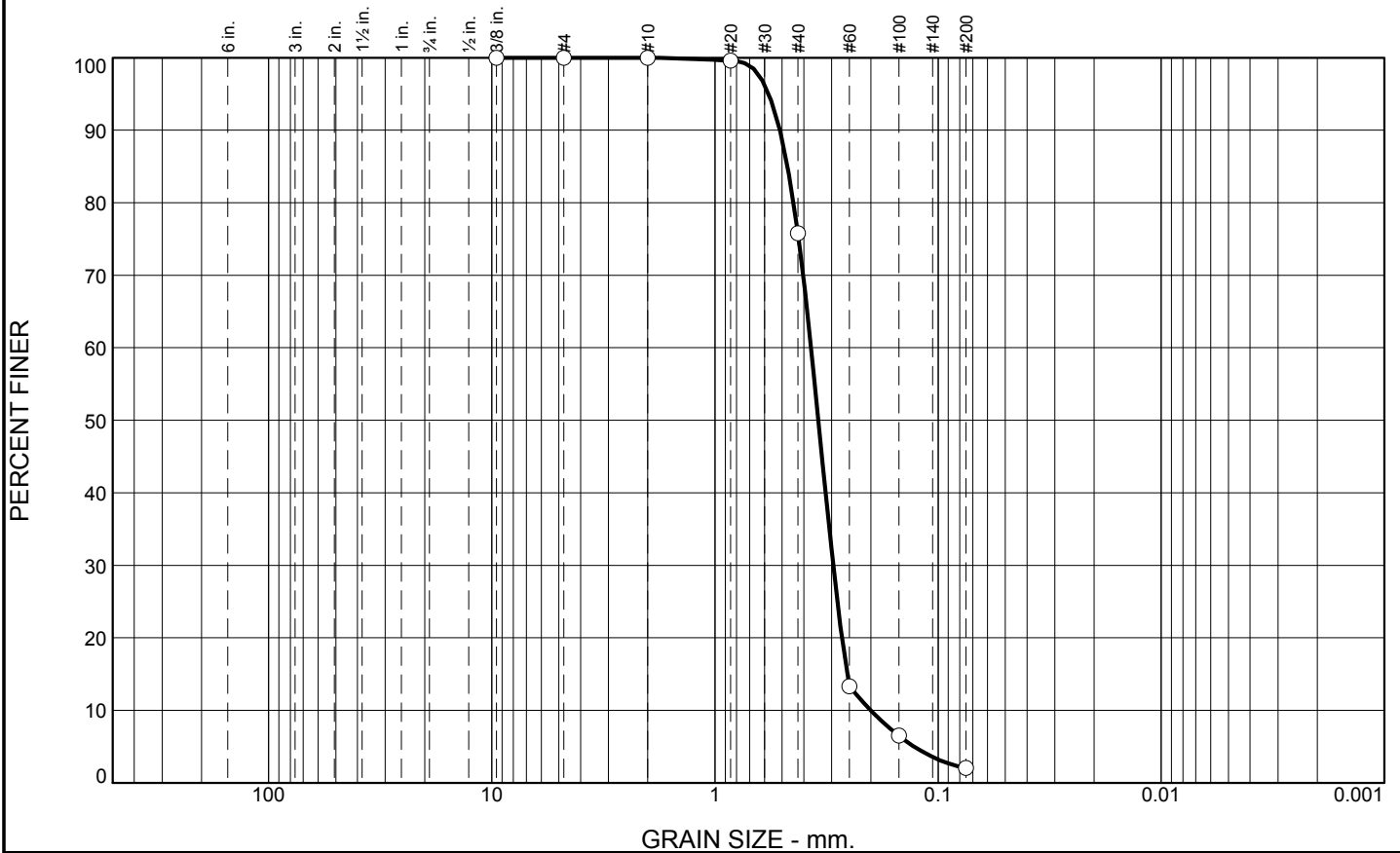


Particle Size Distribution Report



| % +3" | % Gravel | | % Sand | | | % Fines | |
|-------|----------|------|--------|--------|------|---------|------|
| | Coarse | Fine | Coarse | Medium | Fine | Silt | Clay |
| 0.0 | 0.0 | 0.0 | 0.0 | 24.2 | 73.8 | 2.0 | |

| SIEVE SIZE | PERCENT FINER | SPEC.* PERCENT | PASS? (X=NO) |
|------------|---------------|----------------|--------------|
| .375 | 100.0 | | |
| #4 | 100.0 | | |
| #10 | 100.0 | | |
| #20 | 99.6 | | |
| #40 | 75.8 | | |
| #60 | 13.3 | | |
| #100 | 6.5 | | |
| #200 | 2.0 | | |

Material Description

SAND, (SP), medium to fine grained

Atterberg Limits

PL= LL= PI=

Coefficients

D₉₀= 0.5114 D₈₅= 0.4727 D₆₀= 0.3712
D₅₀= 0.3441 D₃₀= 0.2950 D₁₅= 0.2554
D₁₀= 0.2003 C_u= 1.85 C_c= 1.17

Classification

USCS= SP AASHTO=

Remarks

CADD CODE = CH10D965

* (no specification provided)

Location: USACE Sample # BI-PB-35-10A
Sample Number: TE Lab ID: 4609.06

Depth: 0.0 - 5.0 (ft.)

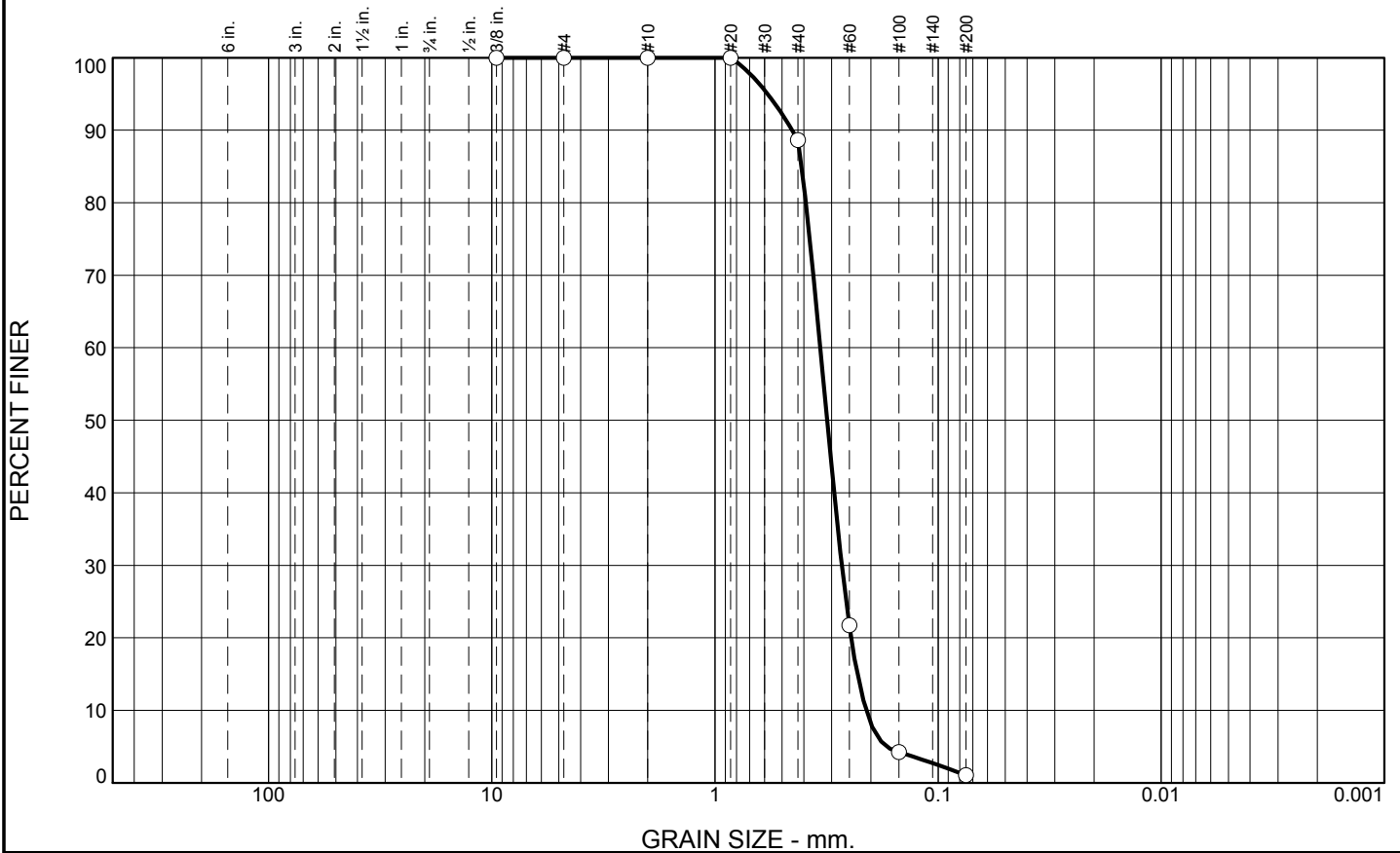
Date: 8/4/10

| | |
|--|--|
| <p>Thompson Engineering</p> <p>Mobile, Alabama</p> | <p>Client: US Army Corps of Engineers Project: Contract No. W91278-10-D-0026 - Task 03 Mississippi Barrier Island Restoration Project Project No: 10-2123-0009 Report No. Revised 8/20</p> |
|--|--|

Tested By: R.Martin

Checked By: R.Byrd

Particle Size Distribution Report



| % +3" | % Gravel | | % Sand | | | % Fines | |
|-------|----------|------|--------|--------|------|---------|------|
| | Coarse | Fine | Coarse | Medium | Fine | Silt | Clay |
| 0.0 | 0.0 | 0.0 | 0.0 | 11.4 | 87.5 | 1.1 | |

| SIEVE SIZE | PERCENT FINER | SPEC.* PERCENT | PASS? (X=NO) |
|------------|---------------|----------------|--------------|
| .375 | 100.0 | | |
| #4 | 100.0 | | |
| #10 | 100.0 | | |
| #20 | 100.0 | | |
| #40 | 88.6 | | |
| #60 | 21.7 | | |
| #100 | 4.3 | | |
| #200 | 1.1 | | |

Material Description

SAND, (SM), medium to fine grained

Atterberg Limits

PL= LL= PI=

Coefficients

D₉₀= 0.4506 D₈₅= 0.4098 D₆₀= 0.3370
D₅₀= 0.3141 D₃₀= 0.2700 D₁₅= 0.2300
D₁₀= 0.2100 C_u= 1.60 C_c= 1.03

Classification

USCS= SP AASHTO=

Remarks

CADD CODE = CH10D965

* (no specification provided)

Location: USACE Sample # BI-PB-35-10B
Sample Number: TE Lab ID: 4609.07

Depth: 5.0 - 10.0 (ft.)

Date: 8/4/10

| | |
|--|--|
| <p>Thompson Engineering</p> <p>Mobile, Alabama</p> | <p>Client: US Army Corps of Engineers Project: Contract No. W91278-10-D-0026 - Task 03 Mississippi Barrier Island Restoration Project Project No: 10-2123-0009 Report No. Revised 8/20</p> |
|--|--|

Tested By: R.Martin

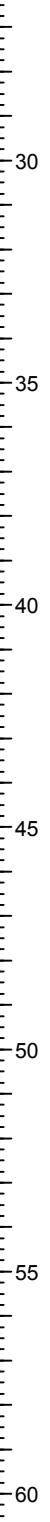
Checked By: R.Byrd

Boring Designation BI-PB-036-10

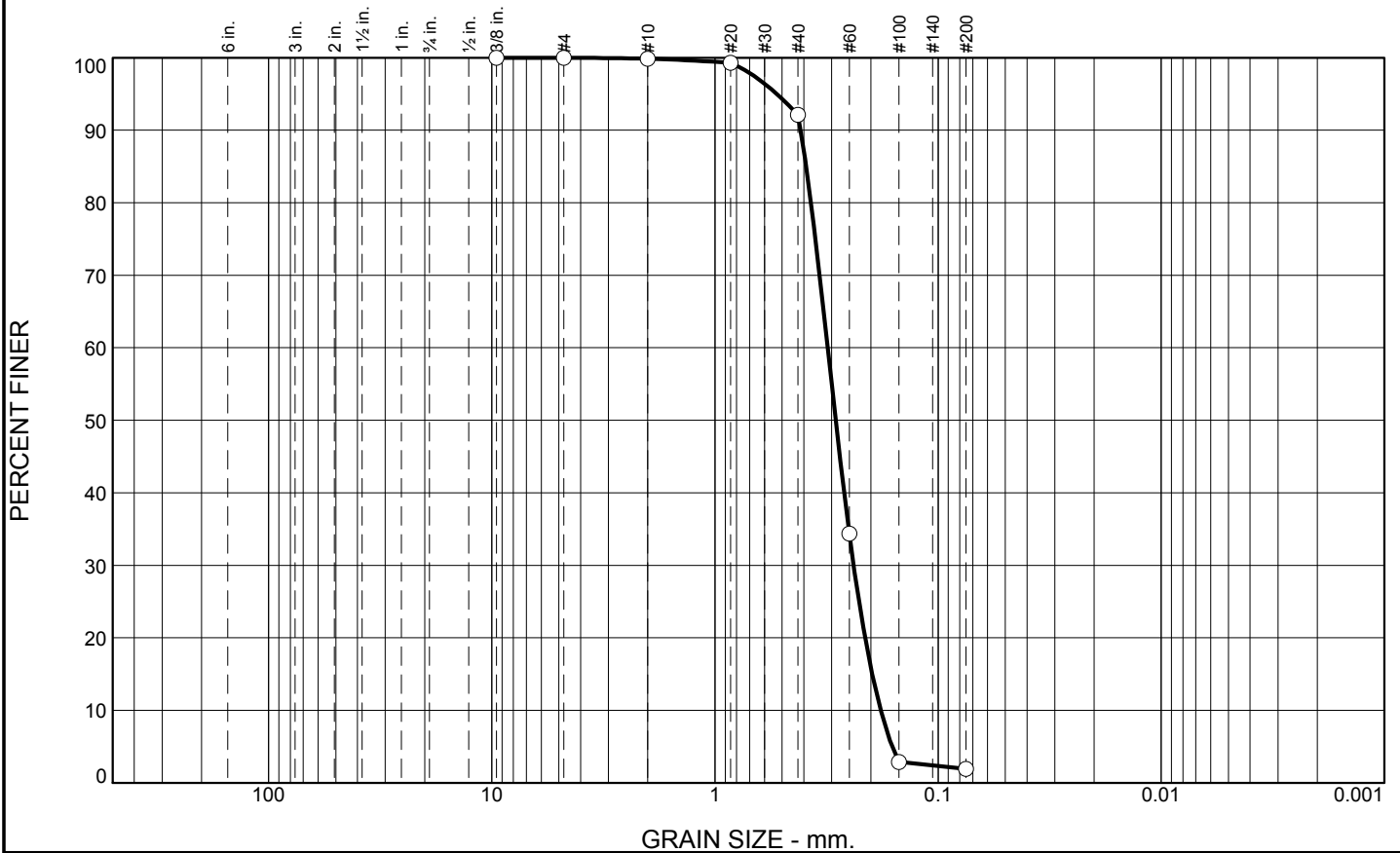
| | | | | |
|--|--|---|--|--|
| DRILLING LOG | | DIVISION South Atlantic | INSTALLATION Mobile District | SHEET 1 OF 2 SHEETS |
| 1. PROJECT MsCIP Barrier Island Restoration Petit Bois Pass- AL West | | | 9. SIZE AND TYPE OF BIT N/A | |
| 2. BORING DESIGNATION BI-PB-036-10 | | 10. COORDINATE SYSTEM/DATUM State Plane, MSE (U.S. Ft.) | | HORIZONTAL NAD83 |
| 3. DRILLING AGENCY Corps of Engineers - CESAM | | 11. MANUFACTURER'S DESIGNATION OF DRILL Vibracore | | <input type="checkbox"/> AUTO HAMMER <input type="checkbox"/> MANUAL HAMMER |
| 4. NAME OF DRILLER Construction Solutions International, Inc. | | 12. TOTAL SAMPLES | | DISTURBED 3 |
| 5. DIRECTION OF BORING <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED | | 13. TOTAL NUMBER CORE BOXES | | UNDISTURBED (UD) 0 |
| 6. THICKNESS OF OVERBURDEN N/A | | 14. WATER DEPTH 33 Ft. | | 15. DATE BORING |
| 7. DEPTH DRILLED INTO ROCK N/A | | 16. ELEVATION TOP OF BORING -33.0 Ft. | | STARTED 07-19-10 |
| 8. TOTAL DEPTH OF BORING 19.5 Ft. | | 17. TOTAL RECOVERY FOR BORING 100% | | COMPLETED 07-19-10 |
| 18. SIGNATURE AND TITLE OF INSPECTOR Chris Gillentine, Geologist | | | | |

| ELEV. | DEPTH | LEGEND | CLASSIFICATION OF MATERIALS | SAMPLE | LABORATORY RESULTS |
|-------|-------|--------|---|--------|--|
| -33.0 | 0.0 | | | | |
| | | ••••• | SAND, poorly-graded, mostly fine to medium-grained sand-sized quartz, trace shell fragments, tannish brown (SP) | A | Classification: SP Color: 2.5Y 7/1-light gray D50: 0.2874 mm % Fines: 1.9 |
| | | | | B | Classification: SP Color: 2.5Y 7/1-light gray D50: 0.3231 mm % Fines: 2 |
| | | | | C | Classification: SP Color: 2.5Y 7/1-light gray D50: 0.3464 mm % Fines: 4.1 |
| -47.5 | 14.5 | // | CLAY, fat, dark gray (CH) | NS | |
| -52.5 | 19.5 | | | | |
| | | | NOTES: 1. Soils are field visually classified in accordance with the Unified Soils Classification System. 2. NS = Sample not submitted for laboratory analysis from this interval. 3. Seafloor elevation calculated using sampling vessel's fathometer water depth reading and | | |

| DRILLING LOG (Cont. Sheet) | | | INSTALLATION Mobile District | | SHEET 2 OF 2 SHEETS | |
|--|-------|--------|---|--------|--------------------------------------|---------------------------|
| PROJECT MsCIP Barrier Island Restoration | | | COORDINATE SYSTEM/DATUM State Plane, MSE (U.S. Ft.) | | HORIZONTAL NAD83 | VERTICAL NAVD88 |
| LOCATION COORDINATES X = 1,138,996 Y = 252,914 | | | ELEVATION TOP OF BORING -33.0 Ft. | | | |
| ELEV. | DEPTH | LEGEND | CLASSIFICATION OF MATERIALS | SAMPLE | LABORATORY RESULTS | |
| | | | applying NOAA tidal gauge data conversion factor. | | | |



Particle Size Distribution Report



| % +3" | % Gravel | | % Sand | | | % Fines | |
|-------|----------|------|--------|--------|------|---------|------|
| | Coarse | Fine | Coarse | Medium | Fine | Silt | Clay |
| 0.0 | 0.0 | 0.0 | 0.1 | 7.8 | 90.2 | 1.9 | |

| SIEVE SIZE | PERCENT FINER | SPEC.* PERCENT | PASS? (X=NO) |
|------------|---------------|----------------|--------------|
| .375 | 100.0 | | |
| #4 | 100.0 | | |
| #10 | 99.9 | | |
| #20 | 99.3 | | |
| #40 | 92.1 | | |
| #60 | 34.4 | | |
| #100 | 2.9 | | |
| #200 | 1.9 | | |

Material Description

SAND, (SP), fine grained

Atterberg Limits

PL= LL= PI=

Coefficients

D₉₀= 0.4135 D₈₅= 0.3906 D₆₀= 0.3122
D₅₀= 0.2874 D₃₀= 0.2392 D₁₅= 0.1974
D₁₀= 0.1807 C_u= 1.73 C_c= 1.01

Classification

USCS= SP AASHTO=

Remarks

CADD CODE = CH10D965

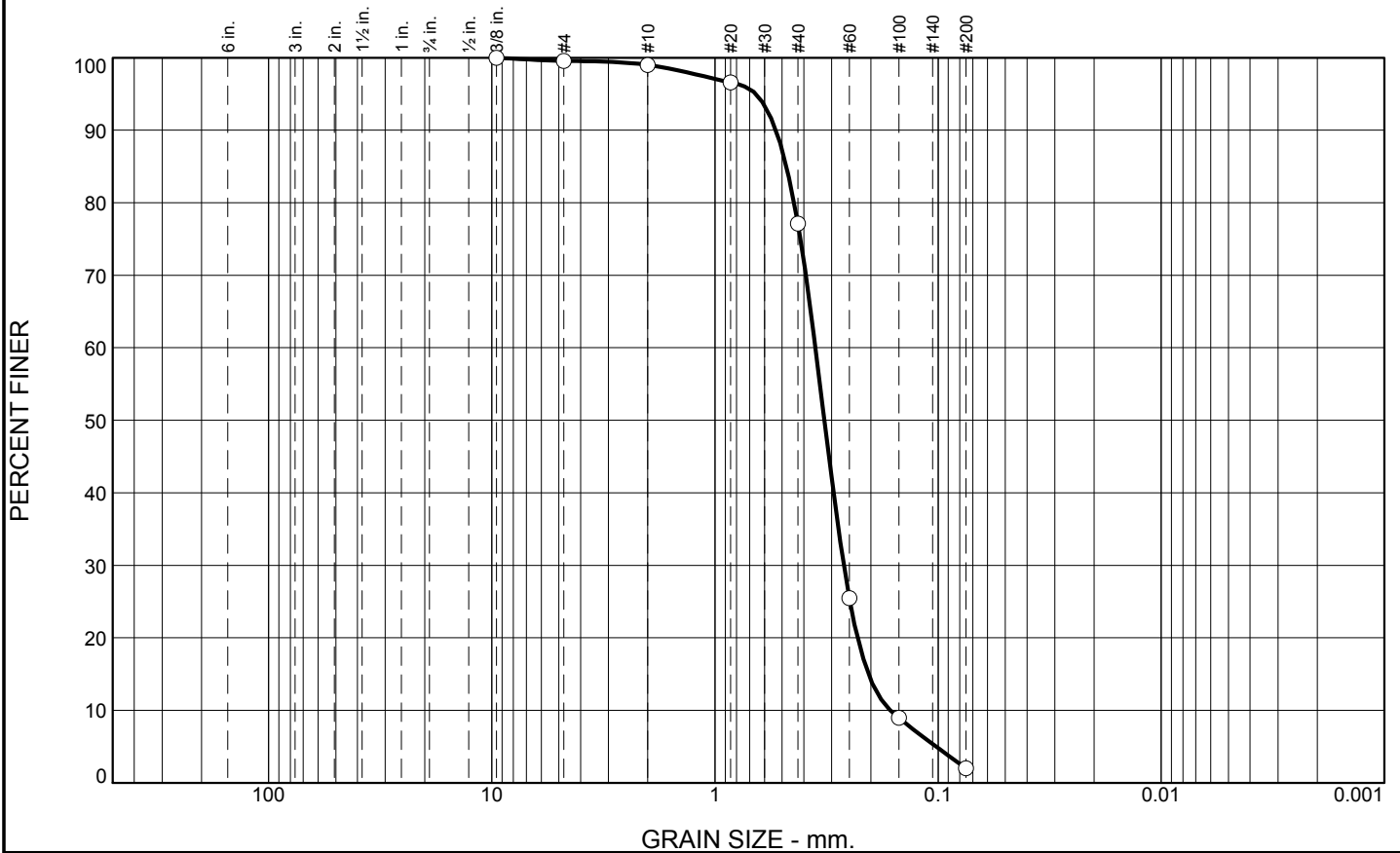
* (no specification provided)

Location: USACE Sample # BI-PB-36-10A **Sample Number:** TE Lab ID: 4609.08 **Depth:** 0.0 - 5.0 (ft.) **Date:** 8/4/10

| | |
|---|--|
| Thompson Engineering Mobile, Alabama | Client: US Army Corps of Engineers Project: Contract No. W91278-10-D-0026 - Task 03 Mississippi Barrier Island Restoration Project Project No: 10-2123-0009 Report No. Revised 8/20 |
|---|--|

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

Particle Size Distribution Report



| % +3" | % Gravel | | % Sand | | | % Fines | |
|-------|----------|------|--------|--------|------|---------|------|
| | Coarse | Fine | Coarse | Medium | Fine | Silt | Clay |
| 0.0 | 0.0 | 0.4 | 0.6 | 21.9 | 75.1 | 2.0 | |

| SIEVE SIZE | PERCENT FINER | SPEC.* PERCENT | PASS? (X=NO) |
|------------|---------------|----------------|--------------|
| .375 | 100.0 | | |
| #4 | 99.6 | | |
| #10 | 99.0 | | |
| #20 | 96.6 | | |
| #40 | 77.1 | | |
| #60 | 25.5 | | |
| #100 | 9.0 | | |
| #200 | 2.0 | | |

Material Description

SAND, (SP), medium to fine grained

Atterberg Limits

PL= LL= PI=

Coefficients

D₉₀= 0.5329 D₈₅= 0.4780 D₆₀= 0.3548
D₅₀= 0.3231 D₃₀= 0.2645 D₁₅= 0.2052
D₁₀= 0.1636 C_u= 2.17 C_c= 1.20

Classification

USCS= SP AASHTO=

Remarks

CADD CODE = CH10D965

* (no specification provided)

Location: USACE Sample # BI-PB-36-10B
Sample Number: TE Lab ID: 4609.09

Depth: 5.0 - 10.0 (ft.)

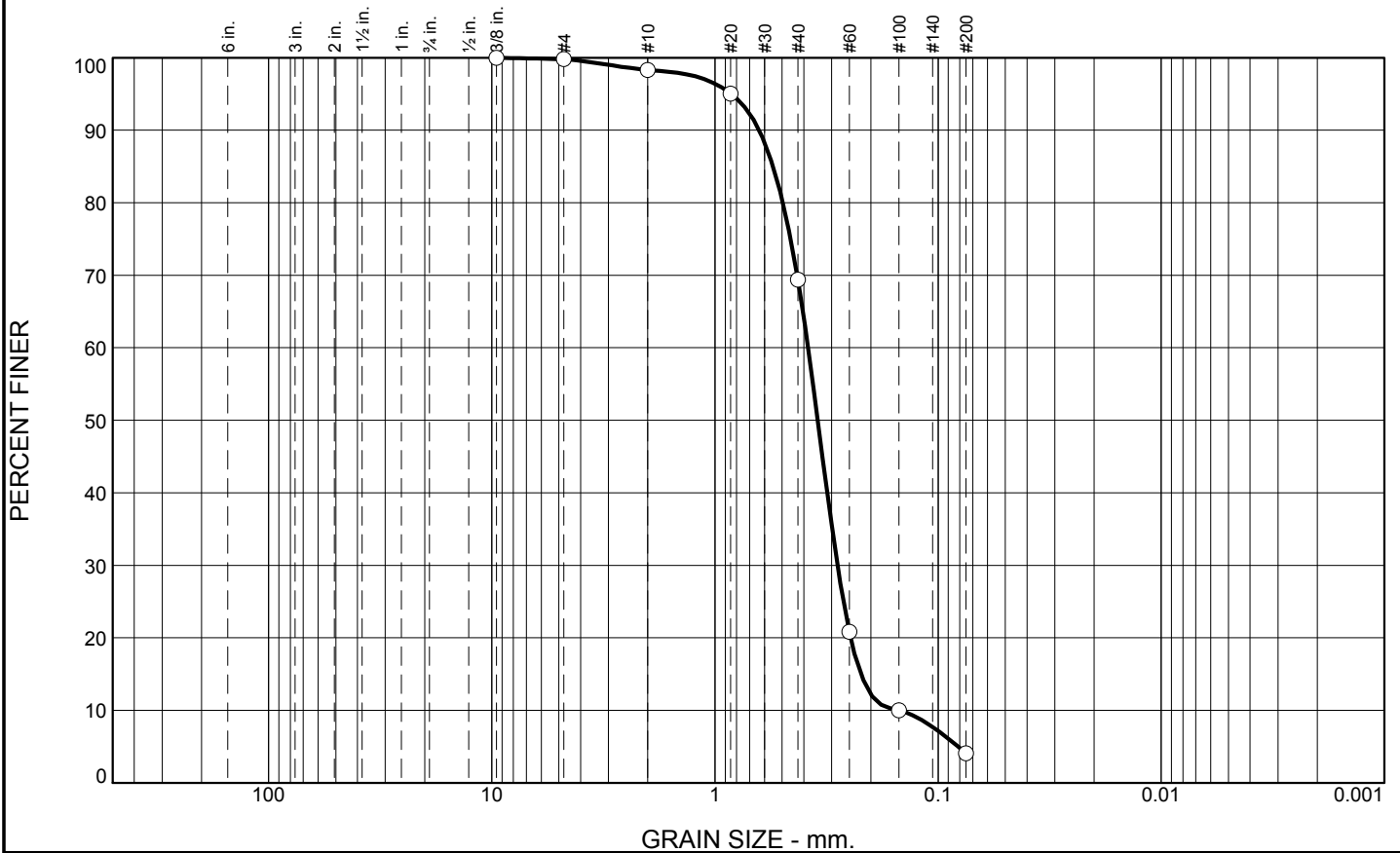
Date: 8/4/10

| | |
|--|--|
| <p>Thompson Engineering</p> <p>Mobile, Alabama</p> | <p>Client: US Army Corps of Engineers Project: Contract No. W91278-10-D-0026 - Task 03 Mississippi Barrier Island Restoration Project Project No: 10-2123-0009 Report No. Revised 8/20</p> |
|--|--|

Tested By: R.Martin

Checked By: R.Byrd

Particle Size Distribution Report



| % +3" | % Gravel | | % Sand | | | % Fines | |
|-------|----------|------|--------|--------|------|---------|------|
| | Coarse | Fine | Coarse | Medium | Fine | Silt | Clay |
| 0.0 | 0.0 | 0.2 | 1.5 | 28.9 | 65.3 | 4.1 | |

| SIEVE SIZE | PERCENT FINER | SPEC.* PERCENT | PASS? (X=NO) |
|------------|---------------|----------------|--------------|
| .375 | 100.0 | | |
| #4 | 99.8 | | |
| #10 | 98.3 | | |
| #20 | 95.0 | | |
| #40 | 69.4 | | |
| #60 | 20.8 | | |
| #100 | 10.0 | | |
| #200 | 4.1 | | |

Material Description

SAND, (SP), medium to fine grained

Atterberg Limits

PL= LL= PI=

Coefficients

D₉₀= 0.6337 D₈₅= 0.5486 D₆₀= 0.3828
D₅₀= 0.3464 D₃₀= 0.2821 D₁₅= 0.2219
D₁₀= 0.1493 C_u= 2.56 C_c= 1.39

Classification

USCS= SP AASHTO=

Remarks

CADD CODE = CH10D965

* (no specification provided)

Location: USACE Sample # BI-PB-36-10C
Sample Number: TE Lab ID: 4609.10

Depth: 10.0 - 14.5 (ft.)

Date: 8/4/10

| | |
|--|--|
| <p>Thompson Engineering</p> <p>Mobile, Alabama</p> | <p>Client: US Army Corps of Engineers Project: Contract No. W91278-10-D-0026 - Task 03 Mississippi Barrier Island Restoration Project Project No: 10-2123-0009 Report No. Revised 8/20</p> |
|--|--|

Tested By: R.Martin

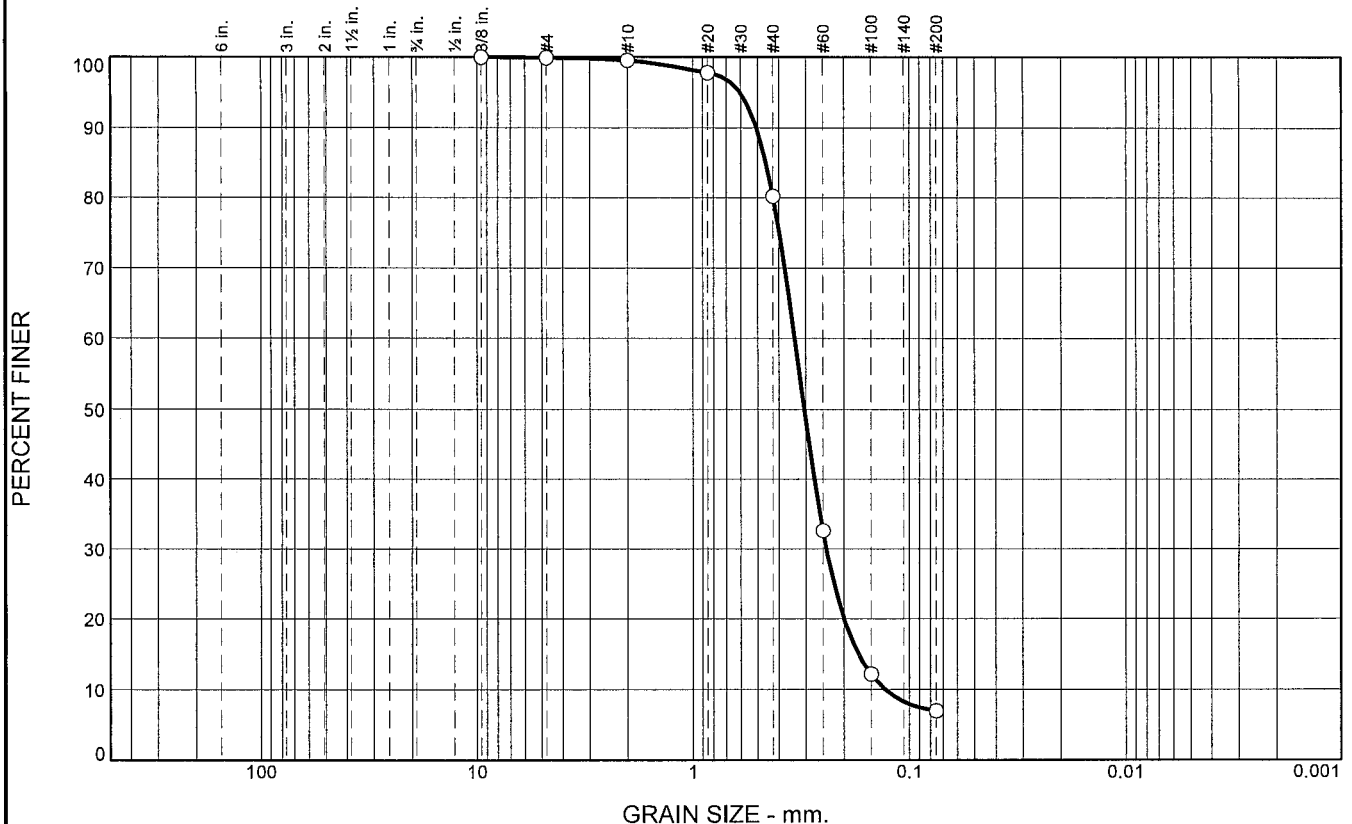
Checked By: R.Byrd

Boring Designation BI-PB-037-10

| | | | | |
|--|--|---|--|--|
| DRILLING LOG | | DIVISION South Atlantic | INSTALLATION Mobile District | SHEET 1 OF 1 SHEETS |
| 1. PROJECT MsCIP Barrier Island Restoration Petit Bois Pass- AL East | | | 9. SIZE AND TYPE OF BIT N/A | |
| 2. BORING DESIGNATION BI-PB-037-10 | | 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 | | <input type="checkbox"/> AUTO HAMMER <input type="checkbox"/> MANUAL HAMMER |
| 4. NAME OF DRILLER Construction Solutions International, Inc. | | 12. TOTAL SAMPLES | | DISTURBED 3 |
| 5. DIRECTION OF BORING <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED | | 13. TOTAL NUMBER CORE BOXES | | UNDISTURBED (UD) 0 |
| 6. THICKNESS OF OVERBURDEN N/A | | 14. WATER DEPTH 34 Ft. | | 15. DATE BORING |
| 7. DEPTH DRILLED INTO ROCK N/A | | 16. ELEVATION TOP OF BORING -33.2 Ft. | | STARTED 07-27-10 |
| 8. TOTAL DEPTH OF BORING 16.0 Ft. | | 17. TOTAL RECOVERY FOR BORING 100% | | COMPLETED 07-27-10 |
| 18. SIGNATURE AND TITLE OF INSPECTOR Chris Gillentine, Geologist | | | | |

| ELEV. | DEPTH | LEGEND | CLASSIFICATION OF MATERIALS | SAMPLE | LABORATORY RESULTS |
|-------|-------|--------|---|--------|--|
| -33.2 | 0.0 | | SAND, poorly-graded, dark gray (SP) | | |
| | | | At El. -37.2 Ft., trace shell fragments, lt. gray | A | Classification: SP-SM Color: 2.5Y 6/2-light brownish gray D50: 0.3045 mm % Fines: 7 |
| | | | | B | Classification: SP Color: 2.5Y 7/1-light gray D50: 0.3385 mm % Fines: 2 |
| | | | | C | Classification: SP Color: 2.5Y 7/1-light gray D50: 0.3025 mm % Fines: 3.9 |
| -47.2 | 14.0 | | SAND, clayey, dark gray (SC) | NS | |
| -49.2 | 16.0 | | | | |
| | | | NOTES: 1. Soils are field visually classified in accordance with the Unified Soils Classification System. 2. NS = Sample not submitted for laboratory analysis from this interval. 3. Seafloor elevation calculated using sampling vessel's fathometer water depth reading and applying NOAA tidal gauge data conversion factor. | | |

Particle Size Distribution Report



| % +3" | % Gravel | | % Sand | | | % Fines | |
|-------|----------|------|--------|--------|------|---------|------|
| | Coarse | Fine | Coarse | Medium | Fine | Silt | Clay |
| 0.0 | 0.0 | 0.1 | 0.4 | 19.3 | 73.2 | 7.0 | |

| SIEVE SIZE | PERCENT FINER | SPEC.* PERCENT | PASS? (X=NO) |
|------------|---------------|----------------|--------------|
| .375 | 100.0 | | |
| #4 | 99.9 | | |
| #10 | 99.5 | | |
| #20 | 97.8 | | |
| #40 | 80.2 | | |
| #60 | 32.6 | | |
| #100 | 12.1 | | |
| #200 | 7.0 | | |

Material Description

SAND, (SP-SM), medium to fine grained

Atterberg Limits

PL= LL= PI=

Coefficients

D₉₀= 0.5082 D₈₅= 0.4582 D₆₀= 0.3373
D₅₀= 0.3045 D₃₀= 0.2411 D₁₅= 0.1719
D₁₀= 0.1291 C_u= 2.61 C_c= 1.34

Classification

USCS= SP-SM AASHTO=

Remarks

CADD CODE = CH10D965

* (no specification provided)

Location: USACE Sample # BI-PB-37-10A
Sample Number: TE Lab ID: 4612.01

Depth: 0.0 - 5.0 (ft.)

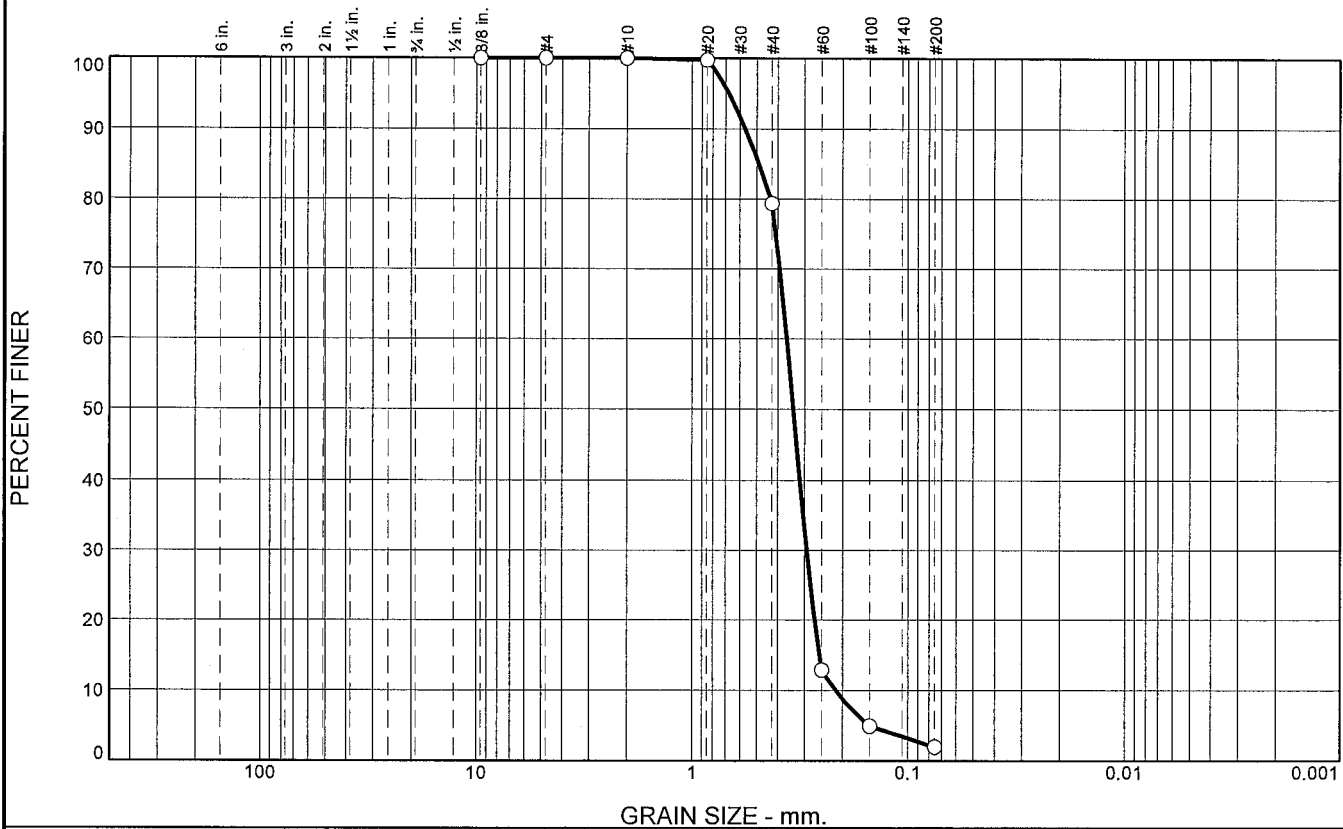
Date: 8/7/10

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

Tested By: G.Fancher

Checked By: R.Byrd

Particle Size Distribution Report



| % +3" | % Gravel | | % Sand | | | % Fines | |
|-------|----------|------|--------|--------|------|---------|------|
| | Coarse | Fine | Coarse | Medium | Fine | Silt | Clay |
| 0.0 | 0.0 | 0.0 | 0.0 | 20.6 | 77.4 | 2.0 | |

| SIEVE SIZE | PERCENT FINER | SPEC.* PERCENT | PASS? (X=NO) |
|------------|---------------|----------------|--------------|
| .375 | 100.0 | | |
| #4 | 100.0 | | |
| #10 | 100.0 | | |
| #20 | 99.7 | | |
| #40 | 79.4 | | |
| #60 | 12.9 | | |
| #100 | 4.9 | | |
| #200 | 2.0 | | |

Material Description

SAND, (SP), medium to fine grained

Atterberg Limits

PL= LL= PI=

Coefficients

D₉₀= 0.5668 D₈₅= 0.4900 D₆₀= 0.3634
D₅₀= 0.3385 D₃₀= 0.2929 D₁₅= 0.2563
D₁₀= 0.2148 C_u= 1.69 C_c= 1.10

Classification

USCS= SP AASHTO=

Remarks

CADD CODE = CH10D965

* (no specification provided)

Location: USACE Sample # BI-PB-37-10B
Sample Number: TE Lab ID: 4612.02

Depth: 5.0 - 10.0 (ft.)

Date: 8/7/10

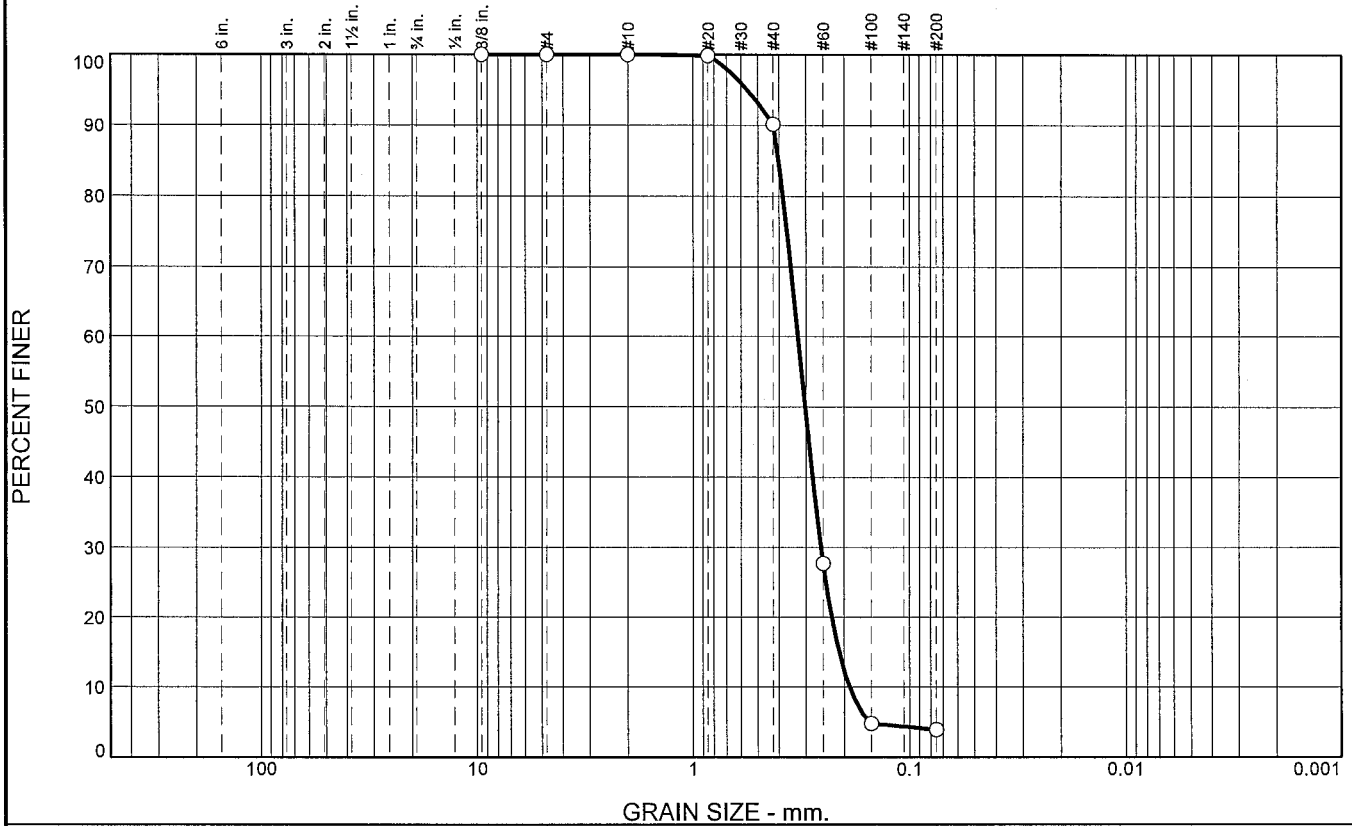
Thompson Engineering
Mobile, Alabama

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

Tested By: G.Fancher

Checked By: R.Byrd

Particle Size Distribution Report



| % +3" | % Gravel | | % Sand | | | % Fines | |
|-------|----------|------|--------|--------|------|---------|------|
| | Coarse | Fine | Coarse | Medium | Fine | Silt | Clay |
| 0.0 | 0.0 | 0.0 | 0.0 | 9.9 | 86.2 | 3.9 | |

| SIEVE SIZE | PERCENT FINER | SPEC.* PERCENT | PASS? (X=NO) |
|------------|---------------|----------------|--------------|
| .375 | 100.0 | | |
| #4 | 100.0 | | |
| #10 | 100.0 | | |
| #20 | 99.8 | | |
| #40 | 90.1 | | |
| #60 | 27.7 | | |
| #100 | 4.8 | | |
| #200 | 3.9 | | |

Material Description

SAND, (SP), fine grained

Atterberg Limits

PL= LL= PI=

Coefficients

D₉₀= 0.4243 D₈₅= 0.4021 D₆₀= 0.3265
D₅₀= 0.3025 D₃₀= 0.2558 D₁₅= 0.2112
D₁₀= 0.1893 C_u= 1.72 C_c= 1.06

Classification

USCS= SP AASHTO=

Remarks

CADD CODE = CH10D965

* (no specification provided)

Location: USACE Sample # BI-PB-37-10C
Sample Number: TE Lab ID: 4612.03

Depth: 10.0 - 15.0 (ft.)

Date: 8/7/10

| | |
|--|---|
| <p>Thompson Engineering</p> <p>Mobile, Alabama</p> | <p>Client: US Army Corps of Engineers Project: Contract No. W91278-10-D-0026 - Task 03 Mississippi Barrier Island Restoration Project Project No: 10-2123-0009 Report No.</p> |
|--|---|

Tested By: G.Fancher

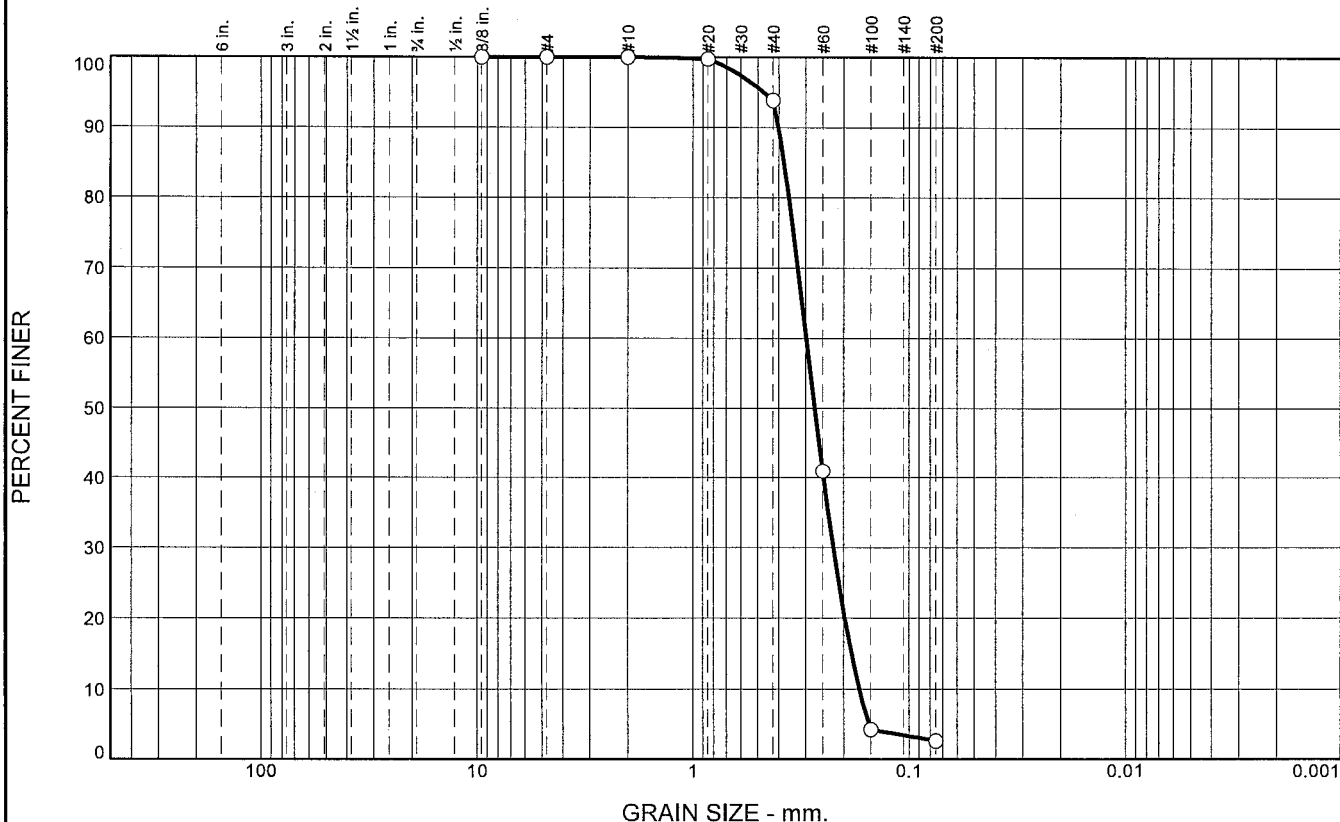
Checked By: R.Byrd

Boring Designation BI-PB-038-10

| | | | | |
|--|--|---|--|--|
| DRILLING LOG | | DIVISION South Atlantic | INSTALLATION Mobile District | SHEET 1 OF 1 SHEETS |
| 1. PROJECT MsCIP Barrier Island Restoration Petit Bois Pass- AL East | | | 9. SIZE AND TYPE OF BIT N/A | |
| 2. BORING DESIGNATION BI-PB-038-10 | | 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 | | <input type="checkbox"/> AUTO HAMMER <input type="checkbox"/> MANUAL HAMMER |
| 4. NAME OF DRILLER Construction Solutions International, Inc. | | 12. TOTAL SAMPLES | | DISTURBED 4 |
| 5. DIRECTION OF BORING <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED | | 13. TOTAL NUMBER CORE BOXES | | UNDISTURBED (UD) 0 |
| 6. THICKNESS OF OVERBURDEN N/A | | 14. WATER DEPTH 35 Ft. | | 15. DATE BORING |
| 7. DEPTH DRILLED INTO ROCK N/A | | 16. ELEVATION TOP OF BORING -34.4 Ft. | | STARTED 07-28-10 |
| 8. TOTAL DEPTH OF BORING 18.5 Ft. | | 17. TOTAL RECOVERY FOR BORING 100% | | COMPLETED 07-28-10 |
| 18. SIGNATURE AND TITLE OF INSPECTOR Chris Gillentine, Geologist | | | | |

| ELEV. | DEPTH | LEGEND | CLASSIFICATION OF MATERIALS | SAMPLE | LABORATORY RESULTS |
|-------|-------|--------|---|--------|--|
| -34.4 | 0.0 | | | | |
| -35.9 | 1.5 | ▨ | CLAY, lean, dark gray (CL) | NS | |
| | | ●●●● | SAND, poorly-graded, trace shell fragments, lt. gray (SP) | A | Classification: SP-SM Color: 2.5Y 5/2-grayish brown D50: 0.2511 mm % Fines: 6.7 |
| | | | | B | Classification: SP Color: 2.5Y7/2- D50: 0.2721 mm % Fines: 2.6 |
| | | | | C | Classification: SP Color: 2.5Y 7/1-light gray D50: 0.3004 mm % Fines: 3 |
| | | | | D | Classification: SP Color: 2.5Y 7/1-light gray D50: 0.3073 mm % Fines: 3.3 |
| -52.9 | 18.5 | | NOTES: 1. Soils are field visually classified in accordance with the Unified Soils Classification System. 2. NS = Sample not submitted for laboratory analysis from this interval. 3. Seafloor elevation calculated using sampling vessel's fathometer water depth reading and applying NOAA tidal gauge data conversion factor. | | |

Particle Size Distribution Report



| % +3" | % Gravel | | % Sand | | | % Fines | |
|-------|----------|------|--------|--------|------|---------|------|
| | Coarse | Fine | Coarse | Medium | Fine | Silt | Clay |
| 0.0 | 0.0 | 0.0 | 0.0 | 6.1 | 91.3 | 2.6 | |

| SIEVE SIZE | PERCENT FINER | SPEC.* PERCENT | PASS? (X=NO) |
|------------|---------------|----------------|--------------|
| .375 | 100.0 | | |
| #4 | 100.0 | | |
| #10 | 100.0 | | |
| #20 | 99.7 | | |
| #40 | 93.9 | | |
| #60 | 40.9 | | |
| #100 | 4.3 | | |
| #200 | 2.6 | | |

Material Description

SAND, (SP), fine grained

Atterberg Limits
 PL= LL= PI=

Coefficients
 D₉₀= 0.4021 D₈₅= 0.3786 D₆₀= 0.2976
 D₅₀= 0.2721 D₃₀= 0.2234 D₁₅= 0.1845
 D₁₀= 0.1699 C_u= 1.75 C_c= 0.99

Classification
 USCS= SP AASHTO=

Remarks
 CADD CODE = CH10D965

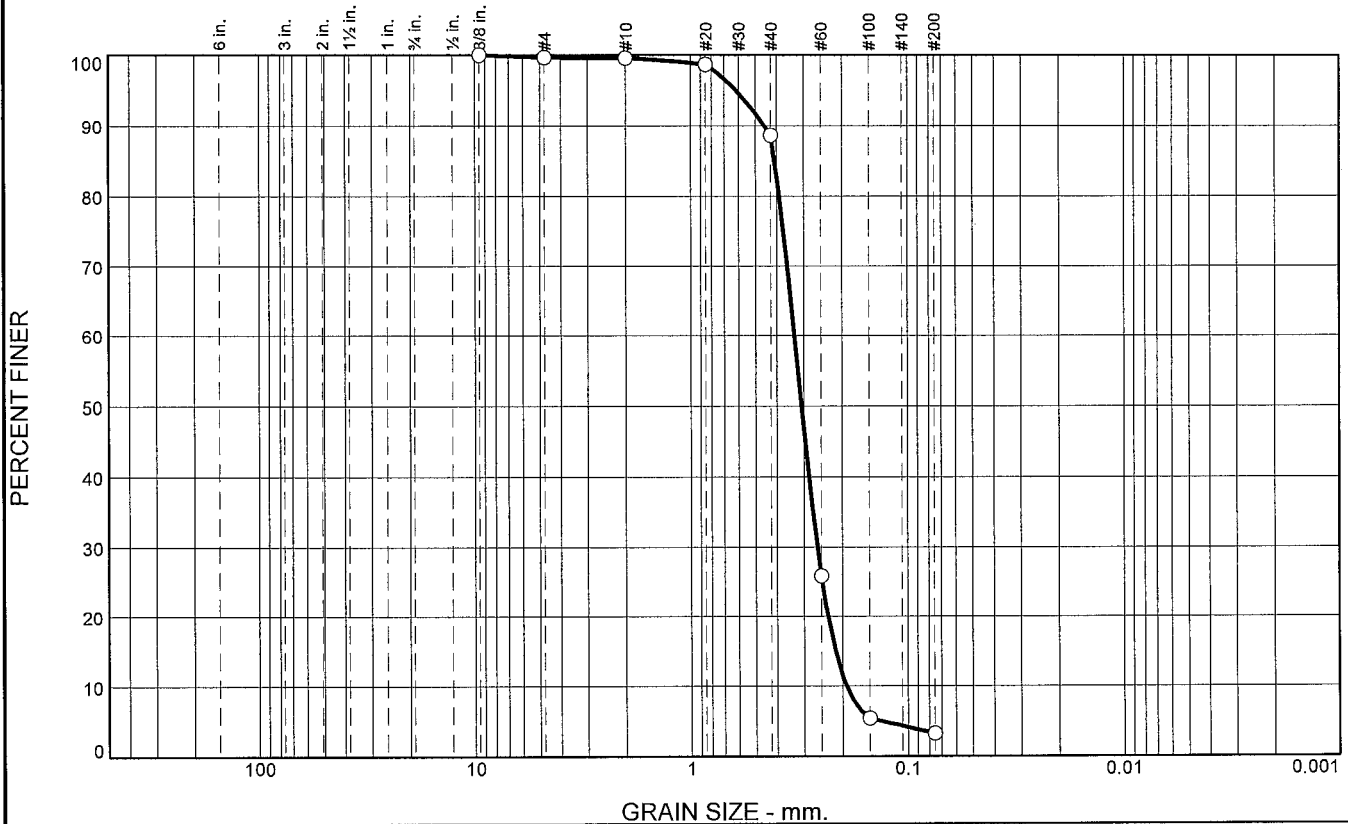
* (no specification provided)

Location: USACE Sample # BI-PB-38-10B **Depth:** 5.0 - 10.0 (ft.) **Date:** 8/7/10
Sample Number: TE Lab ID: 4612.05

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

Tested By: G.Fancher **Checked By:** R.Byrd

Particle Size Distribution Report



| % +3" | % Gravel | | % Sand | | | % Fines | |
|-------|----------|------|--------|--------|------|---------|------|
| | Coarse | Fine | Coarse | Medium | Fine | Silt | Clay |
| 0.0 | 0.0 | 0.4 | 0.1 | 10.9 | 85.3 | 3.3 | |

| SIEVE SIZE | PERCENT FINER | SPEC.* PERCENT | PASS? (X=NO) |
|------------|---------------|----------------|--------------|
| .375 | 100.0 | | |
| #4 | 99.6 | | |
| #10 | 99.5 | | |
| #20 | 98.6 | | |
| #40 | 88.6 | | |
| #60 | 25.9 | | |
| #100 | 5.4 | | |
| #200 | 3.3 | | |

Material Description

SAND, (SP), medium to fine grained

Atterberg Limits

PL= LL= PI=

Coefficients

D₉₀= 0.4555 D₈₅= 0.4086 D₆₀= 0.3314
D₅₀= 0.3073 D₃₀= 0.2605 D₁₅= 0.2157
D₁₀= 0.1923 C_u= 1.72 C_c= 1.06

Classification

USCS= SP AASHTO=

Remarks

CADD CODE = CH10D965

* (no specification provided)

Location: USACE Sample # BI-PB-38-10D **Depth:** 15.0 - 18.5 (ft.) **Date:** 8/7/10
Sample Number: TE Lab ID: 4612.07

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

Tested By: G.Fancher **Checked By:** R.Byrd

Boring Designation BI-PB-039-10

| | | | | |
|--|--|---|--|--|
| DRILLING LOG | | DIVISION South Atlantic | INSTALLATION Mobile District | SHEET 1 OF 1 SHEETS |
| 1. PROJECT MsCIP Barrier Island Restoration Petit Bois Pass- AL East | | | 9. SIZE AND TYPE OF BIT N/A | |
| 2. BORING DESIGNATION BI-PB-039-10 | | 10. COORDINATE SYSTEM/DATUM State Plane, MSE (U.S. Ft.) | | HORIZONTAL NAD83 |
| | | LOCATION COORDINATES E = 1,143,682 N = 252,847 | | VERTICAL NAVD88 |
| 3. DRILLING AGENCY Corps of Engineers - CESAM | | 11. MANUFACTURER'S DESIGNATION OF DRILL Vibrocure | | <input type="checkbox"/> AUTO HAMMER <input type="checkbox"/> MANUAL HAMMER |
| | | CONTRACTOR FILE NO. | | 12. TOTAL SAMPLES |
| 4. NAME OF DRILLER Construction Solutions International, Inc. | | | | DISTURBED |
| 5. DIRECTION OF BORING <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED | | DEG. FROM VERTICAL | | UNDISTURBED (UD) 0 |
| | | BEARING | | 13. TOTAL NUMBER CORE BOXES |
| 6. THICKNESS OF OVERBURDEN N/A | | | | 14. WATER DEPTH 35 Ft. |
| 7. DEPTH DRILLED INTO ROCK N/A | | | | 15. DATE BORING |
| 8. TOTAL DEPTH OF BORING 13.0 Ft. | | | | STARTED 07-28-10 |
| | | | | COMPLETED 07-28-10 |
| | | | | 16. ELEVATION TOP OF BORING -34.3 Ft. |
| | | | | 17. TOTAL RECOVERY FOR BORING 100% |
| | | | | 18. SIGNATURE AND TITLE OF INSPECTOR Chris Gillentine, Geologist |

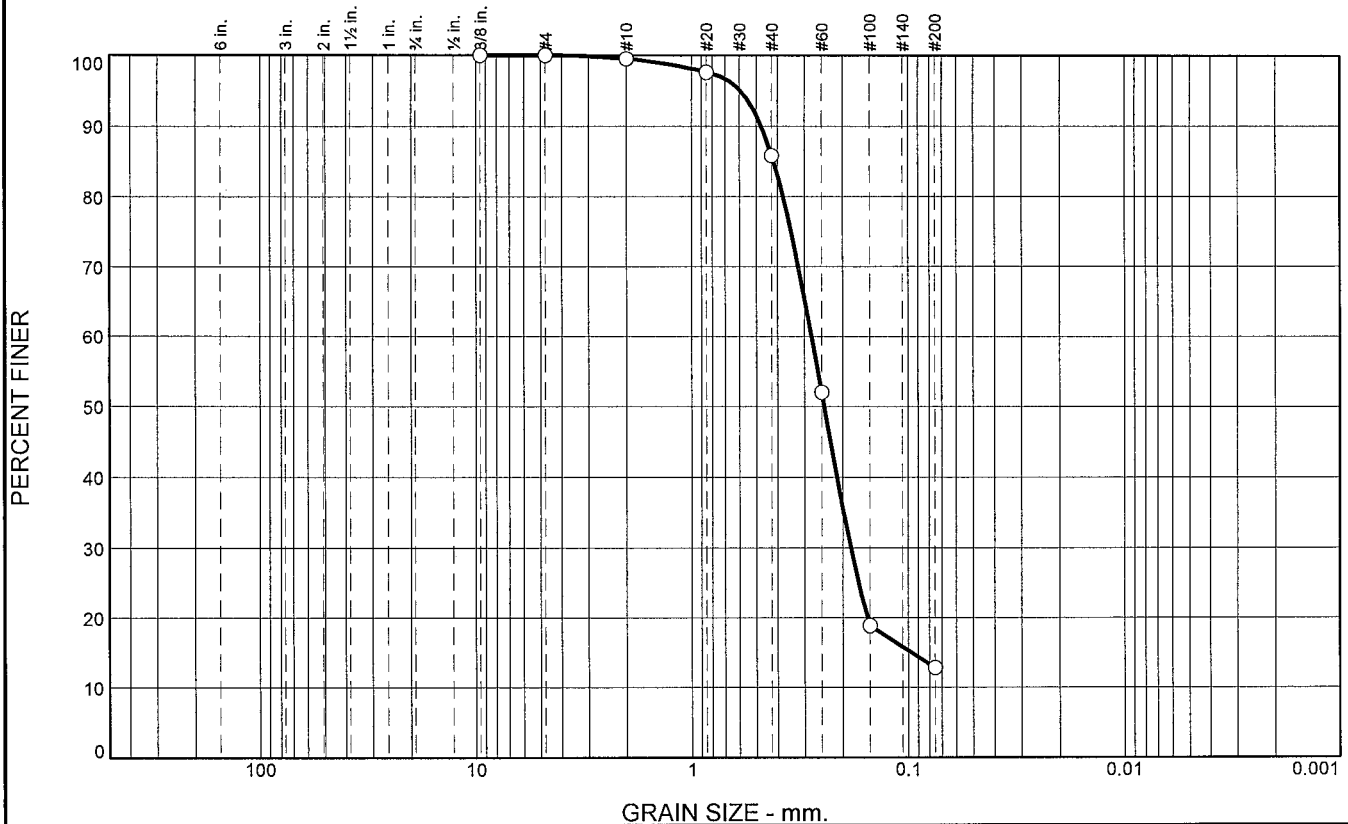
| ELEV. | DEPTH | LEGEND | CLASSIFICATION OF MATERIALS | SAMPLE | LABORATORY RESULTS |
|-------|-------|--------|--|--------|--------------------|
| -34.3 | 0.0 | | CLAY, fat, gray (CH) | NS | |
| -47.3 | 13.0 | | | | |
| | | | <p>NOTES:</p> <p>1. Soils are field visually classified in accordance with 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> | | |

Boring Designation BI-PB-040-10

| | | | | |
|--|--|--|--|---|
| DRILLING LOG | | DIVISION South Atlantic | INSTALLATION Mobile District | SHEET 1 OF 1 SHEETS |
| 1. PROJECT MsCIP Barrier Island Restoration Petit Bois Pass- AL East | | | 9. SIZE AND TYPE OF BIT N/A | |
| 2. BORING DESIGNATION BI-PB-040-10 | | 10. COORDINATE SYSTEM/DATUM State Plane, MSE (U.S. Ft.) | | 11. MANUFACTURER'S DESIGNATION OF DRILL Vibracore |
| 3. DRILLING AGENCY Corps of Engineers - CESAM | | 12. TOTAL SAMPLES 1 | | 13. TOTAL NUMBER CORE BOXES 0 |
| 4. NAME OF DRILLER Construction Solutions International, Inc. | | | 14. WATER DEPTH 33 Ft. | |
| 5. DIRECTION OF BORING <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED | | 6. THICKNESS OF OVERBURDEN N/A | 15. DATE BORING STARTED: 07-28-10 COMPLETED: 07-28-10 | |
| 7. DEPTH DRILLED INTO ROCK N/A | | 16. ELEVATION TOP OF BORING -32.2 Ft. | | 17. TOTAL RECOVERY FOR BORING 100% |
| 8. TOTAL DEPTH OF BORING 14.0 Ft. | | 18. SIGNATURE AND TITLE OF INSPECTOR Chris Gillentine, Geologist | | |

| ELEV. | DEPTH | LEGEND | CLASSIFICATION OF MATERIALS | SAMPLE | LABORATORY RESULTS |
|-------|-------|--------|---|--------|--|
| -32.2 | 0.0 | | | | |
| -34.2 | 2.0 | ••••• | SAND, poorly-graded, trace shell fragments, dark gray (SP) | A | Classification: SM Color: 2.5Y 5/3-light olive brown D50: 0.2432 mm % Fines: 12.8 |
| -46.2 | 14.0 | ▨▨▨▨▨ | CLAY, fat, gray (CH) | NS | |
| | | | NOTES: 1. Soils are field visually classified in accordance with the Unified Soils Classification System. 2. NS = Sample not submitted for laboratory analysis from this interval. 3. Seafloor elevation calculated using sampling vessel's fathometer water depth reading and applying NOAA tidal gauge data conversion factor. | | |

Particle Size Distribution Report



| % +3" | % Gravel | | % Sand | | | % Fines | |
|-------|----------|------|--------|--------|------|---------|------|
| | Coarse | Fine | Coarse | Medium | Fine | Silt | Clay |
| 0.0 | 0.0 | 0.0 | 0.5 | 13.6 | 73.1 | 12.8 | |

| SIEVE SIZE | PERCENT FINER | SPEC.* PERCENT | PASS? (X=NO) |
|------------|---------------|----------------|--------------|
| .375 | 100.0 | | |
| #4 | 100.0 | | |
| #10 | 99.5 | | |
| #20 | 97.6 | | |
| #40 | 85.9 | | |
| #60 | 52.1 | | |
| #100 | 18.9 | | |
| #200 | 12.8 | | |

Material Description

SILTY SAND, (SM), medium to fine grained

Atterberg Limits

PL= LL= PI=

Coefficients

D₉₀= 0.4750 D₈₅= 0.4168 D₆₀= 0.2781
D₅₀= 0.2432 D₃₀= 0.1842 D₁₅= 0.0961
D₁₀= C_u= C_c=

Classification

USCS= SM AASHTO=

Remarks

CADD CODE = CH10D965

* (no specification provided)

Location: USACE Sample # BI-PB-40-10A
Sample Number: TE Lab ID: 4612.08

Depth: 0.0 - 2.0 (ft.)

Date: 8/7/10

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

Tested By: G.Fancher

Checked By: R.Byrd

Boring Designation BI-PB-041-10

| | | | | |
|---|--|---|---------------------------------|--|
| DRILLING LOG | | DIVISION South Atlantic | INSTALLATION Mobile District | SHEET 1 OF 2 SHEETS |
| 1. PROJECT MsCIP Barrier Island Restoration Petit Bois Pass- AL East | | 9. SIZE AND TYPE OF BIT N/A | | 10. COORDINATE SYSTEM/DATUM State Plane, MSE (U.S. Ft.) |
| 2. BORING DESIGNATION BI-PB-041-10 | | LOCATION COORDINATES E = 1,146,730 N = 252,846 | | HORIZONTAL NAD83 |
| 3. DRILLING AGENCY Corps of Engineers - CESAM | | CONTRACTOR FILE NO. | | VERTICAL NAVD88 |
| 4. NAME OF DRILLER Construction Solutions International, Inc. | | 11. MANUFACTURER'S DESIGNATION OF DRILL Vibracore | | <input type="checkbox"/> AUTO HAMMER <input type="checkbox"/> MANUAL HAMMER |
| 5. DIRECTION OF BORING <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED | | DEG. FROM VERTICAL | | BEARING |
| 6. THICKNESS OF OVERBURDEN N/A | | 12. TOTAL SAMPLES | | DISTURBED 0 |
| 7. DEPTH DRILLED INTO ROCK N/A | | 13. TOTAL NUMBER CORE BOXES | | UNDISTURBED (UD) 0 |
| 8. TOTAL DEPTH OF BORING 20.0 Ft. | | 14. WATER DEPTH 38 Ft. | | 15. DATE BORING |
| | | 16. ELEVATION TOP OF BORING -37.1 Ft. | | STARTED 07-28-10 |
| | | 17. TOTAL RECOVERY FOR BORING 100% | | COMPLETED 07-28-10 |
| | | 18. SIGNATURE AND TITLE OF INSPECTOR Chris Gillentine, Geologist | | |


| ELEV. | DEPTH | LEGEND | CLASSIFICATION OF MATERIALS | SAMPLE | LABORATORY RESULTS |
|-------|-------|--------|---|--------|--------------------|
| -37.1 | 0.0 | | CLAY, fat, gray (CH) | | |
| | | ▨ | | NS | |
| -57.1 | 20.0 | | NOTES: 1. Soils are field visually classified in accordance with the Unified Soils Classification System. 2. NS = Sample not submitted for laboratory analysis from this interval. 3. Seafloor elevation calculated using sampling | | |

| DRILLING LOG (Cont. Sheet) | | | INSTALLATION Mobile District | | | SHEET 2 |
|---|-------|--------|---|----------------------------|---------------------------|--------------------|
| | | | | | | OF 2 SHEETS |
| PROJECT MsCIP Barrier Island Restoration | | | COORDINATE SYSTEM/DATUM State Plane, MSE (U.S. Ft.) | HORIZONTAL NAD83 | VERTICAL NAVD88 | |
| LOCATION COORDINATES X = 1,146,730 Y = 252,846 | | | ELEVATION TOP OF BORING -37.1 Ft. | | | |
| ELEV. | DEPTH | LEGEND | CLASSIFICATION OF MATERIALS | SAMPLE | LABORATORY RESULTS | |
| | | | vessel's fathometer water depth reading and applying NOAA tidal gauge data conversion factor. | | | |

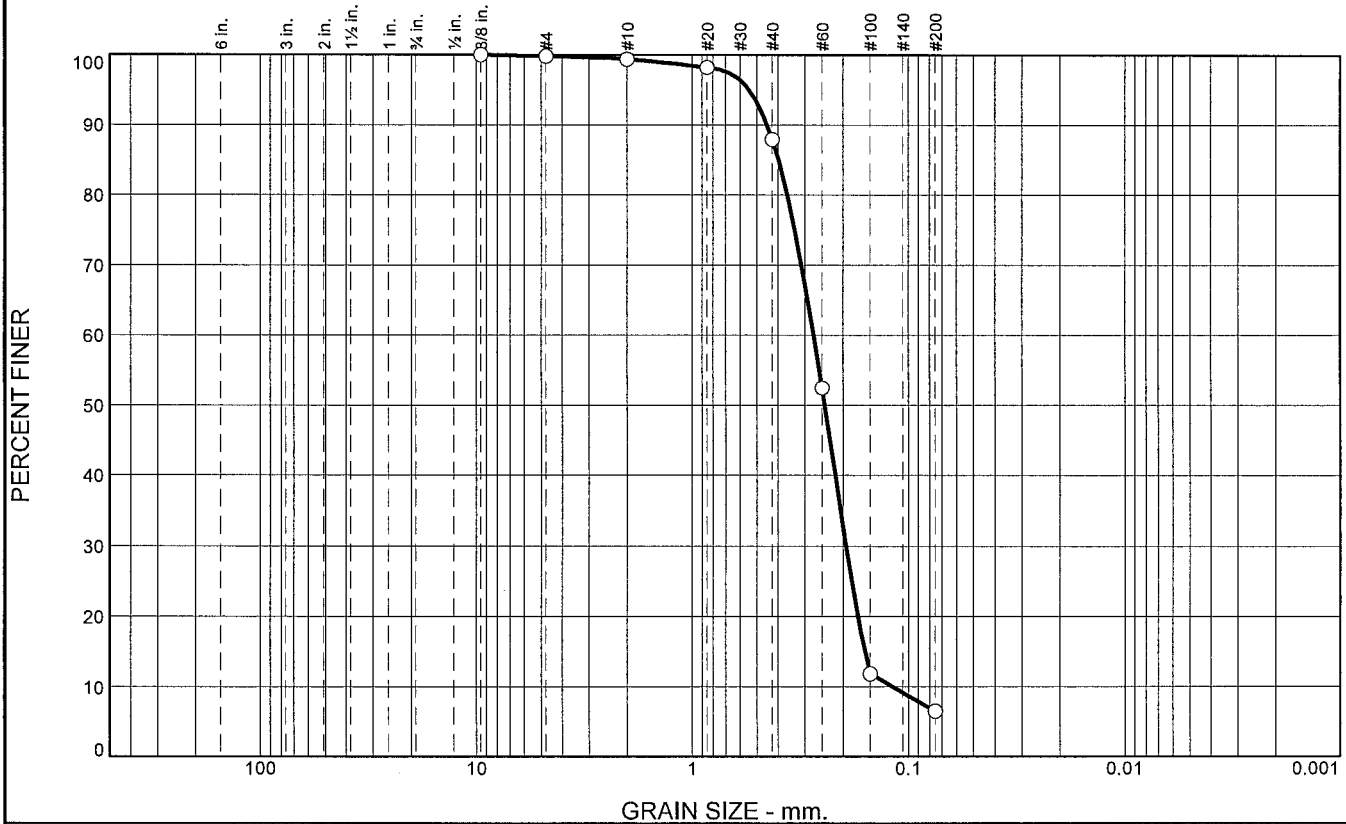


Boring Designation BI-PB-042-10

| | | | | |
|--|--|---|--|--|
| DRILLING LOG | | DIVISION South Atlantic | INSTALLATION Mobile District | SHEET 1 OF 1 SHEETS |
| 1. PROJECT MsCIP Barrier Island Restoration Petit Bois Pass- AL East | | | 9. SIZE AND TYPE OF BIT N/A | |
| 2. BORING DESIGNATION BI-PB-042-10 | | 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 | | <input type="checkbox"/> AUTO HAMMER <input type="checkbox"/> MANUAL HAMMER |
| 4. NAME OF DRILLER Construction Solutions International, Inc. | | 12. TOTAL SAMPLES | | DISTURBED 3 |
| 5. DIRECTION OF BORING <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED | | 13. TOTAL NUMBER CORE BOXES | | UNDISTURBED (UD) 0 |
| 6. THICKNESS OF OVERBURDEN N/A | | 14. WATER DEPTH 33 Ft. | | 15. DATE BORING |
| 7. DEPTH DRILLED INTO ROCK N/A | | 16. ELEVATION TOP OF BORING -32.2 Ft. | | STARTED 07-28-10 |
| 8. TOTAL DEPTH OF BORING 15.5 Ft. | | 17. TOTAL RECOVERY FOR BORING 100% | | COMPLETED 07-28-10 |
| 18. SIGNATURE AND TITLE OF INSPECTOR Chris Gillentine, Geologist | | | | |

| ELEV. | DEPTH | LEGEND | CLASSIFICATION OF MATERIALS | SAMPLE | LABORATORY RESULTS |
|-------|-------|--|---|--------|--|
| -32.2 | 0.0 | | | | |
| | |  | SAND, poorly-graded, mostly medium-grained sand-sized quartz, dark gray (SP) | A | Classification: SP-SM Color: 2.5Y 5/2-grayish brown D50: 0.2428 mm % Fines: 6.5 |
| | | | SAND, poorly-graded, mostly fine-grained sand-sized quartz, trace shell fragments, lt. gray (SP) | B | Classification: SP-SM Color: 2.5Y 6/2-light brownish gray D50: 0.2663 mm % Fines: 5.2 |
| -41.2 | 9.0 | | | | |
| | | | | C | Classification: SP Color: 5Y 8/1-white D50: 0.257 mm % Fines: 3.7 |
| -47.7 | 15.5 | | | | |
| | | | NOTES: 1. Soils are field visually classified in accordance with the Unified Soils Classification System. 2. NS = Sample not submitted for laboratory analysis from this interval. 3. Seafloor elevation calculated using sampling vessel's fathometer water depth reading and applying NOAA tidal gauge data conversion factor. | | |

Particle Size Distribution Report



| % +3" | % Gravel | | % Sand | | | % Fines | |
|-------|----------|------|--------|--------|------|---------|------|
| | Coarse | Fine | Coarse | Medium | Fine | Silt | Clay |
| 0.0 | 0.0 | 0.2 | 0.5 | 11.4 | 81.4 | 6.5 | |

| SIEVE SIZE | PERCENT FINER | SPEC.* PERCENT | PASS? (X=NO) |
|------------|---------------|----------------|--------------|
| .375 | 100.0 | | |
| #4 | 99.8 | | |
| #10 | 99.3 | | |
| #20 | 98.2 | | |
| #40 | 87.9 | | |
| #60 | 52.5 | | |
| #100 | 11.9 | | |
| #200 | 6.5 | | |

Material Description

SAND, (SP-SM), medium to fine grained

Atterberg Limits

PL= LL= PI=

Coefficients

D₉₀= 0.4495 D₈₅= 0.3988 D₆₀= 0.2733
D₅₀= 0.2428 D₃₀= 0.1937 D₁₅= 0.1585
D₁₀= 0.1178 C_u= 2.32 C_c= 1.17

Classification

USCS= SP-SM AASHTO=

Remarks

CADD CODE = CH10D965

* (no specification provided)

Location: USACE Sample # BI-PB-42-10A
Sample Number: TE Lab ID: 4612.09

Depth: 0.0 - 5.0 (ft.)

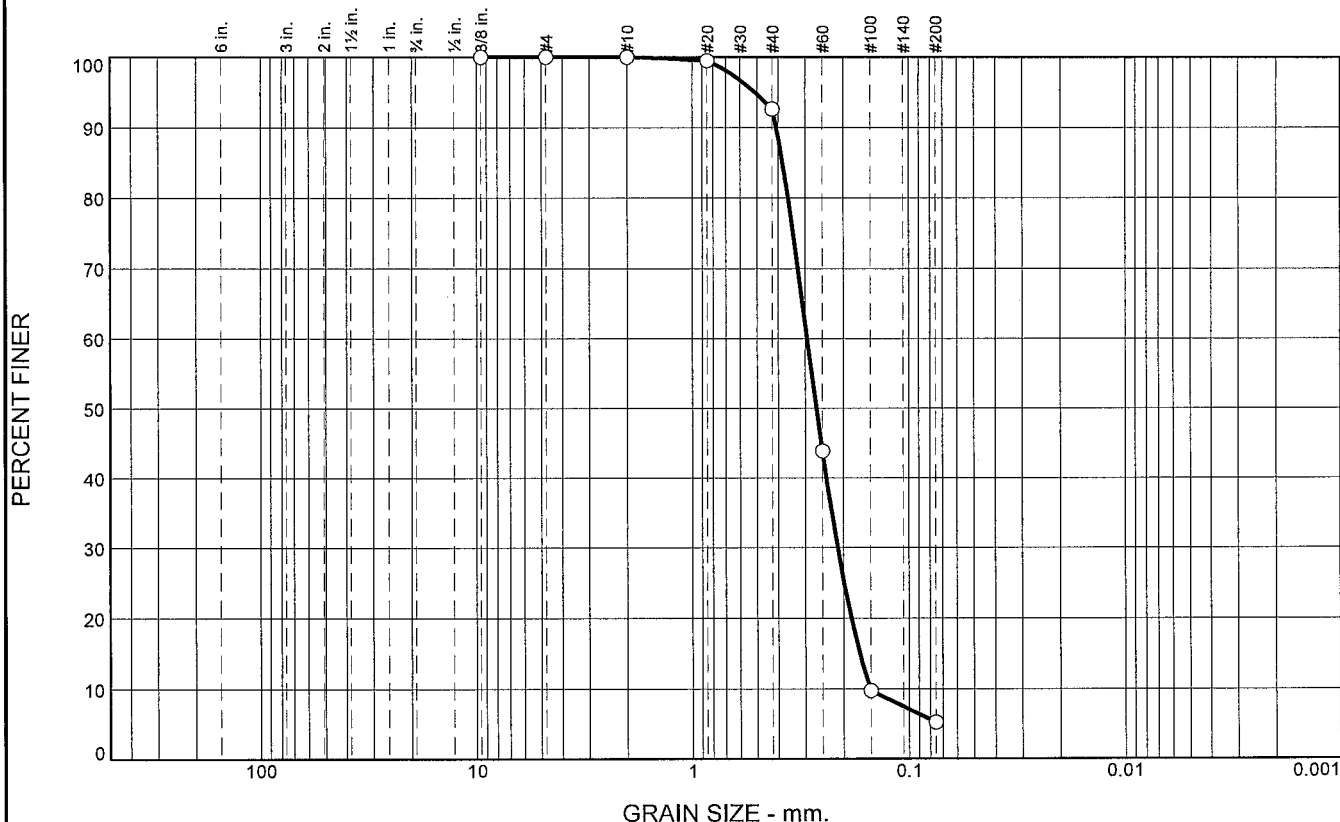
Date: 8/7/10

| | |
|--|---|
| <p>Thompson Engineering</p> <p>Mobile, Alabama</p> | <p>Client: US Army Corps of Engineers Project: Contract No. W91278-10-D-0026 - Task 03 Mississippi Barrier Island Restoration Project Project No: 10-2123-0009 Report No.</p> |
|--|---|

Tested By: J.Maddox

Checked By: R.Byrd

Particle Size Distribution Report



| % +3" | % Gravel | | % Sand | | | % Fines | |
|-------|----------|------|--------|--------|------|---------|------|
| | Coarse | Fine | Coarse | Medium | Fine | Silt | Clay |
| 0.0 | 0.0 | 0.0 | 0.0 | 7.4 | 87.4 | 5.2 | |

| SIEVE SIZE | PERCENT FINER | SPEC.* PERCENT | PASS? (X=NO) |
|------------|---------------|----------------|--------------|
| .375 | 100.0 | | |
| #4 | 100.0 | | |
| #10 | 100.0 | | |
| #20 | 99.5 | | |
| #40 | 92.6 | | |
| #60 | 43.9 | | |
| #100 | 9.8 | | |
| #200 | 5.2 | | |

Material Description

SAND, (SP-SM), fine grained

Atterberg Limits

PL= LL= PI=

Coefficients

D₉₀= 0.4078 D₈₅= 0.3815 D₆₀= 0.2937
D₅₀= 0.2663 D₃₀= 0.2130 D₁₅= 0.1690
D₁₀= 0.1509 C_u= 1.95 C_c= 1.02

Classification

USCS= SP-SM AASHTO=

Remarks

CADD CODE = CH10D965

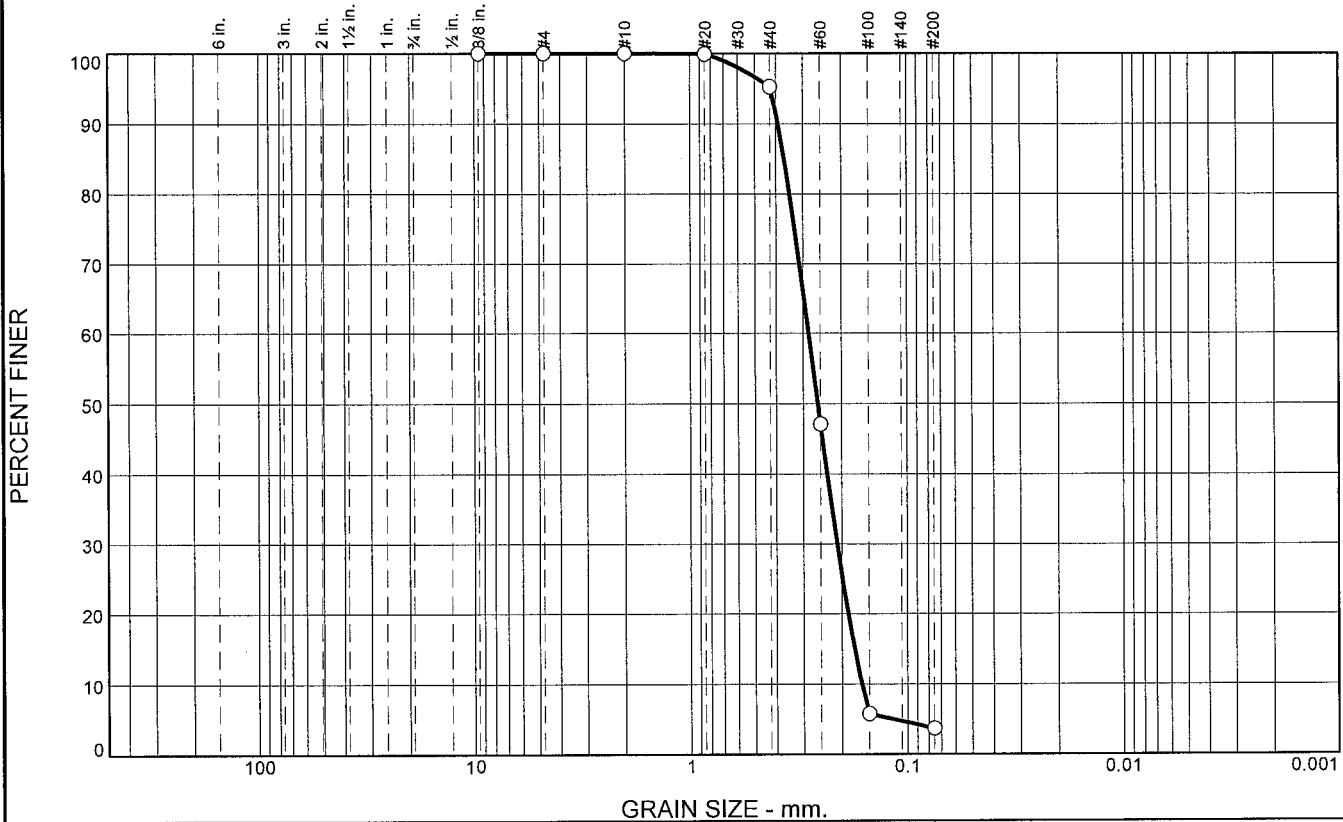
* (no specification provided)

Location: USACE Sample # BI-PB-42-10B **Depth:** 5.0 - 10.0 (ft.) **Date:** 8/7/10
Sample Number: TE Lab ID: 4612.10

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

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

Particle Size Distribution Report



| % +3" | % Gravel | | % Sand | | | % Fines | |
|-------|----------|------|--------|--------|------|---------|------|
| | Coarse | Fine | Coarse | Medium | Fine | Silt | Clay |
| 0.0 | 0.0 | 0.0 | 0.0 | 4.7 | 91.6 | 3.7 | |

| SIEVE SIZE | PERCENT FINER | SPEC.* PERCENT | PASS? (X=NO) |
|------------|---------------|----------------|--------------|
| .375 | 100.0 | | |
| #4 | 100.0 | | |
| #10 | 100.0 | | |
| #20 | 99.9 | | |
| #40 | 95.3 | | |
| #60 | 47.1 | | |
| #100 | 5.8 | | |
| #200 | 3.7 | | |

Material Description

SAND, (SP), fine grained

Atterberg Limits

PL= LL= PI=

Coefficients

D₉₀= 0.3909 D₈₅= 0.3663 D₆₀= 0.2827
D₅₀= 0.2570 D₃₀= 0.2101 D₁₅= 0.1752
D₁₀= 0.1623 C_u= 1.74 C_c= 0.96

Classification

USCS= SP AASHTO=

Remarks

CADD CODE = CH10D965

* (no specification provided)

Location: USACE Sample # BI-PB-42-10C
Sample Number: TE Lab ID: 4612.11

Depth: 10.0 - 15.0 (ft.)

