

**Project**

Mississippi Barrier Island  
Restoration Project



**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'

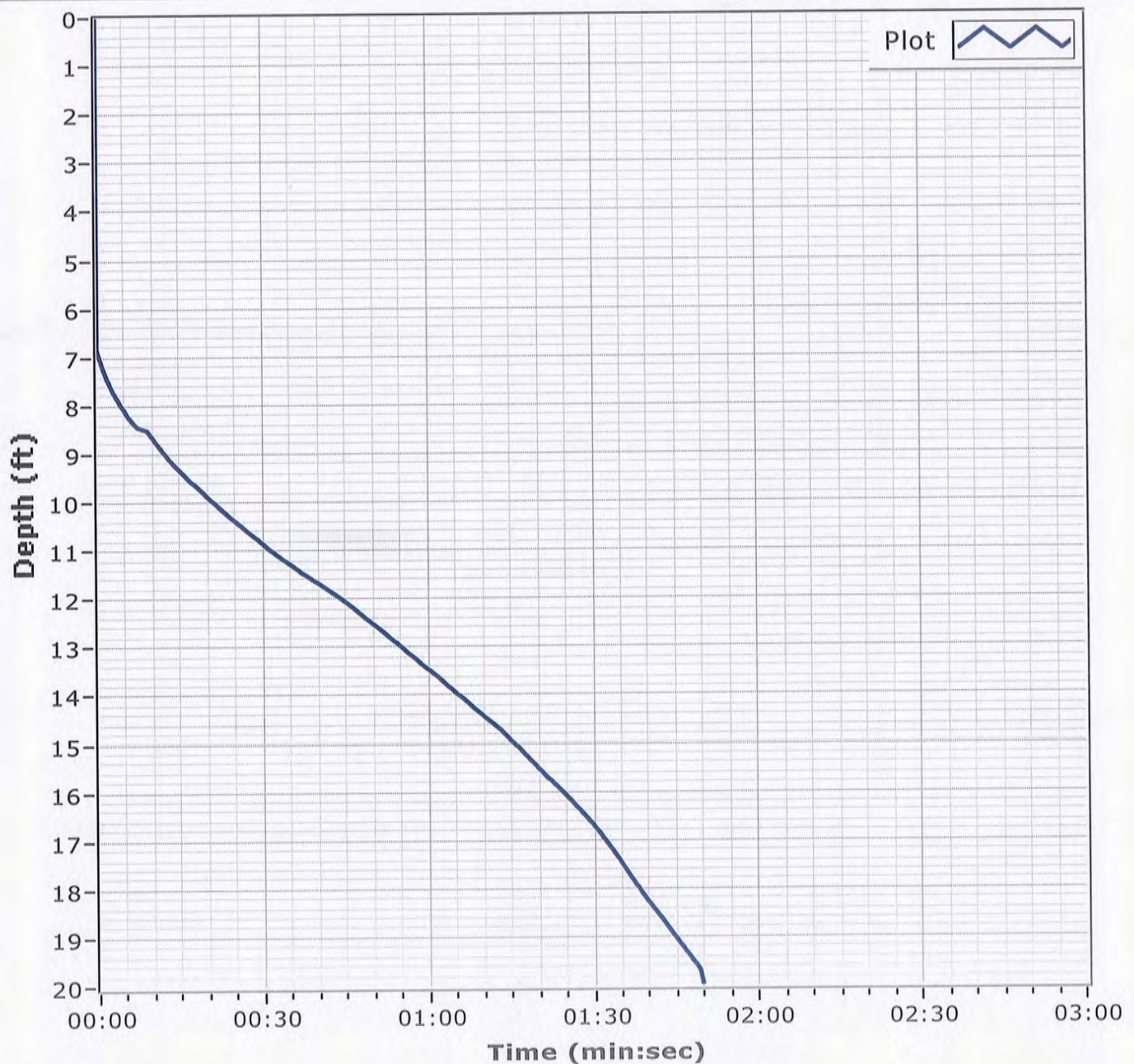
**Latitude** 33 11.804

**Total Time** 00:01:49

**Recovery** 15.8'




**Longitude** 088 19.828

**Comments**



Boring Designation BI-PB-192-12

<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-192-12		<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> Vibracore		<input type="checkbox"/> <b>AUTO HAMMER</b> <input type="checkbox"/> <b>MANUAL HAMMER</b>
<b>4. NAME OF DRILLER</b> American Vibracore Systems, Inc.		<b>12. TOTAL SAMPLES</b>		<b>DISTURBED</b> 0
<b>5. DIRECTION OF BORING</b> <input checked="" type="checkbox"/> <b>VERTICAL</b> <input type="checkbox"/> <b>INCLINED</b>		<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> 36.4 Ft.		<b>15. DATE BORING</b>
<b>7. DEPTH DRILLED INTO ROCK</b> N/A		<b>16. ELEVATION TOP OF BORING</b> -36.4 Ft.		<b>STARTED</b> 12-11-12
<b>8. TOTAL DEPTH OF BORING</b> 15.3 Ft.		<b>17. TOTAL RECOVERY FOR BORING</b> 100%		<b>COMPLETED</b> 12-11-12
<b>18. SIGNATURE AND TITLE OF INSPECTOR</b> 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



**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'

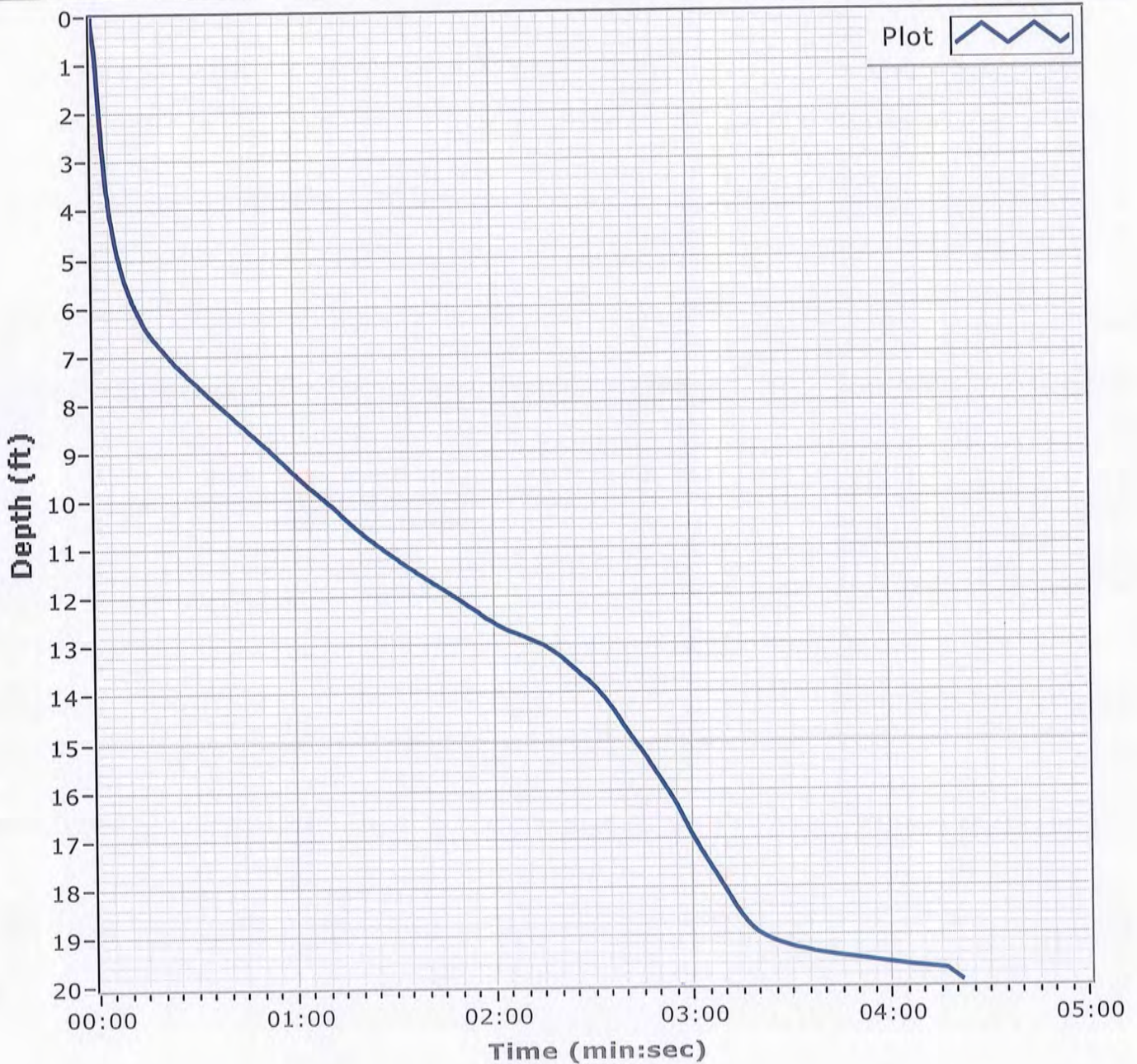
**Latitude** 33 11.726

**Total Time** 00:04:21

**Recovery** 15.3'

**Longitude** 088 19.776

**Comments**



**Boring Designation BI-PB-197-12**

<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 West			<b>9. SIZE AND TYPE OF BIT</b> N/A	
<b>2. BORING DESIGNATION</b> BI-PB-197-12		<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> Vibracore		<input type="checkbox"/> <b>AUTO HAMMER</b> <input type="checkbox"/> <b>MANUAL HAMMER</b>
<b>4. NAME OF DRILLER</b> American Vibracore Systems, Inc.		<b>12. TOTAL SAMPLES</b>		<b>DISTURBED</b> 0
<b>5. DIRECTION OF BORING</b> <input checked="" type="checkbox"/> <b>VERTICAL</b> <input type="checkbox"/> <b>INCLINED</b>		<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> 28.2 Ft.		
<b>7. DEPTH DRILLED INTO ROCK</b> N/A		<b>15. DATE BORING</b>		<b>STARTED</b> 12-22-12 <b>COMPLETED</b> 12-22-12
<b>8. TOTAL DEPTH OF BORING</b> 17.7 Ft.		<b>16. ELEVATION TOP OF BORING</b> -28.9 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
-28.9	0.0				
			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
-32.8	3.9				
			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
-34.1	5.2				
			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
			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
-38.3	9.4				
			CLAY, fat, mostly clay, medium to high plasticity, silty between 9.4 to 10.4 ft., stiff, greenish gray (CH)	NS	
-46.6	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 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'

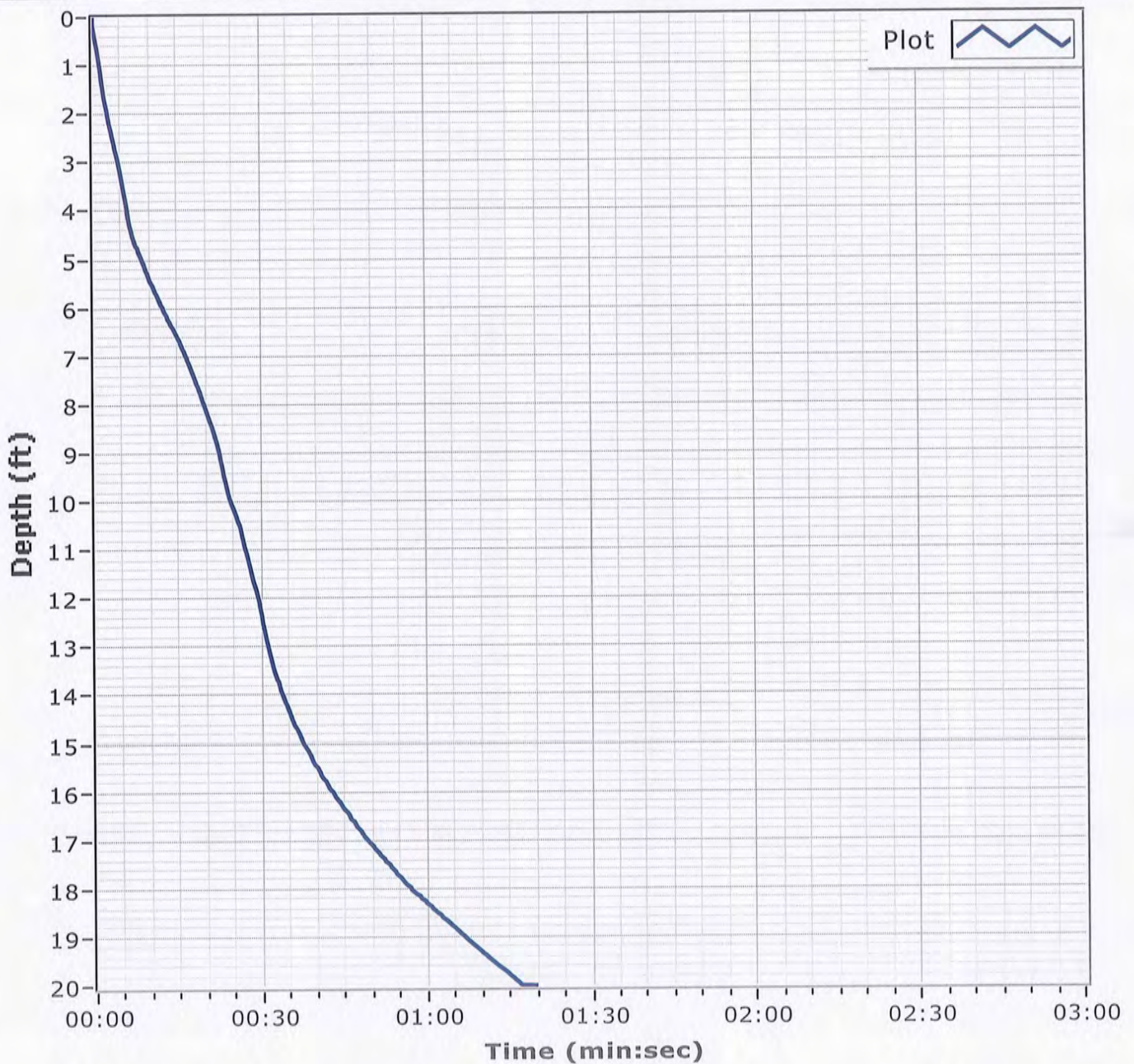
**Latitude** 30 12.015

**Total Time** 00:01:20

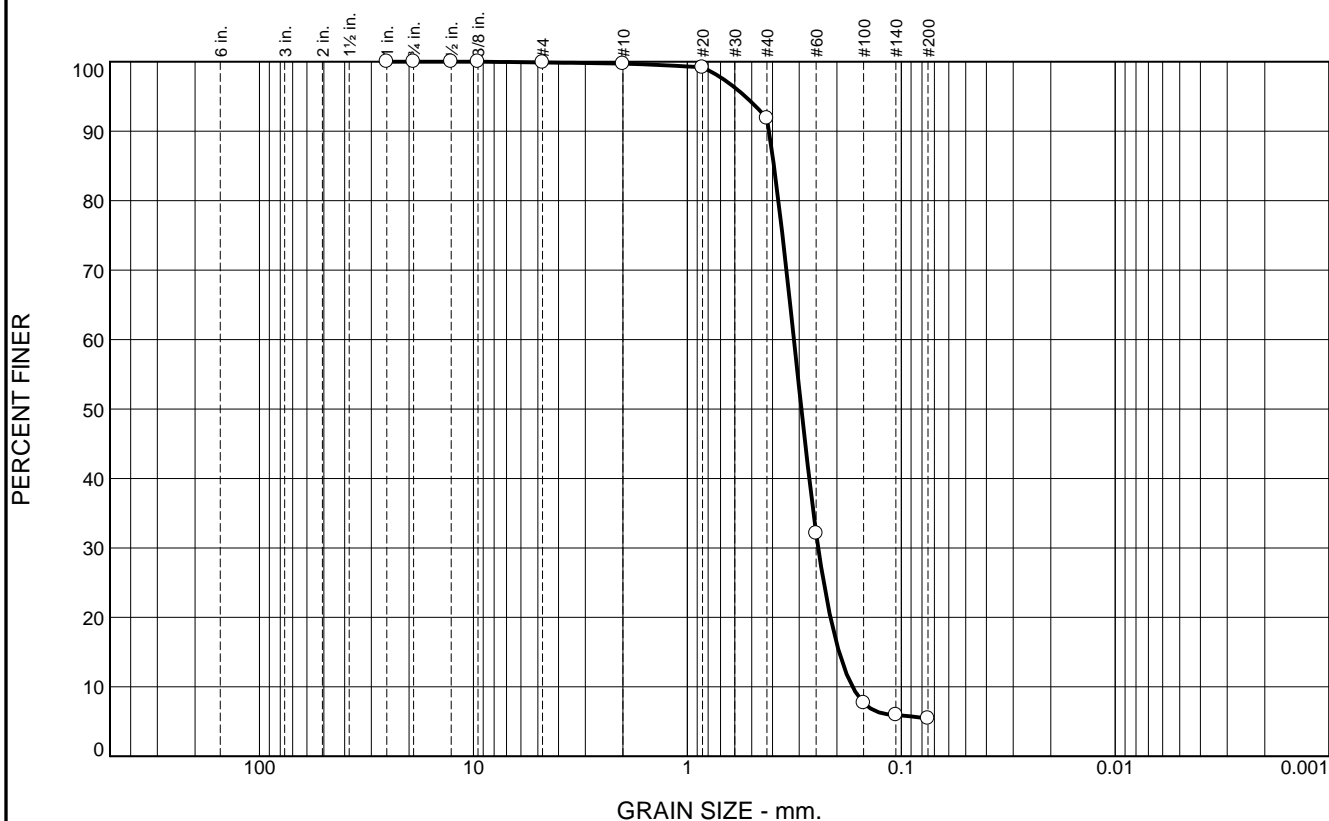
**Recovery** 17.7'

**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		

**Material Description**  
Fine grained, SLIGHTLY SILTY SAND

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

**Coefficients**  
 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

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

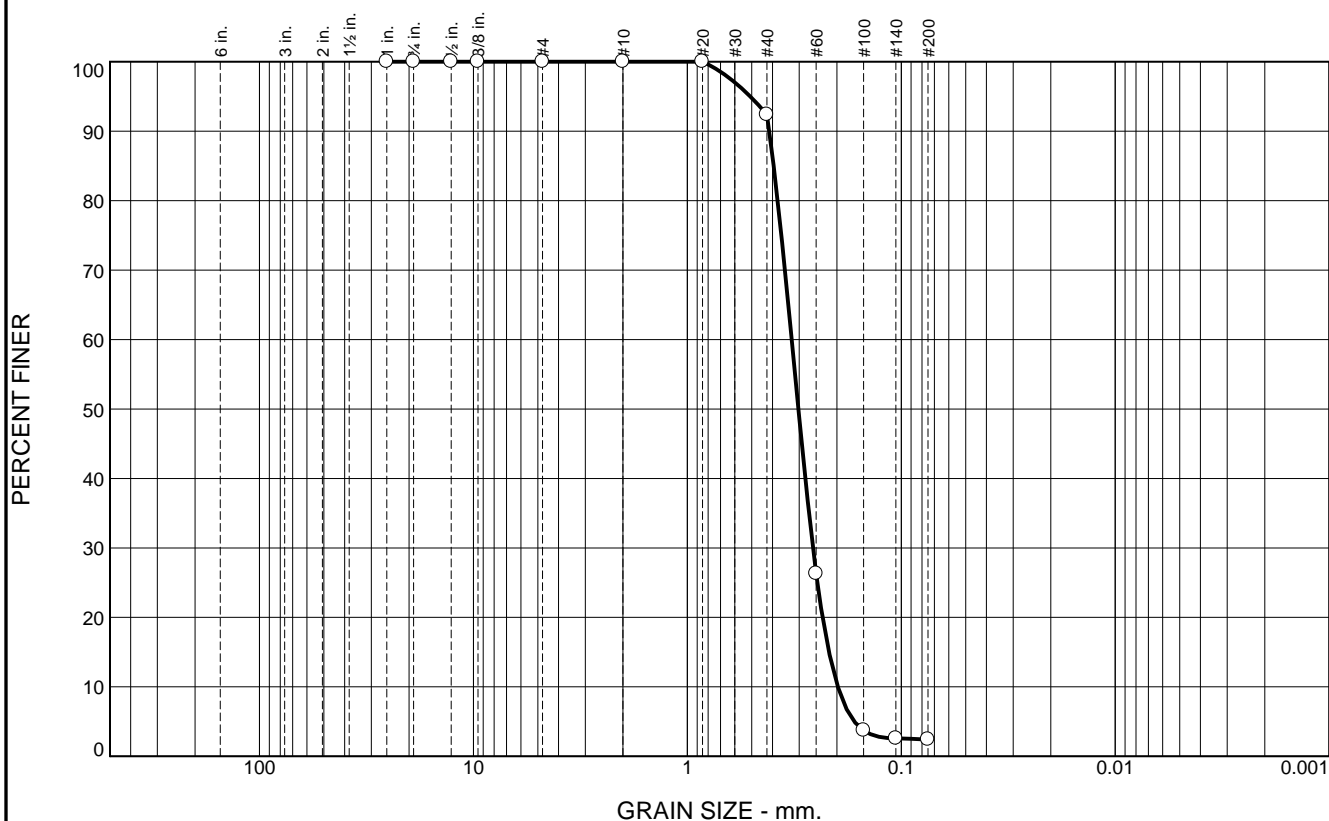
**Remarks**

\* (no specification provided)

Location: BI-PB-197-12 A      Depth: 0.0'      Date: 12/31/12  
 Sample Number: 6495 (13)

<b>Thompson Engineering</b>  <b>Mobile, Alabama</b>	<b>Client:</b> CDM/Thompson Engineering JV <b>Project:</b> MsCIP Barrier Island Restoration GT  <b>Project No:</b> 1221110095 <b>Figure</b>
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# 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		

**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=

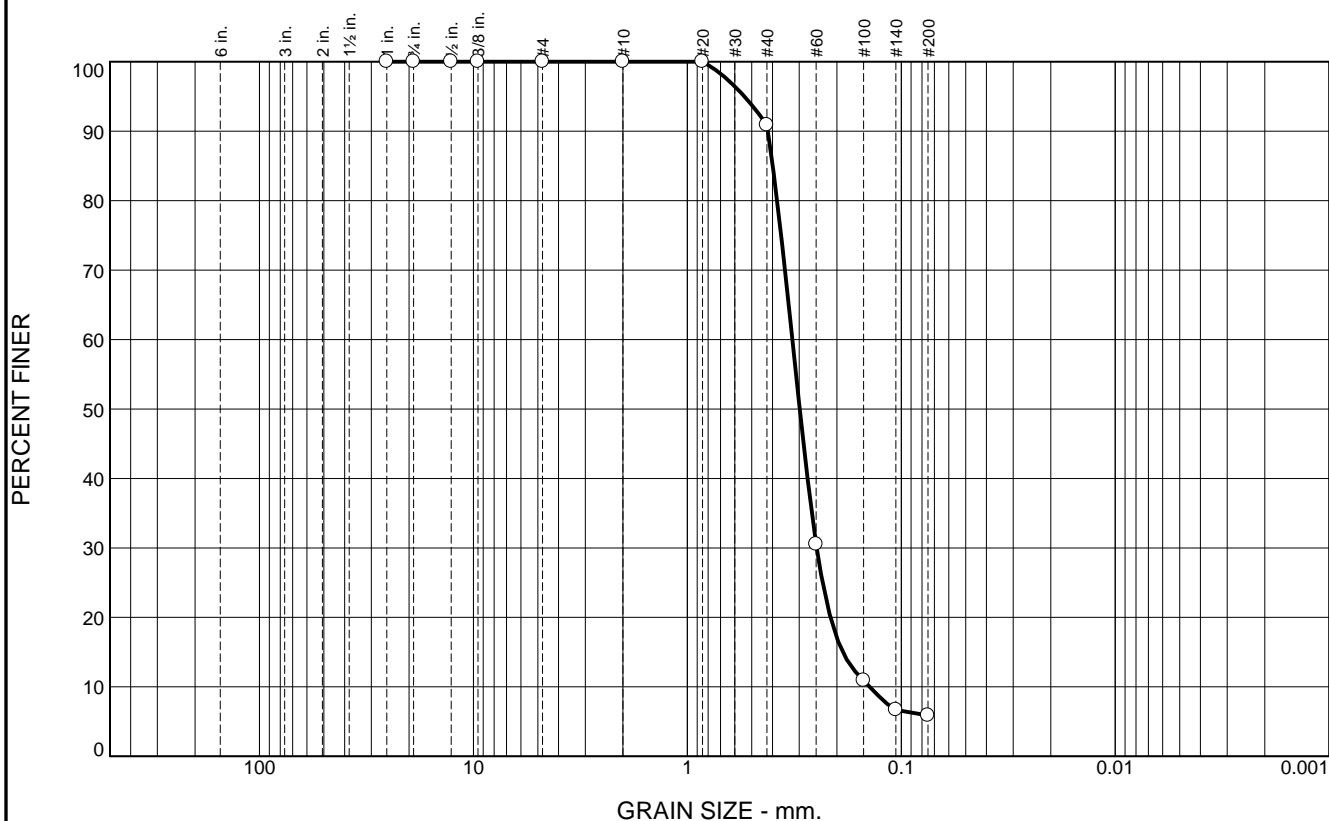
**Remarks**

\* (no specification provided)

Location: BI-PB-197-12 B                      Depth: 3.9'                      Date: 12/31/12

<p><b>Thompson Engineering</b></p> <p><b>Mobile, Alabama</b></p>	<p>Client: CDM/Thompson Engineering JV</p> <p>Project: MsCIP Barrier Island Restoration GT</p> <p>Project No: 1221110095</p> <p style="text-align: right;">Figure</p>
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# 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		

**Material Description**  
Fine grained, SLIGHTLY SILTY SAND

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

**Coefficients**  
 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

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

**Remarks**

\* (no specification provided)

**Location:** BI-PB-197-12 C  
**Sample Number:** 6495 (15)

**Depth:** 5.2'

**Date:** 12/31/12

**Thompson Engineering**

**Mobile, Alabama**

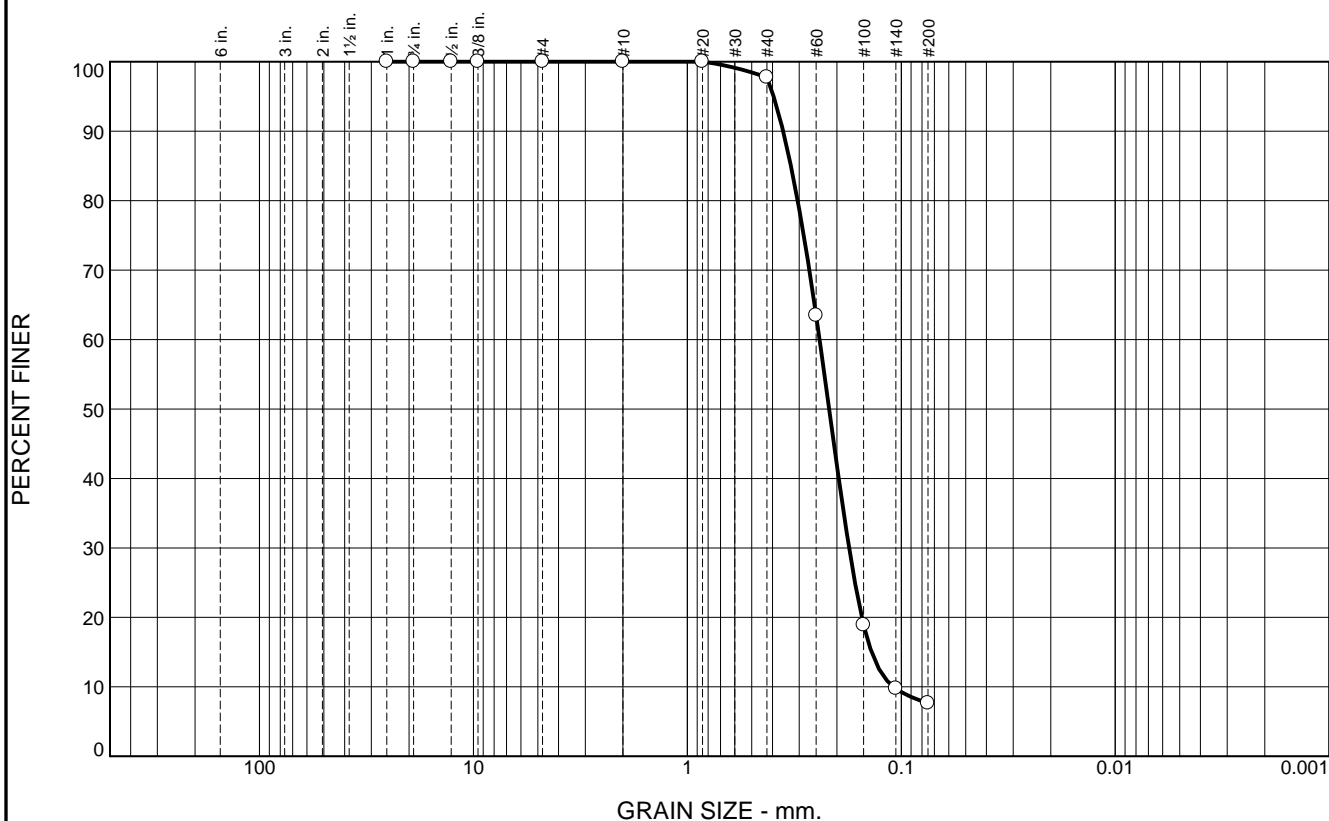
**Client:** CDM/Thompson Engineering JV  
**Project:** MsCIP Barrier Island Restoration GT

**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		

**Material Description**  
Fine grained, SLIGHTLY SILTY SAND

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

**Coefficients**  
 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

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

**Remarks**

\* (no specification provided)

**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**

<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 West		<b>9. SIZE AND TYPE OF BIT</b> N/A		
<b>2. BORING DESIGNATION</b> BI-PB-198-12		<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> Vibracore		<input type="checkbox"/> <b>AUTO HAMMER</b> <input type="checkbox"/> <b>MANUAL HAMMER</b>
<b>4. NAME OF DRILLER</b> American Vibracore Systems, Inc.		<b>12. TOTAL SAMPLES</b>		<b>DISTURBED</b> 0
<b>5. DIRECTION OF BORING</b> <input checked="" type="checkbox"/> <b>VERTICAL</b> <input type="checkbox"/> <b>INCLINED</b>		<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> 27.6 Ft.		<b>15. DATE BORING</b>
<b>7. DEPTH DRILLED INTO ROCK</b> N/A		<b>16. ELEVATION TOP OF BORING</b> -28.2 Ft.		<b>STARTED</b> 12-22-12
<b>8. TOTAL DEPTH OF BORING</b> 18.8 Ft.		<b>17. TOTAL RECOVERY FOR BORING</b> 100%		<b>COMPLETED</b> 12-22-12
<b>18. SIGNATURE AND TITLE OF INSPECTOR</b> 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		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



**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'

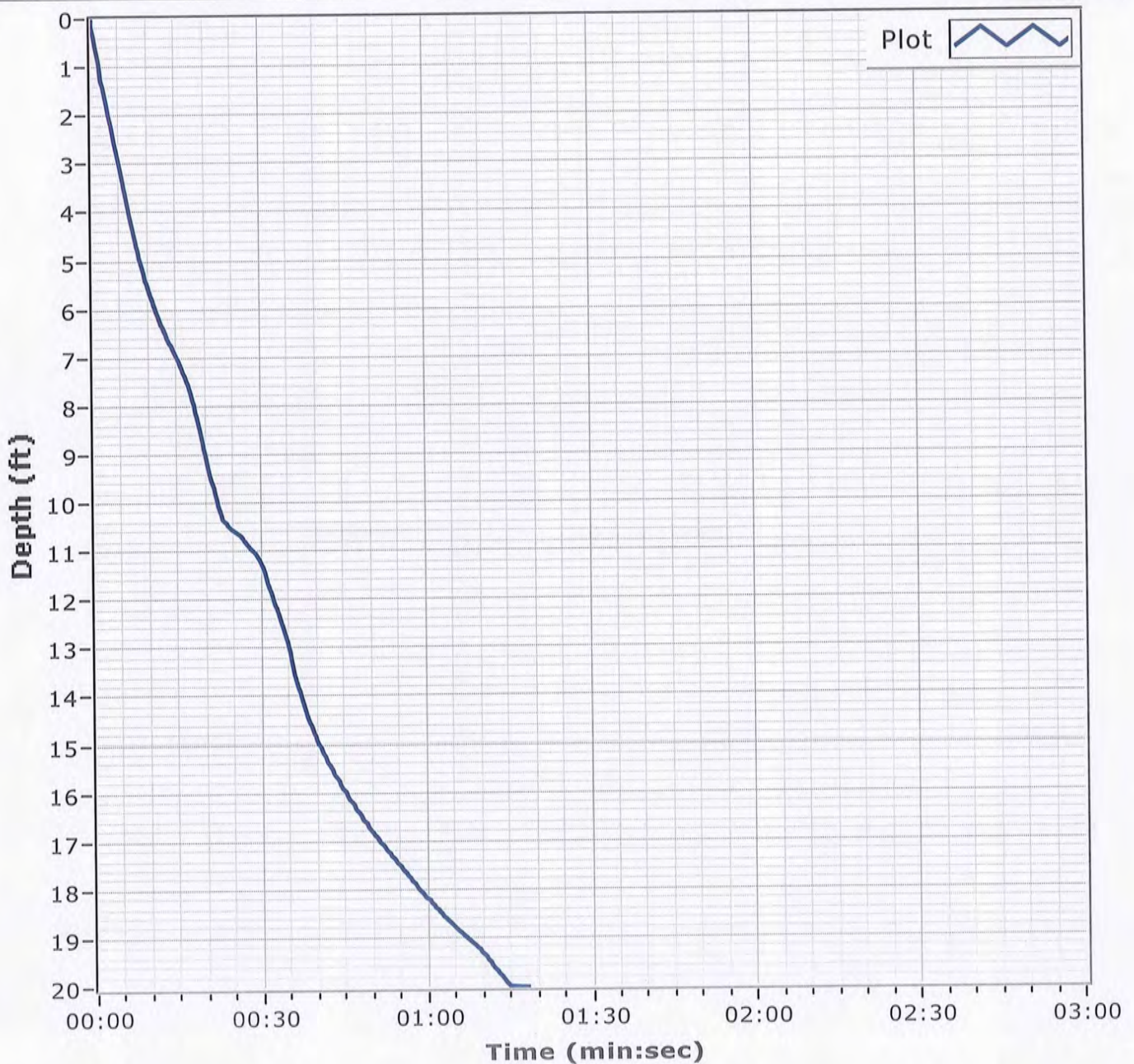
**Latitude** 30 12.009

**Total Time** 00:01:18

**Recovery** 18.8'

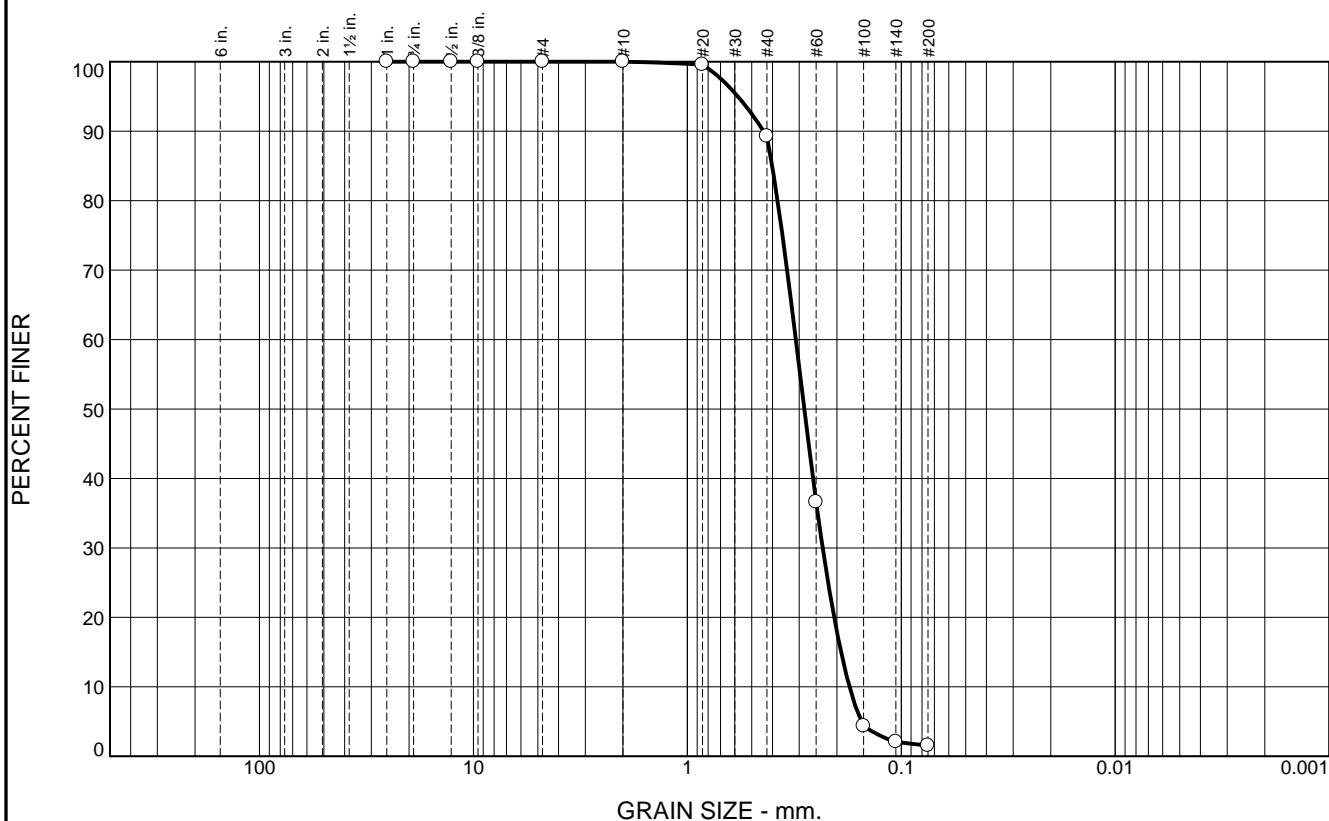
**Longitude** 088 21.257

**Comments**





# 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	87.8	1.5	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
1	100.0		
.75	100.0		
.5	100.0		
.375	100.0		
#4	100.0		
#10	100.0		
#20	99.6		
#40	89.3		
#60	36.6		
#100	4.4		
#140	2.1		
#200	1.5		

**Material Description**

Fine to medium grained, SAND

**Atterberg Limits**

PL=                      LL=                      PI=

**Coefficients**

D<sub>90</sub>= 0.4404              D<sub>85</sub>= 0.4013              D<sub>60</sub>= 0.3113  
D<sub>50</sub>= 0.2842              D<sub>30</sub>= 0.2330              D<sub>15</sub>= 0.1913  
D<sub>10</sub>= 0.1749              C<sub>u</sub>= 1.78                      C<sub>c</sub>= 1.00

**Classification**

USCS= SP                      AASHTO=

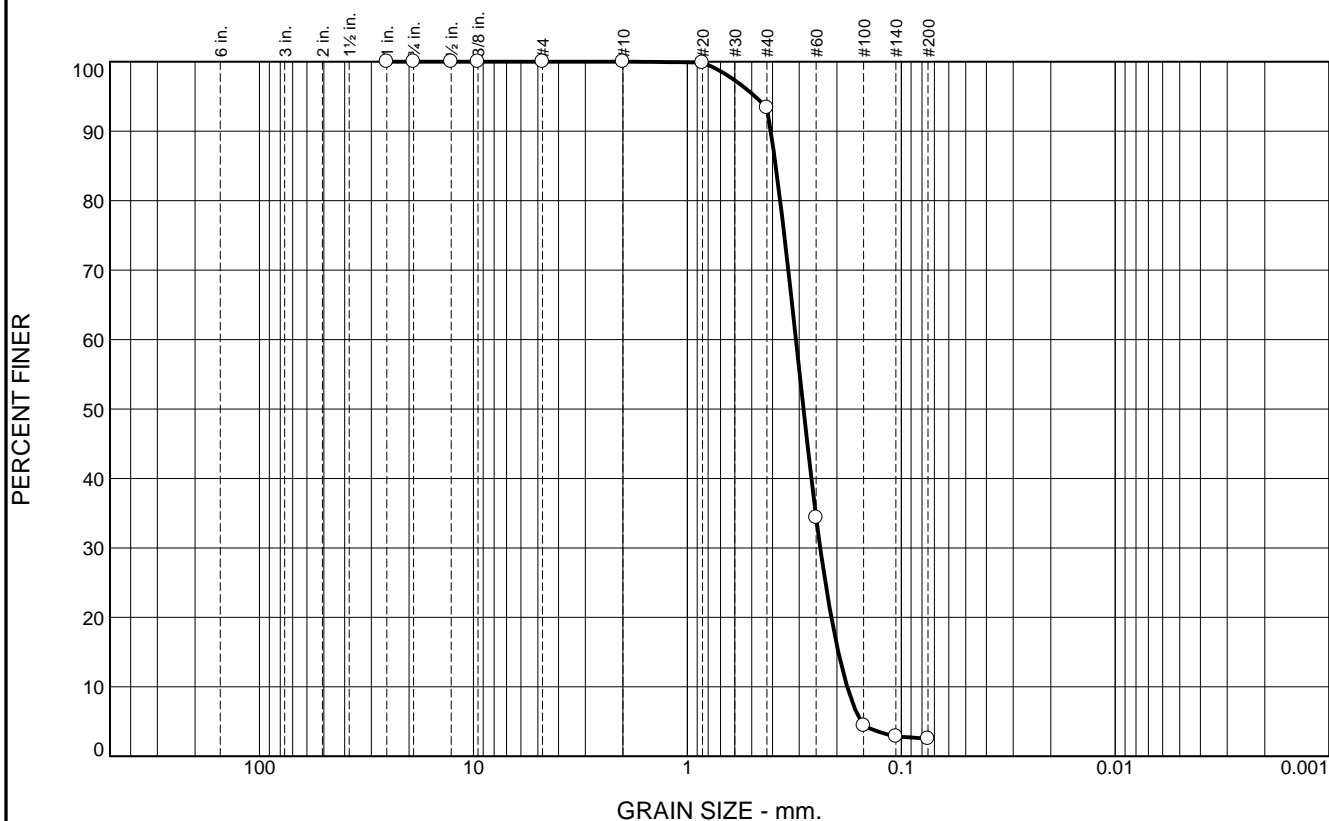
**Remarks**

\* (no specification provided)

Location: BI-PB-198-12 A                      Depth: 0.0'                      Date: 12/31/12  
Sample Number: 6495 (17)

<b>Thompson Engineering</b>  <b>Mobile, Alabama</b>	<b>Client:</b> CDM/Thompson Engineering JV <b>Project:</b> MsCIP Barrier Island Restoration GT  <b>Project No:</b> 1221110095 <b>Figure</b>
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# 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		

**Material Description**

Fine grained, SAND

PL=                      **Atterberg Limits**                      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

USCS= SP                      **Classification**                      AASHTO=

**Remarks**

\* (no specification provided)

**Location:** BI-PB-198-12 B                      **Depth:** 1.5'                      **Date:** 12/31/12  
**Sample Number:** 6495 (18)

**Thompson Engineering**

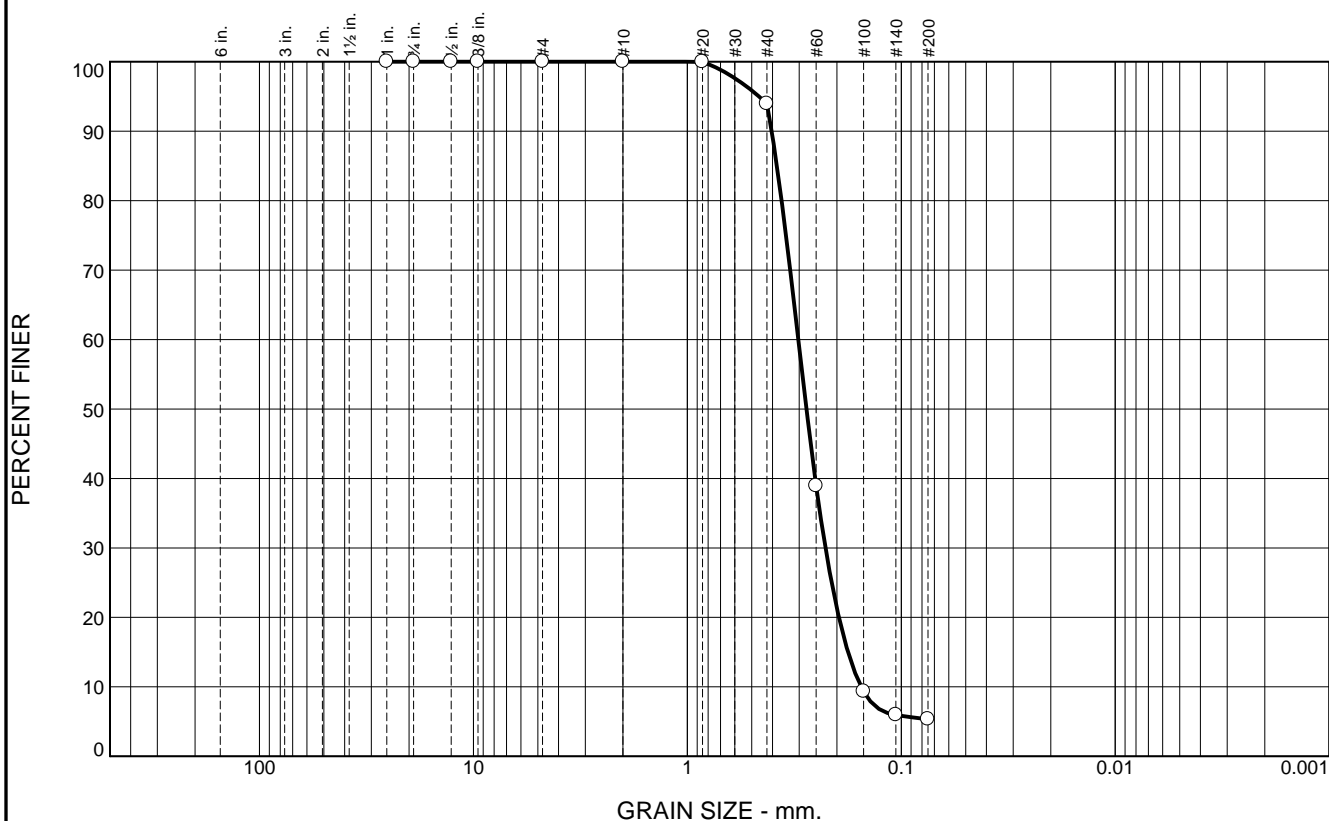
**Mobile, Alabama**

**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		

**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**

\* (no specification provided)

Location: BI-PB-198-12 C      Depth: 6.0'      Date: 12/31/12  
 Sample Number: 6495 (19)

**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**

<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 West			<b>9. SIZE AND TYPE OF BIT</b> N/A	
<b>2. BORING DESIGNATION</b> BI-PB-199-12		<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> Vibracore		<input type="checkbox"/> <b>AUTO HAMMER</b> <input type="checkbox"/> <b>MANUAL HAMMER</b>
<b>4. NAME OF DRILLER</b> American Vibracore Systems, Inc.		<b>12. TOTAL SAMPLES</b>		<b>DISTURBED</b> 0
<b>5. DIRECTION OF BORING</b> <input checked="" type="checkbox"/> <b>VERTICAL</b> <input type="checkbox"/> <b>INCLINED</b>		<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> 27 Ft.		<b>15. DATE BORING</b>
<b>7. DEPTH DRILLED INTO ROCK</b> N/A		<b>16. ELEVATION TOP OF BORING</b> -27.3 Ft.		<b>STARTED</b> 12-13-12
<b>8. TOTAL DEPTH OF BORING</b> 20.0 Ft.		<b>17. TOTAL RECOVERY FOR BORING</b> 100%		<b>COMPLETED</b> 12-13-12
<b>18. SIGNATURE AND TITLE OF INSPECTOR</b> 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		

<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 = 1,134,195    Y = 254,938			<b>ELEVATION TOP OF BORING</b> -27.3 Ft.			
ELEV.	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS	SAMPLE	LABORATORY RESULTS	
			USACE survey.			



