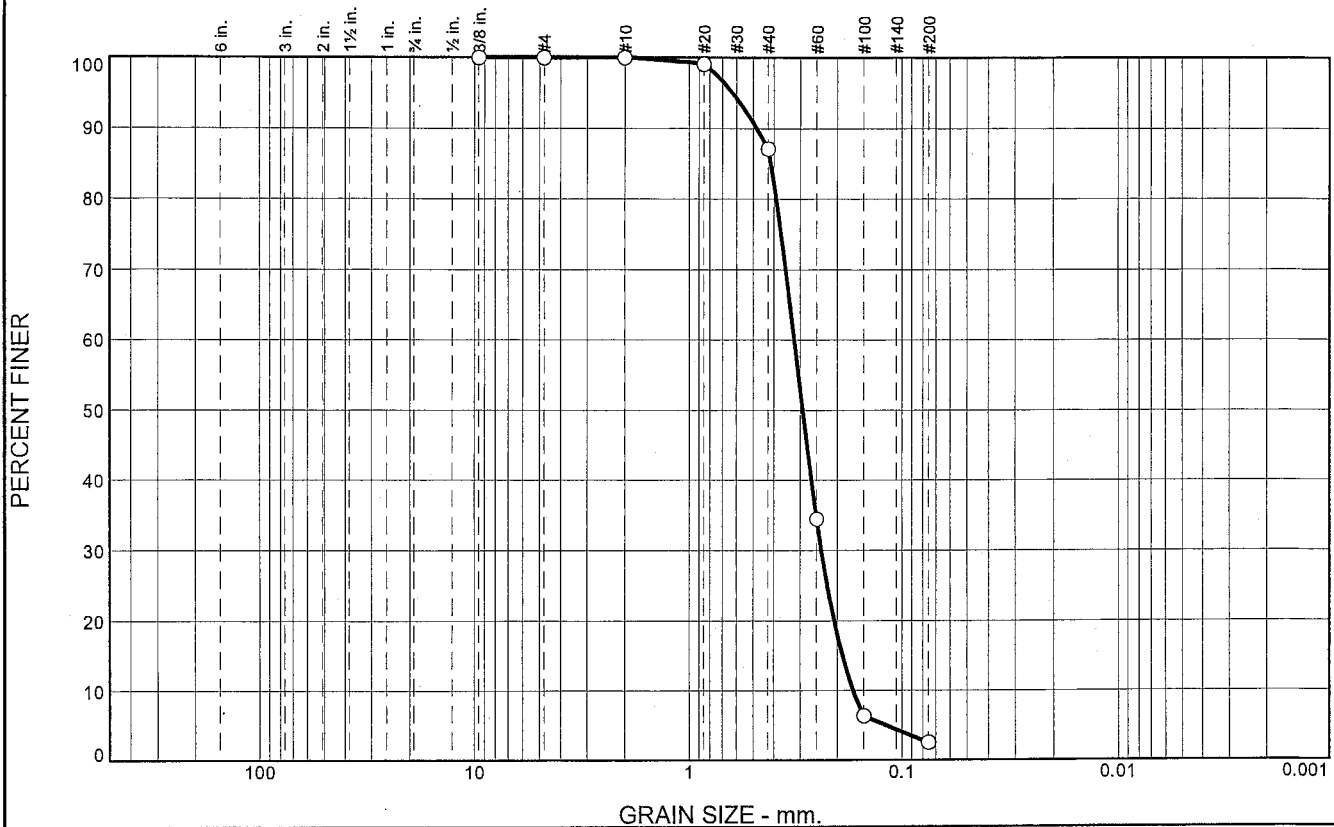
Project No: 10-2123-0009

Report No.

Tested By: G.Fancher

Checked By: R.Byrd

# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.0	0.0	12.9	84.6	2.5	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
.375	100.0		
#4	100.0		
#10	100.0		
#20	99.1		
#40	87.1		
#60	34.4		
#100	6.4		
#200	2.5		

\* (no specification provided)

## Material Description

SAND, (SP), medium to fine grained

## Atterberg Limits

PL= LL= PI=

## Coefficients

D<sub>90</sub>= 0.4813 D<sub>85</sub>= 0.4131 D<sub>60</sub>= 0.3197  
D<sub>50</sub>= 0.2917 D<sub>30</sub>= 0.2376 D<sub>15</sub>= 0.1891  
D<sub>10</sub>= 0.1684 C<sub>u</sub>= 1.90 C<sub>c</sub>= 1.05

## Classification

USCS= SP AASHTO=

## Remarks

CADD CODE = CH10D965

Location: USACE Sample # BI-PB-28-10C  
Sample Number: TE Lab ID: 4593.62

Depth: 10.0 - 15.0 (ft.)

Date: 7/26/10

**Thompson Engineering**

**Mobile, Alabama**

Client: US Army Corps of Engineers

Project: Contract No. W91278-10-D-0026 - Task 03  
Mississippi Barrier Island Restoration Project

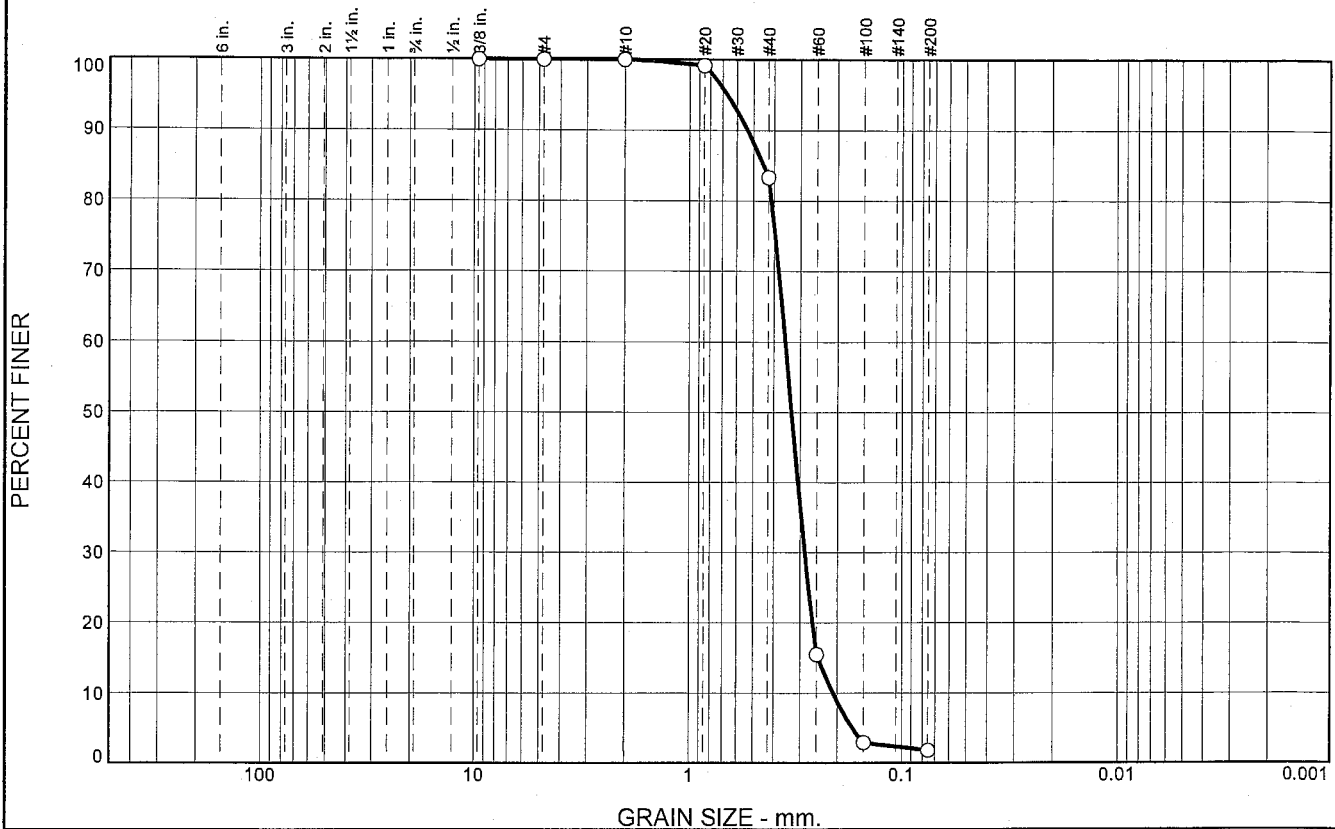
Project No: 10-2123-0009

Report No.

Tested By: G.Fancher

Checked By: R.Byrd

# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.0	0.0	16.7	81.5	1.8	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
.375	100.0		
#4	100.0		
#10	100.0		
#20	99.1		
#40	83.3		
#60	15.5		
#100	2.9		
#200	1.8		

\* (no specification provided)

**Material Description**  
SAND, (SP), medium to fine grained

**Atterberg Limits**  
PL=      LL=      PI=

**Coefficients**  
D<sub>90</sub>= 0.5337      D<sub>85</sub>= 0.4483      D<sub>60</sub>= 0.3527  
D<sub>50</sub>= 0.3289      D<sub>30</sub>= 0.2849      D<sub>15</sub>= 0.2466  
D<sub>10</sub>= 0.2095      C<sub>u</sub>= 1.68      C<sub>c</sub>= 1.10

**Classification**  
USCS= SP      AASHTO=

**Remarks**  
CADD CODE = CH10D965

Location: USACE Sample # BI-PB-28-10D  
Sample Number: TE Lab ID: 4593.63

Depth: 15.0 - 19.2 (ft.)

Date: 7/26/10

**Thompson Engineering**

**Mobile, Alabama**

Client: US Army Corps of Engineers

Project: Contract No. W91278-10-D-0026 - Task 03  
Mississippi Barrier Island Restoration Project

Project No: 10-2123-0009

Report No.

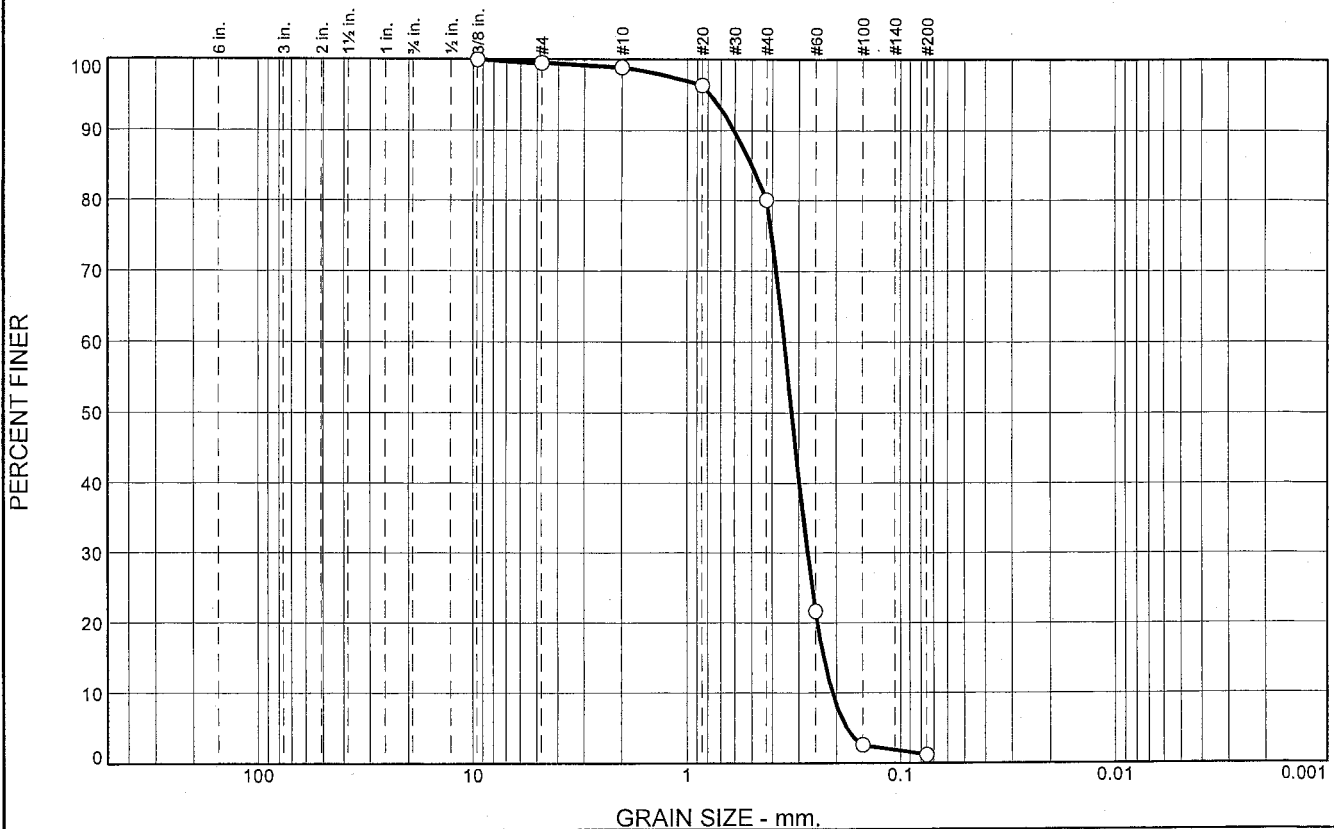
Tested By: G.Fancher

Checked By: R.Byrd

# Boring Designation BI-PB-029-10

DRILLING LOG		DIVISION South Atlantic		INSTALLATION Mobile District		SHEET 1 OF 1 SHEETS	
1. PROJECT MsCIP Barrier Island Restoration Petit Bois Pass- AL East				9. SIZE AND TYPE OF BIT N/A			
2. BORING DESIGNATION BI-PB-029-10		LOCATION COORDINATES E = 1,143,583 N = 254,505		10. COORDINATE SYSTEM/DATUM State Plane, MSE (U.S. Ft.)		HORIZONTAL NAD83 VERTICAL NAVD88	
3. DRILLING AGENCY Corps of Engineers - CESAM		CONTRACTOR FILE NO.		11. MANUFACTURER'S DESIGNATION OF DRILL Vibrocure		<input type="checkbox"/> AUTO HAMMER <input type="checkbox"/> MANUAL HAMMER	
4. NAME OF DRILLER Construction Solutions International, Inc.				12. TOTAL SAMPLES		DISTURBED 1 UNDISTURBED (UD) 0	
5. DIRECTION OF BORING <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED				13. TOTAL NUMBER CORE BOXES		14. WATER DEPTH 30 Ft.	
6. THICKNESS OF OVERBURDEN N/A				15. DATE BORING		STARTED 07-16-10 COMPLETED 07-16-10	
7. DEPTH DRILLED INTO ROCK N/A				16. ELEVATION TOP OF BORING -29.6 Ft.		17. TOTAL RECOVERY FOR BORING 100%	
8. TOTAL DEPTH OF BORING 11.5 Ft.				18. SIGNATURE AND TITLE OF INSPECTOR John Baehr, Geologist			
ELEV.	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS	SAMPLE	LABORATORY RESULTS		
-29.6	0.0						
-31.0	1.4		SAND, poorly-graded, mostly fine to medium-grained sand-sized quartz, trace shell fragments, lt. gray (SP)	A	Classification: SP Color: 2.5Y 7/2-light gray D50: 0.3235 mm % Fines: 1.2		
-32.6	3.0		SAND, poorly-graded with silt, mostly fine to medium-grained sand-sized quartz, trace shell fragments, interbedded SP and SM layers, lt. gray (SP-SM)				
			CLAY, lean, gray (CL)	NS			
-41.1	11.5						
NOTES:							
1. Soils are field visually classified in accordance with the Unified Soils Classification System.							
2. NS = Sample not submitted for laboratory analysis from this interval.							
3. Seafloor elevation calculated using sampling vessel's fathometer water depth reading and applying NOAA tidal gauge data conversion factor.							

# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.5	0.6	18.9	78.8	1.2	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
.375	100.0		
#4	99.5		
#10	98.9		
#20	96.4		
#40	80.0		
#60	21.7		
#100	2.6		
#200	1.2		

## Material Description

SAND, (SP), medium to fine grained

## Atterberg Limits

PL= LL= PI=

## Coefficients

D<sub>90</sub>= 0.6056 D<sub>85</sub>= 0.4996 D<sub>60</sub>= 0.3513  
D<sub>50</sub>= 0.3235 D<sub>30</sub>= 0.2725 D<sub>15</sub>= 0.2287  
D<sub>10</sub>= 0.2085 C<sub>u</sub>= 1.68 C<sub>c</sub>= 1.01

## Classification

USCS= SP AASHTO=

## Remarks

CADD CODE = CH10D965

\* (no specification provided)

Location: USACE Sample # BI-PB-29-10A  
Sample Number: TE Lab ID: 4593.59

Depth: 0.0 - 1.4 (ft.)

Date: 7/26/10

**Thompson Engineering**

**Mobile, Alabama**

Client: US Army Corps of Engineers

Project: Contract No. W91278-10-D-0026 - Task 03  
Mississippi Barrier Island Restoration Project

Project No: 10-2123-0009

Report No.

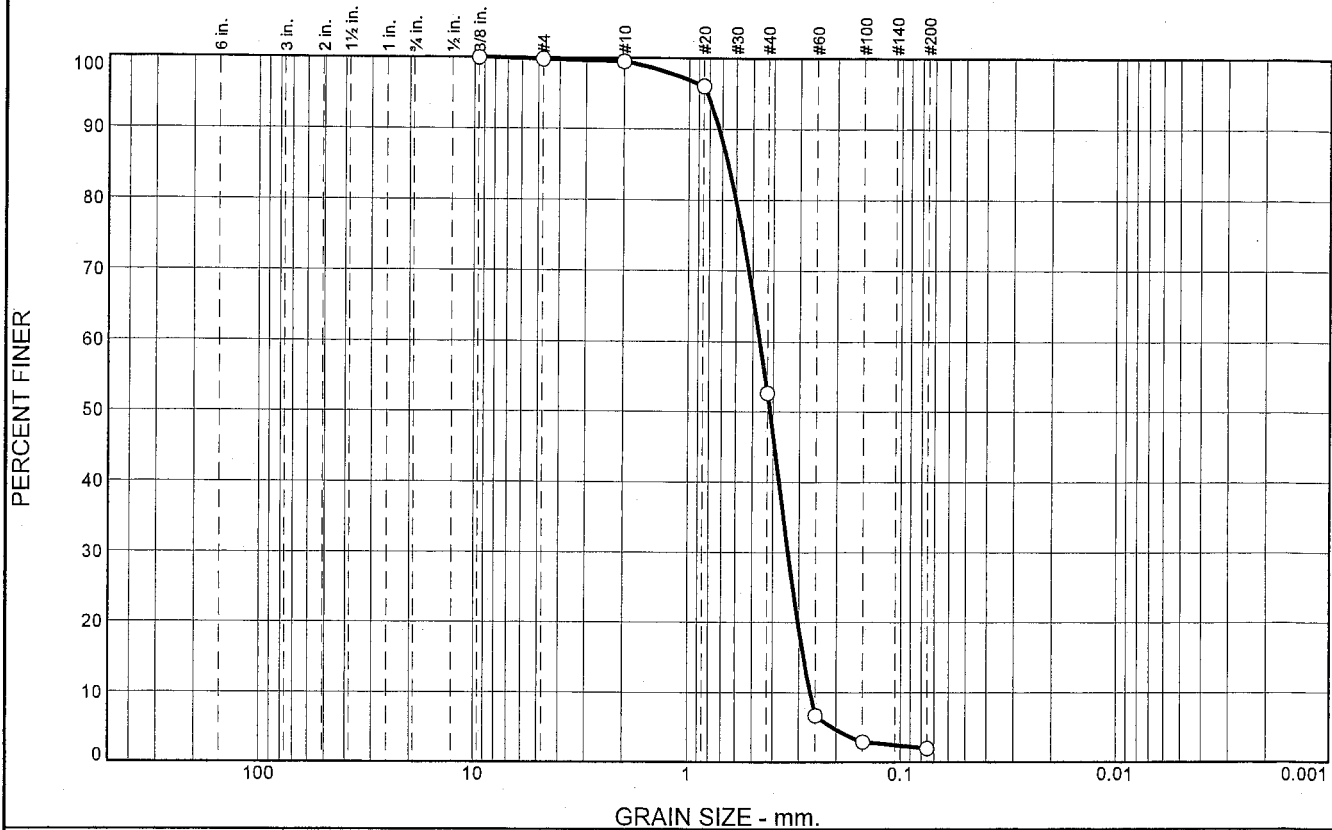
Tested By: G.Fancher

Checked By: R.Byrd

# Boring Designation BI-PB-030-10

DRILLING LOG		DIVISION South Atlantic		INSTALLATION Mobile District		SHEET 1 OF 1 SHEETS	
1. PROJECT MsCIP Barrier Island Restoration Petit Bois Pass- AL East				9. SIZE AND TYPE OF BIT N/A			
2. BORING DESIGNATION BI-PB-030-10		LOCATION COORDINATES E = 1,145,242 N = 254,411		10. COORDINATE SYSTEM/DATUM State Plane, MSE (U.S. Ft.)		HORIZONTAL NAD83	
3. DRILLING AGENCY Corps of Engineers - CESAM		CONTRACTOR FILE NO.		11. MANUFACTURER'S DESIGNATION OF DRILL Vibrocure		<input type="checkbox"/> AUTO HAMMER <input type="checkbox"/> MANUAL HAMMER	
4. NAME OF DRILLER Construction Solutions International, Inc.				12. TOTAL SAMPLES		DISTURBED 3	
5. DIRECTION OF BORING <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED				13. TOTAL NUMBER CORE BOXES		UNDISTURBED (UD) 0	
6. THICKNESS OF OVERBURDEN N/A				14. WATER DEPTH		33 Ft.	
7. DEPTH DRILLED INTO ROCK N/A				15. DATE BORING		STARTED 07-16-10	
8. TOTAL DEPTH OF BORING 18.8 Ft.				16. ELEVATION TOP OF BORING -33.7 Ft.		COMPLETED 07-16-10	
				17. TOTAL RECOVERY FOR BORING 100%			
				18. SIGNATURE AND TITLE OF INSPECTOR John Baehr, Geologist			
ELEV.	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS	SAMPLE	LABORATORY RESULTS		
-33.7	0.0						
			SAND, poorly-graded, mostly medium-grained sand-sized quartz, lt. gray (SP)	A	Classification: SP Color: 2.5Y 7/1-light gray D50: 0.4137 mm % Fines: 2		
				B	Classification: SP Color: N 9/1- D50: 0.3812 mm % Fines: 1.8		
				C	Classification: SP Color: 2.5Y 7/1-light gray D50: 0.39 mm % Fines: 2		
-48.6	14.9		CLAY, lean, occ. sand pockets, gray (CL)	NS			
-52.5	18.8						
			NOTES: 1. Soils are field visually classified in accordance with the Unified Soils Classification System. 2. NS = Sample not submitted for laboratory analysis from this interval. 3. Seafloor elevation determined from 2010 USACE survey.				

# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.2	0.3	46.9	50.6	2.0	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
.375	100.0		
#4	99.8		
#10	99.5		
#20	96.1		
#40	52.6		
#60	6.7		
#100	2.9		
#200	2.0		

\* (no specification provided)

**Material Description**  
SAND, (SP), medium to fine grained, with clay nodules

PL= **Atterberg Limits** LL= PI=

**Coefficients**  
 D<sub>90</sub>= 0.7231 D<sub>85</sub>= 0.6548 D<sub>60</sub>= 0.4613  
 D<sub>50</sub>= 0.4137 D<sub>30</sub>= 0.3379 D<sub>15</sub>= 0.2851  
 D<sub>10</sub>= 0.2654 C<sub>u</sub>= 1.74 C<sub>c</sub>= 0.93

**Classification**  
USCS= SP AASHTO=

**Remarks**  
CADD CODE = CH10D965

Location: USACE Sample # BI-PB-30-10A  
Sample Number: TE Lab ID: 4593.20

Depth: 0.0 - 5.0 (ft.)

Date: 7/26/10

**Thompson Engineering**  
**Mobile, Alabama**

Client: US Army Corps of Engineers  
Project: Contract No. W91278-10-D-0026 - Task 03  
Mississippi Barrier Island Restoration Project  
Project No: 10-2123-0009

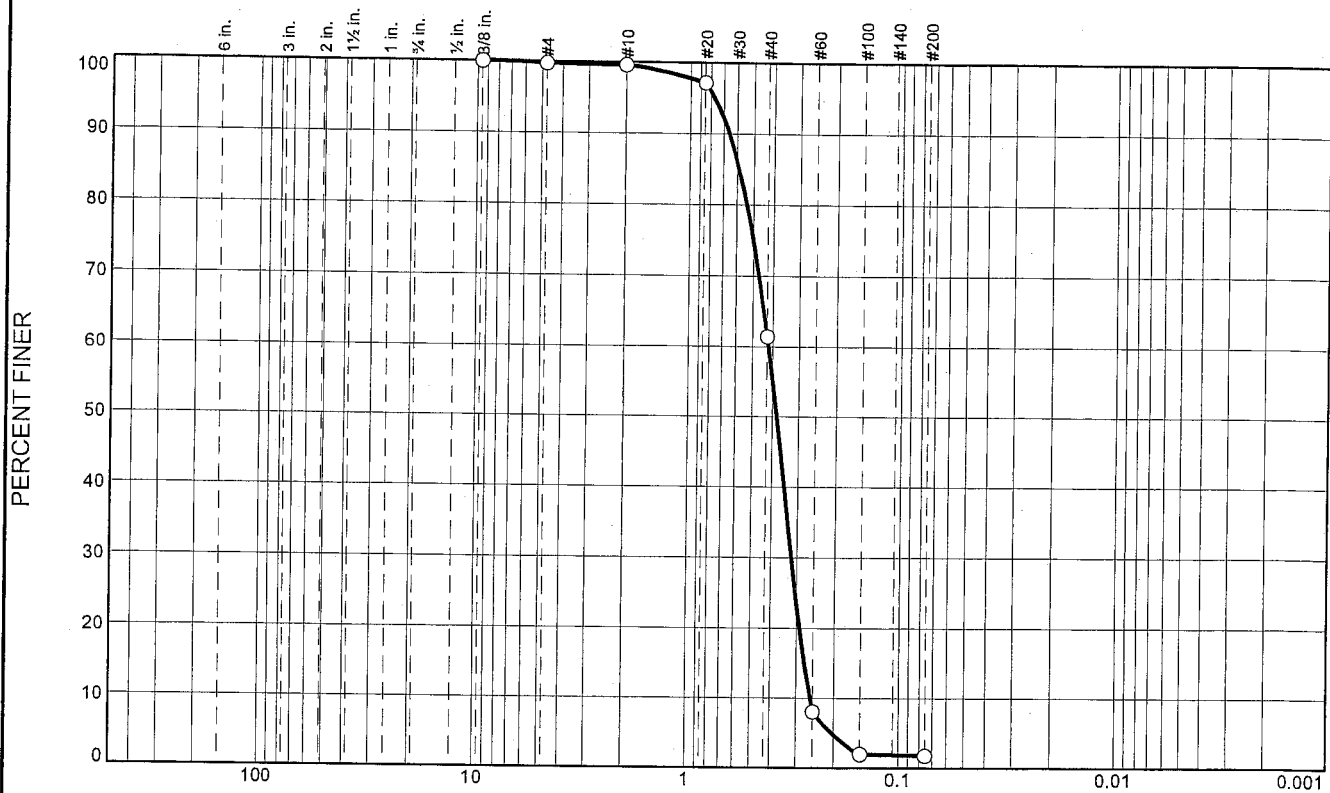
Report No.

Tested By: G.Fancher

Checked By: R.Byrd



# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.3	0.1	38.2	59.6	1.8	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
.375	100.0		
#4	99.7		
#10	99.6		
#20	97.2		
#40	61.4		
#60	8.0		
#100	2.0		
#200	1.8		

\* (no specification provided)

**Material Description**  
SAND, (SP), medium to fine grained

**Atterberg Limits**  
PL=      LL=      PI=

**Coefficients**  
D<sub>90</sub>= 0.6557      D<sub>85</sub>= 0.5866      D<sub>60</sub>= 0.4189  
D<sub>50</sub>= 0.3812      D<sub>30</sub>= 0.3192      D<sub>15</sub>= 0.2746  
D<sub>10</sub>= 0.2576      C<sub>u</sub>= 1.63      C<sub>c</sub>= 0.94

**Classification**  
USCS= SP      AASHTO=

**Remarks**  
CADD CODE = CH10D965

Location: USACE Sample # BI-PB-30-10B  
Sample Number: TE Lab ID: 4593.21

Depth: 5.0 - 10.0 (ft.)

Date: 7/26/10

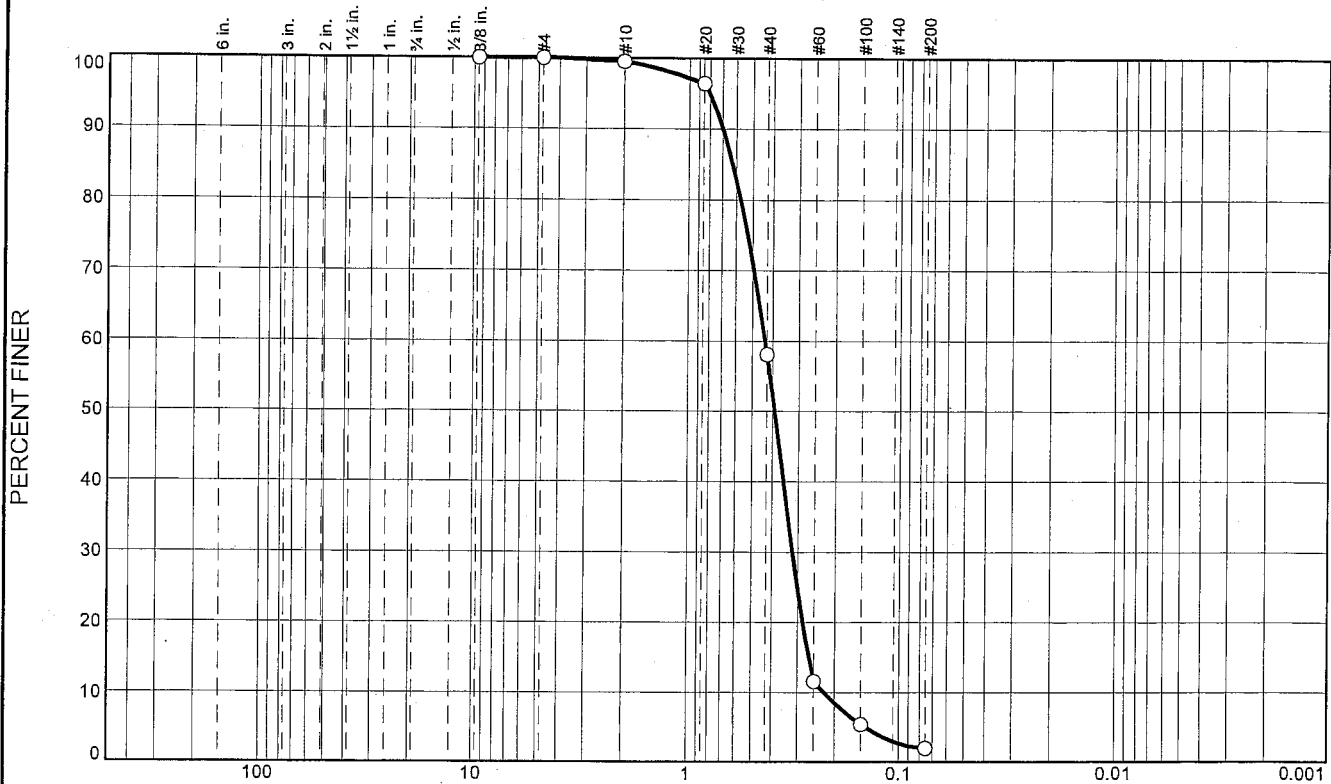
**Thompson Engineering**  
**Mobile, Alabama**

Client: US Army Corps of Engineers  
Project: Contract No. W91278-10-D-0026 - Task 03  
Mississippi Barrier Island Restoration Project  
Project No: 10-2123-0009      Report No.

Tested By: G.Fancher

Checked By: R.Byrd

# Particle Size Distribution Report



GRAIN SIZE - mm.

% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.0	0.5	41.4	56.1	2.0	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
.375	100.0		
#4	100.0		
#10	99.5		
#20	96.4		
#40	58.1		
#60	11.6		
#100	5.4		
#200	2.0		

\* (no specification provided)

## Material Description

SAND, (SP), medium to fine grained

## Atterberg Limits

PL= LL= PI=

## Coefficients

D<sub>90</sub>= 0.6967 D<sub>85</sub>= 0.6244 D<sub>60</sub>= 0.4342  
D<sub>50</sub>= 0.3900 D<sub>30</sub>= 0.3180 D<sub>15</sub>= 0.2647  
C<sub>u</sub>= 1.94 C<sub>c</sub>= 1.04

## Classification

USCS= SP AASHTO=

## Remarks

CADD CODE = CH10D965

Location: USACE Sample # BI-PB-30-10C  
Sample Number: TE Lab ID: 4593.22

Depth: 10.0 - 14.9 (ft.)

Date: 7/26/10

**Thompson Engineering**

**Mobile, Alabama**

Client: US Army Corps of Engineers

Project: Contract No. W91278-10-D-0026 - Task 03  
Mississippi Barrier Island Restoration Project

Project No: 10-2123-0009

Report No.

Tested By: G.Fancher

Checked By: R.Byrd

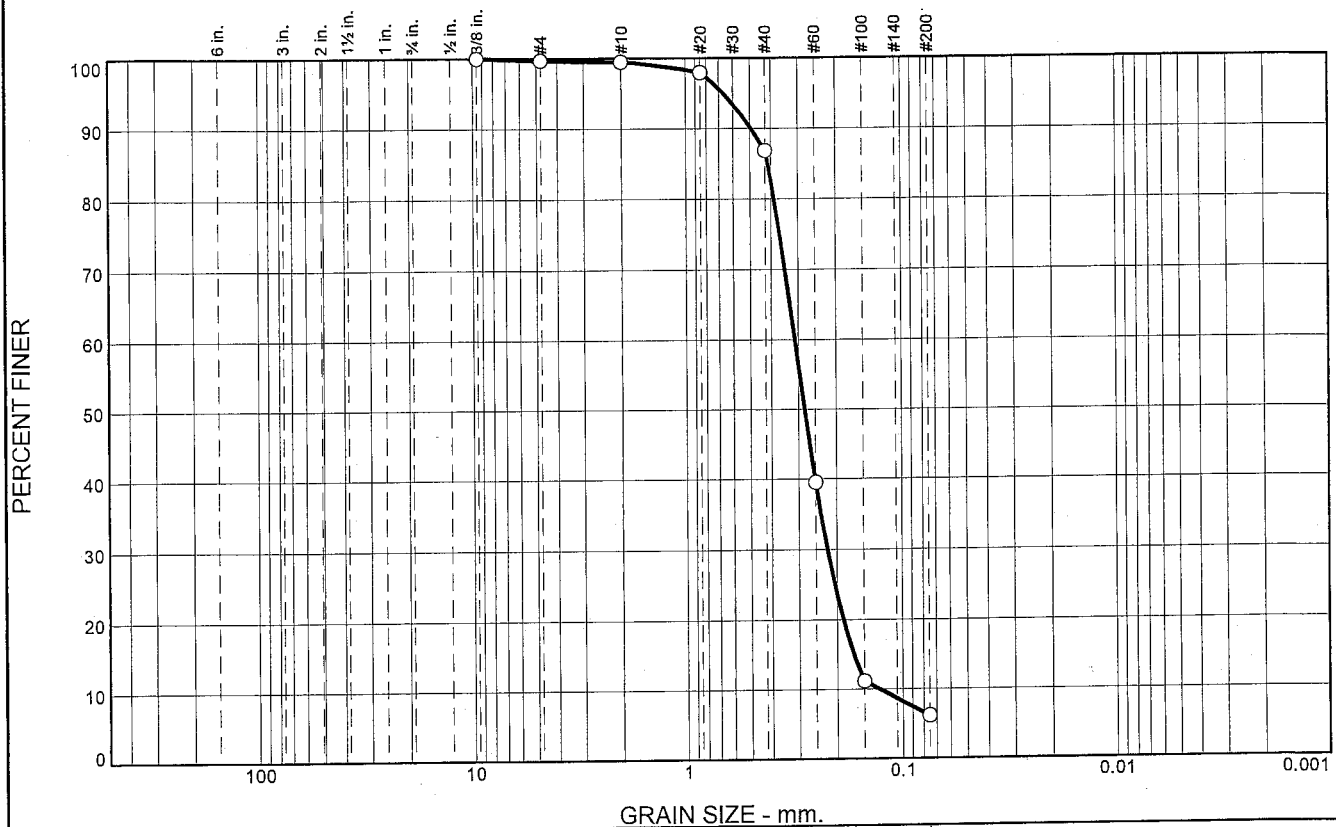
# Boring Designation BI-PB-031-10

DRILLING LOG		DIVISION South Atlantic		INSTALLATION Mobile District		SHEET 1 OF 1 SHEETS	
1. PROJECT MsCIP Barrier Island Restoration Petit Bois Pass- AL East				9. SIZE AND TYPE OF BIT N/A			
2. BORING DESIGNATION BI-PB-031-10		LOCATION COORDINATES E = 1,146,749 N = 254,381		10. COORDINATE SYSTEM/DATUM State Plane, MSE (U.S. Ft.)		HORIZONTAL NAD83	
3. DRILLING AGENCY Corps of Engineers - CESAM		CONTRACTOR FILE NO.		11. MANUFACTURER'S DESIGNATION OF DRILL Vibrocure		<input type="checkbox"/> AUTO HAMMER <input type="checkbox"/> MANUAL HAMMER	
4. NAME OF DRILLER Construction Solutions International, Inc.				12. TOTAL SAMPLES 4		UNDISTURBED (UD) 0	
5. DIRECTION OF BORING <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED				13. TOTAL NUMBER CORE BOXES		14. WATER DEPTH 29 Ft.	
6. THICKNESS OF OVERBURDEN N/A				15. DATE BORING 07-12-10		COMPLETED 07-12-10	
7. DEPTH DRILLED INTO ROCK N/A				16. ELEVATION TOP OF BORING -28.8 Ft.		17. TOTAL RECOVERY FOR BORING 100%	
8. TOTAL DEPTH OF BORING 18.4 Ft.				18. SIGNATURE AND TITLE OF INSPECTOR John Baehr, Geologist			

ELEV.	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS	SAMPLE	LABORATORY RESULTS
-28.8	0.0				
-32.8	4.0		SAND, poorly-graded, mostly fine to medium-grained sand-sized quartz, trace shell fragments, tan (SP)	A	Classification: SP-SM Color: 2.5Y 7/2-light gray D50: 0.2805 mm % Fines: 6.2
-35.8	7.0		SAND, poorly-graded, mostly fine-grained sand-sized quartz, some shell fragments, gray (SP)	B	Classification: SP-SM Color: 2.5Y 7/1-light gray D50: 0.3229 mm % Fines: 6.2
-37.5	8.7		SAND, poorly-graded, mostly medium-grained sand-sized quartz, lt. gray (SP)	C	Classification: SP Color: 2.5Y 7/1-light gray D50: 0.3751 mm % Fines: 3
-41.7	12.9		SAND, silty, mostly fine-grained sand-sized quartz, some silt, trace shell fragments, gray (SM)	D	Classification: SP-SM Color: 2.5Y 5/2-grayish brown D50: 0.3258 mm % Fines: 8.9
-47.2	18.4		CLAY, lean, occ. sand pockets, gray (CL)	NS	
NOTES: 1. Soils are field visually classified in accordance with the Unified Soils Classification System. 2. NS = Sample not submitted for laboratory analysis from this interval. 3. Seafloor elevation determined from 2010 USACE survey.					

# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.3	0.2	12.7	80.6	6.2	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
.375	100.0		
#4	99.7		
#10	99.5		
#20	98.0		
#40	86.8		
#60	39.5		
#100	11.2		
#200	6.2		

**Material Description**  
SAND, (SP-SM), medium to fine grained, with clay nodules

**Atterberg Limits**  
PL=      LL=      PI=

**Coefficients**  
D<sub>90</sub>= 0.4942      D<sub>85</sub>= 0.4133      D<sub>60</sub>= 0.3108  
D<sub>50</sub>= 0.2805      D<sub>30</sub>= 0.2212      D<sub>15</sub>= 0.1678  
D<sub>10</sub>= 0.1273      C<sub>u</sub>= 2.44      C<sub>c</sub>= 1.24

**Classification**  
USCS= SP-SM      AASHTO=

**Remarks**  
CADD CODE = CH10D965

\* (no specification provided)

Location: USACE Sample # BI-PB-31-10A  
Sample Number: TE Lab ID: 4593.16

Depth: 0.0 - 4.0 (ft.)

Date: 7/26/10

**Thompson Engineering**  
  
**Mobile, Alabama**

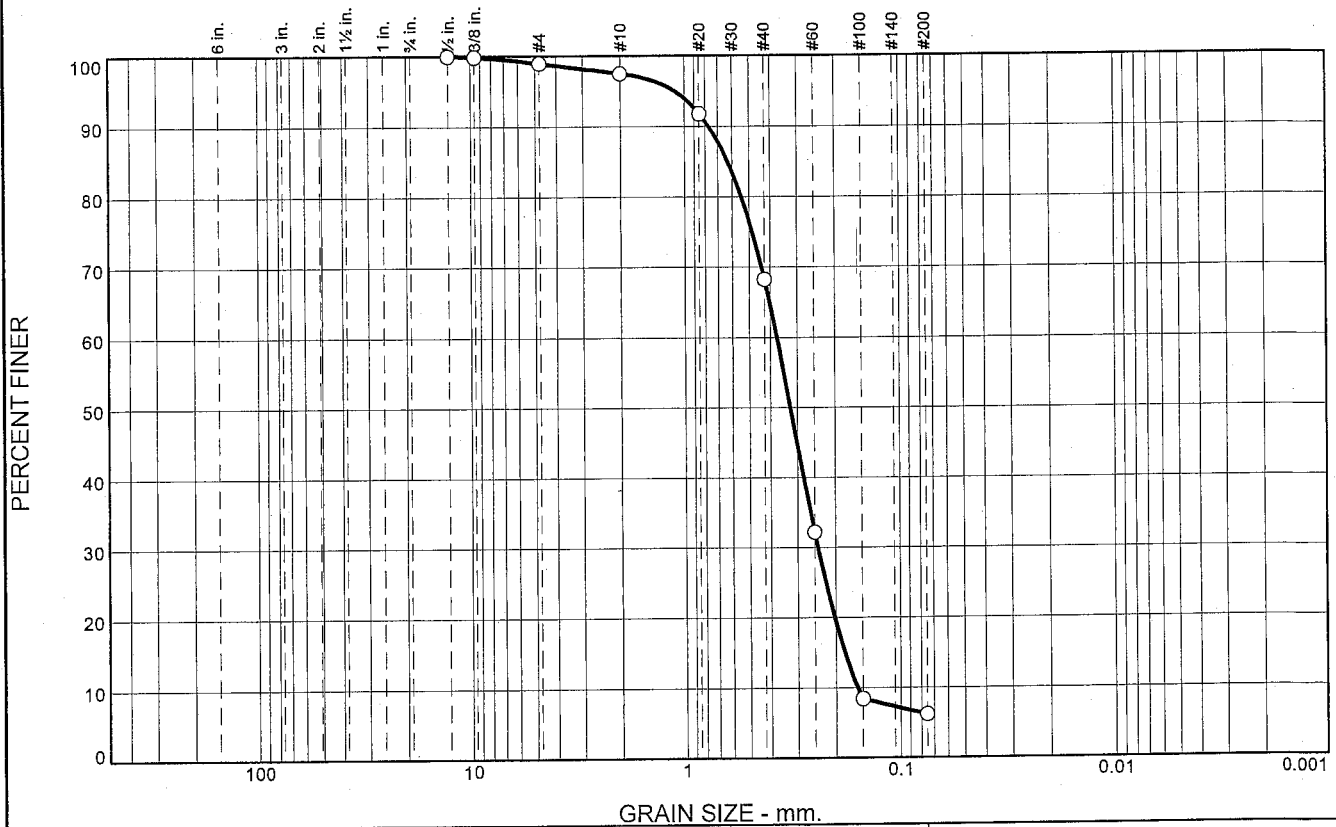
Client: US Army Corps of Engineers  
Project: Contract No. W91278-10-D-0026 - Task 03  
Mississippi Barrier Island Restoration Project  
Project No: 10-2123-0009

Report No.

Tested By: G.Fancher

Checked By: R.Byrd

# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	1.1	1.4	29.3	62.0	6.2	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
.500	100.0		
.375	99.9		
#4	98.9		
#10	97.5		
#20	91.8		
#40	68.2		
#60	32.2		
#100	8.4		
#200	6.2		

\* (no specification provided)

**Material Description**  
SAND, (SP-SM), medium to fine grained, with trace shell

**Atterberg Limits**  
PL=      LL=      PI=

**Coefficients**  
D<sub>90</sub>= 0.7698      D<sub>85</sub>= 0.6283      D<sub>60</sub>= 0.3728  
D<sub>50</sub>= 0.3229      D<sub>30</sub>= 0.2416      D<sub>15</sub>= 0.1820  
D<sub>10</sub>= 0.1586      C<sub>u</sub>= 2.35      C<sub>c</sub>= 0.99

**Classification**  
USCS= SP-SM      AASHTO=

**Remarks**  
CADD CODE = CH10D965

Location: USACE Sample # BI-PB-31-10B  
Sample Number: TE Lab ID: 4593.17

Depth: 4.0 - 7.0 (ft.)

Date: 7/26/10

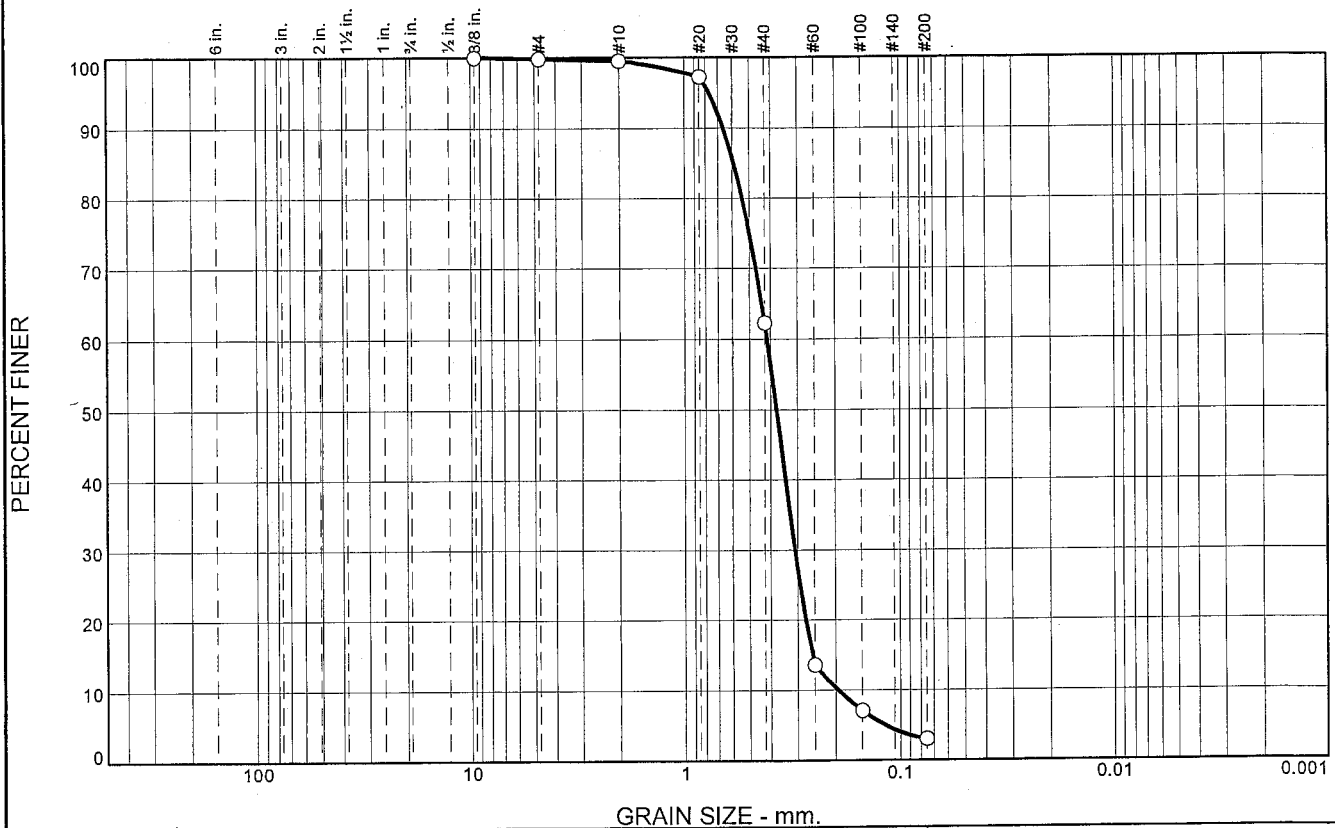
**Thompson Engineering**  
  
**Mobile, Alabama**

Client: US Army Corps of Engineers  
Project: Contract No. W91278-10-D-0026 - Task 03  
Mississippi Barrier Island Restoration Project  
Project No: 10-2123-0009      Report No.

Tested By: G.Fancher

Checked By: R.Byrd

# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.2	0.3	37.3	59.2	3.0	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
.375	100.0		
#4	99.8		
#10	99.5		
#20	97.3		
#40	62.2		
#60	13.5		
#100	7.1		
#200	3.0		

## Material Description

SAND, (SP), medium to fine grained

## Atterberg Limits

PL= LL= PI=

## Coefficients

D<sub>90</sub>= 0.6592 D<sub>85</sub>= 0.5895 D<sub>60</sub>= 0.4150  
D<sub>50</sub>= 0.3751 D<sub>30</sub>= 0.3082 D<sub>15</sub>= 0.2564  
D<sub>10</sub>= 0.1948 C<sub>u</sub>= 2.13 C<sub>c</sub>= 1.17

## Classification

USCS= SP AASHTO=

## Remarks

CADD CODE = CH10D965

\* (no specification provided)

Location: USACE Sample # BI-PB-31-10C  
Sample Number: TE Lab ID: 4593.18

Depth: 7.0 - 8.7 (ft.)

Date: 7/26/10

**Thompson Engineering**

**Mobile, Alabama**

Client: US Army Corps of Engineers

Project: Contract No. W91278-10-D-0026 - Task 03  
Mississippi Barrier Island Restoration Project

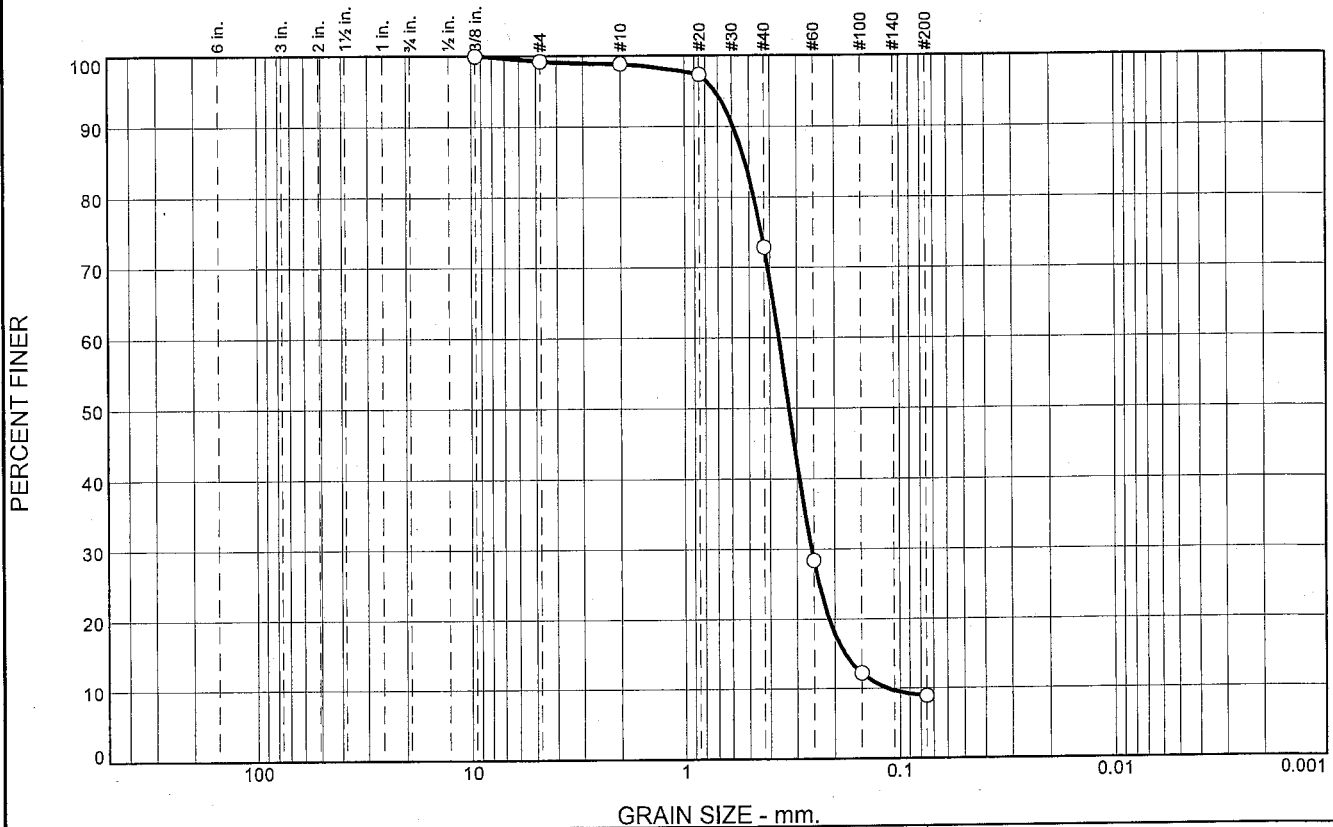
Project No: 10-2123-0009

Report No.

Tested By: G.Fancher

Checked By: R.Byrd

# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.8	0.3	26.0	64.0	8.9	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
.375	100.0		
#4	99.2		
#10	98.9		
#20	97.4		
#40	72.9		
#60	28.4		
#100	12.2		
#200	8.9		

\* (no specification provided)

## Material Description

SAND, (SP-SM), medium to fine grained, with clay nodules

## Atterberg Limits

PL= LL= PI=

## Coefficients

D<sub>90</sub>= 0.5903 D<sub>85</sub>= 0.5209 D<sub>60</sub>= 0.3637  
D<sub>50</sub>= 0.3258 D<sub>30</sub>= 0.2562 D<sub>15</sub>= 0.1797  
D<sub>10</sub>= 0.1139 C<sub>u</sub>= 3.19 C<sub>c</sub>= 1.58

## Classification

USCS= SP-SM AASHTO=

## Remarks

CADD CODE = CH10D965

Location: USACE Sample # BI-PB-31-10D  
Sample Number: TE Lab ID: 4593.19

Depth: 8.7 - 12.9 (ft.)

Date: 7/26/10

**Thompson Engineering**

**Mobile, Alabama**

Client: US Army Corps of Engineers

Project: Contract No. W91278-10-D-0026 - Task 03  
Mississippi Barrier Island Restoration Project

Project No: 10-2123-0009

Report No.

Tested By: G.Fancher

Checked By: R.Byrd

# Boring Designation BI-PB-032-10

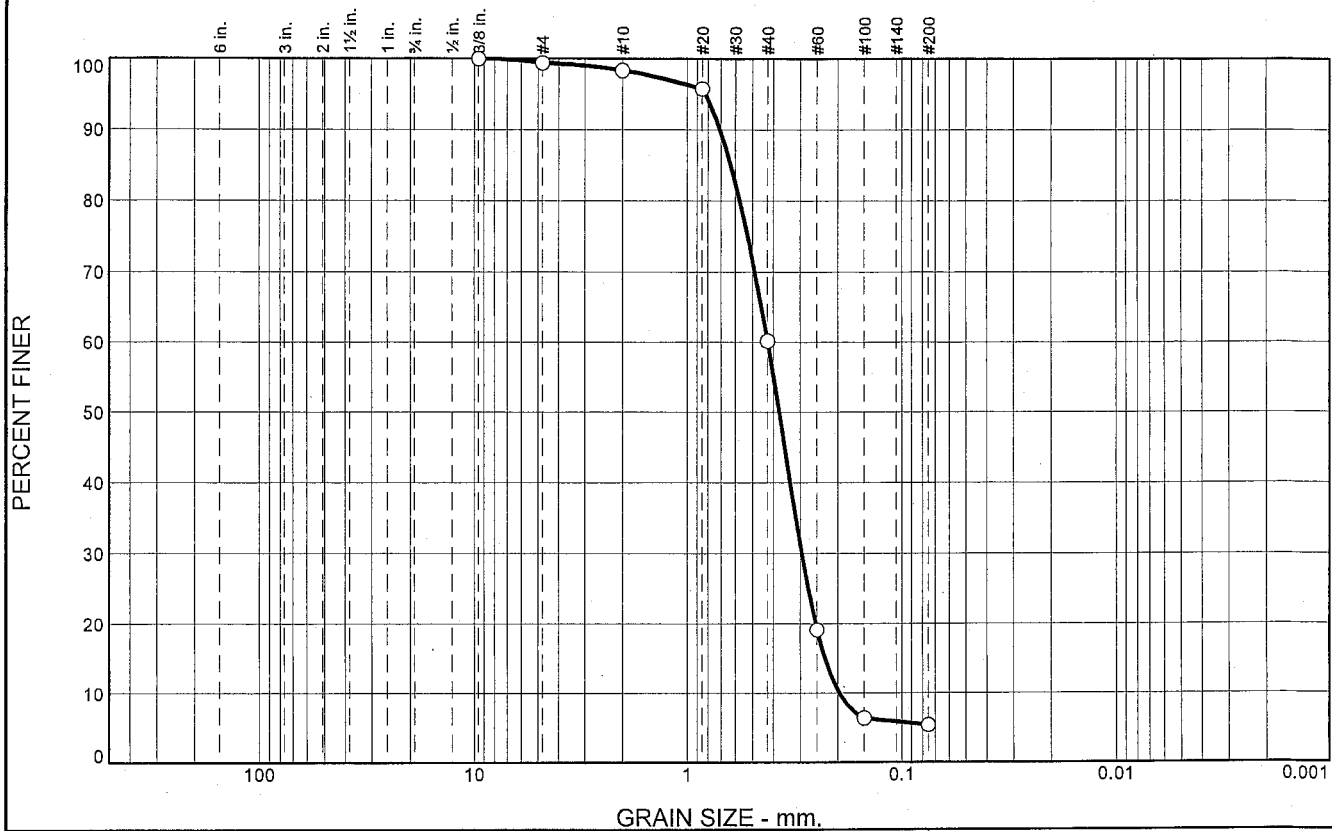
DRILLING LOG		DIVISION South Atlantic		INSTALLATION Mobile District		SHEET 1 OF 1 SHEETS	
1. PROJECT MsCIP Barrier Island Restoration Petit Bois Pass- AL East				9. SIZE AND TYPE OF BIT N/A			
2. BORING DESIGNATION BI-PB-032-10		LOCATION COORDINATES E = 1,149,700 N = 254,347		10. COORDINATE SYSTEM/DATUM State Plane, MSE (U.S. Ft.)		HORIZONTAL NAD83 VERTICAL NAVD88	
3. DRILLING AGENCY Corps of Engineers - CESAM		CONTRACTOR FILE NO.		11. MANUFACTURER'S DESIGNATION OF DRILL Vibracore		<input type="checkbox"/> AUTO HAMMER <input type="checkbox"/> MANUAL HAMMER	
4. NAME OF DRILLER Construction Solutions International, Inc.				12. TOTAL SAMPLES 5		DISTURBED 0 UNDISTURBED (UD)	
5. DIRECTION OF BORING <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED		DEG. FROM VERTICAL		13. TOTAL NUMBER CORE BOXES			
		BEARING		14. WATER DEPTH 34 Ft.			
6. THICKNESS OF OVERBURDEN N/A				15. DATE BORING 07-12-10		STARTED 07-12-10 COMPLETED 07-12-10	
7. DEPTH DRILLED INTO ROCK N/A				16. ELEVATION TOP OF BORING -34.5 Ft.			
8. TOTAL DEPTH OF BORING 19.8 Ft.				17. TOTAL RECOVERY FOR BORING 100%			
				18. SIGNATURE AND TITLE OF INSPECTOR John Baehr, Geologist			

ELEV.	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS	SAMPLE	LABORATORY RESULTS
-34.5	0.0				
-35.0	0.5			NS	Classification: SP-SM Color: 10YR 6/2-light brownish gray
-35.6	1.1		SAND, clayey, trace shell fragments, dark gray (SC)	A	D50: 0.3755 mm % Fines: 5.4
			SAND, poorly-graded, mostly medium-grained sand-sized quartz, gray (SP)		
			SAND, poorly-graded with silt, lt. gray (SP-SM)	B	Classification: SP-SM Color: 2.5Y 7/2-light gray D50: 0.3764 mm % Fines: 6.8
				C	Classification: SP Color: 10YR 8/2-very pale brown D50: 0.4244 mm % Fines: 4.6
				D	Classification: SP Color: 2.5Y 7/2-light gray D50: 0.4576 mm % Fines: 3
-50.3	15.8				
			SAND, poorly-graded, mostly medium-grained sand-sized quartz, lt. gray (SP)	E	Classification: SP Color: 2.5Y 8/1-white D50: 0.4827 mm % Fines: 4
-54.3	19.8				
			NOTES: 1. Soils are field visually classified in accordance with the Unified Soils Classification System. 2. NS = Sample not submitted for laboratory analysis from this interval. 3. Seafloor elevation determined from 2010 USACE survey.		



# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.6	1.0	38.2	54.8	5.4	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
.375	100.0		
#4	99.4		
#10	98.4		
#20	95.8		
#40	60.2		
#60	19.1		
#100	6.4		
#200	5.4		

\* (no specification provided)

**Material Description**  
SAND, (SP-SM), medium to fine grained, with clay nodules

**Atterberg Limits**  
PL=      LL=      PI=

**Coefficients**  
D<sub>90</sub>= 0.7064      D<sub>85</sub>= 0.6293      D<sub>60</sub>= 0.4241  
D<sub>50</sub>= 0.3755      D<sub>30</sub>= 0.2946      D<sub>15</sub>= 0.2298  
D<sub>10</sub>= 0.1967      C<sub>u</sub>= 2.16      C<sub>c</sub>= 1.04

**Classification**  
USCS= SP-SM      AASHTO=

**Remarks**  
CADD CODE = CH10D965

Location: USACE Sample # BI-PB-32-10A  
Sample Number: TE Lab ID: 4593.11

Depth: 0.5 - 1.1 (ft.)

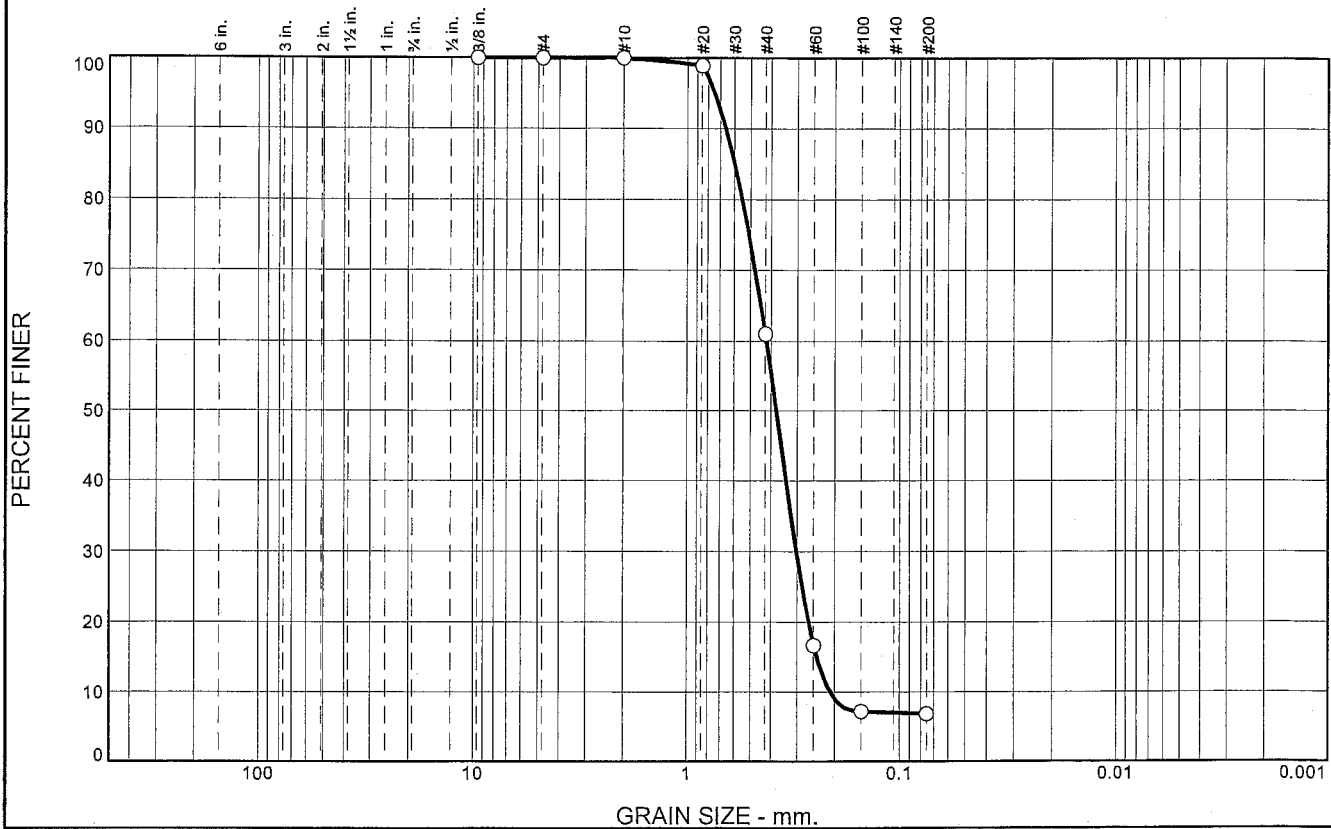
Date: 7/26/10

<b>Thompson Engineering</b>  <b>Mobile, Alabama</b>	<b>Client:</b> US Army Corps of Engineers <b>Project:</b> Contract No. W91278-10-D-0026 - Task 03 Mississippi Barrier Island Restoration Project
	<b>Project No:</b> 10-2123-0009 <b>Report No.</b>

Tested By: G.Fancher

Checked By: R.Byrd

# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.0	0.0	39.0	54.2	6.8	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
.375	100.0		
#4	100.0		
#10	100.0		
#20	98.9		
#40	61.0		
#60	16.7		
#100	7.2		
#200	6.8		

\* (no specification provided)

**Material Description**  
SAND, (SP-SM), medium to fine grained, with clay nodules

**Atterberg Limits**  
 PL=                      LL=                      PI=  
**Coefficients**  
 D<sub>90</sub>= 0.6589      D<sub>85</sub>= 0.5973      D<sub>60</sub>= 0.4203  
 D<sub>50</sub>= 0.3764      D<sub>30</sub>= 0.3019      D<sub>15</sub>= 0.2420  
 D<sub>10</sub>= 0.2099      C<sub>u</sub>= 2.00          C<sub>c</sub>= 1.03

**Classification**  
USCS= SP-SM                      AASHTO=

**Remarks**  
CADD CODE = CH10D965

Location: USACE Sample # BI-PB-32-10B  
Sample Number: TE Lab ID: 4593.12

Depth: 1.1 -6.1 (ft.)

Date: 7/26/10

**Thompson Engineering**  
  
**Mobile, Alabama**

Client: US Army Corps of Engineers  
Project: Contract No. W91278-10-D-0026 - Task 03  
Mississippi Barrier Island Restoration Project  
Project No: 10-2123-0009                      Report No.

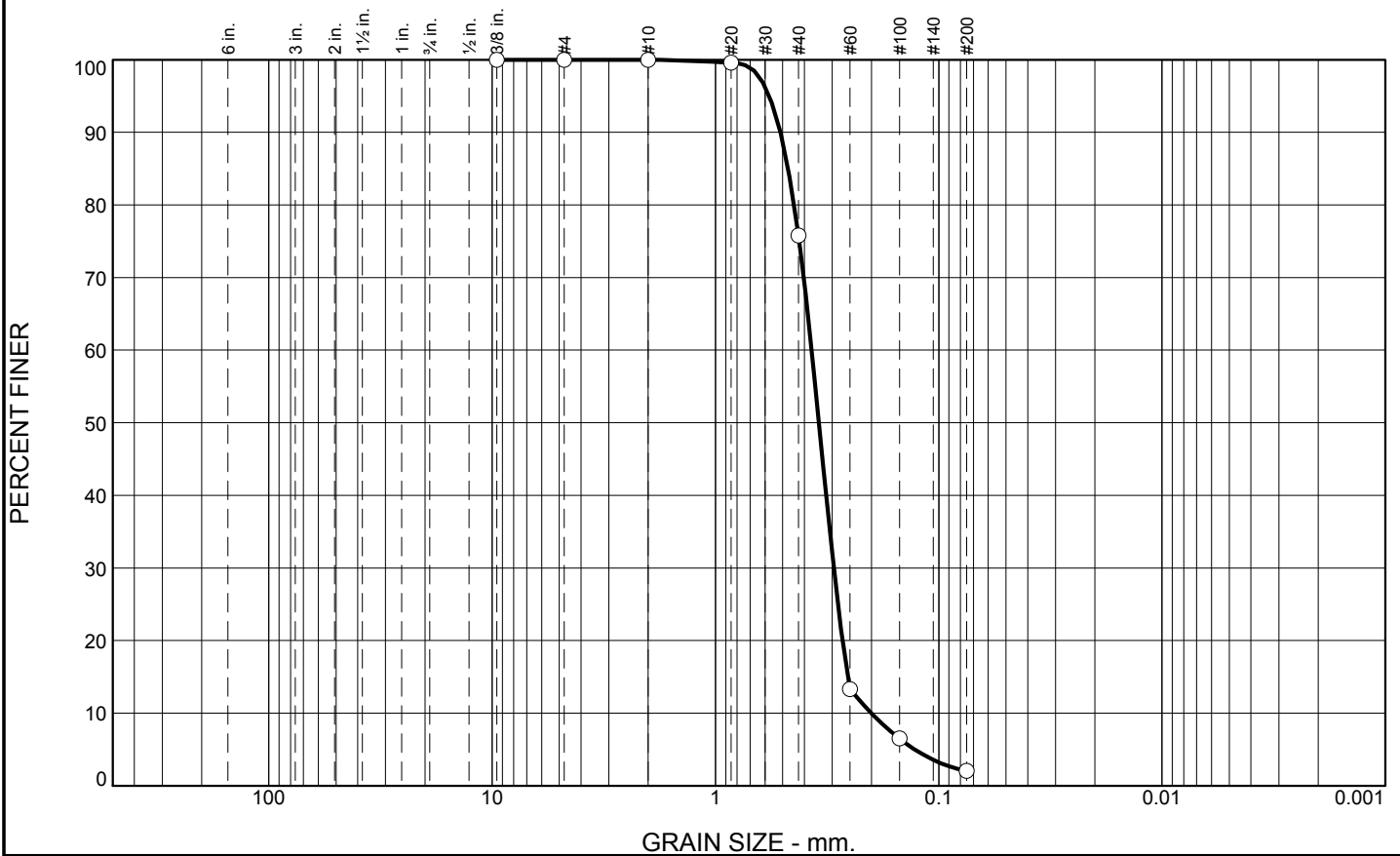
Tested By: G.Fancher

Checked By: R.Byrd

# Boring Designation BI-PB-035-10

DRILLING LOG		DIVISION South Atlantic		INSTALLATION Mobile District		SHEET 1 OF 1 SHEETS	
1. PROJECT MsCIP Barrier Island Restoration Petit Bois Pass- AL West				9. SIZE AND TYPE OF BIT N/A			
2. BORING DESIGNATION BI-PB-035-10		LOCATION COORDINATES E = 1,138,721 N = 252,855		10. COORDINATE SYSTEM/DATUM State Plane, MSE (U.S. Ft.)		HORIZONTAL NAD83 VERTICAL NAVD88	
3. DRILLING AGENCY Corps of Engineers - CESAM		CONTRACTOR FILE NO.		11. MANUFACTURER'S DESIGNATION OF DRILL Vibrocure		<input type="checkbox"/> AUTO HAMMER <input type="checkbox"/> MANUAL HAMMER	
4. NAME OF DRILLER Construction Solutions International, Inc.				12. TOTAL SAMPLES 2		DISTURBED 2 UNDISTURBED (UD) 0	
5. DIRECTION OF BORING <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED		DEG. FROM VERTICAL		13. TOTAL NUMBER CORE BOXES			
		BEARING		14. WATER DEPTH 30 Ft.			
6. THICKNESS OF OVERBURDEN N/A				15. DATE BORING 07-19-10		STARTED 07-19-10 COMPLETED 07-19-10	
7. DEPTH DRILLED INTO ROCK N/A				16. ELEVATION TOP OF BORING -30.0 Ft.			
8. TOTAL DEPTH OF BORING 18.0 Ft.				17. TOTAL RECOVERY FOR BORING 100%			
				18. SIGNATURE AND TITLE OF INSPECTOR Chris Gillentine, Geologist			
ELEV.	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS	SAMPLE	LABORATORY RESULTS		
-30.0	0.0						
-31.0	1.0		SAND, silty, mostly fine to medium-grained sand-sized quartz, some silt, trace shell fragments, dark brown (SM) SAND, silty, mostly medium-grained sand-sized quartz, some silt, dark brown (SM)	A	Classification: SP Color: 10Y 5/3- D50: 0.3441 mm % Fines: 2		
-35.0	5.0						
-40.0	10.0						
			CLAY, fat, dark gray (CH)	NS			
-48.0	18.0						
NOTES:							
1. Soils are field visually classified in accordance with the Unified Soils Classification System.							
2. NS = Sample not submitted for laboratory analysis from this interval.							
3. Seafloor elevation calculated using sampling vessel's fathometer water depth reading and applying NOAA tidal gauge data conversion factor.							

# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.0	0.0	24.2	73.8	2.0	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
.375	100.0		
#4	100.0		
#10	100.0		
#20	99.6		
#40	75.8		
#60	13.3		
#100	6.5		
#200	2.0		

\* (no specification provided)

Material Description		
SAND, (SP), medium to fine grained		
<div> <div> <b>Atterberg Limits</b>            PL=      LL=      PI=         </div> <div> <b>Coefficients</b>            D<sub>90</sub>= 0.5114      D<sub>85</sub>= 0.4727      D<sub>60</sub>= 0.3712            D<sub>50</sub>= 0.3441      D<sub>30</sub>= 0.2950      D<sub>15</sub>= 0.2554            D<sub>10</sub>= 0.2003      C<sub>u</sub>= 1.85      C<sub>c</sub>= 1.17         </div> <div> <b>Classification</b>            USCS= SP      AASHTO=         </div> <div> <b>Remarks</b>            CADD CODE = CH10D965         </div> </div>		

Location: USACE Sample # BI-PB-35-10A  
Sample Number: TE Lab ID: 4609.06

Depth: 0.0 - 5.0 (ft.)

Date: 8/4/10

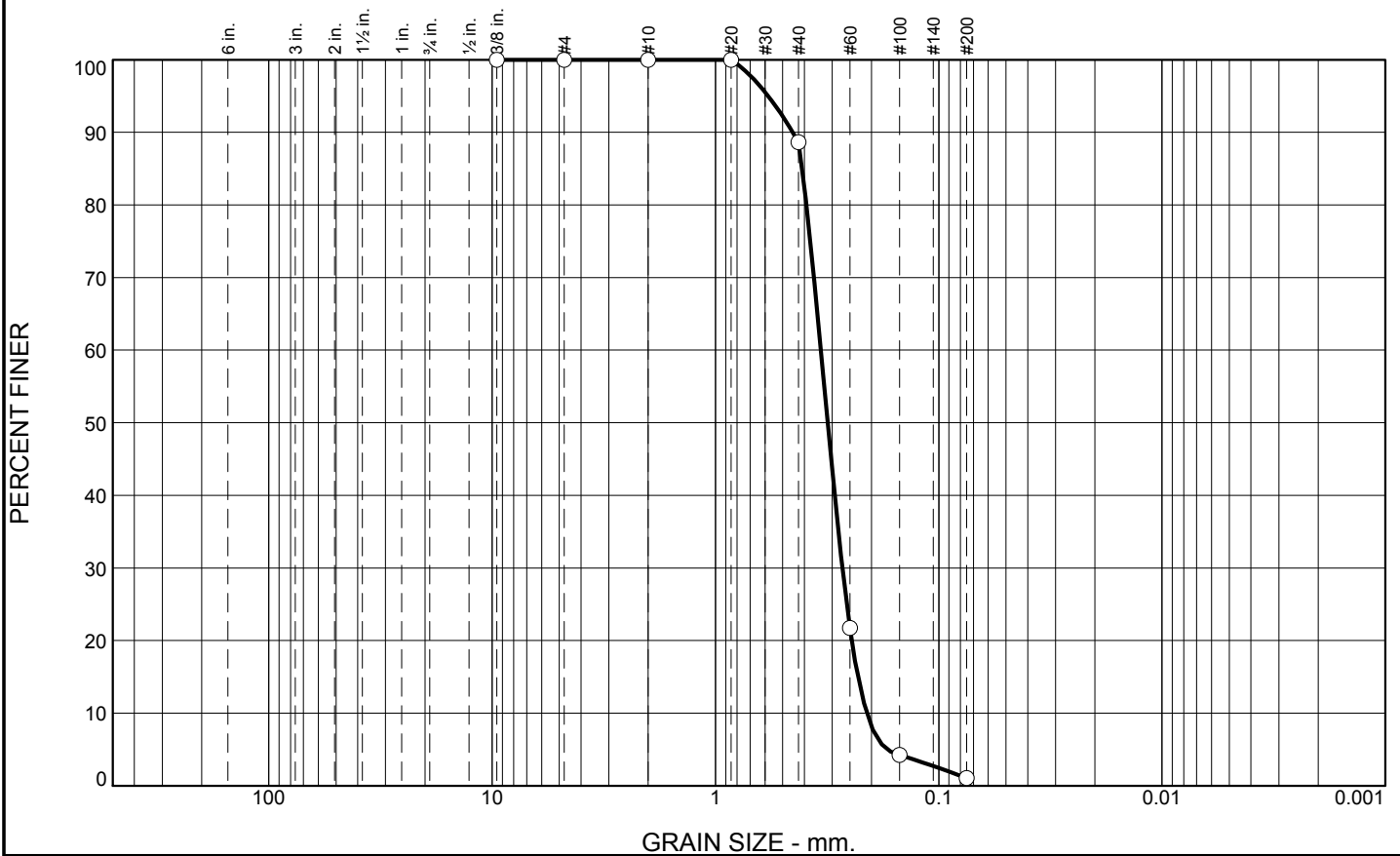
**Thompson Engineering**  
**Mobile, Alabama**

**Client:** US Army Corps of Engineers  
**Project:** Contract No. W91278-10-D-0026 - Task 03  
Mississippi Barrier Island Restoration Project  
**Project No:** 10-2123-0009  
**Report No.** Revised 8/20

Tested By: R.Martin

Checked By: R.Byrd

# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.0	0.0	11.4	87.5	1.1	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
.375	100.0		
#4	100.0		
#10	100.0		
#20	100.0		
#40	88.6		
#60	21.7		
#100	4.3		
#200	1.1		

\* (no specification provided)

## Material Description

SAND, (SM), medium to fine grained

## Atterberg Limits

PL=

LL=

PI=

## Coefficients

D<sub>90</sub>= 0.4506

D<sub>85</sub>= 0.4098

D<sub>60</sub>= 0.3370

D<sub>50</sub>= 0.3141

D<sub>30</sub>= 0.2700

D<sub>15</sub>= 0.2300

D<sub>10</sub>= 0.2100

C<sub>u</sub>= 1.60

C<sub>c</sub>= 1.03

## Classification

USCS= SP

AASHTO=

## Remarks

CADD CODE = CH10D965

Location: USACE Sample # BI-PB-35-10B  
Sample Number: TE Lab ID: 4609.07

Depth: 5.0 - 10.0 (ft.)

Date: 8/4/10

**Thompson Engineering**

**Mobile, Alabama**

Client: US Army Corps of Engineers

Project: Contract No. W91278-10-D-0026 - Task 03  
Mississippi Barrier Island Restoration Project

Project No: 10-2123-0009

Report No. Revised 8/20

Tested By: R.Martin

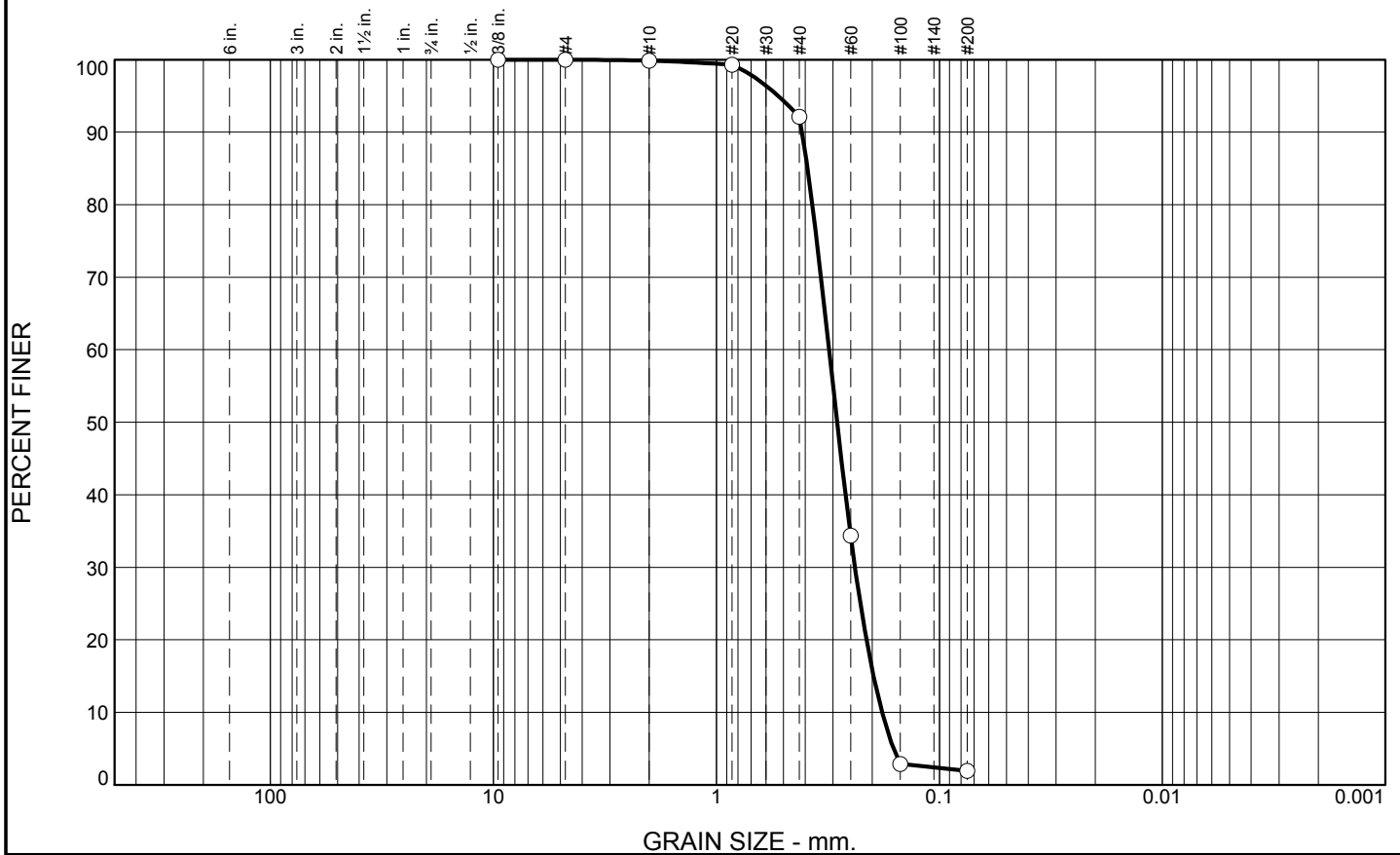
Checked By: R.Byrd

# Boring Designation BI-PB-036-10

DRILLING LOG		DIVISION South Atlantic		INSTALLATION Mobile District		SHEET 1 OF 2 SHEETS	
1. PROJECT MsCIP Barrier Island Restoration Petit Bois Pass- AL West				9. SIZE AND TYPE OF BIT N/A			
2. BORING DESIGNATION BI-PB-036-10		LOCATION COORDINATES E = 1,138,996 N = 252,914		10. COORDINATE SYSTEM/DATUM State Plane, MSE (U.S. Ft.)		HORIZONTAL NAD83	
3. DRILLING AGENCY Corps of Engineers - CESAM		CONTRACTOR FILE NO.		11. MANUFACTURER'S DESIGNATION OF DRILL Vibrocure		<input type="checkbox"/> AUTO HAMMER <input type="checkbox"/> MANUAL HAMMER	
4. NAME OF DRILLER Construction Solutions International, Inc.				12. TOTAL SAMPLES 3		DISTURBED 0	
5. DIRECTION OF BORING <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED				13. TOTAL NUMBER CORE BOXES		14. WATER DEPTH 33 Ft.	
6. THICKNESS OF OVERBURDEN N/A				15. DATE BORING 07-19-10		STARTED 07-19-10	
7. DEPTH DRILLED INTO ROCK N/A				16. ELEVATION TOP OF BORING -33.0 Ft.		COMPLETED 07-19-10	
8. TOTAL DEPTH OF BORING 19.5 Ft.				17. TOTAL RECOVERY FOR BORING 100%		18. SIGNATURE AND TITLE OF INSPECTOR Chris Gillentine, Geologist	
ELEV.	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS	SAMPLE	LABORATORY RESULTS		
-33.0	0.0						
			SAND, poorly-graded, mostly fine to medium-grained sand-sized quartz, trace shell fragments, tannish brown (SP)	A	Classification: SP Color: 2.5Y 7/1-light gray D50: 0.2874 mm % Fines: 1.9		
				B	Classification: SP Color: 2.5Y 7/1-light gray D50: 0.3231 mm % Fines: 2		
				C	Classification: SP Color: 2.5Y 7/1-light gray D50: 0.3464 mm % Fines: 4.1		
-47.5	14.5						
			CLAY, fat, dark gray (CH)	NS			
-52.5	19.5						
			NOTES: 1. Soils are field visually classified in accordance with the Unified Soils Classification System. 2. NS = Sample not submitted for laboratory analysis from this interval. 3. Seafloor elevation calculated using sampling vessel's fathometer water depth reading and				

<b>DRILLING LOG (Cont. Sheet)</b>			<b>INSTALLATION</b> Mobile District		<b>SHEET 2</b> <b>OF 2 SHEETS</b>
<b>PROJECT</b> MsCIP Barrier Island Restoration			<b>COORDINATE SYSTEM/DATUM</b> State Plane, MSE (U.S. Ft.)	<b>HORIZONTAL</b> NAD83	<b>VERTICAL</b> NAVD88
<b>LOCATION COORDINATES</b> X = 1,138,996 Y = 252,914			<b>ELEVATION TOP OF BORING</b> -33.0 Ft.		
<b>ELEV.</b>	<b>DEPTH</b>	<b>LEGEND</b>	<b>CLASSIFICATION OF MATERIALS</b>	<b>SAMPLE</b>	<b>LABORATORY RESULTS</b>
			applying NOAA tidal gauge data conversion factor.		

# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.0	0.1	7.8	90.2	1.9	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
.375	100.0		
#4	100.0		
#10	99.9		
#20	99.3		
#40	92.1		
#60	34.4		
#100	2.9		
#200	1.9		

\* (no specification provided)

**Material Description**  
SAND, (SP), fine grained

**Atterberg Limits**  
 PL=      LL=      PI=

**Coefficients**  
 D<sub>90</sub>= 0.4135      D<sub>85</sub>= 0.3906      D<sub>60</sub>= 0.3122  
 D<sub>50</sub>= 0.2874      D<sub>30</sub>= 0.2392      D<sub>15</sub>= 0.1974  
 D<sub>10</sub>= 0.1807      C<sub>u</sub>= 1.73      C<sub>c</sub>= 1.01

**Classification**  
 USCS= SP      AASHTO=

**Remarks**  
 CADD CODE = CH10D965

**Location:** USACE Sample # BI-PB-36-10A  
**Sample Number:** TE Lab ID: 4609.08

**Depth:** 0.0 - 5.0 (ft.)

**Date:** 8/4/10

**Thompson Engineering**  
  
**Mobile, Alabama**

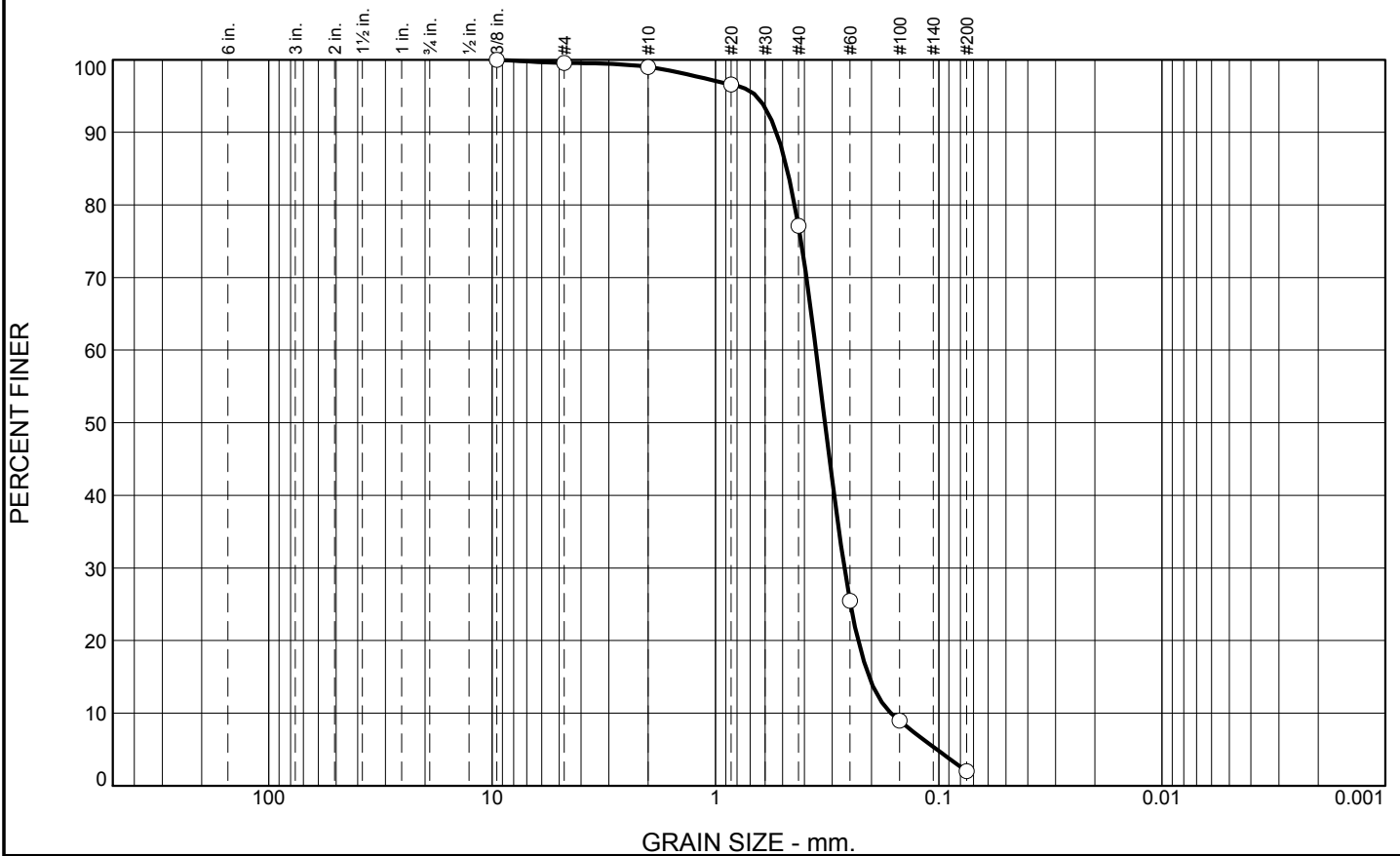
**Client:** US Army Corps of Engineers  
**Project:** Contract No. W91278-10-D-0026 - Task 03  
 Mississippi Barrier Island Restoration Project  
**Project No:** 10-2123-0009      **Report No.** Revised 8/20

**Tested By:** R.Martin

**Checked By:** R.Byrd



# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.4	0.6	21.9	75.1	2.0	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
.375	100.0		
#4	99.6		
#10	99.0		
#20	96.6		
#40	77.1		
#60	25.5		
#100	9.0		
#200	2.0		

\* (no specification provided)

**Material Description**  
SAND, (SP), medium to fine grained

**Atterberg Limits**  
 PL=      LL=      PI=

**Coefficients**  
 D<sub>90</sub>= 0.5329      D<sub>85</sub>= 0.4780      D<sub>60</sub>= 0.3548  
 D<sub>50</sub>= 0.3231      D<sub>30</sub>= 0.2645      D<sub>15</sub>= 0.2052  
 D<sub>10</sub>= 0.1636      C<sub>u</sub>= 2.17      C<sub>c</sub>= 1.20

**Classification**  
 USCS= SP      AASHTO=

**Remarks**  
 CADD CODE = CH10D965

**Location:** USACE Sample # BI-PB-36-10B  
**Sample Number:** TE Lab ID: 4609.09

**Depth:** 5.0 - 10.0 (ft.)

**Date:** 8/4/10

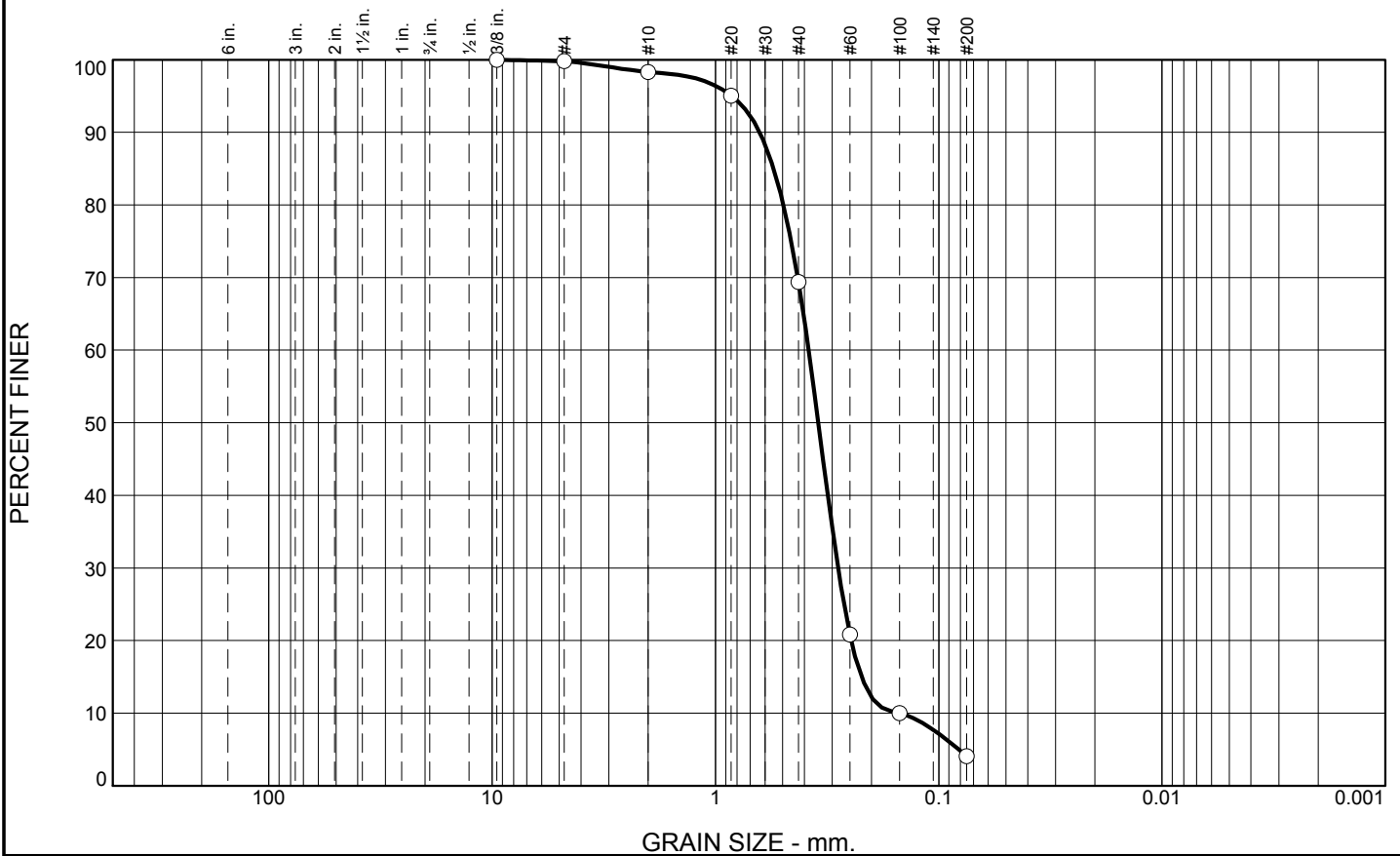
**Thompson Engineering**  
  
**Mobile, Alabama**

**Client:** US Army Corps of Engineers  
**Project:** Contract No. W91278-10-D-0026 - Task 03  
 Mississippi Barrier Island Restoration Project  
**Project No:** 10-2123-0009      **Report No.** Revised 8/20

**Tested By:** R.Martin

**Checked By:** R.Byrd

# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.2	1.5	28.9	65.3	4.1	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
.375	100.0		
#4	99.8		
#10	98.3		
#20	95.0		
#40	69.4		
#60	20.8		
#100	10.0		
#200	4.1		

\* (no specification provided)

**Material Description**  
SAND, (SP), medium to fine grained

**Atterberg Limits**  
 PL=      LL=      PI=

**Coefficients**  
 D<sub>90</sub>= 0.6337      D<sub>85</sub>= 0.5486      D<sub>60</sub>= 0.3828  
 D<sub>50</sub>= 0.3464      D<sub>30</sub>= 0.2821      D<sub>15</sub>= 0.2219  
 D<sub>10</sub>= 0.1493      C<sub>u</sub>= 2.56      C<sub>c</sub>= 1.39

**Classification**  
 USCS= SP      AASHTO=

**Remarks**  
 CADD CODE = CH10D965

**Location:** USACE Sample # BI-PB-36-10C  
**Sample Number:** TE Lab ID: 4609.10

**Depth:** 10.0 - 14.5 (ft.)

**Date:** 8/4/10

**Thompson Engineering**  
  
**Mobile, Alabama**

**Client:** US Army Corps of Engineers  
**Project:** Contract No. W91278-10-D-0026 - Task 03  
 Mississippi Barrier Island Restoration Project  
**Project No:** 10-2123-0009      **Report No.** Revised 8/20

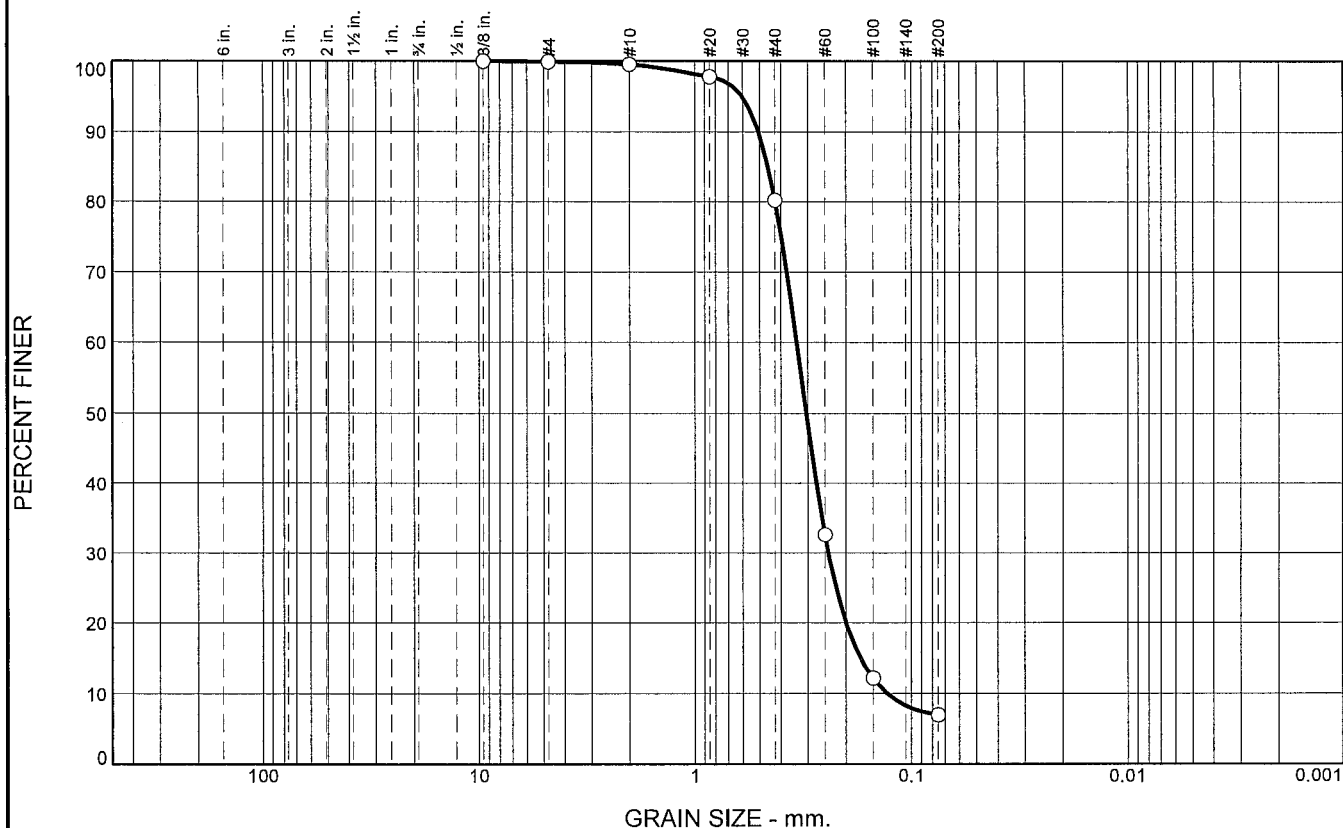
**Tested By:** R.Martin

**Checked By:** R.Byrd

# Boring Designation BI-PB-037-10

DRILLING LOG		DIVISION South Atlantic		INSTALLATION Mobile District		SHEET 1 OF 1 SHEETS	
1. PROJECT MsCIP Barrier Island Restoration Petit Bois Pass- AL East				9. SIZE AND TYPE OF BIT N/A			
2. BORING DESIGNATION BI-PB-037-10		LOCATION COORDINATES E = 1,140,725 N = 252,845		10. COORDINATE SYSTEM/DATUM State Plane, MSE (U.S. Ft.)		HORIZONTAL NAD83 VERTICAL NAVD88	
3. DRILLING AGENCY Corps of Engineers - CESAM		CONTRACTOR FILE NO.		11. MANUFACTURER'S DESIGNATION OF DRILL Vibracore		<input type="checkbox"/> AUTO HAMMER <input type="checkbox"/> MANUAL HAMMER	
4. NAME OF DRILLER Construction Solutions International, Inc.				12. TOTAL SAMPLES 3		DISTURBED 0 UNDISTURBED (UD)	
5. DIRECTION OF BORING <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED		DEG. FROM VERTICAL		13. TOTAL NUMBER CORE BOXES			
		BEARING		14. WATER DEPTH 34 Ft.			
6. THICKNESS OF OVERBURDEN N/A				15. DATE BORING 07-27-10		STARTED 07-27-10 COMPLETED 07-27-10	
7. DEPTH DRILLED INTO ROCK N/A				16. ELEVATION TOP OF BORING -33.2 Ft.			
8. TOTAL DEPTH OF BORING 16.0 Ft.				17. TOTAL RECOVERY FOR BORING 100%			
				18. SIGNATURE AND TITLE OF INSPECTOR Chris Gillentine, Geologist			
ELEV.	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS	SAMPLE	LABORATORY RESULTS		
-33.2	0.0		SAND, poorly-graded, dark gray (SP)	A	Classification: SP-SM Color: 2.5Y 6/2-light brownish gray D50: 0.3045 mm % Fines: 7		
			At El. -37.2 Ft., trace shell fragments, lt. gray	B	Classification: SP Color: 2.5Y 7/1-light gray D50: 0.3385 mm % Fines: 2		
				C	Classification: SP Color: 2.5Y 7/1-light gray D50: 0.3025 mm % Fines: 3.9		
-47.2	14.0		SAND, clayey, dark gray (SC)	NS			
-49.2	16.0						
			NOTES: 1. Soils are field visually classified in accordance with the Unified Soils Classification System. 2. NS = Sample not submitted for laboratory analysis from this interval. 3. Seafloor elevation calculated using sampling vessel's fathometer water depth reading and applying NOAA tidal gauge data conversion factor.				

# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.1	0.4	19.3	73.2	7.0	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
.375	100.0		
#4	99.9		
#10	99.5		
#20	97.8		
#40	80.2		
#60	32.6		
#100	12.1		
#200	7.0		

\* (no specification provided)

## Material Description

SAND, (SP-SM), medium to fine grained

## Atterberg Limits

PL= LL= PI=

## Coefficients

$D_{90} = 0.5082$      $D_{85} = 0.4582$      $D_{60} = 0.3373$   
 $D_{50} = 0.3045$      $D_{30} = 0.2411$      $D_{15} = 0.1719$   
 $D_{10} = 0.1291$      $C_u = 2.61$      $C_c = 1.34$

## Classification

USCS= SP-SM    AASHTO=

## Remarks

CADD CODE = CH10D965

Location: USACE Sample # BI-PB-37-10A  
Sample Number: TE Lab ID: 4612.01

Depth: 0.0 - 5.0 (ft.)

Date: 8/7/10

**Thompson Engineering**

**Mobile, Alabama**

Client: US Army Corps of Engineers

Project: Contract No. W91278-10-D-0026 - Task 03  
Mississippi Barrier Island Restoration Project

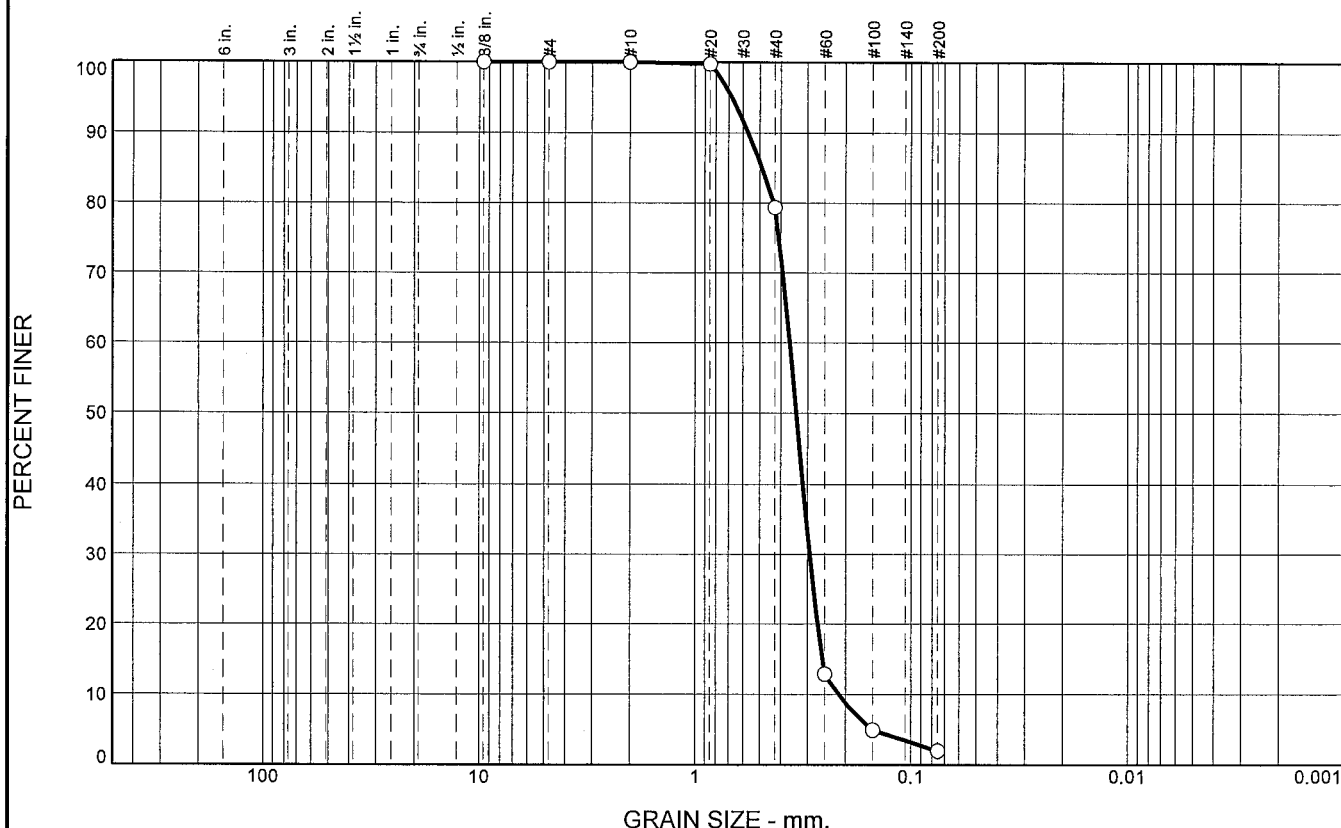
Project No: 10-2123-0009

Report No.

Tested By: G.Fancher

Checked By: R.Byrd

# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.0	0.0	20.6	77.4	2.0	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
.375	100.0		
#4	100.0		
#10	100.0		
#20	99.7		
#40	79.4		
#60	12.9		
#100	4.9		
#200	2.0		

\* (no specification provided)

**Material Description**

SAND, (SP), medium to fine grained

**Atterberg Limits**

PL=      LL=      PI=

**Coefficients**

D<sub>90</sub>= 0.5668      D<sub>85</sub>= 0.4900      D<sub>60</sub>= 0.3634  
D<sub>50</sub>= 0.3385      D<sub>30</sub>= 0.2929      D<sub>15</sub>= 0.2563  
D<sub>10</sub>= 0.2148      C<sub>u</sub>= 1.69      C<sub>c</sub>= 1.10

**Classification**

USCS= SP      AASHTO=

**Remarks**

CADD CODE = CH10D965

Location: USACE Sample # BI-PB-37-10B  
Sample Number: TE Lab ID: 4612.02

Depth: 5.0 - 10.0 (ft.)

Date: 8/7/10

**Thompson Engineering**

**Mobile, Alabama**

Client: US Army Corps of Engineers

Project: Contract No. W91278-10-D-0026 - Task 03  
Mississippi Barrier Island Restoration Project

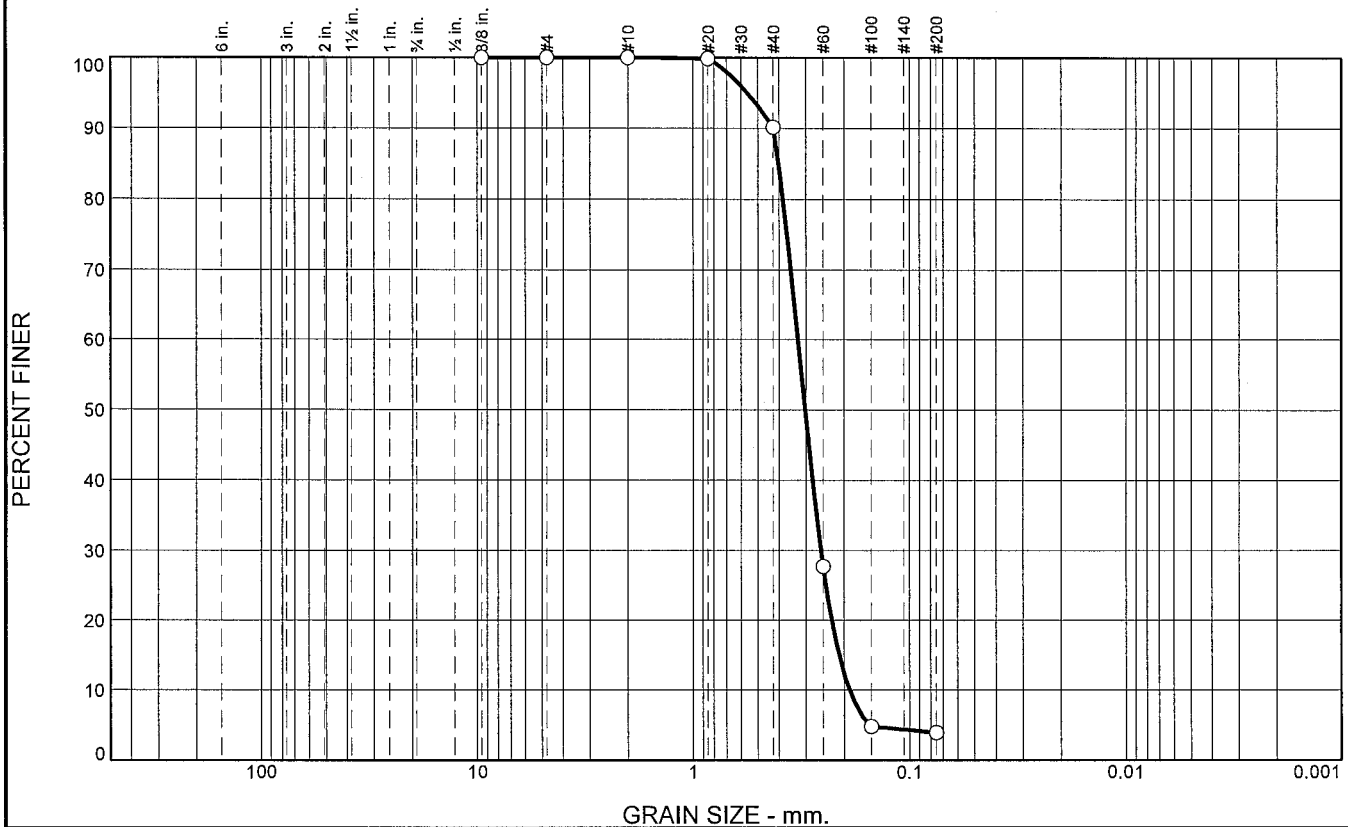
Project No: 10-2123-0009

Report No.

Tested By: G.Fancher

Checked By: R.Byrd

# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.0	0.0	9.9	86.2	3.9	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
.375	100.0		
#4	100.0		
#10	100.0		
#20	99.8		
#40	90.1		
#60	27.7		
#100	4.8		
#200	3.9		

\* (no specification provided)

## Material Description

SAND, (SP), fine grained

## Atterberg Limits

PL= LL= PI=

## Coefficients

D<sub>90</sub>= 0.4243 D<sub>85</sub>= 0.4021 D<sub>60</sub>= 0.3265  
D<sub>50</sub>= 0.3025 D<sub>30</sub>= 0.2558 D<sub>15</sub>= 0.2112  
D<sub>10</sub>= 0.1893 C<sub>u</sub>= 1.72 C<sub>c</sub>= 1.06

## Classification

USCS= SP AASHTO=

## Remarks

CADD CODE = CH10D965

Location: USACE Sample # BI-PB-37-10C  
Sample Number: TE Lab ID: 4612.03

Depth: 10.0 - 15.0 (ft.)

Date: 8/7/10

**Thompson Engineering**

**Mobile, Alabama**

Client: US Army Corps of Engineers

Project: Contract No. W91278-10-D-0026 - Task 03  
Mississippi Barrier Island Restoration Project

Project No: 10-2123-0009

Report No.

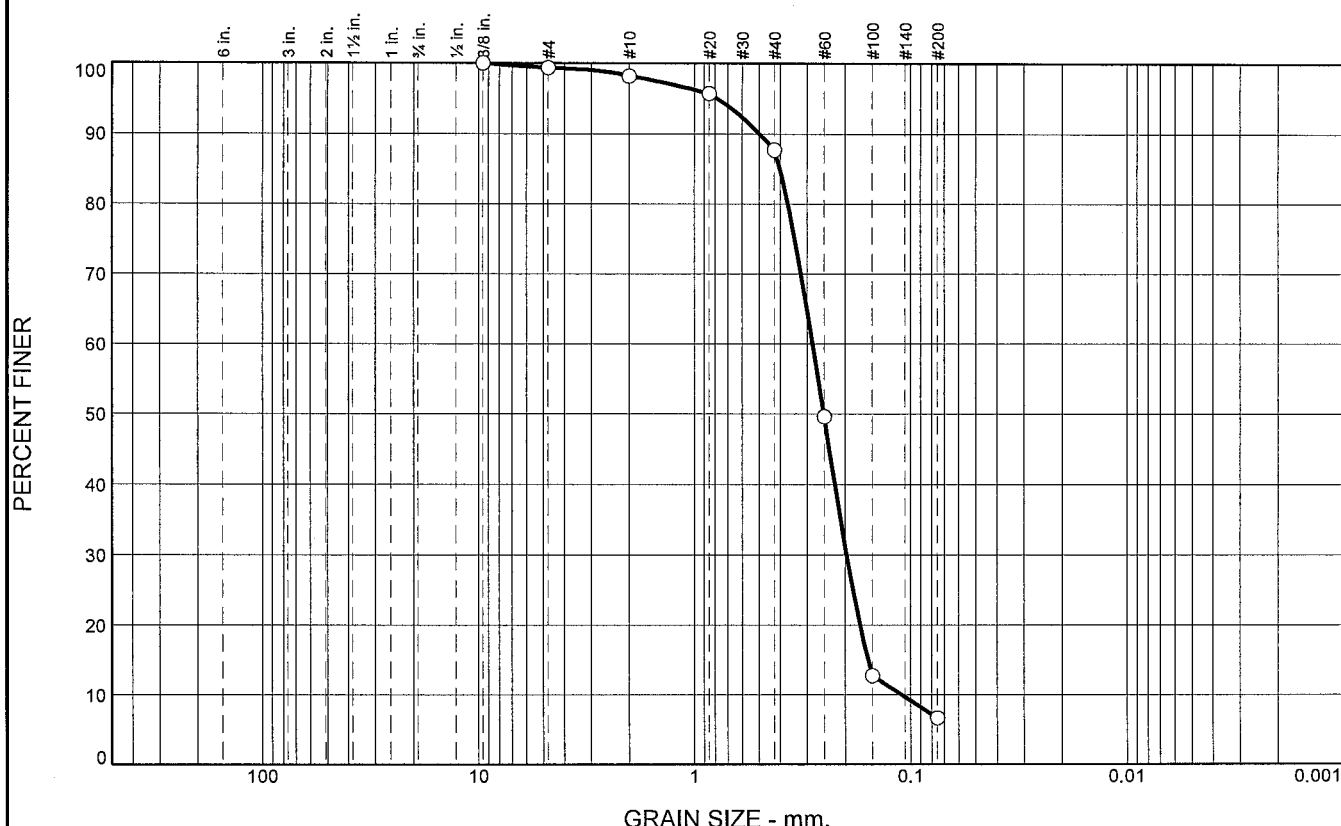
Tested By: G.Fancher

Checked By: R.Byrd

# Boring Designation BI-PB-038-10

DRILLING LOG		DIVISION South Atlantic		INSTALLATION Mobile District		SHEET 1 OF 1 SHEETS	
1. PROJECT MsCIP Barrier Island Restoration Petit Bois Pass- AL East				9. SIZE AND TYPE OF BIT N/A			
2. BORING DESIGNATION BI-PB-038-10		LOCATION COORDINATES E = 1,142,128 N = 252,720		10. COORDINATE SYSTEM/DATUM State Plane, MSE (U.S. Ft.)		HORIZONTAL NAD83	
3. DRILLING AGENCY Corps of Engineers - CESAM		CONTRACTOR FILE NO.		11. MANUFACTURER'S DESIGNATION OF DRILL Vibrocure		<input type="checkbox"/> AUTO HAMMER <input type="checkbox"/> MANUAL HAMMER	
4. NAME OF DRILLER Construction Solutions International, Inc.				12. TOTAL SAMPLES 4		DISTURBED 0	
5. DIRECTION OF BORING <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED				13. TOTAL NUMBER CORE BOXES		14. WATER DEPTH 35 Ft.	
6. THICKNESS OF OVERBURDEN N/A				15. DATE BORING 07-28-10		STARTED 07-28-10	
7. DEPTH DRILLED INTO ROCK N/A				16. ELEVATION TOP OF BORING -34.4 Ft.		COMPLETED 07-28-10	
8. TOTAL DEPTH OF BORING 18.5 Ft.				17. TOTAL RECOVERY FOR BORING 100%		18. SIGNATURE AND TITLE OF INSPECTOR Chris Gillentine, Geologist	
ELEV.	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS	SAMPLE	LABORATORY RESULTS		
-34.4	0.0						
-35.9	1.5		CLAY, lean, dark gray (CL)	NS			
			SAND, poorly-graded, trace shell fragments, lt. gray (SP)	A	Classification: SP-SM Color: 2.5Y 5/2-grayish brown D50: 0.2511 mm % Fines: 6.7		
				B	Classification: SP Color: 2.5Y7/2- D50: 0.2721 mm % Fines: 2.6		
				C	Classification: SP Color: 2.5Y 7/1-light gray D50: 0.3004 mm % Fines: 3		
				D	Classification: SP Color: 2.5Y 7/1-light gray D50: 0.3073 mm % Fines: 3.3		
-52.9	18.5						
NOTES:							
1. Soils are field visually classified in accordance with the Unified Soils Classification System.							
2. NS = Sample not submitted for laboratory analysis from this interval.							
3. Seafloor elevation calculated using sampling vessel's fathometer water depth reading and applying NOAA tidal gauge data conversion factor.							

# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.7	1.2	10.4	81.0	6.7	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
.375	100.0		
#4	99.3		
#10	98.1		
#20	95.7		
#40	87.7		
#60	49.6		
#100	12.7		
#200	6.7		

\* (no specification provided)

**Material Description**  
SAND, (SP-SM), medium to fine grained

**Atterberg Limits**  
PL=      LL=      PI=

**Coefficients**  
D<sub>90</sub>= 0.4979      D<sub>85</sub>= 0.4020      D<sub>60</sub>= 0.2826  
D<sub>50</sub>= 0.2511      D<sub>30</sub>= 0.1972      D<sub>15</sub>= 0.1571  
D<sub>10</sub>= 0.1096      C<sub>u</sub>= 2.58      C<sub>c</sub>= 1.26

**Classification**  
USCS= SP-SM      AASHTO=

**Remarks**  
CADD CODE = CH10D965

Location: USACE Sample # BI-PB-38-10A  
Sample Number: TE Lab ID: 4612.04

Depth: 1.5 - 5.0 (ft.)

Date: 8/7/10

**Thompson Engineering**

**Mobile, Alabama**

Client: US Army Corps of Engineers

Project: Contract No. W91278-10-D-0026 - Task 03  
Mississippi Barrier Island Restoration Project

Project No: 10-2123-0009

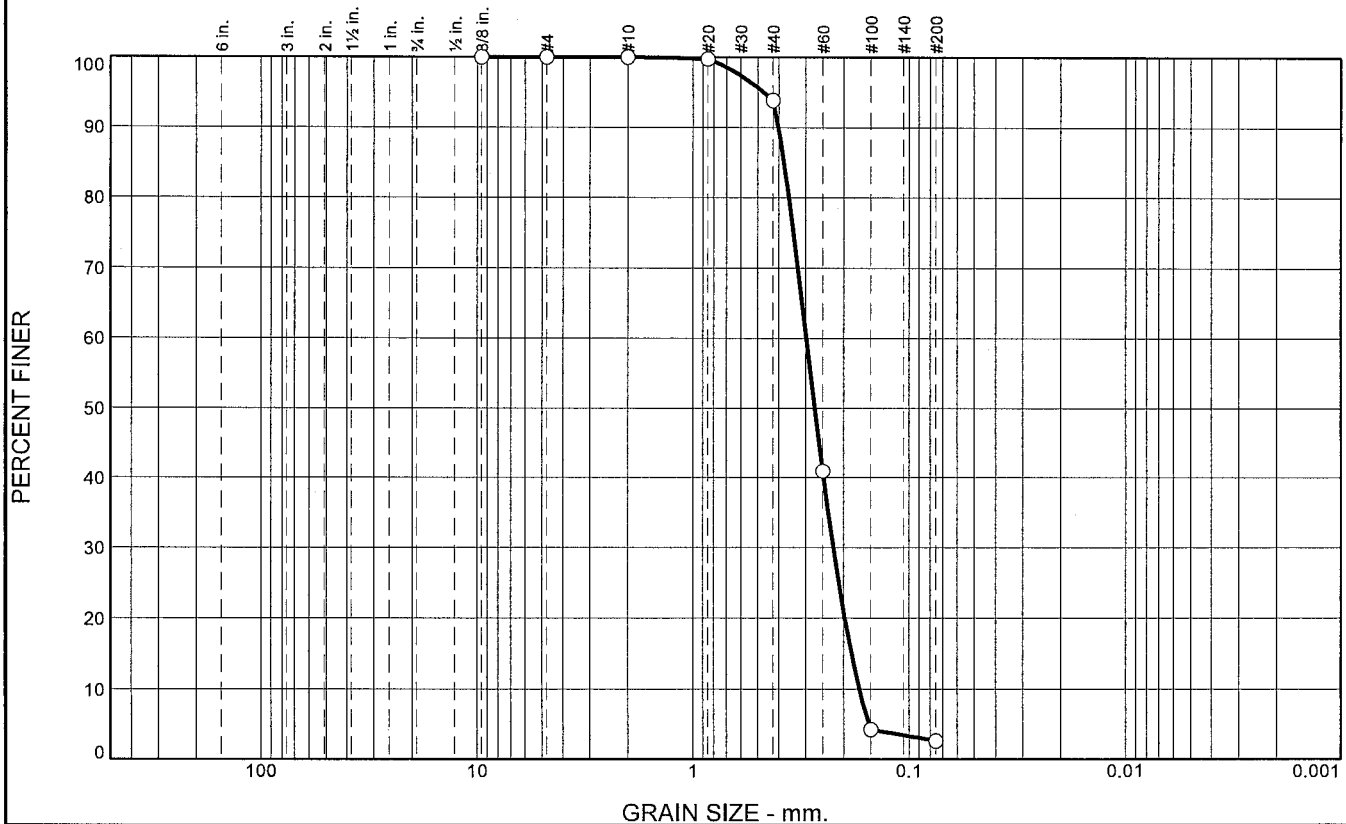
Report No.

Tested By: G.Fancher

Checked By: R.Byrd



# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.0	0.0	6.1	91.3	2.6	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
.375	100.0		
#4	100.0		
#10	100.0		
#20	99.7		
#40	93.9		
#60	40.9		
#100	4.3		
#200	2.6		

\* (no specification provided)

**Material Description**

SAND, (SP), fine grained

**Atterberg Limits**

PL=      LL=      PI=

**Coefficients**

D<sub>90</sub>= 0.4021      D<sub>85</sub>= 0.3786      D<sub>60</sub>= 0.2976  
D<sub>50</sub>= 0.2721      D<sub>30</sub>= 0.2234      D<sub>15</sub>= 0.1845  
D<sub>10</sub>= 0.1699      C<sub>u</sub>= 1.75      C<sub>c</sub>= 0.99

**Classification**

USCS= SP      AASHTO=

**Remarks**

CADD CODE = CH10D965

Location: USACE Sample # BI-PB-38-10B  
Sample Number: TE Lab ID: 4612.05

Depth: 5.0 - 10.0 (ft.)

Date: 8/7/10

**Thompson Engineering**

**Mobile, Alabama**

Client: US Army Corps of Engineers

Project: Contract No. W91278-10-D-0026 - Task 03  
Mississippi Barrier Island Restoration Project

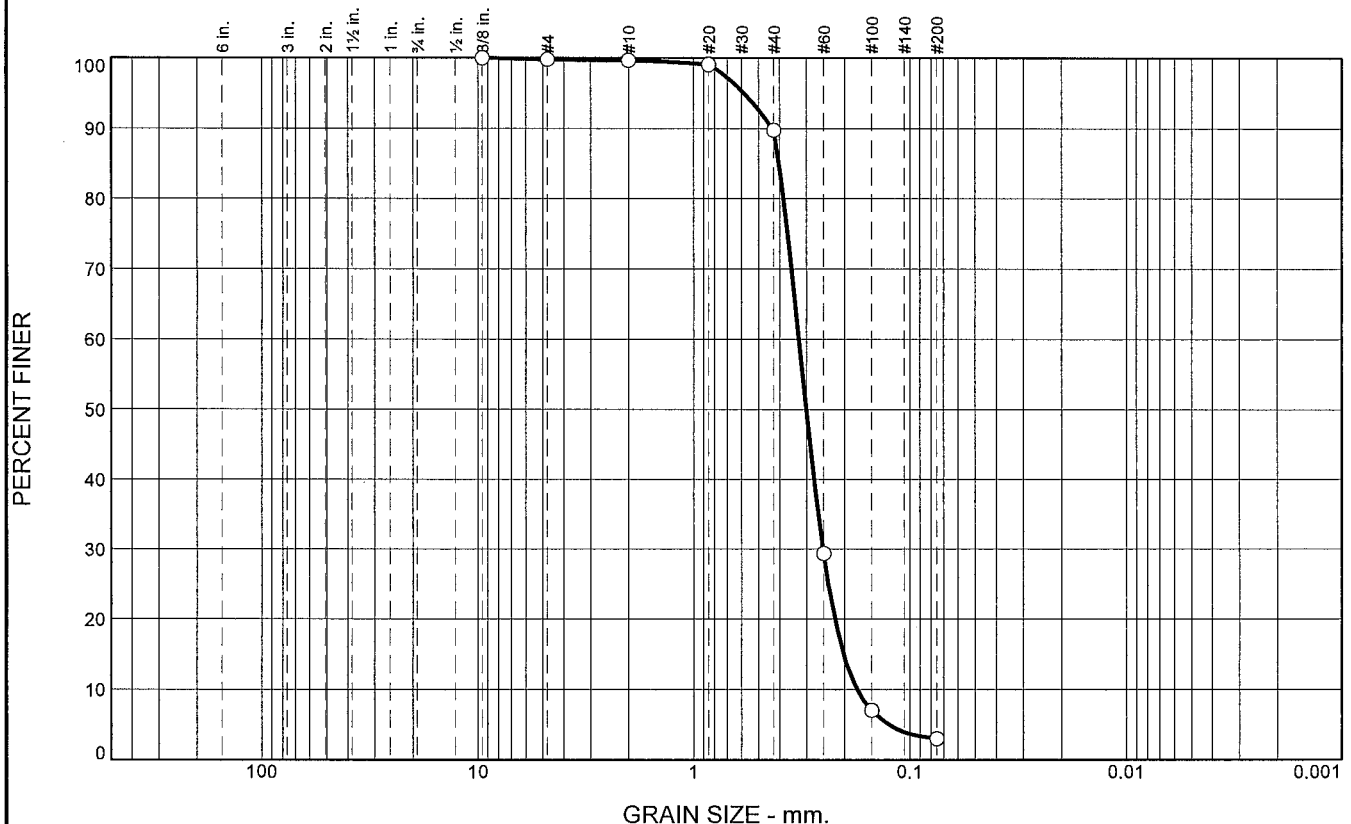
Project No: 10-2123-0009

Report No.

Tested By: G.Fancher

Checked By: R.Byrd

# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.2	0.2	9.8	86.8	3.0	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
.375	100.0		
#4	99.8		
#10	99.6		
#20	99.0		
#40	89.8		
#60	29.3		
#100	7.0		
#200	3.0		

\* (no specification provided)

**Material Description**  
SAND, (SP), fine grained

**Atterberg Limits**  
 PL=                      LL=                      PI=

**Coefficients**  
 D<sub>90</sub>= 0.4306      D<sub>85</sub>= 0.4030      D<sub>60</sub>= 0.3251  
 D<sub>50</sub>= 0.3004      D<sub>30</sub>= 0.2518      D<sub>15</sub>= 0.2025  
 D<sub>10</sub>= 0.1755      C<sub>u</sub>= 1.85              C<sub>c</sub>= 1.11

**Classification**  
 USCS= SP                      AASHTO=

**Remarks**  
 CADD CODE = CH10D965

Location: USACE Sample # BI-PB-38-10C  
 Sample Number: TE Lab ID: 4612.06

Depth: 10.0 - 15.0 (ft.)

Date: 8/7/10

**Thompson Engineering**

**Mobile, Alabama**

Client: US Army Corps of Engineers

Project: Contract No. W91278-10-D-0026 - Task 03  
 Mississippi Barrier Island Restoration Project

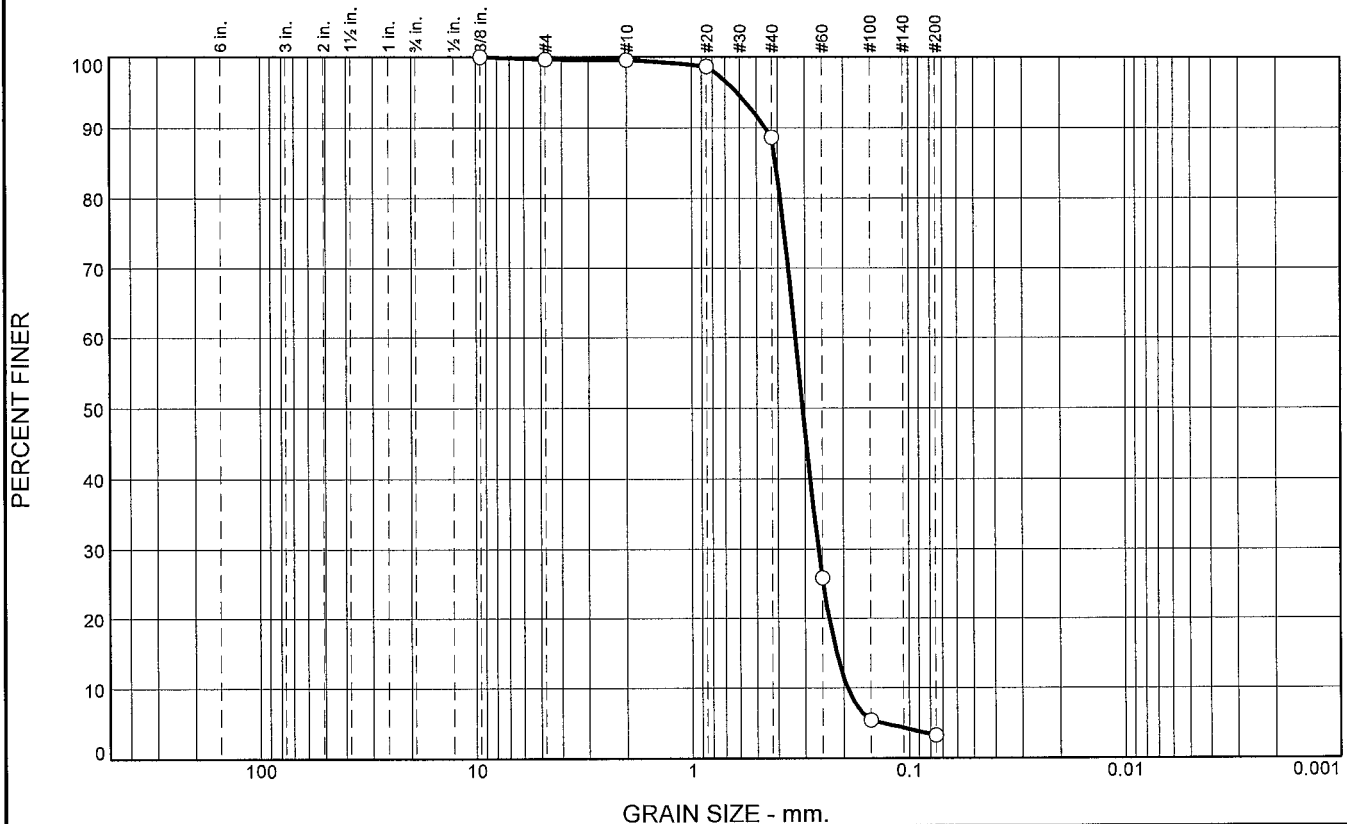
Project No: 10-2123-0009

Report No.

Tested By: G.Fancher

Checked By: R.Byrd

# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.4	0.1	10.9	85.3	3.3	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
.375	100.0		
#4	99.6		
#10	99.5		
#20	98.6		
#40	88.6		
#60	25.9		
#100	5.4		
#200	3.3		

\* (no specification provided)

**Material Description**  
SAND, (SP), medium to fine grained

**Atterberg Limits**  
PL=      LL=      PI=

**Coefficients**  
D<sub>90</sub>= 0.4555      D<sub>85</sub>= 0.4086      D<sub>60</sub>= 0.3314  
D<sub>50</sub>= 0.3073      D<sub>30</sub>= 0.2605      D<sub>15</sub>= 0.2157  
D<sub>10</sub>= 0.1923      C<sub>u</sub>= 1.72      C<sub>c</sub>= 1.06

**Classification**  
USCS= SP      AASHTO=

**Remarks**  
CADD CODE = CH10D965

Location: USACE Sample # BI-PB-38-10D  
Sample Number: TE Lab ID: 4612.07

Depth: 15.0 - 18.5 (ft.)

Date: 8/7/10

**Thompson Engineering**

**Mobile, Alabama**

Client: US Army Corps of Engineers

Project: Contract No. W91278-10-D-0026 - Task 03  
Mississippi Barrier Island Restoration Project

Project No: 10-2123-0009

Report No.

Tested By: G.Fancher

Checked By: R.Byrd

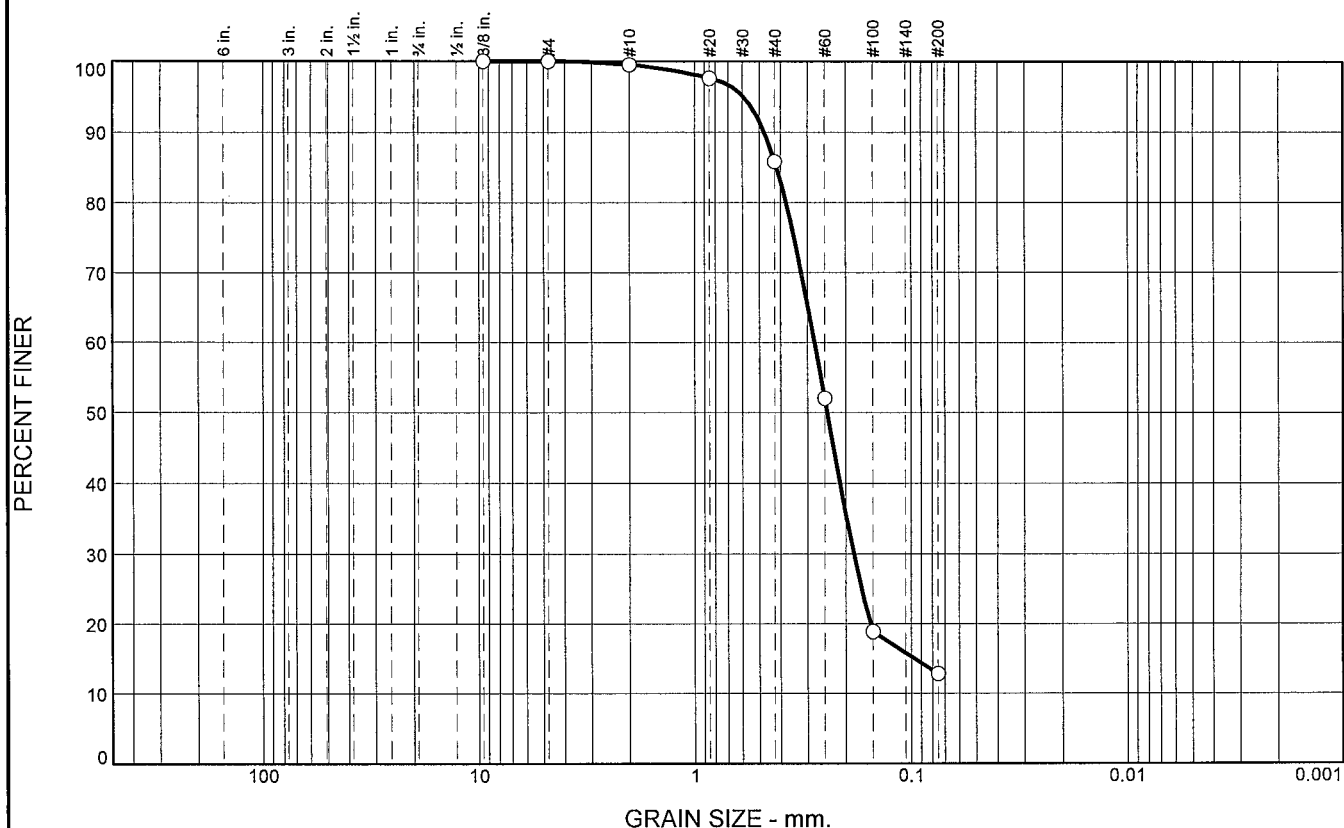
# Boring Designation BI-PB-039-10

DRILLING LOG		DIVISION South Atlantic		INSTALLATION Mobile District		SHEET 1 OF 1 SHEETS	
1. PROJECT MsCIP Barrier Island Restoration Petit Bois Pass- AL East				9. SIZE AND TYPE OF BIT N/A			
2. BORING DESIGNATION BI-PB-039-10		LOCATION COORDINATES E = 1,143,682 N = 252,847		10. COORDINATE SYSTEM/DATUM State Plane, MSE (U.S. Ft.)		HORIZONTAL NAD83 VERTICAL NAVD88	
3. DRILLING AGENCY Corps of Engineers - CESAM		CONTRACTOR FILE NO.		11. MANUFACTURER'S DESIGNATION OF DRILL Vibracore		<input type="checkbox"/> AUTO HAMMER <input type="checkbox"/> MANUAL HAMMER	
4. NAME OF DRILLER Construction Solutions International, Inc.				12. TOTAL SAMPLES		DISTURBED 0	
5. DIRECTION OF BORING <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED		DEG. FROM VERTICAL		13. TOTAL NUMBER CORE BOXES			
		BEARING		14. WATER DEPTH 35 Ft.			
6. THICKNESS OF OVERBURDEN N/A				15. DATE BORING 07-28-10		STARTED 07-28-10 COMPLETED 07-28-10	
7. DEPTH DRILLED INTO ROCK N/A				16. ELEVATION TOP OF BORING -34.3 Ft.			
8. TOTAL DEPTH OF BORING 13.0 Ft.				17. TOTAL RECOVERY FOR BORING 100%			
				18. SIGNATURE AND TITLE OF INSPECTOR Chris Gillentine, Geologist			
ELEV.	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS	SAMPLE	LABORATORY RESULTS		
-34.3	0.0		CLAY, fat, gray (CH)				
				NS			
-47.3	13.0		NOTES: 1. Soils are field visually classified in accordance with the Unified Soils Classification System. 2. NS = Sample not submitted for laboratory analysis from this interval. 3. Seafloor elevation calculated using sampling vessel's fathometer water depth reading and applying NOAA tidal gauge data conversion factor.				

# Boring Designation BI-PB-040-10

DRILLING LOG		DIVISION South Atlantic		INSTALLATION Mobile District		SHEET 1 OF 1 SHEETS	
1. PROJECT MsCIP Barrier Island Restoration Petit Bois Pass- AL East				9. SIZE AND TYPE OF BIT N/A			
2. BORING DESIGNATION BI-PB-040-10		LOCATION COORDINATES E = 1,145,255 N = 252,825		10. COORDINATE SYSTEM/DATUM State Plane, MSE (U.S. Ft.)		HORIZONTAL NAD83 VERTICAL NAVD88	
3. DRILLING AGENCY Corps of Engineers - CESAM		CONTRACTOR FILE NO.		11. MANUFACTURER'S DESIGNATION OF DRILL Vibrocure		<input type="checkbox"/> AUTO HAMMER <input type="checkbox"/> MANUAL HAMMER	
4. NAME OF DRILLER Construction Solutions International, Inc.				12. TOTAL SAMPLES		DISTURBED 1 UNDISTURBED (UD) 0	
5. DIRECTION OF BORING <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED		DEG. FROM VERTICAL		BEARING		13. TOTAL NUMBER CORE BOXES	
6. THICKNESS OF OVERBURDEN N/A				14. WATER DEPTH 33 Ft.			
7. DEPTH DRILLED INTO ROCK N/A				15. DATE BORING 07-28-10		STARTED 07-28-10 COMPLETED 07-28-10	
8. TOTAL DEPTH OF BORING 14.0 Ft.				16. ELEVATION TOP OF BORING -32.2 Ft.			
				17. TOTAL RECOVERY FOR BORING 100%			
				18. SIGNATURE AND TITLE OF INSPECTOR Chris Gillentine, Geologist			
ELEV.	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS	SAMPLE	LABORATORY RESULTS		
-32.2	0.0						
-34.2	2.0		SAND, poorly-graded, trace shell fragments, dark gray (SP)	A	Classification: SM Color: 2.5Y 5/3-light olive brown D50: 0.2432 mm % Fines: 12.8		
-46.2	14.0		CLAY, fat, gray (CH)	NS			
			NOTES: 1. Soils are field visually classified in accordance with the Unified Soils Classification System. 2. NS = Sample not submitted for laboratory analysis from this interval. 3. Seafloor elevation calculated using sampling vessel's fathometer water depth reading and applying NOAA tidal gauge data conversion factor.				

# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.0	0.5	13.6	73.1	12.8	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
.375	100.0		
#4	100.0		
#10	99.5		
#20	97.6		
#40	85.9		
#60	52.1		
#100	18.9		
#200	12.8		

\* (no specification provided)

## Material Description

SILTY SAND, (SM), medium to fine grained

## Atterberg Limits

PL=

LL=

PI=

## Coefficients

D<sub>90</sub>= 0.4750

D<sub>85</sub>= 0.4168

D<sub>60</sub>= 0.2781

D<sub>50</sub>= 0.2432

D<sub>30</sub>= 0.1842

D<sub>15</sub>= 0.0961

D<sub>10</sub>=

C<sub>u</sub>=

C<sub>c</sub>=

## Classification

USCS= SM

AASHTO=

## Remarks

CADD CODE = CH10D965

Location: USACE Sample # BI-PB-40-10A  
Sample Number: TE Lab ID: 4612.08

Depth: 0.0 - 2.0 (ft.)

Date: 8/7/10

**Thompson Engineering**

**Mobile, Alabama**

Client: US Army Corps of Engineers

Project: Contract No. W91278-10-D-0026 - Task 03  
Mississippi Barrier Island Restoration Project

Project No: 10-2123-0009

Report No.

Tested By: G.Fancher

Checked By: R.Byrd

# Boring Designation BI-PB-041-10

DRILLING LOG		DIVISION South Atlantic		INSTALLATION Mobile District		SHEET 1 OF 2 SHEETS	
1. PROJECT MsCIP Barrier Island Restoration Petit Bois Pass- AL East				9. SIZE AND TYPE OF BIT N/A			
2. BORING DESIGNATION BI-PB-041-10		LOCATION COORDINATES E = 1,146,730 N = 252,846		10. COORDINATE SYSTEM/DATUM State Plane, MSE (U.S. Ft.)		HORIZONTAL NAD83	
3. DRILLING AGENCY Corps of Engineers - CESAM		CONTRACTOR FILE NO.		11. MANUFACTURER'S DESIGNATION OF DRILL Vibrocure		<input type="checkbox"/> AUTO HAMMER <input type="checkbox"/> MANUAL HAMMER	
4. NAME OF DRILLER Construction Solutions International, Inc.				12. TOTAL SAMPLES		DISTURBED 0	
5. DIRECTION OF BORING <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED				13. TOTAL NUMBER CORE BOXES		UNDISTURBED (UD) 0	
6. THICKNESS OF OVERBURDEN N/A				14. WATER DEPTH		38 Ft.	
7. DEPTH DRILLED INTO ROCK N/A				15. DATE BORING		STARTED 07-28-10	
8. TOTAL DEPTH OF BORING 20.0 Ft.				16. ELEVATION TOP OF BORING		COMPLETED 07-28-10	
				17. TOTAL RECOVERY FOR BORING		100%	
				18. SIGNATURE AND TITLE OF INSPECTOR Chris Gillentine, Geologist			
ELEV.	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS	SAMPLE	LABORATORY RESULTS		
-37.1	0.0		CLAY, fat, gray (CH)				
				NS			
-57.1	20.0						
			NOTES: 1. Soils are field visually classified in accordance with the Unified Soils Classification System. 2. NS = Sample not submitted for laboratory analysis from this interval. 3. Seafloor elevation calculated using sampling				

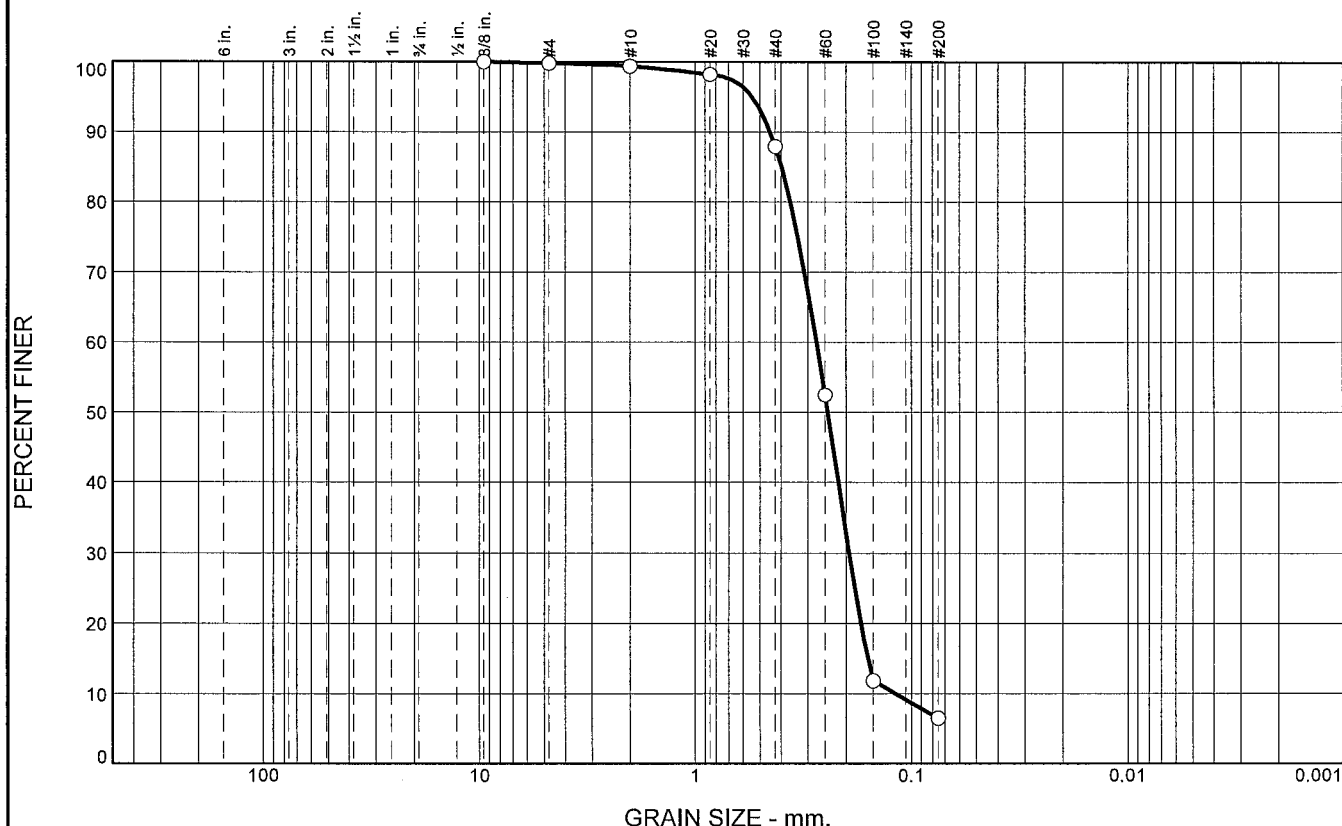
<b>DRILLING LOG (Cont. Sheet)</b>			<b>INSTALLATION</b> Mobile District		<b>SHEET 2</b> <b>OF 2 SHEETS</b>
<b>PROJECT</b> MsCIP Barrier Island Restoration			<b>COORDINATE SYSTEM/DATUM</b> State Plane, MSE (U.S. Ft.)	<b>HORIZONTAL</b> NAD83	<b>VERTICAL</b> NAVD88
<b>LOCATION COORDINATES</b> X = 1,146,730 Y = 252,846			<b>ELEVATION TOP OF BORING</b> -37.1 Ft.		
<b>ELEV.</b>	<b>DEPTH</b>	<b>LEGEND</b>	<b>CLASSIFICATION OF MATERIALS</b>	<b>SAMPLE</b>	<b>LABORATORY RESULTS</b>
			vessel's fathometer water depth reading and applying NOAA tidal gauge data conversion factor.		



# Boring Designation BI-PB-042-10

DRILLING LOG		DIVISION South Atlantic		INSTALLATION Mobile District		SHEET 1 OF 1 SHEETS	
1. PROJECT MsCIP Barrier Island Restoration Petit Bois Pass- AL East				9. SIZE AND TYPE OF BIT N/A			
2. BORING DESIGNATION BI-PB-042-10		LOCATION COORDINATES E = 1,148,137 N = 252,784		10. COORDINATE SYSTEM/DATUM State Plane, MSE (U.S. Ft.)		HORIZONTAL NAD83	
3. DRILLING AGENCY Corps of Engineers - CESAM		CONTRACTOR FILE NO.		11. MANUFACTURER'S DESIGNATION OF DRILL Vibracore		<input type="checkbox"/> AUTO HAMMER <input type="checkbox"/> MANUAL HAMMER	
4. NAME OF DRILLER Construction Solutions International, Inc.				12. TOTAL SAMPLES 3		UNDISTURBED (UD) 0	
5. DIRECTION OF BORING <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED		DEG. FROM VERTICAL		13. TOTAL NUMBER CORE BOXES		14. WATER DEPTH 33 Ft.	
6. THICKNESS OF OVERBURDEN N/A		7. DEPTH DRILLED INTO ROCK N/A		15. DATE BORING 07-28-10		STARTED 07-28-10	
8. TOTAL DEPTH OF BORING 15.5 Ft.				16. ELEVATION TOP OF BORING -32.2 Ft.		17. TOTAL RECOVERY FOR BORING 100%	
				18. SIGNATURE AND TITLE OF INSPECTOR Chris Gillentine, Geologist			
ELEV.	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS	SAMPLE	LABORATORY RESULTS		
-32.2	0.0						
			SAND, poorly-graded, mostly medium-grained sand-sized quartz, dark gray (SP)	A	Classification: SP-SM Color: 2.5Y 5/2-grayish brown D50: 0.2428 mm % Fines: 6.5		
				B	Classification: SP-SM Color: 2.5Y 6/2-light brownish gray D50: 0.2663 mm % Fines: 5.2		
-41.2	9.0		SAND, poorly-graded, mostly fine-grained sand-sized quartz, trace shell fragments, lt. gray (SP)				
				C	Classification: SP Color: 5Y 8/1-white D50: 0.257 mm % Fines: 3.7		
-47.7	15.5						
			NOTES: 1. Soils are field visually classified in accordance with the Unified Soils Classification System. 2. NS = Sample not submitted for laboratory analysis from this interval. 3. Seafloor elevation calculated using sampling vessel's fathometer water depth reading and applying NOAA tidal gauge data conversion factor.				

# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.2	0.5	11.4	81.4	6.5	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
.375	100.0		
#4	99.8		
#10	99.3		
#20	98.2		
#40	87.9		
#60	52.5		
#100	11.9		
#200	6.5		

\* (no specification provided)

## Material Description

SAND, (SP-SM), medium to fine grained

## Atterberg Limits

PL=

LL=

PI=

## Coefficients

D<sub>90</sub>= 0.4495

D<sub>85</sub>= 0.3988

D<sub>60</sub>= 0.2733

D<sub>50</sub>= 0.2428

D<sub>30</sub>= 0.1937

D<sub>15</sub>= 0.1585

C<sub>u</sub>= 2.32

C<sub>c</sub>= 1.17

## Classification

USCS= SP-SM

AASHTO=

## Remarks

CADD CODE = CH10D965

Location: USACE Sample # BI-PB-42-10A  
Sample Number: TE Lab ID: 4612.09

Depth: 0.0 - 5.0 (ft.)

Date: 8/7/10

**Thompson Engineering**

**Mobile, Alabama**

Client: US Army Corps of Engineers

Project: Contract No. W91278-10-D-0026 - Task 03  
Mississippi Barrier Island Restoration Project

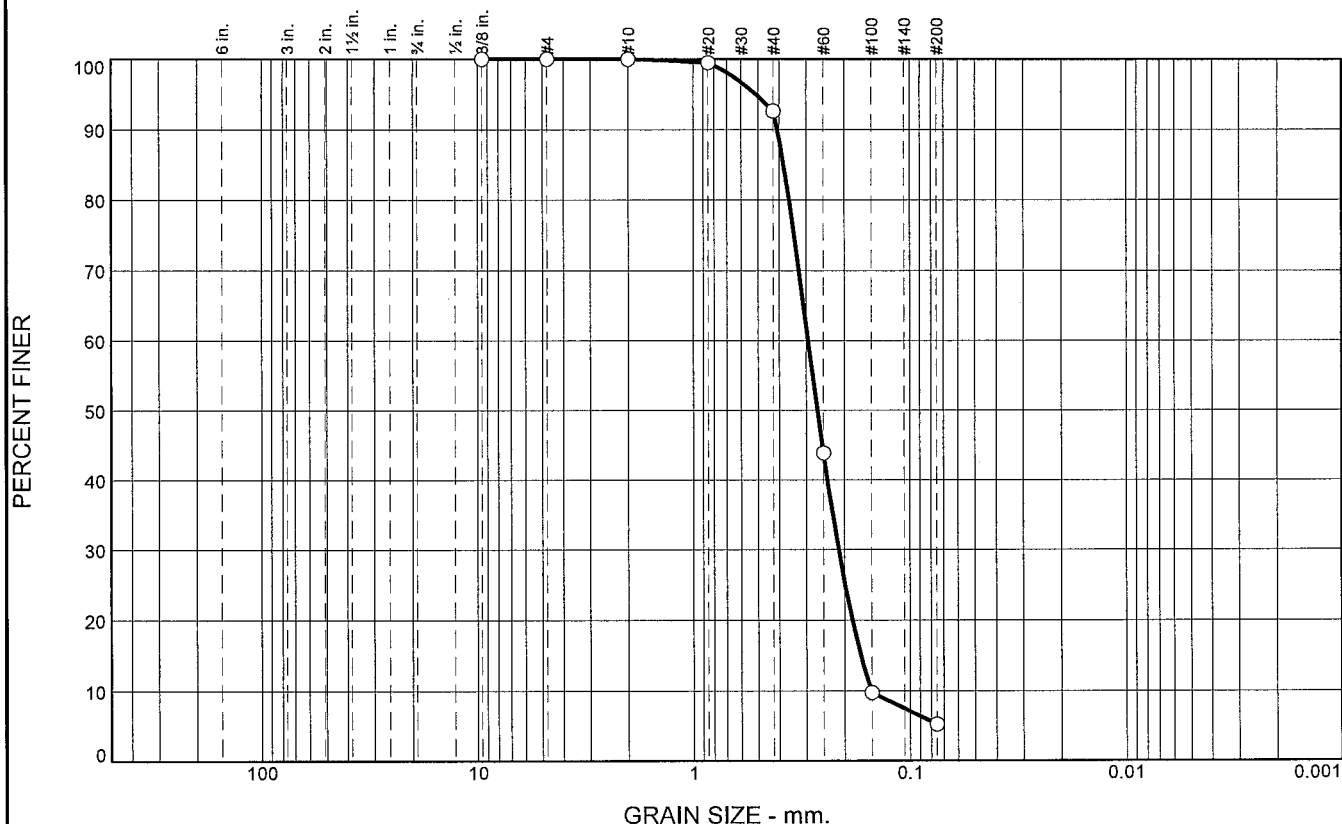
Project No: 10-2123-0009

Report No.

Tested By: J.Maddox

Checked By: R.Byrd

# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.0	0.0	7.4	87.4	5.2	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
.375	100.0		
#4	100.0		
#10	100.0		
#20	99.5		
#40	92.6		
#60	43.9		
#100	9.8		
#200	5.2		

\* (no specification provided)

## Material Description

SAND, (SP-SM), fine grained

## Atterberg Limits

PL=

LL=

PI=

## Coefficients

D<sub>90</sub>= 0.4078

D<sub>85</sub>= 0.3815

D<sub>60</sub>= 0.2937

D<sub>50</sub>= 0.2663

D<sub>30</sub>= 0.2130

D<sub>15</sub>= 0.1690

D<sub>10</sub>= 0.1509

C<sub>u</sub>= 1.95

C<sub>c</sub>= 1.02

## Classification

USCS= SP-SM

AASHTO=

## Remarks

CADD CODE = CH10D965

Location: USACE Sample # BI-PB-42-10B  
Sample Number: TE Lab ID: 4612.10

Depth: 5.0 - 10.0 (ft.)

Date: 8/7/10

**Thompson Engineering**

**Mobile, Alabama**

Client: US Army Corps of Engineers

Project: Contract No. W91278-10-D-0026 - Task 03  
Mississippi Barrier Island Restoration Project

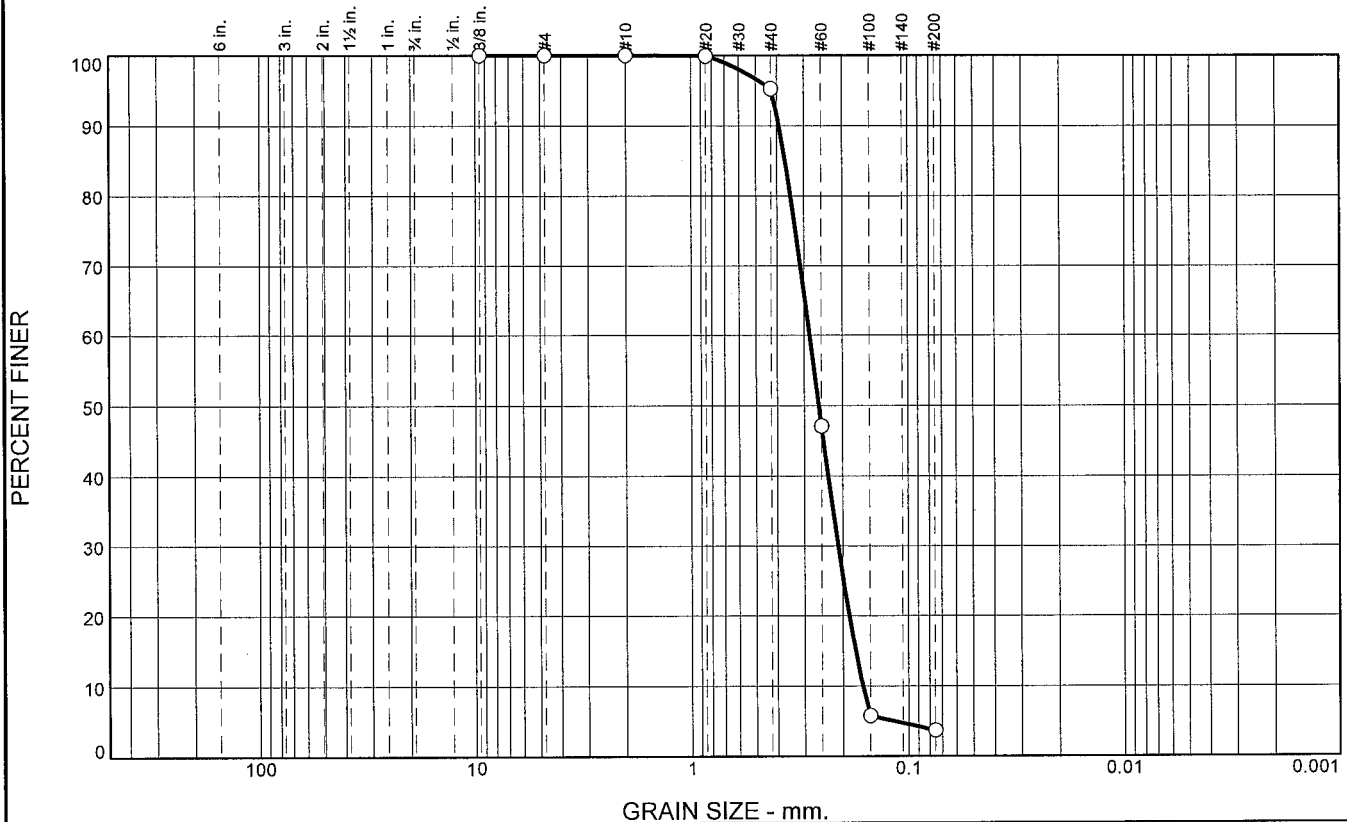
Project No: 10-2123-0009

Report No.

Tested By: J.Maddox

Checked By: R.Byrd

# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.0	0.0	4.7	91.6	3.7	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
.375	100.0		
#4	100.0		
#10	100.0		
#20	99.9		
#40	95.3		
#60	47.1		
#100	5.8		
#200	3.7		

\* (no specification provided)

**Material Description**  
SAND, (SP), fine grained

**Atterberg Limits**  
 PL=      LL=      PI=

**Coefficients**  
 D<sub>90</sub>= 0.3909      D<sub>85</sub>= 0.3663      D<sub>60</sub>= 0.2827  
 D<sub>50</sub>= 0.2570      D<sub>30</sub>= 0.2101      D<sub>15</sub>= 0.1752  
 D<sub>10</sub>= 0.1623      C<sub>u</sub>= 1.74      C<sub>c</sub>= 0.96

**Classification**  
 USCS= SP      AASHTO=

**Remarks**  
 CADD CODE = CH10D965

Location: USACE Sample # BI-PB-42-10C  
 Sample Number: TE Lab ID: 4612.11

Depth: 10.0 - 15.0 (ft.)

Date: 8/7/10

**Thompson Engineering**

**Mobile, Alabama**

Client: US Army Corps of Engineers

Project: Contract No. W91278-10-D-0026 - Task 03  
 Mississippi Barrier Island Restoration Project

Project No: 10-2123-0009

Report No.

Tested By: J.Maddox

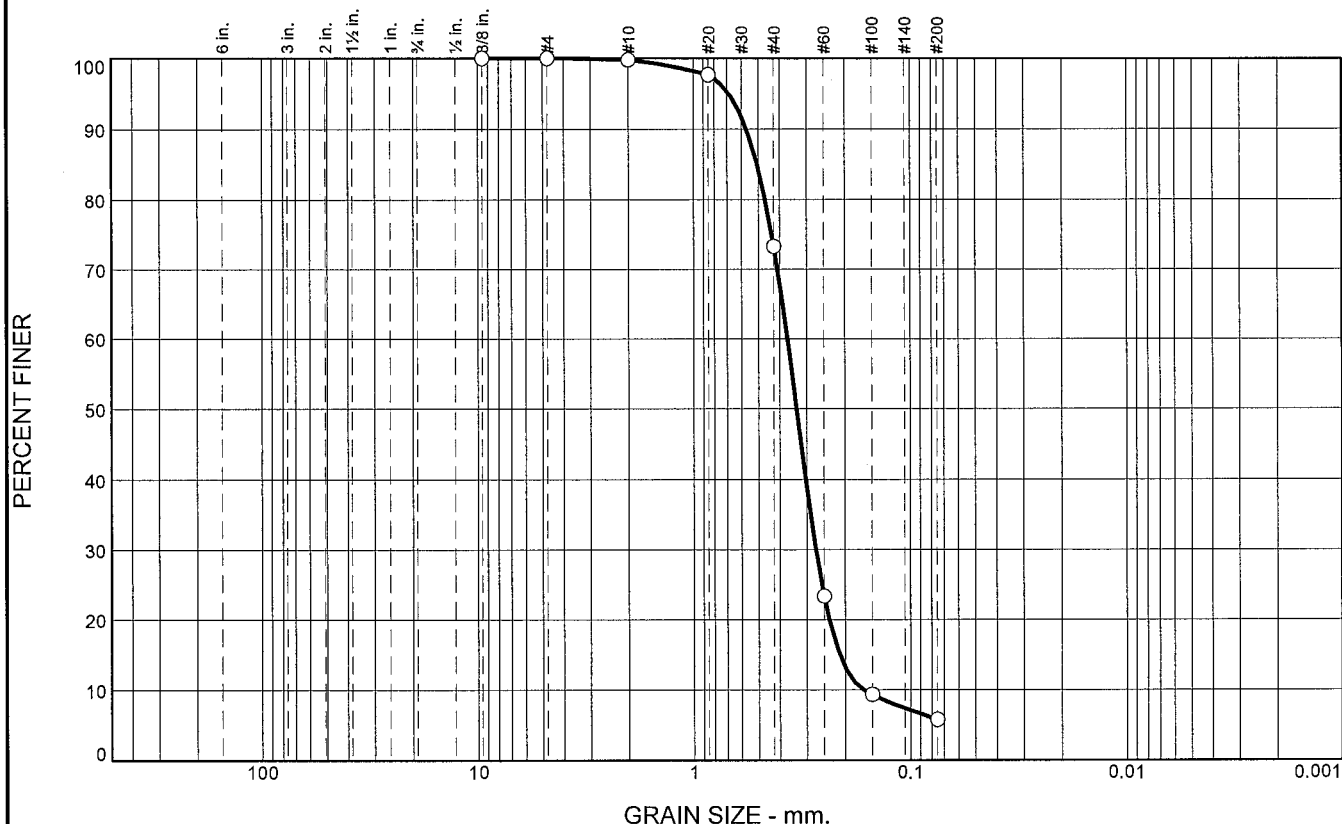
Checked By: R.Byrd

# Boring Designation BI-PB-043-10

DRILLING LOG		DIVISION South Atlantic		INSTALLATION Mobile District		SHEET 1 OF 2 SHEETS	
1. PROJECT MsCIP Barrier Island Restoration Petit Bois Pass- AL East				9. SIZE AND TYPE OF BIT N/A			
2. BORING DESIGNATION BI-PB-043-10		LOCATION COORDINATES E = 1,149,697 N = 252,849		10. COORDINATE SYSTEM/DATUM State Plane, MSE (U.S. Ft.)		HORIZONTAL NAD83	
3. DRILLING AGENCY Corps of Engineers - CESAM		CONTRACTOR FILE NO.		11. MANUFACTURER'S DESIGNATION OF DRILL Vibrocure		<input type="checkbox"/> AUTO HAMMER <input type="checkbox"/> MANUAL HAMMER	
4. NAME OF DRILLER Construction Solutions International, Inc.				12. TOTAL SAMPLES		DISTURBED 0	
5. DIRECTION OF BORING <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED				13. TOTAL NUMBER CORE BOXES		14. WATER DEPTH 38 Ft.	
6. THICKNESS OF OVERBURDEN N/A				15. DATE BORING		STARTED 07-28-10	
7. DEPTH DRILLED INTO ROCK N/A				16. ELEVATION TOP OF BORING -39.0 Ft.		COMPLETED 07-28-10	
8. TOTAL DEPTH OF BORING 20.0 Ft.				17. TOTAL RECOVERY FOR BORING 100%		18. SIGNATURE AND TITLE OF INSPECTOR Chris Gillentine, Geologist	
ELEV.	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS	SAMPLE	LABORATORY RESULTS		
-39.0	0.0						
			SAND, poorly-graded, mostly fine-grained sand-sized quartz, trace shell fragments, lt. gray (SP)	A	Classification: SP-SM Color: 2.5Y 7/2-light gray D50: 0.334 mm % Fines: 5.8		
				B	Classification: SM Color: 2.5Y 7/2-light gray D50: 0.306 mm % Fines: 12.4		
-49.0	10.0						
			CLAY, lean, trace shell fragments, dark gray (CL)	NS			
-54.0	15.0						
			SAND, clayey, trace shell fragments, dark gray (SC)	C	Classification: SP Color: 2.5Y 7/1-light gray D50: 0.2151 mm % Fines: 3.7		
-59.0	20.0						
			NOTES: 1. Soils are field visually classified in accordance with the Unified Soils Classification System. 2. NS = Sample not submitted for laboratory analysis from this interval. 3. Seafloor elevation determined from 2010				

<b>DRILLING LOG (Cont. Sheet)</b>			<b>INSTALLATION</b> Mobile District		<b>SHEET 2</b> <b>OF 2 SHEETS</b>
<b>PROJECT</b> MsCIP Barrier Island Restoration			<b>COORDINATE SYSTEM/DATUM</b> State Plane, MSE (U.S. Ft.)	<b>HORIZONTAL</b> NAD83	<b>VERTICAL</b> NAVD88
<b>LOCATION COORDINATES</b> X = 1,149,697 Y = 252,849			<b>ELEVATION TOP OF BORING</b> -39.0 Ft.		
<b>ELEV.</b>	<b>DEPTH</b>	<b>LEGEND</b>	<b>CLASSIFICATION OF MATERIALS</b>	<b>SAMPLE</b>	<b>LABORATORY RESULTS</b>
			USACE survey.		

# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.0	0.2	26.5	67.5	5.8	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
.375	100.0		
#4	100.0		
#10	99.8		
#20	97.6		
#40	73.3		
#60	23.4		
#100	9.4		
#200	5.8		

\* (no specification provided)

<u><b>Material Description</b></u>		
SAND, (SP-SM), medium to fine grained		
<u><b>Atterberg Limits</b></u>		
PL=	LL=	PI=
<u><b>Coefficients</b></u>		
D <sub>90</sub> = 0.5693	D <sub>85</sub> = 0.5078	D <sub>60</sub> = 0.3682
D <sub>50</sub> = 0.3340	D <sub>30</sub> = 0.2722	D <sub>15</sub> = 0.2121
D <sub>10</sub> = 0.1642	C <sub>u</sub> = 2.24	C <sub>c</sub> = 1.23
<u><b>Classification</b></u>		
USCS= SP-SM	AASHTO=	
<u><b>Remarks</b></u>		
CADD CODE = CH10D965		

Location: USACE Sample # BI-PB-43-10A  
Sample Number: TE Lab ID: 4612.12

Depth: 0.0 - 5.0 (ft.)

Date: 8/7/10

**Thompson Engineering**

**Mobile, Alabama**

Client: US Army Corps of Engineers

Project: Contract No. W91278-10-D-0026 - Task 03  
Mississippi Barrier Island Restoration Project

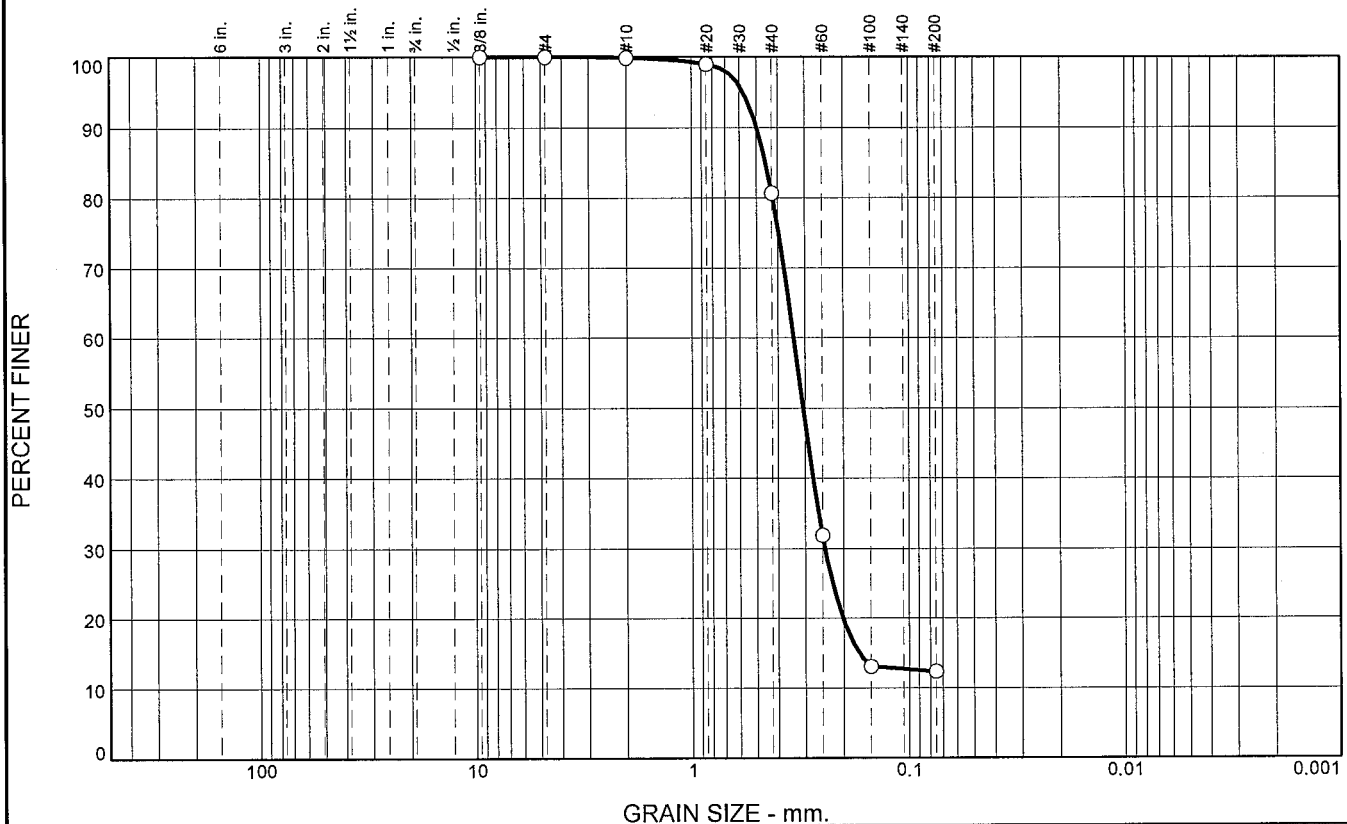
Project No: 10-2123-0009

Report No.

Tested By: J.Maddox

Checked By: R.Byrd

# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.0	0.1	19.3	68.2	12.4	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
.375	100.0		
#4	100.0		
#10	99.9		
#20	98.9		
#40	80.6		
#60	31.9		
#100	13.1		
#200	12.4		

\* (no specification provided)

**Material Description**  
SILTY SAND, (SM), medium to fine grained

**Atterberg Limits**  
PL=      LL=      PI=

**Coefficients**  
D<sub>90</sub>= 0.4985      D<sub>85</sub>= 0.4534      D<sub>60</sub>= 0.3381  
D<sub>50</sub>= 0.3060      D<sub>30</sub>= 0.2435      D<sub>15</sub>= 0.1698  
D<sub>10</sub>=      C<sub>u</sub>=      C<sub>c</sub>=

**Classification**  
USCS= SM      AASHTO=

**Remarks**  
CADD CODE = CH10D965

Location: USACE Sample # BI-PB-43-10B  
Sample Number: TE Lab ID: 4612.13

Depth: 5.0 - 10.0 (ft.)

Date: 8/7/10

**Thompson Engineering**

**Mobile, Alabama**

Client: US Army Corps of Engineers

Project: Contract No. W91278-10-D-0026 - Task 03  
Mississippi Barrier Island Restoration Project

Project No: 10-2123-0009

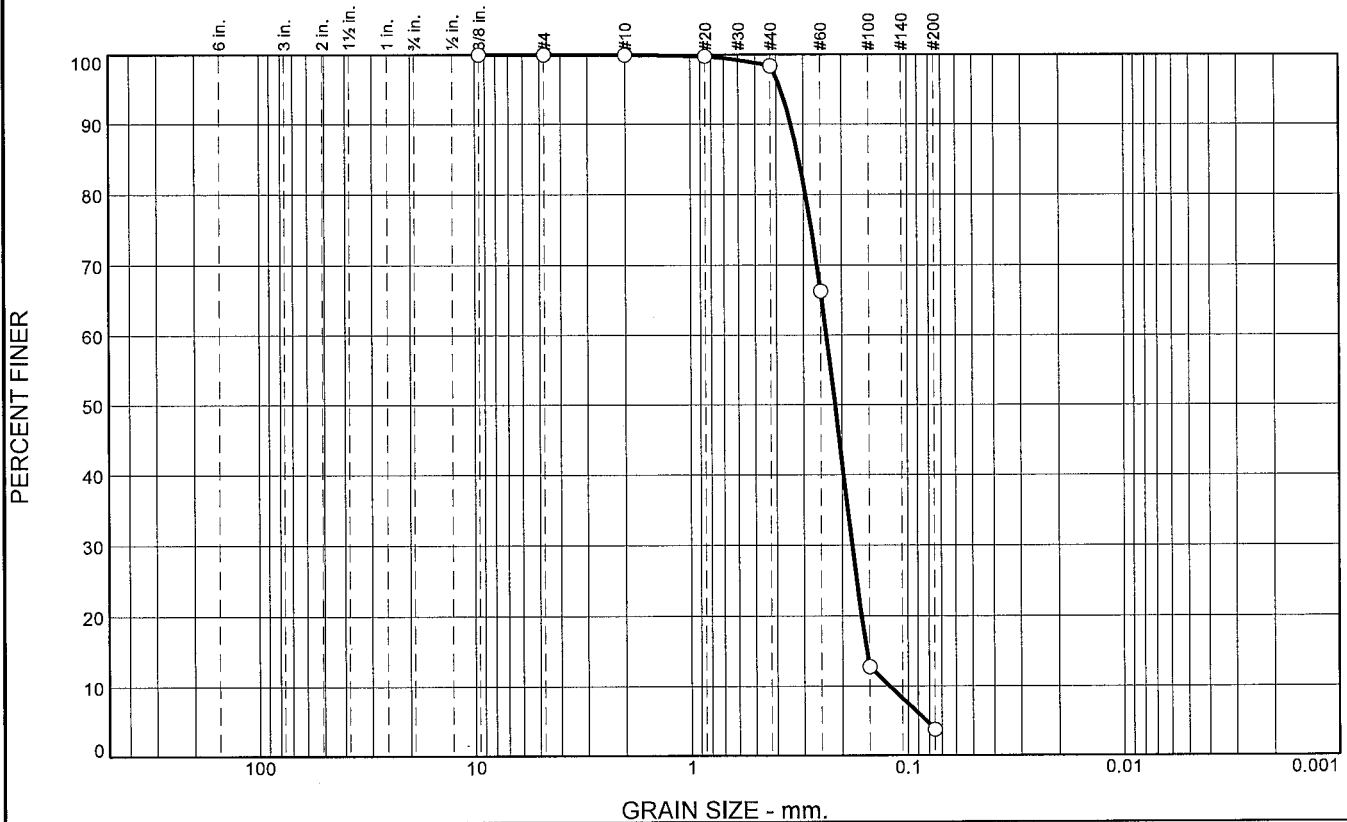
Report No.

Tested By: J.Maddox

Checked By: R.Byrd



# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.0	0.1	1.6	94.6	3.7	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
.375	100.0		
#4	100.0		
#10	99.9		
#20	99.7		
#40	98.3		
#60	66.3		
#100	12.8		
#200	3.7		

\* (no specification provided)

**Material Description**

SAND, (SP), fine grained

**Atterberg Limits**

PL=      LL=      PI=

**Coefficients**

D<sub>90</sub>= 0.3426      D<sub>85</sub>= 0.3145      D<sub>60</sub>= 0.2353  
D<sub>50</sub>= 0.2151      D<sub>30</sub>= 0.1804      D<sub>15</sub>= 0.1544  
D<sub>10</sub>= 0.1212      C<sub>u</sub>= 1.94      C<sub>c</sub>= 1.14

**Classification**

USCS= SP      AASHTO=

**Remarks**

CADD CODE = CH10D965

Location: USACE Sample # BI-PB-43-10C  
Sample Number: TE Lab ID: 4612.14

Depth: 15.0 - 20.0 (ft.)?

Date: 8/7/10

**Thompson Engineering**

**Mobile, Alabama**

Client: US Army Corps of Engineers

Project: Contract No. W91278-10-D-0026 - Task 03  
Mississippi Barrier Island Restoration Project

Project No: 10-2123-0009

Report No.

Tested By: G.Fancher

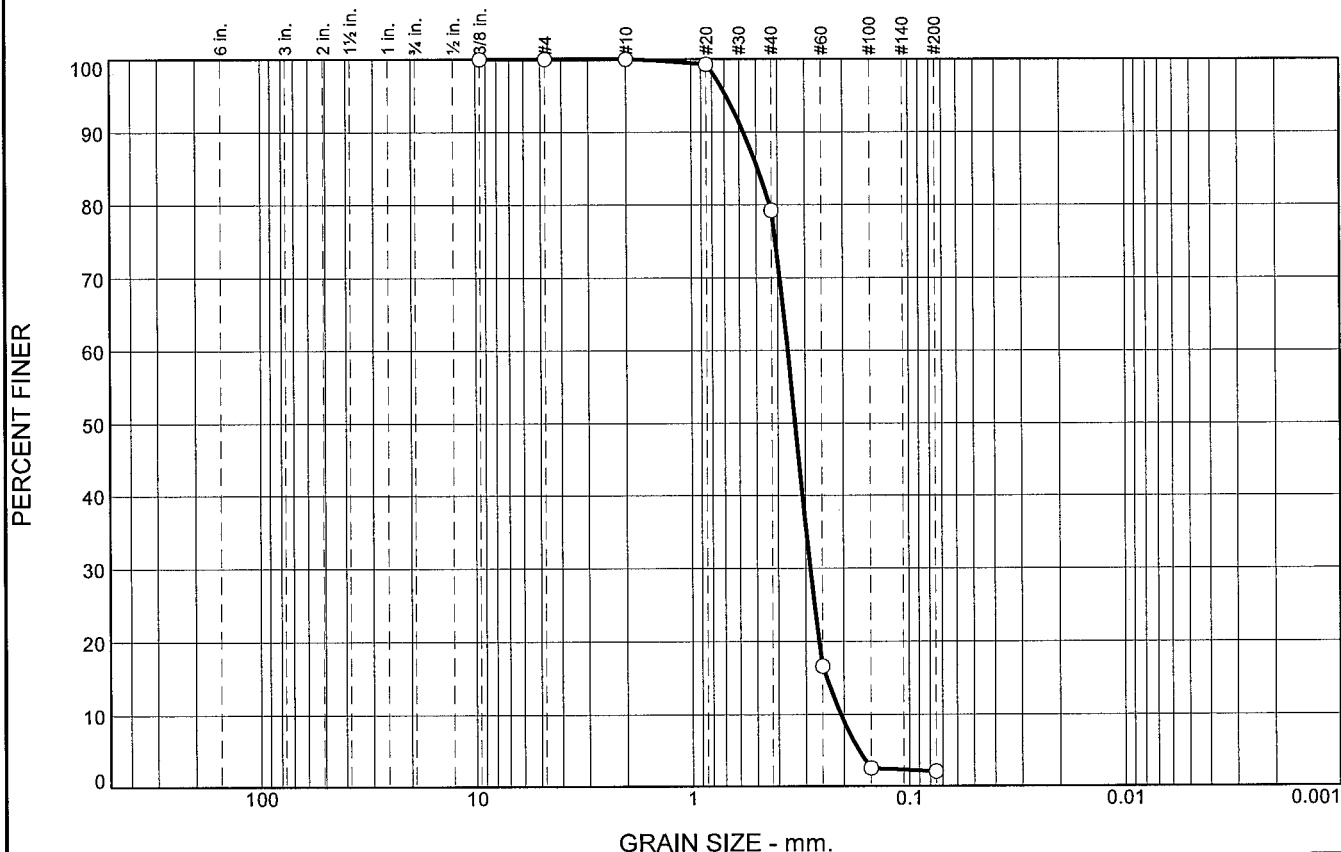
Checked By: R.Byrd

# Boring Designation BI-PB-044-10

DRILLING LOG		DIVISION South Atlantic		INSTALLATION Mobile District		SHEET 1 OF 2 SHEETS	
1. PROJECT MsCIP Barrier Island Restoration Petit Bois Pass- AL East				9. SIZE AND TYPE OF BIT N/A			
2. BORING DESIGNATION BI-PB-044-10		LOCATION COORDINATES E = 1,151,166 N = 252,917		10. COORDINATE SYSTEM/DATUM State Plane, MSE (U.S. Ft.)		HORIZONTAL NAD83	
3. DRILLING AGENCY Corps of Engineers - CESAM		CONTRACTOR FILE NO.		11. MANUFACTURER'S DESIGNATION OF DRILL Vibrocure		<input type="checkbox"/> AUTO HAMMER <input type="checkbox"/> MANUAL HAMMER	
4. NAME OF DRILLER Construction Solutions International, Inc.				12. TOTAL SAMPLES 3		UNDISTURBED (UD) 0	
5. DIRECTION OF BORING <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED		DEG. FROM VERTICAL		13. TOTAL NUMBER CORE BOXES		14. WATER DEPTH 38 Ft.	
6. THICKNESS OF OVERBURDEN N/A		7. DEPTH DRILLED INTO ROCK N/A		15. DATE BORING 07-28-10		STARTED 07-28-10	
8. TOTAL DEPTH OF BORING 20.0 Ft.				16. ELEVATION TOP OF BORING -38.6 Ft.		17. TOTAL RECOVERY FOR BORING 100%	
				18. SIGNATURE AND TITLE OF INSPECTOR Chris Gillentine, Geologist			
ELEV.	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS	SAMPLE	LABORATORY RESULTS		
-38.6	0.0						
			SAND, poorly-graded, mostly fine to medium-grained sand-sized quartz, trace shell fragments, lt. gray (SP)	A	Classification: SP Color: 2.5Y 6/1-gray D50: 0.3331 mm % Fines: 2		
				B	Classification: SP Color: 2.5Y 7/1-light gray D50: 0.3428 mm % Fines: 2.1		
				C	Classification: SP Color: 2.5Y 7/1-light gray D50: 0.3322 mm % Fines: 2.3		
				D	Classification: SP Color: 2.5Y 7/1-light gray D50: 0.3566 mm % Fines: 3.6		
-58.6	20.0						
			NOTES: 1. Soils are field visually classified in accordance with the Unified Soils Classification System. 2. NS = Sample not submitted for laboratory analysis from this interval. 3. Seafloor elevation determined from 2010				

<b>DRILLING LOG (Cont. Sheet)</b>			<b>INSTALLATION</b> Mobile District		<b>SHEET 2</b> <b>OF 2 SHEETS</b>
<b>PROJECT</b> MsCIP Barrier Island Restoration			<b>COORDINATE SYSTEM/DATUM</b> State Plane, MSE (U.S. Ft.)	<b>HORIZONTAL</b> NAD83	<b>VERTICAL</b> NAVD88
<b>LOCATION COORDINATES</b> X = 1,151,166 Y = 252,917			<b>ELEVATION TOP OF BORING</b> -38.6 Ft.		
<b>ELEV.</b>	<b>DEPTH</b>	<b>LEGEND</b>	<b>CLASSIFICATION OF MATERIALS</b>	<b>SAMPLE</b>	<b>LABORATORY RESULTS</b>
			USACE survey.		

# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.0	0.0	20.8	77.2	2.0	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
.375	100.0		
#4	100.0		
#10	100.0		
#20	99.3		
#40	79.2		
#60	16.6		
#100	2.5		
#200	2.0		

\* (no specification provided)

## Material Description

SAND, (SP), medium to fine grained

## Atterberg Limits

PL= LL= PI=

## Coefficients

D<sub>90</sub>= 0.5732 D<sub>85</sub>= 0.4935 D<sub>60</sub>= 0.3595  
D<sub>50</sub>= 0.3331 D<sub>30</sub>= 0.2847 D<sub>15</sub>= 0.2398  
D<sub>10</sub>= 0.2068 C<sub>u</sub>= 1.74 C<sub>c</sub>= 1.09

## Classification

USCS= SP AASHTO=

## Remarks

CADD CODE = CH10D965

Location: USACE Sample # BI-PB-44-10A  
Sample Number: TE Lab ID: 4612.15

Depth: 0.0 - 5.0 (ft.)

Date: 8/7/10

**Thompson Engineering**

**Mobile, Alabama**

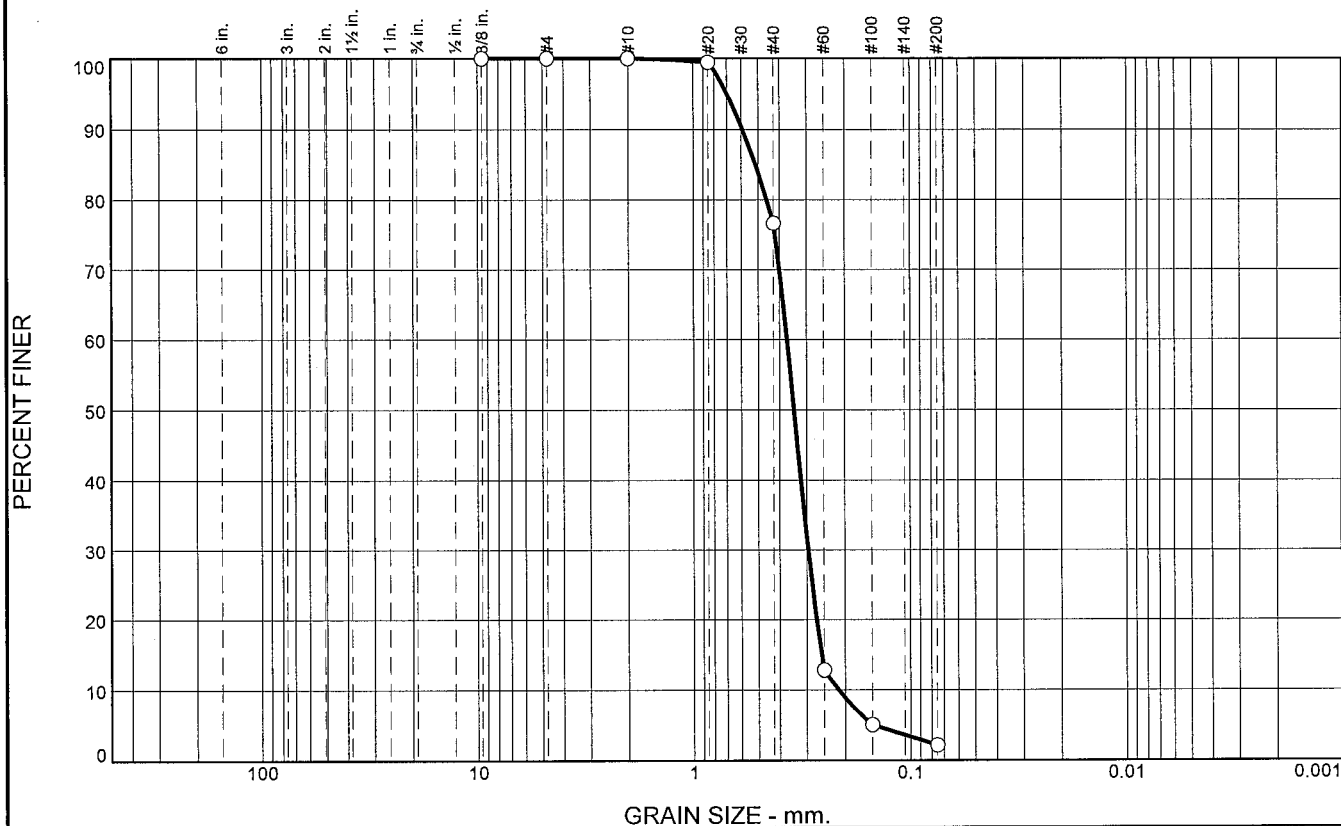
Client: US Army Corps of Engineers

Project: Contract No. W91278-10-D-0026 - Task 03  
Mississippi Barrier Island Restoration Project

Project No: 10-2123-0009

Report No.

# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.0	0.0	23.4	74.5	2.1	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
.375	100.0		
#4	100.0		
#10	100.0		
#20	99.4		
#40	76.6		
#60	12.9		
#100	5.1		
#200	2.1		

\* (no specification provided)

## Material Description

SAND, (SP), medium to fine grained

## Atterberg Limits

PL= LL= PI=

## Coefficients

D<sub>90</sub>= 0.5914 D<sub>85</sub>= 0.5155 D<sub>60</sub>= 0.3694  
D<sub>50</sub>= 0.3428 D<sub>30</sub>= 0.2949 D<sub>15</sub>= 0.2566  
D<sub>10</sub>= 0.2143 C<sub>u</sub>= 1.72 C<sub>c</sub>= 1.10

## Classification

USCS= SP AASHTO=

## Remarks

CADD CODE = CH10D965

Location: USACE Sample # BI-PB-44-10B  
Sample Number: TE Lab ID: 4612.16

Depth: 5.0 - 10.0 (ft.)

Date: 8/7/10

**Thompson Engineering**

**Mobile, Alabama**

Client: US Army Corps of Engineers

Project: Contract No. W91278-10-D-0026 - Task 03  
Mississippi Barrier Island Restoration Project

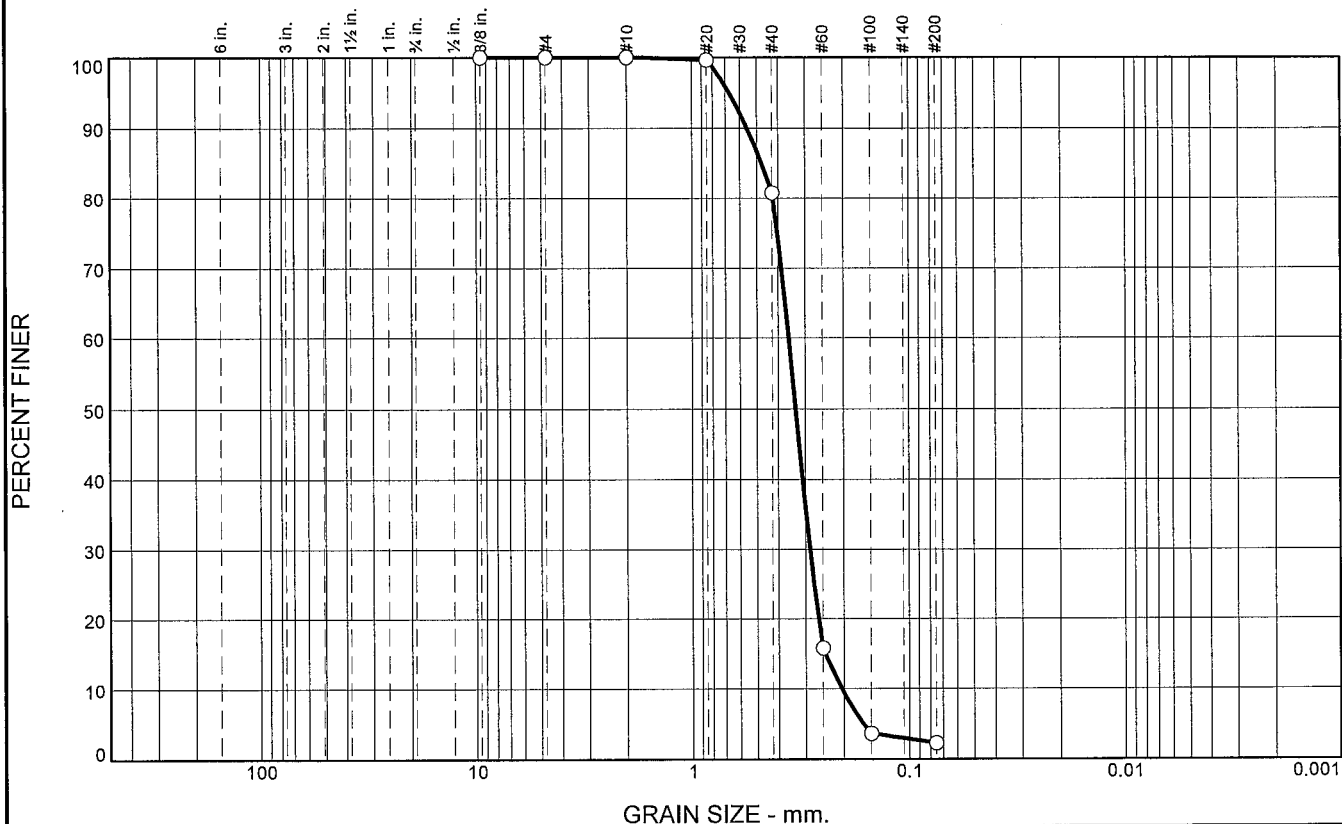
Project No: 10-2123-0009

Report No.

Tested By: J.Maddox

Checked By: R.Byrd

# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.0	0.0	19.2	78.5	2.3	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
.375	100.0		
#4	100.0		
#10	100.0		
#20	99.6		
#40	80.8		
#60	15.8		
#100	3.7		
#200	2.3		

\* (no specification provided)

## Material Description

SAND, (SP), medium to fine grained

## Atterberg Limits

PL= LL= PI=

## Coefficients

D<sub>90</sub>= 0.5555 D<sub>85</sub>= 0.4763 D<sub>60</sub>= 0.3574  
D<sub>50</sub>= 0.3322 D<sub>30</sub>= 0.2858 D<sub>15</sub>= 0.2439  
D<sub>10</sub>= 0.2053 C<sub>u</sub>= 1.74 C<sub>c</sub>= 1.11

## Classification

USCS= SP AASHTO=

## Remarks

CADD CODE = CH10D965

Location: USACE Sample # BI-PB-44-10C  
Sample Number: TE Lab ID: 4612.17

Depth: 10.0 - 15.0 (ft.)

Date: 8/7/10

**Thompson Engineering**

**Mobile, Alabama**

Client: US Army Corps of Engineers

Project: Contract No. W91278-10-D-0026 - Task 03  
Mississippi Barrier Island Restoration Project

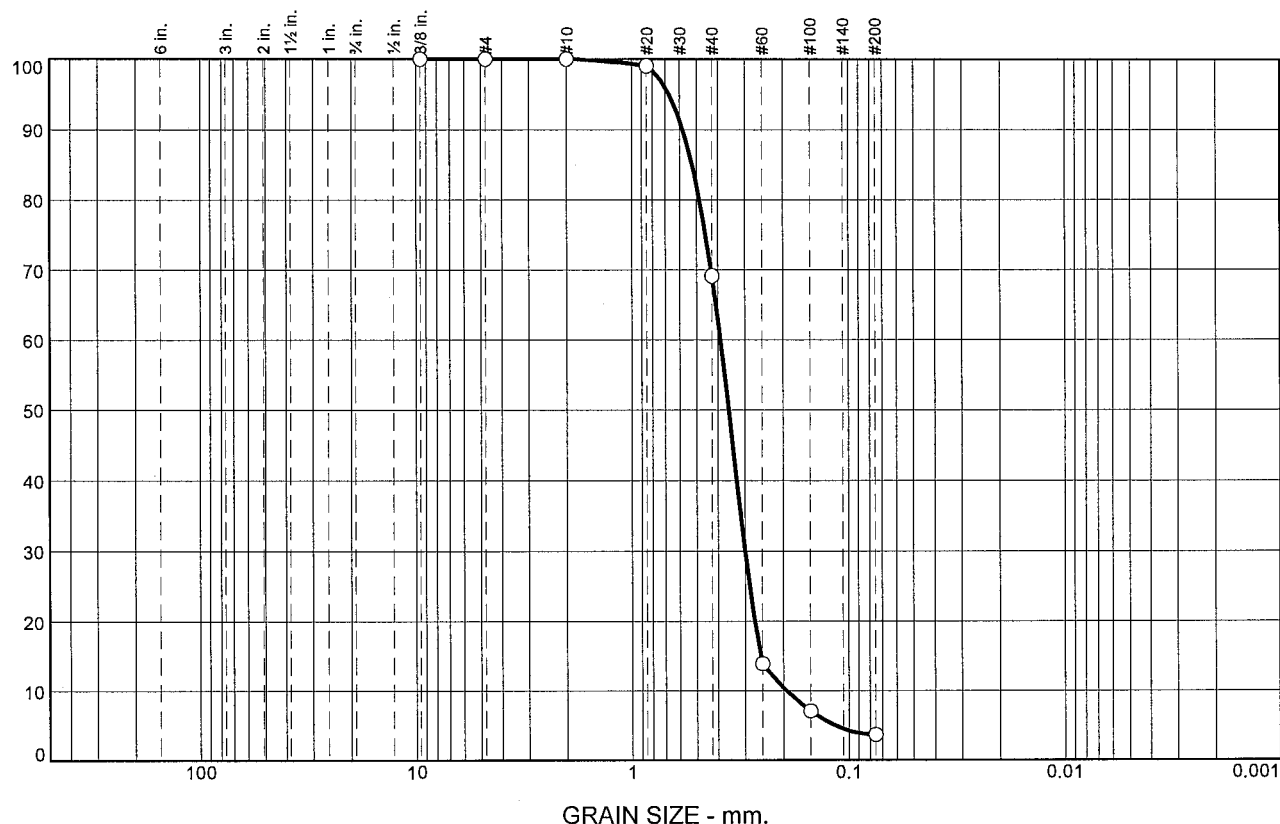
Project No: 10-2123-0009

Report No.

Tested By: J.Maddox

Checked By: R.Byrd

## PERCENT FINER



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.0	0.0	30.9	65.5	3.6	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
.375	100.0		
#4	100.0		
#10	100.0		
#20	99.0		
#40	69.1		
#60	13.9		
#100	7.1		
#200	3.6		

### Material Description

SAND, (SP), medium to fine grained

### Atterberg Limits

$$PL =$$
$$LL =$$
$$PI =$$

## Coefficients

 $D_{90} = 0.5796$ 
$$D_{g5} = 0.5243$$
$$D_{60} = 0.3892$$
$$D_{50} = 0.3566$$
$$D_{30} = 0.2996$$
$$D_{15}^{00} = 0.2541$$
$$D_{10}^{50} = 0.1934$$
$$C_U^{\text{SO}} = 2.01$$
$$C_C^{10} \quad 1.19$$

## Classification

USCS= SP

AASHTO=

### Remarks

CADD CODE = CH10D965

\* (no specification provided)

**Location:** USACE Sample # BI-PB-44-10D  
**Sample Number:** TE Lab ID: 4612.18

**Depth:** 15.0 - 20.0 (ft.)

**Date:** 8/7/10

## Thompson Engineering

## Mobile, Alabama

**Client:** US Army Corps of Engineers

**Project:** Contract No. W91278-10-D-0026 - Task 03  
Mississippi Barrier Island Restoration Project

**Project No:** 10-2123-0009

Report No.

**Tested By:** J.Maddox

**Checked By:** R.Byrd

# Boring Designation BI-PB-045-10

DRILLING LOG		DIVISION South Atlantic		INSTALLATION Mobile District		SHEET 1 OF 2 SHEETS	
1. PROJECT MsCIP Barrier Island Restoration Petit Bois Pass- AL East				9. SIZE AND TYPE OF BIT N/A			
2. BORING DESIGNATION BI-PB-045-10		LOCATION COORDINATES E = 1,152,623 N = 252,702		10. COORDINATE SYSTEM/DATUM State Plane, MSE (U.S. Ft.)		HORIZONTAL NAD83	
3. DRILLING AGENCY Corps of Engineers - CESAM		CONTRACTOR FILE NO.		11. MANUFACTURER'S DESIGNATION OF DRILL Vibrocure		<input type="checkbox"/> AUTO HAMMER <input type="checkbox"/> MANUAL HAMMER	
4. NAME OF DRILLER Construction Solutions International, Inc.				12. TOTAL SAMPLES		DISTURBED 1	
5. DIRECTION OF BORING <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED				13. TOTAL NUMBER CORE BOXES		UNDISTURBED (UD) 0	
6. THICKNESS OF OVERBURDEN N/A				14. WATER DEPTH		37 Ft.	
7. DEPTH DRILLED INTO ROCK N/A				15. DATE BORING		STARTED 07-29-10	
8. TOTAL DEPTH OF BORING 20.0 Ft.				16. ELEVATION TOP OF BORING -38.8 Ft.		COMPLETED 07-29-10	
				17. TOTAL RECOVERY FOR BORING 100%			
				18. SIGNATURE AND TITLE OF INSPECTOR Chris Gillentine, Geologist			

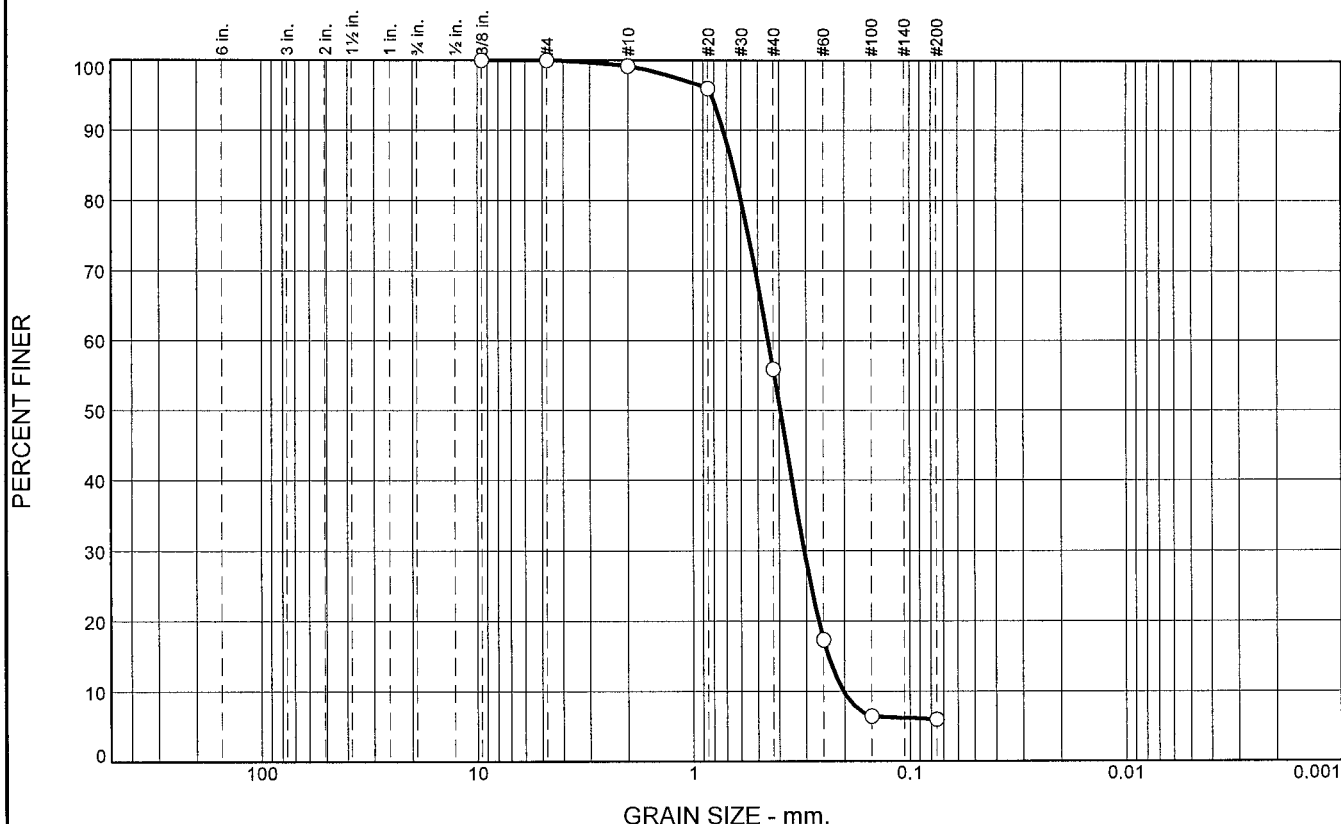
  

ELEV.	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS	SAMPLE	LABORATORY RESULTS
-38.8	0.0				
-40.8	2.0		SAND, poorly-graded, mostly medium-grained sand-sized quartz, trace shell fragments, dark gray (SP)	A	Classification: SP-SM Color: 5Y 5/2-olive gray D50: 0.3949 mm % Fines: 6
			SAND, poorly-graded, mostly medium-grained sand-sized quartz, dark gray (SP)		
-46.8	8.0				
			CLAY, lean, dark gray (CL)	NS	
			At El. -50.8 Ft., trace medium-grained sand-sized quartz, lt. gray		
-53.8	15.0				
			SAND, poorly-graded, mostly medium-grained sand-sized quartz, lt. gray (SP)		
-58.8	20.0				
NOTES: 1. Soils are field visually classified in accordance with the Unified Soils Classification System. 2. NS = Sample not submitted for laboratory analysis from this interval. 3. Seafloor elevation determined from 2010					



<b>DRILLING LOG (Cont. Sheet)</b>			<b>INSTALLATION</b> Mobile District		<b>SHEET 2</b> <b>OF 2 SHEETS</b>
<b>PROJECT</b> MsCIP Barrier Island Restoration			<b>COORDINATE SYSTEM/DATUM</b> State Plane, MSE (U.S. Ft.)	<b>HORIZONTAL</b> NAD83	<b>VERTICAL</b> NAVD88
<b>LOCATION COORDINATES</b> X = 1,152,623 Y = 252,702			<b>ELEVATION TOP OF BORING</b> -38.8 Ft.		
<b>ELEV.</b>	<b>DEPTH</b>	<b>LEGEND</b>	<b>CLASSIFICATION OF MATERIALS</b>	<b>SAMPLE</b>	<b>LABORATORY RESULTS</b>
			USACE survey.		

# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.0	0.8	43.3	49.9	6.0	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
.375	100.0		
#4	100.0		
#10	99.2		
#20	96.0		
#40	55.9		
#60	17.3		
#100	6.5		
#200	6.0		

\* (no specification provided)

**Material Description**  
SAND, (SP-SM), medium to fine grained

**Atterberg Limits**  
 PL=                      LL=                      PI=

**Coefficients**  
 D<sub>90</sub>= 0.7241                      D<sub>85</sub>= 0.6540                      D<sub>60</sub>= 0.4480  
 D<sub>50</sub>= 0.3949                      D<sub>30</sub>= 0.3064                      D<sub>15</sub>= 0.2374  
 D<sub>10</sub>= 0.2025                      C<sub>u</sub>= 2.21                      C<sub>c</sub>= 1.04

**Classification**  
 USCS= SP-SM                      AASHTO=

**Remarks**  
 CADD CODE = CH10D965

Location: USACE Sample # BI-PB-45-10A  
 Sample Number: TE Lab ID: 4612.19

Depth: 0.0 - 5.0 (ft.)

Date: 8/7/10

**Thompson Engineering**

**Mobile, Alabama**

Client: US Army Corps of Engineers

Project: Contract No. W91278-10-D-0026 - Task 03  
 Mississippi Barrier Island Restoration Project

Project No: 10-2123-0009

Report No.

Tested By: J.Maddox

Checked By: R.Byrd

# Boring Designation BI-PB-046-10

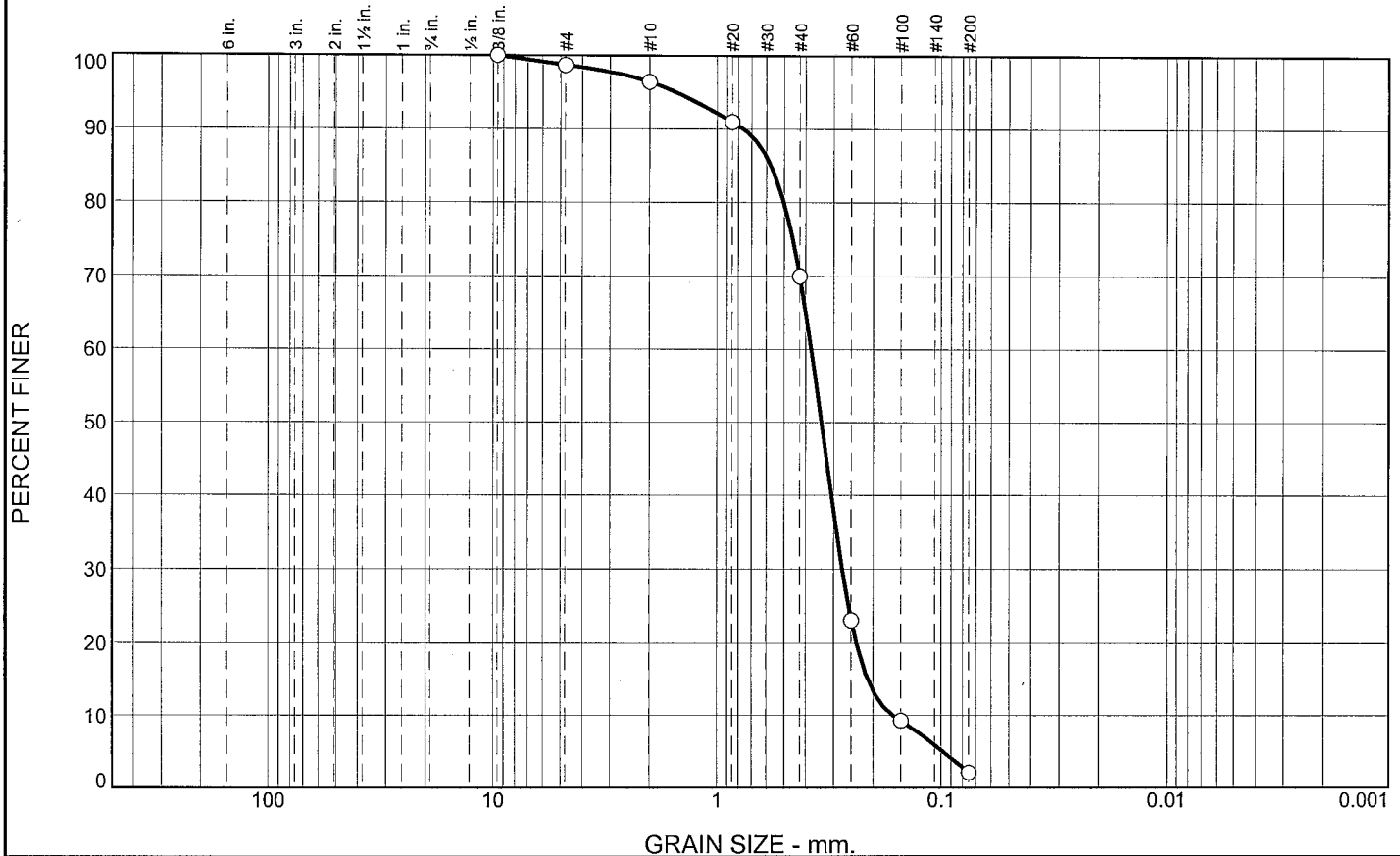
DRILLING LOG		DIVISION South Atlantic		INSTALLATION Mobile District		SHEET 1 OF 2 SHEETS	
1. PROJECT MsCIP Barrier Island Restoration Petit Bois Pass- AL West				9. SIZE AND TYPE OF BIT N/A			
2. BORING DESIGNATION BI-PB-046-10		LOCATION COORDINATES E = 1,137,591 N = 251,286		10. COORDINATE SYSTEM/DATUM State Plane, MSE (U.S. Ft.)		HORIZONTAL NAD83	
3. DRILLING AGENCY Corps of Engineers - CESAM		CONTRACTOR FILE NO.		11. MANUFACTURER'S DESIGNATION OF DRILL Vibrocure		<input type="checkbox"/> AUTO HAMMER <input type="checkbox"/> MANUAL HAMMER	
4. NAME OF DRILLER Construction Solutions International, Inc.				12. TOTAL SAMPLES		DISTURBED 0	
5. DIRECTION OF BORING <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED				13. TOTAL NUMBER CORE BOXES		14. WATER DEPTH 37 Ft.	
6. THICKNESS OF OVERBURDEN N/A				15. DATE BORING		STARTED 08-06-10	
7. DEPTH DRILLED INTO ROCK N/A				16. ELEVATION TOP OF BORING -35.8 Ft.		COMPLETED 08-06-10	
8. TOTAL DEPTH OF BORING 20.0 Ft.				17. TOTAL RECOVERY FOR BORING 100%		18. SIGNATURE AND TITLE OF INSPECTOR Chris Gillentine, Geologist	
ELEV.	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS	SAMPLE	LABORATORY RESULTS		
-35.8	0.0		CLAY, fat, dark gray (CH)	NS			
-41.8	6.0		SAND, poorly-graded, mostly fine to medium-grained sand-sized quartz, dark gray (SP)				
-44.8	9.0		CLAY, fat, dark gray (CH)				
-55.8	20.0		NOTES: 1. Soils are field visually classified in accordance with the Unified Soils Classification System. 2. NS = Sample not submitted for laboratory analysis from this interval. 3. Seafloor elevation calculated using sampling				

<b>DRILLING LOG (Cont. Sheet)</b>			<b>INSTALLATION</b> Mobile District		<b>SHEET 2</b> <b>OF 2 SHEETS</b>
<b>PROJECT</b> MsCIP Barrier Island Restoration			<b>COORDINATE SYSTEM/DATUM</b> State Plane, MSE (U.S. Ft.)	<b>HORIZONTAL</b> NAD83	<b>VERTICAL</b> NAVD88
<b>LOCATION COORDINATES</b> X = 1,137,591 Y = 251,286			<b>ELEVATION TOP OF BORING</b> -35.8 Ft.		
<b>ELEV.</b>	<b>DEPTH</b>	<b>LEGEND</b>	<b>CLASSIFICATION OF MATERIALS</b>	<b>SAMPLE</b>	<b>LABORATORY RESULTS</b>
			vessel's fathometer water depth reading and applying NOAA tidal gauge data conversion factor.		

# Boring Designation BI-PB-047-10

DRILLING LOG		DIVISION South Atlantic		INSTALLATION Mobile District		SHEET 1 OF 1 SHEETS	
1. PROJECT MsCIP Barrier Island Restoration Petit Bois Pass- AL West				9. SIZE AND TYPE OF BIT N/A			
2. BORING DESIGNATION BI-PB-047-10		LOCATION COORDINATES E = 1,139,034 N = 251,372		10. COORDINATE SYSTEM/DATUM State Plane, MSE (U.S. Ft.)		HORIZONTAL NAD83 VERTICAL NAVD88	
3. DRILLING AGENCY Corps of Engineers - CESAM		CONTRACTOR FILE NO.		11. MANUFACTURER'S DESIGNATION OF DRILL Vibrocure		<input type="checkbox"/> AUTO HAMMER <input type="checkbox"/> MANUAL HAMMER	
4. NAME OF DRILLER Construction Solutions International, Inc.				12. TOTAL SAMPLES 2		DISTURBED 2 UNDISTURBED (UD) 0	
5. DIRECTION OF BORING <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED		DEG. FROM VERTICAL		BEARING		13. TOTAL NUMBER CORE BOXES	
6. THICKNESS OF OVERBURDEN N/A		7. DEPTH DRILLED INTO ROCK N/A		8. TOTAL DEPTH OF BORING 18.0 Ft.		14. WATER DEPTH 36 Ft.	
						15. DATE BORING 08-06-10	
						16. ELEVATION TOP OF BORING -35.0 Ft.	
						17. TOTAL RECOVERY FOR BORING 100%	
						18. SIGNATURE AND TITLE OF INSPECTOR Chris Gillentine, Geologist	
ELEV.	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS	SAMPLE	LABORATORY RESULTS		
-35.0	0.0						
-37.0	2.0		SAND, poorly-graded, mostly fine to medium-grained sand-sized quartz, gray (SP)	A	Classification: SP Color: 2.5Y 6/2-light brownish gray D50: 0.3398 mm % Fines: 2.1		
-41.0	6.0		SAND, poorly-graded, mostly fine to medium-grained sand-sized quartz, gray (SP)	B	Classification: SM Color: 2.5Y 4/2-dark grayish brown D50: 0.1913 mm % Fines: 23.4		
-53.0	18.0		CLAY, fat, dark gray (CH)	NS			
			NOTES:				
			1. Soils are field visually classified in accordance with the Unified Soils Classification System.				
			2. NS = Sample not submitted for laboratory analysis from this interval.				
			3. Seafloor elevation calculated using sampling vessel's fathometer water depth reading and applying NOAA tidal gauge data conversion factor.				

# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	1.3	2.3	26.4	67.9	2.1	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
.375	100.0		
#4	98.7		
#10	96.4		
#20	90.9		
#40	70.0		
#60	23.1		
#100	9.3		
#200	2.1		

\* (no specification provided)

## Material Description

SAND, (SP), medium to fine grained, with trace shell

## Atterberg Limits

PL= LL= PI=

## Coefficients

D<sub>90</sub>= 0.7598 D<sub>85</sub>= 0.5732 D<sub>60</sub>= 0.3773  
D<sub>50</sub>= 0.3398 D<sub>30</sub>= 0.2743 D<sub>15</sub>= 0.2115  
D<sub>10</sub>= 0.1624 C<sub>u</sub>= 2.32 C<sub>c</sub>= 1.23

## Classification

USCS= SP AASHTO=

## Remarks

CADD CODE = CH10D965

Location: USACE Sample # BI-PB-47-10A  
Sample Number: TE Lab ID: 4622.31

Depth: 0.0 - 2.0 (ft.)

Date: 8/15/10

**Thompson Engineering**

**Mobile, Alabama**

Client: US Army Corps of Engineers

Project: Contract No. W91278-10-D-0026 - Task 03  
Mississippi Barrier Island Restoration Project

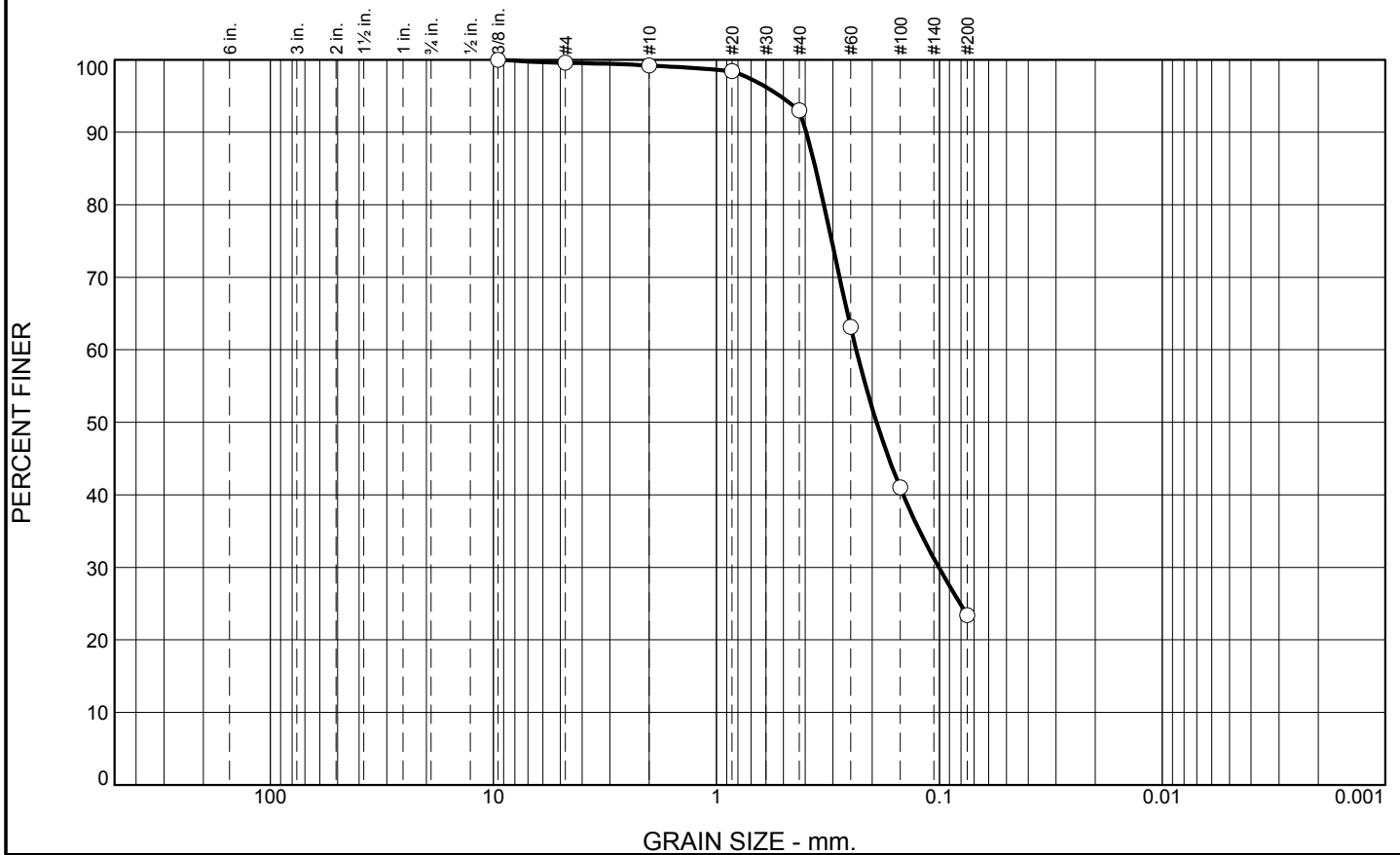
Project No: 10-2123-0009

Report No.

Tested By: G.Fancher

Checked By: R.Byrd

# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.4	0.4	6.2	69.6	23.4	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
.375	100.0		
#4	99.6		
#10	99.2		
#20	98.4		
#40	93.0		
#60	63.2		
#100	41.0		
#200	23.4		

\* (no specification provided)

**Material Description**  
SILTY SAND, (SM), fine grained, with clay pockets

**Atterberg Limits**  
 PL=      LL=      PI=

**Coefficients**  
 D<sub>90</sub>= 0.3956      D<sub>85</sub>= 0.3589      D<sub>60</sub>= 0.2361  
 D<sub>50</sub>= 0.1913      D<sub>30</sub>= 0.1006      D<sub>15</sub>=  
 D<sub>10</sub>=      C<sub>u</sub>=      C<sub>c</sub>=

**Classification**  
 USCS= SM      AASHTO=

**Remarks**  
 CADD CODE = CH10D965

**Location:** USACE Sample # BI-PB-47-10B  
**Sample Number:** TE Lab ID: 4622.32

**Depth:** 2.0 - 6.0 (ft.)

**Date:** 8/15/10

**Thompson Engineering**  
  
**Mobile, Alabama**

**Client:** US Army Corps of Engineers  
**Project:** Contract No. W91278-10-D-0026 - Task 03  
 Mississippi Barrier Island Restoration Project  
**Project No:** 10-2123-0009      **Report No.**

**Tested By:** G.Fancher

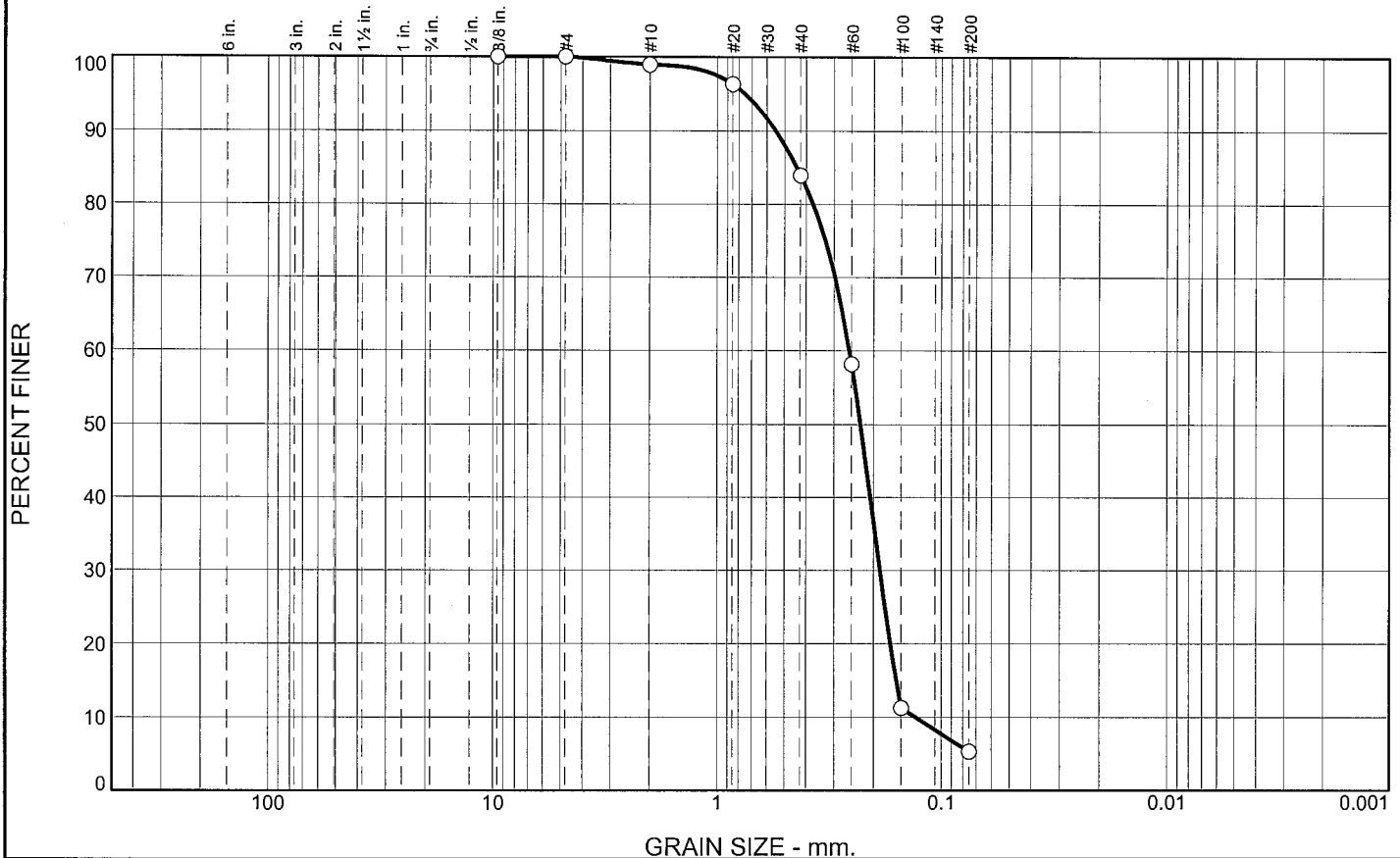
**Checked By:** R.Byrd

# Boring Designation BI-PB-051-10

DRILLING LOG		DIVISION South Atlantic		INSTALLATION Mobile District		SHEET 1 OF 1 SHEETS	
1. PROJECT MsCIP Barrier Island Restoration Petit Bois Pass- AL East				9. SIZE AND TYPE OF BIT N/A			
2. BORING DESIGNATION BI-PB-051-10		LOCATION COORDINATES E = 1,146,592 N = 251,351		10. COORDINATE SYSTEM/DATUM State Plane, MSE (U.S. Ft.)		HORIZONTAL NAD83 VERTICAL NAVD88	
3. DRILLING AGENCY Corps of Engineers - CESAM		CONTRACTOR FILE NO.		11. MANUFACTURER'S DESIGNATION OF DRILL Vibrocure		<input type="checkbox"/> AUTO HAMMER <input type="checkbox"/> MANUAL HAMMER	
4. NAME OF DRILLER Construction Solutions International, Inc.				12. TOTAL SAMPLES 1		DISTURBED 1 UNDISTURBED (UD) 0	
5. DIRECTION OF BORING <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED		DEG. FROM VERTICAL		13. TOTAL NUMBER CORE BOXES			
		BEARING		14. WATER DEPTH 36 Ft.			
6. THICKNESS OF OVERBURDEN N/A				15. DATE BORING 08-06-10		STARTED 08-06-10 COMPLETED 08-06-10	
7. DEPTH DRILLED INTO ROCK N/A				16. ELEVATION TOP OF BORING -35.4 Ft.			
8. TOTAL DEPTH OF BORING 14.7 Ft.				17. TOTAL RECOVERY FOR BORING 100%			
				18. SIGNATURE AND TITLE OF INSPECTOR Chris Gillentine, Geologist			
ELEV.	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS	SAMPLE	LABORATORY RESULTS		
-35.4	0.0						
			SAND, poorly-graded, mostly fine to medium-grained sand-sized quartz, trace shell fragments, lt. tan/grey (SP)	A	Classification: SP-SM Color: 2.5Y 6/2-light brownish gray D50: 0.2282 mm % Fines: 5.3		
-39.4	4.0						
			CLAY, fat, dark gray (CH)	NS			
-50.1	14.7						
			NOTES: 1. Soils are field visually classified in accordance with the Unified Soils Classification System. 2. NS = Sample not submitted for laboratory analysis from this interval. 3. Seafloor elevation calculated using sampling vessel's fathometer water depth reading and applying NOAA tidal gauge data conversion factor.				



# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.0	1.1	15.0	78.6	5.3	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
.375	100.0		
#4	100.0		
#10	98.9		
#20	96.3		
#40	83.9		
#60	58.2		
#100	11.3		
#200	5.3		

\* (no specification provided)

## Material Description

SAND, (SP-SM), medium to fine grained, with clay pockets

## Atterberg Limits

PL=

LL=

PI=

## Coefficients

D<sub>90</sub>= 0.5482

D<sub>85</sub>= 0.4420

D<sub>60</sub>= 0.2558

D<sub>50</sub>= 0.2282

D<sub>30</sub>= 0.1868

D<sub>15</sub>= 0.1580

D<sub>10</sub>= 0.1292

C<sub>u</sub>= 1.98

C<sub>c</sub>= 1.06

## Classification

USCS= SP-SM

AASHTO=

## Remarks

CADD CODE = CH10D965

Location: USACE Sample # BI-PB-51-10A  
Sample Number: TE Lab ID: 4622.34

Depth: 0.0 - 4.0 (ft.)

Date: 8/15/10

**Thompson Engineering**

**Mobile, Alabama**

Client: US Army Corps of Engineers

Project: Contract No. W91278-10-D-0026 - Task 03  
Mississippi Barrier Island Restoration Project

Project No: 10-2123-0009

Report No.

Tested By: G.Fancher

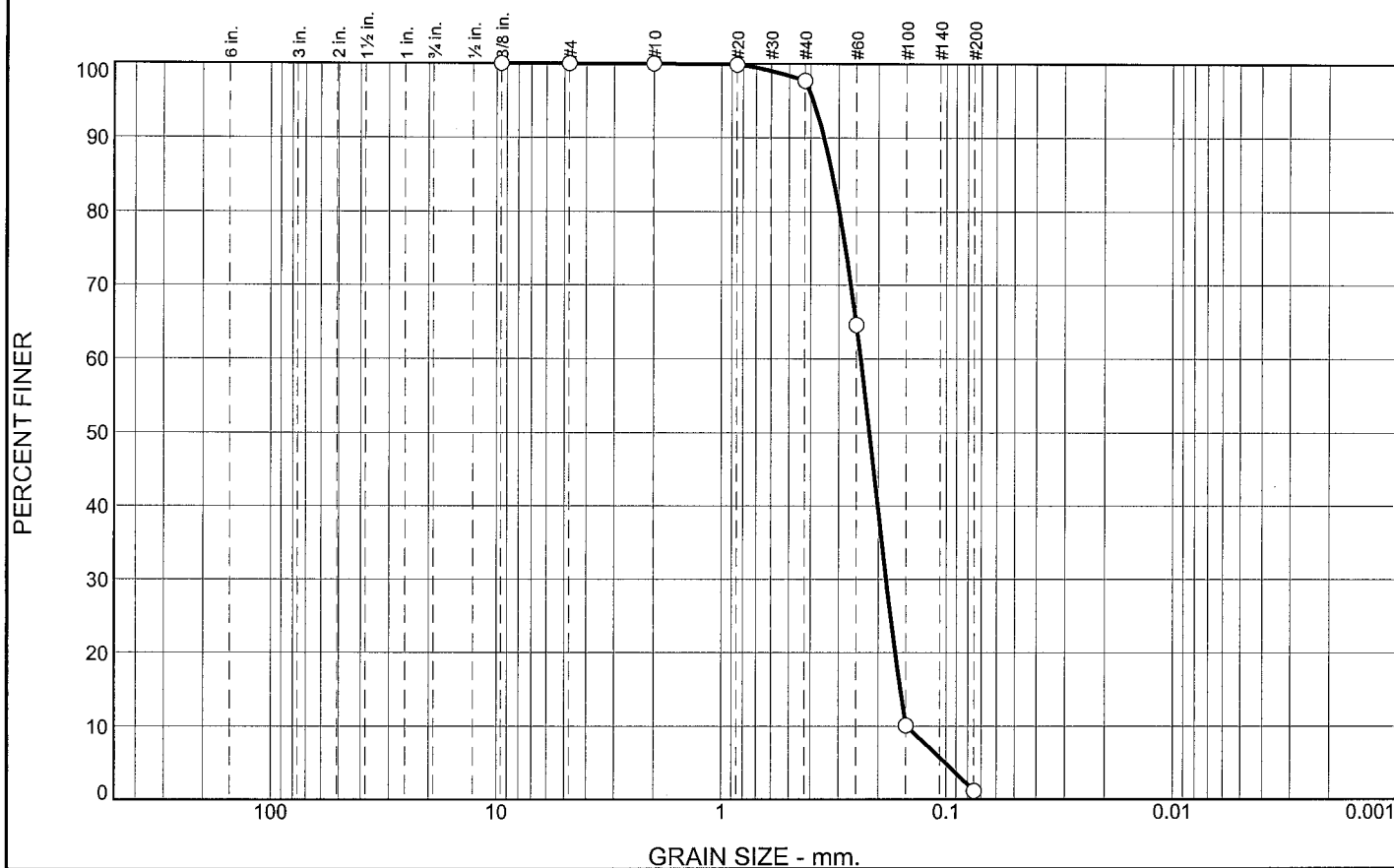
Checked By: R.Byrd

# Boring Designation BI-PB-052-10

DRILLING LOG		DIVISION South Atlantic		INSTALLATION Mobile District		SHEET 1 OF 2 SHEETS	
1. PROJECT MsCIP Barrier Island Restoration Petit Bois Pass- AL East				9. SIZE AND TYPE OF BIT N/A			
2. BORING DESIGNATION BI-PB-052-10		LOCATION COORDINATES E = 1,148,029 N = 251,332		10. COORDINATE SYSTEM/DATUM State Plane, MSE (U.S. Ft.)		HORIZONTAL NAD83 VERTICAL NAVD88	
3. DRILLING AGENCY Corps of Engineers - CESAM		CONTRACTOR FILE NO.		11. MANUFACTURER'S DESIGNATION OF DRILL Vibracore		<input type="checkbox"/> AUTO HAMMER <input type="checkbox"/> MANUAL HAMMER	
4. NAME OF DRILLER Construction Solutions International, Inc.				12. TOTAL SAMPLES 2		DISTURBED 0 UNDISTURBED (UD)	
5. DIRECTION OF BORING <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED		DEG. FROM VERTICAL		13. TOTAL NUMBER CORE BOXES			
		BEARING		14. WATER DEPTH 40 Ft.			
6. THICKNESS OF OVERBURDEN N/A				15. DATE BORING 08-06-10		STARTED 08-06-10 COMPLETED 08-06-10	
7. DEPTH DRILLED INTO ROCK N/A				16. ELEVATION TOP OF BORING -40.1 Ft.			
8. TOTAL DEPTH OF BORING 20.0 Ft.				17. TOTAL RECOVERY FOR BORING 100%			
				18. SIGNATURE AND TITLE OF INSPECTOR Chris Gillentine, Geologist			
ELEV.	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS	SAMPLE	LABORATORY RESULTS		
-40.1	0.0						
			CLAY, fat, dark gray (CH)	NS			
-45.1	5.0						
			SAND, well-graded, mostly fine-grained sand-sized quartz, lt gray/tan (SW)	A	Classification: SP Color: 2.5Y 7/1-light gray D50: 0.2189 mm % Fines: 1.2		
				B	Classification: SP-SM Color: 2.5Y 8/1-white D50: 0.1937 mm % Fines: 6.1		
-57.1	17.0						
			SAND, poorly-graded, dark gray (SP)	NS			
-60.1	20.0						
			NOTES: 1. Soils are field visually classified in accordance with the Unified Soils Classification System. 2. NS = Sample not submitted for laboratory analysis from this interval. 3. Seafloor elevation calculated using sampling				

<b>DRILLING LOG (Cont. Sheet)</b>			<b>INSTALLATION</b> Mobile District		<b>SHEET 2</b> <b>OF 2 SHEETS</b>
<b>PROJECT</b> MsCIP Barrier Island Restoration			<b>COORDINATE SYSTEM/DATUM</b> State Plane, MSE (U.S. Ft.)	<b>HORIZONTAL</b> NAD83	<b>VERTICAL</b> NAVD88
<b>LOCATION COORDINATES</b> X = 1,148,029 Y = 251,332			<b>ELEVATION TOP OF BORING</b> -40.1 Ft.		
<b>ELEV.</b>	<b>DEPTH</b>	<b>LEGEND</b>	<b>CLASSIFICATION OF MATERIALS</b>	<b>SAMPLE</b>	<b>LABORATORY RESULTS</b>
			vessel's fathometer water depth reading and applying NOAA tidal gauge data conversion factor.		

# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.0	0.0	2.3	96.5	1.2	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
.375	100.0		
#4	100.0		
#10	100.0		
#20	99.9		
#40	97.7		
#60	64.6		
#100	10.1		
#200	1.2		

\* (no specification provided)

**Material Description**  
SAND, (SP), fine grained

**Atterberg Limits**  
PL= LL= PI=

**Coefficients**  
D<sub>90</sub>= 0.3492 D<sub>85</sub>= 0.3203 D<sub>60</sub>= 0.2393  
D<sub>50</sub>= 0.2189 D<sub>30</sub>= 0.1843 D<sub>15</sub>= 0.1592  
D<sub>10</sub>= 0.1486 C<sub>u</sub>= 1.61 C<sub>c</sub>= 0.96

**Classification**  
USCS= SP AASHTO=

**Remarks**  
CADD CODE = CH10D965

Location: USACE Sample # BI-PB-52-10A  
Sample Number: TE Lab ID: 4622.35

Depth: 5.0 - 10.0 (ft.)

Date: 8/15/10

**Thompson Engineering**

**Mobile, Alabama**

Client: US Army Corps of Engineers

Project: Contract No. W91278-10-D-0026 - Task 03  
Mississippi Barrier Island Restoration Project

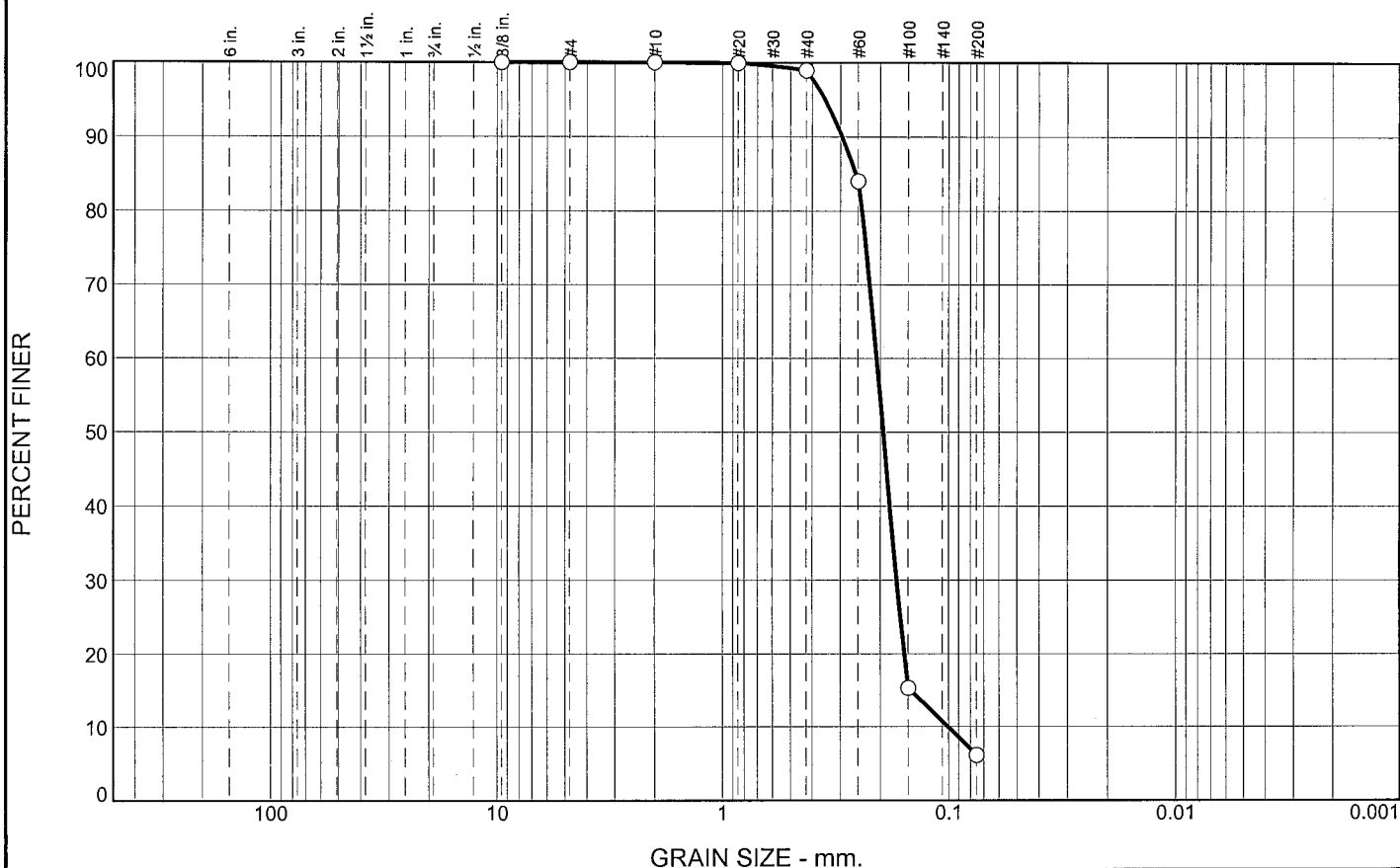
Project No: 10-2123-0009

Report No.

Tested By: G.Fancher

Checked By: R.Byrd

# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.0	0.0	1.1	92.8	6.1	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
.375	100.0		
#4	100.0		
#10	100.0		
#20	99.9		
#40	98.9		
#60	84.0		
#100	15.3		
#200	6.1		

\* (no specification provided)

## Material Description

SAND, (SP-SM), fine grained

## Atterberg Limits

PL=

LL=

PI=

## Coefficients

D<sub>90</sub>= 0.2952

D<sub>85</sub>= 0.2564

D<sub>60</sub>= 0.2070

D<sub>50</sub>= 0.1937

D<sub>30</sub>= 0.1691

D<sub>15</sub>= 0.1467

D<sub>10</sub>= 0.1004

C<sub>u</sub>= 2.06

C<sub>c</sub>= 1.38

## Classification

USCS= SP-SM

AASHTO=

## Remarks

CADD CODE = CH10D965

Location: USACE Sample # BI-PB-52-10B  
Sample Number: TE Lab ID: 4622.36

Depth: 10.0 - 15.0 (ft.)

Date: 8/15/10

**Thompson Engineering**

**Mobile, Alabama**

Client: US Army Corps of Engineers

Project: Contract No. W91278-10-D-0026 - Task 03  
Mississippi Barrier Island Restoration Project

Project No: 10-2123-0009

Report No.

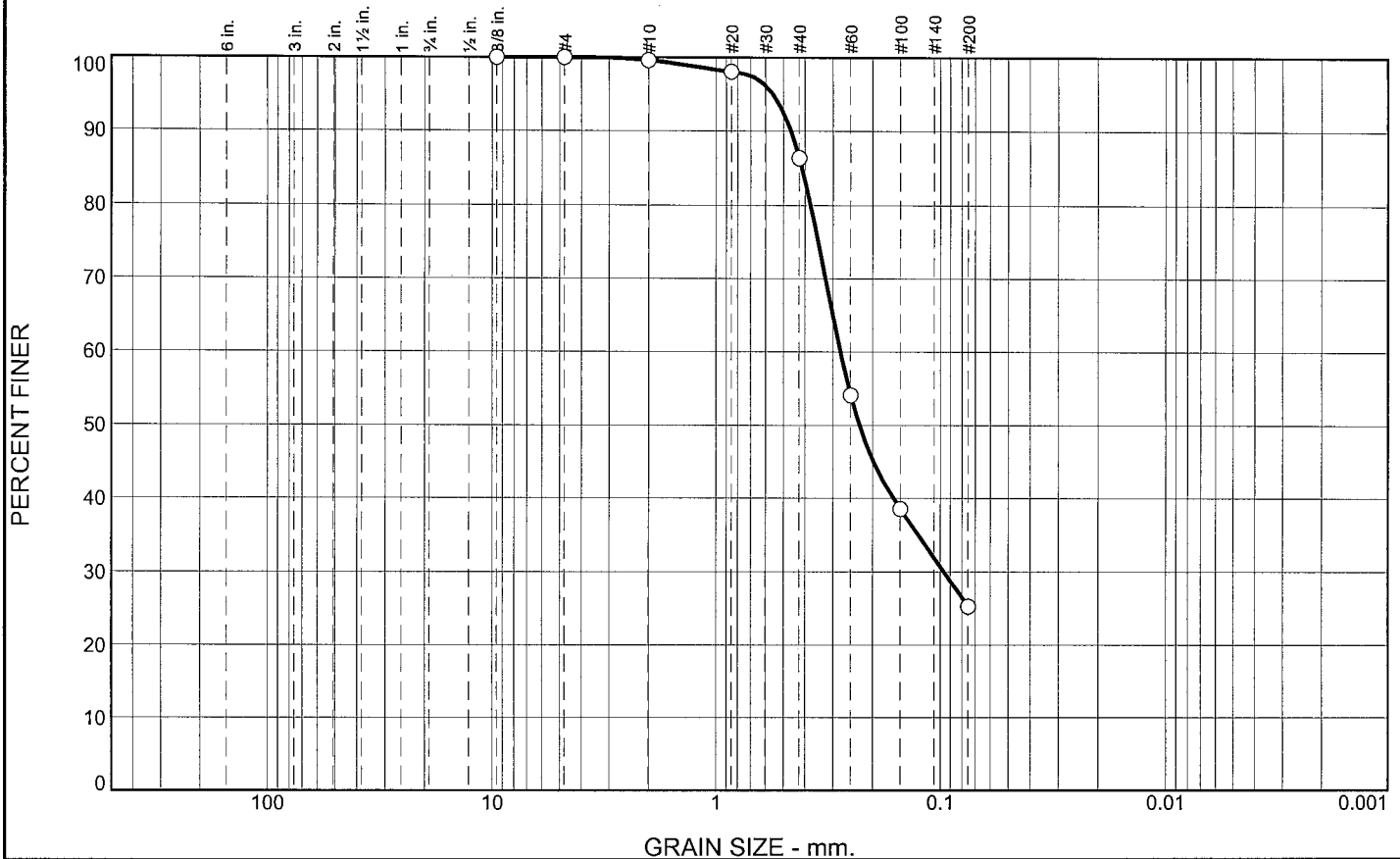
Tested By: G.Fancher

Checked By: R.Byrd

# Boring Designation BI-PB-053-10

DRILLING LOG		DIVISION South Atlantic		INSTALLATION Mobile District		SHEET 1 OF 1 SHEETS	
1. PROJECT MsCIP Barrier Island Restoration Petit Bois Pass- AL East				9. SIZE AND TYPE OF BIT N/A			
2. BORING DESIGNATION BI-PB-053-10		LOCATION COORDINATES E = 1,149,681 N = 251,438		10. COORDINATE SYSTEM/DATUM State Plane, MSE (U.S. Ft.)		HORIZONTAL NAD83 VERTICAL NAVD88	
3. DRILLING AGENCY Corps of Engineers - CESAM		CONTRACTOR FILE NO.		11. MANUFACTURER'S DESIGNATION OF DRILL Vibrocure		<input type="checkbox"/> AUTO HAMMER <input type="checkbox"/> MANUAL HAMMER	
4. NAME OF DRILLER Construction Solutions International, Inc.				12. TOTAL SAMPLES 4		DISTURBED 0 UNDISTURBED (UD)	
5. DIRECTION OF BORING <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED		DEG. FROM VERTICAL		13. TOTAL NUMBER CORE BOXES			
		BEARING		14. WATER DEPTH 39 Ft.			
6. THICKNESS OF OVERBURDEN N/A				15. DATE BORING 08-07-10		STARTED 08-07-10 COMPLETED 08-07-10	
7. DEPTH DRILLED INTO ROCK N/A				16. ELEVATION TOP OF BORING -37.1 Ft.			
8. TOTAL DEPTH OF BORING 18.0 Ft.				17. TOTAL RECOVERY FOR BORING 100%			
				18. SIGNATURE AND TITLE OF INSPECTOR Chris Gillentine, Geologist			
ELEV.	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS	SAMPLE	LABORATORY RESULTS		
-37.1	0.0						
-40.1	3.0		SAND, poorly-graded, dark gray (SP)	A	Classification: SM Color: 2.5Y 5/2-grayish brown D50: 0.2292 mm % Fines: 25.3		
			SAND, poorly-graded, mostly fine to medium-grained sand-sized quartz, lt. gray (SP)	B	Classification: SP Color: 2.5Y 8/1-white D50: 0.2843 mm % Fines: 3.1		
				C	Classification: SP Color: 2.5Y 8/1-white D50: 0.25 mm % Fines: 4.1		
				D	Classification: SP-SM Color: 2.5Y 8/1-white D50: 0.2058 mm % Fines: 6.3		
-55.1	18.0						
			NOTES: 1. Soils are field visually classified in accordance with the Unified Soils Classification System. 2. NS = Sample not submitted for laboratory analysis from this interval. 3. Seafloor elevation calculated using sampling vessel's fathometer water depth reading and applying NOAA tidal gauge data conversion factor.				

# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.0	0.4	13.2	61.1	25.3	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
.375	100.0		
#4	100.0		
#10	99.6		
#20	98.1		
#40	86.4		
#60	54.0		
#100	38.6		
#200	25.3		

\* (no specification provided)

## Material Description

SILTY SAND, (SM), medium to fine grained, with clay pockets

## Atterberg Limits

PL=

LL=

PI=

## Coefficients

D<sub>90</sub>= 0.4627

D<sub>85</sub>= 0.4132

D<sub>60</sub>= 0.2777

D<sub>50</sub>= 0.2292

D<sub>30</sub>= 0.0962

D<sub>15</sub>=

D<sub>10</sub>=

C<sub>u</sub>=

C<sub>c</sub>=

## Classification

USCS= SM

AASHTO=

## Remarks

CADD CODE = CH10D965

Location: USACE Sample # BI-PB-53-10A  
Sample Number: TE Lab ID: 4622.37

Depth: 0.0 - 5.0 (ft.)

Date: 8/15/10

**Thompson Engineering**

**Mobile, Alabama**

Client: US Army Corps of Engineers

Project: Contract No. W91278-10-D-0026 - Task 03  
Mississippi Barrier Island Restoration Project

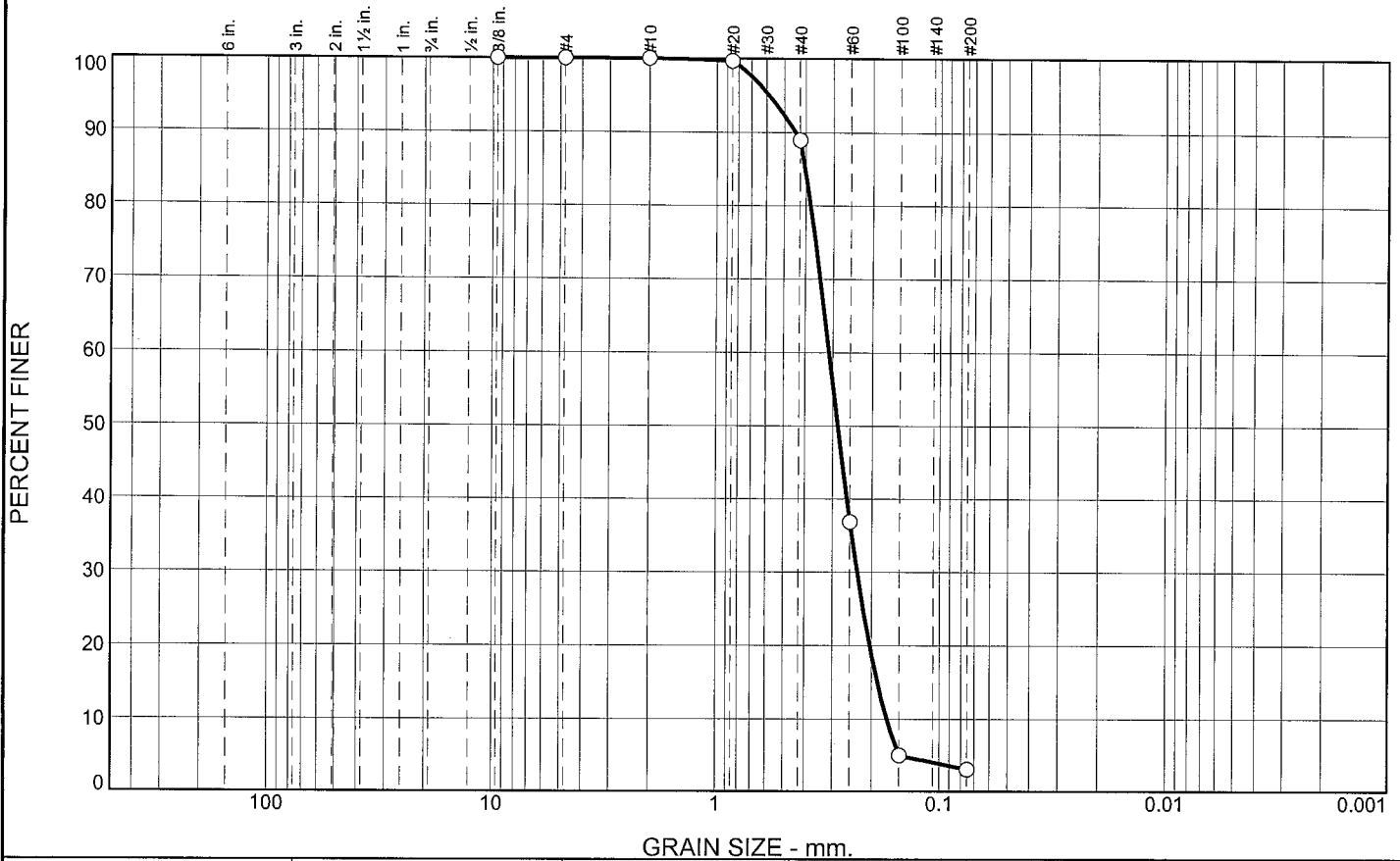
Project No: 10-2123-0009

Report No.

Tested By: G.Fancher

Checked By: R.Byrd

# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.0	0.0	11.1	85.8	3.1	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
.375	100.0		
#4	100.0		
#10	100.0		
#20	99.7		
#40	88.9		
#60	36.8		
#100	5.0		
#200	3.1		

\* (no specification provided)

**Material Description**  
SAND, (SP), medium to fine grained

**Atterberg Limits**  
PL=      LL=      PI=

**Coefficients**  
D<sub>90</sub>= 0.4462      D<sub>85</sub>= 0.4029      D<sub>60</sub>= 0.3119  
D<sub>50</sub>= 0.2843      D<sub>30</sub>= 0.2318      D<sub>15</sub>= 0.1881  
D<sub>10</sub>= 0.1710      C<sub>u</sub>= 1.82      C<sub>c</sub>= 1.01

**Classification**  
USCS= SP      AASHTO=

**Remarks**  
CADD CODE = CH10D965

Location: USACE Sample # BI-PB-53-10B  
Sample Number: TE Lab ID: 4622.38

Depth: 5.0 - 10.0 (ft.)

Date: 8/15/10

**Thompson Engineering**  
**Mobile, Alabama**

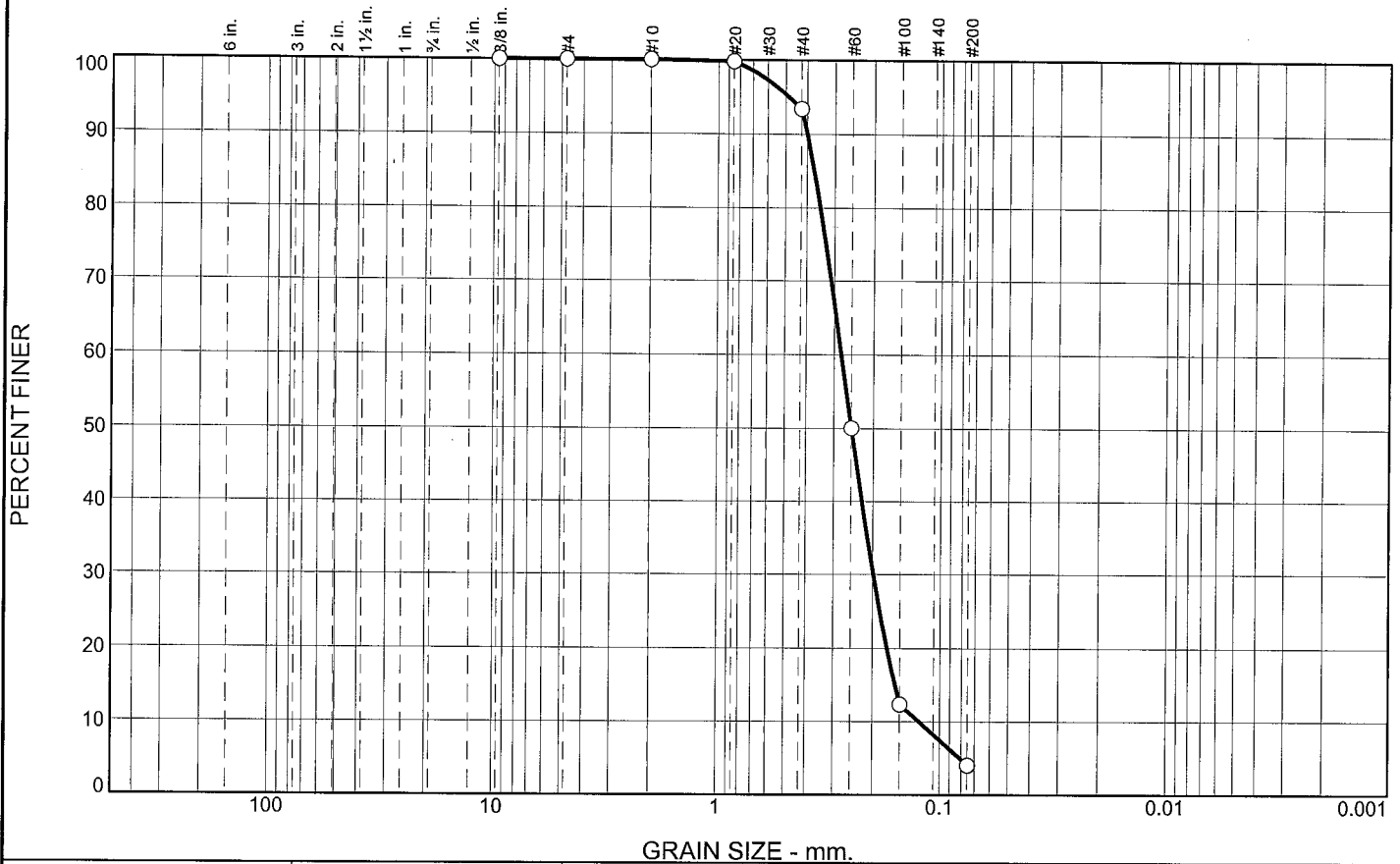
**Client:** US Army Corps of Engineers  
**Project:** Contract No. W91278-10-D-0026 - Task 03  
Mississippi Barrier Island Restoration Project  
**Project No:** 10-2123-0009      **Report No.**

Tested By: G.Fancher

Checked By: R.Byrd



# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.0	0.0	6.6	89.3	4.1	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
.375	100.0		
#4	100.0		
#10	100.0		
#20	99.8		
#40	93.4		
#60	50.0		
#100	12.3		
#200	4.1		

\* (no specification provided)

**Material Description**  
SAND, (SP), fine grained

**Atterberg Limits**  
PL=      LL=      PI=

**Coefficients**  
 D<sub>90</sub>= 0.3998      D<sub>85</sub>= 0.3713      D<sub>60</sub>= 0.2781  
 D<sub>50</sub>= 0.2500      D<sub>30</sub>= 0.1983      D<sub>15</sub>= 0.1583  
 D<sub>10</sub>= 0.1234      C<sub>u</sub>= 2.25      C<sub>c</sub>= 1.15

**Classification**  
USCS= SP      AASHTO=

**Remarks**  
CADD CODE = CH10D965

Location: USACE Sample # BI-PB-53-10C  
Sample Number: TE Lab ID: 4622.39

Depth: 10.0 - 15.0 (ft.)

Date: 8/15/10

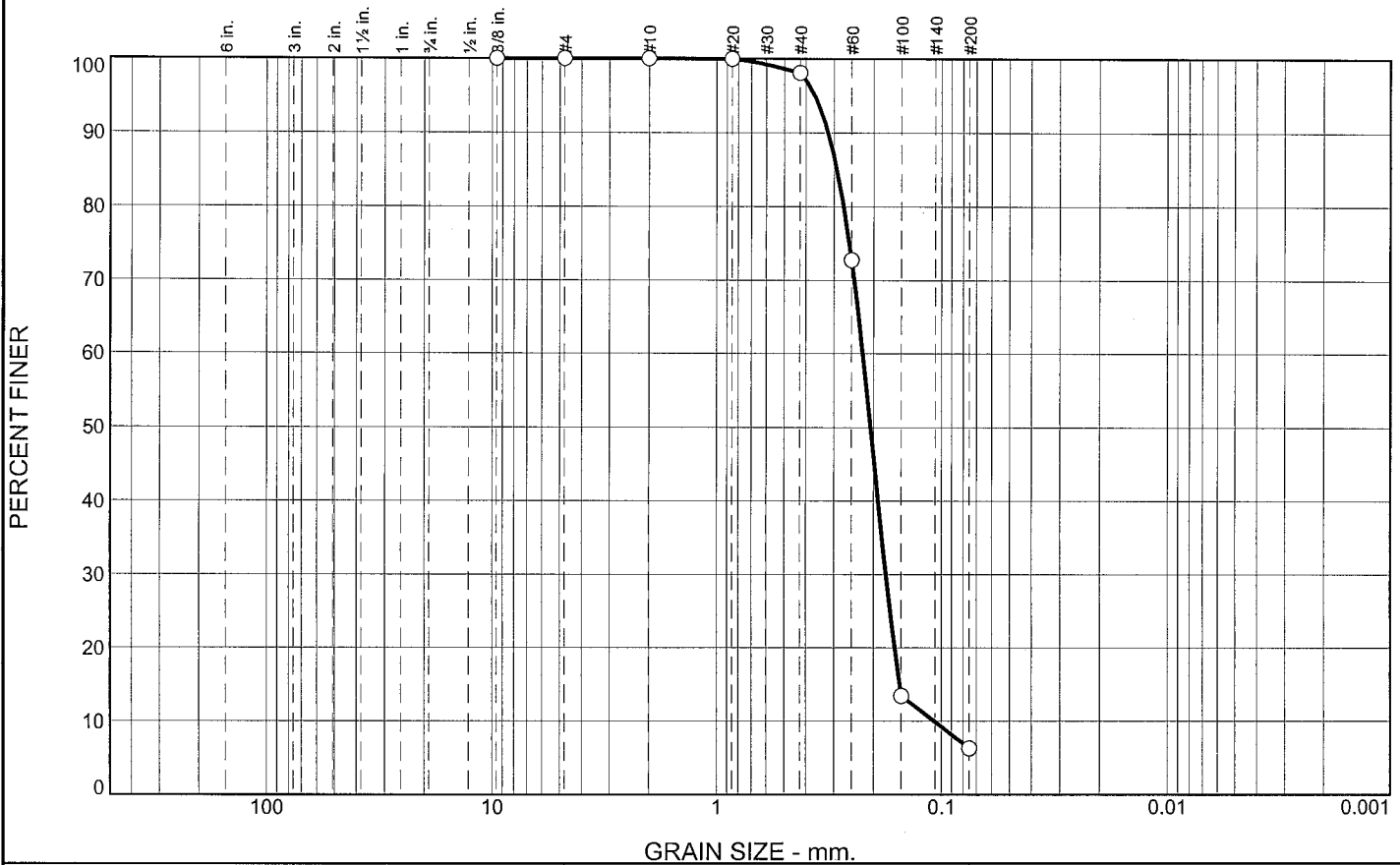
**Thompson Engineering**  
  
**Mobile, Alabama**

**Client:** US Army Corps of Engineers  
**Project:** Contract No. W91278-10-D-0026 - Task 03  
 Mississippi Barrier Island Restoration Project  
**Project No:** 10-2123-0009      **Report No.**

Tested By: G.Fancher

Checked By: R.Byrd

# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.0	0.0	1.9	91.8	6.3	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
.375	100.0		
#4	100.0		
#10	100.0		
#20	100.0		
#40	98.1		
#60	72.8		
#100	13.4		
#200	6.3		

\* (no specification provided)

<b>Material Description</b>		
SAND, (SP-SM), fine grained		
<b>Atterberg Limits</b>		
PL=	LL=	PI=
<b>Coefficients</b>		
D <sub>90</sub> = 0.3188	D <sub>85</sub> = 0.2910	D <sub>60</sub> = 0.2229
D <sub>50</sub> = 0.2058	D <sub>30</sub> = 0.1758	D <sub>15</sub> = 0.1528
D <sub>10</sub> = 0.1077	C <sub>u</sub> = 2.07	C <sub>c</sub> = 1.29
<b>Classification</b>		
USCS= SP-SM	AASHTO=	
<b>Remarks</b>		
CADD CODE = CH10D965		

Location: USACE Sample # BI-PB-53-10D  
Sample Number: TE Lab ID: 4622.40

Depth: 15.0 - 18.0 (ft.)

Date: 8/15/10

**Thompson Engineering**  
**Mobile, Alabama**

**Client:** US Army Corps of Engineers  
**Project:** Contract No. W91278-10-D-0026 - Task 03  
Mississippi Barrier Island Restoration Project  
**Project No:** 10-2123-0009  
**Report No.**

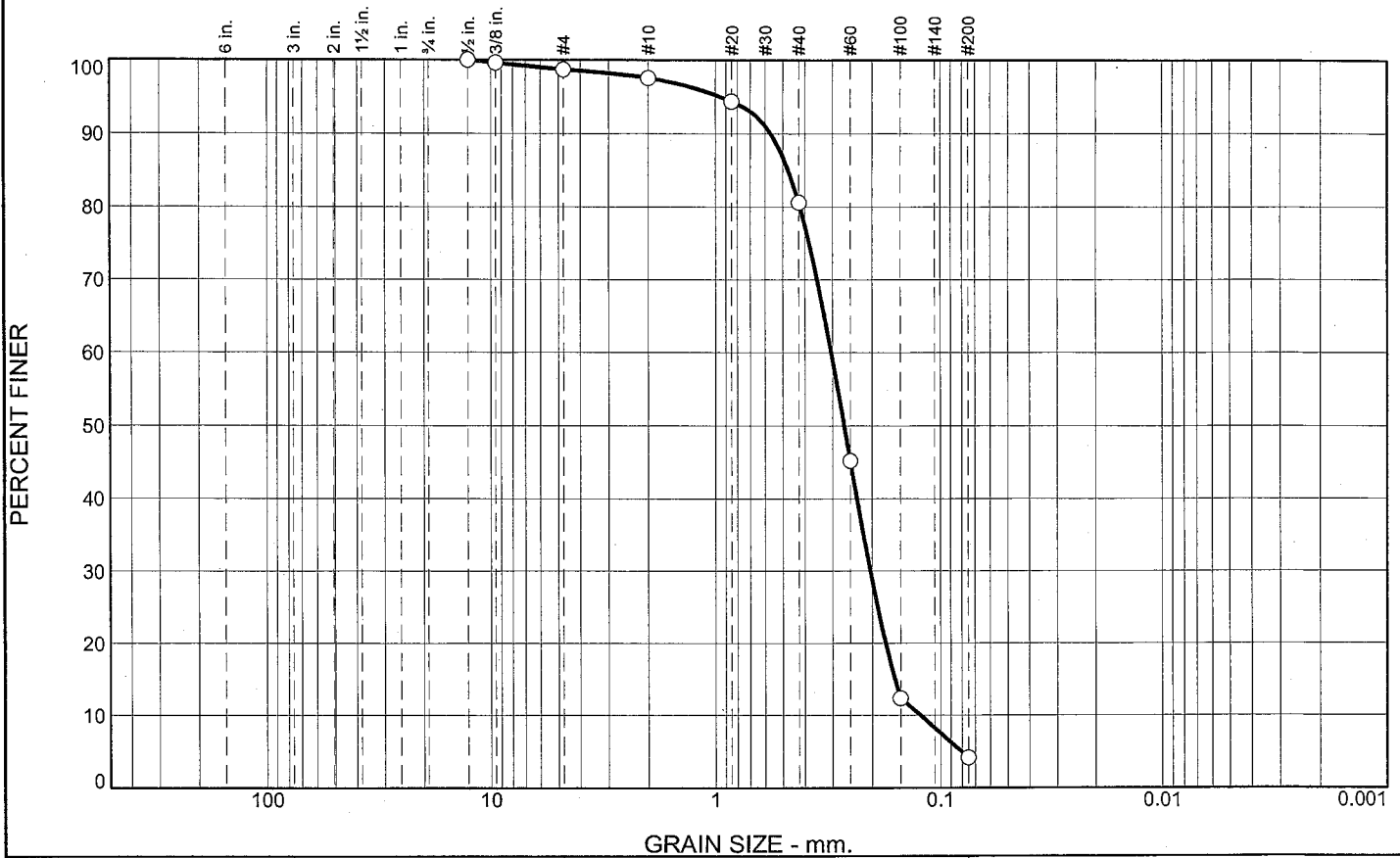
Tested By: G.Fancher

Checked By: R.Byrd

# Boring Designation BI-PB-054-10

DRILLING LOG		DIVISION South Atlantic		INSTALLATION Mobile District		SHEET 1 OF 1 SHEETS	
1. PROJECT MsCIP Barrier Island Restoration Petit Bois Pass- AL East				9. SIZE AND TYPE OF BIT N/A			
2. BORING DESIGNATION BI-PB-054-10		LOCATION COORDINATES E = 1,151,094 N = 251,371		10. COORDINATE SYSTEM/DATUM State Plane, MSE (U.S. Ft.)		HORIZONTAL NAD83 VERTICAL NAVD88	
3. DRILLING AGENCY Corps of Engineers - CESAM		CONTRACTOR FILE NO.		11. MANUFACTURER'S DESIGNATION OF DRILL Vibrocure		<input type="checkbox"/> AUTO HAMMER <input type="checkbox"/> MANUAL HAMMER	
4. NAME OF DRILLER Construction Solutions International, Inc.				12. TOTAL SAMPLES 1		DISTURBED 1 UNDISTURBED (UD) 0	
5. DIRECTION OF BORING <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED		DEG. FROM VERTICAL		13. TOTAL NUMBER CORE BOXES			
		BEARING		14. WATER DEPTH 40 Ft.			
6. THICKNESS OF OVERBURDEN N/A				15. DATE BORING 08-09-10		STARTED 08-09-10 COMPLETED 08-09-10	
7. DEPTH DRILLED INTO ROCK N/A				16. ELEVATION TOP OF BORING -38.6 Ft.			
8. TOTAL DEPTH OF BORING 17.5 Ft.				17. TOTAL RECOVERY FOR BORING 100%			
				18. SIGNATURE AND TITLE OF INSPECTOR Chris Gillentine, Geologist			
ELEV.	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS	SAMPLE	LABORATORY RESULTS		
-38.6	0.0						
-40.1	1.5		SAND, poorly-graded, mostly medium to coarse-grained sand-sized quartz, trace shell fragments, dark gray (SP)	A	Classification: SP Color: 2.5Y 6/2-light brownish gray D50: 0.2663 mm % Fines: 4.2		
			CLAY, fat, trace fine-grained sand-sized quartz, dark gray (CH)	NS			
-56.1	17.5						
			NOTES: 1. Soils are field visually classified in accordance with the Unified Soils Classification System. 2. NS = Sample not submitted for laboratory analysis from this interval. 3. Seafloor elevation calculated using sampling vessel's fathometer water depth reading and applying NOAA tidal gauge data conversion factor.				

# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	1.3	1.2	16.9	76.4	4.2	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
.500	100.0		
.375	99.6		
#4	98.7		
#10	97.5		
#20	94.4		
#40	80.6		
#60	45.2		
#100	12.4		
#200	4.2		

\* (no specification provided)

## Material Description

SAND, (SP), medium to fine grained, with trace shell and clay pockets

## Atterberg Limits

PL=

LL=

PI=

## Coefficients

D<sub>90</sub>= 0.5663

D<sub>85</sub>= 0.4726

D<sub>60</sub>= 0.3044

D<sub>50</sub>= 0.2663

D<sub>30</sub>= 0.2035

D<sub>15</sub>= 0.1589

D<sub>10</sub>= 0.1227

C<sub>u</sub>= 2.48

C<sub>c</sub>= 1.11

## Classification

USCS= SP

AASHTO=

## Remarks

CADD CODE = CH10D965

Location: USACE Sample # BI-PB-54-10A  
Sample Number: TE Lab ID: 4636.01

Depth: 0.0 - 1.5 (ft.)

Date: 8/18/10

**Thompson Engineering**

**Mobile, Alabama**

Client: US Army Corps of Engineers

Project: Contract No. W91278-10-D-0026 - Task 03  
Mississippi Barrier Island Restoration Project

Project No: 10-2123-0009

Report #:

Tested By: R.Martin

Checked By: R.Byrd

# Boring Designation BI-PB-057-10

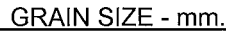
DRILLING LOG		DIVISION South Atlantic		INSTALLATION Mobile District		SHEET 1 OF 1 SHEETS	
1. PROJECT MsCIP Barrier Island Restoration Petit Bois Pass- AL West				9. SIZE AND TYPE OF BIT N/A			
2. BORING DESIGNATION BI-PB-057-10		LOCATION COORDINATES E = 1,130,175 N = 249,800		10. COORDINATE SYSTEM/DATUM State Plane, MSE (U.S. Ft.)		HORIZONTAL NAD83 VERTICAL NAVD88	
3. DRILLING AGENCY Corps of Engineers - CESAM		CONTRACTOR FILE NO.		11. MANUFACTURER'S DESIGNATION OF DRILL Vibracore		<input type="checkbox"/> AUTO HAMMER <input type="checkbox"/> MANUAL HAMMER	
4. NAME OF DRILLER Construction Solutions International, Inc.				12. TOTAL SAMPLES 0		DISTURBED 0 UNDISTURBED (UD) 0	
5. DIRECTION OF BORING <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED		DEG. FROM VERTICAL		13. TOTAL NUMBER CORE BOXES			
		BEARING		14. WATER DEPTH 38 Ft.			
6. THICKNESS OF OVERBURDEN N/A				15. DATE BORING 08-06-10		STARTED 08-06-10 COMPLETED 08-06-10	
7. DEPTH DRILLED INTO ROCK N/A				16. ELEVATION TOP OF BORING -36.7 Ft.			
8. TOTAL DEPTH OF BORING 15.3 Ft.				17. TOTAL RECOVERY FOR BORING 100%			
				18. SIGNATURE AND TITLE OF INSPECTOR Chris Gillentine, Geologist			
ELEV.	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS	SAMPLE	LABORATORY RESULTS		
-36.7	0.0						
			CLAY, fat, dark gray (CH)	NS			
-43.7	7.0		SAND, poorly-graded, mostly fine to medium-grained sand-sized quartz, gray (SP)				
-47.7	11.0		CLAY, fat, dark gray (CH)				
-52.0	15.3						
			NOTES: 1. Soils are field visually classified in accordance with the Unified Soils Classification System. 2. NS = Sample not submitted for laboratory analysis from this interval. 3. Seafloor elevation calculated using sampling vessel's fathometer water depth reading and applying NOAA tidal gauge data conversion factor.				

# Boring Designation BI-PB-058-10

DRILLING LOG		DIVISION South Atlantic		INSTALLATION Mobile District		SHEET 1 OF 2 SHEETS	
1. PROJECT MsCIP Barrier Island Restoration Petit Bois Pass- AL West				9. SIZE AND TYPE OF BIT N/A			
2. BORING DESIGNATION BI-PB-058-10		LOCATION COORDINATES E = 1,131,745 N = 249,854		10. COORDINATE SYSTEM/DATUM State Plane, MSE (U.S. Ft.)		HORIZONTAL NAD83 VERTICAL NAVD88	
3. DRILLING AGENCY Corps of Engineers - CESAM		CONTRACTOR FILE NO.		11. MANUFACTURER'S DESIGNATION OF DRILL Vibracore		<input type="checkbox"/> AUTO HAMMER <input type="checkbox"/> MANUAL HAMMER	
4. NAME OF DRILLER Construction Solutions International, Inc.				12. TOTAL SAMPLES		DISTURBED 1 UNDISTURBED (UD) 0	
5. DIRECTION OF BORING <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED		DEG. FROM VERTICAL		13. TOTAL NUMBER CORE BOXES			
		BEARING		14. WATER DEPTH 36 Ft.			
6. THICKNESS OF OVERBURDEN N/A				15. DATE BORING		STARTED 08-04-10 COMPLETED 08-04-10	
7. DEPTH DRILLED INTO ROCK N/A				16. ELEVATION TOP OF BORING -36.8 Ft.			
8. TOTAL DEPTH OF BORING 20.0 Ft.				17. TOTAL RECOVERY FOR BORING 100%			
				18. SIGNATURE AND TITLE OF INSPECTOR Chris Gillentine, Geologist			
ELEV.	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS	SAMPLE	LABORATORY RESULTS		
-36.8	0.0						
			CLAY, fat, trace fine-grained sand-sized quartz, trace shell fragments, dark gray (CH)	NS			
-46.8	10.0						
			SAND, poorly-graded, lt. gray (SP)	A	Classification: SP-SM Color: 2.5Y 6/2-light brownish gray D50: 0.2564 mm % Fines: 5.2		
-50.8	14.0						
			CLAY, fat, dark gray (CH)	NS			
-56.8	20.0						
			NOTES: 1. Soils are field visually classified in accordance with the Unified Soils Classification System. 2. NS = Sample not submitted for laboratory analysis from this interval. 3. Seafloor elevation calculated using sampling				

<b>DRILLING LOG (Cont. Sheet)</b>			<b>INSTALLATION</b> Mobile District		<b>SHEET 2</b> <b>OF 2 SHEETS</b>
<b>PROJECT</b> MsCIP Barrier Island Restoration			<b>COORDINATE SYSTEM/DATUM</b> State Plane, MSE (U.S. Ft.)	<b>HORIZONTAL</b> NAD83	<b>VERTICAL</b> NAVD88
<b>LOCATION COORDINATES</b> X = 1,131,745 Y = 249,854			<b>ELEVATION TOP OF BORING</b> -36.8 Ft.		
<b>ELEV.</b>	<b>DEPTH</b>	<b>LEGEND</b>	<b>CLASSIFICATION OF MATERIALS</b>	<b>SAMPLE</b>	<b>LABORATORY RESULTS</b>
			vessel's fathometer water depth reading and applying NOAA tidal gauge data conversion factor.		

**PERCENT FINER**



SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
.375	100.0		
#4	100.0		
#10	99.7		
#20	99.6		
#40	94.8		
#60	47.7		
#100	17.5		
#200	5.2		

L-216

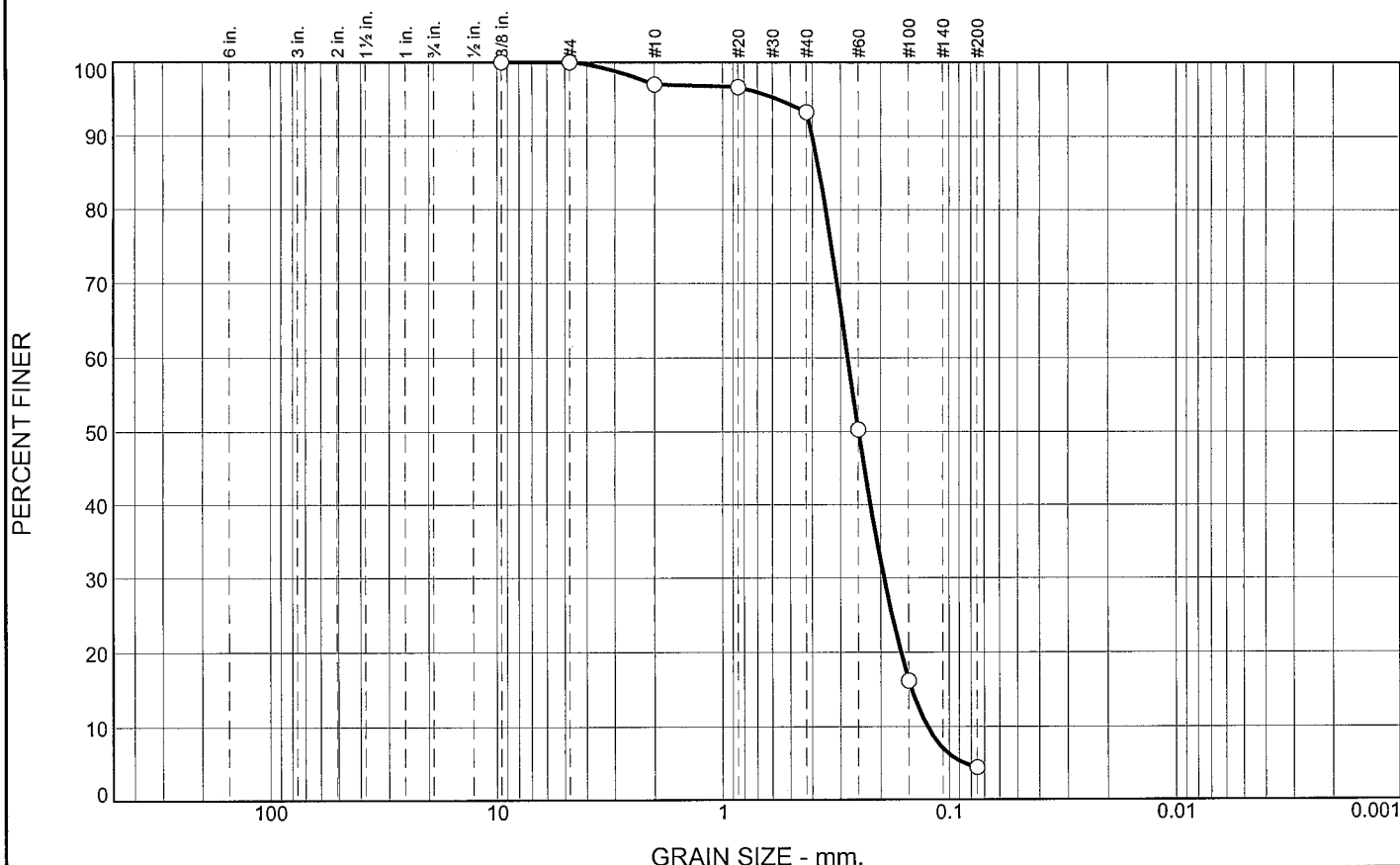


# Boring Designation BI-PB-059-10

DRILLING LOG		DIVISION South Atlantic		INSTALLATION Mobile District		SHEET 1 OF 2 SHEETS	
1. PROJECT MsCIP Barrier Island Restoration Petit Bois Pass- AL West				9. SIZE AND TYPE OF BIT N/A			
2. BORING DESIGNATION BI-PB-059-10		LOCATION COORDINATES E = 1,133,379 N = 249,835		10. COORDINATE SYSTEM/DATUM State Plane, MSE (U.S. Ft.)		HORIZONTAL NAD83 VERTICAL NAVD88	
3. DRILLING AGENCY Corps of Engineers - CESAM		CONTRACTOR FILE NO.		11. MANUFACTURER'S DESIGNATION OF DRILL Vibrocure		<input type="checkbox"/> AUTO HAMMER <input type="checkbox"/> MANUAL HAMMER	
4. NAME OF DRILLER Construction Solutions International, Inc.				12. TOTAL SAMPLES		DISTURBED 1 UNDISTURBED (UD) 0	
5. DIRECTION OF BORING <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED				13. TOTAL NUMBER CORE BOXES		14. WATER DEPTH 35 Ft.	
6. THICKNESS OF OVERBURDEN N/A				15. DATE BORING		STARTED 08-04-10 COMPLETED 08-04-10	
7. DEPTH DRILLED INTO ROCK N/A				16. ELEVATION TOP OF BORING -35.8 Ft.		17. TOTAL RECOVERY FOR BORING 100%	
8. TOTAL DEPTH OF BORING 19.0 Ft.				18. SIGNATURE AND TITLE OF INSPECTOR Chris Gillentine, Geologist			
ELEV.	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS	SAMPLE	LABORATORY RESULTS		
-35.8	0.0		CLAY, fat, trace fine-grained sand-sized quartz, dark gray (CH)				
			At El. -39.8 Ft.	NS			
-45.8	10.0		SAND, poorly-graded, lt. gray (SP)	A	Classification: SP Color: 2.5Y 7/1-light gray D50: 0.2494 mm % Fines: 4.4		
-48.8	13.0		CLAY, fat, trace fine-grained sand-sized quartz, dark gray (CH)	NS			
-54.8	19.0						
NOTES: 1. Soils are field visually classified in accordance with the Unified Soils Classification System. 2. NS = Sample not submitted for laboratory analysis from this interval. 3. Seafloor elevation calculated using sampling vessel's fathometer water depth reading and applying NOAA tidal gauge data conversion							

<b>DRILLING LOG (Cont. Sheet)</b>			<b>INSTALLATION</b> Mobile District		<b>SHEET 2</b> <b>OF 2 SHEETS</b>
<b>PROJECT</b> MsCIP Barrier Island Restoration			<b>COORDINATE SYSTEM/DATUM</b> State Plane, MSE (U.S. Ft.)	<b>HORIZONTAL</b> NAD83	<b>VERTICAL</b> NAVD88
<b>LOCATION COORDINATES</b> X = 1,133,379 Y = 249,835			<b>ELEVATION TOP OF BORING</b> -35.8 Ft.		
<b>ELEV.</b>	<b>DEPTH</b>	<b>LEGEND</b>	<b>CLASSIFICATION OF MATERIALS</b>	<b>SAMPLE</b>	<b>LABORATORY RESULTS</b>
			factor.		

# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.0	3.0	3.7	88.9	4.4	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
.375	100.0		
#4	100.0		
#10	97.0		
#20	96.6		
#40	93.3		
#60	50.2		
#100	16.2		
#200	4.4		

\* (no specification provided)

## Material Description

SAND, (SP), fine grained

## Atterberg Limits

PL=

LL=

PI=

## Coefficients

D<sub>90</sub>= 0.4007

D<sub>85</sub>= 0.3720

D<sub>60</sub>= 0.2785

D<sub>50</sub>= 0.2494

D<sub>30</sub>= 0.1928

D<sub>15</sub>= 0.1457

D<sub>10</sub>= 0.1242

C<sub>u</sub>= 2.24

C<sub>c</sub>= 1.07

## Classification

USCS= SP

AASHTO=

## Remarks

CADD CODE = CH10D965

Location: USACE Sample # BI-PB-59-10A  
Sample Number: TE Lab ID: 4622.20

Depth: 10.0 - 13.0 (ft.)

Date: 8/15/10

**Thompson Engineering**

**Mobile, Alabama**

Client: US Army Corps of Engineers

Project: Contract No. W91278-10-D-0026 - Task 03  
Mississippi Barrier Island Restoration Project

Project No: 10-2123-0009

Report No.

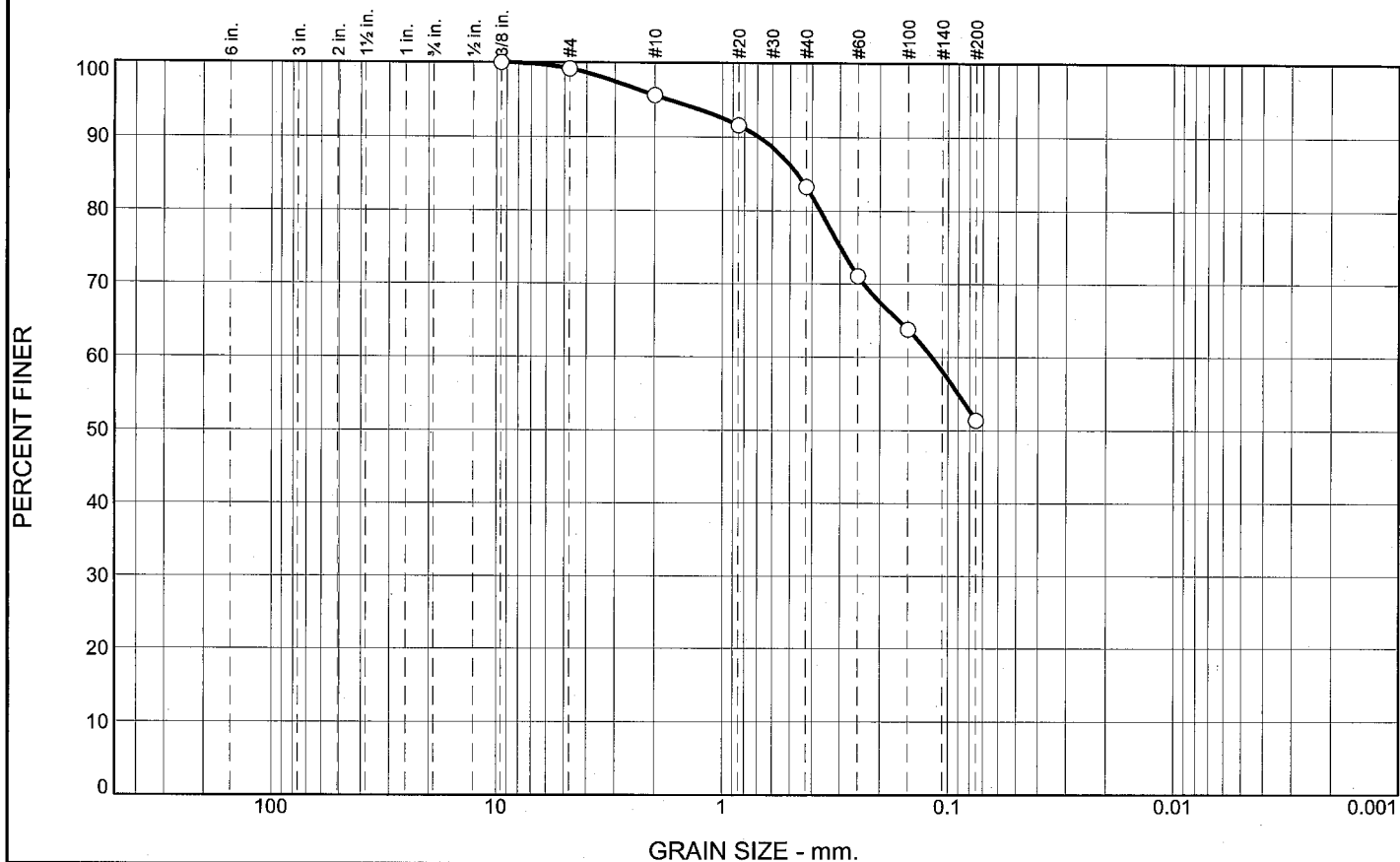
Tested By: R.Martin

Checked By: R.Byrd

# Boring Designation BI-PB-060-10

DRILLING LOG		DIVISION South Atlantic		INSTALLATION Mobile District		SHEET 1 OF 1 SHEETS	
1. PROJECT MsCIP Barrier Island Restoration Petit Bois Pass- AL West				9. SIZE AND TYPE OF BIT N/A			
2. BORING DESIGNATION BI-PB-060-10		LOCATION COORDINATES E = 1,134,921 N = 249,820		10. COORDINATE SYSTEM/DATUM State Plane, MSE (U.S. Ft.)		HORIZONTAL NAD83 VERTICAL NAVD88	
3. DRILLING AGENCY Corps of Engineers - CESAM		CONTRACTOR FILE NO.		11. MANUFACTURER'S DESIGNATION OF DRILL Vibracore		<input type="checkbox"/> AUTO HAMMER <input type="checkbox"/> MANUAL HAMMER	
4. NAME OF DRILLER Construction Solutions International, Inc.				12. TOTAL SAMPLES 0		DISTURBED 0 UNDISTURBED (UD) 0	
5. DIRECTION OF BORING <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED		DEG. FROM VERTICAL		13. TOTAL NUMBER CORE BOXES			
		BEARING		14. WATER DEPTH 37 Ft.			
6. THICKNESS OF OVERBURDEN N/A				15. DATE BORING 08-04-10		STARTED 08-04-10 COMPLETED 08-04-10	
7. DEPTH DRILLED INTO ROCK N/A				16. ELEVATION TOP OF BORING -37.7 Ft.			
8. TOTAL DEPTH OF BORING 18.0 Ft.				17. TOTAL RECOVERY FOR BORING 100%			
				18. SIGNATURE AND TITLE OF INSPECTOR Chris Gillentine, Geologist			
ELEV.	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS	SAMPLE	LABORATORY RESULTS		
-37.7	0.0						
-39.7	2.0		SAND, poorly-graded, trace shell fragments, dark gray (SP)	A	Classification: CL Color: 2.5Y 4/2-dark grayish brown D50: mm % Fines: 51.4		
			CLAY, fat, dark gray (CH)	NS			
-55.7	18.0						
			NOTES: 1. Soils are field visually classified in accordance with the Unified Soils Classification System. 2. NS = Sample not submitted for laboratory analysis from this interval. 3. Seafloor elevation calculated using sampling vessel's fathometer water depth reading and applying NOAA tidal gauge data conversion factor.				

# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.8	3.6	12.3	31.9	51.4	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
.375	100.0		
#4	99.2		
#10	95.6		
#20	91.6		
#40	83.3		
#60	71.1		
#100	63.8		
#200	51.4		

\* (no specification provided)

**Material Description**

SANDY CLAY, (CL)

**Atterberg Limits**

PL=      LL=      PI=

**Coefficients**

D<sub>90</sub>= 0.6874      D<sub>85</sub>= 0.4654      D<sub>60</sub>= 0.1178  
D<sub>50</sub>=      D<sub>30</sub>=      D<sub>15</sub>=  
D<sub>10</sub>=      C<sub>u</sub>=      C<sub>c</sub>=

**Classification**

USCS= CL      AASHTO=

**Remarks**

CADD CODE = CH10D965  
Note: Plasticity based off of visual examination.

Location: USACE Sample # BI-PB-60-10A  
Sample Number: TE Lab ID: 4622.19

Depth: 0.0 - 2.0 (ft.)

Date: 8/15/10

**Thompson Engineering**

**Mobile, Alabama**

**Client:** US Army Corps of Engineers  
**Project:** Contract No. W91278-10-D-0026 - Task 03  
Mississippi Barrier Island Restoration Project  
**Project No:** 10-2123-0009      **Report No.**

Tested By: R.Martin

Checked By: R.Byrd

# Boring Designation BI-PB-061-10

DRILLING LOG		DIVISION South Atlantic		INSTALLATION Mobile District		SHEET 1 OF 1 SHEETS	
1. PROJECT MsCIP Barrier Island Restoration Petit Bois Pass- AL West				9. SIZE AND TYPE OF BIT N/A			
2. BORING DESIGNATION BI-PB-061-10		LOCATION COORDINATES E = 1,136,298 N = 249,858		10. COORDINATE SYSTEM/DATUM State Plane, MSE (U.S. Ft.)		HORIZONTAL NAD83 VERTICAL NAVD88	
3. DRILLING AGENCY Corps of Engineers - CESAM		CONTRACTOR FILE NO.		11. MANUFACTURER'S DESIGNATION OF DRILL Vibrocure		<input type="checkbox"/> AUTO HAMMER <input type="checkbox"/> MANUAL HAMMER	
4. NAME OF DRILLER Construction Solutions International, Inc.				12. TOTAL SAMPLES 0		DISTURBED 0 UNDISTURBED (UD) 0	
5. DIRECTION OF BORING <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED		DEG. FROM VERTICAL		13. TOTAL NUMBER CORE BOXES			
		BEARING		14. WATER DEPTH 36 Ft.			
6. THICKNESS OF OVERBURDEN N/A				15. DATE BORING 08-04-10		STARTED 08-04-10 COMPLETED 08-04-10	
7. DEPTH DRILLED INTO ROCK N/A				16. ELEVATION TOP OF BORING -36.6 Ft.			
8. TOTAL DEPTH OF BORING 18.5 Ft.				17. TOTAL RECOVERY FOR BORING 100%			
				18. SIGNATURE AND TITLE OF INSPECTOR Chris Gillentine, Geologist			
ELEV.	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS	SAMPLE	LABORATORY RESULTS		
-36.6	0.0						
			CLAY, fat, trace shell fragments, dark gray (CH)	NS			
-55.1	18.5						
			NOTES: 1. Soils are field visually classified in accordance with the Unified Soils Classification System. 2. NS = Sample not submitted for laboratory analysis from this interval. 3. Seafloor elevation calculated using sampling vessel's fathometer water depth reading and applying NOAA tidal gauge data conversion factor.				

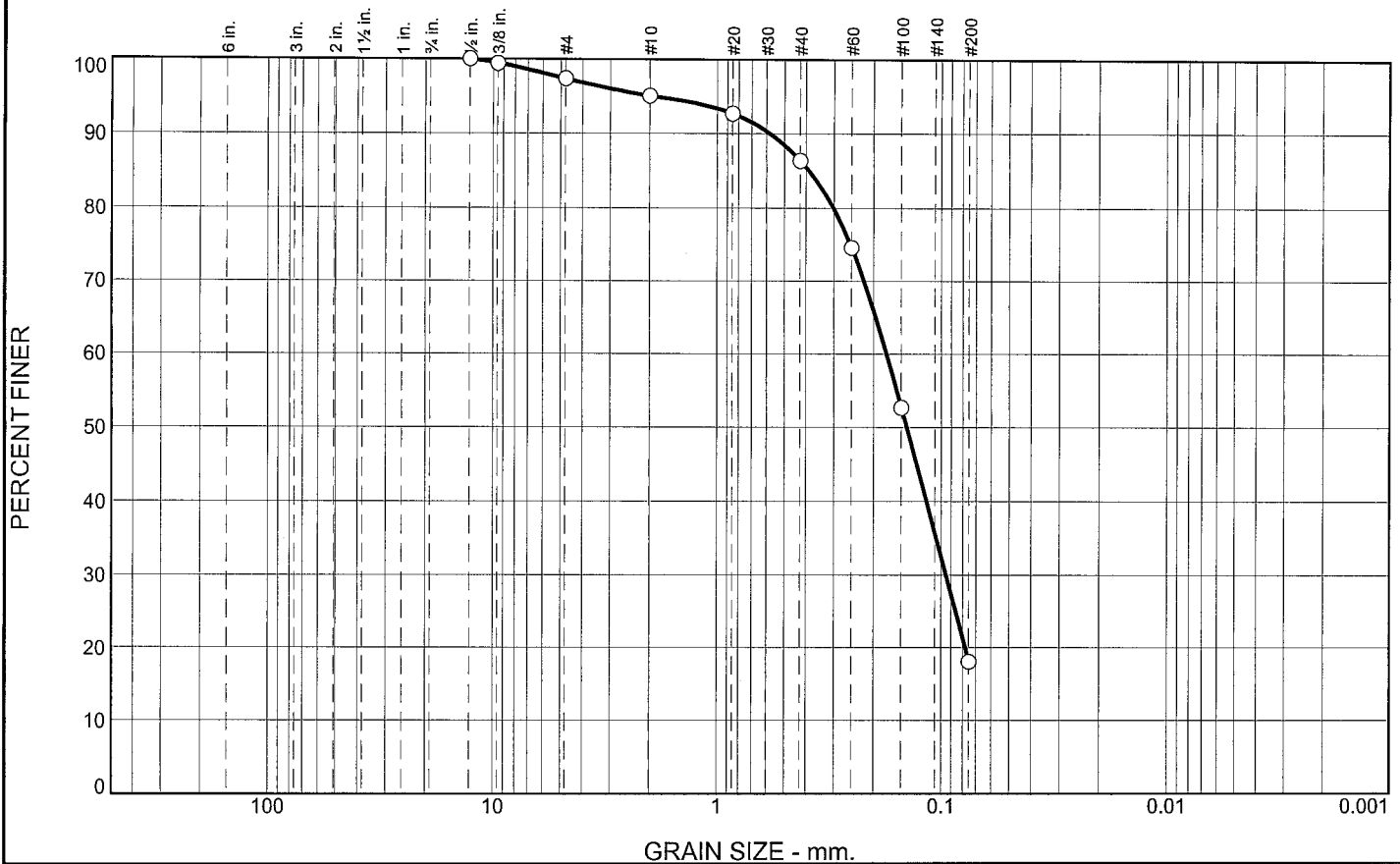
# Boring Designation BI-PB-062-10

DRILLING LOG		DIVISION South Atlantic		INSTALLATION Mobile District		SHEET 1 OF 2 SHEETS	
1. PROJECT MsCIP Barrier Island Restoration Petit Bois Pass- AL West				9. SIZE AND TYPE OF BIT N/A			
2. BORING DESIGNATION BI-PB-062-10		LOCATION COORDINATES E = 1,137,556 N = 249,860		10. COORDINATE SYSTEM/DATUM State Plane, MSE (U.S. Ft.)		HORIZONTAL NAD83	
3. DRILLING AGENCY Corps of Engineers - CESAM		CONTRACTOR FILE NO.		11. MANUFACTURER'S DESIGNATION OF DRILL Vibracore		<input type="checkbox"/> AUTO HAMMER <input type="checkbox"/> MANUAL HAMMER	
4. NAME OF DRILLER Construction Solutions International, Inc.				12. TOTAL SAMPLES		DISTURBED 1	
5. DIRECTION OF BORING <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED		DEG. FROM VERTICAL		13. TOTAL NUMBER CORE BOXES		UNDISTURBED (UD) 0	
6. THICKNESS OF OVERBURDEN N/A				14. WATER DEPTH 38 Ft.			
7. DEPTH DRILLED INTO ROCK N/A				15. DATE BORING		STARTED 08-06-10	
8. TOTAL DEPTH OF BORING 20.0 Ft.				16. ELEVATION TOP OF BORING -38.0 Ft.		COMPLETED 08-06-10	
				17. TOTAL RECOVERY FOR BORING 100%			
				18. SIGNATURE AND TITLE OF INSPECTOR Chris Gillentine, Geologist			
ELEV.	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS	SAMPLE	LABORATORY RESULTS		
-38.0	0.0						
			SAND, poorly-graded, mostly fine to medium-grained sand-sized quartz, gray (SP)	A	Classification: SM Color: 2.5Y 5/2-grayish brown D50: 0.1421 mm % Fines: 18		
				NS			
-58.0	20.0						
			NOTES: 1. Soils are field visually classified in accordance with the Unified Soils Classification System. 2. NS = Sample not submitted for laboratory analysis from this interval. 3. Seafloor elevation calculated using sampling				

<b>DRILLING LOG (Cont. Sheet)</b>			<b>INSTALLATION</b> Mobile District		<b>SHEET 2</b> <b>OF 2 SHEETS</b>
<b>PROJECT</b> MsCIP Barrier Island Restoration			<b>COORDINATE SYSTEM/DATUM</b> State Plane, MSE (U.S. Ft.)	<b>HORIZONTAL</b> NAD83	<b>VERTICAL</b> NAVD88
<b>LOCATION COORDINATES</b> X = 1,137,556 Y = 249,860			<b>ELEVATION TOP OF BORING</b> -38.0 Ft.		
<b>ELEV.</b>	<b>DEPTH</b>	<b>LEGEND</b>	<b>CLASSIFICATION OF MATERIALS</b>	<b>SAMPLE</b>	<b>LABORATORY RESULTS</b>
			vessel's fathometer water depth reading and applying NOAA tidal gauge data conversion factor.		



# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	2.6	2.3	8.7	68.4	18.0	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
.500	100.0		
.375	99.4		
#4	97.4		
#10	95.1		
#20	92.7		
#40	86.4		
#60	74.6		
#100	52.6		
#200	18.0		

\* (no specification provided)

**Material Description**  
SILTY SAND, (SM), fine grained, with trace shell

**Atterberg Limits**  
 PL=      LL=      PI=

**Coefficients**  
 D<sub>90</sub>= 0.5797      D<sub>85</sub>= 0.3881      D<sub>60</sub>= 0.1750  
 D<sub>50</sub>= 0.1421      D<sub>30</sub>= 0.0950      D<sub>15</sub>=  
 D<sub>10</sub>=      C<sub>u</sub>=      C<sub>c</sub>=

**Classification**  
 USCS= SM      AASHTO=

**Remarks**  
 CADD CODE = CH10D965

Location: USACE Sample # BI-PB-62-10A  
 Sample Number: TE Lab ID: 4622.33

Depth: 0.0 - 1.5 (ft.)

Date: 8/15/10

**Thompson Engineering**

**Mobile, Alabama**

**Client:** US Army Corps of Engineers

**Project:** Contract No. W91278-10-D-0026 - Task 03  
 Mississippi Barrier Island Restoration Project

**Project No:** 10-2123-0009

**Report No.**

Tested By: G.Fancher

Checked By: R.Byrd

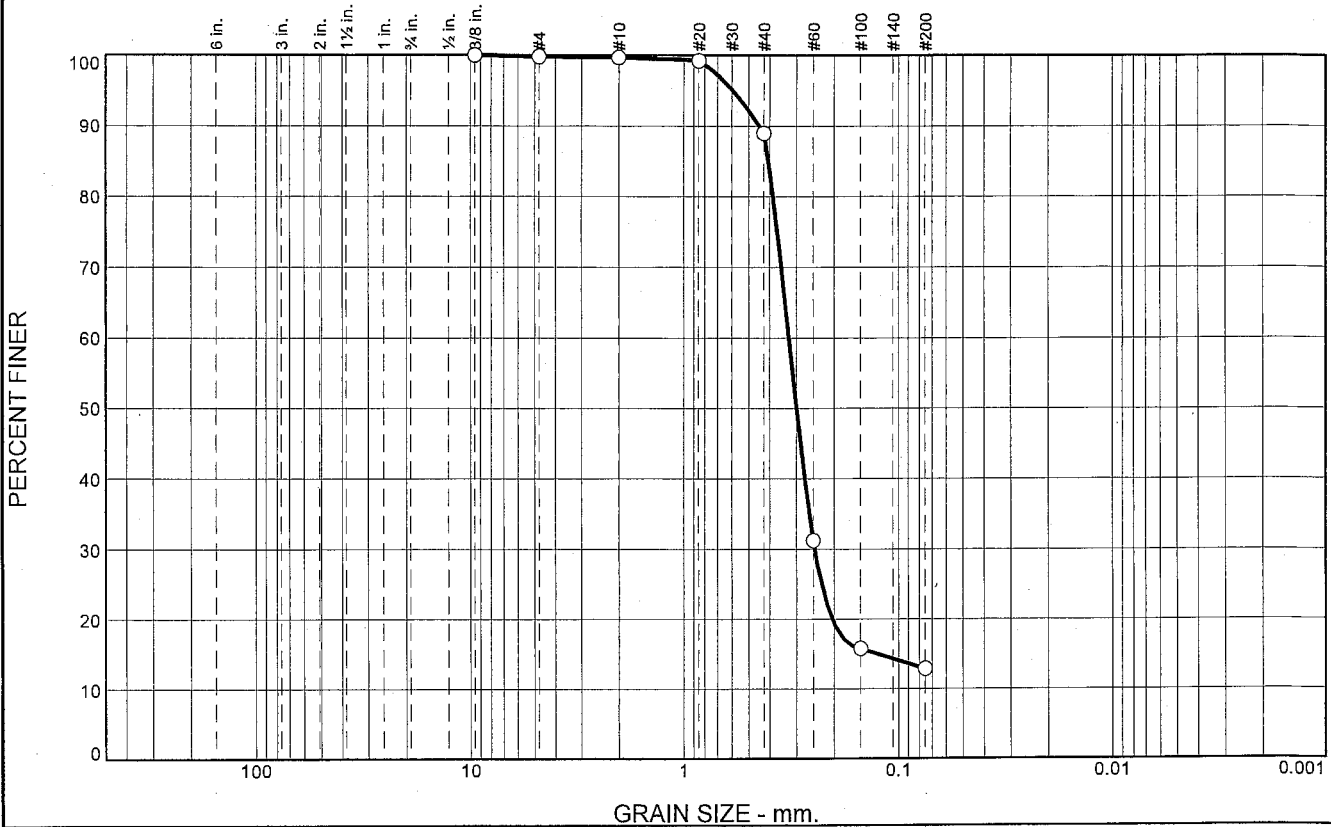
# Boring Designation BI-PB-063-10

DRILLING LOG		DIVISION South Atlantic		INSTALLATION Mobile District		SHEET 1 OF 1 SHEETS	
1. PROJECT MsCIP Barrier Island Restoration Petit Bois Pass- AL West				9. SIZE AND TYPE OF BIT N/A			
2. BORING DESIGNATION BI-PB-063-10		LOCATION COORDINATES E = 1,139,088 N = 249,859		10. COORDINATE SYSTEM/DATUM State Plane, MSE (U.S. Ft.)		HORIZONTAL NAD83 VERTICAL NAVD88	
3. DRILLING AGENCY Corps of Engineers - CESAM		CONTRACTOR FILE NO.		11. MANUFACTURER'S DESIGNATION OF DRILL Vibrocure		<input type="checkbox"/> AUTO HAMMER <input type="checkbox"/> MANUAL HAMMER	
4. NAME OF DRILLER Construction Solutions International, Inc.				12. TOTAL SAMPLES 0		DISTURBED 0 UNDISTURBED (UD) 0	
5. DIRECTION OF BORING <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED		DEG. FROM VERTICAL		13. TOTAL NUMBER CORE BOXES			
		BEARING		14. WATER DEPTH 39 Ft.			
6. THICKNESS OF OVERBURDEN N/A				15. DATE BORING 08-06-10		STARTED 08-06-10 COMPLETED 08-06-10	
7. DEPTH DRILLED INTO ROCK N/A				16. ELEVATION TOP OF BORING -38.8 Ft.			
8. TOTAL DEPTH OF BORING 16.0 Ft.				17. TOTAL RECOVERY FOR BORING 100%			
				18. SIGNATURE AND TITLE OF INSPECTOR Chris Gillentine, Geologist			
ELEV.	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS	SAMPLE	LABORATORY RESULTS		
-38.8	0.0						
			CLAY, fat, trace fine-grained sand-sized quartz, dark gray (CH)	NS			
-44.8	6.0						
			SAND, poorly-graded, trace silt, dark gray (SP)				
-47.8	9.0						
			CLAY, fat, dark gray (CH)				
-54.8	16.0						
			NOTES: 1. Soils are field visually classified in accordance with the Unified Soils Classification System. 2. NS = Sample not submitted for laboratory analysis from this interval. 3. Seafloor elevation calculated using sampling vessel's fathometer water depth reading and applying NOAA tidal gauge data conversion factor.				

# Boring Designation BI-PB-064-10

DRILLING LOG		DIVISION South Atlantic		INSTALLATION Mobile District		SHEET 1 OF 1 SHEETS	
1. PROJECT MsCIP Barrier Island Restoration Petit Bois Pass- AL West				9. SIZE AND TYPE OF BIT N/A			
2. BORING DESIGNATION BI-PB-064-10		LOCATION COORDINATES E = 1,124,089 N = 248,369		10. COORDINATE SYSTEM/DATUM State Plane, MSE (U.S. Ft.)		HORIZONTAL NAD83 VERTICAL NAVD88	
3. DRILLING AGENCY Corps of Engineers - CESAM		CONTRACTOR FILE NO.		11. MANUFACTURER'S DESIGNATION OF DRILL Vibracore		<input type="checkbox"/> AUTO HAMMER <input type="checkbox"/> MANUAL HAMMER	
4. NAME OF DRILLER Construction Solutions International, Inc.				12. TOTAL SAMPLES 3		DISTURBED 0 UNDISTURBED (UD)	
5. DIRECTION OF BORING <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED		DEG. FROM VERTICAL		13. TOTAL NUMBER CORE BOXES			
		BEARING		14. WATER DEPTH 39 Ft.			
6. THICKNESS OF OVERBURDEN N/A				15. DATE BORING 07-09-10		STARTED 07-09-10 COMPLETED 07-09-10	
7. DEPTH DRILLED INTO ROCK N/A				16. ELEVATION TOP OF BORING -38.6 Ft.			
8. TOTAL DEPTH OF BORING 18.5 Ft.				17. TOTAL RECOVERY FOR BORING 100%			
				18. SIGNATURE AND TITLE OF INSPECTOR Valerie Morrow, Geotechnical Engineer			
ELEV.	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS	SAMPLE	LABORATORY RESULTS		
-38.6	0.0		CLAY, lean, dark gray (CL)	NS			
-49.6	11.0		SAND, silty, mostly fine-grained sand-sized quartz, gray (SM)	A	Classification: SM Color: 2.5Y 5/2-grayish brown D50: 0.2997 mm % Fines: 12.9		
-51.4	12.8		SAND, poorly-graded, mostly fine-grained sand-sized quartz, trace silt, lt. gray (SP)	B	Classification: SP-SM Color: 2.5Y 7/2-light gray D50: 0.2991 mm % Fines: 9.3		
-57.1	18.5			C	Classification: SP Color: 2.5Y 7/2-light gray D50: 0.3164 mm % Fines: 3		
NOTES: 1. Soils are field visually classified in accordance with the Unified Soils Classification System. 2. NS = Sample not submitted for laboratory analysis from this interval. 3. Seafloor elevation calculated using sampling vessel's fathometer water depth reading and applying NOAA tidal gauge data conversion factor.							

# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.2	0.1	10.7	76.1	12.9	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
.375	100.0		
#4	99.8		
#10	99.7		
#20	99.2		
#40	89.0		
#60	31.2		
#100	15.7		
#200	12.9		

\* (no specification provided)

**Material Description**  
SILTY SAND, (SM), medium to fine grained

PL= **Atterberg Limits** LL= PI=

**Coefficients**  
D<sub>90</sub>= 0.4460 D<sub>85</sub>= 0.4061 D<sub>60</sub>= 0.3254  
D<sub>50</sub>= 0.2997 D<sub>30</sub>= 0.2462 D<sub>15</sub>= 0.1256  
D<sub>10</sub>= C<sub>u</sub>= C<sub>c</sub>=

**Classification**  
USCS= SM AASHTO=

**Remarks**  
CADD CODE = CH10D965

Location: USACE Sample # BI-PB-64-10A  
Sample Number: TE Lab ID: 4578.05

Depth: 11.0 - 12.8 (ft.)

Date: 7/16/10

**Thompson Engineering**  
**Mobile, Alabama**

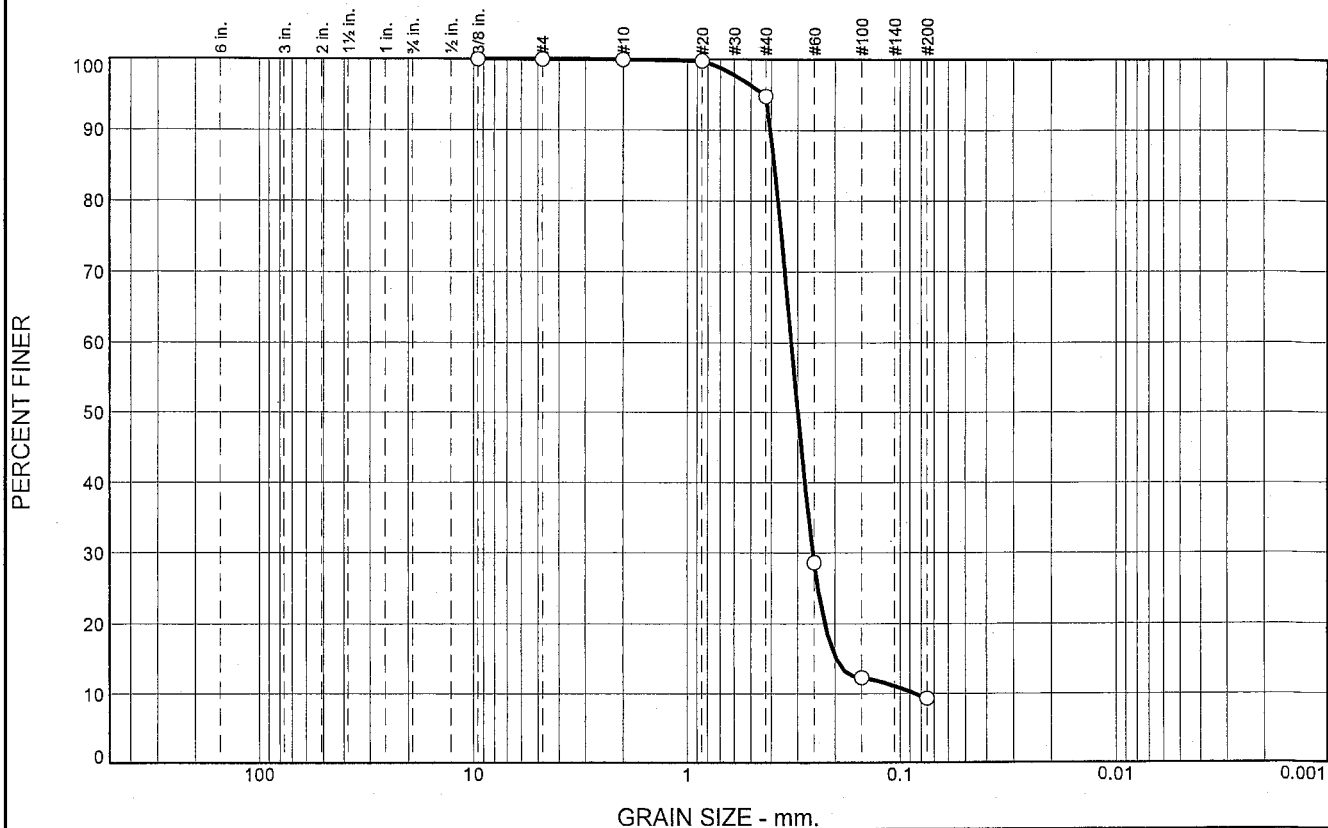
Client: US Army Corps of Engineers  
Project: Contract No. W91278-10-D-0026 - Task 03  
Mississippi Barrier Island Restoration Project  
Project No: 10-2123-0009

Figure

Tested By: G.Fancher

Checked By: R.Byrd

# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.0	0.1	5.1	85.5	9.3	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
.375	100.0		
#4	100.0		
#10	99.9		
#20	99.8		
#40	94.8		
#60	28.6		
#100	12.3		
#200	9.3		

\* (no specification provided)

## Material Description

SAND, (SP-SM), fine grained

PL=      Atterberg Limits      LL=      PI=

Coefficients

D <sub>90</sub> = 0.4046	D <sub>85</sub> = 0.3870	D <sub>60</sub> = 0.3212
D <sub>50</sub> = 0.2991	D <sub>30</sub> = 0.2537	D <sub>15</sub> = 0.1970
D <sub>10</sub> = 0.0853	C <sub>u</sub> = 3.77	C <sub>c</sub> = 2.35

Classification

USCS= SP-SM      AASHTO=

Remarks

CADD CODE = CH10D965

Location: USACE Sample # BI-PB-64-10B  
Sample Number: TE Lab ID: 4578.06

Depth: 12.8 - 15.8 (ft.)

Date: 7/16/10

**Thompson Engineering**  
  
**Mobile, Alabama**

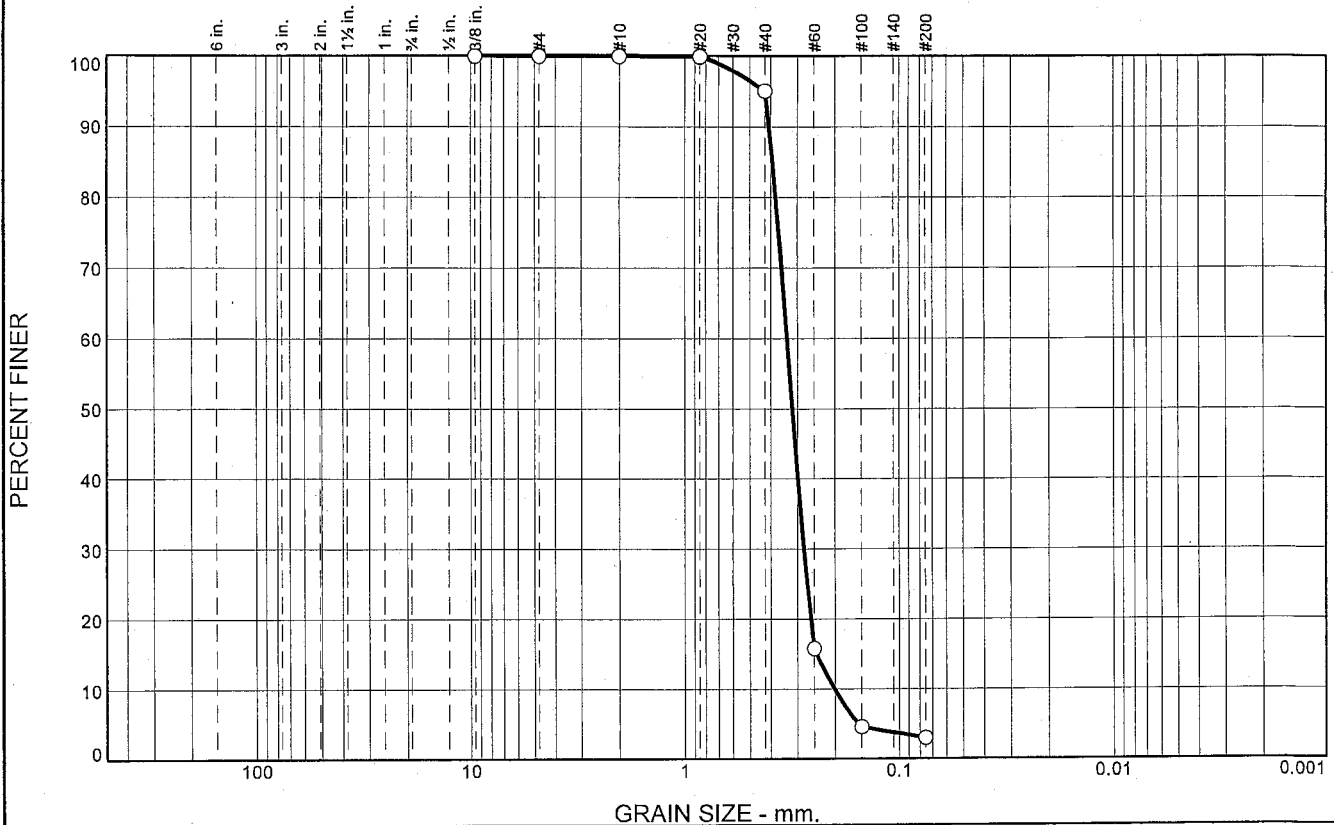
Client: US Army Corps of Engineers  
Project: Contract No. W91278-10-D-0026 - Task 03  
Mississippi Barrier Island Restoration Project  
Project No: 10-2123-0009

Figure

Tested By: G.Fancher

Checked By: R.Byrd

# Particle Size Distribution Report



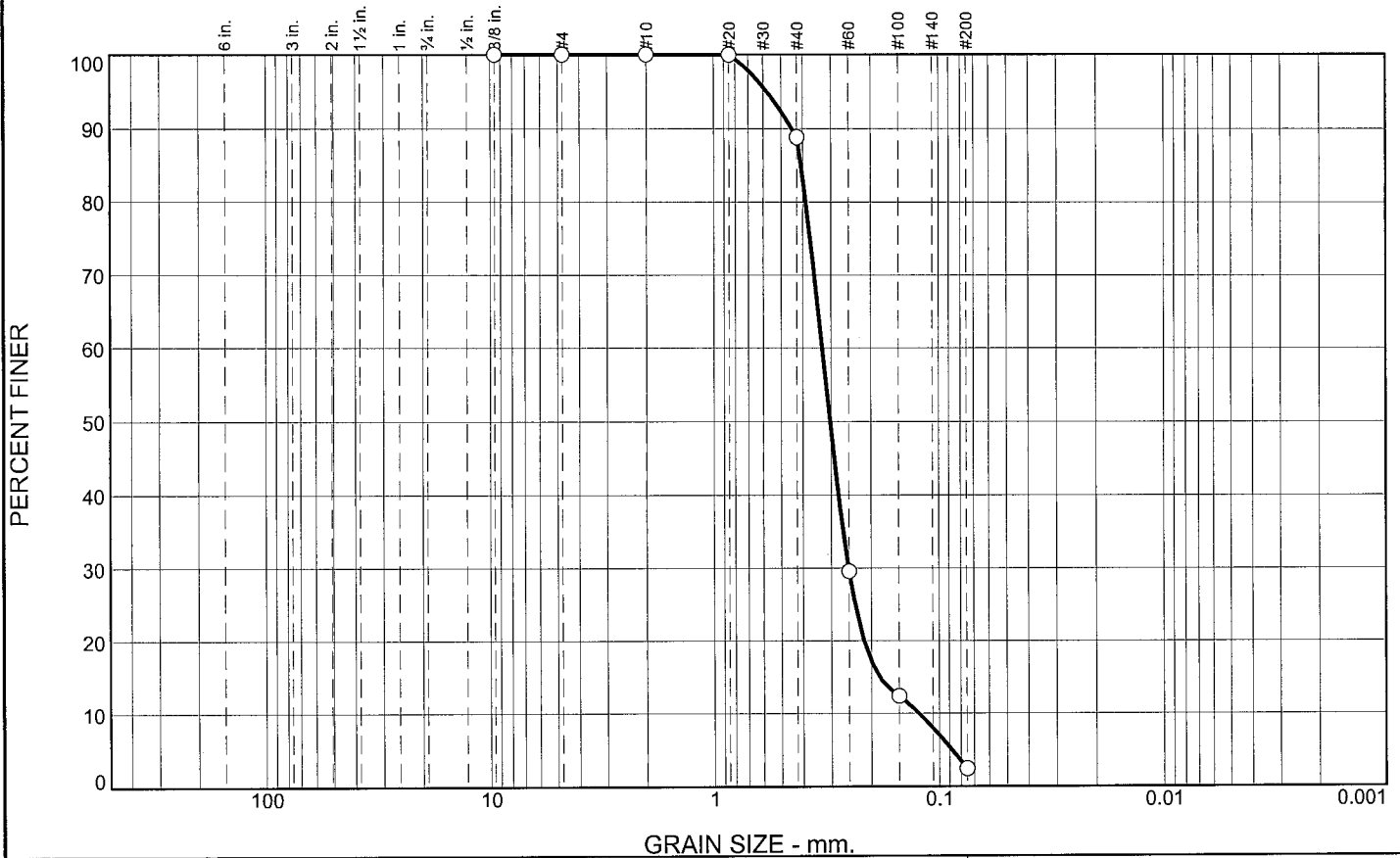
# Boring Designation BI-PB-067-10

DRILLING LOG		DIVISION South Atlantic		INSTALLATION Mobile District		SHEET 1 OF 2 SHEETS	
1. PROJECT MsCIP Barrier Island Restoration Petit Bois Pass- AL West				9. SIZE AND TYPE OF BIT N/A			
2. BORING DESIGNATION BI-PB-067-10		LOCATION COORDINATES E = 1,128,573 N = 248,430		10. COORDINATE SYSTEM/DATUM State Plane, MSE (U.S. Ft.)		HORIZONTAL NAD83 VERTICAL NAVD88	
3. DRILLING AGENCY Corps of Engineers - CESAM		CONTRACTOR FILE NO.		11. MANUFACTURER'S DESIGNATION OF DRILL Vibrocure		<input type="checkbox"/> AUTO HAMMER <input type="checkbox"/> MANUAL HAMMER	
4. NAME OF DRILLER Construction Solutions International, Inc.				12. TOTAL SAMPLES 2		DISTURBED 2 UNDISTURBED (UD) 0	
5. DIRECTION OF BORING <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED		DEG. FROM VERTICAL		13. TOTAL NUMBER CORE BOXES			
		BEARING		14. WATER DEPTH 37 Ft.			
6. THICKNESS OF OVERBURDEN N/A				15. DATE BORING 08-05-10		STARTED 08-05-10 COMPLETED 08-05-10	
7. DEPTH DRILLED INTO ROCK N/A				16. ELEVATION TOP OF BORING -35.8 Ft.			
8. TOTAL DEPTH OF BORING 19.5 Ft.				17. TOTAL RECOVERY FOR BORING 100%			
				18. SIGNATURE AND TITLE OF INSPECTOR Chris Gillentine, Geologist			
ELEV.	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS	SAMPLE	LABORATORY RESULTS		
-35.8	0.0						
			CLAY, fat, dark gray (CH)	NS			
-40.8	5.0						
			SAND, poorly-graded, lt. gray (SP)	A	Classification: SP Color: 2.5Y 7/1-light gray D50: 0.3025 mm % Fines: 2.4		
				B	Classification: SP Color: 2.5Y 6/2-light brownish gray D50: 0.2647 mm % Fines: 4.5		
-51.8	16.0						
			CLAY, fat, dark gray (CH)	NS			
-55.3	19.5						
			NOTES:				
			1. Soils are field visually classified in accordance with the Unified Soils Classification System.				
			2. NS = Sample not submitted for laboratory analysis from this interval.				
			3. Seafloor elevation calculated using sampling vessel's fathometer water depth reading and				

<b>DRILLING LOG (Cont. Sheet)</b>			<b>INSTALLATION</b> Mobile District		<b>SHEET 2</b> <b>OF 2 SHEETS</b>
<b>PROJECT</b> MsCIP Barrier Island Restoration			<b>COORDINATE SYSTEM/DATUM</b> State Plane, MSE (U.S. Ft.)	<b>HORIZONTAL</b> NAD83	<b>VERTICAL</b> NAVD88
<b>LOCATION COORDINATES</b> X = 1,128,573 Y = 248,430			<b>ELEVATION TOP OF BORING</b> -35.8 Ft.		
<b>ELEV.</b>	<b>DEPTH</b>	<b>LEGEND</b>	<b>CLASSIFICATION OF MATERIALS</b>	<b>SAMPLE</b>	<b>LABORATORY RESULTS</b>
			applying NOAA tidal gauge data conversion factor.		



# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.0	0.0	11.2	86.4	2.4	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
.375	100.0		
#4	100.0		
#10	100.0		
#20	100.0		
#40	88.8		
#60	29.6		
#100	12.4		
#200	2.4		

\* (no specification provided)

## Material Description

SAND, (SP), medium to fine grained

## Atterberg Limits

PL=

LL=

PI=

## Coefficients

D<sub>90</sub>= 0.4479

D<sub>85</sub>= 0.4074

D<sub>60</sub>= 0.3278

D<sub>50</sub>= 0.3025

D<sub>30</sub>= 0.2512

D<sub>15</sub>= 0.1837

D<sub>10</sub>= 0.1229

C<sub>u</sub>= 2.67

C<sub>c</sub>= 1.57

## Classification

USCS= SP

AASHTO=

## Remarks

CADD CODE = CH10D965

Location: USACE Sample # BI-PB-67-10A  
Sample Number: TE Lab ID: 4622.22

Depth: 5.0 - 10.0 (ft.)

Date: 8/15/10

**Thompson Engineering**

**Mobile, Alabama**

Client: US Army Corps of Engineers

Project: Contract No. W91278-10-D-0026 - Task 03  
Mississippi Barrier Island Restoration Project

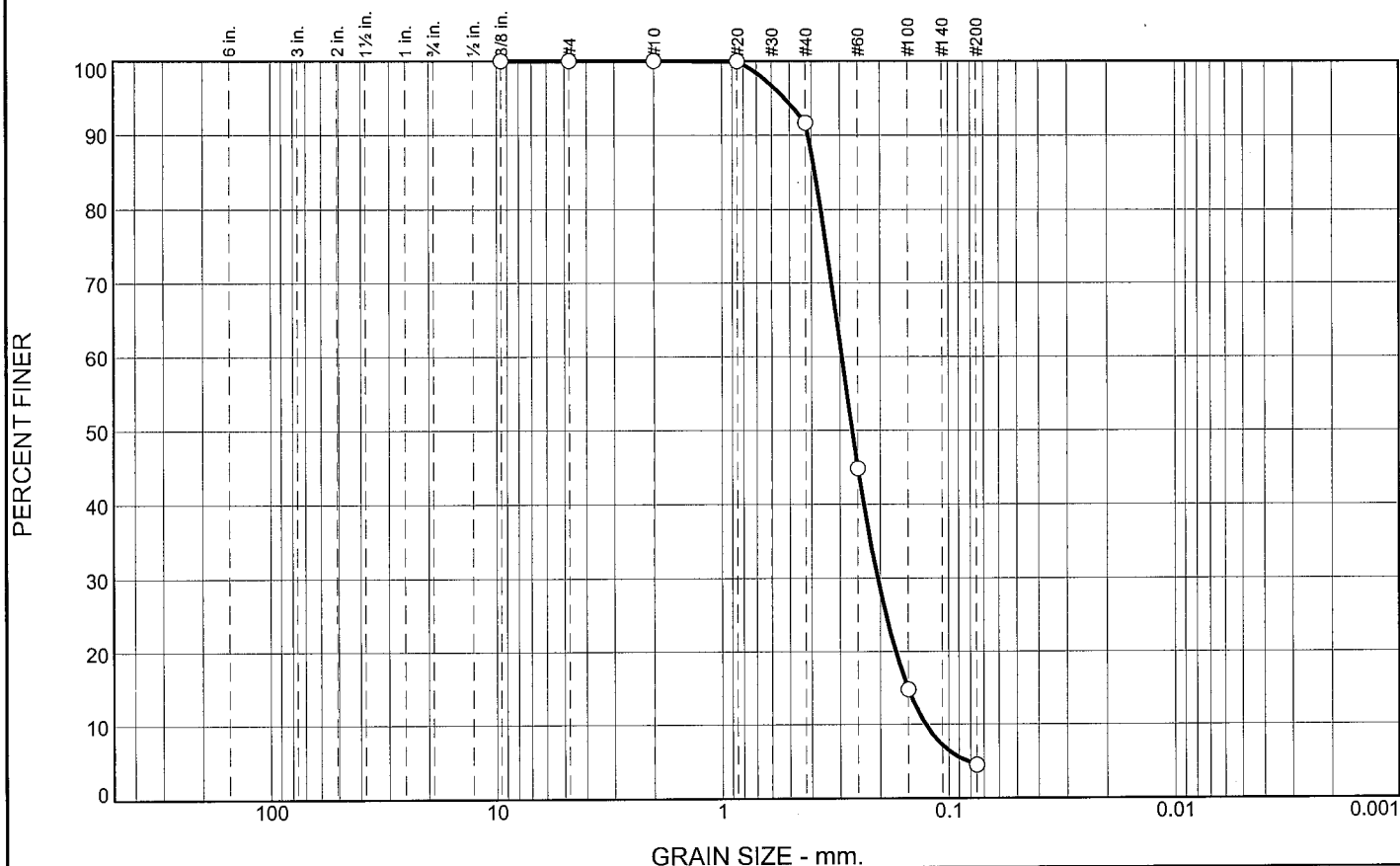
Project No: 10-2123-0009

Report No.

Tested By: G.Fancher

Checked By: R.Byrd

# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.0	0.0	8.3	87.2	4.5	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
.375	100.0		
#4	100.0		
#10	100.0		
#20	99.9		
#40	91.7		
#60	44.9		
#100	14.8		
#200	4.5		

\* (no specification provided)

## Material Description

SAND, (SP), fine grained

## Atterberg Limits

PL=

LL=

PI=

## Coefficients

D<sub>90</sub>= 0.4138

D<sub>85</sub>= 0.3860

D<sub>60</sub>= 0.2939

D<sub>50</sub>= 0.2647

D<sub>30</sub>= 0.2051

D<sub>15</sub>= 0.1509

D<sub>10</sub>= 0.1261

C<sub>u</sub>= 2.33

C<sub>c</sub>= 1.13

## Classification

USCS= SP

AASHTO=

## Remarks

CADD CODE = CH10D965

Location: USACE Sample # BI-PB-67-10B  
Sample Number: TE Lab ID: 4622.23

Depth: 10.0 - 15.0 (ft.)

Date: 8/15/10

**Thompson Engineering**

**Mobile, Alabama**

Client: US Army Corps of Engineers

Project: Contract No. W91278-10-D-0026 - Task 03  
Mississippi Barrier Island Restoration Project

Project No: 10-2123-0009

Report No.

Tested By: G.Fancher

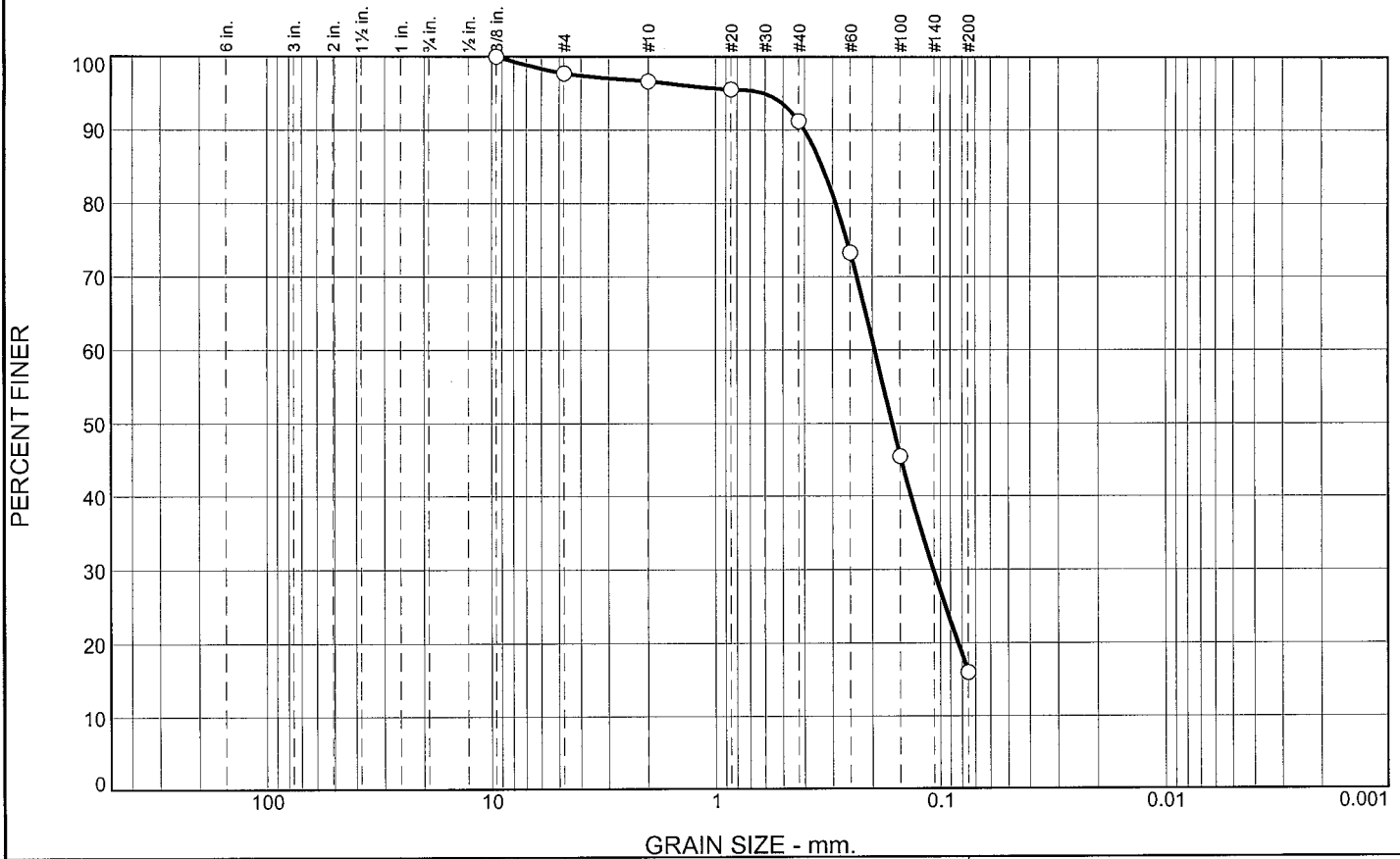
Checked By: R.Byrd

# Boring Designation BI-PB-068-10

DRILLING LOG		DIVISION South Atlantic		INSTALLATION Mobile District		SHEET 1 OF 2 SHEETS	
1. PROJECT MsCIP Barrier Island Restoration Petit Bois Pass- AL West				9. SIZE AND TYPE OF BIT N/A			
2. BORING DESIGNATION BI-PB-068-10		LOCATION COORDINATES E = 1,131,651 N = 248,301		10. COORDINATE SYSTEM/DATUM State Plane, MSE (U.S. Ft.)		HORIZONTAL NAD83 VERTICAL NAVD88	
3. DRILLING AGENCY Corps of Engineers - CESAM		CONTRACTOR FILE NO.		11. MANUFACTURER'S DESIGNATION OF DRILL Vibrocure		<input type="checkbox"/> AUTO HAMMER <input type="checkbox"/> MANUAL HAMMER	
4. NAME OF DRILLER Construction Solutions International, Inc.				12. TOTAL SAMPLES 3		DISTURBED 0 UNDISTURBED (UD)	
5. DIRECTION OF BORING <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED		DEG. FROM VERTICAL		13. TOTAL NUMBER CORE BOXES			
		BEARING		14. WATER DEPTH 36 Ft.			
6. THICKNESS OF OVERBURDEN N/A				15. DATE BORING 08-05-10		STARTED 08-05-10 COMPLETED 08-05-10	
7. DEPTH DRILLED INTO ROCK N/A				16. ELEVATION TOP OF BORING -34.9 Ft.			
8. TOTAL DEPTH OF BORING 20.0 Ft.				17. TOTAL RECOVERY FOR BORING 100%			
				18. SIGNATURE AND TITLE OF INSPECTOR Chris Gillentine, Geologist			
ELEV.	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS	SAMPLE	LABORATORY RESULTS		
-34.9	0.0						
			CLAY, fat, trace fine-grained sand-sized quartz, trace shell fragments, dark gray (CH)	NS			
-41.9	7.0						
			SAND, poorly-graded, mostly fine to medium-grained sand-sized quartz (SP) At El. -43.9 Ft., mostly fine to medium-grained sand-sized quartz, lt. gray	A	Classification: SM Color: 2.5Y 5/2-grayish brown D50: 0.1633 mm % Fines: 16		
				B	Classification: SP Color: 2.5Y 7/1-light gray D50: 0.255 mm % Fines: 2.5		
				C	Classification: SP Color: 2.5Y 7/1-light gray D50: 0.2504 mm % Fines: 4.4		
-54.9	20.0						
			NOTES: 1. Soils are field visually classified in accordance with the Unified Soils Classification System. 2. NS = Sample not submitted for laboratory analysis from this interval. 3. Seafloor elevation calculated using sampling				

<b>DRILLING LOG (Cont. Sheet)</b>			<b>INSTALLATION</b> Mobile District		<b>SHEET 2</b> <b>OF 2 SHEETS</b>
<b>PROJECT</b> MsCIP Barrier Island Restoration			<b>COORDINATE SYSTEM/DATUM</b> State Plane, MSE (U.S. Ft.)	<b>HORIZONTAL</b> NAD83	<b>VERTICAL</b> NAVD88
<b>LOCATION COORDINATES</b> X = 1,131,651 Y = 248,301			<b>ELEVATION TOP OF BORING</b> -34.9 Ft.		
<b>ELEV.</b>	<b>DEPTH</b>	<b>LEGEND</b>	<b>CLASSIFICATION OF MATERIALS</b>	<b>SAMPLE</b>	<b>LABORATORY RESULTS</b>
			vessel's fathometer water depth reading and applying NOAA tidal gauge data conversion factor.		

# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	2.3	1.1	5.4	75.2	16.0	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
.375	100.0		
#4	97.7		
#10	96.6		
#20	95.5		
#40	91.2		
#60	73.3		
#100	45.5		
#200	16.0		

\* (no specification provided)

## Material Description

SILTY SAND, (SM), fine grained, with trace shell

## Atterberg Limits

PL= LL= PI=

## Coefficients

D<sub>90</sub>= 0.4006 D<sub>85</sub>= 0.3337 D<sub>60</sub>= 0.1950  
D<sub>50</sub>= 0.1633 D<sub>30</sub>= 0.1074 D<sub>15</sub>=  
D<sub>10</sub>= C<sub>u</sub>= C<sub>c</sub>=

## Classification

USCS= SM AASHTO=

## Remarks

CADD CODE = CH10D965

Location: USACE Sample # BI-PB-68-10A  
Sample Number: TE Lab ID: 4622.24

Depth: 7.0 - 10.0 (ft.)

Date: 8/15/10

**Thompson Engineering**

**Mobile, Alabama**

Client: US Army Corps of Engineers

Project: Contract No. W91278-10-D-0026 - Task 03  
Mississippi Barrier Island Restoration Project

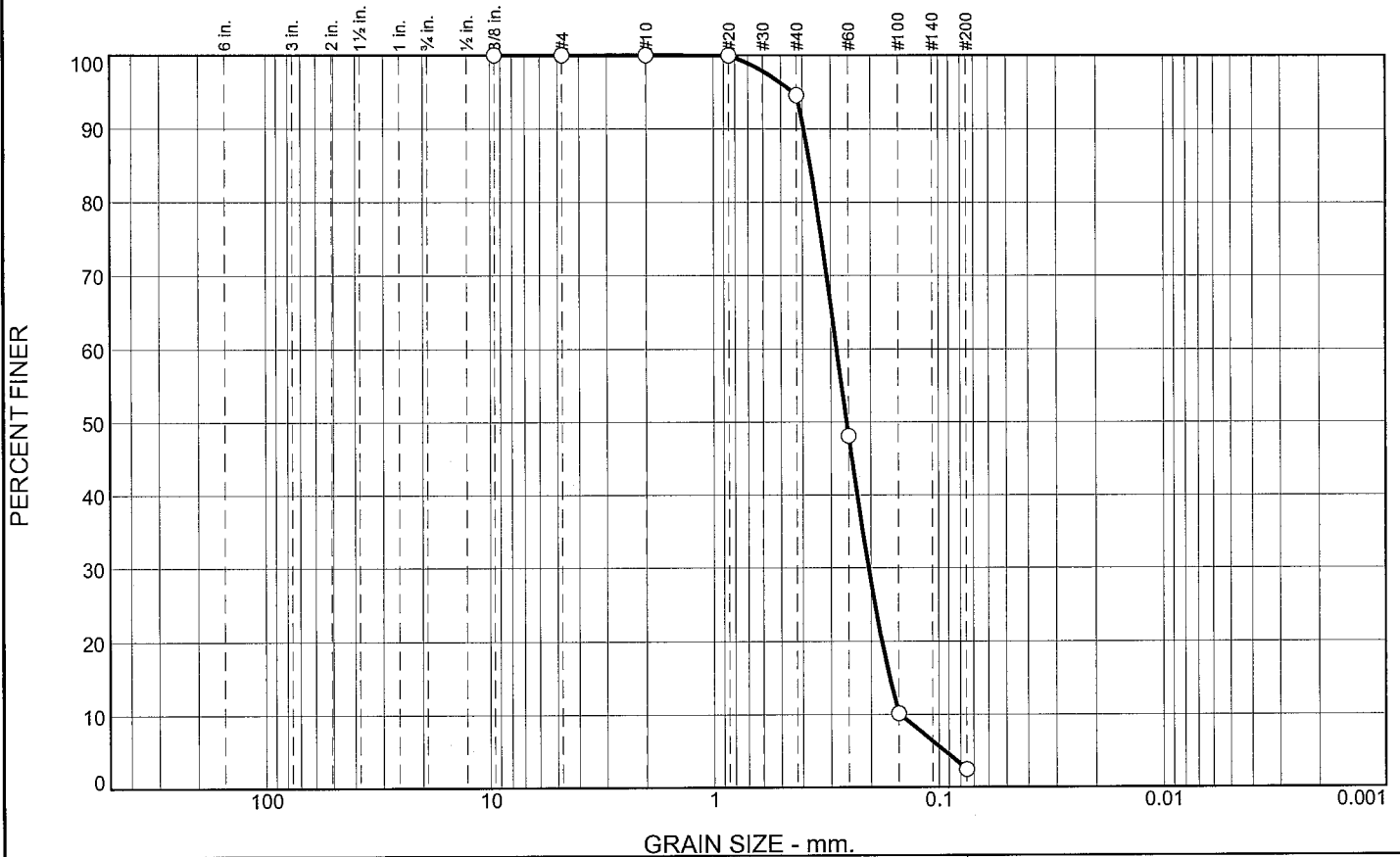
Project No: 10-2123-0009

Report No.

Tested By: G.Fancher

Checked By: R.Byrd

# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.0	0.0	5.4	92.1	2.5	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
.375	100.0		
#4	100.0		
#10	100.0		
#20	99.9		
#40	94.6		
#60	48.1		
#100	10.2		
#200	2.5		

\* (no specification provided)

## Material Description

SAND, (SP), fine grained

## Atterberg Limits

PL=

LL=

PI=

## Coefficients

D<sub>90</sub>= 0.3946

D<sub>85</sub>= 0.3690

D<sub>60</sub>= 0.2821

D<sub>50</sub>= 0.2550

D<sub>30</sub>= 0.2043

D<sub>15</sub>= 0.1648

D<sub>10</sub>= 0.1475

C<sub>u</sub>= 1.91

C<sub>c</sub>= 1.00

## Classification

USCS= SP

AASHTO=

## Remarks

CADD CODE = CH10D965

Location: USACE Sample # BI-PB-68-10B  
Sample Number: TE Lab ID: 4622.25

Depth: 10.0 - 15.0 (ft.)

Date: 8/15/10

**Thompson Engineering**

**Mobile, Alabama**

Client: US Army Corps of Engineers

Project: Contract No. W91278-10-D-0026 - Task 03  
Mississippi Barrier Island Restoration Project

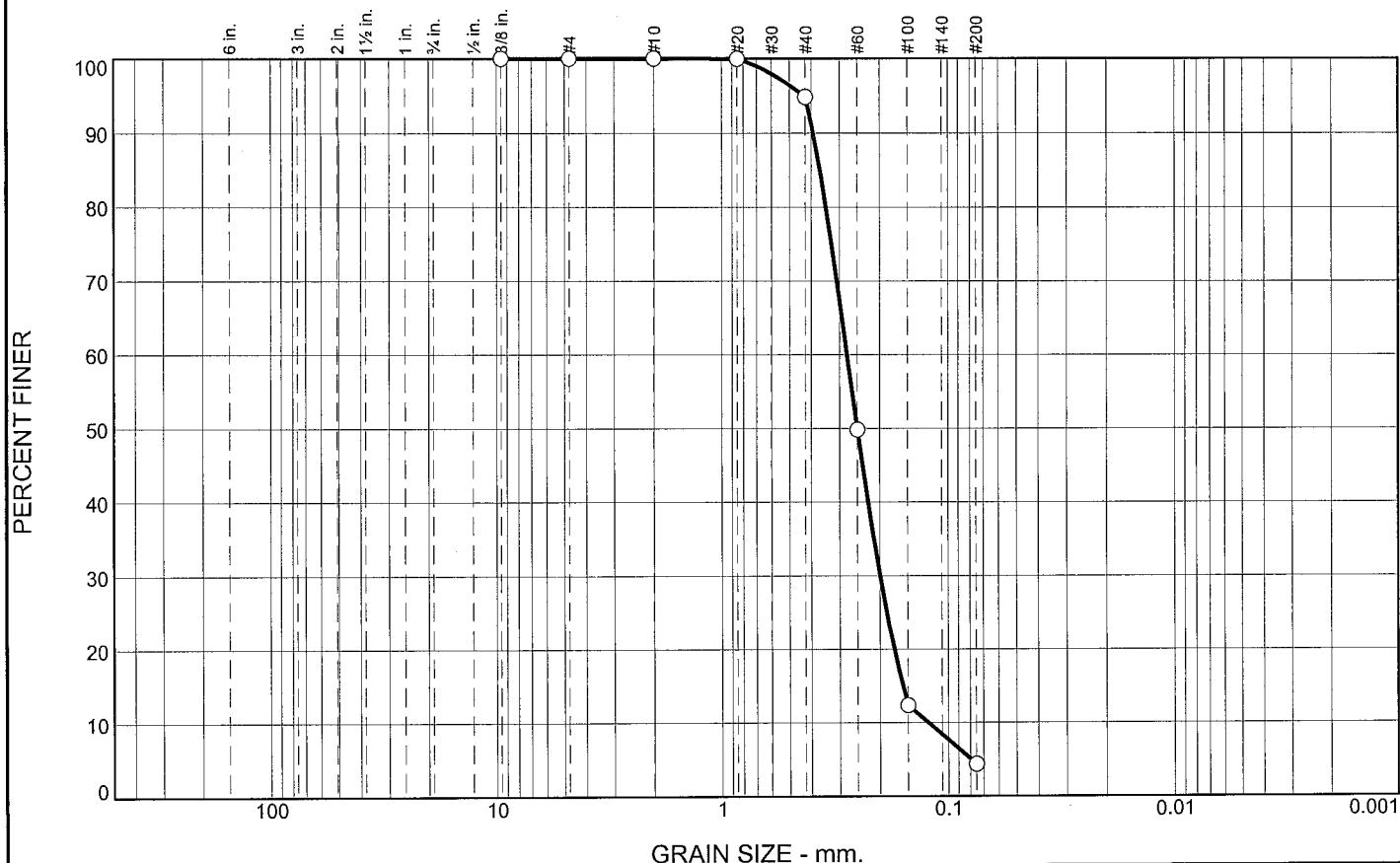
Project No: 10-2123-0009

Report No.

Tested By: G.Fancher

Checked By: R.Byrd

# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.0	0.0	5.1	90.5	4.4	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
.375	100.0		
#4	100.0		
#10	100.0		
#20	100.0		
#40	94.9		
#60	49.8		
#100	12.3		
#200	4.4		

\* (no specification provided)

**Material Description**

SAND, (SP), fine grained

**Atterberg Limits**

PL= LL= PI=

**Coefficients**

D<sub>90</sub>= 0.3920 D<sub>85</sub>= 0.3661 D<sub>60</sub>= 0.2779  
D<sub>50</sub>= 0.2504 D<sub>30</sub>= 0.1990 D<sub>15</sub>= 0.1585  
D<sub>10</sub>= 0.1224 C<sub>u</sub>= 2.27 C<sub>c</sub>= 1.16

**Classification**

USCS= SP AASHTO=

**Remarks**

CADD CODE = CH10D965

Location: USACE Sample # BI-PB-68-10C  
Sample Number: TE Lab ID: 4622.26

Depth: 15.0 - 20.0 (ft.)

Date: 8/15/10

**Thompson Engineering**

**Mobile, Alabama**

Client: US Army Corps of Engineers

Project: Contract No. W91278-10-D-0026 - Task 03  
Mississippi Barrier Island Restoration Project




Project No: 10-2123-0009

Report No.

Tested By: G.Fancher

Checked By: R.Byrd

# Boring Designation BI-PB-069-10

DRILLING LOG		DIVISION South Atlantic		INSTALLATION Mobile District		SHEET 1 OF 2 SHEETS	
1. PROJECT MsCIP Barrier Island Restoration Petit Bois Pass- AL West				9. SIZE AND TYPE OF BIT N/A			
2. BORING DESIGNATION BI-PB-069-10		LOCATION COORDINATES E = 1,133,344 N = 248,464		10. COORDINATE SYSTEM/DATUM State Plane, MSE (U.S. Ft.)		HORIZONTAL NAD83	
3. DRILLING AGENCY Corps of Engineers - CESAM		CONTRACTOR FILE NO.		11. MANUFACTURER'S DESIGNATION OF DRILL Vibrocure		<input type="checkbox"/> AUTO HAMMER <input type="checkbox"/> MANUAL HAMMER	
4. NAME OF DRILLER Construction Solutions International, Inc.				12. TOTAL SAMPLES		DISTURBED 0	
5. DIRECTION OF BORING <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED		DEG. FROM VERTICAL		13. TOTAL NUMBER CORE BOXES		UNDISTURBED (UD) 0	
6. THICKNESS OF OVERBURDEN N/A				14. WATER DEPTH 40 Ft.			
7. DEPTH DRILLED INTO ROCK N/A				15. DATE BORING		STARTED 08-07-10	
8. TOTAL DEPTH OF BORING 20.0 Ft.				16. ELEVATION TOP OF BORING -39.8 Ft.		COMPLETED 08-07-10	
				17. TOTAL RECOVERY FOR BORING 100%			
				18. SIGNATURE AND TITLE OF INSPECTOR Chris Gillentine, Geologist			
ELEV.	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS	SAMPLE	LABORATORY RESULTS		
-39.8	0.0						
			CLAY, fat, trace shell fragments, dark gray (CH)				
-46.8	7.0						
			SAND, poorly-graded, mostly fine to medium-grained sand-sized quartz, gray (SP)	NS			
-54.8	15.0						
			CLAY, fat, dark gray (CH)				
-59.8	20.0						
NOTES:							
1. Soils are field visually classified in accordance with the Unified Soils Classification System.							
2. NS = Sample not submitted for laboratory analysis from this interval.							
3. Seafloor elevation calculated using sampling							



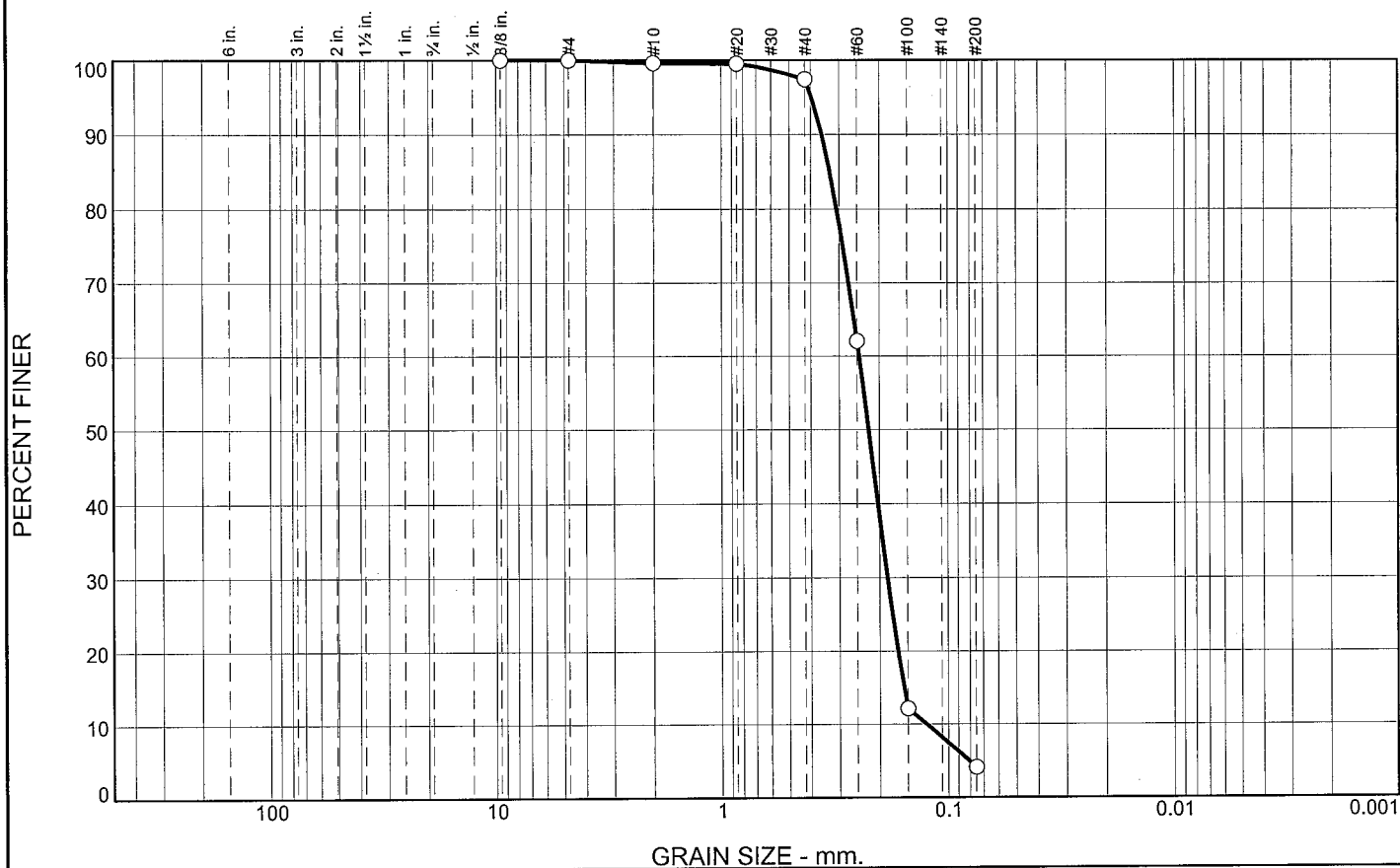
<b>DRILLING LOG (Cont. Sheet)</b>			<b>INSTALLATION</b> Mobile District		<b>SHEET 2</b> <b>OF 2 SHEETS</b>
<b>PROJECT</b> MsCIP Barrier Island Restoration			<b>COORDINATE SYSTEM/DATUM</b> State Plane, MSE (U.S. Ft.)	<b>HORIZONTAL</b> NAD83	<b>VERTICAL</b> NAVD88
<b>LOCATION COORDINATES</b> X = 1,133,344 Y = 248,464			<b>ELEVATION TOP OF BORING</b> -39.8 Ft.		
<b>ELEV.</b>	<b>DEPTH</b>	<b>LEGEND</b>	<b>CLASSIFICATION OF MATERIALS</b>	<b>SAMPLE</b>	<b>LABORATORY RESULTS</b>
			vessel's fathometer water depth reading and applying NOAA tidal gauge data conversion factor.		

# Boring Designation BI-PB-070-10

DRILLING LOG		DIVISION South Atlantic		INSTALLATION Mobile District		SHEET 1 OF 2 SHEETS	
1. PROJECT MsCIP Barrier Island Restoration Petit Bois Pass- AL West				9. SIZE AND TYPE OF BIT N/A			
2. BORING DESIGNATION BI-PB-070-10		LOCATION COORDINATES E = 1,134,943 N = 248,332		10. COORDINATE SYSTEM/DATUM State Plane, MSE (U.S. Ft.)		HORIZONTAL NAD83 VERTICAL NAVD88	
3. DRILLING AGENCY Corps of Engineers - CESAM		CONTRACTOR FILE NO.		11. MANUFACTURER'S DESIGNATION OF DRILL Vibracore		<input type="checkbox"/> AUTO HAMMER <input type="checkbox"/> MANUAL HAMMER	
4. NAME OF DRILLER Construction Solutions International, Inc.				12. TOTAL SAMPLES		DISTURBED 1 UNDISTURBED (UD) 0	
5. DIRECTION OF BORING <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED		DEG. FROM VERTICAL		BEARING		13. TOTAL NUMBER CORE BOXES	
6. THICKNESS OF OVERBURDEN N/A		7. DEPTH DRILLED INTO ROCK N/A		8. TOTAL DEPTH OF BORING 20.0 Ft.		14. WATER DEPTH 40 Ft.	
						15. DATE BORING STARTED 08-05-10 COMPLETED 08-05-10	
						16. ELEVATION TOP OF BORING -40.2 Ft.	
						17. TOTAL RECOVERY FOR BORING 100%	
						18. SIGNATURE AND TITLE OF INSPECTOR Chris Gillentine, Geologist	
ELEV.	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS	SAMPLE	LABORATORY RESULTS		
-40.2	0.0						
			CLAY, fat, trace fine-grained sand-sized quartz (CH)	NS			
-47.2	7.0						
			SAND, poorly-graded, mostly fine to medium-grained sand-sized quartz, lt. gray (SP)	A	Classification: SP Color: 2.5Y 6/2-light brownish gray D50: 0.2226 mm % Fines: 4.1		
-50.2	10.0						
			CLAY, fat, dark gray (CH)	NS			
-60.2	20.0						
			NOTES: 1. Soils are field visually classified in accordance with the Unified Soils Classification System. 2. NS = Sample not submitted for laboratory analysis from this interval. 3. Seafloor elevation calculated using sampling				

<b>DRILLING LOG (Cont. Sheet)</b>			<b>INSTALLATION</b> Mobile District		<b>SHEET 2</b> <b>OF 2 SHEETS</b>
<b>PROJECT</b> MsCIP Barrier Island Restoration			<b>COORDINATE SYSTEM/DATUM</b> State Plane, MSE (U.S. Ft.)	<b>HORIZONTAL</b> NAD83	<b>VERTICAL</b> NAVD88
<b>LOCATION COORDINATES</b> X = 1,134,943 Y = 248,332			<b>ELEVATION TOP OF BORING</b> -40.2 Ft.		
<b>ELEV.</b>	<b>DEPTH</b>	<b>LEGEND</b>	<b>CLASSIFICATION OF MATERIALS</b>	<b>SAMPLE</b>	<b>LABORATORY RESULTS</b>
			vessel's fathometer water depth reading and applying NOAA tidal gauge data conversion factor.		

# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.0	0.4	2.2	93.3	4.1	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
.375	100.0		
#4	100.0		
#10	99.6		
#20	99.5		
#40	97.4		
#60	62.1		
#100	12.2		
#200	4.1		

\* (no specification provided)

## Material Description

SAND, (SP), fine grained

## Atterberg Limits

PL=

LL=

PI=

## Coefficients

D<sub>90</sub>= 0.3586

D<sub>85</sub>= 0.3301

D<sub>60</sub>= 0.2449

D<sub>50</sub>= 0.2226

D<sub>30</sub>= 0.1844

D<sub>15</sub>= 0.1561

D<sub>10</sub>= 0.1243

C<sub>u</sub>= 1.97

C<sub>c</sub>= 1.12

## Classification

USCS= SP

AASHTO=

## Remarks

CADD CODE = CH10D965

Location: USACE Sample # BI-PB-70-10A  
Sample Number: TE Lab ID: 4622.30

Depth: 7.0 - 10.0 (ft.)

Date: 8/15/10

**Thompson Engineering**

**Mobile, Alabama**

Client: US Army Corps of Engineers

Project: Contract No. W91278-10-D-0026 - Task 03  
Mississippi Barrier Island Restoration Project

Project No: 10-2123-0009

Report No.

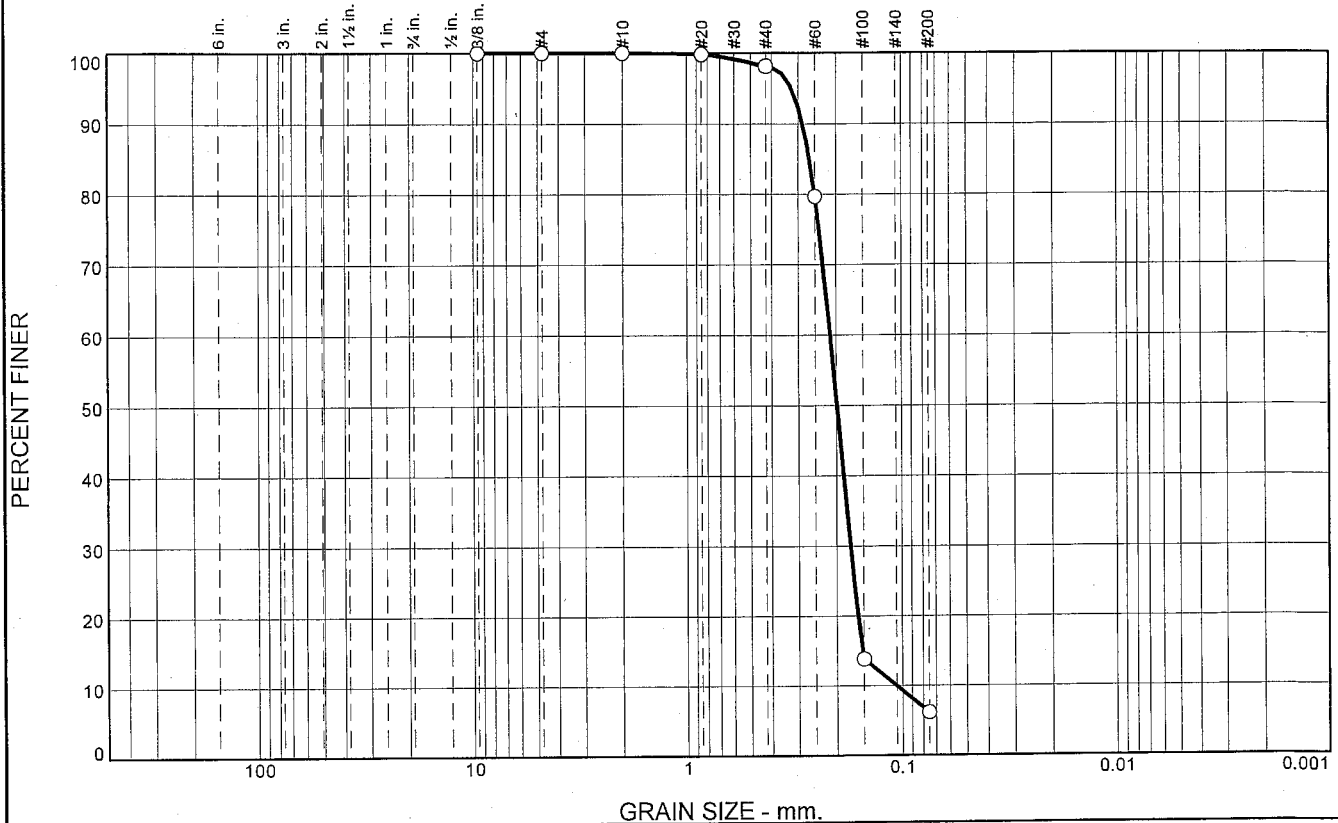
Tested By: G.Fancher

Checked By: R.Byrd

# Boring Designation BI-PB-073-10

DRILLING LOG		DIVISION South Atlantic		INSTALLATION Mobile District		SHEET 1 OF 1 SHEETS	
1. PROJECT MsCIP Barrier Island Restoration Petit Bois Pass- AL West				9. SIZE AND TYPE OF BIT N/A			
2. BORING DESIGNATION BI-PB-073-10		LOCATION COORDINATES E = 1,122,713 N = 247,109		10. COORDINATE SYSTEM/DATUM State Plane, MSE (U.S. Ft.)		HORIZONTAL NAD83 VERTICAL NAVD88	
3. DRILLING AGENCY Corps of Engineers - CESAM		CONTRACTOR FILE NO.		11. MANUFACTURER'S DESIGNATION OF DRILL Vibracore		<input type="checkbox"/> AUTO HAMMER <input type="checkbox"/> MANUAL HAMMER	
4. NAME OF DRILLER Construction Solutions International, Inc.				12. TOTAL SAMPLES 1		DISTURBED 1 UNDISTURBED (UD) 0	
5. DIRECTION OF BORING <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED		DEG. FROM VERTICAL		13. TOTAL NUMBER CORE BOXES			
		BEARING		14. WATER DEPTH 43 Ft.			
6. THICKNESS OF OVERBURDEN N/A				15. DATE BORING 07-09-10		STARTED 07-09-10 COMPLETED 07-09-10	
7. DEPTH DRILLED INTO ROCK N/A				16. ELEVATION TOP OF BORING -41.2 Ft.			
8. TOTAL DEPTH OF BORING 18.3 Ft.				17. TOTAL RECOVERY FOR BORING 100%			
				18. SIGNATURE AND TITLE OF INSPECTOR Valerie Morrow, Geotechnical Engineer			
ELEV.	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS	SAMPLE	LABORATORY RESULTS		
-41.2	0.0		CLAY, lean, trace fine-grained sand-sized quartz, trace shell fragments, trace wood debris, dark gray (CL) At El. -42.3 Ft., trace shell fragments, dark gray	NS			
-52.2	11.0		SAND, clayey, mostly fine-grained sand-sized quartz, dark gray (SC)				
-55.0	13.8		SAND, poorly-graded, mostly fine-grained sand-sized quartz, gray (SP)				
-59.5	18.3		NOTES: 1. Soils are field visually classified in accordance with the Unified Soils Classification System. 2. NS = Sample not submitted for laboratory analysis from this interval. 3. Seafloor elevation calculated using sampling vessel's fathometer water depth reading and applying NOAA tidal gauge data conversion factor.	A	Classification: SP-SM Color: 2.5Y 7/1-light gray D50: 0.1983 mm % Fines: 6.1		

# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.0	0.0	1.9	92.0	6.1	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
.375	100.0		
#4	100.0		
#10	100.0		
#20	99.8		
#40	98.1		
#60	79.6		
#100	13.8		
#200	6.1		

\* (no specification provided)

## Material Description

SAND, (SP-SM), fine grained

## Atterberg Limits

PL= LL= PI=

## Coefficients

D<sub>90</sub>= 0.2863 D<sub>85</sub>= 0.2657 D<sub>60</sub>= 0.2128  
D<sub>50</sub>= 0.1983 D<sub>30</sub>= 0.1721 D<sub>15</sub>= 0.1518  
D<sub>10</sub>= 0.1063 C<sub>u</sub>= 2.00 C<sub>c</sub>= 1.31

## Classification

USCS= SP-SM AASHTO=

## Remarks

CADD CODE = CH10D965

Location: USACE Sample # BI-PB-73-10A  
Sample Number: TE Lab ID: 4578.01

Depth: 13.8 - 18.3 (ft.)

Date: 7/16/10

**Thompson Engineering**

**Mobile, Alabama**

Client: US Army Corps of Engineers

Project: Contract No. W91278-10-D-0026 - Task 03  
Mississippi Barrier Island Restoration Project

Project No: 10-2123-0009

Figure

Tested By: G.Fancher

Checked By: R.Martin

# Boring Designation BI-PB-076-10

DRILLING LOG		DIVISION South Atlantic		INSTALLATION Mobile District		SHEET 1 OF 1 SHEETS	
1. PROJECT MsCIP Barrier Island Restoration Petit Bois Pass- AL West				9. SIZE AND TYPE OF BIT N/A			
2. BORING DESIGNATION BI-PB-076-10		LOCATION COORDINATES E = 1,130,215 N = 247,087		10. COORDINATE SYSTEM/DATUM State Plane, MSE (U.S. Ft.)		HORIZONTAL NAD83	
3. DRILLING AGENCY Corps of Engineers - CESAM		CONTRACTOR FILE NO.		11. MANUFACTURER'S DESIGNATION OF DRILL Vibrocure		<input type="checkbox"/> AUTO HAMMER <input type="checkbox"/> MANUAL HAMMER	
4. NAME OF DRILLER Construction Solutions International, Inc.				12. TOTAL SAMPLES		DISTURBED 0	
5. DIRECTION OF BORING <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED				13. TOTAL NUMBER CORE BOXES		UNDISTURBED (UD) 0	
6. THICKNESS OF OVERBURDEN N/A				14. WATER DEPTH 40 Ft.		15. DATE BORING 08-05-10	
7. DEPTH DRILLED INTO ROCK N/A				16. ELEVATION TOP OF BORING -40.2 Ft.		COMPLETED 08-05-10	
8. TOTAL DEPTH OF BORING 18.0 Ft.				17. TOTAL RECOVERY FOR BORING 100%		18. SIGNATURE AND TITLE OF INSPECTOR Chris Gillentine, Geologist	
ELEV.	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS	SAMPLE	LABORATORY RESULTS		
-40.2	0.0		CLAY, fat, trace fine-grained sand-sized quartz, dark gray (CH)	NS			
-58.2	18.0						
NOTES:							
1. Soils are field visually classified in accordance with the Unified Soils Classification System.							
2. NS = Sample not submitted for laboratory analysis from this interval.							
3. Seafloor elevation calculated using sampling vessel's fathometer water depth reading and applying NOAA tidal gauge data conversion factor.							

# Boring Designation BI-PB-077-10

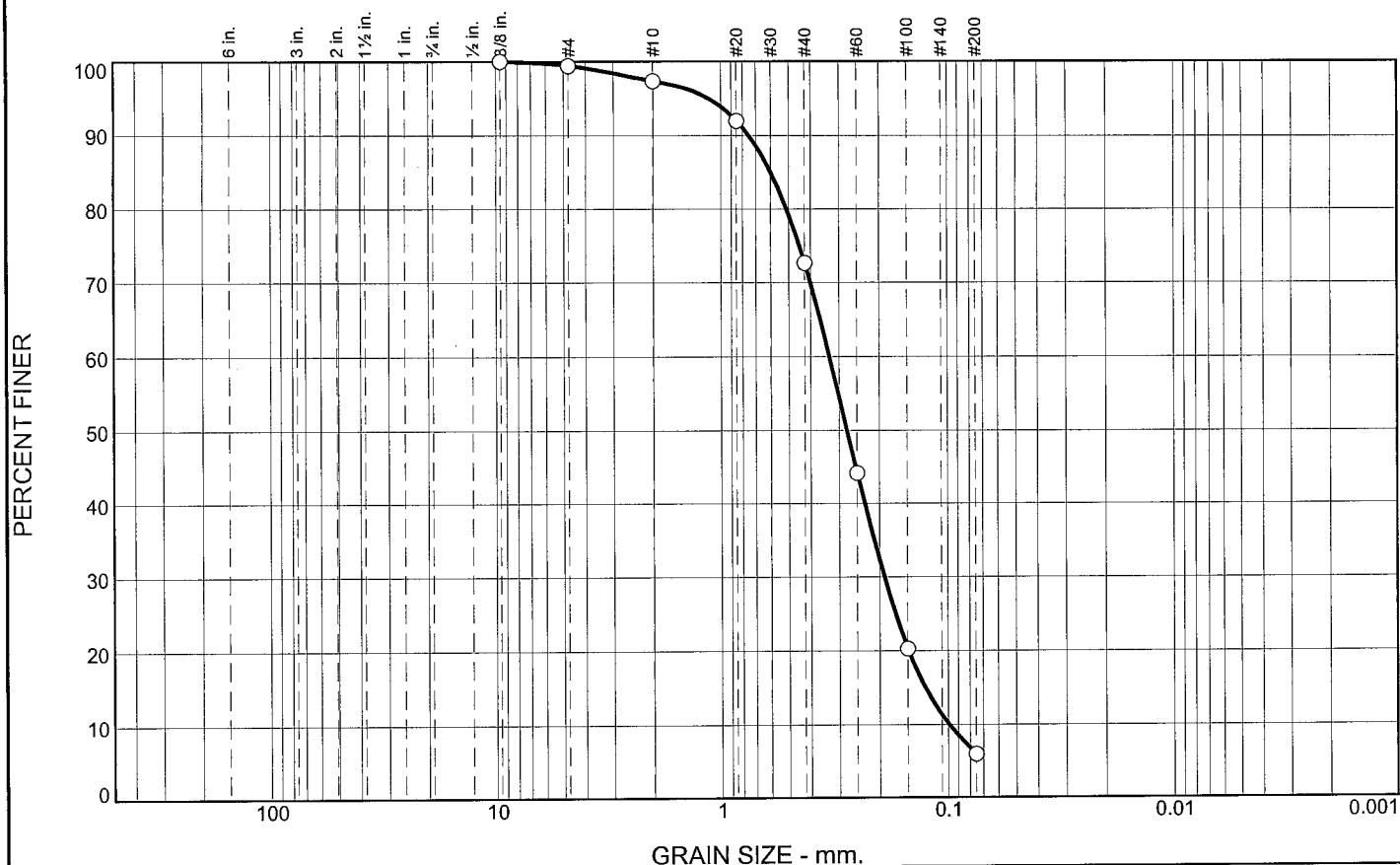
DRILLING LOG		DIVISION South Atlantic		INSTALLATION Mobile District		SHEET 1 OF 1 SHEETS	
1. PROJECT MsCIP Barrier Island Restoration Petit Bois Pass- AL West				9. SIZE AND TYPE OF BIT N/A			
2. BORING DESIGNATION BI-PB-077-10		LOCATION COORDINATES E = 1,131,643 N = 247,104		10. COORDINATE SYSTEM/DATUM State Plane, MSE (U.S. Ft.)		HORIZONTAL NAD83	
3. DRILLING AGENCY Corps of Engineers - CESAM		CONTRACTOR FILE NO.		11. MANUFACTURER'S DESIGNATION OF DRILL Vibrocure		<input type="checkbox"/> AUTO HAMMER <input type="checkbox"/> MANUAL HAMMER	
4. NAME OF DRILLER Construction Solutions International, Inc.				12. TOTAL SAMPLES		DISTURBED 0	
5. DIRECTION OF BORING <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED		DEG. FROM VERTICAL		13. TOTAL NUMBER CORE BOXES		UNDISTURBED (UD) 0	
6. THICKNESS OF OVERBURDEN N/A		BEARING		14. WATER DEPTH 41 Ft.		15. DATE BORING 08-05-10	
7. DEPTH DRILLED INTO ROCK N/A				16. ELEVATION TOP OF BORING -41.3 Ft.		COMPLETED 08-05-10	
8. TOTAL DEPTH OF BORING 18.0 Ft.				17. TOTAL RECOVERY FOR BORING 100%		18. SIGNATURE AND TITLE OF INSPECTOR Chris Gillentine, Geologist	
ELEV.	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS	SAMPLE	LABORATORY RESULTS		
-41.3	0.0		CLAY, fat, trace shell fragments, dark gray (CH)				
				NS			
-59.3	18.0						
			NOTES: 1. Soils are field visually classified in accordance with the Unified Soils Classification System. 2. NS = Sample not submitted for laboratory analysis from this interval. 3. Seafloor elevation calculated using sampling vessel's fathometer water depth reading and applying NOAA tidal gauge data conversion factor.				



# Boring Designation BI-PB-078-10

DRILLING LOG		DIVISION South Atlantic		INSTALLATION Mobile District		SHEET 1 OF 1 SHEETS	
1. PROJECT MsCIP Barrier Island Restoration Petit Bois Pass- AL West				9. SIZE AND TYPE OF BIT N/A			
2. BORING DESIGNATION BI-PB-078-10		LOCATION COORDINATES E = 1,134,784 N = 247,092		10. COORDINATE SYSTEM/DATUM State Plane, MSE (U.S. Ft.)		HORIZONTAL NAD83 VERTICAL NAVD88	
3. DRILLING AGENCY Corps of Engineers - CESAM		CONTRACTOR FILE NO.		11. MANUFACTURER'S DESIGNATION OF DRILL Vibracore		<input type="checkbox"/> AUTO HAMMER <input type="checkbox"/> MANUAL HAMMER	
4. NAME OF DRILLER Construction Solutions International, Inc.				12. TOTAL SAMPLES 3		DISTURBED 0 UNDISTURBED (UD)	
5. DIRECTION OF BORING <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED		DEG. FROM VERTICAL		13. TOTAL NUMBER CORE BOXES			
		BEARING		14. WATER DEPTH 38 Ft.			
6. THICKNESS OF OVERBURDEN N/A				15. DATE BORING 08-05-10		STARTED 08-05-10 COMPLETED 08-05-10	
7. DEPTH DRILLED INTO ROCK N/A				16. ELEVATION TOP OF BORING -38.1 Ft.			
8. TOTAL DEPTH OF BORING 18.5 Ft.				17. TOTAL RECOVERY FOR BORING 100%			
				18. SIGNATURE AND TITLE OF INSPECTOR Chris Gillentine, Geologist			
ELEV.	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS	SAMPLE	LABORATORY RESULTS		
-38.1	0.0						
-40.1	2.0		SAND, poorly-graded, mostly medium-grained sand-sized quartz, trace shell fragments, dark gray (SP)	A	Classification: SP-SM Color: 2.5Y 6/2-light brownish gray D50: 0.2775 mm % Fines: 6		
-45.1	7.0		CLAY, fat, trace fine-grained sand-sized quartz, dark gray (CH)	NS			
-51.6	13.5		SAND, poorly-graded, mostly fine to medium-grained sand-sized quartz, lt. gray (SP)	B	Classification: SP-SM Color: 2.5Y 6/2-light brownish gray D50: 0.2008 mm % Fines: 6.9		
				C	Classification: SM Color: 2.5Y 5/2-grayish brown D50: 0.1569 mm % Fines: 18.3		
-56.6	18.5		CLAY, fat, dark gray (CH)	NS			
			NOTES: 1. Soils are field visually classified in accordance with the Unified Soils Classification System. 2. NS = Sample not submitted for laboratory analysis from this interval. 3. Seafloor elevation calculated using sampling vessel's fathometer water depth reading and applying NOAA tidal gauge data conversion factor.				

# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.6	2.0	24.8	66.6	6.0	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
.375	100.0		
#4	99.4		
#10	97.4		
#20	92.0		
#40	72.6		
#60	44.1		
#100	20.2		
#200	6.0		

\* (no specification provided)

**Material Description**  
SAND, (SP-SM), medium to fine grained

**Atterberg Limits**  
 PL=      LL=      PI=

**Coefficients**  
 D<sub>90</sub>= 0.7524      D<sub>85</sub>= 0.6018      D<sub>60</sub>= 0.3314  
 D<sub>50</sub>= 0.2775      D<sub>30</sub>= 0.1902      D<sub>15</sub>= 0.1258  
 D<sub>10</sub>= 0.0987      C<sub>u</sub>= 3.36      C<sub>c</sub>= 1.11

**Classification**  
 USCS= SP-SM      AASHTO=

**Remarks**  
 CADD CODE = CH10D965

Location: USACE Sample # BI-PB-78-10A  
 Sample Number: TE Lab ID: 4622.27

Depth: 0.0 - 2.0 (ft.)

Date: 8/15/10

**Thompson Engineering**

**Mobile, Alabama**

Client: US Army Corps of Engineers

Project: Contract No. W91278-10-D-0026 - Task 03  
 Mississippi Barrier Island Restoration Project

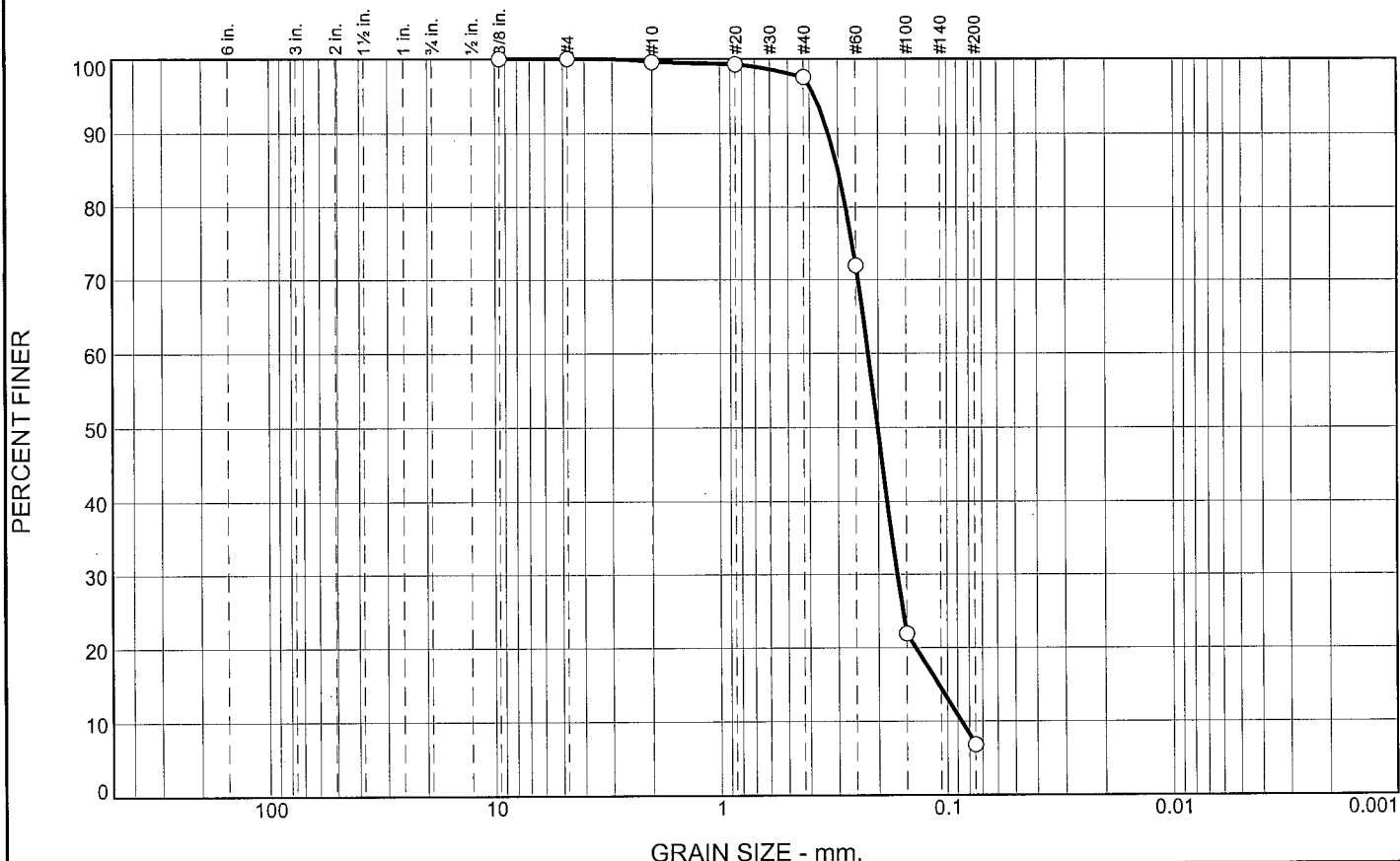
Project No: 10-2123-0009

Report No.

Tested By: G.Fancher

Checked By: R.Byrd

# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.0	0.4	2.0	90.7	6.9	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
.375	100.0		
#4	100.0		
#10	99.6		
#20	99.3		
#40	97.6		
#60	71.9		
#100	21.9		
#200	6.9		

\* (no specification provided)

## Material Description

SAND, (SP-SM), fine grained

## Atterberg Limits

PL=

LL=

PI=

## Coefficients

D<sub>90</sub>= 0.3313

D<sub>85</sub>= 0.3001

D<sub>60</sub>= 0.2207

D<sub>50</sub>= 0.2008

D<sub>30</sub>= 0.1651

D<sub>15</sub>= 0.1091

D<sub>10</sub>= 0.0867

C<sub>u</sub>= 2.55

C<sub>c</sub>= 1.43

## Classification

USCS= SP-SM

AASHTO=

## Remarks

CADD CODE = CH10D965

Location: USACE Sample # BI-PB-78-10B  
Sample Number: TE Lab ID: 4622.28

Depth: 7.0 - 10.0 (ft.)

Date: 8/15/10

**Thompson Engineering**

**Mobile, Alabama**

Client: US Army Corps of Engineers

Project: Contract No. W91278-10-D-0026 - Task 03  
Mississippi Barrier Island Restoration Project

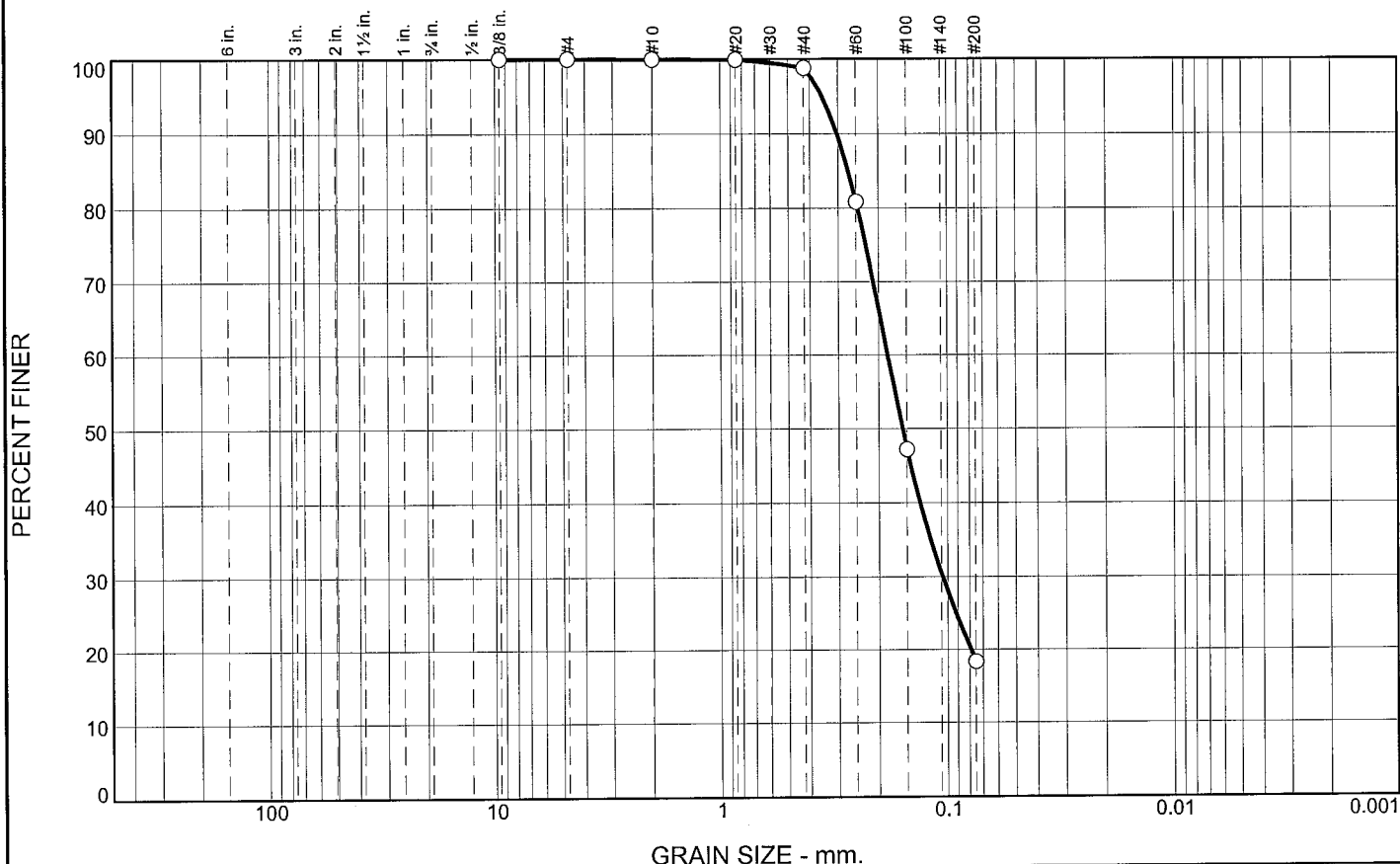
Project No: 10-2123-0009

Report No.

Tested By: G.Fancher

Checked By: R.Byrd

# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.0	0.0	1.2	80.5	18.3	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
.375	100.0		
#4	100.0		
#10	100.0		
#20	99.9		
#40	98.8		
#60	80.8		
#100	47.2		
#200	18.3		

\* (no specification provided)

## Material Description

SILTY SAND, (SM), fine grained

## Atterberg Limits

PL=

LL=

PI=

## Coefficients

D<sub>90</sub>= 0.3035

D<sub>85</sub>= 0.2707

D<sub>60</sub>= 0.1821

D<sub>50</sub>= 0.1569

D<sub>30</sub>= 0.1052

D<sub>15</sub>=

D<sub>10</sub>=

C<sub>u</sub>=

C<sub>c</sub>=

## Classification

USCS= SM

AASHTO=

## Remarks

CADD CODE = CH10D965

Location: USACE Sample # BI-PB-78-10C  
Sample Number: TE Lab ID: 4622.29

Depth: 10.0 - 13.5 (ft.)

Date: 8/15/10

**Thompson Engineering**

**Mobile, Alabama**

Client: US Army Corps of Engineers

Project: Contract No. W91278-10-D-0026 - Task 03  
Mississippi Barrier Island Restoration Project

Project No: 10-2123-0009

Report No.

Tested By: G.Fancher

Checked By: R.Byrd

# Boring Designation BI-PB-079-10

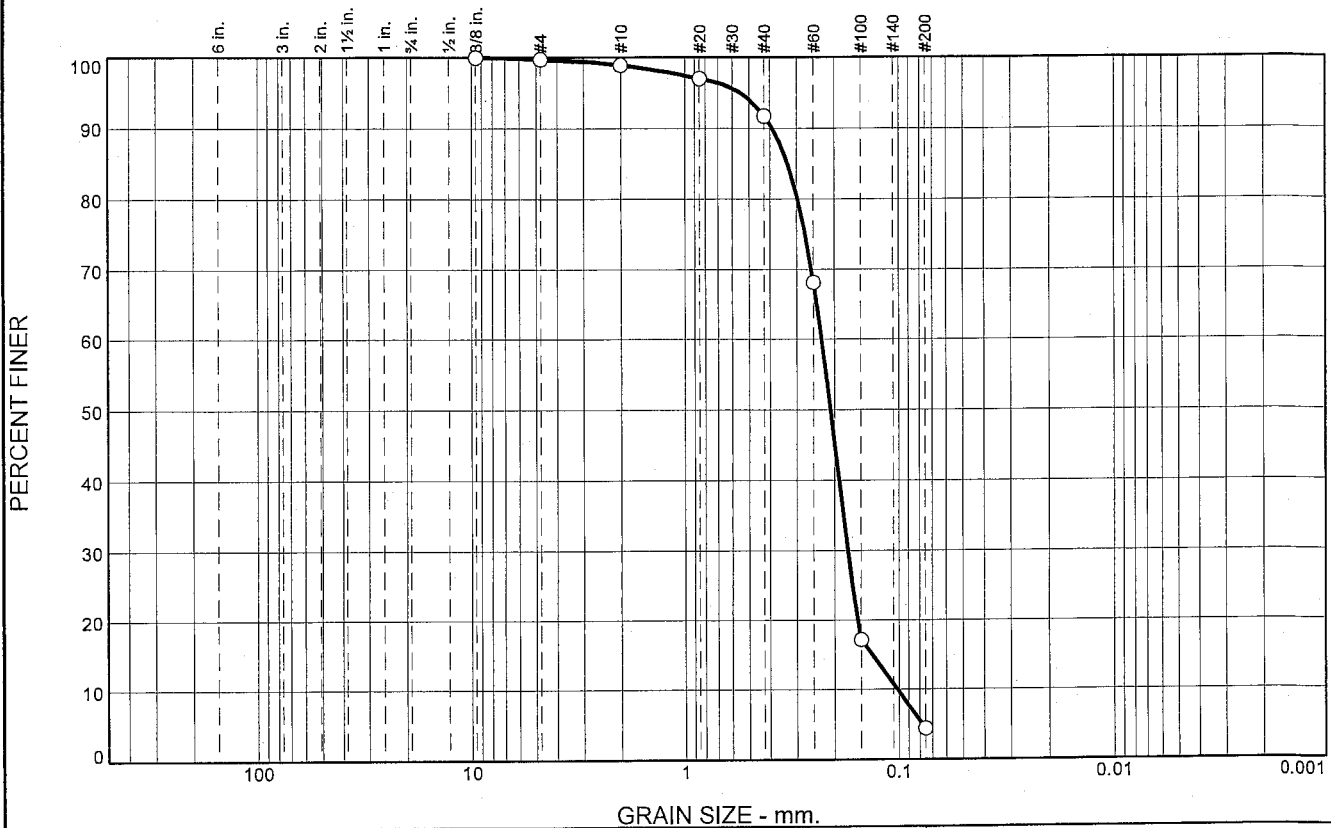
DRILLING LOG		DIVISION South Atlantic		INSTALLATION Mobile District		SHEET 1 OF 1 SHEETS	
1. PROJECT MsCIP Barrier Island Restoration Petit Bois Pass- AL West				9. SIZE AND TYPE OF BIT N/A			
2. BORING DESIGNATION BI-PB-079-10		LOCATION COORDINATES E = 1,136,298 N = 247,040		10. COORDINATE SYSTEM/DATUM State Plane, MSE (U.S. Ft.)		HORIZONTAL NAD83	
3. DRILLING AGENCY Corps of Engineers - CESAM		CONTRACTOR FILE NO.		11. MANUFACTURER'S DESIGNATION OF DRILL Vibracore		<input type="checkbox"/> AUTO HAMMER <input type="checkbox"/> MANUAL HAMMER	
4. NAME OF DRILLER Construction Solutions International, Inc.				12. TOTAL SAMPLES 0		DISTURBED 0	
5. DIRECTION OF BORING <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED		DEG. FROM VERTICAL		13. TOTAL NUMBER CORE BOXES			
		BEARING		14. WATER DEPTH 43 Ft.			
6. THICKNESS OF OVERBURDEN N/A				15. DATE BORING 08-05-10		STARTED 08-05-10	
7. DEPTH DRILLED INTO ROCK N/A				16. ELEVATION TOP OF BORING -42.8 Ft.			
8. TOTAL DEPTH OF BORING 17.5 Ft.				17. TOTAL RECOVERY FOR BORING 100%			
				18. SIGNATURE AND TITLE OF INSPECTOR Chris Gillentine, Geologist			
ELEV.	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS	SAMPLE	LABORATORY RESULTS		
-42.8	0.0		CLAY, fat, dark gray (CH)				
				NS			
-60.3	17.5						
			NOTES: 1. Soils are field visually classified in accordance with the Unified Soils Classification System. 2. NS = Sample not submitted for laboratory analysis from this interval. 3. Seafloor elevation calculated using sampling vessel's fathometer water depth reading and applying NOAA tidal gauge data conversion factor.				

# Boring Designation BI-PB-080-10

DRILLING LOG		DIVISION South Atlantic		INSTALLATION Mobile District		SHEET 1 OF 2 SHEETS	
1. PROJECT MsCIP Barrier Island Restoration Petit Bois Pass- AL West				9. SIZE AND TYPE OF BIT N/A			
2. BORING DESIGNATION BI-PB-080-10		LOCATION COORDINATES E = 1,122,678 N = 245,508		10. COORDINATE SYSTEM/DATUM State Plane, MSE (U.S. Ft.)		HORIZONTAL NAD83	
3. DRILLING AGENCY Corps of Engineers - CESAM		CONTRACTOR FILE NO.		11. MANUFACTURER'S DESIGNATION OF DRILL Vibrocure		<input type="checkbox"/> AUTO HAMMER <input type="checkbox"/> MANUAL HAMMER	
4. NAME OF DRILLER Construction Solutions International, Inc.				12. TOTAL SAMPLES 2		DISTURBED 0	
5. DIRECTION OF BORING <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED				13. TOTAL NUMBER CORE BOXES		14. WATER DEPTH 43.5 Ft.	
6. THICKNESS OF OVERBURDEN N/A				15. DATE BORING 07-09-10		STARTED 07-09-10	
7. DEPTH DRILLED INTO ROCK N/A				16. ELEVATION TOP OF BORING -42.2 Ft.		COMPLETED 07-09-10	
8. TOTAL DEPTH OF BORING 19.4 Ft.				17. TOTAL RECOVERY FOR BORING 100%		18. SIGNATURE AND TITLE OF INSPECTOR Valerie Morrow, Geotechnical Engineer	
ELEV.	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS	SAMPLE	LABORATORY RESULTS		
-42.2	0.0		CLAY, lean, trace shell fragments, trace wood debris, dark gray (CL)	NS			
-49.9	7.7		SAND, clayey, mostly fine-grained sand-sized quartz, trace shell fragments, gray (SC)				
-51.6	9.4		SAND, poorly-graded, mostly fine-grained sand-sized quartz, trace shell fragments, gray (SP)	A	Classification: SP Color: 2.5Y 7/1-light gray D50: 0.2084 mm % Fines: 4.4		
-61.6	19.4			B	Classification: SP-SM Color: 2.5Y 7/1-light gray D50: 0.1684 mm % Fines: 9.1		
NOTES:							
1. Soils are field visually classified in accordance with the Unified Soils Classification System.							
2. NS = Sample not submitted for laboratory analysis from this interval.							
3. Seafloor elevation calculated using sampling vessel's fathometer water depth reading and							

<b>DRILLING LOG (Cont. Sheet)</b>			<b>INSTALLATION</b> Mobile District		<b>SHEET 2</b> <b>OF 2 SHEETS</b>
<b>PROJECT</b> MsCIP Barrier Island Restoration			<b>COORDINATE SYSTEM/DATUM</b> State Plane, MSE (U.S. Ft.)	<b>HORIZONTAL</b> NAD83	<b>VERTICAL</b> NAVD88
<b>LOCATION COORDINATES</b> X = 1,122,678 Y = 245,508			<b>ELEVATION TOP OF BORING</b> -42.2 Ft.		
<b>ELEV.</b>	<b>DEPTH</b>	<b>LEGEND</b>	<b>CLASSIFICATION OF MATERIALS</b>	<b>SAMPLE</b>	<b>LABORATORY RESULTS</b>
			applying NOAA tidal gauge data conversion factor.		

# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.3	0.8	7.2	87.3	4.4	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
.375	100.0		
#4	99.7		
#10	98.9		
#20	97.1		
#40	91.7		
#60	68.1		
#100	17.1		
#200	4.4		

\* (no specification provided)

**Material Description**  
SAND, (SP), fine grained

**Atterberg Limits**  
PL=      LL=      PI=

**Coefficients**  
D<sub>90</sub>= 0.3906      D<sub>85</sub>= 0.3311      D<sub>60</sub>= 0.2292  
D<sub>50</sub>= 0.2084      D<sub>30</sub>= 0.1730      D<sub>15</sub>= 0.1335  
D<sub>10</sub>= 0.1016      C<sub>u</sub>= 2.25      C<sub>c</sub>= 1.29

**Classification**  
USCS= SP      AASHTO=

**Remarks**  
CADD CODE = CH10D965

Location: USACE Sample # BI-PB-80-10A  
Sample Number: TE Lab ID: 4578.02

Depth: 9.4 - 14.4 (ft.)

Date: 7/16/10

**Thompson Engineering**  
**Mobile, Alabama**

Client: US Army Corps of Engineers  
Project: Contract No. W91278-10-D-0026 - Task 03  
Mississippi Barrier Island Restoration Project  
Project No: 10-2123-0009

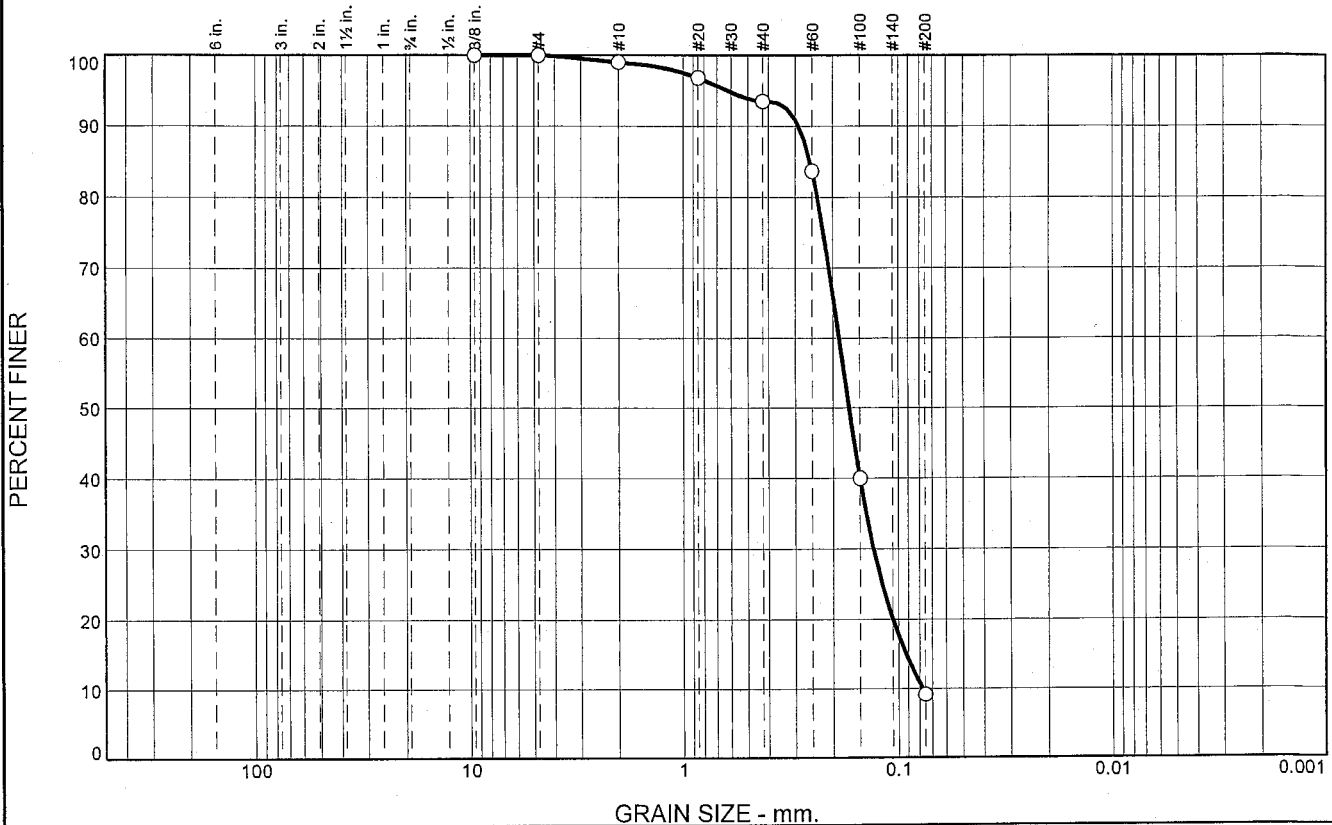
Figure

Tested By: G.Fancher

Checked By: R.Byrd



# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.0	1.0	5.6	84.3	9.1	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
.375	100.0		
#4	100.0		
#10	99.0		
#20	96.8		
#40	93.4		
#60	83.7		
#100	39.9		
#200	9.1		

**Material Description**  
SAND, (SP-SM), fine grained

**Atterberg Limits**  
 PL=      LL=      PI=

**Coefficients**  
 D<sub>90</sub>= 0.2897      D<sub>85</sub>= 0.2559      D<sub>60</sub>= 0.1872  
 D<sub>50</sub>= 0.1684      D<sub>30</sub>= 0.1301      D<sub>15</sub>= 0.0922  
 D<sub>10</sub>= 0.0774      C<sub>u</sub>= 2.42      C<sub>c</sub>= 1.17

**Classification**  
 USCS= SP-SM      AASHTO=

**Remarks**  
 CADD CODE = CH10D965

\* (no specification provided)

Location: USACE Sample # BI-PB-80-10B  
 Sample Number: TE Lab ID: 4578.03

Depth: 14.4 - 19.4 (ft.)

Date: 7/16/10

**Thompson Engineering**  
  
**Mobile, Alabama**

Client: US Army Corps of Engineers  
 Project: Contract No. W91278-10-D-0026 - Task 03  
 Mississippi Barrier Island Restoration Project  
 Project No: 10-2123-0009

Figure

Tested By: G.Fancher

Checked By: R.Byrd

# Boring Designation BI-PB-085-10

DRILLING LOG		DIVISION South Atlantic		INSTALLATION Mobile District		SHEET 1 OF 2 SHEETS	
1. PROJECT MsCIP Barrier Island Restoration Petit Bois Pass- AL West				9. SIZE AND TYPE OF BIT N/A			
2. BORING DESIGNATION BI-PB-085-10		LOCATION COORDINATES E = 1,131,589 N = 245,569		10. COORDINATE SYSTEM/DATUM State Plane, MSE (U.S. Ft.)		HORIZONTAL NAD83 VERTICAL NAVD88	
3. DRILLING AGENCY Corps of Engineers - CESAM		CONTRACTOR FILE NO.		11. MANUFACTURER'S DESIGNATION OF DRILL Vibracore		<input type="checkbox"/> AUTO HAMMER <input type="checkbox"/> MANUAL HAMMER	
4. NAME OF DRILLER Construction Solutions International, Inc.				12. TOTAL SAMPLES 0		DISTURBED 0 UNDISTURBED (UD) 0	
5. DIRECTION OF BORING <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED		DEG. FROM VERTICAL		13. TOTAL NUMBER CORE BOXES			
		BEARING		14. WATER DEPTH 46 Ft.			
6. THICKNESS OF OVERBURDEN N/A				15. DATE BORING 08-10-10		STARTED 08-10-10 COMPLETED 08-10-10	
7. DEPTH DRILLED INTO ROCK N/A				16. ELEVATION TOP OF BORING -45.6 Ft.			
8. TOTAL DEPTH OF BORING 20.0 Ft.				17. TOTAL RECOVERY FOR BORING 100%			
				18. SIGNATURE AND TITLE OF INSPECTOR Chris Gillentine, Geologist			
ELEV.	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS	SAMPLE	LABORATORY RESULTS		
-45.6	0.0		CLAY, fat, dark gray (CH)				
-52.6	7.0		At El. -50.6 Ft., trace fine-grained sand-sized quartz, dark gray				
-59.6	14.0		SAND, poorly-graded, mostly fine to medium-grained sand-sized quartz, gray (SP)	NS			
-65.6	20.0		CLAY, fat, dark gray (CH)				
NOTES: 1. Soils are field visually classified in accordance with the Unified Soils Classification System. 2. NS = Sample not submitted for laboratory analysis from this interval. 3. Seafloor elevation calculated using sampling							

<b>DRILLING LOG (Cont. Sheet)</b>			<b>INSTALLATION</b> Mobile District		<b>SHEET 2</b> <b>OF 2 SHEETS</b>
<b>PROJECT</b> MsCIP Barrier Island Restoration			<b>COORDINATE SYSTEM/DATUM</b> State Plane, MSE (U.S. Ft.)	<b>HORIZONTAL</b> NAD83	<b>VERTICAL</b> NAVD88
<b>LOCATION COORDINATES</b> X = 1,131,589 Y = 245,569			<b>ELEVATION TOP OF BORING</b> -45.6 Ft.		
<b>ELEV.</b>	<b>DEPTH</b>	<b>LEGEND</b>	<b>CLASSIFICATION OF MATERIALS</b>	<b>SAMPLE</b>	<b>LABORATORY RESULTS</b>
			vessel's fathometer water depth reading and applying NOAA tidal gauge data conversion factor.		

# Boring Designation BI-PB-086-10

DRILLING LOG		DIVISION South Atlantic		INSTALLATION Mobile District		SHEET 1 OF 1 SHEETS	
1. PROJECT MsCIP Barrier Island Restoration Petit Bois Pass- AL West				9. SIZE AND TYPE OF BIT N/A			
2. BORING DESIGNATION BI-PB-086-10		LOCATION COORDINATES E = 1,133,261 N = 245,540		10. COORDINATE SYSTEM/DATUM State Plane, MSE (U.S. Ft.)		HORIZONTAL NAD83 VERTICAL NAVD88	
3. DRILLING AGENCY Corps of Engineers - CESAM		CONTRACTOR FILE NO.		11. MANUFACTURER'S DESIGNATION OF DRILL Vibrocure		<input type="checkbox"/> AUTO HAMMER <input type="checkbox"/> MANUAL HAMMER	
4. NAME OF DRILLER Construction Solutions International, Inc.				12. TOTAL SAMPLES 0		DISTURBED 0 UNDISTURBED (UD) 0	
5. DIRECTION OF BORING <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED		DEG. FROM VERTICAL		13. TOTAL NUMBER CORE BOXES			
		BEARING		14. WATER DEPTH 46 Ft.			
6. THICKNESS OF OVERBURDEN N/A				15. DATE BORING 08-10-10		STARTED 08-10-10 COMPLETED 08-10-10	
7. DEPTH DRILLED INTO ROCK N/A				16. ELEVATION TOP OF BORING -44.4 Ft.			
8. TOTAL DEPTH OF BORING 17.0 Ft.				17. TOTAL RECOVERY FOR BORING 100%			
				18. SIGNATURE AND TITLE OF INSPECTOR Chris Gillentine, Geologist			
ELEV.	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS	SAMPLE	LABORATORY RESULTS		
-44.4	0.0		CLAY, fat, trace fine-grained sand-sized quartz, dark gray (CH)				
				NS			
-61.4	17.0						
			NOTES: 1. Soils are field visually classified in accordance with the Unified Soils Classification System. 2. NS = Sample not submitted for laboratory analysis from this interval. 3. Seafloor elevation calculated using sampling vessel's fathometer water depth reading and applying NOAA tidal gauge data conversion factor.				

# Boring Designation BI-PB-087-10

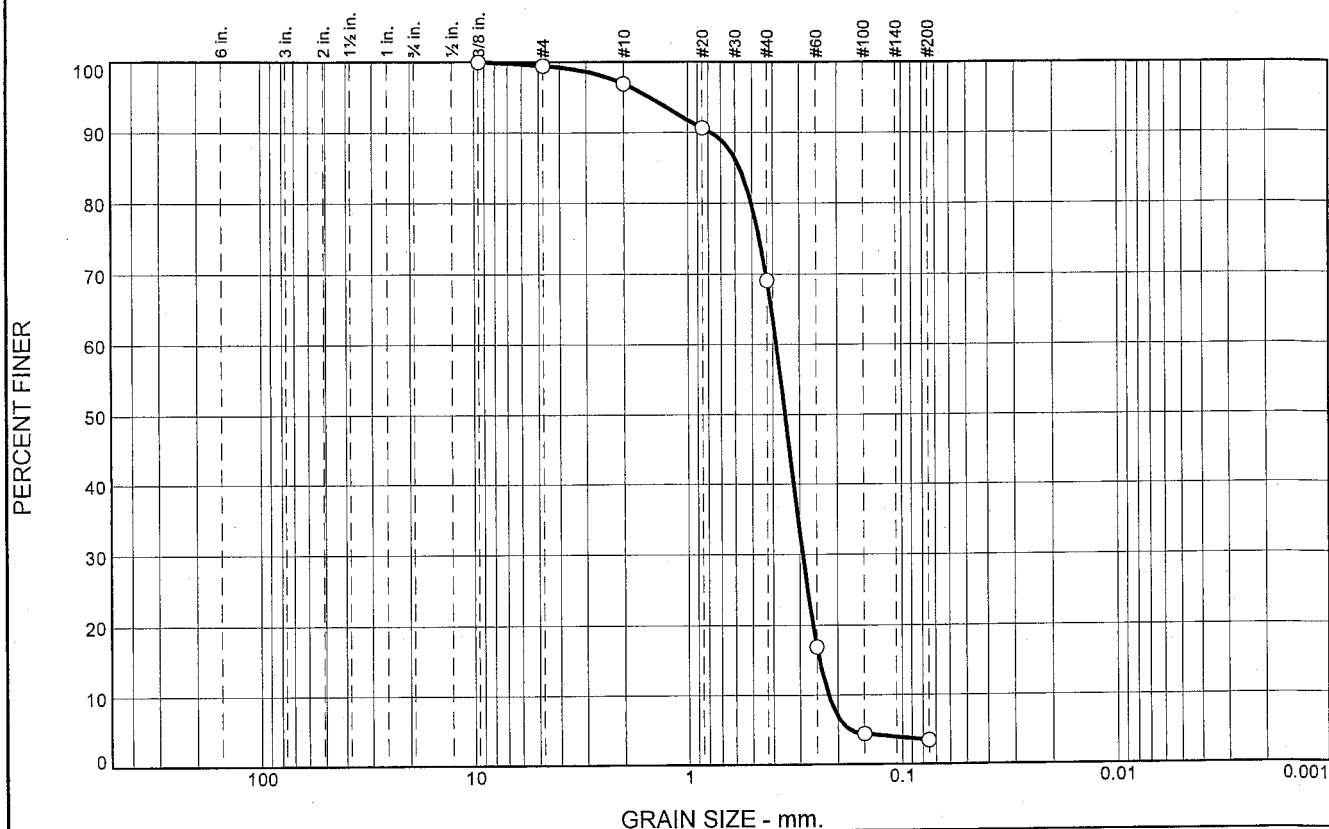
DRILLING LOG		DIVISION South Atlantic		INSTALLATION Mobile District		SHEET 1 OF 2 SHEETS	
1. PROJECT MsCIP Barrier Island Restoration Petit Bois Pass- AL West				9. SIZE AND TYPE OF BIT N/A			
2. BORING DESIGNATION BI-PB-087-10		LOCATION COORDINATES E = 1,134,819 N = 245,502		10. COORDINATE SYSTEM/DATUM State Plane, MSE (U.S. Ft.)		HORIZONTAL NAD83 VERTICAL NAVD88	
3. DRILLING AGENCY Corps of Engineers - CESAM		CONTRACTOR FILE NO.		11. MANUFACTURER'S DESIGNATION OF DRILL Vibracore		<input type="checkbox"/> AUTO HAMMER <input type="checkbox"/> MANUAL HAMMER	
4. NAME OF DRILLER Construction Solutions International, Inc.				12. TOTAL SAMPLES 0		DISTURBED 0 UNDISTURBED (UD) 0	
5. DIRECTION OF BORING <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED		DEG. FROM VERTICAL		13. TOTAL NUMBER CORE BOXES			
		BEARING		14. WATER DEPTH 46 Ft.			
6. THICKNESS OF OVERBURDEN N/A				15. DATE BORING 08-10-10		STARTED 08-10-10 COMPLETED 08-10-10	
7. DEPTH DRILLED INTO ROCK N/A				16. ELEVATION TOP OF BORING -44.7 Ft.			
8. TOTAL DEPTH OF BORING 20.0 Ft.				17. TOTAL RECOVERY FOR BORING 100%			
				18. SIGNATURE AND TITLE OF INSPECTOR Chris Gillentine, Geologist			
ELEV.	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS	SAMPLE	LABORATORY RESULTS		
-44.7	0.0						
-46.7	2.0		SILT, inorganic-H, trace fine-grained sand-sized quartz, dark gray (MH)				
-51.7	7.0		CLAY, fat, dark gray (CH)				
-54.7	10.0		SAND, poorly-graded, gray (SP)				
-64.7	20.0		CLAY, fat, dark gray (CH)	NS			
NOTES: 1. Soils are field visually classified in accordance with the Unified Soils Classification System. 2. NS = Sample not submitted for laboratory analysis from this interval. 3. Seafloor elevation calculated using sampling							

<b>DRILLING LOG (Cont. Sheet)</b>			<b>INSTALLATION</b> Mobile District		<b>SHEET 2</b> <b>OF 2 SHEETS</b>
<b>PROJECT</b> MsCIP Barrier Island Restoration			<b>COORDINATE SYSTEM/DATUM</b> State Plane, MSE (U.S. Ft.)	<b>HORIZONTAL</b> NAD83	<b>VERTICAL</b> NAVD88
<b>LOCATION COORDINATES</b> X = 1,134,819 Y = 245,502			<b>ELEVATION TOP OF BORING</b> -44.7 Ft.		
<b>ELEV.</b>	<b>DEPTH</b>	<b>LEGEND</b>	<b>CLASSIFICATION OF MATERIALS</b>	<b>SAMPLE</b>	<b>LABORATORY RESULTS</b>
			vessel's fathometer water depth reading and applying NOAA tidal gauge data conversion factor.		

# Boring Designation BI-PB-089-10

DRILLING LOG		DIVISION South Atlantic		INSTALLATION Mobile District		SHEET 1 OF 1 SHEETS	
1. PROJECT MsCIP Barrier Island Restoration Petit Bois Pass- AL West				9. SIZE AND TYPE OF BIT N/A			
2. BORING DESIGNATION BI-PB-089-10		LOCATION COORDINATES E = 1,122,741 N = 244,126		10. COORDINATE SYSTEM/DATUM State Plane, MSE (U.S. Ft.)		HORIZONTAL NAD83	
3. DRILLING AGENCY Corps of Engineers - CESAM		CONTRACTOR FILE NO.		11. MANUFACTURER'S DESIGNATION OF DRILL Vibrocure		<input type="checkbox"/> AUTO HAMMER <input type="checkbox"/> MANUAL HAMMER	
4. NAME OF DRILLER Construction Solutions International, Inc.				12. TOTAL SAMPLES		DISTURBED 1	
5. DIRECTION OF BORING <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED				13. TOTAL NUMBER CORE BOXES		UNDISTURBED (UD) 0	
6. THICKNESS OF OVERBURDEN N/A				14. WATER DEPTH		43 Ft.	
7. DEPTH DRILLED INTO ROCK N/A				15. DATE BORING		STARTED 07-09-10	
8. TOTAL DEPTH OF BORING 16.6 Ft.				16. ELEVATION TOP OF BORING		COMPLETED 07-09-10	
				17. TOTAL RECOVERY FOR BORING		100%	
				18. SIGNATURE AND TITLE OF INSPECTOR		Valerie Morrow, Geotechnical Engineer	
ELEV.	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS	SAMPLE	LABORATORY RESULTS		
-42.3	0.0						
-43.7	1.4		SAND, poorly-graded, mostly medium to coarse-grained sand-sized quartz, trace shell fragments, gray (SP)	A	Classification: SP Color: 2.5Y 7/1-light gray D50: 0.35 mm % Fines: 3.4		
			SAND, clayey, mostly fine-grained sand-sized quartz, some clay, trace shell fragments, dark gray (SC)	NS			
-55.1	12.8						
-58.9	16.6		CLAY, lean, some clay, dark greenish gray (CL)				
			NOTES: 1. Soils are field visually classified in accordance with the Unified Soils Classification System. 2. NS = Sample not submitted for laboratory analysis from this interval. 3. Seafloor elevation calculated using sampling vessel's fathometer water depth reading and applying NOAA tidal gauge data conversion factor.				

# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.5	2.5	27.9	65.7	3.4	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
.375	100.0		
#4	99.5		
#10	97.0		
#20	90.6		
#40	69.1		
#60	16.9		
#100	4.4		
#200	3.4		

\* (no specification provided)

## Material Description

SAND, (SP), medium to fine grained

PL=      Atterberg Limits      LL=      PI=

Coefficients  
D<sub>90</sub>= 0.7737      D<sub>85</sub>= 0.5704      D<sub>60</sub>= 0.3850  
D<sub>50</sub>= 0.3500      D<sub>30</sub>= 0.2905      D<sub>15</sub>= 0.2431  
D<sub>10</sub>= 0.2206      C<sub>u</sub>= 1.75      C<sub>c</sub>= 0.99

USCS= SP      Classification      AASHTO=

Remarks  
CADD CODE = CH10D965

Location: USACE Sample # BI-PB-89-10A  
Sample Number: TE Lab ID: 4578.04

Depth: 0.0 - 1.4 (ft.)

Date: 7/16/10

**Thompson Engineering**  
  
**Mobile, Alabama**

Client: US Army Corps of Engineers  
Project: Contract No. W91278-10-D-0026 - Task 03  
Mississippi Barrier Island Restoration Project  
Project No: 10-2123-0009

Figure

Tested By: G.Fancher

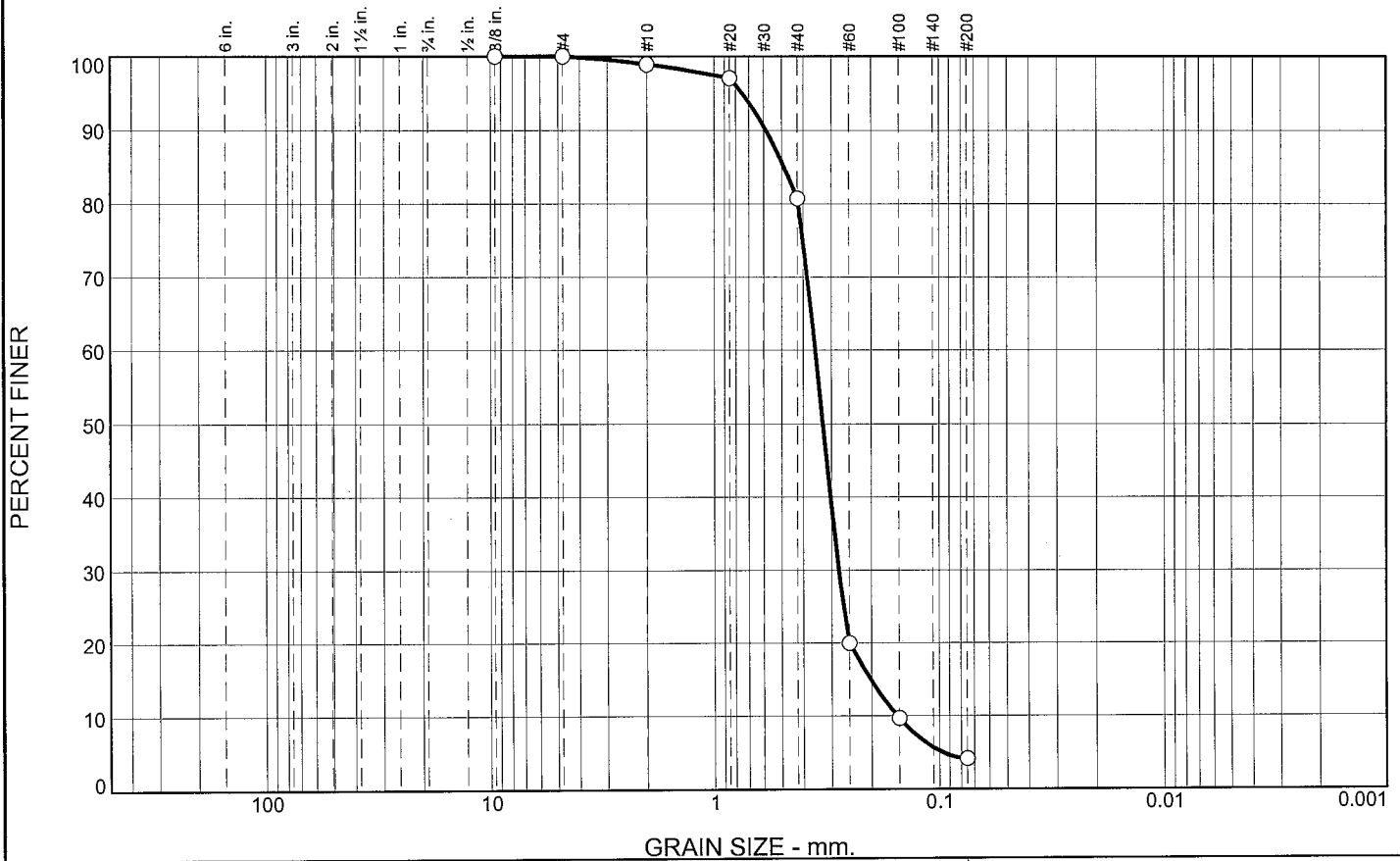
Checked By: R.Byrd



# Boring Designation BI-PB-098-10

DRILLING LOG		DIVISION South Atlantic		INSTALLATION Mobile District		SHEET 1 OF 1 SHEETS	
1. PROJECT MsCIP Barrier Island Restoration Petit Bois Pass- AL West				9. SIZE AND TYPE OF BIT N/A			
2. BORING DESIGNATION BI-PB-098-10		LOCATION COORDINATES E = 1,130,183 N = 252,593		10. COORDINATE SYSTEM/DATUM State Plane, MSE (U.S. Ft.)		HORIZONTAL NAD83 VERTICAL NAVD88	
3. DRILLING AGENCY Corps of Engineers - CESAM		CONTRACTOR FILE NO.		11. MANUFACTURER'S DESIGNATION OF DRILL Vibrocure		<input type="checkbox"/> AUTO HAMMER <input type="checkbox"/> MANUAL HAMMER	
4. NAME OF DRILLER Construction Solutions International, Inc.				12. TOTAL SAMPLES 4		DISTURBED 0 UNDISTURBED (UD)	
5. DIRECTION OF BORING <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED		DEG. FROM VERTICAL		13. TOTAL NUMBER CORE BOXES			
		BEARING		14. WATER DEPTH 25 Ft.			
6. THICKNESS OF OVERBURDEN N/A				15. DATE BORING 08-03-10		STARTED 08-03-10 COMPLETED 08-03-10	
7. DEPTH DRILLED INTO ROCK N/A				16. ELEVATION TOP OF BORING -25.1 Ft.			
8. TOTAL DEPTH OF BORING 17.5 Ft.				17. TOTAL RECOVERY FOR BORING 100%			
				18. SIGNATURE AND TITLE OF INSPECTOR Chris Gillentine, Geologist			
ELEV.	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS	SAMPLE	LABORATORY RESULTS		
-25.1	0.0						
			SAND, poorly-graded, mostly fine to medium-grained sand-sized quartz, trace shell fragments, gray (SP)	A	Classification: SP Color: 2.5Y 6/2-light brownish gray D50: 0.3274 mm % Fines: 4.2		
-30.1	5.0						
			SAND, poorly-graded, mostly fine to medium-grained sand-sized quartz, brown/tan (SP)	B	Classification: SP-SM Color: 2.5Y 5/2-grayish brown D50: 0.2679 mm % Fines: 7.4		
-39.1	14.0						
			SAND, poorly-graded, mostly fine to medium-grained sand-sized quartz, lt. gray/tan (SP)	C	Classification: SP Color: 2.5Y 6/2-light brownish gray D50: 0.3191 mm % Fines: 4.5		
-42.6	17.5			D	Classification: SP Color: 2.5Y 6/2-light brownish gray D50: 0.2906 mm % Fines: 4.9		
			NOTES: 1. Soils are field visually classified in accordance with the Unified Soils Classification System. 2. NS = Sample not submitted for laboratory analysis from this interval. 3. Seafloor elevation determined from 2010 USACE survey.				

# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.0	1.1	18.2	76.5	4.2	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
.375	100.0		
#4	100.0		
#10	98.9		
#20	97.1		
#40	80.7		
#60	20.0		
#100	9.7		
#200	4.2		

\* (no specification provided)

## Material Description

SAND, (SP), medium to fine grained, with trace clay pockets

## Atterberg Limits

PL=

LL=

PI=

## Coefficients

D<sub>90</sub>= 0.5875

D<sub>85</sub>= 0.4875

D<sub>60</sub>= 0.3538

D<sub>50</sub>= 0.3274

D<sub>30</sub>= 0.2780

D<sub>15</sub>= 0.2019

D<sub>10</sub>= 0.1534

C<sub>u</sub>= 2.31

C<sub>c</sub>= 1.42

## Classification

USCS= SP

AASHTO=

## Remarks

CADD CODE = CH10D965

Location: USACE Sample # BI-PB-98-10A  
Sample Number: TE Lab ID: 4622.01

Depth: 0.0 - 5.0 (ft.)

Date: 8/15/10

**Thompson Engineering**

**Mobile, Alabama**

Client: US Army Corps of Engineers

Project: Contract No. W91278-10-D-0026 - Task 03  
Mississippi Barrier Island Restoration Project

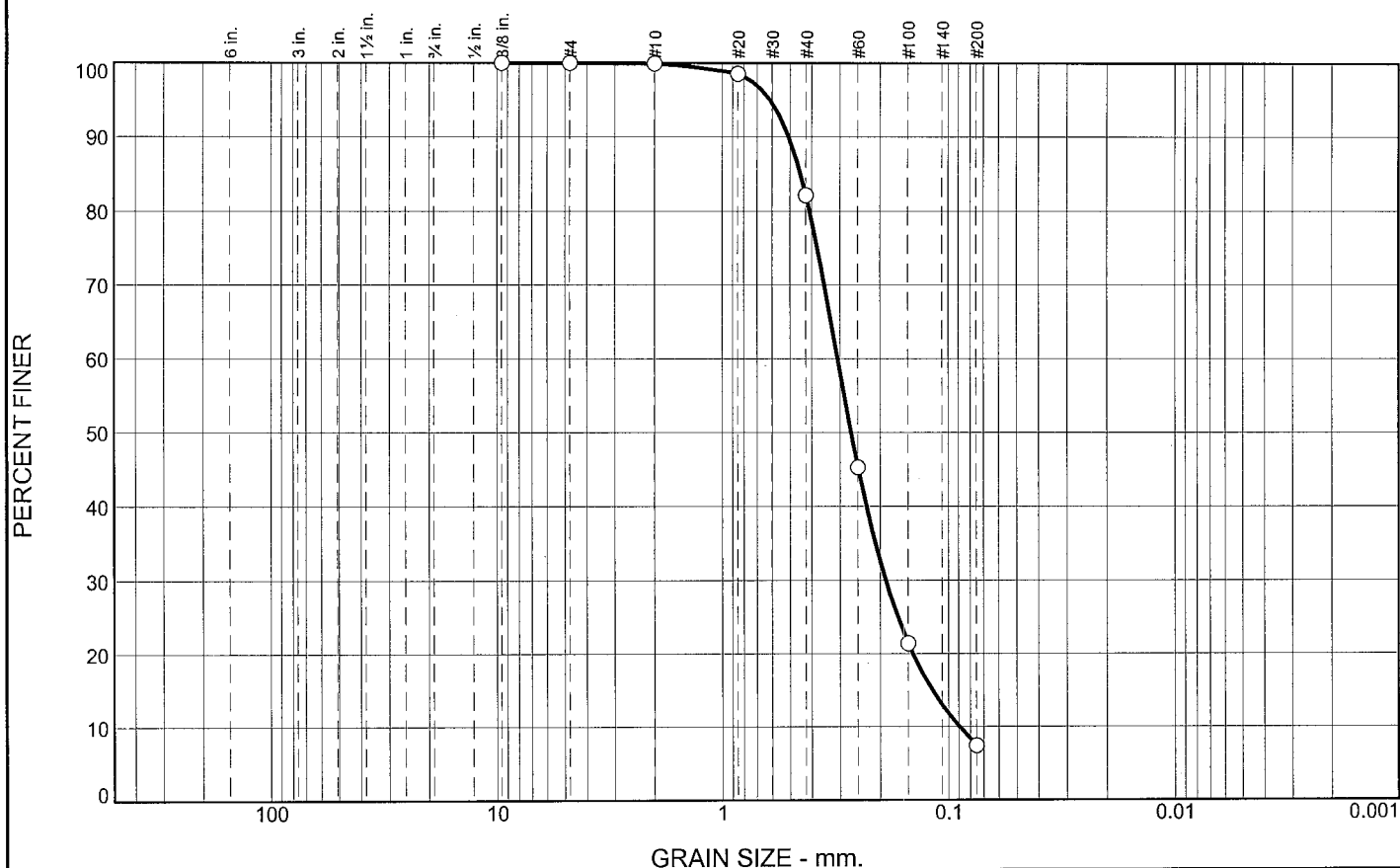
Project No: 10-2123-0009

Report No.

Tested By: R.Martin

Checked By: R.Byrd

# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.0	0.1	17.8	74.7	7.4	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
.375	100.0		
#4	100.0		
#10	99.9		
#20	98.5		
#40	82.1		
#60	45.3		
#100	21.4		
#200	7.4		

\* (no specification provided)

## Material Description

SAND, (SP-SM), medium to fine grained, with trace clay pockets

## Atterberg Limits

PL=

LL=

PI=

## Coefficients

D<sub>90</sub>= 0.5076

D<sub>85</sub>= 0.4494

D<sub>60</sub>= 0.3072

D<sub>50</sub>= 0.2679

D<sub>30</sub>= 0.1888

D<sub>15</sub>= 0.1174

D<sub>10</sub>= 0.0892

C<sub>u</sub>= 3.44

C<sub>c</sub>= 1.30

## Classification

USCS= SP-SM

AASHTO=

## Remarks

CADD CODE = CH10D965

Location: USACE Sample # BI-PB-98-10B  
Sample Number: TE Lab ID: 4622.02

Depth: 5.0 - 10.0 (ft.)

Date: 8/15/10

**Thompson Engineering**

**Mobile, Alabama**

Client: US Army Corps of Engineers

Project: Contract No. W91278-10-D-0026 - Task 03  
Mississippi Barrier Island Restoration Project

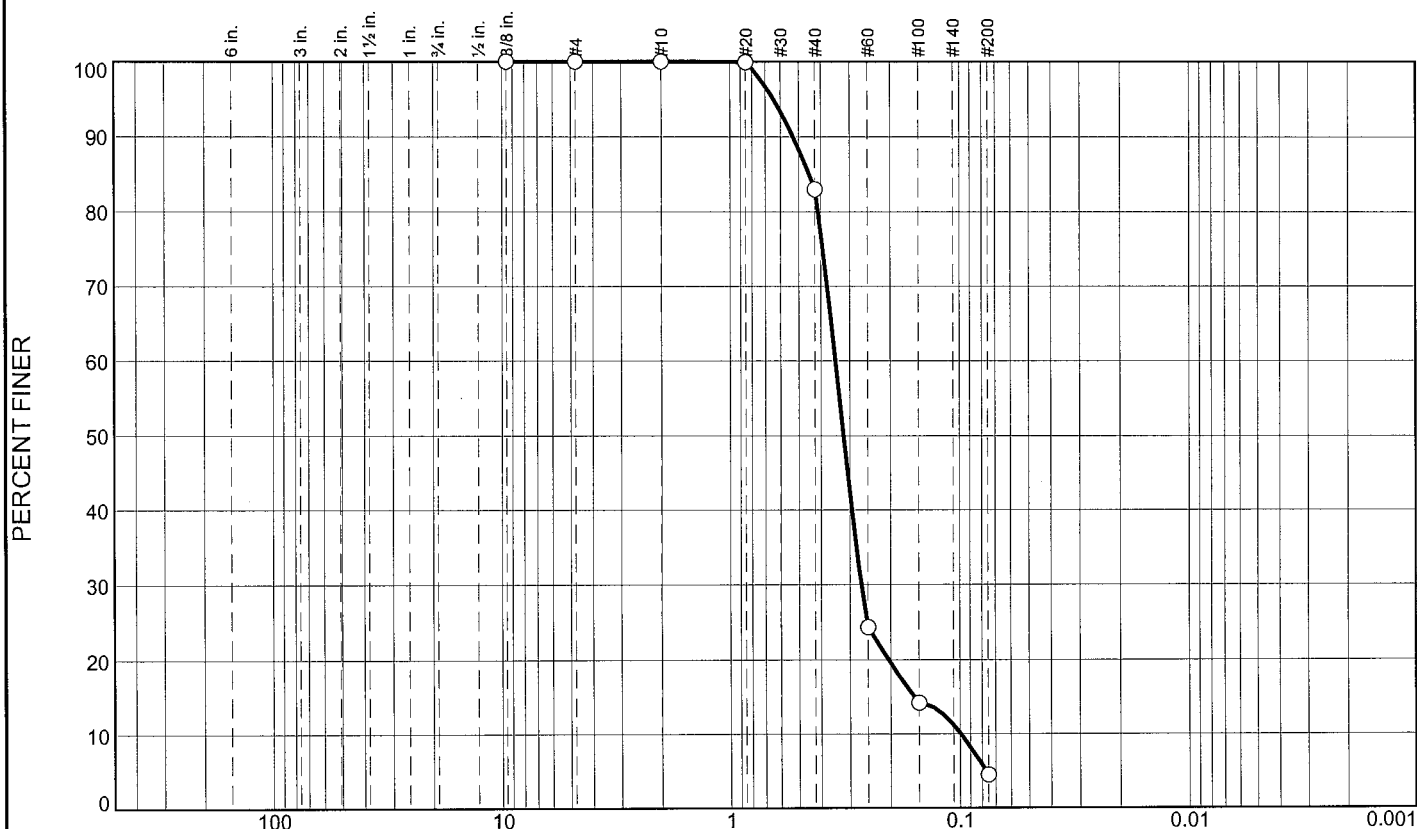
Project No: 10-2123-0009

Report No.

Tested By: R.Martin

Checked By: R.Byrd

# Particle Size Distribution Report



GRAIN SIZE - mm.

% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.0	0.0	17.0	78.5	4.5	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
.375	100.0		
#4	100.0		
#10	100.0		
#20	99.9		
#40	83.0		
#60	24.3		
#100	14.2		
#200	4.5		

\* (no specification provided)

## Material Description

SAND, (SP), medium to fine grained

## Atterberg Limits

PL=

LL=

PI=

## Coefficients

D<sub>90</sub>= 0.5296

D<sub>85</sub>= 0.4506

D<sub>60</sub>= 0.3458

D<sub>50</sub>= 0.3191

D<sub>30</sub>= 0.2672

D<sub>15</sub>= 0.1572

D<sub>10</sub>= 0.0991

C<sub>u</sub>= 3.49

C<sub>c</sub>= 2.08

## Classification

USCS= SP

AASHTO=

## Remarks

CADD CODE = CH10D965

Location: USACE Sample # BI-PB-98-10C  
Sample Number: TE Lab ID: 4622.03

Depth: 10.0 - 15.0 (ft.)

Date: 8/15/10

**Thompson Engineering**

**Mobile, Alabama**

Client: US Army Corps of Engineers

Project: Contract No. W91278-10-D-0026 - Task 03  
Mississippi Barrier Island Restoration Project

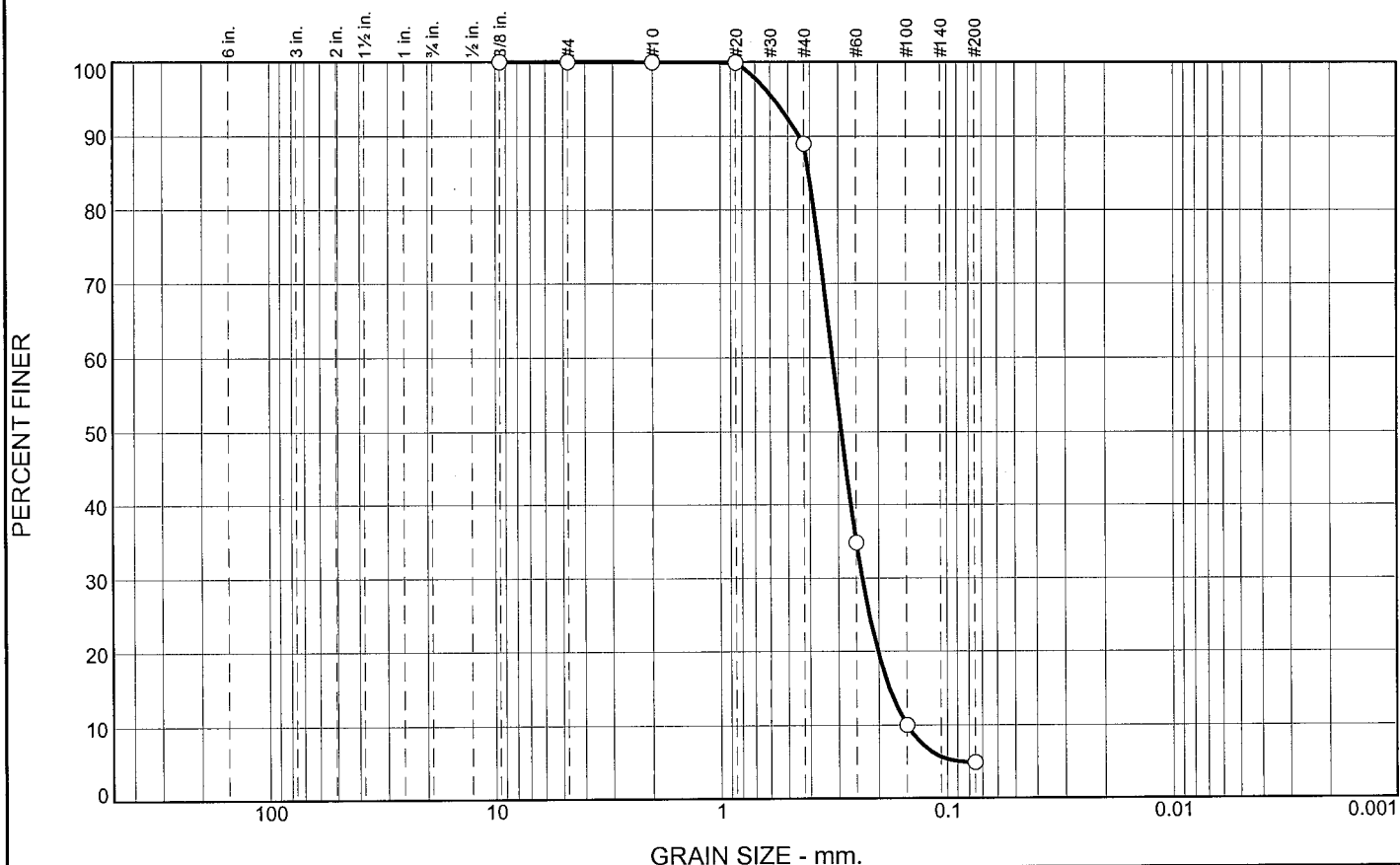
Project No: 10-2123-0009

Report No.

Tested By: R.Martin

Checked By: R.Byrd

# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.0	0.0	11.1	84.0	4.9	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
.375	100.0		
#4	100.0		
#10	100.0		
#20	99.9		
#40	88.9		
#60	34.8		
#100	10.0		
#200	4.9		

\* (no specification provided)

## Material Description

SAND, (SP), medium to fine grained

## Atterberg Limits

PL=

LL=

PI=

## Coefficients

D<sub>90</sub>= 0.4455

D<sub>85</sub>= 0.4045

D<sub>60</sub>= 0.3177

D<sub>50</sub>= 0.2906

D<sub>30</sub>= 0.2359

D<sub>15</sub>= 0.1796

D<sub>10</sub>= 0.1499

C<sub>u</sub>= 2.12

C<sub>c</sub>= 1.17

## Classification

USCS= SP

AASHTO=

## Remarks

CADD CODE = CH10D965

Location: USACE Sample # BI-PB-98-10D  
Sample Number: TE Lab ID: 4622.04

Depth: 15.0 - 17.5 (ft.)

Date: 8/15/10

**Thompson Engineering**

**Mobile, Alabama**

Client: US Army Corps of Engineers

Project: Contract No. W91278-10-D-0026 - Task 03  
Mississippi Barrier Island Restoration Project

Project No: 10-2123-0009

Report No.

Tested By: R.Martin

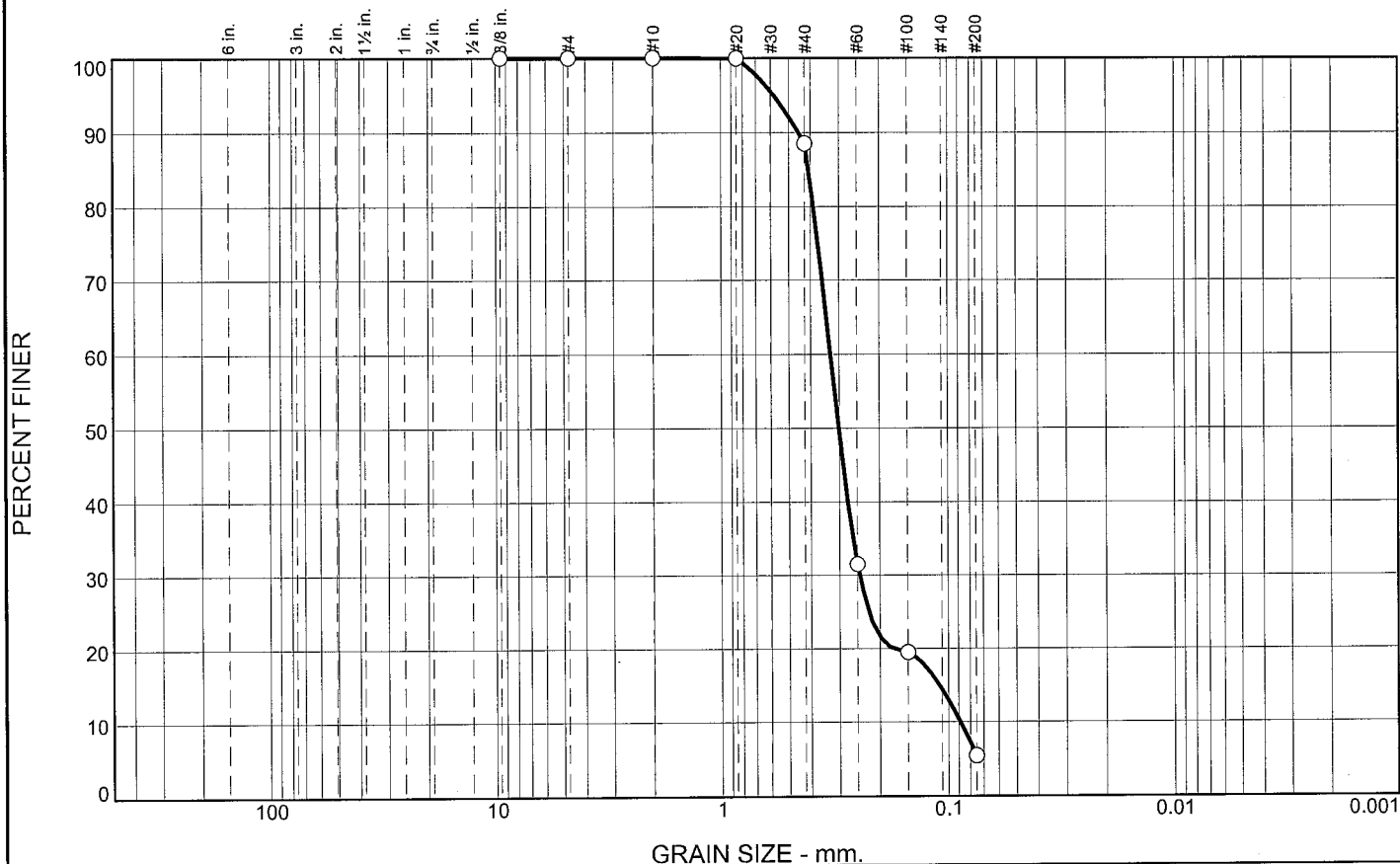
Checked By: R.Byrd

# Boring Designation BI-PB-099-10

DRILLING LOG		DIVISION South Atlantic		INSTALLATION Mobile District		SHEET 1 OF 2 SHEETS	
1. PROJECT MsCIP Barrier Island Restoration Petit Bois Pass- AL West				9. SIZE AND TYPE OF BIT N/A			
2. BORING DESIGNATION BI-PB-099-10		LOCATION COORDINATES E = 1,133,367 N = 252,679		10. COORDINATE SYSTEM/DATUM State Plane, MSE (U.S. Ft.)		HORIZONTAL NAD83 VERTICAL NAVD88	
3. DRILLING AGENCY Corps of Engineers - CESAM		CONTRACTOR FILE NO.		11. MANUFACTURER'S DESIGNATION OF DRILL Vibracore		<input type="checkbox"/> AUTO HAMMER <input type="checkbox"/> MANUAL HAMMER	
4. NAME OF DRILLER Construction Solutions International, Inc.				12. TOTAL SAMPLES 2		DISTURBED 2 UNDISTURBED (UD) 0	
5. DIRECTION OF BORING <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED		DEG. FROM VERTICAL		13. TOTAL NUMBER CORE BOXES			
		BEARING		14. WATER DEPTH 30 Ft.			
6. THICKNESS OF OVERBURDEN N/A				15. DATE BORING 08-03-10		STARTED 08-03-10 COMPLETED 08-03-10	
7. DEPTH DRILLED INTO ROCK N/A				16. ELEVATION TOP OF BORING -31.9 Ft.			
8. TOTAL DEPTH OF BORING 20.0 Ft.				17. TOTAL RECOVERY FOR BORING 100%			
				18. SIGNATURE AND TITLE OF INSPECTOR Chris Gillentine, Geologist			
ELEV.	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS	SAMPLE	LABORATORY RESULTS		
-31.9	0.0						
-32.9	1.0		CLAY, fat, dark gray (CH)	NS			
			SAND, poorly-graded, mostly fine to medium-grained sand-sized quartz, lt. gray (SP)	A	Classification: SP-SM Color: 2.5Y 5/2-grayish brown D50: 0.301 mm % Fines: 5.5		
				B	Classification: SP-SM Color: 2.5Y 6/2-light brownish gray D50: 0.2822 mm % Fines: 5.4		
-41.9	10.0		CLAY, fat, dark gray (CH)				
				NS			
-51.9	20.0						
			NOTES: 1. Soils are field visually classified in accordance with the Unified Soils Classification System. 2. NS = Sample not submitted for laboratory analysis from this interval. 3. Seafloor elevation determined from 2010				

<b>DRILLING LOG (Cont. Sheet)</b>			<b>INSTALLATION</b> Mobile District		<b>SHEET 2</b> <b>OF 2 SHEETS</b>
<b>PROJECT</b> MsCIP Barrier Island Restoration			<b>COORDINATE SYSTEM/DATUM</b> State Plane, MSE (U.S. Ft.)	<b>HORIZONTAL</b> NAD83	<b>VERTICAL</b> NAVD88
<b>LOCATION COORDINATES</b> X = 1,133,367 Y = 252,679			<b>ELEVATION TOP OF BORING</b> -31.9 Ft.		
<b>ELEV.</b>	<b>DEPTH</b>	<b>LEGEND</b>	<b>CLASSIFICATION OF MATERIALS</b>	<b>SAMPLE</b>	<b>LABORATORY RESULTS</b>
			USACE survey.		

# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.0	0.0	11.5	83.0	5.5	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
.375	100.0		
#4	100.0		
#10	100.0		
#20	100.0		
#40	88.5		
#60	31.5		
#100	19.5		
#200	5.5		

\* (no specification provided)

**Material Description**  
SAND, (SP-SM), medium to fine grained

**Atterberg Limits**  
 PL=                      LL=                      PI=

**Coefficients**  
 D<sub>90</sub>= 0.4529      D<sub>85</sub>= 0.4084      D<sub>60</sub>= 0.3272  
 D<sub>50</sub>= 0.3010      D<sub>30</sub>= 0.2447      D<sub>15</sub>= 0.1093  
 D<sub>10</sub>= 0.0887      C<sub>u</sub>= 3.69              C<sub>c</sub>= 2.06

**Classification**  
 USCS= SP-SM                      AASHTO=

**Remarks**  
 CADD CODE = CH10D965

Location: USACE Sample # BI-PB-99-10A  
 Sample Number: TE Lab ID: 4622.08

Depth: 1.0 - 5.0 (ft.)

Date: 8/15/10

**Thompson Engineering**  
  
**Mobile, Alabama**

Client: US Army Corps of Engineers  
 Project: Contract No. W91278-10-D-0026 - Task 03  
 Mississippi Barrier Island Restoration Project  
 Project No: 10-2123-0009

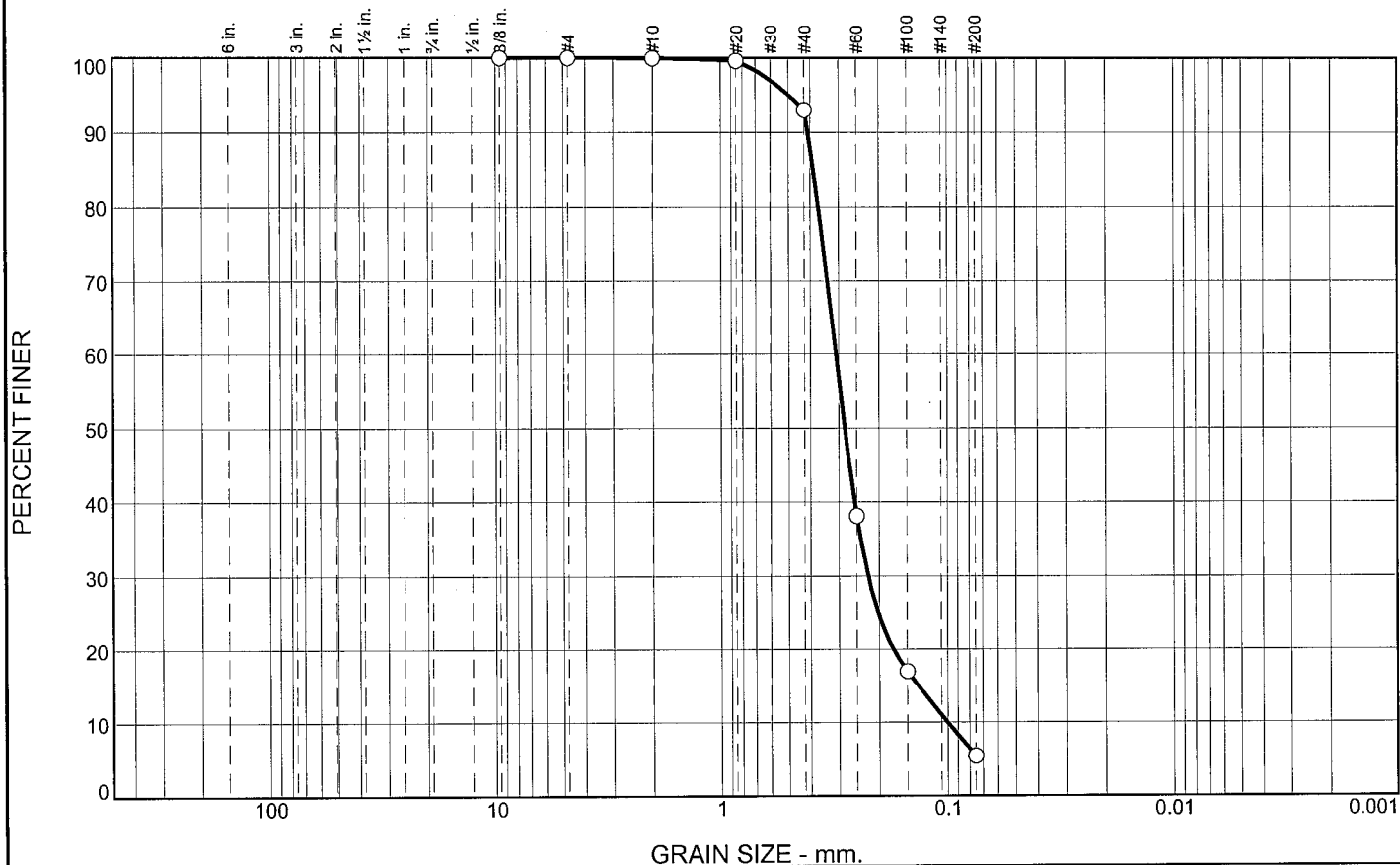
Report No.

Tested By: R.Martin

Checked By: R.Byrd



# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.0	0.1	6.9	87.6	5.4	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
.375	100.0		
#4	100.0		
#10	99.9		
#20	99.6		
#40	93.0		
#60	38.1		
#100	17.0		
#200	5.4		

\* (no specification provided)

## Material Description

SAND, (SP-SM), fine grained

## Atterberg Limits

PL=

LL=

PI=

## Coefficients

D<sub>90</sub>= 0.4090

D<sub>85</sub>= 0.3869

D<sub>60</sub>= 0.3085

D<sub>50</sub>= 0.2822

D<sub>30</sub>= 0.2233

D<sub>15</sub>= 0.1346

D<sub>10</sub>= 0.1001

C<sub>u</sub>= 3.08

C<sub>c</sub>= 1.62

## Classification

USCS= SP-SM

AASHTO=

## Remarks

CADD CODE = CH10D965

Location: USACE Sample # BI-PB-99-10B  
Sample Number: TE Lab ID: 4622.09

Depth: 5.0 - 10.0 (ft.)

Date: 8/15/10

**Thompson Engineering**

**Mobile, Alabama**

Client: US Army Corps of Engineers

Project: Contract No. W91278-10-D-0026 - Task 03  
Mississippi Barrier Island Restoration Project

Project No: 10-2123-0009

Report No.

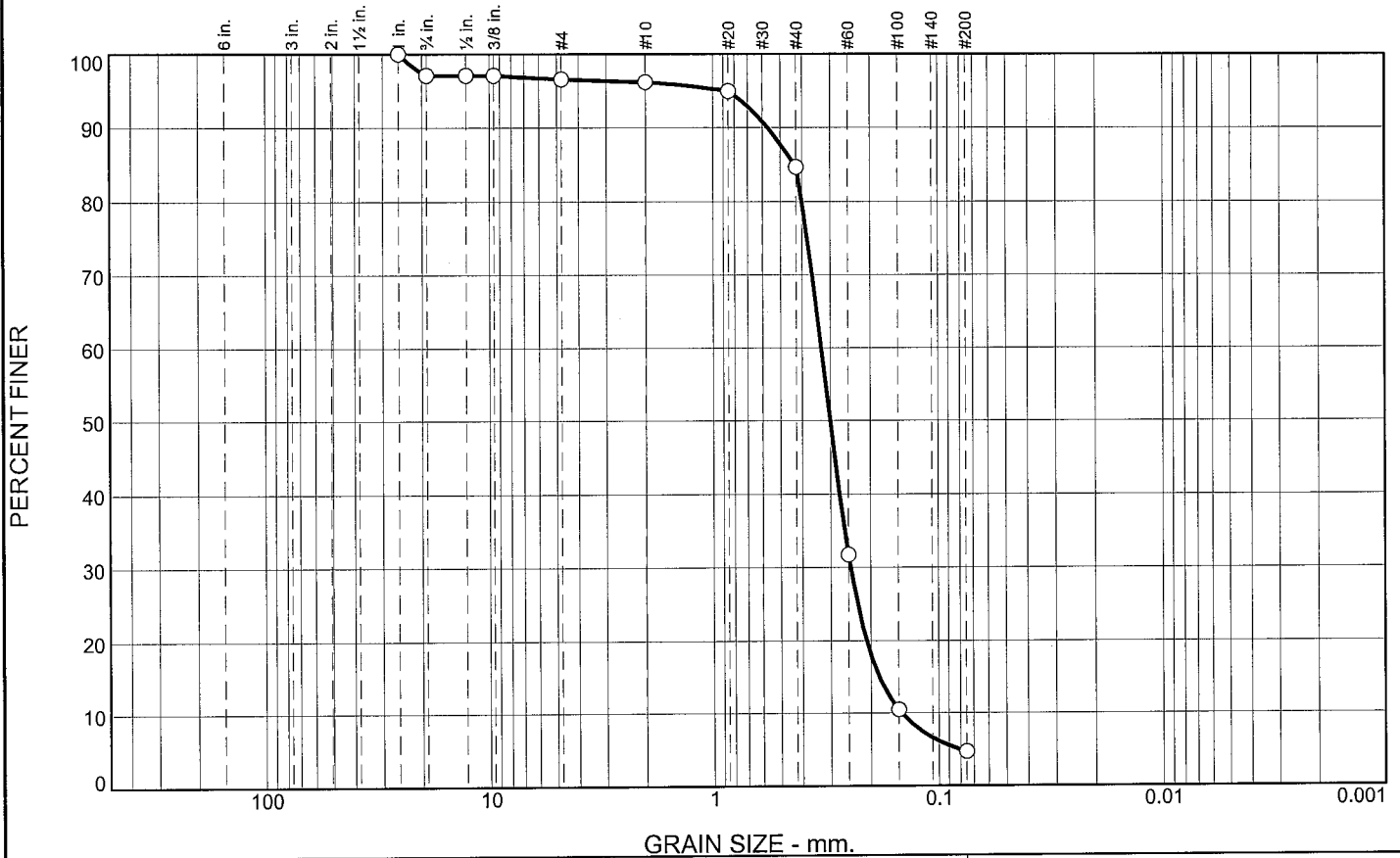
Tested By: R.Martin

Checked By: R.Byrd

# Boring Designation BI-PB-100-10

DRILLING LOG		DIVISION South Atlantic		INSTALLATION Mobile District		SHEET 1 OF 1 SHEETS				
1. PROJECT MsCIP Barrier Island Restoration Petit Bois Pass- AL West				9. SIZE AND TYPE OF BIT N/A						
2. BORING DESIGNATION BI-PB-100-10		LOCATION COORDINATES E = 1,131,777 N = 254,357		10. COORDINATE SYSTEM/DATUM State Plane, MSE (U.S. Ft.)		HORIZONTAL NAD83				
3. DRILLING AGENCY Corps of Engineers - CESAM		CONTRACTOR FILE NO.		11. MANUFACTURER'S DESIGNATION OF DRILL Vibrocure		<input type="checkbox"/> AUTO HAMMER <input type="checkbox"/> MANUAL HAMMER				
4. NAME OF DRILLER Construction Solutions International, Inc.				12. TOTAL SAMPLES 3		UNDISTURBED (UD) 0				
5. DIRECTION OF BORING <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED				13. TOTAL NUMBER CORE BOXES		14. WATER DEPTH 25 Ft.				
6. THICKNESS OF OVERBURDEN N/A				15. DATE BORING 08-03-10		COMPLETED 08-03-10				
7. DEPTH DRILLED INTO ROCK N/A				16. ELEVATION TOP OF BORING -26.4 Ft.		17. TOTAL RECOVERY FOR BORING 100%				
8. TOTAL DEPTH OF BORING 13.0 Ft.				18. SIGNATURE AND TITLE OF INSPECTOR Chris Gillentine, Geologist						
ELEV.	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS	SAMPLE	LABORATORY RESULTS					
-26.4	0.0									
-27.9	1.5		SAND, poorly-graded, mostly fine to medium-grained sand-sized quartz, trace shell fragments, gray (SP) SAND, poorly-graded, mostly fine to medium-grained sand-sized quartz, dark brown (SP)	A	Classification: SP Color: 2.5Y 4/2-dark grayish brown D50: 0.3007 mm % Fines: 4.7					
-31.4	5.0					SAND, poorly-graded, mostly fine to medium-grained sand-sized quartz, trace silt, tan (SP)	B	Classification: SP-SM Color: 2.5Y 5/2-grayish brown D50: 0.2993 mm % Fines: 6.5		
-35.4	9.0								SAND, poorly-graded, mostly fine to medium-grained sand-sized quartz, gray (SP)	C
-38.4	12.0		CLAY, fat, gray (CH)	NS						
-39.4	13.0				NOTES: 1. Soils are field visually classified in accordance with the Unified Soils Classification System. 2. NS = Sample not submitted for laboratory analysis from this interval. 3. Seafloor elevation determined from 2010 USACE survey.					

# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	2.9	0.5	0.4	11.5	80.0	4.7	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
1"	100.0		
.750	97.1		
.50	97.1		
.375	97.1		
#4	96.6		
#10	96.2		
#20	94.9		
#40	84.7		
#60	31.7		
#100	10.5		
#200	4.7		

\* (no specification provided)

## Material Description

SAND, (SP), medium to fine grained, with trace shell

## Atterberg Limits

PL= LL= PI=

## Coefficients

D<sub>90</sub>= 0.5691 D<sub>85</sub>= 0.4314 D<sub>60</sub>= 0.3292  
D<sub>50</sub>= 0.3007 D<sub>30</sub>= 0.2448 D<sub>15</sub>= 0.1836  
D<sub>10</sub>= 0.1455 C<sub>u</sub>= 2.26 C<sub>c</sub>= 1.25

## Classification

USCS= SP AASHTO=

## Remarks

CADD CODE = CH10D965

Location: USACE Sample # BI-PB-100-10A  
Sample Number: TE Lab ID: 4622.05

Depth: 0.0 - 5.0 (ft.)

Date: 8/15/10

**Thompson Engineering**

**Mobile, Alabama**

Client: US Army Corps of Engineers

Project: Contract No. W91278-10-D-0026 - Task 03  
Mississippi Barrier Island Restoration Project

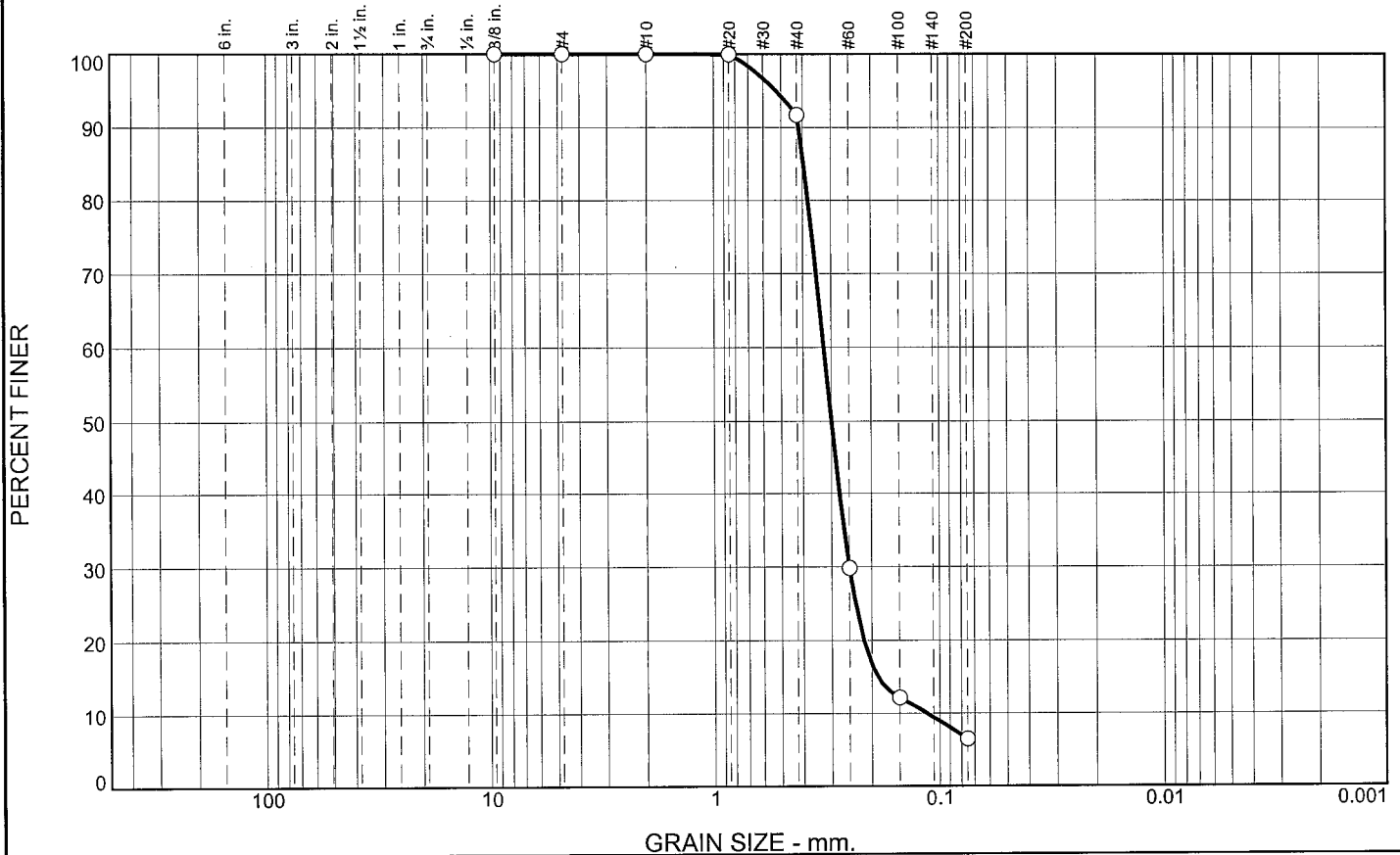
Project No: 10-2123-0009

Report No.

Tested By: R.Martin

Checked By: R.Byrd

# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.0	0.0	8.3	85.2	6.5	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
.375	100.0		
#4	100.0		
#10	100.0		
#20	100.0		
#40	91.7		
#60	29.8		
#100	12.2		
#200	6.5		

\* (no specification provided)

## Material Description

SAND, (SP-SM), fine grained, with trace clay pockets

## Atterberg Limits

PL=

LL=

PI=

## Coefficients

D<sub>90</sub>= 0.4167

D<sub>85</sub>= 0.3961

D<sub>60</sub>= 0.3232

D<sub>50</sub>= 0.2993

D<sub>30</sub>= 0.2505

D<sub>15</sub>= 0.1880

D<sub>10</sub>= 0.1136

C<sub>u</sub>= 2.85

C<sub>c</sub>= 1.71

## Classification

USCS= SP-SM

AASHTO=

## Remarks

CADD CODE = CH10D965

Location: USACE Sample # BI-PB-100-10B  
Sample Number: TE Lab ID: 4622.06

Depth: 5.0 - 10.0 (ft.)

Date: 8/15/10

**Thompson Engineering**

**Mobile, Alabama**

Client: US Army Corps of Engineers

Project: Contract No. W91278-10-D-0026 - Task 03  
Mississippi Barrier Island Restoration Project

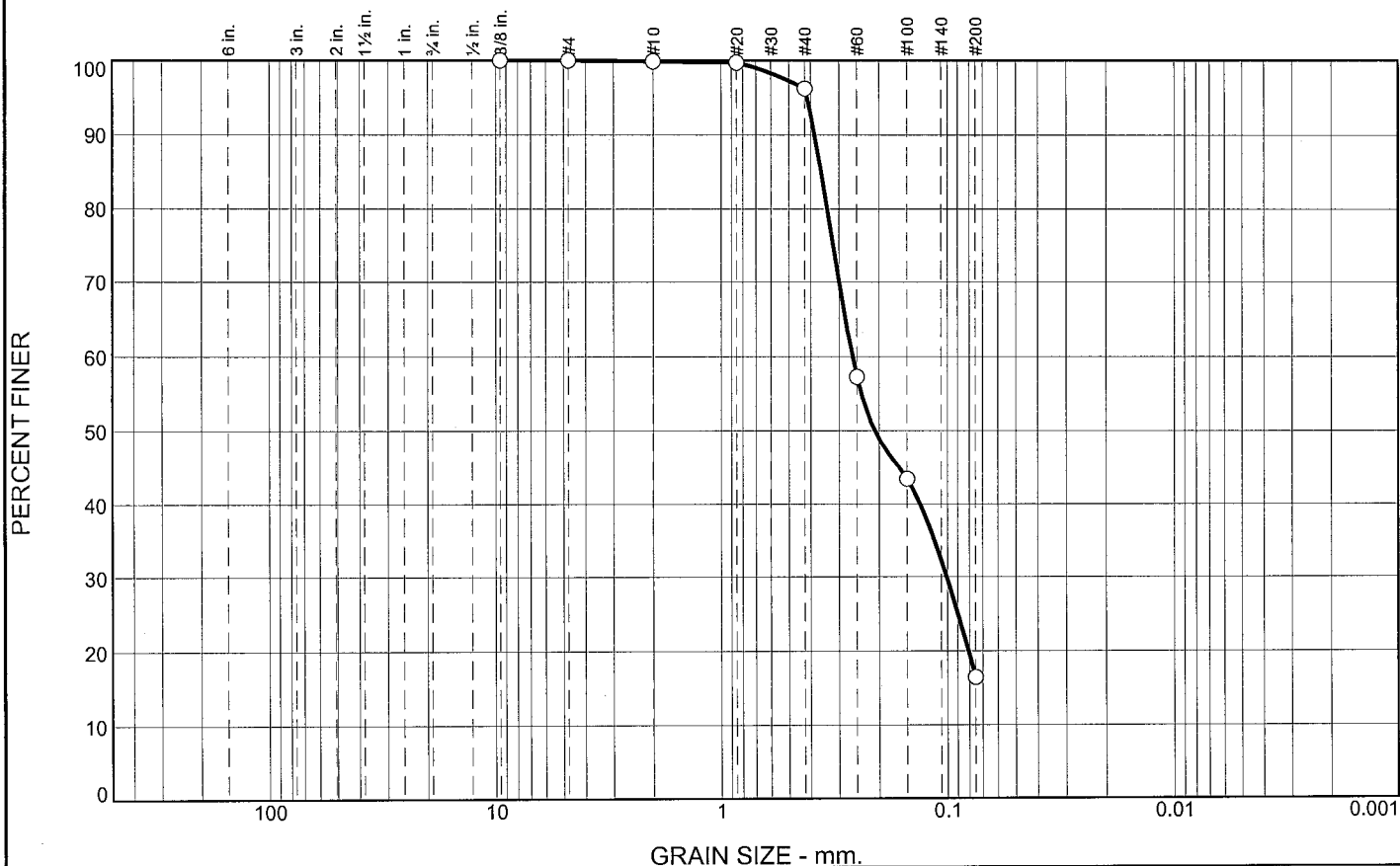
Project No: 10-2123-0009

Report No.

Tested By: R.Martin

Checked By: R.Byrd

# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.0	0.1	3.7	79.8	16.4	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
.375	100.0		
#4	100.0		
#10	99.9		
#20	99.7		
#40	96.2		
#60	57.3		
#100	43.4		
#200	16.4		

\* (no specification provided)

**Material Description**  
CLAYEY SAND, (SC), fine grained, with trace clay pockets

**Atterberg Limits**  
 PL=      LL=      PI=

**Coefficients**  
 D<sub>90</sub>= 0.3843      D<sub>85</sub>= 0.3595      D<sub>60</sub>= 0.2615  
 D<sub>50</sub>= 0.2091      D<sub>30</sub>= 0.1009      D<sub>15</sub>=  
 D<sub>10</sub>=      C<sub>u</sub>=      C<sub>c</sub>=

**Classification**  
 USCS= SC      AASHTO=

**Remarks**  
 CADD CODE = CH10D965

Location: USACE Sample # BI-PB-100-10C  
 Sample Number: TE Lab ID: 4622.07

Depth: 10.0 - 15.0 (ft.)

Date: 8/15/10

**Thompson Engineering**  
  
**Mobile, Alabama**

**Client:** US Army Corps of Engineers  
**Project:** Contract No. W91278-10-D-0026 - Task 03  
 Mississippi Barrier Island Restoration Project  
**Project No:** 10-2123-0009      **Report No.**

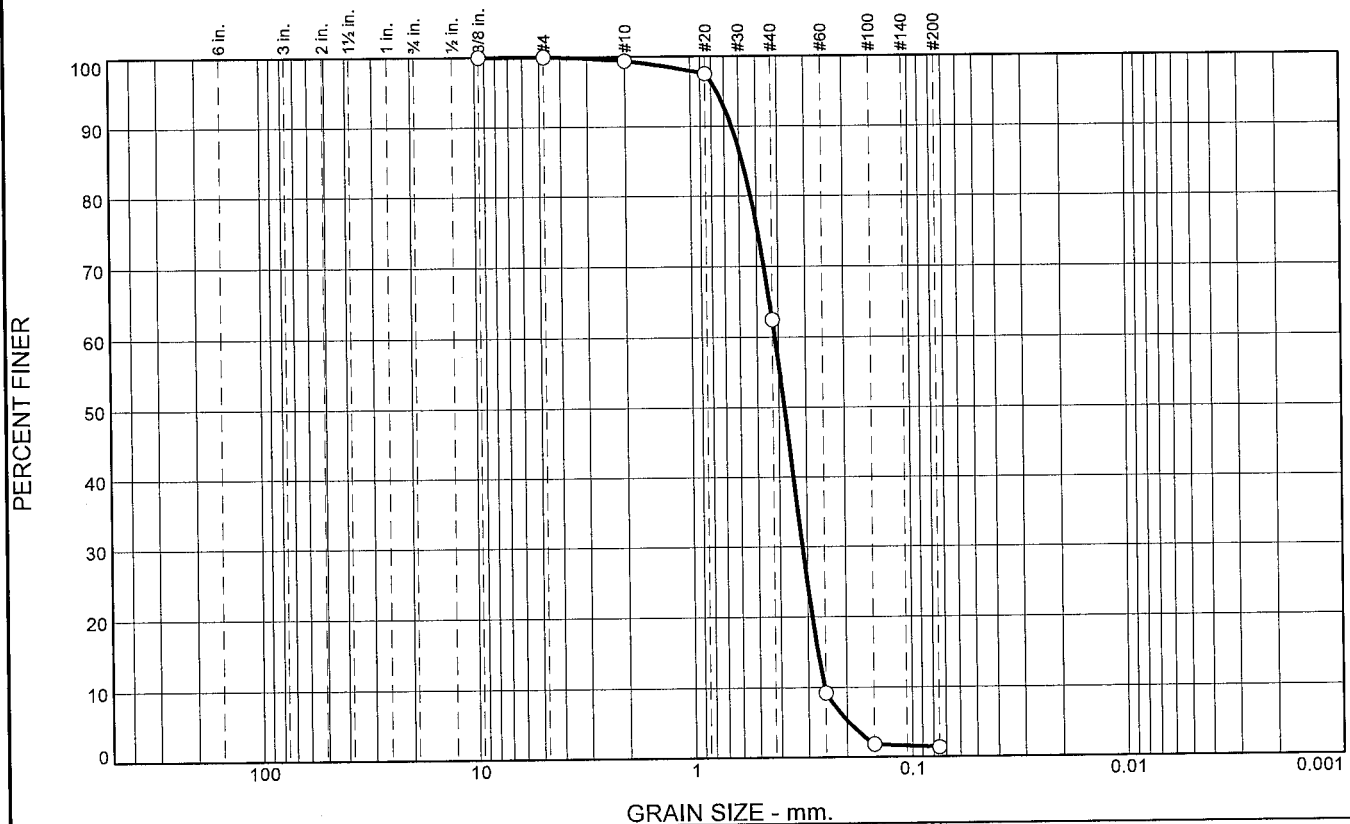
Tested By: R.Martin

Checked By: R.Byrd

# Boring Designation BI-PB-101-10

DRILLING LOG		DIVISION South Atlantic		INSTALLATION Mobile District		SHEET 1 OF 1 SHEETS	
1. PROJECT MsCIP Barrier Island Restoration Petit Bois Pass- AL West				9. SIZE AND TYPE OF BIT N/A			
2. BORING DESIGNATION BI-PB-101-10		LOCATION COORDINATES E = 1,133,423 N = 254,374		10. COORDINATE SYSTEM/DATUM State Plane, MSE (U.S. Ft.)		HORIZONTAL NAD83 VERTICAL NAVD88	
3. DRILLING AGENCY Corps of Engineers - CESAM		CONTRACTOR FILE NO.		11. MANUFACTURER'S DESIGNATION OF DRILL Vibracore		<input type="checkbox"/> AUTO HAMMER <input type="checkbox"/> MANUAL HAMMER	
4. NAME OF DRILLER Construction Solutions International, Inc.				12. TOTAL SAMPLES 3		DISTURBED 3 UNDISTURBED (UD) 0	
5. DIRECTION OF BORING <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED		DEG. FROM VERTICAL		13. TOTAL NUMBER CORE BOXES			
		BEARING		14. WATER DEPTH 27 Ft.			
6. THICKNESS OF OVERBURDEN N/A				15. DATE BORING 07-31-10		STARTED 07-31-10 COMPLETED 07-31-10	
7. DEPTH DRILLED INTO ROCK N/A				16. ELEVATION TOP OF BORING -27.9 Ft.			
8. TOTAL DEPTH OF BORING 16.0 Ft.				17. TOTAL RECOVERY FOR BORING 100%			
				18. SIGNATURE AND TITLE OF INSPECTOR Chris Gillentine, Geologist			
ELEV.	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS	SAMPLE	LABORATORY RESULTS		
-27.9	0.0						
			SAND, poorly-graded, mostly medium-grained sand-sized quartz, dark brown (SP)	A	Classification: SP Color: 2.5Y 3/3-dark olive brown D50: 0.3773 mm % Fines: 1.4		
			At El. -34.9 Ft., lt. tan	B	Classification: SP-SM Color: 2.5Y 2.5/1-black D50: 0.2789 mm % Fines: 5.5		
-37.9	10.0			C	Classification: SP-SM Color: 2.5Y 5/1-gray D50: 0.2862 mm % Fines: 5.4		
			CLAY, fat, dark gray (CH)	NS			
-43.9	16.0						
			NOTES: 1. Soils are field visually classified in accordance with the Unified Soils Classification System. 2. NS = Sample not submitted for laboratory analysis from this interval. 3. Seafloor elevation determined from 2010 USACE survey.				

# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.0	0.6	36.9	61.1	1.4	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
.375	100.0		
#4	100.0		
#10	99.4		
#20	97.5		
#40	62.5		
#60	9.2		
#100	1.8		
#200	1.4		

\* (no specification provided)

## Material Description

SAND, (SP), medium to fine grained

PL=      Atterberg Limits      LL=      PI=

Coefficients  
D<sub>90</sub>= 0.6465      D<sub>85</sub>= 0.5791      D<sub>60</sub>= 0.4146  
D<sub>50</sub>= 0.3773      D<sub>30</sub>= 0.3154      D<sub>15</sub>= 0.2704  
D<sub>10</sub>= 0.2530      C<sub>u</sub>= 1.64      C<sub>c</sub>= 0.95

Classification  
USCS= SP      AASHTO=

Remarks  
CADD CODE = CH10D965

Location: USACE Sample # BI-PB-101-10A  
Sample Number: TE Lab ID: 4612.65

Depth: 0.0 - 5.0 (ft.)

Date: 8/7/10

**Thompson Engineering**

**Mobile, Alabama**

Client: US Army Corps of Engineers

Project: Contract No. W91278-10-D-0026 - Task 03  
Mississippi Barrier Island Restoration Project

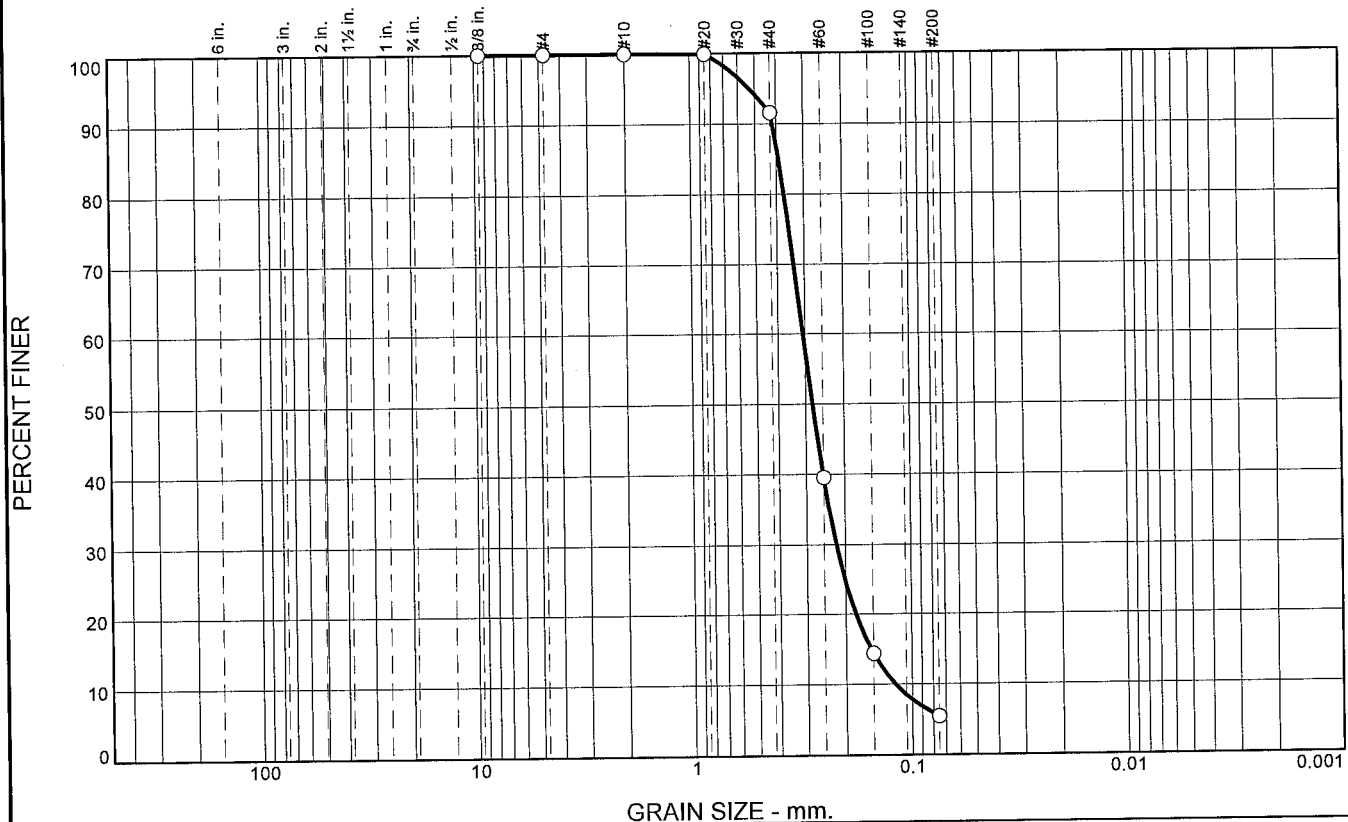
Project No: 10-2123-0009

Report No.

Tested By: J.Maddox

Checked By: R.Byrd

# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.0	0.0	8.4	86.1	5.5	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
.375	100.0		
#4	100.0		
#10	100.0		
#20	99.9		
#40	91.6		
#60	39.5		
#100	14.4		
#200	5.5		

\* (no specification provided)

**Material Description**  
SAND, (SP-SM), fine grained

**Atterberg Limits**  
PL=      LL=      PI=

**Coefficients**  
D<sub>90</sub>= 0.4157      D<sub>85</sub>= 0.3909      D<sub>60</sub>= 0.3064  
D<sub>50</sub>= 0.2789      D<sub>30</sub>= 0.2203      D<sub>15</sub>= 0.1537  
D<sub>10</sub>= 0.1193      C<sub>u</sub>= 2.57      C<sub>c</sub>= 1.33

**Classification**  
USCS= SP-SM      AASHTO=

**Remarks**  
CADD CODE = CH10D965

Location: USACE Sample # BI-PB-101-10B  
Sample Number: TE Lab ID: 4612.66

Depth: 5.0 - 10.0 (ft.)

Date: 8/7/10

**Thompson Engineering**

**Mobile, Alabama**

Client: US Army Corps of Engineers

Project: Contract No. W91278-10-D-0026 - Task 03  
Mississippi Barrier Island Restoration Project

Project No: 10-2123-0009

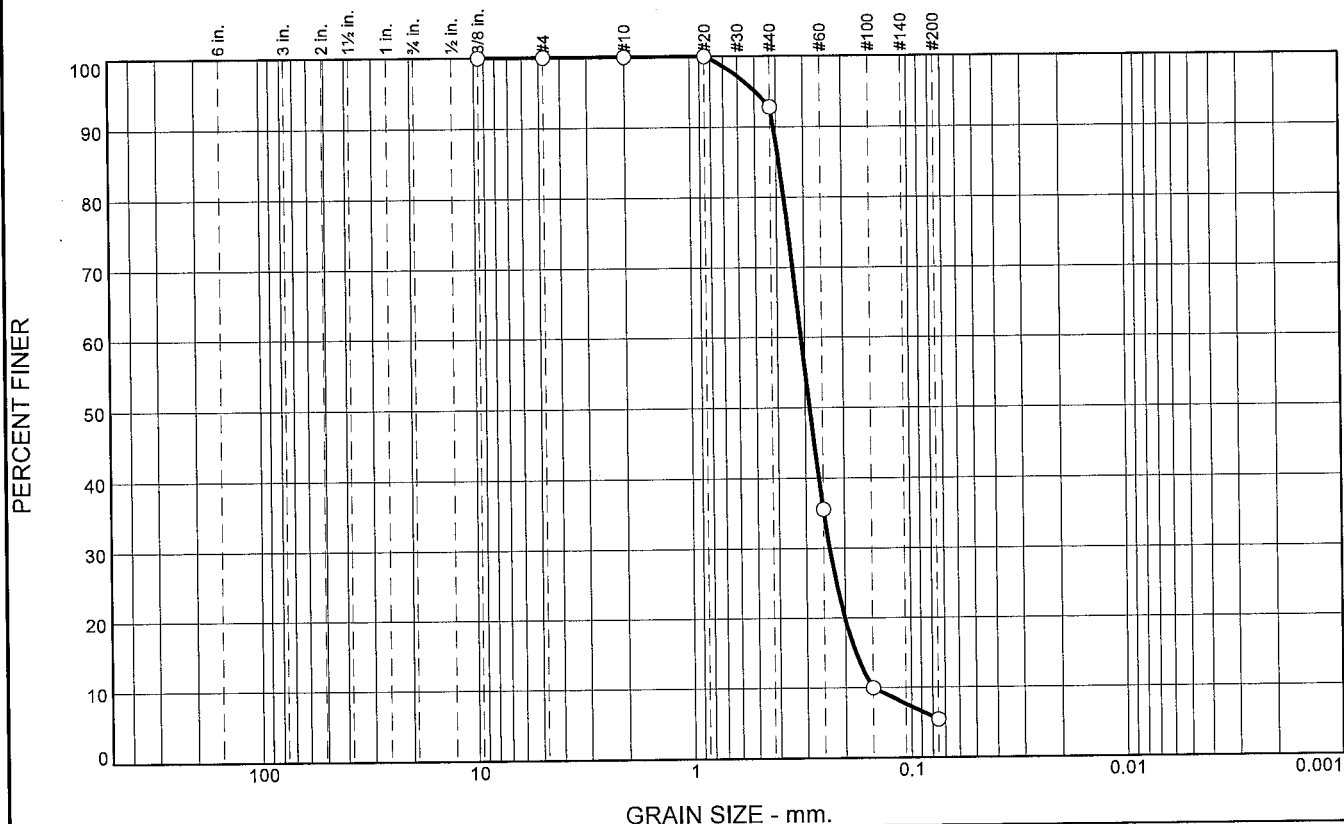
Report No.

Tested By: J.Maddox

Checked By: R.Byrd



# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.0	0.0	7.2	87.4	5.4	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
.375	100.0		
#4	100.0		
#10	100.0		
#20	100.0		
#40	92.8		
#60	35.6		
#100	10.0		
#200	5.4		

\* (no specification provided)

**Material Description**  
SAND, (SP-SM), fine grained

**Atterberg Limits**  
PL=      LL=      PI=

**Coefficients**  
D<sub>90</sub>= 0.4103      D<sub>85</sub>= 0.3884      D<sub>60</sub>= 0.3114  
D<sub>50</sub>= 0.2862      D<sub>30</sub>= 0.2345      D<sub>15</sub>= 0.1800  
D<sub>10</sub>= 0.1504      C<sub>u</sub>= 2.07      C<sub>c</sub>= 1.17

**Classification**  
USCS= SP-SM      AASHTO=

**Remarks**  
CADD CODE = CH10D965

Location: USACE Sample # BI-PB-101-10C  
Sample Number: TE Lab ID: 4612.67

Depth: 10.0 - 11.0 (ft.)

Date: 8/7/10

**Thompson Engineering**

**Mobile, Alabama**

Client: US Army Corps of Engineers

Project: Contract No. W91278-10-D-0026 - Task 03  
Mississippi Barrier Island Restoration Project



Project No: 10-2123-0009

Report No.

Tested By: J.Maddox

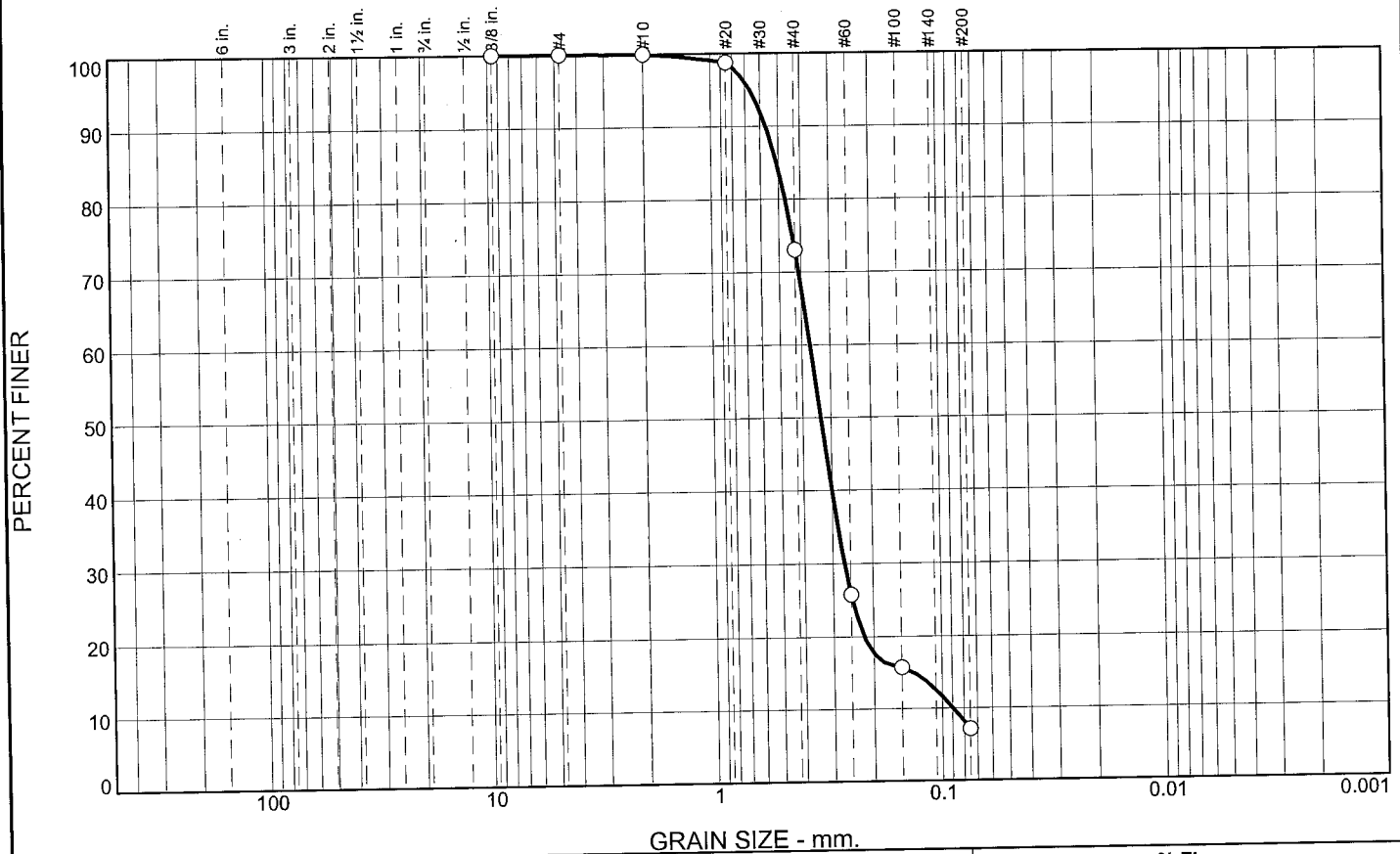
Checked By: R.Byrd

# Boring Designation BI-PB-102-10

DRILLING LOG		DIVISION South Atlantic		INSTALLATION Mobile District		SHEET 1 OF 2 SHEETS	
1. PROJECT MsCIP Barrier Island Restoration Petit Bois Pass- AL West				9. SIZE AND TYPE OF BIT N/A			
2. BORING DESIGNATION BI-PB-102-10		LOCATION COORDINATES E = 1,134,927 N = 252,813		10. COORDINATE SYSTEM/DATUM State Plane, MSE (U.S. Ft.)		HORIZONTAL NAD83 VERTICAL NAVD88	
3. DRILLING AGENCY Corps of Engineers - CESAM		CONTRACTOR FILE NO.		11. MANUFACTURER'S DESIGNATION OF DRILL Vibracore		<input type="checkbox"/> AUTO HAMMER <input type="checkbox"/> MANUAL HAMMER	
4. NAME OF DRILLER Construction Solutions International, Inc.				12. TOTAL SAMPLES 3		DISTURBED 3 UNDISTURBED (UD) 0	
5. DIRECTION OF BORING <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED		DEG. FROM VERTICAL		13. TOTAL NUMBER CORE BOXES			
		BEARING		14. WATER DEPTH 31 Ft.			
6. THICKNESS OF OVERBURDEN N/A				15. DATE BORING 08-03-10		STARTED 08-03-10 COMPLETED 08-03-10	
7. DEPTH DRILLED INTO ROCK N/A				16. ELEVATION TOP OF BORING -32.6 Ft.			
8. TOTAL DEPTH OF BORING 20.0 Ft.				17. TOTAL RECOVERY FOR BORING 100%			
				18. SIGNATURE AND TITLE OF INSPECTOR Chris Gillentine, Geologist			
ELEV.	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS	SAMPLE	LABORATORY RESULTS		
-32.6	0.0						
			SAND, poorly-graded, mostly fine to medium-grained sand-sized quartz, lt. gray (SP)	A	Classification: SP-SM Color: 2.5Y 5/2-grayish brown D50: 0.3327 mm % Fines: 7.1		
				B	Classification: SP Color: 2.5Y 6/2-light brownish gray D50: 0.3295 mm % Fines: 3.1		
				C	Classification: SP-SM Color: 2.5Y 6/2-light brownish gray D50: 0.2562 mm % Fines: 7.3		
-43.6	11.0		CLAY, fat, dark gray (CH)	NS			
-52.6	20.0						
			NOTES:				
			1. Soils are field visually classified in accordance with the Unified Soils Classification System.				
			2. NS = Sample not submitted for laboratory analysis from this interval.				
			3. Seafloor elevation determined from 2010				

<b>DRILLING LOG (Cont. Sheet)</b>			<b>INSTALLATION</b> Mobile District		<b>SHEET 2</b> <b>OF 2 SHEETS</b>
<b>PROJECT</b> MsCIP Barrier Island Restoration			<b>COORDINATE SYSTEM/DATUM</b> State Plane, MSE (U.S. Ft.)	<b>HORIZONTAL</b> NAD83	<b>VERTICAL</b> NAVD88
<b>LOCATION COORDINATES</b> X = 1,134,927 Y = 252,813			<b>ELEVATION TOP OF BORING</b> -32.6 Ft.		
<b>ELEV.</b>	<b>DEPTH</b>	<b>LEGEND</b>	<b>CLASSIFICATION OF MATERIALS</b>	<b>SAMPLE</b>	<b>LABORATORY RESULTS</b>
			USACE survey.		

# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.0	0.1	26.9	65.9	7.1	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
.375	100.0		
#4	100.0		
#10	99.9		
#20	98.7		
#40	73.0		
#60	25.7		
#100	15.7		
#200	7.1		

\* (no specification provided)

**Material Description**  
SAND, (SP-SM), medium to fine grained

**Atterberg Limits**  
 PL=                      LL=                      PI=  
**Coefficients**  
 D<sub>90</sub>= 0.5679      D<sub>85</sub>= 0.5092      D<sub>60</sub>= 0.3681  
 D<sub>50</sub>= 0.3327      D<sub>30</sub>= 0.2664      D<sub>15</sub>= 0.1341  
 D<sub>10</sub>= 0.0895      C<sub>u</sub>= 4.11      C<sub>c</sub>= 2.15

**Classification**  
 USCS= SP-SM                      AASHTO=

**Remarks**  
 CADD CODE = CH10D965

Location: USACE Sample # BI-PB-102-10A  
 Sample Number: TE Lab ID: 4622.10

Depth: 0.0 - 4.0 (ft.)

Date: 8/15/10

**Thompson Engineering**  
**Mobile, Alabama**

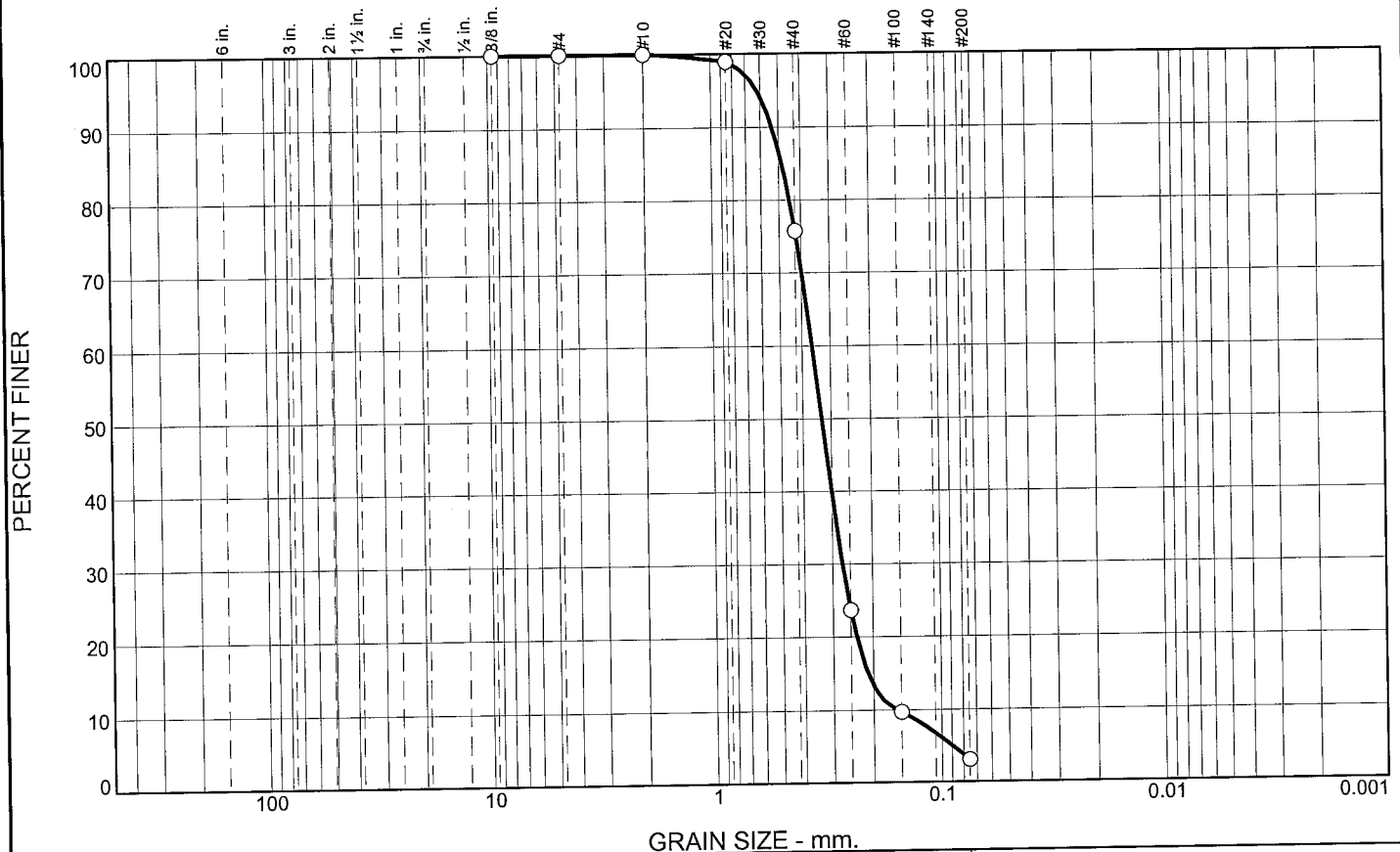
Client: US Army Corps of Engineers  
 Project: Contract No. W91278-10-D-0026 - Task 03  
 Mississippi Barrier Island Restoration Project  
 Project No: 10-2123-0009

Report No.

Tested By: R.Martin

Checked By: R.Byrd

# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.0	0.0	24.2	72.7	3.1	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
.375	100.0		
#4	100.0		
#10	100.0		
#20	98.9		
#40	75.8		
#60	23.6		
#100	9.7		
#200	3.1		

\* (no specification provided)

**Material Description**  
SAND, (SP), medium to fine grained

**Atterberg Limits**  
 PL=                      LL=                      PI=

**Coefficients**  
 D<sub>90</sub>= 0.5342      D<sub>85</sub>= 0.4841      D<sub>60</sub>= 0.3614  
 D<sub>50</sub>= 0.3295      D<sub>30</sub>= 0.2707      D<sub>15</sub>= 0.2112  
 D<sub>10</sub>= 0.1559      C<sub>u</sub>= 2.32              C<sub>c</sub>= 1.30

**Classification**  
 USCS= SP                      AASHTO=

**Remarks**  
 CADD CODE = CH10D965

Location: USACE Sample # BI-PB-102-10B  
 Sample Number: TE Lab ID: 4622.11

Depth: 4.0 - 8.0 (ft.)

Date: 8/15/10

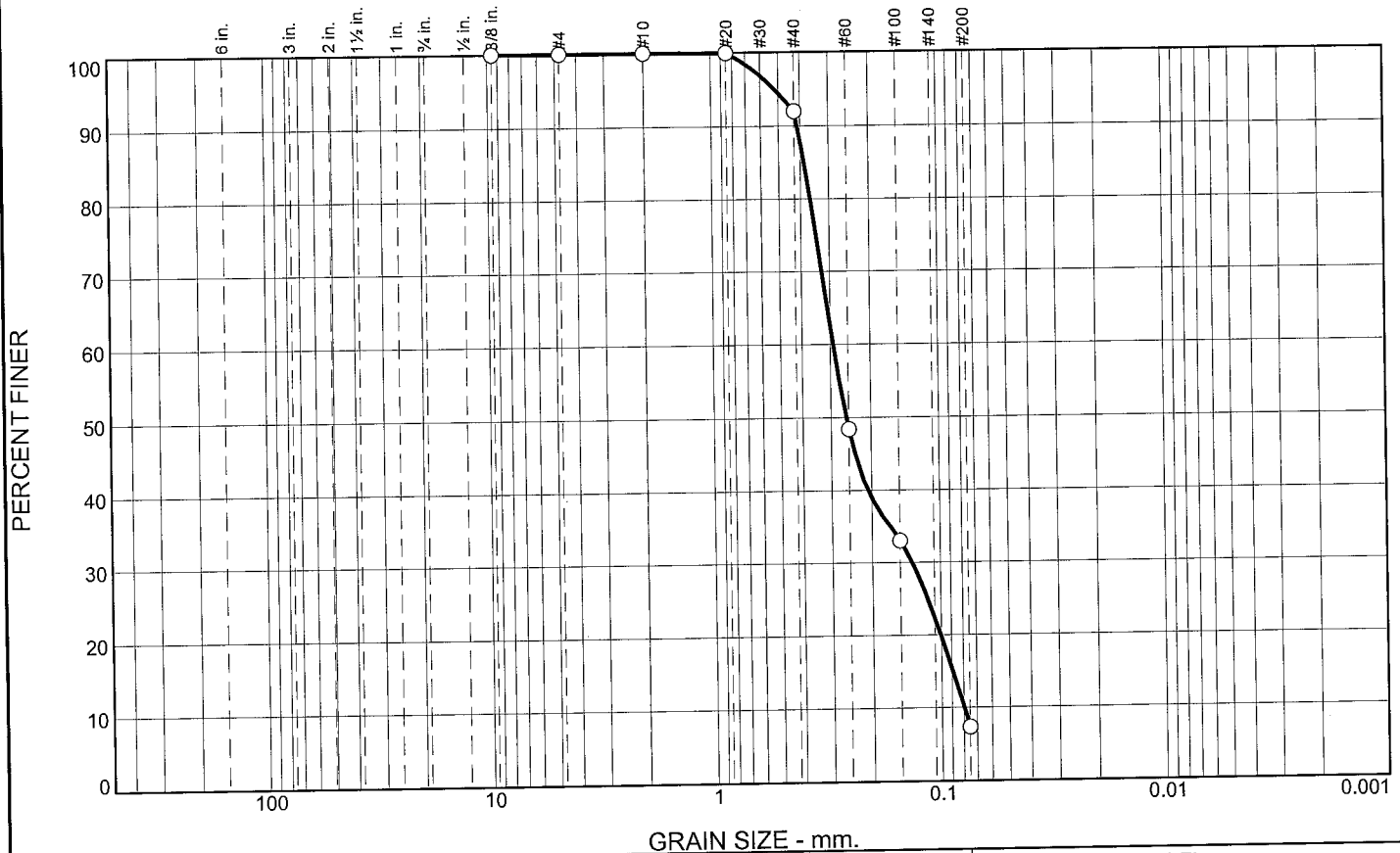
**Thompson Engineering**  
  
**Mobile, Alabama**

**Client:** US Army Corps of Engineers  
**Project:** Contract No. W91278-10-D-0026 - Task 03  
 Mississippi Barrier Island Restoration Project  
**Project No:** 10-2123-0009      **Report No.**

Tested By: R.Martin

Checked By: R.Byrd

# Particle Size Distribution Report



GRAIN SIZE - mm.

% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.0	0.0	8.0	84.7	7.3	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
.375	100.0		
#4	100.0		
#10	100.0		
#20	99.9		
#40	92.0		
#60	48.4		
#100	33.0		
#200	7.3		

\* (no specification provided)

**Material Description**  
SAND, (SP-SM), fine grained

**Atterberg Limits**  
PL=      LL=      PI=

**Coefficients**  
D<sub>90</sub>= 0.4123      D<sub>85</sub>= 0.3854      D<sub>60</sub>= 0.2909  
D<sub>50</sub>= 0.2562      D<sub>30</sub>= 0.1333      D<sub>15</sub>= 0.0892  
D<sub>10</sub>= 0.0796      C<sub>u</sub>= 3.65      C<sub>c</sub>= 0.77

**Classification**  
USCS= SP-SM      AASHTO=

**Remarks**  
CADD CODE = CH10D965

Location: USACE Sample # BI-PB-102-10C  
Sample Number: TE Lab ID: 4622.12

Depth: 8.0 - 11.0 (ft.)

Date: 8/15/10

**Thompson Engineering**  
**Mobile, Alabama**

**Client:** US Army Corps of Engineers  
**Project:** Contract No. W91278-10-D-0026 - Task 03  
Mississippi Barrier Island Restoration Project  
**Project No:** 10-2123-0009

**Report No.**

Tested By: R.Martin

Checked By: R.Byrd

# Boring Designation BI-PB-103-10

DRILLING LOG		DIVISION South Atlantic		INSTALLATION Mobile District		SHEET 1 OF 2 SHEETS	
1. PROJECT MsCIP Barrier Island Restoration Petit Bois Pass- AL West				9. SIZE AND TYPE OF BIT N/A			
2. BORING DESIGNATION BI-PB-103-10		LOCATION COORDINATES E = 1,128,625 N = 250,343		10. COORDINATE SYSTEM/DATUM State Plane, MSE (U.S. Ft.)		HORIZONTAL NAD83	
3. DRILLING AGENCY Corps of Engineers - CESAM		CONTRACTOR FILE NO.		11. MANUFACTURER'S DESIGNATION OF DRILL Vibrocure		<input type="checkbox"/> AUTO HAMMER <input type="checkbox"/> MANUAL HAMMER	
4. NAME OF DRILLER Construction Solutions International, Inc.				12. TOTAL SAMPLES 0			
5. DIRECTION OF BORING <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED				13. TOTAL NUMBER CORE BOXES			
6. THICKNESS OF OVERBURDEN N/A				14. WATER DEPTH 33 Ft.			
7. DEPTH DRILLED INTO ROCK N/A				15. DATE BORING 08-04-10			
8. TOTAL DEPTH OF BORING 19.0 Ft.				16. ELEVATION TOP OF BORING -32.4 Ft.			
				17. TOTAL RECOVERY FOR BORING 100%			
				18. SIGNATURE AND TITLE OF INSPECTOR Chris Gillentine, Geologist			
ELEV.	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS	SAMPLE	LABORATORY RESULTS		
-32.4	0.0		CLAY, fat, trace of shell fragments in upper 1 ft., dark gray (CH)				
				NS			
-51.4	19.0						
			NOTES: 1. Soils are field visually classified in accordance with the Unified Soils Classification System. 2. NS = Sample not submitted for laboratory analysis from this interval. 3. Seafloor elevation calculated using sampling vessel's fathometer water depth reading and applying NOAA tidal gauge data conversion				

<b>DRILLING LOG (Cont. Sheet)</b>			<b>INSTALLATION</b> Mobile District		<b>SHEET 2</b> <b>OF 2 SHEETS</b>
<b>PROJECT</b> MsCIP Barrier Island Restoration			<b>COORDINATE SYSTEM/DATUM</b> State Plane, MSE (U.S. Ft.)	<b>HORIZONTAL</b> NAD83	<b>VERTICAL</b> NAVD88
<b>LOCATION COORDINATES</b> X = 1,128,625 Y = 250,343			<b>ELEVATION TOP OF BORING</b> -32.4 Ft.		
<b>ELEV.</b>	<b>DEPTH</b>	<b>LEGEND</b>	<b>CLASSIFICATION OF MATERIALS</b>	<b>SAMPLE</b>	<b>LABORATORY RESULTS</b>
			factor.		

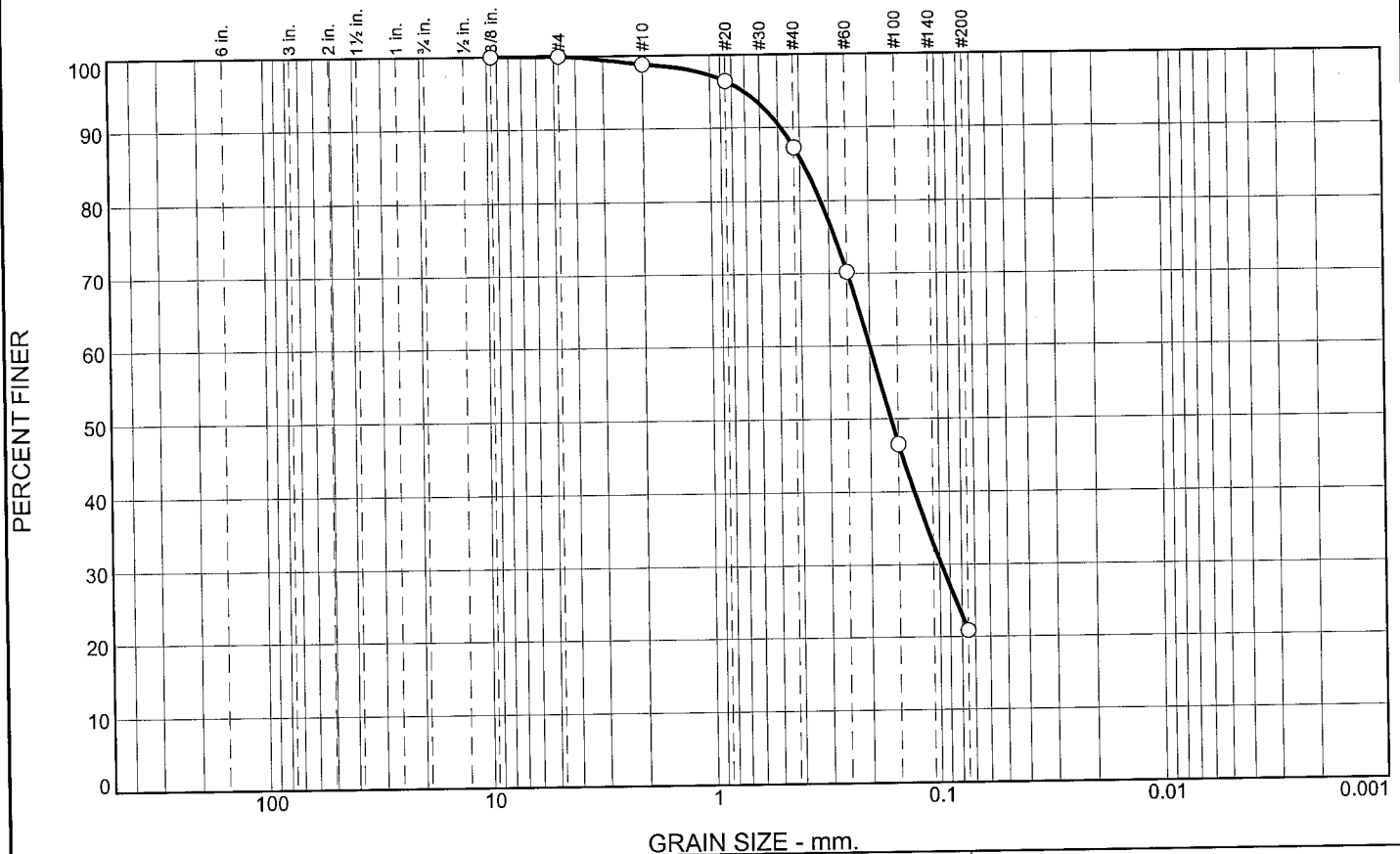


# Boring Designation BI-PB-104-10

DRILLING LOG		DIVISION South Atlantic		INSTALLATION Mobile District		SHEET 1 OF 2 SHEETS	
1. PROJECT MsCIP Barrier Island Restoration Petit Bois Pass- AL West				9. SIZE AND TYPE OF BIT N/A			
2. BORING DESIGNATION BI-PB-104-10		LOCATION COORDINATES E = 1,130,296 N = 251,226		10. COORDINATE SYSTEM/DATUM State Plane, MSE (U.S. Ft.)		HORIZONTAL NAD83 VERTICAL NAVD88	
3. DRILLING AGENCY Corps of Engineers - CESAM		CONTRACTOR FILE NO.		11. MANUFACTURER'S DESIGNATION OF DRILL Vibrocure		<input type="checkbox"/> AUTO HAMMER <input type="checkbox"/> MANUAL HAMMER	
4. NAME OF DRILLER Construction Solutions International, Inc.				12. TOTAL SAMPLES 2		DISTURBED 2 UNDISTURBED (UD) 0	
5. DIRECTION OF BORING <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED		DEG. FROM VERTICAL		13. TOTAL NUMBER CORE BOXES			
		BEARING		14. WATER DEPTH 33 Ft.			
6. THICKNESS OF OVERBURDEN N/A				15. DATE BORING 08-04-10		STARTED 08-04-10 COMPLETED 08-04-10	
7. DEPTH DRILLED INTO ROCK N/A				16. ELEVATION TOP OF BORING -32.6 Ft.			
8. TOTAL DEPTH OF BORING 20.0 Ft.				17. TOTAL RECOVERY FOR BORING 100%			
				18. SIGNATURE AND TITLE OF INSPECTOR Chris Gillentine, Geologist			
ELEV.	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS	SAMPLE	LABORATORY RESULTS		
-32.6	0.0						
-34.6	2.0		CLAY, fat, trace fine-grained sand-sized quartz, trace shell fragments, dark gray (CH)	NS			
			SAND, poorly-graded, mostly medium-grained sand-sized quartz, dark brown (SP) At El. -36.6 Ft., mostly quartz, trace silt, lt. gray	A	Classification: SM Color: 2.5Y 4/2-dark grayish brown D50: 0.1621 mm % Fines: 20.8		
-40.6	8.0			B	Classification: SM Color: 2.5Y 3/2-very dark grayish brown D50: 0.1077 mm % Fines: 37.5		
-48.6	16.0		CLAY, fat, trace fine-grained sand-sized quartz, gray (CH)	NS			
-51.6	19.0		SAND, poorly-graded, mostly fine to medium-grained sand-sized quartz, gray (SP)				
-52.6	20.0		CLAY, fat, gray (CH)				
NOTES: 1. Soils are field visually classified in accordance with the Unified Soils Classification System. 2. NS = Sample not submitted for laboratory analysis from this interval. 3. Seafloor elevation calculated using sampling							

<b>DRILLING LOG (Cont. Sheet)</b>			<b>INSTALLATION</b> Mobile District		<b>SHEET 2</b> <b>OF 2 SHEETS</b>
<b>PROJECT</b> MsCIP Barrier Island Restoration			<b>COORDINATE SYSTEM/DATUM</b> State Plane, MSE (U.S. Ft.)	<b>HORIZONTAL</b> NAD83	<b>VERTICAL</b> NAVD88
<b>LOCATION COORDINATES</b> X = 1,130,296 Y = 251,226			<b>ELEVATION TOP OF BORING</b> -32.6 Ft.		
<b>ELEV.</b>	<b>DEPTH</b>	<b>LEGEND</b>	<b>CLASSIFICATION OF MATERIALS</b>	<b>SAMPLE</b>	<b>LABORATORY RESULTS</b>
			vessel's fathometer water depth reading and applying NOAA tidal gauge data conversion factor.		

# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.0	1.2	11.5	66.5	20.8	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
.375	100.0		
#4	100.0		
#10	98.8		
#20	96.4		
#40	87.3		
#60	70.2		
#100	46.5		
#200	20.8		

\* (no specification provided)

**Material Description**  
CLAYEY SAND, (SC), medium to fine grained, with clay pockets

**Atterberg Limits**  
 PL=                      LL=                      PI=

**Coefficients**  
 D<sub>90</sub>= 0.4856      D<sub>85</sub>= 0.3867      D<sub>60</sub>= 0.1999  
 D<sub>50</sub>= 0.1621      D<sub>30</sub>= 0.0983      D<sub>15</sub>=  
 D<sub>10</sub>=                      C<sub>u</sub>=                      C<sub>c</sub>=

**Classification**  
 USCS= SC                      AASHTO=

**Remarks**  
 CADD CODE = CH10D965

Location: USACE Sample # BI-PB-104-10A  
 Sample Number: TE Lab ID: 4622.13

Depth: 2.0 - 5.0 (ft.)

Date: 8/15/10

**Thompson Engineering**  
  
**Mobile, Alabama**

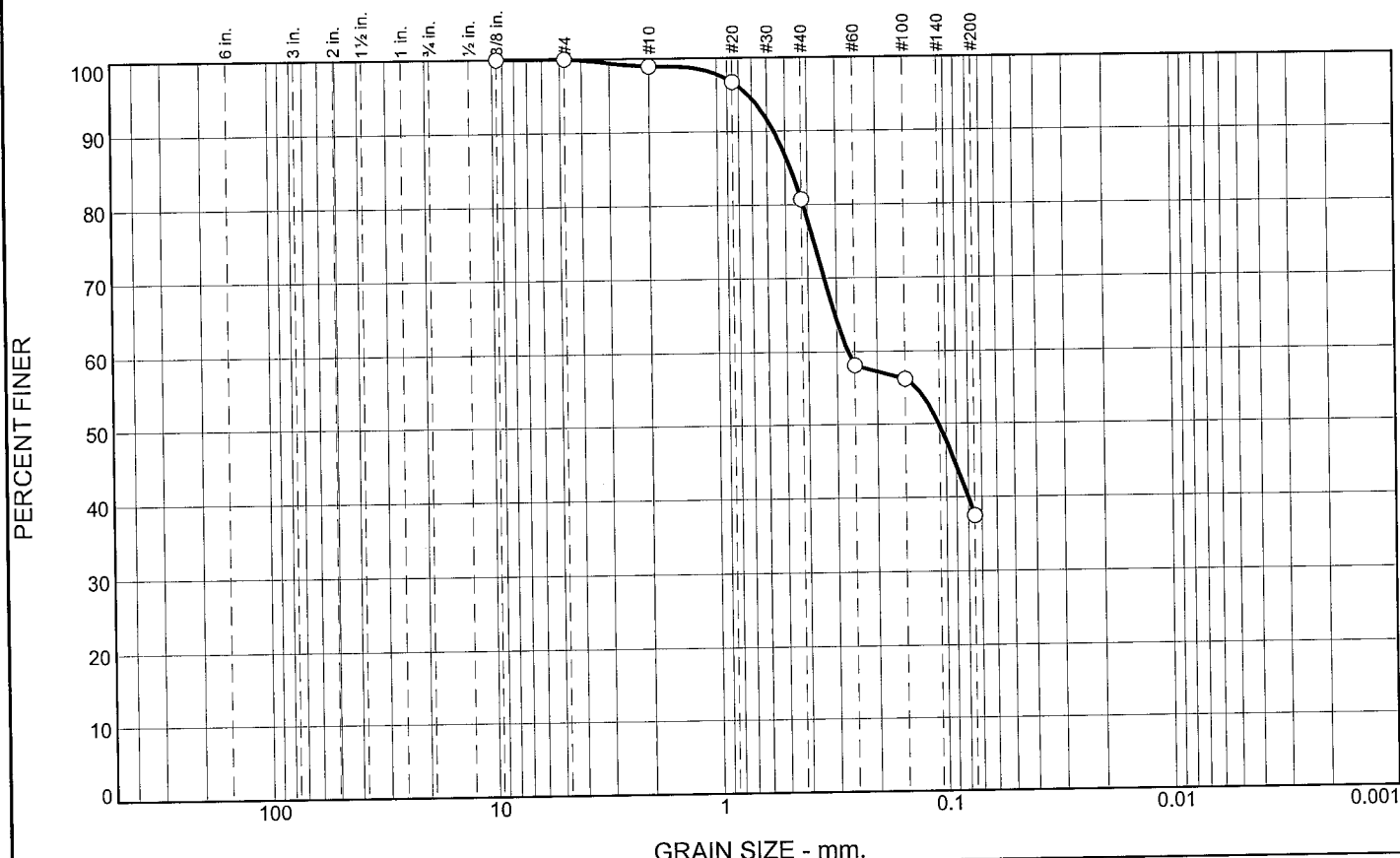
Client: US Army Corps of Engineers  
 Project: Contract No. W91278-10-D-0026 - Task 03  
 Mississippi Barrier Island Restoration Project  
 Project No: 10-2123-0009

Report No.

Tested By: R.Martin

Checked By: R.Byrd

# Particle Size Distribution Report



GRAIN SIZE - mm.

% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.0	1.1	18.2	43.2	37.5	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
.375	100.0		
#4	100.0		
#10	98.9		
#20	96.7		
#40	80.7		
#60	58.1		
#100	56.2		
#200	37.5		

\* (no specification provided)

## Material Description

CLAYEY SAND, (SC), medium to fine grained, with trace clay pockets

## Atterberg Limits

PL= LL= PI=

## Coefficients

D<sub>90</sub>= 0.5605 D<sub>85</sub>= 0.4746 D<sub>60</sub>= 0.2682  
D<sub>50</sub>= 0.1077 D<sub>30</sub>= C<sub>u</sub>= D<sub>15</sub>=  
D<sub>10</sub>= C<sub>c</sub>=

## Classification

USCS= SC AASHTO=

## Remarks

CADD CODE = CH10D965

Location: USACE Sample # BI-PB-104-10B  
Sample Number: TE Lab ID: 4622.14

Depth: 5.0 - 8.0 (ft.)

Date: 8/15/10

**Thompson Engineering**

**Mobile, Alabama**

Client: US Army Corps of Engineers

Project: Contract No. W91278-10-D-0026 - Task 03  
Mississippi Barrier Island Restoration Project

Project No: 10-2123-0009

Report No.

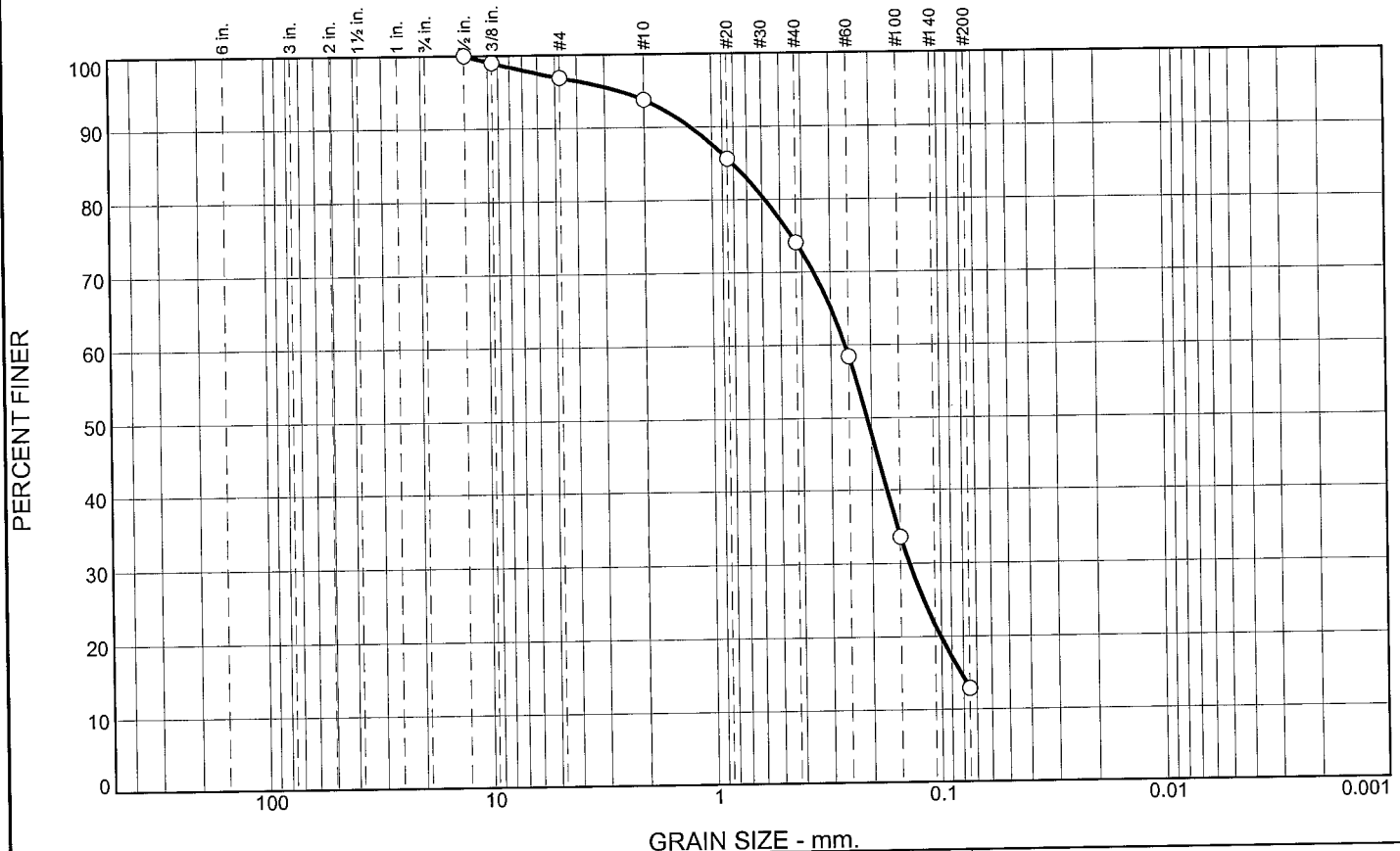
Tested By: R.Martin

Checked By: R.Byrd

# Boring Designation BI-PB-105-10

DRILLING LOG		DIVISION South Atlantic		INSTALLATION Mobile District		SHEET 1 OF 1 SHEETS	
1. PROJECT MsCIP Barrier Island Restoration Petit Bois Pass- AL West				9. SIZE AND TYPE OF BIT N/A			
2. BORING DESIGNATION BI-PB-105-10		LOCATION COORDINATES E = 1,131,730 N = 251,312		10. COORDINATE SYSTEM/DATUM State Plane, MSE (U.S. Ft.)		HORIZONTAL NAD83	
3. DRILLING AGENCY Corps of Engineers - CESAM		CONTRACTOR FILE NO.		11. MANUFACTURER'S DESIGNATION OF DRILL Vibrocure		<input type="checkbox"/> AUTO HAMMER <input type="checkbox"/> MANUAL HAMMER	
4. NAME OF DRILLER Construction Solutions International, Inc.				12. TOTAL SAMPLES 2		DISTURBED 0	
5. DIRECTION OF BORING <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED				13. TOTAL NUMBER CORE BOXES		14. WATER DEPTH 31 Ft.	
6. THICKNESS OF OVERBURDEN N/A				15. DATE BORING 08-04-10		STARTED 08-04-10	
7. DEPTH DRILLED INTO ROCK N/A				16. ELEVATION TOP OF BORING -31.5 Ft.		COMPLETED 08-04-10	
8. TOTAL DEPTH OF BORING 18.0 Ft.				17. TOTAL RECOVERY FOR BORING 100%			
				18. SIGNATURE AND TITLE OF INSPECTOR Chris Gillentine, Geologist			
ELEV.	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS	SAMPLE	LABORATORY RESULTS		
-31.5	0.0		SAND, poorly-graded, dark gray (SP)	A	Classification: SM Color: 2.5Y 6/1-gray D50: 0.2091 mm % Fines: 12.8		
				B	Classification: SM Color: 2.5Y 5/2-grayish brown D50: 0.1917 mm % Fines: 23		
-39.5	8.0		CLAY, fat, dark gray (CH)	NS			
-49.5	18.0		NOTES: 1. Soils are field visually classified in accordance with the Unified Soils Classification System. 2. NS = Sample not submitted for laboratory analysis from this interval. 3. Seafloor elevation calculated using sampling vessel's fathometer water depth reading and applying NOAA tidal gauge data conversion factor.				

# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	3.1	3.1	19.8	61.2	12.8	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
.500	100.0		
.375	99.0		
#4	96.9		
#10	93.8		
#20	85.6		
#40	74.0		
#60	58.4		
#100	33.6		
#200	12.8		

\* (no specification provided)

**Material Description**  
SILTY SAND, (SM), medium to fine grained, trace shell and CLAY pockets

**Atterberg Limits**  
 PL=                      LL=                      PI=

**Coefficients**  
 D<sub>90</sub>= 1.2465      D<sub>85</sub>= 0.8129      D<sub>60</sub>= 0.2599  
 D<sub>50</sub>= 0.2091      D<sub>30</sub>= 0.1374      D<sub>15</sub>= 0.0823  
 D<sub>10</sub>=                      C<sub>u</sub>=                      C<sub>c</sub>=

**Classification**  
 USCS= SM                      AASHTO=

**Remarks**  
 CADD CODE = CH10D965

Location: USACE Sample # BI-PB-105-10A  
 Sample Number: TE Lab ID: 4622.15

Depth: 0.0 - 4.0 (ft.)

Date: 8/15/10

**Thompson Engineering**  
**Mobile, Alabama**

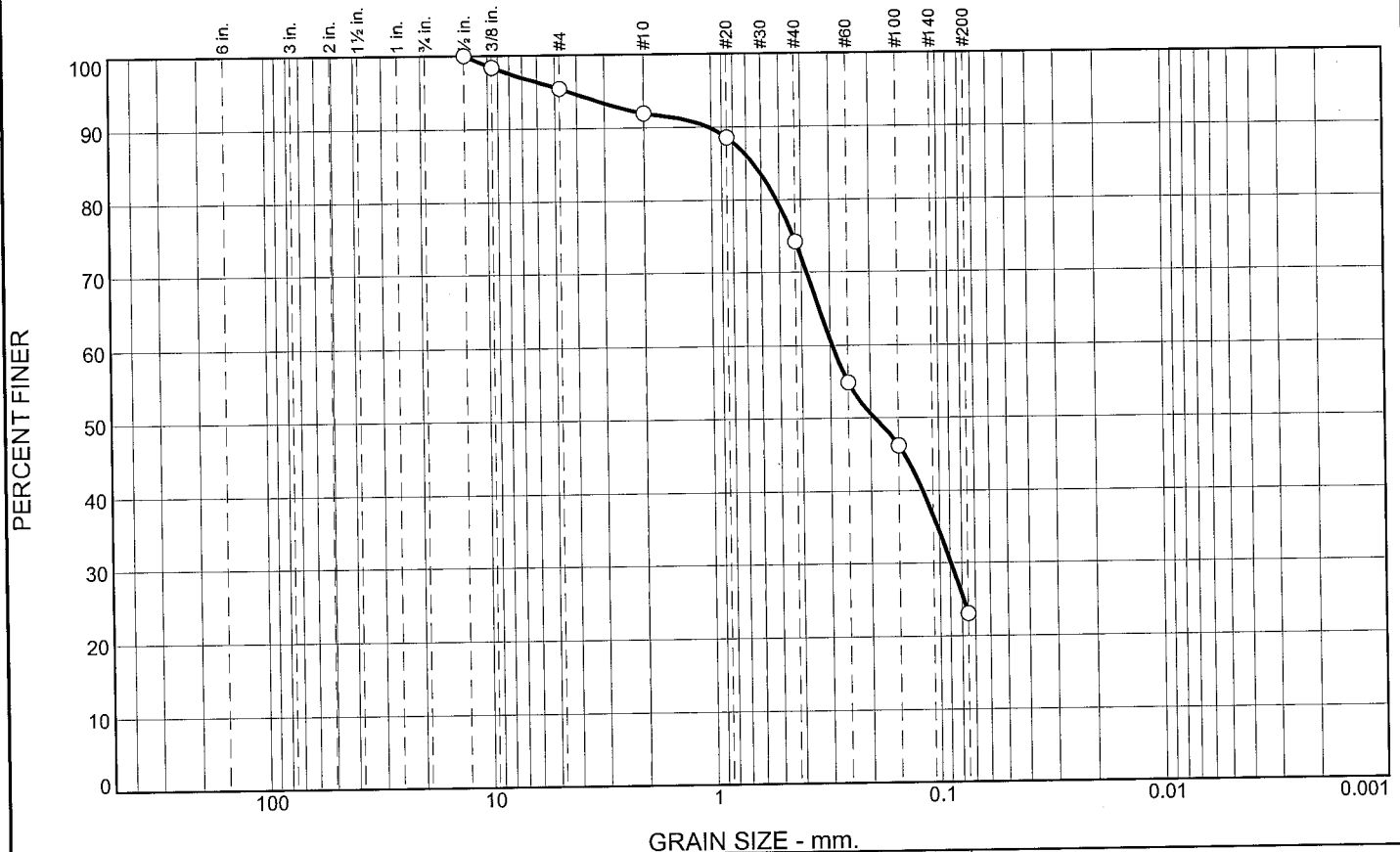
Client: US Army Corps of Engineers  
 Project: Contract No. W91278-10-D-0026 - Task 03  
 Mississippi Barrier Island Restoration Project  
 Project No: 10-2123-0009

Report No.

Tested By: R.Martin

Checked By: R.Byrd

# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	4.6	3.5	17.7	51.2	23.0	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
.500	100.0		
.375	98.4		
#4	95.4		
#10	91.9		
#20	88.6		
#40	74.2		
#60	54.9		
#100	46.2		
#200	23.0		

\* (no specification provided)

**Material Description**  
CLAYEY SAND, (SC), medium to fine grained, with trace shell

**Atterberg Limits**  
 PL=                      LL=                      PI=

**Coefficients**  
 D<sub>90</sub>= 1.0238      D<sub>85</sub>= 0.6492      D<sub>60</sub>= 0.2938  
 D<sub>50</sub>= 0.1917      D<sub>30</sub>= 0.0894      D<sub>15</sub>=  
 D<sub>10</sub>=                      C<sub>u</sub>=                      C<sub>c</sub>=

**Classification**  
 USCS= SC                      AASHTO=

**Remarks**  
 CADD CODE = CH10D965

Location: USACE Sample # BI-PB-105-10B  
 Sample Number: TE Lab ID: 4622.16

Depth: 4.0 - 8.0 (ft.)

Date: 8/15/10

**Thompson Engineering**  
  
**Mobile, Alabama**

Client: US Army Corps of Engineers  
 Project: Contract No. W91278-10-D-0026 - Task 03  
 Mississippi Barrier Island Restoration Project  
 Project No: 10-2123-0009      Report No.