Date: 8/7/10

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

Tested By: J.Maddox Checked By: R.Byrd

Boring Designation BI-PB-043-10

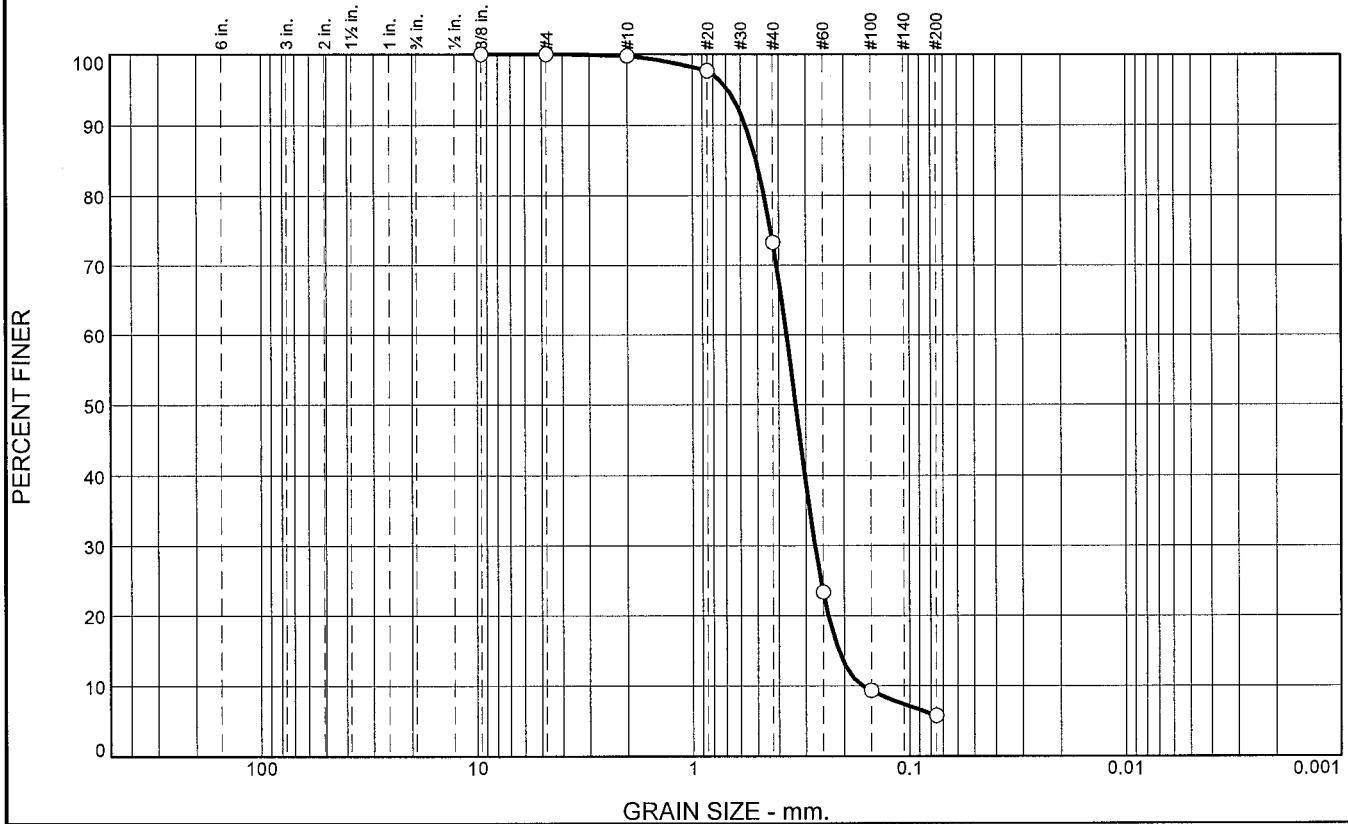
| | | | | |
|--|--|---|--|--|
| DRILLING LOG | | DIVISION South Atlantic | INSTALLATION Mobile District | SHEET 1 OF 2 SHEETS |
| 1. PROJECT MsCIP Barrier Island Restoration Petit Bois Pass- AL East | | | 9. SIZE AND TYPE OF BIT N/A | |
| 2. BORING DESIGNATION BI-PB-043-10 | | 10. COORDINATE SYSTEM/DATUM State Plane, MSE (U.S. Ft.) | | HORIZONTAL NAD83 |
| 3. DRILLING AGENCY Corps of Engineers - CESAM | | 11. MANUFACTURER'S DESIGNATION OF DRILL Vibracore | | <input type="checkbox"/> AUTO HAMMER <input type="checkbox"/> MANUAL HAMMER |
| 4. NAME OF DRILLER Construction Solutions International, Inc. | | 12. TOTAL SAMPLES | | DISTURBED 0 |
| 5. DIRECTION OF BORING <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED | | 13. TOTAL NUMBER CORE BOXES | | UNDISTURBED (UD) 0 |
| 6. THICKNESS OF OVERBURDEN N/A | | 14. WATER DEPTH 38 Ft. | | 15. DATE BORING |
| 7. DEPTH DRILLED INTO ROCK N/A | | 16. ELEVATION TOP OF BORING -39.0 Ft. | | STARTED 07-28-10 |
| 8. TOTAL DEPTH OF BORING 20.0 Ft. | | 17. TOTAL RECOVERY FOR BORING 100% | | COMPLETED 07-28-10 |
| 18. SIGNATURE AND TITLE OF INSPECTOR Chris Gillentine, Geologist | | | | |

| ELEV. | DEPTH | LEGEND | CLASSIFICATION OF MATERIALS | SAMPLE | LABORATORY RESULTS |
|-------|-------|--------|--|--------|--|
| -39.0 | 0.0 | | | | |
| | | ••••• | SAND, poorly-graded, mostly fine-grained sand-sized quartz, trace shell fragments, lt. gray (SP) | A | Classification: SP-SM Color: 2.5Y 7/2-light gray D50: 0.334 mm % Fines: 5.8 |
| | | ••••• | | B | Classification: SM Color: 2.5Y 7/2-light gray D50: 0.306 mm % Fines: 12.4 |
| -49.0 | 10.0 | // | CLAY, lean, trace shell fragments, dark gray (CL) | NS | |
| -54.0 | 15.0 | // | SAND, clayey, trace shell fragments, dark gray (SC) | C | Classification: SP Color: 2.5Y 7/1-light gray D50: 0.2151 mm % Fines: 3.7 |
| -59.0 | 20.0 | | | | |
| | | | NOTES: 1. Soils are field visually classified in accordance with the Unified Soils Classification System. 2. NS = Sample not submitted for laboratory analysis from this interval. 3. Seafloor elevation determined from 2010 | | |

| DRILLING LOG (Cont. Sheet) | | | INSTALLATION Mobile District | | | SHEET 2 |
|--|-------|--------|---|----------------------------|---------------------------|--------------------|
| | | | | | | OF 2 SHEETS |
| PROJECT MsCIP Barrier Island Restoration | | | COORDINATE SYSTEM/DATUM State Plane, MSE (U.S. Ft.) | HORIZONTAL NAD83 | VERTICAL NAVD88 | |
| LOCATION COORDINATES X = 1,149,697 Y = 252,849 | | | ELEVATION TOP OF BORING -39.0 Ft. | | | |
| ELEV. | DEPTH | LEGEND | CLASSIFICATION OF MATERIALS | SAMPLE | LABORATORY RESULTS | |
| | | | USACE survey. | | | |



Particle Size Distribution Report



| % +3" | % Gravel | | % Sand | | | % Fines | |
|-------|----------|------|--------|--------|------|---------|------|
| | Coarse | Fine | Coarse | Medium | Fine | Silt | Clay |
| 0.0 | 0.0 | 0.0 | 0.2 | 26.5 | 67.5 | 5.8 | |

| SIEVE SIZE | PERCENT FINER | SPEC.* PERCENT | PASS? (X=NO) |
|------------|---------------|----------------|--------------|
| .375 | 100.0 | | |
| #4 | 100.0 | | |
| #10 | 99.8 | | |
| #20 | 97.6 | | |
| #40 | 73.3 | | |
| #60 | 23.4 | | |
| #100 | 9.4 | | |
| #200 | 5.8 | | |

Material Description

SAND, (SP-SM), medium to fine grained

Atterberg Limits

PL= LL= PI=

Coefficients

D₉₀= 0.5693 D₈₅= 0.5078 D₆₀= 0.3682
D₅₀= 0.3340 D₃₀= 0.2722 D₁₅= 0.2121
D₁₀= 0.1642 C_u= 2.24 C_c= 1.23

Classification

USCS= SP-SM AASHTO=

Remarks

CADD CODE = CH10D965

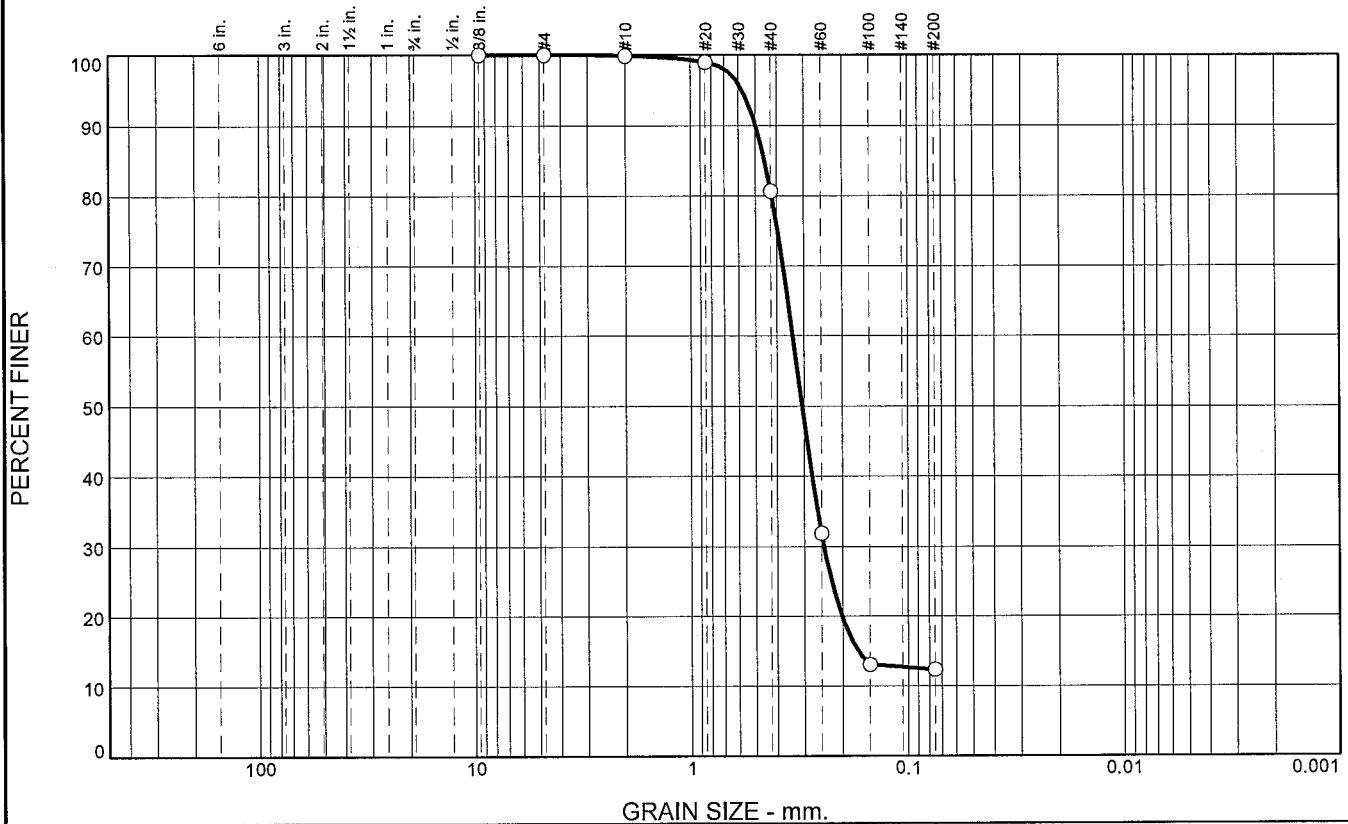
* (no specification provided)

Location: USACE Sample # BI-PB-43-10A **Depth:** 0.0 - 5.0 (ft.) **Date:** 8/7/10
Sample Number: TE Lab ID: 4612.12

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

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

Particle Size Distribution Report



| % +3" | % Gravel | | % Sand | | | % Fines | |
|-------|----------|------|--------|--------|------|---------|------|
| | Coarse | Fine | Coarse | Medium | Fine | Silt | Clay |
| 0.0 | 0.0 | 0.0 | 0.1 | 19.3 | 68.2 | 12.4 | |

| SIEVE SIZE | PERCENT FINER | SPEC.* PERCENT | PASS? (X=NO) |
|------------|---------------|----------------|--------------|
| .375 | 100.0 | | |
| #4 | 100.0 | | |
| #10 | 99.9 | | |
| #20 | 98.9 | | |
| #40 | 80.6 | | |
| #60 | 31.9 | | |
| #100 | 13.1 | | |
| #200 | 12.4 | | |

Material Description

SILTY SAND, (SM), medium to fine grained

Atterberg Limits

PL= LL= PI=

Coefficients

D₉₀= 0.4985 D₈₅= 0.4534 D₆₀= 0.3381
D₅₀= 0.3060 D₃₀= 0.2435 D₁₅= 0.1698
D₁₀= C_u= C_c=

Classification

USCS= SM AASHTO=

Remarks

CADD CODE = CH10D965

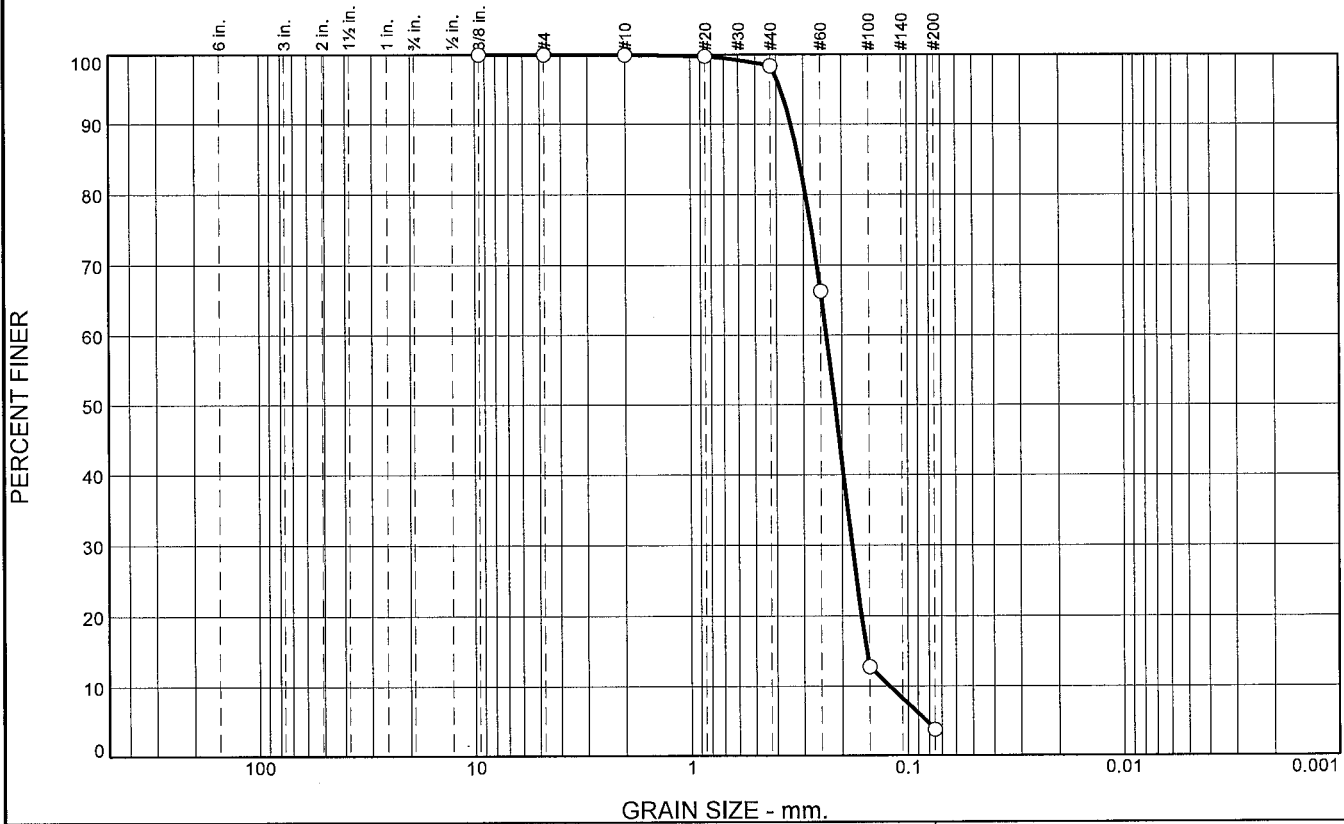
* (no specification provided)

Location: USACE Sample # BI-PB-43-10B **Depth:** 5.0 - 10.0 (ft.) **Date:** 8/7/10
Sample Number: TE Lab ID: 4612.13

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

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

Particle Size Distribution Report



| % +3" | % Gravel | | % Sand | | | % Fines | |
|-------|----------|------|--------|--------|------|---------|------|
| | Coarse | Fine | Coarse | Medium | Fine | Silt | Clay |
| 0.0 | 0.0 | 0.0 | 0.1 | 1.6 | 94.6 | 3.7 | |

| SIEVE SIZE | PERCENT FINER | SPEC.* PERCENT | PASS? (X=NO) |
|------------|---------------|----------------|--------------|
| .375 | 100.0 | | |
| #4 | 100.0 | | |
| #10 | 99.9 | | |
| #20 | 99.7 | | |
| #40 | 98.3 | | |
| #60 | 66.3 | | |
| #100 | 12.8 | | |
| #200 | 3.7 | | |

Material Description

SAND, (SP), fine grained

Atterberg Limits

PL= LL= PI=

Coefficients

D₉₀= 0.3426 D₈₅= 0.3145 D₆₀= 0.2353
D₅₀= 0.2151 D₃₀= 0.1804 D₁₅= 0.1544
D₁₀= 0.1212 C_u= 1.94 C_c= 1.14

Classification

USCS= SP AASHTO=

Remarks

CADD CODE = CH10D965

* (no specification provided)

Location: USACE Sample # BI-PB-43-10C
Sample Number: TE Lab ID: 4612.14

Depth: 15.0 - 20.0 (ft.)?

Date: 8/7/10

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

Tested By: G.Fancher Checked By: R.Byrd

Boring Designation BI-PB-044-10

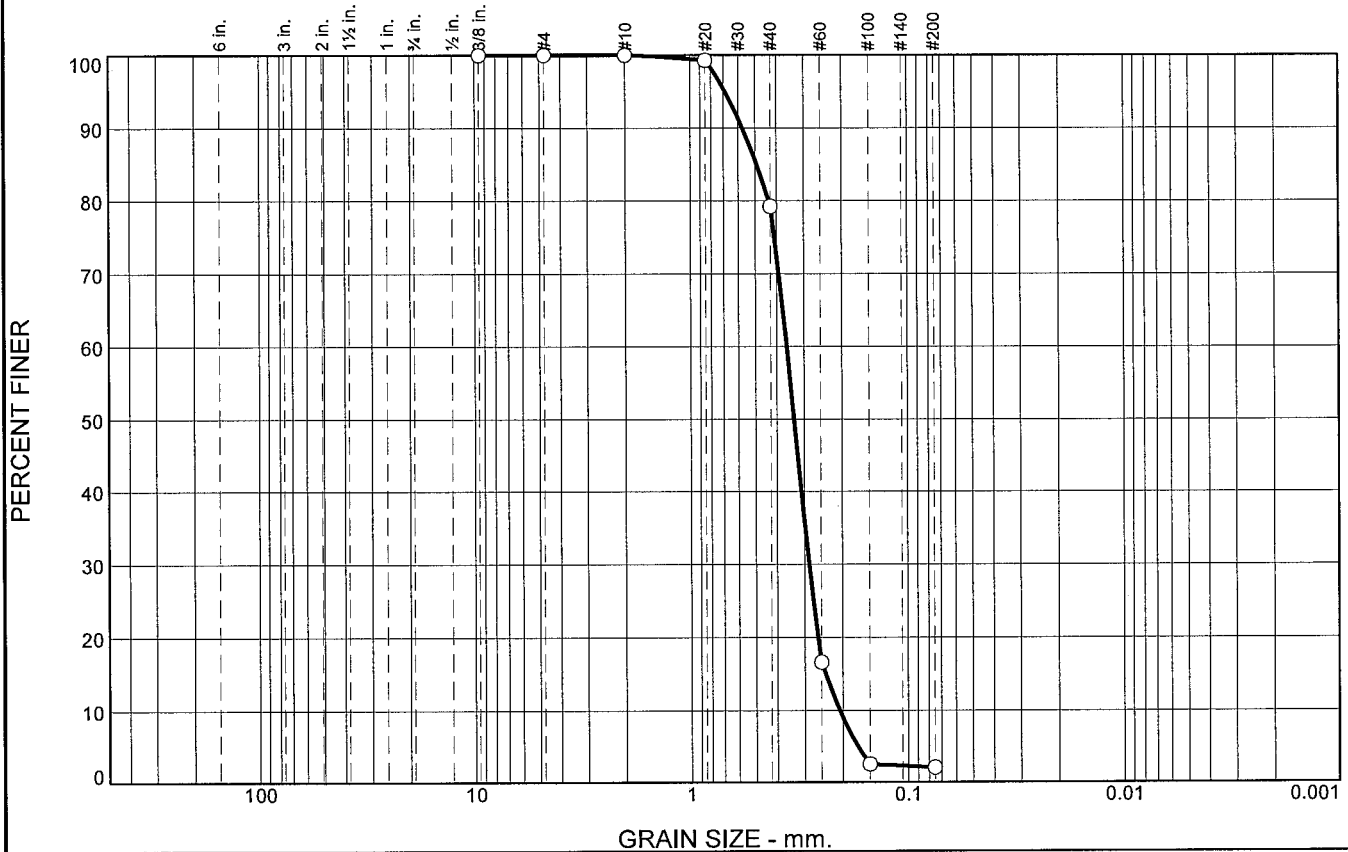
| | | | | |
|--|--|--|--|--|
| DRILLING LOG | | DIVISION South Atlantic | INSTALLATION Mobile District | SHEET 1 OF 2 SHEETS |
| 1. PROJECT MsCIP Barrier Island Restoration Petit Bois Pass- AL East | | 9. SIZE AND TYPE OF BIT N/A | | |
| 2. BORING DESIGNATION BI-PB-044-10 | | 10. COORDINATE SYSTEM/DATUM State Plane, MSE (U.S. Ft.) | | HORIZONTAL NAD83 |
| 3. DRILLING AGENCY Corps of Engineers - CESAM | | 11. MANUFACTURER'S DESIGNATION OF DRILL Vibracore | | <input type="checkbox"/> AUTO HAMMER <input type="checkbox"/> MANUAL HAMMER |
| 4. NAME OF DRILLER Construction Solutions International, Inc. | | 12. TOTAL SAMPLES 3 | | |
| 5. DIRECTION OF BORING <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED | | 13. TOTAL NUMBER CORE BOXES | | UNDISTURBED (UD) 0 |
| 6. THICKNESS OF OVERBURDEN N/A | | 14. WATER DEPTH 38 Ft. | | |
| 7. DEPTH DRILLED INTO ROCK N/A | | 15. DATE BORING | | STARTED 07-28-10 COMPLETED 07-28-10 |
| 8. TOTAL DEPTH OF BORING 20.0 Ft. | | 16. ELEVATION TOP OF BORING -38.6 Ft. | | |
| | | 17. TOTAL RECOVERY FOR BORING 100% | | |
| | | 18. SIGNATURE AND TITLE OF INSPECTOR Chris Gillentine, Geologist | | |

| ELEV. | DEPTH | LEGEND | CLASSIFICATION OF MATERIALS | SAMPLE | LABORATORY RESULTS |
|-------|-------|--------|--|--------|--|
| -38.6 | 0.0 | | SAND, poorly-graded, mostly fine to medium-grained sand-sized quartz, trace shell fragments, lt. gray (SP) | A | Classification: SP Color: 2.5Y 6/1-gray D50: 0.3331 mm % Fines: 2 |
| | | | | B | Classification: SP Color: 2.5Y 7/1-light gray D50: 0.3428 mm % Fines: 2.1 |
| | | | | C | Classification: SP Color: 2.5Y 7/1-light gray D50: 0.3322 mm % Fines: 2.3 |
| | | | | D | Classification: SP Color: 2.5Y 7/1-light gray D50: 0.3566 mm % Fines: 3.6 |
| -58.6 | 20.0 | | NOTES: 1. Soils are field visually classified in accordance with the Unified Soils Classification System. 2. NS = Sample not submitted for laboratory analysis from this interval. 3. Seafloor elevation determined from 2010 | | |

| DRILLING LOG (Cont. Sheet) | | | INSTALLATION Mobile District | | | SHEET 2 |
|--|-------|--------|---|----------------------------|---------------------------|--------------------|
| | | | | | | OF 2 SHEETS |
| PROJECT MsCIP Barrier Island Restoration | | | COORDINATE SYSTEM/DATUM State Plane, MSE (U.S. Ft.) | HORIZONTAL NAD83 | VERTICAL NAVD88 | |
| LOCATION COORDINATES X = 1,151,166 Y = 252,917 | | | ELEVATION TOP OF BORING -38.6 Ft. | | | |
| ELEV. | DEPTH | LEGEND | CLASSIFICATION OF MATERIALS | SAMPLE | LABORATORY RESULTS | |
| | | | USACE survey. | | | |



Particle Size Distribution Report



| % +3" | % Gravel | | % Sand | | | % Fines | |
|-------|----------|------|--------|--------|------|---------|------|
| | Coarse | Fine | Coarse | Medium | Fine | Silt | Clay |
| 0.0 | 0.0 | 0.0 | 0.0 | 20.8 | 77.2 | 2.0 | |

| SIEVE SIZE | PERCENT FINER | SPEC.* PERCENT | PASS? (X=NO) |
|------------|---------------|----------------|--------------|
| .375 | 100.0 | | |
| #4 | 100.0 | | |
| #10 | 100.0 | | |
| #20 | 99.3 | | |
| #40 | 79.2 | | |
| #60 | 16.6 | | |
| #100 | 2.5 | | |
| #200 | 2.0 | | |

Material Description

SAND, (SP), medium to fine grained

Atterberg Limits

PL= LL= PI=

Coefficients

D₉₀= 0.5732 D₈₅= 0.4935 D₆₀= 0.3595
D₅₀= 0.3331 D₃₀= 0.2847 D₁₅= 0.2398
D₁₀= 0.2068 C_u= 1.74 C_c= 1.09

Classification

USCS= SP AASHTO=

Remarks

CADD CODE = CH10D965

* (no specification provided)

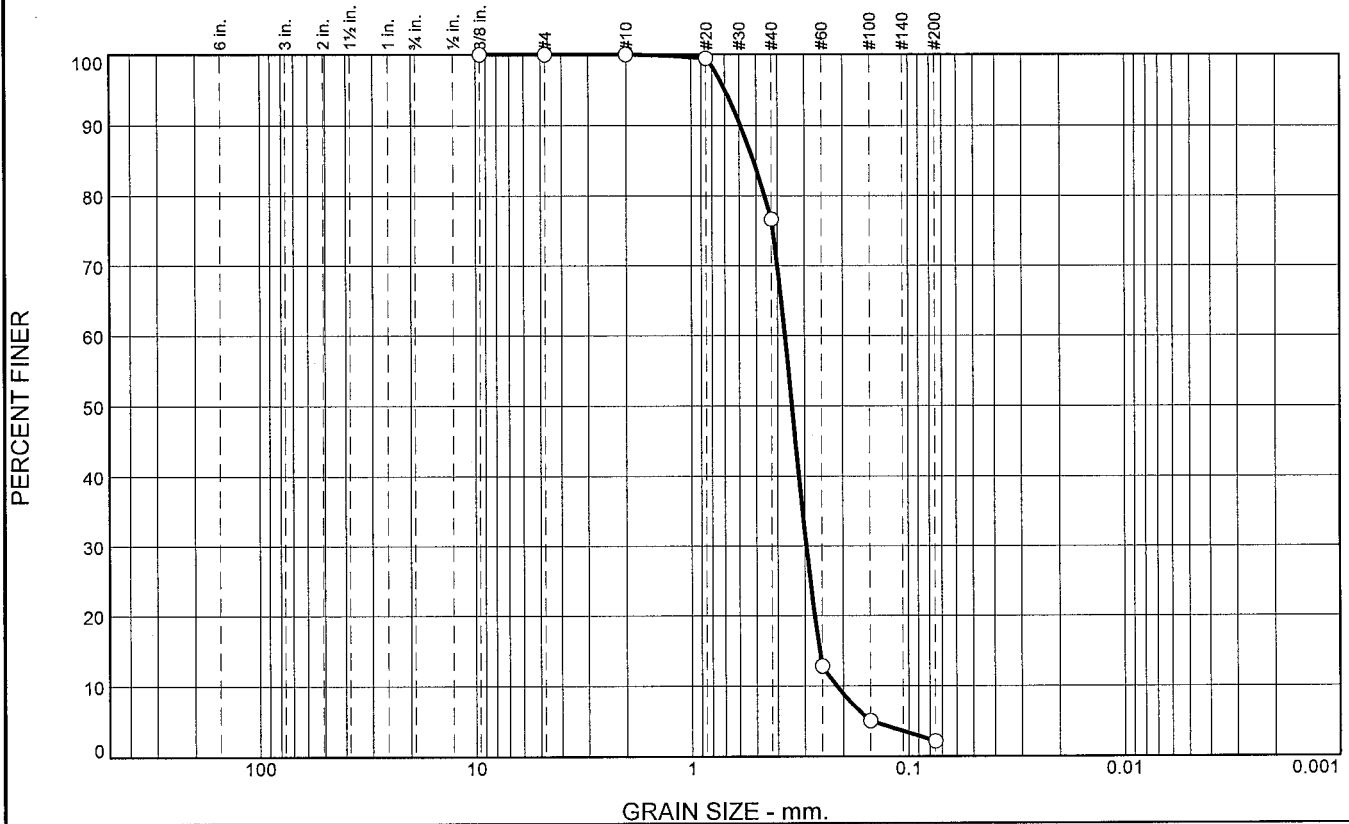
Location: USACE Sample # BI-PB-44-10A
Sample Number: TE Lab ID: 4612.15

Depth: 0.0 - 5.0 (ft.)

Date: 8/7/10

| | |
|--|---|
| <p>Thompson Engineering</p> <p>Mobile, Alabama</p> | <p>Client: US Army Corps of Engineers</p> <p>Project: Contract No. W91278-10-D-0026 - Task 03 Mississippi Barrier Island Restoration Project</p> <p>Project No: 10-2123-0009 Report No.</p> |
|--|---|

Particle Size Distribution Report



| % +3" | % Gravel | | % Sand | | | % Fines | |
|-------|----------|------|--------|--------|------|---------|------|
| | Coarse | Fine | Coarse | Medium | Fine | Silt | Clay |
| 0.0 | 0.0 | 0.0 | 0.0 | 23.4 | 74.5 | 2.1 | |

| SIEVE SIZE | PERCENT FINER | SPEC.* PERCENT | PASS? (X=NO) |
|------------|---------------|----------------|--------------|
| .375 | 100.0 | | |
| #4 | 100.0 | | |
| #10 | 100.0 | | |
| #20 | 99.4 | | |
| #40 | 76.6 | | |
| #60 | 12.9 | | |
| #100 | 5.1 | | |
| #200 | 2.1 | | |

Material Description

SAND, (SP), medium to fine grained

Atterberg Limits

PL= LL= PI=

Coefficients

D₉₀= 0.5914 D₈₅= 0.5155 D₆₀= 0.3694
D₅₀= 0.3428 D₃₀= 0.2949 D₁₅= 0.2566
D₁₀= 0.2143 C_u= 1.72 C_c= 1.10

Classification

USCS= SP AASHTO=

Remarks

CADD CODE = CH10D965

* (no specification provided)

Location: USACE Sample # BI-PB-44-10B
Sample Number: TE Lab ID: 4612.16

Depth: 5.0 - 10.0 (ft.)

Date: 8/7/10

Thompson Engineering

Mobile, Alabama

Client: US Army Corps of Engineers

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

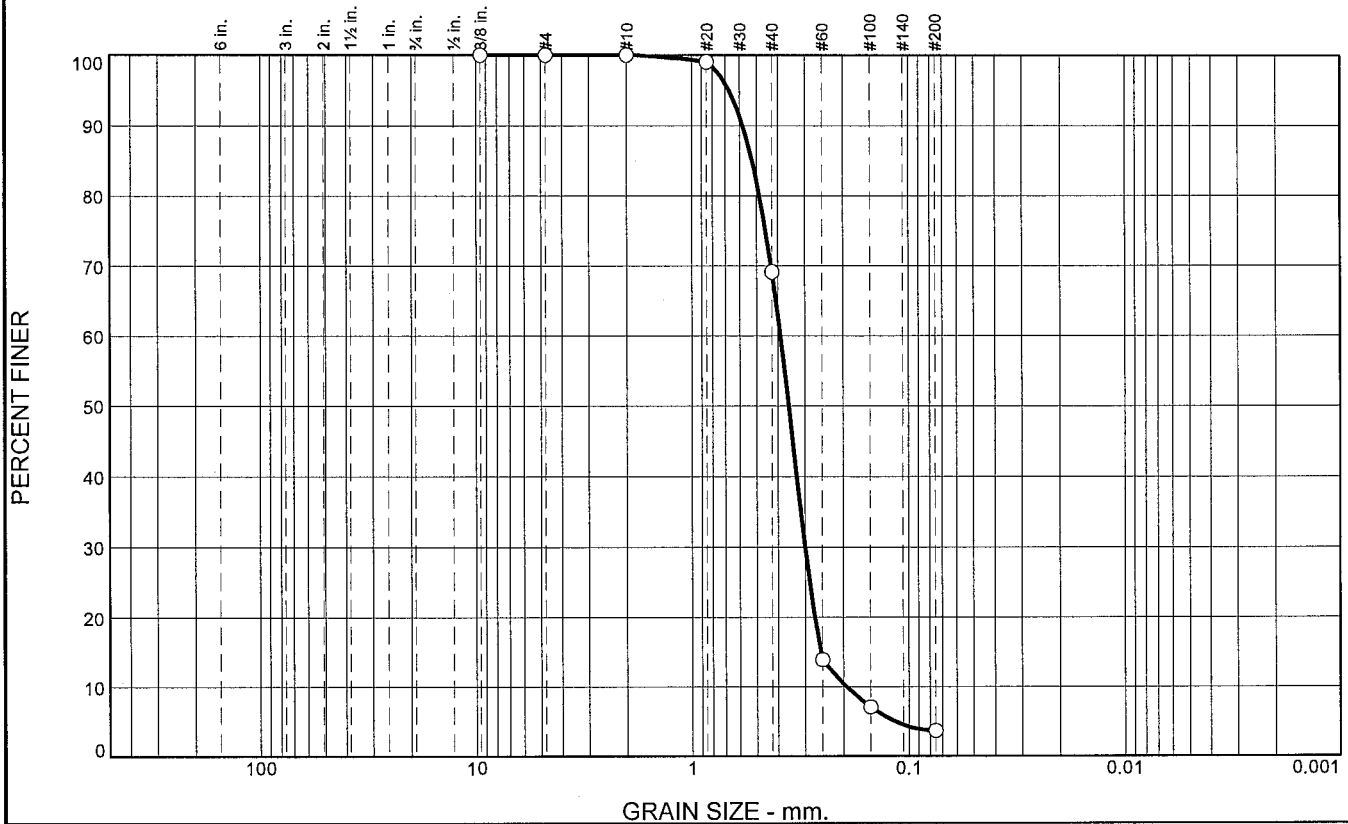
Project No.: 10-2123-0009

Report No.

Tested By: J.Maddox

Checked By: R.Byrd

Particle Size Distribution Report



| % +3" | % Gravel | | % Sand | | | % Fines | |
|-------|----------|------|--------|--------|------|---------|------|
| | Coarse | Fine | Coarse | Medium | Fine | Silt | Clay |
| 0.0 | 0.0 | 0.0 | 0.0 | 30.9 | 65.5 | 3.6 | |

| SIEVE SIZE | PERCENT FINER | SPEC.* PERCENT | PASS? (X=NO) |
|------------|---------------|----------------|--------------|
| .375 | 100.0 | | |
| #4 | 100.0 | | |
| #10 | 100.0 | | |
| #20 | 99.0 | | |
| #40 | 69.1 | | |
| #60 | 13.9 | | |
| #100 | 7.1 | | |
| #200 | 3.6 | | |

Material Description

SAND, (SP), medium to fine grained

Atterberg Limits

PL= LL= PI=

Coefficients

D₉₀= 0.5796 D₈₅= 0.5243 D₆₀= 0.3892
D₅₀= 0.3566 D₃₀= 0.2996 D₁₅= 0.2541
D₁₀= 0.1934 C_u= 2.01 C_c= 1.19

Classification

USCS= SP AASHTO=

Remarks

CADD CODE = CH10D965

* (no specification provided)

Location: USACE Sample # BI-PB-44-10D **Depth:** 15.0 - 20.0 (ft.) **Date:** 8/7/10
Sample Number: TE Lab ID: 4612.18

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

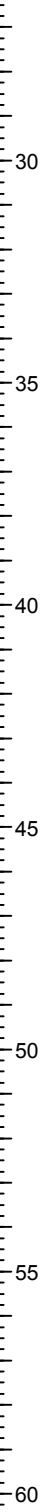
Tested By: J.Maddox **Checked By:** R.Byrd

Boring Designation BI-PB-045-10

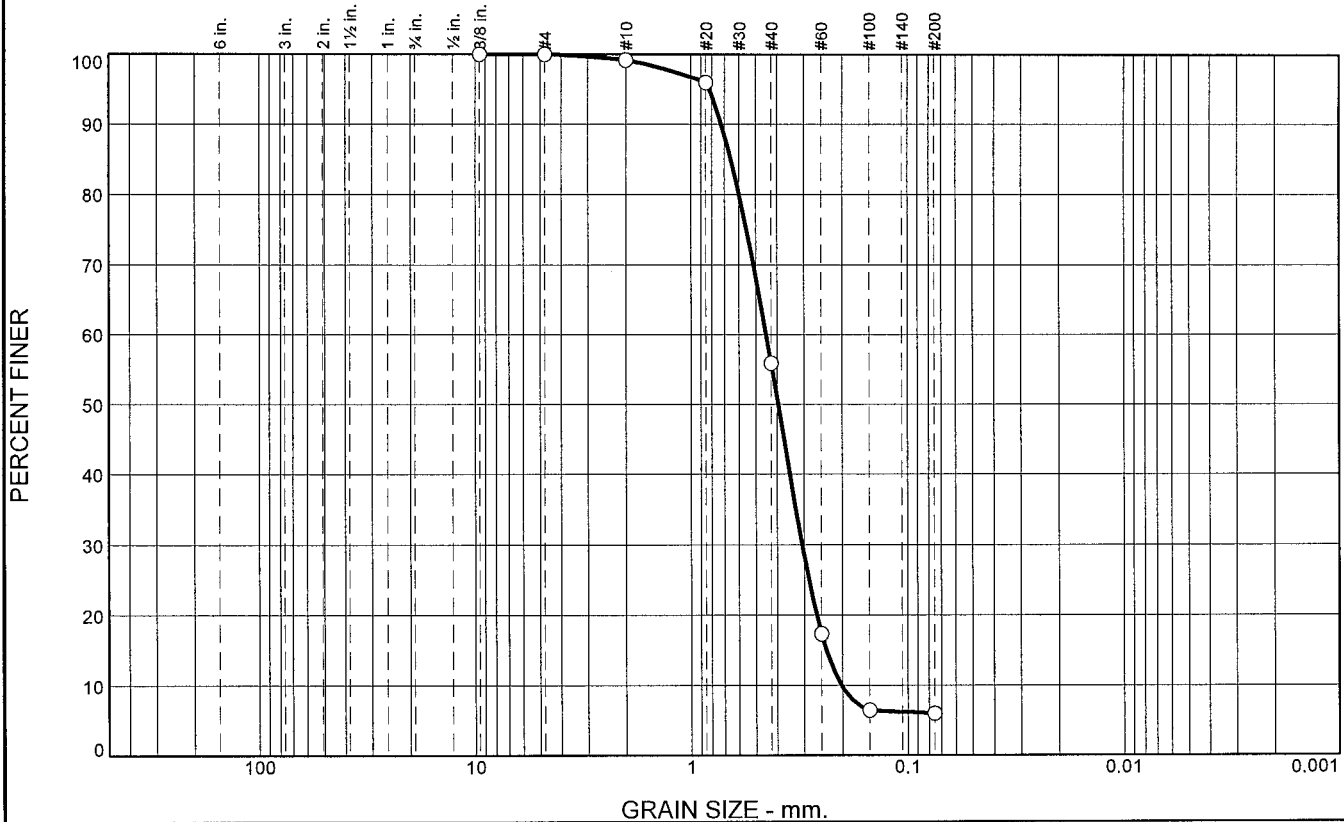
| | | | | |
|---|--|---|---------------------------------|---|
| DRILLING LOG | | DIVISION South Atlantic | INSTALLATION Mobile District | SHEET 1 OF 2 SHEETS |
| 1. PROJECT MsCIP Barrier Island Restoration Petit Bois Pass- AL East | | 9. SIZE AND TYPE OF BIT N/A | | |
| 2. BORING DESIGNATION BI-PB-045-10 | | 10. COORDINATE SYSTEM/DATUM State Plane, MSE (U.S. Ft.) | | HORIZONTAL NAD83 |
| | | 11. MANUFACTURER'S DESIGNATION OF DRILL Vibracore | | VERTICAL NAVD88 |
| 3. DRILLING AGENCY Corps of Engineers - CESAM | | 12. TOTAL SAMPLES DISTURBED 1 UNDISTURBED (UD) 0 | | |
| 4. NAME OF DRILLER Construction Solutions International, Inc. | | 13. TOTAL NUMBER CORE BOXES | | |
| 5. DIRECTION OF BORING <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED | | 14. WATER DEPTH 37 Ft. | | 15. DATE BORING STARTED 07-29-10 COMPLETED 07-29-10 |
| 6. THICKNESS OF OVERBURDEN N/A | | 16. ELEVATION TOP OF BORING -38.8 Ft. | | |
| 7. DEPTH DRILLED INTO ROCK N/A | | 17. TOTAL RECOVERY FOR BORING 100% | | |
| 8. TOTAL DEPTH OF BORING 20.0 Ft. | | 18. SIGNATURE AND TITLE OF INSPECTOR Chris Gillentine, Geologist | | |

| ELEV. | DEPTH | LEGEND | CLASSIFICATION OF MATERIALS | SAMPLE | LABORATORY RESULTS |
|-------|-------|-----------|--|--------|---|
| -38.8 | 0.0 | | | | |
| -40.8 | 2.0 | ••••• | SAND, poorly-graded, mostly medium-grained sand-sized quartz, trace shell fragments, dark gray (SP) | A | Classification: SP-SM Color: 5Y 5/2-olive gray D50: 0.3949 mm % Fines: 6 |
| | | ••••• | SAND, poorly-graded, mostly medium-grained sand-sized quartz, dark gray (SP) | | |
| -46.8 | 8.0 | ••••• | | NS | |
| | | / / / / / | CLAY, lean, dark gray (CL) At El. -50.8 Ft., trace medium-grained sand-sized quartz, lt. gray | | |
| -53.8 | 15.0 | ••••• | | | |
| | | ••••• | SAND, poorly-graded, mostly medium-grained sand-sized quartz, lt. gray (SP) | | |
| -58.8 | 20.0 | ••••• | | | |
| | | | NOTES: 1. Soils are field visually classified in accordance with the Unified Soils Classification System. 2. NS = Sample not submitted for laboratory analysis from this interval. 3. Seafloor elevation determined from 2010 | | |

| DRILLING LOG (Cont. Sheet) | | | INSTALLATION Mobile District | | | SHEET 2 |
|--|-------|--------|---|----------------------------|---------------------------|--------------------|
| | | | | | | OF 2 SHEETS |
| PROJECT MsCIP Barrier Island Restoration | | | COORDINATE SYSTEM/DATUM State Plane, MSE (U.S. Ft.) | HORIZONTAL NAD83 | VERTICAL NAVD88 | |
| LOCATION COORDINATES X = 1,152,623 Y = 252,702 | | | ELEVATION TOP OF BORING -38.8 Ft. | | | |
| ELEV. | DEPTH | LEGEND | CLASSIFICATION OF MATERIALS | SAMPLE | LABORATORY RESULTS | |
| | | | USACE survey. | | | |



Particle Size Distribution Report



| % +3" | % Gravel | | % Sand | | | % Fines | |
|-------|----------|------|--------|--------|------|---------|------|
| | Coarse | Fine | Coarse | Medium | Fine | Silt | Clay |
| 0.0 | 0.0 | 0.0 | 0.8 | 43.3 | 49.9 | 6.0 | |

| SIEVE SIZE | PERCENT FINER | SPEC.* PERCENT | PASS? (X=NO) |
|------------|---------------|----------------|--------------|
| .375 | 100.0 | | |
| #4 | 100.0 | | |
| #10 | 99.2 | | |
| #20 | 96.0 | | |
| #40 | 55.9 | | |
| #60 | 17.3 | | |
| #100 | 6.5 | | |
| #200 | 6.0 | | |

Material Description

SAND, (SP-SM), medium to fine grained

Atterberg Limits

PL= LL= PI=

Coefficients

D₉₀= 0.7241 D₈₅= 0.6540 D₆₀= 0.4480
D₅₀= 0.3949 D₃₀= 0.3064 D₁₅= 0.2374
D₁₀= 0.2025 C_u= 2.21 C_c= 1.04

Classification

USCS= SP-SM AASHTO=

Remarks

CADD CODE = CH10D965

* (no specification provided)

Location: USACE Sample # BI-PB-45-10A **Depth:** 0.0 - 5.0 (ft.) **Date:** 8/7/10
Sample Number: TE Lab ID: 4612.19

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

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

Boring Designation BI-PB-046-10

| | | | | |
|--|--|--|--|--|
| DRILLING LOG | | DIVISION South Atlantic | INSTALLATION Mobile District | SHEET 1 OF 2 SHEETS |
| 1. PROJECT MsCIP Barrier Island Restoration Petit Bois Pass- AL West | | | 9. SIZE AND TYPE OF BIT N/A | |
| 2. BORING DESIGNATION BI-PB-046-10 | | LOCATION COORDINATES E = 1,137,591 N = 251,286 | | 10. COORDINATE SYSTEM/DATUM State Plane, MSE (U.S. Ft.) |
| 3. DRILLING AGENCY Corps of Engineers - CESAM | | CONTRACTOR FILE NO. | | HORIZONTAL NAD83 |
| 4. NAME OF DRILLER Construction Solutions International, Inc. | | 11. MANUFACTURER'S DESIGNATION OF DRILL Vibracore | | <input type="checkbox"/> AUTO HAMMER <input type="checkbox"/> MANUAL HAMMER |
| 5. DIRECTION OF BORING <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED | | DEG. FROM VERTICAL | BEARING | 12. TOTAL SAMPLES |
| 6. THICKNESS OF OVERBURDEN N/A | | 13. TOTAL NUMBER CORE BOXES | | DISTURBED |
| 7. DEPTH DRILLED INTO ROCK N/A | | 14. WATER DEPTH 37 Ft. | | UNDISTURBED (UD) 0 |
| 8. TOTAL DEPTH OF BORING 20.0 Ft. | | 15. DATE BORING | | STARTED 08-06-10 |
| | | 16. ELEVATION TOP OF BORING -35.8 Ft. | | COMPLETED 08-06-10 |
| | | 17. TOTAL RECOVERY FOR BORING 100% | | |
| | | 18. SIGNATURE AND TITLE OF INSPECTOR Chris Gillentine, Geologist | | |

| ELEV. | DEPTH | LEGEND | CLASSIFICATION OF MATERIALS | SAMPLE | LABORATORY RESULTS |
|-------|-------|--------|---|--------|--------------------|
| -35.8 | 0.0 | | | | |
| | | ▨ | CLAY, fat, dark gray (CH) | | |
| -41.8 | 6.0 | | | | |
| | | ● | SAND, poorly-graded, mostly fine to medium-grained sand-sized quartz, dark gray (SP) | | |
| -44.8 | 9.0 | | | | |
| | | ▨ | CLAY, fat, dark gray (CH) | NS | |
| -55.8 | 20.0 | | | | |
| | | | NOTES: 1. Soils are field visually classified in accordance with the Unified Soils Classification System. 2. NS = Sample not submitted for laboratory analysis from this interval. 3. Seafloor elevation calculated using sampling | | |

| DRILLING LOG (Cont. Sheet) | | | INSTALLATION Mobile District | | | SHEET 2 |
|---|-------|--------|---|----------------------------|---------------------------|--------------------|
| | | | | | | OF 2 SHEETS |
| PROJECT MsCIP Barrier Island Restoration | | | COORDINATE SYSTEM/DATUM State Plane, MSE (U.S. Ft.) | HORIZONTAL NAD83 | VERTICAL NAVD88 | |
| LOCATION COORDINATES X = 1,137,591 Y = 251,286 | | | ELEVATION TOP OF BORING -35.8 Ft. | | | |
| ELEV. | DEPTH | LEGEND | CLASSIFICATION OF MATERIALS | SAMPLE | LABORATORY RESULTS | |
| | | | vessel's fathometer water depth reading and applying NOAA tidal gauge data conversion factor. | | | |

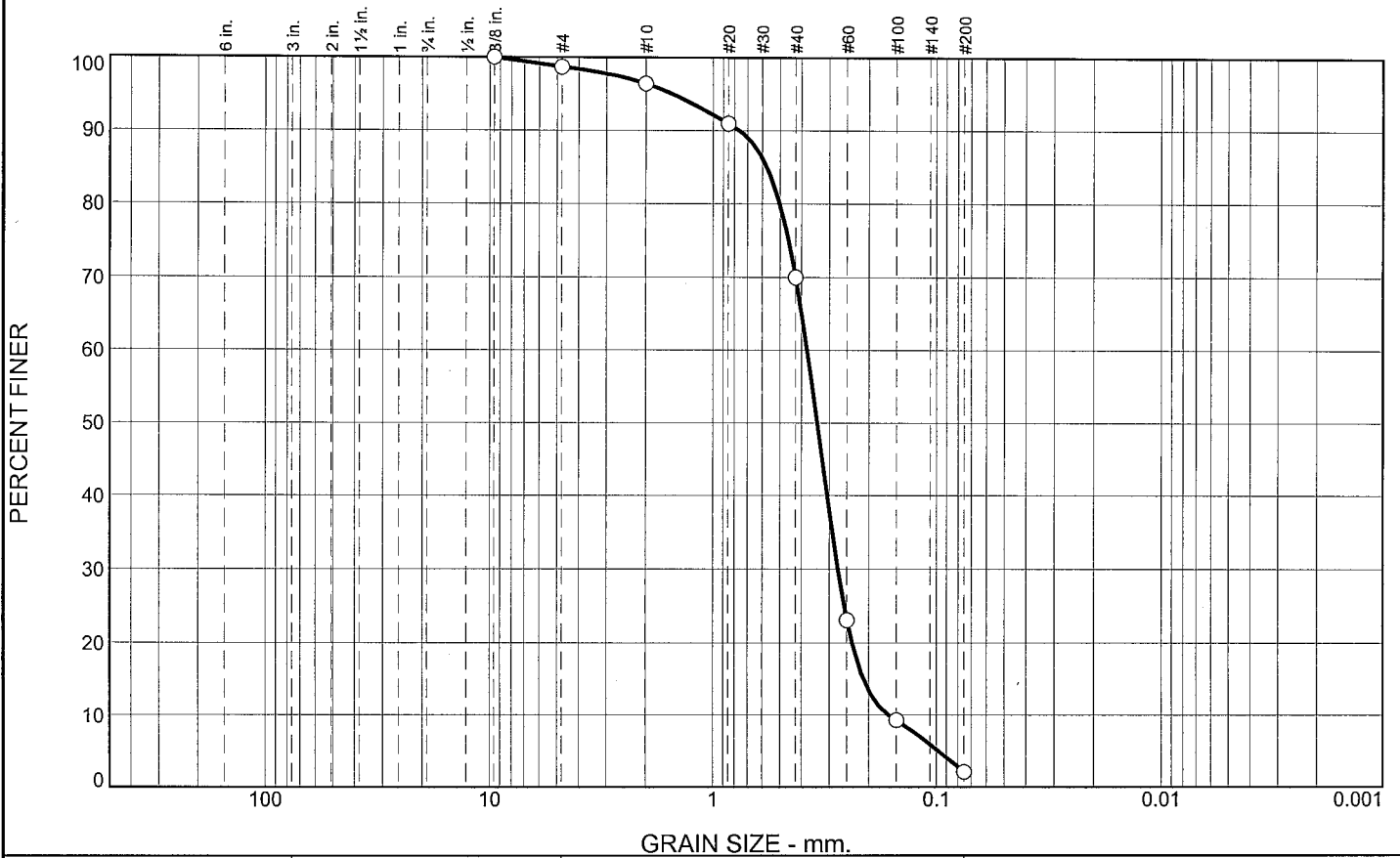


Boring Designation BI-PB-047-10

| | | | | |
|--|--|---|--|--|
| DRILLING LOG | | DIVISION South Atlantic | INSTALLATION Mobile District | SHEET 1 OF 1 SHEETS |
| 1. PROJECT MsCIP Barrier Island Restoration Petit Bois Pass- AL West | | | 9. SIZE AND TYPE OF BIT N/A | |
| 2. BORING DESIGNATION BI-PB-047-10 | | 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 | | <input type="checkbox"/> AUTO HAMMER <input type="checkbox"/> MANUAL HAMMER |
| 4. NAME OF DRILLER Construction Solutions International, Inc. | | 12. TOTAL SAMPLES | | DISTURBED 2 |
| 5. DIRECTION OF BORING <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED | | 13. TOTAL NUMBER CORE BOXES | | UNDISTURBED (UD) 0 |
| 6. THICKNESS OF OVERBURDEN N/A | | 14. WATER DEPTH 36 Ft. | | 15. DATE BORING |
| 7. DEPTH DRILLED INTO ROCK N/A | | 16. ELEVATION TOP OF BORING -35.0 Ft. | | STARTED 08-06-10 |
| 8. TOTAL DEPTH OF BORING 18.0 Ft. | | 17. TOTAL RECOVERY FOR BORING 100% | | COMPLETED 08-06-10 |
| 18. SIGNATURE AND TITLE OF INSPECTOR Chris Gillentine, Geologist | | | | |

| ELEV. | DEPTH | LEGEND | CLASSIFICATION OF MATERIALS | SAMPLE | LABORATORY RESULTS |
|-------|-------|----------|---|--------|---|
| -35.0 | 0.0 | | | | |
| -37.0 | 2.0 | ••••• | SAND, poorly-graded, mostly fine to medium-grained sand-sized quartz, gray (SP) | A | Classification: SP Color: 2.5Y 6/2-light brownish gray D50: 0.3398 mm % Fines: 2.1 |
| -41.0 | 6.0 | ••••• | SAND, poorly-graded, mostly fine to medium-grained sand-sized quartz, gray (SP) | B | Classification: SM Color: 2.5Y 4/2-dark grayish brown D50: 0.1913 mm % Fines: 23.4 |
| -53.0 | 18.0 | // // // | CLAY, fat, dark gray (CH) | NS | |
| | | | NOTES: 1. Soils are field visually classified in accordance with the Unified Soils Classification System. 2. NS = Sample not submitted for laboratory analysis from this interval. 3. Seafloor elevation calculated using sampling vessel's fathometer water depth reading and applying NOAA tidal gauge data conversion factor. | | |

Particle Size Distribution Report



| % +3" | % Gravel | | % Sand | | | % Fines | |
|-------|----------|------|--------|--------|------|---------|------|
| | Coarse | Fine | Coarse | Medium | Fine | Silt | Clay |
| 0.0 | 0.0 | 1.3 | 2.3 | 26.4 | 67.9 | 2.1 | |

| SIEVE SIZE | PERCENT FINER | SPEC.* PERCENT | PASS? (X=NO) |
|------------|---------------|----------------|--------------|
| .375 | 100.0 | | |
| #4 | 98.7 | | |
| #10 | 96.4 | | |
| #20 | 90.9 | | |
| #40 | 70.0 | | |
| #60 | 23.1 | | |
| #100 | 9.3 | | |
| #200 | 2.1 | | |

Material Description

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

Atterberg Limits

PL= LL= PI=

Coefficients

D₉₀= 0.7598 D₈₅= 0.5732 D₆₀= 0.3773
D₅₀= 0.3398 D₃₀= 0.2743 D₁₅= 0.2115
D₁₀= 0.1624 C_u= 2.32 C_c= 1.23

Classification

USCS= SP AASHTO=

Remarks

CADD CODE = CH10D965

* (no specification provided)

Location: USACE Sample # BI-PB-47-10A
Sample Number: TE Lab ID: 4622.31

Depth: 0.0 - 2.0 (ft.)

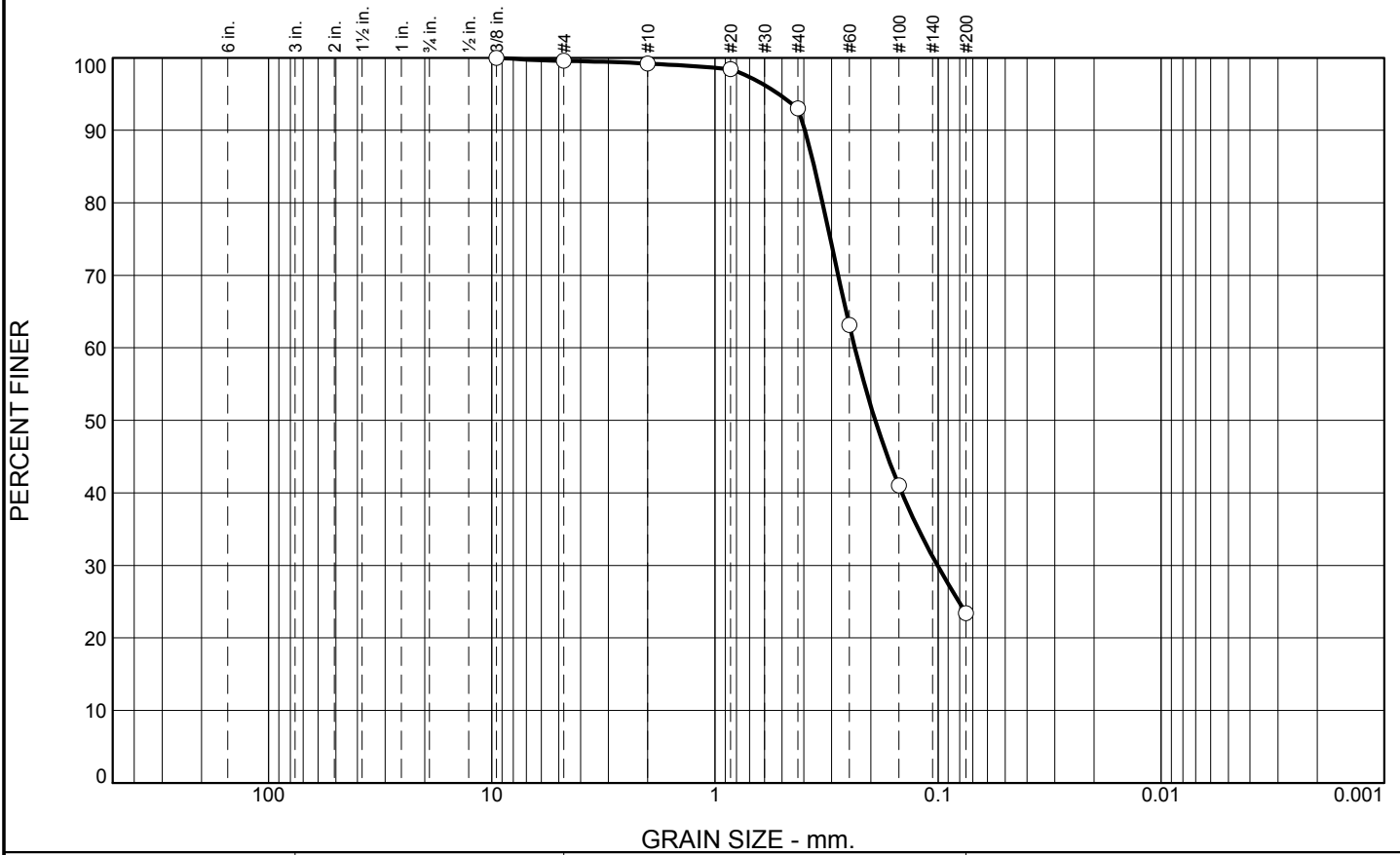
Date: 8/15/10

| | |
|--|--|
| <h2 style="margin: 0;">Thompson Engineering</h2> <p style="margin: 0;">Mobile, Alabama</p> | <p>Client: US Army Corps of Engineers</p> <p>Project: Contract No. W91278-10-D-0026 - Task 03 Mississippi Barrier Island Restoration Project</p> <p>Project No: 10-2123-0009 Report No.</p> |
|--|--|

Tested By: G.Fancher

Checked By: R.Byrd

Particle Size Distribution Report



| % +3" | % Gravel | | % Sand | | | % Fines | |
|-------|----------|------|--------|--------|------|---------|------|
| | Coarse | Fine | Coarse | Medium | Fine | Silt | Clay |
| 0.0 | 0.0 | 0.4 | 0.4 | 6.2 | 69.6 | 23.4 | |

| SIEVE SIZE | PERCENT FINER | SPEC.* PERCENT | PASS? (X=NO) |
|------------|---------------|----------------|--------------|
| .375 | 100.0 | | |
| #4 | 99.6 | | |
| #10 | 99.2 | | |
| #20 | 98.4 | | |
| #40 | 93.0 | | |
| #60 | 63.2 | | |
| #100 | 41.0 | | |
| #200 | 23.4 | | |

Material Description

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

Atterberg Limits

PL= LL= PI=

Coefficients

D₉₀= 0.3956 D₈₅= 0.3589 D₆₀= 0.2361
D₅₀= 0.1913 D₃₀= 0.1006 D₁₅=
D₁₀= C_u= C_c=

Classification

USCS= SM AASHTO=

Remarks

CADD CODE = CH10D965

* (no specification provided)



Location: USACE Sample # BI-PB-47-10B **Depth:** 2.0 - 6.0 (ft.) **Date:** 8/15/10
Sample Number: TE Lab ID: 4622.32

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

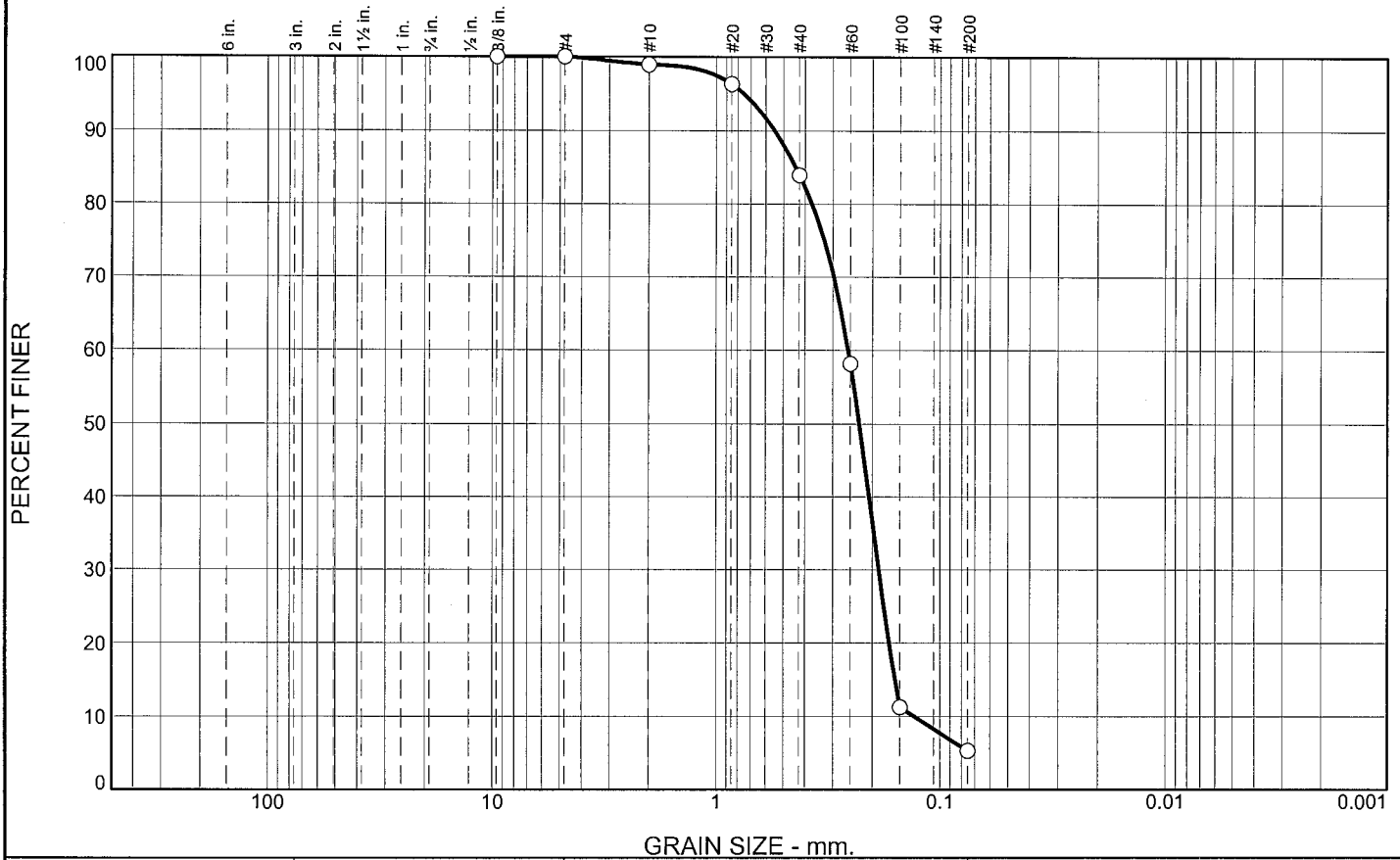
Tested By: G.Fancher **Checked By:** R.Byrd

Boring Designation BI-PB-051-10

| | | | | |
|--|--|---|--|--|
| DRILLING LOG | | DIVISION South Atlantic | INSTALLATION Mobile District | SHEET 1 OF 1 SHEETS |
| 1. PROJECT MsCIP Barrier Island Restoration Petit Bois Pass- AL East | | | 9. SIZE AND TYPE OF BIT N/A | |
| 2. BORING DESIGNATION BI-PB-051-10 | | 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 | | <input type="checkbox"/> AUTO HAMMER <input type="checkbox"/> MANUAL HAMMER |
| 4. NAME OF DRILLER Construction Solutions International, Inc. | | 12. TOTAL SAMPLES | | DISTURBED 1 |
| 5. DIRECTION OF BORING <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED | | 13. TOTAL NUMBER CORE BOXES | | UNDISTURBED (UD) 0 |
| 6. THICKNESS OF OVERBURDEN N/A | | 14. WATER DEPTH 36 Ft. | | 15. DATE BORING |
| 7. DEPTH DRILLED INTO ROCK N/A | | 16. ELEVATION TOP OF BORING -35.4 Ft. | | STARTED 08-06-10 |
| 8. TOTAL DEPTH OF BORING 14.7 Ft. | | 17. TOTAL RECOVERY FOR BORING 100% | | COMPLETED 08-06-10 |
| 18. SIGNATURE AND TITLE OF INSPECTOR Chris Gillentine, Geologist | | | | |

| ELEV. | DEPTH | LEGEND | CLASSIFICATION OF MATERIALS | SAMPLE | LABORATORY RESULTS |
|-------|-------|--|---|--------|--|
| -35.4 | 0.0 | | | | |
| | |  | SAND, poorly-graded, mostly fine to medium-grained sand-sized quartz, trace shell fragments, lt. tan/grey (SP) | A | Classification: SP-SM Color: 2.5Y 6/2-light brownish gray D50: 0.2282 mm % Fines: 5.3 |
| -39.4 | 4.0 |  | CLAY, fat, dark gray (CH) | NS | |
| -50.1 | 14.7 | | | | |
| | | | NOTES: 1. Soils are field visually classified in accordance with the Unified Soils Classification System. 2. NS = Sample not submitted for laboratory analysis from this interval. 3. Seafloor elevation calculated using sampling vessel's fathometer water depth reading and applying NOAA tidal gauge data conversion factor. | | |

Particle Size Distribution Report



| % +3" | % Gravel | | % Sand | | | % Fines | |
|-------|----------|------|--------|--------|------|---------|------|
| | Coarse | Fine | Coarse | Medium | Fine | Silt | Clay |
| 0.0 | 0.0 | 0.0 | 1.1 | 15.0 | 78.6 | 5.3 | |

| SIEVE SIZE | PERCENT FINER | SPEC.* PERCENT | PASS? (X=NO) |
|------------|---------------|----------------|--------------|
| .375 | 100.0 | | |
| #4 | 100.0 | | |
| #10 | 98.9 | | |
| #20 | 96.3 | | |
| #40 | 83.9 | | |
| #60 | 58.2 | | |
| #100 | 11.3 | | |
| #200 | 5.3 | | |

Material Description

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

Atterberg Limits

PL= LL= PI=

Coefficients

D₉₀= 0.5482 D₈₅= 0.4420 D₆₀= 0.2558
D₅₀= 0.2282 D₃₀= 0.1868 D₁₅= 0.1580
D₁₀= 0.1292 C_u= 1.98 C_c= 1.06

Classification

USCS= SP-SM AASHTO=

Remarks

CADD CODE = CH10D965

* (no specification provided)

Location: USACE Sample # BI-PB-51-10A
Sample Number: TE Lab ID: 4622.34

Depth: 0.0 - 4.0 (ft.)

Date: 8/15/10

| | |
|--|--|
| <p>Thompson Engineering</p> <p>Mobile, Alabama</p> | <p>Client: US Army Corps of Engineers</p> <p>Project: Contract No. W91278-10-D-0026 - Task 03 Mississippi Barrier Island Restoration Project</p> <p>Project No: 10-2123-0009 Report No.</p> |
|--|--|

Tested By: G.Fancher

Checked By: R.Byrd

Boring Designation BI-PB-052-10

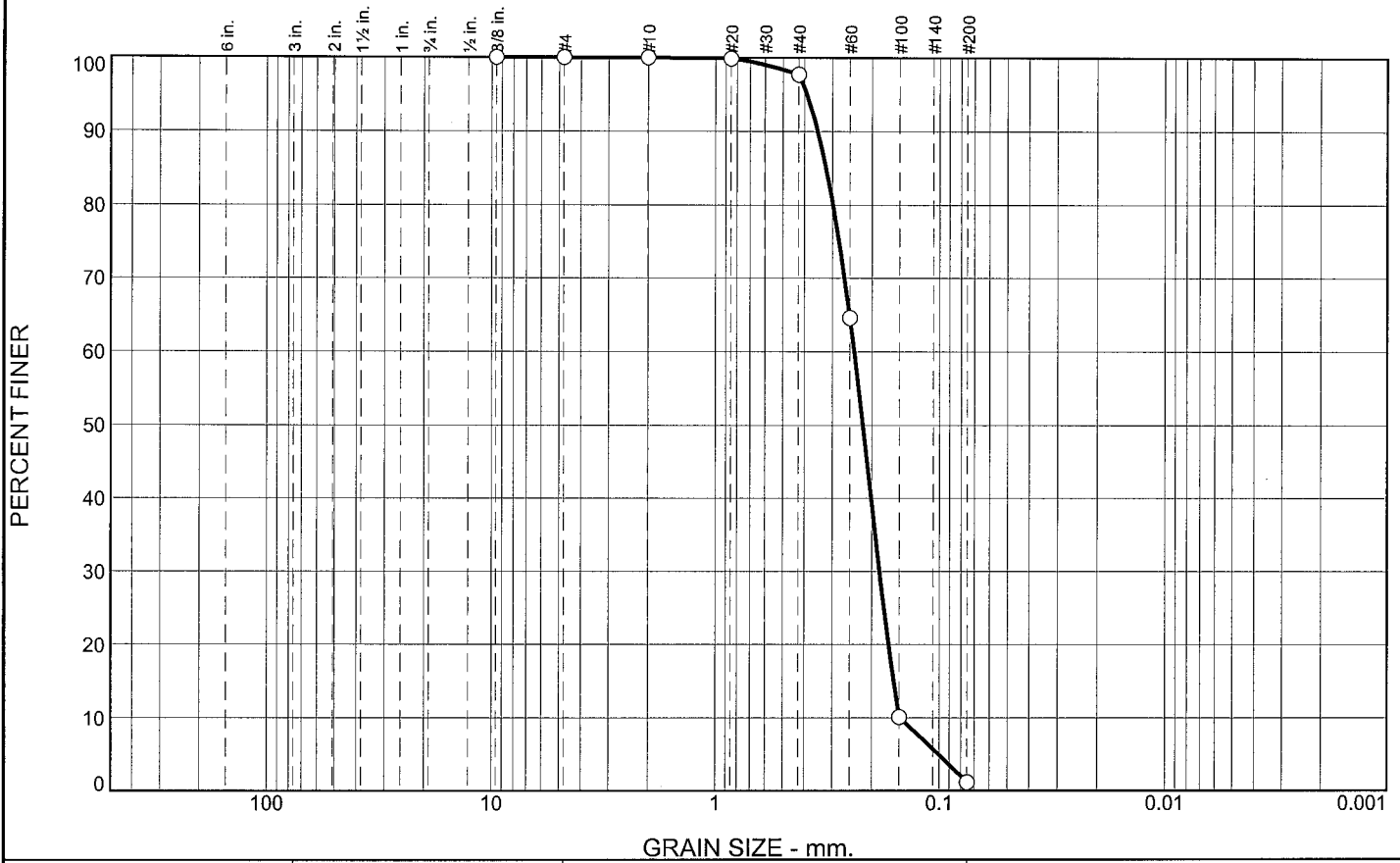
| | | | | |
|--|--|--|--|---|
| DRILLING LOG | | DIVISION South Atlantic | INSTALLATION Mobile District | SHEET 1 OF 2 SHEETS |
| 1. PROJECT MsCIP Barrier Island Restoration Petit Bois Pass- AL East | | | 9. SIZE AND TYPE OF BIT N/A | |
| 2. BORING DESIGNATION BI-PB-052-10 | | LOCATION COORDINATES E = 1,148,029 N = 251,332 | | 10. COORDINATE SYSTEM/DATUM State Plane, MSE (U.S. Ft.) |
| 3. DRILLING AGENCY Corps of Engineers - CESAM | | CONTRACTOR FILE NO. | | 11. MANUFACTURER'S DESIGNATION OF DRILL Vibracore |
| 4. NAME OF DRILLER Construction Solutions International, Inc. | | | 12. TOTAL SAMPLES DISTURBED: 2 UNDISTURBED (UD): 0 | |
| 5. DIRECTION OF BORING <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED | | DEG. FROM VERTICAL | BEARING | 13. TOTAL NUMBER CORE BOXES |
| 6. THICKNESS OF OVERBURDEN N/A | | | 14. WATER DEPTH 40 Ft. | |
| 7. DEPTH DRILLED INTO ROCK N/A | | | 15. DATE BORING STARTED: 08-06-10 COMPLETED: 08-06-10 | |
| 8. TOTAL DEPTH OF BORING 20.0 Ft. | | | 16. ELEVATION TOP OF BORING -40.1 Ft. | |
| | | | 17. TOTAL RECOVERY FOR BORING 100% | |
| 18. SIGNATURE AND TITLE OF INSPECTOR Chris Gillentine, Geologist | | | | |

| ELEV. | DEPTH | LEGEND | CLASSIFICATION OF MATERIALS | SAMPLE | LABORATORY RESULTS |
|-------|-------|--------|---|--------|--|
| -40.1 | 0.0 | | | | |
| | | ▨ | CLAY, fat, dark gray (CH) | NS | |
| -45.1 | 5.0 | | | | |
| | | ● | SAND, well-graded, mostly fine-grained sand-sized quartz, lt gray/tan (SW) | A | Classification: SP Color: 2.5Y 7/1-light gray D50: 0.2189 mm % Fines: 1.2 |
| | | ● | | B | Classification: SP-SM Color: 2.5Y 8/1-white D50: 0.1937 mm % Fines: 6.1 |
| -57.1 | 17.0 | | | | |
| | | ● | SAND, poorly-graded, dark gray (SP) | NS | |
| -60.1 | 20.0 | | | | |
| | | | NOTES: 1. Soils are field visually classified in accordance with the Unified Soils Classification System. 2. NS = Sample not submitted for laboratory analysis from this interval. 3. Seafloor elevation calculated using sampling | | |

| DRILLING LOG (Cont. Sheet) | | | INSTALLATION Mobile District | | SHEET 2 |
|---|-------|--------|---|----------------------------|---------------------------|
| | | | | | OF 2 SHEETS |
| PROJECT MsCIP Barrier Island Restoration | | | COORDINATE SYSTEM/DATUM State Plane, MSE (U.S. Ft.) | HORIZONTAL NAD83 | VERTICAL NAVD88 |
| LOCATION COORDINATES X = 1,148,029 Y = 251,332 | | | ELEVATION TOP OF BORING -40.1 Ft. | | |
| ELEV. | DEPTH | LEGEND | CLASSIFICATION OF MATERIALS | SAMPLE | LABORATORY RESULTS |
| | | | vessel's fathometer water depth reading and applying NOAA tidal gauge data conversion factor. | | |



Particle Size Distribution Report



| % +3" | % Gravel | | % Sand | | | % Fines | |
|-------|----------|------|--------|--------|------|---------|------|
| | Coarse | Fine | Coarse | Medium | Fine | Silt | Clay |
| 0.0 | 0.0 | 0.0 | 0.0 | 2.3 | 96.5 | 1.2 | |

| SIEVE SIZE | PERCENT FINER | SPEC.* PERCENT | PASS? (X=NO) |
|------------|---------------|----------------|--------------|
| .375 | 100.0 | | |
| #4 | 100.0 | | |
| #10 | 100.0 | | |
| #20 | 99.9 | | |
| #40 | 97.7 | | |
| #60 | 64.6 | | |
| #100 | 10.1 | | |
| #200 | 1.2 | | |

Material Description

SAND, (SP), fine grained

Atterberg Limits

PL= LL= PI=

Coefficients

D₉₀= 0.3492 D₈₅= 0.3203 D₆₀= 0.2393
D₅₀= 0.2189 D₃₀= 0.1843 D₁₅= 0.1592
D₁₀= 0.1486 C_u= 1.61 C_c= 0.96

Classification

USCS= SP AASHTO=

Remarks

CADD CODE = CH10D965

* (no specification provided)

Location: USACE Sample # BI-PB-52-10A
Sample Number: TE Lab ID: 4622.35

Depth: 5.0 - 10.0 (ft.)

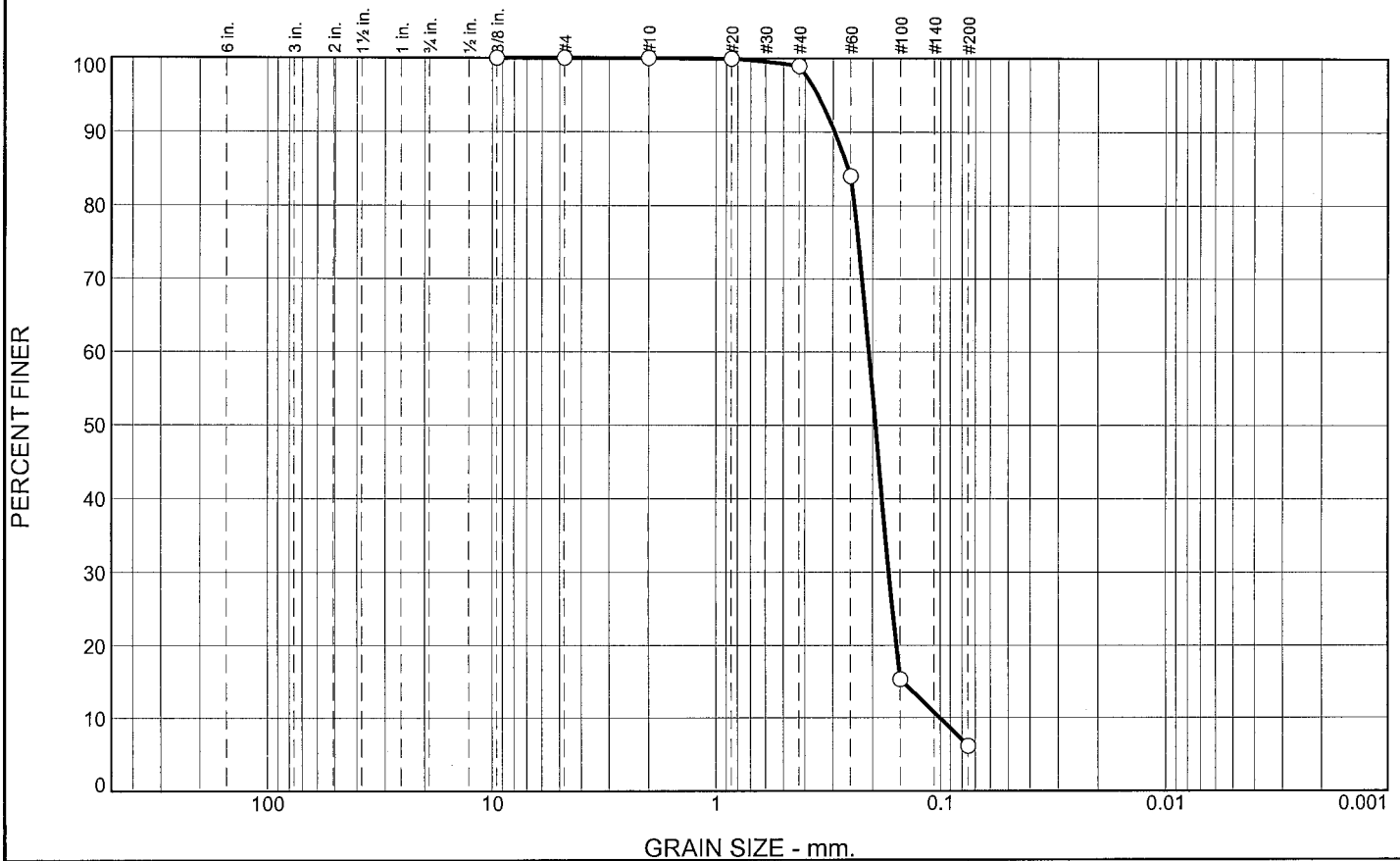
Date: 8/15/10

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

Tested By: G.Fancher

Checked By: R.Byrd

Particle Size Distribution Report



| % +3" | % Gravel | | % Sand | | | % Fines | |
|-------|----------|------|--------|--------|------|---------|------|
| | Coarse | Fine | Coarse | Medium | Fine | Silt | Clay |
| 0.0 | 0.0 | 0.0 | 0.0 | 1.1 | 92.8 | 6.1 | |

| SIEVE SIZE | PERCENT FINER | SPEC.* PERCENT | PASS? (X=NO) |
|------------|---------------|----------------|--------------|
| .375 | 100.0 | | |
| #4 | 100.0 | | |
| #10 | 100.0 | | |
| #20 | 99.9 | | |
| #40 | 98.9 | | |
| #60 | 84.0 | | |
| #100 | 15.3 | | |
| #200 | 6.1 | | |

Material Description

SAND, (SP-SM), fine grained

Atterberg Limits

PL= LL= PI=

Coefficients

| | | |
|--------------------------|--------------------------|--------------------------|
| D ₉₀ = 0.2952 | D ₈₅ = 0.2564 | D ₆₀ = 0.2070 |
| D ₅₀ = 0.1937 | D ₃₀ = 0.1691 | D ₁₅ = 0.1467 |
| D ₁₀ = 0.1004 | C _u = 2.06 | C _c = 1.38 |

Classification

USCS= SP-SM AASHTO=

Remarks

CADD CODE = CH10D965

* (no specification provided)

Location: USACE Sample # BI-PB-52-10B
Sample Number: TE Lab ID: 4622.36

Depth: 10.0 - 15.0 (ft.)

Date: 8/15/10

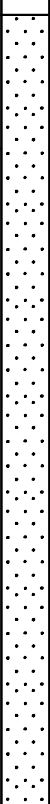
| | |
|--|--|
| <p>Thompson Engineering</p> <p>Mobile, Alabama</p> | <p>Client: US Army Corps of Engineers</p> <p>Project: Contract No. W91278-10-D-0026 - Task 03 Mississippi Barrier Island Restoration Project</p> <p>Project No: 10-2123-0009 Report No.</p> |
|--|--|

Tested By: G.Fancher

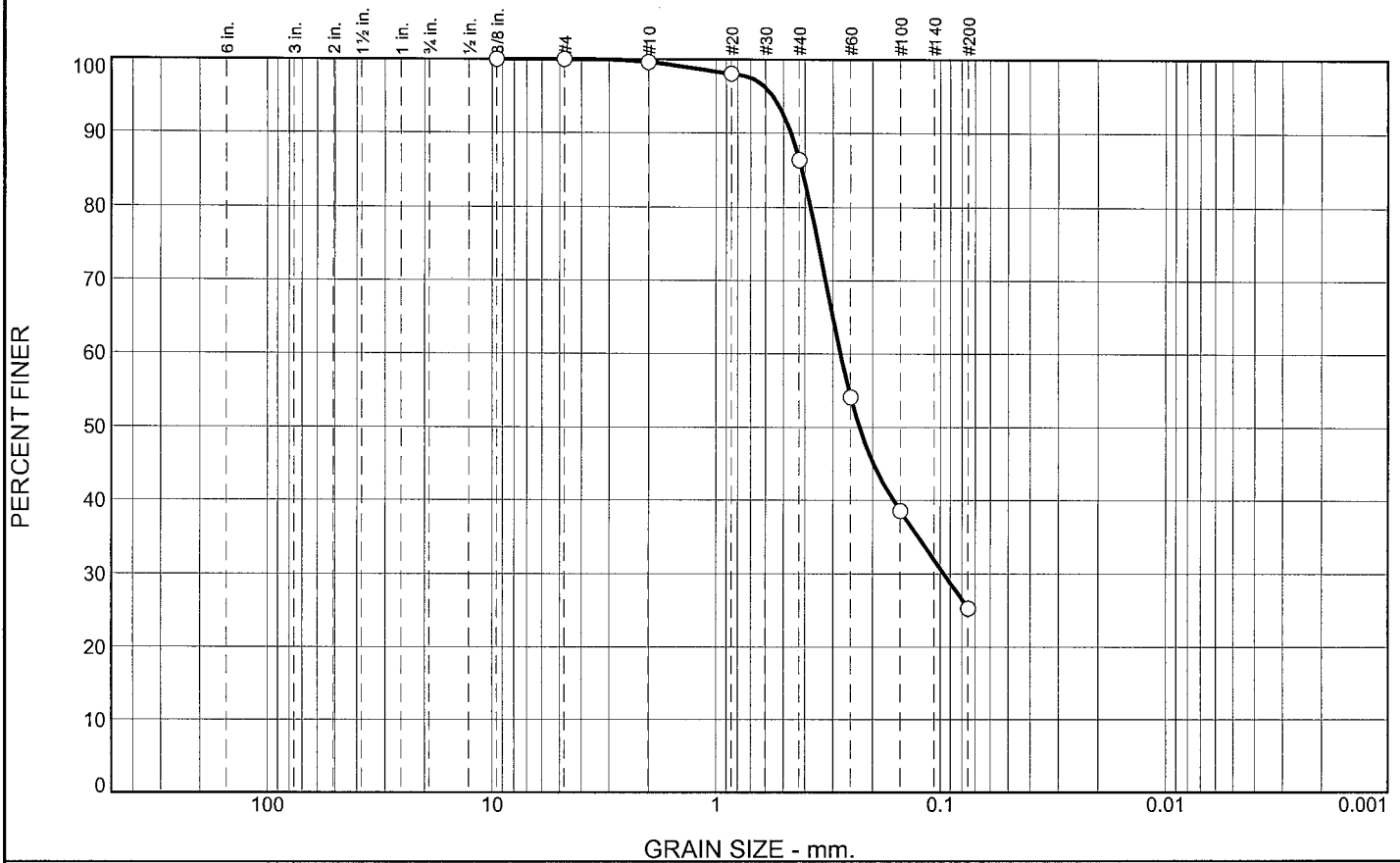
Checked By: R.Byrd

Boring Designation BI-PB-053-10

| | | | | |
|--|--|---|--|--|
| DRILLING LOG | | DIVISION South Atlantic | INSTALLATION Mobile District | SHEET 1 OF 1 SHEETS |
| 1. PROJECT MsCIP Barrier Island Restoration Petit Bois Pass- AL East | | | 9. SIZE AND TYPE OF BIT N/A | |
| 2. BORING DESIGNATION BI-PB-053-10 | | 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 | | <input type="checkbox"/> AUTO HAMMER <input type="checkbox"/> MANUAL HAMMER |
| 4. NAME OF DRILLER Construction Solutions International, Inc. | | 12. TOTAL SAMPLES | | DISTURBED 4 |
| 5. DIRECTION OF BORING <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED | | 13. TOTAL NUMBER CORE BOXES | | UNDISTURBED (UD) 0 |
| 6. THICKNESS OF OVERBURDEN N/A | | 14. WATER DEPTH 39 Ft. | | 15. DATE BORING |
| 7. DEPTH DRILLED INTO ROCK N/A | | 16. ELEVATION TOP OF BORING -37.1 Ft. | | STARTED 08-07-10 |
| 8. TOTAL DEPTH OF BORING 18.0 Ft. | | 17. TOTAL RECOVERY FOR BORING 100% | | COMPLETED 08-07-10 |
| 18. SIGNATURE AND TITLE OF INSPECTOR Chris Gillentine, Geologist | | | | |

| ELEV. | DEPTH | LEGEND | CLASSIFICATION OF MATERIALS | SAMPLE | LABORATORY RESULTS |
|-------|-------|--|---|--------|--|
| -37.1 | 0.0 | | | | |
| -40.1 | 3.0 |  | SAND, poorly-graded, dark gray (SP) | A | Classification: SM Color: 2.5Y 5/2-grayish brown D50: 0.2292 mm % Fines: 25.3 |
| | | | SAND, poorly-graded, mostly fine to medium-grained sand-sized quartz, lt. gray (SP) | B | Classification: SP Color: 2.5Y 8/1-white D50: 0.2843 mm % Fines: 3.1 |
| | | | | C | Classification: SP Color: 2.5Y 8/1-white D50: 0.25 mm % Fines: 4.1 |
| | | | | D | Classification: SP-SM Color: 2.5Y 8/1-white D50: 0.2058 mm % Fines: 6.3 |
| -55.1 | 18.0 | | | | |
| | | | NOTES: | | |
| | | | 1. Soils are field visually classified in accordance with the Unified Soils Classification System. | | |
| | | | 2. NS = Sample not submitted for laboratory analysis from this interval. | | |
| | | | 3. Seafloor elevation calculated using sampling vessel's fathometer water depth reading and applying NOAA tidal gauge data conversion factor. | | |

Particle Size Distribution Report



| % +3" | % Gravel | | % Sand | | | % Fines | |
|-------|----------|------|--------|--------|------|---------|------|
| | Coarse | Fine | Coarse | Medium | Fine | Silt | Clay |
| 0.0 | 0.0 | 0.0 | 0.4 | 13.2 | 61.1 | 25.3 | |

| SIEVE SIZE | PERCENT FINER | SPEC.* PERCENT | PASS? (X=NO) |
|------------|---------------|----------------|--------------|
| .375 | 100.0 | | |
| #4 | 100.0 | | |
| #10 | 99.6 | | |
| #20 | 98.1 | | |
| #40 | 86.4 | | |
| #60 | 54.0 | | |
| #100 | 38.6 | | |
| #200 | 25.3 | | |

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

Atterberg Limits
 PL= LL= PI=

Coefficients
 D₉₀= 0.4627 D₈₅= 0.4132 D₆₀= 0.2777
 D₅₀= 0.2292 D₃₀= 0.0962 D₁₅=
 D₁₀= C_u= C_c=

Classification
 USCS= SM AASHTO=

Remarks
 CADD CODE = CH10D965

* (no specification provided)

Location: USACE Sample # BI-PB-53-10A
Sample Number: TE Lab ID: 4622.37

Depth: 0.0 - 5.0 (ft.)

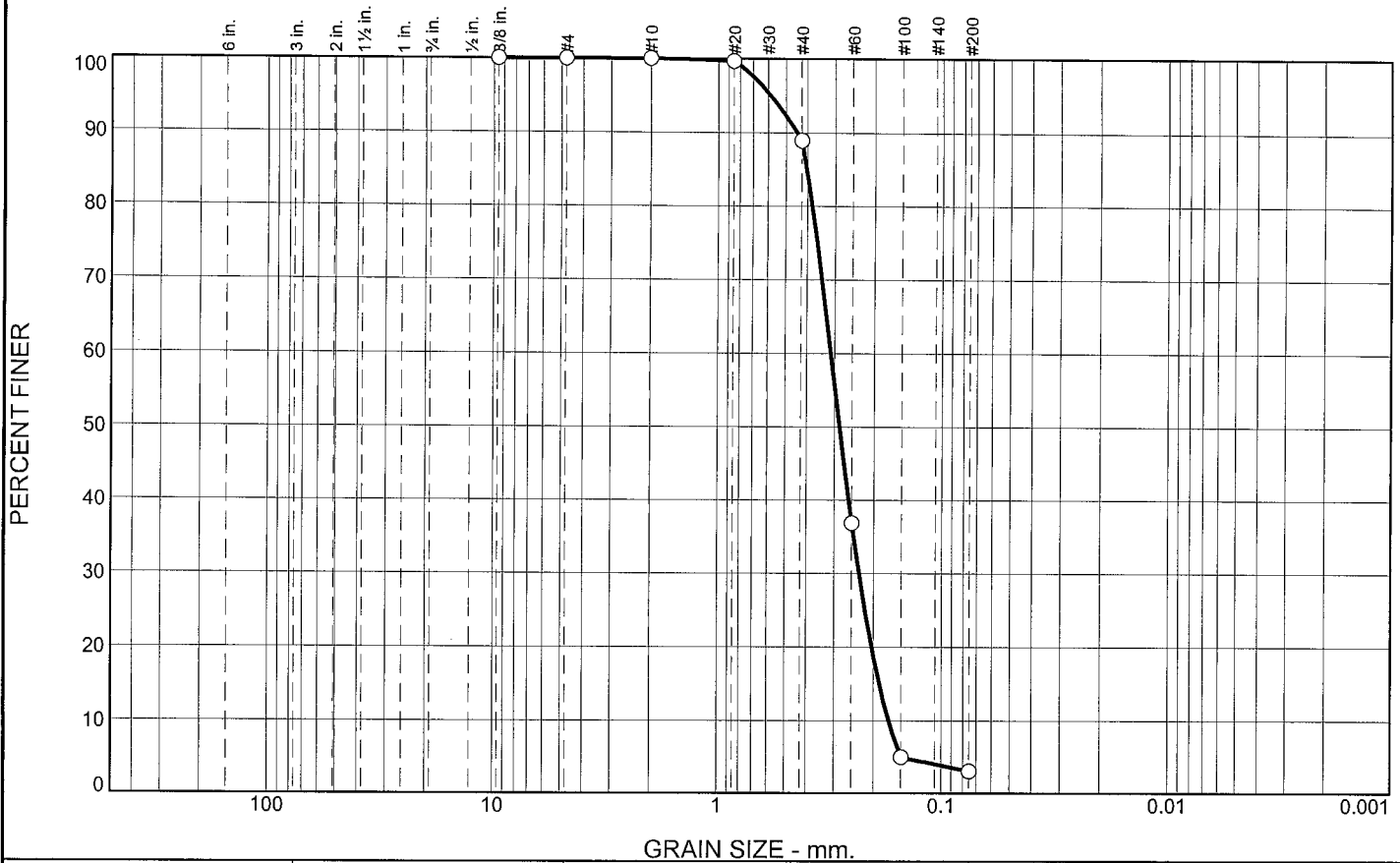
Date: 8/15/10

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

Tested By: G.Fancher

Checked By: R.Byrd

Particle Size Distribution Report



| % +3" | % Gravel | | % Sand | | | % Fines | |
|-------|----------|------|--------|--------|------|---------|------|
| | Coarse | Fine | Coarse | Medium | Fine | Silt | Clay |
| 0.0 | 0.0 | 0.0 | 0.0 | 11.1 | 85.8 | 3.1 | |

| SIEVE SIZE | PERCENT FINER | SPEC.* PERCENT | PASS? (X=NO) |
|------------|---------------|----------------|--------------|
| .375 | 100.0 | | |
| #4 | 100.0 | | |
| #10 | 100.0 | | |
| #20 | 99.7 | | |
| #40 | 88.9 | | |
| #60 | 36.8 | | |
| #100 | 5.0 | | |
| #200 | 3.1 | | |

Material Description

SAND, (SP), medium to fine grained

Atterberg Limits

PL= LL= PI=

Coefficients

D₉₀= 0.4462 D₈₅= 0.4029 D₆₀= 0.3119
D₅₀= 0.2843 D₃₀= 0.2318 D₁₅= 0.1881
D₁₀= 0.1710 C_u= 1.82 C_c= 1.01

Classification

USCS= SP AASHTO=

Remarks

CADD CODE = CH10D965

* (no specification provided)

Location: USACE Sample # BI-PB-53-10B
Sample Number: TE Lab ID: 4622.38

Depth: 5.0 - 10.0 (ft.)