**Project**

Mississippi Barrier Island  
Restoration Project



**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'

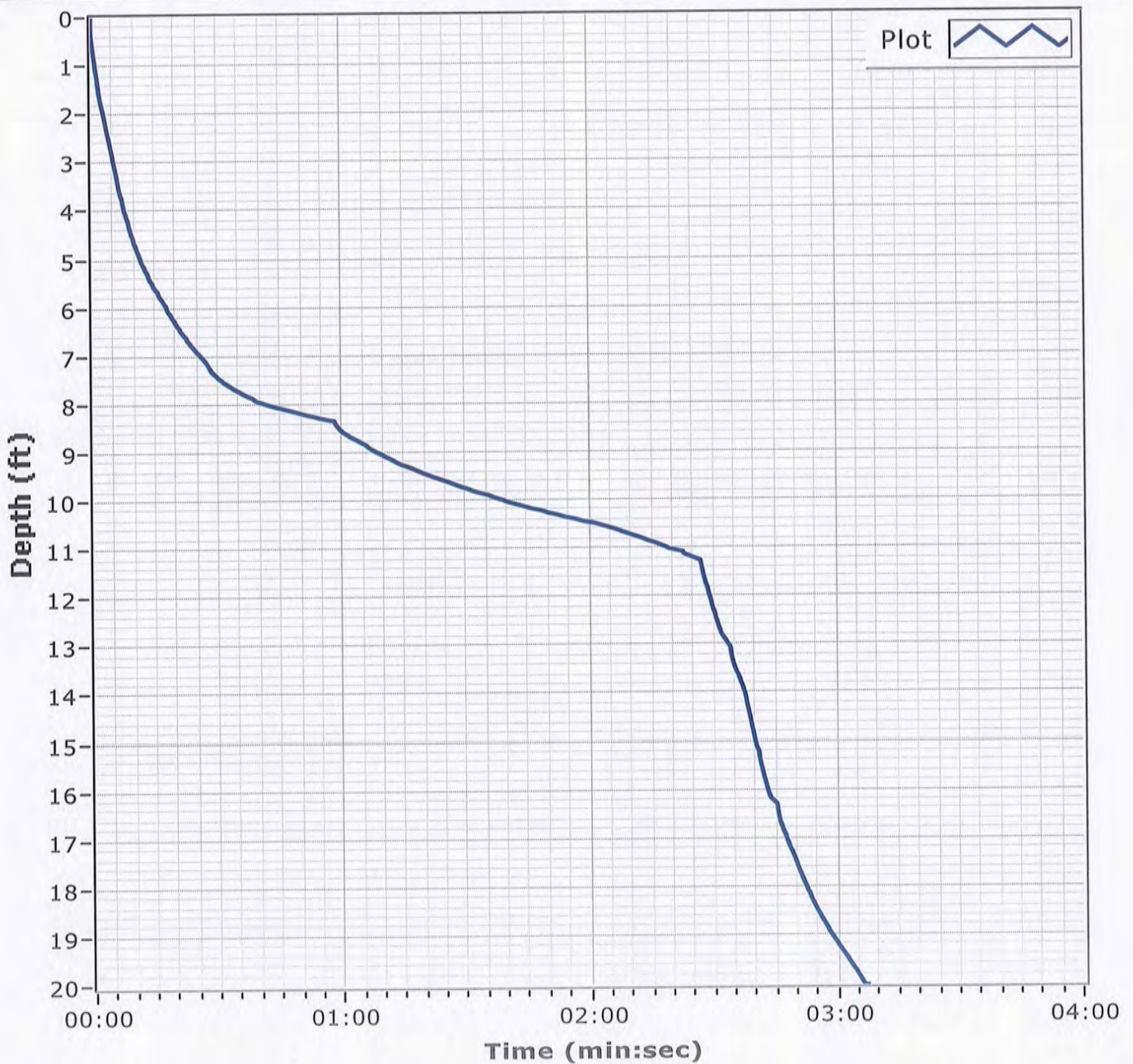
**Latitude** 30 12.010

**Total Time** 00:03:07

**Recovery** 20.0'

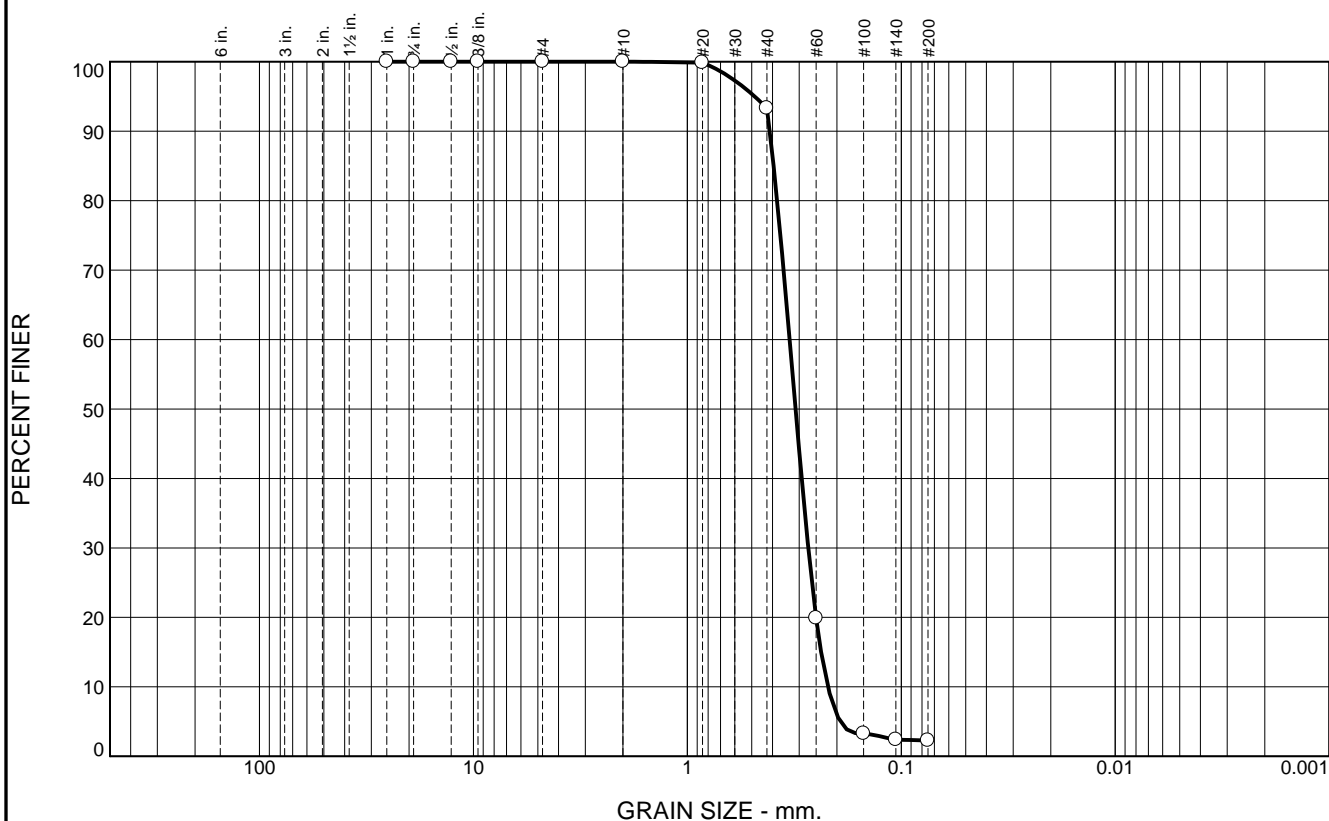
**Longitude** 088 21.521

**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		

**Material Description**

Fine grained, SAND

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

**Coefficients**

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**

\* (no specification provided)

**Location:** BI-PB-199-12 A  
**Sample Number:** 6485 (24)

**Depth:** 0.0'

**Date:** 12/07/12

**Thompson Engineering**

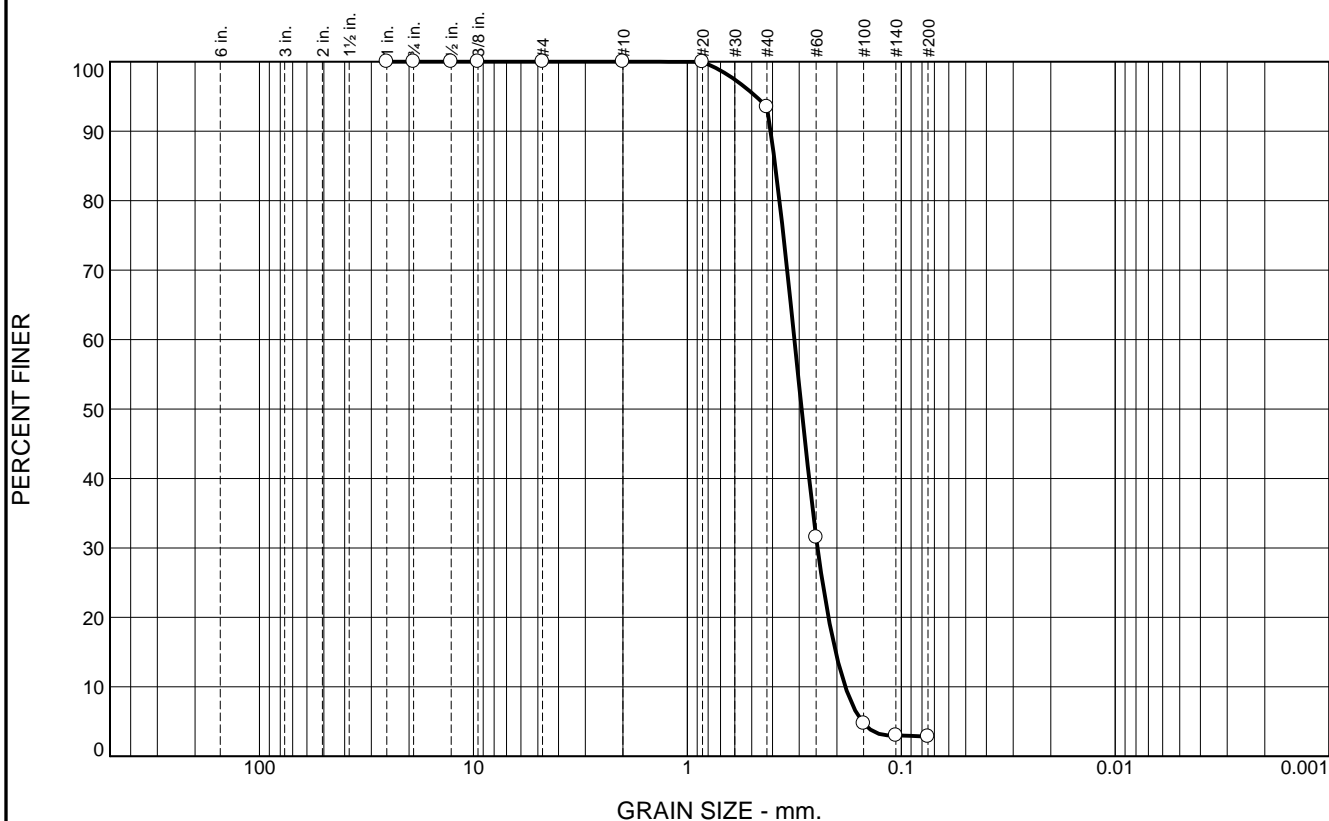
**Mobile, Alabama**

**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		

**Material Description**

Fine grained, SAND

PL=                      **Atterberg Limits**                      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

USCS= SP                      **Classification**                      AASHTO=

**Remarks**

\* (no specification provided)

**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**

<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 West			<b>9. SIZE AND TYPE OF BIT</b> N/A	
<b>2. BORING DESIGNATION</b> BI-PB-200-12		<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> Vibracore		<input type="checkbox"/> <b>AUTO HAMMER</b> <input type="checkbox"/> <b>MANUAL HAMMER</b>
<b>4. NAME OF DRILLER</b> American Vibracore Systems, Inc.		<b>12. TOTAL SAMPLES</b>		<b>DISTURBED</b> 0
<b>5. DIRECTION OF BORING</b> <input checked="" type="checkbox"/> <b>VERTICAL</b> <input type="checkbox"/> <b>INCLINED</b>		<b>LOCATION COORDINATES</b> E = 1,132,603 N = 254,862	<b>13. TOTAL NUMBER CORE BOXES</b>	
<b>6. THICKNESS OF OVERBURDEN</b> N/A		<b>14. WATER DEPTH</b> 25.9 Ft.		<b>15. DATE BORING</b>
<b>7. DEPTH DRILLED INTO ROCK</b> N/A		<b>16. ELEVATION TOP OF BORING</b> -26.1 Ft.		<b>STARTED</b> 12-13-12
<b>8. TOTAL DEPTH OF BORING</b> 20.0 Ft.		<b>17. TOTAL RECOVERY FOR BORING</b> 100%		<b>COMPLETED</b> 12-13-12
<b>18. SIGNATURE AND TITLE OF INSPECTOR</b> 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				
<p>NOTES:</p> <ol style="list-style-type: none"> <li>Soils are field visually classified in accordance with the Unified Soils Classification System.</li> <li>NS = Sample not submitted for laboratory analysis from this interval.</li> <li>Seafloor elevation determined from 2010</li> </ol>					

<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.			
ELEV.	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS	SAMPLE	LABORATORY RESULTS	
			USACE survey.			





**Project**

Mississippi Barrier Island  
Restoration Project



**Core Identifier** BI-PB-200-12

**Date** 12/13/2012

**Water Depth** 25.9'

**Coordinate System**

Latitude / Longitude

**Start Time** 11:01:34

**End Time** 11:04:07

**Penetration** 20.0'

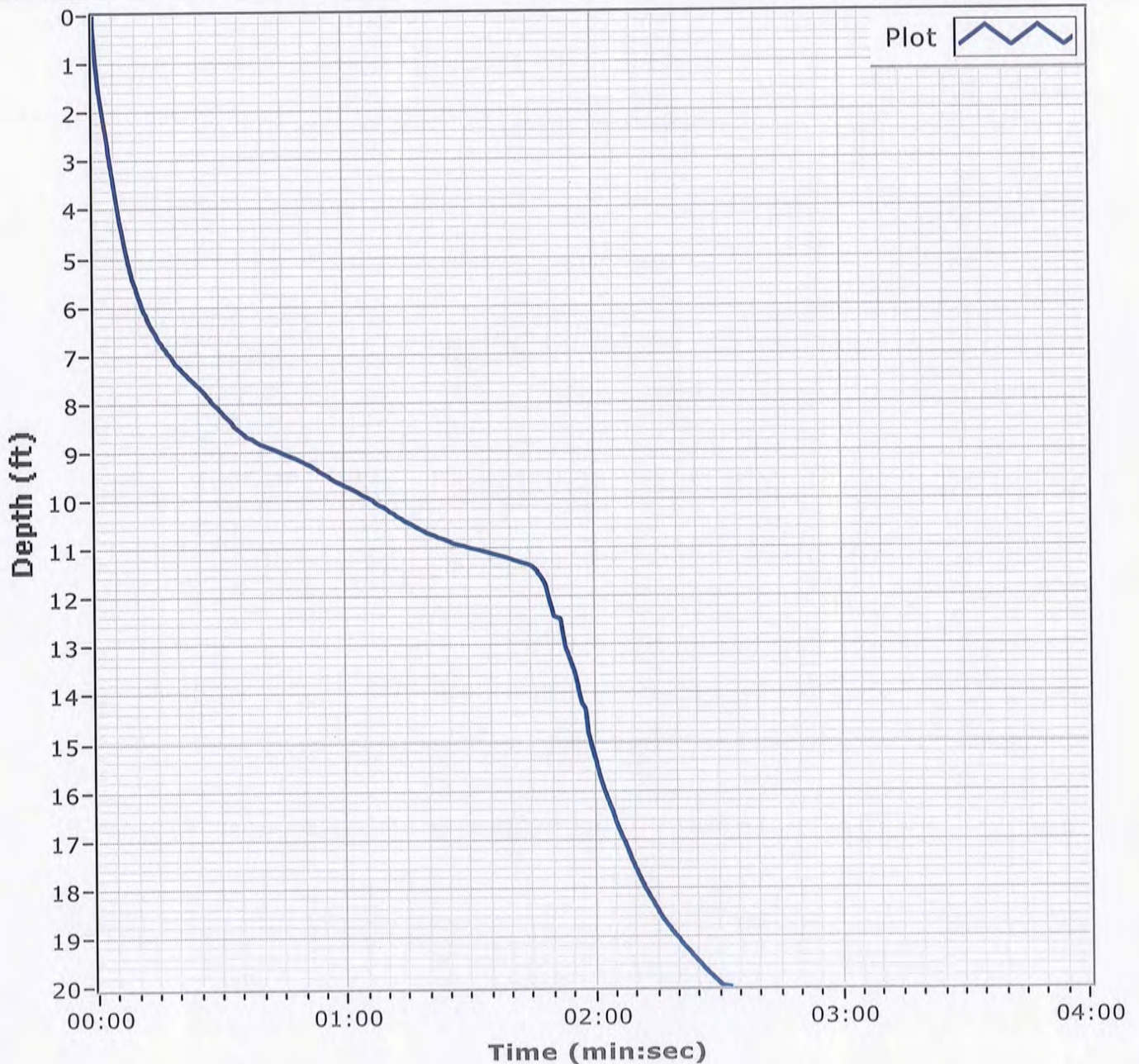
**Latitude** 30 11.999

**Total Time** 00:02:33

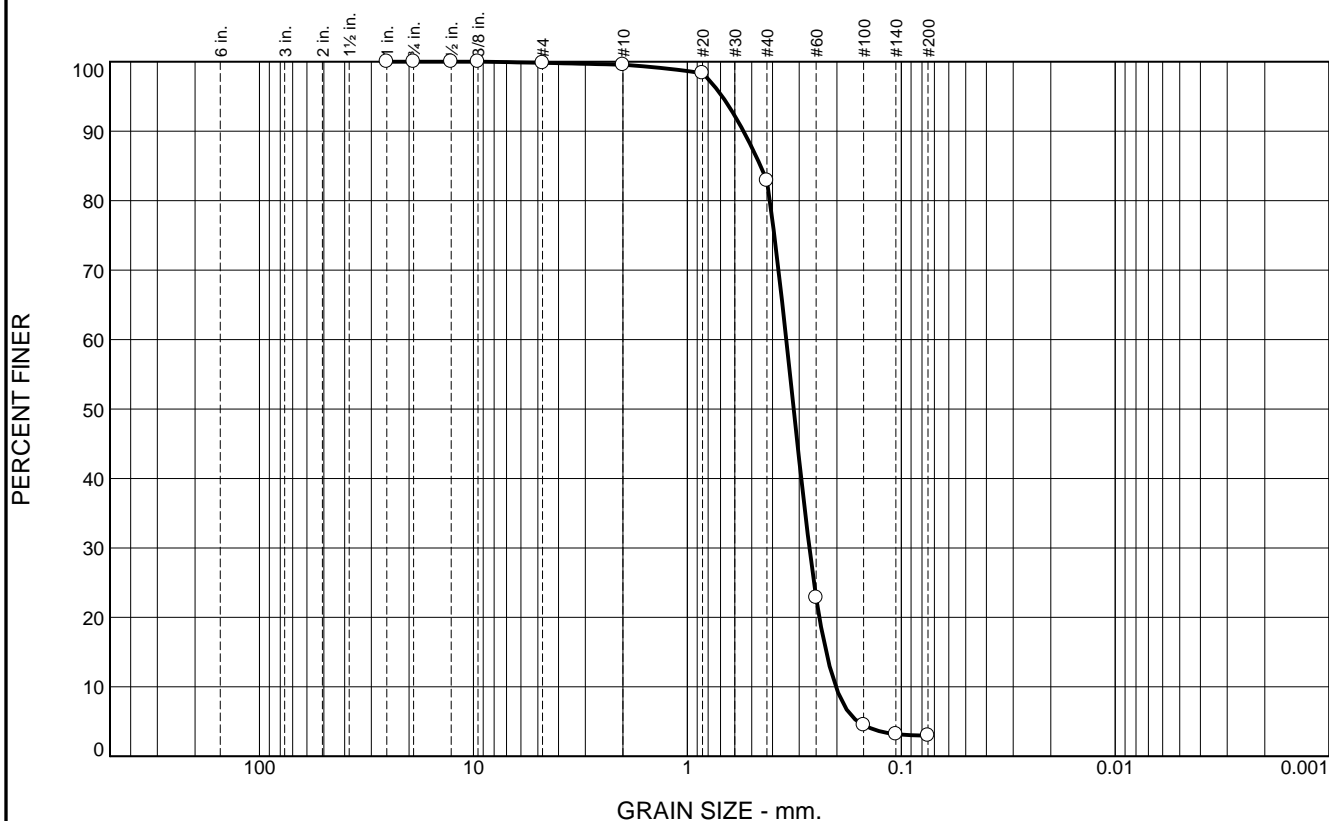
**Recovery** 20.0'

**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		

**Material Description**  
Fine to medium grained, SAND

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

**Coefficients**  
 D<sub>90</sub>= 0.5466      D<sub>85</sub>= 0.4552      D<sub>60</sub>= 0.3449  
 D<sub>50</sub>= 0.3185      D<sub>30</sub>= 0.2690      D<sub>15</sub>= 0.2245  
 D<sub>10</sub>= 0.2022      C<sub>u</sub>= 1.71              C<sub>c</sub>= 1.04

**Classification**  
 USCS= SP                      AASHTO=

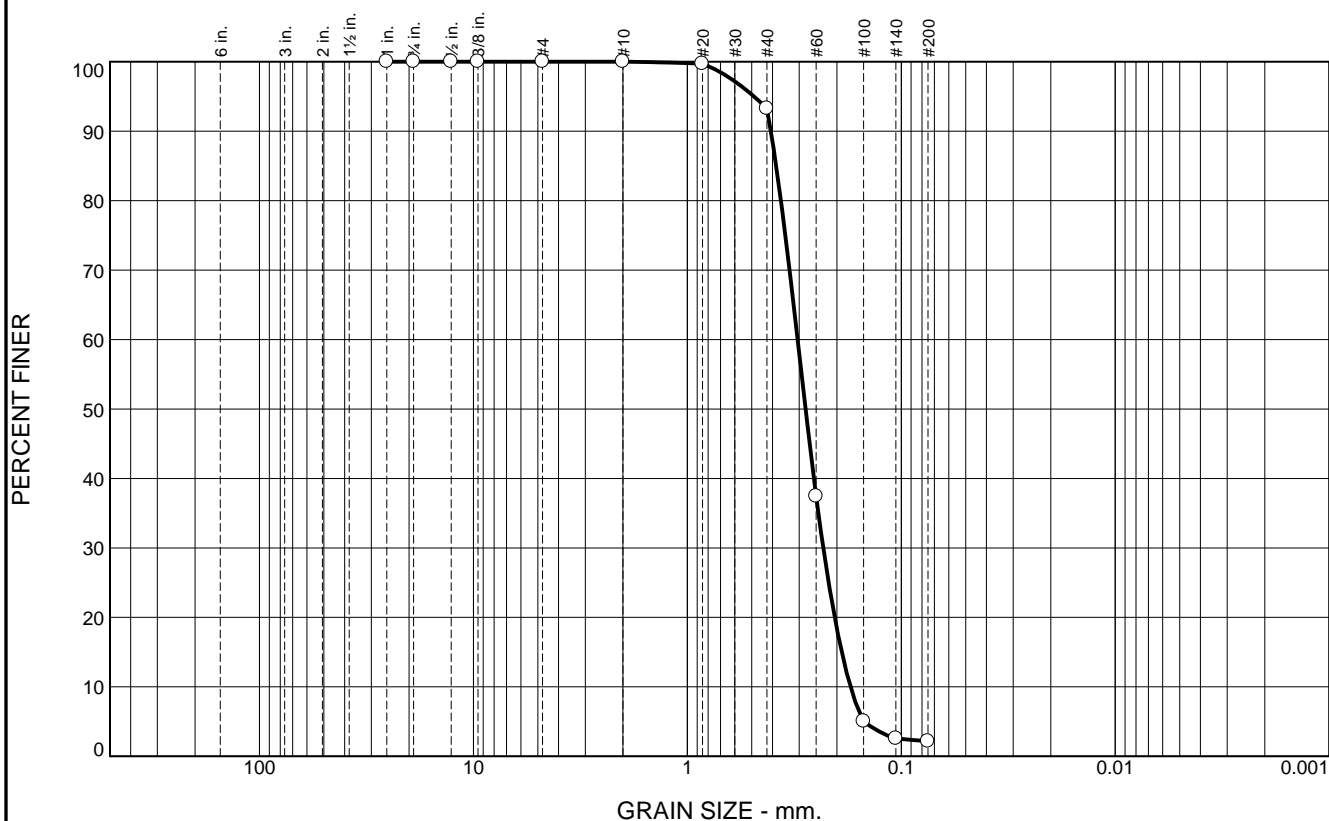
**Remarks**

\* (no specification provided)

Location: BI-PB-200-12 A      Depth: 0.0'      Date: 12/07/12  
 Sample Number: 6485 (26)

<b>Thompson Engineering</b>  <b>Mobile, Alabama</b>	<b>Client:</b> CDM/Thompson Engineering JV <b>Project:</b> MsCIP Barrier Island Restoration GT  <b>Project No:</b> 1221110095 <b>Figure</b>
---	--

# 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		

**Material Description**

Fine grained, SAND

**Atterberg Limits**

PL=                      LL=                      PI=

**Coefficients**

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

**Classification**

USCS= SP                      AASHTO=

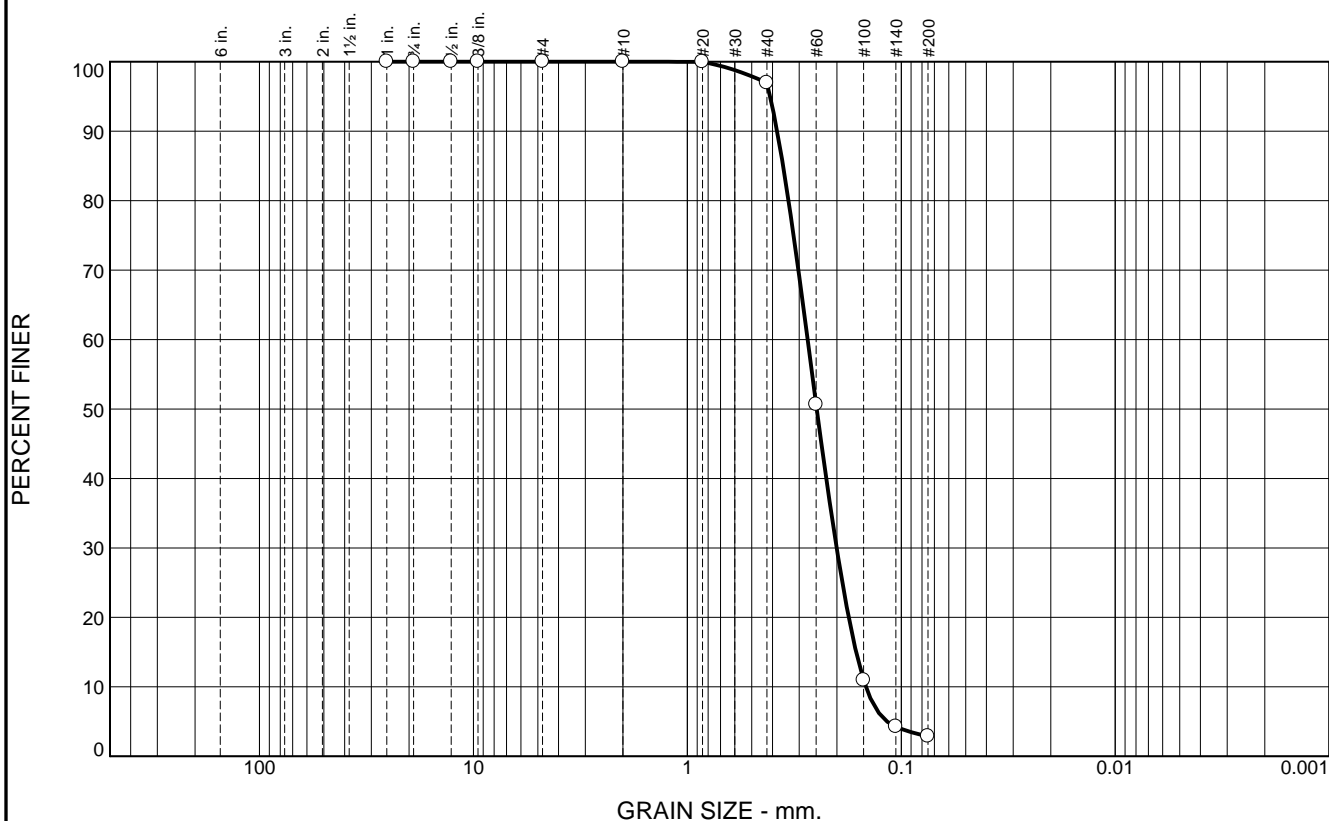
**Remarks**

\* (no specification provided)

Location: BI-PB-200-12 B      Depth: 2.0'      Date: 12/07/12  
Sample Number: 6485 (27)

<b>Thompson Engineering</b>  <b>Mobile, Alabama</b>	<b>Client:</b> CDM/Thompson Engineering JV <b>Project:</b> MsCIP Barrier Island Restoration GT  <b>Project No:</b> 1221110095 <b>Figure</b>
---	--

# 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		

**Material Description**

Fine grained, SAND

**Atterberg Limits**

PL=                      LL=                      PI=

**Coefficients**

D<sub>90</sub>= 0.3803              D<sub>85</sub>= 0.3567              D<sub>60</sub>= 0.2742  
 D<sub>50</sub>= 0.2484              D<sub>30</sub>= 0.2006              D<sub>15</sub>= 0.1627  
 D<sub>10</sub>= 0.1464              C<sub>u</sub>= 1.87                      C<sub>c</sub>= 1.00

**Classification**

USCS= SP                      AASHTO=

**Remarks**

\* (no specification provided)

**Location:** BI-PB-200-12 C  
**Sample Number:** 6485 (28)

**Depth:** 5.0'

**Date:** 12/07/12

**Thompson Engineering**

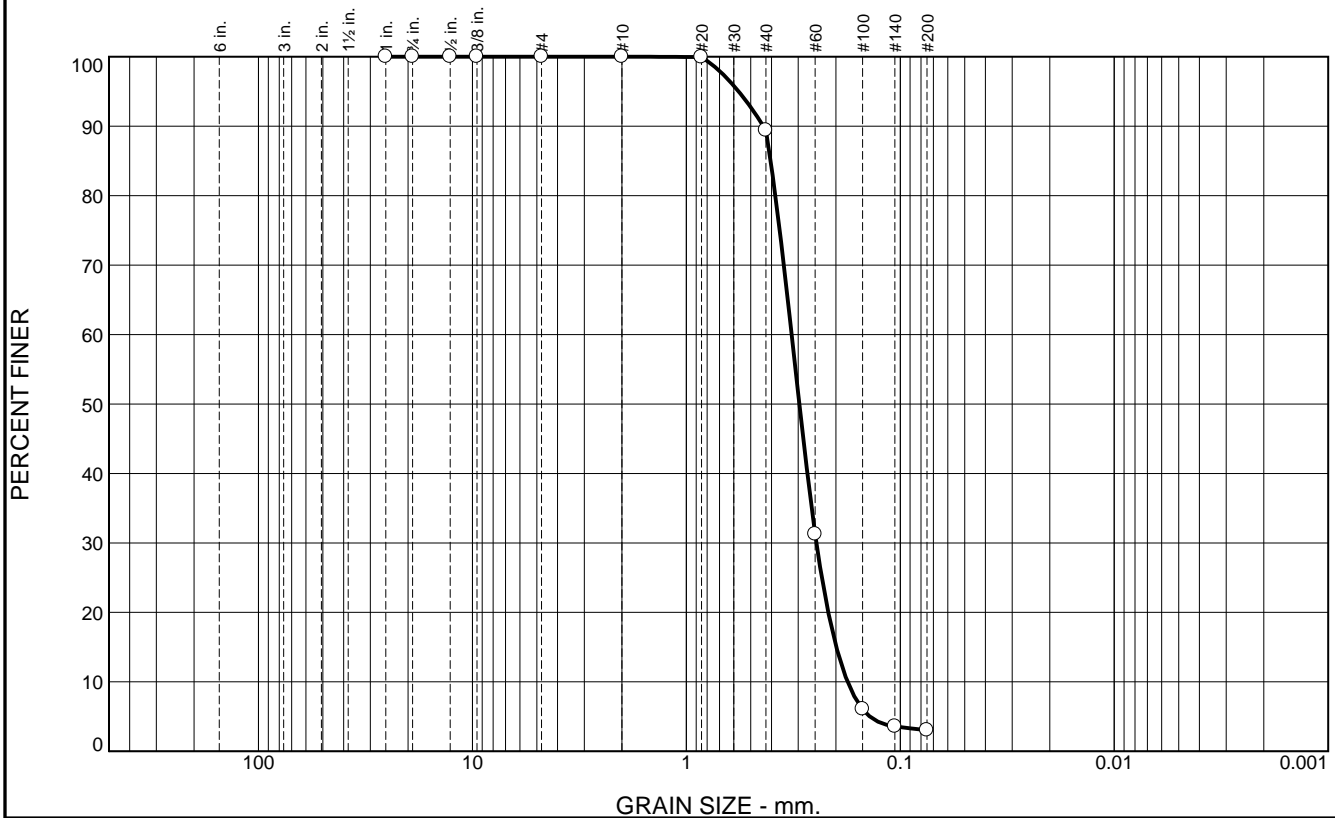
**Mobile, Alabama**

**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		

**Material Description**  
Fine to medium grained, SAND

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

**Coefficients**  
 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

**Classification**  
 USCS= SP                      AASHTO=

**Remarks**

\* (no specification provided)

**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**

<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 West			<b>9. SIZE AND TYPE OF BIT</b> N/A	
<b>2. BORING DESIGNATION</b> BI-PB-202-12		<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> Vibracore		<input type="checkbox"/> <b>AUTO HAMMER</b> <input type="checkbox"/> <b>MANUAL HAMMER</b>
<b>4. NAME OF DRILLER</b> American Vibracore Systems, Inc.		<b>12. TOTAL SAMPLES</b>		<b>DISTURBED</b> 0
<b>5. DIRECTION OF BORING</b> <input checked="" type="checkbox"/> <b>VERTICAL</b> <input type="checkbox"/> <b>INCLINED</b>		<b>LOCATION COORDINATES</b> E = 1,137,303 N = 252,107	<b>13. TOTAL NUMBER CORE BOXES</b>	
<b>6. THICKNESS OF OVERBURDEN</b> N/A		<b>14. WATER DEPTH</b> 36.3 Ft.		<b>15. DATE BORING</b>
<b>7. DEPTH DRILLED INTO ROCK</b> N/A		<b>16. ELEVATION TOP OF BORING</b> -35.3 Ft.		<b>STARTED</b> 12-19-12
<b>8. TOTAL DEPTH OF BORING</b> 19.8 Ft.		<b>17. TOTAL RECOVERY FOR BORING</b> 100%		<b>COMPLETED</b> 12-19-12
<b>18. SIGNATURE AND TITLE OF INSPECTOR</b> 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.		

**Project**

Mississippi Barrier Island  
Restoration Project



**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'

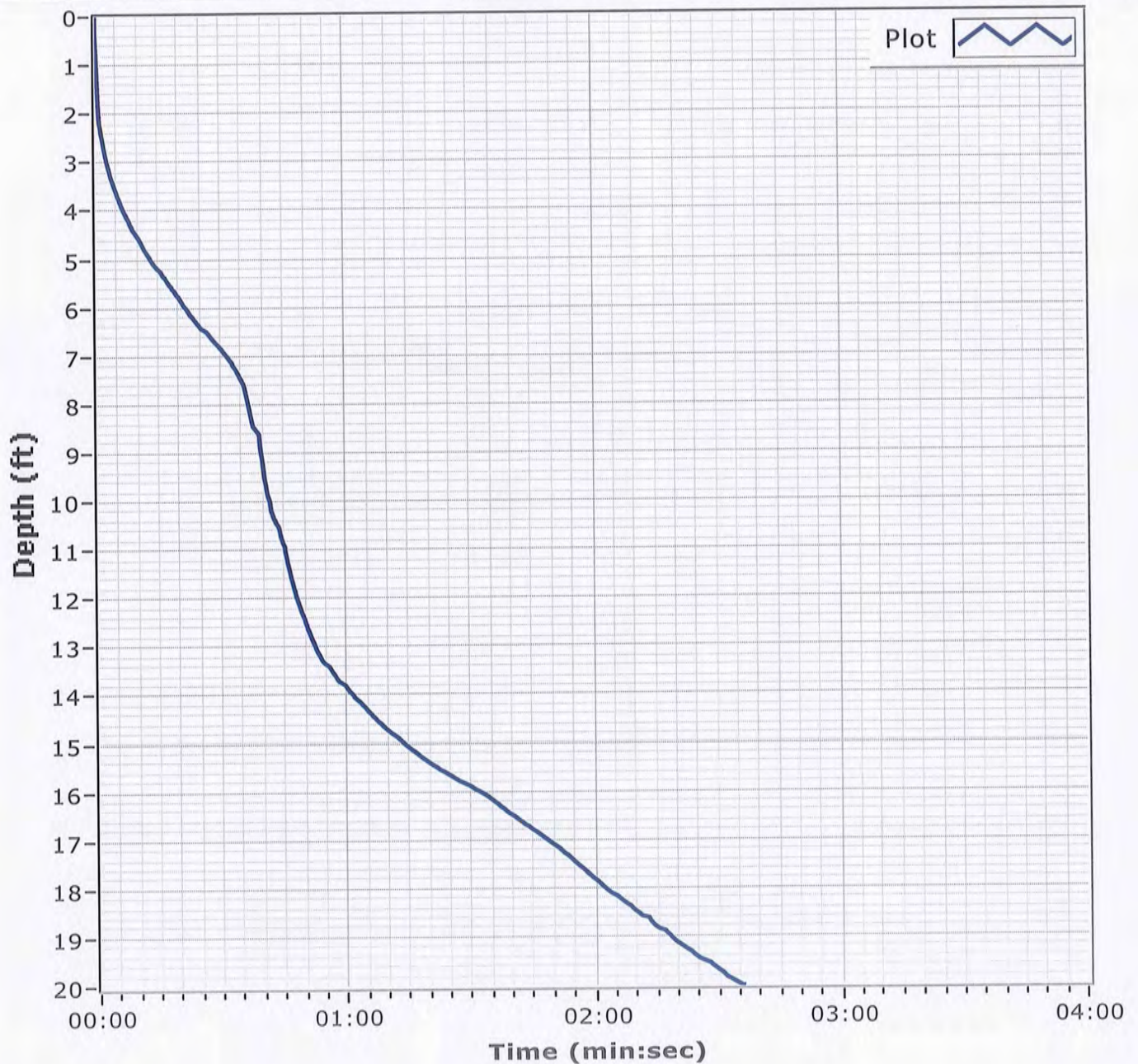
**Latitude** 30 11.541

**Total Time** 00:02:36

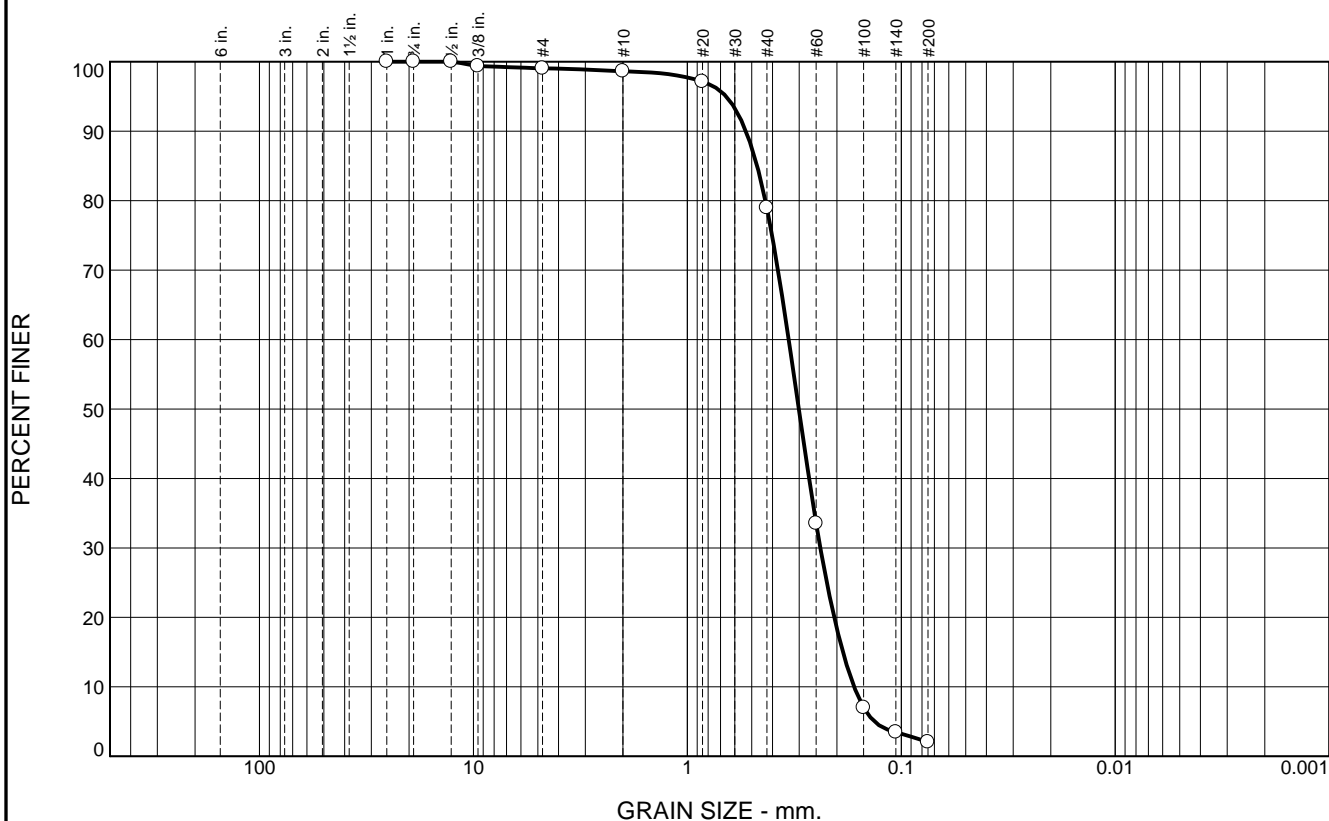
**Recovery** 19.8'

**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		

**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**

\* (no specification provided)

**Location:** BI-PB-202-12 A  
**Sample Number:** 6494 (76)

**Depth:** 1.1'

**Date:** 12/26/12

**Thompson Engineering**

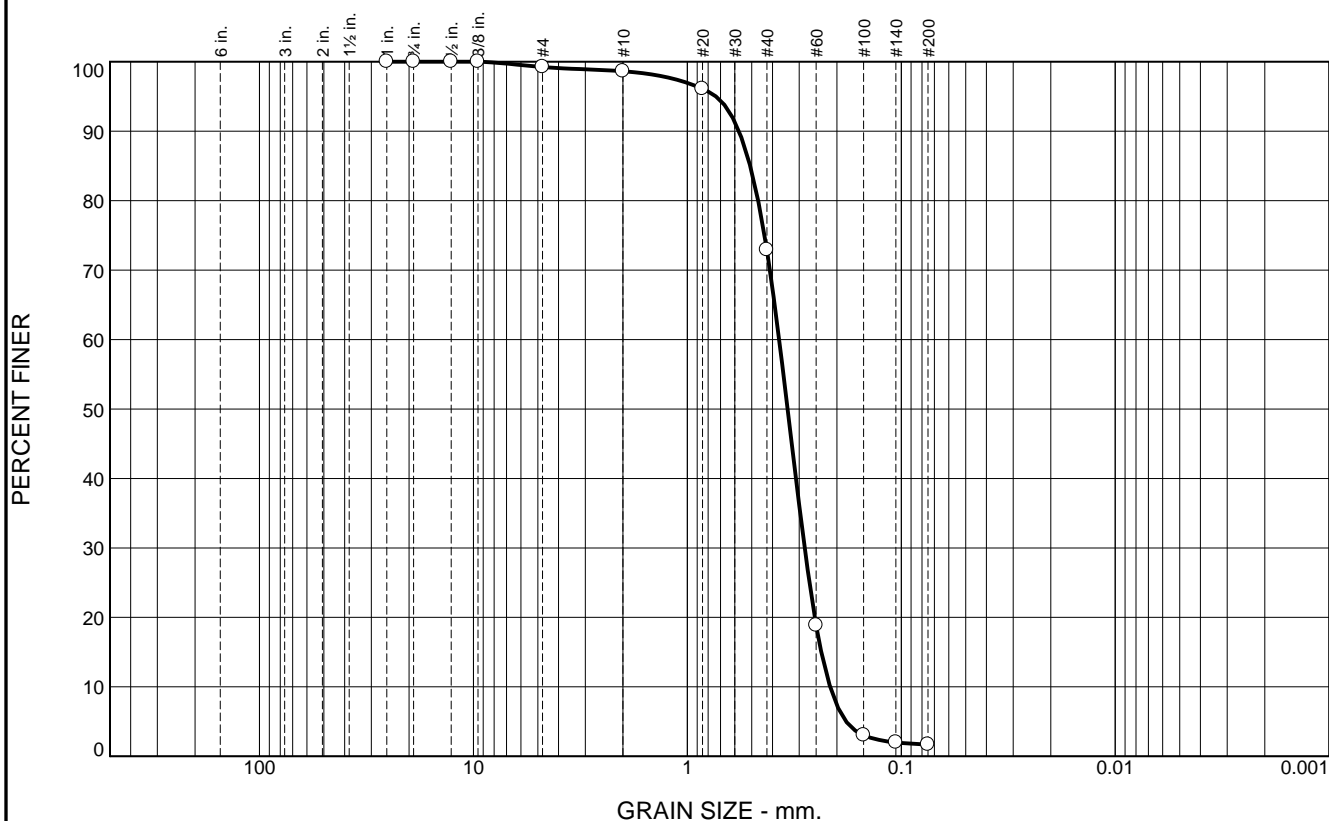
**Mobile, Alabama**

**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		

**Material Description**  
Fine to medium grained, SAND

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

**Coefficients**  
 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

**Classification**  
 USCS= SP                      AASHTO=

**Remarks**


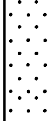


\* (no specification provided)

Location: BI-PB-202-12 B      Depth: 2.5'      Date: 12/26/12  
 Sample Number: 6494 (77)

<b>Thompson Engineering</b>  <b>Mobile, Alabama</b>	<b>Client:</b> CDM/Thompson Engineering JV <b>Project:</b> MsCIP Barrier Island Restoration GT  <b>Project No:</b> 1221110095 <b>Figure</b>
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Boring Designation BI-PB-203-12

<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 West			<b>9. SIZE AND TYPE OF BIT</b> N/A	
<b>2. BORING DESIGNATION</b> BI-PB-203-12		<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> Vibracore		<input type="checkbox"/> <b>AUTO HAMMER</b> <input type="checkbox"/> <b>MANUAL HAMMER</b>
<b>4. NAME OF DRILLER</b> American Vibracore Systems, Inc.		<b>12. TOTAL SAMPLES</b>		<b>DISTURBED</b> 0
<b>5. DIRECTION OF BORING</b> <input checked="" type="checkbox"/> <b>VERTICAL</b> <input type="checkbox"/> <b>INCLINED</b>		<b>LOCATION COORDINATES</b> E = 1,135,612 N = 252,154	<b>13. TOTAL NUMBER CORE BOXES</b>	
<b>6. THICKNESS OF OVERBURDEN</b> N/A		<b>CONTRACTOR FILE NO.</b>	<b>14. WATER DEPTH</b> 35.1 Ft.	
<b>7. DEPTH DRILLED INTO ROCK</b> N/A		<b>DEG. FROM VERTICAL</b>	<b>15. DATE BORING</b>	
<b>8. TOTAL DEPTH OF BORING</b> 19.6 Ft.		<b>BEARING</b>	<b>STARTED</b> 12-19-12	
			<b>COMPLETED</b> 12-19-12	
			<b>16. ELEVATION TOP OF BORING</b> -34.4 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
-34.4	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



**Core Identifier** BI-PB-203-12

**Date** 12/19/2012

**Water Depth** 35.1'

**Coordinate System**

Latitude / Longitude

**Start Time** 14:31:14

**End Time** 14:32:47

**Penetration** 20.0'

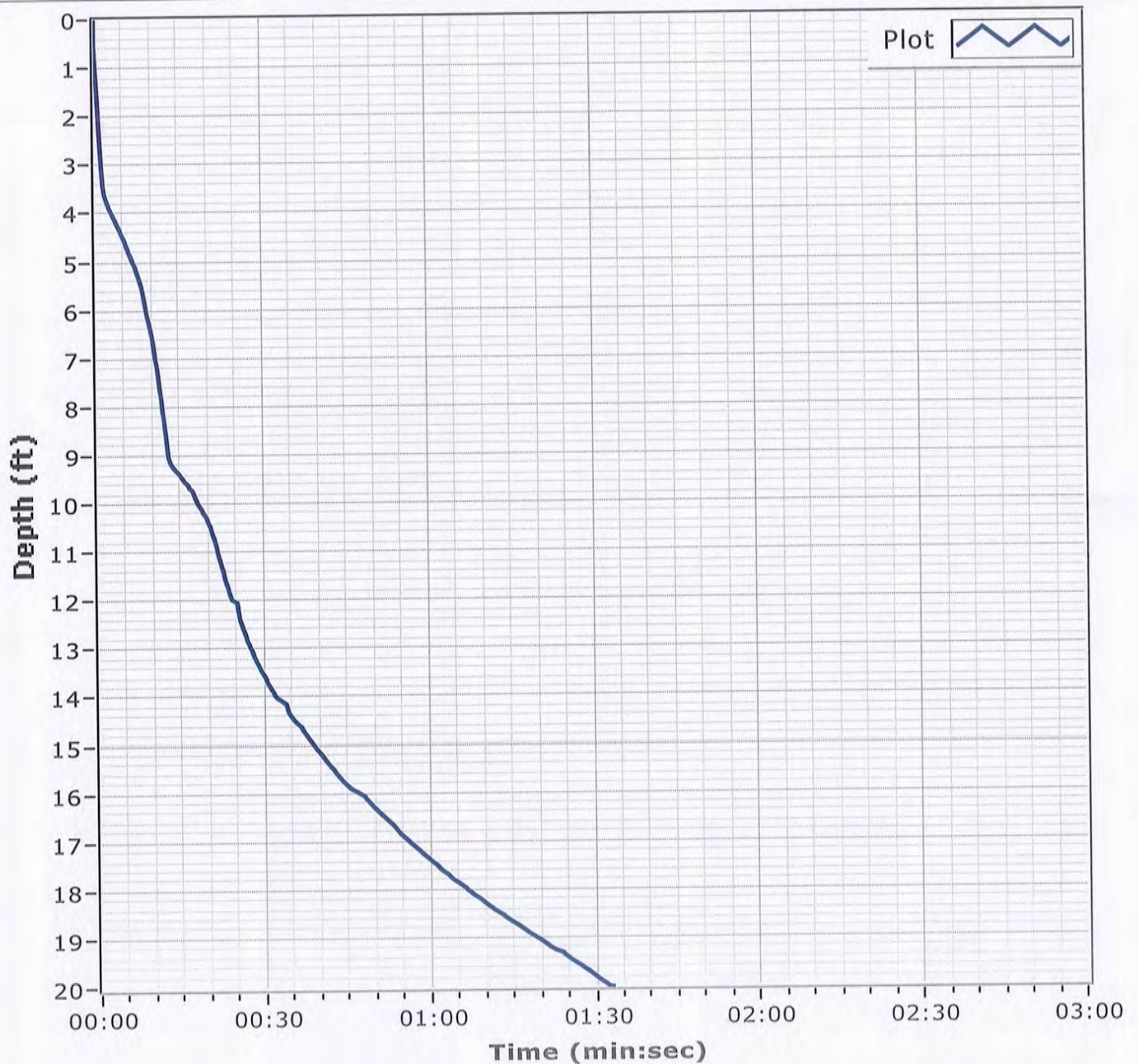
**Latitude** 30 11.550

**Total Time** 00:01:33

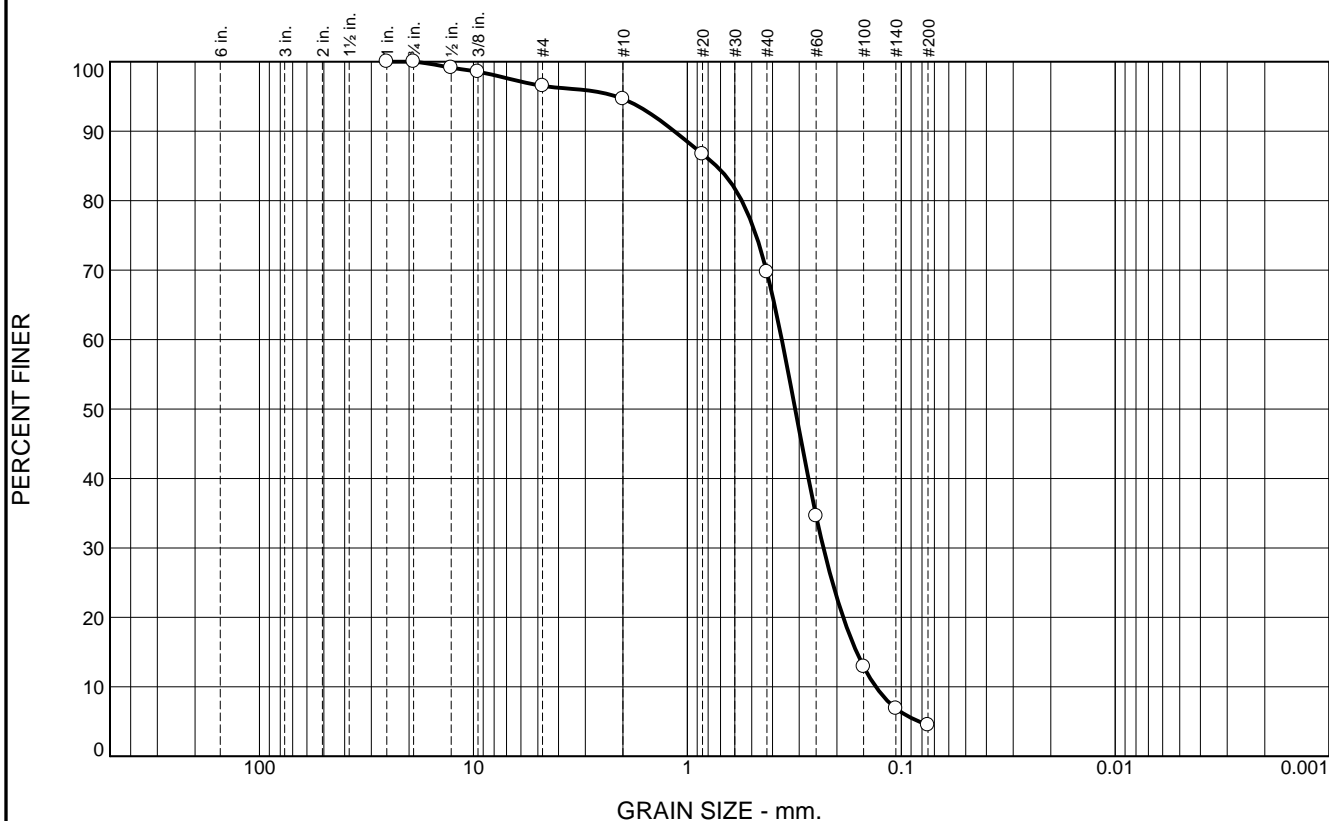
**Recovery** 19.6'

**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		

**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**

\* (no specification provided)

**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

<b>DRILLING LOG</b>		<b>DIVISION</b> South Atlantic	<b>INSTALLATION</b> Mobile District	<b>SHEET 1</b> OF 1 SHEETS
<b>1. PROJECT</b> MsCIP Barrier Island Restoration Petit Bois Pass- AL West			<b>9. SIZE AND TYPE OF BIT</b> N/A	
<b>2. BORING DESIGNATION</b> BI-PB-204-12		<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> Vibracore		<input type="checkbox"/> <b>AUTO HAMMER</b> <input type="checkbox"/> <b>MANUAL HAMMER</b>
<b>4. NAME OF DRILLER</b> American Vibracore Systems, Inc.		<b>12. TOTAL SAMPLES</b>		<b>DISTURBED</b> 0
<b>5. DIRECTION OF BORING</b> <input checked="" type="checkbox"/> <b>VERTICAL</b> <input type="checkbox"/> <b>INCLINED</b>		<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> 34.7 Ft.		
<b>7. DEPTH DRILLED INTO ROCK</b> N/A		<b>15. DATE BORING</b>		<b>STARTED</b> 12-19-12 <b>COMPLETED</b> 12-19-12
<b>8. TOTAL DEPTH OF BORING</b> 19.3 Ft.		<b>16. ELEVATION TOP OF BORING</b> -33.5 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
-33.5	0.0				
			SILT, inorganic-L, mostly silt, some clay, some fine-grained sand-sized quartz, grayish brown (ML)	NS	
-36.5	3.0				
			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
-38.1	4.6				
			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
-43.1	9.6				
			SAND, clayey, mostly fine-grained sand-sized quartz, some clay, brownish gray (SC)	NS	
-45.4	11.9				
			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
-48.8	15.3				
			CLAY, fat, mostly clay, medium to high plasticity, greenish gray (CH)	NS	
-52.8	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