Tested By: R.Martin      Checked By: R.Byrd

# Boring Designation BI-PB-106-10

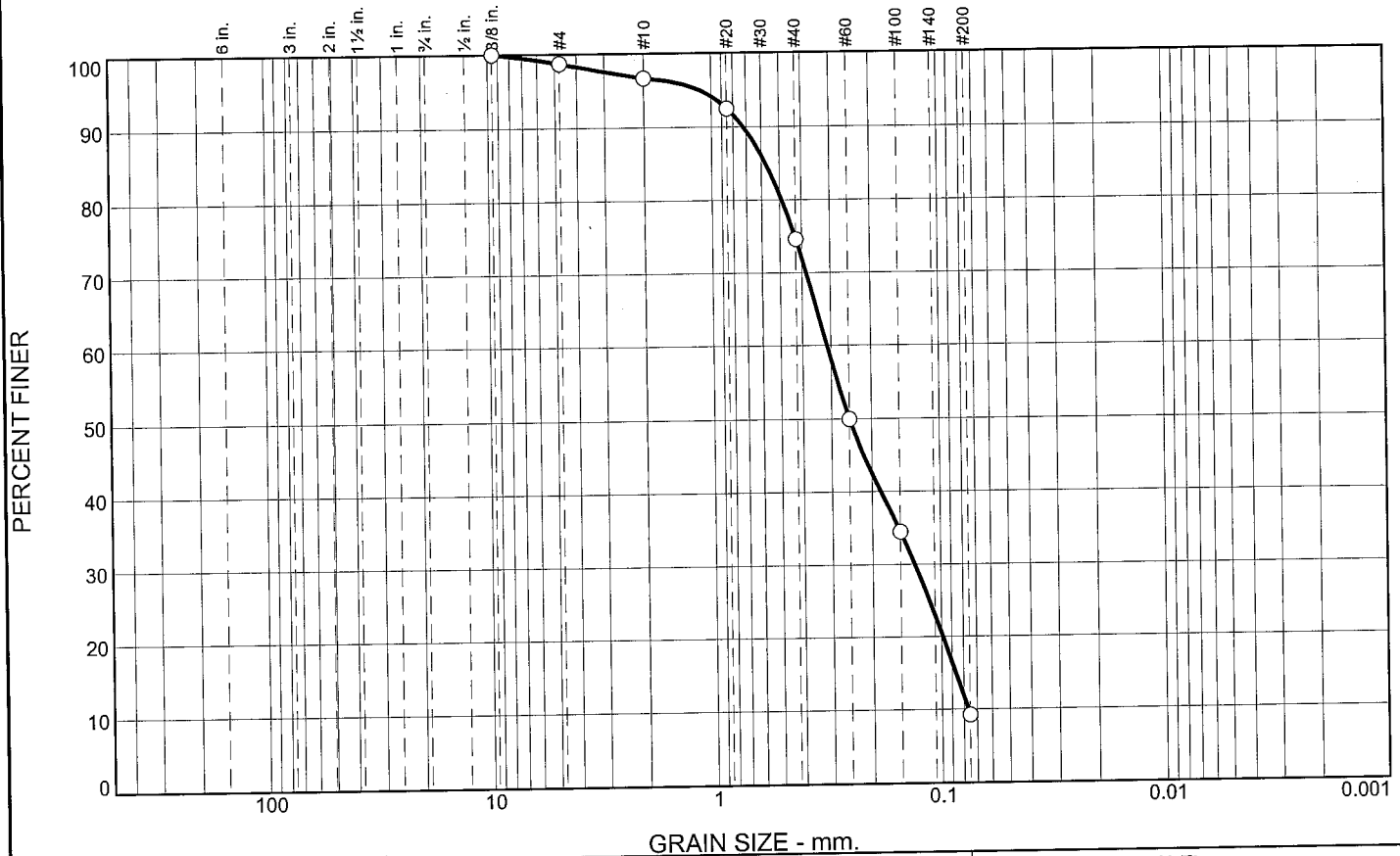
DRILLING LOG		DIVISION South Atlantic		INSTALLATION Mobile District		SHEET 1 OF 1 SHEETS	
1. PROJECT Barrier Island Restoration Petit Bois				9. SIZE AND TYPE OF BIT N/A			
2. BORING DESIGNATION BI-PB-106-10		LOCATION COORDINATES E = 1,133,338 N = 251,293		10. COORDINATE SYSTEM/DATUM State Plane, MSE (U.S. Ft.)		HORIZONTAL NAD83	
3. DRILLING AGENCY Corps of Engineers - CESAM		CONTRACTOR FILE NO.		11. MANUFACTURER'S DESIGNATION OF DRILL Vibrocure		<input type="checkbox"/> AUTO HAMMER <input type="checkbox"/> MANUAL HAMMER	
4. NAME OF DRILLER Construction Solutions International, Inc.				12. TOTAL SAMPLES 2		DISTURBED 0	
5. DIRECTION OF BORING <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED				13. TOTAL NUMBER CORE BOXES		14. WATER DEPTH 33 Ft.	
6. THICKNESS OF OVERBURDEN N/A				15. DATE BORING 08-04-10		STARTED 08-04-10	
7. DEPTH DRILLED INTO ROCK N/A				16. ELEVATION TOP OF BORING -33.5 Ft.		COMPLETED 08-04-10	
8. TOTAL DEPTH OF BORING 9.5 Ft.				17. TOTAL RECOVERY FOR BORING 100%		18. SIGNATURE AND TITLE OF INSPECTOR Chris Gillentine, Geologist	
ELEV.	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS	SAMPLE	LABORATORY RESULTS		
-33.5	0.0						
-35.5	2.0		CLAY, fat, dark gray (CH)	A	Classification: SP-SM Color: 2.5Y 4/2-dark grayish brown D50: 0.2503 mm % Fines: 9.2		
			SAND, poorly-graded, mostly medium-grained sand-sized quartz, dark brown (SP) At El. -37.5 Ft., trace silt, gray				
-43.0	9.5			B	Classification: SM Color: 5Y 5/2-olive gray D50: 0.2584 mm % Fines: 19.3		
			NOTES: 1. Soils are field visually classified in accordance with the Unified Soils Classification System. 2. NS = Sample not submitted for laboratory analysis from this interval. 3. Seafloor elevation calculated using sampling vessel's fathometer water depth reading and applying NOAA tidal gauge data conversion factor.				



# Boring Designation BI-PB-106-10

DRILLING LOG		DIVISION South Atlantic		INSTALLATION Mobile District		SHEET 1 OF 1 SHEETS	
1. PROJECT MsCIP Barrier Island Restoration Petit Bois Pass- AL West				9. SIZE AND TYPE OF BIT N/A			
2. BORING DESIGNATION BI-PB-106-10		LOCATION COORDINATES E = 1,133,338 N = 251,293		10. COORDINATE SYSTEM/DATUM State Plane, MSE (U.S. Ft.)		HORIZONTAL NAD83 VERTICAL NAVD88	
3. DRILLING AGENCY Corps of Engineers - CESAM		CONTRACTOR FILE NO.		11. MANUFACTURER'S DESIGNATION OF DRILL Vibracore		<input type="checkbox"/> AUTO HAMMER <input type="checkbox"/> MANUAL HAMMER	
4. NAME OF DRILLER Construction Solutions International, Inc.				12. TOTAL SAMPLES 2		DISTURBED 2 UNDISTURBED (UD) 0	
5. DIRECTION OF BORING <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED		DEG. FROM VERTICAL		13. TOTAL NUMBER CORE BOXES			
		BEARING		14. WATER DEPTH 33 Ft.			
6. THICKNESS OF OVERBURDEN N/A				15. DATE BORING 08-04-10		STARTED 08-04-10 COMPLETED 08-04-10	
7. DEPTH DRILLED INTO ROCK N/A				16. ELEVATION TOP OF BORING -33.5 Ft.			
8. TOTAL DEPTH OF BORING 9.5 Ft.				17. TOTAL RECOVERY FOR BORING 100%			
				18. SIGNATURE AND TITLE OF INSPECTOR Chris Gillentine, Geologist			
ELEV.	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS	SAMPLE	LABORATORY RESULTS		
-33.5	0.0						
-35.5	2.0		CLAY, fat, dark gray (CH)	A	Classification: SP-SM Color: 2.5Y 4/2-dark grayish brown D50: 0.2503 mm % Fines: 9.2		
			SAND, poorly-graded, mostly medium-grained sand-sized quartz, dark brown (SP) At El. -37.5 Ft., trace silt, gray				
-43.0	9.5			B	Classification: SM Color: 5Y 5/2-olive gray D50: 0.2584 mm % Fines: 19.3		
			NOTES: 1. Soils are field visually classified in accordance with the Unified Soils Classification System. 2. NS = Sample not submitted for laboratory analysis from this interval. 3. Seafloor elevation calculated using sampling vessel's fathometer water depth reading and applying NOAA tidal gauge data conversion factor.				

# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	1.3	2.0	22.1	65.4	9.2	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
.375	100.0		
#4	98.7		
#10	96.7		
#20	92.5		
#40	74.6		
#60	49.9		
#100	34.5		
#200	9.2		

\* (no specification provided)

**Material Description**  
SAND, (SP-SM), medium to fine grained

**Atterberg Limits**  
 PL=                      LL=                      PI=

**Coefficients**  
 D<sub>90</sub>= 0.7219      D<sub>85</sub>= 0.5758      D<sub>60</sub>= 0.3124  
 D<sub>50</sub>= 0.2503      D<sub>30</sub>= 0.1302      D<sub>15</sub>= 0.0867  
 D<sub>10</sub>= 0.0765      C<sub>u</sub>= 4.09              C<sub>c</sub>= 0.71

**Classification**  
 USCS= SP-SM                      AASHTO=

**Remarks**  
 CADD CODE = CH10D965

Location: USACE Sample # BI-PB-106-10A  
 Sample Number: TE Lab ID: 4622.17

Depth: 2.0 - 5.0 (ft.)

Date: 8/15/10

**Thompson Engineering**  
**Mobile, Alabama**

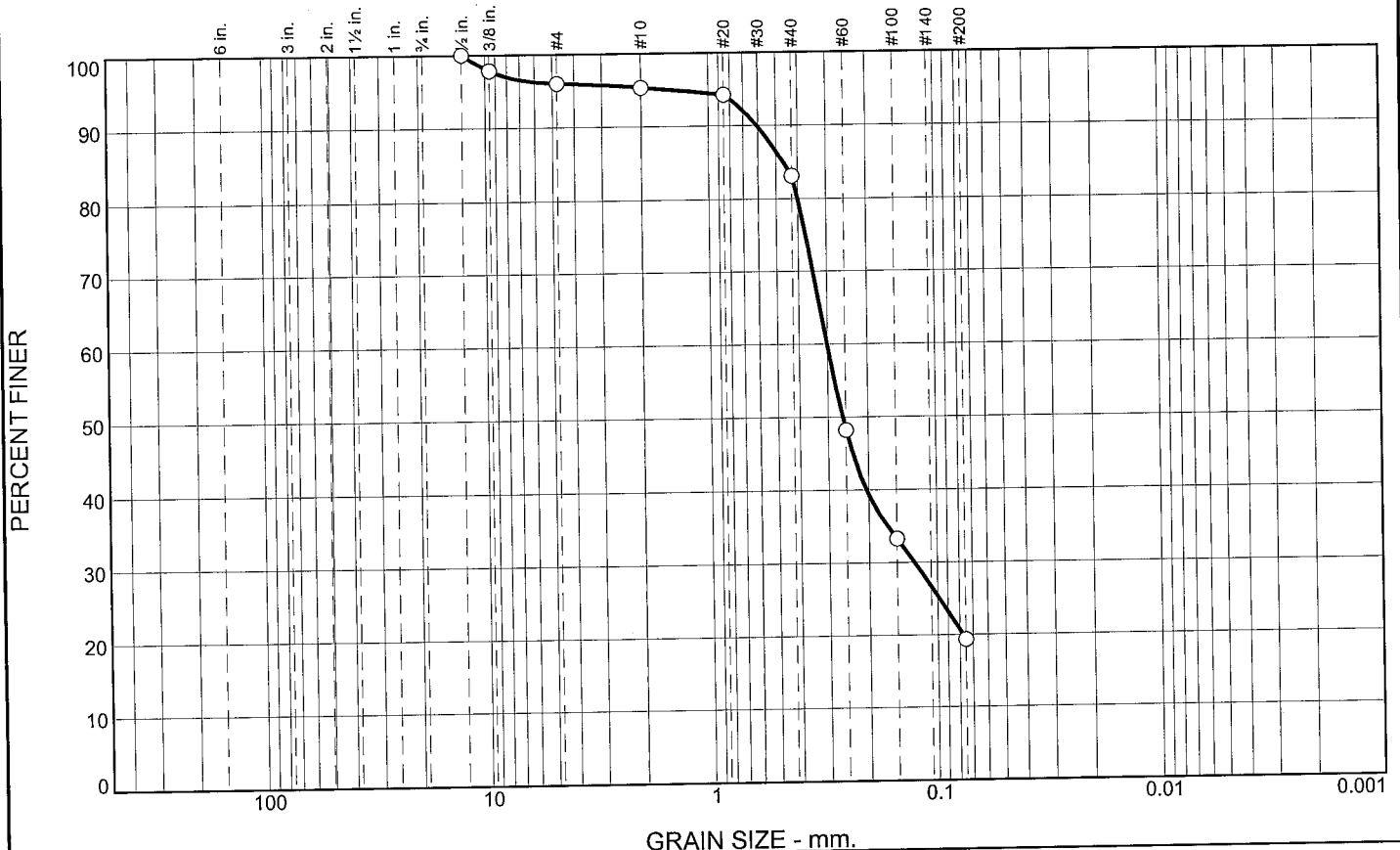
Client: US Army Corps of Engineers  
 Project: Contract No. W91278-10-D-0026 - Task 03  
 Mississippi Barrier Island Restoration Project  
 Project No: 10-2123-0009

Report No.

Tested By: R.Martin

Checked By: R.Byrd

# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	4.0	0.7	12.2	63.8	19.3	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
.500	100.0		
.375	97.8		
#4	96.0		
#10	95.3		
#20	94.2		
#40	83.1		
#60	48.2		
#100	33.3		
#200	19.3		

\* (no specification provided)

## Material Description

SILTY SAND, (SM), medium to fine grained, with trace shell and clay pockets

## Atterberg Limits

PL= LL= PI=

## Coefficients

D<sub>90</sub>= 0.6086 D<sub>85</sub>= 0.4631 D<sub>60</sub>= 0.3008  
D<sub>50</sub>= 0.2584 D<sub>30</sub>= 0.1260 D<sub>15</sub>=  
D<sub>10</sub>= C<sub>u</sub>= C<sub>c</sub>=

## Classification

USCS= SM AASHTO=

## Remarks

CADD CODE = CH10D965

Location: USACE Sample # BI-PB-106-10B  
Sample Number: TE Lab ID: 4622.18

Depth: 5.0 - 9.5 (ft.)

Date: 8/15/10

**Thompson Engineering**

**Mobile, Alabama**

Client: US Army Corps of Engineers

Project: Contract No. W91278-10-D-0026 - Task 03  
Mississippi Barrier Island Restoration Project


Project No: 10-2123-0009

Report No.

Tested By: R.Martin

Checked By: R.Byrd

# Boring Designation BI-PB-107-10

DRILLING LOG		DIVISION South Atlantic		INSTALLATION Mobile District		SHEET 1 OF 1 SHEETS	
1. PROJECT MsCIP Barrier Island Restoration Petit Bois Pass- AL West				9. SIZE AND TYPE OF BIT N/A			
2. BORING DESIGNATION BI-PB-107-10		LOCATION COORDINATES E = 1,134,885 N = 251,631		10. COORDINATE SYSTEM/DATUM State Plane, MSE (U.S. Ft.)		HORIZONTAL NAD83 VERTICAL NAVD88	
3. DRILLING AGENCY Corps of Engineers - CESAM		CONTRACTOR FILE NO.		11. MANUFACTURER'S DESIGNATION OF DRILL Vibracore		<input type="checkbox"/> AUTO HAMMER <input type="checkbox"/> MANUAL HAMMER	
4. NAME OF DRILLER Construction Solutions International, Inc.				12. TOTAL SAMPLES 0		DISTURBED 0 UNDISTURBED (UD) 0	
5. DIRECTION OF BORING <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED		DEG. FROM VERTICAL		13. TOTAL NUMBER CORE BOXES			
		BEARING		14. WATER DEPTH 32 Ft.			
6. THICKNESS OF OVERBURDEN N/A				15. DATE BORING 08-03-10		STARTED 08-03-10 COMPLETED 08-03-10	
7. DEPTH DRILLED INTO ROCK N/A				16. ELEVATION TOP OF BORING -32.3 Ft.			
8. TOTAL DEPTH OF BORING 13.5 Ft.				17. TOTAL RECOVERY FOR BORING 100%			
				18. SIGNATURE AND TITLE OF INSPECTOR Chris Gillentine, Geologist			
ELEV.	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS	SAMPLE	LABORATORY RESULTS		
-32.3	0.0						
			CLAY, fat, trace fine-grained sand-sized quartz, dark gray (CH)	NS			
-45.8	13.5						
			NOTES: 1. Soils are field visually classified in accordance with the Unified Soils Classification System. 2. NS = Sample not submitted for laboratory analysis from this interval. 3. Seafloor elevation calculated using sampling vessel's fathometer water depth reading and applying NOAA tidal gauge data conversion factor.				

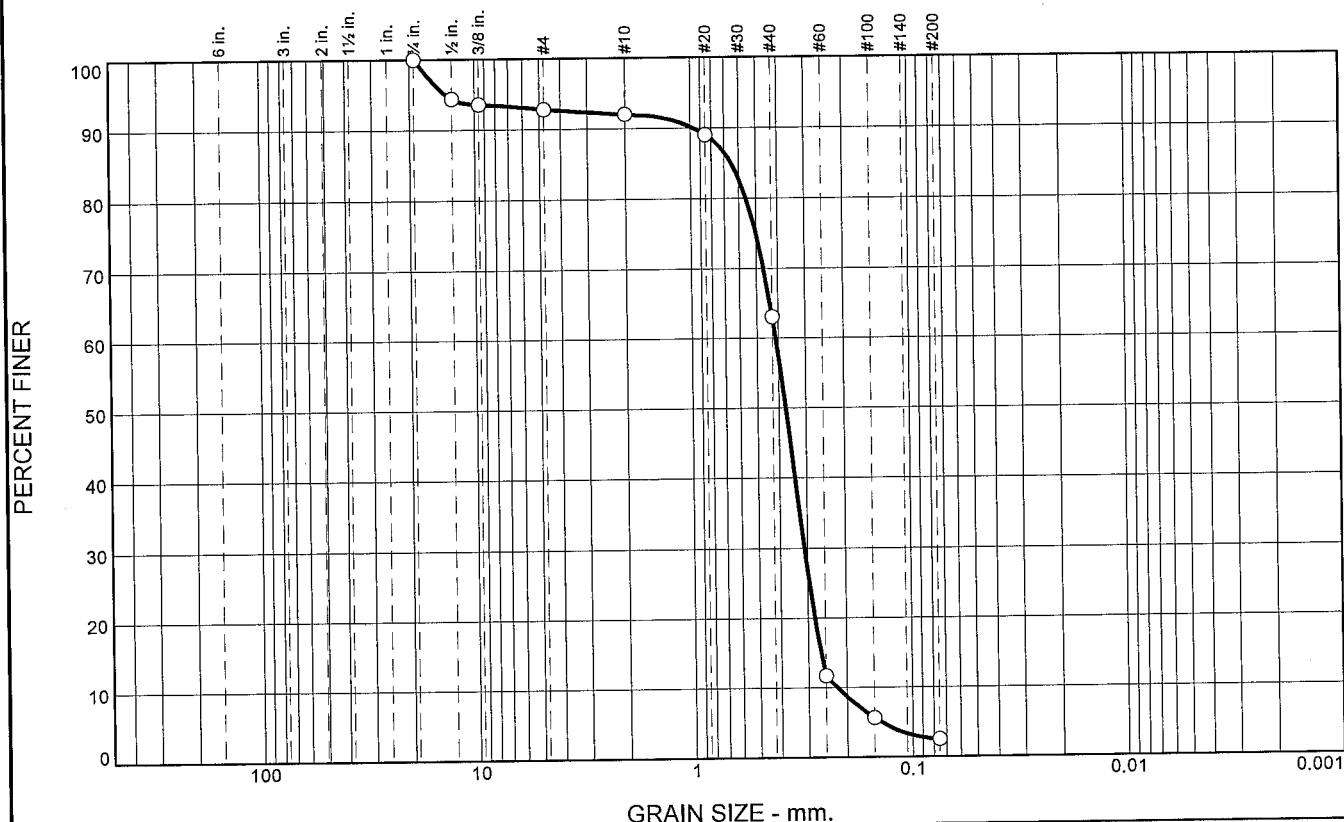
# Boring Designation BI-PB-108-10

DRILLING LOG		DIVISION South Atlantic		INSTALLATION Mobile District		SHEET 1 OF 1 SHEETS	
1. PROJECT MsCIP Barrier Island Restoration Petit Bois Pass- AL East				9. SIZE AND TYPE OF BIT N/A			
2. BORING DESIGNATION BI-PB-108-10		LOCATION COORDINATES E = 1,143,666 N = 254,989		10. COORDINATE SYSTEM/DATUM State Plane, MSE (U.S. Ft.)		HORIZONTAL NAD83 VERTICAL NAVD88	
3. DRILLING AGENCY Corps of Engineers - CESAM		CONTRACTOR FILE NO.		11. MANUFACTURER'S DESIGNATION OF DRILL Vibracore		<input type="checkbox"/> AUTO HAMMER <input type="checkbox"/> MANUAL HAMMER	
4. NAME OF DRILLER Construction Solutions International, Inc.				12. TOTAL SAMPLES 0		DISTURBED 0 UNDISTURBED (UD) 0	
5. DIRECTION OF BORING <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED		DEG. FROM VERTICAL		13. TOTAL NUMBER CORE BOXES			
		BEARING		14. WATER DEPTH 31 Ft.			
6. THICKNESS OF OVERBURDEN N/A				15. DATE BORING 07-29-10		STARTED 07-29-10 COMPLETED 07-29-10	
7. DEPTH DRILLED INTO ROCK N/A				16. ELEVATION TOP OF BORING -30.6 Ft.			
8. TOTAL DEPTH OF BORING 16.0 Ft.				17. TOTAL RECOVERY FOR BORING 100%			
				18. SIGNATURE AND TITLE OF INSPECTOR Chris Gillentine, Geologist			
ELEV.	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS	SAMPLE	LABORATORY RESULTS		
-30.6	0.0		CLAY, fat, black/gray (CH) At El. -31.6 Ft., dark gray	NS			
-42.6	12.0						
-46.6	16.0		SAND, poorly-graded, dark gray (SP)				
			NOTES: 1. Soils are field visually classified in accordance with the Unified Soils Classification System. 2. NS = Sample not submitted for laboratory analysis from this interval. 3. Seafloor elevation calculated using sampling vessel's fathometer water depth reading and applying NOAA tidal gauge data conversion factor.				

# Boring Designation BI-PB-109-10

DRILLING LOG		DIVISION South Atlantic		INSTALLATION Mobile District		SHEET 1 OF 1 SHEETS	
1. PROJECT MsCIP Barrier Island Restoration Petit Bois Pass- AL East				9. SIZE AND TYPE OF BIT N/A			
2. BORING DESIGNATION BI-PB-109-10		LOCATION COORDINATES E = 1,144,572 N = 254,430		10. COORDINATE SYSTEM/DATUM State Plane, MSE (U.S. Ft.)		HORIZONTAL NAD83	
3. DRILLING AGENCY Corps of Engineers - CESAM		CONTRACTOR FILE NO.		11. MANUFACTURER'S DESIGNATION OF DRILL Vibrocure		<input type="checkbox"/> AUTO HAMMER <input type="checkbox"/> MANUAL HAMMER	
4. NAME OF DRILLER Construction Solutions International, Inc.				12. TOTAL SAMPLES 3		DISTURBED 0	
5. DIRECTION OF BORING <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED				13. TOTAL NUMBER CORE BOXES		14. WATER DEPTH 32 Ft.	
6. THICKNESS OF OVERBURDEN N/A				15. DATE BORING 07-29-10		STARTED 07-29-10	
7. DEPTH DRILLED INTO ROCK N/A				16. ELEVATION TOP OF BORING -33.6 Ft.		17. TOTAL RECOVERY FOR BORING 100%	
8. TOTAL DEPTH OF BORING 16.5 Ft.				18. SIGNATURE AND TITLE OF INSPECTOR Chris Gillentine, Geologist			
ELEV.	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS	SAMPLE	LABORATORY RESULTS		
-33.6	0.0						
			SAND, poorly-graded, mostly fine to medium-grained sand-sized quartz, trace shell, lt. gray (SP)	A	Classification: SP Color: 5Y 7/2-light gray D50: 0.3721 mm % Fines: 2.5		
-40.6	7.0		SAND, poorly-graded, mostly fine to medium-grained sand-sized quartz, lt. gray (SP)	B	Classification: SP Color: 2.5Y 7/1-light gray D50: 0.334 mm % Fines: 2.4		
				C	Classification: SP Color: 2.5Y 7/1-light gray D50: 0.3316 mm % Fines: 2.8		
			At El. -46.6 Ft., trace silt, dark gray	NS			
-50.1	16.5						
NOTES:							
1. Soils are field visually classified in accordance with the Unified Soils Classification System.							
2. NS = Sample not submitted for laboratory analysis from this interval.							
3. Seafloor elevation determined from 2010 USACE survey.							

# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	7.2	0.8	28.9	60.6	2.5	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
.750	100.0		
.500	94.4		
.375	93.6		
#4	92.8		
#10	92.0		
#20	89.0		
#40	63.1		
#60	11.7		
#100	5.6		
#200	2.5		

\* (no specification provided)

**Material Description**  
SAND, (SP), medium to fine grained, with trace shell

**Atterberg Limits**  
 PL=      LL=      PI=

**Coefficients**  
 D<sub>90</sub>= 0.9643      D<sub>85</sub>= 0.6495      D<sub>60</sub>= 0.4109  
 D<sub>50</sub>= 0.3721      D<sub>30</sub>= 0.3092      D<sub>15</sub>= 0.2624  
 D<sub>10</sub>= 0.2217      C<sub>u</sub>= 1.85      C<sub>c</sub>= 1.05

**Classification**  
 USCS= SP      AASHTO=

**Remarks**  
 CADD CODE = CH10D965

Location: USACE Sample # BI-PB-109-10A  
 Sample Number: TE Lab ID: 4612.20

Depth: 0.0 - 5.0 (ft.)

Date: 8/7/10

**Thompson Engineering**

**Mobile, Alabama**

Client: US Army Corps of Engineers

Project: Contract No. W91278-10-D-0026 - Task 03  
 Mississippi Barrier Island Restoration Project

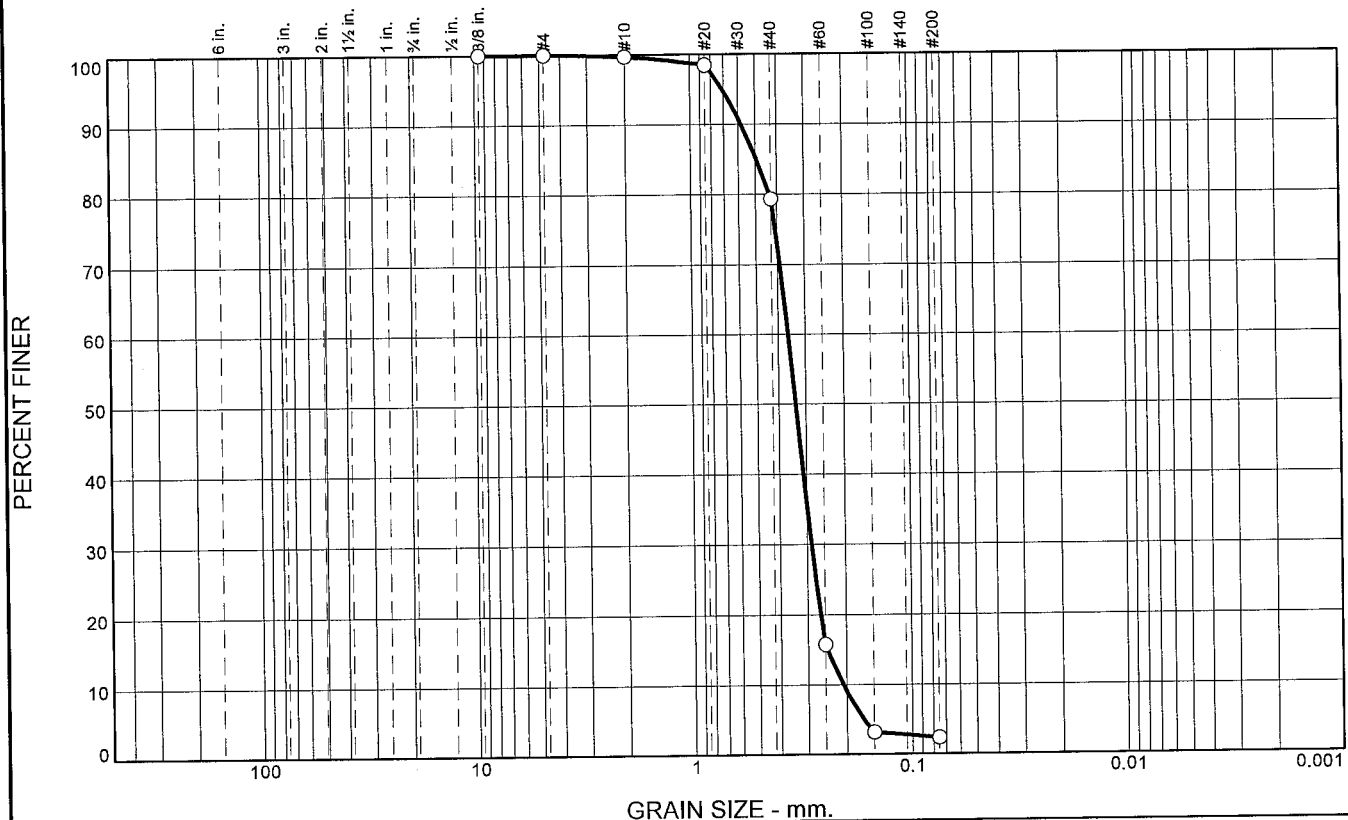
Project No: 10-2123-0009

Report No.

Tested By: J.Maddox

Checked By: R.Byrd

# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.0	0.3	20.4	76.9	2.4	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
.375	100.0		
#4	100.0		
#10	99.7		
#20	98.4		
#40	79.3		
#60	15.8		
#100	3.2		
#200	2.4		

\* (no specification provided)

**Material Description**  
SAND, (SP), medium to fine grained

**Atterberg Limits**  
PL=      LL=      PI=

**Coefficients**  
D<sub>90</sub>= 0.5823      D<sub>85</sub>= 0.4964      D<sub>60</sub>= 0.3601  
D<sub>50</sub>= 0.3340      D<sub>30</sub>= 0.2864      D<sub>15</sub>= 0.2442  
D<sub>10</sub>= 0.2074      C<sub>u</sub>= 1.74      C<sub>c</sub>= 1.10

**Classification**  
USCS= SP      AASHTO=

**Remarks**  
CADD CODE = CH10D965

Location: USACE Sample # BI-PB-109-10B  
Sample Number: TE Lab ID: 4612.21

Depth: 5.0 - 10.0 (ft.)

Date: 8/7/10

**Thompson Engineering**

**Mobile, Alabama**

Client: US Army Corps of Engineers

Project: Contract No. W91278-10-D-0026 - Task 03  
Mississippi Barrier Island Restoration Project

Project No: 10-2123-0009

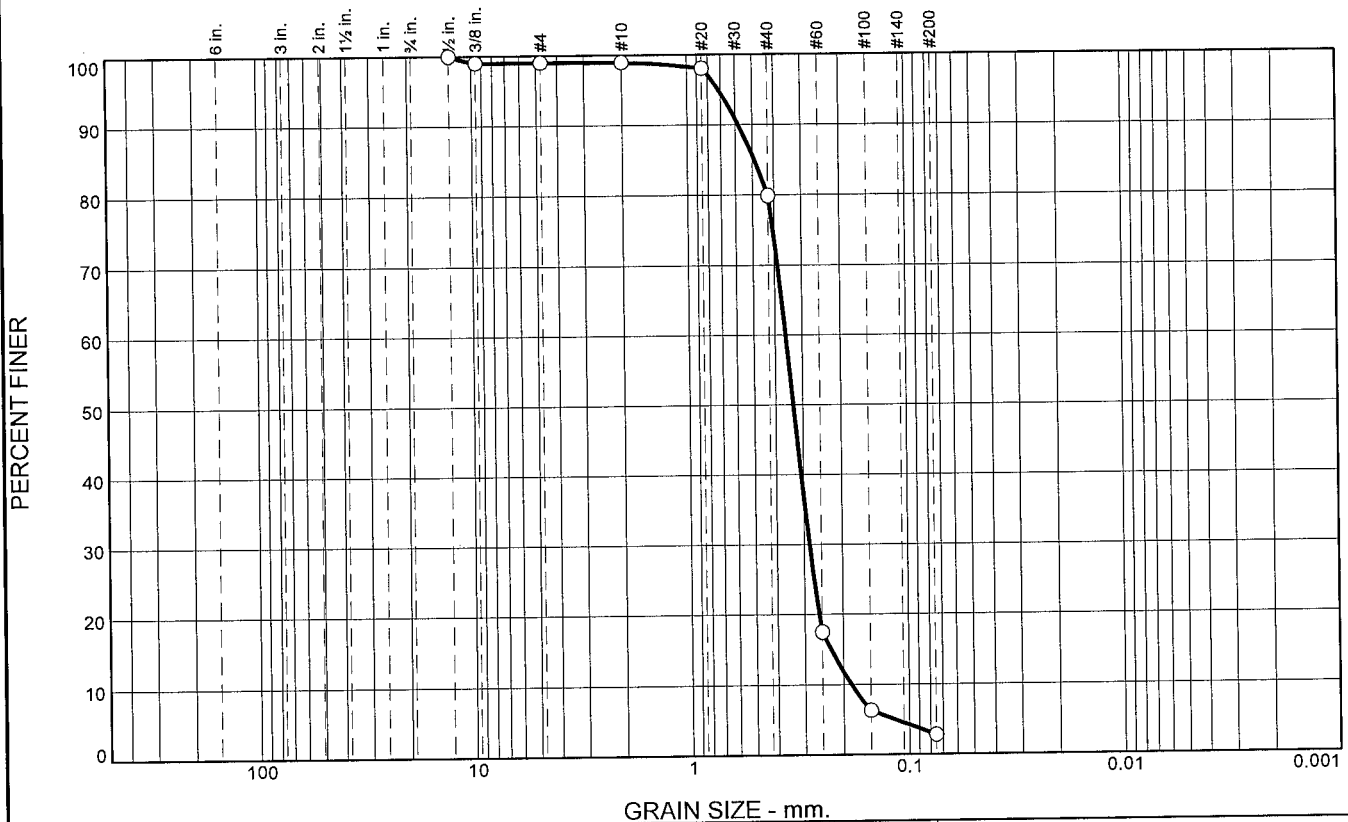
Report No.

Tested By: J.Maddox

Checked By: R.Byrd



# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	1.0	0.1	19.0	77.1	2.8	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
.500	100.0		
.375	99.0		
#4	99.0		
#10	98.9		
#20	98.1		
#40	79.9		
#60	17.5		
#100	6.4		
#200	2.8		

\* (no specification provided)

**Material Description**  
SAND, (SP), medium to fine grained

**Atterberg Limits**  
PL=      LL=      PI=

**Coefficients**  
D<sub>90</sub>= 0.5807      D<sub>85</sub>= 0.4918      D<sub>60</sub>= 0.3578  
D<sub>50</sub>= 0.3316      D<sub>30</sub>= 0.2833      D<sub>15</sub>= 0.2284  
D<sub>10</sub>= 0.1845      C<sub>u</sub>= 1.94      C<sub>c</sub>= 1.22

**Classification**  
USCS= SP      AASHTO=

**Remarks**  
CADD CODE = CH10D965

Location: USACE Sample # BI-PB-109-10C  
Sample Number: TE Lab ID: 4612.22

Depth: 10.0 - 13.0 (ft.)

Date: 8/7/10

**Thompson Engineering**

**Mobile, Alabama**

Client: US Army Corps of Engineers

Project: Contract No. W91278-10-D-0026 - Task 03  
Mississippi Barrier Island Restoration Project

Project No: 10-2123-0009

Report No.

Tested By: J.Maddox

Checked By: R.Byrd

# Boring Designation BI-PB-110-10

DRILLING LOG		DIVISION South Atlantic		INSTALLATION Mobile District		SHEET 1 OF 1 SHEETS	
1. PROJECT MsCIP Barrier Island Restoration Petit Bois Pass- AL East				9. SIZE AND TYPE OF BIT N/A			
2. BORING DESIGNATION BI-PB-110-10		LOCATION COORDINATES E = 1,143,696 N = 253,855		10. COORDINATE SYSTEM/DATUM State Plane, MSE (U.S. Ft.)		HORIZONTAL NAD83 VERTICAL NAVD88	
3. DRILLING AGENCY Corps of Engineers - CESAM		CONTRACTOR FILE NO.		11. MANUFACTURER'S DESIGNATION OF DRILL Vibracore		<input type="checkbox"/> AUTO HAMMER <input type="checkbox"/> MANUAL HAMMER	
4. NAME OF DRILLER Construction Solutions International, Inc.				12. TOTAL SAMPLES 0		DISTURBED 0 UNDISTURBED (UD) 0	
5. DIRECTION OF BORING <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED		DEG. FROM VERTICAL		13. TOTAL NUMBER CORE BOXES			
		BEARING		14. WATER DEPTH 31 Ft.			
6. THICKNESS OF OVERBURDEN N/A				15. DATE BORING 07-30-10		STARTED 07-30-10 COMPLETED 07-30-10	
7. DEPTH DRILLED INTO ROCK N/A				16. ELEVATION TOP OF BORING -31.1 Ft.			
8. TOTAL DEPTH OF BORING 12.0 Ft.				17. TOTAL RECOVERY FOR BORING 100%			
				18. SIGNATURE AND TITLE OF INSPECTOR Chris Gillentine, Geologist			
ELEV.	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS	SAMPLE	LABORATORY RESULTS		
-31.1	0.0		CLAY, fat, trace shell fragments, dark gray (CH)	NS			
-43.1	12.0		NOTES: 1. Soils are field visually classified in accordance with the Unified Soils Classification System. 2. NS = Sample not submitted for laboratory analysis from this interval. 3. Seafloor elevation calculated using sampling vessel's fathometer water depth reading and applying NOAA tidal gauge data conversion factor.				

# Boring Designation BI-PB-111-10

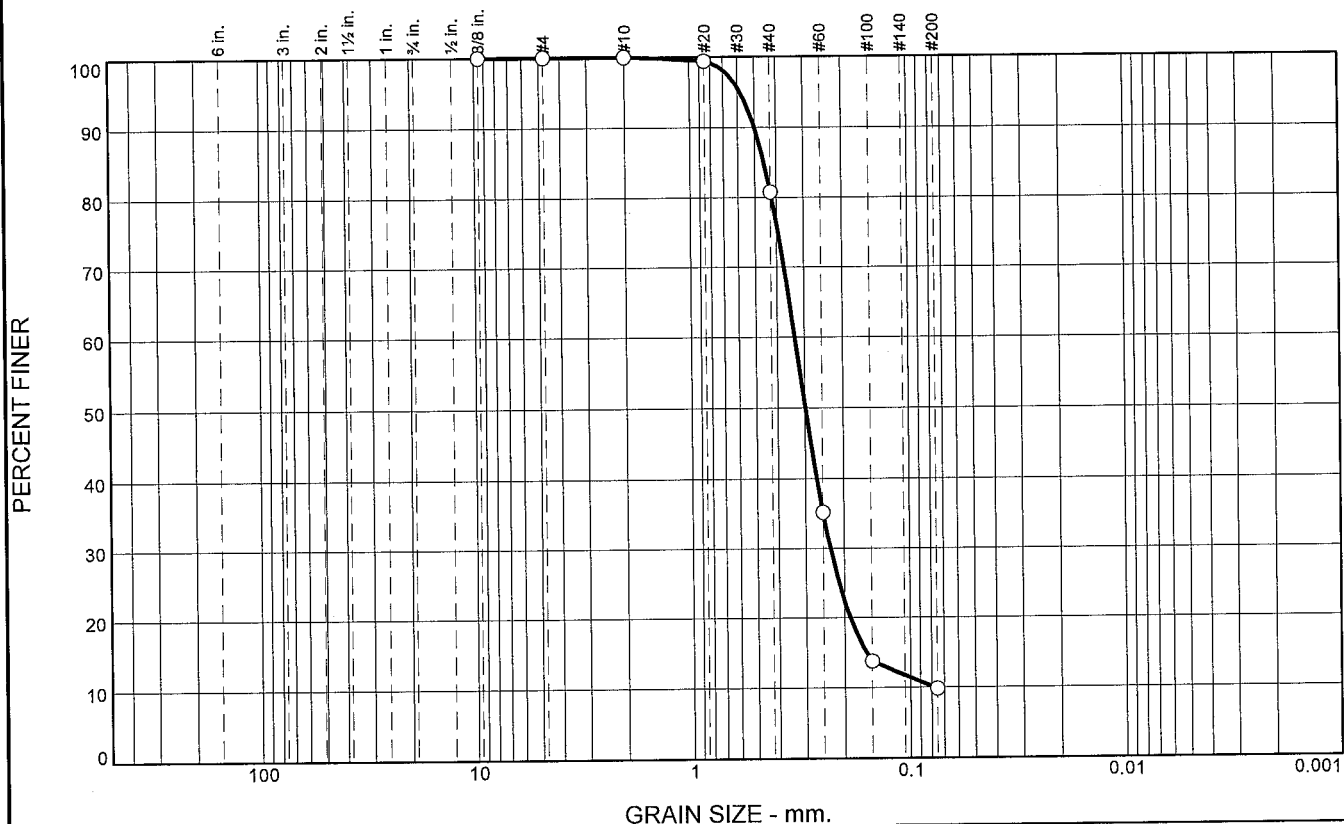
DRILLING LOG		DIVISION South Atlantic		INSTALLATION Mobile District		SHEET 1 OF 2 SHEETS	
1. PROJECT MsCIP Barrier Island Restoration Petit Bois Pass- AL East				9. SIZE AND TYPE OF BIT N/A			
2. BORING DESIGNATION BI-PB-111-10		LOCATION COORDINATES E = 1,142,901 N = 254,408		10. COORDINATE SYSTEM/DATUM State Plane, MSE (U.S. Ft.)		HORIZONTAL NAD83 VERTICAL NAVD88	
3. DRILLING AGENCY Corps of Engineers - CESAM		CONTRACTOR FILE NO.		11. MANUFACTURER'S DESIGNATION OF DRILL Vibracore		<input type="checkbox"/> AUTO HAMMER <input type="checkbox"/> MANUAL HAMMER	
4. NAME OF DRILLER Construction Solutions International, Inc.				12. TOTAL SAMPLES 0		DISTURBED 0 UNDISTURBED (UD) 0	
5. DIRECTION OF BORING <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED		DEG. FROM VERTICAL		13. TOTAL NUMBER CORE BOXES			
		BEARING		14. WATER DEPTH 31 Ft.			
6. THICKNESS OF OVERBURDEN N/A				15. DATE BORING 07-29-10		STARTED 07-29-10 COMPLETED 07-29-10	
7. DEPTH DRILLED INTO ROCK N/A				16. ELEVATION TOP OF BORING -30.6 Ft.			
8. TOTAL DEPTH OF BORING 20.0 Ft.				17. TOTAL RECOVERY FOR BORING 100%			
				18. SIGNATURE AND TITLE OF INSPECTOR Chris Gillentine, Geologist			
ELEV.	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS	SAMPLE	LABORATORY RESULTS		
-30.6	0.0						
			CLAY, fat, trace shell fragments, trace fine-grained sand-sized quartz, lt. gray (CH)				
			At El. -40.6 Ft., gray	NS			
-50.6	20.0						
			NOTES: 1. Soils are field visually classified in accordance with the Unified Soils Classification System. 2. NS = Sample not submitted for laboratory analysis from this interval. 3. Seafloor elevation calculated using sampling				

<b>DRILLING LOG (Cont. Sheet)</b>			<b>INSTALLATION</b> Mobile District		<b>SHEET 2</b> <b>OF 2 SHEETS</b>
<b>PROJECT</b> MsCIP Barrier Island Restoration			<b>COORDINATE SYSTEM/DATUM</b> State Plane, MSE (U.S. Ft.)	<b>HORIZONTAL</b> NAD83	<b>VERTICAL</b> NAVD88
<b>LOCATION COORDINATES</b> X = 1,142,901 Y = 254,408			<b>ELEVATION TOP OF BORING</b> -30.6 Ft.		
<b>ELEV.</b>	<b>DEPTH</b>	<b>LEGEND</b>	<b>CLASSIFICATION OF MATERIALS</b>	<b>SAMPLE</b>	<b>LABORATORY RESULTS</b>
			vessel's fathometer water depth reading and applying NOAA tidal gauge data conversion factor.		

# Boring Designation BI-PB-112-10

DRILLING LOG		DIVISION South Atlantic		INSTALLATION Mobile District		SHEET 1 OF 1 SHEETS	
1. PROJECT MsCIP Barrier Island Restoration Petit Bois Pass- AL East				9. SIZE AND TYPE OF BIT N/A			
2. BORING DESIGNATION BI-PB-112-10		LOCATION COORDINATES E = 1,147,813 N = 255,790		10. COORDINATE SYSTEM/DATUM State Plane, MSE (U.S. Ft.)		HORIZONTAL NAD83 VERTICAL NAVD88	
3. DRILLING AGENCY Corps of Engineers - CESAM		CONTRACTOR FILE NO.		11. MANUFACTURER'S DESIGNATION OF DRILL Vibracore		<input type="checkbox"/> AUTO HAMMER <input type="checkbox"/> MANUAL HAMMER	
4. NAME OF DRILLER Construction Solutions International, Inc.				12. TOTAL SAMPLES 3		DISTURBED 3 UNDISTURBED (UD) 0	
5. DIRECTION OF BORING <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED		DEG. FROM VERTICAL		13. TOTAL NUMBER CORE BOXES			
		BEARING		14. WATER DEPTH 31 Ft.			
6. THICKNESS OF OVERBURDEN N/A				15. DATE BORING 07-30-10		STARTED 07-30-10 COMPLETED 07-30-10	
7. DEPTH DRILLED INTO ROCK N/A				16. ELEVATION TOP OF BORING -30.9 Ft.			
8. TOTAL DEPTH OF BORING 11.0 Ft.				17. TOTAL RECOVERY FOR BORING 100%			
				18. SIGNATURE AND TITLE OF INSPECTOR Chris Gillentine, Geologist			
ELEV.	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS	SAMPLE	LABORATORY RESULTS		
-30.9	0.0						
-31.9	1.0		CLAY, fat, black/brown (CH)	NS			
			SAND, poorly-graded, mostly fine to medium-grained sand-sized quartz, trace silt, lt. gray (SP)	A	Classification: SP-SM Color: 2.5Y 7/1-light gray D50: 0.2982 mm % Fines: 9.8		
				B	Classification: SP-SM Color: 2.5Y 7/2-light gray D50: 0.3341 mm % Fines: 6.2		
				C	Classification: SP-SM Color: 2.5Y 7/2-light gray D50: 0.3282 mm % Fines: 6.6		
-41.9	11.0						
			NOTES: 1. Soils are field visually classified in accordance with the Unified Soils Classification System. 2. NS = Sample not submitted for laboratory analysis from this interval. 3. Seafloor elevation calculated using sampling vessel's fathometer water depth reading and applying NOAA tidal gauge data conversion factor.				

# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.0	0.0	19.2	71.0	9.8	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
.375	100.0		
#4	100.0		
#10	100.0		
#20	99.4		
#40	80.8		
#60	35.2		
#100	13.8		
#200	9.8		

\* (no specification provided)

**Material Description**  
SAND, (SP-SM), medium to fine grained

PL= **Atterberg Limits** LL= PI=

**Coefficients**  
D<sub>90</sub>= 0.5023 D<sub>85</sub>= 0.4545 D<sub>60</sub>= 0.3320  
D<sub>50</sub>= 0.2982 D<sub>30</sub>= 0.2317 D<sub>15</sub>= 0.1592  
D<sub>10</sub>= 0.0775 C<sub>u</sub>= 4.28 C<sub>c</sub>= 2.09

**Classification**  
USCS= SP-SM AASHTO=

**Remarks**  
CADD CODE = CH10D965

Location: USACE Sample # BI-PB-112-10A  
Sample Number: TE Lab ID: 4612.57

Depth: 1.0 - 5.0 (ft.)

Date: 8/7/10

**Thompson Engineering**

**Mobile, Alabama**

Client: US Army Corps of Engineers

Project: Contract No. W91278-10-D-0026 - Task 03  
Mississippi Barrier Island Restoration Project

Project No: 10-2123-0009

Report No.

Tested By: J.Maddox

Checked By: R.Byrd

## PERCENT FINER



SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
.375	100.0		
#4	100.0		
#10	100.0		
#20	99.3		
#40	77.4		
#60	19.1		
#100	9.2		
#200	6.2		

SAND, (SP-SM), medium to fine grained

 $PL =$ 
$$LL =$$
 $P| =$ 
$$D_{00} = 0.5076$$
$$D_{85} = 0.4672$$
$$D_{60} = 0.3624$$
$$D_{50} = 0,3341$$
$$D_{30} = 0.2817$$
$$D_{1.5} = 0.2102$$
$$D_{10} = 0.1593$$
$$C_{\mu}^{50} = 2.27$$
$$C_{C=O} = 1.37$$

## Classification

USCS= SP-SM

AASHTO=

### Remarks

CADD CODE = CH10D965

**Location:** USACE Sample # BI-PB-112-10B  
**Sample Number:** TE Lab ID: 4612.58

**Depth: 5.0 - 9.0 (ft.)**

Date: 8/7/10

## Thompson Engineering

## Mobile, Alabama

**Client:** US Army Corps of Engineers

**Project:** Contract No. W91278-10-D-0026 - Task 03

Mississippi Barrier Island Restoration Project

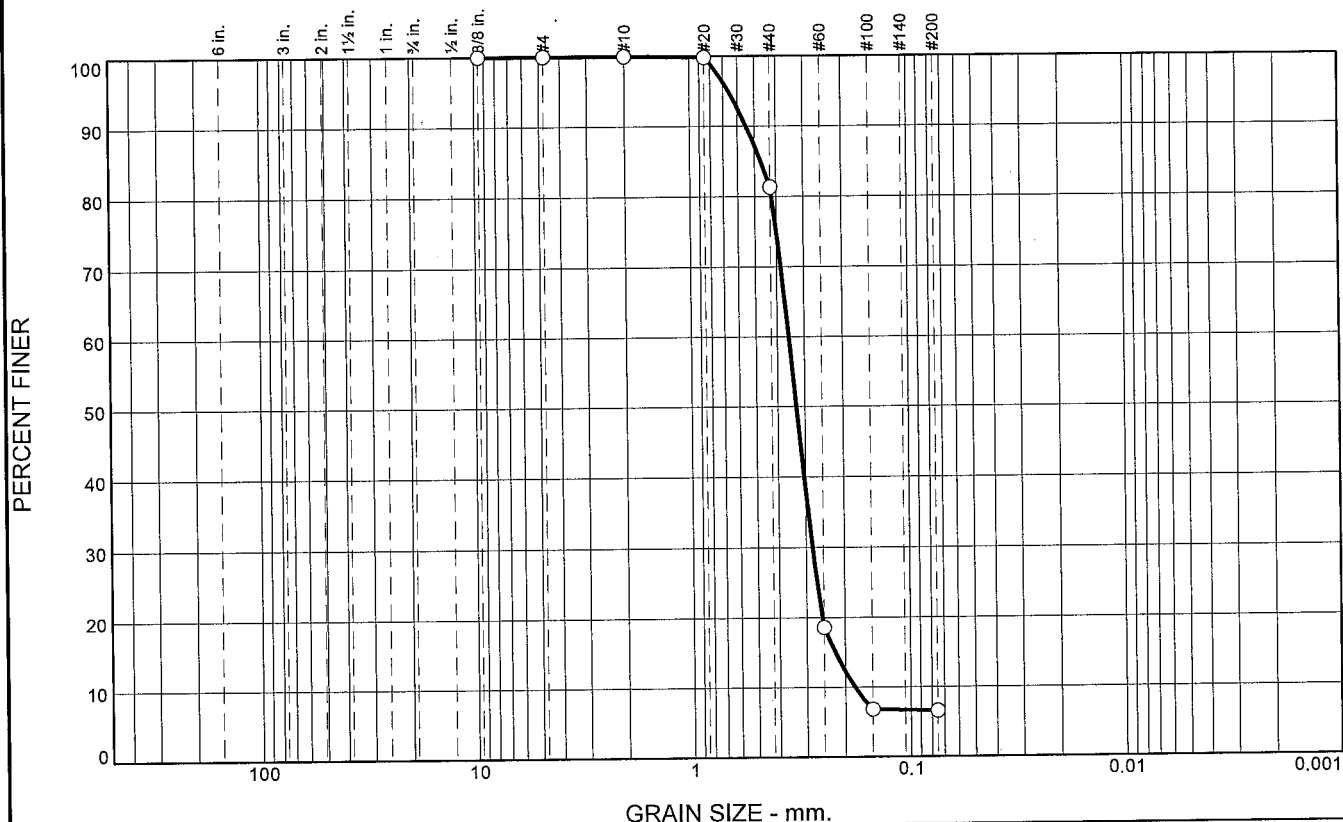
**Project No:** 10-2123-0009

Report No.

**Tested By:** J.Maddox

**Checked By:** R.Byrd

# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.0	0.0	18.7	74.7	6.6	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
.375	100.0		
#4	100.0		
#10	100.0		
#20	99.8		
#40	81.3		
#60	18.6		
#100	6.8		
#200	6.6		

\* (no specification provided)

## Material Description

SAND, (SP-SM), medium to fine grained

## Atterberg Limits

PL= LL= PI=

## Coefficients

D<sub>90</sub>= 0.5476 D<sub>85</sub>= 0.4694 D<sub>60</sub>= 0.3539  
D<sub>50</sub>= 0.3282 D<sub>30</sub>= 0.2802 D<sub>15</sub>= 0.2223  
D<sub>10</sub>= 0.1814 C<sub>u</sub>= 1.95 C<sub>c</sub>= 1.22

## Classification

USCS= SP-SM AASHTO=

## Remarks

CADD CODE = CH10D965

Location: USACE Sample # BI-PB-112-10C  
Sample Number: TE Lab ID: 4612.59

Depth: 9.0 - 11.0 (ft.)

Date: 8/7/10

**Thompson Engineering**

**Mobile, Alabama**

Client: US Army Corps of Engineers

Project: Contract No. W91278-10-D-0026 - Task 03  
Mississippi Barrier Island Restoration Project

Project No: 10-2123-0009

Report No.

Tested By: J.Maddox

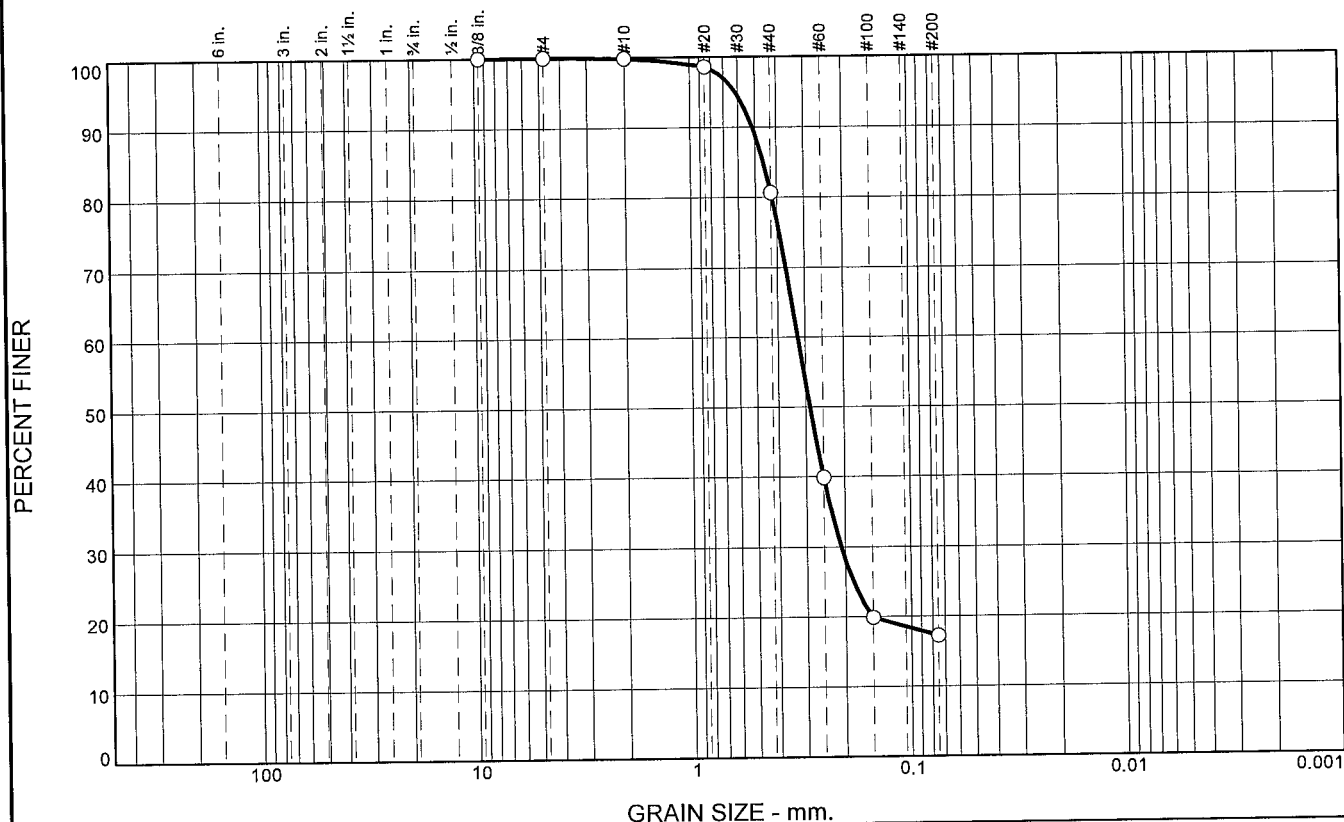
Checked By: R.Byrd



# Boring Designation BI-PB-113-10

DRILLING LOG		DIVISION South Atlantic		INSTALLATION Mobile District		SHEET 1 OF 1 SHEETS	
1. PROJECT MsCIP Barrier Island Restoration Petit Bois Pass- AL East				9. SIZE AND TYPE OF BIT N/A			
2. BORING DESIGNATION BI-PB-113-10		LOCATION COORDINATES E = 1,148,125 N = 255,333		10. COORDINATE SYSTEM/DATUM State Plane, MSE (U.S. Ft.)		HORIZONTAL NAD83	
3. DRILLING AGENCY Corps of Engineers - CESAM		CONTRACTOR FILE NO.		11. MANUFACTURER'S DESIGNATION OF DRILL Vibracore		<input type="checkbox"/> AUTO HAMMER <input type="checkbox"/> MANUAL HAMMER	
4. NAME OF DRILLER Construction Solutions International, Inc.				12. TOTAL SAMPLES 4		DISTURBED 0	
5. DIRECTION OF BORING <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED				13. TOTAL NUMBER CORE BOXES		14. WATER DEPTH 32 Ft.	
6. THICKNESS OF OVERBURDEN N/A				15. DATE BORING 07-30-10		STARTED 07-30-10	
7. DEPTH DRILLED INTO ROCK N/A				16. ELEVATION TOP OF BORING -33.6 Ft.		COMPLETED 07-30-10	
8. TOTAL DEPTH OF BORING 17.5 Ft.				17. TOTAL RECOVERY FOR BORING 100%		18. SIGNATURE AND TITLE OF INSPECTOR Chris Gillentine, Geologist	
ELEV.	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS	SAMPLE	LABORATORY RESULTS		
-33.6	0.0						
-34.6	1.0		SAND, poorly-graded, dark gray (SP)	A	Classification: SM Color: 2.5Y 3/1-very dark gray D50: 0.2867 mm % Fines: 17.2		
			SAND, poorly-graded, mostly fine to medium-grained sand-sized quartz, trace silt, lt. gray (SP)	B	Classification: SM Color: 5Y 5/2-olive gray D50: 0.2881 mm % Fines: 19.4		
				C	Classification: SM Color: 2.5Y 6/1-gray D50: 0.2677 mm % Fines: 20.8		
				D	Classification: SP-SM Color: 2.5Y 6/1-gray D50: 0.3099 mm % Fines: 9.9		
-51.1	17.5						
			NOTES: 1. Soils are field visually classified in accordance with the Unified Soils Classification System. 2. NS = Sample not submitted for laboratory analysis from this interval. 3. Seafloor elevation determined from 2010 USACE survey.				

# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.0	0.2	19.2	63.4	17.2	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
.375	100.0		
#4	100.0		
#10	99.8		
#20	98.6		
#40	80.6		
#60	39.9		
#100	19.9		
#200	17.2		

\* (no specification provided)

**Material Description**  
SILTY SAND, (SM), medium to fine grained, with clay pockets

**Atterberg Limits**  
 PL=      LL=      PI=

**Coefficients**  
 D<sub>90</sub>= 0.5144      D<sub>85</sub>= 0.4591      D<sub>60</sub>= 0.3238  
 D<sub>50</sub>= 0.2867      D<sub>30</sub>= 0.2095      D<sub>15</sub>=  
 D<sub>10</sub>=      C<sub>u</sub>=      C<sub>c</sub>=

**Classification**  
 USCS= SM      AASHTO=

**Remarks**  
 CADD CODE = CH10D965

Location: USACE Sample # BI-PB-113-10A  
 Sample Number: TE Lab ID: 4612.49

Depth: 0.0 - 5.0 (ft.)

Date: 8/7/10

**Thompson Engineering**

**Mobile, Alabama**

Client: US Army Corps of Engineers

Project: Contract No. W91278-10-D-0026 - Task 03  
 Mississippi Barrier Island Restoration Project

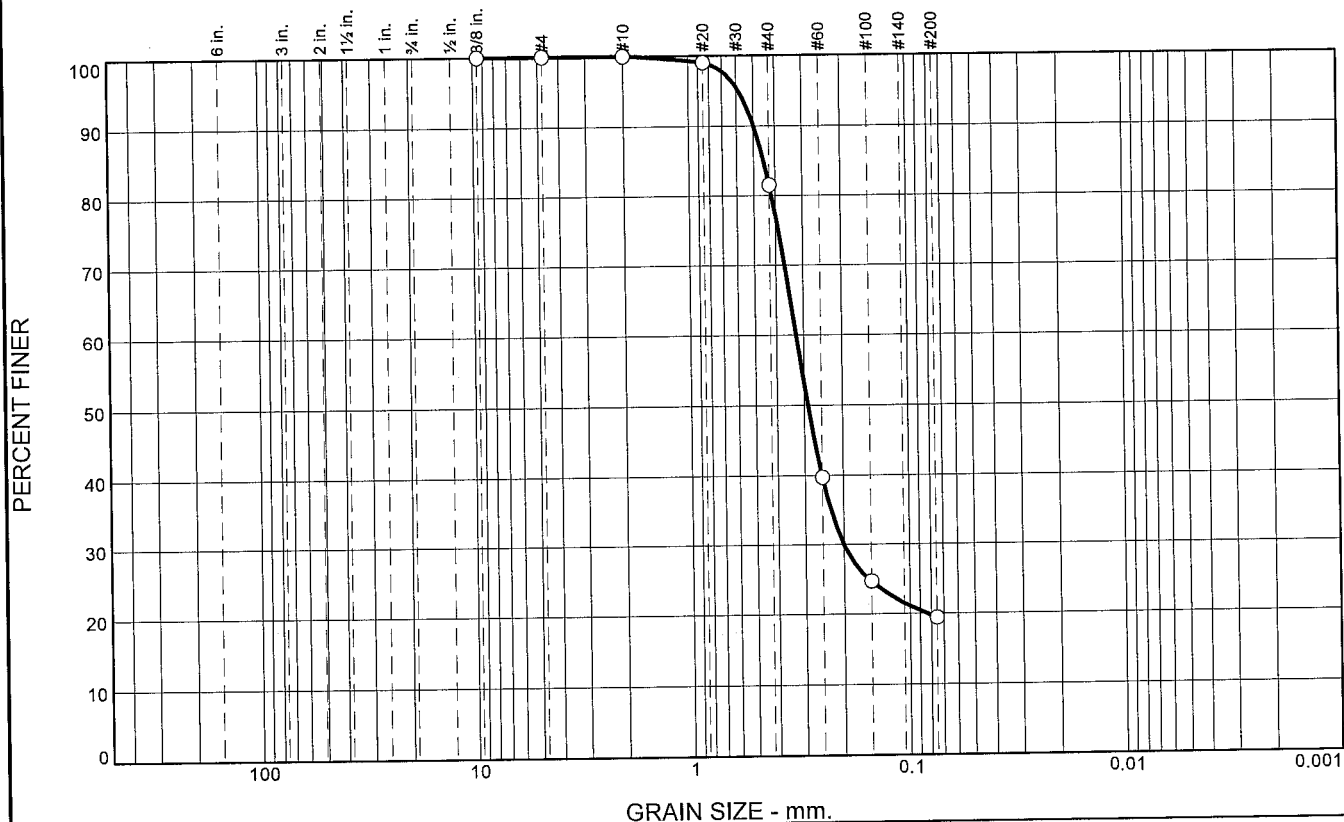
Project No: 10-2123-0009

Report No.

Tested By: J.Maddox

Checked By: R.Byrd

# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.0	0.0	18.5	62.1	19.4	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
.375	100.0		
#4	100.0		
#10	100.0		
#20	99.0		
#40	81.5		
#60	39.8		
#100	24.6		
#200	19.4		

\* (no specification provided)

**Material Description**  
SILTY SAND, (SM), medium to fine grained, with clay pockets

**Atterberg Limits**  
 PL=      LL=      PI=

**Coefficients**  
 D<sub>90</sub>= 0.4998      D<sub>85</sub>= 0.4504      D<sub>60</sub>= 0.3244  
 D<sub>50</sub>= 0.2881      D<sub>30</sub>= 0.2008      D<sub>15</sub>=  
 D<sub>10</sub>=      C<sub>u</sub>=      C<sub>c</sub>=

**Classification**  
 USCS= SM      AASHTO=

**Remarks**  
 CADD CODE = CH10D965

Location: USACE Sample # BI-PB-113-10B  
 Sample Number: TE Lab ID: 4612.50

Depth: 5.0 - 10.0 (ft.)

Date: 8/7/10

**Thompson Engineering**

**Mobile, Alabama**

Client: US Army Corps of Engineers

Project: Contract No. W91278-10-D-0026 - Task 03  
 Mississippi Barrier Island Restoration Project

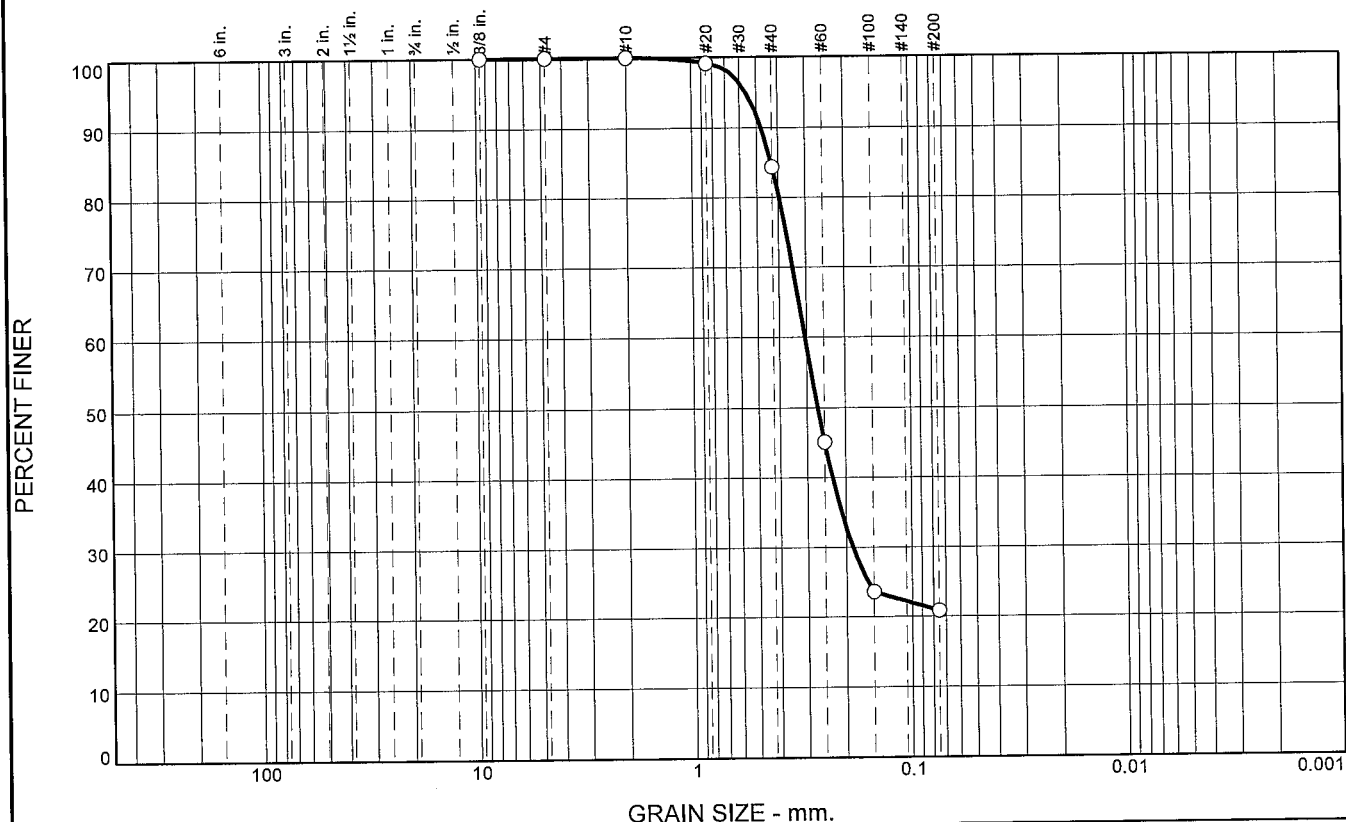
Project No: 10-2123-0009

Report No.

Tested By: J.Maddox

Checked By: R.Byrd

# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.0	0.0	15.7	63.5	20.8	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
.375	100.0		
#4	100.0		
#10	100.0		
#20	99.1		
#40	84.3		
#60	45.1		
#100	23.6		
#200	20.8		

\* (no specification provided)

**Material Description**  
SILTY SAND, (SM), medium to fine grained

**Atterberg Limits**  
PL=      LL=      PI=

**Coefficients**  
D<sub>90</sub>= 0.4773      D<sub>85</sub>= 0.4300      D<sub>60</sub>= 0.3045  
D<sub>50</sub>= 0.2677      D<sub>30</sub>= 0.1872      D<sub>15</sub>=  
D<sub>10</sub>=      C<sub>u</sub>=      C<sub>c</sub>=

**Classification**  
USCS= SM      AASHTO=

**Remarks**  
CADD CODE = CH10D965

Location: USACE Sample # BI-PB-113-10C  
Sample Number: TE Lab ID: 4612.51

Depth: 10.0 - 15.0 (ft.)

Date: 8/7/10

**Thompson Engineering**

**Mobile, Alabama**

Client: US Army Corps of Engineers

Project: Contract No. W91278-10-D-0026 - Task 03  
Mississippi Barrier Island Restoration Project

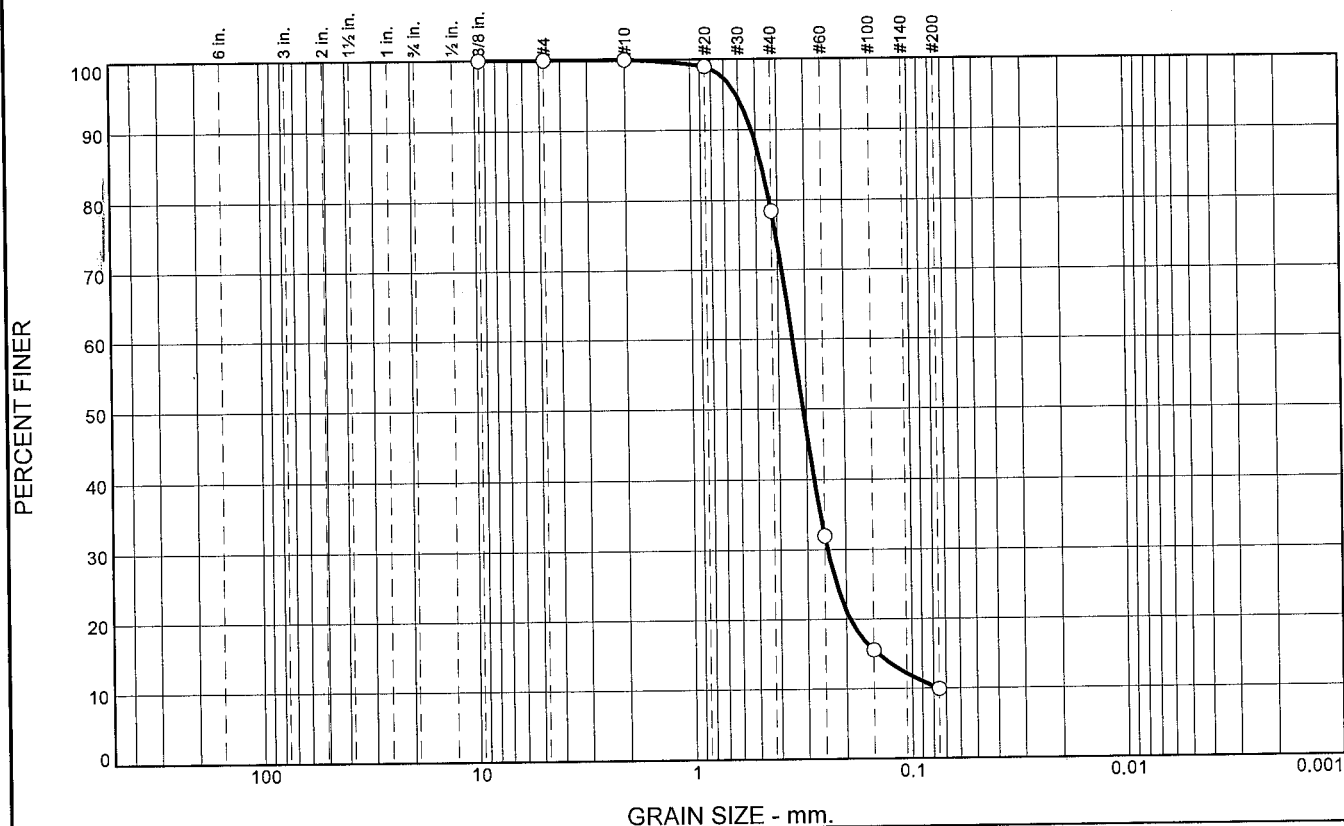
Project No: 10-2123-0009

Report No.

Tested By: J.Maddox

Checked By: R.Byrd

# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.0	0.0	21.6	68.5	9.9	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
.375	100.0		
#4	100.0		
#10	100.0		
#20	99.0		
#40	78.4		
#60	32.0		
#100	15.5		
#200	9.9		

\* (no specification provided)

## Material Description

SAND, (SP-SM), medium to fine grained

## Atterberg Limits

PL= LL= PI=

## Coefficients

D<sub>90</sub>= 0.5222 D<sub>85</sub>= 0.4709 D<sub>60</sub>= 0.3440  
D<sub>50</sub>= 0.3099 D<sub>30</sub>= 0.2426 D<sub>15</sub>= 0.1432  
D<sub>10</sub>= 0.0761 C<sub>u</sub>= 4.52 C<sub>c</sub>= 2.25

## Classification

USCS= SP-SM AASHTO=

## Remarks

CADD CODE = CH10D965

Location: USACE Sample # BI-PB-113-10D  
Sample Number: TE Lab ID: 4612.52

Depth: 15.0 - 17.5 (ft.)

Date: 8/7/10

**Thompson Engineering**

**Mobile, Alabama**

Client: US Army Corps of Engineers

Project: Contract No. W91278-10-D-0026 - Task 03  
Mississippi Barrier Island Restoration Project

Project No: 10-2123-0009

Report No.

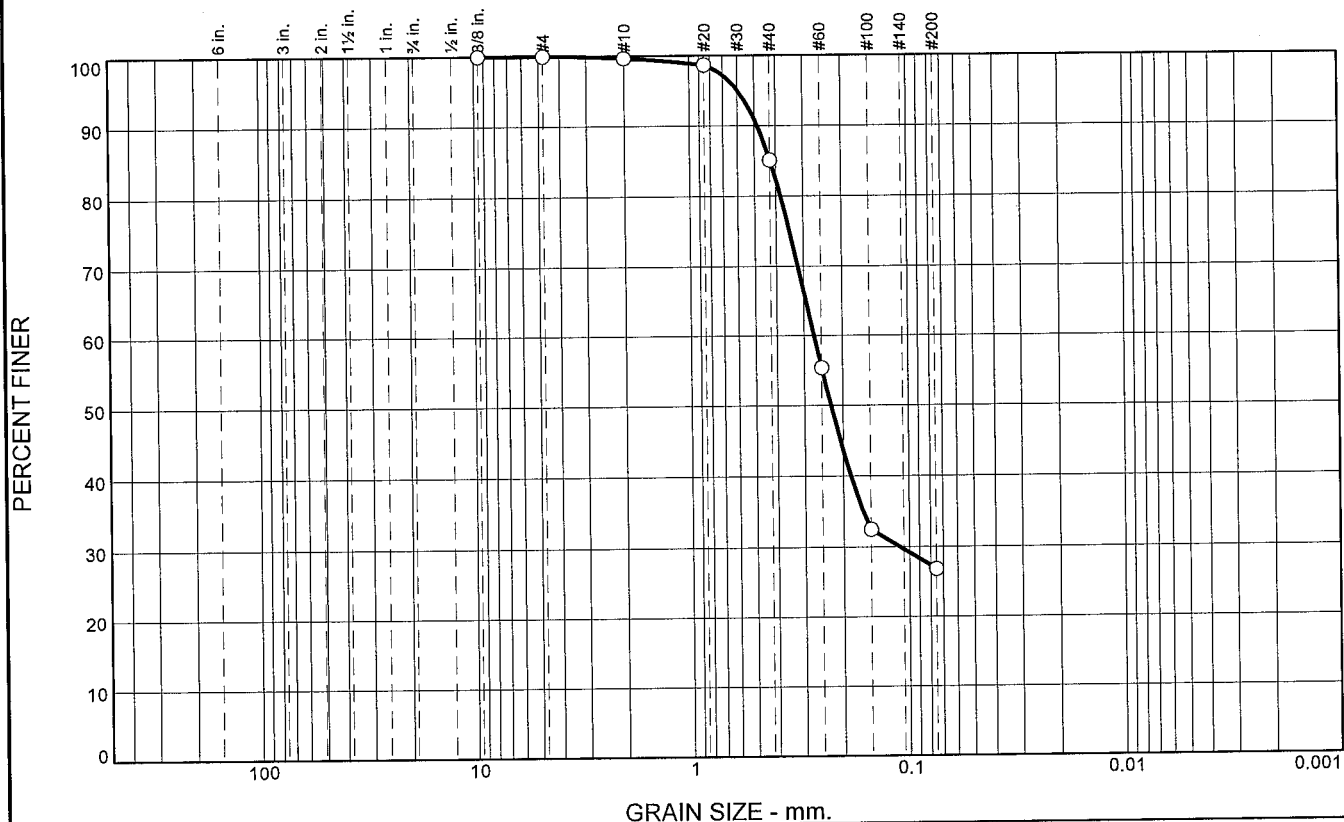
Tested By: J.Maddox

Checked By: R.Byrd

# Boring Designation BI-PB-114-10

DRILLING LOG		DIVISION South Atlantic		INSTALLATION Mobile District		SHEET 1 OF 1 SHEETS	
1. PROJECT MsCIP Barrier Island Restoration Petit Bois Pass- AL East				9. SIZE AND TYPE OF BIT N/A			
2. BORING DESIGNATION BI-PB-114-10		LOCATION COORDINATES E = 1,148,606 N = 255,746		10. COORDINATE SYSTEM/DATUM State Plane, MSE (U.S. Ft.)		HORIZONTAL NAD83	
3. DRILLING AGENCY Corps of Engineers - CESAM		CONTRACTOR FILE NO.		11. MANUFACTURER'S DESIGNATION OF DRILL Vibrocure		<input type="checkbox"/> AUTO HAMMER <input type="checkbox"/> MANUAL HAMMER	
4. NAME OF DRILLER Construction Solutions International, Inc.				12. TOTAL SAMPLES 4		DISTURBED 0	
5. DIRECTION OF BORING <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED				13. TOTAL NUMBER CORE BOXES		14. WATER DEPTH 30 Ft.	
6. THICKNESS OF OVERBURDEN N/A				15. DATE BORING 07-30-10		STARTED 07-30-10	
7. DEPTH DRILLED INTO ROCK N/A				16. ELEVATION TOP OF BORING -31.1 Ft.		COMPLETED 07-30-10	
8. TOTAL DEPTH OF BORING 19.0 Ft.				17. TOTAL RECOVERY FOR BORING 100%		18. SIGNATURE AND TITLE OF INSPECTOR Chris Gillentine, Geologist	
ELEV.	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS	SAMPLE	LABORATORY RESULTS		
-31.1	0.0						
-33.1	2.0		SAND, poorly-graded, trace silt, dark gray (SP)	A	Classification: SM Color: 5Y 5/2-olive gray D50: 0.2271 mm % Fines: 26.9		
-41.1	10.0		SAND, poorly-graded, mostly fine to medium-grained sand-sized quartz, trace silt, lt. gray (SP)	B	Classification: SP-SM Color: 2.5Y 7/2-light gray D50: 0.3357 mm % Fines: 6.7		
-50.1	19.0		SAND, poorly-graded, mostly fine to medium-grained sand-sized quartz, trace silt, dark gray (SP)	C	Classification: SP-SM Color: 2.5Y 5/1-gray D50: 0.33 mm % Fines: 6.6		
				D	Classification: SM Color: 2.5Y 6/1-gray D50: 0.3039 mm % Fines: 13.8		
NOTES: 1. Soils are field visually classified in accordance with the Unified Soils Classification System. 2. NS = Sample not submitted for laboratory analysis from this interval. 3. Seafloor elevation determined from 2010 USACE survey.							

# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.0	0.4	14.5	58.2	26.9	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
.375	100.0		
#4	100.0		
#10	99.6		
#20	98.7		
#40	85.1		
#60	55.4		
#100	32.5		
#200	26.9		

\* (no specification provided)

**Material Description**  
SILTY SAND, (SM), medium to fine grained, with clay pockets

**Atterberg Limits**  
PL=      LL=      PI=

**Coefficients**  
D<sub>90</sub>= 0.4855      D<sub>85</sub>= 0.4242      D<sub>60</sub>= 0.2703  
D<sub>50</sub>= 0.2271      D<sub>30</sub>= 0.1105      D<sub>15</sub>=  
D<sub>10</sub>=      C<sub>u</sub>=      C<sub>c</sub>=

**Classification**  
USCS= SM      AASHTO=

**Remarks**  
CADD CODE = CH10D965

Location: USACE Sample # BI-PB-114-10A  
Sample Number: TE Lab ID: 4612.53

Depth: 0.0 - 5.0 (ft.)

Date: 8/7/10

**Thompson Engineering**

**Mobile, Alabama**

Client: US Army Corps of Engineers

Project: Contract No. W91278-10-D-0026 - Task 03  
Mississippi Barrier Island Restoration Project

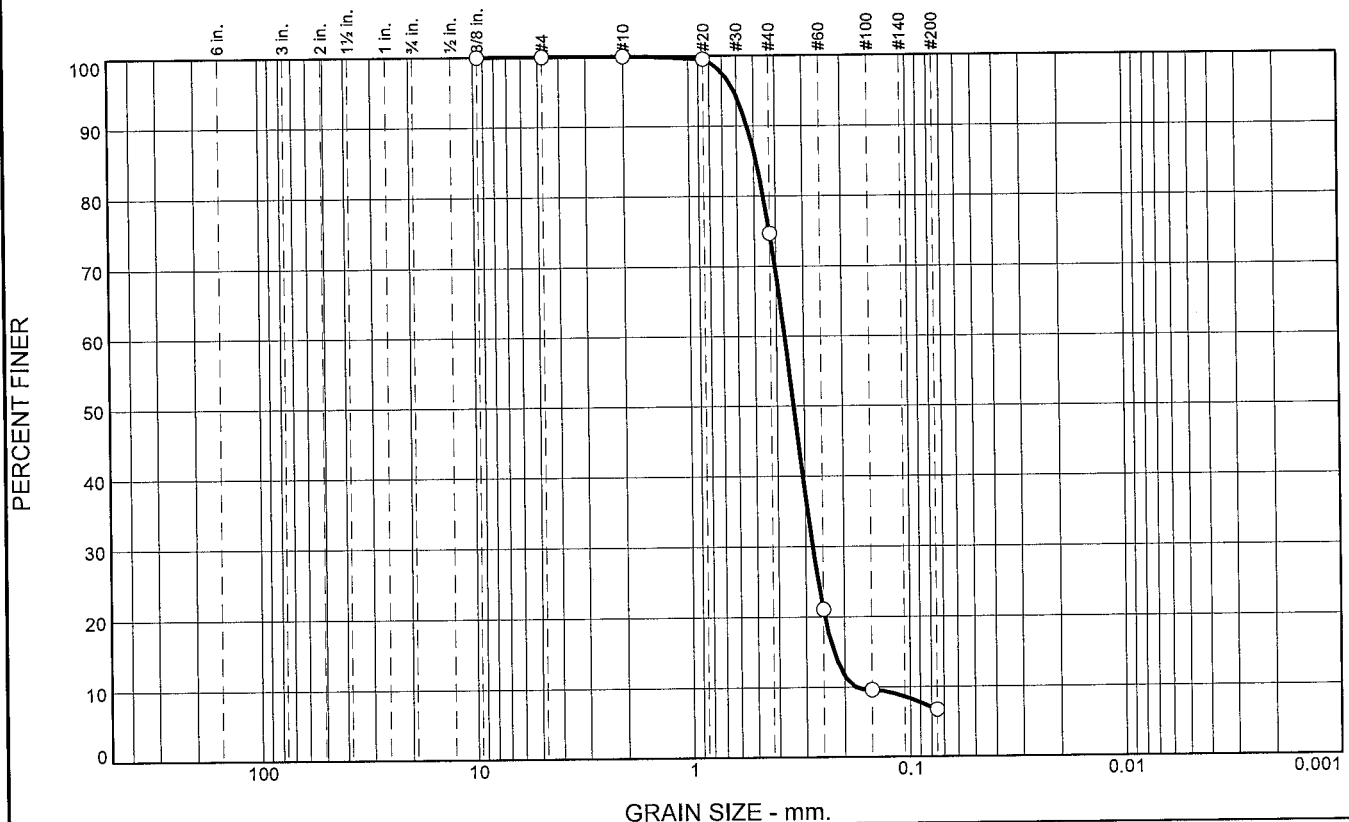
Project No: 10-2123-0009

Report No.

Tested By: J.Maddox

Checked By: R.Byrd

# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.0	0.0	25.3	68.0	6.7	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
.375	100.0		
#4	100.0		
#10	100.0		
#20	99.5		
#40	74.7		
#60	21.1		
#100	9.6		
#200	6.7		

\* (no specification provided)

## Material Description

SAND, (SP-SM), medium to fine grained

## Atterberg Limits

PL=

LL=

PI=

## Coefficients

D<sub>90</sub>= 0.5371

D<sub>85</sub>= 0.4886

D<sub>60</sub>= 0.3672

D<sub>50</sub>= 0.3357

D<sub>30</sub>= 0.2782

D<sub>15</sub>= 0.2238

D<sub>10</sub>= 0.1771

C<sub>u</sub>= 2.07

C<sub>c</sub>= 1.19

## Classification

USCS= SP-SM

AASHTO=

## Remarks

CADD CODE = CH10D965

Location: USACE Sample # BI-PB-114-10B  
Sample Number: TE Lab ID: 4612.54

Depth: 5.0 - 10.0 (ft.)

Date: 8/7/10

**Thompson Engineering**

**Mobile, Alabama**

Client: US Army Corps of Engineers

Project: Contract No. W91278-10-D-0026 - Task 03  
Mississippi Barrier Island Restoration Project

Project No: 10-2123-0009

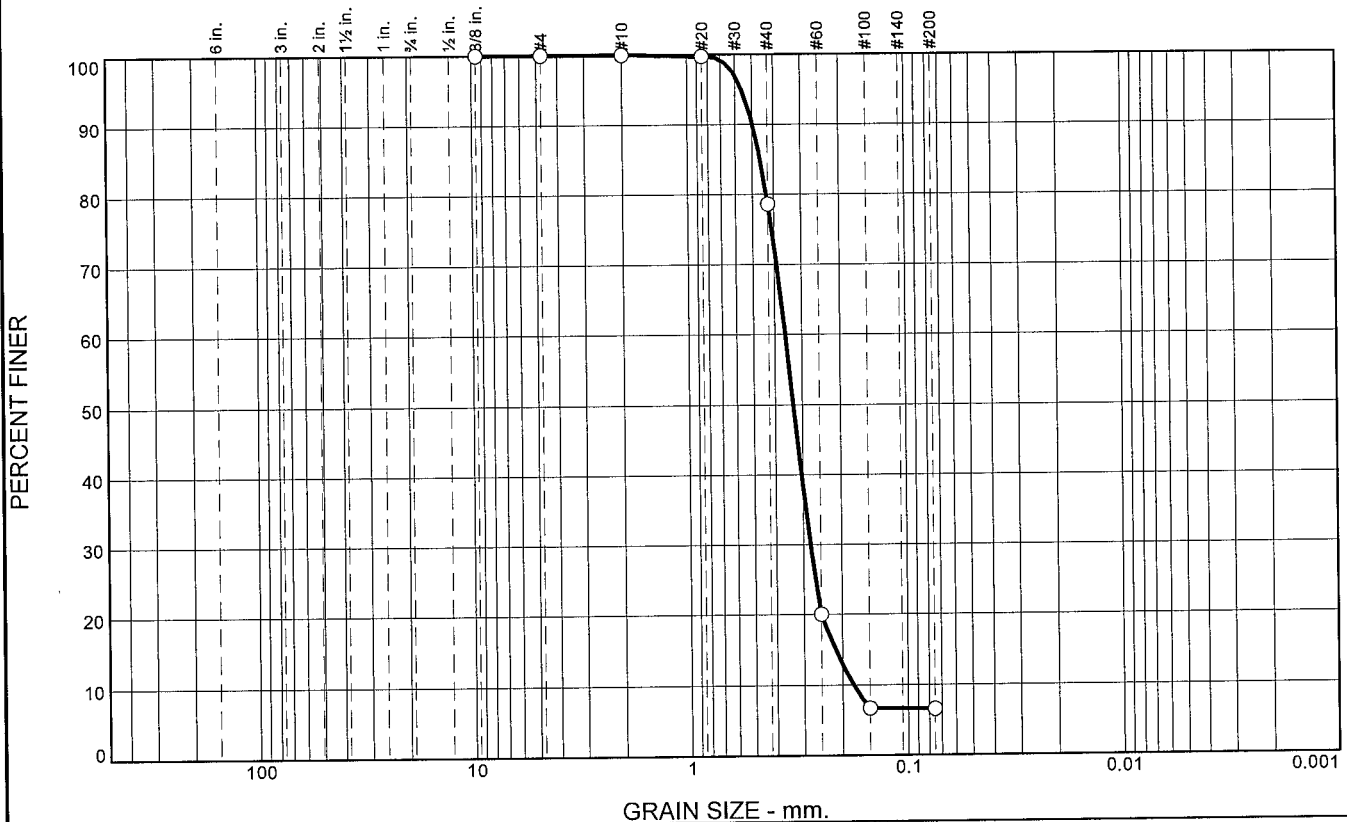
Report No.

Tested By: J.Maddox

Checked By: R.Byrd



# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.0	0.0	21.4	72.0	6.6	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
.375	100.0		
#4	100.0		
#10	100.0		
#20	99.7		
#40	78.6		
#60	20.0		
#100	6.7		
#200	6.6		

\* (no specification provided)

**Material Description**  
SAND, (SP-SM), medium to fine grained

**Atterberg Limits**  
PL= LL= PI=

**Coefficients**  
D<sub>90</sub>= 0.4982 D<sub>85</sub>= 0.4600 D<sub>60</sub>= 0.3581  
D<sub>50</sub>= 0.3300 D<sub>30</sub>= 0.2782 D<sub>15</sub>= 0.2154  
D<sub>10</sub>= 0.1784 C<sub>u</sub>= 2.01 C<sub>c</sub>= 1.21

**Classification**  
USCS= SP-SM AASHTO=

**Remarks**  
CADD CODE = CH10D965

Location: USACE Sample # BI-PB-114-10C  
Sample Number: TE Lab ID: 4612.55

Depth: 10.0 - 15.0 (ft.)

Date: 8/7/10

**Thompson Engineering**

**Mobile, Alabama**

Client: US Army Corps of Engineers

Project: Contract No. W91278-10-D-0026 - Task 03  
Mississippi Barrier Island Restoration Project

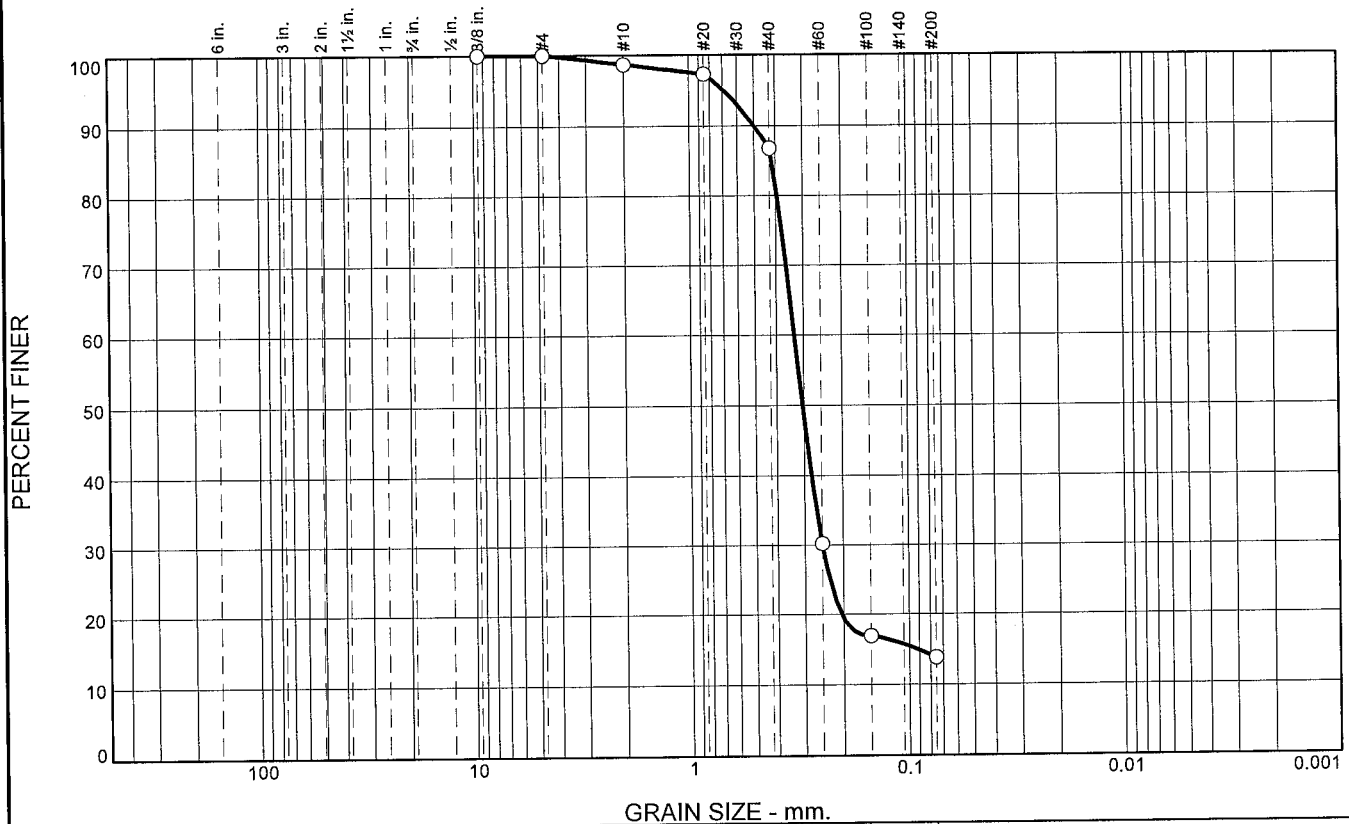
Project No: 10-2123-0009

Report No.

Tested By: J.Maddox

Checked By: R.Byrd

# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.0	1.3	11.9	73.0	13.8	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
.375	100.0		
#4	100.0		
#10	98.7		
#20	97.3		
#40	86.8		
#60	30.2		
#100	16.9		
#200	13.8		

\* (no specification provided)

**Material Description**  
SILTY SAND, (SM), medium to fine grained, with clay pockets

**Atterberg Limits**  
 PL=      LL=      PI=

**Coefficients**  
 D<sub>90</sub>= 0.5005      D<sub>85</sub>= 0.4161      D<sub>60</sub>= 0.3304  
 D<sub>50</sub>= 0.3039      D<sub>30</sub>= 0.2493      D<sub>15</sub>= 0.0920  
 D<sub>10</sub>=      C<sub>u</sub>=      C<sub>c</sub>=

**Classification**  
 USCS= SM      AASHTO=

**Remarks**  
 CADD CODE = CH10D965

Location: USACE Sample # BI-PB-114-10D  
 Sample Number: TE Lab ID: 4612.56

Depth: 15.0 - 19.0 (ft.)

Date: 8/7/10

**Thompson Engineering**

**Mobile, Alabama**

Client: US Army Corps of Engineers

Project: Contract No. W91278-10-D-0026 - Task 03  
 Mississippi Barrier Island Restoration Project

Project No: 10-2123-0009

Report No.

Tested By: J.Maddox

Checked By: R.Byrd

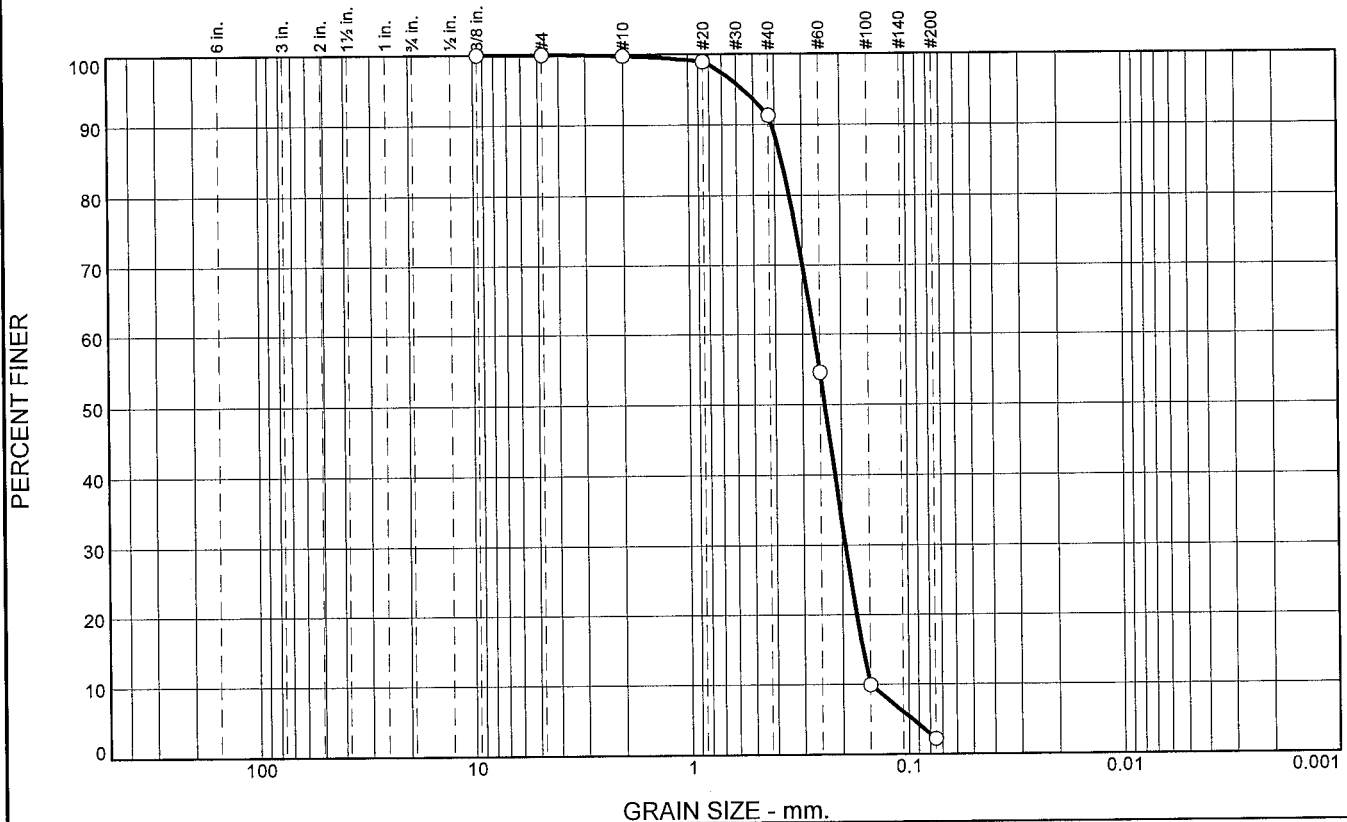
# Boring Designation BI-PB-115-10

DRILLING LOG		DIVISION South Atlantic		INSTALLATION Mobile District		SHEET 1 OF 1 SHEETS	
1. PROJECT MsCIP Barrier Island Restoration Petit Bois Pass- AL East				9. SIZE AND TYPE OF BIT N/A			
2. BORING DESIGNATION BI-PB-115-10		LOCATION COORDINATES E = 1,140,715 N = 257,104		10. COORDINATE SYSTEM/DATUM State Plane, MSE (U.S. Ft.)		HORIZONTAL NAD83 VERTICAL NAVD88	
3. DRILLING AGENCY Corps of Engineers - CESAM		CONTRACTOR FILE NO.		11. MANUFACTURER'S DESIGNATION OF DRILL Vibracore		<input type="checkbox"/> AUTO HAMMER <input type="checkbox"/> MANUAL HAMMER	
4. NAME OF DRILLER Construction Solutions International, Inc.				12. TOTAL SAMPLES 3		DISTURBED 3 UNDISTURBED (UD) 0	
5. DIRECTION OF BORING <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED		DEG. FROM VERTICAL		13. TOTAL NUMBER CORE BOXES			
		BEARING		14. WATER DEPTH 18 Ft.			
6. THICKNESS OF OVERBURDEN N/A				15. DATE BORING 07-29-10		STARTED 07-29-10 COMPLETED 07-29-10	
7. DEPTH DRILLED INTO ROCK N/A				16. ELEVATION TOP OF BORING -17.6 Ft.			
8. TOTAL DEPTH OF BORING 15.0 Ft.				17. TOTAL RECOVERY FOR BORING 100%			
				18. SIGNATURE AND TITLE OF INSPECTOR Chris Gillentine, Geologist			

ELEV.	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS	SAMPLE	LABORATORY RESULTS
-17.6	0.0				
			SAND, poorly-graded, mostly fine to medium-grained sand-sized quartz, trace shell fragments, gray (SP)	A	Classification: SP Color: 2.5Y 6/2-light brownish gray D50: 0.2381 mm % Fines: 2.2
-21.6	4.0			B	Classification: SP Color: 2.5Y 6/2-light brownish gray D50: 0.2206 mm % Fines: 4.8
				C	Classification: SP-SM Color: 5Y 6/2-light olive gray D50: 0.2853 mm % Fines: 5.5
-29.1	11.5				
			CLAY, fat, dark gray (CH)	NS	
-32.6	15.0				
			NOTES: 1. Soils are field visually classified in accordance with the Unified Soils Classification System. 2. NS = Sample not submitted for laboratory analysis from this interval. 3. Seafloor elevation calculated using sampling vessel's fathometer water depth reading and applying NOAA tidal gauge data conversion factor.		

# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.0	0.2	8.5	89.1	2.2	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
.375	100.0		
#4	100.0		
#10	99.8		
#20	98.9		
#40	91.3		
#60	54.6		
#100	9.9		
#200	2.2		

\* (no specification provided)

**Material Description**  
SAND, (SP), fine grained

**Atterberg Limits**  
 PL=      LL=      PI=

**Coefficients**  
 D<sub>90</sub>= 0.4121      D<sub>85</sub>= 0.3729      D<sub>60</sub>= 0.2653  
 D<sub>50</sub>= 0.2381      D<sub>30</sub>= 0.1935      D<sub>15</sub>= 0.1620  
 D<sub>10</sub>= 0.1502      C<sub>u</sub>= 1.77      C<sub>c</sub>= 0.94

**Classification**  
 USCS= SP      AASHTO=

**Remarks**  
 CADD CODE = CH10D965

Location: USACE Sample # BI-PB-115-10A  
 Sample Number: TE Lab ID: 4612.29

Depth: 0.0 - 4.0 (ft.)

Date: 8/7/10

**Thompson Engineering**

**Mobile, Alabama**

Client: US Army Corps of Engineers

Project: Contract No. W91278-10-D-0026 - Task 03  
 Mississippi Barrier Island Restoration Project

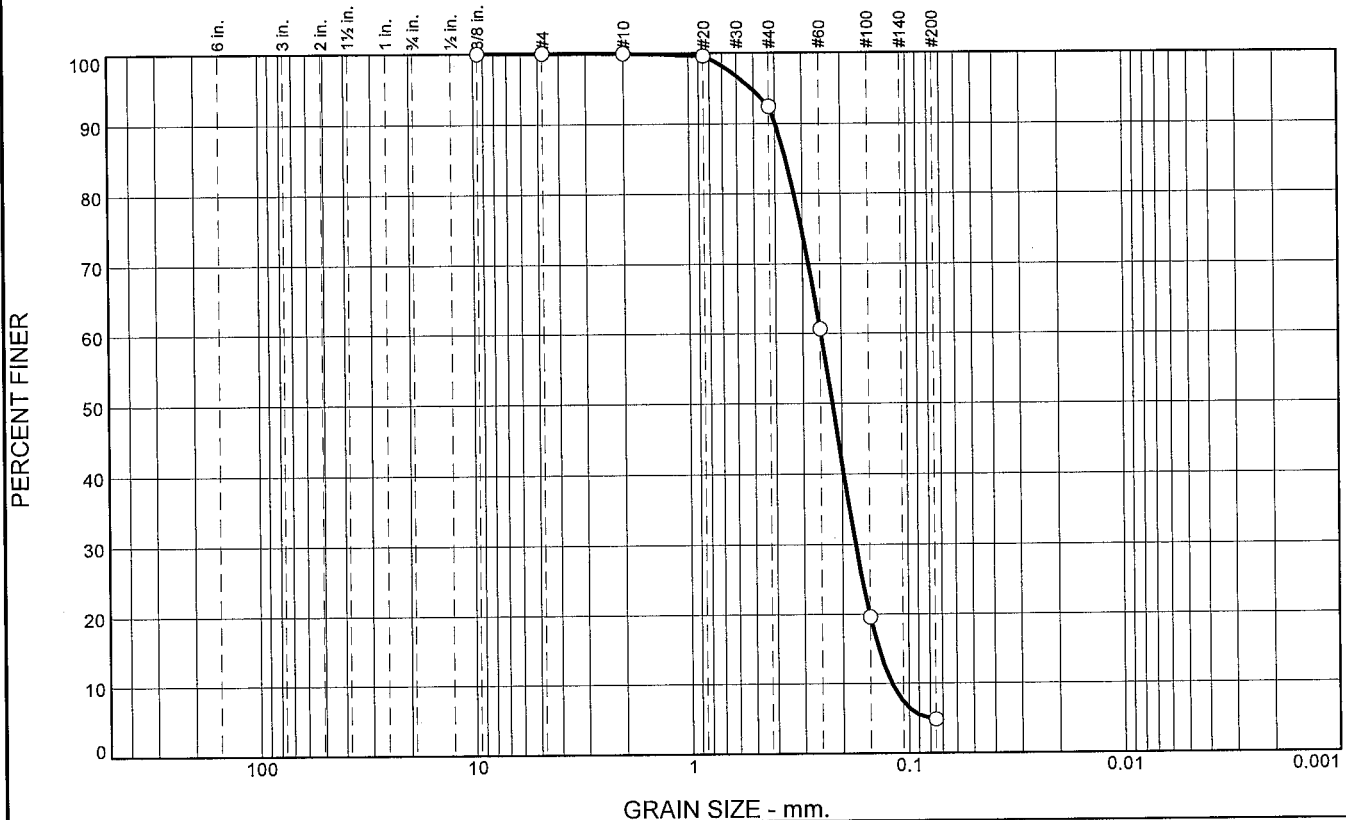
Project No: 10-2123-0009

Report No.

Tested By: J.Maddox

Checked By: R.Byrd

# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.0	0.1	7.5	87.6	4.8	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
.375	100.0		
#4	100.0		
#10	99.9		
#20	99.5		
#40	92.4		
#60	60.7		
#100	19.6		
#200	4.8		

\* (no specification provided)

**Material Description**  
SAND, (SP), fine grained

**Atterberg Limits**  
 PL=                      LL=                      PI=

**Coefficients**  
 D<sub>90</sub>= 0.3989      D<sub>85</sub>= 0.3583      D<sub>60</sub>= 0.2480  
 D<sub>50</sub>= 0.2206      D<sub>30</sub>= 0.1743      D<sub>15</sub>= 0.1372  
 D<sub>10</sub>= 0.1196      C<sub>u</sub>= 2.07          C<sub>c</sub>= 1.02

**Classification**  
 USCS= SP                      AASHTO=

**Remarks**  
 CADD CODE = CH10D965

Location: USACE Sample # BI-PB-115-10B  
 Sample Number: TE Lab ID: 4612.30

Depth: 4.0 - 8.0 (ft.)

Date: 8/7/10

**Thompson Engineering**

**Mobile, Alabama**

Client: US Army Corps of Engineers

Project: Contract No. W91278-10-D-0026 - Task 03  
 Mississippi Barrier Island Restoration Project

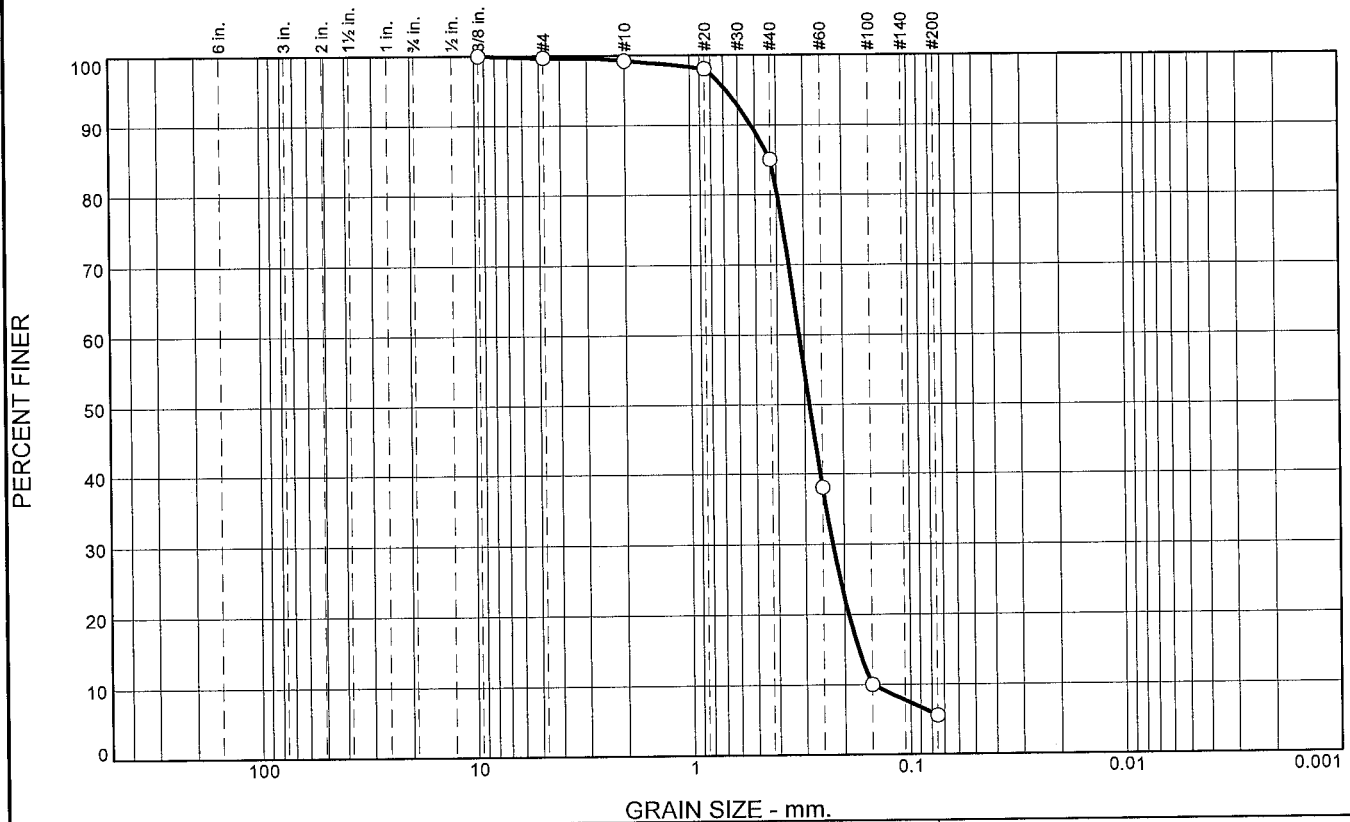
Project No: 10-2123-0009

Report No.

Tested By: J.Maddox

Checked By: R.Byrd

# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.3	0.5	14.2	79.5	5.5	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
.375	100.0		
#4	99.7		
#10	99.2		
#20	98.0		
#40	85.0		
#60	38.1		
#100	10.0		
#200	5.5		

\* (no specification provided)

**Material Description**  
SAND, (SP-SM), medium to fine grained

**Atterberg Limits**  
PL= LL= PI=

**Coefficients**  
D<sub>90</sub>= 0.5226 D<sub>85</sub>= 0.4255 D<sub>60</sub>= 0.3164  
D<sub>50</sub>= 0.2853 D<sub>30</sub>= 0.2254 D<sub>15</sub>= 0.1728  
D<sub>10</sub>= 0.1490 C<sub>u</sub>= 2.12 C<sub>c</sub>= 1.08

**Classification**  
USCS= SP-SM AASHTO=

**Remarks**  
CADD CODE = CH10D965

Location: USACE Sample # BI-PB-115-10C  
Sample Number: TE Lab ID: 4612.31

Depth: 8.0 - 11.5 (ft.)

Date: 8/7/10

**Thompson Engineering**

**Mobile, Alabama**

Client: US Army Corps of Engineers

Project: Contract No. W91278-10-D-0026 - Task 03  
Mississippi Barrier Island Restoration Project

Project No: 10-2123-0009

Report No.

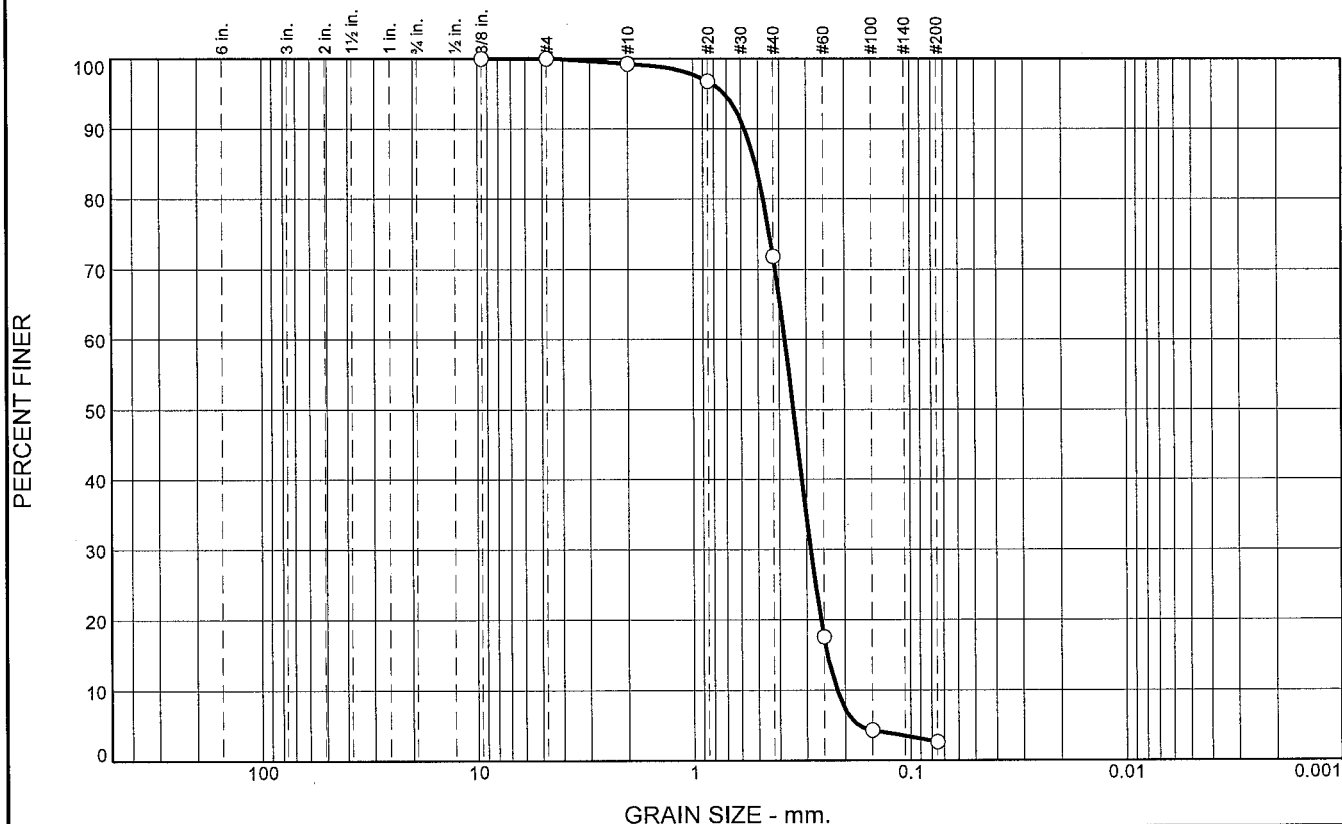
Tested By: J.Maddox

Checked By: R.Byrd

# Boring Designation BI-PB-116-10

DRILLING LOG		DIVISION South Atlantic		INSTALLATION Mobile District		SHEET 1 OF 1 SHEETS	
1. PROJECT MsCIP Barrier Island Restoration Petit Bois Pass- AL East				9. SIZE AND TYPE OF BIT N/A			
2. BORING DESIGNATION BI-PB-116-10		LOCATION COORDINATES E = 1,142,156 N = 257,056		10. COORDINATE SYSTEM/DATUM State Plane, MSE (U.S. Ft.)		HORIZONTAL NAD83	
3. DRILLING AGENCY Corps of Engineers - CESAM		CONTRACTOR FILE NO.		11. MANUFACTURER'S DESIGNATION OF DRILL Vibracore		<input type="checkbox"/> AUTO HAMMER <input type="checkbox"/> MANUAL HAMMER	
4. NAME OF DRILLER Construction Solutions International, Inc.				12. TOTAL SAMPLES 2		DISTURBED 0	
5. DIRECTION OF BORING <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED		DEG. FROM VERTICAL		13. TOTAL NUMBER CORE BOXES			
		BEARING		14. WATER DEPTH 16 Ft.			
6. THICKNESS OF OVERBURDEN N/A				15. DATE BORING 07-29-10		COMPLETED 07-29-10	
7. DEPTH DRILLED INTO ROCK N/A				16. ELEVATION TOP OF BORING -15.6 Ft.			
8. TOTAL DEPTH OF BORING 15.0 Ft.				17. TOTAL RECOVERY FOR BORING 100%			
				18. SIGNATURE AND TITLE OF INSPECTOR Chris Gillentine, Geologist			
ELEV.	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS	SAMPLE	LABORATORY RESULTS		
-15.6	0.0						
			SAND, poorly-graded, mostly fine to medium-grained sand-sized quartz, trace shell fragments, gray (SP)	A	Classification: SP Color: 2.5Y 6/2-light brownish gray D50: 0.3445 mm % Fines: 2.7		
				B	Classification: SP Color: 2.5Y 7/1-light gray D50: 0.2828 mm % Fines: 4.6		
-22.6	7.0						
			CLAY, fat, dark gray (CH)	NS			
-30.6	15.0						
			NOTES: 1. Soils are field visually classified in accordance with the Unified Soils Classification System. 2. NS = Sample not submitted for laboratory analysis from this interval. 3. Seafloor elevation calculated using sampling vessel's fathometer water depth reading and applying NOAA tidal gauge data conversion factor.				

# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.0	0.8	27.4	69.1	2.7	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
.375	100.0		
#4	100.0		
#10	99.2		
#20	96.8		
#40	71.8		
#60	17.6		
#100	4.3		
#200	2.7		

\* (no specification provided)

**Material Description**  
SAND, (SP), medium to fine grained

**Atterberg Limits**  
 PL=                      LL=                      PI=

**Coefficients**  
 D<sub>90</sub>= 0.5772      D<sub>85</sub>= 0.5141      D<sub>60</sub>= 0.3770  
 D<sub>50</sub>= 0.3445      D<sub>30</sub>= 0.2874      D<sub>15</sub>= 0.2406  
 D<sub>10</sub>= 0.2181      C<sub>u</sub>= 1.73              C<sub>c</sub>= 1.00

**Classification**  
 USCS= SP                      AASHTO=

**Remarks**  
 CADD CODE = CH10D965

Location: USACE Sample # BI-PB-116-10A  
 Sample Number: TE Lab ID: 4612.27

Depth: 0.0 - 5.0 (ft.)

Date: 8/7/10

**Thompson Engineering**

**Mobile, Alabama**

Client: US Army Corps of Engineers

Project: Contract No. W91278-10-D-0026 - Task 03  
 Mississippi Barrier Island Restoration Project

Project No: 10-2123-0009

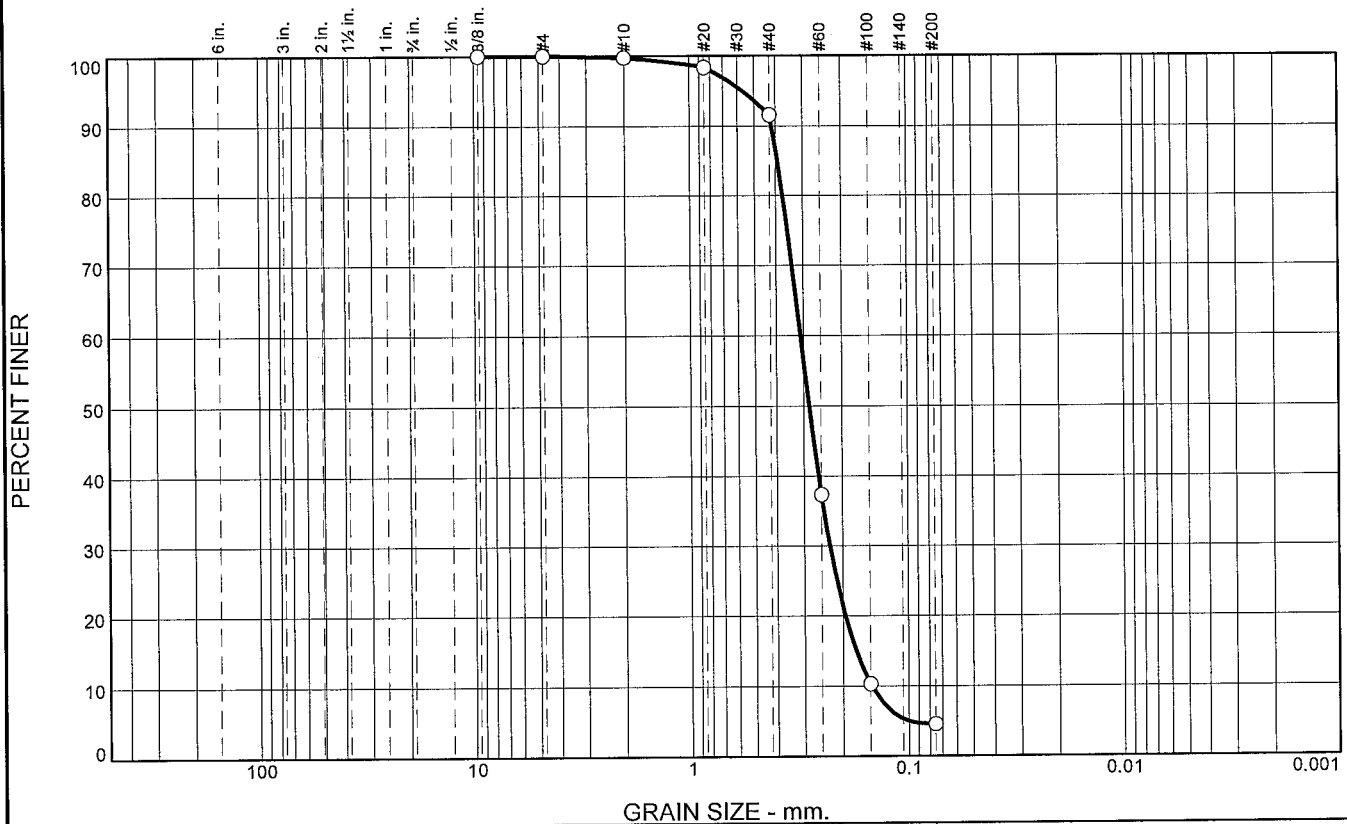
Report No.

Tested By: J.Maddox

Checked By: R.Byrd



# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.0	0.3	8.1	87.0	4.6	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
.375	100.0		
#4	100.0		
#10	99.7		
#20	98.4		
#40	91.6		
#60	37.4		
#100	10.4		
#200	4.6		

\* (no specification provided)

## Material Description

SAND, (SP), fine grained

## Atterberg Limits

PL= LL= PI=

## Coefficients

D<sub>90</sub>= 0.4159 D<sub>85</sub>= 0.3915 D<sub>60</sub>= 0.3092  
D<sub>50</sub>= 0.2828 D<sub>30</sub>= 0.2289 D<sub>15</sub>= 0.1746  
D<sub>10</sub>= 0.1478 C<sub>u</sub>= 2.09 C<sub>c</sub>= 1.15

## Classification

USCS= SP AASHTO=

## Remarks

CADD CODE = CH10D965

Location: USACE Sample # BI-PB-116-10B  
Sample Number: TE Lab ID: 4612.28

Depth: 5.0 - 7.0 (ft.)

Date: 8/7/10

**Thompson Engineering**

**Mobile, Alabama**

Client: US Army Corps of Engineers

Project: Contract No. W91278-10-D-0026 - Task 03  
Mississippi Barrier Island Restoration Project

Project No: 10-2123-0009

Report No.

Tested By: J.Maddox

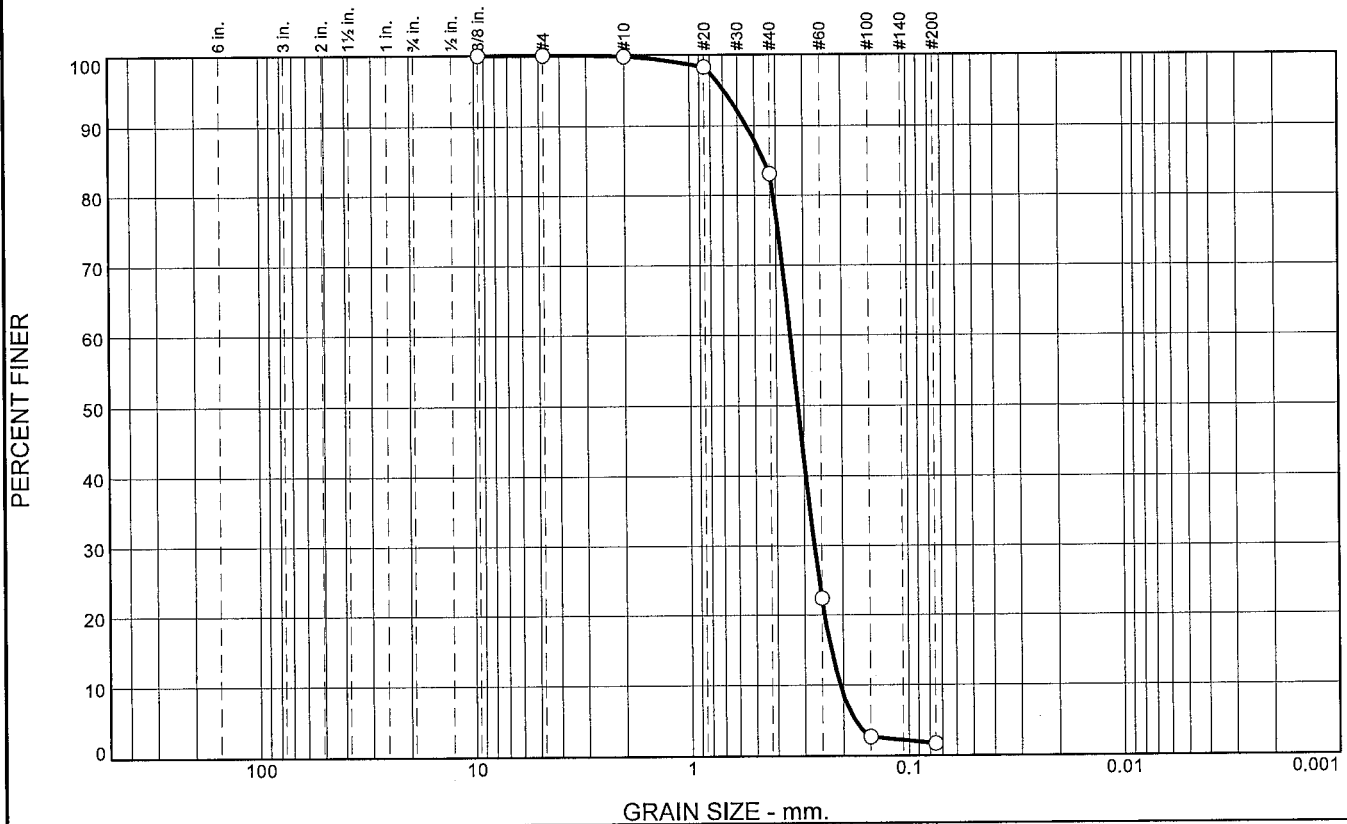
Checked By: R.Byrd

# Boring Designation BI-PB-117-10

DRILLING LOG		DIVISION South Atlantic		INSTALLATION Mobile District		SHEET 1 OF 2 SHEETS	
1. PROJECT MsCIP Barrier Island Restoration Petit Bois Pass- AL East				9. SIZE AND TYPE OF BIT N/A			
2. BORING DESIGNATION BI-PB-117-10		LOCATION COORDINATES E = 1,143,659 N = 257,160		10. COORDINATE SYSTEM/DATUM State Plane, MSE (U.S. Ft.)		HORIZONTAL NAD83	
3. DRILLING AGENCY Corps of Engineers - CESAM		CONTRACTOR FILE NO.		11. MANUFACTURER'S DESIGNATION OF DRILL Vibrocure		<input type="checkbox"/> AUTO HAMMER <input type="checkbox"/> MANUAL HAMMER	
4. NAME OF DRILLER Construction Solutions International, Inc.				12. TOTAL SAMPLES 4		DISTURBED 0	
5. DIRECTION OF BORING <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED				13. TOTAL NUMBER CORE BOXES		14. WATER DEPTH 16 Ft.	
6. THICKNESS OF OVERBURDEN N/A				15. DATE BORING 07-29-10		STARTED 07-29-10	
7. DEPTH DRILLED INTO ROCK N/A				16. ELEVATION TOP OF BORING -15.6 Ft.		COMPLETED 07-29-10	
8. TOTAL DEPTH OF BORING 20.0 Ft.				17. TOTAL RECOVERY FOR BORING 100%		18. SIGNATURE AND TITLE OF INSPECTOR Chris Gillentine, Geologist	
ELEV.	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS	SAMPLE	LABORATORY RESULTS		
-15.6	0.0						
			SAND, poorly-graded, mostly fine to medium-grained sand-sized quartz, trace shell fragments, lt. gray (SP)	A	Classification: SP Color: 2.5Y 7/1-light gray D50: 0.3185 mm % Fines: 1.7		
				B	Classification: SP Color: 5Y 7/1-light gray D50: 0.3146 mm % Fines: 1.8		
			At El. -26.6 Ft., trace silt, trace shell fragments, dark gray	C	Classification: SP Color: 2.5Y 7/1-light gray D50: 0.2606 mm % Fines: 4.5		
				D	Classification: SP-SM Color: 2.5Y 5/2-grayish brown D50: 0.2042 mm % Fines: 9.8		
-35.6	20.0						
			NOTES: 1. Soils are field visually classified in accordance with the Unified Soils Classification System. 2. NS = Sample not submitted for laboratory analysis from this interval. 3. Seafloor elevation calculated using sampling				

<b>DRILLING LOG (Cont. Sheet)</b>			<b>INSTALLATION</b> Mobile District		<b>SHEET 2</b> <b>OF 2 SHEETS</b>
<b>PROJECT</b> MsCIP Barrier Island Restoration			<b>COORDINATE SYSTEM/DATUM</b> State Plane, MSE (U.S. Ft.)	<b>HORIZONTAL</b> NAD83	<b>VERTICAL</b> NAVD88
<b>LOCATION COORDINATES</b> X = 1,143,659 Y = 257,160			<b>ELEVATION TOP OF BORING</b> -15.6 Ft.		
<b>ELEV.</b>	<b>DEPTH</b>	<b>LEGEND</b>	<b>CLASSIFICATION OF MATERIALS</b>	<b>SAMPLE</b>	<b>LABORATORY RESULTS</b>
			vessel's fathometer water depth reading and applying NOAA tidal gauge data conversion factor.		

# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.0	0.2	16.7	81.4	1.7	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
.375	100.0		
#4	100.0		
#10	99.8		
#20	98.3		
#40	83.1		
#60	22.4		
#100	2.7		
#200	1.7		

\* (no specification provided)

**Material Description**  
SAND, (SP), medium to fine grained

**Atterberg Limits**  
PL=      LL=      PI=

**Coefficients**  
D<sub>90</sub>= 0.5457      D<sub>85</sub>= 0.4527      D<sub>60</sub>= 0.3446  
D<sub>50</sub>= 0.3185      D<sub>30</sub>= 0.2697      D<sub>15</sub>= 0.2271  
D<sub>10</sub>= 0.2072      C<sub>u</sub>= 1.66      C<sub>c</sub>= 1.02

**Classification**  
USCS= SP      AASHTO=

**Remarks**  
CADD CODE = CH10D965

Location: USACE Sample # BI-PB-117-10A  
Sample Number: TE Lab ID: 4612.23

Depth: 0.0 - 5.0 (ft.)

Date: 8/7/10

**Thompson Engineering**

**Mobile, Alabama**

Client: US Army Corps of Engineers

Project: Contract No. W91278-10-D-0026 - Task 03  
Mississippi Barrier Island Restoration Project

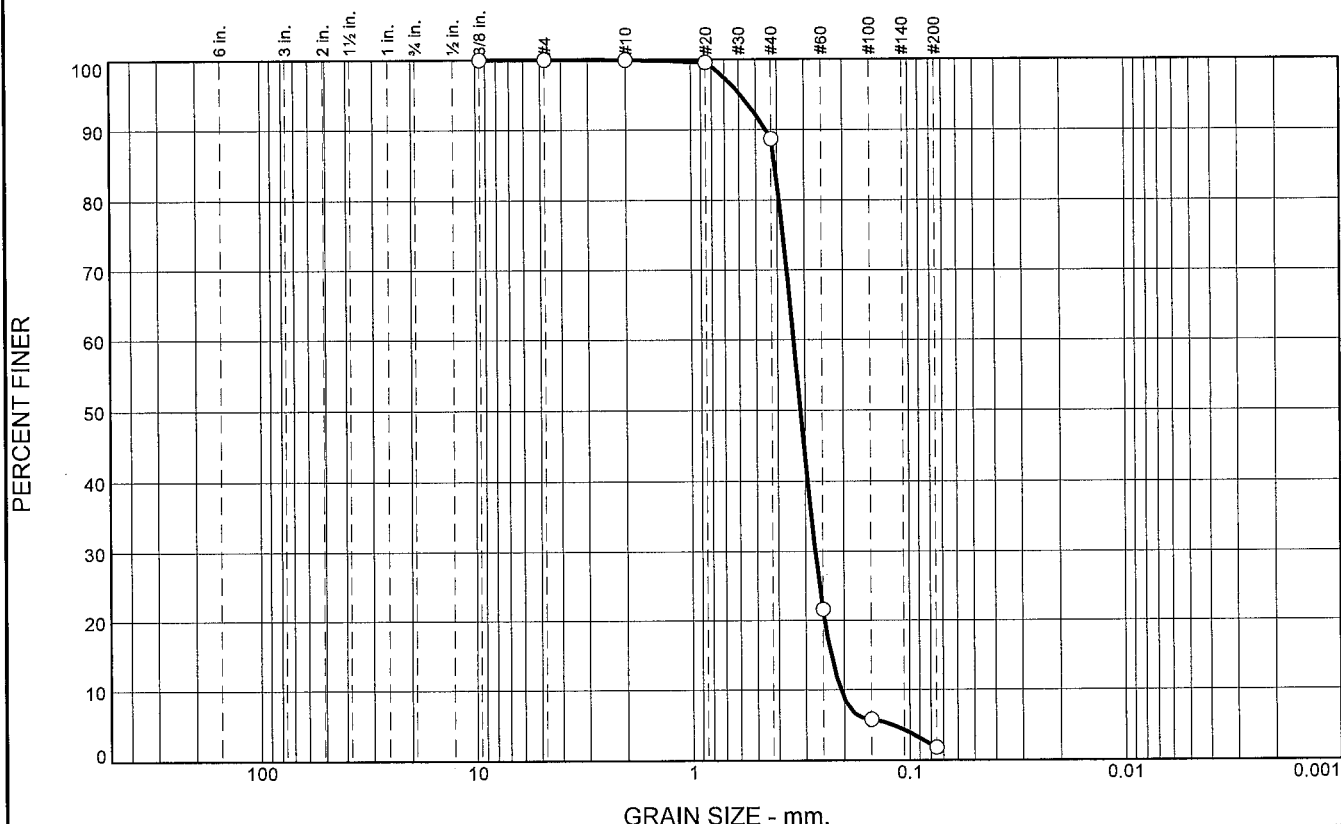
Project No: 10-2123-0009

Report No.

Tested By: J.Maddox

Checked By: R.Byrd

# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.0	0.1	11.2	86.9	1.8	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
.375	100.0		
#4	100.0		
#10	99.9		
#20	99.5		
#40	88.7		
#60	21.6		
#100	5.8		
#200	1.8		

\* (no specification provided)

## Material Description

SAND, (SP), medium to fine grained

## Atterberg Limits

PL=

LL=

PI=

## Coefficients

D<sub>90</sub>= 0.4516

D<sub>85</sub>= 0.4098

D<sub>60</sub>= 0.3375

D<sub>50</sub>= 0.3146

D<sub>30</sub>= 0.2706

D<sub>15</sub>= 0.2298

D<sub>10</sub>= 0.2079

C<sub>u</sub>= 1.62

C<sub>c</sub>= 1.04

## Classification

USCS= SP

AASHTO=

## Remarks

CADD CODE = CH10D965

Location: USACE Sample # BI-PB-117-10B  
Sample Number: TE Lab ID: 4612.24

Depth: 5.0 - 10.0 (ft.)

Date: 8/7/10

**Thompson Engineering**

**Mobile, Alabama**

Client: US Army Corps of Engineers

Project: Contract No. W91278-10-D-0026 - Task 03  
Mississippi Barrier Island Restoration Project

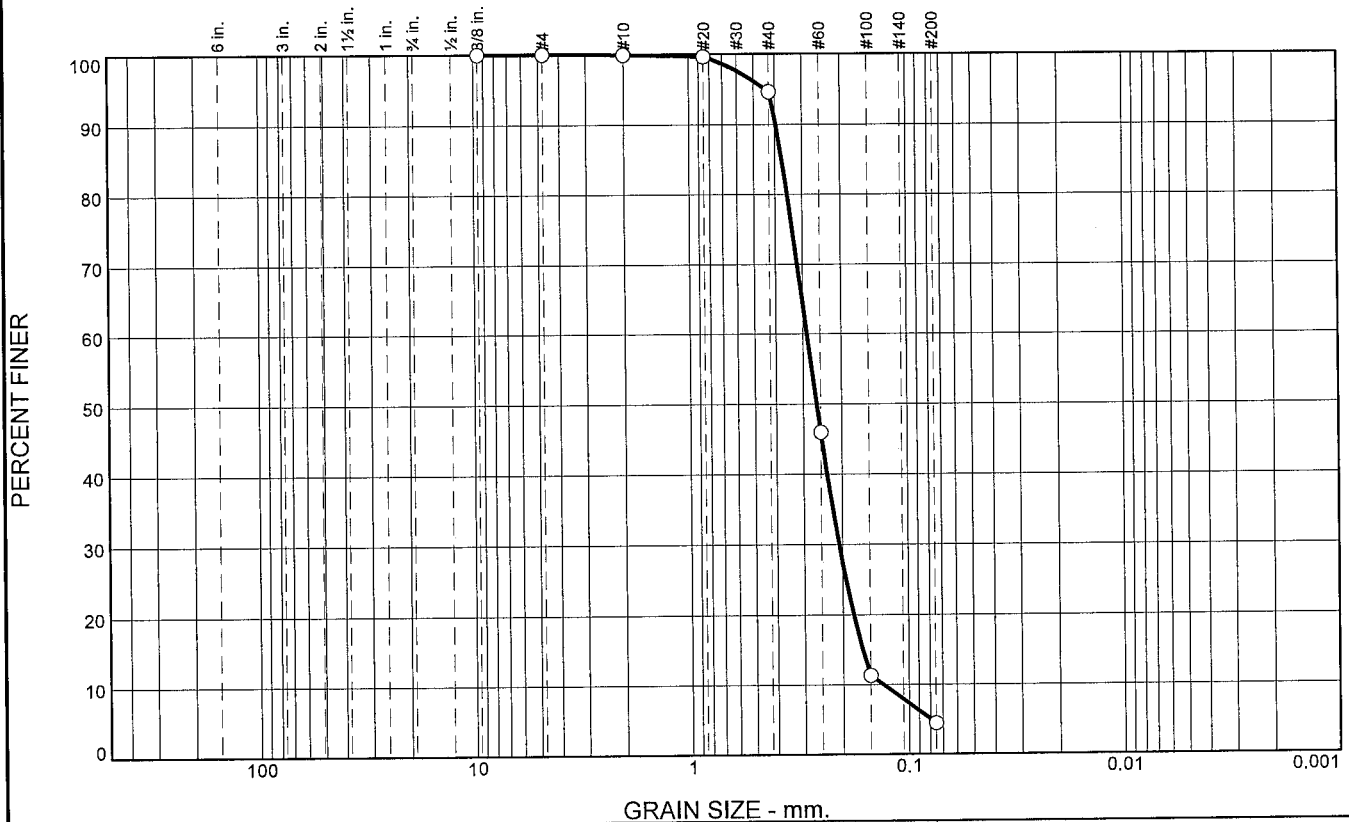
Project No: 10-2123-0009

Report No.

Tested By: J.Maddox

Checked By: R.Byrd

# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.0	0.1	5.3	90.1	4.5	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
.375	100.0		
#4	100.0		
#10	99.9		
#20	99.6		
#40	94.6		
#60	45.9		
#100	11.4		
#200	4.5		

\* (no specification provided)

## Material Description

SAND, (SP-SM), fine grained

PL=      Atterberg Limits      LL=      PI=

Coefficients  
D<sub>90</sub>= 0.3962      D<sub>85</sub>= 0.3719      D<sub>60</sub>= 0.2876  
D<sub>50</sub>= 0.2606      D<sub>30</sub>= 0.2075      D<sub>15</sub>= 0.1632  
D<sub>10</sub>= 0.1310      C<sub>u</sub>= 2.20      C<sub>c</sub>= 1.14

Classification  
USCS= SP      AASHTO=

Remarks  
CADD CODE = CH10D965

Location: USACE Sample # BI-PB-117-10C  
Sample Number: TE Lab ID: 4612.25

Depth: 10.0 - 15.0 (ft.)

Date: 8/7/10

**Thompson Engineering**

**Mobile, Alabama**

Client: US Army Corps of Engineers

Project: Contract No. W91278-10-D-0026 - Task 03  
Mississippi Barrier Island Restoration Project

Project No: 10-2123-0009

Report No.

Tested By: J.Maddox

Checked By: R.Byrd

PERCENT FINER



SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
.375	100.0		
#4	100.0		
#10	99.8		
#20	99.6		
#40	97.7		
#60	68.5		
#100	24.0		
#200	9.8		

L-335

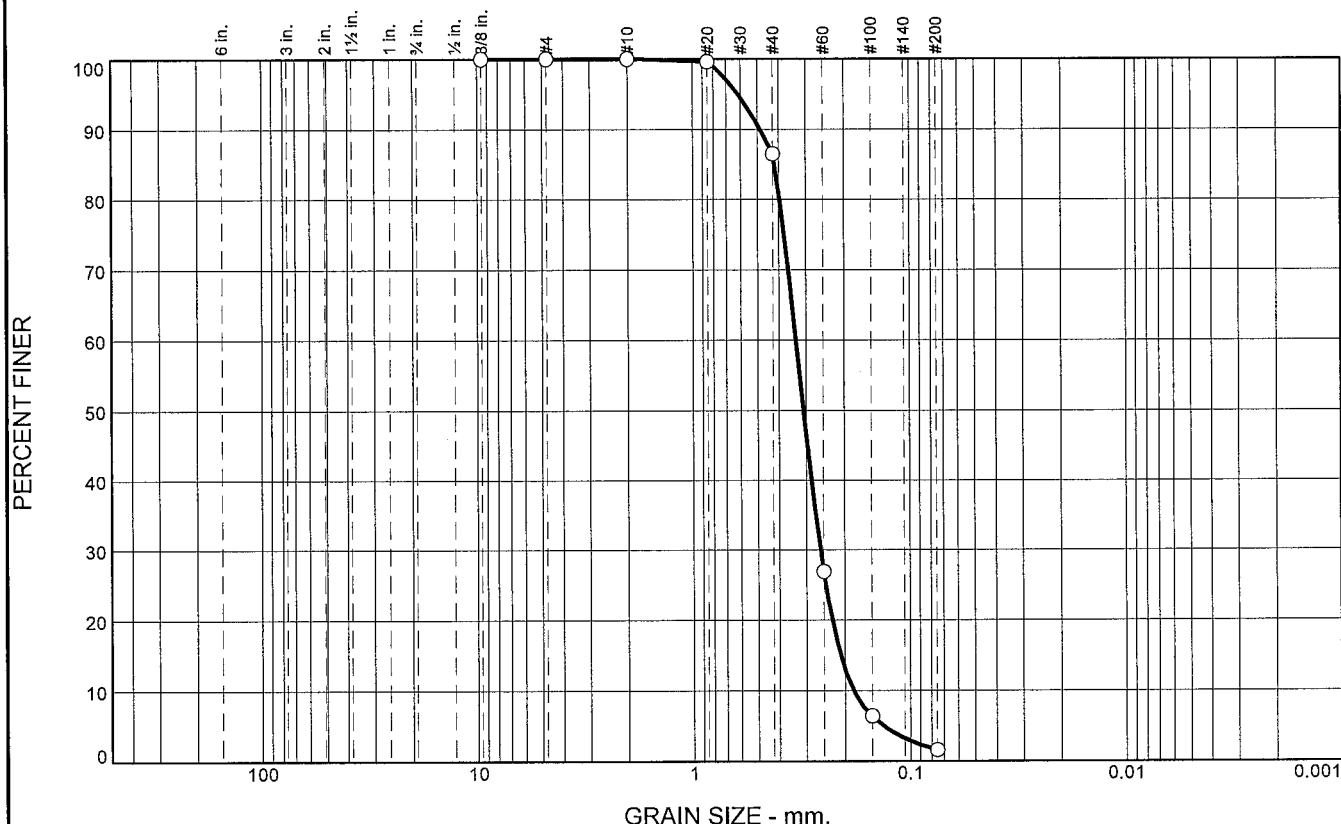
# Boring Designation BI-PB-118-10

DRILLING LOG		DIVISION South Atlantic		INSTALLATION Mobile District		SHEET 1 OF 2 SHEETS	
1. PROJECT MsCIP Barrier Island Restoration Petit Bois Pass- AL East				9. SIZE AND TYPE OF BIT N/A			
2. BORING DESIGNATION BI-PB-118-10		LOCATION COORDINATES E = 1,145,059 N = 257,119		10. COORDINATE SYSTEM/DATUM State Plane, MSE (U.S. Ft.)		HORIZONTAL NAD83	
3. DRILLING AGENCY Corps of Engineers - CESAM		CONTRACTOR FILE NO.		11. MANUFACTURER'S DESIGNATION OF DRILL Vibrocure		<input type="checkbox"/> AUTO HAMMER <input type="checkbox"/> MANUAL HAMMER	
4. NAME OF DRILLER Construction Solutions International, Inc.				12. TOTAL SAMPLES 4		UNDISTURBED (UD) 0	
5. DIRECTION OF BORING <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED				13. TOTAL NUMBER CORE BOXES		14. WATER DEPTH 16 Ft.	
6. THICKNESS OF OVERBURDEN N/A				15. DATE BORING 07-30-10		STARTED 07-30-10	
7. DEPTH DRILLED INTO ROCK N/A				16. ELEVATION TOP OF BORING -15.9 Ft.		COMPLETED 07-30-10	
8. TOTAL DEPTH OF BORING 20.0 Ft.				17. TOTAL RECOVERY FOR BORING 100%			
				18. SIGNATURE AND TITLE OF INSPECTOR Chris Gillentine, Geologist			
ELEV.	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS	SAMPLE	LABORATORY RESULTS		
-15.9	0.0						
			SAND, well-graded, mostly medium-grained sand-sized quartz, trace shell fragments, lt. gray (SW)	A	Classification: SP Color: 2.5Y 7/1-light gray D50: 0.308 mm % Fines: 1.6		
				B	Classification: SP-SM Color: 2.5Y 7/1-light gray D50: 0.3077 mm % Fines: 6.1		
				C	Classification: SP Color: 5Y 7/1-light gray D50: 0.3556 mm % Fines: 1.8		
				D	Classification: SP Color: 5Y 7/1-light gray D50: 0.2905 mm % Fines: 2.5		
-35.9	20.0						
			NOTES: 1. Soils are field visually classified in accordance with the Unified Soils Classification System. 2. NS = Sample not submitted for laboratory analysis from this interval. 3. Seafloor elevation calculated using sampling				



<b>DRILLING LOG (Cont. Sheet)</b>			<b>INSTALLATION</b> Mobile District		<b>SHEET 2</b> <b>OF 2 SHEETS</b>
<b>PROJECT</b> MsCIP Barrier Island Restoration			<b>COORDINATE SYSTEM/DATUM</b> State Plane, MSE (U.S. Ft.)	<b>HORIZONTAL</b> NAD83	<b>VERTICAL</b> NAVD88
<b>LOCATION COORDINATES</b> X = 1,145,059 Y = 257,119			<b>ELEVATION TOP OF BORING</b> -15.9 Ft.		
<b>ELEV.</b>	<b>DEPTH</b>	<b>LEGEND</b>	<b>CLASSIFICATION OF MATERIALS</b>	<b>SAMPLE</b>	<b>LABORATORY RESULTS</b>
			vessel's fathometer water depth reading and applying NOAA tidal gauge data conversion factor.		

# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.0	0.0	13.5	84.9	1.6	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
.375	100.0		
#4	100.0		
#10	100.0		
#20	99.6		
#40	86.5		
#60	26.9		
#100	6.4		
#200	1.6		

\* (no specification provided)

**Material Description**  
SAND, (SP), medium to fine grained

**Atterberg Limits**  
PL=      LL=      PI=

**Coefficients**  
D<sub>90</sub>= 0.4874      D<sub>85</sub>= 0.4177      D<sub>60</sub>= 0.3337  
D<sub>50</sub>= 0.3080      D<sub>30</sub>= 0.2584      D<sub>15</sub>= 0.2096  
D<sub>10</sub>= 0.1830      C<sub>u</sub>= 1.82      C<sub>c</sub>= 1.09

**Classification**  
USCS= SP      AASHTO=

**Remarks**  
CADD CODE = CH10D965

Location: USACE Sample # BI-PB-118-10A  
Sample Number: TE Lab ID: 4612.60

Depth: 0.0 - 5.0 (ft.)

Date: 8/7/10

**Thompson Engineering**

**Mobile, Alabama**

Client: US Army Corps of Engineers

Project: Contract No. W91278-10-D-0026 - Task 03  
Mississippi Barrier Island Restoration Project

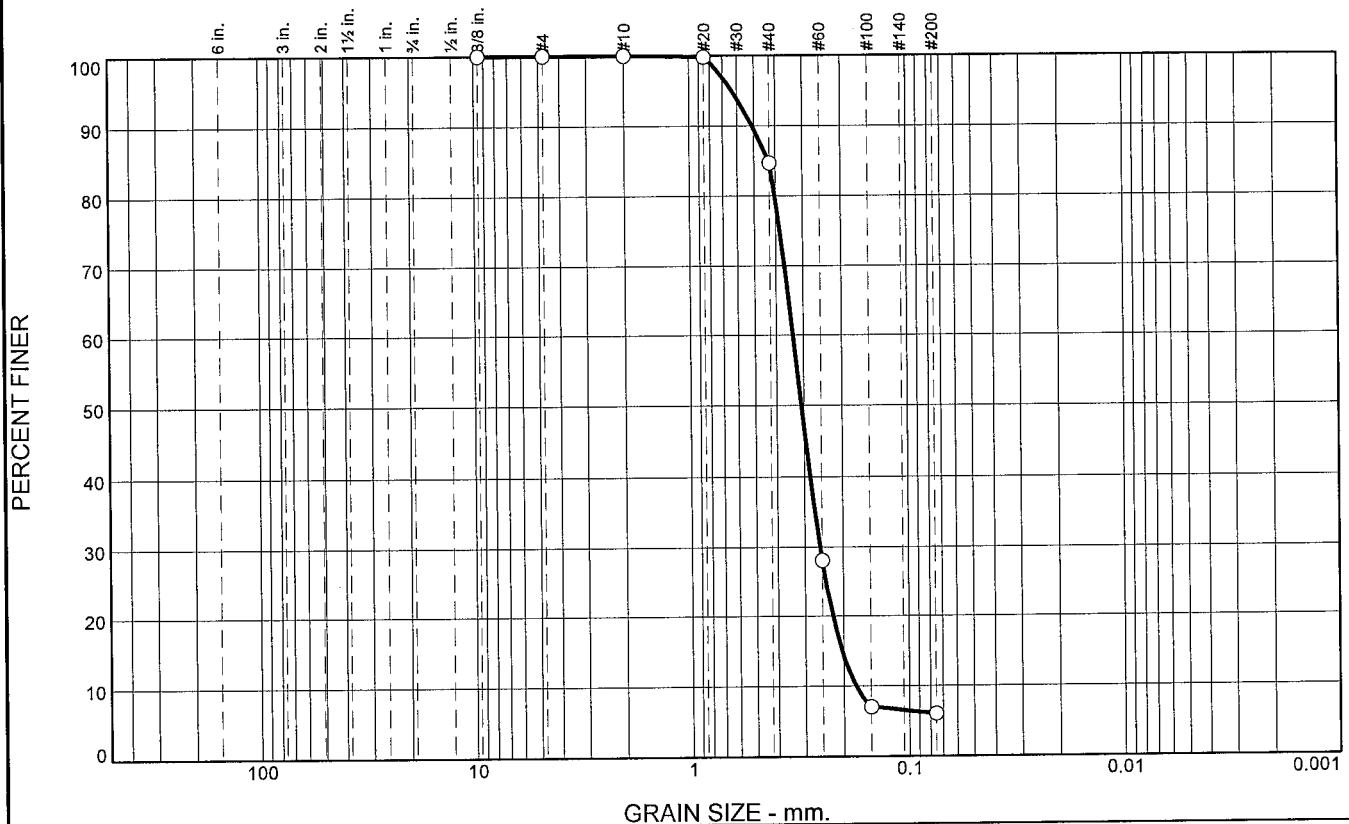
Project No: 10-2123-0009

Report No.

Tested By: J.Maddox

Checked By: R.Byrd

# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.0	0.0	15.3	78.6	6.1	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
.375	100.0		
#4	100.0		
#10	100.0		
#20	99.8		
#40	84.7		
#60	28.1		
#100	7.1		
#200	6.1		

\* (no specification provided)

**Material Description**  
SAND, (SP-SM), medium to fine grained

**Atterberg Limits**  
PL= LL= PI=

**Coefficients**  
D<sub>90</sub>= 0.5110 D<sub>85</sub>= 0.4293 D<sub>60</sub>= 0.3350  
D<sub>50</sub>= 0.3077 D<sub>30</sub>= 0.2554 D<sub>15</sub>= 0.2042  
D<sub>10</sub>= 0.1767 C<sub>u</sub>= 1.90 C<sub>c</sub>= 1.10

**Classification**  
USCS= SP-SM AASHTO=

**Remarks**  
CADD CODE = CH10D965

Location: USACE Sample # BI-PB-118-10B  
Sample Number: TE Lab ID: 4612.61

Depth: 5.0 - 10.0 (ft.)

Date: 8/7/10

**Thompson Engineering**

**Mobile, Alabama**

Client: US Army Corps of Engineers

Project: Contract No. W91278-10-D-0026 - Task 03  
Mississippi Barrier Island Restoration Project

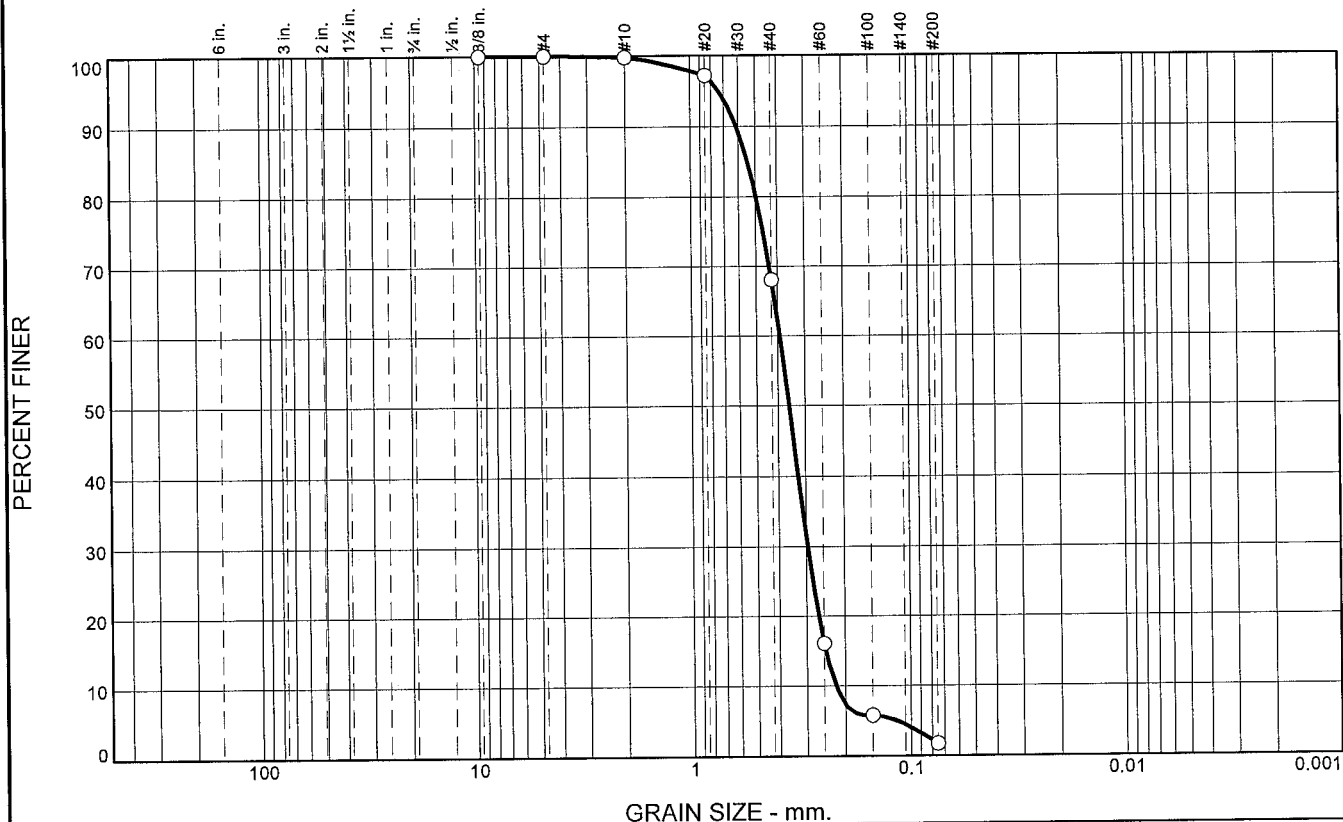
Project No: 10-2123-0009

Report No.

Tested By: J.Maddox

Checked By: R.Byrd

# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.0	0.2	31.7	66.3	1.8	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
.375	100.0		
#4	100.0		
#10	99.8		
#20	97.2		
#40	68.1		
#60	16.1		
#100	5.8		
#200	1.8		

\* (no specification provided)

## Material Description

SAND, (SP), medium to fine grained

## Atterberg Limits

PL=

LL=

PI=

## Coefficients

D<sub>90</sub>= 0.6129

D<sub>85</sub>= 0.5445

D<sub>60</sub>= 0.3908

D<sub>50</sub>= 0.3556

D<sub>30</sub>= 0.2947

D<sub>15</sub>= 0.2456

D<sub>10</sub>= 0.2212

C<sub>u</sub>= 1.77

C<sub>c</sub>= 1.01

## Classification

USCS= SP

AASHTO=

## Remarks

CADD CODE = CH10D965

Location: USACE Sample # BI-PB-118-10C  
Sample Number: TE Lab ID: 4612.62

Depth: 10.0- 15.0 (ft.)

Date: 8/7/10

**Thompson Engineering**

**Mobile, Alabama**

Client: US Army Corps of Engineers

Project: Contract No. W91278-10-D-0026 - Task 03  
Mississippi Barrier Island Restoration Project

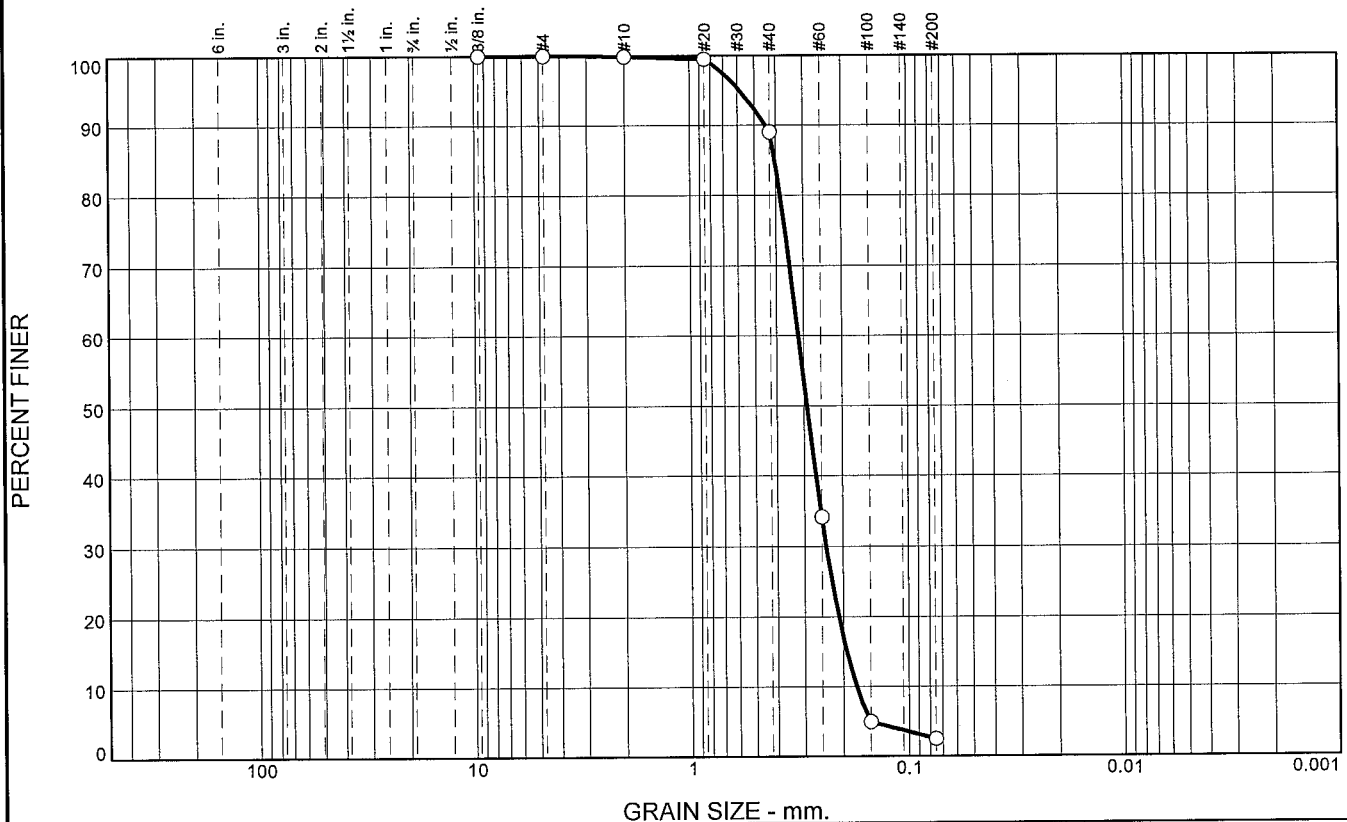
Project No: 10-2123-0009

Report No.

Tested By: J.Maddox

Checked By: R.Byrd

# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.0	0.1	10.9	86.5	2.5	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
.375	100.0		
#4	100.0		
#10	99.9		
#20	99.5		
#40	89.0		
#60	34.1		
#100	5.0		
#200	2.5		

\* (no specification provided)

**Material Description**  
SAND, (SP), medium to fine grained

**Atterberg Limits**  
 PL=      LL=      PI=

**Coefficients**  
 D<sub>90</sub>= 0.4452      D<sub>85</sub>= 0.4038      D<sub>60</sub>= 0.3171  
 D<sub>50</sub>= 0.2905      D<sub>30</sub>= 0.2389      D<sub>15</sub>= 0.1933  
 D<sub>10</sub>= 0.1743      C<sub>u</sub>= 1.82      C<sub>c</sub>= 1.03

**Classification**  
 USCS= SP      AASHTO=

**Remarks**  
 CADD CODE = CH10D965

Location: USACE Sample # BI-PB-118-10D  
 Sample Number: TE Lab ID: 4612.63

Depth: 15.0 - 20.0 (ft.)

Date: 8/7/10

**Thompson Engineering**

**Mobile, Alabama**

Client: US Army Corps of Engineers

Project: Contract No. W91278-10-D-0026 - Task 03  
 Mississippi Barrier Island Restoration Project

Project No: 10-2123-0009

Report No.

Tested By: J.Maddox

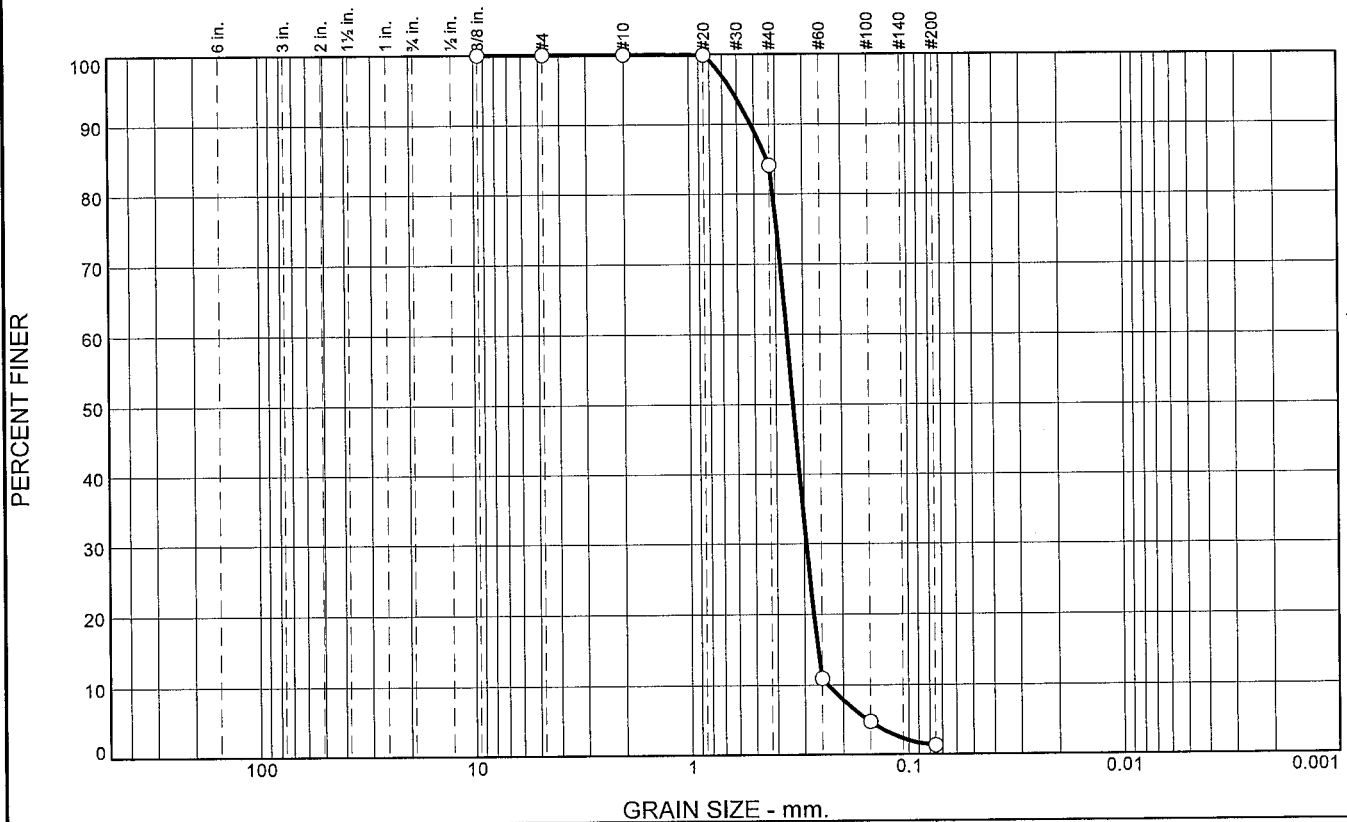
Checked By: R.Byrd

# Boring Designation BI-PB-119-10

DRILLING LOG		DIVISION South Atlantic		INSTALLATION Mobile District		SHEET 1 OF 2 SHEETS	
1. PROJECT MsCIP Barrier Island Restoration Petit Bois Pass- AL East				9. SIZE AND TYPE OF BIT N/A			
2. BORING DESIGNATION BI-PB-119-10		LOCATION COORDINATES E = 1,146,626 N = 257,188		10. COORDINATE SYSTEM/DATUM State Plane, MSE (U.S. Ft.)		HORIZONTAL NAD83 VERTICAL NAVD88	
3. DRILLING AGENCY Corps of Engineers - CESAM		CONTRACTOR FILE NO.		11. MANUFACTURER'S DESIGNATION OF DRILL Vibrocure		<input type="checkbox"/> AUTO HAMMER <input type="checkbox"/> MANUAL HAMMER	
4. NAME OF DRILLER Construction Solutions International, Inc.				12. TOTAL SAMPLES 4		DISTURBED 0 UNDISTURBED (UD)	
5. DIRECTION OF BORING <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED		DEG. FROM VERTICAL		13. TOTAL NUMBER CORE BOXES			
		BEARING		14. WATER DEPTH 16 Ft.			
6. THICKNESS OF OVERBURDEN N/A				15. DATE BORING 07-30-10		STARTED 07-30-10 COMPLETED 07-30-10	
7. DEPTH DRILLED INTO ROCK N/A				16. ELEVATION TOP OF BORING -15.8 Ft.			
8. TOTAL DEPTH OF BORING 20.0 Ft.				17. TOTAL RECOVERY FOR BORING 100%			
				18. SIGNATURE AND TITLE OF INSPECTOR Chris Gillentine, Geologist			
ELEV.	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS	SAMPLE	LABORATORY RESULTS		
-15.8	0.0						
			SAND, poorly-graded, mostly fine to medium-grained sand-sized quartz, trace shell fragments, lt. gray (SP)	A	Classification: SP Color: 2.5Y 7/1-light gray D50: 0.3342 mm % Fines: 1.3		
				B	Classification: SP Color: 5Y 7/1-light gray D50: 0.3066 mm % Fines: 1.9		
				C	Classification: SP Color: 5Y 7/1-light gray D50: 0.2323 mm % Fines: 2.3		
				D	Classification: SP Color: 2.5Y 6/2-light brownish gray D50: 0.3417 mm % Fines: 4.6		
-35.8	20.0						
			NOTES: 1. Soils are field visually classified in accordance with the Unified Soils Classification System. 2. NS = Sample not submitted for laboratory analysis from this interval. 3. Seafloor elevation calculated using sampling				

<b>DRILLING LOG (Cont. Sheet)</b>			<b>INSTALLATION</b> Mobile District		<b>SHEET 2</b> <b>OF 2 SHEETS</b>
<b>PROJECT</b> MsCIP Barrier Island Restoration			<b>COORDINATE SYSTEM/DATUM</b> State Plane, MSE (U.S. Ft.)	<b>HORIZONTAL</b> NAD83	<b>VERTICAL</b> NAVD88
<b>LOCATION COORDINATES</b> X = 1,146,626 Y = 257,188			<b>ELEVATION TOP OF BORING</b> -15.8 Ft.		
<b>ELEV.</b>	<b>DEPTH</b>	<b>LEGEND</b>	<b>CLASSIFICATION OF MATERIALS</b>	<b>SAMPLE</b>	<b>LABORATORY RESULTS</b>
			vessel's fathometer water depth reading and applying NOAA tidal gauge data conversion factor.		

# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.0	0.0	15.9	82.8	1.3	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
.375	100.0		
#4	100.0		
#10	100.0		
#20	99.9		
#40	84.1		
#60	11.0		
#100	4.7		
#200	1.3		

\* (no specification provided)

## Material Description

SAND, (SP), medium to fine grained

## Atterberg Limits

PL= LL= PI=

## Coefficients

$D_{90} = 0.5172$      $D_{85} = 0.4370$      $D_{60} = 0.3562$   
 $D_{50} = 0.3342$      $D_{30} = 0.2933$      $D_{15} = 0.2606$   
 $D_{10} = 0.2346$      $C_u = 1.52$      $C_c = 1.03$

## Classification

USCS= SP    AASHTO=

## Remarks

CADD CODE = CH10D965

Location: USACE Sample # BI-PB-119-10A  
Sample Number: TE Lab ID: 4612.32

Depth: 0.0 - 5.0 (ft.)

Date: 8/7/10

**Thompson Engineering**

**Mobile, Alabama**

Client: US Army Corps of Engineers

Project: Contract No. W91278-10-D-0026 - Task 03  
Mississippi Barrier Island Restoration Project

Project No: 10-2123-0009

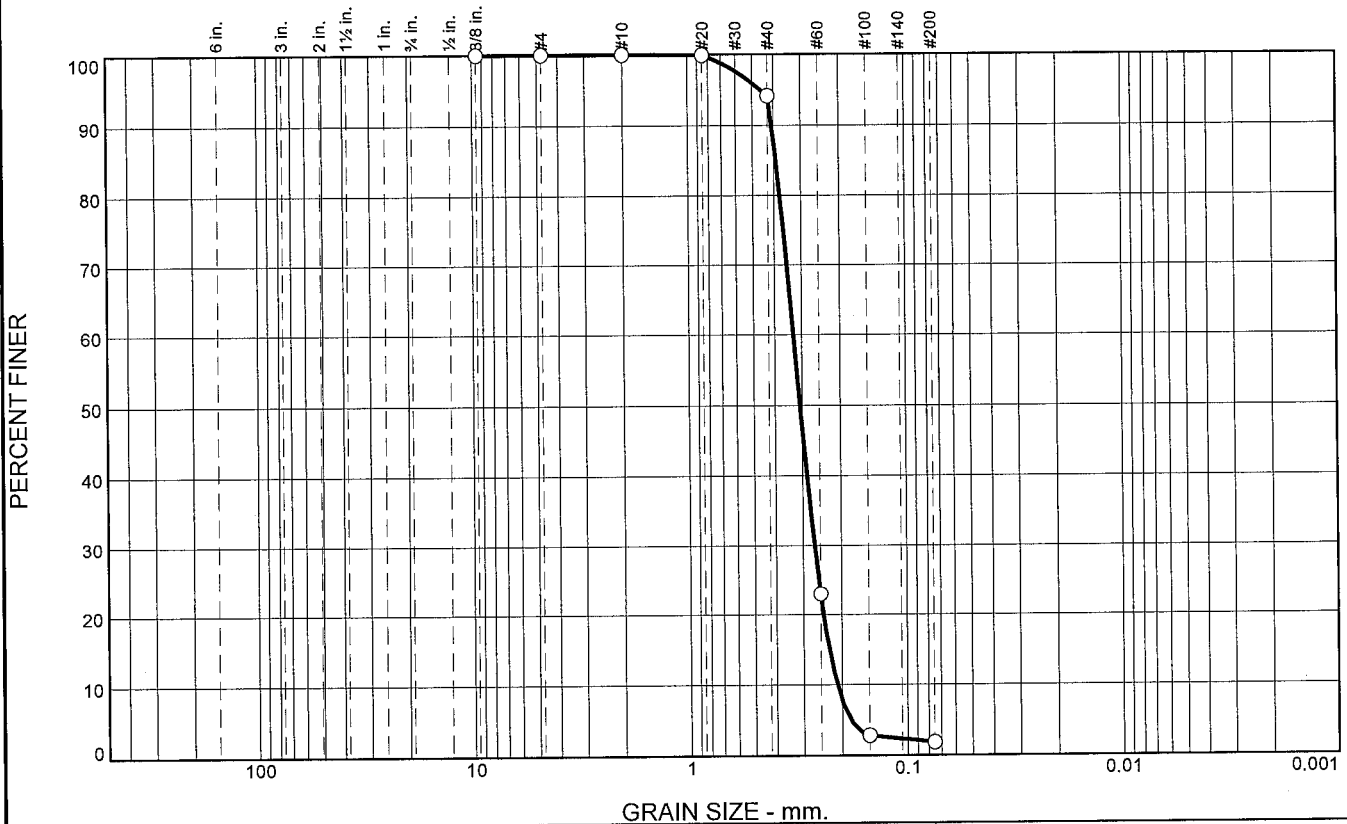
Report No.

Tested By: J.Maddox

Checked By: R.Byrd



# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.0	0.0	5.8	92.3	1.9	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
.375	100.0		
#4	100.0		
#10	100.0		
#20	99.9		
#40	94.2		
#60	23.0		
#100	2.9		
#200	1.9		

\* (no specification provided)

## Material Description

SAND, (SP), fine grained

## Atterberg Limits

PL=

LL=

PI=

## Coefficients

D<sub>90</sub>= 0.4080

D<sub>85</sub>= 0.3909

D<sub>60</sub>= 0.3276

D<sub>50</sub>= 0.3066

D<sub>30</sub>= 0.2658

D<sub>15</sub>= 0.2285

D<sub>10</sub>= 0.2107

C<sub>u</sub>= 1.55

C<sub>c</sub>= 1.02

## Classification

USCS= SP

AASHTO=

## Remarks

CADD CODE = CH10D965

Location: USACE Sample # BI-PB-119-10B  
Sample Number: TE Lab ID: 4612.33

Depth: 5.0 - 10.0 (ft.)

Date: 8/7/10

**Thompson Engineering**

**Mobile, Alabama**

Client: US Army Corps of Engineers

Project: Contract No. W91278-10-D-0026 - Task 03  
Mississippi Barrier Island Restoration Project

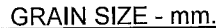
Project No: 10-2123-0009

Report No.

Tested By: J.Maddox

Checked By: R.Byrd

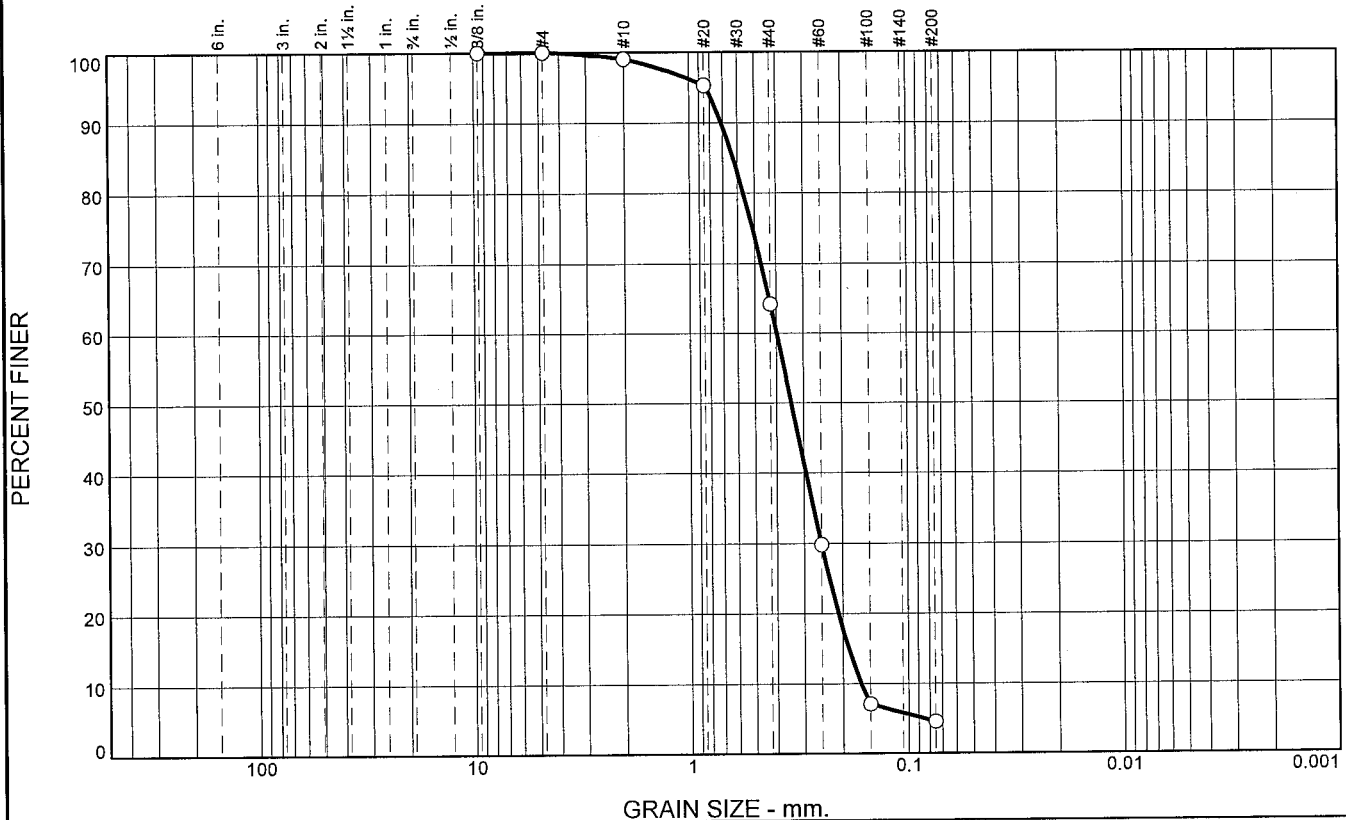
**PERCENT FINER**



SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
.375	100.0		
#4	100.0		
#10	100.0		
#20	99.8		
#40	96.8		
#60	57.3		
#100	11.6		
#200	2.3		

L-346

# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.0	1.0	34.8	59.6	4.6	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
.375	100.0		
#4	100.0		
#10	99.0		
#20	95.3		
#40	64.2		
#60	29.8		
#100	7.1		
#200	4.6		

\* (no specification provided)

## Material Description

SAND, (SP), medium to fine grained

## Atterberg Limits

PL=

LL=

PI=

## Coefficients

D<sub>90</sub>= 0.7115

D<sub>85</sub>= 0.6274

D<sub>60</sub>= 0.3978

D<sub>50</sub>= 0.3417

D<sub>30</sub>= 0.2507

D<sub>15</sub>= 0.1884

D<sub>10</sub>= 0.1656

C<sub>u</sub>= 2.40

C<sub>c</sub>= 0.95

## Classification

USCS= SP

AASHTO=

## Remarks

CADD CODE = CH10D965

Location: USACE Sample # BI-PB-119-10D  
Sample Number: TE Lab ID: 4612.35

Depth: 15.0 - 20.0 (ft.)

Date: 8/7/10

**Thompson Engineering**

**Mobile, Alabama**

Client: US Army Corps of Engineers

Project: Contract No. W91278-10-D-0026 - Task 03  
Mississippi Barrier Island Restoration Project


Project No: 10-2123-0009

Report No.

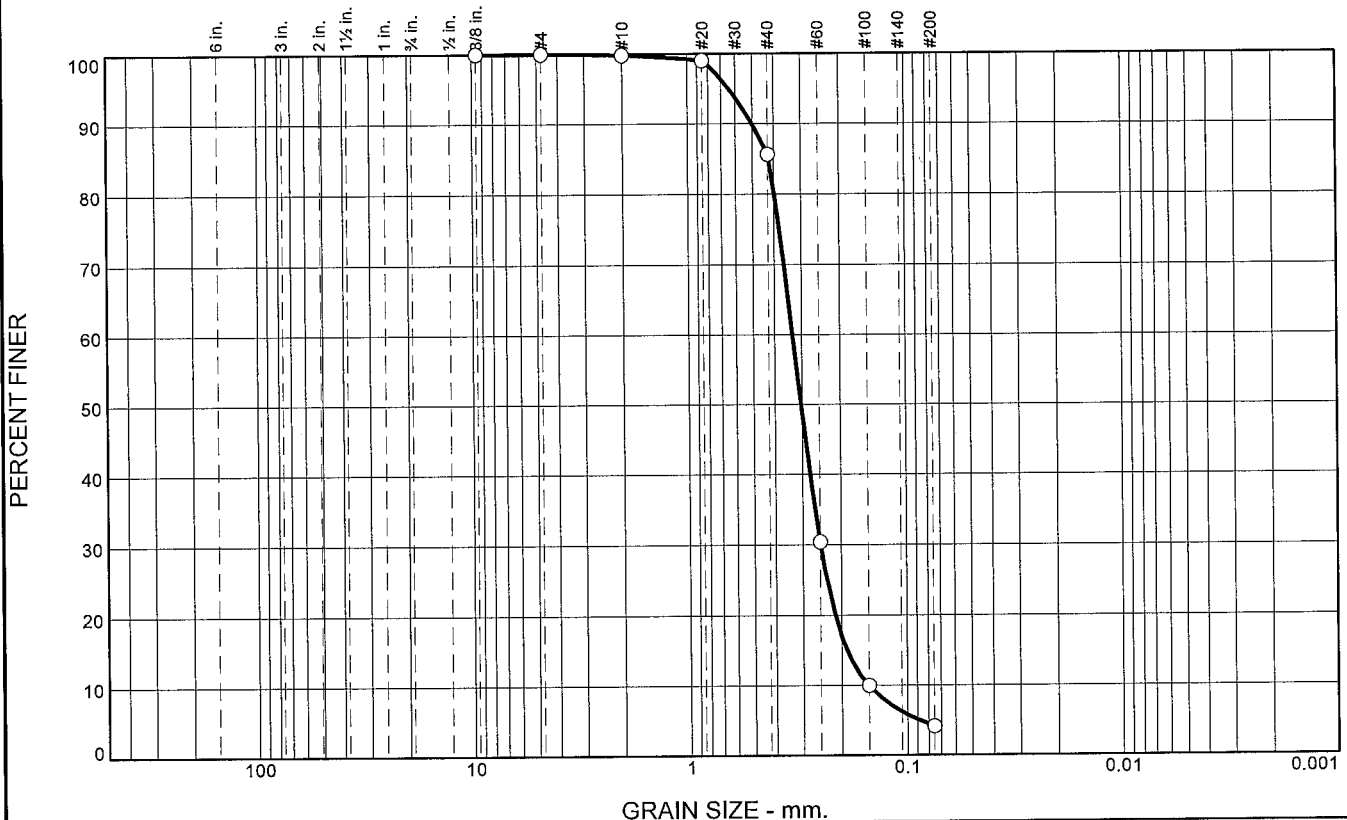
Tested By: J.Maddox

Checked By: R.Byrd

# Boring Designation BI-PB-120-10

DRILLING LOG		DIVISION South Atlantic		INSTALLATION Mobile District		SHEET 1 OF 1 SHEETS	
1. PROJECT MsCIP Barrier Island Restoration Petit Bois Pass- AL East				9. SIZE AND TYPE OF BIT N/A			
2. BORING DESIGNATION BI-PB-120-10		LOCATION COORDINATES E = 1,147,975 N = 257,133		10. COORDINATE SYSTEM/DATUM State Plane, MSE (U.S. Ft.)		HORIZONTAL NAD83 VERTICAL NAVD88	
3. DRILLING AGENCY Corps of Engineers - CESAM		CONTRACTOR FILE NO.		11. MANUFACTURER'S DESIGNATION OF DRILL Vibrocure		<input type="checkbox"/> AUTO HAMMER <input type="checkbox"/> MANUAL HAMMER	
4. NAME OF DRILLER Construction Solutions International, Inc.				12. TOTAL SAMPLES 3		DISTURBED 0 UNDISTURBED (UD) 0	
5. DIRECTION OF BORING <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED		DEG. FROM VERTICAL		13. TOTAL NUMBER CORE BOXES			
		BEARING		14. WATER DEPTH 23 Ft.			
6. THICKNESS OF OVERBURDEN N/A				15. DATE BORING 07-30-10		STARTED 07-30-10 COMPLETED 07-30-10	
7. DEPTH DRILLED INTO ROCK N/A				16. ELEVATION TOP OF BORING -22.7 Ft.			
8. TOTAL DEPTH OF BORING 15.0 Ft.				17. TOTAL RECOVERY FOR BORING 100%			
				18. SIGNATURE AND TITLE OF INSPECTOR Chris Gillentine, Geologist			
ELEV.	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS	SAMPLE	LABORATORY RESULTS		
-22.7	0.0						
			SAND, poorly-graded, mostly fine to medium-grained sand-sized quartz, trace shell fragments, lt. gray (SP)	A	Classification: SP Color: 2.5Y 6/2-light brownish gray D50: 0.303 mm % Fines: 4.1		
				B	Classification: SP Color: 2.5Y 6/2-light brownish gray D50: 0.299 mm % Fines: 3.5		
				C	Classification: SP Color: 2.5Y 7/1-light gray D50: 0.2684 mm % Fines: 3.1		
-37.7	15.0						
			NOTES: 1. Soils are field visually classified in accordance with the Unified Soils Classification System. 2. NS = Sample not submitted for laboratory analysis from this interval. 3. Seafloor elevation calculated using sampling vessel's fathometer water depth reading and applying NOAA tidal gauge data conversion factor.				

# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.0	0.2	14.2	81.5	4.1	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
.375	100.0		
#4	100.0		
#10	99.8		
#20	99.0		
#40	85.6		
#60	30.4		
#100	10.0		
#200	4.1		

\* (no specification provided)

## Material Description

SAND, (SP), medium to fine grained

## Atterberg Limits

PL= LL= PI=

## Coefficients

D<sub>90</sub>= 0.5049 D<sub>85</sub>= 0.4218 D<sub>60</sub>= 0.3305  
D<sub>50</sub>= 0.3030 D<sub>30</sub>= 0.2488 D<sub>15</sub>= 0.1894  
D<sub>10</sub>= 0.1501 C<sub>u</sub>= 2.20 C<sub>c</sub>= 1.25

## Classification

USCS= SP AASHTO=

## Remarks

CADD CODE = CH10D965

Location: USACE Sample # BI-PB-120-10A  
Sample Number: TE Lab ID: 4612.36

Depth: 0.0 - 5.0 (ft.)

Date: 8/7/10

**Thompson Engineering**

**Mobile, Alabama**

Client: US Army Corps of Engineers

Project: Contract No. W91278-10-D-0026 - Task 03  
Mississippi Barrier Island Restoration Project

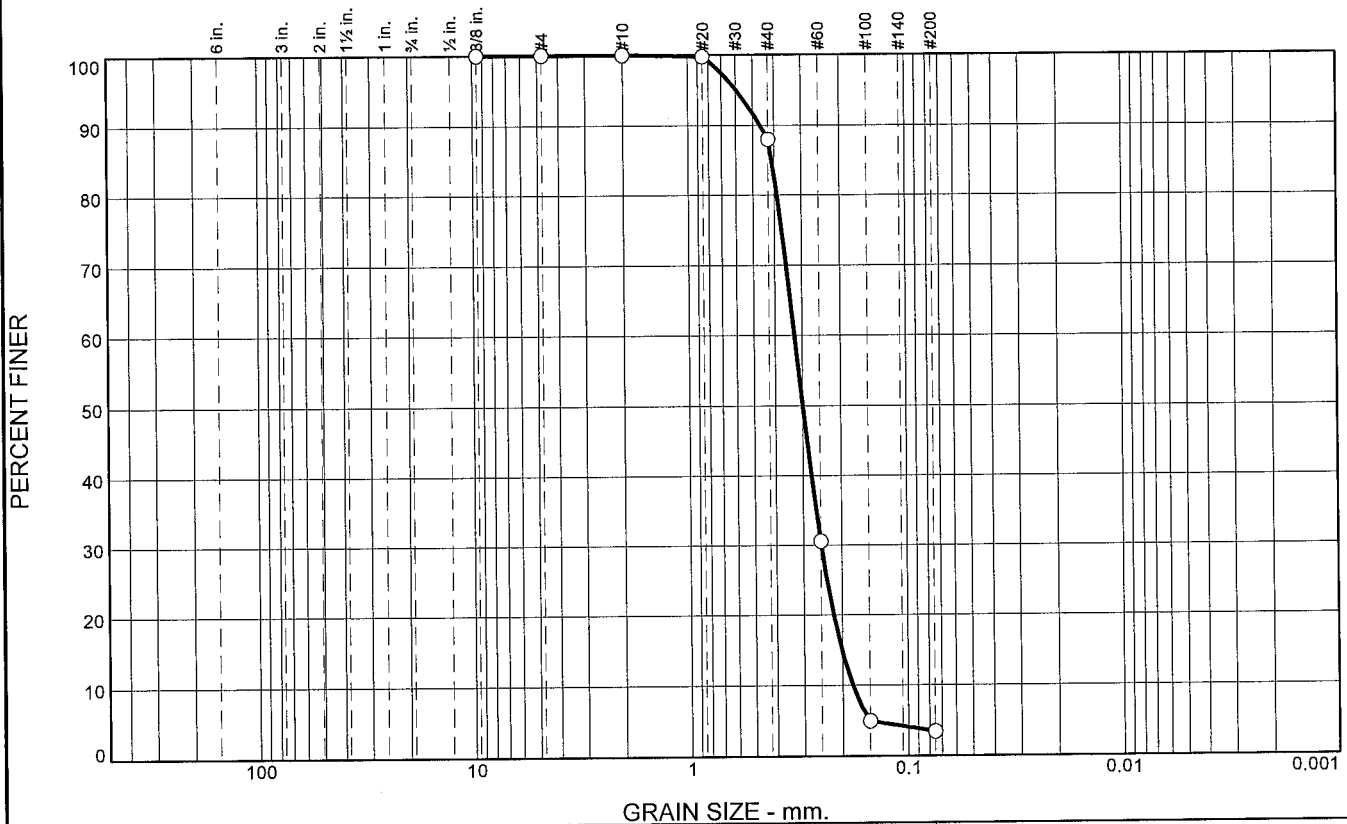
Project No: 10-2123-0009

Report No.

Tested By: J.Maddox

Checked By: R.Byrd

# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.0	0.0	12.0	84.5	3.5	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
.375	100.0		
#4	100.0		
#10	100.0		
#20	99.7		
#40	88.0		
#60	30.5		
#100	5.0		
#200	3.5		

\* (no specification provided)

**Material Description**  
SAND, (SP), medium to fine grained

**Atterberg Limits**  
PL=      LL=      PI=

**Coefficients**  
D<sub>90</sub>= 0.4633      D<sub>85</sub>= 0.4100      D<sub>60</sub>= 0.3251  
D<sub>50</sub>= 0.2990      D<sub>30</sub>= 0.2486      D<sub>15</sub>= 0.2017  
D<sub>10</sub>= 0.1803      C<sub>u</sub>= 1.80      C<sub>c</sub>= 1.05

**Classification**  
USCS= SP      AASHTO=

**Remarks**  
CADD CODE = CH10D965

Location: USACE Sample # BI-PB-120-10B  
Sample Number: TE Lab ID: 4612.37

Depth: 5.0 - 10.0 (ft.)

Date: 8/7/10

**Thompson Engineering**

**Mobile, Alabama**

Client: US Army Corps of Engineers

Project: Contract No. W91278-10-D-0026 - Task 03  
Mississippi Barrier Island Restoration Project

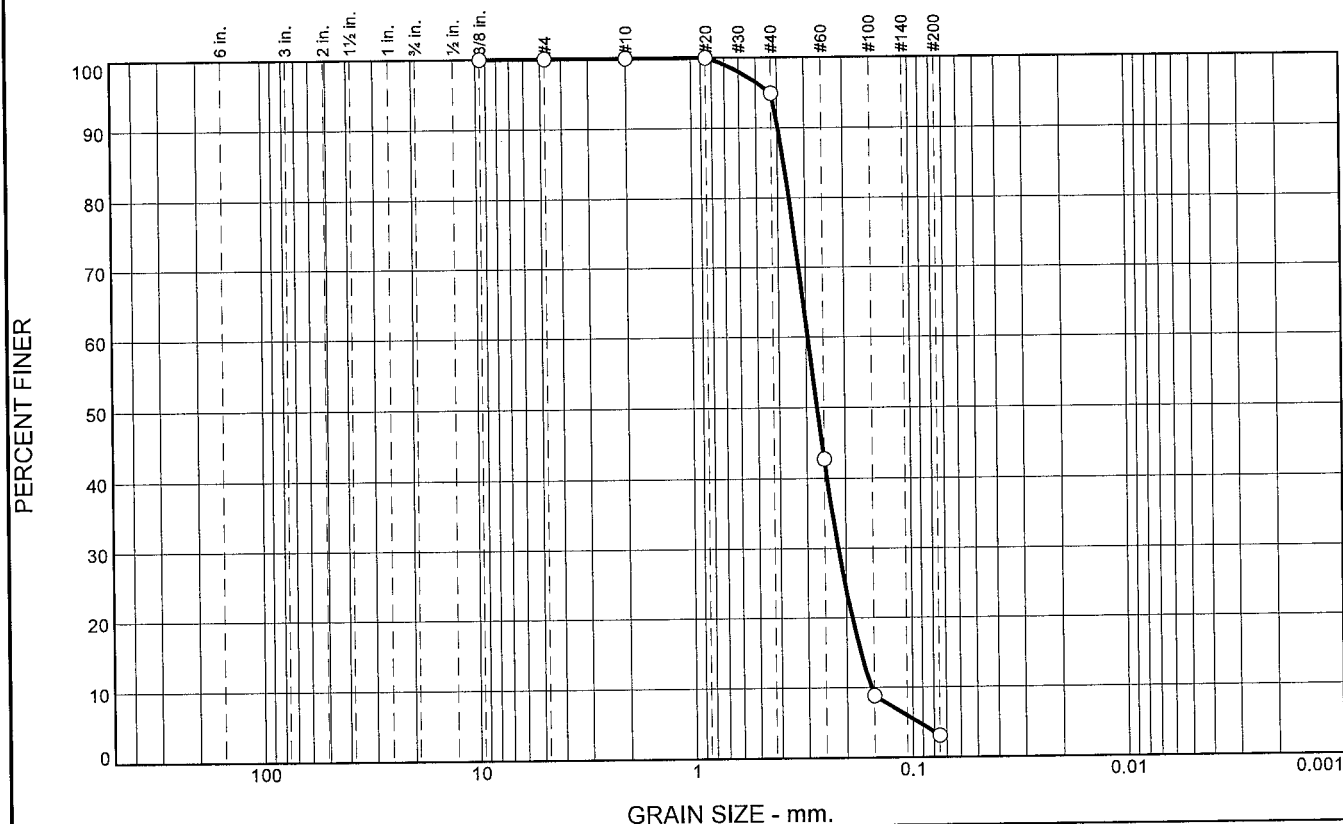
Project No: 10-2123-0009

Report No.

Tested By: J.Maddox

Checked By: R.Byrd

# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.0	0.0	5.1	91.8	3.1	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
.375	100.0		
#4	100.0		
#10	100.0		
#20	100.0		
#40	94.9		
#60	42.7		
#100	8.8		
#200	3.1		

\* (no specification provided)

**Material Description**

SAND, (SP), fine grained

**Atterberg Limits**

PL=      LL=      PI=

**Coefficients**

D<sub>90</sub>= 0.3968      D<sub>85</sub>= 0.3742      D<sub>60</sub>= 0.2943  
D<sub>50</sub>= 0.2684      D<sub>30</sub>= 0.2169      D<sub>15</sub>= 0.1728  
D<sub>10</sub>= 0.1548      C<sub>u</sub>= 1.90      C<sub>c</sub>= 1.03

**Classification**

USCS= SP      AASHTO=

**Remarks**

CADD CODE = CH10D965

Location: USACE Sample # BI-PB-120-10C  
Sample Number: TE Lab ID: 4612.38

Depth: 10.0 15.0 (ft.)

Date: 8/7/10

**Thompson Engineering**

**Mobile, Alabama**

Client: US Army Corps of Engineers

Project: Contract No. W91278-10-D-0026 - Task 03  
Mississippi Barrier Island Restoration Project

Project No: 10-2123-0009

Report No.

Tested By: J.Maddox

Checked By: R.Byrd

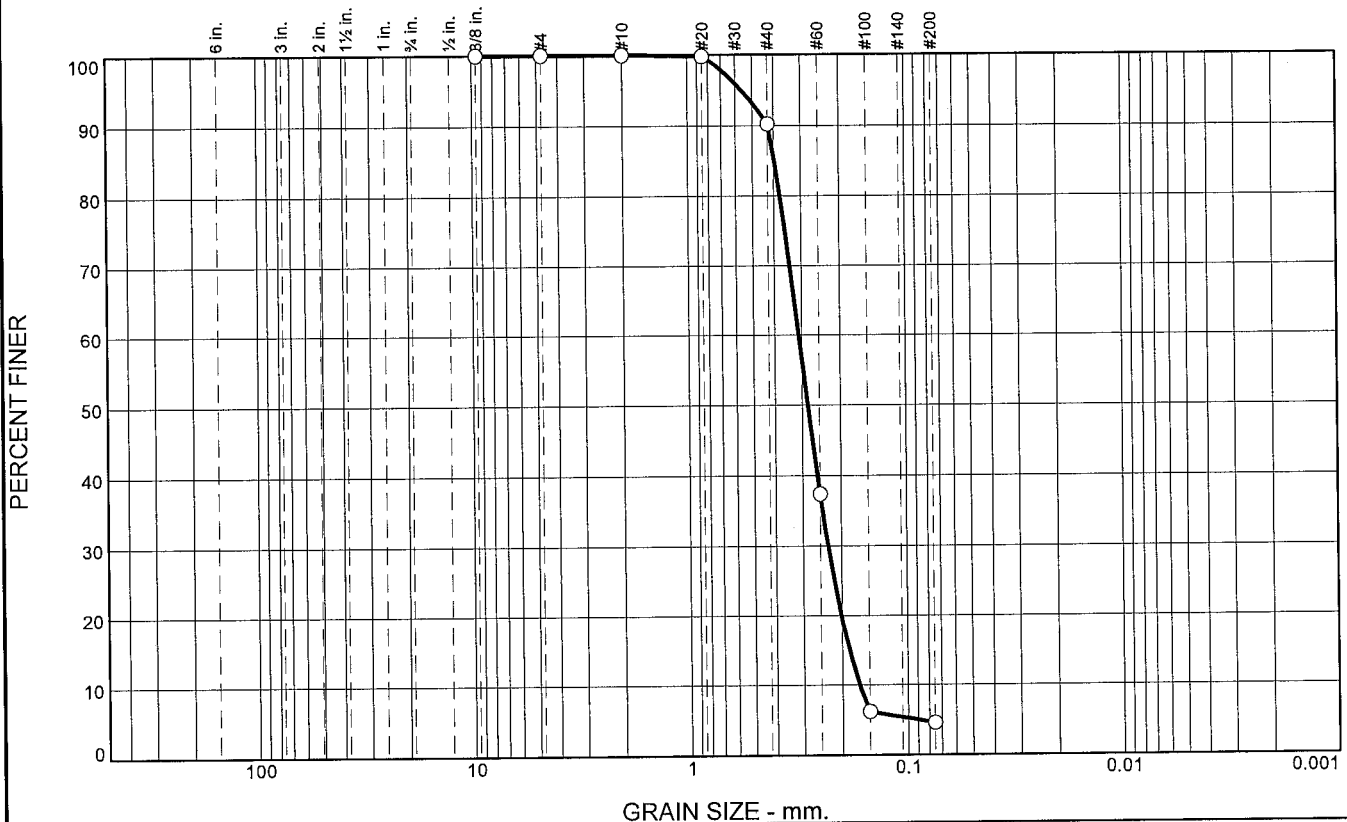
# Boring Designation BI-PB-121-10

DRILLING LOG		DIVISION South Atlantic		INSTALLATION Mobile District		SHEET 1 OF 2 SHEETS	
1. PROJECT MsCIP Barrier Island Restoration Petit Bois Pass- AL East				9. SIZE AND TYPE OF BIT N/A			
2. BORING DESIGNATION BI-PB-121-10		LOCATION COORDINATES E = 1,149,586 N = 257,136		10. COORDINATE SYSTEM/DATUM State Plane, MSE (U.S. Ft.)		HORIZONTAL NAD83	
3. DRILLING AGENCY Corps of Engineers - CESAM		CONTRACTOR FILE NO.		11. MANUFACTURER'S DESIGNATION OF DRILL Vibracore		<input type="checkbox"/> AUTO HAMMER <input type="checkbox"/> MANUAL HAMMER	
4. NAME OF DRILLER Construction Solutions International, Inc.				12. TOTAL SAMPLES 4		UNDISTURBED (UD) 0	
5. DIRECTION OF BORING <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED				13. TOTAL NUMBER CORE BOXES		14. WATER DEPTH 29 Ft.	
6. THICKNESS OF OVERBURDEN N/A				15. DATE BORING 07-31-10		STARTED 07-31-10	
7. DEPTH DRILLED INTO ROCK N/A				16. ELEVATION TOP OF BORING -30.9 Ft.		COMPLETED 07-31-10	
8. TOTAL DEPTH OF BORING 20.0 Ft.				17. TOTAL RECOVERY FOR BORING 100%		18. SIGNATURE AND TITLE OF INSPECTOR Chris Gillentine, Geologist	
ELEV.	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS	SAMPLE	LABORATORY RESULTS		
-30.9	0.0						
			SAND, well-graded, mostly fine-grained sand-sized quartz, lt. gray (SW)	A	Classification: SP Color: 2.5Y 7/1-light gray D50: 0.2825 mm % Fines: 4.6		
				B	Classification: SP-SM Color: 2.5Y 7/1-light gray D50: 0.2726 mm % Fines: 10.4		
				C	Classification: SP-SM Color: 2.5Y 7/2-light gray D50: 0.3128 mm % Fines: 6.2		
-45.9	15.0						
			SAND, poorly-graded, mostly fine to medium-grained sand-sized quartz, lt. gray (SP)	D	Classification: SP-SM Color: 2.5Y 7/2-light gray D50: 0.3051 mm % Fines: 6.1		
-50.9	20.0						
			NOTES:				
			1. Soils are field visually classified in accordance with the Unified Soils Classification System.				
			2. NS = Sample not submitted for laboratory analysis from this interval.				
			3. Seafloor elevation determined from 2010				



<b>DRILLING LOG (Cont. Sheet)</b>			<b>INSTALLATION</b> Mobile District		<b>SHEET 2</b> <b>OF 2 SHEETS</b>
<b>PROJECT</b> MsCIP Barrier Island Restoration			<b>COORDINATE SYSTEM/DATUM</b> State Plane, MSE (U.S. Ft.)	<b>HORIZONTAL</b> NAD83	<b>VERTICAL</b> NAVD88
<b>LOCATION COORDINATES</b> X = 1,149,586 Y = 257,136			<b>ELEVATION TOP OF BORING</b> -30.9 Ft.		
<b>ELEV.</b>	<b>DEPTH</b>	<b>LEGEND</b>	<b>CLASSIFICATION OF MATERIALS</b>	<b>SAMPLE</b>	<b>LABORATORY RESULTS</b>
			USACE survey.		

# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.0	0.0	9.8	85.6	4.6	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
.375	100.0		
#4	100.0		
#10	100.0		
#20	99.8		
#40	90.2		
#60	37.4		
#100	6.2		
#200	4.6		

\* (no specification provided)

## Material Description

SAND, (SP), fine grained

PL=      Atterberg Limits      LL=      PI=

Coefficients  
D<sub>90</sub>= 0.4235      D<sub>85</sub>= 0.3967      D<sub>60</sub>= 0.3095  
D<sub>50</sub>= 0.2825      D<sub>30</sub>= 0.2303      D<sub>15</sub>= 0.1854  
D<sub>10</sub>= 0.1672      C<sub>u</sub>= 1.85      C<sub>c</sub>= 1.02

Classification  
USCS= SP      AASHTO=

Remarks  
CADD CODE = CH10D965

Location: USACE Sample # BI-PB-121-10A  
Sample Number: TE Lab ID: 4612.39

Depth: 0.0 - 5.0 (ft.)

Date: 8/7/10

**Thompson Engineering**

**Mobile, Alabama**

Client: US Army Corps of Engineers

Project: Contract No. W91278-10-D-0026 - Task 03  
Mississippi Barrier Island Restoration Project

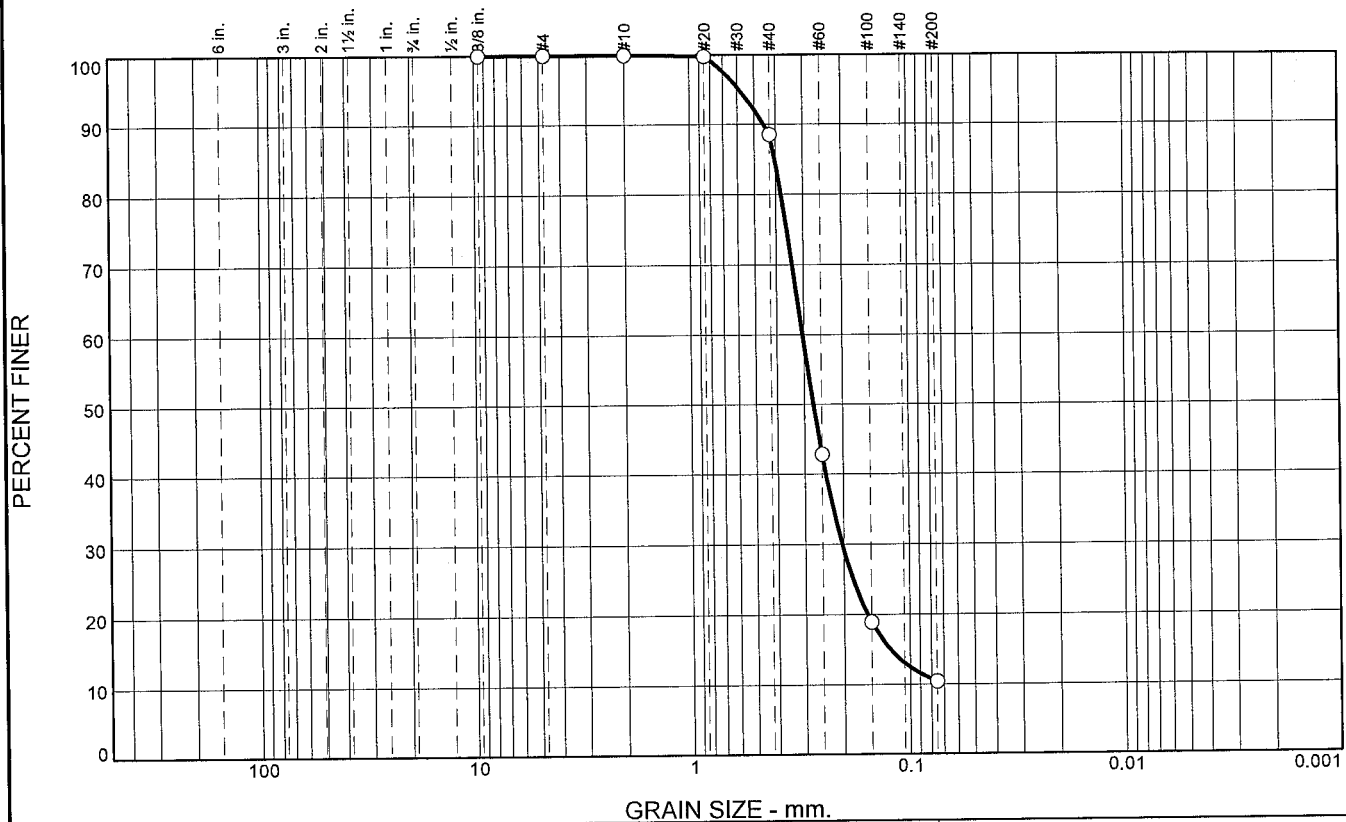
Project No: 10-2123-0009

Report No.

Tested By: J.Maddox

Checked By: R.Byrd

# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.0	0.0	11.5	78.1	10.4	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
.375	100.0		
#4	100.0		
#10	100.0		
#20	99.8		
#40	88.5		
#60	42.8		
#100	18.9		
#200	10.4		

\* (no specification provided)

**Material Description**  
SAND, (SP-SM), medium to fine grained

**Atterberg Limits**  
PL=      LL=      PI=

**Coefficients**  
D<sub>90</sub>= 0.4537      D<sub>85</sub>= 0.4035      D<sub>60</sub>= 0.3039  
D<sub>50</sub>= 0.2726      D<sub>30</sub>= 0.2041      D<sub>15</sub>= 0.1228  
D<sub>10</sub>=      C<sub>u</sub>=      C<sub>c</sub>=

**Classification**  
USCS= SP-SM      AASHTO=

**Remarks**  
CADD CODE = CH10D965

Location: USACE Sample # BI-PB-121-10B  
Sample Number: TE Lab ID: 4612.40

Depth: 5.0 - 10.0 (ft.)

Date: 8/7/10

**Thompson Engineering**

**Mobile, Alabama**

Client: US Army Corps of Engineers

Project: Contract No. W91278-10-D-0026 - Task 03  
Mississippi Barrier Island Restoration Project

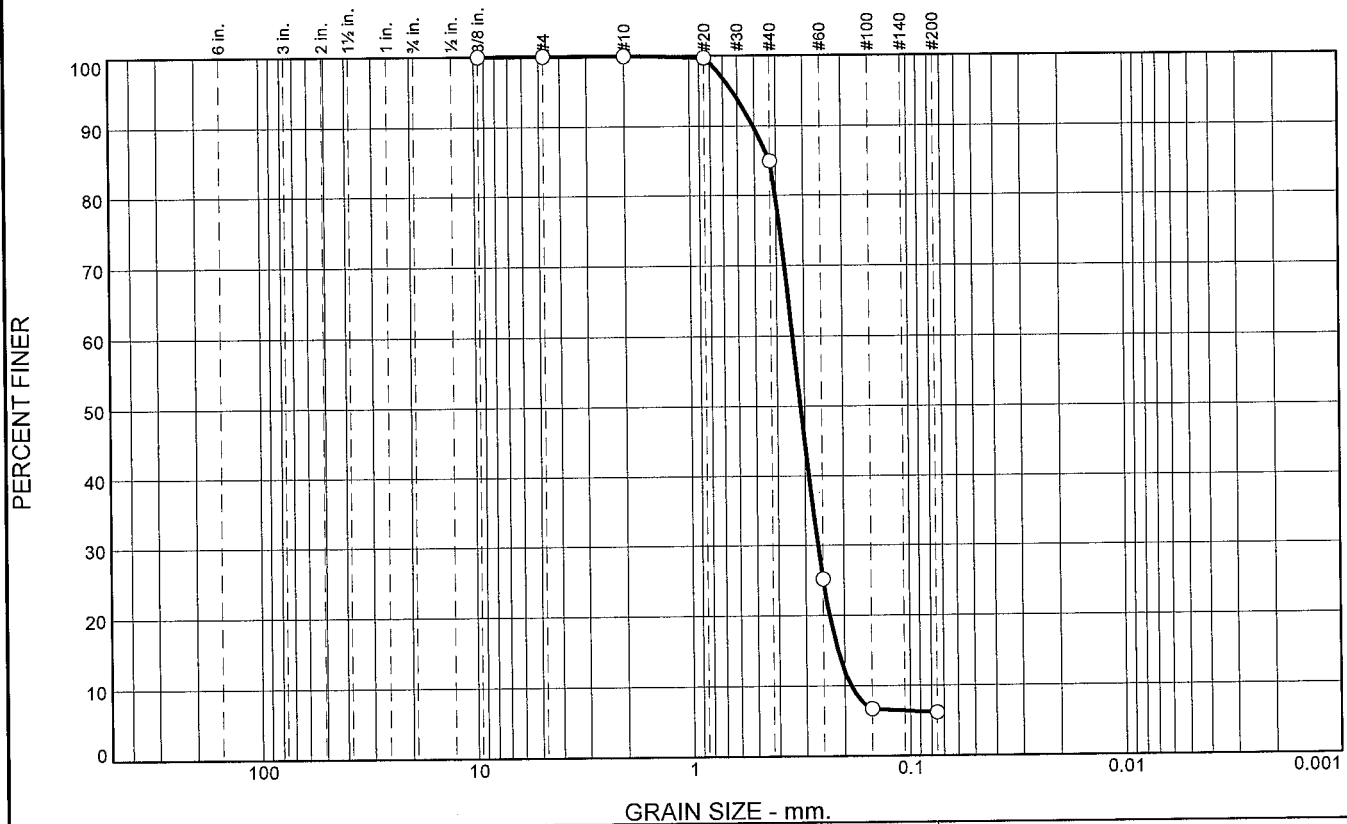
Project No: 10-2123-0009

Report No.

Tested By: J.Maddox

Checked By: R.Byrd

# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.0	0.0	15.1	78.7	6.2	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
.375	100.0		
#4	100.0		
#10	100.0		
#20	99.7		
#40	84.9		
#60	25.2		
#100	6.7		
#200	6.2		

\* (no specification provided)

**Material Description**  
SAND, (SP-SM), medium to fine grained

**Atterberg Limits**  
PL=      LL=      PI=

**Coefficients**  
D<sub>90</sub>= 0.5090      D<sub>85</sub>= 0.4264      D<sub>60</sub>= 0.3388  
D<sub>50</sub>= 0.3128      D<sub>30</sub>= 0.2630      D<sub>15</sub>= 0.2150  
D<sub>10</sub>= 0.1880      C<sub>u</sub>= 1.80      C<sub>c</sub>= 1.09

**Classification**  
USCS= SP-SM      AASHTO=

**Remarks**  
CADD CODE = CH10D965

Location: USACE Sample # BI-PB-121-10C  
Sample Number: TE Lab ID: 4612.41

Depth: 10.0 - 15.0 (ft.)

Date: 8/7/10

**Thompson Engineering**

**Mobile, Alabama**

Client: US Army Corps of Engineers

Project: Contract No. W91278-10-D-0026 - Task 03  
Mississippi Barrier Island Restoration Project

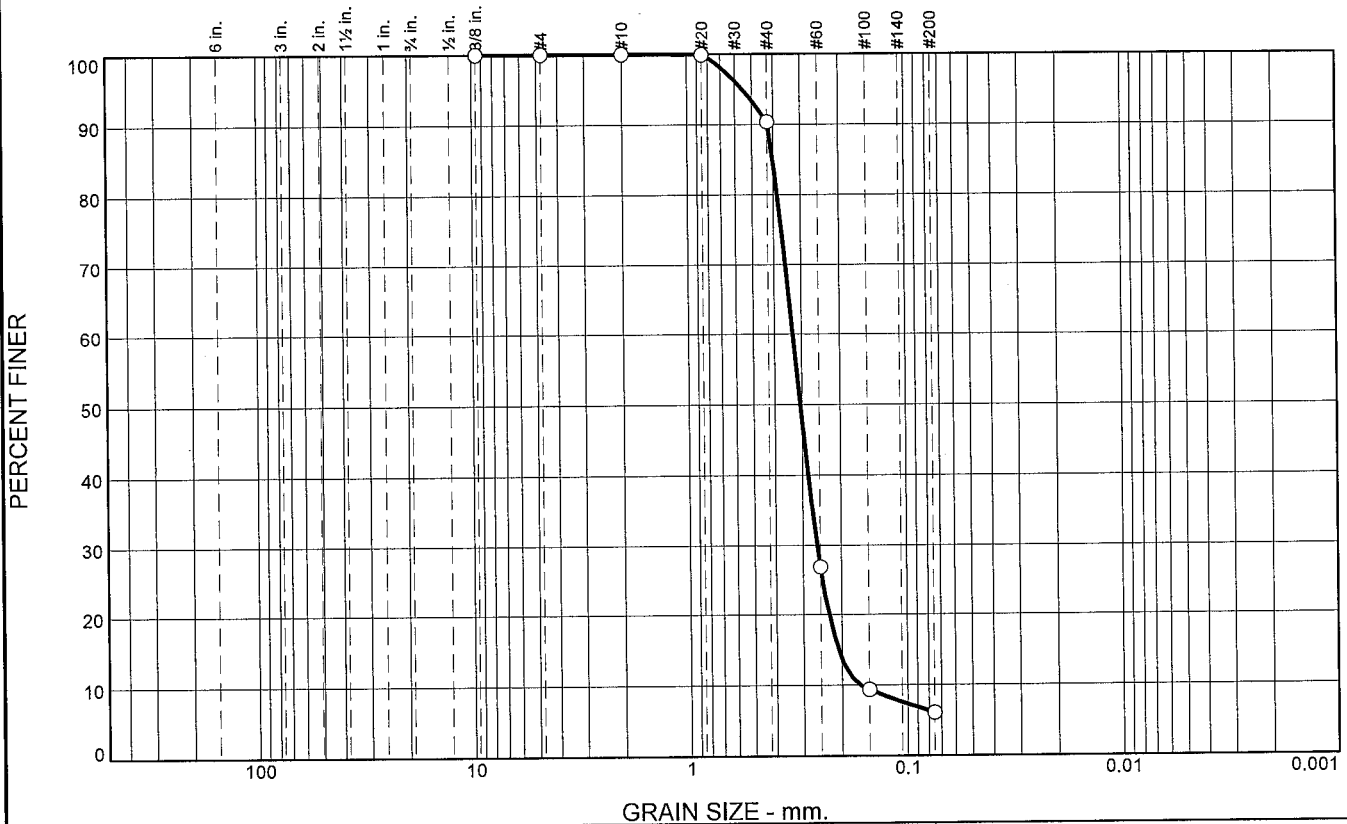
Project No: 10-2123-0009

Report No.

Tested By: J.Maddox

Checked By: R.Byrd

# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.0	0.0	9.6	84.3	6.1	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
.375	100.0		
#4	100.0		
#10	100.0		
#20	99.9		
#40	90.4		
#60	26.9		
#100	9.4		
#200	6.1		

\* (no specification provided)

## Material Description

SAND, (SP-SM), fine grained

## Atterberg Limits

PL=

LL=

PI=

## Coefficients

D<sub>90</sub>= 0.4232

D<sub>85</sub>= 0.4020

D<sub>60</sub>= 0.3287

D<sub>50</sub>= 0.3051

D<sub>30</sub>= 0.2582

D<sub>15</sub>= 0.2078

D<sub>10</sub>= 0.1654

C<sub>u</sub>= 1.99

C<sub>c</sub>= 1.23

## Classification

USCS= SP-SM

AASHTO=

## Remarks

CADD CODE = CH10D965

Location: USACE Sample # BI-PB-121-10D  
Sample Number: TE Lab ID: 4612.42

Depth: 15.0 - 20.0 (ft.)

Date: 8/7/10

**Thompson Engineering**

**Mobile, Alabama**

Client: US Army Corps of Engineers

Project: Contract No. W91278-10-D-0026 - Task 03  
Mississippi Barrier Island Restoration Project

Project No: 10-2123-0009

Report No.

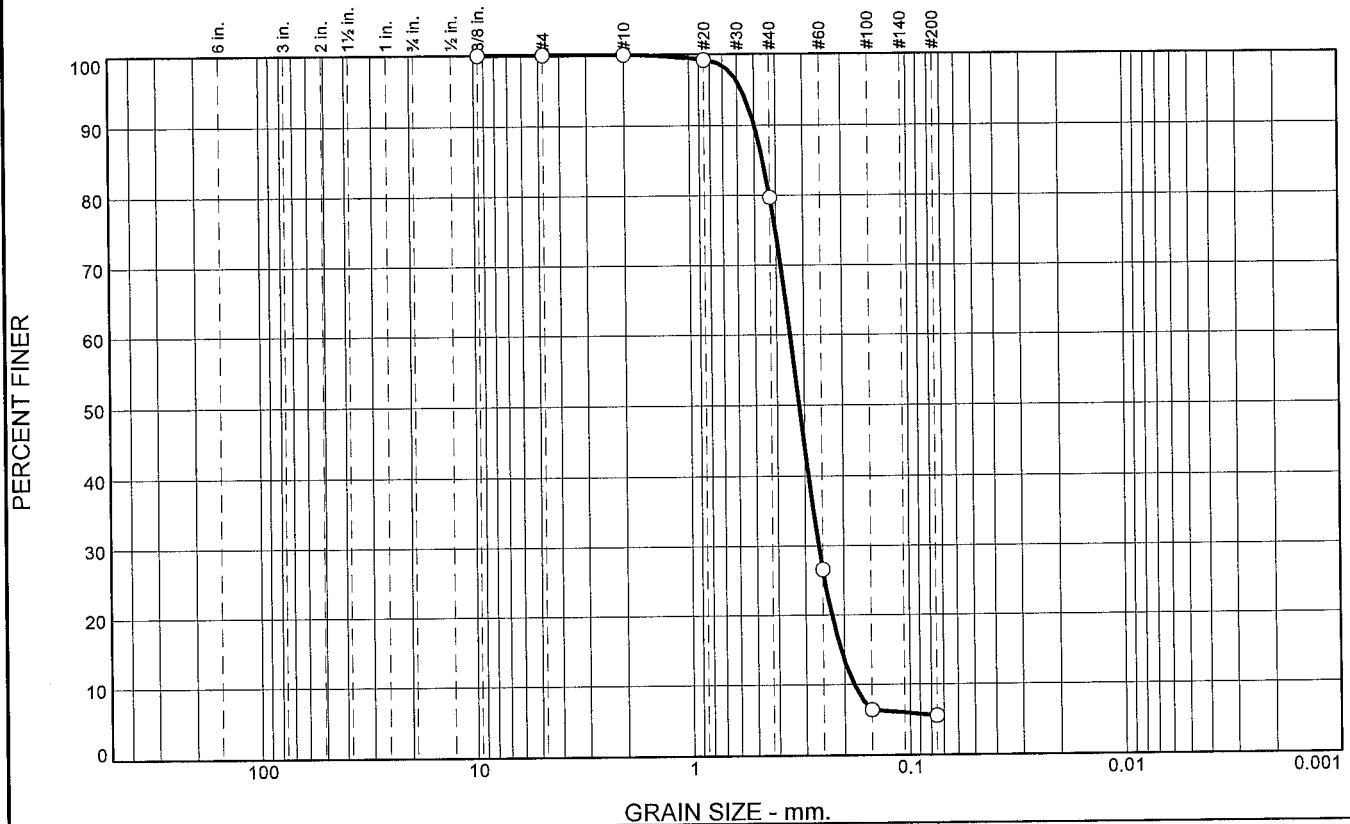
Tested By: J.Maddox

Checked By: R.Byrd

# Boring Designation BI-PB-122-10

DRILLING LOG		DIVISION South Atlantic		INSTALLATION Mobile District		SHEET 1 OF 1 SHEETS	
1. PROJECT MsCIP Barrier Island Restoration Petit Bois Pass- AL East				9. SIZE AND TYPE OF BIT N/A			
2. BORING DESIGNATION BI-PB-122-10		LOCATION COORDINATES E = 1,151,118 N = 257,165		10. COORDINATE SYSTEM/DATUM State Plane, MSE (U.S. Ft.)		HORIZONTAL NAD83 VERTICAL NAVD88	
3. DRILLING AGENCY Corps of Engineers - CESAM		CONTRACTOR FILE NO.		11. MANUFACTURER'S DESIGNATION OF DRILL Vibrocure		<input type="checkbox"/> AUTO HAMMER <input type="checkbox"/> MANUAL HAMMER	
4. NAME OF DRILLER Construction Solutions International, Inc.				12. TOTAL SAMPLES 4		DISTURBED 0 UNDISTURBED (UD)	
5. DIRECTION OF BORING <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED		DEG. FROM VERTICAL		13. TOTAL NUMBER CORE BOXES			
		BEARING		14. WATER DEPTH 30 Ft.			
6. THICKNESS OF OVERBURDEN N/A				15. DATE BORING 07-31-10		STARTED 07-31-10 COMPLETED 07-31-10	
7. DEPTH DRILLED INTO ROCK N/A				16. ELEVATION TOP OF BORING -31.5 Ft.			
8. TOTAL DEPTH OF BORING 18.5 Ft.				17. TOTAL RECOVERY FOR BORING 100%			
				18. SIGNATURE AND TITLE OF INSPECTOR Chris Gillentine, Geologist			
ELEV.	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS	SAMPLE	LABORATORY RESULTS		
-31.5	0.0						
-32.5	1.0		CLAY, fat, dark gray (CH)	NS			
			SAND, well-graded, mostly fine-grained sand-sized quartz, lt. gray (SW)	A	Classification: SP-SM Color: 2.5Y 6/2-light brownish gray D50: 0.3165 mm % Fines: 5.5		
				B	Classification: SM Color: 2.5Y 7/1-light gray D50: 0.259 mm % Fines: 12.8		
				C	Classification: SP-SM Color: 2.5Y 7/2-light gray D50: 0.3229 mm % Fines: 6.5		
-47.5	16.0			D	Classification: SP Color: 2.5Y 7/1-light gray D50: 0.3342 mm % Fines: 4.3		
-50.0	18.5		CLAY, fat, dark gray (CH)	NS			
			NOTES: 1. Soils are field visually classified in accordance with the Unified Soils Classification System. 2. NS = Sample not submitted for laboratory analysis from this interval. 3. Seafloor elevation determined from 2010 USACE survey.				

# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.0	0.0	20.3	74.2	5.5	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
.375	100.0		
#4	100.0		
#10	100.0		
#20	99.2		
#40	79.7		
#60	26.6		
#100	6.4		
#200	5.5		

\* (no specification provided)

**Material Description**  
SAND, (SP-SM), medium to fine grained

**Atterberg Limits**  
PL=      LL=      PI=

**Coefficients**  
D<sub>90</sub>= 0.5002      D<sub>85</sub>= 0.4574      D<sub>60</sub>= 0.3468  
D<sub>50</sub>= 0.3165      D<sub>30</sub>= 0.2602      D<sub>15</sub>= 0.2078  
D<sub>10</sub>= 0.1811      C<sub>u</sub>= 1.91      C<sub>c</sub>= 1.08

**Classification**  
USCS= SP-SM      AASHTO=

**Remarks**  
CADD CODE = CH10D965

Location: USACE Sample # BI-PB-122-10A  
Sample Number: TE Lab ID: 4612.43

Depth: 1.0 - 5.0 (ft.)

Date: 8/7/10

**Thompson Engineering**

**Mobile, Alabama**

Client: US Army Corps of Engineers

Project: Contract No. W91278-10-D-0026 - Task 03  
Mississippi Barrier Island Restoration Project

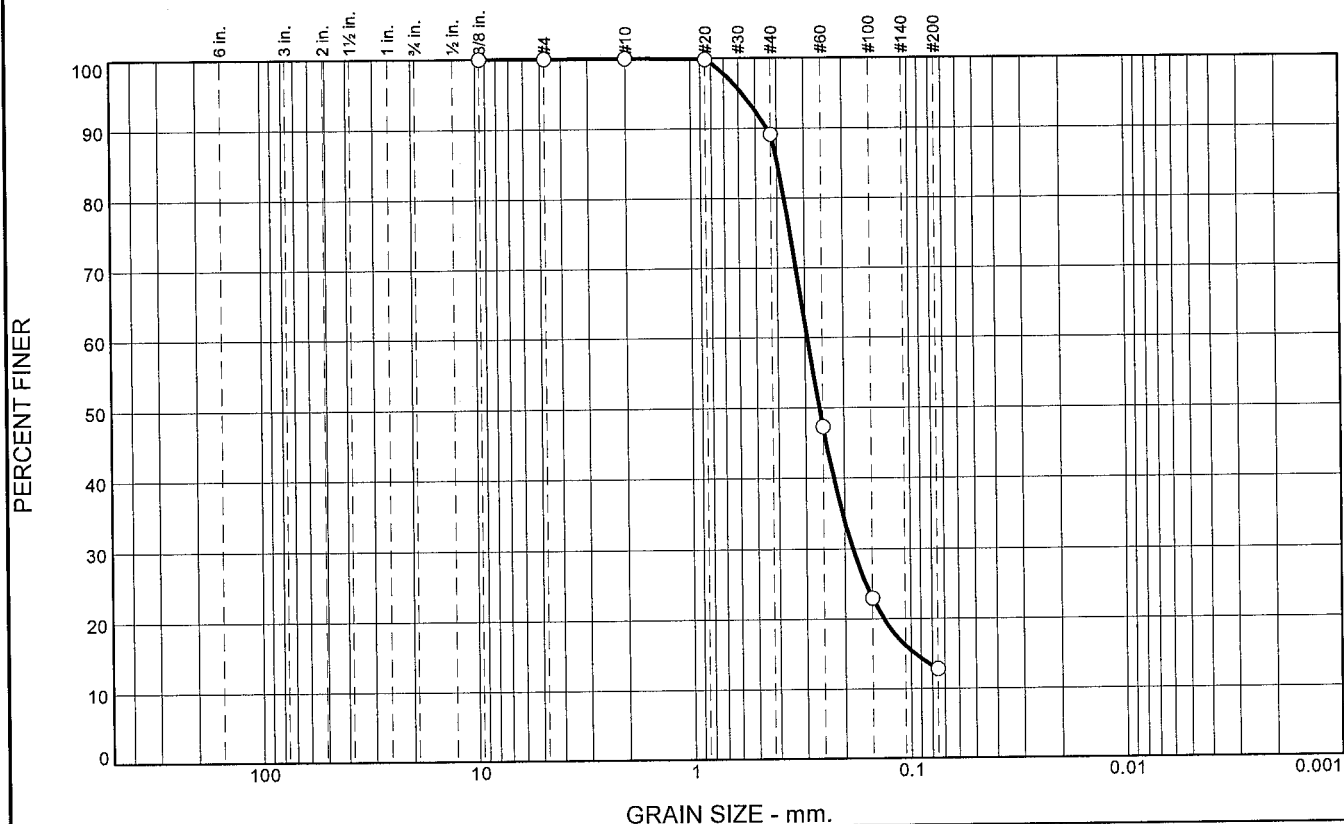
Project No: 10-2123-0009

Report No.

Tested By: J.Maddox

Checked By: R.Byrd

# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.0	0.0	10.9	76.3	12.8	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
.375	100.0		
#4	100.0		
#10	100.0		
#20	99.8		
#40	89.1		
#60	47.3		
#100	23.0		
#200	12.8		

\* (no specification provided)

**Material Description**  
SILTY SAND, (SM), medium to fine grained, with clay pockets

**Atterberg Limits**  
PL=      LL=      PI=

**Coefficients**  
D<sub>90</sub>= 0.4429      D<sub>85</sub>= 0.3980      D<sub>60</sub>= 0.2925  
D<sub>50</sub>= 0.2590      D<sub>30</sub>= 0.1841      D<sub>15</sub>= 0.0956  
D<sub>10</sub>=      C<sub>u</sub>=      C<sub>c</sub>=

**Classification**  
USCS= SM      AASHTO=

**Remarks**  
CADD CODE = CH10D965

Location: USACE Sample # BI-PB-122-10B  
Sample Number: TE Lab ID: 4612.44

Depth: 5.0 - 10.0 (ft.)

Date: 8/7/10

**Thompson Engineering**

**Mobile, Alabama**

Client: US Army Corps of Engineers

Project: Contract No. W91278-10-D-0026 - Task 03  
Mississippi Barrier Island Restoration Project

Project No: 10-2123-0009

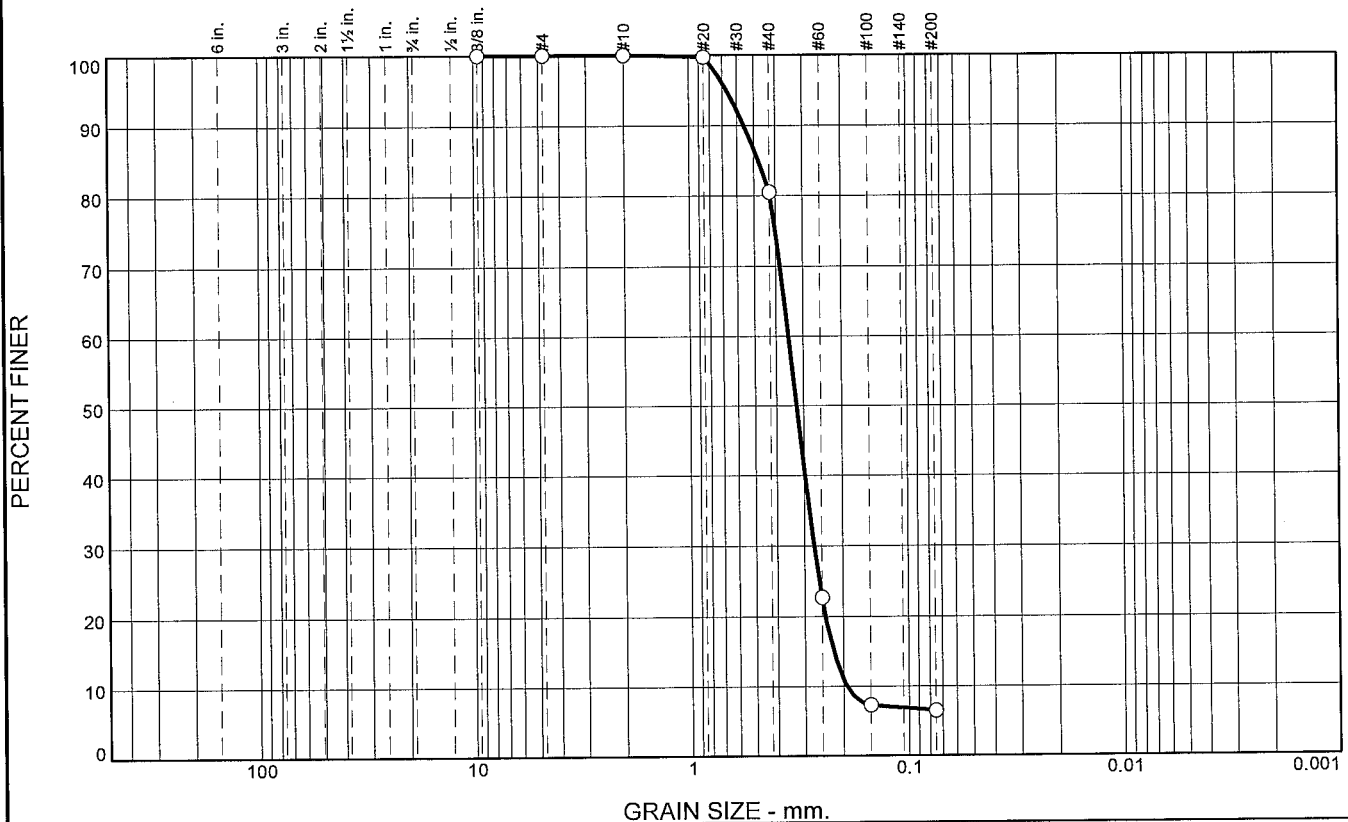
Report No.

Tested By: J.Maddox

Checked By: R.Byrd



# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.0	0.0	19.5	74.0	6.5	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
.375	100.0		
#4	100.0		
#10	100.0		
#20	99.7		
#40	80.5		
#60	22.7		
#100	7.3		
#200	6.5		

\* (no specification provided)

**Material Description**  
SAND, (SP-SM), medium to fine grained

**Atterberg Limits**  
PL=      LL=      PI=

**Coefficients**  
 D<sub>90</sub>= 0.5568      D<sub>85</sub>= 0.4785      D<sub>60</sub>= 0.3508  
 D<sub>50</sub>= 0.3229      D<sub>30</sub>= 0.2707      D<sub>15</sub>= 0.2219  
 D<sub>10</sub>= 0.1931      C<sub>u</sub>= 1.82      C<sub>c</sub>= 1.08

**Classification**  
USCS= SP-SM      AASHTO=

**Remarks**  
CADD CODE = CH10D965

Location: USACE Sample # BI-PB-122-10C  
Sample Number: TE Lab ID: 4612.45

Depth: 10.0 - 15.0 (ft.)

Date: 8/7/10

**Thompson Engineering**

**Mobile, Alabama**

Client: US Army Corps of Engineers

Project: Contract No. W91278-10-D-0026 - Task 03  
Mississippi Barrier Island Restoration Project

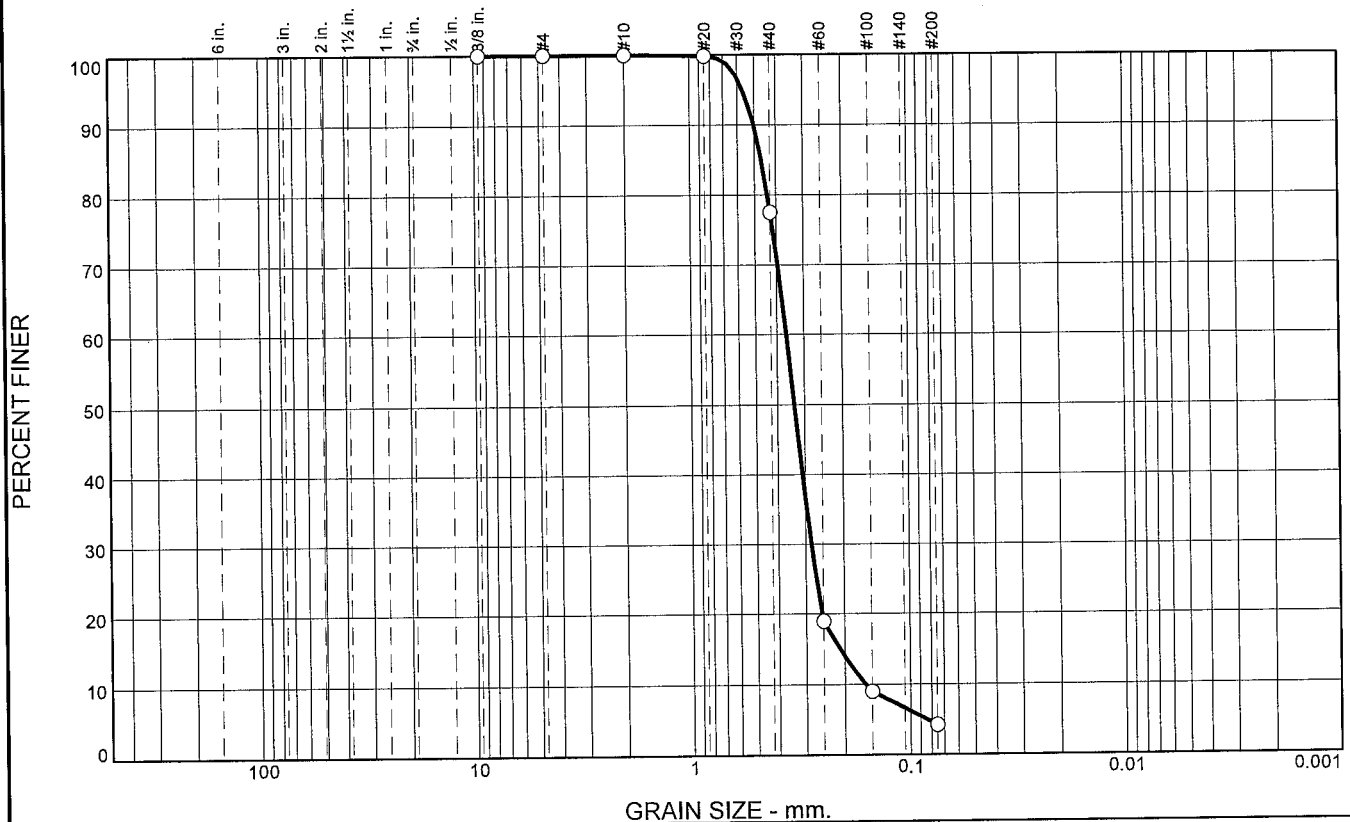
Project No: 10-2123-0009

Report No.

Tested By: J.Maddox

Checked By: R.Byrd

# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.0	0.0	22.5	73.2	4.3	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
.375	100.0		
#4	100.0		
#10	100.0		
#20	99.8		
#40	77.5		
#60	18.9		
#100	9.0		
#200	4.3		

\* (no specification provided)

## Material Description

SAND, (SP), medium to fine grained

PL=      Atterberg Limits      LL=      PI=

Coefficients  
D<sub>90</sub>= 0.5046      D<sub>85</sub>= 0.4656      D<sub>60</sub>= 0.3624  
D<sub>50</sub>= 0.3342      D<sub>30</sub>= 0.2822      D<sub>15</sub>= 0.2106  
D<sub>10</sub>= 0.1603      C<sub>u</sub>= 2.26      C<sub>c</sub>= 1.37

Classification  
USCS= SP      AASHTO=

Remarks  
CADD CODE = CH10D965

Location: USACE Sample # BI-PB-122-10D  
Sample Number: TE Lab ID: 4612.46

Depth: 15.0 - 16.5 (ft.)

Date: 8/7/10

**Thompson Engineering**

**Mobile, Alabama**

Client: US Army Corps of Engineers

Project: Contract No. W91278-10-D-0026 - Task 03  
Mississippi Barrier Island Restoration Project

Project No: 10-2123-0009

Report No.

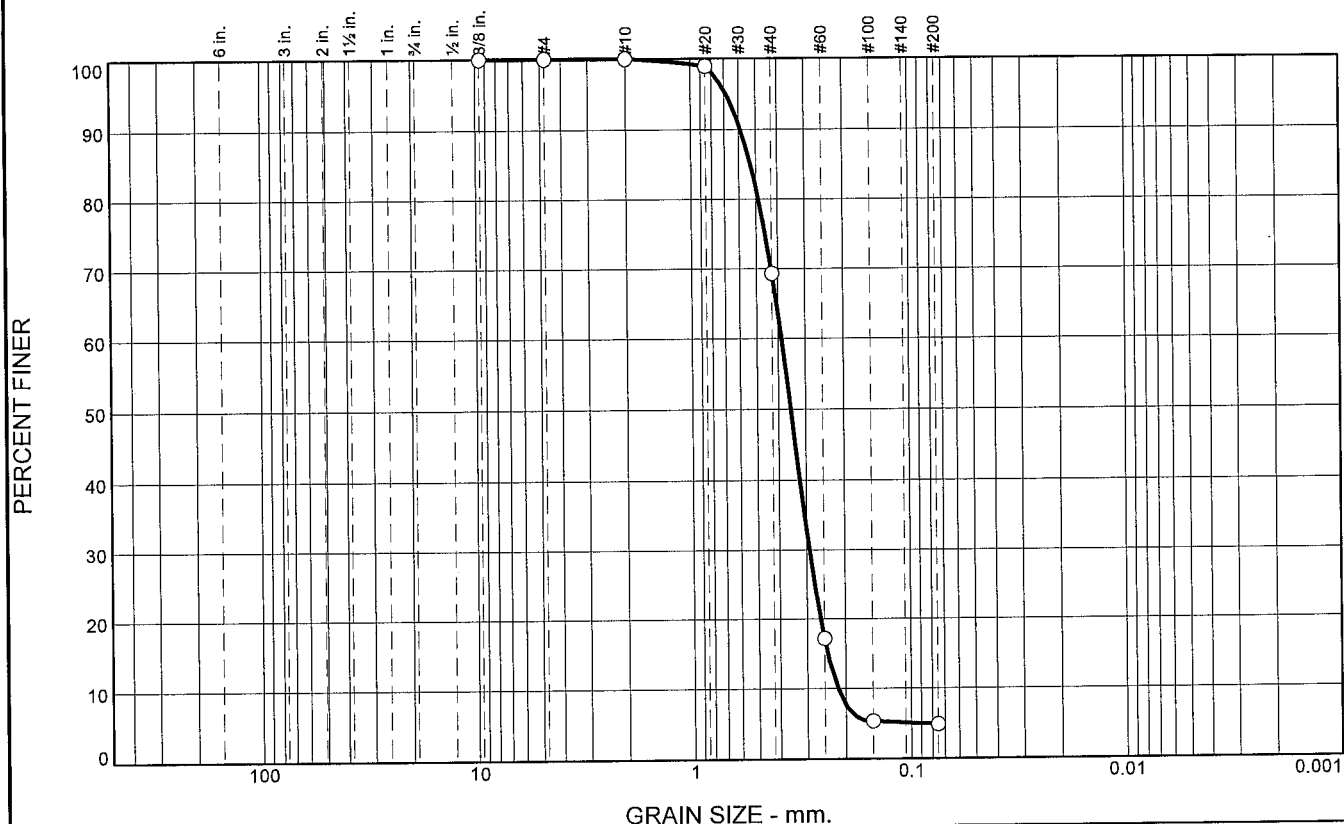
Tested By: J.Maddox

Checked By: R.Byrd

# Boring Designation BI-PB-123-10

DRILLING LOG		DIVISION South Atlantic		INSTALLATION Mobile District		SHEET 1 OF 1 SHEETS	
1. PROJECT MsCIP Barrier Island Restoration Petit Bois Pass- AL East				9. SIZE AND TYPE OF BIT N/A			
2. BORING DESIGNATION BI-PB-123-10		LOCATION COORDINATES E = 1,152,555 N = 257,201		10. COORDINATE SYSTEM/DATUM State Plane, MSE (U.S. Ft.)		HORIZONTAL NAD83 VERTICAL NAVD88	
3. DRILLING AGENCY Corps of Engineers - CESAM		CONTRACTOR FILE NO.		11. MANUFACTURER'S DESIGNATION OF DRILL Vibrocure		<input type="checkbox"/> AUTO HAMMER <input type="checkbox"/> MANUAL HAMMER	
4. NAME OF DRILLER Construction Solutions International, Inc.				12. TOTAL SAMPLES 3		DISTURBED 3 UNDISTURBED (UD) 0	
5. DIRECTION OF BORING <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED		DEG. FROM VERTICAL		13. TOTAL NUMBER CORE BOXES			
		BEARING		14. WATER DEPTH 31 Ft.			
6. THICKNESS OF OVERBURDEN N/A				15. DATE BORING 07-31-10		STARTED 07-31-10 COMPLETED 07-31-10	
7. DEPTH DRILLED INTO ROCK N/A				16. ELEVATION TOP OF BORING -32.4 Ft.			
8. TOTAL DEPTH OF BORING 16.0 Ft.				17. TOTAL RECOVERY FOR BORING 100%			
				18. SIGNATURE AND TITLE OF INSPECTOR Chris Gillentine, Geologist			
ELEV.	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS	SAMPLE	LABORATORY RESULTS		
-32.4	0.0						
			SAND, well-graded, mostly fine to medium-grained sand-sized quartz, lt. gray (SW)	A	Classification: SP Color: 2.5Y 7/2-light gray D50: 0.3514 mm % Fines: 4.9		
				B	Classification: SP Color: 2.5Y 8/1-white D50: 0.3001 mm % Fines: 3.2		
				C	Classification: SP Color: 2.5Y 8/1-white D50: 0.295 mm % Fines: 4.5		
-47.4	15.0						
-48.4	16.0		SAND, poorly-graded, some silt, dark gray (SP)	NS			
			NOTES: 1. Soils are field visually classified in accordance with the Unified Soils Classification System. 2. NS = Sample not submitted for laboratory analysis from this interval. 3. Seafloor elevation determined from 2010 USACE survey.				

# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.0	0.0	30.7	64.4	4.9	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
.375	100.0		
#4	100.0		
#10	100.0		
#20	98.9		
#40	69.3		
#60	17.2		
#100	5.3		
#200	4.9		

\* (no specification provided)

**Material Description**  
SAND, (SP), medium to fine grained

**Atterberg Limits**  
PL=      LL=      PI=

**Coefficients**  
 D<sub>90</sub>= 0.5888      D<sub>85</sub>= 0.5299      D<sub>60</sub>= 0.3860  
 D<sub>50</sub>= 0.3514      D<sub>30</sub>= 0.2909      D<sub>15</sub>= 0.2416  
 D<sub>10</sub>= 0.2173      C<sub>u</sub>= 1.78      C<sub>c</sub>= 1.01

**Classification**  
USCS= SP      AASHTO=

**Remarks**  
CADD CODE = CH10D965

Location: USACE Sample # BI-PB-123-10A  
Sample Number: TE Lab ID: 4612.47

Depth: 0.0 - 5.0 (ft.)

Date: 8/7/10

**Thompson Engineering**

**Mobile, Alabama**

Client: US Army Corps of Engineers

Project: Contract No. W91278-10-D-0026 - Task 03  
Mississippi Barrier Island Restoration Project

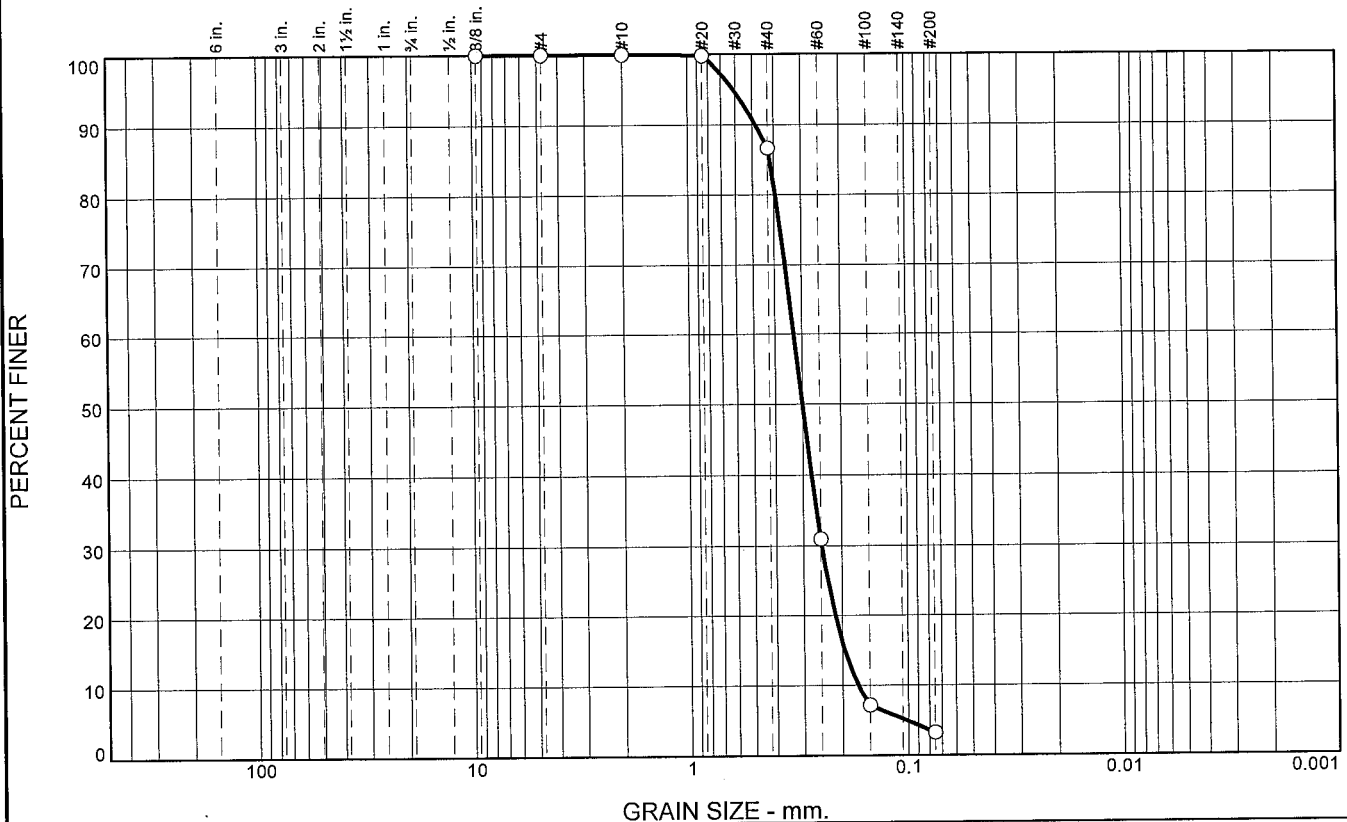
Project No: 10-2123-0009

Report No.

Tested By: J.Maddox

Checked By: R.Byrd

# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.0	0.0	13.4	83.4	3.2	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
.375	100.0		
#4	100.0		
#10	100.0		
#20	99.8		
#40	86.6		
#60	31.0		
#100	7.1		
#200	3.2		

\* (no specification provided)

## Material Description

SAND, (SP), medium to fine grained

## Atterberg Limits

PL=

LL=

PI=

## Coefficients

D<sub>90</sub>= 0.4845

D<sub>85</sub>= 0.4165

D<sub>60</sub>= 0.3272

D<sub>50</sub>= 0.3001

D<sub>30</sub>= 0.2473

D<sub>15</sub>= 0.1957

D<sub>10</sub>= 0.1701

C<sub>u</sub>= 1.92

C<sub>c</sub>= 1.10

## Classification

USCS= SP

AASHTO=

## Remarks

CADD CODE = CH10D965

Location: USACE Sample # BI-PB-123-10B  
Sample Number: TE Lab ID: 4612.48

Depth: 5.0 - 10.0 (ft.)

Date: 8/7/10

**Thompson Engineering**

**Mobile, Alabama**

Client: US Army Corps of Engineers

Project: Contract No. W91278-10-D-0026 - Task 03  
Mississippi Barrier Island Restoration Project

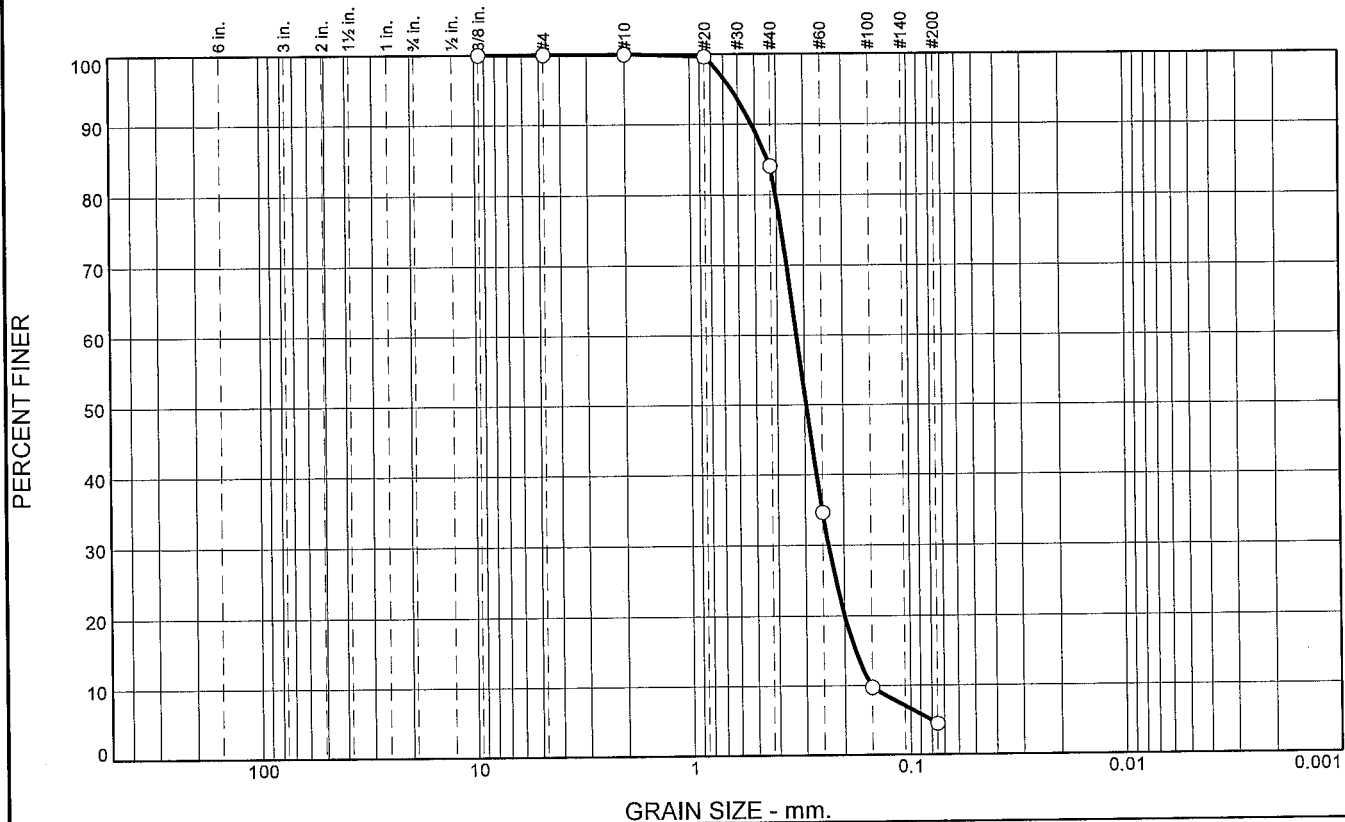
Project No: 10-2123-0009

Report No.

Tested By: J.Maddox

Checked By: R.Byrd

# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.0	0.0	15.9	79.6	4.5	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
.375	100.0		
#4	100.0		
#10	100.0		
#20	99.6		
#40	84.1		
#60	34.6		
#100	9.7		
#200	4.5		

\* (no specification provided)

## Material Description

SAND, (SP), medium to fine grained

## Atterberg Limits

PL= LL= PI=

## Coefficients

D<sub>90</sub>= 0.5202 D<sub>85</sub>= 0.4377 D<sub>60</sub>= 0.3255  
D<sub>50</sub>= 0.2950 D<sub>30</sub>= 0.2356 D<sub>15</sub>= 0.1788  
D<sub>10</sub>= 0.1517 C<sub>u</sub>= 2.15 C<sub>c</sub>= 1.12

## Classification

USCS= SP AASHTO=

## Remarks

CADD CODE = CH10D965

Location: USACE Sample # BI-PB-123-10C  
Sample Number: TE Lab ID: 4612.64

Depth: 10.0 - 15.0 (ft.)

Date: 8/7/10

**Thompson Engineering**

**Mobile, Alabama**

Client: US Army Corps of Engineers

Project: Contract No. W91278-10-D-0026 - Task 03  
Mississippi Barrier Island Restoration Project



Project No: 10-2123-0009

Report No.

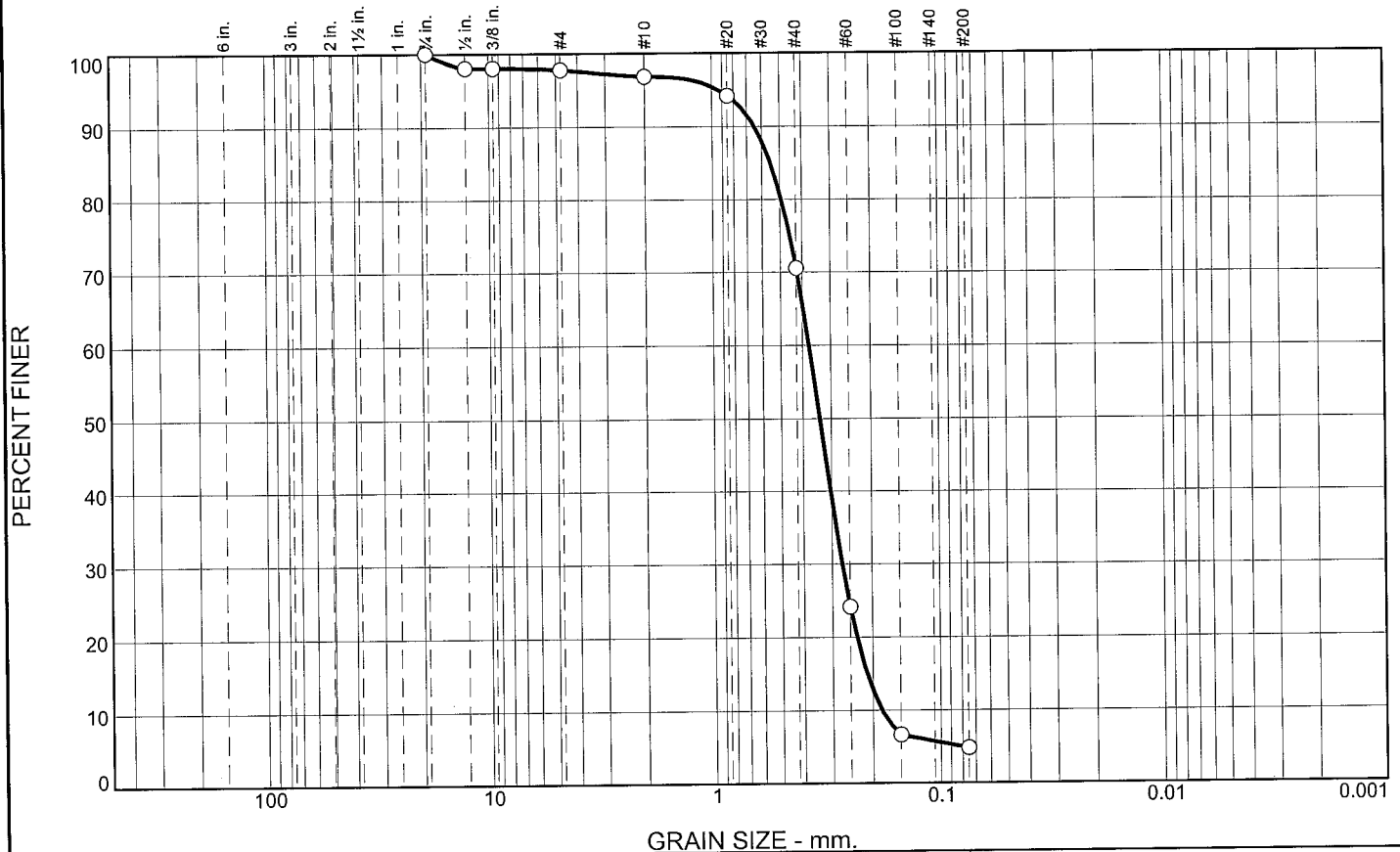
Tested By: J.Maddox

Checked By: R.Byrd

# Boring Designation BI-PB-124-10

DRILLING LOG		DIVISION South Atlantic		INSTALLATION Mobile District		SHEET 1 OF 1 SHEETS	
1. PROJECT MsCIP Barrier Island Restoration Petit Bois Pass- AL East				9. SIZE AND TYPE OF BIT N/A			
2. BORING DESIGNATION BI-PB-124-10		LOCATION COORDINATES E = 1,154,090 N = 257,121		10. COORDINATE SYSTEM/DATUM State Plane, MSE (U.S. Ft.)		HORIZONTAL NAD83	
3. DRILLING AGENCY Corps of Engineers - CESAM		CONTRACTOR FILE NO.		11. MANUFACTURER'S DESIGNATION OF DRILL Vibracore		<input type="checkbox"/> AUTO HAMMER <input type="checkbox"/> MANUAL HAMMER	
4. NAME OF DRILLER Construction Solutions International, Inc.				12. TOTAL SAMPLES 2		DISTURBED 0	
5. DIRECTION OF BORING <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED				13. TOTAL NUMBER CORE BOXES		14. WATER DEPTH 32 Ft.	
6. THICKNESS OF OVERBURDEN N/A				15. DATE BORING 08-07-10		STARTED 08-07-10	
7. DEPTH DRILLED INTO ROCK N/A				16. ELEVATION TOP OF BORING -32.5 Ft.		COMPLETED 08-07-10	
8. TOTAL DEPTH OF BORING 13.6 Ft.				17. TOTAL RECOVERY FOR BORING 100%			
				18. SIGNATURE AND TITLE OF INSPECTOR Chris Gillentine, Geologist			
ELEV.	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS	SAMPLE	LABORATORY RESULTS		
-32.5	0.0						
			SAND, poorly-graded, mostly fine to medium-grained sand-sized quartz, lt. gray (SP)	A	Classification: SP Color: 2.5Y 7/2-light gray D50: 0.3364 mm % Fines: 4.8		
				B	Classification: SP Color: 2.5Y 7/2-light gray D50: 0.3274 mm % Fines: 3.8		
-40.5	8.0		CLAY, fat, dark gray (CH)	NS			
-46.1	13.6						
			NOTES: 1. Soils are field visually classified in accordance with the Unified Soils Classification System. 2. NS = Sample not submitted for laboratory analysis from this interval. 3. Seafloor elevation determined from 2010 USACE survey.				

# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	2.2	1.0	26.2	65.8	4.8	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
.750	100.0		
.500	98.0		
.375	98.0		
#4	97.8		
#10	96.8		
#20	94.2		
#40	70.6		
#60	24.2		
#100	6.7		
#200	4.8		

\* (no specification provided)

**Material Description**  
SAND, (SP), medium to fine grained, with trace shell

**Atterberg Limits**  
 PL=                      LL=                      PI=

**Coefficients**  
 D<sub>90</sub>= 0.6476      D<sub>85</sub>= 0.5507      D<sub>60</sub>= 0.3745  
 D<sub>50</sub>= 0.3364      D<sub>30</sub>= 0.2700      D<sub>15</sub>= 0.2116  
 D<sub>10</sub>= 0.1818      C<sub>u</sub>= 2.06              C<sub>c</sub>= 1.07

**Classification**  
 USCS= SP                      AASHTO=

**Remarks**  
 CADD CODE = CH10D965

Location: USACE Sample # BI-PB-124-10A  
 Sample Number: TE Lab ID: 4622.46

Depth: 0.0 - 4.0 (ft.)

Date: 8/15/10

**Thompson Engineering**  
**Mobile, Alabama**

Client: US Army Corps of Engineers  
 Project: Contract No. W91278-10-D-0026 - Task 03  
 Mississippi Barrier Island Restoration Project  
 Project No: 10-2123-0009

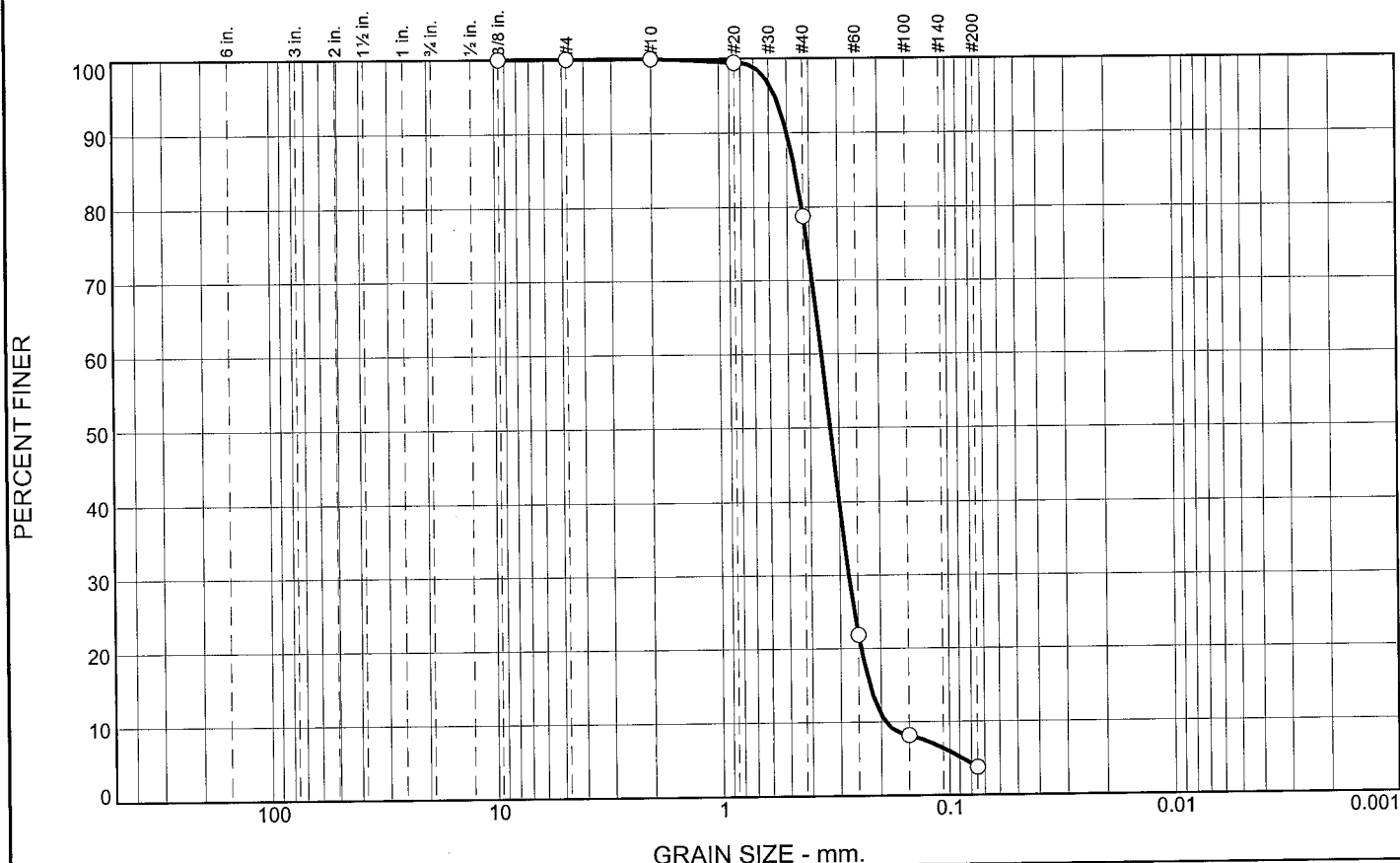
Report No.

Tested By: G.Fancher

Checked By: R.Byrd



# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.0	0.0	21.3	74.9	3.8	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
.375	100.0		
#4	100.0		
#10	100.0		
#20	99.4		
#40	78.7		
#60	21.8		
#100	8.2		
#200	3.8		

\* (no specification provided)

## Material Description

SAND, (SP), medium to fine grained

## Atterberg Limits

PL=

LL=

PI=

## Coefficients

D<sub>90</sub>= 0.4996

D<sub>85</sub>= 0.4602

D<sub>60</sub>= 0.3560

D<sub>50</sub>= 0.3274

D<sub>30</sub>= 0.2740

D<sub>15</sub>= 0.2236

D<sub>10</sub>= 0.1903

C<sub>u</sub>= 1.87

C<sub>c</sub>= 1.11

## Classification

USCS= SP

AASHTO=

## Remarks

CADD CODE = CH10D965

Location: USACE Sample # BI-PB-124-10B  
Sample Number: TE Lab ID: 4622.47

Depth: 4.0 - 8.0 (ft.)

Date: 8/15/10

**Thompson Engineering**

**Mobile, Alabama**

Client: US Army Corps of Engineers

Project: Contract No. W91278-10-D-0026 - Task 03  
Mississippi Barrier Island Restoration Project

Project No: 10-2123-0009

Report No.