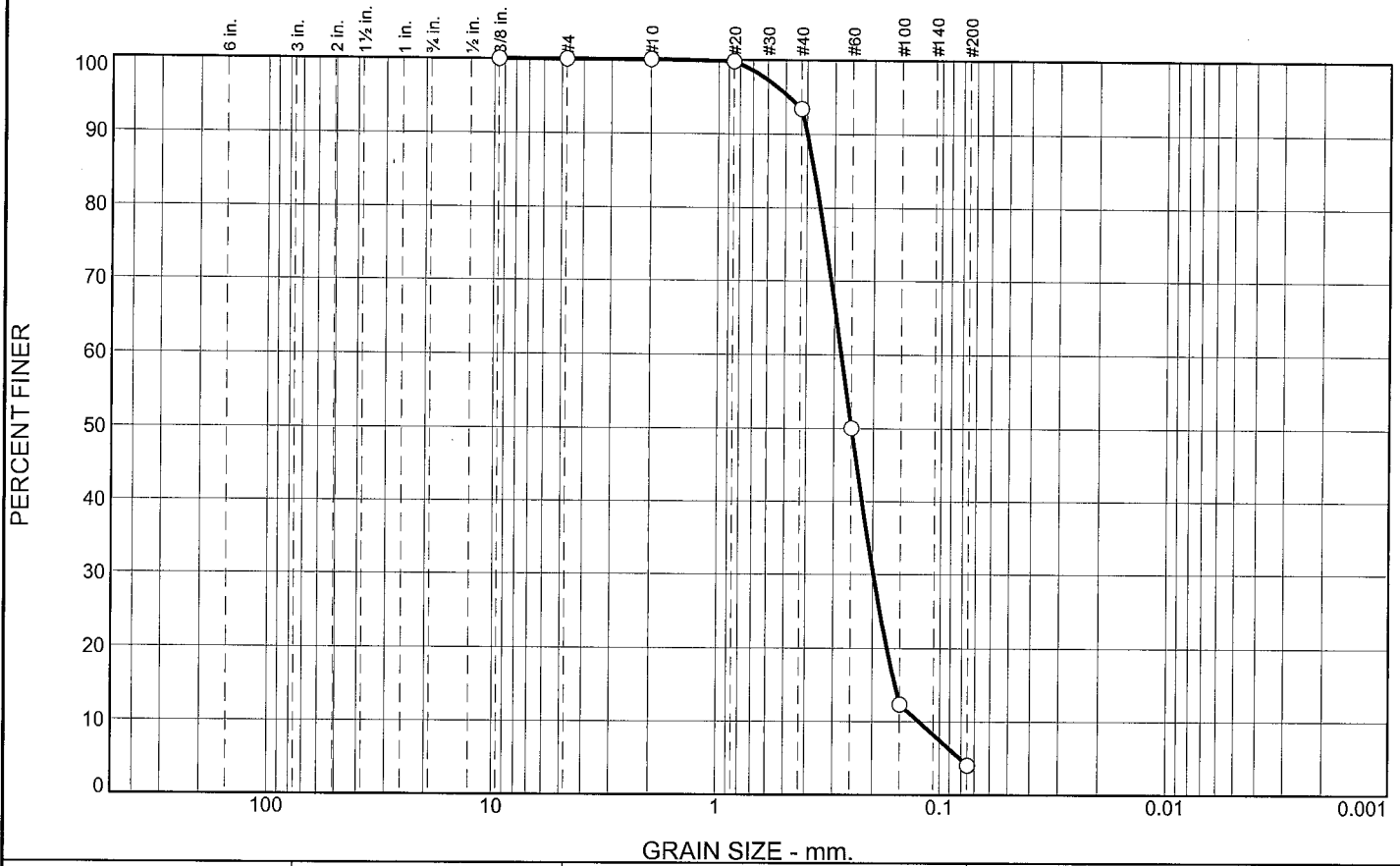
Date: 8/15/10

| | |
|--|--|
| <p style="font-size: 1.2em; font-weight: bold; margin: 0;">Thompson Engineering</p> <p style="font-size: 1.2em; font-weight: bold; margin: 0;">Mobile, Alabama</p> | <p>Client: US Army Corps of Engineers</p> <p>Project: Contract No. W91278-10-D-0026 - Task 03 Mississippi Barrier Island Restoration Project</p> <p>Project No: 10-2123-0009 Report No.</p> |
|--|--|

Tested By: G.Fancher

Checked By: R.Byrd

Particle Size Distribution Report



| % +3" | % Gravel | | % Sand | | | % Fines | |
|-------|----------|------|--------|--------|------|---------|------|
| | Coarse | Fine | Coarse | Medium | Fine | Silt | Clay |
| 0.0 | 0.0 | 0.0 | 0.0 | 6.6 | 89.3 | 4.1 | |

| SIEVE SIZE | PERCENT FINER | SPEC.* PERCENT | PASS? (X=NO) |
|------------|---------------|----------------|--------------|
| .375 | 100.0 | | |
| #4 | 100.0 | | |
| #10 | 100.0 | | |
| #20 | 99.8 | | |
| #40 | 93.4 | | |
| #60 | 50.0 | | |
| #100 | 12.3 | | |
| #200 | 4.1 | | |

Material Description

SAND, (SP), fine grained

Atterberg Limits

PL= LL= PI=

Coefficients

D₉₀= 0.3998 D₈₅= 0.3713 D₆₀= 0.2781
D₅₀= 0.2500 D₃₀= 0.1983 D₁₅= 0.1583
D₁₀= 0.1234 C_u= 2.25 C_c= 1.15

Classification

USCS= SP AASHTO=

Remarks

CADD CODE = CH10D965

* (no specification provided)

Location: USACE Sample # BI-PB-53-10C **Sample Number:** TE Lab ID: 4622.39 **Depth:** 10.0 - 15.0 (ft.) **Date:** 8/15/10

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

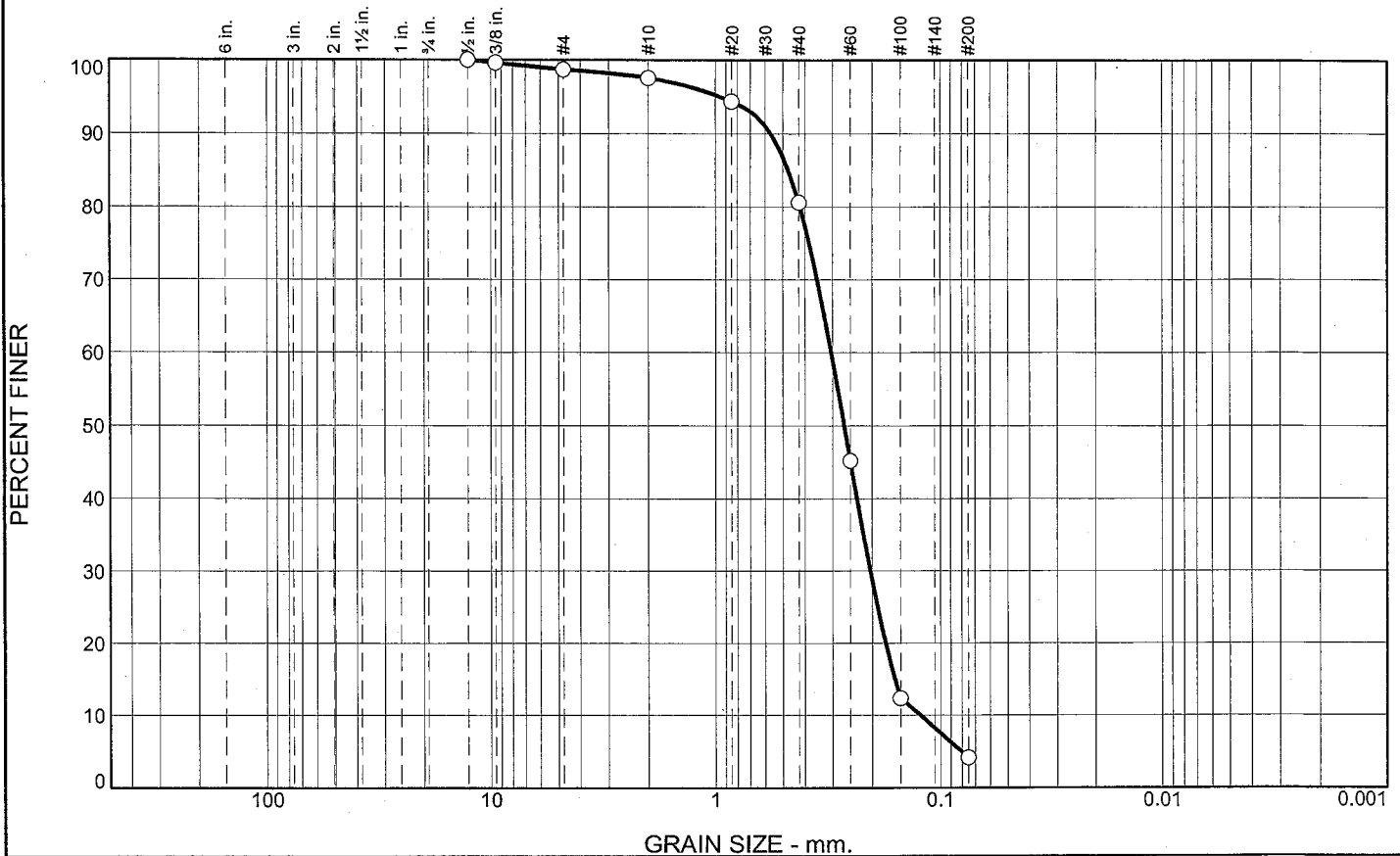
Tested By: G.Fancher **Checked By:** R.Byrd

Boring Designation BI-PB-054-10

| | | | | |
|--|--|--|--|--|
| DRILLING LOG | | DIVISION South Atlantic | INSTALLATION Mobile District | SHEET 1 OF 1 SHEETS |
| 1. PROJECT MsCIP Barrier Island Restoration Petit Bois Pass- AL East | | 9. SIZE AND TYPE OF BIT N/A | | |
| 2. BORING DESIGNATION BI-PB-054-10 | | 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 | | <input type="checkbox"/> AUTO HAMMER <input type="checkbox"/> MANUAL HAMMER |
| 4. NAME OF DRILLER Construction Solutions International, Inc. | | 12. TOTAL SAMPLES | | DISTURBED 1 |
| 5. DIRECTION OF BORING <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED | | 13. TOTAL NUMBER CORE BOXES | | UNDISTURBED (UD) 0 |
| 6. THICKNESS OF OVERBURDEN N/A | | 14. WATER DEPTH 40 Ft. | | |
| 7. DEPTH DRILLED INTO ROCK N/A | | 15. DATE BORING | | STARTED 08-09-10 |
| 8. TOTAL DEPTH OF BORING 17.5 Ft. | | 16. ELEVATION TOP OF BORING -38.6 Ft. | | COMPLETED 08-09-10 |
| | | 17. TOTAL RECOVERY FOR BORING 100% | | |
| | | 18. SIGNATURE AND TITLE OF INSPECTOR Chris Gillentine, Geologist | | |

| ELEV. | DEPTH | LEGEND | CLASSIFICATION OF MATERIALS | SAMPLE | LABORATORY RESULTS |
|-------|-------|--------|---|--------|---|
| -38.6 | 0.0 | | | | |
| -40.1 | 1.5 | ••••• | SAND, poorly-graded, mostly medium to coarse-grained sand-sized quartz, trace shell fragments, dark gray (SP) | A | Classification: SP Color: 2.5Y 6/2-light brownish gray D50: 0.2663 mm % Fines: 4.2 |
| | | // | CLAY, fat, trace fine-grained sand-sized quartz, dark gray (CH) | NS | |
| -56.1 | 17.5 | | | | |
| | | | NOTES: 1. Soils are field visually classified in accordance with the Unified Soils Classification System. 2. NS = Sample not submitted for laboratory analysis from this interval. 3. Seafloor elevation calculated using sampling vessel's fathometer water depth reading and applying NOAA tidal gauge data conversion factor. | | |

Particle Size Distribution Report



| % +3" | % Gravel | | % Sand | | | % Fines | |
|-------|----------|------|--------|--------|------|---------|------|
| | Coarse | Fine | Coarse | Medium | Fine | Silt | Clay |
| 0.0 | 0.0 | 1.3 | 1.2 | 16.9 | 76.4 | 4.2 | |

| SIEVE SIZE | PERCENT FINER | SPEC.* PERCENT | PASS? (X=NO) |
|------------|---------------|----------------|--------------|
| .500 | 100.0 | | |
| .375 | 99.6 | | |
| #4 | 98.7 | | |
| #10 | 97.5 | | |
| #20 | 94.4 | | |
| #40 | 80.6 | | |
| #60 | 45.2 | | |
| #100 | 12.4 | | |
| #200 | 4.2 | | |

Material Description

SAND, (SP), medium to fine grained, with trace shell and clay pockets

Atterberg Limits

PL= LL= PI=

Coefficients

D₉₀= 0.5663 D₈₅= 0.4726 D₆₀= 0.3044
D₅₀= 0.2663 D₃₀= 0.2035 D₁₅= 0.1589
D₁₀= 0.1227 C_u= 2.48 C_c= 1.11

Classification

USCS= SP AASHTO=

Remarks

CADD CODE = CH10D965

* (no specification provided)

Location: USACE Sample # BI-PB-54-10A
Sample Number: TE Lab ID: 4636.01

Depth: 0.0 - 1.5 (ft.)

Date: 8/18/10


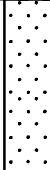

| | |
|---|--|
| Thompson Engineering Mobile, Alabama | Client: US Army Corps of Engineers Project: Contract No. W91278-10-D-0026 - Task 03 Mississippi Barrier Island Restoration Project Project No: 10-2123-0009 Report #: |
|---|--|

Tested By: R.Martin

Checked By: R.Byrd

Boring Designation BI-PB-057-10

| | | | | |
|--|--|--|--|--|
| DRILLING LOG | | DIVISION South Atlantic | INSTALLATION Mobile District | SHEET 1 OF 1 SHEETS |
| 1. PROJECT MsCIP Barrier Island Restoration Petit Bois Pass- AL West | | 9. SIZE AND TYPE OF BIT N/A | | |
| 2. BORING DESIGNATION BI-PB-057-10 | | 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 | | <input type="checkbox"/> AUTO HAMMER <input type="checkbox"/> MANUAL HAMMER |
| 4. NAME OF DRILLER Construction Solutions International, Inc. | | 12. TOTAL SAMPLES | | DISTURBED 0 |
| 5. DIRECTION OF BORING <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED | | 13. TOTAL NUMBER CORE BOXES | | UNDISTURBED (UD) 0 |
| 6. THICKNESS OF OVERBURDEN N/A | | 14. WATER DEPTH 38 Ft. | | |
| 7. DEPTH DRILLED INTO ROCK N/A | | 15. DATE BORING | | STARTED 08-06-10 |
| 8. TOTAL DEPTH OF BORING 15.3 Ft. | | 16. ELEVATION TOP OF BORING -36.7 Ft. | | COMPLETED 08-06-10 |
| | | 17. TOTAL RECOVERY FOR BORING 100% | | |
| | | 18. SIGNATURE AND TITLE OF INSPECTOR Chris Gillentine, Geologist | | |

| ELEV. | DEPTH | LEGEND | CLASSIFICATION OF MATERIALS | SAMPLE | LABORATORY RESULTS |
|--|-------|---|---|--------|--------------------|
| -36.7 | 0.0 | | | | |
| | |  | CLAY, fat, dark gray (CH) | | |
| -43.7 | 7.0 | | | | |
| | |  | SAND, poorly-graded, mostly fine to medium-grained sand-sized quartz, gray (SP) | NS | |
| -47.7 | 11.0 | | | | |
| | |  | CLAY, fat, dark gray (CH) | | |
| -52.0 | 15.3 | | | | |
| <p>NOTES:</p> <ol style="list-style-type: none"> Soils are field visually classified in accordance with the Unified Soils Classification System. NS = Sample not submitted for laboratory analysis from this interval. Seafloor elevation calculated using sampling vessel's fathometer water depth reading and applying NOAA tidal gauge data conversion factor. | | | | | |

Boring Designation BI-PB-058-10

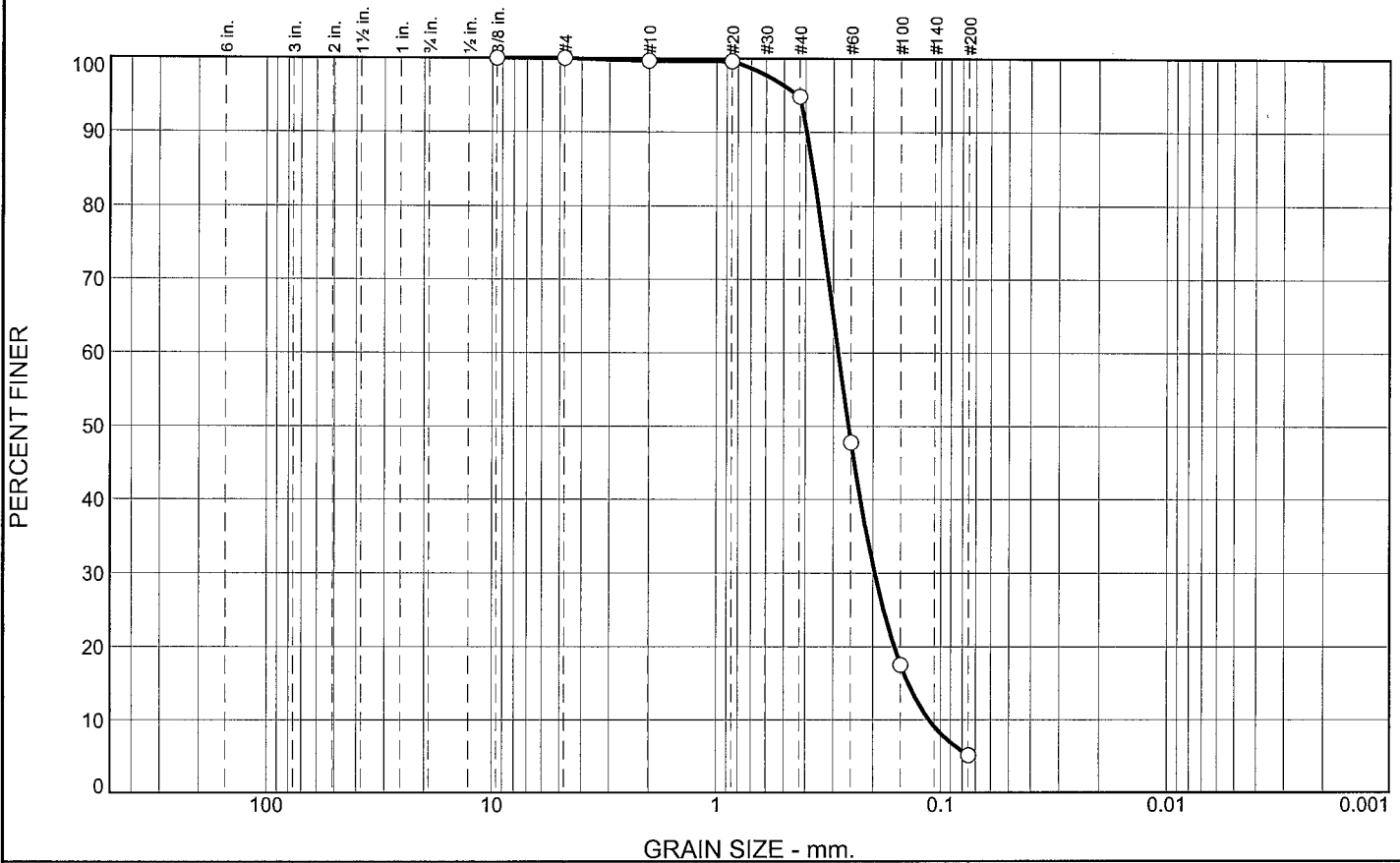
| | | | | |
|---|--|---|---------------------------------|------------------------|
| DRILLING LOG | | DIVISION South Atlantic | INSTALLATION Mobile District | SHEET 1 OF 2 SHEETS |
| 1. PROJECT MsCIP Barrier Island Restoration Petit Bois Pass- AL West | | 9. SIZE AND TYPE OF BIT N/A | | |
| 2. BORING DESIGNATION BI-PB-058-10 | | 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 Construction Solutions International, Inc. | | 12. TOTAL SAMPLES | | |
| 5. DIRECTION OF BORING <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED | | 13. TOTAL NUMBER CORE BOXES | | DISTURBED 1 |
| 6. THICKNESS OF OVERBURDEN N/A | | 14. WATER DEPTH 36 Ft. | | UNDISTURBED (UD) 0 |
| 7. DEPTH DRILLED INTO ROCK N/A | | 15. DATE BORING | | STARTED 08-04-10 |
| 8. TOTAL DEPTH OF BORING 20.0 Ft. | | 16. ELEVATION TOP OF BORING -36.8 Ft. | | COMPLETED 08-04-10 |
| | | 17. TOTAL RECOVERY FOR BORING 100% | | |
| | | 18. SIGNATURE AND TITLE OF INSPECTOR Chris Gillentine, Geologist | | |

| ELEV. | DEPTH | LEGEND | CLASSIFICATION OF MATERIALS | SAMPLE | LABORATORY RESULTS |
|-------|-------|--------|---|--------|--|
| -36.8 | 0.0 | | CLAY, fat, trace fine-grained sand-sized quartz, trace shell fragments, dark gray (CH) | NS | |
| -46.8 | 10.0 | | SAND, poorly-graded, lt. gray (SP) | A | Classification: SP-SM Color: 2.5Y 6/2-light brownish gray D50: 0.2564 mm % Fines: 5.2 |
| -50.8 | 14.0 | | CLAY, fat, dark gray (CH) | NS | |
| -56.8 | 20.0 | | NOTES: 1. Soils are field visually classified in accordance with the Unified Soils Classification System. 2. NS = Sample not submitted for laboratory analysis from this interval. 3. Seafloor elevation calculated using sampling | | |

| DRILLING LOG (Cont. Sheet) | | | INSTALLATION Mobile District | | | SHEET 2 |
|---|-------|--------|---|----------------------------|---------------------------|--------------------|
| | | | | | | OF 2 SHEETS |
| PROJECT MsCIP Barrier Island Restoration | | | COORDINATE SYSTEM/DATUM State Plane, MSE (U.S. Ft.) | HORIZONTAL NAD83 | VERTICAL NAVD88 | |
| LOCATION COORDINATES X = 1,131,745 Y = 249,854 | | | ELEVATION TOP OF BORING -36.8 Ft. | | | |
| ELEV. | DEPTH | LEGEND | CLASSIFICATION OF MATERIALS | SAMPLE | LABORATORY RESULTS | |
| | | | vessel's fathometer water depth reading and applying NOAA tidal gauge data conversion factor. | | | |



Particle Size Distribution Report



| % +3" | % Gravel | | % Sand | | | % Fines | |
|-------|----------|------|--------|--------|------|---------|------|
| | Coarse | Fine | Coarse | Medium | Fine | Silt | Clay |
| 0.0 | 0.0 | 0.0 | 0.3 | 4.9 | 89.6 | 5.2 | |

| SIEVE SIZE | PERCENT FINER | SPEC.* PERCENT | PASS? (X=NO) |
|------------|---------------|----------------|--------------|
| .375 | 100.0 | | |
| #4 | 100.0 | | |
| #10 | 99.7 | | |
| #20 | 99.6 | | |
| #40 | 94.8 | | |
| #60 | 47.7 | | |
| #100 | 17.5 | | |
| #200 | 5.2 | | |

Material Description

SAND, (SP-SM), fine grained

Atterberg Limits

PL= LL= PI=

Coefficients

D₉₀= 0.3948 D₈₅= 0.3706 D₆₀= 0.2849
D₅₀= 0.2564 D₃₀= 0.1960 D₁₅= 0.1390
D₁₀= 0.1124 C_u= 2.53 C_c= 1.20

Classification

USCS= SP-SM AASHTO=

Remarks

CADD CODE = CH10D965

* (no specification provided)

Location: USACE Sample # BI-PB-58-10A
Sample Number: TE Lab ID: 4622.21

Depth: 10.0 - 14.0 (ft.)

Date: 8/15/10




| | |
|--|---|
| <p>Thompson Engineering</p> <p>Mobile, Alabama</p> | <p>Client: US Army Corps of Engineers Project: Contract No. W91278-10-D-0026 - Task 03 Mississippi Barrier Island Restoration Project Project No: 10-2123-0009 Report No.</p> |
|--|---|

Tested By: R.Martin

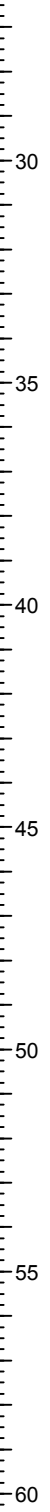
Checked By: R.Byrd

Boring Designation BI-PB-059-10

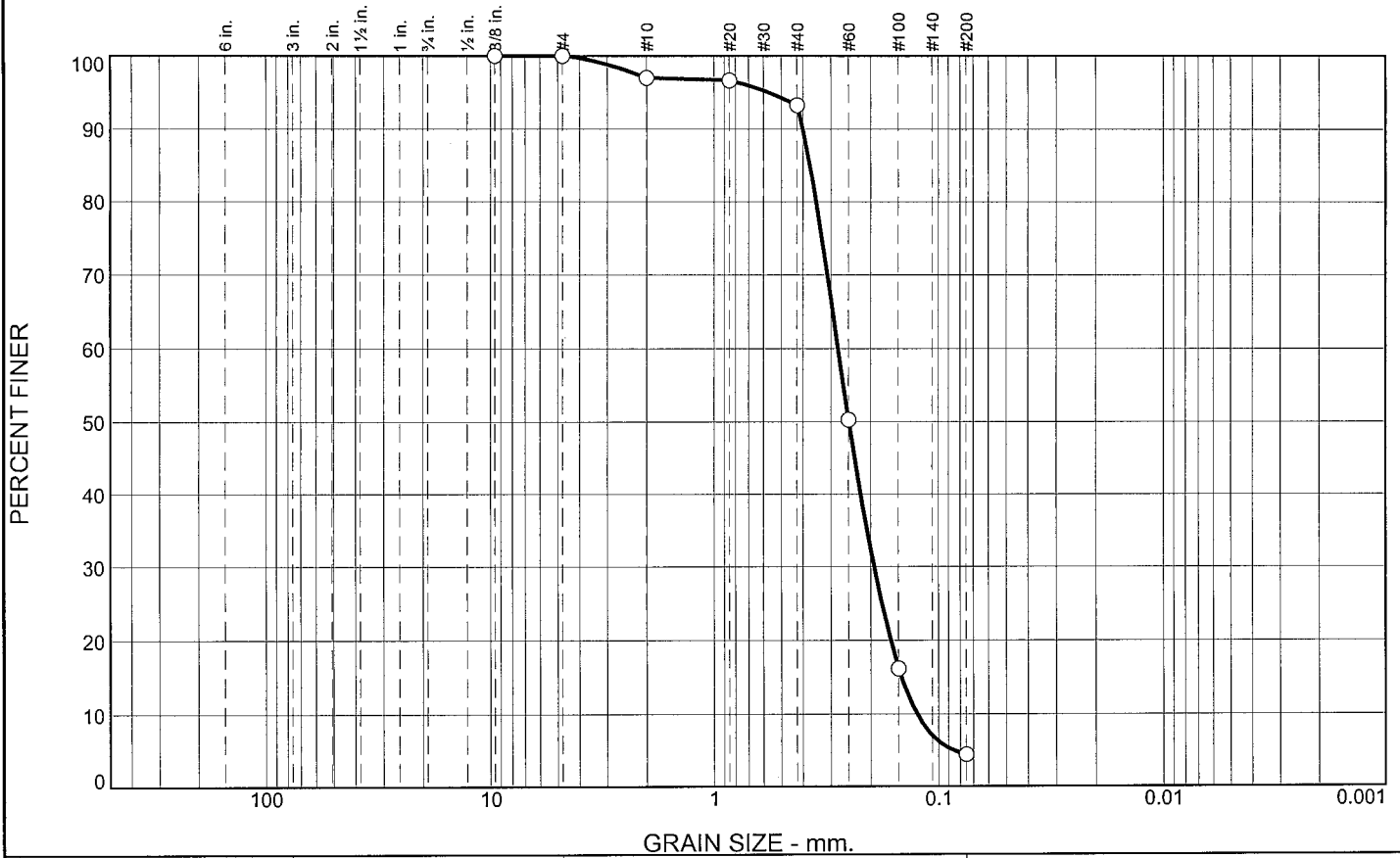
| | | | | |
|--|--|---|--|--|
| DRILLING LOG | | DIVISION South Atlantic | INSTALLATION Mobile District | SHEET 1 OF 2 SHEETS |
| 1. PROJECT MsCIP Barrier Island Restoration Petit Bois Pass- AL West | | | 9. SIZE AND TYPE OF BIT N/A | |
| 2. BORING DESIGNATION BI-PB-059-10 | | 10. COORDINATE SYSTEM/DATUM State Plane, MSE (U.S. Ft.) | | HORIZONTAL NAD83 |
| 3. DRILLING AGENCY Corps of Engineers - CESAM | | 11. MANUFACTURER'S DESIGNATION OF DRILL Vibracore | | <input type="checkbox"/> AUTO HAMMER <input type="checkbox"/> MANUAL HAMMER |
| 4. NAME OF DRILLER Construction Solutions International, Inc. | | 12. TOTAL SAMPLES | | DISTURBED 1 |
| 5. DIRECTION OF BORING <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED | | 13. TOTAL NUMBER CORE BOXES | | UNDISTURBED (UD) 0 |
| 6. THICKNESS OF OVERBURDEN N/A | | 14. WATER DEPTH 35 Ft. | | 15. DATE BORING |
| 7. DEPTH DRILLED INTO ROCK N/A | | 16. ELEVATION TOP OF BORING -35.8 Ft. | | STARTED 08-04-10 |
| 8. TOTAL DEPTH OF BORING 19.0 Ft. | | 17. TOTAL RECOVERY FOR BORING 100% | | COMPLETED 08-04-10 |
| 18. SIGNATURE AND TITLE OF INSPECTOR Chris Gillentine, Geologist | | | | |

| ELEV. | DEPTH | LEGEND | CLASSIFICATION OF MATERIALS | SAMPLE | LABORATORY RESULTS |
|-------|-------|---|---|--------|--|
| -35.8 | 0.0 | | CLAY, fat, trace fine-grained sand-sized quartz, dark gray (CH) | | |
| | |  | At El. -39.8 Ft. | NS | |
| -45.8 | 10.0 |  | SAND, poorly-graded, lt. gray (SP) | A | Classification: SP Color: 2.5Y 7/1-light gray D50: 0.2494 mm % Fines: 4.4 |
| -48.8 | 13.0 |  | CLAY, fat, trace fine-grained sand-sized quartz, dark gray (CH) | NS | |
| -54.8 | 19.0 | | NOTES: 1. Soils are field visually classified in accordance with the Unified Soils Classification System. 2. NS = Sample not submitted for laboratory analysis from this interval. 3. Seafloor elevation calculated using sampling vessel's fathometer water depth reading and applying NOAA tidal gauge data conversion | | |

| DRILLING LOG (Cont. Sheet) | | | INSTALLATION Mobile District | | | SHEET 2 |
|--|-------|--------|---|--------|----------------------------|---------------------------|
| | | | | | | OF 2 SHEETS |
| PROJECT MsCIP Barrier Island Restoration | | | COORDINATE SYSTEM/DATUM State Plane, MSE (U.S. Ft.) | | HORIZONTAL NAD83 | VERTICAL NAVD88 |
| LOCATION COORDINATES X = 1,133,379 Y = 249,835 | | | ELEVATION TOP OF BORING -35.8 Ft. | | | |
| ELEV. | DEPTH | LEGEND | CLASSIFICATION OF MATERIALS | SAMPLE | LABORATORY RESULTS | |
| | | | factor. | | | |



Particle Size Distribution Report



| % +3" | % Gravel | | % Sand | | | % Fines | |
|-------|----------|------|--------|--------|------|---------|------|
| | Coarse | Fine | Coarse | Medium | Fine | Silt | Clay |
| 0.0 | 0.0 | 0.0 | 3.0 | 3.7 | 88.9 | 4.4 | |

| SIEVE SIZE | PERCENT FINER | SPEC.* PERCENT | PASS? (X=NO) |
|------------|---------------|----------------|--------------|
| .375 | 100.0 | | |
| #4 | 100.0 | | |
| #10 | 97.0 | | |
| #20 | 96.6 | | |
| #40 | 93.3 | | |
| #60 | 50.2 | | |
| #100 | 16.2 | | |
| #200 | 4.4 | | |

Material Description

SAND, (SP), fine grained

Atterberg Limits

PL= LL= PI=

Coefficients

| | | |
|--------------------------|--------------------------|--------------------------|
| D ₉₀ = 0.4007 | D ₈₅ = 0.3720 | D ₆₀ = 0.2785 |
| D ₅₀ = 0.2494 | D ₃₀ = 0.1928 | D ₁₅ = 0.1457 |
| D ₁₀ = 0.1242 | C _u = 2.24 | C _c = 1.07 |

Classification

USCS= SP AASHTO=

Remarks

CADD CODE = CH10D965

* (no specification provided)

Location: USACE Sample # BI-PB-59-10A
Sample Number: TE Lab ID: 4622.20

Depth: 10.0 - 13.0 (ft.)



Date: 8/15/10

| | |
|--|--|
| <h2 style="margin: 0;">Thompson Engineering</h2> <p style="margin: 0;">Mobile, Alabama</p> | <p>Client: US Army Corps of Engineers</p> <p>Project: Contract No. W91278-10-D-0026 - Task 03 Mississippi Barrier Island Restoration Project</p> <p>Project No: 10-2123-0009 Report No.</p> |
|--|--|

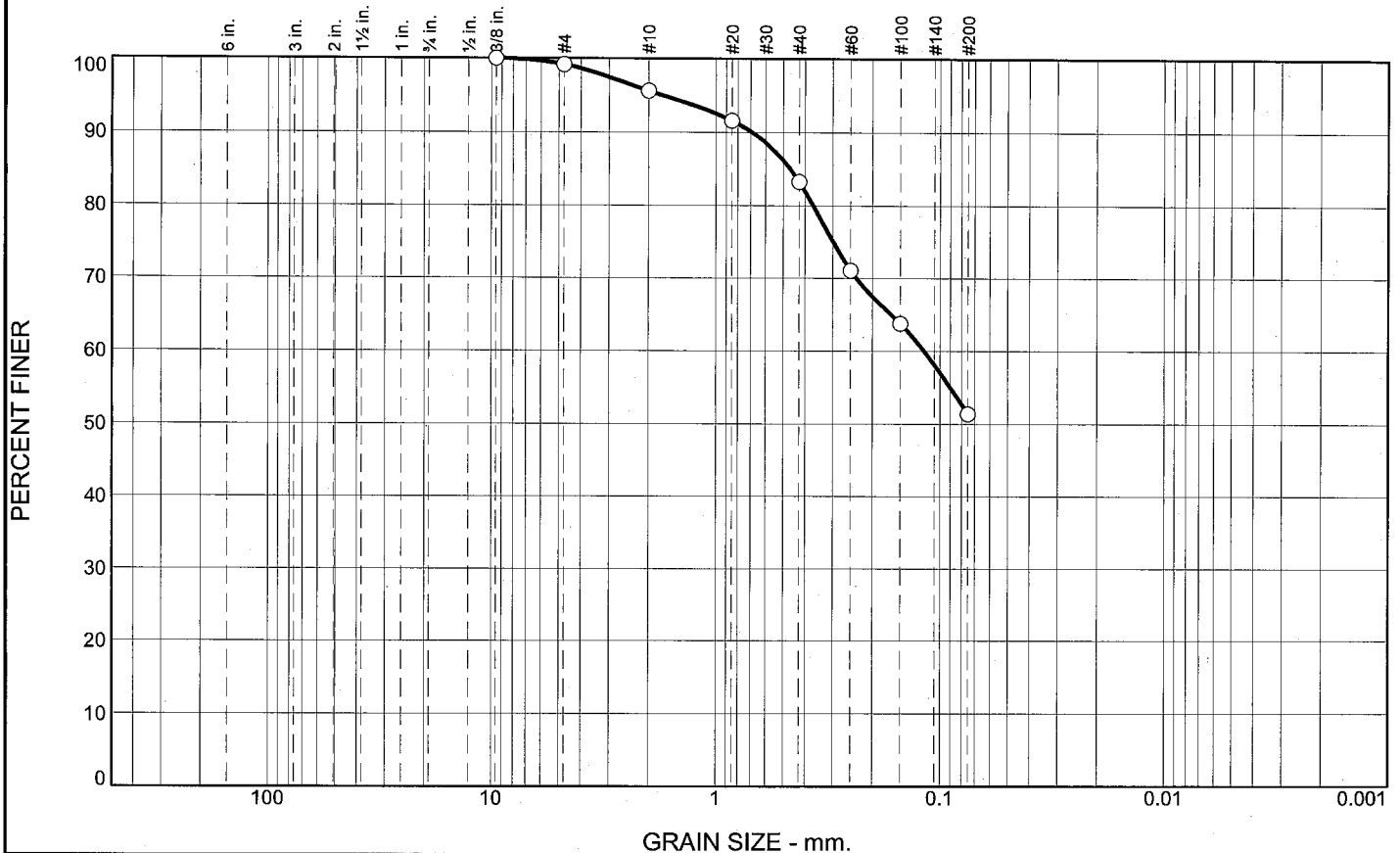
Tested By: R.Martin **Checked By:** R.Byrd

Boring Designation BI-PB-060-10

| | | | | |
|--|--|--|--|--|
| DRILLING LOG | | DIVISION South Atlantic | INSTALLATION Mobile District | SHEET 1 OF 1 SHEETS |
| 1. PROJECT MsCIP Barrier Island Restoration Petit Bois Pass- AL West | | 9. SIZE AND TYPE OF BIT N/A | | |
| 2. BORING DESIGNATION BI-PB-060-10 | | 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 | | <input type="checkbox"/> AUTO HAMMER <input type="checkbox"/> MANUAL HAMMER |
| 4. NAME OF DRILLER Construction Solutions International, Inc. | | 12. TOTAL SAMPLES | | DISTURBED 0 |
| 5. DIRECTION OF BORING <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED | | 13. TOTAL NUMBER CORE BOXES | | UNDISTURBED (UD) 0 |
| 6. THICKNESS OF OVERBURDEN N/A | | 14. WATER DEPTH 37 Ft. | | |
| 7. DEPTH DRILLED INTO ROCK N/A | | 15. DATE BORING | | STARTED 08-04-10 |
| 8. TOTAL DEPTH OF BORING 18.0 Ft. | | 16. ELEVATION TOP OF BORING -37.7 Ft. | | COMPLETED 08-04-10 |
| | | 17. TOTAL RECOVERY FOR BORING 100% | | |
| | | 18. SIGNATURE AND TITLE OF INSPECTOR Chris Gillentine, Geologist | | |

| ELEV. | DEPTH | LEGEND | CLASSIFICATION OF MATERIALS | SAMPLE | LABORATORY RESULTS |
|-------|-------|--|---|--------|--|
| -37.7 | 0.0 | | | | |
| -39.7 | 2.0 |  | SAND, poorly-graded, trace shell fragments, dark gray (SP) | A | Classification: CL Color: 2.5Y 4/2-dark grayish brown D50: mm % Fines: 51.4 |
| | |  | CLAY, fat, dark gray (CH) | NS | |
| -55.7 | 18.0 | | | | |
| | | | NOTES: 1. Soils are field visually classified in accordance with the Unified Soils Classification System. 2. NS = Sample not submitted for laboratory analysis from this interval. 3. Seafloor elevation calculated using sampling vessel's fathometer water depth reading and applying NOAA tidal gauge data conversion factor. | | |

Particle Size Distribution Report



| % +3" | % Gravel | | % Sand | | | % Fines | |
|-------|----------|------|--------|--------|------|---------|------|
| | Coarse | Fine | Coarse | Medium | Fine | Silt | Clay |
| 0.0 | 0.0 | 0.8 | 3.6 | 12.3 | 31.9 | 51.4 | |

| SIEVE SIZE | PERCENT FINER | SPEC.* PERCENT | PASS? (X=NO) |
|------------|---------------|----------------|--------------|
| .375 | 100.0 | | |
| #4 | 99.2 | | |
| #10 | 95.6 | | |
| #20 | 91.6 | | |
| #40 | 83.3 | | |
| #60 | 71.1 | | |
| #100 | 63.8 | | |
| #200 | 51.4 | | |

Material Description

SANDY CLAY, (CL)

Atterberg Limits

PL= LL= PI=

Coefficients

D₉₀= 0.6874 D₈₅= 0.4654 D₆₀= 0.1178
D₅₀= D₃₀= D₁₅=
D₁₀= C_u= C_c=

Classification

USCS= CL AASHTO=

Remarks

CADD CODE = CH10D965
Note: Placticity based off of visual examination.

* (no specification provided)

Location: USACE Sample # BI-PB-60-10A
Sample Number: TE Lab ID: 4622.19

Depth: 0.0 - 2.0 (ft.)

Date: 8/15/10

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

Tested By: R.Martin

Checked By: R.Byrd

Boring Designation BI-PB-061-10

| | | | | |
|--|--|--|--|--|
| DRILLING LOG | | DIVISION South Atlantic | INSTALLATION Mobile District | SHEET 1 OF 1 SHEETS |
| 1. PROJECT MsCIP Barrier Island Restoration Petit Bois Pass- AL West | | 9. SIZE AND TYPE OF BIT N/A | | |
| 2. BORING DESIGNATION BI-PB-061-10 | | 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 | | <input type="checkbox"/> AUTO HAMMER <input type="checkbox"/> MANUAL HAMMER |
| 4. NAME OF DRILLER Construction Solutions International, Inc. | | 12. TOTAL SAMPLES DISTURBED: 0 UNDISTURBED (UD): 0 | | |
| 5. DIRECTION OF BORING <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED | | 13. TOTAL NUMBER CORE BOXES | | 14. WATER DEPTH 36 Ft. |
| 6. THICKNESS OF OVERBURDEN N/A | | 15. DATE BORING STARTED: 08-04-10 COMPLETED: 08-04-10 | | |
| 7. DEPTH DRILLED INTO ROCK N/A | | 16. ELEVATION TOP OF BORING -36.6 Ft. | | |
| 8. TOTAL DEPTH OF BORING 18.5 Ft. | | 17. TOTAL RECOVERY FOR BORING 100% | | |
| 18. SIGNATURE AND TITLE OF INSPECTOR Chris Gillentine, Geologist | | | | |

| ELEV. | DEPTH | LEGEND | CLASSIFICATION OF MATERIALS | SAMPLE | LABORATORY RESULTS |
|-------|-------|--------|--|--------|--------------------|
| -36.6 | 0.0 | | CLAY, fat, trace shell fragments, dark gray (CH) | | |
| | | | | NS | |
| -55.1 | 18.5 | | <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> | | |

Boring Designation BI-PB-062-10

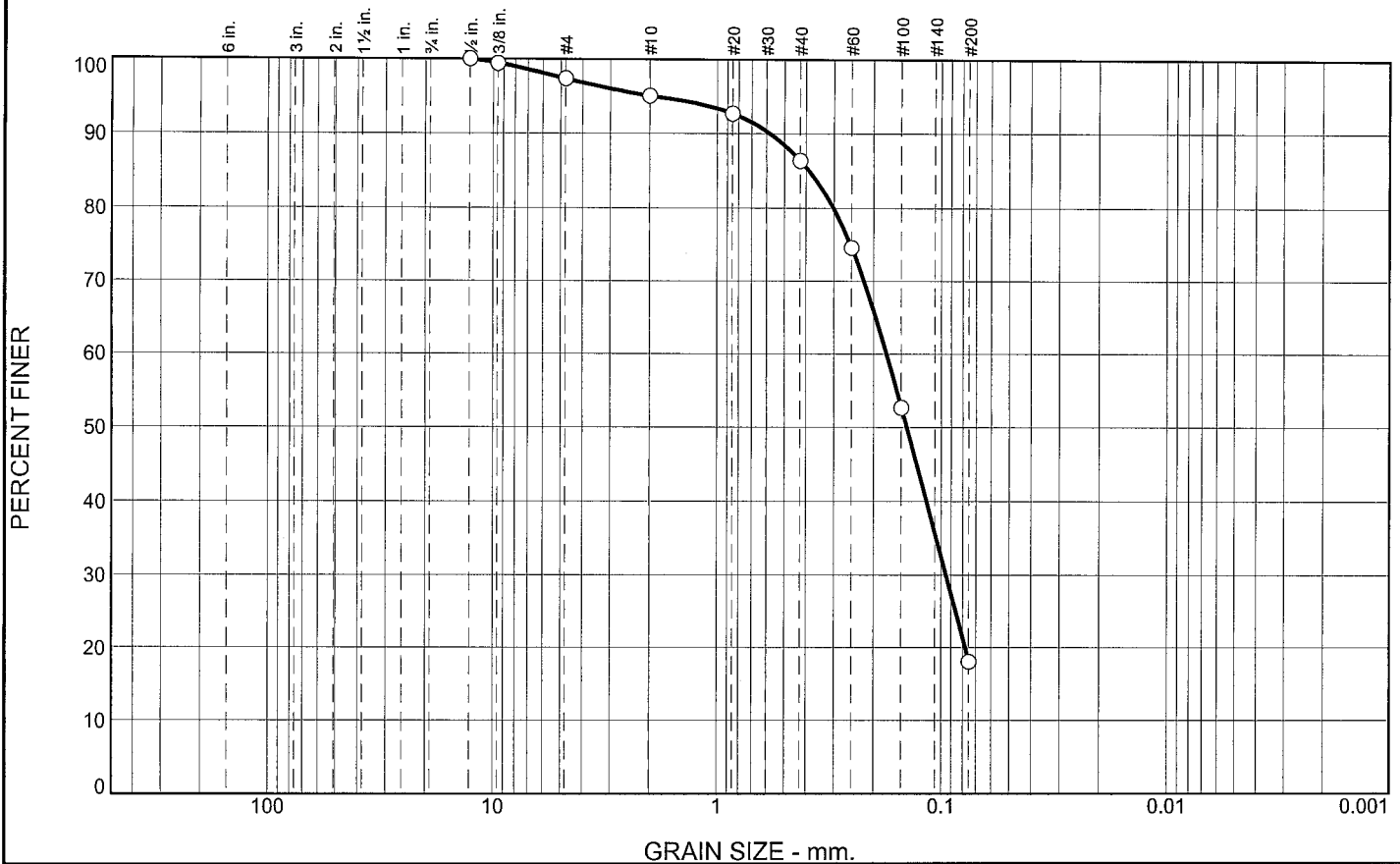
| | | | | | | |
|--|--|---|--|---|--------------------------------------|--|
| DRILLING LOG | | DIVISION South Atlantic | INSTALLATION Mobile District | | SHEET 1 OF 2 SHEETS | |
| | | 1. PROJECT MsCIP Barrier Island Restoration Petit Bois Pass- AL West | | 9. SIZE AND TYPE OF BIT N/A | | |
| 2. BORING DESIGNATION BI-PB-062-10 | | LOCATION COORDINATES E = 1,137,556 N = 249,860 | | 10. COORDINATE SYSTEM/DATUM State Plane, MSE (U.S. Ft.) | HORIZONTAL NAD83 | VERTICAL NAVD88 |
| 3. DRILLING AGENCY Corps of Engineers - CESAM | | CONTRACTOR FILE NO. | | 11. MANUFACTURER'S DESIGNATION OF DRILL Vibracore | | <input type="checkbox"/> AUTO HAMMER <input type="checkbox"/> MANUAL HAMMER |
| 4. NAME OF DRILLER Construction Solutions International, Inc. | | 12. TOTAL SAMPLES | | DISTURBED 1 | UNDISTURBED (UD) 0 | |
| 5. DIRECTION OF BORING <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED | | DEG. FROM VERTICAL | BEARING | 13. TOTAL NUMBER CORE BOXES | | |
| 6. THICKNESS OF OVERBURDEN N/A | | 7. DEPTH DRILLED INTO ROCK N/A | | 14. WATER DEPTH 38 Ft. | | |
| 8. TOTAL DEPTH OF BORING 20.0 Ft. | | 15. DATE BORING | | STARTED 08-06-10 | COMPLETED 08-06-10 | |
| | | 16. ELEVATION TOP OF BORING -38.0 Ft. | | 17. TOTAL RECOVERY FOR BORING 100% | | |
| | | 18. SIGNATURE AND TITLE OF INSPECTOR Chris Gillentine, Geologist | | | | |

| ELEV. | DEPTH | LEGEND | CLASSIFICATION OF MATERIALS | SAMPLE | LABORATORY RESULTS |
|-------|-------|--------|---|--------|--|
| -38.0 | 0.0 | | | | |
| | | ••••• | SAND, poorly-graded, mostly fine to medium-grained sand-sized quartz, gray (SP) | A | Classification: SM Color: 2.5Y 5/2-grayish brown D50: 0.1421 mm % Fines: 18 |
| | | ••••• | | NS | |
| -58.0 | 20.0 | | | | |
| | | | NOTES: 1. Soils are field visually classified in accordance with the Unified Soils Classification System. 2. NS = Sample not submitted for laboratory analysis from this interval. 3. Seafloor elevation calculated using sampling | | |

| DRILLING LOG (Cont. Sheet) | | | INSTALLATION Mobile District | | SHEET 2 |
|--|-------|--------|---|----------------------------|---------------------------|
| | | | | | OF 2 SHEETS |
| PROJECT MsCIP Barrier Island Restoration | | | COORDINATE SYSTEM/DATUM State Plane, MSE (U.S. Ft.) | HORIZONTAL NAD83 | VERTICAL NAVD88 |
| LOCATION COORDINATES X = 1,137,556 Y = 249,860 | | | ELEVATION TOP OF BORING -38.0 Ft. | | |
| ELEV. | DEPTH | LEGEND | CLASSIFICATION OF MATERIALS | SAMPLE | LABORATORY RESULTS |
| | | | vessel's fathometer water depth reading and applying NOAA tidal gauge data conversion factor. | | |



Particle Size Distribution Report



| % +3" | % Gravel | | % Sand | | | % Fines | |
|-------|----------|------|--------|--------|------|---------|------|
| | Coarse | Fine | Coarse | Medium | Fine | Silt | Clay |
| 0.0 | 0.0 | 2.6 | 2.3 | 8.7 | 68.4 | 18.0 | |

| SIEVE SIZE | PERCENT FINER | SPEC.* PERCENT | PASS? (X=NO) |
|------------|---------------|----------------|--------------|
| .500 | 100.0 | | |
| .375 | 99.4 | | |
| #4 | 97.4 | | |
| #10 | 95.1 | | |
| #20 | 92.7 | | |
| #40 | 86.4 | | |
| #60 | 74.6 | | |
| #100 | 52.6 | | |
| #200 | 18.0 | | |

Material Description

SILTY SAND, (SM), fine grained, with trace shell

Atterberg Limits

PL= LL= PI=

Coefficients

D₉₀= 0.5797 D₈₅= 0.3881 D₆₀= 0.1750
D₅₀= 0.1421 D₃₀= 0.0950 D₁₅=
D₁₀= C_u= C_c=

Classification

USCS= SM AASHTO=

Remarks

CADD CODE = CH10D965

* (no specification provided)

Location: USACE Sample # BI-PB-62-10A
Sample Number: TE Lab ID: 4622.33

Depth: 0.0 - 1.5 (ft.)

Date: 8/15/10

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

Tested By: G.Fancher

Checked By: R.Byrd

Boring Designation BI-PB-063-10

| | | | | |
|--|--|--|--|--|
| DRILLING LOG | | DIVISION South Atlantic | INSTALLATION Mobile District | SHEET 1 OF 1 SHEETS |
| 1. PROJECT MsCIP Barrier Island Restoration Petit Bois Pass- AL West | | | 9. SIZE AND TYPE OF BIT N/A | |
| 2. BORING DESIGNATION BI-PB-063-10 | | 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 | | <input type="checkbox"/> AUTO HAMMER <input type="checkbox"/> MANUAL HAMMER |
| 4. NAME OF DRILLER Construction Solutions International, Inc. | | 12. TOTAL SAMPLES | | DISTURBED 0 |
| 5. DIRECTION OF BORING <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED | | 13. TOTAL NUMBER CORE BOXES | | UNDISTURBED (UD) 0 |
| 6. THICKNESS OF OVERBURDEN N/A | | 14. WATER DEPTH 39 Ft. | | |
| 7. DEPTH DRILLED INTO ROCK N/A | | 15. DATE BORING | | STARTED 08-06-10 |
| 8. TOTAL DEPTH OF BORING 16.0 Ft. | | 16. ELEVATION TOP OF BORING -38.8 Ft. | | COMPLETED 08-06-10 |
| | | 17. TOTAL RECOVERY FOR BORING 100% | | |
| | | 18. SIGNATURE AND TITLE OF INSPECTOR Chris Gillentine, Geologist | | |

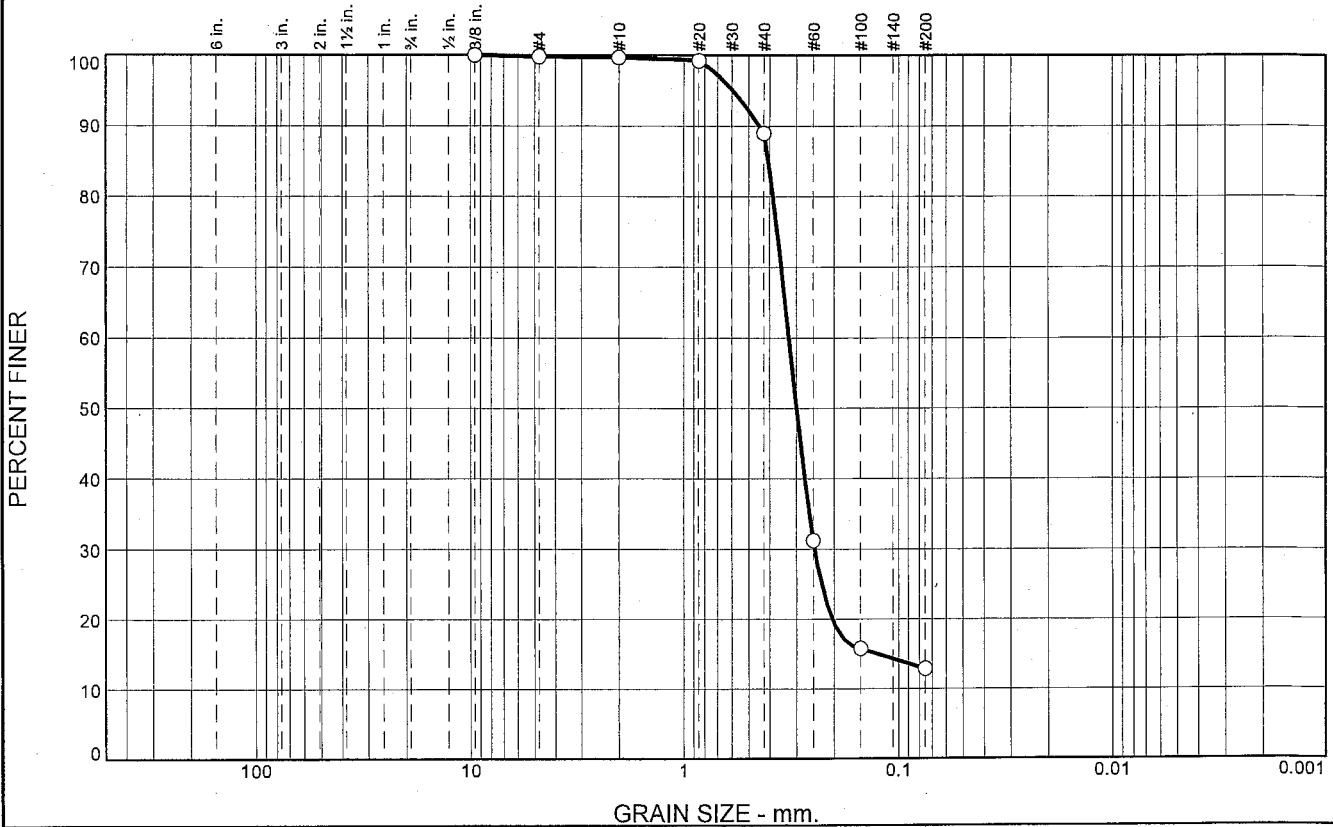
| ELEV. | DEPTH | LEGEND | CLASSIFICATION OF MATERIALS | SAMPLE | LABORATORY RESULTS |
|--|-------|--------|---|--------|--------------------|
| -38.8 | 0.0 | | CLAY, fat, trace fine-grained sand-sized quartz, dark gray (CH) | NS | |
| -44.8 | 6.0 | | SAND, poorly-graded, trace silt, dark gray (SP) | | |
| -47.8 | 9.0 | | CLAY, fat, dark gray (CH) | | |
| -54.8 | 16.0 | | | | |
| <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> | | | | | |

Boring Designation BI-PB-064-10

| | | | | |
|--|--|--|--|--|
| DRILLING LOG | | DIVISION South Atlantic | INSTALLATION Mobile District | SHEET 1 OF 1 SHEETS |
| 1. PROJECT MsCIP Barrier Island Restoration Petit Bois Pass- AL West | | | 9. SIZE AND TYPE OF BIT N/A | |
| 2. BORING DESIGNATION BI-PB-064-10 | | 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 | | <input type="checkbox"/> AUTO HAMMER <input type="checkbox"/> MANUAL HAMMER |
| 4. NAME OF DRILLER Construction Solutions International, Inc. | | 12. TOTAL SAMPLES | | DISTURBED 3 |
| 5. DIRECTION OF BORING <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED | | 13. TOTAL NUMBER CORE BOXES | | UNDISTURBED (UD) 0 |
| 6. THICKNESS OF OVERBURDEN N/A | | 14. WATER DEPTH 39 Ft. | | |
| 7. DEPTH DRILLED INTO ROCK N/A | | 15. DATE BORING | | STARTED 07-09-10 |
| 8. TOTAL DEPTH OF BORING 18.5 Ft. | | 16. ELEVATION TOP OF BORING -38.6 Ft. | | COMPLETED 07-09-10 |
| | | 17. TOTAL RECOVERY FOR BORING 100% | | |
| | | 18. SIGNATURE AND TITLE OF INSPECTOR Valerie Morrow, Geotechnical Engineer | | |

| ELEV. | DEPTH | LEGEND | CLASSIFICATION OF MATERIALS | SAMPLE | LABORATORY RESULTS |
|-------|-------|--------|---|--------|--|
| -38.6 | 0.0 | | CLAY, lean, dark gray (CL) | NS | |
| -49.6 | 11.0 | | | | |
| -51.4 | 12.8 | | SAND, silty, mostly fine-grained sand-sized quartz, gray (SM) | A | Classification: SM Color: 2.5Y 5/2-grayish brown D50: 0.2997 mm % Fines: 12.9 |
| | | | SAND, poorly-graded, mostly fine-grained sand-sized quartz, trace silt, lt. gray (SP) | B | Classification: SP-SM Color: 2.5Y 7/2-light gray D50: 0.2991 mm % Fines: 9.3 |
| -57.1 | 18.5 | | | C | Classification: SP Color: 2.5Y 7/2-light gray D50: 0.3164 mm % Fines: 3 |
| | | | NOTES: 1. Soils are field visually classified in accordance with the Unified Soils Classification System. 2. NS = Sample not submitted for laboratory analysis from this interval. 3. Seafloor elevation calculated using sampling vessel's fathometer water depth reading and applying NOAA tidal gauge data conversion factor. | | |

Particle Size Distribution Report



| % +3" | % Gravel | | % Sand | | | % Fines | |
|-------|----------|------|--------|--------|------|---------|------|
| | Coarse | Fine | Coarse | Medium | Fine | Silt | Clay |
| 0.0 | 0.0 | 0.2 | 0.1 | 10.7 | 76.1 | 12.9 | |

| SIEVE SIZE | PERCENT FINER | SPEC.* PERCENT | PASS? (X=NO) |
|------------|---------------|----------------|--------------|
| .375 | 100.0 | | |
| #4 | 99.8 | | |
| #10 | 99.7 | | |
| #20 | 99.2 | | |
| #40 | 89.0 | | |
| #60 | 31.2 | | |
| #100 | 15.7 | | |
| #200 | 12.9 | | |

Material Description

SILTY SAND, (SM), medium to fine grained

Atterberg Limits

PL= LL= PI=

Coefficients

D₉₀= 0.4460 D₈₅= 0.4061 D₆₀= 0.3254
D₅₀= 0.2997 D₃₀= 0.2462 D₁₅= 0.1256
D₁₀= C_u= C_c=

Classification

USCS= SM AASHTO=

Remarks

CADD CODE = CH10D965

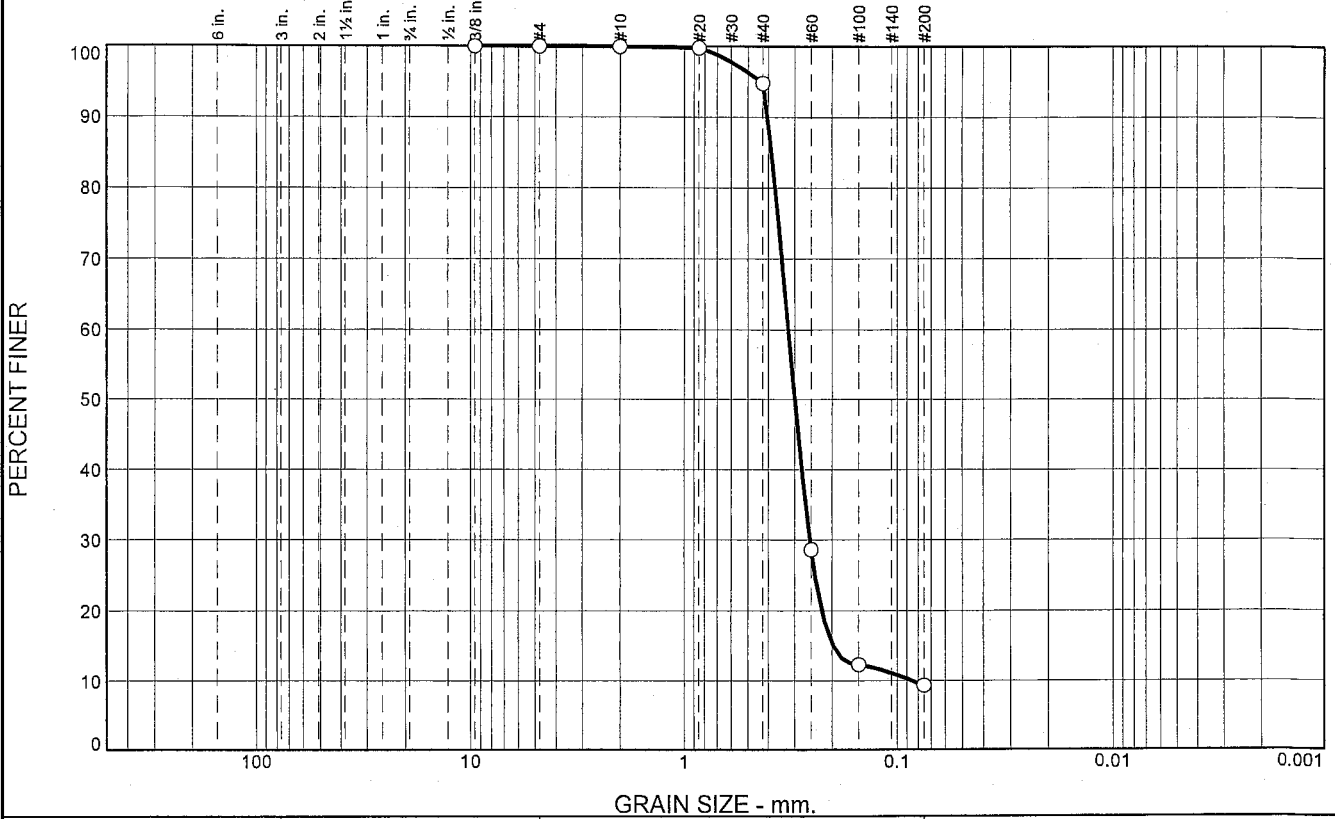
* (no specification provided)

Location: USACE Sample # BI-PB-64-10A Sample Number: TE Lab ID: 4578.05 Depth: 11.0 - 12.8 (ft.) Date: 7/16/10

| | |
|---|---|
| Thompson Engineering Mobile, Alabama | Client: US Army Corps of Engineers Project: Contract No. W91278-10-D-0026 - Task 03 Mississippi Barrier Island Restoration Project Project No: 10-2123-0009 Figure |
|---|---|

Tested By: G.Fancher Checked By: R.Byrd

Particle Size Distribution Report



| % +3" | % Gravel | | % Sand | | | % Fines | |
|-------|----------|------|--------|--------|------|---------|------|
| | Coarse | Fine | Coarse | Medium | Fine | Silt | Clay |
| 0.0 | 0.0 | 0.0 | 0.1 | 5.1 | 85.5 | 9.3 | |

| SIEVE SIZE | PERCENT FINER | SPEC.* PERCENT | PASS? (X=NO) |
|------------|---------------|----------------|--------------|
| .375 | 100.0 | | |
| #4 | 100.0 | | |
| #10 | 99.9 | | |
| #20 | 99.8 | | |
| #40 | 94.8 | | |
| #60 | 28.6 | | |
| #100 | 12.3 | | |
| #200 | 9.3 | | |

Material Description

SAND, (SP-SM), fine grained

Atterberg Limits

PL= LL= PI=

Coefficients

D₉₀= 0.4046 D₈₅= 0.3870 D₆₀= 0.3212
D₅₀= 0.2991 D₃₀= 0.2537 D₁₅= 0.1970
D₁₀= 0.0853 C_u= 3.77 C_c= 2.35

Classification

USCS= SP-SM AASHTO=

Remarks

CADD CODE = CH10D965

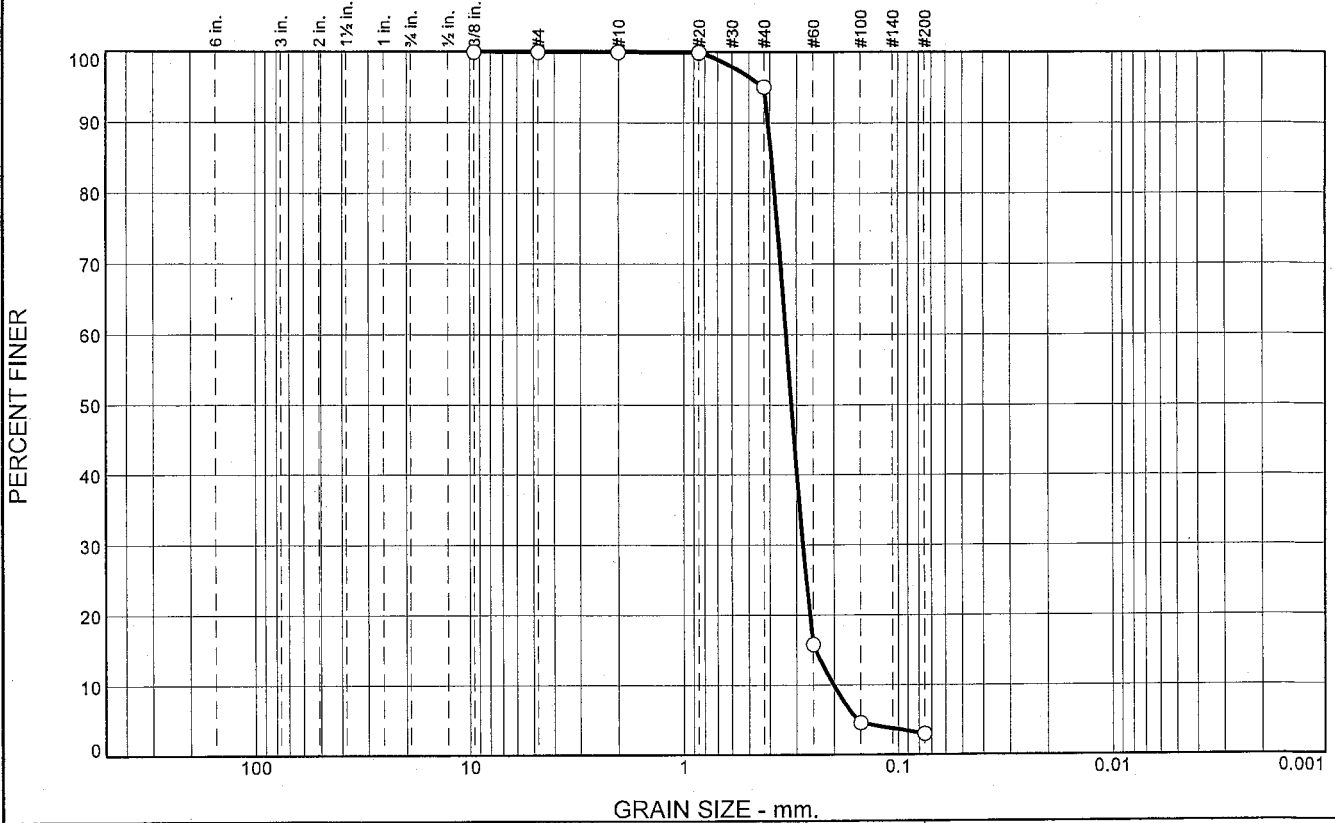
* (no specification provided)

Location: USACE Sample # BI-PB-64-10B Depth: 12.8 - 15.8 (ft.) Date: 7/16/10
Sample Number: TE Lab ID: 4578.06

| | |
|---|---|
| Thompson Engineering Mobile, Alabama | Client: US Army Corps of Engineers Project: Contract No. W91278-10-D-0026 - Task 03 Mississippi Barrier Island Restoration Project Project No: 10-2123-0009 Figure |
|---|---|

Tested By: G.Fancher Checked By: R.Byrd

Particle Size Distribution Report



| % +3" | % Gravel | | % Sand | | | % Fines | |
|-------|----------|------|--------|--------|------|---------|------|
| | Coarse | Fine | Coarse | Medium | Fine | Silt | Clay |
| 0.0 | 0.0 | 0.0 | 0.0 | 4.9 | 92.1 | 3.0 | |

| SIEVE SIZE | PERCENT FINER | SPEC.* PERCENT | PASS? (X=NO) |
|------------|---------------|----------------|--------------|
| .375 | 100.0 | | |
| #4 | 100.0 | | |
| #10 | 100.0 | | |
| #20 | 99.9 | | |
| #40 | 95.1 | | |
| #60 | 15.7 | | |
| #100 | 4.6 | | |
| #200 | 3.0 | | |

Material Description

SAND, (SP), fine grained

Atterberg Limits

PL= LL= PI=

Coefficients

D₉₀= 0.4069 D₈₅= 0.3921 D₆₀= 0.3354
D₅₀= 0.3164 D₃₀= 0.2796 D₁₅= 0.2438
D₁₀= 0.2015 C_u= 1.66 C_c= 1.16

Classification

USCS= SP AASHTO=

Remarks

CADD CODE = CH10D965

* (no specification provided)

Location: USACE Sample # BI-PB-64-10C Depth: 15.8 - 18.8 (ft.) Date: 7/16/10
Sample Number: TE Lab ID: 4578.07

| | |
|---|---|
| Thompson Engineering Mobile, Alabama | Client: US Army Corps of Engineers Project: Contract No. W91278-10-D-0026 - Task 03 Mississippi Barrier Island Restoration Project Project No: 10-2123-0009 Figure |
|---|---|

Tested By: G.Fancher Checked By: R.Byrd

Boring Designation BI-PB-067-10

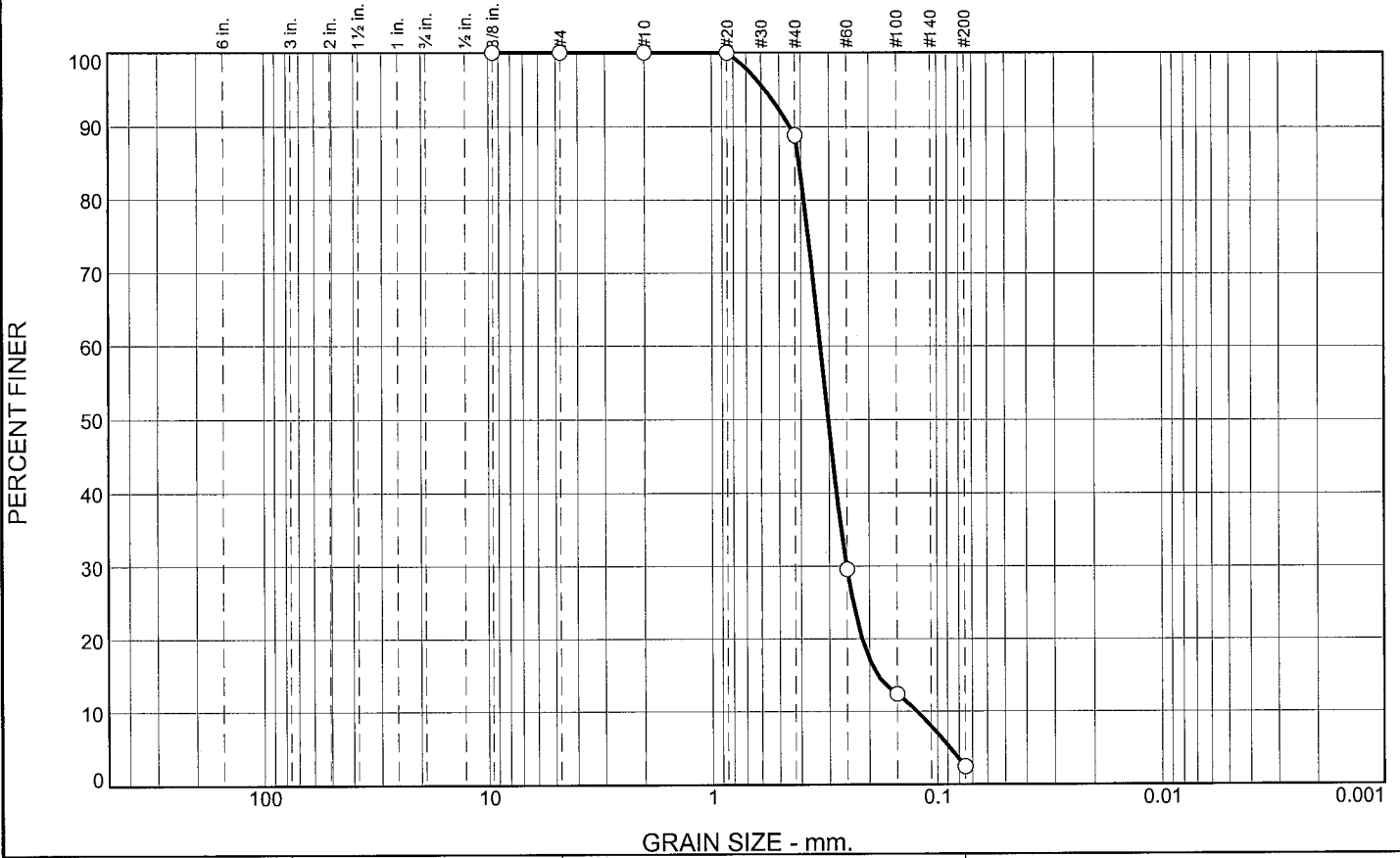
| | | | | |
|--|--|--|--|---|
| DRILLING LOG | | DIVISION South Atlantic | INSTALLATION Mobile District | SHEET 1 OF 2 SHEETS |
| 1. PROJECT MsCIP Barrier Island Restoration Petit Bois Pass- AL West | | | 9. SIZE AND TYPE OF BIT N/A | |
| 2. BORING DESIGNATION BI-PB-067-10 | | LOCATION COORDINATES E = 1,128,573 N = 248,430 | | 10. COORDINATE SYSTEM/DATUM State Plane, MSE (U.S. Ft.) |
| 3. DRILLING AGENCY Corps of Engineers - CESAM | | CONTRACTOR FILE NO. | | 11. MANUFACTURER'S DESIGNATION OF DRILL Vibracore |
| 4. NAME OF DRILLER Construction Solutions International, Inc. | | | 12. TOTAL SAMPLES DISTURBED: 2 UNDISTURBED (UD): 0 | |
| 5. DIRECTION OF BORING <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED | | DEG. FROM VERTICAL | BEARING | 13. TOTAL NUMBER CORE BOXES |
| 6. THICKNESS OF OVERBURDEN N/A | | | 14. WATER DEPTH 37 Ft. | |
| 7. DEPTH DRILLED INTO ROCK N/A | | | 15. DATE BORING STARTED: 08-05-10 COMPLETED: 08-05-10 | |
| 8. TOTAL DEPTH OF BORING 19.5 Ft. | | | 16. ELEVATION TOP OF BORING -35.8 Ft. | |
| | | | 17. TOTAL RECOVERY FOR BORING 100% | |
| 18. SIGNATURE AND TITLE OF INSPECTOR Chris Gillentine, Geologist | | | | |

| ELEV. | DEPTH | LEGEND | CLASSIFICATION OF MATERIALS | SAMPLE | LABORATORY RESULTS |
|---|-------|--------|------------------------------------|--------|---|
| -35.8 | 0.0 | | CLAY, fat, dark gray (CH) | NS | |
| -40.8 | 5.0 | | SAND, poorly-graded, lt. gray (SP) | A | Classification: SP Color: 2.5Y 7/1-light gray D50: 0.3025 mm % Fines: 2.4 |
| | | | | B | Classification: SP Color: 2.5Y 6/2-light brownish gray D50: 0.2647 mm % Fines: 4.5 |
| -51.8 | 16.0 | | CLAY, fat, dark gray (CH) | NS | |
| -55.3 | 19.5 | | | | |
| <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</p> | | | | | |

| DRILLING LOG (Cont. Sheet) | | | INSTALLATION Mobile District | | SHEET 2 |
|--|-------|--------|---|----------------------------|---------------------------|
| | | | | | OF 2 SHEETS |
| PROJECT MsCIP Barrier Island Restoration | | | COORDINATE SYSTEM/DATUM State Plane, MSE (U.S. Ft.) | HORIZONTAL NAD83 | VERTICAL NAVD88 |
| LOCATION COORDINATES X = 1,128,573 Y = 248,430 | | | ELEVATION TOP OF BORING -35.8 Ft. | | |
| ELEV. | DEPTH | LEGEND | CLASSIFICATION OF MATERIALS | SAMPLE | LABORATORY RESULTS |
| | | | applying NOAA tidal gauge data conversion factor. | | |



Particle Size Distribution Report



| % +3" | % Gravel | | % Sand | | | % Fines | |
|-------|----------|------|--------|--------|------|---------|------|
| | Coarse | Fine | Coarse | Medium | Fine | Silt | Clay |
| 0.0 | 0.0 | 0.0 | 0.0 | 11.2 | 86.4 | 2.4 | |

| SIEVE SIZE | PERCENT FINER | SPEC.* PERCENT | PASS? (X=NO) |
|------------|---------------|----------------|--------------|
| .375 | 100.0 | | |
| #4 | 100.0 | | |
| #10 | 100.0 | | |
| #20 | 100.0 | | |
| #40 | 88.8 | | |
| #60 | 29.6 | | |
| #100 | 12.4 | | |
| #200 | 2.4 | | |

Material Description

SAND, (SP), medium to fine grained

Atterberg Limits

PL= LL= PI=

Coefficients

D₉₀= 0.4479 D₈₅= 0.4074 D₆₀= 0.3278
D₅₀= 0.3025 D₃₀= 0.2512 D₁₅= 0.1837
D₁₀= 0.1229 C_u= 2.67 C_c= 1.57

Classification

USCS= SP AASHTO=

Remarks

CADD CODE = CH10D965

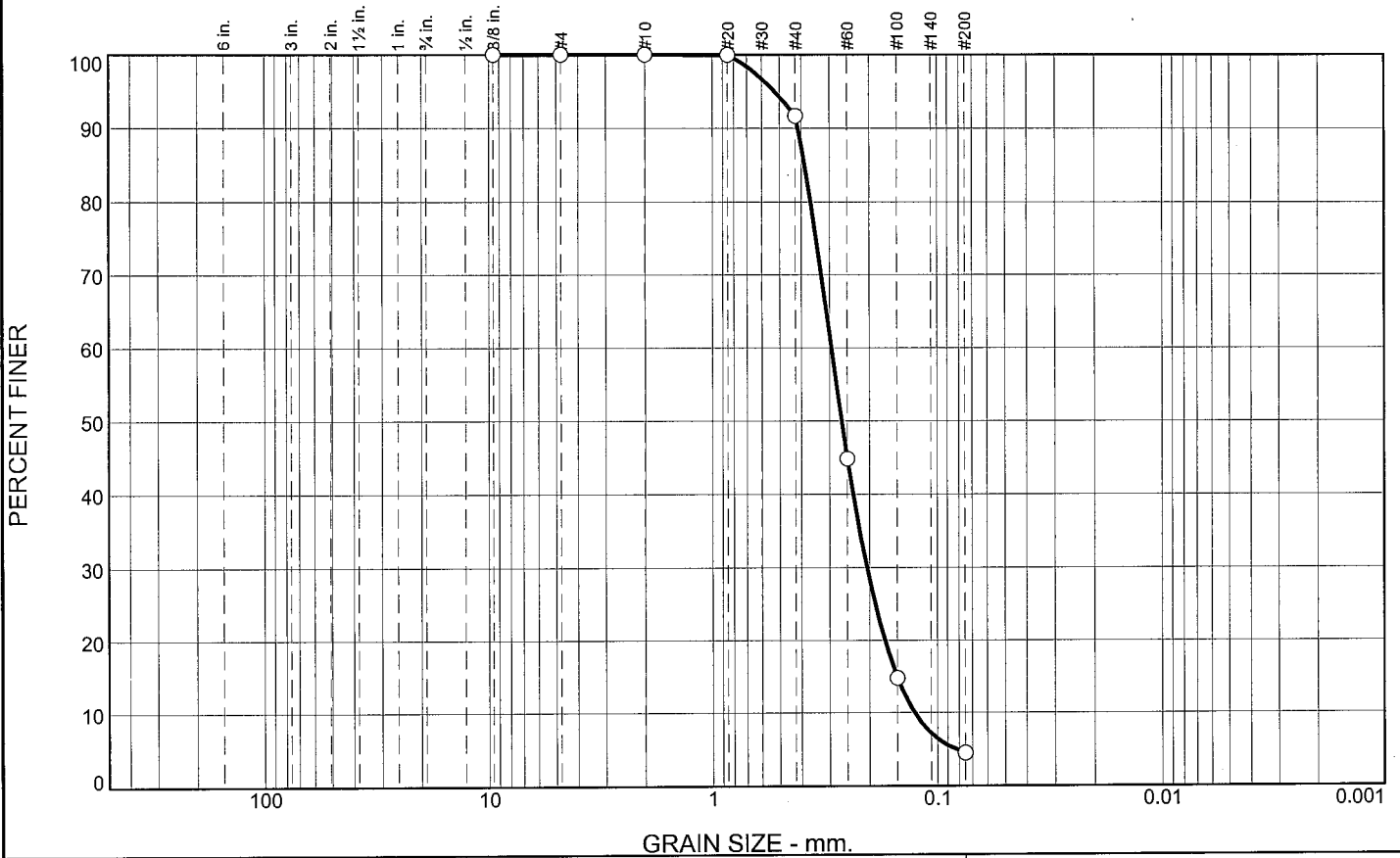
* (no specification provided)

Location: USACE Sample # BI-PB-67-10A Depth: 5.0 - 10.0 (ft.) Date: 8/15/10
Sample Number: TE Lab ID: 4622.22

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

Tested By: G.Fancher Checked By: R.Byrd

Particle Size Distribution Report



| % +3" | % Gravel | | % Sand | | | % Fines | |
|-------|----------|------|--------|--------|------|---------|------|
| | Coarse | Fine | Coarse | Medium | Fine | Silt | Clay |
| 0.0 | 0.0 | 0.0 | 0.0 | 8.3 | 87.2 | 4.5 | |

| SIEVE SIZE | PERCENT FINER | SPEC.* PERCENT | PASS? (X=NO) |
|------------|---------------|----------------|--------------|
| .375 | 100.0 | | |
| #4 | 100.0 | | |
| #10 | 100.0 | | |
| #20 | 99.9 | | |
| #40 | 91.7 | | |
| #60 | 44.9 | | |
| #100 | 14.8 | | |
| #200 | 4.5 | | |

Material Description

SAND, (SP), fine grained

Atterberg Limits

PL= LL= PI=

Coefficients

D₉₀= 0.4138 D₈₅= 0.3860 D₆₀= 0.2939
D₅₀= 0.2647 D₃₀= 0.2051 D₁₅= 0.1509
D₁₀= 0.1261 C_u= 2.33 C_c= 1.13

Classification

USCS= SP AASHTO=

Remarks

CADD CODE = CH10D965

* (no specification provided)

Location: USACE Sample # BI-PB-67-10B
Sample Number: TE Lab ID: 4622.23

Depth: 10.0 - 15.0 (ft.)

Date: 8/15/10

Thompson Engineering


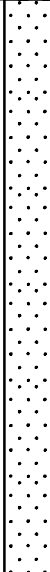
Mobile, Alabama

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

Tested By: G.Fancher **Checked By:** R.Byrd

Boring Designation BI-PB-068-10

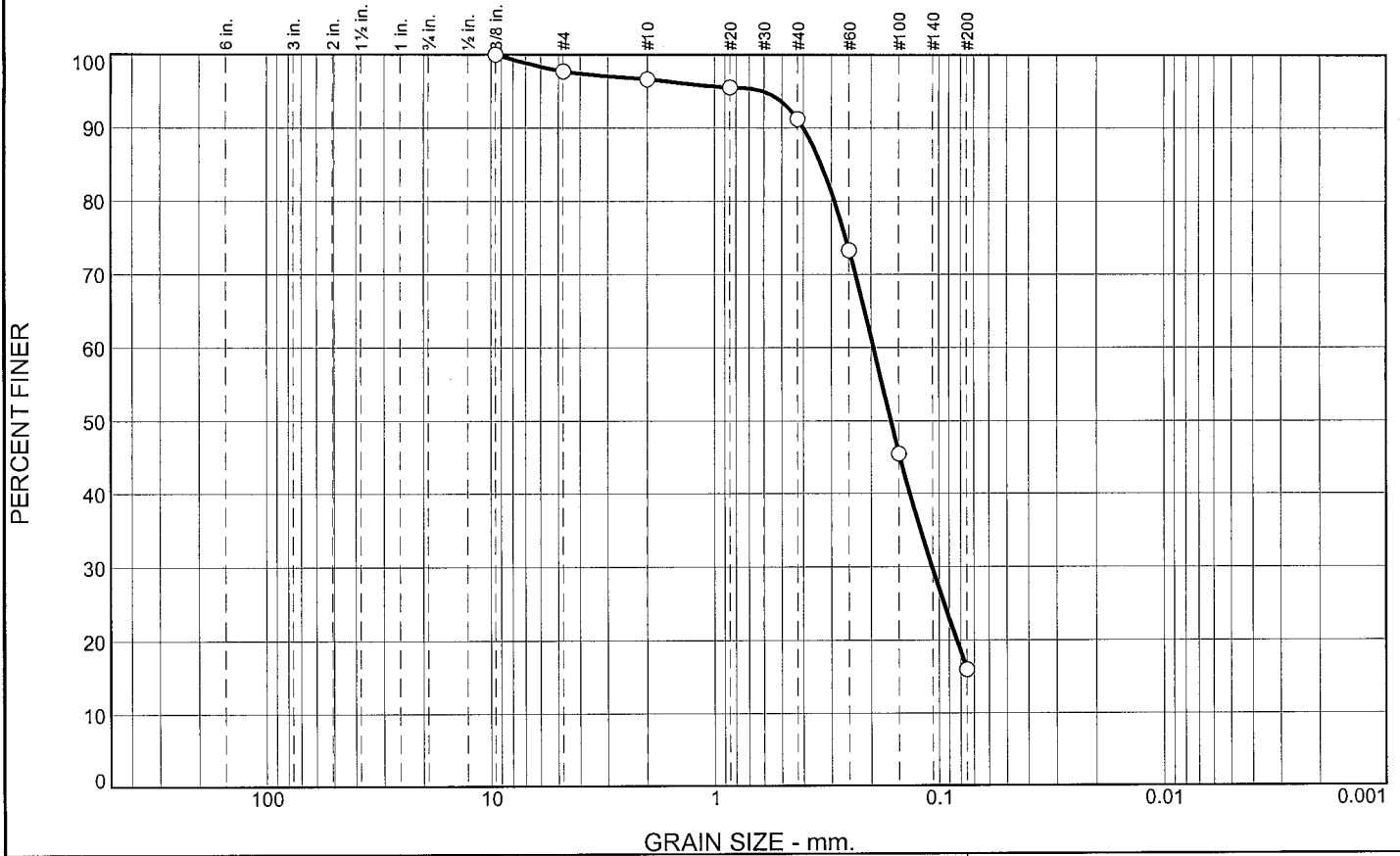
| | | | | |
|--|--|--|--|--|
| DRILLING LOG | | DIVISION South Atlantic | INSTALLATION Mobile District | SHEET 1 OF 2 SHEETS |
| 1. PROJECT MsCIP Barrier Island Restoration Petit Bois Pass- AL West | | | 9. SIZE AND TYPE OF BIT N/A | |
| 2. BORING DESIGNATION BI-PB-068-10 | | LOCATION COORDINATES E = 1,131,651 N = 248,301 | | 10. COORDINATE SYSTEM/DATUM State Plane, MSE (U.S. Ft.) |
| 3. DRILLING AGENCY Corps of Engineers - CESAM | | CONTRACTOR FILE NO. | | HORIZONTAL NAD83 |
| 4. NAME OF DRILLER Construction Solutions International, Inc. | | 11. MANUFACTURER'S DESIGNATION OF DRILL Vibracore | | <input type="checkbox"/> AUTO HAMMER <input type="checkbox"/> MANUAL HAMMER |
| 5. DIRECTION OF BORING <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED | | DEG. FROM VERTICAL | BEARING | 12. TOTAL SAMPLES 3 |
| 6. THICKNESS OF OVERBURDEN N/A | | 13. TOTAL NUMBER CORE BOXES | | DISTURBED 0 |
| 7. DEPTH DRILLED INTO ROCK N/A | | 14. WATER DEPTH 36 Ft. | | UNDISTURBED (UD) 0 |
| 8. TOTAL DEPTH OF BORING 20.0 Ft. | | 15. DATE BORING 08-05-10 | | STARTED 08-05-10 |
| | | 16. ELEVATION TOP OF BORING -34.9 Ft. | | COMPLETED 08-05-10 |
| | | 17. TOTAL RECOVERY FOR BORING 100% | | |
| | | 18. SIGNATURE AND TITLE OF INSPECTOR Chris Gillentine, Geologist | | |

| ELEV. | DEPTH | LEGEND | CLASSIFICATION OF MATERIALS | SAMPLE | LABORATORY RESULTS |
|-------|-------|---|---|--------|--|
| -34.9 | 0.0 | | | | |
| | |  | CLAY, fat, trace fine-grained sand-sized quartz, trace shell fragments, dark gray (CH) | NS | |
| -41.9 | 7.0 | | | | |
| | |  | SAND, poorly-graded, mostly fine to medium-grained sand-sized quartz (SP) At El. -43.9 Ft., mostly fine to medium-grained sand-sized quartz, lt. gray | A | Classification: SM Color: 2.5Y 5/2-grayish brown D50: 0.1633 mm % Fines: 16 |
| | | | | B | Classification: SP Color: 2.5Y 7/1-light gray D50: 0.255 mm % Fines: 2.5 |
| | | | | C | Classification: SP Color: 2.5Y 7/1-light gray D50: 0.2504 mm % Fines: 4.4 |
| -54.9 | 20.0 | | | | |
| | | | NOTES: 1. Soils are field visually classified in accordance with the Unified Soils Classification System. 2. NS = Sample not submitted for laboratory analysis from this interval. 3. Seafloor elevation calculated using sampling | | |

| DRILLING LOG (Cont. Sheet) | | | INSTALLATION Mobile District | | | SHEET 2 |
|---|-------|--------|---|----------------------------|---------------------------|--------------------|
| | | | | | | OF 2 SHEETS |
| PROJECT MsCIP Barrier Island Restoration | | | COORDINATE SYSTEM/DATUM State Plane, MSE (U.S. Ft.) | HORIZONTAL NAD83 | VERTICAL NAVD88 | |
| LOCATION COORDINATES X = 1,131,651 Y = 248,301 | | | ELEVATION TOP OF BORING -34.9 Ft. | | | |
| ELEV. | DEPTH | LEGEND | CLASSIFICATION OF MATERIALS | SAMPLE | LABORATORY RESULTS | |
| | | | vessel's fathometer water depth reading and applying NOAA tidal gauge data conversion factor. | | | |



Particle Size Distribution Report



| % +3" | % Gravel | | % Sand | | | % Fines | |
|-------|----------|------|--------|--------|------|---------|------|
| | Coarse | Fine | Coarse | Medium | Fine | Silt | Clay |
| 0.0 | 0.0 | 2.3 | 1.1 | 5.4 | 75.2 | 16.0 | |

| SIEVE SIZE | PERCENT FINER | SPEC.* PERCENT | PASS? (X=NO) |
|------------|---------------|----------------|--------------|
| .375 | 100.0 | | |
| #4 | 97.7 | | |
| #10 | 96.6 | | |
| #20 | 95.5 | | |
| #40 | 91.2 | | |
| #60 | 73.3 | | |
| #100 | 45.5 | | |
| #200 | 16.0 | | |

Material Description

SILTY SAND, (SM), fine grained, with trace shell

Atterberg Limits

PL= LL= PI=

Coefficients

D₉₀= 0.4006 D₈₅= 0.3337 D₆₀= 0.1950
D₅₀= 0.1633 D₃₀= 0.1074 D₁₅=
D₁₀= C_u= C_c=

Classification

USCS= SM AASHTO=

Remarks

CADD CODE = CH10D965

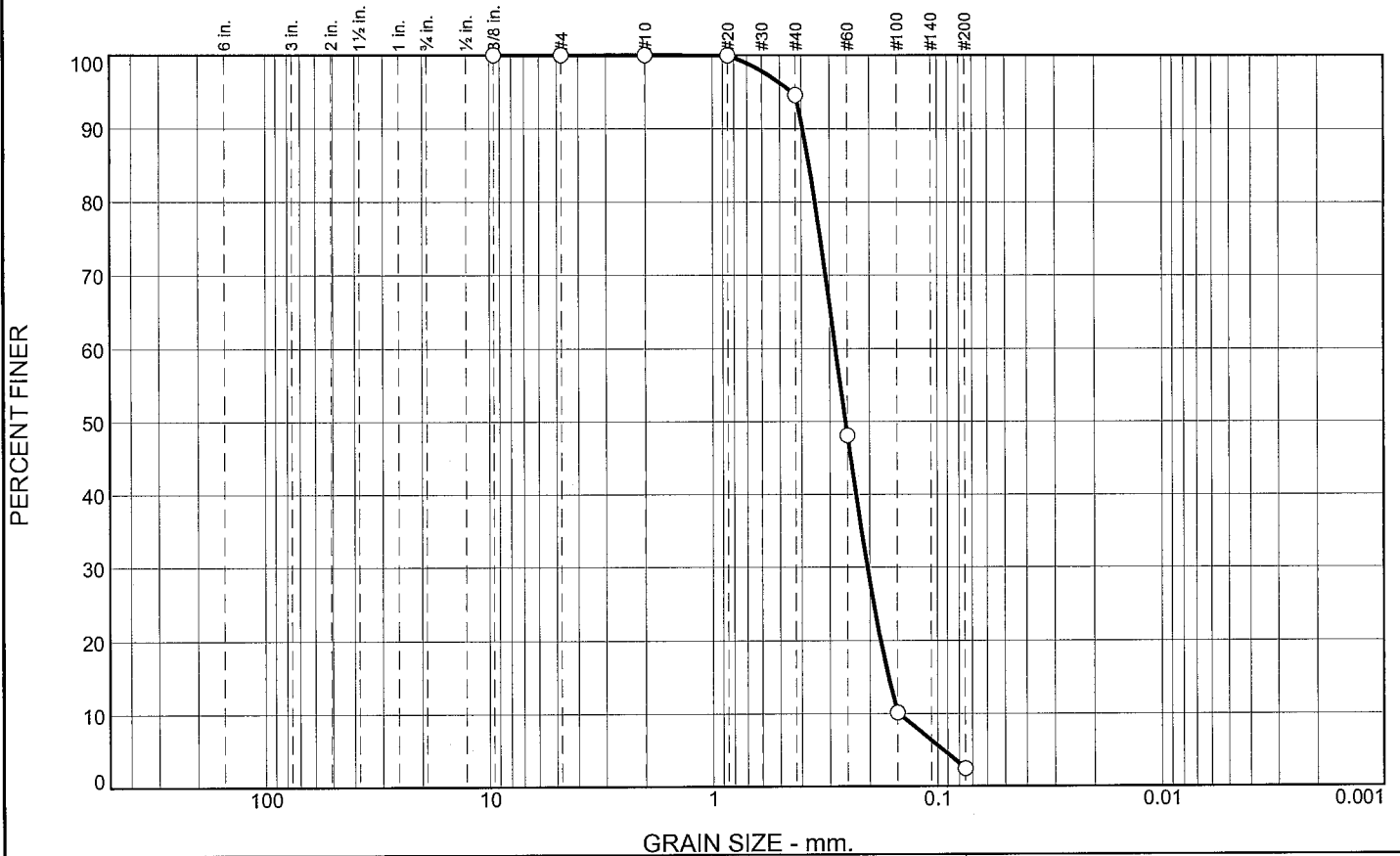
* (no specification provided)

Location: USACE Sample # BI-PB-68-10A **Depth:** 7.0 - 10.0 (ft.) **Date:** 8/15/10
Sample Number: TE Lab ID: 4622.24

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

Tested By: G.Fancher **Checked By:** R.Byrd

Particle Size Distribution Report



| % +3" | % Gravel | | % Sand | | | % Fines | |
|-------|----------|------|--------|--------|------|---------|------|
| | Coarse | Fine | Coarse | Medium | Fine | Silt | Clay |
| 0.0 | 0.0 | 0.0 | 0.0 | 5.4 | 92.1 | 2.5 | |

| SIEVE SIZE | PERCENT FINER | SPEC.* PERCENT | PASS? (X=NO) |
|------------|---------------|----------------|--------------|
| .375 | 100.0 | | |
| #4 | 100.0 | | |
| #10 | 100.0 | | |
| #20 | 99.9 | | |
| #40 | 94.6 | | |
| #60 | 48.1 | | |
| #100 | 10.2 | | |
| #200 | 2.5 | | |

Material Description

SAND, (SP), fine grained

Atterberg Limits

PL= LL= PI=

Coefficients

D₉₀= 0.3946 D₈₅= 0.3690 D₆₀= 0.2821
D₅₀= 0.2550 D₃₀= 0.2043 D₁₅= 0.1648
D₁₀= 0.1475 C_u= 1.91 C_c= 1.00

Classification

USCS= SP AASHTO=

Remarks

CADD CODE = CH10D965

* (no specification provided)

Location: USACE Sample # BI-PB-68-10B
Sample Number: TE Lab ID: 4622.25

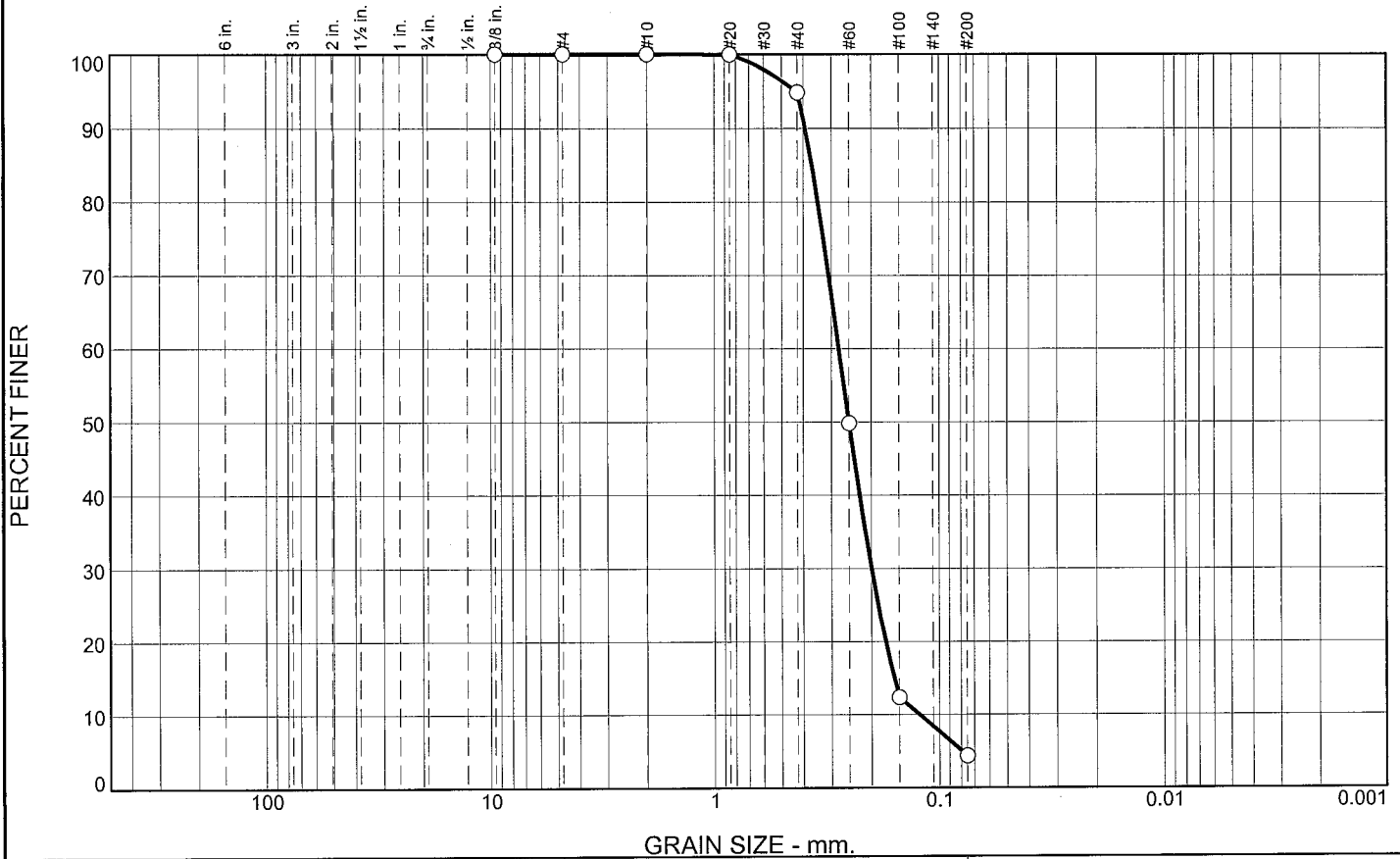
Depth: 10.0 - 15.0 (ft.)