**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'

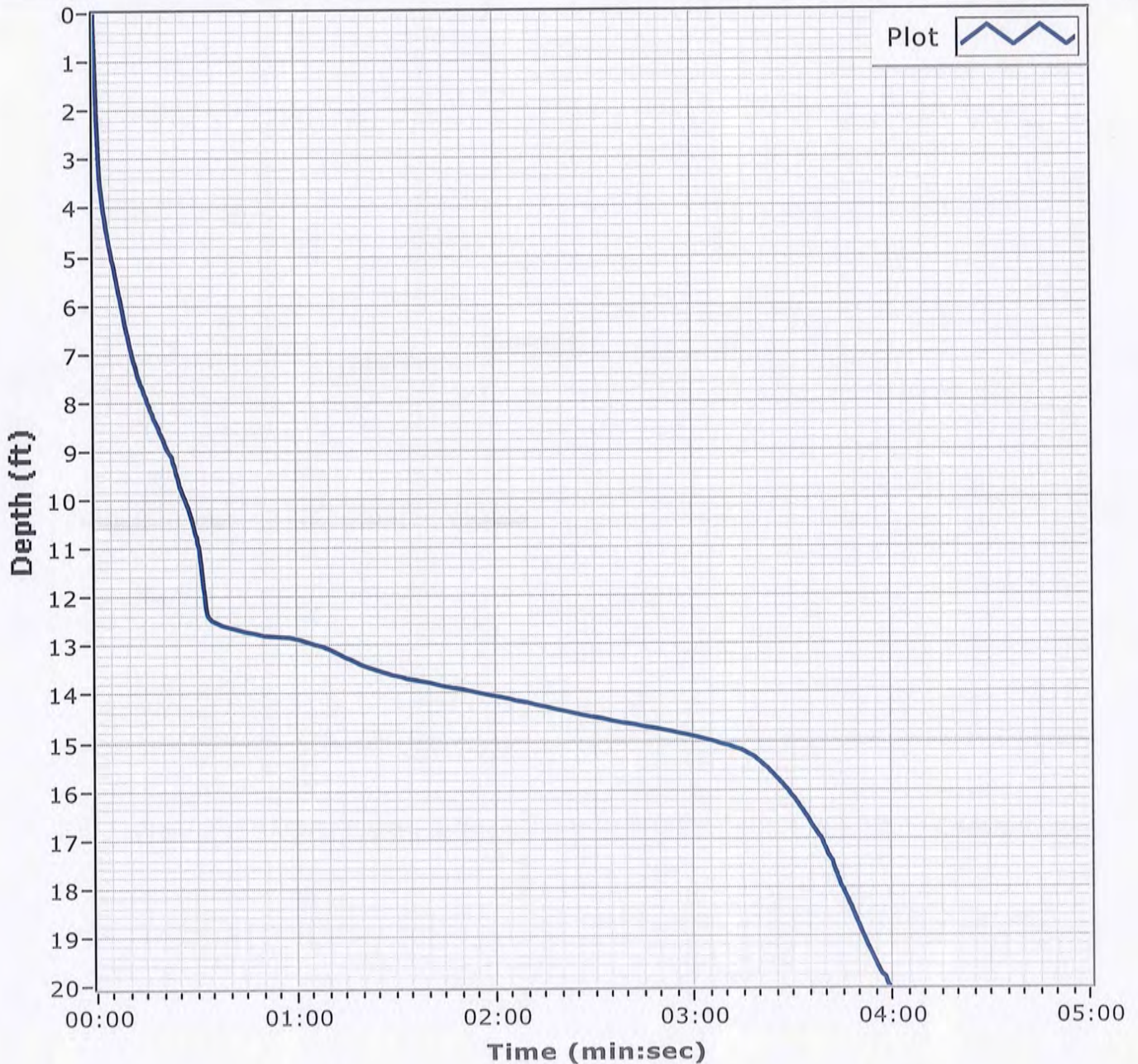
**Latitude** 30 11.556

**Total Time** 00:03:59

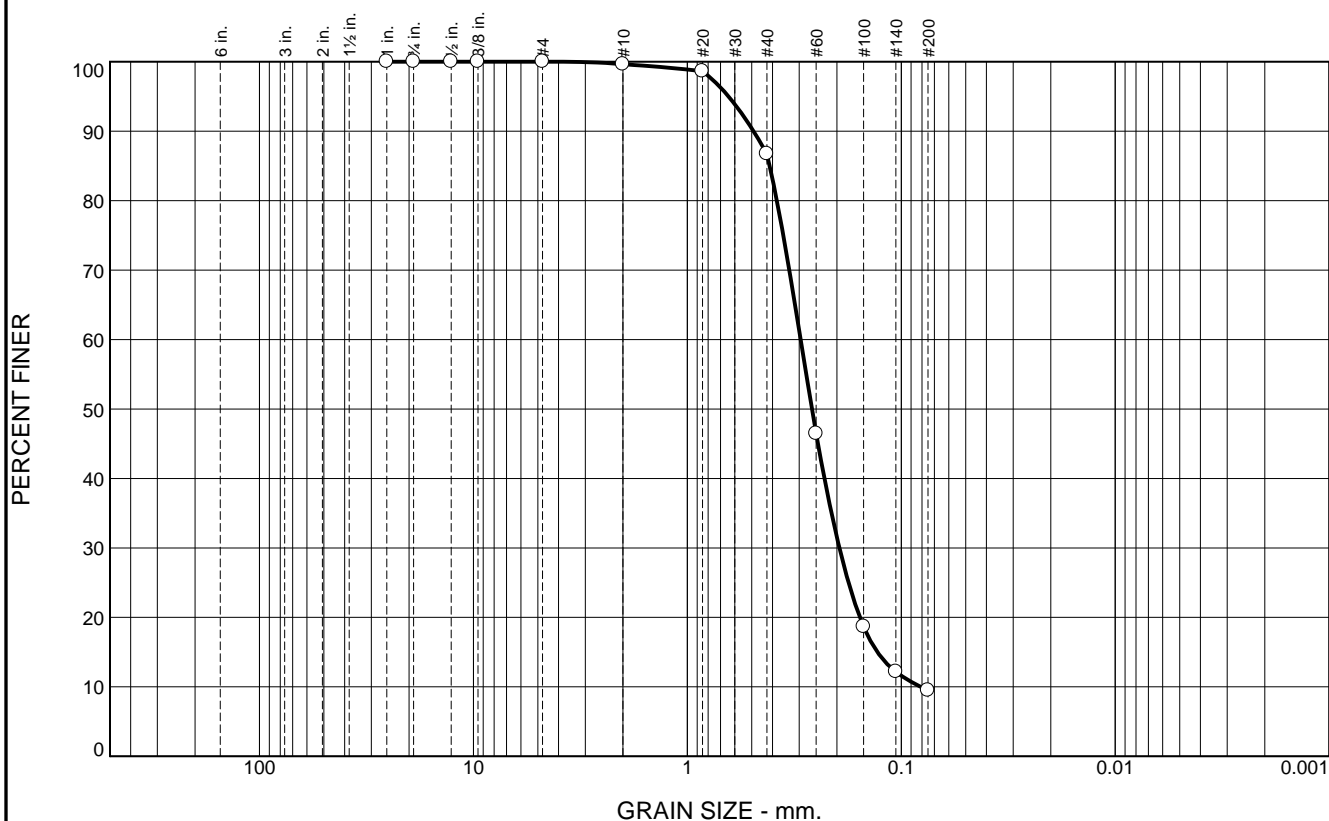
**Recovery** 19.3'

**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		

**Material Description**

Fine to medium grained, SLIGHTLY SILTY SAND

**Atterberg Limits**

PL=                      LL=                      PI=

**Coefficients**

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

**Classification**

USCS= SP-SM                      AASHTO=

**Remarks**

\* (no specification provided)

**Location:** BI-PB-204-12 A      **Depth:** 3.0'      **Date:** 12/26/12  
**Sample Number:** 6494 (79)

**Thompson Engineering**

**Mobile, Alabama**

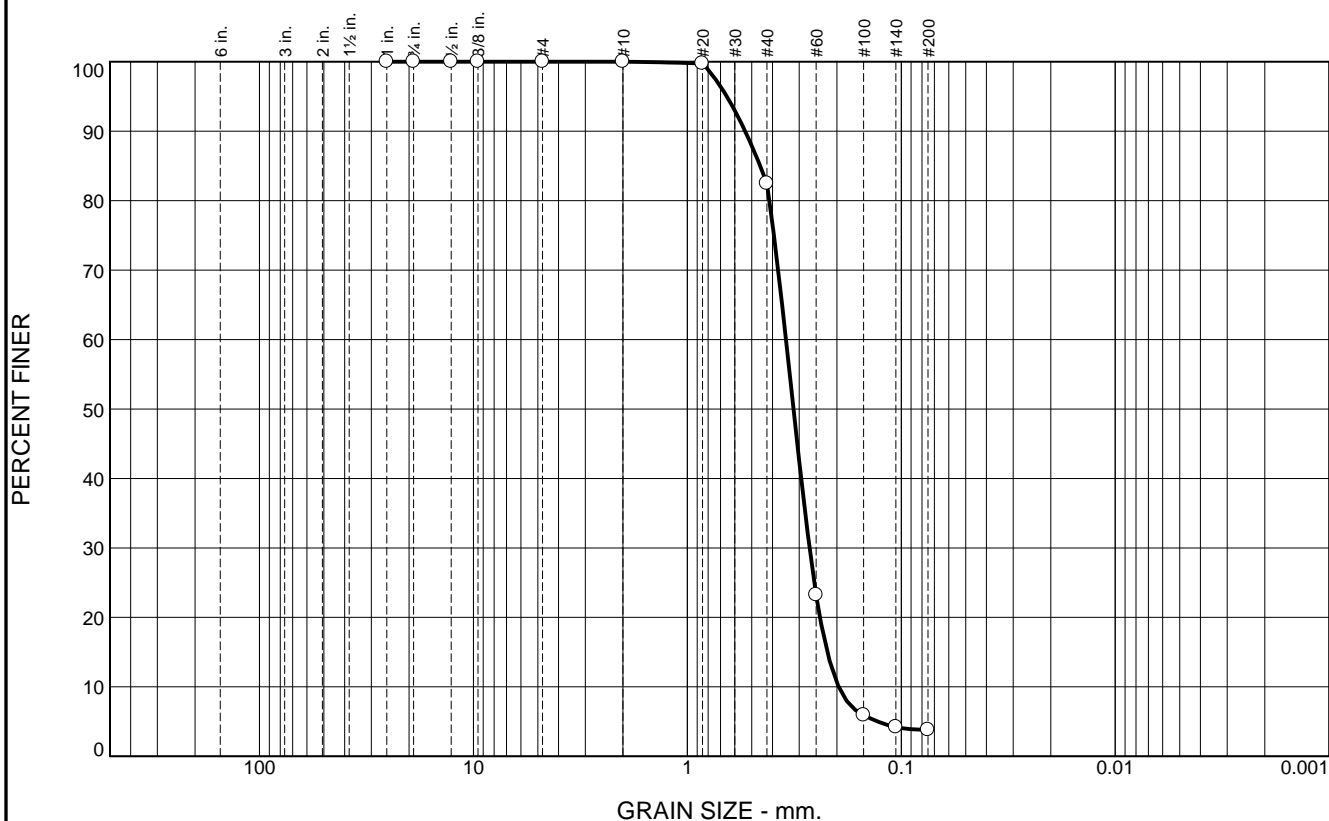
**Client:** CDM/Thompson Engineering JV  
**Project:** MsCIP Barrier Island Restoration GT

**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		

**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**

\* (no specification provided)

**Location:** BI-PB-204-12 B  
**Sample Number:** 6494 (80)

**Depth:** 4.6'

**Date:** 12/26/12

**Thompson Engineering**

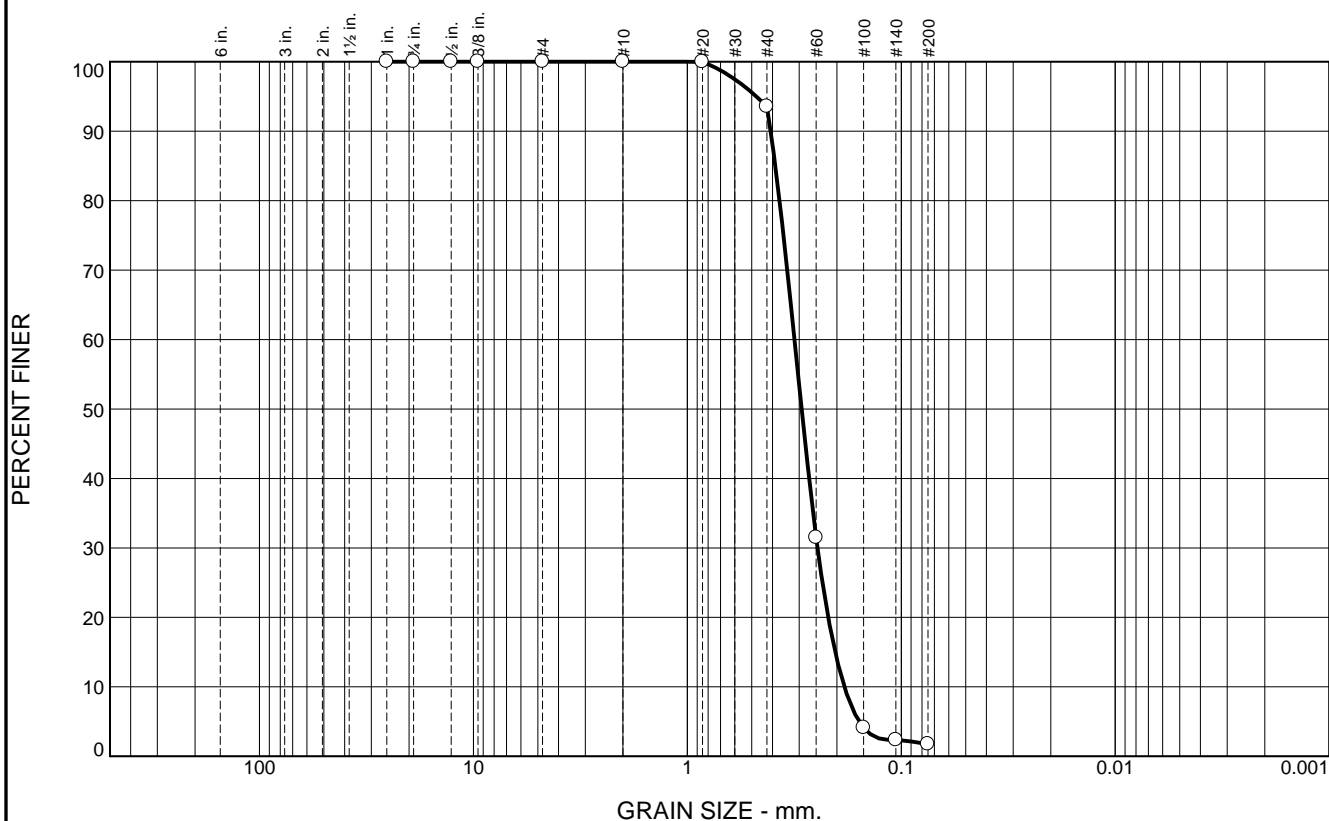
**Mobile, Alabama**

**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		

**Material Description**

Fine grained, SAND

**Atterberg Limits**

PL=                      LL=                      PI=

**Coefficients**

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

**Classification**

USCS= SP                      AASHTO=

**Remarks**

\* (no specification provided)

**Location:** BI-PB-204-12 C                      **Depth:** 11.9'                      **Date:** 12/26/12  
**Sample Number:** 6494 (81)

<p><b>Thompson Engineering</b></p> <p><b>Mobile, Alabama</b></p>	<p><b>Client:</b> CDM/Thompson Engineering JV</p> <p><b>Project:</b> MsCIP Barrier Island Restoration GT</p> <p><b>Project No:</b> 1221110095</p> <p style="text-align: right;"><b>Figure</b></p>
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**Boring Designation BI-PB-205-12**

<b>DRILLING LOG</b>		<b>DIVISION</b> South Atlantic	<b>INSTALLATION</b> Mobile District	<b>SHEET 1</b> OF 1 SHEETS
<b>1. PROJECT</b> MsCIP Barrier Island Restoration Petit Bois Pass- AL West			<b>9. SIZE AND TYPE OF BIT</b> N/A	
<b>2. BORING DESIGNATION</b> BI-PB-205-12		<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> Vibracore		<input type="checkbox"/> <b>AUTO HAMMER</b> <input type="checkbox"/> <b>MANUAL HAMMER</b>
<b>4. NAME OF DRILLER</b> American Vibracore Systems, Inc.		<b>12. TOTAL SAMPLES</b>		<b>DISTURBED</b> 0
<b>5. DIRECTION OF BORING</b> <input checked="" type="checkbox"/> <b>VERTICAL</b> <input type="checkbox"/> <b>INCLINED</b>		<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> 32.7 Ft.		
<b>7. DEPTH DRILLED INTO ROCK</b> N/A		<b>15. DATE BORING</b>		<b>STARTED</b> 12-19-12 <b>COMPLETED</b> 12-19-12
<b>8. TOTAL DEPTH OF BORING</b> 19.1 Ft.		<b>16. ELEVATION TOP OF BORING</b> -31.8 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
-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



**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'

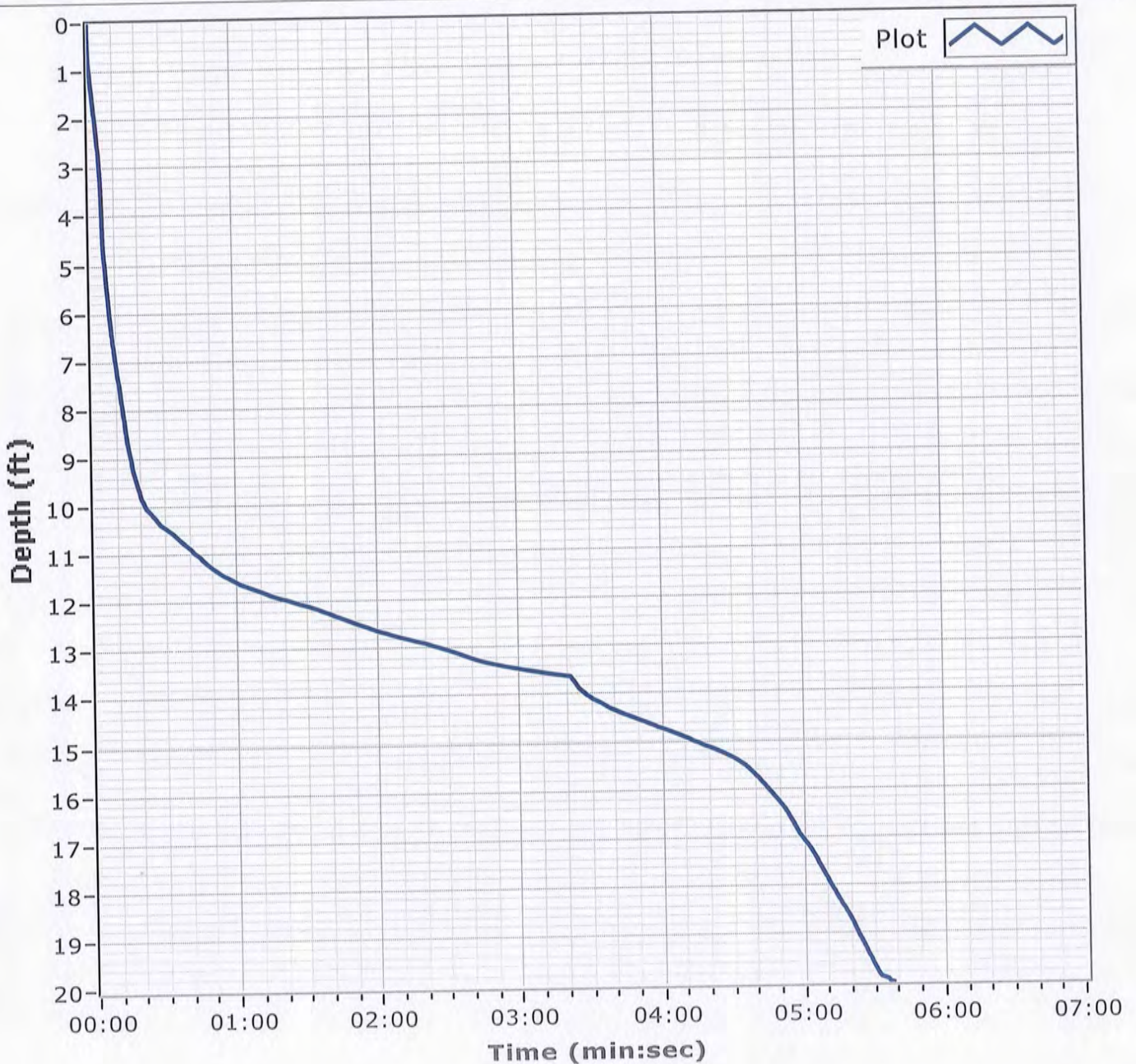
**Latitude** 30 11.548 N

**Total Time** 00:05:38

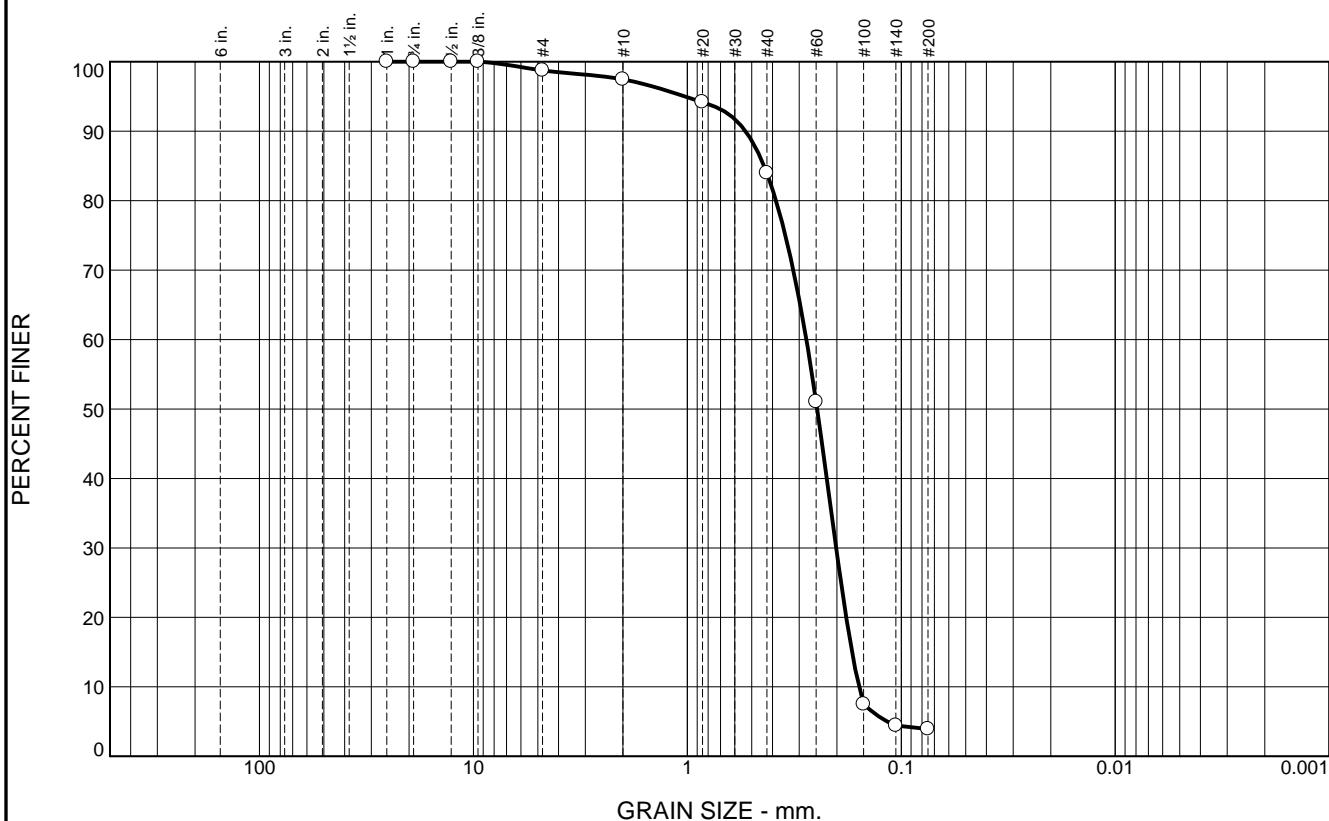
**Recovery** 19.2

**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		

**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**

\* (no specification provided)

**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		

**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**

\* (no specification provided)

**Location:** BI-PB-205-12 B  
**Sample Number:** 6494 (83)

**Depth:** 3.3'

**Date:** 12/26/12

**Thompson Engineering**

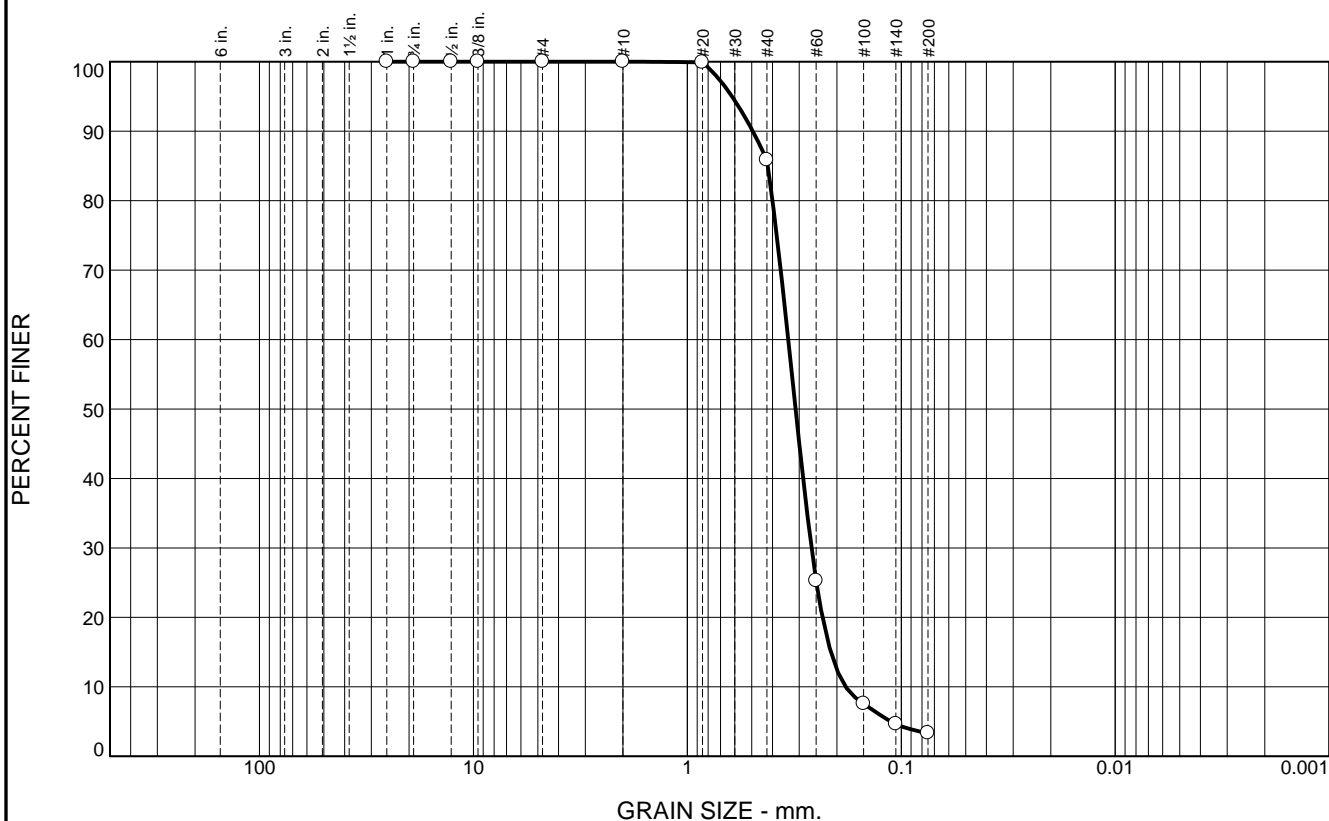
**Mobile, Alabama**

**Client:** CDM/Thompson Engineering JV  
**Project:** MsCIP Barrier Island Restoration GT

**Project No:** 1221110095

**Figure**

# Particle Size Distribution Report



% +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		

**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**



\* (no specification provided)

Location: BI-PB-205-12 C      Depth: 7.2'      Date: 12/26/12  
 Sample Number: 6494 (84)

<b>Thompson Engineering</b>  <b>Mobile, Alabama</b>	<b>Client:</b> CDM/Thompson Engineering JV <b>Project:</b> MsCIP Barrier Island Restoration GT  <b>Project No:</b> 1221110095 <b>Figure</b>
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Boring Designation BI-PB-207-12

<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-207-12		<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> Vibracore		<input type="checkbox"/> <b>AUTO HAMMER</b> <input type="checkbox"/> <b>MANUAL HAMMER</b>
<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"/> <b>VERTICAL</b> <input type="checkbox"/> <b>INCLINED</b>		<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> 37.5 Ft.		
<b>7. DEPTH DRILLED INTO ROCK</b> N/A		<b>15. DATE BORING</b>		<b>STARTED</b> 12-11-12 <b>COMPLETED</b> 12-11-12
<b>8. TOTAL DEPTH OF BORING</b> 16.6 Ft.		<b>16. ELEVATION TOP OF BORING</b> -37.3 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
-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



**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

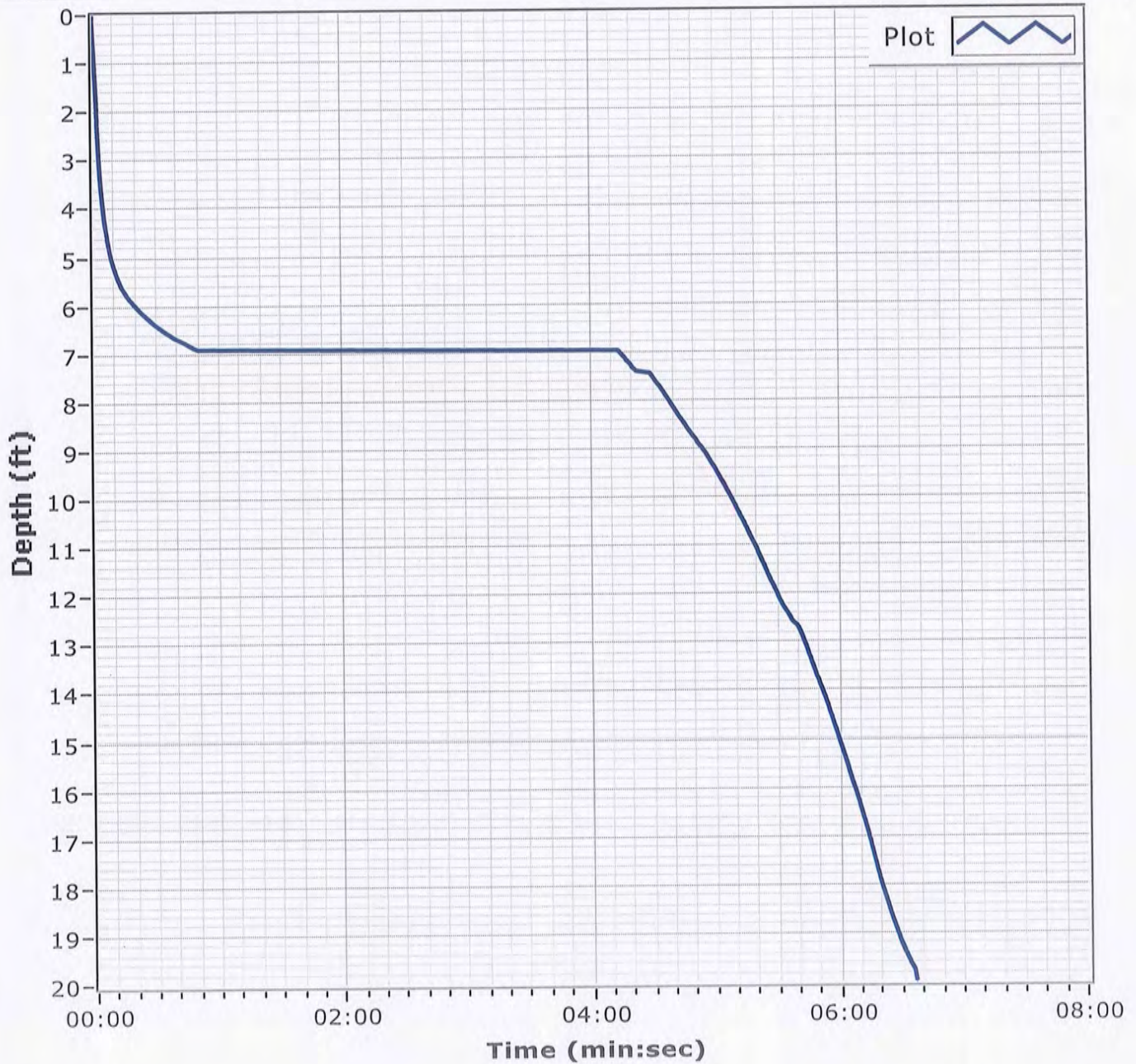
**Total Time** 00:06:36

**Recovery** 16.6'

**Longitude** 088 19.827

**Comments**

Empty comment box



**Boring Designation BI-PB-208-12**

<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-208-12		<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> Vibracore		<input type="checkbox"/> <b>AUTO HAMMER</b> <input type="checkbox"/> <b>MANUAL HAMMER</b>
<b>4. NAME OF DRILLER</b> American Vibracore Systems, Inc.		<b>12. TOTAL SAMPLES</b>		<b>DISTURBED</b> 0
<b>5. DIRECTION OF BORING</b> <input checked="" type="checkbox"/> <b>VERTICAL</b> <input type="checkbox"/> <b>INCLINED</b>		<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> 32.8 Ft.		<b>15. DATE BORING</b>
<b>7. DEPTH DRILLED INTO ROCK</b> N/A		<b>16. ELEVATION TOP OF BORING</b> -27.7 Ft.		<b>STARTED</b> 12-06-12
<b>8. TOTAL DEPTH OF BORING</b> 11.9 Ft.		<b>17. TOTAL RECOVERY FOR BORING</b> 100%		<b>COMPLETED</b> 12-06-12
<b>18. SIGNATURE AND TITLE OF INSPECTOR</b> 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		NOTES: 1. Soils are field visually classified 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.	NS	



**Project**

Mississippi Barrier Island  
Restoration Project



**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'

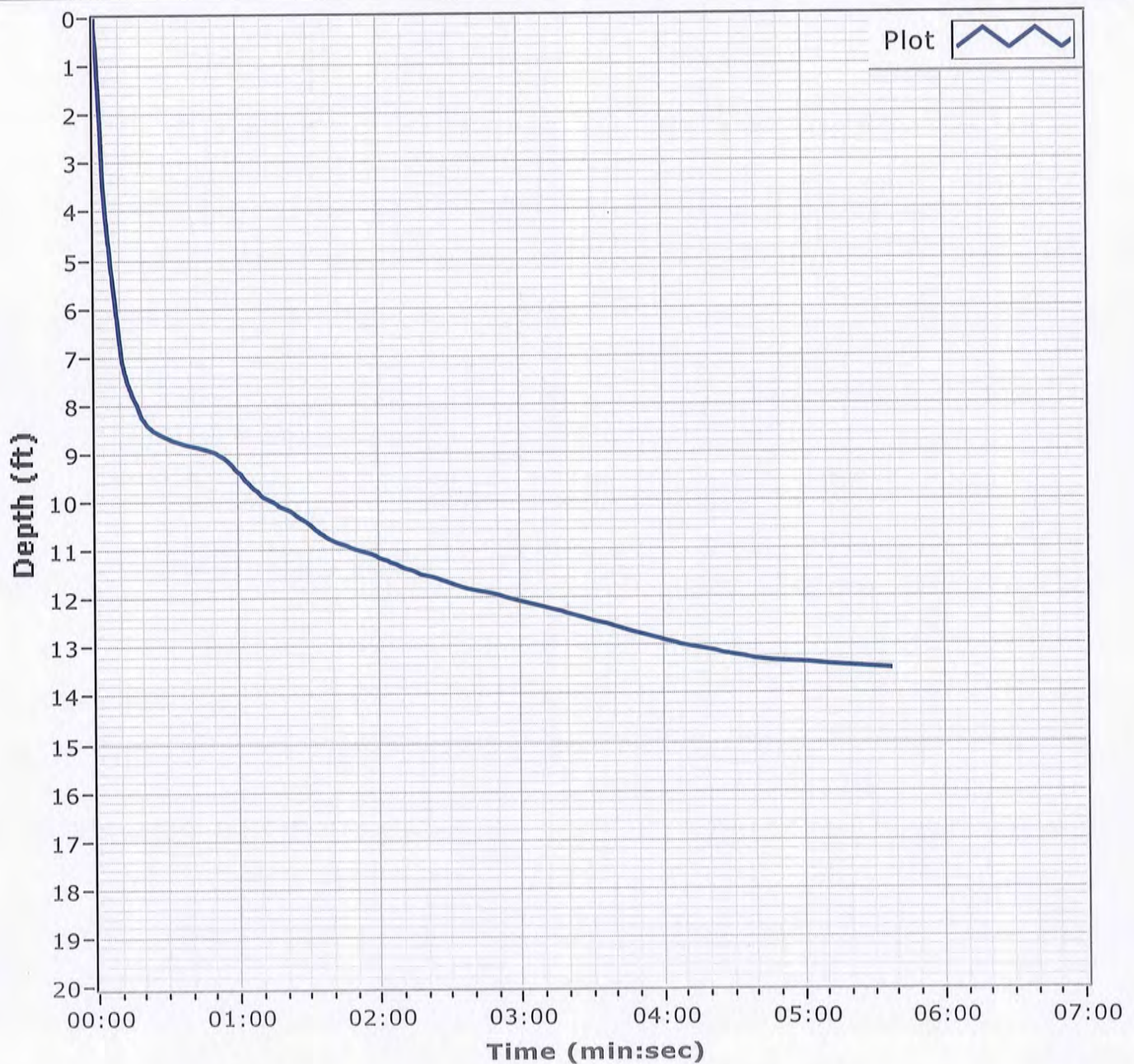
**Latitude** 30 12.051

**Total Time** 00:05:37

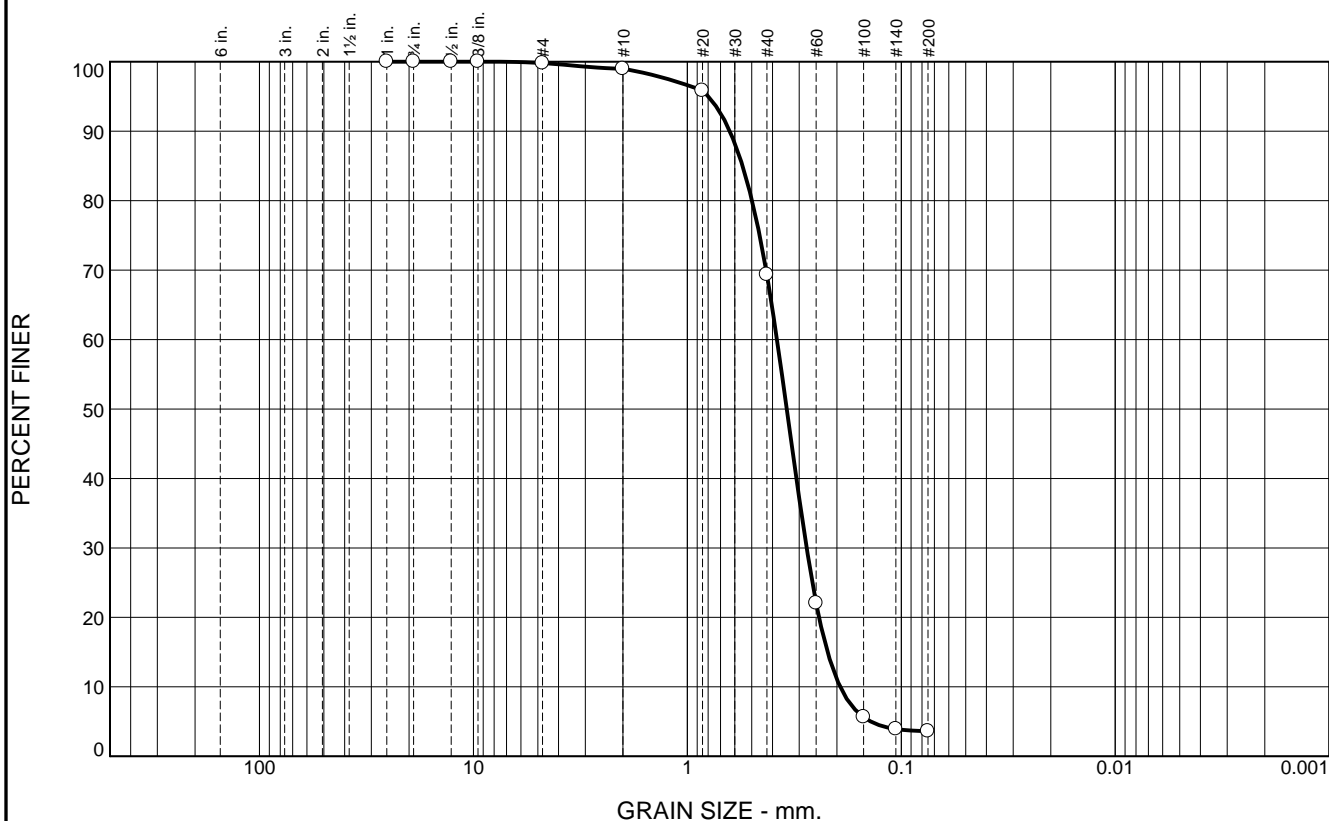
**Recovery** 11.9'

**Longitude** 088 19.655

**Comments**



# Particle Size Distribution Report



% +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		

**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=

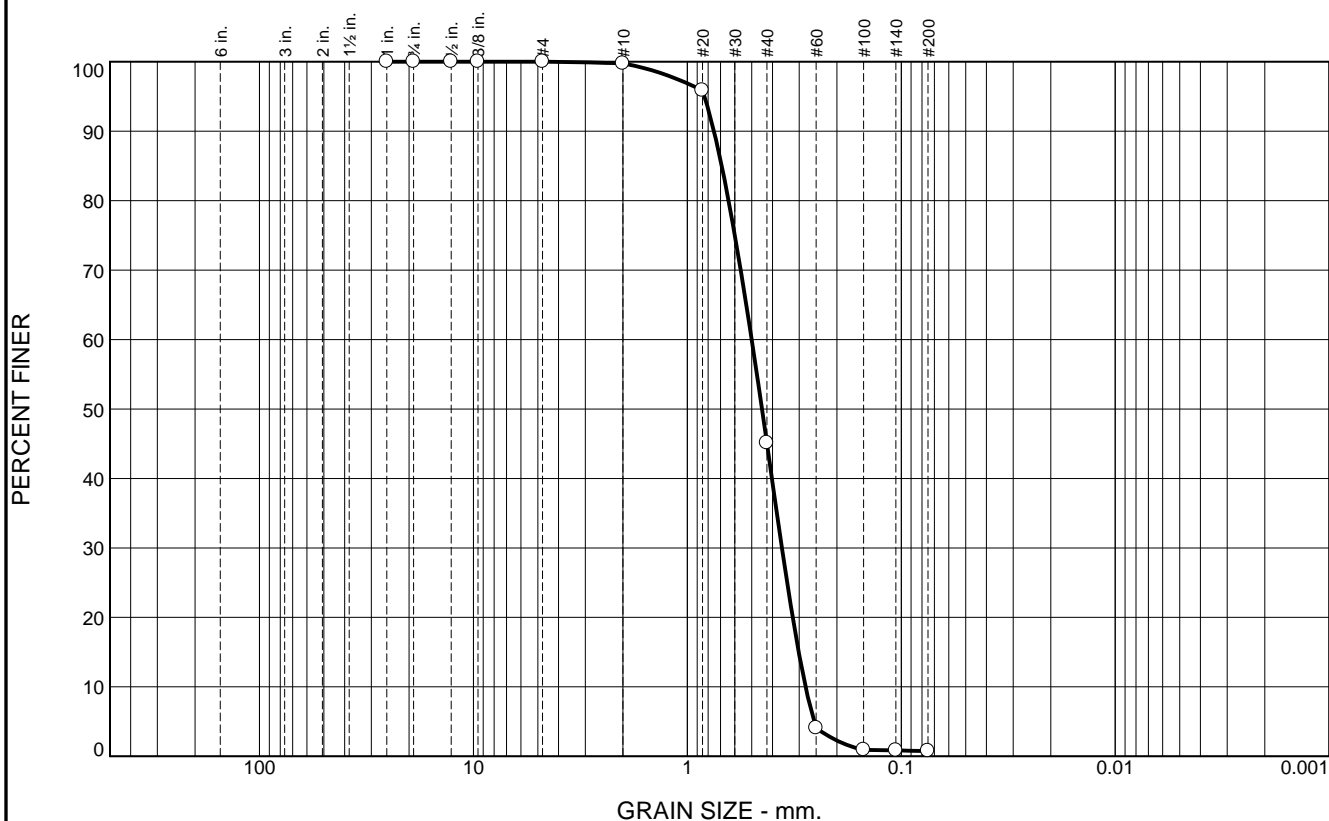
**Remarks**

\* (no specification provided)

Location: BI-PB-208-12 A      Depth: 0.0'      Date: 12/07/12  
 Sample Number: 6480 (47)

<b>Thompson Engineering</b>  <b>Mobile, Alabama</b>	<b>Client:</b> CDM/Thompson Engineering JV <b>Project:</b> MsCIP Barrier Island Restoration GT  <b>Project No:</b> 1221110095 <b>Figure</b>
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# 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		

**Material Description**  
Fine to medium grained, SAND

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

**Coefficients**  
 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

**Classification**  
 USCS= SP                      AASHTO=

**Remarks**

\* (no specification provided)

**Location:** BI-PB-208-12 B  
**Sample Number:** 6480 (48)

**Depth:** 2.6'

**Date:** 12/07/12

**Thompson Engineering**

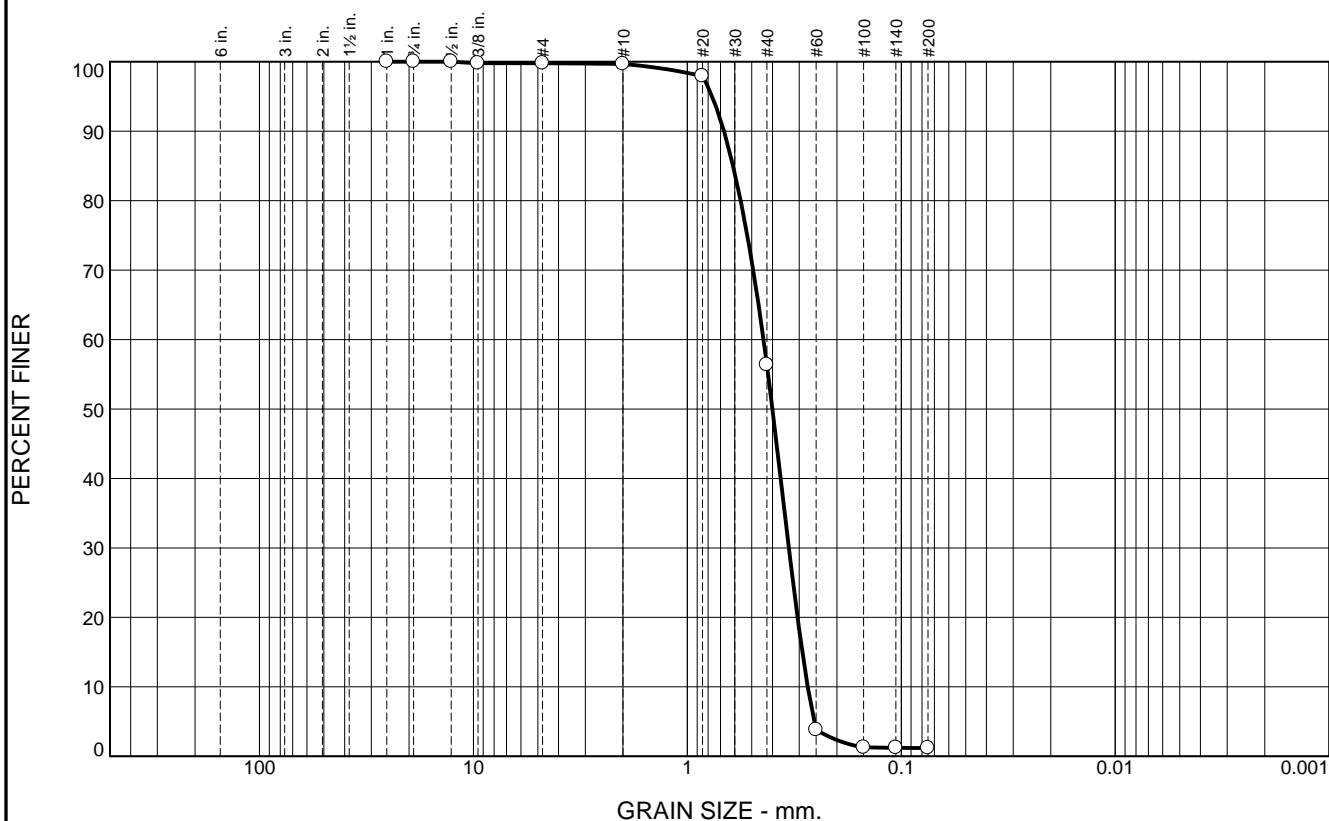
**Mobile, Alabama**

**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		

**Material Description**

Fine to medium grained, SAND

**Atterberg Limits**

PL=                      LL=                      PI=

**Coefficients**

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

**Classification**

USCS= SP                      AASHTO=

**Remarks**

\* (no specification provided)

Location: BI-PB-208-12 C                      Depth: 6.9'                      Date: 12/07/12

Sample Number: 6480 (49)

<p><b>Thompson Engineering</b></p> <p><b>Mobile, Alabama</b></p>	<p>Client: CDM/Thompson Engineering JV</p> <p>Project: MsCIP Barrier Island Restoration GT</p> <p>Project No: 1221110095</p> <p style="text-align: right;">Figure</p>
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Boring Designation BI-PB-209-12

<b>DRILLING LOG</b>		<b>DIVISION</b> South Atlantic	<b>INSTALLATION</b> Mobile District	<b>SHEET 1</b> 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-209-12		<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> Vibracore		<input type="checkbox"/> <b>AUTO HAMMER</b> <input type="checkbox"/> <b>MANUAL HAMMER</b>
<b>4. NAME OF DRILLER</b> American Vibracore Systems, Inc.		<b>12. TOTAL SAMPLES</b>		<b>DISTURBED</b> 0
<b>5. DIRECTION OF BORING</b> <input checked="" type="checkbox"/> <b>VERTICAL</b> <input type="checkbox"/> <b>INCLINED</b>		<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> 32.6 Ft.		<b>15. DATE BORING</b>
<b>7. DEPTH DRILLED INTO ROCK</b> N/A		<b>16. ELEVATION TOP OF BORING</b> -31.6 Ft.		<b>STARTED</b> 12-07-12
<b>8. TOTAL DEPTH OF BORING</b> 17.2 Ft.		<b>17. TOTAL RECOVERY FOR BORING</b> 100%		<b>COMPLETED</b> 12-07-12
<b>18. SIGNATURE AND TITLE OF INSPECTOR</b> 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
-43.8	12.2		SAND, poorly-graded, mostly fine-grained sand-sized quartz, trace silt, gray (SP) 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			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-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'