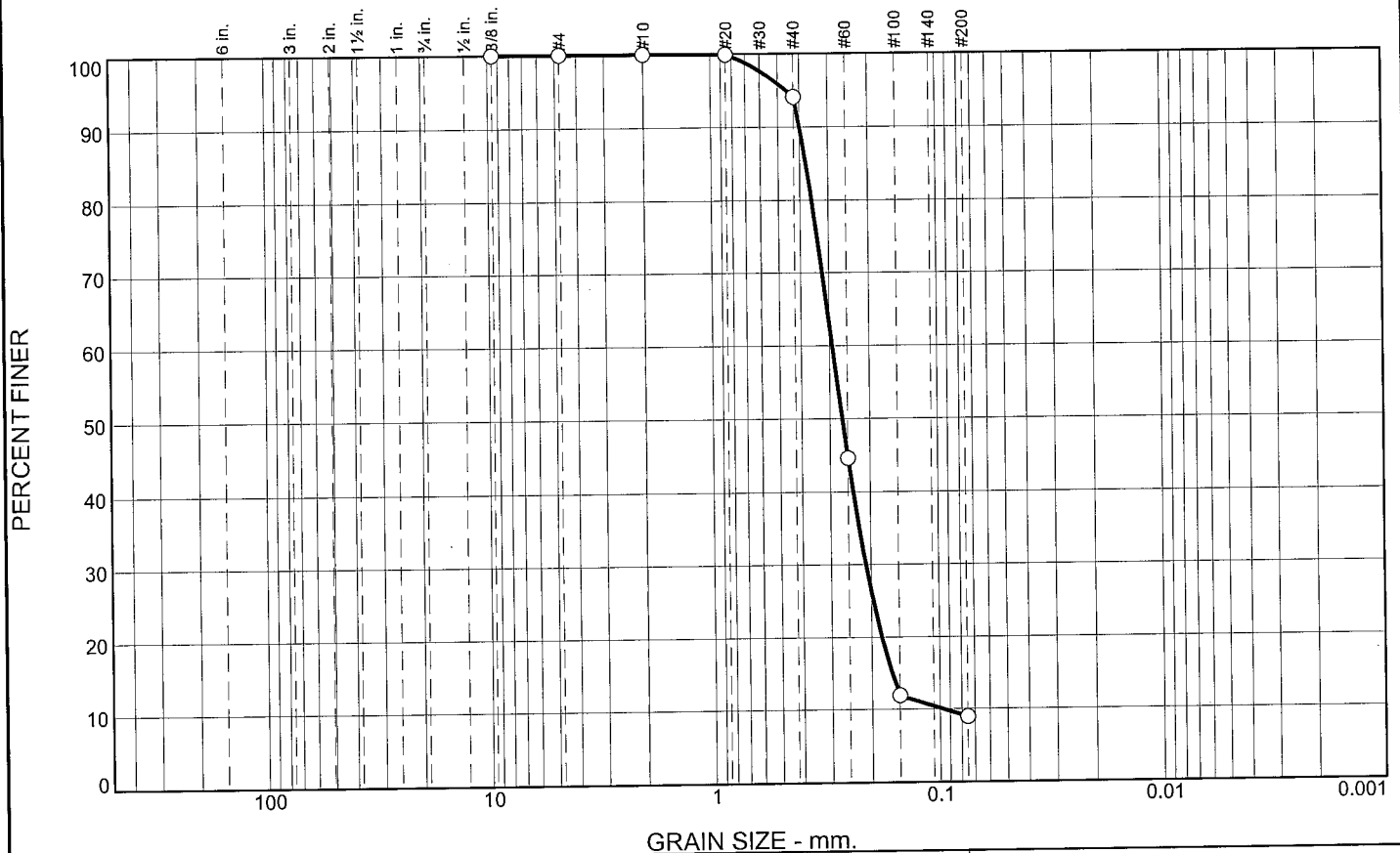
Tested By: G.Fancher

Checked By: R.Byrd

# Boring Designation BI-PB-125-10

DRILLING LOG		DIVISION South Atlantic		INSTALLATION Mobile District		SHEET 1 OF 1 SHEETS	
1. PROJECT MsCIP Barrier Island Restoration Petit Bois Pass- AL East				9. SIZE AND TYPE OF BIT N/A			
2. BORING DESIGNATION BI-PB-125-10		LOCATION COORDINATES E = 1,153,996 N = 255,749		10. COORDINATE SYSTEM/DATUM State Plane, MSE (U.S. Ft.)		HORIZONTAL NAD83 VERTICAL NAVD88	
3. DRILLING AGENCY Corps of Engineers - CESAM		CONTRACTOR FILE NO.		11. MANUFACTURER'S DESIGNATION OF DRILL Vibracore		<input type="checkbox"/> AUTO HAMMER <input type="checkbox"/> MANUAL HAMMER	
4. NAME OF DRILLER Construction Solutions International, Inc.				12. TOTAL SAMPLES 2		DISTURBED 2 UNDISTURBED (UD) 0	
5. DIRECTION OF BORING <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED				13. TOTAL NUMBER CORE BOXES		14. WATER DEPTH 37 Ft.	
6. THICKNESS OF OVERBURDEN N/A				15. DATE BORING 08-07-10		STARTED 08-07-10 COMPLETED 08-07-10	
7. DEPTH DRILLED INTO ROCK N/A				16. ELEVATION TOP OF BORING -36.8 Ft.		17. TOTAL RECOVERY FOR BORING 100%	
8. TOTAL DEPTH OF BORING 10.5 Ft.				18. SIGNATURE AND TITLE OF INSPECTOR Chris Gillentine, Geologist			
ELEV.	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS	SAMPLE	LABORATORY RESULTS		
-36.8	0.0						
			SAND, poorly-graded, mostly fine to medium-grained sand-sized quartz, trace silt, gray (SP)	A	Classification: SP-SM Color: 2.5Y 5/2-grayish brown D50: 0.2642 mm % Fines: 8.9		
				B	Classification: SP-SM Color: 2.5Y 5/1-gray D50: 0.3004 mm % Fines: 9.4		
-47.3	10.5			NS			
			NOTES: 1. Soils are field visually classified in accordance with the Unified Soils Classification System. 2. NS = Sample not submitted for laboratory analysis from this interval. 3. Seafloor elevation determined from 2010 USACE survey.				

# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.0	0.0	5.9	85.2	8.9	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
.375	100.0		
#4	100.0		
#10	100.0		
#20	99.9		
#40	94.1		
#60	44.6		
#100	11.9		
#200	8.9		

\* (no specification provided)

**Material Description**  
SAND, (SP-SM), fine grained

**Atterberg Limits**  
 PL=      LL=      PI=

**Coefficients**  
 D<sub>90</sub>= 0.3999      D<sub>85</sub>= 0.3756      D<sub>60</sub>= 0.2913  
 D<sub>50</sub>= 0.2642      D<sub>30</sub>= 0.2102      D<sub>15</sub>= 0.1627  
 D<sub>10</sub>= 0.0964      C<sub>u</sub>= 3.02      C<sub>c</sub>= 1.57

**Classification**  
 USCS= SP-SM      AASHTO=

**Remarks**  
 CADD CODE = CH10D965

Location: USACE Sample # BI-PB-125-10A  
 Sample Number: TE Lab ID: 4622.44

Depth: 0.0 - 5.0 (ft.)

Date: 8/15/10

**Thompson Engineering**  
**Mobile, Alabama**

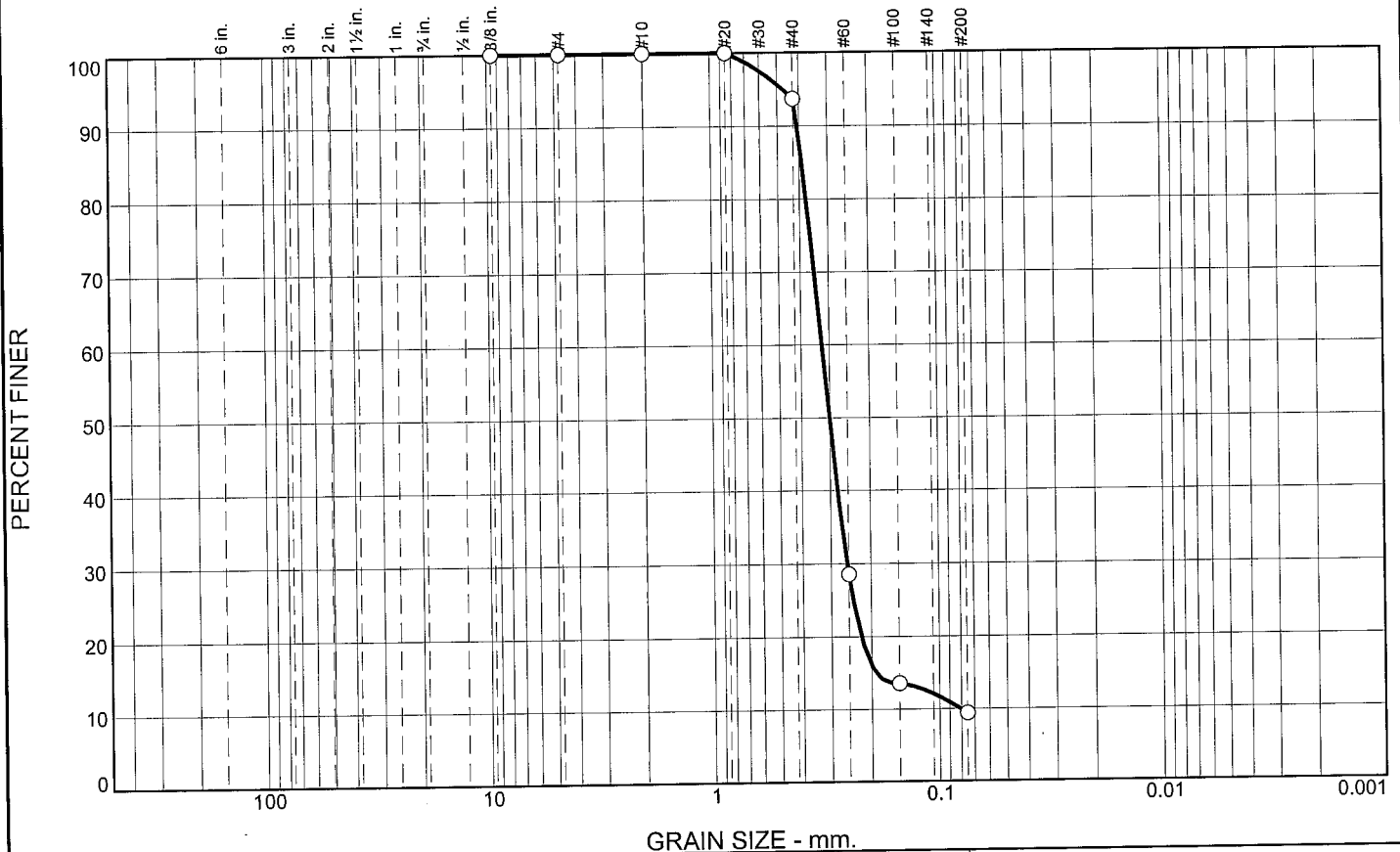
Client: US Army Corps of Engineers  
 Project: Contract No. W91278-10-D-0026 - Task 03  
 Mississippi Barrier Island Restoration Project  
 Project No: 10-2123-0009

Report No.

Tested By: G.Fancher

Checked By: R.Byrd

# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.0	0.0	6.3	84.3	9.4	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
.375	100.0		
#4	100.0		
#10	100.0		
#20	100.0		
#40	93.7		
#60	28.5		
#100	13.5		
#200	9.4		

\* (no specification provided)

**Material Description**  
SAND, (SP-SM), fine grained

**Atterberg Limits**  
PL=      LL=      PI=

**Coefficients**  
D<sub>90</sub>= 0.4088      D<sub>85</sub>= 0.3905      D<sub>60</sub>= 0.3230  
D<sub>50</sub>= 0.3004      D<sub>30</sub>= 0.2539      D<sub>15</sub>= 0.1906  
D<sub>10</sub>= 0.0804      C<sub>u</sub>= 4.02      C<sub>c</sub>= 2.48

**Classification**  
USCS= SP-SM      AASHTO=

**Remarks**  
CADD CODE = CH10D965

Location: USACE Sample # BI-PB-125-10B  
Sample Number: TE Lab ID: 4622.45

Depth: 5.0 - 10.0 (ft.)

Date: 8/15/10

**Thompson Engineering**

**Mobile, Alabama**

Client: US Army Corps of Engineers

Project: Contract No. W91278-10-D-0026 - Task 03  
Mississippi Barrier Island Restoration Project


Project No: 10-2123-0009

Report No.

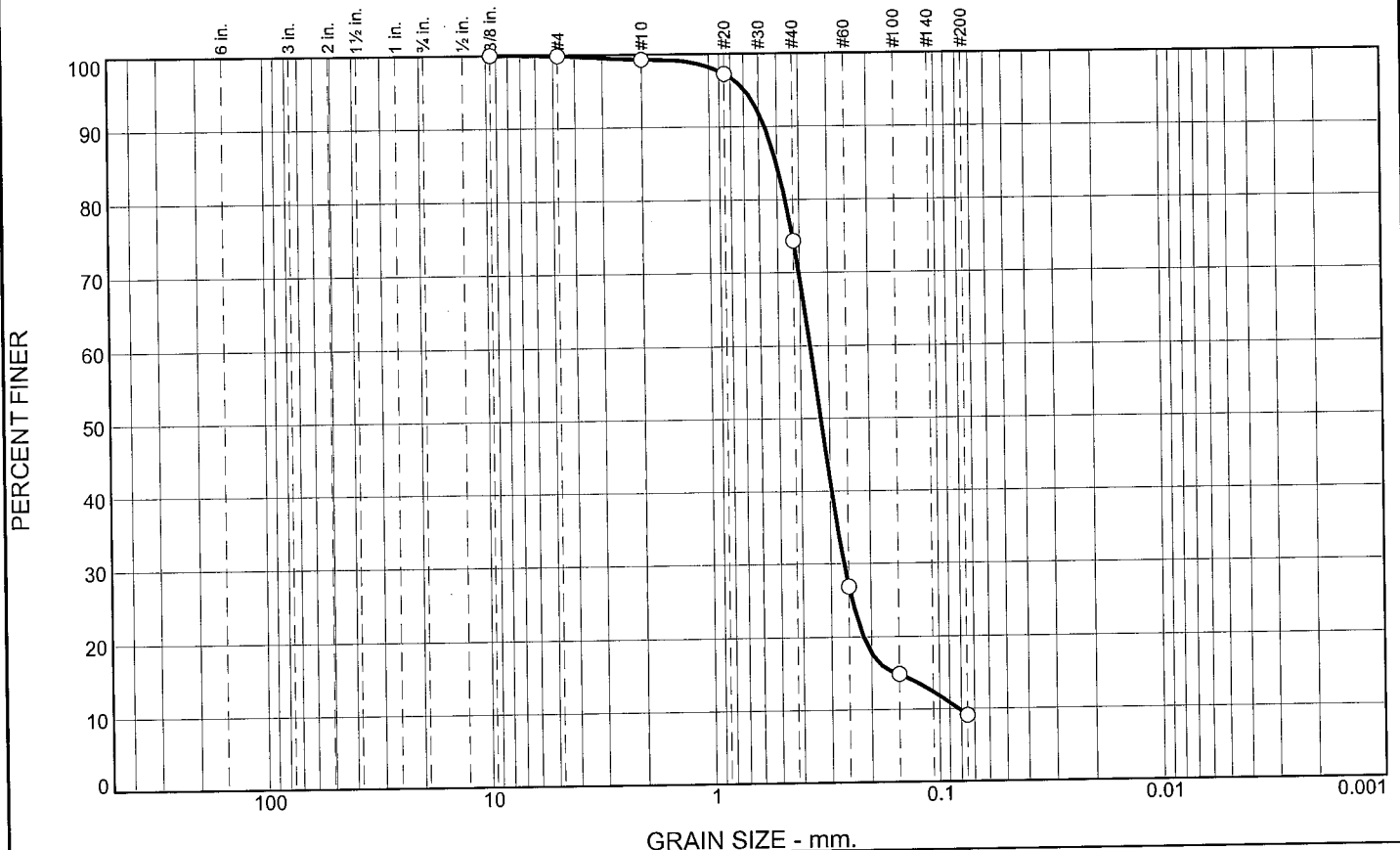
Tested By: G.Fancher

Checked By: R.Byrd

# Boring Designation BI-PB-126-10

DRILLING LOG		DIVISION South Atlantic		INSTALLATION Mobile District		SHEET 1 OF 1 SHEETS	
1. PROJECT MsCIP Barrier Island Restoration Petit Bois Pass- AL East				9. SIZE AND TYPE OF BIT N/A			
2. BORING DESIGNATION BI-PB-126-10		LOCATION COORDINATES E = 1,154,059 N = 254,378		10. COORDINATE SYSTEM/DATUM State Plane, MSE (U.S. Ft.)		HORIZONTAL NAD83 VERTICAL NAVD88	
3. DRILLING AGENCY Corps of Engineers - CESAM		CONTRACTOR FILE NO.		11. MANUFACTURER'S DESIGNATION OF DRILL Vibracore		<input type="checkbox"/> AUTO HAMMER <input type="checkbox"/> MANUAL HAMMER	
4. NAME OF DRILLER Construction Solutions International, Inc.				12. TOTAL SAMPLES 3		DISTURBED 3 UNDISTURBED (UD) 0	
5. DIRECTION OF BORING <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED		DEG. FROM VERTICAL		13. TOTAL NUMBER CORE BOXES			
		BEARING		14. WATER DEPTH 36 Ft.			
6. THICKNESS OF OVERBURDEN N/A				15. DATE BORING 08-07-10		STARTED 08-07-10 COMPLETED 08-07-10	
7. DEPTH DRILLED INTO ROCK N/A				16. ELEVATION TOP OF BORING -36.1 Ft.			
8. TOTAL DEPTH OF BORING 14.7 Ft.				17. TOTAL RECOVERY FOR BORING 100%			
				18. SIGNATURE AND TITLE OF INSPECTOR Chris Gillentine, Geologist			
ELEV.	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS	SAMPLE	LABORATORY RESULTS		
-36.1	0.0						
			SAND, poorly-graded, mostly fine to medium-grained sand-sized quartz, trace shell fragments, trace silt, lt. gray (SP)	A	Classification: SP-SM Color: 2.5Y 5/2-grayish brown D50: 0.3272 mm % Fines: 9.1		
				B	Classification: SP-SM Color: 2.5Y 5/1-gray D50: 0.3205 mm % Fines: 6.2		
				C	Classification: SP-SM Color: 2.5Y 5/1-gray D50: 0.3173 mm % Fines: 11		
-50.8	14.7						
			NOTES: 1. Soils are field visually classified in accordance with the Unified Soils Classification System. 2. NS = Sample not submitted for laboratory analysis from this interval. 3. Seafloor elevation determined from 2010 USACE survey.				

# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.1	0.6	25.0	65.2	9.1	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
.375	100.0		
#4	99.9		
#10	99.3		
#20	97.2		
#40	74.3		
#60	26.9		
#100	14.9		
#200	9.1		

\* (no specification provided)

**Material Description**  
SAND, (SP-SM), medium to fine grained

**Atterberg Limits**  
 PL=                      LL=                      PI=

**Coefficients**  
 D<sub>90</sub>= 0.5662      D<sub>85</sub>= 0.5029      D<sub>60</sub>= 0.3621  
 D<sub>50</sub>= 0.3272      D<sub>30</sub>= 0.2617      D<sub>15</sub>= 0.1538  
 D<sub>10</sub>= 0.0822      C<sub>u</sub>= 4.41              C<sub>c</sub>= 2.30

**Classification**  
 USCS= SP-SM                      AASHTO=

**Remarks**  
 CADD CODE = CH10D965

Location: USACE Sample # BI-PB-126-10A  
 Sample Number: TE Lab ID: 4622.41

Depth: 0.0 - 5.0 (ft.)

Date: 8/15/10

**Thompson Engineering**

**Mobile, Alabama**

Client: US Army Corps of Engineers

Project: Contract No. W91278-10-D-0026 - Task 03  
 Mississippi Barrier Island Restoration Project

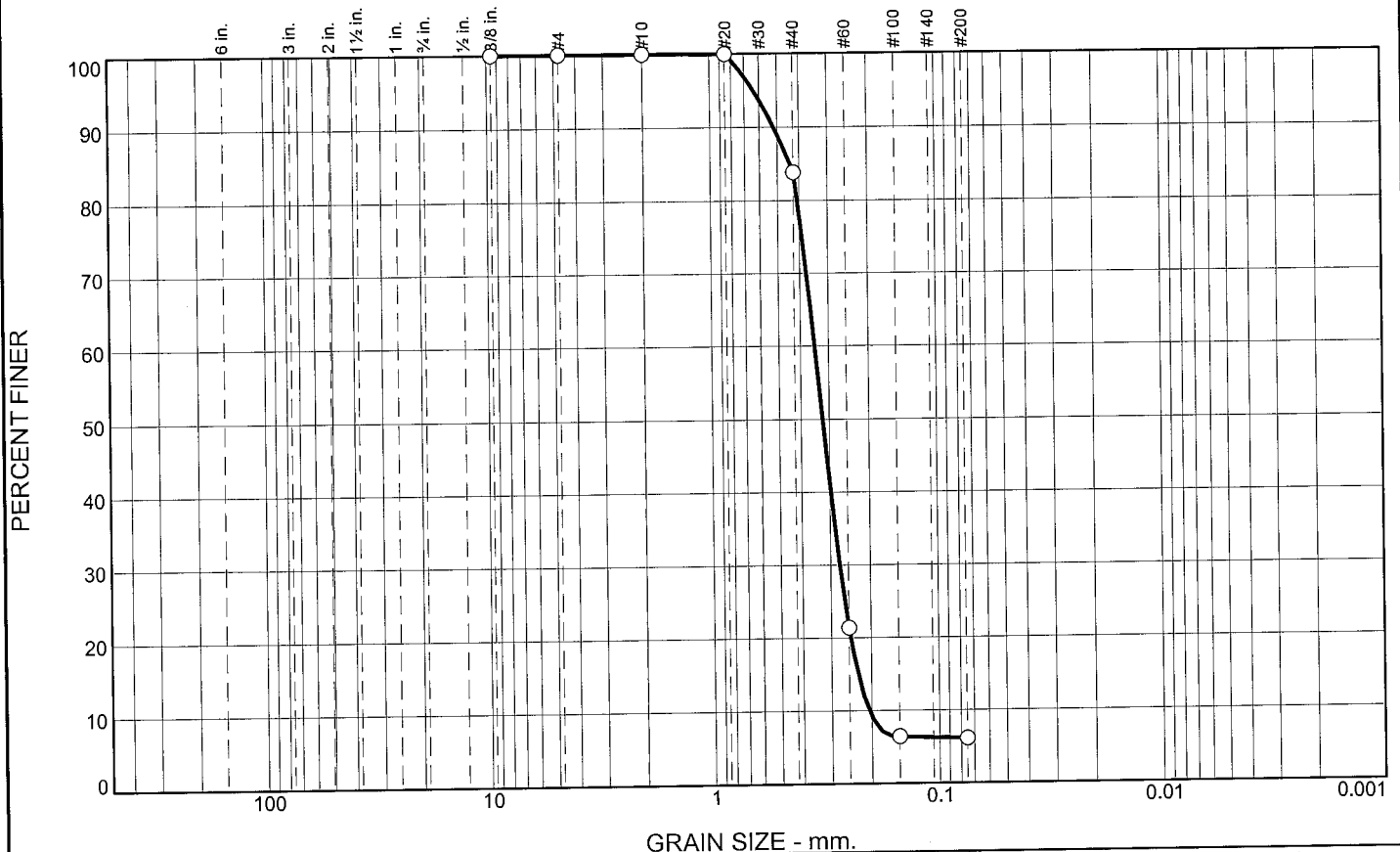
Project No: 10-2123-0009

Report No.

Tested By: G.Fancher

Checked By: R.Byrd

# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.0	0.0	16.1	77.7	6.2	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
.375	100.0		
#4	100.0		
#10	100.0		
#20	99.9		
#40	83.9		
#60	21.4		
#100	6.4		
#200	6.2		

\* (no specification provided)

**Material Description**  
SAND, (SP-SM), medium to fine grained

**Atterberg Limits**  
PL=      LL=      PI=

**Coefficients**  
D<sub>90</sub>= 0.5195      D<sub>85</sub>= 0.4399      D<sub>60</sub>= 0.3458  
D<sub>50</sub>= 0.3205      D<sub>30</sub>= 0.2727      D<sub>15</sub>= 0.2289  
D<sub>10</sub>= 0.2051      C<sub>u</sub>= 1.69      C<sub>c</sub>= 1.05

**Classification**  
USCS= SP-SM      AASHTO=

**Remarks**  
CADD CODE = CH10D965

Location: USACE Sample # BI-PB-126-10B  
Sample Number: TE Lab ID: 4622.42

Depth: 5.0 - 10.0 (ft.)

Date: 8/15/10

**Thompson Engineering**  
**Mobile, Alabama**

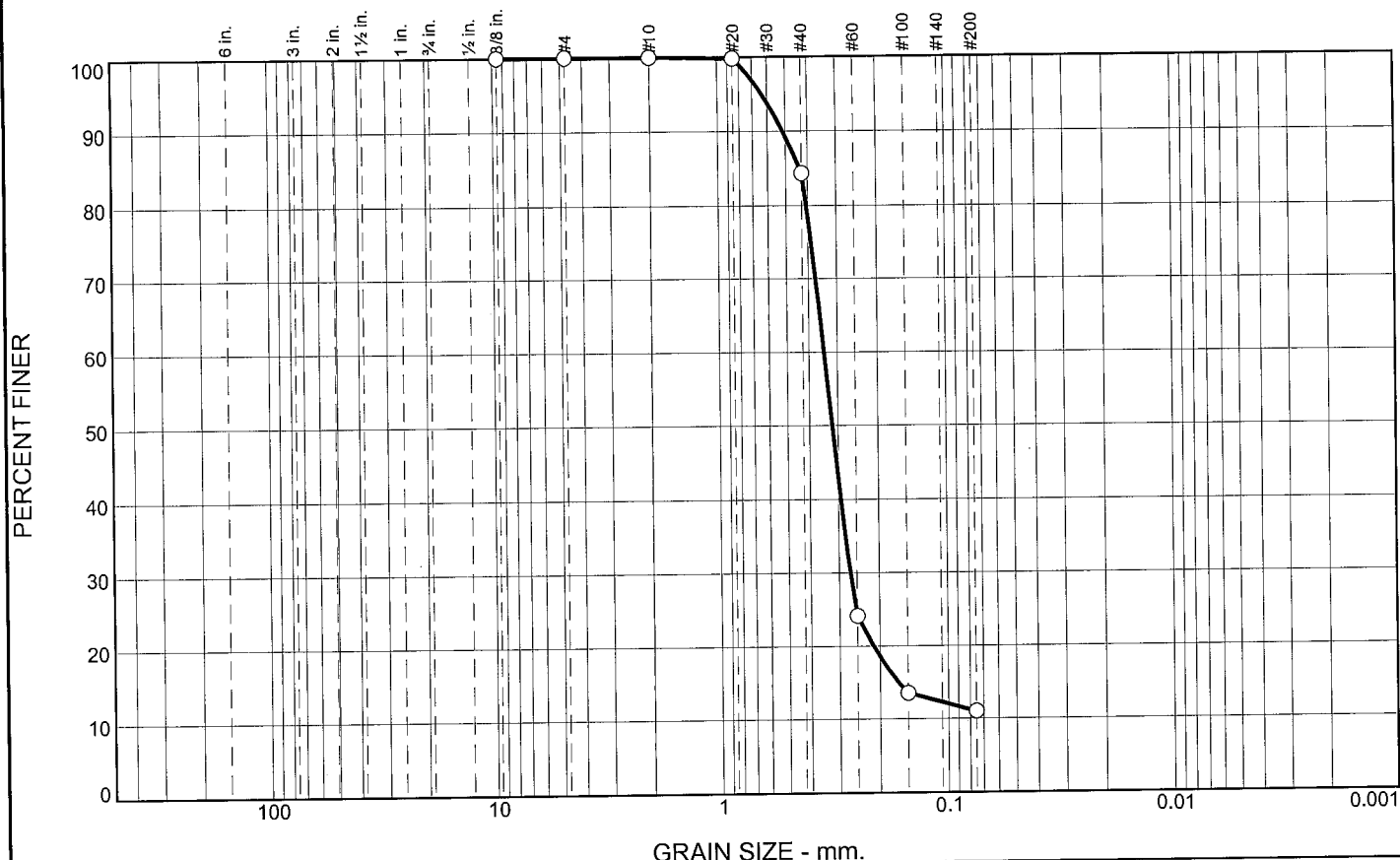
Client: US Army Corps of Engineers  
Project: Contract No. W91278-10-D-0026 - Task 03  
Mississippi Barrier Island Restoration Project  
Project No: 10-2123-0009

Report No.

Tested By: G.Fancher

Checked By: R.Byrd

# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.0	0.0	15.6	73.4	11.0	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
.375	100.0		
#4	100.0		
#10	100.0		
#20	99.8		
#40	84.4		
#60	24.1		
#100	13.5		
#200	11.0		

\* (no specification provided)

**Material Description**  
SAND, (SP-SM), medium to fine grained

**Atterberg Limits**  
 PL=                      LL=                      PI=  
**Coefficients**  
 D<sub>90</sub>= 0.5148      D<sub>85</sub>= 0.4335      D<sub>60</sub>= 0.3431  
 D<sub>50</sub>= 0.3173      D<sub>30</sub>= 0.2671      D<sub>15</sub>= 0.1659  
 D<sub>10</sub>=                      C<sub>u</sub>=                      C<sub>c</sub>=

**Classification**  
 USCS= SP-SM                      AASHTO=

**Remarks**  
 CADD CODE = CH10D965

Location: USACE Sample # BI-PB-126-10C  
 Sample Number: TE Lab ID: 4622.43

Depth: 10.0 - 14.7 (ft.)

Date: 8/15/10

**Thompson Engineering**  
**Mobile, Alabama**

Client: US Army Corps of Engineers  
 Project: Contract No. W91278-10-D-0026 - Task 03  
 Mississippi Barrier Island Restoration Project  
 Project No: 10-2123-0009                      Report No.

Tested By: G.Fancher

Checked By: R.Byrd



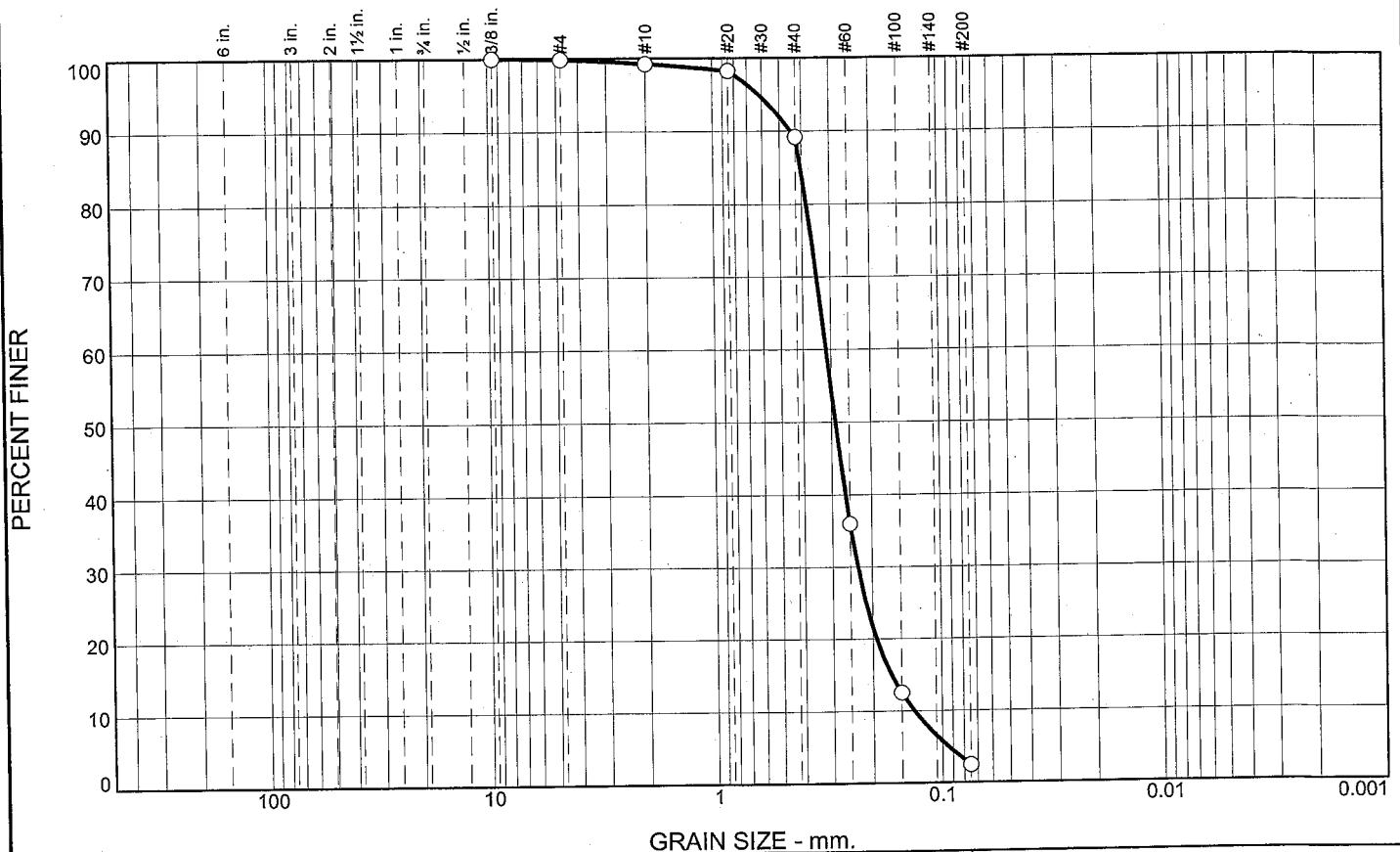
# Boring Designation BI-PB-127-10

DRILLING LOG		DIVISION South Atlantic		INSTALLATION Mobile District		SHEET 1 OF 1 SHEETS	
1. PROJECT MsCIP Barrier Island Restoration Petit Bois Pass- AL West				9. SIZE AND TYPE OF BIT N/A			
2. BORING DESIGNATION BI-PB-127-10		LOCATION COORDINATES E = 1,134,883 N = 254,377		10. COORDINATE SYSTEM/DATUM State Plane, MSE (U.S. Ft.)		HORIZONTAL NAD83 VERTICAL NAVD88	
3. DRILLING AGENCY Corps of Engineers - CESAM		CONTRACTOR FILE NO.		11. MANUFACTURER'S DESIGNATION OF DRILL Vibracore		<input type="checkbox"/> AUTO HAMMER <input type="checkbox"/> MANUAL HAMMER	
4. NAME OF DRILLER Construction Solutions International, Inc.				12. TOTAL SAMPLES 2		DISTURBED 2 UNDISTURBED (UD) 0	
5. DIRECTION OF BORING <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED		DEG. FROM VERTICAL		13. TOTAL NUMBER CORE BOXES			
		BEARING		14. WATER DEPTH 29 Ft.			
6. THICKNESS OF OVERBURDEN N/A				15. DATE BORING 08-09-10		STARTED 08-09-10 COMPLETED 08-09-10	
7. DEPTH DRILLED INTO ROCK N/A				16. ELEVATION TOP OF BORING -29.5 Ft.			
8. TOTAL DEPTH OF BORING 15.5 Ft.				17. TOTAL RECOVERY FOR BORING 100%			
				18. SIGNATURE AND TITLE OF INSPECTOR Chris Gillentine, Geologist			

ELEV.	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS	SAMPLE	LABORATORY RESULTS
-29.5	0.0				
-34.5	5.0		SAND, poorly-graded, mostly fine to medium-grained sand-sized quartz, trace shell fragments, dark brown (SP)	A	Classification: SP Color: 10YR 4/2-dark grayish brown D50: 0.2883 mm % Fines: 2.4
-39.5	10.0		SAND, poorly-graded, mostly fine to medium-grained sand-sized quartz, lt. gray (SP)	B	Classification: SP Color: 2.5Y 5/2-grayish brown D50: 0.2755 mm % Fines: 4.5
-45.0	15.5		CLAY, fat, dark gray (CH)	NS	
			NOTES: 1. Soils are field visually classified in accordance with the Unified Soils Classification System. 2. NS = Sample not submitted for laboratory analysis from this interval. 3. Seafloor elevation determined from 2010 USACE survey.		

# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.2	0.6	10.0	86.8	2.4	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
.375	100.0		
#4	99.8		
#10	99.2		
#20	98.2		
#40	89.2		
#60	36.0		
#100	12.5		
#200	2.4		

\* (no specification provided)

## Material Description

SAND, (SP), medium to fine grained

## Atterberg Limits

PL=

LL=

PI=

## Coefficients

D<sub>90</sub>= 0.4451

D<sub>85</sub>= 0.4029

D<sub>60</sub>= 0.3157

D<sub>50</sub>= 0.2883

D<sub>30</sub>= 0.2314

D<sub>15</sub>= 0.1661

D<sub>10</sub>= 0.1322

C<sub>u</sub>= 2.39

C<sub>c</sub>= 1.28

## Classification

USCS= SP

AASHTO=

## Remarks

CADD CODE = CH10D965

Location: USACE Sample # BI-PB-127-10A  
Sample Number: TE Lab ID: 4636.05

Depth: 0.0 - 5.0 (ft.)

Date: 8/17/10

**Thompson Engineering**  
**Mobile, Alabama**

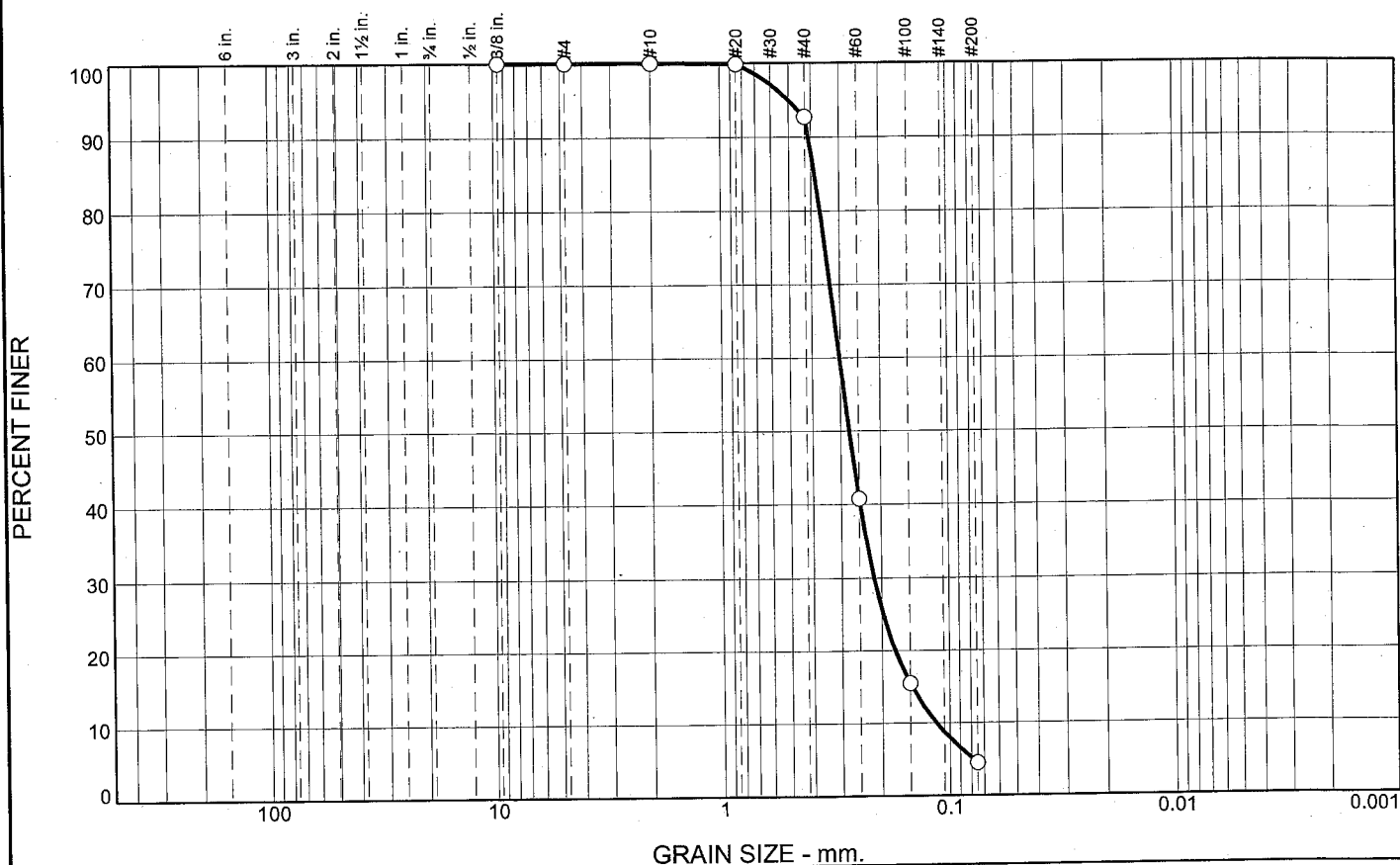
Client: US Army Corps of Engineers  
Project: Contract No. W91278-10-D-0026 - Task 03  
Mississippi Barrier Island Restoration Project  
Project No: 10-2123-0009

Report #:

Tested By: R.Martin

Checked By: R.Byrd  
L-378

# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.0	0.0	7.2	88.3	4.5	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
.375	100.0		
#4	100.0		
#10	100.0		
#20	99.9		
#40	92.8		
#60	40.8		
#100	15.5		
#200	4.5		

\* (no specification provided)

## Material Description

SAND, (SP), fine grained

## Atterberg Limits

PL=

LL=

PI=

## Coefficients

D<sub>90</sub>= 0.4091

D<sub>85</sub>= 0.3854

D<sub>60</sub>= 0.3027

D<sub>50</sub>= 0.2755

D<sub>30</sub>= 0.2158

D<sub>15</sub>= 0.1470

D<sub>10</sub>= 0.1149

C<sub>u</sub>= 2.64

C<sub>c</sub>= 1.34

## Classification

USCS= SP

AASHTO=

## Remarks

CADD CODE = CH10D965

Location: USACE Sample # BI-PB-127-10B  
Sample Number: TE Lab ID: 4636.06

Depth: 5.0 - 10.0 (ft.)

Date: 8/17/10

**Thompson Engineering**

**Mobile, Alabama**

Client: US Army Corps of Engineers

Project: Contract No. W91278-10-D-0026 - Task 03  
Mississippi Barrier Island Restoration Project

Project No: 10-2123-0009

Report #:

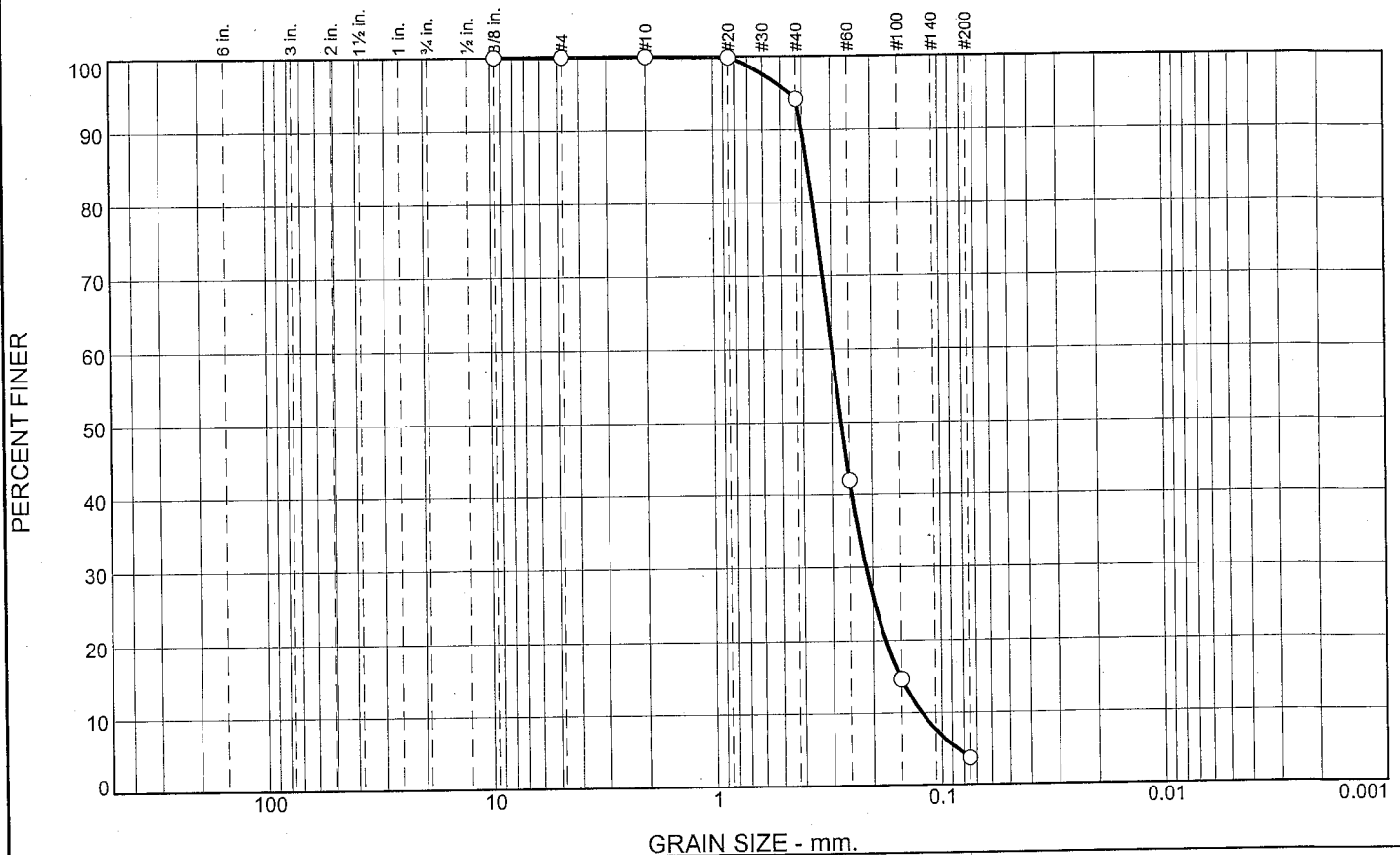
Tested By: R.Martin

Checked By: R.Byrd

# Boring Designation BI-PB-128-10

DRILLING LOG		DIVISION South Atlantic		INSTALLATION Mobile District		SHEET 1 OF 1 SHEETS	
1. PROJECT MsCIP Barrier Island Restoration Petit Bois Pass- AL West				9. SIZE AND TYPE OF BIT N/A			
2. BORING DESIGNATION BI-PB-128-10		LOCATION COORDINATES E = 1,136,273 N = 254,404		10. COORDINATE SYSTEM/DATUM State Plane, MSE (U.S. Ft.)		HORIZONTAL NAD83 VERTICAL NAVD88	
3. DRILLING AGENCY Corps of Engineers - CESAM		CONTRACTOR FILE NO.		11. MANUFACTURER'S DESIGNATION OF DRILL Vibrocure		<input type="checkbox"/> AUTO HAMMER <input type="checkbox"/> MANUAL HAMMER	
4. NAME OF DRILLER Construction Solutions International, Inc.				12. TOTAL SAMPLES 1		DISTURBED 1 UNDISTURBED (UD) 0	
5. DIRECTION OF BORING <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED		DEG. FROM VERTICAL		13. TOTAL NUMBER CORE BOXES			
		BEARING		14. WATER DEPTH 30 Ft.			
6. THICKNESS OF OVERBURDEN N/A				15. DATE BORING 08-09-10		STARTED 08-09-10 COMPLETED 08-09-10	
7. DEPTH DRILLED INTO ROCK N/A				16. ELEVATION TOP OF BORING -29.7 Ft.			
8. TOTAL DEPTH OF BORING 14.0 Ft.				17. TOTAL RECOVERY FOR BORING 100%			
				18. SIGNATURE AND TITLE OF INSPECTOR Chris Gillentine, Geologist			
ELEV.	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS	SAMPLE	LABORATORY RESULTS		
-29.7	0.0						
-30.7	1.0		SAND, silty (SM)	NS			
			SAND, poorly-graded (SP)	A	Classification: SP Color: 2.5Y 5/2-grayish brown D50: 0.2718 mm % Fines: 3.8		
-36.2	6.5						
			CLAY, fat, dark gray (CH)	NS			
-43.7	14.0						
			NOTES: 1. Soils are field visually classified in accordance with the Unified Soils Classification System. 2. NS = Sample not submitted for laboratory analysis from this interval. 3. Seafloor elevation determined from 2010 USACE survey.				

# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.0	0.0	5.8	90.4	3.8	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
.375	100.0		
#4	100.0		
#10	100.0		
#20	99.9		
#40	94.2		
#60	41.9		
#100	14.7		
#200	3.8		

\* (no specification provided)

## Material Description

SAND, (SP), fine grained, with trace clay pockets

## Atterberg Limits

PL=

LL=

PI=

## Coefficients

D<sub>90</sub>= 0.4014

D<sub>85</sub>= 0.3789

D<sub>60</sub>= 0.2986

D<sub>50</sub>= 0.2718

D<sub>30</sub>= 0.2138

D<sub>15</sub>= 0.1515

D<sub>10</sub>= 0.1224

C<sub>u</sub>= 2.44

C<sub>c</sub>= 1.25

## Classification

USCS= SP

AASHTO=

## Remarks

CADD CODE = CH10D965

Location: USACE Sample # BI-PB-128-10A  
Sample Number: TE Lab ID: 4636.04

Depth: 1.0 - 6.0 (ft.)

Date: 8/17/10

**Thompson Engineering**

**Mobile, Alabama**

Client: US Army Corps of Engineers

Project: Contract No. W91278-10-D-0026 - Task 03  
Mississippi Barrier Island Restoration Project

Project No: 10-2123-0009

Report No.

Tested By: R.Martin

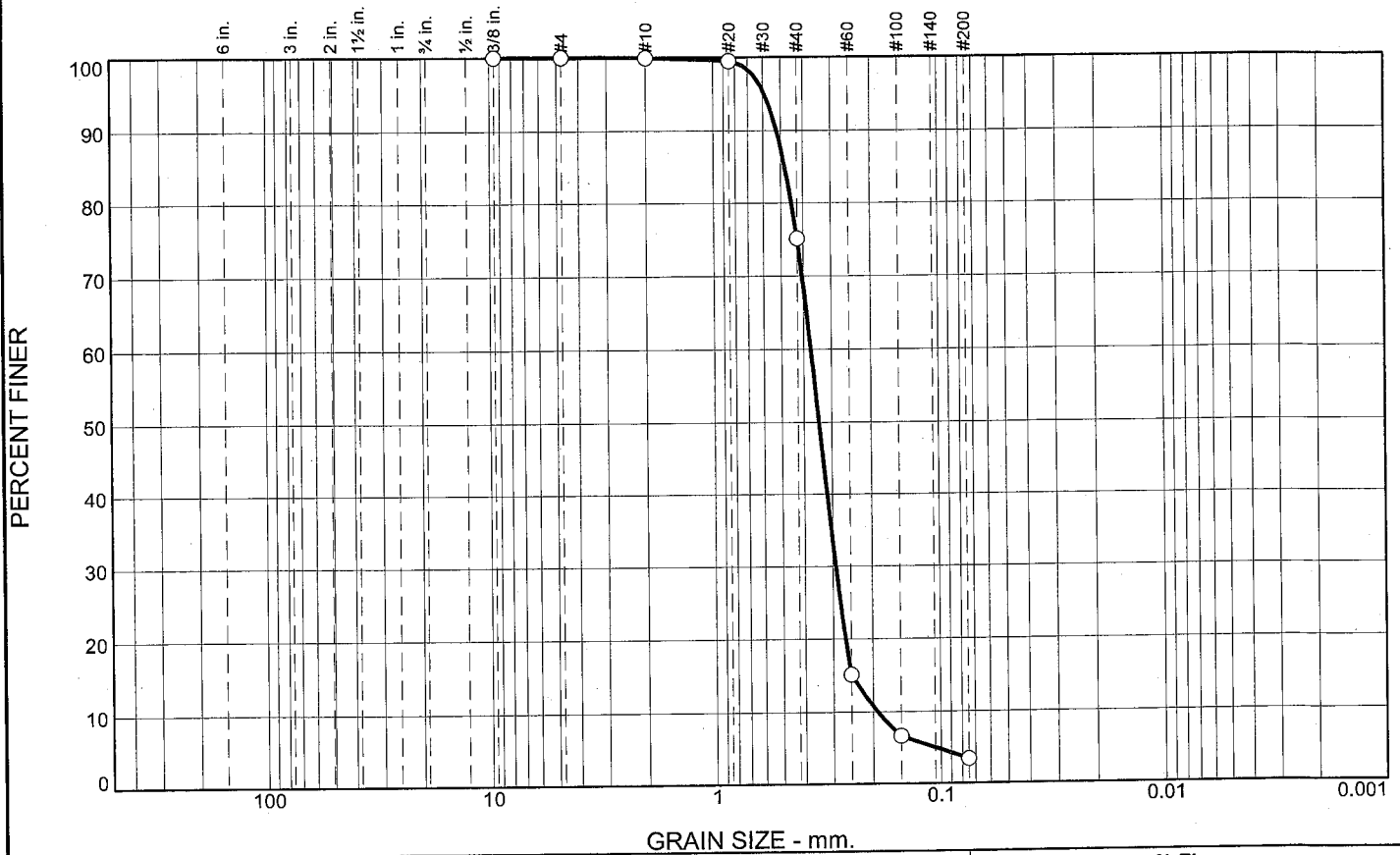
Checked By: R.Byrd

L-381

# Boring Designation BI-PB-129-10

DRILLING LOG		DIVISION South Atlantic		INSTALLATION Mobile District		SHEET 1 OF 1 SHEETS	
1. PROJECT MsCIP Barrier Island Restoration Petit Bois Pass- AL West				9. SIZE AND TYPE OF BIT N/A			
2. BORING DESIGNATION BI-PB-129-10		LOCATION COORDINATES E = 1,136,280 N = 252,797		10. COORDINATE SYSTEM/DATUM State Plane, MSE (U.S. Ft.)		HORIZONTAL NAD83 VERTICAL NAVD88	
3. DRILLING AGENCY Corps of Engineers - CESAM		CONTRACTOR FILE NO.		11. MANUFACTURER'S DESIGNATION OF DRILL Vibrocure		<input type="checkbox"/> AUTO HAMMER <input type="checkbox"/> MANUAL HAMMER	
4. NAME OF DRILLER Construction Solutions International, Inc.				12. TOTAL SAMPLES 2		DISTURBED 2 UNDISTURBED (UD) 0	
5. DIRECTION OF BORING <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED		DEG. FROM VERTICAL		13. TOTAL NUMBER CORE BOXES			
		BEARING		14. WATER DEPTH 33 Ft.			
6. THICKNESS OF OVERBURDEN N/A				15. DATE BORING 08-09-10		STARTED 08-09-10 COMPLETED 08-09-10	
7. DEPTH DRILLED INTO ROCK N/A				16. ELEVATION TOP OF BORING -33.6 Ft.			
8. TOTAL DEPTH OF BORING 17.8 Ft.				17. TOTAL RECOVERY FOR BORING 100%			
				18. SIGNATURE AND TITLE OF INSPECTOR Chris Gillentine, Geologist			
ELEV.	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS	SAMPLE	LABORATORY RESULTS		
-33.6	0.0						
-34.6	1.0		SILT, inorganic-H, trace fine-grained sand-sized quartz, dark gray (MH)	NS			
			SAND, poorly-graded, lt. tan/gray (SP)	A	Classification: SP Color: 2.5Y 6/2-light brownish gray D50: 0.343 mm % Fines: 3.4		
				B	Classification: SP Color: 2.5Y 6/2-light brownish gray D50: 0.2957 mm % Fines: 4.7		
-41.6	8.0		CLAY, fat, dark gray (CH)	NS			
-51.4	17.8						
			NOTES: 1. Soils are field visually classified in accordance with the Unified Soils Classification System. 2. NS = Sample not submitted for laboratory analysis from this interval. 3. Seafloor elevation determined from 2010 USACE survey.				

# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.0	0.1	24.8	71.7	3.4	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
.375	100.0		
#4	100.0		
#10	99.9		
#20	99.5		
#40	75.1		
#60	15.1		
#100	6.6		
#200	3.4		

\* (no specification provided)

## Material Description

SAND, (SP), medium to fine grained

## Atterberg Limits

PL=

LL=

PI=

## Coefficients

D<sub>90</sub>= 0.5212

D<sub>85</sub>= 0.4791

D<sub>60</sub>= 0.3713

D<sub>50</sub>= 0.3430

D<sub>30</sub>= 0.2918

D<sub>15</sub>= 0.2487

D<sub>10</sub>= 0.1910

C<sub>u</sub>= 1.94

C<sub>c</sub>= 1.20

## Classification

USCS= SP

AASHTO=

## Remarks

CADD CODE = CH10D965

Location: USACE Sample # BI-PB-129-10A  
Sample Number: TE Lab ID: 4636.02

Depth: 1.0 - 4.0 (ft.)

Date: 8/17/10

**Thompson Engineering**

**Mobile, Alabama**

Client: US Army Corps of Engineers

Project: Contract No. W91278-10-D-0026 - Task 03  
Mississippi Barrier Island Restoration Project

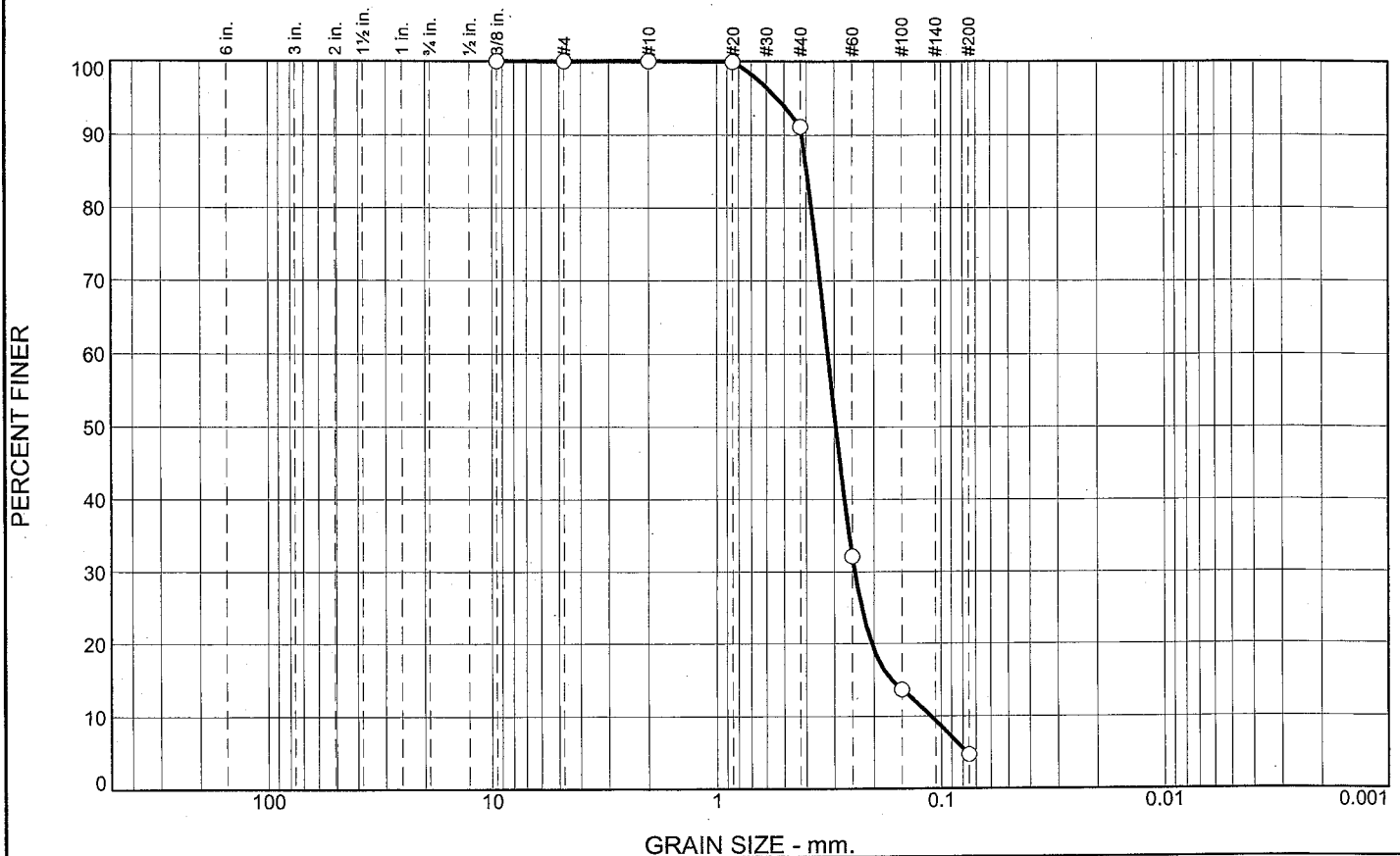
Project No: 10-2123-0009

Report #:

Tested By: R.Martin

Checked By: R.Byrd  
L-383

# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.0	0.0	8.8	86.5	4.7	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
.375	100.0		
#4	100.0		
#10	100.0		
#20	99.9		
#40	91.2		
#60	32.2		
#100	13.7		
#200	4.7		

\* (no specification provided)

## Material Description

SAND, (SP), fine grained

## Atterberg Limits

PL=

LL=

PI=

## Coefficients

D<sub>90</sub>= 0.4190

D<sub>85</sub>= 0.3970

D<sub>60</sub>= 0.3206

D<sub>50</sub>= 0.2957

D<sub>30</sub>= 0.2435

D<sub>15</sub>= 0.1664

D<sub>10</sub>= 0.1111

C<sub>u</sub>= 2.89

C<sub>c</sub>= 1.66

## Classification

USCS= SP

AASHTO=

## Remarks

CADD CODE = CH10D965

Location: USACE Sample # BI-PB-129-10B  
Sample Number: TE Lab ID: 4636.03

Depth: 4.0 - 8.0 (ft.)

Date: 8/17/10

**Thompson Engineering**  
**Mobile, Alabama**

Client: US Army Corps of Engineers  
Project: Contract No. W91278-10-D-0026 - Task 03  
Mississippi Barrier Island Restoration Project  
Project No: 10-2123-0009  
Report #:

Tested By: G.Fancher

Checked By: R.Byrd  
L-384



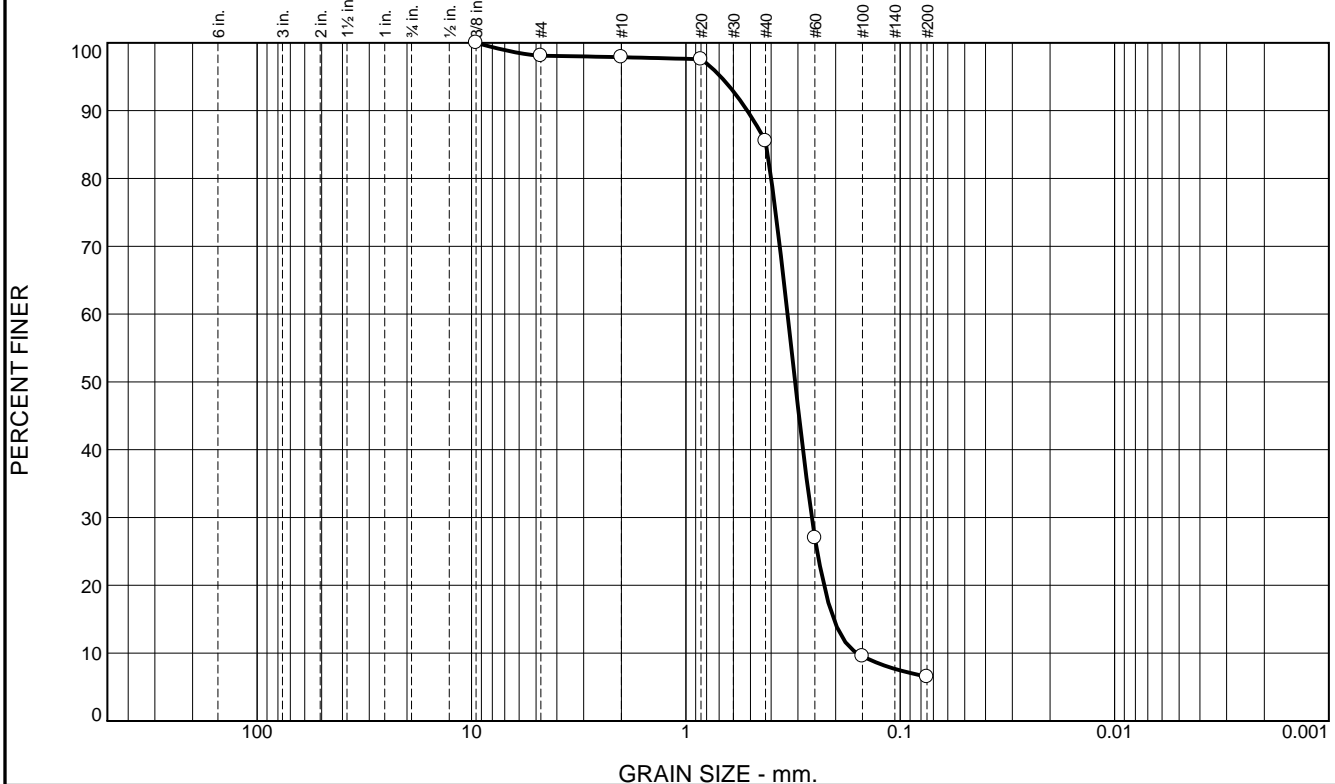
# Boring Designation BI-PB-130-10

DRILLING LOG		DIVISION South Atlantic		INSTALLATION Mobile District		SHEET 1 OF 1 SHEETS	
1. PROJECT MsCIP Barrier Island Restoration Petit Bois Pass- AL West				9. SIZE AND TYPE OF BIT N/A			
2. BORING DESIGNATION BI-PB-130-10		LOCATION COORDINATES E = 1,136,276 N = 251,346		10. COORDINATE SYSTEM/DATUM State Plane, MSE (U.S. Ft.)		HORIZONTAL NAD83	
3. DRILLING AGENCY Corps of Engineers - CESAM		CONTRACTOR FILE NO.		11. MANUFACTURER'S DESIGNATION OF DRILL Vibracore		<input type="checkbox"/> AUTO HAMMER <input type="checkbox"/> MANUAL HAMMER	
4. NAME OF DRILLER Construction Solutions International, Inc.				12. TOTAL SAMPLES 0			
5. DIRECTION OF BORING <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED				13. TOTAL NUMBER CORE BOXES			
6. THICKNESS OF OVERBURDEN N/A				14. WATER DEPTH 36 Ft.			
7. DEPTH DRILLED INTO ROCK N/A				15. DATE BORING 08-09-10			
8. TOTAL DEPTH OF BORING 16.9 Ft.				16. ELEVATION TOP OF BORING -34.7 Ft.			
				17. TOTAL RECOVERY FOR BORING 100%			
				18. SIGNATURE AND TITLE OF INSPECTOR Chris Gillentine, Geologist			
ELEV.	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS	SAMPLE	LABORATORY RESULTS		
-34.7	0.0		CLAY, fat, dark gray (CH)				
				NS			
-51.6	16.9		NOTES: 1. Soils are field visually classified in accordance with the Unified Soils Classification System. 2. NS = Sample not submitted for laboratory analysis from this interval. 3. Seafloor elevation calculated using sampling vessel's fathometer water depth reading and applying NOAA tidal gauge data conversion factor.				

# Boring Designation BI-PB-131-11

DRILLING LOG		DIVISION South Atlantic		INSTALLATION Mobile District		SHEET 1 OF 1 SHEETS	
1. PROJECT MsCIP Barrier Island Restoration Petit Bois Pass- AL West				9. SIZE AND TYPE OF BIT N/A			
2. BORING DESIGNATION BI-PB-131-11		LOCATION COORDINATES E = 1,131,148 N = 253,747		10. COORDINATE SYSTEM/DATUM State Plane, MSE (U.S. Ft.)		HORIZONTAL NAD83 VERTICAL NAVD88	
3. DRILLING AGENCY Corps of Engineers - CESAM		CONTRACTOR FILE NO.		11. MANUFACTURER'S DESIGNATION OF DRILL Vibracore		<input type="checkbox"/> AUTO HAMMER <input type="checkbox"/> MANUAL HAMMER	
4. NAME OF DRILLER Construction Solutions International, Inc.				12. TOTAL SAMPLES 2		DISTURBED 0 UNDISTURBED (UD)	
5. DIRECTION OF BORING <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED		DEG. FROM VERTICAL		13. TOTAL NUMBER CORE BOXES			
		BEARING		14. WATER DEPTH 28.5 Ft.			
6. THICKNESS OF OVERBURDEN N/A				15. DATE BORING 06-30-11		STARTED 06-30-11 COMPLETED 06-30-11	
7. DEPTH DRILLED INTO ROCK N/A				16. ELEVATION TOP OF BORING -26.8 Ft.			
8. TOTAL DEPTH OF BORING 14.3 Ft.				17. TOTAL RECOVERY FOR BORING 100%			
				18. SIGNATURE AND TITLE OF INSPECTOR Michele Johnson, Geologist			
ELEV.	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS	SAMPLE	LABORATORY RESULTS		
-26.8	0.0						
			SAND, poorly-graded, trace shell fragments, lt. gray (SP)	A	Classification: SP-SM Color: 5Y 7/1-light gray D50: 0.3095 mm % Fines: 6.5		
-30.1	3.3						
			SAND, poorly-graded with silt, trace shell fragments, gray (SP-SM)	B	Classification: SP-SM Color: 2.5Y 6/2-light brownish gray D50: 0.2957 mm % Fines: 7.2		
				NS			
-41.1	14.3						
			NOTES: 1. Soils are field visually classified in accordance with the Unified Soils Classification System. 2. NS = Sample not submitted for laboratory analysis from this interval. 3. Seafloor elevation determined from 2010 USACE survey.				

# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	1.9	0.2	12.4	79.0	6.5	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
.375	100.0		
#4	98.1		
#10	97.9		
#20	97.6		
#40	85.5		
#60	27.0		
#100	9.5		
#200	6.5		

\* (no specification provided)

## Material Description

Slightly silty SAND (SP-SM), medium to fine grained

## Atterberg Limits

PL= LL= PI=

## Coefficients

D<sub>90</sub>= 0.5168 D<sub>85</sub>= 0.4223 D<sub>60</sub>= 0.3356  
D<sub>50</sub>= 0.3095 D<sub>30</sub>= 0.2586 D<sub>15</sub>= 0.2042  
D<sub>10</sub>= 0.1590 C<sub>u</sub>= 2.11 C<sub>c</sub>= 1.25

## Classification

USCS= SP-SM AASHTO=

## Remarks

Location: USACE Sample # BI-PB-131A-11  
Sample Number: TE Lab ID: 5054.106

Depth: 0.0 - 3.3 (ft)

Date: 7/18/11

**Thompson Engineering**

**Mobile, Alabama**

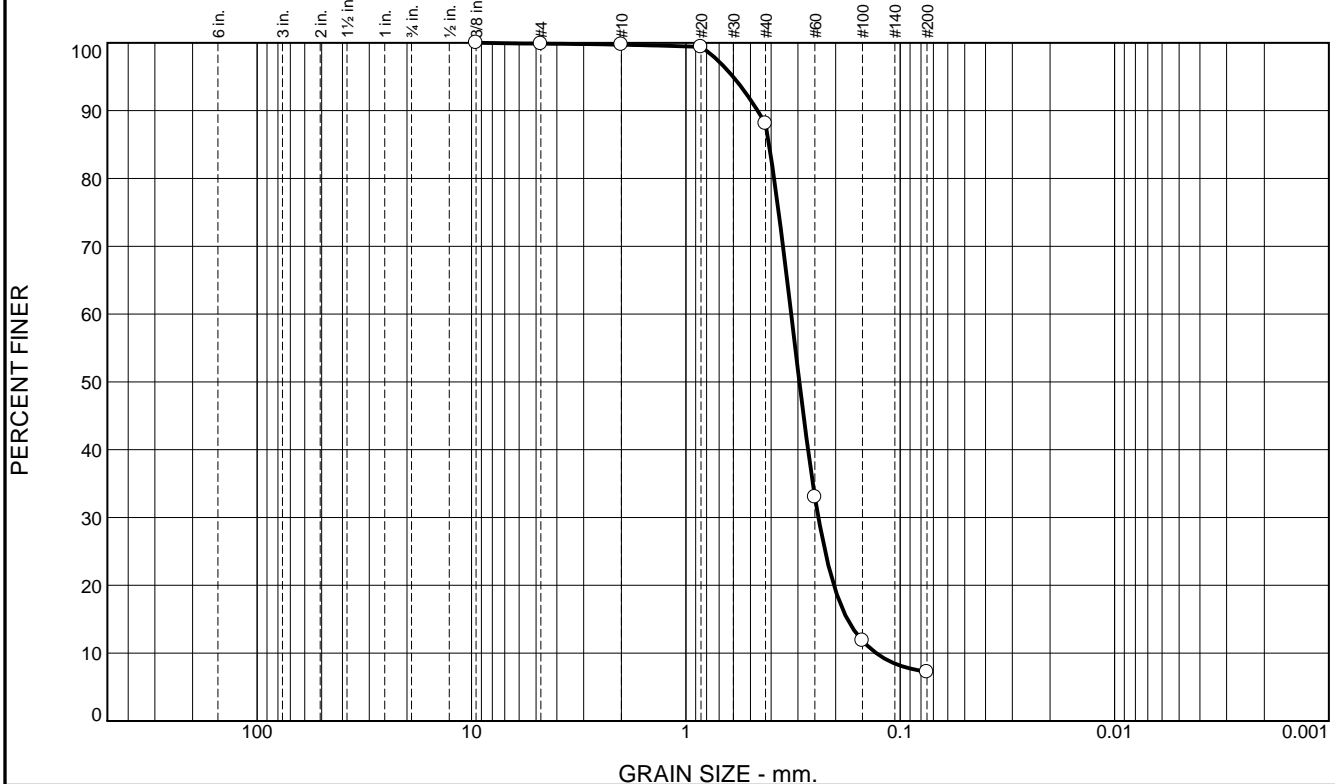
**Client:** US Army Corps of Engineers

**Project:** Contract No. W91278-10-D-0026 - Task 009  
Mississippi Barrier Island Restoration Project

**Project No:** 11-2116-0057

**Figure**

# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.1	0.2	11.6	80.9	7.2	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
.375	100.0		
#4	99.9		
#10	99.7		
#20	99.4		
#40	88.1		
#60	33.0		
#100	11.8		
#200	7.2		

\* (no specification provided)

## Material Description

Slightly silty SAND (SP-SM), medium to fine grained

## Atterberg Limits

PL=

LL=

PI=

## Coefficients

D<sub>90</sub>= 0.4625

D<sub>85</sub>= 0.4092

D<sub>60</sub>= 0.3227

D<sub>50</sub>= 0.2957

D<sub>30</sub>= 0.2409

D<sub>15</sub>= 0.1764

D<sub>10</sub>= 0.1294

C<sub>u</sub>= 2.49

C<sub>c</sub>= 1.39

## Classification

USCS= SP-SM

AASHTO=

## Remarks

Location: USACE Sample # BI-PB-131B-11  
Sample Number: TE Lab ID: 5054.107

Depth: 3.3 - 8.3 (ft)

Date: 7/18/11

**Thompson Engineering**

**Mobile, Alabama**

Client: US Army Corps of Engineers

Project: Contract No. W91278-10-D-0026 - Task 009  
Mississippi Barrier Island Restoration Project

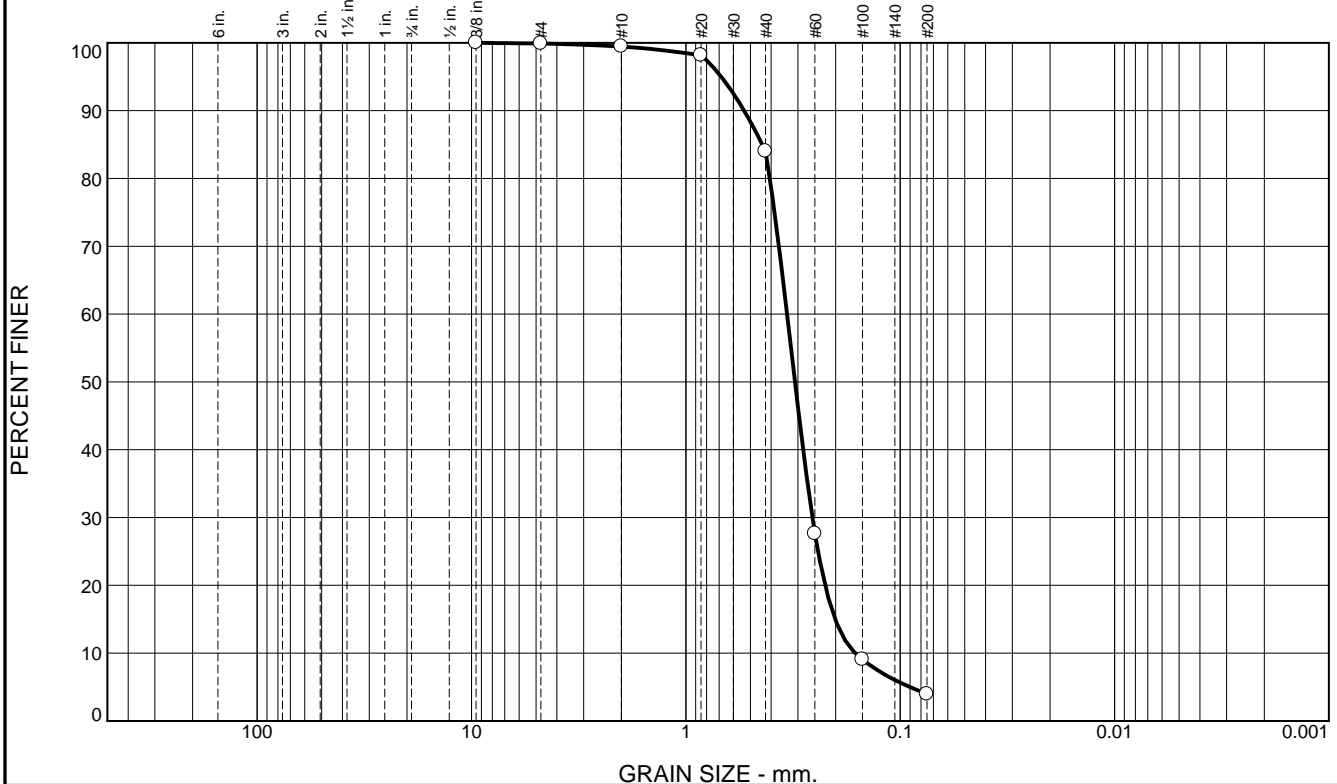
Project No: 11-2116-0057

Figure

# Boring Designation BI-PB-132-11

DRILLING LOG		DIVISION South Atlantic		INSTALLATION Mobile District		SHEET 1 OF 1 SHEETS	
1. PROJECT MsCIP Barrier Island Restoration Petit Bois Pass- AL West				9. SIZE AND TYPE OF BIT N/A			
2. BORING DESIGNATION BI-PB-132-11		LOCATION COORDINATES E = 1,131,712 N = 252,560		10. COORDINATE SYSTEM/DATUM State Plane, MSE (U.S. Ft.)		HORIZONTAL NAD83 VERTICAL NAVD88	
3. DRILLING AGENCY Corps of Engineers - CESAM		CONTRACTOR FILE NO.		11. MANUFACTURER'S DESIGNATION OF DRILL Vibrocure		<input type="checkbox"/> AUTO HAMMER <input type="checkbox"/> MANUAL HAMMER	
4. NAME OF DRILLER Construction Solutions International, Inc.				12. TOTAL SAMPLES 3		DISTURBED 0 UNDISTURBED (UD) 0	
5. DIRECTION OF BORING <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED		DEG. FROM VERTICAL		13. TOTAL NUMBER CORE BOXES			
		BEARING		14. WATER DEPTH 33 Ft.			
6. THICKNESS OF OVERBURDEN N/A				15. DATE BORING 06-30-11		STARTED 06-30-11 COMPLETED 06-30-11	
7. DEPTH DRILLED INTO ROCK N/A				16. ELEVATION TOP OF BORING -31.6 Ft.			
8. TOTAL DEPTH OF BORING 18.0 Ft.				17. TOTAL RECOVERY FOR BORING 100%			
				18. SIGNATURE AND TITLE OF INSPECTOR Michele Johnson, Geologist			
ELEV.	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS	SAMPLE	LABORATORY RESULTS		
-31.6	0.0						
			SAND, poorly-graded, mostly medium-grained sand-sized quartz, gray (SP)	A	Classification: SP Color: 2.5Y 6/2-light brownish gray D50: 0.3099 mm % Fines: 4		
			At El. -36.6 Ft., trace shell fragments, lt. gray	B	Classification: SP-SM Color: 2.5Y 6/2-light brownish gray D50: 0.3122 mm % Fines: 5		
				C	Classification: SP Color: 2.5Y 7/1-light gray D50: 0.3152 mm % Fines: 2.5		
				NS			
-49.6	18.0						
			NOTES: 1. Soils are field visually classified in accordance with the Unified Soils Classification System. 2. NS = Sample not submitted for laboratory analysis from this interval. 3. Seafloor elevation determined from 2010 USACE survey.				

# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.1	0.4	15.5	80.0	4.0	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
.375	100.0		
#4	99.9		
#10	99.5		
#20	98.2		
#40	84.0		
#60	27.6		
#100	9.1		
#200	4.0		

\* (no specification provided)

## Material Description

Slightly silty SAND (SP-SM), medium to fine grained

## Atterberg Limits

PL= LL= PI=

## Coefficients

D<sub>90</sub>= 0.5347 D<sub>85</sub>= 0.4401 D<sub>60</sub>= 0.3373  
D<sub>50</sub>= 0.3099 D<sub>30</sub>= 0.2569 D<sub>15</sub>= 0.2011  
D<sub>10</sub>= 0.1622 C<sub>u</sub>= 2.08 C<sub>c</sub>= 1.21

## Classification

USCS= SP-SM AASHTO=

## Remarks

Location: USACE Sample # BI-PB-132A-11  
Sample Number: TE Lab ID: 5054.103

Depth: 0.0 - 5.0 (ft)

Date: 7/18/11

**Thompson Engineering**

**Mobile, Alabama**

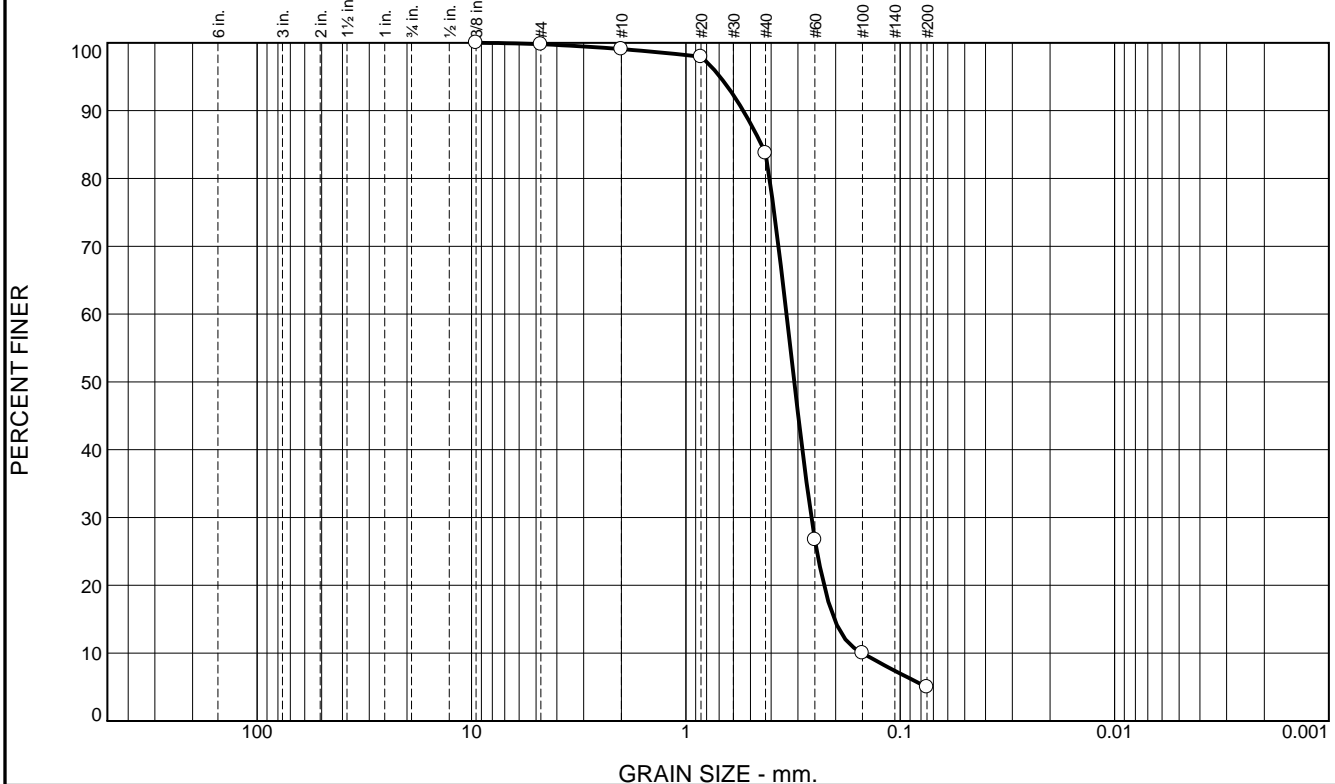
**Client:** US Army Corps of Engineers

**Project:** Contract No. W91278-10-D-0026 - Task 009  
Mississippi Barrier Island Restoration Project

**Project No:** 11-2116-0057

**Figure**

# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.2	0.7	15.3	78.8	5.0	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
.375	100.0		
#4	99.8		
#10	99.1		
#20	97.9		
#40	83.8		
#60	26.7		
#100	10.0		
#200	5.0		

\* (no specification provided)

## Material Description

Slightly silty SAND (SP-SM), medium to fine grained

## Atterberg Limits

PL= LL= PI=

## Coefficients

D<sub>90</sub>= 0.5400 D<sub>85</sub>= 0.4440 D<sub>60</sub>= 0.3394  
D<sub>50</sub>= 0.3122 D<sub>30</sub>= 0.2597 D<sub>15</sub>= 0.2027  
D<sub>10</sub>= 0.1502 C<sub>u</sub>= 2.26 C<sub>c</sub>= 1.32

## Classification

USCS= SP-SM AASHTO=

## Remarks

Location: USACE Sample # BI-PB-132B-11  
Sample Number: TE Lab ID: 5054.104

Depth: 5.0 - 10.0 (ft)

Date: 7/18/11

**Thompson Engineering**

**Mobile, Alabama**

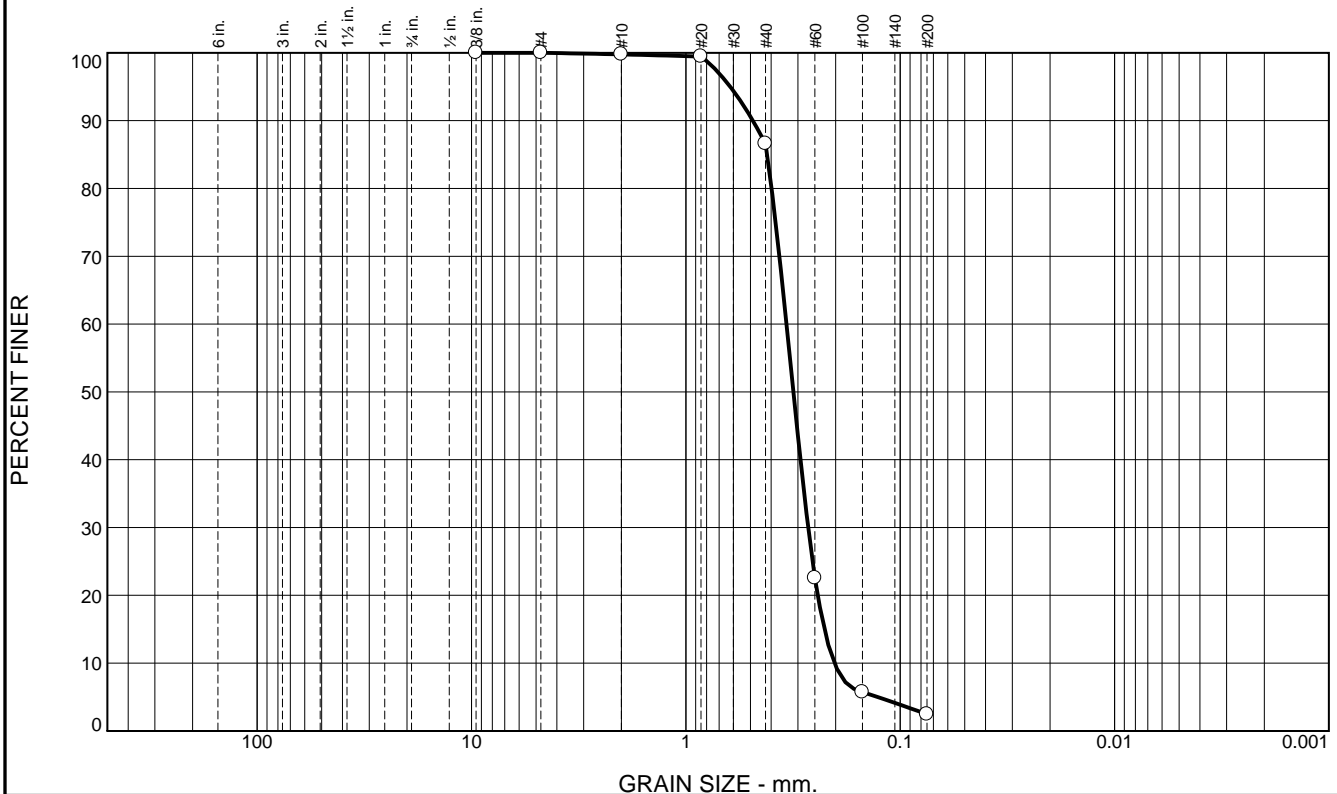
Client: US Army Corps of Engineers

Project: Contract No. W91278-10-D-0026 - Task 009  
Mississippi Barrier Island Restoration Project

Project No: 11-2116-0057

Figure

# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.0	0.2	13.2	84.1	2.5	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
.375	100.0		
#4	100.0		
#10	99.8		
#20	99.5		
#40	86.6		
#60	22.6		
#100	5.7		
#200	2.5		

\* (no specification provided)

## Material Description

SAND (SP), medium to fine grained

## Atterberg Limits

PL=

LL=

PI=

## Coefficients

D<sub>90</sub>= 0.4868

D<sub>85</sub>= 0.4179

D<sub>60</sub>= 0.3394

D<sub>50</sub>= 0.3152

D<sub>30</sub>= 0.2690

D<sub>15</sub>= 0.2258

D<sub>10</sub>= 0.2027

C<sub>u</sub>= 1.67

C<sub>c</sub>= 1.05

## Classification

USCS= SP

AASHTO=

## Remarks

Location: USACE Sample # BI-PB-132C-11  
Sample Number: TE Lab ID: 5054.105

Depth: 10.0 - 14.8 (ft)

Date: 7/18/11

**Thompson Engineering**

**Mobile, Alabama**

Client: US Army Corps of Engineers

Project: Contract No. W91278-10-D-0026 - Task 009  
Mississippi Barrier Island Restoration Project

Project No: 11-2116-0057

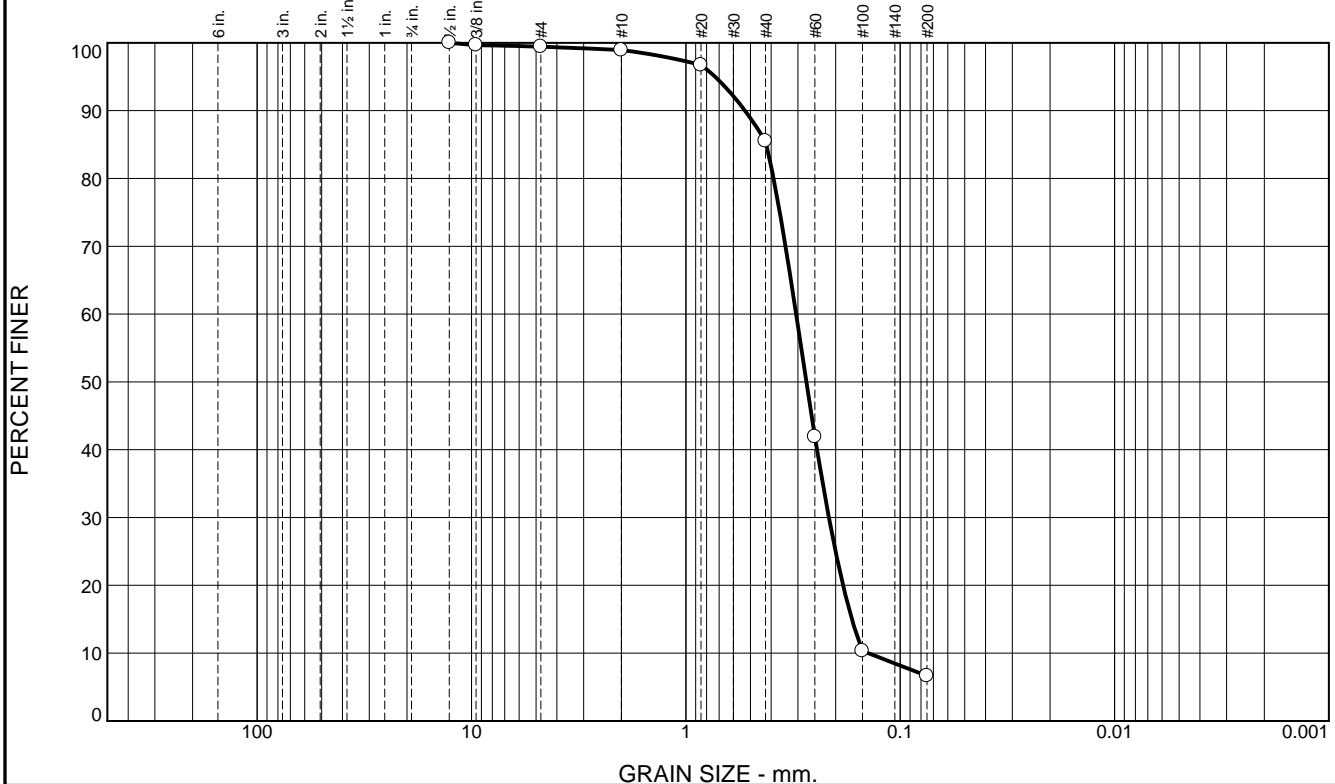
Figure



# Boring Designation BI-PB-133-11

DRILLING LOG		DIVISION South Atlantic		INSTALLATION Mobile District		SHEET 1 OF 1 SHEETS	
1. PROJECT MsCIP Barrier Island Restoration Petit Bois Pass- AL West				9. SIZE AND TYPE OF BIT N/A			
2. BORING DESIGNATION BI-PB-133-11		LOCATION COORDINATES E = 1,132,513 N = 253,727		10. COORDINATE SYSTEM/DATUM State Plane, MSE (U.S. Ft.)		HORIZONTAL NAD83	
3. DRILLING AGENCY Corps of Engineers - CESAM		CONTRACTOR FILE NO.		11. MANUFACTURER'S DESIGNATION OF DRILL Vibracore		<input type="checkbox"/> AUTO HAMMER <input type="checkbox"/> MANUAL HAMMER	
4. NAME OF DRILLER Construction Solutions International, Inc.				12. TOTAL SAMPLES		DISTURBED 3	
5. DIRECTION OF BORING <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED				13. TOTAL NUMBER CORE BOXES		UNDISTURBED (UD) 0	
6. THICKNESS OF OVERBURDEN N/A				14. WATER DEPTH		29.5 Ft.	
7. DEPTH DRILLED INTO ROCK N/A				15. DATE BORING		STARTED 06-30-11 COMPLETED 06-30-11	
8. TOTAL DEPTH OF BORING 18.4 Ft.				16. ELEVATION TOP OF BORING -28.3 Ft.		17. TOTAL RECOVERY FOR BORING 100%	
				18. SIGNATURE AND TITLE OF INSPECTOR Michele Johnson, Geologist			
ELEV.	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS	SAMPLE	LABORATORY RESULTS		
-28.3	0.0						
			SAND, poorly-graded, mostly medium-grained sand-sized quartz, trace shell fragments, From 2.3 to 5 tan to brown, gray (SP)	A	Classification: SP-SM Color: 2.5Y 7/1-light gray D50: 0.2741 mm % Fines: 6.6		
-32.3	4.0		SAND, poorly-graded, mostly medium-grained sand-sized quartz, lt. gray (SP)	B	Classification: SP Color: 2.5Y 6/2-light brownish gray D50: 0.2848 mm % Fines: 3.6		
-36.3	8.0		SAND, poorly-graded, mostly medium-grained sand-sized quartz, some sand, lt. gray (SP)	C	Classification: SP Color: 2.5Y 6/2-light brownish gray D50: 0.2854 mm % Fines: 2.8		
				NS			
-46.7	18.4						
			NOTES: 1. Soils are field visually classified in accordance with the Unified Soils Classification System. 2. NS = Sample not submitted for laboratory analysis from this interval. 3. Seafloor elevation determined from 2010 USACE survey.				

# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.6	0.5	13.4	78.9	6.6	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
.5	100.0		
.375	99.7		
#4	99.4		
#10	98.9		
#20	96.7		
#40	85.5		
#60	41.9		
#100	10.3		
#200	6.6		

\* (no specification provided)

Material Description		
Slightly silty SAND (SP-SM), medium to fine grained		
PL=	Atterberg Limits LL=	PI=
D <sub>90</sub> = 0.5301	Coefficients D <sub>85</sub> = 0.4213	D <sub>60</sub> = 0.3061
D <sub>50</sub> = 0.2741	D <sub>30</sub> = 0.2151	D <sub>15</sub> = 0.1681
D <sub>10</sub> = 0.1411	C <sub>u</sub> = 2.17	C <sub>c</sub> = 1.07
USCS= SP-SM	Classification AASHTO=	
Remarks		

Location: USACE Sample # BI-PB-133A-11  
Sample Number: TE Lab ID: 5054.108

Depth: 0.0 - 4.0 (ft)

Date: 7/18/11

**Thompson Engineering**

**Mobile, Alabama**

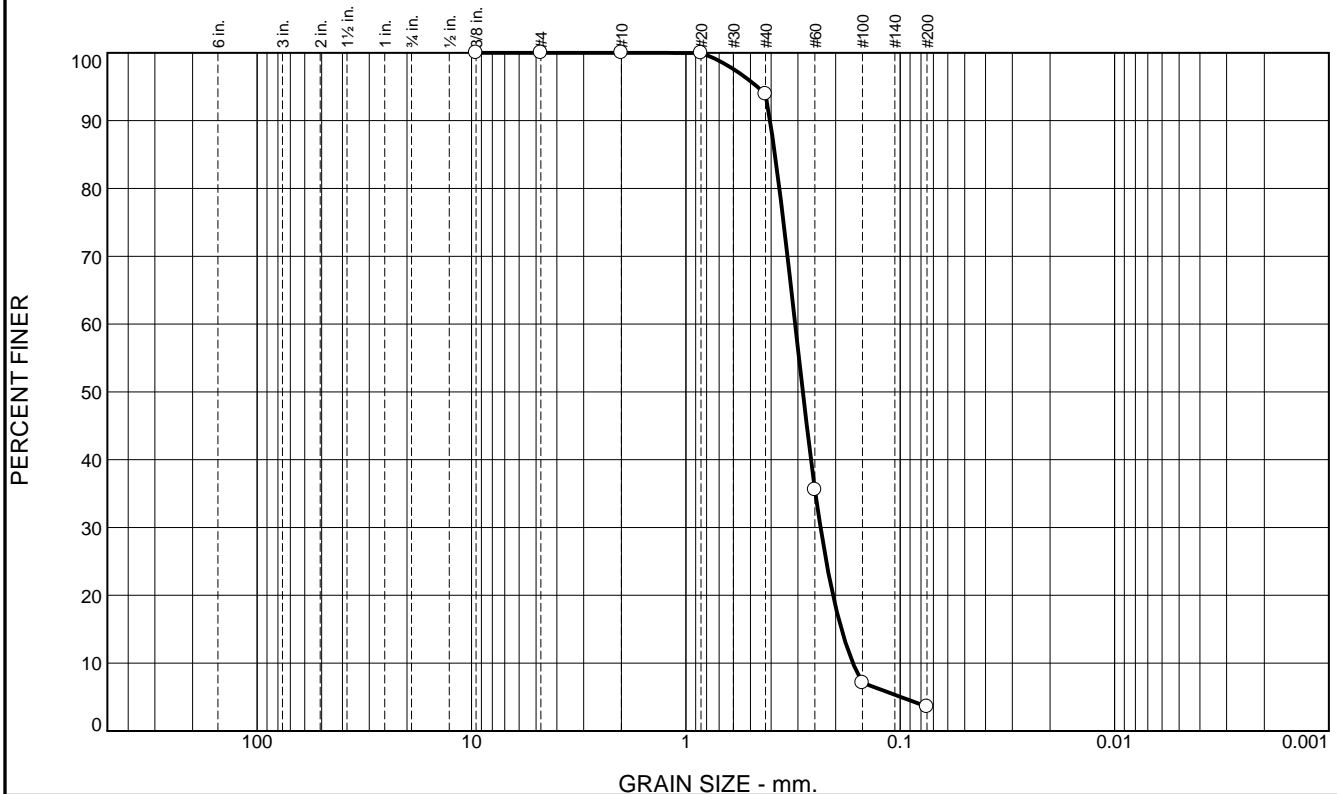
Client: US Army Corps of Engineers

Project: Contract No. W91278-10-D-0026 - Task 009  
Mississippi Barrier Island Restoration Project

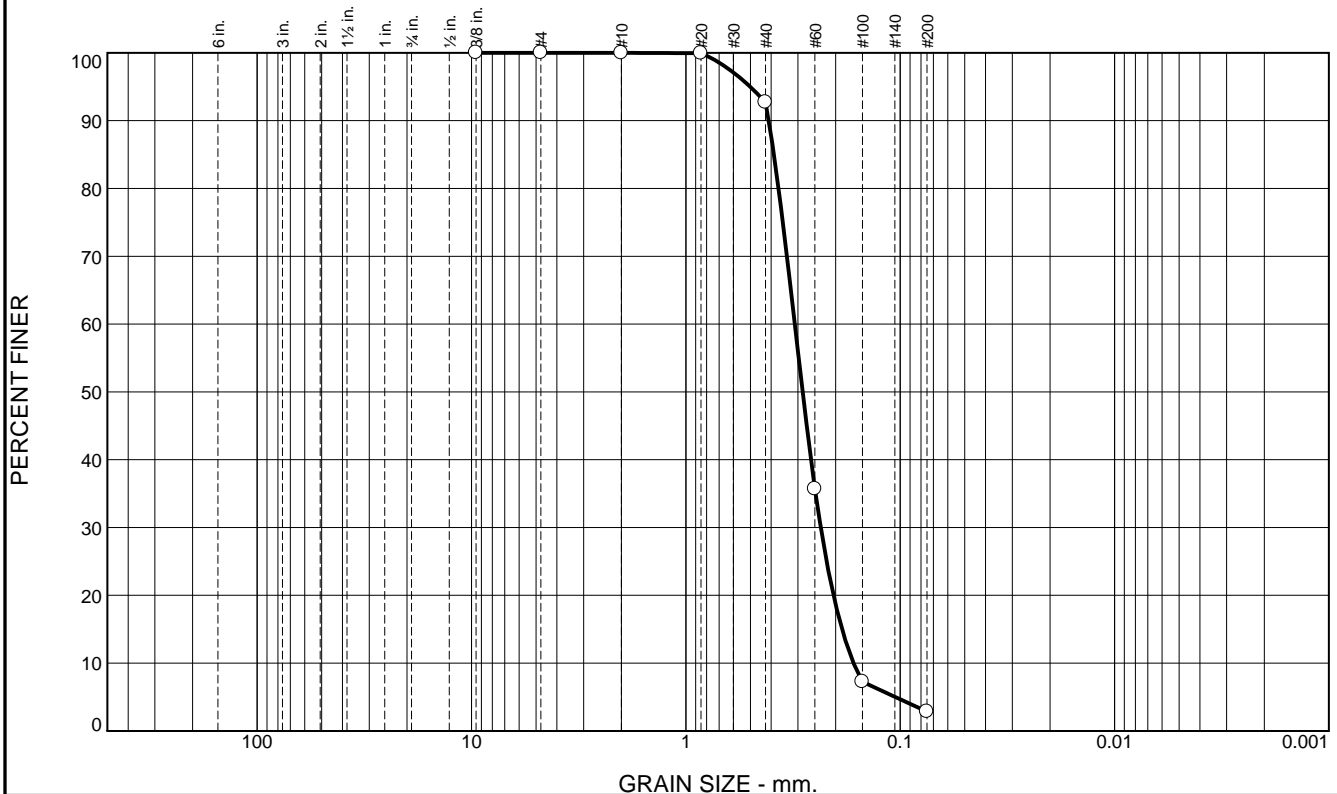
Project No: 11-2116-0057

Figure

# Particle Size Distribution Report



# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.0	0.0	7.3	89.9	2.8	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
.375	100.0		
#4	100.0		
#10	100.0		
#20	99.9		
#40	92.7		
#60	35.7		
#100	7.2		
#200	2.8		

\* (no specification provided)

Material Description		
SAND (SP), fine grained		
PL=	Atterberg Limits LL=	PI=
D <sub>90</sub> = 0.4106	Coefficients D <sub>85</sub> = 0.3883	D <sub>60</sub> = 0.3105
D <sub>50</sub> = 0.2854	D <sub>30</sub> = 0.2349	D <sub>15</sub> = 0.1868
D <sub>10</sub> = 0.1650	C <sub>u</sub> = 1.88	C <sub>c</sub> = 1.08
USCS= SP	Classification AASHTO=	
Remarks		

Location: USACE Sample # BI-PB-133C-11  
Sample Number: TE Lab ID: 5054.110

Depth: 8.0 - 13.0 (ft)

Date: 7/18/11

**Thompson Engineering**

**Mobile, Alabama**

Client: US Army Corps of Engineers

Project: Contract No. W91278-10-D-0026 - Task 009  
Mississippi Barrier Island Restoration Project

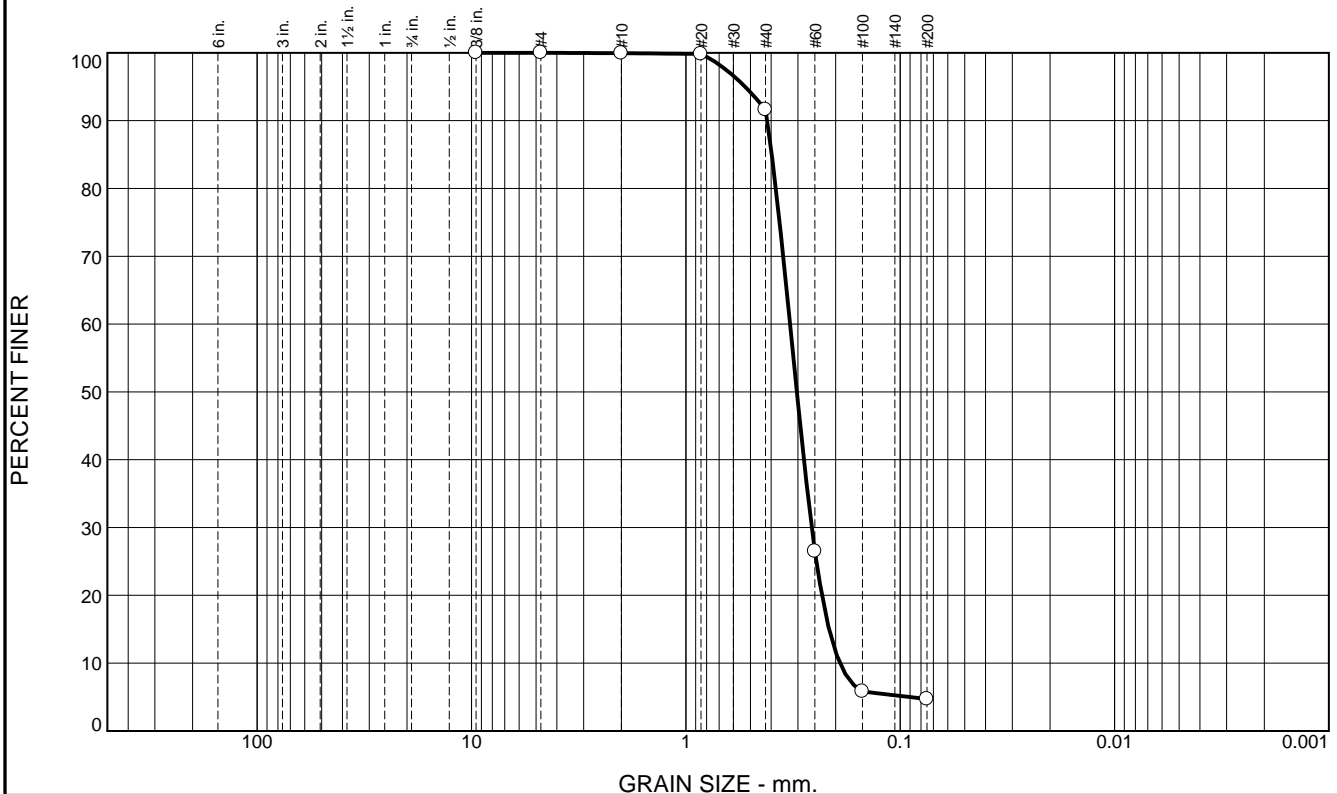
Project No: 11-2116-0057

Figure

# Boring Designation BI-PB-134-11

DRILLING LOG		DIVISION South Atlantic		INSTALLATION Mobile District		SHEET 1 OF 1 SHEETS	
1. PROJECT MsCIP Barrier Island Restoration Petit Bois Pass- AL West				9. SIZE AND TYPE OF BIT N/A			
2. BORING DESIGNATION BI-PB-134-11		LOCATION COORDINATES E = 1,135,605 N = 253,852		10. COORDINATE SYSTEM/DATUM State Plane, MSE (U.S. Ft.)		HORIZONTAL NAD83	
3. DRILLING AGENCY Corps of Engineers - CESAM		CONTRACTOR FILE NO.		11. MANUFACTURER'S DESIGNATION OF DRILL Vibrocure		<input type="checkbox"/> AUTO HAMMER <input type="checkbox"/> MANUAL HAMMER	
4. NAME OF DRILLER Construction Solutions International, Inc.				12. TOTAL SAMPLES 2		DISTURBED 0	
5. DIRECTION OF BORING <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED				13. TOTAL NUMBER CORE BOXES		14. WATER DEPTH 32.5 Ft.	
6. THICKNESS OF OVERBURDEN N/A				15. DATE BORING 06-30-11		STARTED 06-30-11	
7. DEPTH DRILLED INTO ROCK N/A				16. ELEVATION TOP OF BORING -31.0 Ft.		COMPLETED 06-30-11	
8. TOTAL DEPTH OF BORING 16.4 Ft.				17. TOTAL RECOVERY FOR BORING 100%			
				18. SIGNATURE AND TITLE OF INSPECTOR Michele Johnson, Geologist			
ELEV.	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS	SAMPLE	LABORATORY RESULTS		
-31.0	0.0						
			SAND, poorly-graded with silt, mostly fine to medium-grained sand-sized quartz, dark gray/brown (SP-SM)	A	Classification: SP Color: 2.5Y 4/2-dark grayish brown D50: 0.3037 mm % Fines: 4.7		
-36.0	5.0		SAND, poorly-graded with silt, mostly fine to medium-grained sand-sized quartz, lt. gray/brown (SP-SM)	B	Classification: SP-SM Color: 2.5Y 5/2-grayish brown D50: 0.2666 mm % Fines: 5.9		
				NS			
-47.4	16.4						
			NOTES: 1. Soils are field visually classified in accordance with the Unified Soils Classification System. 2. NS = Sample not submitted for laboratory analysis from this interval. 3. Seafloor elevation determined from 2010 USACE survey.				

# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.0	0.1	8.3	86.9	4.7	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
.375	100.0		
#4	100.0		
#10	99.9		
#20	99.8		
#40	91.6		
#60	26.5		
#100	5.8		
#200	4.7		

\* (no specification provided)

Material Description		
SAND (SP), fine grained		
PL=	Atterberg Limits LL=	PI=
D <sub>90</sub> = 0.4175	Coefficients D <sub>85</sub> = 0.3975	D <sub>60</sub> = 0.3266
D <sub>50</sub> = 0.3037	D <sub>30</sub> = 0.2587	D <sub>15</sub> = 0.2147
D <sub>10</sub> = 0.1911	C <sub>u</sub> = 1.71	C <sub>c</sub> = 1.07
USCS= SP	Classification AASHTO=	
Remarks		

Location: USACE Sample # BI-PB-134A-11  
Sample Number: TE Lab ID: 5054.111

Depth: 0.0 - 5.0 (ft)

Date: 7/18/11

**Thompson Engineering**

**Mobile, Alabama**

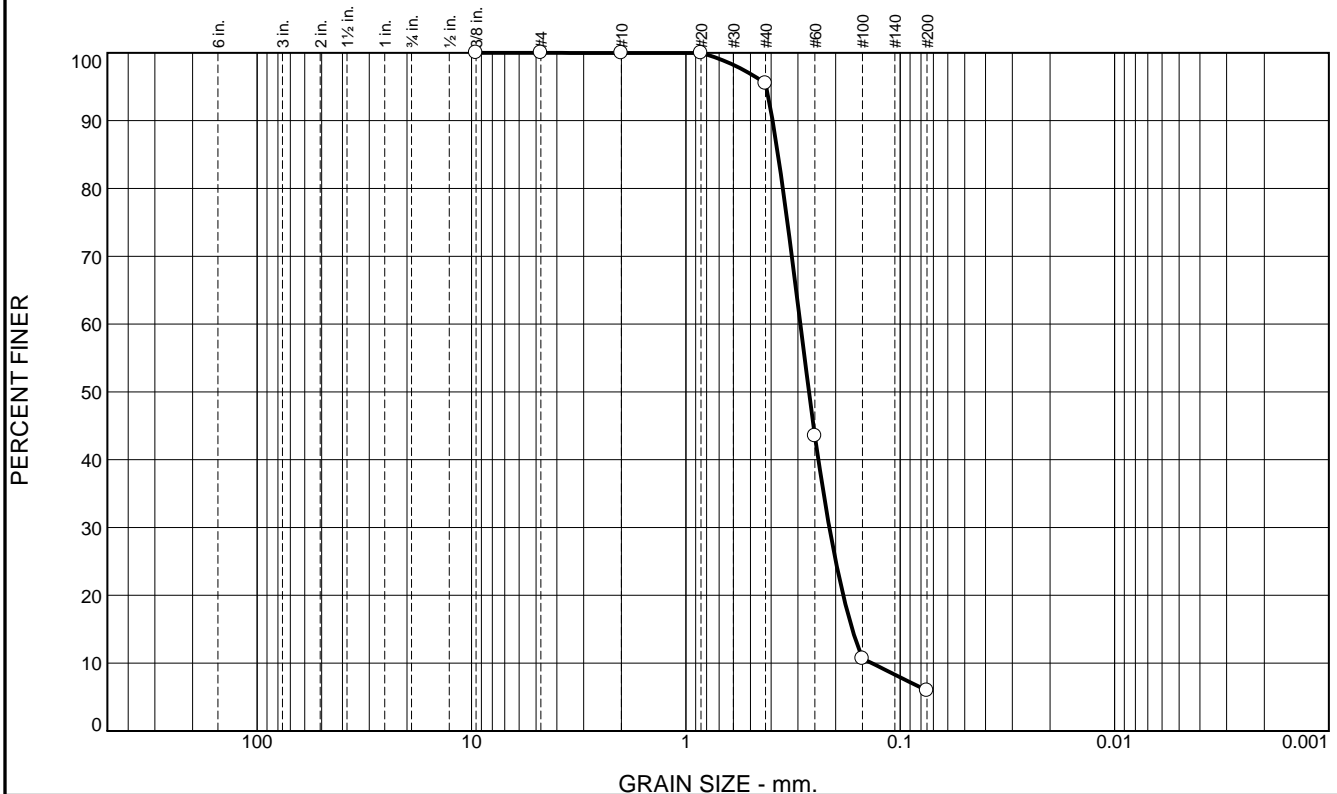
Client: US Army Corps of Engineers

Project: Contract No. W91278-10-D-0026 - Task 009  
Mississippi Barrier Island Restoration Project

Project No: 11-2116-0057

Figure

# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.0	0.0	4.5	89.6	5.9	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
.375	100.0		
#4	100.0		
#10	100.0		
#20	100.0		
#40	95.5		
#60	43.5		
#100	10.7		
#200	5.9		

\* (no specification provided)

Material Description		
Slightly silty SAND (SP-SM), fine grained		
<div> <div> <b>Atterberg Limits</b>            PL=      LL=      PI=         </div> <div> <b>Coefficients</b>            D<sub>90</sub>= 0.3938    D<sub>85</sub>= 0.3717    D<sub>60</sub>= 0.2925            D<sub>50</sub>= 0.2666    D<sub>30</sub>= 0.2140    D<sub>15</sub>= 0.1674            D<sub>10</sub>= 0.1358    C<sub>u</sub>= 2.15      C<sub>c</sub>= 1.15         </div> <div> <b>Classification</b>            USCS= SP-SM      AASHTO=         </div> <div> <b>Remarks</b> </div> </div>		

Location: USACE Sample # BI-PB-134B-11  
Sample Number: TE Lab ID: 5054.112

Depth: 5.0 - 8.0 (ft)

Date: 7/18/11

**Thompson Engineering**

**Mobile, Alabama**

**Client:** US Army Corps of Engineers

**Project:** Contract No. W91278-10-D-0026 - Task 009  
Mississippi Barrier Island Restoration Project

**Project No:** 11-2116-0057

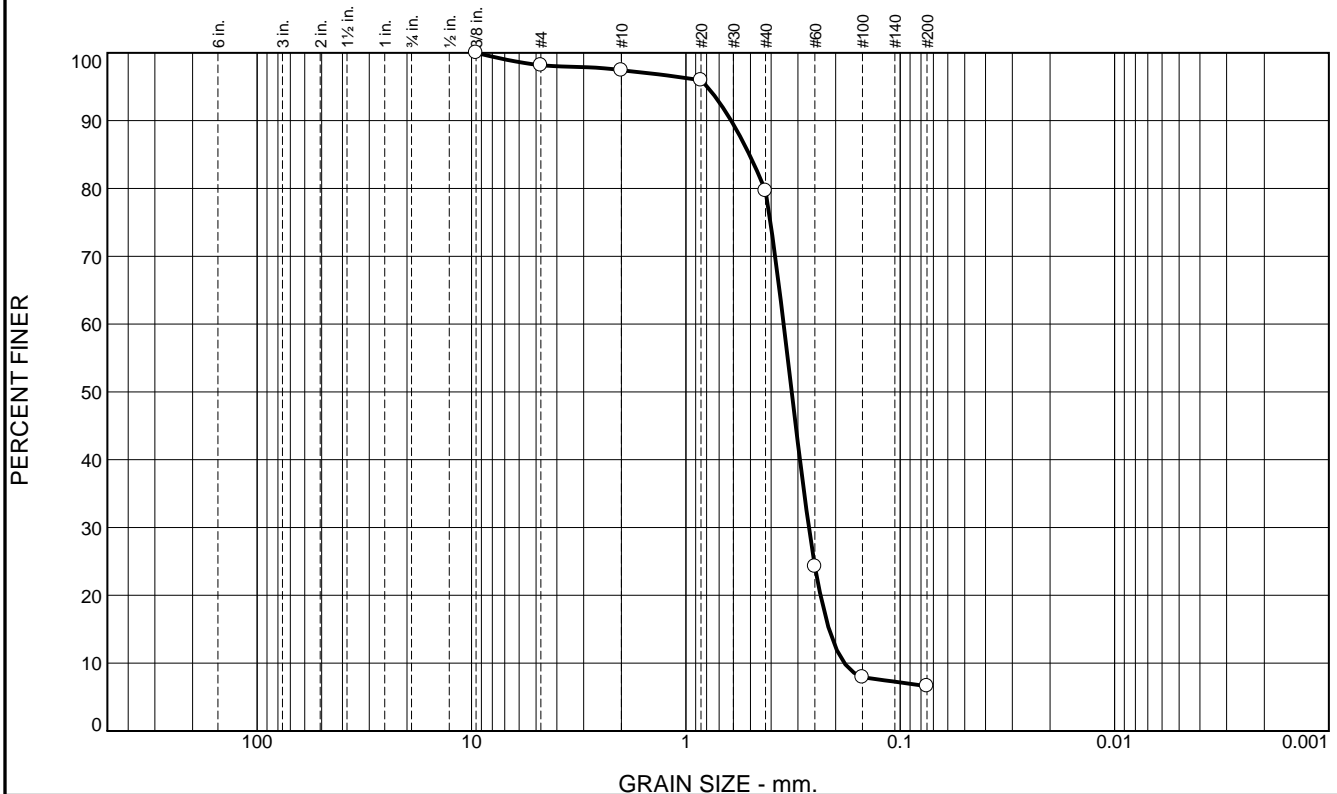
**Figure**

# Boring Designation BI-PB-135-11

DRILLING LOG		DIVISION South Atlantic		INSTALLATION Mobile District		SHEET 1 OF 1 SHEETS	
1. PROJECT MsCIP Barrier Island Restoration Petit Bois Pass- AL West				9. SIZE AND TYPE OF BIT N/A			
2. BORING DESIGNATION BI-PB-135-11		LOCATION COORDINATES E = 1,137,172 N = 253,892		10. COORDINATE SYSTEM/DATUM State Plane, MSE (U.S. Ft.)		HORIZONTAL NAD83	
3. DRILLING AGENCY Corps of Engineers - CESAM		CONTRACTOR FILE NO.		11. MANUFACTURER'S DESIGNATION OF DRILL Vibrocure		<input type="checkbox"/> AUTO HAMMER <input type="checkbox"/> MANUAL HAMMER	
4. NAME OF DRILLER Construction Solutions International, Inc.				12. TOTAL SAMPLES 2		DISTURBED 0	
5. DIRECTION OF BORING <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED				13. TOTAL NUMBER CORE BOXES		14. WATER DEPTH 32.5 Ft.	
6. THICKNESS OF OVERBURDEN N/A				15. DATE BORING 06-30-11		STARTED 06-30-11	
7. DEPTH DRILLED INTO ROCK N/A				16. ELEVATION TOP OF BORING -31.4 Ft.		COMPLETED 06-30-11	
8. TOTAL DEPTH OF BORING 12.2 Ft.				17. TOTAL RECOVERY FOR BORING 100%			
				18. SIGNATURE AND TITLE OF INSPECTOR Michele Johnson, Geologist			
ELEV.	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS	SAMPLE	LABORATORY RESULTS		
-31.4	0.0						
			SAND, poorly-graded with silt, mostly fine to medium-grained sand-sized quartz, dk brown/dk gray (SP-SM)	A	Classification: SP-SM Color: 2.5Y 5/2-grayish brown D50: 0.3209 mm % Fines: 6.6		
-35.4	4.0			B	Classification: SP-SM Color: 2.5Y 5/2-grayish brown D50: 0.2445 mm % Fines: 8.4		
-37.0	5.6		SAND, poorly-graded, mostly fine to medium-grained sand-sized quartz, dk gray (SP)				
			CLAY, lean, trace fine-grained sand, dk gray (CL)	NS			
-43.6	12.2						
NOTES: 1. Soils are field visually classified in accordance with the Unified Soils Classification System. 2. NS = Sample not submitted for laboratory analysis from this interval. 3. Seafloor elevation determined from 2010 USACE survey.							



# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	1.8	0.8	17.7	73.1	6.6	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
.375	100.0		
#4	98.2		
#10	97.4		
#20	95.9		
#40	79.7		
#60	24.3		
#100	7.9		
#200	6.6		

\* (no specification provided)

## Material Description

Slightly silty SAND (SP-SM), medium to fine grained

## Atterberg Limits

PL=

LL=

PI=

## Coefficients

D<sub>90</sub>= 0.6143

D<sub>85</sub>= 0.5054

D<sub>60</sub>= 0.3499

D<sub>50</sub>= 0.3209

D<sub>30</sub>= 0.2669

D<sub>15</sub>= 0.2148

D<sub>10</sub>= 0.1822

C<sub>u</sub>= 1.92

C<sub>c</sub>= 1.12

## Classification

USCS= SP-SM

AASHTO=

## Remarks

Location: USACE Sample # BI-PB-135A-11  
Sample Number: TE Lab ID: 5054.113

Depth: 0.0 - 2.0 (ft)

Date: 7/18/11

**Thompson Engineering**

**Mobile, Alabama**

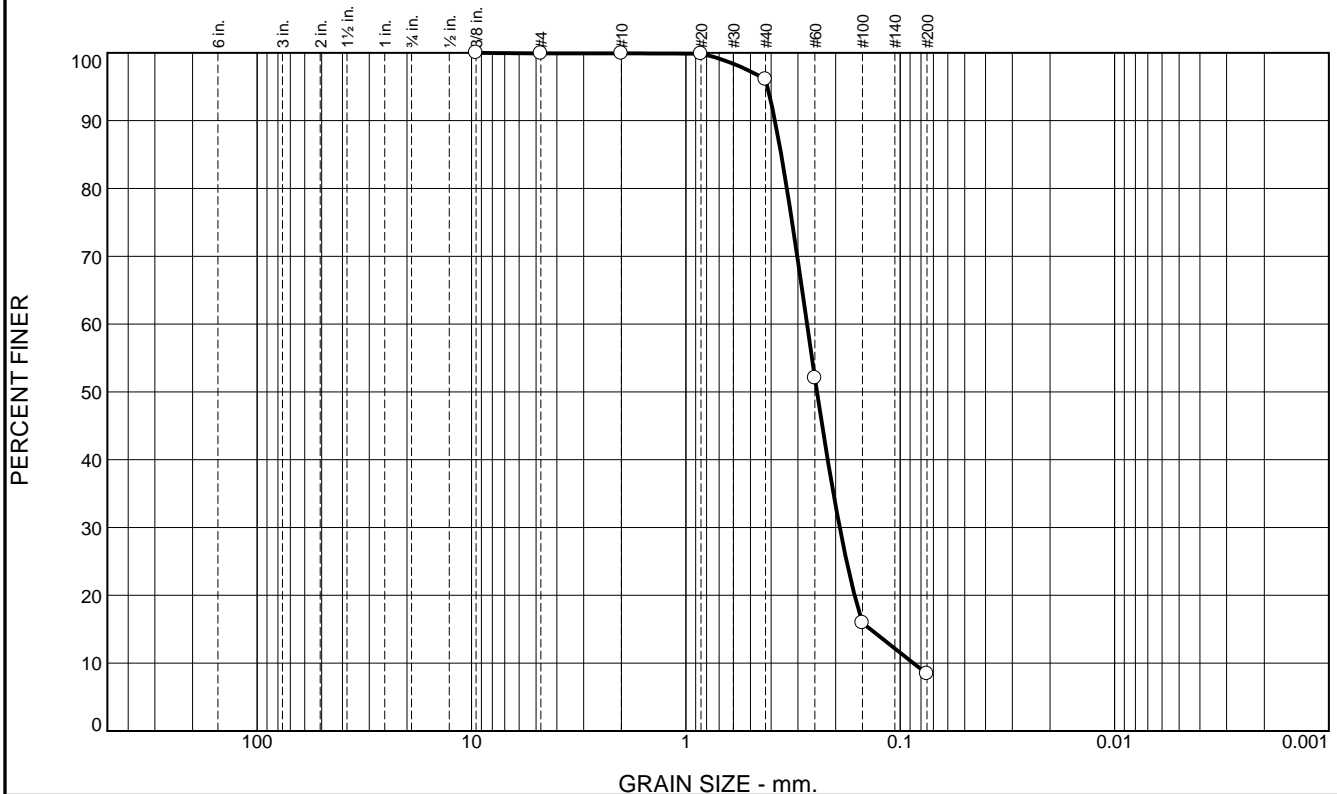
Client: US Army Corps of Engineers

Project: Contract No. W91278-10-D-0026 - Task 009  
Mississippi Barrier Island Restoration Project

Project No: 11-2116-0057

Figure

# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.1	0.0	3.8	87.7	8.4	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
.375	100.0		
#4	99.9		
#10	99.9		
#20	99.9		
#40	96.1		
#60	52.0		
#100	15.9		
#200	8.4		

\* (no specification provided)

<u>Material Description</u>		
Slightly silty SAND (SP-SM), fine grained		
<u>Atterberg Limits</u>		
PL=	LL=	PI=
<u>Coefficients</u>		
D <sub>90</sub> = 0.3841	D <sub>85</sub> = 0.3591	D <sub>60</sub> = 0.2721
D <sub>50</sub> = 0.2445	D <sub>30</sub> = 0.1914	D <sub>15</sub> = 0.1377
D <sub>10</sub> = 0.0868	C <sub>u</sub> = 3.14	C <sub>c</sub> = 1.55
<u>Classification</u>		
USCS= SP-SM	AASHTO=	
<u>Remarks</u>		

Location: USACE Sample # BI-PB-135B-11  
Sample Number: TE Lab ID: 5054.114

Depth: 2.0 - 5.6 (ft)

Date: 7/18/11

**Thompson Engineering**

**Mobile, Alabama**

Client: US Army Corps of Engineers

Project: Contract No. W91278-10-D-0026 - Task 009  
Mississippi Barrier Island Restoration Project

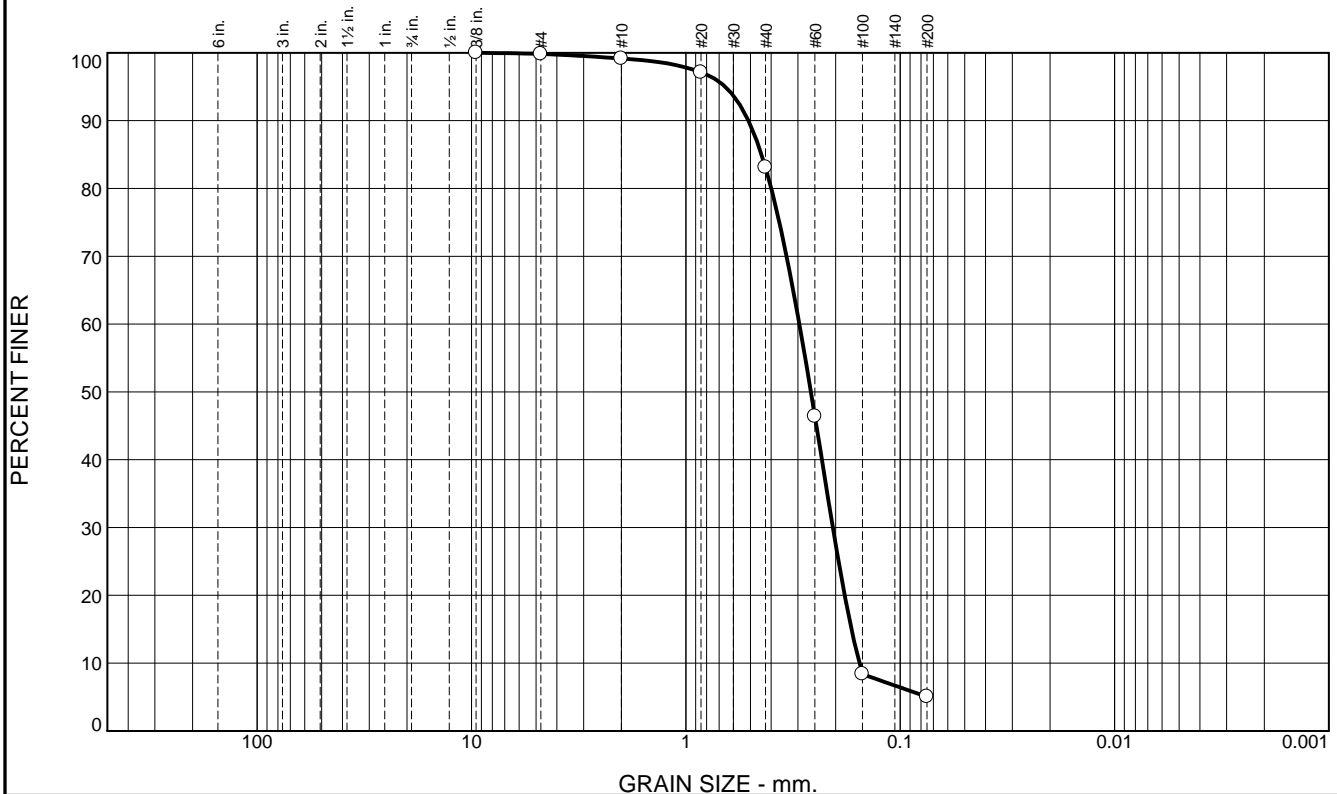
Project No: 11-2116-0057

Figure

# Boring Designation BI-PB-136-11

DRILLING LOG		DIVISION South Atlantic		INSTALLATION Mobile District		SHEET 1 OF 1 SHEETS	
1. PROJECT MsCIP Barrier Island Restoration Petit Bois Pass- AL East				9. SIZE AND TYPE OF BIT N/A			
2. BORING DESIGNATION BI-PB-136-11		LOCATION COORDINATES E = 1,146,828 N = 253,716		10. COORDINATE SYSTEM/DATUM State Plane, MSE (U.S. Ft.)		HORIZONTAL NAD83	
3. DRILLING AGENCY Corps of Engineers - CESAM		CONTRACTOR FILE NO.		11. MANUFACTURER'S DESIGNATION OF DRILL Vibracore		<input type="checkbox"/> AUTO HAMMER <input type="checkbox"/> MANUAL HAMMER	
4. NAME OF DRILLER Construction Solutions International, Inc.				12. TOTAL SAMPLES 2		UNDISTURBED (UD) 0	
5. DIRECTION OF BORING <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED		DEG. FROM VERTICAL		13. TOTAL NUMBER CORE BOXES			
		BEARING		14. WATER DEPTH 32 Ft.			
6. THICKNESS OF OVERBURDEN N/A				15. DATE BORING 06-30-11		COMPLETED 06-30-11	
7. DEPTH DRILLED INTO ROCK N/A				16. ELEVATION TOP OF BORING -33.7 Ft.			
8. TOTAL DEPTH OF BORING 14.9 Ft.				17. TOTAL RECOVERY FOR BORING 100%			
				18. SIGNATURE AND TITLE OF INSPECTOR Michele Johnson, Geologist			
ELEV.	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS	SAMPLE	LABORATORY RESULTS		
-33.7	0.0						
			SAND, poorly-graded with silt, trace shell fragments, gray (SP-SM)	A	Classification: SP-SM Color: 5Y 6/2-light olive gray D50: 0.261 mm % Fines: 5		
-36.7	3.0						
			SAND, poorly-graded, mostly medium-grained sand-sized quartz, trace shell fragments, dark gray (SP)	B	Classification: SP-SM Color: 5Y 6/2-light olive gray D50: 0.3035 mm % Fines: 7.2		
				NS			
-48.6	14.9						
			NOTES: 1. Soils are field visually classified in accordance with the Unified Soils Classification System. 2. NS = Sample not submitted for laboratory analysis from this interval. 3. Seafloor elevation determined from 2010 USACE survey.				

# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.2	0.6	16.1	78.1	5.0	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
.375	100.0		
#4	99.8		
#10	99.2		
#20	97.1		
#40	83.1		
#60	46.4		
#100	8.4		
#200	5.0		

\* (no specification provided)

<u>Material Description</u>		
Slightly silty SAND (SP-SM), medium to fine grained		
<u>Atterberg Limits</u>		
PL=	LL=	PI=
<u>Coefficients</u>		
D <sub>90</sub> = 0.5105	D <sub>85</sub> = 0.4433	D <sub>60</sub> = 0.2957
D <sub>50</sub> = 0.2610	D <sub>30</sub> = 0.2061	D <sub>15</sub> = 0.1688
D <sub>10</sub> = 0.1550	C <sub>u</sub> = 1.91	C <sub>c</sub> = 0.93
<u>Classification</u>		
USCS= SP-SM	AASHTO=	
<u>Remarks</u>		

Location: USACE Sample # BI-PB-136A-11  
Sample Number: TE Lab ID: 5054.124

Depth: 0.0 - 3.0 (ft)

Date: 7/18/11

**Thompson Engineering**

**Mobile, Alabama**

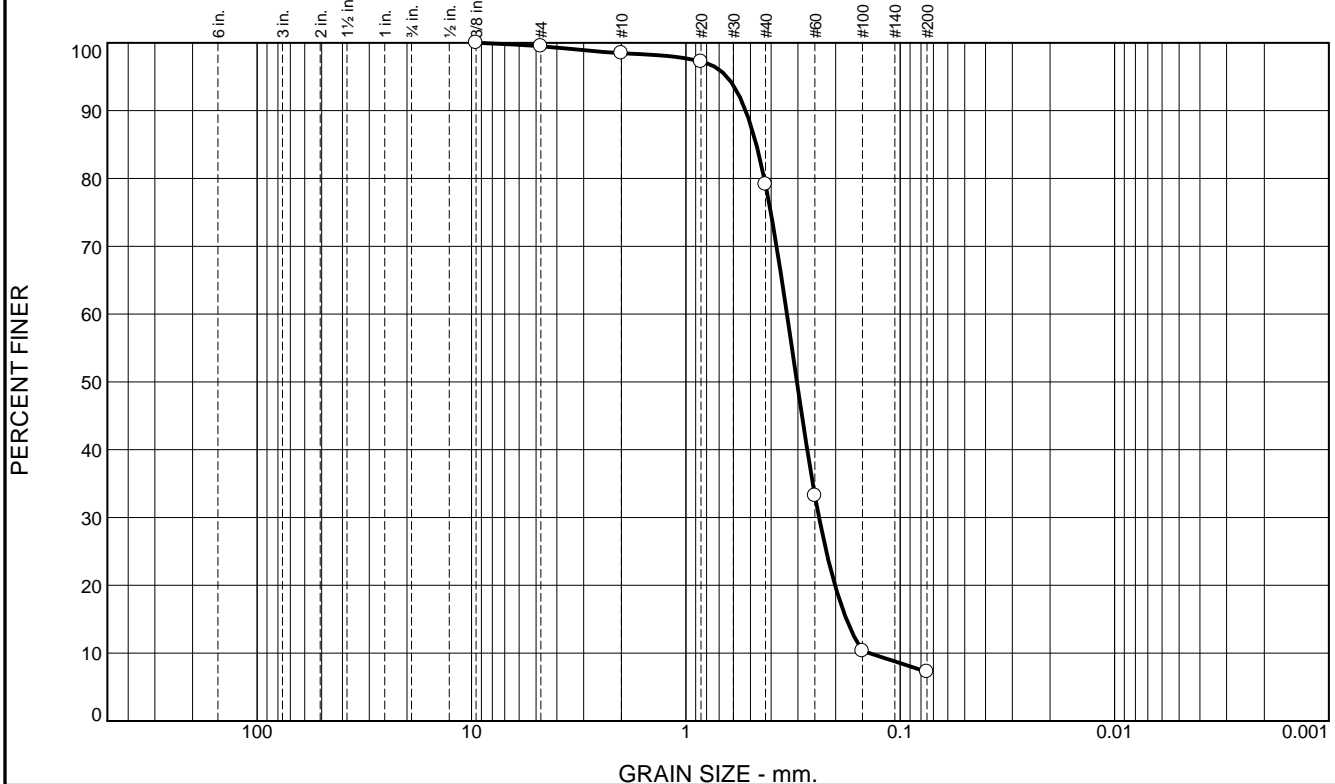
Client: US Army Corps of Engineers

Project: Contract No. W91278-10-D-0026 - Task 009  
Mississippi Barrier Island Restoration Project

Project No: 11-2116-0057

Figure

# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.5	1.0	19.4	71.9	7.2	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
.375	100.0		
#4	99.5		
#10	98.5		
#20	97.2		
#40	79.1		
#60	33.2		
#100	10.3		
#200	7.2		

\* (no specification provided)

## Material Description

Slightly silty SAND (SP-SM), medium to fine grained

## Atterberg Limits

PL= LL= PI=

## Coefficients

D<sub>90</sub>= 0.5256 D<sub>85</sub>= 0.4687 D<sub>60</sub>= 0.3377  
D<sub>50</sub>= 0.3035 D<sub>30</sub>= 0.2392 D<sub>15</sub>= 0.1782  
D<sub>10</sub>= 0.1393 C<sub>u</sub>= 2.42 C<sub>c</sub>= 1.22

## Classification

USCS= SP-SM AASHTO=

## Remarks

Location: USACE Sample # BI-PB-136B-11  
Sample Number: TE Lab ID: 5054.125

Depth: 3.0 - 6.5 (ft)

Date: 7/18/11

**Thompson Engineering**

**Mobile, Alabama**

Client: US Army Corps of Engineers

Project: Contract No. W91278-10-D-0026 - Task 009  
Mississippi Barrier Island Restoration Project

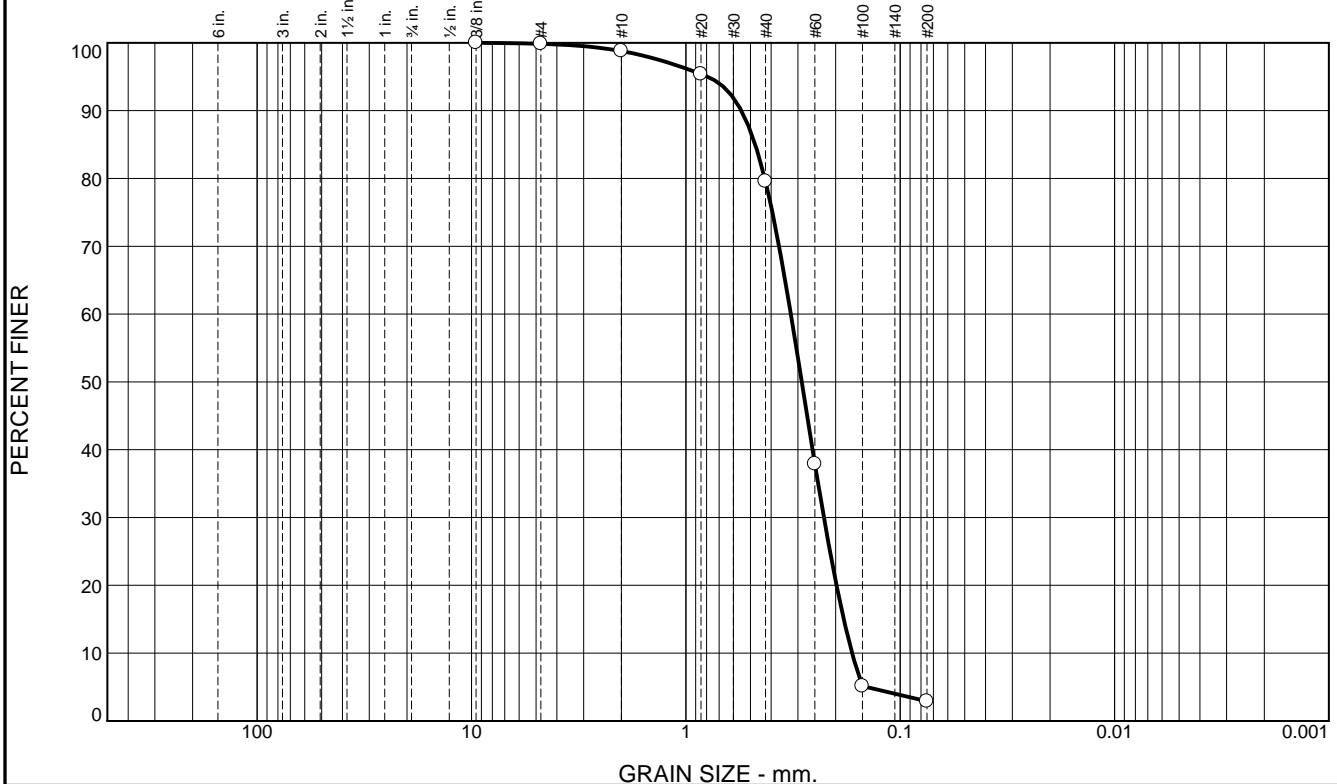
Project No: 11-2116-0057

Figure

# Boring Designation BI-PB-137-11

DRILLING LOG		DIVISION South Atlantic		INSTALLATION Mobile District		SHEET 1 OF 1 SHEETS	
1. PROJECT MsCIP Barrier Island Restoration Petit Bois Pass- AL East				9. SIZE AND TYPE OF BIT N/A			
2. BORING DESIGNATION BI-PB-137-11		LOCATION COORDINATES E = 1,147,898 N = 253,783		10. COORDINATE SYSTEM/DATUM State Plane, MSE (U.S. Ft.)		HORIZONTAL NAD83 VERTICAL NAVD88	
3. DRILLING AGENCY Corps of Engineers - CESAM		CONTRACTOR FILE NO.		11. MANUFACTURER'S DESIGNATION OF DRILL Vibrocure		<input type="checkbox"/> AUTO HAMMER <input type="checkbox"/> MANUAL HAMMER	
4. NAME OF DRILLER Construction Solutions International, Inc.				12. TOTAL SAMPLES 4		DISTURBED 4 UNDISTURBED (UD) 0	
5. DIRECTION OF BORING <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED		DEG. FROM VERTICAL		13. TOTAL NUMBER CORE BOXES			
		BEARING		14. WATER DEPTH 32 Ft.			
6. THICKNESS OF OVERBURDEN N/A				15. DATE BORING 06-30-11		STARTED 06-30-11 COMPLETED 06-30-11	
7. DEPTH DRILLED INTO ROCK N/A				16. ELEVATION TOP OF BORING -31.7 Ft.			
8. TOTAL DEPTH OF BORING 16.9 Ft.				17. TOTAL RECOVERY FOR BORING 100%			
				18. SIGNATURE AND TITLE OF INSPECTOR Michele Johnson, Geologist			
ELEV.	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS	SAMPLE	LABORATORY RESULTS		
-31.7	0.0						
			SAND, poorly-graded, mostly medium-grained sand-sized quartz, trace shell fragments, trace organic matter, lt. gray (SP)	A	Classification: SP Color: 5Y 7/1-light gray D50: 0.2881 mm % Fines: 2.9		
-35.7	4.0		SAND, poorly-graded with silt, some fine to medium-grained sand-sized, lt. gray (SP-SM)	B	Classification: SP-SM Color: 2.5Y 6/2-light brownish gray D50: 0.2613 mm % Fines: 6.6		
			At El. -39.7 Ft., some fine to medium-grained sand-sized, lt. gray	C	Classification: SP Color: 2.5Y 7/2-light gray D50: 0.3004 mm % Fines: 4.9		
-43.7	12.0		SAND, poorly-graded, trace medium-grained sand-sized, gray (SP)	D	Classification: SP Color: 2.5Y 8/1-white D50: 0.2937 mm % Fines: 4.4		
-48.6	16.9						
			NOTES: 1. Soils are field visually classified in accordance with the Unified Soils Classification System. 2. NS = Sample not submitted for laboratory analysis from this interval. 3. Seafloor elevation determined from 2010 USACE survey.				

# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.2	1.0	19.2	76.7	2.9	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
.375	100.0		
#4	99.8		
#10	98.8		
#20	95.4		
#40	79.6		
#60	37.9		
#100	5.1		
#200	2.9		

Material Description		
SAND (SP), medium to fine grained		
<div> <div> <b>Atterberg Limits</b>            PL=      LL=      PI=         </div> <div> <b>Coefficients</b>            D<sub>90</sub>= 0.5508    D<sub>85</sub>= 0.4746    D<sub>60</sub>= 0.3240            D<sub>50</sub>= 0.2881    D<sub>30</sub>= 0.2269    D<sub>15</sub>= 0.1834            D<sub>10</sub>= 0.1677    C<sub>u</sub>= 1.93      C<sub>c</sub>= 0.95         </div> <div> <b>Classification</b>            USCS= SP      AASHTO=         </div> <div> <b>Remarks</b> </div> </div>		

\* (no specification provided)

Location: USACE Sample # BI-PB-137A-11  
Sample Number: TE Lab ID: 5054.120

Depth: 0.0 - 4.0 (ft)

Date: 7/18/11

**Thompson Engineering**

**Mobile, Alabama**

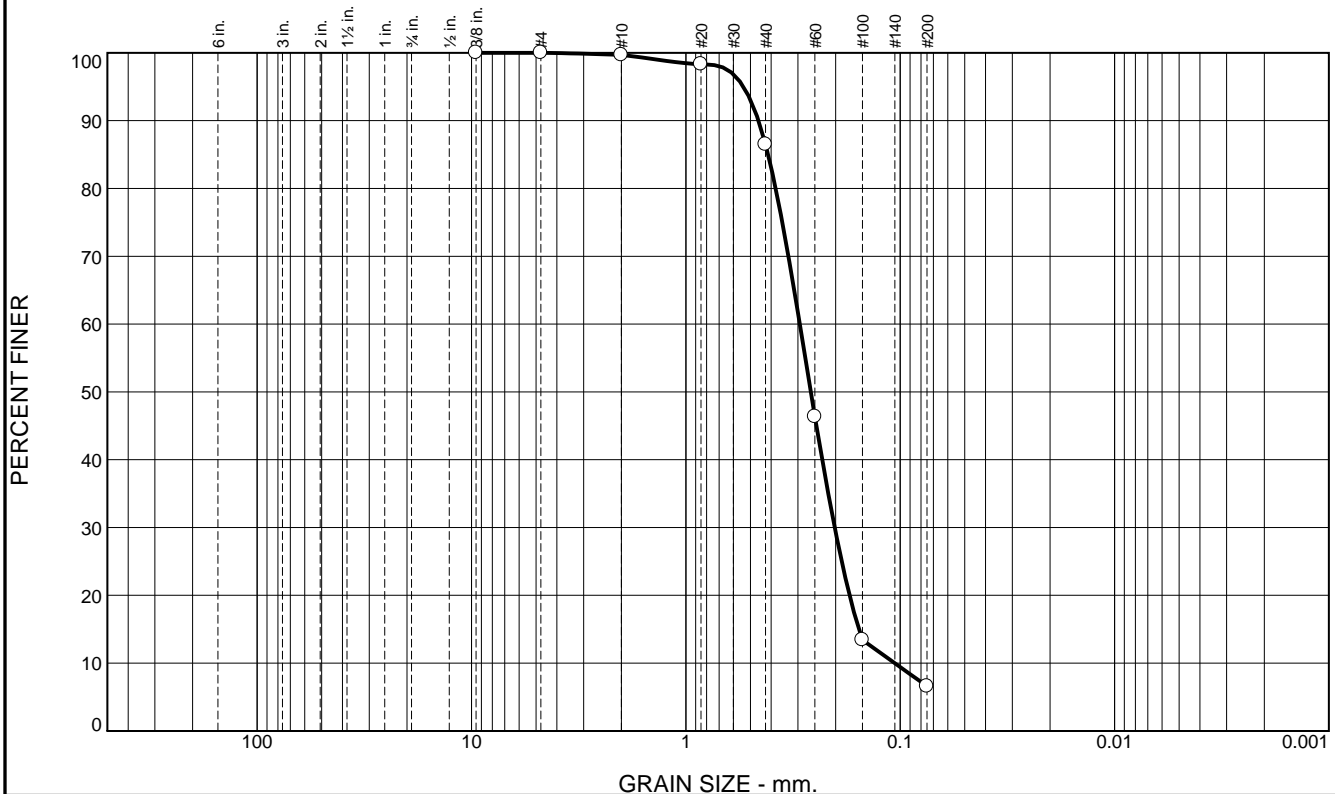
**Client:** US Army Corps of Engineers

**Project:** Contract No. W91278-10-D-0026 - Task 009  
Mississippi Barrier Island Restoration Project

**Project No:** 11-2116-0057

**Figure**

# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.0	0.3	13.2	79.9	6.6	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
.375	100.0		
#4	100.0		
#10	99.7		
#20	98.3		
#40	86.5		
#60	46.3		
#100	13.4		
#200	6.6		

\* (no specification provided)

## Material Description

Slightly silty SAND (SP-SM), medium to fine grained

## Atterberg Limits

PL= LL= PI=

## Coefficients

D<sub>90</sub>= 0.4583 D<sub>85</sub>= 0.4134 D<sub>60</sub>= 0.2942  
D<sub>50</sub>= 0.2613 D<sub>30</sub>= 0.2020 D<sub>15</sub>= 0.1558  
D<sub>10</sub>= 0.1060 C<sub>u</sub>= 2.77 C<sub>c</sub>= 1.31

## Classification

USCS= SP-SM AASHTO=

## Remarks

Location: USACE Sample # BI-PB-137B-11  
Sample Number: TE Lab ID: 5054.121

Depth: 4.0 - 8.0 (ft)

Date: 7/18/11

**Thompson Engineering**

**Mobile, Alabama**

Client: US Army Corps of Engineers

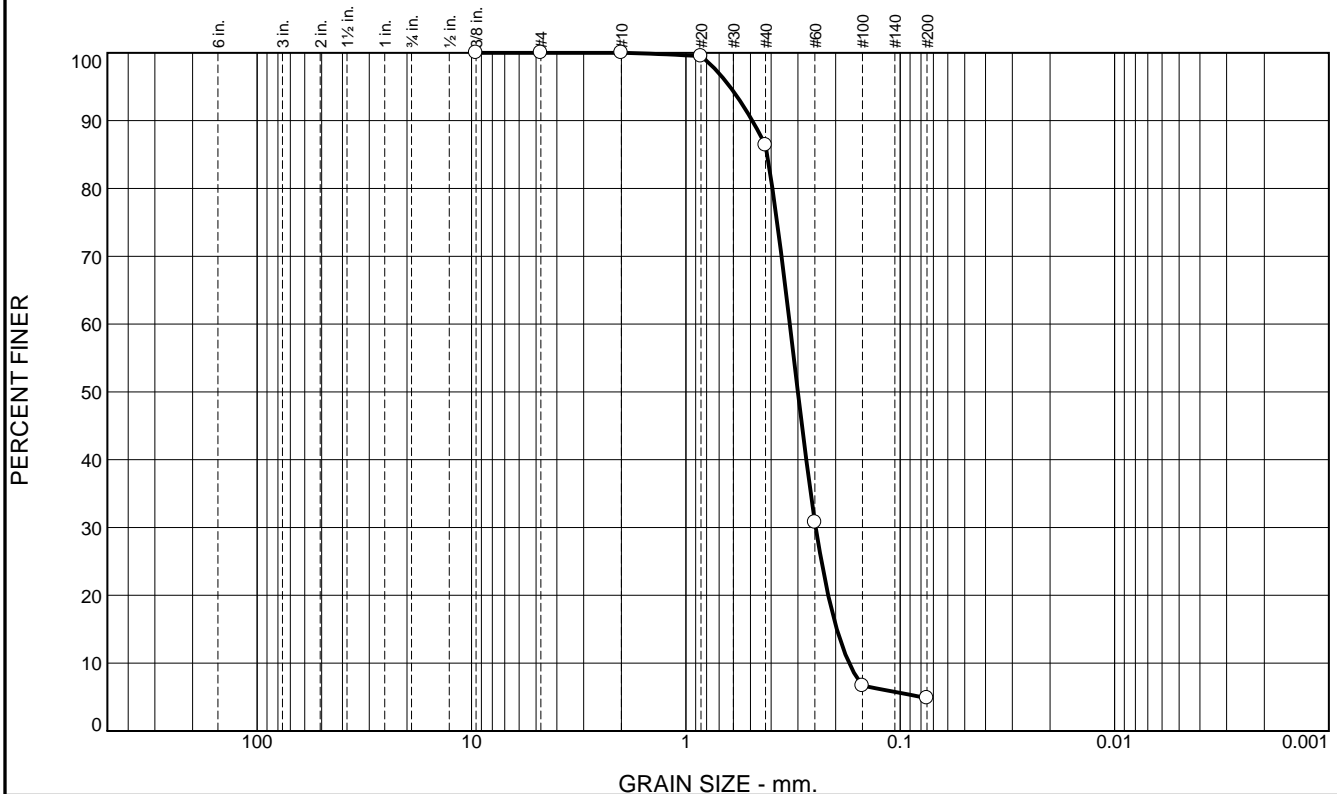
Project: Contract No. W91278-10-D-0026 - Task 009  
Mississippi Barrier Island Restoration Project

Project No: 11-2116-0057

Figure



# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.0	0.0	13.6	81.5	4.9	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
.375	100.0		
#4	100.0		
#10	100.0		
#20	99.5		
#40	86.4		
#60	30.8		
#100	6.7		
#200	4.9		

\* (no specification provided)

## Material Description

SAND (SP), medium to fine grained

## Atterberg Limits

PL=

LL=

PI=

## Coefficients

D<sub>90</sub>= 0.4898

D<sub>85</sub>= 0.4176

D<sub>60</sub>= 0.3276

D<sub>50</sub>= 0.3004

D<sub>30</sub>= 0.2478

D<sub>15</sub>= 0.1975

D<sub>10</sub>= 0.1731

C<sub>u</sub>= 1.89

C<sub>c</sub>= 1.08

## Classification

USCS= SP

AASHTO=

## Remarks

Location: USACE Sample # BI-PB-137C-11  
Sample Number: TE Lab ID: 5054.122

Depth: 8.0 - 12.0 (ft)

Date: 7/18/11

**Thompson Engineering**

**Mobile, Alabama**

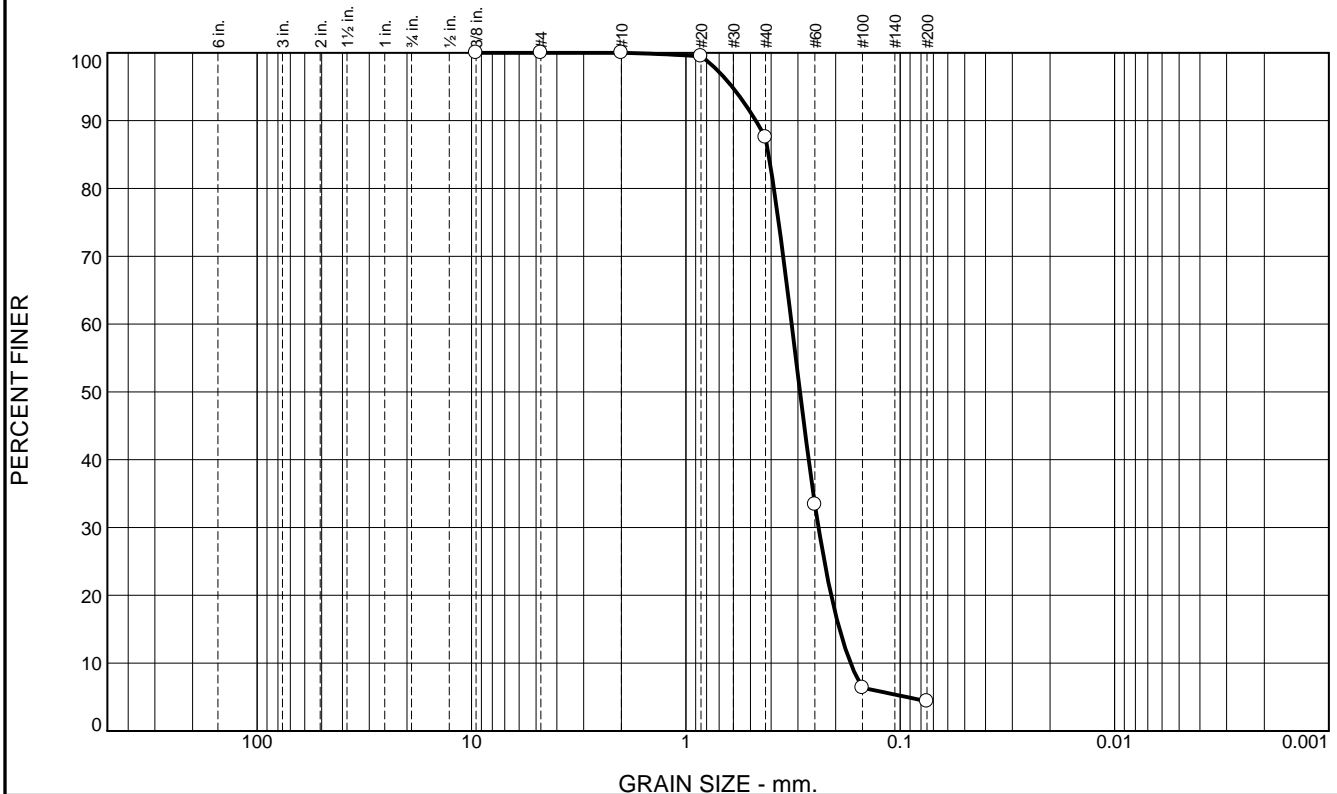
Client: US Army Corps of Engineers

Project: Contract No. W91278-10-D-0026 - Task 009  
Mississippi Barrier Island Restoration Project

Project No: 11-2116-0057

Figure

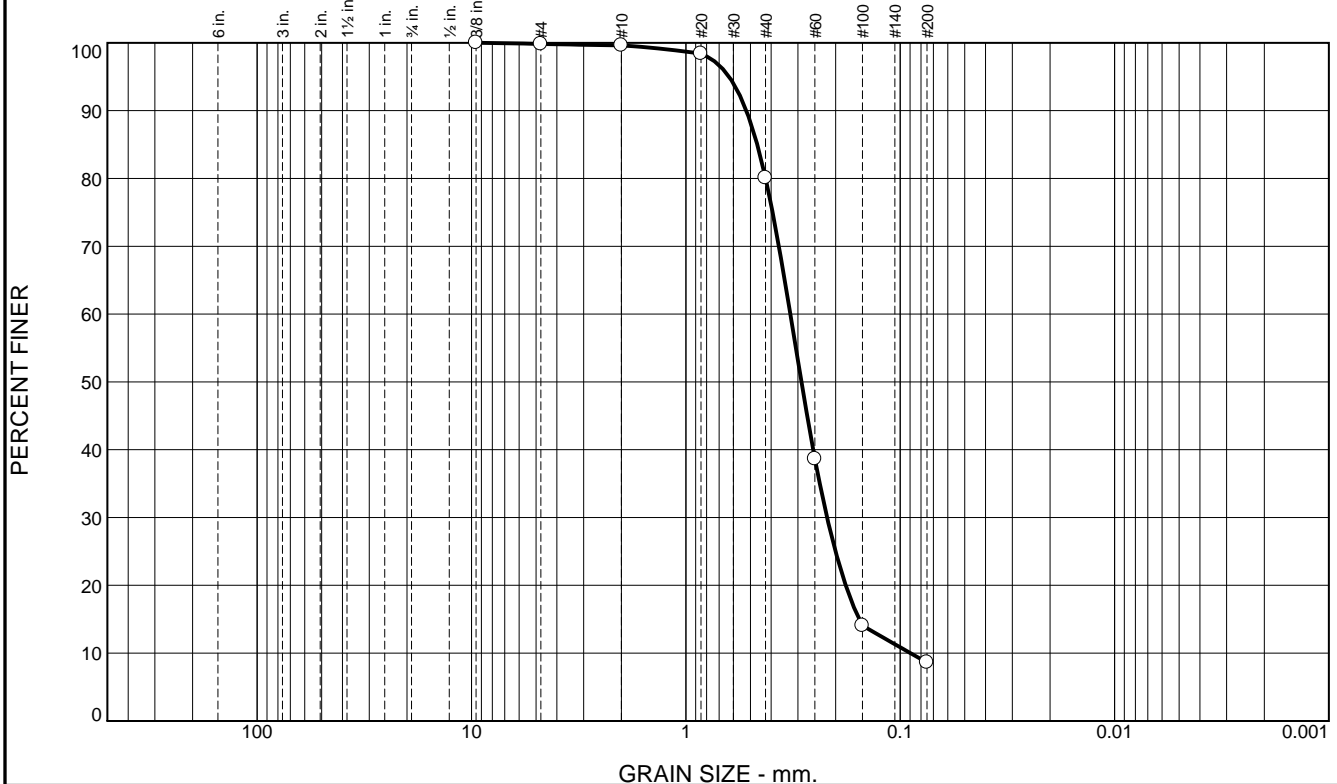
# Particle Size Distribution Report



# Boring Designation BI-PB-138-11

DRILLING LOG		DIVISION South Atlantic		INSTALLATION Mobile District		SHEET 1 OF 1 SHEETS	
1. PROJECT MsCIP Barrier Island Restoration Petit Bois Pass- AL East				9. SIZE AND TYPE OF BIT N/A			
2. BORING DESIGNATION BI-PB-138-11		LOCATION COORDINATES E = 1,149,013 N = 253,235		10. COORDINATE SYSTEM/DATUM State Plane, MSE (U.S. Ft.)		HORIZONTAL NAD83	
3. DRILLING AGENCY Corps of Engineers - CESAM		CONTRACTOR FILE NO.		11. MANUFACTURER'S DESIGNATION OF DRILL Vibrocure		<input type="checkbox"/> AUTO HAMMER <input type="checkbox"/> MANUAL HAMMER	
4. NAME OF DRILLER Construction Solutions International, Inc.				12. TOTAL SAMPLES 5		DISTURBED 0	
5. DIRECTION OF BORING <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED				13. TOTAL NUMBER CORE BOXES		14. WATER DEPTH 37.5 Ft.	
6. THICKNESS OF OVERBURDEN N/A				15. DATE BORING 06-30-11		STARTED 06-30-11	
7. DEPTH DRILLED INTO ROCK N/A				16. ELEVATION TOP OF BORING -36.3 Ft.		17. TOTAL RECOVERY FOR BORING 100%	
8. TOTAL DEPTH OF BORING 18.5 Ft.				18. SIGNATURE AND TITLE OF INSPECTOR Michele Johnson, Geologist			
ELEV.	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS	SAMPLE	LABORATORY RESULTS		
-36.3	0.0		SAND, poorly-graded, mostly medium-grained sand-sized quartz, lt. gray (SP)	A	Classification: SP-SM Color: 5Y 6/1-gray D50: 0.289 mm % Fines: 8.6		
			At El. -41.3 Ft., trace shell fragments, lt. gray	B	Classification: SP Color: 5Y 6/1-gray D50: 0.3247 mm % Fines: 3.2		
-46.3	10.0		SAND, poorly-graded with silt, trace fine to medium-grained sand-sized, gray (SP-SM)	C	Classification: SP Color: 2.5Y 7/1-light gray D50: 0.3269 mm % Fines: 2.9		
-51.3	15.0		SAND, poorly-graded, mostly medium-grained sand-sized quartz, dark gray (SP)	D	Classification: SP-SM Color: 2.5Y 7/1-light gray D50: 0.3135 mm % Fines: 5.7		
-54.8	18.5		At El. -52.8 Ft., mostly medium-grained sand-sized quartz, dark gray	E	Classification: SP-SM Color: 2.5Y 7/1-light gray D50: 0.266 mm % Fines: 11.4		
			NOTES: 1. Soils are field visually classified in accordance with the Unified Soils Classification System. 2. NS = Sample not submitted for laboratory analysis from this interval. 3. Seafloor elevation determined from 2010 USACE survey.				

# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.2	0.2	19.5	71.5	8.6	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
.375	100.0		
#4	99.8		
#10	99.6		
#20	98.4		
#40	80.1		
#60	38.6		
#100	14.0		
#200	8.6		

\* (no specification provided)

## Material Description

Slightly silty SAND (SP-SM), medium to fine grained

## Atterberg Limits

PL=

LL=

PI=

## Coefficients

D<sub>90</sub>= 0.5222

D<sub>85</sub>= 0.4643

D<sub>60</sub>= 0.3257

D<sub>50</sub>= 0.2890

D<sub>30</sub>= 0.2193

D<sub>15</sub>= 0.1553

D<sub>10</sub>= 0.0896

C<sub>u</sub>= 3.64

C<sub>c</sub>= 1.65

## Classification

USCS= SP-SM

AASHTO=

## Remarks

Location: USACE Sample # BI-PB-138A-11  
Sample Number: TE Lab ID: 5054.126

Depth: 0.0 - 5.0 (ft)

Date: 7/18/11

**Thompson Engineering**

**Mobile, Alabama**

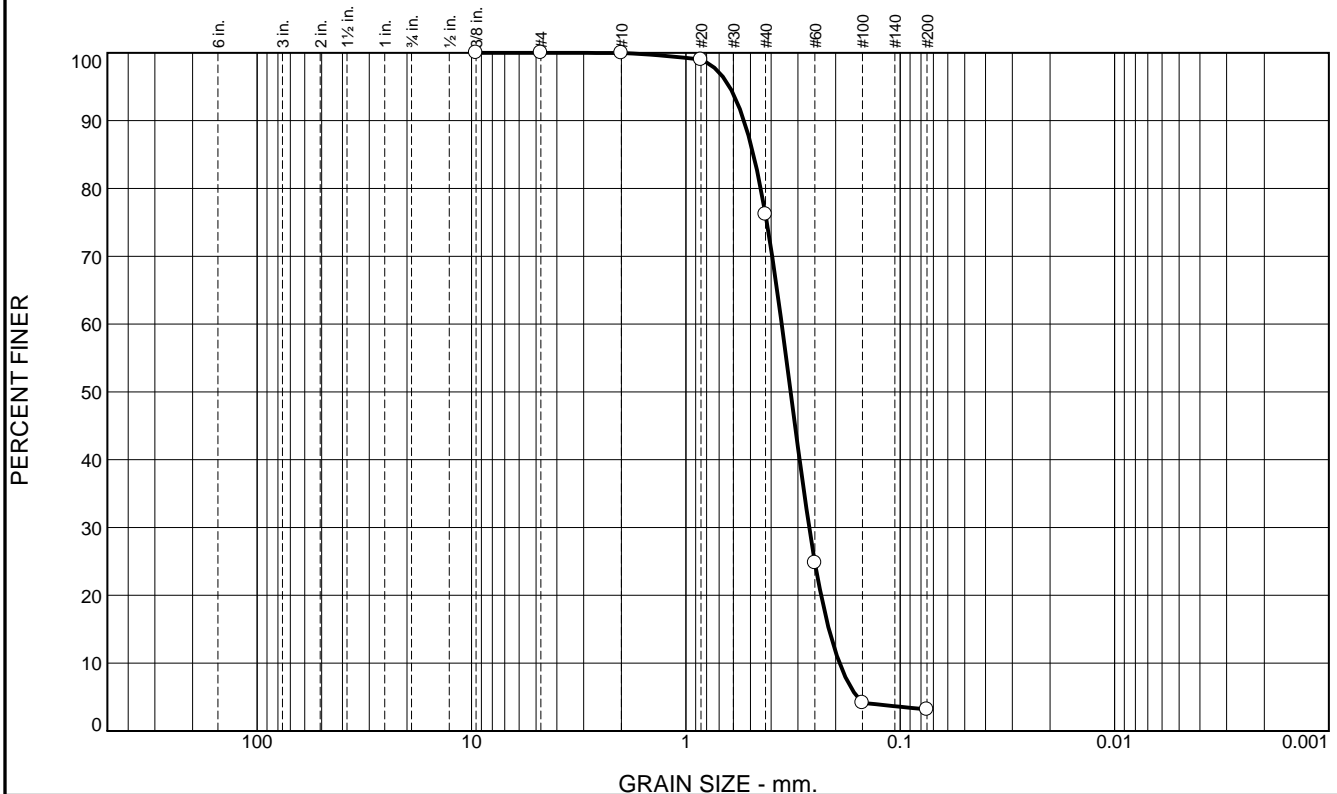
Client: US Army Corps of Engineers

Project: Contract No. W91278-10-D-0026 - Task 009  
Mississippi Barrier Island Restoration Project

Project No: 11-2116-0057

Figure

# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.0	0.0	23.8	73.0	3.2	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
.375	100.0		
#4	100.0		
#10	100.0		
#20	99.0		
#40	76.2		
#60	24.8		
#100	4.1		
#200	3.2		

\* (no specification provided)

## Material Description

SAND (SP), medium to fine grained

## Atterberg Limits

PL= LL= PI=

## Coefficients

D<sub>90</sub>= 0.5356 D<sub>85</sub>= 0.4838 D<sub>60</sub>= 0.3573  
D<sub>50</sub>= 0.3247 D<sub>30</sub>= 0.2659 D<sub>15</sub>= 0.2150  
D<sub>10</sub>= 0.1919 C<sub>u</sub>= 1.86 C<sub>c</sub>= 1.03

## Classification

USCS= SP AASHTO=

## Remarks

Location: USACE Sample # BI-PB-138B-11  
Sample Number: TE Lab ID: 5054.127

Depth: 5.0 - 10.0 (ft)

Date: 7/18/11

**Thompson Engineering**

**Mobile, Alabama**

Client: US Army Corps of Engineers

Project: Contract No. W91278-10-D-0026 - Task 009  
Mississippi Barrier Island Restoration Project

Project No: 11-2116-0057

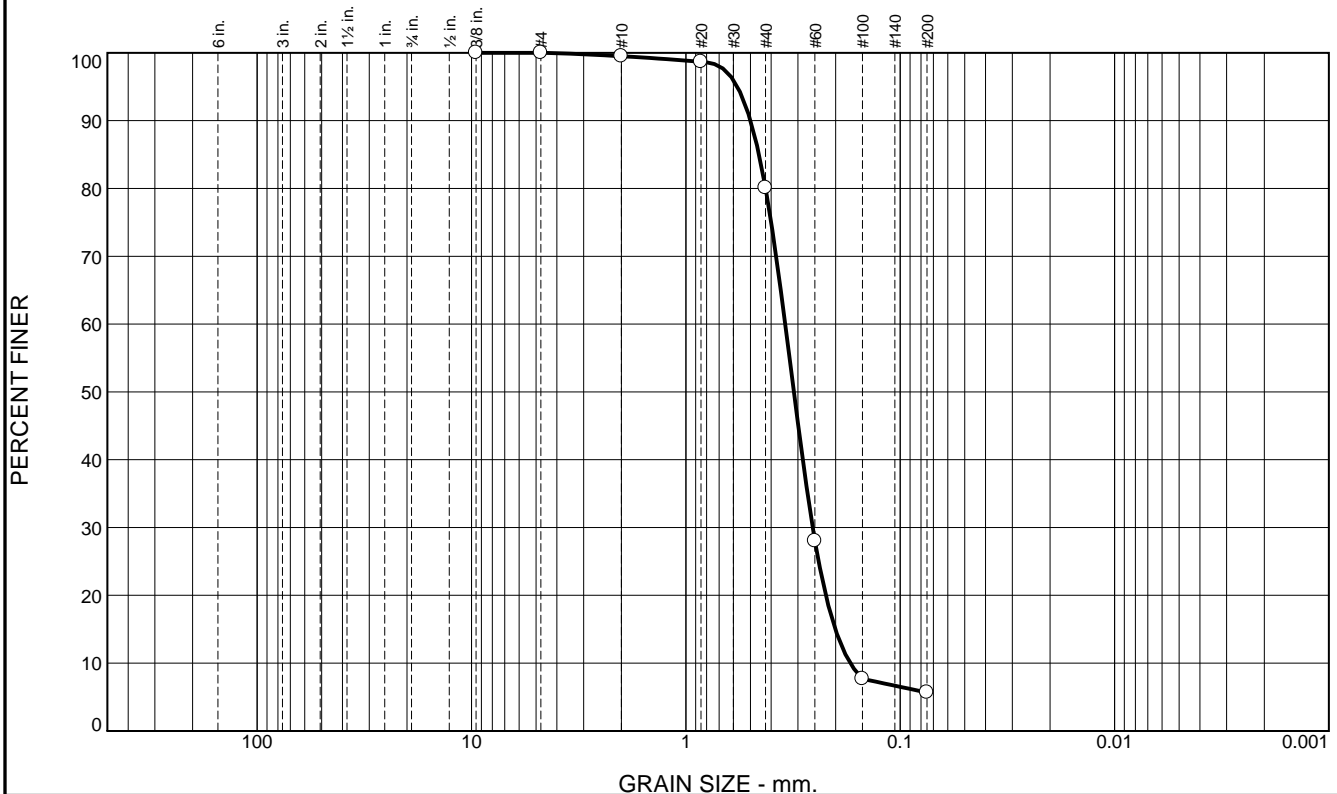
Figure

## PERCENT FINER



<b><u>Material Description</u></b>		
SAND (SP), medium to fine grained		
<b><u>Atterberg Limits</u></b>		
PL=	LL=	PI=
<b><u>Coefficients</u></b>		
D <sub>90</sub> = 0.5372	D <sub>85</sub> = 0.4855	D <sub>60</sub> = 0.3593
D <sub>50</sub> = 0.3269	D <sub>30</sub> = 0.2685	D <sub>15</sub> = 0.2180
D <sub>10</sub> = 0.1947	C <sub>u</sub> = 1.85	C <sub>c</sub> = 1.03
<b><u>Classification</u></b>		
USCS= SP	AASHTO=	
<b><u>Remarks</u></b>		

# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.0	0.5	19.4	74.4	5.7	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
.375	100.0		
#4	100.0		
#10	99.5		
#20	98.7		
#40	80.1		
#60	28.0		
#100	7.7		
#200	5.7		

\* (no specification provided)

## Material Description

Slightly silty SAND (SP-SM), medium to fine grained

## Atterberg Limits

PL= LL= PI=

## Coefficients

D<sub>90</sub>= 0.4992 D<sub>85</sub>= 0.4556 D<sub>60</sub>= 0.3441  
D<sub>50</sub>= 0.3135 D<sub>30</sub>= 0.2561 D<sub>15</sub>= 0.2008  
D<sub>10</sub>= 0.1710 C<sub>u</sub>= 2.01 C<sub>c</sub>= 1.11

## Classification

USCS= SP-SM AASHTO=

## Remarks

Location: USACE Sample # BI-PB-138D-11  
Sample Number: TE Lab ID: 5054.129

Depth: 15.0 - 16.5 (ft)

Date: 7/18/11

**Thompson Engineering**

**Mobile, Alabama**

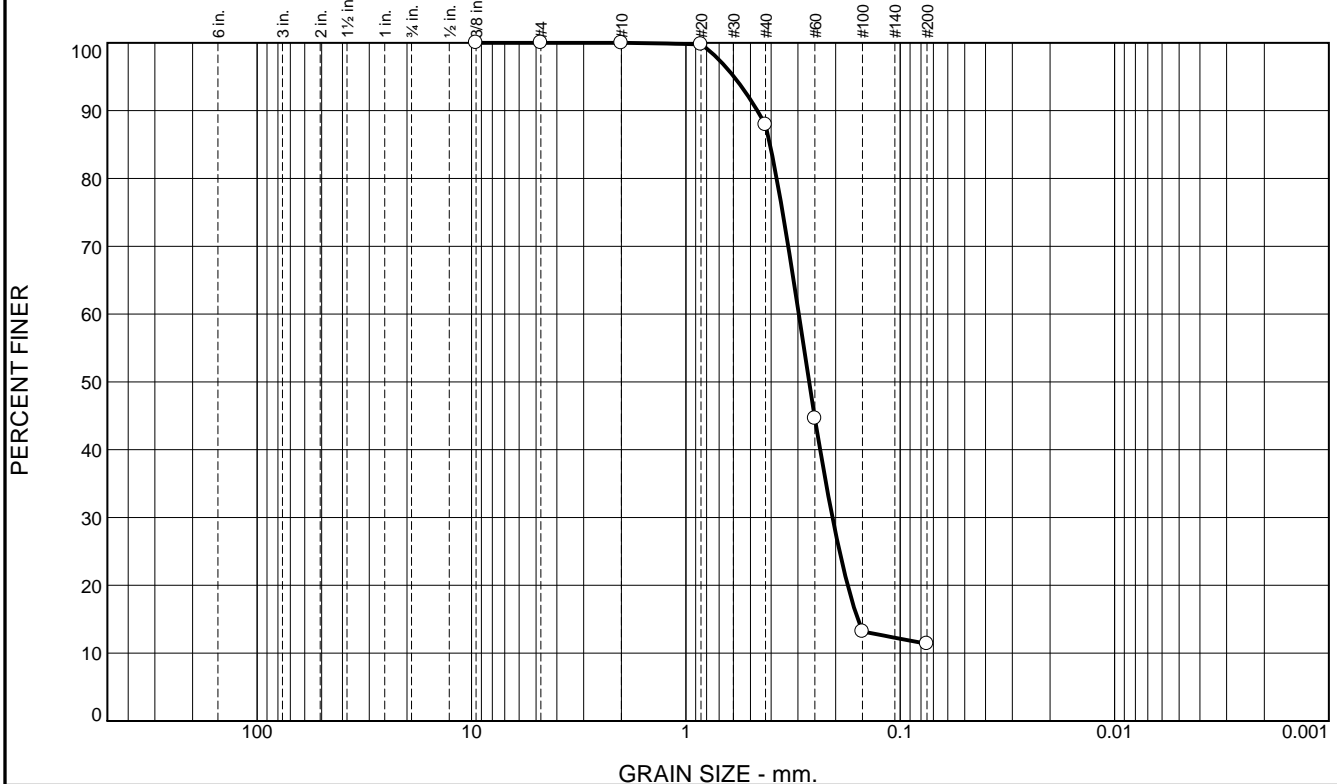
Client: US Army Corps of Engineers

Project: Contract No. W91278-10-D-0026 - Task 009  
Mississippi Barrier Island Restoration Project

Project No: 11-2116-0057

Figure

# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.0	0.0	12.1	76.5	11.4	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
.375	100.0		
#4	100.0		
#10	100.0		
#20	99.8		
#40	87.9		
#60	44.6		
#100	13.2		
#200	11.4		

\* (no specification provided)

<u>Material Description</u>		
Slightly silty SAND (SP-SM), medium to fine grained		
<u>Atterberg Limits</u>		
PL=	LL=	PI=
<u>Coefficients</u>		
D <sub>90</sub> = 0.4640	D <sub>85</sub> = 0.4051	D <sub>60</sub> = 0.2975
D <sub>50</sub> = 0.2660	D <sub>30</sub> = 0.2070	D <sub>15</sub> = 0.1577
D <sub>10</sub> =	C <sub>u</sub> =	C <sub>c</sub> =
<u>Classification</u>		
USCS= SP-SM	AASHTO=	
<u>Remarks</u>		

Location: USACE Sample # BI-PB-138E-11  
Sample Number: TE Lab ID: 5054.130

Depth: 16.5 - 18.5 (ft)

Date: 7/18/11

**Thompson Engineering**

**Mobile, Alabama**

Client: US Army Corps of Engineers

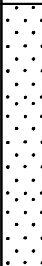
Project: Contract No. W91278-10-D-0026 - Task 009  
Mississippi Barrier Island Restoration Project

Project No: 11-2116-0057

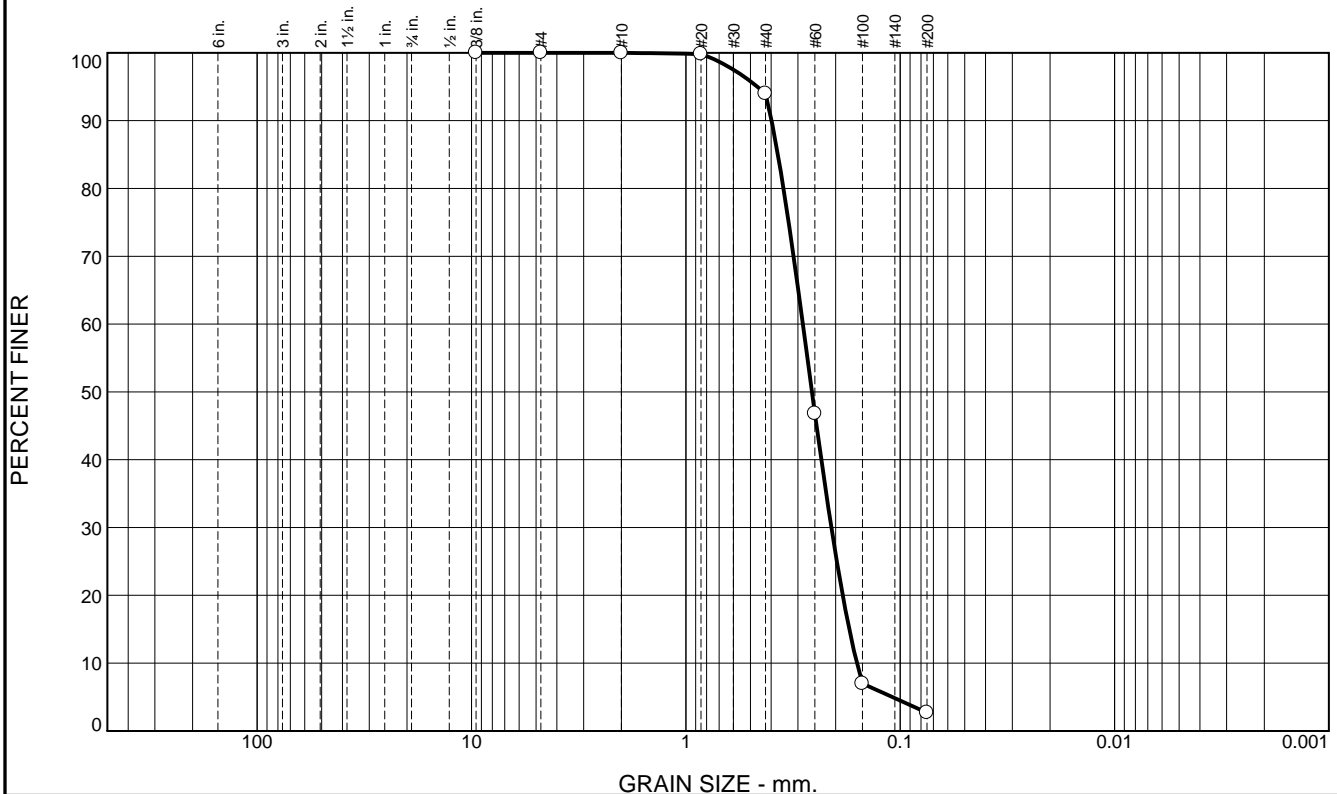
Figure



# Boring Designation BI-PB-139-11

DRILLING LOG		DIVISION South Atlantic		INSTALLATION Mobile District		SHEET 1 OF 1 SHEETS	
1. PROJECT MsCIP Barrier Island Restoration Petit Bois Pass- AL East				9. SIZE AND TYPE OF BIT N/A			
2. BORING DESIGNATION BI-PB-139-11		LOCATION COORDINATES E = 1,148,957 N = 251,729		10. COORDINATE SYSTEM/DATUM State Plane, MSE (U.S. Ft.)		HORIZONTAL NAD83 VERTICAL NAVD88	
3. DRILLING AGENCY Corps of Engineers - CESAM		CONTRACTOR FILE NO.		11. MANUFACTURER'S DESIGNATION OF DRILL Vibrocure		<input type="checkbox"/> AUTO HAMMER <input type="checkbox"/> MANUAL HAMMER	
4. NAME OF DRILLER Construction Solutions International, Inc.				12. TOTAL SAMPLES 3		DISTURBED 3 UNDISTURBED (UD) 0	
5. DIRECTION OF BORING <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED		DEG. FROM VERTICAL		13. TOTAL NUMBER CORE BOXES			
		BEARING		14. WATER DEPTH 39 Ft.			
6. THICKNESS OF OVERBURDEN N/A				15. DATE BORING 07-01-11		STARTED 07-01-11 COMPLETED 07-01-11	
7. DEPTH DRILLED INTO ROCK N/A				16. ELEVATION TOP OF BORING -38.3 Ft.			
8. TOTAL DEPTH OF BORING 6.0 Ft.				17. TOTAL RECOVERY FOR BORING 100%			
				18. SIGNATURE AND TITLE OF INSPECTOR Michele Johnson, Geologist			
ELEV.	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS	SAMPLE	LABORATORY RESULTS		
-38.3	0.0						
		 SAND, poorly-graded, mostly medium-grained sand-sized, lt. gray (SP) At El. -40.3 Ft., mostly medium-grained sand-sized, lt. gray At El. -42.3 Ft., mostly medium-grained sand-sized, lt. gray		A	Classification: SP Color: 2.5Y 8/1-white D50: 0.2581 mm % Fines: 2.7		
			B	Classification: SP Color: 2.5Y 8/1-white D50: 0.265 mm % Fines: 1.6			
			C	Classification: SP Color: 2.5Y 8/1-white D50: 0.2646 mm % Fines: 2.9			
-44.3	6.0						
			NOTES: 1. Soils are field visually classified in accordance with the Unified Soils Classification System. 2. NS = Sample not submitted for laboratory analysis from this interval. 3. Seafloor elevation calculated using sampling vessel's fathometer water depth reading and applying NOAA tidal gauge data conversion factor.				

# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.0	0.0	6.0	91.3	2.7	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
.375	100.0		
#4	100.0		
#10	100.0		
#20	99.8		
#40	94.0		
#60	46.8		
#100	7.0		
#200	2.7		

\* (no specification provided)

**Material Description**  
SAND (SP), medium to fine grained

**Atterberg Limits**  
 PL=                      LL=                      PI=

**Coefficients**  
 D<sub>90</sub>= 0.3983      D<sub>85</sub>= 0.3721      D<sub>60</sub>= 0.2847  
 D<sub>50</sub>= 0.2581      D<sub>30</sub>= 0.2094      D<sub>15</sub>= 0.1729  
 D<sub>10</sub>= 0.1593      C<sub>u</sub>= 1.79              C<sub>c</sub>= 0.97

**Classification**  
 USCS= SP                      AASHTO=

**Remarks**

Location: USACE Sample # BI-PB-139A-11  
 Sample Number: TE Lab ID: 5054.148

Depth: 0.0 - 2.0 (ft)

Date: 7/18/11

**Thompson Engineering**

**Mobile, Alabama**

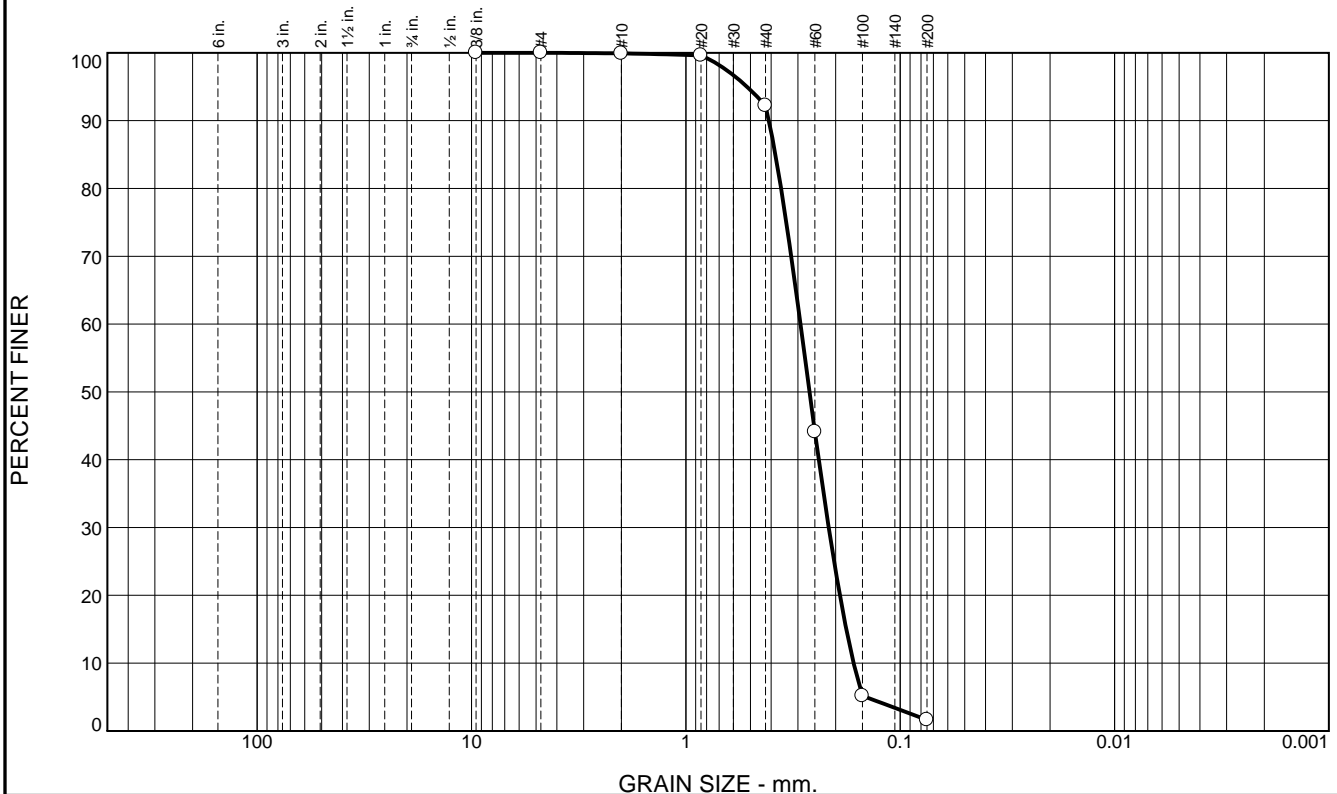
**Client:** US Army Corps of Engineers

**Project:** Contract No. W91278-10-D-0026 - Task 009  
 Mississippi Barrier Island Restoration Project

**Project No:** 11-2116-0057

**Figure**

# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.0	0.1	7.7	90.6	1.6	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
.375	100.0		
#4	100.0		
#10	99.9		
#20	99.6		
#40	92.2		
#60	44.1		
#100	5.2		
#200	1.6		

\* (no specification provided)

Material Description		
SAND (SP), fine grained		
PL=	Atterberg Limits LL=	PI=
D <sub>90</sub> = 0.4099	Coefficients D <sub>85</sub> = 0.3821	D <sub>60</sub> = 0.2921
D <sub>50</sub> = 0.2650	D <sub>30</sub> = 0.2155	D <sub>15</sub> = 0.1785
D <sub>10</sub> = 0.1649	C <sub>u</sub> = 1.77	C <sub>c</sub> = 0.96
USCS= SP	Classification AASHTO=	
Remarks		

Location: USACE Sample # BI-PB-139B-11  
Sample Number: TE Lab ID: 5054.149

Depth: 2.0 - 4.0 (ft)

Date: 7/18/11

**Thompson Engineering**

**Mobile, Alabama**

Client: US Army Corps of Engineers

Project: Contract No. W91278-10-D-0026 - Task 009  
Mississippi Barrier Island Restoration Project

Project No: 11-2116-0057

Figure

## PERCENT FINER

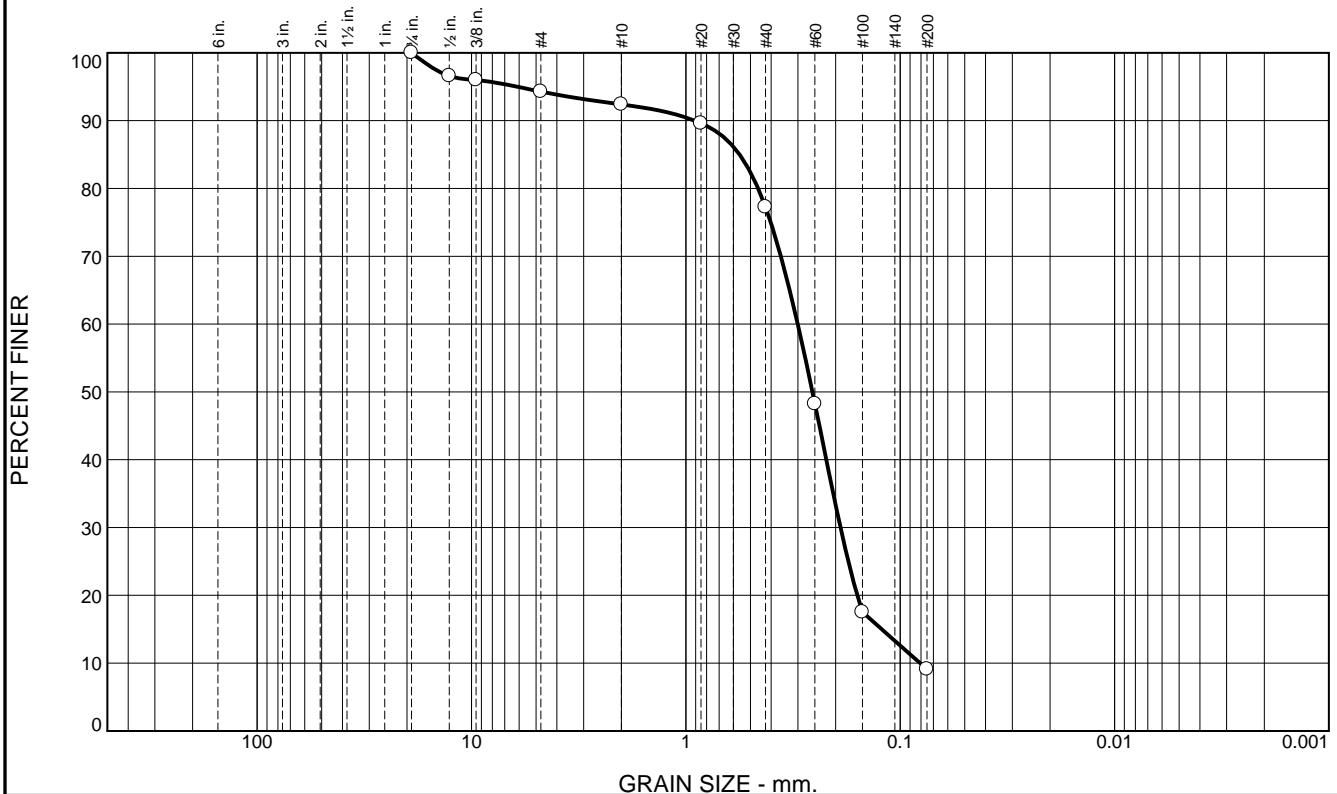


<b><u>Material Description</u></b>		
SAND (SP), fine grained		
<b><u>Atterberg Limits</u></b>		
PL=	LL=	PI=
<b><u>Coefficients</u></b>		
D <sub>90</sub> = 0.4032	D <sub>85</sub> = 0.3775	D <sub>60</sub> = 0.2913
D <sub>50</sub> = 0.2646	D <sub>30</sub> = 0.2145	D <sub>15</sub> = 0.1756
D <sub>10</sub> = 0.1609	C <sub>u</sub> = 1.81	C <sub>c</sub> = 0.98
<b><u>Classification</u></b>		
USCS= SP	AASHTO=	
<b><u>Remarks</u></b>		

# Boring Designation BI-PB-140-11

DRILLING LOG		DIVISION South Atlantic		INSTALLATION Mobile District		SHEET 1 OF 1 SHEETS	
1. PROJECT MsCIP Barrier Island Restoration Petit Bois Pass- AL East				9. SIZE AND TYPE OF BIT N/A			
2. BORING DESIGNATION BI-PB-140-11		LOCATION COORDINATES E = 1,149,808 N = 252,155		10. COORDINATE SYSTEM/DATUM State Plane, MSE (U.S. Ft.)		HORIZONTAL NAD83	
3. DRILLING AGENCY Corps of Engineers - CESAM		CONTRACTOR FILE NO.		11. MANUFACTURER'S DESIGNATION OF DRILL Vibrocure		<input type="checkbox"/> AUTO HAMMER <input type="checkbox"/> MANUAL HAMMER	
4. NAME OF DRILLER Construction Solutions International, Inc.				12. TOTAL SAMPLES 3		UNDISTURBED (UD) 0	
5. DIRECTION OF BORING <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED				13. TOTAL NUMBER CORE BOXES		14. WATER DEPTH 38 Ft.	
6. THICKNESS OF OVERBURDEN N/A				15. DATE BORING 07-01-11		STARTED 07-01-11	
7. DEPTH DRILLED INTO ROCK N/A				16. ELEVATION TOP OF BORING -37.7 Ft.		COMPLETED 07-01-11	
8. TOTAL DEPTH OF BORING 19.4 Ft.				17. TOTAL RECOVERY FOR BORING 100%		18. SIGNATURE AND TITLE OF INSPECTOR Michele Johnson, Geologist	
ELEV.	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS	SAMPLE	LABORATORY RESULTS		
-37.7	0.0						
-39.9	2.2		SAND, poorly-graded, mostly quartz, dark gray (SP)	A	Classification: SP-SM Color: 2.5Y 6/2-light brownish gray D50: 0.2568 mm % Fines: 9.1		
			SAND, silty, mostly fine-grained sand-sized quartz, lt. gray (SM)	B	Classification: SP Color: 2.5Y 7/2-light gray D50: 0.3158 mm % Fines: 3.9		
			At El. -43.5 Ft., mostly fine-grained sand-sized quartz, lt. gray	C	Classification: SP Color: 2.5Y 7/2-light gray D50: 0.2991 mm % Fines: 3.9		
				NS			
-57.1	19.4						
NOTES:							
1. Soils are field visually classified in accordance with the Unified Soils Classification System.							
2. NS = Sample not submitted for laboratory analysis from this interval.							
3. Seafloor elevation determined from 2010 USACE survey.							

# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	5.7	1.9	15.1	68.2	9.1	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
.75	100.0		
.5	96.6		
.375	96.0		
#4	94.3		
#10	92.4		
#20	89.6		
#40	77.3		
#60	48.2		
#100	17.5		
#200	9.1		

\* (no specification provided)

## Material Description

Slightly silty SAND (SP-SM), medium to fine grained

## Atterberg Limits

PL=

LL=

PI=

## Coefficients

D<sub>90</sub>= 0.9113

D<sub>85</sub>= 0.5612

D<sub>60</sub>= 0.3009

D<sub>50</sub>= 0.2568

D<sub>30</sub>= 0.1898

D<sub>15</sub>= 0.1219

D<sub>10</sub>= 0.0808

C<sub>u</sub>= 3.72

C<sub>c</sub>= 1.48

## Classification

USCS= SP-SM

AASHTO=

## Remarks

Location: USACE Sample # BI-PB-140A-11  
Sample Number: TE Lab ID: 5054.131

Depth: 0.0- 1.5 (ft)

Date: 7/18/11

**Thompson Engineering**

**Mobile, Alabama**

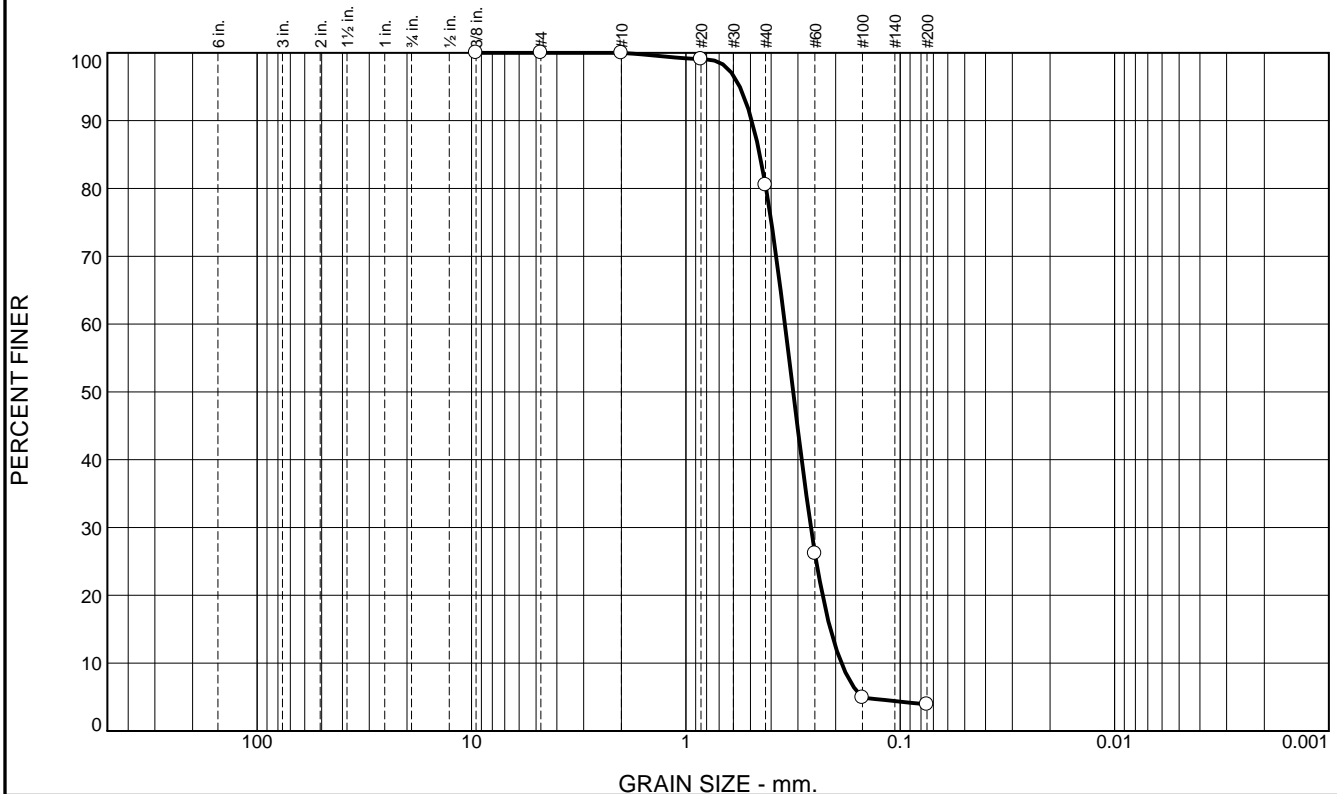
Client: US Army Corps of Engineers

Project: Contract No. W91278-10-D-0026 - Task 009  
Mississippi Barrier Island Restoration Project

Project No: 11-2116-0057

Figure

# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.0	0.0	19.5	76.6	3.9	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
.375	100.0		
#4	100.0		
#10	100.0		
#20	99.1		
#40	80.5		
#60	26.2		
#100	4.9		
#200	3.9		

\* (no specification provided)

Material Description		
SAND (SP), medium to fine grained		
PL=	Atterberg Limits LL=	PI=
D <sub>90</sub> = 0.4924	Coefficients D <sub>85</sub> = 0.4518	D <sub>60</sub> = 0.3453
D <sub>50</sub> = 0.3158	D <sub>30</sub> = 0.2611	D <sub>15</sub> = 0.2116
D <sub>10</sub> = 0.1881	C <sub>u</sub> = 1.84	C <sub>c</sub> = 1.05
USCS= SP	Classification AASHTO=	
Remarks		

Location: USACE Sample # BI-PB-140B-11  
Sample Number: TE Lab ID: 5054.132

Depth: 2.2 - 5.8 (ft)

Date: 7/18/11

**Thompson Engineering**

**Mobile, Alabama**

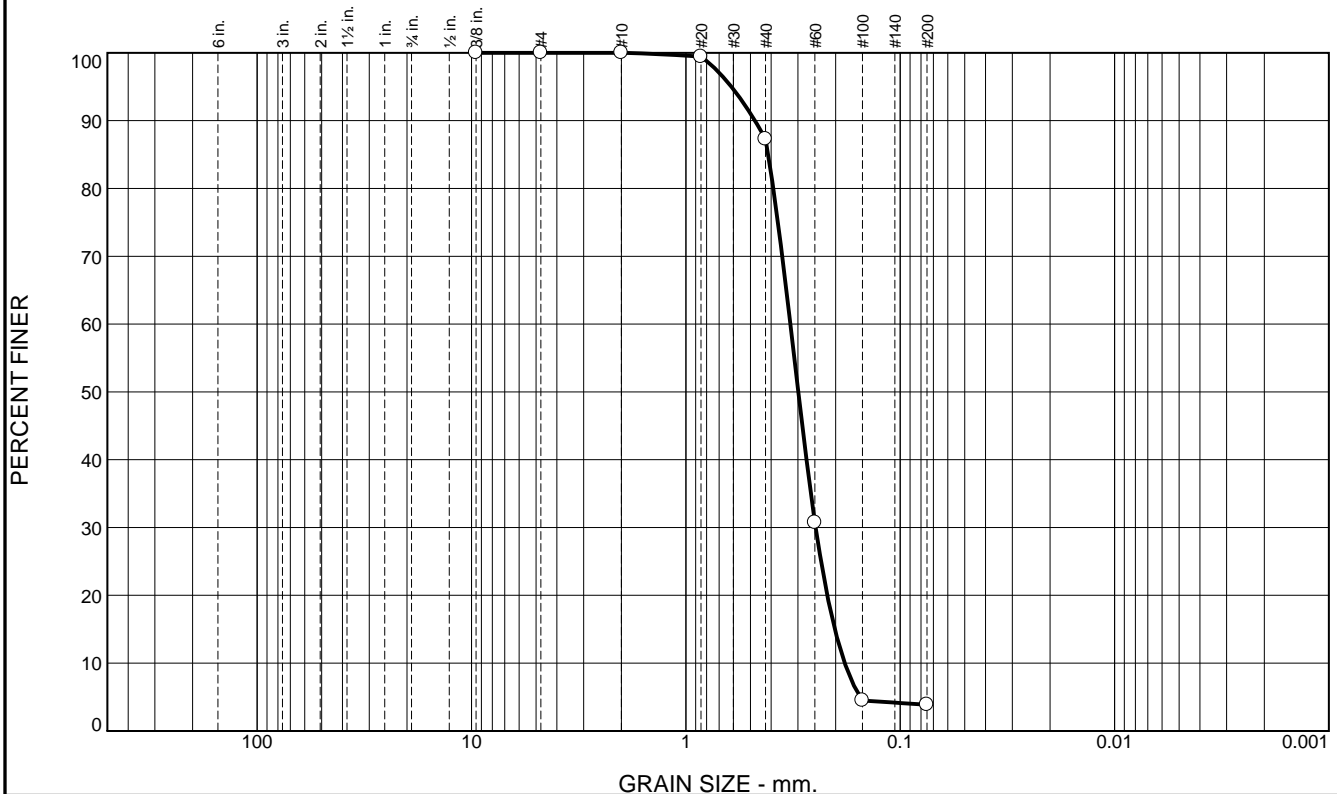
Client: US Army Corps of Engineers

Project: Contract No. W91278-10-D-0026 - Task 009  
Mississippi Barrier Island Restoration Project

Project No: 11-2116-0057

Figure

# Particle Size Distribution Report





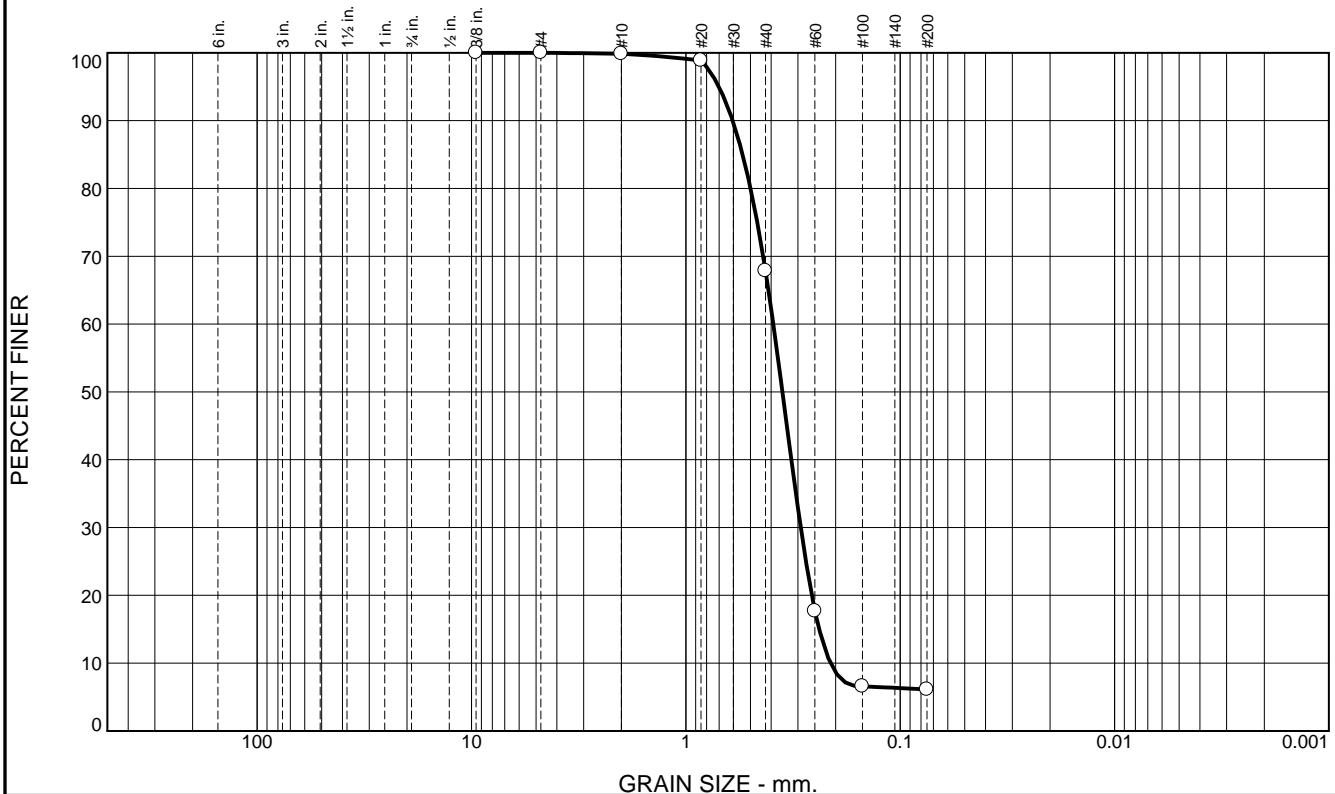
# Boring Designation BI-PB-141-11

DRILLING LOG		DIVISION South Atlantic		INSTALLATION Mobile District		SHEET 1 OF 1 SHEETS	
1. PROJECT MsCIP Barrier Island Restoration Petit Bois Pass- AL East				9. SIZE AND TYPE OF BIT N/A			
2. BORING DESIGNATION BI-PB-141-11		LOCATION COORDINATES E = 1,150,656 N = 251,751		10. COORDINATE SYSTEM/DATUM State Plane, MSE (U.S. Ft.)		HORIZONTAL NAD83 VERTICAL NAVD88	
3. DRILLING AGENCY Corps of Engineers - CESAM		CONTRACTOR FILE NO.		11. MANUFACTURER'S DESIGNATION OF DRILL Vibracore		<input type="checkbox"/> AUTO HAMMER <input type="checkbox"/> MANUAL HAMMER	
4. NAME OF DRILLER Construction Solutions International, Inc.				12. TOTAL SAMPLES		DISTURBED UNDISTURBED (UD) 0	
5. DIRECTION OF BORING <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED		DEG. FROM VERTICAL		13. TOTAL NUMBER CORE BOXES			
		BEARING		14. WATER DEPTH 40.5 Ft.			
6. THICKNESS OF OVERBURDEN N/A				15. DATE BORING 07-01-11		STARTED COMPLETED 07-01-11	
7. DEPTH DRILLED INTO ROCK N/A				16. ELEVATION TOP OF BORING -36.9 Ft.			
8. TOTAL DEPTH OF BORING 18.1 Ft.				17. TOTAL RECOVERY FOR BORING 100%			
				18. SIGNATURE AND TITLE OF INSPECTOR Michele Johnson, Geologist			
ELEV.	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS	SAMPLE	LABORATORY RESULTS		
-36.9	0.0		CLAY, lean, trace fine-grained sand, Some CL interbedded, dark gray (CL)	NS			
-42.9	6.0		SAND, poorly-graded, some medium-grained sand-sized, dark gray (SP)				
-51.9	15.0		CLAY, lean, trace fine-grained sand, dark gray (CL)				
-55.0	18.1						
			NOTES: 1. Soils are field visually classified in accordance with the Unified Soils Classification System. 2. NS = Sample not submitted for laboratory analysis from this interval. 3. Seafloor elevation calculated using sampling vessel's fathometer water depth reading and applying NOAA tidal gauge data conversion factor.				

# Boring Designation BI-PB-142-11

DRILLING LOG		DIVISION South Atlantic		INSTALLATION Mobile District		SHEET 1 OF 1 SHEETS	
1. PROJECT MsCIP Barrier Island Restoration Petit Bois Pass- AL East				9. SIZE AND TYPE OF BIT N/A			
2. BORING DESIGNATION BI-PB-142-11		LOCATION COORDINATES E = 1,154,108 N = 252,717		10. COORDINATE SYSTEM/DATUM State Plane, MSE (U.S. Ft.)		HORIZONTAL NAD83 VERTICAL NAVD88	
3. DRILLING AGENCY Corps of Engineers - CESAM		CONTRACTOR FILE NO.		11. MANUFACTURER'S DESIGNATION OF DRILL Vibrocure		<input type="checkbox"/> AUTO HAMMER <input type="checkbox"/> MANUAL HAMMER	
4. NAME OF DRILLER Construction Solutions International, Inc.				12. TOTAL SAMPLES 4		DISTURBED 4 UNDISTURBED (UD) 0	
5. DIRECTION OF BORING <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED		DEG. FROM VERTICAL		13. TOTAL NUMBER CORE BOXES			
		BEARING		14. WATER DEPTH 41 Ft.			
6. THICKNESS OF OVERBURDEN N/A				15. DATE BORING 07-01-11		STARTED 07-01-11 COMPLETED 07-01-11	
7. DEPTH DRILLED INTO ROCK N/A				16. ELEVATION TOP OF BORING -39.9 Ft.			
8. TOTAL DEPTH OF BORING 15.1 Ft.				17. TOTAL RECOVERY FOR BORING 100%			
				18. SIGNATURE AND TITLE OF INSPECTOR Michele Johnson, Geologist			
ELEV.	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS	SAMPLE	LABORATORY RESULTS		
-39.9	0.0						
			SAND, poorly-graded with silt, mostly fine to medium-grained sand-sized quartz, gray (SP-SM)	NS			
-43.9	4.0			A	Classification: SP-SM Color: 5Y 6/2-light olive gray D50: 0.3546 mm % Fines: 6.1		
			SAND, poorly-graded with silt, mostly fine to medium-grained sand-sized quartz, gray (SP-SM)	B	Classification: SP Color: 5Y 5/2-olive gray D50: 0.3862 mm % Fines: 4.6		
-48.9	9.0			C	Classification: SP-SM Color: 5Y 5/2-olive gray D50: 0.3635 mm % Fines: 7.5		
			SAND, poorly-graded, mostly medium-grained sand-sized quartz, gray (SP)	D	Classification: SP Color: 5Y 6/1-gray D50: 0.3628 mm % Fines: 4		
-55.0	15.1						
			At El. -51.9 Ft., mostly medium-grained sand-sized quartz, gray				
			NOTES: 1. Soils are field visually classified in accordance with the Unified Soils Classification System. 2. NS = Sample not submitted for laboratory analysis from this interval. 3. Seafloor elevation determined from 2010 USACE survey.				

# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.0	0.1	32.1	61.7	6.1	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
.375	100.0		
#4	100.0		
#10	99.9		
#20	98.9		
#40	67.8		
#60	17.7		
#100	6.6		
#200	6.1		

\* (no specification provided)

## Material Description

Slightly silty SAND (SP-SM), medium to fine grained

## Atterberg Limits

PL=

LL=

PI=

## Coefficients

D<sub>90</sub>= 0.6045

D<sub>85</sub>= 0.5434

D<sub>60</sub>= 0.3910

D<sub>50</sub>= 0.3546

D<sub>30</sub>= 0.2913

D<sub>15</sub>= 0.2389

D<sub>10</sub>= 0.2113

C<sub>u</sub>= 1.85

C<sub>c</sub>= 1.03

## Classification

USCS= SP-SM

AASHTO=

## Remarks

Location: USACE Sample # BI-PB-142A-11  
Sample Number: TE Lab ID: 5054.137

Depth: 1.2 - 4.0 (ft)

Date: 7/18/11

**Thompson Engineering**

**Mobile, Alabama**

Client: US Army Corps of Engineers

Project: Contract No. W91278-10-D-0026 - Task 009  
Mississippi Barrier Island Restoration Project

Project No: 11-2116-0057

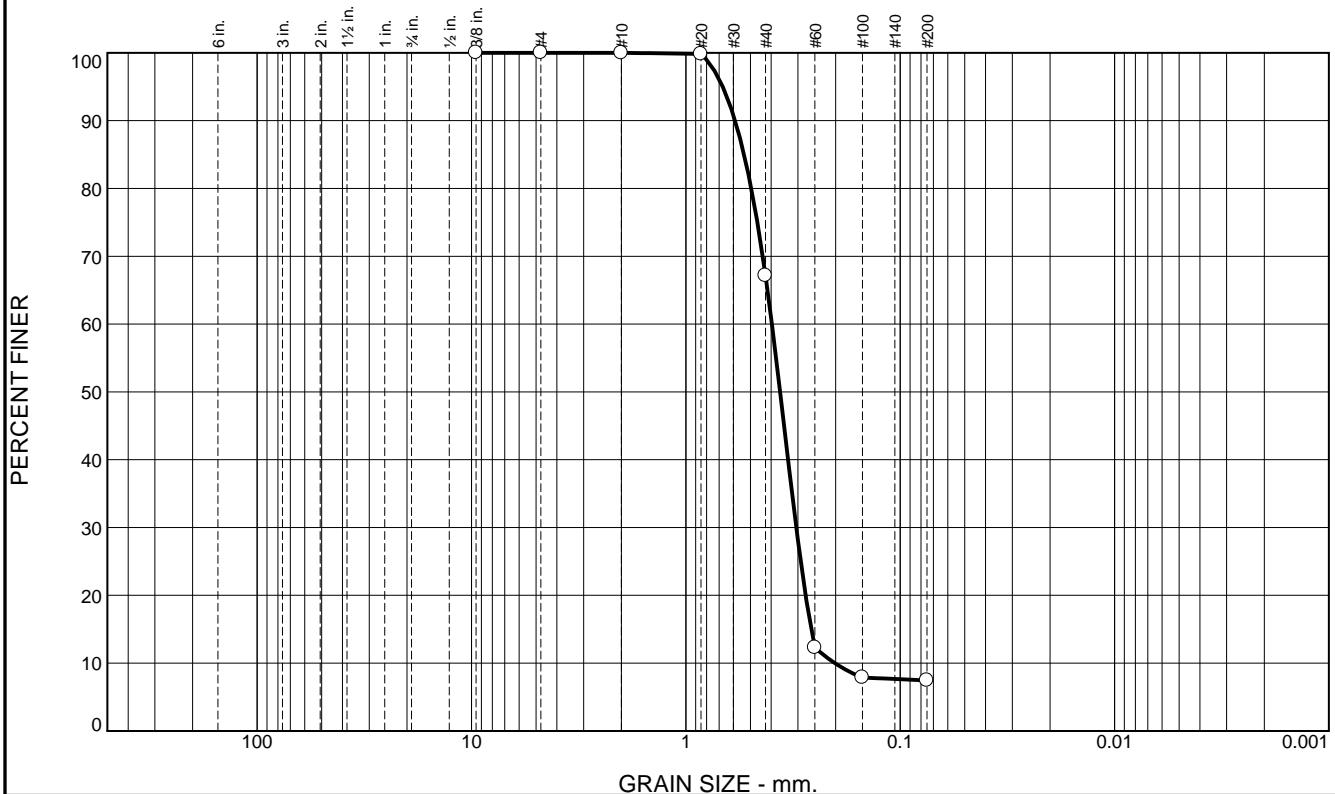
Figure

## PERCENT FINER



<b><u>Material Description</u></b>		
SAND (SP), medium to fine grained		
<b><u>Atterberg Limits</u></b>		
PL=	LL=	PI=
<b><u>Coefficients</u></b>		
D <sub>90</sub> = 0.6416	D <sub>85</sub> = 0.5851	D <sub>60</sub> = 0.4253
D <sub>50</sub> = 0.3862	D <sub>30</sub> = 0.3210	D <sub>15</sub> = 0.2732
D <sub>10</sub> = 0.2542	C <sub>u</sub> = 1.67	C <sub>c</sub> = 0.95
<b><u>Classification</u></b>		
USCS= SP	AASHTO=	
<b><u>Remarks</u></b>		

# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.0	0.0	32.9	59.6	7.5	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
.375	100.0		
#4	100.0		
#10	100.0		
#20	99.8		
#40	67.1		
#60	12.3		
#100	7.9		
#200	7.5		

\* (no specification provided)

## Material Description

Slightly silty SAND (SP-SM), medium to fine grained

## Atterberg Limits

PL= LL= PI=

## Coefficients

D<sub>90</sub>= 0.5889 D<sub>85</sub>= 0.5349 D<sub>60</sub>= 0.3969  
D<sub>50</sub>= 0.3635 D<sub>30</sub>= 0.3055 D<sub>15</sub>= 0.2602  
D<sub>10</sub>= 0.2017 C<sub>u</sub>= 1.97 C<sub>c</sub>= 1.17

## Classification

USCS= SP-SM AASHTO=

## Remarks

Location: USACE Sample # BI-PB-142C-11  
Sample Number: TE Lab ID: 5054.139

Depth: 9.0 - 12.0 (ft)

Date: 7/18/11

**Thompson Engineering**

**Mobile, Alabama**

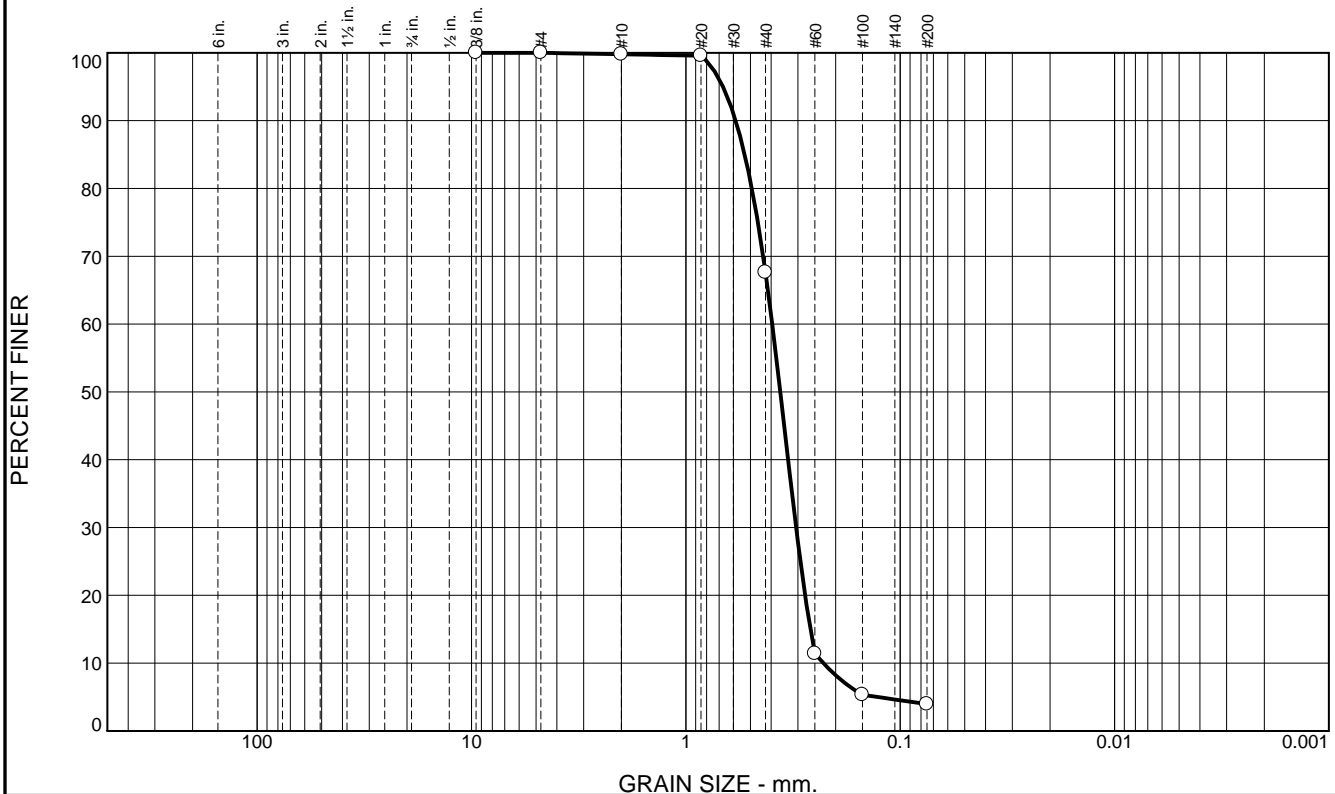
**Client:** US Army Corps of Engineers

**Project:** Contract No. W91278-10-D-0026 - Task 009  
Mississippi Barrier Island Restoration Project

**Project No:** 11-2116-0057

**Figure**

# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.0	0.2	32.2	63.6	4.0	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
.375	100.0		
#4	100.0		
#10	99.8		
#20	99.6		
#40	67.6		
#60	11.4		
#100	5.3		
#200	4.0		

\* (no specification provided)

Material Description		
SAND (SP), medium to fine grained		
<div> <div> <b>Atterberg Limits</b>            PL=      LL=      PI=         </div> <div> <b>Coefficients</b>            D<sub>90</sub>= 0.5851    D<sub>85</sub>= 0.5312    D<sub>60</sub>= 0.3955            D<sub>50</sub>= 0.3628    D<sub>30</sub>= 0.3061    D<sub>15</sub>= 0.2627            D<sub>10</sub>= 0.2283    C<sub>u</sub>= 1.73      C<sub>c</sub>= 1.04         </div> <div> <b>Classification</b>            USCS= SP      AASHTO=         </div> <div> <b>Remarks</b> </div> </div>		

Location: USACE Sample # BI-PB-142D-11  
Sample Number: TE Lab ID: 5054.140

Depth: 12.0 - 15.1 (ft)

Date: 7/18/11

**Thompson Engineering**

**Mobile, Alabama**

**Client:** US Army Corps of Engineers

**Project:** Contract No. W91278-10-D-0026 - Task 009  
Mississippi Barrier Island Restoration Project

**Project No:** 11-2116-0057

**Figure**

# Boring Designation BI-PB-143-11

DRILLING LOG		DIVISION South Atlantic		INSTALLATION Mobile District		SHEET 1 OF 2 SHEETS	
1. PROJECT MsCIP Barrier Island Restoration Petit Bois Pass- AL East				9. SIZE AND TYPE OF BIT N/A			
2. BORING DESIGNATION BI-PB-143-11		LOCATION COORDINATES E = 1,155,503 N = 254,302		10. COORDINATE SYSTEM/DATUM State Plane, MSE (U.S. Ft.)		HORIZONTAL NAD83 VERTICAL NAVD88	
3. DRILLING AGENCY Corps of Engineers - CESAM		CONTRACTOR FILE NO.		11. MANUFACTURER'S DESIGNATION OF DRILL Vibrocure		<input type="checkbox"/> AUTO HAMMER <input type="checkbox"/> MANUAL HAMMER	
4. NAME OF DRILLER Construction Solutions International, Inc.				12. TOTAL SAMPLES		DISTURBED UNDISTURBED (UD) 0	
5. DIRECTION OF BORING <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED		DEG. FROM VERTICAL		13. TOTAL NUMBER CORE BOXES			
		BEARING		14. WATER DEPTH 41.5 Ft.			
6. THICKNESS OF OVERBURDEN N/A				15. DATE BORING		STARTED 07-01-11 COMPLETED 07-01-11	
7. DEPTH DRILLED INTO ROCK N/A				16. ELEVATION TOP OF BORING -39.7 Ft.			
8. TOTAL DEPTH OF BORING 19.5 Ft.				17. TOTAL RECOVERY FOR BORING 100%			
				18. SIGNATURE AND TITLE OF INSPECTOR Michele Johnson, Geologist			
ELEV.	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS	SAMPLE	LABORATORY RESULTS		
-39.7	0.0		CLAY, fat, some sand, dark gray (CH)	NS			
-47.1	7.4		SAND, poorly-graded, mostly medium-grained sand-sized quartz, gray (SP)				
-52.1	12.4		CLAY, fat, dark gray (CH)				
-59.2	19.5		NOTES: 1. Soils are field visually classified in accordance with the Unified Soils Classification System. 2. NS = Sample not submitted for laboratory analysis from this interval. 3. Seafloor elevation calculated using sampling vessel's fathometer water depth reading and				

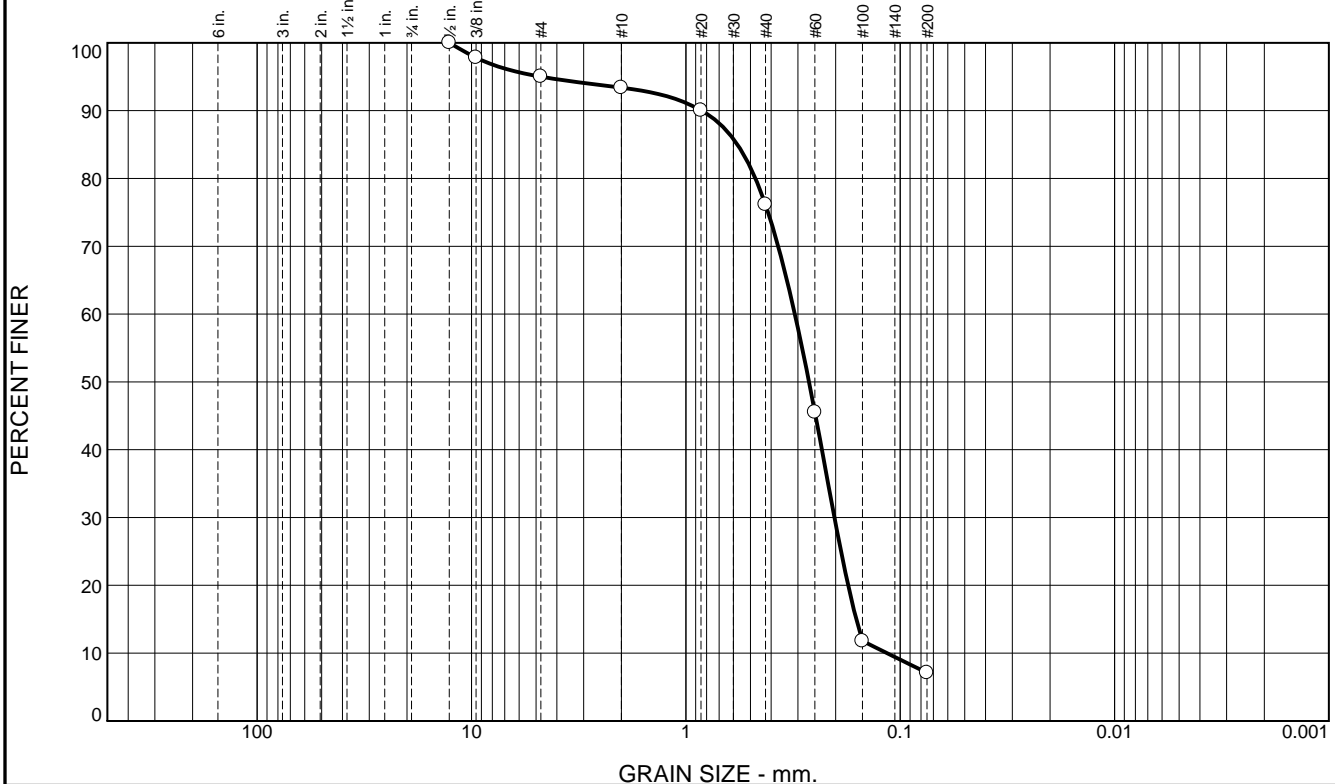
<b>DRILLING LOG (Cont. Sheet)</b>			<b>INSTALLATION</b> Mobile District		<b>SHEET 2</b> <b>OF 2 SHEETS</b>
<b>PROJECT</b> MsCIP Barrier Island Restoration			<b>COORDINATE SYSTEM/DATUM</b> State Plane, MSE (U.S. Ft.)	<b>HORIZONTAL</b> NAD83	<b>VERTICAL</b> NAVD88
<b>LOCATION COORDINATES</b> X = 1,155,503 Y = 254,302			<b>ELEVATION TOP OF BORING</b> -39.7 Ft.		
<b>ELEV.</b>	<b>DEPTH</b>	<b>LEGEND</b>	<b>CLASSIFICATION OF MATERIALS</b>	<b>SAMPLE</b>	<b>LABORATORY RESULTS</b>
			applying NOAA tidal gauge data conversion factor.		



# Boring Designation BI-PB-144-11

DRILLING LOG		DIVISION South Atlantic		INSTALLATION Mobile District		SHEET 1 OF 1 SHEETS	
1. PROJECT MsCIP Barrier Island Restoration Petit Bois Pass- AL East				9. SIZE AND TYPE OF BIT N/A			
2. BORING DESIGNATION BI-PB-144-11		LOCATION COORDINATES E = 1,155,524 N = 255,866		10. COORDINATE SYSTEM/DATUM State Plane, MSE (U.S. Ft.)		HORIZONTAL NAD83	
3. DRILLING AGENCY Corps of Engineers - CESAM		CONTRACTOR FILE NO.		11. MANUFACTURER'S DESIGNATION OF DRILL Vibrocure		<input type="checkbox"/> AUTO HAMMER <input type="checkbox"/> MANUAL HAMMER	
4. NAME OF DRILLER Construction Solutions International, Inc.				12. TOTAL SAMPLES 4		UNDISTURBED (UD) 0	
5. DIRECTION OF BORING <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED				13. TOTAL NUMBER CORE BOXES		14. WATER DEPTH 35 Ft.	
6. THICKNESS OF OVERBURDEN N/A				15. DATE BORING 07-01-11		STARTED 07-01-11	
7. DEPTH DRILLED INTO ROCK N/A				16. ELEVATION TOP OF BORING -33.1 Ft.		COMPLETED 07-01-11	
8. TOTAL DEPTH OF BORING 16.2 Ft.				17. TOTAL RECOVERY FOR BORING 100%			
				18. SIGNATURE AND TITLE OF INSPECTOR Michele Johnson, Geologist			
ELEV.	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS	SAMPLE	LABORATORY RESULTS		
-33.1	0.0						
			SAND, poorly-graded, mostly coarse-grained sand-sized quartz, gray (SP)	A	Classification: SP-SM Color: 2.5Y 7/1-light gray D50: 0.2664 mm % Fines: 7.1		
-37.1	4.0		SAND, poorly-graded with silt, trace shell fragments, dark gray (SP-SM)	B	Classification: SP-SM Color: 2.5Y 6/2-light brownish gray D50: 0.2519 mm % Fines: 5.9		
			At El. -41.1 Ft., trace clay, dark gray	C	Classification: SM Color: 2.5Y 5/1-gray D50: 0.2399 mm % Fines: 18.8		
			At El. -45.1 Ft., mostly medium-grained sand-sized quartz, dark gray	D	Classification: SM Color: 2.5Y 5/2-grayish brown D50: 0.3375 mm % Fines: 17.9		
-49.3	16.2						
			NOTES: 1. Soils are field visually classified in accordance with the Unified Soils Classification System. 2. NS = Sample not submitted for laboratory analysis from this interval. 3. Seafloor elevation calculated using sampling vessel's fathometer water depth reading and applying NOAA tidal gauge data conversion factor.				

# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	5.0	1.6	17.3	69.0	7.1	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
.5	100.0		
.375	97.8		
#4	95.0		
#10	93.4		
#20	90.0		
#40	76.1		
#60	45.5		
#100	11.8		
#200	7.1		

\* (no specification provided)

## Material Description

Slightly silty SAND (SP-SM), medium to fine grained

## Atterberg Limits

PL= LL= PI=

## Coefficients

D<sub>90</sub>= 0.8462 D<sub>85</sub>= 0.5744 D<sub>60</sub>= 0.3103  
D<sub>50</sub>= 0.2664 D<sub>30</sub>= 0.2026 D<sub>15</sub>= 0.1604  
D<sub>10</sub>= 0.1152 C<sub>u</sub>= 2.69 C<sub>c</sub>= 1.15

## Classification

USCS= SP-SM AASHTO=

## Remarks

There are two samples marked BI-PB-144A-11, 0 - 4 ft and no sample marked BI-PB-145A-11. Both samples were tested and marked BI-PB-144A-1-11 and BI-PB-144A-2-11.

Location: USACE Sample # BI-PB-144A-1-11

Sample Number: TE Lab ID: 5054.141

Depth: 0.0 - 4.0 (ft)

Date: 7/18/11

**Thompson Engineering**

**Mobile, Alabama**

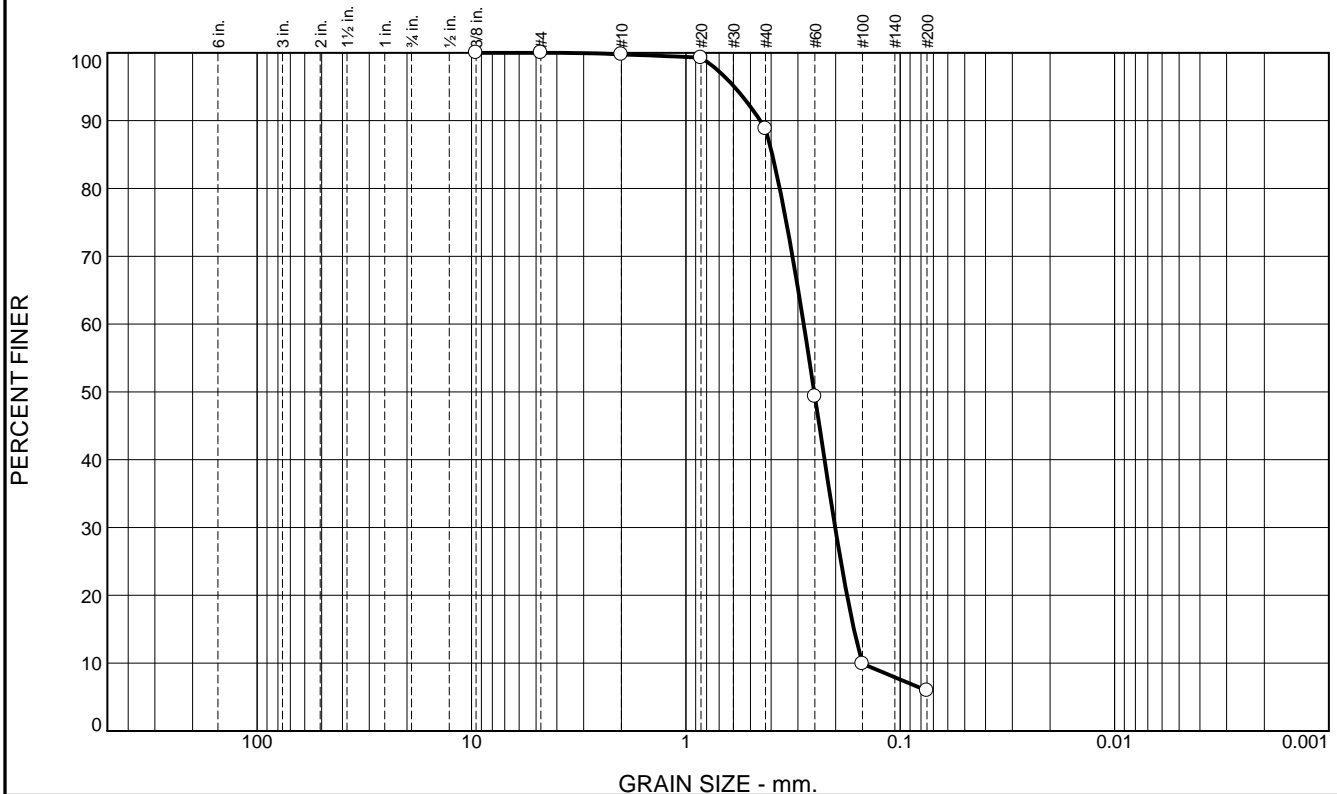
Client: US Army Corps of Engineers

Project: Contract No. W91278-10-D-0026 - Task 009  
Mississippi Barrier Island Restoration Project

Project No: 11-2116-0057

Figure

# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.0	0.2	11.0	82.9	5.9	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
.375	100.0		
#4	100.0		
#10	99.8		
#20	99.3		
#40	88.8		
#60	49.3		
#100	9.9		
#200	5.9		

\* (no specification provided)

**Material Description**  
Slightly silty SAND (SP-SM), medium to fine grained

**Atterberg Limits**  
 PL=      LL=      PI=

**Coefficients**  
 D<sub>90</sub>= 0.4496      D<sub>85</sub>= 0.3953      D<sub>60</sub>= 0.2821  
 D<sub>50</sub>= 0.2519      D<sub>30</sub>= 0.2010      D<sub>15</sub>= 0.1645  
 D<sub>10</sub>= 0.1503      C<sub>u</sub>= 1.88      C<sub>c</sub>= 0.95

**Classification**  
 USCS= SP-SM      AASHTO=

**Remarks**

Location: USACE Sample # BI-PB-144B-11  
 Sample Number: TE Lab ID: 5054.142

Depth: 4.0 - 8.0 (ft)

Date: 7/18/11

**Thompson Engineering**

**Mobile, Alabama**

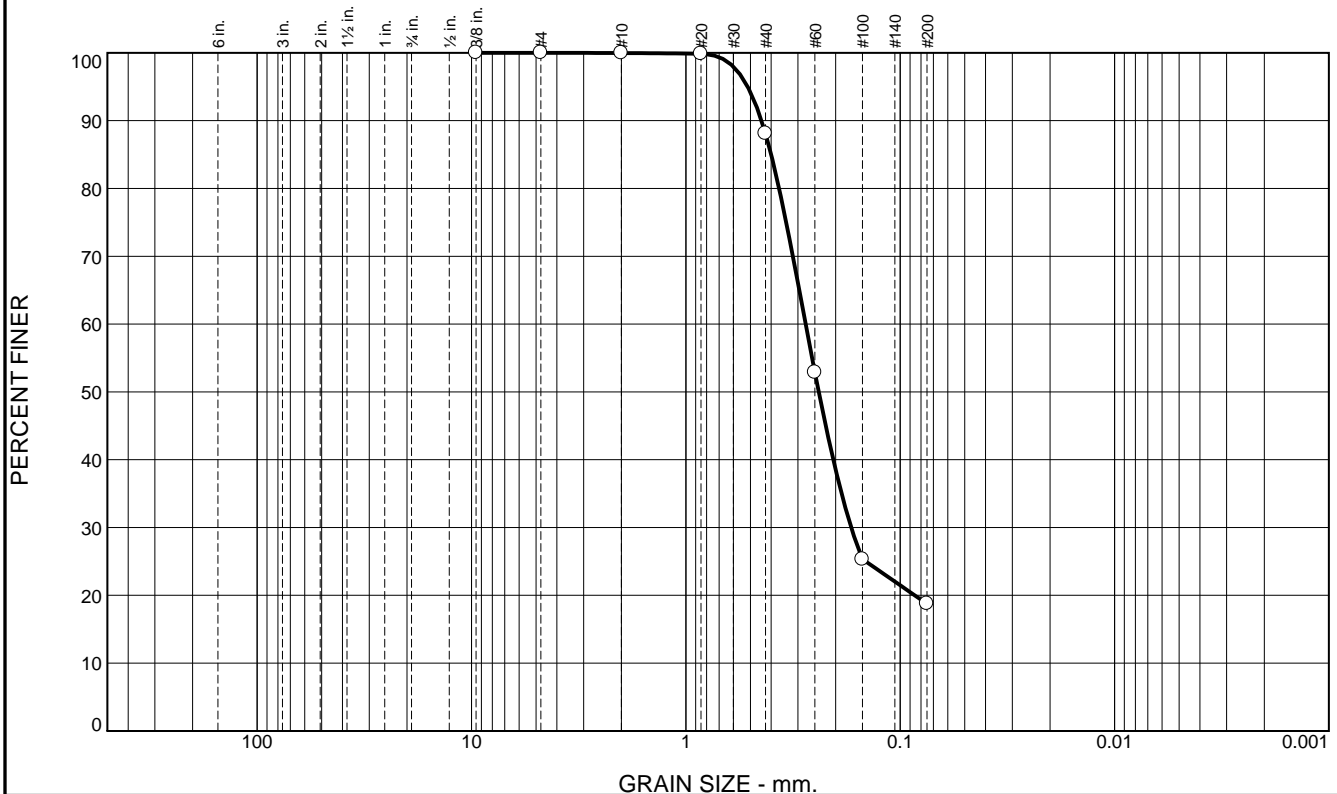
**Client:** US Army Corps of Engineers

**Project:** Contract No. W91278-10-D-0026 - Task 009  
 Mississippi Barrier Island Restoration Project

**Project No:** 11-2116-0057

**Figure**

# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.0	0.0	11.9	69.3	18.8	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
.375	100.0		
#4	100.0		
#10	100.0		
#20	99.9		
#40	88.1		
#60	52.8		
#100	25.3		
#200	18.8		

\* (no specification provided)

**Material Description**  
Silty SAND (SM), medium to fine grained

**Atterberg Limits**  
 PL=      LL=      PI=

**Coefficients**  
 D<sub>90</sub>= 0.4434      D<sub>85</sub>= 0.4000      D<sub>60</sub>= 0.2762  
 D<sub>50</sub>= 0.2399      D<sub>30</sub>= 0.1693      D<sub>15</sub>=  
 D<sub>10</sub>=      C<sub>u</sub>=      C<sub>c</sub>=

**Classification**  
 USCS= SM      AASHTO=

**Remarks**

Location: USACE Sample # BI-PB-144C-11  
 Sample Number: TE Lab ID: 5054.143

Depth: 8.0 - 12.0 (ft)

Date: 7/18/11

**Thompson Engineering**

**Mobile, Alabama**

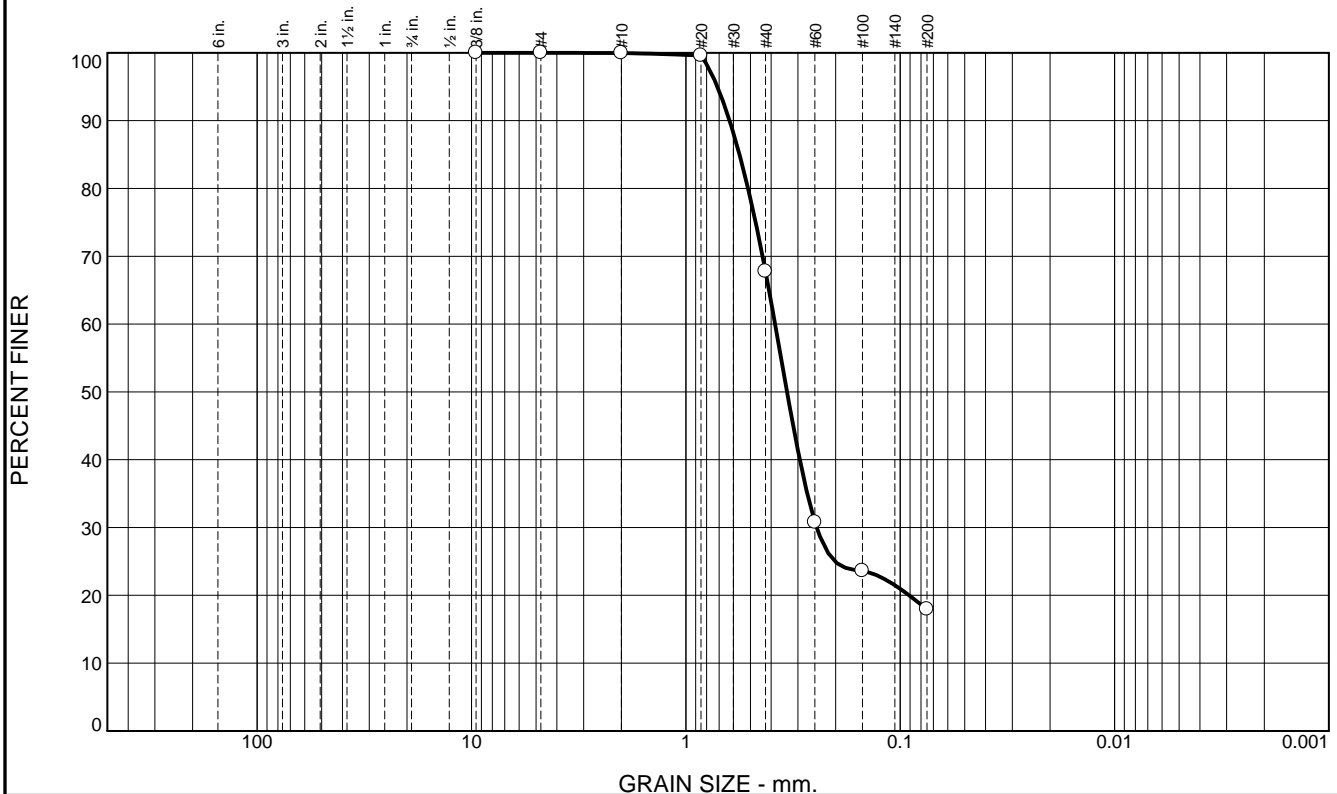
**Client:** US Army Corps of Engineers

**Project:** Contract No. W91278-10-D-0026 - Task 009  
 Mississippi Barrier Island Restoration Project

**Project No:** 11-2116-0057

**Figure**

# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.0	0.0	32.2	49.9	17.9	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
.375	100.0		
#4	100.0		
#10	100.0		
#20	99.6		
#40	67.8		
#60	30.8		
#100	23.6		
#200	17.9		

<u>Material Description</u>		
Silty SAND (SM), medium to fine grained		
<u>Atterberg Limits</u>		
PL=	LL=	PI=
<u>Coefficients</u>		
D <sub>90</sub> = 0.6247	D <sub>85</sub> = 0.5617	D <sub>60</sub> = 0.3836
D <sub>50</sub> = 0.3375	D <sub>30</sub> = 0.2455	D <sub>15</sub> =
D <sub>10</sub> =	C <sub>u</sub> =	C <sub>c</sub> =
<u>Classification</u>		
USCS= SM	AASHTO=	
<u>Remarks</u>		

\* (no specification provided)

Location: USACE Sample # BI-PB-144D-11  
Sample Number: TE Lab ID: 5054.144

Depth: 12.0 - 16.2 (ft)

Date: 7/18/11

**Thompson Engineering**

**Mobile, Alabama**

Client: US Army Corps of Engineers

Project: Contract No. W91278-10-D-0026 - Task 009  
Mississippi Barrier Island Restoration Project

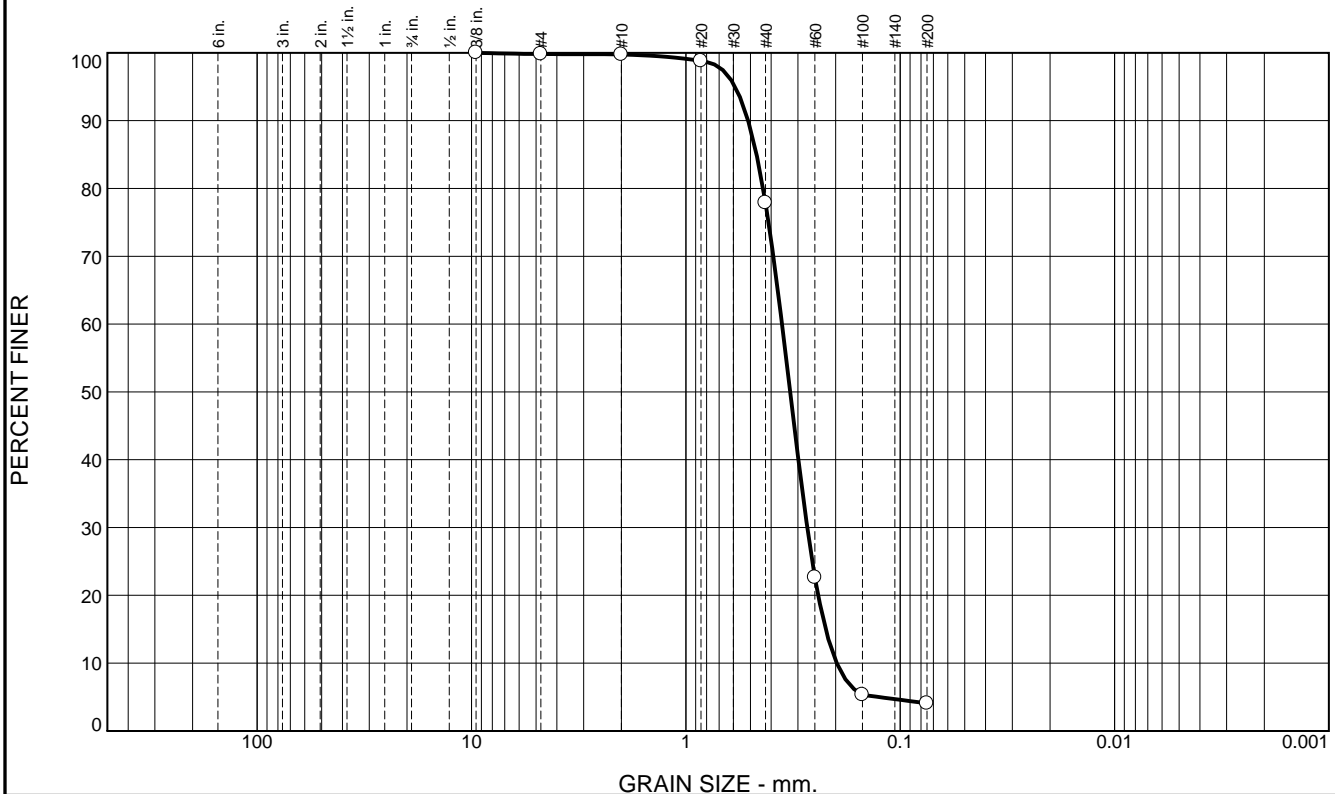
Project No: 11-2116-0057

Figure

# Boring Designation BI-PB-145-11

DRILLING LOG		DIVISION South Atlantic		INSTALLATION Mobile District		SHEET 1 OF 1 SHEETS	
1. PROJECT MsCIP Barrier Island Restoration Petit Bois Pass- AL East				9. SIZE AND TYPE OF BIT N/A			
2. BORING DESIGNATION BI-PB-145-11		LOCATION COORDINATES E = 1,155,559 N = 257,212		10. COORDINATE SYSTEM/DATUM State Plane, MSE (U.S. Ft.)		HORIZONTAL NAD83	
3. DRILLING AGENCY Corps of Engineers - CESAM		CONTRACTOR FILE NO.		11. MANUFACTURER'S DESIGNATION OF DRILL Vibracore		<input type="checkbox"/> AUTO HAMMER <input type="checkbox"/> MANUAL HAMMER	
4. NAME OF DRILLER Construction Solutions International, Inc.				12. TOTAL SAMPLES 3		UNDISTURBED (UD) 0	
5. DIRECTION OF BORING <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED				13. TOTAL NUMBER CORE BOXES		14. WATER DEPTH 36.6 Ft.	
6. THICKNESS OF OVERBURDEN N/A				15. DATE BORING 07-01-11		COMPLETED 07-01-11	
7. DEPTH DRILLED INTO ROCK N/A				16. ELEVATION TOP OF BORING -34.5 Ft.		17. TOTAL RECOVERY FOR BORING 100%	
8. TOTAL DEPTH OF BORING 16.4 Ft.				18. SIGNATURE AND TITLE OF INSPECTOR Michele Johnson, Geologist			
ELEV.	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS	SAMPLE	LABORATORY RESULTS		
-34.5	0.0						
-38.5	4.0		SAND, poorly-graded, mostly medium-grained sand-sized quartz, gray (SP)	A	Classification: SP Color: - D50: 0.3263 mm % Fines: 4.1		
-41.8	7.3		SAND, poorly-graded, mostly medium-grained sand-sized quartz, gray (SP)	B	Classification: SP Color: 5Y 7/1-light gray D50: 0.3541 mm % Fines: 2.9		
-50.9	16.4		SAND, clayey, trace shell fragments, clayey, gray (SC)	C	Classification: SM Color: 2.5Y 5/1-gray D50: 0.189 mm % Fines: 21.2		
				NS			
NOTES: 1. Soils are field visually classified in accordance with the Unified Soils Classification System. 2. NS = Sample not submitted for laboratory analysis from this interval. 3. Seafloor elevation calculated using sampling vessel's fathometer water depth reading and applying NOAA tidal gauge data conversion factor.							

# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.2	0.0	21.9	73.8	4.1	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
.375	100.0		
#4	99.8		
#10	99.8		
#20	98.8		
#40	77.9		
#60	22.6		
#100	5.3		
#200	4.1		

\* (no specification provided)

<u>Material Description</u>		
SAND (SP), medium to fine grained		
<u>Atterberg Limits</u>		
PL=	LL=	PI=
<u>Coefficients</u>		
D <sub>90</sub> = 0.5122	D <sub>85</sub> = 0.4678	D <sub>60</sub> = 0.3562
D <sub>50</sub> = 0.3263	D <sub>30</sub> = 0.2716	D <sub>15</sub> = 0.2227
D <sub>10</sub> = 0.1977	C <sub>u</sub> = 1.80	C <sub>c</sub> = 1.05
<u>Classification</u>		
USCS= SP	AASHTO=	
<u>Remarks</u>		
There are two samples marked BI-PB-144A-11, 0 - 4 ft and no sample marked BI-PB-145A-11. Both samples were tested and marked BI-PB-144A-1-11 and BI-PB-144A-2-11.		

Location: USACE Sample # BI-PB-144A-2-11  
Sample Number: TE Lab ID: 5054.145

Should be labeled BI-PB-145A-11  
Depth: 0.0 - 4.0 (ft)

Date: 7/18/11

**Thompson Engineering**

**Mobile, Alabama**

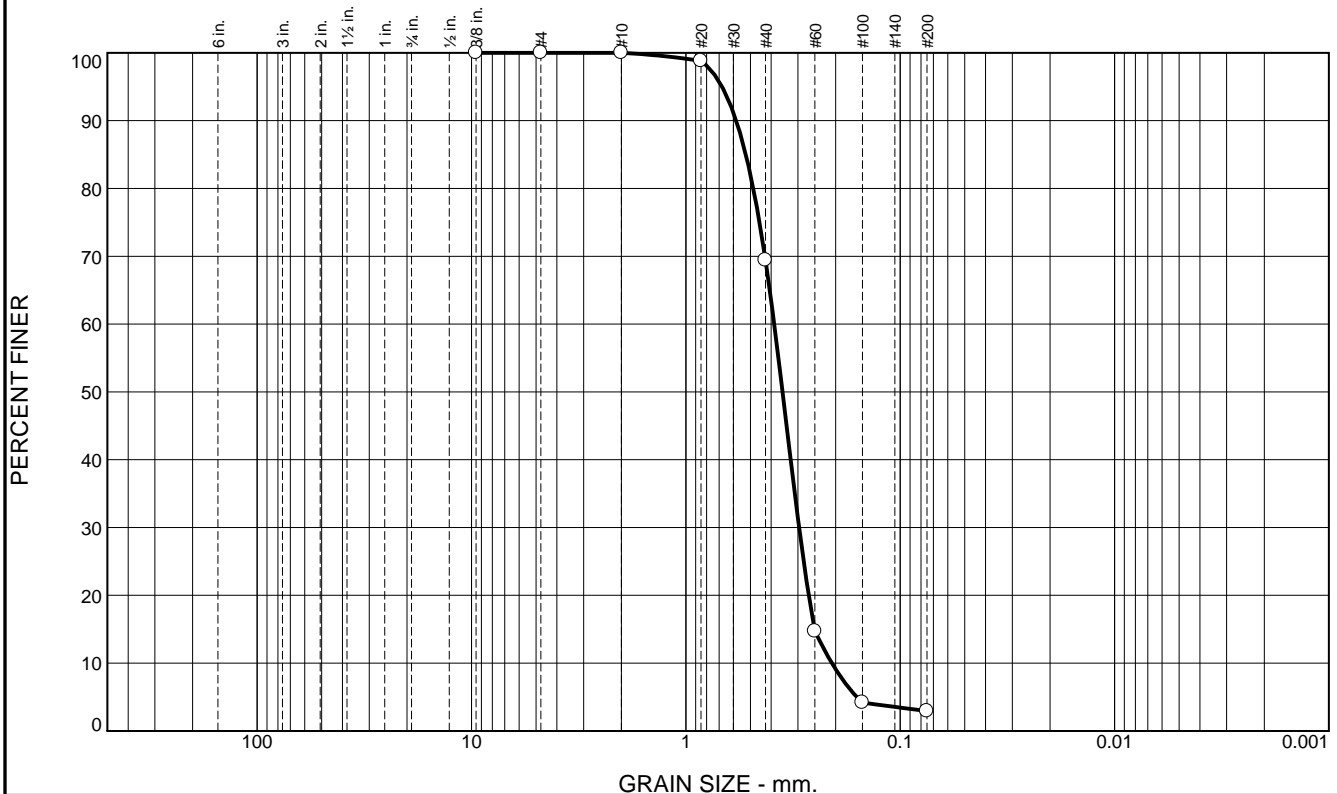
**Client:** US Army Corps of Engineers

**Project:** Contract No. W91278-10-D-0026 - Task 009  
Mississippi Barrier Island Restoration Project

**Project No:** 11-2116-0057

**Figure**

# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.0	0.0	30.6	66.5	2.9	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
.375	100.0		
#4	100.0		
#10	100.0		
#20	98.8		
#40	69.4		
#60	14.7		
#100	4.2		
#200	2.9		

\* (no specification provided)

Material Description		
SAND (SP), medium to fine grained		
<div> <div> <b>Atterberg Limits</b>            PL=      LL=      PI=         </div> <div> <b>Coefficients</b>            D<sub>90</sub>= 0.5818      D<sub>85</sub>= 0.5249      D<sub>60</sub>= 0.3872            D<sub>50</sub>= 0.3541      D<sub>30</sub>= 0.2965      D<sub>15</sub>= 0.2511            D<sub>10</sub>= 0.2083      C<sub>u</sub>= 1.86      C<sub>c</sub>= 1.09         </div> <div> <b>Classification</b>            USCS= SP      AASHTO=         </div> <div> <b>Remarks</b> </div> </div>		

Location: USACE Sample # BI-PB-145B-11  
Sample Number: TE Lab ID: 5054.146

Depth: 4.0 - 7.3 (ft)

Date: 7/18/11

**Thompson Engineering**

**Mobile, Alabama**

Client: US Army Corps of Engineers

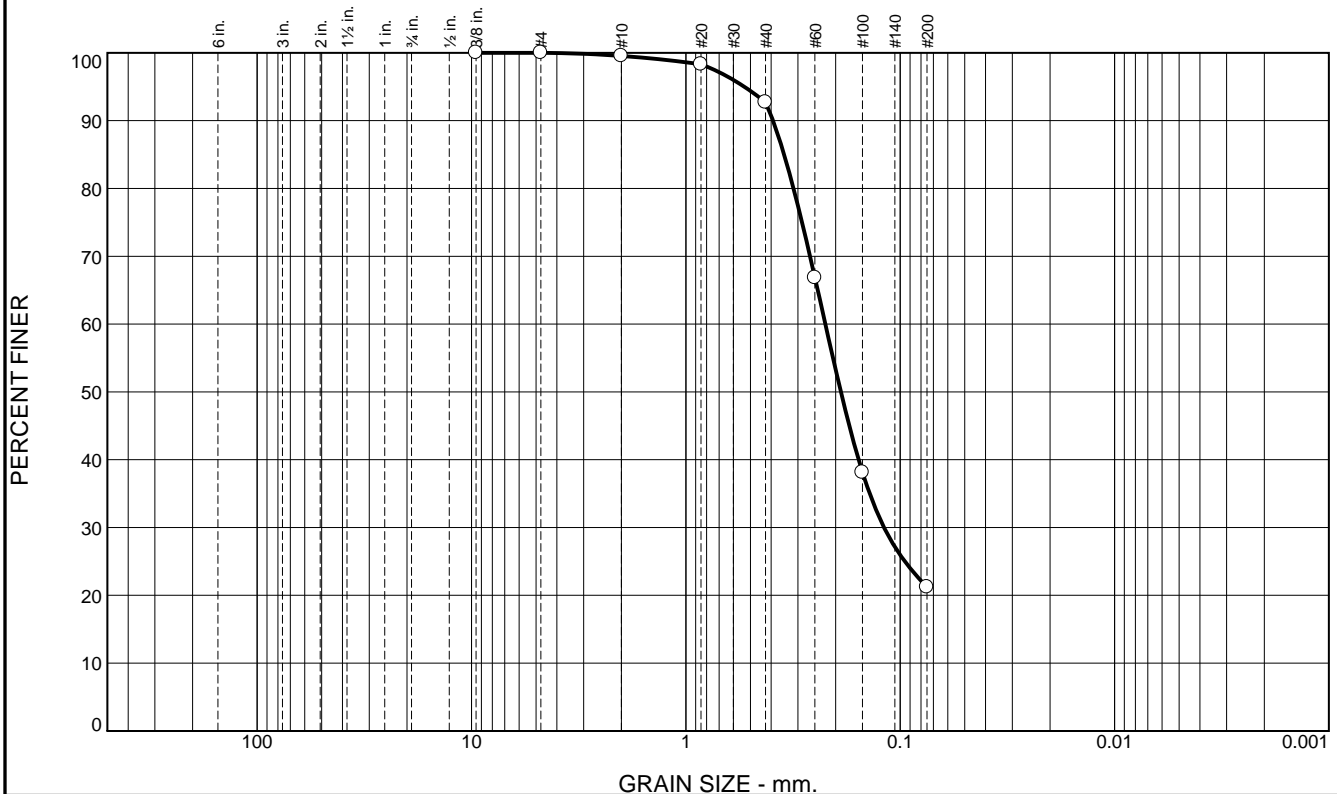
Project: Contract No. W91278-10-D-0026 - Task 009  
Mississippi Barrier Island Restoration Project

Project No: 11-2116-0057

Figure



# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.0	0.5	6.8	71.5	21.2	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
.375	100.0		
#4	100.0		
#10	99.5		
#20	98.3		
#40	92.7		
#60	66.8		
#100	38.1		
#200	21.2		

\* (no specification provided)

**Material Description**  
Silty SAND (SM), fine grained

**Atterberg Limits**  
 PL=      LL=      PI=

**Coefficients**  
 D<sub>90</sub>= 0.3921      D<sub>85</sub>= 0.3481      D<sub>60</sub>= 0.2235  
 D<sub>50</sub>= 0.1890      D<sub>30</sub>= 0.1189      D<sub>15</sub>=  
 D<sub>10</sub>=      C<sub>u</sub>=      C<sub>c</sub>=

**Classification**  
 USCS= SM      AASHTO=

**Remarks**

Location: USACE Sample # BI-PB-145C-11  
 Sample Number: TE Lab ID: 5054.147

Depth: 7.3 - 11.4 (ft)

Date: 7/18/11

**Thompson Engineering**

**Mobile, Alabama**

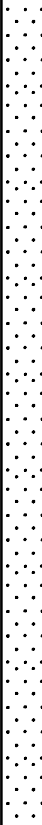
**Client:** US Army Corps of Engineers

**Project:** Contract No. W91278-10-D-0026 - Task 009  
 Mississippi Barrier Island Restoration Project

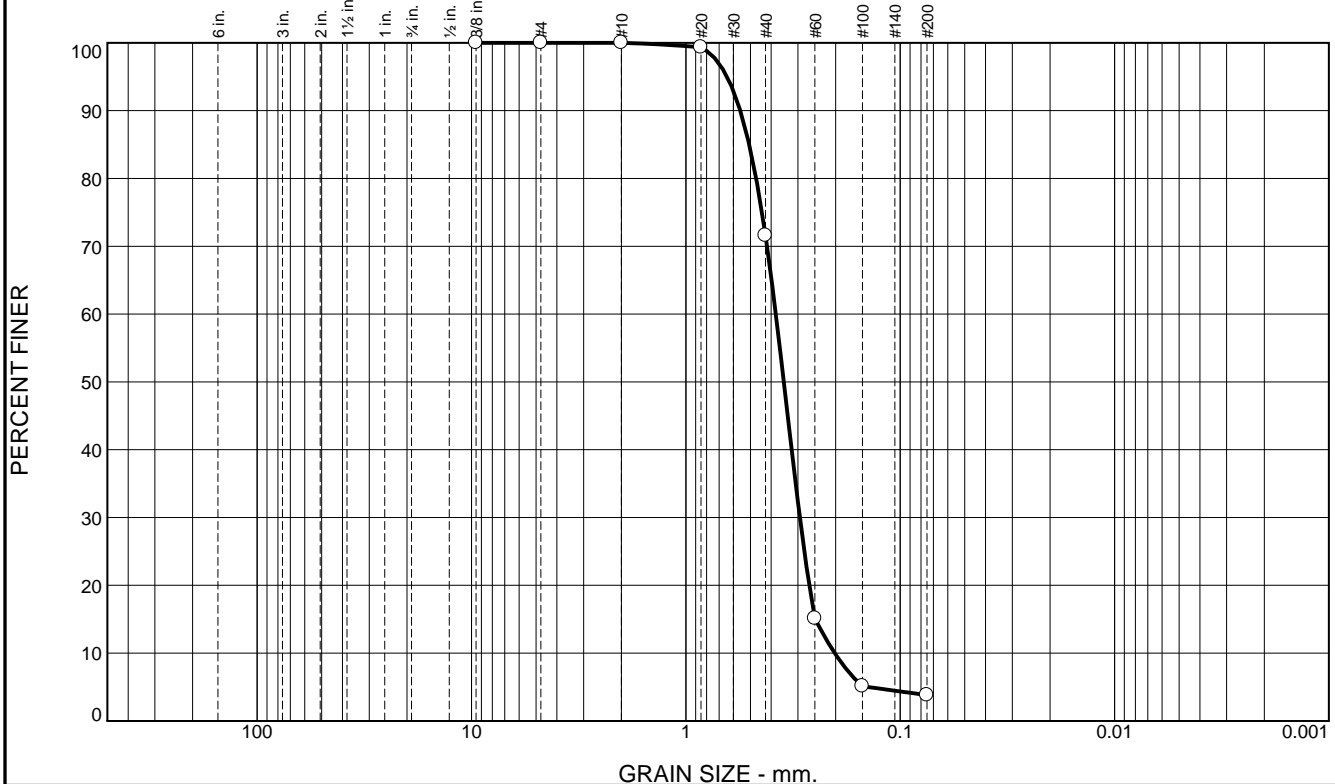
**Project No:** 11-2116-0057

**Figure**

# Boring Designation BI-PB-146-11

DRILLING LOG		DIVISION South Atlantic		INSTALLATION Mobile District		SHEET 1 OF 1 SHEETS	
1. PROJECT MsCIP Barrier Island Restoration Petit Bois Pass- AL East				9. SIZE AND TYPE OF BIT N/A			
2. BORING DESIGNATION BI-PB-146-11		LOCATION COORDINATES E = 1,147,329 N = 255,271		10. COORDINATE SYSTEM/DATUM State Plane, MSE (U.S. Ft.)		HORIZONTAL NAD83	
3. DRILLING AGENCY Corps of Engineers - CESAM		CONTRACTOR FILE NO.		11. MANUFACTURER'S DESIGNATION OF DRILL Vibrocure		<input type="checkbox"/> AUTO HAMMER <input type="checkbox"/> MANUAL HAMMER	
4. NAME OF DRILLER Construction Solutions International, Inc.				12. TOTAL SAMPLES 5		DISTURBED 0	
5. DIRECTION OF BORING <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED				13. TOTAL NUMBER CORE BOXES		14. WATER DEPTH 35 Ft.	
6. THICKNESS OF OVERBURDEN N/A				15. DATE BORING 06-30-11		STARTED 06-30-11	
7. DEPTH DRILLED INTO ROCK N/A				16. ELEVATION TOP OF BORING -34.0 Ft.		COMPLETED 06-30-11	
8. TOTAL DEPTH OF BORING 18.9 Ft.				17. TOTAL RECOVERY FOR BORING 100%		18. SIGNATURE AND TITLE OF INSPECTOR Michele Johnson, Geologist	
ELEV.	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS	SAMPLE	LABORATORY RESULTS		
-34.0	0.0						
			SAND, poorly-graded, mostly medium-grained sand-sized quartz, lt. gray (SP)	A	Classification: SP Color: 2.5Y 7/1-light gray D50: 0.3493 mm % Fines: 3.8		
	B			Classification: SP-SM Color: 2.5Y 7/1-light gray D50: 0.3494 mm % Fines: 5.3			
	C			Classification: SP Color: 2.5Y 7/1-light gray D50: 0.3502 mm % Fines: 3.5			
	D			Classification: SP Color: 2.5Y 7/1-light gray D50: 0.3514 mm % Fines: 2.5			
	E			Classification: SP Color: 2.5Y 8/1-white D50: 0.3606 mm % Fines: 2.1			
-52.9	18.9						
			NOTES: 1. Soils are field visually classified in accordance with the Unified Soils Classification System. 2. NS = Sample not submitted for laboratory analysis from this interval. 3. Seafloor elevation determined from 2010 USACE survey.				

# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.0	0.0	28.4	67.8	3.8	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
.375	100.0		
#4	100.0		
#10	100.0		
#20	99.3		
#40	71.6		
#60	15.1		
#100	5.1		
#200	3.8		

\* (no specification provided)

**Material Description**  
SAND (SP), medium to fine grained

PL=      **Atterberg Limits**      LL=      PI=

**Coefficients**

D<sub>90</sub>= 0.5572      D<sub>85</sub>= 0.5063      D<sub>60</sub>= 0.3806  
D<sub>50</sub>= 0.3493      D<sub>30</sub>= 0.2941      D<sub>15</sub>= 0.2491  
D<sub>10</sub>= 0.2020      C<sub>u</sub>= 1.88      C<sub>c</sub>= 1.12

**Classification**  
USCS= SP      AASHTO=

**Remarks**

Location: USACE Sample # BI-PB-146A-11  
Sample Number: TE Lab ID: 5054.115

Depth: 0.0 - 4.0 (ft)

Date: 7/18/11

**Thompson Engineering**

**Mobile, Alabama**

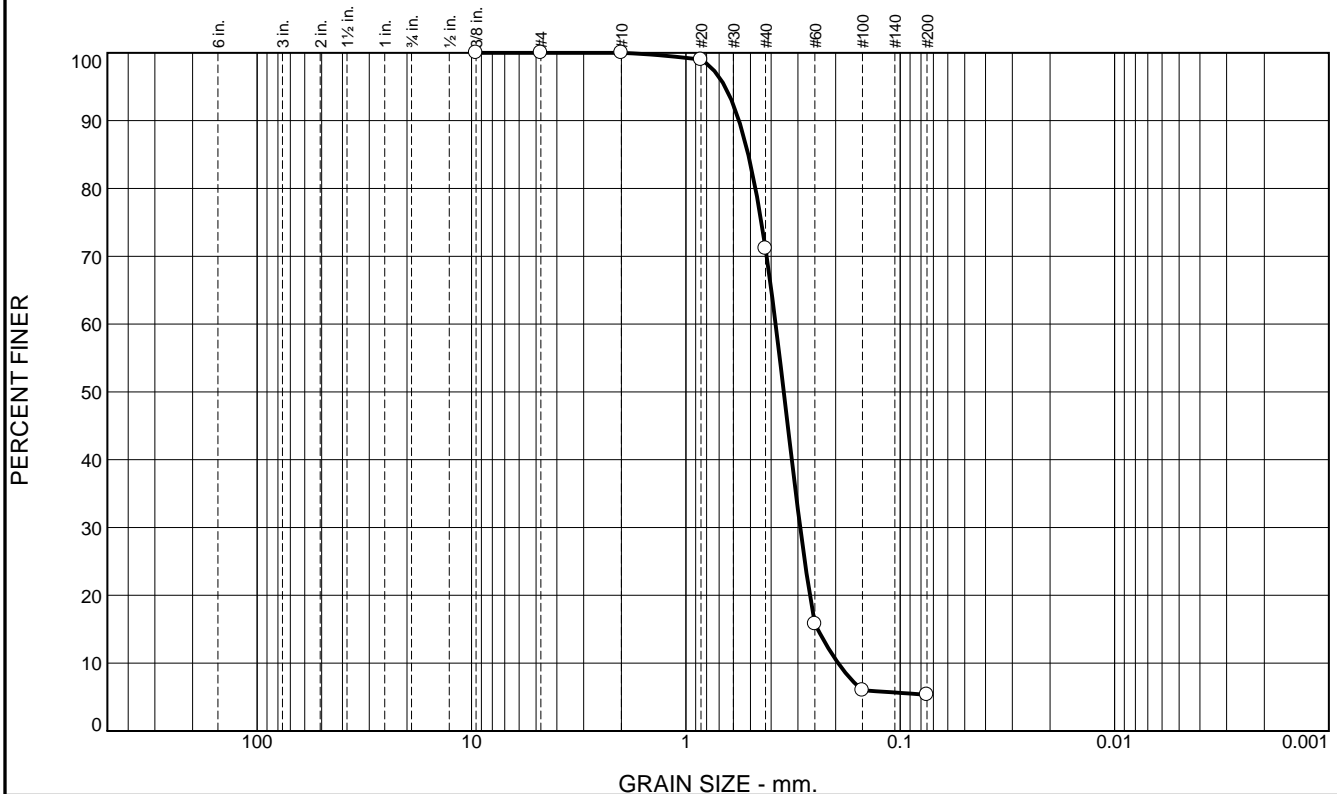
**Client:** US Army Corps of Engineers

**Project:** Contract No. W91278-10-D-0026 - Task 009  
Mississippi Barrier Island Restoration Project

**Project No:** 11-2116-0057

**Figure**

# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.0	0.0	28.8	65.9	5.3	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
.375	100.0		
#4	100.0		
#10	100.0		
#20	99.0		
#40	71.2		
#60	15.8		
#100	6.0		
#200	5.3		

\* (no specification provided)

## Material Description

Slightly silty SAND (SP-SM), medium to fine grained

## Atterberg Limits

PL=

LL=

PI=

## Coefficients

D<sub>90</sub>= 0.5648

D<sub>85</sub>= 0.5113

D<sub>60</sub>= 0.3814

D<sub>50</sub>= 0.3494

D<sub>30</sub>= 0.2930

D<sub>15</sub>= 0.2428

D<sub>10</sub>= 0.1947

C<sub>u</sub>= 1.96

C<sub>c</sub>= 1.16

## Classification

USCS= SP-SM

AASHTO=

## Remarks

Location: USACE Sample # BI-PB-146B-11  
Sample Number: TE Lab ID: 5054.116

Depth: 4.0 - 8.0 (ft)

Date: 7/18/11

**Thompson Engineering**

**Mobile, Alabama**

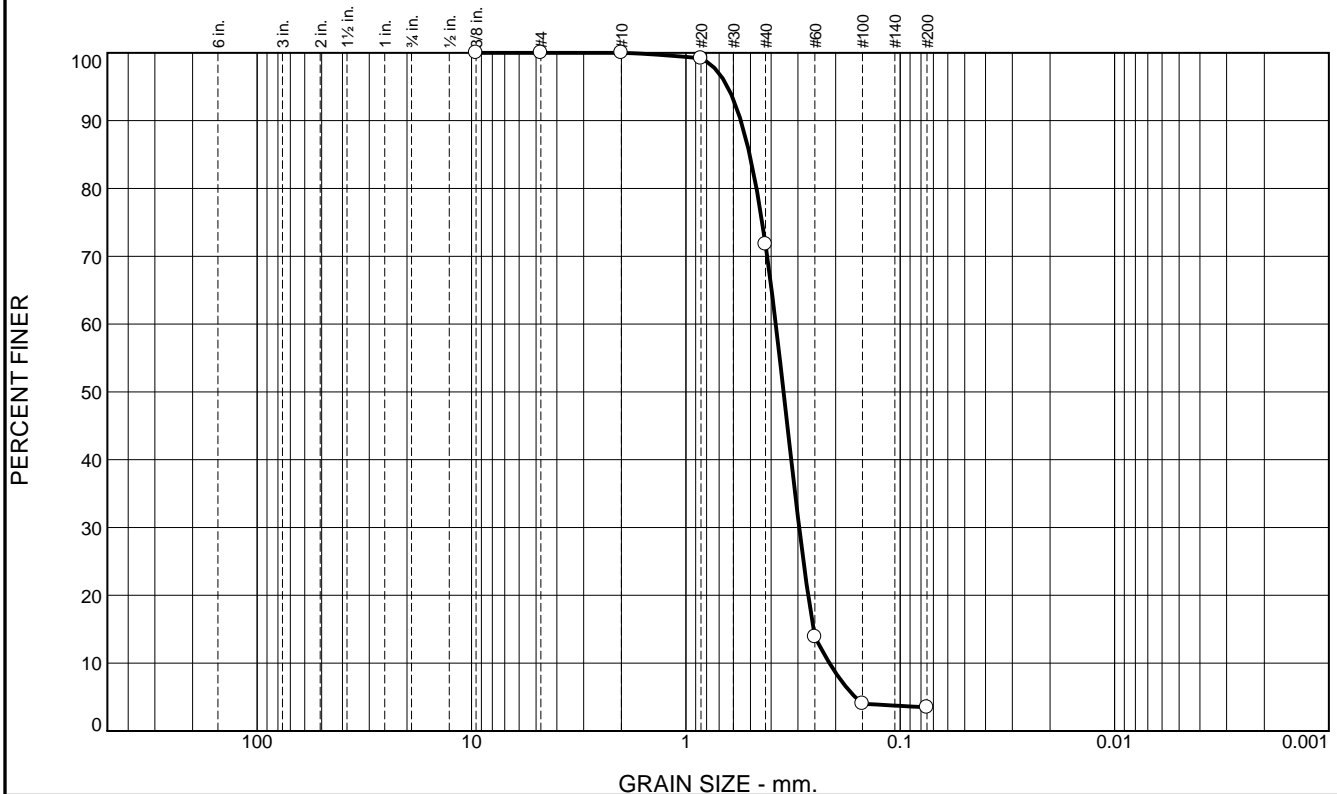
Client: US Army Corps of Engineers

Project: Contract No. W91278-10-D-0026 - Task 009  
Mississippi Barrier Island Restoration Project

Project No: 11-2116-0057

Figure

# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.0	0.0	28.2	68.3	3.5	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
.375	100.0		
#4	100.0		
#10	100.0		
#20	99.2		
#40	71.8		
#60	13.9		
#100	4.0		
#200	3.5		

Material Description		
SAND (SP), medium to fine grained		
PL=	Atterberg Limits LL=	PI=
D <sub>90</sub> = 0.5537	Coefficients D <sub>85</sub> = 0.5037	D <sub>60</sub> = 0.3808
D <sub>50</sub> = 0.3502	D <sub>30</sub> = 0.2963	D <sub>15</sub> = 0.2538
D <sub>10</sub> = 0.2138	C <sub>u</sub> = 1.78	C <sub>c</sub> = 1.08
USCS= SP	Classification AASHTO=	
Remarks		

\* (no specification provided)

Location: USACE Sample # BI-PB-146C-11  
Sample Number: TE Lab ID: 5054.117

Depth: 8.0 - 12.0 (ft)

Date: 7/18/11

**Thompson Engineering**

**Mobile, Alabama**

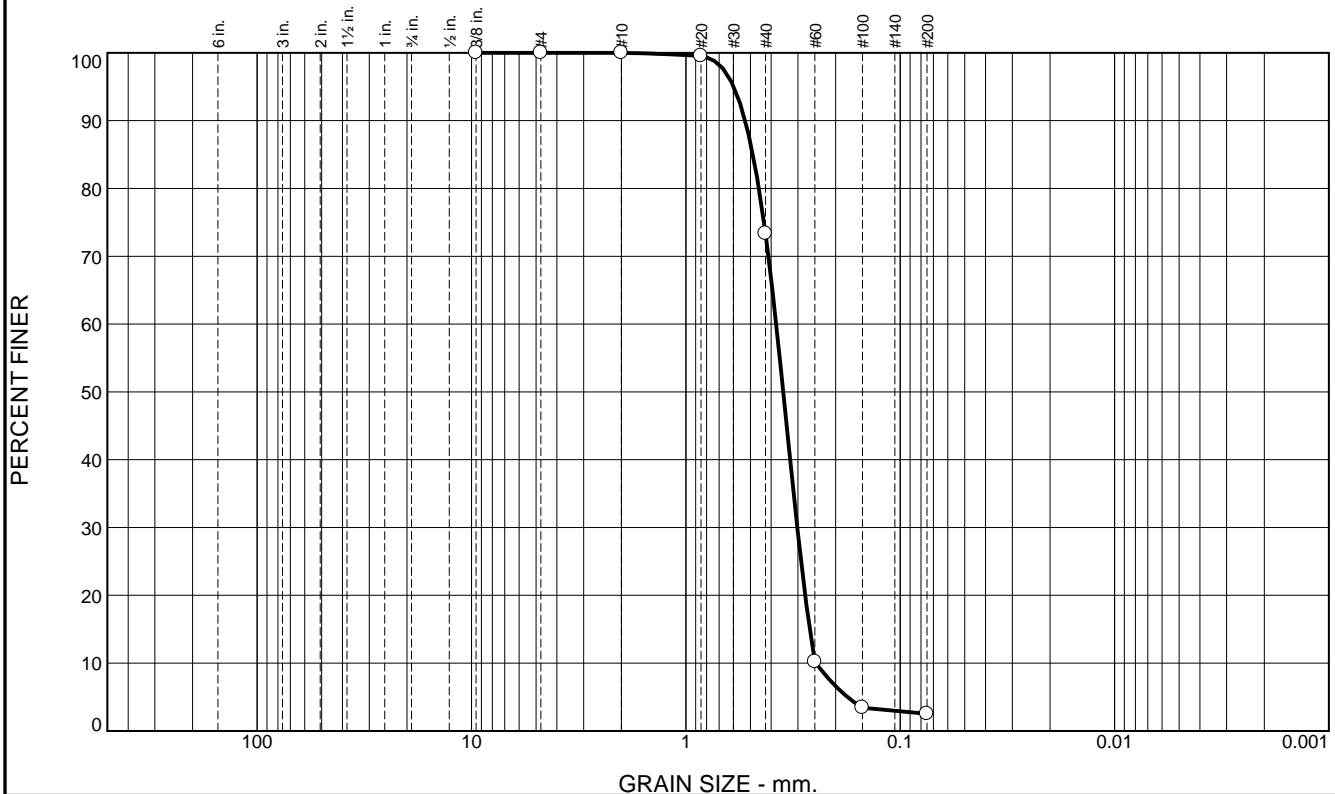
Client: US Army Corps of Engineers

Project: Contract No. W91278-10-D-0026 - Task 009  
Mississippi Barrier Island Restoration Project

Project No: 11-2116-0057

Figure

# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.0	0.0	26.6	70.9	2.5	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
.375	100.0		
#4	100.0		
#10	100.0		
#20	99.5		
#40	73.4		
#60	10.2		
#100	3.4		
#200	2.5		

\* (no specification provided)

Material Description		
SAND (SP), medium to fine grained		
<div> <div> <b>Atterberg Limits</b>            PL=      LL=      PI=         </div> <div> <b>Coefficients</b>            D<sub>90</sub>= 0.5287    D<sub>85</sub>= 0.4866    D<sub>60</sub>= 0.3792            D<sub>50</sub>= 0.3514    D<sub>30</sub>= 0.3023    D<sub>15</sub>= 0.2645            D<sub>10</sub>= 0.2475    C<sub>u</sub>= 1.53      C<sub>c</sub>= 0.97         </div> <div> <b>Classification</b>            USCS= SP      AASHTO=         </div> <div> <b>Remarks</b> </div> </div>		

Location: USACE Sample # BI-PB-146D-11  
Sample Number: TE Lab ID: 5054.118

Depth: 12.0 - 16.0 (ft)

Date: 7/18/11

**Thompson Engineering**

**Mobile, Alabama**

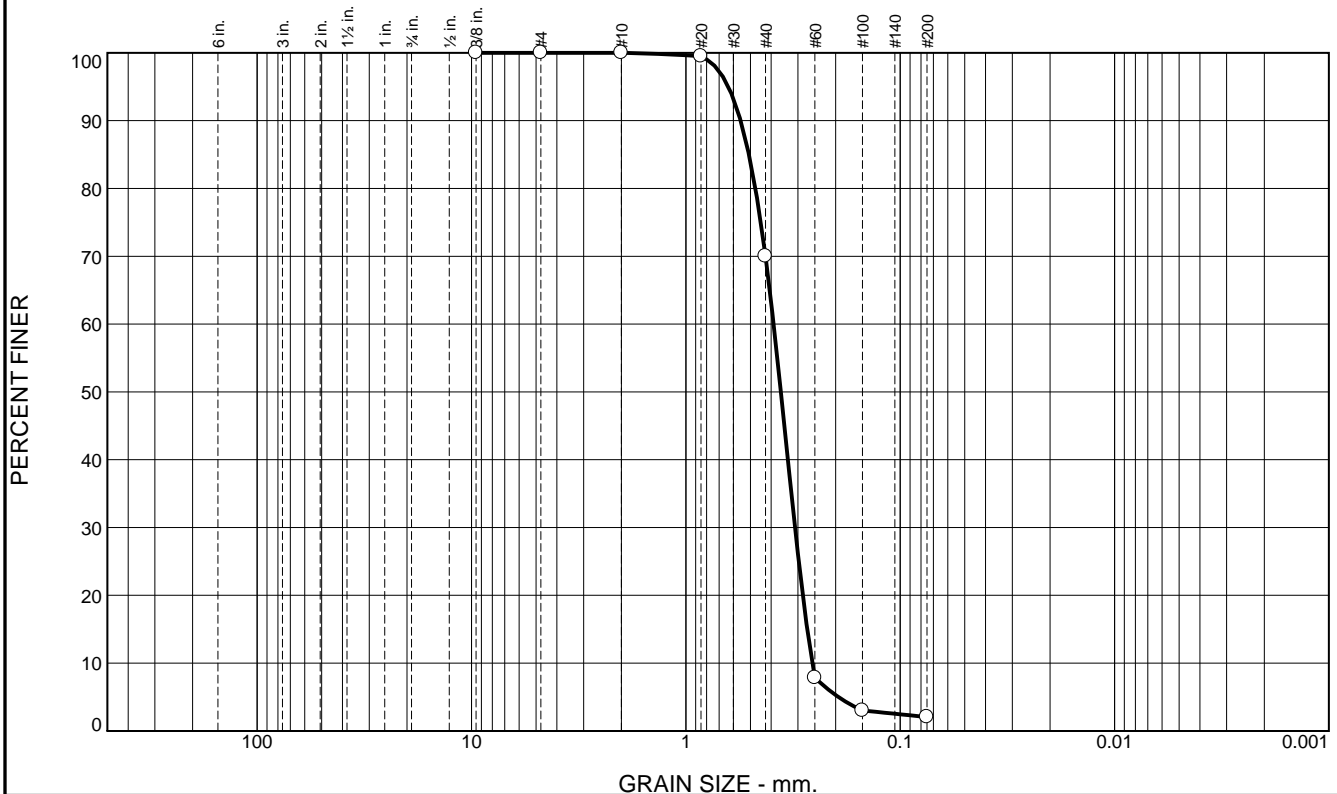
Client: US Army Corps of Engineers

Project: Contract No. W91278-10-D-0026 - Task 009  
Mississippi Barrier Island Restoration Project

Project No: 11-2116-0057

Figure

# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.0	0.0	30.0	67.9	2.1	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
.375	100.0		
#4	100.0		
#10	100.0		
#20	99.5		
#40	70.0		
#60	7.8		
#100	3.0		
#200	2.1		

\* (no specification provided)

<u>Material Description</u>		
SAND (SP), medium to fine grained		
PL=	<u>Atterberg Limits</u> LL=	PI=
<u>Coefficients</u>		
D <sub>90</sub> = 0.5550	D <sub>85</sub> = 0.5078	D <sub>60</sub> = 0.3897
D <sub>50</sub> = 0.3606	D <sub>30</sub> = 0.3098	D <sub>15</sub> = 0.2718
D <sub>10</sub> = 0.2572	C <sub>u</sub> = 1.52	C <sub>c</sub> = 0.96
<u>Classification</u>		
USCS= SP	AASHTO=	
<u>Remarks</u>		

Location: USACE Sample # BI-PB-146E-11  
Sample Number: TE Lab ID: 5054.119

Depth: 16.0 - 18.9 (ft)

Date: 7/18/11

**Thompson Engineering**

**Mobile, Alabama**

Client: US Army Corps of Engineers

Project: Contract No. W91278-10-D-0026 - Task 009  
Mississippi Barrier Island Restoration Project

Project No: 11-2116-0057

Figure

# Boring Designation BI-PB-147-11

DRILLING LOG		DIVISION South Atlantic		INSTALLATION Mobile District		SHEET 1 OF 1 SHEETS	
1. PROJECT MsCIP Barrier Island Restoration Petit Bois Pass- AL East				9. SIZE AND TYPE OF BIT N/A			
2. BORING DESIGNATION BI-PB-147-11		LOCATION COORDINATES E = 1,147,311 N = 253,645		10. COORDINATE SYSTEM/DATUM State Plane, MSE (U.S. Ft.)		HORIZONTAL NAD83 VERTICAL NAVD88	
3. DRILLING AGENCY Corps of Engineers - CESAM		CONTRACTOR FILE NO.		11. MANUFACTURER'S DESIGNATION OF DRILL Vibrocure		<input type="checkbox"/> AUTO HAMMER <input type="checkbox"/> MANUAL HAMMER	
4. NAME OF DRILLER Construction Solutions International, Inc.				12. TOTAL SAMPLES 3		DISTURBED 3 UNDISTURBED (UD) 0	
5. DIRECTION OF BORING <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED		DEG. FROM VERTICAL		13. TOTAL NUMBER CORE BOXES			
		BEARING		14. WATER DEPTH 33 Ft.			
6. THICKNESS OF OVERBURDEN N/A				15. DATE BORING 07-01-11		STARTED 07-01-11 COMPLETED 07-01-11	
7. DEPTH DRILLED INTO ROCK N/A				16. ELEVATION TOP OF BORING -32.1 Ft.			
8. TOTAL DEPTH OF BORING 15.4 Ft.				17. TOTAL RECOVERY FOR BORING 100%			
				18. SIGNATURE AND TITLE OF INSPECTOR Michele Johnson, Geologist			
ELEV.	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS	SAMPLE	LABORATORY RESULTS		
-32.1	0.0						
-34.1	2.0		SAND, poorly-graded, mostly medium-grained sand-sized quartz, gray (SP)	A	Classification: SP Color: 2.5Y 6/2-light brownish gray D50: 0.2887 mm % Fines: 2		
-38.1	6.0		SAND, poorly-graded with silt, trace fine to medium-grained sand-sized shell fragments, gray (SP-SM)	B	Classification: SP-SM Color: 2.5Y 6/2-light brownish gray D50: 0.2033 mm % Fines: 6.2		
-47.5	15.4		SAND, silty, trace fine-grained sand-sized shell fragments, gray (SM)	C	Classification: SP Color: 2.5Y 5/2-grayish brown D50: 0.3213 mm % Fines: 4.4		
				NS			
			NOTES: 1. Soils are field visually classified in accordance with the Unified Soils Classification System. 2. NS = Sample not submitted for laboratory analysis from this interval. 3. Seafloor elevation determined from 2010 USACE survey.				



# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.0	0.6	14.3	83.1	2.0	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
.375	100.0		
#4	100.0		
#10	99.4		
#20	97.8		
#40	85.1		
#60	35.9		
#100	3.5		
#200	2.0		

\* (no specification provided)

Material Description		
SAND (SP), medium to fine grained		
<div> <div> <b>Atterberg Limits</b>            PL=      LL=      PI=         </div> <div> <b>Coefficients</b>            D<sub>90</sub>= 0.5248    D<sub>85</sub>= 0.4246    D<sub>60</sub>= 0.3185            D<sub>50</sub>= 0.2887    D<sub>30</sub>= 0.2340    D<sub>15</sub>= 0.1911            D<sub>10</sub>= 0.1751    C<sub>u</sub>= 1.82      C<sub>c</sub>= 0.98         </div> <div> <b>Classification</b>            USCS= SP      AASHTO=         </div> <div> <b>Remarks</b> </div> </div>		

Location: USACE Sample # BI-PB-147A-11  
Sample Number: TE Lab ID: 5054.134

Depth: 0.0 - 2.0 (ft)

Date: 7/18/11

**Thompson Engineering**

**Mobile, Alabama**

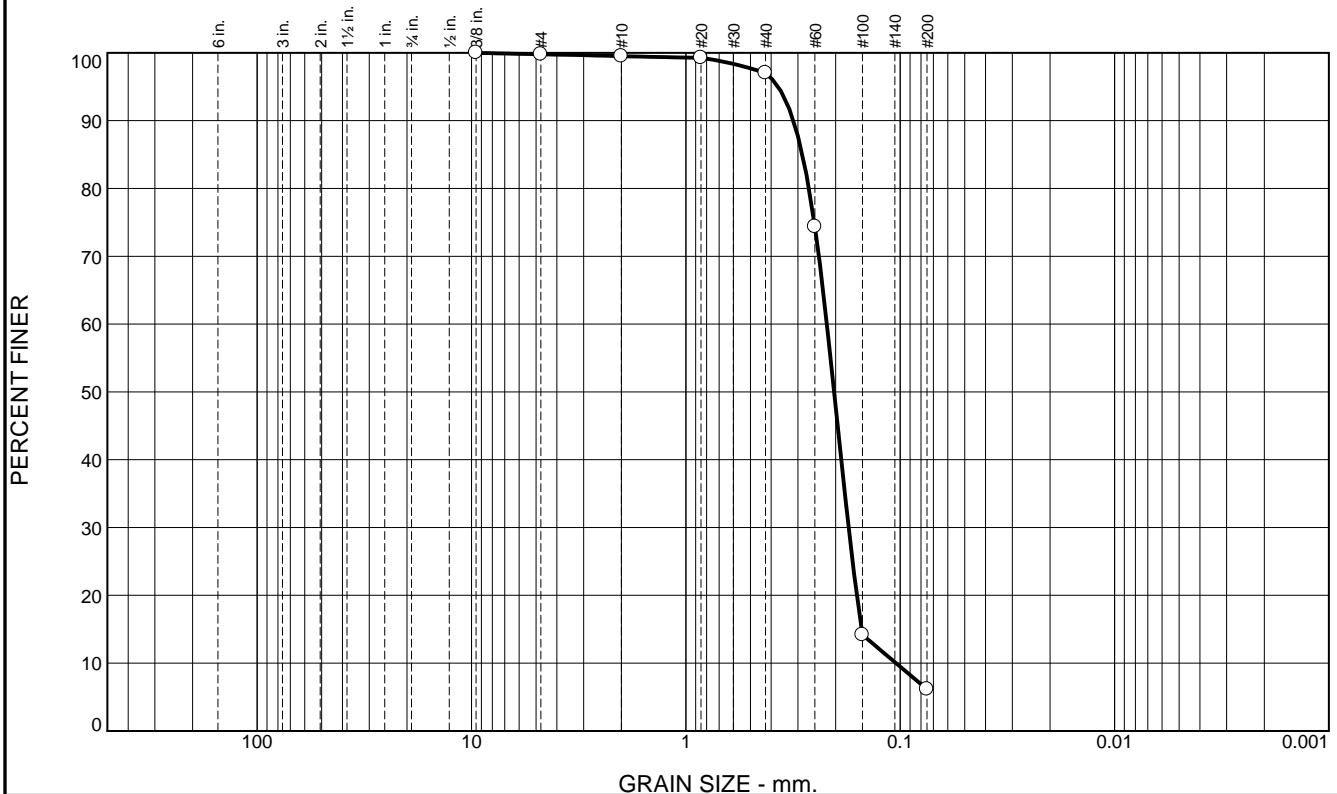
**Client:** US Army Corps of Engineers

**Project:** Contract No. W91278-10-D-0026 - Task 009  
Mississippi Barrier Island Restoration Project

**Project No:** 11-2116-0057

**Figure**

# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.2	0.3	2.5	90.8	6.2	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
.375	100.0		
#4	99.8		
#10	99.5		
#20	99.3		
#40	97.0		
#60	74.4		
#100	14.2		
#200	6.2		

\* (no specification provided)

<u>Material Description</u>		
Slightly silty SAND (SP-SM), fine grained		
<u>Atterberg Limits</u>		
PL=	LL=	PI=
<u>Coefficients</u>		
D <sub>90</sub> = 0.3150	D <sub>85</sub> = 0.2862	D <sub>60</sub> = 0.2199
D <sub>50</sub> = 0.2033	D <sub>30</sub> = 0.1740	D <sub>15</sub> = 0.1514
D <sub>10</sub> = 0.1046	C <sub>u</sub> = 2.10	C <sub>c</sub> = 1.32
<u>Classification</u>		
USCS= SP-SM	AASHTO=	
<u>Remarks</u>		

Location: USACE Sample # BI-PB-147B-11  
Sample Number: TE Lab ID: 5054.135

Depth: 2.0 - 6.0 (ft)

Date: 7/18/11

**Thompson Engineering**

**Mobile, Alabama**

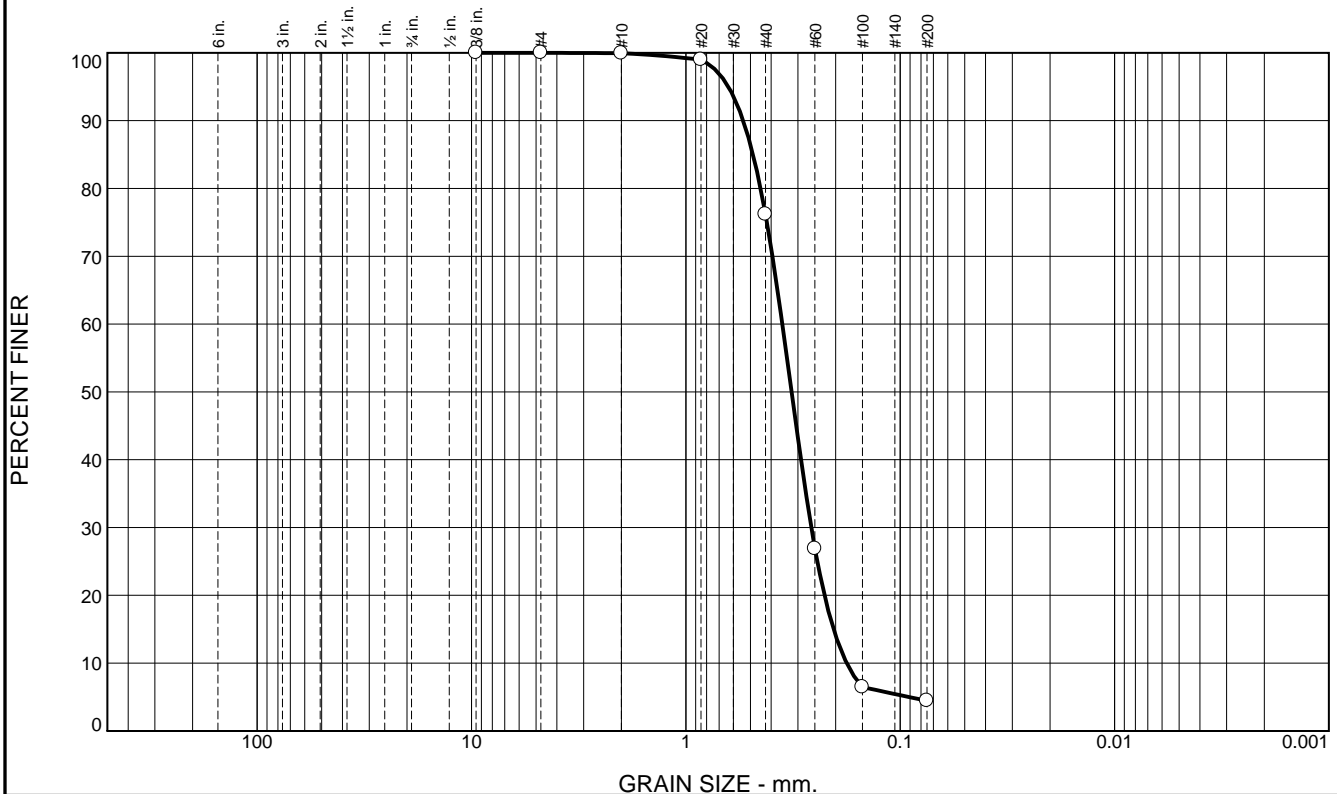
Client: US Army Corps of Engineers

Project: Contract No. W91278-10-D-0026 - Task 009  
Mississippi Barrier Island Restoration Project

Project No: 11-2116-0057

Figure

# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.0	0.1	23.7	71.8	4.4	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
.375	100.0		
#4	100.0		
#10	99.9		
#20	99.0		
#40	76.2		
#60	26.9		
#100	6.5		
#200	4.4		

\* (no specification provided)

## Material Description

SAND (SP), medium to fine grained

## Atterberg Limits

PL=

LL=

PI=

## Coefficients

D<sub>90</sub>= 0.5397

D<sub>85</sub>= 0.4859

D<sub>60</sub>= 0.3550

D<sub>50</sub>= 0.3213

D<sub>30</sub>= 0.2600

D<sub>15</sub>= 0.2046

D<sub>10</sub>= 0.1777

C<sub>u</sub>= 2.00

C<sub>c</sub>= 1.07

## Classification

USCS= SP

AASHTO=

## Remarks

Location: USACE Sample # BI-PB-147C-11  
Sample Number: TE Lab ID: 5054.136

Depth: 6.0 - 8.2 (ft)

Date: 7/18/11

**Thompson Engineering**

**Mobile, Alabama**

Client: US Army Corps of Engineers

Project: Contract No. W91278-10-D-0026 - Task 009  
Mississippi Barrier Island Restoration Project

Project No: 11-2116-0057

Figure

# Boring Designation BI-PB-148-12

DRILLING LOG		DIVISION South Atlantic		INSTALLATION Mobile District		SHEET 1 OF 1 SHEETS	
1. PROJECT MsCIP Barrier Island Restoration Petit Bois Pass- AL East				9. SIZE AND TYPE OF BIT N/A			
2. BORING DESIGNATION BI-PB-148-12		LOCATION COORDINATES E = 1,153,719 N = 255,435		10. COORDINATE SYSTEM/DATUM State Plane, MSE (U.S. Ft.)		HORIZONTAL NAD83 VERTICAL NAVD88	
3. DRILLING AGENCY Corps of Engineers - CESAM		CONTRACTOR FILE NO.		11. MANUFACTURER'S DESIGNATION OF DRILL Vibracore		<input type="checkbox"/> AUTO HAMMER <input type="checkbox"/> MANUAL HAMMER	
4. NAME OF DRILLER American Vibracore Systems, Inc.				12. TOTAL SAMPLES		DISTURBED UNDISTURBED (UD) 0	
5. DIRECTION OF BORING <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED		DEG. FROM VERTICAL		13. TOTAL NUMBER CORE BOXES			
		BEARING		14. WATER DEPTH 38.4 Ft.			
6. THICKNESS OF OVERBURDEN N/A				15. DATE BORING 12-06-12		STARTED COMPLETED 12-06-12	
7. DEPTH DRILLED INTO ROCK N/A				16. ELEVATION TOP OF BORING -37.2 Ft.			
8. TOTAL DEPTH OF BORING 17.1 Ft.				17. TOTAL RECOVERY FOR BORING 100%			
				18. SIGNATURE AND TITLE OF INSPECTOR Mike FitzHarris, Geologist			
ELEV.	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS	SAMPLE	LABORATORY RESULTS		
-37.2	0.0						
-39.3	2.1		SAND, silty, mostly fine to medium-grained sand-sized quartz, some silt, some clay, trace clay, gray (SM)	NS			
			SAND, poorly-graded with silt, mostly fine to medium-grained sand-sized quartz, few silt, silty banding throughout, gray (SP-SM)	A	Classification: SP-SM Color: 2.5Y 6/2-light brownish gray D50: 0.2938 mm % Fines: 7.2		
			At El. -44.3 Ft., mostly fine to medium-grained sand-sized quartz, few silt, trace clay stringers, gray	B	Classification: SP-SM Color: 2.5Y 6/2-light brownish gray D50: 0.3179 mm % Fines: 6.2		
			At El. -49.3 Ft., mostly fine to medium-grained sand-sized quartz, few silt, trace clay stringers, gray	C	Classification: SP-SM Color: 2.5Y 6/1-gray D50: 0.3206 mm % Fines: 6.1		
-53.7	16.5						
-54.3	17.1		CLAY, lean, mostly clay, some fine-grained sand-sized quartz, low to medium plasticity, gray (CL)	NS			
			NOTES: 1. Soils are field visually classified in accordance with the Unified Soils Classification System. 2. NS = Sample not submitted for laboratory analysis from this interval. 3. Seafloor elevation determined from 2010 USACE survey.				

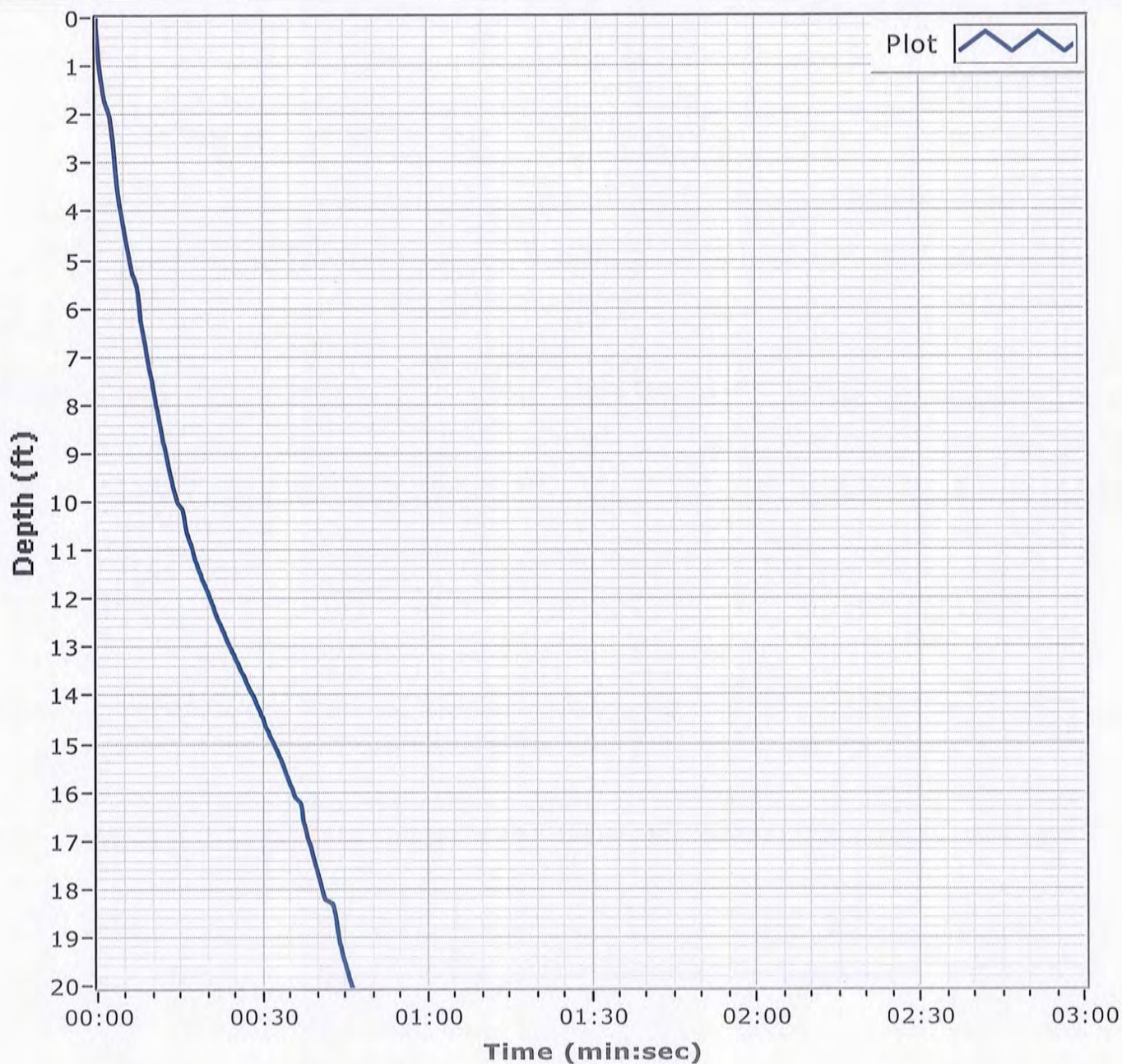
**Project**

Mississippi Barrier Island  
Restoration Project

**AVS**  
**AMERICAN VIBRACORE**  
**S E R V I C E S**

**Core Identifier** BI-PB-148-12**Date** 12/06/2012**Water Depth** 38.4'**Coordinate System**

Latitude / Longitude

**Start Time** 11:27:47**End Time** 11:28:34**Penetration** 20.0'**Latitude** 30 12.078**Total Time** 00:00:46**Recovery** 17.1'**Longitude** 088 17.812**Comments**

# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.1	0.2	12.9	79.6	7.2	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
1	100.0		
.75	100.0		
.5	100.0		
.375	100.0		
#4	99.9		
#10	99.7		
#20	99.2		
#40	86.8		
#60	33.8		
#100	9.0		
#140	7.6		
#200	7.2		

\* (no specification provided)

## Material Description

Fine to medium grained, SLIGHTLY SILTY SAND

## Atterberg Limits

PL= LL= PI=

## Coefficients

D<sub>90</sub>= 0.4863 D<sub>85</sub>= 0.4152 D<sub>60</sub>= 0.3219  
D<sub>50</sub>= 0.2938 D<sub>30</sub>= 0.2391 D<sub>15</sub>= 0.1866  
D<sub>10</sub>= 0.1589 C<sub>u</sub>= 2.03 C<sub>c</sub>= 1.12

## Classification

USCS= SP-SM AASHTO=

## Remarks

Location: BI-PB-148-12 A  
Sample Number: 6480 (12)

Depth: 2.1'

Date: 12/07/12

**Thompson Engineering**

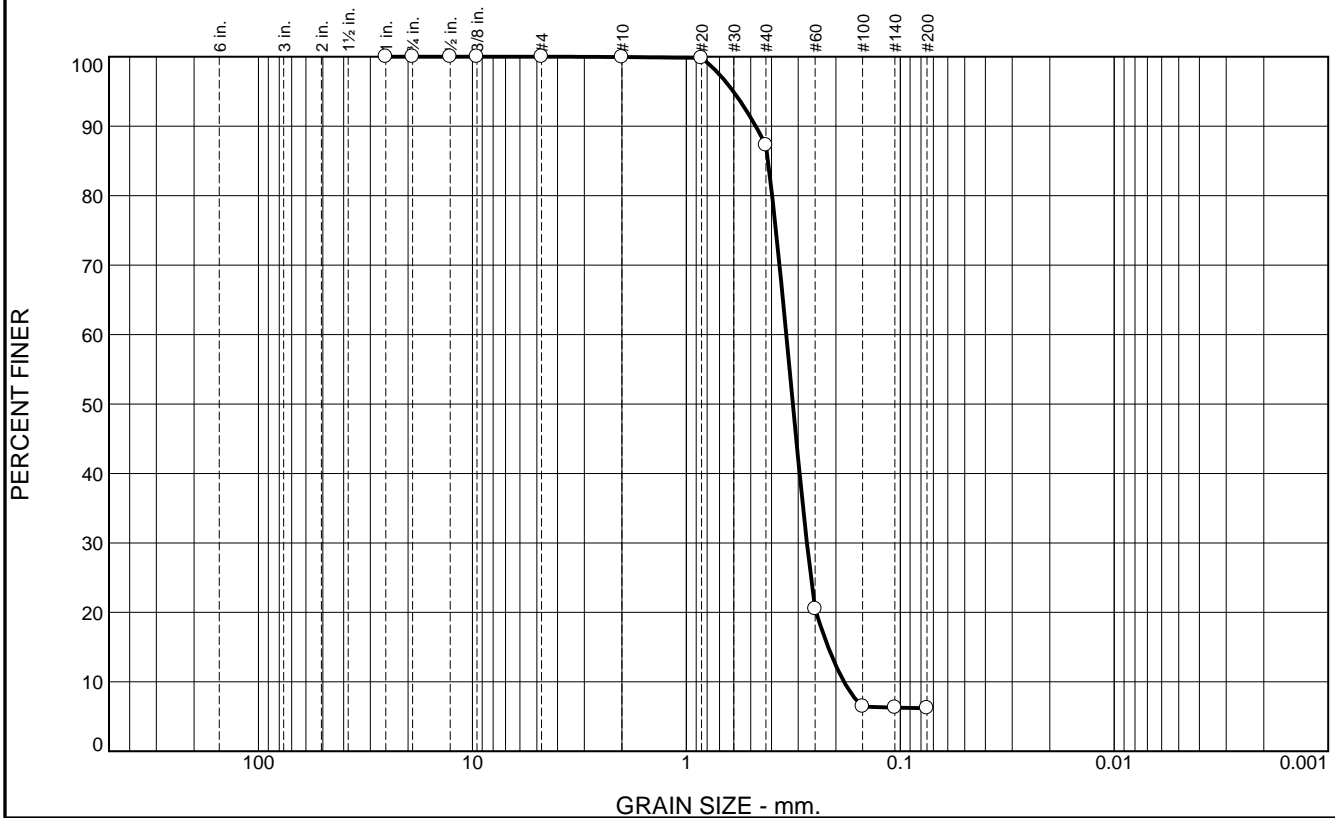
**Mobile, Alabama**

Client: CDM/Thompson Engineering JV  
Project: MsCIP Barrier Island Restoration GT

Project No: 1221110095

Figure

# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.0	0.1	12.6	81.1	6.2	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
1	100.0		
.75	100.0		
.5	100.0		
.375	100.0		
#4	100.0		
#10	99.9		
#20	99.8		
#40	87.3		
#60	20.5		
#100	6.4		
#140	6.3		
#200	6.2		

\* (no specification provided)

## Material Description

Fine to medium grained, SLIGHTLY SILTY SAND

## Atterberg Limits

PL= LL= PI=

## Coefficients

D<sub>90</sub>= 0.4743 D<sub>85</sub>= 0.4154 D<sub>60</sub>= 0.3411  
D<sub>50</sub>= 0.3179 D<sub>30</sub>= 0.2735 D<sub>15</sub>= 0.2173  
D<sub>10</sub>= 0.1833 C<sub>u</sub>= 1.86 C<sub>c</sub>= 1.20

## Classification

USCS= SP-SM AASHTO=

## Remarks

Location: BI-PB-148-12 B  
Sample Number: 6480 (13)

Depth: 7.1'

Date: 12/07/12

**Thompson Engineering**

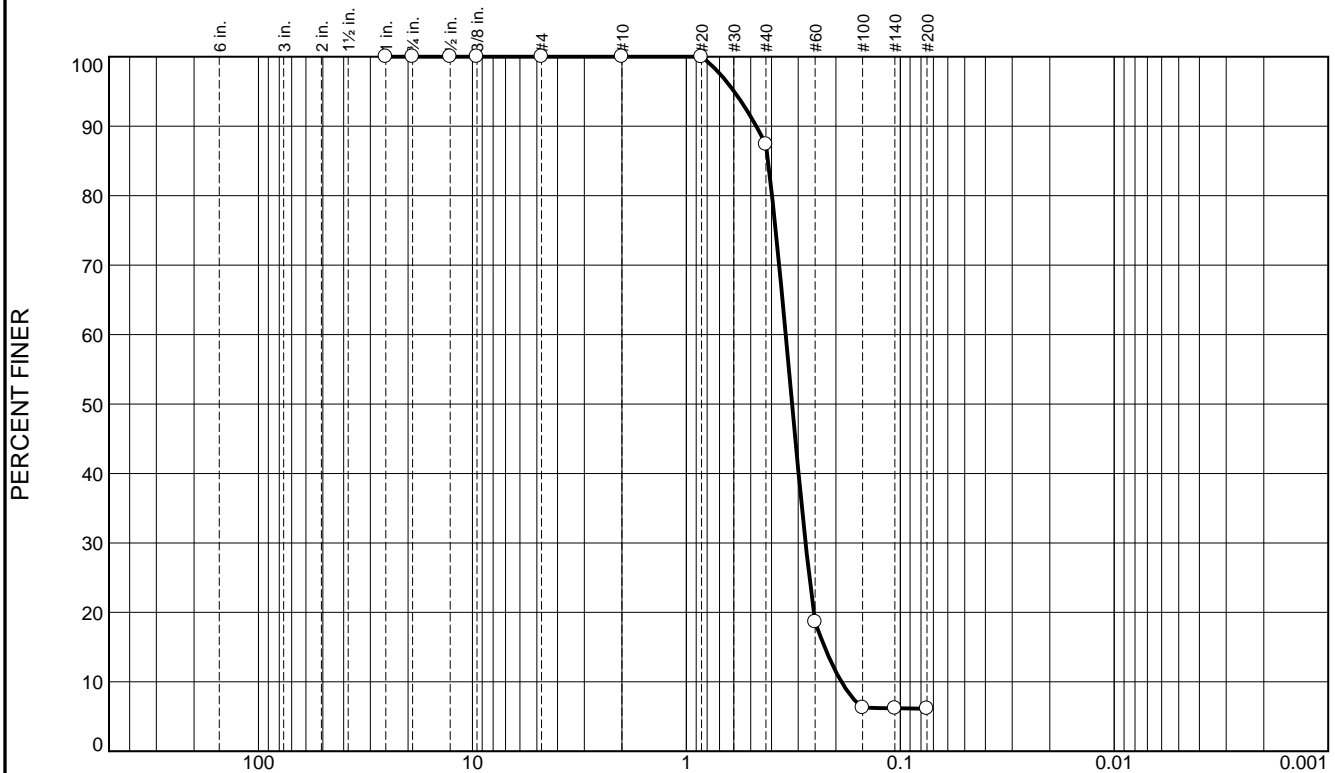
**Mobile, Alabama**

Client: CDM/Thompson Engineering JV  
Project: MsCIP Barrier Island Restoration GT

Project No: 1221110095

Figure

# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.0	0.0	12.6	81.3	6.1	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
1	100.0		
.75	100.0		
.5	100.0		
.375	100.0		
#4	100.0		
#10	100.0		
#20	100.0		
#40	87.4		
#60	18.6		
#100	6.3		
#140	6.2		
#200	6.1		

\* (no specification provided)

<u><b>Material Description</b></u>		
Fine to medium grained, SLIGHTLY SILTY SAND		
<u><b>Atterberg Limits</b></u>		
PL=	LL=	PI=
<u><b>Coefficients</b></u>		
D <sub>90</sub> = 0.4716	D <sub>85</sub> = 0.4153	D <sub>60</sub> = 0.3432
D <sub>50</sub> = 0.3206	D <sub>30</sub> = 0.2775	D <sub>15</sub> = 0.2258
D <sub>10</sub> = 0.1885	C <sub>u</sub> = 1.82	C <sub>c</sub> = 1.19
<u><b>Classification</b></u>		
USCS= SP-SM	AASHTO=	
<u><b>Remarks</b></u>		

Location: BI-PB-148-12 C  
Sample Number: 6480 (14)

Depth: 12.1'

Date: 12/07/12

**Thompson Engineering**

**Mobile, Alabama**

Client: CDM/Thompson Engineering JV  
Project: MsCIP Barrier Island Restoration GT

Project No: 1221110095

Figure



# Boring Designation BI-PB-149-12

DRILLING LOG		DIVISION South Atlantic		INSTALLATION Mobile District		SHEET 1 OF 1 SHEETS	
1. PROJECT MsCIP Barrier Island Restoration Petit Bois Pass- AL East				9. SIZE AND TYPE OF BIT N/A			
2. BORING DESIGNATION BI-PB-149-12		LOCATION COORDINATES E = 1,147,143 N = 253,186		10. COORDINATE SYSTEM/DATUM State Plane, MSE (U.S. Ft.)		HORIZONTAL NAD83	
3. DRILLING AGENCY Corps of Engineers - CESAM		CONTRACTOR FILE NO.		11. MANUFACTURER'S DESIGNATION OF DRILL Vibracore		<input type="checkbox"/> AUTO HAMMER <input type="checkbox"/> MANUAL HAMMER	
4. NAME OF DRILLER American Vibracore Systems, Inc.				12. TOTAL SAMPLES		DISTURBED 0	
5. DIRECTION OF BORING <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED				13. TOTAL NUMBER CORE BOXES		14. WATER DEPTH 37.6 Ft.	
6. THICKNESS OF OVERBURDEN N/A				15. DATE BORING		STARTED 12-12-12	
7. DEPTH DRILLED INTO ROCK N/A				16. ELEVATION TOP OF BORING -38.1 Ft.		COMPLETED 12-12-12	
8. TOTAL DEPTH OF BORING 14.7 Ft.				17. TOTAL RECOVERY FOR BORING 100%		18. SIGNATURE AND TITLE OF INSPECTOR Mike FitzHarris, Geologist	
ELEV.	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS	SAMPLE	LABORATORY RESULTS		
-38.1	0.0						
-39.1	1.0		SAND, poorly-graded with silt, mostly fine to medium-grained sand-sized quartz, some silt, gray (SP-SM)				
			SAND, clayey, mostly fine-grained sand-sized quartz, trace shell fragments, gray (SC)				
-44.1	6.0						
			CLAY, fat, mostly clay, medium to high plasticity, stiff, dark gray (CH)	NS			
-47.0	8.9						
			SAND, poorly-graded, mostly medium-grained sand-sized quartz, trace silt, lt. gray to white (SP)				
-51.3	13.2						
-52.8	14.7		CLAY, fat, mostly clay, some fine-grained sand-sized quartz, medium to high plasticity, dark gray (CH)				
			NOTES: 1. Soils are field visually classified in accordance with the Unified Soils Classification System. 2. NS = Sample not submitted for laboratory analysis from this interval. 3. Seafloor elevation calculated using sampling vessel's fathometer water depth reading and applying NOAA tidal gauge data conversion factor.				

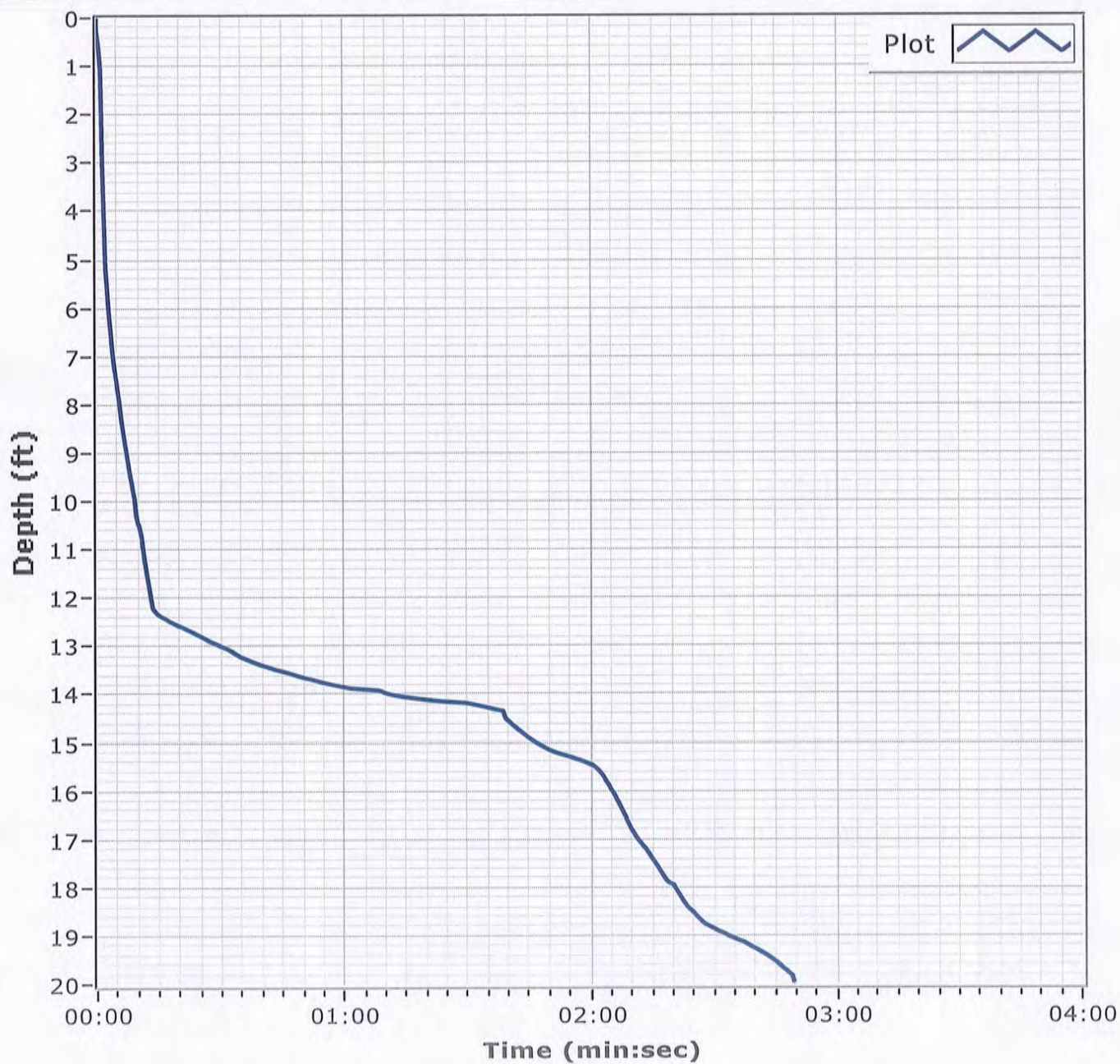
**Project**

Mississippi Barrier Island  
Restoration Project

**AVS**  
**AMERICAN VIBRACORE**  
**S E R V I C E S**

**Core Identifier** BI-PB-149-12**Date** 12/12/2012**Water Depth** 37.6**Coordinate System**

Latitude / Longitude

**Start Time** 11:26:11**End Time** 11:29:01**Penetration** 20.0'**Latitude** 30 11.712**Total Time** 00:02:49**Recovery** 14.7'**Longitude** 088 19.064**Comments**

# Boring Designation BI-PB-150-12

DRILLING LOG		DIVISION South Atlantic		INSTALLATION Mobile District		SHEET 1 OF 1 SHEETS	
1. PROJECT MsCIP Barrier Island Restoration Petit Bois Pass- AL East				9. SIZE AND TYPE OF BIT N/A			
2. BORING DESIGNATION BI-PB-150-12		LOCATION COORDINATES E = 1,145,974 N = 253,217		10. COORDINATE SYSTEM/DATUM State Plane, MSE (U.S. Ft.)		HORIZONTAL NAD83	
3. DRILLING AGENCY Corps of Engineers - CESAM		CONTRACTOR FILE NO.		11. MANUFACTURER'S DESIGNATION OF DRILL Vibracore		<input type="checkbox"/> AUTO HAMMER <input type="checkbox"/> MANUAL HAMMER	
4. NAME OF DRILLER American Vibracore Systems, Inc.				12. TOTAL SAMPLES		DISTURBED 0	
5. DIRECTION OF BORING <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED				13. TOTAL NUMBER CORE BOXES		14. WATER DEPTH 39.2 Ft.	
6. THICKNESS OF OVERBURDEN N/A				15. DATE BORING		STARTED 12-19-12	
7. DEPTH DRILLED INTO ROCK N/A				16. ELEVATION TOP OF BORING -39.0 Ft.		COMPLETED 12-19-12	
8. TOTAL DEPTH OF BORING 17.4 Ft.				17. TOTAL RECOVERY FOR BORING 100%		18. SIGNATURE AND TITLE OF INSPECTOR Mike FitzHarris, Geologist	
ELEV.	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS	SAMPLE	LABORATORY RESULTS		
-39.0	0.0		CLAY, fat, mostly clay, trace shell fragments, medium to high plasticity, trace shell fragments, stiff, greenish gray (CH)	NS			
-53.9	14.9						
-56.4	17.4		CLAY, fat, mostly clay, some silt, trace shell fragments, trace wood debris, medium to high plasticity, stiff, with poorly-graded, fine-grained sand lenses, greenish gray (CH)				
			NOTES: 1. Soils are field visually classified in accordance with the Unified Soils Classification System. 2. NS = Sample not submitted for laboratory analysis from this interval. 3. Seafloor elevation calculated using sampling vessel's fathometer water depth reading and applying NOAA tidal gauge data conversion factor.				



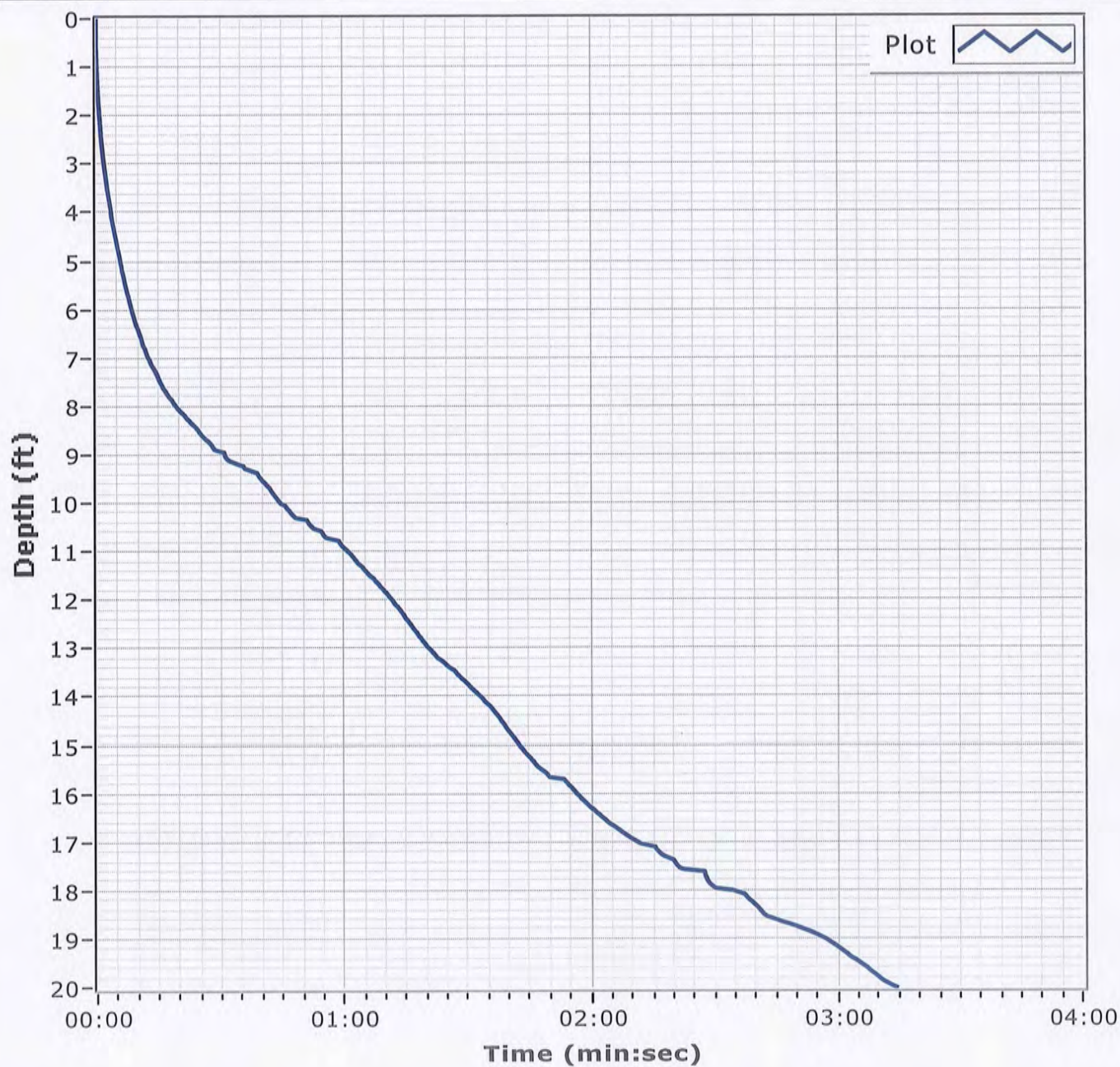
**Project**

Mississippi Barrier Island  
Restoration Project

**AVS**  
**AMERICAN VIBRACORE**  
**S E R V I C E S**

**Core Identifier** BI-PB-150-12**Date** 12/19/2012**Water Depth** 39.2'**Coordinate System**

Latitude / Longitude

**Start Time** 12:32:23**End Time** 12:35:38**Penetration** 20.0'**Latitude** 30 11.718**Total Time** 00:03:14**Recovery** 17.4'**Longitude** 88 19.285**Comments**

# Boring Designation BI-PB-151-12

DRILLING LOG		DIVISION South Atlantic		INSTALLATION Mobile District		SHEET 1 OF 2 SHEETS	
1. PROJECT MsCIP Barrier Island Restoration Petit Bois Pass- AL East				9. SIZE AND TYPE OF BIT N/A			
2. BORING DESIGNATION BI-PB-151-12		LOCATION COORDINATES E = 1,146,145 N = 253,738		10. COORDINATE SYSTEM/DATUM State Plane, MSE (U.S. Ft.)		HORIZONTAL NAD83 VERTICAL NAVD88	
3. DRILLING AGENCY Corps of Engineers - CESAM		CONTRACTOR FILE NO.		11. MANUFACTURER'S DESIGNATION OF DRILL Vibracore		<input type="checkbox"/> AUTO HAMMER <input type="checkbox"/> MANUAL HAMMER	
4. NAME OF DRILLER American Vibracore Systems, Inc.				12. TOTAL SAMPLES		DISTURBED UNDISTURBED (UD) 0	
5. DIRECTION OF BORING <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED		DEG. FROM VERTICAL		13. TOTAL NUMBER CORE BOXES			
		BEARING		14. WATER DEPTH 35.9 Ft.			
6. THICKNESS OF OVERBURDEN N/A				15. DATE BORING 12-12-12		STARTED COMPLETED 12-12-12	
7. DEPTH DRILLED INTO ROCK N/A				16. ELEVATION TOP OF BORING -35.7 Ft.			
8. TOTAL DEPTH OF BORING 20.0 Ft.				17. TOTAL RECOVERY FOR BORING 100%			
				18. SIGNATURE AND TITLE OF INSPECTOR Mike FitzHarris, Geologist			
ELEV.	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS	SAMPLE	LABORATORY RESULTS		
-35.7	0.0						
-37.2	1.5		CLAY, fat, mostly clay, some silt, soft, medium to high plasticity, gray (CH)	NS			
			SAND, poorly-graded, mostly fine to medium-grained sand-sized quartz, trace fines, trace shell fragments, few clay stringers, gray (SP)	A	Classification: SP Color: 5Y 7/2-light gray D50: 0.3501 mm % Fines: 4.3		
			At El. -40.7 Ft., mostly fine to medium-grained sand-sized quartz, trace fines, trace shell fragments, trace clay stringers, lt. gray	B	Classification: SP Color: 5Y 8/1-white D50: 0.3798 mm % Fines: 2		
-45.5	9.8		CLAY, fat, mostly clay, few fine-grained sand-sized quartz, stiff, trace sandy lenses, greenish gray (CH)	NS			
-55.7	20.0						
			NOTES: 1. Soils are field visually classified in accordance with the Unified Soils Classification System. 2. NS = Sample not submitted for laboratory analysis from this interval. 3. Seafloor elevation determined from 2010				

<b>DRILLING LOG (Cont. Sheet)</b>			<b>INSTALLATION</b> Mobile District		<b>SHEET 2</b> <b>OF 2 SHEETS</b>
<b>PROJECT</b> MsCIP Barrier Island Restoration			<b>COORDINATE SYSTEM/DATUM</b> State Plane, MSE (U.S. Ft.)	<b>HORIZONTAL</b> NAD83	<b>VERTICAL</b> NAVD88
<b>LOCATION COORDINATES</b> X = 1,146,145 Y = 253,738			<b>ELEVATION TOP OF BORING</b> -35.7 Ft.		
<b>ELEV.</b>	<b>DEPTH</b>	<b>LEGEND</b>	<b>CLASSIFICATION OF MATERIALS</b>	<b>SAMPLE</b>	<b>LABORATORY RESULTS</b>
			USACE survey.		



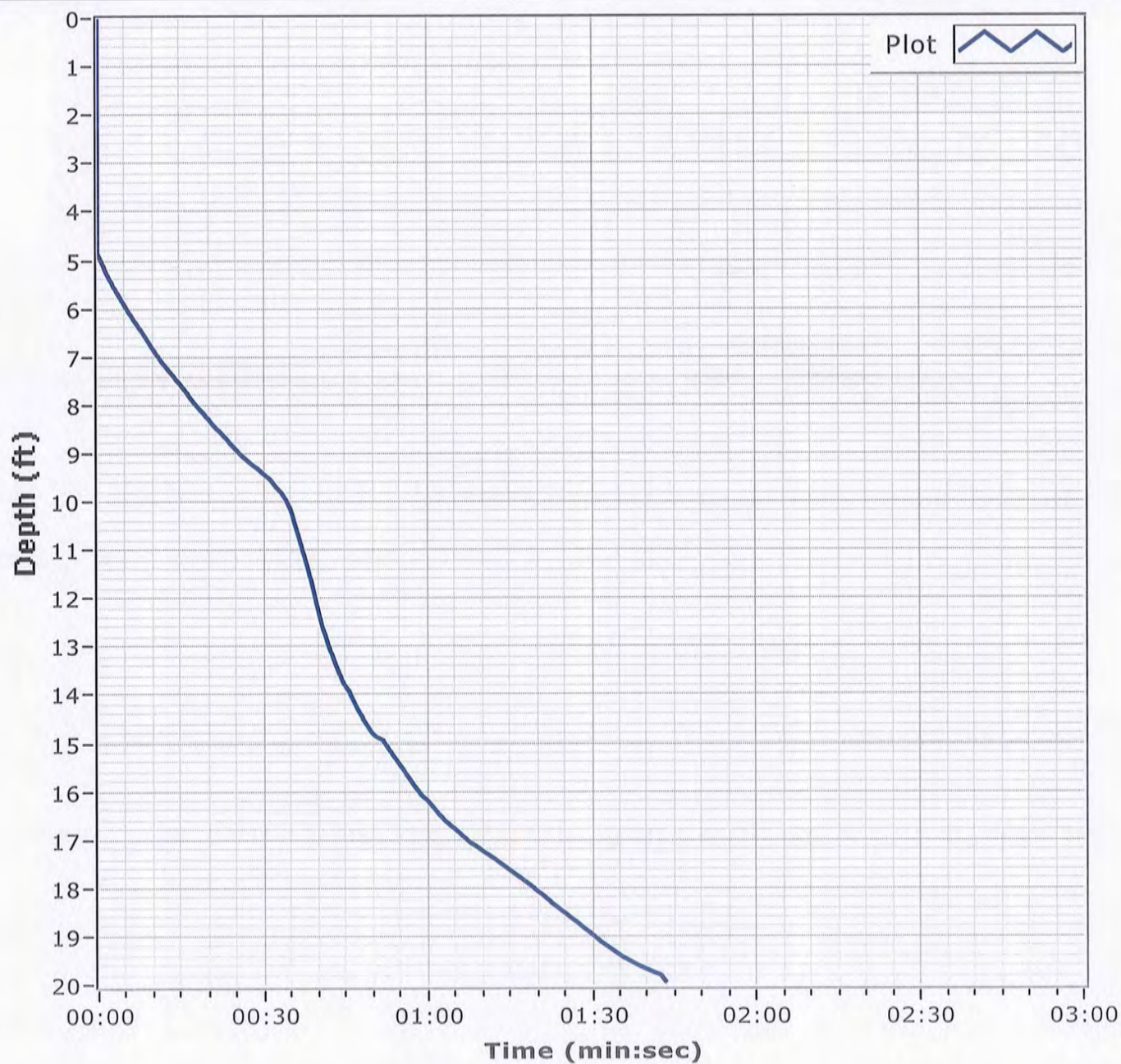
**Project**

Mississippi Barrier Island  
Restoration Project

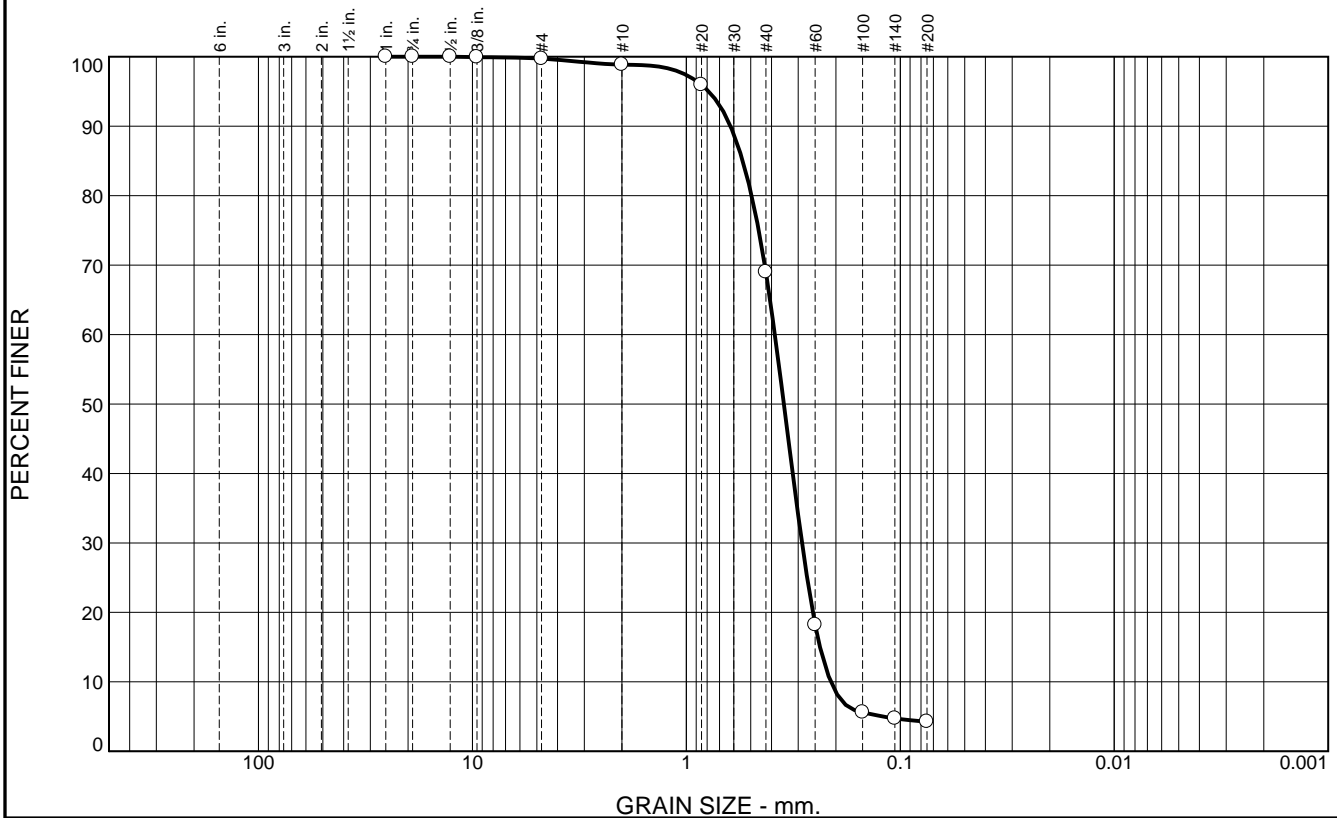
**AVS**  
**AMERICAN VIBRACORE**  
**S E R V I C E S**

**Core Identifier** BI-PB-151-12**Date** 12/12/2012**Water Depth** 35.9**Coordinate System**

Latitude / Longitude

**Start Time** 10:31:10**End Time** 10:32:53**Penetration** 20.0'**Latitude** 30 11.804**Total Time** 00:01:43**Recovery** 20.0'**Longitude** 088 19.252**Comments**

# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.3	0.9	29.8	64.7	4.3	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
1	100.0		
.75	100.0		
.5	100.0		
.375	99.9		
#4	99.7		
#10	98.8		
#20	95.9		
#40	69.0		
#60	18.2		
#100	5.6		
#140	4.7		
#200	4.3		

\* (no specification provided)

<u><b>Material Description</b></u>		
Fine to medium grained, SAND		
<u><b>Atterberg Limits</b></u>		
PL=	LL=	PI=
<u><b>Coefficients</b></u>		
D <sub>90</sub> = 0.6218	D <sub>85</sub> = 0.5451	D <sub>60</sub> = 0.3857
D <sub>50</sub> = 0.3501	D <sub>30</sub> = 0.2883	D <sub>15</sub> = 0.2372
D <sub>10</sub> = 0.2112	C <sub>u</sub> = 1.83	C <sub>c</sub> = 1.02
<u><b>Classification</b></u>		
USCS= SP	AASHTO=	
<u><b>Remarks</b></u>		

Location: BI-PB-151-12 A  
Sample Number: 6485 (1)

Depth: 1.5'

Date: 12/07/12

**Thompson Engineering**

**Mobile, Alabama**

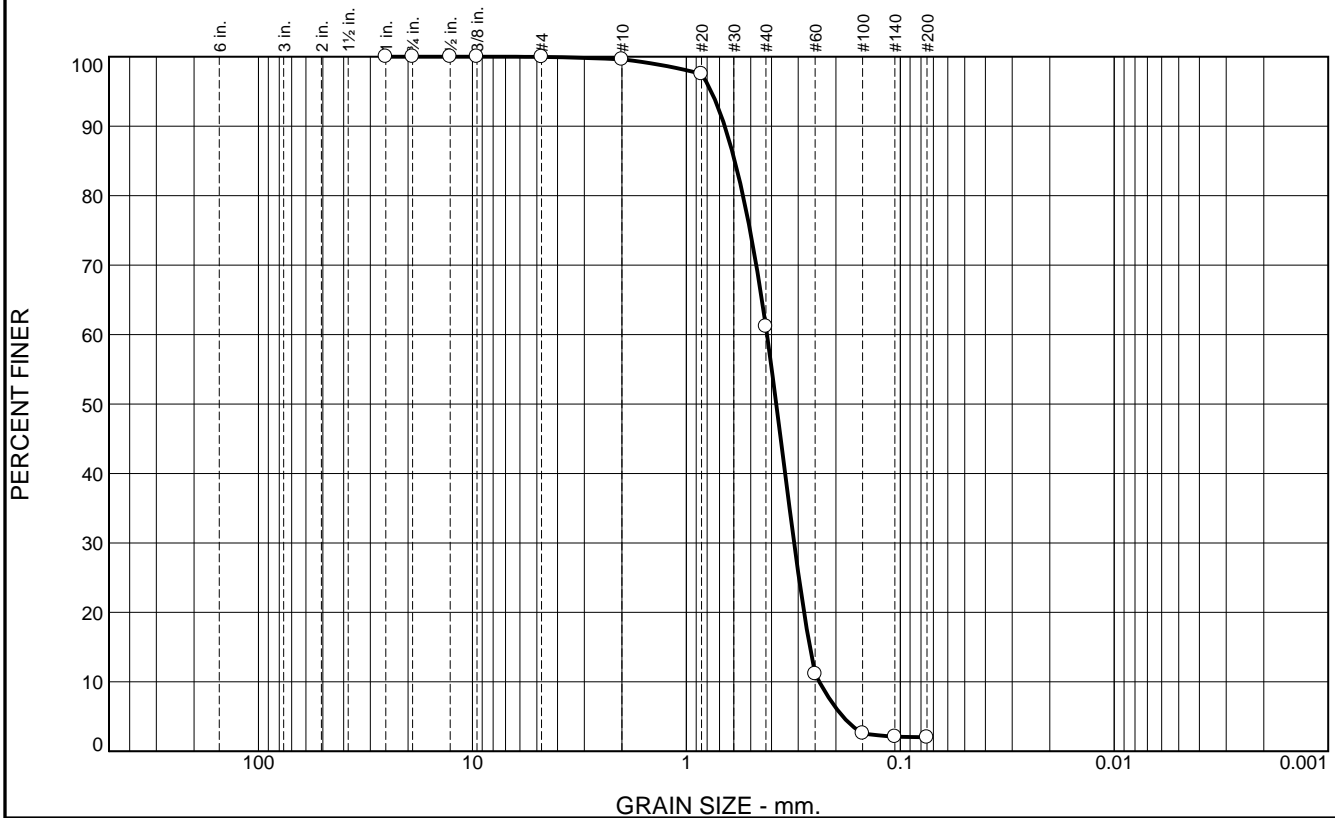
Client: CDM/Thompson Engineering JV  
Project: MsCIP Barrier Island Restoration GT

Project No: 1221110095

Figure



# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.0	0.4	38.5	59.1	2.0	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
1	100.0		
.75	100.0		
.5	100.0		
.375	100.0		
#4	100.0		
#10	99.6		
#20	97.5		
#40	61.1		
#60	11.1		
#100	2.6		
#140	2.1		
#200	2.0		

\* (no specification provided)

<u><b>Material Description</b></u>		
Fine to medium grained, SAND		
<u><b>Atterberg Limits</b></u>		
PL=	LL=	PI=
<u><b>Coefficients</b></u>		
D <sub>90</sub> = 0.6615	D <sub>85</sub> = 0.5936	D <sub>60</sub> = 0.4198
D <sub>50</sub> = 0.3798	D <sub>30</sub> = 0.3136	D <sub>15</sub> = 0.2649
D <sub>10</sub> = 0.2389	C <sub>u</sub> = 1.76	C <sub>c</sub> = 0.98
<u><b>Classification</b></u>		
USCS= SP	AASHTO=	
<u><b>Remarks</b></u>		

Location: BI-PB-151-12 B  
Sample Number: 6485 (2)

Depth: 5.0'

Date: 12/07/12

**Thompson Engineering**

**Mobile, Alabama**

Client: CDM/Thompson Engineering JV  
Project: MsCIP Barrier Island Restoration GT

Project No: 1221110095

Figure

# Boring Designation BI-PB-152-12

DRILLING LOG		DIVISION South Atlantic		INSTALLATION Mobile District		SHEET 1 OF 1 SHEETS	
1. PROJECT MsCIP Barrier Island Restoration Petit Bois Pass- AL East				9. SIZE AND TYPE OF BIT N/A			
2. BORING DESIGNATION BI-PB-152-12		LOCATION COORDINATES E = 1,146,007 N = 254,174		10. COORDINATE SYSTEM/DATUM State Plane, MSE (U.S. Ft.)		HORIZONTAL NAD83	
3. DRILLING AGENCY Corps of Engineers - CESAM		CONTRACTOR FILE NO.		11. MANUFACTURER'S DESIGNATION OF DRILL Vibracore		<input type="checkbox"/> AUTO HAMMER <input type="checkbox"/> MANUAL HAMMER	
4. NAME OF DRILLER American Vibracore Systems, Inc.				12. TOTAL SAMPLES		DISTURBED 0	
5. DIRECTION OF BORING <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED				13. TOTAL NUMBER CORE BOXES		14. WATER DEPTH 33.6 Ft.	
6. THICKNESS OF OVERBURDEN N/A				15. DATE BORING		STARTED 12-12-12	
7. DEPTH DRILLED INTO ROCK N/A				16. ELEVATION TOP OF BORING -32.7 Ft.		COMPLETED 12-12-12	
8. TOTAL DEPTH OF BORING 18.8 Ft.				17. TOTAL RECOVERY FOR BORING 100%		18. SIGNATURE AND TITLE OF INSPECTOR Mike FitzHarris, Geologist	

ELEV.	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS	SAMPLE	LABORATORY RESULTS
-32.7	0.0				
-33.9	1.2		SAND, poorly-graded, mostly fine to medium-grained sand-sized quartz, trace shell fragments, trace fines, lt. gray (SP)	A	Classification: SP Color: 5Y 7/2-light gray D50: 0.2879 mm % Fines: 2
-35.5	2.8		SILT, inorganic-L, mostly silt, some clay, some fine-grained sand-sized quartz, trace shell fragments, brownish gray (ML)	NS	
			SAND, poorly-graded, mostly fine to medium-grained sand-sized quartz, trace coarse-grained sand-sized quartz, trace fines, trace shell fragments, lt. gray (SP) At El. -38.6 Ft., mostly fine-grained sand-sized quartz, trace fines, trace shells, dense, lt. gray	B	Classification: SP Color: 5Y 7/2-light gray D50: 0.3404 mm % Fines: 3.1
				C	Classification: SP Color: 5Y 7/1-light gray D50: 0.3417 mm % Fines: 2.5
-43.6	10.9				
-44.7	12.0		SAND, silty, mostly fine-grained sand-sized quartz, some silt, trace organic matter, trace wood debris, brown to dk. brown (SM)	NS	
-46.5	13.8		SAND, poorly-graded with silt, mostly fine-grained sand-sized quartz, some silt, gray (SP-SM)	D	Classification: SP-SM Color: 5Y 7/1-light gray D50: 0.2892 mm % Fines: 10.7
-47.3	14.6		SAND, clayey, mostly fine-grained sand-sized quartz, some clay, gray (SC)	NS	
			CLAY, fat, mostly clay, medium to high plasticity, stiff, trace fine grain sand lenses throughout, greenish gray (CH)		
-51.5	18.8				
NOTES: 1. Soils are field visually classified in accordance with the Unified Soils Classification System. 2. NS = Sample not submitted for laboratory analysis from this interval. 3. Seafloor elevation determined from 2010 USACE survey.					

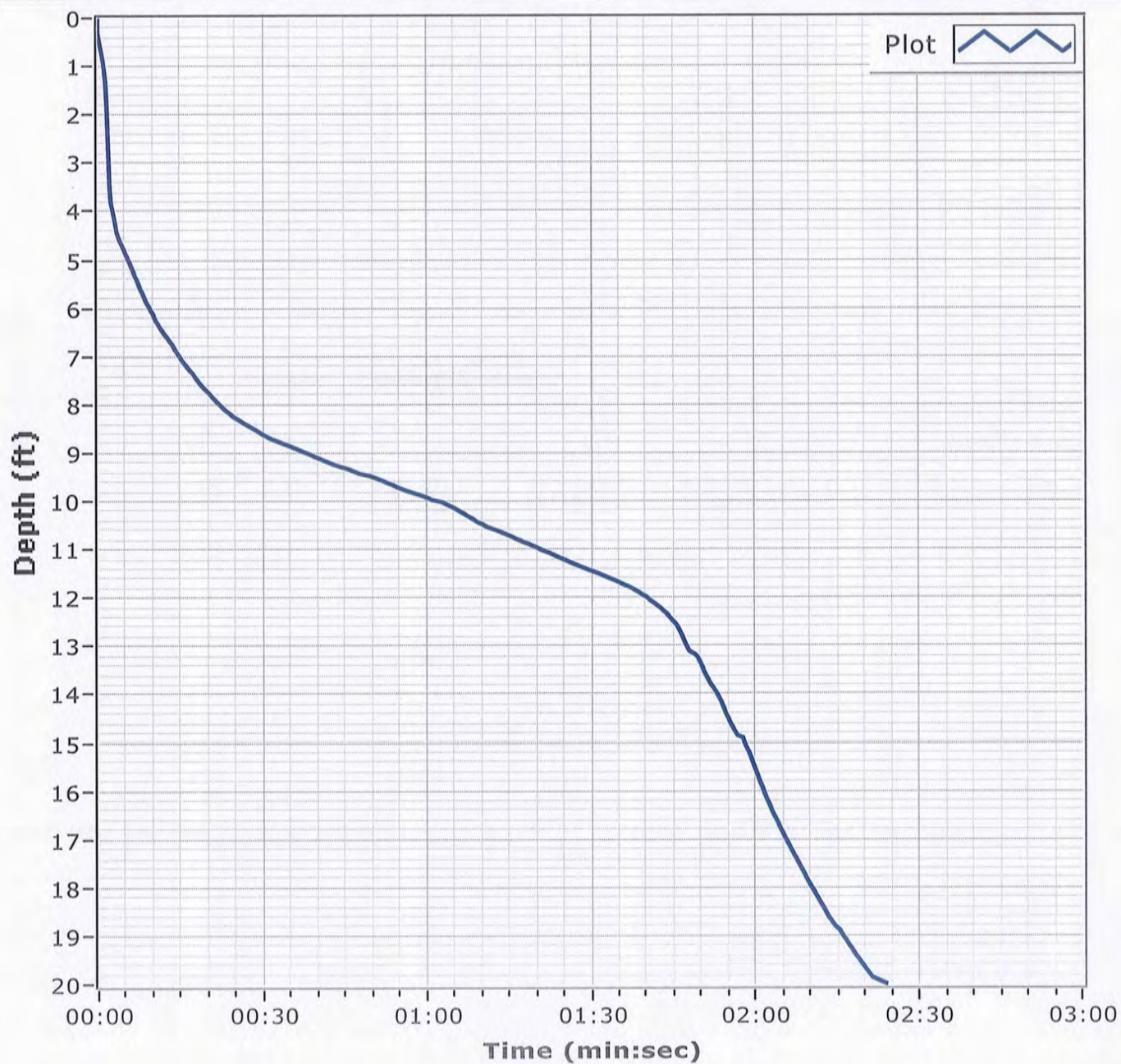
**Project**

Mississippi Barrier Island  
Restoration Project

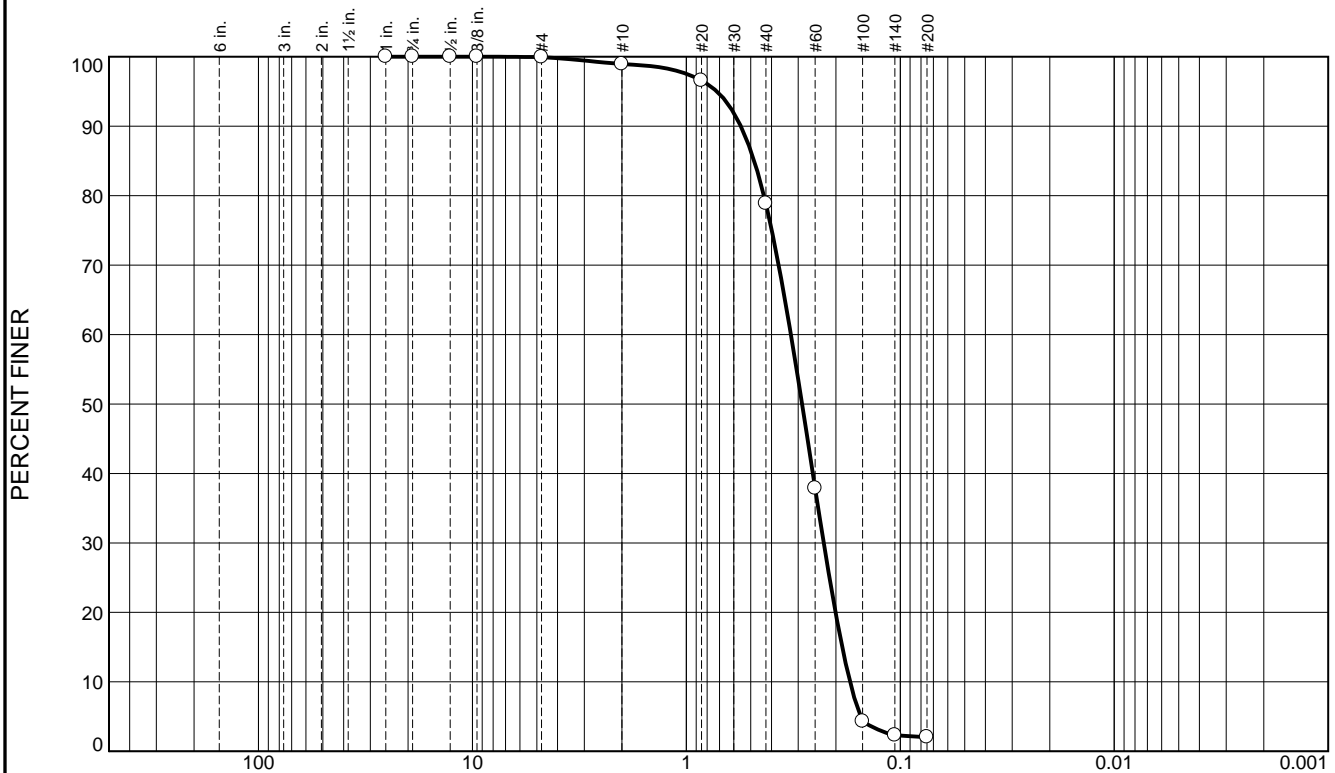
**AVS**  
**AMERICAN VIBRACORE**  
**S E R V I C E S**

**Core Identifier** BI-PB-152-12**Date** 12/12/2012**Water Depth** 33.6'**Coordinate System**

Latitude / Longitude

**Start Time** 09:52:51**End Time** 09:55:15**Penetration** 20.0'**Latitude** 30 11.876**Total Time** 00:02:24**Recovery** 18.7'**Longitude** 088 19.278**Comments**

# Particle Size Distribution Report



GRAIN SIZE - mm.

% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.1	0.9	20.2	76.8	2.0	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
1	100.0		
.75	100.0		
.5	100.0		
.375	100.0		
#4	99.9		
#10	99.0		
#20	96.6		
#40	78.8		
#60	37.8		
#100	4.3		
#140	2.3		
#200	2.0		

\* (no specification provided)

## Material Description

Fine to medium grained, SAND

## Atterberg Limits

PL= LL= PI=

## Coefficients

D<sub>90</sub>= 0.5565 D<sub>85</sub>= 0.4820 D<sub>60</sub>= 0.3247  
D<sub>50</sub>= 0.2879 D<sub>30</sub>= 0.2279 D<sub>15</sub>= 0.1869  
D<sub>10</sub>= 0.1720 C<sub>u</sub>= 1.89 C<sub>c</sub>= 0.93

## Classification

USCS= SP AASHTO=

## Remarks

Location: BI-PB-152-12 A  
Sample Number: 6485 (3)

Depth: 0.0'

Date: 12/07/12

**Thompson Engineering**

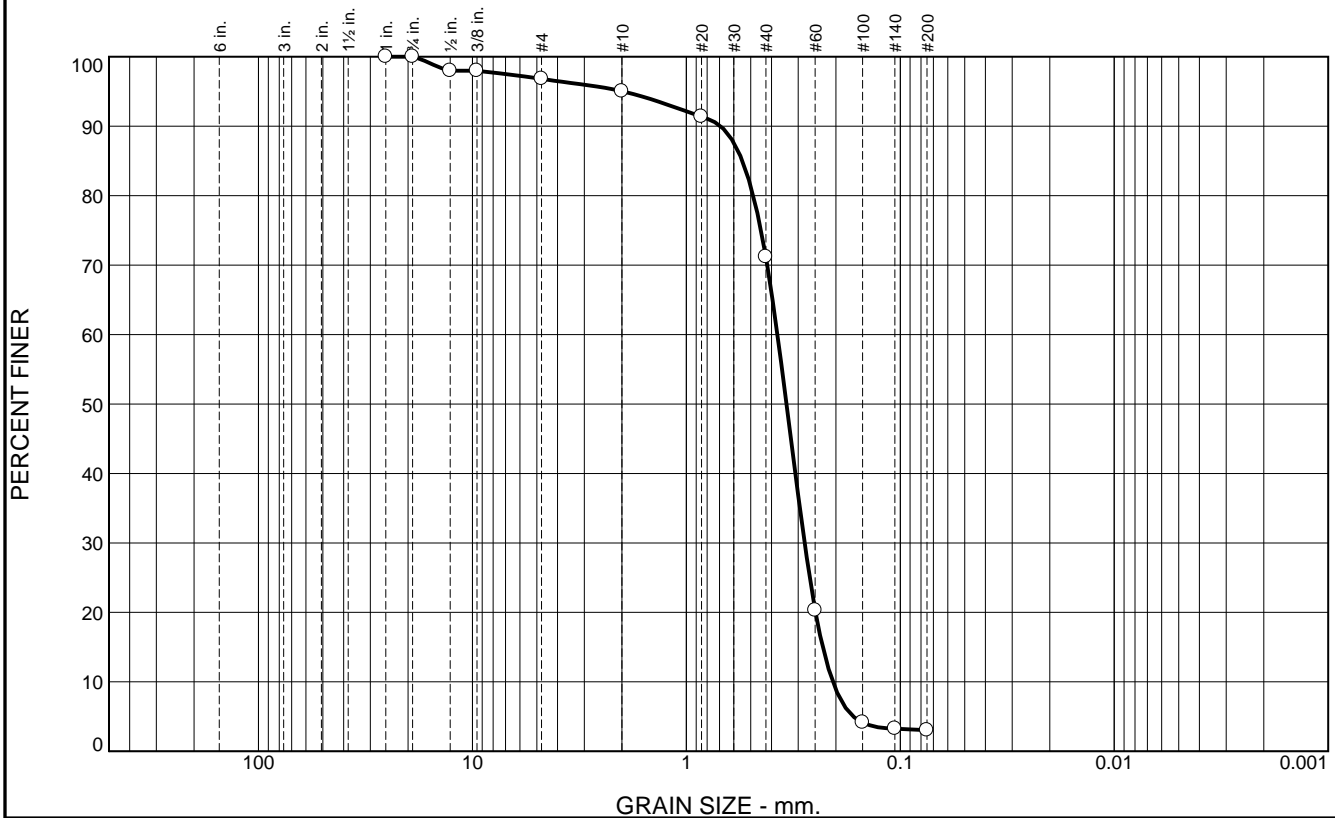
**Mobile, Alabama**

Client: CDM/Thompson Engineering JV  
Project: MsCIP Barrier Island Restoration GT

Project No: 1221110095

Figure

# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	3.2	1.8	23.8	68.1	3.1	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
1	100.0		
.75	100.0		
.5	98.0		
.375	98.0		
#4	96.8		
#10	95.0		
#20	91.4		
#40	71.2		
#60	20.3		
#100	4.1		
#140	3.3		
#200	3.1		

\* (no specification provided)

<u><b>Material Description</b></u>		
Fine to medium grained, SAND, with trace SHELL		
<u><b>Atterberg Limits</b></u>		
PL=	LL=	PI=
<u><b>Coefficients</b></u>		
D <sub>90</sub> = 0.6928	D <sub>85</sub> = 0.5471	D <sub>60</sub> = 0.3752
D <sub>50</sub> = 0.3404	D <sub>30</sub> = 0.2802	D <sub>15</sub> = 0.2304
D <sub>10</sub> = 0.2067	C <sub>u</sub> = 1.81	C <sub>c</sub> = 1.01
<u><b>Classification</b></u>		
USCS= SP	AASHTO=	
<u><b>Remarks</b></u>		

Location: BI-PB-152-12 B  
Sample Number: 6485 (4)

Depth: 2.8'

Date: 12/07/12

**Thompson Engineering**

**Mobile, Alabama**

Client: CDM/Thompson Engineering JV  
Project: MsCIP Barrier Island Restoration GT

Project No: 1221110095

Figure

# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.4	0.5	26.4	70.2	2.5	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
1	100.0		
.75	100.0		
.5	100.0		
.375	100.0		
#4	99.6		
#10	99.1		
#20	97.3		
#40	72.7		
#60	18.2		
#100	3.4		
#140	2.7		
#200	2.5		

\* (no specification provided)

**Material Description**  
 Fine to medium grained, SAND

**Atterberg Limits**  
 PL=                      LL=                      PI=

**Coefficients**  
 D<sub>90</sub>= 0.5649      D<sub>85</sub>= 0.5061      D<sub>60</sub>= 0.3738  
 D<sub>50</sub>= 0.3417      D<sub>30</sub>= 0.2851      D<sub>15</sub>= 0.2388  
 D<sub>10</sub>= 0.2173      C<sub>u</sub>= 1.72              C<sub>c</sub>= 1.00

**Classification**  
 USCS= SP                      AASHTO=

**Remarks**

Location: BI-PB-152-12 C  
Sample Number: 6485 (5)

Depth: 5.9'

Date: 12/07/12

**Thompson Engineering**

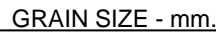
**Mobile, Alabama**

Client: CDM/Thompson Engineering JV  
Project: MsCIP Barrier Island Restoration GT

Project No: 1221110095

Figure

## PERCENT FINER



L-471

# Boring Designation BI-PB-153-12

DRILLING LOG		DIVISION South Atlantic		INSTALLATION Mobile District		SHEET 1 OF 2 SHEETS	
1. PROJECT MsCIP Barrier Island Restoration Petit Bois Pass- AL East				9. SIZE AND TYPE OF BIT N/A			
2. BORING DESIGNATION BI-PB-153-12		LOCATION COORDINATES E = 1,146,590 N = 253,184		10. COORDINATE SYSTEM/DATUM State Plane, MSE (U.S. Ft.)		HORIZONTAL NAD83	
3. DRILLING AGENCY Corps of Engineers - CESAM		CONTRACTOR FILE NO.		11. MANUFACTURER'S DESIGNATION OF DRILL Vibracore		<input type="checkbox"/> AUTO HAMMER <input type="checkbox"/> MANUAL HAMMER	
4. NAME OF DRILLER American Vibracore Systems, Inc.				12. TOTAL SAMPLES		DISTURBED 0	
5. DIRECTION OF BORING <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED				13. TOTAL NUMBER CORE BOXES		14. WATER DEPTH 38.7 Ft.	
6. THICKNESS OF OVERBURDEN N/A				15. DATE BORING		STARTED 12-12-12	
7. DEPTH DRILLED INTO ROCK N/A				16. ELEVATION TOP OF BORING -39.2 Ft.		COMPLETED 12-12-12	
8. TOTAL DEPTH OF BORING 20.0 Ft.				17. TOTAL RECOVERY FOR BORING 100%		18. SIGNATURE AND TITLE OF INSPECTOR Mike FitzHarris, Geologist	
ELEV.	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS	SAMPLE	LABORATORY RESULTS		
-39.2	0.0		CLAY, fat, mostly clay, trace shell fragments, sandy clay between 5-10 ft., medium to high plasticity, some sandy pockets, fine grained-sand lenses between 12-20 ft., greenish gray (CH)	NS			
-59.2	20.0		NOTES: 1. Soils are field visually classified in accordance with the Unified Soils Classification System. 2. NS = Sample not submitted for laboratory analysis from this interval. 3. Seafloor elevation calculated using sampling				



<b>DRILLING LOG (Cont. Sheet)</b>			<b>INSTALLATION</b> Mobile District		<b>SHEET 2</b> <b>OF 2 SHEETS</b>
<b>PROJECT</b> MsCIP Barrier Island Restoration			<b>COORDINATE SYSTEM/DATUM</b> State Plane, MSE (U.S. Ft.)	<b>HORIZONTAL</b> NAD83	<b>VERTICAL</b> NAVD88
<b>LOCATION COORDINATES</b> X = 1,146,590 Y = 253,184			<b>ELEVATION TOP OF BORING</b> -39.2 Ft.		
<b>ELEV.</b>	<b>DEPTH</b>	<b>LEGEND</b>	<b>CLASSIFICATION OF MATERIALS</b>	<b>SAMPLE</b>	<b>LABORATORY RESULTS</b>
			vessel's fathometer water depth reading and applying NOAA tidal gauge data conversion factor.		

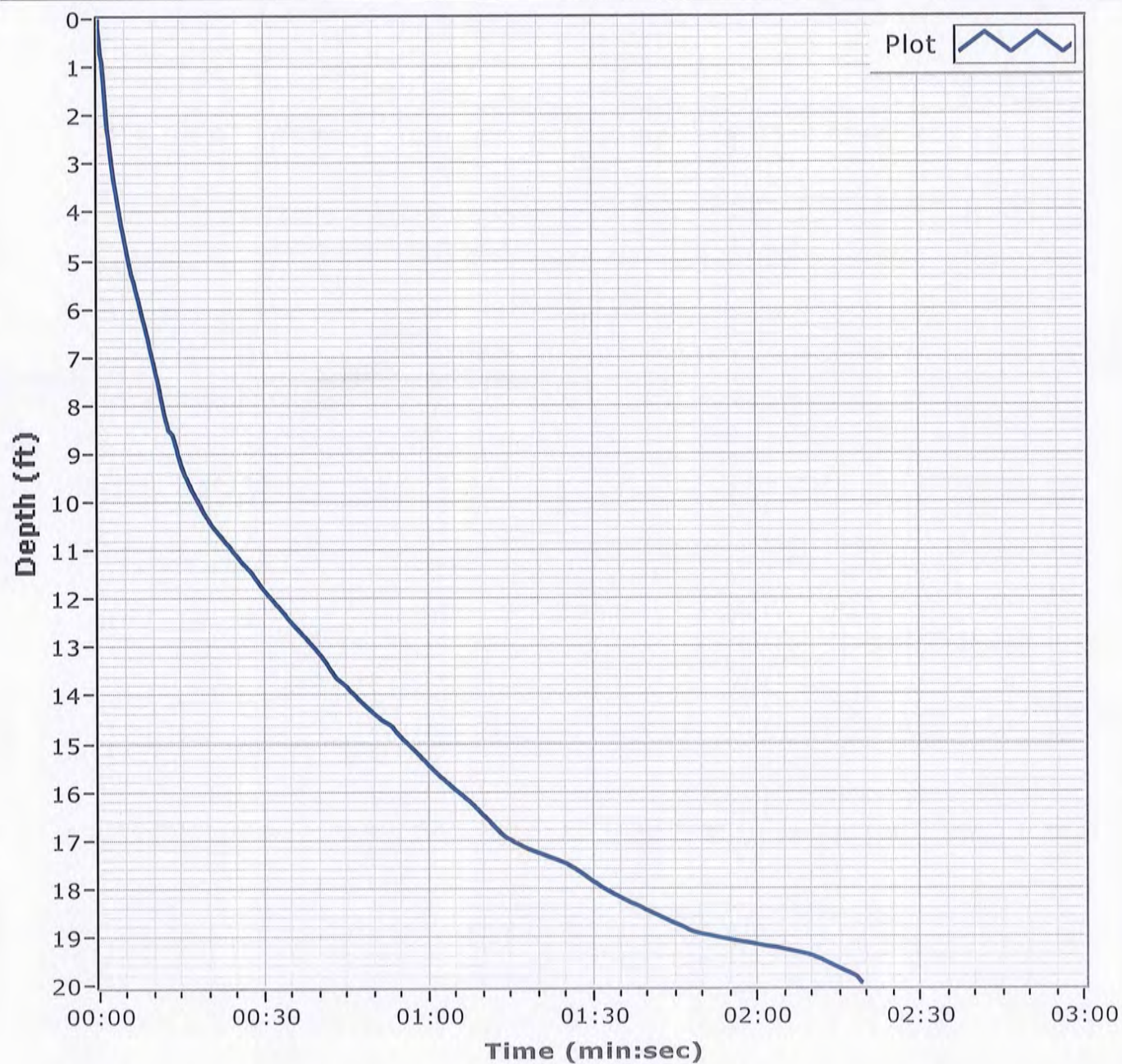
**Project**

Mississippi Barrier Island  
Restoration Project

**AVS**  
**AMERICAN VIBRACORE**  
**S E R V I C E S**

**Core Identifier** BI-PB-153-12**Date** 12/12/2012**Water Depth** 38.7'**Coordinate System**

Latitude / Longitude

**Start Time** 10:58:53**End Time** 11:01:13**Penetration** 20.0'**Latitude** 30 11.712**Total Time** 00:02:19**Recovery** 20.0'**Longitude** 088 19.168**Comments**

# Boring Designation BI-PB-154-12

DRILLING LOG		DIVISION South Atlantic		INSTALLATION Mobile District		SHEET 1 OF 1 SHEETS	
1. PROJECT MsCIP Barrier Island Restoration Petit Bois Pass- AL East				9. SIZE AND TYPE OF BIT N/A			
2. BORING DESIGNATION BI-PB-154-12		LOCATION COORDINATES E = 1,144,439 N = 253,712		10. COORDINATE SYSTEM/DATUM State Plane, MSE (U.S. Ft.)		HORIZONTAL NAD83	
3. DRILLING AGENCY Corps of Engineers - CESAM		CONTRACTOR FILE NO.		11. MANUFACTURER'S DESIGNATION OF DRILL Vibracore		<input type="checkbox"/> AUTO HAMMER <input type="checkbox"/> MANUAL HAMMER	
4. NAME OF DRILLER American Vibracore Systems, Inc.				12. TOTAL SAMPLES		DISTURBED 0	
5. DIRECTION OF BORING <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED				13. TOTAL NUMBER CORE BOXES		14. WATER DEPTH 33.4 Ft.	
6. THICKNESS OF OVERBURDEN N/A				15. DATE BORING		STARTED 12-11-12	
7. DEPTH DRILLED INTO ROCK N/A				16. ELEVATION TOP OF BORING -32.9 Ft.		COMPLETED 12-11-12	
8. TOTAL DEPTH OF BORING 15.0 Ft.				17. TOTAL RECOVERY FOR BORING 100%		18. SIGNATURE AND TITLE OF INSPECTOR Mike FitzHarris, Geologist	

ELEV.	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS	SAMPLE	LABORATORY RESULTS
-32.9	0.0				
-35.2	2.3		SAND, poorly-graded, mostly fine to medium-grained sand-sized quartz, trace clay, trace shell fragments, gray (SP)	A	Classification: SP Color: 5Y 7/2-light gray D50: 0.296 mm % Fines: 2.9
-46.8	13.9		CLAY, fat, mostly clay, trace shell fragments, medium to high plasticity, stiff, greenish gray (CH)	NS	
-47.9	15.0		SAND, clayey, mostly fine-grained sand-sized quartz, some clay, trace shell fragments, greenish gray (SC)		
NOTES: 1. Soils are field visually classified in accordance with the Unified Soils Classification System. 2. NS = Sample not submitted for laboratory analysis from this interval. 3. Seafloor elevation calculated using sampling vessel's fathometer water depth reading and applying NOAA tidal gauge data conversion factor.					



**Project**

Mississippi Barrier Island  
Restoration Project

**AVS**  
**AMERICAN VIBRACORE**  
**S E R V I C E S**

**Core Identifier** BI-PB-154-12

**Date** 12/11/2012

**Water Depth** 33.4

**Coordinate System**

Latitude / Longitude

**Start Time** 14:05:25

**End Time** 14:07:19

**Penetration** 20.0'

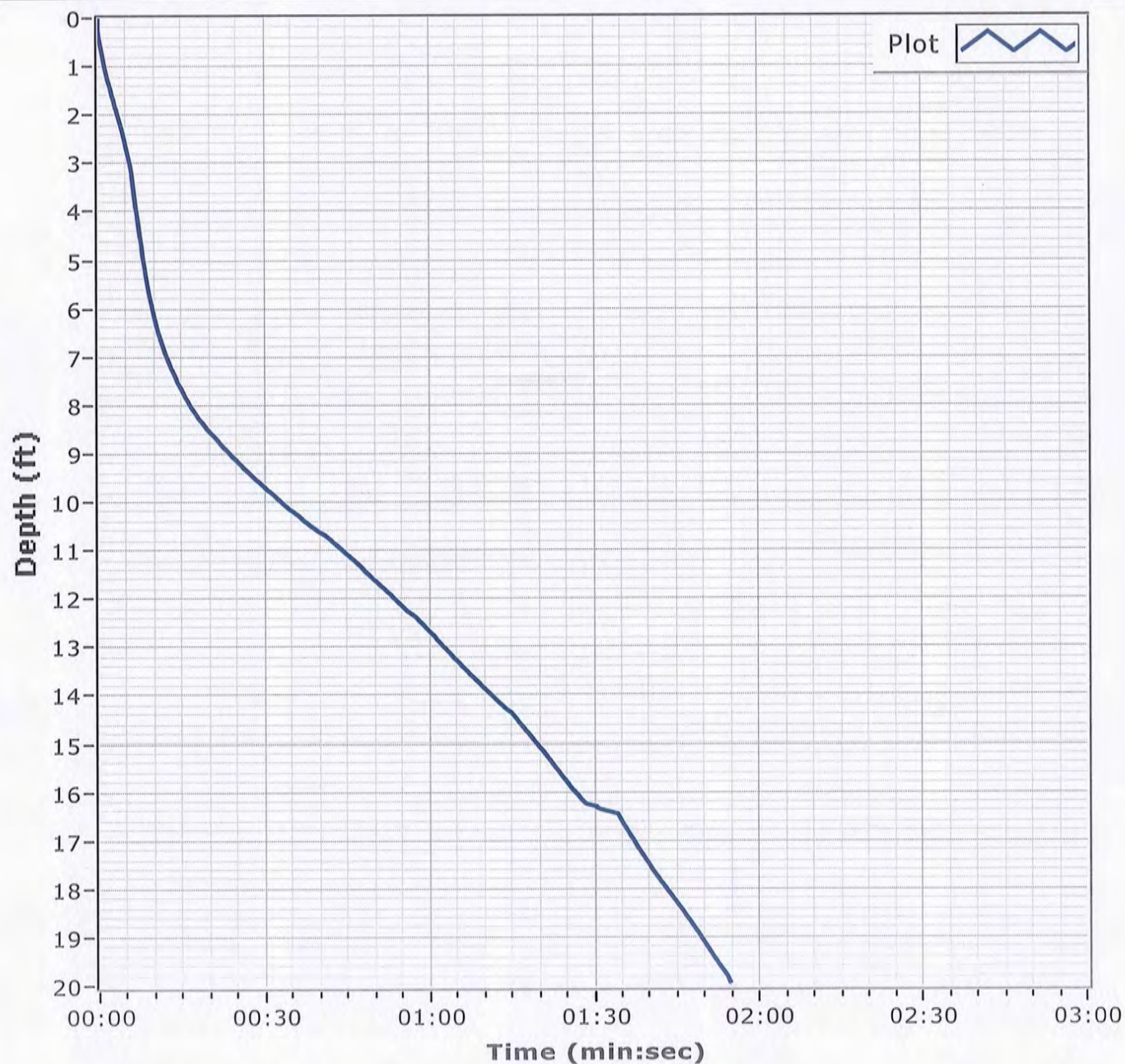
**Latitude** 33 11.801

**Total Time** 00:01:54

**Recovery** 15.0'

**Longitude** 088 19.576

**Comments**



# Particle Size Distribution Report



GRAIN SIZE - mm.

% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.5	1.4	21.0	74.2	2.9	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
1	100.0		
.75	100.0		
.5	100.0		
.375	100.0		
#4	99.5		
#10	98.1		
#20	94.3		
#40	77.1		
#60	35.8		
#100	5.5		
#140	3.3		
#200	2.9		

\* (no specification provided)

## Material Description

Fine to medium grained, SAND

## Atterberg Limits

PL= LL= PI=

## Coefficients

D<sub>90</sub>= 0.5988 D<sub>85</sub>= 0.5033 D<sub>60</sub>= 0.3339  
D<sub>50</sub>= 0.2960 D<sub>30</sub>= 0.2326 D<sub>15</sub>= 0.1873  
D<sub>10</sub>= 0.1702 C<sub>u</sub>= 1.96 C<sub>c</sub>= 0.95

## Classification

USCS= SP AASHTO=

## Remarks

Location: BI-PB-154-12 A  
Sample Number: 6485 (7)

Depth: 0.0'

Date: 12/07/12

**Thompson Engineering**

**Mobile, Alabama**

Client: CDM/Thompson Engineering JV  
Project: MsCIP Barrier Island Restoration GT



Project No: 1221110095

Figure

# Boring Designation BI-PB-155-12

DRILLING LOG		DIVISION South Atlantic		INSTALLATION Mobile District		SHEET 1 OF 1 SHEETS	
1. PROJECT MsCIP Barrier Island Restoration Petit Bois Pass- AL East				9. SIZE AND TYPE OF BIT N/A			
2. BORING DESIGNATION BI-PB-155-12		LOCATION COORDINATES E = 1,144,000 N = 254,547		10. COORDINATE SYSTEM/DATUM State Plane, MSE (U.S. Ft.)		HORIZONTAL NAD83 VERTICAL NAVD88	
3. DRILLING AGENCY Corps of Engineers - CESAM		CONTRACTOR FILE NO.		11. MANUFACTURER'S DESIGNATION OF DRILL Vibracore		<input type="checkbox"/> AUTO HAMMER <input type="checkbox"/> MANUAL HAMMER	
4. NAME OF DRILLER American Vibracore Systems, Inc.				12. TOTAL SAMPLES		DISTURBED UNDISTURBED (UD) 0	
5. DIRECTION OF BORING <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED		DEG. FROM VERTICAL		13. TOTAL NUMBER CORE BOXES			
		BEARING		14. WATER DEPTH 35.1 Ft.			
6. THICKNESS OF OVERBURDEN N/A				15. DATE BORING 12-07-12		STARTED COMPLETED 12-07-12	
7. DEPTH DRILLED INTO ROCK N/A				16. ELEVATION TOP OF BORING -34.2 Ft.			
8. TOTAL DEPTH OF BORING 13.4 Ft.				17. TOTAL RECOVERY FOR BORING 100%			
				18. SIGNATURE AND TITLE OF INSPECTOR Mike FitzHarris, Geologist			

ELEV.	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS	SAMPLE	LABORATORY RESULTS
-34.2	0.0				
-34.4	0.2		SILT, inorganic-L, mostly silt, trace fine-grained sand-sized quartz, trace shell fragments, gray (ML)  CLAY, fat, mostly clay, very stiff, medium to high plasticity, few sandy lenses, greenish gray (CH)	NS	
-40.8	6.6				
-42.6	8.4		SAND, clayey, mostly fine-grained sand-sized quartz, some clay, trace shell fragments, greenish gray (SC)		
-47.6	13.4		SAND, poorly-graded, mostly fine-grained sand-sized quartz, trace fines, lt. gray (SP)	A	Classification: SP Color: 5Y 6/4-pale olive D50: 0.2932 mm % Fines: 3.3
			NOTES: 1. Soils are field visually classified in accordance with the Unified Soils Classification System. 2. NS = Sample not submitted for laboratory analysis from this interval. 3. Seafloor elevation calculated using sampling vessel's fathometer water depth reading and applying NOAA tidal gauge data conversion factor.		



**Project**

Mississippi Barrier Island  
Restoration Project

**AVS**  
**AMERICAN VIBRACORE**  
**S E R V I C E S**

**Core Identifier** BI-PB-155-12

**Date** 12/07/2012

**Water Depth** 35.1'

**Coordinate System**

Latitude / Longitude

**Start Time** 14:40:19

**End Time** 14:48:24

**Penetration** 14.9'

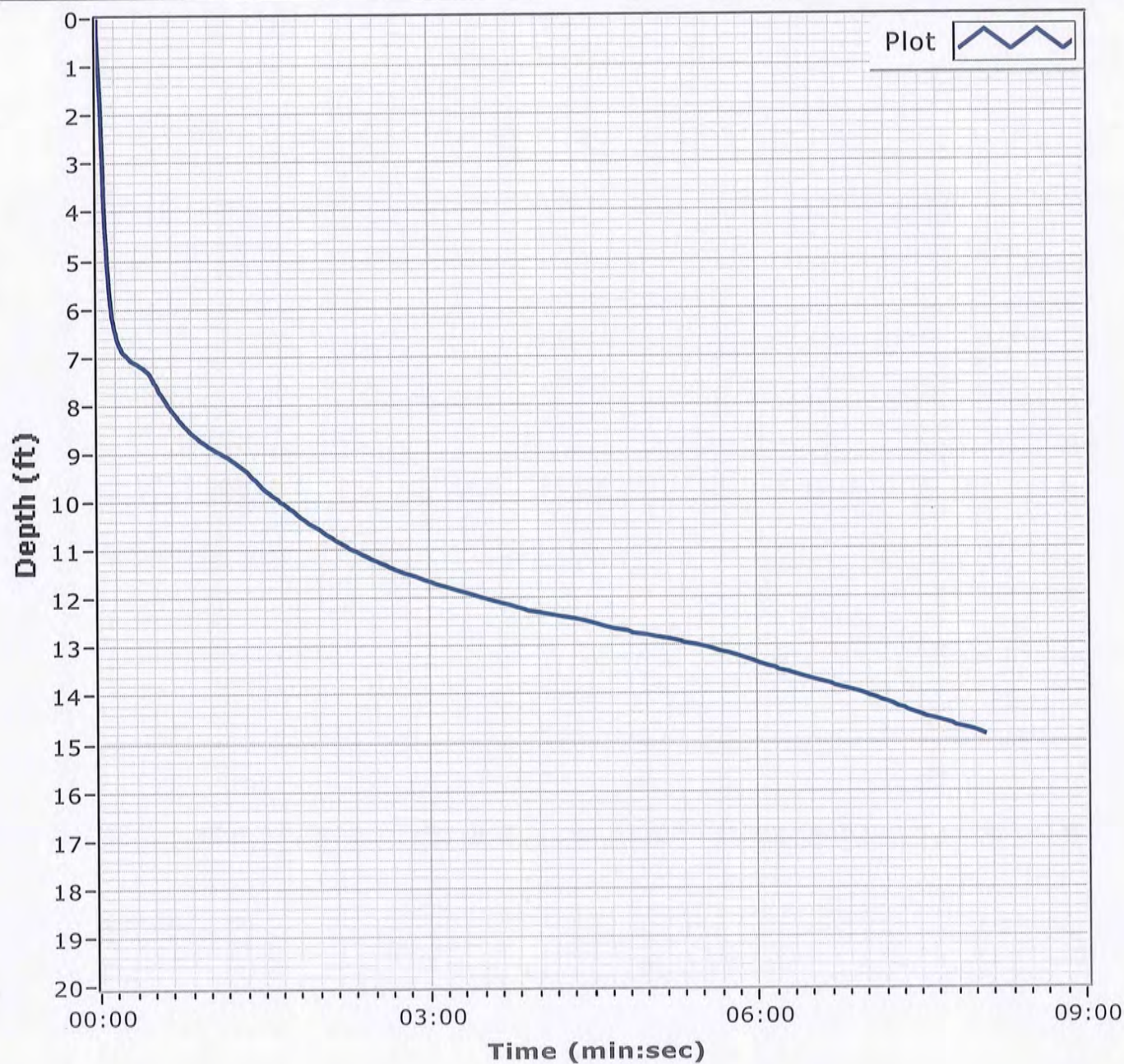
**Latitude** 30 11.939

**Total Time** 00:08:05

**Recovery** 13.4'

**Longitude** 088 19.659

**Comments**



# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.0	0.0	11.0	85.7	3.3	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
1	100.0		
.75	100.0		
.5	100.0		
.375	100.0		
#4	100.0		
#10	100.0		
#20	99.6		
#40	89.0		
#60	32.7		
#100	4.7		
#140	3.6		
#200	3.3		

\* (no specification provided)

<u><b>Material Description</b></u>		
Fine to medium grained, SAND		
<u><b>Atterberg Limits</b></u>		
PL=	LL=	PI=
<u><b>Coefficients</b></u>		
D <sub>90</sub> = 0.4446	D <sub>85</sub> = 0.4043	D <sub>60</sub> = 0.3193
D <sub>50</sub> = 0.2932	D <sub>30</sub> = 0.2430	D <sub>15</sub> = 0.1988
D <sub>10</sub> = 0.1799	C <sub>u</sub> = 1.78	C <sub>c</sub> = 1.03
<u><b>Classification</b></u>		
USCS= SP	AASHTO=	
<u><b>Remarks</b></u>		

Location: BI-PB-155-12 A  
Sample Number: 6482 (1)

Depth: 8.4'

Date: 12/12/12

**Thompson Engineering**

**Mobile, Alabama**

Client: CDM/Thompson Engineering JV  
Project: MsCIP Barrier Island Restoration GT

Project No: 1221110095

Figure



# Boring Designation BI-PB-156-12

DRILLING LOG		DIVISION South Atlantic		INSTALLATION Mobile District		SHEET 1 OF 1 SHEETS	
1. PROJECT MsCIP Barrier Island Restoration Petit Bois Pass- AL East				9. SIZE AND TYPE OF BIT N/A			
2. BORING DESIGNATION BI-PB-156-12		LOCATION COORDINATES E = 1,144,612 N = 253,193		10. COORDINATE SYSTEM/DATUM State Plane, MSE (U.S. Ft.)		HORIZONTAL NAD83 VERTICAL NAVD88	
3. DRILLING AGENCY Corps of Engineers - CESAM		CONTRACTOR FILE NO.		11. MANUFACTURER'S DESIGNATION OF DRILL Vibracore		<input type="checkbox"/> AUTO HAMMER <input type="checkbox"/> MANUAL HAMMER	
4. NAME OF DRILLER American Vibracore Systems, Inc.				12. TOTAL SAMPLES		DISTURBED UNDISTURBED (UD) 0	
5. DIRECTION OF BORING <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED		DEG. FROM VERTICAL		13. TOTAL NUMBER CORE BOXES			
		BEARING		14. WATER DEPTH 35.4 Ft.			
6. THICKNESS OF OVERBURDEN N/A				15. DATE BORING 12-19-12		STARTED COMPLETED 12-19-12	
7. DEPTH DRILLED INTO ROCK N/A				16. ELEVATION TOP OF BORING -35.1 Ft.			
8. TOTAL DEPTH OF BORING 15.6 Ft.				17. TOTAL RECOVERY FOR BORING 100%			
				18. SIGNATURE AND TITLE OF INSPECTOR Mike FitzHarris, Geologist			
ELEV.	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS	SAMPLE	LABORATORY RESULTS		
-35.1	0.0						
-36.7	1.6		SAND, poorly-graded, mostly fine to medium-grained sand-sized quartz, trace shell fragments, lt. gray (SP)	A	Classification: SP Color: 5Y 7/2-light gray D50: 0.2901 mm % Fines: 1.5		
-37.1	2.0		SAND, silty, mostly fine-grained sand-sized quartz, some silt, trace clay, trace shell fragments, brownish gray (SM)				
			CLAY, fat, mostly clay, trace shell fragments, medium to high plasticity, stiff, trace pockets of fine-grained sand, greenish gray (CH)	NS			
-50.7	15.6						
NOTES:							
1. Soils are field visually classified in accordance with the Unified Soils Classification System.							
2. NS = Sample not submitted for laboratory analysis from this interval.							
3. Seafloor elevation calculated using sampling vessel's fathometer water depth reading and applying NOAA tidal gauge data conversion factor.							

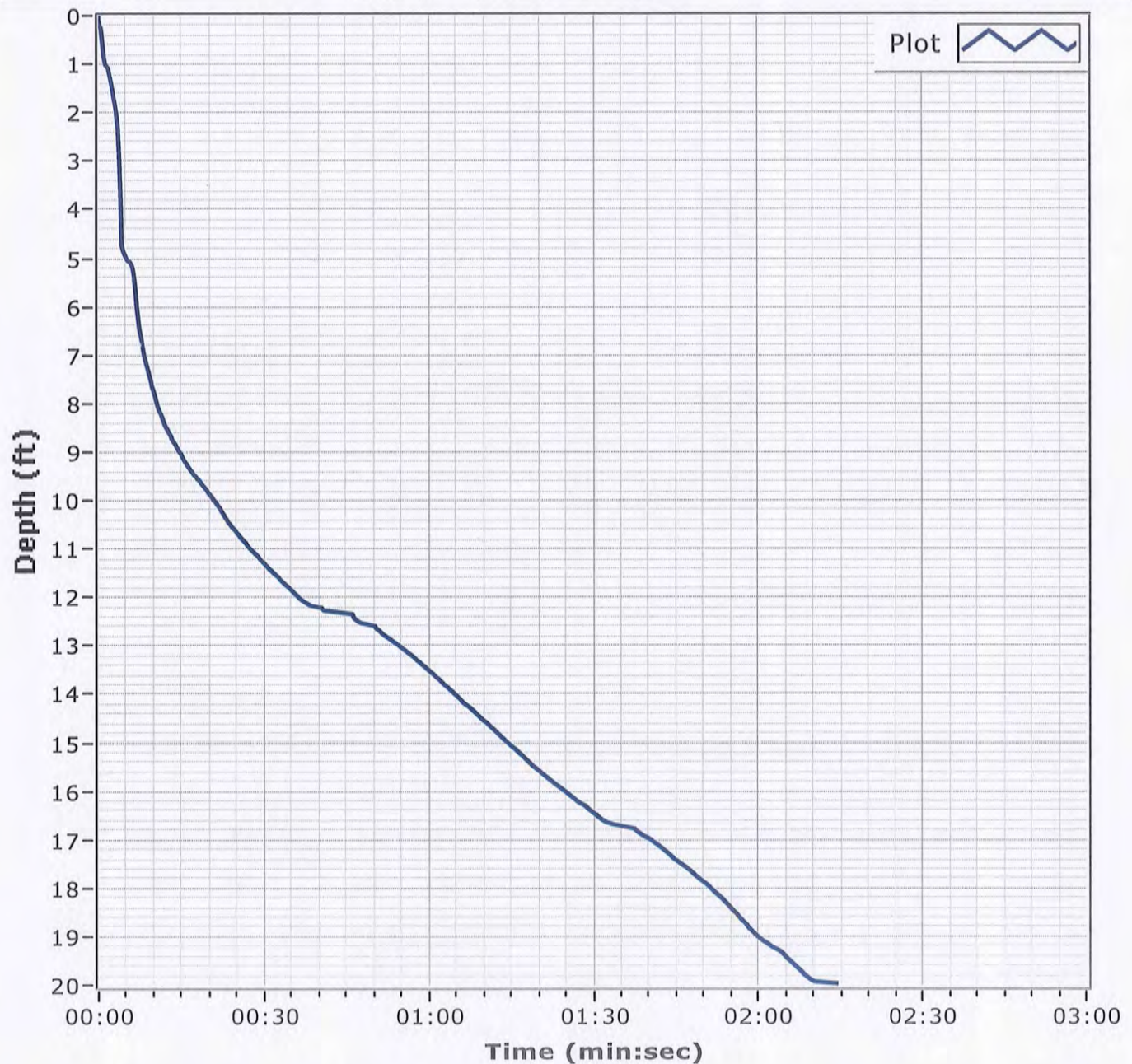
**Project**

Mississippi Barrier Island  
Restoration Project

**AVS**  
**AMERICAN VIBRACORE**  
**S E R V I C E S**

**Core Identifier** BI-PB-156-12**Date** 12/19/2012**Water Depth** 33.7'**Coordinate System**

Latitude / Longitude

**Start Time** 13:31:36**End Time** 13:33:50**Penetration** 20.0'**Latitude** 30 11.722**Total Time** 00:02:14**Recovery** 15.6'**Longitude** 88 19.544**Comments**

# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.0	0.7	12.5	85.3	1.5	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
1	100.0		
.75	100.0		
.5	100.0		
.375	100.0		
#4	100.0		
#10	99.3		
#20	97.7		
#40	86.8		
#60	34.6		
#100	3.5		
#140	1.7		
#200	1.5		

\* (no specification provided)

## Material Description

Fine to medium grained, SAND

## Atterberg Limits

PL=

LL=

PI=

## Coefficients

D<sub>90</sub>= 0.4975

D<sub>85</sub>= 0.4145

D<sub>60</sub>= 0.3182

D<sub>50</sub>= 0.2901

D<sub>30</sub>= 0.2381

D<sub>15</sub>= 0.1958

D<sub>10</sub>= 0.1792

C<sub>u</sub>= 1.78

C<sub>c</sub>= 0.99

## Classification

USCS= SP

AASHTO=

## Remarks

Location: BI-PB-156-12 A

Sample Number: 6494 (63)

Depth: 0.0'

Date: 12/26/12

**Thompson Engineering**

**Mobile, Alabama**

Client: CDM/Thompson Engineering JV

Project: MsCIP Barrier Island Restoration GT

Project No: 1221110095

Figure

# Boring Designation BI-PB-157-12

DRILLING LOG		DIVISION South Atlantic		INSTALLATION Mobile District		SHEET 1 OF 1 SHEETS	
1. PROJECT MsCIP Barrier Island Restoration Petit Bois Pass- AL East				9. SIZE AND TYPE OF BIT N/A			
2. BORING DESIGNATION BI-PB-157-12		LOCATION COORDINATES E = 1,144,871 N = 253,965		10. COORDINATE SYSTEM/DATUM State Plane, MSE (U.S. Ft.)		HORIZONTAL NAD83 VERTICAL NAVD88	
3. DRILLING AGENCY Corps of Engineers - CESAM		CONTRACTOR FILE NO.		11. MANUFACTURER'S DESIGNATION OF DRILL Vibracore		<input type="checkbox"/> AUTO HAMMER <input type="checkbox"/> MANUAL HAMMER	
4. NAME OF DRILLER American Vibracore Systems, Inc.				12. TOTAL SAMPLES		DISTURBED UNDISTURBED (UD) 0	
5. DIRECTION OF BORING <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED		DEG. FROM VERTICAL		13. TOTAL NUMBER CORE BOXES			
		BEARING		14. WATER DEPTH 36.7 Ft.			
6. THICKNESS OF OVERBURDEN N/A				15. DATE BORING 12-11-12		STARTED COMPLETED 12-11-12	
7. DEPTH DRILLED INTO ROCK N/A				16. ELEVATION TOP OF BORING -34.8 Ft.			
8. TOTAL DEPTH OF BORING 19.8 Ft.				17. TOTAL RECOVERY FOR BORING 100%			
				18. SIGNATURE AND TITLE OF INSPECTOR Mike FitzHarris, Geologist			

ELEV.	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS	SAMPLE	LABORATORY RESULTS
-34.8	0.0				
			SAND, poorly-graded, mostly fine to medium-grained sand-sized quartz, trace silt, trace clayey nodules, gray to light gray (SP)	A	Classification: SP Color: 2.5Y 7/2-light gray D50: 0.3406 mm % Fines: 2.4
				B	Classification: SP Color: 2.5Y 8/1-white D50: 0.3525 mm % Fines: 1.9
-42.4	7.6				
			SAND, silty, mostly fine-grained sand-sized quartz, some silt, trace clay, trace shell fragments, greenish gray (SM)	NS	
-49.1	14.3				
			CLAY, fat, mostly clay, medium to high plasticity, trace sandy pockets, greenish gray (CH)		
-54.6	19.8				
			NOTES: 1. Soils are field visually classified in accordance with the Unified Soils Classification System. 2. NS = Sample not submitted for laboratory analysis from this interval. 3. Seafloor elevation determined from 2010 USACE survey.		



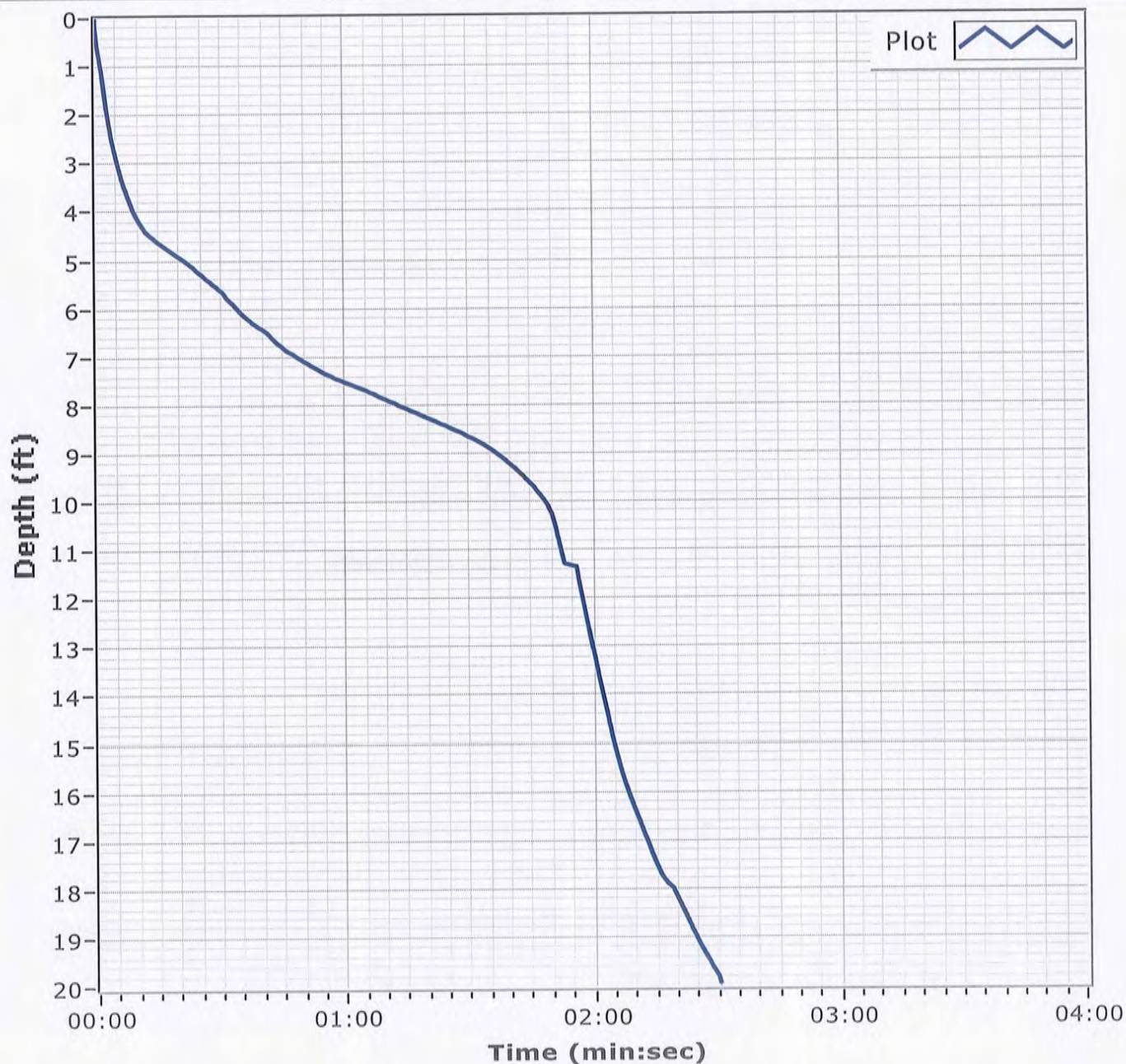
**Project**

Mississippi Barrier Island  
Restoration Project

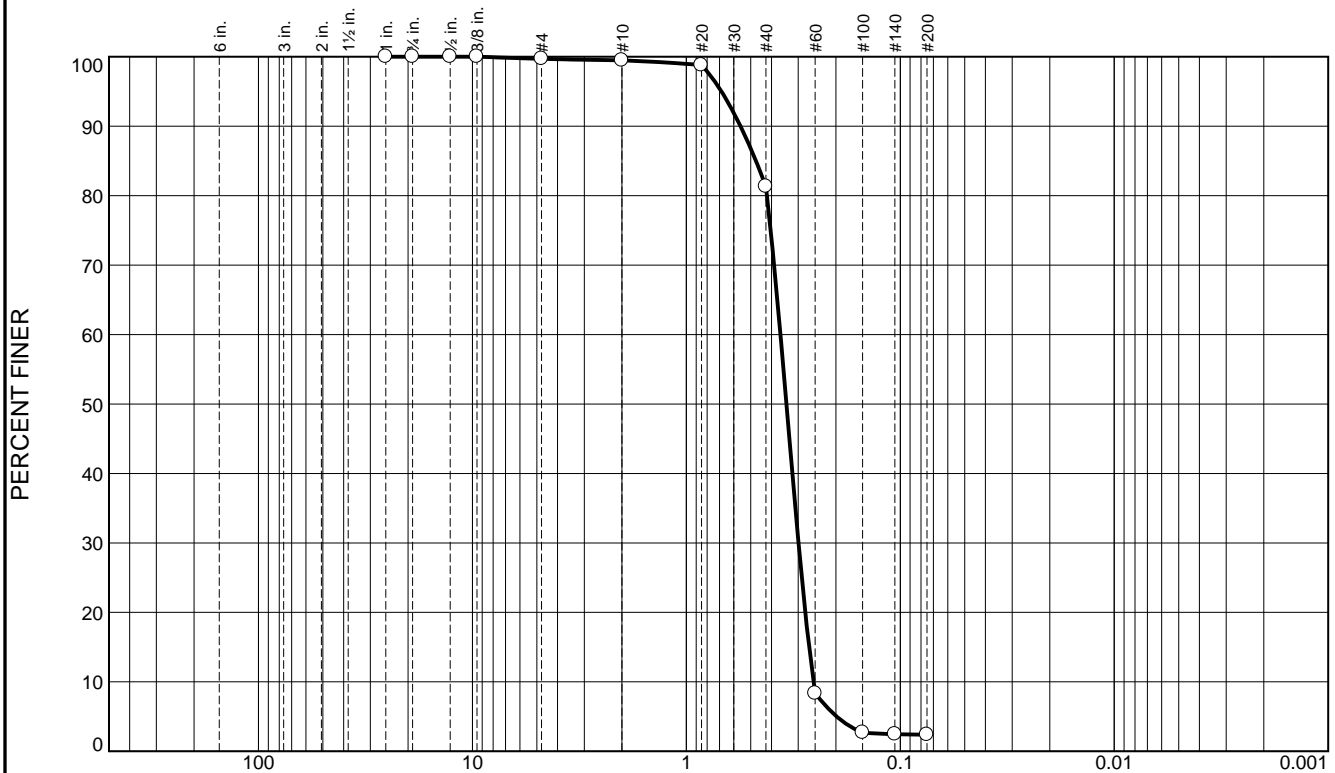
**AVS**  
**AMERICAN VIBRACORE**  
**S E R V I C E S**

**Core Identifier** BI-PB-157-12**Date** 12/11/2012**Water Depth** 36.7'**Coordinate System**

Latitude / Longitude

**Start Time** 14:33:57**End Time** 14:36:28**Penetration** 20.0'**Latitude** 33 11.842**Total Time** 00:02:30**Recovery** 19.8'**Longitude** 088 19.494**Comments**

# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.3	0.2	18.2	78.9	2.4	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
1	100.0		
.75	100.0		
.5	100.0		
.375	100.0		
#4	99.7		
#10	99.5		
#20	98.8		
#40	81.3		
#60	8.3		
#100	2.7		
#140	2.5		
#200	2.4		

\* (no specification provided)

<u>Material Description</u>		
Fine to medium grained, SAND		
PL=	<u>Atterberg Limits</u> LL=	PI=
<u>Coefficients</u>		
D <sub>90</sub> = 0.5583	D <sub>85</sub> = 0.4730	D <sub>60</sub> = 0.3631
D <sub>50</sub> = 0.3406	D <sub>30</sub> = 0.2992	D <sub>15</sub> = 0.2671
D <sub>10</sub> = 0.2547	C <sub>u</sub> = 1.43	C <sub>c</sub> = 0.97
<u>Classification</u>		
USCS= SP	AASHTO=	
<u>Remarks</u>		

Location: BI-PB-157-12 A  
Sample Number: 6485 (8)

Depth: 0.0'

Date: 12/07/12

**Thompson Engineering**

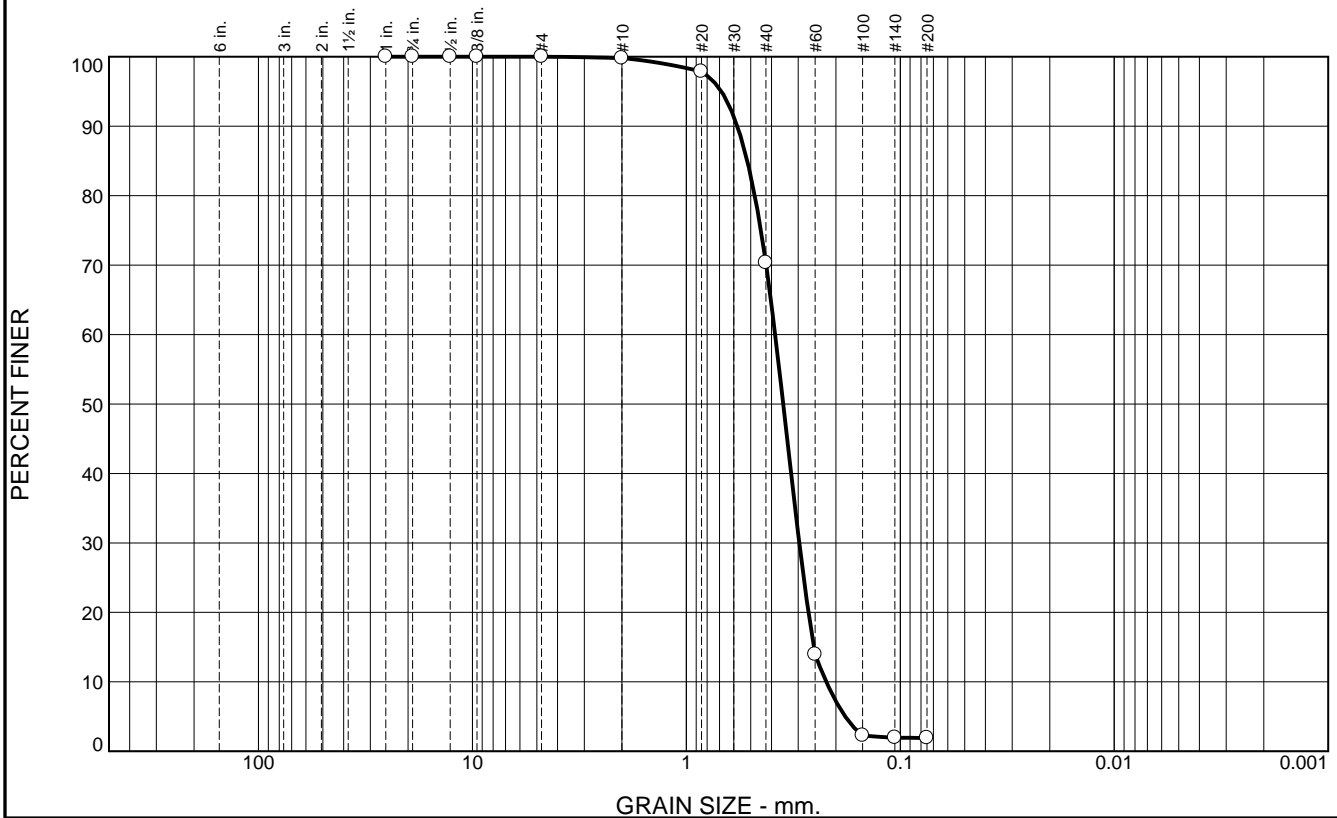
**Mobile, Alabama**

Client: CDM/Thompson Engineering JV  
Project: MsCIP Barrier Island Restoration GT

Project No: 1221110095

Figure

# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.0	0.2	29.5	68.4	1.9	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
1	100.0		
.75	100.0		
.5	100.0		
.375	100.0		
#4	100.0		
#10	99.8		
#20	97.9		
#40	70.3		
#60	13.9		
#100	2.3		
#140	2.0		
#200	1.9		

\* (no specification provided)

<u><b>Material Description</b></u>		
Fine to medium grained, SAND		
<u><b>Atterberg Limits</b></u>		
PL=	LL=	PI=
<u><b>Coefficients</b></u>		
D <sub>90</sub> = 0.5774	D <sub>85</sub> = 0.5190	D <sub>60</sub> = 0.3845
D <sub>50</sub> = 0.3525	D <sub>30</sub> = 0.2968	D <sub>15</sub> = 0.2536
D <sub>10</sub> = 0.2217	C <sub>u</sub> = 1.73	C <sub>c</sub> = 1.03
<u><b>Classification</b></u>		
USCS= SP	AASHTO=	
<u><b>Remarks</b></u>		

Location: BI-PB-157-12 B  
Sample Number: 6485 (9)

Depth: 5.0'

Date: 12/07/12

**Thompson Engineering**

**Mobile, Alabama**

Client: CDM/Thompson Engineering JV  
Project: MsCIP Barrier Island Restoration GT

Project No: 1221110095

Figure

# Boring Designation BI-PB-158-12

DRILLING LOG		DIVISION South Atlantic		INSTALLATION Mobile District		SHEET 1 OF 1 SHEETS	
1. PROJECT MsCIP Barrier Island Restoration Petit Bois Pass- AL East				9. SIZE AND TYPE OF BIT N/A			
2. BORING DESIGNATION BI-PB-158-12		LOCATION COORDINATES E = 1,145,462 N = 253,877		10. COORDINATE SYSTEM/DATUM State Plane, MSE (U.S. Ft.)		HORIZONTAL NAD83	
3. DRILLING AGENCY Corps of Engineers - CESAM		CONTRACTOR FILE NO.		11. MANUFACTURER'S DESIGNATION OF DRILL Vibracore		<input type="checkbox"/> AUTO HAMMER <input type="checkbox"/> MANUAL HAMMER	
4. NAME OF DRILLER American Vibracore Systems, Inc.				12. TOTAL SAMPLES		DISTURBED 0	
5. DIRECTION OF BORING <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED				13. TOTAL NUMBER CORE BOXES		14. WATER DEPTH 36.4 Ft.	
6. THICKNESS OF OVERBURDEN N/A				15. DATE BORING		STARTED 12-12-12	
7. DEPTH DRILLED INTO ROCK N/A				16. ELEVATION TOP OF BORING		COMPLETED 12-12-12	
8. TOTAL DEPTH OF BORING 19.7 Ft.				17. TOTAL RECOVERY FOR BORING 100%		18. SIGNATURE AND TITLE OF INSPECTOR Mike FitzHarris, Geologist	

ELEV.	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS	SAMPLE	LABORATORY RESULTS
-36.1	0.0				
-37.5	1.4		SAND, poorly-graded, mostly fine to medium-grained sand-sized quartz, trace silt, trace shell fragments, lt. gray (SP)	A	Classification: SP Color: 5Y 7/2-light gray D50: 0.4123 mm % Fines: 2.1
-40.8	4.7		SAND, poorly-graded, mostly fine to medium-grained sand-sized quartz, trace fines, clayey band @ 1.7 ft., lt. gray to white (SP)	B	Classification: SP-SM Color: 2.5Y 8/1-white D50: 0.3581 mm % Fines: 5.8
-43.4	7.3		SAND, poorly-graded with silt, mostly fine-grained sand-sized quartz, few silt, trace shell fragments, gray (SP-SM)	C	Classification: SP Color: 2.5Y 8/1-white D50: 0.3364 mm % Fines: 1.8
-52.6	16.5		SAND, silty, mostly fine-grained sand-sized quartz, some silt, with clay stringers, gray (SM)	D	Classification: SP-SM Color: 5Y 5/2-olive gray D50: 0.259 mm % Fines: 8.9
-53.4	17.3		SAND, clayey, mostly fine-grained sand-sized quartz, some clay, stiff, greenish gray (SC)	NS	
-55.8	19.7		CLAY, fat, mostly clay, medium to high plasticity, stiff, dark green (CH)		
NOTES: 1. Soils are field visually classified in accordance with the Unified Soils Classification System. 2. NS = Sample not submitted for laboratory analysis from this interval. 3. Seafloor elevation determined from 2010 USACE survey.					



**Project**

Mississippi Barrier Island  
Restoration Project



**Core Identifier** BI-PB-158-12

**Date** 12/12/2012

**Water Depth** 36.4'

**Coordinate System**

**Start Time** 09:16:27

Latitude / Longitude

**End Time** 09:18:56

**Penetration** 20.0'

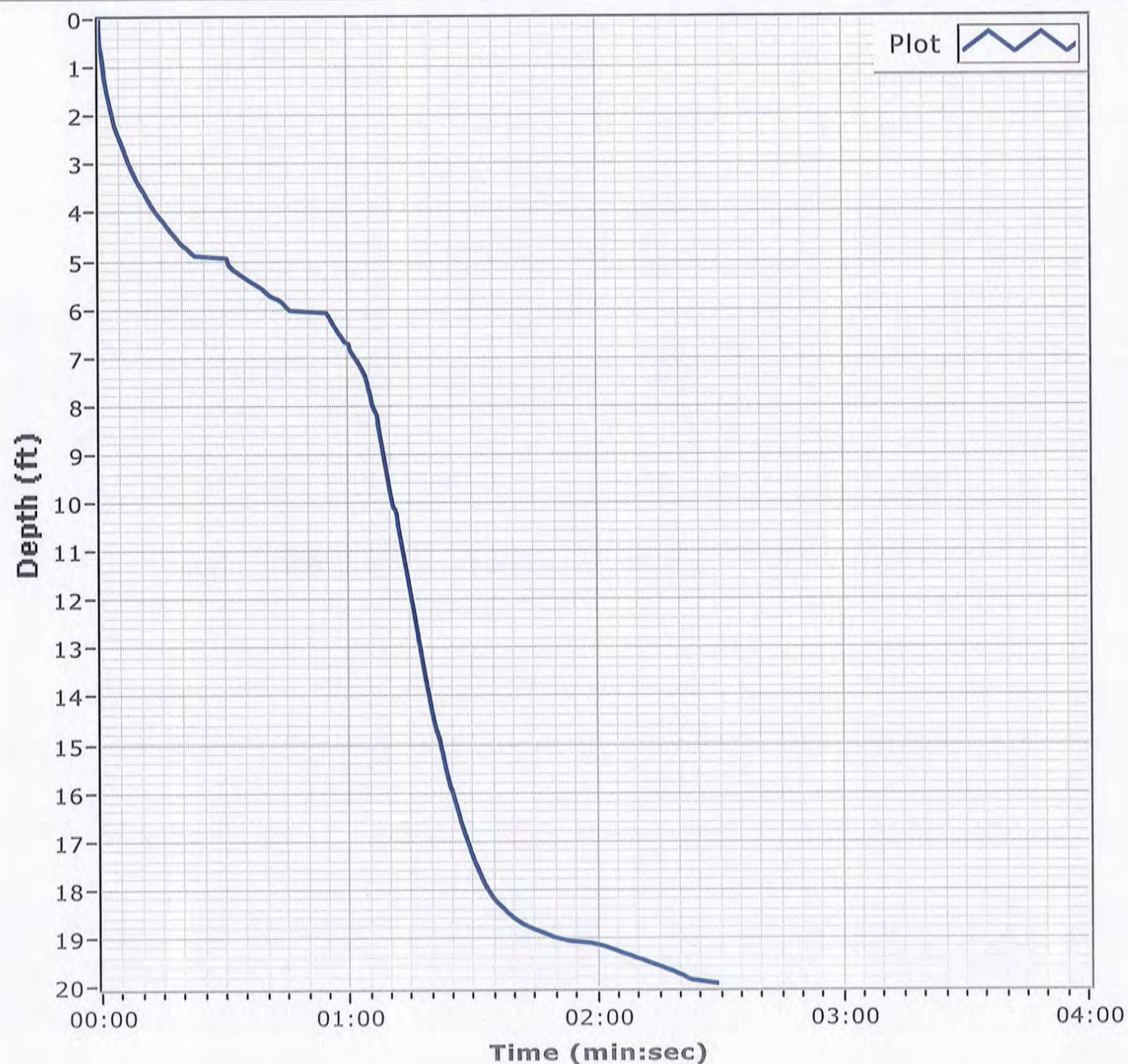
**Latitude** 30 11.827

**Total Time** 00:02:29

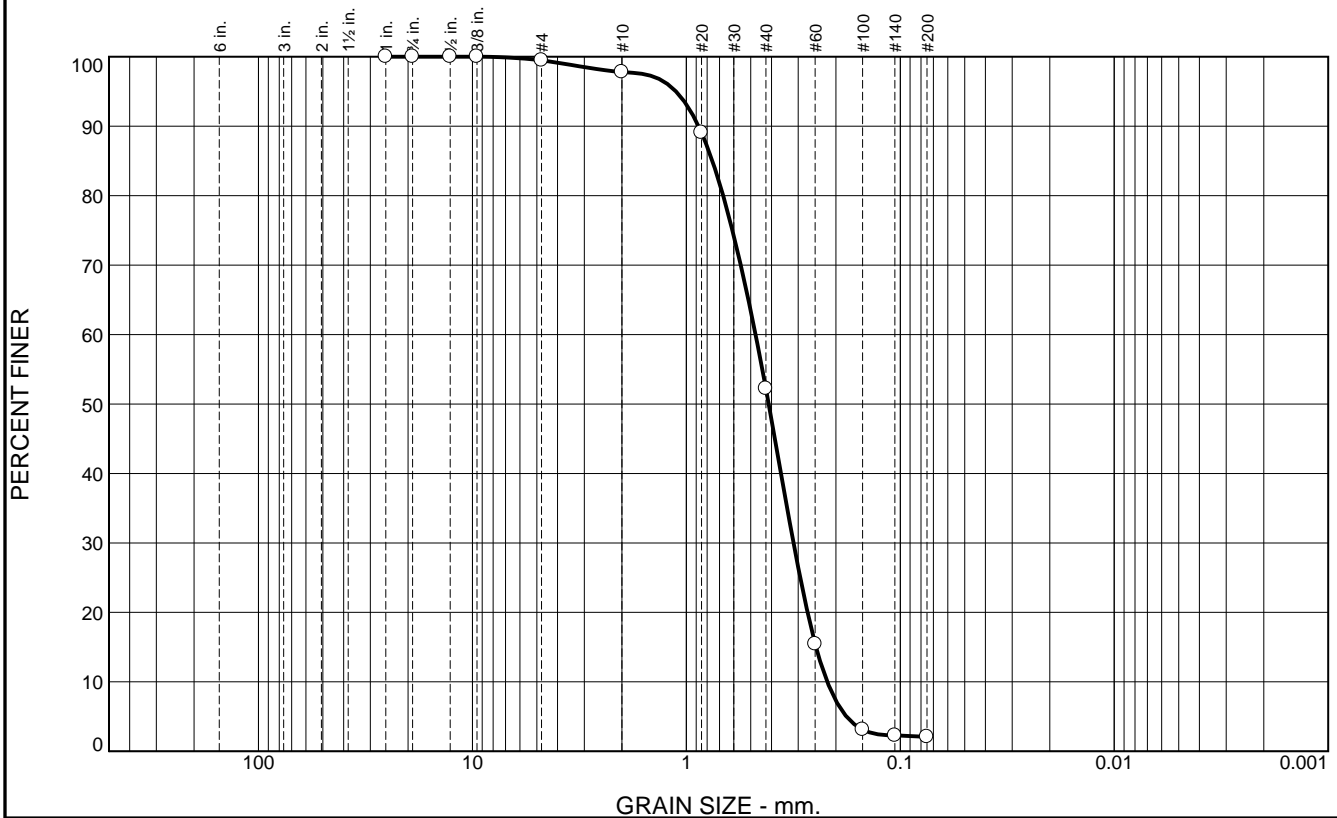
**Recovery** 19.7'

**Longitude** 088 19.382

**Comments**



# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.5	1.7	45.6	50.1	2.1	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
1	100.0		
.75	100.0		
.5	100.0		
.375	100.0		
#4	99.5		
#10	97.8		
#20	89.1		
#40	52.2		
#60	15.5		
#100	3.1		
#140	2.3		
#200	2.1		

\* (no specification provided)

<u><b>Material Description</b></u>		
Fine to medium grained, SAND		
<u><b>Atterberg Limits</b></u>		
PL=	LL=	PI=
<u><b>Coefficients</b></u>		
D <sub>90</sub> = 0.8772	D <sub>85</sub> = 0.7562	D <sub>60</sub> = 0.4750
D <sub>50</sub> = 0.4123	D <sub>30</sub> = 0.3157	D <sub>15</sub> = 0.2477
D <sub>10</sub> = 0.2194	C <sub>u</sub> = 2.16	C <sub>c</sub> = 0.96
<u><b>Classification</b></u>		
USCS= SP	AASHTO=	
<u><b>Remarks</b></u>		

Location: BI-PB-158-12 A  
Sample Number: 6485 (10)

Depth: 0.0'

Date: 12/07/12

**Thompson Engineering**

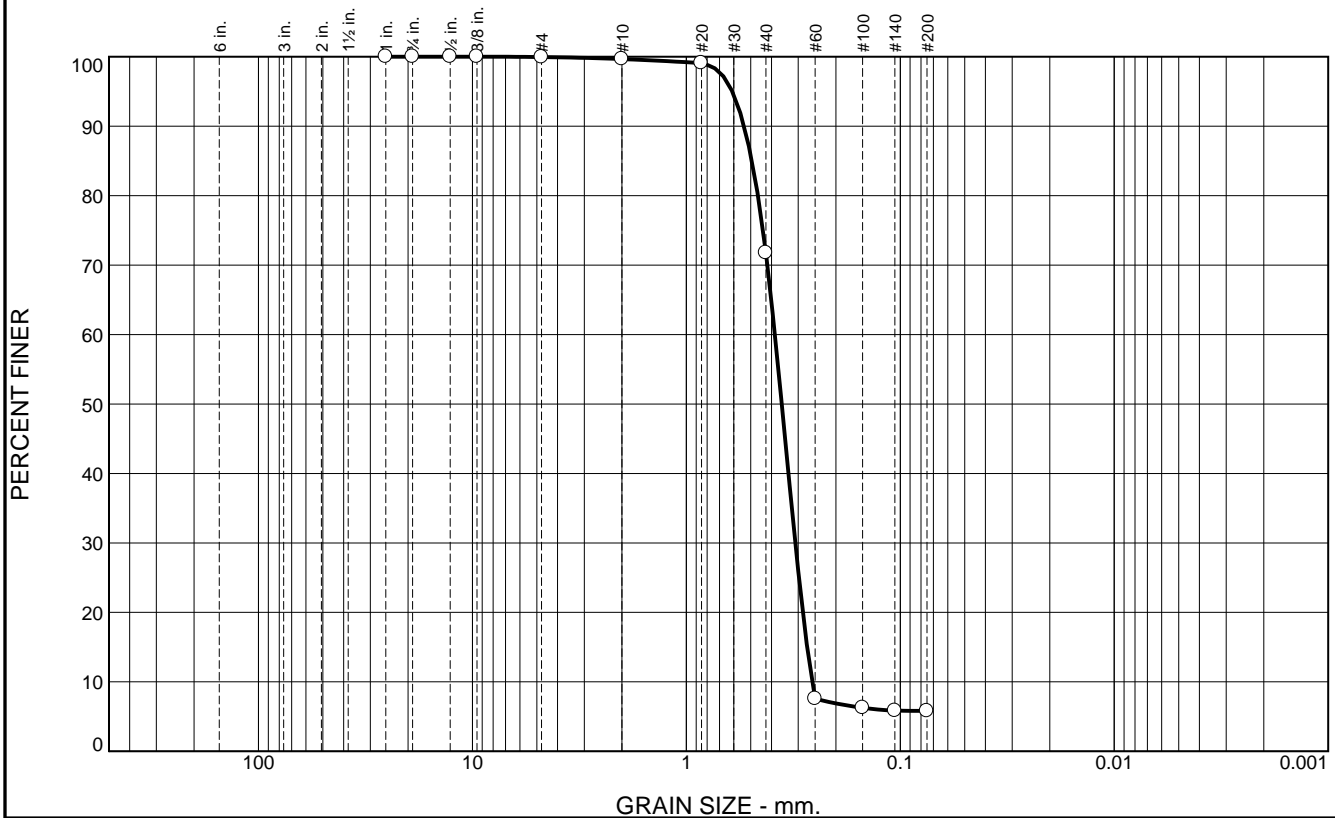
**Mobile, Alabama**

Client: CDM/Thompson Engineering JV  
Project: MsCIP Barrier Island Restoration GT

Project No: 1221110095

Figure

# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.0	0.3	28.0	65.9	5.8	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
1	100.0		
.75	100.0		
.5	100.0		
.375	100.0		
#4	100.0		
#10	99.7		
#20	99.1		
#40	71.7		
#60	7.6		
#100	6.3		
#140	5.8		
#200	5.8		

\* (no specification provided)

## Material Description

Fine to medium grained, SLIGHTLY SILTY SAND

## Atterberg Limits

PL= LL= PI=

## Coefficients

D<sub>90</sub>= 0.5373 D<sub>85</sub>= 0.4941 D<sub>60</sub>= 0.3856  
D<sub>50</sub>= 0.3581 D<sub>30</sub>= 0.3096 D<sub>15</sub>= 0.2728  
D<sub>10</sub>= 0.2583 C<sub>u</sub>= 1.49 C<sub>c</sub>= 0.96

## Classification

USCS= SP-SM AASHTO=

## Remarks

Location: BI-PB-158-12 B  
Sample Number: 6485 (11)

Depth: 1.4'

Date: 12/07/12

**Thompson Engineering**

**Mobile, Alabama**

Client: CDM/Thompson Engineering JV  
Project: MsCIP Barrier Island Restoration GT

Project No: 1221110095

Figure

# Particle Size Distribution Report



GRAIN SIZE - mm.

% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.0	0.1	14.5	83.6	1.8	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
1	100.0		
.75	100.0		
.5	100.0		
.375	100.0		
#4	100.0		
#10	99.9		
#20	99.9		
#40	85.4		
#60	7.2		
#100	1.9		
#140	1.8		
#200	1.8		

\* (no specification provided)

## Material Description

Fine to medium grained, SAND

## Atterberg Limits

PL=

LL=

PI=

## Coefficients

D<sub>90</sub>= 0.5003

D<sub>85</sub>= 0.4234

D<sub>60</sub>= 0.3570

D<sub>50</sub>= 0.3364

D<sub>30</sub>= 0.2982

D<sub>15</sub>= 0.2686

D<sub>10</sub>= 0.2572

C<sub>u</sub>= 1.39

C<sub>c</sub>= 0.97

## Classification

USCS= SP

AASHTO=

## Remarks

Location: BI-PB-158-12 C  
Sample Number: 6485 (12)

Depth: 4.7'

Date: 12/07/12

**Thompson Engineering**

**Mobile, Alabama**

Client: CDM/Thompson Engineering JV  
Project: MsCIP Barrier Island Restoration GT

Project No: 1221110095

Figure

# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	1.4	0.6	9.4	79.7	8.9	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
1	100.0		
.75	100.0		
.5	100.0		
.375	99.1		
#4	98.6		
#10	98.0		
#20	97.1		
#40	88.6		
#60	46.9		
#100	13.0		
#140	9.5		
#200	8.9		

\* (no specification provided)

## Material Description

Fine grained, SLIGHTLY SILTY SAND, with trace SHELL

## Atterberg Limits

PL= LL= PI=

## Coefficients

D<sub>90</sub>= 0.4624 D<sub>85</sub>= 0.3985 D<sub>60</sub>= 0.2896  
D<sub>50</sub>= 0.2590 D<sub>30</sub>= 0.2039 D<sub>15</sub>= 0.1586  
D<sub>10</sub>= 0.1277 C<sub>u</sub>= 2.27 C<sub>c</sub>= 1.12

## Classification

USCS= SP-SM AASHTO=

## Remarks

Location: BI-PB-158-12 D  
Sample Number: 6485 (13)

Depth: 7.3'

Date: 12/07/12

**Thompson Engineering**

**Mobile, Alabama**

Client: CDM/Thompson Engineering JV  
Project: MsCIP Barrier Island Restoration GT

Project No: 1221110095

Figure

**Boring Designation** BI-PB-159-12

DRILLING LOG			DIVISION South Atlantic	INSTALLATION Mobile District		SHEET 1 OF 1 SHEETS
<b>1. PROJECT</b> MsCIP Barrier Island Restoration Petit Bois Pass- AL East				<b>9. SIZE AND TYPE OF BIT</b> N/A		
<b>2. BORING DESIGNATION</b> BI-PB-159-12		<b>LOCATION COORDINATES</b> E = 1,145,323    N = 253,240		<b>10. COORDINATE SYSTEM/DATUM</b> State Plane, MSE (U.S. Ft.)	<b>HORIZONTAL</b> NAD83	<b>VERTICAL</b> NAVD88
<b>3. DRILLING AGENCY</b> Corps of Engineers - CESAM			<b>CONTRACTOR FILE NO.</b>		<b>11. MANUFACTURER'S DESIGNATION OF DRILL</b> <input type="checkbox"/> AUTO HAMMER <input checked="" type="checkbox"/> MANUAL HAMMER Vibrocure	
<b>4. NAME OF DRILLER</b> American Vibrocure Systems, Inc.				<b>12. TOTAL SAMPLES</b>		
				<b>13. TOTAL NUMBER CORE BOXES</b>		
<b>5. DIRECTION OF BORING</b> <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED		<b>DEG. FROM VERTICAL</b>		<b>14. WATER DEPTH</b> 36.2 Ft.		
		<b>BEARING</b>		<b>15. DATE BORING</b> <b>STARTED</b> 12-19-12 <b>COMPLETED</b> 12-19-12		
<b>6. THICKNESS OF OVERBURDEN</b> N/A				<b>16. ELEVATION TOP OF BORING</b> -36.0 Ft.		
<b>7. DEPTH DRILLED INTO ROCK</b> N/A				<b>17. TOTAL RECOVERY FOR BORING</b> 100%		
<b>8. TOTAL DEPTH OF BORING</b> 17.0 Ft.				<b>18. SIGNATURE AND TITLE OF INSPECTOR</b> Mike FitzHarris, Geologist		
ELEV.	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS	SAMPLE	LABORATORY RESULTS	
-36.0	0.0					
-36.5	0.5					
			SAND, poorly-graded with silt, mostly fine to medium-grained sand-sized quartz, few silt, trace shell fragments, stiff, gray (SP-SM)	NS		
			CLAY, fat, mostly clay, trace shell fragments, sandy lenses between 13.8 and 17.0 ft., stiff, greenish gray (CH)			
-53.0	17.0					
			NOTES:  1. Soils are field visually classified in accordance with the Unified Soils Classification System.  2. NS = Sample not submitted for laboratory analysis from this interval.  3. Seafloor elevation calculated using sampling vessel's fathometer water depth reading and applying NOAA tidal gauge data conversion factor.			

**SAM FORM 1836 - MsCIP**  
**MAY 2010**

**Lat = 30.19537° Long = -88.32348°**



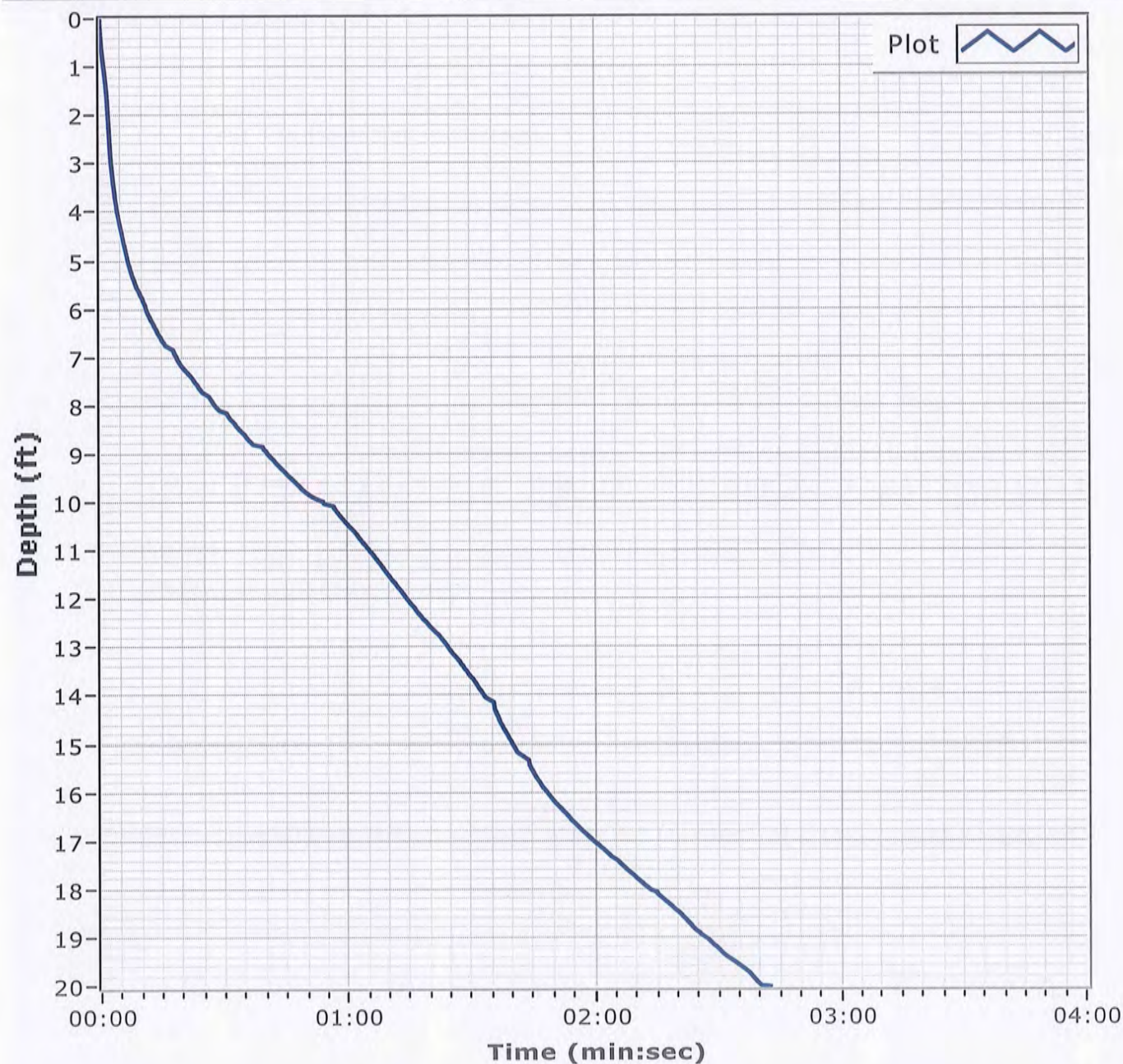
**Project**

Mississippi Barrier Island  
Restoration Project

**AVS**  
**AMERICAN VIBRACORE**  
**S E R V I C E S**

**Core Identifier** BI-PB-159-12**Date** 12/19/2012**Water Depth** 36.2'**Coordinate System**




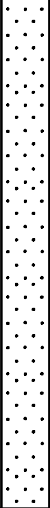
Latitude / Longitude

**Start Time** 13:00:41**End Time** 13:03:24**Penetration** 20.0'**Latitude** 30 11.722**Total Time** 00:02:43**Recovery** 17.0'**Longitude** 88 19.409**Comments**

# Boring Designation BI-PB-160-12

DRILLING LOG		DIVISION South Atlantic		INSTALLATION Mobile District		SHEET 1 OF 2 SHEETS	
1. PROJECT MsCIP Barrier Island Restoration Petit Bois Pass- AL East				9. SIZE AND TYPE OF BIT N/A			
2. BORING DESIGNATION BI-PB-160-12		LOCATION COORDINATES E = 1,147,443 N = 252,508		10. COORDINATE SYSTEM/DATUM State Plane, MSE (U.S. Ft.)		HORIZONTAL NAD83 VERTICAL NAVD88	
3. DRILLING AGENCY Corps of Engineers - CESAM		CONTRACTOR FILE NO.		11. MANUFACTURER'S DESIGNATION OF DRILL Vibrocure		<input type="checkbox"/> AUTO HAMMER <input type="checkbox"/> MANUAL HAMMER	
4. NAME OF DRILLER American Vibrocure Systems, Inc.				12. TOTAL SAMPLES		DISTURBED UNDISTURBED (UD) 0	
5. DIRECTION OF BORING <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED		DEG. FROM VERTICAL		13. TOTAL NUMBER CORE BOXES			
		BEARING		14. WATER DEPTH 39.8 Ft.			
6. THICKNESS OF OVERBURDEN N/A				15. DATE BORING 12-12-12		STARTED COMPLETED 12-12-12	
7. DEPTH DRILLED INTO ROCK N/A				16. ELEVATION TOP OF BORING -39.9 Ft.			
8. TOTAL DEPTH OF BORING 19.2 Ft.				17. TOTAL RECOVERY FOR BORING 100%			
				18. SIGNATURE AND TITLE OF INSPECTOR Mike FitzHarris, Geologist			

ELEV.	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS	SAMPLE	LABORATORY RESULTS
-39.9	0.0				
-40.3	0.4				
			SAND, silty, mostly fine-grained sand-sized quartz, some silt, trace clay, grayish brown (SM)		
			CLAY, fat, mostly clay, medium to high plasticity, clayey sand pockets throughout interval, dark gray (CH)		
-44.8	4.9				
			SAND, clayey, mostly fine-grained sand-sized quartz, some clay, trace shell fragments, gray (SC)		
-47.5	7.6				
			SAND, poorly-graded, mostly fine-grained sand-sized quartz, trace fines, occasional clay lenses, lt. gray (SP)	NS	
-59.1	19.2				
			NOTES:		
			1. Soils are field visually classified in accordance with the Unified Soils Classification System.		
			2. NS = Sample not submitted for laboratory analysis from this interval.		
			3. Seafloor elevation calculated using sampling vessel's fathometer water depth reading and applying NOAA tidal gauge data conversion		



<b>DRILLING LOG (Cont. Sheet)</b>			<b>INSTALLATION</b> Mobile District		<b>SHEET 2</b> <b>OF 2 SHEETS</b>
<b>PROJECT</b> MsCIP Barrier Island Restoration			<b>COORDINATE SYSTEM/DATUM</b> State Plane, MSE (U.S. Ft.)	<b>HORIZONTAL</b> NAD83	<b>VERTICAL</b> NAVD88
<b>LOCATION COORDINATES</b> X = 1,147,443 Y = 252,508			<b>ELEVATION TOP OF BORING</b> -39.9 Ft.		
<b>ELEV.</b>	<b>DEPTH</b>	<b>LEGEND</b>	<b>CLASSIFICATION OF MATERIALS</b>	<b>SAMPLE</b>	<b>LABORATORY RESULTS</b>
			factor.		

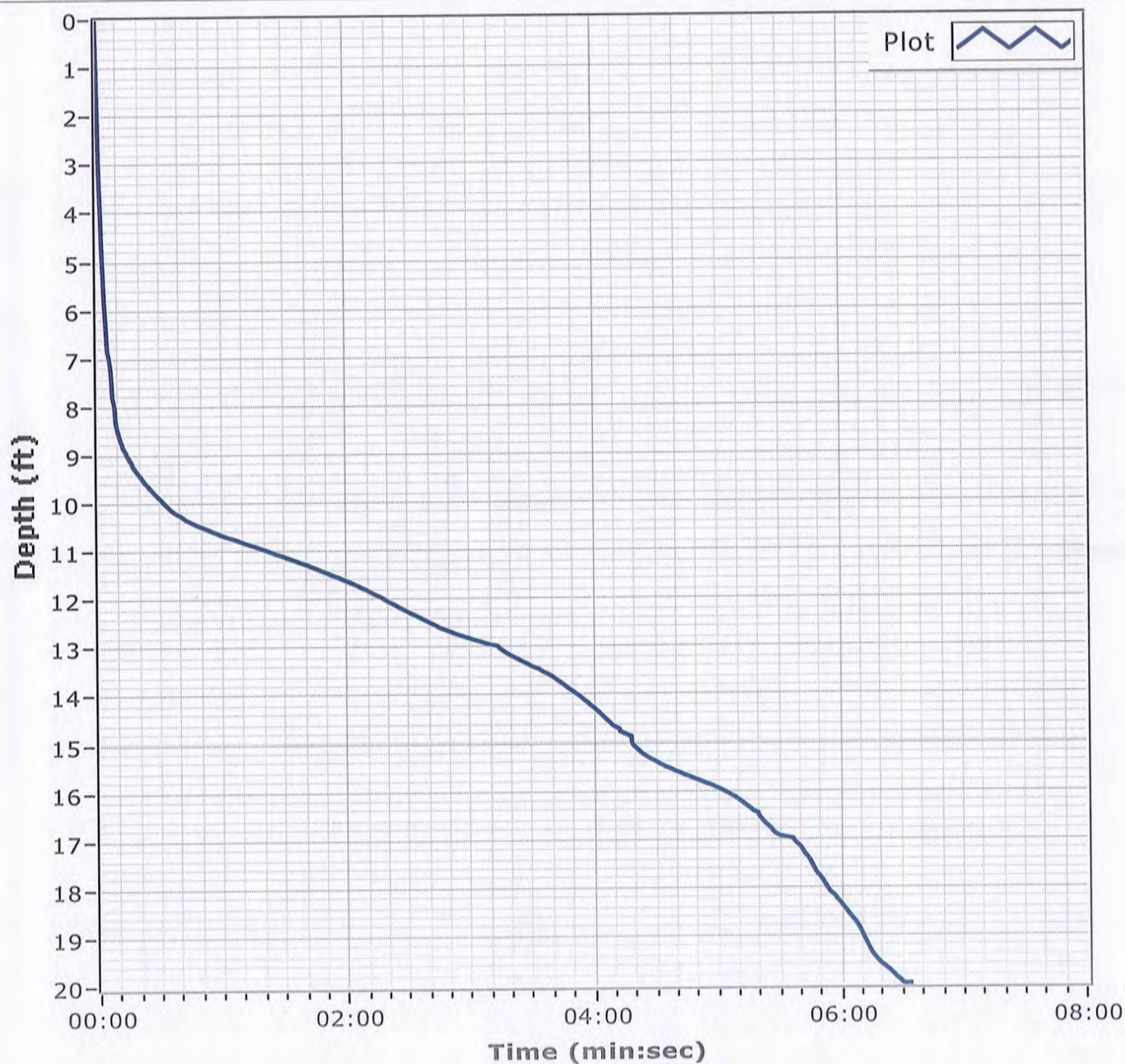
**Project**

Mississippi Barrier Island  
Restoration Project

**AVS**  
**AMERICAN VIBRACORE**  
**S E R V I C E S**

**Core Identifier** BI-PB-160-12**Date** 12/12/2012**Water Depth** 39.8'**Coordinate System****Start Time** 14:15:27

Latitude / Longitude

**End Time** 14:22:02**Penetration** 20.0'**Latitude** 30 11.600**Total Time** 00:06:34**Recovery** 19.3'**Longitude** 088 19.007**Comments**

# Boring Designation BI-PB-161-12

DRILLING LOG		DIVISION South Atlantic		INSTALLATION Mobile District		SHEET 1 OF 1 SHEETS	
1. PROJECT MsCIP Barrier Island Restoration Petit Bois Pass- AL East				9. SIZE AND TYPE OF BIT N/A			
2. BORING DESIGNATION BI-PB-161-12		LOCATION COORDINATES E = 1,147,992 N = 252,019		10. COORDINATE SYSTEM/DATUM State Plane, MSE (U.S. Ft.)		HORIZONTAL NAD83 VERTICAL NAVD88	
3. DRILLING AGENCY Corps of Engineers - CESAM		CONTRACTOR FILE NO.		11. MANUFACTURER'S DESIGNATION OF DRILL Vibracore		<input type="checkbox"/> AUTO HAMMER <input type="checkbox"/> MANUAL HAMMER	
4. NAME OF DRILLER American Vibracore Systems, Inc.				12. TOTAL SAMPLES		DISTURBED UNDISTURBED (UD) 0	
5. DIRECTION OF BORING <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED		DEG. FROM VERTICAL		13. TOTAL NUMBER CORE BOXES			
		BEARING		14. WATER DEPTH 41.7 Ft.			
6. THICKNESS OF OVERBURDEN N/A				15. DATE BORING 12-12-12		STARTED COMPLETED 12-12-12	
7. DEPTH DRILLED INTO ROCK N/A				16. ELEVATION TOP OF BORING -41.7 Ft.			
8. TOTAL DEPTH OF BORING 11.6 Ft.				17. TOTAL RECOVERY FOR BORING 100%			
				18. SIGNATURE AND TITLE OF INSPECTOR Mike FitzHarris, Geologist			

ELEV.	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS	SAMPLE	LABORATORY RESULTS
-41.7	0.0				
-42.5	0.8		CLAY, lean, mostly clay, some silt, little shell fragments, trace fine-grained sand-sized quartz, soft, grayish brown (CL)		
-45.9	4.2		CLAY, fat, mostly clay, some fine-grained sand-sized quartz, trace shell fragments, stiff, medium to high plasticity, gray (CH)		
-46.9	5.2		SAND, clayey, mostly fine-grained sand-sized quartz, some clay, few shell fragments, gray (SC)		
			SAND, poorly-graded, mostly fine-grained sand-sized quartz, trace fines, trace clay lenses throughout interval, lt. gray to white (SP)	NS	
-53.3	11.6				
			NOTES: 1. Soils are field visually classified in accordance with the Unified Soils Classification System. 2. NS = Sample not submitted for laboratory analysis from this interval. 3. Seafloor elevation calculated using sampling vessel's fathometer water depth reading and applying NOAA tidal gauge data conversion factor.		



**Project**

Mississippi Barrier Island  
Restoration Project



**Core Identifier** BI-PB-161-12

**Date** 12/12/2012

**Water Depth** 41.7'

**Coordinate System**

Latitude / Longitude

**Start Time** 14:48:57

**End Time** 14:56:02

**Penetration** 12.7'

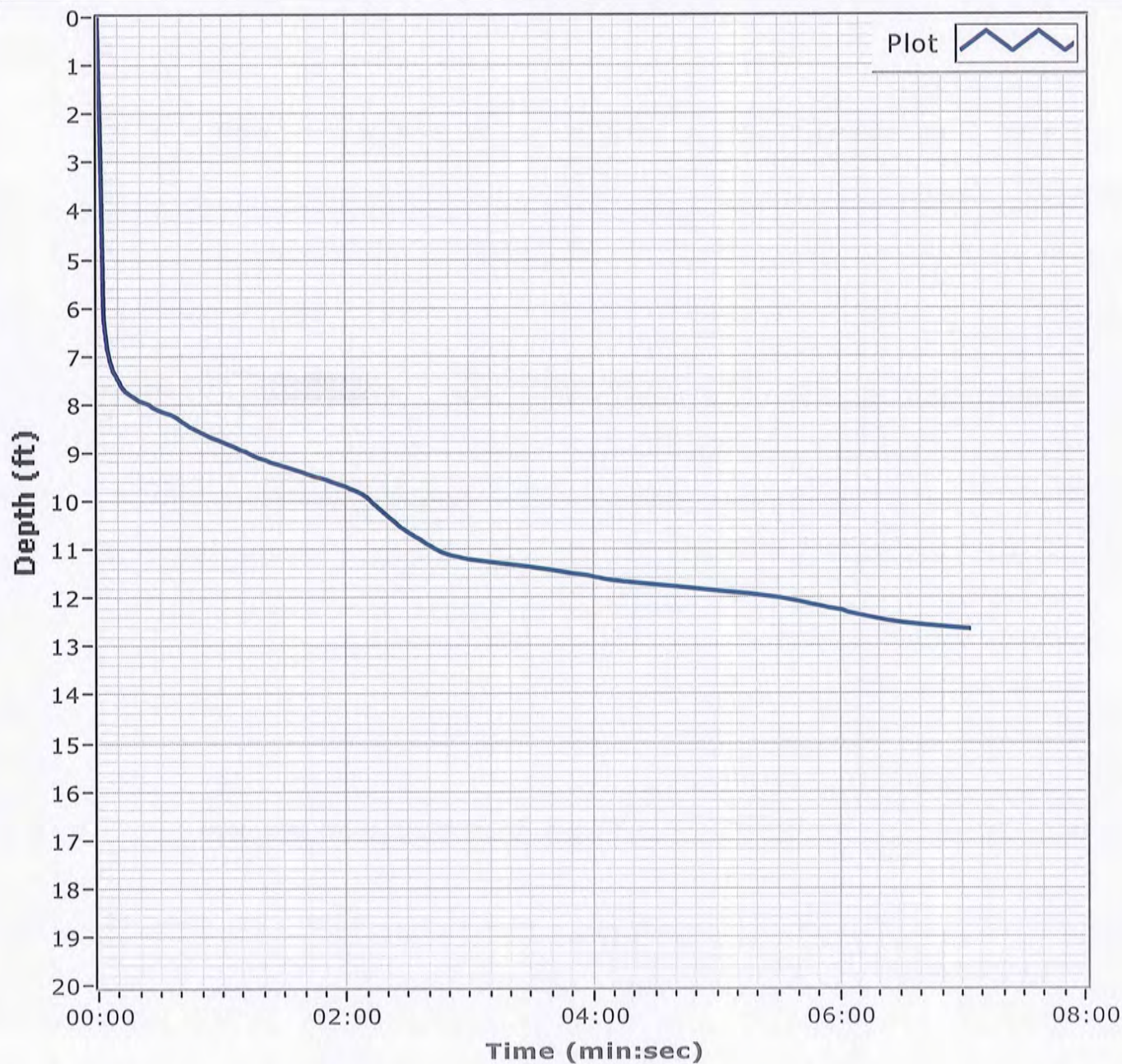
**Latitude** 30 11.895

**Total Time** 00:07:04

**Recovery** 11.6'

**Longitude** 088 18.903

**Comments**



# Boring Designation BI-PB-162-12

DRILLING LOG		DIVISION South Atlantic		INSTALLATION Mobile District		SHEET 1 OF 2 SHEETS	
1. PROJECT MsCIP Barrier Island Restoration Petit Bois Pass- AL East				9. SIZE AND TYPE OF BIT N/A			
2. BORING DESIGNATION BI-PB-162-12		LOCATION COORDINATES E = 1,154,862 N = 254,331		10. COORDINATE SYSTEM/DATUM State Plane, MSE (U.S. Ft.)		HORIZONTAL NAD83	
3. DRILLING AGENCY Corps of Engineers - CESAM		CONTRACTOR FILE NO.		11. MANUFACTURER'S DESIGNATION OF DRILL Vibracore		<input type="checkbox"/> AUTO HAMMER <input type="checkbox"/> MANUAL HAMMER	
4. NAME OF DRILLER American Vibracore Systems, Inc.				12. TOTAL SAMPLES		DISTURBED 0	
5. DIRECTION OF BORING <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED				13. TOTAL NUMBER CORE BOXES		14. WATER DEPTH 40.6 Ft.	
6. THICKNESS OF OVERBURDEN N/A				15. DATE BORING		STARTED 12-06-12	
7. DEPTH DRILLED INTO ROCK N/A				16. ELEVATION TOP OF BORING -40.1 Ft.		COMPLETED 12-06-12	
8. TOTAL DEPTH OF BORING 20.0 Ft.				17. TOTAL RECOVERY FOR BORING 100%		18. SIGNATURE AND TITLE OF INSPECTOR Mike FitzHarris, Geologist	
ELEV.	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS	SAMPLE	LABORATORY RESULTS		
-40.1	0.0						
-41.4	1.3		SAND, poorly-graded, mostly fine to medium-grained sand-sized quartz, few shell fragments, trace silt, trace clay, gray (SP)	A	Classification: SP Color: 2.5Y 6/2-light brownish gray D50: 0.33 mm % Fines: 4.8		
			SAND, poorly-graded with silt, mostly fine to medium-grained sand-sized quartz, few silt, trace clayey stringers, gray (SP-SM)	B	Classification: SP Color: 2.5Y 5/2-grayish brown D50: 0.316 mm % Fines: 4.7		
				C	Classification: SP-SM Color: 2.5Y 6/1-gray D50: 0.3059 mm % Fines: 7.8		
-55.1	15.0						
-56.8	16.7		SAND, clayey, mostly fine-grained sand-sized quartz, some clay, gray (SC)	NS			
			CLAY, fat, mostly clay, medium to high plasticity, sandy at 16.8 and 18.7 ft., stiff, gray (CH)				
-60.1	20.0						
NOTES: 1. Soils are field visually classified in accordance with the Unified Soils Classification System. 2. NS = Sample not submitted for laboratory analysis from this interval. 3. Seafloor elevation determined from 2010							





**Project**

Mississippi Barrier Island  
Restoration Project

**AVS**  
**AMERICAN VIBRACORE**  
**S E R V I C E S**

**Core Identifier** BI-PB-162-12

**Date** 12/06/2012

**Water Depth** 40.6'

**Coordinate System**

**Start Time** 13:24:22

Latitude / Longitude

**End Time** 13:26:11

**Penetration** 20.0'

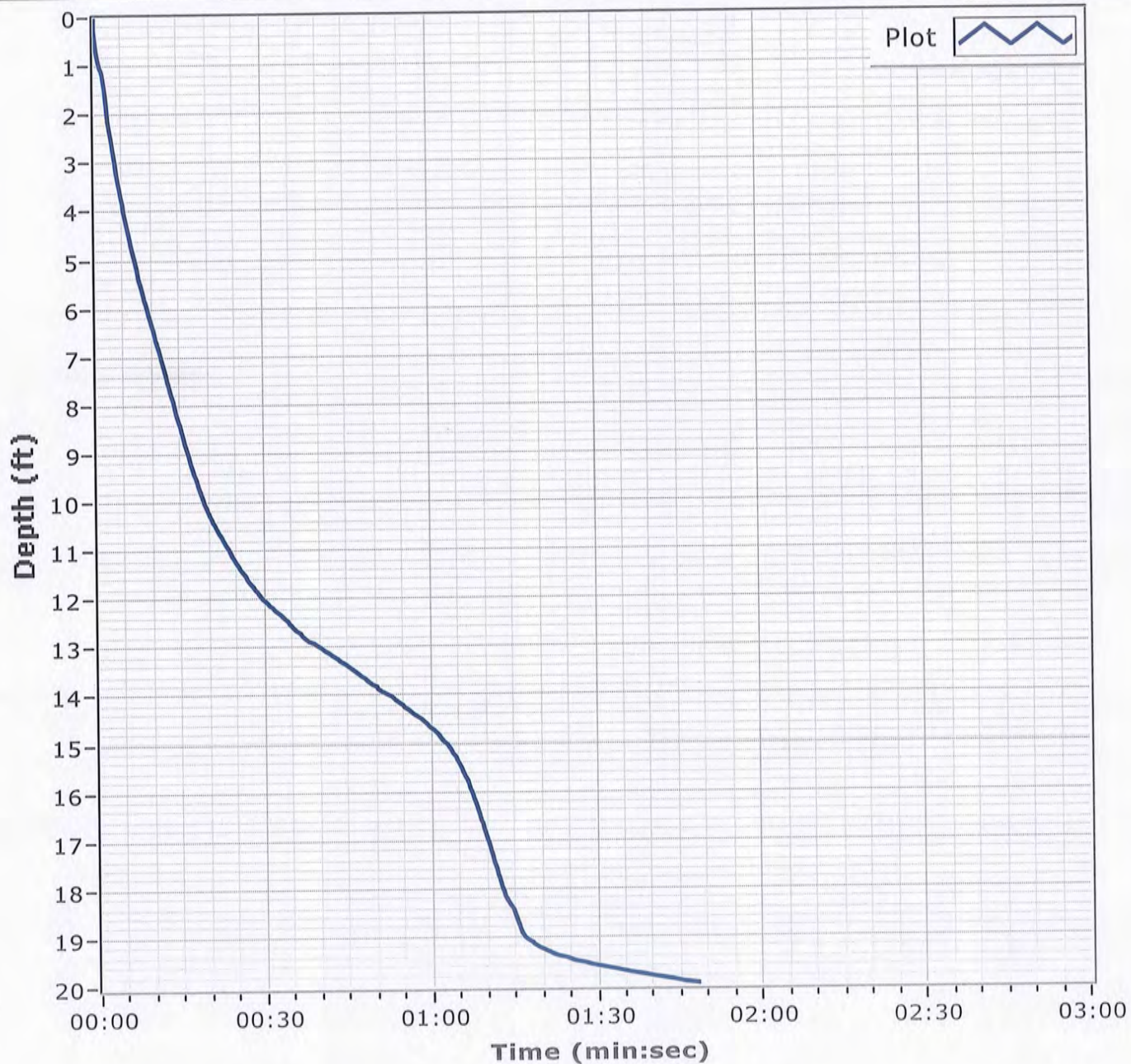
**Latitude** 30 11.895

**Total Time** 00:01:48

**Recovery** 20.0'

**Longitude** 088 17.596

**Comments**



# Particle Size Distribution Report





# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.0	0.0	16.9	78.4	4.7	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
1	100.0		
.75	100.0		
.5	100.0		
.375	100.0		
#4	100.0		
#10	100.0		
#20	99.9		
#40	83.1		
#60	24.2		
#100	4.8		
#140	4.7		
#200	4.7		

\* (no specification provided)

<u><b>Material Description</b></u>		
Fine to medium grained, SAND		
<u><b>Atterberg Limits</b></u>		
PL=	LL=	PI=
<u><b>Coefficients</b></u>		
D <sub>90</sub> = 0.5289	D <sub>85</sub> = 0.4494	D <sub>60</sub> = 0.3429
D <sub>50</sub> = 0.3160	D <sub>30</sub> = 0.2656	D <sub>15</sub> = 0.2199
D <sub>10</sub> = 0.1976	C <sub>u</sub> = 1.74	C <sub>c</sub> = 1.04
<u><b>Classification</b></u>		
USCS= SP	AASHTO=	
<u><b>Remarks</b></u>		

Location: BI-PB-162-12 B  
Sample Number: 6480 (16)

Depth: 5.0'

Date: 12/07/12

**Thompson Engineering**

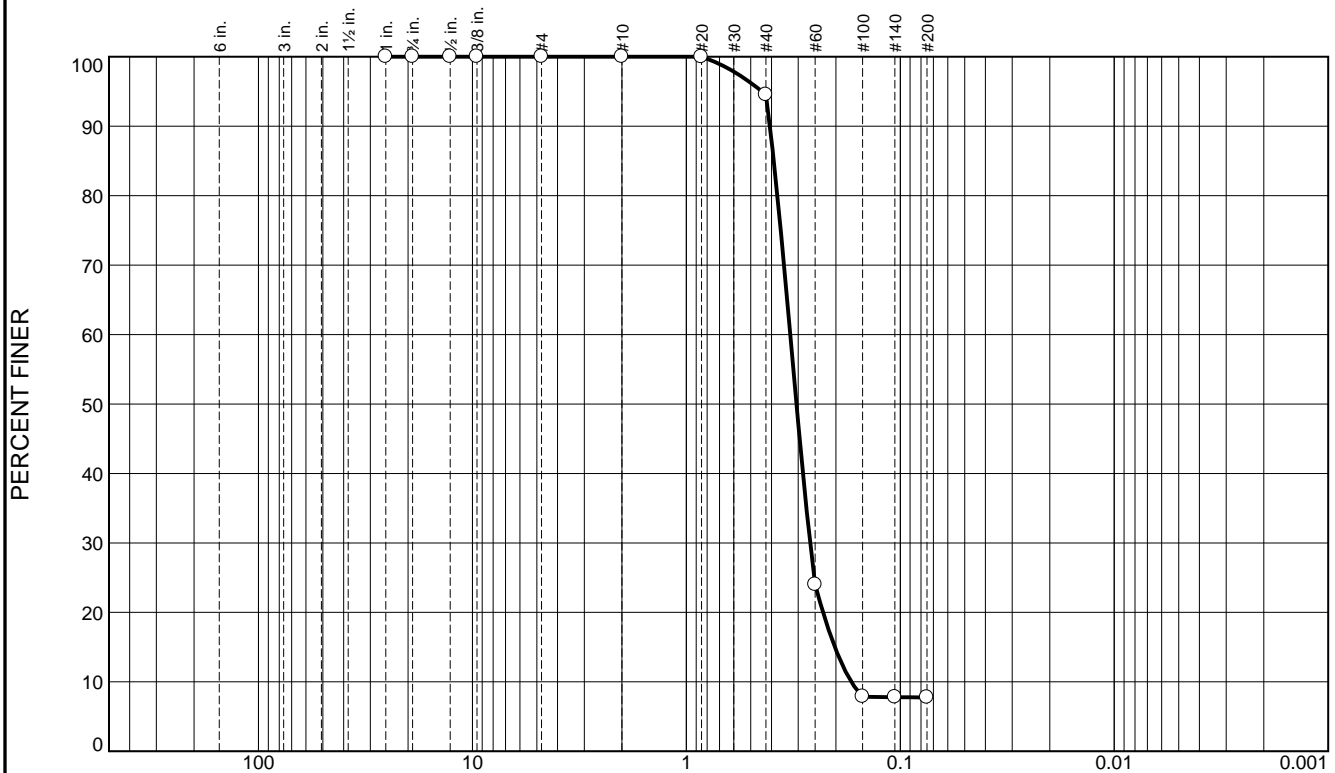
**Mobile, Alabama**

Client: CDM/Thompson Engineering JV  
Project: MsCIP Barrier Island Restoration GT

Project No: 1221110095

Figure

# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.0	0.0	5.5	86.7	7.8	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
1	100.0		
.75	100.0		
.5	100.0		
.375	100.0		
#4	100.0		
#10	100.0		
#20	100.0		
#40	94.5		
#60	24.0		
#100	7.9		
#140	7.8		
#200	7.8		

\* (no specification provided)

## Material Description

Fine grained, SLIGHTLY SILTY SAND

## Atterberg Limits

PL= LL= PI=

## Coefficients

D<sub>90</sub>= 0.4068 D<sub>85</sub>= 0.3900 D<sub>60</sub>= 0.3269  
D<sub>50</sub>= 0.3059 D<sub>30</sub>= 0.2641 D<sub>15</sub>= 0.2023  
D<sub>10</sub>= 0.1696 C<sub>u</sub>= 1.93 C<sub>c</sub>= 1.26

## Classification

USCS= SP-SM AASHTO=

## Remarks

Location: BI-PB-162-12 C  
Sample Number: 6480 (17)

Depth: 10.0'

Date: 12/07/12

**Thompson Engineering**

**Mobile, Alabama**

Client: CDM/Thompson Engineering JV  
Project: MsCIP Barrier Island Restoration GT

Project No: 1221110095

Figure

# Boring Designation BI-PB-163-12

DRILLING LOG		DIVISION South Atlantic		INSTALLATION Mobile District		SHEET 1 OF 2 SHEETS	
1. PROJECT MsCIP Barrier Island Restoration Petit Bois Pass- AL East				9. SIZE AND TYPE OF BIT N/A			
2. BORING DESIGNATION BI-PB-163-12		LOCATION COORDINATES E = 1,154,858 N = 255,102		10. COORDINATE SYSTEM/DATUM State Plane, MSE (U.S. Ft.)		HORIZONTAL NAD83	
3. DRILLING AGENCY Corps of Engineers - CESAM		CONTRACTOR FILE NO.		11. MANUFACTURER'S DESIGNATION OF DRILL Vibracore		<input type="checkbox"/> AUTO HAMMER <input type="checkbox"/> MANUAL HAMMER	
4. NAME OF DRILLER American Vibracore Systems, Inc.				12. TOTAL SAMPLES		DISTURBED 0	
5. DIRECTION OF BORING <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED				13. TOTAL NUMBER CORE BOXES		14. WATER DEPTH 38.2 Ft.	
6. THICKNESS OF OVERBURDEN N/A				15. DATE BORING		STARTED 12-06-12	
7. DEPTH DRILLED INTO ROCK N/A				16. ELEVATION TOP OF BORING -38.7 Ft.		COMPLETED 12-06-12	
8. TOTAL DEPTH OF BORING 20.0 Ft.				17. TOTAL RECOVERY FOR BORING 100%			
				18. SIGNATURE AND TITLE OF INSPECTOR Mike FitzHarris, Geologist			
ELEV.	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS	SAMPLE	LABORATORY RESULTS		
-38.7	0.0		SAND, poorly-graded with silt, mostly fine-grained sand-sized quartz, few silt, trace clay streaks, gray (SP-SM)	A	Classification: SP-SM Color: 2.5Y 6/2-light brownish gray D50: 0.304 mm % Fines: 7.2		
				B	Classification: SP-SM Color: 2.5Y 5/2-grayish brown D50: 0.3062 mm % Fines: 5.7		
				C	Classification: SP-SM Color: 2.5Y 6/1-gray D50: 0.3121 mm % Fines: 6.9		
-51.9	13.2		CLAY, fat, mostly clay, few sandy pockets throughout, medium to high plasticity, stiff, gray (CH)	NS			
-58.7	20.0						
NOTES:							
1. Soils are field visually classified in accordance with the Unified Soils Classification System.							
2. NS = Sample not submitted for laboratory analysis from this interval.							
3. Seafloor elevation determined from 2010							

<b>DRILLING LOG (Cont. Sheet)</b>			<b>INSTALLATION</b> Mobile District		<b>SHEET 2</b> <b>OF 2 SHEETS</b>
<b>PROJECT</b> MsCIP Barrier Island Restoration			<b>COORDINATE SYSTEM/DATUM</b> State Plane, MSE (U.S. Ft.)	<b>HORIZONTAL</b> NAD83	<b>VERTICAL</b> NAVD88
<b>LOCATION COORDINATES</b> X = 1,154,858 Y = 255,102			<b>ELEVATION TOP OF BORING</b> -38.7 Ft.		
<b>ELEV.</b>	<b>DEPTH</b>	<b>LEGEND</b>	<b>CLASSIFICATION OF MATERIALS</b>	<b>SAMPLE</b>	<b>LABORATORY RESULTS</b>
			USACE survey.		

**Project**

Mississippi Barrier Island  
Restoration Project

**AVS**  
**AMERICAN VIBRACORE**  
**S E R V I C E S**

**Core Identifier** BI-PB-163-12

**Date** 12/06/2012

**Water Depth** 38.2'

**Coordinate System**

Latitude / Longitude

**Start Time** 12:16:39

**End Time** 12:17:34

**Penetration** 20.0'

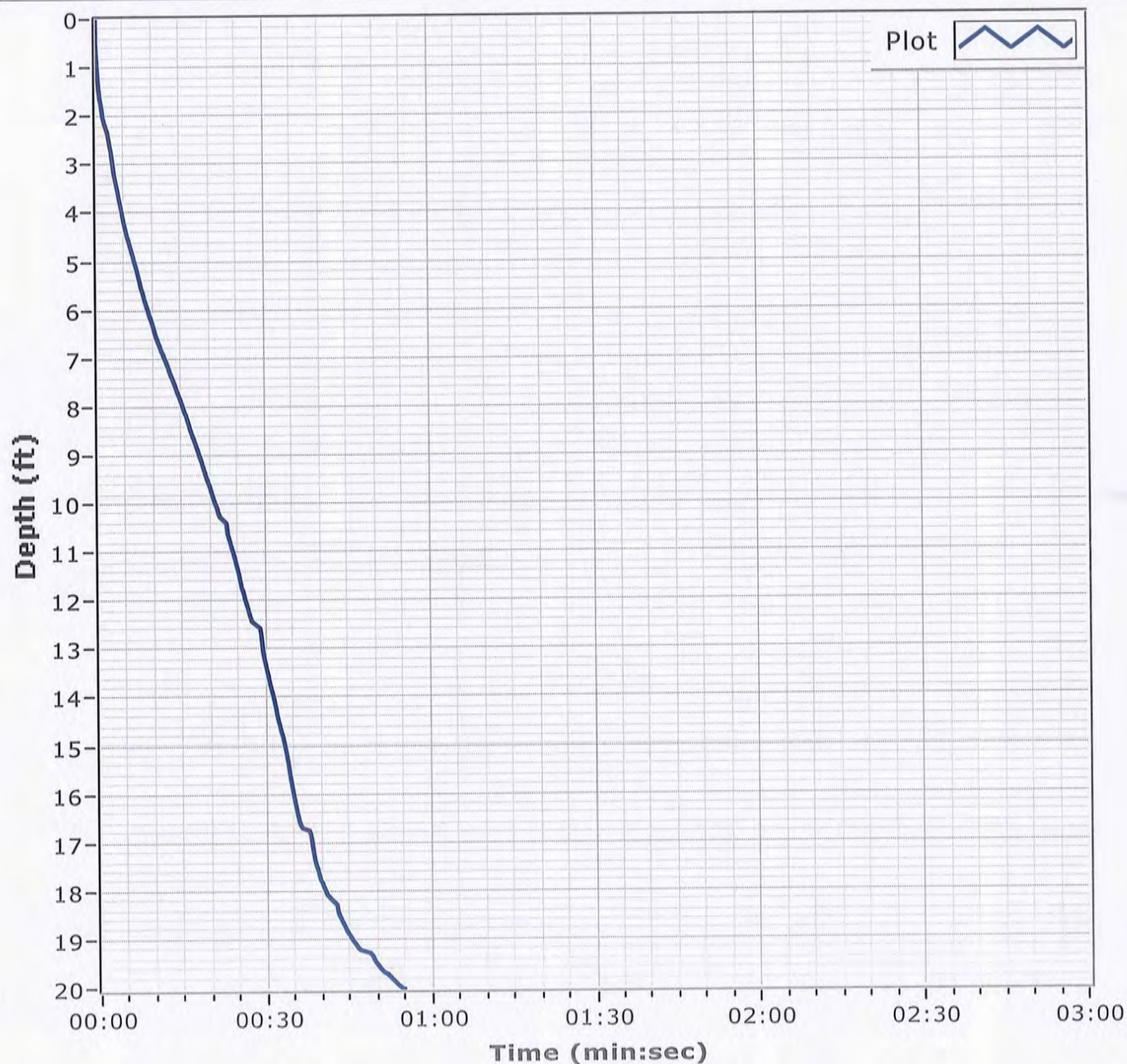
**Latitude** 30 12.022

**Total Time** 00:00:55

**Recovery** 20.0'

**Longitude** 088 17.596

**Comments**



# Particle Size Distribution Report



GRAIN SIZE - mm.

% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.0	0.0	12.1	80.7	7.2	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
1	100.0		
.75	100.0		
.5	100.0		
.375	100.0		
#4	100.0		
#10	100.0		
#20	99.7		
#40	87.9		
#60	28.4		
#100	8.0		
#140	7.4		
#200	7.2		

\* (no specification provided)

## Material Description

Fine to medium grained, SLIGHTLY SILTY SAND

## Atterberg Limits

PL= LL= PI=

## Coefficients

D<sub>90</sub>= 0.4649 D<sub>85</sub>= 0.4111 D<sub>60</sub>= 0.3294  
D<sub>50</sub>= 0.3040 D<sub>30</sub>= 0.2544 D<sub>15</sub>= 0.2043  
D<sub>10</sub>= 0.1745 C<sub>u</sub>= 1.89 C<sub>c</sub>= 1.13

## Classification

USCS= SP-SM AASHTO=

## Remarks

Location: BI-PB-163-12 A  
Sample Number: 6480 (18)

Depth: 0.0'

Date: 12/07/12

**Thompson Engineering**

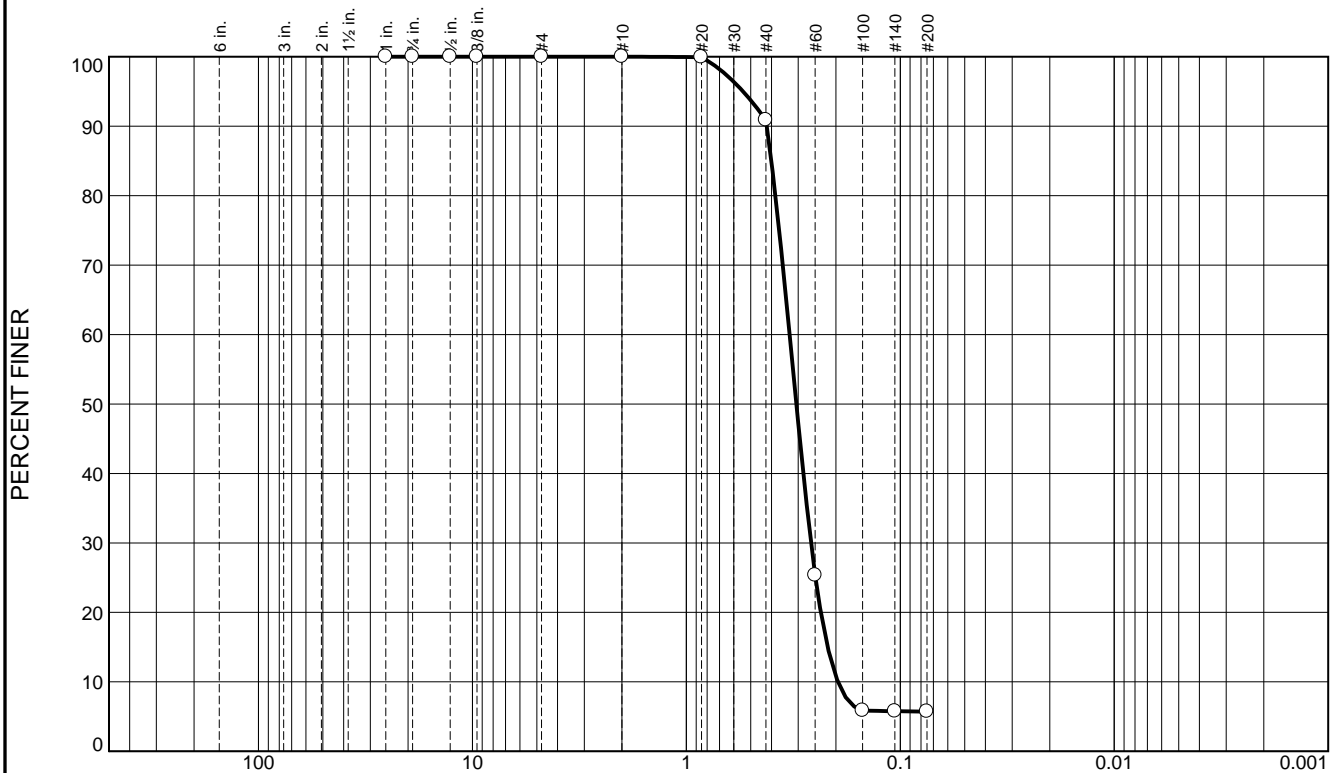
**Mobile, Alabama**

Client: CDM/Thompson Engineering JV  
Project: MsCIP Barrier Island Restoration GT

Project No: 1221110095

Figure

# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.0	0.0	9.1	85.2	5.7	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
1	100.0		
.75	100.0		
.5	100.0		
.375	100.0		
#4	100.0		
#10	100.0		
#20	99.9		
#40	90.9		
#60	25.3		
#100	5.9		
#140	5.8		
#200	5.7		

\* (no specification provided)

<b>Material Description</b> Fine grained, SLIGHTLY SILTY SAND		
PL=	<b>Atterberg Limits</b> LL=	PI=
<b>Coefficients</b> D <sub>90</sub> = 0.4209    D <sub>85</sub> = 0.4005    D <sub>60</sub> = 0.3292 D <sub>50</sub> = 0.3062    D <sub>30</sub> = 0.2614    D <sub>15</sub> = 0.2185 D <sub>10</sub> = 0.1957    C <sub>u</sub> = 1.68    C <sub>c</sub> = 1.06		
<b>Classification</b> USCS= SP-SM    AASHTO=		
<b>Remarks</b>		

Location: BI-PB-163-12 B  
Sample Number: 6480 (19)

Depth: 5.0'

Date: 12/07/12

**Thompson Engineering**

**Mobile, Alabama**

Client: CDM/Thompson Engineering JV  
Project: MsCIP Barrier Island Restoration GT

Project No: 1221110095

Figure

# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.0	0.0	10.8	82.3	6.9	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
1	100.0		
.75	100.0		
.5	100.0		
.375	100.0		
#4	100.0		
#10	100.0		
#20	100.0		
#40	89.2		
#60	23.0		
#100	7.1		
#140	7.0		
#200	6.9		

\* (no specification provided)

## Material Description

Fine to medium grained, SLIGHTLY SILTY SAND

## Atterberg Limits

PL= LL= PI=

## Coefficients

D<sub>90</sub>= 0.4416 D<sub>85</sub>= 0.4077 D<sub>60</sub>= 0.3352  
D<sub>50</sub>= 0.3121 D<sub>30</sub>= 0.2674 D<sub>15</sub>= 0.2245  
D<sub>10</sub>= 0.1999 C<sub>u</sub>= 1.68 C<sub>c</sub>= 1.07

## Classification

USCS= SP-SM AASHTO=

## Remarks

Location: BI-PB-163-12 C  
Sample Number: 6480 (20)

Depth: 10.0'

Date: 12/07/12

**Thompson Engineering**

**Mobile, Alabama**

Client: CDM/Thompson Engineering JV  
Project: MsCIP Barrier Island Restoration GT

Project No: 1221110095

Figure



# Boring Designation BI-PB-164-12

DRILLING LOG		DIVISION South Atlantic		INSTALLATION Mobile District		SHEET 1 OF 2 SHEETS	
1. PROJECT MsCIP Barrier Island Restoration Petit Bois Pass- AL East				9. SIZE AND TYPE OF BIT N/A			
2. BORING DESIGNATION BI-PB-164-12		LOCATION COORDINATES E = 1,154,851 N = 256,670		10. COORDINATE SYSTEM/DATUM State Plane, MSE (U.S. Ft.)		HORIZONTAL NAD83	
3. DRILLING AGENCY Corps of Engineers - CESAM		CONTRACTOR FILE NO.		11. MANUFACTURER'S DESIGNATION OF DRILL Vibracore		<input type="checkbox"/> AUTO HAMMER <input type="checkbox"/> MANUAL HAMMER	
4. NAME OF DRILLER American Vibracore Systems, Inc.				12. TOTAL SAMPLES		DISTURBED 0	
5. DIRECTION OF BORING <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED				13. TOTAL NUMBER CORE BOXES		14. WATER DEPTH 34 Ft.	
6. THICKNESS OF OVERBURDEN N/A				15. DATE BORING		STARTED 12-06-12	
7. DEPTH DRILLED INTO ROCK N/A				16. ELEVATION TOP OF BORING -32.4 Ft.		COMPLETED 12-06-12	
8. TOTAL DEPTH OF BORING 20.0 Ft.				17. TOTAL RECOVERY FOR BORING 100%			
				18. SIGNATURE AND TITLE OF INSPECTOR Mike FitzHarris, Geologist			
ELEV.	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS	SAMPLE	LABORATORY RESULTS		
-32.4	0.0						
-35.0	2.6		SAND, poorly-graded, mostly fine to medium-grained sand-sized quartz, trace silt, trace shell fragments, pale lt. brown to gray (SP)	A	Classification: SP Color: 5Y 6/2-light olive gray D50: 0.3369 mm % Fines: 2		
-37.4	5.0		SAND, poorly-graded, mostly fine to medium-grained sand-sized quartz, trace silt, trace shell fragments, lt. gray (SP)	B	Classification: SP Color: 2.5Y 7/2-light gray D50: 0.3388 mm % Fines: 4.2		
-41.1	8.7		SAND, poorly-graded, mostly fine to medium-grained sand-sized quartz, trace clay stringers, lt. gray to white (SP)	C	Classification: SP Color: 5Y 7/2-light gray D50: 0.3269 mm % Fines: 3		
-42.4	10.0		SAND, poorly-graded with clay, mostly fine-grained sand-sized quartz, few clay, clay content increases with depth, lt. gray to gray (SP-SC)	D	Classification: SP-SM Color: 2.5Y 6/2-light brownish gray D50: 0.3079 mm % Fines: 5.6		
-48.5	16.1		SAND, clayey, mostly fine-grained sand-sized quartz, some clay, some silt, few shell fragments, gray (SC)	NS			
-49.4	17.0		CLAY, lean, mostly clay, some fine-grained sand-sized quartz, trace shell fragments, sandy clay, gray (CL)				
-50.7	18.3		SAND, clayey, mostly fine-grained sand-sized quartz, some clay, trace shell fragments, clayey sand, gray (SC)				
-52.4	20.0		CLAY, lean, mostly clay, some fine-grained sand-sized, trace shell fragments, sandy clay, gray (CL)				
NOTES: 1. Soils are field visually classified in accordance with the Unified Soils Classification System.							

<b>DRILLING LOG (Cont. Sheet)</b>			<b>INSTALLATION</b> Mobile District		<b>SHEET 2</b>
					<b>OF 2 SHEETS</b>
<b>PROJECT</b> MsCIP Barrier Island Restoration			<b>COORDINATE SYSTEM/DATUM</b> State Plane, MSE (U.S. Ft.)	<b>HORIZONTAL</b> NAD83	<b>VERTICAL</b> NAVD88
<b>LOCATION COORDINATES</b> X = 1,154,851 Y = 256,670			<b>ELEVATION TOP OF BORING</b> -32.4 Ft.		
ELEV.	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS	SAMPLE	LABORATORY RESULTS
			2. NS = Sample not submitted for laboratory analysis from this interval.  3. Seafloor elevation determined from 2010 USACE survey.		

**Project**

Mississippi Barrier Island  
Restoration Project

**AVS**  
**AMERICAN VIBRACORE**  
**S E R V I C E S**

**Core Identifier** BI-PB-164-12

**Date** 12/06/2012

**Water Depth** 34.0'

**Coordinate System**

Latitude / Longitude

**Start Time** 10:37:41

**End Time** 10:38:28

**Penetration** 20.0'

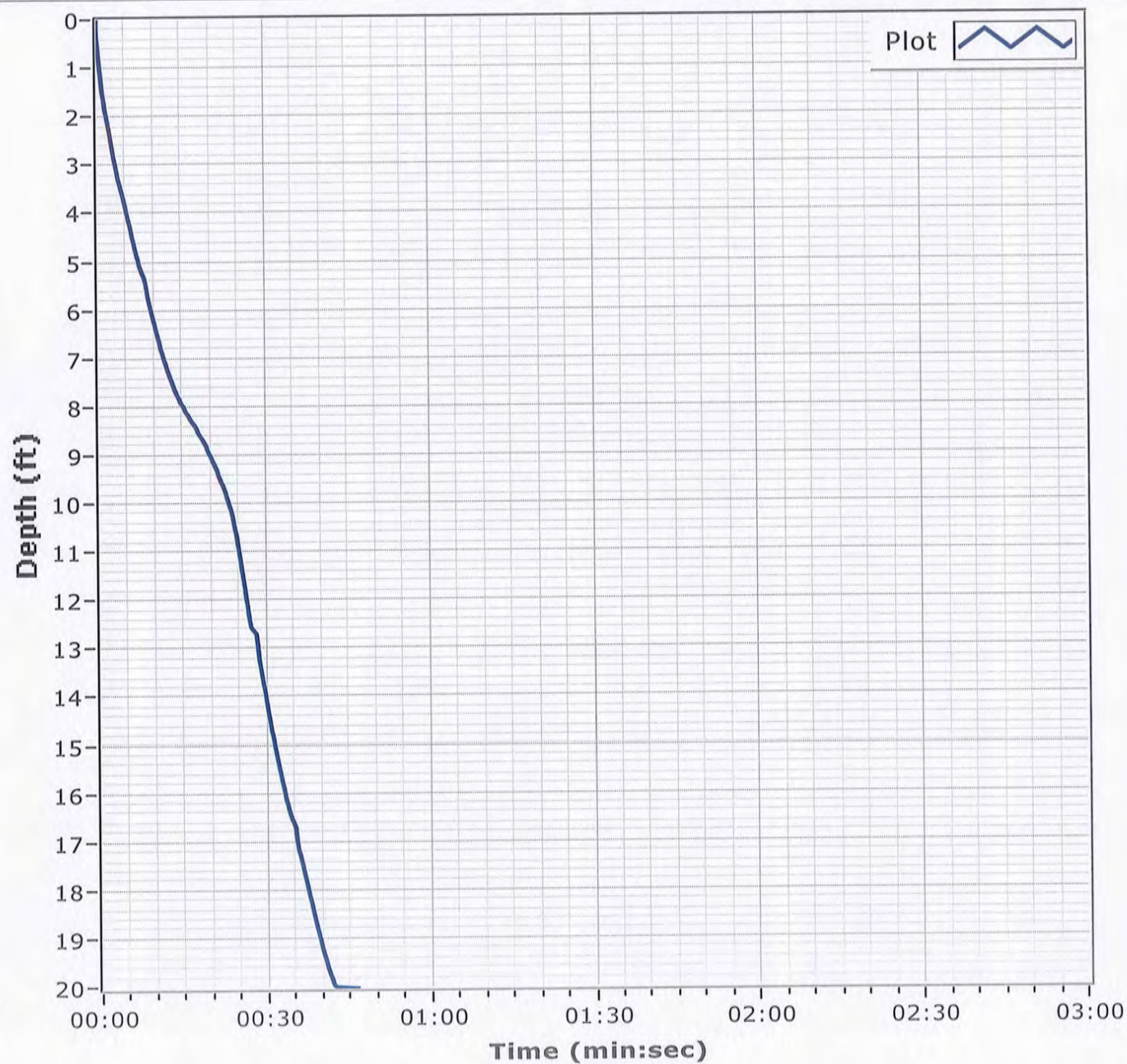
**Latitude** 30 12.281

**Total Time** 00:00:46

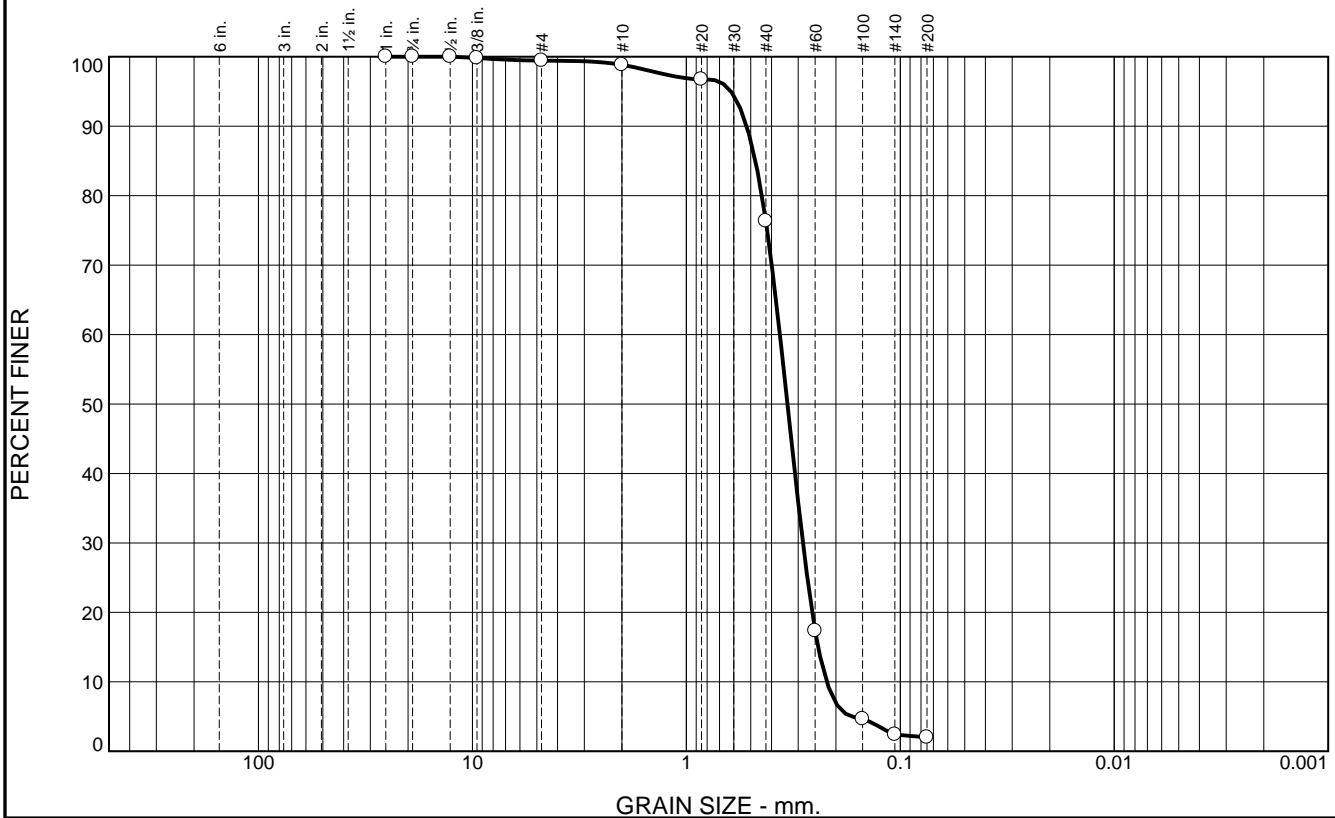
**Recovery** 20.0'

**Longitude** 088 17.596

**Comments**



# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.6	0.6	22.5	74.3	2.0	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
1	100.0		
.75	100.0		
.5	100.0		
.375	99.8		
#4	99.4		
#10	98.8		
#20	96.7		
#40	76.3		
#60	17.3		
#100	4.7		
#140	2.4		
#200	2.0		

\* (no specification provided)

<u><b>Material Description</b></u>		
Fine to medium grained, SAND		
<u><b>Atterberg Limits</b></u>		
PL=	LL=	PI=
<u><b>Coefficients</b></u>		
D <sub>90</sub> = 0.5225	D <sub>85</sub> = 0.4756	D <sub>60</sub> = 0.3654
D <sub>50</sub> = 0.3369	D <sub>30</sub> = 0.2853	D <sub>15</sub> = 0.2420
D <sub>10</sub> = 0.2206	C <sub>u</sub> = 1.66	C <sub>c</sub> = 1.01
<u><b>Classification</b></u>		
USCS= SP	AASHTO=	
<u><b>Remarks</b></u>		

Location: BI-PB-164-12 A  
Sample Number: 6480 (21)

Depth: 0.0'

Date: 12/07/12

**Thompson Engineering**

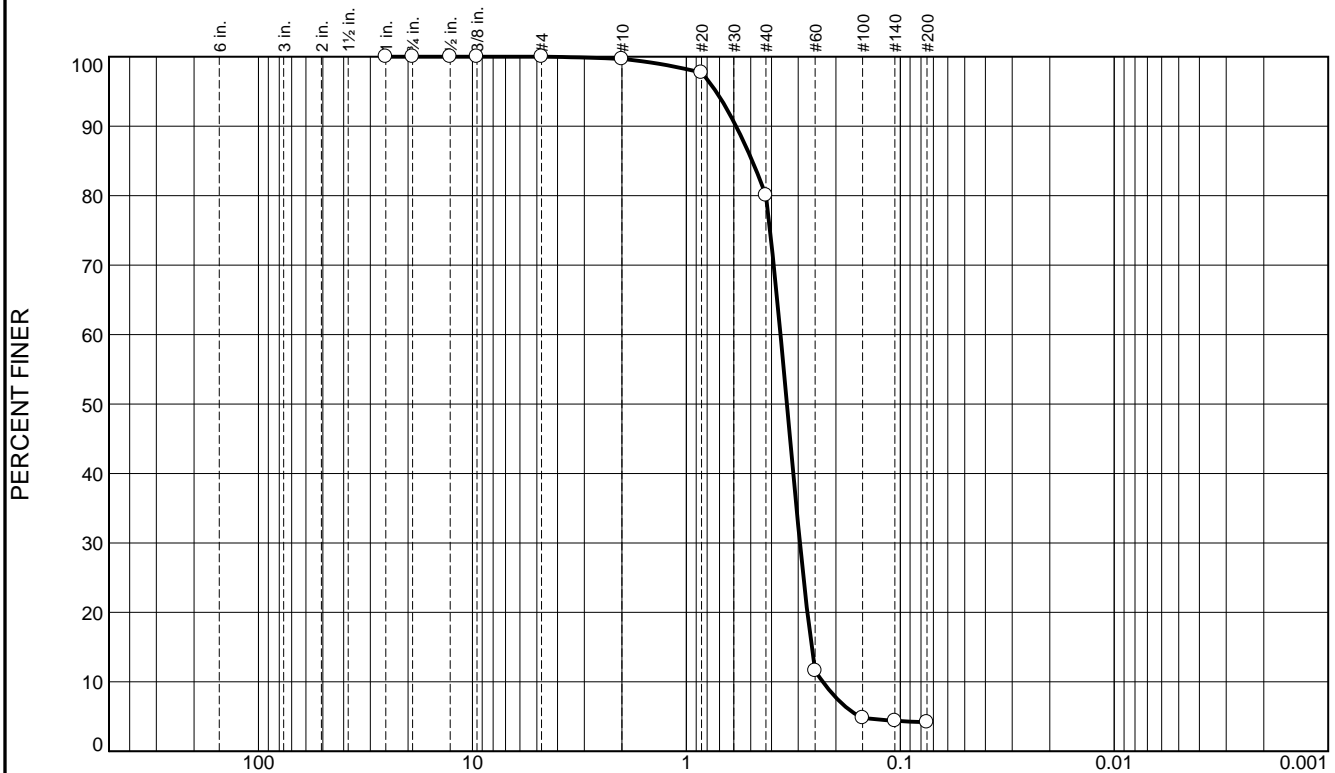
**Mobile, Alabama**

Client: CDM/Thompson Engineering JV  
Project: MsCIP Barrier Island Restoration GT

Project No: 1221110095

Figure

# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.0	0.3	19.6	75.9	4.2	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
1	100.0		
.75	100.0		
.5	100.0		
.375	100.0		
#4	100.0		
#10	99.7		
#20	97.7		
#40	80.1		
#60	11.6		
#100	4.8		
#140	4.4		
#200	4.2		

\* (no specification provided)

Material Description		
Fine to medium grained, SAND		
<div> <div> Atterberg Limits </div> <div> PL= </div> <div> LL= </div> <div> PI= </div> </div>		
<div> <div> Coefficients </div> <div> D<sub>90</sub>= 0.5855 </div> <div> D<sub>50</sub>= 0.3388 </div> <div> D<sub>10</sub>= 0.2302 </div> <div> D<sub>85</sub>= 0.4923 </div> <div> D<sub>30</sub>= 0.2948 </div> <div> C<sub>u</sub>= 1.58 </div> <div> D<sub>60</sub>= 0.3629 </div> <div> D<sub>15</sub>= 0.2597 </div> <div> C<sub>c</sub>= 1.04 </div> </div>		
<div> <div> Classification </div> <div> USCS= SP </div> <div> AASHTO= </div> </div>		
<div> <div> Remarks </div> </div>		

Location: BI-PB-164-12 B  
Sample Number: 6480 (22)

Depth: 2.6'

Date: 12/07/12

**Thompson Engineering**

**Mobile, Alabama**

Client: CDM/Thompson Engineering JV  
Project: MsCIP Barrier Island Restoration GT

Project No: 1221110095

Figure

# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.0	0.0	18.9	78.1	3.0	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
1	100.0		
.75	100.0		
.5	100.0		
.375	100.0		
#4	100.0		
#10	100.0		
#20	99.4		
#40	81.1		
#60	19.3		
#100	4.4		
#140	3.1		
#200	3.0		

\* (no specification provided)

<u><b>Material Description</b></u>		
Fine to medium grained, SAND		
<u><b>Atterberg Limits</b></u>		
PL=	LL=	PI=
<u><b>Coefficients</b></u>		
D <sub>90</sub> = 0.5543	D <sub>85</sub> = 0.4731	D <sub>60</sub> = 0.3530
D <sub>50</sub> = 0.3269	D <sub>30</sub> = 0.2783	D <sub>15</sub> = 0.2362
D <sub>10</sub> = 0.2153	C <sub>u</sub> = 1.64	C <sub>c</sub> = 1.02
<u><b>Classification</b></u>		
USCS= SP	AASHTO=	
<u><b>Remarks</b></u>		

Location: BI-PB-164-12 C  
Sample Number: 6480 (23)

Depth: 5.0'

Date: 12/07/12

**Thompson Engineering**

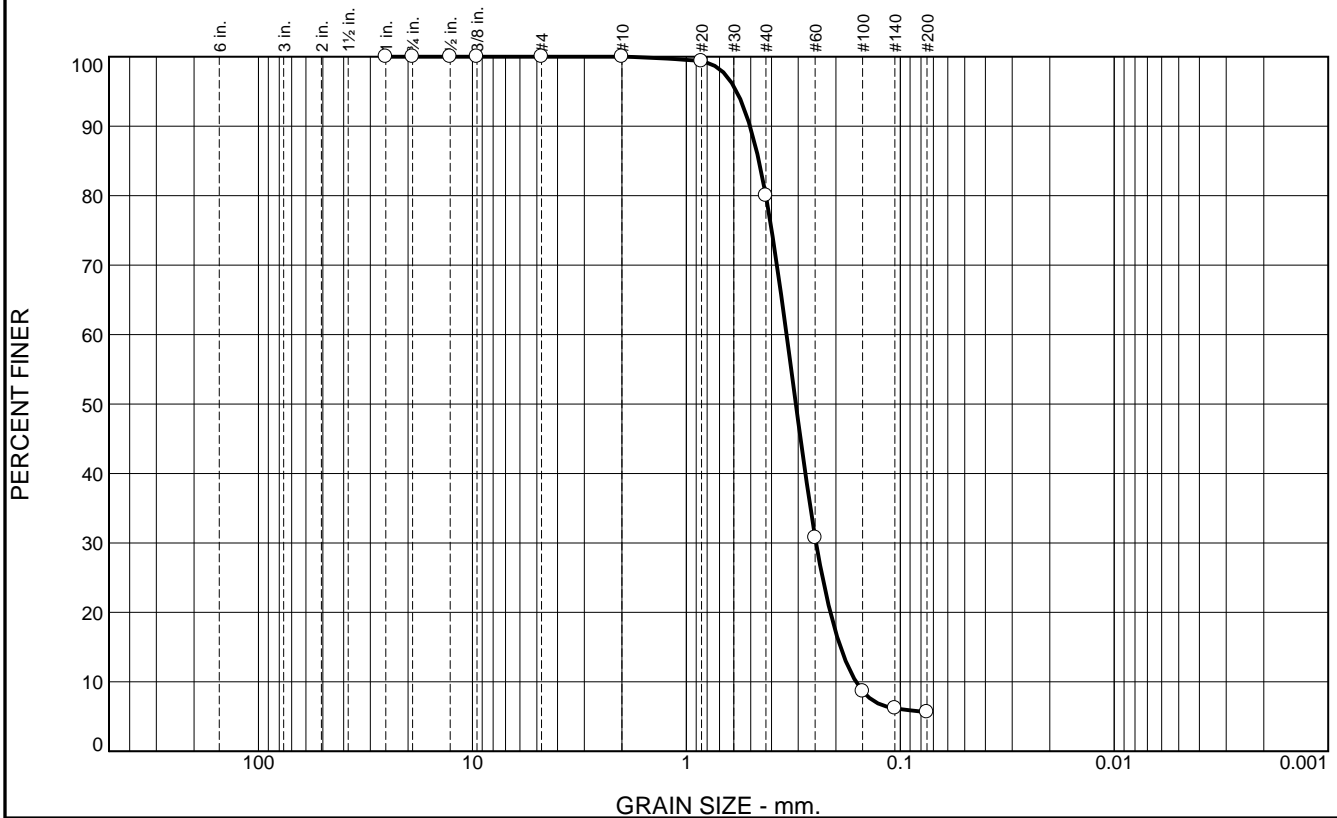
**Mobile, Alabama**

Client: CDM/Thompson Engineering JV  
Project: MsCIP Barrier Island Restoration GT

Project No: 1221110095

Figure

# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.0	0.0	20.0	74.4	5.6	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
1	100.0		
.75	100.0		
.5	100.0		
.375	100.0		
#4	100.0		
#10	100.0		
#20	99.4		
#40	80.0		
#60	30.8		
#100	8.7		
#140	6.2		
#200	5.6		

\* (no specification provided)

## Material Description

Fine to medium grained, SLIGHTLY SILTY SAND

## Atterberg Limits

PL= LL= PI=

## Coefficients

D<sub>90</sub>= 0.5041 D<sub>85</sub>= 0.4580 D<sub>60</sub>= 0.3401  
D<sub>50</sub>= 0.3079 D<sub>30</sub>= 0.2476 D<sub>15</sub>= 0.1905  
D<sub>10</sub>= 0.1612 C<sub>u</sub>= 2.11 C<sub>c</sub>= 1.12

## Classification

USCS= SP-SM AASHTO=

## Remarks

Location: BI-PB-164-12 D  
Sample Number: 6480 (24)

Depth: 8.7'

Date: 12/07/12

**Thompson Engineering**

**Mobile, Alabama**

Client: CDM/Thompson Engineering JV  
Project: MsCIP Barrier Island Restoration GT

Project No: 1221110095

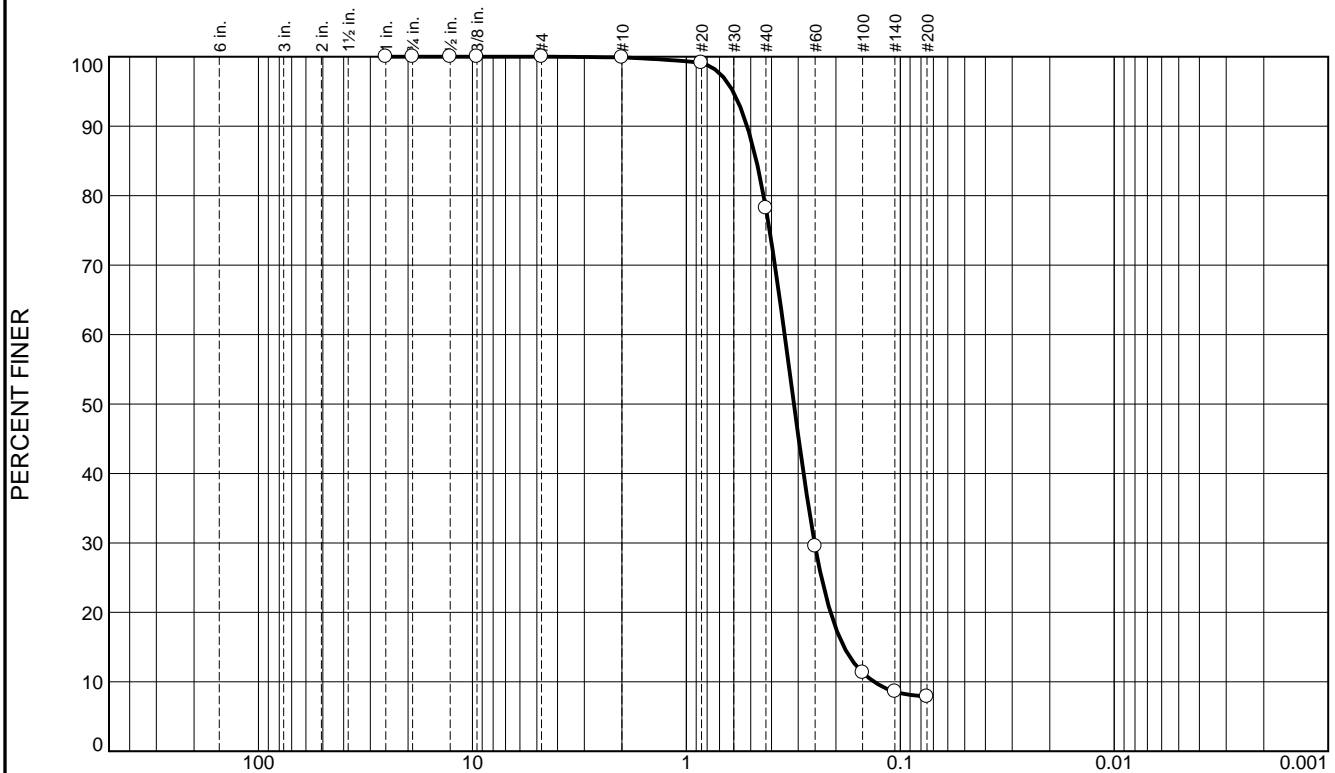
Figure

# Boring Designation BI-PB-165-12

DRILLING LOG		DIVISION South Atlantic		INSTALLATION Mobile District		SHEET 1 OF 1 SHEETS	
1. PROJECT MsCIP Barrier Island Restoration Petit Bois Pass- AL East				9. SIZE AND TYPE OF BIT N/A			
2. BORING DESIGNATION BI-PB-165-12		LOCATION COORDINATES E = 1,154,799 N = 257,695		10. COORDINATE SYSTEM/DATUM State Plane, MSE (U.S. Ft.)		HORIZONTAL NAD83	
3. DRILLING AGENCY Corps of Engineers - CESAM		CONTRACTOR FILE NO.		11. MANUFACTURER'S DESIGNATION OF DRILL Vibracore		<input type="checkbox"/> AUTO HAMMER <input type="checkbox"/> MANUAL HAMMER	
4. NAME OF DRILLER American Vibracore Systems, Inc.				12. TOTAL SAMPLES		DISTURBED 0	
5. DIRECTION OF BORING <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED				13. TOTAL NUMBER CORE BOXES		14. WATER DEPTH 33.1 Ft.	
6. THICKNESS OF OVERBURDEN N/A				15. DATE BORING		STARTED 12-06-12	
7. DEPTH DRILLED INTO ROCK N/A				16. ELEVATION TOP OF BORING -32.5 Ft.		COMPLETED 12-06-12	
8. TOTAL DEPTH OF BORING 15.0 Ft.				17. TOTAL RECOVERY FOR BORING 100%		18. SIGNATURE AND TITLE OF INSPECTOR Mike FitzHarris, Geologist	
ELEV.	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS	SAMPLE	LABORATORY RESULTS		
-32.5	0.0						
-33.1	0.6						
-33.8	1.3						
			SAND, clayey, mostly fine-grained sand-sized quartz, some clay, gray (SC)	NS			
			SILT, inorganic-L, mostly silt, trace fine-grained sand-sized quartz, medium to high plasticity, brownish gray (ML)	A	Classification: SP-SM Color: 2.5Y 7/2-light gray D50: 0.3143 mm % Fines: 7.9		
				B	Classification: SP Color: 5Y 8/1-white D50: 0.3783 mm % Fines: 2.1		
			SAND, poorly-graded, mostly fine to medium-grained sand-sized quartz, clay band at 1.7 ft., gray (SP)	C	Classification: SP Color: 2.5Y 8.5/1- D50: 0.3381 mm % Fines: 1.3		
			At El. -34.4 Ft., mostly fine to medium-grained sand-sized quartz, trace silt, trace shell fragments, gray				
			At El. -35.3 Ft., mostly fine to medium-grained sand-sized quartz, trace silt, dense, lt. gray to white	D	Classification: SP Color: 2.5Y 7/1-light gray D50: 0.3332 mm % Fines: 2.4		
				E	Classification: SP Color: 2.5Y 8/1-white D50: 0.3237 mm % Fines: 1.9		
-47.5	15.0						
			NOTES: 1. Soils are field visually classified in accordance with the Unified Soils Classification System. 2. NS = Sample not submitted for laboratory analysis from this interval. 3. Seafloor elevation calculated using sampling vessel's fathometer water depth reading and applying NOAA tidal gauge data conversion factor.	NS			



# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.0	0.1	21.7	70.3	7.9	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
1	100.0		
.75	100.0		
.5	100.0		
.375	100.0		
#4	100.0		
#10	99.9		
#20	99.1		
#40	78.2		
#60	29.5		
#100	11.3		
#140	8.6		
#200	7.9		

\* (no specification provided)

## Material Description

Fine to medium grained, SLIGHTLY SILTY SAND

## Atterberg Limits

PL= LL= PI=

## Coefficients

D<sub>90</sub>= 0.5199 D<sub>85</sub>= 0.4705 D<sub>60</sub>= 0.3473  
D<sub>50</sub>= 0.3143 D<sub>30</sub>= 0.2516 D<sub>15</sub>= 0.1833  
D<sub>10</sub>= 0.1325 C<sub>u</sub>= 2.62 C<sub>c</sub>= 1.38

## Classification

USCS= SP-SM AASHTO=

## Remarks

Location: BI-PB-165-12 A  
Sample Number: 6480 (25)

Depth: 1.3'

Date: 12/07/12

**Thompson Engineering**

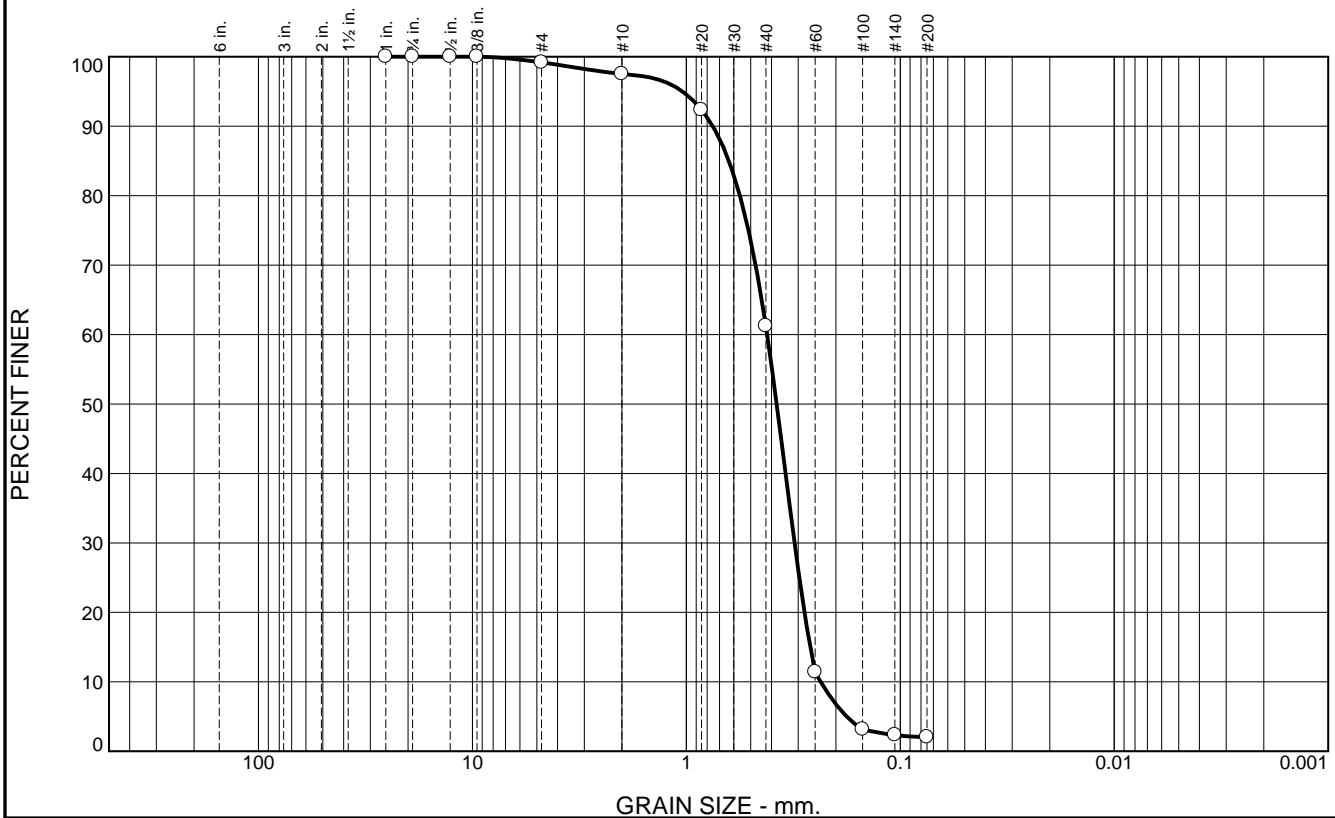
**Mobile, Alabama**

Client: CDM/Thompson Engineering JV  
Project: MsCIP Barrier Island Restoration GT

Project No: 1221110095

Figure

# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.8	1.7	36.3	59.1	2.1	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
1	100.0		
.75	100.0		
.5	100.0		
.375	100.0		
#4	99.2		
#10	97.5		
#20	92.3		
#40	61.2		
#60	11.4		
#100	3.2		
#140	2.3		
#200	2.1		

\* (no specification provided)

<u><b>Material Description</b></u>		
Fine to medium grained, SAND		
<u><b>Atterberg Limits</b></u>		
PL=	LL=	PI=
<u><b>Coefficients</b></u>		
D <sub>90</sub> = 0.7529	D <sub>85</sub> = 0.6329	D <sub>60</sub> = 0.4192
D <sub>50</sub> = 0.3783	D <sub>30</sub> = 0.3122	D <sub>15</sub> = 0.2638
D <sub>10</sub> = 0.2355	C <sub>u</sub> = 1.78	C <sub>c</sub> = 0.99
<u><b>Classification</b></u>		
USCS= SP	AASHTO=	
<u><b>Remarks</b></u>		

Location: BI-PB-165-12 B  
Sample Number: 6480 (26)

Depth: 1.9'

Date: 12/07/12

**Thompson Engineering**

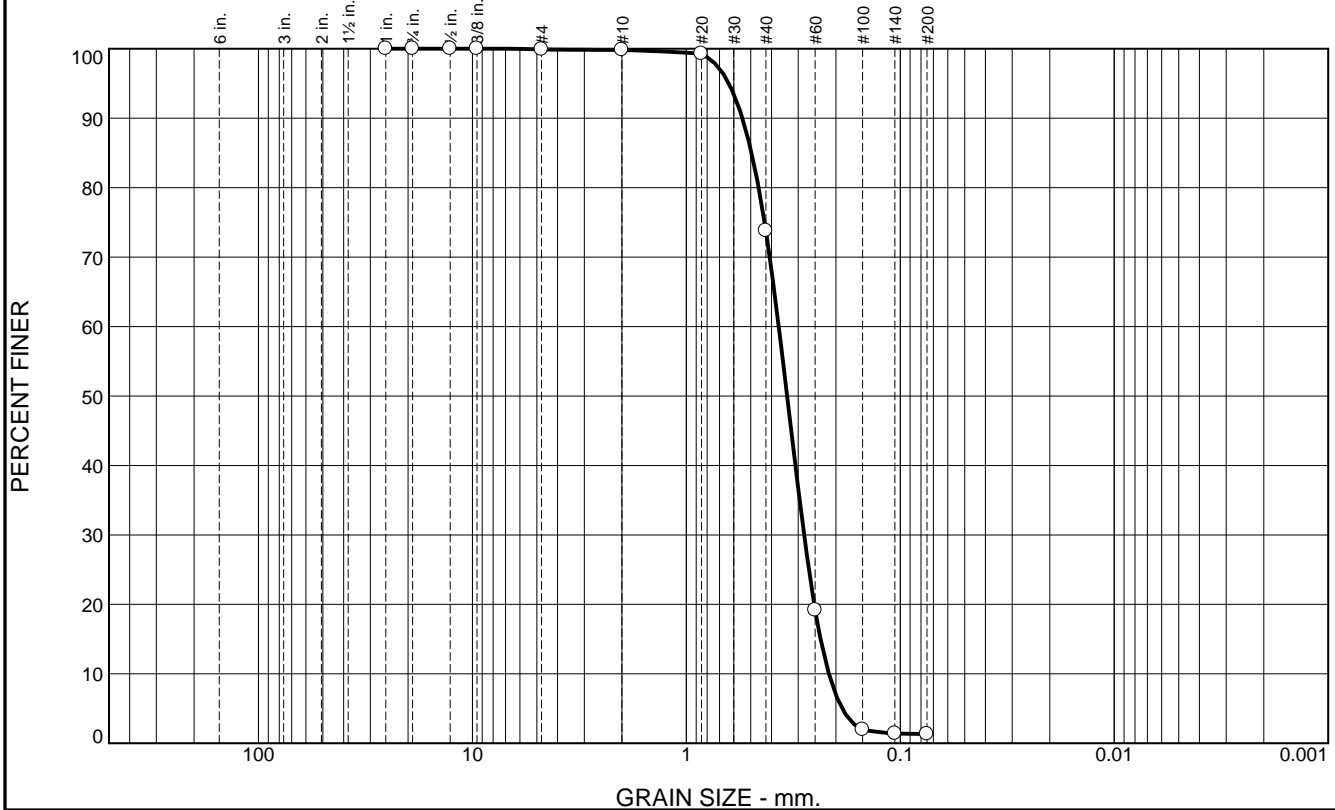
**Mobile, Alabama**

Client: CDM/Thompson Engineering JV  
Project: MsCIP Barrier Island Restoration GT

Project No: 1221110095

Figure

# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.1	0.1	26.0	72.5	1.3	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
1	100.0		
.75	100.0		
.5	100.0		
.375	100.0		
#4	99.9		
#10	99.8		
#20	99.3		
#40	73.8		
#60	19.2		
#100	2.0		
#140	1.4		
#200	1.3		

\* (no specification provided)

<u><b>Material Description</b></u>		
Fine to medium grained, SAND		
<u><b>Atterberg Limits</b></u>		
PL=	LL=	PI=
<u><b>Coefficients</b></u>		
D <sub>90</sub> = 0.5469	D <sub>85</sub> = 0.4958	D <sub>60</sub> = 0.3699
D <sub>50</sub> = 0.3381	D <sub>30</sub> = 0.2817	D <sub>15</sub> = 0.2359
D <sub>10</sub> = 0.2157	C <sub>u</sub> = 1.72	C <sub>c</sub> = 0.99
<u><b>Classification</b></u>		
USCS= SP	AASHTO=	
<u><b>Remarks</b></u>		

Location: BI-PB-165-12 C  
Sample Number: 6480 (27)

Depth: 2.8'

Date: 12/07/12

**Thompson Engineering**

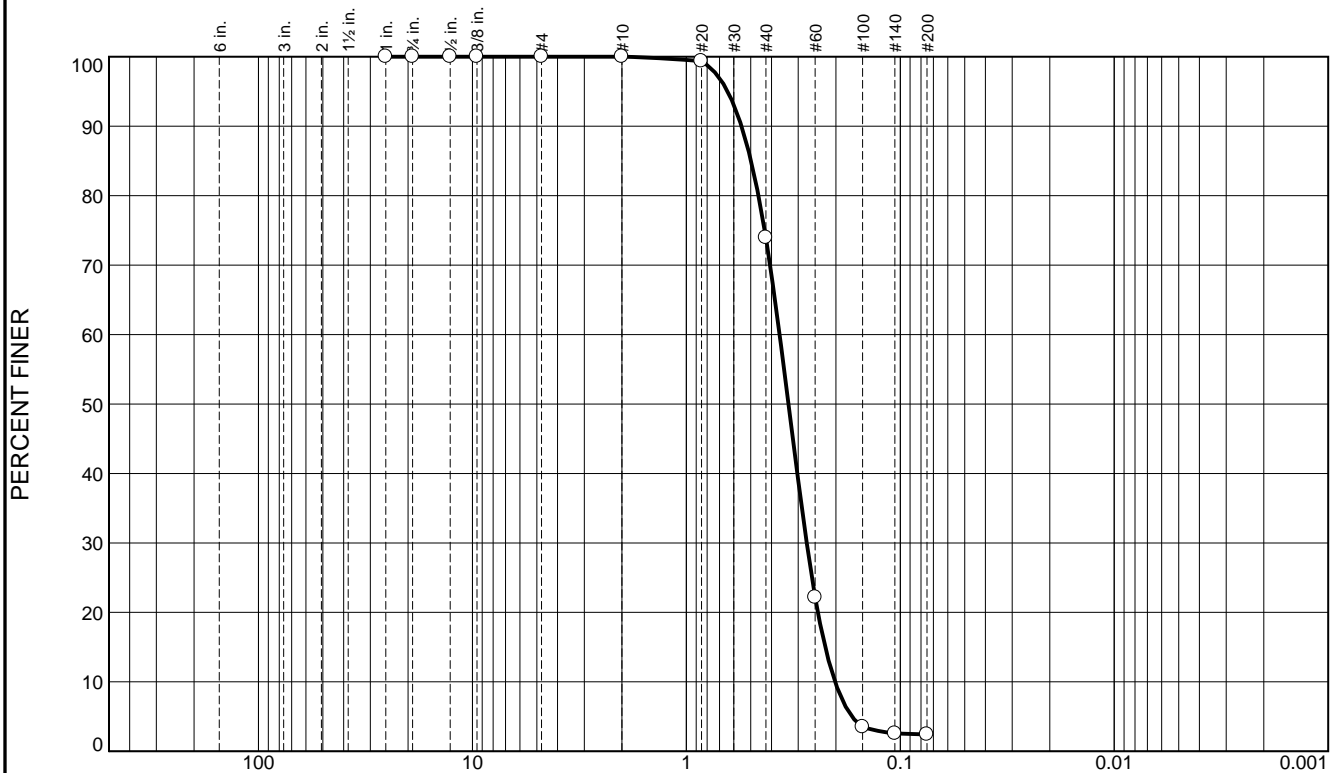
**Mobile, Alabama**

Client: CDM/Thompson Engineering JV  
Project: MsCIP Barrier Island Restoration GT

Project No: 1221110095

Figure

# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.0	0.0	26.1	71.5	2.4	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
1	100.0		
.75	100.0		
.5	100.0		
.375	100.0		
#4	100.0		
#10	100.0		
#20	99.4		
#40	73.9		
#60	22.2		
#100	3.5		
#140	2.6		
#200	2.4		

\* (no specification provided)

## Material Description

Fine to medium grained, SAND

## Atterberg Limits

PL= LL= PI=

## Coefficients

D<sub>90</sub>= 0.5521 D<sub>85</sub>= 0.4986 D<sub>60</sub>= 0.3665  
D<sub>50</sub>= 0.3332 D<sub>30</sub>= 0.2739 D<sub>15</sub>= 0.2244  
D<sub>10</sub>= 0.2019 C<sub>u</sub>= 1.82 C<sub>c</sub>= 1.01

## Classification

USCS= SP AASHTO=

## Remarks

Location: BI-PB-165-12 D  
Sample Number: 6480 (28)

Depth: 5.0'

Date: 12/07/12

**Thompson Engineering**

**Mobile, Alabama**

Client: CDM/Thompson Engineering JV  
Project: MsCIP Barrier Island Restoration GT

Project No: 1221110095

Figure

# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.0	0.0	12.9	85.2	1.9	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
1	100.0		
.75	100.0		
.5	100.0		
.375	100.0		
#4	100.0		
#10	100.0		
#20	99.9		
#40	87.1		
#60	16.3		
#100	3.6		
#140	2.2		
#200	1.9		

\* (no specification provided)

<u><b>Material Description</b></u>		
Fine to medium grained, SAND		
<u><b>Atterberg Limits</b></u>		
PL=	LL=	PI=
<u><b>Coefficients</b></u>		
D <sub>90</sub> = 0.4765	D <sub>85</sub> = 0.4166	D <sub>60</sub> = 0.3459
D <sub>50</sub> = 0.3237	D <sub>30</sub> = 0.2819	D <sub>15</sub> = 0.2415
D <sub>10</sub> = 0.2063	C <sub>u</sub> = 1.68	C <sub>c</sub> = 1.11
<u><b>Classification</b></u>		
USCS= SP	AASHTO=	
<u><b>Remarks</b></u>		

Location: BI-PB-165-12 E  
Sample Number: 6480 (29)

Depth: 10.0'

Date: 12/07/12

**Thompson Engineering**



**Mobile, Alabama**

Client: CDM/Thompson Engineering JV  
Project: MsCIP Barrier Island Restoration GT

Project No: 1221110095

Figure

# Boring Designation BI-PB-166-12

DRILLING LOG		DIVISION South Atlantic		INSTALLATION Mobile District		SHEET 1 OF 1 SHEETS	
1. PROJECT MsCIP Barrier Island Restoration Petit Bois Pass- AL East				9. SIZE AND TYPE OF BIT N/A			
2. BORING DESIGNATION BI-PB-166-12		LOCATION COORDINATES E = 1,154,688 N = 259,113		10. COORDINATE SYSTEM/DATUM State Plane, MSE (U.S. Ft.)		HORIZONTAL NAD83	
3. DRILLING AGENCY Corps of Engineers - CESAM		CONTRACTOR FILE NO.		11. MANUFACTURER'S DESIGNATION OF DRILL Vibracore		<input type="checkbox"/> AUTO HAMMER <input type="checkbox"/> MANUAL HAMMER	
4. NAME OF DRILLER American Vibracore Systems, Inc.				12. TOTAL SAMPLES		DISTURBED 0	
5. DIRECTION OF BORING <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED				13. TOTAL NUMBER CORE BOXES		14. WATER DEPTH 32.3 Ft.	
6. THICKNESS OF OVERBURDEN N/A				15. DATE BORING		STARTED 11-29-12	
7. DEPTH DRILLED INTO ROCK N/A				16. ELEVATION TOP OF BORING -32.1 Ft.		COMPLETED 11-29-12	
8. TOTAL DEPTH OF BORING 10.2 Ft.				17. TOTAL RECOVERY FOR BORING 100%			
				18. SIGNATURE AND TITLE OF INSPECTOR Mike FitzHarris, Geologist			
ELEV.	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS	SAMPLE	LABORATORY RESULTS		
-32.1	0.0						
-32.3	0.2		SAND, poorly-graded, mostly fine to medium-grained sand-sized quartz, trace silt, lt. brown (SP)	NS			
	CLAY, fat, mostly clay, trace silt, medium plasticity, gray (CH) At El. -33.8 Ft., mostly clay, trace wood debris, high plasticity, gray mottled with brown						
-38.6	6.5						
-39.5	7.4		SAND, poorly-graded, mostly fine to medium-grained sand-sized quartz, trace silt, trace clay, lt. gray (SP)				
-42.3	10.2		CLAY, fat, mostly clay, trace silt, trace wood debris, medium to high plasticity, gray (CH)				
			NOTES:				
			1. Soils are field visually classified in accordance with the Unified Soils Classification System.				
			2. NS = Sample not submitted for laboratory analysis from this interval.				
			3. Seafloor elevation calculated using sampling vessel's fathometer water depth reading and applying NOAA tidal gauge data conversion factor.				

**Project**

Mississippi Barrier Island  
Restoration Project

**AVS**  
**AMERICAN VIBRACORE**  
**S E R V I C E S**

**Core Identifier** BI-PB-166-12

**Date** 11/29/2012

**Water Depth** 32.3'

**Coordinate System**

Latitude / Longitude

**Start Time** 14:34:13

**End Time** 14:37:39

**Penetration** 20.0'

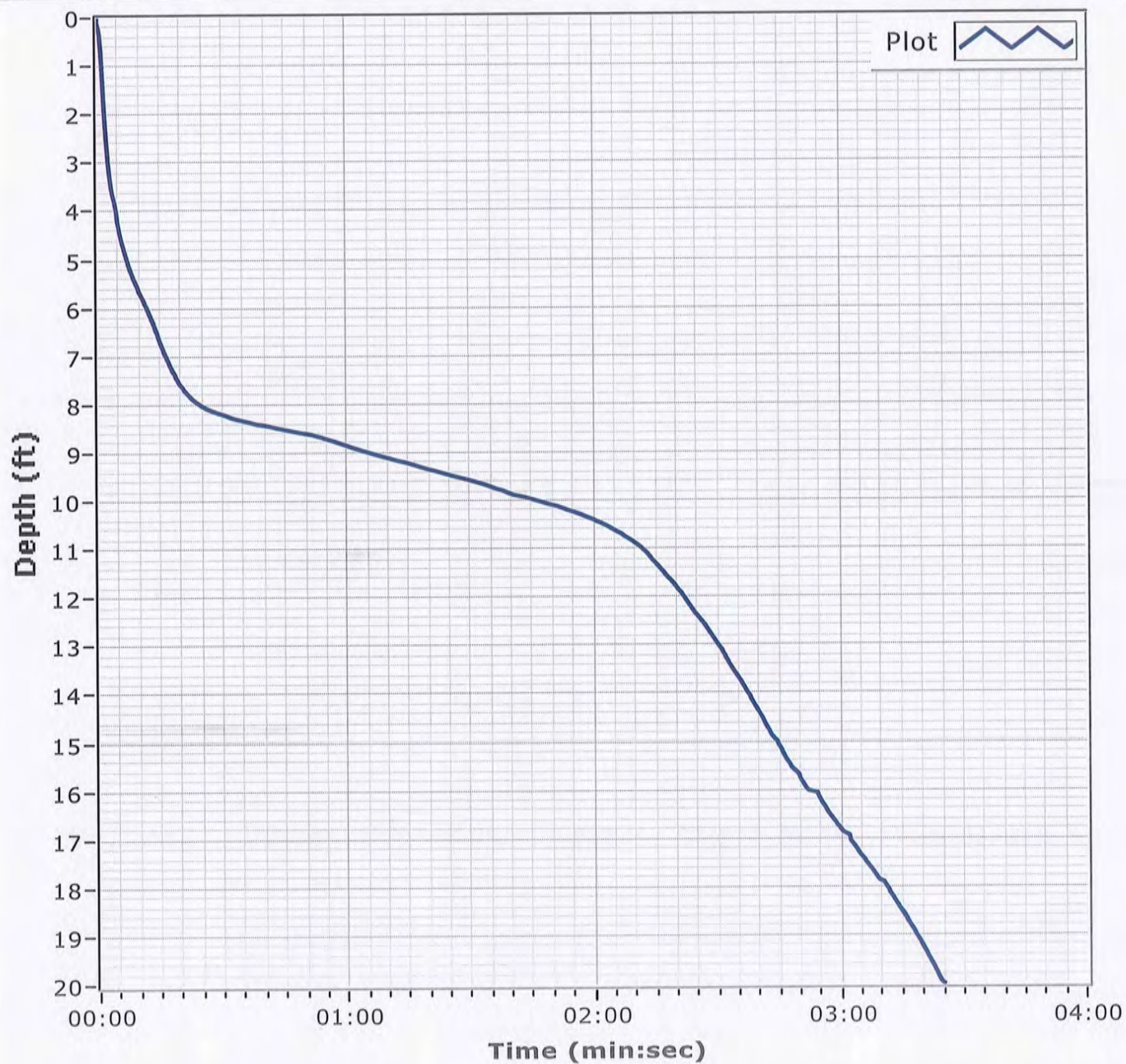
**Latitude** 30 12.684

**Total Time** 00:03:25

**Recovery** 10.3'

**Longitude** 088 17.625

**Comments**



# Boring Designation BI-PB-167-12

DRILLING LOG		DIVISION South Atlantic		INSTALLATION Mobile District		SHEET 1 OF 1 SHEETS	
1. PROJECT MsCIP Barrier Island Restoration Petit Bois Pass- AL East				9. SIZE AND TYPE OF BIT N/A			
2. BORING DESIGNATION BI-PB-167-12		LOCATION COORDINATES E = 1,153,417 N = 259,169		10. COORDINATE SYSTEM/DATUM State Plane, MSE (U.S. Ft.)		HORIZONTAL NAD83 VERTICAL NAVD88	
3. DRILLING AGENCY Corps of Engineers - CESAM		CONTRACTOR FILE NO.		11. MANUFACTURER'S DESIGNATION OF DRILL Vibracore		<input type="checkbox"/> AUTO HAMMER <input type="checkbox"/> MANUAL HAMMER	
4. NAME OF DRILLER American Vibracore Systems, Inc.				12. TOTAL SAMPLES		DISTURBED UNDISTURBED (UD) 0	
5. DIRECTION OF BORING <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED		DEG. FROM VERTICAL		13. TOTAL NUMBER CORE BOXES			
		BEARING		14. WATER DEPTH 29.7 Ft.			
6. THICKNESS OF OVERBURDEN N/A				15. DATE BORING 11-29-12		STARTED COMPLETED 11-29-12	
7. DEPTH DRILLED INTO ROCK N/A				16. ELEVATION TOP OF BORING -29.6 Ft.			
8. TOTAL DEPTH OF BORING 15.5 Ft.				17. TOTAL RECOVERY FOR BORING 100%			
				18. SIGNATURE AND TITLE OF INSPECTOR Mike FitzHarris, Geologist			

ELEV.	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS	SAMPLE	LABORATORY RESULTS
-29.6	0.0				
-30.3	0.7				
-31.0	1.4		SAND, poorly-graded, mostly fine to medium-grained sand-sized quartz, trace silt, lt. brown to lt. gray (SP)		
			SAND, clayey, mostly fine-grained sand-sized quartz, trace silt, gray (SC)		
			CLAY, fat, mostly clay, trace silt, medium to high plasticity, gray to brownish gray (CH)		
				NS	
-40.0	10.4				
-40.5	10.9		SAND, clayey, mostly fine-grained sand-sized quartz, trace silt, brownish gray (SC)		
			SAND, poorly-graded with silt, mostly fine-grained sand-sized quartz, little silt, little wood debris, trace organic matter, brownish gray mottled with brown (SP-SM)		
-43.5	13.9				
-44.7	15.1		SAND, poorly-graded, mostly fine-grained sand-sized quartz, trace silt, lt. gray (SP)		
-45.1	15.5		SAND, clayey, mostly fine-grained sand-sized quartz, some clay, trace shell fragments, gray (SC)		
NOTES:					
1. Soils are field visually classified in accordance with the Unified Soils Classification System.					
2. NS = Sample not submitted for laboratory analysis from this interval.					
3. Seafloor elevation calculated using sampling vessel's fathometer water depth reading and applying NOAA tidal gauge data conversion factor.					



**Project**

Mississippi Barrier Island  
Restoration Project



**Core Identifier** BI-PB-167-12

**Date** 11/29/2012

**Water Depth** 29.7'

**Coordinate System**

**Start Time** 13:51:18

Latitude / Longitude

**End Time** 13:53:01

**Penetration** 20.0'

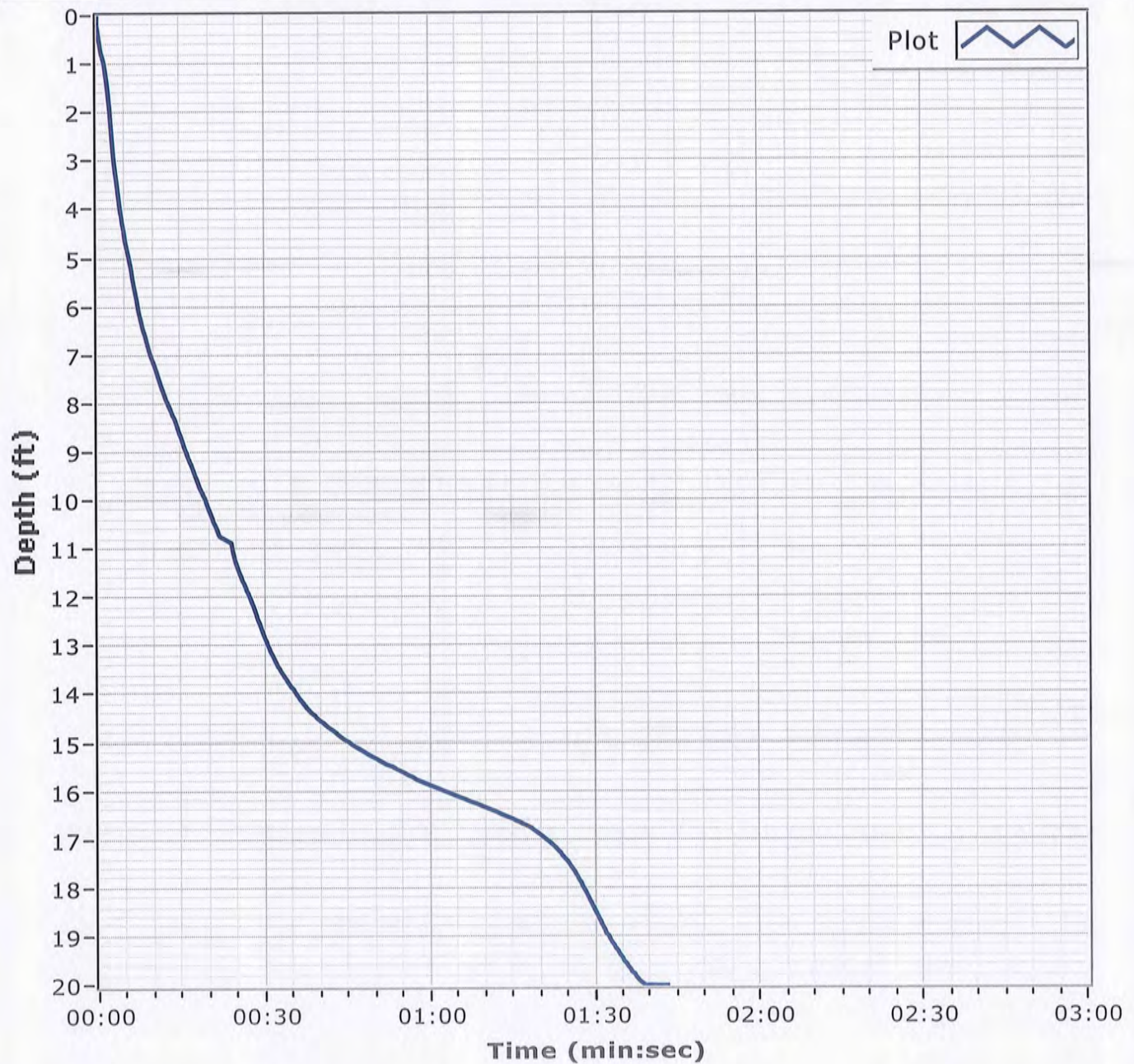
**Latitude** 30 12.694

**Total Time** 00:01:43

**Recovery** 15.5'

**Longitude** 088 17.866

**Comments**



# Boring Designation BI-PB-168-12

DRILLING LOG		DIVISION South Atlantic		INSTALLATION Mobile District		SHEET 1 OF 1 SHEETS	
1. PROJECT MsCIP Barrier Island Restoration Petit Bois Pass- AL East				9. SIZE AND TYPE OF BIT N/A			
2. BORING DESIGNATION BI-PB-168-12		LOCATION COORDINATES E = 1,152,128 N = 259,258		10. COORDINATE SYSTEM/DATUM State Plane, MSE (U.S. Ft.)		HORIZONTAL NAD83 VERTICAL NAVD88	
3. DRILLING AGENCY Corps of Engineers - CESAM		CONTRACTOR FILE NO.		11. MANUFACTURER'S DESIGNATION OF DRILL Vibracore		<input type="checkbox"/> AUTO HAMMER <input type="checkbox"/> MANUAL HAMMER	
4. NAME OF DRILLER American Vibracore Systems, Inc.				12. TOTAL SAMPLES		DISTURBED UNDISTURBED (UD) 0	
5. DIRECTION OF BORING <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED		DEG. FROM VERTICAL		13. TOTAL NUMBER CORE BOXES			
		BEARING		14. WATER DEPTH 29.2 Ft.			
6. THICKNESS OF OVERBURDEN N/A				15. DATE BORING 11-29-12		STARTED COMPLETED 11-29-12	
7. DEPTH DRILLED INTO ROCK N/A				16. ELEVATION TOP OF BORING -29.2 Ft.			
8. TOTAL DEPTH OF BORING 16.6 Ft.				17. TOTAL RECOVERY FOR BORING 100%			
				18. SIGNATURE AND TITLE OF INSPECTOR Mike FitzHarris, Geologist			

ELEV.	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS	SAMPLE	LABORATORY RESULTS
-29.2	0.0				
-29.4	0.2				
-31.0	1.8		SAND, poorly-graded, mostly fine to medium-grained sand-sized quartz, trace silt, brownish gray (SP)		
			SAND, clayey, mostly fine-grained sand-sized quartz, trace silt, gray (SC)		
			CLAY, fat, mostly clay, medium to high plasticity, gray to brownish gray (CH)	NS	
-39.4	10.2				
-41.3	12.1		SAND, silty, mostly fine-grained sand-sized quartz, some silt, trace wood debris, clayey stringers, brownish gray (SM)		
-42.7	13.5		SAND, poorly-graded with silt, mostly fine-grained sand-sized quartz, little silt, trace wood debris, lt brown mottled with brown (SP-SM)		
			SAND, poorly-graded, mostly fine to medium-grained sand-sized quartz, trace wood debris, lt. brown to gray (SP)	A	Classification: SP Color: 2.5Y 6/2-light brownish gray D50: 0.3461 mm % Fines: 4.1
-45.8	16.6			NS	
			NOTES:		
			1. Soils are field visually classified in accordance with the Unified Soils Classification System.		
			2. NS = Sample not submitted for laboratory analysis from this interval.		
			3. Seafloor elevation calculated using sampling vessel's fathometer water depth reading and applying NOAA tidal gauge data conversion factor.		