Date: 8/15/10

| | |
|--|--|
| <h2 style="margin: 0;">Thompson Engineering</h2> <p style="margin: 0;">Mobile, Alabama</p> | <p>Client: US Army Corps of Engineers</p> <p>Project: Contract No. W91278-10-D-0026 - Task 03 Mississippi Barrier Island Restoration Project</p> <p>Project No: 10-2123-0009 Report No.</p> |
|--|--|

Tested By: G.Fancher **Checked By:** R.Byrd

Particle Size Distribution Report



| % +3" | % Gravel | | % Sand | | | % Fines | |
|-------|----------|------|--------|--------|------|---------|------|
| | Coarse | Fine | Coarse | Medium | Fine | Silt | Clay |
| 0.0 | 0.0 | 0.0 | 0.0 | 5.1 | 90.5 | 4.4 | |

| SIEVE SIZE | PERCENT FINER | SPEC.* PERCENT | PASS? (X=NO) |
|------------|---------------|----------------|--------------|
| .375 | 100.0 | | |
| #4 | 100.0 | | |
| #10 | 100.0 | | |
| #20 | 100.0 | | |
| #40 | 94.9 | | |
| #60 | 49.8 | | |
| #100 | 12.3 | | |
| #200 | 4.4 | | |

Material Description

SAND, (SP), fine grained

Atterberg Limits

PL= LL= PI=

Coefficients

| | | |
|--------------------------|--------------------------|--------------------------|
| D ₉₀ = 0.3920 | D ₈₅ = 0.3661 | D ₆₀ = 0.2779 |
| D ₅₀ = 0.2504 | D ₃₀ = 0.1990 | D ₁₅ = 0.1585 |
| D ₁₀ = 0.1224 | C _u = 2.27 | C _c = 1.16 |

Classification

USCS= SP AASHTO=

Remarks

CADD CODE = CH10D965

* (no specification provided)




Location: USACE Sample # BI-PB-68-10C Depth: 15.0 - 20.0 (ft.) Date: 8/15/10
 Sample Number: TE Lab ID: 4622.26

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

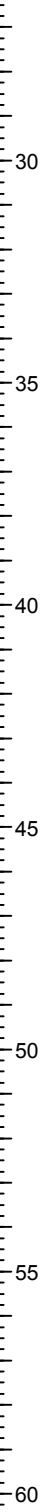
Tested By: G.Fancher Checked By: R.Byrd

Boring Designation BI-PB-069-10

| | | | | |
|--|--|---|--|--|
| DRILLING LOG | | DIVISION South Atlantic | INSTALLATION Mobile District | SHEET 1 OF 2 SHEETS |
| 1. PROJECT MsCIP Barrier Island Restoration Petit Bois Pass- AL West | | | 9. SIZE AND TYPE OF BIT N/A | |
| 2. BORING DESIGNATION BI-PB-069-10 | | 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 | | <input type="checkbox"/> AUTO HAMMER <input type="checkbox"/> MANUAL HAMMER |
| 4. NAME OF DRILLER Construction Solutions International, Inc. | | 12. TOTAL SAMPLES | | DISTURBED 0 |
| 5. DIRECTION OF BORING <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED | | 13. TOTAL NUMBER CORE BOXES | | UNDISTURBED (UD) 0 |
| 6. THICKNESS OF OVERBURDEN N/A | | 14. WATER DEPTH 40 Ft. | | 15. DATE BORING |
| 7. DEPTH DRILLED INTO ROCK N/A | | 16. ELEVATION TOP OF BORING -39.8 Ft. | | STARTED 08-07-10 |
| 8. TOTAL DEPTH OF BORING 20.0 Ft. | | 17. TOTAL RECOVERY FOR BORING 100% | | COMPLETED 08-07-10 |
| 18. SIGNATURE AND TITLE OF INSPECTOR Chris Gillentine, Geologist | | | | |

| ELEV. | DEPTH | LEGEND | CLASSIFICATION OF MATERIALS | SAMPLE | LABORATORY RESULTS |
|-------|-------|---|---|--------|--------------------|
| -39.8 | 0.0 |  | CLAY, fat, trace shell fragments, dark gray (CH) | | |
| -46.8 | 7.0 |  | SAND, poorly-graded, mostly fine to medium-grained sand-sized quartz, gray (SP) | NS | |
| -54.8 | 15.0 |  | CLAY, fat, dark gray (CH) | | |
| -59.8 | 20.0 | | NOTES: 1. Soils are field visually classified in accordance with the Unified Soils Classification System. 2. NS = Sample not submitted for laboratory analysis from this interval. 3. Seafloor elevation calculated using sampling | | |

| DRILLING LOG (Cont. Sheet) | | | INSTALLATION Mobile District | | SHEET 2 OF 2 SHEETS | |
|--|-------|--------|---|--------|--------------------------------------|---------------------------|
| PROJECT MsCIP Barrier Island Restoration | | | COORDINATE SYSTEM/DATUM State Plane, MSE (U.S. Ft.) | | HORIZONTAL NAD83 | VERTICAL NAVD88 |
| LOCATION COORDINATES X = 1,133,344 Y = 248,464 | | | ELEVATION TOP OF BORING -39.8 Ft. | | | |
| ELEV. | DEPTH | LEGEND | CLASSIFICATION OF MATERIALS | SAMPLE | LABORATORY RESULTS | |
| | | | vessel's fathometer water depth reading and applying NOAA tidal gauge data conversion factor. | | | |



Boring Designation BI-PB-070-10

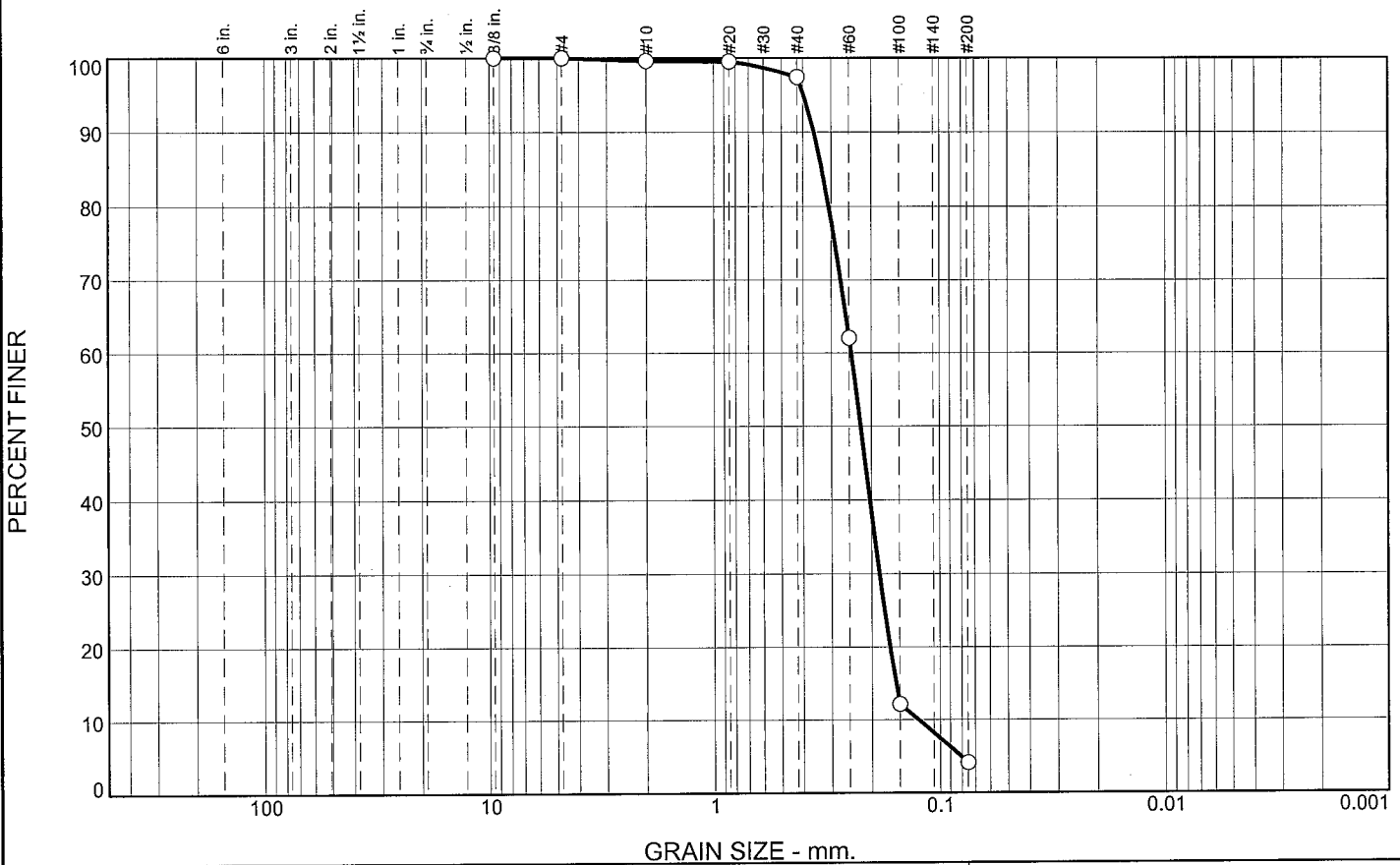
| | | | | |
|--|--|--|--|--|
| DRILLING LOG | | DIVISION South Atlantic | INSTALLATION Mobile District | SHEET 1 OF 2 SHEETS |
| 1. PROJECT MsCIP Barrier Island Restoration Petit Bois Pass- AL West | | 9. SIZE AND TYPE OF BIT N/A | | |
| 2. BORING DESIGNATION BI-PB-070-10 | | 10. COORDINATE SYSTEM/DATUM State Plane, MSE (U.S. Ft.) | | HORIZONTAL NAD83 |
| 3. DRILLING AGENCY Corps of Engineers - CESAM | | 11. MANUFACTURER'S DESIGNATION OF DRILL Vibracore | | <input type="checkbox"/> AUTO HAMMER <input type="checkbox"/> MANUAL HAMMER |
| 4. NAME OF DRILLER Construction Solutions International, Inc. | | 12. TOTAL SAMPLES DISTURBED: 1 UNDISTURBED (UD): 0 | | |
| 5. DIRECTION OF BORING <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED | | 13. TOTAL NUMBER CORE BOXES | | 14. WATER DEPTH 40 Ft. |
| 6. THICKNESS OF OVERBURDEN N/A | | 15. DATE BORING STARTED: 08-05-10 COMPLETED: 08-05-10 | | |
| 7. DEPTH DRILLED INTO ROCK N/A | | 16. ELEVATION TOP OF BORING -40.2 Ft. | | |
| 8. TOTAL DEPTH OF BORING 20.0 Ft. | | 17. TOTAL RECOVERY FOR BORING 100% | | |
| 18. SIGNATURE AND TITLE OF INSPECTOR Chris Gillentine, Geologist | | | | |

| ELEV. | DEPTH | LEGEND | CLASSIFICATION OF MATERIALS | SAMPLE | LABORATORY RESULTS |
|-------|-------|--------|---|--------|---|
| -40.2 | 0.0 | | | | |
| | | | CLAY, fat, trace fine-grained sand-sized quartz (CH) | NS | |
| -47.2 | 7.0 | | | | |
| | | | SAND, poorly-graded, mostly fine to medium-grained sand-sized quartz, lt. gray (SP) | A | Classification: SP Color: 2.5Y 6/2-light brownish gray D50: 0.2226 mm % Fines: 4.1 |
| -50.2 | 10.0 | | | | |
| | | | CLAY, fat, dark gray (CH) | NS | |
| -60.2 | 20.0 | | | | |
| | | | NOTES: 1. Soils are field visually classified in accordance with the Unified Soils Classification System. 2. NS = Sample not submitted for laboratory analysis from this interval. 3. Seafloor elevation calculated using sampling | | |

| DRILLING LOG (Cont. Sheet) | | | INSTALLATION Mobile District | | SHEET 2 OF 2 SHEETS |
|--|-------|--------|---|--------|---|
| | | | PROJECT MsCIP Barrier Island Restoration | | COORDINATE SYSTEM/DATUM State Plane, MSE (U.S. Ft.) |
| LOCATION COORDINATES X = 1,134,943 Y = 248,332 | | | ELEVATION TOP OF BORING -40.2 Ft. | | |
| ELEV. | DEPTH | LEGEND | CLASSIFICATION OF MATERIALS | SAMPLE | LABORATORY RESULTS |
| | | | vessel's fathometer water depth reading and applying NOAA tidal gauge data conversion factor. | | |



Particle Size Distribution Report



| % +3" | % Gravel | | % Sand | | | % Fines | |
|-------|----------|------|--------|--------|------|---------|------|
| | Coarse | Fine | Coarse | Medium | Fine | Silt | Clay |
| 0.0 | 0.0 | 0.0 | 0.4 | 2.2 | 93.3 | 4.1 | |

| SIEVE SIZE | PERCENT FINER | SPEC.* PERCENT | PASS? (X=NO) |
|------------|---------------|----------------|--------------|
| .375 | 100.0 | | |
| #4 | 100.0 | | |
| #10 | 99.6 | | |
| #20 | 99.5 | | |
| #40 | 97.4 | | |
| #60 | 62.1 | | |
| #100 | 12.2 | | |
| #200 | 4.1 | | |

Material Description

SAND, (SP), fine grained

Atterberg Limits

PL= LL= PI=

Coefficients

D₉₀= 0.3586 D₈₅= 0.3301 D₆₀= 0.2449
D₅₀= 0.2226 D₃₀= 0.1844 D₁₅= 0.1561
D₁₀= 0.1243 C_u= 1.97 C_c= 1.12

Classification

USCS= SP AASHTO=

Remarks

CADD CODE = CH10D965

* (no specification provided)

Location: USACE Sample # BI-PB-70-10A Depth: 7.0 - 10.0 (ft.) Date: 8/15/10
Sample Number: TE Lab ID: 4622.30

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

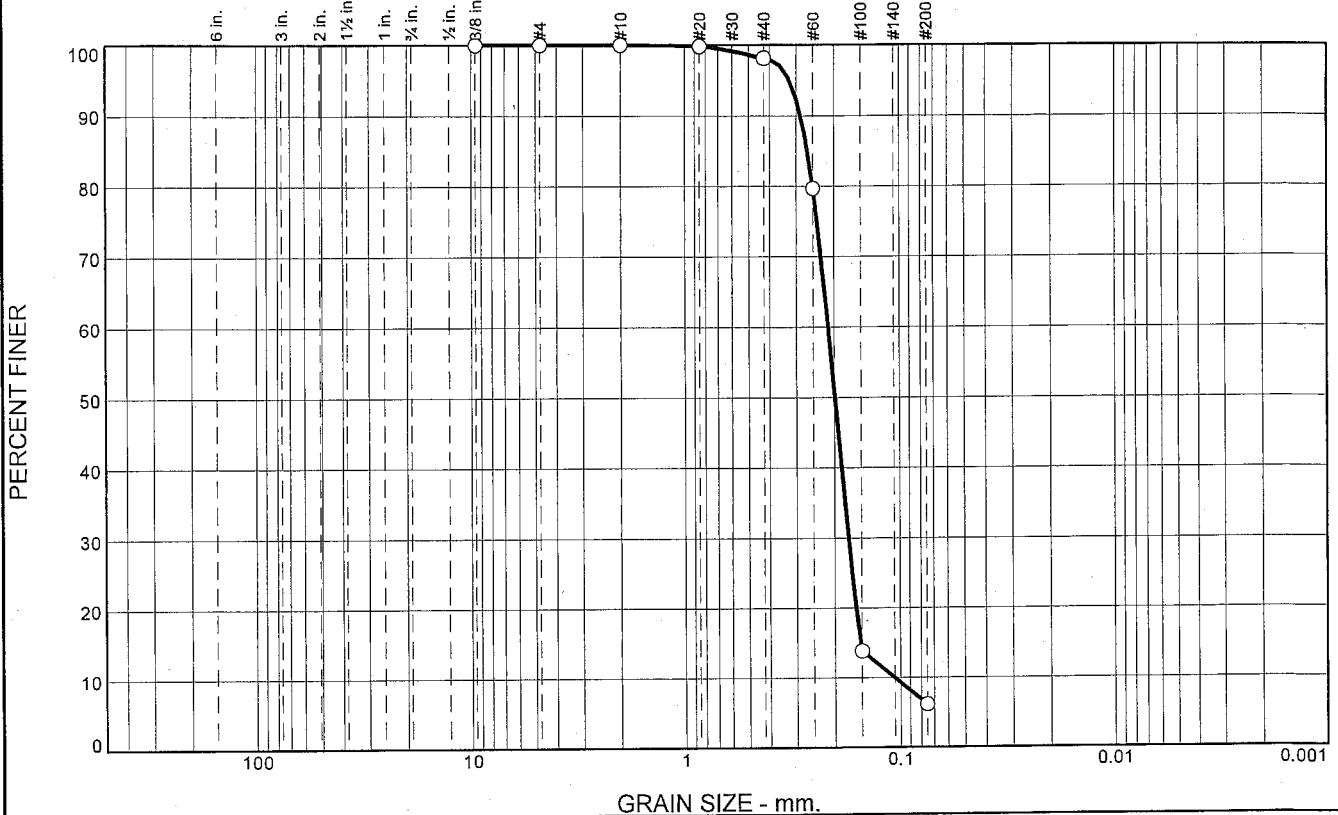
Tested By: G.Fancher Checked By: R.Byrd

Boring Designation BI-PB-073-10

| | | | | |
|--|--|--|--|--|
| DRILLING LOG | | DIVISION South Atlantic | INSTALLATION Mobile District | SHEET 1 OF 1 SHEETS |
| 1. PROJECT MsCIP Barrier Island Restoration Petit Bois Pass- AL West | | | 9. SIZE AND TYPE OF BIT N/A | |
| 2. BORING DESIGNATION BI-PB-073-10 | | LOCATION COORDINATES E = 1,122,713 N = 247,109 | | 10. COORDINATE SYSTEM/DATUM State Plane, MSE (U.S. Ft.) |
| 3. DRILLING AGENCY Corps of Engineers - CESAM | | CONTRACTOR FILE NO. | | HORIZONTAL NAD83 |
| 4. NAME OF DRILLER Construction Solutions International, Inc. | | | 11. MANUFACTURER'S DESIGNATION OF DRILL Vibracore | |
| 5. DIRECTION OF BORING <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED | | DEG. FROM VERTICAL | BEARING | <input type="checkbox"/> AUTO HAMMER <input type="checkbox"/> MANUAL HAMMER |
| 6. THICKNESS OF OVERBURDEN N/A | | 7. DEPTH DRILLED INTO ROCK N/A | | 12. TOTAL SAMPLES DISTURBED 1 UNDISTURBED (UD) 0 |
| 8. TOTAL DEPTH OF BORING 18.3 Ft. | | 13. TOTAL NUMBER CORE BOXES | | 14. WATER DEPTH 43 Ft. |
| 15. DATE BORING | | | STARTED 07-09-10 | COMPLETED 07-09-10 |
| 16. ELEVATION TOP OF BORING -41.2 Ft. | | | 17. TOTAL RECOVERY FOR BORING 100% | |
| 18. SIGNATURE AND TITLE OF INSPECTOR Valerie Morrow, Geotechnical Engineer | | | | |

| ELEV. | DEPTH | LEGEND | CLASSIFICATION OF MATERIALS | SAMPLE | LABORATORY RESULTS |
|-------|-------|--------|---|--------|---|
| -41.2 | 0.0 | | CLAY, lean, trace fine-grained sand-sized quartz, trace shell fragments, trace wood debris, dark gray (CL) At El. -42.3 Ft., trace shell fragments, dark gray | NS | |
| -52.2 | 11.0 | | SAND, clayey, mostly fine-grained sand-sized quartz, dark gray (SC) | | |
| -55.0 | 13.8 | | SAND, poorly-graded, mostly fine-grained sand-sized quartz, gray (SP) | A | Classification: SP-SM Color: 2.5Y 7/1-light gray D50: 0.1983 mm % Fines: 6.1 |
| -59.5 | 18.3 | | NOTES: 1. Soils are field visually classified in accordance with the Unified Soils Classification System. 2. NS = Sample not submitted for laboratory analysis from this interval. 3. Seafloor elevation calculated using sampling vessel's fathometer water depth reading and applying NOAA tidal gauge data conversion factor. | | |

Particle Size Distribution Report



| % +3" | % Gravel | | % Sand | | | % Fines | |
|-------|----------|------|--------|--------|------|---------|------|
| | Coarse | Fine | Coarse | Medium | Fine | Silt | Clay |
| 0.0 | 0.0 | 0.0 | 0.0 | 1.9 | 92.0 | 6.1 | |

| SIEVE SIZE | PERCENT FINER | SPEC.* PERCENT | PASS? (X=NO) |
|------------|---------------|----------------|--------------|
| .375 | 100.0 | | |
| #4 | 100.0 | | |
| #10 | 100.0 | | |
| #20 | 99.8 | | |
| #40 | 98.1 | | |
| #60 | 79.6 | | |
| #100 | 13.8 | | |
| #200 | 6.1 | | |

Material Description

SAND, (SP-SM), fine grained

Atterberg Limits

PL= LL= PI=

Coefficients

D₉₀= 0.2863 D₈₅= 0.2657 D₆₀= 0.2128
D₅₀= 0.1983 D₃₀= 0.1721 D₁₅= 0.1518
D₁₀= 0.1063 C_u= 2.00 C_c= 1.31

Classification

USCS= SP-SM AASHTO=

Remarks

CADD CODE = CH10D965

* (no specification provided)


Location: USACE Sample # BI-PB-73-10A **Depth:** 13.8 - 18.3 (ft.) **Date:** 7/16/10
Sample Number: TE Lab ID: 4578.01

| | |
|---|---|
| Thompson Engineering Mobile, Alabama | Client: US Army Corps of Engineers Project: Contract No. W91278-10-D-0026 - Task 03 Mississippi Barrier Island Restoration Project Project No: 10-2123-0009 Figure |
|---|---|

Tested By: G.Fancher **Checked By:** R.Martin

Boring Designation BI-PB-076-10

| | | | | |
|--|--|--|--|--|
| DRILLING LOG | | DIVISION South Atlantic | INSTALLATION Mobile District | SHEET 1 OF 1 SHEETS |
| 1. PROJECT MsCIP Barrier Island Restoration Petit Bois Pass- AL West | | 9. SIZE AND TYPE OF BIT N/A | | |
| 2. BORING DESIGNATION BI-PB-076-10 | | 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 | | <input type="checkbox"/> AUTO HAMMER <input type="checkbox"/> MANUAL HAMMER |
| 4. NAME OF DRILLER Construction Solutions International, Inc. | | 12. TOTAL SAMPLES DISTURBED: 0 UNDISTURBED (UD): 0 | | |
| 5. DIRECTION OF BORING <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED | | 13. TOTAL NUMBER CORE BOXES | | 14. WATER DEPTH 40 Ft. |
| 6. THICKNESS OF OVERBURDEN N/A | | 15. DATE BORING STARTED: 08-05-10 COMPLETED: 08-05-10 | | |
| 7. DEPTH DRILLED INTO ROCK N/A | | 16. ELEVATION TOP OF BORING -40.2 Ft. | | |
| 8. TOTAL DEPTH OF BORING 18.0 Ft. | | 17. TOTAL RECOVERY FOR BORING 100% | | |
| 18. SIGNATURE AND TITLE OF INSPECTOR Chris Gillentine, Geologist | | | | |

| ELEV. | DEPTH | LEGEND | CLASSIFICATION OF MATERIALS | SAMPLE | LABORATORY RESULTS |
|---|-------|--|---|--------|--------------------|
| -40.2 | 0.0 |  | CLAY, fat, trace fine-grained sand-sized quartz, dark gray (CH) | NS | |
| -58.2 | 18.0 | | | | |
| NOTES: | | | | | |
| 1. Soils are field visually classified in accordance with the Unified Soils Classification System. | | | | | |
| 2. NS = Sample not submitted for laboratory analysis from this interval. | | | | | |
| 3. Seafloor elevation calculated using sampling vessel's fathometer water depth reading and applying NOAA tidal gauge data conversion factor. | | | | | |





Boring Designation BI-PB-077-10

| | | | | |
|--|--|--|--|--|
| DRILLING LOG | | DIVISION South Atlantic | INSTALLATION Mobile District | SHEET 1 OF 1 SHEETS |
| 1. PROJECT MsCIP Barrier Island Restoration Petit Bois Pass- AL West | | 9. SIZE AND TYPE OF BIT N/A | | |
| 2. BORING DESIGNATION BI-PB-077-10 | | 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 | | <input type="checkbox"/> AUTO HAMMER <input type="checkbox"/> MANUAL HAMMER |
| 4. NAME OF DRILLER Construction Solutions International, Inc. | | 12. TOTAL SAMPLES DISTURBED: 0 UNDISTURBED (UD): 0 | | |
| 5. DIRECTION OF BORING <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED | | 13. TOTAL NUMBER CORE BOXES | | 14. WATER DEPTH 41 Ft. |
| 6. THICKNESS OF OVERBURDEN N/A | | 15. DATE BORING STARTED: 08-05-10 COMPLETED: 08-05-10 | | |
| 7. DEPTH DRILLED INTO ROCK N/A | | 16. ELEVATION TOP OF BORING -41.3 Ft. | | |
| 8. TOTAL DEPTH OF BORING 18.0 Ft. | | 17. TOTAL RECOVERY FOR BORING 100% | | |
| 18. SIGNATURE AND TITLE OF INSPECTOR Chris Gillentine, Geologist | | | | |

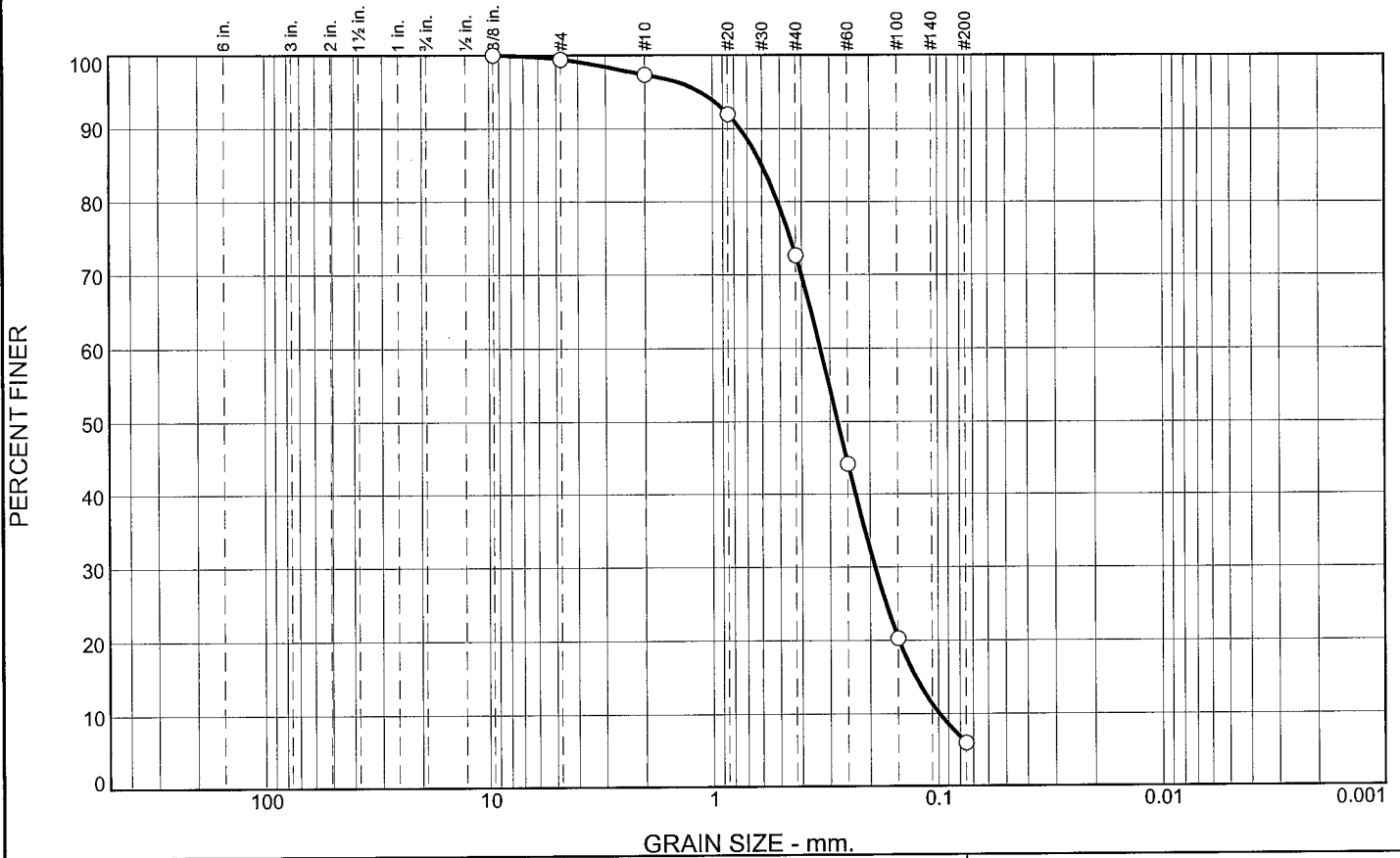
| ELEV. | DEPTH | LEGEND | CLASSIFICATION OF MATERIALS | SAMPLE | LABORATORY RESULTS |
|-------|-------|--------|--|--------|--------------------|
| -41.3 | 0.0 | | CLAY, fat, trace shell fragments, dark gray (CH) | NS | |
| -59.3 | 18.0 | | | | |
| | | | NOTES: 1. Soils are field visually classified in accordance with the Unified Soils Classification System. 2. NS = Sample not submitted for laboratory analysis from this interval. 3. Seafloor elevation calculated using sampling vessel's fathometer water depth reading and applying NOAA tidal gauge data conversion factor. | | |

Boring Designation BI-PB-078-10

| | | | | |
|--|--|---|--|--|
| DRILLING LOG | | DIVISION South Atlantic | INSTALLATION Mobile District | SHEET 1 OF 1 SHEETS |
| 1. PROJECT MsCIP Barrier Island Restoration Petit Bois Pass- AL West | | | 9. SIZE AND TYPE OF BIT N/A | |
| 2. BORING DESIGNATION BI-PB-078-10 | | 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 | | <input type="checkbox"/> AUTO HAMMER <input type="checkbox"/> MANUAL HAMMER |
| 4. NAME OF DRILLER Construction Solutions International, Inc. | | 12. TOTAL SAMPLES | | DISTURBED 3 |
| 5. DIRECTION OF BORING <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED | | 13. TOTAL NUMBER CORE BOXES | | UNDISTURBED (UD) 0 |
| 6. THICKNESS OF OVERBURDEN N/A | | 14. WATER DEPTH 38 Ft. | | 15. DATE BORING |
| 7. DEPTH DRILLED INTO ROCK N/A | | 16. ELEVATION TOP OF BORING -38.1 Ft. | | STARTED 08-05-10 |
| 8. TOTAL DEPTH OF BORING 18.5 Ft. | | 17. TOTAL RECOVERY FOR BORING 100% | | COMPLETED 08-05-10 |
| 18. SIGNATURE AND TITLE OF INSPECTOR Chris Gillentine, Geologist | | | | |

| ELEV. | DEPTH | LEGEND | CLASSIFICATION OF MATERIALS | SAMPLE | LABORATORY RESULTS |
|-------|-------|---|---|--------|--|
| -38.1 | 0.0 | | | | |
| -40.1 | 2.0 |  | SAND, poorly-graded, mostly medium-grained sand-sized quartz, trace shell fragments, dark gray (SP) | A | Classification: SP-SM Color: 2.5Y 6/2-light brownish gray D50: 0.2775 mm % Fines: 6 |
| -45.1 | 7.0 |  | CLAY, fat, trace fine-grained sand-sized quartz, dark gray (CH) | NS | |
| -51.6 | 13.5 |  | SAND, poorly-graded, mostly fine to medium-grained sand-sized quartz, lt. gray (SP) | B | Classification: SP-SM Color: 2.5Y 6/2-light brownish gray D50: 0.2008 mm % Fines: 6.9 |
| | | | | C | Classification: SM Color: 2.5Y 5/2-grayish brown D50: 0.1569 mm % Fines: 18.3 |
| -56.6 | 18.5 |  | CLAY, fat, dark gray (CH) | NS | |
| | | | NOTES: 1. Soils are field visually classified in accordance with the Unified Soils Classification System. 2. NS = Sample not submitted for laboratory analysis from this interval. 3. Seafloor elevation calculated using sampling vessel's fathometer water depth reading and applying NOAA tidal gauge data conversion factor. | | |

Particle Size Distribution Report



| % +3" | % Gravel | | % Sand | | | % Fines | |
|-------|----------|------|--------|--------|------|---------|------|
| | Coarse | Fine | Coarse | Medium | Fine | Silt | Clay |
| 0.0 | 0.0 | 0.6 | 2.0 | 24.8 | 66.6 | 6.0 | |

| SIEVE SIZE | PERCENT FINER | SPEC.* PERCENT | PASS? (X=NO) |
|------------|---------------|----------------|--------------|
| .375 | 100.0 | | |
| #4 | 99.4 | | |
| #10 | 97.4 | | |
| #20 | 92.0 | | |
| #40 | 72.6 | | |
| #60 | 44.1 | | |
| #100 | 20.2 | | |
| #200 | 6.0 | | |

Material Description
SAND, (SP-SM), medium to fine grained

Atterberg Limits
 PL= LL= PI=

Coefficients
 D₉₀= 0.7524 D₈₅= 0.6018 D₆₀= 0.3314
 D₅₀= 0.2775 D₃₀= 0.1902 D₁₅= 0.1258
 D₁₀= 0.0987 C_u= 3.36 C_c= 1.11

Classification
 USCS= SP-SM AASHTO=

Remarks
 CADD CODE = CH10D965

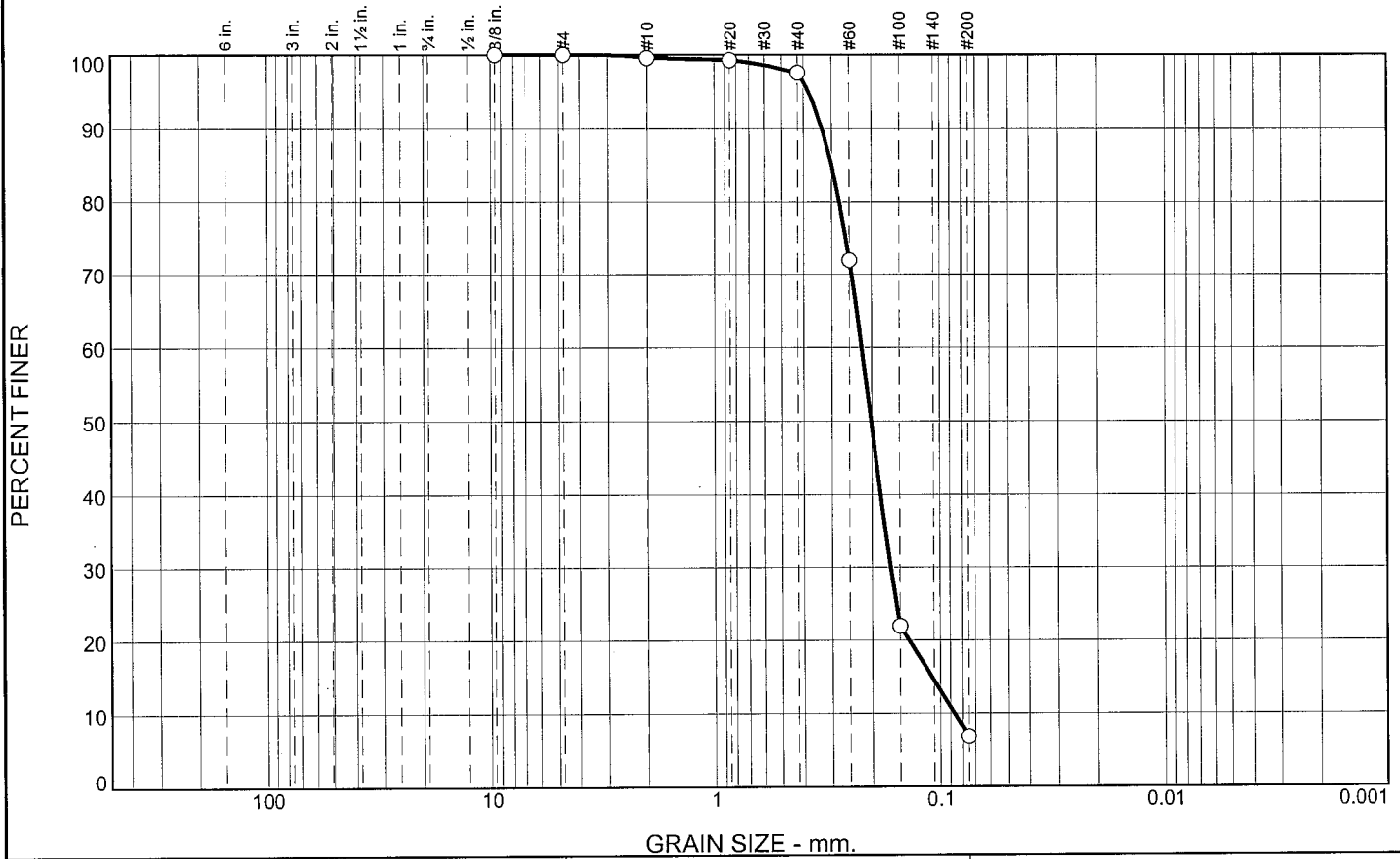
* (no specification provided)

Location: USACE Sample # BI-PB-78-10A Depth: 0.0 - 2.0 (ft.) Date: 8/15/10
 Sample Number: TE Lab ID: 4622.27

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

Tested By: G.Fancher Checked By: R.Byrd

Particle Size Distribution Report



| % +3" | % Gravel | | % Sand | | | % Fines | |
|-------|----------|------|--------|--------|------|---------|------|
| | Coarse | Fine | Coarse | Medium | Fine | Silt | Clay |
| 0.0 | 0.0 | 0.0 | 0.4 | 2.0 | 90.7 | 6.9 | |

| SIEVE SIZE | PERCENT FINER | SPEC.* PERCENT | PASS? (X=NO) |
|------------|---------------|----------------|--------------|
| .375 | 100.0 | | |
| #4 | 100.0 | | |
| #10 | 99.6 | | |
| #20 | 99.3 | | |
| #40 | 97.6 | | |
| #60 | 71.9 | | |
| #100 | 21.9 | | |
| #200 | 6.9 | | |

Material Description

SAND, (SP-SM), fine grained

Atterberg Limits

PL= LL= PI=

Coefficients

D₉₀= 0.3313 D₈₅= 0.3001 D₆₀= 0.2207
D₅₀= 0.2008 D₃₀= 0.1651 D₁₅= 0.1091
D₁₀= 0.0867 C_u= 2.55 C_c= 1.43

Classification

USCS= SP-SM AASHTO=

Remarks

CADD CODE = CH10D965

* (no specification provided)

Location: USACE Sample # BI-PB-78-10B
Sample Number: TE Lab ID: 4622.28

Depth: 7.0 - 10.0 (ft.)

Date: 8/15/10

| | |
|--|--|
| <p>Thompson Engineering</p> <p>Mobile, Alabama</p> | <p>Client: US Army Corps of Engineers</p> <p>Project: Contract No. W91278-10-D-0026 - Task 03 Mississippi Barrier Island Restoration Project</p> <p>Project No: 10-2123-0009 Report No.</p> |
|--|--|

Tested By: G.Fancher

Checked By: R.Byrd

Boring Designation BI-PB-079-10

| | | | | |
|--|--|--|--|--|
| DRILLING LOG | | DIVISION South Atlantic | INSTALLATION Mobile District | SHEET 1 OF 1 SHEETS |
| 1. PROJECT MsCIP Barrier Island Restoration Petit Bois Pass- AL West | | 9. SIZE AND TYPE OF BIT N/A | | |
| 2. BORING DESIGNATION BI-PB-079-10 | | 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 | | <input type="checkbox"/> AUTO HAMMER <input type="checkbox"/> MANUAL HAMMER |
| 4. NAME OF DRILLER Construction Solutions International, Inc. | | 12. TOTAL SAMPLES | | DISTURBED 0 |
| 5. DIRECTION OF BORING <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED | | 13. TOTAL NUMBER CORE BOXES | | UNDISTURBED (UD) 0 |
| 6. THICKNESS OF OVERBURDEN N/A | | 14. WATER DEPTH 43 Ft. | | |
| 7. DEPTH DRILLED INTO ROCK N/A | | 15. DATE BORING | | STARTED 08-05-10 |
| 8. TOTAL DEPTH OF BORING 17.5 Ft. | | 16. ELEVATION TOP OF BORING -42.8 Ft. | | COMPLETED 08-05-10 |
| | | 17. TOTAL RECOVERY FOR BORING 100% | | |
| | | 18. SIGNATURE AND TITLE OF INSPECTOR Chris Gillentine, Geologist | | |

| ELEV. | DEPTH | LEGEND | CLASSIFICATION OF MATERIALS | SAMPLE | LABORATORY RESULTS |
|-------|-------|--------|---|--------|--------------------|
| -42.8 | 0.0 | | CLAY, fat, dark gray (CH) | NS | |
| -60.3 | 17.5 | | | | |
| | | | NOTES: 1. Soils are field visually classified in accordance with the Unified Soils Classification System. 2. NS = Sample not submitted for laboratory analysis from this interval. 3. Seafloor elevation calculated using sampling vessel's fathometer water depth reading and applying NOAA tidal gauge data conversion factor. | | |

Boring Designation BI-PB-080-10

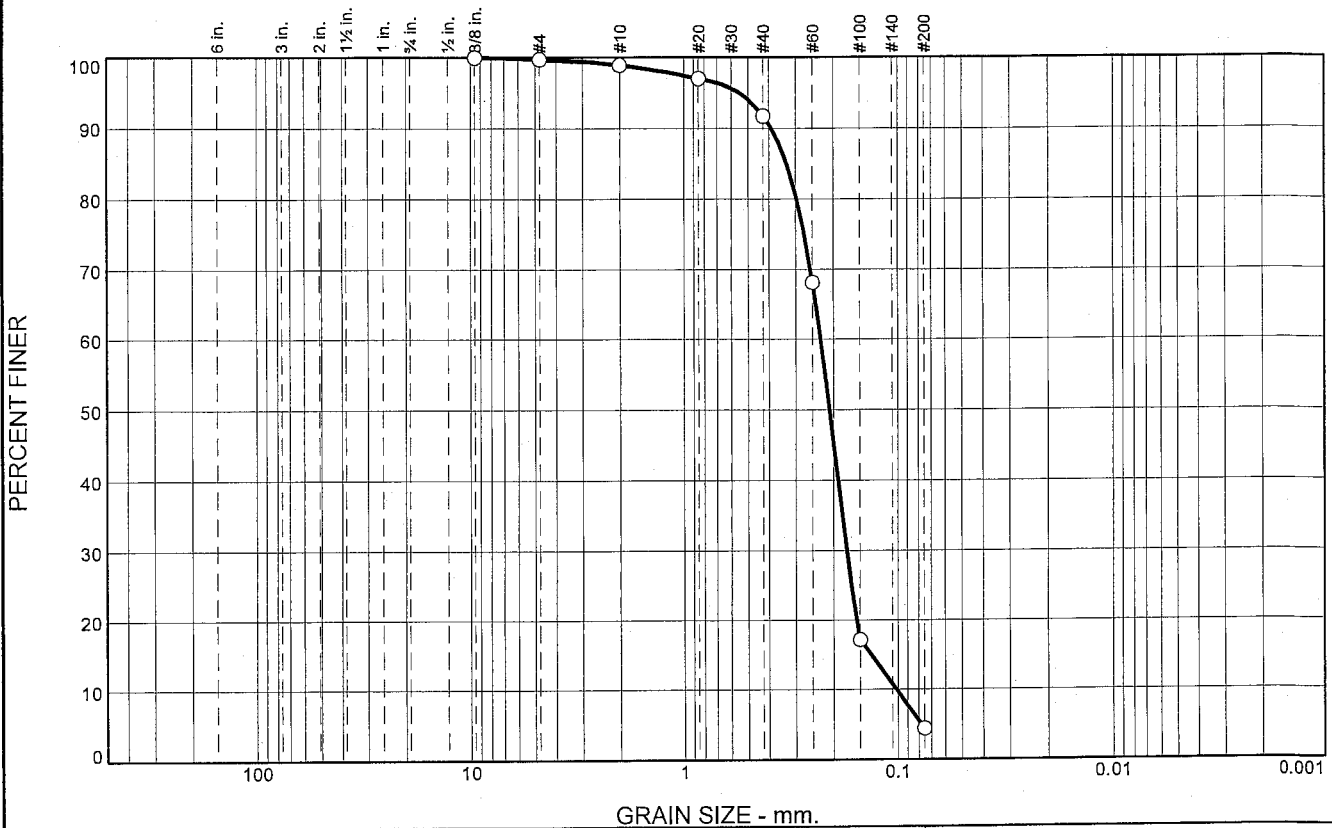
| | | | | |
|--|--|--|--|--|
| DRILLING LOG | | DIVISION South Atlantic | INSTALLATION Mobile District | SHEET 1 OF 2 SHEETS |
| 1. PROJECT MsCIP Barrier Island Restoration Petit Bois Pass- AL West | | | 9. SIZE AND TYPE OF BIT N/A | |
| 2. BORING DESIGNATION BI-PB-080-10 | | 10. COORDINATE SYSTEM/DATUM State Plane, MSE (U.S. Ft.) | | HORIZONTAL NAD83 |
| 3. DRILLING AGENCY Corps of Engineers - CESAM | | 11. MANUFACTURER'S DESIGNATION OF DRILL Vibracore | | <input type="checkbox"/> AUTO HAMMER <input type="checkbox"/> MANUAL HAMMER |
| 4. NAME OF DRILLER Construction Solutions International, Inc. | | 12. TOTAL SAMPLES | | DISTURBED 2 |
| 5. DIRECTION OF BORING <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED | | 13. TOTAL NUMBER CORE BOXES | | UNDISTURBED (UD) 0 |
| 6. THICKNESS OF OVERBURDEN N/A | | 14. WATER DEPTH 43.5 Ft. | | |
| 7. DEPTH DRILLED INTO ROCK N/A | | 15. DATE BORING | | STARTED 07-09-10 |
| 8. TOTAL DEPTH OF BORING 19.4 Ft. | | 16. ELEVATION TOP OF BORING -42.2 Ft. | | COMPLETED 07-09-10 |
| | | 17. TOTAL RECOVERY FOR BORING 100% | | |
| | | 18. SIGNATURE AND TITLE OF INSPECTOR Valerie Morrow, Geotechnical Engineer | | |

| ELEV. | DEPTH | LEGEND | CLASSIFICATION OF MATERIALS | SAMPLE | LABORATORY RESULTS |
|-------|-------|--------|---|--------|---|
| -42.2 | 0.0 | | CLAY, lean, trace shell fragments, trace wood debris, dark gray (CL) | NS | |
| -49.9 | 7.7 | | SAND, clayey, mostly fine-grained sand-sized quartz, trace shell fragments, gray (SC) | | |
| -51.6 | 9.4 | | SAND, poorly-graded, mostly fine-grained sand-sized quartz, trace shell fragments, gray (SP) | A | Classification: SP Color: 2.5Y 7/1-light gray D50: 0.2084 mm % Fines: 4.4 |
| -61.6 | 19.4 | | | B | Classification: SP-SM Color: 2.5Y 7/1-light gray D50: 0.1684 mm % Fines: 9.1 |
| | | | NOTES: 1. Soils are field visually classified in accordance with the Unified Soils Classification System. 2. NS = Sample not submitted for laboratory analysis from this interval. 3. Seafloor elevation calculated using sampling vessel's fathometer water depth reading and | | |

| DRILLING LOG (Cont. Sheet) | | | INSTALLATION Mobile District | | | SHEET 2 |
|--|-------|--------|---|----------------------------|---------------------------|--------------------|
| | | | | | | OF 2 SHEETS |
| PROJECT MsCIP Barrier Island Restoration | | | COORDINATE SYSTEM/DATUM State Plane, MSE (U.S. Ft.) | HORIZONTAL NAD83 | VERTICAL NAVD88 | |
| LOCATION COORDINATES X = 1,122,678 Y = 245,508 | | | ELEVATION TOP OF BORING -42.2 Ft. | | | |
| ELEV. | DEPTH | LEGEND | CLASSIFICATION OF MATERIALS | SAMPLE | LABORATORY RESULTS | |
| | | | applying NOAA tidal gauge data conversion factor. | | | |



Particle Size Distribution Report



| % +3" | % Gravel | | % Sand | | | % Fines | |
|-------|----------|------|--------|--------|------|---------|------|
| | Coarse | Fine | Coarse | Medium | Fine | Silt | Clay |
| 0.0 | 0.0 | 0.3 | 0.8 | 7.2 | 87.3 | 4.4 | |

| SIEVE SIZE | PERCENT FINER | SPEC.* PERCENT | PASS? (X=NO) |
|------------|---------------|----------------|--------------|
| .375 | 100.0 | | |
| #4 | 99.7 | | |
| #10 | 98.9 | | |
| #20 | 97.1 | | |
| #40 | 91.7 | | |
| #60 | 68.1 | | |
| #100 | 17.1 | | |
| #200 | 4.4 | | |

Material Description

SAND, (SP), fine grained

Atterberg Limits

PL= LL= PI=

Coefficients

D₉₀= 0.3906 D₈₅= 0.3311 D₆₀= 0.2292
D₅₀= 0.2084 D₃₀= 0.1730 D₁₅= 0.1335
D₁₀= 0.1016 C_u= 2.25 C_c= 1.29

Classification

USCS= SP AASHTO=

Remarks

CADD CODE = CH10D965

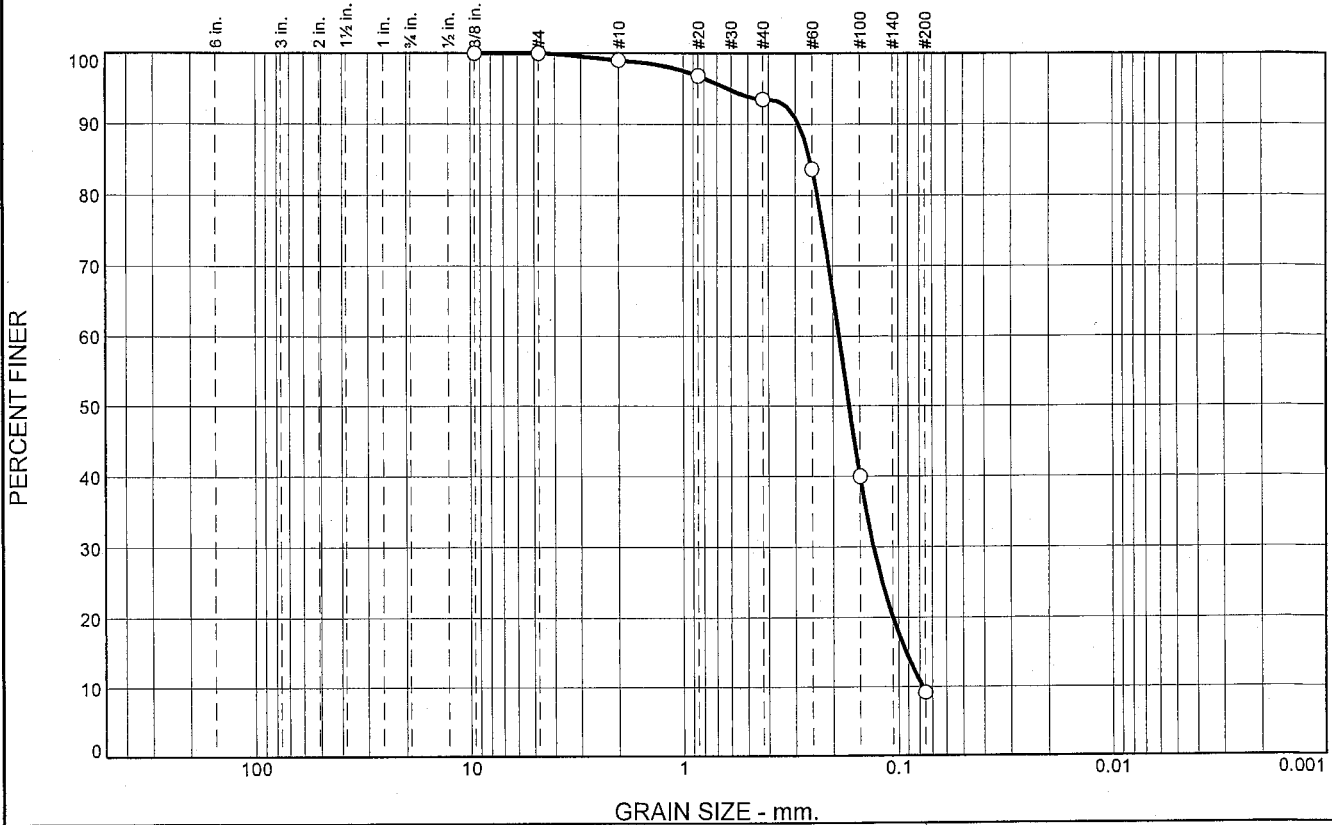
* (no specification provided)

Location: USACE Sample # BI-PB-80-10A Depth: 9.4 - 14.4 (ft.) Date: 7/16/10
Sample Number: TE Lab ID: 4578.02

| | |
|---|---|
| Thompson Engineering Mobile, Alabama | Client: US Army Corps of Engineers Project: Contract No. W91278-10-D-0026 - Task 03 Mississippi Barrier Island Restoration Project Project No: 10-2123-0009 Figure |
|---|---|

Tested By: G.Fancher Checked By: R.Byrd

Particle Size Distribution Report



| % +3" | % Gravel | | % Sand | | | % Fines | |
|-------|----------|------|--------|--------|------|---------|------|
| | Coarse | Fine | Coarse | Medium | Fine | Silt | Clay |
| 0.0 | 0.0 | 0.0 | 1.0 | 5.6 | 84.3 | 9.1 | |

| SIEVE SIZE | PERCENT FINER | SPEC.* PERCENT | PASS? (X=NO) |
|------------|---------------|----------------|--------------|
| .375 | 100.0 | | |
| #4 | 100.0 | | |
| #10 | 99.0 | | |
| #20 | 96.8 | | |
| #40 | 93.4 | | |
| #60 | 83.7 | | |
| #100 | 39.9 | | |
| #200 | 9.1 | | |

Material Description

SAND, (SP-SM), fine grained

Atterberg Limits

PL= LL= PI=

Coefficients

D₉₀= 0.2897 D₈₅= 0.2559 D₆₀= 0.1872
D₅₀= 0.1684 D₃₀= 0.1301 D₁₅= 0.0922
D₁₀= 0.0774 C_u= 2.42 C_c= 1.17

Classification

USCS= SP-SM AASHTO=

Remarks

CADD CODE = CH10D965

* (no specification provided)

Location: USACE Sample # BI-PB-80-10B Depth: 14.4 - 19.4 (ft.) Date: 7/16/10
Sample Number: TE Lab ID: 4578.03

| | |
|---|---|
| Thompson Engineering Mobile, Alabama | Client: US Army Corps of Engineers Project: Contract No. W91278-10-D-0026 - Task 03 Mississippi Barrier Island Restoration Project Project No: 10-2123-0009 Figure |
|---|---|

Tested By: G.Fancher Checked By: R.Byrd

Boring Designation BI-PB-085-10

| | | | | |
|--|--|--|--|--|
| DRILLING LOG | | DIVISION South Atlantic | INSTALLATION Mobile District | SHEET 1 OF 2 SHEETS |
| 1. PROJECT MsCIP Barrier Island Restoration Petit Bois Pass- AL West | | | 9. SIZE AND TYPE OF BIT N/A | |
| 2. BORING DESIGNATION BI-PB-085-10 | | LOCATION COORDINATES E = 1,131,589 N = 245,569 | | 10. COORDINATE SYSTEM/DATUM State Plane, MSE (U.S. Ft.) |
| 3. DRILLING AGENCY Corps of Engineers - CESAM | | CONTRACTOR FILE NO. | | HORIZONTAL NAD83 |
| 4. NAME OF DRILLER Construction Solutions International, Inc. | | 11. MANUFACTURER'S DESIGNATION OF DRILL Vibracore | | <input type="checkbox"/> AUTO HAMMER <input type="checkbox"/> MANUAL HAMMER |
| 5. DIRECTION OF BORING <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED | | DEG. FROM VERTICAL | BEARING | 12. TOTAL SAMPLES DISTURBED 0 UNDISTURBED (UD) 0 |
| 6. THICKNESS OF OVERBURDEN N/A | | 13. TOTAL NUMBER CORE BOXES | | 14. WATER DEPTH 46 Ft. |
| 7. DEPTH DRILLED INTO ROCK N/A | | 15. DATE BORING | | STARTED 08-10-10 COMPLETED 08-10-10 |
| 8. TOTAL DEPTH OF BORING 20.0 Ft. | | 16. ELEVATION TOP OF BORING -45.6 Ft. | | 17. TOTAL RECOVERY FOR BORING 100% |
| | | 18. SIGNATURE AND TITLE OF INSPECTOR Chris Gillentine, Geologist | | |

| ELEV. | DEPTH | LEGEND | CLASSIFICATION OF MATERIALS | SAMPLE | LABORATORY RESULTS |
|-------|-------|--------|---|--------|--------------------|
| -45.6 | 0.0 | | CLAY, fat, dark gray (CH) | | |
| | | | At El. -50.6 Ft., trace fine-grained sand-sized quartz, dark gray | | |
| -52.6 | 7.0 | | SAND, poorly-graded, mostly fine to medium-grained sand-sized quartz, gray (SP) | NS | |
| | | | CLAY, fat, dark gray (CH) | | |
| -59.6 | 14.0 | | | | |
| | | | | | |
| -65.6 | 20.0 | | | | |
| | | | NOTES: 1. Soils are field visually classified in accordance with the Unified Soils Classification System. 2. NS = Sample not submitted for laboratory analysis from this interval. 3. Seafloor elevation calculated using sampling | | |

| DRILLING LOG (Cont. Sheet) | | | INSTALLATION Mobile District | | | SHEET 2 |
|--|-------|--------|---|----------------------------|---------------------------|--------------------|
| | | | | | | OF 2 SHEETS |
| PROJECT MsCIP Barrier Island Restoration | | | COORDINATE SYSTEM/DATUM State Plane, MSE (U.S. Ft.) | HORIZONTAL NAD83 | VERTICAL NAVD88 | |
| LOCATION COORDINATES X = 1,131,589 Y = 245,569 | | | ELEVATION TOP OF BORING -45.6 Ft. | | | |
| ELEV. | DEPTH | LEGEND | CLASSIFICATION OF MATERIALS | SAMPLE | LABORATORY RESULTS | |
| | | | vessel's fathometer water depth reading and applying NOAA tidal gauge data conversion factor. | | | |



Boring Designation BI-PB-086-10

| | | | | |
|---|--|---|---------------------------------|------------------------|
| DRILLING LOG | | DIVISION South Atlantic | INSTALLATION Mobile District | SHEET 1 OF 1 SHEETS |
| 1. PROJECT MsCIP Barrier Island Restoration Petit Bois Pass- AL West | | 9. SIZE AND TYPE OF BIT N/A | | |
| 2. BORING DESIGNATION BI-PB-086-10 | | 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 Construction Solutions International, 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 46 Ft. | | UNDISTURBED (UD) 0 |
| 7. DEPTH DRILLED INTO ROCK N/A | | 15. DATE BORING | | STARTED 08-10-10 |
| 8. TOTAL DEPTH OF BORING 17.0 Ft. | | 16. ELEVATION TOP OF BORING -44.4 Ft. | | COMPLETED 08-10-10 |
| | | 17. TOTAL RECOVERY FOR BORING 100% | | |
| | | 18. SIGNATURE AND TITLE OF INSPECTOR Chris Gillentine, Geologist | | |

| ELEV. | DEPTH | LEGEND | CLASSIFICATION OF MATERIALS | SAMPLE | LABORATORY RESULTS |
|-------|-------|--------|---|--------|--------------------|
| -44.4 | 0.0 | | CLAY, fat, trace fine-grained sand-sized quartz, dark gray (CH) | NS | |
| | | | | | |
| -61.4 | 17.0 | | NOTES: 1. Soils are field visually classified in accordance with the Unified Soils Classification System. 2. NS = Sample not submitted for laboratory analysis from this interval. 3. Seafloor elevation calculated using sampling vessel's fathometer water depth reading and applying NOAA tidal gauge data conversion factor. | | |

Boring Designation BI-PB-087-10

| | | | | |
|--|--|--|--|--|
| DRILLING LOG | | DIVISION South Atlantic | INSTALLATION Mobile District | SHEET 1 OF 2 SHEETS |
| 1. PROJECT MsCIP Barrier Island Restoration Petit Bois Pass- AL West | | | 9. SIZE AND TYPE OF BIT N/A | |
| 2. BORING DESIGNATION BI-PB-087-10 | | 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 Vibrocure | | <input type="checkbox"/> AUTO HAMMER <input type="checkbox"/> MANUAL HAMMER |
| 4. NAME OF DRILLER Construction Solutions International, Inc. | | 12. TOTAL SAMPLES | | DISTURBED 0 |
| 5. DIRECTION OF BORING <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED | | 13. TOTAL NUMBER CORE BOXES | | UNDISTURBED (UD) 0 |
| 6. THICKNESS OF OVERBURDEN N/A | | 14. WATER DEPTH 46 Ft. | | |
| 7. DEPTH DRILLED INTO ROCK N/A | | 15. DATE BORING | | STARTED 08-10-10 |
| 8. TOTAL DEPTH OF BORING 20.0 Ft. | | 16. ELEVATION TOP OF BORING -44.7 Ft. | | COMPLETED 08-10-10 |
| | | 17. TOTAL RECOVERY FOR BORING 100% | | |
| | | 18. SIGNATURE AND TITLE OF INSPECTOR Chris Gillentine, Geologist | | |

| ELEV. | DEPTH | LEGEND | CLASSIFICATION OF MATERIALS | SAMPLE | LABORATORY RESULTS |
|-------|-------|--------|---|--------|--------------------|
| -44.7 | 0.0 | | | | |
| -46.7 | 2.0 | | SILT, inorganic-H, trace fine-grained sand-sized quartz, dark gray (MH) | NS | 0 |
| -51.7 | 7.0 | | CLAY, fat, dark gray (CH) | | 5 |
| -54.7 | 10.0 | | SAND, poorly-graded, gray (SP) | | 10 |
| -64.7 | 20.0 | | CLAY, fat, dark gray (CH) | | 15 |
| | | | NOTES: 1. Soils are field visually classified in accordance with the Unified Soils Classification System. 2. NS = Sample not submitted for laboratory analysis from this interval. 3. Seafloor elevation calculated using sampling | | 20 |
| | | | | | 25 |

| DRILLING LOG (Cont. Sheet) | | | INSTALLATION Mobile District | | | SHEET 2 |
|--|-------|--------|---|----------------------------|---------------------------|--------------------|
| | | | | | | OF 2 SHEETS |
| PROJECT MsCIP Barrier Island Restoration | | | COORDINATE SYSTEM/DATUM State Plane, MSE (U.S. Ft.) | HORIZONTAL NAD83 | VERTICAL NAVD88 | |
| LOCATION COORDINATES X = 1,134,819 Y = 245,502 | | | ELEVATION TOP OF BORING -44.7 Ft. | | | |
| ELEV. | DEPTH | LEGEND | CLASSIFICATION OF MATERIALS | SAMPLE | LABORATORY RESULTS | |
| | | | vessel's fathometer water depth reading and applying NOAA tidal gauge data conversion factor. | | | |

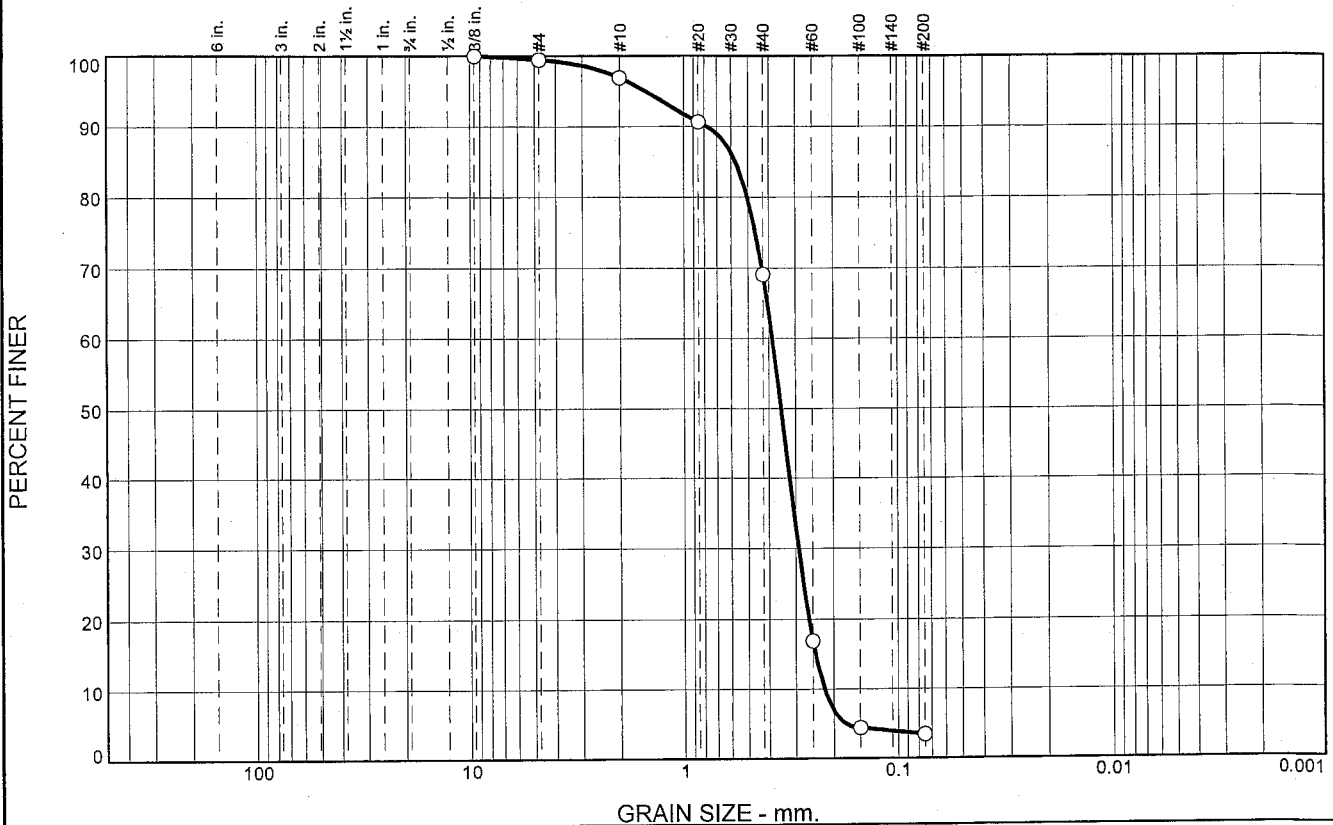


Boring Designation BI-PB-089-10

| | | | | |
|--|--|---|--|--|
| DRILLING LOG | | DIVISION South Atlantic | INSTALLATION Mobile District | SHEET 1 OF 1 SHEETS |
| 1. PROJECT MsCIP Barrier Island Restoration Petit Bois Pass- AL West | | | 9. SIZE AND TYPE OF BIT N/A | |
| 2. BORING DESIGNATION BI-PB-089-10 | | 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 | | <input type="checkbox"/> AUTO HAMMER <input type="checkbox"/> MANUAL HAMMER |
| 4. NAME OF DRILLER Construction Solutions International, Inc. | | 12. TOTAL SAMPLES | | DISTURBED 1 |
| 5. DIRECTION OF BORING <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED | | 13. TOTAL NUMBER CORE BOXES | | UNDISTURBED (UD) 0 |
| 6. THICKNESS OF OVERBURDEN N/A | | 14. WATER DEPTH 43 Ft. | | 15. DATE BORING |
| 7. DEPTH DRILLED INTO ROCK N/A | | 16. ELEVATION TOP OF BORING -42.3 Ft. | | STARTED 07-09-10 |
| 8. TOTAL DEPTH OF BORING 16.6 Ft. | | 17. TOTAL RECOVERY FOR BORING 100% | | COMPLETED 07-09-10 |
| 18. SIGNATURE AND TITLE OF INSPECTOR Valerie Morrow, Geotechnical Engineer | | | | |

| ELEV. | DEPTH | LEGEND | CLASSIFICATION OF MATERIALS | SAMPLE | LABORATORY RESULTS |
|--|-------|--------|--|--------|--|
| -42.3 | 0.0 | | | | |
| -43.7 | 1.4 | ••••• | SAND, poorly-graded, mostly medium to coarse-grained sand-sized quartz, trace shell fragments, gray (SP) | A | Classification: SP Color: 2.5Y 7/1-light gray D50: 0.35 mm % Fines: 3.4 |
| | | ▨▨▨▨▨ | SAND, clayey, mostly fine-grained sand-sized quartz, some clay, trace shell fragments, dark gray (SC) | NS | |
| -55.1 | 12.8 | | | | |
| -58.9 | 16.6 | ▨▨▨▨▨ | CLAY, lean, some clay, dark greenish gray (CL) | | |
| <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> | | | | | |

Particle Size Distribution Report



| % +3" | % Gravel | | % Sand | | | % Fines | |
|-------|----------|------|--------|--------|------|---------|------|
| | Coarse | Fine | Coarse | Medium | Fine | Silt | Clay |
| 0.0 | 0.0 | 0.5 | 2.5 | 27.9 | 65.7 | 3.4 | |

| SIEVE SIZE | PERCENT FINER | SPEC.* PERCENT | PASS? (X=NO) |
|------------|---------------|----------------|--------------|
| .375 | 100.0 | | |
| #4 | 99.5 | | |
| #10 | 97.0 | | |
| #20 | 90.6 | | |
| #40 | 69.1 | | |
| #60 | 16.9 | | |
| #100 | 4.4 | | |
| #200 | 3.4 | | |

Material Description

SAND, (SP), medium to fine grained

Atterberg Limits

PL= LL= PI=

Coefficients

D₉₀= 0.7737 D₈₅= 0.5704 D₆₀= 0.3850
 D₅₀= 0.3500 D₃₀= 0.2905 D₁₅= 0.2431
 D₁₀= 0.2206 C_u= 1.75 C_c= 0.99

Classification

USCS= SP AASHTO=

Remarks

CADD CODE = CH10D965

* (no specification provided)

Location: USACE Sample # BI-PB-89-10A
 Sample Number: TE Lab ID: 4578.04

Depth: 0.0 - 1.4 (ft.)

Date: 7/16/10

Thompson Engineering

Mobile, Alabama

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

Tested By: G.Fancher

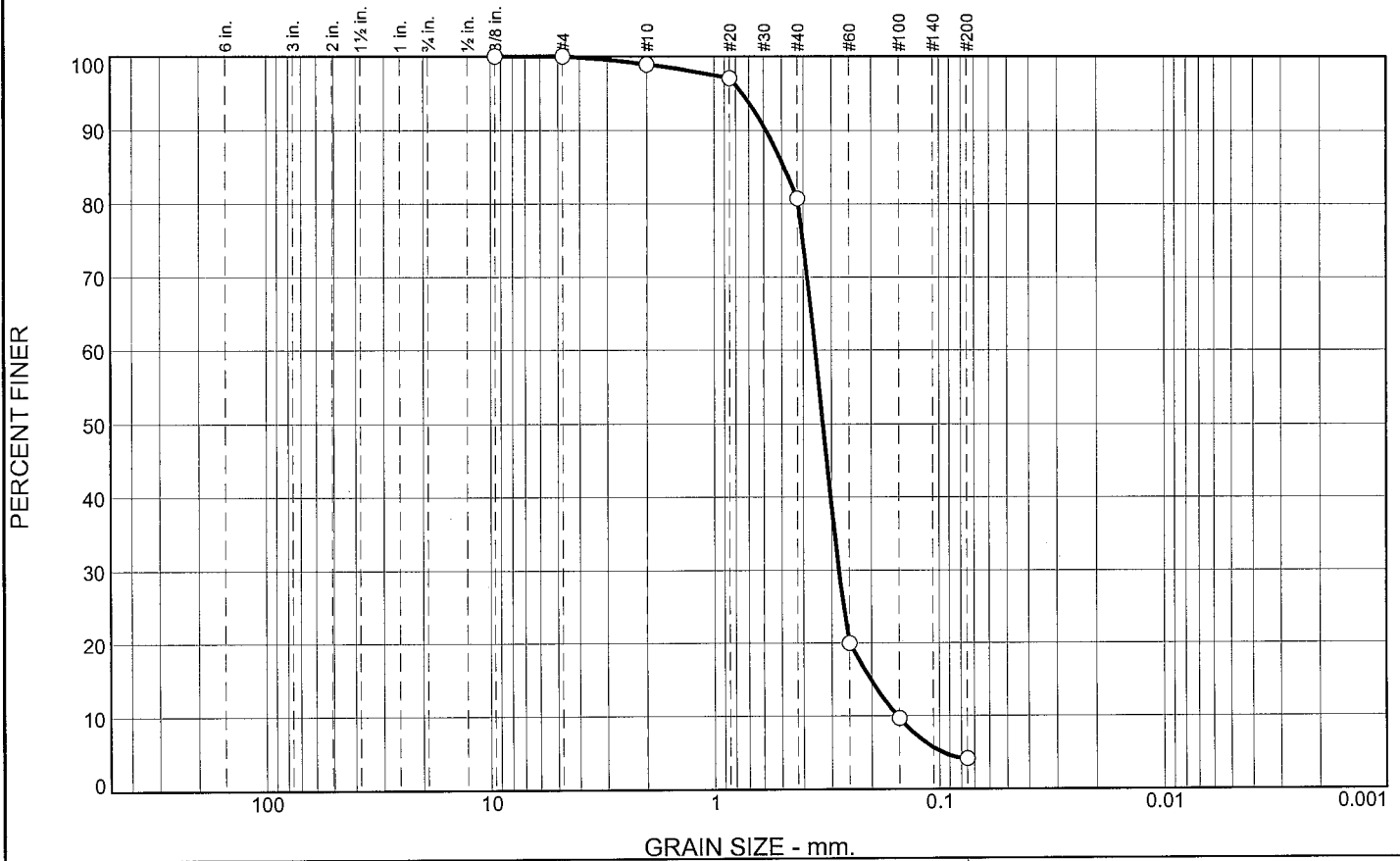
Checked By: R.Byrd

Boring Designation BI-PB-098-10

| | | | | |
|--|--|--|--|--|
| DRILLING LOG | | DIVISION South Atlantic | INSTALLATION Mobile District | SHEET 1 OF 1 SHEETS |
| 1. PROJECT MsCIP Barrier Island Restoration Petit Bois Pass- AL West | | 9. SIZE AND TYPE OF BIT N/A | | |
| 2. BORING DESIGNATION BI-PB-098-10 | | 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 | | <input type="checkbox"/> AUTO HAMMER <input type="checkbox"/> MANUAL HAMMER |
| 4. NAME OF DRILLER Construction Solutions International, Inc. | | 12. TOTAL SAMPLES 4 | | |
| 5. DIRECTION OF BORING <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED | | 13. TOTAL NUMBER CORE BOXES | | UNDISTURBED (UD) 0 |
| 6. THICKNESS OF OVERBURDEN N/A | | 14. WATER DEPTH 25 Ft. | | |
| 7. DEPTH DRILLED INTO ROCK N/A | | 15. DATE BORING STARTED 08-03-10 COMPLETED 08-03-10 | | |
| 8. TOTAL DEPTH OF BORING 17.5 Ft. | | 16. ELEVATION TOP OF BORING -25.1 Ft. | | |
| | | 17. TOTAL RECOVERY FOR BORING 100% | | |
| | | 18. SIGNATURE AND TITLE OF INSPECTOR Chris Gillentine, Geologist | | |

| ELEV. | DEPTH | LEGEND | CLASSIFICATION OF MATERIALS | SAMPLE | LABORATORY RESULTS |
|-------|-------|--------|--|--------|---|
| -25.1 | 0.0 | | | | |
| | | ••••• | SAND, poorly-graded, mostly fine to medium-grained sand-sized quartz, trace shell fragments, gray (SP) | A | Classification: SP Color: 2.5Y 6/2-light brownish gray D50: 0.3274 mm % Fines: 4.2 |
| -30.1 | 5.0 | | SAND, poorly-graded, mostly fine to medium-grained sand-sized quartz, brown/tan (SP) | B | Classification: SP-SM Color: 2.5Y 5/2-grayish brown D50: 0.2679 mm % Fines: 7.4 |
| -39.1 | 14.0 | | SAND, poorly-graded, mostly fine to medium-grained sand-sized quartz, lt. gray/tan (SP) | C | Classification: SP Color: 2.5Y 6/2-light brownish gray D50: 0.3191 mm % Fines: 4.5 |
| -42.6 | 17.5 | | | D | Classification: SP Color: 2.5Y 6/2-light brownish gray D50: 0.2906 mm % Fines: 4.9 |
| | | | NOTES: 1. Soils are field visually classified in accordance with the Unified Soils Classification System. 2. NS = Sample not submitted for laboratory analysis from this interval. 3. Seafloor elevation determined from 2010 USACE survey. | | |

Particle Size Distribution Report



| % +3" | % Gravel | | % Sand | | | % Fines | |
|-------|----------|------|--------|--------|------|---------|------|
| | Coarse | Fine | Coarse | Medium | Fine | Silt | Clay |
| 0.0 | 0.0 | 0.0 | 1.1 | 18.2 | 76.5 | 4.2 | |

| SIEVE SIZE | PERCENT FINER | SPEC.* PERCENT | PASS? (X=NO) |
|------------|---------------|----------------|--------------|
| .375 | 100.0 | | |
| #4 | 100.0 | | |
| #10 | 98.9 | | |
| #20 | 97.1 | | |
| #40 | 80.7 | | |
| #60 | 20.0 | | |
| #100 | 9.7 | | |
| #200 | 4.2 | | |

Material Description

SAND, (SP), medium to fine grained, with trace clay pockets

Atterberg Limits

PL= LL= PI=

Coefficients

D₉₀= 0.5875 D₈₅= 0.4875 D₆₀= 0.3538
D₅₀= 0.3274 D₃₀= 0.2780 D₁₅= 0.2019
D₁₀= 0.1534 C_u= 2.31 C_c= 1.42

Classification

USCS= SP AASHTO=

Remarks

CADD CODE = CH10D965

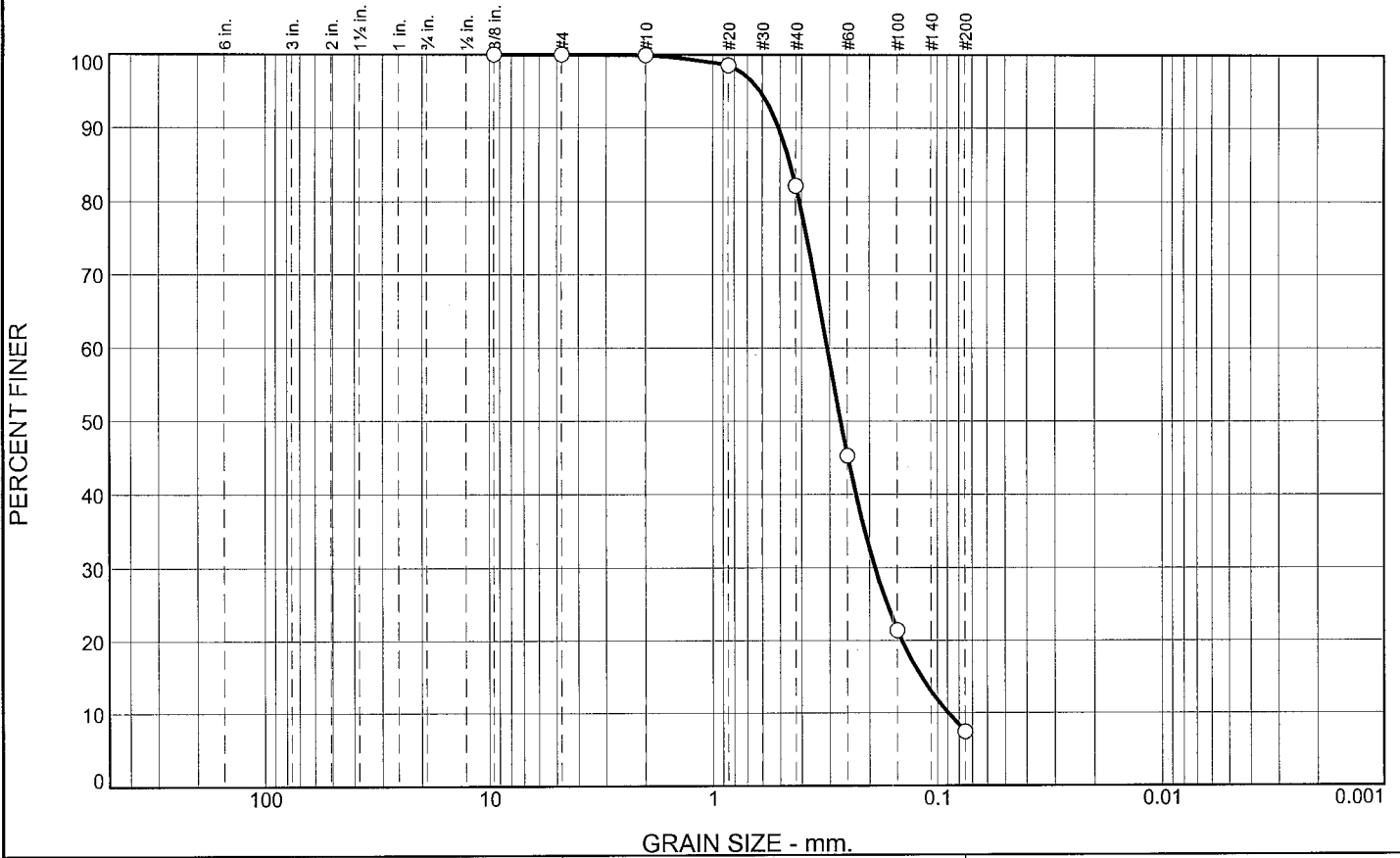
* (no specification provided)

Location: USACE Sample # BI-PB-98-10A Depth: 0.0 - 5.0 (ft.) Date: 8/15/10
Sample Number: TE Lab ID: 4622.01

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

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

Particle Size Distribution Report



| % +3" | % Gravel | | % Sand | | | % Fines | |
|-------|----------|------|--------|--------|------|---------|------|
| | Coarse | Fine | Coarse | Medium | Fine | Silt | Clay |
| 0.0 | 0.0 | 0.0 | 0.1 | 17.8 | 74.7 | 7.4 | |

| SIEVE SIZE | PERCENT FINER | SPEC.* PERCENT | PASS? (X=NO) |
|------------|---------------|----------------|--------------|
| .375 | 100.0 | | |
| #4 | 100.0 | | |
| #10 | 99.9 | | |
| #20 | 98.5 | | |
| #40 | 82.1 | | |
| #60 | 45.3 | | |
| #100 | 21.4 | | |
| #200 | 7.4 | | |

Material Description

SAND, (SP-SM), medium to fine grained, with trace clay pockets

Atterberg Limits

PL= LL= PI=

Coefficients

D₉₀= 0.5076 D₈₅= 0.4494 D₆₀= 0.3072
D₅₀= 0.2679 D₃₀= 0.1888 D₁₅= 0.1174
D₁₀= 0.0892 C_u= 3.44 C_c= 1.30

Classification

USCS= SP-SM AASHTO=

Remarks

CADD CODE = CH10D965

* (no specification provided)

Location: USACE Sample # BI-PB-98-10B
Sample Number: TE Lab ID: 4622.02

Depth: 5.0 - 10.0 (ft.)