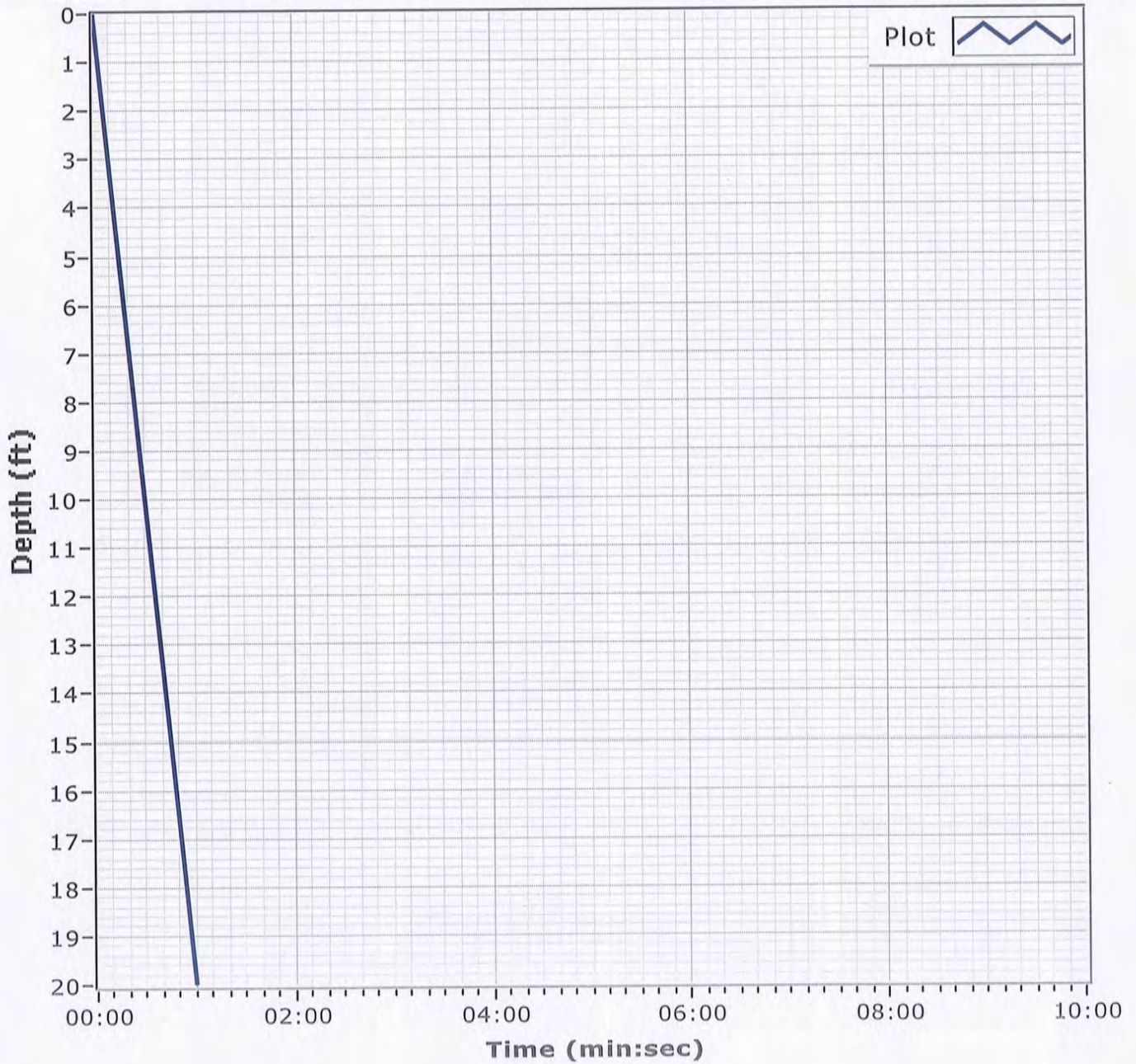
**Latitude** 30 11.851

**Total Time** 00:01:00

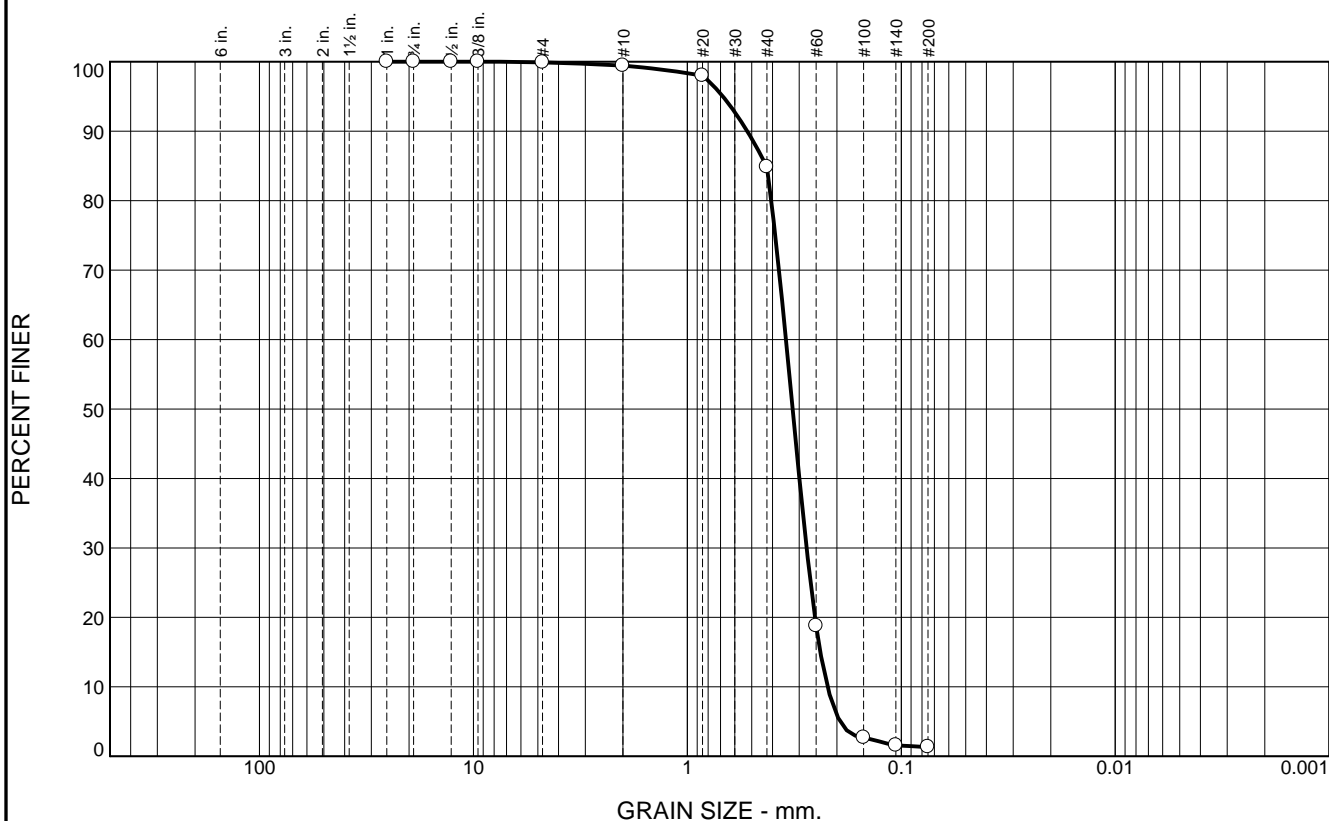
**Recovery** 17.2'

**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		

**Material Description**

Fine to medium grained, SAND

**Atterberg Limits**

PL=                      LL=                      PI=

**Coefficients**

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

**Classification**

USCS= SP                      AASHTO=

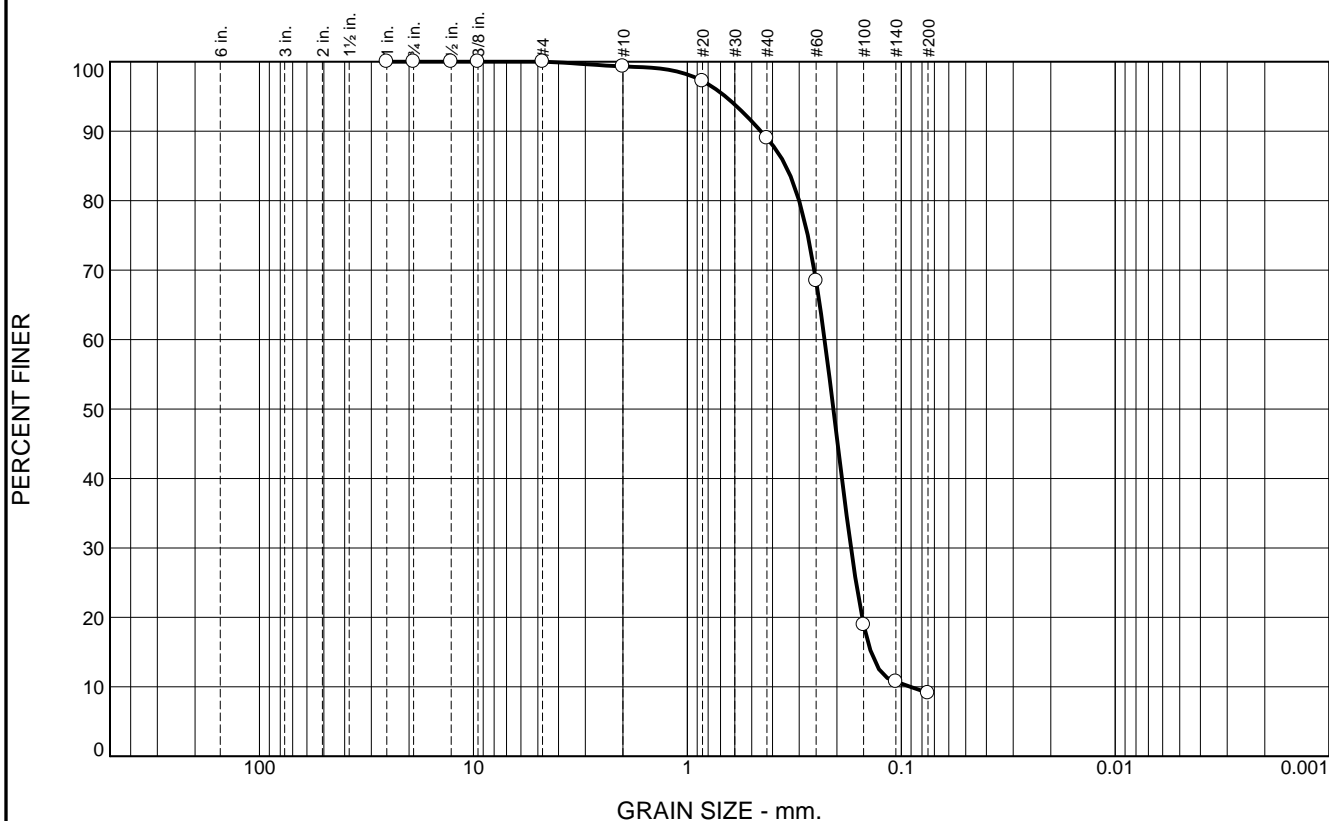
**Remarks**

\* (no specification provided)

Location: BI-PB-209-12 A                      Depth: 0.0'                      Date: 12/12/12  
Sample Number: 6482 (14)

<b>Thompson Engineering</b>  <b>Mobile, Alabama</b>	<b>Client:</b> CDM/Thompson Engineering JV <b>Project:</b> MsCIP Barrier Island Restoration GT  <b>Project No:</b> 1221110095 <b>Figure</b>
---	--

# 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		

**Material Description**  
Fine to medium grained, SLIGHTLY SILTY SAND

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

**Coefficients**  
 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

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

**Remarks**

\* (no specification provided)

**Location:** BI-PB-209-12 B  
**Sample Number:** 6482 (15)

**Depth:** 2.3'

**Date:** 12/12/12

**Thompson Engineering**

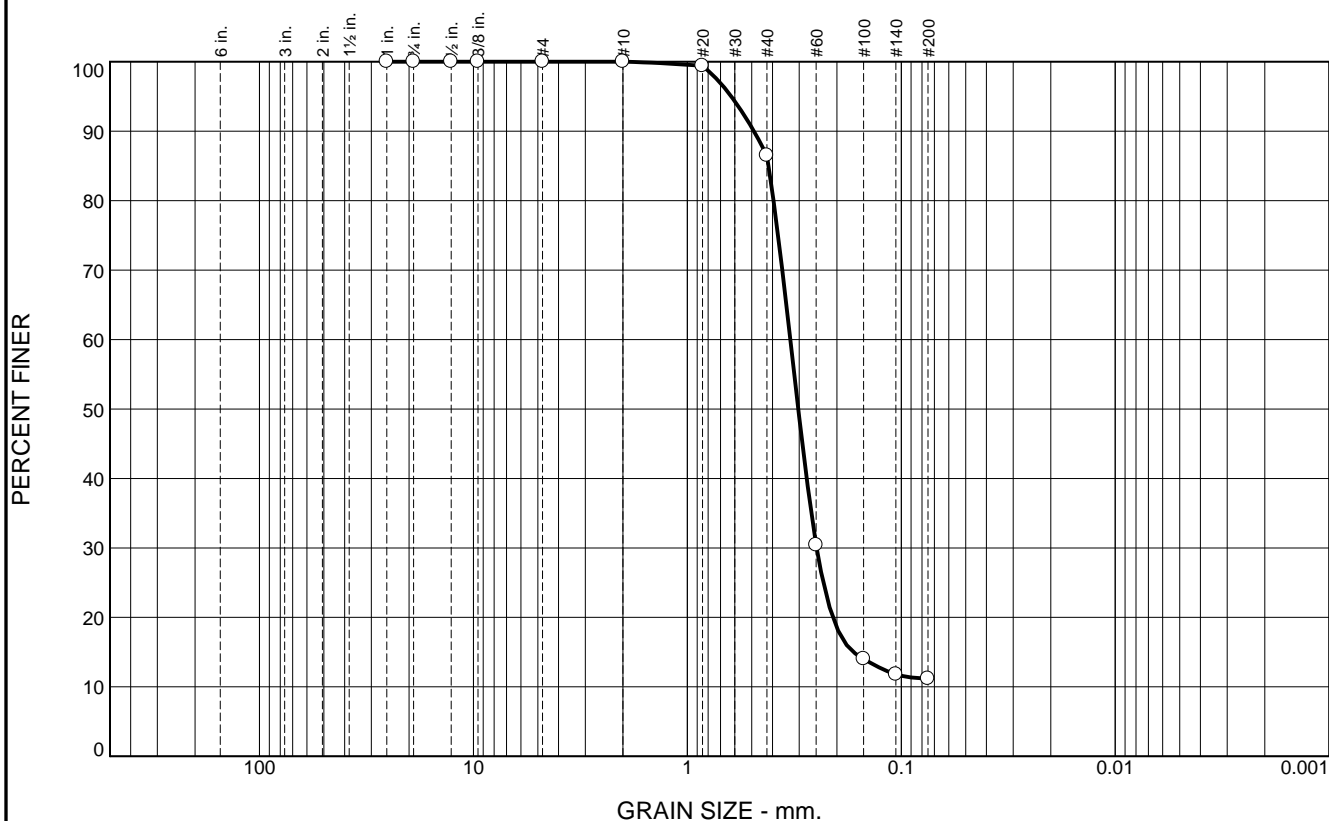
**Mobile, Alabama**

**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		

**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=

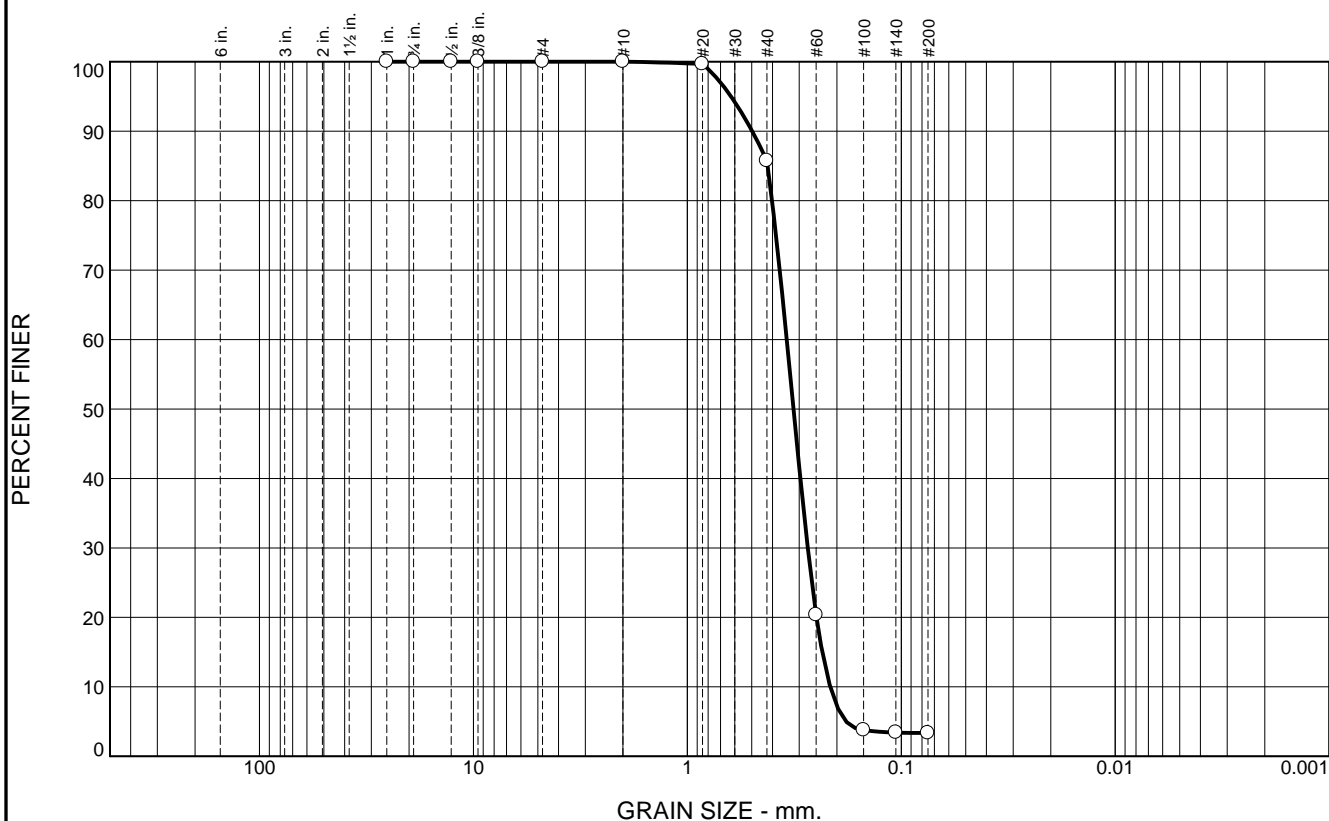
**Remarks**

\* (no specification provided)

Location: BI-PB-209-12 C      Depth: 4.8'      Date: 12/12/12  
Sample Number: 6482 (16)

<b>Thompson Engineering</b>  <b>Mobile, Alabama</b>	<b>Client:</b> CDM/Thompson Engineering JV <b>Project:</b> MsCIP Barrier Island Restoration GT  <b>Project No:</b> 1221110095 <b>Figure</b>
---	--

# 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		

**Material Description**

Fine to medium grained, SAND

**Atterberg Limits**

PL=                      LL=                      PI=

**Coefficients**

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

**Classification**

USCS= SP                      AASHTO=

**Remarks**

\* (no specification provided)

**Location:** BI-PB-209-12 D  
**Sample Number:** 6482 (17)

**Depth:** 5.4'

**Date:** 12/12/12

**Thompson Engineering**

**Mobile, Alabama**

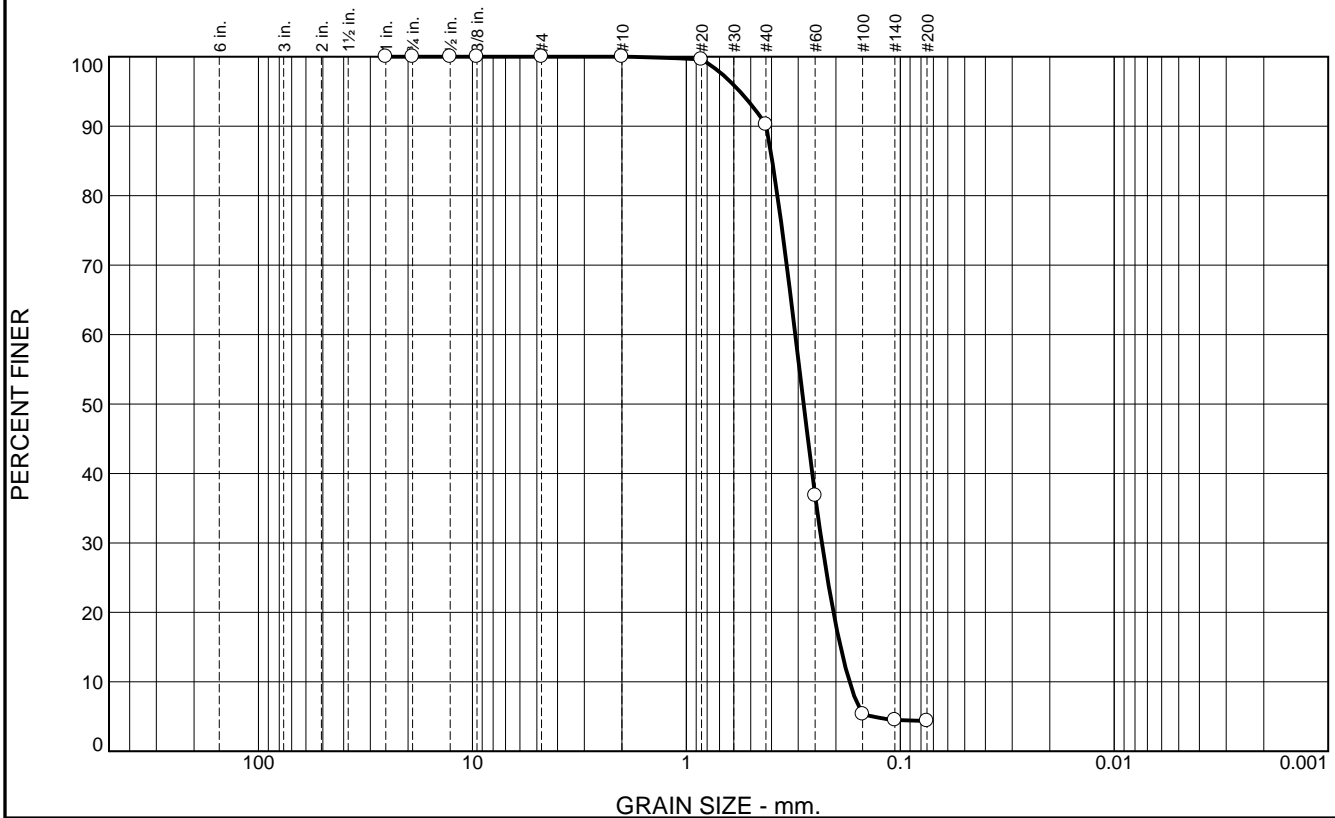
**Client:** CDM/Thompson Engineering JV  
**Project:** MsCIP Barrier Island Restoration GT

**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		

**Material Description**

Fine grained, SAND

**Atterberg Limits**

PL=                      LL=                      PI=

**Coefficients**

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

**Classification**

USCS= SP                      AASHTO=

**Remarks**

\* (no specification provided)

**Location:** BI-PB-209-12 E  
**Sample Number:** 6482 (18)

**Depth:** 7.2'

**Date:** 12/12/12

**Thompson Engineering**

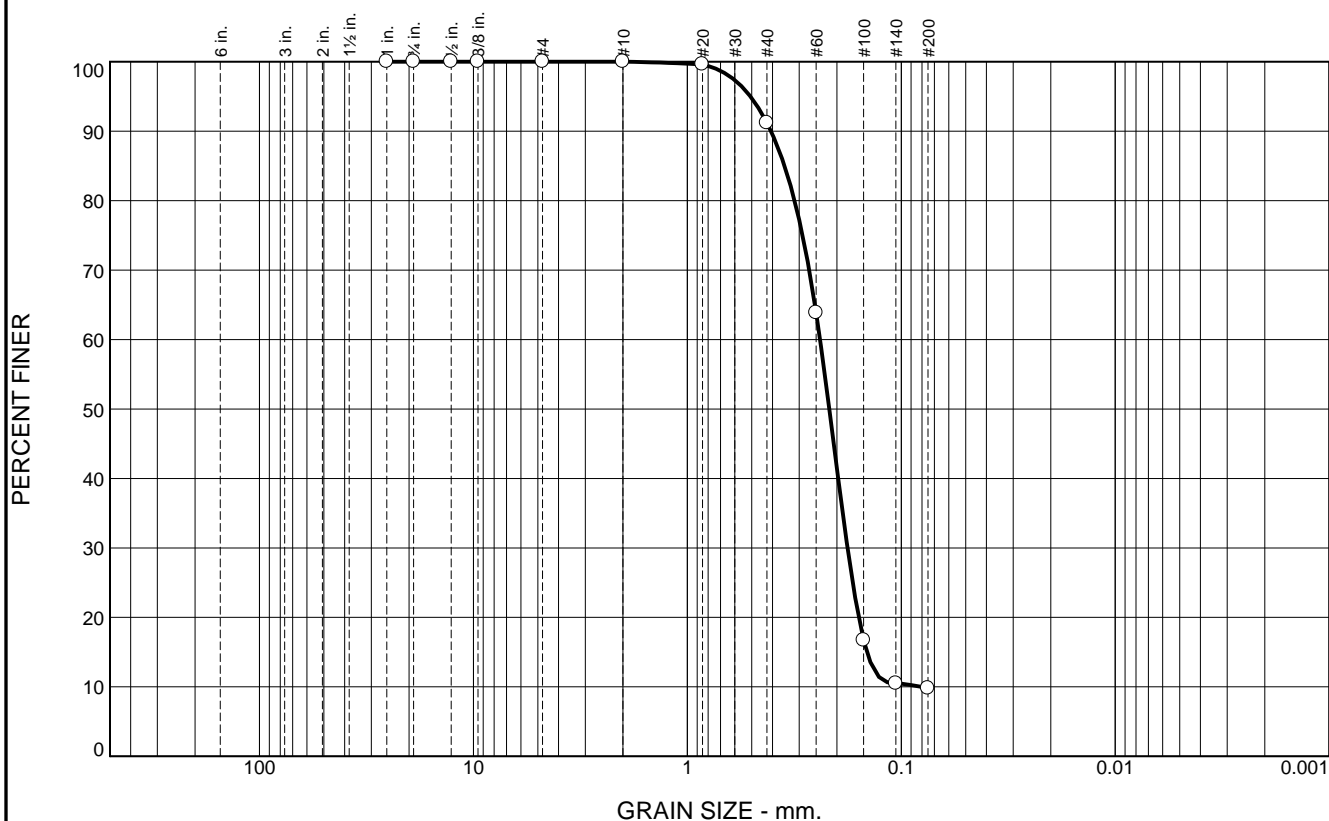
**Mobile, Alabama**

**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		

**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**

\* (no specification provided)

Location: BI-PB-209-12 F      Depth: 12.2'      Date: 12/12/12  
 Sample Number: 6482 (19)

**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**

<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-210-12		<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> Vibracore		<input type="checkbox"/> <b>AUTO HAMMER</b> <input type="checkbox"/> <b>MANUAL HAMMER</b>
<b>4. NAME OF DRILLER</b> American Vibracore Systems, Inc.		<b>12. TOTAL SAMPLES</b>		<b>DISTURBED</b> 0
<b>5. DIRECTION OF BORING</b> <input checked="" type="checkbox"/> <b>VERTICAL</b> <input type="checkbox"/> <b>INCLINED</b>		<b>LOCATION COORDINATES</b> E = 1,144,038 N = 253,052	<b>13. TOTAL NUMBER CORE BOXES</b>	
<b>6. THICKNESS OF OVERBURDEN</b> N/A		<b>CONTRACTOR FILE NO.</b>	<b>14. WATER DEPTH</b> 37.6 Ft.	
<b>7. DEPTH DRILLED INTO ROCK</b> N/A		<b>BEARING</b>	<b>15. DATE BORING</b> <b>STARTED</b> 12-11-12 <b>COMPLETED</b> 12-11-12	
<b>8. TOTAL DEPTH OF BORING</b> 15.3 Ft.		<b>16. ELEVATION TOP OF BORING</b> -37.2 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
-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



**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'

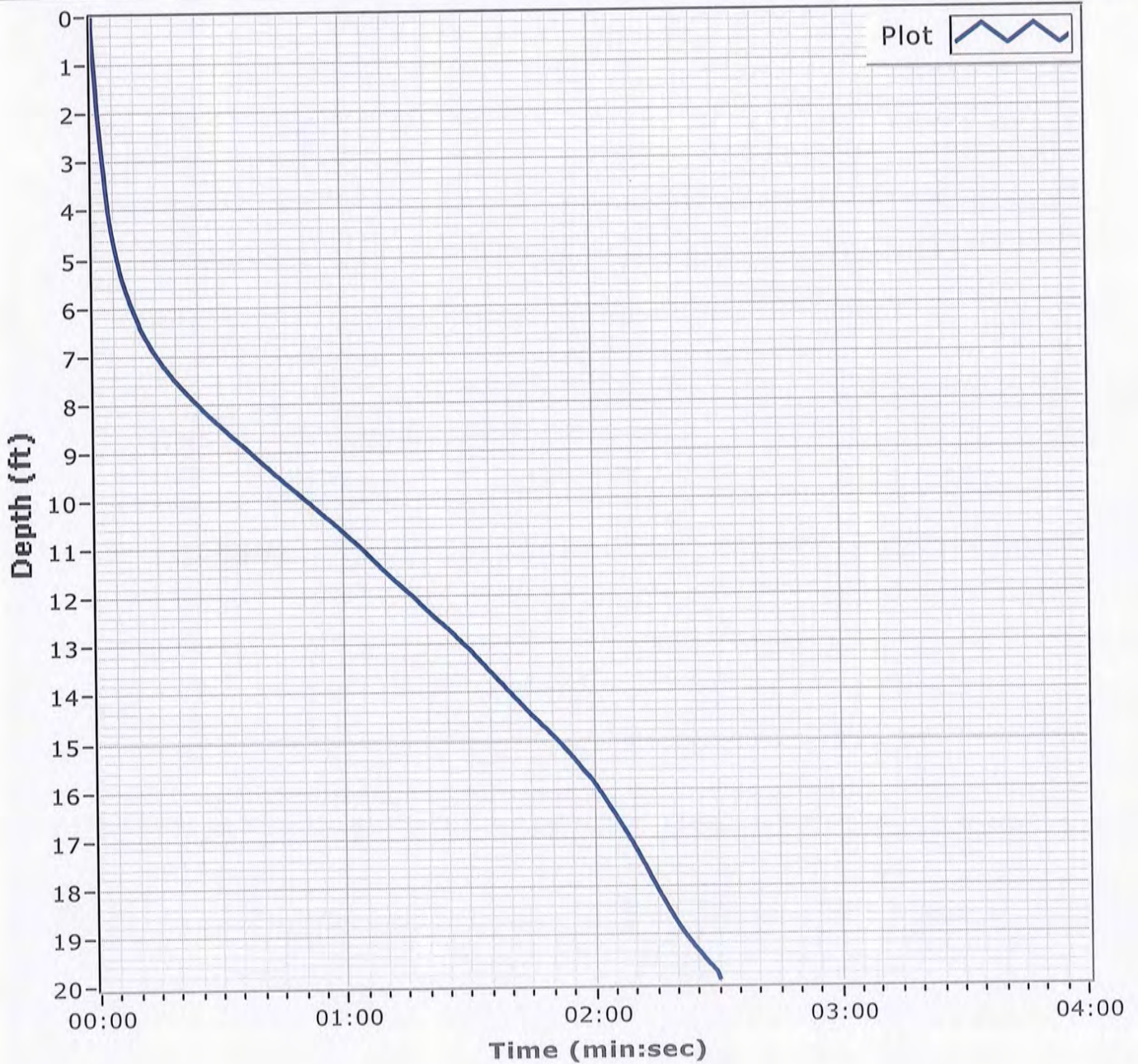
**Latitude** 33 11.692

**Total Time** 00:02:30

**Recovery** 15.3'







**Longitude** 088 19.653

**Comments**



**Boring Designation BI-PB-211-12**

<b>DRILLING LOG</b>		<b>DIVISION</b> South Atlantic	<b>INSTALLATION</b> Mobile District	<b>SHEET 1</b> 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-211-12		<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> Vibracore		<input type="checkbox"/> <b>AUTO HAMMER</b> <input type="checkbox"/> <b>MANUAL HAMMER</b>
<b>4. NAME OF DRILLER</b> American Vibracore Systems, Inc.		<b>12. TOTAL SAMPLES</b>		<b>DISTURBED</b> 0
<b>5. DIRECTION OF BORING</b> <input checked="" type="checkbox"/> <b>VERTICAL</b> <input type="checkbox"/> <b>INCLINED</b>		<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> 31.1 Ft.		<b>15. DATE BORING</b>
<b>7. DEPTH DRILLED INTO ROCK</b> N/A		<b>16. ELEVATION TOP OF BORING</b> -30.8 Ft.		<b>STARTED</b> 12-05-12
<b>8. TOTAL DEPTH OF BORING</b> 15.7 Ft.		<b>17. TOTAL RECOVERY FOR BORING</b> 100%		<b>COMPLETED</b> 12-05-12
<b>18. SIGNATURE AND TITLE OF INSPECTOR</b> 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
-35.9	5.1		CLAY, fat, mostly clay, trace fine-grained sand-sized quartz, high plasticity, stiff, gray mottled with brownish orange, and greenish gray (CH)	NS	
-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
-42.9	12.1		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
-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)		
<p>NOTES:</p> <ol style="list-style-type: none"> <li>Soils are field visually classified in accordance with the Unified Soils Classification System.</li> <li>NS = Sample not submitted for laboratory analysis from this interval.</li> <li>Sand was very dense. Stopped vibracore machine after 5 minutes due to lack of penetration.</li> <li>Seafloor elevation calculated using sampling vessel's fathometer water depth reading and applying NOAA tidal gauge data conversion factor.</li> </ol>					



**Project**

Mississippi Barrier Island  
Restoration Project



**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'

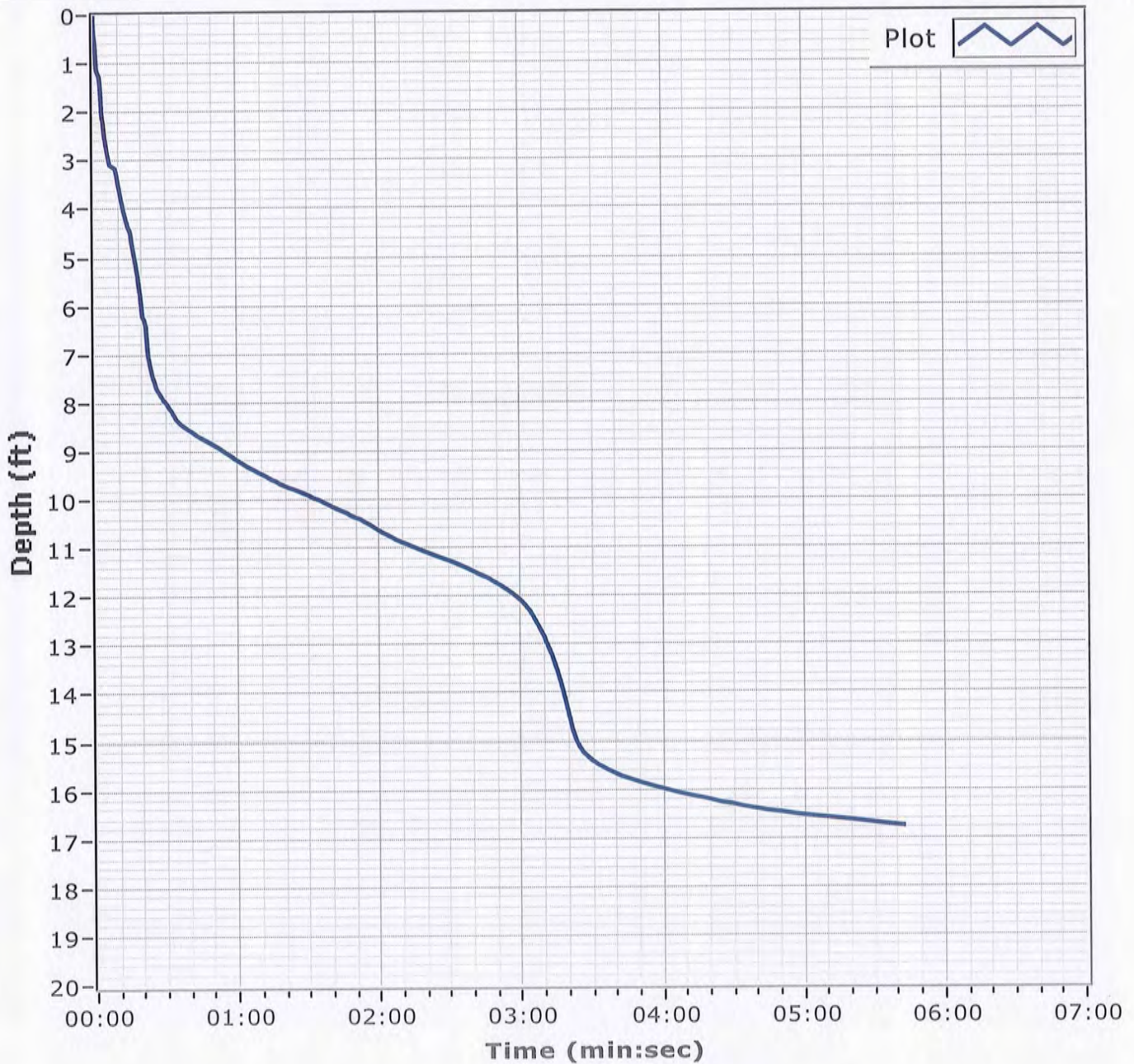
**Latitude** 30 12.479

**Total Time** 00:05:43

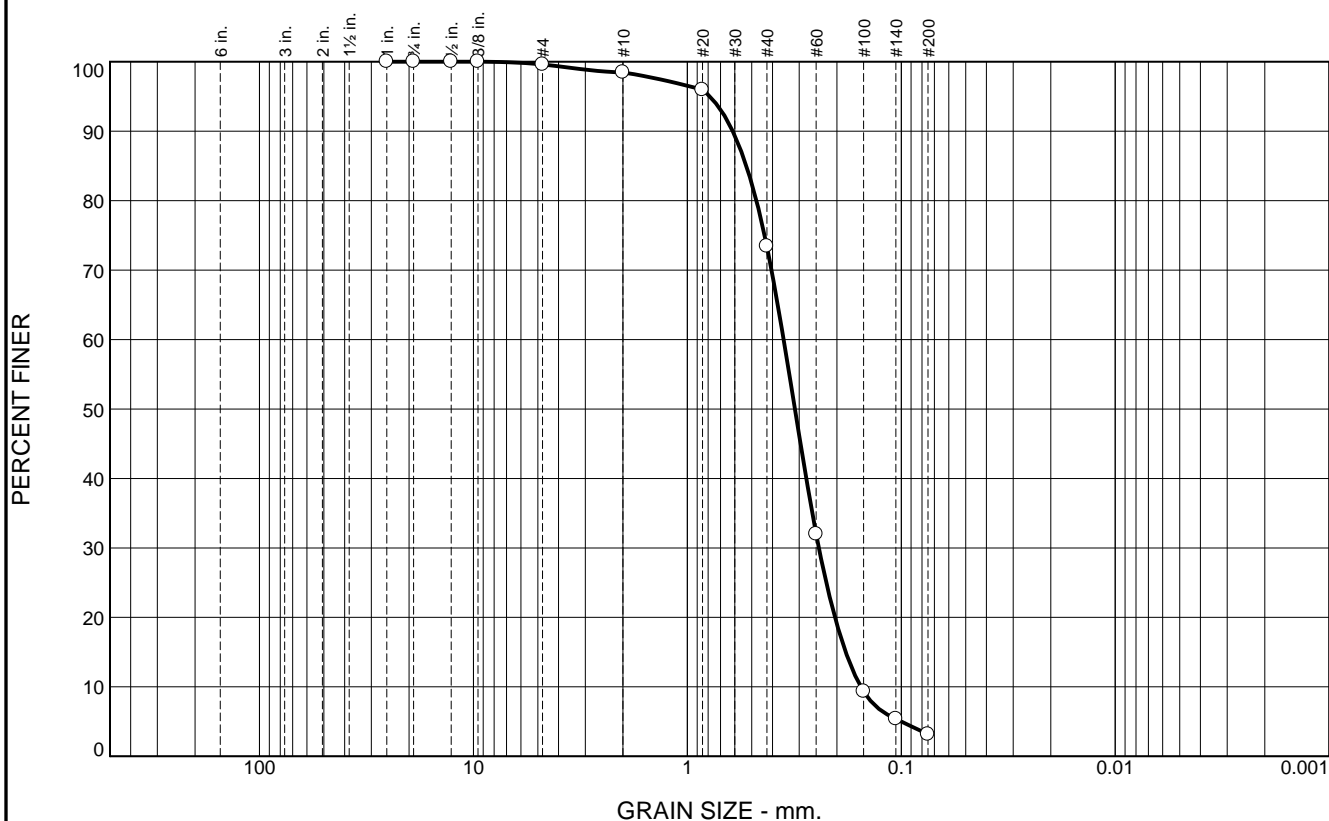
**Recovery** 15.7'

**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		

**Material Description**

Fine to medium grained, SAND

**Atterberg Limits**

PL=                      LL=                      PI=

**Coefficients**

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

**Classification**

USCS= SP                      AASHTO=

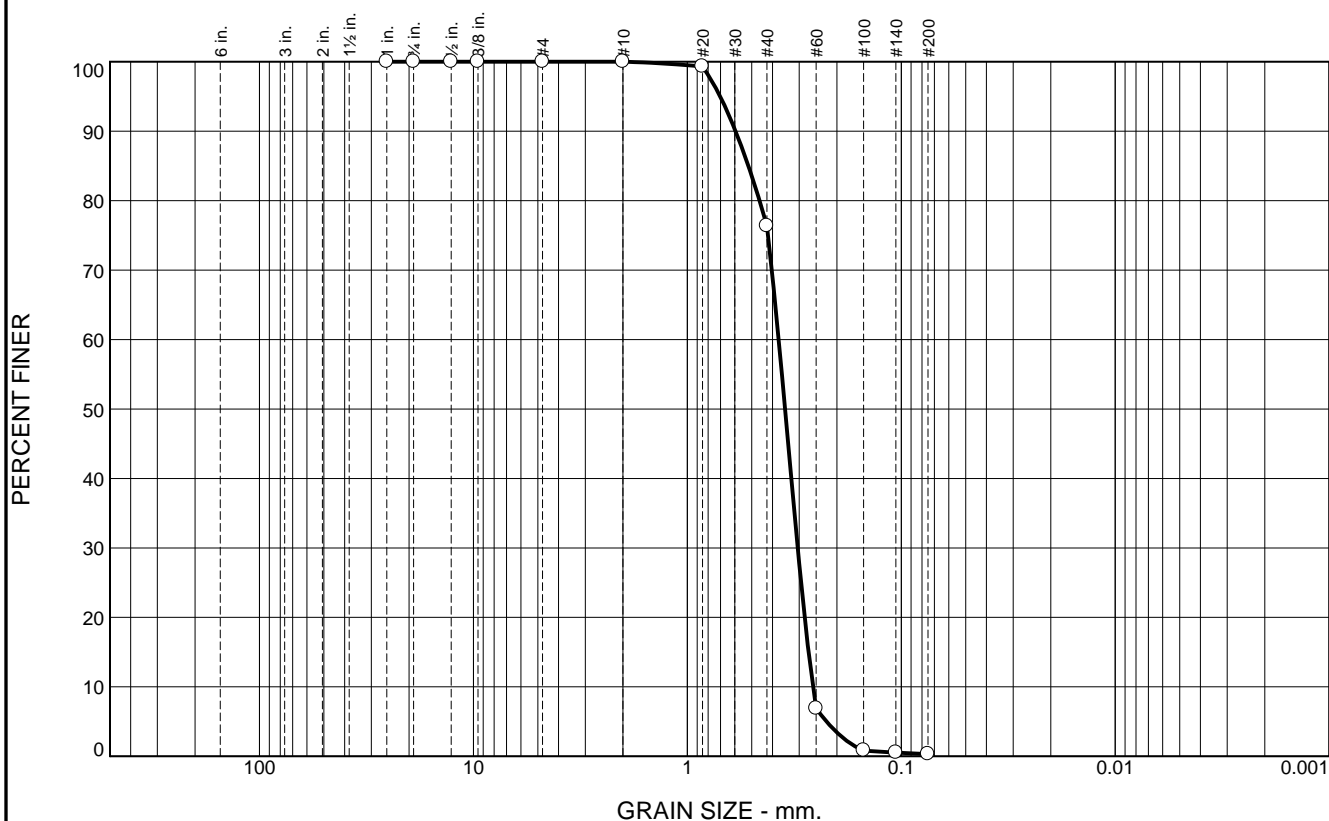
**Remarks**

\* (no specification provided)

**Location:** BI-PB-211-12 A              **Depth:** 0.0'              **Date:** 12/07/12  
**Sample Number:** 6480 (50)

<p><b>Thompson Engineering</b></p> <p><b>Mobile, Alabama</b></p>	<p><b>Client:</b> CDM/Thompson Engineering JV</p> <p><b>Project:</b> MsCIP Barrier Island Restoration GT</p> <p><b>Project No:</b> 1221110095</p> <p style="text-align: right;"><b>Figure</b></p>
--	---

# 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		

**Material Description**

Fine to medium grained, SAND

**Atterberg Limits**

PL=                      LL=                      PI=

**Coefficients**

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

**Classification**

USCS= SP                      AASHTO=

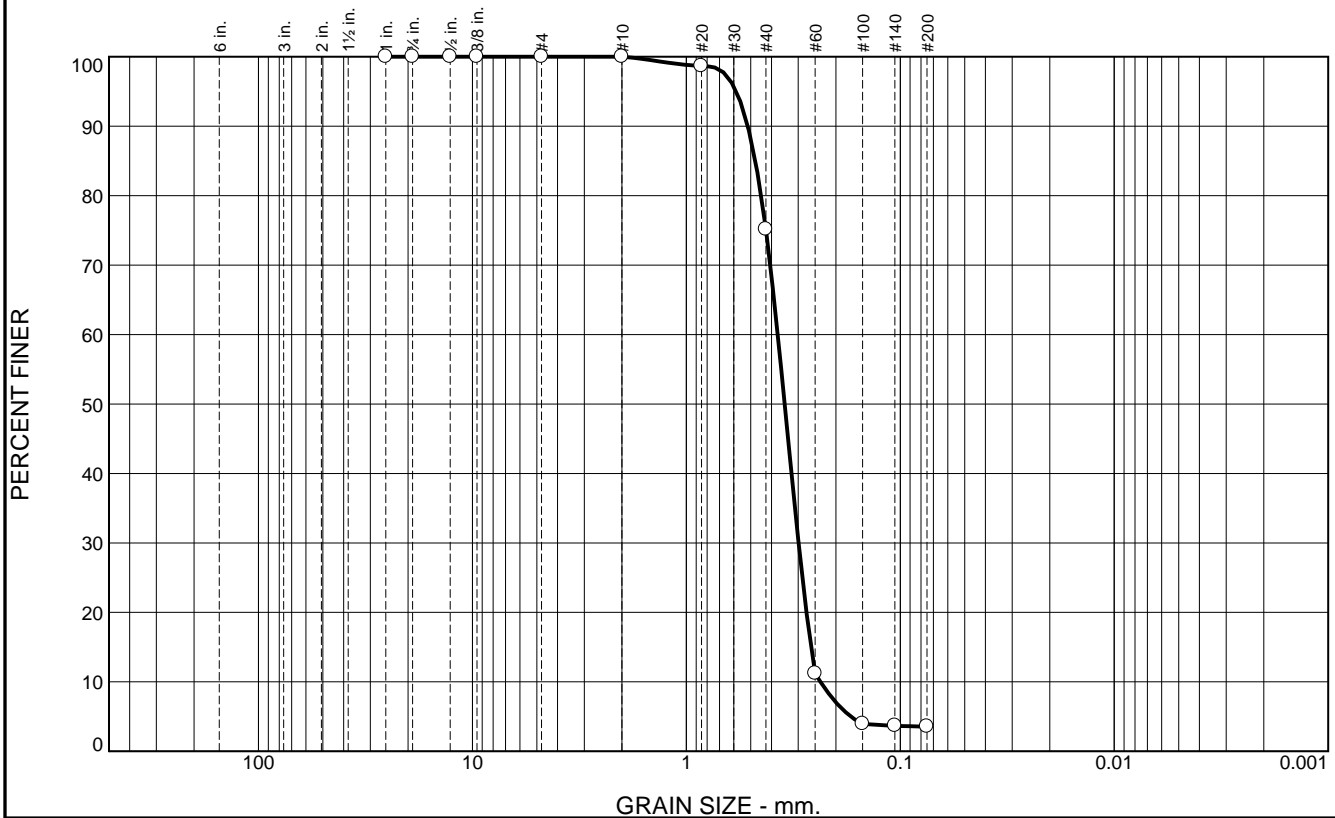
**Remarks**

\* (no specification provided)

Location: BI-PB-211-12 B      Depth: 5.1'      Date: 12/07/12  
Sample Number: 6480 (51)

<b>Thompson Engineering</b>  <b>Mobile, Alabama</b>	<b>Client:</b> CDM/Thompson Engineering JV <b>Project:</b> MsCIP Barrier Island Restoration GT  <b>Project No:</b> 1221110095 <b>Figure</b>
---	--

# 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		

**Material Description**

Fine to medium grained, SAND

**Atterberg Limits**

PL=                      LL=                      PI=

**Coefficients**

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

**Classification**

USCS= SP                      AASHTO=

**Remarks**

\* (no specification provided)

**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**

<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-212-12		<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> Vibracore		<input type="checkbox"/> <b>AUTO HAMMER</b> <input type="checkbox"/> <b>MANUAL HAMMER</b>
<b>4. NAME OF DRILLER</b> American Vibracore Systems, Inc.		<b>12. TOTAL SAMPLES</b>		<b>DISTURBED</b> 0
<b>5. DIRECTION OF BORING</b> <input checked="" type="checkbox"/> <b>VERTICAL</b> <input type="checkbox"/> <b>INCLINED</b>		<b>LOCATION COORDINATES</b> E = 1,148,461 N = 257,895	<b>13. TOTAL NUMBER CORE BOXES</b>	
<b>6. THICKNESS OF OVERBURDEN</b> N/A		<b>14. WATER DEPTH</b> 26.4 Ft.		<b>15. DATE BORING</b>
<b>7. DEPTH DRILLED INTO ROCK</b> N/A		<b>16. ELEVATION TOP OF BORING</b> -26.1 Ft.		<b>STARTED</b> 12-05-12
<b>8. TOTAL DEPTH OF BORING</b> 14.8 Ft.		<b>17. TOTAL RECOVERY FOR BORING</b> 100%		<b>COMPLETED</b> 12-05-12
<b>18. SIGNATURE AND TITLE OF INSPECTOR</b> 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)		
<p>NOTES:</p> <p>1. Soils are field visually classified in accordance with the Unified Soils Classification System.</p> <p>2. NS = Sample not submitted for laboratory 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-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'

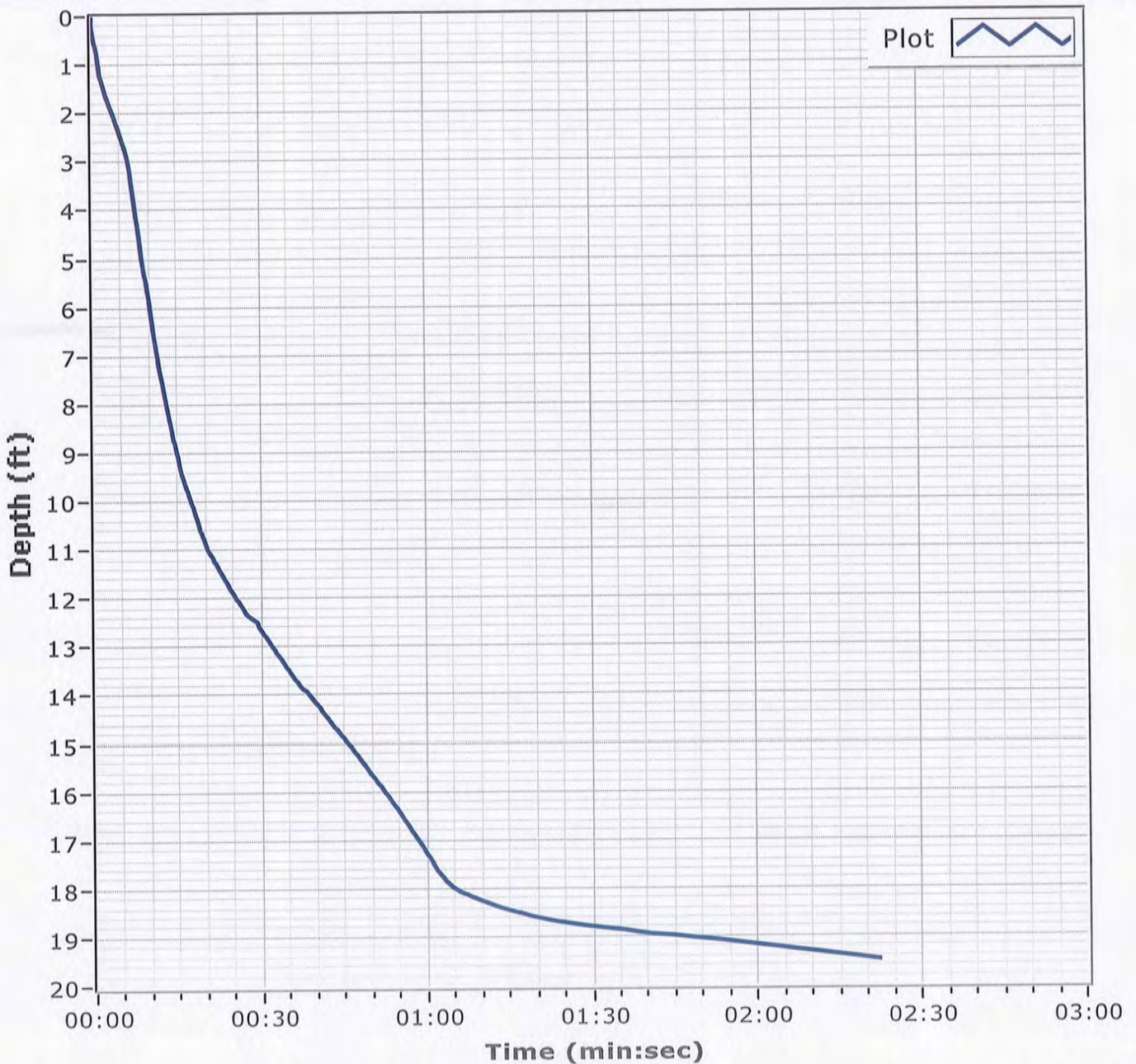
**Latitude** 30 12.488

**Total Time** 00:02:22

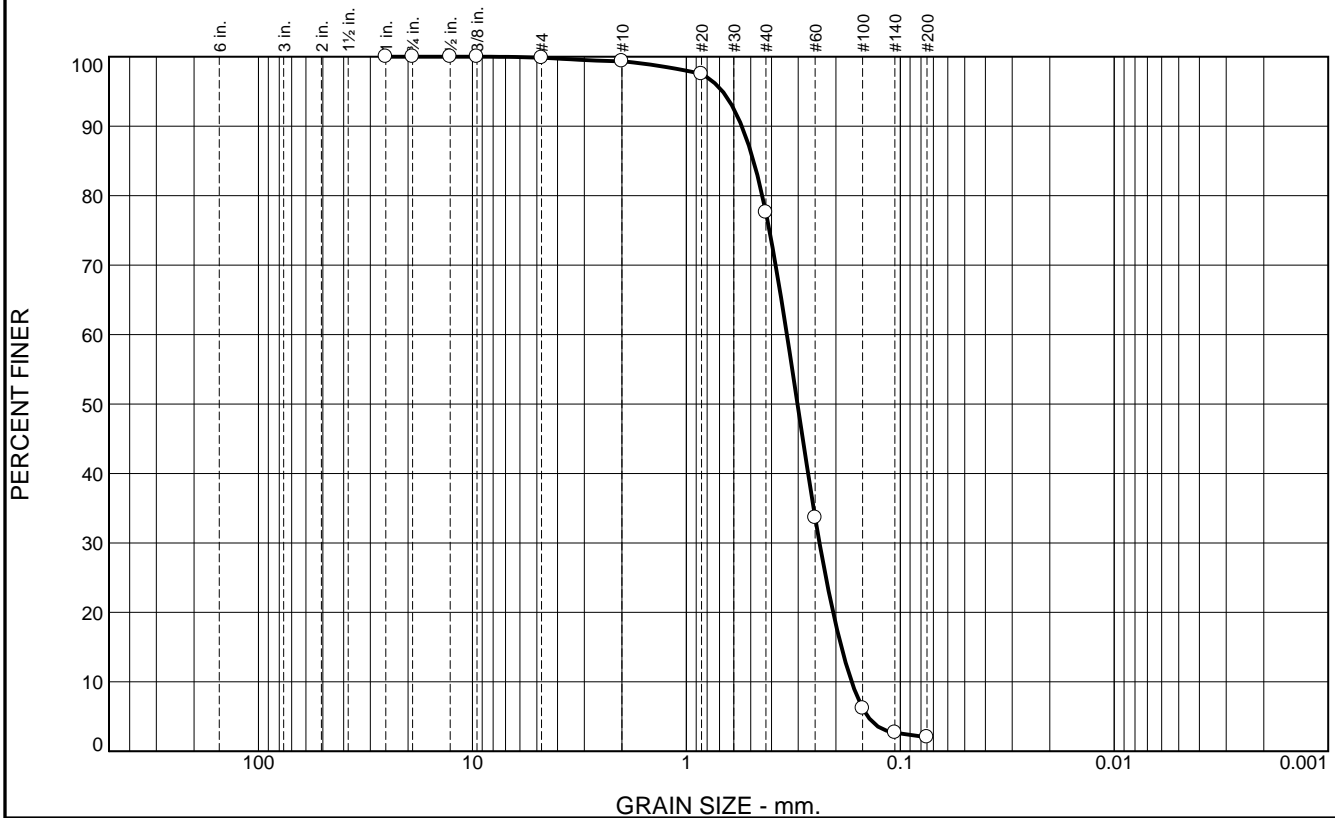
**Recovery** 14.8'