**Project**

Mississippi Barrier Island  
Restoration Project



**Core Identifier** BI-PB-168-12

**Date** 11/29/2012

**Water Depth** 29.2'

**Coordinate System**

Latitude / Longitude

**Start Time** 12:57:52

**End Time** 13:01:58

**Penetration** 20.0'

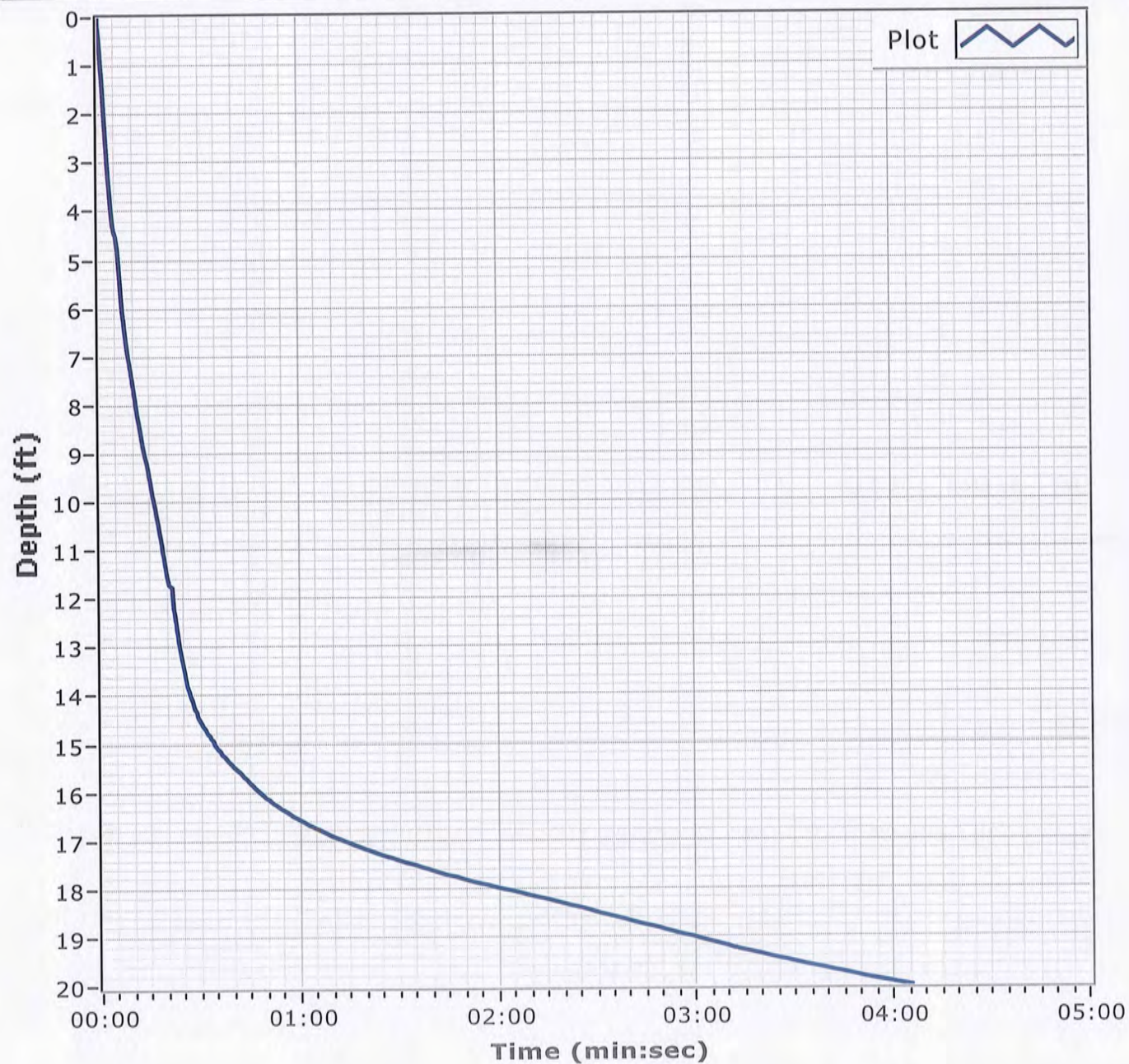
**Latitude** 30 12.710

**Total Time** 00:04:06

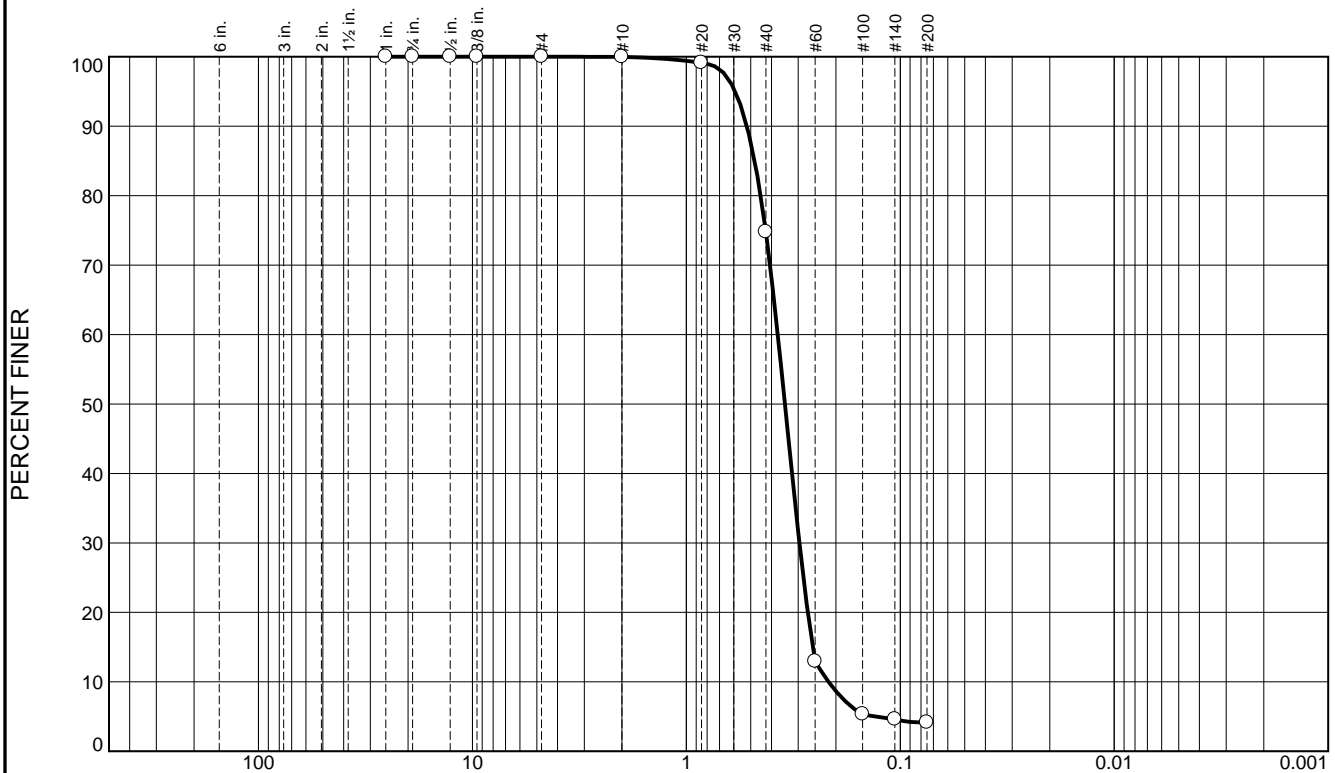
**Recovery** 16.6'

**Longitude** 088 18.111

**Comments**



# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.0	0.0	25.2	70.7	4.1	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
1	100.0		
.75	100.0		
.5	100.0		
.375	100.0		
#4	100.0		
#10	100.0		
#20	99.1		
#40	74.8		
#60	12.9		
#100	5.3		
#140	4.6		
#200	4.1		

\* (no specification provided)

**Material Description**  
Fine to medium grained, SAND

**Atterberg Limits**  
PL=      LL=      PI=

**Coefficients**  
D<sub>90</sub>= 0.5213      D<sub>85</sub>= 0.4797      D<sub>60</sub>= 0.3738  
D<sub>50</sub>= 0.3461      D<sub>30</sub>= 0.2963      D<sub>15</sub>= 0.2566  
D<sub>10</sub>= 0.2164      C<sub>u</sub>= 1.73      C<sub>c</sub>= 1.09

**Classification**  
USCS= SP      AASHTO=

**Remarks**

Location: BI-PB-168-12 A  
Sample Number: 6471 (39)

Depth: 13.5'

Date: 12/03/12

**Thompson Engineering**

**Mobile, Alabama**

Client: CDM/Thompson Engineering JV  
Project: MsCIP Barrier Island Restoration GT

Project No: 1221110095

Figure

# Boring Designation BI-PB-169-12

DRILLING LOG		DIVISION South Atlantic		INSTALLATION Mobile District		SHEET 1 OF 1 SHEETS	
1. PROJECT MsCIP Barrier Island Restoration Petit Bois Pass- AL East				9. SIZE AND TYPE OF BIT N/A			
2. BORING DESIGNATION BI-PB-169-12		LOCATION COORDINATES E = 1,151,127 N = 259,267		10. COORDINATE SYSTEM/DATUM State Plane, MSE (U.S. Ft.)		HORIZONTAL NAD83	
3. DRILLING AGENCY Corps of Engineers - CESAM		CONTRACTOR FILE NO.		11. MANUFACTURER'S DESIGNATION OF DRILL Vibracore		<input type="checkbox"/> AUTO HAMMER <input type="checkbox"/> MANUAL HAMMER	
4. NAME OF DRILLER American Vibracore Systems, Inc.				12. TOTAL SAMPLES		DISTURBED 0	
5. DIRECTION OF BORING <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED				13. TOTAL NUMBER CORE BOXES		14. WATER DEPTH 28.7 Ft.	
6. THICKNESS OF OVERBURDEN N/A				15. DATE BORING		STARTED 11-29-12	
7. DEPTH DRILLED INTO ROCK N/A				16. ELEVATION TOP OF BORING -28.8 Ft.		COMPLETED 11-29-12	
8. TOTAL DEPTH OF BORING 14.9 Ft.				17. TOTAL RECOVERY FOR BORING 100%			
				18. SIGNATURE AND TITLE OF INSPECTOR Mike FitzHarris, Geologist			

ELEV.	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS	SAMPLE	LABORATORY RESULTS
-28.8	0.0				
-29.6	0.2			NS	
-31.2	2.4		SAND, poorly-graded, mostly fine to medium-grained sand-sized quartz, trace silt, gray (SP)	A	Classification: SM Color: 5Y 5/2-olive gray D50: 0.1874 mm % Fines: 17.3
			SAND, silty, mostly fine-grained sand-sized quartz, trace clay, trace wood debris, gray (SM)		
			CLAY, fat, mostly clay, medium to high plasticity, gray (CH)		
			At El. -33.7 Ft., mostly clay, medium to high plasticity, brownish gray		
			At El. -38.7 Ft., mostly clay, trace silt, trace wood debris, medium to high plasticity, greenish gray mottled with brownish gray	NS	
-42.3	13.5				
-43.7	14.9		SAND, clayey, mostly fine-grained sand-sized quartz, some clay, trace wood debris, gray (SC)		
NOTES: 1. Soils are field visually classified in accordance with the Unified Soils Classification System. 2. NS = Sample not submitted for laboratory analysis from this interval. 3. Seafloor elevation calculated using sampling vessel's fathometer water depth reading and applying NOAA tidal gauge data conversion factor.					



**Project**

Mississippi Barrier Island  
Restoration Project

**AVS**  
**AMERICAN VIBRACORE**  
**S E R V I C E S**

**Core Identifier** BI-PB-169-12

**Date** 11/29/2012

**Water Depth** 28.7'

**Coordinate System**

Latitude / Longitude

**Start Time** 12:18:55

**End Time** 12:20:21

**Penetration** 20.0'

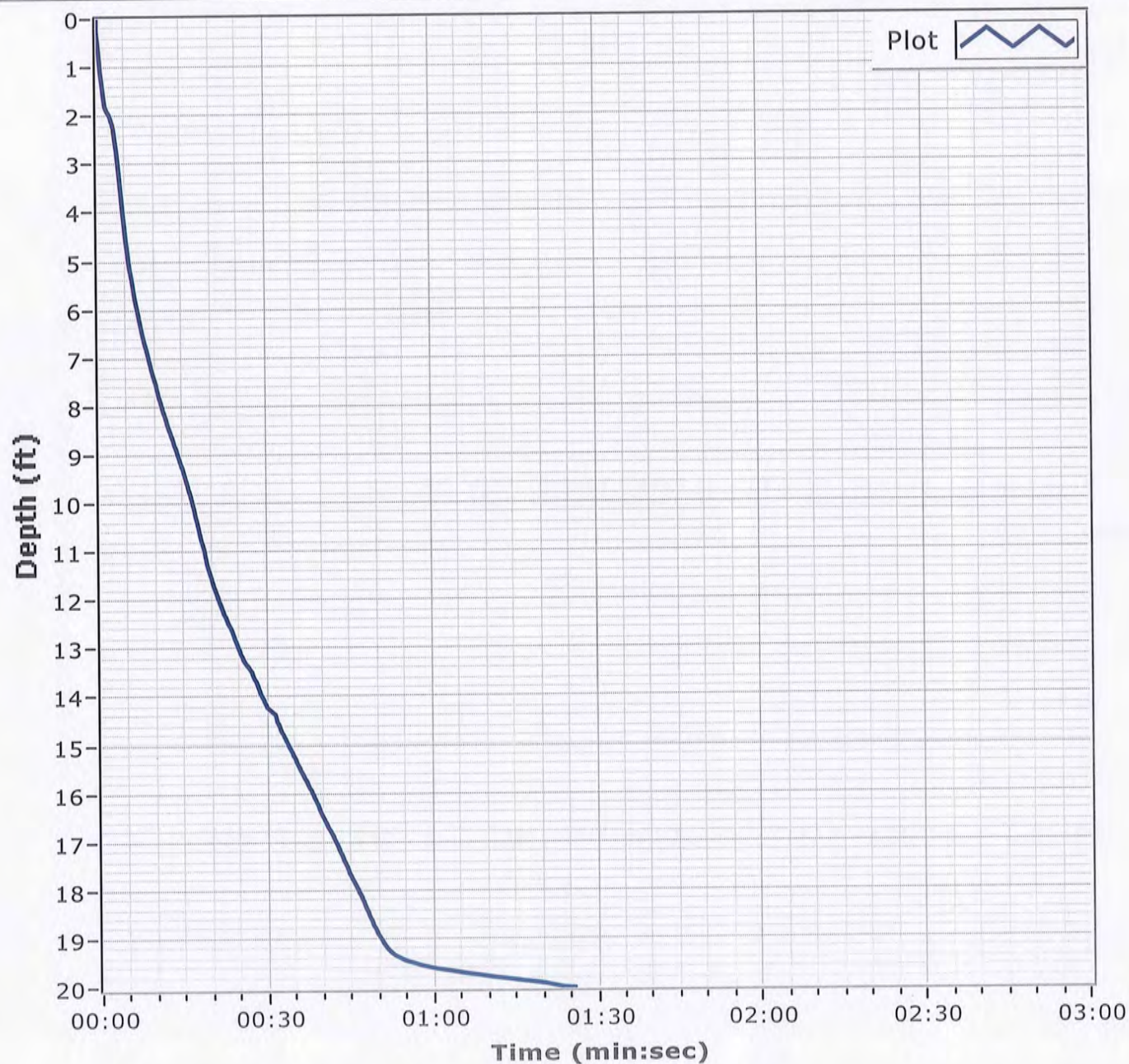
**Latitude** 30 12.712

**Total Time** 00:01:25

**Recovery** 15.0'

**Longitude** 088 18.301




**Comments**



# Boring Designation BI-PB-170-12

DRILLING LOG		DIVISION South Atlantic		INSTALLATION Mobile District		SHEET 1 OF 1 SHEETS	
1. PROJECT MsCIP Barrier Island Restoration Petit Bois Pass- AL East				9. SIZE AND TYPE OF BIT N/A			
2. BORING DESIGNATION BI-PB-170-12		LOCATION COORDINATES E = 1,151,421 N = 258,614		10. COORDINATE SYSTEM/DATUM State Plane, MSE (U.S. Ft.)		HORIZONTAL NAD83 VERTICAL NAVD88	
3. DRILLING AGENCY Corps of Engineers - CESAM		CONTRACTOR FILE NO.		11. MANUFACTURER'S DESIGNATION OF DRILL Vibracore		<input type="checkbox"/> AUTO HAMMER <input type="checkbox"/> MANUAL HAMMER	
4. NAME OF DRILLER American Vibracore Systems, Inc.				12. TOTAL SAMPLES		DISTURBED UNDISTURBED (UD) 0	
5. DIRECTION OF BORING <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED		DEG. FROM VERTICAL		13. TOTAL NUMBER CORE BOXES			
		BEARING		14. WATER DEPTH 31.7 Ft.			
6. THICKNESS OF OVERBURDEN N/A				15. DATE BORING 12-05-12		STARTED COMPLETED 12-05-12	
7. DEPTH DRILLED INTO ROCK N/A				16. ELEVATION TOP OF BORING -31.4 Ft.			
8. TOTAL DEPTH OF BORING 11.5 Ft.				17. TOTAL RECOVERY FOR BORING 100%			
				18. SIGNATURE AND TITLE OF INSPECTOR Mike FitzHarris, Geologist			

ELEV.	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS	SAMPLE	LABORATORY RESULTS
-31.4	0.0				
-31.6	0.2		SAND, poorly-graded, mostly fine to medium-grained sand-sized quartz, trace silt, lt. gray (SP)  CLAY, fat, mostly clay, trace fine-grained sand-sized quartz, medium to high plasticity, medium stiff, greenish gray to gray (CH)  At El. -36.3 Ft., mostly clay, little silt, high plasticity, stiff, few green silty bands, lt. gray mottled with brown and green	NS	
-40.1	8.7				
-42.6	11.2				
-42.9	11.5		SAND, poorly-graded, mostly fine to medium-grained sand-sized quartz, trace silt, gray w/lt. brown streaking (SP)		
			CLAY, lean, mostly clay, some fine-grained sand-sized quartz, sandy, low to medium plasticity, greenish gray (CL)		
NOTES: 1. Soils are field visually classified in accordance with the Unified Soils Classification System. 2. NS = Sample not submitted for laboratory analysis from this interval. 3. Seafloor elevation calculated using sampling vessel's fathometer water depth reading and applying NOAA tidal gauge data conversion factor.					



Project

Mississippi Barrier Island  
Restoration Project



Core Identifier BI-PB-170-12

Date 12/05/2012

Water Depth 31.7'

Coordinate System

Start Time 10:05:13

Latitude / Longitude

End Time 10:09:25

Penetration 20.0'

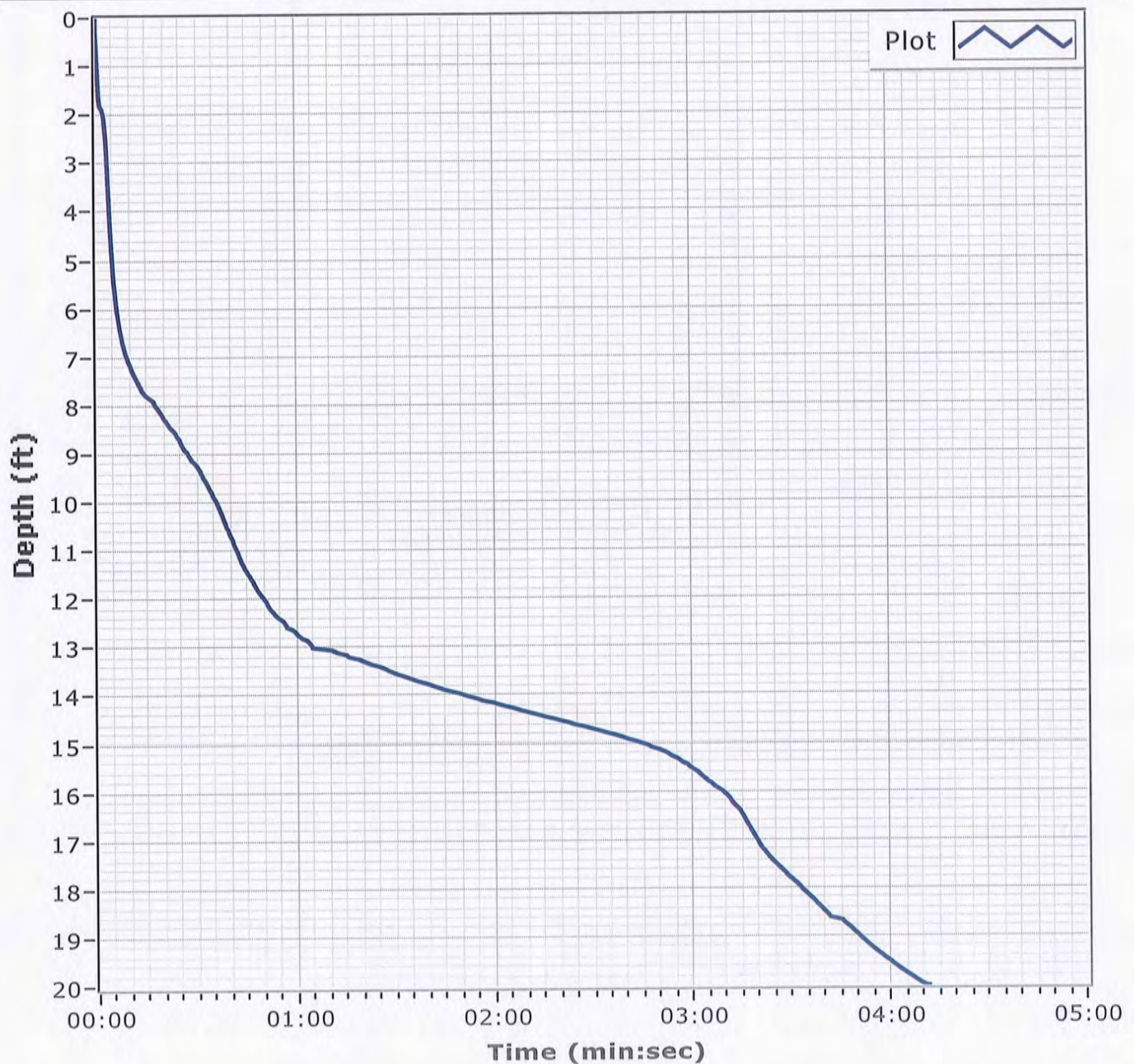
Latitude 30 12.604

Total Time 00:04:12

Recovery 11.5'

Longitude 088 18.246

Comments





# Boring Designation BI-PB-171-12

DRILLING LOG		DIVISION South Atlantic		INSTALLATION Mobile District		SHEET 1 OF 2 SHEETS	
1. PROJECT MsCIP Barrier Island Restoration Petit Bois Pass- AL East				9. SIZE AND TYPE OF BIT N/A			
2. BORING DESIGNATION BI-PB-171-12		LOCATION COORDINATES E = 1,152,204 N = 257,974		10. COORDINATE SYSTEM/DATUM State Plane, MSE (U.S. Ft.)		HORIZONTAL NAD83	
3. DRILLING AGENCY Corps of Engineers - CESAM		CONTRACTOR FILE NO.		11. MANUFACTURER'S DESIGNATION OF DRILL Vibracore		<input type="checkbox"/> AUTO HAMMER <input type="checkbox"/> MANUAL HAMMER	
4. NAME OF DRILLER American Vibracore Systems, Inc.				12. TOTAL SAMPLES		DISTURBED 0	
5. DIRECTION OF BORING <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED				13. TOTAL NUMBER CORE BOXES		14. WATER DEPTH 31.6 Ft.	
6. THICKNESS OF OVERBURDEN N/A				15. DATE BORING		STARTED 12-05-12	
7. DEPTH DRILLED INTO ROCK N/A				16. ELEVATION TOP OF BORING -31.1 Ft.		COMPLETED 12-05-12	
8. TOTAL DEPTH OF BORING 20.0 Ft.				17. TOTAL RECOVERY FOR BORING 100%		18. SIGNATURE AND TITLE OF INSPECTOR Mike FitzHarris, Geologist	
ELEV.	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS	SAMPLE	LABORATORY RESULTS		
-31.1	0.0						
-32.8	1.7		CLAY, lean, mostly clay, trace fine-grained sand-sized quartz, trace silt, moderately stiff, low to medium plasticity, greenish gray (CL)	NS			
-33.8	2.7		SAND, poorly-graded with clay, mostly fine-grained sand-sized quartz, some clay, few silt, gray (SP-SC)	A	Classification: SM Color: 2.5Y 5.5/2-brownish gray D50: 0.3161 mm % Fines: 14.8		
			SAND, poorly-graded, mostly fine to medium-grained sand-sized quartz, trace silt, trace clay, clayey lense at 4.7 ft., gray (SP)	B	Classification: SP-SM Color: 2.5Y 6/1-gray D50: 0.3062 mm % Fines: 9.2		
			At El. -36.1 Ft., mostly fine to medium-grained sand-sized quartz, trace silt, gray	C	Classification: SP-SM Color: 2.5Y 6/2-light brownish gray D50: 0.3267 mm % Fines: 8.2		
-41.1	10.0						
-45.3	14.2		CLAY, lean, mostly clay, some fine-grained sand-sized quartz, low to medium plasticity, gray (CL)	NS			
-47.4	16.3		SAND, poorly-graded, mostly fine to medium-grained sand-sized quartz, trace silt, clayey pocket at 15.6 ft., lt. gray (SP)	D	Classification: SP-SM Color: 2.5Y 7.5/2- D50: 0.3833 mm % Fines: 10.8		
-48.1	17.0		SAND, poorly-graded with silt, mostly fine-grained sand-sized quartz, few silt, gray (SP-SM)	NS			
-50.6	19.5		SAND, silty, mostly fine-grained sand-sized quartz, some silt, some wood debris, little organic matter, brownish gray (SM)				
-51.1	20.0		SAND, poorly-graded, mostly fine-grained sand-sized quartz, trace silt, lt. gray (SP)				
NOTES: 1. Soils are field visually classified in accordance with the Unified Soils Classification System. 2. NS = Sample not submitted for laboratory							

<b>DRILLING LOG (Cont. Sheet)</b>			<b>INSTALLATION</b> Mobile District		<b>SHEET 2</b> <b>OF 2 SHEETS</b>
<b>PROJECT</b> MsCIP Barrier Island Restoration			<b>COORDINATE SYSTEM/DATUM</b> State Plane, MSE (U.S. Ft.)	<b>HORIZONTAL</b> NAD83	<b>VERTICAL</b> NAVD88
<b>LOCATION COORDINATES</b> X = 1,152,204 Y = 257,974			<b>ELEVATION TOP OF BORING</b> -31.1 Ft.		
<b>ELEV.</b>	<b>DEPTH</b>	<b>LEGEND</b>	<b>CLASSIFICATION OF MATERIALS</b>	<b>SAMPLE</b>	<b>LABORATORY RESULTS</b>
			<p>analysis from this interval.</p> <p>3. Seafloor elevation calculated using sampling vessel's fathometer water depth reading and applying NOAA tidal gauge data conversion factor.</p>		

**Project** Mississippi Barrier Island  
Restoration Project



**Core Identifier** BI-PB-171-12

**Date** 12/05/2012

**Water Depth** 31.6'

**Coordinate System**

Latitude / Longitude

**Start Time** 15:04:46

**End Time** 15:07:45

**Penetration** 19.5'

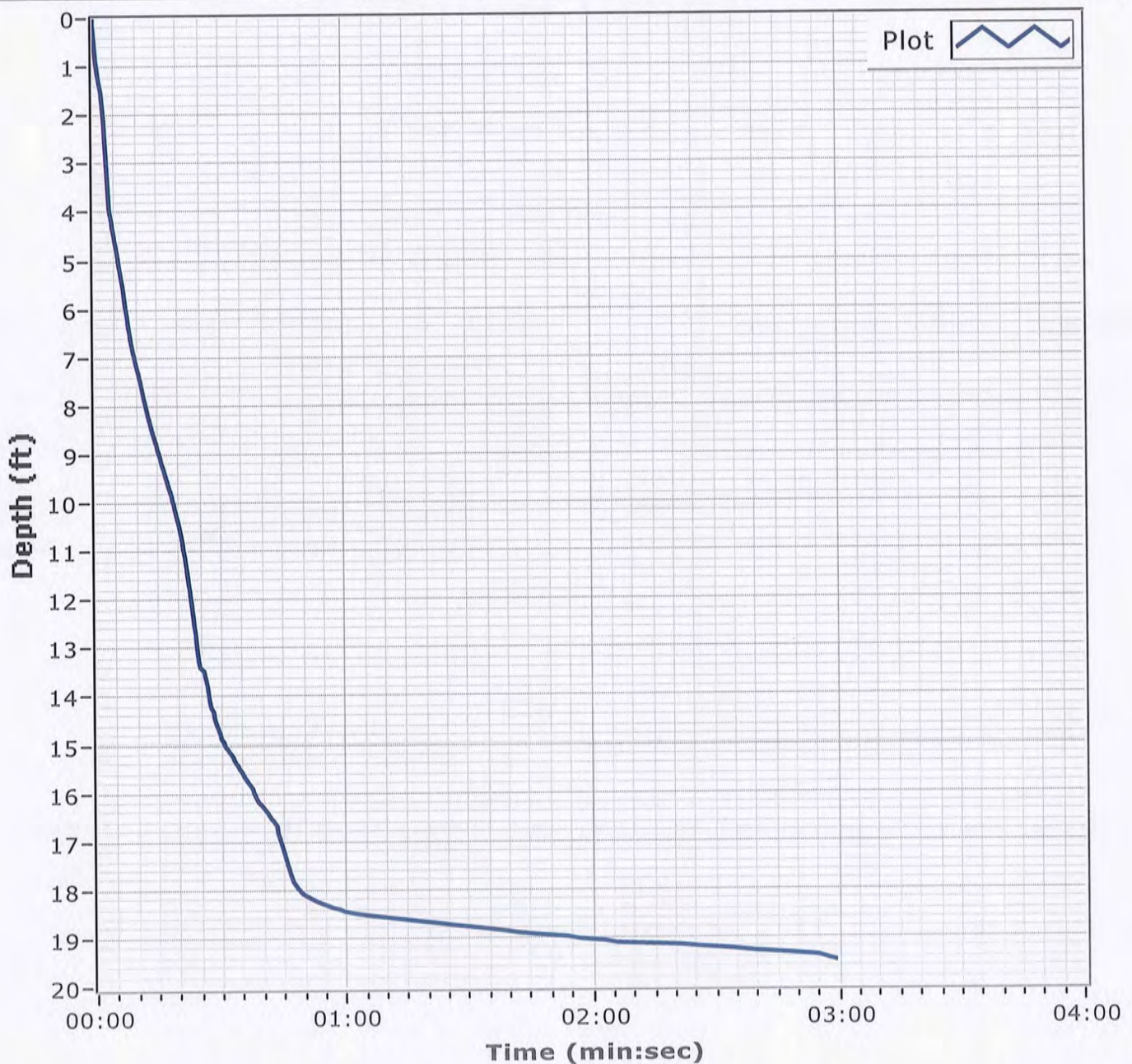
**Latitude** 30 12.489

**Total Time** 00:02:59

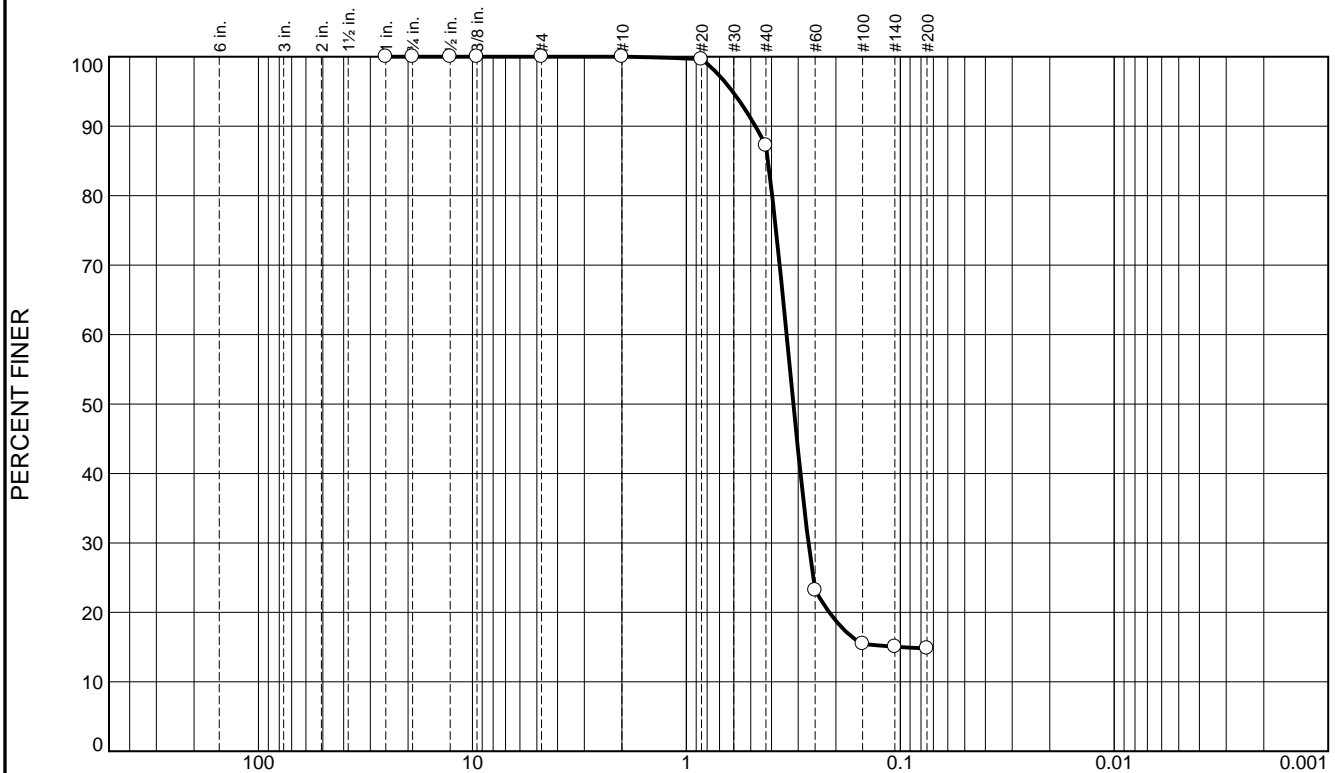
**Recovery** 19.5'

**Longitude** 088 18.098

**Comments**



# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.0	0.0	12.8	72.4	14.8	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
1	100.0		
.75	100.0		
.5	100.0		
.375	100.0		
#4	100.0		
#10	100.0		
#20	99.6		
#40	87.2		
#60	23.2		
#100	15.5		
#140	15.1		
#200	14.8		

\* (no specification provided)

## Material Description

Fine to medium grained, SILTY SAND

## Atterberg Limits

PL= LL= PI=

## Coefficients

D<sub>90</sub>= 0.4759 D<sub>85</sub>= 0.4155 D<sub>60</sub>= 0.3400  
D<sub>50</sub>= 0.3161 D<sub>30</sub>= 0.2690 D<sub>15</sub>= 0.0998  
D<sub>10</sub>= C<sub>u</sub>= C<sub>c</sub>=

## Classification

USCS= SM AASHTO=

## Remarks

Location: BI-PB-171-12 A  
Sample Number: 6480 (30)

Depth: 1.7'

Date: 12/07/12

**Thompson Engineering**

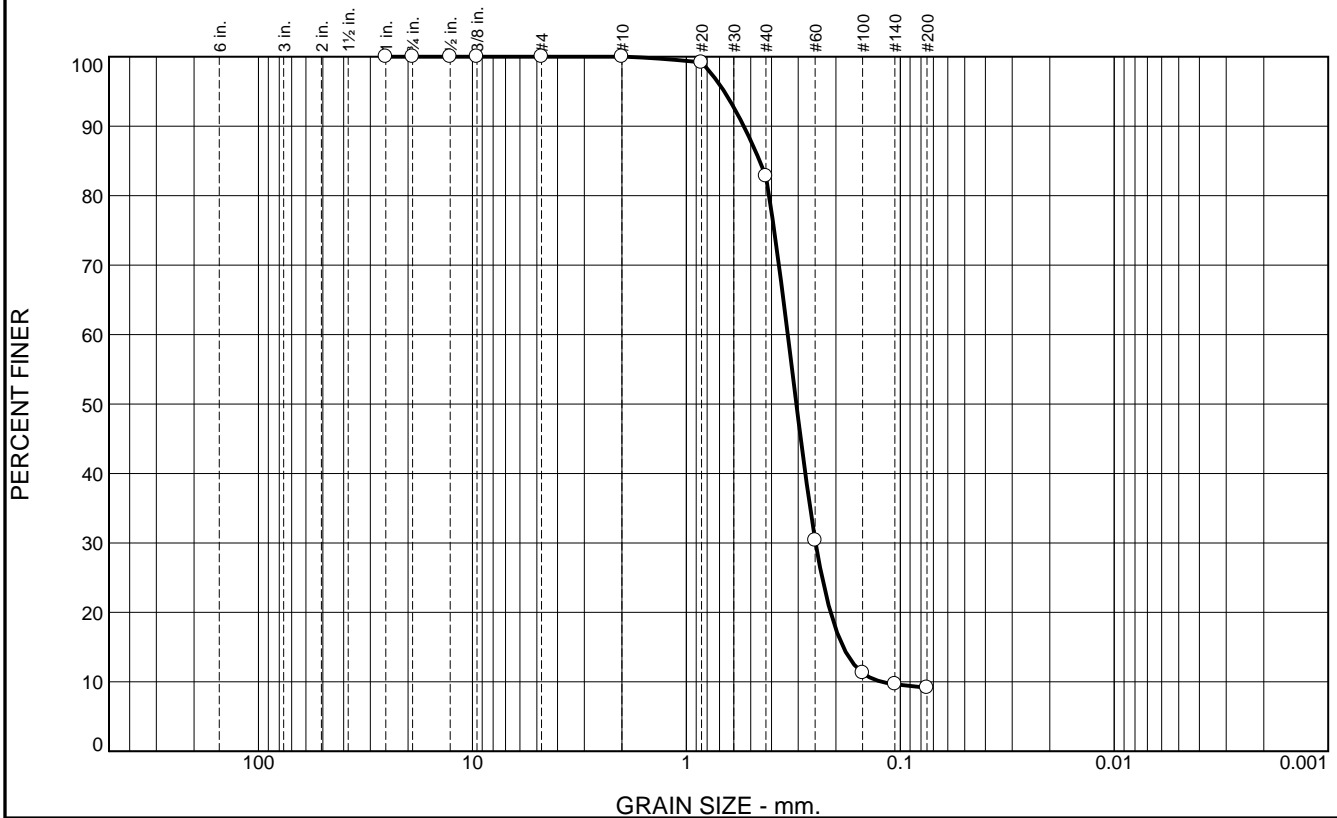
**Mobile, Alabama**

Client: CDM/Thompson Engineering JV  
Project: MsCIP Barrier Island Restoration GT

Project No: 1221110095

Figure

# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.0	0.0	17.2	73.6	9.2	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
1	100.0		
.75	100.0		
.5	100.0		
.375	100.0		
#4	100.0		
#10	100.0		
#20	99.2		
#40	82.8		
#60	30.4		
#100	11.3		
#140	9.7		
#200	9.2		

\* (no specification provided)

## Material Description

Fine to medium grained, SLIGHTLY SILTY SAND

## Atterberg Limits

PL= LL= PI=

## Coefficients

D<sub>90</sub>= 0.5391 D<sub>85</sub>= 0.4545 D<sub>60</sub>= 0.3358  
D<sub>50</sub>= 0.3062 D<sub>30</sub>= 0.2488 D<sub>15</sub>= 0.1850  
D<sub>10</sub>= 0.1222 C<sub>u</sub>= 2.75 C<sub>c</sub>= 1.51

## Classification

USCS= SP-SM AASHTO=

## Remarks

Location: BI-PB-171-12 B  
Sample Number: 6480 (31)

Depth: 2.7'

Date: 12/07/12

**Thompson Engineering**

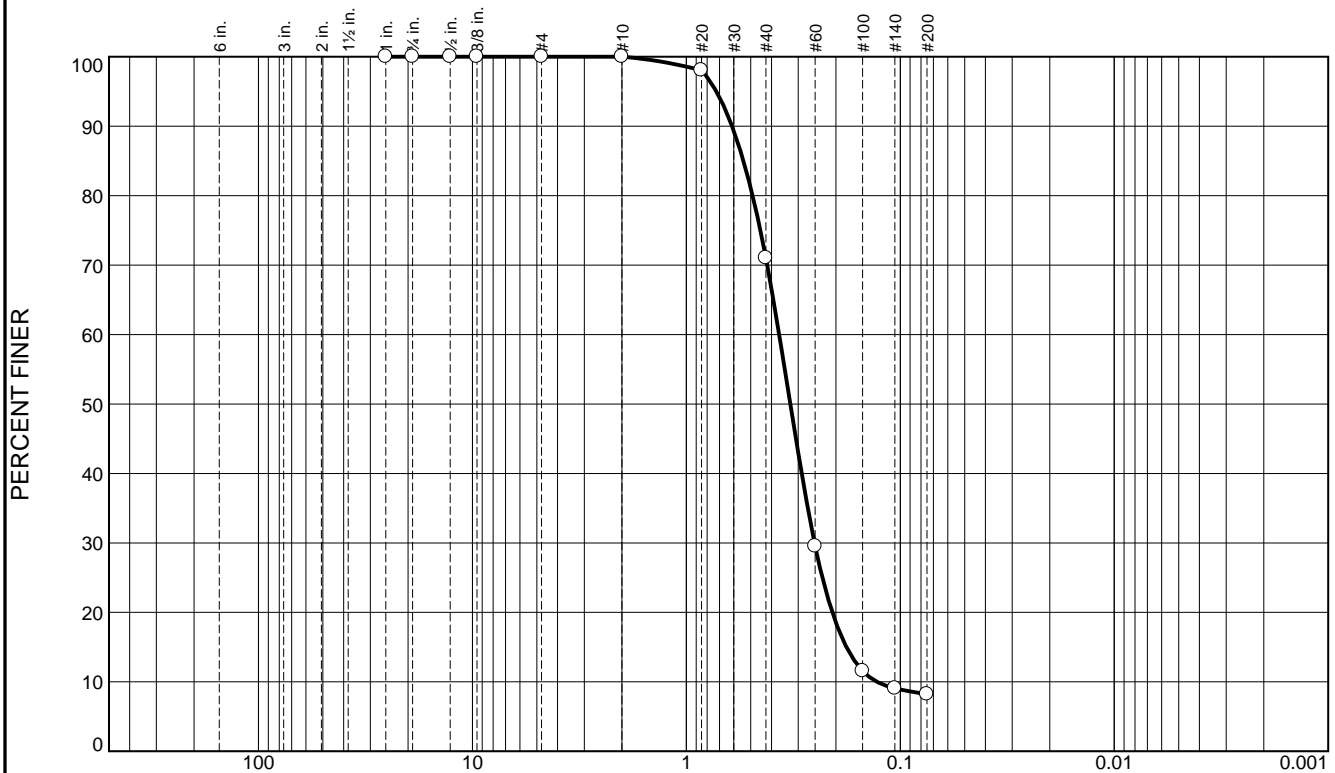
**Mobile, Alabama**

Client: CDM/Thompson Engineering JV  
Project: MsCIP Barrier Island Restoration GT

Project No: 1221110095

Figure

# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.0	0.0	29.0	62.8	8.2	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
1	100.0		
.75	100.0		
.5	100.0		
.375	100.0		
#4	100.0		
#10	100.0		
#20	98.0		
#40	71.0		
#60	29.5		
#100	11.6		
#140	9.1		
#200	8.2		

\* (no specification provided)

<u><b>Material Description</b></u>		
Fine to medium grained, SLIGHTLY SILTY SAND		
<u><b>Atterberg Limits</b></u>		
PL=	LL=	PI=
<u><b>Coefficients</b></u>		
D <sub>90</sub> = 0.6114	D <sub>85</sub> = 0.5409	D <sub>60</sub> = 0.3683
D <sub>50</sub> = 0.3267	D <sub>30</sub> = 0.2518	D <sub>15</sub> = 0.1787
D <sub>10</sub> = 0.1287	C <sub>u</sub> = 2.86	C <sub>c</sub> = 1.34
<u><b>Classification</b></u>		
USCS= SP-SM	AASHTO=	
<u><b>Remarks</b></u>		

Location: BI-PB-171-12 C  
Sample Number: 6480 (32)

Depth: 5.0'

Date: 12/07/12

**Thompson Engineering**

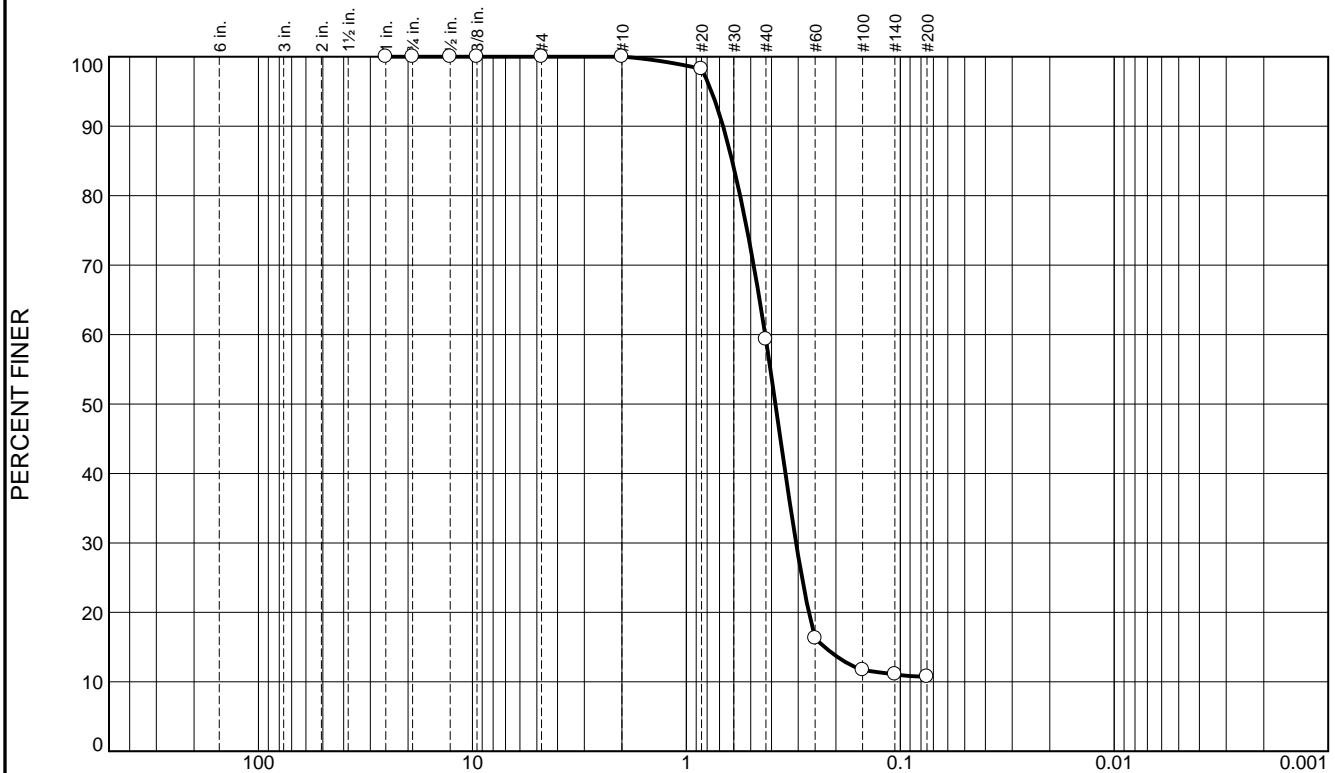
**Mobile, Alabama**

Client: CDM/Thompson Engineering JV  
Project: MsCIP Barrier Island Restoration GT

Project No: 1221110095

Figure

# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.0	0.0	40.7	48.5	10.8	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
1	100.0		
.75	100.0		
.5	100.0		
.375	100.0		
#4	100.0		
#10	100.0		
#20	98.2		
#40	59.3		
#60	16.3		
#100	11.7		
#140	11.1		
#200	10.8		

\* (no specification provided)

## Material Description

Fine to medium grained, SLIGHTLY SILTY SAND

## Atterberg Limits

PL= LL= PI=

## Coefficients

D<sub>90</sub>= 0.6739 D<sub>85</sub>= 0.6102 D<sub>60</sub>= 0.4283  
D<sub>50</sub>= 0.3833 D<sub>30</sub>= 0.3072 D<sub>15</sub>= 0.2255  
D<sub>10</sub>= C<sub>u</sub>= C<sub>c</sub>=

## Classification

USCS= SP-SM AASHTO=

## Remarks

Location: BI-PB-171-12 D  
Sample Number: 6480 (33)

Depth: 14.2'

Date: 12/07/12

**Thompson Engineering**

**Mobile, Alabama**

Client: CDM/Thompson Engineering JV  
Project: MsCIP Barrier Island Restoration GT

Project No: 1221110095

Figure

# Boring Designation BI-PB-172-12

DRILLING LOG		DIVISION South Atlantic		INSTALLATION Mobile District		SHEET 1 OF 1 SHEETS	
1. PROJECT MsCIP Barrier Island Restoration Petit Bois Pass- AL East				9. SIZE AND TYPE OF BIT N/A			
2. BORING DESIGNATION BI-PB-172-12		LOCATION COORDINATES E = 1,150,328 N = 257,845		10. COORDINATE SYSTEM/DATUM State Plane, MSE (U.S. Ft.)		HORIZONTAL NAD83	
3. DRILLING AGENCY Corps of Engineers - CESAM		CONTRACTOR FILE NO.		11. MANUFACTURER'S DESIGNATION OF DRILL Vibracore		<input type="checkbox"/> AUTO HAMMER <input type="checkbox"/> MANUAL HAMMER	
4. NAME OF DRILLER American Vibracore Systems, Inc.				12. TOTAL SAMPLES		DISTURBED 0	
5. DIRECTION OF BORING <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED				13. TOTAL NUMBER CORE BOXES		14. WATER DEPTH 30.1 Ft.	
6. THICKNESS OF OVERBURDEN N/A				15. DATE BORING		STARTED 12-05-12	
7. DEPTH DRILLED INTO ROCK N/A				16. ELEVATION TOP OF BORING -29.8 Ft.		COMPLETED 12-05-12	
8. TOTAL DEPTH OF BORING 10.9 Ft.				17. TOTAL RECOVERY FOR BORING 100%			
				18. SIGNATURE AND TITLE OF INSPECTOR Mike FitzHarris, Geologist			

ELEV.	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS	SAMPLE	LABORATORY RESULTS
-29.8	0.0				
-30.3	0.5			A	Classification: SP Color: 2.5Y 7/2-light gray D50: 0.351 mm % Fines: 0.3
			SAND, poorly-graded, mostly fine to medium-grained sand-sized quartz, trace shell fragments, pale brown (SP)	NS	
-32.9	3.1			B	Classification: SC Color: 2.5Y 5.5/2-brownish gray D50: 0.2973 mm % Fines: 19.9
-33.4	3.6		CLAY, lean, mostly clay, few fine-grained sand-sized quartz, medium plasticity, SP layer at 1.2 ft., gets sandier near 3.1 ft., gray mottled with brownish gray (CL)	C	Classification: SP Color: 2.5Y 6/2-light brownish gray D50: 0.2958 mm % Fines: 2.9
-35.0	5.2		SAND, poorly-graded with clay, mostly fine-grained sand-sized quartz, few clay, trace wood debris, clay band at 3.3 ft., gray (SP-SC)		
			SAND, poorly-graded with silt, mostly fine-grained sand-sized quartz, few silt, trace wood debris, gray (SP-SM)	D	Classification: SP-SM Color: 2.5Y 7/1-light gray D50: 0.2886 mm % Fines: 7.1
			SAND, poorly-graded, mostly fine to medium-grained sand-sized quartz, trace silt, very dense, lt. gray (SP)		
-40.7	10.9			NS	
NOTES: 1. Soils are field visually classified in accordance with the Unified Soils Classification System. 2. NS = Sample not submitted for laboratory analysis from this interval. 3. Sand was very dense. Stopped vibracore machine after 5 minutes due to lack of penetration. 4. Seafloor elevation calculated using sampling vessel's fathometer water depth reading and applying NOAA tidal gauge data conversion factor.					



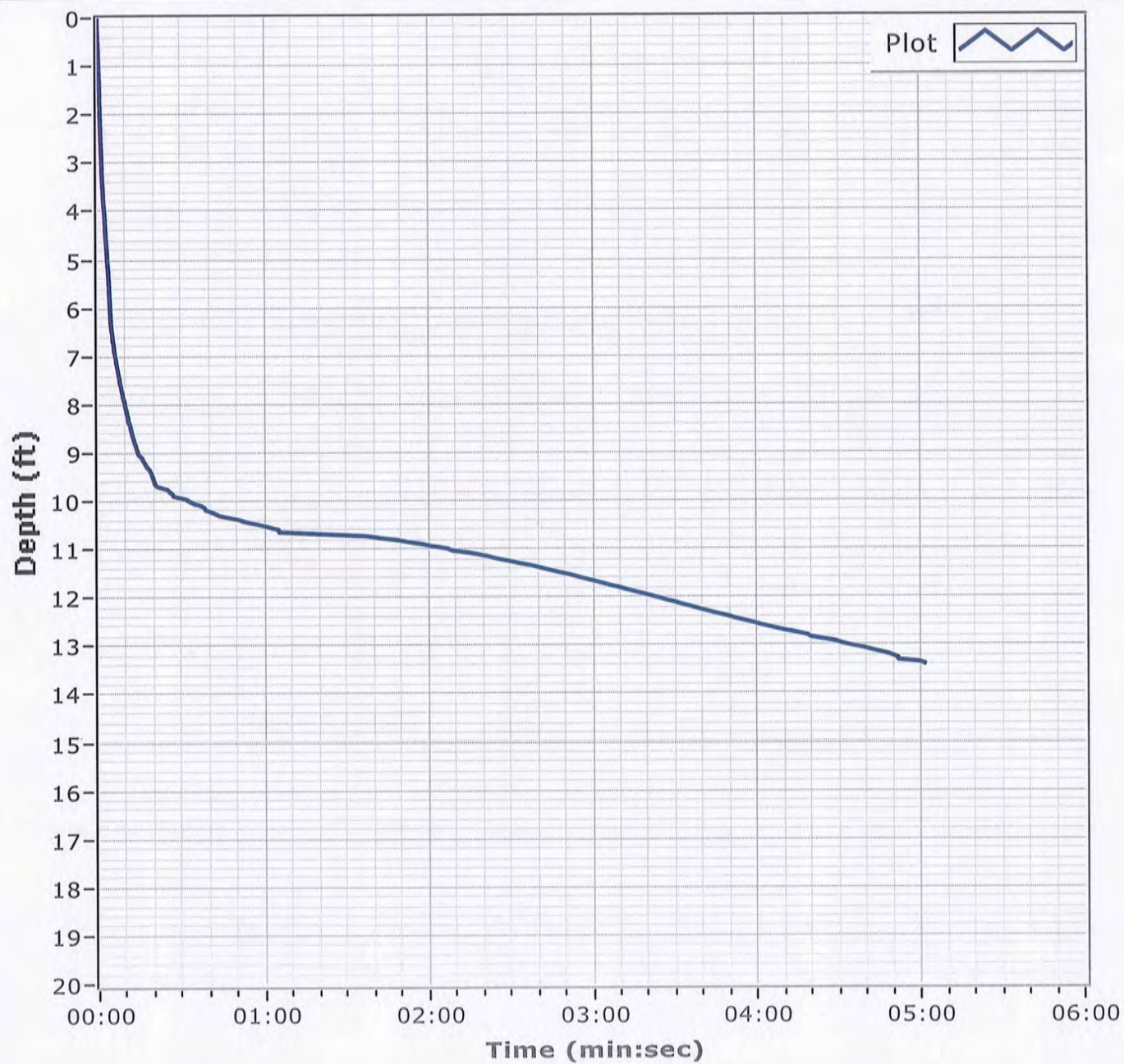
**Project**

Mississippi Barrier Island  
Restoration Project

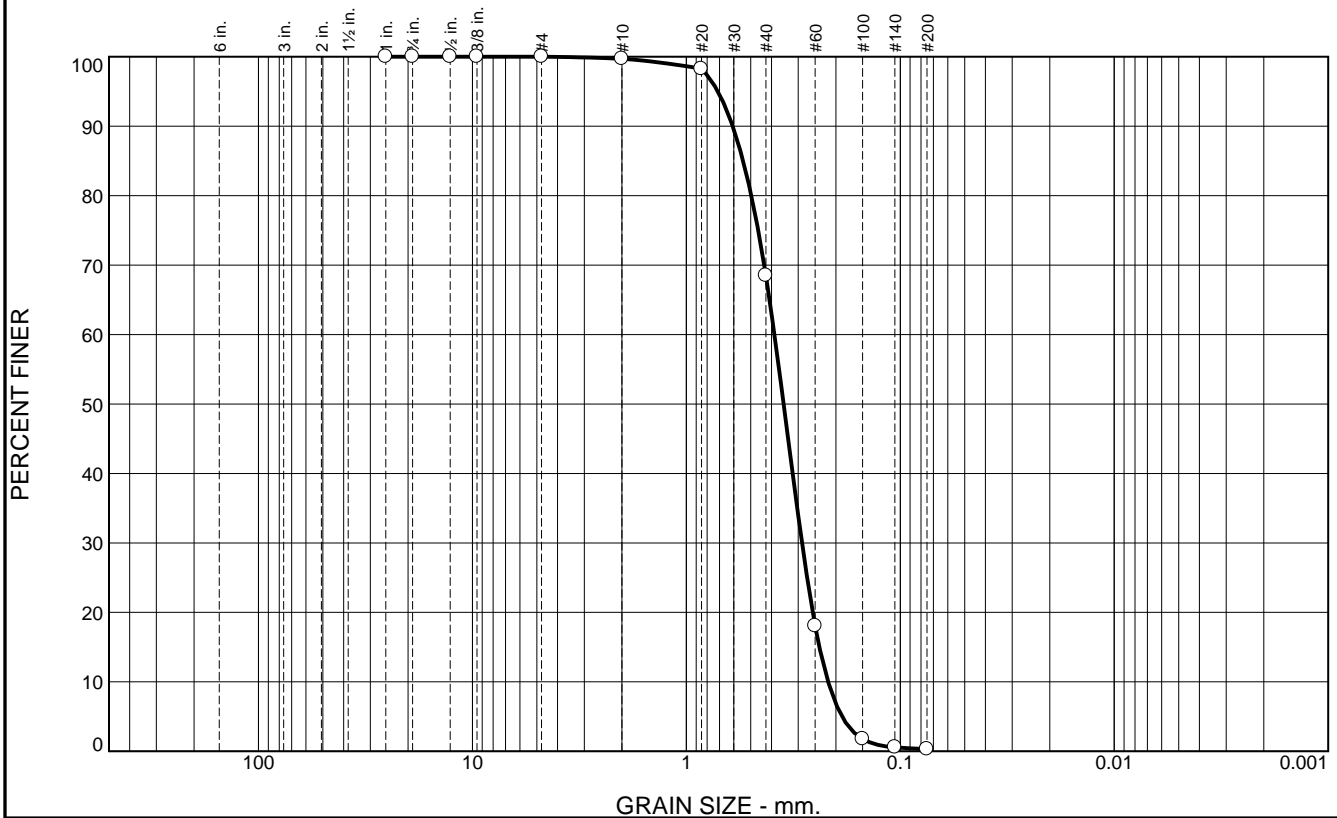
**AVS**  
**AMERICAN VIBRACORE**  
**S E R V I C E S**

**Core Identifier** BI-PB-172-12**Date** 12/05/2012**Water Depth** 30.1'**Coordinate System**

Latitude / Longitude

**Start Time** 13:10:32**End Time** 13:15:34**Penetration** 13.4'**Latitude** 30 12.478**Total Time** 00:05:02**Recovery** 10.9'**Longitude** 088 18.454**Comments**

# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.0	0.3	31.2	68.2	0.3	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
1	100.0		
.75	100.0		
.5	100.0		
.375	100.0		
#4	100.0		
#10	99.7		
#20	98.3		
#40	68.5		
#60	18.1		
#100	1.8		
#140	0.6		
#200	0.3		

\* (no specification provided)

<u><b>Material Description</b></u>		
Fine to medium grained, SAND		
<u><b>Atterberg Limits</b></u>		
PL=	LL=	PI=
<u><b>Coefficients</b></u>		
D <sub>90</sub> = 0.6071	D <sub>85</sub> = 0.5428	D <sub>60</sub> = 0.3875
D <sub>50</sub> = 0.3510	D <sub>30</sub> = 0.2881	D <sub>15</sub> = 0.2388
D <sub>10</sub> = 0.2173	C <sub>u</sub> = 1.78	C <sub>c</sub> = 0.99
<u><b>Classification</b></u>		
USCS= SP	AASHTO=	
<u><b>Remarks</b></u>		

Location: BI-PB-172-12 A  
Sample Number: 6480 (34)

Depth: 0.0'

Date: 12/07/12

**Thompson Engineering**

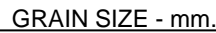
**Mobile, Alabama**

Client: CDM/Thompson Engineering JV  
Project: MsCIP Barrier Island Restoration GT

Project No: 1221110095

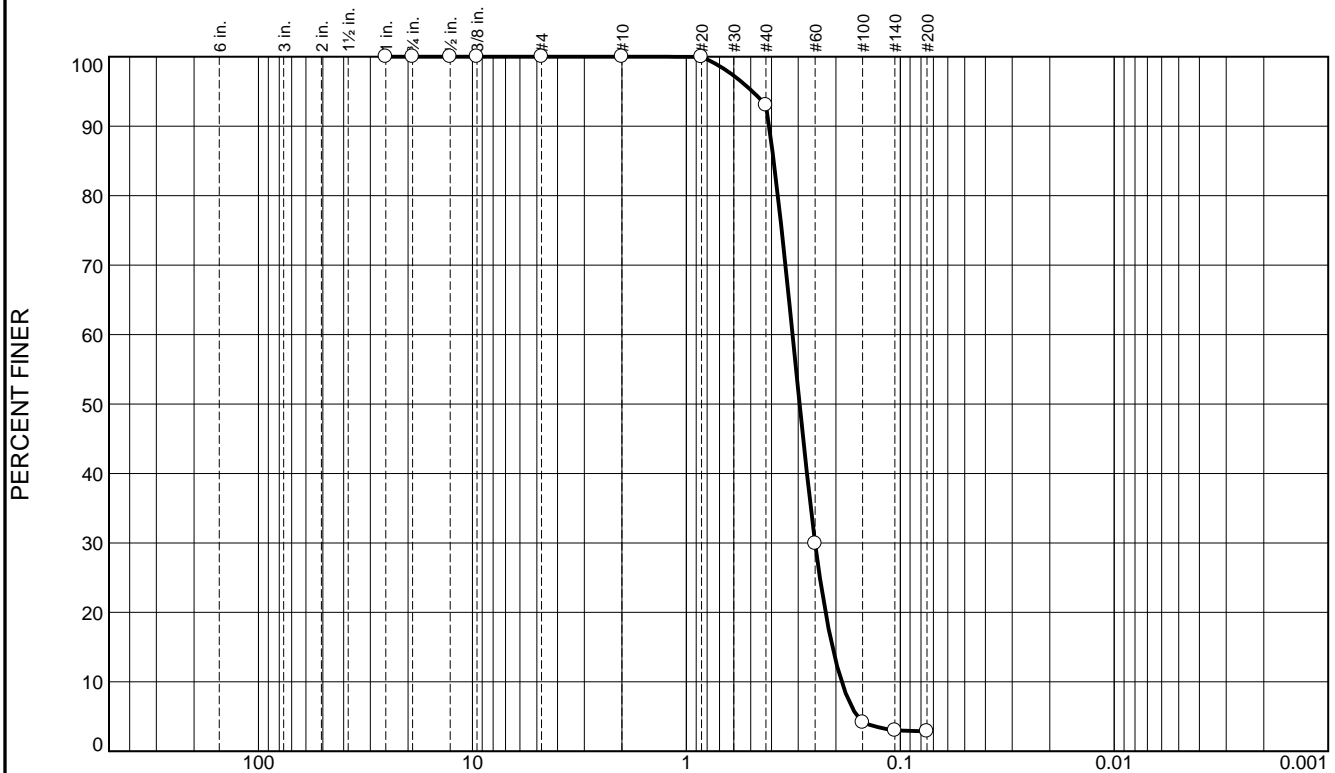
Figure

## PERCENT FINER



L-547

# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.0	0.0	7.0	90.1	2.9	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
1	100.0		
.75	100.0		
.5	100.0		
.375	100.0		
#4	100.0		
#10	100.0		
#20	100.0		
#40	93.0		
#60	29.9		
#100	4.1		
#140	3.0		
#200	2.9		

\* (no specification provided)

<u>Material Description</u>		
Fine grained, SAND		
PL=	<u>Atterberg Limits</u> LL=	PI=
<u>Coefficients</u>		
D <sub>90</sub> = 0.4105	D <sub>85</sub> = 0.3905	D <sub>60</sub> = 0.3190
D <sub>50</sub> = 0.2958	D <sub>30</sub> = 0.2502	D <sub>15</sub> = 0.2076
D <sub>10</sub> = 0.1880	C <sub>u</sub> = 1.70	C <sub>c</sub> = 1.04
<u>Classification</u>		
USCS= SP	AASHTO=	
<u>Remarks</u>		

Location: BI-PB-172-12 C  
Sample Number: 6480 (36)

Depth: 3.6'

Date: 12/07/12

**Thompson Engineering**

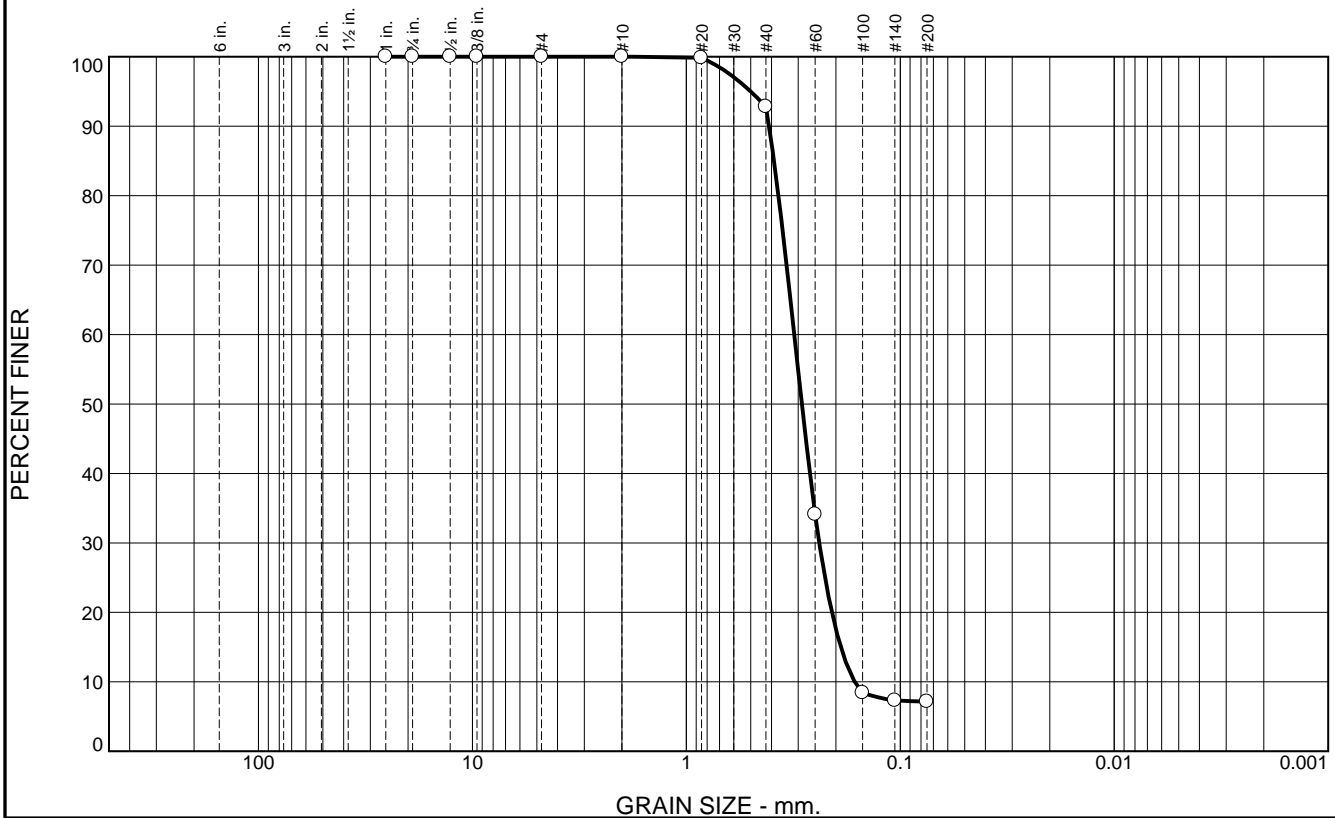
**Mobile, Alabama**

Client: CDM/Thompson Engineering JV  
Project: MsCIP Barrier Island Restoration GT

Project No: 1221110095

Figure

# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.0	0.0	7.2	85.7	7.1	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
1	100.0		
.75	100.0		
.5	100.0		
.375	100.0		
#4	100.0		
#10	100.0		
#20	99.8		
#40	92.8		
#60	34.1		
#100	8.4		
#140	7.3		
#200	7.1		

\* (no specification provided)

## Material Description

Fine to medium grained, SLIGHTLY SILTY SAND

## Atterberg Limits

PL= LL= PI=

## Coefficients

D<sub>90</sub>= 0.4107 D<sub>85</sub>= 0.3891 D<sub>60</sub>= 0.3132  
D<sub>50</sub>= 0.2886 D<sub>30</sub>= 0.2392 D<sub>15</sub>= 0.1898  
D<sub>10</sub>= 0.1635 C<sub>u</sub>= 1.92 C<sub>c</sub>= 1.12

## Classification

USCS= SP-SM AASHTO=

## Remarks

Location: BI-PB-172-12 D  
Sample Number: 6480 (37)

Depth: 5.2'

Date: 12/07/12

**Thompson Engineering**

**Mobile, Alabama**

Client: CDM/Thompson Engineering JV  
Project: MsCIP Barrier Island Restoration GT

Project No: 1221110095

Figure

# Boring Designation BI-PB-173-12

DRILLING LOG		DIVISION South Atlantic		INSTALLATION Mobile District		SHEET 1 OF 1 SHEETS	
1. PROJECT MsCIP Barrier Island Restoration Petit Bois Pass- AL East				9. SIZE AND TYPE OF BIT N/A			
2. BORING DESIGNATION BI-PB-173-12		LOCATION COORDINATES E = 1,154,122 N = 258,503		10. COORDINATE SYSTEM/DATUM State Plane, MSE (U.S. Ft.)		HORIZONTAL NAD83	
3. DRILLING AGENCY Corps of Engineers - CESAM		CONTRACTOR FILE NO.		11. MANUFACTURER'S DESIGNATION OF DRILL Vibracore		<input type="checkbox"/> AUTO HAMMER <input type="checkbox"/> MANUAL HAMMER	
4. NAME OF DRILLER American Vibracore Systems, Inc.				12. TOTAL SAMPLES		DISTURBED 0	
5. DIRECTION OF BORING <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED				13. TOTAL NUMBER CORE BOXES		14. WATER DEPTH 31.1 Ft.	
6. THICKNESS OF OVERBURDEN N/A				15. DATE BORING		STARTED 11-29-12	
7. DEPTH DRILLED INTO ROCK N/A				16. ELEVATION TOP OF BORING -30.9 Ft.		COMPLETED 11-29-12	
8. TOTAL DEPTH OF BORING 13.6 Ft.				17. TOTAL RECOVERY FOR BORING 100%			
				18. SIGNATURE AND TITLE OF INSPECTOR Mike FitzHarris, Geologist			
ELEV.	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS	SAMPLE	LABORATORY RESULTS		
-30.9	0.0						
-31.7	0.8		SAND, poorly-graded, mostly fine to medium-grained sand-sized quartz, trace silt, lt. brown to gray (SP)	A	Classification: SP Color: 2.5Y 7/2-light gray D50: 0.3643 mm % Fines: 1.4		
-32.8	1.9			NS			
-34.0	3.1		SAND, clayey, mostly fine-grained sand-sized quartz, trace silt, gray (SC)	B	Classification: SM Color: 2.5Y 6/2-light brownish gray D50: 0.3054 mm % Fines: 17.8		
				NS			
			SAND, poorly-graded with clay, mostly fine-grained sand-sized quartz, little clay, trace silt, gray (SP-SC)				
			SAND, poorly-graded, mostly fine to medium-grained sand-sized quartz, trace silt, orange staining from 3.6 to 4.9 ft., lt. gray to white (SP)	C	Classification: SP Color: 2.5Y 8/2-pale yellow D50: 0.3463 mm % Fines: 2		
				D	Classification: SP Color: 5Y 8/1-white D50: 0.3297 mm % Fines: 1.7		
-44.5	13.6			NS			
NOTES: 1. Soils are field visually classified in accordance with the Unified Soils Classification System. 2. NS = Sample not submitted for laboratory analysis from this interval. 3. Seafloor elevation calculated using sampling vessel's fathometer water depth reading and applying NOAA tidal gauge data conversion factor.							



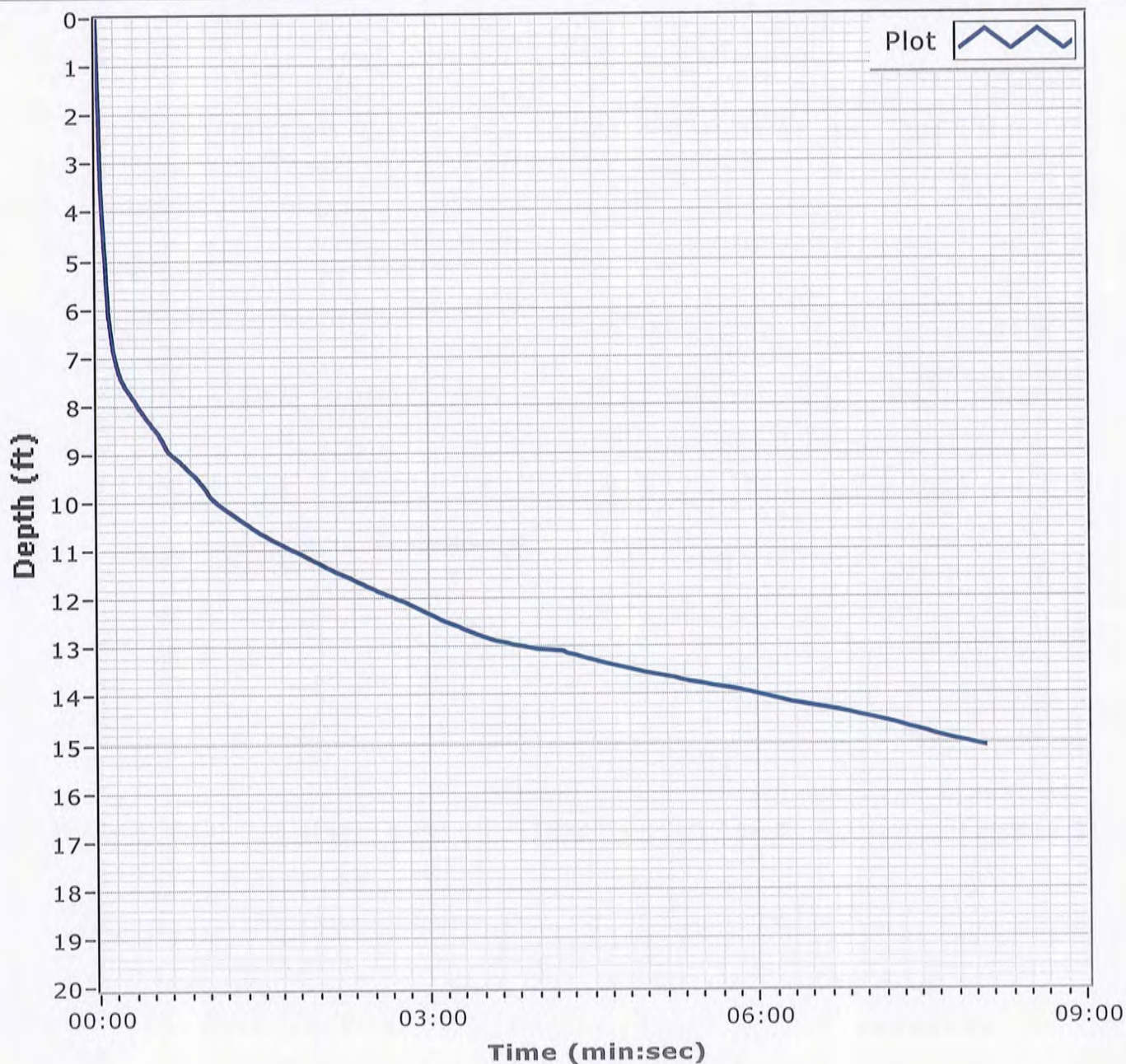
**Project**

Mississippi Barrier Island  
Restoration Project

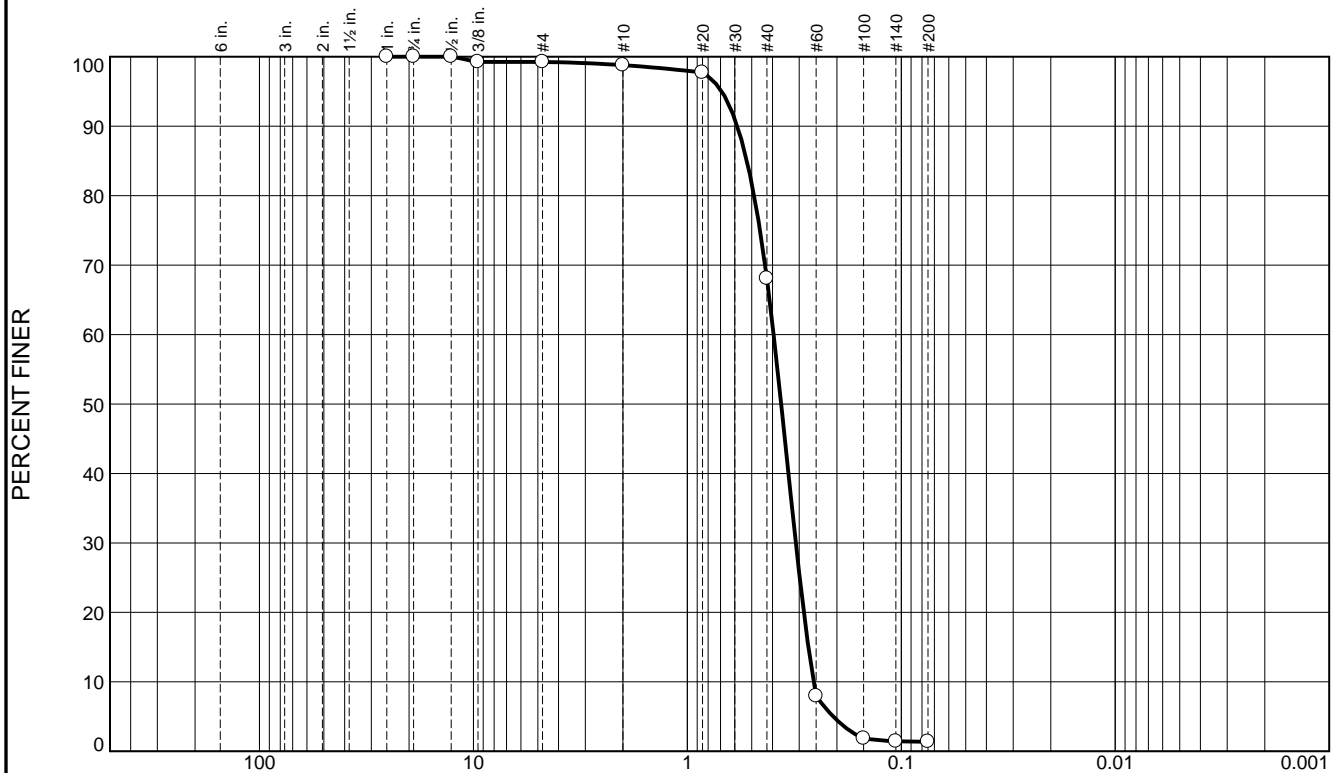
**AVS**  
**AMERICAN VIBRACORE**  
**S E R V I C E S**

**Core Identifier** BI-PB-173-12**Date** 11/29/2012**Water Depth** 31.1'**Coordinate System**

Latitude / Longitude

**Start Time** 15:10:11**End Time** 15:18:16**Penetration** 15.1'**Latitude** 30 12.584**Total Time** 00:08:05**Recovery** 13.6'**Longitude** 088 17.733**Comments**

# Particle Size Distribution Report



GRAIN SIZE - mm.

% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.8	0.4	30.7	66.7	1.4	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
1	100.0		
.75	100.0		
.5	100.0		
.375	99.2		
#4	99.2		
#10	98.8		
#20	97.7		
#40	68.1		
#60	7.9		
#100	1.9		
#140	1.4		
#200	1.4		

\* (no specification provided)

## Material Description

Fine to medium grained, SAND

## Atterberg Limits

PL= LL= PI=

## Coefficients

D<sub>90</sub>= 0.5839 D<sub>85</sub>= 0.5268 D<sub>60</sub>= 0.3951  
D<sub>50</sub>= 0.3643 D<sub>30</sub>= 0.3113 D<sub>15</sub>= 0.2721  
D<sub>10</sub>= 0.2570 C<sub>u</sub>= 1.54 C<sub>c</sub>= 0.95

## Classification

USCS= SP AASHTO=

## Remarks

Location: BI-PB-173-12 A  
Sample Number: 6471 (41)

Depth: 0.0'

Date: 12/03/12

**Thompson Engineering**

**Mobile, Alabama**

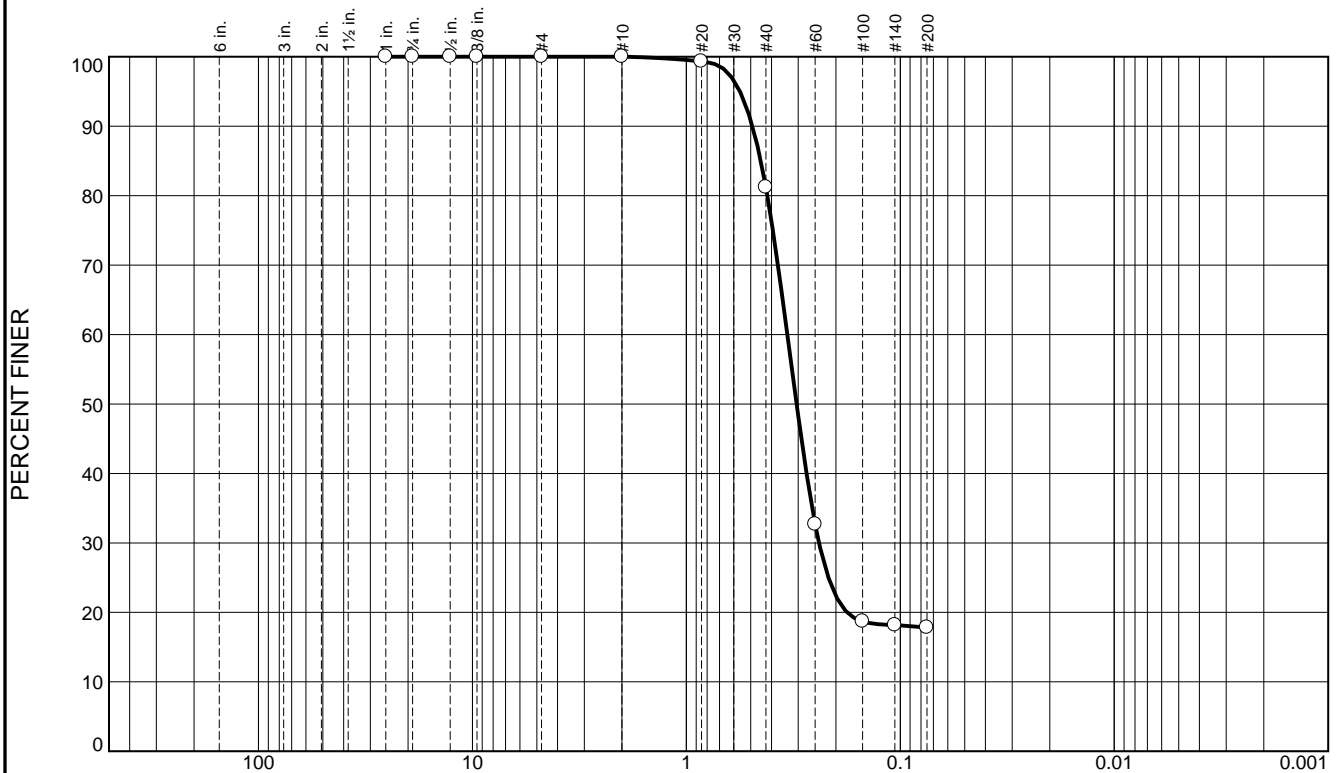
Client: CDM/Thompson Engineering JV  
Project: MsCIP Barrier Island Restoration GT

Project No: 1221110095

Figure



# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.0	0.0	18.8	63.4	17.8	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
1	100.0		
.75	100.0		
.5	100.0		
.375	100.0		
#4	100.0		
#10	100.0		
#20	99.3		
#40	81.2		
#60	32.7		
#100	18.7		
#140	18.2		
#200	17.8		

\* (no specification provided)

<u><b>Material Description</b></u>		
Fine to medium grained, SILTY SAND		
<u><b>Atterberg Limits</b></u>		
PL=	LL=	PI=
<u><b>Coefficients</b></u>		
D <sub>90</sub> = 0.4912	D <sub>85</sub> = 0.4489	D <sub>60</sub> = 0.3373
D <sub>50</sub> = 0.3054	D <sub>30</sub> = 0.2398	D <sub>15</sub> =
D <sub>10</sub> =	C <sub>u</sub> =	C <sub>c</sub> =
<u><b>Classification</b></u>		
USCS= SM	AASHTO=	
<u><b>Remarks</b></u>		

Location: BI-PB-173-12 B  
Sample Number: 6471 (42)

Depth: 1.9'

Date: 12/03/12

**Thompson Engineering**

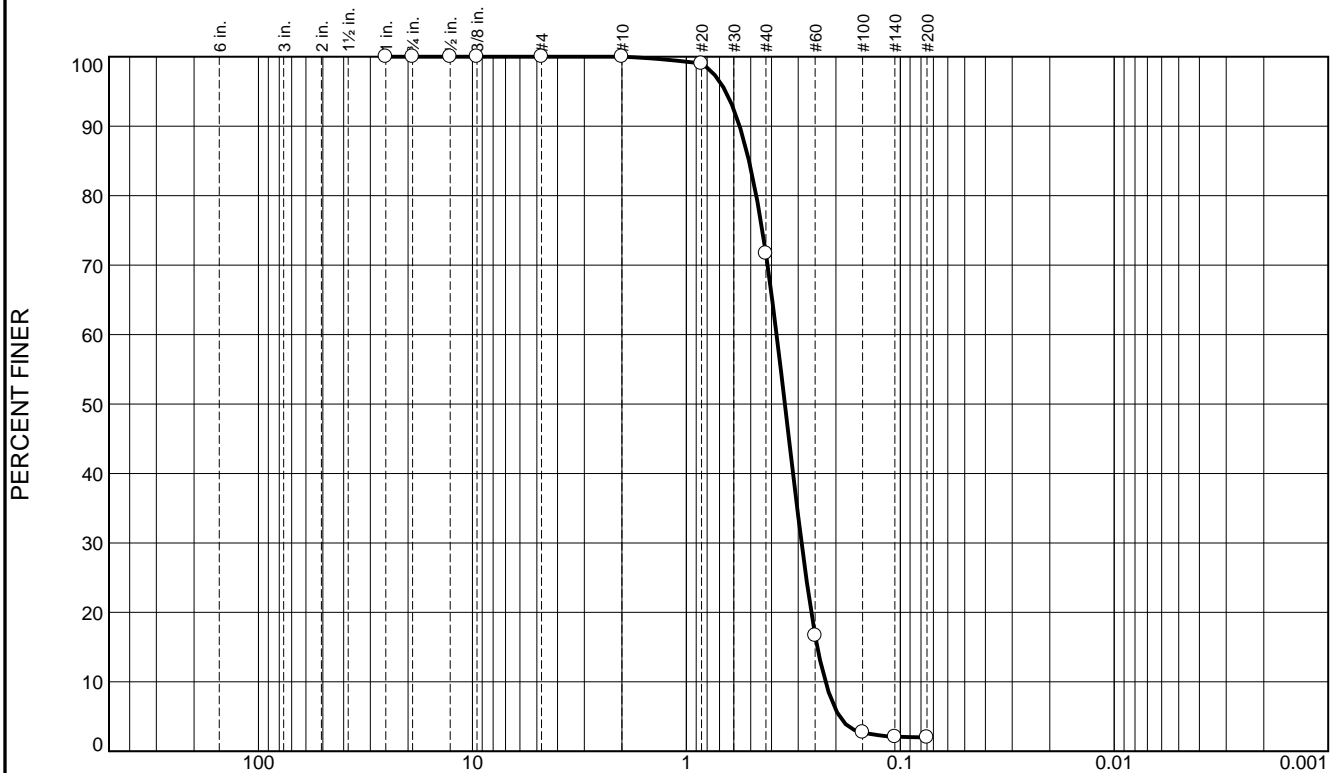
**Mobile, Alabama**

Client: CDM/Thompson Engineering JV  
Project: MsCIP Barrier Island Restoration GT

Project No: 1221110095

Figure

# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.0	0.0	28.3	69.7	2.0	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
1	100.0		
.75	100.0		
.5	100.0		
.375	100.0		
#4	100.0		
#10	100.0		
#20	99.0		
#40	71.7		
#60	16.7		
#100	2.7		
#140	2.1		
#200	2.0		

\* (no specification provided)

## Material Description

Fine to medium grained, SAND

## Atterberg Limits

PL= LL= PI=

## Coefficients

D<sub>90</sub>= 0.5635 D<sub>85</sub>= 0.5096 D<sub>60</sub>= 0.3785  
D<sub>50</sub>= 0.3463 D<sub>30</sub>= 0.2896 D<sub>15</sub>= 0.2442  
D<sub>10</sub>= 0.2238 C<sub>u</sub>= 1.69 C<sub>c</sub>= 0.99

## Classification

USCS= SP AASHTO=

## Remarks

Location: BI-PB-173-12 C  
Sample Number: 6471 (43)

Depth: 3.6'

Date: 12/03/12

**Thompson Engineering**

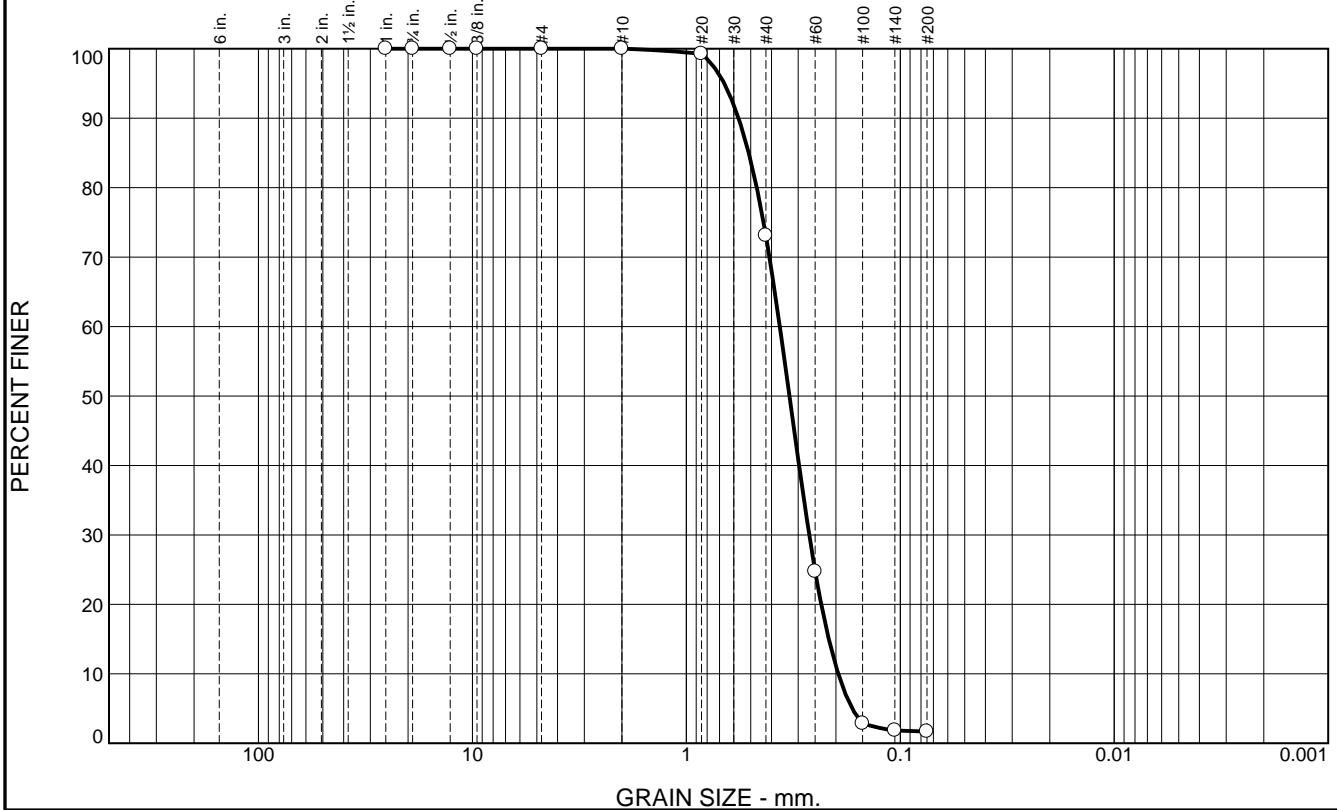
**Mobile, Alabama**

Client: CDM/Thompson Engineering JV  
Project: MsCIP Barrier Island Restoration GT

Project No: 1221110095

Figure

# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.0	0.0	26.9	71.4	1.7	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
1	100.0		
.75	100.0		
.5	100.0		
.375	100.0		
#4	100.0		
#10	100.0		
#20	99.3		
#40	73.1		
#60	24.7		
#100	2.9		
#140	1.8		
#200	1.7		

\* (no specification provided)

**Material Description**  
Fine to medium grained, SAND

**Atterberg Limits**  
PL=      LL=      PI=

**Coefficients**  
D<sub>90</sub>= 0.5699      D<sub>85</sub>= 0.5111      D<sub>60</sub>= 0.3656  
D<sub>50</sub>= 0.3297      D<sub>30</sub>= 0.2666      D<sub>15</sub>= 0.2159  
D<sub>10</sub>= 0.1950      C<sub>u</sub>= 1.88      C<sub>c</sub>= 1.00

**Classification**  
USCS= SP      AASHTO=

**Remarks**

Location: BI-PB-173-12 D  
Sample Number: 6471 (44)

Depth: 8.6'

Date: 12/03/12

**Thompson Engineering**


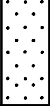
**Mobile, Alabama**

Client: CDM/Thompson Engineering JV  
Project: MsCIP Barrier Island Restoration GT

Project No: 1221110095

Figure

# Boring Designation BI-PB-174-12

DRILLING LOG		DIVISION South Atlantic		INSTALLATION Mobile District		SHEET 1 OF 1 SHEETS	
1. PROJECT MsCIP Barrier Island Restoration Petit Bois Pass- AL East				9. SIZE AND TYPE OF BIT N/A			
2. BORING DESIGNATION BI-PB-174-12		LOCATION COORDINATES E = 1,152,596 N = 258,565		10. COORDINATE SYSTEM/DATUM State Plane, MSE (U.S. Ft.)		HORIZONTAL NAD83	
3. DRILLING AGENCY Corps of Engineers - CESAM		CONTRACTOR FILE NO.		11. MANUFACTURER'S DESIGNATION OF DRILL Vibracore		<input type="checkbox"/> AUTO HAMMER <input type="checkbox"/> MANUAL HAMMER	
4. NAME OF DRILLER American Vibracore Systems, Inc.				12. TOTAL SAMPLES		DISTURBED 0	
5. DIRECTION OF BORING <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED				13. TOTAL NUMBER CORE BOXES		14. WATER DEPTH 30.9 Ft.	
6. THICKNESS OF OVERBURDEN N/A				15. DATE BORING		STARTED 11-29-12	
7. DEPTH DRILLED INTO ROCK N/A				16. ELEVATION TOP OF BORING -30.5 Ft.		COMPLETED 11-29-12	
8. TOTAL DEPTH OF BORING 7.3 Ft.				17. TOTAL RECOVERY FOR BORING 100%		18. SIGNATURE AND TITLE OF INSPECTOR Mike FitzHarris, Geologist	
ELEV.	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS	SAMPLE	LABORATORY RESULTS		
-30.5	0.0						
-31.0	0.5						
-35.1	4.6		SAND, poorly-graded, mostly fine to medium-grained sand-sized quartz, trace silt, lt. brown (SP)  CLAY, fat, mostly clay, trace fine-grained sand-sized quartz, trace silt, trace wood debris, medium to high plasticity, gray mottled with orange and greenish gray (CH)	NS			
-37.8	7.3		SAND, poorly-graded, mostly fine to medium-grained sand-sized quartz, trace silt, trace clay, trace wood debris, lt. gray with orange stains (SP)				
NOTES: 1. Soils are field visually classified in accordance with the Unified Soils Classification System. 2. NS = Sample not submitted for laboratory analysis from this interval. 3. Sand was extremely dense and vibracore could not advance past 7.3 ft. 4. Seafloor elevation calculated using sampling vessel's fathometer water depth reading and applying NOAA tidal gauge data conversion factor.							

**Project**

Mississippi Barrier Island  
Restoration Project

**AVS**  
**AMERICAN VIBRACORE**  
**S E R V I C E S**

**Core Identifier** BI-PB-174-12

**Date** 11/29/2012

**Water Depth** 30.9'

**Coordinate System**

Latitude / Longitude

**Start Time** 15:52:22

**End Time** 15:58:34

**Penetration** 13.0'

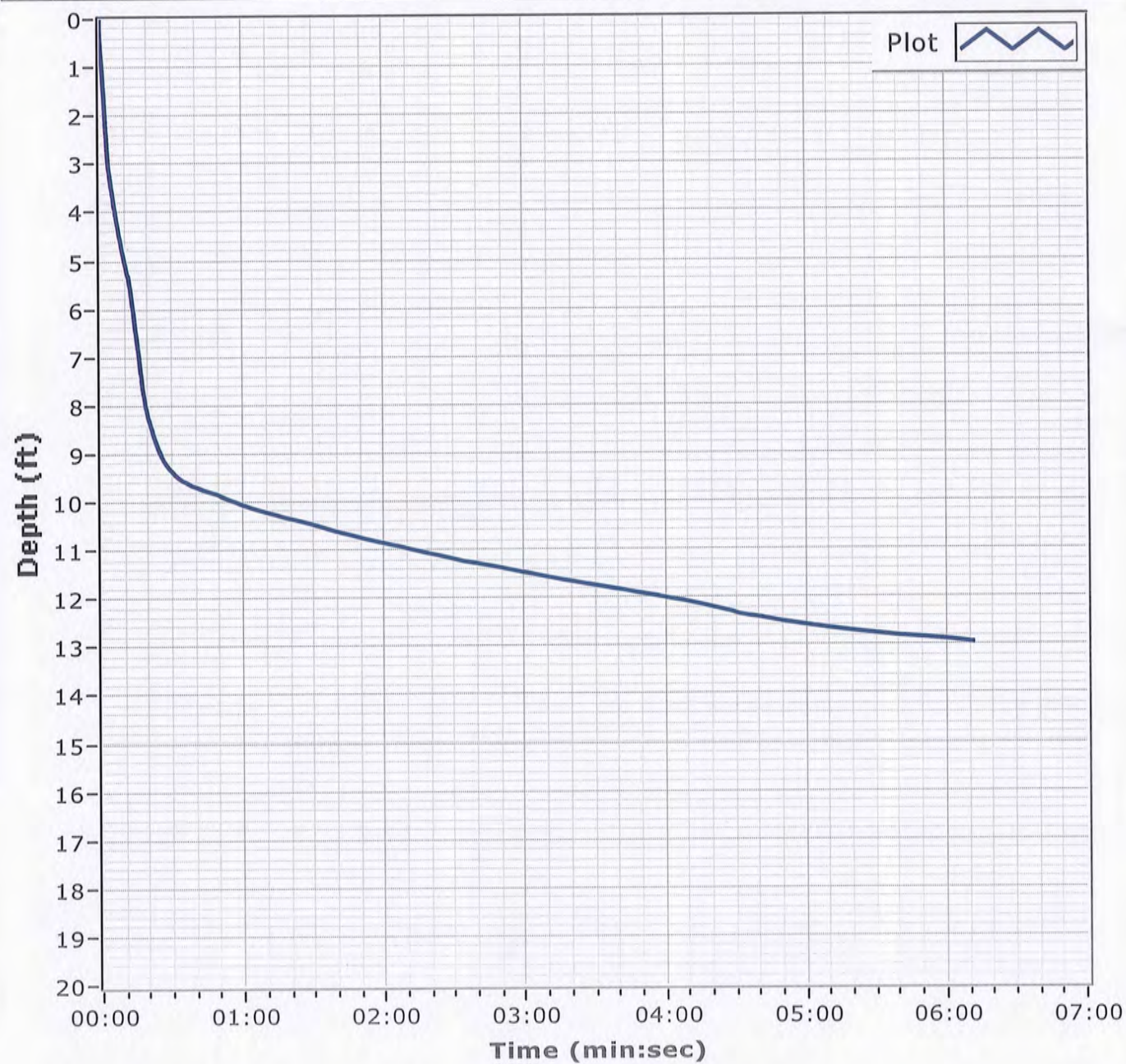
**Latitude** 30 12.595

**Total Time** 00:06:12

**Recovery** 7.3'

**Longitude** 088 18.023

**Comments**



# Boring Designation BI-PB-175-12

DRILLING LOG		DIVISION South Atlantic		INSTALLATION Mobile District		SHEET 1 OF 1 SHEETS	
1. PROJECT MsCIP Barrier Island Restoration Petit Bois Pass- AL East				9. SIZE AND TYPE OF BIT N/A			
2. BORING DESIGNATION BI-PB-175-12		LOCATION COORDINATES E = 1,151,225 N = 257,886		10. COORDINATE SYSTEM/DATUM State Plane, MSE (U.S. Ft.)		HORIZONTAL NAD83 VERTICAL NAVD88	
3. DRILLING AGENCY Corps of Engineers - CESAM		CONTRACTOR FILE NO.		11. MANUFACTURER'S DESIGNATION OF DRILL Vibracore		<input type="checkbox"/> AUTO HAMMER <input type="checkbox"/> MANUAL HAMMER	
4. NAME OF DRILLER American Vibracore Systems, Inc.				12. TOTAL SAMPLES		DISTURBED UNDISTURBED (UD)	
5. DIRECTION OF BORING <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED				13. TOTAL NUMBER CORE BOXES		0	
6. THICKNESS OF OVERBURDEN N/A				14. WATER DEPTH 30.1 Ft.		15. DATE BORING STARTED 12-05-12 COMPLETED 12-05-12	
7. DEPTH DRILLED INTO ROCK N/A				16. ELEVATION TOP OF BORING -29.7 Ft.		17. TOTAL RECOVERY FOR BORING 100%	
8. TOTAL DEPTH OF BORING 15.8 Ft.				18. SIGNATURE AND TITLE OF INSPECTOR Mike FitzHarris, Geologist			

ELEV.	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS	SAMPLE	LABORATORY RESULTS
-29.7	0.0				
-30.0	0.3				
-30.7	1.0		SAND, poorly-graded, mostly fine to medium-grained sand-sized quartz, trace silt, trace shell fragments, pale brown (SP)	NS	
			SAND, silty, mostly fine-grained sand-sized quartz, some silt, gray (SM)		
-33.9	4.2		CLAY, fat, mostly clay, trace wood debris, medium to high plasticity, trace fine grain sandy pockets, gray (CH)	A	Classification: SM Color: 2.5Y 6/2-light brownish gray D50: 0.3147 mm % Fines: 12.1
-35.5	5.8		SAND, poorly-graded with silt, mostly fine to medium-grained sand-sized quartz, few silt, trace clay, gray (SP-SM)	B	Classification: SP-SM Color: 2.5Y 7/1-light gray D50: 0.3027 mm % Fines: 5.7
			SAND, poorly-graded, mostly fine to medium-grained sand-sized quartz, trace clay, trace clay lenses, lt. gray (SP) At El. -38.0 Ft., mostly fine to medium-grained sand-sized quartz, trace silt, dense, lt. gray to white	C	Classification: SP Color: 2.5Y 7/2-light gray D50: 0.3228 mm % Fines: 2.7
			At El. -41.0 Ft., mostly fine to medium-grained sand-sized quartz, trace silt, trace clay, dense, clay band at 15.7 ft., lt. gray	D	Classification: SP Color: 2.5Y 8/1-white D50: 0.3078 mm % Fines: 3.8
-45.5	15.8			NS	
NOTES: 1. Soils are field visually classified in accordance with the Unified Soils Classification System. 2. NS = Sample not submitted for laboratory analysis from this interval. 3. Buoy approximately 150 m SE of boring location. 4. Seafloor elevation calculated using sampling vessel's fathometer water depth reading and applying NOAA tidal gauge data conversion factor.					



**Project**

Mississippi Barrier Island  
Restoration Project

**AVS**  
**AMERICAN VIBRACORE**  
**S E R V I C E S**

**Core Identifier** BI-PB-175-12

**Date** 12/05/2012

**Water Depth** 30.1'

**Coordinate System**

**Start Time** 14:03:56

**Penetration** 17.4'

Latitude / Longitude

**End Time** 14:11:01

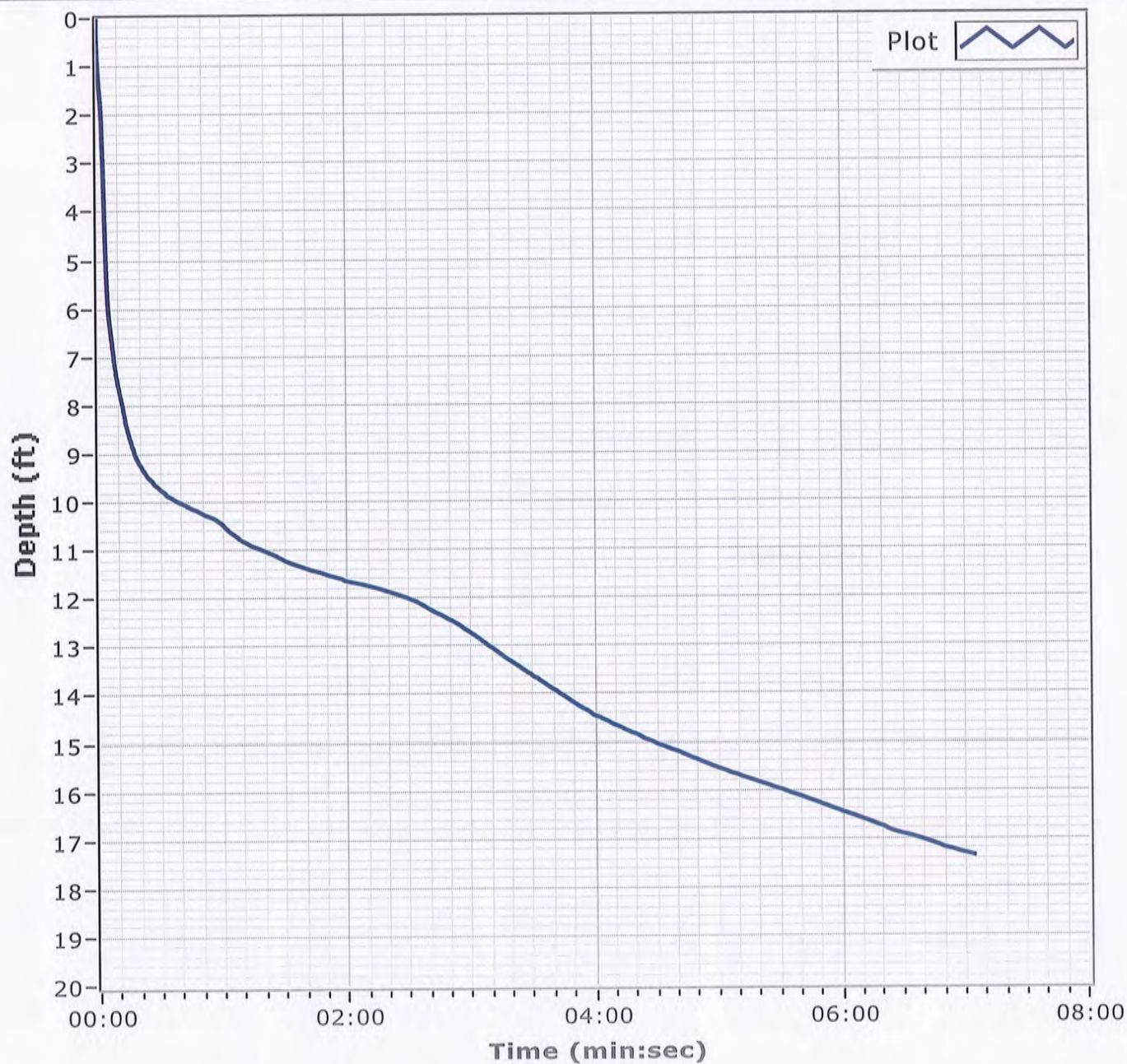
**Recovery** 15.8'

**Latitude** 30 12.484

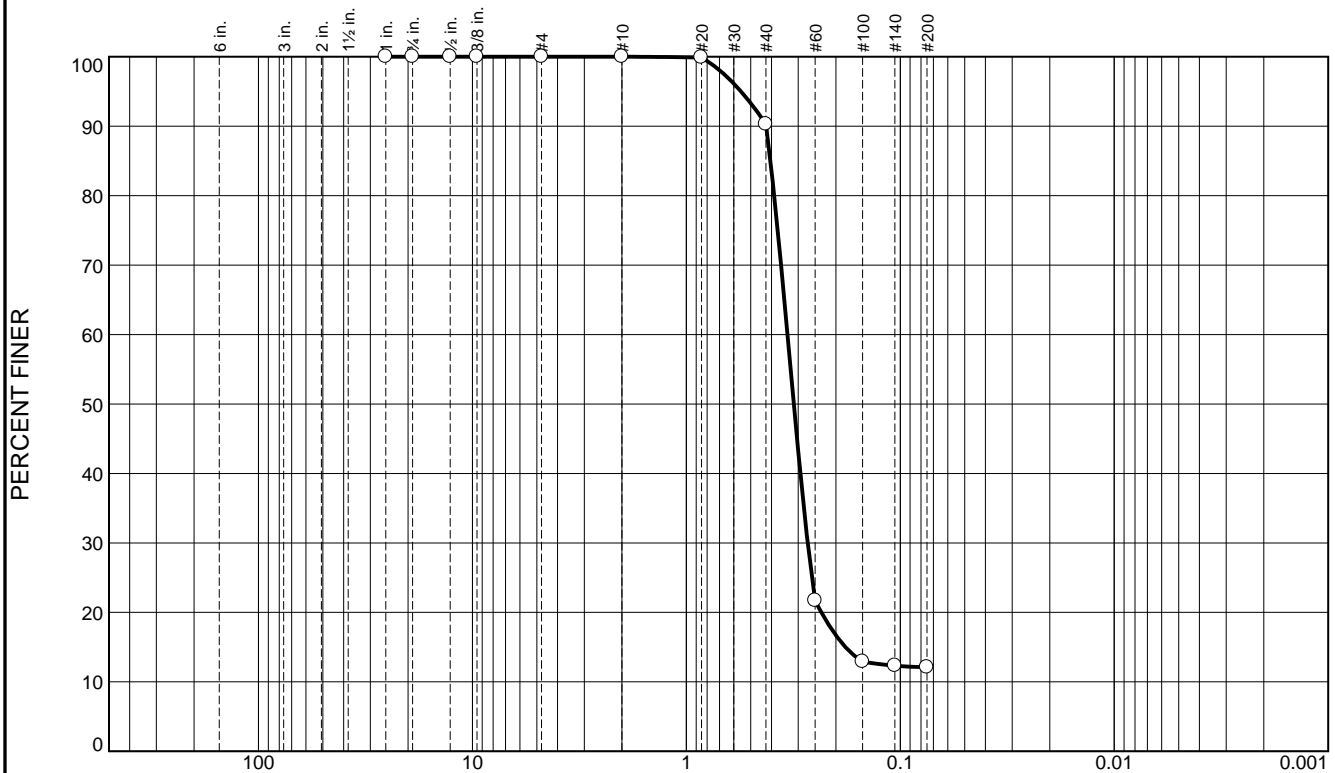
**Total Time** 00:07:05

**Longitude** 088 18.284

**Comments**



# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.0	0.0	9.7	78.2	12.1	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
1	100.0		
.75	100.0		
.5	100.0		
.375	100.0		
#4	100.0		
#10	100.0		
#20	99.9		
#40	90.3		
#60	21.7		
#100	12.9		
#140	12.3		
#200	12.1		

\* (no specification provided)

<u><b>Material Description</b></u>		
Fine grained, SILTY SAND		
<u><b>Atterberg Limits</b></u>		
PL=	LL=	PI=
<u><b>Coefficients</b></u>		
D <sub>90</sub> = 0.4238	D <sub>85</sub> = 0.4046	D <sub>60</sub> = 0.3368
D <sub>50</sub> = 0.3147	D <sub>30</sub> = 0.2712	D <sub>15</sub> = 0.1806
D <sub>10</sub> =	C <sub>u</sub> =	C <sub>c</sub> =
<u><b>Classification</b></u>		
USCS= SM	AASHTO=	
<u><b>Remarks</b></u>		

Location: BI-PB-175-12 A  
Sample Number: 6480 (38)

Depth: 4.2'

Date: 12/07/12

**Thompson Engineering**

**Mobile, Alabama**

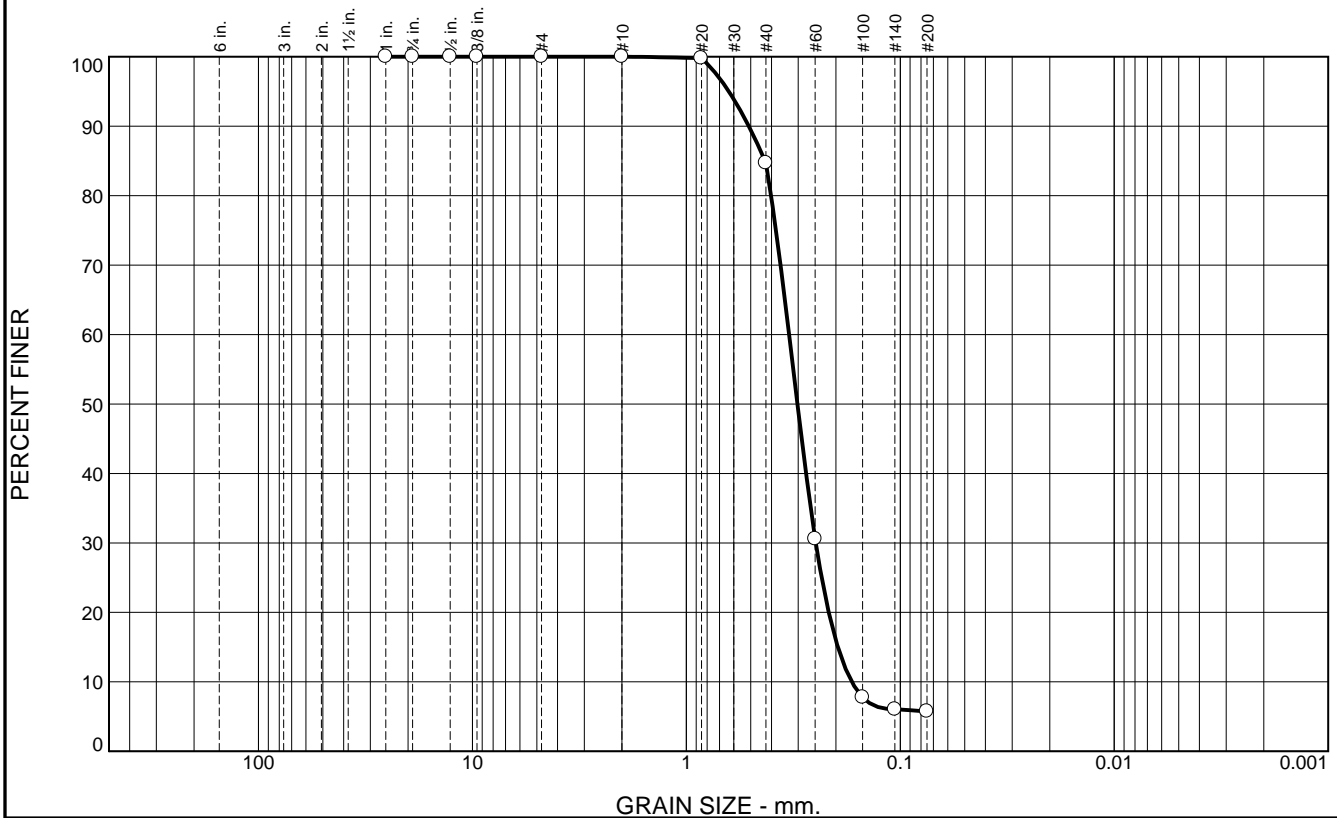
Client: CDM/Thompson Engineering JV  
Project: MsCIP Barrier Island Restoration GT

Project No: 1221110095

Figure



# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.0	0.0	15.3	79.0	5.7	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
1	100.0		
.75	100.0		
.5	100.0		
.375	100.0		
#4	100.0		
#10	100.0		
#20	99.8		
#40	84.7		
#60	30.6		
#100	7.8		
#140	6.0		
#200	5.7		

\* (no specification provided)

## Material Description

Fine to medium grained, SLIGHTLY SILTY SAND

## Atterberg Limits

PL= LL= PI=

## Coefficients

D<sub>90</sub>= 0.5108 D<sub>85</sub>= 0.4291 D<sub>60</sub>= 0.3310  
D<sub>50</sub>= 0.3027 D<sub>30</sub>= 0.2483 D<sub>15</sub>= 0.1959  
D<sub>10</sub>= 0.1688 C<sub>u</sub>= 1.96 C<sub>c</sub>= 1.10

## Classification

USCS= SP-SM AASHTO=

## Remarks

Location: BI-PB-175-12 B  
Sample Number: 6480 (39)

Depth: 5.8'

Date: 12/07/12

**Thompson Engineering**

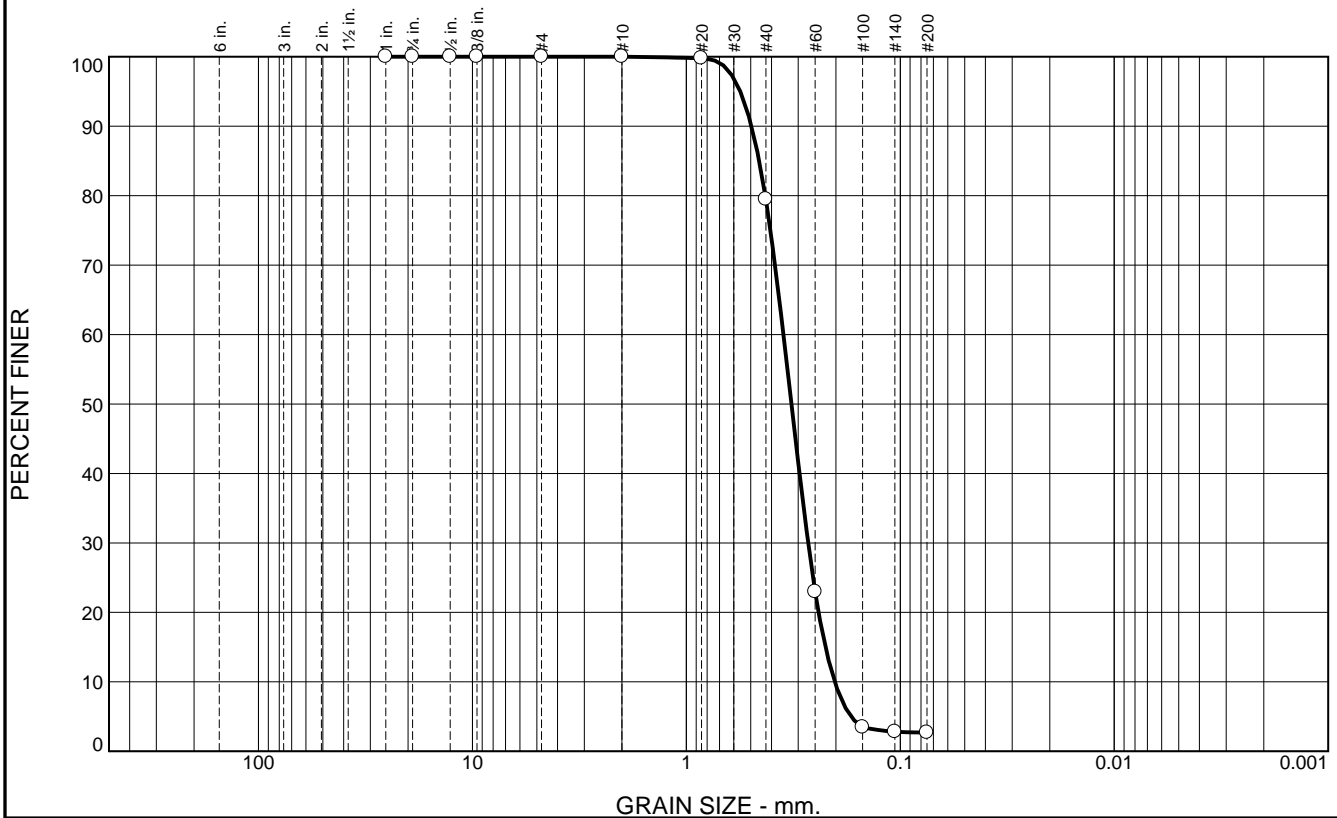
**Mobile, Alabama**

Client: CDM/Thompson Engineering JV  
Project: MsCIP Barrier Island Restoration GT

Project No: 1221110095

Figure

# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.0	0.0	20.5	76.8	2.7	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
1	100.0		
.75	100.0		
.5	100.0		
.375	100.0		
#4	100.0		
#10	100.0		
#20	99.8		
#40	79.5		
#60	23.0		
#100	3.5		
#140	2.8		
#200	2.7		

\* (no specification provided)

<u><b>Material Description</b></u>		
Fine to medium grained, SAND		
<u><b>Atterberg Limits</b></u>		
PL=	LL=	PI=
<u><b>Coefficients</b></u>		
D <sub>90</sub> = 0.4962	D <sub>85</sub> = 0.4567	D <sub>60</sub> = 0.3517
D <sub>50</sub> = 0.3228	D <sub>30</sub> = 0.2697	D <sub>15</sub> = 0.2237
D <sub>10</sub> = 0.2025	C <sub>u</sub> = 1.74	C <sub>c</sub> = 1.02
<u><b>Classification</b></u>		
USCS= SP	AASHTO=	
<u><b>Remarks</b></u>		

Location: BI-PB-175-12 C  
Sample Number: 6480 (40)

Depth: 8.3'

Date: 12/07/12

**Thompson Engineering**

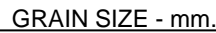
**Mobile, Alabama**

Client: CDM/Thompson Engineering JV  
Project: MsCIP Barrier Island Restoration GT

Project No: 1221110095

Figure

## PERCENT FINER



L-563

# Boring Designation BI-PB-176-12

DRILLING LOG		DIVISION South Atlantic		INSTALLATION Mobile District		SHEET 1 OF 1 SHEETS	
1. PROJECT MsCIP Barrier Island Restoration Petit Bois Pass- AL East				9. SIZE AND TYPE OF BIT N/A			
2. BORING DESIGNATION BI-PB-176-12		LOCATION COORDINATES E = 1,153,461 N = 257,951		10. COORDINATE SYSTEM/DATUM State Plane, MSE (U.S. Ft.)		HORIZONTAL NAD83	
3. DRILLING AGENCY Corps of Engineers - CESAM		CONTRACTOR FILE NO.		11. MANUFACTURER'S DESIGNATION OF DRILL Vibracore		<input type="checkbox"/> AUTO HAMMER <input type="checkbox"/> MANUAL HAMMER	
4. NAME OF DRILLER American Vibracore Systems, Inc.				12. TOTAL SAMPLES		DISTURBED 0	
5. DIRECTION OF BORING <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED				13. TOTAL NUMBER CORE BOXES		14. WATER DEPTH 33.7 Ft.	
6. THICKNESS OF OVERBURDEN N/A				15. DATE BORING		STARTED 12-05-12	
7. DEPTH DRILLED INTO ROCK N/A				16. ELEVATION TOP OF BORING -33.2 Ft.		COMPLETED 12-05-12	
8. TOTAL DEPTH OF BORING 14.3 Ft.				17. TOTAL RECOVERY FOR BORING 100%		18. SIGNATURE AND TITLE OF INSPECTOR Mike FitzHarris, Geologist	
ELEV.	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS	SAMPLE	LABORATORY RESULTS		
-33.2	0.0						
-34.2	1.0		SAND, poorly-graded, mostly fine-grained sand-sized quartz, trace silt, clay bandt at 0.2 ft., pale brown to gray (SP)	A	Classification: SP-SM Color: 2.5Y 7/2-light gray D50: 0.3059 mm % Fines: 10.9		
-35.8	2.6		CLAY, lean, mostly clay, some fine-grained sand-sized quartz, low to medium plasticity, gray (CL)	NS			
-36.9	3.7			B	Classification: SP-SM Color: 2.5Y 6/1-gray D50: 0.3161 mm % Fines: 10.5		
-38.0	4.8		SAND, silty, mostly fine-grained sand-sized quartz, some silt, trace clay, gray (SM)	C	Classification: SP-SM Color: 2.5Y 7/1-light gray D50: 0.3331 mm % Fines: 6.3		
			SAND, poorly-graded with silt, mostly fine-grained sand-sized quartz, few silt, trace clay, gray (SP-SM)	D	Classification: SP Color: 2.5Y 8/1-white D50: 0.3417 mm % Fines: 0.5		
			SAND, poorly-graded, mostly fine to medium-grained sand-sized quartz, trace silt, lt. gray to white (SP)	E	Classification: SP Color: 2.5Y 8/1-white D50: 0.3202 mm % Fines: 1.8		
-47.5	14.3			NS			
NOTES: 1. Soils are field visually classified in accordance with the Unified Soils Classification System. 2. NS = Sample not submitted for laboratory analysis from this interval. 3. Seafloor elevation calculated using sampling vessel's fathometer water depth reading and applying NOAA tidal gauge data conversion factor.							

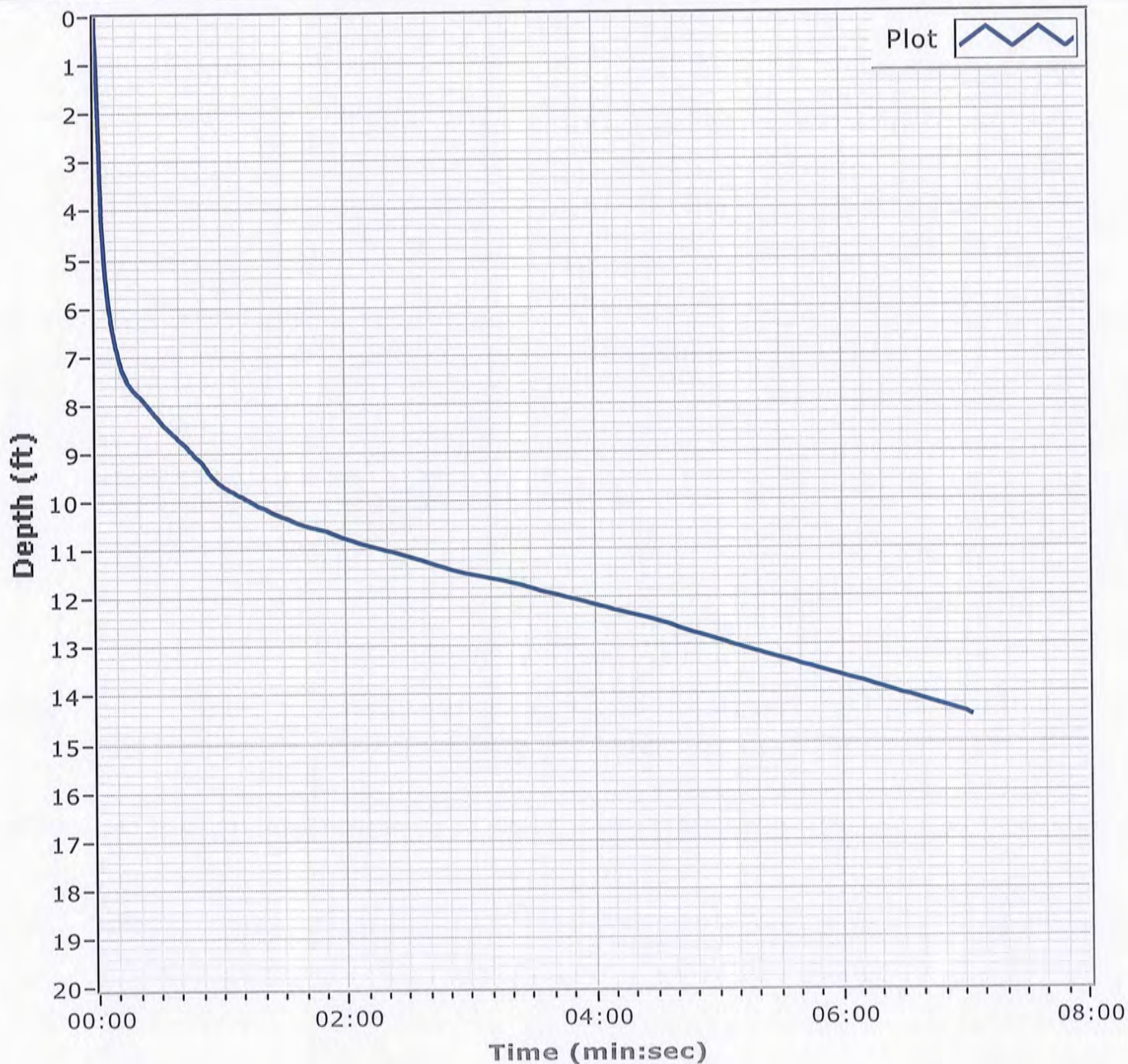
**Project**

Mississippi Barrier Island  
Restoration Project

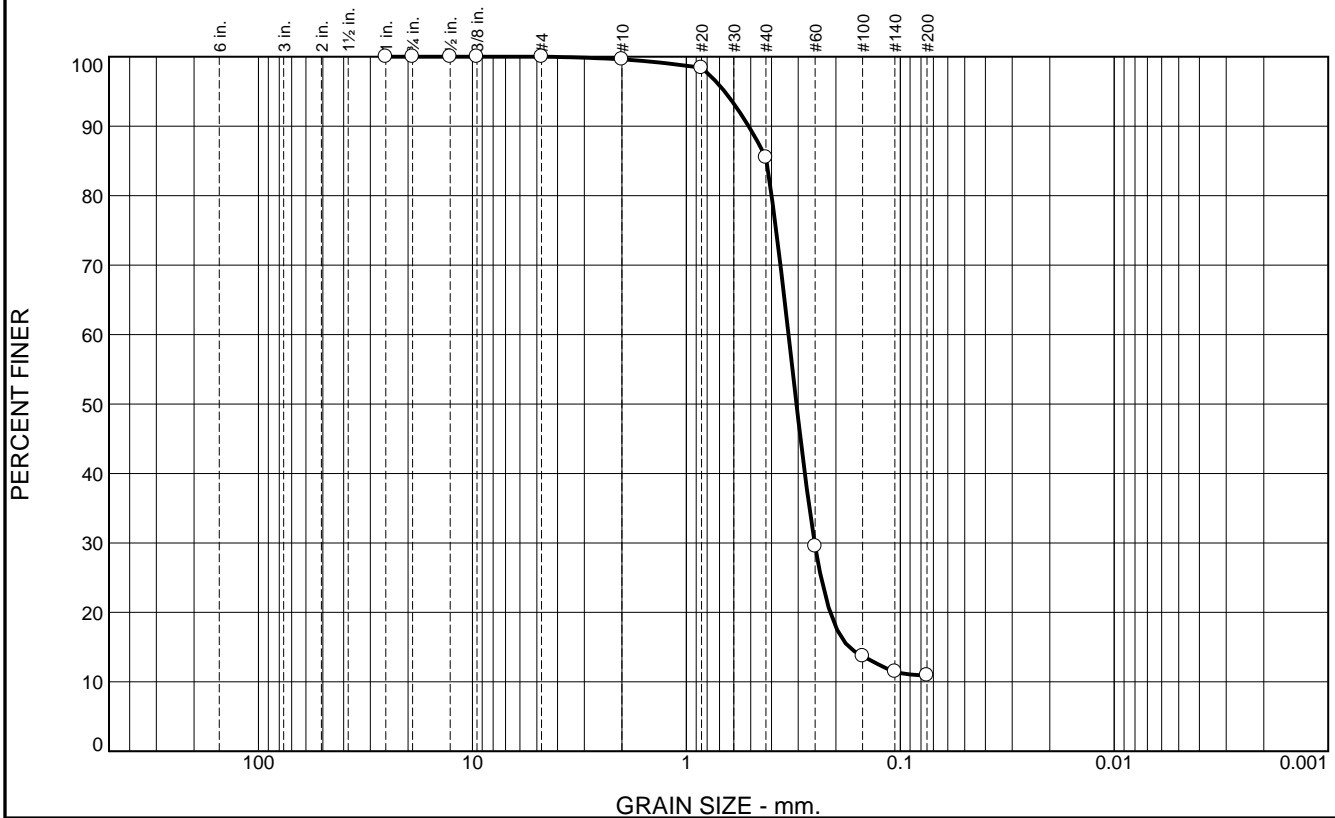
**AVS**  
**AMERICAN VIBRACORE**  
**S E R V I C E S**

**Core Identifier** BI-PB-176-12**Date** 12/05/2012**Water Depth** 33.7**Coordinate System**

Latitude / Longitude

**Start Time** 16:05:12**End Time** 16:12:16**Penetration** 14.5'**Latitude** 30 12.493**Total Time** 00:07:04**Recovery** 14.3'**Longitude** 088 17.859**Comments**

# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.0	0.4	14.1	74.6	10.9	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
1	100.0		
.75	100.0		
.5	100.0		
.375	100.0		
#4	100.0		
#10	99.6		
#20	98.4		
#40	85.5		
#60	29.5		
#100	13.7		
#140	11.5		
#200	10.9		

\* (no specification provided)

## Material Description

Fine to medium grained, SLIGHTLY SILTY SAND

## Atterberg Limits

PL= LL= PI=

## Coefficients

D<sub>90</sub>= 0.5117 D<sub>85</sub>= 0.4224 D<sub>60</sub>= 0.3331  
D<sub>50</sub>= 0.3059 D<sub>30</sub>= 0.2515 D<sub>15</sub>= 0.1735  
D<sub>10</sub>= C<sub>u</sub>= C<sub>c</sub>=

## Classification

USCS= SP-SM AASHTO=

## Remarks

Location: BI-PB-176-12 A  
Sample Number: 6480 (42)

Depth: 0.0'

Date: 12/07/12

**Thompson Engineering**

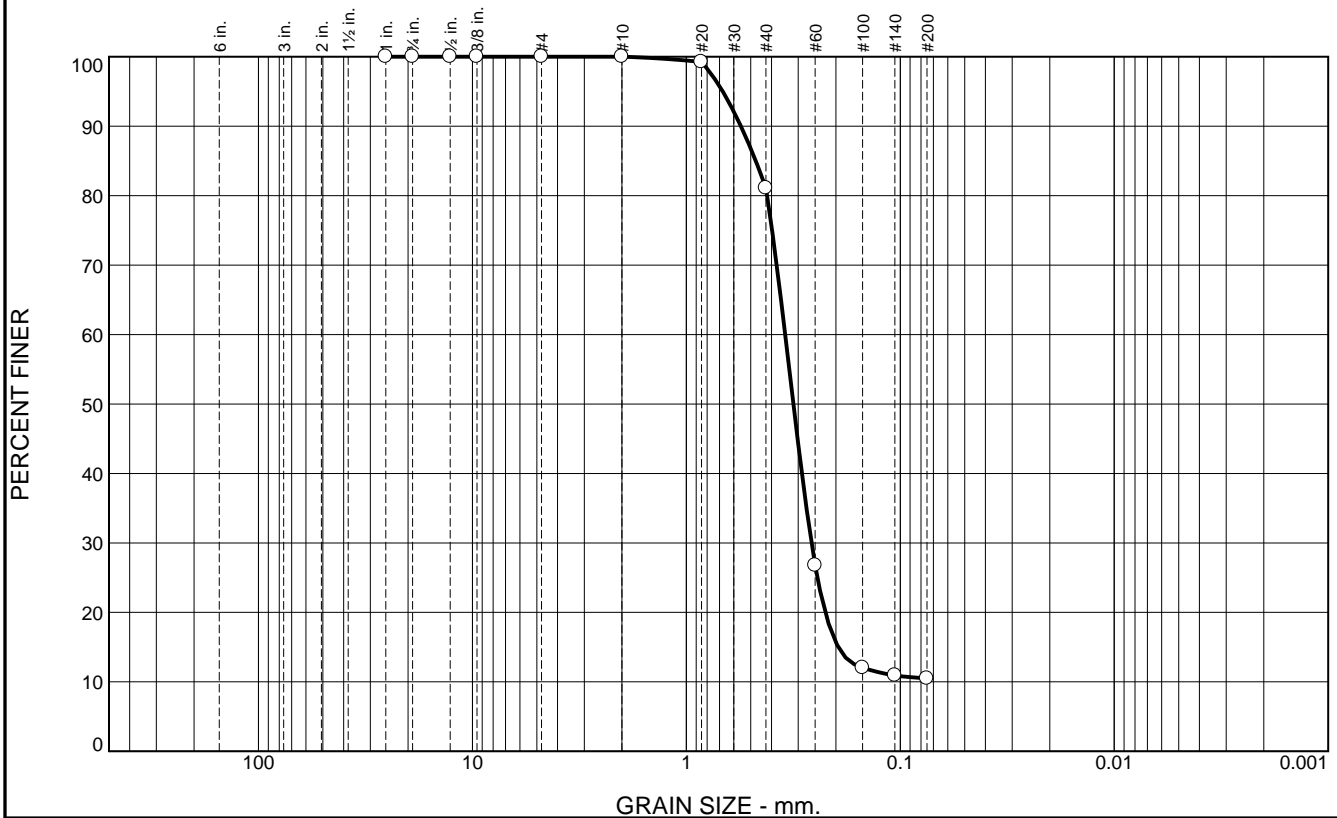
**Mobile, Alabama**

Client: CDM/Thompson Engineering JV  
Project: MsCIP Barrier Island Restoration GT

Project No: 1221110095

Figure

# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.0	0.0	18.9	70.6	10.5	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
1	100.0		
.75	100.0		
.5	100.0		
.375	100.0		
#4	100.0		
#10	100.0		
#20	99.2		
#40	81.1		
#60	26.8		
#100	12.0		
#140	10.9		
#200	10.5		

\* (no specification provided)

## Material Description

Fine to medium grained, SLIGHTLY SILTY SAND

## Atterberg Limits

PL= LL= PI=

## Coefficients

D<sub>90</sub>= 0.5561 D<sub>85</sub>= 0.4740 D<sub>60</sub>= 0.3451  
D<sub>50</sub>= 0.3161 D<sub>30</sub>= 0.2601 D<sub>15</sub>= 0.1950  
D<sub>10</sub>= C<sub>u</sub>= C<sub>c</sub>=

## Classification

USCS= SP-SM AASHTO=

## Remarks

Location: BI-PB-176-12 B  
Sample Number: 6480 (43)

Depth: 2.6'

Date: 12/07/12

**Thompson Engineering**

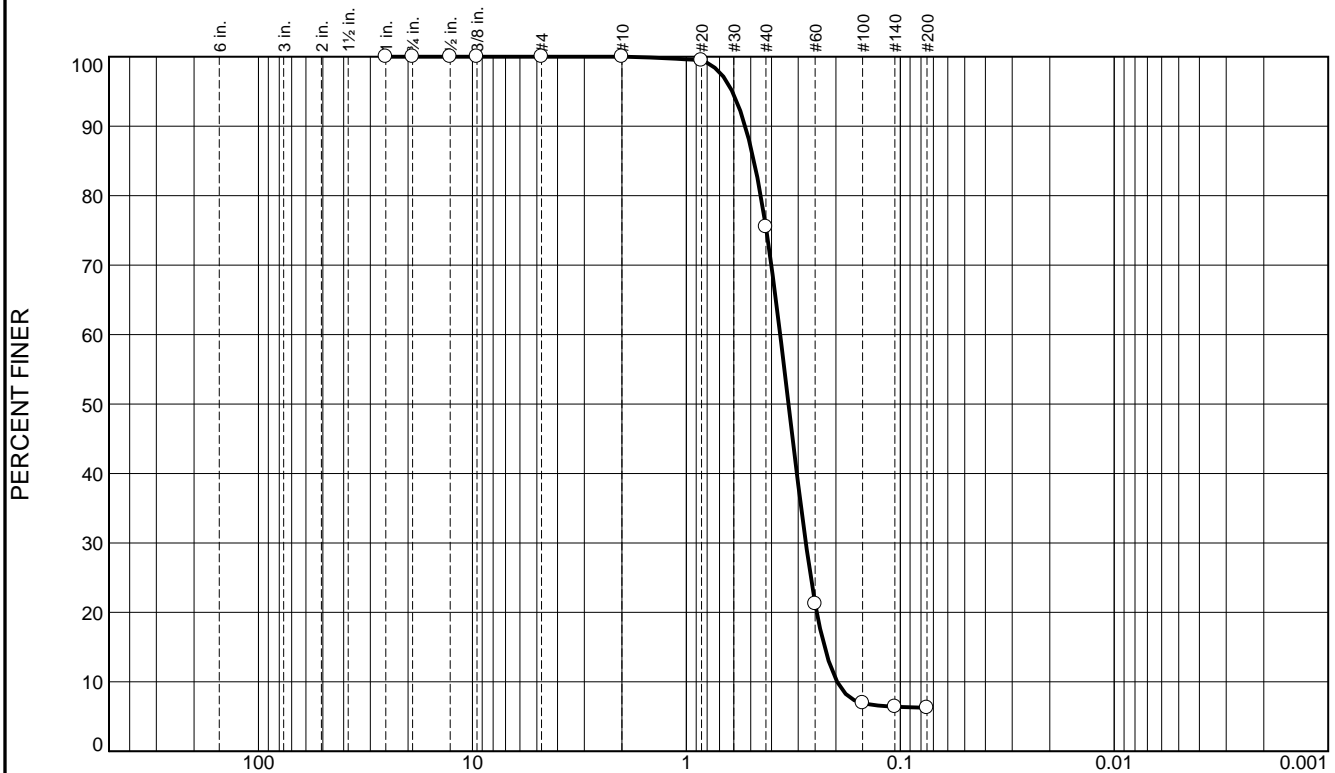
**Mobile, Alabama**

Client: CDM/Thompson Engineering JV  
Project: MsCIP Barrier Island Restoration GT

Project No: 1221110095

Figure

# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.0	0.0	24.5	69.2	6.3	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
1	100.0		
.75	100.0		
.5	100.0		
.375	100.0		
#4	100.0		
#10	100.0		
#20	99.5		
#40	75.5		
#60	21.3		
#100	7.0		
#140	6.4		
#200	6.3		

\* (no specification provided)

## Material Description

Fine to medium grained, SLIGHTLY SILTY SAND

## Atterberg Limits

PL= LL= PI=

## Coefficients

D<sub>90</sub>= 0.5307 D<sub>85</sub>= 0.4833 D<sub>60</sub>= 0.3642  
D<sub>50</sub>= 0.3331 D<sub>30</sub>= 0.2766 D<sub>15</sub>= 0.2259  
D<sub>10</sub>= 0.1973 C<sub>u</sub>= 1.85 C<sub>c</sub>= 1.07

## Classification

USCS= SP-SM AASHTO=

## Remarks

Location: BI-PB-176-12 C  
Sample Number: 6480 (44)

Depth: 3.7'

Date: 12/07/12

**Thompson Engineering**

**Mobile, Alabama**

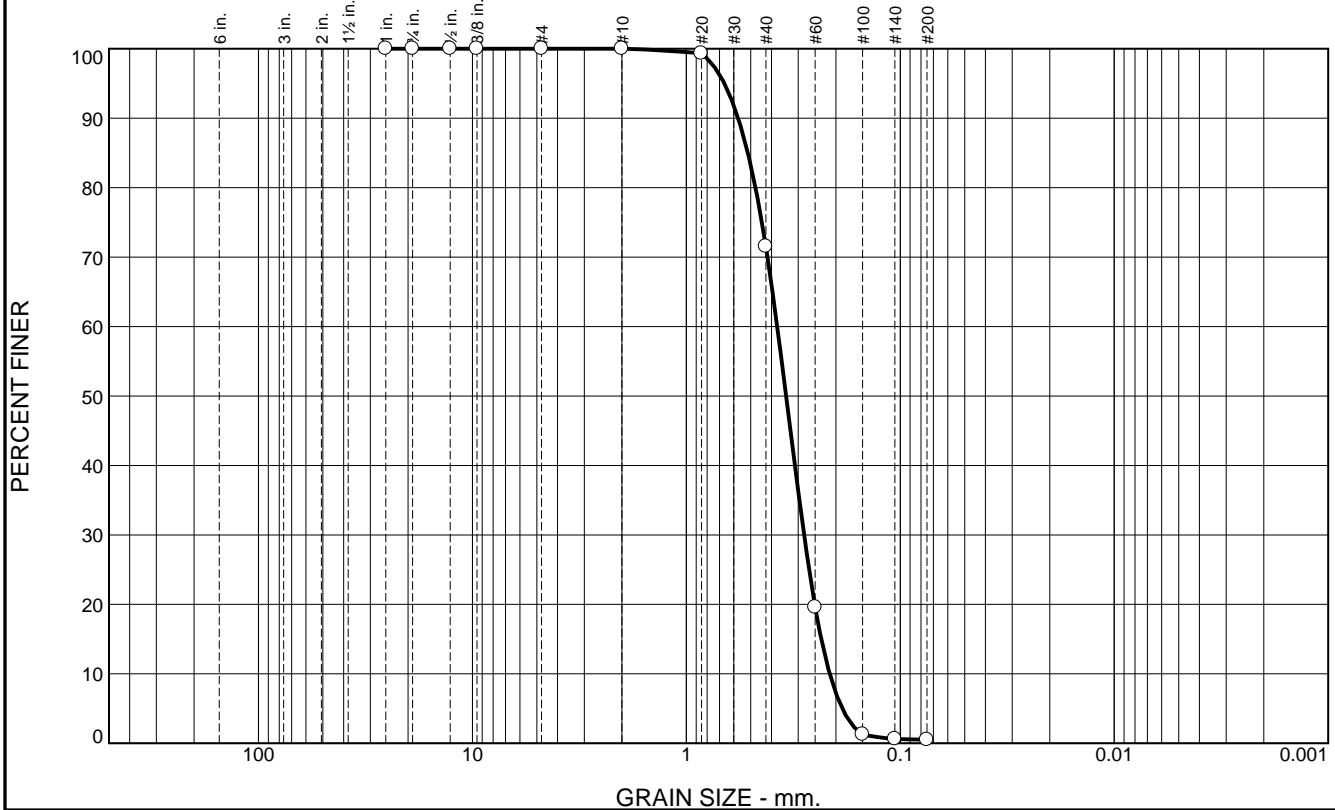
Client: CDM/Thompson Engineering JV  
Project: MsCIP Barrier Island Restoration GT

Project No: 1221110095

Figure



# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.0	0.0	28.5	71.0	0.5	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
1	100.0		
.75	100.0		
.5	100.0		
.375	100.0		
#4	100.0		
#10	100.0		
#20	99.3		
#40	71.5		
#60	19.6		
#100	1.3		
#140	0.6		
#200	0.5		

\* (no specification provided)

<u><b>Material Description</b></u>		
Fine to medium grained, SAND		
<u><b>Atterberg Limits</b></u>		
PL=	LL=	PI=
<u><b>Coefficients</b></u>		
D <sub>90</sub> = 0.5725	D <sub>85</sub> = 0.5159	D <sub>60</sub> = 0.3761
D <sub>50</sub> = 0.3417	D <sub>30</sub> = 0.2817	D <sub>15</sub> = 0.2341
D <sub>10</sub> = 0.2138	C <sub>u</sub> = 1.76	C <sub>c</sub> = 0.99
<u><b>Classification</b></u>		
USCS= SP	AASHTO=	
<u><b>Remarks</b></u>		

Location: BI-PB-176-12 D  
Sample Number: 6480 (45)

Depth: 4.8'

Date: 12/07/12

**Thompson Engineering**

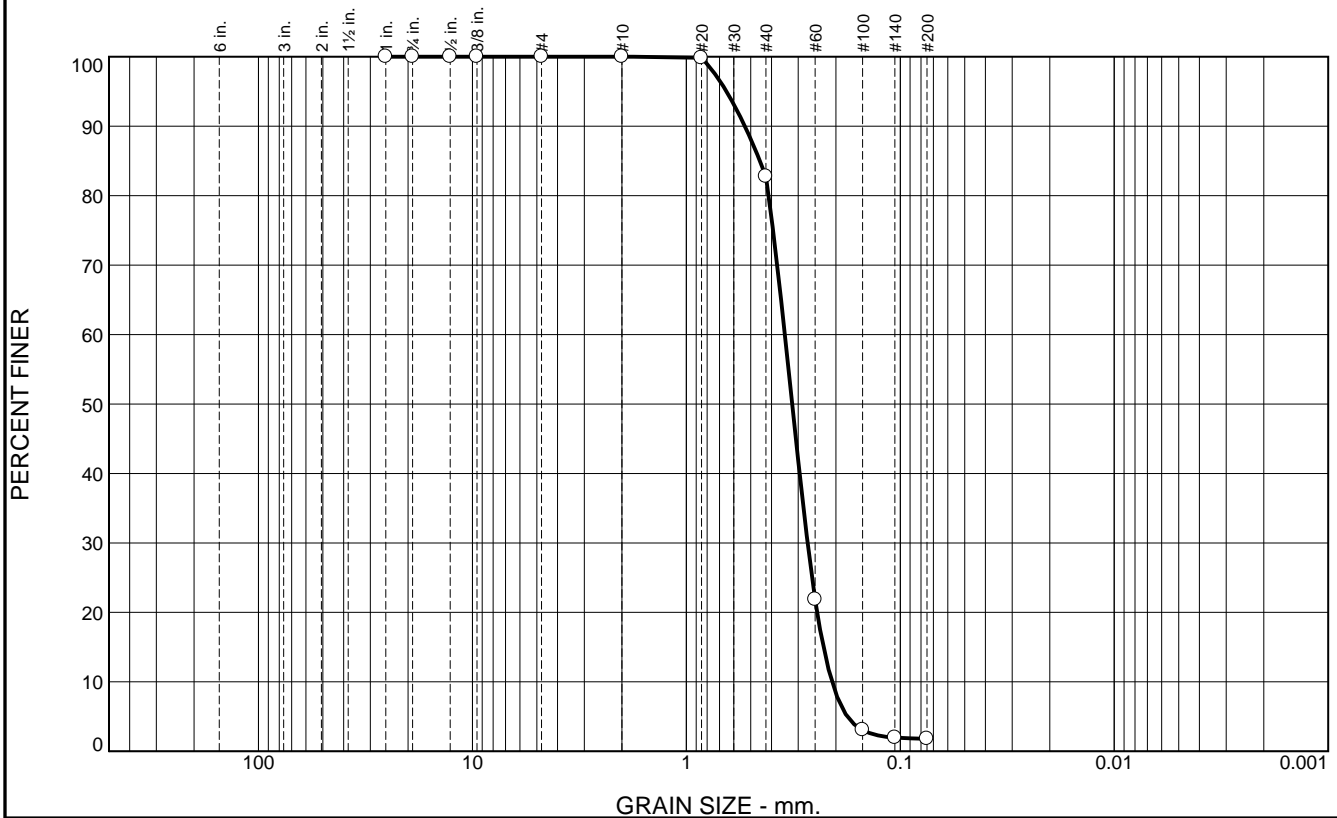
**Mobile, Alabama**

Client: CDM/Thompson Engineering JV  
Project: MsCIP Barrier Island Restoration GT

Project No: 1221110095

Figure

# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.0	0.0	17.2	81.0	1.8	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
1	100.0		
.75	100.0		
.5	100.0		
.375	100.0		
#4	100.0		
#10	100.0		
#20	99.8		
#40	82.8		
#60	21.8		
#100	3.1		
#140	2.0		
#200	1.8		

\* (no specification provided)

<u><b>Material Description</b></u>		
Fine to medium grained, SAND		
<u><b>Atterberg Limits</b></u>		
PL=	LL=	PI=
<u><b>Coefficients</b></u>		
D <sub>90</sub> = 0.5330	D <sub>85</sub> = 0.4535	D <sub>60</sub> = 0.3464
D <sub>50</sub> = 0.3202	D <sub>30</sub> = 0.2714	D <sub>15</sub> = 0.2286
D <sub>10</sub> = 0.2085	C <sub>u</sub> = 1.66	C <sub>c</sub> = 1.02
<u><b>Classification</b></u>		
USCS= SP	AASHTO=	
<u><b>Remarks</b></u>		

Location: BI-PB-176-12 E  
Sample Number: 6480 (46)

Depth: 9.3'

Date: 12/07/12

**Thompson Engineering**

**Mobile, Alabama**

Client: CDM/Thompson Engineering JV  
Project: MsCIP Barrier Island Restoration GT

Project No: 1221110095

Figure

# Boring Designation BI-PB-177-12

DRILLING LOG		DIVISION South Atlantic		INSTALLATION Mobile District		SHEET 1 OF 1 SHEETS	
1. PROJECT MsCIP Barrier Island Restoration Petit Bois Pass- AL East				9. SIZE AND TYPE OF BIT N/A			
2. BORING DESIGNATION BI-PB-177-12		LOCATION COORDINATES E = 1,153,351 N = 253,051		10. COORDINATE SYSTEM/DATUM State Plane, MSE (U.S. Ft.)		HORIZONTAL NAD83 VERTICAL NAVD88	
3. DRILLING AGENCY Corps of Engineers - CESAM		CONTRACTOR FILE NO.		11. MANUFACTURER'S DESIGNATION OF DRILL Vibracore		<input type="checkbox"/> AUTO HAMMER <input type="checkbox"/> MANUAL HAMMER	
4. NAME OF DRILLER American Vibracore Systems, Inc.				12. TOTAL SAMPLES		DISTURBED UNDISTURBED (UD) 0	
5. DIRECTION OF BORING <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED		DEG. FROM VERTICAL		13. TOTAL NUMBER CORE BOXES			
		BEARING		14. WATER DEPTH 40.7 Ft.			
6. THICKNESS OF OVERBURDEN N/A				15. DATE BORING 12-19-12		STARTED COMPLETED 12-19-12	
7. DEPTH DRILLED INTO ROCK N/A				16. ELEVATION TOP OF BORING -40.3 Ft.			
8. TOTAL DEPTH OF BORING 19.3 Ft.				17. TOTAL RECOVERY FOR BORING 100%			
				18. SIGNATURE AND TITLE OF INSPECTOR Mike FitzHarris, Geologist			

ELEV.	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS	SAMPLE	LABORATORY RESULTS
-40.3	0.0				
-40.7	0.4				
-40.9	0.6		SAND, poorly-graded, mostly fine to medium-grained sand-sized quartz, trace fines, gray (SP)	A	Classification: SP-SM Color: 2.5Y 5/2-grayish brown D50: 0.3539 mm % Fines: 5.9
			CLAY, lean, mostly clay, some fine-grained sand-sized quartz, soft, dark gray (CL)		
-44.6	4.3		SAND, poorly-graded with silt, mostly fine-grained sand-sized quartz, few silt, trace clay, gray (SP-SM)	B	Classification: SP Color: 2.5Y 7/1-light gray D50: 0.3615 mm % Fines: 1.9
			SAND, poorly-graded, mostly fine to medium-grained sand-sized quartz, trace fines, gray to light gray (SP)		
			At El. -49.6 Ft., mostly fine to medium-grained sand-sized quartz, trace fines, lt. gray	C	Classification: SP Color: 5Y 7/1-light gray D50: 0.3621 mm % Fines: 0.7
				D	Classification: SP Color: 5Y 7/1-light gray D50: 0.3802 mm % Fines: 1.6
-59.6	19.3				
NOTES:					
1. Soils are field visually classified in accordance with the Unified Soils Classification System.					
2. NS = Sample not submitted for laboratory analysis from this interval.					
3. Seafloor elevation determined from 2010 USACE survey.					

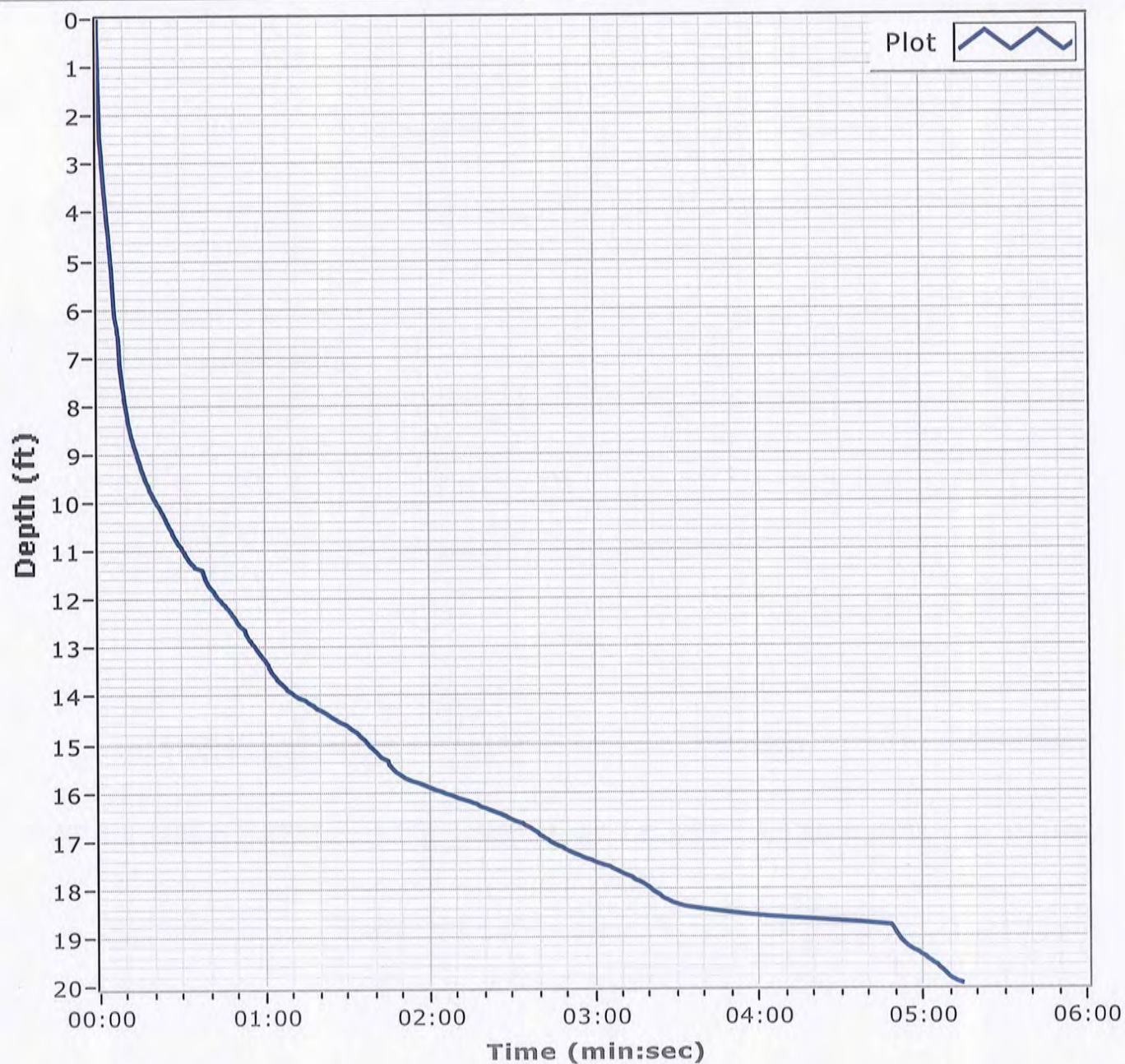
**Project**

Mississippi Barrier Island  
Restoration Project

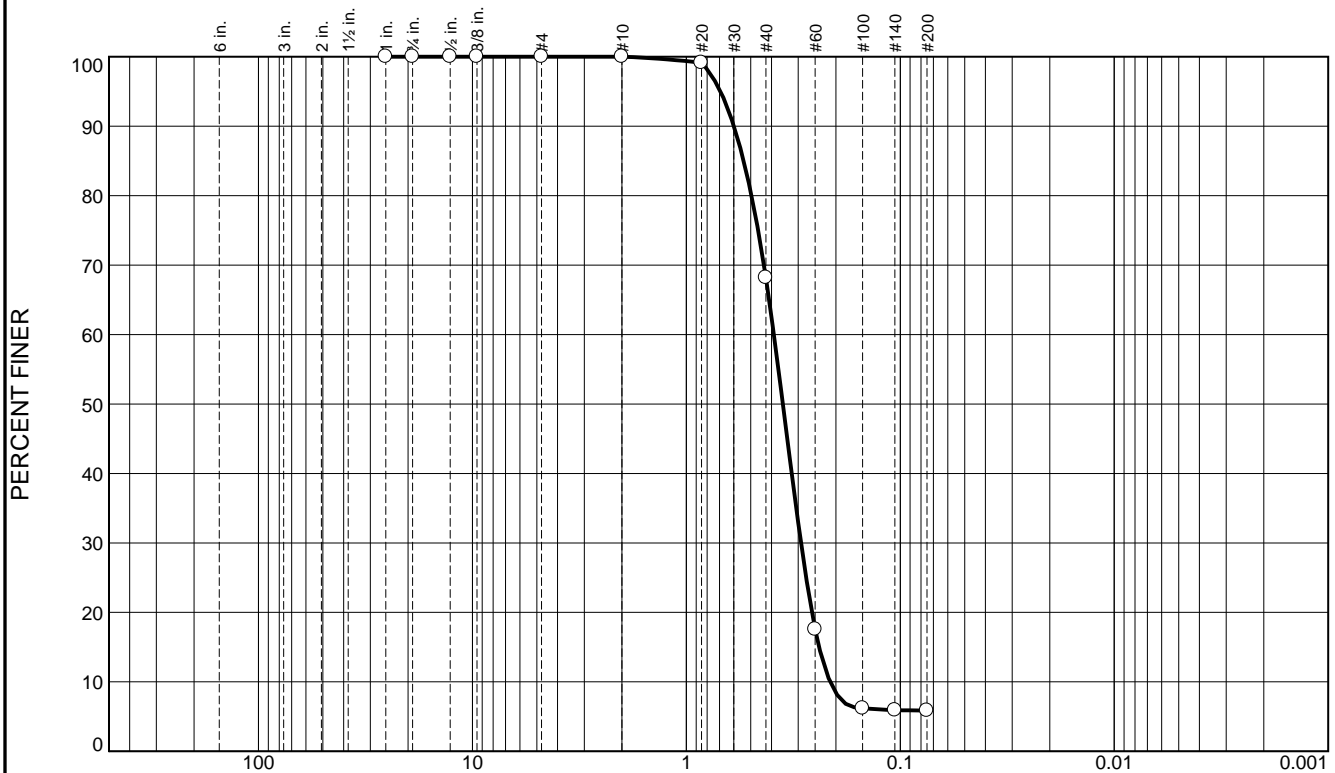
**AVS**  
**AMERICAN VIBRACORE**  
**S E R V I C E S**

**Core Identifier** BI-PB-177-12**Date** 12/19/2012**Water Depth** 40.7'**Coordinate System**

Latitude / Longitude

**Start Time** 09:51:25**End Time** 09:56:40**Penetration** 20.0'**Latitude** 30 11.685**Total Time** 00:05:15**Recovery** 19.3'**Longitude** 88 17.884**Comments**

# Particle Size Distribution Report



GRAIN SIZE - mm.

% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.0	0.0	31.8	62.3	5.9	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
1	100.0		
.75	100.0		
.5	100.0		
.375	100.0		
#4	100.0		
#10	100.0		
#20	99.1		
#40	68.2		
#60	17.6		
#100	6.2		
#140	5.9		
#200	5.9		

\* (no specification provided)

## Material Description

Fine to medium grained, SLIGHTLY SILTY SAND

## Atterberg Limits

PL= LL= PI=

## Coefficients

D<sub>90</sub>= 0.5992 D<sub>85</sub>= 0.5395 D<sub>60</sub>= 0.3899  
D<sub>50</sub>= 0.3539 D<sub>30</sub>= 0.2912 D<sub>15</sub>= 0.2396  
D<sub>10</sub>= 0.2129 C<sub>u</sub>= 1.83 C<sub>c</sub>= 1.02

## Classification

USCS= SP-SM AASHTO=

## Remarks

Location: BI-PB-177-12 A  
Sample Number: 6494 (64)

Depth: 0.0'

Date: 12/26/12

**Thompson Engineering**

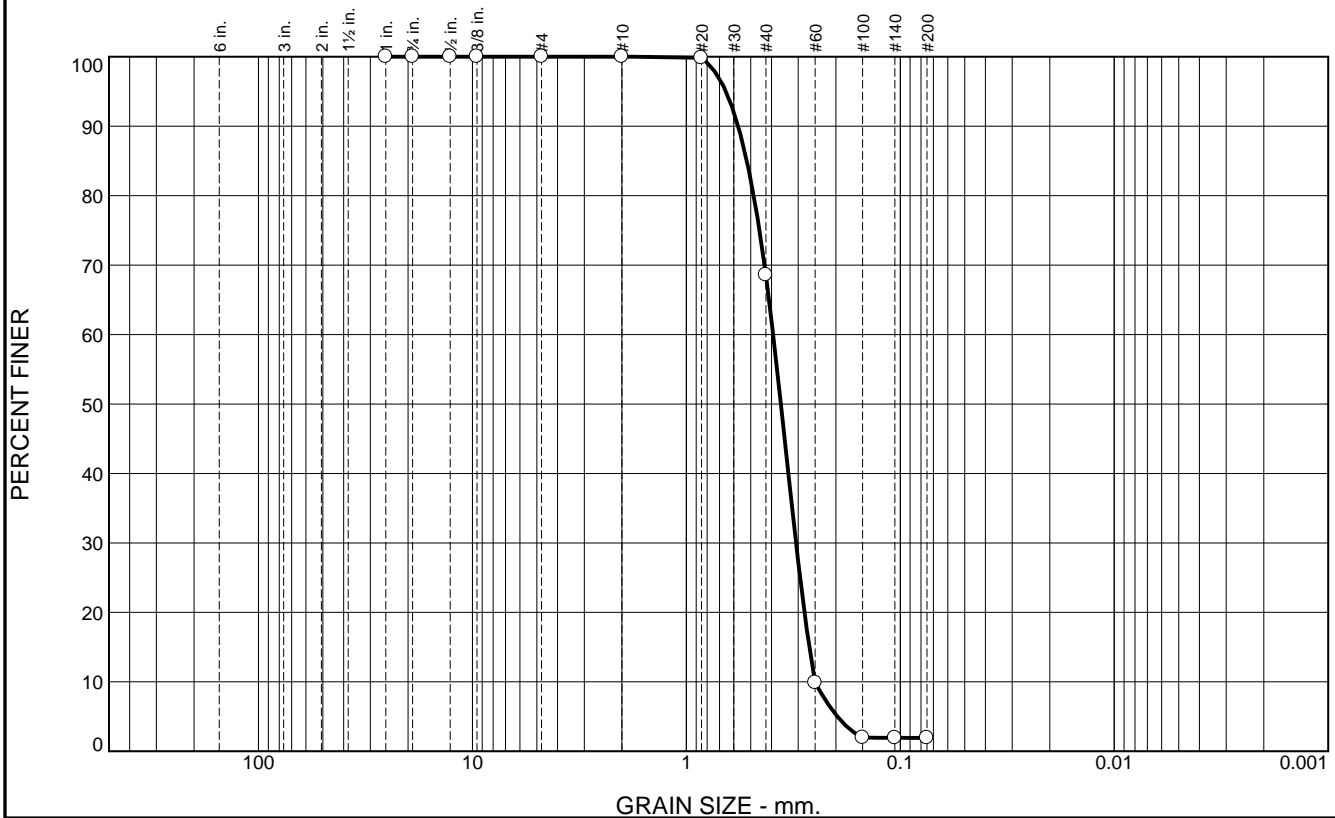
**Mobile, Alabama**

Client: CDM/Thompson Engineering JV  
Project: MsCIP Barrier Island Restoration GT

Project No: 1221110095

Figure

# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.0	0.0	31.4	66.7	1.9	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
1	100.0		
.75	100.0		
.5	100.0		
.375	100.0		
#4	100.0		
#10	100.0		
#20	99.8		
#40	68.6		
#60	9.9		
#100	2.0		
#140	1.9		
#200	1.9		

\* (no specification provided)

<u><b>Material Description</b></u>		
Fine to medium grained, SAND		
<u><b>Atterberg Limits</b></u>		
PL=	LL=	PI=
<u><b>Coefficients</b></u>		
D <sub>90</sub> = 0.5724	D <sub>85</sub> = 0.5215	D <sub>60</sub> = 0.3929
D <sub>50</sub> = 0.3615	D <sub>30</sub> = 0.3073	D <sub>15</sub> = 0.2665
D <sub>10</sub> = 0.2504	C <sub>u</sub> = 1.57	C <sub>c</sub> = 0.96
<u><b>Classification</b></u>		
USCS= SP	AASHTO=	
<u><b>Remarks</b></u>		

Location: BI-PB-177-12 B  
Sample Number: 6494 (65)

Depth: 4.3'

Date: 12/26/12

**Thompson Engineering**

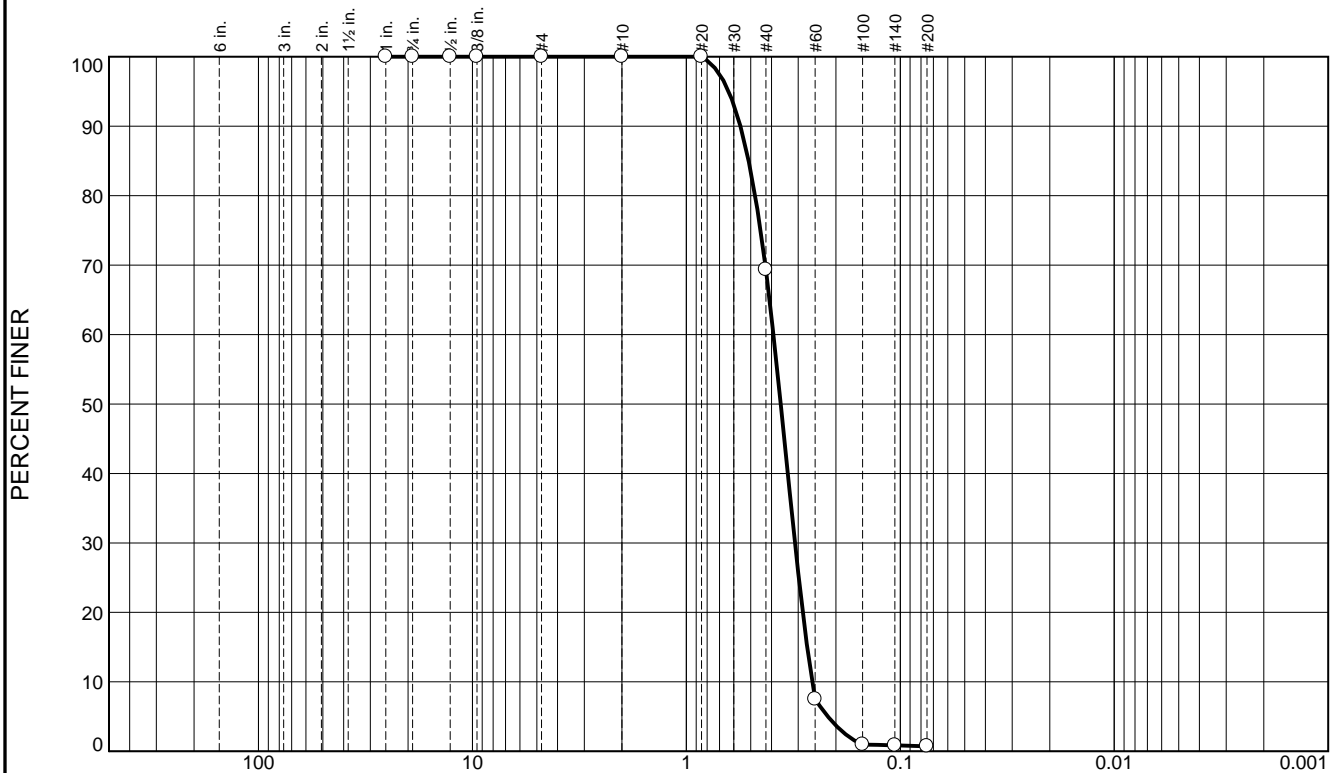
**Mobile, Alabama**

Client: CDM/Thompson Engineering JV  
Project: MsCIP Barrier Island Restoration GT

Project No: 1221110095

Figure

# Particle Size Distribution Report



GRAIN SIZE - mm.

% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.0	0.0	30.6	68.7	0.7	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
1	100.0		
.75	100.0		
.5	100.0		
.375	100.0		
#4	100.0		
#10	100.0		
#20	100.0		
#40	69.4		
#60	7.5		
#100	1.0		
#140	0.9		
#200	0.7		

\* (no specification provided)

## Material Description

Fine to medium grained, SAND

## Atterberg Limits

PL= LL= PI=

## Coefficients

D<sub>90</sub>= 0.5587 D<sub>85</sub>= 0.5116 D<sub>60</sub>= 0.3917  
D<sub>50</sub>= 0.3621 D<sub>30</sub>= 0.3108 D<sub>15</sub>= 0.2727  
D<sub>10</sub>= 0.2582 C<sub>u</sub>= 1.52 C<sub>c</sub>= 0.95

## Classification

USCS= SP AASHTO=

## Remarks

Location: BI-PB-177-12 C  
Sample Number: 6494 (66)

Depth: 9.3'

Date: 12/26/12

**Thompson Engineering**

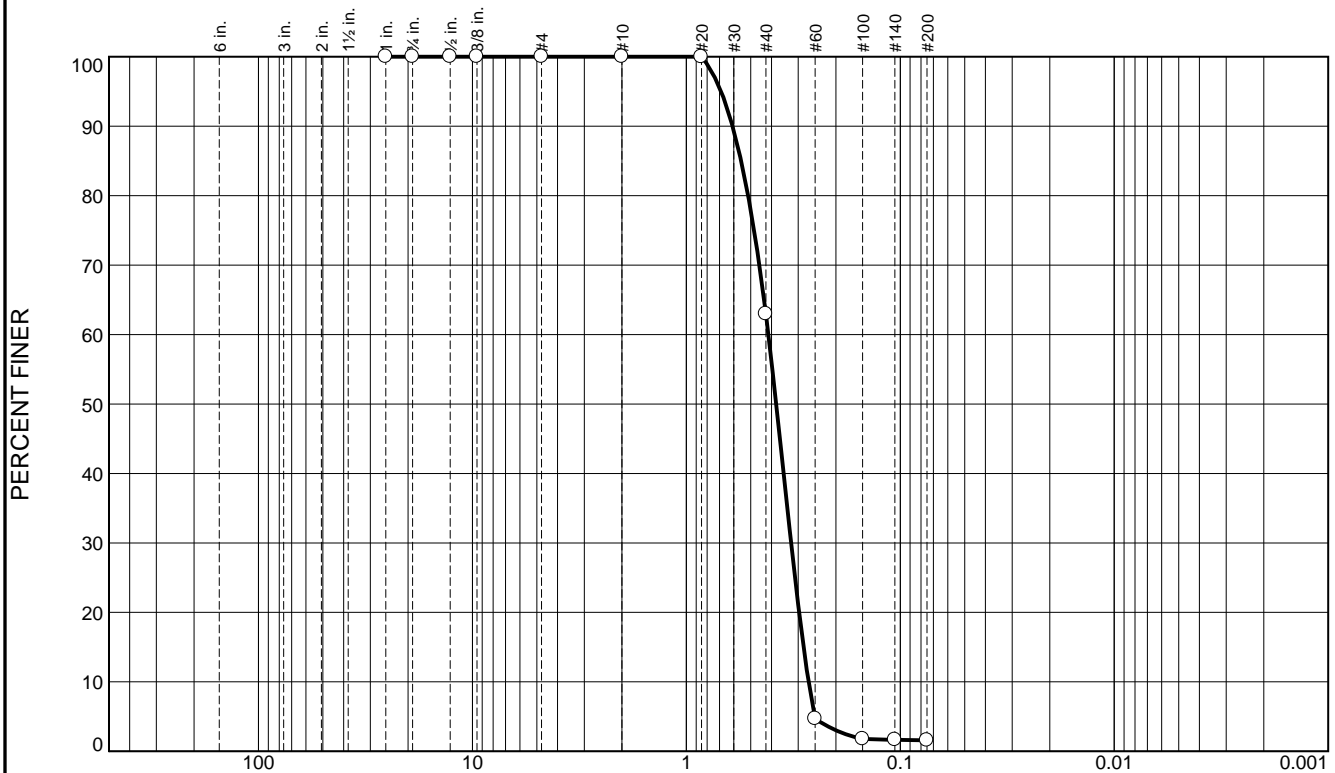
**Mobile, Alabama**

Client: CDM/Thompson Engineering JV  
Project: MsCIP Barrier Island Restoration GT

Project No: 1221110095

Figure

# Particle Size Distribution Report



GRAIN SIZE - mm.

% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.0	0.0	37.0	61.4	1.6	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
1	100.0		
.75	100.0		
.5	100.0		
.375	100.0		
#4	100.0		
#10	100.0		
#20	100.0		
#40	63.0		
#60	4.7		
#100	1.8		
#140	1.7		
#200	1.6		

\* (no specification provided)

## Material Description

Fine to medium grained, SAND

## Atterberg Limits

PL=

LL=

PI=

## Coefficients

D<sub>90</sub>= 0.6081

D<sub>85</sub>= 0.5545

D<sub>60</sub>= 0.4137

D<sub>50</sub>= 0.3802

D<sub>30</sub>= 0.3239

D<sub>15</sub>= 0.2835

D<sub>10</sub>= 0.2687

C<sub>u</sub>= 1.54

C<sub>c</sub>= 0.94

## Classification

USCS= SP

AASHTO=

## Remarks

Location: BI-PB-177-12 D

Sample Number: 6494 (67)

Depth: 14.3'

Date: 12/26/12

**Thompson Engineering**

**Mobile, Alabama**

Client: CDM/Thompson Engineering JV

Project: MsCIP Barrier Island Restoration GT

Project No: 1221110095

Figure



# Boring Designation BI-PB-179-12

DRILLING LOG		DIVISION South Atlantic		INSTALLATION Mobile District		SHEET 1 OF 1 SHEETS	
1. PROJECT MsCIP Barrier Island Restoration Petit Bois Pass- AL East				9. SIZE AND TYPE OF BIT N/A			
2. BORING DESIGNATION BI-PB-179-12		LOCATION COORDINATES E = 1,154,461 N = 253,511		10. COORDINATE SYSTEM/DATUM State Plane, MSE (U.S. Ft.)		HORIZONTAL NAD83	
3. DRILLING AGENCY Corps of Engineers - CESAM		CONTRACTOR FILE NO.		11. MANUFACTURER'S DESIGNATION OF DRILL Vibracore		<input type="checkbox"/> AUTO HAMMER <input type="checkbox"/> MANUAL HAMMER	
4. NAME OF DRILLER American Vibracore Systems, Inc.				12. TOTAL SAMPLES		DISTURBED 0	
5. DIRECTION OF BORING <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED				13. TOTAL NUMBER CORE BOXES		14. WATER DEPTH 37.1 Ft.	
6. THICKNESS OF OVERBURDEN N/A				15. DATE BORING		STARTED 12-19-12	
7. DEPTH DRILLED INTO ROCK N/A				16. ELEVATION TOP OF BORING -36.5 Ft.		COMPLETED 12-19-12	
8. TOTAL DEPTH OF BORING 19.1 Ft.				17. TOTAL RECOVERY FOR BORING 100%		18. SIGNATURE AND TITLE OF INSPECTOR Mike FitzHarris, Geologist	
ELEV.	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS	SAMPLE	LABORATORY RESULTS		
-36.5	0.0						
-38.7	2.2		SAND, poorly-graded, mostly fine to medium-grained sand-sized quartz, trace fines, trace shell fragments, lt. gray (SP)	A	Classification: SP Color: 2.5Y 7/2-light gray D50: 0.3679 mm % Fines: 0.9		
			SAND, poorly-graded with silt, mostly fine-grained sand-sized quartz, trace clay stringers, lt brownish gray (SP-SM)	B	Classification: SP-SM Color: 2.5Y 5/2-grayish brown D50: 0.3187 mm % Fines: 8.2		
				C	Classification: SP-SM Color: 2.5Y 6/1-gray D50: 0.306 mm % Fines: 5.8		
				D	Classification: SP-SM Color: 5Y 5/1-gray D50: 0.305 mm % Fines: 5.9		
-55.6	19.1		At El. -53.7 Ft., mostly fine-grained sand-sized quartz, trace thin clay bands, lt. gray	NS			
			NOTES: 1. Soils are field visually classified in accordance with the Unified Soils Classification System. 2. NS = Sample not submitted for laboratory analysis from this interval. 3. Seafloor elevation determined from 2010 USACE survey.				

**Project** Mississippi Barrier Island  
Restoration Project



**Core Identifier** BI-PB-179-12

**Date** 12/19/2012

**Water Depth** 37.1'

**Coordinate System**

Latitude / Longitude

**Start Time** 09:22:20

**End Time** 09:23:36

**Penetration** 20.0'

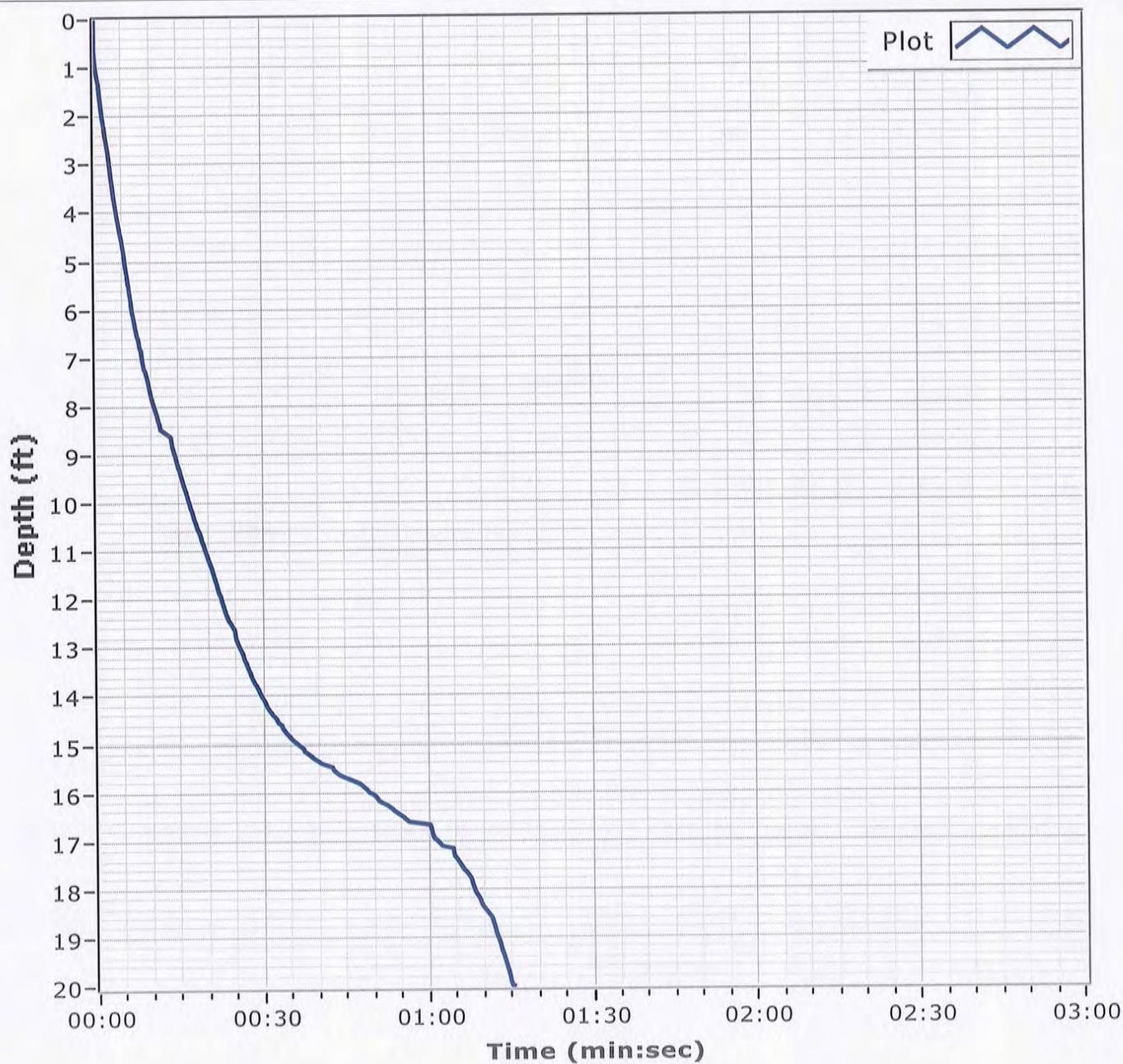
**Latitude** 30 11.760

**Total Time** 00:01:15

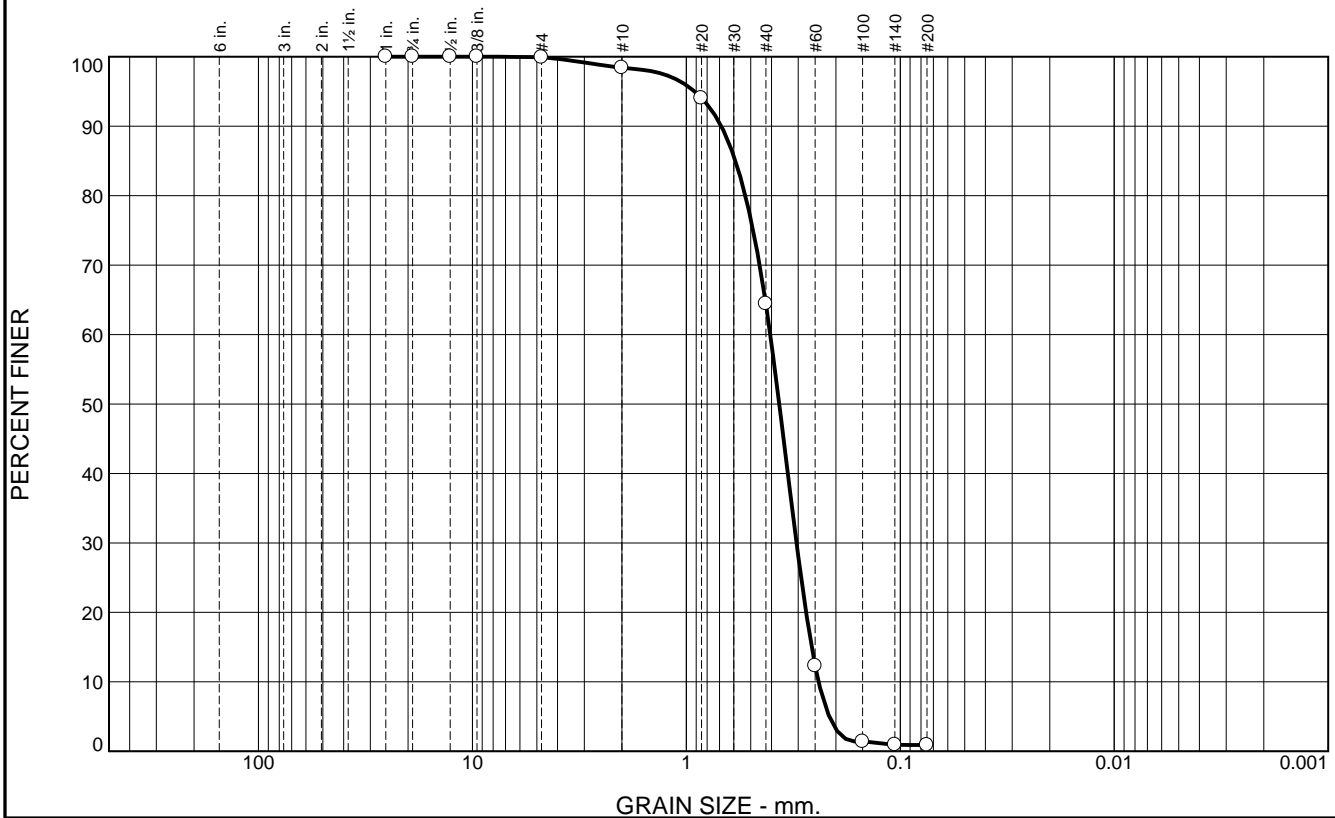
**Recovery** 19.1'

**Longitude** 88 17.673

**Comments**



# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.1	1.5	34.0	63.5	0.9	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
1	100.0		
.75	100.0		
.5	100.0		
.375	100.0		
#4	99.9		
#10	98.4		
#20	94.0		
#40	64.4		
#60	12.3		
#100	1.4		
#140	0.9		
#200	0.9		

\* (no specification provided)

**Material Description**  
 Fine to medium grained, SAND

**Atterberg Limits**  
 PL=                      LL=                      PI=

**Coefficients**  
 D<sub>90</sub>= 0.6868      D<sub>85</sub>= 0.5894      D<sub>60</sub>= 0.4054  
 D<sub>50</sub>= 0.3679      D<sub>30</sub>= 0.3057      D<sub>15</sub>= 0.2596  
 D<sub>10</sub>= 0.2409      C<sub>u</sub>= 1.68              C<sub>c</sub>= 0.96

**Classification**  
 USCS= SP                      AASHTO=

**Remarks**

Location: BI-PB-179-12 A  
 Sample Number: 6494 (68)

Depth: 0.0'

Date: 12/26/12

**Thompson Engineering**

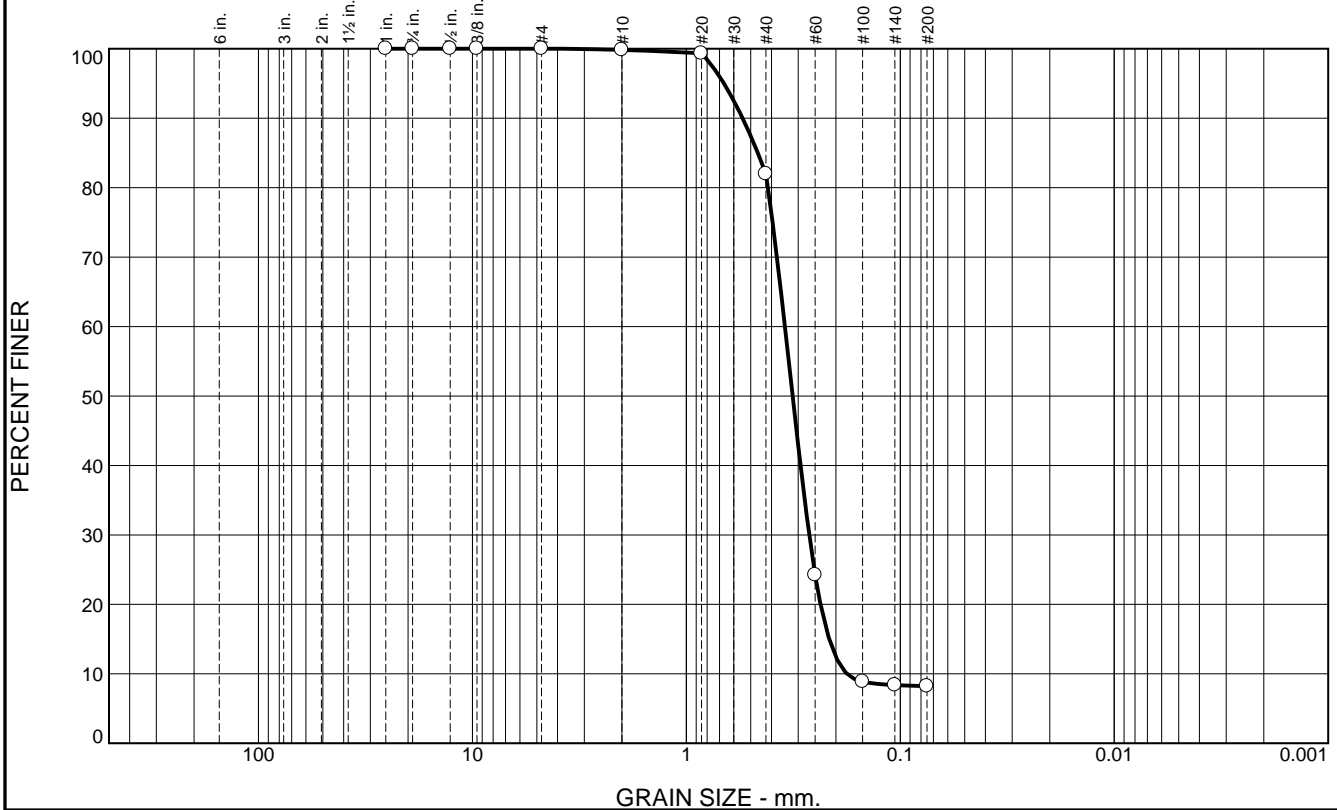
**Mobile, Alabama**

Client: CDM/Thompson Engineering JV  
 Project: MsCIP Barrier Island Restoration GT

Project No: 1221110095

Figure

# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.0	0.2	17.8	73.8	8.2	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
1	100.0		
.75	100.0		
.5	100.0		
.375	100.0		
#4	100.0		
#10	99.8		
#20	99.3		
#40	82.0		
#60	24.2		
#100	8.9		
#140	8.4		
#200	8.2		

\* (no specification provided)

## Material Description

Fine to medium grained, SLIGHTLY SILTY SAND

## Atterberg Limits

PL= LL= PI=

## Coefficients

D<sub>90</sub>= 0.5461 D<sub>85</sub>= 0.4639 D<sub>60</sub>= 0.3461  
D<sub>50</sub>= 0.3187 D<sub>30</sub>= 0.2666 D<sub>15</sub>= 0.2149  
D<sub>10</sub>= 0.1777 C<sub>u</sub>= 1.95 C<sub>c</sub>= 1.16

## Classification

USCS= SP-SM AASHTO=

## Remarks

Location: BI-PB-179-12 B  
Sample Number: 6494 (69)

Depth: 2.2'

Date: 12/26/12

**Thompson Engineering**

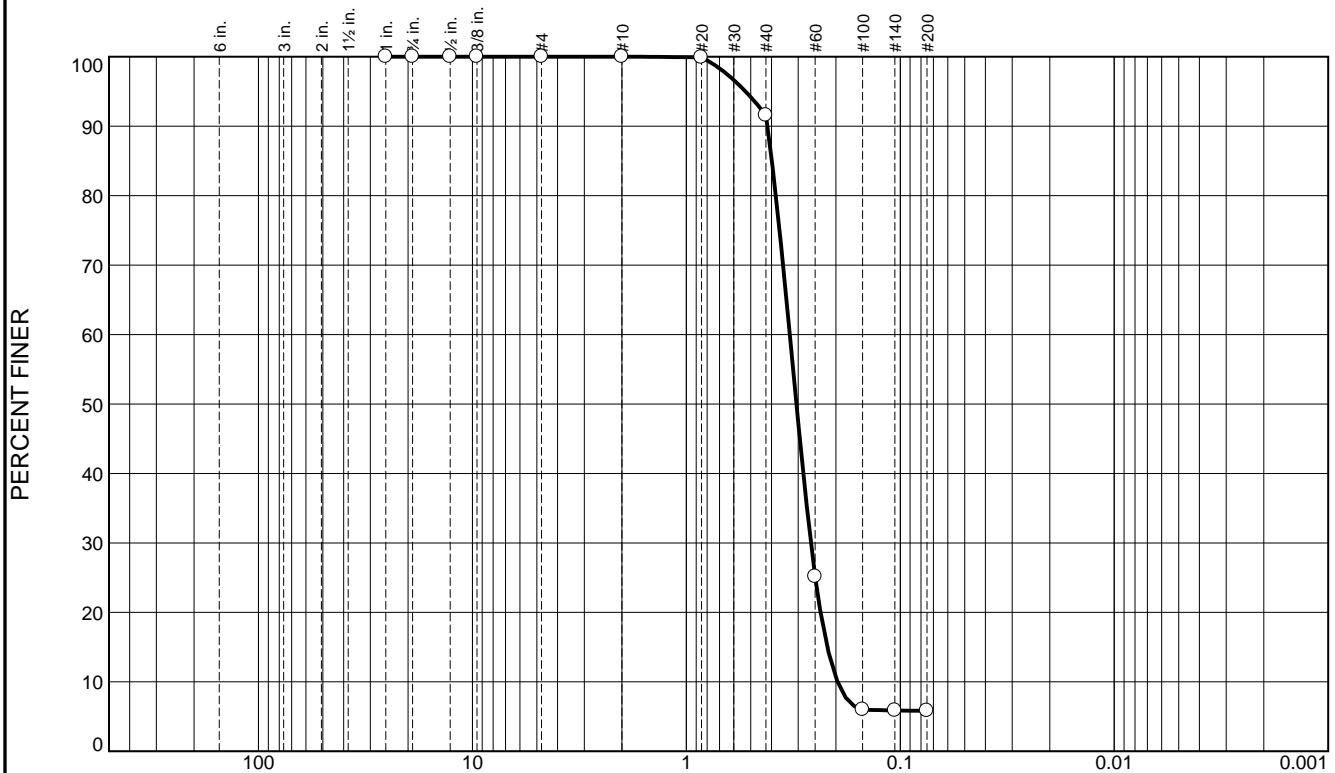
**Mobile, Alabama**

Client: CDM/Thompson Engineering JV  
Project: MsCIP Barrier Island Restoration GT

Project No: 1221110095

Figure

# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.0	0.0	8.4	85.8	5.8	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
1	100.0		
.75	100.0		
.5	100.0		
.375	100.0		
#4	100.0		
#10	100.0		
#20	99.9		
#40	91.6		
#60	25.1		
#100	6.0		
#140	5.9		
#200	5.8		

\* (no specification provided)

<u><b>Material Description</b></u>		
Fine grained, SLIGHTLY SILTY SAND		
<u><b>Atterberg Limits</b></u>		
PL=	LL=	PI=
<u><b>Coefficients</b></u>		
D <sub>90</sub> = 0.4179	D <sub>85</sub> = 0.3982	D <sub>60</sub> = 0.3285
D <sub>50</sub> = 0.3060	D <sub>30</sub> = 0.2618	D <sub>15</sub> = 0.2193
D <sub>10</sub> = 0.1964	C <sub>u</sub> = 1.67	C <sub>c</sub> = 1.06
<u><b>Classification</b></u>		
USCS= SP-SM	AASHTO=	
<u><b>Remarks</b></u>		

Location: BI-PB-179-12 C  
Sample Number: 6494 (70)

Depth: 7.2'

Date: 12/26/12

**Thompson Engineering**

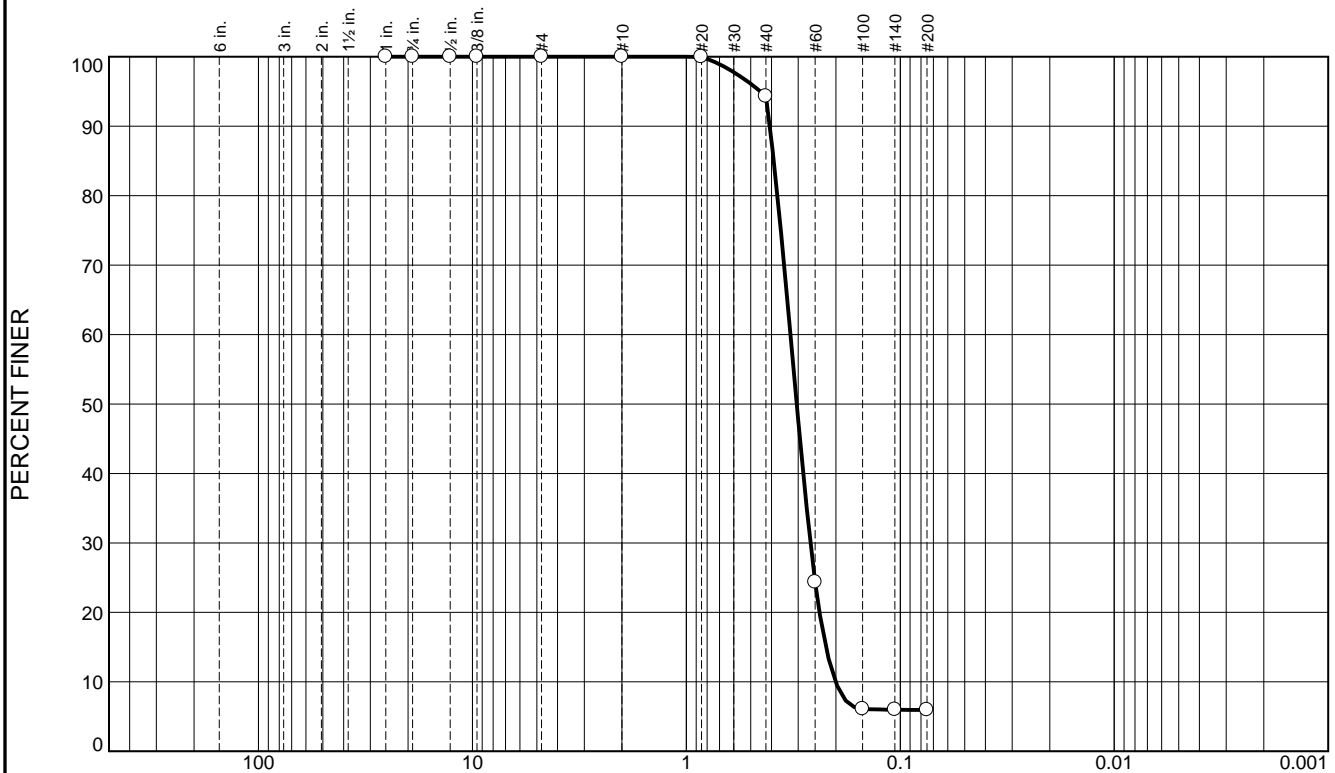
**Mobile, Alabama**

Client: CDM/Thompson Engineering JV  
Project: MsCIP Barrier Island Restoration GT

Project No: 1221110095

Figure

# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.0	0.0	5.7	88.4	5.9	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
1	100.0		
.75	100.0		
.5	100.0		
.375	100.0		
#4	100.0		
#10	100.0		
#20	100.0		
#40	94.3		
#60	24.4		
#100	6.1		
#140	6.0		
#200	5.9		

\* (no specification provided)

<u><b>Material Description</b></u>		
Fine grained, SLIGHTLY SILTY SAND		
<u><b>Atterberg Limits</b></u>		
PL=	LL=	PI=
<u><b>Coefficients</b></u>		
D <sub>90</sub> = 0.4073	D <sub>85</sub> = 0.3901	D <sub>60</sub> = 0.3263
D <sub>50</sub> = 0.3050	D <sub>30</sub> = 0.2631	D <sub>15</sub> = 0.2227
D <sub>10</sub> = 0.2007	C <sub>u</sub> = 1.63	C <sub>c</sub> = 1.06
<u><b>Classification</b></u>		
USCS= SP-SM	AASHTO=	
<u><b>Remarks</b></u>		

Location: BI-PB-179-12 D  
Sample Number: 6494 (71)

Depth: 12.2'

Date: 12/26/12

**Thompson Engineering**

**Mobile, Alabama**

Client: CDM/Thompson Engineering JV  
Project: MsCIP Barrier Island Restoration GT

Project No: 1221110095

Figure

# Boring Designation BI-PB-181-12

DRILLING LOG		DIVISION South Atlantic		INSTALLATION Mobile District		SHEET 1 OF 1 SHEETS	
1. PROJECT MsCIP Barrier Island Restoration Petit Bois Pass- AL East				9. SIZE AND TYPE OF BIT N/A			
2. BORING DESIGNATION BI-PB-181-12		LOCATION COORDINATES E = 1,151,693 N = 252,414		10. COORDINATE SYSTEM/DATUM State Plane, MSE (U.S. Ft.)		HORIZONTAL NAD83	
3. DRILLING AGENCY Corps of Engineers - CESAM		CONTRACTOR FILE NO.		11. MANUFACTURER'S DESIGNATION OF DRILL Vibracore		<input type="checkbox"/> AUTO HAMMER <input type="checkbox"/> MANUAL HAMMER	
4. NAME OF DRILLER American Vibracore Systems, Inc.				12. TOTAL SAMPLES		DISTURBED 0	
5. DIRECTION OF BORING <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED				13. TOTAL NUMBER CORE BOXES		14. WATER DEPTH 40.7 Ft.	
6. THICKNESS OF OVERBURDEN N/A				15. DATE BORING		STARTED 12-19-12	
7. DEPTH DRILLED INTO ROCK N/A				16. ELEVATION TOP OF BORING -40.3 Ft.		COMPLETED 12-19-12	
8. TOTAL DEPTH OF BORING 15.4 Ft.				17. TOTAL RECOVERY FOR BORING 100%		18. SIGNATURE AND TITLE OF INSPECTOR Mike FitzHarris, Geologist	
ELEV.	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS	SAMPLE	LABORATORY RESULTS		
-40.3	0.0						
			SAND, poorly-graded with silt, mostly fine-grained sand-sized quartz, few silt, few alternating bands of soft clay, gray (SP-SM)	A	Classification: SP-SM Color: 5Y 5/2-olive gray D50: 0.3268 mm % Fines: 7.8		
-43.8	3.5		SAND, poorly-graded, mostly fine to medium-grained sand-sized quartz, trace fines, dense, lt. gray to white (SP)	B	Classification: SP Color: 2.5Y 7/1-light gray D50: 0.3526 mm % Fines: 1.2		
				C	Classification: SP Color: 5Y 8/1-white D50: 0.3366 mm % Fines: 0.6		
				D	Classification: SP Color: 2.5Y 8.5/1- D50: 0.3225 mm % Fines: 0.8		
-55.7	15.4						
			NOTES: 1. Soils are field visually classified in accordance with the Unified Soils Classification System. 2. NS = Sample not submitted for laboratory analysis from this interval. 3. Seafloor elevation determined from 2010 USACE survey.				



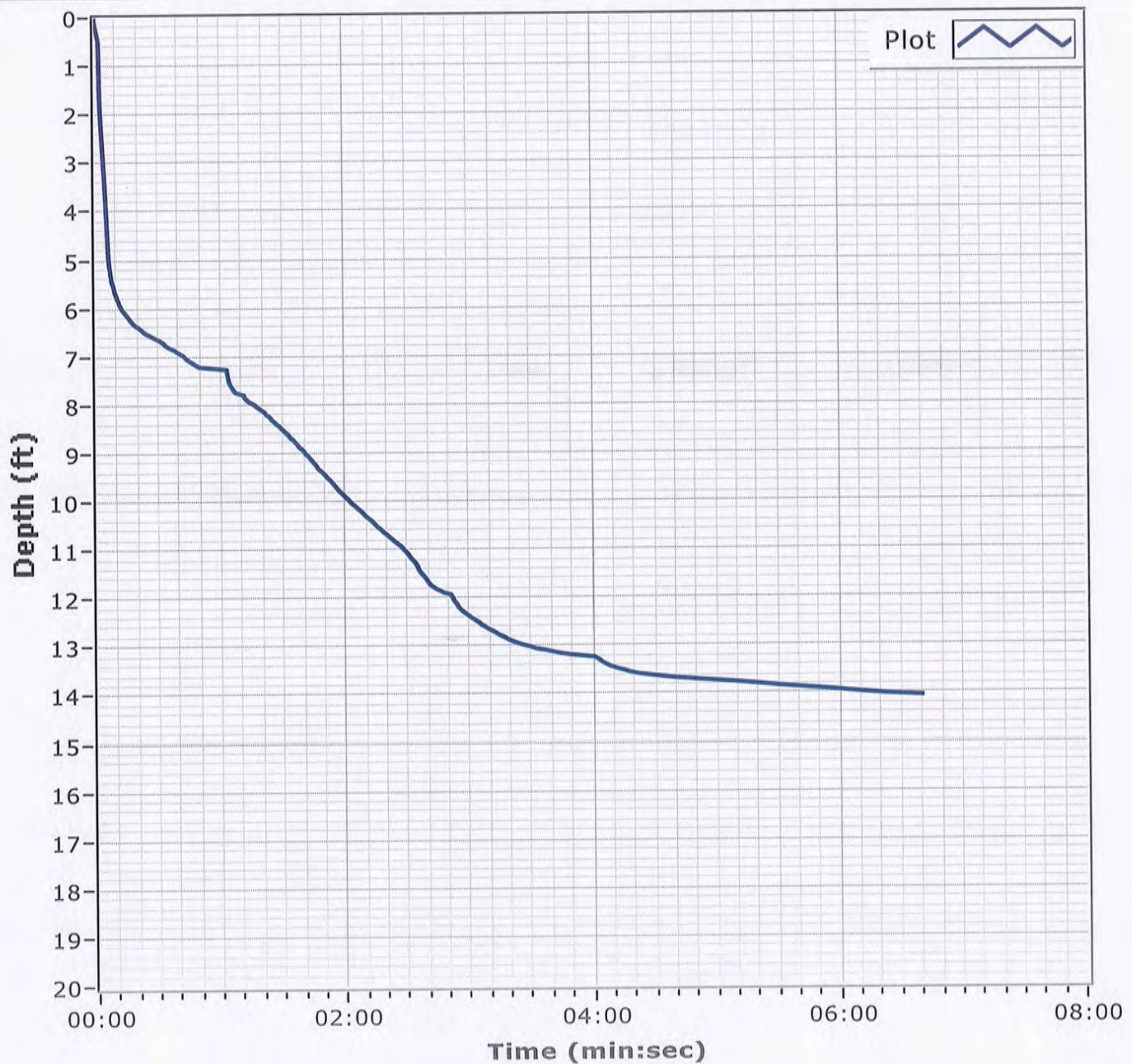
**Project**

Mississippi Barrier Island  
Restoration Project

**AVS**  
**AMERICAN VIBRACORE**  
**S E R V I C E S**

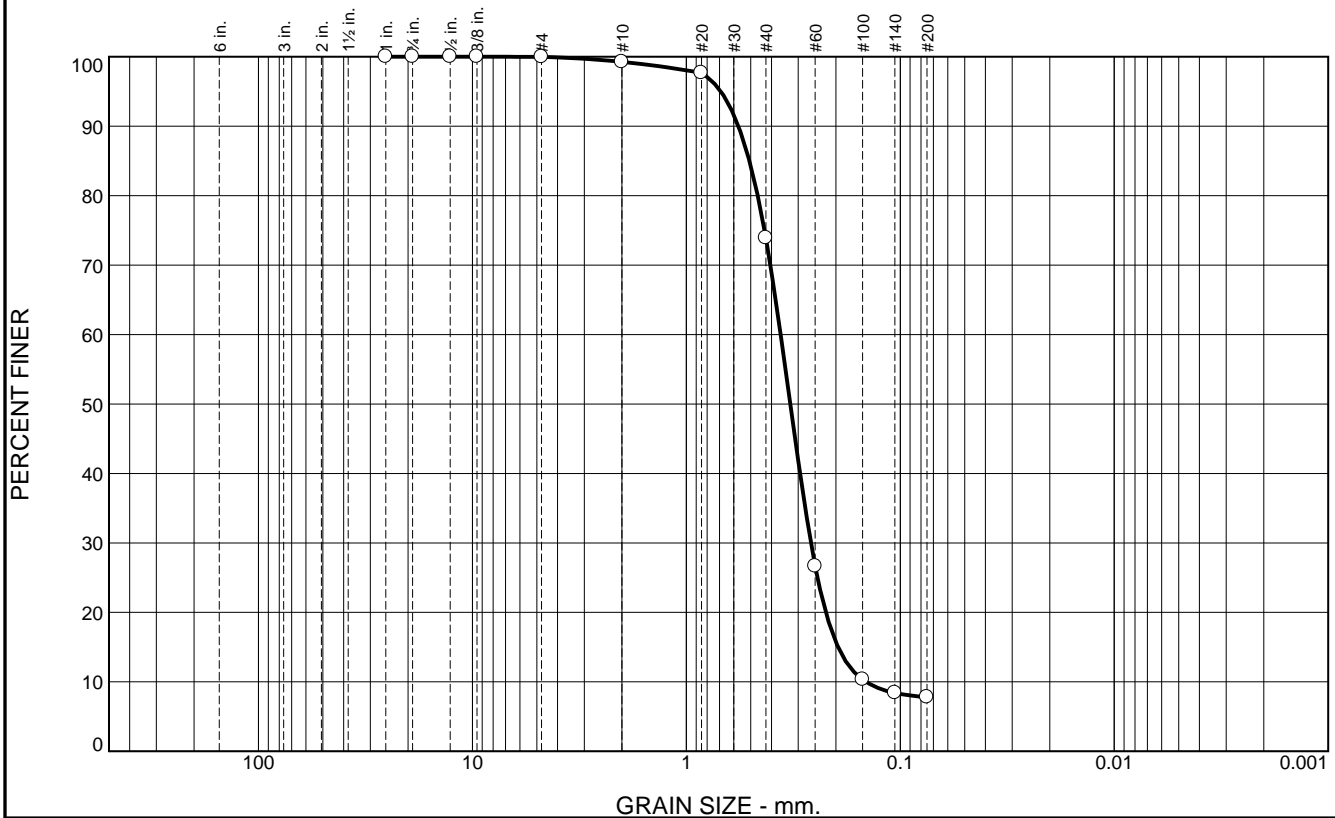
**Core Identifier** BI-PB-181-12**Date** 12/19/2012**Water Depth** 40.7'**Coordinate System**

Latitude / Longitude

**Start Time** 10:22:41**End Time** 10:29:22**Penetration** 14.1'**Latitude** 30 11.581**Total Time** 00:06:41**Recovery** 15.3'**Longitude** 88 18.200**Comments**



# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.0	0.7	25.4	66.1	7.8	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
1	100.0		
.75	100.0		
.5	100.0		
.375	100.0		
#4	100.0		
#10	99.3		
#20	97.7		
#40	73.9		
#60	26.7		
#100	10.3		
#140	8.4		
#200	7.8		

\* (no specification provided)

## Material Description

Fine to medium grained, SLIGHTLY SILTY SAND

## Atterberg Limits

PL= LL= PI=

## Coefficients

D<sub>90</sub>= 0.5710 D<sub>85</sub>= 0.5074 D<sub>60</sub>= 0.3624  
D<sub>50</sub>= 0.3268 D<sub>30</sub>= 0.2617 D<sub>15</sub>= 0.1954  
D<sub>10</sub>= 0.1444 C<sub>u</sub>= 2.51 C<sub>c</sub>= 1.31

## Classification

USCS= SP-SM AASHTO=

## Remarks

Location: BI-PB-181-12 A  
Sample Number: 6494 (72)

Depth: 0.0'

Date: 12/26/12

**Thompson Engineering**

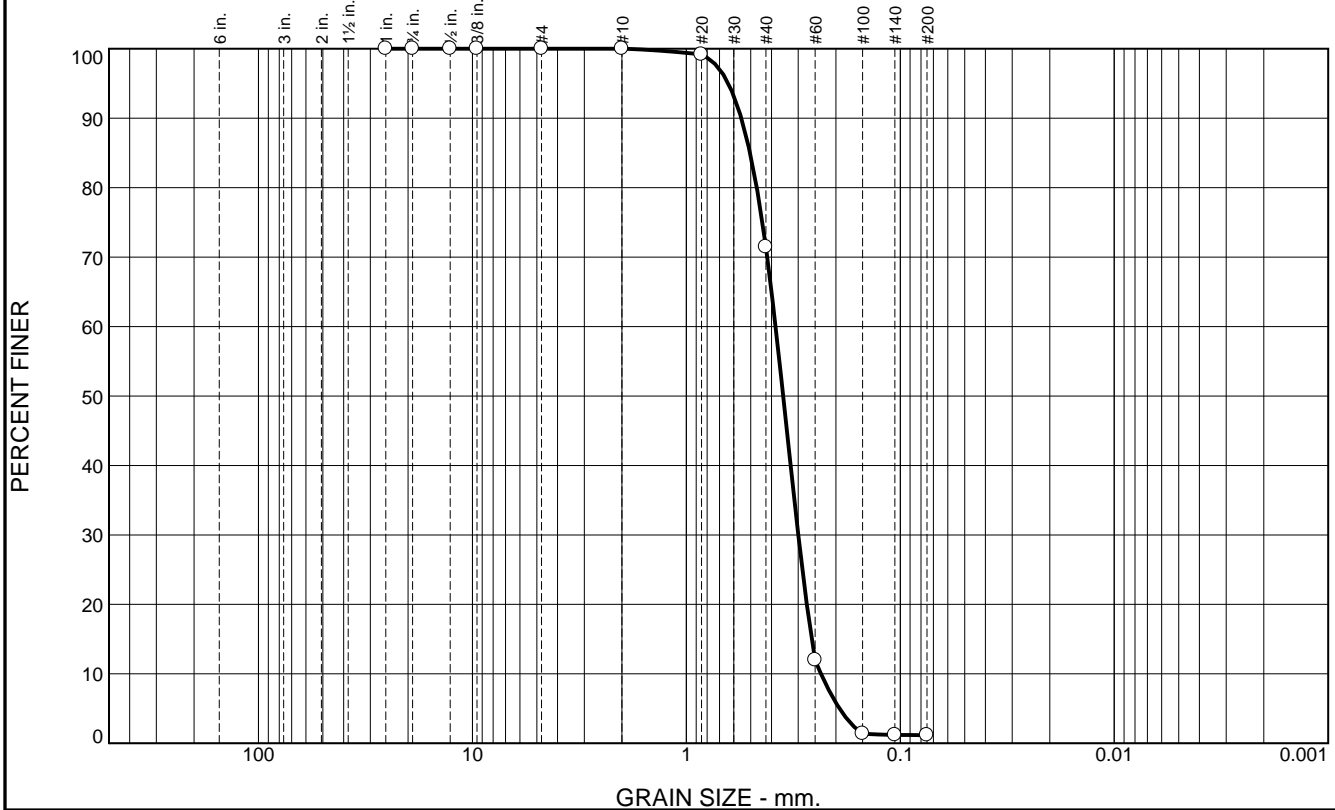
**Mobile, Alabama**

Client: CDM/Thompson Engineering JV  
Project: MsCIP Barrier Island Restoration GT

Project No: 1221110095

Figure

# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.0	0.0	28.5	70.3	1.2	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
1	100.0		
.75	100.0		
.5	100.0		
.375	100.0		
#4	100.0		
#10	100.0		
#20	99.2		
#40	71.5		
#60	12.0		
#100	1.4		
#140	1.2		
#200	1.2		

\* (no specification provided)

## Material Description

Fine to medium grained, SAND

## Atterberg Limits

PL= LL= PI=

## Coefficients

D<sub>90</sub>= 0.5533 D<sub>85</sub>= 0.5040 D<sub>60</sub>= 0.3827  
D<sub>50</sub>= 0.3526 D<sub>30</sub>= 0.2999 D<sub>15</sub>= 0.2596  
D<sub>10</sub>= 0.2347 C<sub>u</sub>= 1.63 C<sub>c</sub>= 1.00

## Classification

USCS= SP AASHTO=

## Remarks

Location: BI-PB-181-12 B  
Sample Number: 6494 (73)

Depth: 3.5'

Date: 12/26/12

**Thompson Engineering**

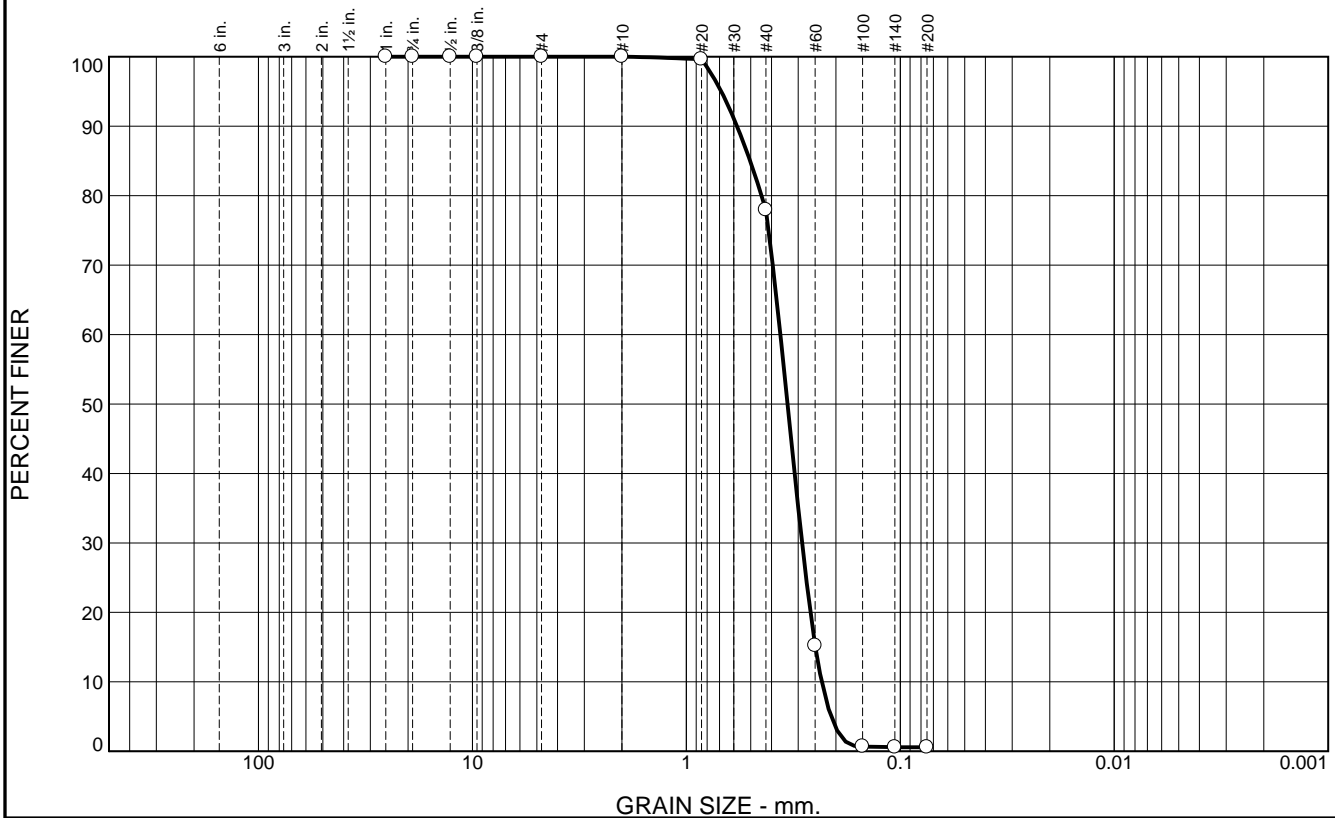
**Mobile, Alabama**

Client: CDM/Thompson Engineering JV  
Project: MsCIP Barrier Island Restoration GT

Project No: 1221110095

Figure

# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.0	0.0	22.1	77.3	0.6	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
1	100.0		
.75	100.0		
.5	100.0		
.375	100.0		
#4	100.0		
#10	100.0		
#20	99.6		
#40	77.9		
#60	15.2		
#100	0.7		
#140	0.6		
#200	0.6		

\* (no specification provided)

**Material Description**  
 Fine to medium grained, SAND

**Atterberg Limits**  
 PL=      LL=      PI=

**Coefficients**  
 D<sub>90</sub>= 0.5795      D<sub>85</sub>= 0.5035      D<sub>60</sub>= 0.3634  
 D<sub>50</sub>= 0.3366      D<sub>30</sub>= 0.2880      D<sub>15</sub>= 0.2494  
 D<sub>10</sub>= 0.2329      C<sub>u</sub>= 1.56      C<sub>c</sub>= 0.98

**Classification**  
 USCS= SP      AASHTO=

**Remarks**

Location: BI-PB-181-12 C  
 Sample Number: 6494 (74)

Depth: 5.4'

Date: 12/26/12

**Thompson Engineering**

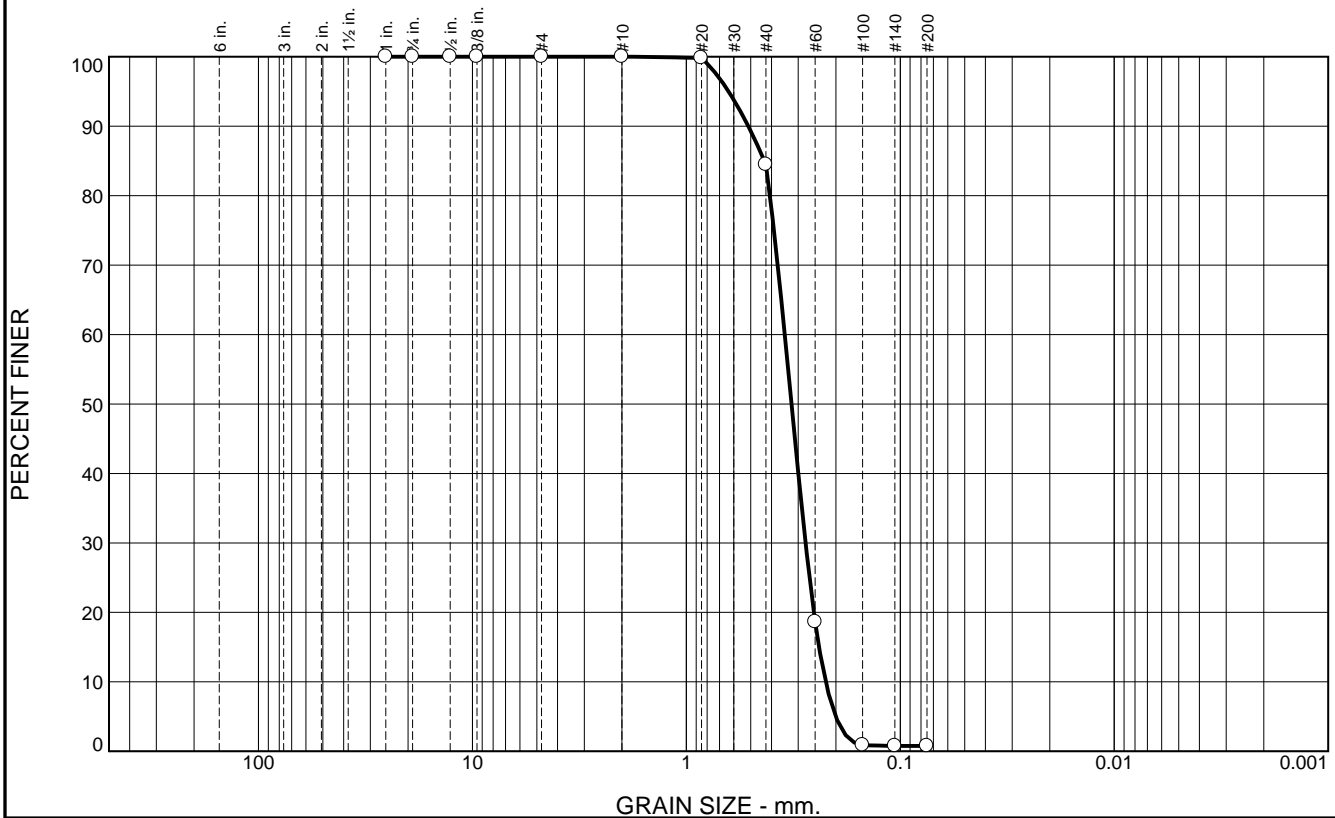
**Mobile, Alabama**

Client: CDM/Thompson Engineering JV  
 Project: MsCIP Barrier Island Restoration GT

Project No: 1221110095

Figure

# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.0	0.0	15.5	83.7	0.8	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
1	100.0		
.75	100.0		
.5	100.0		
.375	100.0		
#4	100.0		
#10	100.0		
#20	99.8		
#40	84.5		
#60	18.6		
#100	0.9		
#140	0.8		
#200	0.8		

\* (no specification provided)

<u><b>Material Description</b></u>		
Fine to medium grained, SAND		
<u><b>Atterberg Limits</b></u>		
PL=	LL=	PI=
<u><b>Coefficients</b></u>		
D <sub>90</sub> = 0.5135	D <sub>85</sub> = 0.4323	D <sub>60</sub> = 0.3467
D <sub>50</sub> = 0.3225	D <sub>30</sub> = 0.2774	D <sub>15</sub> = 0.2398
D <sub>10</sub> = 0.2232	C <sub>u</sub> = 1.55	C <sub>c</sub> = 0.99
<u><b>Classification</b></u>		
USCS= SP	AASHTO=	
<u><b>Remarks</b></u>		

Location: BI-PB-181-12 D  
Sample Number: 6494 (75)

Depth: 10.4'

Date: 12/26/12

**Thompson Engineering**

**Mobile, Alabama**

Client: CDM/Thompson Engineering JV  
Project: MsCIP Barrier Island Restoration GT

Project No: 1221110095

Figure

# Boring Designation BI-PB-182-12

DRILLING LOG		DIVISION South Atlantic		INSTALLATION Mobile District		SHEET 1 OF 1 SHEETS	
1. PROJECT MsCIP Barrier Island Restoration Petit Bois Pass- AL East				9. SIZE AND TYPE OF BIT N/A			
2. BORING DESIGNATION BI-PB-182-12		LOCATION COORDINATES E = 1,150,793 N = 252,287		10. COORDINATE SYSTEM/DATUM State Plane, MSE (U.S. Ft.)		HORIZONTAL NAD83	
3. DRILLING AGENCY Corps of Engineers - CESAM		CONTRACTOR FILE NO.		11. MANUFACTURER'S DESIGNATION OF DRILL Vibracore		<input type="checkbox"/> AUTO HAMMER <input type="checkbox"/> MANUAL HAMMER	
4. NAME OF DRILLER American Vibracore Systems, Inc.				12. TOTAL SAMPLES		DISTURBED 0	
5. DIRECTION OF BORING <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED				13. TOTAL NUMBER CORE BOXES		14. WATER DEPTH 38.4 Ft.	
6. THICKNESS OF OVERBURDEN N/A				15. DATE BORING		STARTED 12-12-12	
7. DEPTH DRILLED INTO ROCK N/A				16. ELEVATION TOP OF BORING -38.8 Ft.		COMPLETED 12-12-12	
8. TOTAL DEPTH OF BORING 12.0 Ft.				17. TOTAL RECOVERY FOR BORING 100%			
				18. SIGNATURE AND TITLE OF INSPECTOR Mike FitzHarris, Geologist			
ELEV.	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS	SAMPLE	LABORATORY RESULTS		
-38.8	0.0						
-40.8	2.0		SAND, poorly-graded, mostly fine to medium-grained sand-sized quartz, trace fines, gray (SP)	A	Classification: SP Color: 5Y 6/3-pale olive D50: 0.3259 mm % Fines: 1.2		
-42.6	3.8		CLAY, lean, mostly clay, some silt, low to medium plasticity, some fine grain layers between 3.1 to 3.6 ft., dark gray (CL)	NS			
-43.8	5.0		SAND, poorly-graded, mostly fine-grained sand-sized quartz, trace fines, dense, clay lens at 4.5 ft., lt. gray (SP)	B	Classification: SP-SM Color: 5Y 6/1-gray D50: 0.2826 mm % Fines: 6.9		
-45.8	7.0		CLAY, lean, mostly clay, some fine-grained, sand-sized quartz layers, lt. brown (CL)	NS			
-50.8	12.0		SAND, poorly-graded, mostly fine-grained sand-sized quartz, trace fines, thin clay bands between 8.7 to 10.3 ft., clay band at 11.6 ft., lt. gray to white (SP)	C	Classification: SP Color: 5Y 7/1-light gray D50: 0.2569 mm % Fines: 2.7		
NOTES: 1. Soils are field visually classified in accordance with the Unified Soils Classification System. 2. NS = Sample not submitted for laboratory analysis from this interval. 3. Seafloor elevation determined from 2010 USACE survey.							

**Project** Mississippi Barrier Island  
Restoration Project



**Core Identifier** BI-PB-182-12

**Date** 12/12/2012

**Water Depth** 38.4'

**Coordinate System**

**Latitude / Longitude**

**Start Time** 15:48:36

**End Time** 15:55:30

**Penetration** 15.1'

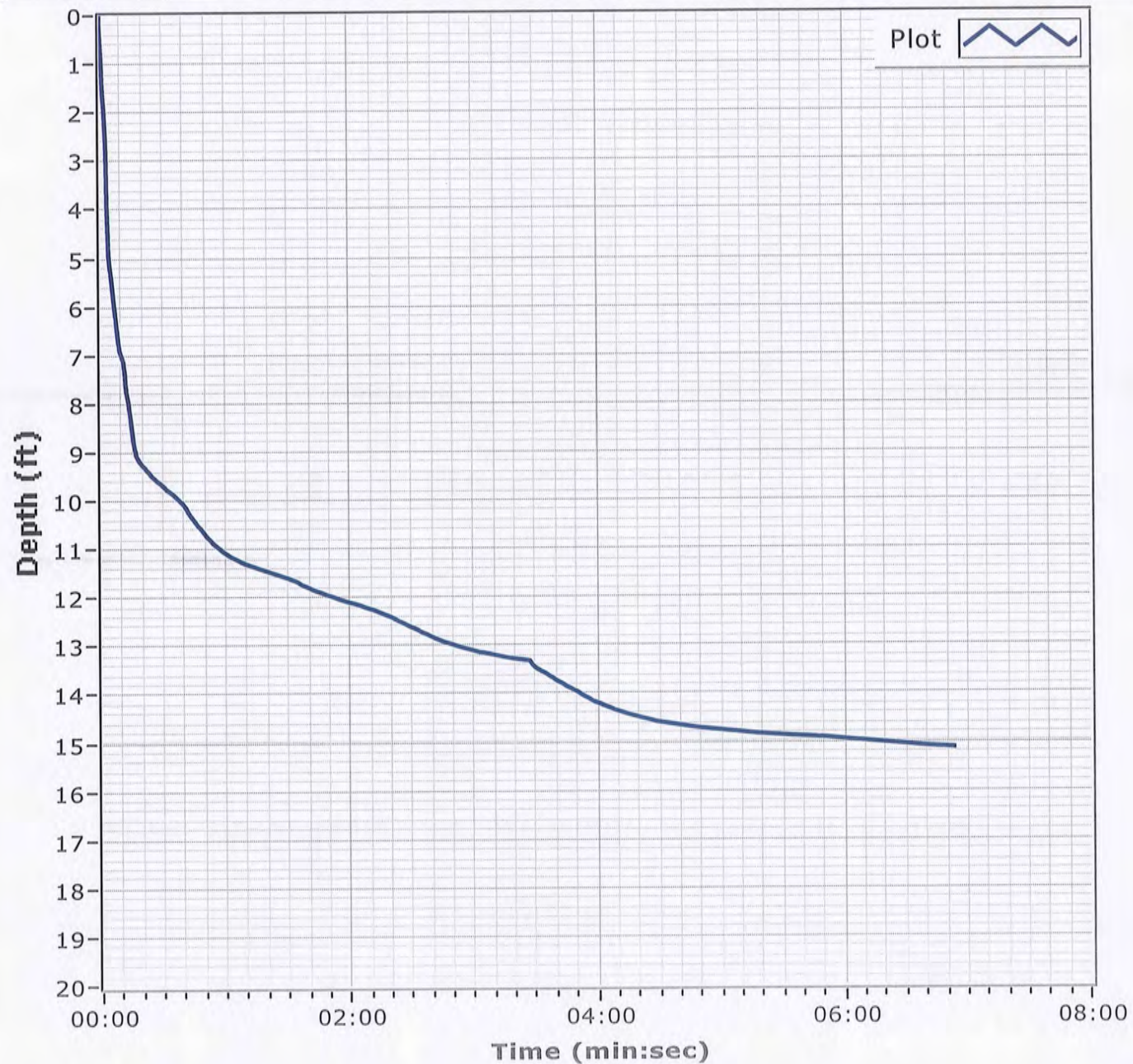
**Latitude** 30 11.561

**Total Time** 00:06:54

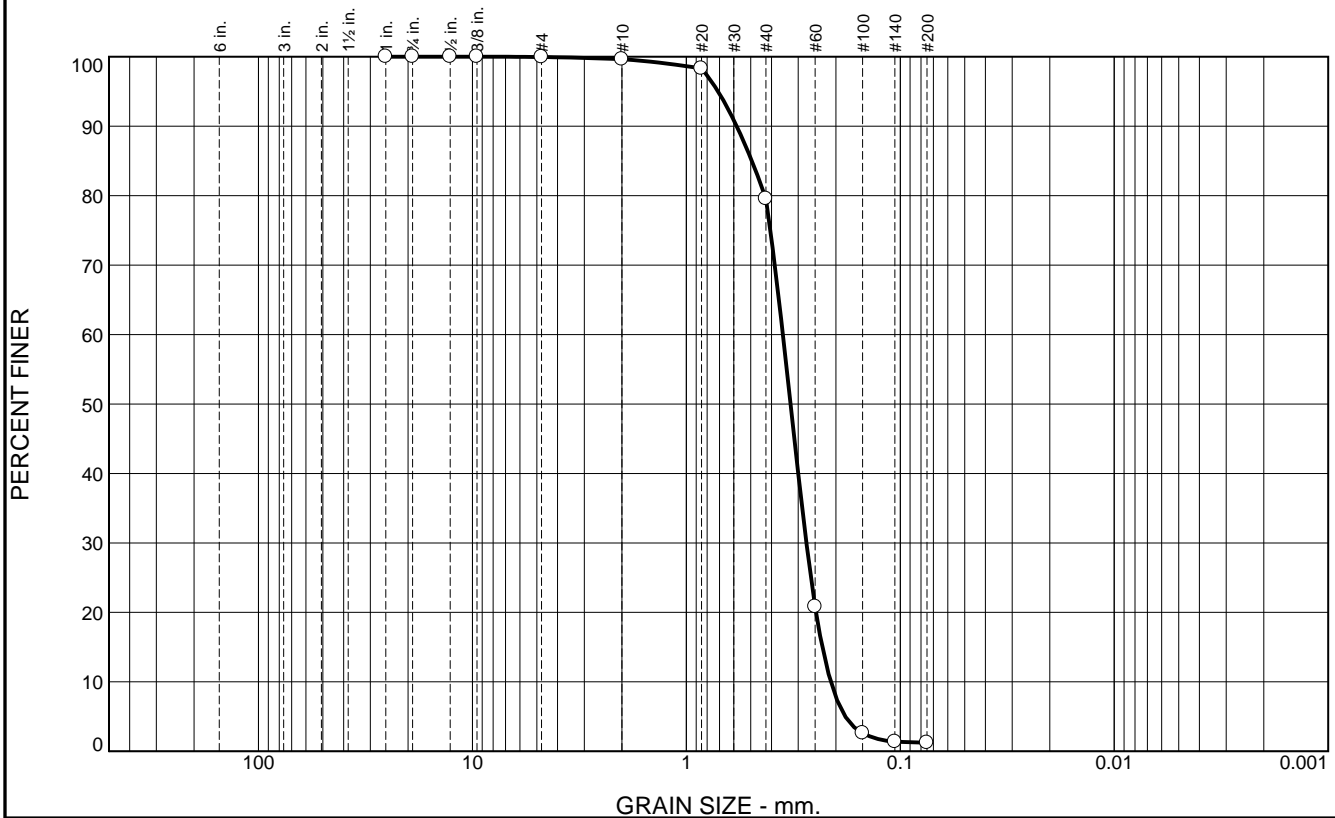
**Recovery** 12.1'

**Longitude** 088 18.371

**Comments**



# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.0	0.4	20.0	78.4	1.2	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
1	100.0		
.75	100.0		
.5	100.0		
.375	100.0		
#4	100.0		
#10	99.6		
#20	98.3		
#40	79.6		
#60	20.8		
#100	2.6		
#140	1.4		
#200	1.2		

\* (no specification provided)

<u><b>Material Description</b></u>		
Fine to medium grained, SAND		
<u><b>Atterberg Limits</b></u>		
PL=	LL=	PI=
<u><b>Coefficients</b></u>		
D <sub>90</sub> = 0.5816	D <sub>85</sub> = 0.4944	D <sub>60</sub> = 0.3538
D <sub>50</sub> = 0.3259	D <sub>30</sub> = 0.2749	D <sub>15</sub> = 0.2314
D <sub>10</sub> = 0.2113	C <sub>u</sub> = 1.67	C <sub>c</sub> = 1.01
<u><b>Classification</b></u>		
USCS= SP	AASHTO=	
<u><b>Remarks</b></u>		

Location: BI-PB-182-12 A  
Sample Number: 6485 (14)

Depth: 0.0'

Date: 12/07/12

**Thompson Engineering**

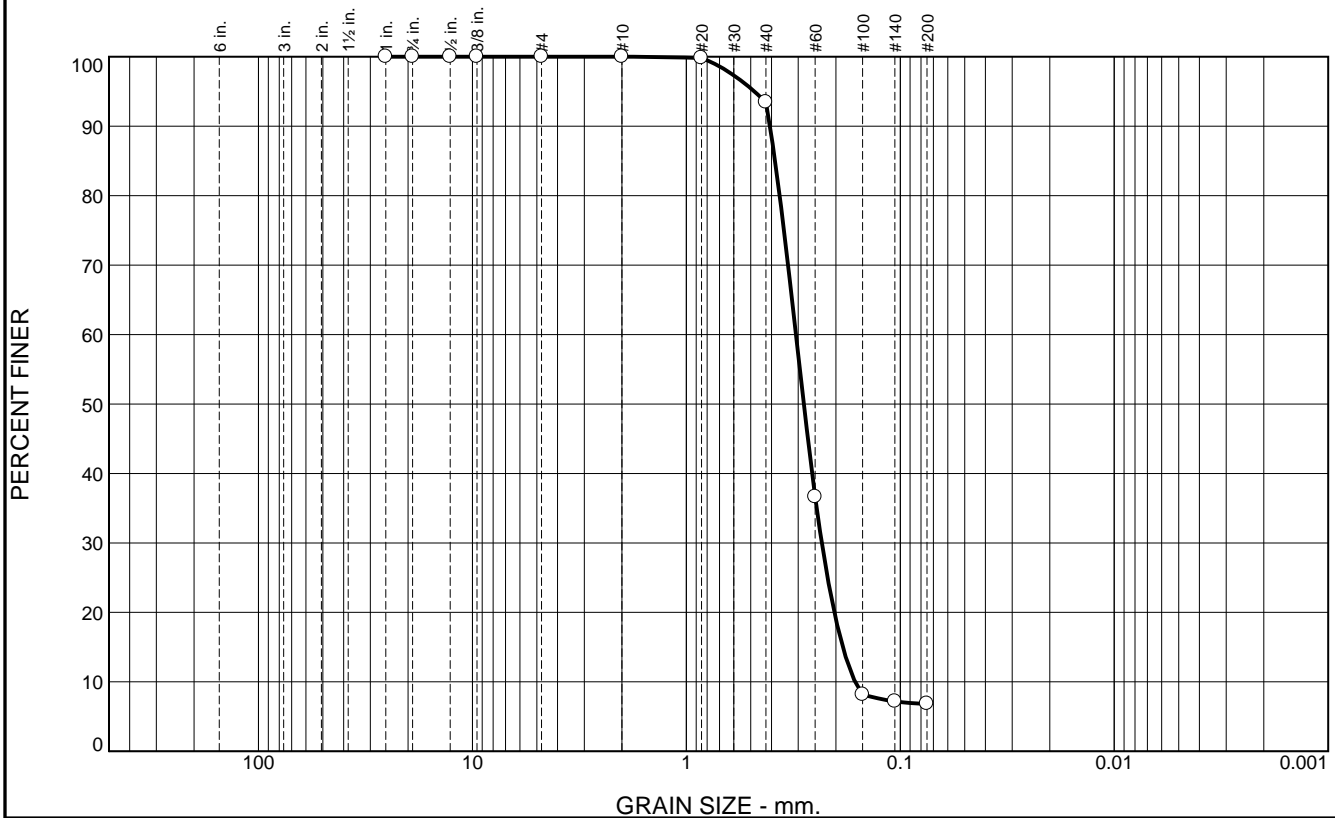
**Mobile, Alabama**

Client: CDM/Thompson Engineering JV  
Project: MsCIP Barrier Island Restoration GT

Project No: 1221110095

Figure

# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.0	0.0	6.6	86.5	6.9	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
1	100.0		
.75	100.0		
.5	100.0		
.375	100.0		
#4	100.0		
#10	100.0		
#20	99.8		
#40	93.4		
#60	36.6		
#100	8.2		
#140	7.2		
#200	6.9		

\* (no specification provided)

## Material Description

Fine grained, SLIGHTLY SILTY SAND

## Atterberg Limits

PL= LL= PI=

## Coefficients

D<sub>90</sub>= 0.4066 D<sub>85</sub>= 0.3847 D<sub>60</sub>= 0.3076  
D<sub>50</sub>= 0.2826 D<sub>30</sub>= 0.2327 D<sub>15</sub>= 0.1858  
D<sub>10</sub>= 0.1628 C<sub>u</sub>= 1.89 C<sub>c</sub>= 1.08

## Classification

USCS= SP-SM AASHTO=

## Remarks

Location: BI-PB-182-12 B  
Sample Number: 6485 (15)

Depth: 3.8'

Date: 12/07/12

**Thompson Engineering**

**Mobile, Alabama**

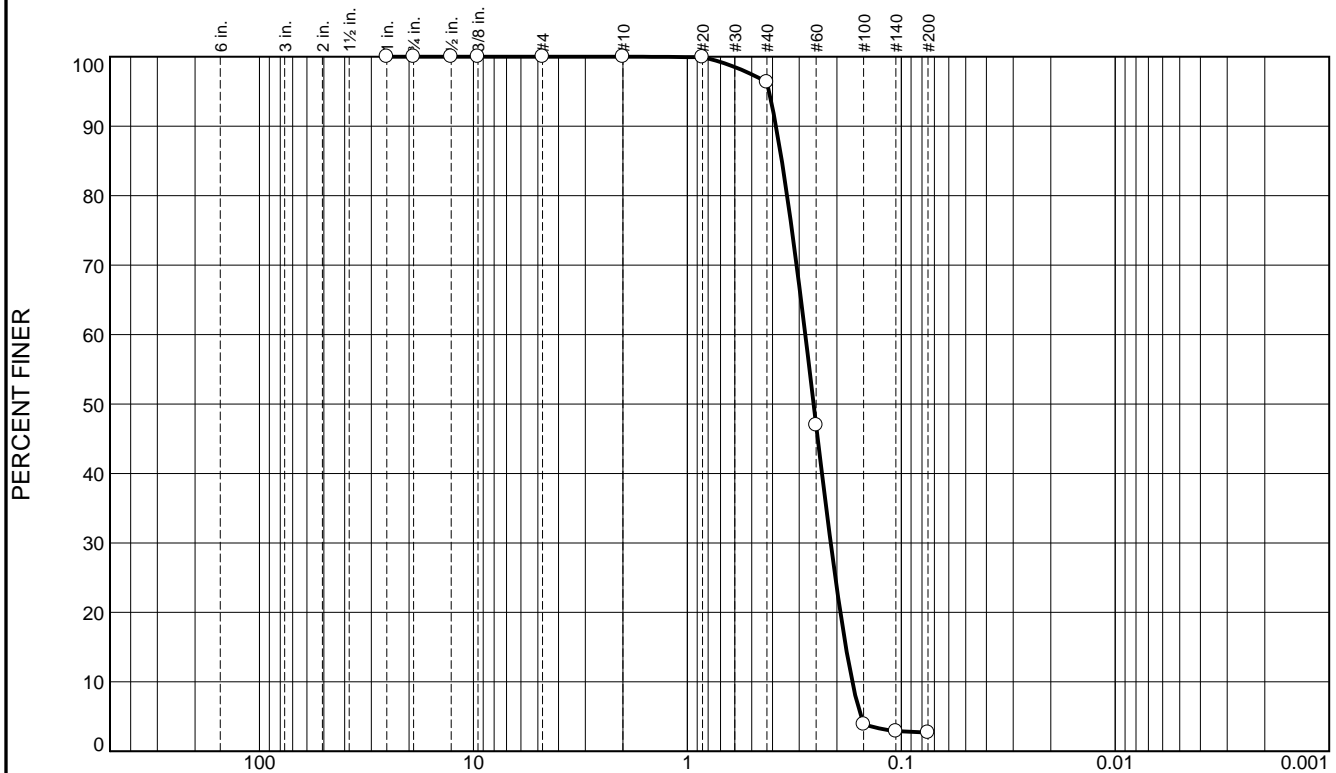
Client: CDM/Thompson Engineering JV  
Project: MsCIP Barrier Island Restoration GT

Project No: 1221110095

Figure



# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.0	0.0	3.7	93.6	2.7	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
1	100.0		
.75	100.0		
.5	100.0		
.375	100.0		
#4	100.0		
#10	100.0		
#20	99.9		
#40	96.3		
#60	46.9		
#100	3.9		
#140	2.9		
#200	2.7		

\* (no specification provided)

Material Description		
Fine grained, SAND		
<div> <div> Atterberg Limits </div> <div> PL= </div> <div> LL= </div> <div> PI= </div> </div>		
<div> <div> Coefficients </div> <div> D<sub>90</sub>= 0.3850 </div> <div> D<sub>50</sub>= 0.2569 </div> <div> D<sub>10</sub>= 0.1696 </div> <div> D<sub>85</sub>= 0.3615 </div> <div> D<sub>30</sub>= 0.2138 </div> <div> C<sub>u</sub>= 1.66 </div> <div> D<sub>60</sub>= 0.2812 </div> <div> D<sub>15</sub>= 0.1817 </div> <div> C<sub>c</sub>= 0.96 </div> </div>		
<div> <div> Classification </div> <div> USCS= SP </div> <div> AASHTO= </div> </div>		
<div> <div> Remarks </div> </div>		

Location: BI-PB-182-12 C  
Sample Number: 6485 (16)

Depth: 7.0'

Date: 12/07/12

Thompson Engineering

Mobile, Alabama

Client: CDM/Thompson Engineering JV  
Project: MsCIP Barrier Island Restoration GT

Project No: 1221110095

Figure

# Boring Designation BI-PB-183-12

DRILLING LOG		DIVISION South Atlantic		INSTALLATION Mobile District		SHEET 1 OF 1 SHEETS	
1. PROJECT MsCIP Barrier Island Restoration Petit Bois Pass- AL East				9. SIZE AND TYPE OF BIT N/A			
2. BORING DESIGNATION BI-PB-183-12		LOCATION COORDINATES E = 1,142,874 N = 255,433		10. COORDINATE SYSTEM/DATUM State Plane, MSE (U.S. Ft.)		HORIZONTAL NAD83	
3. DRILLING AGENCY Corps of Engineers - CESAM		CONTRACTOR FILE NO.		11. MANUFACTURER'S DESIGNATION OF DRILL Vibracore		<input type="checkbox"/> AUTO HAMMER <input type="checkbox"/> MANUAL HAMMER	
4. NAME OF DRILLER American Vibracore Systems, Inc.				12. TOTAL SAMPLES		DISTURBED 0	
5. DIRECTION OF BORING <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED				13. TOTAL NUMBER CORE BOXES		14. WATER DEPTH 27 Ft.	
6. THICKNESS OF OVERBURDEN N/A				15. DATE BORING		STARTED 12-07-12	
7. DEPTH DRILLED INTO ROCK N/A				16. ELEVATION TOP OF BORING -26.4 Ft.		COMPLETED 12-07-12	
8. TOTAL DEPTH OF BORING 12.6 Ft.				17. TOTAL RECOVERY FOR BORING 100%		18. SIGNATURE AND TITLE OF INSPECTOR Mike FitzHarris, Geologist	
ELEV.	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS	SAMPLE	LABORATORY RESULTS		
-26.4	0.0						
-28.6	2.2		SAND, poorly-graded, mostly fine to medium-grained sand-sized quartz, trace silt, trace shell fragments, lt. gray (SP)	A	Classification: SP Color: 5Y 7/2-light gray D50: 0.3904 mm % Fines: 1.3		
-33.6	7.2		SAND, poorly-graded, mostly fine-grained sand-sized quartz, trace shell fragments, trace clay streaks at 1.4 ft., lt. gray (SP)	B	Classification: SP Color: 5Y 7/2-light gray D50: 0.2611 mm % Fines: 2		
-38.6	12.2		SAND, poorly-graded, mostly fine-grained sand-sized quartz, lt. gray (SP)	C	Classification: SP Color: 2.5Y 8/1-white D50: 0.3022 mm % Fines: 1.2		
-39.0	12.6		SAND, poorly-graded, mostly fine to medium-grained sand-sized quartz, trace silt, trace shell fragments, trace clayey nodules, lt. gray (SP)	NS			
NOTES:							
1. Soils are field visually classified in accordance with the Unified Soils Classification System.							
2. NS = Sample not submitted for laboratory analysis from this interval.							
3. Seafloor elevation calculated using sampling vessel's fathometer water depth reading and applying NOAA tidal gauge data conversion factor.							

**Project**

Mississippi Barrier Island  
Restoration Project

**AVS**  
**AMERICAN VIBRACORE**  
**S E R V I C E S**

**Core Identifier** BI-PB-183-12

**Date** 12/07/2012

**Water Depth** 27.0'

**Coordinate System**

**Start Time** 11:43:49

Latitude / Longitude

**End Time** 11:50:21

**Penetration** 14.1'

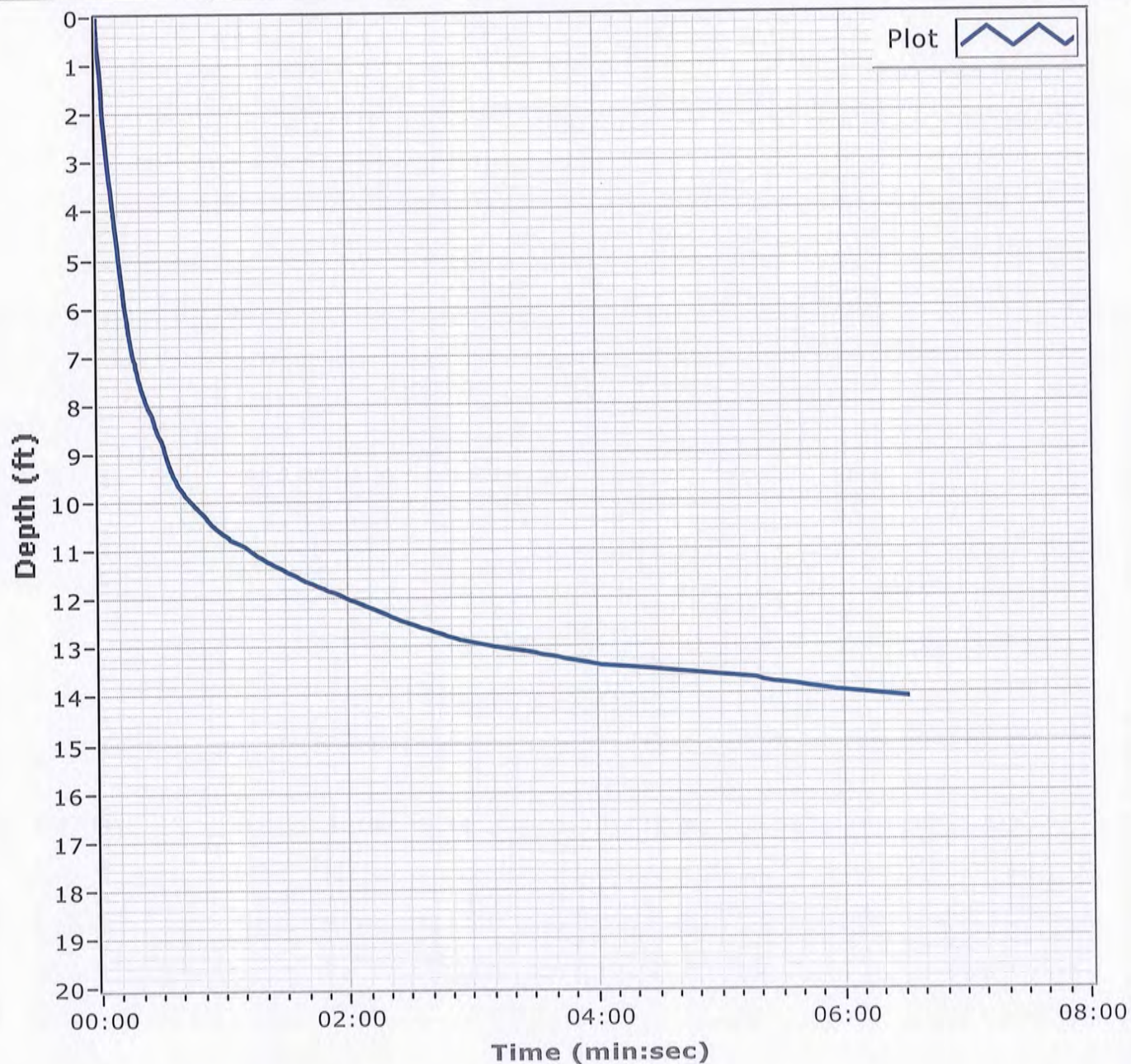
**Latitude** 30 12.086

**Total Time** 00:06:32

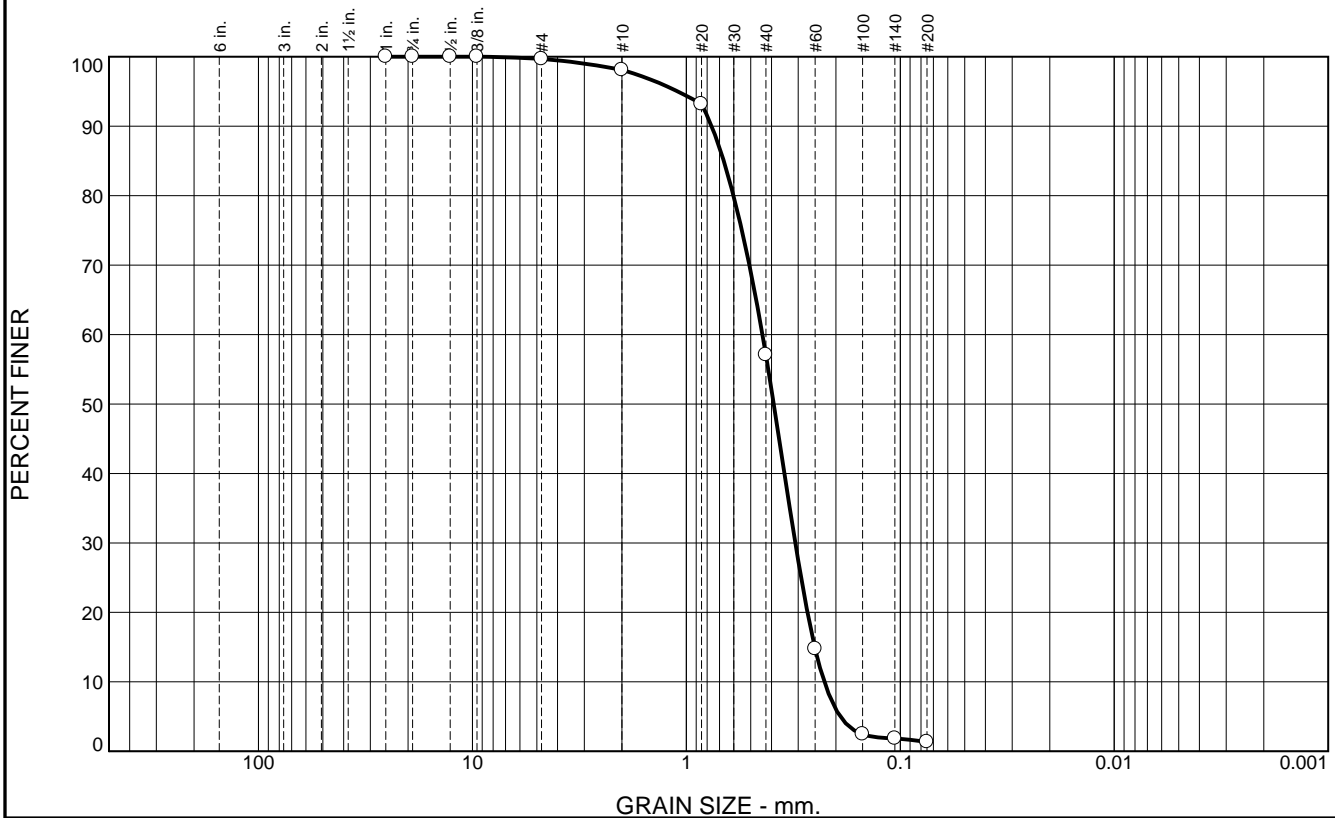
**Recovery** 12.6

**Longitude** 088 19.872

**Comments**



# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.3	1.6	41.0	55.8	1.3	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
1	100.0		
.75	100.0		
.5	100.0		
.375	100.0		
#4	99.7		
#10	98.1		
#20	93.2		
#40	57.1		
#60	14.7		
#100	2.5		
#140	1.9		
#200	1.3		

\* (no specification provided)

<u><b>Material Description</b></u>		
Fine to medium grained, SAND		
<u><b>Atterberg Limits</b></u>		
PL=	LL=	PI=
<u><b>Coefficients</b></u>		
D <sub>90</sub> = 0.7622	D <sub>85</sub> = 0.6689	D <sub>60</sub> = 0.4411
D <sub>50</sub> = 0.3904	D <sub>30</sub> = 0.3097	D <sub>15</sub> = 0.2512
D <sub>10</sub> = 0.2265	C <sub>u</sub> = 1.95	C <sub>c</sub> = 0.96
<u><b>Classification</b></u>		
USCS= SP	AASHTO=	
<u><b>Remarks</b></u>		

Location: BI-PB-183-12 A  
Sample Number: 6482 (2)

Depth: 0.0'

Date: 12/12/12

**Thompson Engineering**

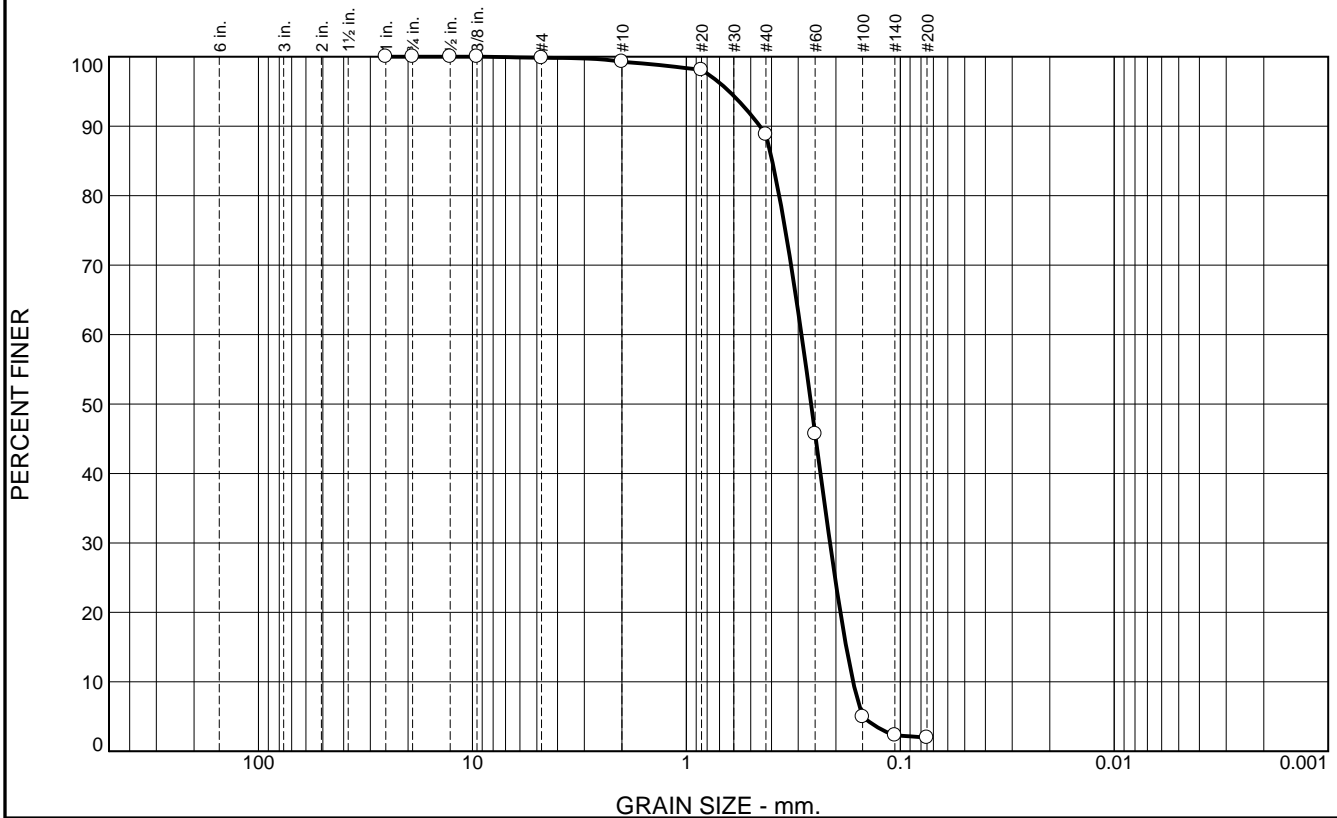
**Mobile, Alabama**

Client: CDM/Thompson Engineering JV  
Project: MsCIP Barrier Island Restoration GT

Project No: 1221110095

Figure

# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.2	0.5	10.5	86.8	2.0	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
1	100.0		
.75	100.0		
.5	100.0		
.375	100.0		
#4	99.8		
#10	99.3		
#20	98.1		
#40	88.8		
#60	45.7		
#100	5.0		
#140	2.3		
#200	2.0		

\* (no specification provided)

## Material Description

Fine to medium grained, SAND

## Atterberg Limits

PL= LL= PI=

## Coefficients

D<sub>90</sub>= 0.4535 D<sub>85</sub>= 0.3968 D<sub>60</sub>= 0.2898  
D<sub>50</sub>= 0.2611 D<sub>30</sub>= 0.2131 D<sub>15</sub>= 0.1790  
D<sub>10</sub>= 0.1663 C<sub>u</sub>= 1.74 C<sub>c</sub>= 0.94

## Classification

USCS= SP AASHTO=

## Remarks

Location: BI-PB-183-12 B  
Sample Number: 6482 (3)

Depth: 2.2'

Date: 12/12/12

**Thompson Engineering**

**Mobile, Alabama**

Client: CDM/Thompson Engineering JV  
Project: MsCIP Barrier Island Restoration GT

Project No: 1221110095

Figure

# Particle Size Distribution Report



GRAIN SIZE - mm.

% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.0	0.2	13.3	85.3	1.2	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
1	100.0		
.75	100.0		
.5	100.0		
.375	100.0		
#4	100.0		
#10	99.8		
#20	99.3		
#40	86.5		
#60	29.0		
#100	2.0		
#140	1.3		
#200	1.2		

\* (no specification provided)

## Material Description

Fine to medium grained, SAND

## Atterberg Limits

PL= LL= PI=

## Coefficients

D<sub>90</sub>= 0.4893 D<sub>85</sub>= 0.4172 D<sub>60</sub>= 0.3286  
D<sub>50</sub>= 0.3022 D<sub>30</sub>= 0.2525 D<sub>15</sub>= 0.2101  
D<sub>10</sub>= 0.1927 C<sub>u</sub>= 1.71 C<sub>c</sub>= 1.01

## Classification

USCS= SP AASHTO=

## Remarks

Location: BI-PB-183-12 C  
Sample Number: 6482 (4)

Depth: 7.2'

Date: 12/12/12

**Thompson Engineering**

**Mobile, Alabama**

Client: CDM/Thompson Engineering JV  
Project: MsCIP Barrier Island Restoration GT

Project No: 1221110095

Figure

# Boring Designation BI-PB-184-12

DRILLING LOG		DIVISION South Atlantic		INSTALLATION Mobile District		SHEET 1 OF 1 SHEETS	
1. PROJECT MsCIP Barrier Island Restoration Petit Bois Pass- AL East				9. SIZE AND TYPE OF BIT N/A			
2. BORING DESIGNATION BI-PB-184-12		LOCATION COORDINATES E = 1,143,386 N = 255,414		10. COORDINATE SYSTEM/DATUM State Plane, MSE (U.S. Ft.)		HORIZONTAL NAD83	
3. DRILLING AGENCY Corps of Engineers - CESAM		CONTRACTOR FILE NO.		11. MANUFACTURER'S DESIGNATION OF DRILL Vibracore		<input type="checkbox"/> AUTO HAMMER <input type="checkbox"/> MANUAL HAMMER	
4. NAME OF DRILLER American Vibracore Systems, Inc.				12. TOTAL SAMPLES		DISTURBED 0	
5. DIRECTION OF BORING <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED				13. TOTAL NUMBER CORE BOXES		14. WATER DEPTH 28.2 Ft.	
6. THICKNESS OF OVERBURDEN N/A				15. DATE BORING		STARTED 12-07-12	
7. DEPTH DRILLED INTO ROCK N/A				16. ELEVATION TOP OF BORING -27.6 Ft.		COMPLETED 12-07-12	
8. TOTAL DEPTH OF BORING 18.5 Ft.				17. TOTAL RECOVERY FOR BORING 100%			
				18. SIGNATURE AND TITLE OF INSPECTOR Mike FitzHarris, Geologist			
ELEV.	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS	SAMPLE	LABORATORY RESULTS		
-27.6	0.0						
-30.4	2.8		SAND, poorly-graded, mostly fine to medium-grained sand-sized quartz, trace silt, trace shell fragments, lt. gray (SP)	A	Classification: SP Color: 5Y 7/2-light gray D50: 0.3403 mm % Fines: 1.6		
-33.7	6.1		SAND, poorly-graded with clay, mostly fine-grained sand-sized quartz, few clay, trace silt, trace shell fragments, few clay stringers, gray to lt. gray (SP-SC)	B	Classification: SP Color: 5Y 6/3-pale olive D50: 0.2845 mm % Fines: 4		
-40.0	12.4		SAND, poorly-graded, mostly fine-grained sand-sized quartz, trace silt, lt. gray (SP)	C	Classification: SP Color: 5Y 8/1-white D50: 0.2723 mm % Fines: 1.6		
			At El. -36.1 Ft., mostly fine-grained sand-sized quartz, trace silt, lt. gray to white	D	Classification: SP Color: 2.5Y 7/2-light gray D50: 0.2834 mm % Fines: 1.9		
-42.7	15.1		CLAY, fat, mostly clay, medium to high plasticity, gray (CH)	NS			
-43.7	16.1		SAND, clayey, mostly fine-grained sand-sized quartz, some clay, gray (SC)				
-46.1	18.5		SAND, poorly-graded, mostly fine-grained sand-sized quartz, trace clay, gray (SP)				
			NOTES: 1. Soils are field visually classified in accordance with the Unified Soils Classification System. 2. NS = Sample not submitted for laboratory analysis from this interval. 3. Seafloor elevation calculated using sampling vessel's fathometer water depth reading and applying NOAA tidal gauge data conversion factor.				