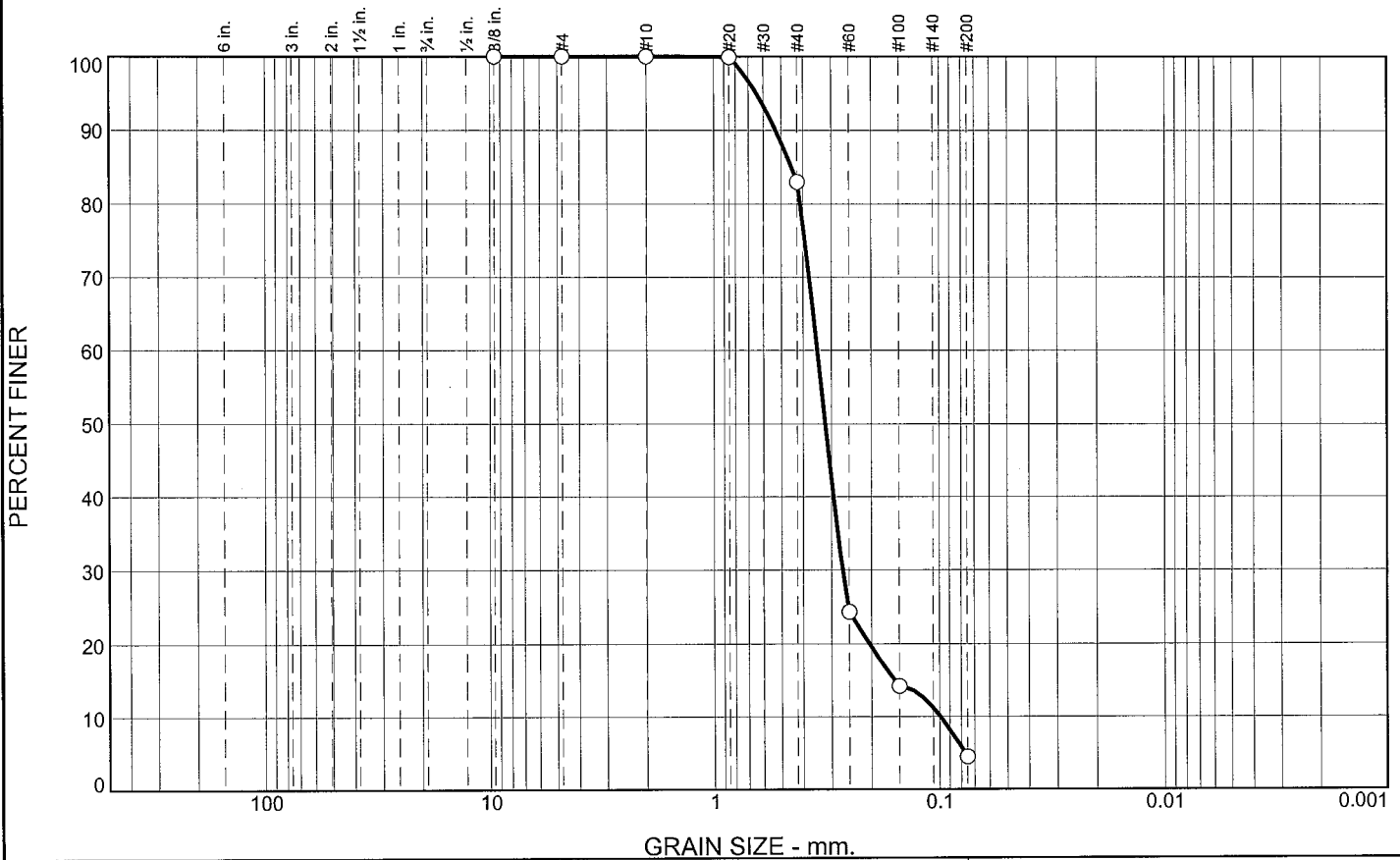
Date: 8/15/10

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

Tested By: R.Martin

Checked By: R.Byrd

Particle Size Distribution Report



| % +3" | % Gravel | | % Sand | | | % Fines | |
|-------|----------|------|--------|--------|------|---------|------|
| | Coarse | Fine | Coarse | Medium | Fine | Silt | Clay |
| 0.0 | 0.0 | 0.0 | 0.0 | 17.0 | 78.5 | 4.5 | |

| SIEVE SIZE | PERCENT FINER | SPEC.* PERCENT | PASS? (X=NO) |
|------------|---------------|----------------|--------------|
| .375 | 100.0 | | |
| #4 | 100.0 | | |
| #10 | 100.0 | | |
| #20 | 99.9 | | |
| #40 | 83.0 | | |
| #60 | 24.3 | | |
| #100 | 14.2 | | |
| #200 | 4.5 | | |

Material Description

SAND, (SP), medium to fine grained

Atterberg Limits

PL= LL= PI=

Coefficients

| | | |
|--------------------------|--------------------------|--------------------------|
| D ₉₀ = 0.5296 | D ₈₅ = 0.4506 | D ₆₀ = 0.3458 |
| D ₅₀ = 0.3191 | D ₃₀ = 0.2672 | D ₁₅ = 0.1572 |
| D ₁₀ = 0.0991 | C _u = 3.49 | C _c = 2.08 |

Classification

USCS= SP AASHTO=

Remarks

CADD CODE = CH10D965

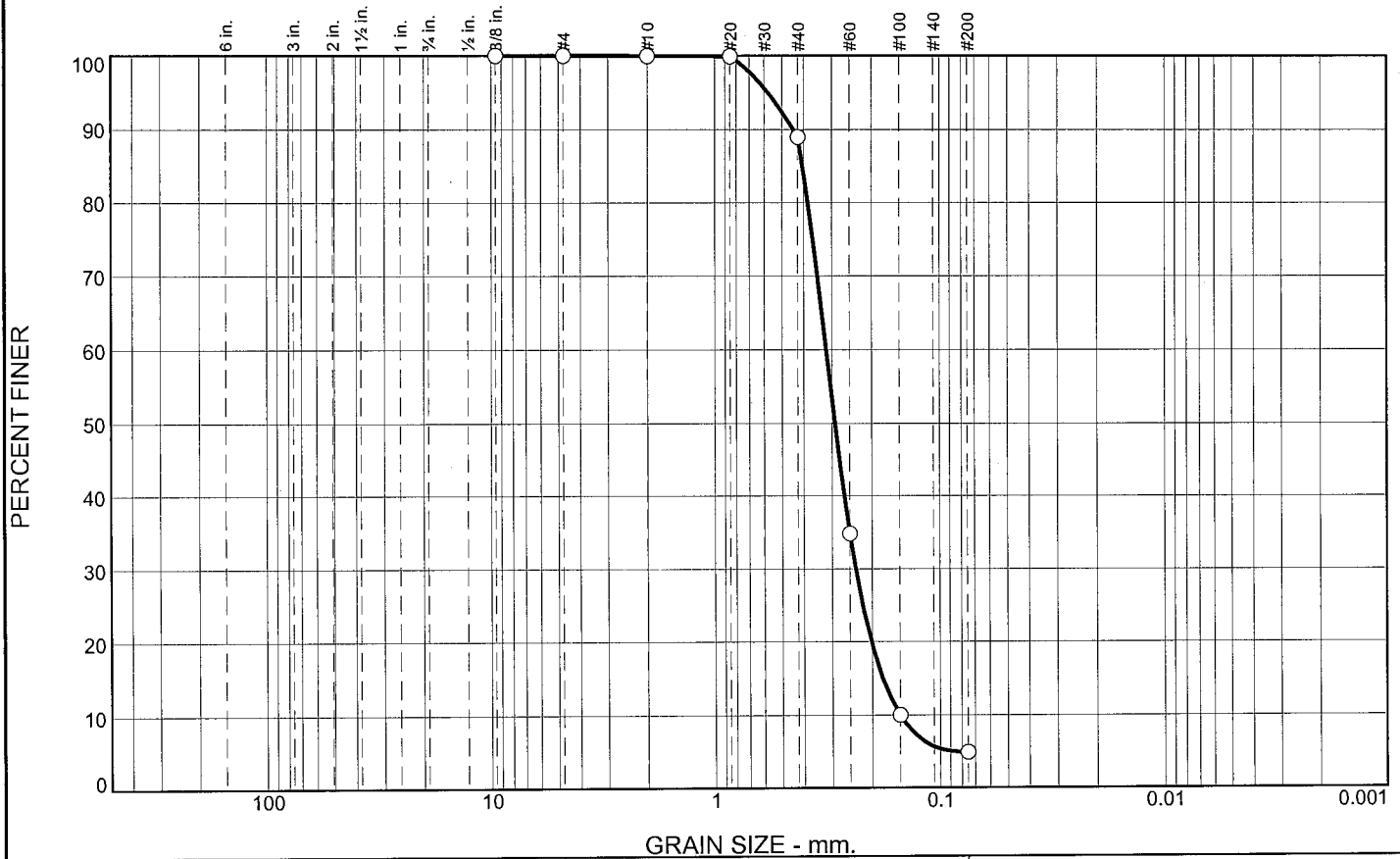
* (no specification provided)

Location: USACE Sample # BI-PB-98-10C Depth: 10.0 - 15.0 (ft.) Date: 8/15/10
 Sample Number: TE Lab ID: 4622.03

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

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

Particle Size Distribution Report



| % +3" | % Gravel | | % Sand | | | % Fines | |
|-------|----------|------|--------|--------|------|---------|------|
| | Coarse | Fine | Coarse | Medium | Fine | Silt | Clay |
| 0.0 | 0.0 | 0.0 | 0.0 | 11.1 | 84.0 | 4.9 | |

| SIEVE SIZE | PERCENT FINER | SPEC.* PERCENT | PASS? (X=NO) |
|------------|---------------|----------------|--------------|
| .375 | 100.0 | | |
| #4 | 100.0 | | |
| #10 | 100.0 | | |
| #20 | 99.9 | | |
| #40 | 88.9 | | |
| #60 | 34.8 | | |
| #100 | 10.0 | | |
| #200 | 4.9 | | |

Material Description

SAND, (SP), medium to fine grained

Atterberg Limits

PL= LL= PI=

Coefficients

D₉₀= 0.4455 D₈₅= 0.4045 D₆₀= 0.3177
D₅₀= 0.2906 D₃₀= 0.2359 D₁₅= 0.1796
D₁₀= 0.1499 C_u= 2.12 C_c= 1.17

Classification

USCS= SP AASHTO=

Remarks

CADD CODE = CH10D965

* (no specification provided)

Location: USACE Sample # BI-PB-98-10D
Sample Number: TE Lab ID: 4622.04

Depth: 15.0 - 17.5 (ft.)

Date: 8/15/10

| | |
|--|--|
| <h2 style="margin: 0;">Thompson Engineering</h2> <h3 style="margin: 0;">Mobile, Alabama</h3> | <p>Client: US Army Corps of Engineers</p> <p>Project: Contract No. W91278-10-D-0026 - Task 03 Mississippi Barrier Island Restoration Project</p> <p>Project No: 10-2123-0009 Report No.</p> |
|--|--|

Tested By: R.Martin

Checked By: R.Byrd

Boring Designation BI-PB-099-10

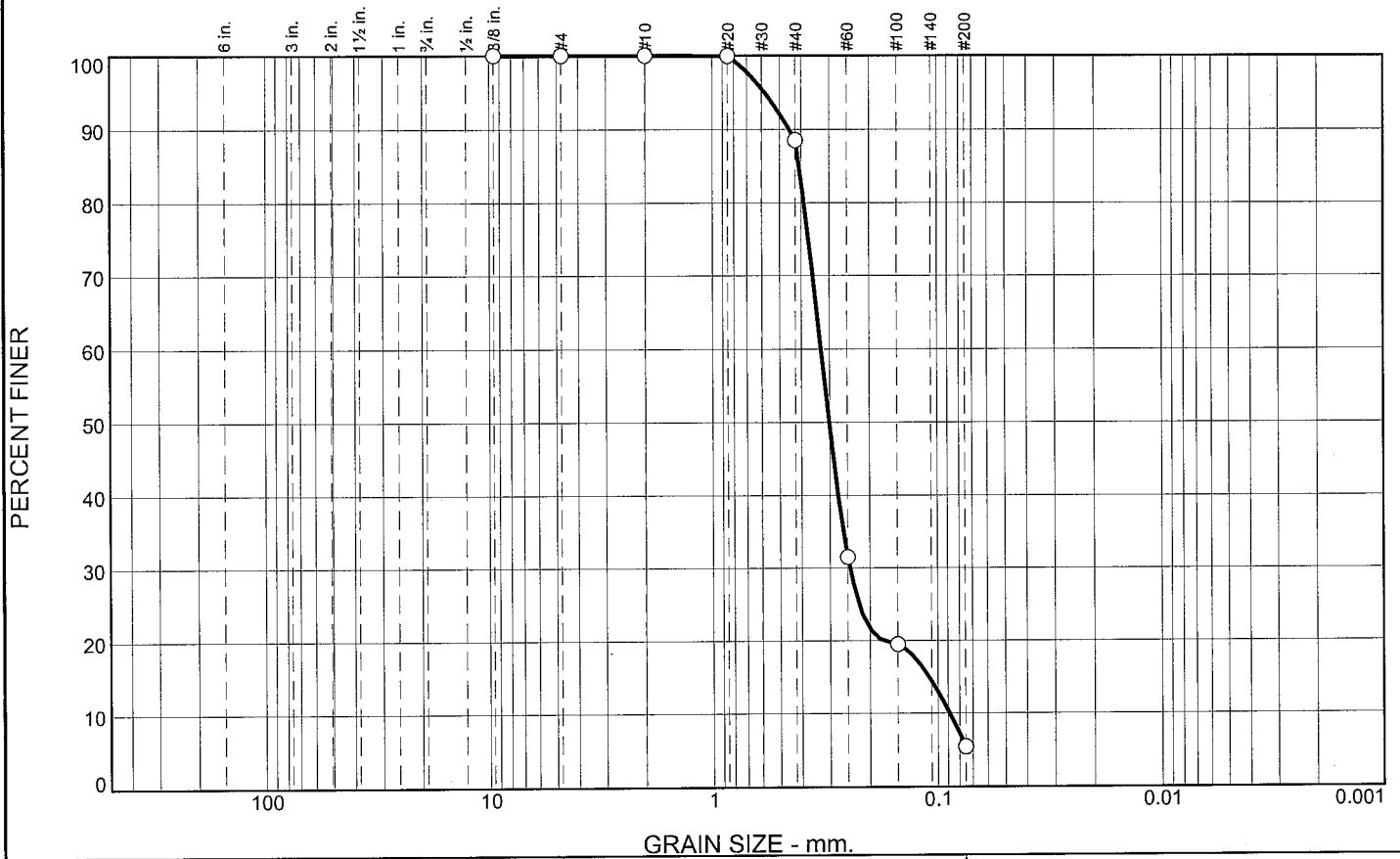
| | | | | |
|---|--|---|---------------------------------|-----------------------------|
| DRILLING LOG | | DIVISION South Atlantic | INSTALLATION Mobile District | SHEET 1 OF 2 SHEETS |
| 1. PROJECT MsCIP Barrier Island Restoration Petit Bois Pass- AL West | | 9. SIZE AND TYPE OF BIT N/A | | |
| 2. BORING DESIGNATION BI-PB-099-10 | | 10. COORDINATE SYSTEM/DATUM State Plane, MSE (U.S. Ft.) | | HORIZONTAL NAD83 |
| | | 11. MANUFACTURER'S DESIGNATION OF DRILL Vibracore | | VERTICAL NAVD88 |
| 3. DRILLING AGENCY Corps of Engineers - CESAM | | 12. TOTAL SAMPLES 2 | | |
| 4. NAME OF DRILLER Construction Solutions International, Inc. | | 13. TOTAL NUMBER CORE BOXES 0 | | |
| 5. DIRECTION OF BORING <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED | | 14. WATER DEPTH 30 Ft. | | 15. DATE BORING 08-03-10 |
| 6. THICKNESS OF OVERBURDEN N/A | | 16. ELEVATION TOP OF BORING -31.9 Ft. | | |
| 7. DEPTH DRILLED INTO ROCK N/A | | 17. TOTAL RECOVERY FOR BORING 100% | | |
| 8. TOTAL DEPTH OF BORING 20.0 Ft. | | 18. SIGNATURE AND TITLE OF INSPECTOR Chris Gillentine, Geologist | | |

| ELEV. | DEPTH | LEGEND | CLASSIFICATION OF MATERIALS | SAMPLE | LABORATORY RESULTS |
|-------|-------|--------|--|--------|--|
| -31.9 | 0.0 | | | | |
| -32.9 | 1.0 | | CLAY, fat, dark gray (CH) | NS | |
| | | | SAND, poorly-graded, mostly fine to medium-grained sand-sized quartz, lt. gray (SP) | A | Classification: SP-SM Color: 2.5Y 5/2-grayish brown D50: 0.301 mm % Fines: 5.5 |
| | | | | B | Classification: SP-SM Color: 2.5Y 6/2-light brownish gray D50: 0.2822 mm % Fines: 5.4 |
| -41.9 | 10.0 | | | | |
| | | | CLAY, fat, dark gray (CH) | NS | |
| -51.9 | 20.0 | | | | |
| | | | NOTES: 1. Soils are field visually classified in accordance with the Unified Soils Classification System. 2. NS = Sample not submitted for laboratory analysis from this interval. 3. Seafloor elevation determined from 2010 | | |

| DRILLING LOG (Cont. Sheet) | | | INSTALLATION Mobile District | | | SHEET 2 |
|--|-------|--------|---|----------------------------|---------------------------|--------------------|
| | | | | | | OF 2 SHEETS |
| PROJECT MsCIP Barrier Island Restoration | | | COORDINATE SYSTEM/DATUM State Plane, MSE (U.S. Ft.) | HORIZONTAL NAD83 | VERTICAL NAVD88 | |
| LOCATION COORDINATES X = 1,133,367 Y = 252,679 | | | ELEVATION TOP OF BORING -31.9 Ft. | | | |
| ELEV. | DEPTH | LEGEND | CLASSIFICATION OF MATERIALS | SAMPLE | LABORATORY RESULTS | |
| | | | USACE survey. | | | |



Particle Size Distribution Report



| % +3" | % Gravel | | % Sand | | | % Fines | |
|-------|----------|------|--------|--------|------|---------|------|
| | Coarse | Fine | Coarse | Medium | Fine | Silt | Clay |
| 0.0 | 0.0 | 0.0 | 0.0 | 11.5 | 83.0 | 5.5 | |

| SIEVE SIZE | PERCENT FINER | SPEC.* PERCENT | PASS? (X=NO) |
|------------|---------------|----------------|--------------|
| .375 | 100.0 | | |
| #4 | 100.0 | | |
| #10 | 100.0 | | |
| #20 | 100.0 | | |
| #40 | 88.5 | | |
| #60 | 31.5 | | |
| #100 | 19.5 | | |
| #200 | 5.5 | | |

Material Description

SAND, (SP-SM), medium to fine grained

Atterberg Limits

PL= LL= PI=

Coefficients

| | | |
|--------------------------|--------------------------|--------------------------|
| D ₉₀ = 0.4529 | D ₈₅ = 0.4084 | D ₆₀ = 0.3272 |
| D ₅₀ = 0.3010 | D ₃₀ = 0.2447 | D ₁₅ = 0.1093 |
| D ₁₀ = 0.0887 | C _u = 3.69 | C _c = 2.06 |

Classification

USCS= SP-SM AASHTO=

Remarks

CADD CODE = CH10D965

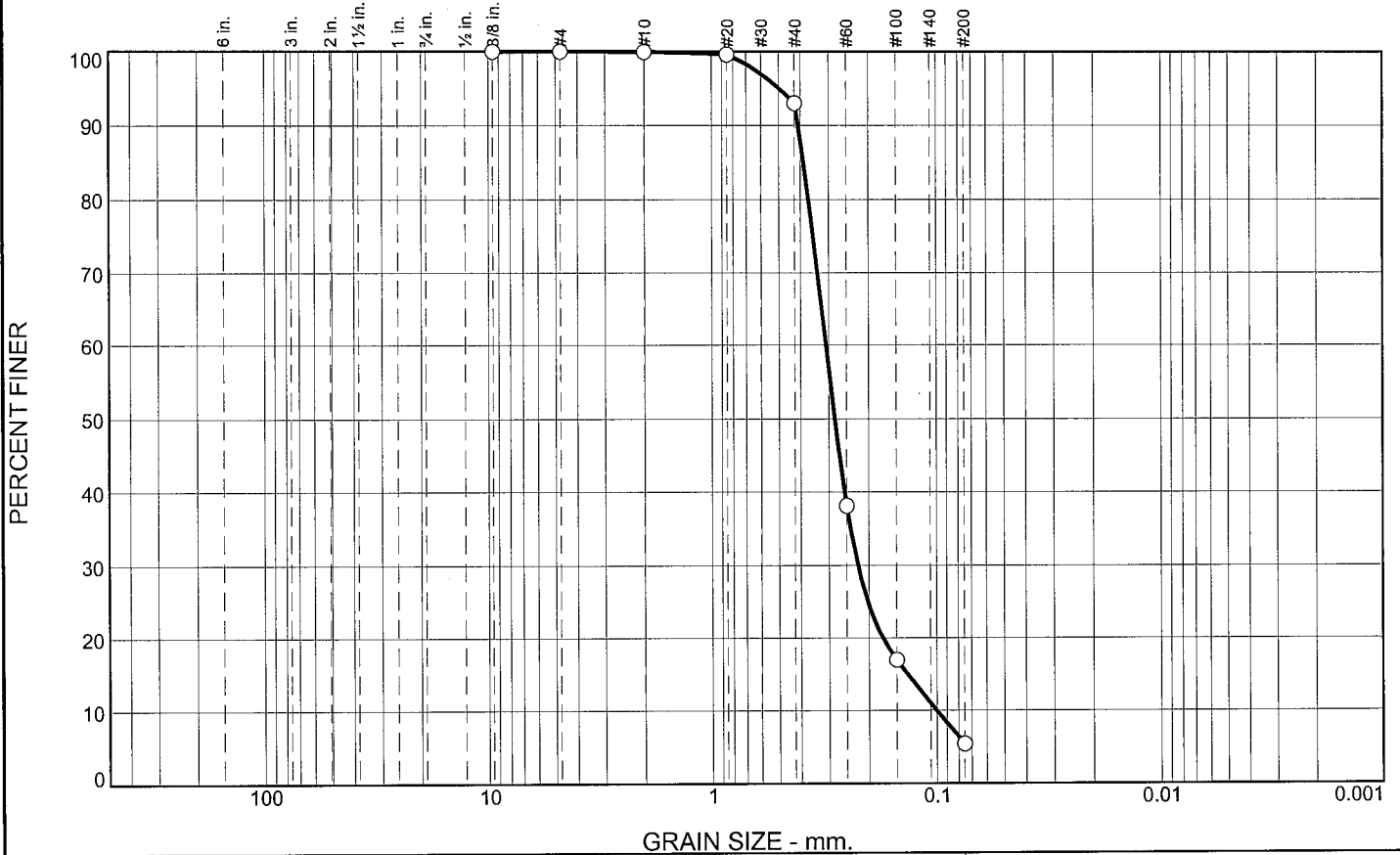
* (no specification provided)

Location: USACE Sample # BI-PB-99-10A Depth: 1.0 - 5.0 (ft.) Date: 8/15/10
 Sample Number: TE Lab ID: 4622.08

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

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

Particle Size Distribution Report



| % +3" | % Gravel | | % Sand | | | % Fines | |
|-------|----------|------|--------|--------|------|---------|------|
| | Coarse | Fine | Coarse | Medium | Fine | Silt | Clay |
| 0.0 | 0.0 | 0.0 | 0.1 | 6.9 | 87.6 | 5.4 | |

| SIEVE SIZE | PERCENT FINER | SPEC.* PERCENT | PASS? (X=NO) |
|------------|---------------|----------------|--------------|
| .375 | 100.0 | | |
| #4 | 100.0 | | |
| #10 | 99.9 | | |
| #20 | 99.6 | | |
| #40 | 93.0 | | |
| #60 | 38.1 | | |
| #100 | 17.0 | | |
| #200 | 5.4 | | |

Material Description

SAND, (SP-SM), fine grained

Atterberg Limits

PL= LL= PI=

Coefficients

D₉₀= 0.4090 D₈₅= 0.3869 D₆₀= 0.3085
D₅₀= 0.2822 D₃₀= 0.2233 D₁₅= 0.1346
D₁₀= 0.1001 C_u= 3.08 C_c= 1.62

Classification

USCS= SP-SM AASHTO=

Remarks

CADD CODE = CH10D965

* (no specification provided)

Location: USACE Sample # BI-PB-99-10B
Sample Number: TE Lab ID: 4622.09

Depth: 5.0 - 10.0 (ft.)

Date: 8/15/10

| | |
|--|--|
| <p>Thompson Engineering</p> <p>Mobile, Alabama</p> | <p>Client: US Army Corps of Engineers</p> <p>Project: Contract No. W91278-10-D-0026 - Task 03 Mississippi Barrier Island Restoration Project</p> <p>Project No: 10-2123-0009 Report No.</p> |
|--|--|

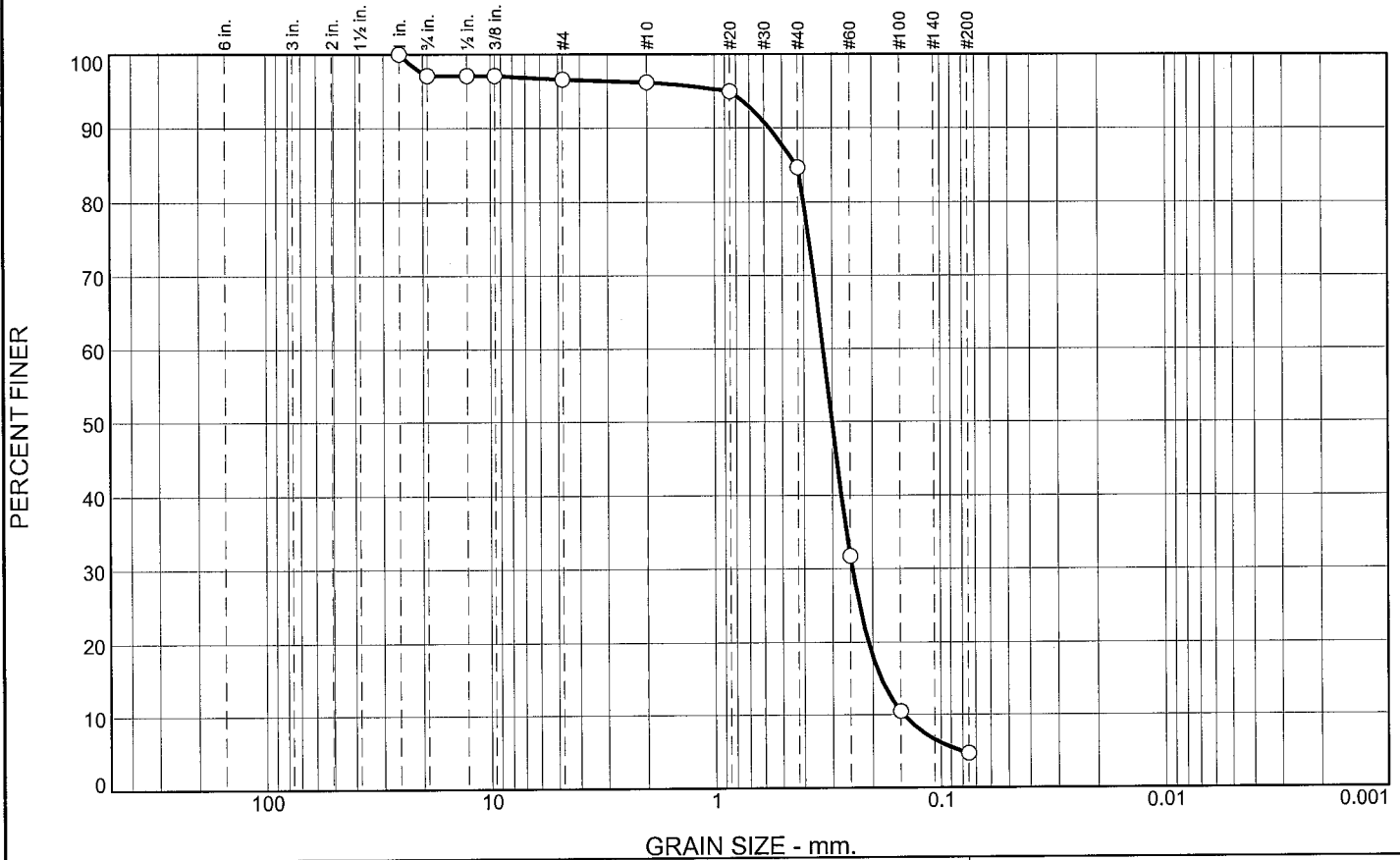
Tested By: R.Martin **Checked By:** R.Byrd

Boring Designation BI-PB-100-10

| | | | | |
|--|--|---|--|--|
| DRILLING LOG | | DIVISION South Atlantic | INSTALLATION Mobile District | SHEET 1 OF 1 SHEETS |
| 1. PROJECT MsCIP Barrier Island Restoration Petit Bois Pass- AL West | | | 9. SIZE AND TYPE OF BIT N/A | |
| 2. BORING DESIGNATION BI-PB-100-10 | | 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 | | <input type="checkbox"/> AUTO HAMMER <input type="checkbox"/> MANUAL HAMMER |
| 4. NAME OF DRILLER Construction Solutions International, Inc. | | 12. TOTAL SAMPLES 3 | | UNDISTURBED (UD) 0 |
| 5. DIRECTION OF BORING <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED | | LOCATION COORDINATES E = 1,131,777 N = 254,357 | 13. TOTAL NUMBER CORE BOXES | |
| 6. THICKNESS OF OVERBURDEN N/A | | CONTRACTOR FILE NO. | 14. WATER DEPTH 25 Ft. | |
| 7. DEPTH DRILLED INTO ROCK N/A | | DEG. FROM VERTICAL | 15. DATE BORING STARTED 08-03-10 COMPLETED 08-03-10 | |
| 8. TOTAL DEPTH OF BORING 13.0 Ft. | | BEARING | 16. ELEVATION TOP OF BORING -26.4 Ft. | |
| | | | 17. TOTAL RECOVERY FOR BORING 100% | |
| | | | 18. SIGNATURE AND TITLE OF INSPECTOR Chris Gillentine, Geologist | |

| ELEV. | DEPTH | LEGEND | CLASSIFICATION OF MATERIALS | SAMPLE | LABORATORY RESULTS |
|-------|-------|--------|--|--------|--|
| -26.4 | 0.0 | | | | |
| -27.9 | 1.5 | | SAND, poorly-graded, mostly fine to medium-grained sand-sized quartz, trace shell fragments, gray (SP) SAND, poorly-graded, mostly fine to medium-grained sand-sized quartz, dark brown (SP) | A | Classification: SP Color: 2.5Y 4/2-dark grayish brown D50: 0.3007 mm % Fines: 4.7 |
| -31.4 | 5.0 | | | | |
| -35.4 | 9.0 | | | | |
| -38.4 | 12.0 | | SAND, poorly-graded, mostly fine to medium-grained sand-sized quartz, trace silt, tan (SP) | B | Classification: SP-SM Color: 2.5Y 5/2-grayish brown D50: 0.2993 mm % Fines: 6.5 |
| -39.4 | 13.0 | | CLAY, fat, gray (CH) | C | Classification: SM Color: 5Y 5/1-gray D50: 0.2091 mm % Fines: 16.4 |
| | | | NOTES: 1. Soils are field visually classified in accordance with the Unified Soils Classification System. 2. NS = Sample not submitted for laboratory analysis from this interval. 3. Seafloor elevation determined from 2010 USACE survey. | NS | |

Particle Size Distribution Report



| % +3" | % Gravel | | % Sand | | | % Fines | |
|-------|----------|------|--------|--------|------|---------|------|
| | Coarse | Fine | Coarse | Medium | Fine | Silt | Clay |
| 0.0 | 2.9 | 0.5 | 0.4 | 11.5 | 80.0 | 4.7 | |

| SIEVE SIZE | PERCENT FINER | SPEC.* PERCENT | PASS? (X=NO) |
|------------|---------------|----------------|--------------|
| 1" | 100.0 | | |
| .750 | 97.1 | | |
| .50 | 97.1 | | |
| .375 | 97.1 | | |
| #4 | 96.6 | | |
| #10 | 96.2 | | |
| #20 | 94.9 | | |
| #40 | 84.7 | | |
| #60 | 31.7 | | |
| #100 | 10.5 | | |
| #200 | 4.7 | | |

Material Description

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

Atterberg Limits

PL= LL= PI=

Coefficients

D₉₀= 0.5691 D₈₅= 0.4314 D₆₀= 0.3292
D₅₀= 0.3007 D₃₀= 0.2448 D₁₅= 0.1836
D₁₀= 0.1455 C_u= 2.26 C_c= 1.25

Classification

USCS= SP AASHTO=

Remarks

CADD CODE = CH10D965

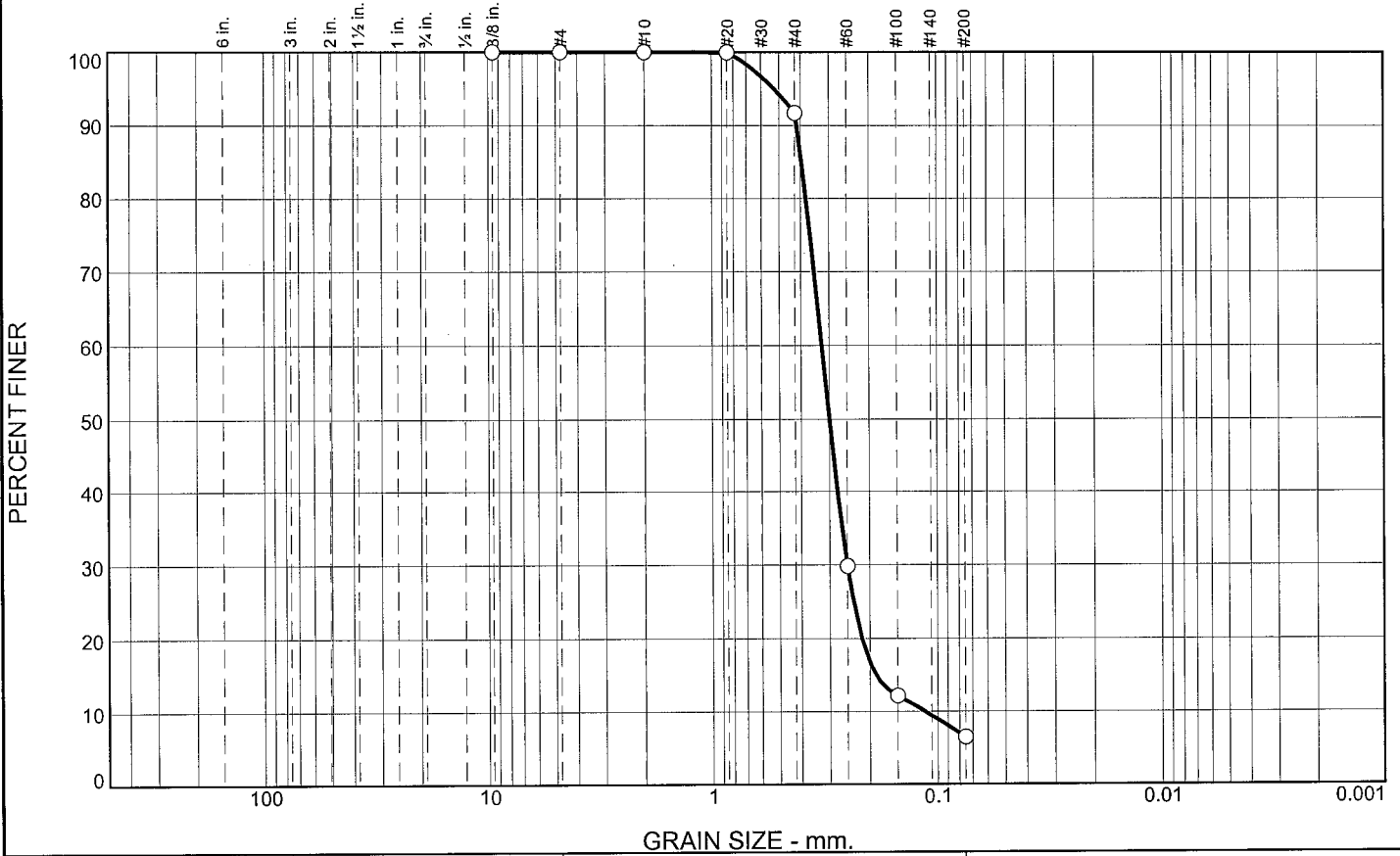
* (no specification provided)

Location: USACE Sample # BI-PB-100-10A Sample Number: TE Lab ID: 4622.05 Depth: 0.0 - 5.0 (ft.) Date: 8/15/10

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

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

Particle Size Distribution Report



| % +3" | % Gravel | | % Sand | | | % Fines | |
|-------|----------|------|--------|--------|------|---------|------|
| | Coarse | Fine | Coarse | Medium | Fine | Silt | Clay |
| 0.0 | 0.0 | 0.0 | 0.0 | 8.3 | 85.2 | 6.5 | |

| SIEVE SIZE | PERCENT FINER | SPEC.* PERCENT | PASS? (X=NO) |
|------------|---------------|----------------|--------------|
| .375 | 100.0 | | |
| #4 | 100.0 | | |
| #10 | 100.0 | | |
| #20 | 100.0 | | |
| #40 | 91.7 | | |
| #60 | 29.8 | | |
| #100 | 12.2 | | |
| #200 | 6.5 | | |

Material Description

SAND, (SP-SM), fine grained, with trace clay pockets

Atterberg Limits

PL= LL= PI=

Coefficients

D₉₀= 0.4167 D₈₅= 0.3961 D₆₀= 0.3232
D₅₀= 0.2993 D₃₀= 0.2505 D₁₅= 0.1880
D₁₀= 0.1136 C_u= 2.85 C_c= 1.71

Classification

USCS= SP-SM AASHTO=

Remarks

CADD CODE = CH10D965

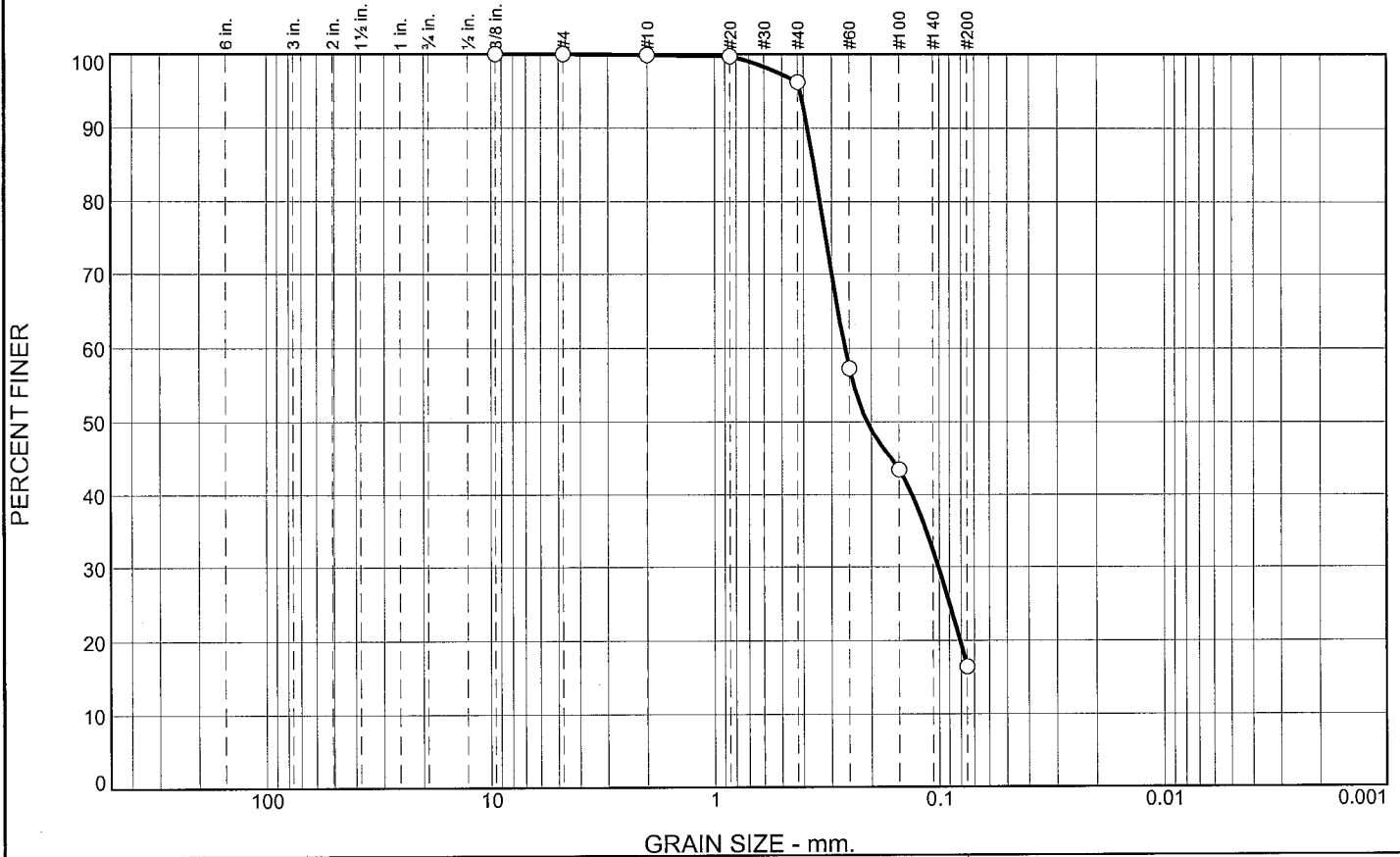
* (no specification provided)

Location: USACE Sample # BI-PB-100-10B Depth: 5.0 - 10.0 (ft.) Date: 8/15/10
Sample Number: TE Lab ID: 4622.06

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

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

Particle Size Distribution Report



| % +3" | % Gravel | | % Sand | | | % Fines | |
|-------|----------|------|--------|--------|------|---------|------|
| | Coarse | Fine | Coarse | Medium | Fine | Silt | Clay |
| 0.0 | 0.0 | 0.0 | 0.1 | 3.7 | 79.8 | 16.4 | |

| SIEVE SIZE | PERCENT FINER | SPEC.* PERCENT | PASS? (X=NO) |
|------------|---------------|----------------|--------------|
| .375 | 100.0 | | |
| #4 | 100.0 | | |
| #10 | 99.9 | | |
| #20 | 99.7 | | |
| #40 | 96.2 | | |
| #60 | 57.3 | | |
| #100 | 43.4 | | |
| #200 | 16.4 | | |

Material Description

CLAYEY SAND, (SC), fine grained, with trace clay pockets

Atterberg Limits

PL= LL= PI=

Coefficients

D₉₀= 0.3843 D₈₅= 0.3595 D₆₀= 0.2615
D₅₀= 0.2091 D₃₀= 0.1009 D₁₅=
D₁₀= C_u= C_c=

Classification

USCS= SC AASHTO=

Remarks

CADD CODE = CH10D965

* (no specification provided)

Location: USACE Sample # BI-PB-100-10C
Sample Number: TE Lab ID: 4622.07

Depth: 10.0 - 15.0 (ft.)

Date: 8/15/10

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

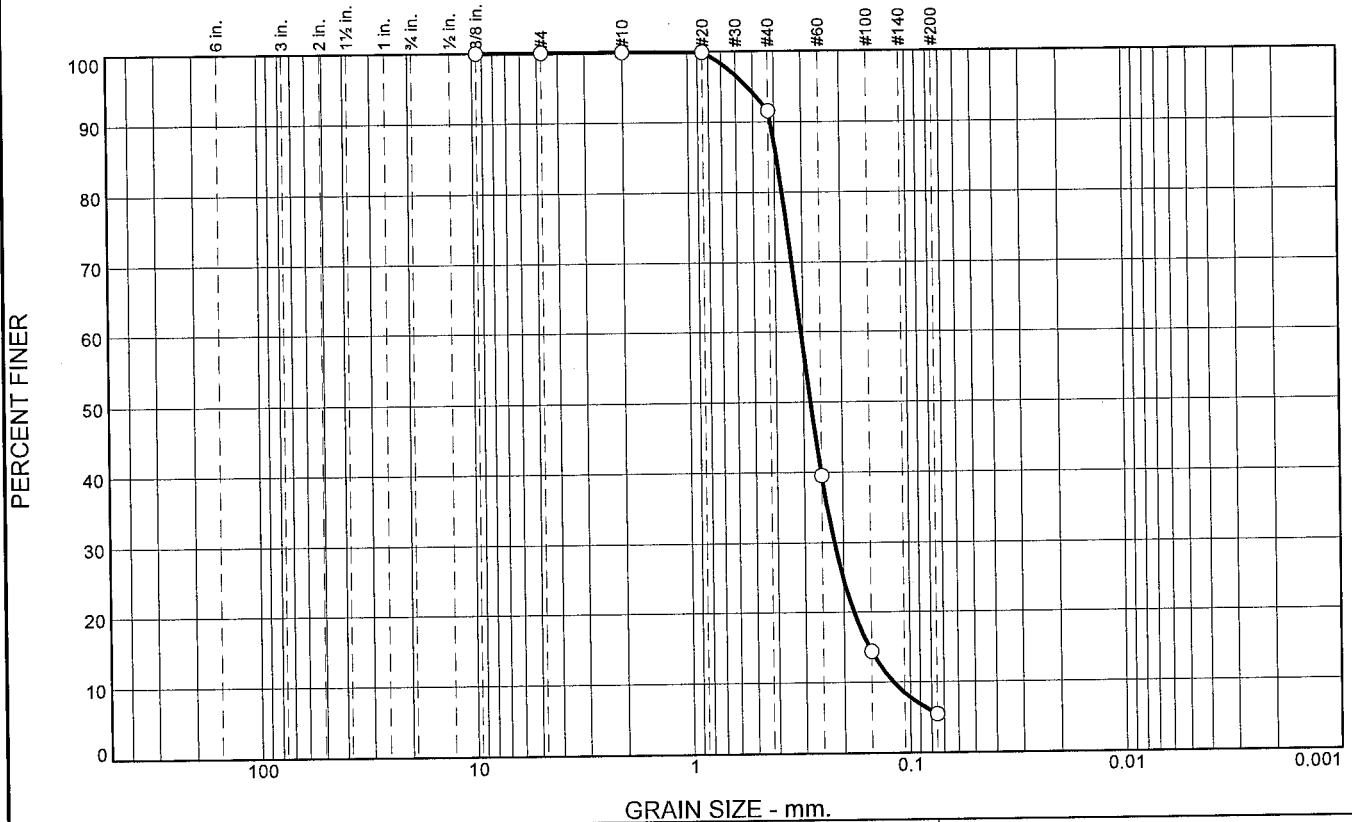
Tested By: R.Martin **Checked By:** R.Byrd

Boring Designation BI-PB-101-10

| | | | | |
|--|--|---|--|--|
| DRILLING LOG | | DIVISION South Atlantic | INSTALLATION Mobile District | SHEET 1 OF 1 SHEETS |
| 1. PROJECT MsCIP Barrier Island Restoration Petit Bois Pass- AL West | | | 9. SIZE AND TYPE OF BIT N/A | |
| 2. BORING DESIGNATION BI-PB-101-10 | | 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 | | <input type="checkbox"/> AUTO HAMMER <input type="checkbox"/> MANUAL HAMMER |
| 4. NAME OF DRILLER Construction Solutions International, Inc. | | 12. TOTAL SAMPLES | | DISTURBED 3 |
| 5. DIRECTION OF BORING <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED | | 13. TOTAL NUMBER CORE BOXES | | UNDISTURBED (UD) 0 |
| 6. THICKNESS OF OVERBURDEN N/A | | 14. WATER DEPTH 27 Ft. | | 15. DATE BORING |
| 7. DEPTH DRILLED INTO ROCK N/A | | 16. ELEVATION TOP OF BORING -27.9 Ft. | | STARTED 07-31-10 |
| 8. TOTAL DEPTH OF BORING 16.0 Ft. | | 17. TOTAL RECOVERY FOR BORING 100% | | COMPLETED 07-31-10 |
| 18. SIGNATURE AND TITLE OF INSPECTOR Chris Gillentine, Geologist | | | | |

| ELEV. | DEPTH | LEGEND | CLASSIFICATION OF MATERIALS | SAMPLE | LABORATORY RESULTS |
|-------|-------|--------|--|--------|--|
| -27.9 | 0.0 | | SAND, poorly-graded, mostly medium-grained sand-sized quartz, dark brown (SP) | A | Classification: SP Color: 2.5Y 3/3-dark olive brown D50: 0.3773 mm % Fines: 1.4 |
| | | | At El. -34.9 Ft., lt. tan | B | Classification: SP-SM Color: 2.5Y 2.5/1-black D50: 0.2789 mm % Fines: 5.5 |
| -37.9 | 10.0 | | CLAY, fat, dark gray (CH) | C | Classification: SP-SM Color: 2.5Y 5/1-gray D50: 0.2862 mm % Fines: 5.4 |
| | | | | NS | |
| -43.9 | 16.0 | | NOTES: 1. Soils are field visually classified in accordance with the Unified Soils Classification System. 2. NS = Sample not submitted for laboratory analysis from this interval. 3. Seafloor elevation determined from 2010 USACE survey. | | |

Particle Size Distribution Report



| % +3" | % Gravel | | % Sand | | | % Fines | |
|-------|----------|------|--------|--------|------|---------|------|
| | Coarse | Fine | Coarse | Medium | Fine | Silt | Clay |
| 0.0 | 0.0 | 0.0 | 0.0 | 8.4 | 86.1 | 5.5 | |

| SIEVE SIZE | PERCENT FINER | SPEC.* PERCENT | PASS? (X=NO) |
|------------|---------------|----------------|--------------|
| .375 | 100.0 | | |
| #4 | 100.0 | | |
| #10 | 100.0 | | |
| #20 | 99.9 | | |
| #40 | 91.6 | | |
| #60 | 39.5 | | |
| #100 | 14.4 | | |
| #200 | 5.5 | | |

Material Description

SAND, (SP-SM), fine grained

Atterberg Limits

PL= LL= PI=

Coefficients

D₉₀= 0.4157 D₈₅= 0.3909 D₆₀= 0.3064
D₅₀= 0.2789 D₃₀= 0.2203 D₁₅= 0.1537
D₁₀= 0.1193 C_u= 2.57 C_c= 1.33

Classification

USCS= SP-SM AASHTO=

Remarks

CADD CODE = CH10D965

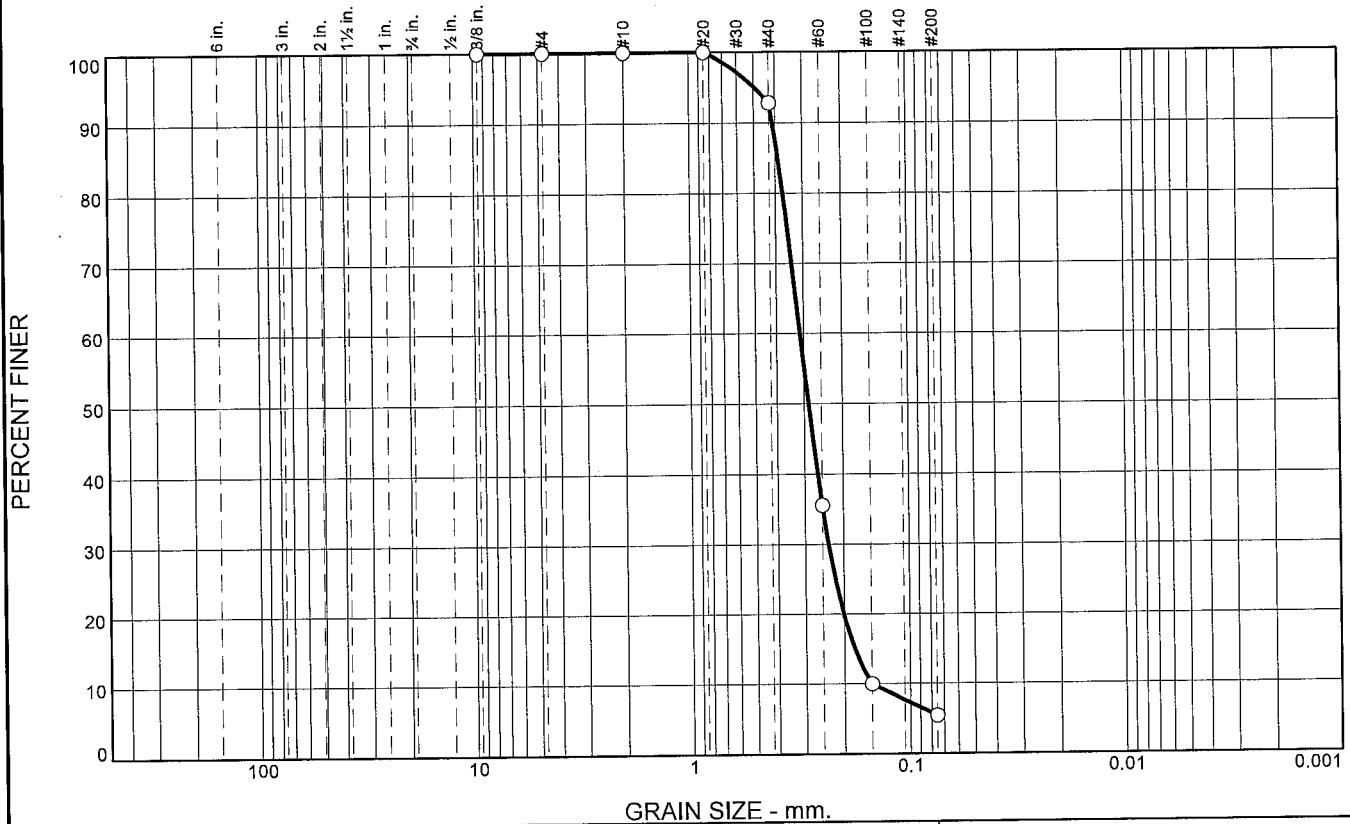
* (no specification provided)

Location: USACE Sample # BI-PB-101-10B **Depth:** 5.0 - 10.0 (ft.) **Date:** 8/7/10
Sample Number: TE Lab ID: 4612.66

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

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

Particle Size Distribution Report



| % +3" | % Gravel | | % Sand | | | % Fines | |
|-------|----------|------|--------|--------|------|---------|------|
| | Coarse | Fine | Coarse | Medium | Fine | Silt | Clay |
| 0.0 | 0.0 | 0.0 | 0.0 | 7.2 | 87.4 | 5.4 | |

| SIEVE SIZE | PERCENT FINER | SPEC.* PERCENT | PASS? (X=NO) |
|------------|---------------|----------------|--------------|
| .375 | 100.0 | | |
| #4 | 100.0 | | |
| #10 | 100.0 | | |
| #20 | 100.0 | | |
| #40 | 92.8 | | |
| #60 | 35.6 | | |
| #100 | 10.0 | | |
| #200 | 5.4 | | |

Material Description

SAND, (SP-SM), fine grained

Atterberg Limits

PL= LL= PI=

Coefficients

D₉₀= 0.4103 D₈₅= 0.3884 D₆₀= 0.3114
D₅₀= 0.2862 D₃₀= 0.2345 D₁₅= 0.1800
D₁₀= 0.1504 C_u= 2.07 C_c= 1.17

Classification

USCS= SP-SM AASHTO=

Remarks

CADD CODE = CH10D965

* (no specification provided)

Location: USACE Sample # BI-PB-101-10C **Depth:** 10.0 - 11.0 (ft.) **Date:** 8/7/10
Sample Number: TE Lab ID: 4612.67

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

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

Boring Designation BI-PB-102-10

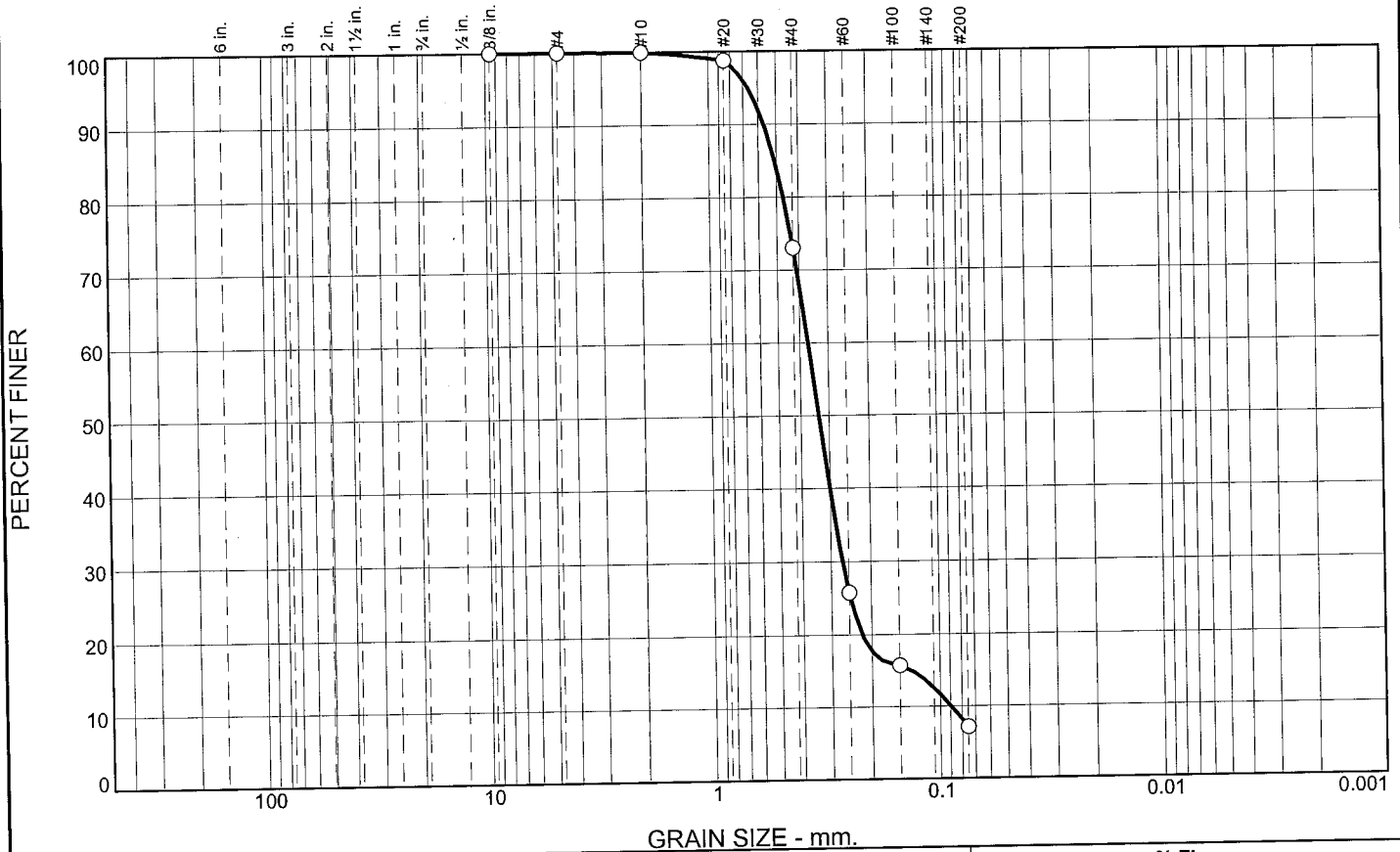
| | | | | |
|--|--|--|--|--|
| DRILLING LOG | | DIVISION South Atlantic | INSTALLATION Mobile District | SHEET 1 OF 2 SHEETS |
| 1. PROJECT MsCIP Barrier Island Restoration Petit Bois Pass- AL West | | | 9. SIZE AND TYPE OF BIT N/A | |
| 2. BORING DESIGNATION BI-PB-102-10 | | 10. COORDINATE SYSTEM/DATUM State Plane, MSE (U.S. Ft.) | | HORIZONTAL NAD83 |
| 3. DRILLING AGENCY Corps of Engineers - CESAM | | 11. MANUFACTURER'S DESIGNATION OF DRILL Vibracore | | <input type="checkbox"/> AUTO HAMMER <input type="checkbox"/> MANUAL HAMMER |
| 4. NAME OF DRILLER Construction Solutions International, Inc. | | 12. TOTAL SAMPLES | | DISTURBED 3 |
| 5. DIRECTION OF BORING <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED | | 13. TOTAL NUMBER CORE BOXES | | UNDISTURBED (UD) 0 |
| 6. THICKNESS OF OVERBURDEN N/A | | 14. WATER DEPTH 31 Ft. | | |
| 7. DEPTH DRILLED INTO ROCK N/A | | 15. DATE BORING | | STARTED 08-03-10 |
| 8. TOTAL DEPTH OF BORING 20.0 Ft. | | 16. ELEVATION TOP OF BORING -32.6 Ft. | | COMPLETED 08-03-10 |
| | | 17. TOTAL RECOVERY FOR BORING 100% | | |
| | | 18. SIGNATURE AND TITLE OF INSPECTOR Chris Gillentine, Geologist | | |

| ELEV. | DEPTH | LEGEND | CLASSIFICATION OF MATERIALS | SAMPLE | LABORATORY RESULTS |
|-------|-------|----------|--|--------|--|
| -32.6 | 0.0 | | | | |
| | | ••••• | SAND, poorly-graded, mostly fine to medium-grained sand-sized quartz, lt. gray (SP) | A | Classification: SP-SM Color: 2.5Y 5/2-grayish brown D50: 0.3327 mm % Fines: 7.1 |
| | | ••••• | | B | Classification: SP Color: 2.5Y 6/2-light brownish gray D50: 0.3295 mm % Fines: 3.1 |
| | | ••••• | | C | Classification: SP-SM Color: 2.5Y 6/2-light brownish gray D50: 0.2562 mm % Fines: 7.3 |
| -43.6 | 11.0 | // // // | CLAY, fat, dark gray (CH) | | |
| | | // // // | | NS | |
| -52.6 | 20.0 | // // // | | | |
| | | | NOTES: 1. Soils are field visually classified in accordance with the Unified Soils Classification System. 2. NS = Sample not submitted for laboratory analysis from this interval. 3. Seafloor elevation determined from 2010 | | |

| DRILLING LOG (Cont. Sheet) | | | INSTALLATION Mobile District | | | SHEET 2 |
|--|-------|--------|---|----------------------------|---------------------------|--------------------|
| | | | | | | OF 2 SHEETS |
| PROJECT MsCIP Barrier Island Restoration | | | COORDINATE SYSTEM/DATUM State Plane, MSE (U.S. Ft.) | HORIZONTAL NAD83 | VERTICAL NAVD88 | |
| LOCATION COORDINATES X = 1,134,927 Y = 252,813 | | | ELEVATION TOP OF BORING -32.6 Ft. | | | |
| ELEV. | DEPTH | LEGEND | CLASSIFICATION OF MATERIALS | SAMPLE | LABORATORY RESULTS | |
| | | | USACE survey. | | | |



Particle Size Distribution Report



| % +3" | % Gravel | | % Sand | | | % Fines | |
|-------|----------|------|--------|--------|------|---------|------|
| | Coarse | Fine | Coarse | Medium | Fine | Silt | Clay |
| 0.0 | 0.0 | 0.0 | 0.1 | 26.9 | 65.9 | 7.1 | |

| SIEVE SIZE | PERCENT FINER | SPEC.* PERCENT | PASS? (X=NO) |
|------------|---------------|----------------|--------------|
| .375 | 100.0 | | |
| #4 | 100.0 | | |
| #10 | 99.9 | | |
| #20 | 98.7 | | |
| #40 | 73.0 | | |
| #60 | 25.7 | | |
| #100 | 15.7 | | |
| #200 | 7.1 | | |

Material Description
SAND, (SP-SM), medium to fine grained

Atterberg Limits
 PL= LL= PI=

Coefficients
 D₉₀= 0.5679 D₈₅= 0.5092 D₆₀= 0.3681
 D₅₀= 0.3327 D₃₀= 0.2664 D₁₅= 0.1341
 D₁₀= 0.0895 C_u= 4.11 C_c= 2.15

Classification
 USCS= SP-SM AASHTO=

Remarks
 CADD CODE = CH10D965

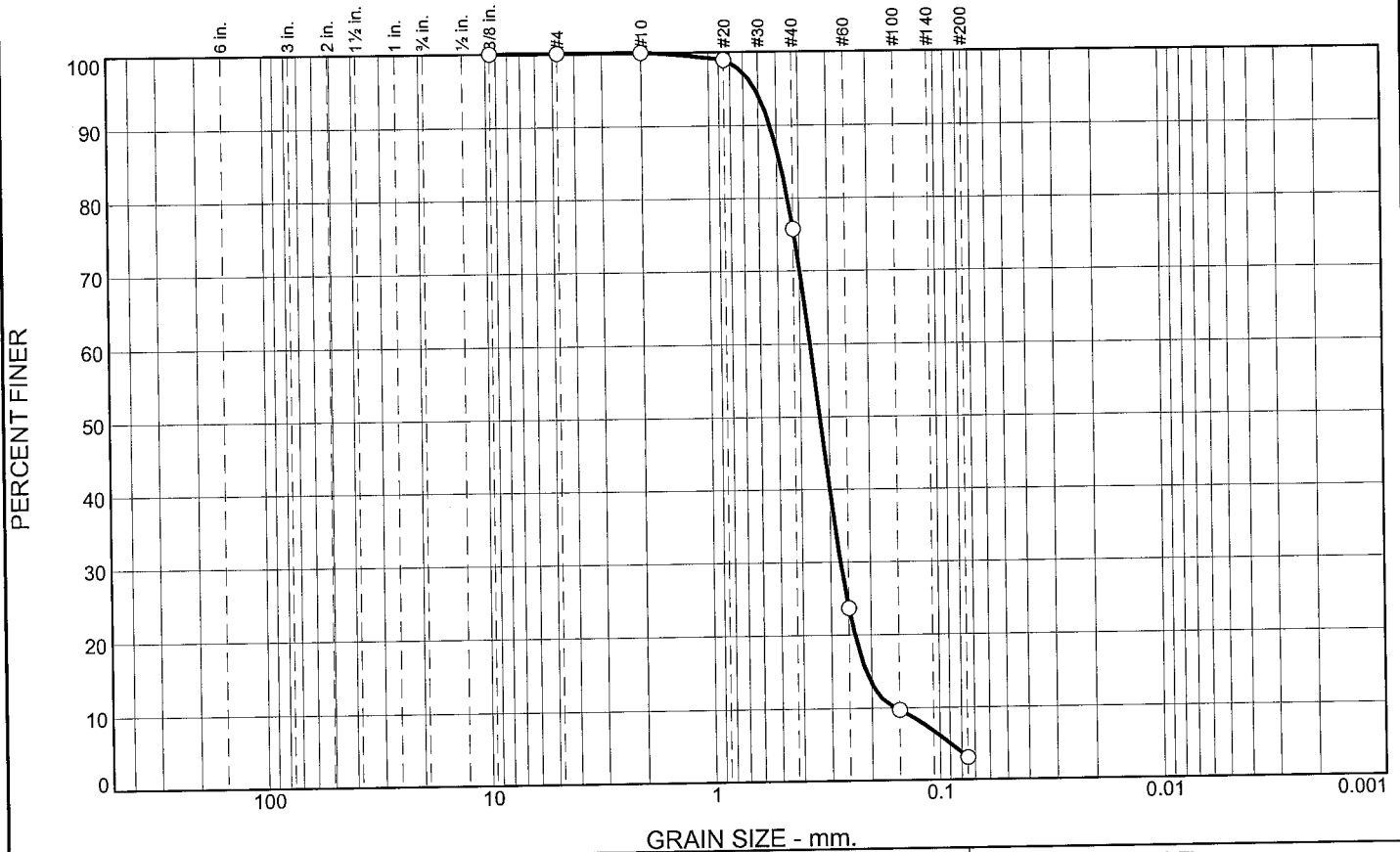
* (no specification provided)

Location: USACE Sample # BI-PB-102-10A Depth: 0.0 - 4.0 (ft.) Date: 8/15/10
 Sample Number: TE Lab ID: 4622.10

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

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

Particle Size Distribution Report



| % +3" | % Gravel | | % Sand | | | % Fines | |
|-------|----------|------|--------|--------|------|---------|------|
| | Coarse | Fine | Coarse | Medium | Fine | Silt | Clay |
| 0.0 | 0.0 | 0.0 | 0.0 | 24.2 | 72.7 | 3.1 | |

| SIEVE SIZE | PERCENT FINER | SPEC.* PERCENT | PASS? (X=NO) |
|------------|---------------|----------------|--------------|
| .375 | 100.0 | | |
| #4 | 100.0 | | |
| #10 | 100.0 | | |
| #20 | 98.9 | | |
| #40 | 75.8 | | |
| #60 | 23.6 | | |
| #100 | 9.7 | | |
| #200 | 3.1 | | |

Material Description

SAND, (SP), medium to fine grained

Atterberg Limits

PL= LL= PI=

Coefficients

D₉₀= 0.5342 D₈₅= 0.4841 D₆₀= 0.3614
D₅₀= 0.3295 D₃₀= 0.2707 D₁₅= 0.2112
D₁₀= 0.1559 C_u= 2.32 C_c= 1.30

Classification

USCS= SP AASHTO=

Remarks

CADD CODE = CH10D965

* (no specification provided)

Location: USACE Sample # BI-PB-102-10B
Sample Number: TE Lab ID: 4622.11

Depth: 4.0 - 8.0 (ft.)

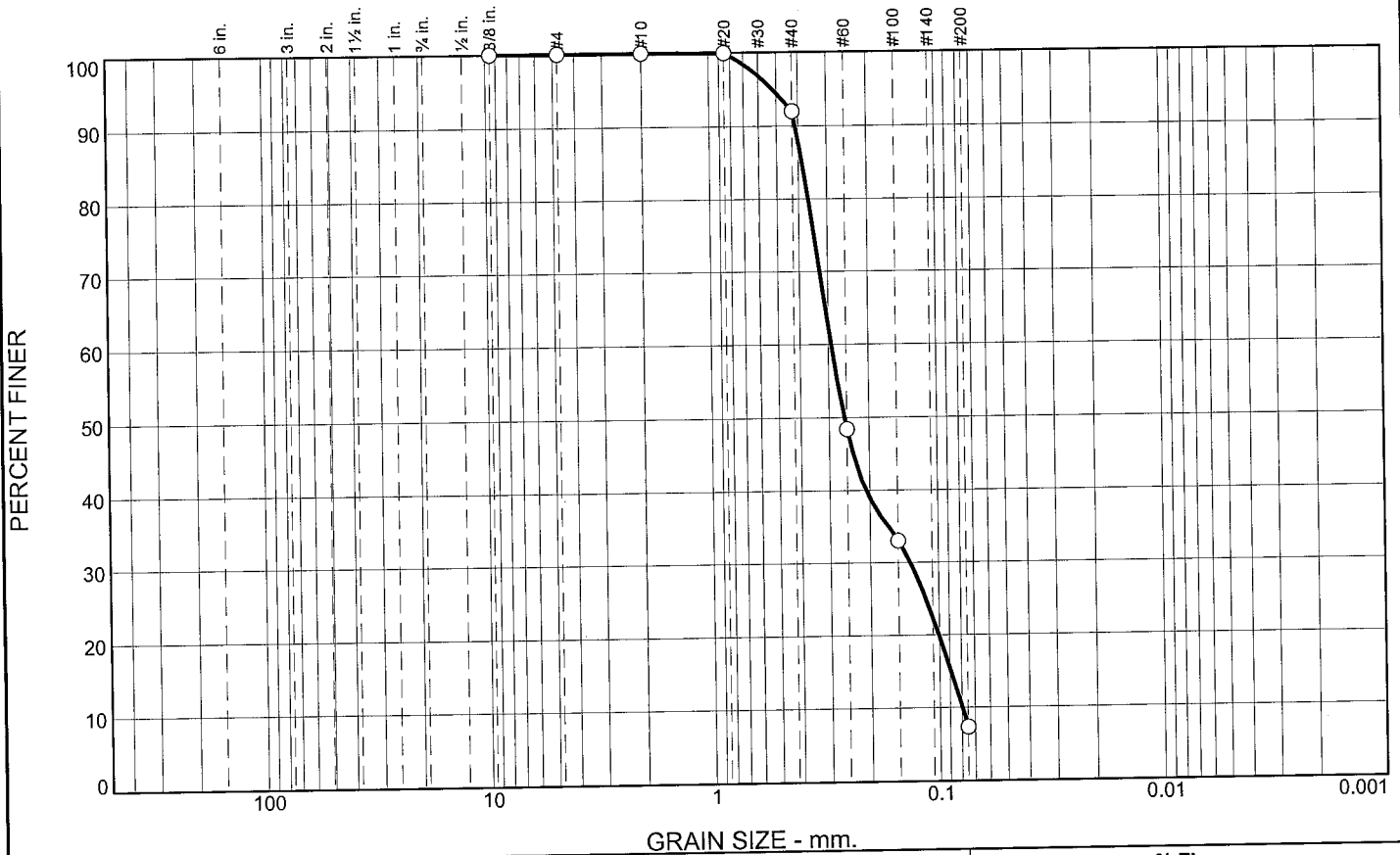
Date: 8/15/10

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

Tested By: R.Martin

Checked By: R.Byrd

Particle Size Distribution Report



| % +3" | % Gravel | | % Sand | | | % Fines | |
|-------|----------|------|--------|--------|------|---------|------|
| | Coarse | Fine | Coarse | Medium | Fine | Silt | Clay |
| 0.0 | 0.0 | 0.0 | 0.0 | 8.0 | 84.7 | 7.3 | |

| SIEVE SIZE | PERCENT FINER | SPEC.* PERCENT | PASS? (X=NO) |
|------------|---------------|----------------|--------------|
| .375 | 100.0 | | |
| #4 | 100.0 | | |
| #10 | 100.0 | | |
| #20 | 99.9 | | |
| #40 | 92.0 | | |
| #60 | 48.4 | | |
| #100 | 33.0 | | |
| #200 | 7.3 | | |

Material Description

SAND, (SP-SM), fine grained

Atterberg Limits

PL= LL= PI=

Coefficients

D₉₀= 0.4123 D₈₅= 0.3854 D₆₀= 0.2909
D₅₀= 0.2562 D₃₀= 0.1333 D₁₅= 0.0892
D₁₀= 0.0796 C_u= 3.65 C_c= 0.77

Classification

USCS= SP-SM AASHTO=

Remarks

CADD CODE = CH10D965

* (no specification provided)

Location: USACE Sample # BI-PB-102-10C Depth: 8.0 - 11.0 (ft.) Date: 8/15/10
Sample Number: TE Lab ID: 4622.12

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

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

Boring Designation BI-PB-103-10

| | | | | |
|---|--|---|---------------------------------|------------------------|
| DRILLING LOG | | DIVISION South Atlantic | INSTALLATION Mobile District | SHEET 1 OF 2 SHEETS |
| 1. PROJECT MsCIP Barrier Island Restoration Petit Bois Pass- AL West | | 9. SIZE AND TYPE OF BIT N/A | | |
| 2. BORING DESIGNATION BI-PB-103-10 | | 10. COORDINATE SYSTEM/DATUM State Plane, MSE (U.S. Ft.) | | HORIZONTAL NAD83 |
| | | 11. MANUFACTURER'S DESIGNATION OF DRILL Vibracore | | VERTICAL NAVD88 |
| 3. DRILLING AGENCY Corps of Engineers - CESAM | | 12. TOTAL SAMPLES | | |
| | | DISTURBED 0 | | UNDISTURBED (UD) 0 |
| 4. NAME OF DRILLER Construction Solutions International, Inc. | | 13. TOTAL NUMBER CORE BOXES | | |
| 5. DIRECTION OF BORING <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED | | 14. WATER DEPTH 33 Ft. | | |
| | | 15. DATE BORING | | STARTED 08-04-10 |
| | | | | COMPLETED 08-04-10 |
| 6. THICKNESS OF OVERBURDEN N/A | | 16. ELEVATION TOP OF BORING -32.4 Ft. | | |
| 7. DEPTH DRILLED INTO ROCK N/A | | 17. TOTAL RECOVERY FOR BORING 100% | | |
| 8. TOTAL DEPTH OF BORING 19.0 Ft. | | 18. SIGNATURE AND TITLE OF INSPECTOR Chris Gillentine, Geologist | | |

| ELEV. | DEPTH | LEGEND | CLASSIFICATION OF MATERIALS | SAMPLE | LABORATORY RESULTS |
|-------|-------|--------|---|--------|--------------------|
| -32.4 | 0.0 | | | | |
| | | | CLAY, fat, trace of shell fragments in upper 1 ft., dark gray (CH) | NS | |
| -51.4 | 19.0 | | | | |
| | | | NOTES: 1. Soils are field visually classified in accordance with the Unified Soils Classification System. 2. NS = Sample not submitted for laboratory analysis from this interval. 3. Seafloor elevation calculated using sampling vessel's fathometer water depth reading and applying NOAA tidal gauge data conversion | | |

| DRILLING LOG (Cont. Sheet) | | | INSTALLATION Mobile District | | | SHEET 2 |
|--|-------|--------|---|----------------------------|---------------------------|--------------------|
| | | | | | | OF 2 SHEETS |
| PROJECT MsCIP Barrier Island Restoration | | | COORDINATE SYSTEM/DATUM State Plane, MSE (U.S. Ft.) | HORIZONTAL NAD83 | VERTICAL NAVD88 | |
| LOCATION COORDINATES X = 1,128,625 Y = 250,343 | | | ELEVATION TOP OF BORING -32.4 Ft. | | | |
| ELEV. | DEPTH | LEGEND | CLASSIFICATION OF MATERIALS | SAMPLE | LABORATORY RESULTS | |
| | | | factor. | | | |

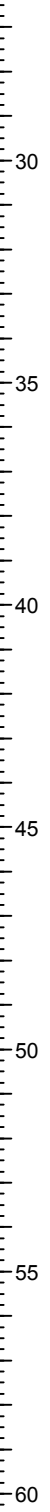


Boring Designation BI-PB-104-10

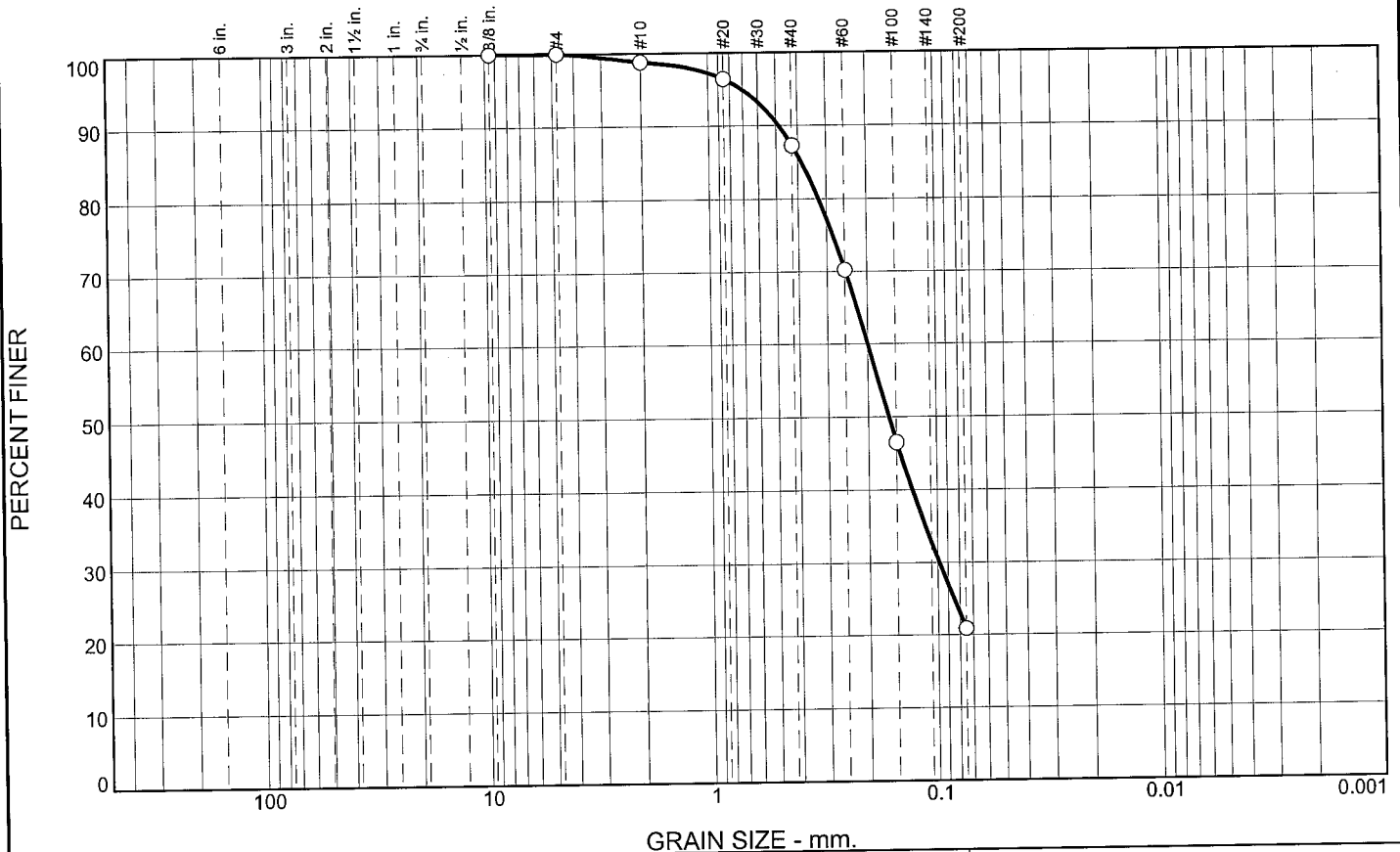
| | | | | |
|--|--|--|--|--|
| DRILLING LOG | | DIVISION South Atlantic | INSTALLATION Mobile District | SHEET 1 OF 2 SHEETS |
| 1. PROJECT MsCIP Barrier Island Restoration Petit Bois Pass- AL West | | | 9. SIZE AND TYPE OF BIT N/A | |
| 2. BORING DESIGNATION BI-PB-104-10 | | 10. COORDINATE SYSTEM/DATUM State Plane, MSE (U.S. Ft.) | | HORIZONTAL NAD83 |
| 3. DRILLING AGENCY Corps of Engineers - CESAM | | 11. MANUFACTURER'S DESIGNATION OF DRILL Vibracore | | <input type="checkbox"/> AUTO HAMMER <input type="checkbox"/> MANUAL HAMMER |
| 4. NAME OF DRILLER Construction Solutions International, Inc. | | 12. TOTAL SAMPLES | | DISTURBED 2 |
| 5. DIRECTION OF BORING <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED | | 13. TOTAL NUMBER CORE BOXES | | UNDISTURBED (UD) 0 |
| 6. THICKNESS OF OVERBURDEN N/A | | 14. WATER DEPTH 33 Ft. | | |
| 7. DEPTH DRILLED INTO ROCK N/A | | 15. DATE BORING | | STARTED 08-04-10 |
| 8. TOTAL DEPTH OF BORING 20.0 Ft. | | 16. ELEVATION TOP OF BORING -32.6 Ft. | | COMPLETED 08-04-10 |
| | | 17. TOTAL RECOVERY FOR BORING 100% | | |
| | | 18. SIGNATURE AND TITLE OF INSPECTOR Chris Gillentine, Geologist | | |

| ELEV. | DEPTH | LEGEND | CLASSIFICATION OF MATERIALS | SAMPLE | LABORATORY RESULTS |
|--|-------|--------|--|--------|--|
| -32.6 | 0.0 | | | | |
| -34.6 | 2.0 | ▨ | CLAY, fat, trace fine-grained sand-sized quartz, trace shell fragments, dark gray (CH) | NS | |
| -40.6 | 8.0 | ● | SAND, poorly-graded, mostly medium-grained sand-sized quartz, dark brown (SP) At El. -36.6 Ft., mostly quartz, trace silt, lt. gray | A | Classification: SM Color: 2.5Y 4/2-dark grayish brown D50: 0.1621 mm % Fines: 20.8 |
| | | | | B | Classification: SM Color: 2.5Y 3/2-very dark grayish brown D50: 0.1077 mm % Fines: 37.5 |
| -48.6 | 16.0 | ▨ | CLAY, fat, trace fine-grained sand-sized quartz, gray (CH) | NS | |
| -51.6 | 19.0 | ● | SAND, poorly-graded, mostly fine to medium-grained sand-sized quartz, gray (SP) | | |
| -52.6 | 20.0 | ▨ | CLAY, fat, gray (CH) | | |
| <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</p> | | | | | |

| DRILLING LOG (Cont. Sheet) | | | INSTALLATION Mobile District | | | SHEET 2 |
|---|-------|--------|---|----------------------------|---------------------------|--------------------|
| | | | | | | OF 2 SHEETS |
| PROJECT MsCIP Barrier Island Restoration | | | COORDINATE SYSTEM/DATUM State Plane, MSE (U.S. Ft.) | HORIZONTAL NAD83 | VERTICAL NAVD88 | |
| LOCATION COORDINATES X = 1,130,296 Y = 251,226 | | | ELEVATION TOP OF BORING -32.6 Ft. | | | |
| ELEV. | DEPTH | LEGEND | CLASSIFICATION OF MATERIALS | SAMPLE | LABORATORY RESULTS | |
| | | | vessel's fathometer water depth reading and applying NOAA tidal gauge data conversion factor. | | | |



Particle Size Distribution Report



| % +3" | % Gravel | | % Sand | | | % Fines | |
|-------|----------|------|--------|--------|------|---------|------|
| | Coarse | Fine | Coarse | Medium | Fine | Silt | Clay |
| 0.0 | 0.0 | 0.0 | 1.2 | 11.5 | 66.5 | 20.8 | |

| SIEVE SIZE | PERCENT FINER | SPEC.* PERCENT | PASS? (X=NO) |
|------------|---------------|----------------|--------------|
| .375 | 100.0 | | |
| #4 | 100.0 | | |
| #10 | 98.8 | | |
| #20 | 96.4 | | |
| #40 | 87.3 | | |
| #60 | 70.2 | | |
| #100 | 46.5 | | |
| #200 | 20.8 | | |

Material Description

CLAYEY SAND, (SC), medium to fine grained, with clay pockets

Atterberg Limits
 PL= LL= PI=

Coefficients
 D₉₀= 0.4856 D₈₅= 0.3867 D₆₀= 0.1999
 D₅₀= 0.1621 D₃₀= 0.0983 D₁₅=
 D₁₀= C_u= C_c=

Classification
 USCS= SC AASHTO=

Remarks
 CADD CODE = CH10D965

* (no specification provided)

Location: USACE Sample # BI-PB-104-10A
 Sample Number: TE Lab ID: 4622.13

Depth: 2.0 - 5.0 (ft.)