**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		

**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**

\* (no specification provided)

**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**

<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-213-12		<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> Vibracore		<input type="checkbox"/> <b>AUTO HAMMER</b> <input type="checkbox"/> <b>MANUAL HAMMER</b>
<b>4. NAME OF DRILLER</b> American Vibracore Systems, Inc.		<b>12. TOTAL SAMPLES</b>		<b>DISTURBED</b> 0
<b>5. DIRECTION OF BORING</b> <input checked="" type="checkbox"/> <b>VERTICAL</b> <input type="checkbox"/> <b>INCLINED</b>		<b>LOCATION COORDINATES</b> E = 1,148,564 N = 256,692	<b>13. TOTAL NUMBER CORE BOXES</b>	
<b>6. THICKNESS OF OVERBURDEN</b> N/A		<b>CONTRACTOR FILE NO.</b>	<b>14. WATER DEPTH</b> 29.4 Ft.	
<b>7. DEPTH DRILLED INTO ROCK</b> N/A		<b>DEG. FROM VERTICAL</b>	<b>15. DATE BORING</b>	
<b>8. TOTAL DEPTH OF BORING</b> 7.7 Ft.		<b>BEARING</b>	<b>STARTED</b> 12-06-12	<b>COMPLETED</b> 12-06-12
		<b>16. ELEVATION TOP OF BORING</b> -28.1 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
-28.1	0.0				
		•••••	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
-32.4	4.3	•••••	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
-35.8	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. 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



**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'

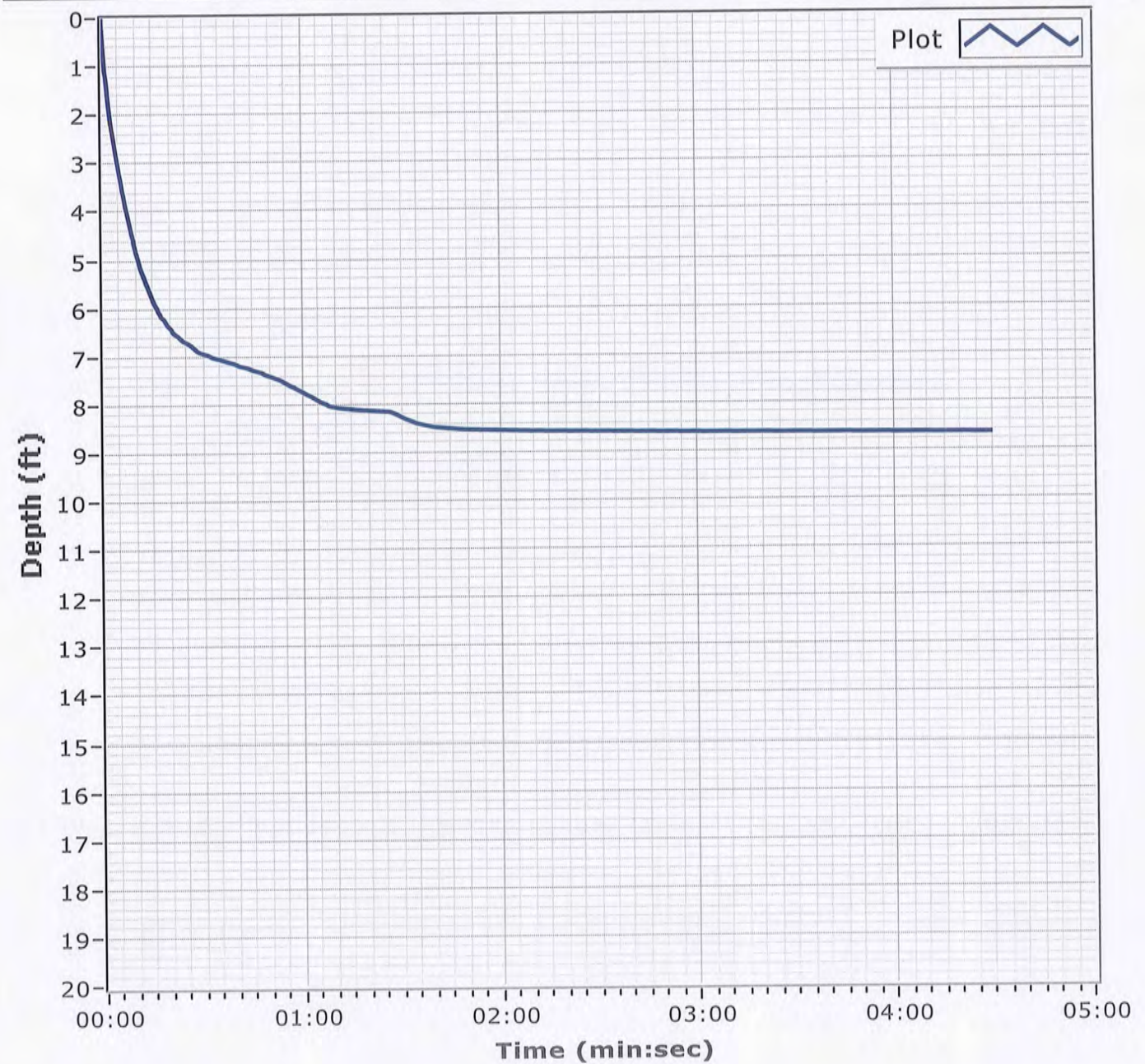
**Latitude** 30 12.289

**Total Time** 00:04:30

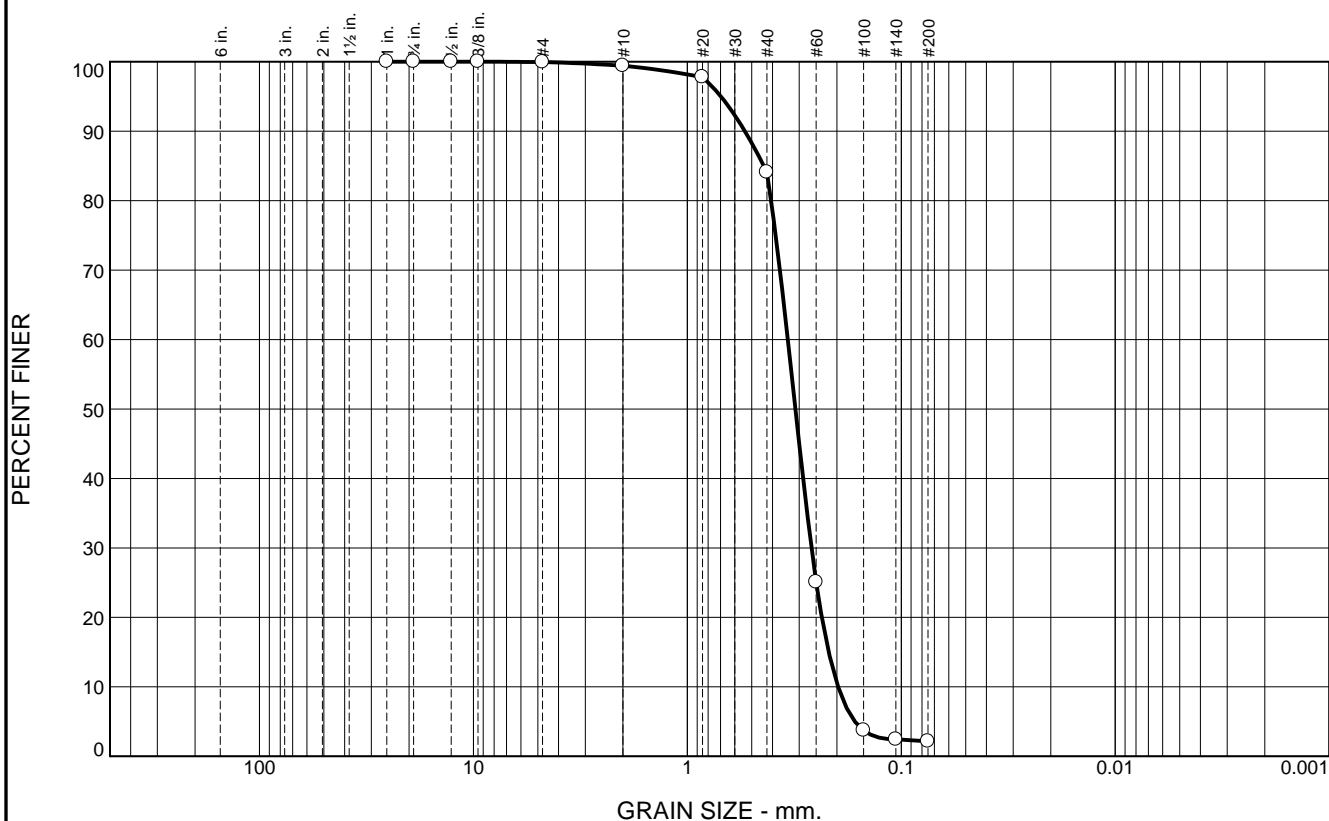
**Recovery** 7.7'

**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		

**Material Description**

Fine to medium grained, SAND

**Atterberg Limits**

PL=                      LL=                      PI=

**Coefficients**

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

**Classification**

USCS= SP                      AASHTO=

**Remarks**

\* (no specification provided)

Location: BI-PB-213-12 A      Depth: 0.0'      Date: 12/07/12  
Sample Number: 6480 (54)

**Thompson Engineering**

**Mobile, Alabama**

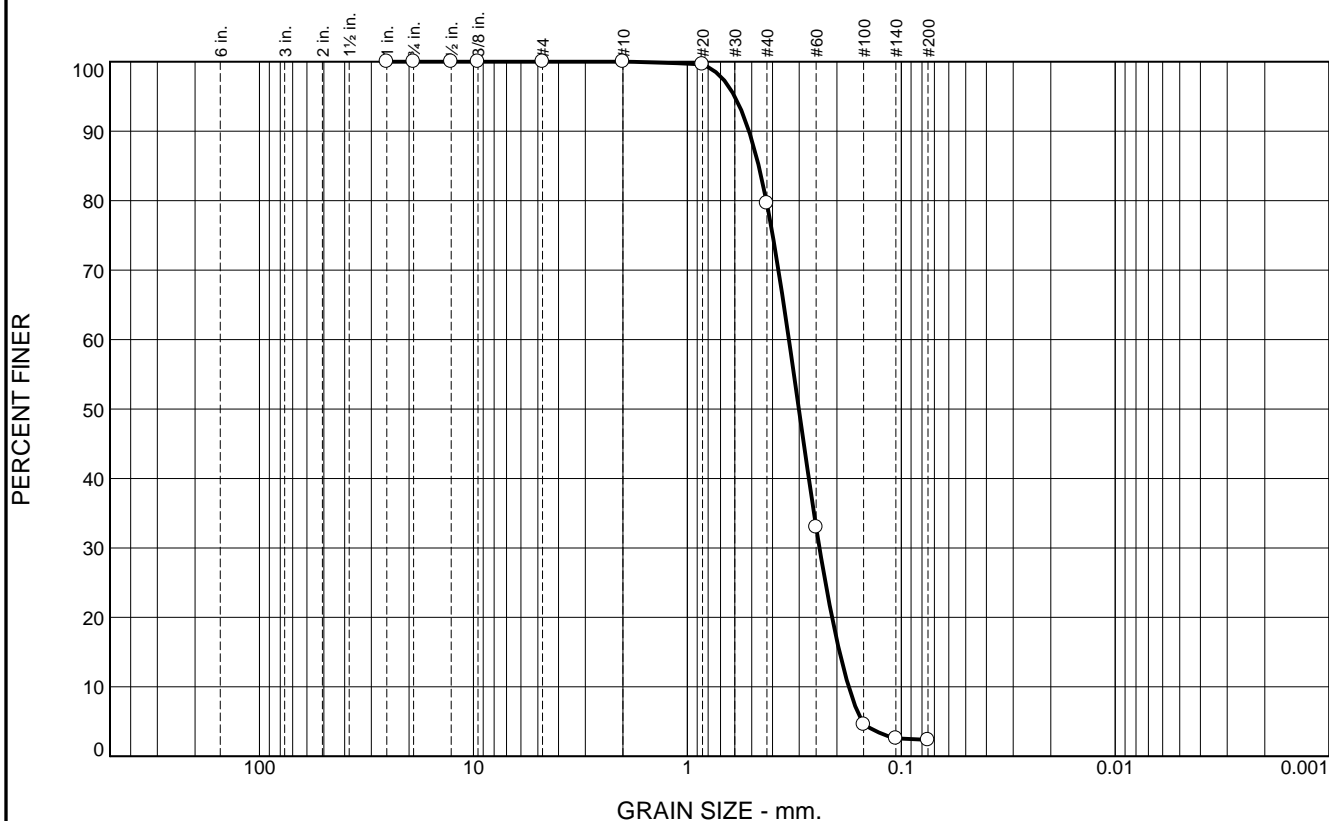
Client: CDM/Thompson Engineering JV  
Project: MsCIP Barrier Island Restoration GT

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		

**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**

\* (no specification provided)

**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**

<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-214-12		<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> Vibracore		<input type="checkbox"/> <b>AUTO HAMMER</b> <input type="checkbox"/> <b>MANUAL HAMMER</b>
<b>4. NAME OF DRILLER</b> American Vibracore Systems, Inc.		<b>12. TOTAL SAMPLES</b>		<b>DISTURBED</b> 0
<b>5. DIRECTION OF BORING</b> <input checked="" type="checkbox"/> <b>VERTICAL</b> <input type="checkbox"/> <b>INCLINED</b>		<b>LOCATION COORDINATES</b> E = 1,154,974 N = 252,102	<b>13. TOTAL NUMBER CORE BOXES</b>	
<b>6. THICKNESS OF OVERBURDEN</b> N/A		<b>14. WATER DEPTH</b> 38.4 Ft.		<b>15. DATE BORING</b>
<b>7. DEPTH DRILLED INTO ROCK</b> N/A		<b>16. ELEVATION TOP OF BORING</b> -38.2 Ft.		<b>STARTED</b> 12-19-12
<b>8. TOTAL DEPTH OF BORING</b> 15.8 Ft.		<b>17. TOTAL RECOVERY FOR BORING</b> 100%		<b>COMPLETED</b> 12-19-12
<b>18. SIGNATURE AND TITLE OF INSPECTOR</b> 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	
<p><b>NOTES:</b></p> <p>1. Soils are field visually classified in accordance with the Unified Soils Classification System.</p> <p>2. NS = Sample not submitted for laboratory 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-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'

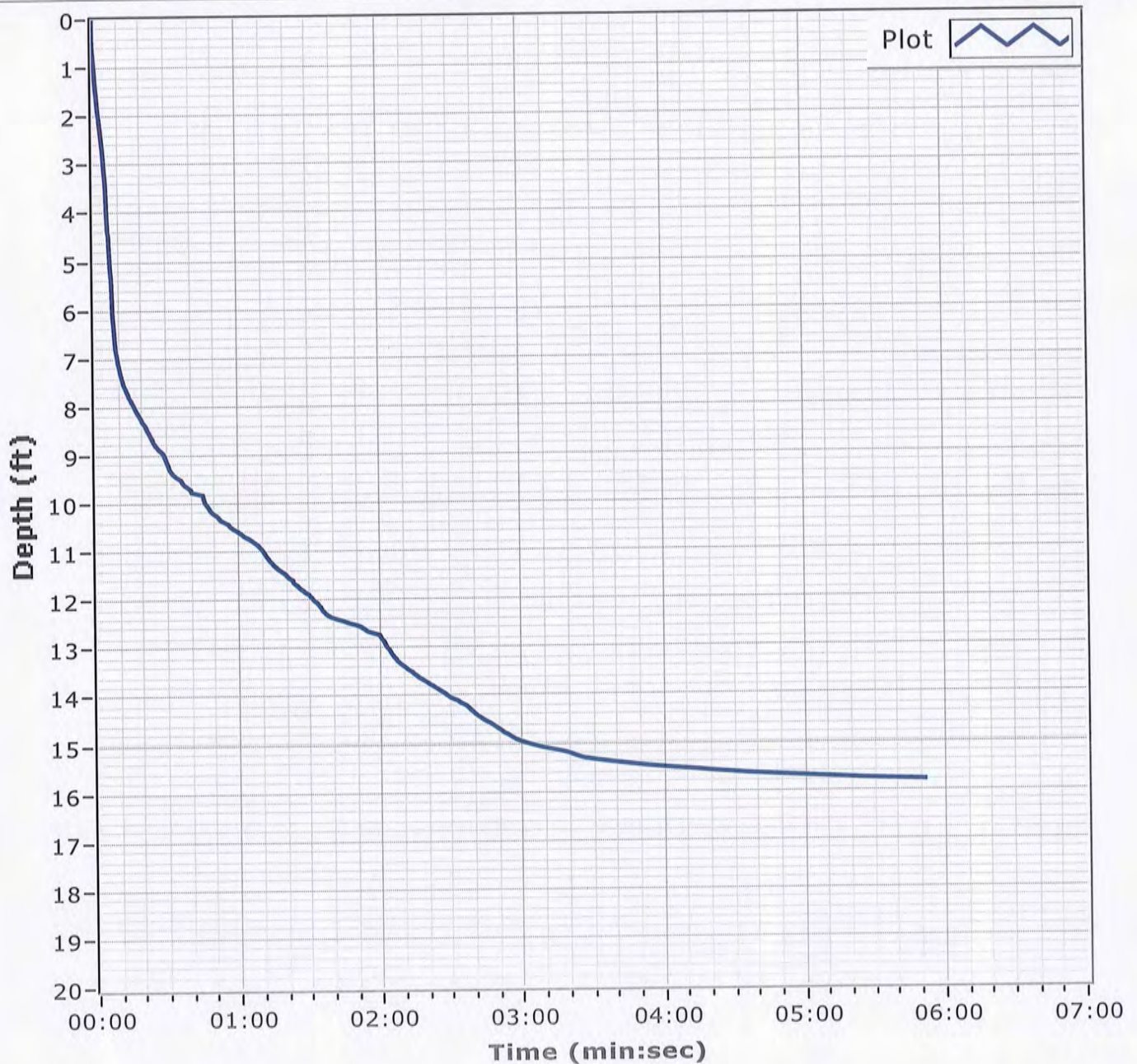
**Latitude** 30 11.527

**Total Time** 00:05:52

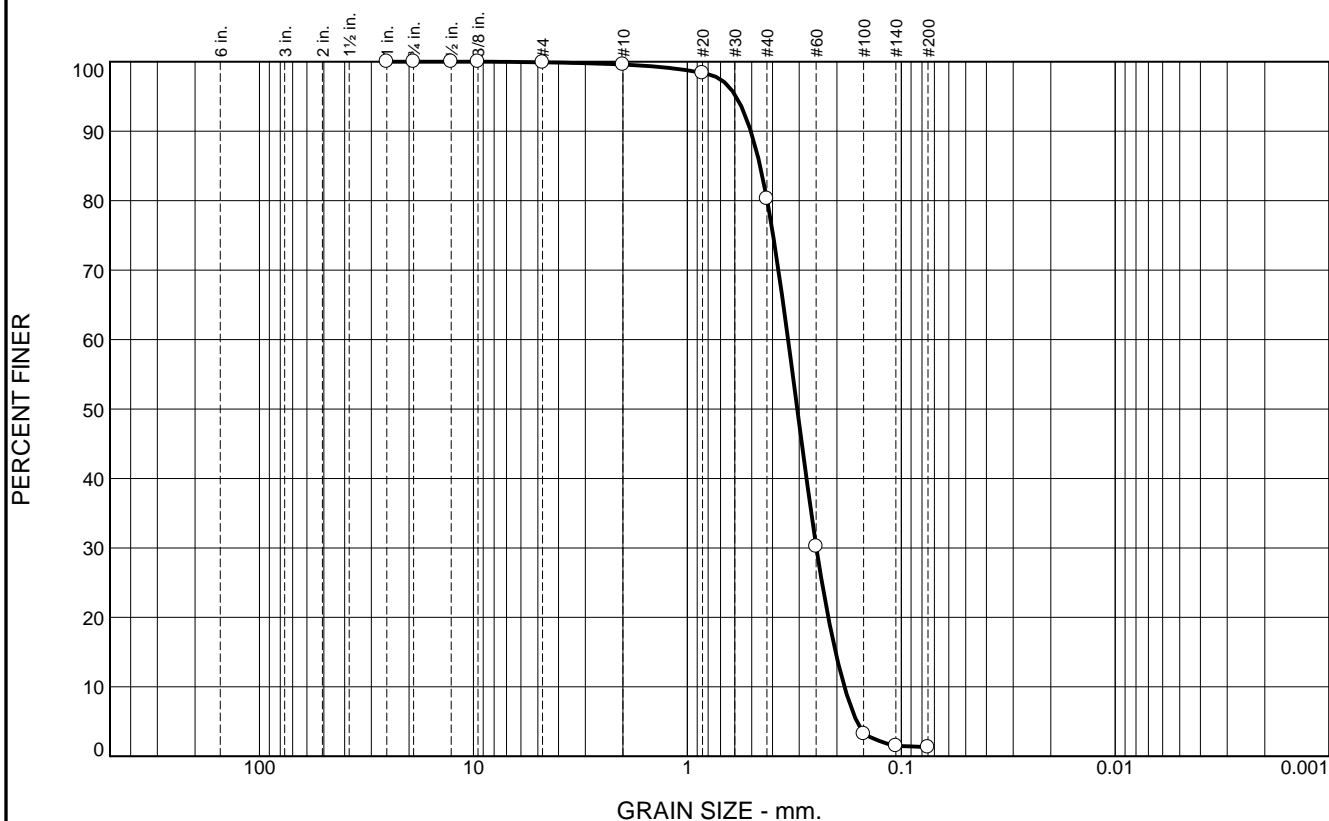
**Recovery** 13.8'

**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		

**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=

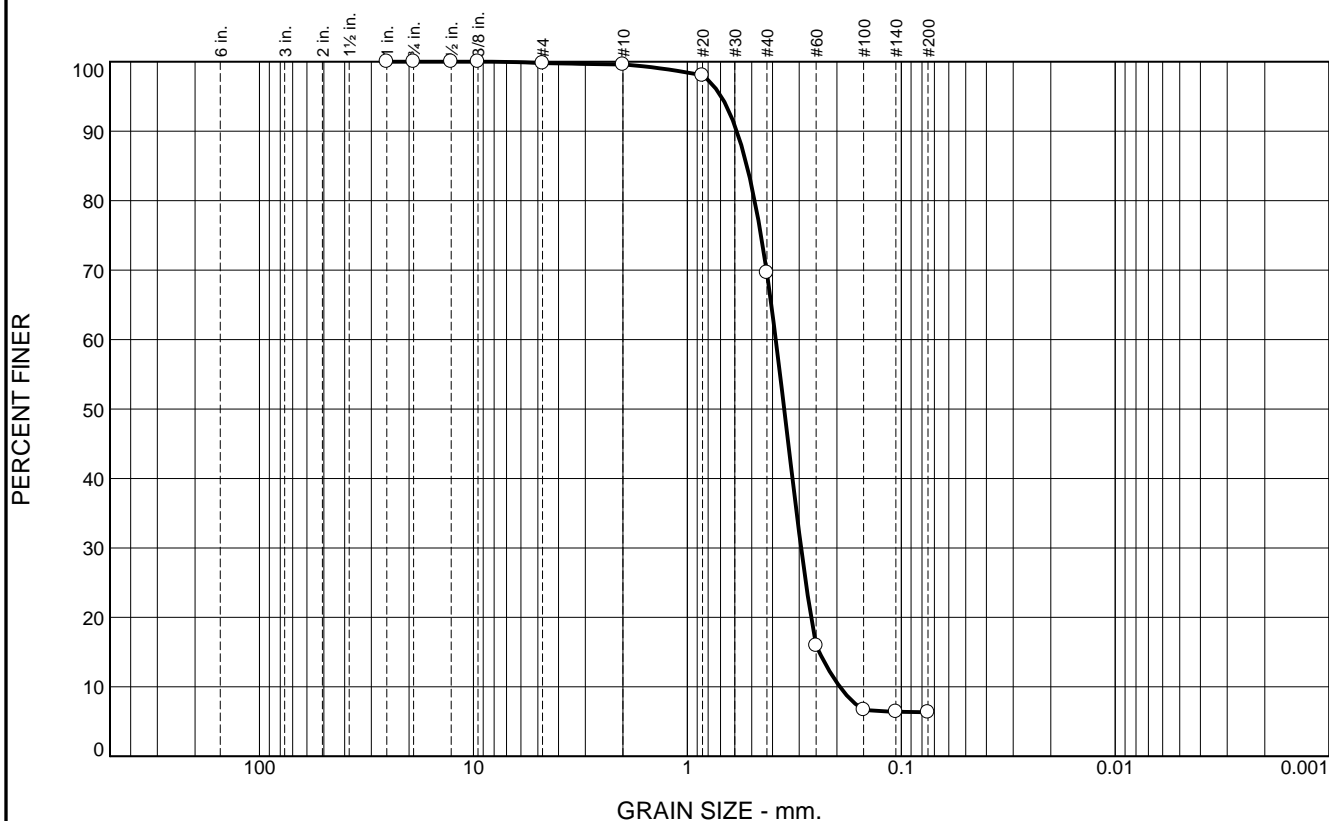
**Remarks**

\* (no specification provided)

**Location:** BI-PB-214-12 A                      **Depth:** 0.0'                      **Date:** 12/26/12  
**Sample Number:** 6494 (85)

<b>Thompson Engineering</b>  <b>Mobile, Alabama</b>	<b>Client:</b> CDM/Thompson Engineering JV <b>Project:</b> MsCIP Barrier Island Restoration GT  <b>Project No:</b> 1221110095 <b>Figure</b>
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# 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		

**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**

\* (no specification provided)

Location: BI-PB-214-12 B      Depth: 3.3'      Date: 12/26/12  
 Sample Number: 6494 (86)

**Thompson Engineering**

**Mobile, Alabama**

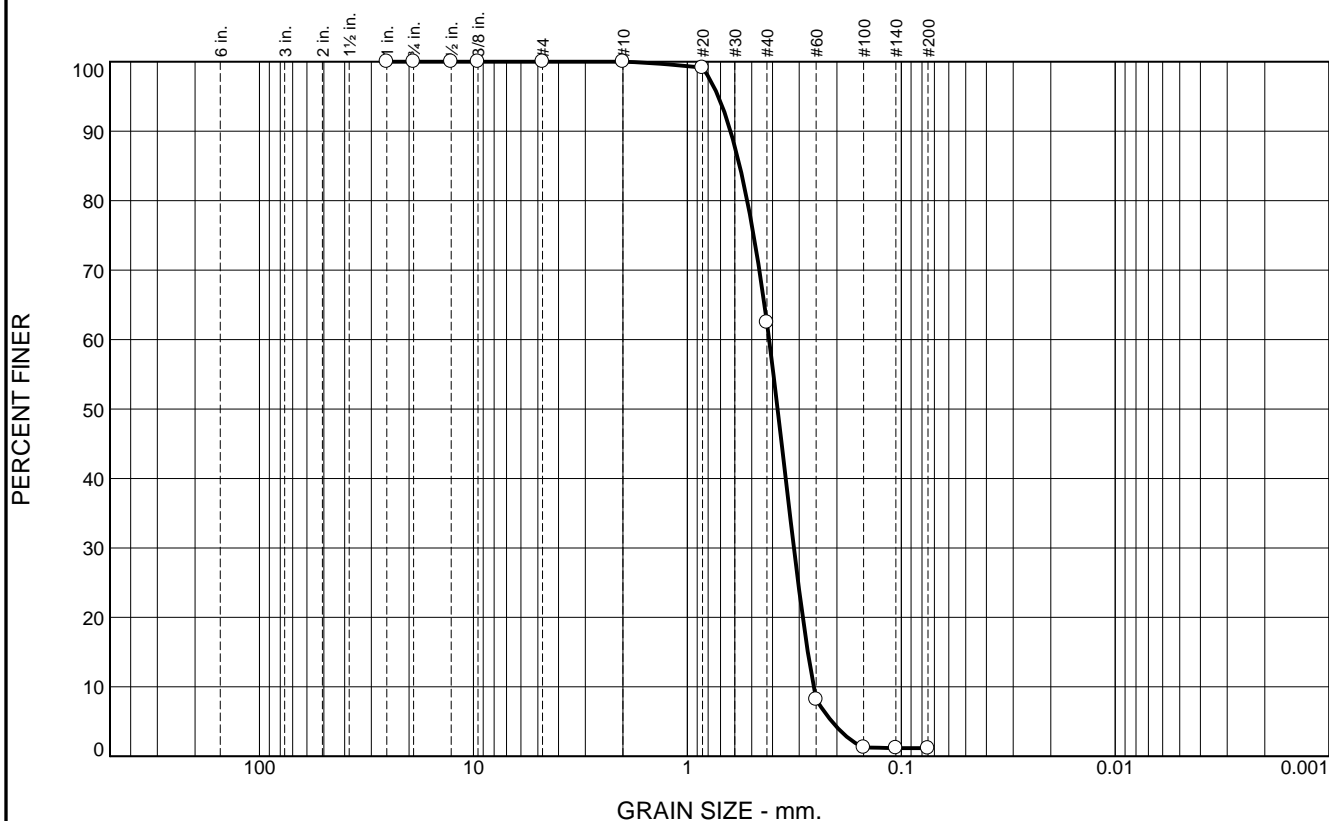
Client: CDM/Thompson Engineering JV  
 Project: MsCIP Barrier Island Restoration GT

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		

**Material Description**

Fine to medium grained, SAND

**Atterberg Limits**

PL=                      LL=                      PI=

**Coefficients**

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

**Classification**

USCS= SP                      AASHTO=

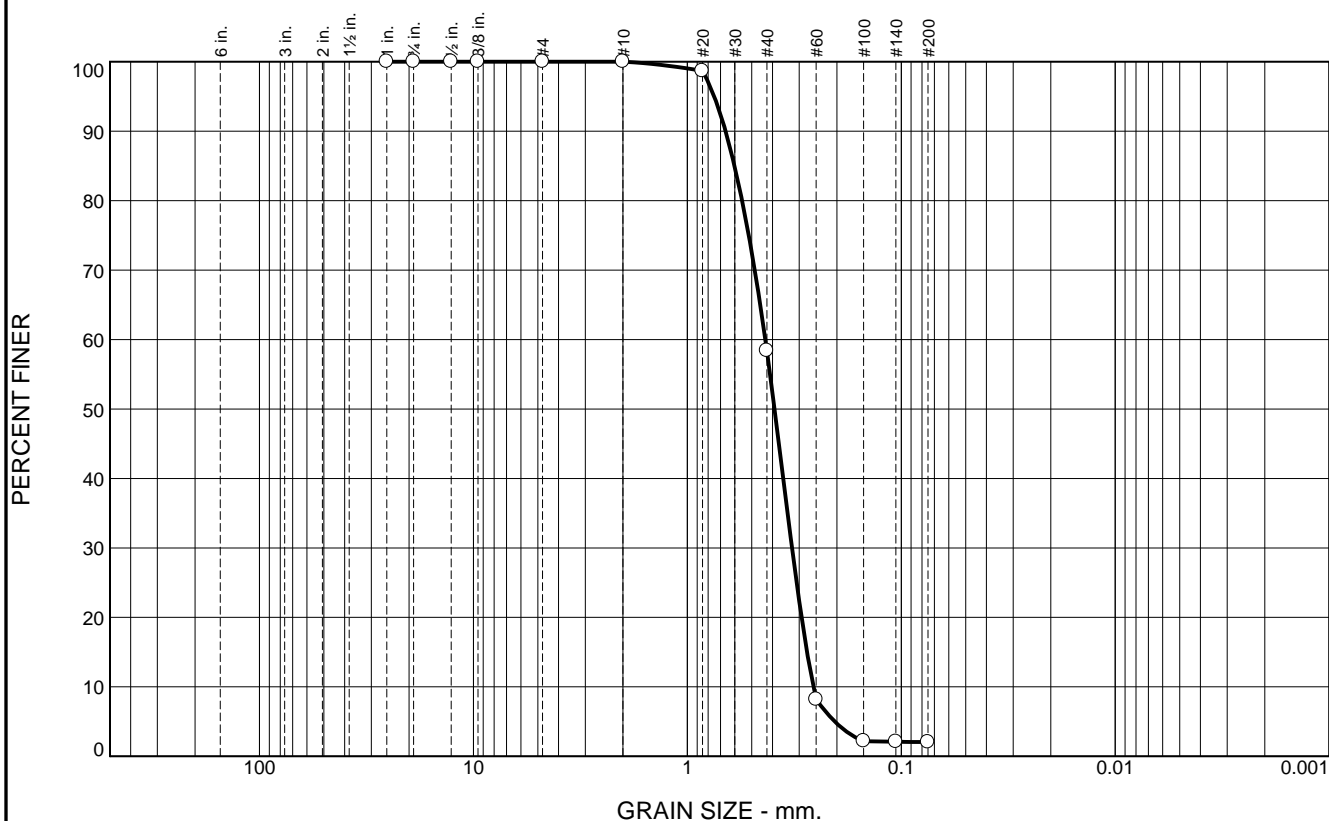
**Remarks**

\* (no specification provided)

Location: BI-PB-214-12 C                      Depth: 5.4'                      Date: 12/26/12  
Sample Number: 6494 (87)

<b>Thompson Engineering</b>  <b>Mobile, Alabama</b>	<b>Client:</b> CDM/Thompson Engineering JV <b>Project:</b> MsCIP Barrier Island Restoration GT  <b>Project No:</b> 1221110095 <b>Figure</b>
---	--

# 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	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		

**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**

\* (no specification provided)

**Location:** BI-PB-214-12 D                      **Depth:** 10.4'                      **Date:** 12/26/12

**Sample Number:** 6494 (88)

<p><b>Thompson Engineering</b></p> <p><b>Mobile, Alabama</b></p>	<p><b>Client:</b> CDM/Thompson Engineering JV</p> <p><b>Project:</b> MsCIP Barrier Island Restoration GT</p> <p><b>Project No:</b> 1221110095</p> <p style="text-align: right;"><b>Figure</b></p>
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### Boring Designation BI-PB-215-12

<b>DRILLING LOG</b>	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-215-12		10. COORDINATE SYSTEM/DATUM State Plane, MSE (U.S. Ft.)	
3. DRILLING AGENCY Corps of Engineers - CESAM		11. MANUFACTURER'S DESIGNATION OF DRILL Vibracore	
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	
6. THICKNESS OF OVERBURDEN N/A		14. WATER DEPTH 40.1 Ft.	
7. DEPTH DRILLED INTO ROCK N/A		15. DATE BORING STARTED 12-19-12 COMPLETED 12-19-12	
8. TOTAL DEPTH OF BORING 19.1 Ft.		16. ELEVATION TOP OF BORING -39.9 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
-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	
-48.8	8.9	•••••	SAND, poorly-graded, mostly fine-grained sand-sized quartz, trace fines, trace shell fragments, gray (SP) 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 At El. -46.1 Ft., mostly fine-grained sand-sized quartz, alternating bands of sand and clay, greenish gray and white	B C	Classification: SP Color: 5Y 6/2-light olive gray D50: 0.3459 mm % Fines: 3.8  Classification: SP Color: 2.5Y 7/2-light gray D50: 0.391 mm % Fines: 4.9
-59.0	19.1	/ / / / /	CLAY, lean, mostly clay, some silt, lenses of poorly graded sand at 14.8 and 15.8 ft., stiff, greenish 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 = 1,153,378 Y = 252,080			<b>ELEVATION TOP OF BORING</b> -39.9 Ft.			
ELEV.	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS	SAMPLE	LABORATORY RESULTS	
			factor.			



**Project**

Mississippi Barrier Island  
Restoration Project



**Core Identifier** BI-PB-215-12

**Date** 12/19/2012

**Water Depth** 40.1'

**Coordinate System**

Latitude / Longitude

**Start Time** 10:55:51

**End Time** 10:57:32

**Penetration** 20.0'

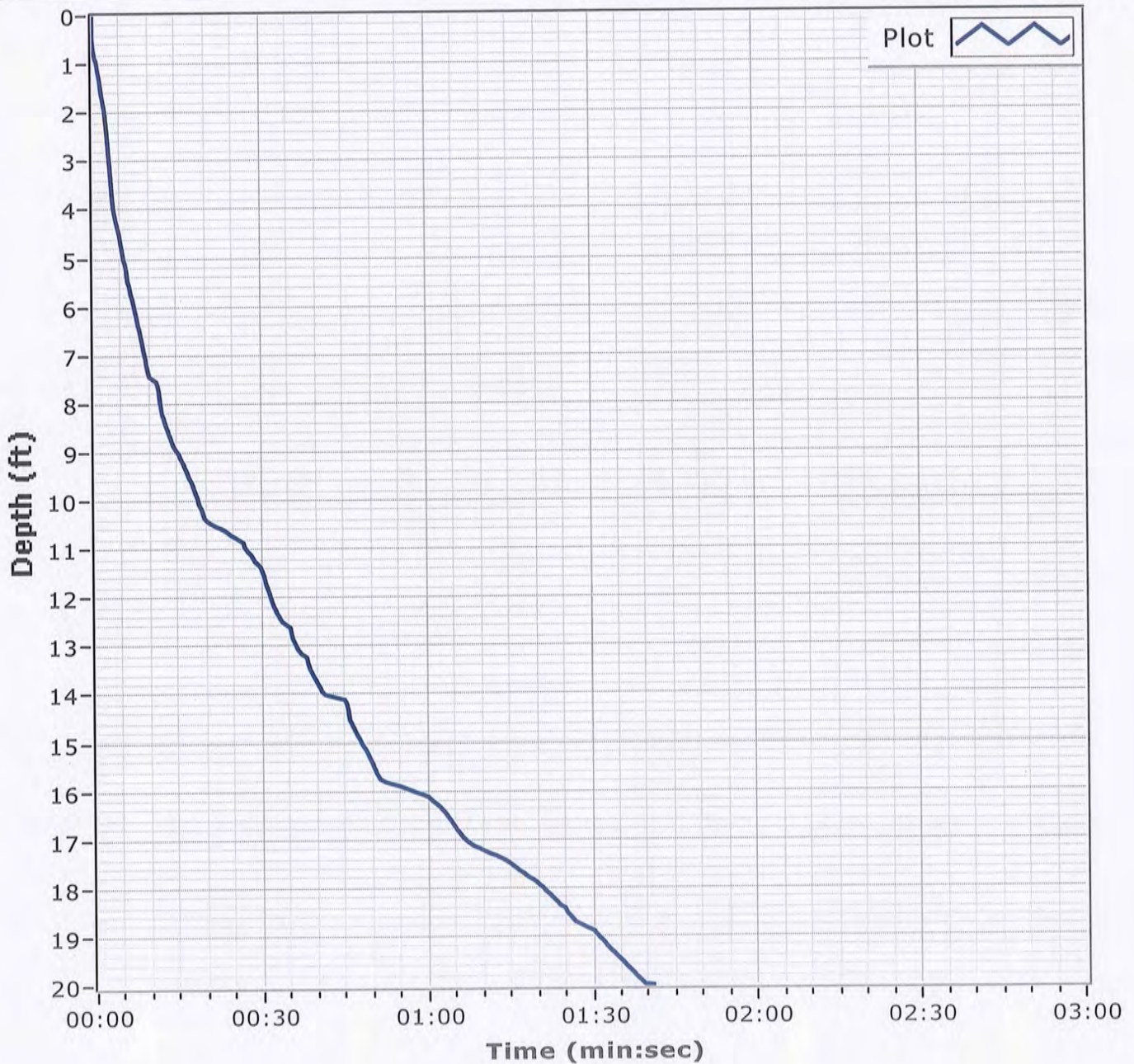
**Latitude** 30 11.525

**Total Time** 00:01:41

**Recovery** 19.0'

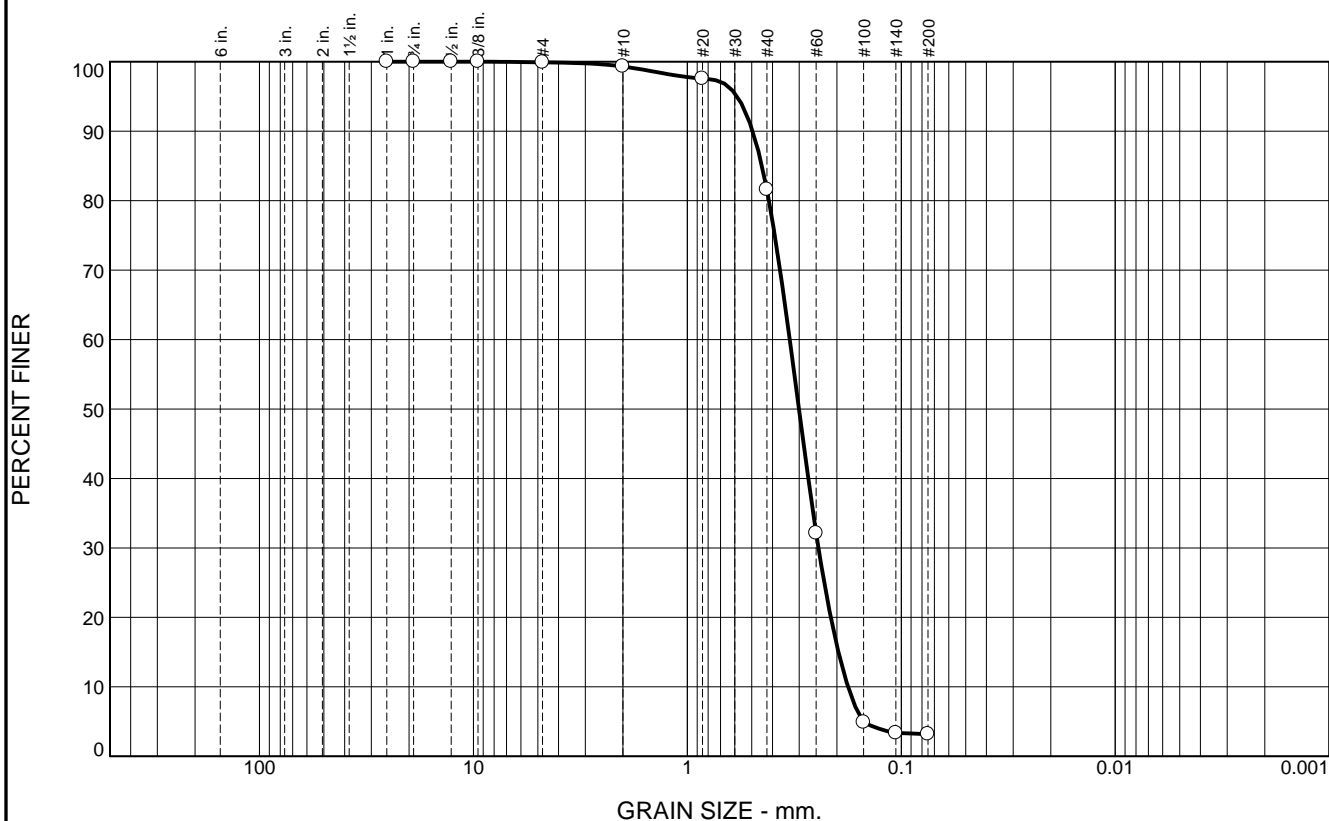
**Longitude** 88 17.880

**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		

**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**

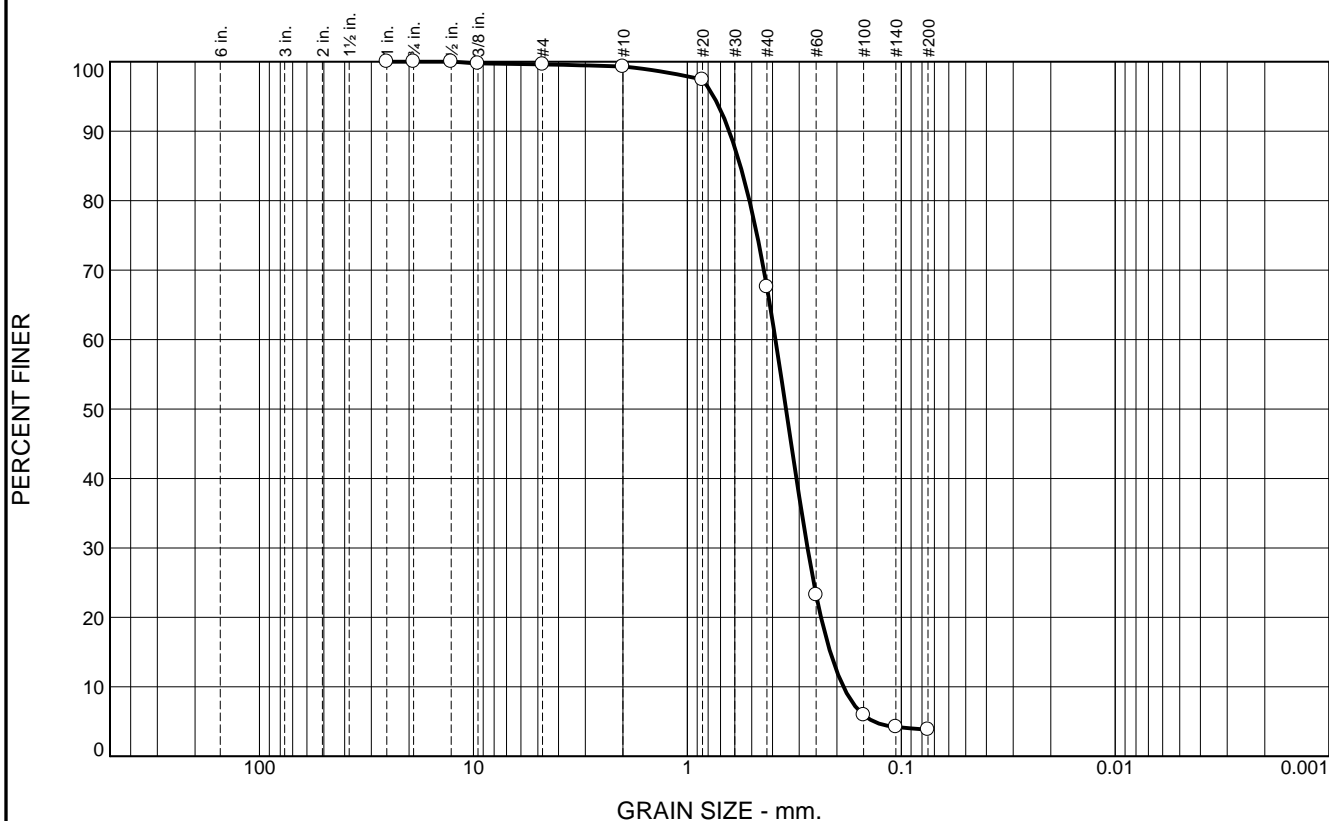
\* (no specification provided)

Location: BI-PB-215-12 A                      Depth: 0.0'                      Date: 12/26/12

Sample Number: 6494 (89)

<p><b>Thompson Engineering</b></p> <p><b>Mobile, Alabama</b></p>	<p>Client: CDM/Thompson Engineering JV</p> <p>Project: MsCIP Barrier Island Restoration GT</p> <p>Project No: 1221110095</p> <p style="text-align: right;">Figure</p>
--	---

# 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		

**Material Description**

Fine to medium grained, SAND

**Atterberg Limits**

PL=                      LL=                      PI=

**Coefficients**

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

**Classification**

USCS= SP                      AASHTO=

**Remarks**

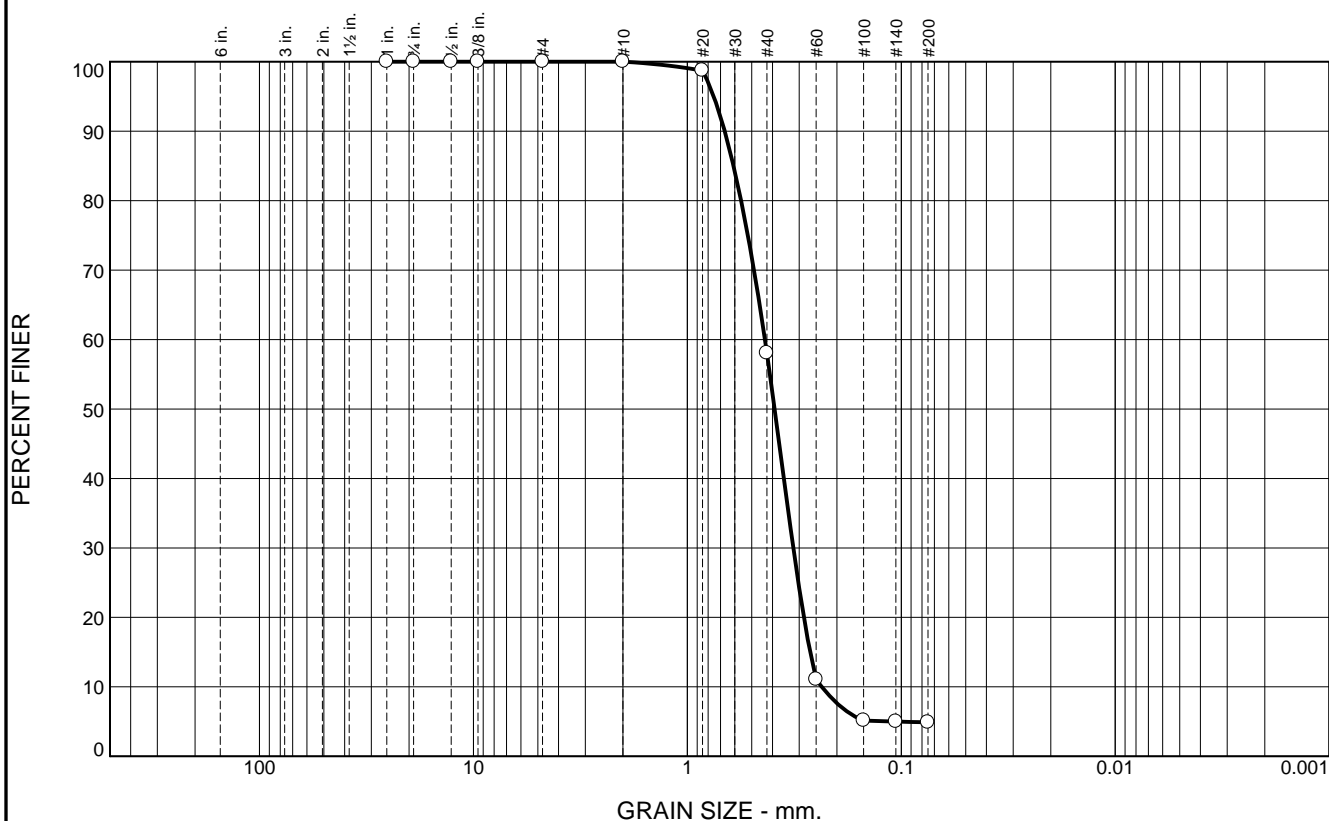
\* (no specification provided)