# Project

Mississippi Barrier Island  
Restoration Project

**AVS**  
**AMERICAN VIBRACORE**  
**S E R V I C E S**

**Core Identifier** BI-PB-184-12

**Date** 12/07/2012

**Water Depth** 28.2'

## Coordinate System

Latitude / Longitude

**Start Time** 10:53:48

**End Time** 10:59:39

**Penetration** 19.3'

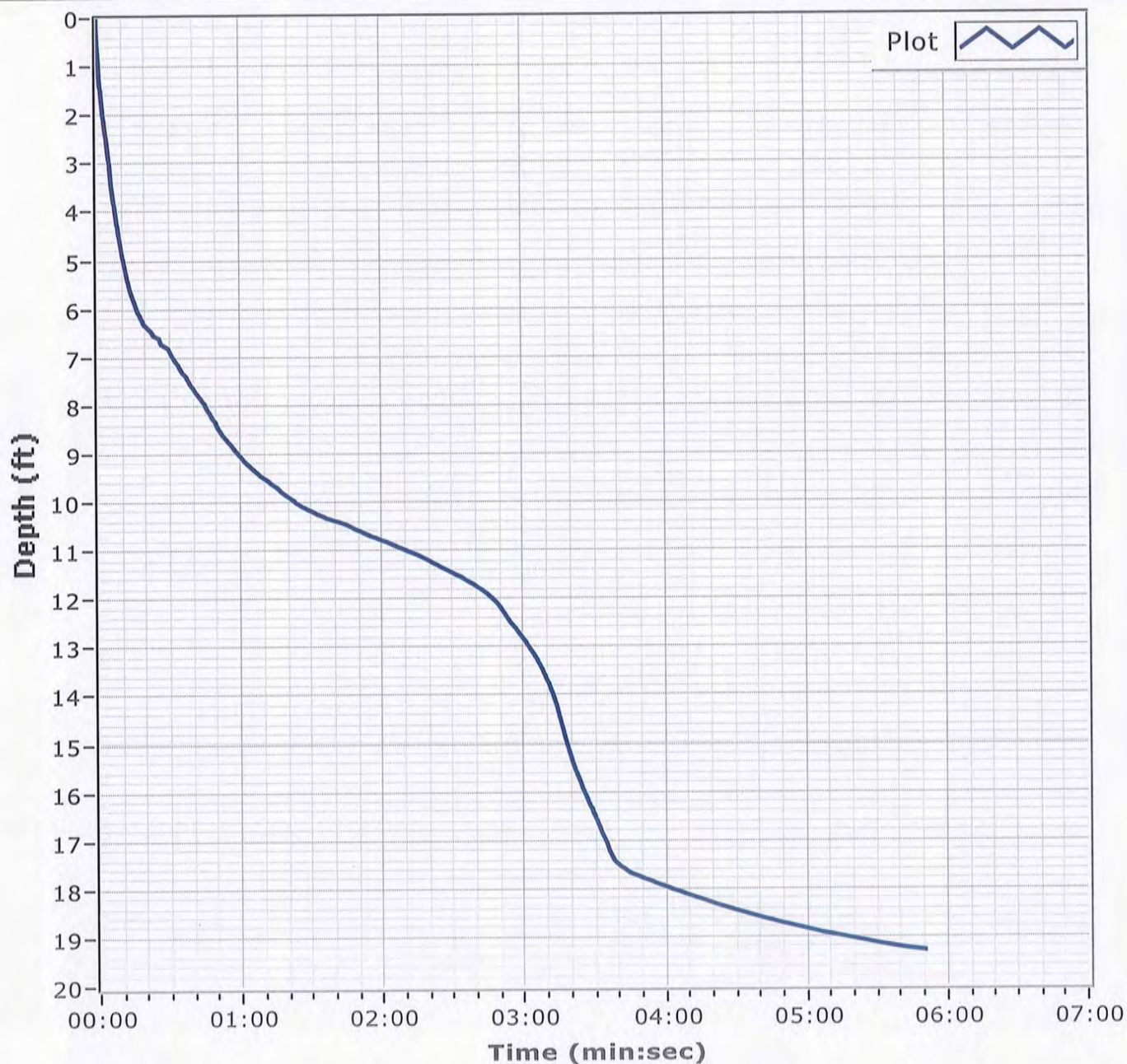
**Latitude** 30 12.082

**Total Time** 00:05:50

**Recovery** 18.5'

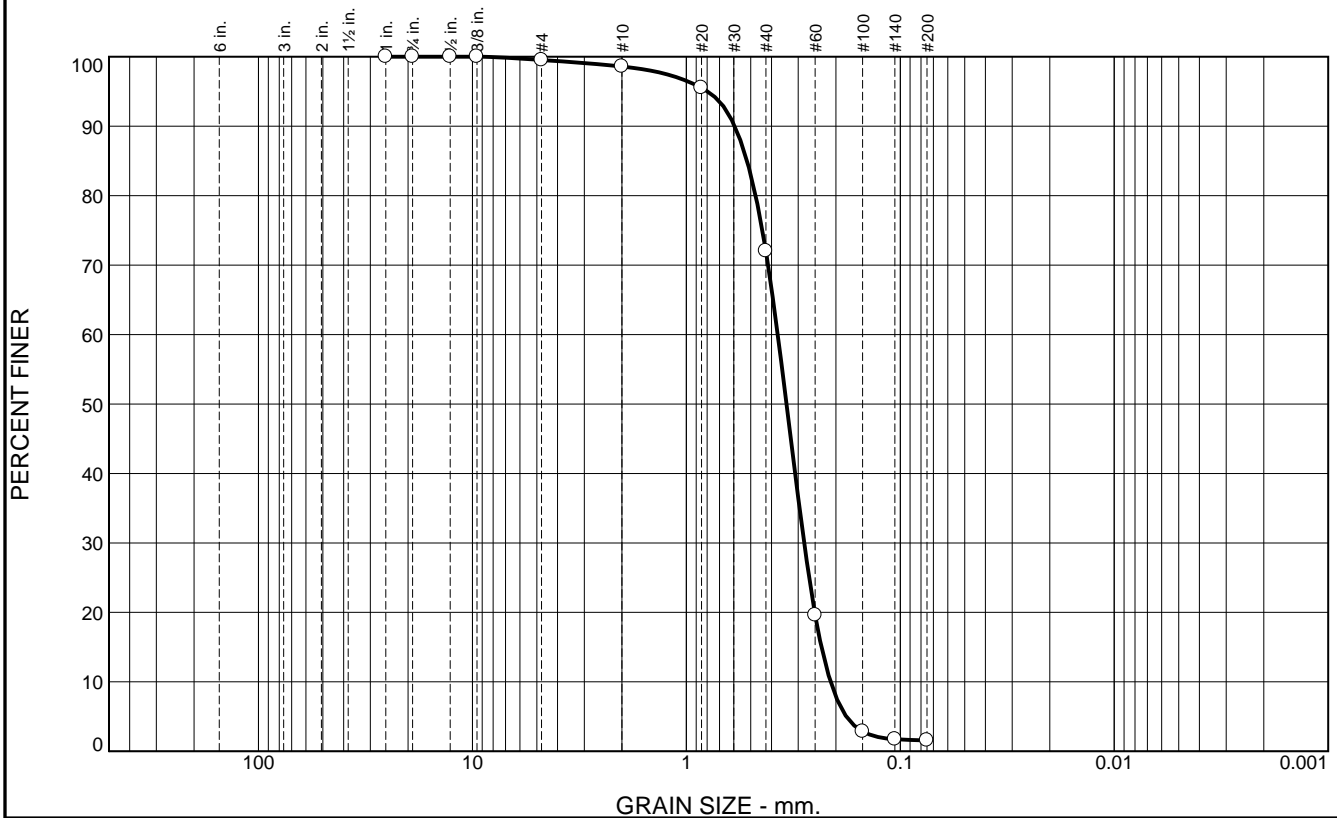
**Longitude** 088 19.775

## Comments





# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.5	0.9	26.6	70.4	1.6	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
1	100.0		
.75	100.0		
.5	100.0		
.375	100.0		
#4	99.5		
#10	98.6		
#20	95.5		
#40	72.0		
#60	19.6		
#100	2.9		
#140	1.8		
#200	1.6		

\* (no specification provided)

<u><b>Material Description</b></u>		
Fine to medium grained, SAND		
<u><b>Atterberg Limits</b></u>		
PL=	LL=	PI=
<u><b>Coefficients</b></u>		
D <sub>90</sub> = 0.5941	D <sub>85</sub> = 0.5205	D <sub>60</sub> = 0.3739
D <sub>50</sub> = 0.3403	D <sub>30</sub> = 0.2815	D <sub>15</sub> = 0.2336
D <sub>10</sub> = 0.2118	C <sub>u</sub> = 1.77	C <sub>c</sub> = 1.00
<u><b>Classification</b></u>		
USCS= SP	AASHTO=	
<u><b>Remarks</b></u>		

Location: BI-PB-184-12 A  
Sample Number: 6482 (5)

Depth: 0.0'

Date: 12/12/12

**Thompson Engineering**

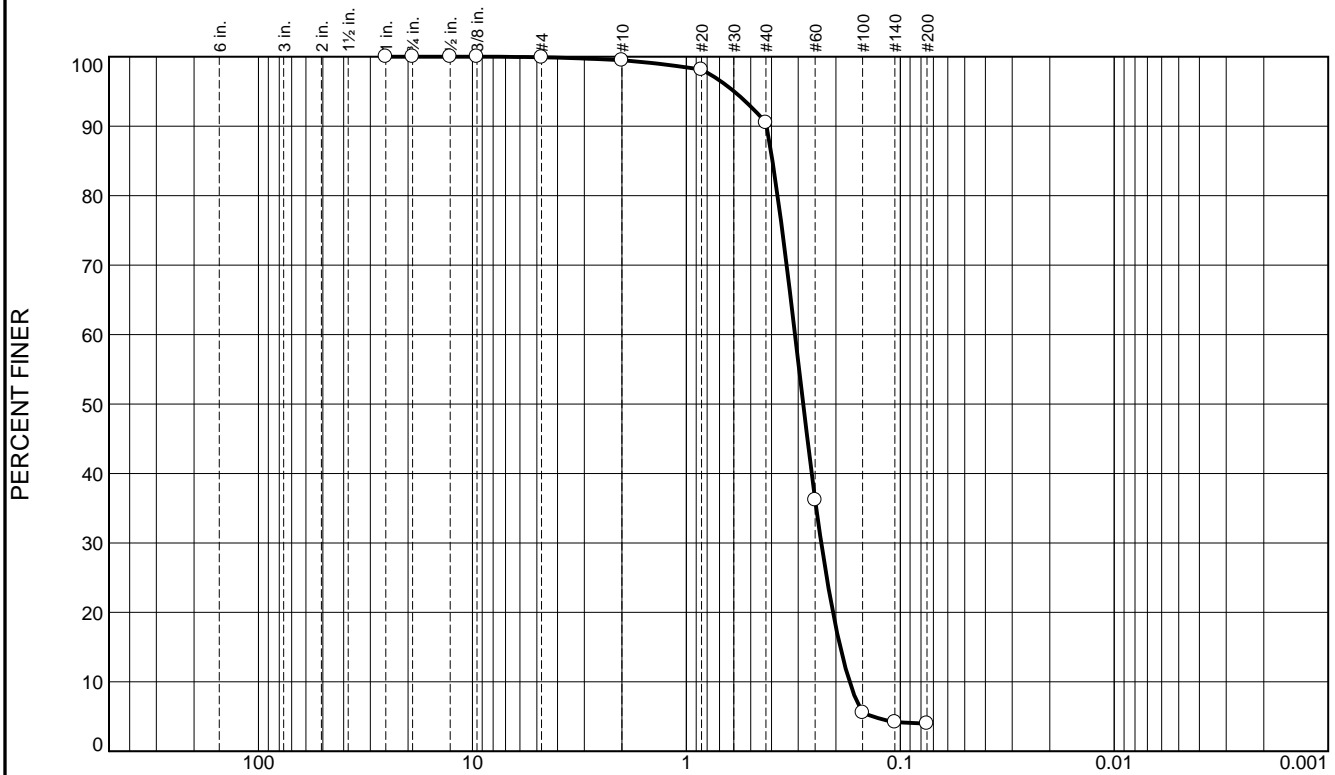
**Mobile, Alabama**

Client: CDM/Thompson Engineering JV  
Project: MsCIP Barrier Island Restoration GT

Project No: 1221110095

Figure

# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.1	0.4	9.0	86.5	4.0	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
1	100.0		
.75	100.0		
.5	100.0		
.375	100.0		
#4	99.9		
#10	99.5		
#20	98.1		
#40	90.5		
#60	36.2		
#100	5.6		
#140	4.2		
#200	4.0		

\* (no specification provided)

Material Description		
Fine grained, SAND		
<div> <div> Atterberg Limits </div> <div> PL= </div> <div> LL= </div> <div> PI= </div> </div>		
<div> <div> Coefficients </div> <div> D<sub>90</sub>= 0.4219 </div> <div> D<sub>85</sub>= 0.3957 </div> <div> D<sub>60</sub>= 0.3107 </div> <div> D<sub>50</sub>= 0.2845 </div> <div> D<sub>30</sub>= 0.2341 </div> <div> D<sub>15</sub>= 0.1909 </div> <div> D<sub>10</sub>= 0.1728 </div> <div> C<sub>u</sub>= 1.80 </div> <div> C<sub>c</sub>= 1.02 </div> </div>		
<div> <div> Classification </div> <div> USCS= SP </div> <div> AASHTO= </div> </div>		
<div> <div> Remarks </div> </div>		

Location: BI-PB-184-12 B  
Sample Number: 6482 (6)

Depth: 2.8'

Date: 12/12/12

**Thompson Engineering**

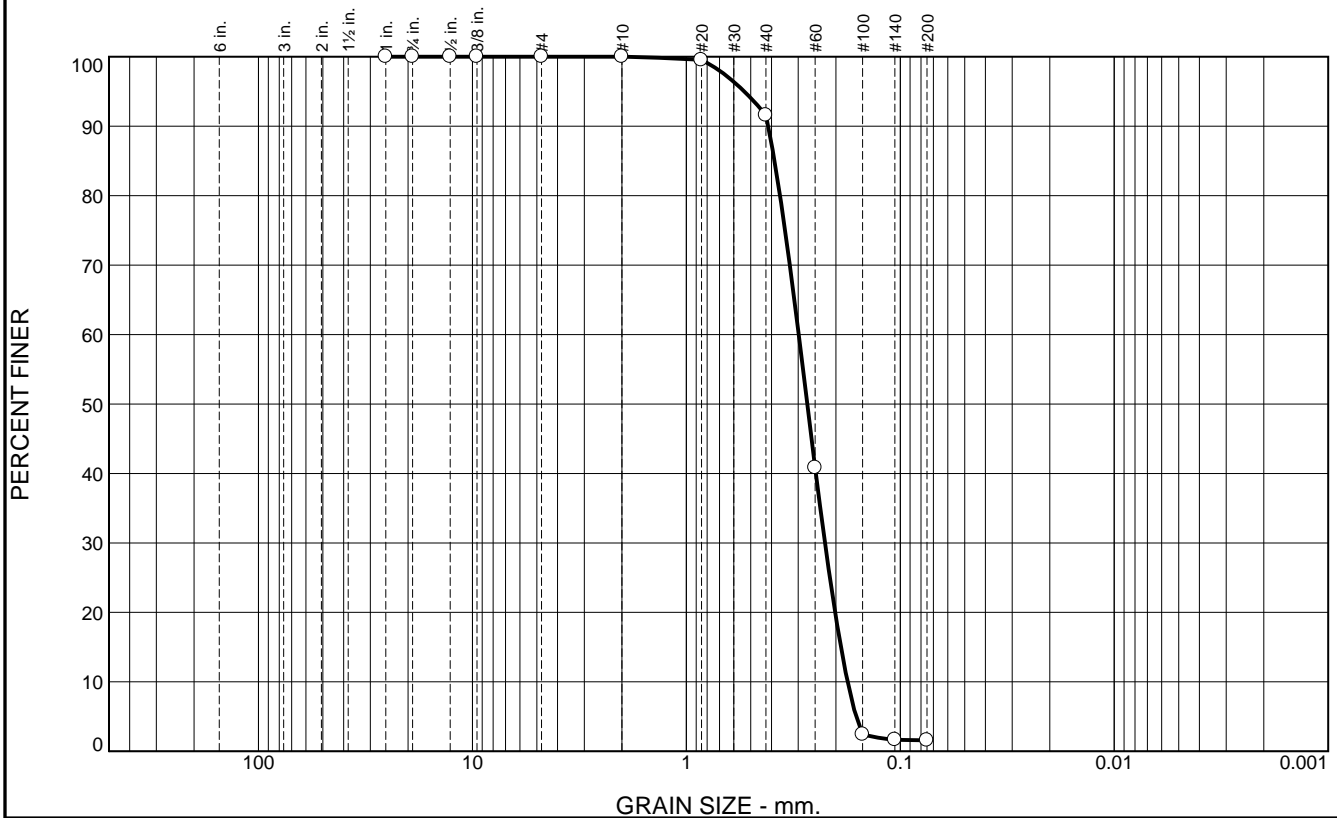
**Mobile, Alabama**

Client: CDM/Thompson Engineering JV  
Project: MsCIP Barrier Island Restoration GT

Project No: 1221110095

Figure

# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.0	0.0	8.4	90.0	1.6	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
1	100.0		
.75	100.0		
.5	100.0		
.375	100.0		
#4	100.0		
#10	100.0		
#20	99.5		
#40	91.6		
#60	40.8		
#100	2.4		
#140	1.7		
#200	1.6		

\* (no specification provided)

Material Description		
Fine grained, SAND		
PL=	Atterberg Limits LL=	PI=
D <sub>90</sub> = 0.4145	Coefficients D <sub>85</sub> = 0.3870	D <sub>60</sub> = 0.2986
D <sub>50</sub> = 0.2723	D <sub>30</sub> = 0.2249	D <sub>15</sub> = 0.1896
D <sub>10</sub> = 0.1765	C <sub>u</sub> = 1.69	C <sub>c</sub> = 0.96
USCS= SP	Classification AASHTO=	
Remarks		

Location: BI-PB-184-12 C  
Sample Number: 6482 (7)

Depth: 6.1'

Date: 12/12/12

**Thompson Engineering**

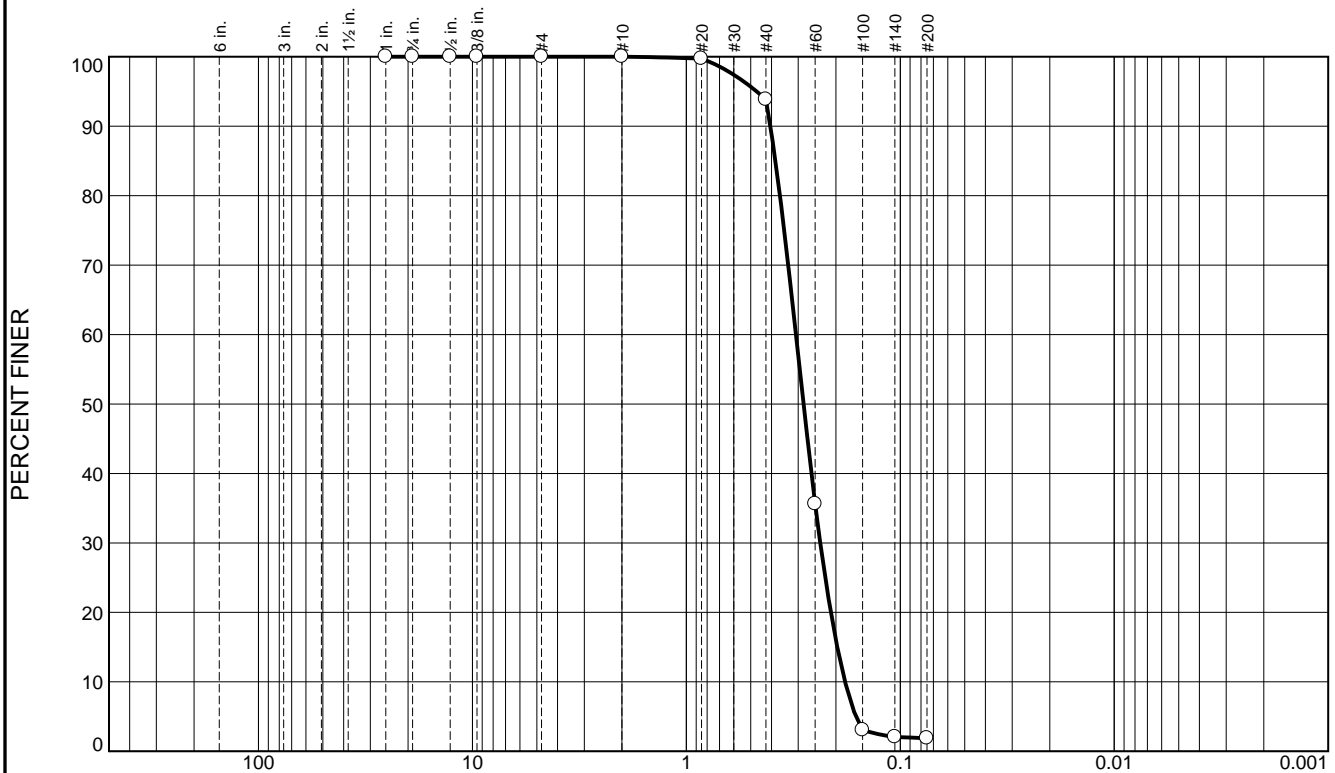
**Mobile, Alabama**

Client: CDM/Thompson Engineering JV  
Project: MsCIP Barrier Island Restoration GT

Project No: 1221110095

Figure

# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.0	0.0	6.2	91.9	1.9	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
1	100.0		
.75	100.0		
.5	100.0		
.375	100.0		
#4	100.0		
#10	100.0		
#20	99.7		
#40	93.8		
#60	35.6		
#100	3.1		
#140	2.1		
#200	1.9		

\* (no specification provided)

Material Description		
Fine grained, SAND		
<div> <div> <b>Atterberg Limits</b> </div> <div>           PL=      LL=      PI=         </div> </div>		
<div> <div> <b>Coefficients</b> </div> <div>           D<sub>90</sub>= 0.4047    D<sub>85</sub>= 0.3832    D<sub>60</sub>= 0.3076            D<sub>50</sub>= 0.2834    D<sub>30</sub>= 0.2366    D<sub>15</sub>= 0.1971            D<sub>10</sub>= 0.1813    C<sub>u</sub>= 1.70      C<sub>c</sub>= 1.00         </div> </div>		
<div> <div> <b>Classification</b> </div> <div>           USCS= SP      AASHTO=         </div> </div>		
<div> <div> <b>Remarks</b> </div> </div>		

Location: BI-PB-184-12 D  
Sample Number: 6482 (8)

Depth: 8.5'

Date: 12/12/12

**Thompson Engineering**

**Mobile, Alabama**

Client: CDM/Thompson Engineering JV  
Project: MsCIP Barrier Island Restoration GT

Project No: 1221110095

Figure

# Boring Designation BI-PB-185-12

DRILLING LOG		DIVISION South Atlantic		INSTALLATION Mobile District		SHEET 1 OF 1 SHEETS	
1. PROJECT MsCIP Barrier Island Restoration Petit Bois Pass- AL East				9. SIZE AND TYPE OF BIT N/A			
2. BORING DESIGNATION BI-PB-185-12		LOCATION COORDINATES E = 1,142,560 N = 254,966		10. COORDINATE SYSTEM/DATUM State Plane, MSE (U.S. Ft.)		HORIZONTAL NAD83	
3. DRILLING AGENCY Corps of Engineers - CESAM		CONTRACTOR FILE NO.		11. MANUFACTURER'S DESIGNATION OF DRILL Vibracore		<input type="checkbox"/> AUTO HAMMER <input type="checkbox"/> MANUAL HAMMER	
4. NAME OF DRILLER American Vibracore Systems, Inc.				12. TOTAL SAMPLES		DISTURBED 0	
5. DIRECTION OF BORING <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED				13. TOTAL NUMBER CORE BOXES		14. WATER DEPTH 31 Ft.	
6. THICKNESS OF OVERBURDEN N/A				15. DATE BORING		STARTED 12-07-12	
7. DEPTH DRILLED INTO ROCK N/A				16. ELEVATION TOP OF BORING -30.3 Ft.		COMPLETED 12-07-12	
8. TOTAL DEPTH OF BORING 5.1 Ft.				17. TOTAL RECOVERY FOR BORING 100%		18. SIGNATURE AND TITLE OF INSPECTOR Mike FitzHarris, Geologist	
ELEV.	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS	SAMPLE	LABORATORY RESULTS		
-30.3	0.0						
-32.4	2.1		SAND, poorly-graded, mostly fine to medium-grained sand-sized quartz, trace silt, trace shells at 2.1 ft., lt. gray to gray (SP)	A	Classification: SP Color: 5Y 6/2-light olive gray D50: 0.2625 mm % Fines: 2		
-35.4	5.1			B	Classification: SP Color: 2.5Y 8/1-white D50: 0.3152 mm % Fines: 1.3		
NOTES: 1. Soils are field visually classified in accordance with the Unified Soils Classification System. 2. NS = Sample not submitted for laboratory analysis from this interval. 3. Very dense sand prevented vibracore from progressing deeper than 5.1 ft. 4. Seafloor elevation calculated using sampling vessel's fathometer water depth reading and applying NOAA tidal gauge data conversion factor.							

# Project

Mississippi Barrier Island  
Restoration Project

**AVS**  
**AMERICAN VIBRACORE**  
**S E R V I C E S**

Core Identifier BI-PB-185-12

Date 12/07/2012

Water Depth 31.9'

## Coordinate System

Latitude / Longitude

Start Time 13:10:07

End Time 13:16:14

Penetration 9.1'

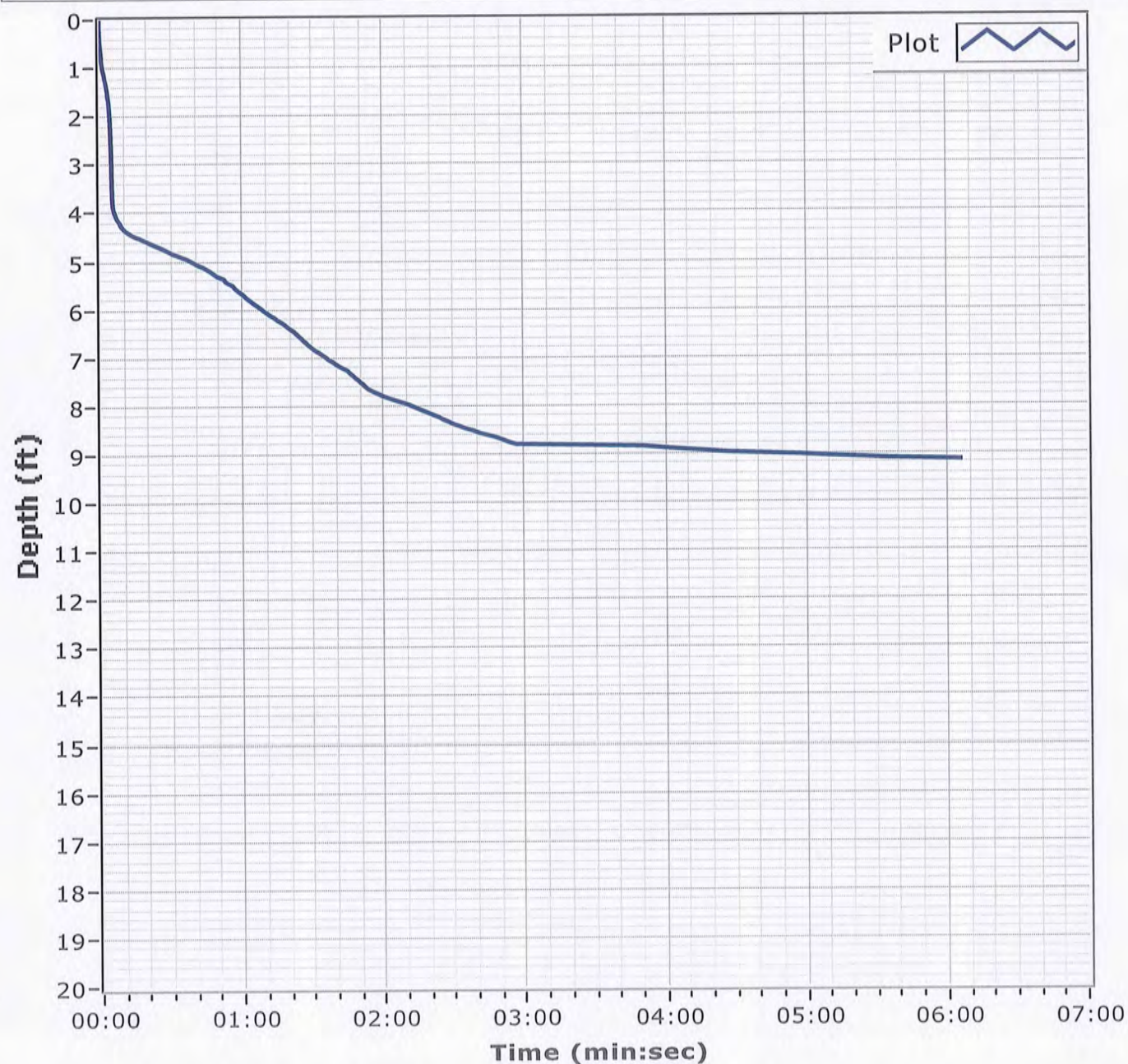
Latitude 30 12.009

Total Time 00:06:06

Recovery 5.1'

Longitude 088 19.932

## Comments



# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.8	0.6	18.7	77.9	2.0	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
1	100.0		
.75	100.0		
.5	99.5		
.375	99.3		
#4	99.2		
#10	98.6		
#20	96.0		
#40	79.9		
#60	46.1		
#100	9.3		
#140	3.7		
#200	2.0		

\* (no specification provided)

Material Description		
Fine to medium grained, SAND		
<div> <div> Atterberg Limits </div> <div> PL= </div> <div> LL= </div> <div> PI= </div> </div>		
<div> <div> Coefficients </div> <div> D<sub>90</sub>= 0.5747 </div> <div> D<sub>50</sub>= 0.2625 </div> <div> D<sub>10</sub>= 0.1525 </div> <div> D<sub>85</sub>= 0.4836 </div> <div> D<sub>30</sub>= 0.2058 </div> <div> C<sub>u</sub>= 1.97 </div> <div> D<sub>60</sub>= 0.3005 </div> <div> D<sub>15</sub>= 0.1676 </div> <div> C<sub>c</sub>= 0.92 </div> </div>		
<div> <div> Classification </div> <div> USCS= SP </div> <div> AASHTO= </div> </div>		
<div> <div> Remarks </div> </div>		

Location: BI-PB-185-12 A  
Sample Number: 6482 (9)

Depth: 0.0'

Date: 12/12/12

**Thompson Engineering**

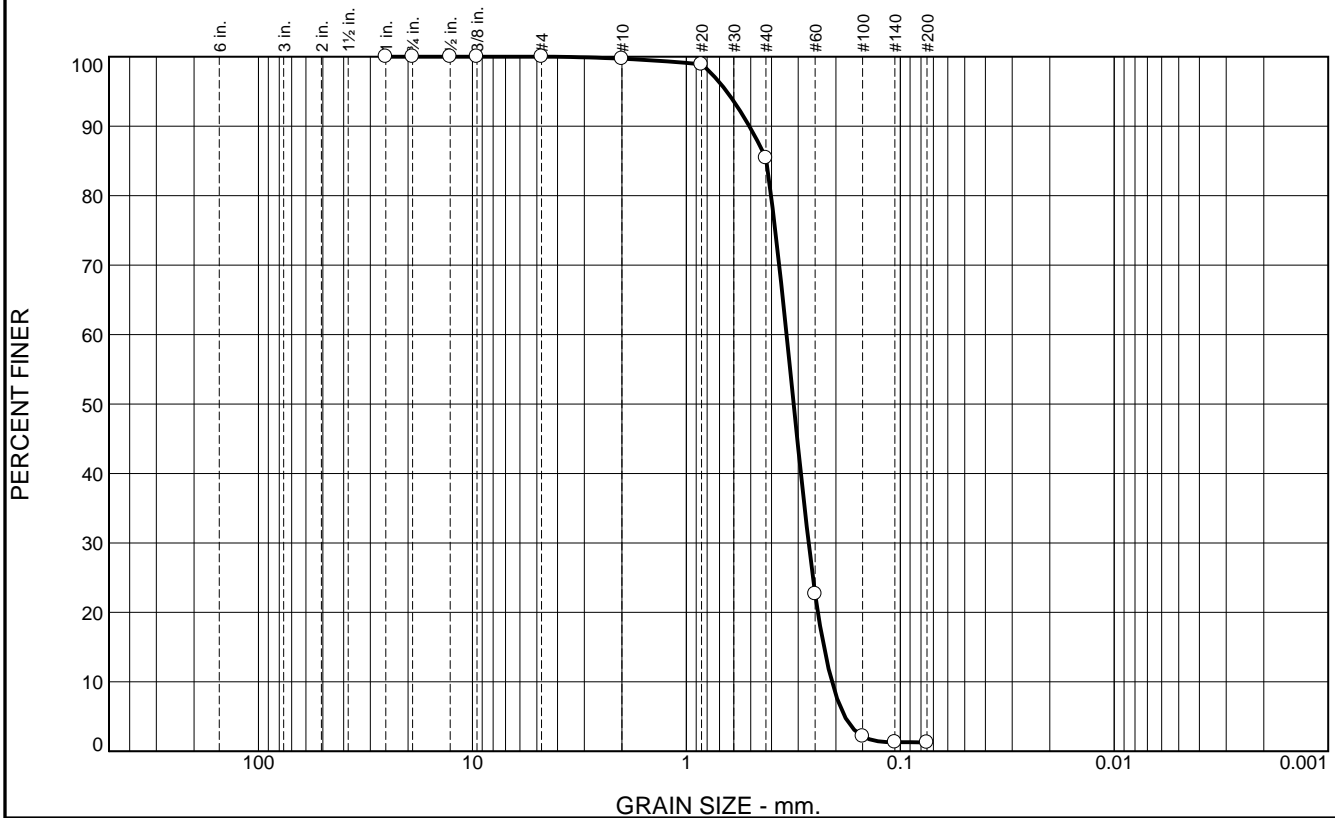
**Mobile, Alabama**

Client: CDM/Thompson Engineering JV  
Project: MsCIP Barrier Island Restoration GT

Project No: 1221110095

Figure

# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.0	0.3	14.3	84.1	1.3	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
1	100.0		
.75	100.0		
.5	100.0		
.375	100.0		
#4	100.0		
#10	99.7		
#20	98.9		
#40	85.4		
#60	22.6		
#100	2.2		
#140	1.3		
#200	1.3		

\* (no specification provided)

## Material Description

Fine to medium grained, SAND

## Atterberg Limits

PL= LL= PI=

## Coefficients

D<sub>90</sub>= 0.5079 D<sub>85</sub>= 0.4229 D<sub>60</sub>= 0.3401  
D<sub>50</sub>= 0.3152 D<sub>30</sub>= 0.2684 D<sub>15</sub>= 0.2275  
D<sub>10</sub>= 0.2088 C<sub>u</sub>= 1.63 C<sub>c</sub>= 1.01

## Classification

USCS= SP AASHTO=

## Remarks

Location: BI-PB-185-12 B  
Sample Number: 6482 (10)

Depth: 2.1'

Date: 12/12/12

**Thompson Engineering**

**Mobile, Alabama**

Client: CDM/Thompson Engineering JV  
Project: MsCIP Barrier Island Restoration GT

Project No: 1221110095

Figure



# Boring Designation BI-PB-186-12

DRILLING LOG		DIVISION South Atlantic		INSTALLATION Mobile District		SHEET 1 OF 2 SHEETS	
1. PROJECT MsCIP Barrier Island Restoration Petit Bois Pass- AL East				9. SIZE AND TYPE OF BIT N/A			
2. BORING DESIGNATION BI-PB-186-12		LOCATION COORDINATES E = 1,143,075 N = 254,950		10. COORDINATE SYSTEM/DATUM State Plane, MSE (U.S. Ft.)		HORIZONTAL NAD83 VERTICAL NAVD88	
3. DRILLING AGENCY Corps of Engineers - CESAM		CONTRACTOR FILE NO.		11. MANUFACTURER'S DESIGNATION OF DRILL Vibrocure		<input type="checkbox"/> AUTO HAMMER <input type="checkbox"/> MANUAL HAMMER	
4. NAME OF DRILLER American Vibrocure Systems, Inc.				12. TOTAL SAMPLES		DISTURBED UNDISTURBED (UD) 0	
5. DIRECTION OF BORING <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED		DEG. FROM VERTICAL		13. TOTAL NUMBER CORE BOXES			
		BEARING		14. WATER DEPTH 28.8 Ft.			
6. THICKNESS OF OVERBURDEN N/A				15. DATE BORING 12-07-12		STARTED COMPLETED 12-07-12	
7. DEPTH DRILLED INTO ROCK N/A				16. ELEVATION TOP OF BORING -27.9 Ft.			
8. TOTAL DEPTH OF BORING 18.9 Ft.				17. TOTAL RECOVERY FOR BORING 100%			
				18. SIGNATURE AND TITLE OF INSPECTOR Mike FitzHarris, Geologist			

ELEV.	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS	SAMPLE	LABORATORY RESULTS
-27.9	0.0				
-31.8	3.9		SAND, poorly-graded, mostly fine to medium-grained sand-sized quartz, trace silt, trace shell fragments, lt. gray (SP)	A	Classification: SP Color: 5Y 7/3-pale yellow D50: 0.3092 mm % Fines: 1.5
-34.8	6.9		SAND, poorly-graded, mostly fine-grained sand-sized quartz, trace clay, trace shell fragments, clayey band at 6.7 ft., gray (SP)	B	Classification: SP Color: 2.5Y 6/2-light brownish gray D50: 0.2199 mm % Fines: 4.5
-36.6	8.7		SAND, poorly-graded, mostly fine to medium-grained sand-sized quartz, few silt, trace clay, trace shell fragments, gray to lt. gray (SP)	C	Classification: SP Color: 5Y 6/2-light olive gray D50: 0.3275 mm % Fines: 3.3
-46.5	18.6		CLAY, fat, mostly clay, trace shell fragments, medium to high plasticity, very stiff, sandy at 18.4 ft., greenish gray (CH)	NS	
-46.8	18.9				
			SAND, clayey, mostly clay, few fine-grained sand-sized quartz, gray (SC)  NOTES: 1. Soils are field visually classified in accordance with the Unified Soils Classification System. 2. NS = Sample not submitted for laboratory analysis from this interval. 3. Seafloor elevation calculated using sampling		

<b>DRILLING LOG (Cont. Sheet)</b>			<b>INSTALLATION</b> Mobile District		<b>SHEET 2</b> <b>OF 2 SHEETS</b>
<b>PROJECT</b> MsCIP Barrier Island Restoration			<b>COORDINATE SYSTEM/DATUM</b> State Plane, MSE (U.S. Ft.)	<b>HORIZONTAL</b> NAD83	<b>VERTICAL</b> NAVD88
<b>LOCATION COORDINATES</b> X = 1,143,075 Y = 254,950			<b>ELEVATION TOP OF BORING</b> -27.9 Ft.		
<b>ELEV.</b>	<b>DEPTH</b>	<b>LEGEND</b>	<b>CLASSIFICATION OF MATERIALS</b>	<b>SAMPLE</b>	<b>LABORATORY RESULTS</b>
			vessel's fathometer water depth reading and applying NOAA tidal gauge data conversion factor.		

**Project**

Mississippi Barrier Island  
Restoration Project

**AVS**  
**AMERICAN VIBRACORE**  
**S E R V I C E S**

**Core Identifier** BI-PB-186-12

**Date** 12/07/2012

**Water Depth** 28.8'

**Coordinate System**

Latitude / Longitude

**Start Time** 13:50:08

**End Time** 13:53:41

**Penetration** 20.0'

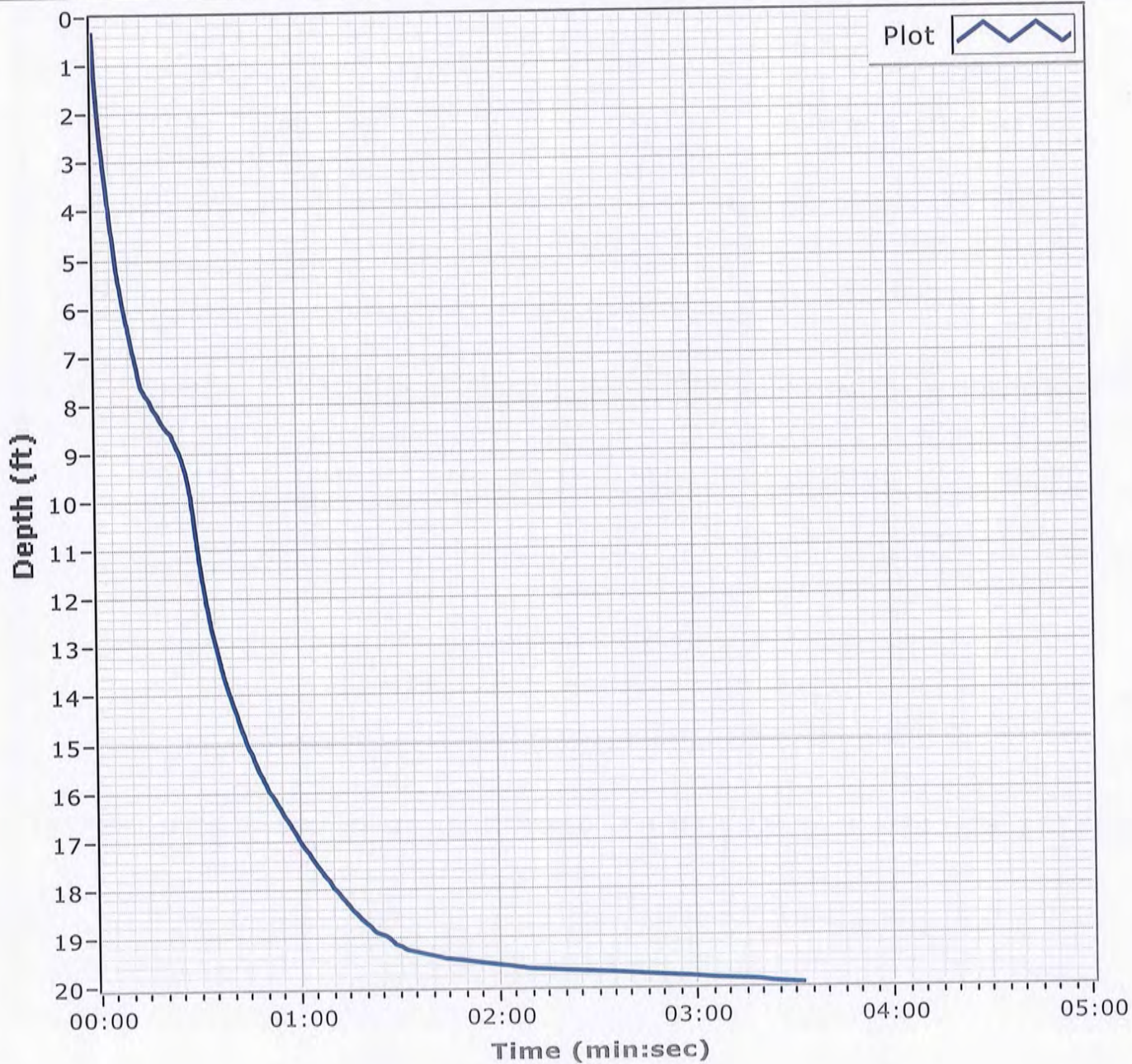
**Latitude** 30 12.006

**Total Time** 00:03:32

**Recovery** 18.9'

**Longitude** 088 19.834

**Comments**



# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.0	0.7	18.6	79.2	1.5	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
1	100.0		
.75	100.0		
.5	100.0		
.375	100.0		
#4	100.0		
#10	99.3		
#20	97.1		
#40	80.7		
#60	28.7		
#100	3.3		
#140	1.8		
#200	1.5		

\* (no specification provided)

## Material Description

Fine to medium grained, SAND

## Atterberg Limits

PL= LL= PI=

## Coefficients

D<sub>90</sub>= 0.4998 D<sub>85</sub>= 0.4531 D<sub>60</sub>= 0.3397  
D<sub>50</sub>= 0.3092 D<sub>30</sub>= 0.2537 D<sub>15</sub>= 0.2070  
D<sub>10</sub>= 0.1877 C<sub>u</sub>= 1.81 C<sub>c</sub>= 1.01

## Classification

USCS= SP AASHTO=

## Remarks

Location: BI-PB-186-12 A  
Sample Number: 6482 (11)

Depth: 0.0'

Date: 12/12/12

**Thompson Engineering**

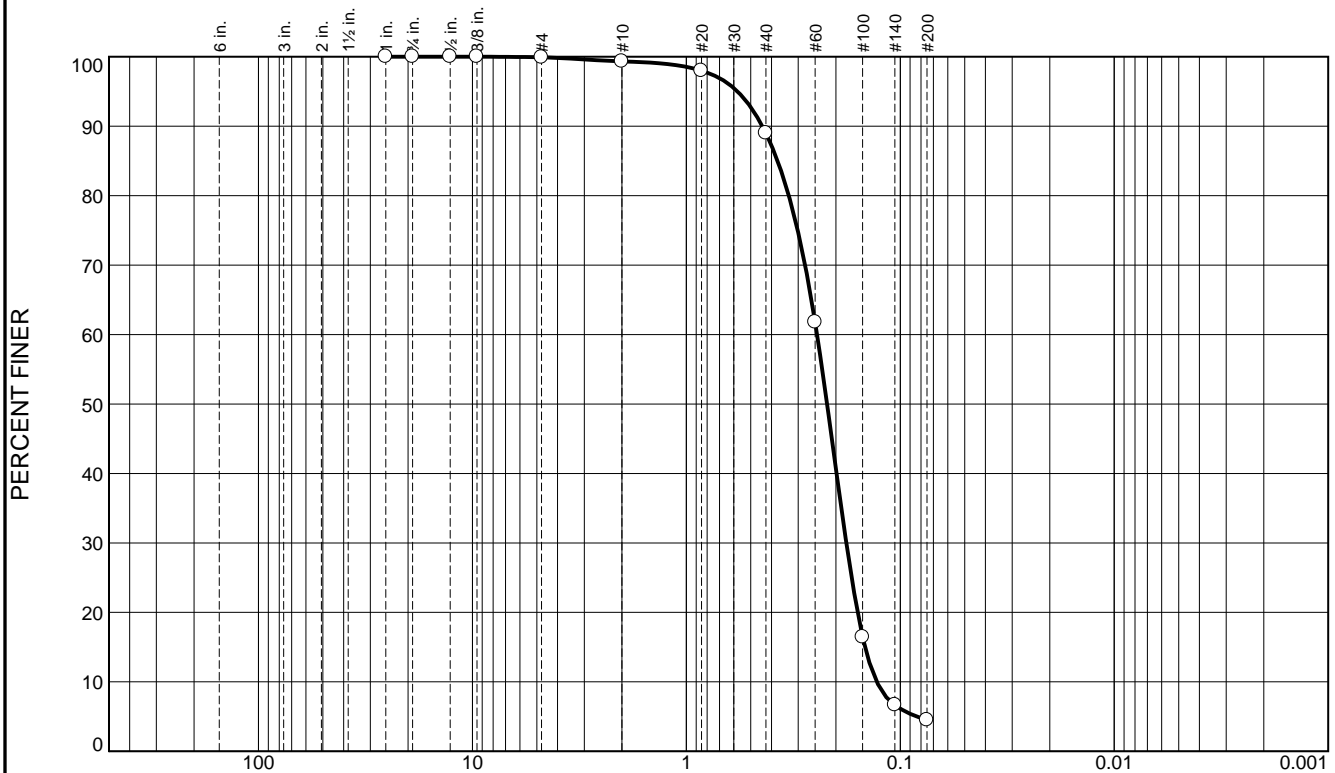
**Mobile, Alabama**

Client: CDM/Thompson Engineering JV  
Project: MsCIP Barrier Island Restoration GT

Project No: 1221110095

Figure

# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.1	0.6	10.3	84.5	4.5	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
1	100.0		
.75	100.0		
.5	100.0		
.375	100.0		
#4	99.9		
#10	99.3		
#20	98.0		
#40	89.0		
#60	61.8		
#100	16.4		
#140	6.7		
#200	4.5		

\* (no specification provided)

<u><b>Material Description</b></u>		
Fine to medium grained, SAND		
<u><b>Atterberg Limits</b></u>		
PL=	LL=	PI=
<u><b>Coefficients</b></u>		
D <sub>90</sub> = 0.4416	D <sub>85</sub> = 0.3745	D <sub>60</sub> = 0.2449
D <sub>50</sub> = 0.2199	D <sub>30</sub> = 0.1789	D <sub>15</sub> = 0.1462
D <sub>10</sub> = 0.1289	C <sub>u</sub> = 1.90	C <sub>c</sub> = 1.01
<u><b>Classification</b></u>		
USCS= SP	AASHTO=	
<u><b>Remarks</b></u>		

Location: BI-PB-186-12 B  
Sample Number: 6482 (12)

Depth: 3.9'

Date: 12/12/12

**Thompson Engineering**

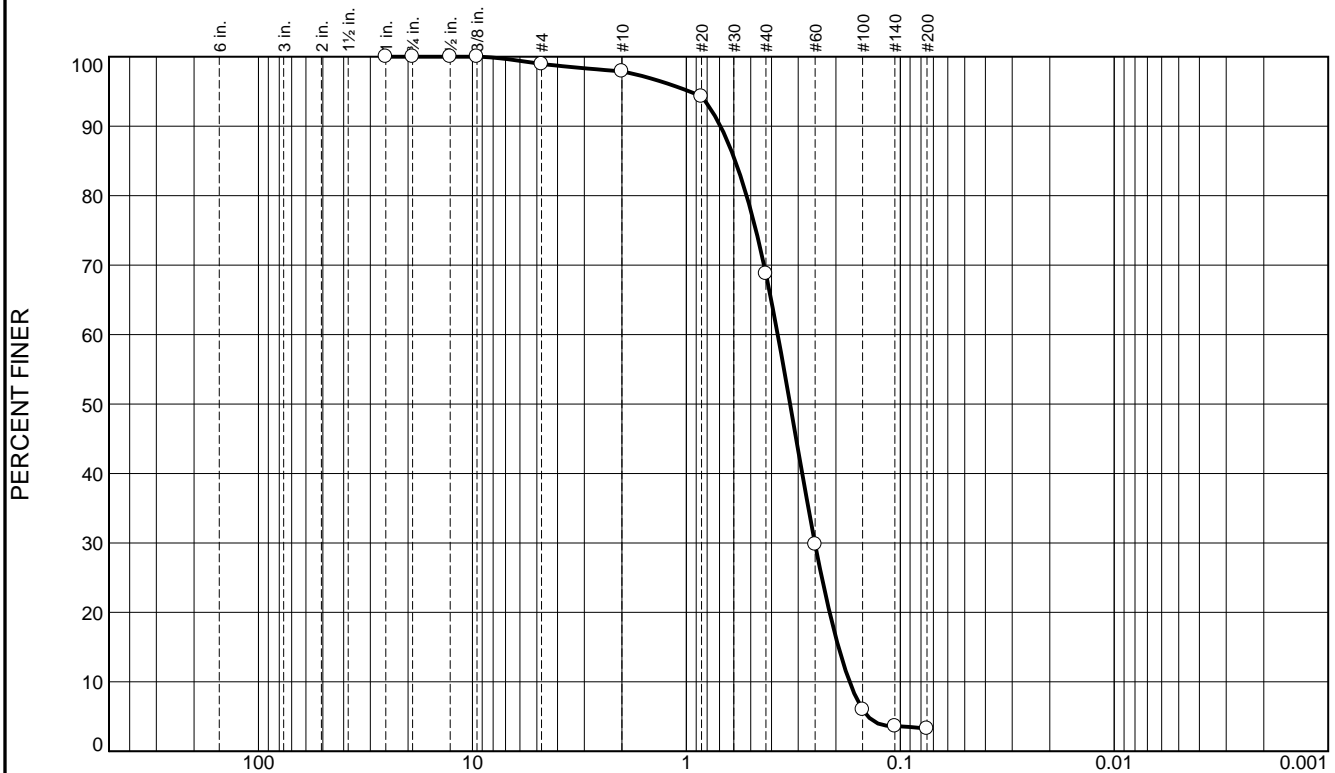
**Mobile, Alabama**

Client: CDM/Thompson Engineering JV  
Project: MsCIP Barrier Island Restoration GT

Project No: 1221110095

Figure

# Particle Size Distribution Report



GRAIN SIZE - mm.

% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	1.1	1.0	29.1	65.5	3.3	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
1	100.0		
.75	100.0		
.5	100.0		
.375	100.0		
#4	98.9		
#10	97.9		
#20	94.3		
#40	68.8		
#60	29.8		
#100	6.0		
#140	3.6		
#200	3.3		

\* (no specification provided)

## Material Description

Fine to medium grained, SAND, with trace SHELL

## Atterberg Limits

PL= LL= PI=

## Coefficients

D<sub>90</sub>= 0.6929 D<sub>85</sub>= 0.5907 D<sub>60</sub>= 0.3740  
D<sub>50</sub>= 0.3275 D<sub>30</sub>= 0.2508 D<sub>15</sub>= 0.1945  
D<sub>10</sub>= 0.1728 C<sub>u</sub>= 2.16 C<sub>c</sub>= 0.97

## Classification

USCS= SP AASHTO=

## Remarks

Location: BI-PB-186-12 C  
Sample Number: 6482 (13)

Depth: 6.9'

Date: 12/12/12

**Thompson Engineering**

**Mobile, Alabama**

Client: CDM/Thompson Engineering JV  
Project: MsCIP Barrier Island Restoration GT

Project No: 1221110095

Figure

# Boring Designation BI-PB-187-12

DRILLING LOG		DIVISION South Atlantic		INSTALLATION Mobile District		SHEET 1 OF 1 SHEETS	
1. PROJECT MsCIP Barrier Island Restoration Petit Bois Pass- AL East				9. SIZE AND TYPE OF BIT N/A			
2. BORING DESIGNATION BI-PB-187-12		LOCATION COORDINATES E = 1,142,412 N = 254,231		10. COORDINATE SYSTEM/DATUM State Plane, MSE (U.S. Ft.)		HORIZONTAL NAD83 VERTICAL NAVD88	
3. DRILLING AGENCY Corps of Engineers - CESAM		CONTRACTOR FILE NO.		11. MANUFACTURER'S DESIGNATION OF DRILL Vibracore		<input type="checkbox"/> AUTO HAMMER <input type="checkbox"/> MANUAL HAMMER	
4. NAME OF DRILLER American Vibracore Systems, Inc.				12. TOTAL SAMPLES		DISTURBED UNDISTURBED (UD)	
5. DIRECTION OF BORING <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED				13. TOTAL NUMBER CORE BOXES		0	
6. THICKNESS OF OVERBURDEN N/A				14. WATER DEPTH 33.7 Ft.		15. DATE BORING	
7. DEPTH DRILLED INTO ROCK N/A				16. ELEVATION TOP OF BORING -34.0 Ft.		STARTED 12-11-12 COMPLETED 12-11-12	
8. TOTAL DEPTH OF BORING 15.5 Ft.				17. TOTAL RECOVERY FOR BORING 100%		18. SIGNATURE AND TITLE OF INSPECTOR Mike FitzHarris, Geologist	
ELEV.	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS	SAMPLE	LABORATORY RESULTS		
-34.0	0.0						
-35.1	1.1		SILT, inorganic-L, mostly silt, some shell fragments, trace fine-grained sand-sized quartz, dark gray (ML)	NS			
-36.2	2.2		SAND, poorly-graded with silt, mostly fine to medium-grained sand-sized quartz, few silt, gray (SP-SM)	A	Classification: SP-SM Color: 5Y 6/3-pale olive D50: 0.2865 mm % Fines: 5.3		
			SAND, poorly-graded, mostly fine to medium-grained sand-sized quartz, trace fines, trace shell fragments, dense, lt. gray (SP)	B	Classification: SP Color: 2.5Y 7/2-light gray D50: 0.3462 mm % Fines: 1.2		
				C	Classification: SP Color: 2.5Y 8/1-white D50: 0.3258 mm % Fines: 3		
				D	Classification: SP Color: 2.5Y 8/1-white D50: 0.3816 mm % Fines: 1.6		
-49.5	15.5						
NOTES:							
1. Soils are field visually classified in accordance with the Unified Soils Classification System.							
2. NS = Sample not submitted for laboratory analysis from this interval.							
3. Seafloor elevation calculated using sampling vessel's fathometer water depth reading and applying NOAA tidal gauge data conversion factor.							



**Project**

Mississippi Barrier Island  
Restoration Project

**AVS**  
**AMERICAN VIBRACORE**  
**S E R V I C E S**

**Core Identifier** BI-PB-187-12

**Date** 12/11/2012

**Water Depth** 33.7'

**Coordinate System**

Latitude / Longitude

**Start Time** 09:17:37

**End Time** 09:25:59

**Penetration** 15.5'

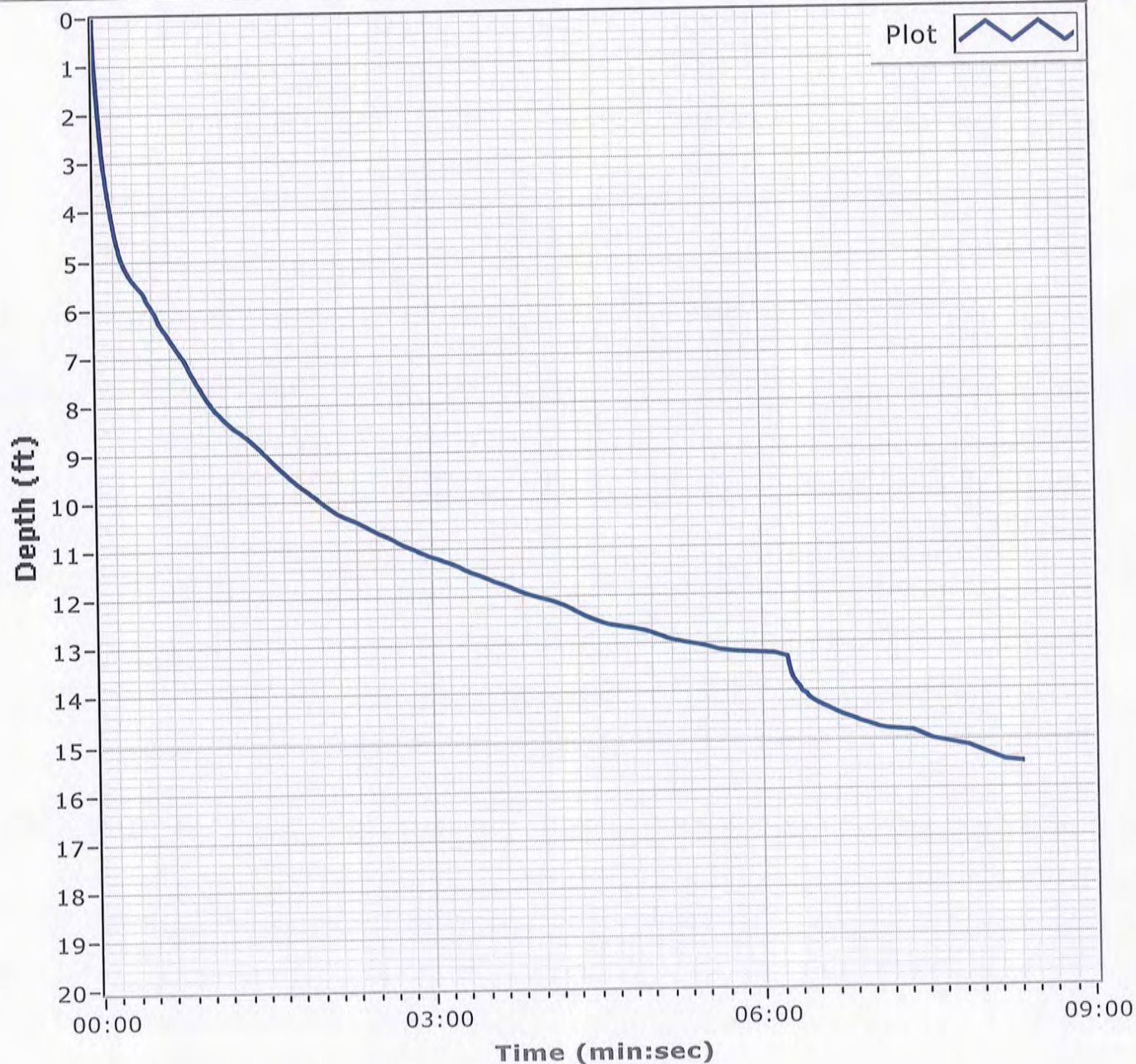
**Latitude** 33 11.888

**Total Time** 00:08:22

**Recovery** 15.5'

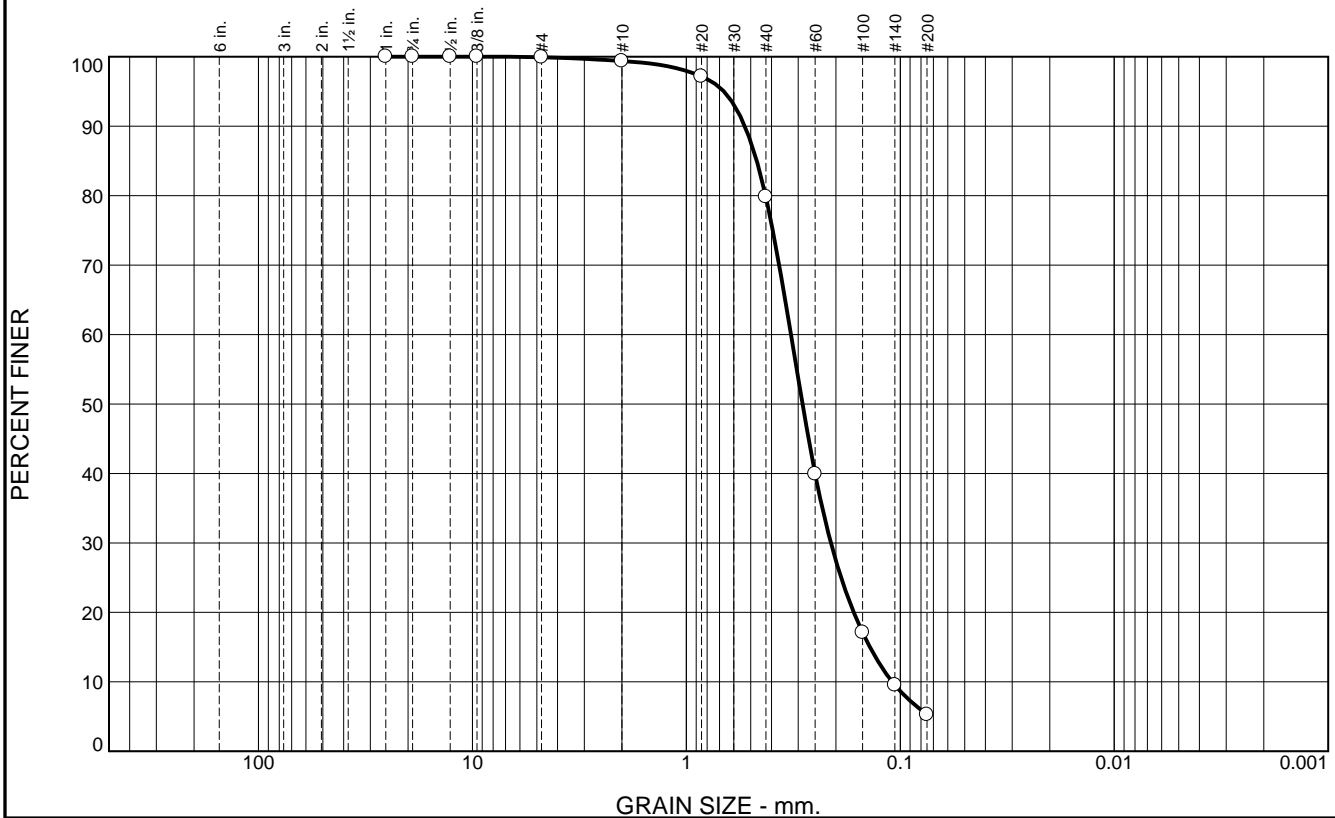
**Longitude** 088 19.961

**Comments**





# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.1	0.5	19.6	74.5	5.3	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
1	100.0		
.75	100.0		
.5	100.0		
.375	100.0		
#4	99.9		
#10	99.4		
#20	97.2		
#40	79.8		
#60	39.9		
#100	17.1		
#140	9.5		
#200	5.3		

\* (no specification provided)

## Material Description

Fine to medium grained, SLIGHTLY SILTY SAND

## Atterberg Limits

PL= LL= PI=

## Coefficients

D<sub>90</sub>= 0.5330 D<sub>85</sub>= 0.4687 D<sub>60</sub>= 0.3244  
D<sub>50</sub>= 0.2865 D<sub>30</sub>= 0.2111 D<sub>15</sub>= 0.1387  
D<sub>10</sub>= 0.1091 C<sub>u</sub>= 2.97 C<sub>c</sub>= 1.26

## Classification

USCS= SP-SM AASHTO=

## Remarks

Location: BI-PB-187-12 A  
Sample Number: 6485 (17)

Depth: 1.1'

Date: 12/07/12

**Thompson Engineering**

**Mobile, Alabama**

Client: CDM/Thompson Engineering JV  
Project: MsCIP Barrier Island Restoration GT

Project No: 1221110095

Figure

# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.4	0.5	25.6	72.3	1.2	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
1	100.0		
.75	100.0		
.5	100.0		
.375	100.0		
#4	99.6		
#10	99.1		
#20	97.7		
#40	73.5		
#60	13.7		
#100	1.7		
#140	1.3		
#200	1.2		

\* (no specification provided)

<u><b>Material Description</b></u>		
Fine to medium grained, SAND		
<u><b>Atterberg Limits</b></u>		
PL=	LL=	PI=
<u><b>Coefficients</b></u>		
D <sub>90</sub> = 0.5422	D <sub>85</sub> = 0.4925	D <sub>60</sub> = 0.3755
D <sub>50</sub> = 0.3462	D <sub>30</sub> = 0.2945	D <sub>15</sub> = 0.2541
D <sub>10</sub> = 0.2241	C <sub>u</sub> = 1.68	C <sub>c</sub> = 1.03
<u><b>Classification</b></u>		
USCS= SP	AASHTO=	
<u><b>Remarks</b></u>		

Location: BI-PB-187-12 B  
Sample Number: 6485 (18)

Depth: 2.2'

Date: 12/07/12

**Thompson Engineering**

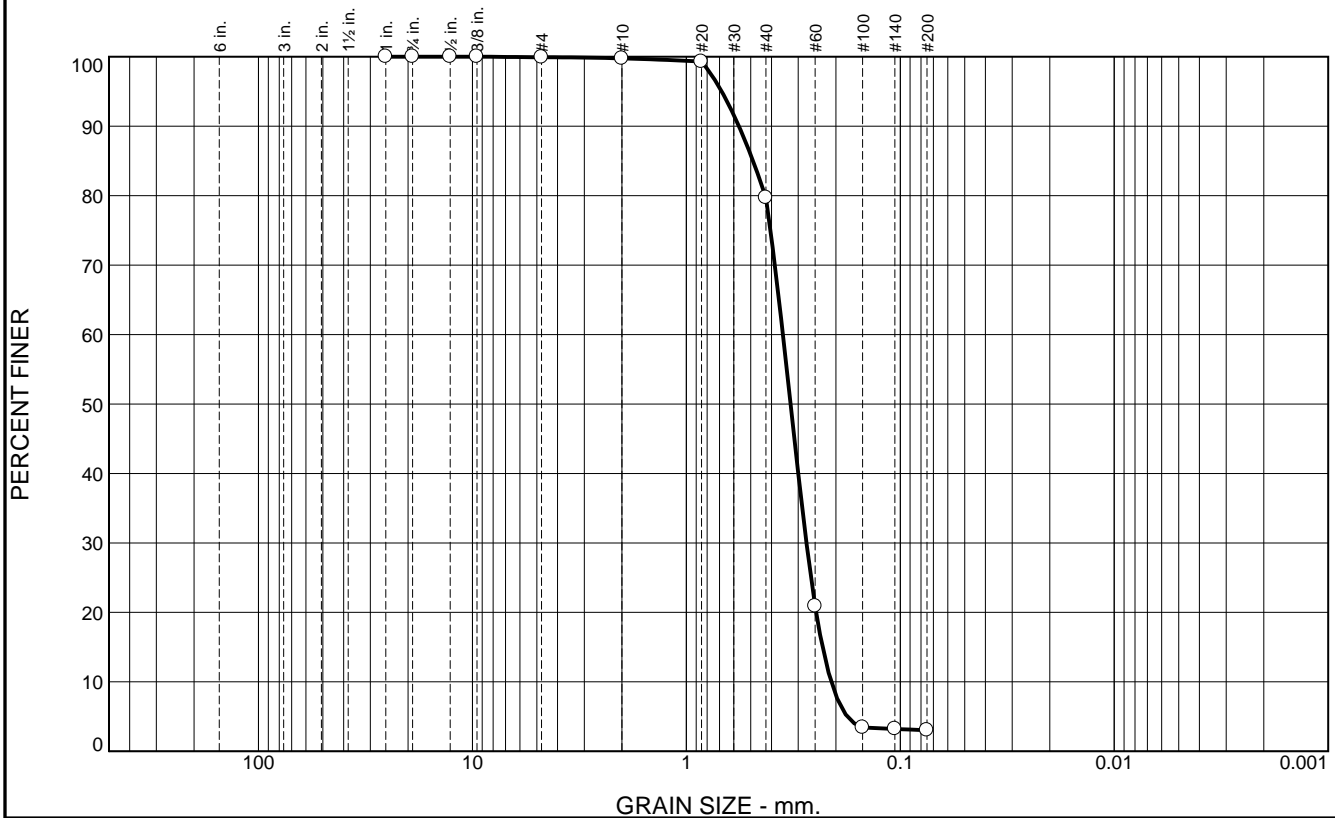
**Mobile, Alabama**

Client: CDM/Thompson Engineering JV  
Project: MsCIP Barrier Island Restoration GT

Project No: 1221110095

Figure

# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.1	0.1	20.1	76.7	3.0	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
1	100.0		
.75	100.0		
.5	100.0		
.375	100.0		
#4	99.9		
#10	99.8		
#20	99.3		
#40	79.7		
#60	20.9		
#100	3.4		
#140	3.2		
#200	3.0		

\* (no specification provided)

<u><b>Material Description</b></u>		
Fine to medium grained, SAND		
<u><b>Atterberg Limits</b></u>		
PL=	LL=	PI=
<u><b>Coefficients</b></u>		
D <sub>90</sub> = 0.5681	D <sub>85</sub> = 0.4882	D <sub>60</sub> = 0.3537
D <sub>50</sub> = 0.3258	D <sub>30</sub> = 0.2747	D <sub>15</sub> = 0.2309
D <sub>10</sub> = 0.2103	C <sub>u</sub> = 1.68	C <sub>c</sub> = 1.01
<u><b>Classification</b></u>		
USCS= SP	AASHTO=	
<u><b>Remarks</b></u>		

Location: BI-PB-187-12 C  
Sample Number: 6485 (19)

Depth: 7.2'

Date: 12/07/12

**Thompson Engineering**

**Mobile, Alabama**

Client: CDM/Thompson Engineering JV  
Project: MsCIP Barrier Island Restoration GT

Project No: 1221110095

Figure

# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.1	0.2	38.6	59.5	1.6	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
1	100.0		
.75	100.0		
.5	100.0		
.375	100.0		
#4	99.9		
#10	99.7		
#20	98.2		
#40	61.1		
#60	9.5		
#100	2.5		
#140	1.8		
#200	1.6		

\* (no specification provided)

<b><u>Material Description</u></b>		
Fine to medium grained, SAND		
<b><u>Atterberg Limits</u></b>		
PL=	LL=	PI=
<b><u>Coefficients</u></b>		
D <sub>90</sub> = 0.6509	D <sub>85</sub> = 0.5868	D <sub>60</sub> = 0.4203
D <sub>50</sub> = 0.3816	D <sub>30</sub> = 0.3174	D <sub>15</sub> = 0.2705
D <sub>10</sub> = 0.2519	C <sub>u</sub> = 1.67	C <sub>c</sub> = 0.95
<b><u>Classification</u></b>		
USCS= SP	AASHTO=	
<b><u>Remarks</u></b>		

Location: BI-PB-187-12 D  
Sample Number: 6485 (20)

Depth: 12.2'

Date: 12/07/12

**Thompson Engineering**

**Mobile, Alabama**

Client: CDM/Thompson Engineering JV  
Project: MsCIP Barrier Island Restoration GT

Project No: 1221110095

Figure

# Boring Designation BI-PB-189-12

DRILLING LOG		DIVISION South Atlantic		INSTALLATION Mobile District		SHEET 1 OF 1 SHEETS	
1. PROJECT MsCIP Barrier Island Restoration Petit Bois Pass- AL East				9. SIZE AND TYPE OF BIT N/A			
2. BORING DESIGNATION BI-PB-189-12		LOCATION COORDINATES E = 1,142,877 N = 253,269		10. COORDINATE SYSTEM/DATUM State Plane, MSE (U.S. Ft.)		HORIZONTAL NAD83 VERTICAL NAVD88	
3. DRILLING AGENCY Corps of Engineers - CESAM		CONTRACTOR FILE NO.		11. MANUFACTURER'S DESIGNATION OF DRILL Vibracore		<input type="checkbox"/> AUTO HAMMER <input type="checkbox"/> MANUAL HAMMER	
4. NAME OF DRILLER American Vibracore Systems, Inc.				12. TOTAL SAMPLES		DISTURBED UNDISTURBED (UD) 0	
5. DIRECTION OF BORING <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED		DEG. FROM VERTICAL		BEARING		13. TOTAL NUMBER CORE BOXES	
6. THICKNESS OF OVERBURDEN N/A				14. WATER DEPTH 36.4 Ft.			
7. DEPTH DRILLED INTO ROCK N/A				15. DATE BORING 12-11-12		STARTED COMPLETED 12-11-12	
8. TOTAL DEPTH OF BORING 15.6 Ft.				16. ELEVATION TOP OF BORING -36.4 Ft.			
				17. TOTAL RECOVERY FOR BORING 100%			
				18. SIGNATURE AND TITLE OF INSPECTOR Mike FitzHarris, Geologist			
ELEV.	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS	SAMPLE	LABORATORY RESULTS		
-36.4	0.0						
-37.9	1.5		SILT, inorganic-L, mostly silt, some clay, trace fine-grained sand-sized quartz, trace shell fragments, brownish gray (ML)				
			CLAY, fat, mostly clay, medium to high plasticity, stiff, sandy lenses between 1.5 and 3.5 ft., greenish gray (CH)	NS			
-52.0	15.6						
			NOTES: 1. Soils are field visually classified in accordance with the Unified Soils Classification System. 2. NS = Sample not submitted for laboratory analysis from this interval. 3. Seafloor elevation calculated using sampling vessel's fathometer water depth reading and applying NOAA tidal gauge data conversion factor.				

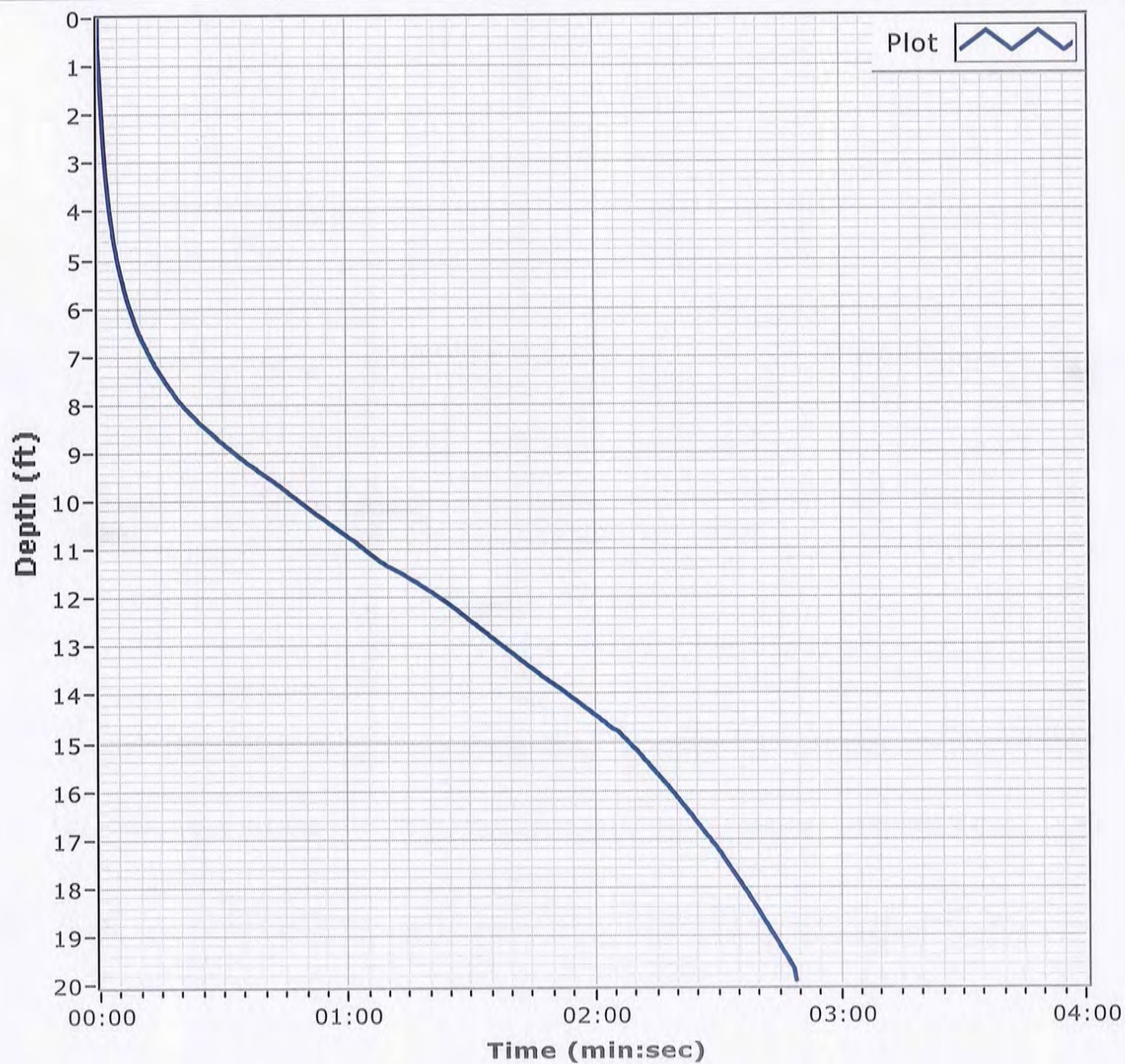
**Project**

Mississippi Barrier Island  
Restoration Project

**AVS**  
**AMERICAN VIBRACORE**  
**S E R V I C E S**

**Core Identifier** BI-PB-189-12**Date** 12/11/2012**Water Depth** 36.4'**Coordinate System**

Latitude / Longitude

**Start Time** 11:22:13**End Time** 11:25:02**Penetration** 20.0'**Latitude** 33 11.729**Total Time** 00:02:49**Recovery** 15.5'**Longitude** 088 19.873**Comments**

# Boring Designation BI-PB-190-12

DRILLING LOG		DIVISION South Atlantic		INSTALLATION Mobile District		SHEET 1 OF 2 SHEETS	
1. PROJECT MsCIP Barrier Island Restoration Petit Bois Pass- AL East				9. SIZE AND TYPE OF BIT N/A			
2. BORING DESIGNATION BI-PB-190-12		LOCATION COORDINATES E = 1,142,619 N = 253,730		10. COORDINATE SYSTEM/DATUM State Plane, MSE (U.S. Ft.)		HORIZONTAL NAD83 VERTICAL NAVD88	
3. DRILLING AGENCY Corps of Engineers - CESAM		CONTRACTOR FILE NO.		11. MANUFACTURER'S DESIGNATION OF DRILL Vibracore		<input type="checkbox"/> AUTO HAMMER <input type="checkbox"/> MANUAL HAMMER	
4. NAME OF DRILLER American Vibracore Systems, Inc.				12. TOTAL SAMPLES		DISTURBED UNDISTURBED (UD) 0	
5. DIRECTION OF BORING <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED		DEG. FROM VERTICAL		13. TOTAL NUMBER CORE BOXES			
		BEARING		14. WATER DEPTH 34.5 Ft.			
6. THICKNESS OF OVERBURDEN N/A				15. DATE BORING 12-11-12		STARTED COMPLETED 12-11-12	
7. DEPTH DRILLED INTO ROCK N/A				16. ELEVATION TOP OF BORING -34.7 Ft.			
8. TOTAL DEPTH OF BORING 18.2 Ft.				17. TOTAL RECOVERY FOR BORING 100%			
				18. SIGNATURE AND TITLE OF INSPECTOR Mike FitzHarris, Geologist			

ELEV.	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS	SAMPLE	LABORATORY RESULTS
-34.7	0.0				
-36.1	1.4		CLAY, lean, mostly clay, some fine-grained sand-sized quartz, gray (CL)	NS	
-37.9	3.2		SAND, silty, mostly fine-grained sand-sized quartz, some silt, trace clay, trace clay stringers, gray (SM)	A	Classification: SP-SM Color: 5Y 6/2-light olive gray D50: 0.2746 mm % Fines: 7.7
			SAND, poorly-graded, mostly fine to medium-grained sand-sized quartz, trace clay, trace clay stringers, dense, lt. gray (SP)	B	Classification: SP Color: 5Y 8/1-white D50: 0.3087 mm % Fines: 2.3
				C	Classification: SP Color: 2.5Y 8/1-white D50: 0.2838 mm % Fines: 2.7
-45.0	10.3				
			CLAY, fat, mostly clay, trace fine-grained sand-sized sand, trace shell fragments, medium to high plasticity, greenish gray (CH)	NS	
-52.4	17.7				
-52.9	18.2		SAND, clayey, mostly fine-grained sand-sized quartz, some clay, trace shell fragments, greenish gray (SC)		
			NOTES: 1. Soils are field visually classified in accordance with the Unified Soils Classification System. 2. NS = Sample not submitted for laboratory analysis from this interval. 3. Seafloor elevation calculated using sampling vessel's fathometer water depth reading and		

<b>DRILLING LOG (Cont. Sheet)</b>			<b>INSTALLATION</b> Mobile District		<b>SHEET 2</b> <b>OF 2 SHEETS</b>
<b>PROJECT</b> MsCIP Barrier Island Restoration			<b>COORDINATE SYSTEM/DATUM</b> State Plane, MSE (U.S. Ft.)	<b>HORIZONTAL</b> NAD83	<b>VERTICAL</b> NAVD88
<b>LOCATION COORDINATES</b> X = 1,142,619 Y = 253,730			<b>ELEVATION TOP OF BORING</b> -34.7 Ft.		
<b>ELEV.</b>	<b>DEPTH</b>	<b>LEGEND</b>	<b>CLASSIFICATION OF MATERIALS</b>	<b>SAMPLE</b>	<b>LABORATORY RESULTS</b>
			applying NOAA tidal gauge data conversion factor.		



# Project

Mississippi Barrier Island  
Restoration Project

**AVS**  
AMERICAN VIBRACORE  
S E R V I C E S

Core Identifier BI-PB-190-12

Date 12/11/2012

Water Depth 34.5'

## Coordinate System

Latitude / Longitude

Start Time 10:08:03

End Time 10:12:19

Penetration 19.8'

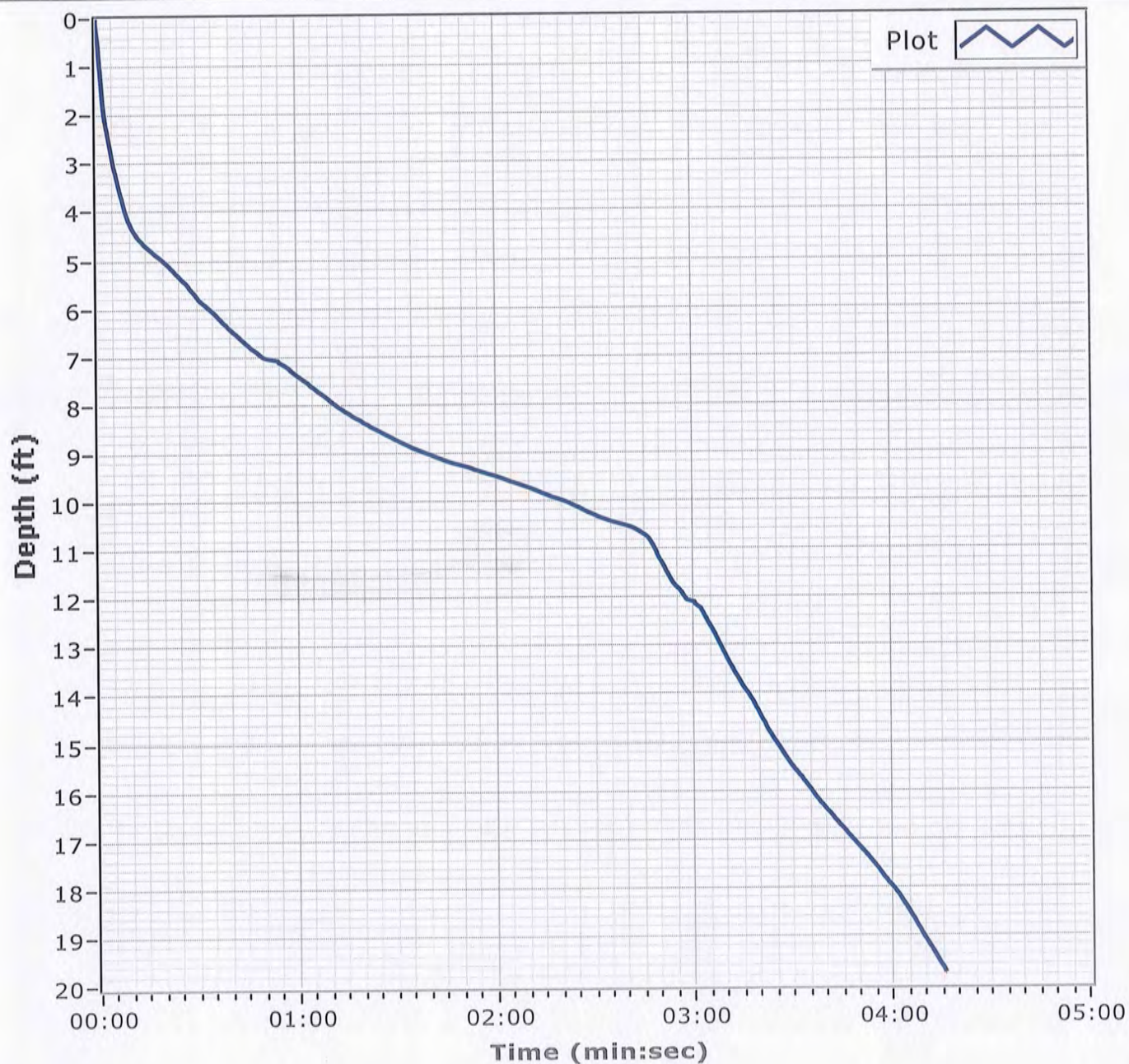
Latitude 33 11.805

Total Time 00:04:16

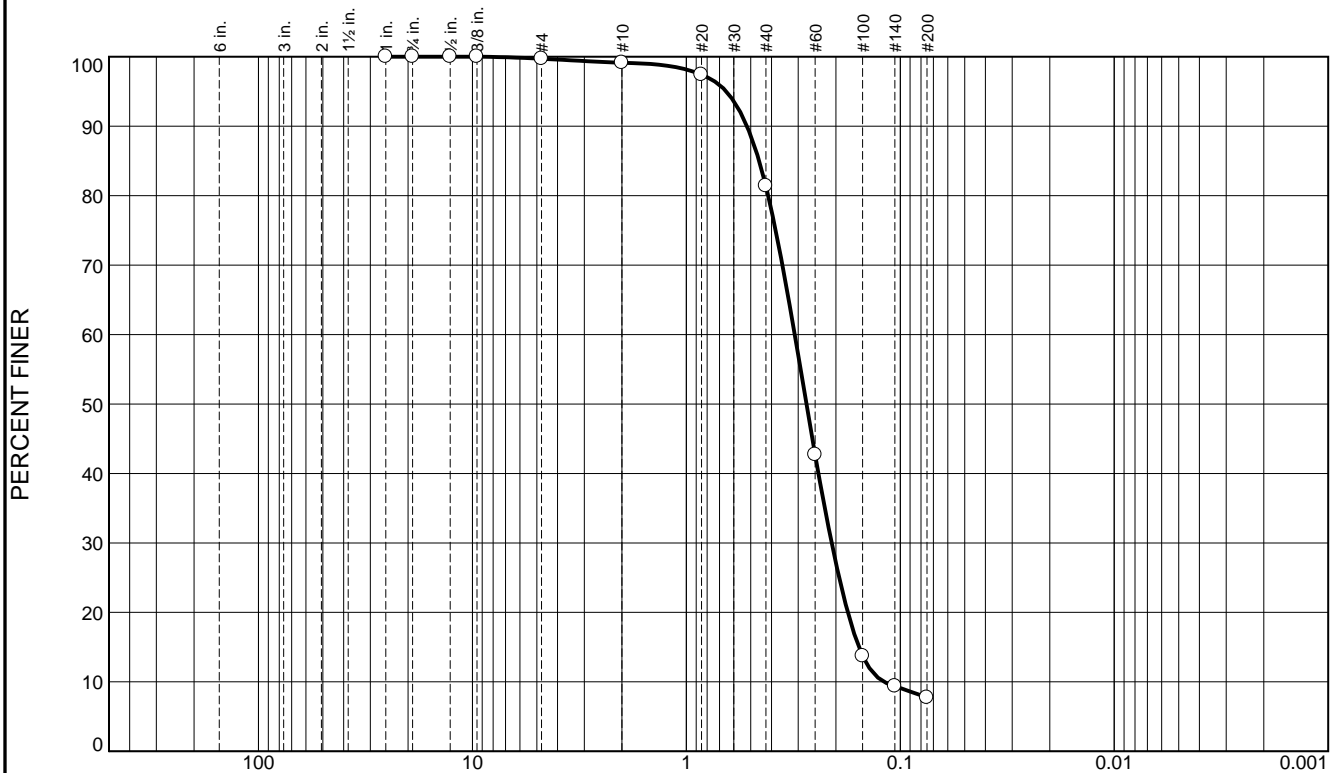
Recovery 18.2'

Longitude 088 19.922

## Comments



# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.3	0.6	17.7	73.7	7.7	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
1	100.0		
.75	100.0		
.5	100.0		
.375	100.0		
#4	99.7		
#10	99.1		
#20	97.4		
#40	81.4		
#60	42.7		
#100	13.7		
#140	9.4		
#200	7.7		

\* (no specification provided)

<u><b>Material Description</b></u>		
Fine to medium grained, SLIGHTLY SILTY SAND		
<u><b>Atterberg Limits</b></u>		
PL=	LL=	PI=
<u><b>Coefficients</b></u>		
D <sub>90</sub> = 0.5208	D <sub>85</sub> = 0.4570	D <sub>60</sub> = 0.3116
D <sub>50</sub> = 0.2746	D <sub>30</sub> = 0.2093	D <sub>15</sub> = 0.1562
D <sub>10</sub> = 0.1191	C <sub>u</sub> = 2.62	C <sub>c</sub> = 1.18
<u><b>Classification</b></u>		
USCS= SP-SM	AASHTO=	
<u><b>Remarks</b></u>		

Location: BI-PB-190-12 A  
Sample Number: 6485 (21)

Depth: 1.4'

Date: 12/07/12

**Thompson Engineering**

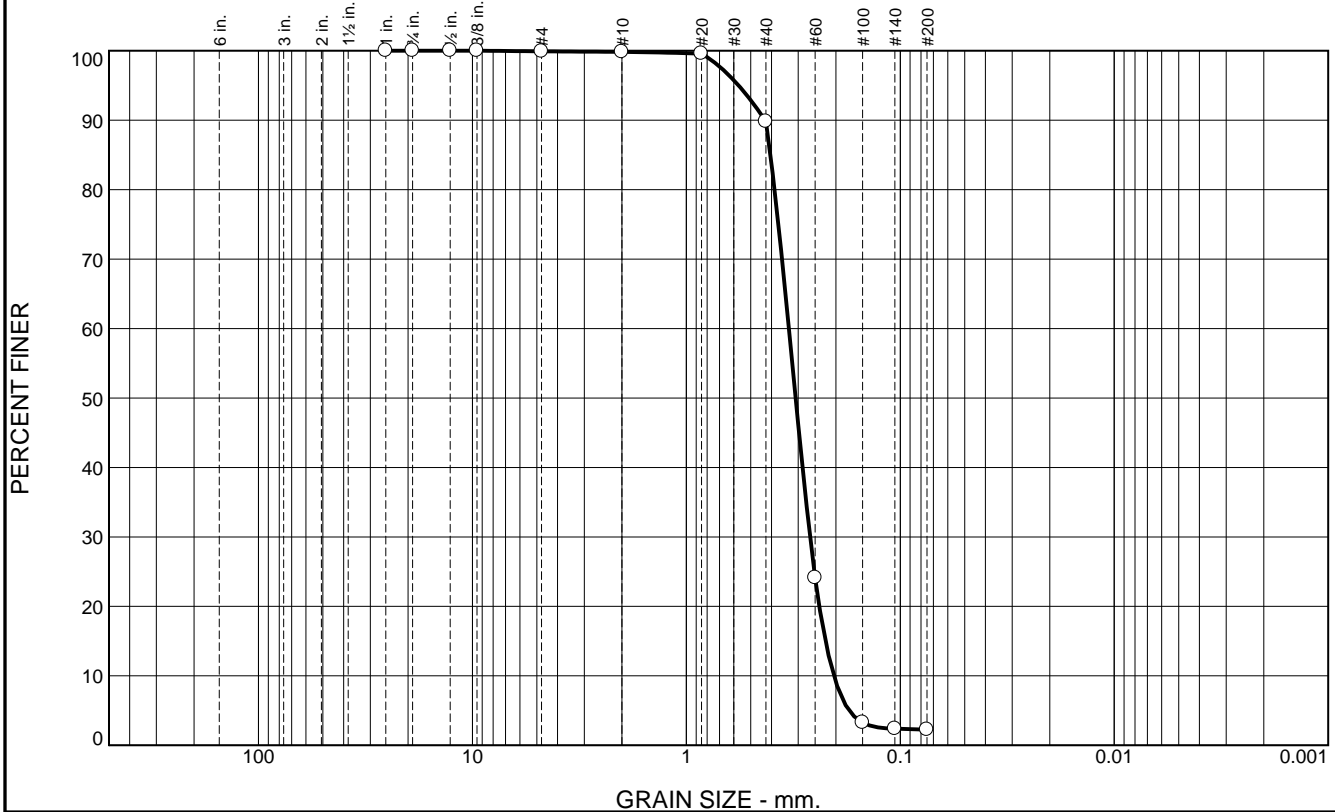
**Mobile, Alabama**

Client: CDM/Thompson Engineering JV  
Project: MsCIP Barrier Island Restoration GT

Project No: 1221110095

Figure

# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.1	0.1	10.0	87.5	2.3	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
1	100.0		
.75	100.0		
.5	100.0		
.375	100.0		
#4	99.9		
#10	99.8		
#20	99.6		
#40	89.8		
#60	24.1		
#100	3.3		
#140	2.4		
#200	2.3		

\* (no specification provided)

## Material Description

Fine to medium grained, SAND

## Atterberg Limits

PL= LL= PI=

## Coefficients

D<sub>90</sub>= 0.4290 D<sub>85</sub>= 0.4046 D<sub>60</sub>= 0.3318  
D<sub>50</sub>= 0.3087 D<sub>30</sub>= 0.2642 D<sub>15</sub>= 0.2237  
D<sub>10</sub>= 0.2044 C<sub>u</sub>= 1.62 C<sub>c</sub>= 1.03

## Classification

USCS= SP AASHTO=

## Remarks

Location: BI-PB-190-12 B  
Sample Number: 6485 (22)

Depth: 3.2'

Date: 12/07/12

**Thompson Engineering**

**Mobile, Alabama**

Client: CDM/Thompson Engineering JV  
Project: MsCIP Barrier Island Restoration GT

Project No: 1221110095

Figure

# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.0	0.1	8.4	88.8	2.7	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
1	100.0		
.75	100.0		
.5	100.0		
.375	100.0		
#4	100.0		
#10	99.9		
#20	99.8		
#40	91.5		
#60	36.1		
#100	4.0		
#140	2.8		
#200	2.7		

\* (no specification provided)

Material Description		
Fine grained, SAND		
<div> <div> Atterberg Limits </div> <div> PL= </div> <div> LL= </div> <div> PI= </div> </div>		
<div> <div> Coefficients </div> <div> D<sub>90</sub>= 0.4165 </div> <div> D<sub>85</sub>= 0.3919 </div> <div> D<sub>60</sub>= 0.3094 </div> <div> D<sub>50</sub>= 0.2838 </div> <div> D<sub>30</sub>= 0.2348 </div> <div> D<sub>15</sub>= 0.1940 </div> <div> D<sub>10</sub>= 0.1777 </div> <div> C<sub>u</sub>= 1.74 </div> <div> C<sub>c</sub>= 1.00 </div> </div>		
<div> <div> Classification </div> <div> USCS= SP </div> <div> AASHTO= </div> </div>		
<div> <div> Remarks </div> </div>		

Location: BI-PB-190-12 C  
Sample Number: 6485 (23)

Depth: 8.2'

Date: 12/07/12

**Thompson Engineering**

**Mobile, Alabama**

Client: CDM/Thompson Engineering JV  
Project: MsCIP Barrier Island Restoration GT

Project No: 1221110095

Figure

# Boring Designation BI-PB-191-12

<b>DRILLING LOG</b>		<b>DIVISION</b> South Atlantic	<b>INSTALLATION</b> Mobile District	<b>SHEET 1</b> <b>OF 1 SHEETS</b>
<b>1. PROJECT</b> MsCIP Barrier Island Restoration Petit Bois Pass- AL East		<b>9. SIZE AND TYPE OF BIT</b> N/A		
<b>2. BORING DESIGNATION</b> BI-PB-191-12		<b>10. COORDINATE SYSTEM/DATUM</b> State Plane, MSE (U.S. Ft.)		
<b>LOCATION COORDINATES</b> E = 1,143,112 N = 253,725		<b>HORIZONTAL</b> NAD83		
<b>3. DRILLING AGENCY</b> Corps of Engineers - CESAM		<b>11. MANUFACTURER'S DESIGNATION OF DRILL</b> <input type="checkbox"/> AUTO HAMMER <input type="checkbox"/> MANUAL HAMMER		
<b>CONTRACTOR FILE NO.</b>		<b>12. TOTAL SAMPLES</b>		
<b>4. NAME OF DRILLER</b> American Vibracore Systems, Inc.		<b>DISTURBED</b>		
<b>5. DIRECTION OF BORING</b> <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED		<b>UNDISTURBED (UD)</b> 0		
<b>DEG. FROM VERTICAL</b>		<b>13. TOTAL NUMBER CORE BOXES</b>		
<b>BEARING</b>		<b>14. WATER DEPTH</b> 34.8 Ft.		
<b>6. THICKNESS OF OVERBURDEN</b> N/A		<b>15. DATE BORING</b> <b>STARTED</b> 12-11-12 <b>COMPLETED</b> 12-11-12		
<b>7. DEPTH DRILLED INTO ROCK</b> N/A		<b>16. ELEVATION TOP OF BORING</b> -34.9 Ft.		
<b>8. TOTAL DEPTH OF BORING</b> 15.8 Ft.		<b>17. TOTAL RECOVERY FOR BORING</b> 100%		
		<b>18. SIGNATURE AND TITLE OF INSPECTOR</b> Mike FitzHarris, Geologist		

ELEV.	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS	SAMPLE	LABORATORY RESULTS
-34.9	0.0				
-36.2	1.3		SILT, inorganic-L, mostly silt, little fine-grained sand-sized quartz, trace clay, brownish gray (ML)		
			CLAY, fat, mostly clay, trace fine-grained sand-sized quartz, trace shell fragments, medium to high plasticity, stiff, greenish gray (CH)		
				NS	
-50.3	15.4				
-50.7	15.8		SAND, clayey, mostly fine-grained sand-sized quartz, some clay, trace shell fragments, greenish gray (SC)		
			NOTES: 1. Soils are field visually classified in accordance with the Unified Soils Classification System. 2. NS = Sample not submitted for laboratory analysis from this interval. 3. Seafloor elevation calculated using sampling vessel's fathometer water depth reading and applying NOAA tidal gauge data conversion factor.		



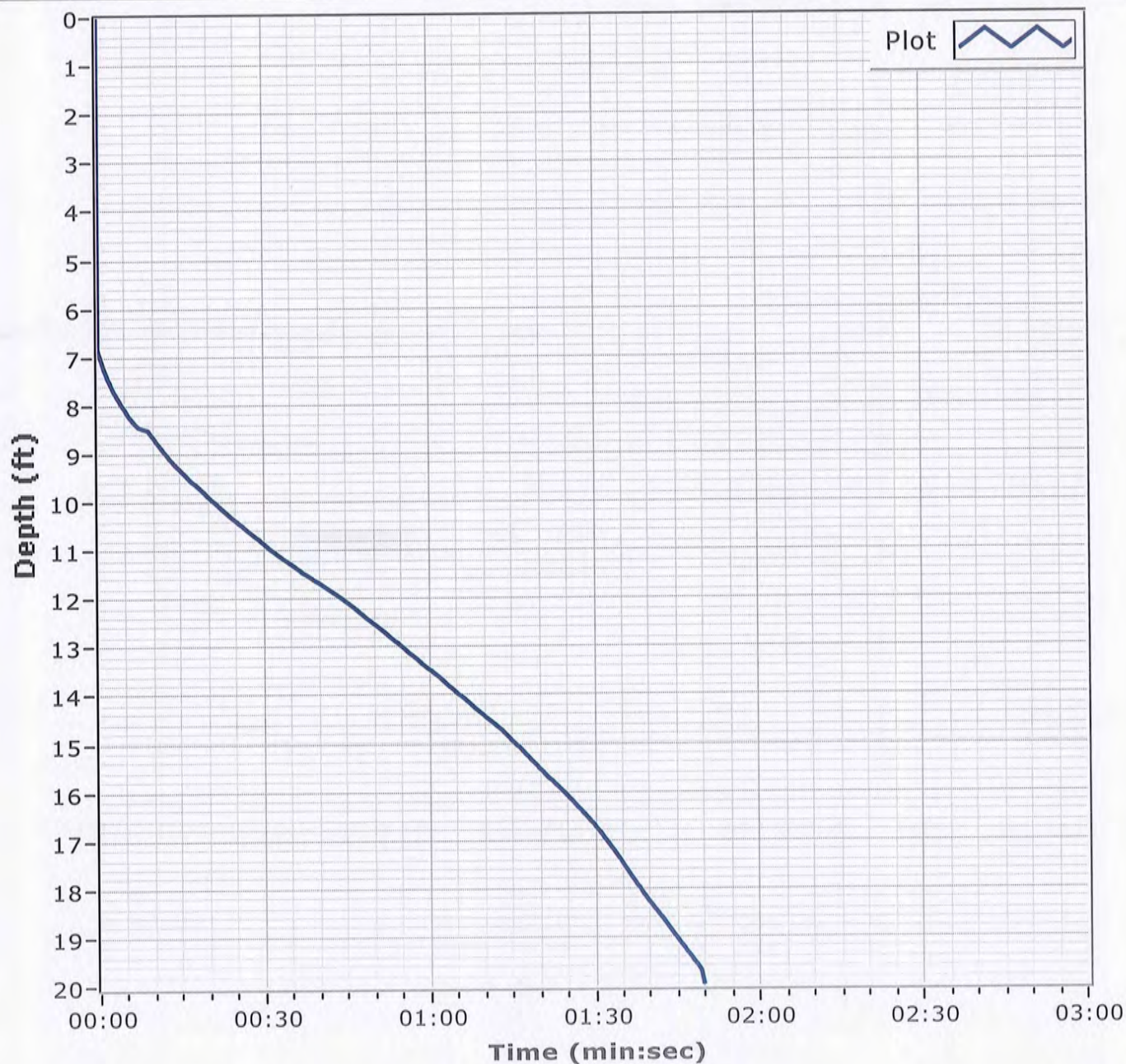
**Project**

Mississippi Barrier Island  
Restoration Project

**AVS**  
**AMERICAN VIBRACORE**  
**S E R V I C E S**

**Core Identifier** BI-PB-191-12**Date** 12/11/2012**Water Depth** 34.8'**Coordinate System**

Latitude / Longitude

**Start Time** 10:48:05**End Time** 10:49:55**Penetration** 20.0'**Latitude** 33 11.804**Total Time** 00:01:49**Recovery** 15.8'**Longitude** 088 19.828**Comments**

# Boring Designation BI-PB-192-12

DRILLING LOG		DIVISION South Atlantic		INSTALLATION Mobile District		SHEET 1 OF 1 SHEETS	
1. PROJECT MsCIP Barrier Island Restoration Petit Bois Pass- AL East				9. SIZE AND TYPE OF BIT N/A			
2. BORING DESIGNATION BI-PB-192-12		LOCATION COORDINATES E = 1,143,389 N = 253,253		10. COORDINATE SYSTEM/DATUM State Plane, MSE (U.S. Ft.)		HORIZONTAL NAD83 VERTICAL NAVD88	
3. DRILLING AGENCY Corps of Engineers - CESAM		CONTRACTOR FILE NO.		11. MANUFACTURER'S DESIGNATION OF DRILL Vibracore		<input type="checkbox"/> AUTO HAMMER <input type="checkbox"/> MANUAL HAMMER	
4. NAME OF DRILLER American Vibracore Systems, Inc.				12. TOTAL SAMPLES		DISTURBED UNDISTURBED (UD) 0	
5. DIRECTION OF BORING <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED		DEG. FROM VERTICAL		13. TOTAL NUMBER CORE BOXES			
		BEARING		14. WATER DEPTH 36.4 Ft.			
6. THICKNESS OF OVERBURDEN N/A				15. DATE BORING 12-11-12		STARTED COMPLETED 12-11-12	
7. DEPTH DRILLED INTO ROCK N/A				16. ELEVATION TOP OF BORING -36.4 Ft.			
8. TOTAL DEPTH OF BORING 15.3 Ft.				17. TOTAL RECOVERY FOR BORING 100%			
				18. SIGNATURE AND TITLE OF INSPECTOR Mike FitzHarris, Geologist			

ELEV.	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS	SAMPLE	LABORATORY RESULTS
-36.4	0.0				
-37.9	1.5		CLAY, silty, mostly clay, some silt, trace fine-grained sand-sized quartz, soft, brownish gray (CL-ML)		
			CLAY, fat, mostly clay, trace shell fragments, medium to high plasticity, stiff, greenish gray (CH)	NS	
-50.9	14.5				
-51.7	15.3		SAND, clayey, mostly fine-grained sand-sized quartz, some clay, little silt, trace shell fragments, greenish gray (SC)		
			NOTES: 1. Soils are field visually classified in accordance with the Unified Soils Classification System. 2. NS = Sample not submitted for laboratory analysis from this interval. 3. Seafloor elevation calculated using sampling vessel's fathometer water depth reading and applying NOAA tidal gauge data conversion factor.		



**Project**

Mississippi Barrier Island  
Restoration Project

**AVS**  
**AMERICAN VIBRACORE**  
**S E R V I C E S**

**Core Identifier** BI-PB-192-12

**Date** 12/11/2012

**Water Depth** 36.4'

**Coordinate System**

Latitude / Longitude

**Start Time** 12:00:26

**End Time** 12:04:48

**Penetration** 20.0'

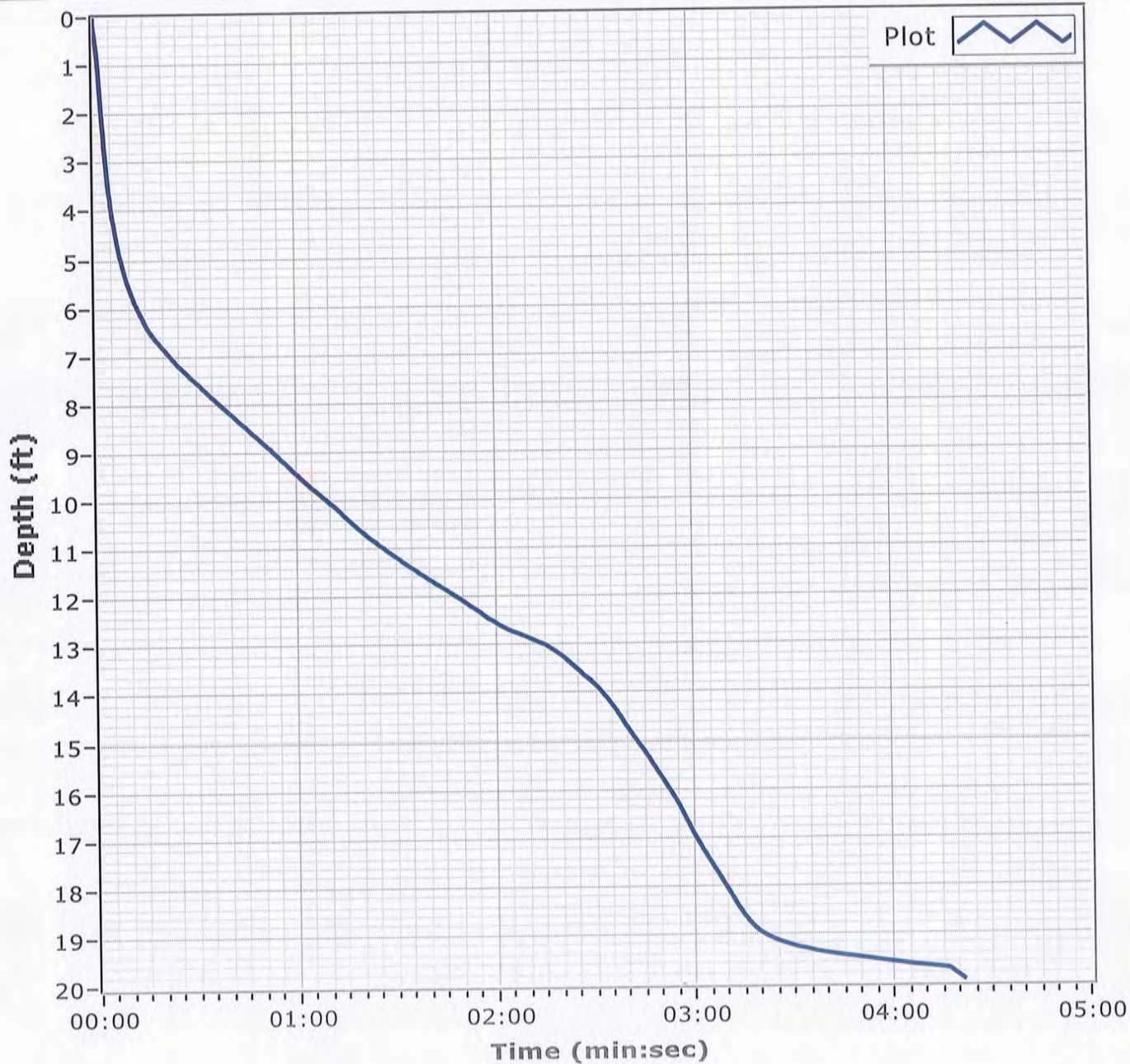
**Latitude** 33 11.726

**Total Time** 00:04:21

**Recovery** 15.3'

**Longitude** 088 19.776

**Comments**





# Boring Designation BI-PB-197-12

DRILLING LOG		DIVISION South Atlantic		INSTALLATION Mobile District		SHEET 1 OF 1 SHEETS	
1. PROJECT MsCIP Barrier Island Restoration Petit Bois Pass- AL West				9. SIZE AND TYPE OF BIT N/A			
2. BORING DESIGNATION BI-PB-197-12		LOCATION COORDINATES E = 1,136,842 N = 254,978		10. COORDINATE SYSTEM/DATUM State Plane, MSE (U.S. Ft.)		HORIZONTAL NAD83	
3. DRILLING AGENCY Corps of Engineers - CESAM		CONTRACTOR FILE NO.		11. MANUFACTURER'S DESIGNATION OF DRILL Vibrocure		<input type="checkbox"/> AUTO HAMMER <input type="checkbox"/> MANUAL HAMMER	
4. NAME OF DRILLER American Vibrocure Systems, Inc.				12. TOTAL SAMPLES		DISTURBED 0	
5. DIRECTION OF BORING <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED				13. TOTAL NUMBER CORE BOXES		14. WATER DEPTH 28.2 Ft.	
6. THICKNESS OF OVERBURDEN N/A				15. DATE BORING		STARTED 12-22-12	
7. DEPTH DRILLED INTO ROCK N/A				16. ELEVATION TOP OF BORING -28.9 Ft.		COMPLETED 12-22-12	
8. TOTAL DEPTH OF BORING 17.7 Ft.				17. TOTAL RECOVERY FOR BORING 100%			
				18. SIGNATURE AND TITLE OF INSPECTOR Mike FitzHarris, Geologist			
ELEV.	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS	SAMPLE	LABORATORY RESULTS		
-28.9	0.0						
-32.8	3.9		SAND, poorly-graded with silt, mostly fine to medium-grained sand-sized quartz, few silt, trace shell fragments, gray to lt. brown (SP-SM)	A	Classification: SP-SM Color: 2.5Y 5/2-grayish brown D50: 0.2933 mm % Fines: 5.5		
-34.1	5.2		SAND, poorly-graded, mostly fine-grained sand-sized quartz, trace fines, pale lt. brown (SP)	B	Classification: SP Color: 2.5Y 6/2-light brownish gray D50: 0.3028 mm % Fines: 2.4		
-38.3	9.4		SAND, silty, mostly fine-grained sand-sized quartz, some silt, brown (SM)	C	Classification: SP-SM Color: 2.5Y 4/2-dark grayish brown D50: 0.2985 mm % Fines: 5.9		
-38.3	9.4		At El. -36.5 Ft., mostly fine-grained sand-sized quartz, some silt, gray	D	Classification: SP-SM Color: 5Y 5/2-olive gray D50: 0.2174 mm % Fines: 7.6		
-46.6	17.7		CLAY, fat, mostly clay, medium to high plasticity, silty between 9.4 to 10.4 ft., stiff, greenish gray (CH)	NS			
			NOTES: 1. Soils are field visually classified in accordance with the Unified Soils Classification System. 2. NS = Sample not submitted for laboratory analysis from this interval. 3. Seafloor elevation determined from 2010 USACE survey.				

**Project**

Mississippi Barrier Island  
Restoration Project



**Core Identifier** BI-PB-197-12

**Date** 12/22/2012

**Water Depth** 28.2'

**Coordinate System**

Latitude / Longitude

**Start Time** 09:09:04

**End Time** 09:10:24

**Penetration** 20.0'

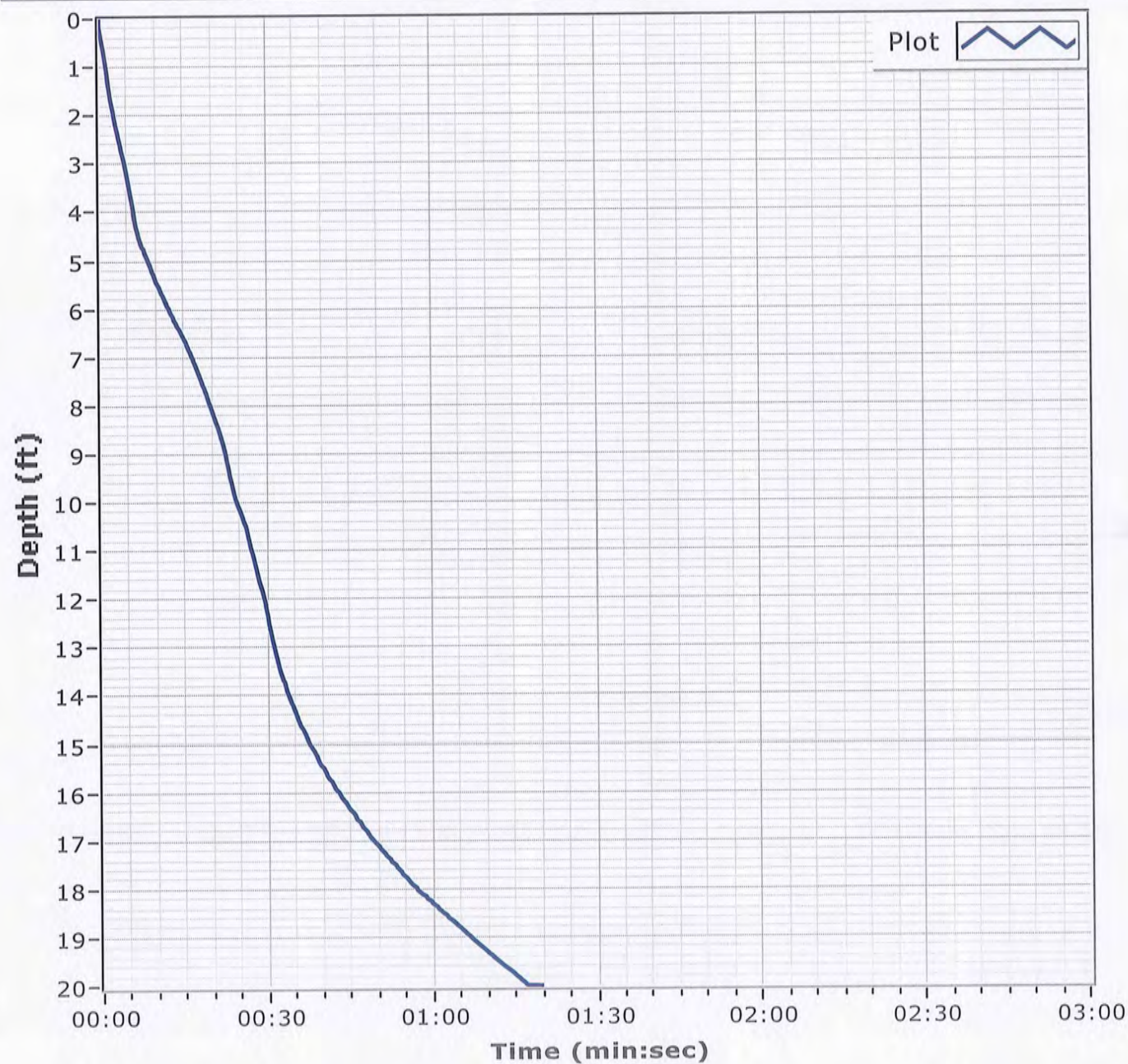
**Latitude** 30 12.015

**Total Time** 00:01:20

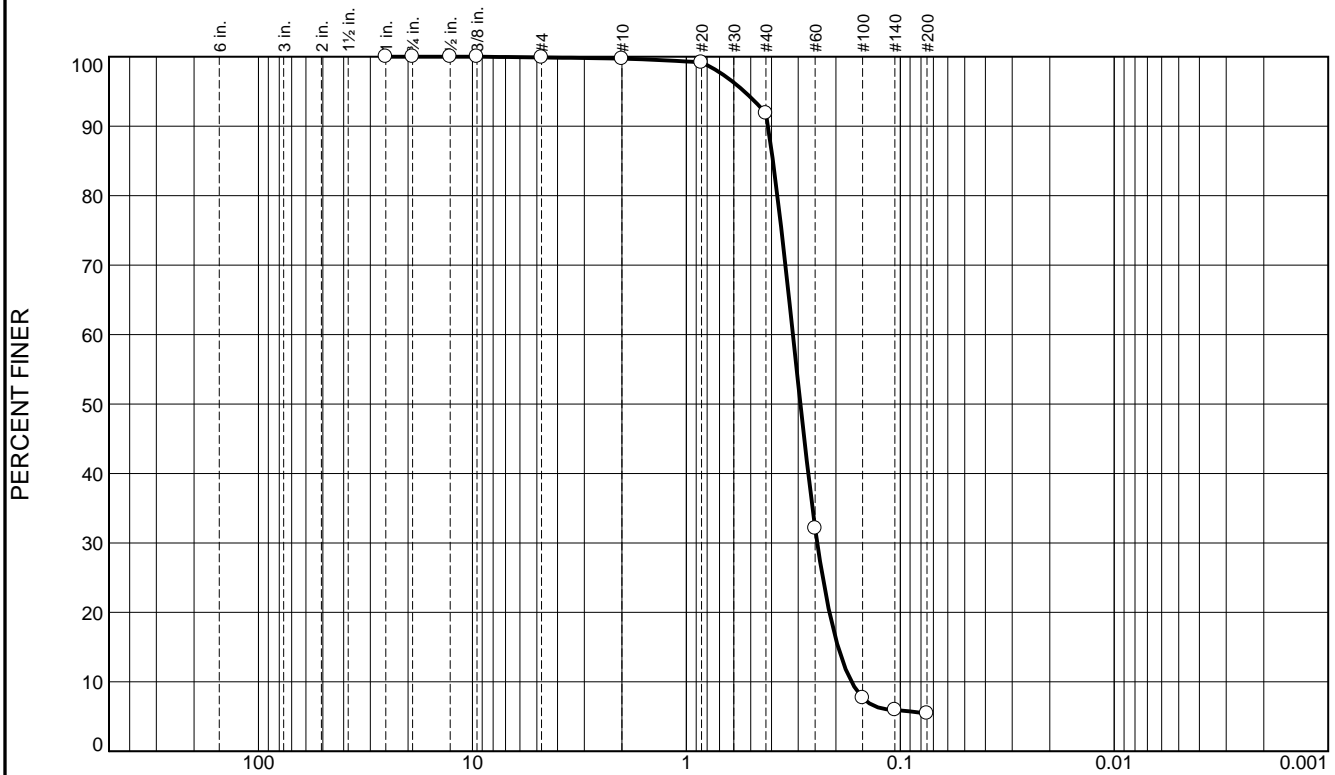
**Recovery** 17.7'

**Longitude** 088 21.018

**Comments**



# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.1	0.2	7.8	86.4	5.5	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
1	100.0		
.75	100.0		
.5	100.0		
.375	100.0		
#4	99.9		
#10	99.7		
#20	99.2		
#40	91.9		
#60	32.1		
#100	7.7		
#140	5.9		
#200	5.5		

\* (no specification provided)

<u><b>Material Description</b></u>		
Fine grained, SLIGHTLY SILTY SAND		
<u><b>Atterberg Limits</b></u>		
PL=	LL=	PI=
<u><b>Coefficients</b></u>		
D <sub>90</sub> = 0.4154	D <sub>85</sub> = 0.3936	D <sub>60</sub> = 0.3177
D <sub>50</sub> = 0.2933	D <sub>30</sub> = 0.2445	D <sub>15</sub> = 0.1954
D <sub>10</sub> = 0.1693	C <sub>u</sub> = 1.88	C <sub>c</sub> = 1.11
<u><b>Classification</b></u>		
USCS= SP-SM	AASHTO=	
<u><b>Remarks</b></u>		

Location: BI-PB-197-12 A  
Sample Number: 6495 (13)

Depth: 0.0'

Date: 12/31/12

**Thompson Engineering**

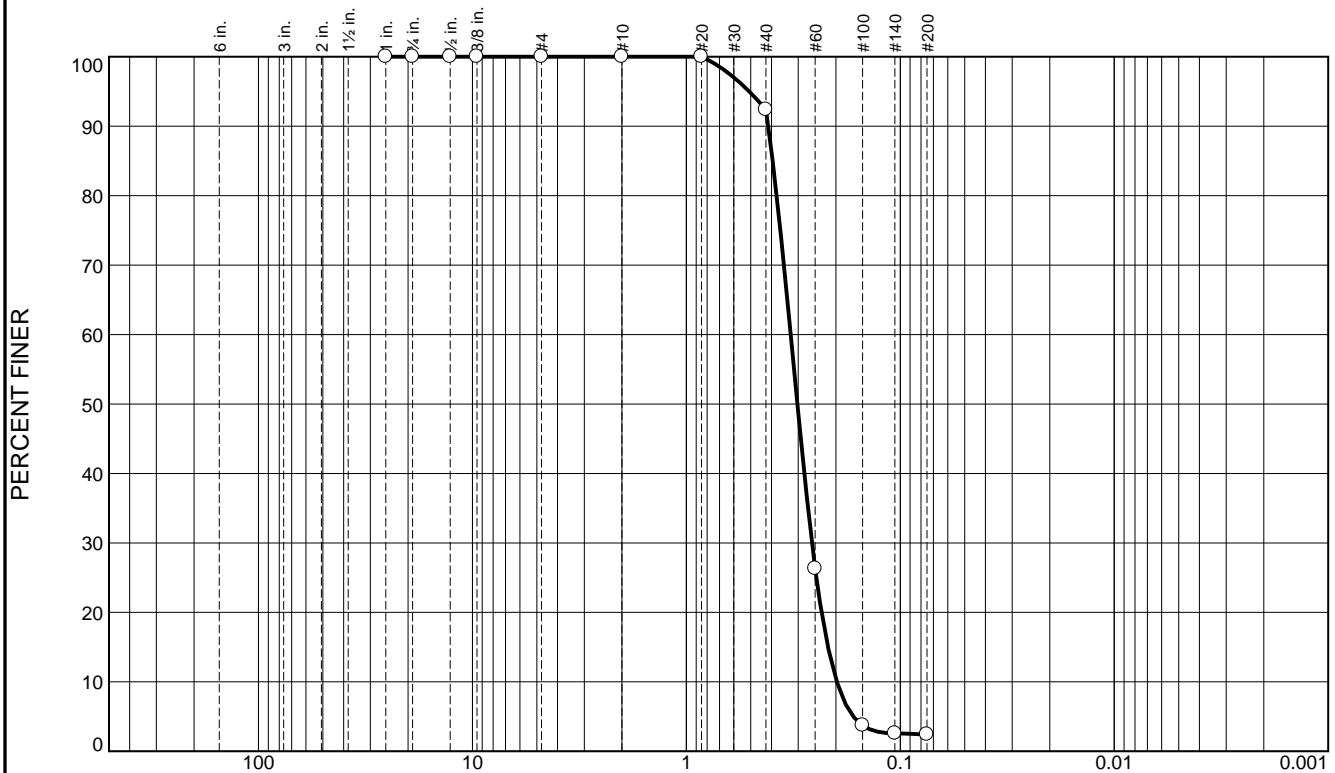
**Mobile, Alabama**

Client: CDM/Thompson Engineering JV  
Project: MsCIP Barrier Island Restoration GT

Project No: 1221110095

Figure

# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.0	0.0	7.6	90.0	2.4	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
1	100.0		
.75	100.0		
.5	100.0		
.375	100.0		
#4	100.0		
#10	100.0		
#20	100.0		
#40	92.4		
#60	26.3		
#100	3.7		
#140	2.6		
#200	2.4		

\* (no specification provided)

**Material Description**  
Fine grained, SAND

**Atterberg Limits**  
PL=      LL=      PI=

**Coefficients**  
D<sub>90</sub>= 0.4142      D<sub>85</sub>= 0.3948      D<sub>60</sub>= 0.3254  
D<sub>50</sub>= 0.3028      D<sub>30</sub>= 0.2588      D<sub>15</sub>= 0.2176  
D<sub>10</sub>= 0.1979      C<sub>u</sub>= 1.64      C<sub>c</sub>= 1.04

**Classification**  
USCS= SP      AASHTO=

**Remarks**

Location: BI-PB-197-12 B  
Sample Number: 6495 (14)

Depth: 3.9'

Date: 12/31/12

**Thompson Engineering**

**Mobile, Alabama**

Client: CDM/Thompson Engineering JV  
Project: MsCIP Barrier Island Restoration GT

Project No: 1221110095

Figure

# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.0	0.0	9.1	85.0	5.9	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
1	100.0		
.75	100.0		
.5	100.0		
.375	100.0		
#4	100.0		
#10	100.0		
#20	100.0		
#40	90.9		
#60	30.5		
#100	10.9		
#140	6.7		
#200	5.9		

\* (no specification provided)

<b><u>Material Description</u></b>		
Fine grained, SLIGHTLY SILTY SAND		
<b><u>Atterberg Limits</u></b>		
PL=	LL=	PI=
<b><u>Coefficients</u></b>		
D <sub>90</sub> = 0.4206	D <sub>85</sub> = 0.3987	D <sub>60</sub> = 0.3231
D <sub>50</sub> = 0.2985	D <sub>30</sub> = 0.2485	D <sub>15</sub> = 0.1879
D <sub>10</sub> = 0.1406	C <sub>u</sub> = 2.30	C <sub>c</sub> = 1.36
<b><u>Classification</u></b>		
USCS= SP-SM	AASHTO=	
<b><u>Remarks</u></b>		

Location: BI-PB-197-12 C  
Sample Number: 6495 (15)

Depth: 5.2'

Date: 12/31/12

**Thompson Engineering**

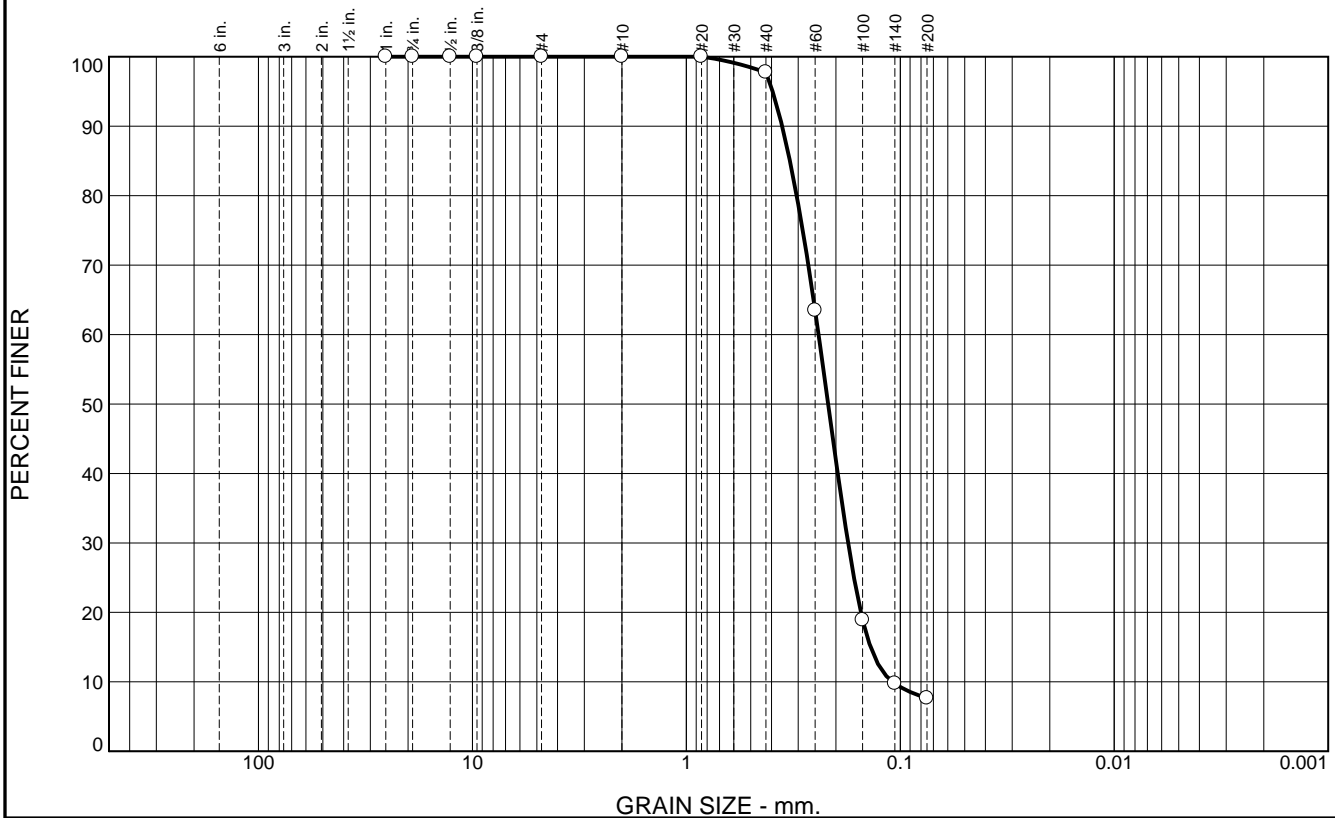
**Mobile, Alabama**

Client: CDM/Thompson Engineering JV  
Project: MsCIP Barrier Island Restoration GT

Project No: 1221110095

Figure

# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.0	0.0	2.3	90.1	7.6	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
1	100.0		
.75	100.0		
.5	100.0		
.375	100.0		
#4	100.0		
#10	100.0		
#20	100.0		
#40	97.7		
#60	63.5		
#100	18.9		
#140	9.8		
#200	7.6		

\* (no specification provided)

<b><u>Material Description</u></b>		
Fine grained, SLIGHTLY SILTY SAND		
<b><u>Atterberg Limits</u></b>		
PL=	LL=	PI=
<b><u>Coefficients</u></b>		
D <sub>90</sub> = 0.3566	D <sub>85</sub> = 0.3281	D <sub>60</sub> = 0.2410
D <sub>50</sub> = 0.2174	D <sub>30</sub> = 0.1755	D <sub>15</sub> = 0.1377
D <sub>10</sub> = 0.1086	C <sub>u</sub> = 2.22	C <sub>c</sub> = 1.18
<b><u>Classification</u></b>		
USCS= SP-SM	AASHTO=	
<b><u>Remarks</u></b>		

Location: BI-PB-197-12 D  
Sample Number: 6495 (16)

Depth: 7.6'

Date: 12/31/12

**Thompson Engineering**

**Mobile, Alabama**

Client: CDM/Thompson Engineering JV  
Project: MsCIP Barrier Island Restoration GT

Project No: 1221110095

Figure

# Boring Designation BI-PB-198-12

DRILLING LOG		DIVISION South Atlantic		INSTALLATION Mobile District		SHEET 1 OF 1 SHEETS	
1. PROJECT MsCIP Barrier Island Restoration Petit Bois Pass- AL West				9. SIZE AND TYPE OF BIT N/A			
2. BORING DESIGNATION BI-PB-198-12		LOCATION COORDINATES E = 1,135,585 N = 254,936		10. COORDINATE SYSTEM/DATUM State Plane, MSE (U.S. Ft.)		HORIZONTAL NAD83 VERTICAL NAVD88	
3. DRILLING AGENCY Corps of Engineers - CESAM		CONTRACTOR FILE NO.		11. MANUFACTURER'S DESIGNATION OF DRILL Vibracore		<input type="checkbox"/> AUTO HAMMER <input type="checkbox"/> MANUAL HAMMER	
4. NAME OF DRILLER American Vibracore Systems, Inc.				12. TOTAL SAMPLES		DISTURBED UNDISTURBED (UD) 0	
5. DIRECTION OF BORING <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED		DEG. FROM VERTICAL		13. TOTAL NUMBER CORE BOXES			
		BEARING		14. WATER DEPTH 27.6 Ft.			
6. THICKNESS OF OVERBURDEN N/A				15. DATE BORING 12-22-12		STARTED COMPLETED 12-22-12	
7. DEPTH DRILLED INTO ROCK N/A				16. ELEVATION TOP OF BORING -28.2 Ft.			
8. TOTAL DEPTH OF BORING 18.8 Ft.				17. TOTAL RECOVERY FOR BORING 100%			
				18. SIGNATURE AND TITLE OF INSPECTOR Mike FitzHarris, Geologist			
ELEV.	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS	SAMPLE	LABORATORY RESULTS		
-28.2	0.0						
-29.7	1.5		SAND, poorly-graded, mostly fine-grained sand-sized quartz, trace fines, trace shell fragments, lt. gray (SP)	A	Classification: SP Color: 5Y 6/2-light olive gray D50: 0.2842 mm % Fines: 1.5		
-34.2	6.0		SAND, poorly-graded with silt, mostly fine-grained sand-sized quartz, few silt, trace shell fragments, trace clayey nodules, pale lt. brown (SP-SM)	B	Classification: SP Color: 2.5Y 5/2-grayish brown D50: 0.2867 mm % Fines: 2.5		
-40.3	12.1		SAND, silty, mostly fine-grained sand-sized quartz, some silt, pale lt. brown (SM)	C	Classification: SP-SM Color: 2.5Y 5/2-grayish brown D50: 0.2777 mm % Fines: 5.3		
-47.0	18.8		At El. -39.3 Ft., mostly fine-grained sand-sized quartz, some silt, little clay, gray CLAY, fat, mostly clay, trace shell fragments, medium to high plasticity, greenish gray (CH)	NS			
NOTES: 1. Soils are field visually classified in accordance with the Unified Soils Classification System. 2. NS = Sample not submitted for laboratory analysis from this interval. 3. Seafloor elevation determined from 2010 USACE survey.							



**Project**

Mississippi Barrier Island  
Restoration Project

**AVS**  
**AMERICAN VIBRACORE**  
**S E R V I C E S**

**Core Identifier** BI-PB-198-12

**Date** 12/22/2012

**Water Depth** 27.6'

**Coordinate System**

Latitude / Longitude

**Start Time** 09:42:01

**End Time** 09:43:20

**Penetration** 20.0'

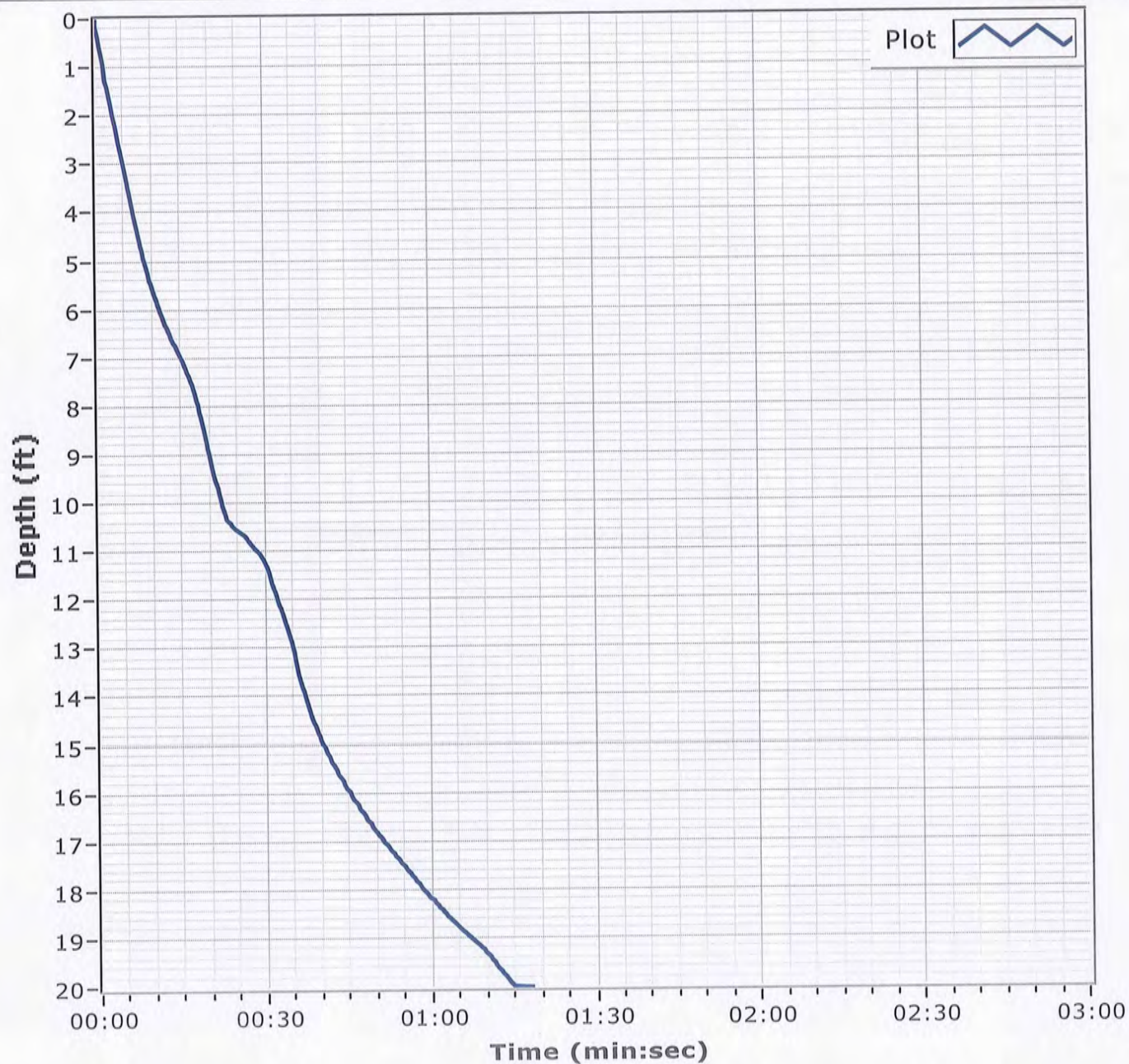
**Latitude** 30 12.009

**Total Time** 00:01:18

**Recovery** 18.8'

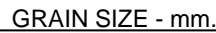
**Longitude** 088 21.257

**Comments**



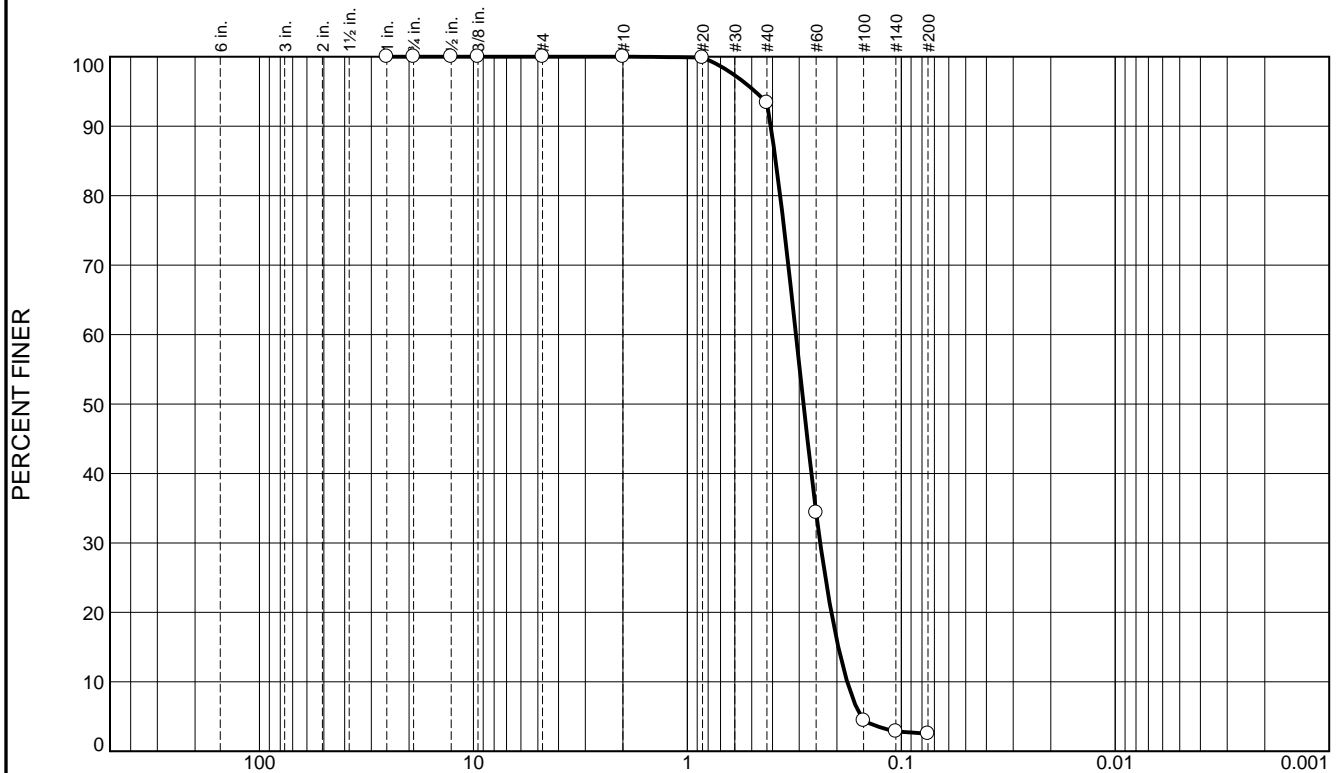


## PERCENT FINER



L-641

# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.0	0.0	6.6	90.9	2.5	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
1	100.0		
.75	100.0		
.5	100.0		
.375	100.0		
#4	100.0		
#10	100.0		
#20	99.9		
#40	93.4		
#60	34.4		
#100	4.4		
#140	2.9		
#200	2.5		

\* (no specification provided)

**Material Description**  
Fine grained, SAND

**Atterberg Limits**  
PL=      LL=      PI=

**Coefficients**  
D<sub>90</sub>= 0.4075      D<sub>85</sub>= 0.3862      D<sub>60</sub>= 0.3109  
D<sub>50</sub>= 0.2867      D<sub>30</sub>= 0.2392      D<sub>15</sub>= 0.1970  
D<sub>10</sub>= 0.1791      C<sub>u</sub>= 1.74      C<sub>c</sub>= 1.03

**Classification**  
USCS= SP      AASHTO=

**Remarks**

Location: BI-PB-198-12 B  
Sample Number: 6495 (18)

Depth: 1.5'

Date: 12/31/12

**Thompson Engineering**

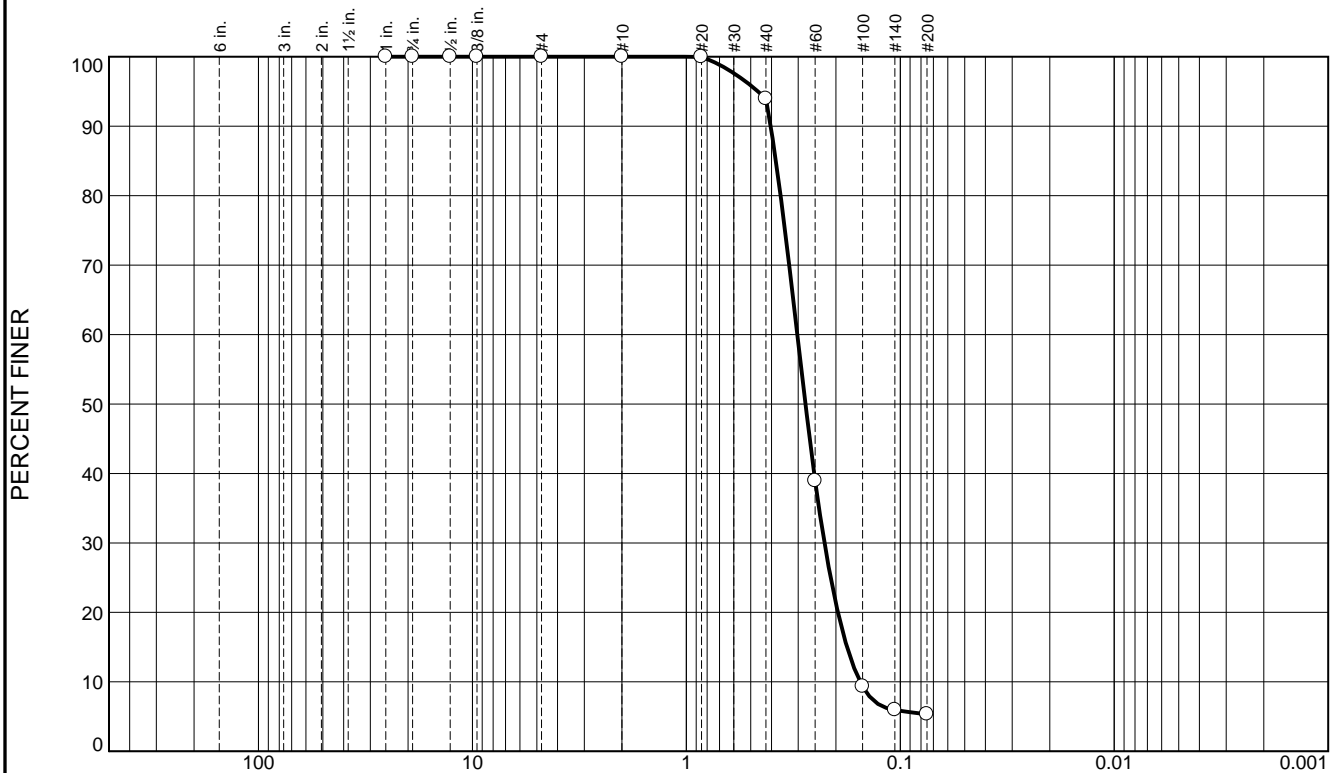
**Mobile, Alabama**

Client: CDM/Thompson Engineering JV  
Project: MsCIP Barrier Island Restoration GT

Project No: 1221110095

Figure

# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.0	0.0	6.0	88.7	5.3	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
1	100.0		
.75	100.0		
.5	100.0		
.375	100.0		
#4	100.0		
#10	100.0		
#20	100.0		
#40	94.0		
#60	38.9		
#100	9.3		
#140	6.0		
#200	5.3		

\* (no specification provided)

## Material Description

Fine grained, SLIGHTLY SILTY SAND

## Atterberg Limits

PL= LL= PI=

## Coefficients

D<sub>90</sub>= 0.4034 D<sub>85</sub>= 0.3813 D<sub>60</sub>= 0.3031  
D<sub>50</sub>= 0.2777 D<sub>30</sub>= 0.2262 D<sub>15</sub>= 0.1776  
D<sub>10</sub>= 0.1541 C<sub>u</sub>= 1.97 C<sub>c</sub>= 1.10

## Classification

USCS= SP-SM AASHTO=

## Remarks

Location: BI-PB-198-12 C  
Sample Number: 6495 (19)

Depth: 6.0'

Date: 12/31/12

**Thompson Engineering**

**Mobile, Alabama**

Client: CDM/Thompson Engineering JV  
Project: MsCIP Barrier Island Restoration GT

Project No: 1221110095

Figure

# Boring Designation BI-PB-199-12

DRILLING LOG		DIVISION South Atlantic		INSTALLATION Mobile District		SHEET 1 OF 2 SHEETS	
1. PROJECT MsCIP Barrier Island Restoration Petit Bois Pass- AL West				9. SIZE AND TYPE OF BIT N/A			
2. BORING DESIGNATION BI-PB-199-12		LOCATION COORDINATES E = 1,134,195 N = 254,938		10. COORDINATE SYSTEM/DATUM State Plane, MSE (U.S. Ft.)		HORIZONTAL NAD83	
3. DRILLING AGENCY Corps of Engineers - CESAM		CONTRACTOR FILE NO.		11. MANUFACTURER'S DESIGNATION OF DRILL Vibracore		<input type="checkbox"/> AUTO HAMMER <input type="checkbox"/> MANUAL HAMMER	
4. NAME OF DRILLER American Vibracore Systems, Inc.				12. TOTAL SAMPLES		DISTURBED 0	
5. DIRECTION OF BORING <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED		DEG. FROM VERTICAL		13. TOTAL NUMBER CORE BOXES			
		BEARING		14. WATER DEPTH 27 Ft.			
6. THICKNESS OF OVERBURDEN N/A				15. DATE BORING 12-13-12		STARTED 12-13-12	
7. DEPTH DRILLED INTO ROCK N/A				16. ELEVATION TOP OF BORING -27.3 Ft.		COMPLETED 12-13-12	
8. TOTAL DEPTH OF BORING 20.0 Ft.				17. TOTAL RECOVERY FOR BORING 100%			
				18. SIGNATURE AND TITLE OF INSPECTOR Mike FitzHarris, Geologist			
ELEV.	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS	SAMPLE	LABORATORY RESULTS		
-27.3	0.0						
			SAND, poorly-graded, mostly fine to medium-grained sand-sized quartz, trace fines, trace shell fragments, siltier between 3.4 to 5 ft. and 8.5 to 10.0 ft deep., pale lt. brown to lt. gray (SP)	A	Classification: SP Color: 2.5Y 6/2-light brownish gray D50: 0.3122 mm % Fines: 2.3		
				B	Classification: SP Color: 2.5Y 6/2-light brownish gray D50: 0.2926 mm % Fines: 2.8		
-37.5	10.2		SAND, clayey, mostly fine-grained sand-sized quartz, some clay, little silt, gray (SC)				
-41.0	13.7		CLAY, fat, mostly clay, medium to high plasticity, stiff, dark green (CH)	NS			
-47.3	20.0						
			NOTES: 1. Soils are field visually classified in accordance with the Unified Soils Classification System. 2. NS = Sample not submitted for laboratory analysis from this interval. 3. Seafloor elevation determined from 2010				



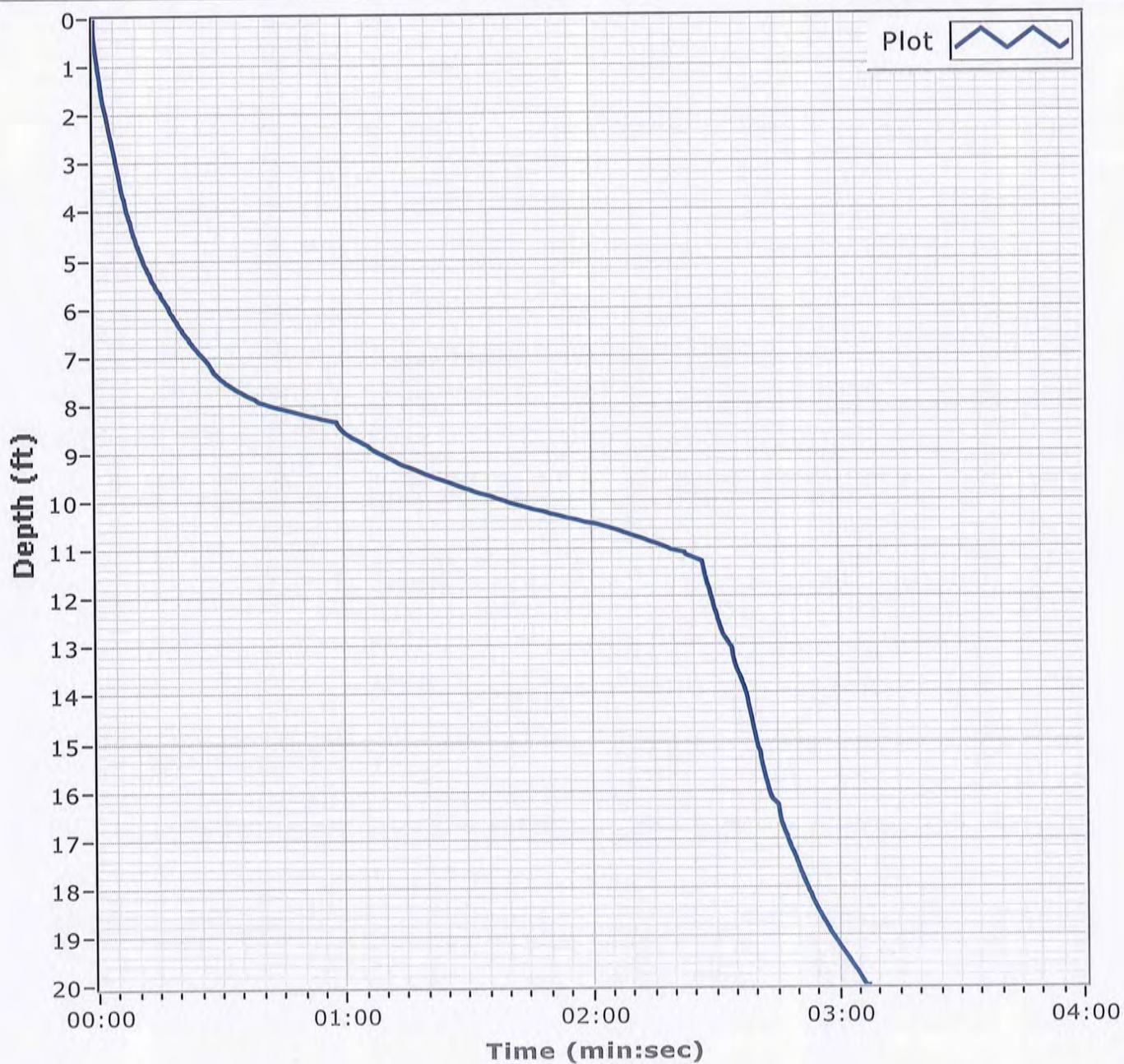
**Project**

Mississippi Barrier Island  
Restoration Project

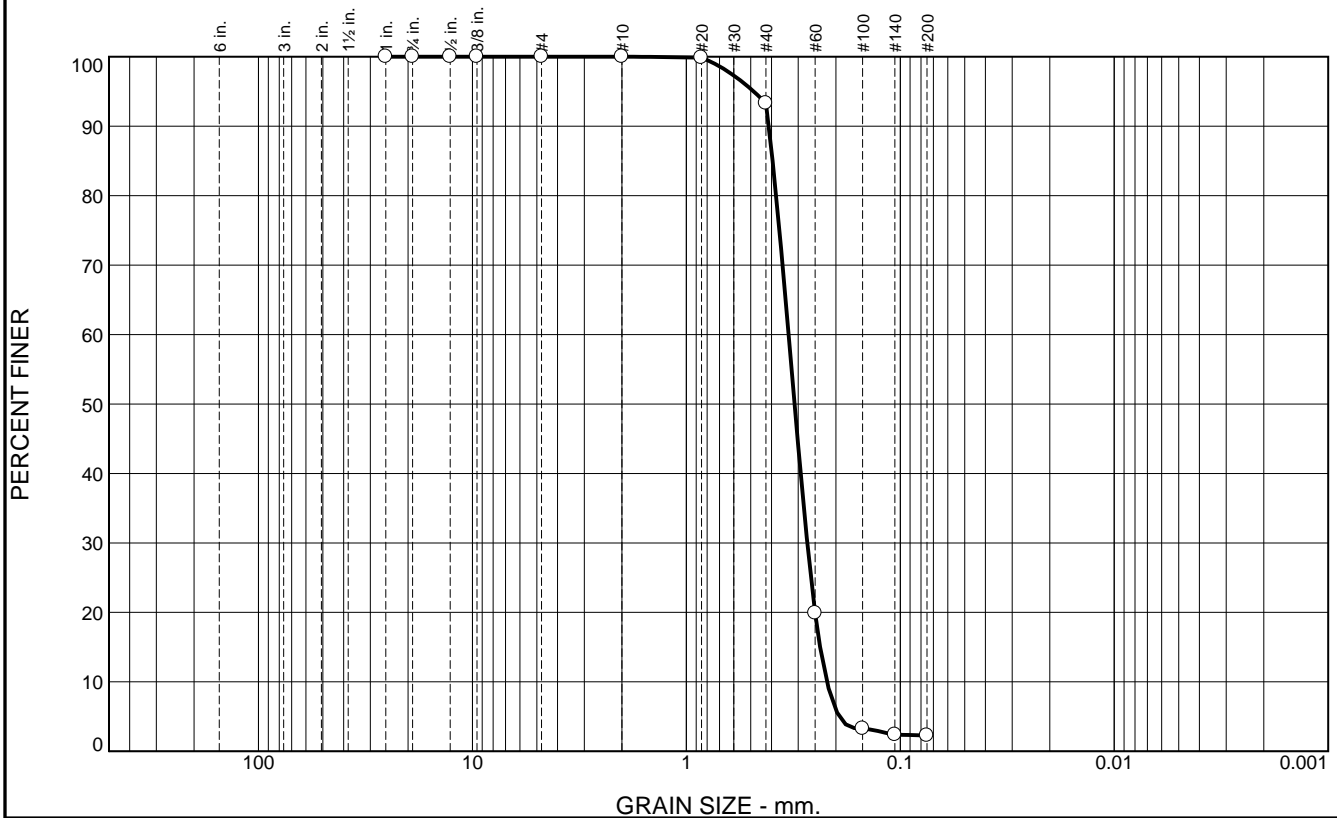
**AVS**  
**AMERICAN VIBRACORE**  
**S E R V I C E S**

**Core Identifier** BI-PB-199-12**Date** 12/13/2012**Water Depth** 27.0'**Coordinate System**

Latitude / Longitude

**Start Time** 11:36:52**End Time** 11:40:00**Penetration** 20.0'**Latitude** 30 12.010**Total Time** 00:03:07**Recovery** 20.0'**Longitude** 088 21.521**Comments**

# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.0	0.0	6.7	91.0	2.3	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
1	100.0		
.75	100.0		
.5	100.0		
.375	100.0		
#4	100.0		
#10	100.0		
#20	99.9		
#40	93.3		
#60	19.9		
#100	3.3		
#140	2.4		
#200	2.3		

\* (no specification provided)

Material Description		
Fine grained, SAND		
PL=	Atterberg Limits LL=	PI=
D <sub>90</sub> = 0.4119	D <sub>85</sub> = 0.3950	D <sub>60</sub> = 0.3327
D <sub>50</sub> = 0.3122	D <sub>30</sub> = 0.2723	D <sub>15</sub> = 0.2370
D <sub>10</sub> = 0.2202	C <sub>u</sub> = 1.51	C <sub>c</sub> = 1.01
USCS= SP	Classification AASHTO=	
Remarks		

Location: BI-PB-199-12 A  
Sample Number: 6485 (24)

Depth: 0.0'

Date: 12/07/12

**Thompson Engineering**

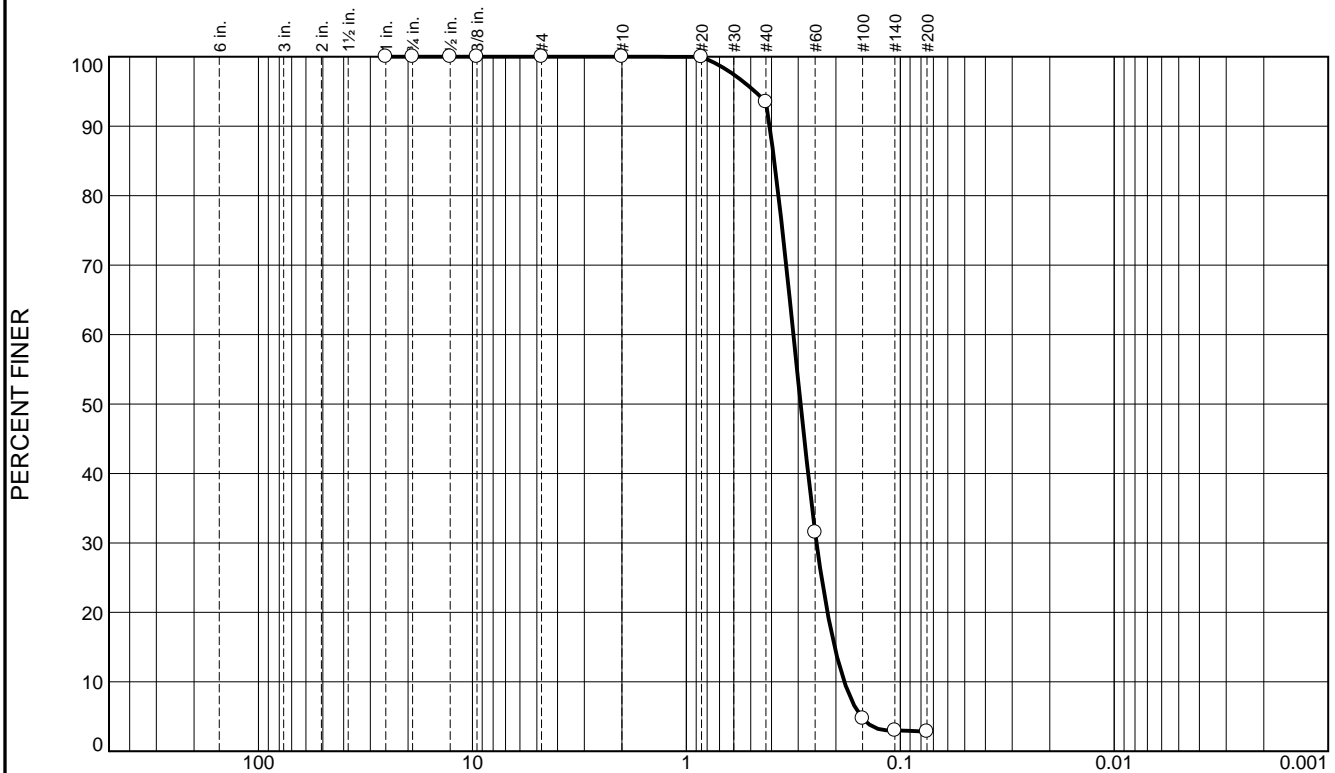
**Mobile, Alabama**

Client: CDM/Thompson Engineering JV  
Project: MsCIP Barrier Island Restoration GT

Project No: 1221110095

Figure

# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.0	0.0	6.5	90.7	2.8	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
1	100.0		
.75	100.0		
.5	100.0		
.375	100.0		
#4	100.0		
#10	100.0		
#20	100.0		
#40	93.5		
#60	31.5		
#100	4.7		
#140	3.0		
#200	2.8		

\* (no specification provided)

## Material Description

Fine grained, SAND

## Atterberg Limits

PL= LL= PI=

## Coefficients

D<sub>90</sub>= 0.4081 D<sub>85</sub>= 0.3881 D<sub>60</sub>= 0.3161  
D<sub>50</sub>= 0.2926 D<sub>30</sub>= 0.2463 D<sub>15</sub>= 0.2027  
D<sub>10</sub>= 0.1827 C<sub>u</sub>= 1.73 C<sub>c</sub>= 1.05

## Classification

USCS= SP AASHTO=

## Remarks

Location: BI-PB-199-12 B  
Sample Number: 6485 (25)

Depth: 5.0'

Date: 12/07/12

**Thompson Engineering**

**Mobile, Alabama**

Client: CDM/Thompson Engineering JV  
Project: MsCIP Barrier Island Restoration GT

Project No: 1221110095

Figure



# Boring Designation BI-PB-200-12

DRILLING LOG		DIVISION South Atlantic		INSTALLATION Mobile District		SHEET 1 OF 2 SHEETS	
1. PROJECT MsCIP Barrier Island Restoration Petit Bois Pass- AL West				9. SIZE AND TYPE OF BIT N/A			
2. BORING DESIGNATION BI-PB-200-12		LOCATION COORDINATES E = 1,132,603 N = 254,862		10. COORDINATE SYSTEM/DATUM State Plane, MSE (U.S. Ft.)		HORIZONTAL NAD83	
3. DRILLING AGENCY Corps of Engineers - CESAM		CONTRACTOR FILE NO.		11. MANUFACTURER'S DESIGNATION OF DRILL Vibracore		<input type="checkbox"/> AUTO HAMMER <input type="checkbox"/> MANUAL HAMMER	
4. NAME OF DRILLER American Vibracore Systems, Inc.				12. TOTAL SAMPLES		DISTURBED 0	
5. DIRECTION OF BORING <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED				13. TOTAL NUMBER CORE BOXES		14. WATER DEPTH 25.9 Ft.	
6. THICKNESS OF OVERBURDEN N/A				15. DATE BORING		STARTED 12-13-12	
7. DEPTH DRILLED INTO ROCK N/A				16. ELEVATION TOP OF BORING -26.1 Ft.		COMPLETED 12-13-12	
8. TOTAL DEPTH OF BORING 20.0 Ft.				17. TOTAL RECOVERY FOR BORING 100%		18. SIGNATURE AND TITLE OF INSPECTOR Mike FitzHarris, Geologist	
ELEV.	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS	SAMPLE	LABORATORY RESULTS		
-26.1	0.0						
-28.1	2.0		SAND, poorly-graded, mostly fine to medium-grained sand-sized quartz, trace fines, trace shell fragments, trace clayey nodules, lt. gray (SP)	A	Classification: SP Color: 2.5Y 6/2-light brownish gray D50: 0.3185 mm % Fines: 3		
			SAND, poorly-graded with silt, mostly fine-grained sand-sized quartz, few silt, brown (SP-SM)	B	Classification: SP Color: 2.5Y 4/3-olive brown D50: 0.2803 mm % Fines: 2.2		
			At El. -31.1 Ft., mostly fine-grained sand-sized quartz, few silt, interval siltier with depth, lt. gray to lt. brown	C	Classification: SP Color: 2.5Y 6/2-light brownish gray D50: 0.2484 mm % Fines: 2.9		
			At El. -33.1 Ft., mostly fine-grained sand-sized quartz, few silt, siltier between 7 to 8 ft., lt. brown to lt. gray	D	Classification: SP Color: 2.5Y 5/2-grayish brown D50: 0.2966 mm % Fines: 3.1		
-36.1	10.0						
-39.6	13.5		SAND, clayey, mostly fine-grained sand-sized quartz, some clay, gray (SC)				
			CLAY, fat, mostly clay, medium to high plasticity, greenish gray (CH)	NS			
-46.1	20.0						
			NOTES: 1. Soils are field visually classified in accordance with the Unified Soils Classification System. 2. NS = Sample not submitted for laboratory analysis from this interval. 3. Seafloor elevation determined from 2010				

<b>DRILLING LOG (Cont. Sheet)</b>			<b>INSTALLATION</b> Mobile District		<b>SHEET 2</b> <b>OF 2 SHEETS</b>
<b>PROJECT</b> MsCIP Barrier Island Restoration			<b>COORDINATE SYSTEM/DATUM</b> State Plane, MSE (U.S. Ft.)	<b>HORIZONTAL</b> NAD83	<b>VERTICAL</b> NAVD88
<b>LOCATION COORDINATES</b> X = 1,132,603 Y = 254,862			<b>ELEVATION TOP OF BORING</b> -26.1 Ft.		
<b>ELEV.</b>	<b>DEPTH</b>	<b>LEGEND</b>	<b>CLASSIFICATION OF MATERIALS</b>	<b>SAMPLE</b>	<b>LABORATORY RESULTS</b>
			USACE survey.		

**Project**

Mississippi Barrier Island  
Restoration Project

**AVS**  
AMERICAN VIBRACORE  
SERVICES

**Core Identifier** BI-PB-200-12

**Date** 12/13/2012

**Water Depth** 25.9'

**Coordinate System**

**Start Time** 11:01:34

Latitude / Longitude

**End Time** 11:04:07

**Penetration** 20.0'

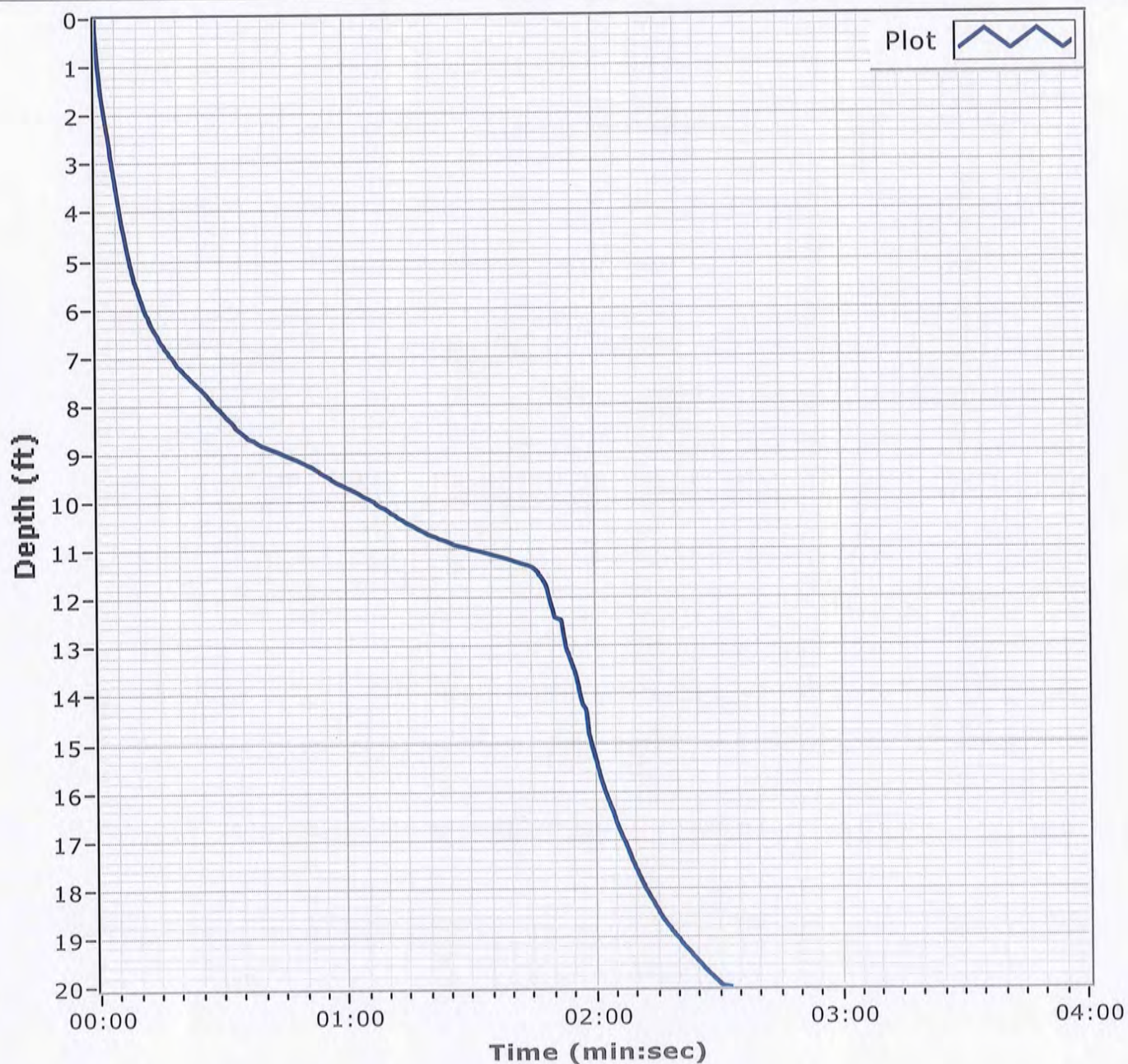
**Latitude** 30 11.999

**Total Time** 00:02:33

**Recovery** 20.0'

**Longitude** 088 21.823

**Comments**



# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.2	0.2	16.7	79.9	3.0	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
1	100.0		
.75	100.0		
.5	100.0		
.375	100.0		
#4	99.8		
#10	99.6		
#20	98.4		
#40	82.9		
#60	22.9		
#100	4.5		
#140	3.2		
#200	3.0		

\* (no specification provided)

<b>Material Description</b> Fine to medium grained, SAND		
PL=	<b>Atterberg Limits</b> LL=	PI=
D <sub>90</sub> = 0.5466 D <sub>50</sub> = 0.3185 D <sub>10</sub> = 0.2022	<b>Coefficients</b> D <sub>85</sub> = 0.4552 D <sub>30</sub> = 0.2690 C <sub>u</sub> = 1.71	D <sub>60</sub> = 0.3449 D <sub>15</sub> = 0.2245 C <sub>c</sub> = 1.04
USCS= SP	<b>Classification</b> AASHTO=	
<b>Remarks</b>		

Location: BI-PB-200-12 A  
Sample Number: 6485 (26)

Depth: 0.0'

Date: 12/07/12

**Thompson Engineering**

**Mobile, Alabama**

Client: CDM/Thompson Engineering JV  
Project: MsCIP Barrier Island Restoration GT

Project No: 1221110095

Figure

# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.0	0.0	6.8	91.0	2.2	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
1	100.0		
.75	100.0		
.5	100.0		
.375	100.0		
#4	100.0		
#10	100.0		
#20	99.7		
#40	93.2		
#60	37.4		
#100	5.0		
#140	2.6		
#200	2.2		

\* (no specification provided)

<u>Material Description</u>		
Fine grained, SAND		
PL=	<u>Atterberg Limits</u> LL=	PI=
<u>Coefficients</u>		
D <sub>90</sub> = 0.4069	D <sub>85</sub> = 0.3842	D <sub>60</sub> = 0.3054
D <sub>50</sub> = 0.2803	D <sub>30</sub> = 0.2316	D <sub>15</sub> = 0.1899
D <sub>10</sub> = 0.1729	C <sub>u</sub> = 1.77	C <sub>c</sub> = 1.02
<u>Classification</u>		
USCS= SP	AASHTO=	
<u>Remarks</u>		

Location: BI-PB-200-12 B  
Sample Number: 6485 (27)

Depth: 2.0'

Date: 12/07/12

**Thompson Engineering**

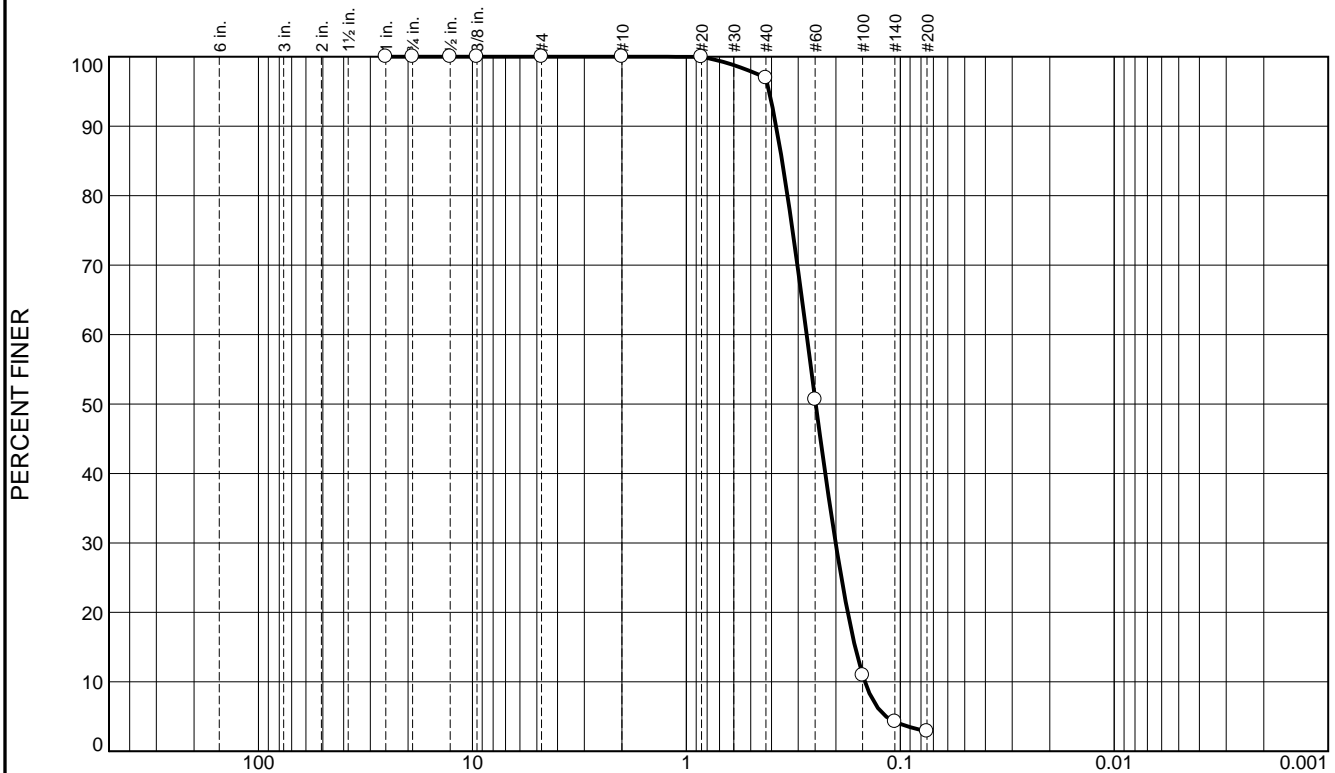
**Mobile, Alabama**

Client: CDM/Thompson Engineering JV  
Project: MsCIP Barrier Island Restoration GT

Project No: 1221110095

Figure

# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.0	0.0	3.1	94.0	2.9	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
1	100.0		
.75	100.0		
.5	100.0		
.375	100.0		
#4	100.0		
#10	100.0		
#20	100.0		
#40	96.9		
#60	50.6		
#100	11.0		
#140	4.3		
#200	2.9		

\* (no specification provided)

Material Description		
Fine grained, SAND		
<div> <div> Atterberg Limits </div> <div> PL= </div> <div> LL= </div> <div> PI= </div> </div>		
<div> <div> Coefficients </div> <div> D<sub>90</sub>= 0.3803 </div> <div> D<sub>50</sub>= 0.2484 </div> <div> D<sub>10</sub>= 0.1464 </div> <div> D<sub>85</sub>= 0.3567 </div> <div> D<sub>30</sub>= 0.2006 </div> <div> C<sub>u</sub>= 1.87 </div> <div> D<sub>60</sub>= 0.2742 </div> <div> D<sub>15</sub>= 0.1627 </div> <div> C<sub>c</sub>= 1.00 </div> </div>		
<div> <div> Classification </div> <div> USCS= SP </div> <div> AASHTO= </div> </div>		
<div> <div> Remarks </div> </div>		

Location: BI-PB-200-12 C  
Sample Number: 6485 (28)

Depth: 5.0'

Date: 12/07/12

Thompson Engineering

Mobile, Alabama

Client: CDM/Thompson Engineering JV  
Project: MsCIP Barrier Island Restoration GT

Project No: 1221110095

Figure

# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.0	0.0	10.6	86.3	3.1	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
1	100.0		
.75	100.0		
.5	100.0		
.375	100.0		
#4	100.0		
#10	100.0		
#20	99.9		
#40	89.4		
#60	31.3		
#100	6.1		
#140	3.6		
#200	3.1		

\* (no specification provided)

<u><b>Material Description</b></u>		
Fine to medium grained, SAND		
<u><b>Atterberg Limits</b></u>		
PL=	LL=	PI=
<u><b>Coefficients</b></u>		
D <sub>90</sub> = 0.4370	D <sub>85</sub> = 0.4036	D <sub>60</sub> = 0.3221
D <sub>50</sub> = 0.2966	D <sub>30</sub> = 0.2466	D <sub>15</sub> = 0.1991
D <sub>10</sub> = 0.1765	C <sub>u</sub> = 1.82	C <sub>c</sub> = 1.07
<u><b>Classification</b></u>		
USCS= SP	AASHTO=	
<u><b>Remarks</b></u>		

Location: BI-PB-200-12 D  
Sample Number: 6485 (29)

Depth: 7.0'

Date: 12/07/12

**Thompson Engineering**

**Mobile, Alabama**





Client: CDM/Thompson Engineering JV  
Project: MsCIP Barrier Island Restoration GT

Project No: 1221110095

Figure

**Boring Designation** BI-PB-202-12

DRILLING LOG		DIVISION South Atlantic		INSTALLATION Mobile District		SHEET 1 OF 1 SHEETS	
1. PROJECT  MsCIP Barrier Island Restoration Petit Bois Pass- AL West				9. SIZE AND TYPE OF BIT N/A			
				10. COORDINATE SYSTEM/DATUM State Plane, MSE (U.S. Ft.)		HORIZONTAL NAD83	
2. BORING DESIGNATION BI-PB-202-12		LOCATION COORDINATES E = 1,137,303 N = 252,107		11. MANUFACTURER'S DESIGNATION OF DRILL Vibrocure		<input type="checkbox"/> AUTO HAMMER <input type="checkbox"/> MANUAL HAMMER	
3. DRILLING AGENCY Corps of Engineers - CESAM		CONTRACTOR FILE NO.		12. TOTAL SAMPLES		DISTURBED UNDISTURBED (UD) 0	
4. NAME OF DRILLER American Vibrocure Systems, Inc.				13. TOTAL NUMBER CORE BOXES			
				14. WATER DEPTH 36.3 Ft.			
5. DIRECTION OF BORING <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED		DEG. FROM VERTICAL		BEARING		15. DATE BORING 12-19-12	
6. THICKNESS OF OVERBURDEN N/A				16. ELEVATION TOP OF BORING -35.3 Ft.		COMPLETED 12-19-12	
7. DEPTH DRILLED INTO ROCK N/A				17. TOTAL RECOVERY FOR BORING 100%			
8. TOTAL DEPTH OF BORING 19.8 Ft.				18. SIGNATURE AND TITLE OF INSPECTOR Mike FitzHarris, Geologist			

ELEV.	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS	SAMPLE	LABORATORY RESULTS
-35.3	0.0				
-36.4	1.1		CLAY, fat, mostly clay, few silt, trace fine-grained sand-sized quartz, very soft, medium to high plasticity, brownish gray (CH)	NS	
			SAND, poorly-graded, mostly fine-grained sand-sized quartz, trace fines, trace shell fragments, gray (SP) At El. -37.8 Ft., mostly fine to medium-grained sand-sized quartz, trace fines, trace shell fragments, trace clayey nodules, lt. gray to white	A	Classification: SP    Color: 2.5Y 7/2-light gray D50: 0.3014 mm    % Fines: 2.1
				B	Classification: SP    Color: 5Y 7/2-light gray D50: 0.34 mm    % Fines: 1.7
-42.8	7.5				
-43.2	7.9		SAND, clayey, mostly fine-grained sand-sized quartz, some clay, brownish gray (SC)		
			CLAY, fat, mostly clay, medium to high plasticity, stiff, zones of trace fine-grained sand at 8.5 ft., greenish gray (CH)	NS	
-55.1	19.8				
			NOTES:  1. Soils are field visually classified in accordance with the Unified Soils Classification System.  2. NS = Sample not submitted for laboratory analysis from this interval.  3. Seafloor elevation determined from 2010 USACE survey.		

**SAM FORM 1836 - MsCIP**  
**MAY 2010**

**Lat = 30.19235° Long = -88.34888°**



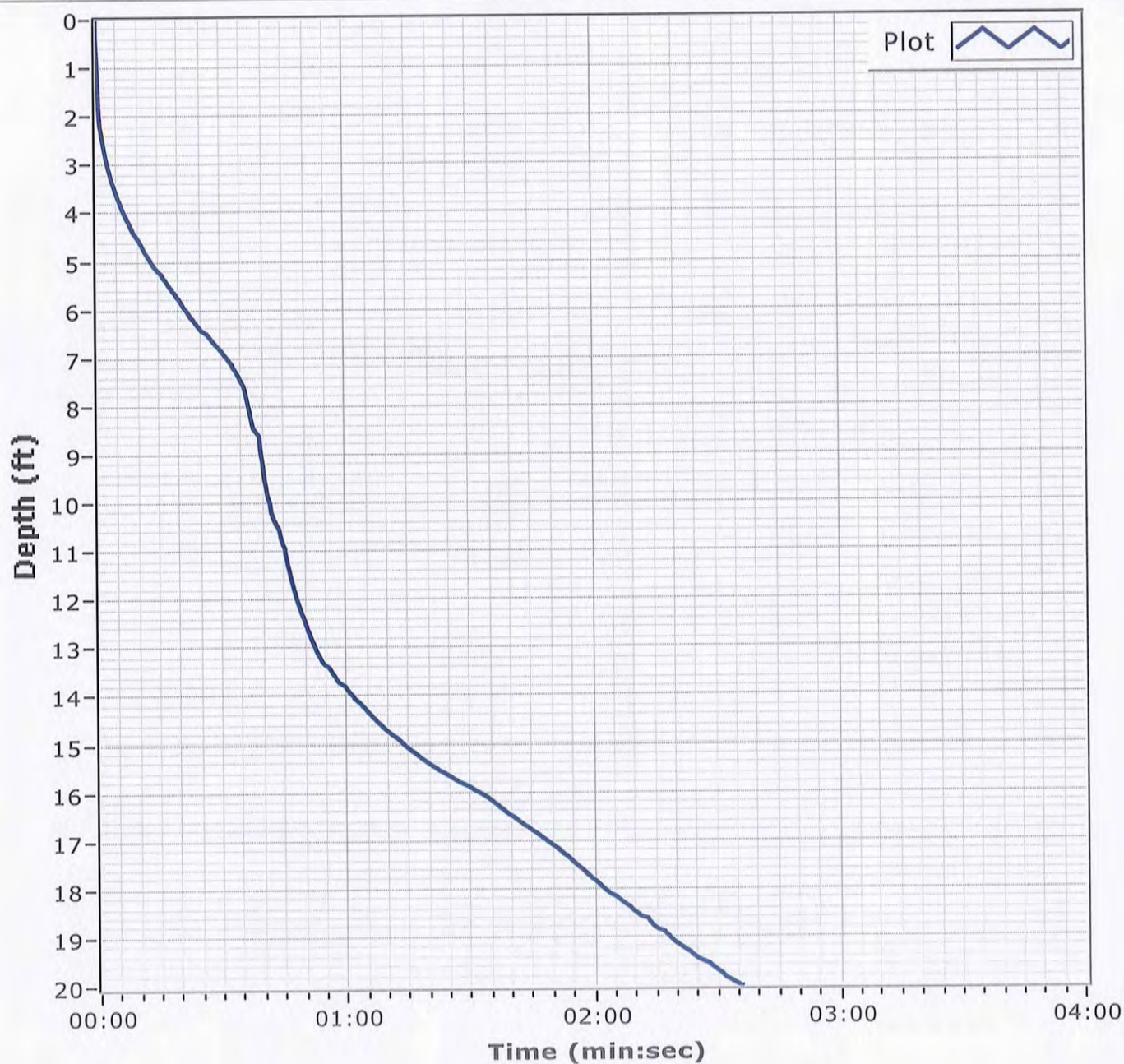
**Project**

Mississippi Barrier Island  
Restoration Project

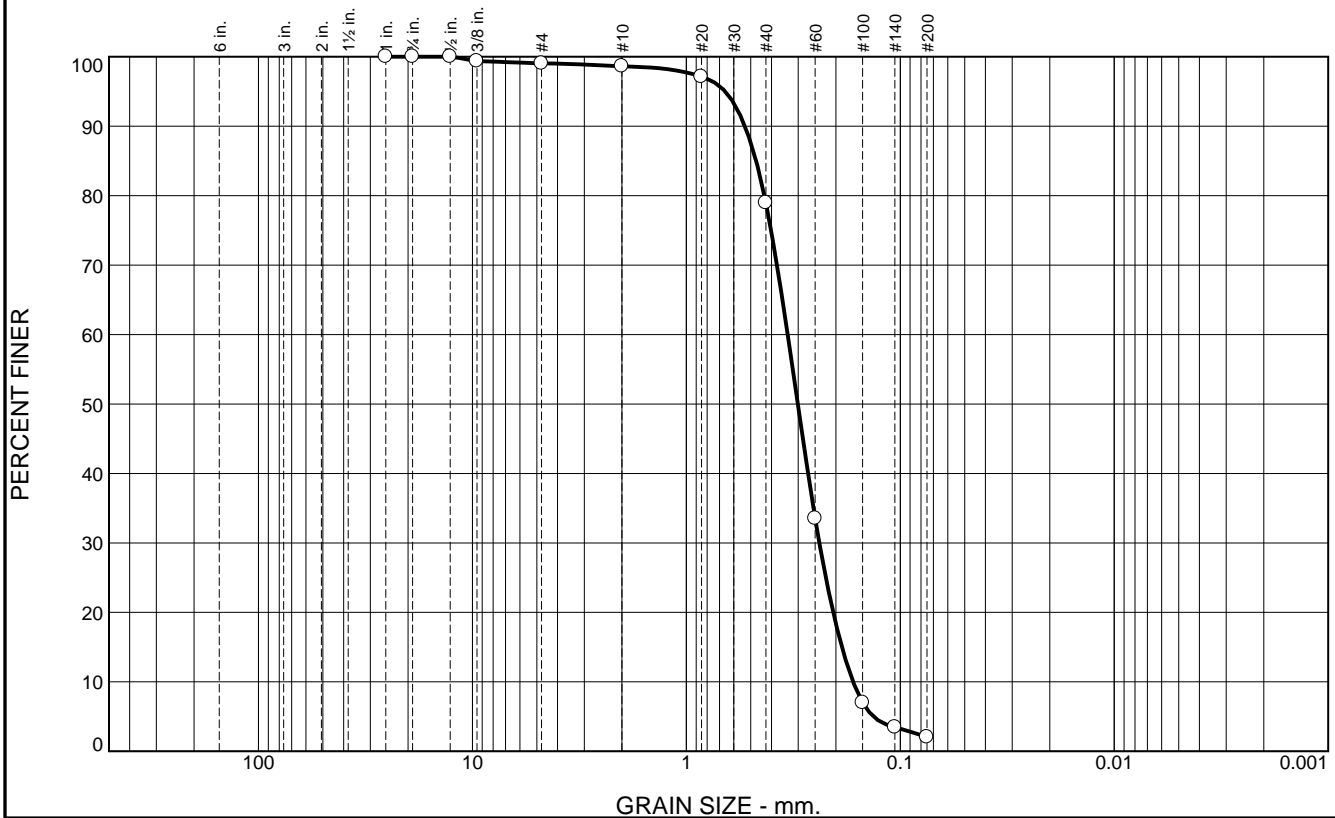
**AVS**  
**AMERICAN VIBRACORE**  
**S E R V I C E S**

**Core Identifier** BI-PB-202-12**Date** 12/19/2012**Water Depth** 36.3'**Coordinate System**

Latitude / Longitude

**Start Time** 14:00:54**End Time** 14:03:30**Penetration** 20.0'**Latitude** 30 11.541**Total Time** 00:02:36**Recovery** 19.8'**Longitude** 88 20.933**Comments**

# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	1.0	0.4	19.6	76.9	2.1	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
1	100.0		
.75	100.0		
.5	100.0		
.375	99.4		
#4	99.0		
#10	98.6		
#20	97.1		
#40	79.0		
#60	33.5		
#100	7.0		
#140	3.5		
#200	2.1		

\* (no specification provided)

## Material Description

Fine to medium grained, SAND, with trace SHELL

## Atterberg Limits

PL= LL= PI=

## Coefficients

D<sub>90</sub>= 0.5322 D<sub>85</sub>= 0.4720 D<sub>60</sub>= 0.3361  
D<sub>50</sub>= 0.3014 D<sub>30</sub>= 0.2389 D<sub>15</sub>= 0.1876  
D<sub>10</sub>= 0.1663 C<sub>u</sub>= 2.02 C<sub>c</sub>= 1.02

## Classification

USCS= SP AASHTO=

## Remarks

Location: BI-PB-202-12 A  
Sample Number: 6494 (76)

Depth: 1.1'

Date: 12/26/12

**Thompson Engineering**

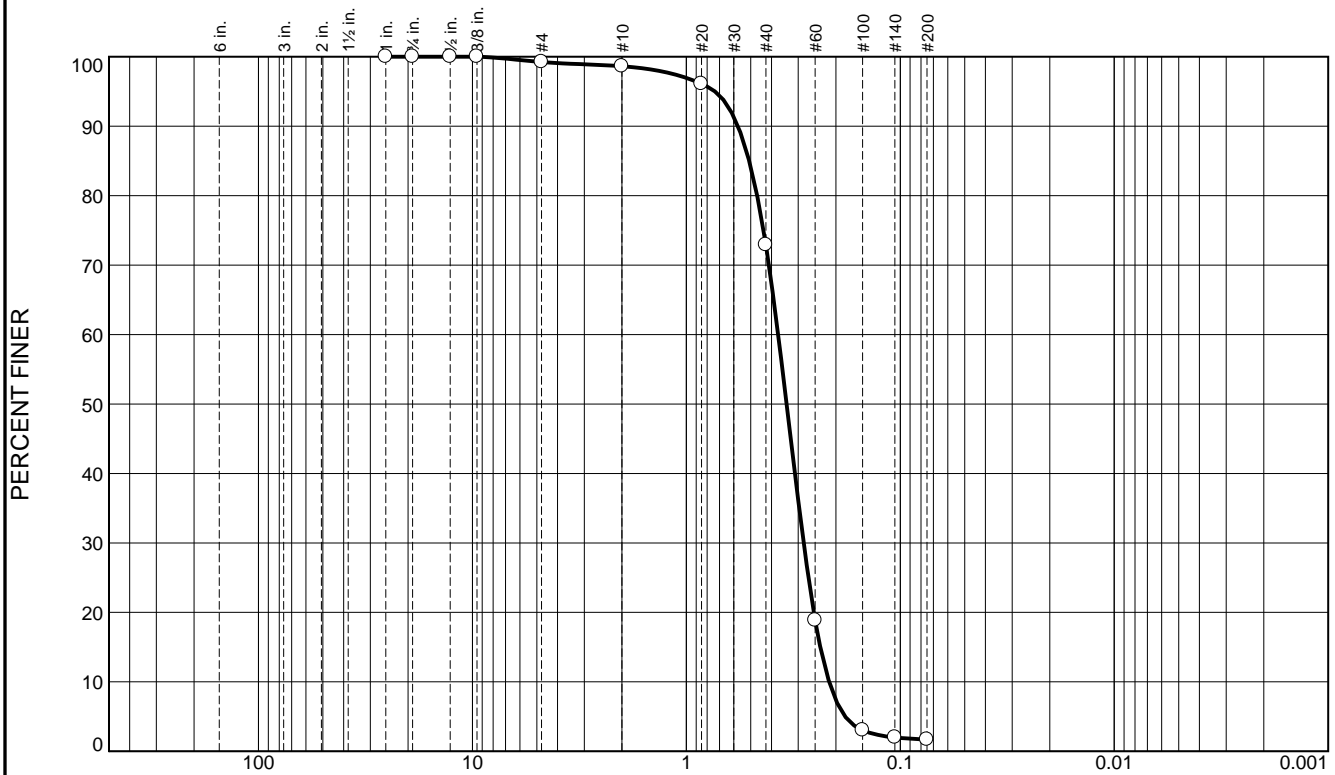
**Mobile, Alabama**

Client: CDM/Thompson Engineering JV  
Project: MsCIP Barrier Island Restoration GT

Project No: 1221110095

Figure

# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.8	0.6	25.7	71.2	1.7	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
1	100.0		
.75	100.0		
.5	100.0		
.375	100.0		
#4	99.2		
#10	98.6		
#20	96.1		
#40	72.9		
#60	18.8		
#100	3.0		
#140	2.0		
#200	1.7		

<u><b>Material Description</b></u>		
Fine to medium grained, SAND		
<u><b>Atterberg Limits</b></u>		
PL=	LL=	PI=
<u><b>Coefficients</b></u>		
D <sub>90</sub> = 0.5738	D <sub>85</sub> = 0.5087	D <sub>60</sub> = 0.3723
D <sub>50</sub> = 0.3400	D <sub>30</sub> = 0.2831	D <sub>15</sub> = 0.2365
D <sub>10</sub> = 0.2150	C <sub>u</sub> = 1.73	C <sub>c</sub> = 1.00
<u><b>Classification</b></u>		
USCS= SP	AASHTO=	
<u><b>Remarks</b></u>		

\* (no specification provided)

Location: BI-PB-202-12 B  
Sample Number: 6494 (77)

Depth: 2.5'

Date: 12/26/12

**Thompson Engineering**

**Mobile, Alabama**

Client: CDM/Thompson Engineering JV  
Project: MsCIP Barrier Island Restoration GT

Project No: 1221110095

Figure

# Boring Designation BI-PB-203-12

DRILLING LOG		DIVISION South Atlantic		INSTALLATION Mobile District		SHEET 1 OF 1 SHEETS	
1. PROJECT MsCIP Barrier Island Restoration Petit Bois Pass- AL West				9. SIZE AND TYPE OF BIT N/A			
2. BORING DESIGNATION BI-PB-203-12		LOCATION COORDINATES E = 1,135,612 N = 252,154		10. COORDINATE SYSTEM/DATUM State Plane, MSE (U.S. Ft.)		HORIZONTAL NAD83	
3. DRILLING AGENCY Corps of Engineers - CESAM		CONTRACTOR FILE NO.		11. MANUFACTURER'S DESIGNATION OF DRILL Vibracore		<input type="checkbox"/> AUTO HAMMER <input type="checkbox"/> MANUAL HAMMER	
4. NAME OF DRILLER American Vibracore Systems, Inc.				12. TOTAL SAMPLES		DISTURBED 0	
5. DIRECTION OF BORING <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED				13. TOTAL NUMBER CORE BOXES		14. WATER DEPTH 35.1 Ft.	
6. THICKNESS OF OVERBURDEN N/A				15. DATE BORING		STARTED 12-19-12	
7. DEPTH DRILLED INTO ROCK N/A				16. ELEVATION TOP OF BORING -34.4 Ft.		COMPLETED 12-19-12	
8. TOTAL DEPTH OF BORING 19.6 Ft.				17. TOTAL RECOVERY FOR BORING 100%			
				18. SIGNATURE AND TITLE OF INSPECTOR Mike FitzHarris, Geologist			
ELEV.	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS	SAMPLE	LABORATORY RESULTS		
-34.4	0.0						
			CLAY, fat, mostly clay, very soft, slightly sandy, brownish gray (CH)	NS			
-37.4	3.0						
			SAND, poorly-graded, mostly fine to medium-grained sand-sized quartz, little coarse-grained sand-sized quartz, little shell fragments, trace fines, gray to lt. pale brown (SP)	A	Classification: SP Color: 2.5Y 6/2-light brownish gray D50: 0.3135 mm % Fines: 4.5		
-40.3	5.9						
			SILT, inorganic-L, mostly silt, some fine-grained sand-sized quartz, gray (ML)				
-42.0	7.6						
-42.7	8.3						
			SAND, poorly-graded, mostly fine-grained sand-sized quartz, trace fines, lt. gray to white (SP)				
			CLAY, fat, mostly clay, trace shell fragments, medium to high plasticity, stiff, greenish gray (CH)	NS			
-54.0	19.6						
NOTES:							
1. Soils are field visually classified in accordance with the Unified Soils Classification System.							
2. NS = Sample not submitted for laboratory analysis from this interval.							
3. Seafloor elevation determined from 2010 USACE survey.							



# Project

Mississippi Barrier Island  
Restoration Project

**AVS**  
**AMERICAN VIBRACORE**  
**S E R V I C E S**

**Core Identifier** BI-PB-203-12

**Date** 12/19/2012

**Water Depth** 35.1'

**Coordinate System**

**Start Time** 14:31:14

Latitude / Longitude

**End Time** 14:32:47

**Penetration** 20.0'

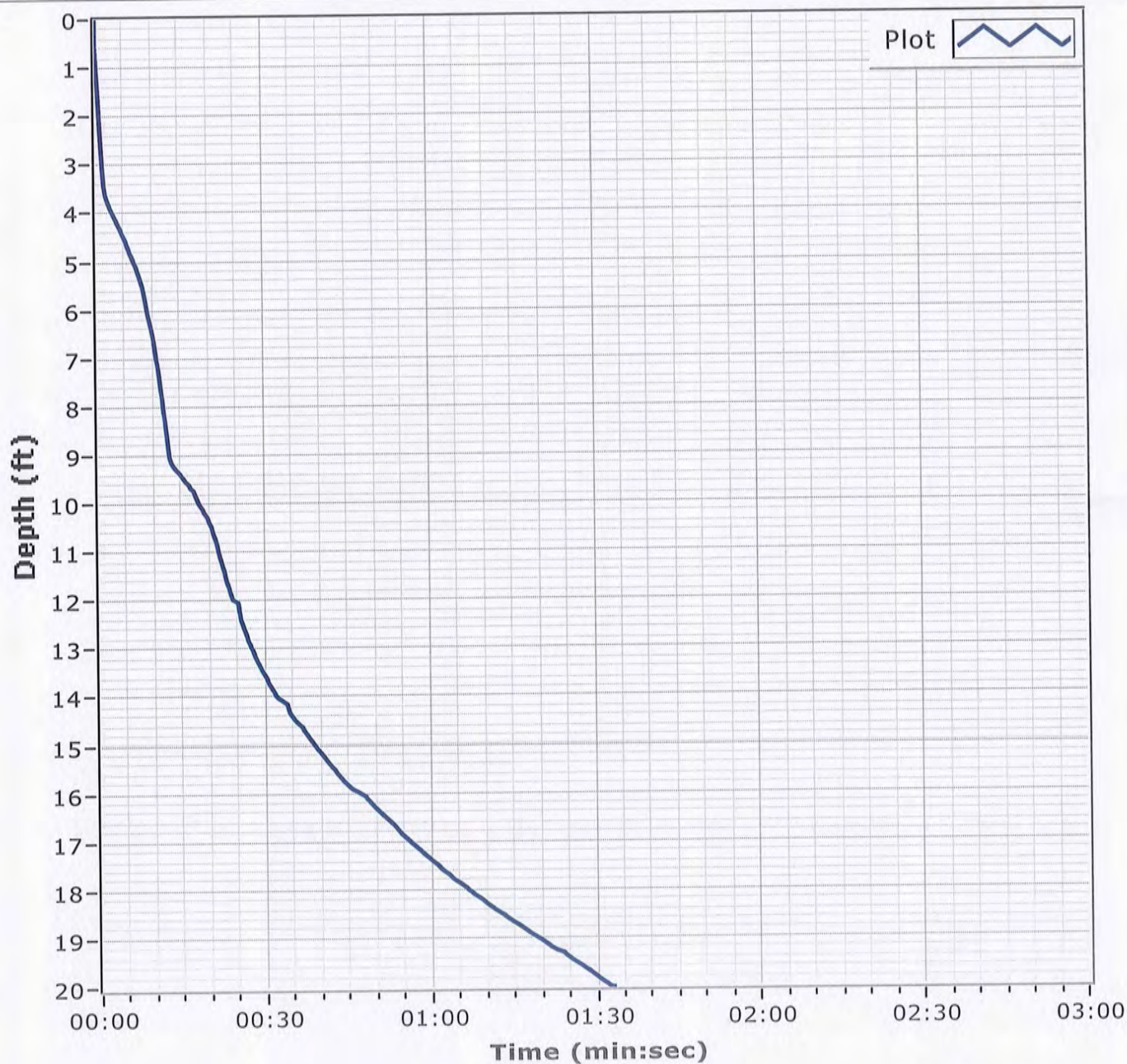
**Latitude** 30 11.550

**Total Time** 00:01:33

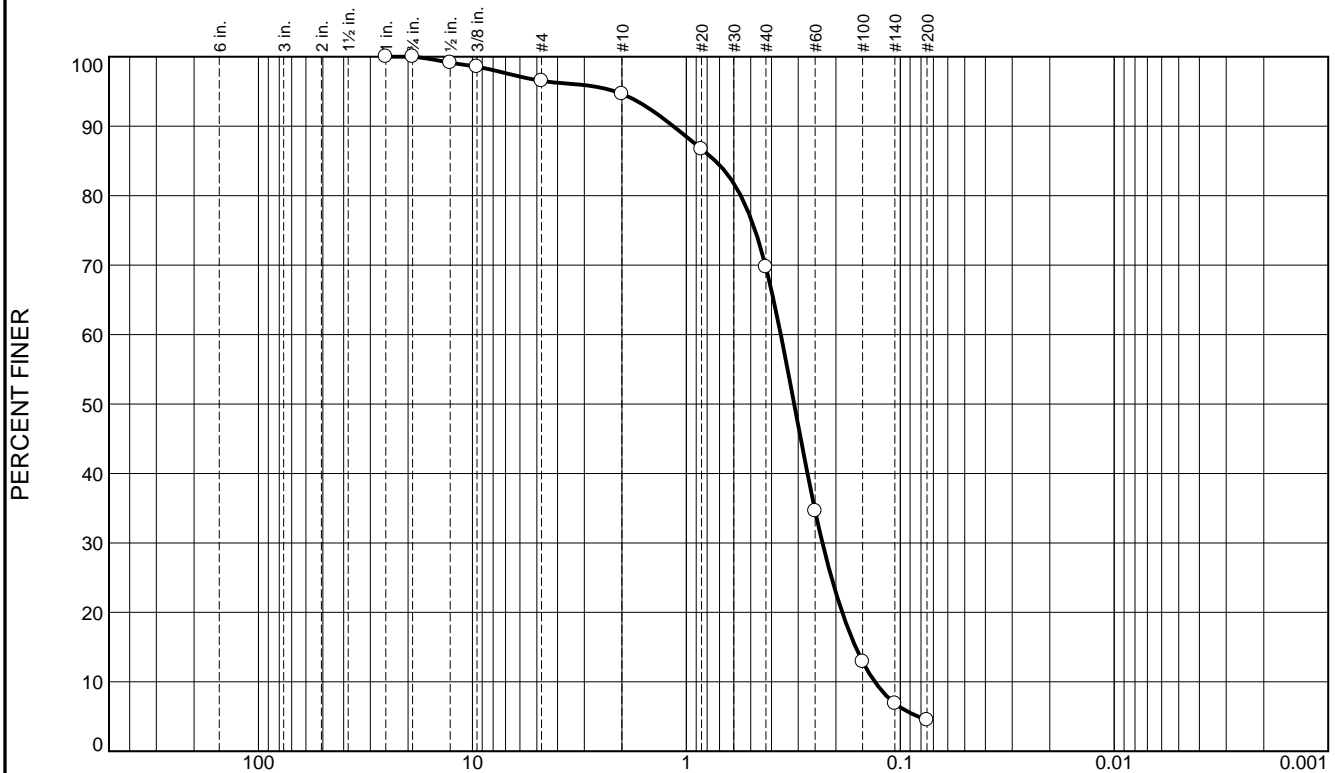
**Recovery** 19.6'

**Longitude** 88 21.254

**Comments**



# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	3.5	1.9	24.9	65.2	4.5	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
1	100.0		
.75	100.0		
.5	99.1		
.375	98.5		
#4	96.5		
#10	94.6		
#20	86.7		
#40	69.7		
#60	34.6		
#100	12.9		
#140	6.9		
#200	4.5		

\* (no specification provided)

## Material Description

Fine to medium grained, SAND, with trace SHELL

## Atterberg Limits

PL= LL= PI=

## Coefficients

D<sub>90</sub>= 1.1518 D<sub>85</sub>= 0.7323 D<sub>60</sub>= 0.3619  
D<sub>50</sub>= 0.3135 D<sub>30</sub>= 0.2312 D<sub>15</sub>= 0.1618  
D<sub>10</sub>= 0.1315 C<sub>u</sub>= 2.75 C<sub>c</sub>= 1.12

## Classification

USCS= SP AASHTO=

## Remarks

Location: BI-PB-203-12 A  
Sample Number: 6494 (78)

Depth: 3.0'

Date: 12/26/12

**Thompson Engineering**

**Mobile, Alabama**

Client: CDM/Thompson Engineering JV  
Project: MsCIP Barrier Island Restoration GT

Project No: 1221110095

Figure

# Boring Designation BI-PB-204-12

DRILLING LOG		DIVISION South Atlantic		INSTALLATION Mobile District		SHEET 1 OF 1 SHEETS	
1. PROJECT MsCIP Barrier Island Restoration Petit Bois Pass- AL West				9. SIZE AND TYPE OF BIT N/A			
2. BORING DESIGNATION BI-PB-204-12		LOCATION COORDINATES E = 1,134,184 N = 252,184		10. COORDINATE SYSTEM/DATUM State Plane, MSE (U.S. Ft.)		HORIZONTAL NAD83 VERTICAL NAVD88	
3. DRILLING AGENCY Corps of Engineers - CESAM		CONTRACTOR FILE NO.		11. MANUFACTURER'S DESIGNATION OF DRILL Vibracore		<input type="checkbox"/> AUTO HAMMER <input type="checkbox"/> MANUAL HAMMER	
4. NAME OF DRILLER American Vibracore Systems, Inc.				12. TOTAL SAMPLES		DISTURBED UNDISTURBED (UD) 0	
5. DIRECTION OF BORING <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED		DEG. FROM VERTICAL		13. TOTAL NUMBER CORE BOXES			
		BEARING		14. WATER DEPTH 34.7 Ft.			
6. THICKNESS OF OVERBURDEN N/A				15. DATE BORING 12-19-12		STARTED COMPLETED 12-19-12	
7. DEPTH DRILLED INTO ROCK N/A				16. ELEVATION TOP OF BORING -33.5 Ft.			
8. TOTAL DEPTH OF BORING 19.3 Ft.				17. TOTAL RECOVERY FOR BORING 100%			
				18. SIGNATURE AND TITLE OF INSPECTOR Mike FitzHarris, Geologist			
ELEV.	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS	SAMPLE	LABORATORY RESULTS		
-33.5	0.0						
-36.5	3.0		SILT, inorganic-L, mostly silt, some clay, some fine-grained sand-sized quartz, grayish brown (ML)	NS			
-38.1	4.6		SAND, silty, mostly fine-grained sand-sized quartz, some silt, trace clay nodules, gray (SM)	A	Classification: SP-SM Color: 2.5Y 5/2-grayish brown D50: 0.2616 mm % Fines: 9.5		
-43.1	9.6		SAND, poorly-graded, mostly fine to medium-grained sand-sized quartz, trace fines, clayey streaks throughout zone, dense, lt. gray to white (SP)	B	Classification: SP Color: 2.5Y 6/2-light brownish gray D50: 0.3191 mm % Fines: 3.8		
-45.4	11.9		SAND, clayey, mostly fine-grained sand-sized quartz, some clay, brownish gray (SC)	NS			
-48.8	15.3		SAND, poorly-graded, mostly fine to medium-grained sand-sized quartz, trace fines, clayey streaks throughout zone, dense, lt. gray to white (SP)	C	Classification: SP Color: 2.5Y 7/1-light gray D50: 0.2925 mm % Fines: 1.8		
-52.8	19.3		CLAY, fat, mostly clay, medium to high plasticity, greenish gray (CH)	NS			
NOTES: 1. Soils are field visually classified in accordance with the Unified Soils Classification System. 2. NS = Sample not submitted for laboratory analysis from this interval. 3. Seafloor elevation determined from 2010 USACE survey.							



**Project**

Mississippi Barrier Island  
Restoration Project



**Core Identifier** BI-PB-204-12

**Date** 12/19/2012

**Water Depth** 34.7'

**Coordinate System**

**Start Time** 15:03:16

Latitude / Longitude

**End Time** 15:07:16

**Penetration** 20.0'

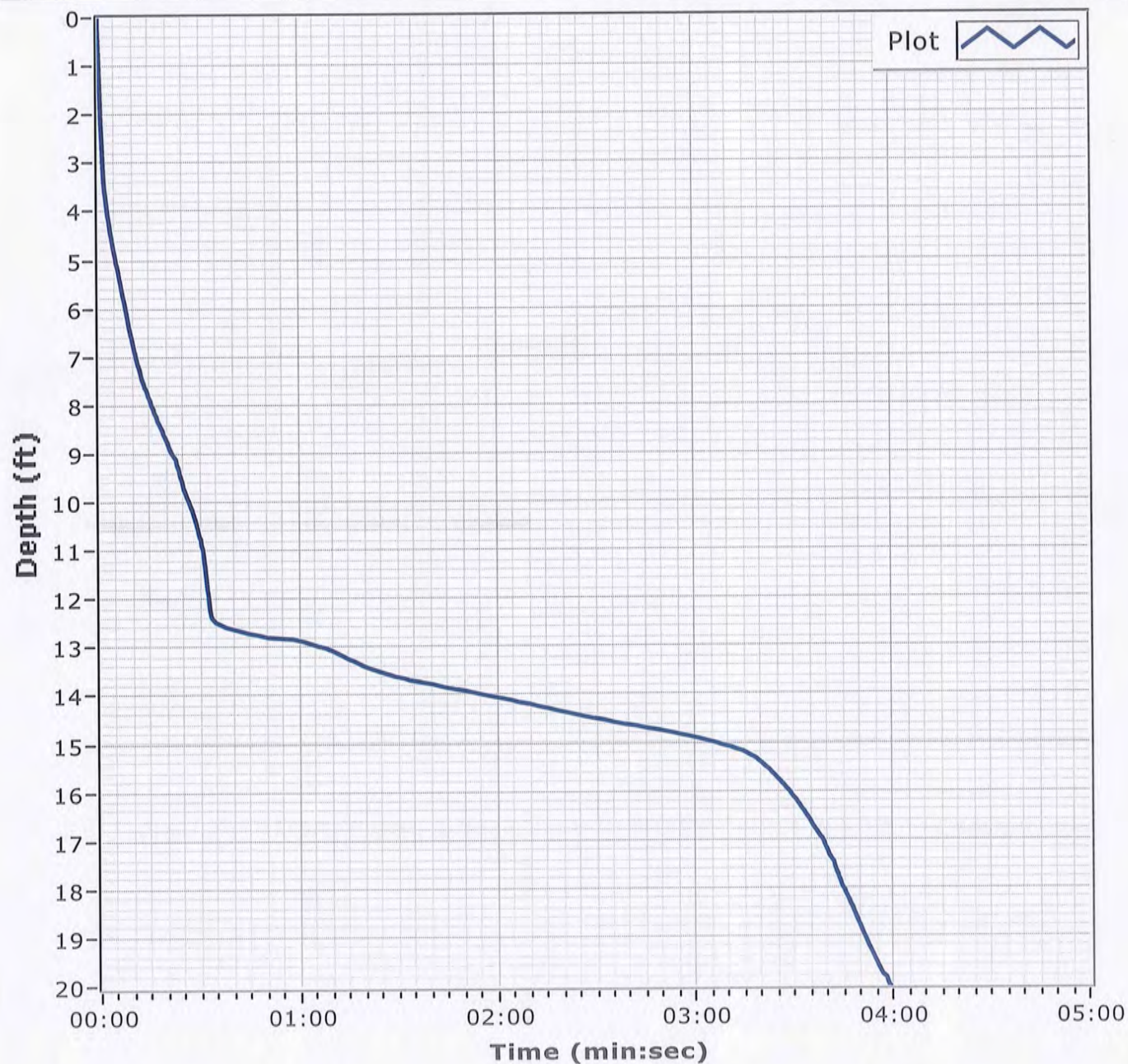
**Latitude** 30 11.556

**Total Time** 00:03:59

**Recovery** 19.3'

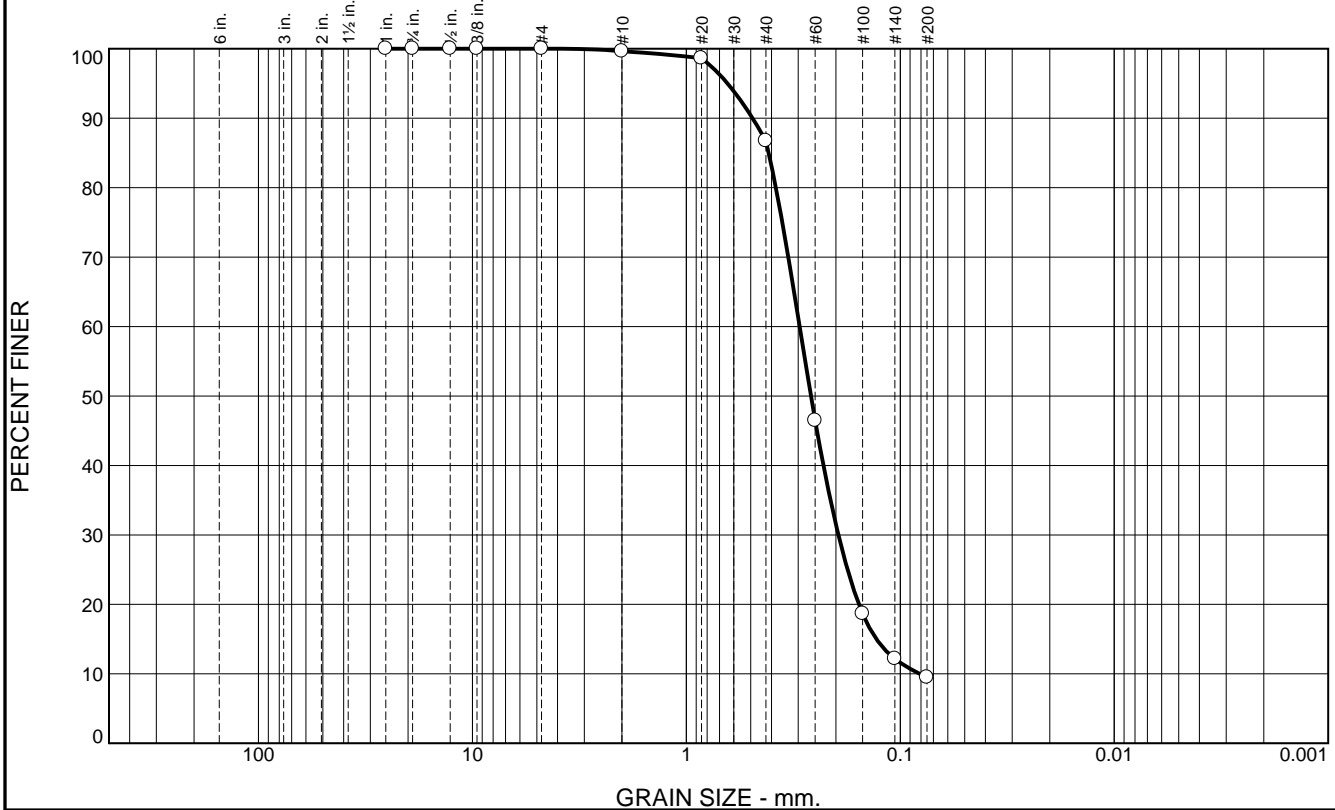
**Longitude** 88 21.525

**Comments**





# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.0	0.4	12.9	77.2	9.5	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
1	100.0		
.75	100.0		
.5	100.0		
.375	100.0		
#4	100.0		
#10	99.6		
#20	98.6		
#40	86.7		
#60	46.5		
#100	18.7		
#140	12.2		
#200	9.5		

\* (no specification provided)

<u><b>Material Description</b></u>		
Fine to medium grained, SLIGHTLY SILTY SAND		
<u><b>Atterberg Limits</b></u>		
PL=	LL=	PI=
<u><b>Coefficients</b></u>		
D <sub>90</sub> = 0.4907	D <sub>85</sub> = 0.4123	D <sub>60</sub> = 0.2956
D <sub>50</sub> = 0.2616	D <sub>30</sub> = 0.1947	D <sub>15</sub> = 0.1295
D <sub>10</sub> = 0.0811	C <sub>u</sub> = 3.65	C <sub>c</sub> = 1.58
<u><b>Classification</b></u>		
USCS= SP-SM	AASHTO=	
<u><b>Remarks</b></u>		

Location: BI-PB-204-12 A  
Sample Number: 6494 (79)

Depth: 3.0'

Date: 12/26/12

**Thompson Engineering**

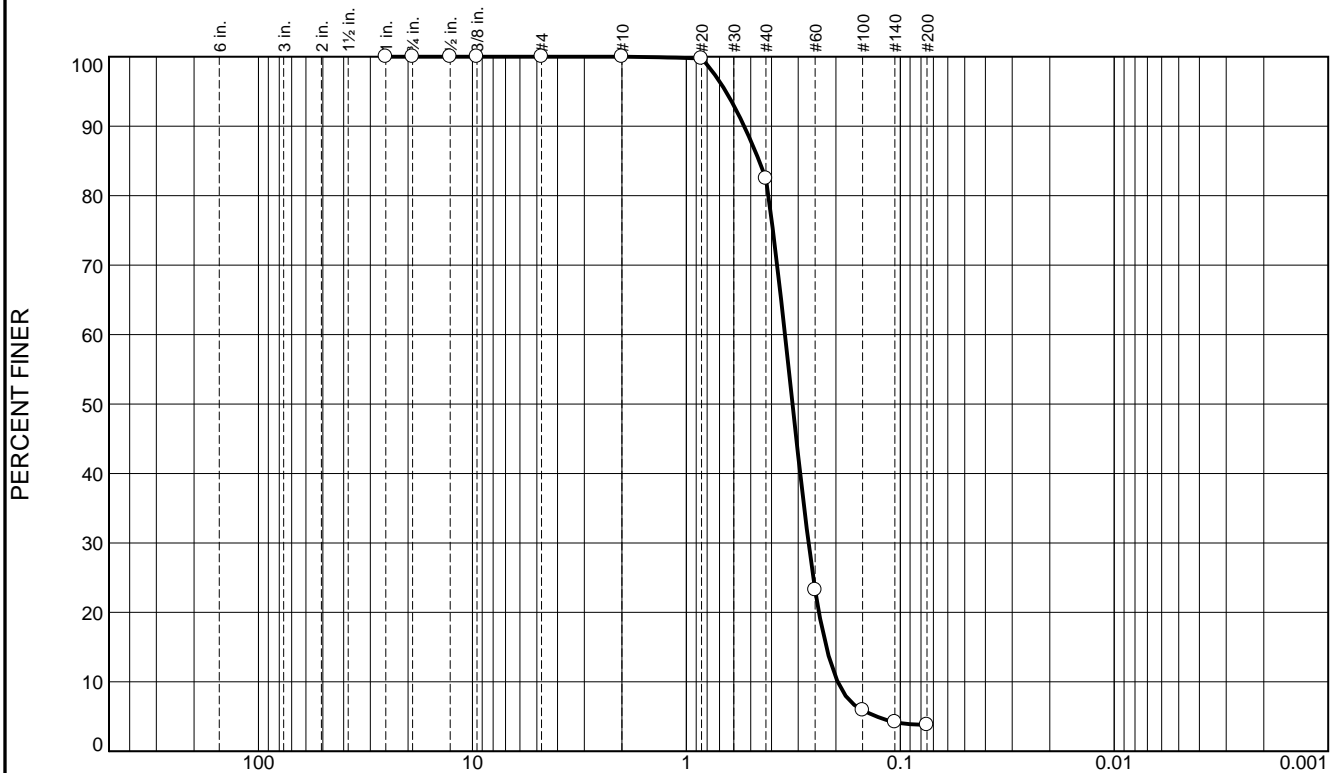
**Mobile, Alabama**

Client: CDM/Thompson Engineering JV  
Project: MsCIP Barrier Island Restoration GT

Project No: 1221110095

Figure

# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.0	0.0	17.5	78.7	3.8	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
1	100.0		
.75	100.0		
.5	100.0		
.375	100.0		
#4	100.0		
#10	100.0		
#20	99.7		
#40	82.5		
#60	23.2		
#100	5.9		
#140	4.2		
#200	3.8		

\* (no specification provided)

**Material Description**  
Fine to medium grained, SAND

**Atterberg Limits**  
PL=      LL=      PI=

**Coefficients**  
D<sub>90</sub>= 0.5368      D<sub>85</sub>= 0.4570      D<sub>60</sub>= 0.3459  
D<sub>50</sub>= 0.3191      D<sub>30</sub>= 0.2686      D<sub>15</sub>= 0.2217  
D<sub>10</sub>= 0.1962      C<sub>u</sub>= 1.76      C<sub>c</sub>= 1.06

**Classification**  
USCS= SP      AASHTO=

**Remarks**

Location: BI-PB-204-12 B  
Sample Number: 6494 (80)

Depth: 4.6'

Date: 12/26/12

**Thompson Engineering**

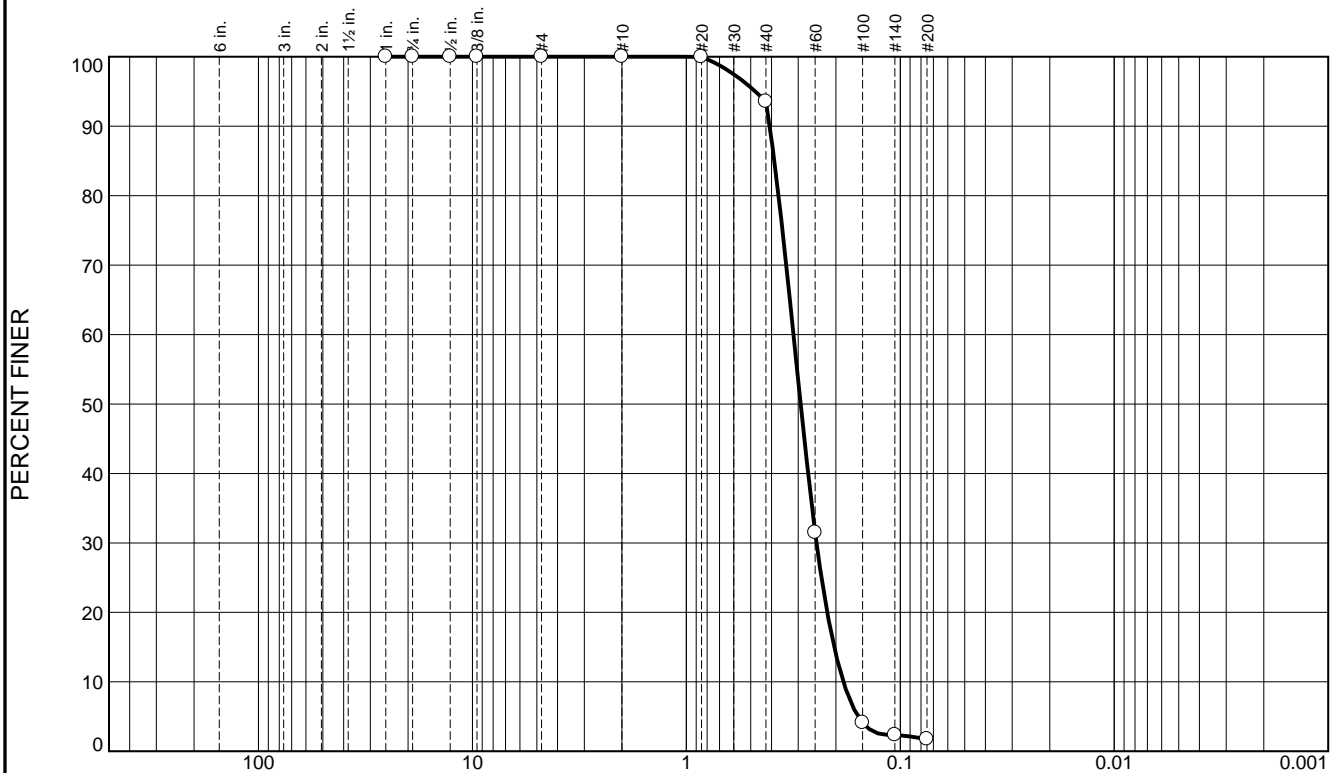
**Mobile, Alabama**

Client: CDM/Thompson Engineering JV  
Project: MsCIP Barrier Island Restoration GT

Project No: 1221110095

Figure

# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.0	0.0	6.5	91.7	1.8	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
1	100.0		
.75	100.0		
.5	100.0		
.375	100.0		
#4	100.0		
#10	100.0		
#20	100.0		
#40	93.5		
#60	31.5		
#100	4.1		
#140	2.3		
#200	1.8		

\* (no specification provided)

<u>Material Description</u>		
Fine grained, SAND		
PL=	<u>Atterberg Limits</u> LL=	PI=
<u>Coefficients</u>		
D <sub>90</sub> = 0.4078	D <sub>85</sub> = 0.3878	D <sub>60</sub> = 0.3158
D <sub>50</sub> = 0.2925	D <sub>30</sub> = 0.2464	D <sub>15</sub> = 0.2037
D <sub>10</sub> = 0.1847	C <sub>u</sub> = 1.71	C <sub>c</sub> = 1.04
<u>Classification</u>		
USCS= SP	AASHTO=	
<u>Remarks</u>		

Location: BI-PB-204-12 C  
Sample Number: 6494 (81)

Depth: 11.9'

Date: 12/26/12

**Thompson Engineering**

**Mobile, Alabama**

Client: CDM/Thompson Engineering JV  
Project: MsCIP Barrier Island Restoration GT

Project No: 1221110095

Figure

# Boring Designation BI-PB-205-12

DRILLING LOG		DIVISION South Atlantic		INSTALLATION Mobile District		SHEET 1 OF 1 SHEETS	
1. PROJECT MsCIP Barrier Island Restoration Petit Bois Pass- AL West				9. SIZE AND TYPE OF BIT N/A			
2. BORING DESIGNATION BI-PB-205-12		LOCATION COORDINATES E = 1,132,611 N = 252,131		10. COORDINATE SYSTEM/DATUM State Plane, MSE (U.S. Ft.)		HORIZONTAL NAD83	
3. DRILLING AGENCY Corps of Engineers - CESAM		CONTRACTOR FILE NO.		11. MANUFACTURER'S DESIGNATION OF DRILL Vibracore		<input type="checkbox"/> AUTO HAMMER <input type="checkbox"/> MANUAL HAMMER	
4. NAME OF DRILLER American Vibracore Systems, Inc.				12. TOTAL SAMPLES		DISTURBED 0	
5. DIRECTION OF BORING <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED				13. TOTAL NUMBER CORE BOXES		14. WATER DEPTH 32.7 Ft.	
6. THICKNESS OF OVERBURDEN N/A				15. DATE BORING		STARTED 12-19-12	
7. DEPTH DRILLED INTO ROCK N/A				16. ELEVATION TOP OF BORING -31.8 Ft.		COMPLETED 12-19-12	
8. TOTAL DEPTH OF BORING 19.1 Ft.				17. TOTAL RECOVERY FOR BORING 100%			
				18. SIGNATURE AND TITLE OF INSPECTOR Mike FitzHarris, Geologist			
ELEV.	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS	SAMPLE	LABORATORY RESULTS		
-31.8	0.0						
-34.4	2.6		SAND, poorly-graded, mostly fine to medium-grained sand-sized quartz, trace fines, gray (SP)	A	Classification: SP Color: 2.5Y 7/2-light gray D50: 0.2473 mm % Fines: 3.9		
-35.1	3.3		SILT, inorganic-L, mostly silt, some clay, some fine-grained sand-sized quartz, brownish gray (ML)	NS			
-39.0	7.2		SAND, silty, mostly fine to medium-grained sand-sized quartz, some silt, trace shell fragments, trace organic matter, organic staining, lt. brown (SM)	B	Classification: SP-SM Color: 2.5Y 5/2-grayish brown D50: 0.257 mm % Fines: 6.2		
-46.4	14.6		SAND, poorly-graded, mostly fine to medium-grained sand-sized quartz, trace fines, clayey streaks throughout interval, lt. brown to lt. gray (SP)	C	Classification: SP Color: 2.5Y 7/2-light gray D50: 0.3122 mm % Fines: 3.3		
-50.9	19.1		CLAY, fat, mostly clay, medium to high plasticity, few sandy lenses throughout interval, greenish gray (CH)	NS			
			NOTES: 1. Soils are field visually classified in accordance with the Unified Soils Classification System. 2. NS = Sample not submitted for laboratory analysis from this interval. 3. Seafloor elevation determined from 2010 USACE survey.				

# Project

Mississippi Barrier Island  
Restoration Project

**AVS**  
AMERICAN VIBRACORE  
SERVICES

Core Identifier BI-PB-205-12

Date 12/19/2012

Water Depth 32.7

## Coordinate System

Latitude / Longitude

Start Time 15:32:50

End Time 15:38:28

Penetration 20.0'

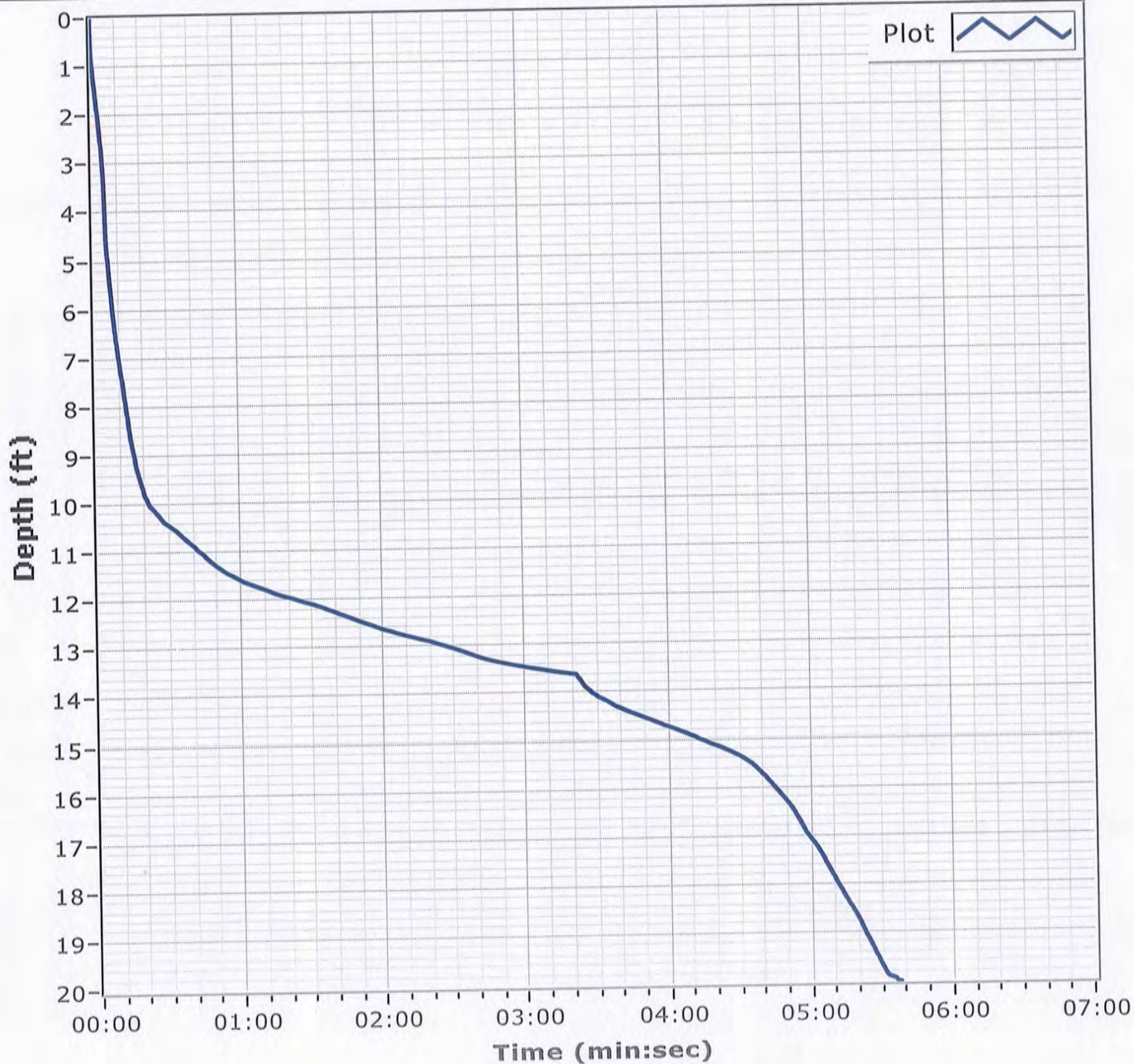
Latitude 30 11.548 N

Total Time 00:05:38

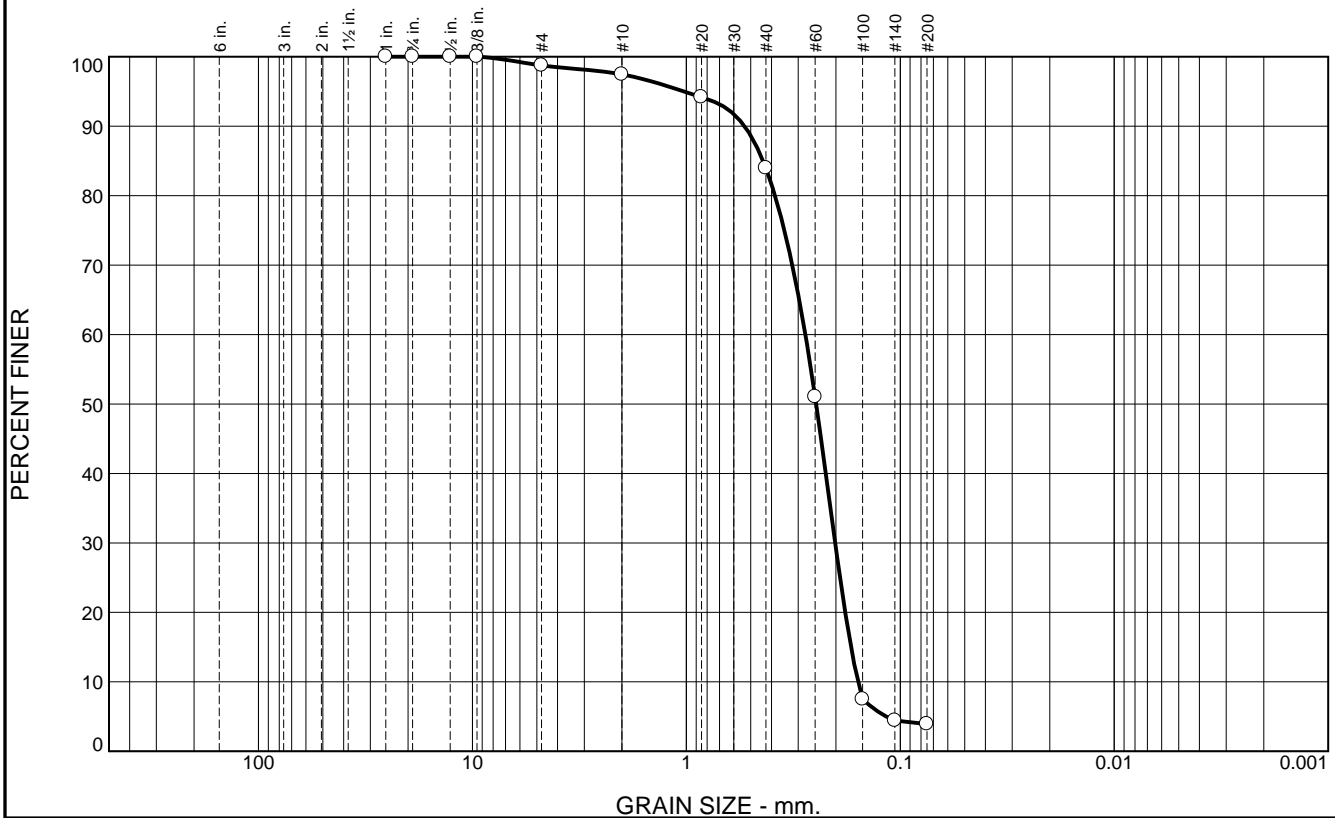
Recovery 19.2

Longitude 88 21.824 W

## Comments



# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	1.3	1.3	13.4	80.1	3.9	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
1	100.0		
.75	100.0		
.5	100.0		
.375	100.0		
#4	98.7		
#10	97.4		
#20	94.2		
#40	84.0		
#60	51.0		
#100	7.5		
#140	4.4		
#200	3.9		

\* (no specification provided)

## Material Description

Fine to medium grained, SAND, with trace SHELL

## Atterberg Limits

PL=

LL=

PI=

## Coefficients

D<sub>90</sub>= 0.5346

D<sub>85</sub>= 0.4381

D<sub>60</sub>= 0.2779

D<sub>50</sub>= 0.2473

D<sub>30</sub>= 0.2016

D<sub>15</sub>= 0.1701

D<sub>10</sub>= 0.1577

C<sub>u</sub>= 1.76

C<sub>c</sub>= 0.93

## Classification

USCS= SP

AASHTO=

## Remarks

Location: BI-PB-205-12 A  
Sample Number: 6494 (82)

Depth: 0.0'

Date: 12/26/12

**Thompson Engineering**

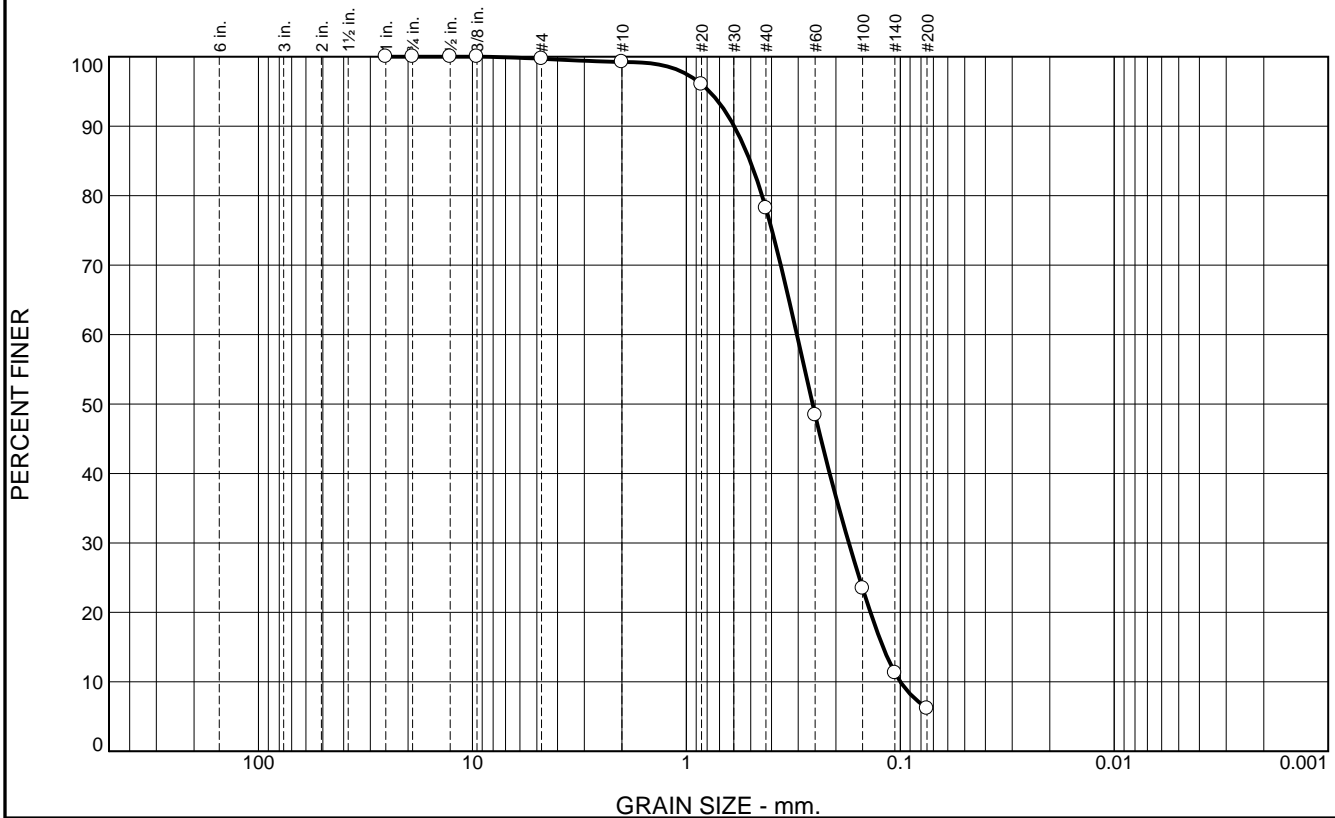
**Mobile, Alabama**

Client: CDM/Thompson Engineering JV  
Project: MsCIP Barrier Island Restoration GT

Project No: 1221110095

Figure

# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.3	0.5	21.0	72.0	6.2	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
1	100.0		
.75	100.0		
.5	100.0		
.375	100.0		
#4	99.7		
#10	99.2		
#20	96.0		
#40	78.2		
#60	48.4		
#100	23.5		
#140	11.3		
#200	6.2		

\* (no specification provided)

## Material Description

Fine to medium grained, SLIGHTLY SILTY SAND

## Atterberg Limits

PL= LL= PI=

## Coefficients

D<sub>90</sub>= 0.5976 D<sub>85</sub>= 0.5038 D<sub>60</sub>= 0.3045  
D<sub>50</sub>= 0.2570 D<sub>30</sub>= 0.1741 D<sub>15</sub>= 0.1204  
D<sub>10</sub>= 0.0999 C<sub>u</sub>= 3.05 C<sub>c</sub>= 1.00

## Classification

USCS= SP-SM AASHTO=

## Remarks

Location: BI-PB-205-12 B  
Sample Number: 6494 (83)

Depth: 3.3'

Date: 12/26/12

**Thompson Engineering**

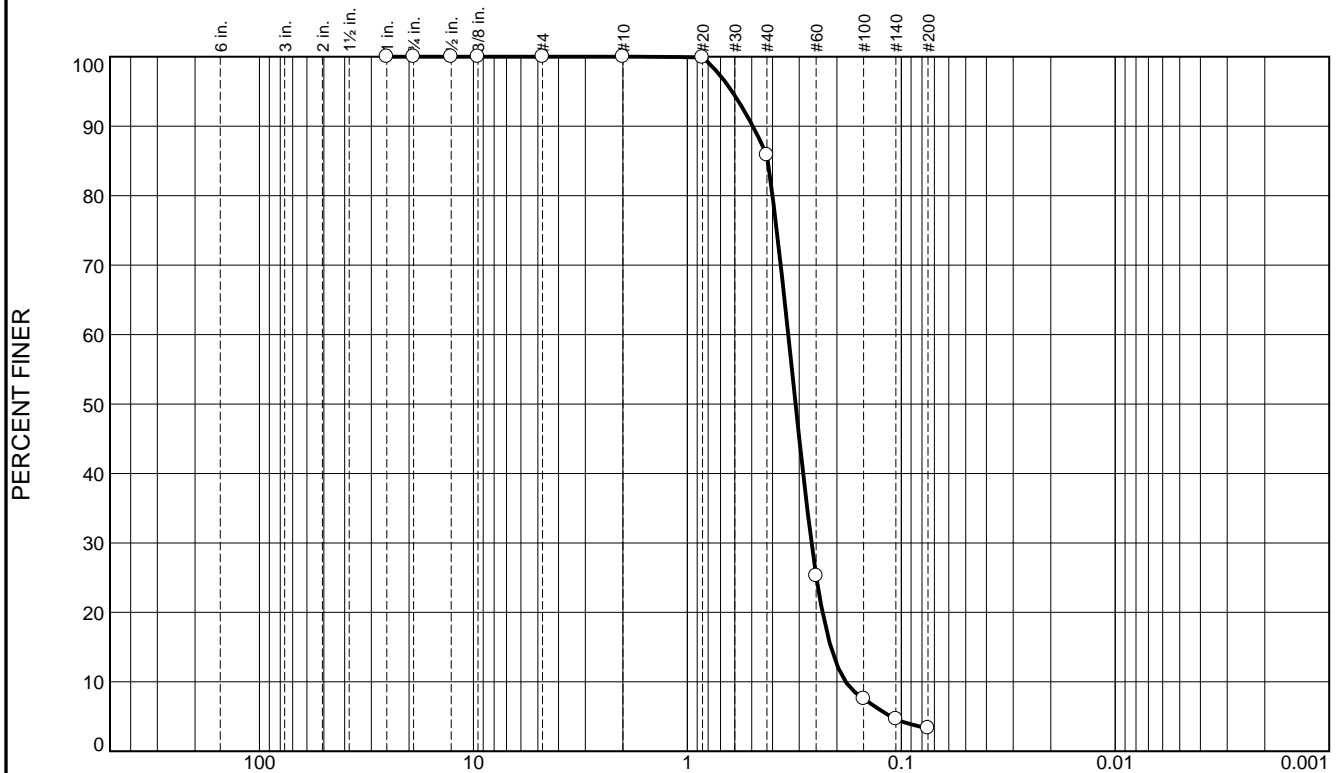
**Mobile, Alabama**

Client: CDM/Thompson Engineering JV  
Project: MsCIP Barrier Island Restoration GT

Project No: 1221110095

Figure

# Particle Size Distribution Report



GRAIN SIZE - mm.

% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.0	0.0	14.1	82.6	3.3	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
1	100.0		
.75	100.0		
.5	100.0		
.375	100.0		
#4	100.0		
#10	100.0		
#20	99.9		
#40	85.9		
#60	25.3		
#100	7.6		
#140	4.7		
#200	3.3		

\* (no specification provided)

## Material Description

Fine to medium grained, SAND

## Atterberg Limits

PL= LL= PI=

## Coefficients

D<sub>90</sub>= 0.4947 D<sub>85</sub>= 0.4209 D<sub>60</sub>= 0.3376  
D<sub>50</sub>= 0.3122 D<sub>30</sub>= 0.2629 D<sub>15</sub>= 0.2135  
D<sub>10</sub>= 0.1821 C<sub>u</sub>= 1.85 C<sub>c</sub>= 1.12

## Classification

USCS= SP AASHTO=

## Remarks

Location: BI-PB-205-12 C  
Sample Number: 6494 (84)

Depth: 7.2'

Date: 12/26/12

**Thompson Engineering**

**Mobile, Alabama**

Client: CDM/Thompson Engineering JV  
Project: MsCIP Barrier Island Restoration GT

Project No: 1221110095

Figure



# Boring Designation BI-PB-207-12

DRILLING LOG		DIVISION South Atlantic		INSTALLATION Mobile District		SHEET 1 OF 1 SHEETS	
1. PROJECT MsCIP Barrier Island Restoration Petit Bois Pass- AL East				9. SIZE AND TYPE OF BIT N/A			
2. BORING DESIGNATION BI-PB-207-12		LOCATION COORDINATES E = 1,143,123 N = 252,732		10. COORDINATE SYSTEM/DATUM State Plane, MSE (U.S. Ft.)		HORIZONTAL NAD83 VERTICAL NAVD88	
3. DRILLING AGENCY Corps of Engineers - CESAM		CONTRACTOR FILE NO.		11. MANUFACTURER'S DESIGNATION OF DRILL Vibrocure		<input type="checkbox"/> AUTO HAMMER <input type="checkbox"/> MANUAL HAMMER	
4. NAME OF DRILLER American Vibrocure Systems, Inc.				12. TOTAL SAMPLES		DISTURBED UNDISTURBED (UD) 0	
5. DIRECTION OF BORING <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED		DEG. FROM VERTICAL BEARING		13. TOTAL NUMBER CORE BOXES			
6. THICKNESS OF OVERBURDEN N/A				14. WATER DEPTH 37.5 Ft.			
7. DEPTH DRILLED INTO ROCK N/A				15. DATE BORING 12-11-12		STARTED COMPLETED 12-11-12	
8. TOTAL DEPTH OF BORING 16.6 Ft.				16. ELEVATION TOP OF BORING -37.3 Ft.			
				17. TOTAL RECOVERY FOR BORING 100%			
				18. SIGNATURE AND TITLE OF INSPECTOR Mike FitzHarris, Geologist			

ELEV.	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS	SAMPLE	LABORATORY RESULTS
-37.3	0.0				
-38.6	1.3		SAND, clayey, mostly fine-grained sand-sized quartz, some clay, some silt, trace shell fragments, brownish gray (SC)		
			CLAY, fat, mostly clay, trace fine-grained, sand-sized quartz lenses, medium to high plasticity, greenish gray (CH)		
				NS	
-53.8	16.6		SAND, clayey, mostly fine-grained sand-sized quartz, some clay, greenish gray (SC)		
			NOTES: 1. Soils are field visually classified in accordance with the Unified Soils Classification System. 2. NS = Sample not submitted for laboratory analysis from this interval. 3. Seafloor elevation calculated using sampling vessel's fathometer water depth reading and applying NOAA tidal gauge data conversion factor.		

**Project**

Mississippi Barrier Island  
Restoration Project

**AVS**  
**AMERICAN VIBRACORE**  
**S E R V I C E S**

**Core Identifier** BI-PB-207-12

**Date** 12/11/2012

**Water Depth** 37.5'

**Coordinate System**

**Start Time** 13:01:58

Latitude / Longitude

**End Time** 13:08:35

**Penetration** 20.0'

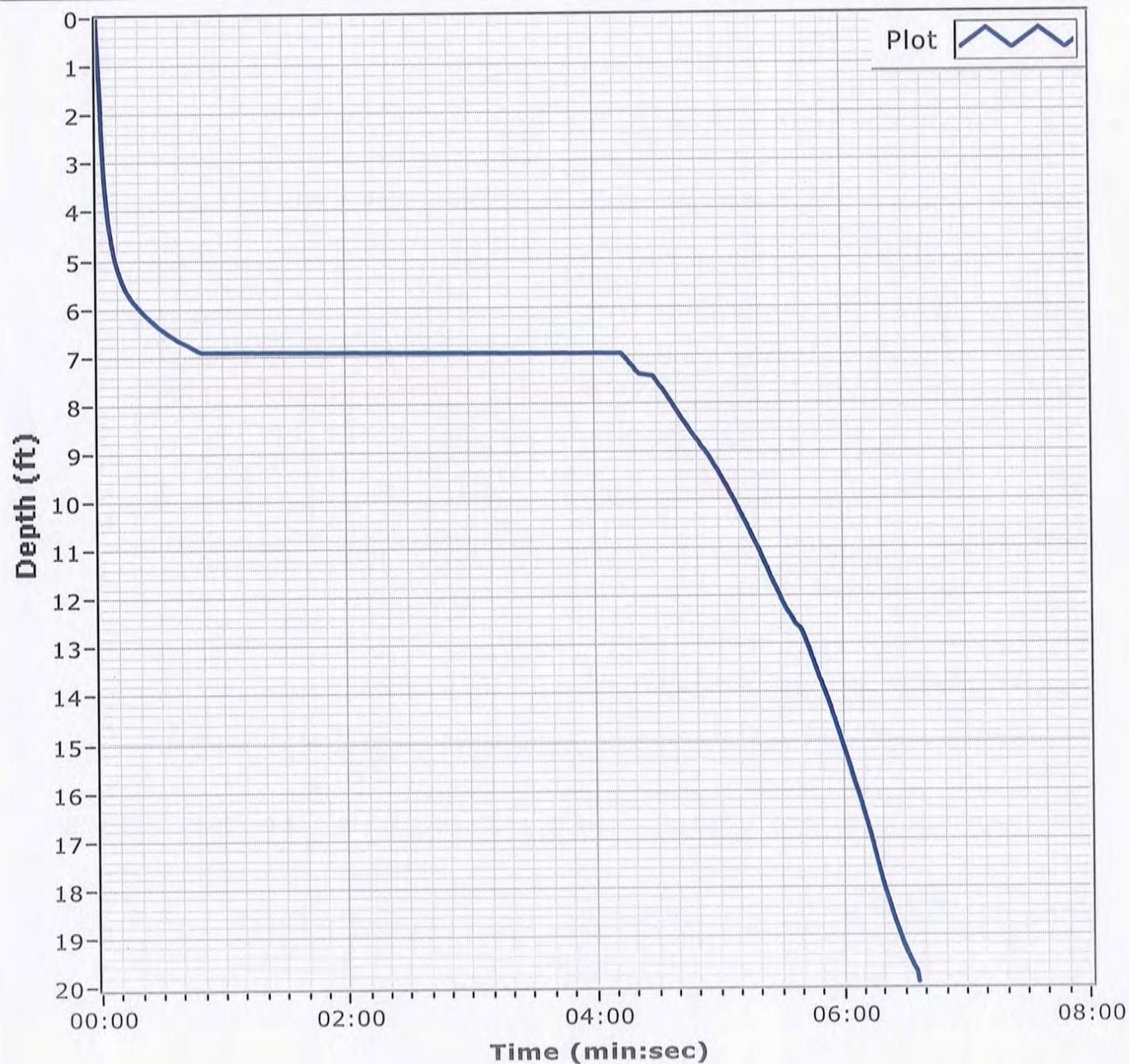
**Latitude** 33 11.640

**Total Time** 00:06:36

**Recovery** 16.6'

**Longitude** 088 19.827

**Comments**



# Boring Designation BI-PB-208-12

DRILLING LOG		DIVISION South Atlantic		INSTALLATION Mobile District		SHEET 1 OF 1 SHEETS	
1. PROJECT MsCIP Barrier Island Restoration Petit Bois Pass- AL East				9. SIZE AND TYPE OF BIT N/A			
2. BORING DESIGNATION BI-PB-208-12		LOCATION COORDINATES E = 1,144,019 N = 255,227		10. COORDINATE SYSTEM/DATUM State Plane, MSE (U.S. Ft.)		HORIZONTAL NAD83 VERTICAL NAVD88	
3. DRILLING AGENCY Corps of Engineers - CESAM		CONTRACTOR FILE NO.		11. MANUFACTURER'S DESIGNATION OF DRILL Vibracore		<input type="checkbox"/> AUTO HAMMER <input type="checkbox"/> MANUAL HAMMER	
4. NAME OF DRILLER American Vibracore Systems, Inc.				12. TOTAL SAMPLES		DISTURBED UNDISTURBED (UD) 0	
5. DIRECTION OF BORING <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED		DEG. FROM VERTICAL		13. TOTAL NUMBER CORE BOXES			
		BEARING		14. WATER DEPTH 32.8 Ft.			
6. THICKNESS OF OVERBURDEN N/A				15. DATE BORING 12-06-12		STARTED COMPLETED 12-06-12	
7. DEPTH DRILLED INTO ROCK N/A				16. ELEVATION TOP OF BORING -27.7 Ft.			
8. TOTAL DEPTH OF BORING 11.9 Ft.				17. TOTAL RECOVERY FOR BORING 100%			
				18. SIGNATURE AND TITLE OF INSPECTOR Mike FitzHarris, Geologist			
ELEV.	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS	SAMPLE	LABORATORY RESULTS		
-27.7	0.0						
-30.3	2.6		SAND, poorly-graded with silt, mostly fine to medium-grained sand-sized quartz, few silt, trace shell fragments, some clay nodules from 1.3 to 2.5 ft., pale brown (SP-SM)	A	Classification: SP Color: 2.5Y 7/2-light gray D50: 0.3431 mm % Fines: 3.6		
			SAND, poorly-graded, mostly fine to medium-grained sand-sized quartz, trace silt, trace clayey nodules throughout, lt. gray to white (SP)	B	Classification: SP Color: 2.5Y 8/1.5- D50: 0.448 mm % Fines: 0.8		
				C	Classification: SP Color: 2.5Y 8/1-white D50: 0.4003 mm % Fines: 1.2		
-39.6	11.9			NS			
			NOTES: 1. Soils are field visually classified in accordance with the Unified Soils Classification System. 2. NS = Sample not submitted for laboratory analysis from this interval. 3. Seafloor elevation determined from 2010 USACE survey.				



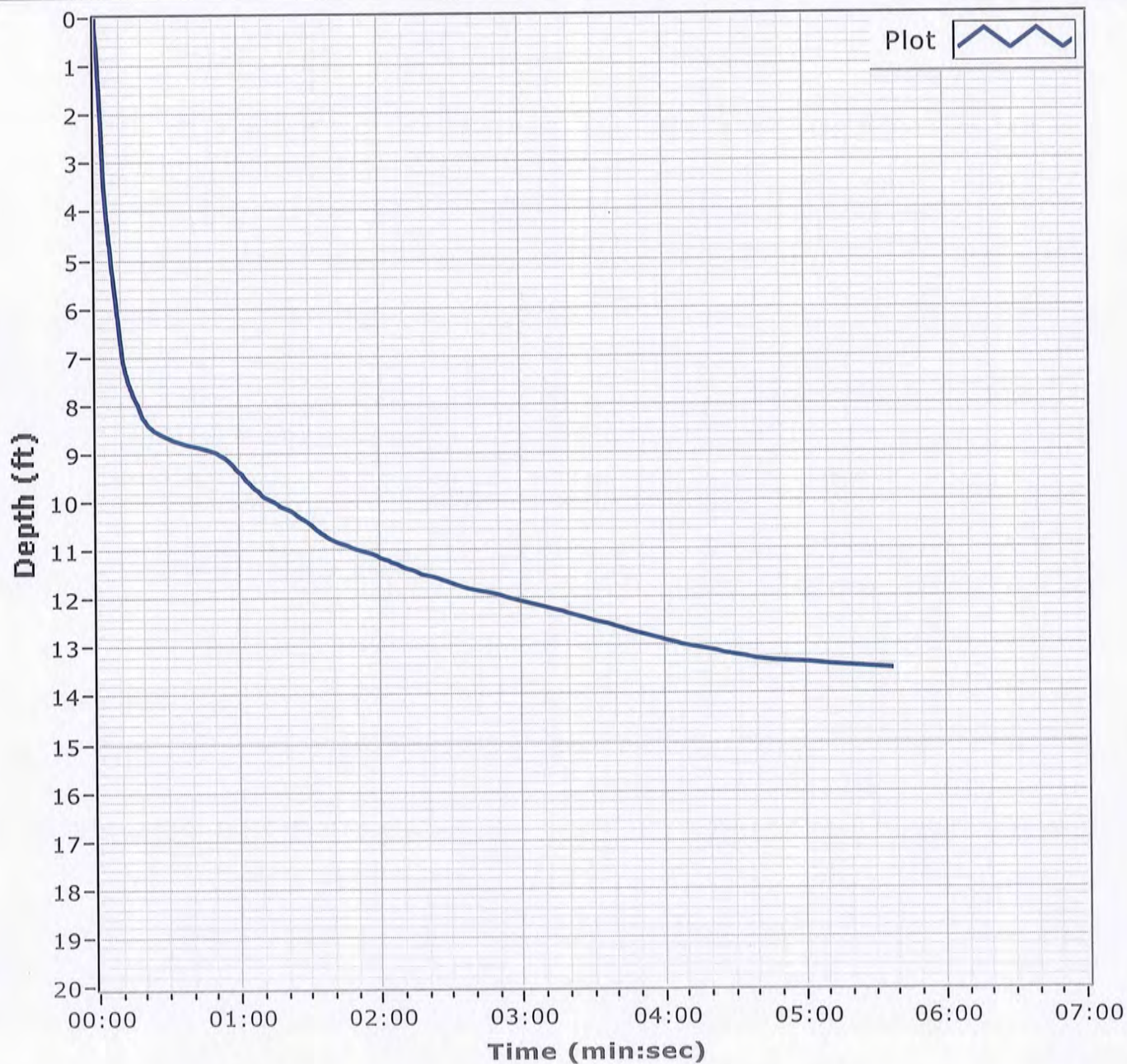
**Project**

Mississippi Barrier Island  
Restoration Project

**AVS**  
**AMERICAN VIBRACORE**  
**S E R V I C E S**

**Core Identifier** BI-PB-208-12**Date** 12/06/2012**Water Depth** 32.8'**Coordinate System**

Latitude / Longitude

**Start Time** 15:55:51**End Time** 16:01:29**Penetration** 13.5'**Latitude** 30 12.051**Total Time** 00:05:37**Recovery** 11.9'**Longitude** 088 19.655**Comments**

# Particle Size Distribution Report



GRAIN SIZE - mm.

% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.2	0.8	29.6	65.8	3.6	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
1	100.0		
.75	100.0		
.5	100.0		
.375	100.0		
#4	99.8		
#10	99.0		
#20	95.8		
#40	69.4		
#60	22.0		
#100	5.6		
#140	3.9		
#200	3.6		

\* (no specification provided)

## Material Description

Fine to medium grained, SAND

## Atterberg Limits

PL= LL= PI=

## Coefficients

D<sub>90</sub>= 0.6332 D<sub>85</sub>= 0.5518 D<sub>60</sub>= 0.3811  
D<sub>50</sub>= 0.3431 D<sub>30</sub>= 0.2771 D<sub>15</sub>= 0.2210  
D<sub>10</sub>= 0.1931 C<sub>u</sub>= 1.97 C<sub>c</sub>= 1.04

## Classification

USCS= SP AASHTO=

## Remarks

Location: BI-PB-208-12 A  
Sample Number: 6480 (47)

Depth: 0.0'

Date: 12/07/12

**Thompson Engineering**

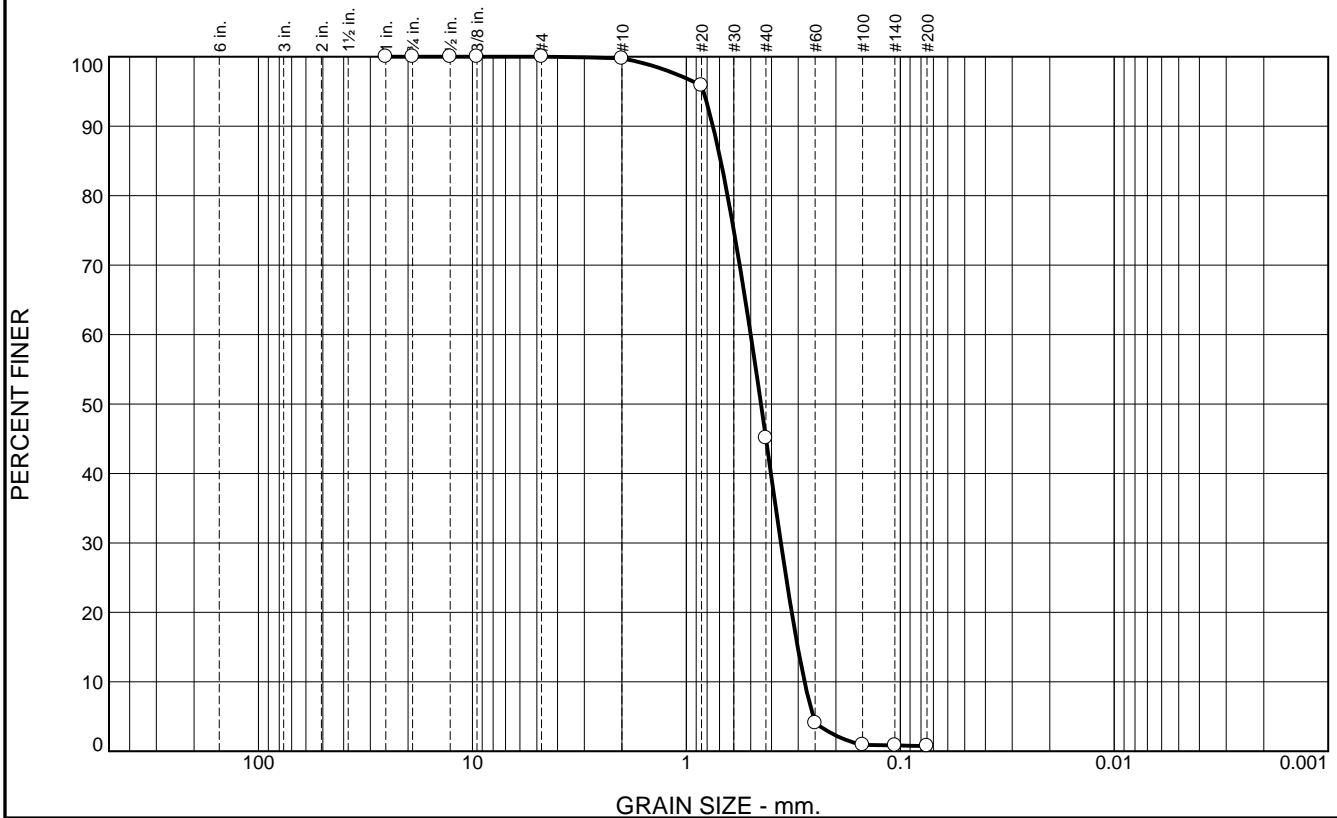
**Mobile, Alabama**

Client: CDM/Thompson Engineering JV  
Project: MsCIP Barrier Island Restoration GT

Project No: 1221110095

Figure

# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.0	0.2	54.7	44.3	0.8	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
1	100.0		
.75	100.0		
.5	100.0		
.375	100.0		
#4	100.0		
#10	99.8		
#20	95.9		
#40	45.1		
#60	4.1		
#100	0.9		
#140	0.8		
#200	0.8		

\* (no specification provided)

<u><b>Material Description</b></u>		
Fine to medium grained, SAND		
<u><b>Atterberg Limits</b></u>		
PL=	LL=	PI=
<u><b>Coefficients</b></u>		
D <sub>90</sub> = 0.7512	D <sub>85</sub> = 0.6908	D <sub>60</sub> = 0.5005
D <sub>50</sub> = 0.4480	D <sub>30</sub> = 0.3613	D <sub>15</sub> = 0.3018
D <sub>10</sub> = 0.2804	C <sub>u</sub> = 1.78	C <sub>c</sub> = 0.93
<u><b>Classification</b></u>		
USCS= SP	AASHTO=	
<u><b>Remarks</b></u>		

Location: BI-PB-208-12 B  
Sample Number: 6480 (48)

Depth: 2.6'

Date: 12/07/12

**Thompson Engineering**

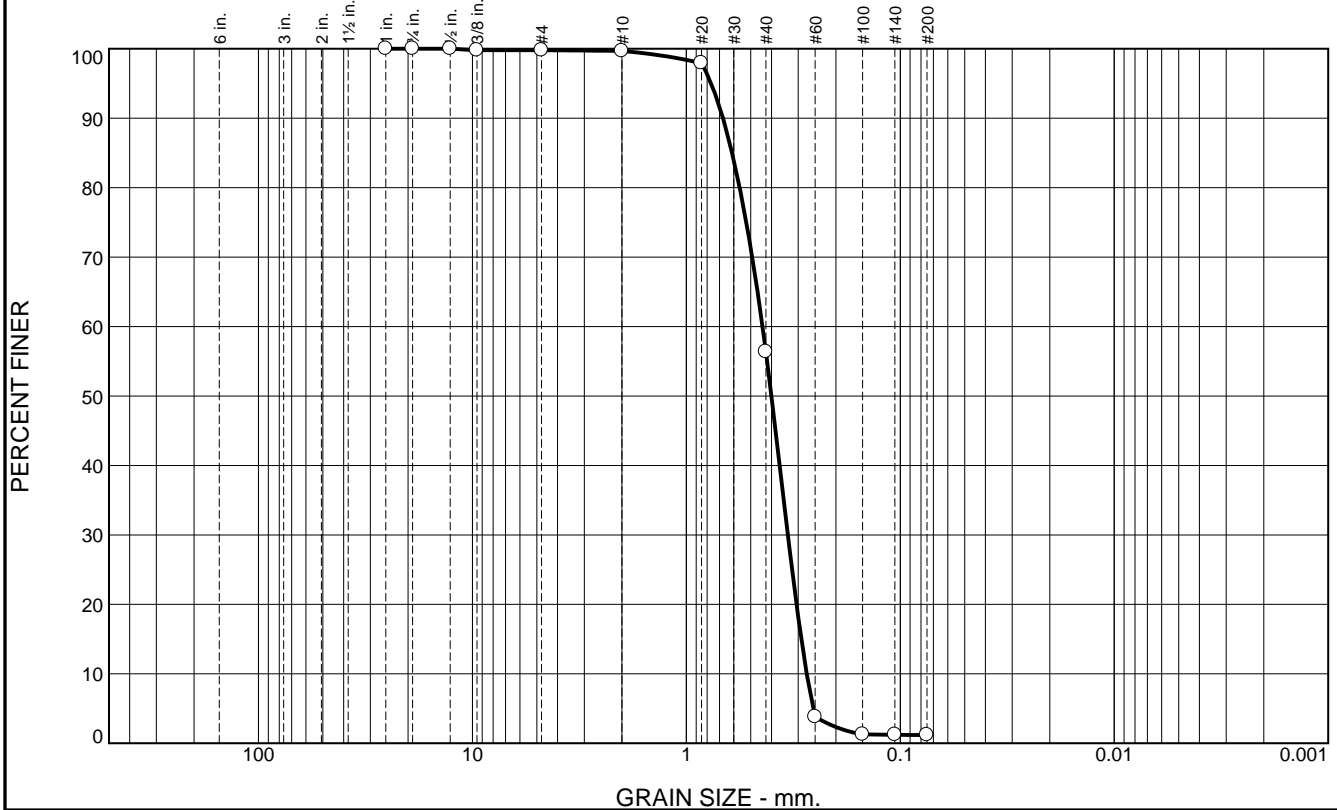
**Mobile, Alabama**

Client: CDM/Thompson Engineering JV  
Project: MsCIP Barrier Island Restoration GT

Project No: 1221110095

Figure

# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.2	0.1	43.3	55.2	1.2	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
1	100.0		
.75	100.0		
.5	100.0		
.375	99.8		
#4	99.8		
#10	99.7		
#20	97.9		
#40	56.4		
#60	3.8		
#100	1.3		
#140	1.2		
#200	1.2		

\* (no specification provided)

<u><b>Material Description</b></u>		
Fine to medium grained, SAND		
<u><b>Atterberg Limits</b></u>		
PL=	LL=	PI=
<u><b>Coefficients</b></u>		
D <sub>90</sub> = 0.6744	D <sub>85</sub> = 0.6114	D <sub>60</sub> = 0.4406
D <sub>50</sub> = 0.4003	D <sub>30</sub> = 0.3355	D <sub>15</sub> = 0.2903
D <sub>10</sub> = 0.2741	C <sub>u</sub> = 1.61	C <sub>c</sub> = 0.93
<u><b>Classification</b></u>		
USCS= SP	AASHTO=	
<u><b>Remarks</b></u>		

Location: BI-PB-208-12 C  
Sample Number: 6480 (49)

Depth: 6.9'

Date: 12/07/12

**Thompson Engineering**

**Mobile, Alabama**

Client: CDM/Thompson Engineering JV  
Project: MsCIP Barrier Island Restoration GT

Project No: 1221110095

Figure

# Boring Designation BI-PB-209-12

DRILLING LOG		DIVISION South Atlantic		INSTALLATION Mobile District		SHEET 1 OF 1 SHEETS	
1. PROJECT MsCIP Barrier Island Restoration Petit Bois Pass- AL East				9. SIZE AND TYPE OF BIT N/A			
2. BORING DESIGNATION BI-PB-209-12		LOCATION COORDINATES E = 1,144,027 N = 254,016		10. COORDINATE SYSTEM/DATUM State Plane, MSE (U.S. Ft.)		HORIZONTAL NAD83 VERTICAL NAVD88	
3. DRILLING AGENCY Corps of Engineers - CESAM		CONTRACTOR FILE NO.		11. MANUFACTURER'S DESIGNATION OF DRILL Vibracore		<input type="checkbox"/> AUTO HAMMER <input type="checkbox"/> MANUAL HAMMER	
4. NAME OF DRILLER American Vibracore Systems, Inc.				12. TOTAL SAMPLES		DISTURBED UNDISTURBED (UD) 0	
5. DIRECTION OF BORING <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED		DEG. FROM VERTICAL		13. TOTAL NUMBER CORE BOXES			
		BEARING		14. WATER DEPTH 32.6 Ft.			
6. THICKNESS OF OVERBURDEN N/A				15. DATE BORING 12-07-12		STARTED COMPLETED 12-07-12	
7. DEPTH DRILLED INTO ROCK N/A				16. ELEVATION TOP OF BORING -31.6 Ft.			
8. TOTAL DEPTH OF BORING 17.2 Ft.				17. TOTAL RECOVERY FOR BORING 100%			
				18. SIGNATURE AND TITLE OF INSPECTOR Mike FitzHarris, Geologist			

ELEV.	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS	SAMPLE	LABORATORY RESULTS
-31.6	0.0				
-33.4	1.8		SAND, poorly-graded, mostly fine-grained sand-sized quartz, trace silt, trace shell fragments, lt. gray to pale lt. brown (SP)	A	Classification: SP Color: 5Y 7/2-light gray D50: 0.3221 mm % Fines: 1.3
-33.9	2.3			NS	
-35.1	3.5		CLAY, lean, mostly clay, some fine-grained sand-sized sand, low to medium plasticity, grayish brown (CL)	B	Classification: SP-SM Color: 2.5Y 5/3-light olive brown D50: 0.2077 mm % Fines: 9.1
-35.7	4.1			NS	
-37.0	5.4		SAND, clayey, mostly fine-grained sand-sized quartz, some clay, trace shell fragments, gray (SC)	C	Classification: SP-SM Color: 5Y 5/3-olive D50: 0.3033 mm % Fines: 11.2
			CLAY, fat, mostly clay, trace fine-grained sand-sized quartz, gray (CH)	D	Classification: SP Color: 2.5Y 6/2-light brownish gray D50: 0.3191 mm % Fines: 3.4
			SAND, clayey, mostly fine-grained sand-sized quartz, some clay, gray (SC)		
			At El. -36.4 Ft., mostly fine-grained sand-sized quartz, little clay, gray	E	Classification: SP Color: 5Y 5/3-olive D50: 0.2832 mm % Fines: 4.4
			SAND, poorly-graded, mostly fine-grained sand-sized quartz, trace silt, gray (SP)		
-43.8	12.2		At El. -38.8 Ft., mostly fine-grained sand-sized quartz, trace silt, gray		
			SAND, silty, mostly fine-grained sand-sized quartz, trace shell fragments, gray (SM)	F	Classification: SP-SM Color: 5Y 5/3-olive D50: 0.217 mm % Fines: 9.8
-48.8	17.2				
			NOTES: 1. Soils are field visually classified in accordance with the Unified Soils Classification System. 2. NS = Sample not submitted for laboratory analysis from this interval. 3. Seafloor elevation calculated using sampling vessel's fathometer water depth reading and applying NOAA tidal gauge data conversion factor.	NS	



# Project

Mississippi Barrier Island  
Restoration Project

**AVS**  
**AMERICAN VIBRACORE**  
**S E R V I C E S**

**Core Identifier** BI-PB-209-12

**Date** 12/07/2012

**Water Depth** 32.6'

**Coordinate System**

Latitude / Longitude

**Start Time** 15:25:04

**End Time** 15:26:04

**Penetration** 20.0'

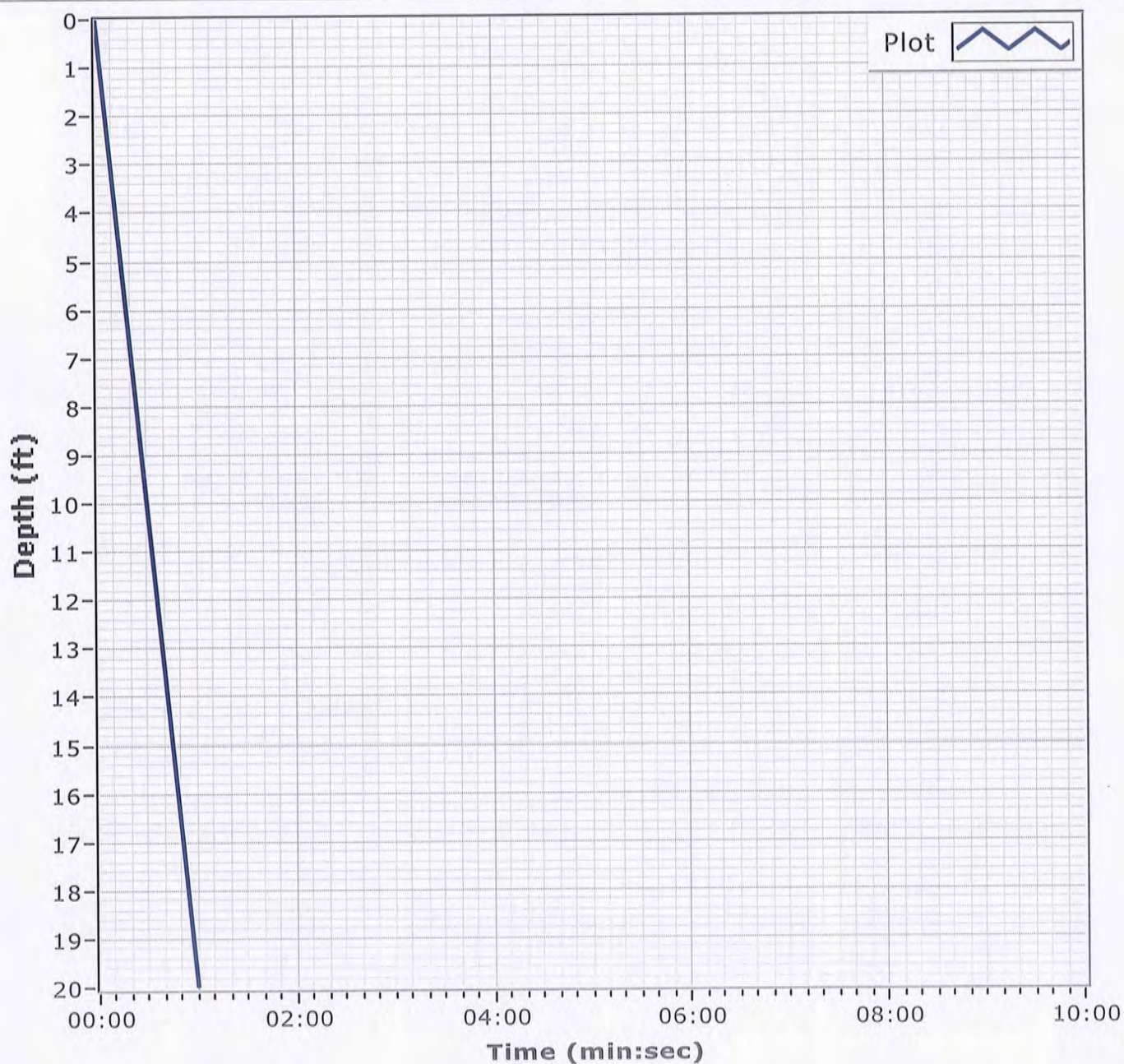
**Latitude** 30 11.851

**Total Time** 00:01:00

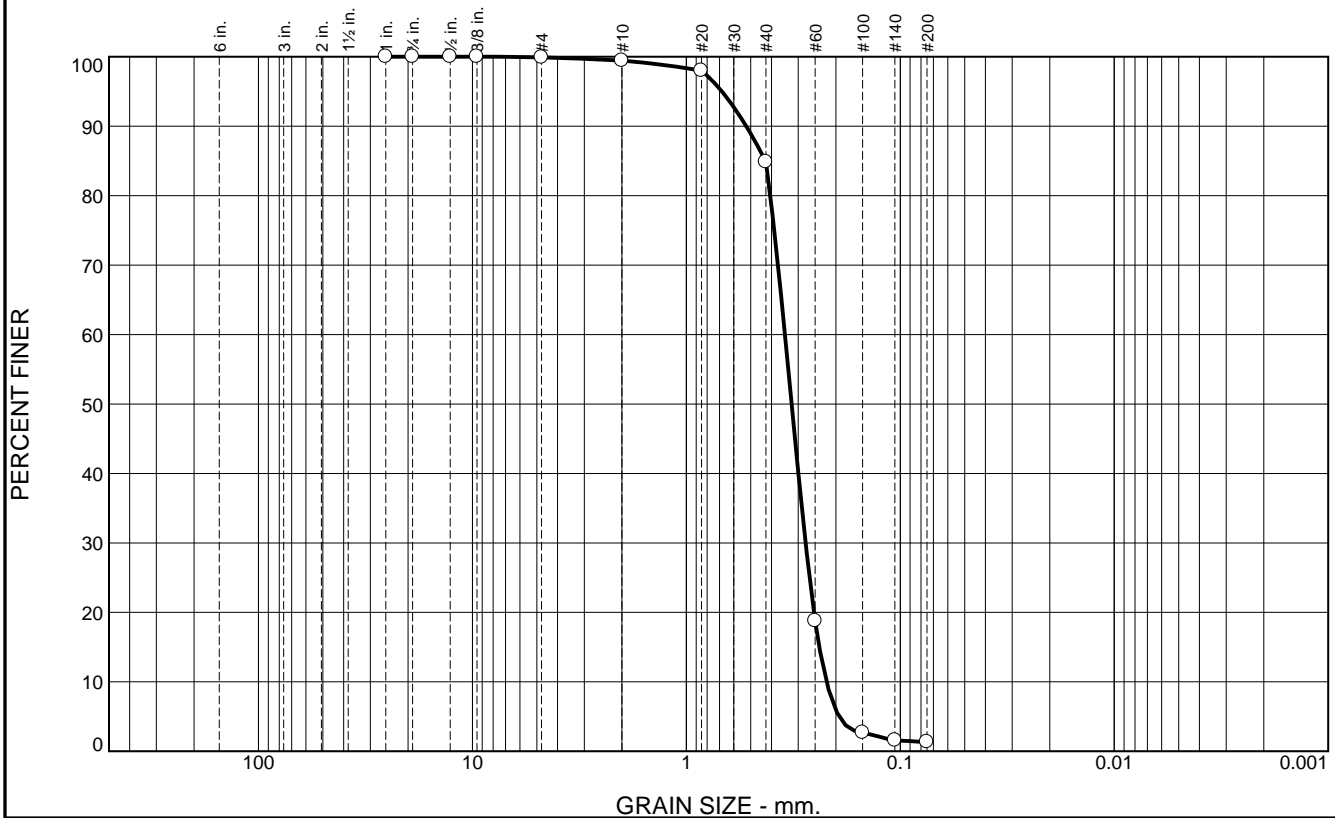
**Recovery** 17.2'

**Longitude** 088 19.654

**Comments**



# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.1	0.5	14.5	83.6	1.3	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
1	100.0		
.75	100.0		
.5	100.0		
.375	100.0		
#4	99.9		
#10	99.4		
#20	98.0		
#40	84.9		
#60	18.8		
#100	2.7		
#140	1.6		
#200	1.3		

\* (no specification provided)

<u><b>Material Description</b></u>		
Fine to medium grained, SAND		
<u><b>Atterberg Limits</b></u>		
PL=	LL=	PI=
<u><b>Coefficients</b></u>		
D <sub>90</sub> = 0.5250	D <sub>85</sub> = 0.4273	D <sub>60</sub> = 0.3460
D <sub>50</sub> = 0.3221	D <sub>30</sub> = 0.2773	D <sub>15</sub> = 0.2390
D <sub>10</sub> = 0.2211	C <sub>u</sub> = 1.56	C <sub>c</sub> = 1.01
<u><b>Classification</b></u>		
USCS= SP	AASHTO=	
<u><b>Remarks</b></u>		

Location: BI-PB-209-12 A  
Sample Number: 6482 (14)

Depth: 0.0'

Date: 12/12/12

**Thompson Engineering**

**Mobile, Alabama**

Client: CDM/Thompson Engineering JV  
Project: MsCIP Barrier Island Restoration GT

Project No: 1221110095

Figure

# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.0	0.7	10.3	79.9	9.1	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
1	100.0		
.75	100.0		
.5	100.0		
.375	100.0		
#4	100.0		
#10	99.3		
#20	97.2		
#40	89.0		
#60	68.4		
#100	18.9		
#140	10.7		
#200	9.1		

\* (no specification provided)

<u><b>Material Description</b></u>		
Fine to medium grained, SLIGHTLY SILTY SAND		
<u><b>Atterberg Limits</b></u>		
PL=	LL=	PI=
<u><b>Coefficients</b></u>		
D <sub>90</sub> = 0.4542	D <sub>85</sub> = 0.3464	D <sub>60</sub> = 0.2282
D <sub>50</sub> = 0.2077	D <sub>30</sub> = 0.1720	D <sub>15</sub> = 0.1386
D <sub>10</sub> = 0.0905	C <sub>u</sub> = 2.52	C <sub>c</sub> = 1.43
<u><b>Classification</b></u>		
USCS= SP-SM	AASHTO=	
<u><b>Remarks</b></u>		

Location: BI-PB-209-12 B  
Sample Number: 6482 (15)

Depth: 2.3'

Date: 12/12/12

**Thompson Engineering**

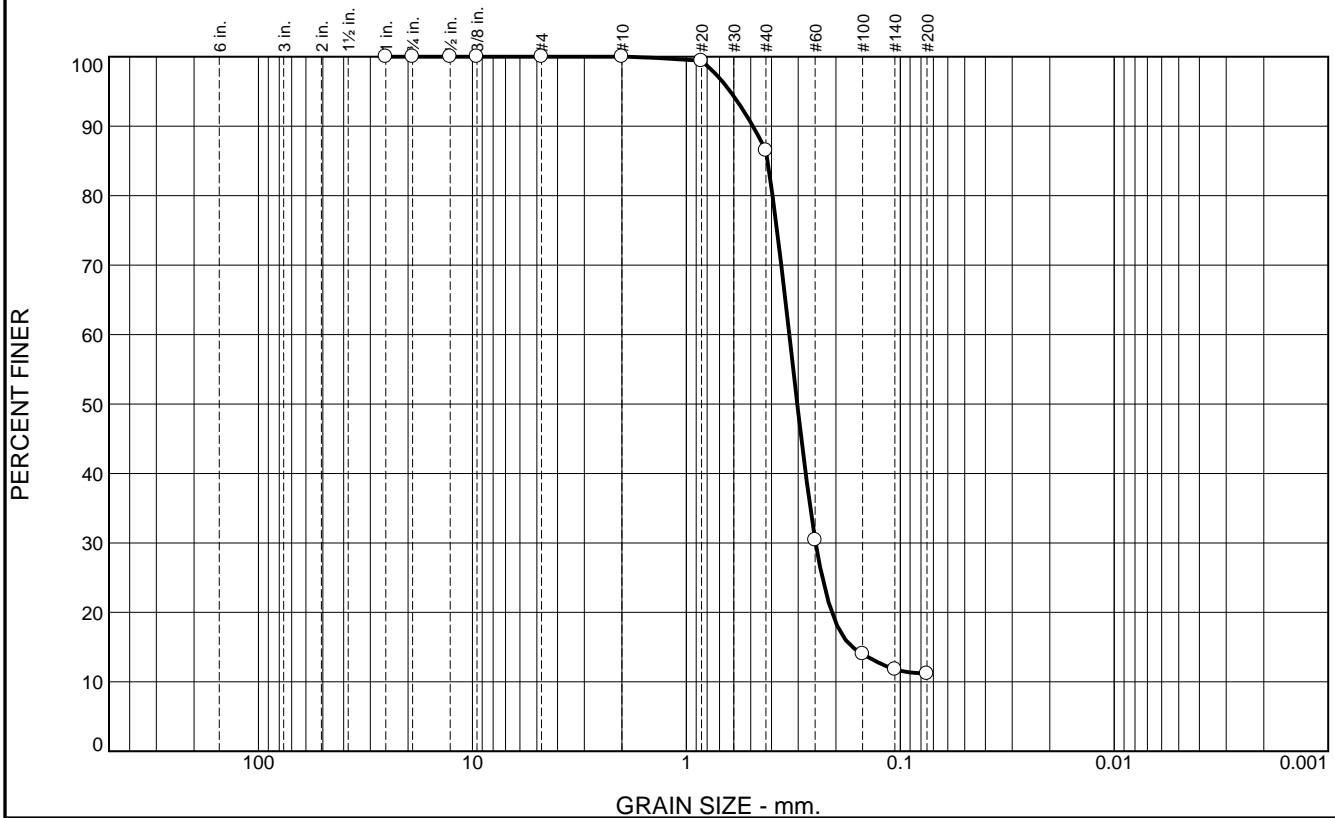
**Mobile, Alabama**

Client: CDM/Thompson Engineering JV  
Project: MsCIP Barrier Island Restoration GT

Project No: 1221110095

Figure

# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.0	0.0	13.5	75.3	11.2	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
1	100.0		
.75	100.0		
.5	100.0		
.375	100.0		
#4	100.0		
#10	100.0		
#20	99.4		
#40	86.5		
#60	30.4		
#100	14.0		
#140	11.8		
#200	11.2		

\* (no specification provided)

## Material Description

Fine to medium grained, SLIGHTLY SILTY SAND

## Atterberg Limits

PL= LL= PI=

## Coefficients

D<sub>90</sub>= 0.4889 D<sub>85</sub>= 0.4174 D<sub>60</sub>= 0.3302  
D<sub>50</sub>= 0.3033 D<sub>30</sub>= 0.2487 D<sub>15</sub>= 0.1675  
D<sub>10</sub>= C<sub>u</sub>= C<sub>c</sub>=

## Classification

USCS= SP-SM AASHTO=

## Remarks

Location: BI-PB-209-12 C  
Sample Number: 6482 (16)

Depth: 4.8'

Date: 12/12/12

**Thompson Engineering**

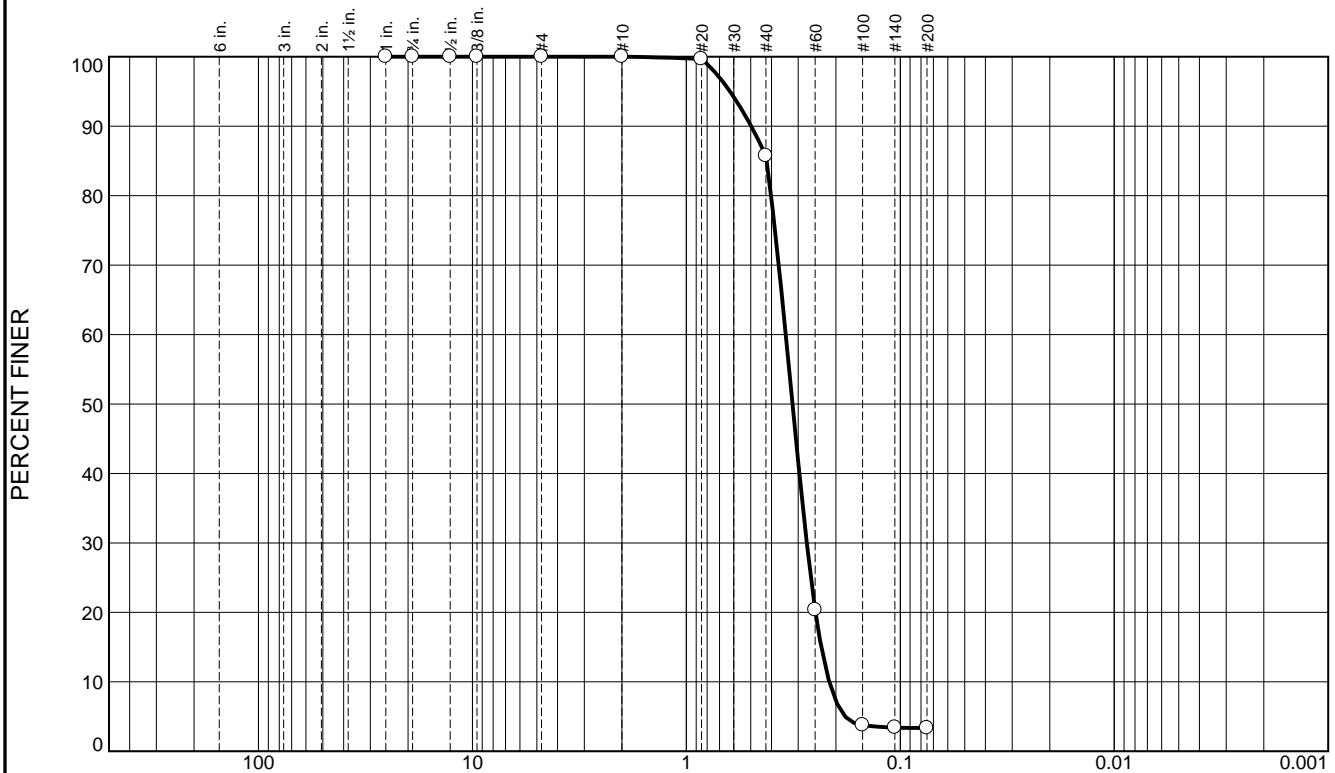
**Mobile, Alabama**

Client: CDM/Thompson Engineering JV  
Project: MsCIP Barrier Island Restoration GT

Project No: 1221110095

Figure

# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.0	0.0	14.3	82.3	3.4	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
1	100.0		
.75	100.0		
.5	100.0		
.375	100.0		
#4	100.0		
#10	100.0		
#20	99.7		
#40	85.7		
#60	20.4		
#100	3.8		
#140	3.4		
#200	3.4		

\* (no specification provided)

<u><b>Material Description</b></u>		
Fine to medium grained, SAND		
<u><b>Atterberg Limits</b></u>		
PL=	LL=	PI=
<u><b>Coefficients</b></u>		
D <sub>90</sub> = 0.4978	D <sub>85</sub> = 0.4217	D <sub>60</sub> = 0.3431
D <sub>50</sub> = 0.3191	D <sub>30</sub> = 0.2738	D <sub>15</sub> = 0.2340
D <sub>10</sub> = 0.2148	C <sub>u</sub> = 1.60	C <sub>c</sub> = 1.02
<u><b>Classification</b></u>		
USCS= SP	AASHTO=	
<u><b>Remarks</b></u>		

Location: BI-PB-209-12 D  
Sample Number: 6482 (17)

Depth: 5.4'

Date: 12/12/12

**Thompson Engineering**

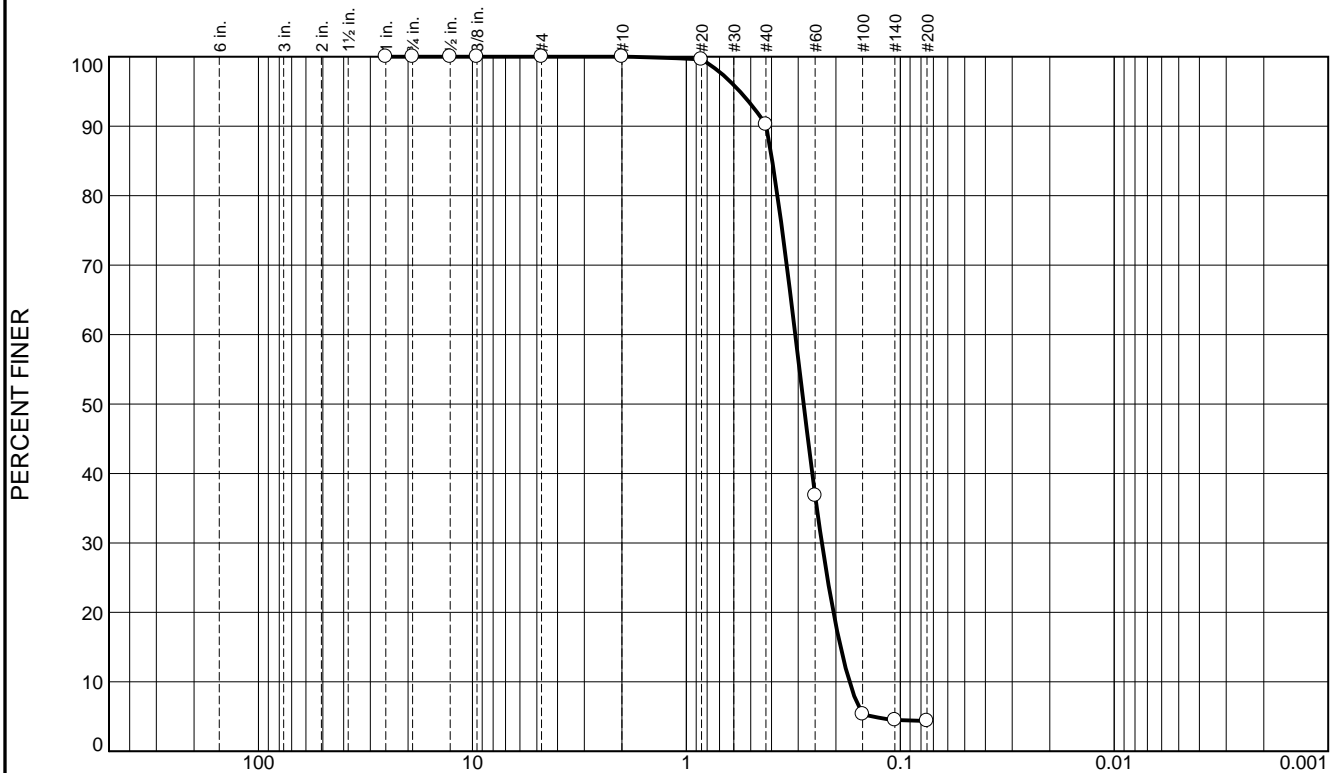
**Mobile, Alabama**

Client: CDM/Thompson Engineering JV  
Project: MsCIP Barrier Island Restoration GT

Project No: 1221110095

Figure

# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.0	0.0	9.8	85.8	4.4	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
1	100.0		
.75	100.0		
.5	100.0		
.375	100.0		
#4	100.0		
#10	100.0		
#20	99.6		
#40	90.2		
#60	36.8		
#100	5.4		
#140	4.5		
#200	4.4		

\* (no specification provided)

Material Description		
Fine grained, SAND		
<div> <div> <b>Atterberg Limits</b>            PL=      LL=      PI=         </div> <div> <b>Coefficients</b>            D<sub>90</sub>= 0.4235    D<sub>85</sub>= 0.3967    D<sub>60</sub>= 0.3098            D<sub>50</sub>= 0.2832    D<sub>30</sub>= 0.2326    D<sub>15</sub>= 0.1903            D<sub>10</sub>= 0.1729    C<sub>u</sub>= 1.79      C<sub>c</sub>= 1.01         </div> <div> <b>Classification</b>            USCS= SP      AASHTO=         </div> <div> <b>Remarks</b> </div> </div>		

Location: BI-PB-209-12 E  
Sample Number: 6482 (18)

Depth: 7.2'

Date: 12/12/12

**Thompson Engineering**

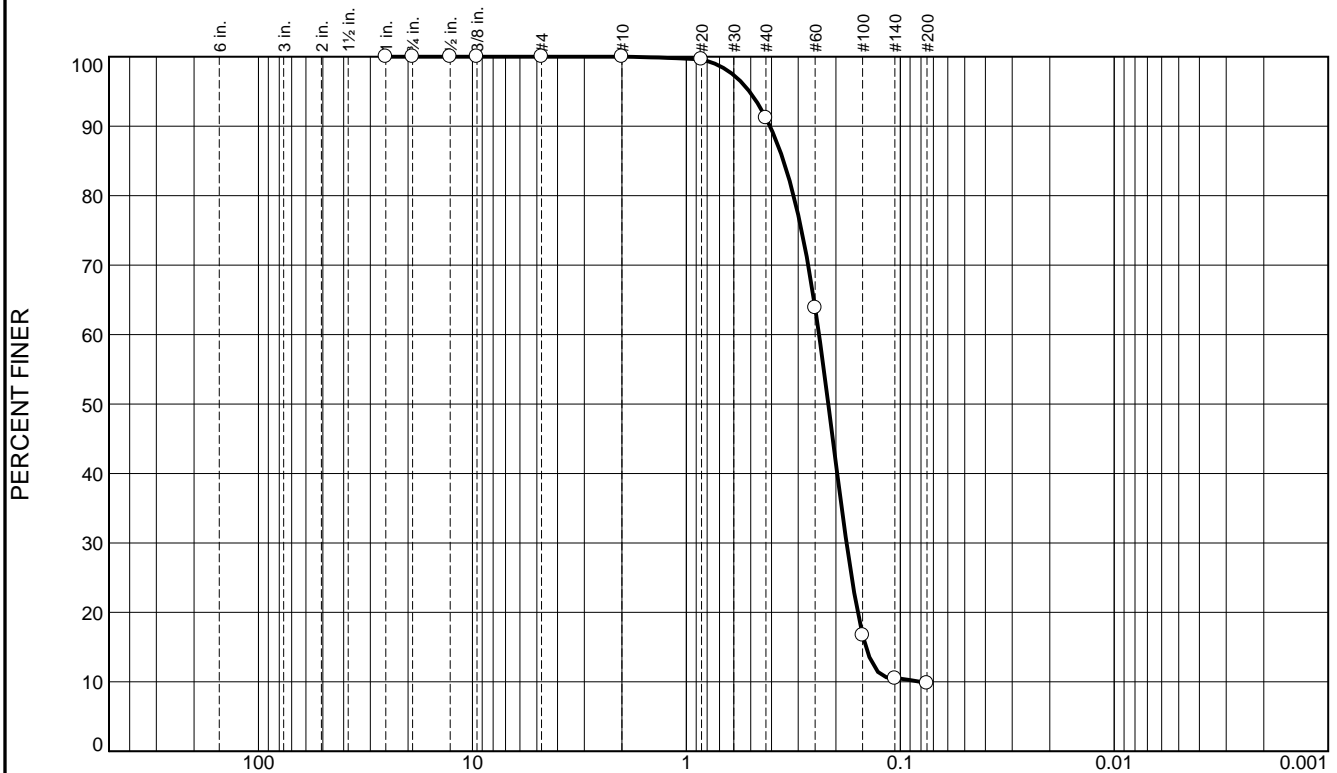
**Mobile, Alabama**

Client: CDM/Thompson Engineering JV  
Project: MsCIP Barrier Island Restoration GT

Project No: 1221110095

Figure

# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.0	0.0	8.8	81.4	9.8	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
1	100.0		
.75	100.0		
.5	100.0		
.375	100.0		
#4	100.0		
#10	100.0		
#20	99.6		
#40	91.2		
#60	63.9		
#100	16.7		
#140	10.5		
#200	9.8		

\* (no specification provided)

## Material Description

Fine grained, SLIGHTLY SILTY SAND

## Atterberg Limits

PL= LL= PI=

## Coefficients

D<sub>90</sub>= 0.4067 D<sub>85</sub>= 0.3513 D<sub>60</sub>= 0.2397  
D<sub>50</sub>= 0.2170 D<sub>30</sub>= 0.1785 D<sub>15</sub>= 0.1448  
D<sub>10</sub>= 0.0807 C<sub>u</sub>= 2.97 C<sub>c</sub>= 1.65

## Classification

USCS= SP-SM AASHTO=

## Remarks

Location: BI-PB-209-12 F  
Sample Number: 6482 (19)

Depth: 12.2'

Date: 12/12/12

**Thompson Engineering**

**Mobile, Alabama**

Client: CDM/Thompson Engineering JV  
Project: MsCIP Barrier Island Restoration GT

Project No: 1221110095

Figure

# Boring Designation BI-PB-210-12

DRILLING LOG		DIVISION South Atlantic		INSTALLATION Mobile District		SHEET 1 OF 1 SHEETS	
1. PROJECT MsCIP Barrier Island Restoration Petit Bois Pass- AL East				9. SIZE AND TYPE OF BIT N/A			
2. BORING DESIGNATION BI-PB-210-12		LOCATION COORDINATES E = 1,144,038 N = 253,052		10. COORDINATE SYSTEM/DATUM State Plane, MSE (U.S. Ft.)		HORIZONTAL NAD83	
3. DRILLING AGENCY Corps of Engineers - CESAM		CONTRACTOR FILE NO.		11. MANUFACTURER'S DESIGNATION OF DRILL Vibracore		<input type="checkbox"/> AUTO HAMMER <input type="checkbox"/> MANUAL HAMMER	
4. NAME OF DRILLER American Vibracore Systems, Inc.				12. TOTAL SAMPLES		DISTURBED 0	
5. DIRECTION OF BORING <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED		DEG. FROM VERTICAL		13. TOTAL NUMBER CORE BOXES			
		BEARING		14. WATER DEPTH 37.6 Ft.			
6. THICKNESS OF OVERBURDEN N/A				15. DATE BORING 12-11-12		COMPLETED 12-11-12	
7. DEPTH DRILLED INTO ROCK N/A				16. ELEVATION TOP OF BORING -37.2 Ft.			
8. TOTAL DEPTH OF BORING 15.3 Ft.				17. TOTAL RECOVERY FOR BORING 100%			
				18. SIGNATURE AND TITLE OF INSPECTOR Mike FitzHarris, Geologist			
ELEV.	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS	SAMPLE	LABORATORY RESULTS		
-37.2	0.0						
-38.6	1.4		SILT, inorganic-L, mostly silt, some clay, trace shell fragments, brownish gray (ML)				
			CLAY, fat, mostly clay, trace shell fragments, medium to high plasticity, stiff, greenish gray (CH)	NS			
-52.5	15.3						
			NOTES: 1. Soils are field visually classified in accordance with the Unified Soils Classification System. 2. NS = Sample not submitted for laboratory analysis from this interval. 3. Seafloor elevation calculated using sampling vessel's fathometer water depth reading and applying NOAA tidal gauge data conversion factor.				



**Project**

Mississippi Barrier Island  
Restoration Project

**AVS**  
**AMERICAN VIBRACORE**  
**S E R V I C E S**

**Core Identifier** BI-PB-210-12

**Date** 12/11/2012

**Water Depth** 37.6'

**Coordinate System**

Latitude / Longitude

**Start Time** 13:36:36

**End Time** 13:39:06

**Penetration** 20.0'

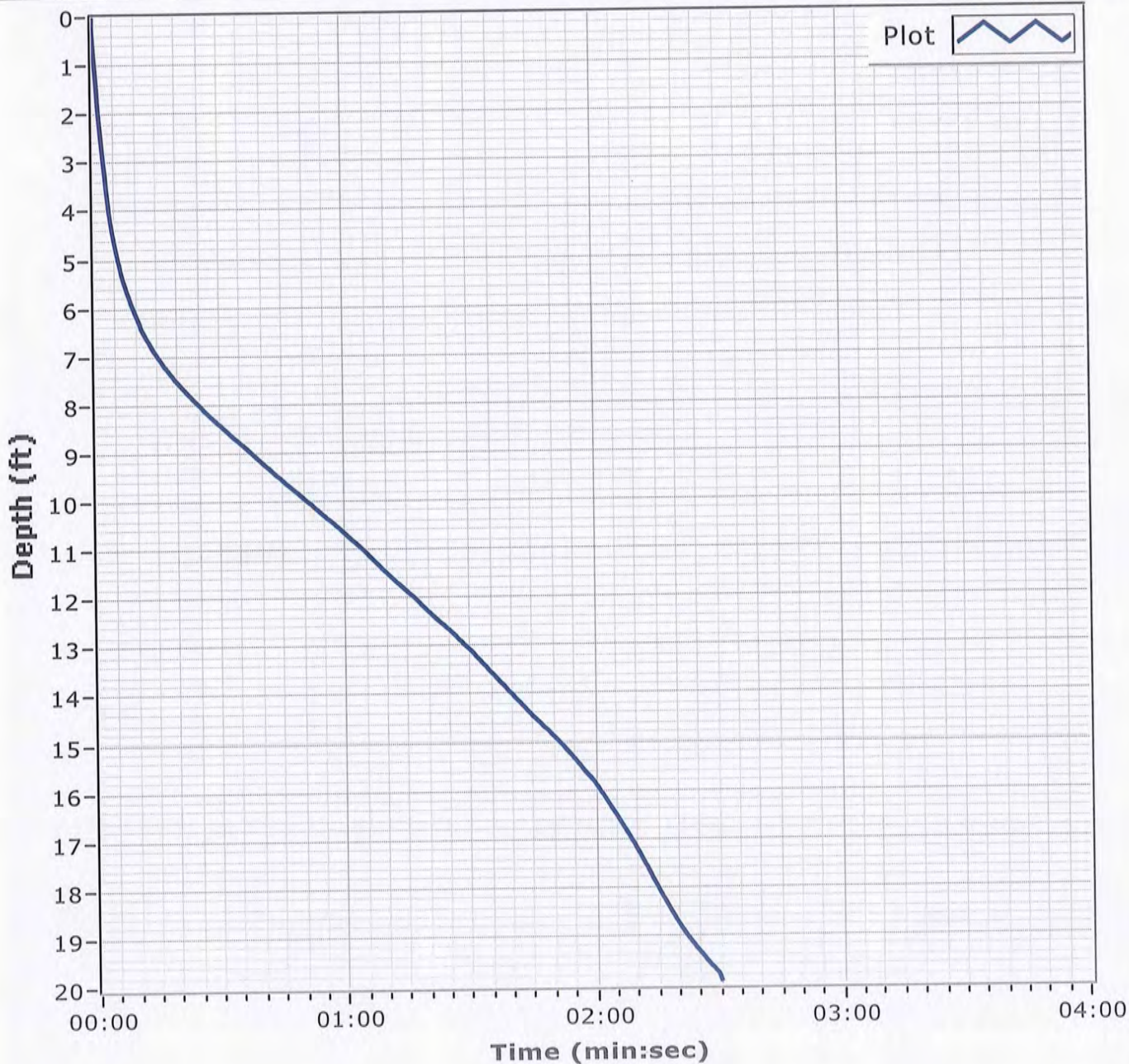
**Latitude** 33 11.692

**Total Time** 00:02:30

**Recovery** 15.3'

**Longitude** 088 19.653

**Comments**



# Boring Designation BI-PB-211-12

DRILLING LOG		DIVISION South Atlantic		INSTALLATION Mobile District		SHEET 1 OF 1 SHEETS	
1. PROJECT MsCIP Barrier Island Restoration Petit Bois Pass- AL East				9. SIZE AND TYPE OF BIT N/A			
2. BORING DESIGNATION BI-PB-211-12		LOCATION COORDINATES E = 1,149,570 N = 257,845		10. COORDINATE SYSTEM/DATUM State Plane, MSE (U.S. Ft.)		HORIZONTAL NAD83	
3. DRILLING AGENCY Corps of Engineers - CESAM		CONTRACTOR FILE NO.		11. MANUFACTURER'S DESIGNATION OF DRILL Vibracore		<input type="checkbox"/> AUTO HAMMER <input type="checkbox"/> MANUAL HAMMER	
4. NAME OF DRILLER American Vibracore Systems, Inc.				12. TOTAL SAMPLES		DISTURBED 0	
5. DIRECTION OF BORING <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED				13. TOTAL NUMBER CORE BOXES		14. WATER DEPTH 31.1 Ft.	
6. THICKNESS OF OVERBURDEN N/A				15. DATE BORING		STARTED 12-05-12	
7. DEPTH DRILLED INTO ROCK N/A				16. ELEVATION TOP OF BORING -30.8 Ft.		COMPLETED 12-05-12	
8. TOTAL DEPTH OF BORING 15.7 Ft.				17. TOTAL RECOVERY FOR BORING 100%			
				18. SIGNATURE AND TITLE OF INSPECTOR Mike FitzHarris, Geologist			
ELEV.	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS	SAMPLE	LABORATORY RESULTS		
-30.8	0.0						
-31.9	1.1		SAND, poorly-graded, mostly fine to medium-grained sand-sized quartz, trace silt, trace shell fragments, gray (SP)	A	Classification: SP Color: 2.5Y 7/2-light gray D50: 0.3143 mm % Fines: 3.2		
			CLAY, fat, mostly clay, trace fine-grained sand-sized quartz, high plasticity, stiff, gray mottled with brownish orange, and greenish gray (CH)	NS			
-35.9	5.1						
-38.0	7.2		SAND, poorly-graded with clay, mostly fine-grained sand-sized quartz, few clay, trace silt, gray mottled with brownish orange, and greenish gray (SP-SC)	B	Classification: SP Color: 2.5Y 6/6-olive yellow D50: 0.3494 mm % Fines: 0.3		
			SAND, poorly-graded, mostly fine to medium-grained sand-sized quartz, trace shell fragments, trace clay stringers, dense, lt. gray grading to gray (SP)	C	Classification: SP Color: 2.5Y 7.5/2- D50: 0.3471 mm % Fines: 3.6		
-42.9	12.1						
-44.3	13.5		SAND, clayey, mostly fine-grained sand-sized quartz, some clay, gray (SC)	NS			
-46.5	15.7		SAND, poorly-graded, mostly fine-grained sand-sized quartz, trace silt, trace clay, very dense, gray (SP)				
NOTES: 1. Soils are field visually classified in accordance with the Unified Soils Classification System. 2. NS = Sample not submitted for laboratory analysis from this interval. 3. Sand was very dense. Stopped vibracore machine after 5 minutes due to lack of penetration. 4. Seafloor elevation calculated using sampling vessel's fathometer water depth reading and applying NOAA tidal gauge data conversion factor.							



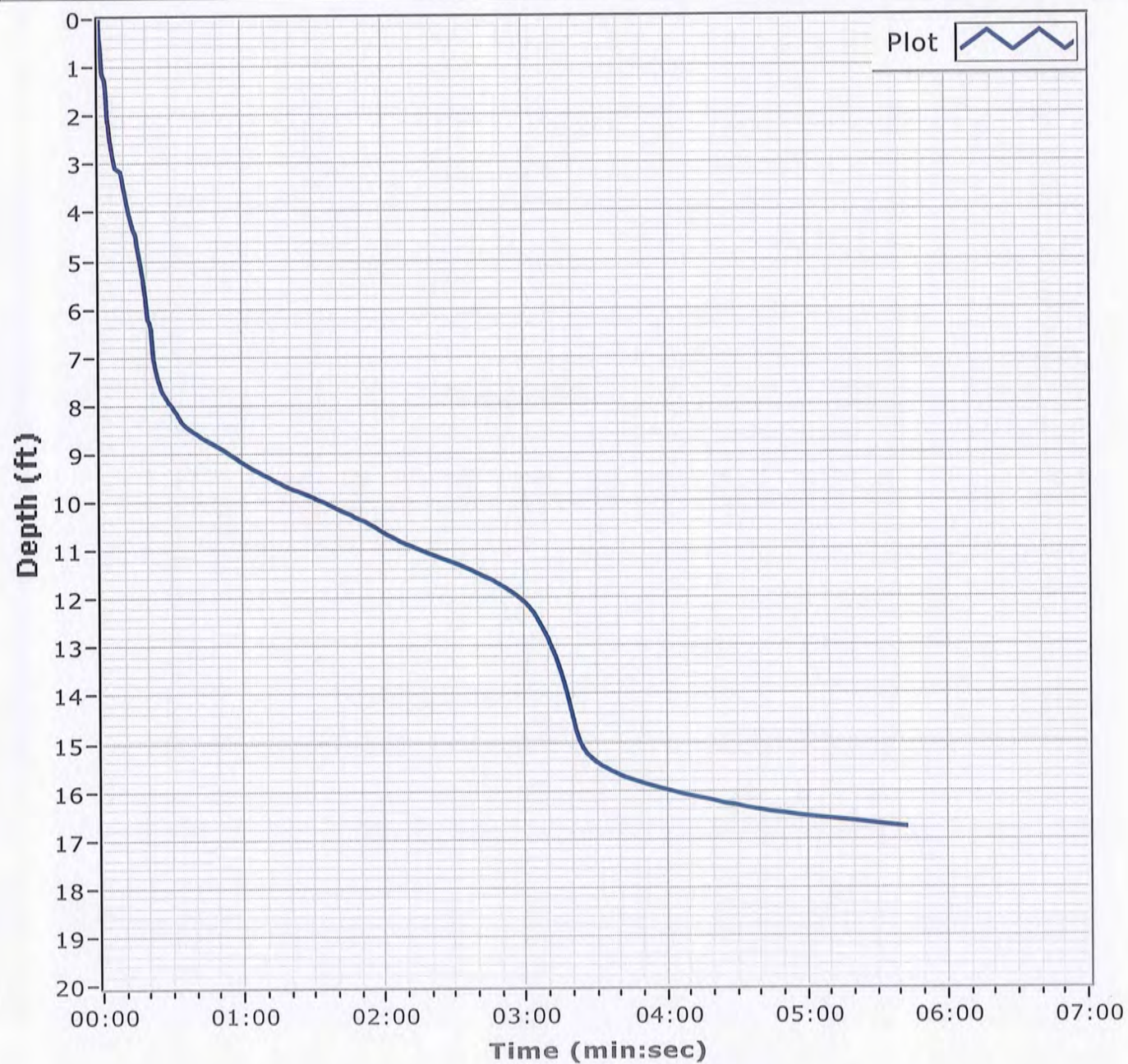
**Project**

Mississippi Barrier Island  
Restoration Project

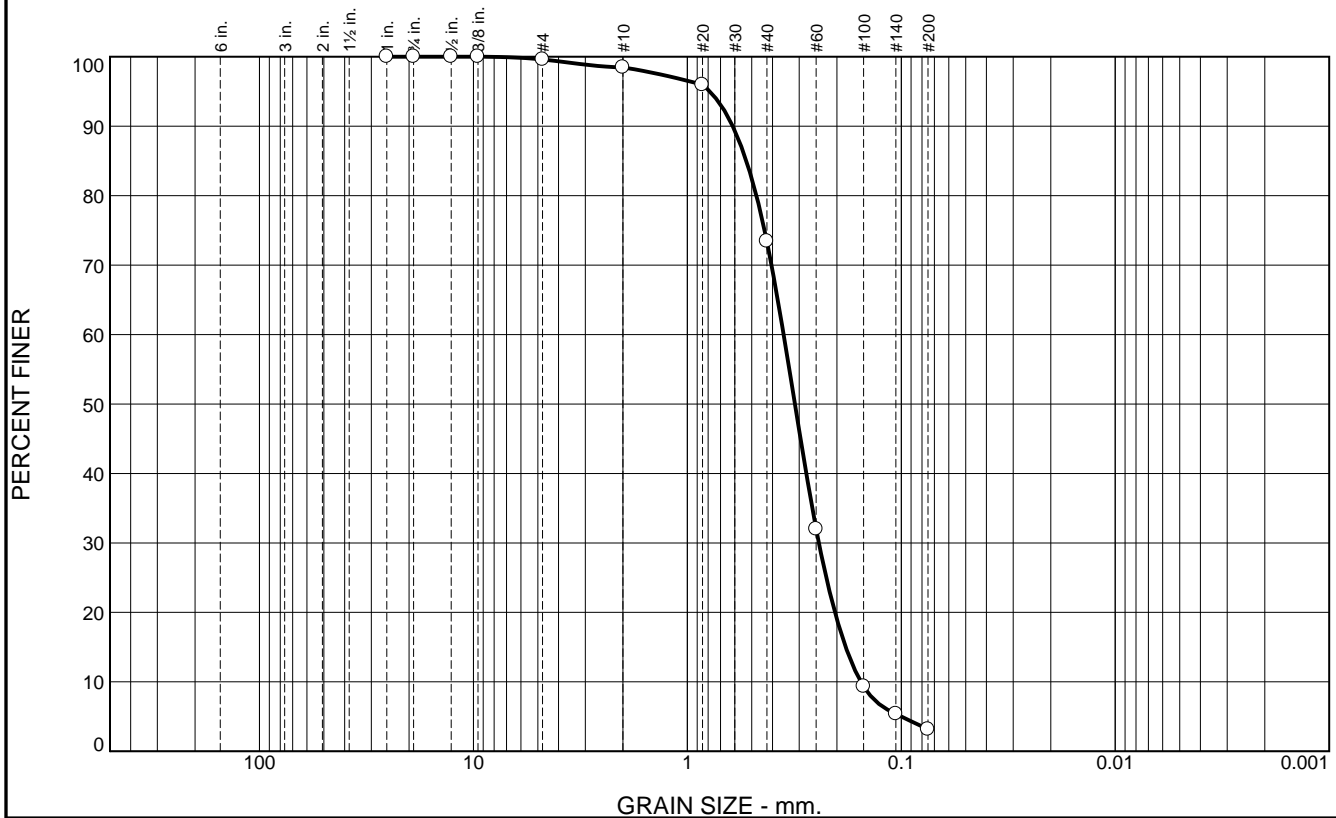
**AVS**  
**AMERICAN VIBRACORE**  
**S E R V I C E S**

**Core Identifier** BI-PB-211-12**Date** 12/05/2012**Water Depth** 31.1'**Coordinate System**

Latitude / Longitude

**Start Time** 11:40:23**End Time** 11:46:06**Penetration** 16.8'**Latitude** 30 12.479**Total Time** 00:05:43**Recovery** 15.7'**Longitude** 088 18.598**Comments**

# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.4	1.1	25.1	70.2	3.2	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
1	100.0		
.75	100.0		
.5	100.0		
.375	100.0		
#4	99.6		
#10	98.5		
#20	96.0		
#40	73.4		
#60	32.0		
#100	9.3		
#140	5.4		
#200	3.2		

<u><b>Material Description</b></u>		
Fine to medium grained, SAND		
<u><b>Atterberg Limits</b></u>		
PL=	LL=	PI=
<u><b>Coefficients</b></u>		
D <sub>90</sub> = 0.6135	D <sub>85</sub> = 0.5300	D <sub>60</sub> = 0.3548
D <sub>50</sub> = 0.3143	D <sub>30</sub> = 0.2428	D <sub>15</sub> = 0.1820
D <sub>10</sub> = 0.1546	C <sub>u</sub> = 2.29	C <sub>c</sub> = 1.07
<u><b>Classification</b></u>		
USCS= SP	AASHTO=	
<u><b>Remarks</b></u>		

\* (no specification provided)

Location: BI-PB-211-12 A  
Sample Number: 6480 (50)

Depth: 0.0'

Date: 12/07/12

**Thompson Engineering**

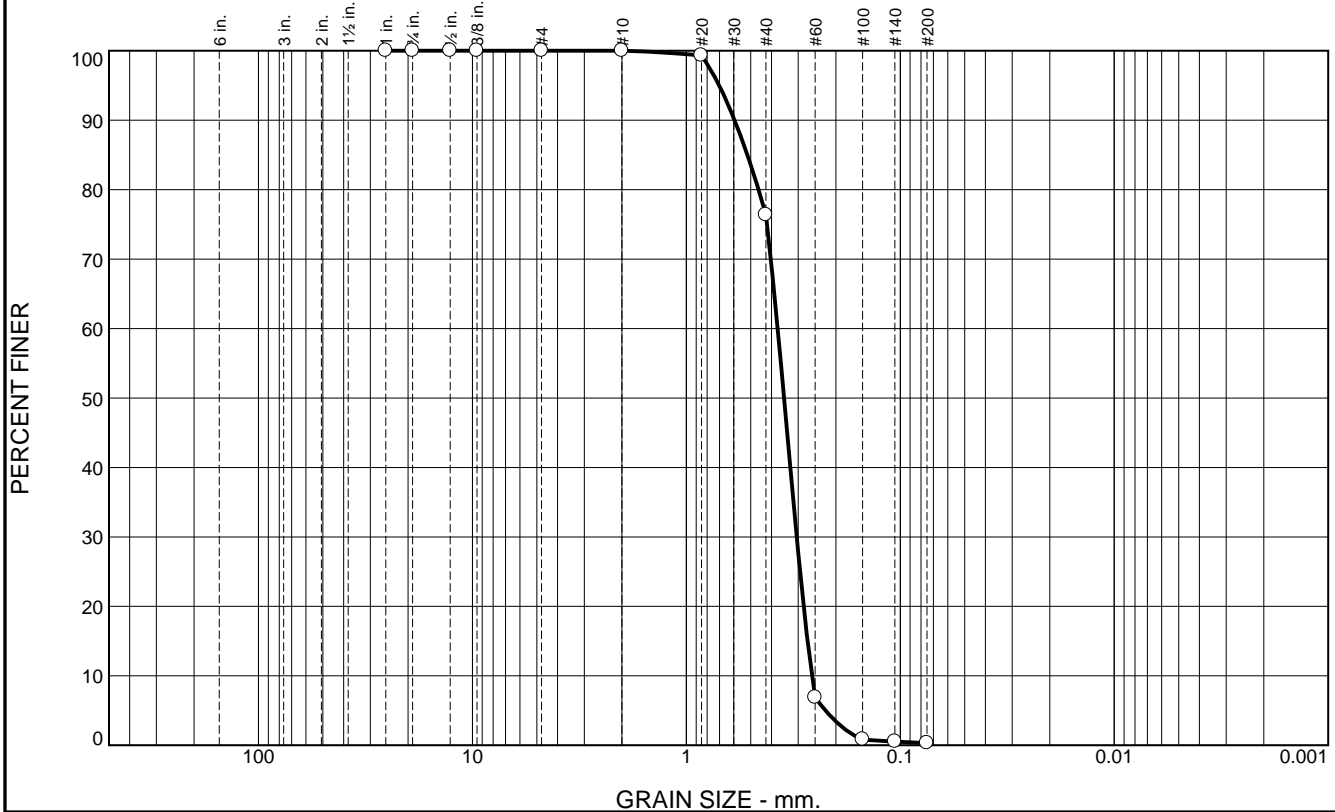
**Mobile, Alabama**

Client: CDM/Thompson Engineering JV  
Project: MsCIP Barrier Island Restoration GT

Project No: 1221110095

Figure

# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.0	0.0	23.6	76.1	0.3	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
1	100.0		
.75	100.0		
.5	100.0		
.375	100.0		
#4	100.0		
#10	100.0		
#20	99.3		
#40	76.4		
#60	6.9		
#100	0.8		
#140	0.5		
#200	0.3		

\* (no specification provided)

<u><b>Material Description</b></u>		
Fine to medium grained, SAND		
<u><b>Atterberg Limits</b></u>		
PL=	LL=	PI=
<u><b>Coefficients</b></u>		
D <sub>90</sub> = 0.5949	D <sub>85</sub> = 0.5186	D <sub>60</sub> = 0.3741
D <sub>50</sub> = 0.3494	D <sub>30</sub> = 0.3051	D <sub>15</sub> = 0.2716
D <sub>10</sub> = 0.2589	C <sub>u</sub> = 1.44	C <sub>c</sub> = 0.96
<u><b>Classification</b></u>		
USCS= SP	AASHTO=	
<u><b>Remarks</b></u>		

Location: BI-PB-211-12 B  
Sample Number: 6480 (51)

Depth: 5.1'

Date: 12/07/12

**Thompson Engineering**

**Mobile, Alabama**

Client: CDM/Thompson Engineering JV  
Project: MsCIP Barrier Island Restoration GT

Project No: 1221110095

Figure

# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.0	0.0	24.8	71.6	3.6	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
1	100.0		
.75	100.0		
.5	100.0		
.375	100.0		
#4	100.0		
#10	100.0		
#20	98.7		
#40	75.2		
#60	11.2		
#100	4.0		
#140	3.7		
#200	3.6		

\* (no specification provided)

<u><b>Material Description</b></u>		
Fine to medium grained, SAND		
<u><b>Atterberg Limits</b></u>		
PL=	LL=	PI=
<u><b>Coefficients</b></u>		
D <sub>90</sub> = 0.5163	D <sub>85</sub> = 0.4761	D <sub>60</sub> = 0.3739
D <sub>50</sub> = 0.3471	D <sub>30</sub> = 0.2990	D <sub>15</sub> = 0.2614
D <sub>10</sub> = 0.2361	C <sub>u</sub> = 1.58	C <sub>c</sub> = 1.01
<u><b>Classification</b></u>		
USCS= SP	AASHTO=	
<u><b>Remarks</b></u>		

Location: BI-PB-211-12 C  
Sample Number: 6480 (52)

Depth: 7.2'

Date: 12/07/12

**Thompson Engineering**

**Mobile, Alabama**

Client: CDM/Thompson Engineering JV  
Project: MsCIP Barrier Island Restoration GT

Project No: 1221110095

Figure

# Boring Designation BI-PB-212-12

DRILLING LOG		DIVISION South Atlantic		INSTALLATION Mobile District		SHEET 1 OF 1 SHEETS	
1. PROJECT MsCIP Barrier Island Restoration Petit Bois Pass- AL East				9. SIZE AND TYPE OF BIT N/A			
2. BORING DESIGNATION BI-PB-212-12		LOCATION COORDINATES E = 1,148,461 N = 257,895		10. COORDINATE SYSTEM/DATUM State Plane, MSE (U.S. Ft.)		HORIZONTAL NAD83 VERTICAL NAVD88	
3. DRILLING AGENCY Corps of Engineers - CESAM		CONTRACTOR FILE NO.		11. MANUFACTURER'S DESIGNATION OF DRILL Vibracore		<input type="checkbox"/> AUTO HAMMER <input type="checkbox"/> MANUAL HAMMER	
4. NAME OF DRILLER American Vibracore Systems, Inc.				12. TOTAL SAMPLES		DISTURBED UNDISTURBED (UD) 0	
5. DIRECTION OF BORING <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED				13. TOTAL NUMBER CORE BOXES		14. WATER DEPTH 26.4 Ft.	
6. THICKNESS OF OVERBURDEN N/A				15. DATE BORING		STARTED 12-05-12 COMPLETED 12-05-12	
7. DEPTH DRILLED INTO ROCK N/A				16. ELEVATION TOP OF BORING -26.1 Ft.		17. TOTAL RECOVERY FOR BORING 100%	
8. TOTAL DEPTH OF BORING 14.8 Ft.				18. SIGNATURE AND TITLE OF INSPECTOR Mike FitzHarris, Geologist			

ELEV.	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS	SAMPLE	LABORATORY RESULTS
-26.1	0.0				
-28.8	2.7		SAND, poorly-graded, mostly fine to medium-grained sand-sized quartz, trace silt, trace shell fragments, lt. gray (SP)	A	Classification: SP Color: 2.5Y 7/2-light gray D50: 0.3025 mm % Fines: 2
-30.9	4.8		CLAY, lean, mostly clay, some silt, some fine-grained sand-sized quartz, gray (CL)	NS	
-32.6	6.5		SILT, inorganic-L, mostly silt, trace clay, brownish gray (ML)		
-34.1	8.0		SAND, silty, mostly fine-grained sand-sized quartz, some silt, trace clay, brown (SM)		
-39.7	13.6		CLAY, fat, mostly clay, trace wood debris, some silt at 9.8-10.6 ft., medium to high plasticity, brown mottled with orange and gray (CH)		
-40.9	14.8		SAND, poorly-graded, mostly fine to medium-grained sand-sized quartz, trace silt, gray (SP)		
NOTES: 1. Soils are field visually classified in accordance with the Unified Soils Classification System. 2. NS = Sample not submitted for laboratory analysis from this interval. 3. Seafloor elevation calculated using sampling vessel's fathometer water depth reading and applying NOAA tidal gauge data conversion factor.					



**Project**

Mississippi Barrier Island  
Restoration Project

**AVS**  
**AMERICAN VIBRACORE**  
**S E R V I C E S**

**Core Identifier** BI-PB-212-12

**Date** 12/05/2012

**Water Depth** 26.4'

**Coordinate System**

Latitude / Longitude

**Start Time** 10:54:32

**End Time** 10:56:54

**Penetration** 19.5'

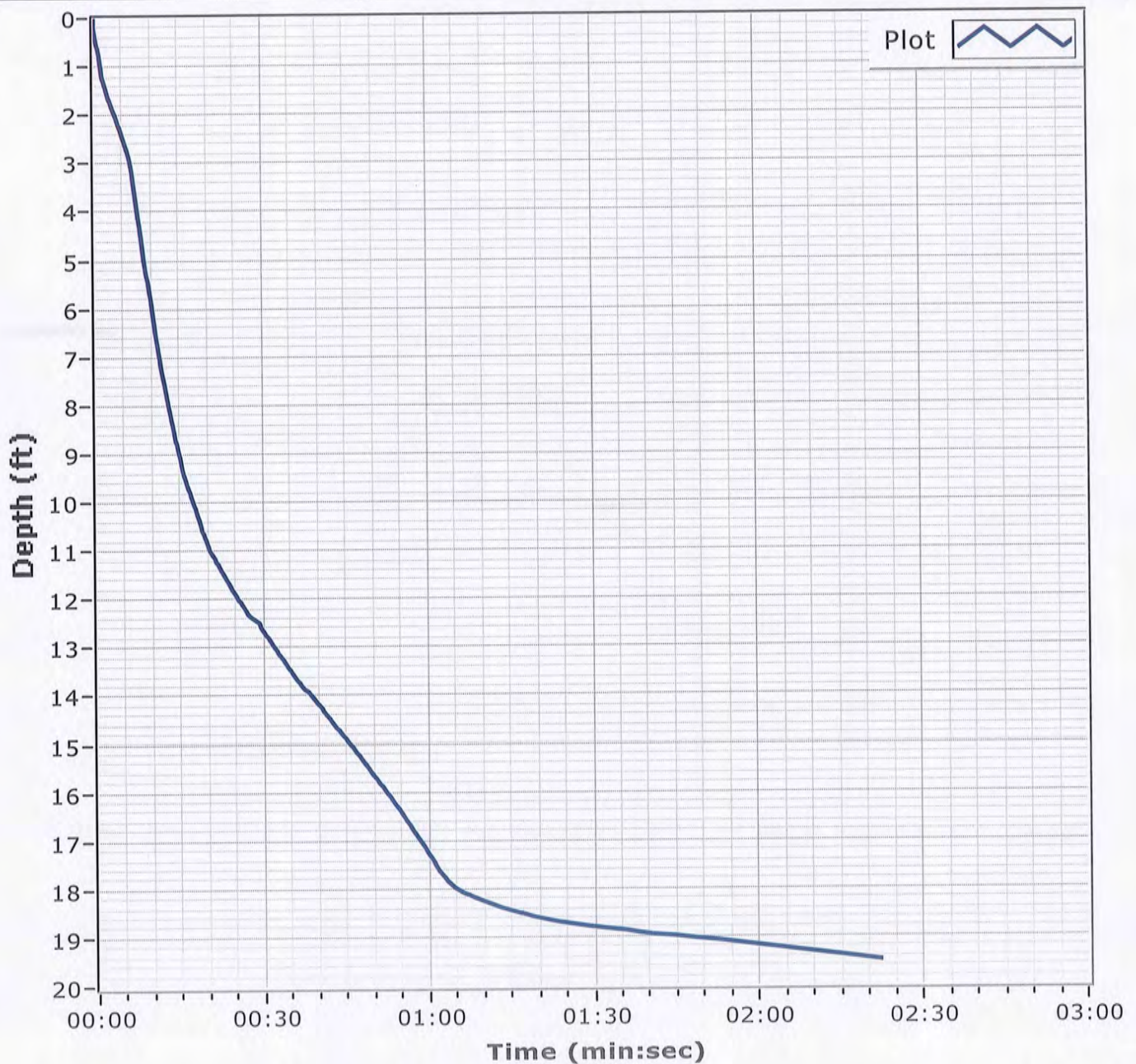
**Latitude** 30 12.488

**Total Time** 00:02:22

**Recovery** 14.8'

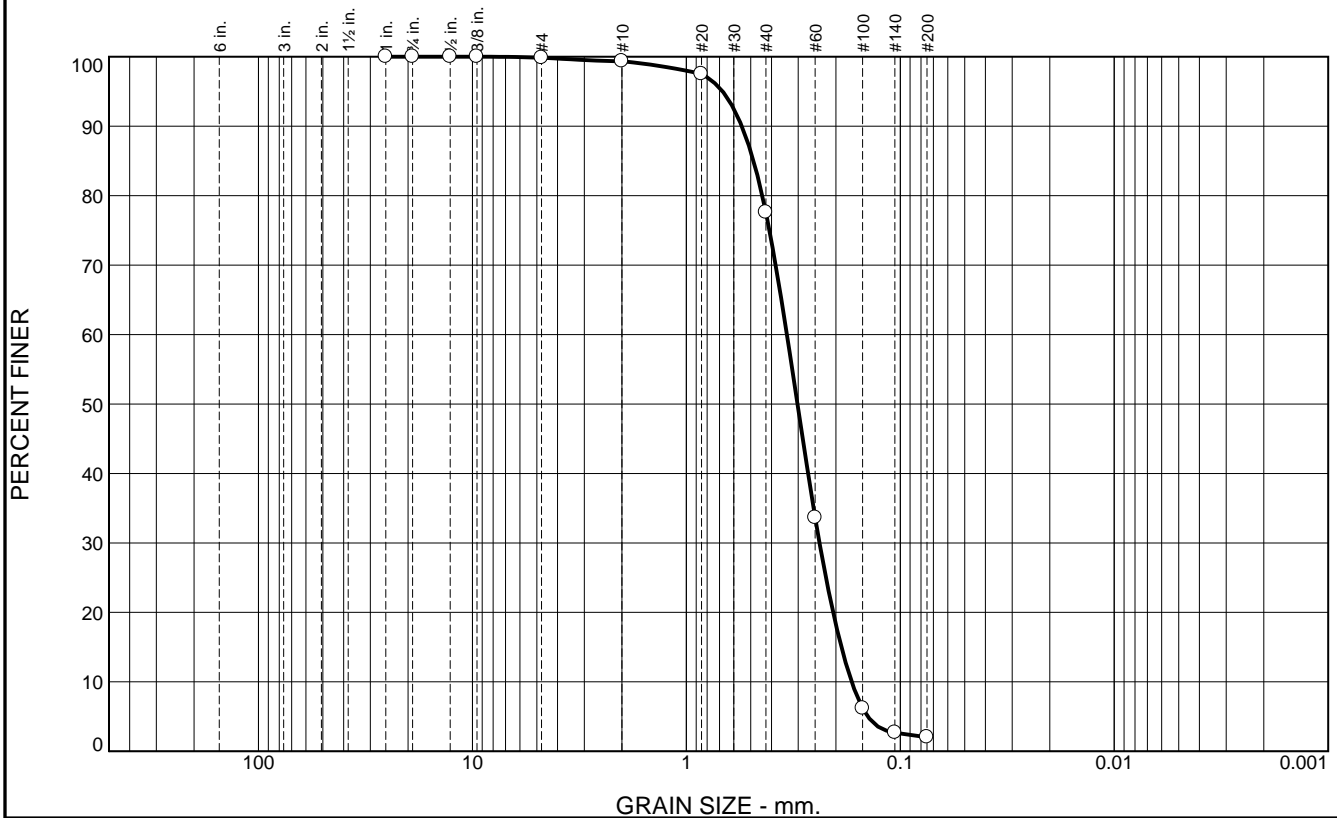
**Longitude** 088 18.809

**Comments**





# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.2	0.4	21.8	75.6	2.0	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
1	100.0		
.75	100.0		
.5	100.0		
.375	100.0		
#4	99.8		
#10	99.4		
#20	97.5		
#40	77.6		
#60	33.7		
#100	6.2		
#140	2.7		
#200	2.0		

\* (no specification provided)

## Material Description

Fine to medium grained, SAND

## Atterberg Limits

PL= LL= PI=

## Coefficients

D<sub>90</sub>= 0.5505 D<sub>85</sub>= 0.4855 D<sub>60</sub>= 0.3388  
D<sub>50</sub>= 0.3025 D<sub>30</sub>= 0.2385 D<sub>15</sub>= 0.1886  
D<sub>10</sub>= 0.1689 C<sub>u</sub>= 2.01 C<sub>c</sub>= 0.99

## Classification

USCS= SP AASHTO=

## Remarks

Location: BI-PB-212-12 A  
Sample Number: 6480 (53)

Depth: 0.0'

Date: 12/07/12

**Thompson Engineering**

**Mobile, Alabama**

Client: CDM/Thompson Engineering JV  
Project: MsCIP Barrier Island Restoration GT

Project No: 1221110095

Figure

# Boring Designation BI-PB-213-12

DRILLING LOG		DIVISION South Atlantic		INSTALLATION Mobile District		SHEET 1 OF 1 SHEETS	
1. PROJECT MsCIP Barrier Island Restoration Petit Bois Pass- AL East				9. SIZE AND TYPE OF BIT N/A			
2. BORING DESIGNATION BI-PB-213-12		LOCATION COORDINATES E = 1,148,564 N = 256,692		10. COORDINATE SYSTEM/DATUM State Plane, MSE (U.S. Ft.)		HORIZONTAL NAD83	
3. DRILLING AGENCY Corps of Engineers - CESAM		CONTRACTOR FILE NO.		11. MANUFACTURER'S DESIGNATION OF DRILL Vibracore		<input type="checkbox"/> AUTO HAMMER <input type="checkbox"/> MANUAL HAMMER	
4. NAME OF DRILLER American Vibracore Systems, Inc.				12. TOTAL SAMPLES		DISTURBED 0	
5. DIRECTION OF BORING <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED				13. TOTAL NUMBER CORE BOXES		14. WATER DEPTH 29.4 Ft.	
6. THICKNESS OF OVERBURDEN N/A				15. DATE BORING		STARTED 12-06-12	
7. DEPTH DRILLED INTO ROCK N/A				16. ELEVATION TOP OF BORING -28.1 Ft.		COMPLETED 12-06-12	
8. TOTAL DEPTH OF BORING 7.7 Ft.				17. TOTAL RECOVERY FOR BORING 100%		18. SIGNATURE AND TITLE OF INSPECTOR Mike FitzHarris, Geologist	
ELEV.	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS	SAMPLE	LABORATORY RESULTS		
-28.1	0.0						
-32.4	4.3		SAND, poorly-graded with silt, mostly fine to medium-grained sand-sized quartz, few silt, trace shell fragments, lt. pale brown (SP-SM)	A	Classification: SP Color: 2.5Y 7/2-light gray D50: 0.3127 mm % Fines: 2.2		
-35.8	7.7		SAND, poorly-graded, mostly fine-grained sand-sized quartz, trace silt, very dense, lt. gray to white (SP)	B	Classification: SP Color: 2.5Y 8/1-white D50: 0.3014 mm % Fines: 2.4		
NOTES: 1. Soils are field visually classified in accordance with the Unified Soils Classification System. 2. NS = Sample not submitted for laboratory analysis from this interval. 3. Very dense sand prevented the vibracore from penetrating deeper than 7.7 ft. 4. Seafloor elevation determined from 2010 USACE survey.							

# Project

Mississippi Barrier Island  
Restoration Project

**AVS**  
**AMERICAN VIBRACORE**  
**S E R V I C E S**

Core Identifier BI-PB-213-12

Date 12/06/2012

Water Depth 29.4'

## Coordinate System

Latitude / Longitude

Start Time 14:18:46

End Time 14:23:16

Penetration 8.7'

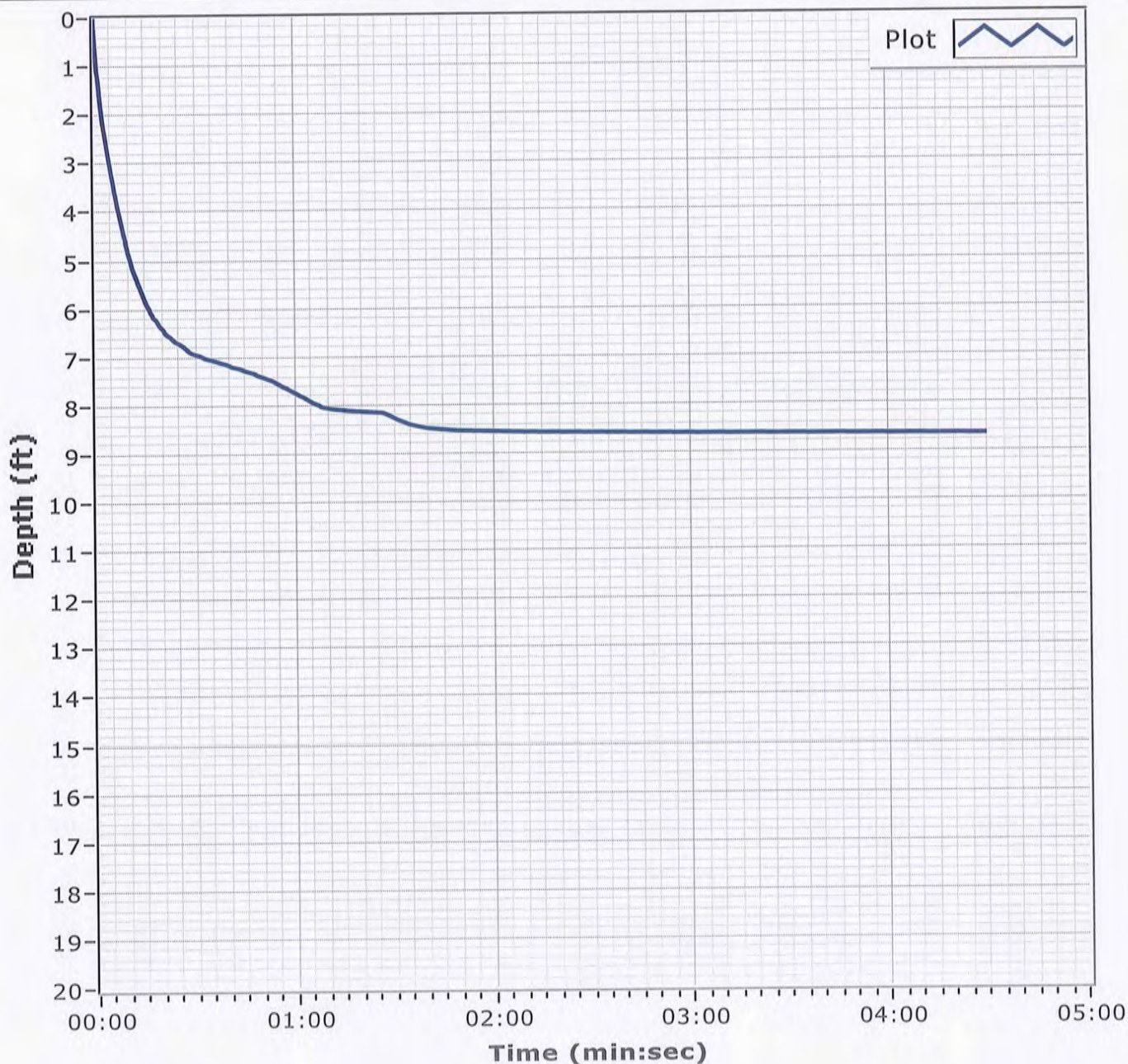
Latitude 30 12.289

Total Time 00:04:30

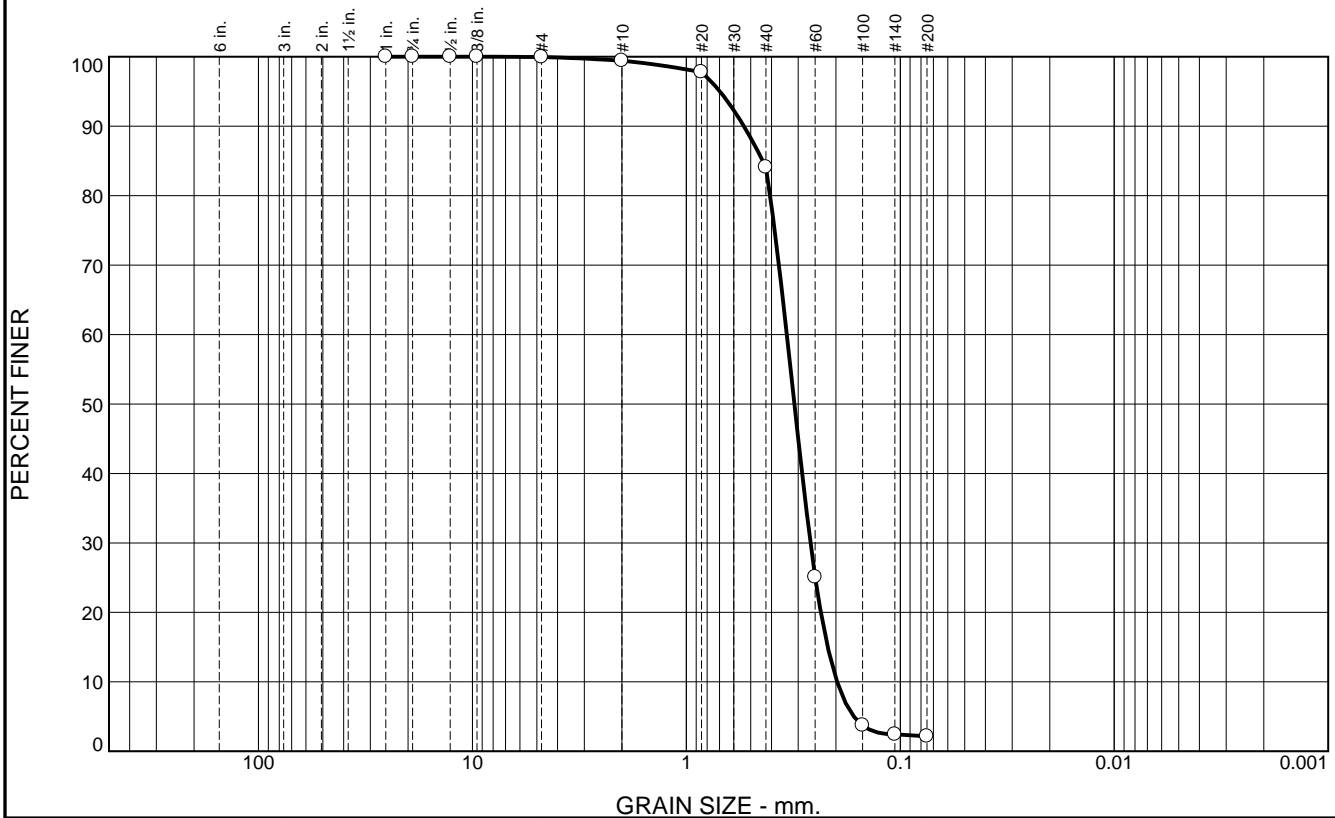
Recovery 7.7'

Longitude 088 18.790

## Comments



# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.1	0.5	15.3	81.9	2.2	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
1	100.0		
.75	100.0		
.5	100.0		
.375	100.0		
#4	99.9		
#10	99.4		
#20	97.8		
#40	84.1		
#60	25.1		
#100	3.7		
#140	2.4		
#200	2.2		

\* (no specification provided)

<u><b>Material Description</b></u>		
Fine to medium grained, SAND		
<u><b>Atterberg Limits</b></u>		
PL=	LL=	PI=
<u><b>Coefficients</b></u>		
D <sub>90</sub> = 0.5385	D <sub>85</sub> = 0.4395	D <sub>60</sub> = 0.3392
D <sub>50</sub> = 0.3127	D <sub>30</sub> = 0.2630	D <sub>15</sub> = 0.2183
D <sub>10</sub> = 0.1974	C <sub>u</sub> = 1.72	C <sub>c</sub> = 1.03
<u><b>Classification</b></u>		
USCS= SP	AASHTO=	
<u><b>Remarks</b></u>		

Location: BI-PB-213-12 A  
Sample Number: 6480 (54)

Depth: 0.0'

Date: 12/07/12

**Thompson Engineering**

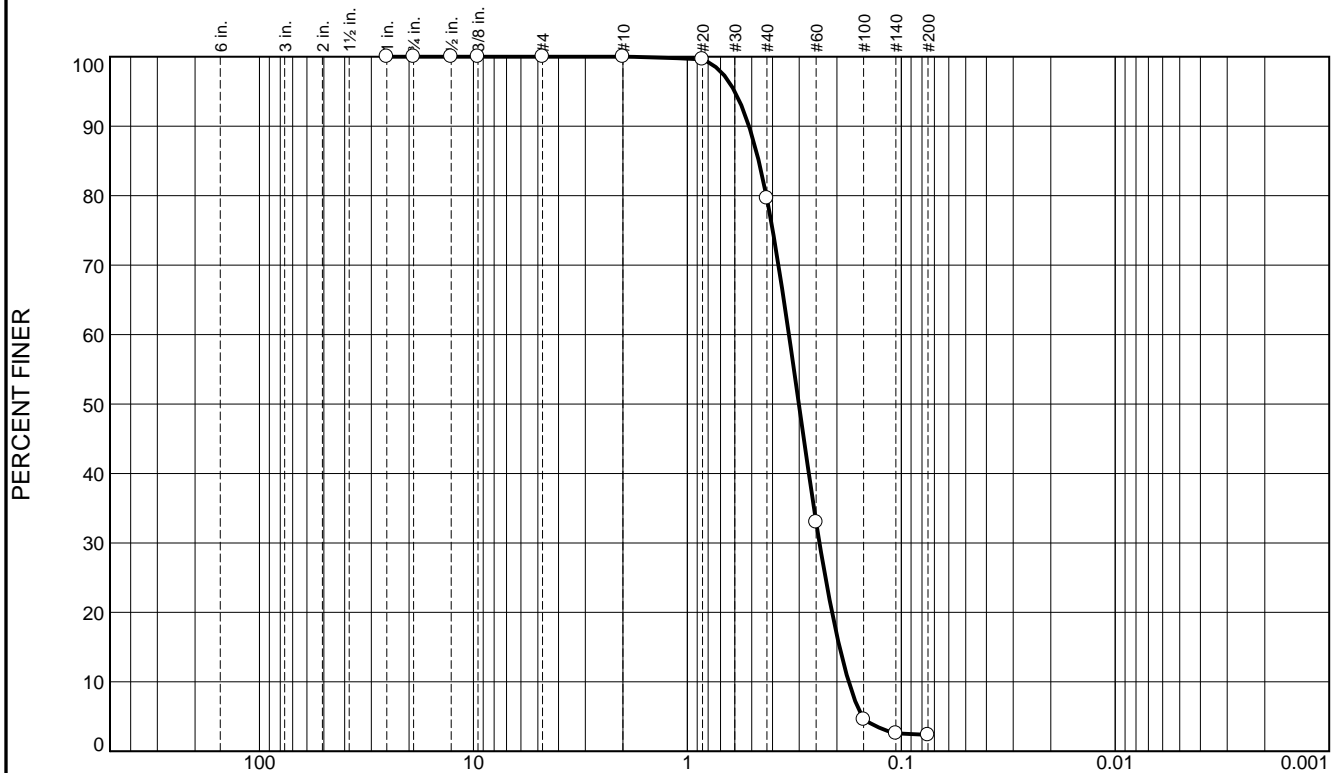
**Mobile, Alabama**

Client: CDM/Thompson Engineering JV  
Project: MsCIP Barrier Island Restoration GT

Project No: 1221110095

Figure

# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.0	0.0	20.4	77.2	2.4	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
1	100.0		
.75	100.0		
.5	100.0		
.375	100.0		
#4	100.0		
#10	100.0		
#20	99.6		
#40	79.6		
#60	33.0		
#100	4.6		
#140	2.6		
#200	2.4		

\* (no specification provided)

## Material Description

Fine to medium grained, SAND

## Atterberg Limits

PL= LL= PI=

## Coefficients

D<sub>90</sub>= 0.5150 D<sub>85</sub>= 0.4639 D<sub>60</sub>= 0.3352  
D<sub>50</sub>= 0.3014 D<sub>30</sub>= 0.2412 D<sub>15</sub>= 0.1944  
D<sub>10</sub>= 0.1762 C<sub>u</sub>= 1.90 C<sub>c</sub>= 0.98

## Classification

USCS= SP AASHTO=

## Remarks

Location: BI-PB-213-12 B  
Sample Number: 6480 (55)

Depth: 4.3'

Date: 12/07/12

**Thompson Engineering**

**Mobile, Alabama**

Client: CDM/Thompson Engineering JV  
Project: MsCIP Barrier Island Restoration GT

Project No: 1221110095

Figure

# Boring Designation BI-PB-214-12

DRILLING LOG		DIVISION South Atlantic		INSTALLATION Mobile District		SHEET 1 OF 1 SHEETS	
1. PROJECT MsCIP Barrier Island Restoration Petit Bois Pass- AL East				9. SIZE AND TYPE OF BIT N/A			
2. BORING DESIGNATION BI-PB-214-12		LOCATION COORDINATES E = 1,154,974 N = 252,102		10. COORDINATE SYSTEM/DATUM State Plane, MSE (U.S. Ft.)		HORIZONTAL NAD83 VERTICAL NAVD88	
3. DRILLING AGENCY Corps of Engineers - CESAM		CONTRACTOR FILE NO.		11. MANUFACTURER'S DESIGNATION OF DRILL Vibracore		<input type="checkbox"/> AUTO HAMMER <input type="checkbox"/> MANUAL HAMMER	
4. NAME OF DRILLER American Vibracore Systems, Inc.				12. TOTAL SAMPLES		DISTURBED UNDISTURBED (UD) 0	
5. DIRECTION OF BORING <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED		DEG. FROM VERTICAL		13. TOTAL NUMBER CORE BOXES			
		BEARING		14. WATER DEPTH 38.4 Ft.			
6. THICKNESS OF OVERBURDEN N/A				15. DATE BORING 12-19-12		COMPLETED 12-19-12	
7. DEPTH DRILLED INTO ROCK N/A				16. ELEVATION TOP OF BORING -38.2 Ft.			
8. TOTAL DEPTH OF BORING 15.8 Ft.				17. TOTAL RECOVERY FOR BORING 100%			
				18. SIGNATURE AND TITLE OF INSPECTOR Mike FitzHarris, Geologist			

ELEV.	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS	SAMPLE	LABORATORY RESULTS
-38.2	0.0				
-40.8	2.6		SAND, poorly-graded, mostly fine to medium-grained sand-sized quartz, trace fines, trace shell fragments, gray (SP)	A	Classification: SP Color: 5Y 7/2-light gray D50: 0.3065 mm % Fines: 1.3
-41.5	3.3		CLAY, fat, mostly clay, trace fine-grained sand-sized quartz, trace silt, soft, dark brownish gray (CH)	NS	
-43.6	5.4		SAND, poorly-graded with silt, mostly fine to medium-grained sand-sized quartz, few silt, trace clay, gray (SP-SM)	B	Classification: SP-SM Color: 5Y 6/2-light olive gray D50: 0.3526 mm % Fines: 6.3
			SAND, poorly-graded, mostly fine to medium-grained sand-sized quartz, trace fines, lt. gray to white (SP)	C	Classification: SP Color: 2.5Y 8/1-white D50: 0.3785 mm % Fines: 1.2
			At El. -48.6 Ft., mostly fine to medium-grained sand-sized quartz, trace fines, trace shell fragments, trace clayey stringers, gray to light gray	D	Classification: SP Color: 2.5Y 7/2-light gray D50: 0.3913 mm % Fines: 2
-54.0	15.8			NS	
NOTES:					
1. Soils are field visually classified in accordance with the Unified Soils Classification System.					
2. NS = Sample not submitted for laboratory analysis from this interval.					
3. Seafloor elevation calculated using sampling vessel's fathometer water depth reading and applying NOAA tidal gauge data conversion factor.					



# Project

Mississippi Barrier Island  
Restoration Project

**AVS**  
AMERICAN VIBRACORE  
SERVICES

Core Identifier BI-PB-214-12

Date 12/19/2012

Water Depth 38.4'

## Coordinate System

Latitude / Longitude

Start Time 11:33:32

End Time 11:39:24

Penetration 15.8'

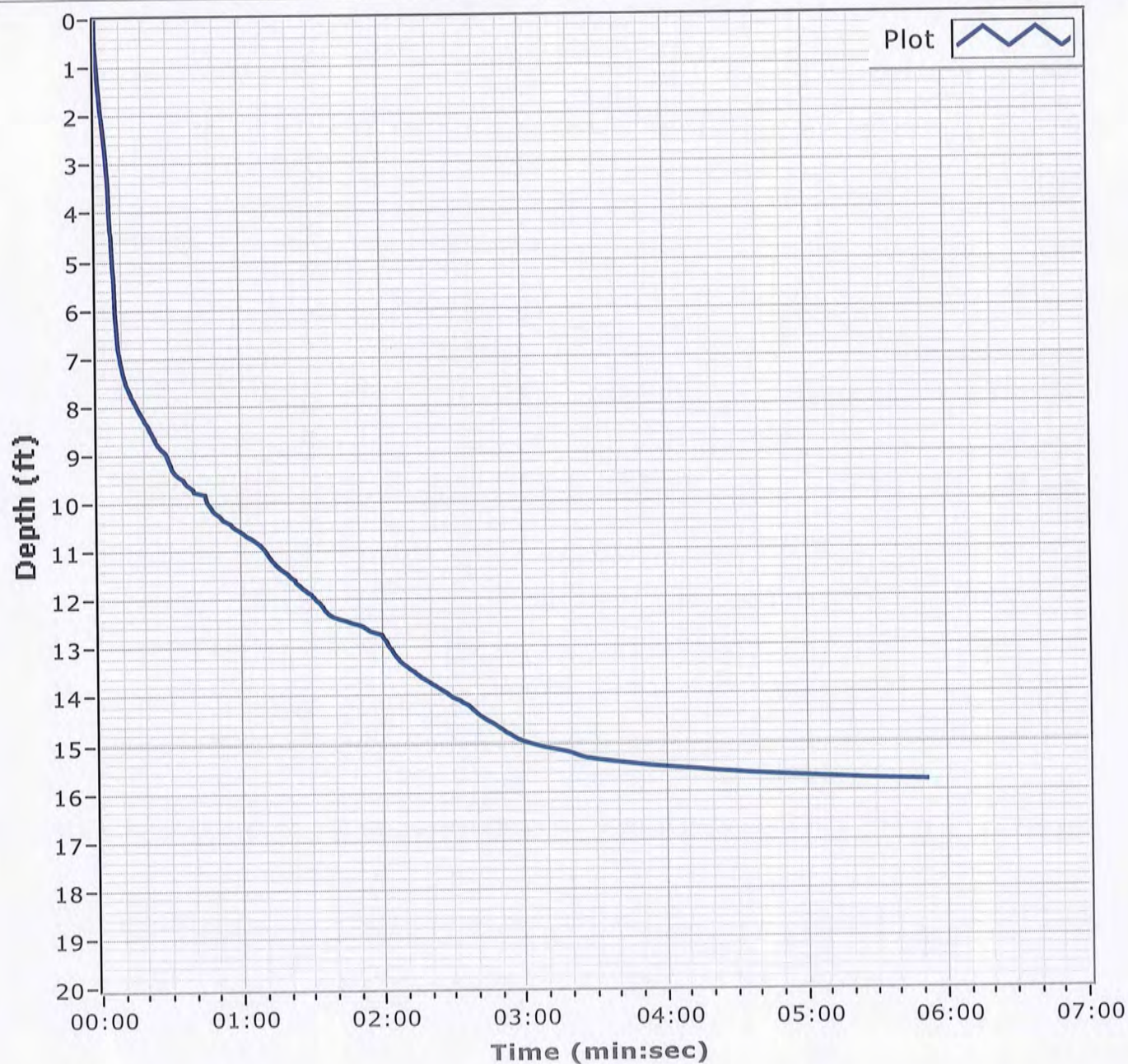
Latitude 30 11.527

Total Time 00:05:52

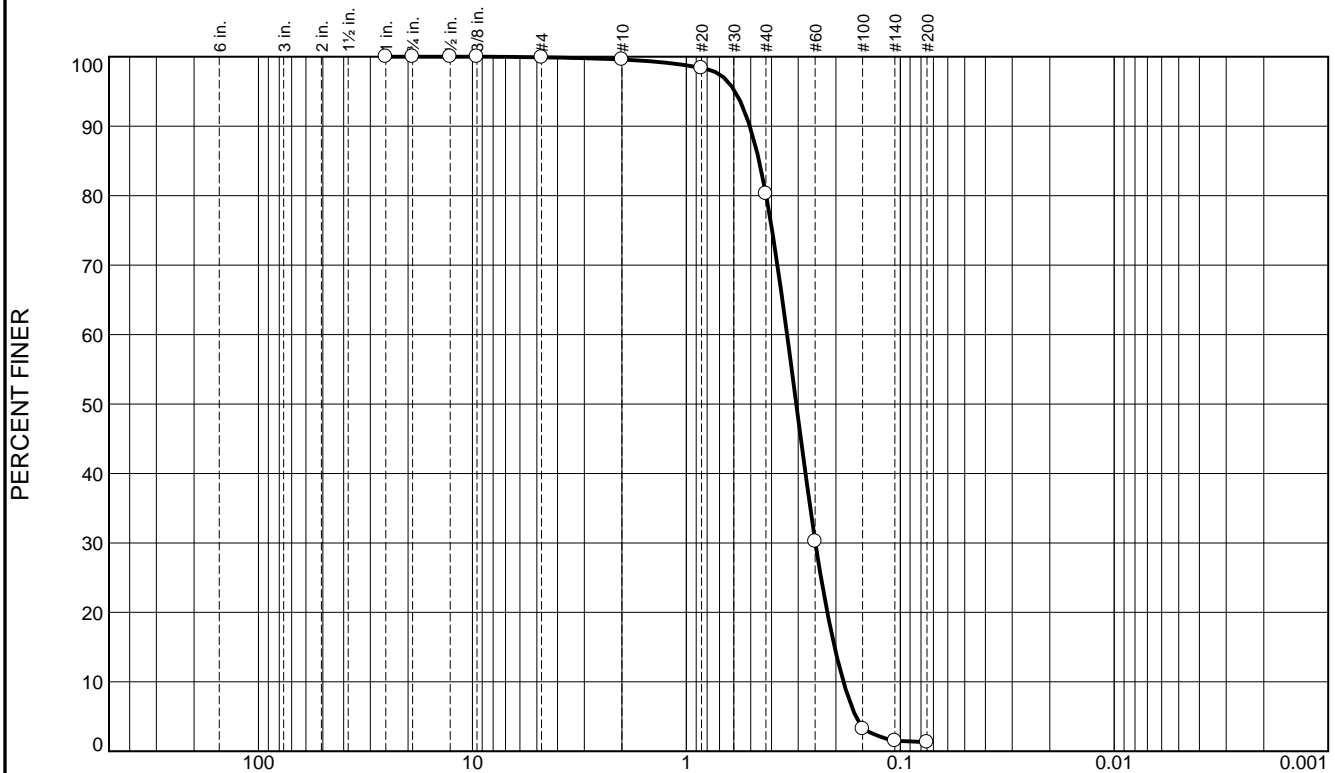
Recovery 13.8'

Longitude 88 17.577

## Comments



# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.1	0.3	19.3	79.0	1.3	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
1	100.0		
.75	100.0		
.5	100.0		
.375	100.0		
#4	99.9		
#10	99.6		
#20	98.4		
#40	80.3		
#60	30.2		
#100	3.2		
#140	1.5		
#200	1.3		

\* (no specification provided)

**Material Description**  
Fine to medium grained, SAND

**Atterberg Limits**  
 PL=      LL=      PI=

**Coefficients**  
 D<sub>90</sub>= 0.5051      D<sub>85</sub>= 0.4570      D<sub>60</sub>= 0.3382  
 D<sub>50</sub>= 0.3065      D<sub>30</sub>= 0.2493      D<sub>15</sub>= 0.2029  
 D<sub>10</sub>= 0.1845      C<sub>u</sub>= 1.83      C<sub>c</sub>= 1.00

**Classification**  
 USCS= SP      AASHTO=

**Remarks**

Location: BI-PB-214-12 A  
Sample Number: 6494 (85)

Depth: 0.0'

Date: 12/26/12

**Thompson Engineering**

**Mobile, Alabama**

Client: CDM/Thompson Engineering JV  
Project: MsCIP Barrier Island Restoration GT

Project No: 1221110095

Figure



# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.2	0.2	30.0	63.3	6.3	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
1	100.0		
.75	100.0		
.5	100.0		
.375	100.0		
#4	99.8		
#10	99.6		
#20	98.0		
#40	69.6		
#60	15.9		
#100	6.7		
#140	6.4		
#200	6.3		

\* (no specification provided)

## Material Description

Fine to medium grained, SLIGHTLY SILTY SAND

## Atterberg Limits

PL= LL= PI=

## Coefficients

D<sub>90</sub>= 0.5869 D<sub>85</sub>= 0.5266 D<sub>60</sub>= 0.3860  
D<sub>50</sub>= 0.3526 D<sub>30</sub>= 0.2942 D<sub>15</sub>= 0.2417  
D<sub>10</sub>= 0.1937 C<sub>u</sub>= 1.99 C<sub>c</sub>= 1.16

## Classification

USCS= SP-SM AASHTO=

## Remarks

Location: BI-PB-214-12 B  
Sample Number: 6494 (86)

Depth: 3.3'

Date: 12/26/12

**Thompson Engineering**

**Mobile, Alabama**

Client: CDM/Thompson Engineering JV  
Project: MsCIP Barrier Island Restoration GT

Project No: 1221110095

Figure

# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.0	0.0	37.5	61.3	1.2	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
1	100.0		
.75	100.0		
.5	100.0		
.375	100.0		
#4	100.0		
#10	100.0		
#20	99.1		
#40	62.5		
#60	8.2		
#100	1.3		
#140	1.2		
#200	1.2		

\* (no specification provided)

<u><b>Material Description</b></u>		
Fine to medium grained, SAND		
<u><b>Atterberg Limits</b></u>		
PL=	LL=	PI=
<u><b>Coefficients</b></u>		
D <sub>90</sub> = 0.6282	D <sub>85</sub> = 0.5691	D <sub>60</sub> = 0.4148
D <sub>50</sub> = 0.3785	D <sub>30</sub> = 0.3178	D <sub>15</sub> = 0.2737
D <sub>10</sub> = 0.2569	C <sub>u</sub> = 1.61	C <sub>c</sub> = 0.95
<u><b>Classification</b></u>		
USCS= SP	AASHTO=	
<u><b>Remarks</b></u>		

Location: BI-PB-214-12 C  
Sample Number: 6494 (87)

Depth: 5.4'

Date: 12/26/12

**Thompson Engineering**

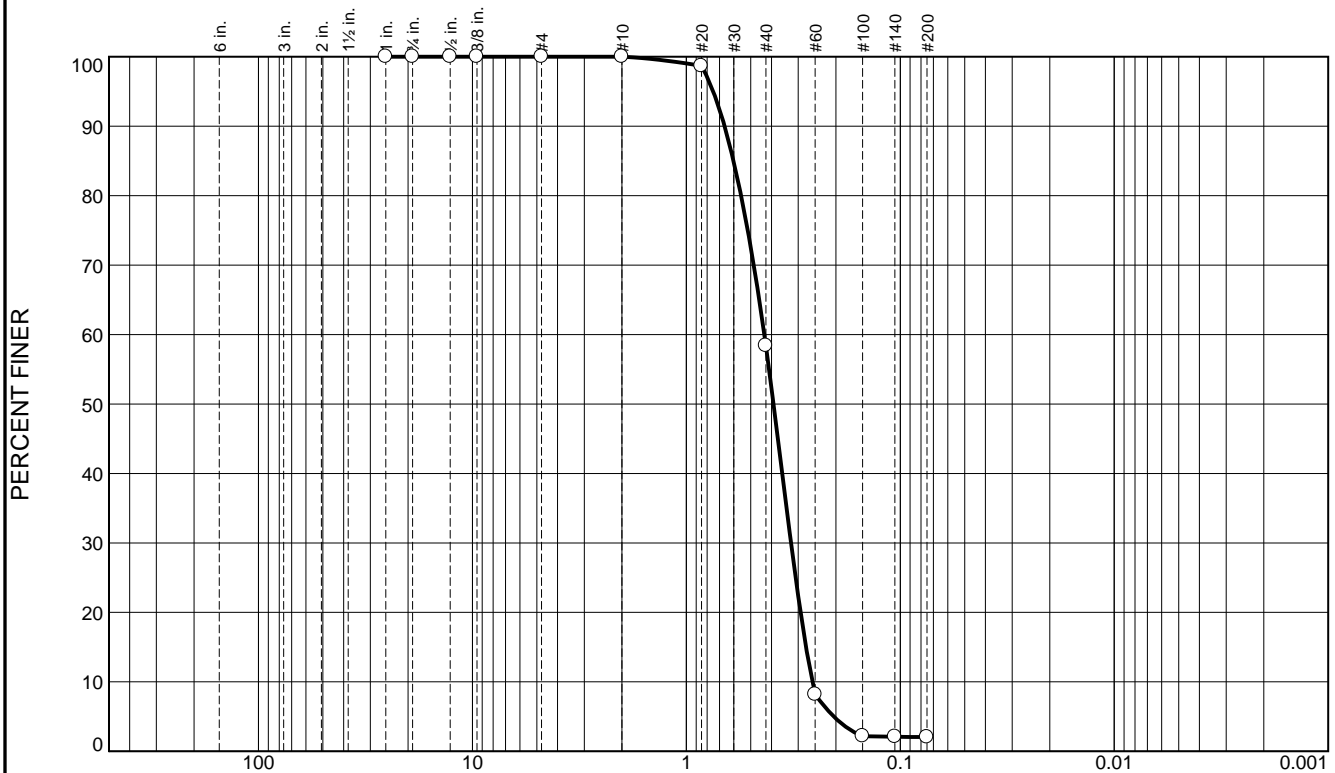
**Mobile, Alabama**

Client: CDM/Thompson Engineering JV  
Project: MsCIP Barrier Island Restoration GT

Project No: 1221110095

Figure

# Particle Size Distribution Report



GRAIN SIZE - mm.

% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.0	0.0	41.6	56.4	2.0	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
1	100.0		
.75	100.0		
.5	100.0		
.375	100.0		
#4	100.0		
#10	100.0		
#20	98.7		
#40	58.4		
#60	8.2		
#100	2.2		
#140	2.1		
#200	2.0		

\* (no specification provided)

## Material Description

Fine to medium grained, SAND

## Atterberg Limits

PL= LL= PI=

## Coefficients

D<sub>90</sub>= 0.6627 D<sub>85</sub>= 0.6018 D<sub>60</sub>= 0.4322  
D<sub>50</sub>= 0.3913 D<sub>30</sub>= 0.3243 D<sub>15</sub>= 0.2761  
D<sub>10</sub>= 0.2576 C<sub>u</sub>= 1.68 C<sub>c</sub>= 0.94

## Classification

USCS= SP AASHTO=

## Remarks

Location: BI-PB-214-12 D  
Sample Number: 6494 (88)

Depth: 10.4'

Date: 12/26/12

**Thompson Engineering**

**Mobile, Alabama**

Client: CDM/Thompson Engineering JV  
Project: MsCIP Barrier Island Restoration GT

Project No: 1221110095

Figure

# Boring Designation BI-PB-215-12

<b>DRILLING LOG</b>		<b>DIVISION</b> South Atlantic	<b>INSTALLATION</b> Mobile District	<b>SHEET 1</b> <b>OF 2 SHEETS</b>
<b>1. PROJECT</b> MsCIP Barrier Island Restoration Petit Bois Pass- AL East		<b>9. SIZE AND TYPE OF BIT</b> N/A		
<b>2. BORING DESIGNATION</b> BI-PB-215-12		<b>10. COORDINATE SYSTEM/DATUM</b> State Plane, MSE (U.S. Ft.)		
<b>3. DRILLING AGENCY</b> Corps of Engineers - CESAM		<b>11. MANUFACTURER'S DESIGNATION OF DRILL</b> Vibracore		
<b>4. NAME OF DRILLER</b> American Vibracore Systems, Inc.		<b>12. TOTAL SAMPLES</b>		
<b>5. DIRECTION OF BORING</b> <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED		<b>13. TOTAL NUMBER CORE BOXES</b>		
<b>6. THICKNESS OF OVERBURDEN</b> N/A		<b>14. WATER DEPTH</b> 40.1 Ft.		
<b>7. DEPTH DRILLED INTO ROCK</b> N/A		<b>15. DATE BORING</b> STARTED 12-19-12 COMPLETED 12-19-12		
<b>8. TOTAL DEPTH OF BORING</b> 19.1 Ft.		<b>16. ELEVATION TOP OF BORING</b> -39.9 Ft.		
		<b>17. TOTAL RECOVERY FOR BORING</b> 100%		
		<b>18. SIGNATURE AND TITLE OF INSPECTOR</b> Mike FitzHarris, Geologist		

ELEV.	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS	SAMPLE	LABORATORY RESULTS
-39.9	0.0				
-41.7	1.8		SAND, poorly-graded, mostly fine to medium-grained sand-sized quartz, trace fines, trace shell fragments, gray (SP)	A	Classification: SP Color: 5Y 6/2-light olive gray D50: 0.301 mm % Fines: 3.2
-42.6	2.7		CLAY, lean, mostly clay, some silt, silty, soft, with a sandy layer at 2.2 ft., gray (CL)	NS	
			SAND, poorly-graded, mostly fine-grained sand-sized quartz, trace fines, trace shell fragments, gray (SP)	B	Classification: SP Color: 5Y 6/2-light olive gray D50: 0.3459 mm % Fines: 3.8
			At El. -44.0 Ft., mostly fine to medium-grained sand-sized quartz, trace fines, clayey band at 5.9 ft., lt. gray to white	C	Classification: SP Color: 2.5Y 7/2-light gray D50: 0.391 mm % Fines: 4.9
-48.8	8.9		At El. -46.1 Ft., mostly fine-grained sand-sized quartz, alternating bands of sand and clay, greenish gray and white		
			CLAY, lean, mostly clay, some silt, lenses of poorly graded sand at 14.8 and 15.8 ft., stiff, greenish gray (CL)	NS	
-59.0	19.1				
			NOTES: 1. Soils are field visually classified in accordance with the Unified Soils Classification System. 2. NS = Sample not submitted for laboratory analysis from this interval. 3. Seafloor elevation calculated using sampling vessel's fathometer water depth reading and applying NOAA tidal gauge data conversion		

<b>DRILLING LOG (Cont. Sheet)</b>			<b>INSTALLATION</b> Mobile District		<b>SHEET 2</b> <b>OF 2 SHEETS</b>
<b>PROJECT</b> MsCIP Barrier Island Restoration			<b>COORDINATE SYSTEM/DATUM</b> State Plane, MSE (U.S. Ft.)	<b>HORIZONTAL</b> NAD83	<b>VERTICAL</b> NAVD88
<b>LOCATION COORDINATES</b> X = 1,153,378 Y = 252,080			<b>ELEVATION TOP OF BORING</b> -39.9 Ft.		
<b>ELEV.</b>	<b>DEPTH</b>	<b>LEGEND</b>	<b>CLASSIFICATION OF MATERIALS</b>	<b>SAMPLE</b>	<b>LABORATORY RESULTS</b>
			factor.		

**Project**

Mississippi Barrier Island  
Restoration Project

**AVS**  
**AMERICAN VIBRACORE**  
**S E R V I C E S**

**Core Identifier** BI-PB-215-12

**Date** 12/19/2012

**Water Depth** 40.1'

**Coordinate System**

**Start Time** 10:55:51

Latitude / Longitude

**End Time** 10:57:32

**Penetration** 20.0'

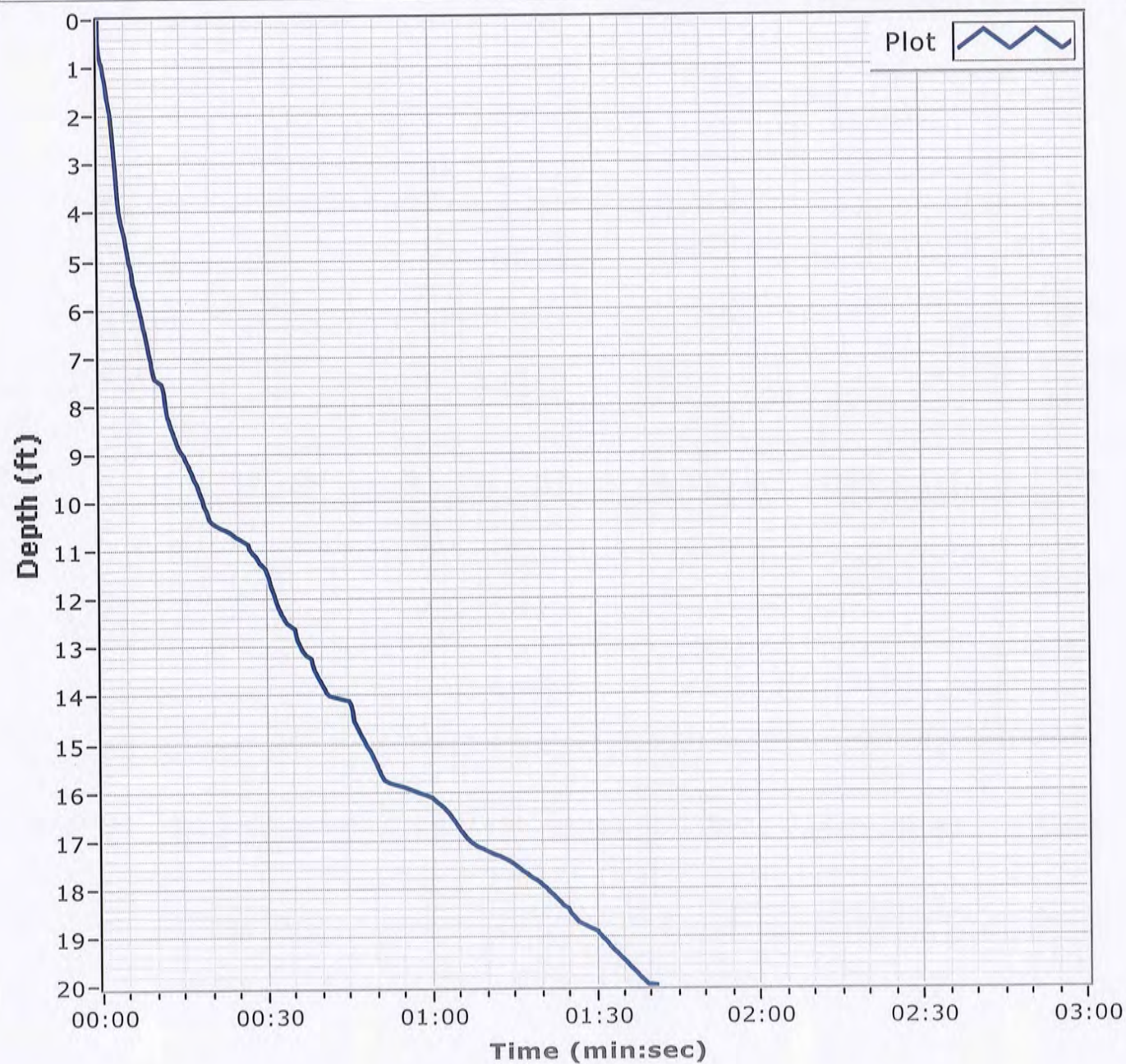
**Latitude** 30 11.525

**Total Time** 00:01:41

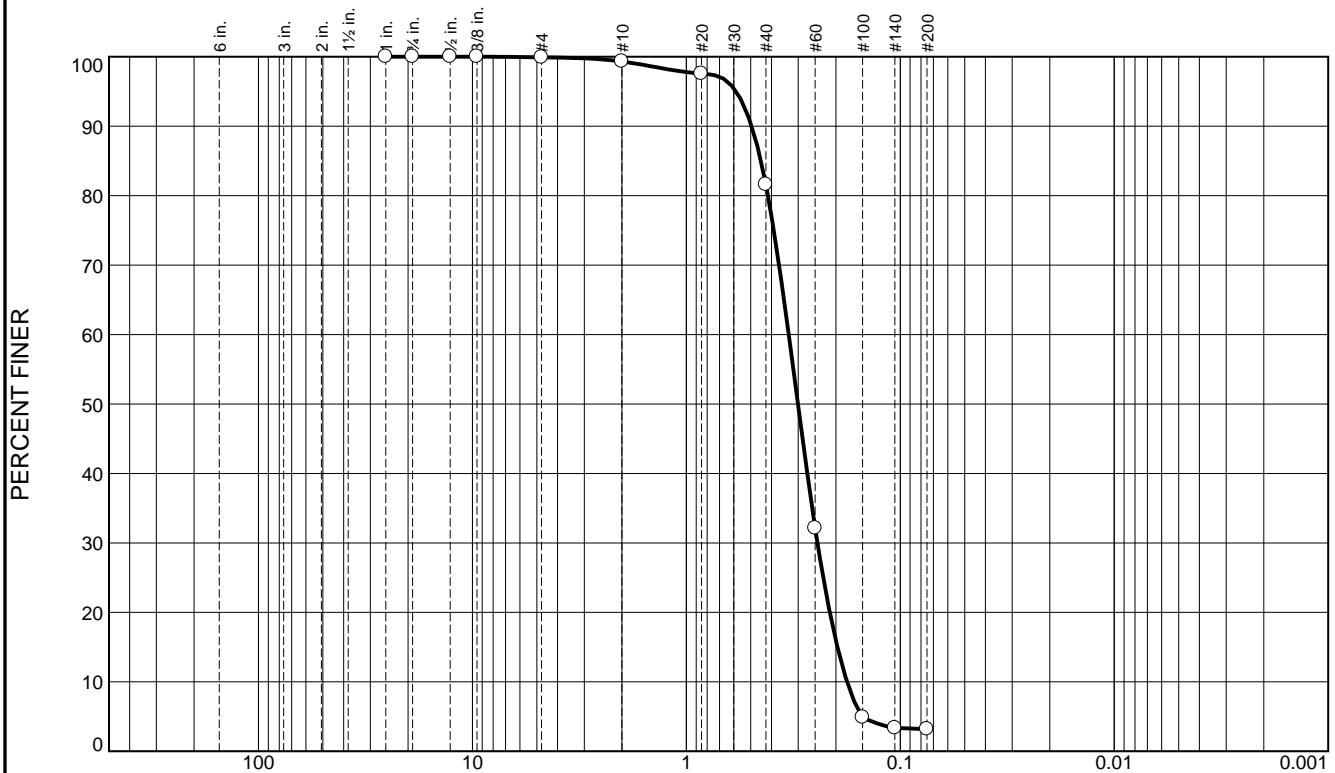
**Recovery** 19.0'

**Longitude** 88 17.880

**Comments**



# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.1	0.6	17.7	78.4	3.2	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
1	100.0		
.75	100.0		
.5	100.0		
.375	100.0		
#4	99.9		
#10	99.3		
#20	97.6		
#40	81.6		
#60	32.1		
#100	4.9		
#140	3.4		
#200	3.2		

\* (no specification provided)

## Material Description

Fine to medium grained, SAND

## Atterberg Limits

PL= LL= PI=

## Coefficients

D<sub>90</sub>= 0.4953 D<sub>85</sub>= 0.4482 D<sub>60</sub>= 0.3323  
D<sub>50</sub>= 0.3010 D<sub>30</sub>= 0.2439 D<sub>15</sub>= 0.1968  
D<sub>10</sub>= 0.1775 C<sub>u</sub>= 1.87 C<sub>c</sub>= 1.01

## Classification

USCS= SP AASHTO=

## Remarks

Location: BI-PB-215-12 A  
Sample Number: 6494 (89)

Depth: 0.0'

Date: 12/26/12

**Thompson Engineering**

**Mobile, Alabama**

Client: CDM/Thompson Engineering JV  
Project: MsCIP Barrier Island Restoration GT

Project No: 1221110095

Figure

# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.4	0.3	31.7	63.8	3.8	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
1	100.0		
.75	100.0		
.5	100.0		
.375	99.7		
#4	99.6		
#10	99.3		
#20	97.4		
#40	67.6		
#60	23.2		
#100	5.9		
#140	4.2		
#200	3.8		

\* (no specification provided)

<u><b>Material Description</b></u>		
Fine to medium grained, SAND		
<u><b>Atterberg Limits</b></u>		
PL=	LL=	PI=
<u><b>Coefficients</b></u>		
D <sub>90</sub> = 0.6374	D <sub>85</sub> = 0.5649	D <sub>60</sub> = 0.3873
D <sub>50</sub> = 0.3459	D <sub>30</sub> = 0.2745	D <sub>15</sub> = 0.2149
D <sub>10</sub> = 0.1866	C <sub>u</sub> = 2.08	C <sub>c</sub> = 1.04
<u><b>Classification</b></u>		
USCS= SP	AASHTO=	
<u><b>Remarks</b></u>		

Location: BI-PB-215-12 B  
Sample Number: 6494 (90)

Depth: 2.7'

Date: 12/26/12

**Thompson Engineering**

**Mobile, Alabama**

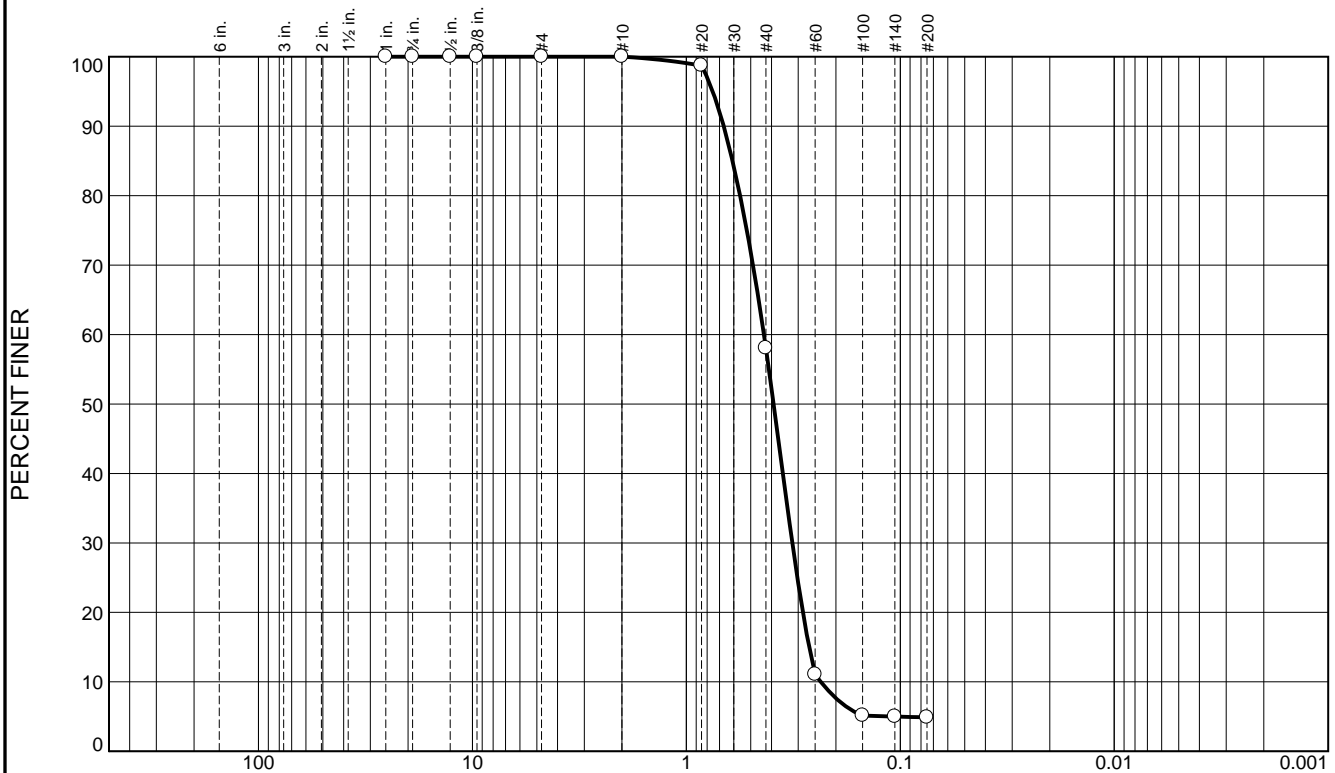
Client: CDM/Thompson Engineering JV  
Project: MsCIP Barrier Island Restoration GT

Project No: 1221110095

Figure



# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.0	0.0	41.9	53.2	4.9	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
1	100.0		
.75	100.0		
.5	100.0		
.375	100.0		
#4	100.0		
#10	100.0		
#20	98.7		
#40	58.1		
#60	11.1		
#100	5.1		
#140	5.0		
#200	4.9		

\* (no specification provided)

## Material Description

Fine to medium grained, SAND

## Atterberg Limits

PL= LL= PI=

## Coefficients

D<sub>90</sub>= 0.6690 D<sub>85</sub>= 0.6083 D<sub>60</sub>= 0.4340  
D<sub>50</sub>= 0.3910 D<sub>30</sub>= 0.3198 D<sub>15</sub>= 0.2670  
D<sub>10</sub>= 0.2352 C<sub>u</sub>= 1.84 C<sub>c</sub>= 1.00

## Classification

USCS= SP AASHTO=

## Remarks

Location: BI-PB-215-12 C  
Sample Number: 6494 (91)

Depth: 4.1'

Date: 12/26/12

**Thompson Engineering**

**Mobile, Alabama**

Client: CDM/Thompson Engineering JV  
Project: MsCIP Barrier Island Restoration GT

Project No: 1221110095

Figure

# Boring Designation BI-PB-216-12

DRILLING LOG		DIVISION South Atlantic		INSTALLATION Mobile District		SHEET 1 OF 1 SHEETS	
1. PROJECT MsCIP Barrier Island Restoration Petit Bois Pass- AL East				9. SIZE AND TYPE OF BIT N/A			
2. BORING DESIGNATION BI-PB-216-12		LOCATION COORDINATES E = 1,149,149 N = 252,566		10. COORDINATE SYSTEM/DATUM State Plane, MSE (U.S. Ft.)		HORIZONTAL NAD83	
3. DRILLING AGENCY Corps of Engineers - CESAM		CONTRACTOR FILE NO.		11. MANUFACTURER'S DESIGNATION OF DRILL Vibracore		<input type="checkbox"/> AUTO HAMMER <input type="checkbox"/> MANUAL HAMMER	
4. NAME OF DRILLER American Vibracore Systems, Inc.				12. TOTAL SAMPLES		DISTURBED 0	
5. DIRECTION OF BORING <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED				13. TOTAL NUMBER CORE BOXES		14. WATER DEPTH 35.8 Ft.	
6. THICKNESS OF OVERBURDEN N/A				15. DATE BORING		STARTED 12-12-12	
7. DEPTH DRILLED INTO ROCK N/A				16. ELEVATION TOP OF BORING -35.3 Ft.		COMPLETED 12-12-12	
8. TOTAL DEPTH OF BORING 14.4 Ft.				17. TOTAL RECOVERY FOR BORING 100%			
				18. SIGNATURE AND TITLE OF INSPECTOR Mike FitzHarris, Geologist			

ELEV.	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS	SAMPLE	LABORATORY RESULTS
-35.3	0.0				
			SAND, poorly-graded, mostly fine to medium-grained sand-sized quartz, trace fines, trace shell fragments, gray (SP)	A	Classification: SP Color: 5Y 6/2-light olive gray D50: 0.2697 mm % Fines: 2.9
-39.7	4.4		SAND, poorly-graded, mostly fine to medium-grained sand-sized quartz, trace fines, trace shell fragments, trace 0.5-inch thick clay lenses, lt. gray to white (SP)	B	Classification: SP Color: 2.5Y 8/1-white D50: 0.3399 mm % Fines: 2.7
				C	Classification: SP Color: 2.5Y 8/1-white D50: 0.2911 mm % Fines: 1.6
-49.7	14.4		NOTES: 1. Soils are field visually classified in accordance with the Unified Soils Classification System. 2. NS = Sample not submitted for laboratory analysis from this interval. 3. Seafloor elevation determined from 2010 USACE survey.		

**Project**

Mississippi Barrier Island  
Restoration Project

**AVS**  
**AMERICAN VIBRACORE**  
**S E R V I C E S**

**Core Identifier** BI-PB-216-12

**Date** 12/12/2012

**Water Depth** 35.8'

**Coordinate System**

Latitude / Longitude

**Start Time** 13:45:03

**End Time** 13:46:03

**Penetration** 20.0'

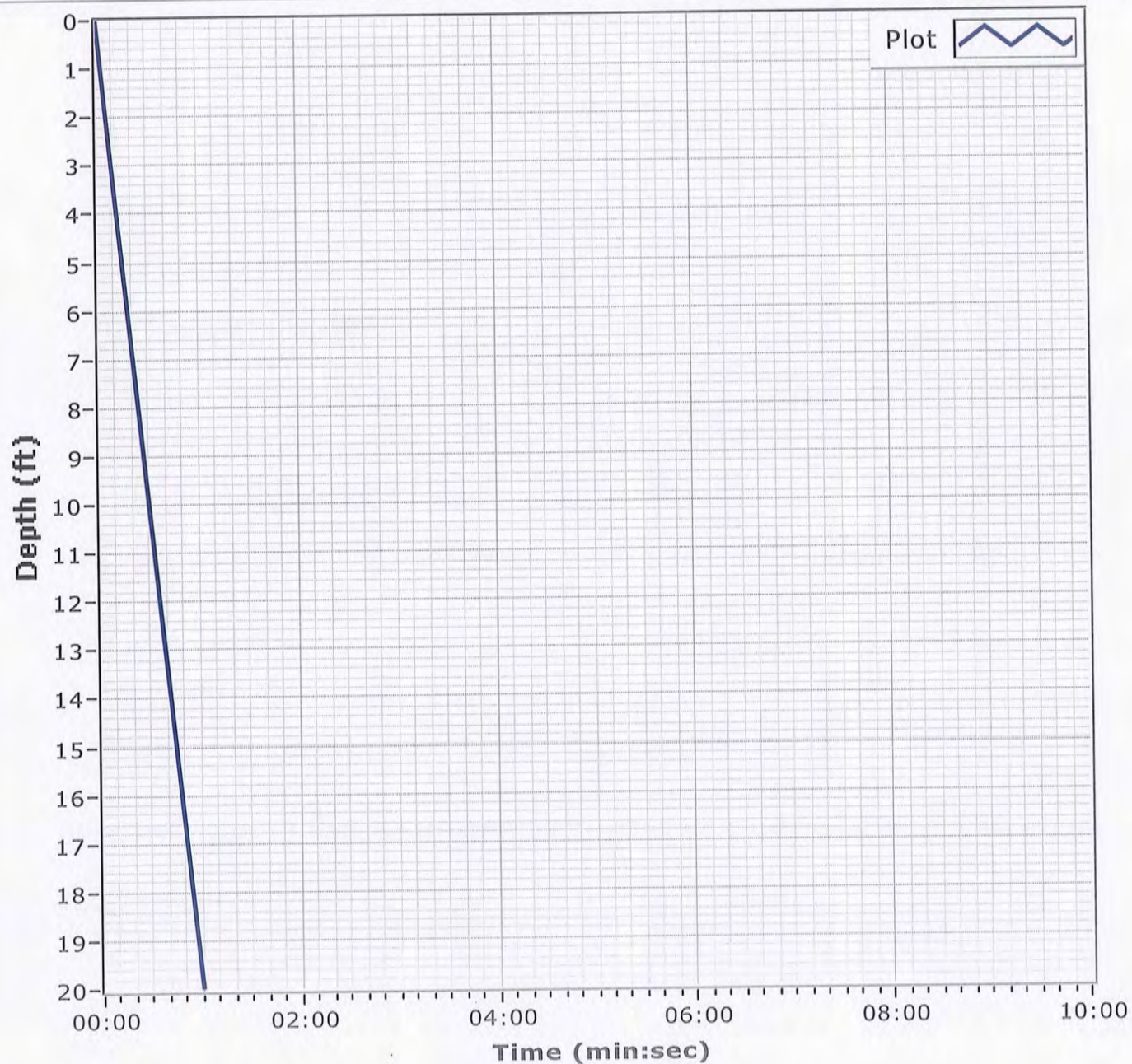
**Latitude** 30 11.608

**Total Time** 00:01:00

**Recovery** 15.7'

**Longitude** 088 18.683

**Comments**



# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.2	0.7	18.3	77.9	2.9	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
1	100.0		
.75	100.0		
.5	100.0		
.375	100.0		
#4	99.8		
#10	99.1		
#20	96.7		
#40	80.8		
#60	43.6		
#100	6.3		
#140	3.4		
#200	2.9		

\* (no specification provided)

<u><b>Material Description</b></u>		
Fine to medium grained, SAND		
<u><b>Atterberg Limits</b></u>		
PL=	LL=	PI=
<u><b>Coefficients</b></u>		
D <sub>90</sub> = 0.5455	D <sub>85</sub> = 0.4682	D <sub>60</sub> = 0.3059
D <sub>50</sub> = 0.2697	D <sub>30</sub> = 0.2141	D <sub>15</sub> = 0.1769
D <sub>10</sub> = 0.1630	C <sub>u</sub> = 1.88	C <sub>c</sub> = 0.92
<u><b>Classification</b></u>		
USCS= SP	AASHTO=	
<u><b>Remarks</b></u>		

Location: BI-PB-216-12 A  
Sample Number: 6485 (30)

Depth: 0.0'

Date: 12/07/12

**Thompson Engineering**

**Mobile, Alabama**

Client: CDM/Thompson Engineering JV  
Project: MsCIP Barrier Island Restoration GT

Project No: 1221110095

Figure

# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.0	0.0	25.8	71.5	2.7	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
1	100.0		
.75	100.0		
.5	100.0		
.375	100.0		
#4	100.0		
#10	100.0		
#20	98.3		
#40	74.2		
#60	17.6		
#100	2.9		
#140	2.7		
#200	2.7		

\* (no specification provided)

<u><b>Material Description</b></u>		
Fine to medium grained, SAND		
<u><b>Atterberg Limits</b></u>		
PL=	LL=	PI=
<u><b>Coefficients</b></u>		
D <sub>90</sub> = 0.5425	D <sub>85</sub> = 0.4917	D <sub>60</sub> = 0.3704
D <sub>50</sub> = 0.3399	D <sub>30</sub> = 0.2855	D <sub>15</sub> = 0.2413
D <sub>10</sub> = 0.2211	C <sub>u</sub> = 1.68	C <sub>c</sub> = 1.00
<u><b>Classification</b></u>		
USCS= SP	AASHTO=	
<u><b>Remarks</b></u>		

Location: BI-PB-216-12 B  
Sample Number: 6485 (31)

Depth: 4.4'

Date: 12/07/12

**Thompson Engineering**

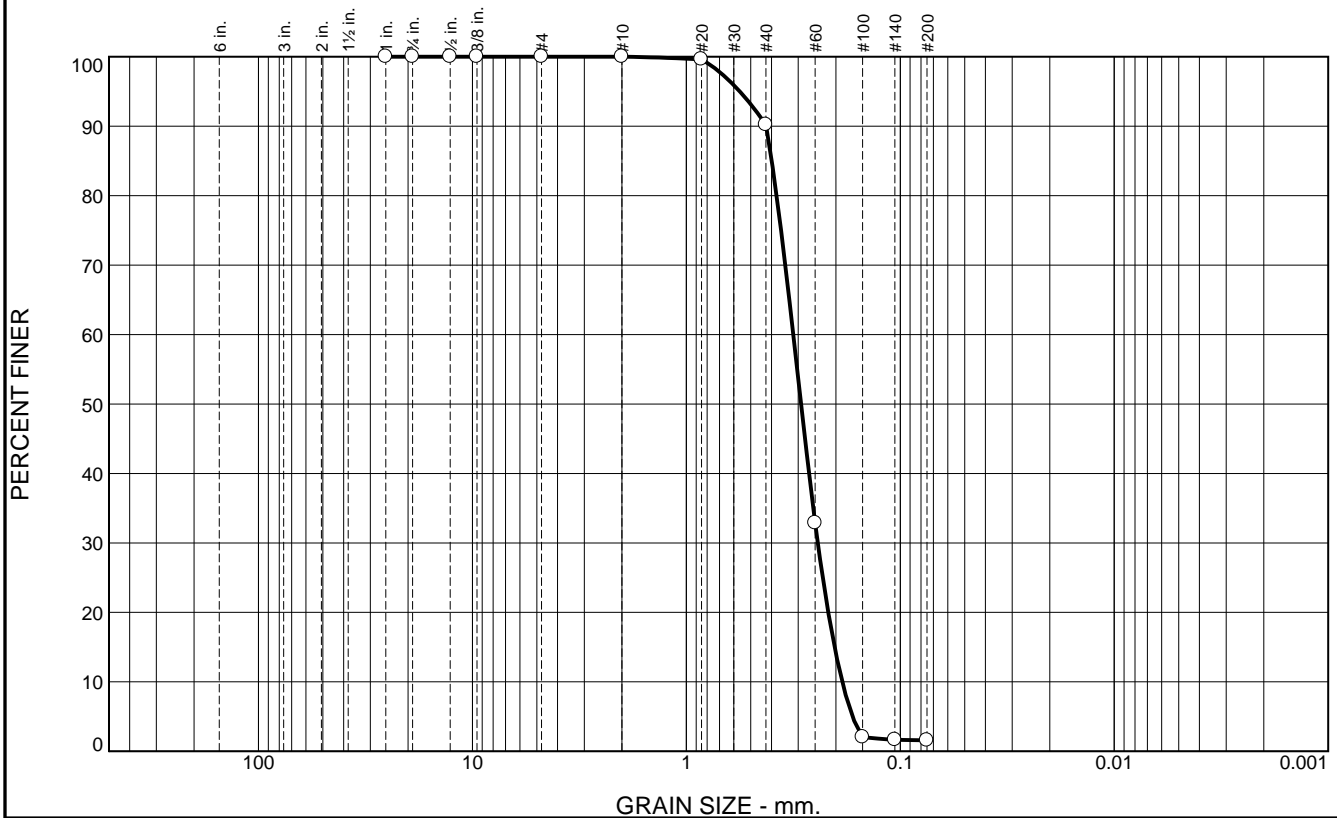
**Mobile, Alabama**

Client: CDM/Thompson Engineering JV  
Project: MsCIP Barrier Island Restoration GT

Project No: 1221110095

Figure

# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.0	0.0	9.8	88.6	1.6	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
1	100.0		
.75	100.0		
.5	100.0		
.375	100.0		
#4	100.0		
#10	100.0		
#20	99.6		
#40	90.2		
#60	32.9		
#100	2.0		
#140	1.7		
#200	1.6		

\* (no specification provided)

## Material Description

Fine grained, SAND

## Atterberg Limits

PL=

LL=

PI=

## Coefficients

D<sub>90</sub>= 0.4238

D<sub>85</sub>= 0.3988

D<sub>60</sub>= 0.3165

D<sub>50</sub>= 0.2911

D<sub>30</sub>= 0.2430

D<sub>15</sub>= 0.2028

D<sub>10</sub>= 0.1869

C<sub>u</sub>= 1.69

C<sub>c</sub>= 1.00

## Classification

USCS= SP

AASHTO=

## Remarks

Location: BI-PB-216-12 C  
Sample Number: 6485 (32)

Depth: 9.4'

Date: 12/07/12

**Thompson Engineering**

**Mobile, Alabama**

Client: CDM/Thompson Engineering JV  
Project: MsCIP Barrier Island Restoration GT

Project No: 1221110095

Figure

# Boring Designation BI-PB-217-12

DRILLING LOG		DIVISION South Atlantic		INSTALLATION Mobile District		SHEET 1 OF 1 SHEETS	
1. PROJECT MsCIP Barrier Island Restoration Petit Bois Pass- AL East				9. SIZE AND TYPE OF BIT N/A			
2. BORING DESIGNATION BI-PB-217-12		LOCATION COORDINATES E = 1,150,351 N = 252,848		10. COORDINATE SYSTEM/DATUM State Plane, MSE (U.S. Ft.)		HORIZONTAL NAD83	
3. DRILLING AGENCY Corps of Engineers - CESAM		CONTRACTOR FILE NO.		11. MANUFACTURER'S DESIGNATION OF DRILL Vibrocure		<input type="checkbox"/> AUTO HAMMER <input type="checkbox"/> MANUAL HAMMER	
4. NAME OF DRILLER American Vibrocure Systems, Inc.				12. TOTAL SAMPLES		DISTURBED 0	
5. DIRECTION OF BORING <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED				13. TOTAL NUMBER CORE BOXES		14. WATER DEPTH 38.9 Ft.	
6. THICKNESS OF OVERBURDEN N/A				15. DATE BORING		STARTED 12-12-12	
7. DEPTH DRILLED INTO ROCK N/A				16. ELEVATION TOP OF BORING -38.3 Ft.		COMPLETED 12-12-12	
8. TOTAL DEPTH OF BORING 15.7 Ft.				17. TOTAL RECOVERY FOR BORING 100%		18. SIGNATURE AND TITLE OF INSPECTOR Mike FitzHarris, Geologist	

ELEV.	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS	SAMPLE	LABORATORY RESULTS
-38.3	0.0				
-38.8	0.5			A	Classification: SP Color: 5Y 7/2-light gray
-39.5	1.2		SAND, poorly-graded, mostly fine to medium-grained sand-sized quartz, trace fines, gray (SP)	NS	D50: 0.3234 mm % Fines: 1.3
			CLAY, fat, mostly clay, medium to high plasticity, band of poorly graded fine grain sand at 0.8 ft., gray (CH)	B	Classification: SP-SM Color: 5Y 7/3-pale yellow
			SAND, poorly-graded, mostly fine to medium-grained sand-sized quartz, trace fines, lt gray (SP)	C	D50: 0.3352 mm % Fines: 5.9
			At El. -46.1 Ft., mostly fine to medium-grained sand-sized quartz, trace fines, white		Classification: SP Color: 2.5Y 7/2-light gray
			At El. -47.0 Ft., mostly fine-grained sand-sized quartz, some clay, alternating bands (0.2 to 1.0 ft. thick) of poorly-graded, fine-grained sand and medium to high plasticity clay, lt. gray to dark gray	NS	D50: 0.35 mm % Fines: 4.1
-54.0	15.7				
NOTES: 1. Soils are field visually classified in accordance with the Unified Soils Classification System. 2. NS = Sample not submitted for laboratory analysis from this interval. 3. Seafloor elevation determined from 2010 USACE survey.					



# Project

Mississippi Barrier Island  
Restoration Project

**AVS**  
**AMERICAN VIBRACORE**  
**S E R V I C E S**

Core Identifier BI-PB-217-12

Date 12/12/2012

Water Depth 38.9'

## Coordinate System

Latitude / Longitude

Start Time 15:19:03

End Time 15:22:53

Penetration 20.0'

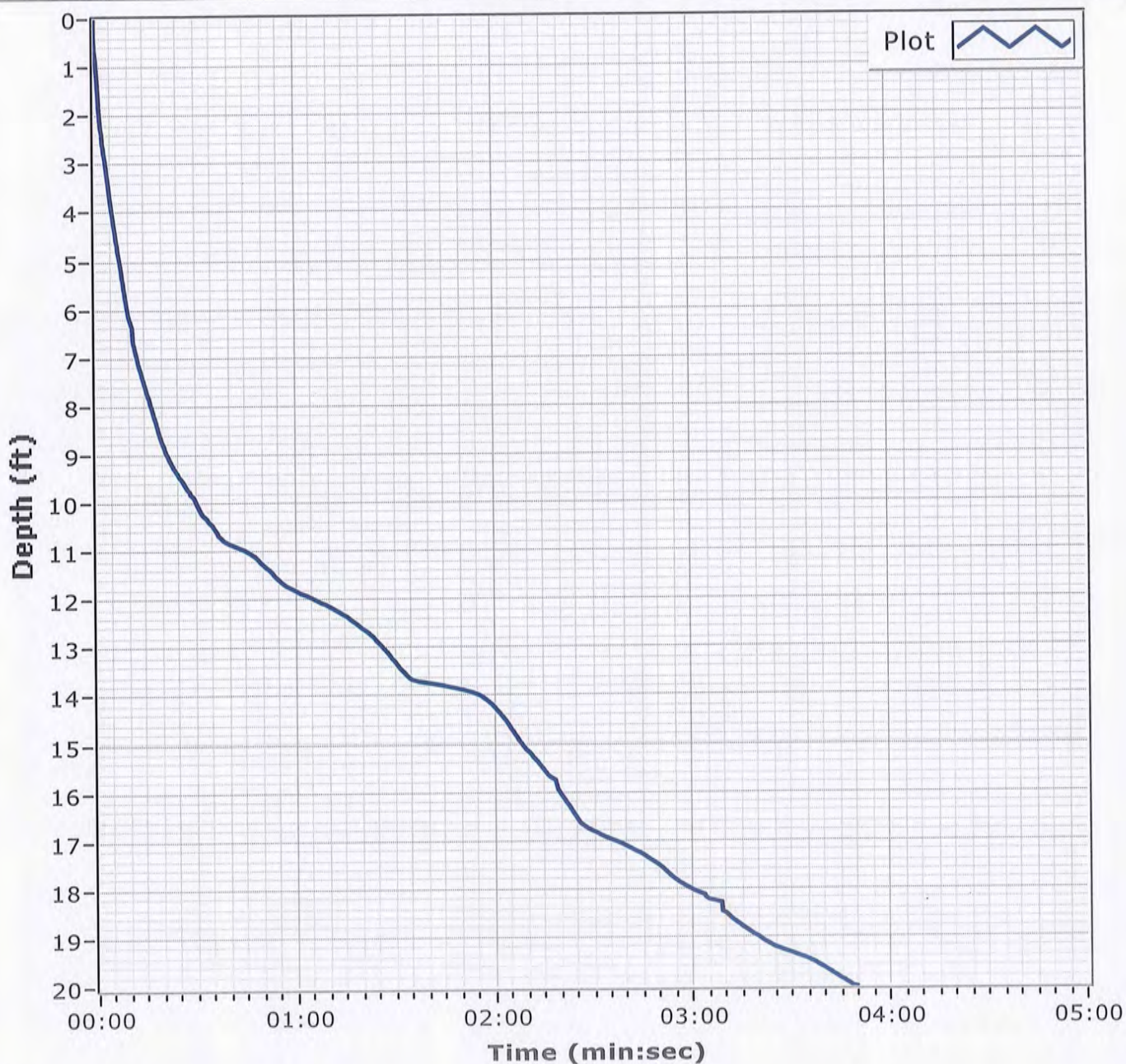
Latitude 30 11.654

Total Time 00:03:50

Recovery 15.7'

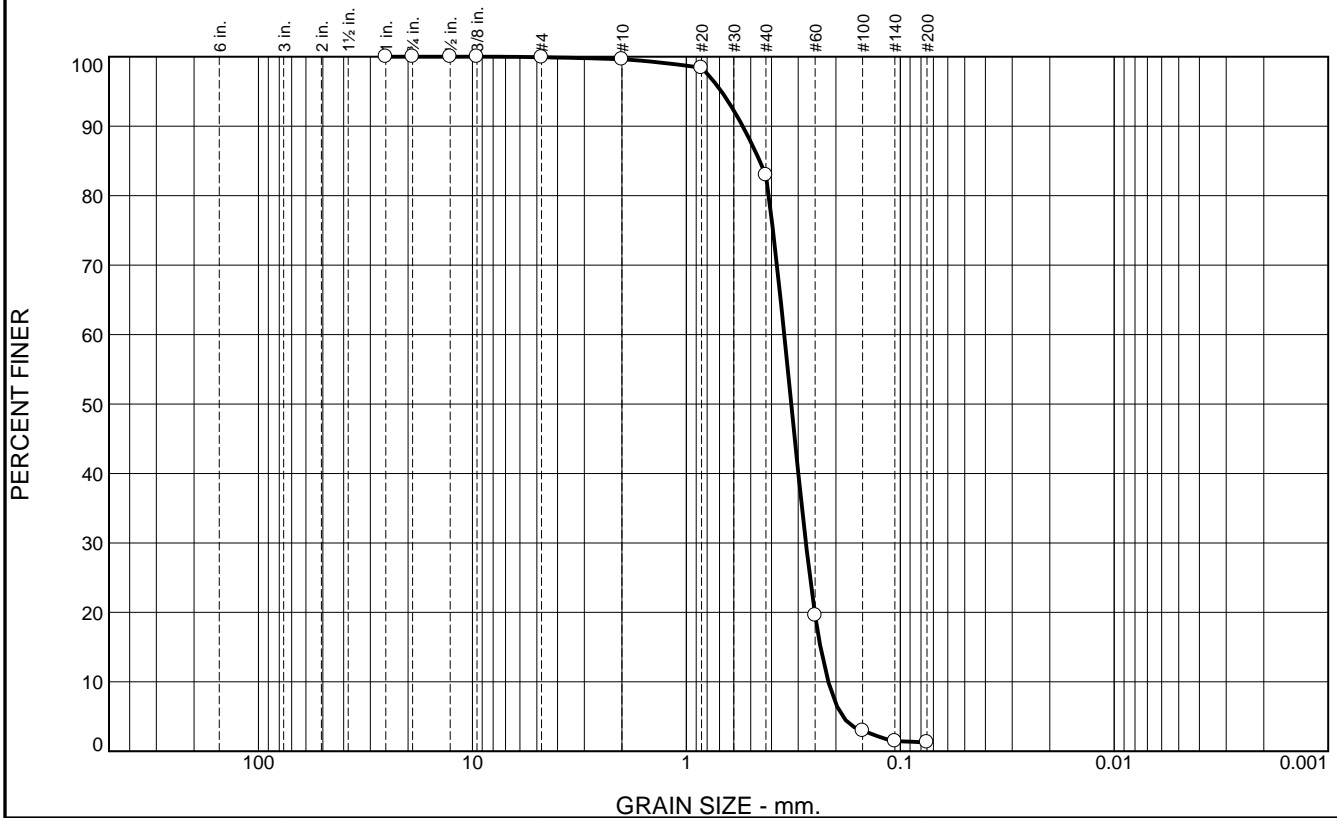
Longitude 088 18.454

## Comments





# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.1	0.3	16.6	81.7	1.3	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
1	100.0		
.75	100.0		
.5	100.0		
.375	100.0		
#4	99.9		
#10	99.6		
#20	98.4		
#40	83.0		
#60	19.6		
#100	3.0		
#140	1.5		
#200	1.3		

\* (no specification provided)

<u><b>Material Description</b></u>		
Fine to medium grained, SAND		
<u><b>Atterberg Limits</b></u>		
PL=	LL=	PI=
<u><b>Coefficients</b></u>		
D <sub>90</sub> = 0.5454	D <sub>85</sub> = 0.4543	D <sub>60</sub> = 0.3486
D <sub>50</sub> = 0.3234	D <sub>30</sub> = 0.2765	D <sub>15</sub> = 0.2360
D <sub>10</sub> = 0.2169	C <sub>u</sub> = 1.61	C <sub>c</sub> = 1.01
<u><b>Classification</b></u>		
USCS= SP	AASHTO=	
<u><b>Remarks</b></u>		

Location: BI-PB-217-12 A  
Sample Number: 6485 (33)

Depth: 0.0'

Date: 12/07/12

**Thompson Engineering**

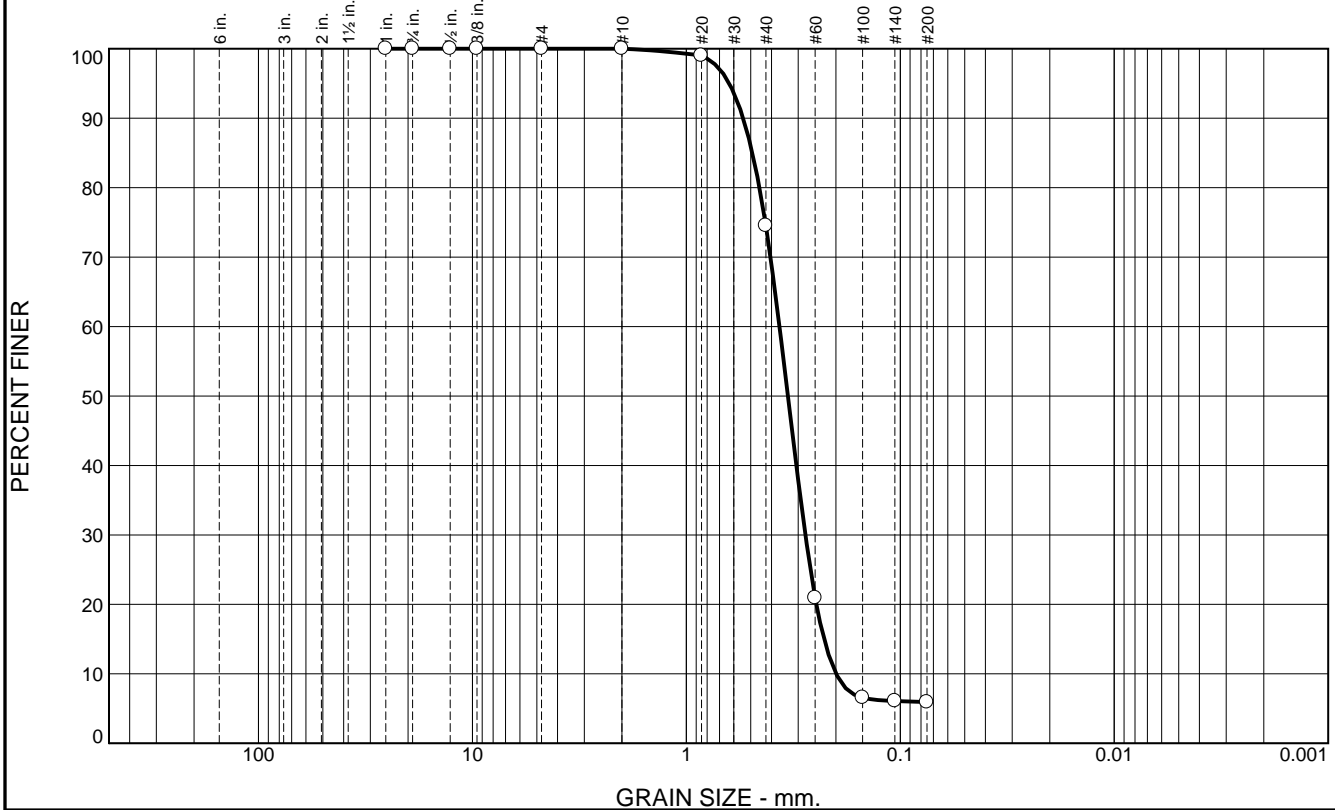
**Mobile, Alabama**

Client: CDM/Thompson Engineering JV  
Project: MsCIP Barrier Island Restoration GT

Project No: 1221110095

Figure

# Particle Size Distribution Report



# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.0	0.0	29.4	66.5	4.1	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
1	100.0		
.75	100.0		
.5	100.0		
.375	100.0		
#4	100.0		
#10	100.0		
#20	98.2		
#40	70.6		
#60	15.9		
#100	4.3		
#140	4.1		
#200	4.1		

\* (no specification provided)

<u><b>Material Description</b></u>		
Fine to medium grained, SAND		
<u><b>Atterberg Limits</b></u>		
PL=	LL=	PI=
<u><b>Coefficients</b></u>		
D <sub>90</sub> = 0.5775	D <sub>85</sub> = 0.5190	D <sub>60</sub> = 0.3826
D <sub>50</sub> = 0.3500	D <sub>30</sub> = 0.2927	D <sub>15</sub> = 0.2439
D <sub>10</sub> = 0.2068	C <sub>u</sub> = 1.85	C <sub>c</sub> = 1.08
<u><b>Classification</b></u>		
USCS= SP	AASHTO=	
<u><b>Remarks</b></u>		

Location: BI-PB-217-12 C  
Sample Number: 6485 (35)

Depth: 5.7'

Date: 12/07/12

**Thompson Engineering**

**Mobile, Alabama**

Client: CDM/Thompson Engineering JV  
Project: MsCIP Barrier Island Restoration GT

Project No: 1221110095

Figure

# Boring Designation BI-PB-218-12

DRILLING LOG		DIVISION South Atlantic		INSTALLATION Mobile District		SHEET 1 OF 1 SHEETS	
1. PROJECT MsCIP Barrier Island Restoration Petit Bois Pass- AL East				9. SIZE AND TYPE OF BIT N/A			
2. BORING DESIGNATION BI-PB-218-12		LOCATION COORDINATES E = 1,149,812 N = 253,289		10. COORDINATE SYSTEM/DATUM State Plane, MSE (U.S. Ft.)		HORIZONTAL NAD83	
3. DRILLING AGENCY Corps of Engineers - CESAM		CONTRACTOR FILE NO.		11. MANUFACTURER'S DESIGNATION OF DRILL Vibracore		<input type="checkbox"/> AUTO HAMMER <input type="checkbox"/> MANUAL HAMMER	
4. NAME OF DRILLER American Vibracore Systems, Inc.				12. TOTAL SAMPLES		DISTURBED 0	
5. DIRECTION OF BORING <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED				13. TOTAL NUMBER CORE BOXES		14. WATER DEPTH 37.3 Ft.	
6. THICKNESS OF OVERBURDEN N/A				15. DATE BORING		STARTED 12-12-12	
7. DEPTH DRILLED INTO ROCK N/A				16. ELEVATION TOP OF BORING -37.8 Ft.		COMPLETED 12-12-12	
8. TOTAL DEPTH OF BORING 17.3 Ft.				17. TOTAL RECOVERY FOR BORING 100%		18. SIGNATURE AND TITLE OF INSPECTOR Mike FitzHarris, Geologist	
ELEV.	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS	SAMPLE	LABORATORY RESULTS		
-37.8	0.0						
			SAND, poorly-graded, mostly fine to medium-grained sand-sized quartz, trace fines, lt. gray (SP)	A	Classification: SP-SM Color: 2.5Y 7/2-light gray D50: 0.316 mm % Fines: 9.7		
				B	Classification: SP Color: 2.5Y 7/2-light gray D50: 0.3386 mm % Fines: 4.4		
-46.6	8.8						
			SAND, poorly-graded, mostly fine to medium-grained sand-sized quartz, some clay, trace fines, 0.5-inch clayey lenses between 14 to 15.7 ft., dense, lt. gray to white (SP)	C	Classification: SP Color: 2.5Y 8/2-pale yellow D50: 0.3172 mm % Fines: 2.1		
				D	Classification: SP-SM Color: - D50: 0.2612 mm % Fines: 6.2		
-53.5	15.7						
-55.1	17.3		CLAY, fat, mostly clay, trace fine-grained sand-sized quartz, firm, dark gray (CH)	NS			
			NOTES: 1. Soils are field visually classified in accordance with the Unified Soils Classification System. 2. NS = Sample not submitted for laboratory analysis from this interval. 3. Seafloor elevation determined from 2010 USACE survey.				

**Project**

Mississippi Barrier Island  
Restoration Project



**Core Identifier** BI-PB-218-12

**Date** 12/12/2012

**Water Depth** 37.3'

**Coordinate System**

**Start Time** 13:02:03

Latitude / Longitude

**End Time** 13:03:03

**Penetration** 20.0'

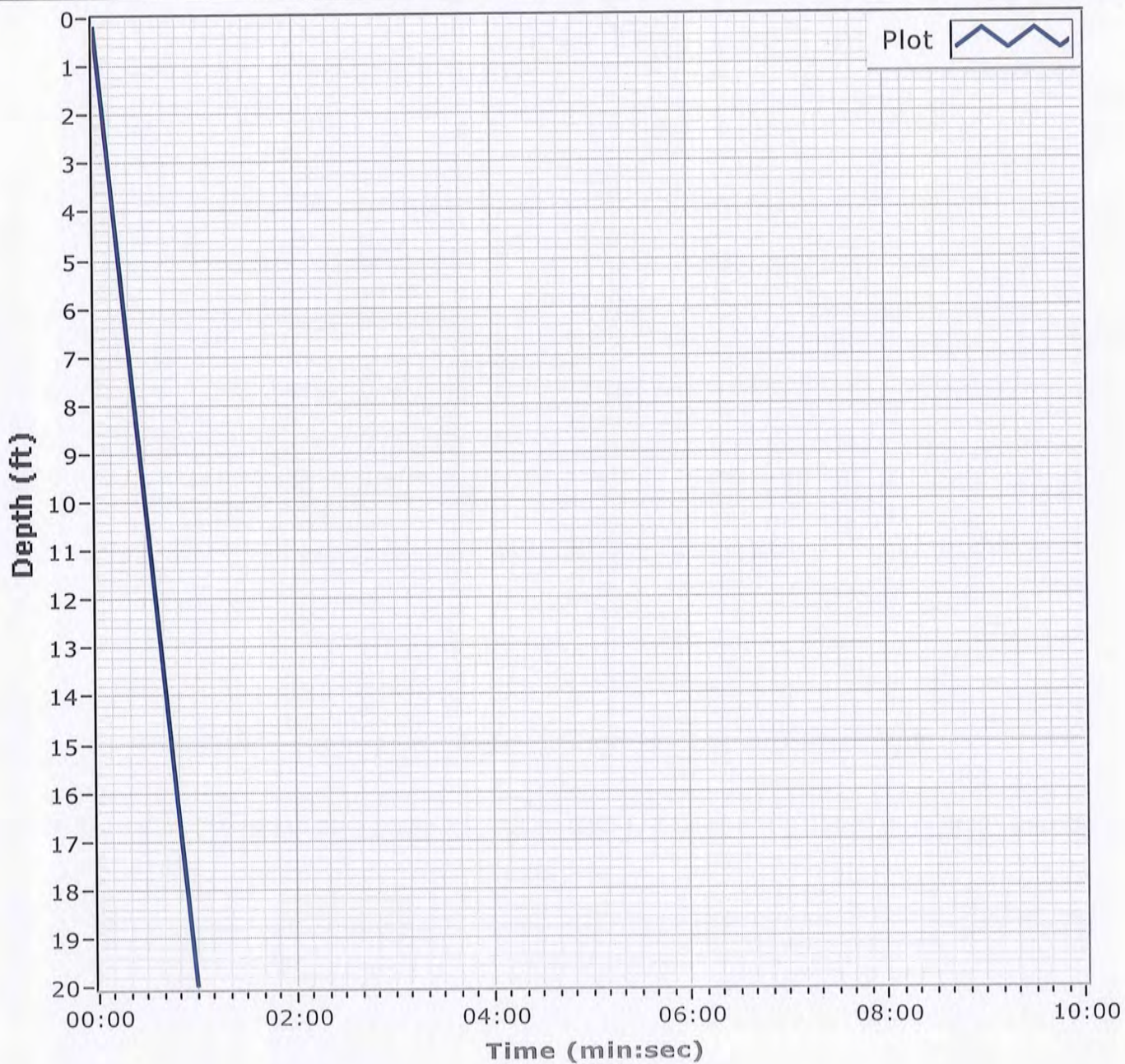
**Latitude** 30 11.727

**Total Time** 00:01:00

**Recovery** 17.3'

**Longitude** 088 18.556

**Comments**



# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.0	0.0	22.7	67.6	9.7	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
1	100.0		
.75	100.0		
.5	100.0		
.375	100.0		
#4	100.0		
#10	100.0		
#20	98.6		
#40	77.3		
#60	29.1		
#100	10.7		
#140	9.9		
#200	9.7		

\* (no specification provided)

## Material Description

Fine to medium grained, SLIGHTLY SILTY SAND

## Atterberg Limits

PL= LL= PI=

## Coefficients

D<sub>90</sub>= 0.5322 D<sub>85</sub>= 0.4787 D<sub>60</sub>= 0.3496  
D<sub>50</sub>= 0.3160 D<sub>30</sub>= 0.2532 D<sub>15</sub>= 0.1889  
D<sub>10</sub>= 0.1143 C<sub>u</sub>= 3.06 C<sub>c</sub>= 1.60

## Classification

USCS= SP-SM AASHTO=

## Remarks

Location: BI-PB-218-12 A  
Sample Number: 6485 (36)

Depth: 0.0'

Date: 12/07/12

**Thompson Engineering**

**Mobile, Alabama**

Client: CDM/Thompson Engineering JV  
Project: MsCIP Barrier Island Restoration GT

Project No: 1221110095

Figure

# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.0	0.0	25.6	70.0	4.4	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
1	100.0		
.75	100.0		
.5	100.0		
.375	100.0		
#4	100.0		
#10	100.0		
#20	98.6		
#40	74.4		
#60	18.5		
#100	4.6		
#140	4.4		
#200	4.4		

\* (no specification provided)

<u><b>Material Description</b></u>		
Fine to medium grained, SAND		
<u><b>Atterberg Limits</b></u>		
PL=	LL=	PI=
<u><b>Coefficients</b></u>		
D <sub>90</sub> = 0.5405	D <sub>85</sub> = 0.4904	D <sub>60</sub> = 0.3693
D <sub>50</sub> = 0.3386	D <sub>30</sub> = 0.2835	D <sub>15</sub> = 0.2375
D <sub>10</sub> = 0.2151	C <sub>u</sub> = 1.72	C <sub>c</sub> = 1.01
<u><b>Classification</b></u>		
USCS= SP	AASHTO=	
<u><b>Remarks</b></u>		

Location: BI-PB-218-12 B  
Sample Number: 6485 (37)

Depth: 5.0'

Date: 12/07/12

**Thompson Engineering**

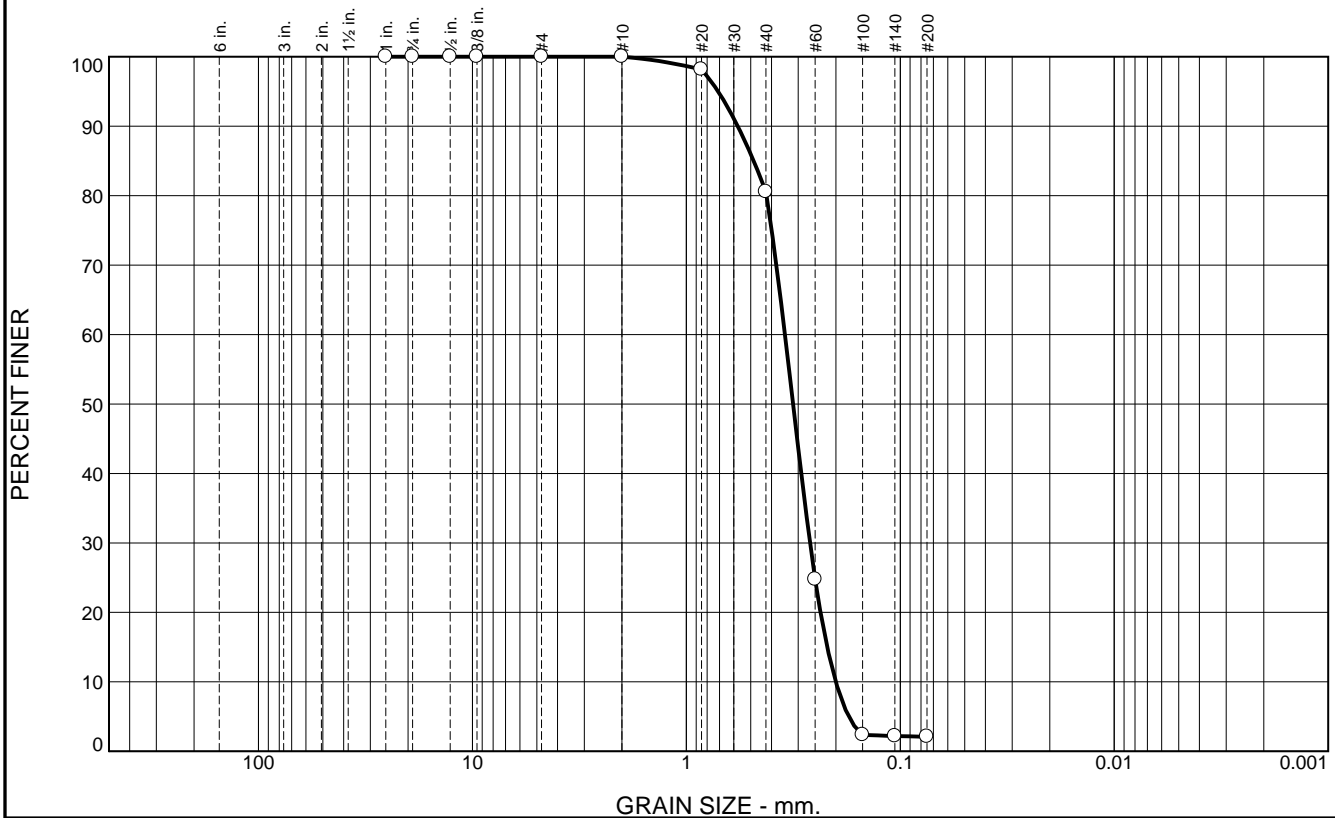
**Mobile, Alabama**

Client: CDM/Thompson Engineering JV  
Project: MsCIP Barrier Island Restoration GT

Project No: 1221110095

Figure

# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.0	0.0	19.5	78.4	2.1	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
1	100.0		
.75	100.0		
.5	100.0		
.375	100.0		
#4	100.0		
#10	100.0		
#20	98.2		
#40	80.5		
#60	24.7		
#100	2.4		
#140	2.2		
#200	2.1		

\* (no specification provided)

<u><b>Material Description</b></u>		
Fine to medium grained, SAND		
<u><b>Atterberg Limits</b></u>		
PL=	LL=	PI=
<u><b>Coefficients</b></u>		
D <sub>90</sub> = 0.5751	D <sub>85</sub> = 0.4849	D <sub>60</sub> = 0.3461
D <sub>50</sub> = 0.3172	D <sub>30</sub> = 0.2643	D <sub>15</sub> = 0.2196
D <sub>10</sub> = 0.2003	C <sub>u</sub> = 1.73	C <sub>c</sub> = 1.01
<u><b>Classification</b></u>		
USCS= SP	AASHTO=	
<u><b>Remarks</b></u>		

Location: BI-PB-218-12 C  
Sample Number: 6485 (38)

Depth: 8.8'

Date: 12/07/12

**Thompson Engineering**

**Mobile, Alabama**

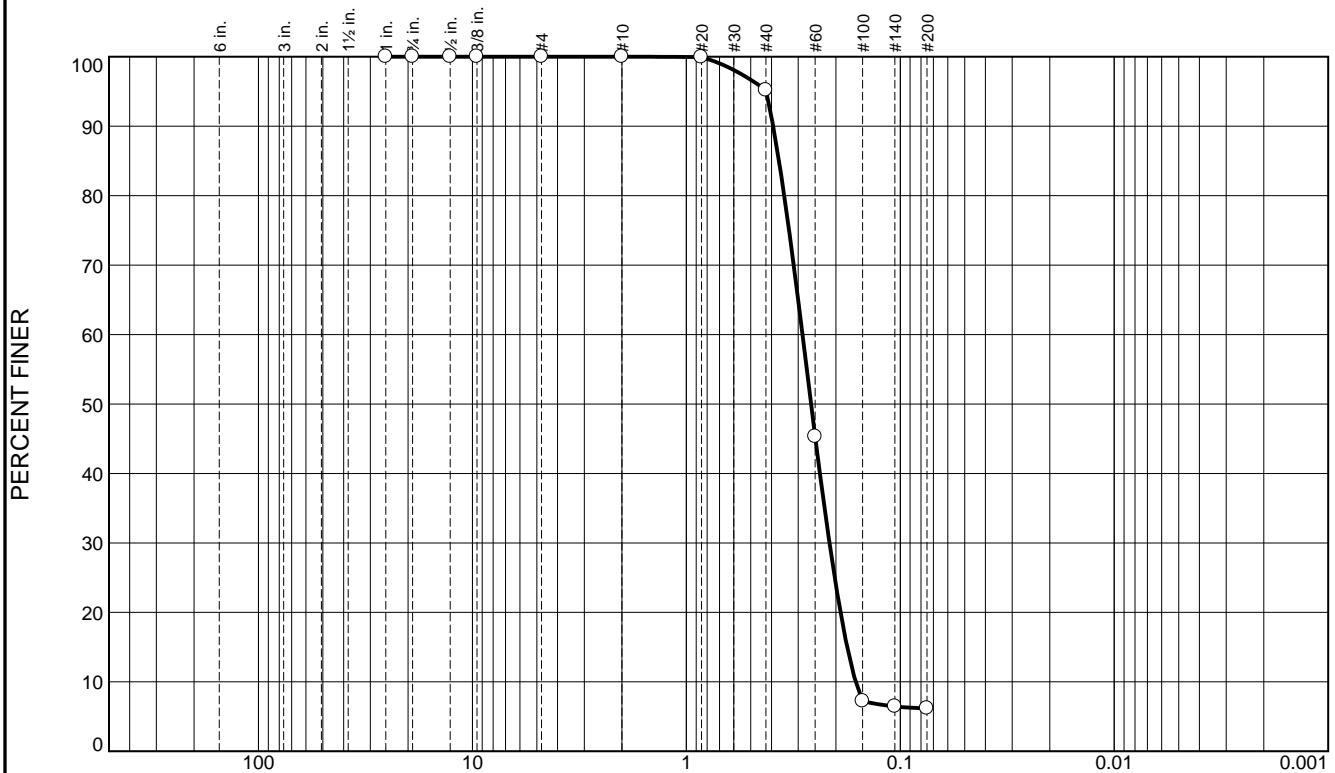
Client: CDM/Thompson Engineering JV  
Project: MsCIP Barrier Island Restoration GT

Project No: 1221110095

Figure



# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.0	0.0	4.8	89.0	6.2	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
1	100.0		
.75	100.0		
.5	100.0		
.375	100.0		
#4	100.0		
#10	100.0		
#20	99.9		
#40	95.2		
#60	45.3		
#100	7.2		
#140	6.5		
#200	6.2		

\* (no specification provided)

## Material Description

Fine grained, SLIGHTLY SILTY SAND

## Atterberg Limits

PL= LL= PI=

## Coefficients

D<sub>90</sub>= 0.3927 D<sub>85</sub>= 0.3688 D<sub>60</sub>= 0.2867  
D<sub>50</sub>= 0.2612 D<sub>30</sub>= 0.2143 D<sub>15</sub>= 0.1773  
D<sub>10</sub>= 0.1618 C<sub>u</sub>= 1.77 C<sub>c</sub>= 0.99

## Classification

USCS= SP-SM AASHTO=

## Remarks

Location: BI-PB-218-12 D  
Sample Number: 6485 (39)

Depth: 13.8'

Date: 12/07/12

**Thompson Engineering**

**Mobile, Alabama**

Client: CDM/Thompson Engineering JV  
Project: MsCIP Barrier Island Restoration GT

Project No: 1221110095

Figure

# Boring Designation BI-PB-219-12

DRILLING LOG		DIVISION South Atlantic		INSTALLATION Mobile District		SHEET 1 OF 1 SHEETS	
1. PROJECT MsCIP Barrier Island Restoration Petit Bois Pass- AL East				9. SIZE AND TYPE OF BIT N/A			
2. BORING DESIGNATION BI-PB-219-12		LOCATION COORDINATES E = 1,147,637 N = 253,560		10. COORDINATE SYSTEM/DATUM State Plane, MSE (U.S. Ft.)		HORIZONTAL NAD83	
3. DRILLING AGENCY Corps of Engineers - CESAM		CONTRACTOR FILE NO.		11. MANUFACTURER'S DESIGNATION OF DRILL Vibracore		<input type="checkbox"/> AUTO HAMMER <input type="checkbox"/> MANUAL HAMMER	
4. NAME OF DRILLER American Vibracore Systems, Inc.				12. TOTAL SAMPLES		DISTURBED 0	
5. DIRECTION OF BORING <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED				13. TOTAL NUMBER CORE BOXES		14. WATER DEPTH 31.4 Ft.	
6. THICKNESS OF OVERBURDEN N/A				15. DATE BORING		STARTED 12-12-12	
7. DEPTH DRILLED INTO ROCK N/A				16. ELEVATION TOP OF BORING -31.2 Ft.		COMPLETED 12-12-12	
8. TOTAL DEPTH OF BORING 15.9 Ft.				17. TOTAL RECOVERY FOR BORING 100%			
				18. SIGNATURE AND TITLE OF INSPECTOR Mike FitzHarris, Geologist			
ELEV.	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS	SAMPLE	LABORATORY RESULTS		
-31.2	0.0						
			SAND, poorly-graded, mostly fine to medium-grained sand-sized quartz, trace silt, trace shell fragments, dense, lt. gray to gray (SP)	A	Classification: SP Color: 5Y 7/2-light gray D50: 0.2729 mm % Fines: 2.1		
			SAND, poorly-graded with silt, mostly fine-grained sand-sized quartz, few silt, trace clay, dense, gray (SP-SM)	B	Classification: SP-SM Color: 5Y 6/2-light olive gray D50: 0.2503 mm % Fines: 7.3		
			SAND, poorly-graded, mostly fine to medium-grained sand-sized quartz, trace fines, dense, lt. gray to white (SP)	C	Classification: SP Color: 2.5Y 8/1-white D50: 0.31 mm % Fines: 2.1		
			NOTES: 1. Soils are field visually classified in accordance with the Unified Soils Classification System. 2. NS = Sample not submitted for laboratory analysis from this interval. 3. Seafloor elevation determined from 2010 USACE survey.				

**Project**

Mississippi Barrier Island  
Restoration Project

**AVS**  
**AMERICAN VIBRACORE**  
**S E R V I C E S**

**Core Identifier** BI-PB-219-12

**Date** 12/13/2012

**Water Depth** 23.8'

**Coordinate System**

Latitude / Longitude

**Start Time** 08:34:03

**End Time** 08:35:03

**Penetration** 20.0'

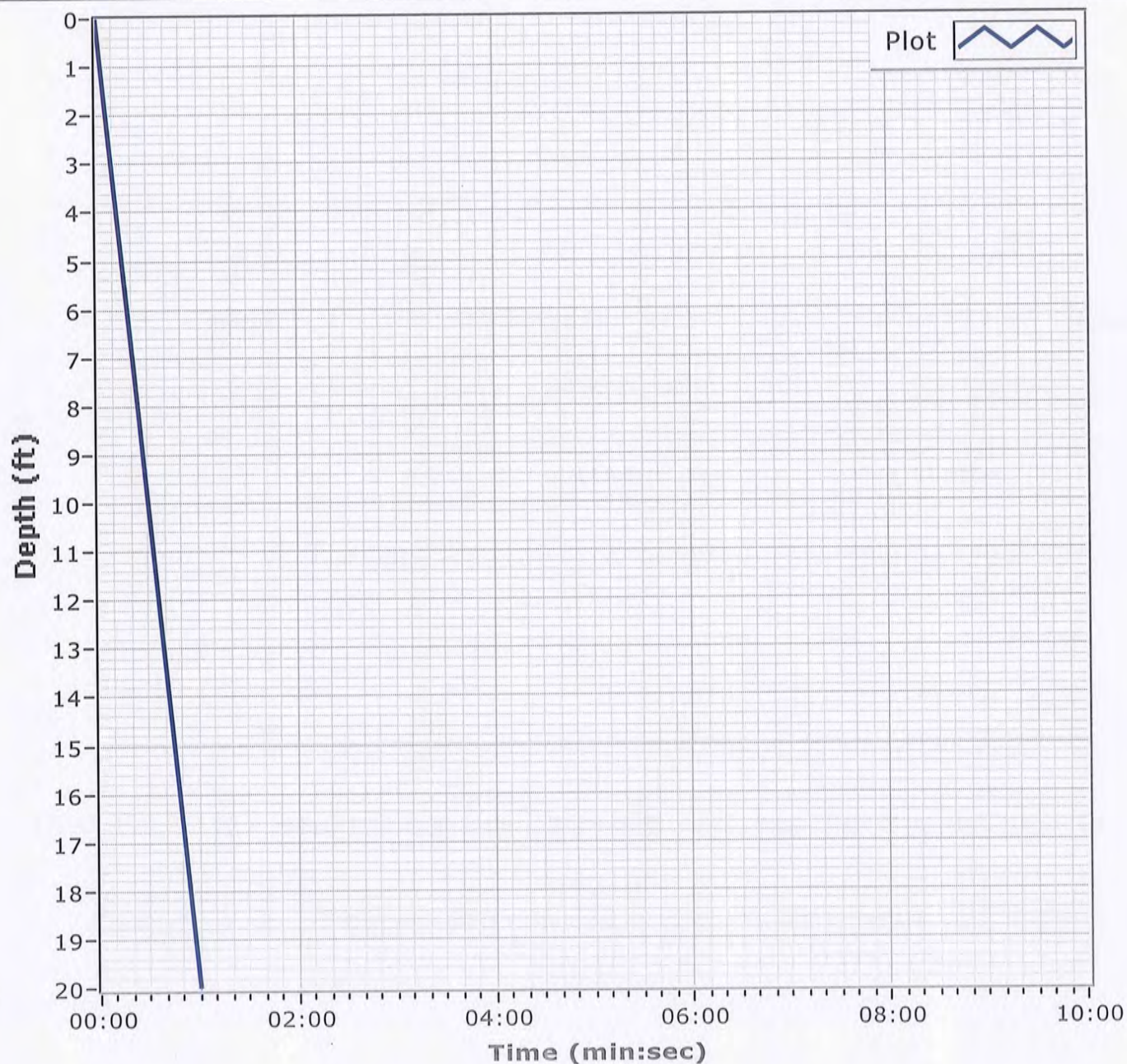
**Latitude** 30 11.930

**Total Time** 00:01:00

**Recovery** 20.0'

**Longitude** 088 22.284

**Comments**



# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	1.5	0.9	15.2	80.3	2.1	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
1	100.0		
.75	100.0		
.5	100.0		
.375	98.8		
#4	98.5		
#10	97.6		
#20	95.3		
#40	82.4		
#60	42.0		
#100	4.1		
#140	2.3		
#200	2.1		

\* (no specification provided)

## Material Description

Fine to medium grained, SAND, with trace SHELL

## Atterberg Limits

PL= LL= PI=

## Coefficients

D<sub>90</sub>= 0.5199 D<sub>85</sub>= 0.4493 D<sub>60</sub>= 0.3063  
D<sub>50</sub>= 0.2729 D<sub>30</sub>= 0.2194 D<sub>15</sub>= 0.1832  
D<sub>10</sub>= 0.1700 C<sub>u</sub>= 1.80 C<sub>c</sub>= 0.92

## Classification

USCS= SP AASHTO=

## Remarks

Location: BI-PB-219-12 A  
Sample Number: 6485 (40)

Depth: 0.0'

Date: 12/07/12

**Thompson Engineering**

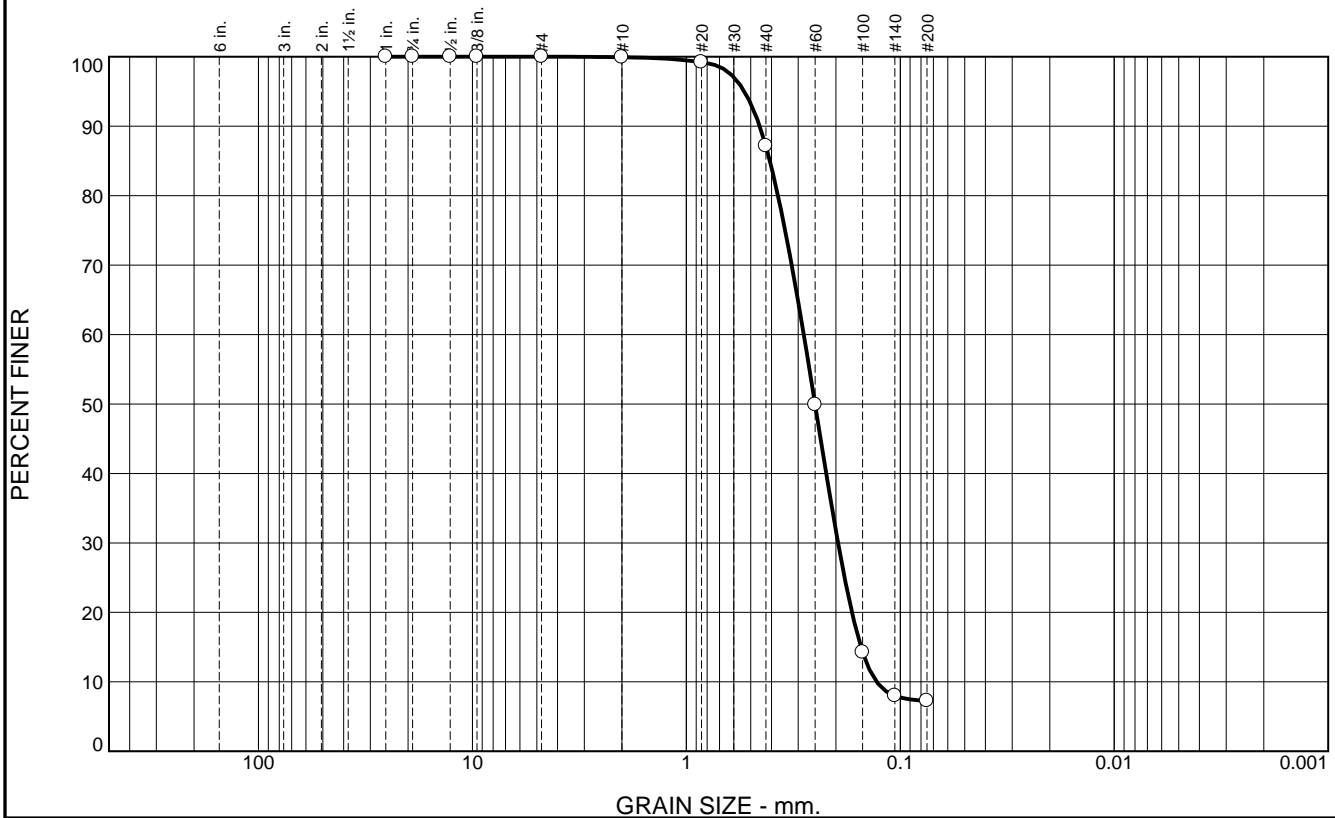
**Mobile, Alabama**

Client: CDM/Thompson Engineering JV  
Project: MsCIP Barrier Island Restoration GT

Project No: 1221110095

Figure

# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.0	0.1	12.7	79.9	7.3	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
1	100.0		
.75	100.0		
.5	100.0		
.375	100.0		
#4	100.0		
#10	99.9		
#20	99.2		
#40	87.2		
#60	49.9		
#100	14.2		
#140	8.0		
#200	7.3		

\* (no specification provided)

## Material Description

Fine to medium grained, SLIGHTLY SILTY SAND

## Atterberg Limits

PL=

LL=

PI=

## Coefficients

D<sub>90</sub>= 0.4541

D<sub>85</sub>= 0.4069

D<sub>60</sub>= 0.2828

D<sub>50</sub>= 0.2503

D<sub>30</sub>= 0.1954

D<sub>15</sub>= 0.1527

D<sub>10</sub>= 0.1291

C<sub>u</sub>= 2.19

C<sub>c</sub>= 1.05

## Classification

USCS= SP-SM

AASHTO=

## Remarks

Location: BI-PB-219-12 B  
Sample Number: 6485 (41)

Depth: 5.9'

Date: 12/07/12

**Thompson Engineering**

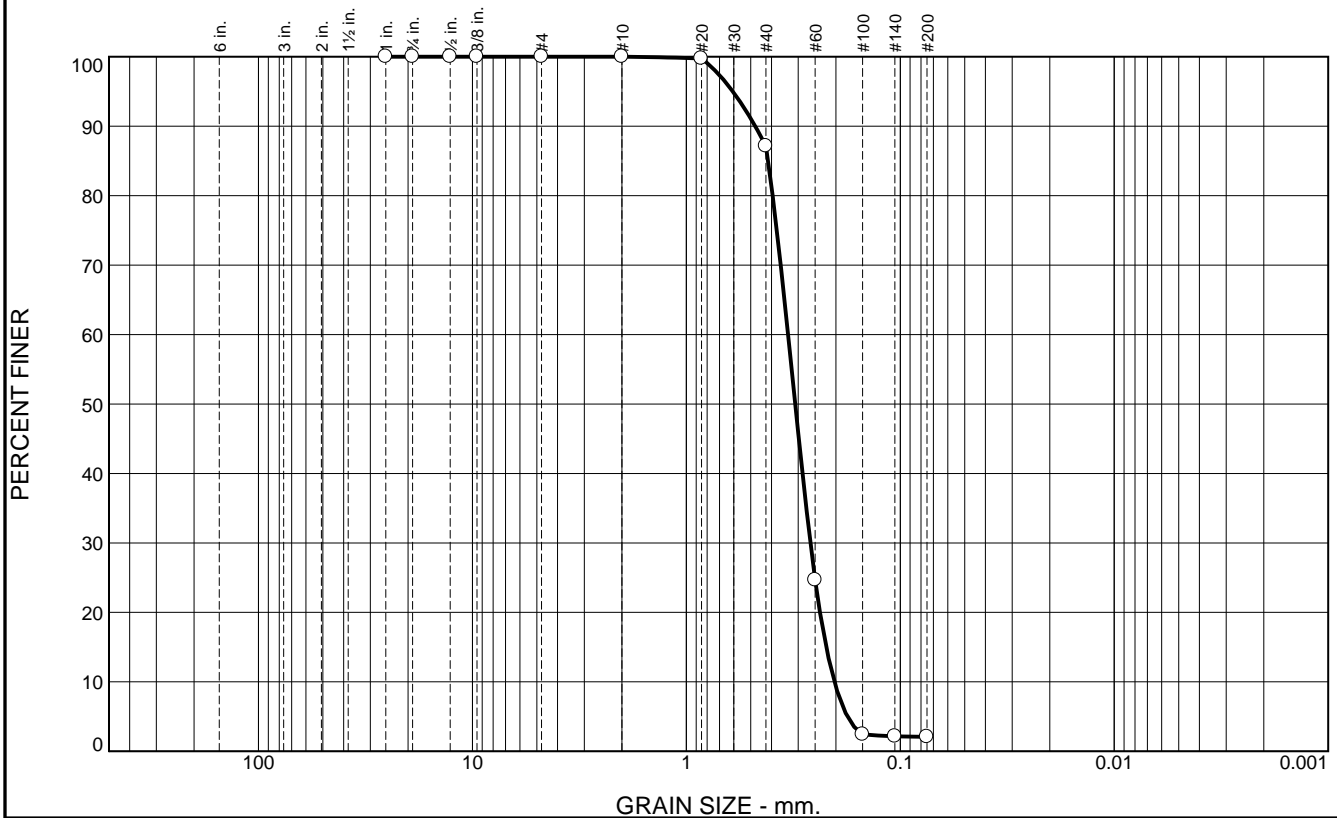
**Mobile, Alabama**

Client: CDM/Thompson Engineering JV  
Project: MsCIP Barrier Island Restoration GT

Project No: 1221110095

Figure

# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.0	0.0	12.9	85.0	2.1	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
1	100.0		
.75	100.0		
.5	100.0		
.375	100.0		
#4	100.0		
#10	100.0		
#20	99.7		
#40	87.1		
#60	24.7		
#100	2.4		
#140	2.2		
#200	2.1		

\* (no specification provided)

<u><b>Material Description</b></u>		
Fine to medium grained, SAND		
<u><b>Atterberg Limits</b></u>		
PL=	LL=	PI=
<u><b>Coefficients</b></u>		
D <sub>90</sub> = 0.4769	D <sub>85</sub> = 0.4151	D <sub>60</sub> = 0.3346
D <sub>50</sub> = 0.3100	D <sub>30</sub> = 0.2633	D <sub>15</sub> = 0.2219
D <sub>10</sub> = 0.2032	C <sub>u</sub> = 1.65	C <sub>c</sub> = 1.02
<u><b>Classification</b></u>		
USCS= SP	AASHTO=	
<u><b>Remarks</b></u>		

Location: BI-PB-219-12 C  
Sample Number: 6485 (42)

Depth: 10.9'

Date: 12/07/12

**Thompson Engineering**

**Mobile, Alabama**

Client: CDM/Thompson Engineering JV  
Project: MsCIP Barrier Island Restoration GT

Project No: 1221110095

Figure

# Boring Designation BI-PB-220-12

DRILLING LOG		DIVISION South Atlantic		INSTALLATION Mobile District		SHEET 1 OF 1 SHEETS	
1. PROJECT MsCIP Barrier Island Restoration Petit Bois Pass- AL East				9. SIZE AND TYPE OF BIT N/A			
2. BORING DESIGNATION BI-PB-220-12		LOCATION COORDINATES E = 1,145,178 N = 255,851		10. COORDINATE SYSTEM/DATUM State Plane, MSE (U.S. Ft.)		HORIZONTAL NAD83 VERTICAL NAVD88	
3. DRILLING AGENCY Corps of Engineers - CESAM		CONTRACTOR FILE NO.		11. MANUFACTURER'S DESIGNATION OF DRILL Vibrocure		<input type="checkbox"/> AUTO HAMMER <input type="checkbox"/> MANUAL HAMMER	
4. NAME OF DRILLER American Vibrocure Systems, Inc.				12. TOTAL SAMPLES		DISTURBED UNDISTURBED (UD) 0	
5. DIRECTION OF BORING <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED		DEG. FROM VERTICAL		13. TOTAL NUMBER CORE BOXES			
		BEARING		14. WATER DEPTH 26.1 Ft.			
6. THICKNESS OF OVERBURDEN N/A				15. DATE BORING 12-06-12		STARTED COMPLETED 12-06-12	
7. DEPTH DRILLED INTO ROCK N/A				16. ELEVATION TOP OF BORING -24.4 Ft.			
8. TOTAL DEPTH OF BORING 11.8 Ft.				17. TOTAL RECOVERY FOR BORING 100%			
				18. SIGNATURE AND TITLE OF INSPECTOR Mike FitzHarris, Geologist			

ELEV.	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS	SAMPLE	LABORATORY RESULTS
-24.4	0.0				
			SAND, poorly-graded, mostly fine to medium-grained sand-sized quartz, trace silt, trace shell fragments, pale lt. brown (SP)	A	Classification: SP Color: 2.5Y 7/2-light gray D50: 0.3202 mm % Fines: 1.1
-28.6	4.2			B	Classification: SP Color: 5Y 7/1-light gray D50: 0.2423 mm % Fines: 2.3
-31.2	6.8			C	Classification: SP Color: 5Y 7/1-light gray D50: 0.2219 mm % Fines: 1.9
-36.2	11.8				
			NOTES: 1. Soils are field visually classified in accordance with the Unified Soils Classification System. 2. NS = Sample not submitted for laboratory analysis from this interval. 3. Seafloor elevation determined from 2010 USACE survey.		



**Project**

Mississippi Barrier Island  
Restoration Project

**AVS**  
**AMERICAN VIBRACORE**  
**S E R V I C E S**

**Core Identifier** BI-PB-220-12

**Date** 12/06/2012

**Water Depth** 26.1'

**Coordinate System**

Latitude / Longitude

**Start Time** 15:04:32

**End Time** 15:12:12

**Penetration** 13.1'

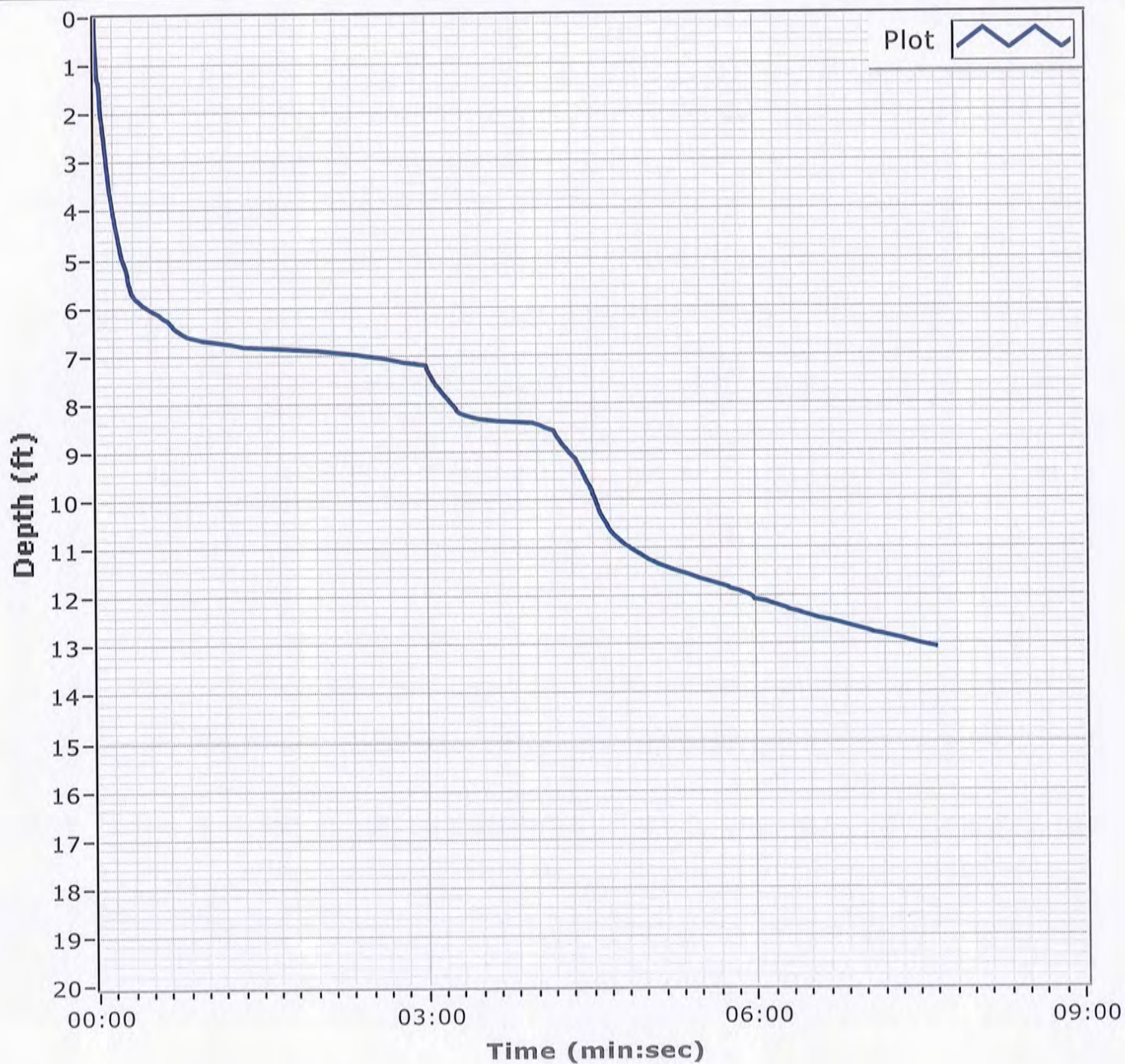
**Latitude** 30 12.153

**Total Time** 00:07:39

**Recovery** 11.8'

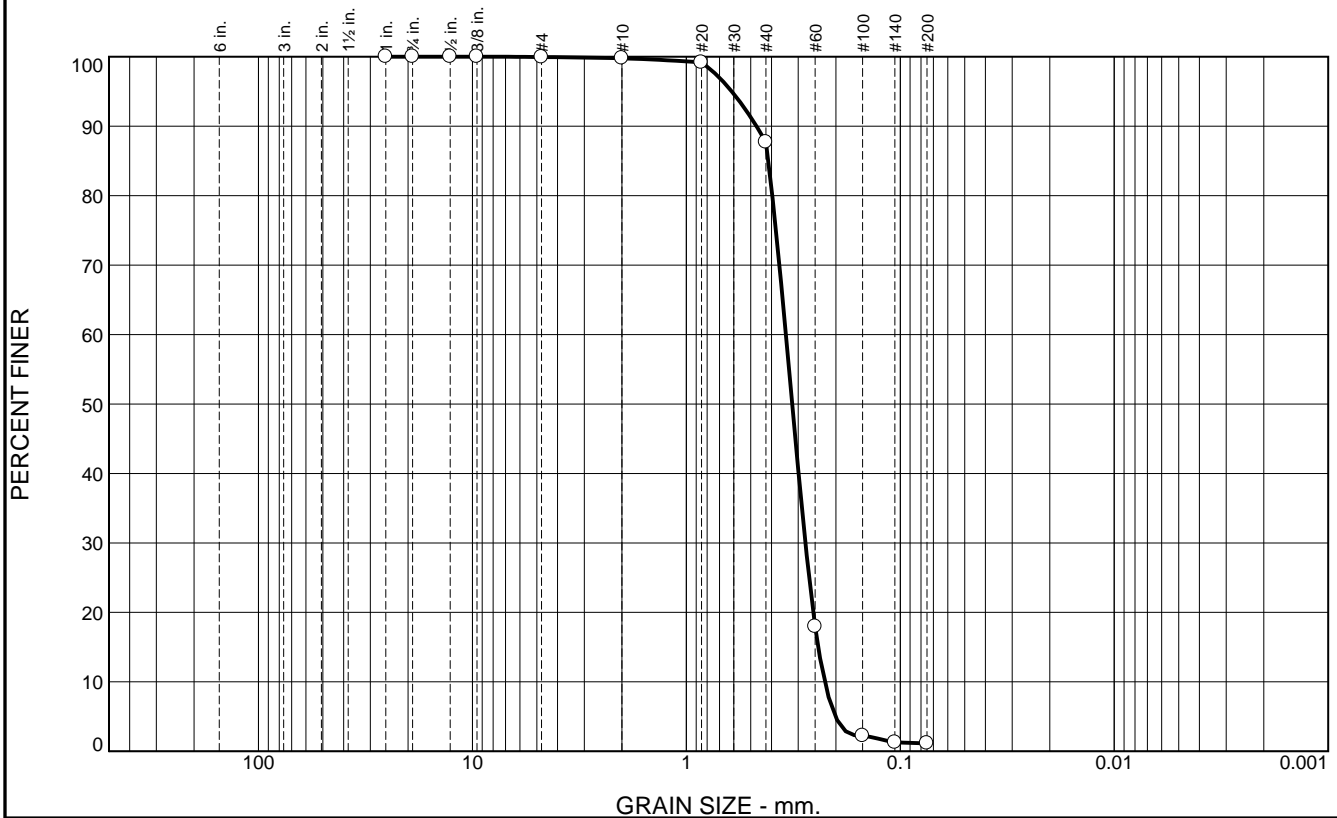
**Longitude** 088 19.434

**Comments**





# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.1	0.1	12.1	86.6	1.1	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
1	100.0		
.75	100.0		
.5	100.0		
.375	100.0		
#4	99.9		
#10	99.8		
#20	99.2		
#40	87.7		
#60	18.0		
#100	2.2		
#140	1.3		
#200	1.1		

\* (no specification provided)

**Material Description**  
 Fine to medium grained, SAND

**Atterberg Limits**  
 PL=      LL=      PI=

**Coefficients**  
 D<sub>90</sub>= 0.4706      D<sub>85</sub>= 0.4141      D<sub>60</sub>= 0.3425  
 D<sub>50</sub>= 0.3202      D<sub>30</sub>= 0.2779      D<sub>15</sub>= 0.2419  
 D<sub>10</sub>= 0.2255      C<sub>u</sub>= 1.52      C<sub>c</sub>= 1.00

**Classification**  
 USCS= SP      AASHTO=

**Remarks**

Location: BI-PB-220-12 A  
 Sample Number: 6480 (56)

Depth: 0.0'

Date: 12/07/12

**Thompson Engineering**

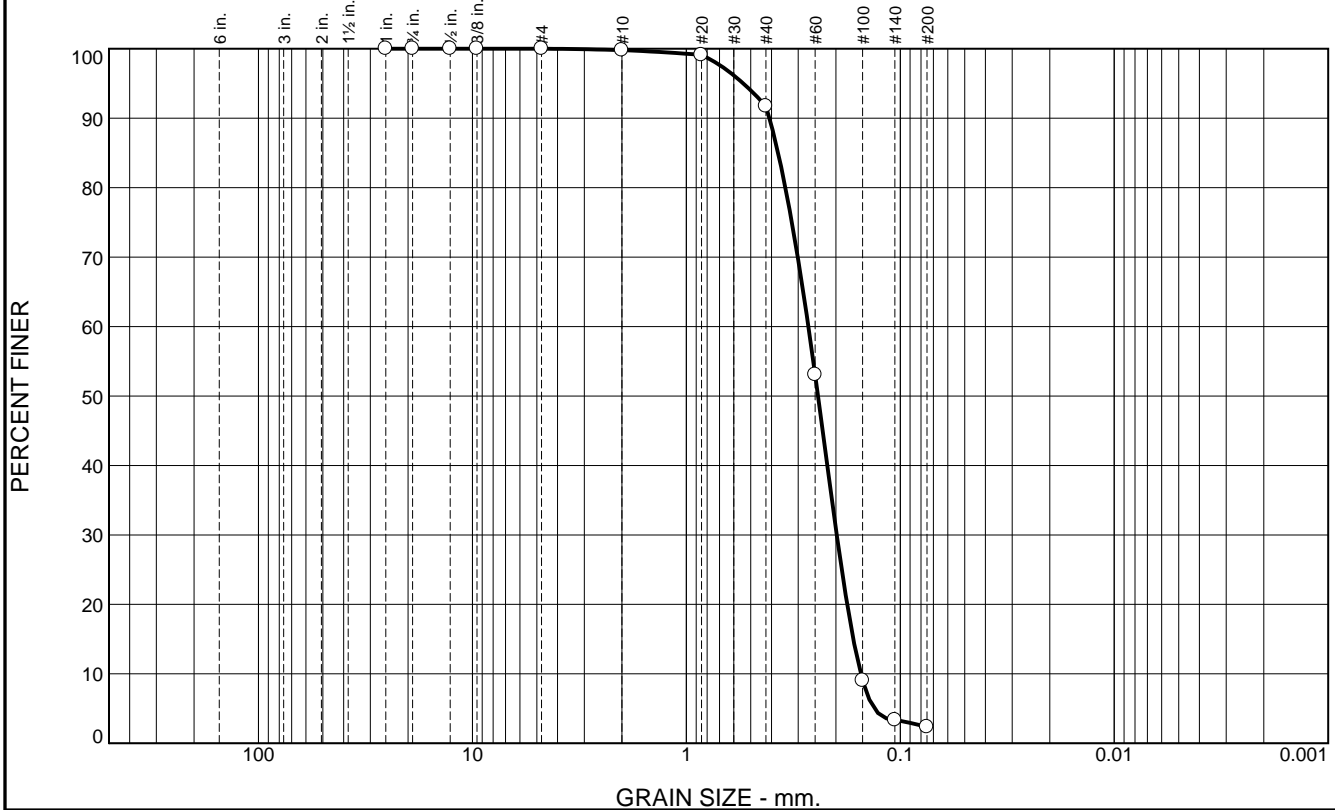
**Mobile, Alabama**

Client: CDM/Thompson Engineering JV  
 Project: MsCIP Barrier Island Restoration GT

Project No: 1221110095

Figure

# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.0	0.2	8.1	89.4	2.3	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
1	100.0		
.75	100.0		
.5	100.0		
.375	100.0		
#4	100.0		
#10	99.8		
#20	99.1		
#40	91.7		
#60	53.1		
#100	9.0		
#140	3.3		
#200	2.3		

\* (no specification provided)

Material Description		
Fine grained, SAND		
<div> <div> Atterberg Limits </div> <div> PL= </div> <div> LL= </div> <div> PI= </div> </div>		
<div> <div> Coefficients </div> <div> D<sub>90</sub>= 0.4089 </div> <div> D<sub>85</sub>= 0.3723 </div> <div> D<sub>60</sub>= 0.2690 </div> <div> D<sub>50</sub>= 0.2423 </div> <div> D<sub>30</sub>= 0.1982 </div> <div> D<sub>15</sub>= 0.1660 </div> <div> D<sub>10</sub>= 0.1530 </div> <div> C<sub>u</sub>= 1.76 </div> <div> C<sub>c</sub>= 0.95 </div> </div>		
<div> <div> Classification </div> <div> USCS= SP </div> <div> AASHTO= </div> </div>		
<div> <div> Remarks </div> </div>		

Location: BI-PB-220-12 B  
Sample Number: 6480 (57)

Depth: 4.2'

Date: 12/07/12

**Thompson Engineering**

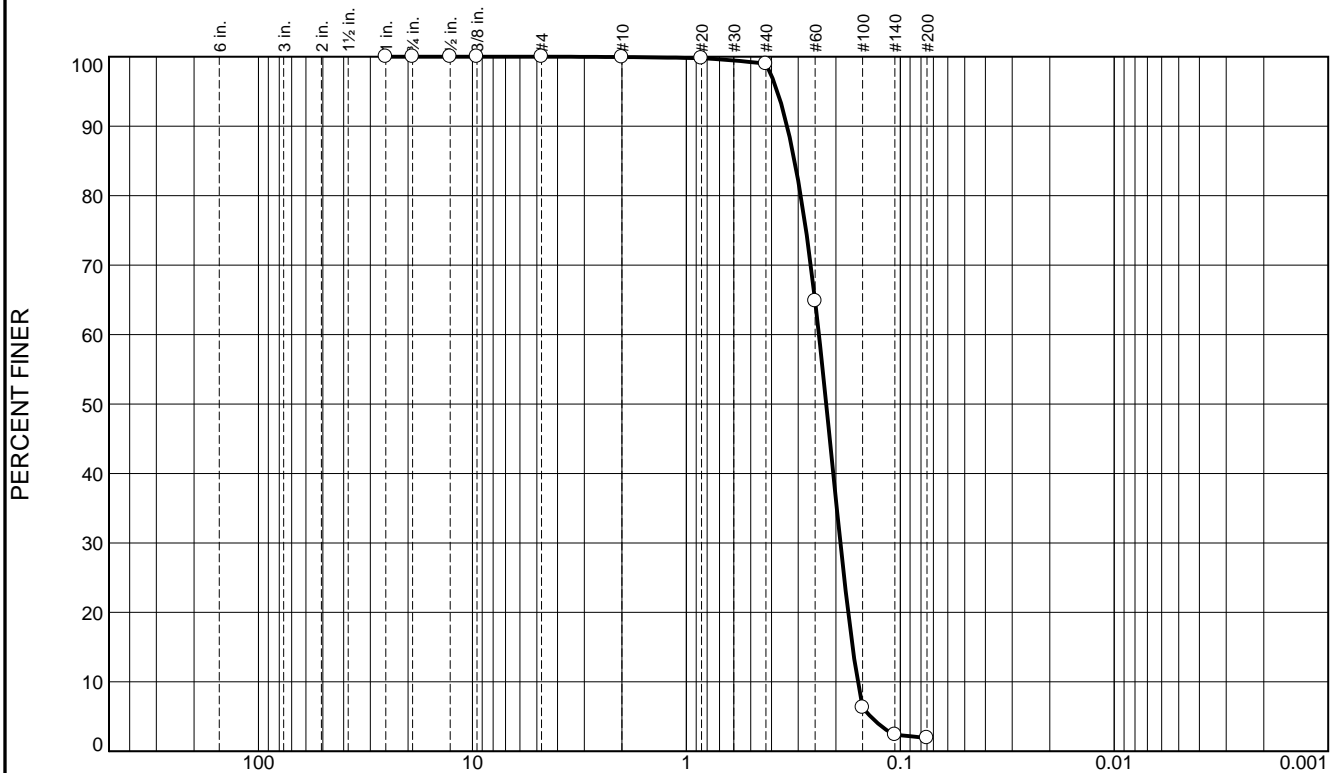
**Mobile, Alabama**

Client: CDM/Thompson Engineering JV  
Project: MsCIP Barrier Island Restoration GT

Project No: 1221110095

Figure

# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.0	0.1	0.9	97.1	1.9	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
1	100.0		
.75	100.0		
.5	100.0		
.375	100.0		
#4	100.0		
#10	99.9		
#20	99.8		
#40	99.0		
#60	64.8		
#100	6.3		
#140	2.4		
#200	1.9		

\* (no specification provided)

## Material Description

Fine grained, SAND

## Atterberg Limits

PL=

LL=

PI=

## Coefficients

D<sub>90</sub>= 0.3381

D<sub>85</sub>= 0.3121

D<sub>60</sub>= 0.2400

D<sub>50</sub>= 0.2219

D<sub>30</sub>= 0.1906

D<sub>15</sub>= 0.1673

D<sub>10</sub>= 0.1582

C<sub>u</sub>= 1.52

C<sub>c</sub>= 0.96

## Classification

USCS= SP

AASHTO=

## Remarks

Location: BI-PB-220-12 C  
Sample Number: 6480 (58)

Depth: 6.8'

Date: 12/07/12

**Thompson Engineering**

**Mobile, Alabama**

Client: CDM/Thompson Engineering JV

Project: MsCIP Barrier Island Restoration GT

Project No: 1221110095

Figure

# Boring Designation BI-PB-221-12

DRILLING LOG		DIVISION South Atlantic		INSTALLATION Mobile District		SHEET 1 OF 1 SHEETS	
1. PROJECT MsCIP Barrier Island Restoration Petit Bois Pass- AL West				9. SIZE AND TYPE OF BIT N/A			
2. BORING DESIGNATION BI-PB-221-12		LOCATION COORDINATES E = 1,130,189 N = 255,743		10. COORDINATE SYSTEM/DATUM State Plane, MSE (U.S. Ft.)		HORIZONTAL NAD83	
3. DRILLING AGENCY Corps of Engineers - CESAM		CONTRACTOR FILE NO.		11. MANUFACTURER'S DESIGNATION OF DRILL Vibracore		<input type="checkbox"/> AUTO HAMMER <input type="checkbox"/> MANUAL HAMMER	
4. NAME OF DRILLER American Vibracore Systems, Inc.				12. TOTAL SAMPLES		DISTURBED 0	
5. DIRECTION OF BORING <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED				13. TOTAL NUMBER CORE BOXES		14. WATER DEPTH 22 Ft.	
6. THICKNESS OF OVERBURDEN N/A				15. DATE BORING		STARTED 12-13-12	
7. DEPTH DRILLED INTO ROCK N/A				16. ELEVATION TOP OF BORING -22.4 Ft.		COMPLETED 12-13-12	
8. TOTAL DEPTH OF BORING 16.3 Ft.				17. TOTAL RECOVERY FOR BORING 100%		18. SIGNATURE AND TITLE OF INSPECTOR Mike FitzHarris, Geologist	
ELEV.	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS	SAMPLE	LABORATORY RESULTS		
-22.4	0.0						
			SAND, poorly-graded, mostly fine to medium-grained sand-sized quartz, trace fines, trace shell fragments, pale brown to lt. gray (SP)	A	Classification: SP Color: 2.5Y 7/2-light gray D50: 0.3248 mm % Fines: 1.7		
				B	Classification: SP Color: 2.5Y 8/1-white D50: 0.2875 mm % Fines: 1.9		
				C	Classification: SP Color: 5Y 7/1-light gray D50: 0.2894 mm % Fines: 1.7		
-38.7	16.3		NOTES:				
			1. Soils are field visually classified in accordance with the Unified Soils Classification System. 2. NS = Sample not submitted for laboratory analysis from this interval. 3. Seafloor elevation calculated using sampling vessel's fathometer water depth reading and applying NOAA tidal gauge data conversion factor.				

**Project**

Mississippi Barrier Island  
Restoration Project

**AVS**  
**AMERICAN VIBRACORE**  
**S E R V I C E S**

**Core Identifier** BI-PB-221-12

**Date** 12/13/2012

**Water Depth** 22.0'

**Coordinate System**

**Start Time** 09:51:37

Latitude / Longitude

**End Time** 09:58:21

**Penetration** 20.0'

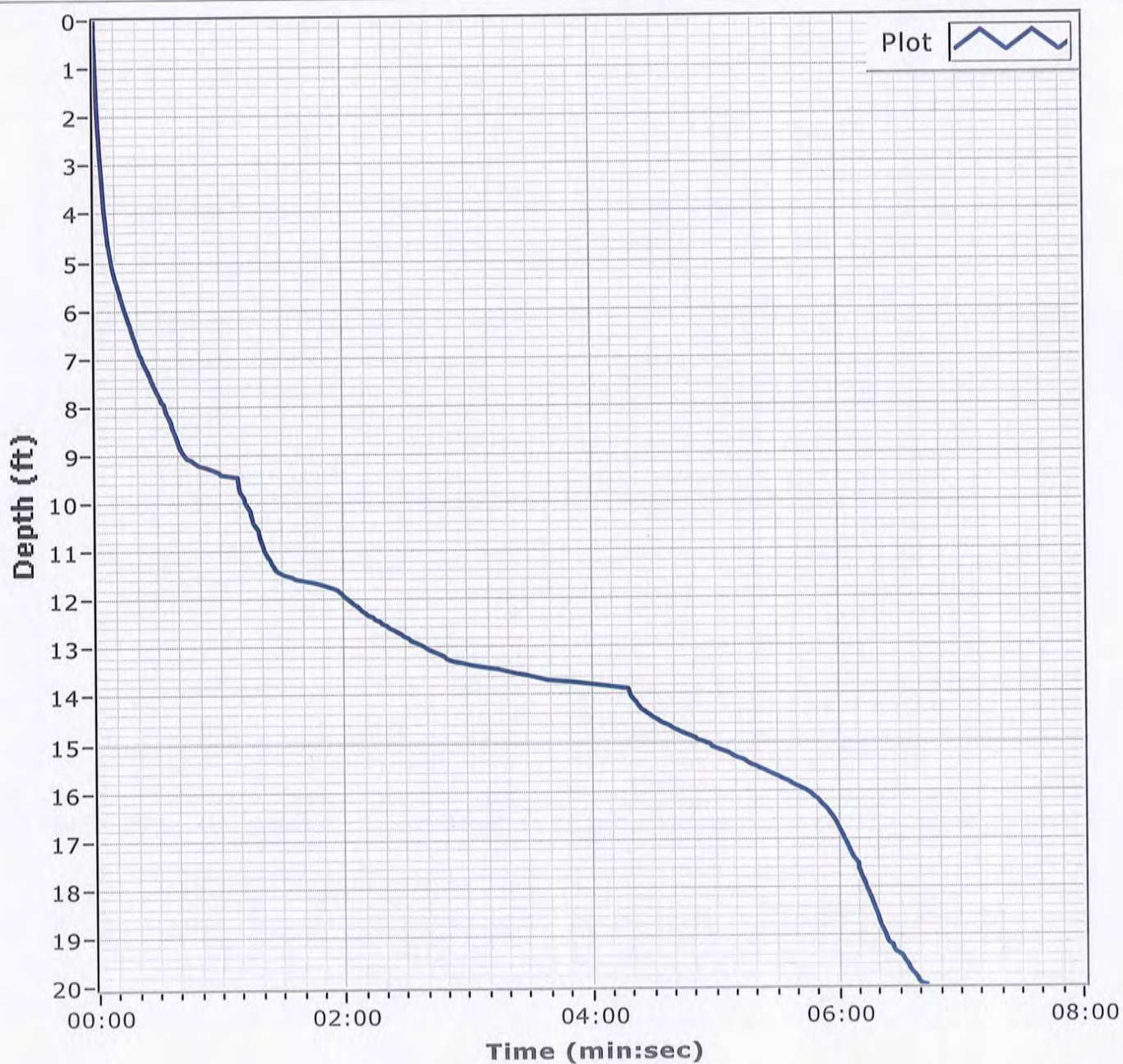
**Latitude** 30 12.146

**Total Time** 00:06:43

**Recovery** 16.2'

**Longitude** 088 22.281

**Comments**



# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.4	0.4	20.1	77.4	1.7	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
1	100.0		
.75	100.0		
.5	100.0		
.375	100.0		
#4	99.6		
#10	99.2		
#20	97.8		
#40	79.1		
#60	21.9		
#100	3.2		
#140	1.9		
#200	1.7		

\* (no specification provided)

<u>Material Description</u>		
Fine to medium grained, SAND		
PL=	<u>Atterberg Limits</u> LL=	PI=
<u>Coefficients</u>		
D <sub>90</sub> = 0.5925	D <sub>85</sub> = 0.5020	D <sub>60</sub> = 0.3534
D <sub>50</sub> = 0.3248	D <sub>30</sub> = 0.2723	D <sub>15</sub> = 0.2271
D <sub>10</sub> = 0.2060	C <sub>u</sub> = 1.72	C <sub>c</sub> = 1.02
<u>Classification</u>		
USCS= SP	AASHTO=	
<u>Remarks</u>		

Location: BI-PB-221-12 A  
Sample Number: 6485 (43)

Depth: 0.0'

Date: 12/07/12

**Thompson Engineering**

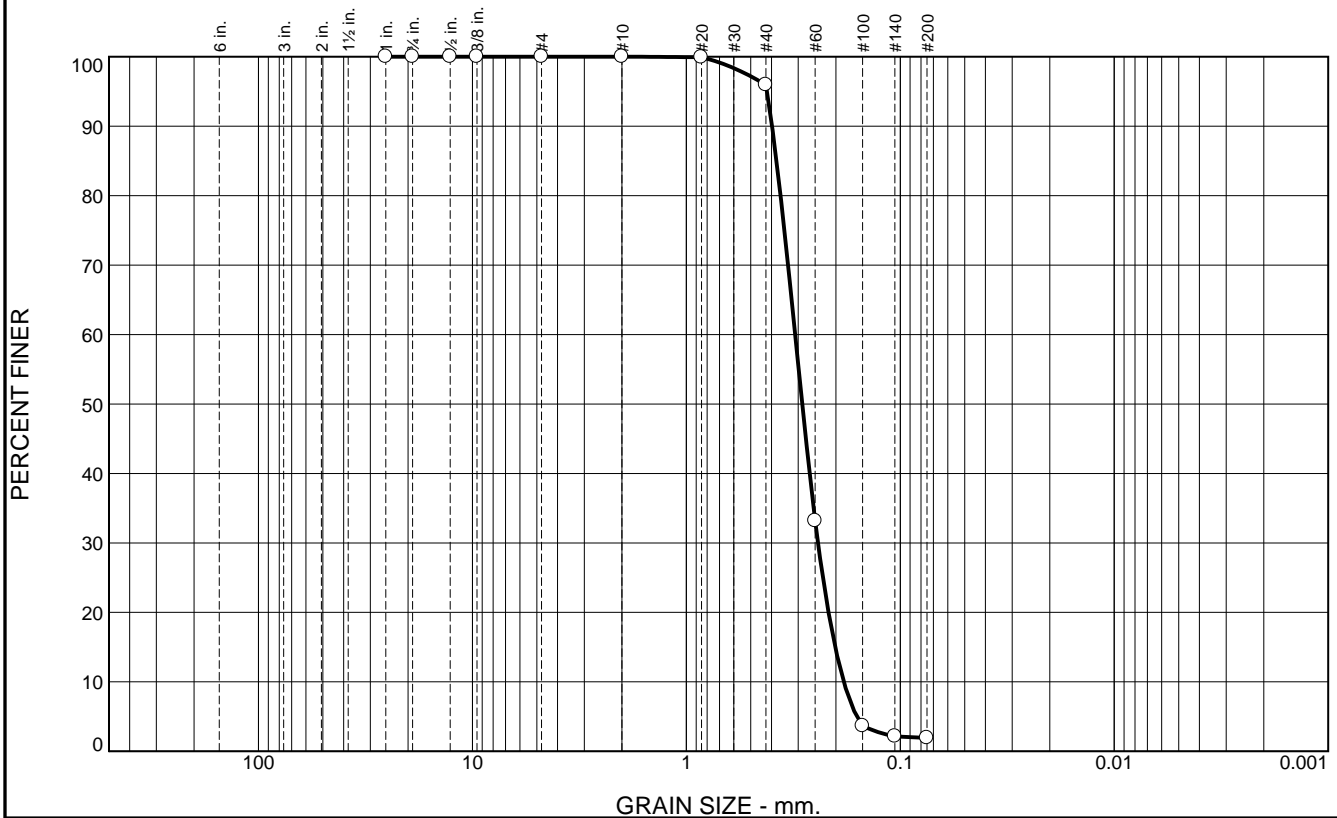
**Mobile, Alabama**

Client: CDM/Thompson Engineering JV  
Project: MsCIP Barrier Island Restoration GT

Project No: 1221110095

Figure

# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.0	0.0	4.1	94.0	1.9	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
1	100.0		
.75	100.0		
.5	100.0		
.375	100.0		
#4	100.0		
#10	100.0		
#20	99.9		
#40	95.9		
#60	33.2		
#100	3.6		
#140	2.1		
#200	1.9		

\* (no specification provided)

**Material Description**  
Fine grained, SAND

**Atterberg Limits**  
PL=      LL=      PI=

**Coefficients**  
D<sub>90</sub>= 0.3974      D<sub>85</sub>= 0.3788      D<sub>60</sub>= 0.3101  
D<sub>50</sub>= 0.2875      D<sub>30</sub>= 0.2425      D<sub>15</sub>= 0.2015  
D<sub>10</sub>= 0.1838      C<sub>u</sub>= 1.69      C<sub>c</sub>= 1.03

**Classification**  
USCS= SP      AASHTO=

**Remarks**

Location: BI-PB-221-12 B  
Sample Number: 6485 (44)

Depth: 5.0'

Date: 12/07/12

**Thompson Engineering**

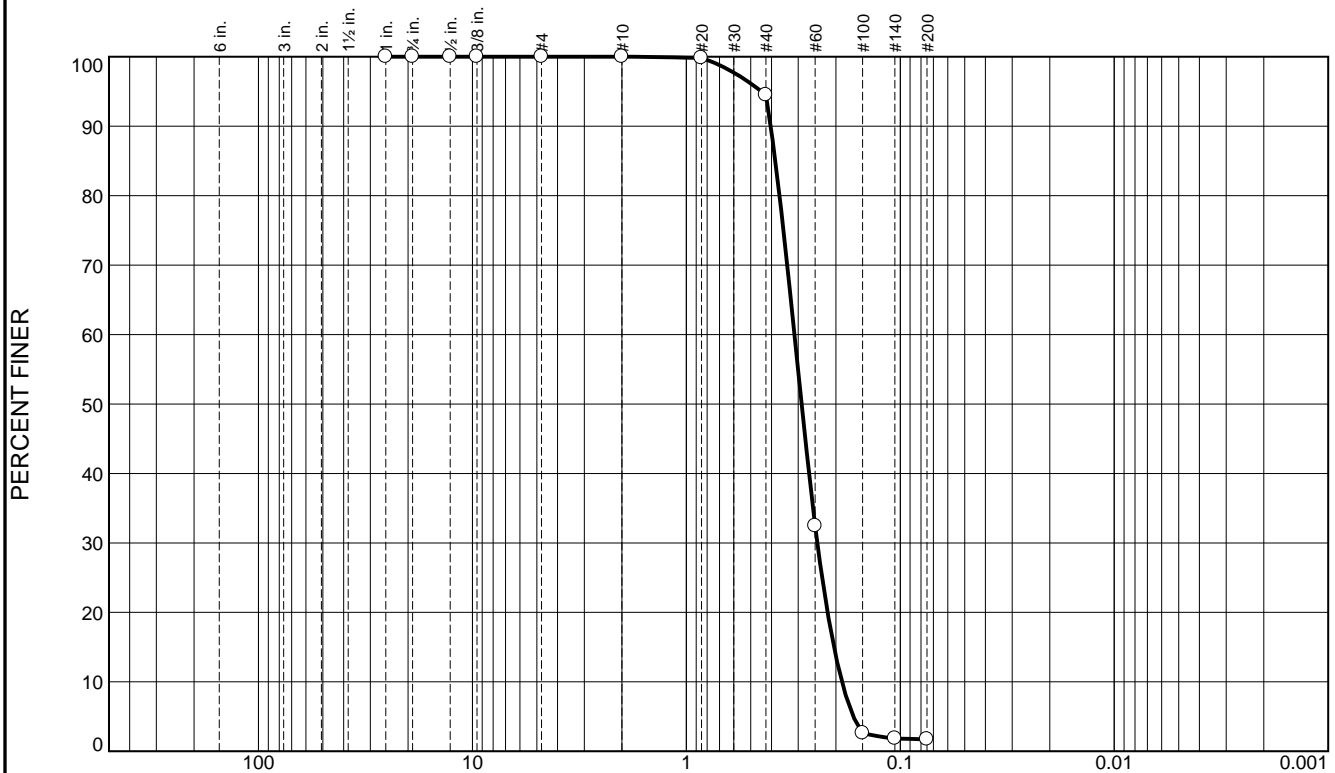
**Mobile, Alabama**

Client: CDM/Thompson Engineering JV  
Project: MsCIP Barrier Island Restoration GT

Project No: 1221110095

Figure

# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.0	0.0	5.5	92.8	1.7	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
1	100.0		
.75	100.0		
.5	100.0		
.375	100.0		
#4	100.0		
#10	100.0		
#20	99.8		
#40	94.5		
#60	32.5		
#100	2.6		
#140	1.8		
#200	1.7		

\* (no specification provided)

## Material Description

Fine grained, SAND

## Atterberg Limits

PL=

LL=

PI=

## Coefficients

D<sub>90</sub>= 0.4033

D<sub>85</sub>= 0.3836

D<sub>60</sub>= 0.3125

D<sub>50</sub>= 0.2894

D<sub>30</sub>= 0.2442

D<sub>15</sub>= 0.2042

D<sub>10</sub>= 0.1875

C<sub>u</sub>= 1.67

C<sub>c</sub>= 1.02

## Classification

USCS= SP

AASHTO=

## Remarks

Location: BI-PB-221-12 C  
Sample Number: 6485 (45)

Depth: 10.0'

Date: 12/07/12

**Thompson Engineering**

**Mobile, Alabama**

Client: CDM/Thompson Engineering JV  
Project: MsCIP Barrier Island Restoration GT

Project No: 1221110095

Figure



# Boring Designation BI-PB-222-12

DRILLING LOG		DIVISION South Atlantic		INSTALLATION Mobile District		SHEET 1 OF 1 SHEETS	
1. PROJECT MsCIP Barrier Island Restoration Petit Bois Pass- AL West				9. SIZE AND TYPE OF BIT N/A			
2. BORING DESIGNATION BI-PB-222-12		LOCATION COORDINATES E = 1,131,864 N = 255,677		10. COORDINATE SYSTEM/DATUM State Plane, MSE (U.S. Ft.)		HORIZONTAL NAD83 VERTICAL NAVD88	
3. DRILLING AGENCY Corps of Engineers - CESAM		CONTRACTOR FILE NO.		11. MANUFACTURER'S DESIGNATION OF DRILL Vibracore		<input type="checkbox"/> AUTO HAMMER <input type="checkbox"/> MANUAL HAMMER	
4. NAME OF DRILLER American Vibracore Systems, Inc.				12. TOTAL SAMPLES		DISTURBED UNDISTURBED (UD) 0	
5. DIRECTION OF BORING <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED		DEG. FROM VERTICAL		BEARING		13. TOTAL NUMBER CORE BOXES	
6. THICKNESS OF OVERBURDEN N/A		7. DEPTH DRILLED INTO ROCK N/A		8. TOTAL DEPTH OF BORING 16.6 Ft.		14. WATER DEPTH 22.8 Ft.	
						15. DATE BORING 12-13-12	
						16. ELEVATION TOP OF BORING -23.6 Ft.	
						17. TOTAL RECOVERY FOR BORING 100%	
						18. SIGNATURE AND TITLE OF INSPECTOR Mike FitzHarris, Geologist	
ELEV.	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS	SAMPLE	LABORATORY RESULTS		
-23.6	0.0						
			SAND, poorly-graded, mostly fine to medium-grained sand-sized quartz, trace fines, trace shell fragments, becomes siltier with depth, pale brown to lt. gray (SP)	A	Classification: SP Color: 2.5Y 7/2-light gray D50: 0.3667 mm % Fines: 1.5		
				B	Classification: SP Color: 2.5Y 6/2-light brownish gray D50: 0.3124 mm % Fines: 2.5		
				C	Classification: SP Color: 2.5Y 6/2-light brownish gray D50: 0.3064 mm % Fines: 3		
-36.3	12.7						
			SAND, poorly-graded with silt, mostly fine-grained sand-sized quartz, few silt, silty band at 14.9 ft., lt. brown (SP-SM)	D	Classification: SP-SM Color: 2.5Y 5/2-grayish brown D50: 0.2903 mm % Fines: 6.2		
-39.6	16.0						
-40.2	16.6		CLAY, fat, mostly clay, little fine-grained sand-sized quartz, medium to high plasticity, stiff, gray (CH)	NS			
			NOTES: 1. Soils are field visually classified in accordance with the Unified Soils Classification System. 2. NS = Sample not submitted for laboratory analysis from this interval. 3. Seafloor elevation calculated using sampling vessel's fathometer water depth reading and applying NOAA tidal gauge data conversion factor.				

**Project**

Mississippi Barrier Island  
Restoration Project

**AVS**  
**AMERICAN VIBRACORE**  
**S E R V I C E S**

**Core Identifier** BI-PB-222-12

**Date** 12/13/2012

**Water Depth** 22.8'

**Coordinate System**

Latitude / Longitude

**Start Time** 10:25:03

**End Time** 10:26:03

**Penetration** 20.0'

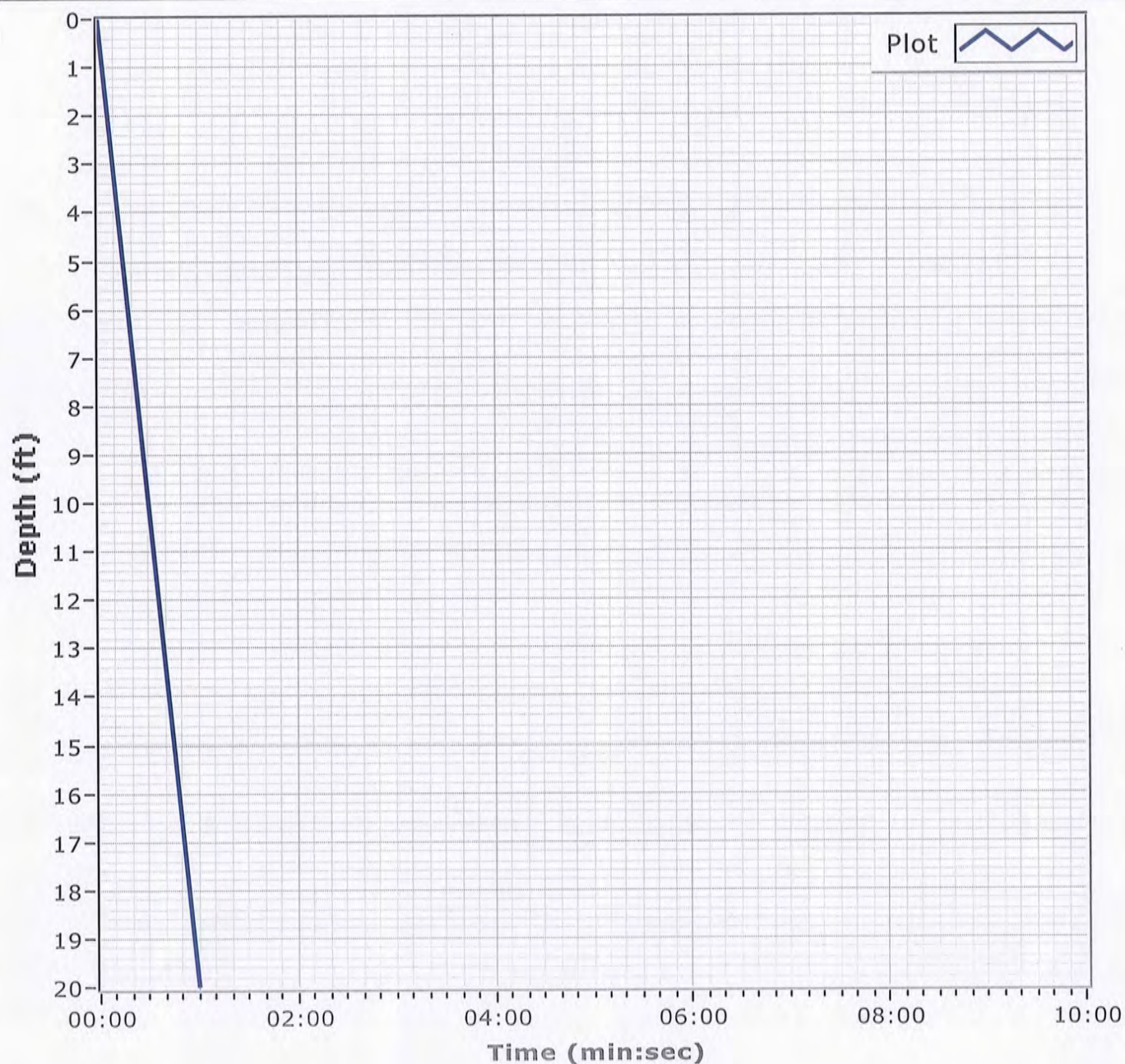
**Latitude** 30 12.134

**Total Time** 00:01:00

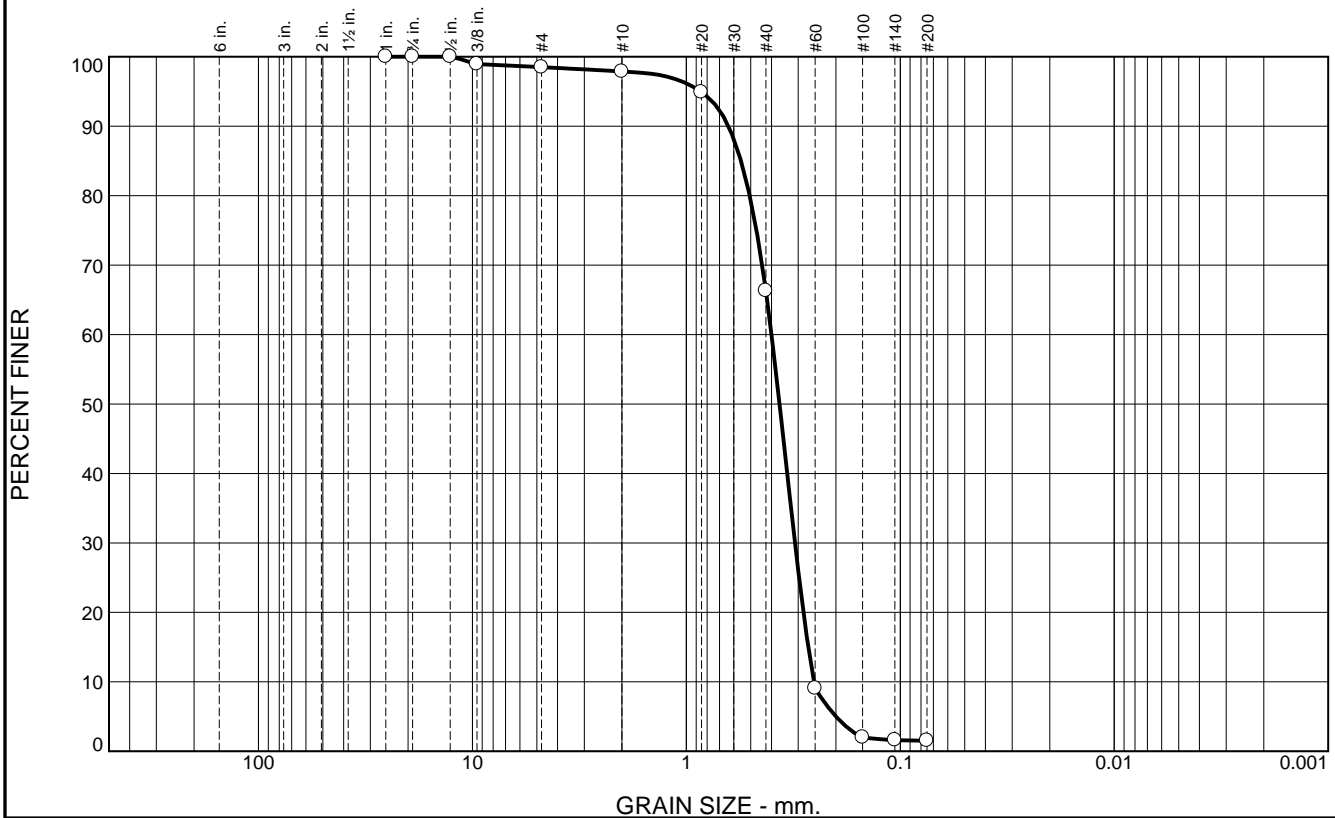
**Recovery** 16.6'

**Longitude** 088 21.963

**Comments**



# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	1.5	0.6	31.6	64.8	1.5	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
1	100.0		
.75	100.0		
.5	100.0		
.375	98.9		
#4	98.5		
#10	97.9		
#20	94.9		
#40	66.3		
#60	9.1		
#100	2.0		
#140	1.6		
#200	1.5		

\* (no specification provided)

<u><b>Material Description</b></u>		
Fine to medium grained, SAND, with trace SHELL		
<u><b>Atterberg Limits</b></u>		
PL=	LL=	PI=
<u><b>Coefficients</b></u>		
D <sub>90</sub> = 0.6358	D <sub>85</sub> = 0.5552	D <sub>60</sub> = 0.4000
D <sub>50</sub> = 0.3667	D <sub>30</sub> = 0.3107	D <sub>15</sub> = 0.2695
D <sub>10</sub> = 0.2534	C <sub>u</sub> = 1.58	C <sub>c</sub> = 0.95
<u><b>Classification</b></u>		
USCS= SP	AASHTO=	
<u><b>Remarks</b></u>		

Location: BI-PB-222-12 A  
Sample Number: 6485 (46)

Depth: 0.0'

Date: 12/07/12

**Thompson Engineering**

**Mobile, Alabama**

Client: CDM/Thompson Engineering JV  
Project: MsCIP Barrier Island Restoration GT

Project No: 1221110095

Figure

# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.0	0.2	11.4	85.9	2.5	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
1	100.0		
.75	100.0		
.5	100.0		
.375	100.0		
#4	100.0		
#10	99.8		
#20	99.4		
#40	88.4		
#60	22.7		
#100	3.3		
#140	2.7		
#200	2.5		

\* (no specification provided)

## Material Description

Fine to medium grained, SAND

## Atterberg Limits

PL= LL= PI=

## Coefficients

D<sub>90</sub>= 0.4578 D<sub>85</sub>= 0.4105 D<sub>60</sub>= 0.3358  
D<sub>50</sub>= 0.3124 D<sub>30</sub>= 0.2677 D<sub>15</sub>= 0.2276  
D<sub>10</sub>= 0.2083 C<sub>u</sub>= 1.61 C<sub>c</sub>= 1.02

## Classification

USCS= SP AASHTO=

## Remarks

Location: BI-PB-222-12 B  
Sample Number: 6485 (47)

Depth: 5.0'

Date: 12/07/12

**Thompson Engineering**

**Mobile, Alabama**

Client: CDM/Thompson Engineering JV  
Project: MsCIP Barrier Island Restoration GT

Project No: 1221110095

Figure

# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.0	0.0	7.4	89.6	3.0	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
1	100.0		
.75	100.0		
.5	100.0		
.375	100.0		
#4	100.0		
#10	100.0		
#20	100.0		
#40	92.6		
#60	24.1		
#100	3.9		
#140	3.1		
#200	3.0		

\* (no specification provided)

Material Description		
Fine grained, SAND		
<div> <div> Atterberg Limits </div> <div> PL= </div> <div> LL= </div> <div> PI= </div> </div>		
<div> <div> Coefficients </div> <div> D<sub>90</sub>= 0.4136 </div> <div> D<sub>50</sub>= 0.3064 </div> <div> D<sub>10</sub>= 0.2047 </div> <div> D<sub>85</sub>= 0.3951 </div> <div> D<sub>30</sub>= 0.2638 </div> <div> C<sub>u</sub>= 1.60 </div> <div> D<sub>60</sub>= 0.3282 </div> <div> D<sub>15</sub>= 0.2242 </div> <div> C<sub>c</sub>= 1.04 </div> </div>		
<div> <div> Classification </div> <div> USCS= SP </div> <div> AASHTO= </div> </div>		
<div> <div> Remarks </div> </div>		

Location: BI-PB-222-12 C  
Sample Number: 6485 (48)

Depth: 10.0'

Date: 12/07/12

Thompson Engineering

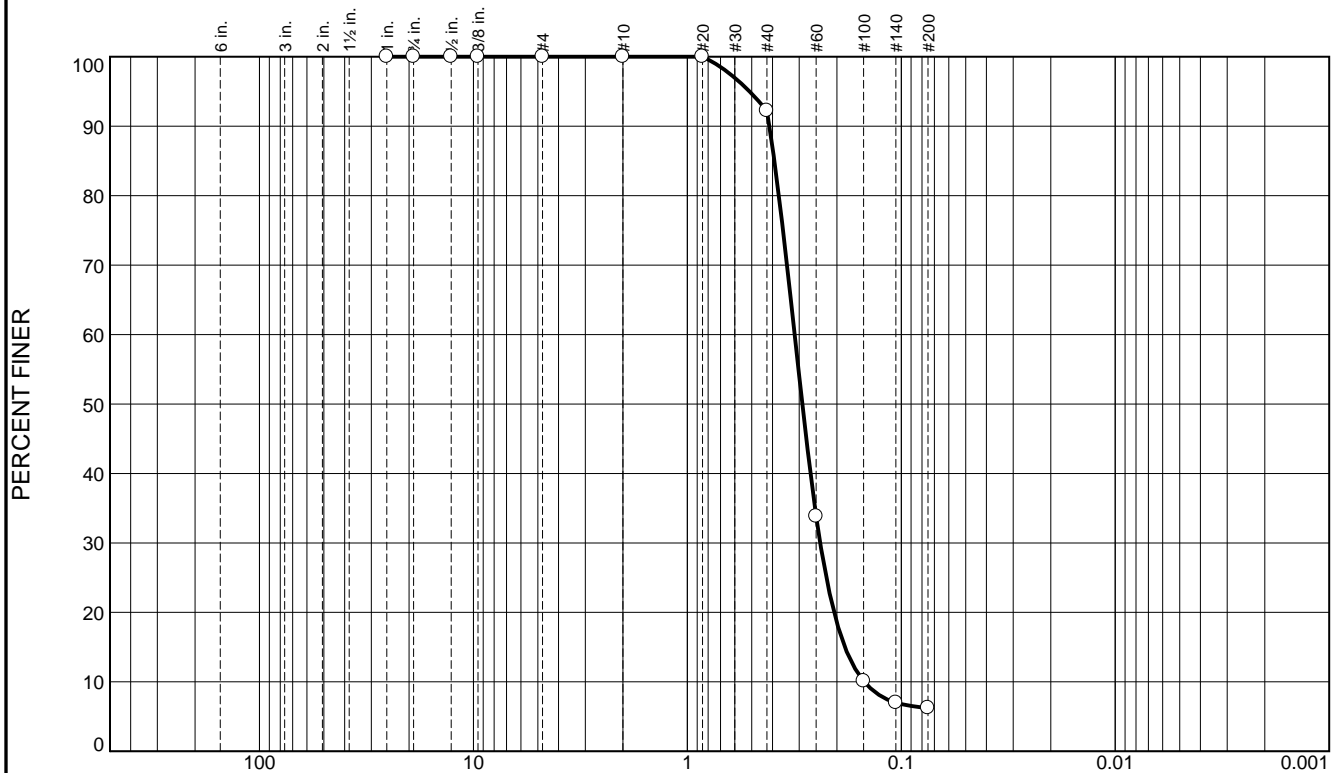
Mobile, Alabama

Client: CDM/Thompson Engineering JV  
Project: MsCIP Barrier Island Restoration GT

Project No: 1221110095

Figure

# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.0	0.0	7.8	86.0	6.2	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
1	100.0		
.75	100.0		
.5	100.0		
.375	100.0		
#4	100.0		
#10	100.0		
#20	100.0		
#40	92.2		
#60	33.8		
#100	10.1		
#140	7.0		
#200	6.2		

\* (no specification provided)

<b><u>Material Description</u></b>		
Fine grained, SLIGHTLY SILTY SAND		
<b><u>Atterberg Limits</u></b>		
PL=	LL=	PI=
<b><u>Coefficients</u></b>		
D <sub>90</sub> = 0.4135	D <sub>85</sub> = 0.3917	D <sub>60</sub> = 0.3152
D <sub>50</sub> = 0.2903	D <sub>30</sub> = 0.2393	D <sub>15</sub> = 0.1836
D <sub>10</sub> = 0.1489	C <sub>u</sub> = 2.12	C <sub>c</sub> = 1.22
<b><u>Classification</u></b>		
USCS= SP-SM	AASHTO=	
<b><u>Remarks</u></b>		

Location: BI-PB-222-12 D  
Sample Number: 6485 (49)

Depth: 12.7'

Date: 12/07/12

**Thompson Engineering**

**Mobile, Alabama**

Client: CDM/Thompson Engineering JV  
Project: MsCIP Barrier Island Restoration GT

Project No: 1221110095

Figure

# Boring Designation BI-PB-223-12

DRILLING LOG		DIVISION South Atlantic		INSTALLATION Mobile District		SHEET 1 OF 2 SHEETS	
1. PROJECT MsCIP Barrier Island Restoration Petit Bois Pass- AL West				9. SIZE AND TYPE OF BIT N/A			
2. BORING DESIGNATION BI-PB-223-12		LOCATION COORDINATES E = 1,131,098 N = 255,092		10. COORDINATE SYSTEM/DATUM State Plane, MSE (U.S. Ft.)		HORIZONTAL NAD83	
3. DRILLING AGENCY Corps of Engineers - CESAM		CONTRACTOR FILE NO.		11. MANUFACTURER'S DESIGNATION OF DRILL Vibracore		<input type="checkbox"/> AUTO HAMMER <input type="checkbox"/> MANUAL HAMMER	
4. NAME OF DRILLER American Vibracore Systems, Inc.				12. TOTAL SAMPLES		DISTURBED 0	
5. DIRECTION OF BORING <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED				13. TOTAL NUMBER CORE BOXES		14. WATER DEPTH 25 Ft.	
6. THICKNESS OF OVERBURDEN N/A				15. DATE BORING		STARTED 12-13-12	
7. DEPTH DRILLED INTO ROCK N/A				16. ELEVATION TOP OF BORING -24.7 Ft.		COMPLETED 12-13-12	
8. TOTAL DEPTH OF BORING 20.0 Ft.				17. TOTAL RECOVERY FOR BORING 100%		18. SIGNATURE AND TITLE OF INSPECTOR Mike FitzHarris, Geologist	
ELEV.	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS	SAMPLE	LABORATORY RESULTS		
-24.7	0.0						
			SAND, poorly-graded, mostly fine to medium-grained sand-sized quartz, trace fines, trace shell fragments, silty bands from 6.0 to 6.5 ft. and at 9.0 ft., lt. gray (SP)	A	Classification: SP Color: 2.5Y 8/1-white D50: 0.2824 mm % Fines: 1.2		
				B	Classification: SP Color: 2.5Y 6/2-light brownish gray D50: 0.1767 mm % Fines: 2.5		
-34.7	10.0						
-36.1	11.4		SAND, poorly-graded with silt, mostly fine-grained sand-sized quartz, few silt, lt. brown (SP-SM)	C	Classification: SP Color: 2.5Y 5/2-grayish brown D50: 0.2397 mm % Fines: 4.4		
-37.2	12.5		SAND, silty, mostly fine-grained sand-sized quartz, some siltstone, trace clay, brown (SM)				
-39.7	15.0		SAND, clayey, mostly fine-grained sand-sized quartz, some clay, some silt, gray (SC)				
			CLAY, fat, mostly clay, medium to high plasticity, stiff, grayish green (CH)	NS			
-44.7	20.0						
			NOTES: 1. Soils are field visually classified in accordance with the Unified Soils Classification System. 2. NS = Sample not submitted for laboratory analysis from this interval. 3. Seafloor elevation determined from 2010				

<b>DRILLING LOG (Cont. Sheet)</b>			<b>INSTALLATION</b> Mobile District		<b>SHEET 2</b> <b>OF 2 SHEETS</b>
<b>PROJECT</b> MsCIP Barrier Island Restoration			<b>COORDINATE SYSTEM/DATUM</b> State Plane, MSE (U.S. Ft.)	<b>HORIZONTAL</b> NAD83	<b>VERTICAL</b> NAVD88
<b>LOCATION COORDINATES</b> X = 1,131,098 Y = 255,092			<b>ELEVATION TOP OF BORING</b> -24.7 Ft.		
<b>ELEV.</b>	<b>DEPTH</b>	<b>LEGEND</b>	<b>CLASSIFICATION OF MATERIALS</b>	<b>SAMPLE</b>	<b>LABORATORY RESULTS</b>
			USACE survey.		



**Project**

Mississippi Barrier Island  
Restoration Project

**AVS**  
**AMERICAN VIBRACORE**  
**S E R V I C E S**

**Core Identifier** BI-PB-223-12

**Date** 12/13/2012

**Water Depth** 25.0'

**Coordinate System**

Latitude / Longitude

**Start Time** 09:20:05

**End Time** 09:22:25

**Penetration** 20.0'

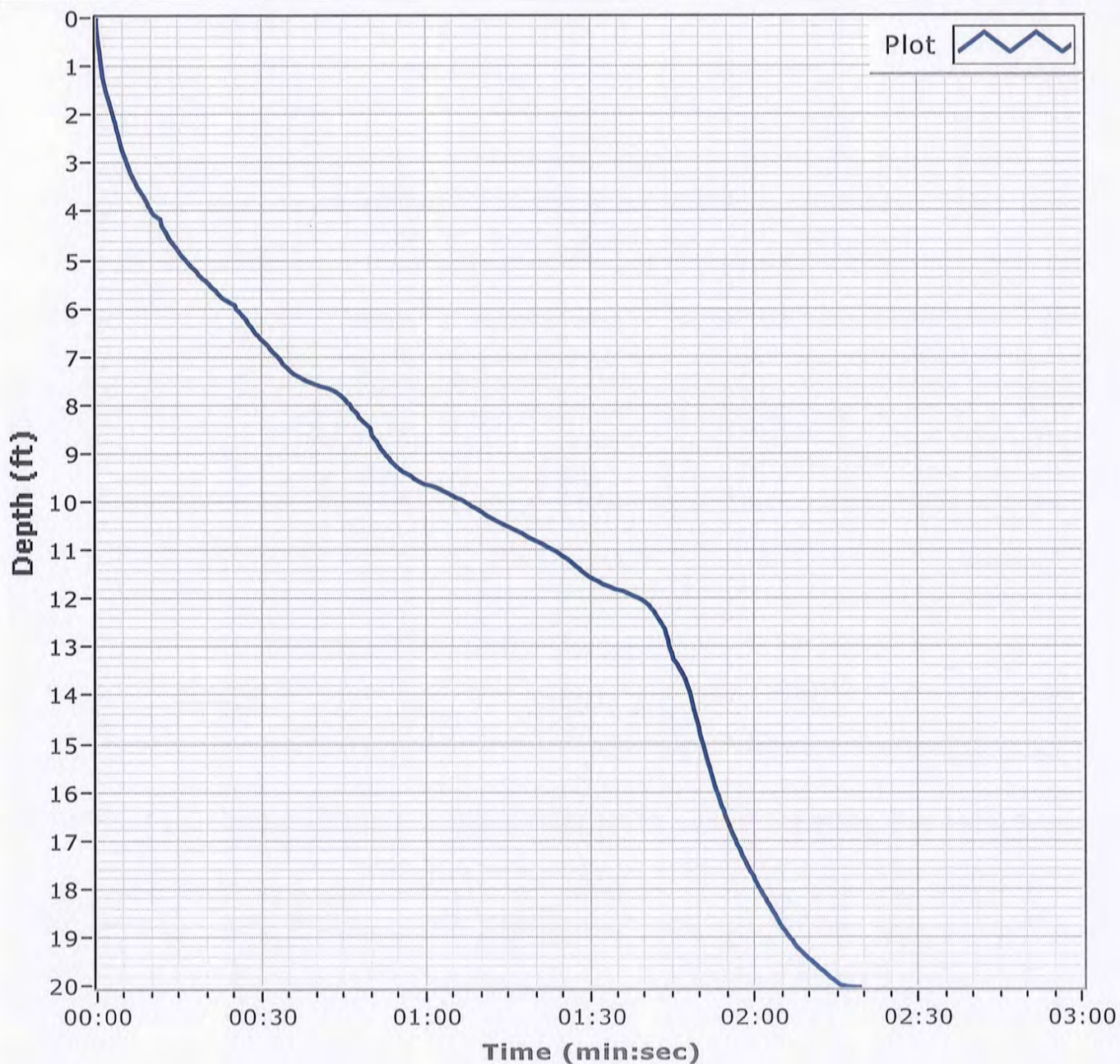
**Latitude** 30 12.038

**Total Time** 00:02:19

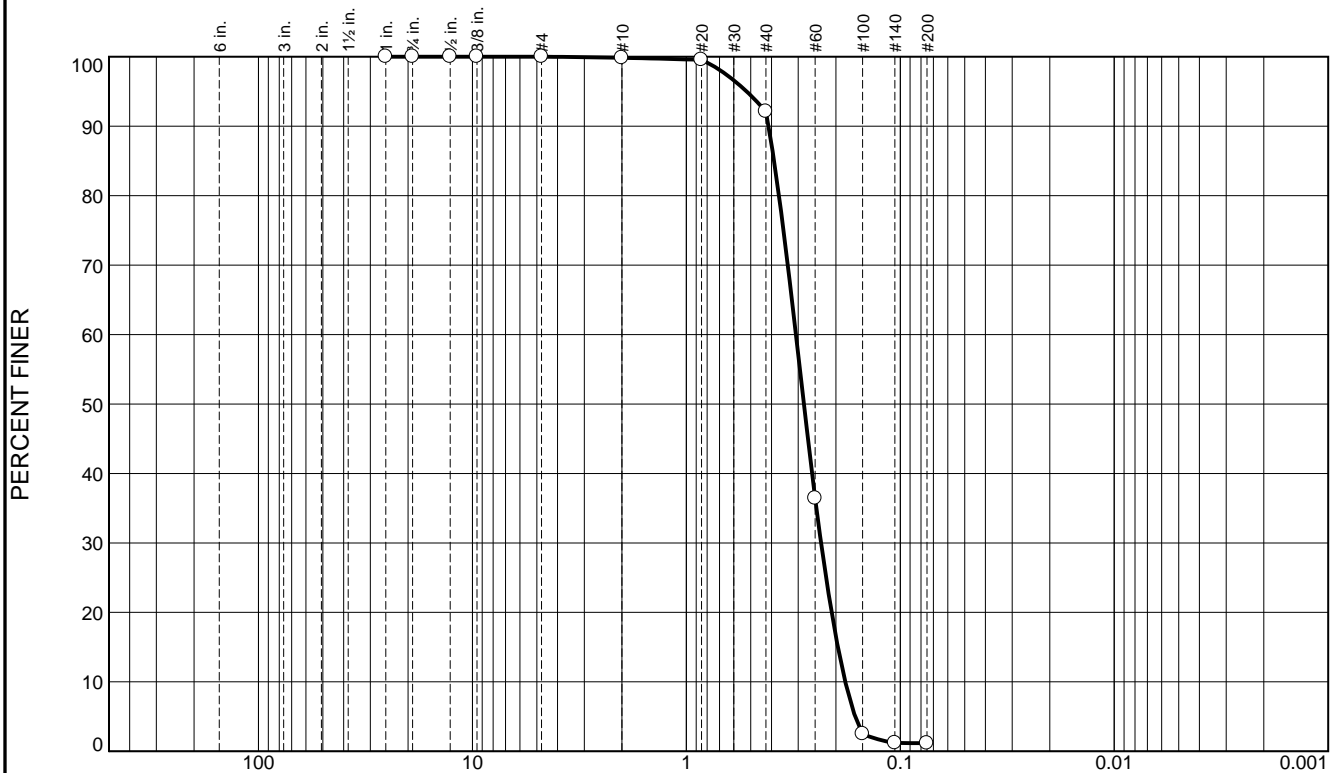
**Recovery** 20.0'

**Longitude** 088 22.109

**Comments**



# Particle Size Distribution Report



GRAIN SIZE - mm.

% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.0	0.2	7.7	90.9	1.2	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
1	100.0		
.75	100.0		
.5	100.0		
.375	100.0		
#4	100.0		
#10	99.8		
#20	99.5		
#40	92.1		
#60	36.4		
#100	2.5		
#140	1.2		
#200	1.2		

\* (no specification provided)

## Material Description

Fine grained, SAND

## Atterberg Limits

PL=

LL=

PI=

## Coefficients

D<sub>90</sub>= 0.4129

D<sub>85</sub>= 0.3888

D<sub>60</sub>= 0.3076

D<sub>50</sub>= 0.2824

D<sub>30</sub>= 0.2346

D<sub>15</sub>= 0.1958

D<sub>10</sub>= 0.1809

C<sub>u</sub>= 1.70

C<sub>c</sub>= 0.99

## Classification

USCS= SP

AASHTO=

## Remarks

Location: BI-PB-223-12 A

Sample Number: 6485 (50)

Depth: 0.0'

Date: 12/07/12

**Thompson Engineering**

**Mobile, Alabama**

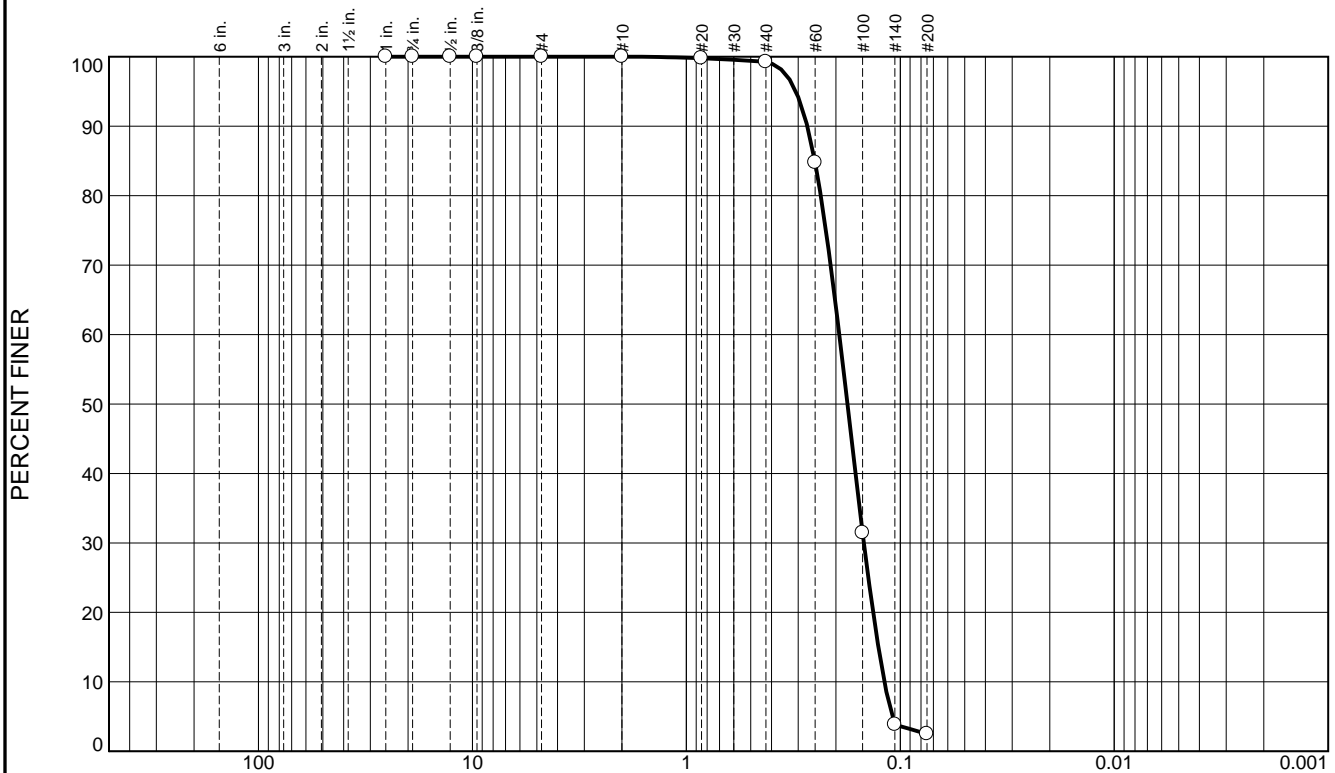
Client: CDM/Thompson Engineering JV

Project: MsCIP Barrier Island Restoration GT

Project No: 1221110095

Figure

# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.0	0.0	0.7	96.8	2.5	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
1	100.0		
.75	100.0		
.5	100.0		
.375	100.0		
#4	100.0		
#10	100.0		
#20	99.8		
#40	99.3		
#60	84.8		
#100	31.4		
#140	3.8		
#200	2.5		

\* (no specification provided)

## Material Description

Fine grained, SAND

## Atterberg Limits

PL=

LL=

PI=

## Coefficients

D<sub>90</sub>= 0.2722

D<sub>85</sub>= 0.2509

D<sub>60</sub>= 0.1929

D<sub>50</sub>= 0.1767

D<sub>30</sub>= 0.1480

D<sub>15</sub>= 0.1267

D<sub>10</sub>= 0.1187

C<sub>u</sub>= 1.63

C<sub>c</sub>= 0.96

## Classification

USCS= SP

AASHTO=

## Remarks

Location: BI-PB-223-12 B  
Sample Number: 6485 (51)

Depth: 5.0'

Date: 12/07/12

**Thompson Engineering**

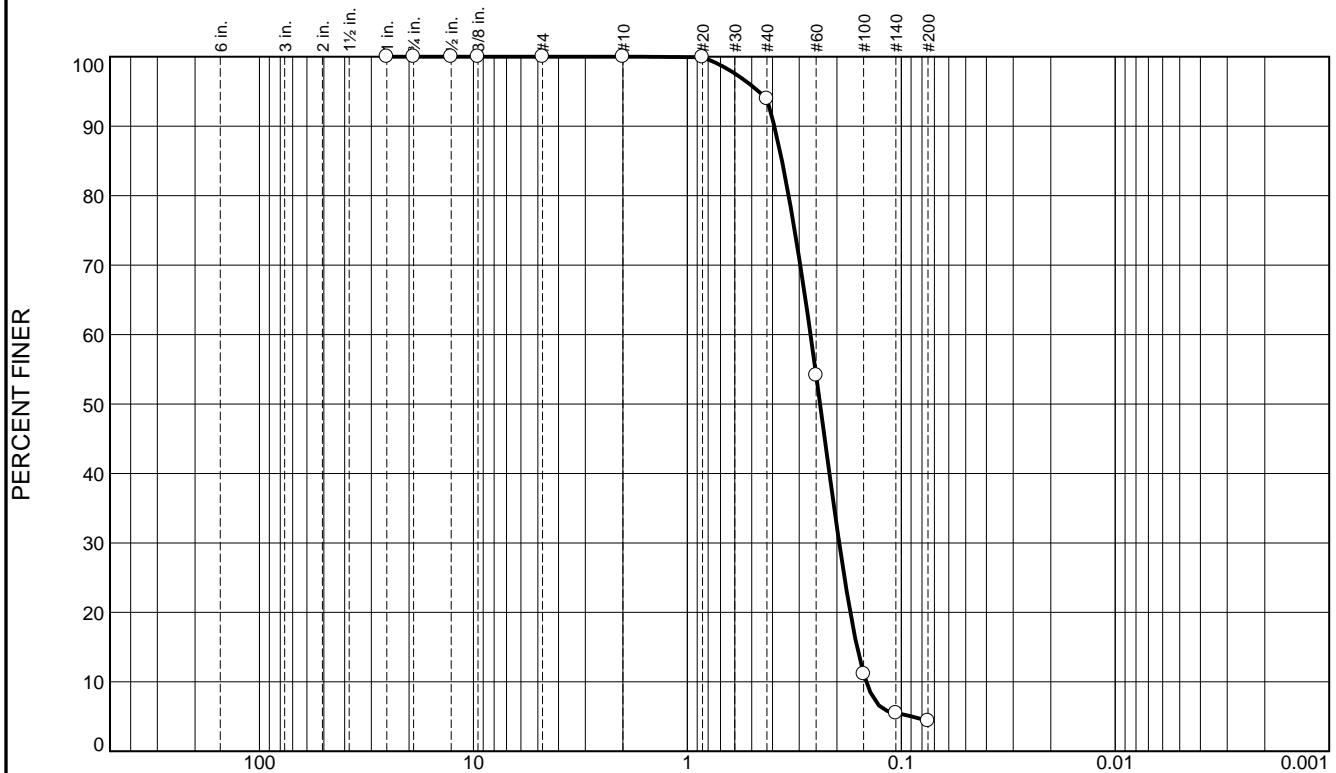
**Mobile, Alabama**

Client: CDM/Thompson Engineering JV  
Project: MsCIP Barrier Island Restoration GT

Project No: 1221110095

Figure

# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.0	0.0	6.1	89.5	4.4	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
1	100.0		
.75	100.0		
.5	100.0		
.375	100.0		
#4	100.0		
#10	100.0		
#20	99.9		
#40	93.9		
#60	54.2		
#100	11.2		
#140	5.5		
#200	4.4		

\* (no specification provided)

Material Description		
Fine grained, SAND		
<div> <div> Atterberg Limits </div> <div> PL= </div> <div> LL= </div> <div> PI= </div> </div>		
<div> <div> Coefficients </div> <div> D<sub>90</sub>= 0.3921 </div> <div> D<sub>50</sub>= 0.2397 </div> <div> D<sub>10</sub>= 0.1459 </div> <div> D<sub>85</sub>= 0.3610 </div> <div> D<sub>30</sub>= 0.1951 </div> <div> C<sub>u</sub>= 1.82 </div> <div> D<sub>60</sub>= 0.2657 </div> <div> D<sub>15</sub>= 0.1611 </div> <div> C<sub>c</sub>= 0.98 </div> </div>		
<div> <div> Classification </div> <div> USCS= SP </div> <div> AASHTO= </div> </div>		
<div> <div> Remarks </div> </div>		

Location: BI-PB-223-12 C  
Sample Number: 6485 (52)

Depth: 10.0'

Date: 12/07/12

Thompson Engineering

Mobile, Alabama

Client: CDM/Thompson Engineering JV  
Project: MsCIP Barrier Island Restoration GT

Project No: 1221110095

Figure

# Boring Designation BI-PB-224-12

DRILLING LOG		DIVISION South Atlantic		INSTALLATION Mobile District		SHEET 1 OF 2 SHEETS	
1. PROJECT MsCIP Barrier Island Restoration Petit Bois Pass- AL West				9. SIZE AND TYPE OF BIT N/A			
2. BORING DESIGNATION BI-PB-224-12		LOCATION COORDINATES E = 1,130,179 N = 254,434		10. COORDINATE SYSTEM/DATUM State Plane, MSE (U.S. Ft.)		HORIZONTAL NAD83	
3. DRILLING AGENCY Corps of Engineers - CESAM		CONTRACTOR FILE NO.		11. MANUFACTURER'S DESIGNATION OF DRILL Vibracore		<input type="checkbox"/> AUTO HAMMER <input type="checkbox"/> MANUAL HAMMER	
4. NAME OF DRILLER American Vibracore Systems, Inc.				12. TOTAL SAMPLES		DISTURBED 0	
5. DIRECTION OF BORING <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED				13. TOTAL NUMBER CORE BOXES		14. WATER DEPTH 23.8 Ft.	
6. THICKNESS OF OVERBURDEN N/A				15. DATE BORING		STARTED 12-13-12	
7. DEPTH DRILLED INTO ROCK N/A				16. ELEVATION TOP OF BORING -24.7 Ft.		COMPLETED 12-13-12	
8. TOTAL DEPTH OF BORING 20.0 Ft.				17. TOTAL RECOVERY FOR BORING 100%		18. SIGNATURE AND TITLE OF INSPECTOR Mike FitzHarris, Geologist	

ELEV.	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS	SAMPLE	LABORATORY RESULTS
-24.7	0.0				
			SAND, poorly-graded, mostly fine to medium-grained sand-sized quartz, trace fines, trace shell fragments, lt. gray (SP)	A	Classification: SP Color: 2.5Y 8/1-white D50: 0.3506 mm % Fines: 1
				B	Classification: SP Color: 2.5Y 8/1-white D50: 0.3548 mm % Fines: 0.8
-35.7	11.0		SAND, poorly-graded with silt, mostly fine-grained sand-sized quartz, few silt, trace clay, lt. gray to gray (SP-SM)	C	Classification: SP Color: 2.5Y 6/2-light brownish gray D50: 0.2994 mm % Fines: 3.6
-39.7	15.0		SAND, silty, mostly fine-grained sand-sized quartz, some silt, trace clay, gray (SM)	NS	
-43.4	18.7				
-44.7	20.0		CLAY, lean, mostly clay, some fine-grained sand-sized quartz, sandy clay, low to medium plasticity, gray (CL)		
			NOTES: 1. Soils are field visually classified in accordance with the Unified Soils Classification System. 2. NS = Sample not submitted for laboratory analysis from this interval.		

<b>DRILLING LOG (Cont. Sheet)</b>			<b>INSTALLATION</b> Mobile District		<b>SHEET 2</b> <b>OF 2 SHEETS</b>
<b>PROJECT</b> MsCIP Barrier Island Restoration			<b>COORDINATE SYSTEM/DATUM</b> State Plane, MSE (U.S. Ft.)	<b>HORIZONTAL</b> NAD83	<b>VERTICAL</b> NAVD88
<b>LOCATION COORDINATES</b> X = 1,130,179 Y = 254,434			<b>ELEVATION TOP OF BORING</b> -24.7 Ft.		
<b>ELEV.</b>	<b>DEPTH</b>	<b>LEGEND</b>	<b>CLASSIFICATION OF MATERIALS</b>	<b>SAMPLE</b>	<b>LABORATORY RESULTS</b>
			3. Seafloor elevation determined from 2010 USACE survey.		



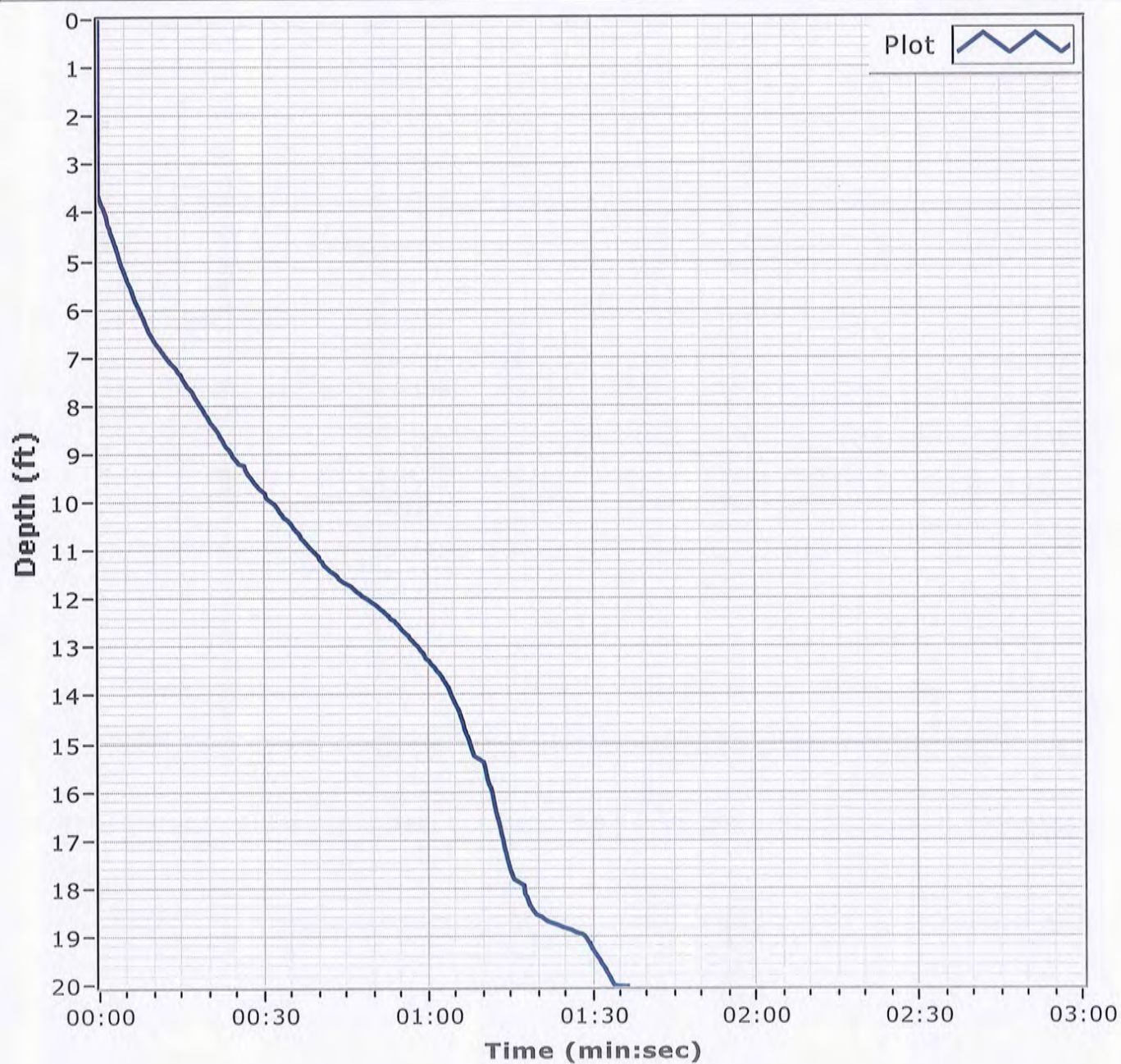
**Project**

Mississippi Barrier Island  
Restoration Project

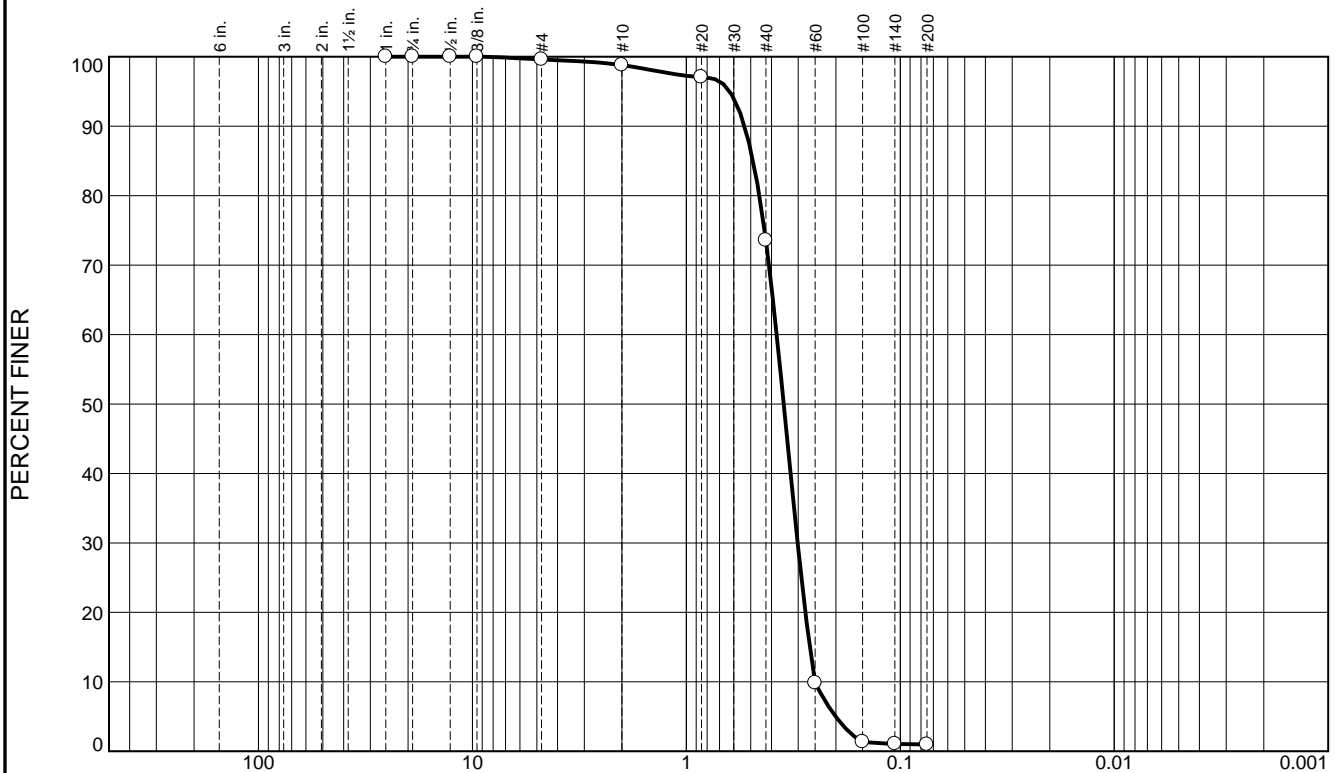
**AVS**  
**AMERICAN VIBRACORE**  
**S E R V I C E S**

**Core Identifier** BI-PB-224-12**Date** 12/13/2012**Water Depth** 23.8'**Coordinate System**

Latitude / Longitude

**Start Time** 08:42:12**End Time** 08:43:49**Penetration** 20.0'**Latitude** 30 11.930**Total Time** 00:01:36**Recovery** 20.0'**Longitude** 088 22.284**Comments**

# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.4	0.8	25.2	72.6	1.0	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
1	100.0		
.75	100.0		
.5	100.0		
.375	100.0		
#4	99.6		
#10	98.8		
#20	97.0		
#40	73.6		
#60	9.9		
#100	1.3		
#140	1.1		
#200	1.0		

\* (no specification provided)

<u><b>Material Description</b></u>		
Fine to medium grained, SAND		
<u><b>Atterberg Limits</b></u>		
PL=	LL=	PI=
<u><b>Coefficients</b></u>		
D <sub>90</sub> = 0.5345	D <sub>85</sub> = 0.4879	D <sub>60</sub> = 0.3782
D <sub>50</sub> = 0.3506	D <sub>30</sub> = 0.3020	D <sub>15</sub> = 0.2650
D <sub>10</sub> = 0.2505	C <sub>u</sub> = 1.51	C <sub>c</sub> = 0.96
<u><b>Classification</b></u>		
USCS= SP	AASHTO=	
<u><b>Remarks</b></u>		

Location: BI-PB-224-12 A  
Sample Number: 6485 (53)

Depth: 0.0'

Date: 12/07/12

**Thompson Engineering**

**Mobile, Alabama**

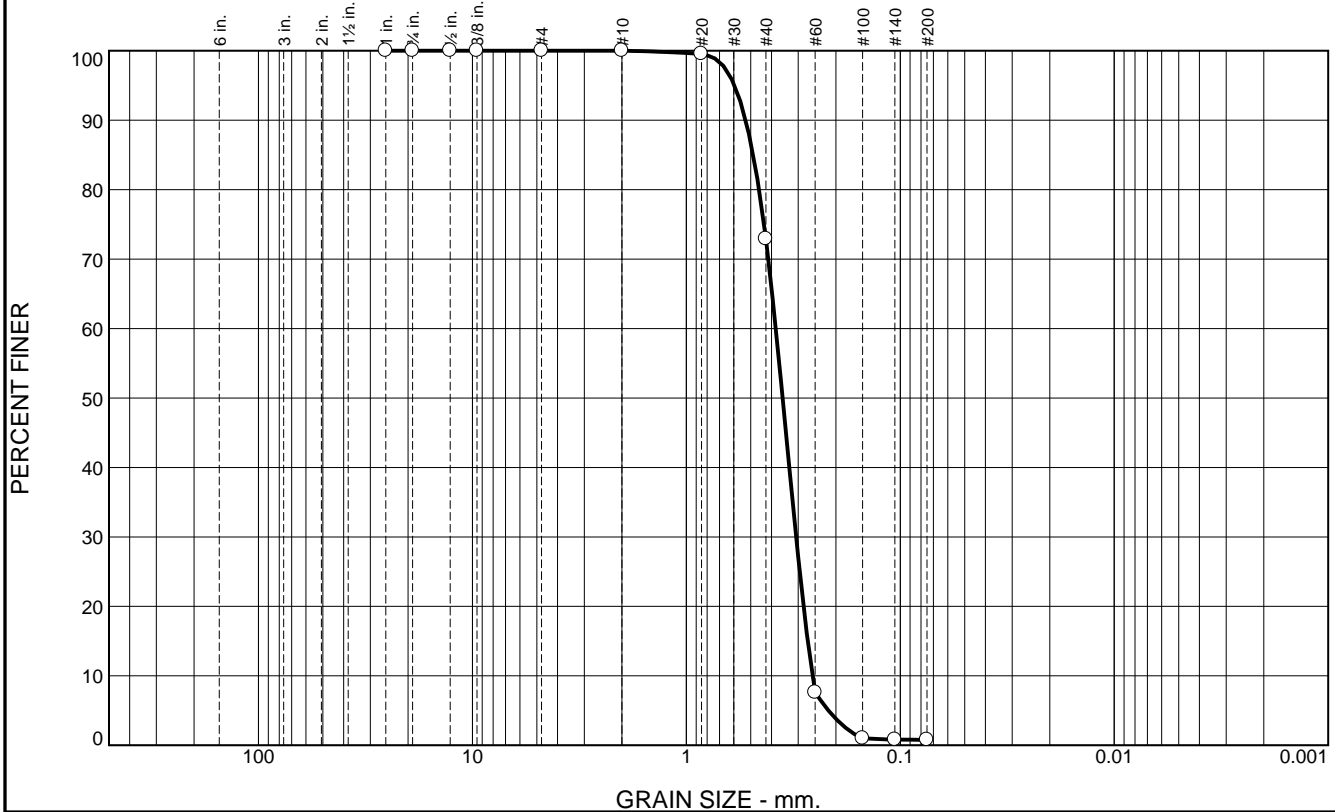
Client: CDM/Thompson Engineering JV  
Project: MsCIP Barrier Island Restoration GT

Project No: 1221110095

Figure



# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.0	0.0	27.1	72.1	0.8	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
1	100.0		
.75	100.0		
.5	100.0		
.375	100.0		
#4	100.0		
#10	100.0		
#20	99.5		
#40	72.9		
#60	7.6		
#100	1.0		
#140	0.8		
#200	0.8		

\* (no specification provided)

<u><b>Material Description</b></u>		
Fine to medium grained, SAND		
<u><b>Atterberg Limits</b></u>		
PL=	LL=	PI=
<u><b>Coefficients</b></u>		
D <sub>90</sub> = 0.5282	D <sub>85</sub> = 0.4872	D <sub>60</sub> = 0.3819
D <sub>50</sub> = 0.3548	D <sub>30</sub> = 0.3069	D <sub>15</sub> = 0.2710
D <sub>10</sub> = 0.2574	C <sub>u</sub> = 1.48	C <sub>c</sub> = 0.96
<u><b>Classification</b></u>		
USCS= SP	AASHTO=	
<u><b>Remarks</b></u>		

Location: BI-PB-224-12 B  
Sample Number: 6485 (54)

Depth: 5.0'

Date: 12/07/12

**Thompson Engineering**

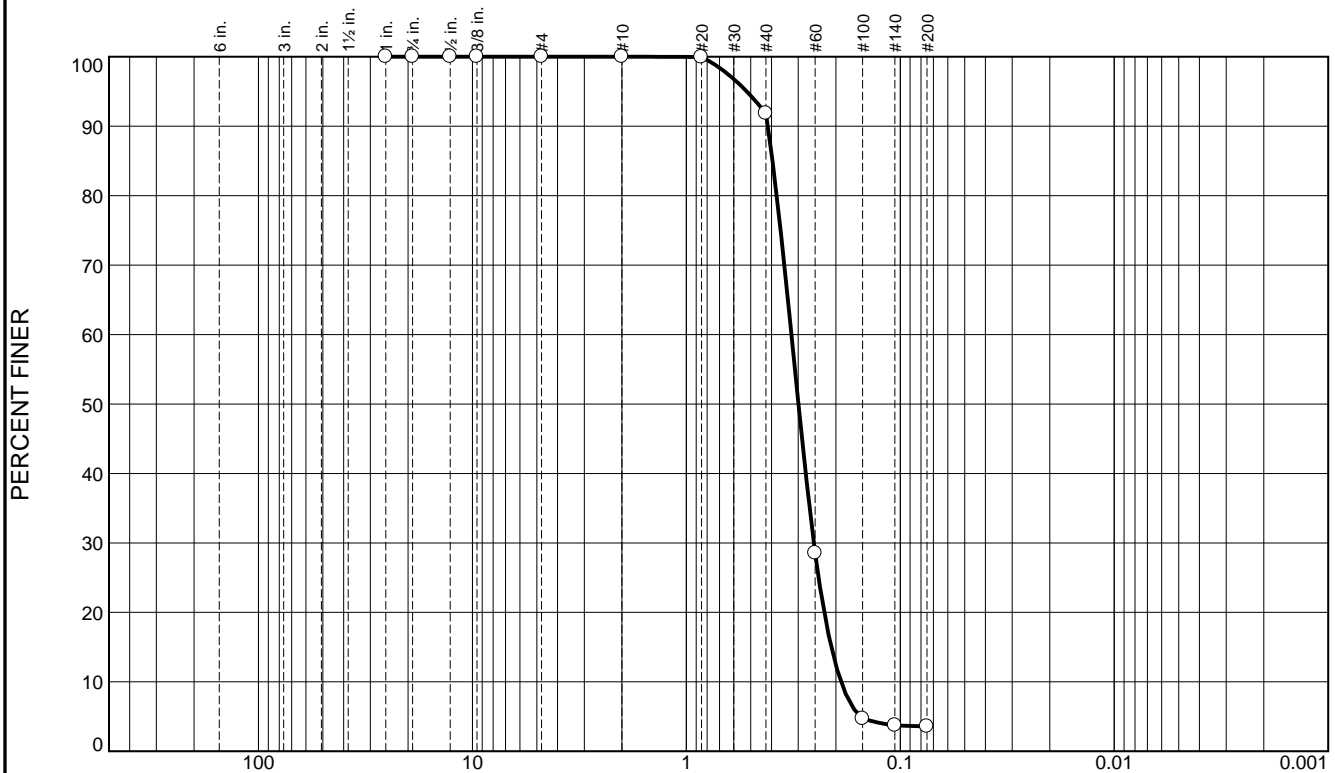
**Mobile, Alabama**

Client: CDM/Thompson Engineering JV  
Project: MsCIP Barrier Island Restoration GT

Project No: 1221110095

Figure

# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.0	0.0	8.2	88.2	3.6	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
1	100.0		
.75	100.0		
.5	100.0		
.375	100.0		
#4	100.0		
#10	100.0		
#20	99.9		
#40	91.8		
#60	28.5		
#100	4.7		
#140	3.7		
#200	3.6		

\* (no specification provided)

<u>Material Description</u>		
Fine grained, SAND		
PL=	<u>Atterberg Limits</u> LL=	PI=
<u>Coefficients</u>		
D <sub>90</sub> = 0.4161	D <sub>85</sub> = 0.3955	D <sub>60</sub> = 0.3228
D <sub>50</sub> = 0.2994	D <sub>30</sub> = 0.2536	D <sub>15</sub> = 0.2102
D <sub>10</sub> = 0.1894	C <sub>u</sub> = 1.70	C <sub>c</sub> = 1.05
<u>Classification</u>		
USCS= SP	AASHTO=	
<u>Remarks</u>		

Location: BI-PB-224-12 C  
Sample Number: 6485 (55)

Depth: 10.0'

Date: 12/07/12

Thompson Engineering

Mobile, Alabama

Client: CDM/Thompson Engineering JV  
Project: MsCIP Barrier Island Restoration GT

Project No: 1221110095

Figure