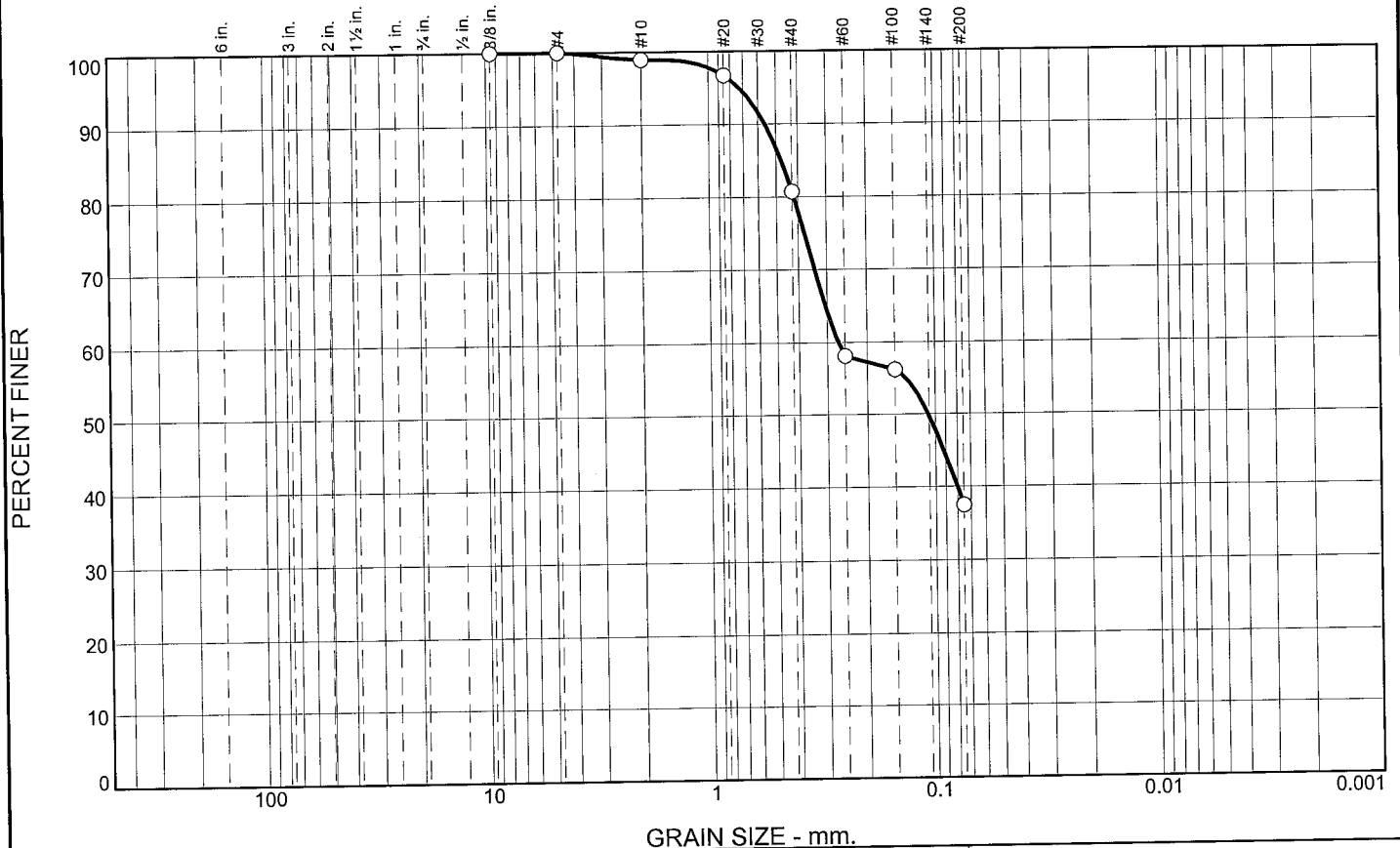
Date: 8/15/10

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

Tested By: R.Martin

Checked By: R.Byrd

Particle Size Distribution Report



| % +3" | % Gravel | | % Sand | | | % Fines | |
|-------|----------|------|--------|--------|------|---------|------|
| | Coarse | Fine | Coarse | Medium | Fine | Silt | Clay |
| 0.0 | 0.0 | 0.0 | 1.1 | 18.2 | 43.2 | 37.5 | |

| SIEVE SIZE | PERCENT FINER | SPEC.* PERCENT | PASS? (X=NO) |
|------------|---------------|----------------|--------------|
| .375 | 100.0 | | |
| #4 | 100.0 | | |
| #10 | 98.9 | | |
| #20 | 96.7 | | |
| #40 | 80.7 | | |
| #60 | 58.1 | | |
| #100 | 56.2 | | |
| #200 | 37.5 | | |

Material Description

CLAYEY SAND, (SC), medium to fine grained, with trace clay pockets

Atterberg Limits

PL= LL= PI=

Coefficients

D₉₀= 0.5605 D₈₅= 0.4746 D₆₀= 0.2682
D₅₀= 0.1077 D₃₀= D₁₅=
D₁₀= C_u= C_c=

Classification

USCS= SC AASHTO=

Remarks

CADD CODE = CH10D965

* (no specification provided)

Location: USACE Sample # BI-PB-104-10B Depth: 5.0 - 8.0 (ft.) Date: 8/15/10
Sample Number: TE Lab ID: 4622.14

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

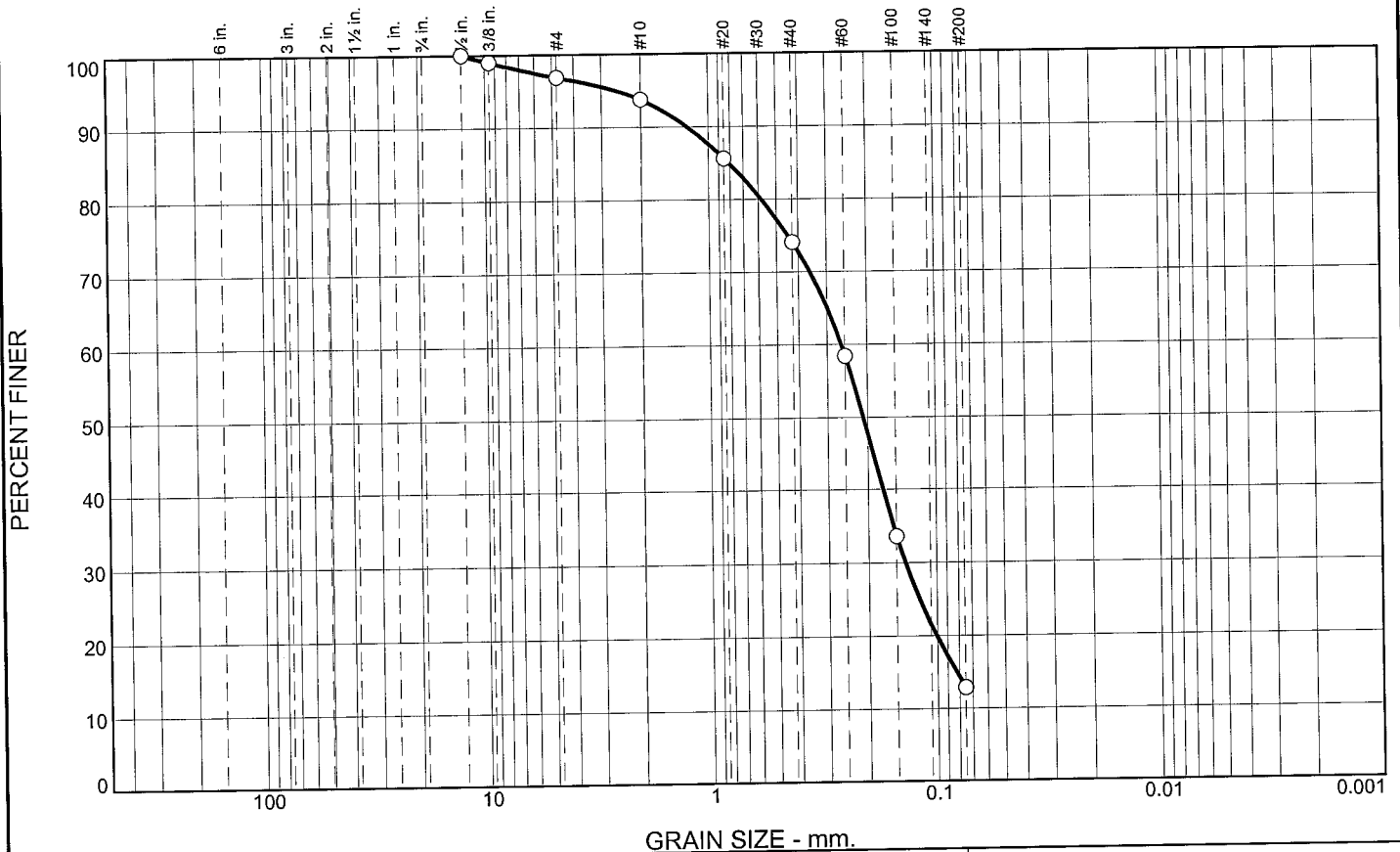
Tested By: R.Martin Checked By: R.Byrd

Boring Designation BI-PB-105-10

| | | | | |
|--|--|---|--|--|
| DRILLING LOG | | DIVISION South Atlantic | INSTALLATION Mobile District | SHEET 1 OF 1 SHEETS |
| 1. PROJECT MsCIP Barrier Island Restoration Petit Bois Pass- AL West | | | 9. SIZE AND TYPE OF BIT N/A | |
| 2. BORING DESIGNATION BI-PB-105-10 | | 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 | | <input type="checkbox"/> AUTO HAMMER <input type="checkbox"/> MANUAL HAMMER |
| 4. NAME OF DRILLER Construction Solutions International, Inc. | | 12. TOTAL SAMPLES | | DISTURBED 2 |
| 5. DIRECTION OF BORING <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED | | 13. TOTAL NUMBER CORE BOXES | | UNDISTURBED (UD) 0 |
| 6. THICKNESS OF OVERBURDEN N/A | | 14. WATER DEPTH 31 Ft. | | 15. DATE BORING |
| 7. DEPTH DRILLED INTO ROCK N/A | | 16. ELEVATION TOP OF BORING -31.5 Ft. | | STARTED 08-04-10 |
| 8. TOTAL DEPTH OF BORING 18.0 Ft. | | 17. TOTAL RECOVERY FOR BORING 100% | | COMPLETED 08-04-10 |
| 18. SIGNATURE AND TITLE OF INSPECTOR Chris Gillentine, Geologist | | | | |

| ELEV. | DEPTH | LEGEND | CLASSIFICATION OF MATERIALS | SAMPLE | LABORATORY RESULTS |
|-------|-------|--------|---|--------|--|
| -31.5 | 0.0 | | SAND, poorly-graded, dark gray (SP) | A | Classification: SM Color: 2.5Y 6/1-gray D50: 0.2091 mm % Fines: 12.8 |
| -39.5 | 8.0 | | | B | Classification: SM Color: 2.5Y 5/2-grayish brown D50: 0.1917 mm % Fines: 23 |
| -49.5 | 18.0 | | CLAY, fat, dark gray (CH) | NS | |
| | | | NOTES: 1. Soils are field visually classified in accordance with the Unified Soils Classification System. 2. NS = Sample not submitted for laboratory analysis from this interval. 3. Seafloor elevation calculated using sampling vessel's fathometer water depth reading and applying NOAA tidal gauge data conversion factor. | | |

Particle Size Distribution Report



| % +3" | % Gravel | | % Sand | | | % Fines | |
|-------|----------|------|--------|--------|------|---------|------|
| | Coarse | Fine | Coarse | Medium | Fine | Silt | Clay |
| 0.0 | 0.0 | 3.1 | 3.1 | 19.8 | 61.2 | 12.8 | |

| SIEVE SIZE | PERCENT FINER | SPEC.* PERCENT | PASS? (X=NO) |
|------------|---------------|----------------|--------------|
| .500 | 100.0 | | |
| .375 | 99.0 | | |
| #4 | 96.9 | | |
| #10 | 93.8 | | |
| #20 | 85.6 | | |
| #40 | 74.0 | | |
| #60 | 58.4 | | |
| #100 | 33.6 | | |
| #200 | 12.8 | | |

Material Description

SILTY SAND, (SM), medium to fine grained, trace shell and CLAY pockets

Atterberg Limits

PL= LL= PI=

Coefficients

D₉₀= 1.2465 D₈₅= 0.8129 D₆₀= 0.2599
D₅₀= 0.2091 D₃₀= 0.1374 D₁₅= 0.0823
D₁₀= C_u= C_c=

Classification

USCS= SM AASHTO=

Remarks

CADD CODE = CH10D965

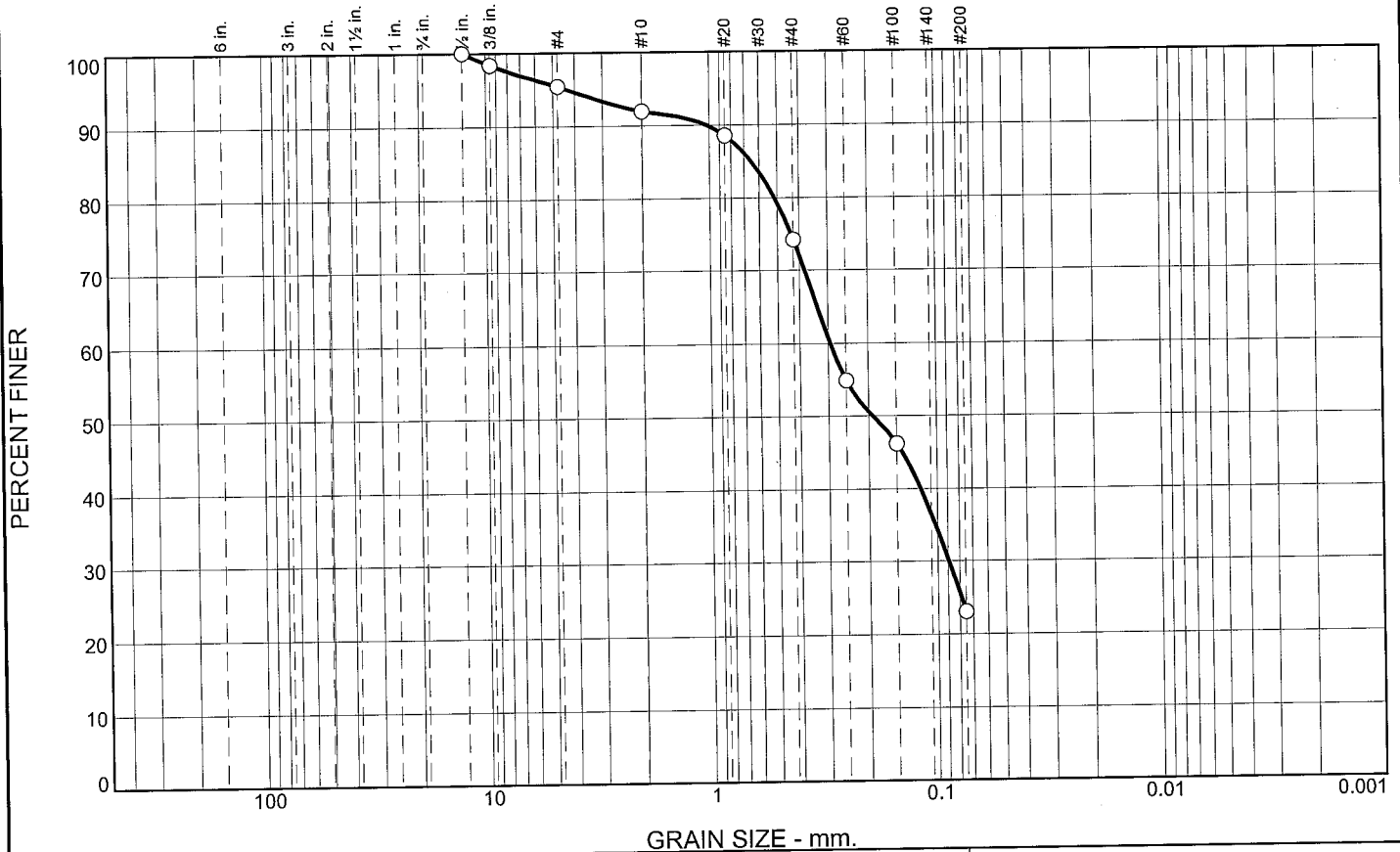
* (no specification provided)

Location: USACE Sample # BI-PB-105-10A **Depth:** 0.0 - 4.0 (ft.) **Date:** 8/15/10
Sample Number: TE Lab ID: 4622.15

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

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

Particle Size Distribution Report



| % +3" | % Gravel | | % Sand | | | % Fines | |
|-------|----------|------|--------|--------|------|---------|------|
| | Coarse | Fine | Coarse | Medium | Fine | Silt | Clay |
| 0.0 | 0.0 | 4.6 | 3.5 | 17.7 | 51.2 | 23.0 | |

| SIEVE SIZE | PERCENT FINER | SPEC.* PERCENT | PASS? (X=NO) |
|------------|---------------|----------------|--------------|
| .500 | 100.0 | | |
| .375 | 98.4 | | |
| #4 | 95.4 | | |
| #10 | 91.9 | | |
| #20 | 88.6 | | |
| #40 | 74.2 | | |
| #60 | 54.9 | | |
| #100 | 46.2 | | |
| #200 | 23.0 | | |

Material Description

CLAYEY SAND, (SC), medium to fine grained, with trace shell

Atterberg Limits

PL= LL= PI=

Coefficients

D₉₀= 1.0238 D₈₅= 0.6492 D₆₀= 0.2938
D₅₀= 0.1917 D₃₀= 0.0894 D₁₅=
D₁₀= C_u= C_c=

Classification

USCS= SC AASHTO=

Remarks

CADD CODE = CH10D965

* (no specification provided)

Location: USACE Sample # BI-PB-105-10B Depth: 4.0 - 8.0 (ft.) Date: 8/15/10
Sample Number: TE Lab ID: 4622.16

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

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

Boring Designation BI-PB-106-10

| | | | | |
|--|--|---|--|--|
| DRILLING LOG | | DIVISION South Atlantic | INSTALLATION Mobile District | SHEET 1 OF 1 SHEETS |
| 1. PROJECT Barrier Island Restoration Petit Bois | | | 9. SIZE AND TYPE OF BIT N/A | |
| 2. BORING DESIGNATION BI-PB-106-10 | | 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 | | <input type="checkbox"/> AUTO HAMMER <input type="checkbox"/> MANUAL HAMMER |
| 4. NAME OF DRILLER Construction Solutions International, Inc. | | 12. TOTAL SAMPLES | | DISTURBED 2 |
| 5. DIRECTION OF BORING <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED | | 13. TOTAL NUMBER CORE BOXES | | UNDISTURBED (UD) 0 |
| 6. THICKNESS OF OVERBURDEN N/A | | 14. WATER DEPTH 33 Ft. | | 15. DATE BORING |
| 7. DEPTH DRILLED INTO ROCK N/A | | 16. ELEVATION TOP OF BORING -33.5 Ft. | | STARTED 08-04-10 |
| 8. TOTAL DEPTH OF BORING 9.5 Ft. | | 17. TOTAL RECOVERY FOR BORING 100% | | COMPLETED 08-04-10 |
| 18. SIGNATURE AND TITLE OF INSPECTOR Chris Gillentine, Geologist | | | | |

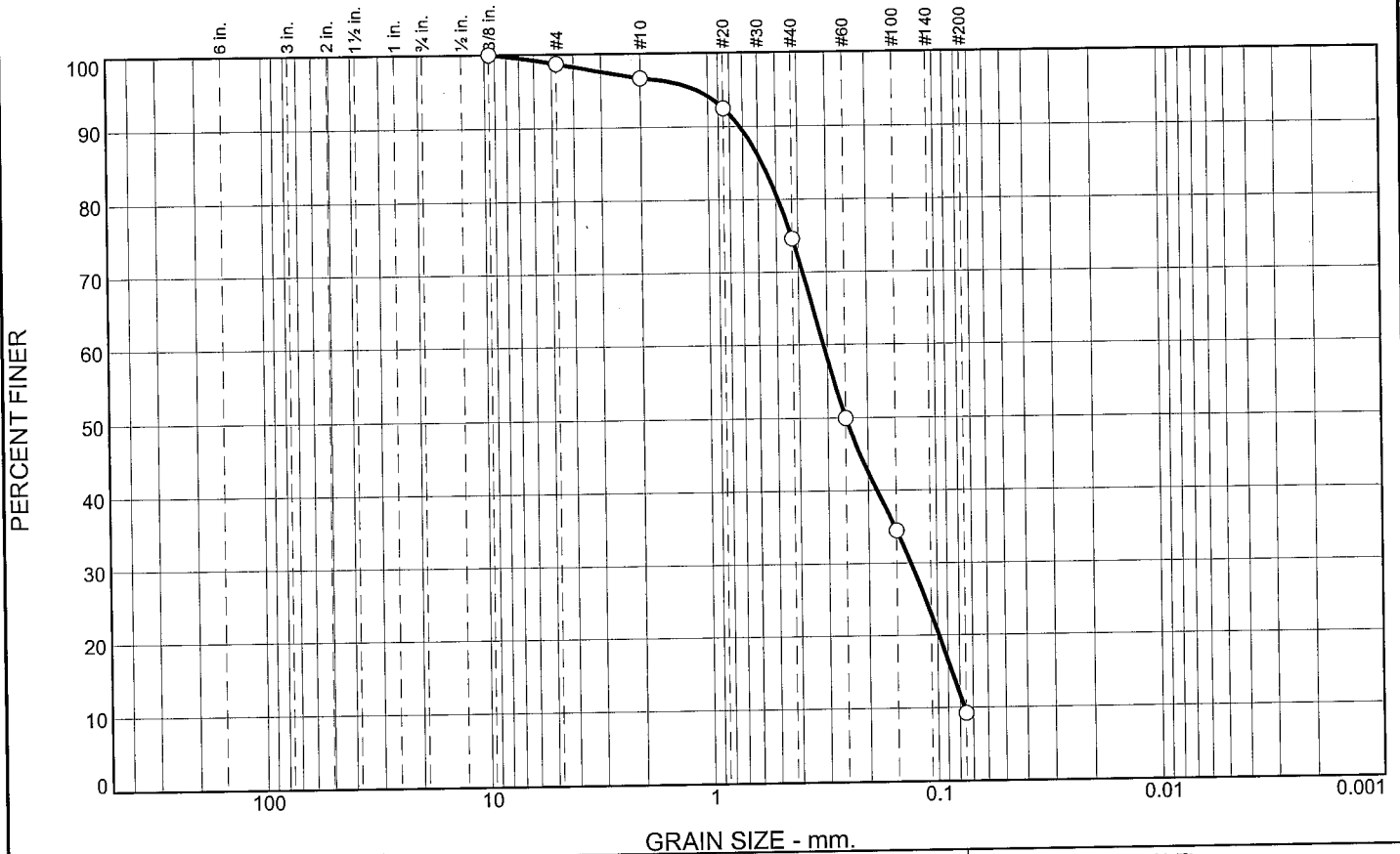
| ELEV. | DEPTH | LEGEND | CLASSIFICATION OF MATERIALS | SAMPLE | LABORATORY RESULTS |
|--|-------|--------|---|--------|---|
| -33.5 | 0.0 | | | | |
| | | ▨ | CLAY, fat, dark gray (CH) | | |
| -35.5 | 2.0 | ● | SAND, poorly-graded, mostly medium-grained sand-sized quartz, dark brown (SP) At El. -37.5 Ft., trace silt, gray | A | Classification: SP-SM Color: 2.5Y 4/2-dark grayish brown D50: 0.2503 mm % Fines: 9.2 |
| | | ● | | B | Classification: SM Color: 5Y 5/2-olive gray D50: 0.2584 mm % Fines: 19.3 |
| -43.0 | 9.5 | | | | |
| <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> | | | | | |

Boring Designation BI-PB-106-10

| | | | | |
|--|--|---|--|--|
| DRILLING LOG | | DIVISION South Atlantic | INSTALLATION Mobile District | SHEET 1 OF 1 SHEETS |
| 1. PROJECT MsCIP Barrier Island Restoration Petit Bois Pass- AL West | | | 9. SIZE AND TYPE OF BIT N/A | |
| 2. BORING DESIGNATION BI-PB-106-10 | | 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 | | <input type="checkbox"/> AUTO HAMMER <input type="checkbox"/> MANUAL HAMMER |
| 4. NAME OF DRILLER Construction Solutions International, Inc. | | 12. TOTAL SAMPLES | | DISTURBED 2 |
| 5. DIRECTION OF BORING <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED | | 13. TOTAL NUMBER CORE BOXES | | UNDISTURBED (UD) 0 |
| 6. THICKNESS OF OVERBURDEN N/A | | 14. WATER DEPTH 33 Ft. | | 15. DATE BORING |
| 7. DEPTH DRILLED INTO ROCK N/A | | 16. ELEVATION TOP OF BORING -33.5 Ft. | | STARTED 08-04-10 |
| 8. TOTAL DEPTH OF BORING 9.5 Ft. | | 17. TOTAL RECOVERY FOR BORING 100% | | COMPLETED 08-04-10 |
| 18. SIGNATURE AND TITLE OF INSPECTOR Chris Gillentine, Geologist | | | | |

| ELEV. | DEPTH | LEGEND | CLASSIFICATION OF MATERIALS | SAMPLE | LABORATORY RESULTS |
|---|-------|--------|---|--------|---|
| -33.5 | 0.0 | | | | |
| -35.5 | 2.0 | | CLAY, fat, dark gray (CH) | | |
| | | | SAND, poorly-graded, mostly medium-grained sand-sized quartz, dark brown (SP) At El. -37.5 Ft., trace silt, gray | A | Classification: SP-SM Color: 2.5Y 4/2-dark grayish brown D50: 0.2503 mm % Fines: 9.2 |
| -43.0 | 9.5 | | | B | Classification: SM Color: 5Y 5/2-olive gray D50: 0.2584 mm % Fines: 19.3 |
| <p>NOTES:</p> <ol style="list-style-type: none"> Soils are field visually classified in accordance with the Unified Soils Classification System. NS = Sample not submitted for laboratory analysis from this interval. Seafloor elevation calculated using sampling vessel's fathometer water depth reading and applying NOAA tidal gauge data conversion factor. | | | | | |

Particle Size Distribution Report



| % +3" | % Gravel | | % Sand | | | % Fines | |
|-------|----------|------|--------|--------|------|---------|------|
| | Coarse | Fine | Coarse | Medium | Fine | Silt | Clay |
| 0.0 | 0.0 | 1.3 | 2.0 | 22.1 | 65.4 | 9.2 | |

| SIEVE SIZE | PERCENT FINER | SPEC.* PERCENT | PASS? (X=NO) |
|------------|---------------|----------------|--------------|
| .375 | 100.0 | | |
| #4 | 98.7 | | |
| #10 | 96.7 | | |
| #20 | 92.5 | | |
| #40 | 74.6 | | |
| #60 | 49.9 | | |
| #100 | 34.5 | | |
| #200 | 9.2 | | |

Material Description

SAND, (SP-SM), medium to fine grained

Atterberg Limits

PL= LL= PI=

Coefficients

D₉₀= 0.7219 D₈₅= 0.5758 D₆₀= 0.3124
D₅₀= 0.2503 D₃₀= 0.1302 D₁₅= 0.0867
D₁₀= 0.0765 C_u= 4.09 C_c= 0.71

Classification

USCS= SP-SM AASHTO=

Remarks

CADD CODE = CH10D965

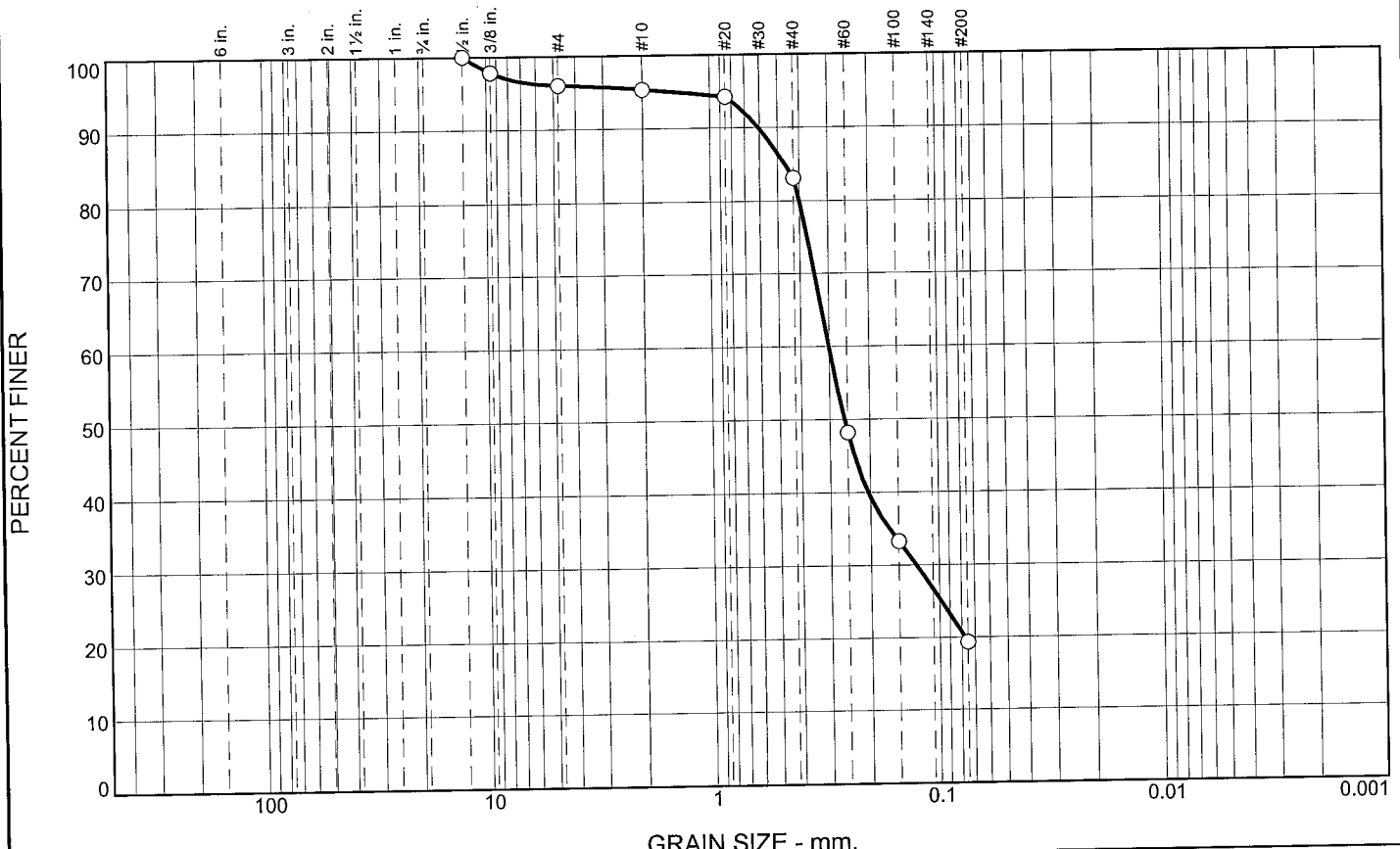
* (no specification provided)

Location: USACE Sample # BI-PB-106-10A Depth: 2.0 - 5.0 (ft.) Date: 8/15/10
Sample Number: TE Lab ID: 4622.17

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

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

Particle Size Distribution Report



| % +3" | % Gravel | | % Sand | | | % Fines | |
|-------|----------|------|--------|--------|------|---------|------|
| | Coarse | Fine | Coarse | Medium | Fine | Silt | Clay |
| 0.0 | 0.0 | 4.0 | 0.7 | 12.2 | 63.8 | 19.3 | |

| SIEVE SIZE | PERCENT FINER | SPEC.* PERCENT | PASS? (X=NO) |
|------------|---------------|----------------|--------------|
| .500 | 100.0 | | |
| .375 | 97.8 | | |
| #4 | 96.0 | | |
| #10 | 95.3 | | |
| #20 | 94.2 | | |
| #40 | 83.1 | | |
| #60 | 48.2 | | |
| #100 | 33.3 | | |
| #200 | 19.3 | | |

Material Description

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

Atterberg Limits
 PL= LL= PI=

Coefficients
 D₉₀= 0.6086 D₈₅= 0.4631 D₆₀= 0.3008
 D₅₀= 0.2584 D₃₀= 0.1260 D₁₅=
 D₁₀= C_u= C_c=

Classification
 USCS= SM AASHTO=

Remarks
 CADD CODE = CH10D965

* (no specification provided)

Location: USACE Sample # BI-PB-106-10B Depth: 5.0 - 9.5 (ft.) Date: 8/15/10
 Sample Number: TE Lab ID: 4622.18

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

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

Boring Designation BI-PB-107-10

| | | | | |
|---|--|---|---------------------------------|------------------------|
| DRILLING LOG | | DIVISION South Atlantic | INSTALLATION Mobile District | SHEET 1 OF 1 SHEETS |
| 1. PROJECT MsCIP Barrier Island Restoration Petit Bois Pass- AL West | | 9. SIZE AND TYPE OF BIT N/A | | |
| 2. BORING DESIGNATION BI-PB-107-10 | | 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 Construction Solutions International, 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 32 Ft. | | UNDISTURBED (UD) 0 |
| 7. DEPTH DRILLED INTO ROCK N/A | | 15. DATE BORING | | STARTED 08-03-10 |
| 8. TOTAL DEPTH OF BORING 13.5 Ft. | | 16. ELEVATION TOP OF BORING -32.3 Ft. | | COMPLETED 08-03-10 |
| | | 17. TOTAL RECOVERY FOR BORING 100% | | |
| | | 18. SIGNATURE AND TITLE OF INSPECTOR Chris Gillentine, Geologist | | |

| ELEV. | DEPTH | LEGEND | CLASSIFICATION OF MATERIALS | SAMPLE | LABORATORY RESULTS |
|-------|-------|--------|---|--------|--------------------|
| -32.3 | 0.0 | | | | |
| | | | CLAY, fat, trace fine-grained sand-sized quartz, dark gray (CH) | NS | |
| -45.8 | 13.5 | | | | |
| | | | NOTES: 1. Soils are field visually classified in accordance with the Unified Soils Classification System. 2. NS = Sample not submitted for laboratory analysis from this interval. 3. Seafloor elevation calculated using sampling vessel's fathometer water depth reading and applying NOAA tidal gauge data conversion factor. | | |

Boring Designation BI-PB-108-10

| | | | | |
|--|--|--|--|--|
| DRILLING LOG | | DIVISION South Atlantic | INSTALLATION Mobile District | SHEET 1 OF 1 SHEETS |
| 1. PROJECT MsCIP Barrier Island Restoration Petit Bois Pass- AL East | | 9. SIZE AND TYPE OF BIT N/A | | |
| 2. BORING DESIGNATION BI-PB-108-10 | | 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 | | <input type="checkbox"/> AUTO HAMMER <input type="checkbox"/> MANUAL HAMMER |
| 4. NAME OF DRILLER Construction Solutions International, Inc. | | 12. TOTAL SAMPLES 0 | | |
| 5. DIRECTION OF BORING <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED | | 13. TOTAL NUMBER CORE BOXES | | UNDISTURBED (UD) 0 |
| 6. THICKNESS OF OVERBURDEN N/A | | 14. WATER DEPTH 31 Ft. | | |
| 7. DEPTH DRILLED INTO ROCK N/A | | 15. DATE BORING STARTED 07-29-10 COMPLETED 07-29-10 | | |
| 8. TOTAL DEPTH OF BORING 16.0 Ft. | | 16. ELEVATION TOP OF BORING -30.6 Ft. | | |
| | | 17. TOTAL RECOVERY FOR BORING 100% | | |
| | | 18. SIGNATURE AND TITLE OF INSPECTOR Chris Gillentine, Geologist | | |

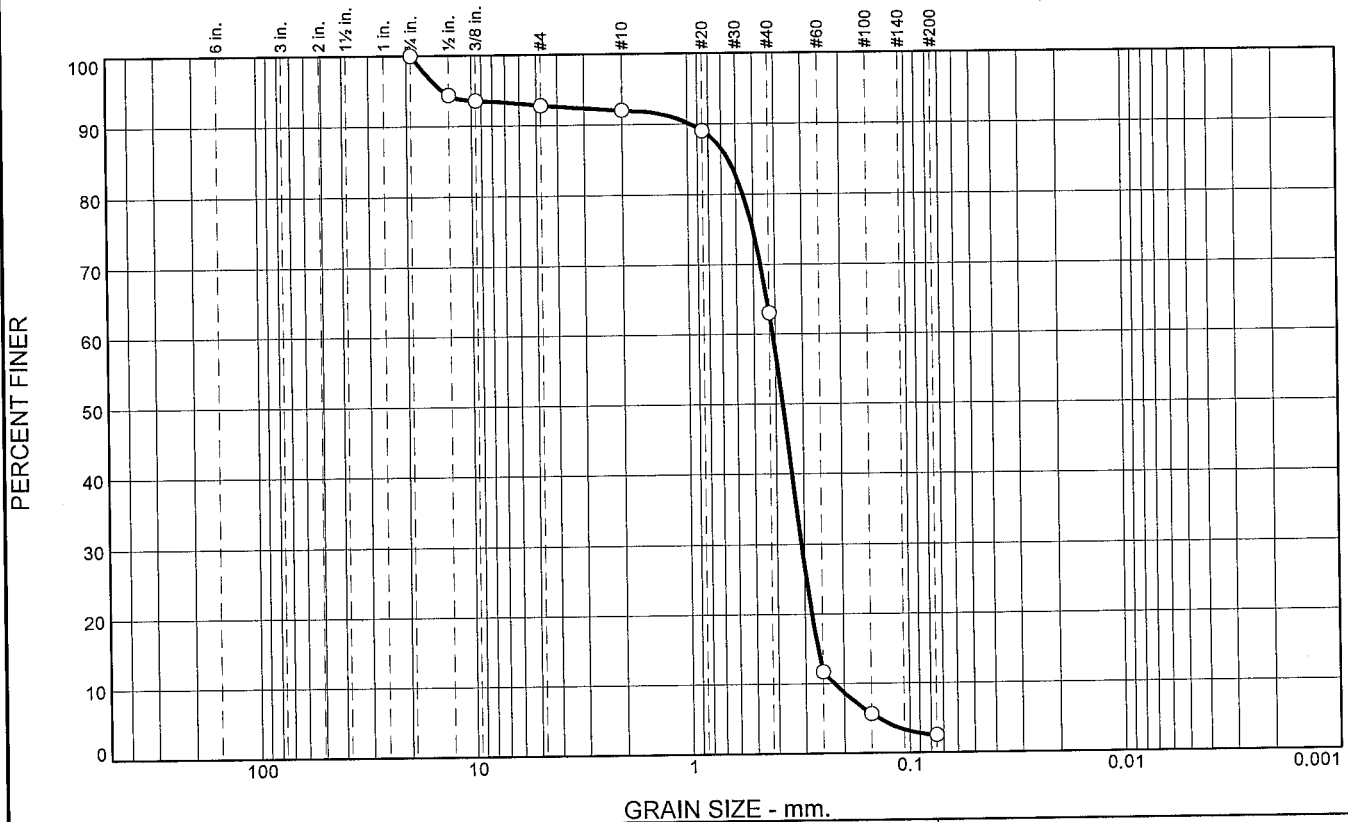
| ELEV. | DEPTH | LEGEND | CLASSIFICATION OF MATERIALS | SAMPLE | LABORATORY RESULTS |
|-------|-------|--------|---|--------|--------------------|
| -30.6 | 0.0 | | CLAY, fat, black/gray (CH) At El. -31.6 Ft., dark gray | NS | |
| -42.6 | 12.0 | | | | |
| -46.6 | 16.0 | | SAND, poorly-graded, dark gray (SP) | | |
| | | | NOTES: 1. Soils are field visually classified in accordance with the Unified Soils Classification System. 2. NS = Sample not submitted for laboratory analysis from this interval. 3. Seafloor elevation calculated using sampling vessel's fathometer water depth reading and applying NOAA tidal gauge data conversion factor. | | |

Boring Designation BI-PB-109-10

| | | | | |
|---|--|---|---------------------------------|------------------------|
| DRILLING LOG | | DIVISION South Atlantic | INSTALLATION Mobile District | SHEET 1 OF 1 SHEETS |
| 1. PROJECT MsCIP Barrier Island Restoration Petit Bois Pass- AL East | | 9. SIZE AND TYPE OF BIT N/A | | |
| 2. BORING DESIGNATION BI-PB-109-10 | | 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 Construction Solutions International, Inc. | | 12. TOTAL SAMPLES 3 | | |
| 5. DIRECTION OF BORING <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED | | 13. TOTAL NUMBER CORE BOXES | | |
| 6. THICKNESS OF OVERBURDEN N/A | | 14. WATER DEPTH 32 Ft. | | |
| 7. DEPTH DRILLED INTO ROCK N/A | | 15. DATE BORING STARTED 07-29-10 COMPLETED 07-29-10 | | |
| 8. TOTAL DEPTH OF BORING 16.5 Ft. | | 16. ELEVATION TOP OF BORING -33.6 Ft. | | |
| | | 17. TOTAL RECOVERY FOR BORING 100% | | |
| | | 18. SIGNATURE AND TITLE OF INSPECTOR Chris Gillentine, Geologist | | |

| ELEV. | DEPTH | LEGEND | CLASSIFICATION OF MATERIALS | SAMPLE | LABORATORY RESULTS |
|-------|-------|--------|--|--------|--|
| -33.6 | 0.0 | | | | |
| | | ••••• | SAND, poorly-graded, mostly fine to medium-grained sand-sized quartz, trace shell, lt. gray (SP) | A | Classification: SP Color: 5Y 7/2-light gray D50: 0.3721 mm % Fines: 2.5 |
| -40.6 | 7.0 | ••••• | SAND, poorly-graded, mostly fine to medium-grained sand-sized quartz, lt. gray (SP) | B | Classification: SP Color: 2.5Y 7/1-light gray D50: 0.334 mm % Fines: 2.4 |
| | | ••••• | At El. -46.6 Ft., trace silt, dark gray | C | Classification: SP Color: 2.5Y 7/1-light gray D50: 0.3316 mm % Fines: 2.8 |
| -50.1 | 16.5 | ••••• | | NS | |
| | | | NOTES: 1. Soils are field visually classified in accordance with the Unified Soils Classification System. 2. NS = Sample not submitted for laboratory analysis from this interval. 3. Seafloor elevation determined from 2010 USACE survey. | | |

Particle Size Distribution Report



| % +3" | % Gravel | | % Sand | | | % Fines | |
|-------|----------|------|--------|--------|------|---------|------|
| | Coarse | Fine | Coarse | Medium | Fine | Silt | Clay |
| 0.0 | 0.0 | 7.2 | 0.8 | 28.9 | 60.6 | 2.5 | |

| SIEVE SIZE | PERCENT FINER | SPEC.* PERCENT | PASS? (X=NO) |
|------------|---------------|----------------|--------------|
| .750 | 100.0 | | |
| .500 | 94.4 | | |
| .375 | 93.6 | | |
| #4 | 92.8 | | |
| #10 | 92.0 | | |
| #20 | 89.0 | | |
| #40 | 63.1 | | |
| #60 | 11.7 | | |
| #100 | 5.6 | | |
| #200 | 2.5 | | |

Material Description

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

Atterberg Limits
 PL= LL= PI=

Coefficients
 D₉₀= 0.9643 D₈₅= 0.6495 D₆₀= 0.4109
 D₅₀= 0.3721 D₃₀= 0.3092 D₁₅= 0.2624
 D₁₀= 0.2217 C_u= 1.85 C_c= 1.05

Classification
 USCS= SP AASHTO=

Remarks
 CADD CODE = CH10D965

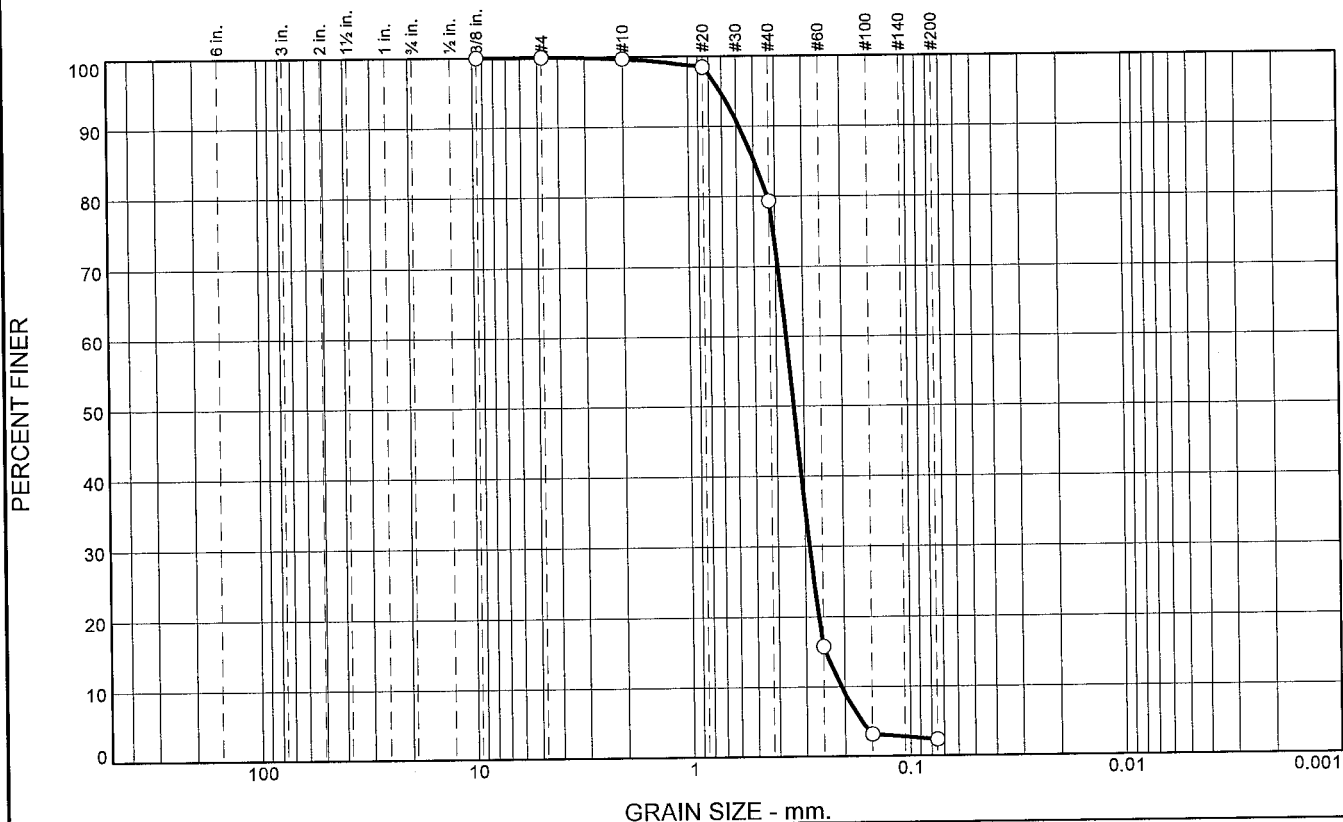
* (no specification provided)

Location: USACE Sample # BI-PB-109-10A **Depth:** 0.0 - 5.0 (ft.) **Date:** 8/7/10
Sample Number: TE Lab ID: 4612.20

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

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

Particle Size Distribution Report



| % +3" | % Gravel | | % Sand | | | % Fines | |
|-------|----------|------|--------|--------|------|---------|------|
| | Coarse | Fine | Coarse | Medium | Fine | Silt | Clay |
| 0.0 | 0.0 | 0.0 | 0.3 | 20.4 | 76.9 | 2.4 | |

| SIEVE SIZE | PERCENT FINER | SPEC.* PERCENT | PASS? (X=NO) |
|------------|---------------|----------------|--------------|
| .375 | 100.0 | | |
| #4 | 100.0 | | |
| #10 | 99.7 | | |
| #20 | 98.4 | | |
| #40 | 79.3 | | |
| #60 | 15.8 | | |
| #100 | 3.2 | | |
| #200 | 2.4 | | |

Material Description

SAND, (SP), medium to fine grained

Atterberg Limits
 PL= LL= PI=

Coefficients

| | | |
|--------------------------|--------------------------|--------------------------|
| D ₉₀ = 0.5823 | D ₈₅ = 0.4964 | D ₆₀ = 0.3601 |
| D ₅₀ = 0.3340 | D ₃₀ = 0.2864 | D ₁₅ = 0.2442 |
| D ₁₀ = 0.2074 | C _u = 1.74 | C _c = 1.10 |

Classification
 USCS= SP AASHTO=

Remarks
 CADD CODE = CH10D965

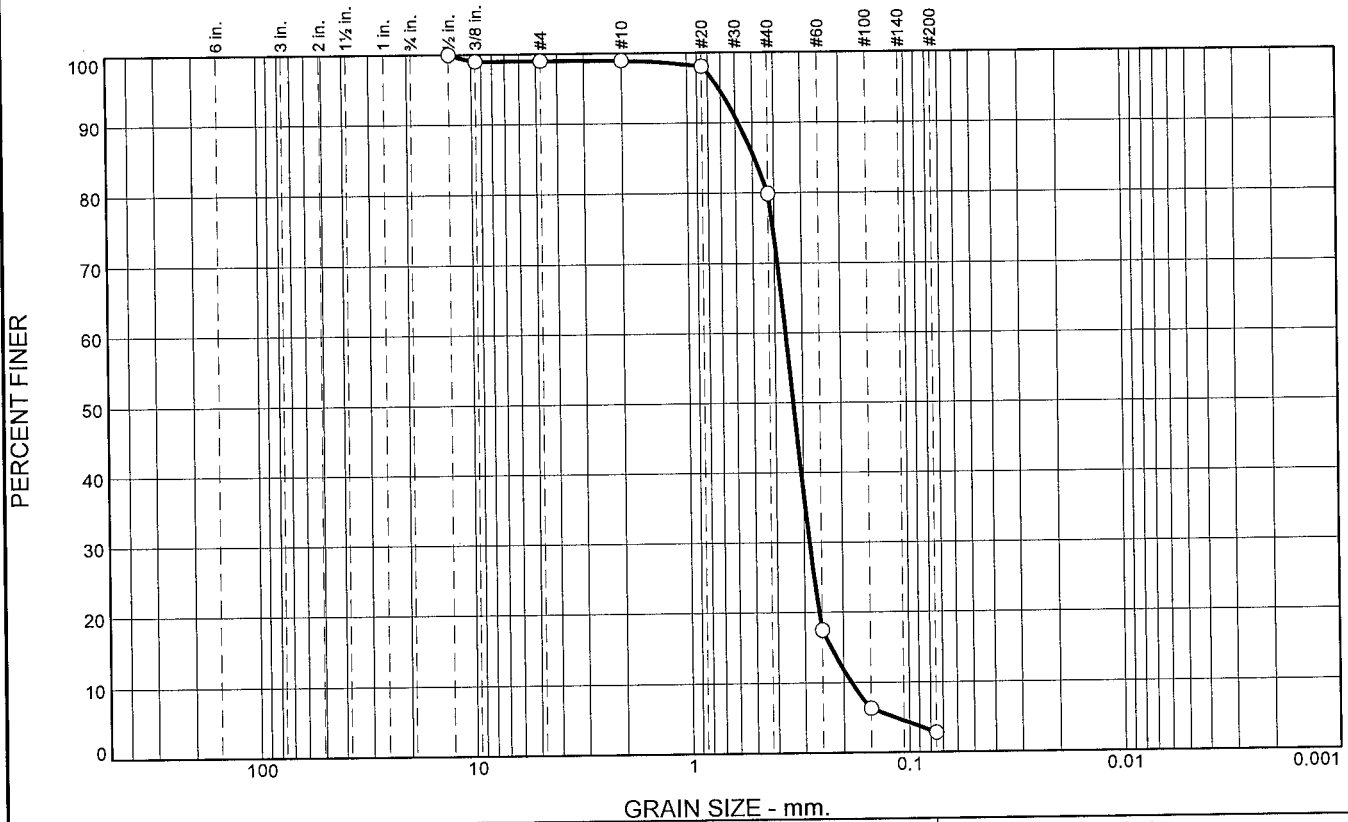
* (no specification provided)

Location: USACE Sample # BI-PB-109-10B **Depth:** 5.0 - 10.0 (ft.) **Date:** 8/7/10
Sample Number: TE Lab ID: 4612.21

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

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

Particle Size Distribution Report



| % +3" | % Gravel | | % Sand | | | % Fines | |
|-------|----------|------|--------|--------|------|---------|------|
| | Coarse | Fine | Coarse | Medium | Fine | Silt | Clay |
| 0.0 | 0.0 | 1.0 | 0.1 | 19.0 | 77.1 | 2.8 | |

| SIEVE SIZE | PERCENT FINER | SPEC.* PERCENT | PASS? (X=NO) |
|------------|---------------|----------------|--------------|
| .500 | 100.0 | | |
| .375 | 99.0 | | |
| #4 | 99.0 | | |
| #10 | 98.9 | | |
| #20 | 98.1 | | |
| #40 | 79.9 | | |
| #60 | 17.5 | | |
| #100 | 6.4 | | |
| #200 | 2.8 | | |

Material Description

SAND, (SP), medium to fine grained

Atterberg Limits
 PL= LL= PI=

Coefficients
 D₉₀= 0.5807 D₈₅= 0.4918 D₆₀= 0.3578
 D₅₀= 0.3316 D₃₀= 0.2833 D₁₅= 0.2284
 D₁₀= 0.1845 C_u= 1.94 C_c= 1.22

Classification
 USCS= SP AASHTO=

Remarks
 CADD CODE = CH10D965

* (no specification provided)

Location: USACE Sample # BI-PB-109-10C Depth: 10.0 - 13.0 (ft.) Date: 8/7/10
 Sample Number: TE Lab ID: 4612.22

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

Tested By: J.Maddox Checked By: R.Byrd


Boring Designation BI-PB-110-10

| | | | | |
|--|--|--|--|--------------------------------------|
| DRILLING LOG | | DIVISION South Atlantic | INSTALLATION Mobile District | SHEET 1 OF 1 SHEETS |
| 1. PROJECT MsCIP Barrier Island Restoration Petit Bois Pass- AL East | | 9. SIZE AND TYPE OF BIT N/A | | |
| 2. BORING DESIGNATION BI-PB-110-10 | | 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 Construction Solutions International, Inc. | | 12. TOTAL SAMPLES 0 | | |
| 5. DIRECTION OF BORING <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED | | 13. TOTAL NUMBER CORE BOXES | | DISTURBED 0 |
| 6. THICKNESS OF OVERBURDEN N/A | | 14. WATER DEPTH 31 Ft. | | |
| 7. DEPTH DRILLED INTO ROCK N/A | | 15. DATE BORING | | UNDISTURBED (UD) 0 |
| 8. TOTAL DEPTH OF BORING 12.0 Ft. | | 16. ELEVATION TOP OF BORING -31.1 Ft. | | |
| | | 17. TOTAL RECOVERY FOR BORING 100% | | |
| | | 18. SIGNATURE AND TITLE OF INSPECTOR Chris Gillentine, Geologist | | |

| ELEV. | DEPTH | LEGEND | CLASSIFICATION OF MATERIALS | SAMPLE | LABORATORY RESULTS |
|-------|-------|--------|---|--------|--------------------|
| -31.1 | 0.0 | | CLAY, fat, trace shell fragments, dark gray (CH) | NS | |
| -43.1 | 12.0 | | NOTES: 1. Soils are field visually classified in accordance with the Unified Soils Classification System. 2. NS = Sample not submitted for laboratory analysis from this interval. 3. Seafloor elevation calculated using sampling vessel's fathometer water depth reading and applying NOAA tidal gauge data conversion factor. | | |

Boring Designation BI-PB-111-10

| | | | | |
|---|--|---|---------------------------------|------------------------|
| DRILLING LOG | | DIVISION South Atlantic | INSTALLATION Mobile District | SHEET 1 OF 2 SHEETS |
| 1. PROJECT MsCIP Barrier Island Restoration Petit Bois Pass- AL East | | 9. SIZE AND TYPE OF BIT N/A | | |
| 2. BORING DESIGNATION BI-PB-111-10 | | 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 Construction Solutions International, 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 31 Ft. | | |
| 7. DEPTH DRILLED INTO ROCK N/A | | 15. DATE BORING | | STARTED 07-29-10 |
| 8. TOTAL DEPTH OF BORING 20.0 Ft. | | 16. ELEVATION TOP OF BORING -30.6 Ft. | | |
| | | 17. TOTAL RECOVERY FOR BORING 100% | | |
| | | 18. SIGNATURE AND TITLE OF INSPECTOR Chris Gillentine, Geologist | | |

| ELEV. | DEPTH | LEGEND | CLASSIFICATION OF MATERIALS | SAMPLE | LABORATORY RESULTS |
|-------|-------|--|---|--------|--------------------|
| -30.6 | 0.0 | | CLAY, fat, trace shell fragments, trace fine-grained sand-sized quartz, lt. gray (CH) | | |
| | |  | | | |
| | | | At El. -40.6 Ft., gray | NS | |
| -50.6 | 20.0 | | NOTES: 1. Soils are field visually classified in accordance with the Unified Soils Classification System. 2. NS = Sample not submitted for laboratory analysis from this interval. 3. Seafloor elevation calculated using sampling | | |

| DRILLING LOG (Cont. Sheet) | | | INSTALLATION Mobile District | | SHEET 2 |
|---|-------|--------|---|----------------------------|---------------------------|
| | | | | | OF 2 SHEETS |
| PROJECT MsCIP Barrier Island Restoration | | | COORDINATE SYSTEM/DATUM State Plane, MSE (U.S. Ft.) | HORIZONTAL NAD83 | VERTICAL NAVD88 |
| LOCATION COORDINATES X = 1,142,901 Y = 254,408 | | | ELEVATION TOP OF BORING -30.6 Ft. | | |
| ELEV. | DEPTH | LEGEND | CLASSIFICATION OF MATERIALS | SAMPLE | LABORATORY RESULTS |
| | | | vessel's fathometer water depth reading and applying NOAA tidal gauge data conversion factor. | | |

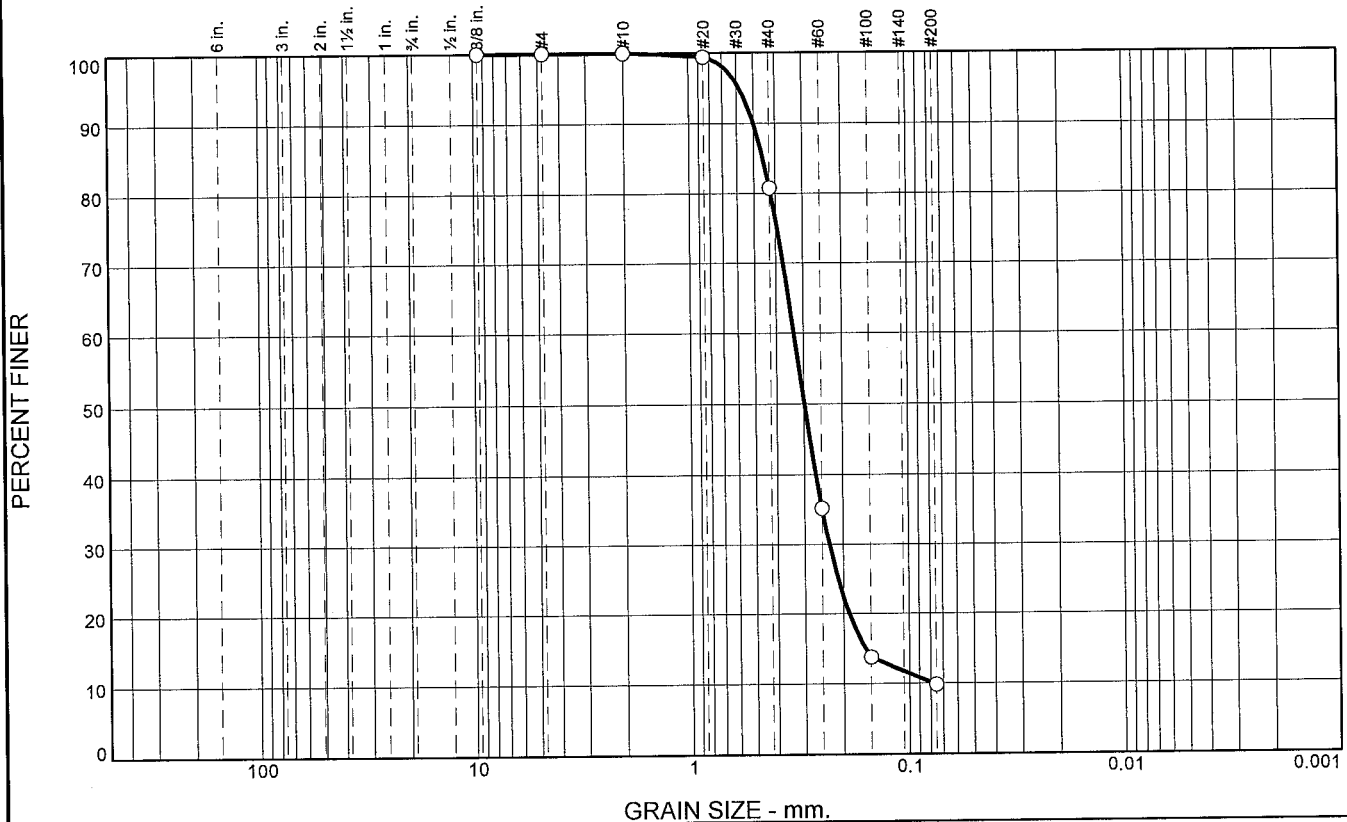


Boring Designation BI-PB-112-10

| | | | | |
|--|--|--|--|--|
| DRILLING LOG | | DIVISION South Atlantic | INSTALLATION Mobile District | SHEET 1 OF 1 SHEETS |
| 1. PROJECT MsCIP Barrier Island Restoration Petit Bois Pass- AL East | | | 9. SIZE AND TYPE OF BIT N/A | |
| 2. BORING DESIGNATION BI-PB-112-10 | | 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 | | <input type="checkbox"/> AUTO HAMMER <input type="checkbox"/> MANUAL HAMMER |
| 4. NAME OF DRILLER Construction Solutions International, Inc. | | 12. TOTAL SAMPLES | | DISTURBED 3 |
| 5. DIRECTION OF BORING <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED | | 13. TOTAL NUMBER CORE BOXES | | UNDISTURBED (UD) 0 |
| 6. THICKNESS OF OVERBURDEN N/A | | 14. WATER DEPTH 31 Ft. | | |
| 7. DEPTH DRILLED INTO ROCK N/A | | 15. DATE BORING | | STARTED 07-30-10 |
| 8. TOTAL DEPTH OF BORING 11.0 Ft. | | 16. ELEVATION TOP OF BORING -30.9 Ft. | | COMPLETED 07-30-10 |
| | | 17. TOTAL RECOVERY FOR BORING 100% | | |
| | | 18. SIGNATURE AND TITLE OF INSPECTOR Chris Gillentine, Geologist | | |

| ELEV. | DEPTH | LEGEND | CLASSIFICATION OF MATERIALS | SAMPLE | LABORATORY RESULTS |
|--|-------|--------|---|--------|---|
| -30.9 | 0.0 | | | | |
| -31.9 | 1.0 | ▨ | CLAY, fat, black/brown (CH) | NS | |
| | | ●●●● | SAND, poorly-graded, mostly fine to medium-grained sand-sized quartz, trace silt, lt. gray (SP) | A | Classification: SP-SM Color: 2.5Y 7/1-light gray D50: 0.2982 mm % Fines: 9.8 |
| | | | | B | Classification: SP-SM Color: 2.5Y 7/2-light gray D50: 0.3341 mm % Fines: 6.2 |
| -41.9 | 11.0 | | | C | Classification: SP-SM Color: 2.5Y 7/2-light gray D50: 0.3282 mm % Fines: 6.6 |
| <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> | | | | | |

Particle Size Distribution Report



| % +3" | % Gravel | | % Sand | | | % Fines | |
|-------|----------|------|--------|--------|------|---------|------|
| | Coarse | Fine | Coarse | Medium | Fine | Silt | Clay |
| 0.0 | 0.0 | 0.0 | 0.0 | 19.2 | 71.0 | 9.8 | |

| SIEVE SIZE | PERCENT FINER | SPEC.* PERCENT | PASS? (X=NO) |
|------------|---------------|----------------|--------------|
| .375 | 100.0 | | |
| #4 | 100.0 | | |
| #10 | 100.0 | | |
| #20 | 99.4 | | |
| #40 | 80.8 | | |
| #60 | 35.2 | | |
| #100 | 13.8 | | |
| #200 | 9.8 | | |

Material Description

SAND, (SP-SM), medium to fine grained

Atterberg Limits

PL= LL= PI=

Coefficients

D₉₀= 0.5023 D₈₅= 0.4545 D₆₀= 0.3320
D₅₀= 0.2982 D₃₀= 0.2317 D₁₅= 0.1592
D₁₀= 0.0775 C_u= 4.28 C_c= 2.09

Classification

USCS= SP-SM AASHTO=

Remarks

CADD CODE = CH10D965

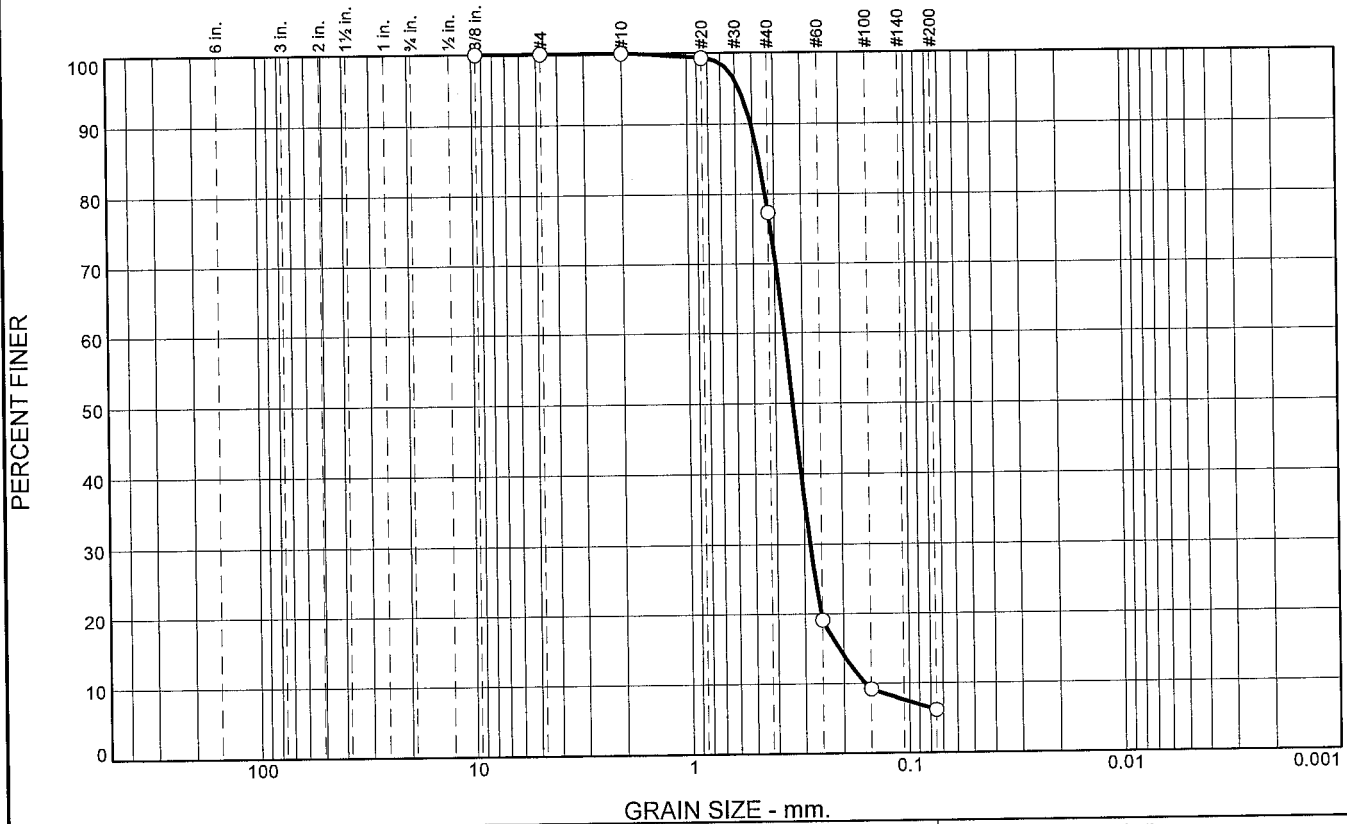
* (no specification provided)

Location: USACE Sample # BI-PB-112-10A **Depth:** 1.0 - 5.0 (ft.) **Date:** 8/7/10
Sample Number: TE Lab ID: 4612.57

| | |
|--|--|
| <p style="text-align: center; font-size: 1.2em;">Thompson Engineering</p> <p style="text-align: center; font-size: 1.2em;">Mobile, Alabama</p> | <p>Client: US Army Corps of Engineers</p> <p>Project: Contract No. W91278-10-D-0026 - Task 03 Mississippi Barrier Island Restoration Project</p> <p>Project No: 10-2123-0009 Report No.</p> |
|--|--|

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

Particle Size Distribution Report



| % +3" | % Gravel | | % Sand | | | % Fines | |
|-------|----------|------|--------|--------|------|---------|------|
| | Coarse | Fine | Coarse | Medium | Fine | Silt | Clay |
| 0.0 | 0.0 | 0.0 | 0.0 | 22.6 | 71.2 | 6.2 | |

| SIEVE SIZE | PERCENT FINER | SPEC.* PERCENT | PASS? (X=NO) |
|------------|---------------|----------------|--------------|
| .375 | 100.0 | | |
| #4 | 100.0 | | |
| #10 | 100.0 | | |
| #20 | 99.3 | | |
| #40 | 77.4 | | |
| #60 | 19.1 | | |
| #100 | 9.2 | | |
| #200 | 6.2 | | |

Material Description

SAND, (SP-SM), medium to fine grained

Atterberg Limits

PL= LL= PI=

Coefficients

D₉₀= 0.5076 D₈₅= 0.4672 D₆₀= 0.3624
D₅₀= 0.3341 D₃₀= 0.2817 D₁₅= 0.2102
D₁₀= 0.1593 C_u= 2.27 C_c= 1.37

Classification

USCS= SP-SM AASHTO=

Remarks

CADD CODE = CH10D965

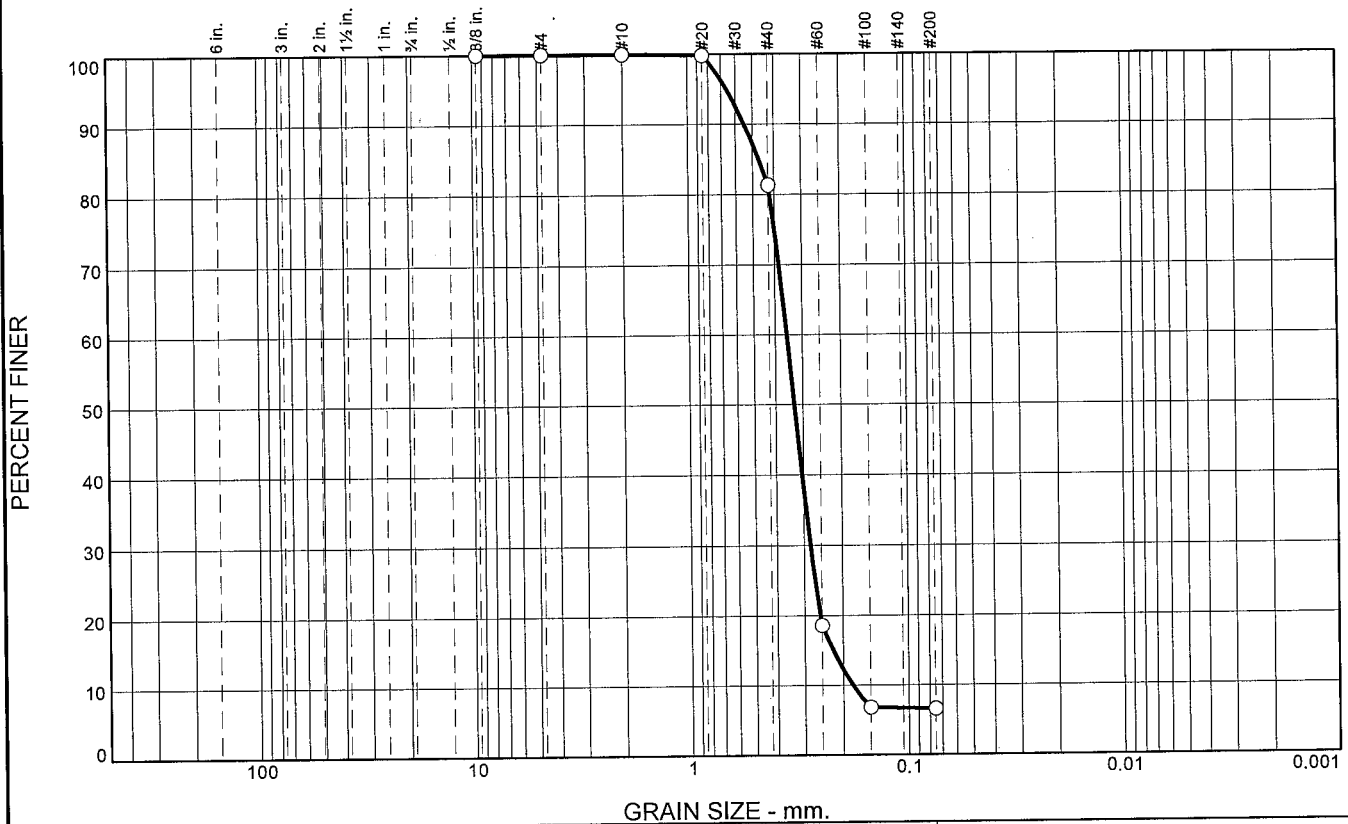
* (no specification provided)

Location: USACE Sample # BI-PB-112-10B **Depth:** 5.0 - 9.0 (ft.) **Date:** 8/7/10
Sample Number: TE Lab ID: 4612.58

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

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

Particle Size Distribution Report



| % +3" | % Gravel | | % Sand | | | % Fines | |
|-------|----------|------|--------|--------|------|---------|------|
| | Coarse | Fine | Coarse | Medium | Fine | Silt | Clay |
| 0.0 | 0.0 | 0.0 | 0.0 | 18.7 | 74.7 | 6.6 | |

| SIEVE SIZE | PERCENT FINER | SPEC.* PERCENT | PASS? (X=NO) |
|------------|---------------|----------------|--------------|
| .375 | 100.0 | | |
| #4 | 100.0 | | |
| #10 | 100.0 | | |
| #20 | 99.8 | | |
| #40 | 81.3 | | |
| #60 | 18.6 | | |
| #100 | 6.8 | | |
| #200 | 6.6 | | |

Material Description

SAND, (SP-SM), medium to fine grained

Atterberg Limits

PL= LL= PI=

Coefficients

D₉₀= 0.5476 D₈₅= 0.4694 D₆₀= 0.3539
D₅₀= 0.3282 D₃₀= 0.2802 D₁₅= 0.2223
D₁₀= 0.1814 C_u= 1.95 C_c= 1.22

Classification

USCS= SP-SM AASHTO=

Remarks

CADD CODE = CH10D965

* (no specification provided)


Location: USACE Sample # BI-PB-112-10C Depth: 9.0 - 11.0 (ft.) Date: 8/7/10
Sample Number: TE Lab ID: 4612.59

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

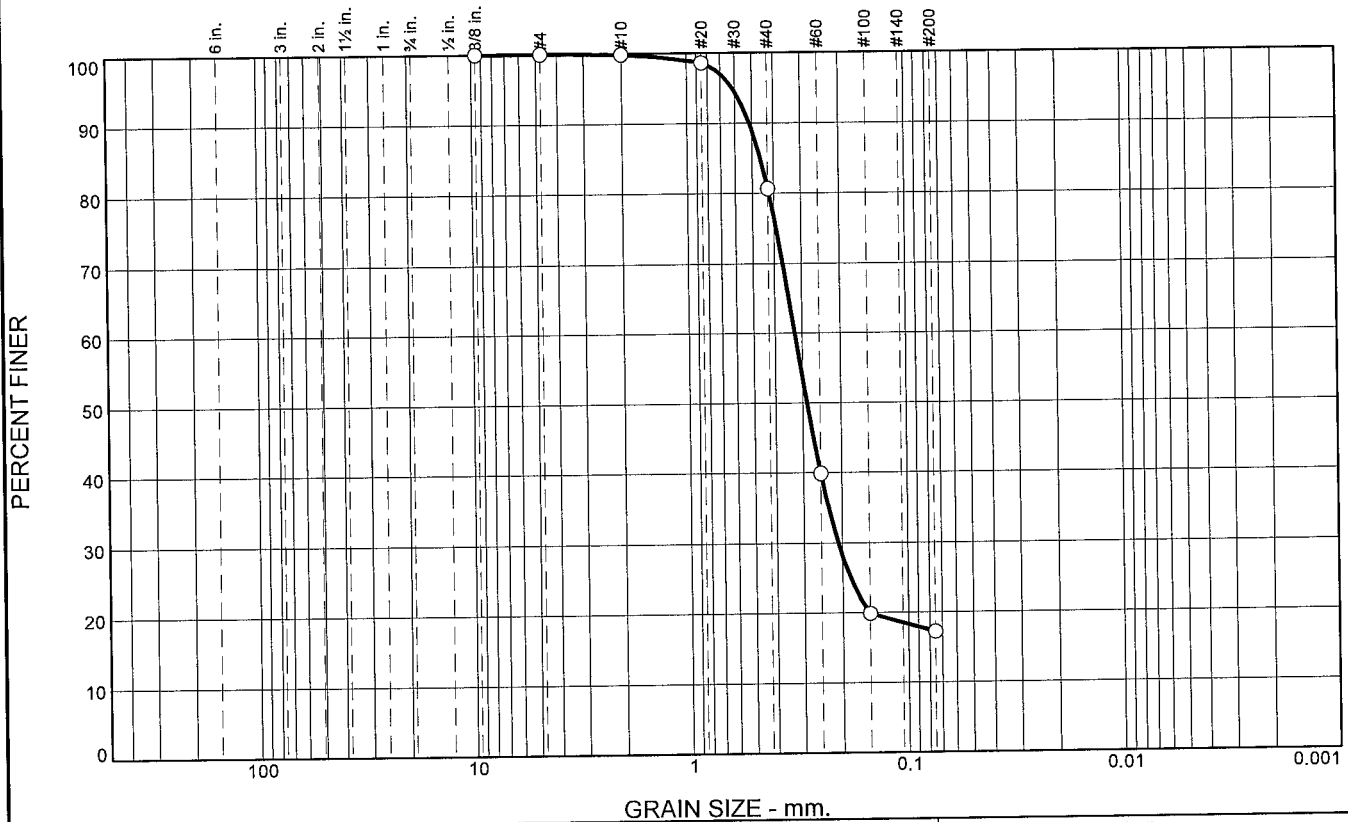
Tested By: J.Maddox Checked By: R.Byrd

Boring Designation BI-PB-113-10

| | | | | |
|---|--|---|---------------------------------|------------------------|
| DRILLING LOG | | DIVISION South Atlantic | INSTALLATION Mobile District | SHEET 1 OF 1 SHEETS |
| 1. PROJECT MsCIP Barrier Island Restoration Petit Bois Pass- AL East | | 9. SIZE AND TYPE OF BIT N/A | | |
| 2. BORING DESIGNATION BI-PB-113-10 | | 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 Construction Solutions International, Inc. | | 12. TOTAL SAMPLES 4 | | |
| 5. DIRECTION OF BORING <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED | | 13. TOTAL NUMBER CORE BOXES | | DISTURBED 4 |
| 6. THICKNESS OF OVERBURDEN N/A | | 14. WATER DEPTH 32 Ft. | | |
| 7. DEPTH DRILLED INTO ROCK N/A | | 15. DATE BORING 07-30-10 | | UNDISTURBED (UD) 0 |
| 8. TOTAL DEPTH OF BORING 17.5 Ft. | | 16. ELEVATION TOP OF BORING -33.6 Ft. | | |
| | | 17. TOTAL RECOVERY FOR BORING 100% | | |
| | | 18. SIGNATURE AND TITLE OF INSPECTOR Chris Gillentine, Geologist | | |

| ELEV. | DEPTH | LEGEND | CLASSIFICATION OF MATERIALS | SAMPLE | LABORATORY RESULTS |
|-------|-------|--|--|--------|---|
| -33.6 | 0.0 | | | | |
| -34.6 | 1.0 |  | SAND, poorly-graded, dark gray (SP) SAND, poorly-graded, mostly fine to medium-grained sand-sized quartz, trace silt, lt. gray (SP) | A | Classification: SM Color: 2.5Y 3/1-very dark gray D50: 0.2867 mm % Fines: 17.2 |
| | | | | B | Classification: SM Color: 5Y 5/2-olive gray D50: 0.2881 mm % Fines: 19.4 |
| | | | | C | Classification: SM Color: 2.5Y 6/1-gray D50: 0.2677 mm % Fines: 20.8 |
| | | | | D | Classification: SP-SM Color: 2.5Y 6/1-gray D50: 0.3099 mm % Fines: 9.9 |
| -51.1 | 17.5 | | | | |
| | | | NOTES: 1. Soils are field visually classified in accordance with the Unified Soils Classification System. 2. NS = Sample not submitted for laboratory analysis from this interval. 3. Seafloor elevation determined from 2010 USACE survey. | | |

Particle Size Distribution Report



| % +3" | % Gravel | | % Sand | | | % Fines | |
|-------|----------|------|--------|--------|------|---------|------|
| | Coarse | Fine | Coarse | Medium | Fine | Silt | Clay |
| 0.0 | 0.0 | 0.0 | 0.2 | 19.2 | 63.4 | 17.2 | |

| SIEVE SIZE | PERCENT FINER | SPEC.* PERCENT | PASS? (X=NO) |
|------------|---------------|----------------|--------------|
| .375 | 100.0 | | |
| #4 | 100.0 | | |
| #10 | 99.8 | | |
| #20 | 98.6 | | |
| #40 | 80.6 | | |
| #60 | 39.9 | | |
| #100 | 19.9 | | |
| #200 | 17.2 | | |

Material Description

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

Atterberg Limits
 PL= LL= PI=

Coefficients
 D₉₀= 0.5144 D₈₅= 0.4591 D₆₀= 0.3238
 D₅₀= 0.2867 D₃₀= 0.2095 D₁₅=
 D₁₀= C_u= C_c=

Classification
 USCS= SM AASHTO=

Remarks
 CADD CODE = CH10D965

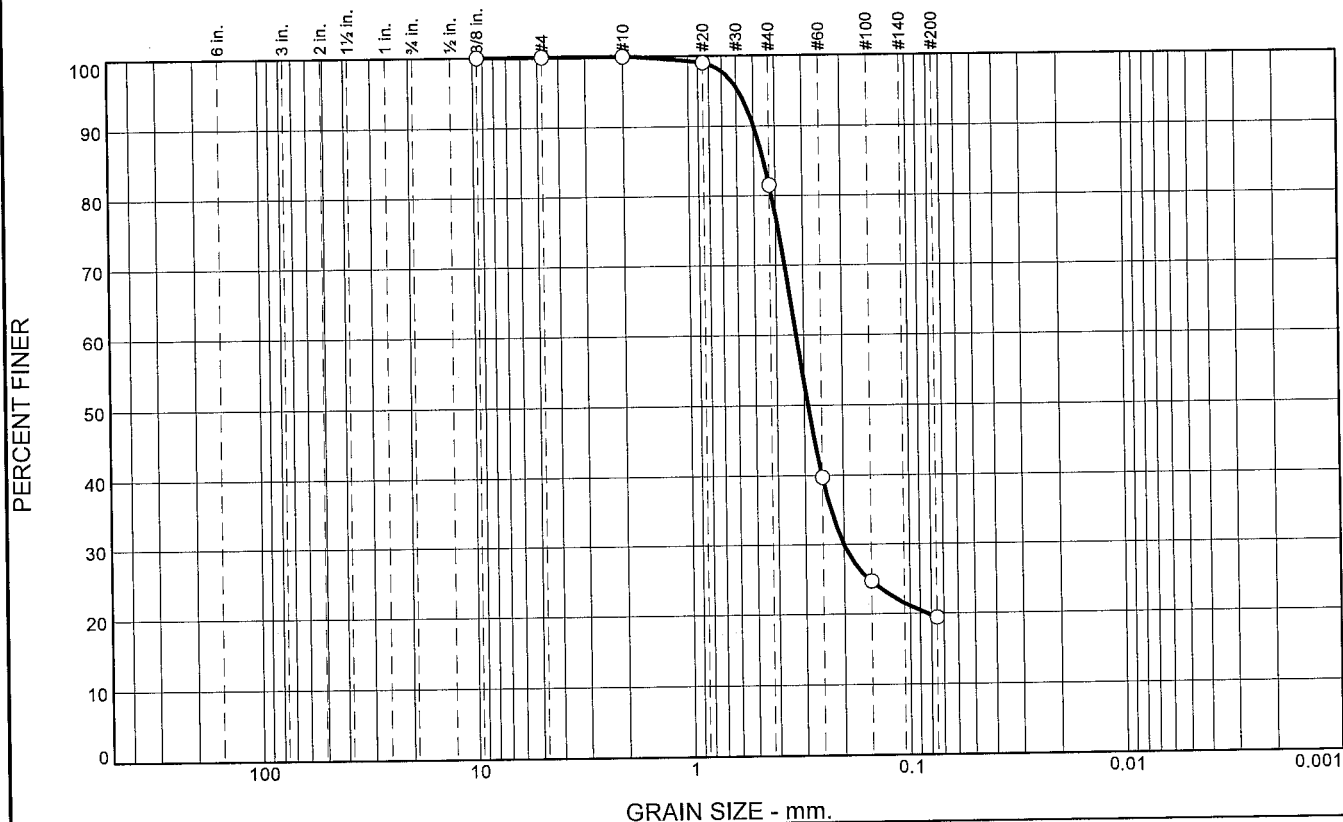
* (no specification provided)

Location: USACE Sample # BI-PB-113-10A **Depth:** 0.0 - 5.0 (ft.) **Date:** 8/7/10
Sample Number: TE Lab ID: 4612.49

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

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

Particle Size Distribution Report



| % +3" | % Gravel | | % Sand | | | % Fines | |
|-------|----------|------|--------|--------|------|---------|------|
| | Coarse | Fine | Coarse | Medium | Fine | Silt | Clay |
| 0.0 | 0.0 | 0.0 | 0.0 | 18.5 | 62.1 | 19.4 | |

| SIEVE SIZE | PERCENT FINER | SPEC.* PERCENT | PASS? (X=NO) |
|------------|---------------|----------------|--------------|
| .375 | 100.0 | | |
| #4 | 100.0 | | |
| #10 | 100.0 | | |
| #20 | 99.0 | | |
| #40 | 81.5 | | |
| #60 | 39.8 | | |
| #100 | 24.6 | | |
| #200 | 19.4 | | |

Material Description

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

Atterberg Limits

PL= LL= PI=

Coefficients

D₉₀= 0.4998 D₈₅= 0.4504 D₆₀= 0.3244
D₅₀= 0.2881 D₃₀= 0.2008 D₁₅=
D₁₀= C_u= C_c=

Classification

USCS= SM AASHTO=

Remarks

CADD CODE = CH10D965

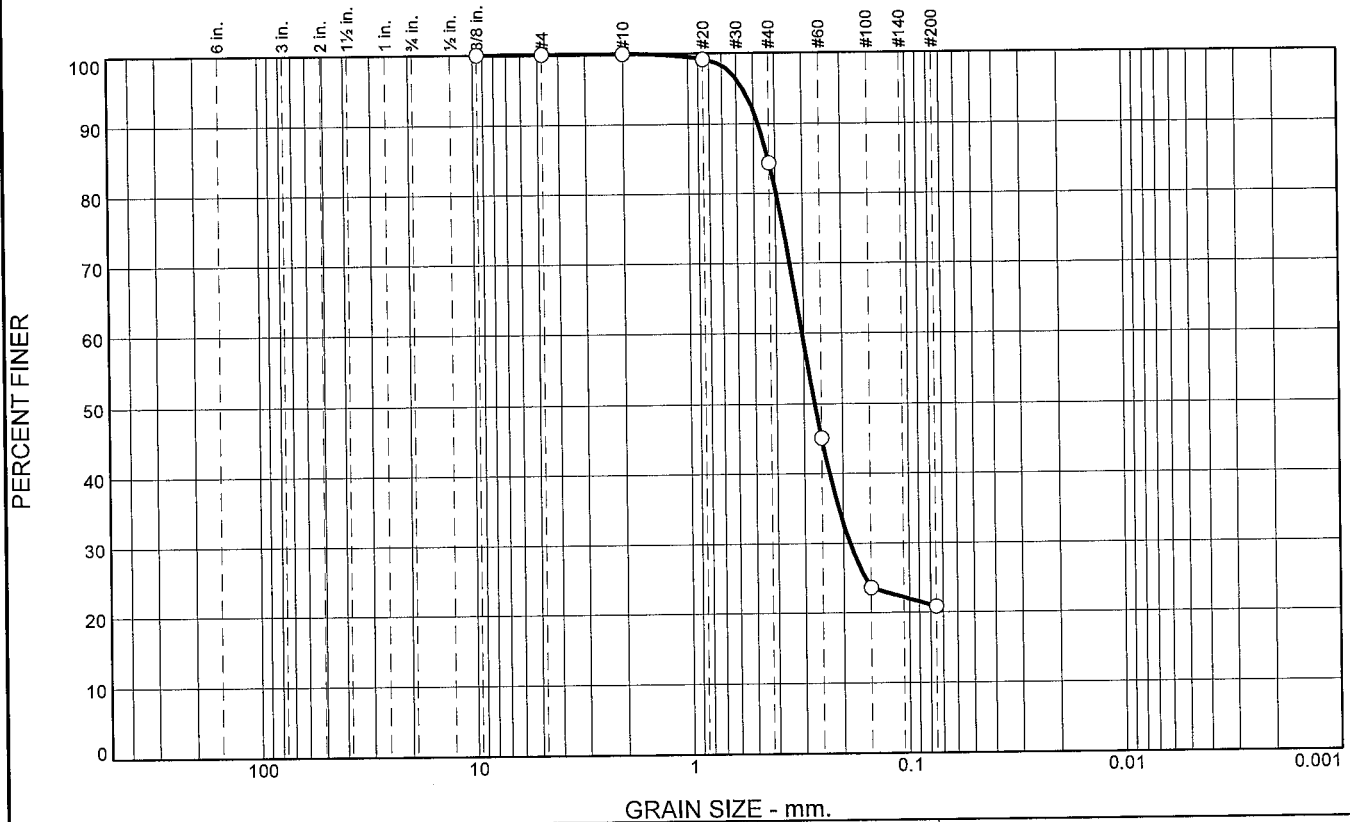
* (no specification provided)

Location: USACE Sample # BI-PB-113-10B **Depth:** 5.0 - 10.0 (ft.) **Date:** 8/7/10
Sample Number: TE Lab ID: 4612.50

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

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

Particle Size Distribution Report



| % +3" | % Gravel | | % Sand | | | % Fines | |
|-------|----------|------|--------|--------|------|---------|------|
| | Coarse | Fine | Coarse | Medium | Fine | Silt | Clay |
| 0.0 | 0.0 | 0.0 | 0.0 | 15.7 | 63.5 | 20.8 | |

| SIEVE SIZE | PERCENT FINER | SPEC.* PERCENT | PASS? (X=NO) |
|------------|---------------|----------------|--------------|
| .375 | 100.0 | | |
| #4 | 100.0 | | |
| #10 | 100.0 | | |
| #20 | 99.1 | | |
| #40 | 84.3 | | |
| #60 | 45.1 | | |
| #100 | 23.6 | | |
| #200 | 20.8 | | |

Material Description

SILTY SAND, (SM), medium to fine grained

Atterberg Limits

PL= LL= PI=

Coefficients

D₉₀= 0.4773 D₈₅= 0.4300 D₆₀= 0.3045
D₅₀= 0.2677 D₃₀= 0.1872 D₁₅=
D₁₀= C_u= C_c=

Classification

USCS= SM AASHTO=

Remarks

CADD CODE = CH10D965

* (no specification provided)

Location: USACE Sample # BI-PB-113-10C
Sample Number: TE Lab ID: 4612.51

Depth: 10.0 - 15.0 (ft.)

Date: 8/7/10

Thompson Engineering

Mobile, Alabama

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

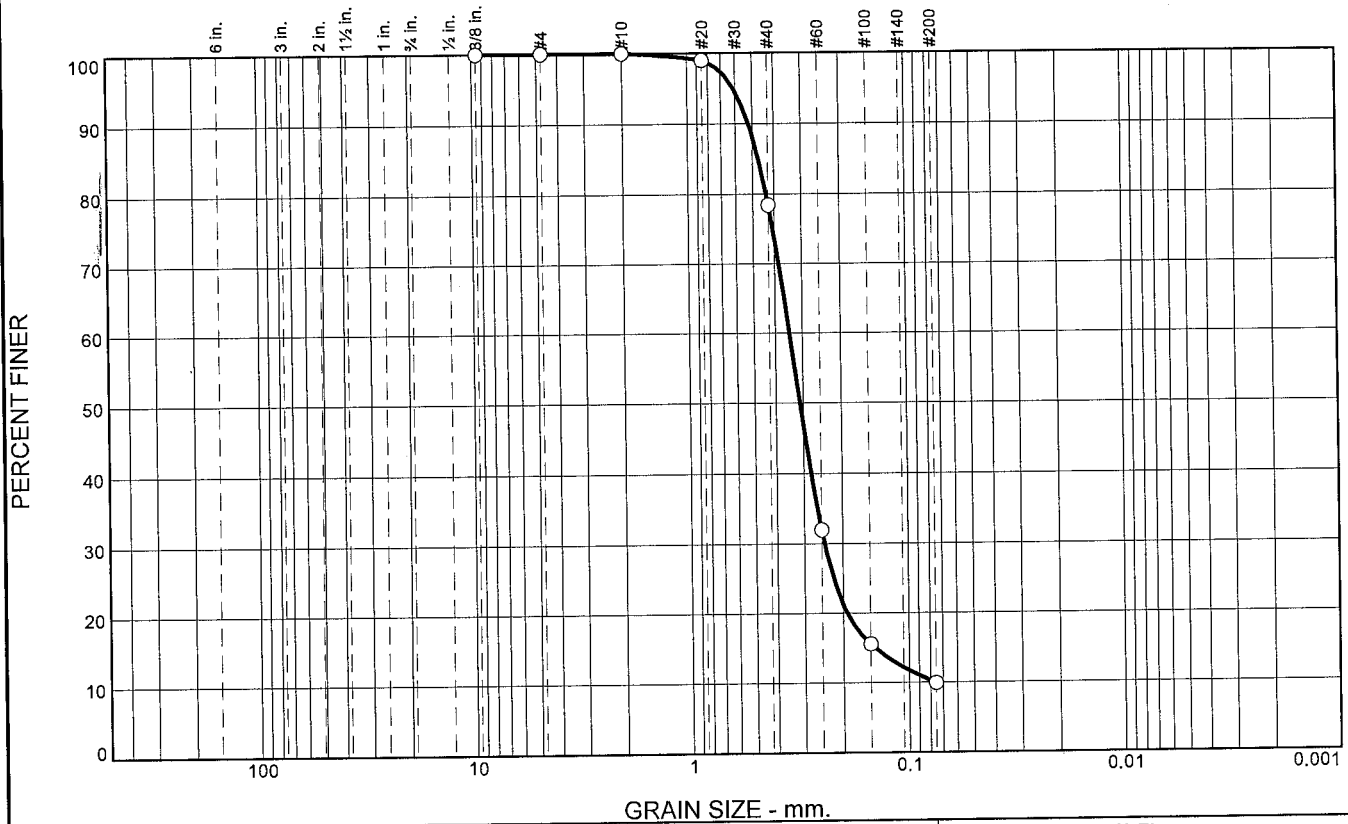
Project No: 10-2123-0009

Report No.

Tested By: J.Maddox

Checked By: R.Byrd

Particle Size Distribution Report



| % +3" | % Gravel | | % Sand | | | % Fines | |
|-------|----------|------|--------|--------|------|---------|------|
| | Coarse | Fine | Coarse | Medium | Fine | Silt | Clay |
| 0.0 | 0.0 | 0.0 | 0.0 | 21.6 | 68.5 | 9.9 | |

| SIEVE SIZE | PERCENT FINER | SPEC.* PERCENT | PASS? (X=NO) |
|------------|---------------|----------------|--------------|
| .375 | 100.0 | | |
| #4 | 100.0 | | |
| #10 | 100.0 | | |
| #20 | 99.0 | | |
| #40 | 78.4 | | |
| #60 | 32.0 | | |
| #100 | 15.5 | | |
| #200 | 9.9 | | |

Material Description

SAND, (SP-SM), medium to fine grained

Atterberg Limits

PL= LL= PI=

Coefficients

D₉₀= 0.5222 D₈₅= 0.4709 D₆₀= 0.3440
D₅₀= 0.3099 D₃₀= 0.2426 D₁₅= 0.1432
D₁₀= 0.0761 C_u= 4.52 C_c= 2.25

Classification

USCS= SP-SM AASHTO=

Remarks

CADD CODE = CH10D965

* (no specification provided)

Location: USACE Sample # BI-PB-113-10D
Sample Number: TE Lab ID: 4612.52

Depth: 15.0 - 17.5 (ft.)