Location: BI-PB-215-12 B                      Depth: 2.7'                      Date: 12/26/12

Sample Number: 6494 (90)

<p><b>Thompson Engineering</b></p> <p><b>Mobile, Alabama</b></p>	<p>Client: CDM/Thompson Engineering JV</p> <p>Project: MsCIP Barrier Island Restoration GT</p> <p>Project No: 1221110095</p> <p style="text-align: right;">Figure</p>
--	---

# 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		

**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**

\* (no specification provided)

**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**

<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-216-12		<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> Vibracore		<input type="checkbox"/> <b>AUTO HAMMER</b> <input type="checkbox"/> <b>MANUAL HAMMER</b>
<b>4. NAME OF DRILLER</b> American Vibracore Systems, Inc.		<b>12. TOTAL SAMPLES</b>		<b>DISTURBED</b> 0
<b>5. DIRECTION OF BORING</b> <input checked="" type="checkbox"/> <b>VERTICAL</b> <input type="checkbox"/> <b>INCLINED</b>		<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> 35.8 Ft.		<b>15. DATE BORING</b>
<b>7. DEPTH DRILLED INTO ROCK</b> N/A		<b>16. ELEVATION TOP OF BORING</b> -35.3 Ft.		<b>STARTED</b> 12-12-12
<b>8. TOTAL DEPTH OF BORING</b> 14.4 Ft.		<b>17. TOTAL RECOVERY FOR BORING</b> 100%		<b>COMPLETED</b> 12-12-12
<b>18. SIGNATURE AND TITLE OF INSPECTOR</b> 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				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



**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'

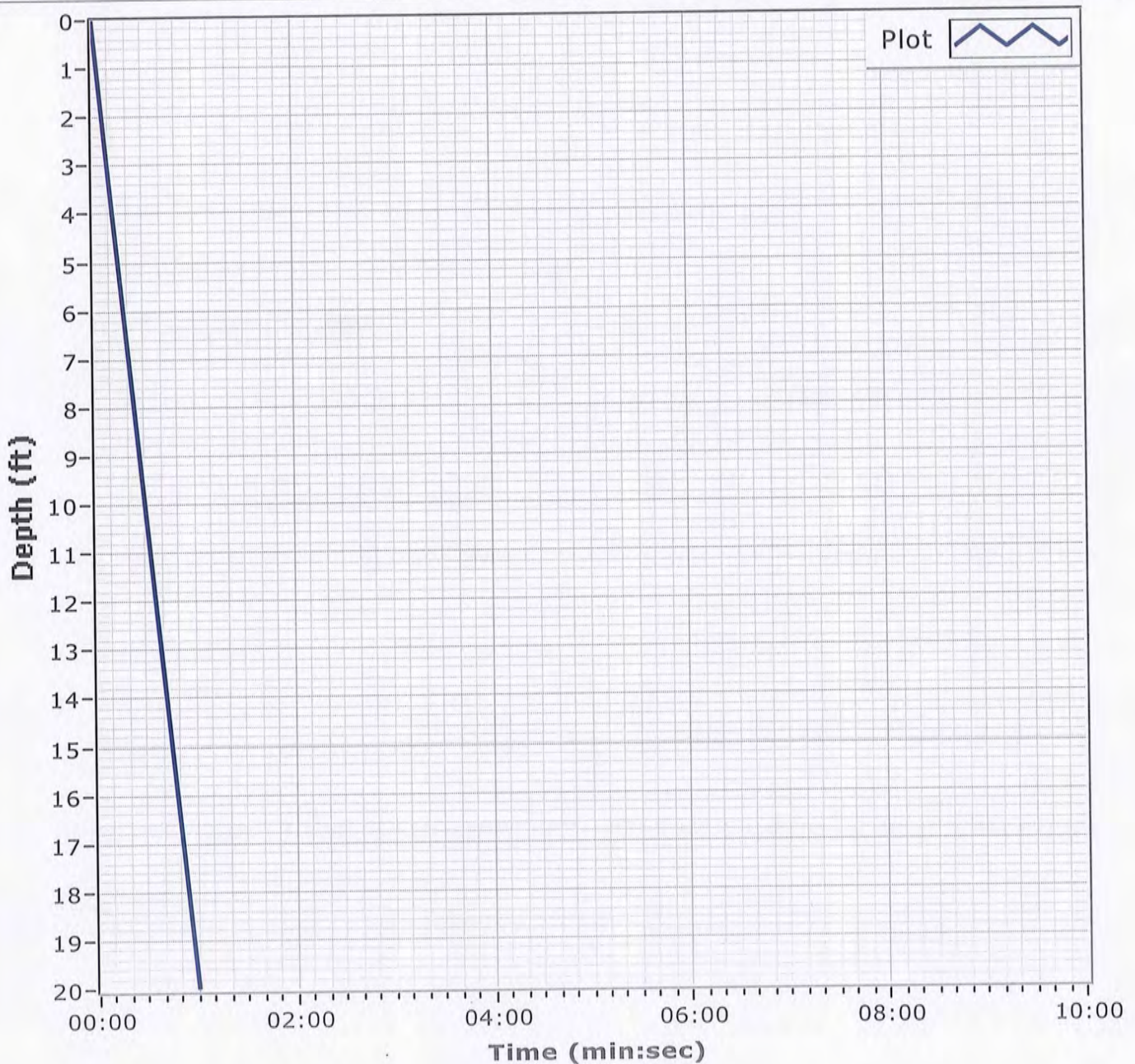
**Latitude** 30 11.608

**Total Time** 00:01:00

**Recovery** 15.7'

**Longitude** 088 18.683

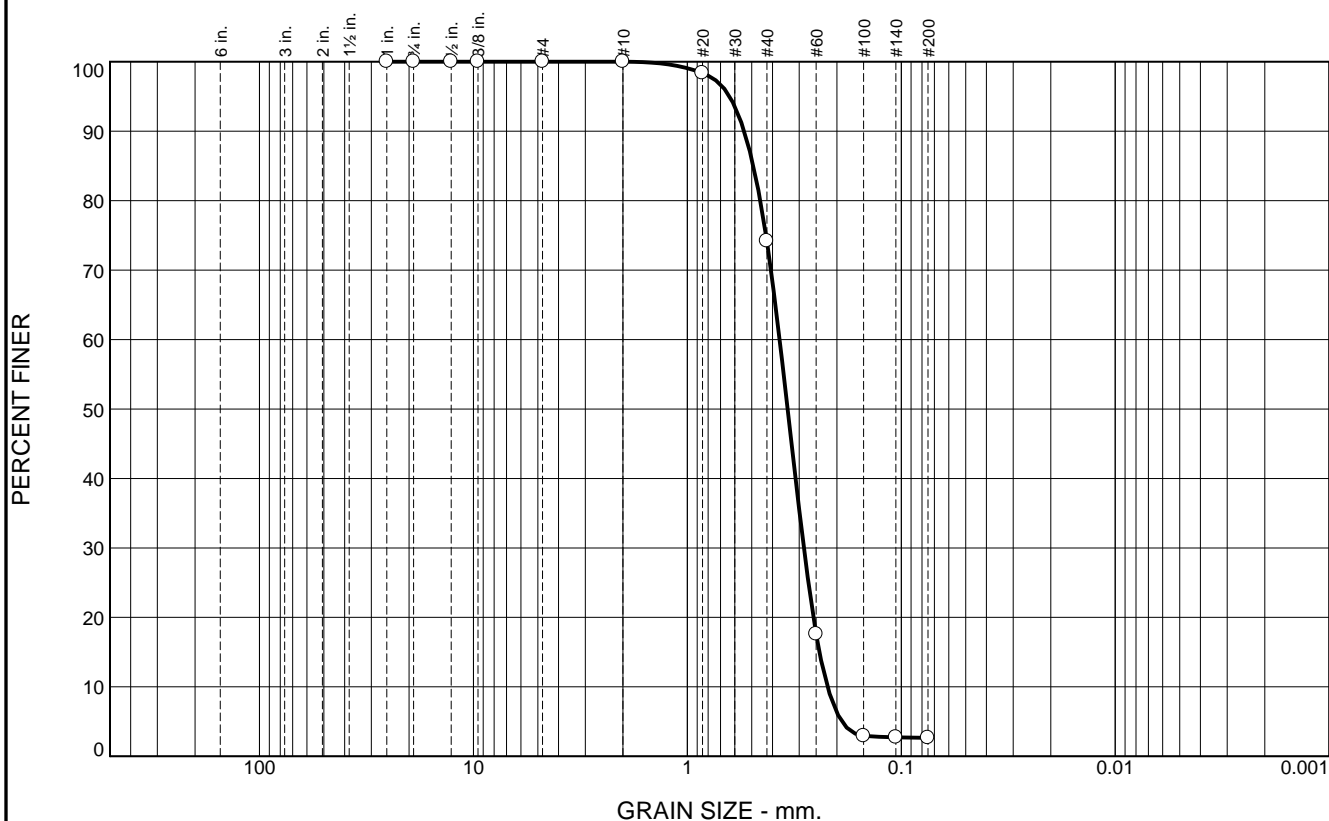
**Comments**







# Particle Size Distribution Report



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

**Material Description**  
Fine to medium grained, SAND

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

**Coefficients**  
 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

**Classification**  
 USCS= SP                      AASHTO=

**Remarks**

\* (no specification provided)

**Location:** BI-PB-216-12 B  
**Sample Number:** 6485 (31)

**Depth:** 4.4'

**Date:** 12/07/12

**Thompson Engineering**

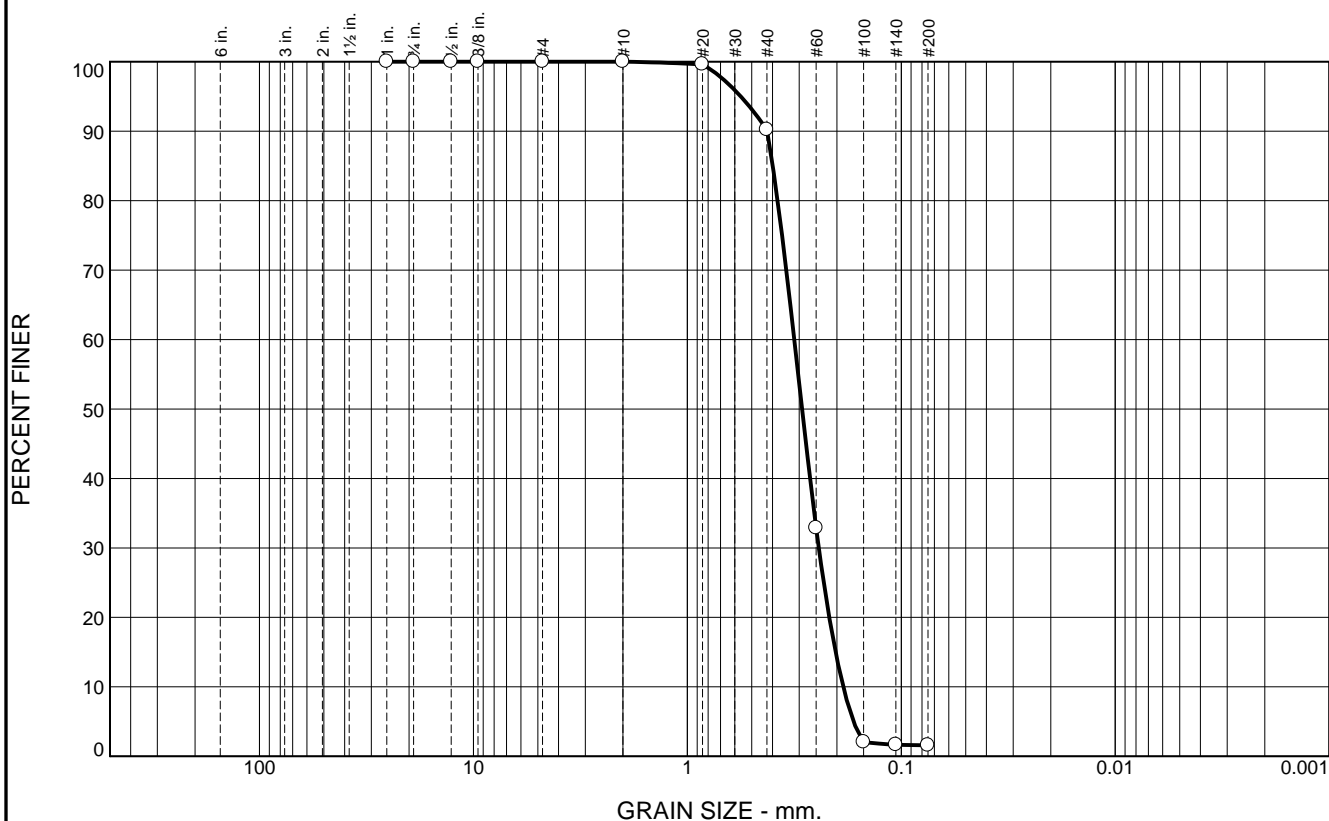
**Mobile, Alabama**

**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		

**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**

\* (no specification provided)

Location: BI-PB-216-12 C                      Depth: 9.4'                      Date: 12/07/12

<p><b>Thompson Engineering</b></p> <p><b>Mobile, Alabama</b></p>	<p>Client: CDM/Thompson Engineering JV</p> <p>Project: MsCIP Barrier Island Restoration GT</p> <p>Project No: 1221110095</p> <p style="text-align: right;">Figure</p>
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Boring Designation BI-PB-217-12

<b>DRILLING LOG</b>		<b>DIVISION</b> South Atlantic	<b>INSTALLATION</b> Mobile District	<b>SHEET 1</b> 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-217-12		<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> Vibracore		<input type="checkbox"/> <b>AUTO HAMMER</b> <input type="checkbox"/> <b>MANUAL HAMMER</b>
<b>4. NAME OF DRILLER</b> American Vibracore Systems, Inc.		<b>12. TOTAL SAMPLES</b>		<b>DISTURBED</b> 0
<b>5. DIRECTION OF BORING</b> <input checked="" type="checkbox"/> <b>VERTICAL</b> <input type="checkbox"/> <b>INCLINED</b>		<b>LOCATION COORDINATES</b> E = 1,150,351 N = 252,848	<b>13. TOTAL NUMBER CORE BOXES</b>	
<b>6. THICKNESS OF OVERBURDEN</b> N/A		<b>14. WATER DEPTH</b> 38.9 Ft.		<b>15. DATE BORING</b>
<b>7. DEPTH DRILLED INTO ROCK</b> N/A		<b>16. ELEVATION TOP OF BORING</b> -38.3 Ft.		<b>STARTED</b> 12-12-12
<b>8. TOTAL DEPTH OF BORING</b> 15.7 Ft.		<b>17. TOTAL RECOVERY FOR BORING</b> 100%		<b>COMPLETED</b> 12-12-12
<b>18. SIGNATURE AND TITLE OF INSPECTOR</b> 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 D50: 0.3352 mm % Fines: 5.9
			SAND, poorly-graded, mostly fine to medium-grained sand-sized quartz, trace fines, lt gray (SP)	C	Classification: SP Color: 2.5Y 7/2-light gray D50: 0.35 mm % Fines: 4.1
			At El. -46.1 Ft., mostly fine to medium-grained sand-sized quartz, trace fines, white 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	
-54.0	15.7				
<p>NOTES:</p> <ol style="list-style-type: none"> <li>Soils are field visually classified in accordance with the Unified Soils Classification System.</li> <li>NS = Sample not submitted for laboratory analysis from this interval.</li> <li>Seafloor elevation determined from 2010 USACE survey.</li> </ol>					

**Project**

Mississippi Barrier Island  
Restoration Project



**Core Identifier** BI-PB-217-12

**Date** 12/12/2012

**Water Depth** 38.9'

**Coordinate System**

**Start Time** 15:19:03

Latitude / Longitude

**End Time** 15:22:53

**Penetration** 20.0'

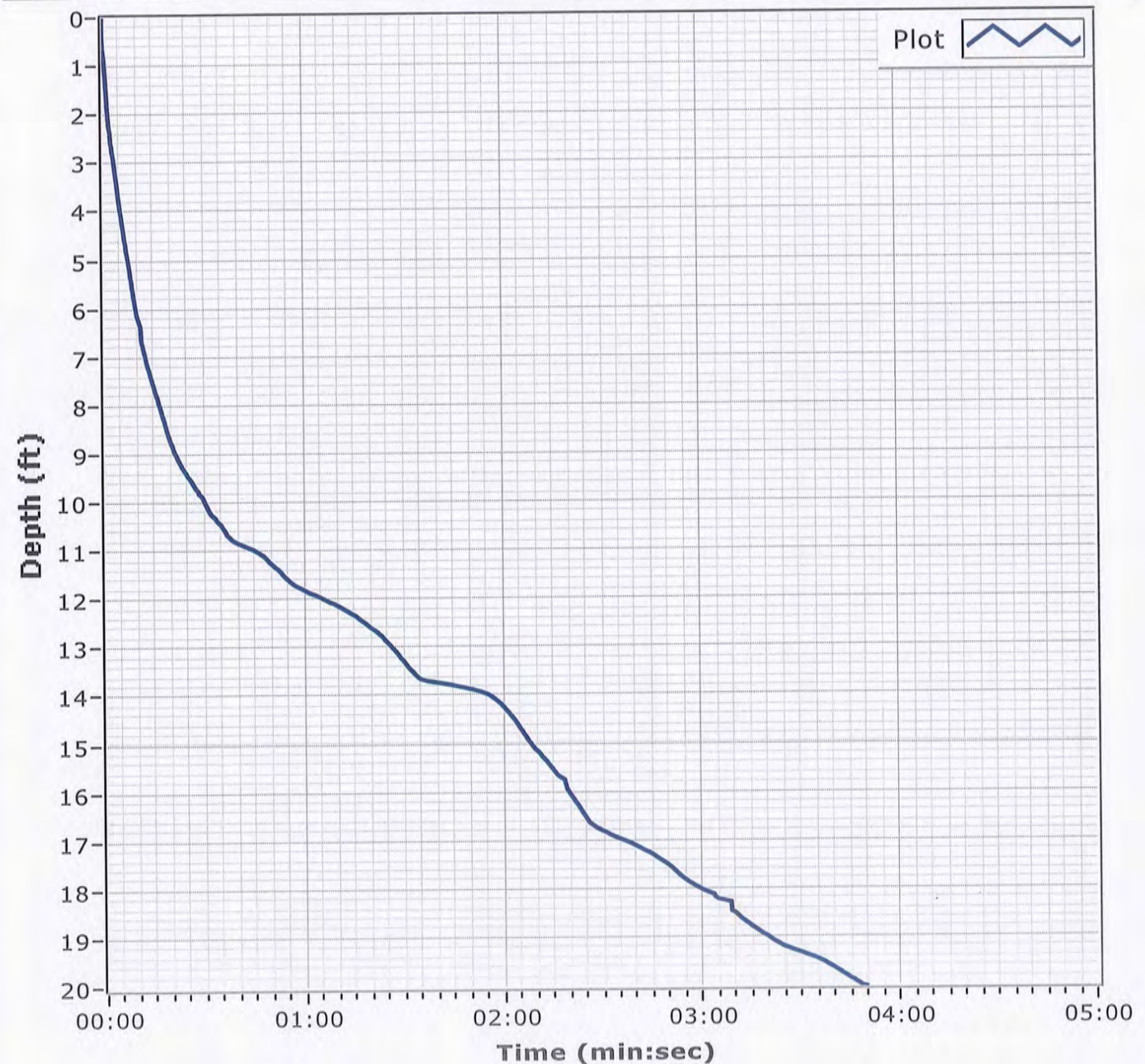
**Latitude** 30 11.654

**Total Time** 00:03:50

**Recovery** 15.7'

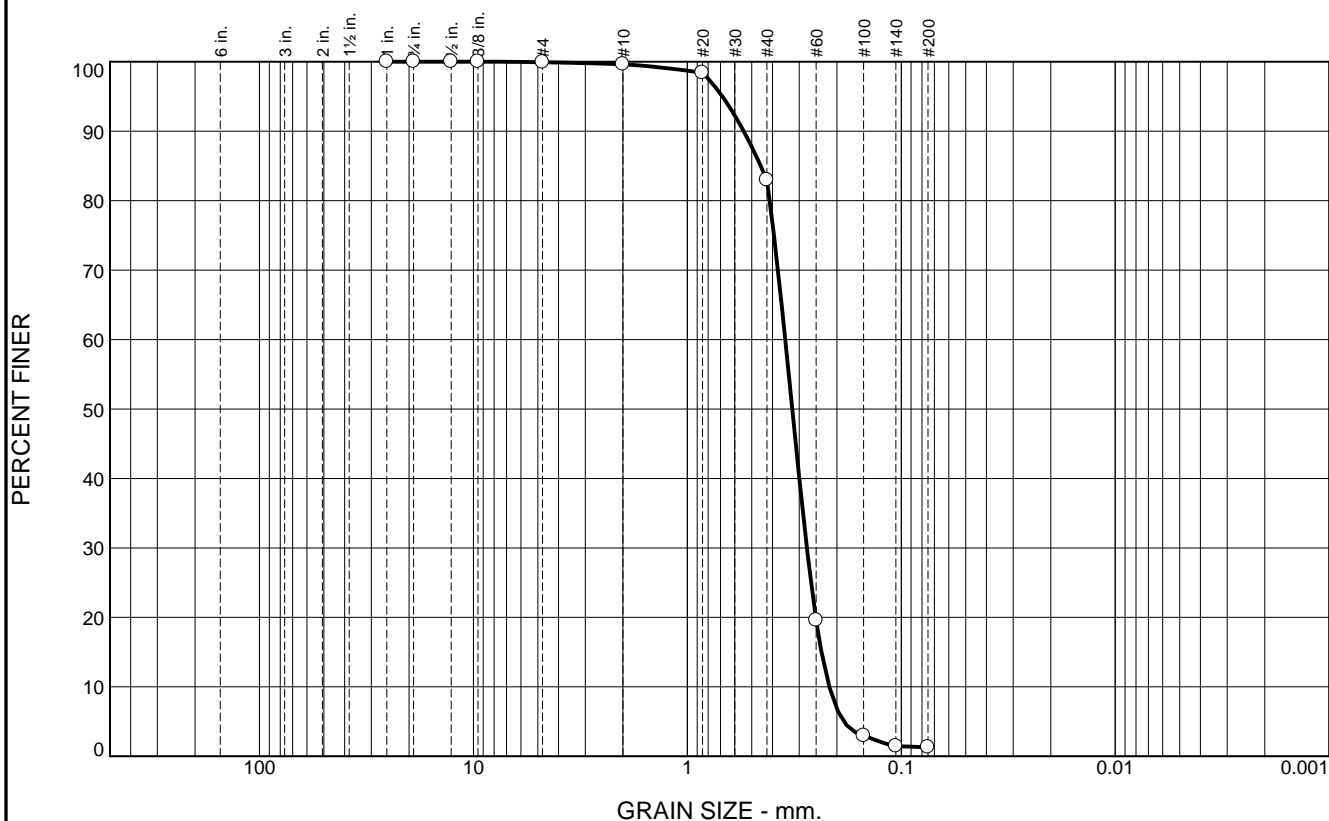
**Longitude** 088 18.454

**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		

**Material Description**

Fine to medium grained, SAND

**Atterberg Limits**

PL=                      LL=                      PI=

**Coefficients**

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

**Classification**

USCS= SP                      AASHTO=

**Remarks**

\* (no specification provided)

Location: BI-PB-217-12 A      Depth: 0.0'      Date: 12/07/12  
Sample Number: 6485 (33)

**Thompson Engineering**

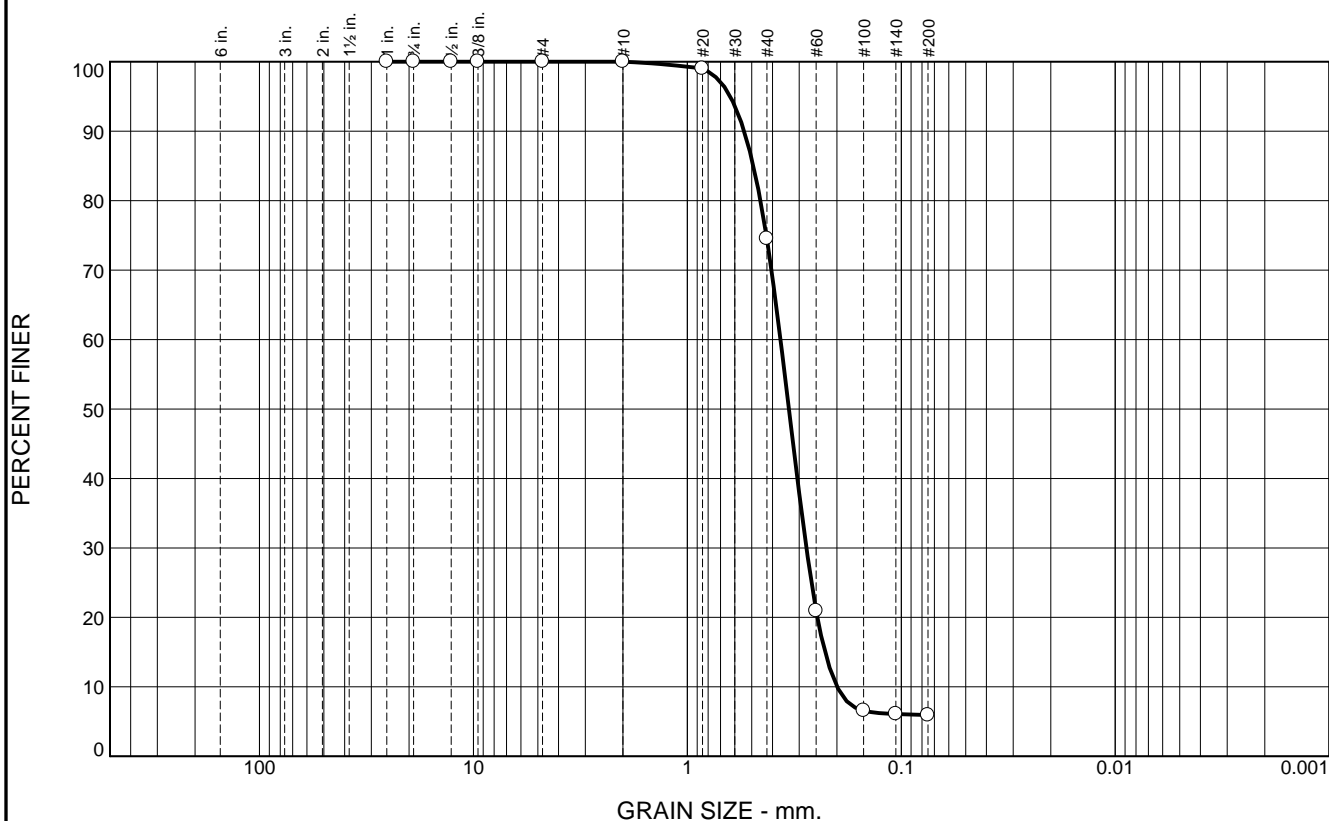
**Mobile, Alabama**

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	25.5	68.6	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	99.0		
#40	74.5		
#60	20.9		
#100	6.6		
#140	6.1		
#200	5.9		

**Material Description**  
Fine to medium grained, SLIGHTLY SILTY SAND

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

**Coefficients**  
 D<sub>90</sub>= 0.5424      D<sub>85</sub>= 0.4915      D<sub>60</sub>= 0.3670  
 D<sub>50</sub>= 0.3352      D<sub>30</sub>= 0.2779      D<sub>15</sub>= 0.2272  
 D<sub>10</sub>= 0.1995      C<sub>u</sub>= 1.84              C<sub>c</sub>= 1.05

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

**Remarks**

\* (no specification provided)

Location: BI-PB-217-12 B                      Depth: 1.2'                      Date: 12/07/12  
 Sample Number: 6485 (34)

**Thompson Engineering**

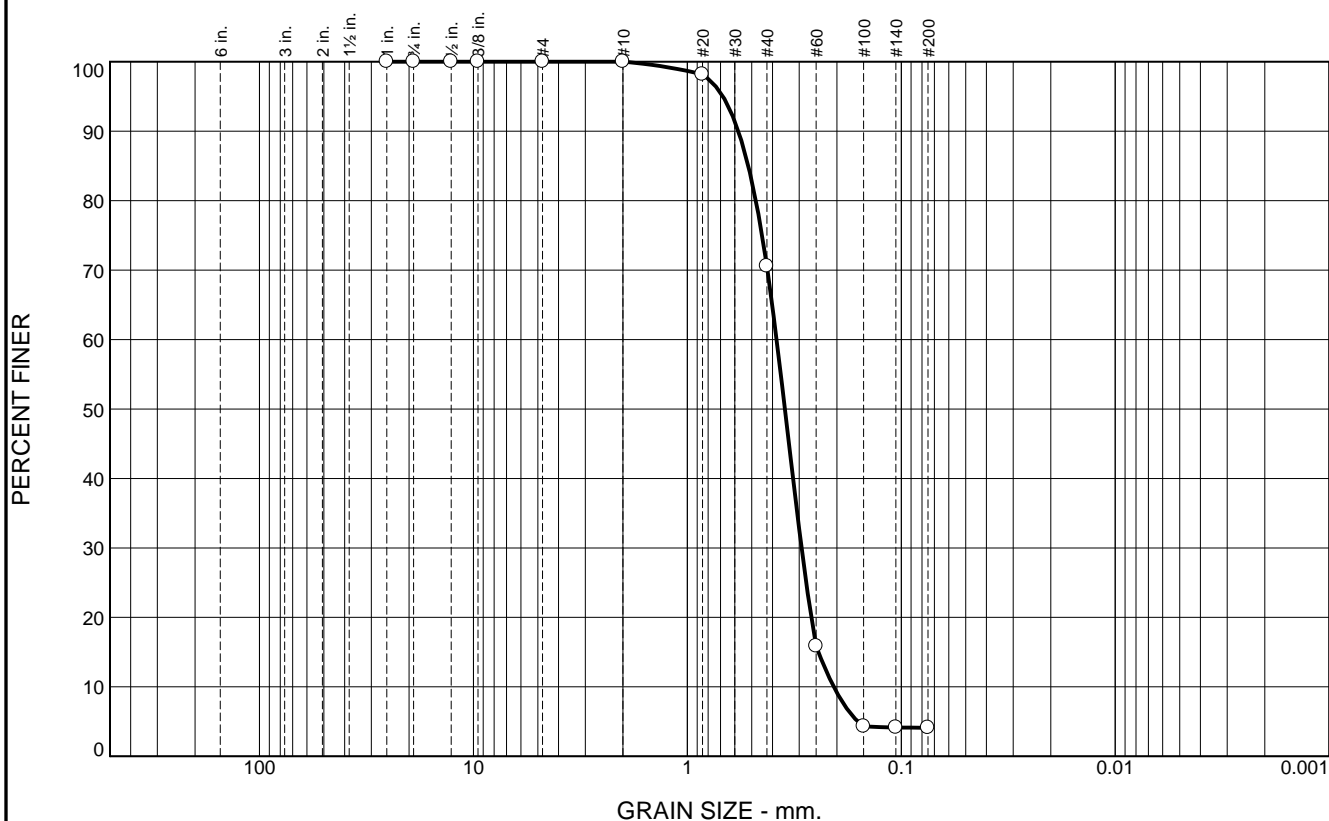
**Mobile, Alabama**

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	29.4	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		

**Material Description**  
Fine to medium grained, SAND

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

**Coefficients**  
 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

**Classification**  
 USCS= SP                      AASHTO=

**Remarks**

\* (no specification provided)

**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**

<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-218-12		<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> Vibracore		<input type="checkbox"/> <b>AUTO HAMMER</b> <input type="checkbox"/> <b>MANUAL HAMMER</b>
<b>4. NAME OF DRILLER</b> American Vibracore Systems, Inc.		<b>12. TOTAL SAMPLES</b>		<b>DISTURBED</b> 0
<b>5. DIRECTION OF BORING</b> <input checked="" type="checkbox"/> <b>VERTICAL</b> <input type="checkbox"/> <b>INCLINED</b>		<b>LOCATION COORDINATES</b> E = 1,149,812 N = 253,289	<b>13. TOTAL NUMBER CORE BOXES</b>	
<b>6. THICKNESS OF OVERBURDEN</b> N/A		<b>CONTRACTOR FILE NO.</b>	<b>14. WATER DEPTH</b> 37.3 Ft.	
<b>7. DEPTH DRILLED INTO ROCK</b> N/A		<b>BEARING</b>	<b>15. DATE BORING</b> <b>STARTED</b> 12-12-12 <b>COMPLETED</b> 12-12-12	
<b>8. TOTAL DEPTH OF BORING</b> 17.3 Ft.		<b>16. ELEVATION TOP OF BORING</b> -37.8 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
-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
		•••••	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
		//	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**

Latitude / Longitude

**Start Time** 13:02:03

**End Time** 13:03:03

**Penetration** 20.0'

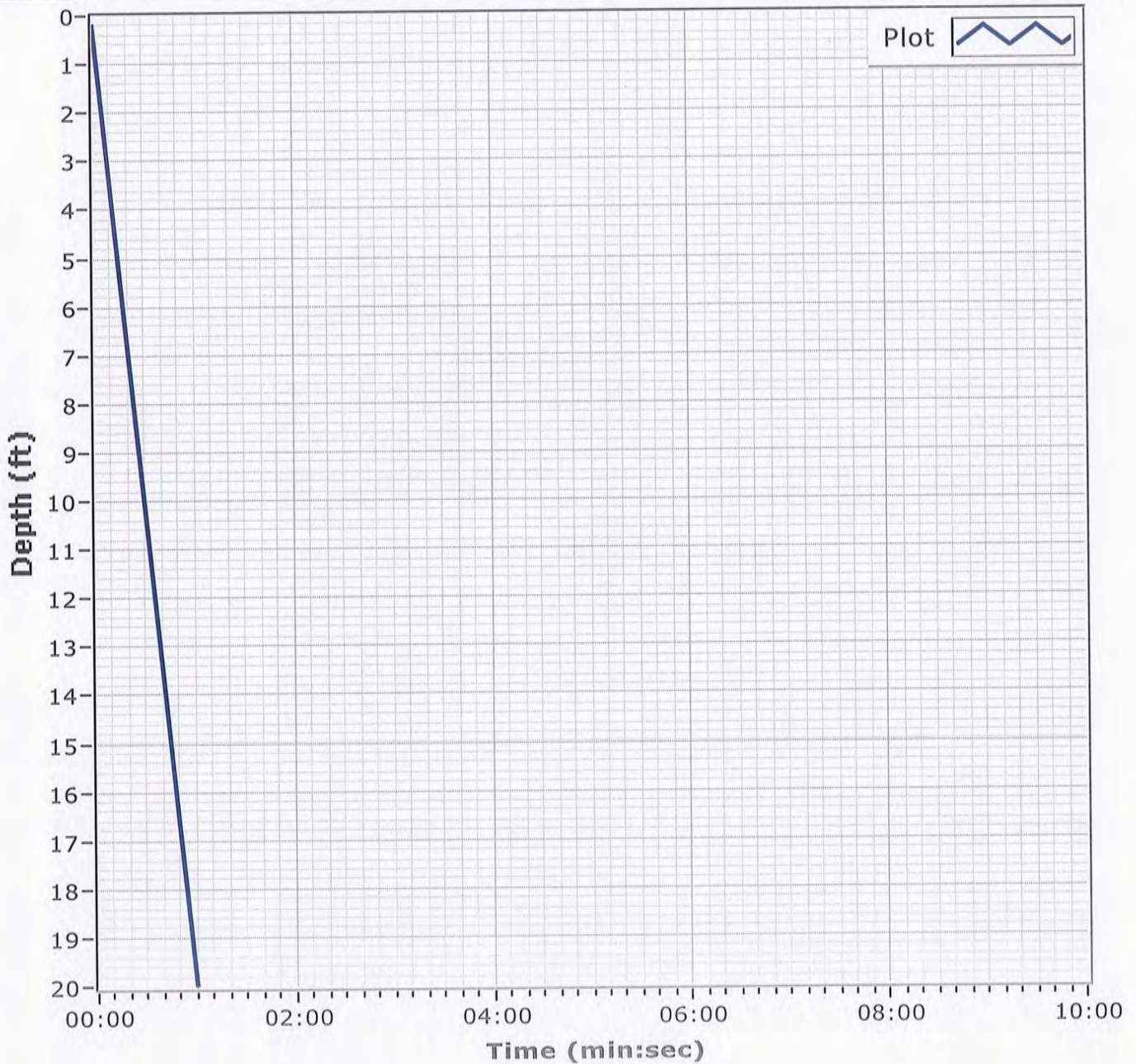
**Latitude** 30 11.727

**Total Time** 00:01:00

**Recovery** 17.3'

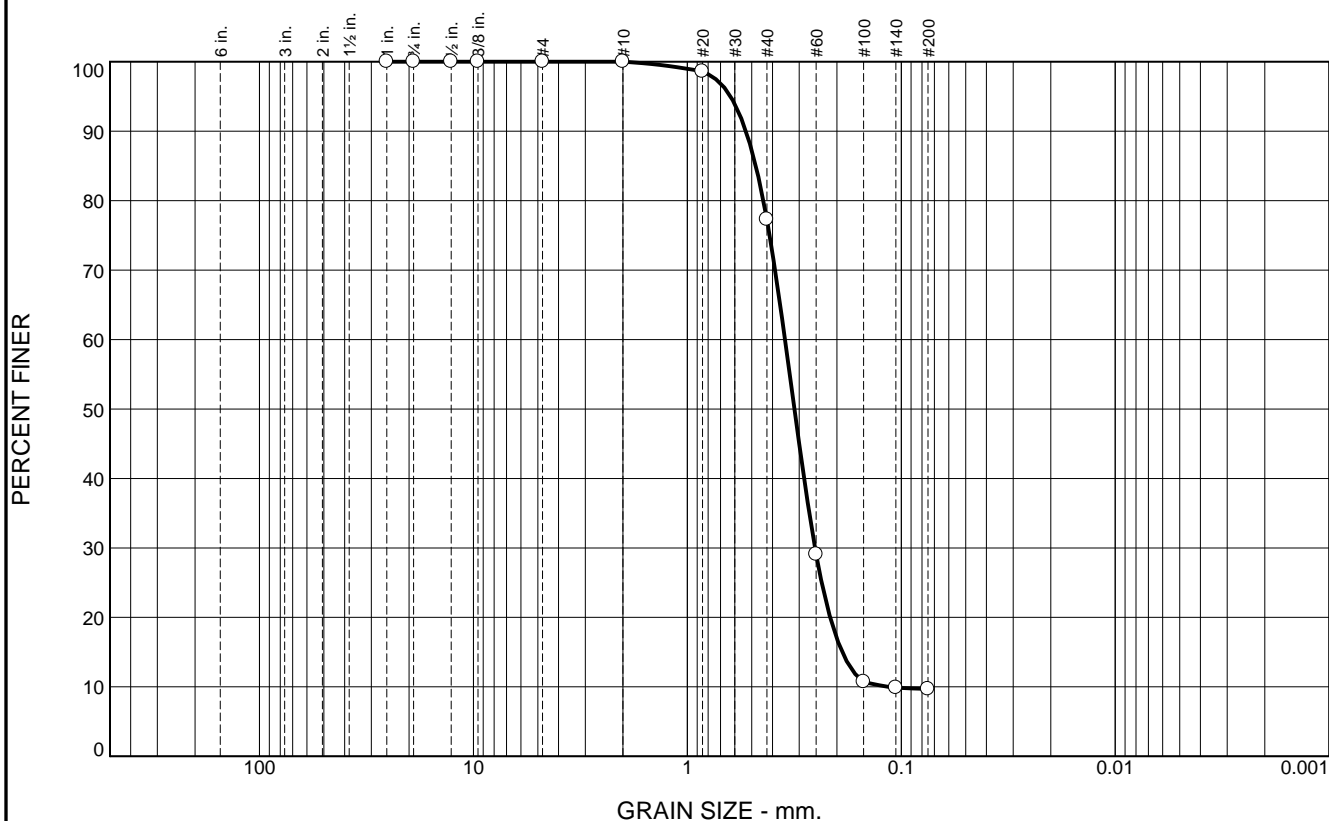
**Longitude** 088 18.556

**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		

**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**

\* (no specification provided)

**Location:** BI-PB-218-12 A  
**Sample Number:** 6485 (36)

**Depth:** 0.0'

**Date:** 12/07/12

**Thompson Engineering**

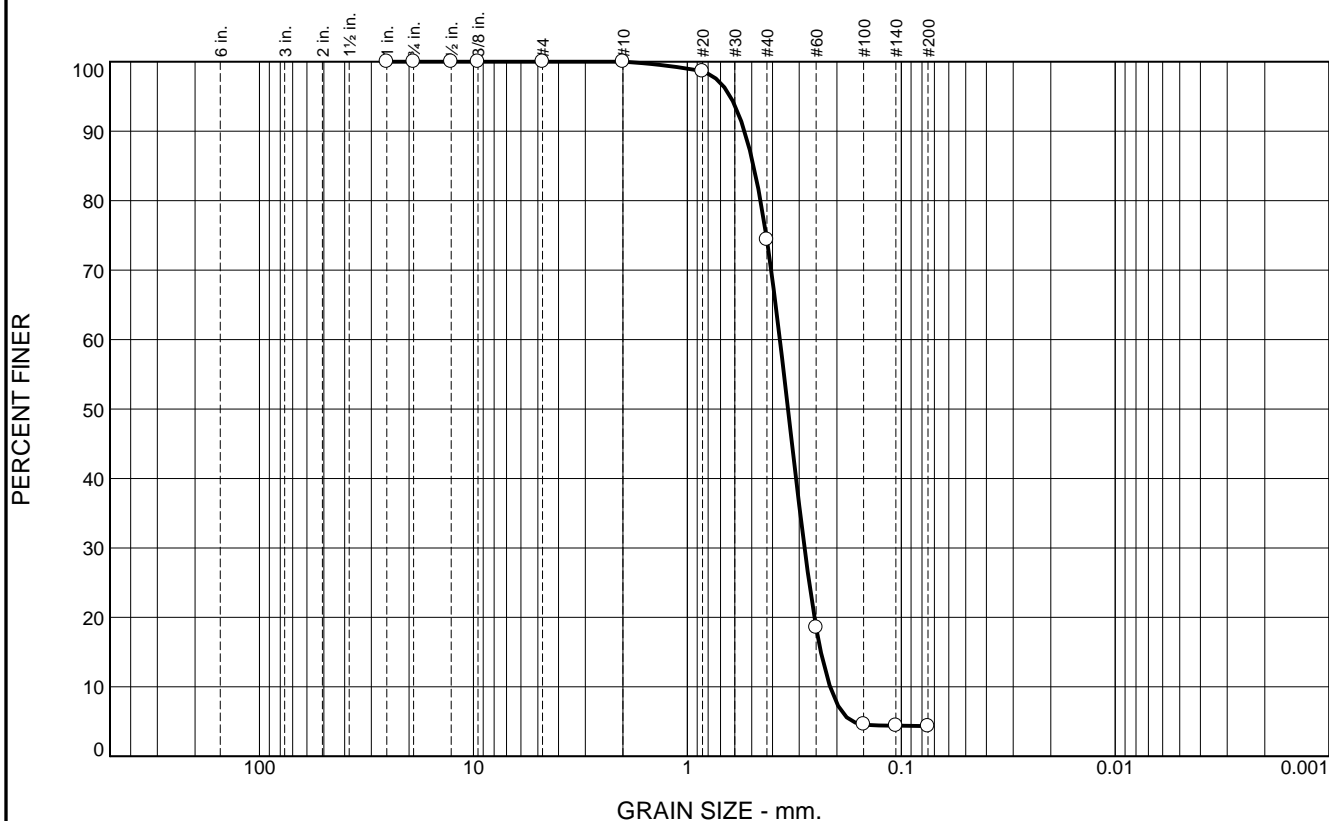
**Mobile, Alabama**

**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		

**Material Description**

Fine to medium grained, SAND

**Atterberg Limits**

PL=                      LL=                      PI=

**Coefficients**

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

**Classification**

USCS= SP                      AASHTO=

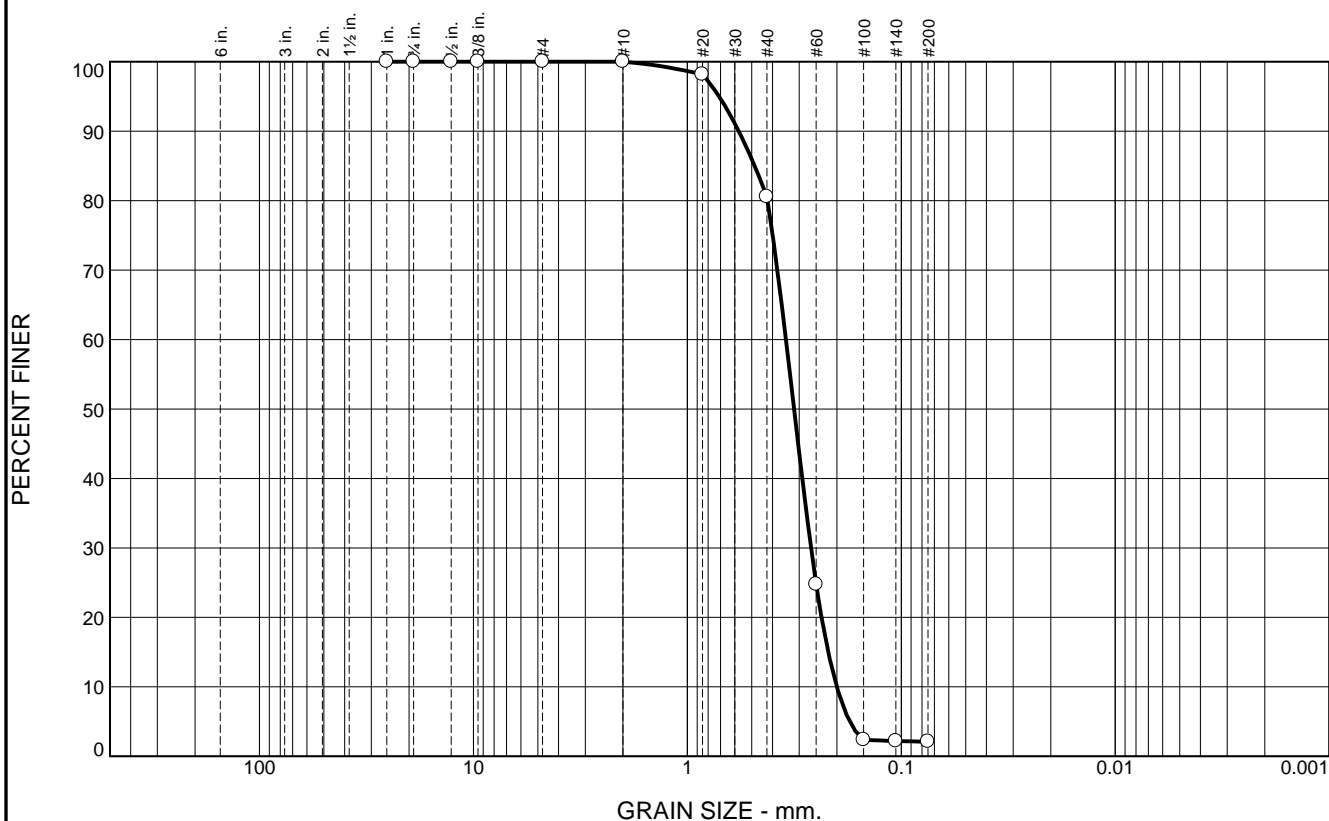
**Remarks**

\* (no specification provided)

Location: BI-PB-218-12 B      Depth: 5.0'      Date: 12/07/12  
Sample Number: 6485 (37)

<b>Thompson Engineering</b>  <b>Mobile, Alabama</b>	<b>Client:</b> CDM/Thompson Engineering JV <b>Project:</b> MsCIP Barrier Island Restoration GT  <b>Project No:</b> 1221110095 <b>Figure</b>
---	--

# 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		

**Material Description**

Fine to medium grained, SAND

**Atterberg Limits**

PL=                      LL=                      PI=

**Coefficients**

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

**Classification**

USCS= SP                      AASHTO=

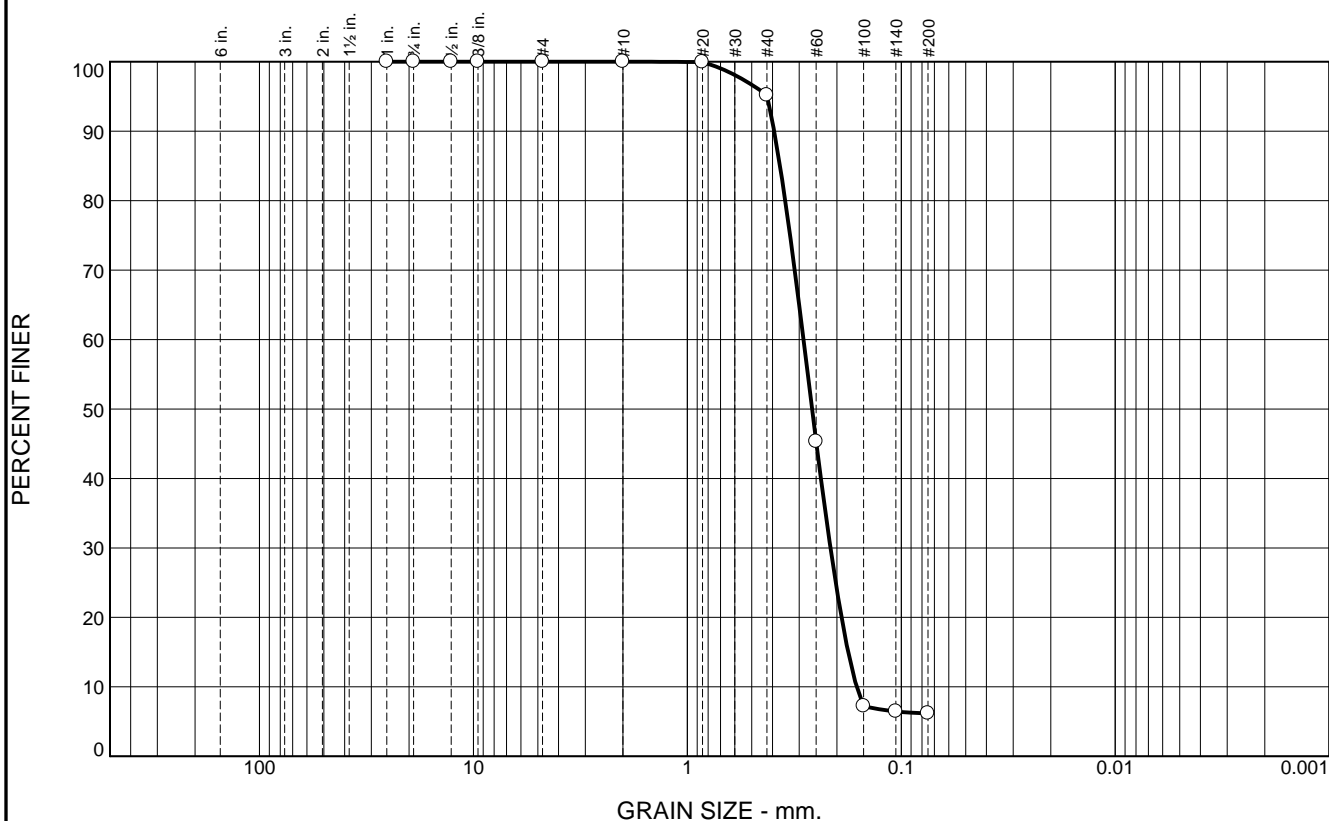
**Remarks**

\* (no specification provided)

**Location:** BI-PB-218-12 C                      **Depth:** 8.8'                      **Date:** 12/07/12  
**Sample Number:** 6485 (38)

<p><b>Thompson Engineering</b></p> <p><b>Mobile, Alabama</b></p>	<p><b>Client:</b> CDM/Thompson Engineering JV</p> <p><b>Project:</b> MsCIP Barrier Island Restoration GT</p> <p><b>Project No:</b> 1221110095</p> <p style="text-align: right;"><b>Figure</b></p>
--	---

# 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		

**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**

\* (no specification provided)

**Location:** BI-PB-218-12 D      **Depth:** 13.8'      **Date:** 12/07/12  
**Sample Number:** 6485 (39)

<b>Thompson Engineering</b>  <b>Mobile, Alabama</b>	<b>Client:</b> CDM/Thompson Engineering JV <b>Project:</b> MsCIP Barrier Island Restoration GT  <b>Project No:</b> 1221110095 <b>Figure</b>
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**Boring Designation BI-PB-219-12**

<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-219-12		<b>LOCATION COORDINATES</b> E = 1,147,637 N = 253,560		<b>10. COORDINATE SYSTEM/DATUM</b> State Plane, MSE (U.S. Ft.)
<b>3. DRILLING AGENCY</b> Corps of Engineers - CESAM		<b>CONTRACTOR FILE NO.</b>		<b>HORIZONTAL</b> NAD83
<b>4. NAME OF DRILLER</b> American Vibracore Systems, Inc.			<b>11. MANUFACTURER'S DESIGNATION OF DRILL</b> Vibracore	
<b>5. DIRECTION OF BORING</b> <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED		<b>DEG. FROM VERTICAL</b>	<b>BEARING</b>	<input type="checkbox"/> AUTO HAMMER <input type="checkbox"/> MANUAL HAMMER
<b>6. THICKNESS OF OVERBURDEN</b> N/A		<b>12. TOTAL SAMPLES</b>		<b>DISTURBED</b> 0
<b>7. DEPTH DRILLED INTO ROCK</b> N/A		<b>13. TOTAL NUMBER CORE BOXES</b>		<b>UNDISTURBED (UD)</b>
<b>8. TOTAL DEPTH OF BORING</b> 15.9 Ft.		<b>14. WATER DEPTH</b> 31.4 Ft.		<b>15. DATE BORING</b> <b>STARTED</b> 12-12-12 <b>COMPLETED</b> 12-12-12
		<b>16. ELEVATION TOP OF BORING</b> -31.2 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
-31.2	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
-37.1	5.9		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
-42.1	10.9		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
-47.1	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 2010 USACE survey.		



**Project**

Mississippi Barrier Island  
Restoration Project



**Core Identifier** BI-PB-219-12

**Date** 12/13/2012

**Water Depth** 23.8'

**Coordinate System**

**Start Time** 08:34:03

Latitude / Longitude

**End Time** 08:35:03

**Penetration** 20.0'

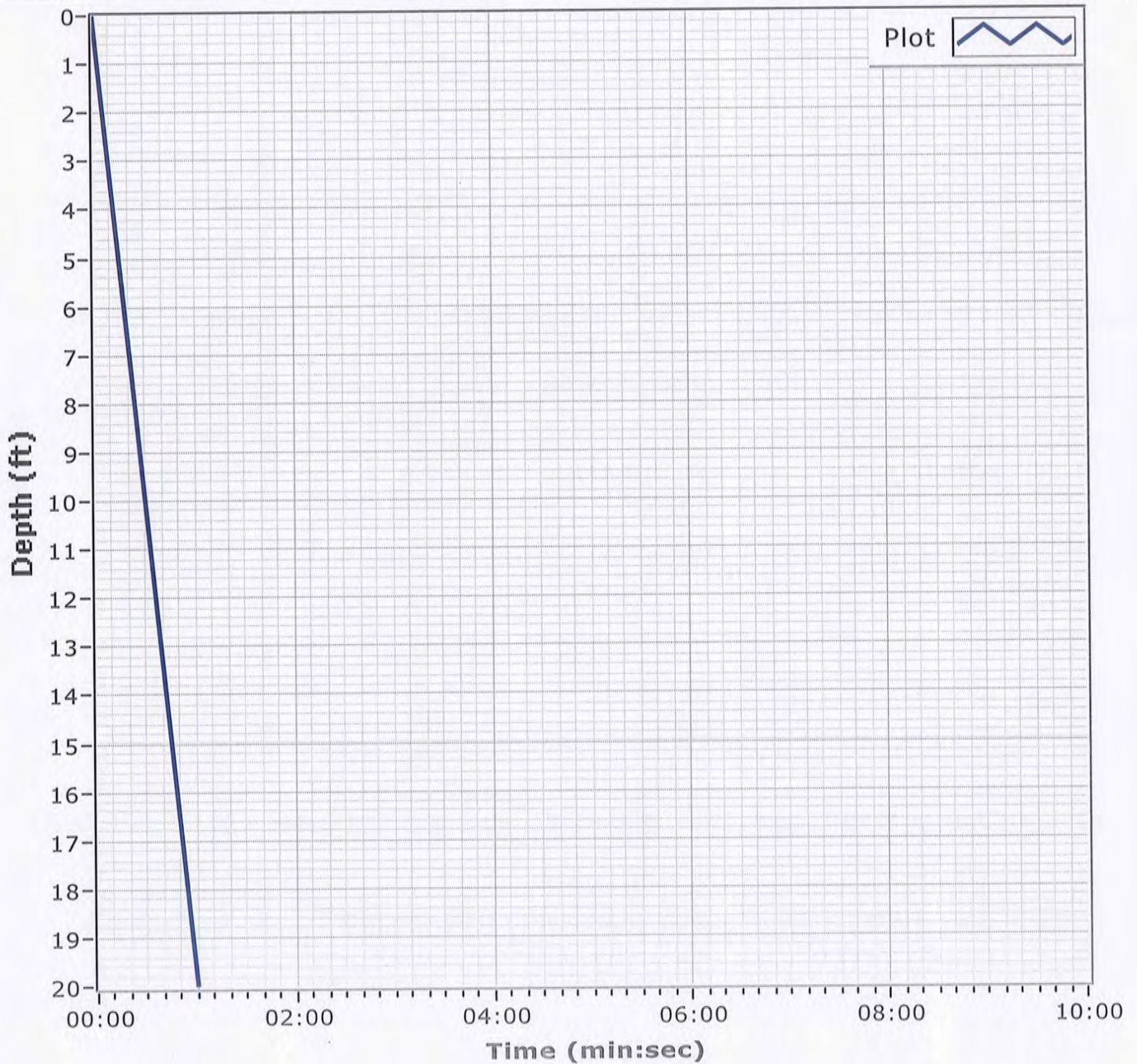
**Latitude** 30 11.930

**Total Time** 00:01:00

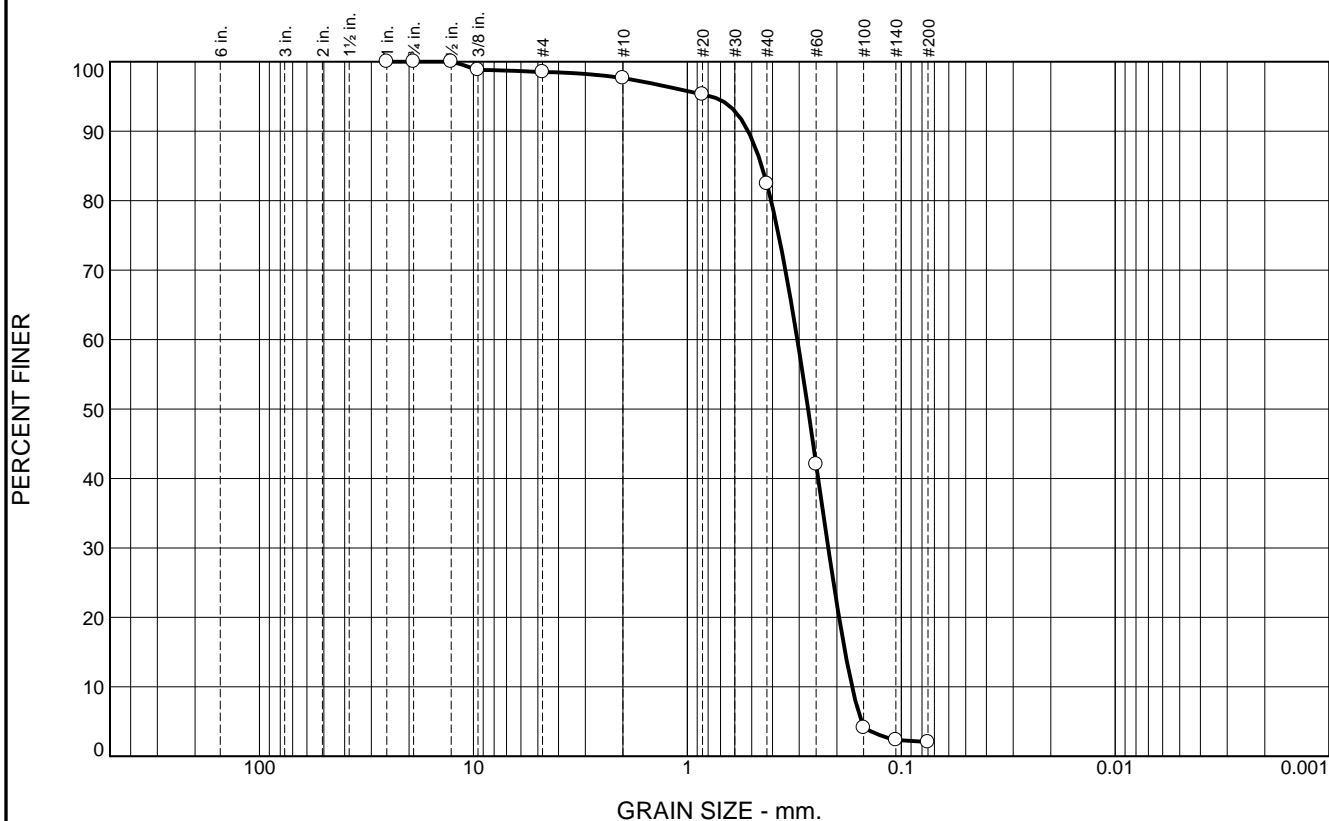
**Recovery** 20.0'

**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		

**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**

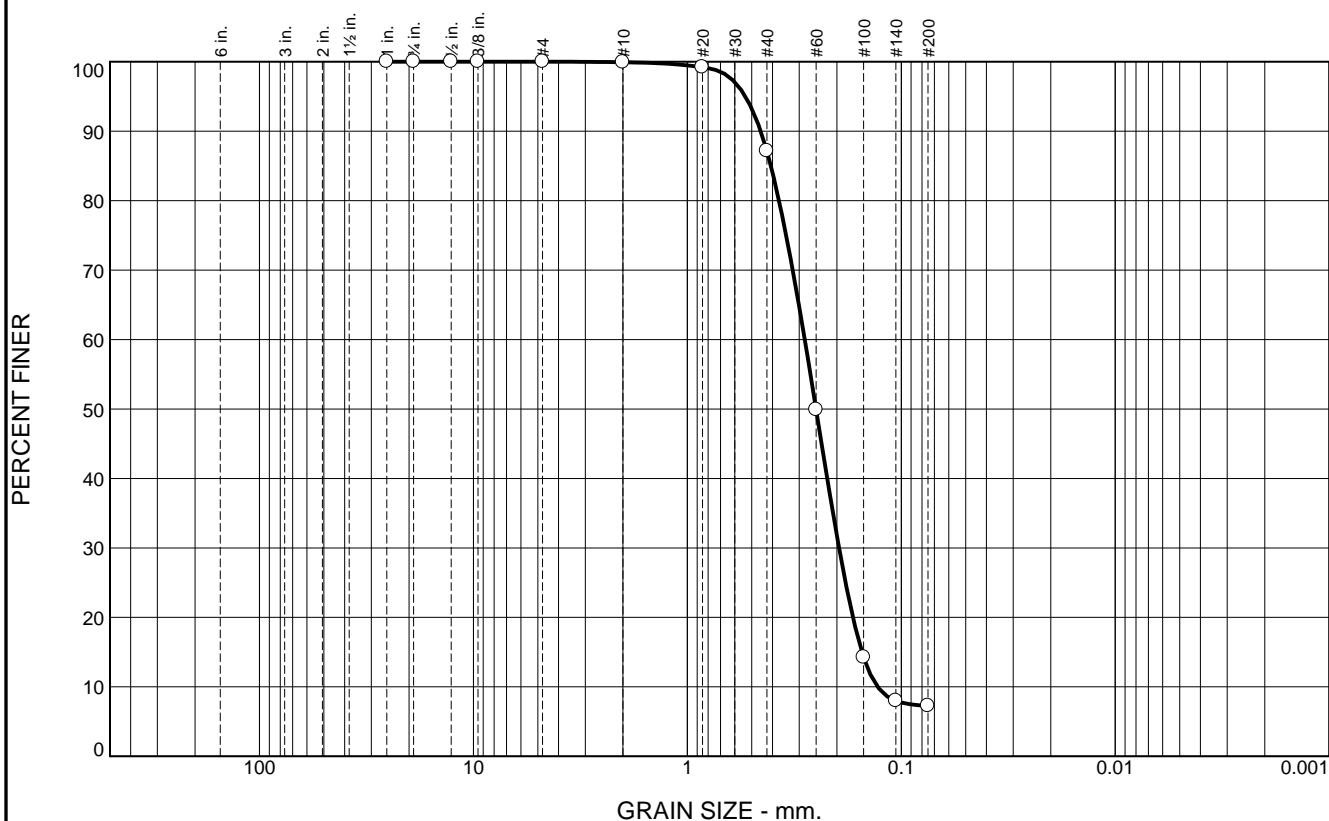
\* (no specification provided)

**Location:** BI-PB-219-12 A                      **Depth:** 0.0'                      **Date:** 12/07/12

**Sample Number:** 6485 (40)

<p><b>Thompson Engineering</b></p> <p><b>Mobile, Alabama</b></p>	<p><b>Client:</b> CDM/Thompson Engineering JV</p> <p><b>Project:</b> MsCIP Barrier Island Restoration GT</p> <p><b>Project No:</b> 1221110095</p> <p style="text-align: right;"><b>Figure</b></p>
--	---

# 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		

**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=

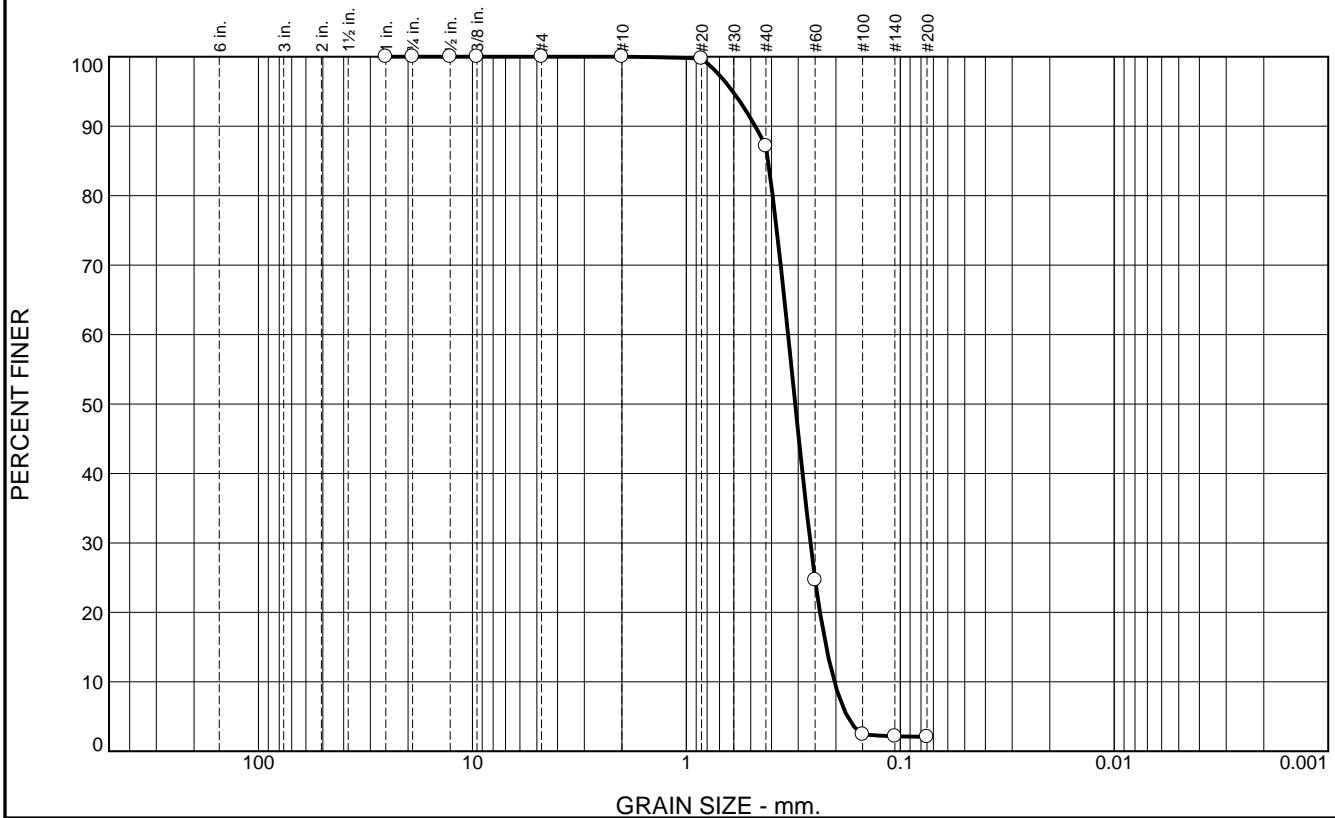
**Remarks**

\* (no specification provided)

**Location:** BI-PB-219-12 B                      **Depth:** 5.9'                      **Date:** 12/07/12  
**Sample Number:** 6485 (41)

<b>Thompson Engineering</b>  <b>Mobile, Alabama</b>	<b>Client:</b> CDM/Thompson Engineering JV <b>Project:</b> MsCIP Barrier Island Restoration GT  <b>Project No:</b> 1221110095 <b>Figure</b>
---	--

# 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		

**Material Description**

Fine to medium grained, SAND

**Atterberg Limits**

PL=                      LL=                      PI=

**Coefficients**

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

**Classification**

USCS= SP                      AASHTO=

**Remarks**

\* (no specification provided)

**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**

<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-220-12		<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> Vibracore		<input type="checkbox"/> <b>AUTO HAMMER</b> <input type="checkbox"/> <b>MANUAL HAMMER</b>
<b>4. NAME OF DRILLER</b> American Vibracore Systems, Inc.		<b>12. TOTAL SAMPLES</b>		<b>DISTURBED</b> 0
<b>5. DIRECTION OF BORING</b> <input checked="" type="checkbox"/> <b>VERTICAL</b> <input type="checkbox"/> <b>INCLINED</b>		<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> 26.1 Ft.		
<b>7. DEPTH DRILLED INTO ROCK</b> N/A		<b>15. DATE BORING</b>		<b>STARTED</b> 12-06-12 <b>COMPLETED</b> 12-06-12
<b>8. TOTAL DEPTH OF BORING</b> 11.8 Ft.		<b>16. ELEVATION TOP OF BORING</b> -24.4 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
-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		SAND, poorly-graded, mostly fine-grained sand-sized quartz, trace silt, trace shell fragments, lt. gray (SP)	B	Classification: SP Color: 5Y 7/1-light gray D50: 0.2423 mm % Fines: 2.3
-31.2	6.8		SAND, poorly-graded, mostly fine-grained sand-sized quartz, trace silt, trace shell fragments, gray (SP)	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



**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'

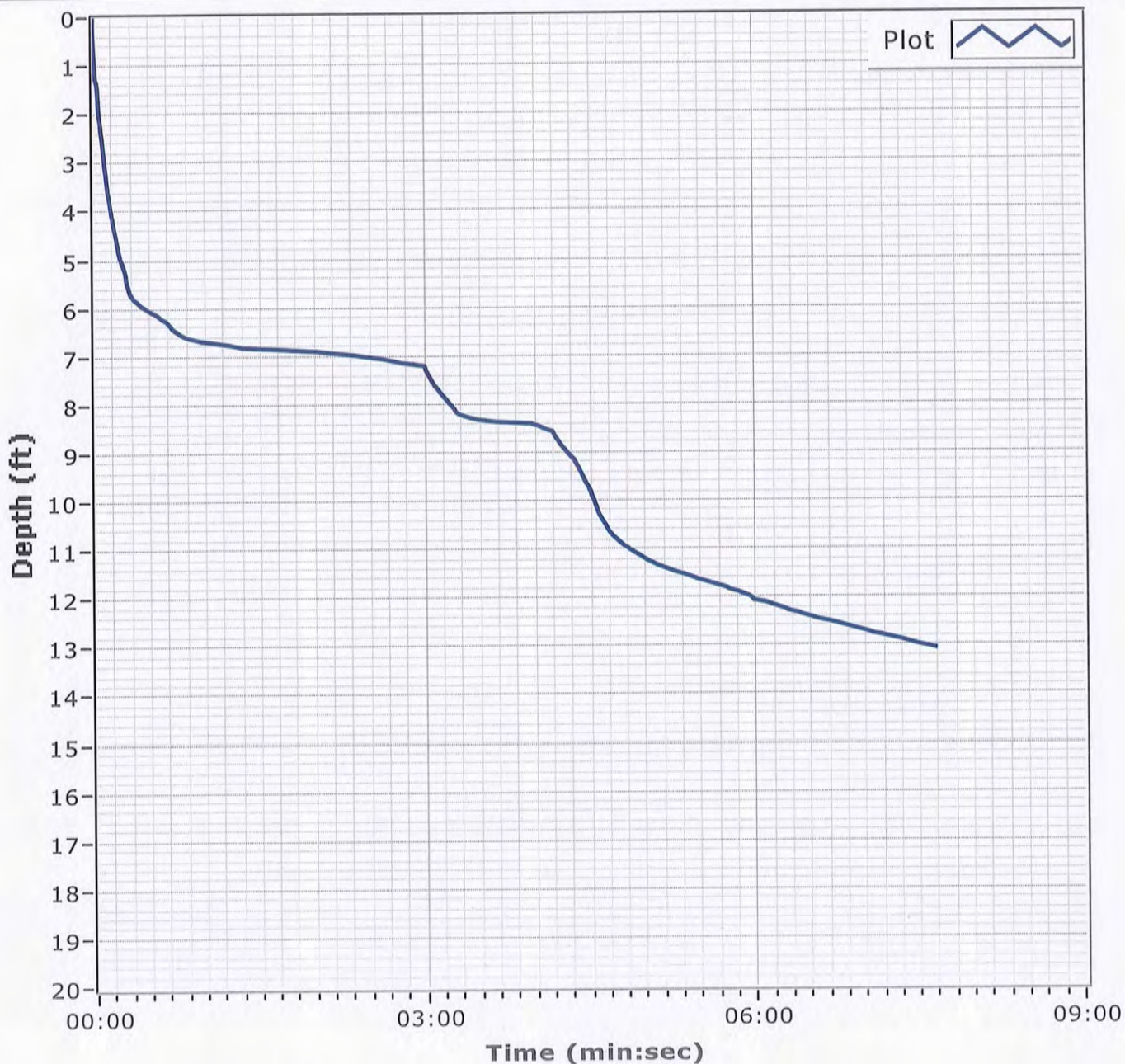
**Latitude** 30 12.153

**Total Time** 00:07:39

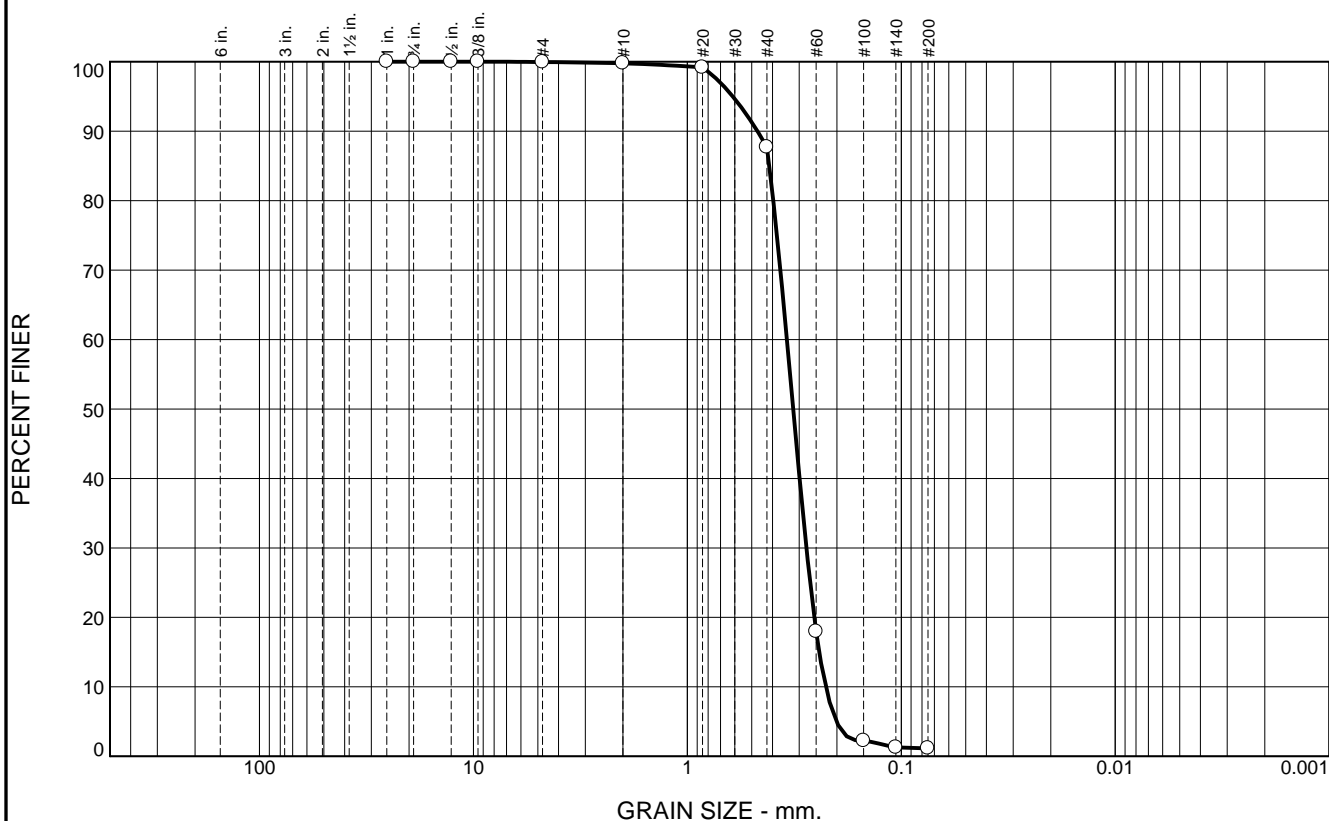
**Recovery** 11.8'

**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		

**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**

\* (no specification provided)

**Location:** BI-PB-220-12 A  
**Sample Number:** 6480 (56)

**Depth:** 0.0'

**Date:** 12/07/12

**Thompson Engineering**

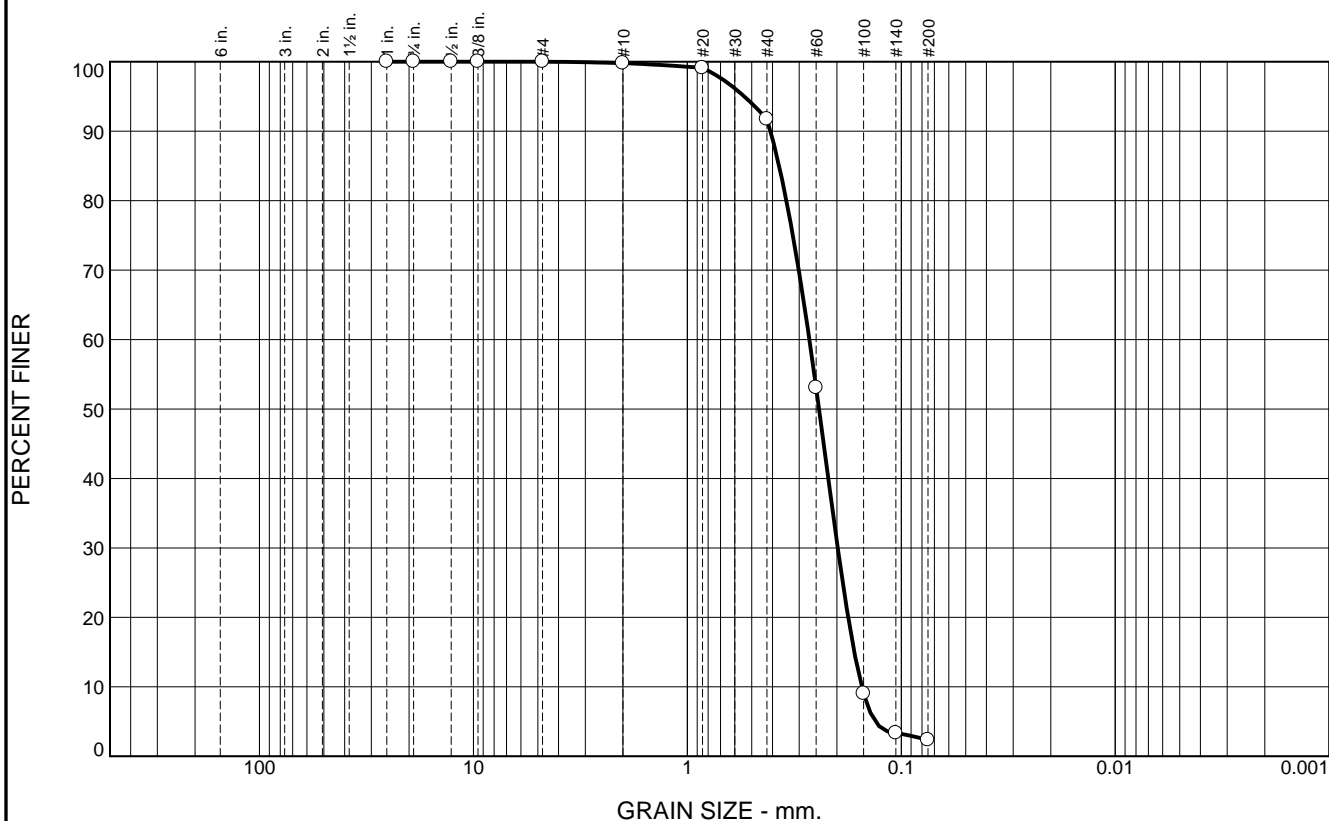
**Mobile, Alabama**

**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		

**Material Description**

Fine grained, SAND

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

**Coefficients**

D<sub>90</sub>= 0.4089                      D<sub>85</sub>= 0.3723                      D<sub>60</sub>= 0.2690

D<sub>50</sub>= 0.2423                      D<sub>30</sub>= 0.1982                      D<sub>15</sub>= 0.1660

D<sub>10</sub>= 0.1530                      C<sub>u</sub>= 1.76                      C<sub>c</sub>= 0.95

USCS= SP                      **Classification**                      AASHTO=

**Remarks**

\* (no specification provided)

**Location:** BI-PB-220-12 B  
**Sample Number:** 6480 (57)

**Depth:** 4.2'

**Date:** 12/07/12

**Thompson Engineering**

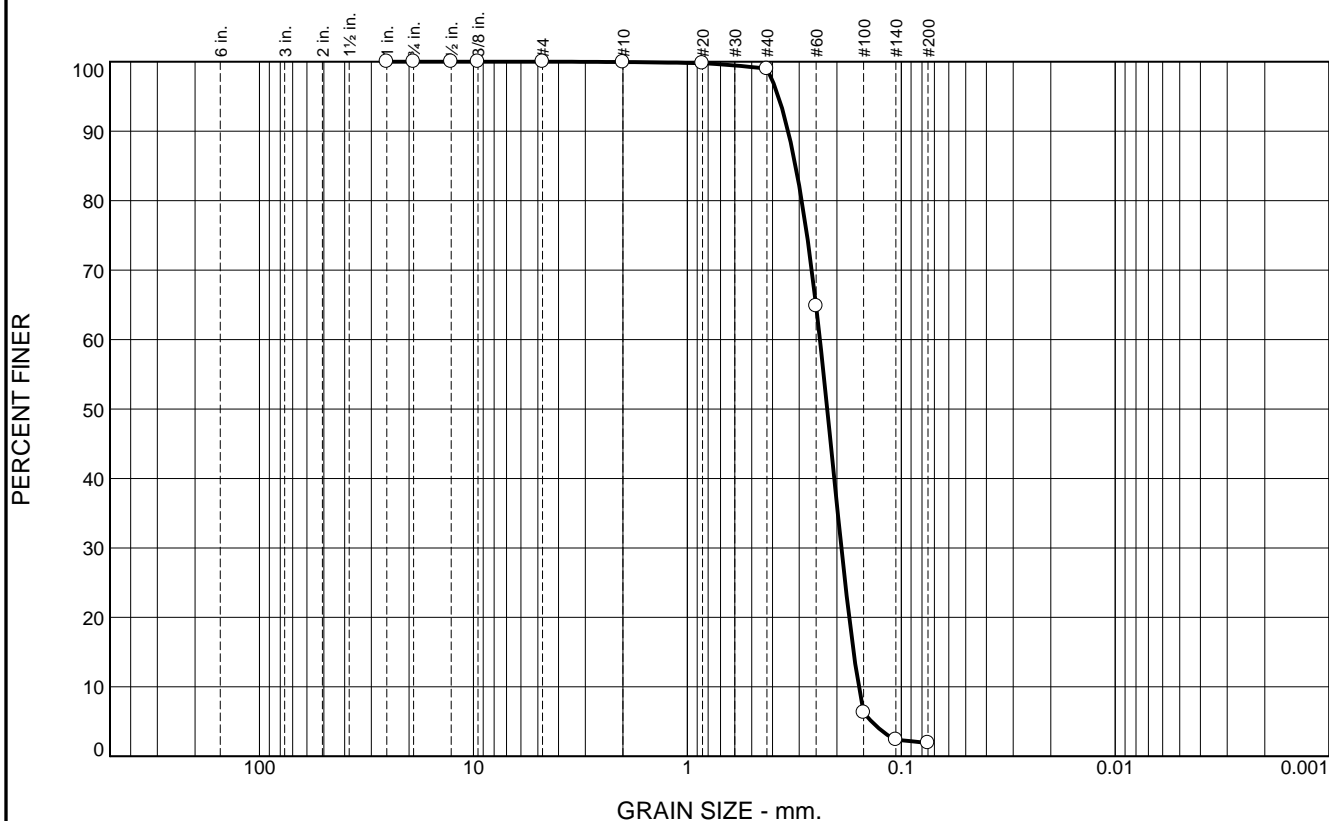
**Mobile, Alabama**

**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		

**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**

\* (no specification provided)

**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**

<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 West			<b>9. SIZE AND TYPE OF BIT</b> N/A	
<b>2. BORING DESIGNATION</b> BI-PB-221-12		<b>LOCATION COORDINATES</b> E = 1,130,189 N = 255,743		<b>10. COORDINATE SYSTEM/DATUM</b> State Plane, MSE (U.S. Ft.)
<b>3. DRILLING AGENCY</b> Corps of Engineers - CESAM		<b>CONTRACTOR FILE NO.</b>		<b>HORIZONTAL</b> NAD83
<b>4. NAME OF DRILLER</b> American Vibracore Systems, Inc.		<b>11. MANUFACTURER'S DESIGNATION OF DRILL</b> Vibracore		<input type="checkbox"/> <b>AUTO HAMMER</b> <input type="checkbox"/> <b>MANUAL HAMMER</b>
<b>5. DIRECTION OF BORING</b> <input checked="" type="checkbox"/> <b>VERTICAL</b> <input type="checkbox"/> <b>INCLINED</b>		<b>DEG. FROM VERTICAL</b>	<b>BEARING</b>	<b>12. TOTAL SAMPLES</b>
<b>6. THICKNESS OF OVERBURDEN</b> N/A		<b>13. TOTAL NUMBER CORE BOXES</b>		<b>DISTURBED</b>
<b>7. DEPTH DRILLED INTO ROCK</b> N/A		<b>14. WATER DEPTH</b> 22 Ft.		<b>UNDISTURBED (UD)</b> 0
<b>8. TOTAL DEPTH OF BORING</b> 16.3 Ft.		<b>15. DATE BORING</b>		<b>STARTED</b> 12-13-12
		<b>16. ELEVATION TOP OF BORING</b> -22.4 Ft.		<b>COMPLETED</b> 12-13-12
		<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
-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



**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'

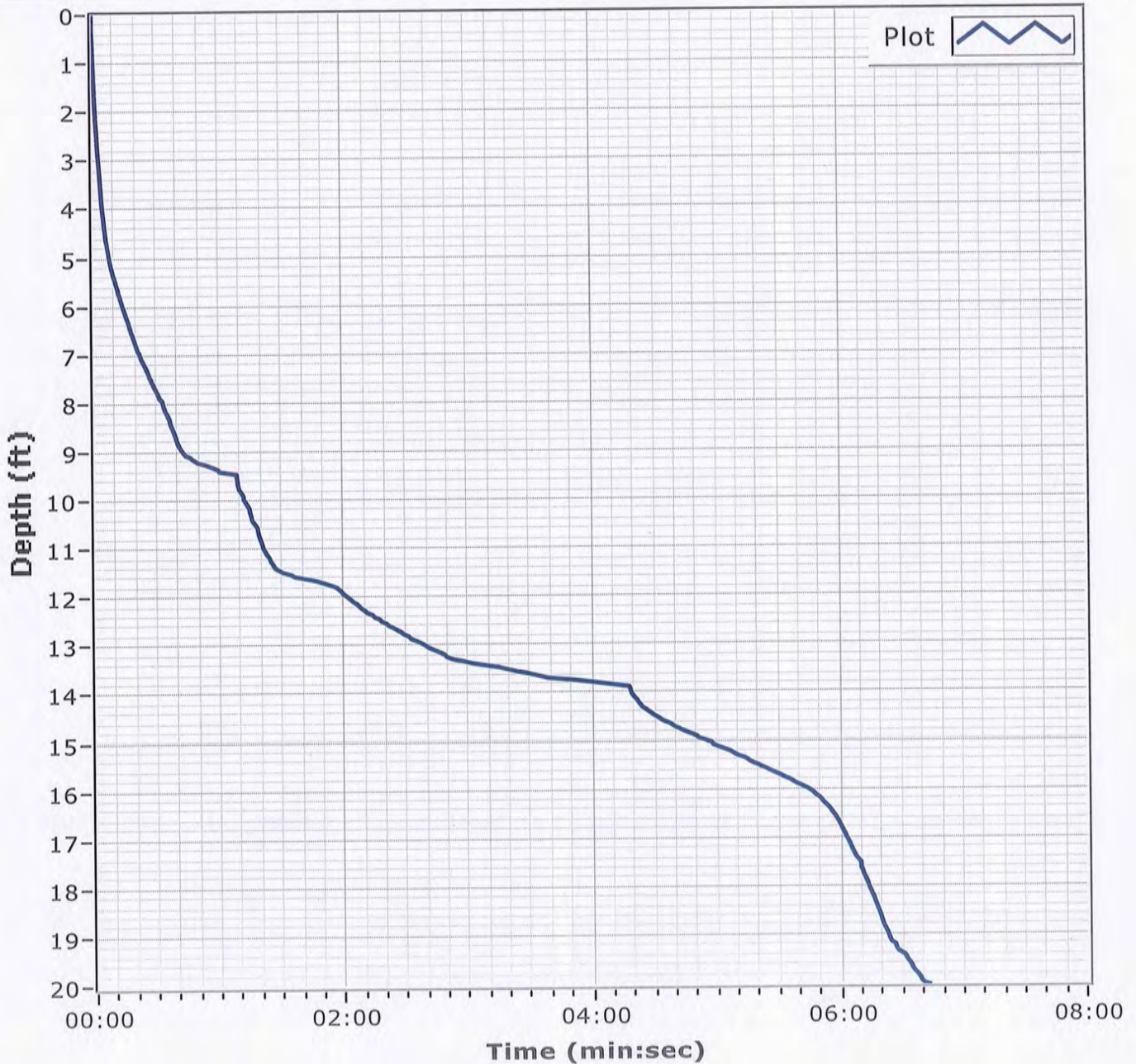
**Latitude** 30 12.146

**Total Time** 00:06:43

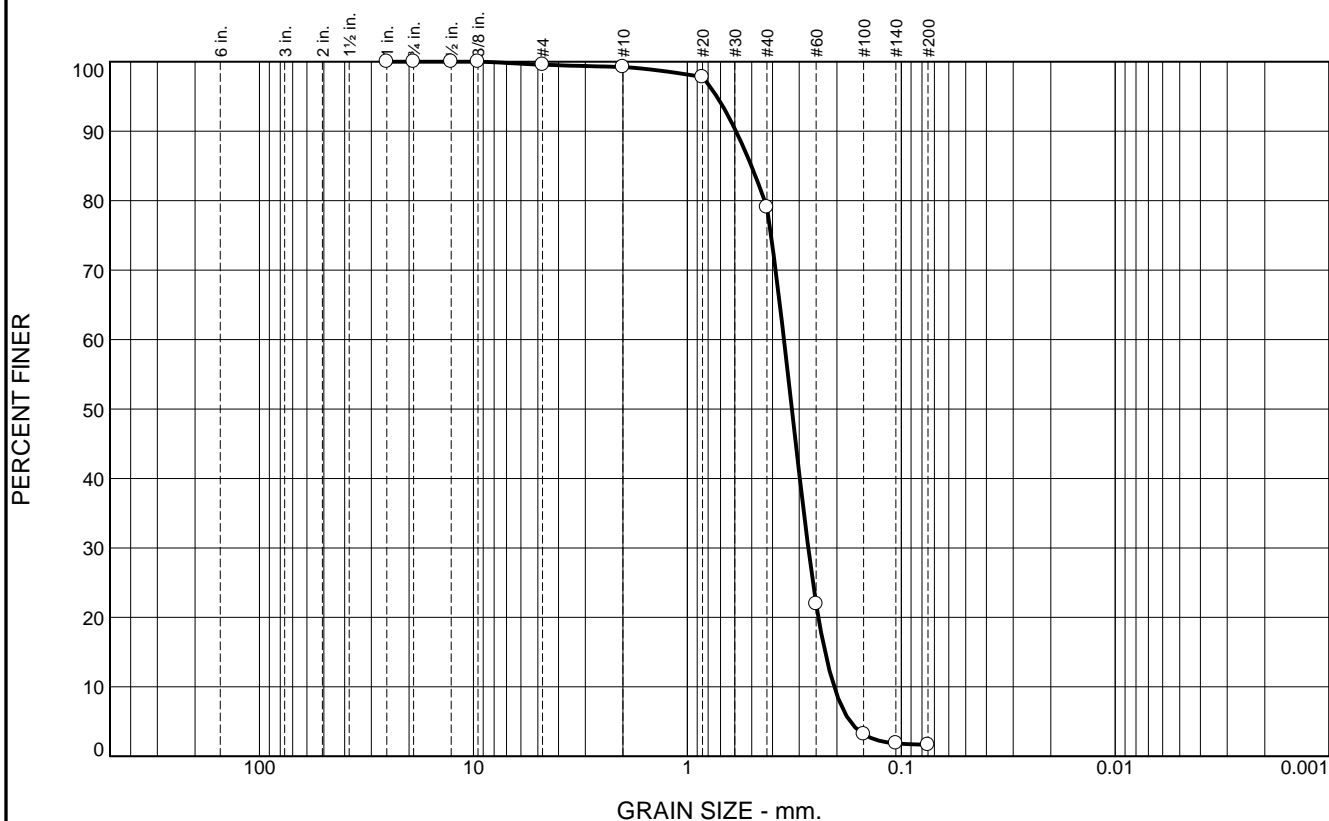
**Recovery** 16.2'

**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		

**Material Description**

Fine to medium grained, SAND

**Atterberg Limits**

PL=                      LL=                      PI=

**Coefficients**

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

**Classification**

USCS= SP                      AASHTO=

**Remarks**

\* (no specification provided)

Location: BI-PB-221-12 A      Depth: 0.0'      Date: 12/07/12  
Sample Number: 6485 (43)

**Thompson Engineering**

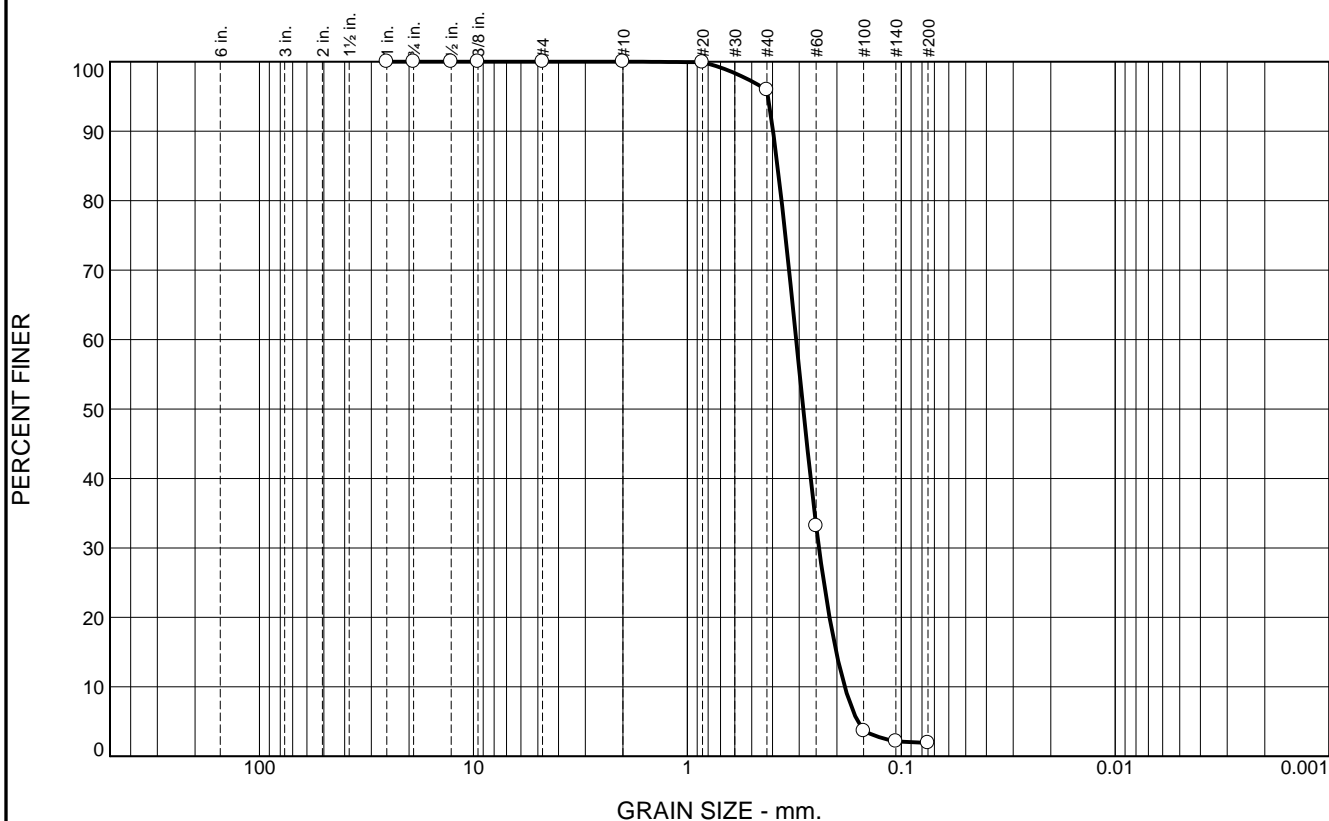
**Mobile, Alabama**

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		

**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**

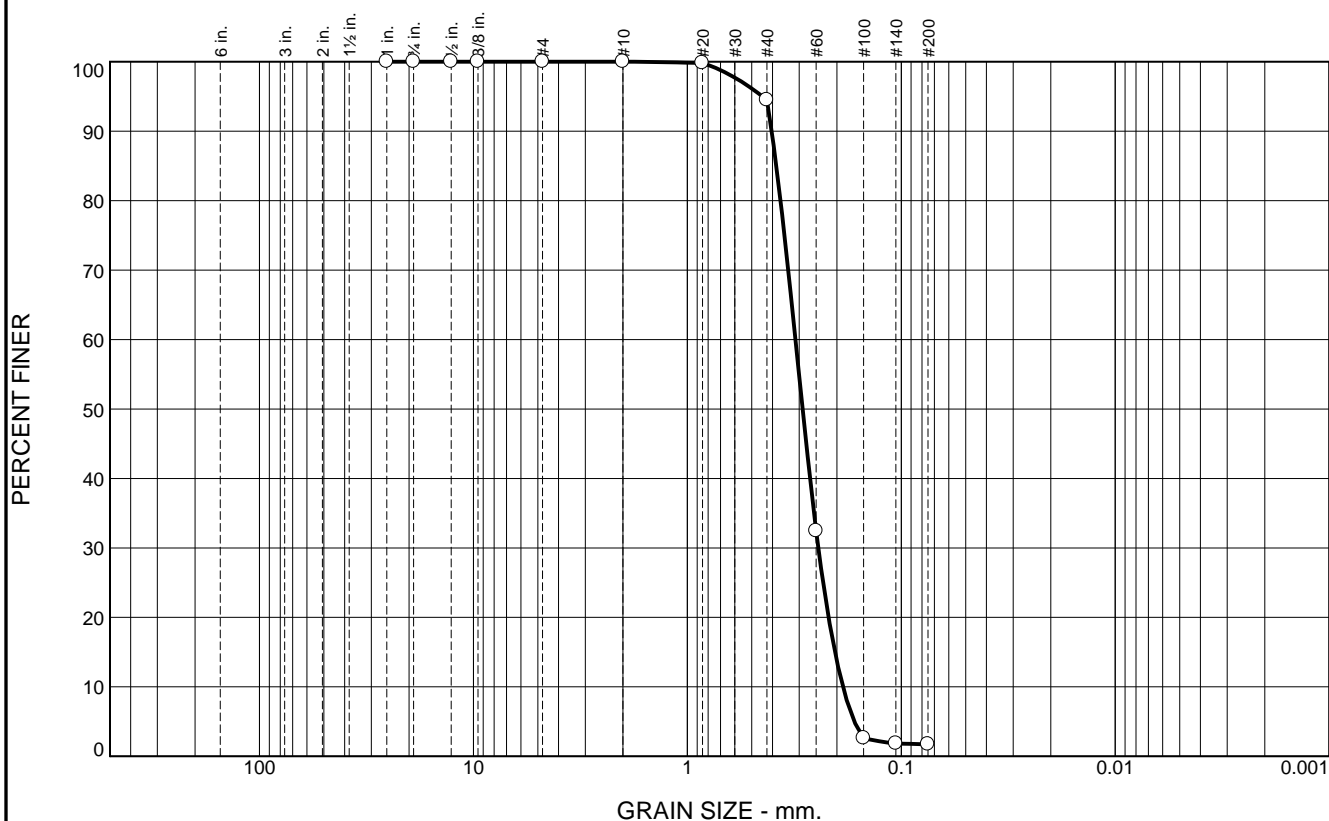
\* (no specification provided)

Location: BI-PB-221-12 B                      Depth: 5.0'                      Date: 12/07/12

Sample Number: 6485 (44)

<p><b>Thompson Engineering</b></p> <p><b>Mobile, Alabama</b></p>	<p>Client: CDM/Thompson Engineering JV</p> <p>Project: MsCIP Barrier Island Restoration GT</p> <p>Project No: 1221110095</p> <p style="text-align: right;">Figure</p>
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# 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		

**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**

\* (no specification provided)

Location: BI-PB-221-12 C      Depth: 10.0'      Date: 12/07/12  
Sample Number: 6485 (45)

<b>Thompson Engineering</b>  <b>Mobile, Alabama</b>	<b>Client:</b> CDM/Thompson Engineering JV <b>Project:</b> MsCIP Barrier Island Restoration GT  <b>Project No:</b> 1221110095 <b>Figure</b>
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**Boring Designation BI-PB-222-12**

<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 West		<b>9. SIZE AND TYPE OF BIT</b> N/A		
<b>2. BORING DESIGNATION</b> BI-PB-222-12		<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> Vibracore		<input type="checkbox"/> <b>AUTO HAMMER</b> <input type="checkbox"/> <b>MANUAL HAMMER</b>
<b>4. NAME OF DRILLER</b> American Vibracore Systems, Inc.		<b>12. TOTAL SAMPLES</b> DISTURBED:      UNDISTURBED (UD): 0		
<b>5. DIRECTION OF BORING</b> <input checked="" type="checkbox"/> <b>VERTICAL</b> <input type="checkbox"/> <b>INCLINED</b>		<b>13. TOTAL NUMBER CORE BOXES</b>		<b>14. WATER DEPTH</b> 22.8 Ft.
<b>6. THICKNESS OF OVERBURDEN</b> N/A		<b>15. DATE BORING</b> STARTED: 12-13-12      COMPLETED: 12-13-12		
<b>7. DEPTH DRILLED INTO ROCK</b> N/A		<b>16. ELEVATION TOP OF BORING</b> -23.6 Ft.		
<b>8. TOTAL DEPTH OF BORING</b> 16.6 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
-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