Date: 8/7/10

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

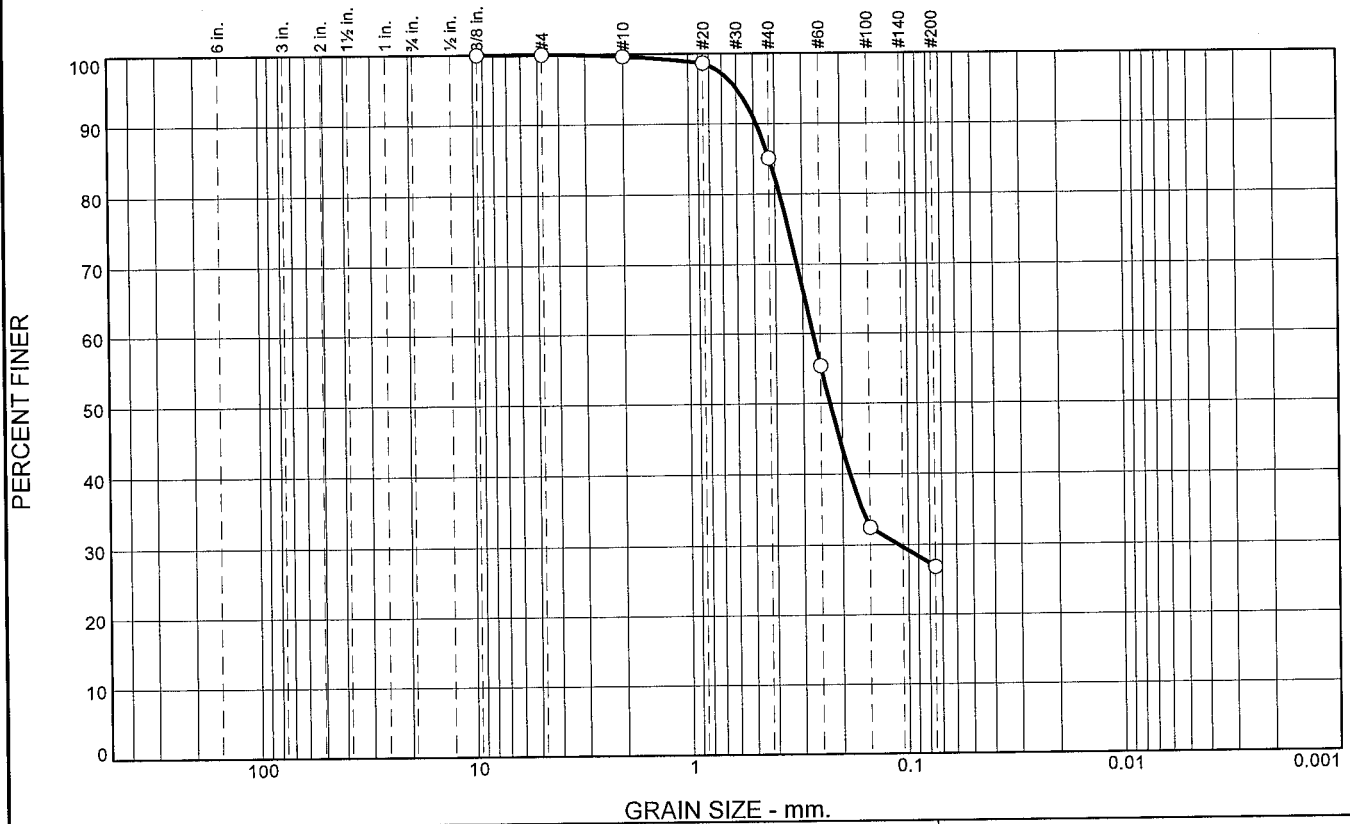
Tested By: J.Maddox **Checked By:** R.Byrd

Boring Designation BI-PB-114-10

| | | | | |
|--|--|---|--|--|
| DRILLING LOG | | DIVISION South Atlantic | INSTALLATION Mobile District | SHEET 1 OF 1 SHEETS |
| 1. PROJECT MsCIP Barrier Island Restoration Petit Bois Pass- AL East | | | 9. SIZE AND TYPE OF BIT N/A | |
| 2. BORING DESIGNATION BI-PB-114-10 | | 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 | | <input type="checkbox"/> AUTO HAMMER <input type="checkbox"/> MANUAL HAMMER |
| 4. NAME OF DRILLER Construction Solutions International, Inc. | | 12. TOTAL SAMPLES | | DISTURBED 4 |
| 5. DIRECTION OF BORING <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED | | 13. TOTAL NUMBER CORE BOXES | | UNDISTURBED (UD) 0 |
| 6. THICKNESS OF OVERBURDEN N/A | | 14. WATER DEPTH 30 Ft. | | 15. DATE BORING |
| 7. DEPTH DRILLED INTO ROCK N/A | | 16. ELEVATION TOP OF BORING -31.1 Ft. | | STARTED 07-30-10 |
| 8. TOTAL DEPTH OF BORING 19.0 Ft. | | 17. TOTAL RECOVERY FOR BORING 100% | | COMPLETED 07-30-10 |
| 18. SIGNATURE AND TITLE OF INSPECTOR Chris Gillentine, Geologist | | | | |

| ELEV. | DEPTH | LEGEND | CLASSIFICATION OF MATERIALS | SAMPLE | LABORATORY RESULTS |
|---|-------|--------|--|--------|---|
| -31.1 | 0.0 | | | | |
| -33.1 | 2.0 | | SAND, poorly-graded, trace silt, dark gray (SP) | | |
| | | | SAND, poorly-graded, mostly fine to medium-grained sand-sized quartz, trace silt, lt. gray (SP) | A | Classification: SM Color: 5Y 5/2-olive gray D50: 0.2271 mm % Fines: 26.9 |
| -41.1 | 10.0 | | SAND, poorly-graded, mostly fine to medium-grained sand-sized quartz, trace silt, dark gray (SP) | B | Classification: SP-SM Color: 2.5Y 7/2-light gray D50: 0.3357 mm % Fines: 6.7 |
| | | | | C | Classification: SP-SM Color: 2.5Y 5/1-gray D50: 0.33 mm % Fines: 6.6 |
| -50.1 | 19.0 | | | D | Classification: SM Color: 2.5Y 6/1-gray D50: 0.3039 mm % Fines: 13.8 |
| NOTES: 1. Soils are field visually classified in accordance with the Unified Soils Classification System. 2. NS = Sample not submitted for laboratory analysis from this interval. 3. Seafloor elevation determined from 2010 USACE survey. | | | | | |

Particle Size Distribution Report



| % +3" | % Gravel | | % Sand | | | % Fines | |
|-------|----------|------|--------|--------|------|---------|------|
| | Coarse | Fine | Coarse | Medium | Fine | Silt | Clay |
| 0.0 | 0.0 | 0.0 | 0.4 | 14.5 | 58.2 | 26.9 | |

| SIEVE SIZE | PERCENT FINER | SPEC.* PERCENT | PASS? (X=NO) |
|------------|---------------|----------------|--------------|
| .375 | 100.0 | | |
| #4 | 100.0 | | |
| #10 | 99.6 | | |
| #20 | 98.7 | | |
| #40 | 85.1 | | |
| #60 | 55.4 | | |
| #100 | 32.5 | | |
| #200 | 26.9 | | |

Material Description

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

Atterberg Limits
 PL= LL= PI=

Coefficients
 D₉₀= 0.4855 D₈₅= 0.4242 D₆₀= 0.2703
 D₅₀= 0.2271 D₃₀= 0.1105 D₁₅=
 D₁₀= C_u= C_c=

Classification
 USCS= SM AASHTO=

Remarks
 CADD CODE = CH10D965

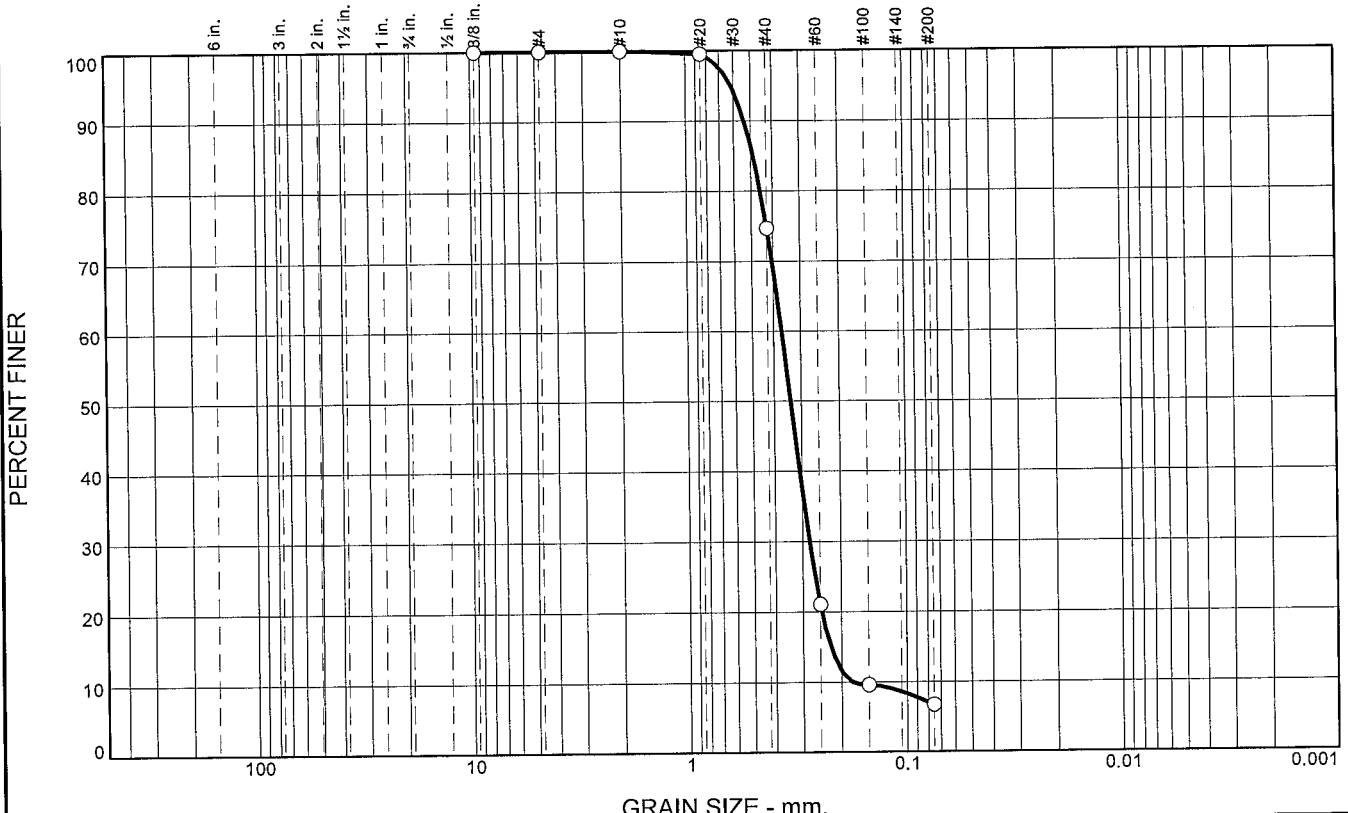
* (no specification provided)

Location: USACE Sample # BI-PB-114-10A **Depth:** 0.0 - 5.0 (ft.) **Date:** 8/7/10
Sample Number: TE Lab ID: 4612.53

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

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

Particle Size Distribution Report



| % +3" | % Gravel | | % Sand | | | % Fines | |
|-------|----------|------|--------|--------|------|---------|------|
| | Coarse | Fine | Coarse | Medium | Fine | Silt | Clay |
| 0.0 | 0.0 | 0.0 | 0.0 | 25.3 | 68.0 | 6.7 | |

| SIEVE SIZE | PERCENT FINER | SPEC.* PERCENT | PASS? (X=NO) |
|------------|---------------|----------------|--------------|
| .375 | 100.0 | | |
| #4 | 100.0 | | |
| #10 | 100.0 | | |
| #20 | 99.5 | | |
| #40 | 74.7 | | |
| #60 | 21.1 | | |
| #100 | 9.6 | | |
| #200 | 6.7 | | |

Material Description

SAND, (SP-SM), medium to fine grained

Atterberg Limits

PL= LL= PI=

Coefficients

D₉₀= 0.5371 D₈₅= 0.4886 D₆₀= 0.3672
D₅₀= 0.3357 D₃₀= 0.2782 D₁₅= 0.2238
D₁₀= 0.1771 C_u= 2.07 C_c= 1.19

Classification

USCS= SP-SM AASHTO=

Remarks

CADD CODE = CH10D965

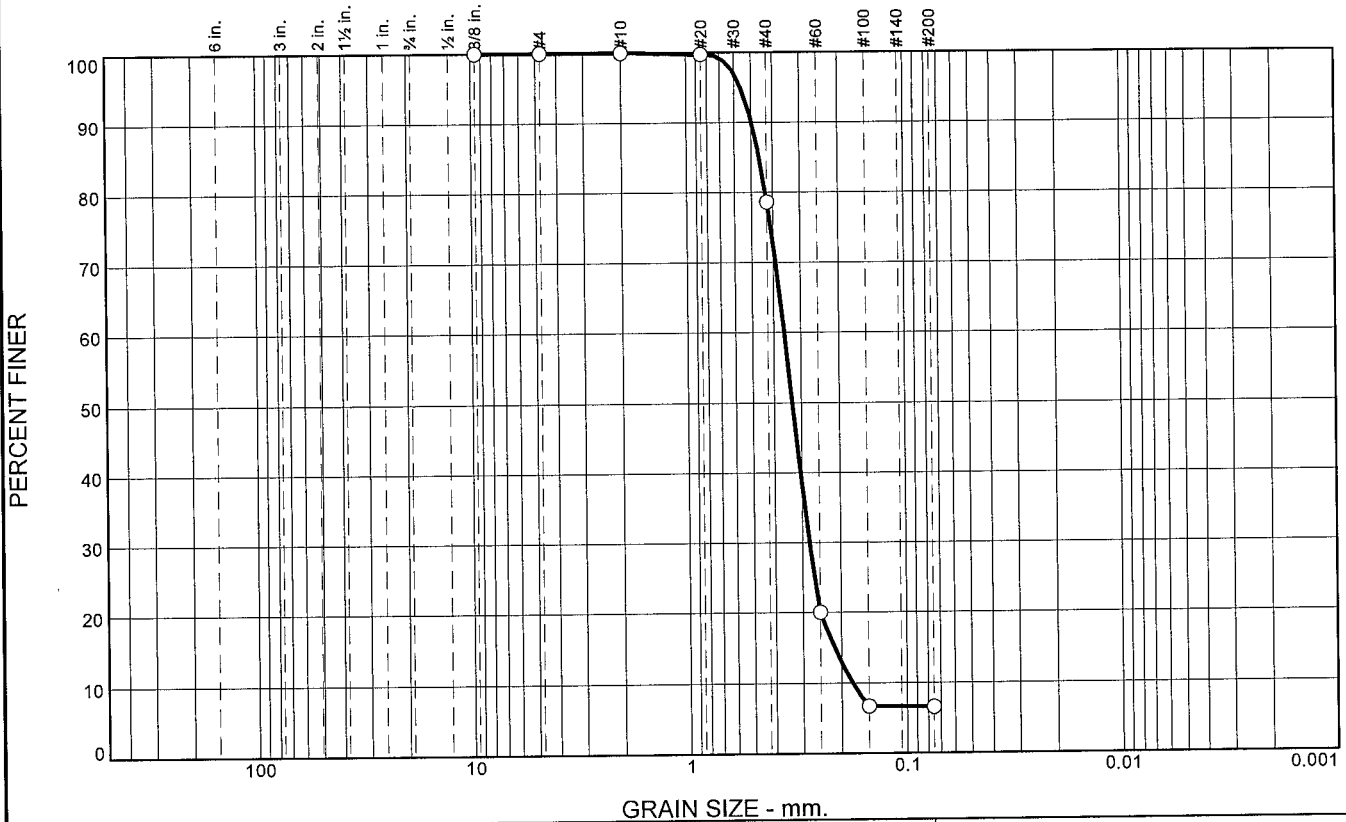
* (no specification provided)

Location: USACE Sample # BI-PB-114-10B **Depth:** 5.0 - 10.0 (ft.) **Date:** 8/7/10
Sample Number: TE Lab ID: 4612.54

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

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

Particle Size Distribution Report



| % +3" | % Gravel | | % Sand | | | % Fines | |
|-------|----------|------|--------|--------|------|---------|------|
| | Coarse | Fine | Coarse | Medium | Fine | Silt | Clay |
| 0.0 | 0.0 | 0.0 | 0.0 | 21.4 | 72.0 | 6.6 | |

| SIEVE SIZE | PERCENT FINER | SPEC.* PERCENT | PASS? (X=NO) |
|------------|---------------|----------------|--------------|
| .375 | 100.0 | | |
| #4 | 100.0 | | |
| #10 | 100.0 | | |
| #20 | 99.7 | | |
| #40 | 78.6 | | |
| #60 | 20.0 | | |
| #100 | 6.7 | | |
| #200 | 6.6 | | |

Material Description

SAND, (SP-SM), medium to fine grained

Atterberg Limits

PL= LL= PI=

Coefficients

D₉₀= 0.4982 D₈₅= 0.4600 D₆₀= 0.3581
D₅₀= 0.3300 D₃₀= 0.2782 D₁₅= 0.2154
D₁₀= 0.1784 C_u= 2.01 C_c= 1.21

Classification

USCS= SP-SM AASHTO=

Remarks

CADD CODE = CH10D965

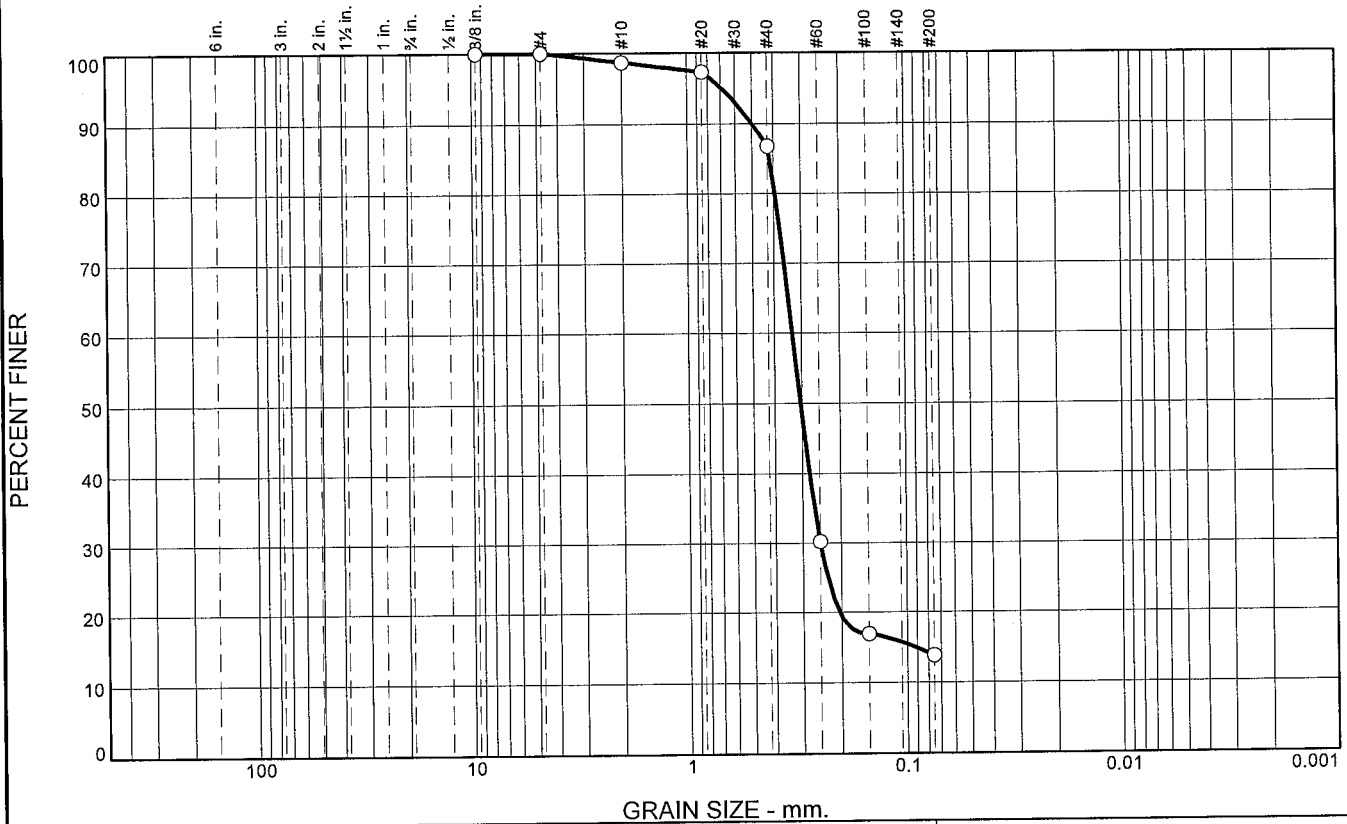
* (no specification provided)

Location: USACE Sample # BI-PB-114-10C **Depth:** 10.0 - 15.0 (ft.) **Date:** 8/7/10
Sample Number: TE Lab ID: 4612.55

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

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

Particle Size Distribution Report



| % +3" | % Gravel | | % Sand | | | % Fines | |
|-------|----------|------|--------|--------|------|---------|------|
| | Coarse | Fine | Coarse | Medium | Fine | Silt | Clay |
| 0.0 | 0.0 | 0.0 | 1.3 | 11.9 | 73.0 | 13.8 | |

| SIEVE SIZE | PERCENT FINER | SPEC.* PERCENT | PASS? (X=NO) |
|------------|---------------|----------------|--------------|
| .375 | 100.0 | | |
| #4 | 100.0 | | |
| #10 | 98.7 | | |
| #20 | 97.3 | | |
| #40 | 86.8 | | |
| #60 | 30.2 | | |
| #100 | 16.9 | | |
| #200 | 13.8 | | |

Material Description

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

Atterberg Limits

PL= LL= PI=

Coefficients

D₉₀= 0.5005 D₈₅= 0.4161 D₆₀= 0.3304
D₅₀= 0.3039 D₃₀= 0.2493 D₁₅= 0.0920
D₁₀= C_u= C_c=

Classification

USCS= SM AASHTO=

Remarks

CADD CODE = CH10D965

* (no specification provided)

Location: USACE Sample # BI-PB-114-10D
Sample Number: TE Lab ID: 4612.56

Depth: 15.0 - 19.0 (ft.)


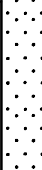


Date: 8/7/10

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

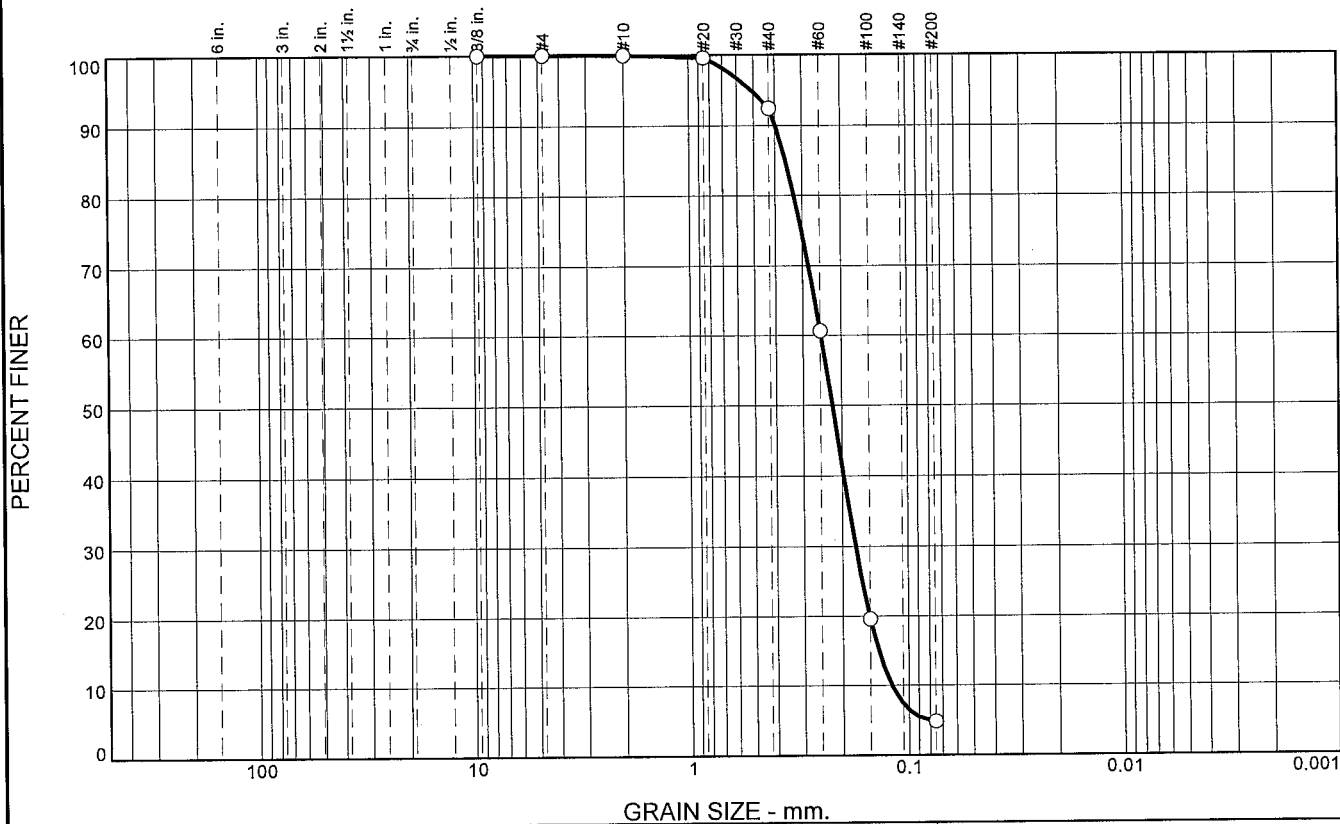
Tested By: J.Maddox **Checked By:** R.Byrd

Boring Designation BI-PB-115-10

| | | | | |
|--|--|---|--|--|
| DRILLING LOG | | DIVISION South Atlantic | INSTALLATION Mobile District | SHEET 1 OF 1 SHEETS |
| 1. PROJECT MsCIP Barrier Island Restoration Petit Bois Pass- AL East | | | 9. SIZE AND TYPE OF BIT N/A | |
| 2. BORING DESIGNATION BI-PB-115-10 | | 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 | | <input type="checkbox"/> AUTO HAMMER <input type="checkbox"/> MANUAL HAMMER |
| 4. NAME OF DRILLER Construction Solutions International, Inc. | | 12. TOTAL SAMPLES | | DISTURBED 3 |
| 5. DIRECTION OF BORING <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED | | 13. TOTAL NUMBER CORE BOXES | | UNDISTURBED (UD) 0 |
| 6. THICKNESS OF OVERBURDEN N/A | | 14. WATER DEPTH 18 Ft. | | 15. DATE BORING |
| 7. DEPTH DRILLED INTO ROCK N/A | | 16. ELEVATION TOP OF BORING -17.6 Ft. | | STARTED 07-29-10 |
| 8. TOTAL DEPTH OF BORING 15.0 Ft. | | 17. TOTAL RECOVERY FOR BORING 100% | | COMPLETED 07-29-10 |
| 18. SIGNATURE AND TITLE OF INSPECTOR Chris Gillentine, Geologist | | | | |

| ELEV. | DEPTH | LEGEND | CLASSIFICATION OF MATERIALS | SAMPLE | LABORATORY RESULTS |
|-------|-------|---|---|--------|---|
| -17.6 | 0.0 | | | | |
| | |  | SAND, poorly-graded, mostly fine to medium-grained sand-sized quartz, trace shell fragments, gray (SP) | A | Classification: SP Color: 2.5Y 6/2-light brownish gray D50: 0.2381 mm % Fines: 2.2 |
| -21.6 | 4.0 | | | | |
| | |  | SAND, poorly-graded, mostly fine to medium-grained sand-sized quartz, trace shell fragments, lt. gray (SP) | B | Classification: SP Color: 2.5Y 6/2-light brownish gray D50: 0.2206 mm % Fines: 4.8 |
| | | | | | |
| | |  | | C | Classification: SP-SM Color: 5Y 6/2-light olive gray D50: 0.2853 mm % Fines: 5.5 |
| -29.1 | 11.5 | | | | |
| | |  | CLAY, fat, dark gray (CH) | NS | |
| -32.6 | 15.0 | | | | |
| | | | NOTES: | | |
| | | | 1. Soils are field visually classified in accordance with the Unified Soils Classification System. | | |
| | | | 2. NS = Sample not submitted for laboratory analysis from this interval. | | |
| | | | 3. Seafloor elevation calculated using sampling vessel's fathometer water depth reading and applying NOAA tidal gauge data conversion factor. | | |

Particle Size Distribution Report



| % +3" | % Gravel | | % Sand | | | % Fines | |
|-------|----------|------|--------|--------|------|---------|------|
| | Coarse | Fine | Coarse | Medium | Fine | Silt | Clay |
| 0.0 | 0.0 | 0.0 | 0.1 | 7.5 | 87.6 | 4.8 | |

| SIEVE SIZE | PERCENT FINER | SPEC.* PERCENT | PASS? (X=NO) |
|------------|---------------|----------------|--------------|
| .375 | 100.0 | | |
| #4 | 100.0 | | |
| #10 | 99.9 | | |
| #20 | 99.5 | | |
| #40 | 92.4 | | |
| #60 | 60.7 | | |
| #100 | 19.6 | | |
| #200 | 4.8 | | |

Material Description

SAND, (SP), fine grained

Atterberg Limits

PL= LL= PI=

Coefficients

D₉₀= 0.3989 D₈₅= 0.3583 D₆₀= 0.2480
D₅₀= 0.2206 D₃₀= 0.1743 D₁₅= 0.1372
D₁₀= 0.1196 C_u= 2.07 C_c= 1.02

Classification

USCS= SP AASHTO=

Remarks

CADD CODE = CH10D965

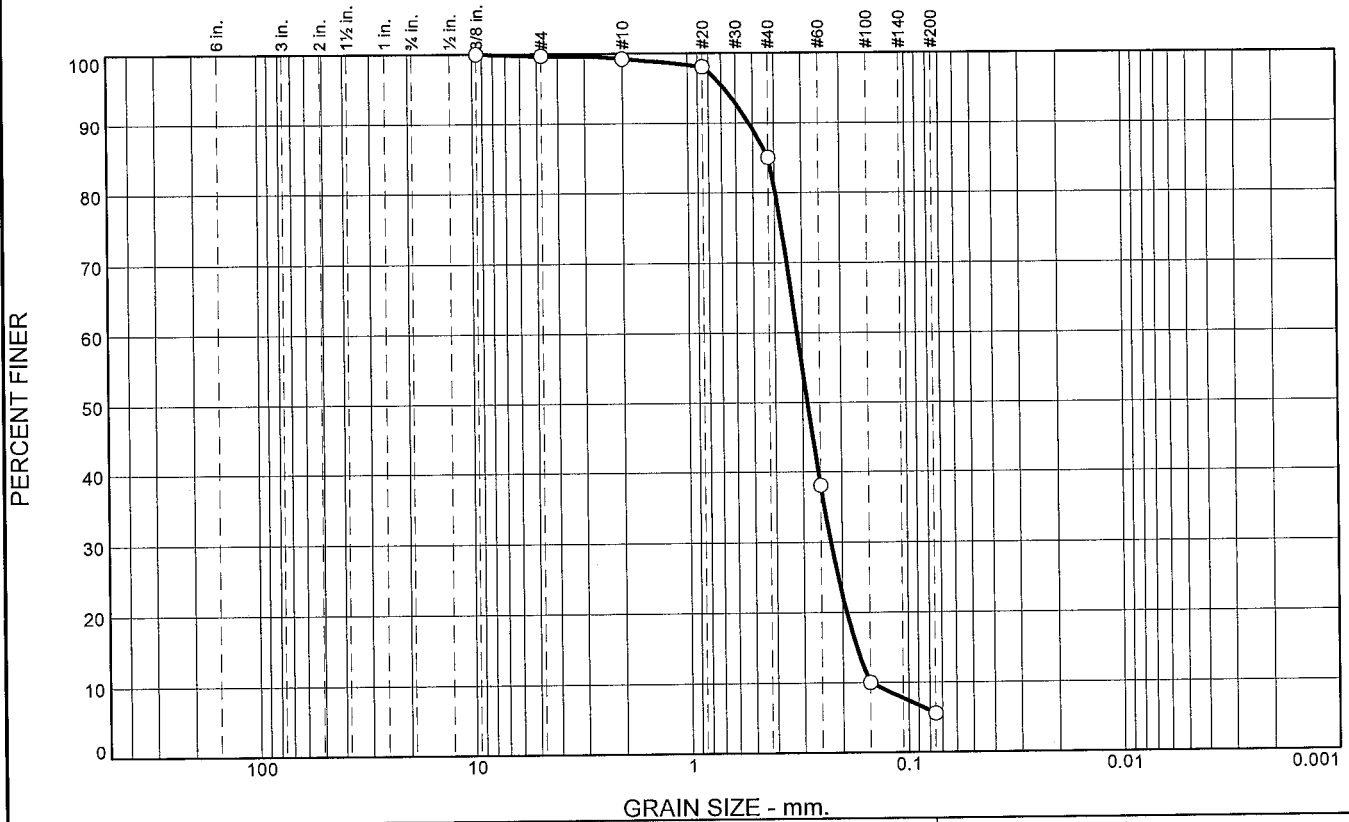
* (no specification provided)

Location: USACE Sample # BI-PB-115-10B Depth: 4.0 - 8.0 (ft.) Date: 8/7/10
Sample Number: TE Lab ID: 4612.30

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

Tested By: J.Maddox Checked By: R.Byrd

Particle Size Distribution Report



| % +3" | % Gravel | | % Sand | | | % Fines | |
|-------|----------|------|--------|--------|------|---------|------|
| | Coarse | Fine | Coarse | Medium | Fine | Silt | Clay |
| 0.0 | 0.0 | 0.3 | 0.5 | 14.2 | 79.5 | 5.5 | |

| SIEVE SIZE | PERCENT FINER | SPEC.* PERCENT | PASS? (X=NO) |
|------------|---------------|----------------|--------------|
| .375 | 100.0 | | |
| #4 | 99.7 | | |
| #10 | 99.2 | | |
| #20 | 98.0 | | |
| #40 | 85.0 | | |
| #60 | 38.1 | | |
| #100 | 10.0 | | |
| #200 | 5.5 | | |

Material Description

SAND, (SP-SM), medium to fine grained

Atterberg Limits

PL= LL= PI=

Coefficients

D₉₀= 0.5226 D₈₅= 0.4255 D₆₀= 0.3164
D₅₀= 0.2853 D₃₀= 0.2254 D₁₅= 0.1728
D₁₀= 0.1490 C_u= 2.12 C_c= 1.08

Classification

USCS= SP-SM AASHTO=

Remarks

CADD CODE = CH10D965

* (no specification provided)

Location: USACE Sample # BI-PB-115-10C **Depth:** 8.0 - 11.5 (ft.) **Date:** 8/7/10
Sample Number: TE Lab ID: 4612.31

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

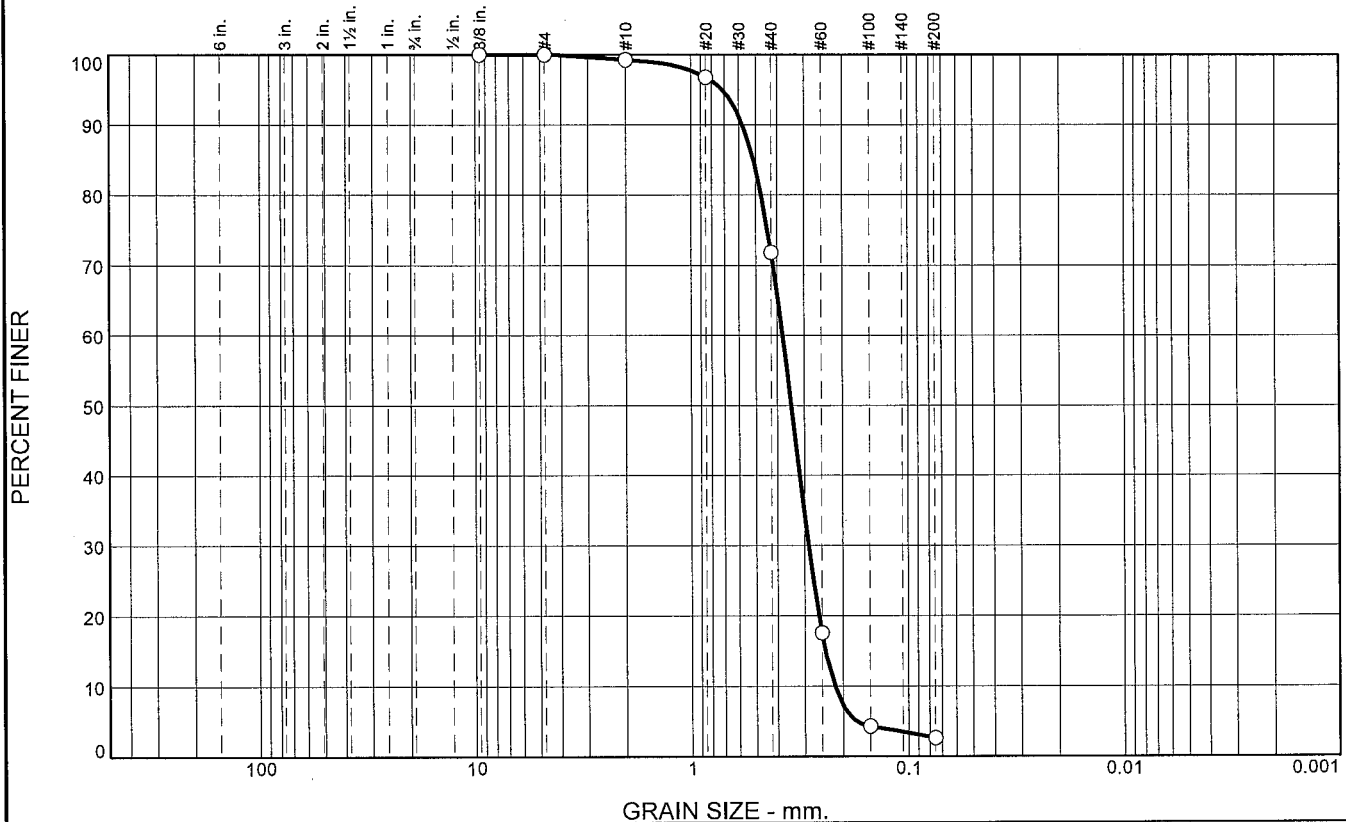
Tested By: J.Maddox **Checked By:** R.Byrd

Boring Designation BI-PB-116-10

| | | | | |
|--|--|--|--|--|
| DRILLING LOG | | DIVISION South Atlantic | INSTALLATION Mobile District | SHEET 1 OF 1 SHEETS |
| 1. PROJECT MsCIP Barrier Island Restoration Petit Bois Pass- AL East | | | 9. SIZE AND TYPE OF BIT N/A | |
| 2. BORING DESIGNATION BI-PB-116-10 | | 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 | | <input type="checkbox"/> AUTO HAMMER <input type="checkbox"/> MANUAL HAMMER |
| 4. NAME OF DRILLER Construction Solutions International, Inc. | | 12. TOTAL SAMPLES | | DISTURBED 2 |
| 5. DIRECTION OF BORING <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED | | 13. TOTAL NUMBER CORE BOXES | | UNDISTURBED (UD) 0 |
| 6. THICKNESS OF OVERBURDEN N/A | | 14. WATER DEPTH 16 Ft. | | 15. DATE BORING |
| 7. DEPTH DRILLED INTO ROCK N/A | | 16. ELEVATION TOP OF BORING -15.6 Ft. | | STARTED 07-29-10 |
| 8. TOTAL DEPTH OF BORING 15.0 Ft. | | 17. TOTAL RECOVERY FOR BORING 100% | | COMPLETED 07-29-10 |
| | | 18. SIGNATURE AND TITLE OF INSPECTOR Chris Gillentine, Geologist | | |

| ELEV. | DEPTH | LEGEND | CLASSIFICATION OF MATERIALS | SAMPLE | LABORATORY RESULTS |
|-------|-------|-----------|---|--------|---|
| -15.6 | 0.0 | | | | |
| | | ••••• | SAND, poorly-graded, mostly fine to medium-grained sand-sized quartz, trace shell fragments, gray (SP) | A | Classification: SP Color: 2.5Y 6/2-light brownish gray D50: 0.3445 mm % Fines: 2.7 |
| | | ••••• | | B | Classification: SP Color: 2.5Y 7/1-light gray D50: 0.2828 mm % Fines: 4.6 |
| -22.6 | 7.0 | / / / / / | CLAY, fat, dark gray (CH) | NS | |
| -30.6 | 15.0 | / / / / / | | | |
| | | | NOTES: 1. Soils are field visually classified in accordance with the Unified Soils Classification System. 2. NS = Sample not submitted for laboratory analysis from this interval. 3. Seafloor elevation calculated using sampling vessel's fathometer water depth reading and applying NOAA tidal gauge data conversion factor. | | |

Particle Size Distribution Report



| % +3" | % Gravel | | % Sand | | | % Fines | |
|-------|----------|------|--------|--------|------|---------|------|
| | Coarse | Fine | Coarse | Medium | Fine | Silt | Clay |
| 0.0 | 0.0 | 0.0 | 0.8 | 27.4 | 69.1 | 2.7 | |

| SIEVE SIZE | PERCENT FINER | SPEC.* PERCENT | PASS? (X=NO) |
|------------|---------------|----------------|--------------|
| .375 | 100.0 | | |
| #4 | 100.0 | | |
| #10 | 99.2 | | |
| #20 | 96.8 | | |
| #40 | 71.8 | | |
| #60 | 17.6 | | |
| #100 | 4.3 | | |
| #200 | 2.7 | | |

Material Description

SAND, (SP), medium to fine grained

Atterberg Limits
 PL= LL= PI=

Coefficients
 D₉₀= 0.5772 D₈₅= 0.5141 D₆₀= 0.3770
 D₅₀= 0.3445 D₃₀= 0.2874 D₁₅= 0.2406
 D₁₀= 0.2181 C_u= 1.73 C_c= 1.00

Classification
 USCS= SP AASHTO=

Remarks
 CADD CODE = CH10D965

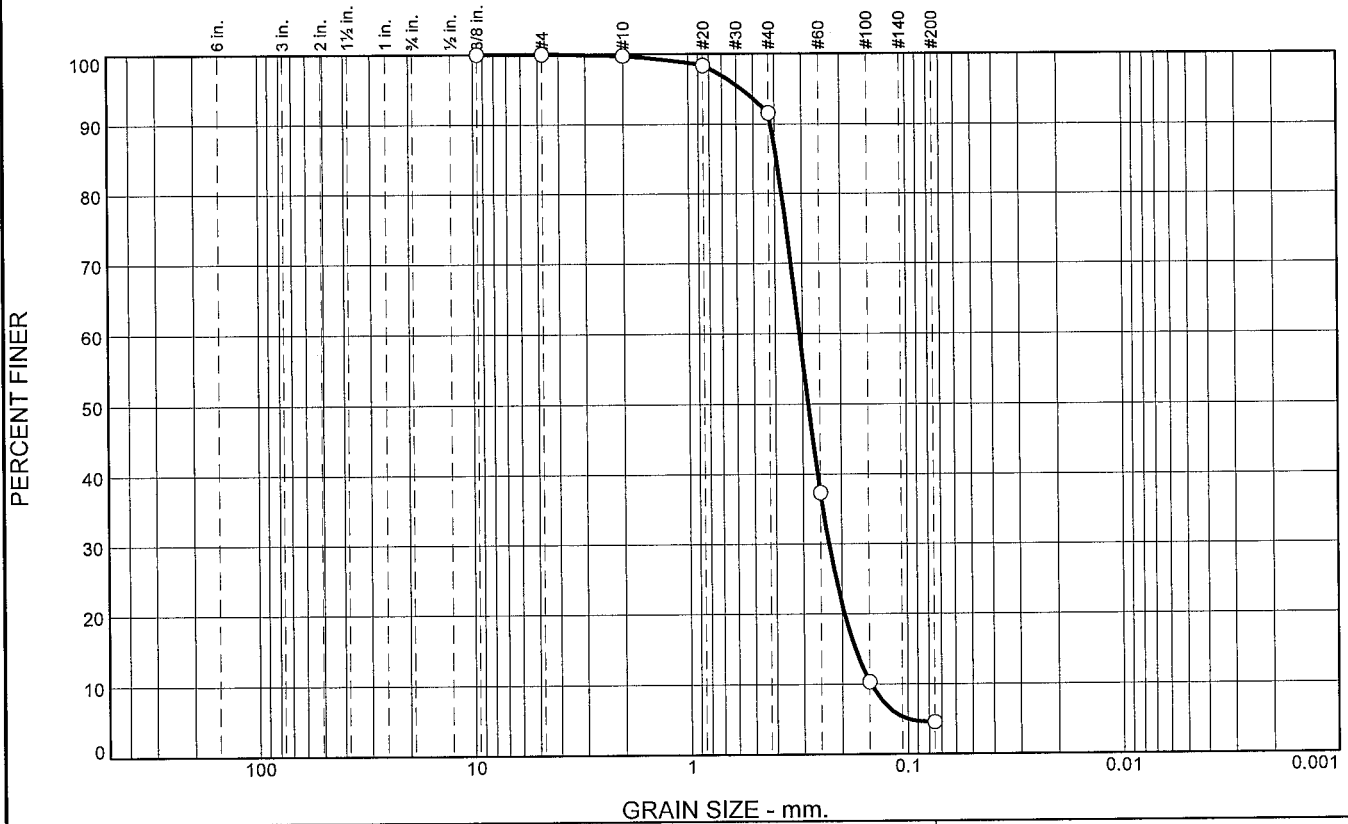
* (no specification provided)

Location: USACE Sample # BI-PB-116-10A Depth: 0.0 - 5.0 (ft.) Date: 8/7/10
 Sample Number: TE Lab ID: 4612.27

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

Tested By: J.Maddox Checked By: R.Byrd

Particle Size Distribution Report



| % +3" | % Gravel | | % Sand | | | % Fines | |
|-------|----------|------|--------|--------|------|---------|------|
| | Coarse | Fine | Coarse | Medium | Fine | Silt | Clay |
| 0.0 | 0.0 | 0.0 | 0.3 | 8.1 | 87.0 | 4.6 | |

| SIEVE SIZE | PERCENT FINER | SPEC.* PERCENT | PASS? (X=NO) |
|------------|---------------|----------------|--------------|
| .375 | 100.0 | | |
| #4 | 100.0 | | |
| #10 | 99.7 | | |
| #20 | 98.4 | | |
| #40 | 91.6 | | |
| #60 | 37.4 | | |
| #100 | 10.4 | | |
| #200 | 4.6 | | |

Material Description

SAND, (SP), fine grained

Atterberg Limits

PL= LL= PI=

Coefficients

D₉₀= 0.4159 D₈₅= 0.3915 D₆₀= 0.3092
D₅₀= 0.2828 D₃₀= 0.2289 D₁₅= 0.1746
D₁₀= 0.1478 C_u= 2.09 C_c= 1.15

Classification

USCS= SP AASHTO=

Remarks

CADD CODE = CH10D965

* (no specification provided)


Location: USACE Sample # BI-PB-116-10B Depth: 5.0 - 7.0 (ft.) Date: 8/7/10
Sample Number: TE Lab ID: 4612.28

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

Tested By: J.Maddox Checked By: R.Byrd

Boring Designation BI-PB-117-10

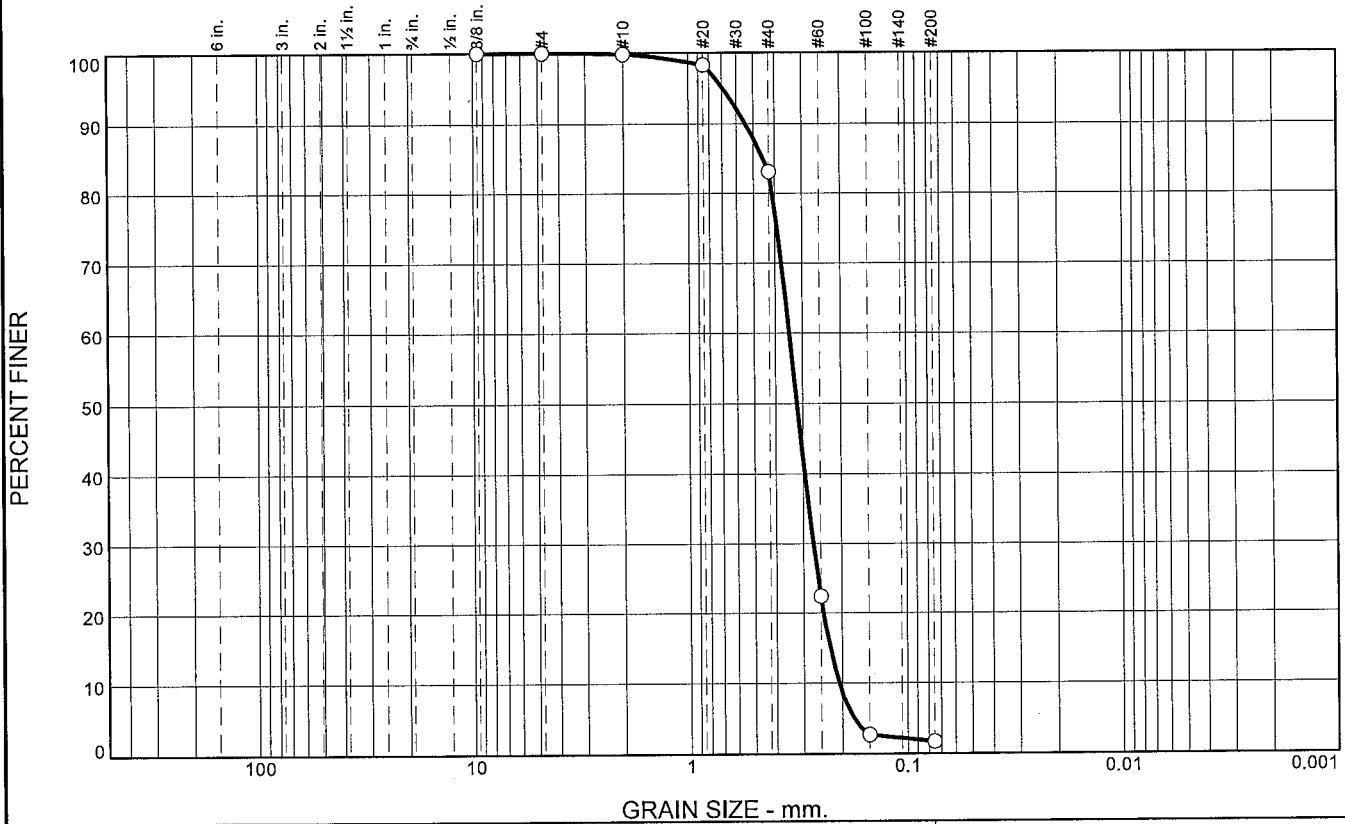
| | | | | | |
|--|--|--|--|---|---|
| DRILLING LOG | | DIVISION South Atlantic | INSTALLATION Mobile District | | SHEET 1 OF 2 SHEETS |
| 1. PROJECT MsCIP Barrier Island Restoration Petit Bois Pass- AL East | | | 9. SIZE AND TYPE OF BIT N/A | | |
| 2. BORING DESIGNATION BI-PB-117-10 | | LOCATION COORDINATES E = 1,143,659 N = 257,160 | | 10. COORDINATE SYSTEM/DATUM State Plane, MSE (U.S. Ft.) | HORIZONTAL NAD83 VERTICAL NAVD88 |
| 3. DRILLING AGENCY Corps of Engineers - CESAM | | CONTRACTOR FILE NO. | | 11. MANUFACTURER'S DESIGNATION OF DRILL Vibracore | |
| 4. NAME OF DRILLER Construction Solutions International, Inc. | | | 12. TOTAL SAMPLES 4 | | |
| 5. DIRECTION OF BORING <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED | | DEG. FROM VERTICAL | BEARING | 13. TOTAL NUMBER CORE BOXES | |
| 6. THICKNESS OF OVERBURDEN N/A | | | 14. WATER DEPTH 16 Ft. | | |
| 7. DEPTH DRILLED INTO ROCK N/A | | | 15. DATE BORING STARTED 07-29-10 COMPLETED 07-29-10 | | |
| 8. TOTAL DEPTH OF BORING 20.0 Ft. | | | 16. ELEVATION TOP OF BORING -15.6 Ft. | | |
| | | | 17. TOTAL RECOVERY FOR BORING 100% | | |
| | | | 18. SIGNATURE AND TITLE OF INSPECTOR Chris Gillentine, Geologist | | |

| ELEV. | DEPTH | LEGEND | CLASSIFICATION OF MATERIALS | SAMPLE | LABORATORY RESULTS |
|-------|-------|--|---|--|--|
| -15.6 | 0.0 | | | | |
| | |  | SAND, poorly-graded, mostly fine to medium-grained sand-sized quartz, trace shell fragments, lt. gray (SP) | A | Classification: SP Color: 2.5Y 7/1-light gray D50: 0.3185 mm % Fines: 1.7 |
| | | | B | Classification: SP Color: 5Y 7/1-light gray D50: 0.3146 mm % Fines: 1.8 | |
| | | | C | At El. -26.6 Ft., trace silt, trace shell fragments, dark gray | Classification: SP Color: 2.5Y 7/1-light gray D50: 0.2606 mm % Fines: 4.5 |
| | | | D | | Classification: SP-SM Color: 2.5Y 5/2-grayish brown D50: 0.2042 mm % Fines: 9.8 |
| -35.6 | 20.0 | | NOTES: 1. Soils are field visually classified in accordance with the Unified Soils Classification System. 2. NS = Sample not submitted for laboratory analysis from this interval. 3. Seafloor elevation calculated using sampling | | |

| DRILLING LOG (Cont. Sheet) | | | INSTALLATION Mobile District | | | SHEET 2 |
|--|-------|--------|---|----------------------------|---------------------------|--------------------|
| | | | | | | OF 2 SHEETS |
| PROJECT MsCIP Barrier Island Restoration | | | COORDINATE SYSTEM/DATUM State Plane, MSE (U.S. Ft.) | HORIZONTAL NAD83 | VERTICAL NAVD88 | |
| LOCATION COORDINATES X = 1,143,659 Y = 257,160 | | | ELEVATION TOP OF BORING -15.6 Ft. | | | |
| ELEV. | DEPTH | LEGEND | CLASSIFICATION OF MATERIALS | SAMPLE | LABORATORY RESULTS | |
| | | | vessel's fathometer water depth reading and applying NOAA tidal gauge data conversion factor. | | | |



Particle Size Distribution Report



| % +3" | % Gravel | | % Sand | | | % Fines | |
|-------|----------|------|--------|--------|------|---------|------|
| | Coarse | Fine | Coarse | Medium | Fine | Silt | Clay |
| 0.0 | 0.0 | 0.0 | 0.2 | 16.7 | 81.4 | 1.7 | |

| SIEVE SIZE | PERCENT FINER | SPEC.* PERCENT | PASS? (X=NO) |
|------------|---------------|----------------|--------------|
| .375 | 100.0 | | |
| #4 | 100.0 | | |
| #10 | 99.8 | | |
| #20 | 98.3 | | |
| #40 | 83.1 | | |
| #60 | 22.4 | | |
| #100 | 2.7 | | |
| #200 | 1.7 | | |

Material Description

SAND, (SP), medium to fine grained

Atterberg Limits

PL= LL= PI=

Coefficients

D₉₀= 0.5457 D₈₅= 0.4527 D₆₀= 0.3446
D₅₀= 0.3185 D₃₀= 0.2697 D₁₅= 0.2271
D₁₀= 0.2072 C_u= 1.66 C_c= 1.02

Classification

USCS= SP AASHTO=

Remarks

CADD CODE = CH10D965

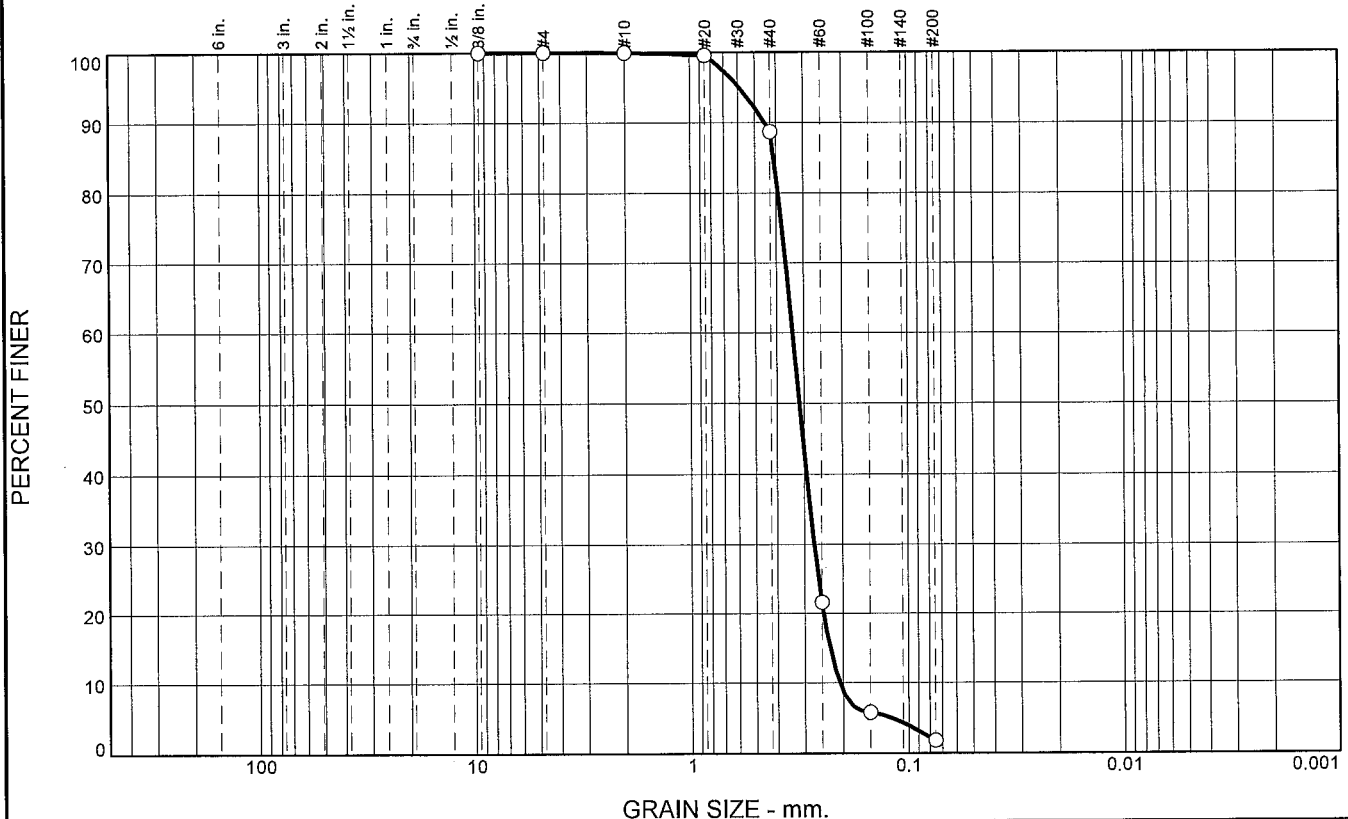
* (no specification provided)

Location: USACE Sample # BI-PB-117-10A Depth: 0.0 - 5.0 (ft.) Date: 8/7/10
Sample Number: TE Lab ID: 4612.23

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

Tested By: J.Maddox Checked By: R.Byrd

Particle Size Distribution Report



| % +3" | % Gravel | | % Sand | | | % Fines | |
|-------|----------|------|--------|--------|------|---------|------|
| | Coarse | Fine | Coarse | Medium | Fine | Silt | Clay |
| 0.0 | 0.0 | 0.0 | 0.1 | 11.2 | 86.9 | 1.8 | |

| SIEVE SIZE | PERCENT FINER | SPEC.* PERCENT | PASS? (X=NO) |
|------------|---------------|----------------|--------------|
| .375 | 100.0 | | |
| #4 | 100.0 | | |
| #10 | 99.9 | | |
| #20 | 99.5 | | |
| #40 | 88.7 | | |
| #60 | 21.6 | | |
| #100 | 5.8 | | |
| #200 | 1.8 | | |

Material Description

SAND, (SP), medium to fine grained

Atterberg Limits

PL= LL= PI=

Coefficients

D₉₀= 0.4516 D₈₅= 0.4098 D₆₀= 0.3375
D₅₀= 0.3146 D₃₀= 0.2706 D₁₅= 0.2298
D₁₀= 0.2079 C_u= 1.62 C_c= 1.04

Classification

USCS= SP AASHTO=

Remarks

CADD CODE = CH10D965

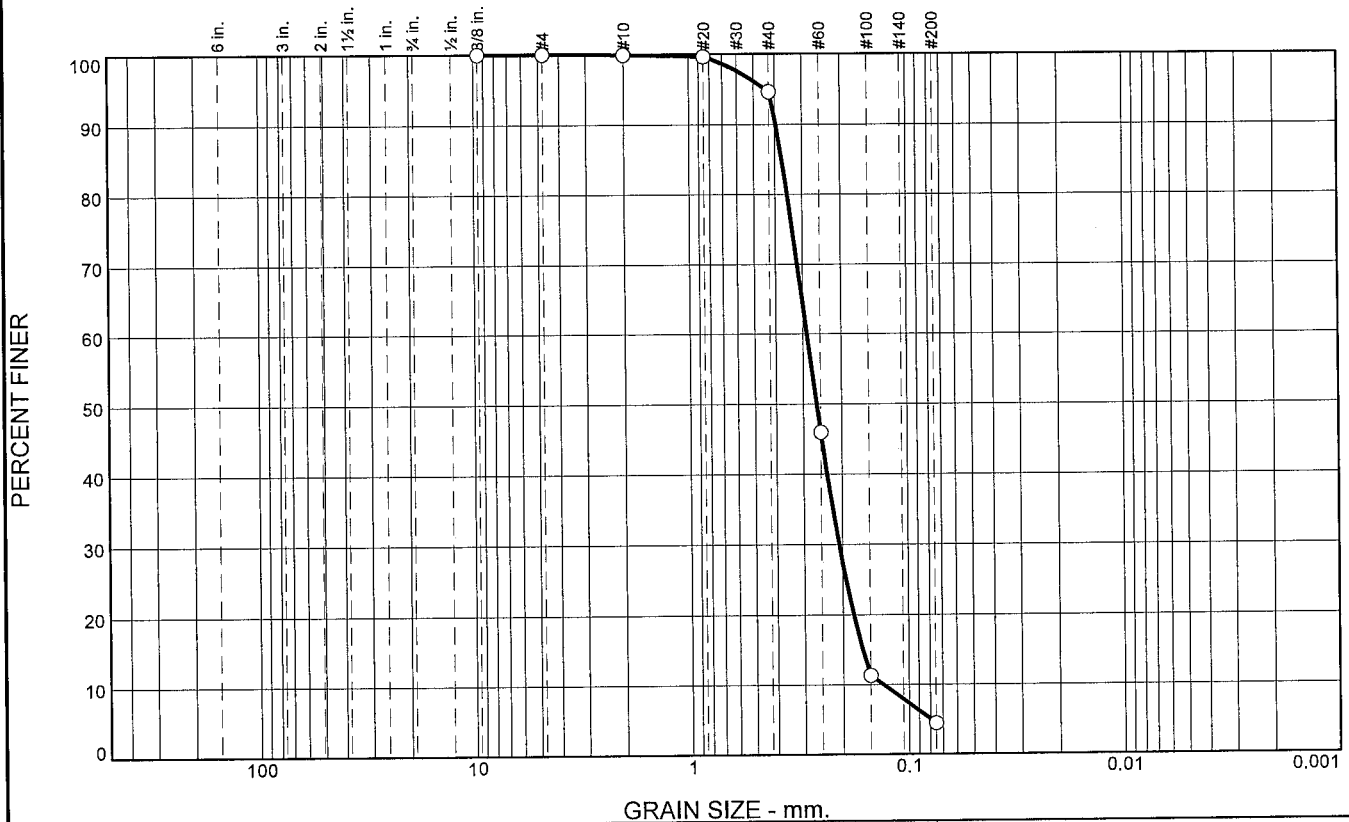
* (no specification provided)

Location: USACE Sample # BI-PB-117-10B **Depth:** 5.0 - 10.0 (ft.) **Date:** 8/7/10
Sample Number: TE Lab ID: 4612.24

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

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

Particle Size Distribution Report



| % +3" | % Gravel | | % Sand | | | % Fines | |
|-------|----------|------|--------|--------|------|---------|------|
| | Coarse | Fine | Coarse | Medium | Fine | Silt | Clay |
| 0.0 | 0.0 | 0.0 | 0.1 | 5.3 | 90.1 | 4.5 | |

| SIEVE SIZE | PERCENT FINER | SPEC.* PERCENT | PASS? (X=NO) |
|------------|---------------|----------------|--------------|
| .375 | 100.0 | | |
| #4 | 100.0 | | |
| #10 | 99.9 | | |
| #20 | 99.6 | | |
| #40 | 94.6 | | |
| #60 | 45.9 | | |
| #100 | 11.4 | | |
| #200 | 4.5 | | |

Material Description

SAND, (SP-SM), fine grained

Atterberg Limits

PL= LL= PI=

Coefficients

D₉₀= 0.3962 D₈₅= 0.3719 D₆₀= 0.2876
D₅₀= 0.2606 D₃₀= 0.2075 D₁₅= 0.1632
D₁₀= 0.1310 C_u= 2.20 C_c= 1.14

Classification

USCS= SP AASHTO=

Remarks

CADD CODE = CH10D965

* (no specification provided)

Location: USACE Sample # BI-PB-117-10C
Sample Number: TE Lab ID: 4612.25

Depth: 10.0 - 15.0 (ft.)

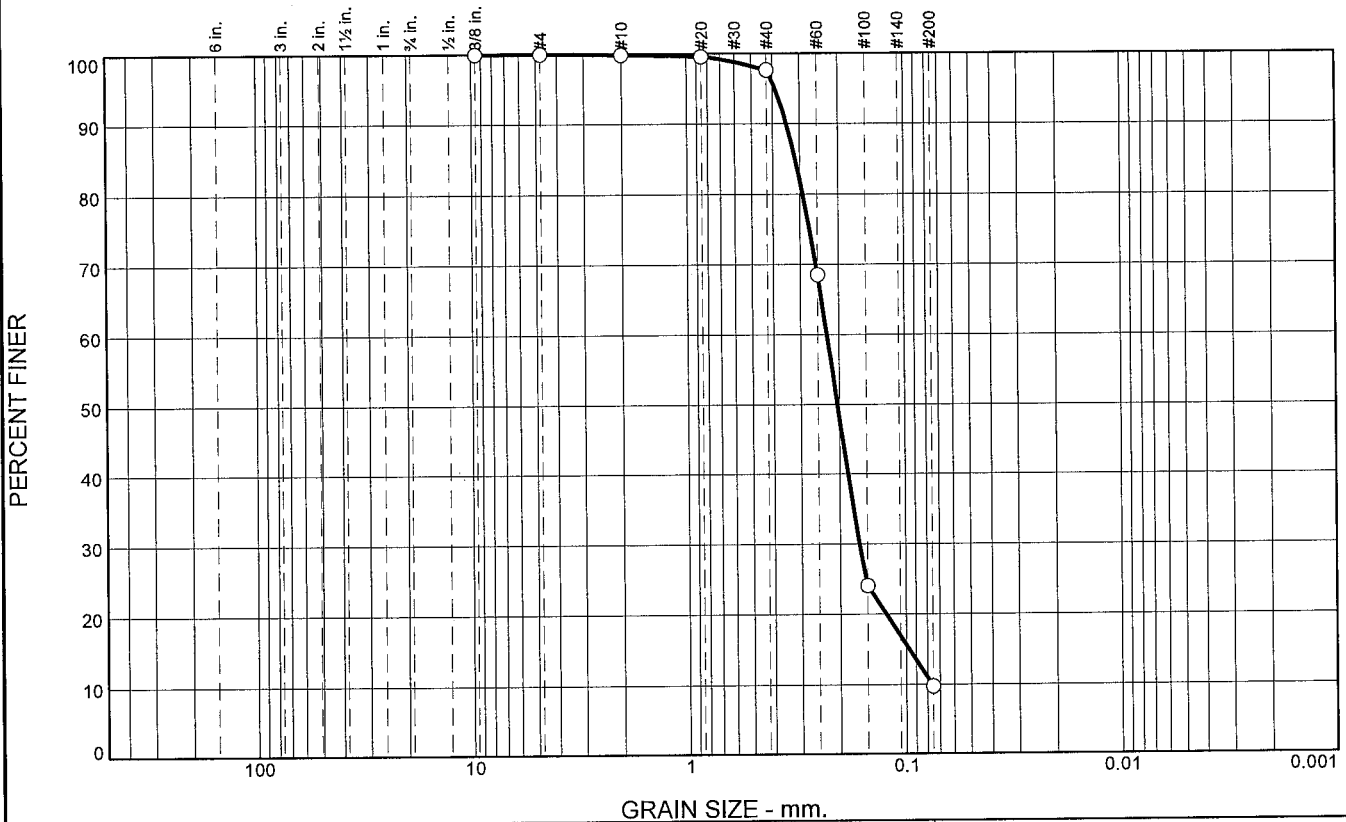
Date: 8/7/10

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

Tested By: J.Maddox

Checked By: R.Byrd

Particle Size Distribution Report



| % +3" | % Gravel | | % Sand | | | % Fines | |
|-------|----------|------|--------|--------|------|---------|------|
| | Coarse | Fine | Coarse | Medium | Fine | Silt | Clay |
| 0.0 | 0.0 | 0.0 | 0.2 | 2.1 | 87.9 | 9.8 | |

| SIEVE SIZE | PERCENT FINER | SPEC.* PERCENT | PASS? (X=NO) |
|------------|---------------|----------------|--------------|
| .375 | 100.0 | | |
| #4 | 100.0 | | |
| #10 | 99.8 | | |
| #20 | 99.6 | | |
| #40 | 97.7 | | |
| #60 | 68.5 | | |
| #100 | 24.0 | | |
| #200 | 9.8 | | |

Material Description

SAND, (SP-SM), fine grained

Atterberg Limits

PL= LL= PI=

Coefficients

D₉₀= 0.3457 D₈₅= 0.3149 D₆₀= 0.2272
D₅₀= 0.2042 D₃₀= 0.1631 D₁₅= 0.0967
D₁₀= 0.0759 C_u= 2.99 C_c= 1.54

Classification

USCS= SP-SM AASHTO=

Remarks

CADD CODE = CH10D965

* (no specification provided)

Location: USACE Sample # BI-PB-117-10D
Sample Number: TE Lab ID: 4612.26

Depth: 15.0 - 20.0 (ft.)

Date: 8/7/10

Thompson Engineering

Mobile, Alabama

Client: US Army Corps of Engineers

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

Project No: 10-2123-0009

Report No.

Tested By: J.Maddox

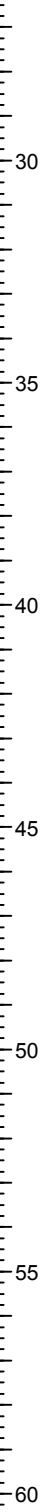
Checked By: R.Byrd

Boring Designation BI-PB-118-10

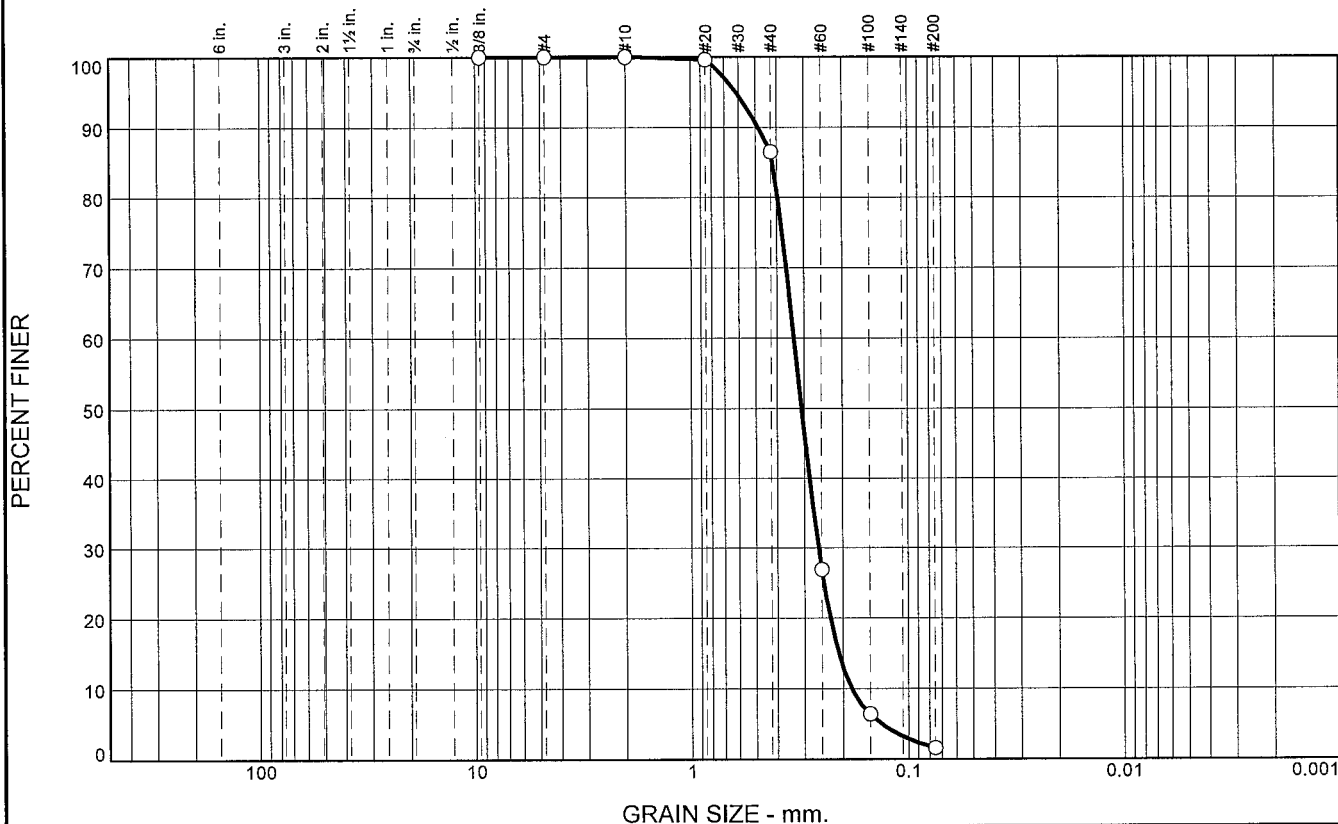
| | | | | |
|--|--|---|--|--|
| DRILLING LOG | | DIVISION South Atlantic | INSTALLATION Mobile District | SHEET 1 OF 2 SHEETS |
| 1. PROJECT MsCIP Barrier Island Restoration Petit Bois Pass- AL East | | | 9. SIZE AND TYPE OF BIT N/A | |
| 2. BORING DESIGNATION BI-PB-118-10 | | 10. COORDINATE SYSTEM/DATUM State Plane, MSE (U.S. Ft.) | | HORIZONTAL NAD83 |
| 3. DRILLING AGENCY Corps of Engineers - CESAM | | 11. MANUFACTURER'S DESIGNATION OF DRILL Vibracore | | <input type="checkbox"/> AUTO HAMMER <input type="checkbox"/> MANUAL HAMMER |
| 4. NAME OF DRILLER Construction Solutions International, Inc. | | 12. TOTAL SAMPLES | | DISTURBED 4 |
| 5. DIRECTION OF BORING <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED | | 13. TOTAL NUMBER CORE BOXES | | UNDISTURBED (UD) 0 |
| 6. THICKNESS OF OVERBURDEN N/A | | 14. WATER DEPTH 16 Ft. | | 15. DATE BORING |
| 7. DEPTH DRILLED INTO ROCK N/A | | 16. ELEVATION TOP OF BORING -15.9 Ft. | | STARTED 07-30-10 |
| 8. TOTAL DEPTH OF BORING 20.0 Ft. | | 17. TOTAL RECOVERY FOR BORING 100% | | COMPLETED 07-30-10 |
| 18. SIGNATURE AND TITLE OF INSPECTOR Chris Gillentine, Geologist | | | | |

| ELEV. | DEPTH | LEGEND | CLASSIFICATION OF MATERIALS | SAMPLE | LABORATORY RESULTS |
|-------|-------|--------|---|--------|---|
| -15.9 | 0.0 | | | | |
| | | | SAND, well-graded, mostly medium-grained sand-sized quartz, trace shell fragments, lt. gray (SW) | A | Classification: SP Color: 2.5Y 7/1-light gray D50: 0.308 mm % Fines: 1.6 |
| | | | | B | Classification: SP-SM Color: 2.5Y 7/1-light gray D50: 0.3077 mm % Fines: 6.1 |
| | | | | C | Classification: SP Color: 5Y 7/1-light gray D50: 0.3556 mm % Fines: 1.8 |
| | | | | D | Classification: SP Color: 5Y 7/1-light gray D50: 0.2905 mm % Fines: 2.5 |
| -35.9 | 20.0 | | | | |
| | | | NOTES: 1. Soils are field visually classified in accordance with the Unified Soils Classification System. 2. NS = Sample not submitted for laboratory analysis from this interval. 3. Seafloor elevation calculated using sampling | | |

| DRILLING LOG (Cont. Sheet) | | | INSTALLATION Mobile District | | SHEET 2 |
|--|-------|--------|---|----------------------------|---------------------------|
| | | | | | OF 2 SHEETS |
| PROJECT MsCIP Barrier Island Restoration | | | COORDINATE SYSTEM/DATUM State Plane, MSE (U.S. Ft.) | HORIZONTAL NAD83 | VERTICAL NAVD88 |
| LOCATION COORDINATES X = 1,145,059 Y = 257,119 | | | ELEVATION TOP OF BORING -15.9 Ft. | | |
| ELEV. | DEPTH | LEGEND | CLASSIFICATION OF MATERIALS | SAMPLE | LABORATORY RESULTS |
| | | | vessel's fathometer water depth reading and applying NOAA tidal gauge data conversion factor. | | |



Particle Size Distribution Report



| % +3" | % Gravel | | % Sand | | | % Fines | |
|-------|----------|------|--------|--------|------|---------|------|
| | Coarse | Fine | Coarse | Medium | Fine | Silt | Clay |
| 0.0 | 0.0 | 0.0 | 0.0 | 13.5 | 84.9 | 1.6 | |

| SIEVE SIZE | PERCENT FINER | SPEC.* PERCENT | PASS? (X=NO) |
|------------|---------------|----------------|--------------|
| .375 | 100.0 | | |
| #4 | 100.0 | | |
| #10 | 100.0 | | |
| #20 | 99.6 | | |
| #40 | 86.5 | | |
| #60 | 26.9 | | |
| #100 | 6.4 | | |
| #200 | 1.6 | | |

Material Description

SAND, (SP), medium to fine grained

Atterberg Limits

PL= LL= PI=

Coefficients

D₉₀= 0.4874 D₈₅= 0.4177 D₆₀= 0.3337
D₅₀= 0.3080 D₃₀= 0.2584 D₁₅= 0.2096
D₁₀= 0.1830 C_u= 1.82 C_c= 1.09

Classification

USCS= SP AASHTO=

Remarks

CADD CODE = CH10D965

* (no specification provided)

Location: USACE Sample # BI-PB-118-10A
Sample Number: TE Lab ID: 4612.60

Depth: 0.0 - 5.0 (ft.)

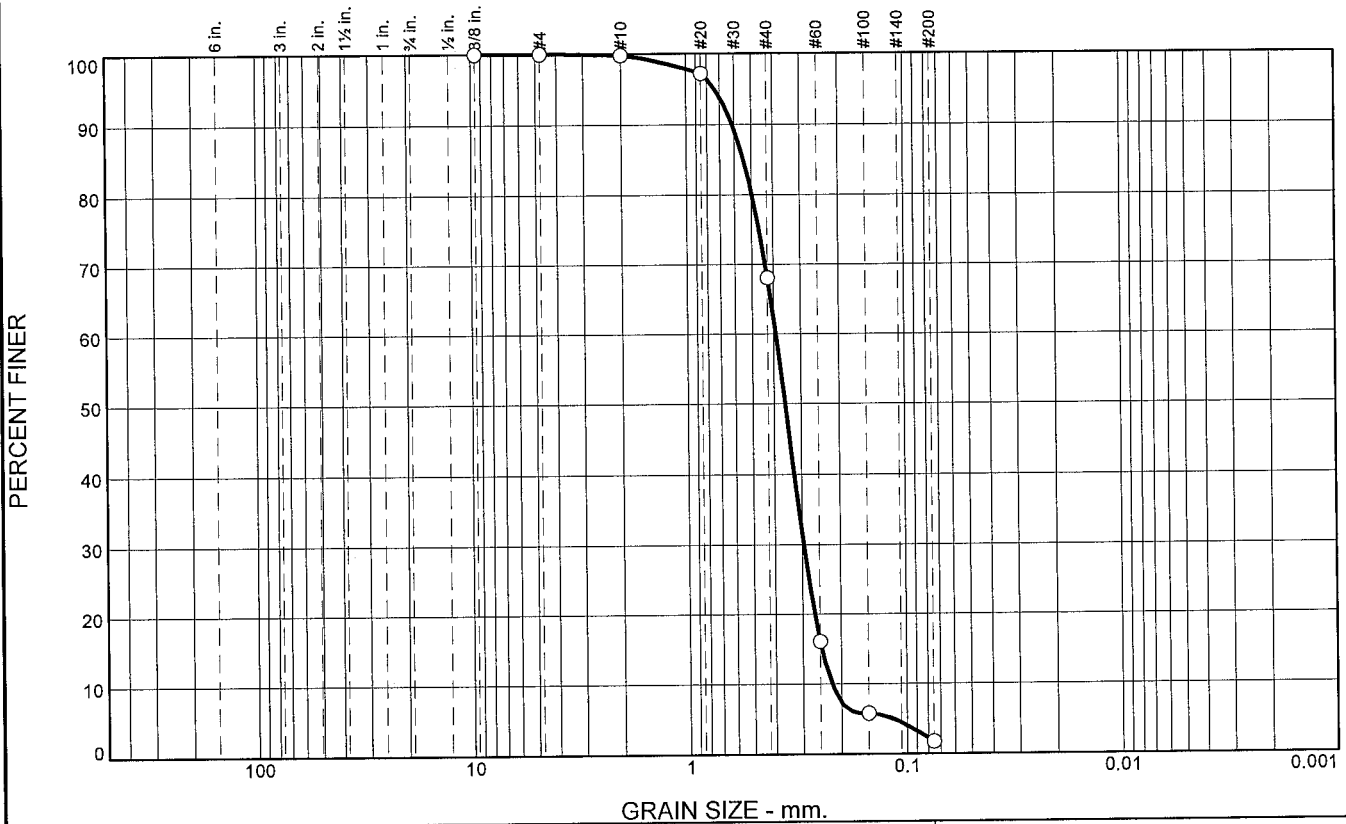
Date: 8/7/10

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

Tested By: J.Maddox

Checked By: R.Byrd

Particle Size Distribution Report



| % +3" | % Gravel | | % Sand | | | % Fines | |
|-------|----------|------|--------|--------|------|---------|------|
| | Coarse | Fine | Coarse | Medium | Fine | Silt | Clay |
| 0.0 | 0.0 | 0.0 | 0.2 | 31.7 | 66.3 | 1.8 | |

| SIEVE SIZE | PERCENT FINER | SPEC.* PERCENT | PASS? (X=NO) |
|------------|---------------|----------------|--------------|
| .375 | 100.0 | | |
| #4 | 100.0 | | |
| #10 | 99.8 | | |
| #20 | 97.2 | | |
| #40 | 68.1 | | |
| #60 | 16.1 | | |
| #100 | 5.8 | | |
| #200 | 1.8 | | |

Material Description

SAND, (SP), medium to fine grained

Atterberg Limits

PL= LL= PI=

Coefficients

D₉₀= 0.6129 D₈₅= 0.5445 D₆₀= 0.3908
D₅₀= 0.3556 D₃₀= 0.2947 D₁₅= 0.2456
D₁₀= 0.2212 C_u= 1.77 C_c= 1.01

Classification

USCS= SP AASHTO=

Remarks

CADD CODE = CH10D965

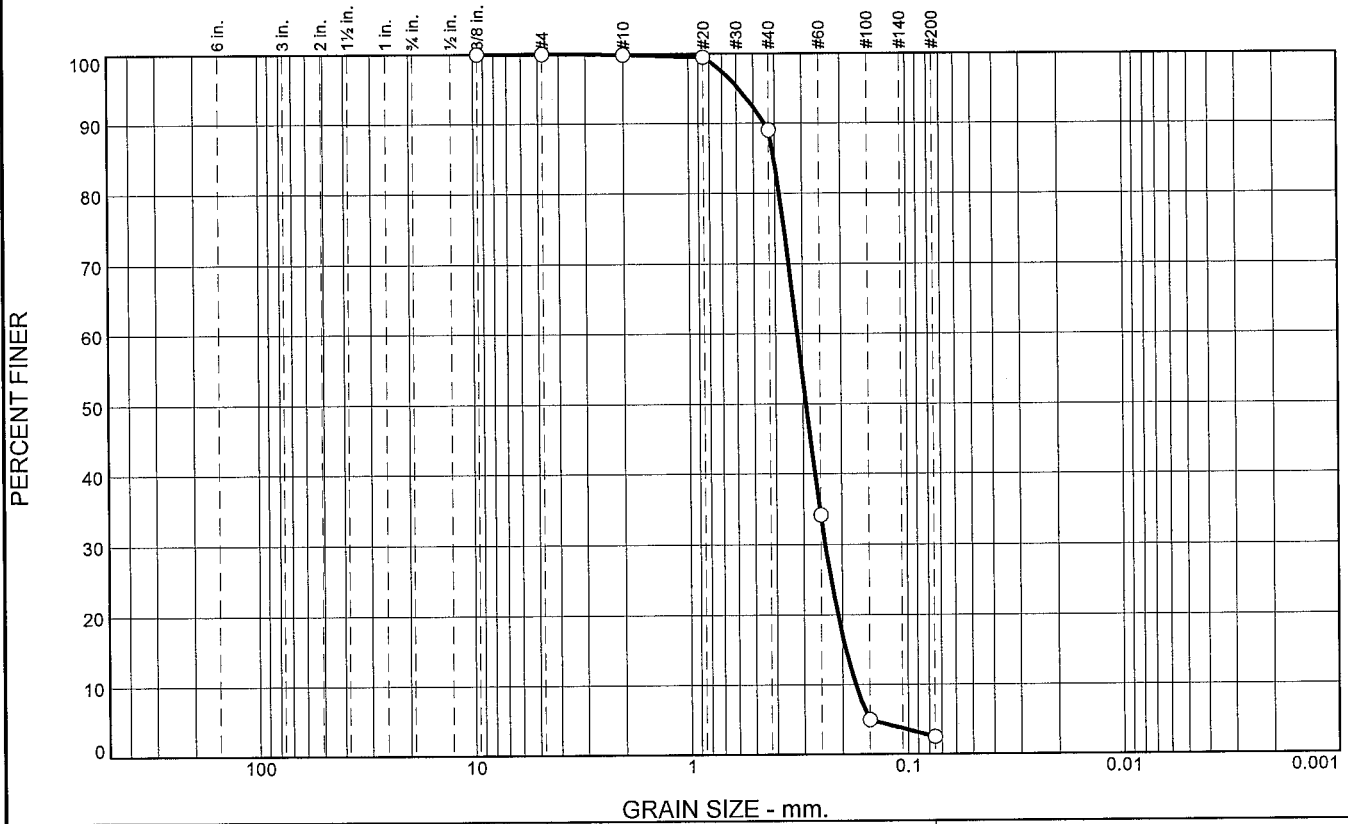
* (no specification provided)

Location: USACE Sample # BI-PB-118-10C **Depth:** 10.0- 15.0 (ft.) **Date:** 8/7/10
Sample Number: TE Lab ID: 4612.62

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

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

Particle Size Distribution Report



| % +3" | % Gravel | | % Sand | | | % Fines | |
|-------|----------|------|--------|--------|------|---------|------|
| | Coarse | Fine | Coarse | Medium | Fine | Silt | Clay |
| 0.0 | 0.0 | 0.0 | 0.1 | 10.9 | 86.5 | 2.5 | |

| SIEVE SIZE | PERCENT FINER | SPEC.* PERCENT | PASS? (X=NO) |
|------------|---------------|----------------|--------------|
| .375 | 100.0 | | |
| #4 | 100.0 | | |
| #10 | 99.9 | | |
| #20 | 99.5 | | |
| #40 | 89.0 | | |
| #60 | 34.1 | | |
| #100 | 5.0 | | |
| #200 | 2.5 | | |

Material Description

SAND, (SP), medium to fine grained

Atterberg Limits

PL= LL= PI=

Coefficients

D₉₀= 0.4452 D₈₅= 0.4038 D₆₀= 0.3171
D₅₀= 0.2905 D₃₀= 0.2389 D₁₅= 0.1933
D₁₀= 0.1743 C_u= 1.82 C_c= 1.03

Classification

USCS= SP AASHTO=

Remarks

CADD CODE = CH10D965

* (no specification provided)

Location: USACE Sample # BI-PB-118-10D **Depth:** 15.0 - 20.0 (ft.) **Date:** 8/7/10
Sample Number: TE Lab ID: 4612.63

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

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

Boring Designation BI-PB-119-10

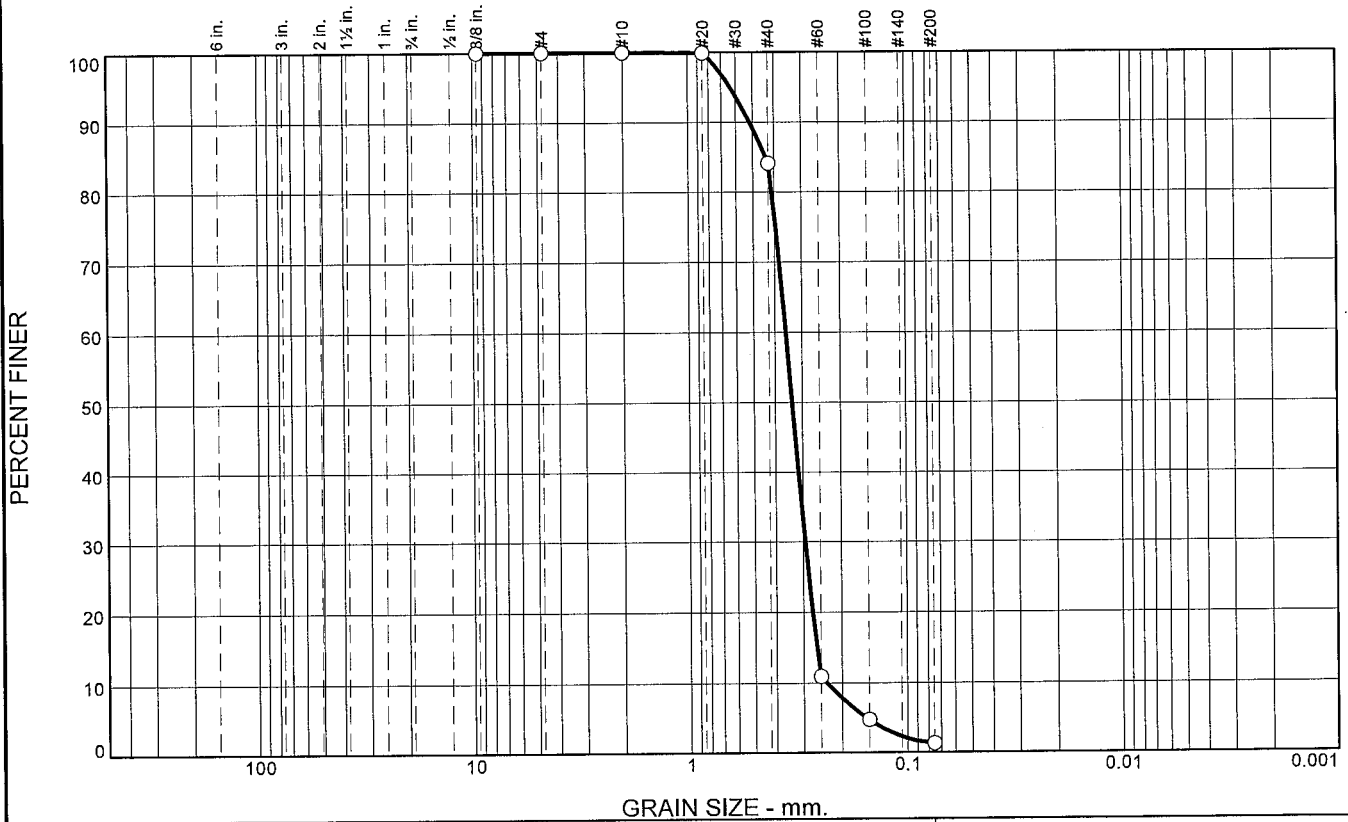
| | | | | |
|--|--|--|--|--|
| DRILLING LOG | | DIVISION South Atlantic | INSTALLATION Mobile District | SHEET 1 OF 2 SHEETS |
| 1. PROJECT MsCIP Barrier Island Restoration Petit Bois Pass- AL East | | | 9. SIZE AND TYPE OF BIT N/A | |
| 2. BORING DESIGNATION BI-PB-119-10 | | 10. COORDINATE SYSTEM/DATUM State Plane, MSE (U.S. Ft.) | | HORIZONTAL NAD83 |
| 3. DRILLING AGENCY Corps of Engineers - CESAM | | 11. MANUFACTURER'S DESIGNATION OF DRILL Vibracore | | <input type="checkbox"/> AUTO HAMMER <input type="checkbox"/> MANUAL HAMMER |
| 4. NAME OF DRILLER Construction Solutions International, Inc. | | 12. TOTAL SAMPLES | | DISTURBED 4 |
| 5. DIRECTION OF BORING <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED | | 13. TOTAL NUMBER CORE BOXES | | UNDISTURBED (UD) 0 |
| 6. THICKNESS OF OVERBURDEN N/A | | 14. WATER DEPTH 16 Ft. | | 15. DATE BORING |
| 7. DEPTH DRILLED INTO ROCK N/A | | 16. ELEVATION TOP OF BORING -15.8 Ft. | | STARTED 07-30-10 |
| 8. TOTAL DEPTH OF BORING 20.0 Ft. | | 17. TOTAL RECOVERY FOR BORING 100% | | COMPLETED 07-30-10 |
| | | 18. SIGNATURE AND TITLE OF INSPECTOR Chris Gillentine, Geologist | | |

| ELEV. | DEPTH | LEGEND | CLASSIFICATION OF MATERIALS | SAMPLE | LABORATORY RESULTS |
|-------|-------|--------|---|--------|---|
| -15.8 | 0.0 | | SAND, poorly-graded, mostly fine to medium-grained sand-sized quartz, trace shell fragments, lt. gray (SP) | A | Classification: SP Color: 2.5Y 7/1-light gray D50: 0.3342 mm % Fines: 1.3 |
| | | | | B | Classification: SP Color: 5Y 7/1-light gray D50: 0.3066 mm % Fines: 1.9 |
| | | | | C | Classification: SP Color: 5Y 7/1-light gray D50: 0.2323 mm % Fines: 2.3 |
| | | | | D | Classification: SP Color: 2.5Y 6/2-light brownish gray D50: 0.3417 mm % Fines: 4.6 |
| -35.8 | 20.0 | | NOTES: 1. Soils are field visually classified in accordance with the Unified Soils Classification System. 2. NS = Sample not submitted for laboratory analysis from this interval. 3. Seafloor elevation calculated using sampling | | |

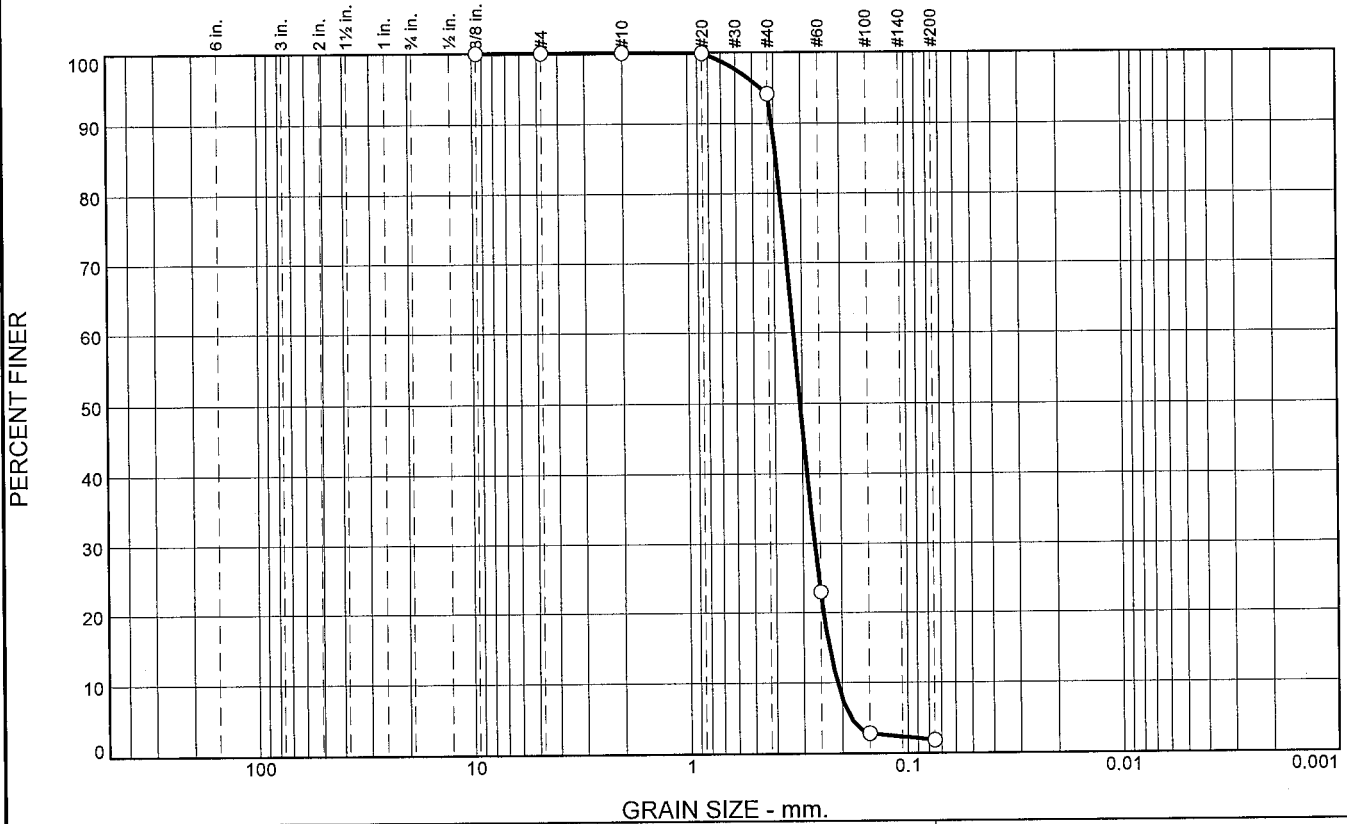
| DRILLING LOG (Cont. Sheet) | | | INSTALLATION Mobile District | | SHEET 2 |
|--|-------|--------|---|----------------------------|---------------------------|
| | | | | | OF 2 SHEETS |
| PROJECT MsCIP Barrier Island Restoration | | | COORDINATE SYSTEM/DATUM State Plane, MSE (U.S. Ft.) | HORIZONTAL NAD83 | VERTICAL NAVD88 |
| LOCATION COORDINATES X = 1,146,626 Y = 257,188 | | | ELEVATION TOP OF BORING -15.8 Ft. | | |
| ELEV. | DEPTH | LEGEND | CLASSIFICATION OF MATERIALS | SAMPLE | LABORATORY RESULTS |
| | | | vessel's fathometer water depth reading and applying NOAA tidal gauge data conversion factor. | | |



Particle Size Distribution Report



Particle Size Distribution Report



| % +3" | % Gravel | | % Sand | | | % Fines | |
|-------|----------|------|--------|--------|------|---------|------|
| | Coarse | Fine | Coarse | Medium | Fine | Silt | Clay |
| 0.0 | 0.0 | 0.0 | 0.0 | 5.8 | 92.3 | 1.9 | |

| SIEVE SIZE | PERCENT FINER | SPEC.* PERCENT | PASS? (X=NO) |
|------------|---------------|----------------|--------------|
| .375 | 100.0 | | |
| #4 | 100.0 | | |
| #10 | 100.0 | | |
| #20 | 99.9 | | |
| #40 | 94.2 | | |
| #60 | 23.0 | | |
| #100 | 2.9 | | |
| #200 | 1.9 | | |