**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'

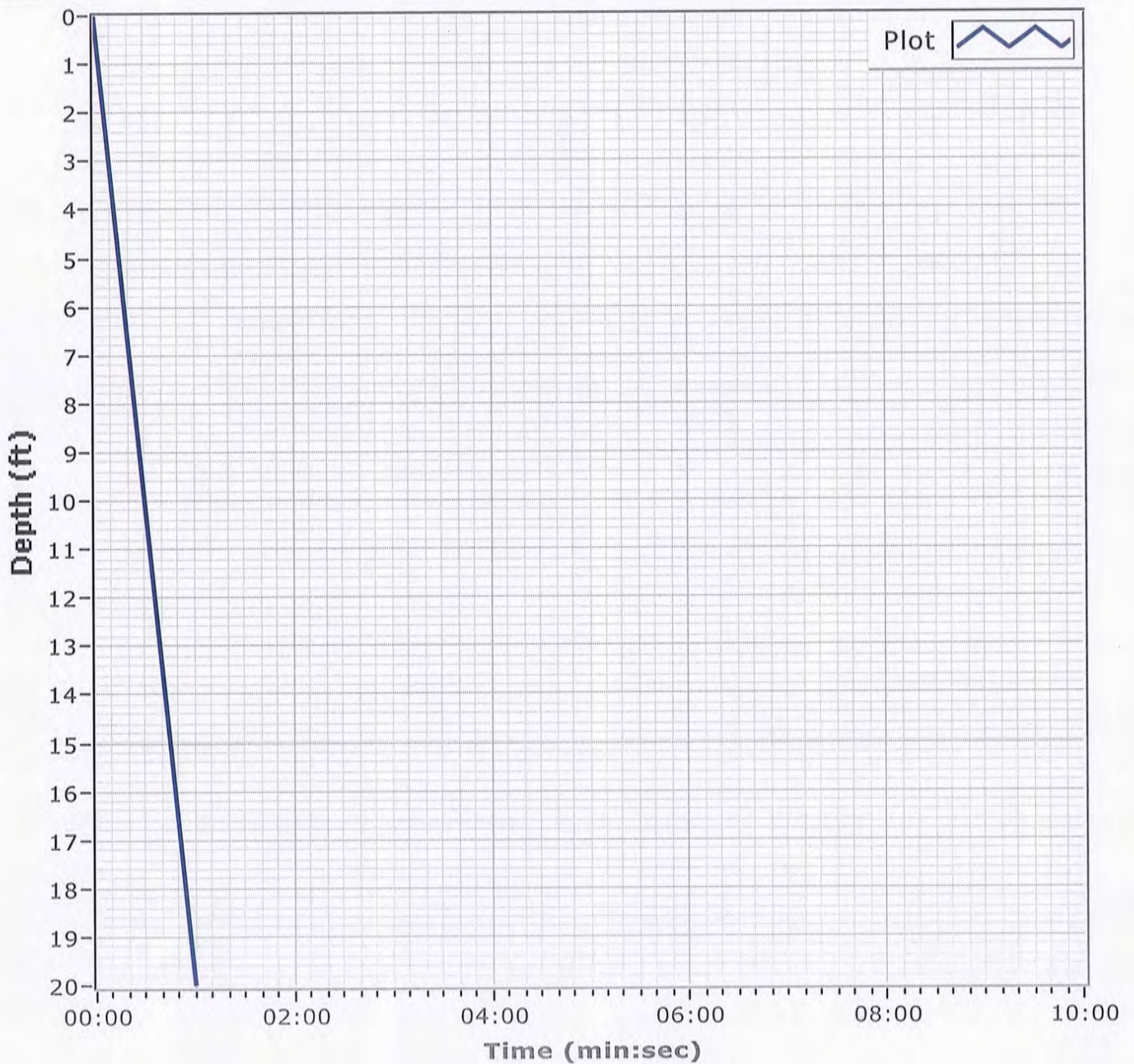
**Latitude** 30 12.134

**Total Time** 00:01:00

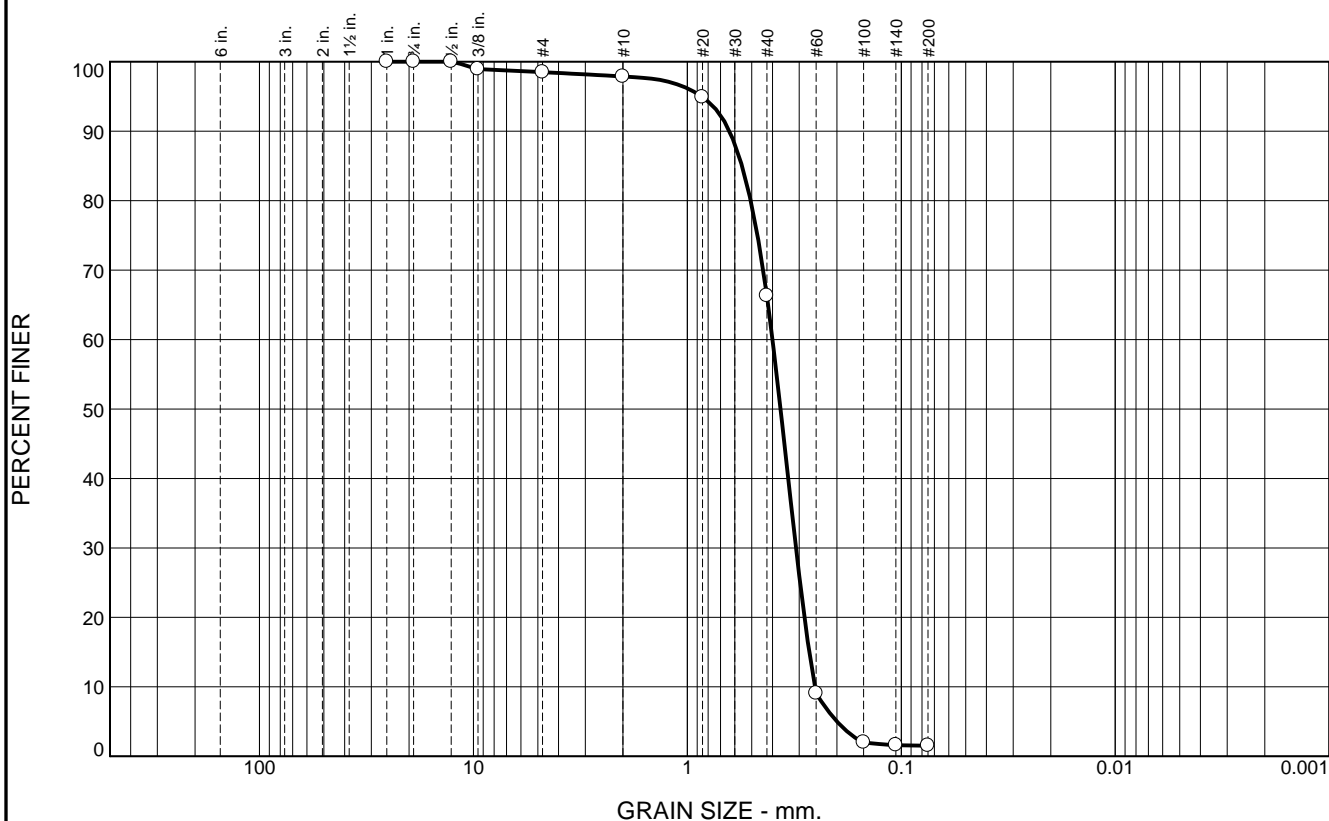
**Recovery** 16.6'

**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		

**Material Description**

Fine to medium grained, SAND, with trace SHELL

**Atterberg Limits**

PL=                      LL=                      PI=

**Coefficients**

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

**Classification**

USCS= SP                      AASHTO=

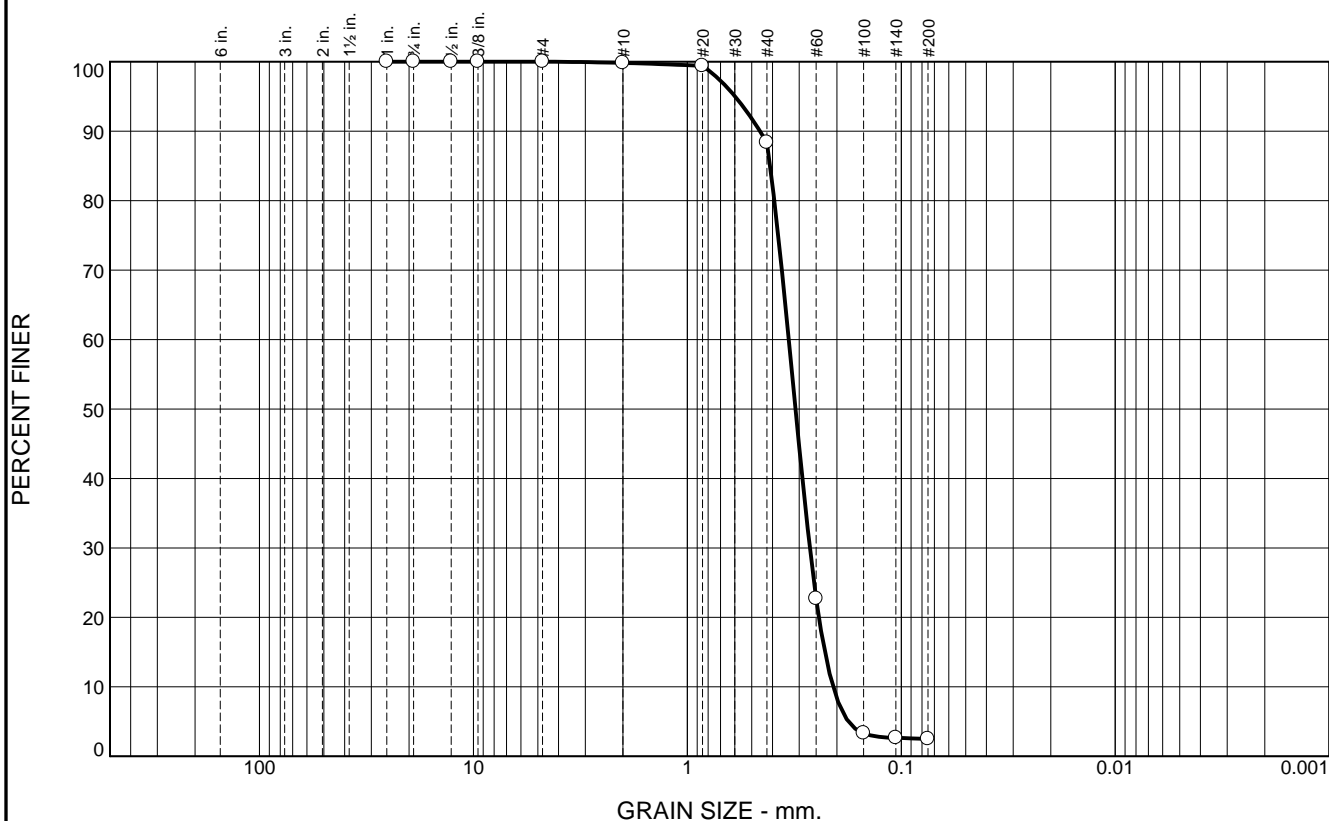
**Remarks**

\* (no specification provided)

Location: BI-PB-222-12 A                      Depth: 0.0'                      Date: 12/07/12  
Sample Number: 6485 (46)

<b>Thompson Engineering</b>  <b>Mobile, Alabama</b>	<b>Client:</b> CDM/Thompson Engineering JV <b>Project:</b> MsCIP Barrier Island Restoration GT  <b>Project No:</b> 1221110095 <b>Figure</b>
---	--

# 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		

**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=

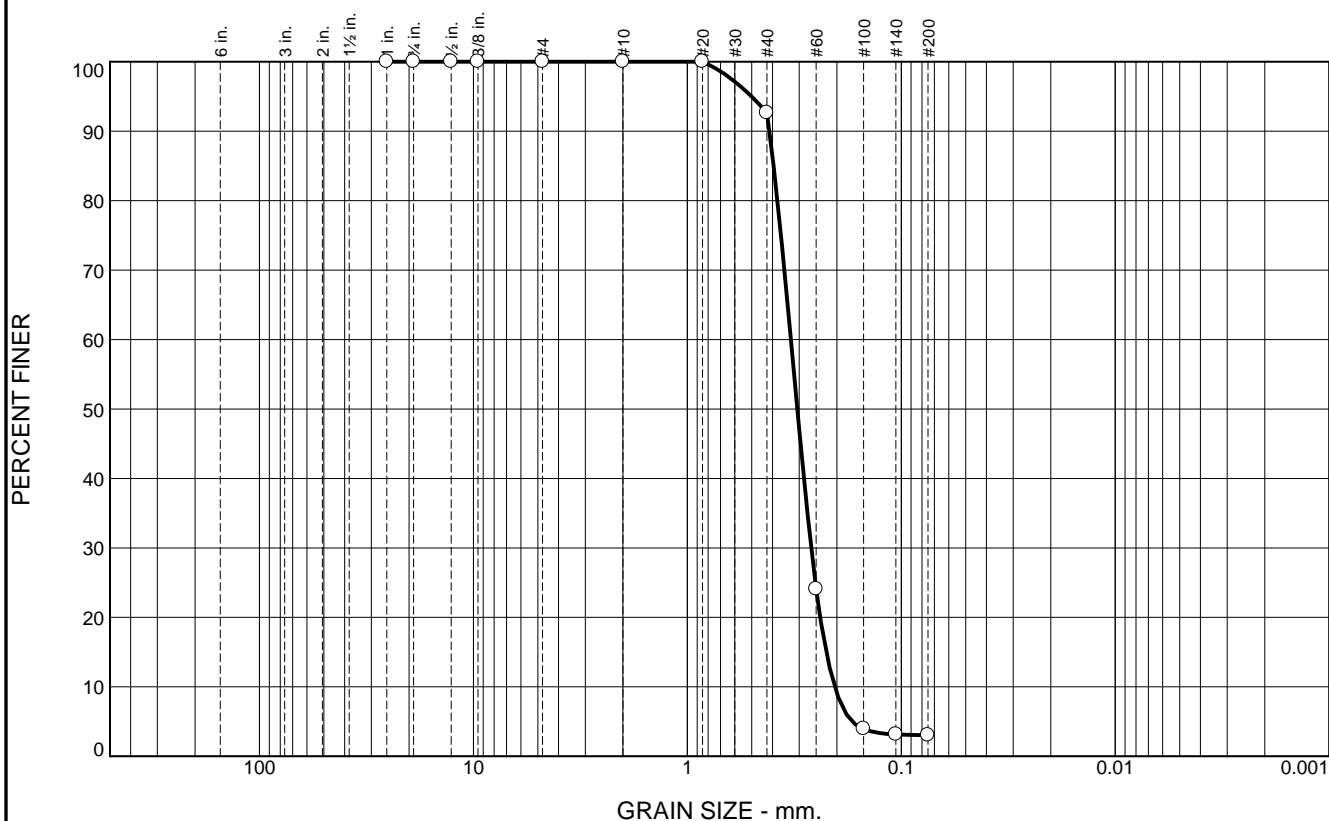
**Remarks**

\* (no specification provided)

Location: BI-PB-222-12 B      Depth: 5.0'      Date: 12/07/12  
 Sample Number: 6485 (47)

<b>Thompson Engineering</b>  <b>Mobile, Alabama</b>	<b>Client:</b> CDM/Thompson Engineering JV <b>Project:</b> MsCIP Barrier Island Restoration GT  <b>Project No:</b> 1221110095 <b>Figure</b>
---	--

# 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		

**Material Description**

Fine grained, SAND

**Atterberg Limits**

PL=                      LL=                      PI=

**Coefficients**

D<sub>90</sub>= 0.4136      D<sub>85</sub>= 0.3951      D<sub>60</sub>= 0.3282  
D<sub>50</sub>= 0.3064      D<sub>30</sub>= 0.2638      D<sub>15</sub>= 0.2242  
D<sub>10</sub>= 0.2047      C<sub>u</sub>= 1.60              C<sub>c</sub>= 1.04

**Classification**

USCS= SP                      AASHTO=

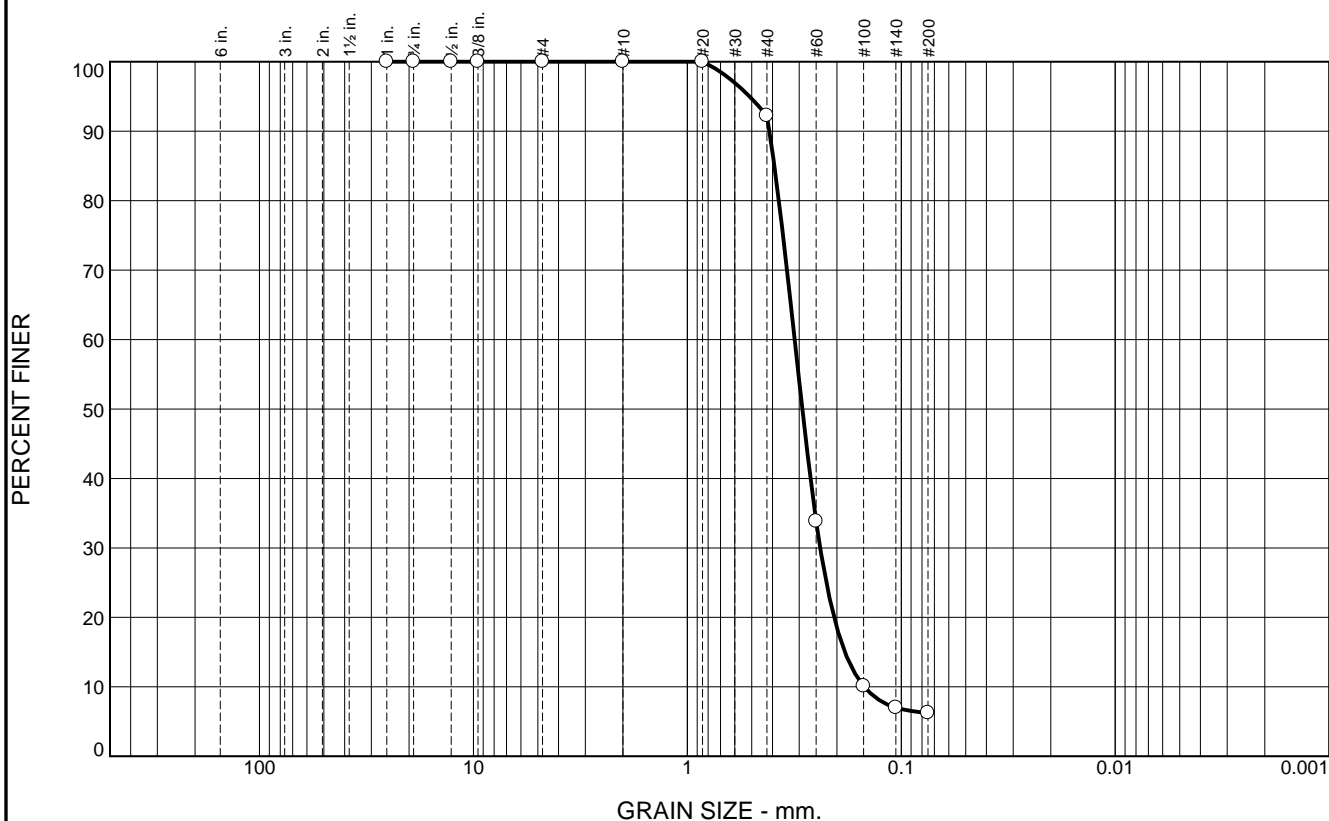
**Remarks**

\* (no specification provided)

Location: BI-PB-222-12 C      Depth: 10.0'      Date: 12/07/12  
Sample Number: 6485 (48)

<b>Thompson Engineering</b>  <b>Mobile, Alabama</b>	<b>Client:</b> CDM/Thompson Engineering JV <b>Project:</b> MsCIP Barrier Island Restoration GT  <b>Project No:</b> 1221110095 <b>Figure</b>
---	--

# 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		

**Material Description**  
Fine grained, SLIGHTLY SILTY SAND

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

**Coefficients**  
 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

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

**Remarks**

\* (no specification provided)

**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**

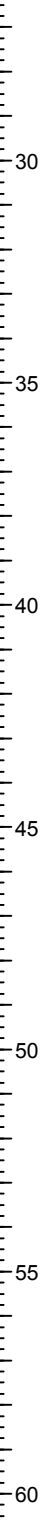


**Boring Designation BI-PB-223-12**

<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 West			<b>9. SIZE AND TYPE OF BIT</b> N/A	
<b>2. BORING DESIGNATION</b> BI-PB-223-12		<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> Vibracore		<input type="checkbox"/> <b>AUTO HAMMER</b> <input type="checkbox"/> <b>MANUAL HAMMER</b>
<b>4. NAME OF DRILLER</b> American Vibracore Systems, Inc.		<b>12. TOTAL SAMPLES</b>		<b>DISTURBED</b> 0
<b>5. DIRECTION OF BORING</b> <input checked="" type="checkbox"/> <b>VERTICAL</b> <input type="checkbox"/> <b>INCLINED</b>		<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> 25 Ft.		<b>15. DATE BORING</b> <b>STARTED</b> 12-13-12 <b>COMPLETED</b> 12-13-12
<b>7. DEPTH DRILLED INTO ROCK</b> N/A		<b>16. ELEVATION TOP OF BORING</b> -24.7 Ft.		<b>17. TOTAL RECOVERY FOR BORING</b> 100%
<b>8. TOTAL DEPTH OF BORING</b> 20.0 Ft.		<b>18. SIGNATURE AND TITLE OF INSPECTOR</b> 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.		
ELEV.	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS	SAMPLE	LABORATORY RESULTS
			USACE survey.		



**Project**

Mississippi Barrier Island  
Restoration Project



**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'

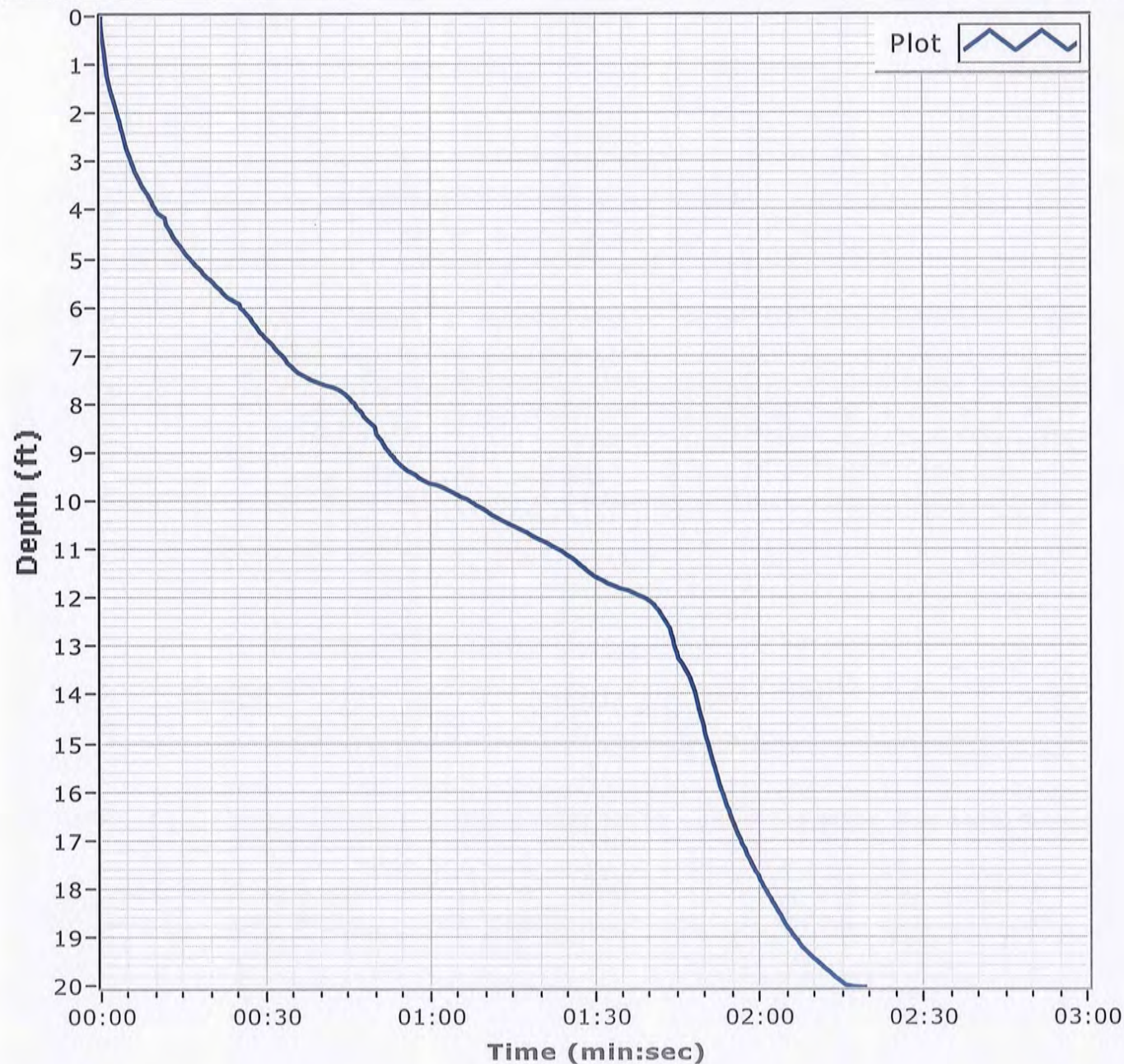
**Latitude** 30 12.038

**Total Time** 00:02:19

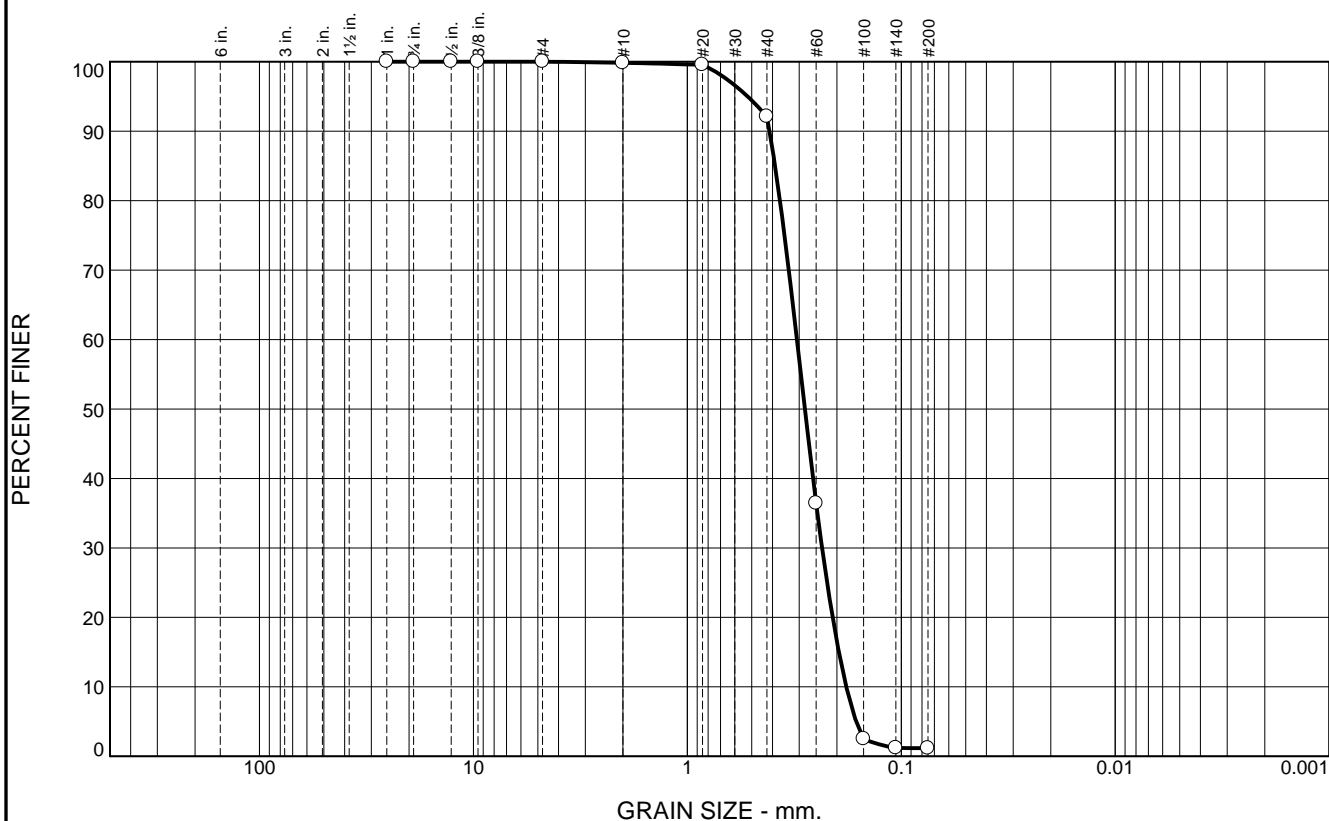
**Recovery** 20.0'

**Longitude** 088 22.109

**Comments**



# Particle Size Distribution Report



% +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		

**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**

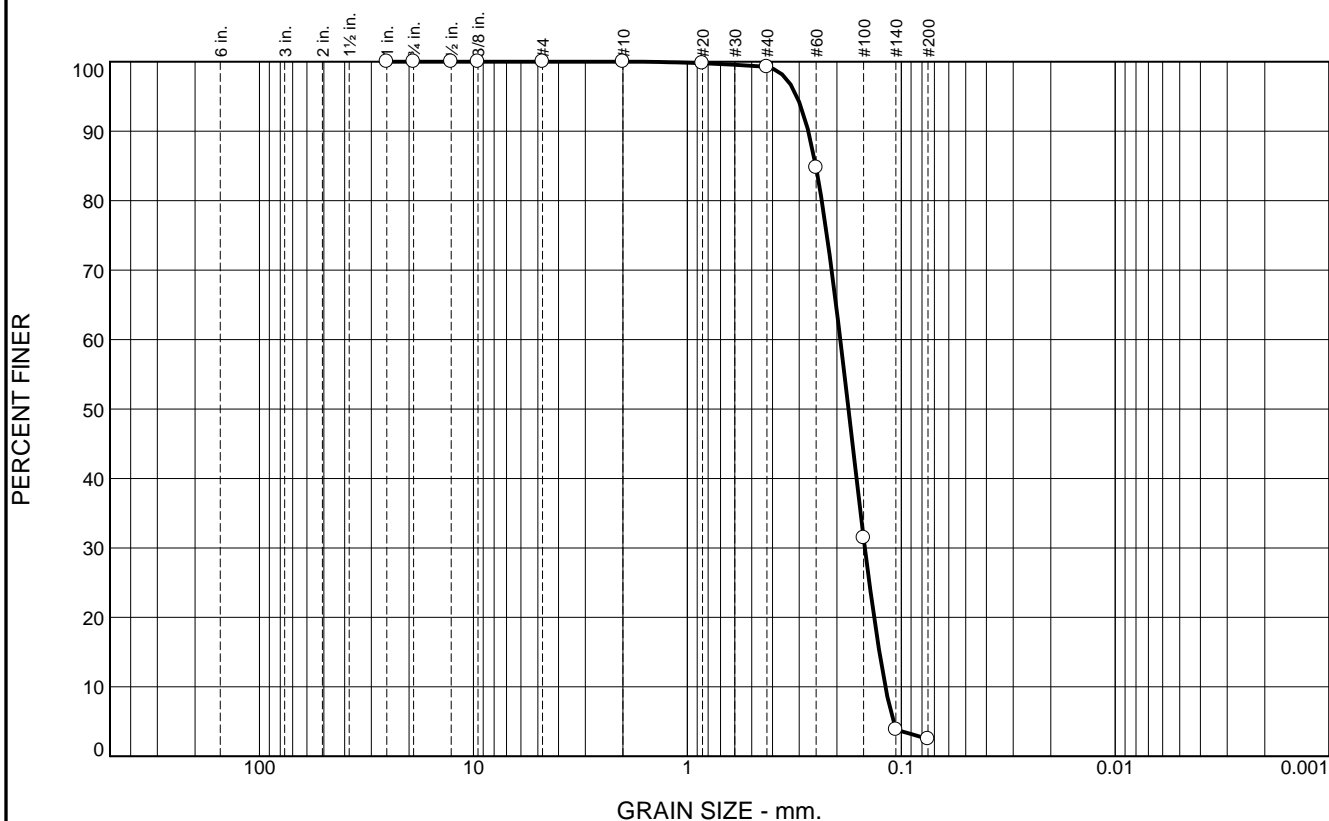
\* (no specification provided)

Location: BI-PB-223-12 A                      Depth: 0.0'                      Date: 12/07/12

Sample Number: 6485 (50)

<p><b>Thompson Engineering</b></p> <p><b>Mobile, Alabama</b></p>	<p>Client: CDM/Thompson Engineering JV</p> <p>Project: MsCIP Barrier Island Restoration GT</p> <p>Project No: 1221110095</p> <p style="text-align: right;">Figure</p>
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# 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		

**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**

\* (no specification provided)

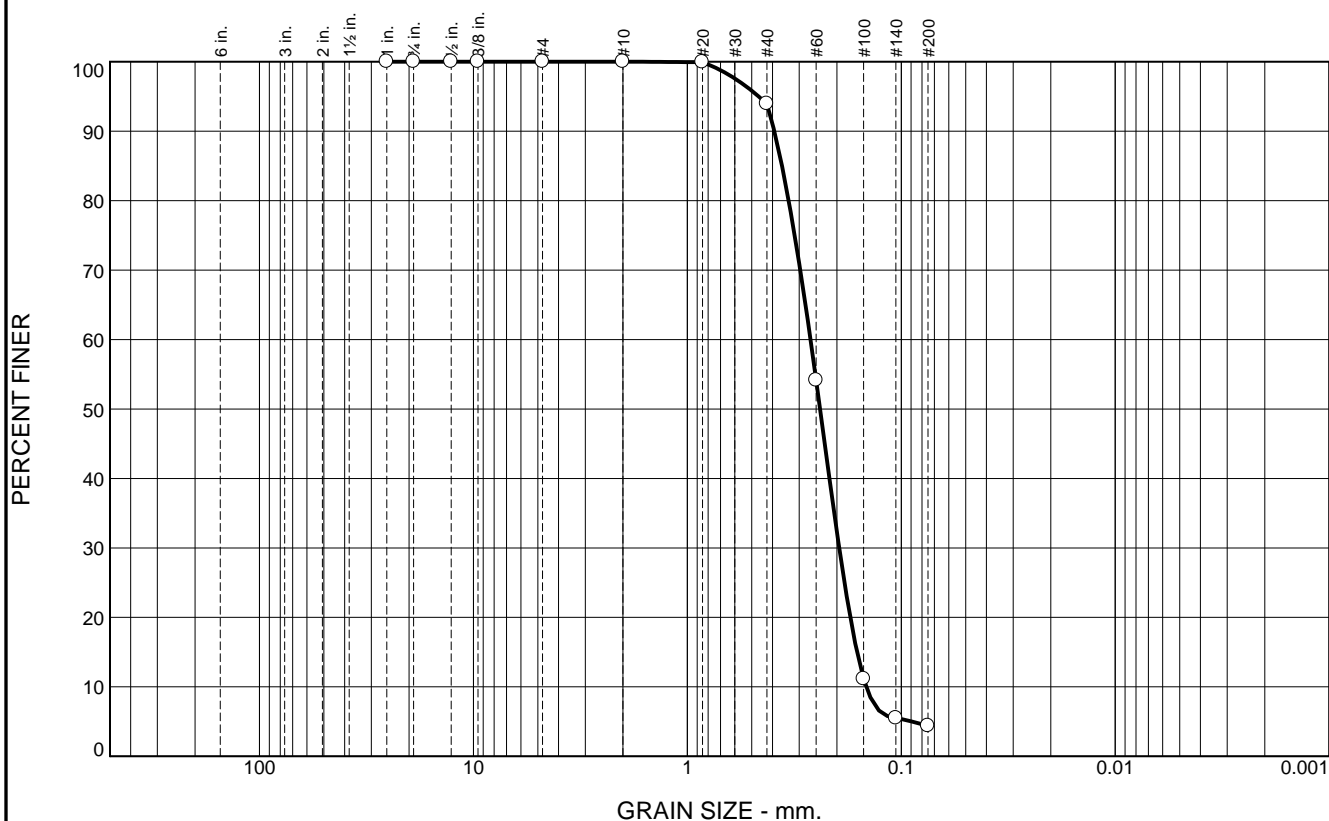
Location: BI-PB-223-12 B                      Depth: 5.0'                      Date: 12/07/12

Sample Number: 6485 (51)

<b>Thompson Engineering</b>  <b>Mobile, Alabama</b>	<b>Client:</b> CDM/Thompson Engineering JV <b>Project:</b> MsCIP Barrier Island Restoration GT  <b>Project No:</b> 1221110095 <b>Figure</b>
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# 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		

**Material Description**

Fine grained, SAND

**Atterberg Limits**

PL=                      LL=                      PI=

**Coefficients**

D<sub>90</sub>= 0.3921              D<sub>85</sub>= 0.3610              D<sub>60</sub>= 0.2657

D<sub>50</sub>= 0.2397              D<sub>30</sub>= 0.1951              D<sub>15</sub>= 0.1611

D<sub>10</sub>= 0.1459              C<sub>u</sub>= 1.82                      C<sub>c</sub>= 0.98

**Classification**

USCS= SP                      AASHTO=

**Remarks**

\* (no specification provided)

Location: BI-PB-223-12 C                      Depth: 10.0'                      Date: 12/07/12

Sample Number: 6485 (52)

<p><b>Thompson Engineering</b></p> <p><b>Mobile, Alabama</b></p>	<p>Client: CDM/Thompson Engineering JV</p> <p>Project: MsCIP Barrier Island Restoration GT</p> <p>Project No: 1221110095</p> <p style="text-align: right;">Figure</p>
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**Boring Designation BI-PB-224-12**

<b>DRILLING LOG</b>		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		10. COORDINATE SYSTEM/DATUM State Plane, MSE (U.S. Ft.)		HORIZONTAL NAD83
3. DRILLING AGENCY Corps of Engineers - CESAM		11. MANUFACTURER'S DESIGNATION OF DRILL Vibracore		VERTICAL NAVD88
4. NAME OF DRILLER American Vibracore Systems, Inc.		12. TOTAL SAMPLES		
5. DIRECTION OF BORING <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED		13. TOTAL NUMBER CORE BOXES		DISTURBED 0
6. THICKNESS OF OVERBURDEN N/A		14. WATER DEPTH 23.8 Ft.		
7. DEPTH DRILLED INTO ROCK N/A		15. DATE BORING		STARTED 12-13-12
8. TOTAL DEPTH OF BORING 20.0 Ft.		16. ELEVATION TOP OF BORING -24.7 Ft.		COMPLETED 12-13-12
		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>LOCATION COORDINATES</b> X = 1,130,179    Y = 254,434			<b>ELEVATION TOP OF BORING</b> -24.7 Ft.		
ELEV.	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS	SAMPLE	LABORATORY RESULTS
			3. Seafloor elevation determined from 2010 USACE survey.		



**Project**

Mississippi Barrier Island  
Restoration Project



**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'

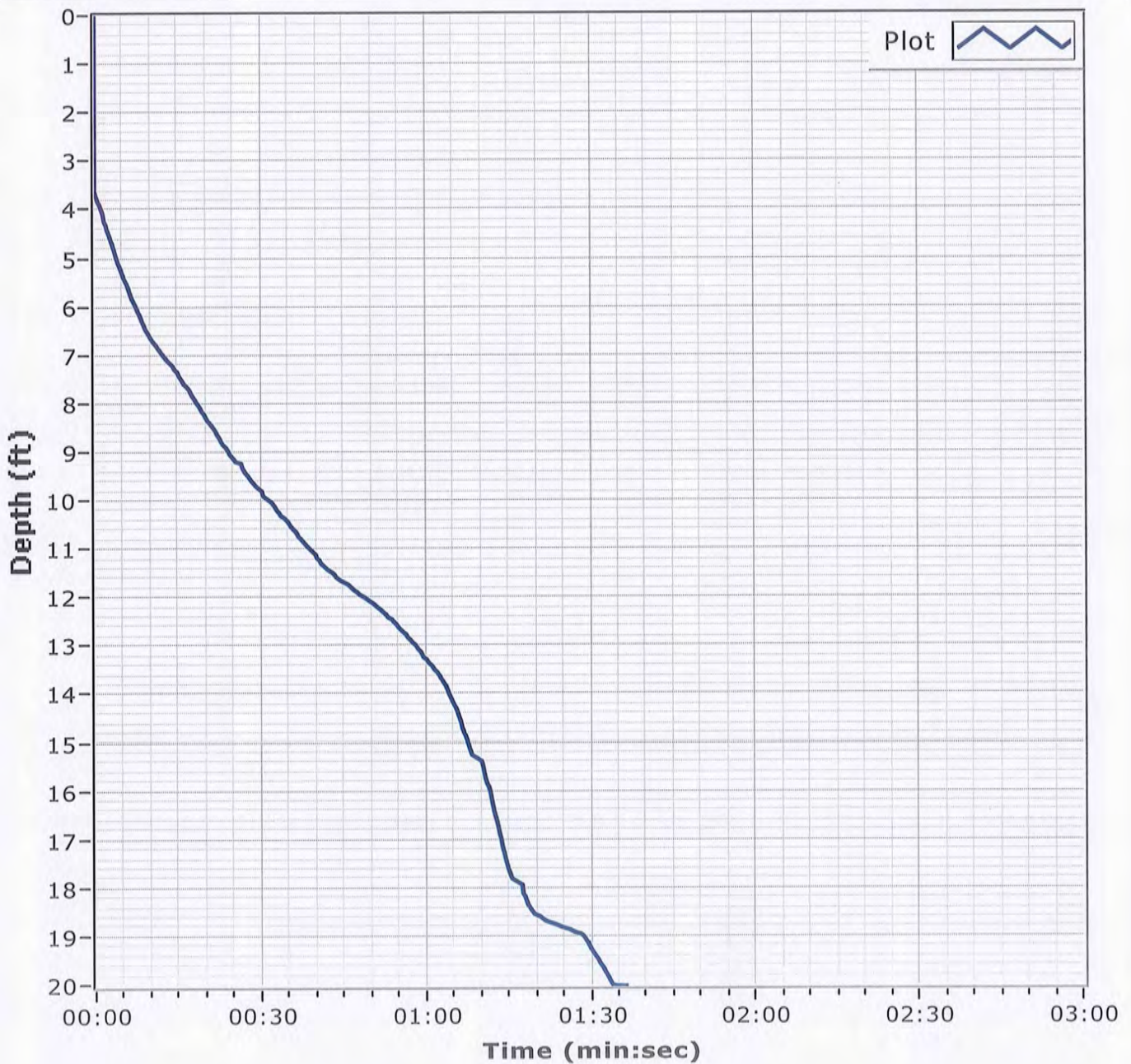
**Latitude** 30 11.930

**Total Time** 00:01:36

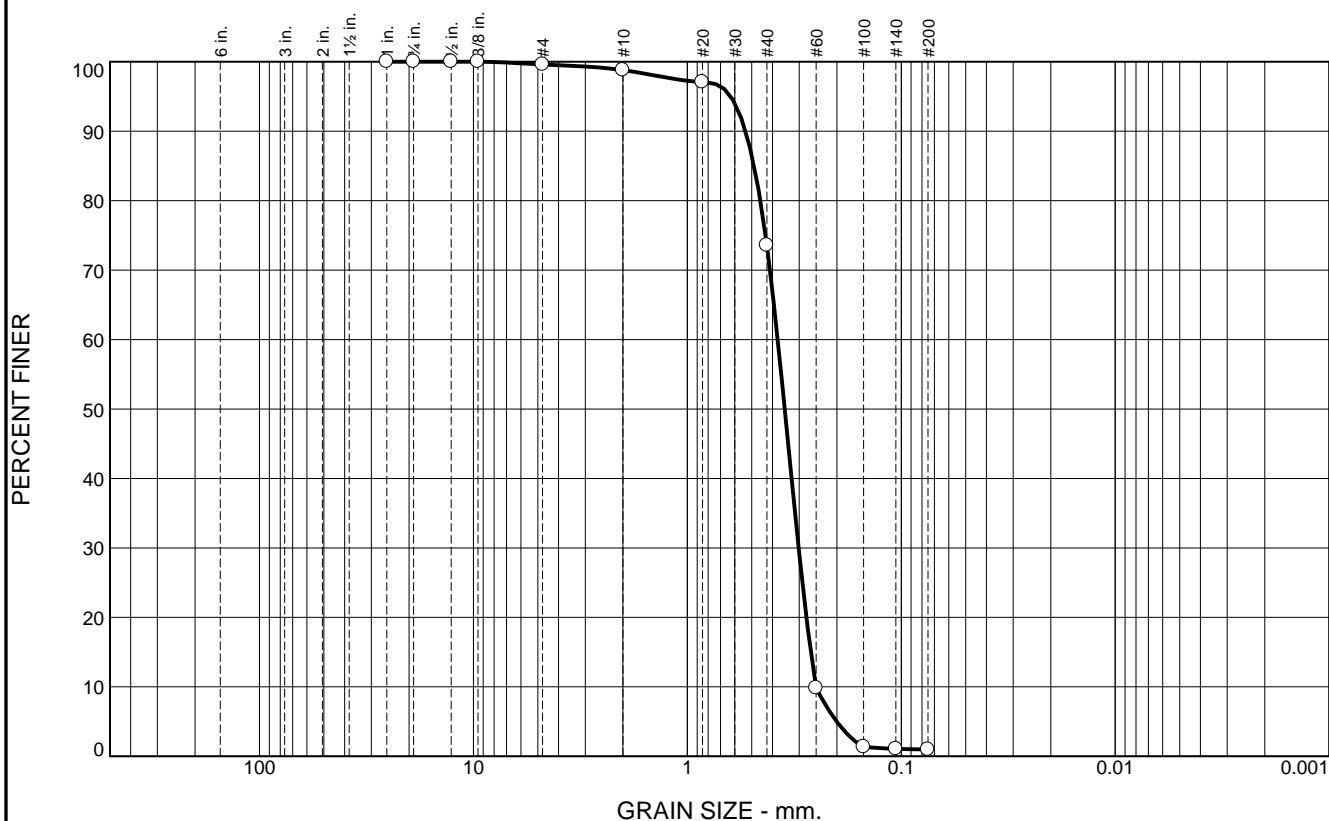
**Recovery** 20.0'

**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		

**Material Description**

Fine to medium grained, SAND

**Atterberg Limits**

PL=                      LL=                      PI=

**Coefficients**

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

**Classification**

USCS= SP                      AASHTO=

**Remarks**

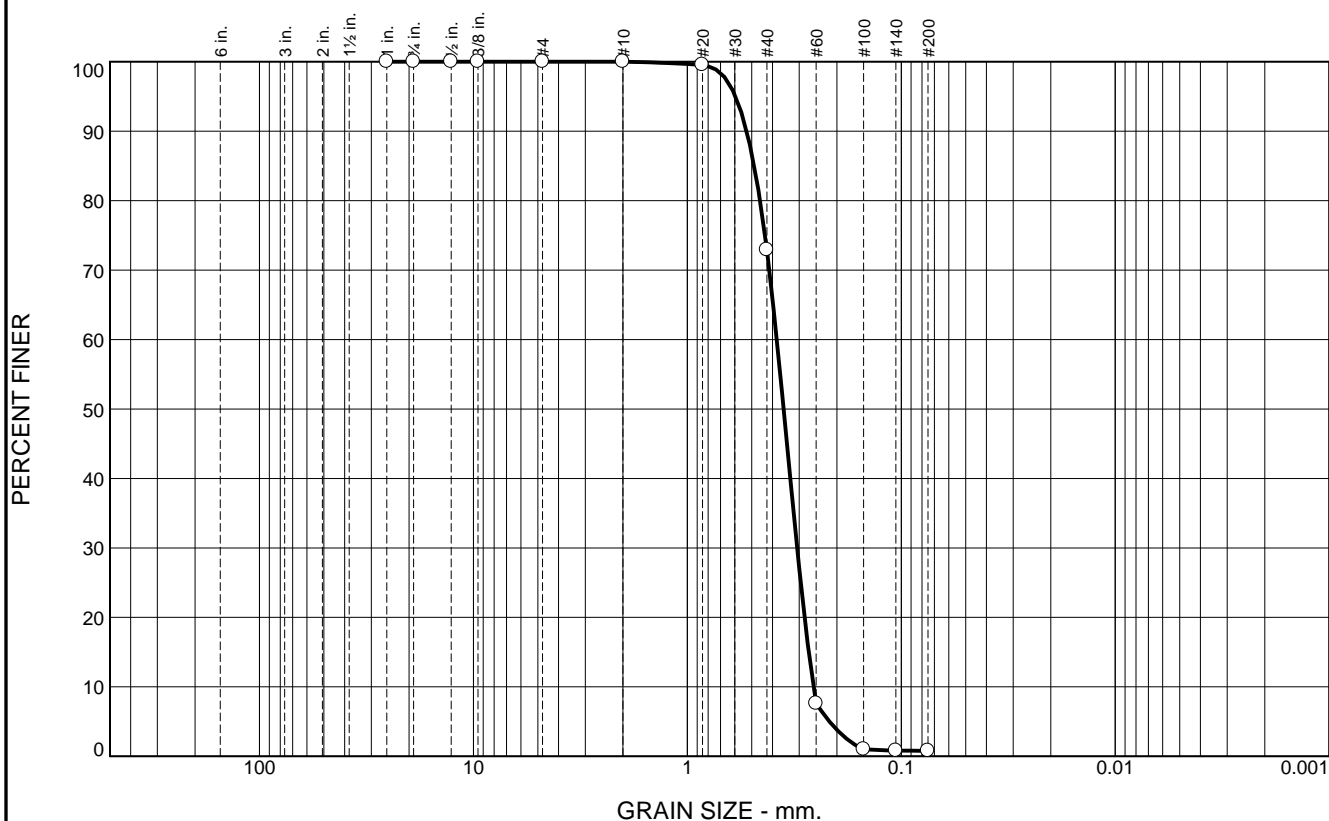
\* (no specification provided)

Location: BI-PB-224-12 A                      Depth: 0.0'                      Date: 12/07/12  
Sample Number: 6485 (53)

<b>Thompson Engineering</b>  <b>Mobile, Alabama</b>	<b>Client:</b> CDM/Thompson Engineering JV <b>Project:</b> MsCIP Barrier Island Restoration GT  <b>Project No:</b> 1221110095 <b>Figure</b>
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# 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		

**Material Description**  
Fine to medium grained, SAND

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

**Coefficients**  
 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

**Classification**  
 USCS= SP                      AASHTO=

**Remarks**

\* (no specification provided)

**Location:** BI-PB-224-12 B  
**Sample Number:** 6485 (54)

**Depth:** 5.0'

**Date:** 12/07/12

**Thompson Engineering**

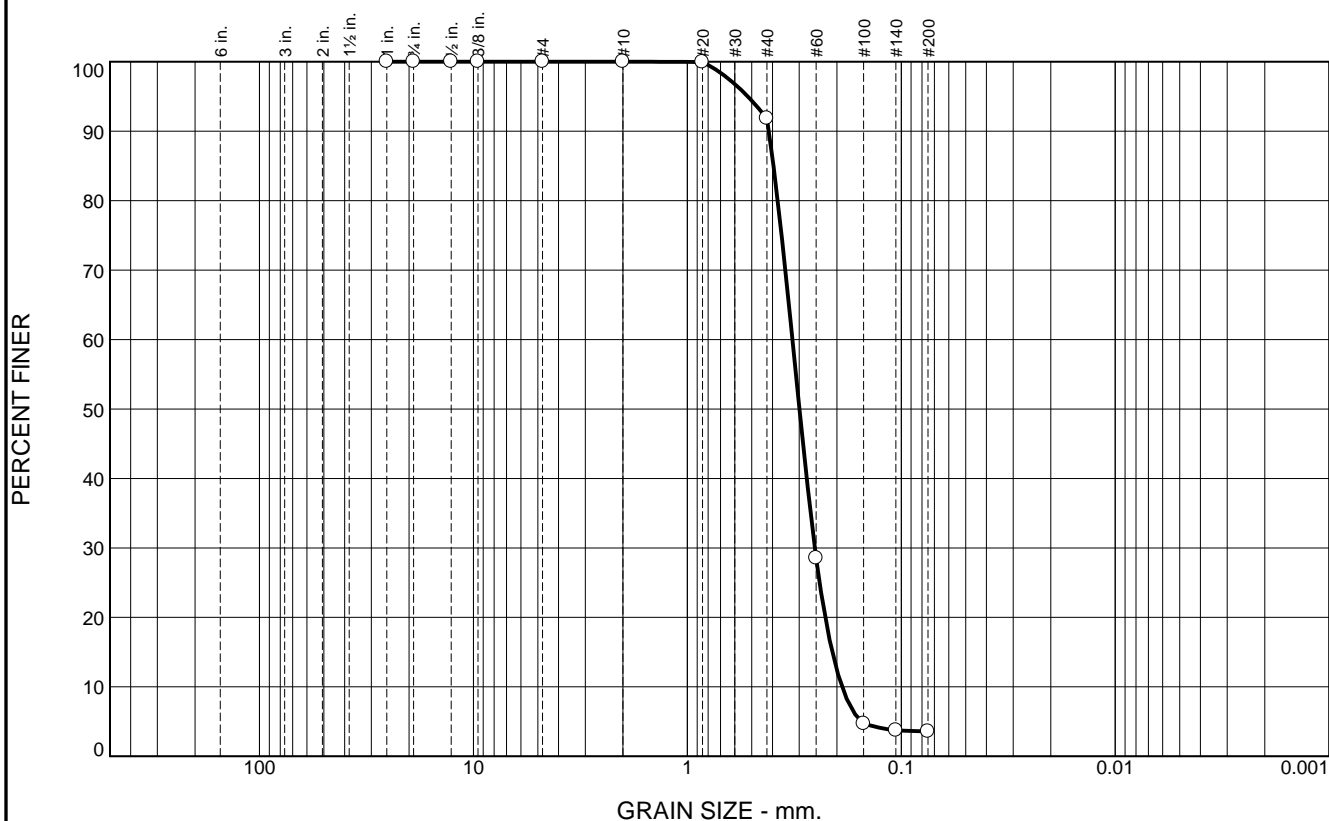
**Mobile, Alabama**

**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		

**Material Description**

Fine grained, SAND

**Atterberg Limits**

PL=                      LL=                      PI=

**Coefficients**

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

**Classification**

USCS= SP                      AASHTO=

**Remarks**

\* (no specification provided)

Location: BI-PB-224-12 C                      Depth: 10.0'                      Date: 12/07/12  
Sample Number: 6485 (55)

<b>Thompson Engineering</b>  <b>Mobile, Alabama</b>	<b>Client:</b> CDM/Thompson Engineering JV <b>Project:</b> MsCIP Barrier Island Restoration GT  <b>Project No:</b> 1221110095 <b>Figure</b>
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