Material Description

SAND, (SP), fine grained

Atterberg Limits

PL= LL= PI=

Coefficients

D₉₀= 0.4080 D₈₅= 0.3909 D₆₀= 0.3276
D₅₀= 0.3066 D₃₀= 0.2658 D₁₅= 0.2285
D₁₀= 0.2107 C_u= 1.55 C_c= 1.02

Classification

USCS= SP AASHTO=

Remarks

CADD CODE = CH10D965

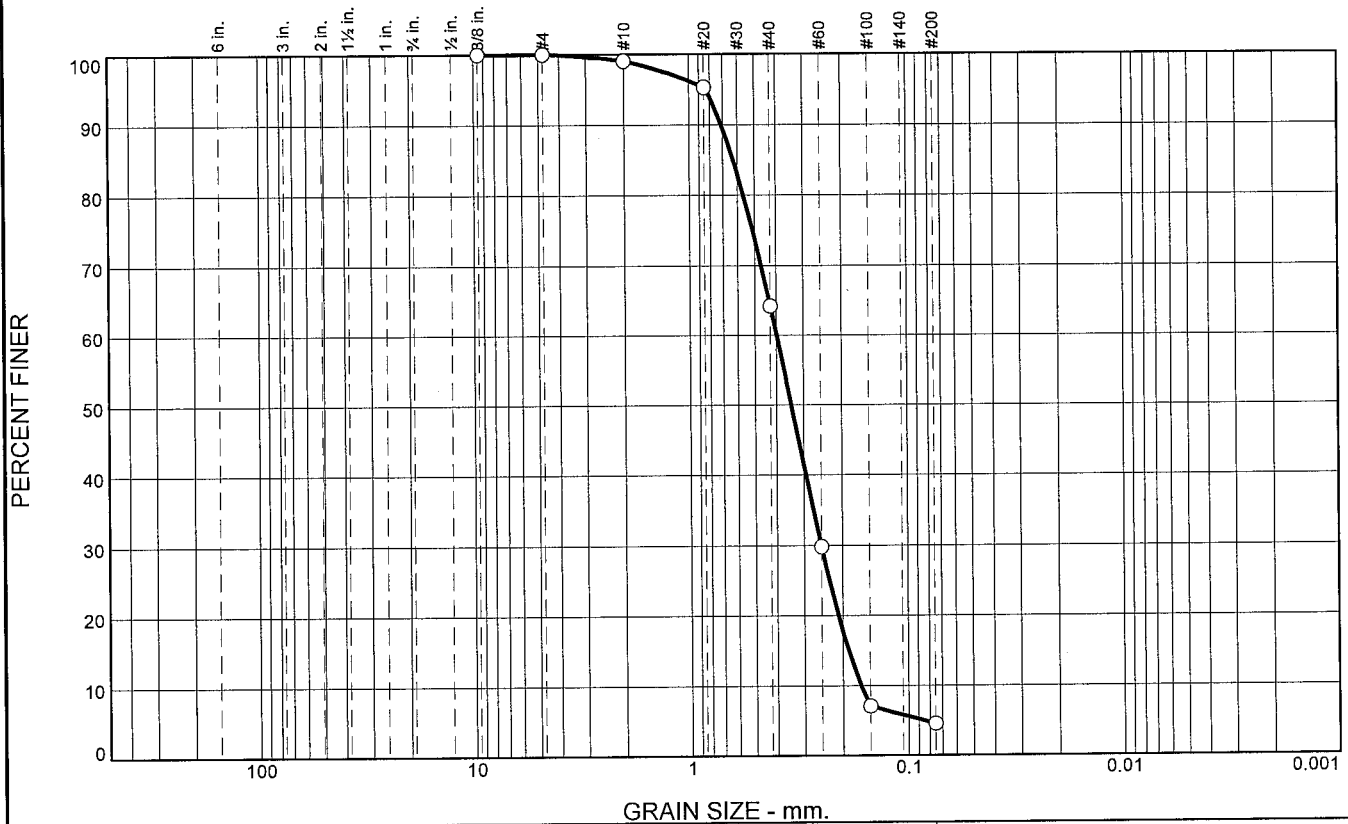
* (no specification provided)

Location: USACE Sample # BI-PB-119-10B **Depth:** 5.0 - 10.0 (ft.) **Date:** 8/7/10
Sample Number: TE Lab ID: 4612.33

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

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

Particle Size Distribution Report



| % +3" | % Gravel | | % Sand | | | % Fines | |
|-------|----------|------|--------|--------|------|---------|------|
| | Coarse | Fine | Coarse | Medium | Fine | Silt | Clay |
| 0.0 | 0.0 | 0.0 | 1.0 | 34.8 | 59.6 | 4.6 | |

| SIEVE SIZE | PERCENT FINER | SPEC.* PERCENT | PASS? (X=NO) |
|------------|---------------|----------------|--------------|
| .375 | 100.0 | | |
| #4 | 100.0 | | |
| #10 | 99.0 | | |
| #20 | 95.3 | | |
| #40 | 64.2 | | |
| #60 | 29.8 | | |
| #100 | 7.1 | | |
| #200 | 4.6 | | |

Material Description

SAND, (SP), medium to fine grained

Atterberg Limits

PL= LL= PI=

Coefficients

D₉₀= 0.7115 D₈₅= 0.6274 D₆₀= 0.3978
D₅₀= 0.3417 D₃₀= 0.2507 D₁₅= 0.1884
D₁₀= 0.1656 C_u= 2.40 C_c= 0.95

Classification

USCS= SP AASHTO=

Remarks

CADD CODE = CH10D965

* (no specification provided)

Location: USACE Sample # BI-PB-119-10D **Depth:** 15.0 - 20.0 (ft.) **Date:** 8/7/10
Sample Number: TE Lab ID: 4612.35

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

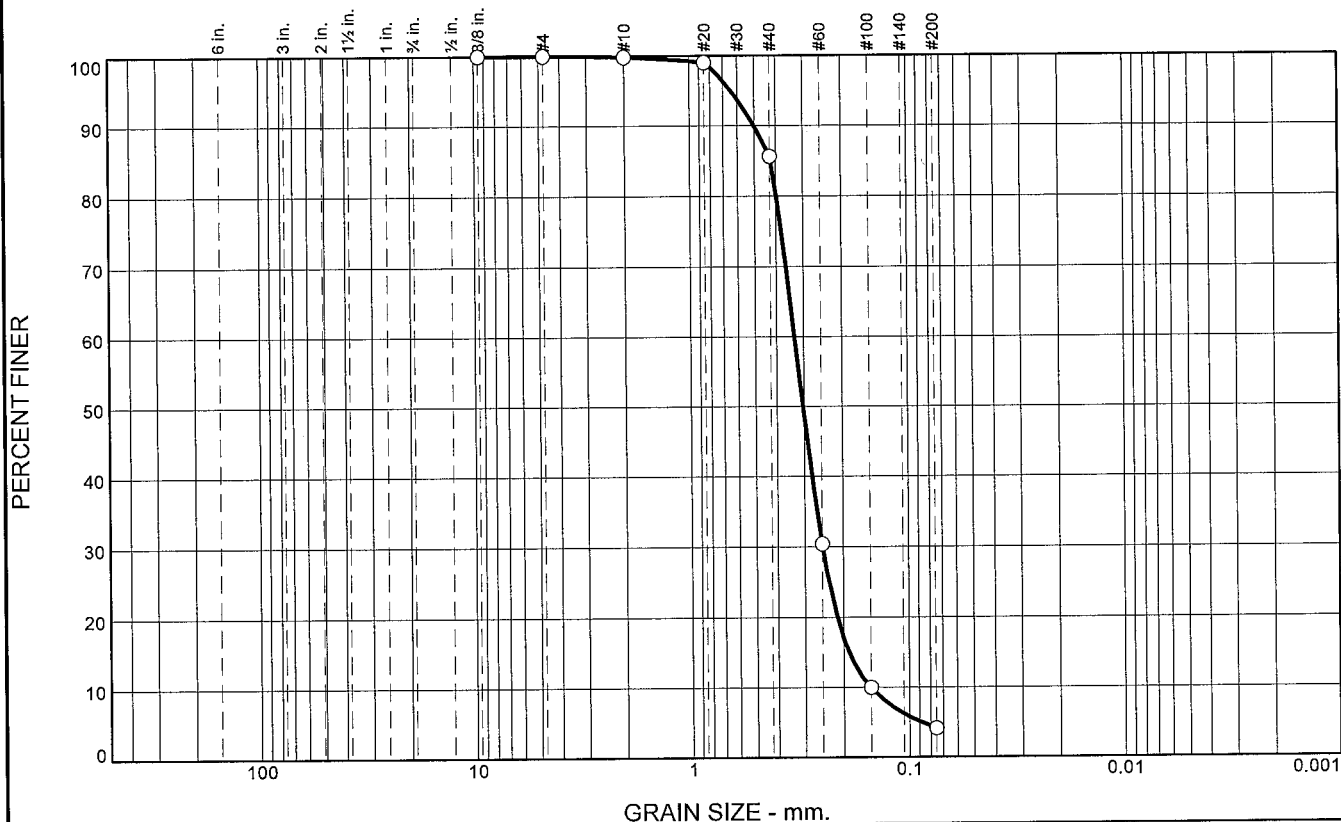
Tested By: J.Maddox **Checked By:** R.Byrd

Boring Designation BI-PB-120-10

| | | | | |
|--|--|--|--|--|
| DRILLING LOG | | DIVISION South Atlantic | INSTALLATION Mobile District | SHEET 1 OF 1 SHEETS |
| 1. PROJECT MsCIP Barrier Island Restoration Petit Bois Pass- AL East | | | 9. SIZE AND TYPE OF BIT N/A | |
| 2. BORING DESIGNATION BI-PB-120-10 | | 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 | | <input type="checkbox"/> AUTO HAMMER <input type="checkbox"/> MANUAL HAMMER |
| 4. NAME OF DRILLER Construction Solutions International, Inc. | | 12. TOTAL SAMPLES | | DISTURBED 3 |
| 5. DIRECTION OF BORING <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED | | 13. TOTAL NUMBER CORE BOXES | | UNDISTURBED (UD) 0 |
| 6. THICKNESS OF OVERBURDEN N/A | | 14. WATER DEPTH 23 Ft. | | 15. DATE BORING |
| 7. DEPTH DRILLED INTO ROCK N/A | | 16. ELEVATION TOP OF BORING -22.7 Ft. | | STARTED 07-30-10 |
| 8. TOTAL DEPTH OF BORING 15.0 Ft. | | 17. TOTAL RECOVERY FOR BORING 100% | | COMPLETED 07-30-10 |
| | | 18. SIGNATURE AND TITLE OF INSPECTOR Chris Gillentine, Geologist | | |

| ELEV. | DEPTH | LEGEND | CLASSIFICATION OF MATERIALS | SAMPLE | LABORATORY RESULTS |
|-------|-------|--------|---|--------|--|
| -22.7 | 0.0 | | | | |
| | | ••••• | SAND, poorly-graded, mostly fine to medium-grained sand-sized quartz, trace shell fragments, lt. gray (SP) | A | Classification: SP Color: 2.5Y 6/2-light brownish gray D50: 0.303 mm % Fines: 4.1 |
| | | ••••• | | B | Classification: SP Color: 2.5Y 6/2-light brownish gray D50: 0.299 mm % Fines: 3.5 |
| | | ••••• | | C | Classification: SP Color: 2.5Y 7/1-light gray D50: 0.2684 mm % Fines: 3.1 |
| -37.7 | 15.0 | | NOTES: 1. Soils are field visually classified in accordance with the Unified Soils Classification System. 2. NS = Sample not submitted for laboratory analysis from this interval. 3. Seafloor elevation calculated using sampling vessel's fathometer water depth reading and applying NOAA tidal gauge data conversion factor. | | |

Particle Size Distribution Report



| % +3" | % Gravel | | % Sand | | | % Fines | |
|-------|----------|------|--------|--------|------|---------|------|
| | Coarse | Fine | Coarse | Medium | Fine | Silt | Clay |
| 0.0 | 0.0 | 0.0 | 0.2 | 14.2 | 81.5 | 4.1 | |

| SIEVE SIZE | PERCENT FINER | SPEC.* PERCENT | PASS? (X=NO) |
|------------|---------------|----------------|--------------|
| .375 | 100.0 | | |
| #4 | 100.0 | | |
| #10 | 99.8 | | |
| #20 | 99.0 | | |
| #40 | 85.6 | | |
| #60 | 30.4 | | |
| #100 | 10.0 | | |
| #200 | 4.1 | | |

Material Description

SAND, (SP), medium to fine grained

Atterberg Limits

PL= LL= PI=

Coefficients

D₉₀= 0.5049 D₈₅= 0.4218 D₆₀= 0.3305
D₅₀= 0.3030 D₃₀= 0.2488 D₁₅= 0.1894
D₁₀= 0.1501 C_u= 2.20 C_c= 1.25

Classification

USCS= SP AASHTO=

Remarks

CADD CODE = CH10D965

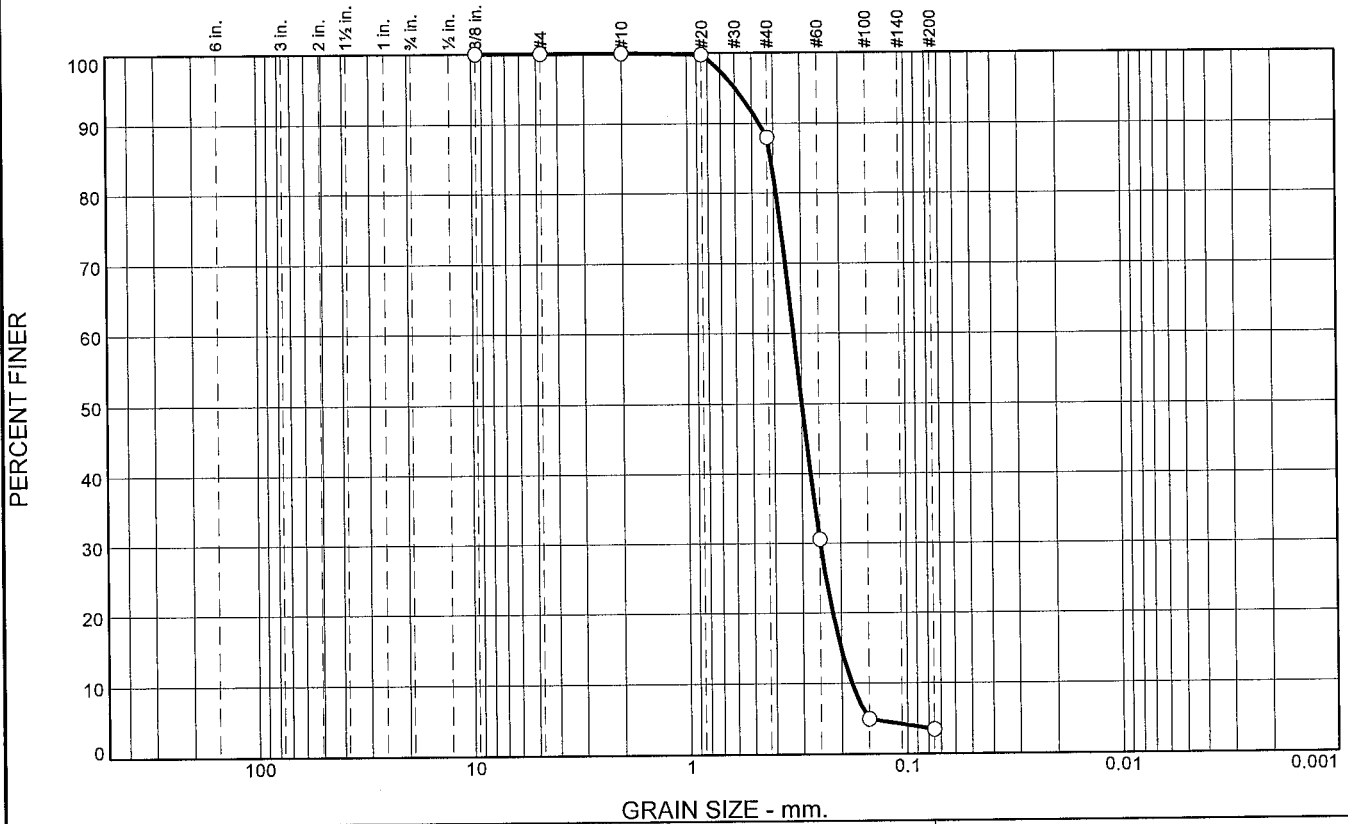
* (no specification provided)

Location: USACE Sample # BI-PB-120-10A **Depth:** 0.0 - 5.0 (ft.) **Date:** 8/7/10
Sample Number: TE Lab ID: 4612.36

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

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

Particle Size Distribution Report



| % +3" | % Gravel | | % Sand | | | % Fines | |
|-------|----------|------|--------|--------|------|---------|------|
| | Coarse | Fine | Coarse | Medium | Fine | Silt | Clay |
| 0.0 | 0.0 | 0.0 | 0.0 | 12.0 | 84.5 | 3.5 | |

| SIEVE SIZE | PERCENT FINER | SPEC.* PERCENT | PASS? (X=NO) |
|------------|---------------|----------------|--------------|
| .375 | 100.0 | | |
| #4 | 100.0 | | |
| #10 | 100.0 | | |
| #20 | 99.7 | | |
| #40 | 88.0 | | |
| #60 | 30.5 | | |
| #100 | 5.0 | | |
| #200 | 3.5 | | |

Material Description

SAND, (SP), medium to fine grained

Atterberg Limits

PL= LL= PI=

Coefficients

D₉₀= 0.4633 D₈₅= 0.4100 D₆₀= 0.3251
D₅₀= 0.2990 D₃₀= 0.2486 D₁₅= 0.2017
D₁₀= 0.1803 C_u= 1.80 C_c= 1.05

Classification

USCS= SP AASHTO=

Remarks

CADD CODE = CH10D965

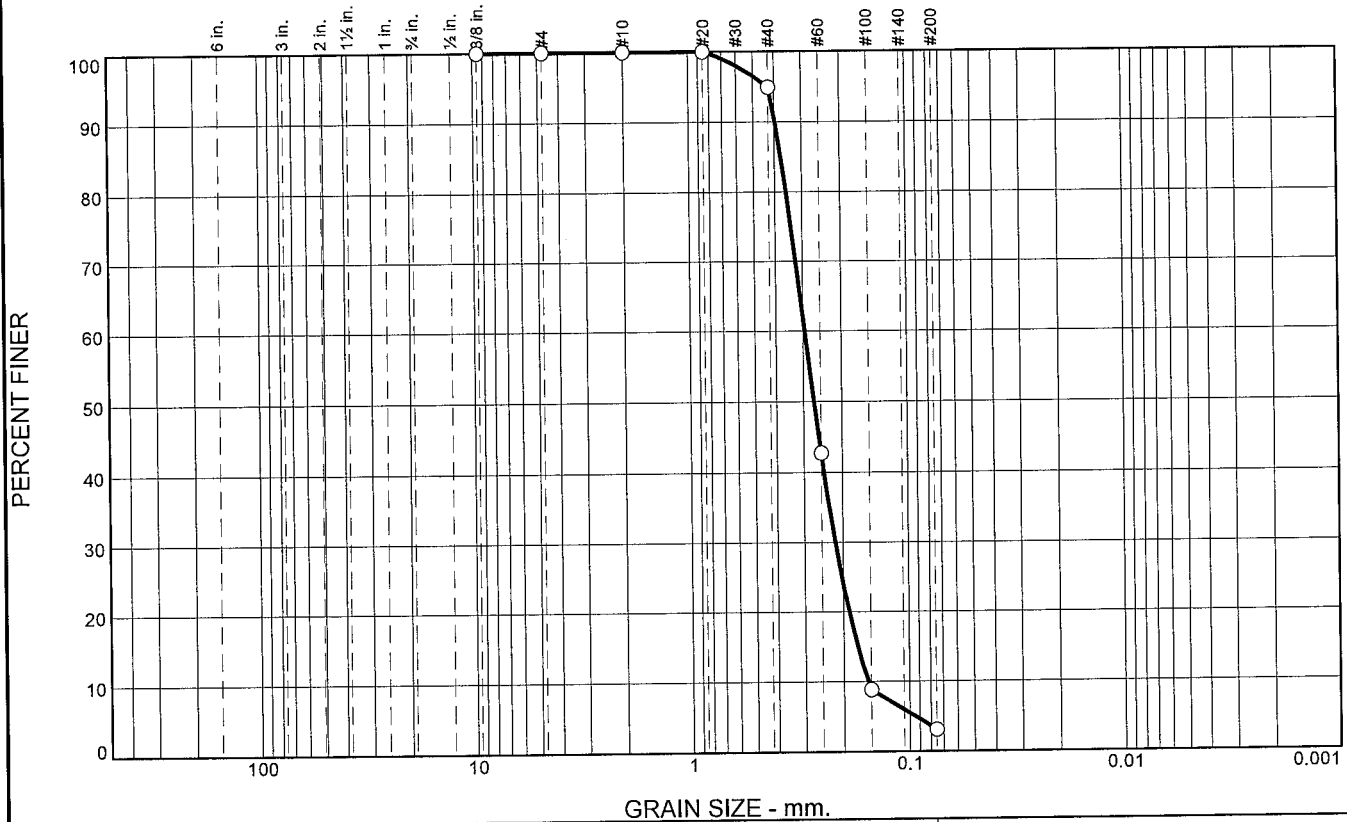
* (no specification provided)

Location: USACE Sample # BI-PB-120-10B Depth: 5.0 - 10.0 (ft.) Date: 8/7/10
Sample Number: TE Lab ID: 4612.37

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

Tested By: J.Maddox Checked By: R.Byrd

Particle Size Distribution Report



| % +3" | % Gravel | | % Sand | | | % Fines | |
|-------|----------|------|--------|--------|------|---------|------|
| | Coarse | Fine | Coarse | Medium | Fine | Silt | Clay |
| 0.0 | 0.0 | 0.0 | 0.0 | 5.1 | 91.8 | 3.1 | |

| SIEVE SIZE | PERCENT FINER | SPEC.* PERCENT | PASS? (X=NO) |
|------------|---------------|----------------|--------------|
| .375 | 100.0 | | |
| #4 | 100.0 | | |
| #10 | 100.0 | | |
| #20 | 100.0 | | |
| #40 | 94.9 | | |
| #60 | 42.7 | | |
| #100 | 8.8 | | |
| #200 | 3.1 | | |

Material Description

SAND, (SP), fine grained

Atterberg Limits
 PL= LL= PI=

Coefficients
 D₉₀= 0.3968 D₈₅= 0.3742 D₆₀= 0.2943
 D₅₀= 0.2684 D₃₀= 0.2169 D₁₅= 0.1728
 D₁₀= 0.1548 C_u= 1.90 C_c= 1.03

Classification
 USCS= SP AASHTO=

Remarks
 CADD CODE = CH10D965

* (no specification provided)

Location: USACE Sample # BI-PB-120-10C
Sample Number: TE Lab ID: 4612.38

Depth: 10.0 15.0 (ft.)

Date: 8/7/10

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

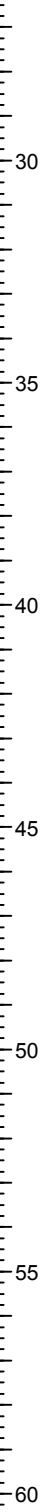
Tested By: J.Maddox **Checked By:** R.Byrd

Boring Designation BI-PB-121-10

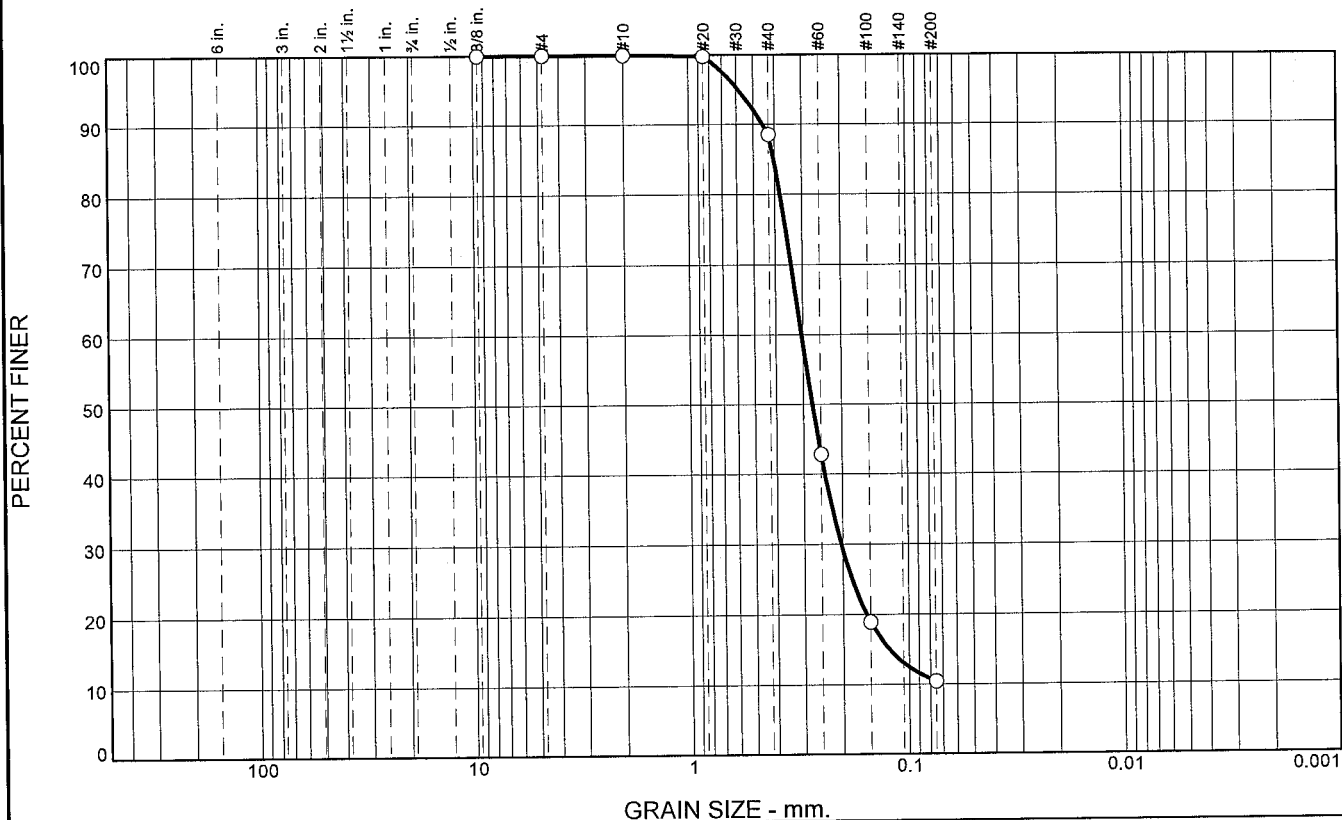
| | | | | |
|--|--|--|--|--|
| DRILLING LOG | | DIVISION South Atlantic | INSTALLATION Mobile District | SHEET 1 OF 2 SHEETS |
| 1. PROJECT MsCIP Barrier Island Restoration Petit Bois Pass- AL East | | | 9. SIZE AND TYPE OF BIT N/A | |
| 2. BORING DESIGNATION BI-PB-121-10 | | LOCATION COORDINATES E = 1,149,586 N = 257,136 | | 10. COORDINATE SYSTEM/DATUM State Plane, MSE (U.S. Ft.) |
| 3. DRILLING AGENCY Corps of Engineers - CESAM | | CONTRACTOR FILE NO. | | HORIZONTAL NAD83 |
| 4. NAME OF DRILLER Construction Solutions International, Inc. | | 11. MANUFACTURER'S DESIGNATION OF DRILL Vibracore | | <input type="checkbox"/> AUTO HAMMER <input type="checkbox"/> MANUAL HAMMER |
| 5. DIRECTION OF BORING <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED | | DEG. FROM VERTICAL | BEARING | 12. TOTAL SAMPLES 4 |
| 6. THICKNESS OF OVERBURDEN N/A | | 13. TOTAL NUMBER CORE BOXES | | DISTURBED 4 |
| 7. DEPTH DRILLED INTO ROCK N/A | | 14. WATER DEPTH 29 Ft. | | UNDISTURBED (UD) 0 |
| 8. TOTAL DEPTH OF BORING 20.0 Ft. | | 15. DATE BORING | | STARTED 07-31-10 |
| | | 16. ELEVATION TOP OF BORING -30.9 Ft. | | COMPLETED 07-31-10 |
| | | 17. TOTAL RECOVERY FOR BORING 100% | | |
| | | 18. SIGNATURE AND TITLE OF INSPECTOR Chris Gillentine, Geologist | | |

| ELEV. | DEPTH | LEGEND | CLASSIFICATION OF MATERIALS | SAMPLE | LABORATORY RESULTS |
|-------|-------|--------|--|--------|--|
| -30.9 | 0.0 | | | | |
| | | ••••• | SAND, well-graded, mostly fine-grained sand-sized quartz, lt. gray (SW) | A | Classification: SP Color: 2.5Y 7/1-light gray D50: 0.2825 mm % Fines: 4.6 |
| | | ••••• | | B | Classification: SP-SM Color: 2.5Y 7/1-light gray D50: 0.2726 mm % Fines: 10.4 |
| | | ••••• | | C | Classification: SP-SM Color: 2.5Y 7/2-light gray D50: 0.3128 mm % Fines: 6.2 |
| -45.9 | 15.0 | ••••• | | | |
| | | ••••• | SAND, poorly-graded, mostly fine to medium-grained sand-sized quartz, lt. gray (SP) | D | Classification: SP-SM Color: 2.5Y 7/2-light gray D50: 0.3051 mm % Fines: 6.1 |
| -50.9 | 20.0 | ••••• | | | |
| | | | NOTES: 1. Soils are field visually classified in accordance with the Unified Soils Classification System. 2. NS = Sample not submitted for laboratory analysis from this interval. 3. Seafloor elevation determined from 2010 | | |

| DRILLING LOG (Cont. Sheet) | | | INSTALLATION Mobile District | | | SHEET 2 |
|--|-------|--------|---|----------------------------|---------------------------|--------------------|
| | | | | | | OF 2 SHEETS |
| PROJECT MsCIP Barrier Island Restoration | | | COORDINATE SYSTEM/DATUM State Plane, MSE (U.S. Ft.) | HORIZONTAL NAD83 | VERTICAL NAVD88 | |
| LOCATION COORDINATES X = 1,149,586 Y = 257,136 | | | ELEVATION TOP OF BORING -30.9 Ft. | | | |
| ELEV. | DEPTH | LEGEND | CLASSIFICATION OF MATERIALS | SAMPLE | LABORATORY RESULTS | |
| | | | USACE survey. | | | |



Particle Size Distribution Report



| % +3" | % Gravel | | % Sand | | | % Fines | |
|-------|----------|------|--------|--------|------|---------|------|
| | Coarse | Fine | Coarse | Medium | Fine | Silt | Clay |
| 0.0 | 0.0 | 0.0 | 0.0 | 11.5 | 78.1 | 10.4 | |

| SIEVE SIZE | PERCENT FINER | SPEC.* PERCENT | PASS? (X=NO) |
|------------|---------------|----------------|--------------|
| .375 | 100.0 | | |
| #4 | 100.0 | | |
| #10 | 100.0 | | |
| #20 | 99.8 | | |
| #40 | 88.5 | | |
| #60 | 42.8 | | |
| #100 | 18.9 | | |
| #200 | 10.4 | | |

Material Description

SAND, (SP-SM), medium to fine grained

Atterberg Limits

PL= LL= PI=

Coefficients

D₉₀= 0.4537 D₈₅= 0.4035 D₆₀= 0.3039
D₅₀= 0.2726 D₃₀= 0.2041 D₁₅= 0.1228
D₁₀= C_u= C_c=

Classification

USCS= SP-SM AASHTO=

Remarks

CADD CODE = CH10D965

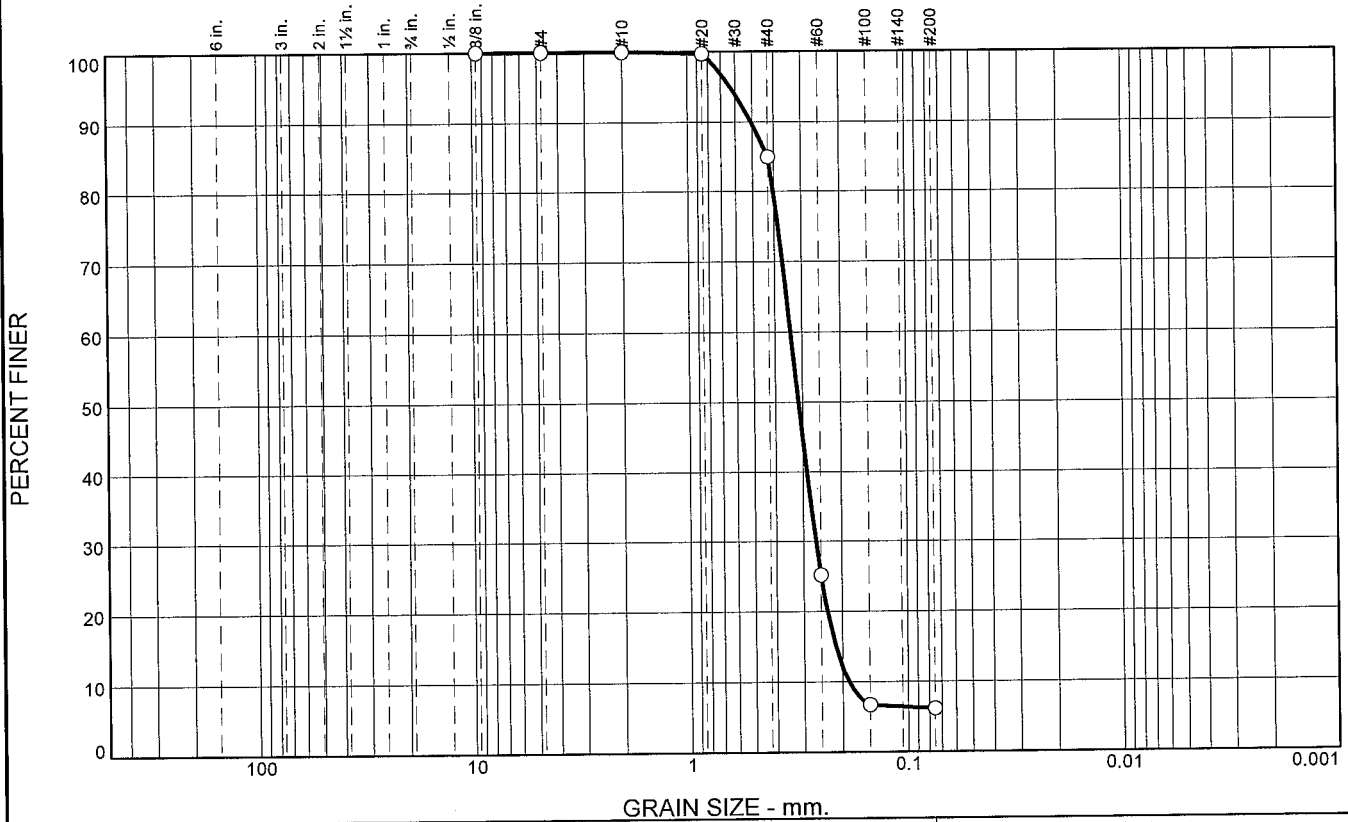
* (no specification provided)

Location: USACE Sample # BI-PB-121-10B Depth: 5.0 - 10.0 (ft.) Date: 8/7/10
Sample Number: TE Lab ID: 4612.40

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

Tested By: J.Maddox Checked By: R.Byrd

Particle Size Distribution Report



| % +3" | % Gravel | | % Sand | | | % Fines | |
|-------|----------|------|--------|--------|------|---------|------|
| | Coarse | Fine | Coarse | Medium | Fine | Silt | Clay |
| 0.0 | 0.0 | 0.0 | 0.0 | 15.1 | 78.7 | 6.2 | |

| SIEVE SIZE | PERCENT FINER | SPEC.* PERCENT | PASS? (X=NO) |
|------------|---------------|----------------|--------------|
| .375 | 100.0 | | |
| #4 | 100.0 | | |
| #10 | 100.0 | | |
| #20 | 99.7 | | |
| #40 | 84.9 | | |
| #60 | 25.2 | | |
| #100 | 6.7 | | |
| #200 | 6.2 | | |

Material Description

SAND, (SP-SM), medium to fine grained

Atterberg Limits

PL= LL= PI=

Coefficients

D₉₀= 0.5090 D₈₅= 0.4264 D₆₀= 0.3388
 D₅₀= 0.3128 D₃₀= 0.2630 D₁₅= 0.2150
 D₁₀= 0.1880 C_u= 1.80 C_c= 1.09

Classification

USCS= SP-SM AASHTO=

Remarks

CADD CODE = CH10D965

* (no specification provided)

Location: USACE Sample # BI-PB-121-10C
Sample Number: TE Lab ID: 4612.41

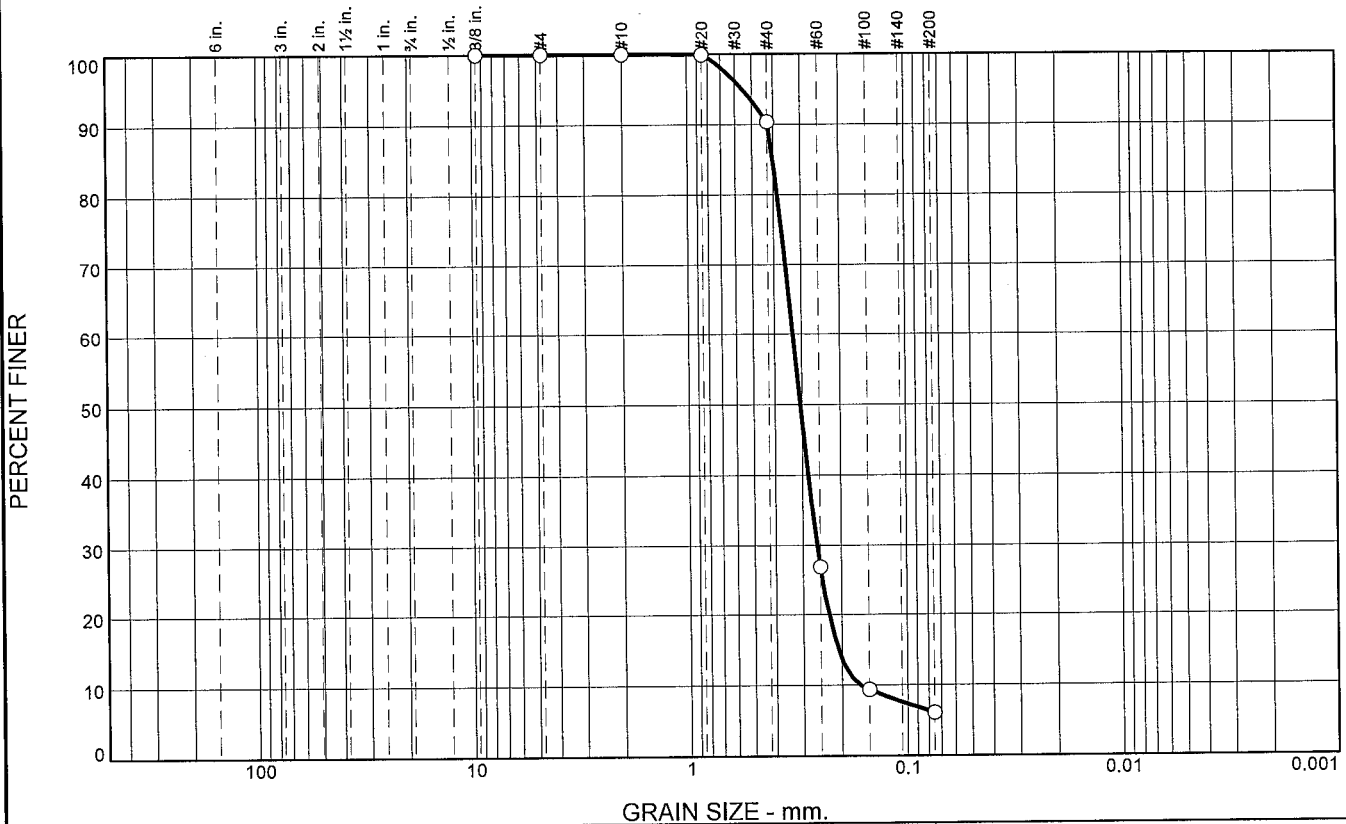
Depth: 10.0 - 15.0 (ft.)

Date: 8/7/10

| | |
|--|---|
| <p style="text-align: center; font-size: 1.2em;">Thompson Engineering</p> <p style="text-align: center; font-size: 1.2em;">Mobile, Alabama</p> | <p>Client: US Army Corps of Engineers</p> <p>Project: Contract No. W91278-10-D-0026 - Task 03 Mississippi Barrier Island Restoration Project</p> <p>Project No: 10-2123-0009 Report No.</p> |
|--|---|

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

Particle Size Distribution Report



| % +3" | % Gravel | | % Sand | | | % Fines | |
|-------|----------|------|--------|--------|------|---------|------|
| | Coarse | Fine | Coarse | Medium | Fine | Silt | Clay |
| 0.0 | 0.0 | 0.0 | 0.0 | 9.6 | 84.3 | 6.1 | |

| SIEVE SIZE | PERCENT FINER | SPEC.* PERCENT | PASS? (X=NO) |
|------------|---------------|----------------|--------------|
| .375 | 100.0 | | |
| #4 | 100.0 | | |
| #10 | 100.0 | | |
| #20 | 99.9 | | |
| #40 | 90.4 | | |
| #60 | 26.9 | | |
| #100 | 9.4 | | |
| #200 | 6.1 | | |

Material Description

SAND, (SP-SM), fine grained

Atterberg Limits

PL= LL= PI=

Coefficients

D₉₀= 0.4232 D₈₅= 0.4020 D₆₀= 0.3287
D₅₀= 0.3051 D₃₀= 0.2582 D₁₅= 0.2078
D₁₀= 0.1654 C_u= 1.99 C_c= 1.23

Classification

USCS= SP-SM AASHTO=

Remarks

CADD CODE = CH10D965

* (no specification provided)


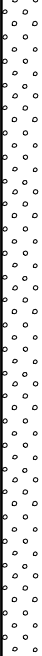

Location: USACE Sample # BI-PB-121-10D **Depth:** 15.0 - 20.0 (ft.) **Date:** 8/7/10
Sample Number: TE Lab ID: 4612.42

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

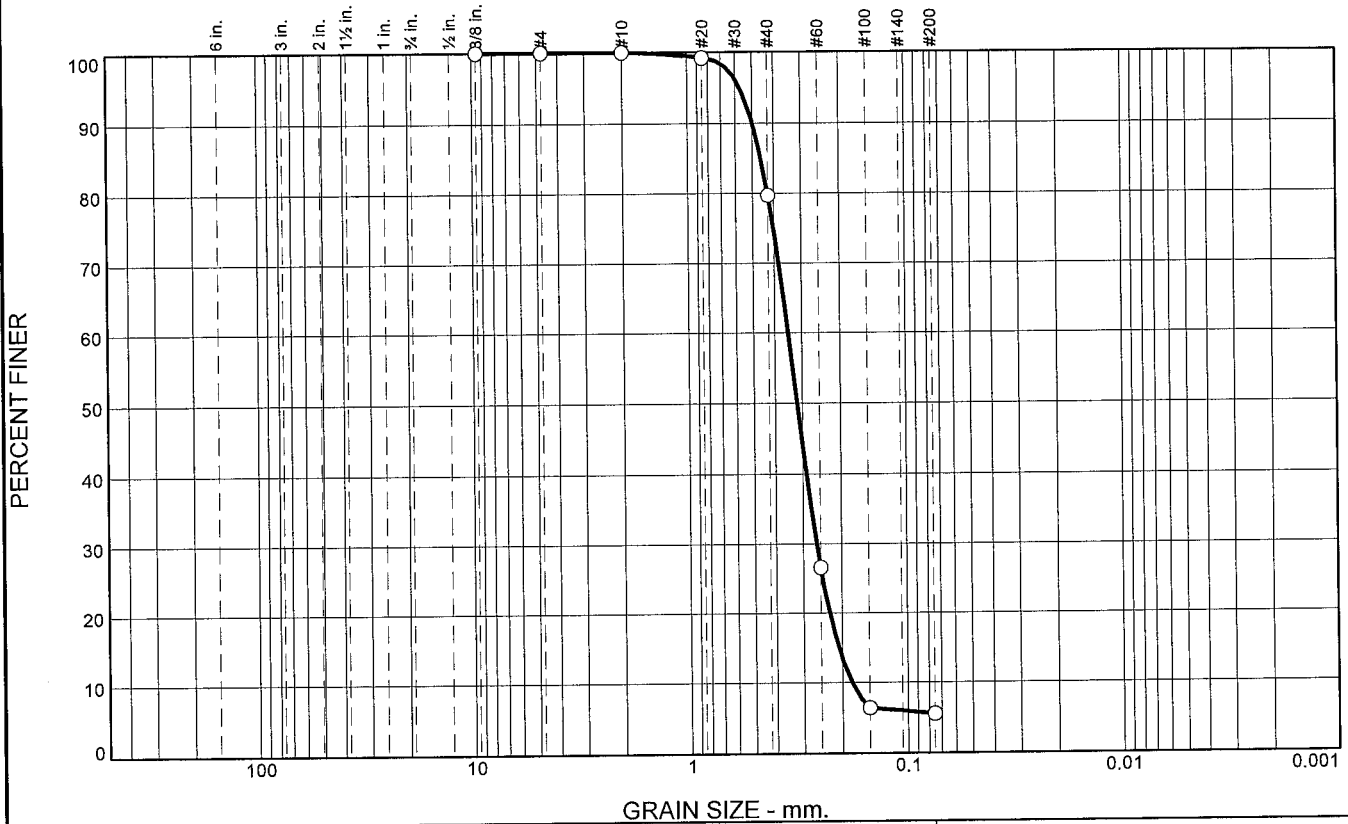
Tested By: J.Maddox **Checked By:** R.Byrd

Boring Designation BI-PB-122-10

| | | | | |
|--|--|---|--|--|
| DRILLING LOG | | DIVISION South Atlantic | INSTALLATION Mobile District | SHEET 1 OF 1 SHEETS |
| 1. PROJECT MsCIP Barrier Island Restoration Petit Bois Pass- AL East | | | 9. SIZE AND TYPE OF BIT N/A | |
| 2. BORING DESIGNATION BI-PB-122-10 | | 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 | | <input type="checkbox"/> AUTO HAMMER <input type="checkbox"/> MANUAL HAMMER |
| 4. NAME OF DRILLER Construction Solutions International, Inc. | | 12. TOTAL SAMPLES | | DISTURBED 4 |
| 5. DIRECTION OF BORING <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED | | 13. TOTAL NUMBER CORE BOXES | | UNDISTURBED (UD) 0 |
| 6. THICKNESS OF OVERBURDEN N/A | | 14. WATER DEPTH 30 Ft. | | 15. DATE BORING |
| 7. DEPTH DRILLED INTO ROCK N/A | | 16. ELEVATION TOP OF BORING -31.5 Ft. | | STARTED 07-31-10 |
| 8. TOTAL DEPTH OF BORING 18.5 Ft. | | 17. TOTAL RECOVERY FOR BORING 100% | | COMPLETED 07-31-10 |
| 18. SIGNATURE AND TITLE OF INSPECTOR Chris Gillentine, Geologist | | | | |

| ELEV. | DEPTH | LEGEND | CLASSIFICATION OF MATERIALS | SAMPLE | LABORATORY RESULTS |
|-------|-------|---|--|--------|--|
| -31.5 | 0.0 | | | | |
| -32.5 | 1.0 |  | CLAY, fat, dark gray (CH) | NS | |
| | |  | SAND, well-graded, mostly fine-grained sand-sized quartz, lt. gray (SW) | A | Classification: SP-SM Color: 2.5Y 6/2-light brownish gray D50: 0.3165 mm % Fines: 5.5 |
| | | | | B | Classification: SM Color: 2.5Y 7/1-light gray D50: 0.259 mm % Fines: 12.8 |
| | | | | C | Classification: SP-SM Color: 2.5Y 7/2-light gray D50: 0.3229 mm % Fines: 6.5 |
| -47.5 | 16.0 | | | D | Classification: SP Color: 2.5Y 7/1-light gray D50: 0.3342 mm % Fines: 4.3 |
| -50.0 | 18.5 |  | CLAY, fat, dark gray (CH) | NS | |
| | | | NOTES: 1. Soils are field visually classified in accordance with the Unified Soils Classification System. 2. NS = Sample not submitted for laboratory analysis from this interval. 3. Seafloor elevation determined from 2010 USACE survey. | | |

Particle Size Distribution Report



| % +3" | % Gravel | | % Sand | | | % Fines | |
|-------|----------|------|--------|--------|------|---------|------|
| | Coarse | Fine | Coarse | Medium | Fine | Silt | Clay |
| 0.0 | 0.0 | 0.0 | 0.0 | 20.3 | 74.2 | 5.5 | |

| SIEVE SIZE | PERCENT FINER | SPEC.* PERCENT | PASS? (X=NO) |
|------------|---------------|----------------|--------------|
| .375 | 100.0 | | |
| #4 | 100.0 | | |
| #10 | 100.0 | | |
| #20 | 99.2 | | |
| #40 | 79.7 | | |
| #60 | 26.6 | | |
| #100 | 6.4 | | |
| #200 | 5.5 | | |

Material Description

SAND, (SP-SM), medium to fine grained

Atterberg Limits

PL= LL= PI=

Coefficients

D₉₀= 0.5002 D₈₅= 0.4574 D₆₀= 0.3468
D₅₀= 0.3165 D₃₀= 0.2602 D₁₅= 0.2078
D₁₀= 0.1811 C_u= 1.91 C_c= 1.08

Classification

USCS= SP-SM AASHTO=

Remarks

CADD CODE = CH10D965

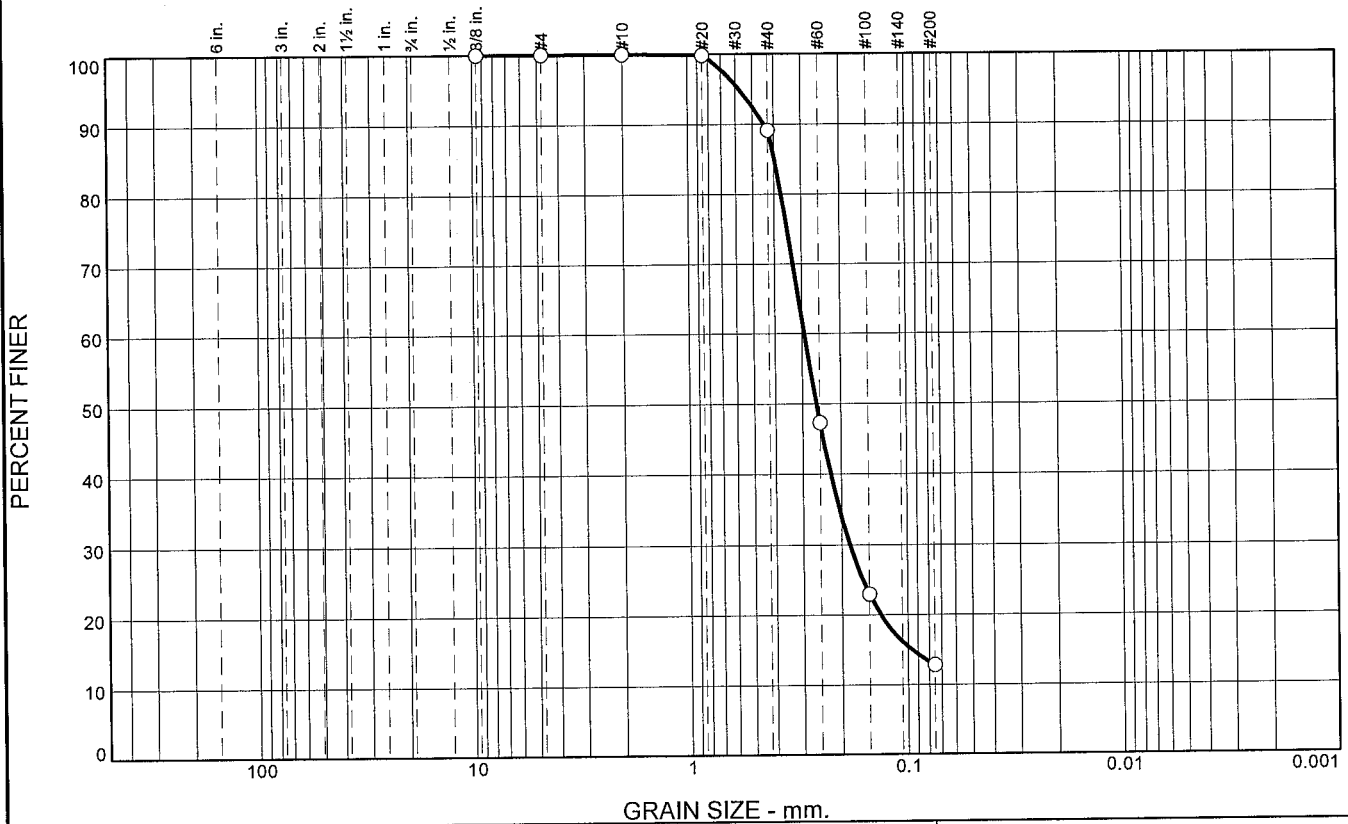
* (no specification provided)

Location: USACE Sample # BI-PB-122-10A Depth: 1.0 - 5.0 (ft.) Date: 8/7/10
Sample Number: TE Lab ID: 4612.43

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

Tested By: J.Maddox Checked By: R.Byrd

Particle Size Distribution Report



| % +3" | % Gravel | | % Sand | | | % Fines | |
|-------|----------|------|--------|--------|------|---------|------|
| | Coarse | Fine | Coarse | Medium | Fine | Silt | Clay |
| 0.0 | 0.0 | 0.0 | 0.0 | 10.9 | 76.3 | 12.8 | |

| SIEVE SIZE | PERCENT FINER | SPEC.* PERCENT | PASS? (X=NO) |
|------------|---------------|----------------|--------------|
| .375 | 100.0 | | |
| #4 | 100.0 | | |
| #10 | 100.0 | | |
| #20 | 99.8 | | |
| #40 | 89.1 | | |
| #60 | 47.3 | | |
| #100 | 23.0 | | |
| #200 | 12.8 | | |

Material Description

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

Atterberg Limits
 PL= LL= PI=

Coefficients
 D₉₀= 0.4429 D₈₅= 0.3980 D₆₀= 0.2925
 D₅₀= 0.2590 D₃₀= 0.1841 D₁₅= 0.0956
 D₁₀= C_u= C_c=

Classification
 USCS= SM AASHTO=

Remarks
 CADD CODE = CH10D965

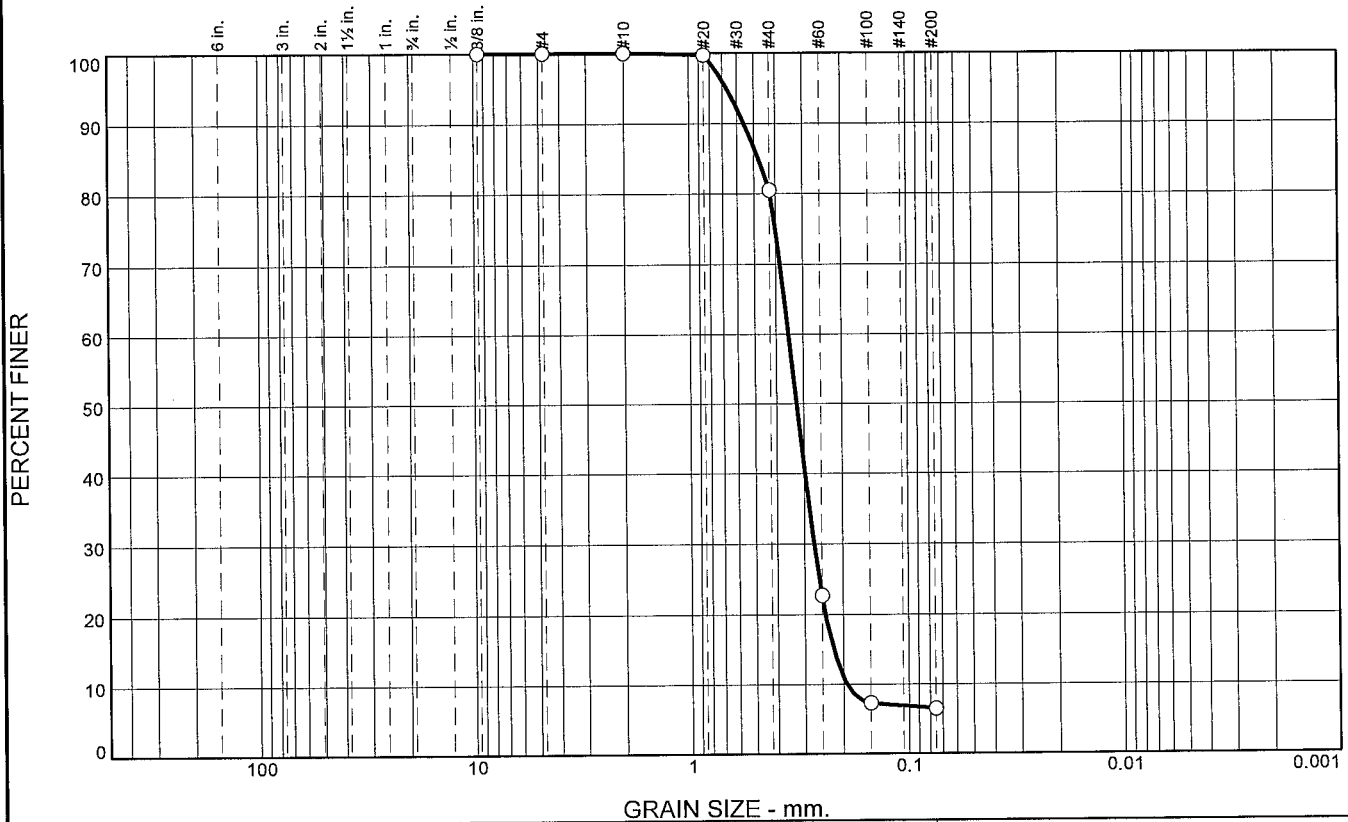
* (no specification provided)

Location: USACE Sample # BI-PB-122-10B **Depth:** 5.0 - 10.0 (ft.) **Date:** 8/7/10
Sample Number: TE Lab ID: 4612.44

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

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

Particle Size Distribution Report



| % +3" | % Gravel | | % Sand | | | % Fines | |
|-------|----------|------|--------|--------|------|---------|------|
| | Coarse | Fine | Coarse | Medium | Fine | Silt | Clay |
| 0.0 | 0.0 | 0.0 | 0.0 | 19.5 | 74.0 | 6.5 | |

| SIEVE SIZE | PERCENT FINER | SPEC.* PERCENT | PASS? (X=NO) |
|------------|---------------|----------------|--------------|
| .375 | 100.0 | | |
| #4 | 100.0 | | |
| #10 | 100.0 | | |
| #20 | 99.7 | | |
| #40 | 80.5 | | |
| #60 | 22.7 | | |
| #100 | 7.3 | | |
| #200 | 6.5 | | |

Material Description

SAND, (SP-SM), medium to fine grained

Atterberg Limits

PL= LL= PI=

Coefficients

D₉₀= 0.5568 D₈₅= 0.4785 D₆₀= 0.3508
D₅₀= 0.3229 D₃₀= 0.2707 D₁₅= 0.2219
D₁₀= 0.1931 C_u= 1.82 C_c= 1.08

Classification

USCS= SP-SM AASHTO=

Remarks

CADD CODE = CH10D965

* (no specification provided)

Location: USACE Sample # BI-PB-122-10C
Sample Number: TE Lab ID: 4612.45

Depth: 10.0 - 15.0 (ft.)

Date: 8/7/10

Thompson Engineering

Mobile, Alabama

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

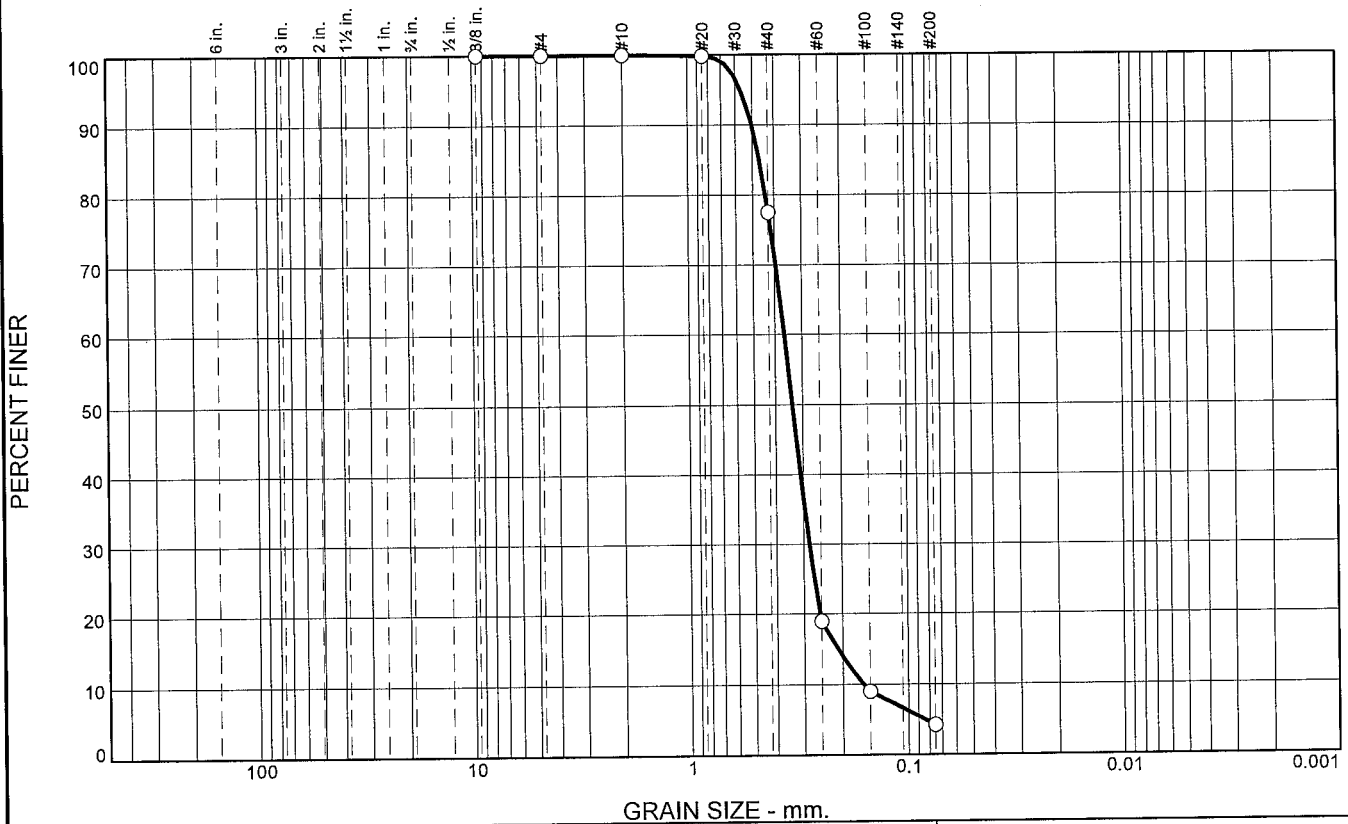
Project No: 10-2123-0009

Report No.

Tested By: J.Maddox

Checked By: R.Byrd

Particle Size Distribution Report



| % +3" | % Gravel | | % Sand | | | % Fines | |
|-------|----------|------|--------|--------|------|---------|------|
| | Coarse | Fine | Coarse | Medium | Fine | Silt | Clay |
| 0.0 | 0.0 | 0.0 | 0.0 | 22.5 | 73.2 | 4.3 | |

| SIEVE SIZE | PERCENT FINER | SPEC.* PERCENT | PASS? (X=NO) |
|------------|---------------|----------------|--------------|
| .375 | 100.0 | | |
| #4 | 100.0 | | |
| #10 | 100.0 | | |
| #20 | 99.8 | | |
| #40 | 77.5 | | |
| #60 | 18.9 | | |
| #100 | 9.0 | | |
| #200 | 4.3 | | |

Material Description

SAND, (SP), medium to fine grained

Atterberg Limits
 PL= LL= PI=

Coefficients
 D₉₀= 0.5046 D₈₅= 0.4656 D₆₀= 0.3624
 D₅₀= 0.3342 D₃₀= 0.2822 D₁₅= 0.2106
 D₁₀= 0.1603 C_u= 2.26 C_c= 1.37

Classification
 USCS= SP AASHTO=

Remarks
 CADD CODE = CH10D965

* (no specification provided)

Location: USACE Sample # BI-PB-122-10D **Depth:** 15.0 - 16.5 (ft.) **Date:** 8/7/10
Sample Number: TE Lab ID: 4612.46

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

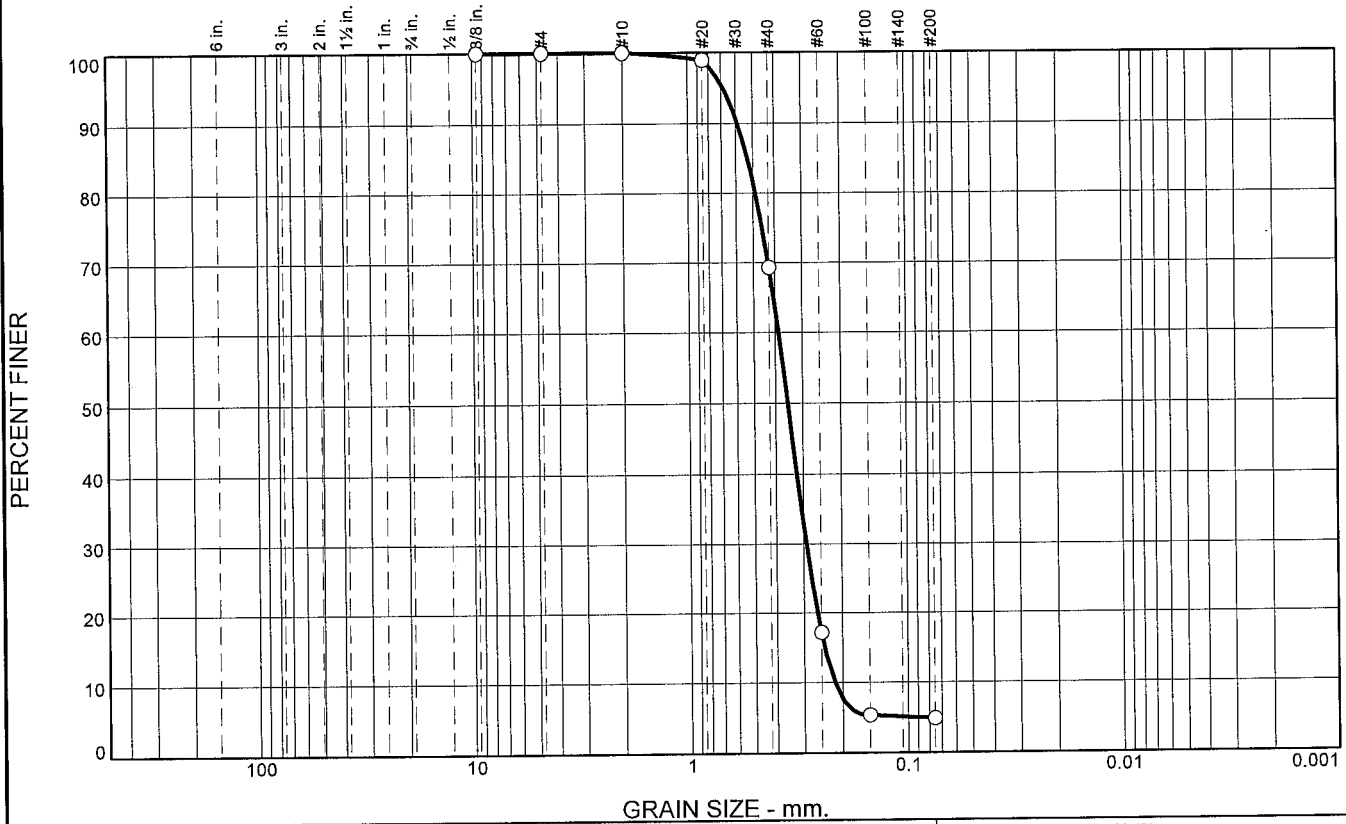
Tested By: J.Maddox **Checked By:** R.Byrd

Boring Designation BI-PB-123-10

| | | | | |
|--|--|--|--|--|
| DRILLING LOG | | DIVISION South Atlantic | INSTALLATION Mobile District | SHEET 1 OF 1 SHEETS |
| 1. PROJECT MsCIP Barrier Island Restoration Petit Bois Pass- AL East | | | 9. SIZE AND TYPE OF BIT N/A | |
| 2. BORING DESIGNATION BI-PB-123-10 | | 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 | | <input type="checkbox"/> AUTO HAMMER <input type="checkbox"/> MANUAL HAMMER |
| 4. NAME OF DRILLER Construction Solutions International, Inc. | | 12. TOTAL SAMPLES | | DISTURBED 3 |
| 5. DIRECTION OF BORING <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED | | 13. TOTAL NUMBER CORE BOXES | | UNDISTURBED (UD) 0 |
| 6. THICKNESS OF OVERBURDEN N/A | | 14. WATER DEPTH 31 Ft. | | |
| 7. DEPTH DRILLED INTO ROCK N/A | | 15. DATE BORING | | STARTED 07-31-10 |
| 8. TOTAL DEPTH OF BORING 16.0 Ft. | | 16. ELEVATION TOP OF BORING -32.4 Ft. | | COMPLETED 07-31-10 |
| | | 17. TOTAL RECOVERY FOR BORING 100% | | |
| | | 18. SIGNATURE AND TITLE OF INSPECTOR Chris Gillentine, Geologist | | |

| ELEV. | DEPTH | LEGEND | CLASSIFICATION OF MATERIALS | SAMPLE | LABORATORY RESULTS |
|-------|-------|--------|--|--------|--|
| -32.4 | 0.0 | | | | |
| | | | SAND, well-graded, mostly fine to medium-grained sand-sized quartz, lt. gray (SW) | A | Classification: SP Color: 2.5Y 7/2-light gray D50: 0.3514 mm % Fines: 4.9 |
| | | | | B | Classification: SP Color: 2.5Y 8/1-white D50: 0.3001 mm % Fines: 3.2 |
| | | | | C | Classification: SP Color: 2.5Y 8/1-white D50: 0.295 mm % Fines: 4.5 |
| -47.4 | 15.0 | | | | |
| -48.4 | 16.0 | | SAND, poorly-graded, some silt, dark gray (SP) | NS | |
| | | | NOTES: 1. Soils are field visually classified in accordance with the Unified Soils Classification System. 2. NS = Sample not submitted for laboratory analysis from this interval. 3. Seafloor elevation determined from 2010 USACE survey. | | |

Particle Size Distribution Report



| % +3" | % Gravel | | % Sand | | | % Fines | |
|-------|----------|------|--------|--------|------|---------|------|
| | Coarse | Fine | Coarse | Medium | Fine | Silt | Clay |
| 0.0 | 0.0 | 0.0 | 0.0 | 30.7 | 64.4 | 4.9 | |

| SIEVE SIZE | PERCENT FINER | SPEC.* PERCENT | PASS? (X=NO) |
|------------|---------------|----------------|--------------|
| .375 | 100.0 | | |
| #4 | 100.0 | | |
| #10 | 100.0 | | |
| #20 | 98.9 | | |
| #40 | 69.3 | | |
| #60 | 17.2 | | |
| #100 | 5.3 | | |
| #200 | 4.9 | | |

Material Description

SAND, (SP), medium to fine grained

Atterberg Limits
 PL= LL= PI=

Coefficients
 D₉₀= 0.5888 D₈₅= 0.5299 D₆₀= 0.3860
 D₅₀= 0.3514 D₃₀= 0.2909 D₁₅= 0.2416
 D₁₀= 0.2173 C_u= 1.78 C_c= 1.01

Classification
 USCS= SP AASHTO=

Remarks
 CADD CODE = CH10D965

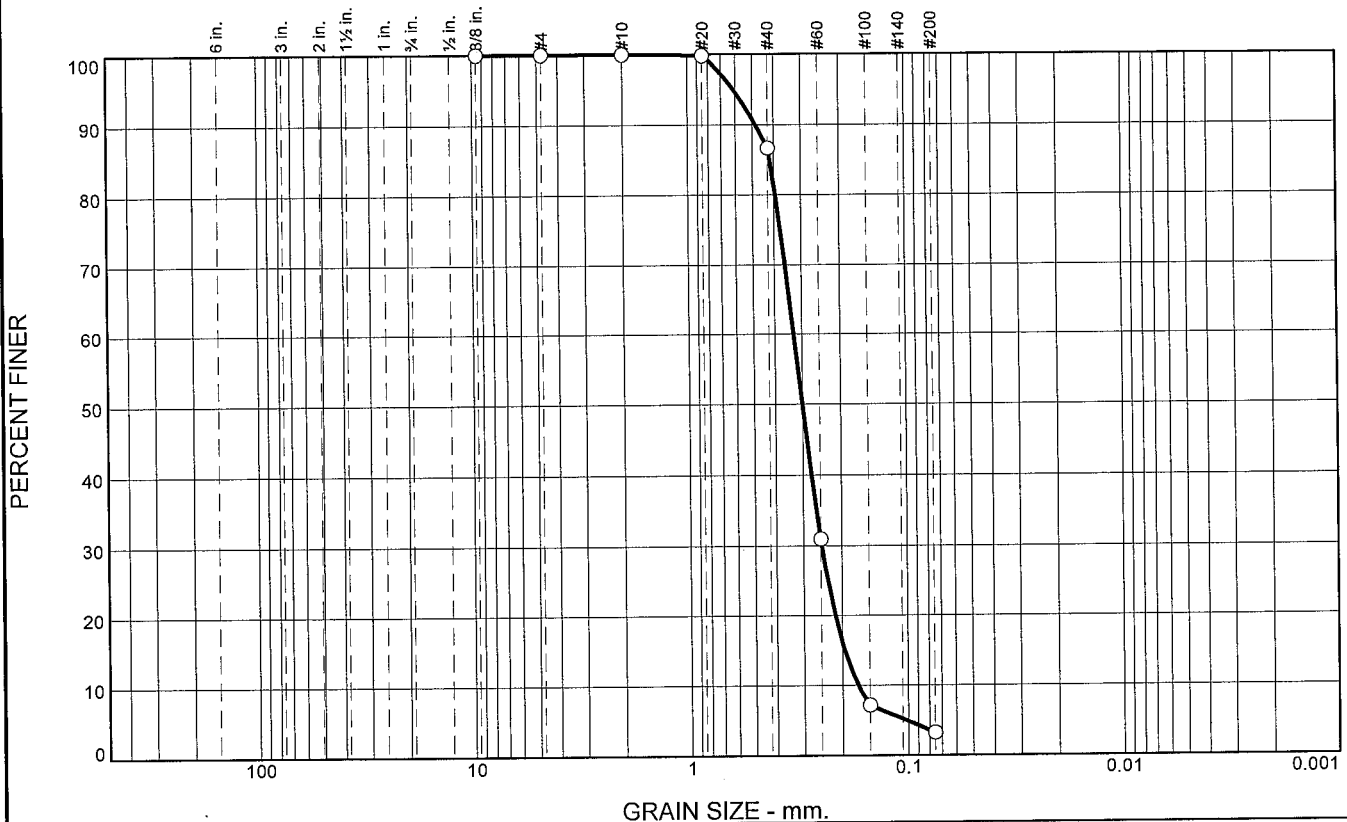
* (no specification provided)

Location: USACE Sample # BI-PB-123-10A Depth: 0.0 - 5.0 (ft.) Date: 8/7/10
 Sample Number: TE Lab ID: 4612.47

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

Tested By: J.Maddox Checked By: R.Byrd

Particle Size Distribution Report



| % +3" | % Gravel | | % Sand | | | % Fines | |
|-------|----------|------|--------|--------|------|---------|------|
| | Coarse | Fine | Coarse | Medium | Fine | Silt | Clay |
| 0.0 | 0.0 | 0.0 | 0.0 | 13.4 | 83.4 | 3.2 | |

| SIEVE SIZE | PERCENT FINER | SPEC.* PERCENT | PASS? (X=NO) |
|------------|---------------|----------------|--------------|
| .375 | 100.0 | | |
| #4 | 100.0 | | |
| #10 | 100.0 | | |
| #20 | 99.8 | | |
| #40 | 86.6 | | |
| #60 | 31.0 | | |
| #100 | 7.1 | | |
| #200 | 3.2 | | |

Material Description

SAND, (SP), medium to fine grained

Atterberg Limits

PL= LL= PI=

Coefficients

D₉₀= 0.4845 D₈₅= 0.4165 D₆₀= 0.3272
 D₅₀= 0.3001 D₃₀= 0.2473 D₁₅= 0.1957
 D₁₀= 0.1701 C_u= 1.92 C_c= 1.10

Classification

USCS= SP AASHTO=

Remarks

CADD CODE = CH10D965

* (no specification provided)

Location: USACE Sample # BI-PB-123-10B
Sample Number: TE Lab ID: 4612.48

Depth: 5.0 - 10.0 (ft.)

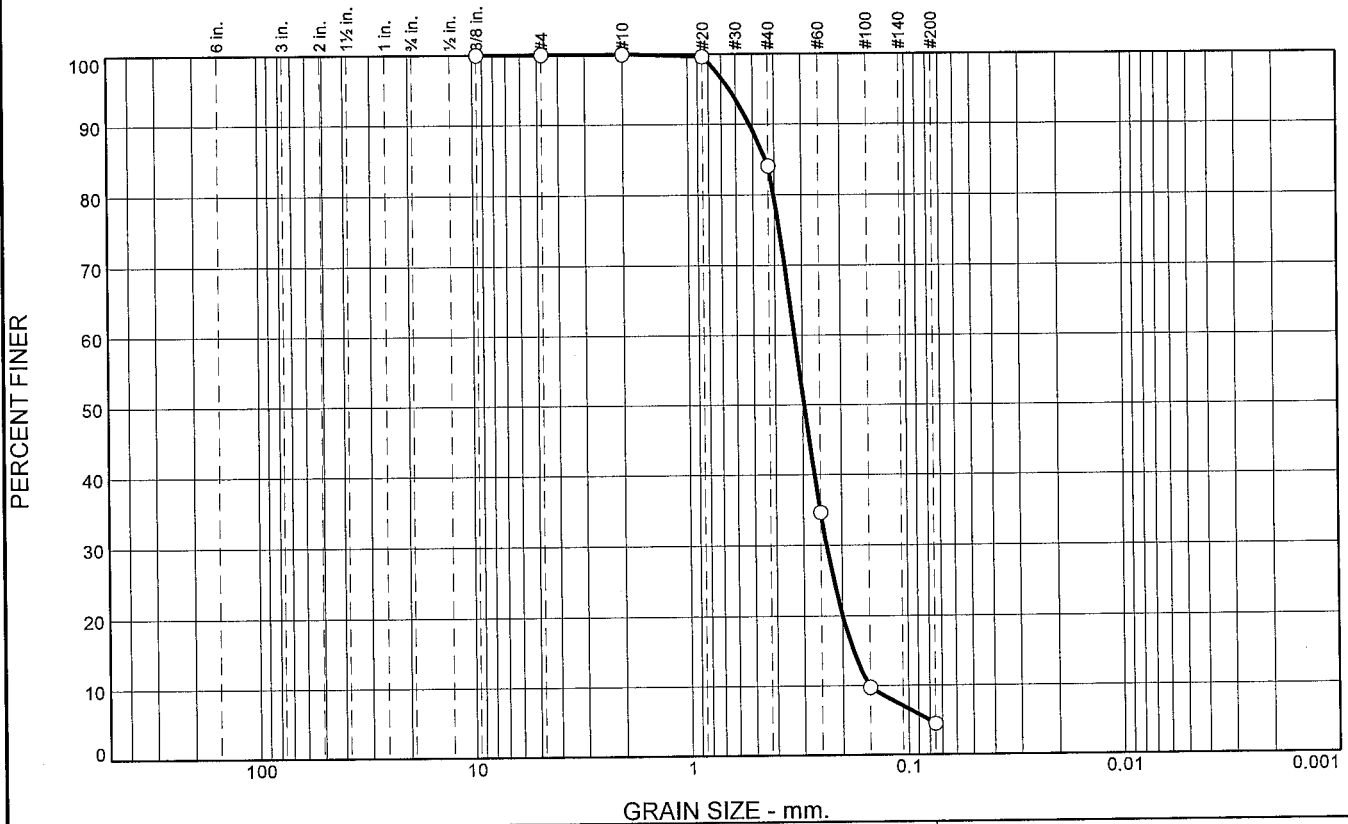
Date: 8/7/10

| | |
|--|--|
| <p>Thompson Engineering</p> <p>Mobile, Alabama</p> | <p>Client: US Army Corps of Engineers Project: Contract No. W91278-10-D-0026 - Task 03 Mississippi Barrier Island Restoration Project Project No.: 10-2123-0009 Report No.</p> |
|--|--|

Tested By: J.Maddox

Checked By: R.Byrd

Particle Size Distribution Report



| % +3" | % Gravel | | % Sand | | | % Fines | |
|-------|----------|------|--------|--------|------|---------|------|
| | Coarse | Fine | Coarse | Medium | Fine | Silt | Clay |
| 0.0 | 0.0 | 0.0 | 0.0 | 15.9 | 79.6 | 4.5 | |

| SIEVE SIZE | PERCENT FINER | SPEC.* PERCENT | PASS? (X=NO) |
|------------|---------------|----------------|--------------|
| .375 | 100.0 | | |
| #4 | 100.0 | | |
| #10 | 100.0 | | |
| #20 | 99.6 | | |
| #40 | 84.1 | | |
| #60 | 34.6 | | |
| #100 | 9.7 | | |
| #200 | 4.5 | | |

Material Description

SAND, (SP), medium to fine grained

Atterberg Limits

PL= LL= PI=

Coefficients

D₉₀= 0.5202 D₈₅= 0.4377 D₆₀= 0.3255
D₅₀= 0.2950 D₃₀= 0.2356 D₁₅= 0.1788
D₁₀= 0.1517 C_u= 2.15 C_c= 1.12

Classification

USCS= SP AASHTO=

Remarks

CADD CODE = CH10D965

* (no specification provided)

Location: USACE Sample # BI-PB-123-10C **Depth:** 10.0 - 15.0 (ft.) **Date:** 8/7/10
Sample Number: TE Lab ID: 4612.64

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

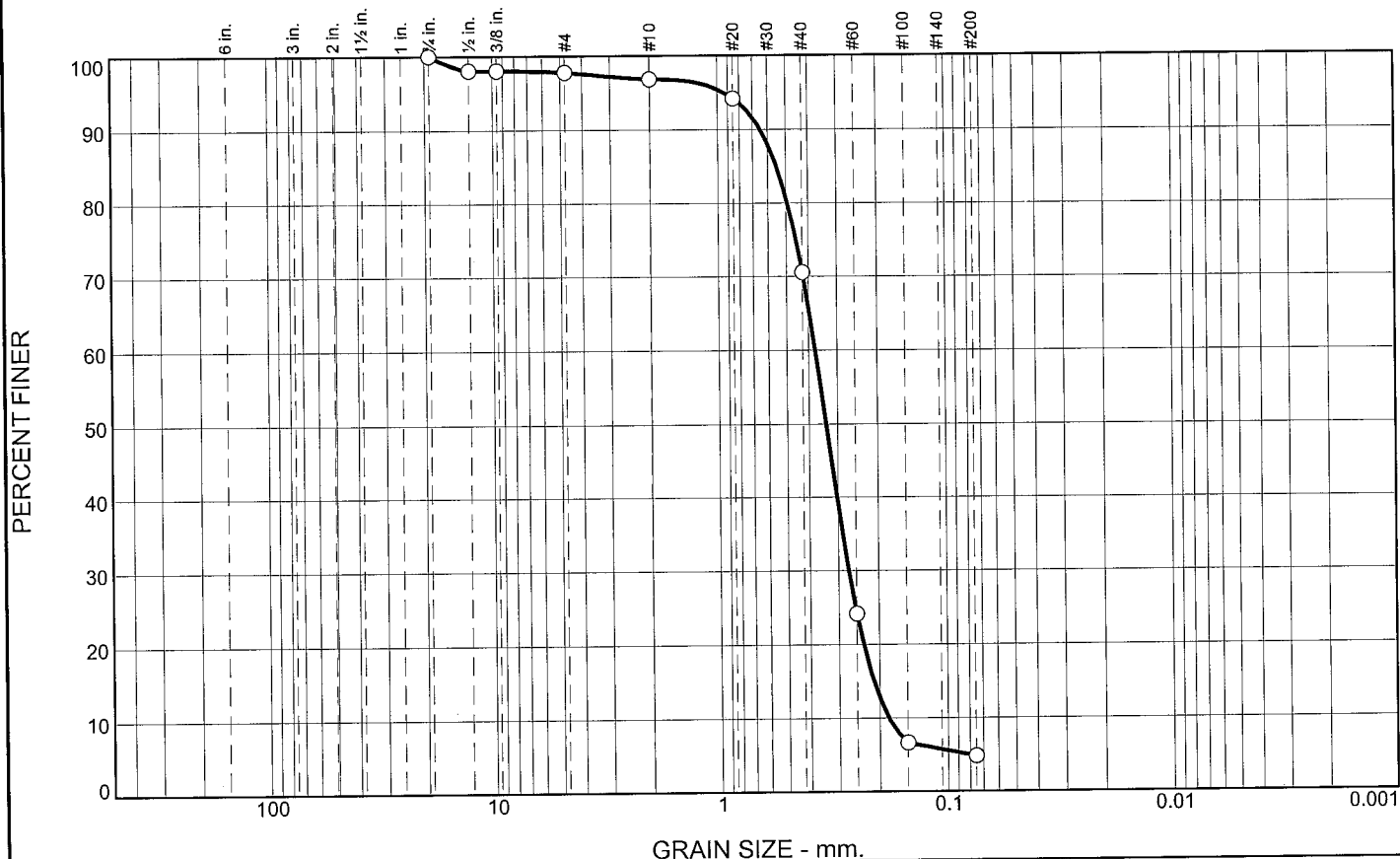
Tested By: J.Maddox **Checked By:** R.Byrd

Boring Designation BI-PB-124-10

| | | | | |
|--|--|---|--|--|
| DRILLING LOG | | DIVISION South Atlantic | INSTALLATION Mobile District | SHEET 1 OF 1 SHEETS |
| 1. PROJECT MsCIP Barrier Island Restoration Petit Bois Pass- AL East | | | 9. SIZE AND TYPE OF BIT N/A | |
| 2. BORING DESIGNATION BI-PB-124-10 | | 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 | | <input type="checkbox"/> AUTO HAMMER <input type="checkbox"/> MANUAL HAMMER |
| 4. NAME OF DRILLER Construction Solutions International, Inc. | | 12. TOTAL SAMPLES | | DISTURBED 2 |
| 5. DIRECTION OF BORING <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED | | 13. TOTAL NUMBER CORE BOXES | | UNDISTURBED (UD) 0 |
| 6. THICKNESS OF OVERBURDEN N/A | | 14. WATER DEPTH 32 Ft. | | 15. DATE BORING |
| 7. DEPTH DRILLED INTO ROCK N/A | | 16. ELEVATION TOP OF BORING -32.5 Ft. | | STARTED 08-07-10 |
| 8. TOTAL DEPTH OF BORING 13.6 Ft. | | 17. TOTAL RECOVERY FOR BORING 100% | | COMPLETED 08-07-10 |
| 18. SIGNATURE AND TITLE OF INSPECTOR Chris Gillentine, Geologist | | | | |

| ELEV. | DEPTH | LEGEND | CLASSIFICATION OF MATERIALS | SAMPLE | LABORATORY RESULTS |
|-------|-------|--------|--|--------|--|
| -32.5 | 0.0 | | | | |
| | | ••••• | SAND, poorly-graded, mostly fine to medium-grained sand-sized quartz, lt. gray (SP) | A | Classification: SP Color: 2.5Y 7/2-light gray D50: 0.3364 mm % Fines: 4.8 |
| | | | | B | Classification: SP Color: 2.5Y 7/2-light gray D50: 0.3274 mm % Fines: 3.8 |
| -40.5 | 8.0 | // | CLAY, fat, dark gray (CH) | NS | |
| -46.1 | 13.6 | | | | |
| | | | NOTES: 1. Soils are field visually classified in accordance with the Unified Soils Classification System. 2. NS = Sample not submitted for laboratory analysis from this interval. 3. Seafloor elevation determined from 2010 USACE survey. | | |

Particle Size Distribution Report



| % +3" | % Gravel | | % Sand | | | % Fines | |
|-------|----------|------|--------|--------|------|---------|------|
| | Coarse | Fine | Coarse | Medium | Fine | Silt | Clay |
| 0.0 | 0.0 | 2.2 | 1.0 | 26.2 | 65.8 | 4.8 | |

| SIEVE SIZE | PERCENT FINER | SPEC.* PERCENT | PASS? (X=NO) |
|------------|---------------|----------------|--------------|
| .750 | 100.0 | | |
| .500 | 98.0 | | |
| .375 | 98.0 | | |
| #4 | 97.8 | | |
| #10 | 96.8 | | |
| #20 | 94.2 | | |
| #40 | 70.6 | | |
| #60 | 24.2 | | |
| #100 | 6.7 | | |
| #200 | 4.8 | | |

Material Description

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

Atterberg Limits

PL= LL= PI=

Coefficients

D₉₀= 0.6476 D₈₅= 0.5507 D₆₀= 0.3745
D₅₀= 0.3364 D₃₀= 0.2700 D₁₅= 0.2116
D₁₀= 0.1818 C_u= 2.06 C_c= 1.07

Classification

USCS= SP AASHTO=

Remarks

CADD CODE = CH10D965

* (no specification provided)

Location: USACE Sample # BI-PB-124-10A
Sample Number: TE Lab ID: 4622.46

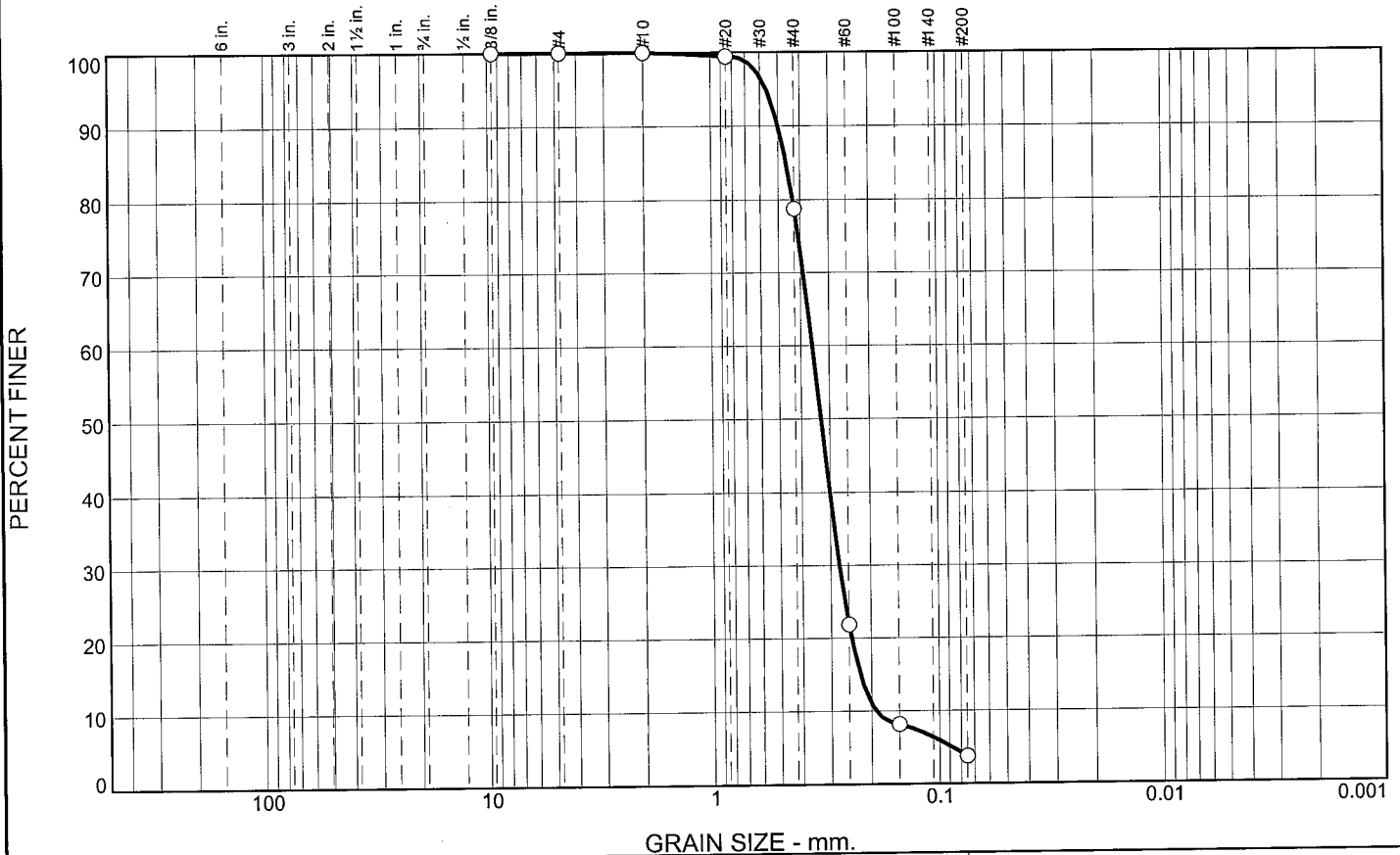
Depth: 0.0 - 4.0 (ft.)

Date: 8/15/10

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

Tested By: G.Fancher **Checked By:** R.Byrd

Particle Size Distribution Report



| % +3" | % Gravel | | % Sand | | | % Fines | |
|-------|----------|------|--------|--------|------|---------|------|
| | Coarse | Fine | Coarse | Medium | Fine | Silt | Clay |
| 0.0 | 0.0 | 0.0 | 0.0 | 21.3 | 74.9 | 3.8 | |

| SIEVE SIZE | PERCENT FINER | SPEC.* PERCENT | PASS? (X=NO) |
|------------|---------------|----------------|--------------|
| .375 | 100.0 | | |
| #4 | 100.0 | | |
| #10 | 100.0 | | |
| #20 | 99.4 | | |
| #40 | 78.7 | | |
| #60 | 21.8 | | |
| #100 | 8.2 | | |
| #200 | 3.8 | | |

Material Description

SAND, (SP), medium to fine grained

Atterberg Limits

PL= LL= PI=

Coefficients

D₉₀= 0.4996 D₈₅= 0.4602 D₆₀= 0.3560
D₅₀= 0.3274 D₃₀= 0.2740 D₁₅= 0.2236
D₁₀= 0.1903 C_u= 1.87 C_c= 1.11

Classification

USCS= SP AASHTO=

Remarks

CADD CODE = CH10D965

* (no specification provided)

Location: USACE Sample # BI-PB-124-10B Depth: 4.0 - 8.0 (ft.) Date: 8/15/10
Sample Number: TE Lab ID: 4622.47

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

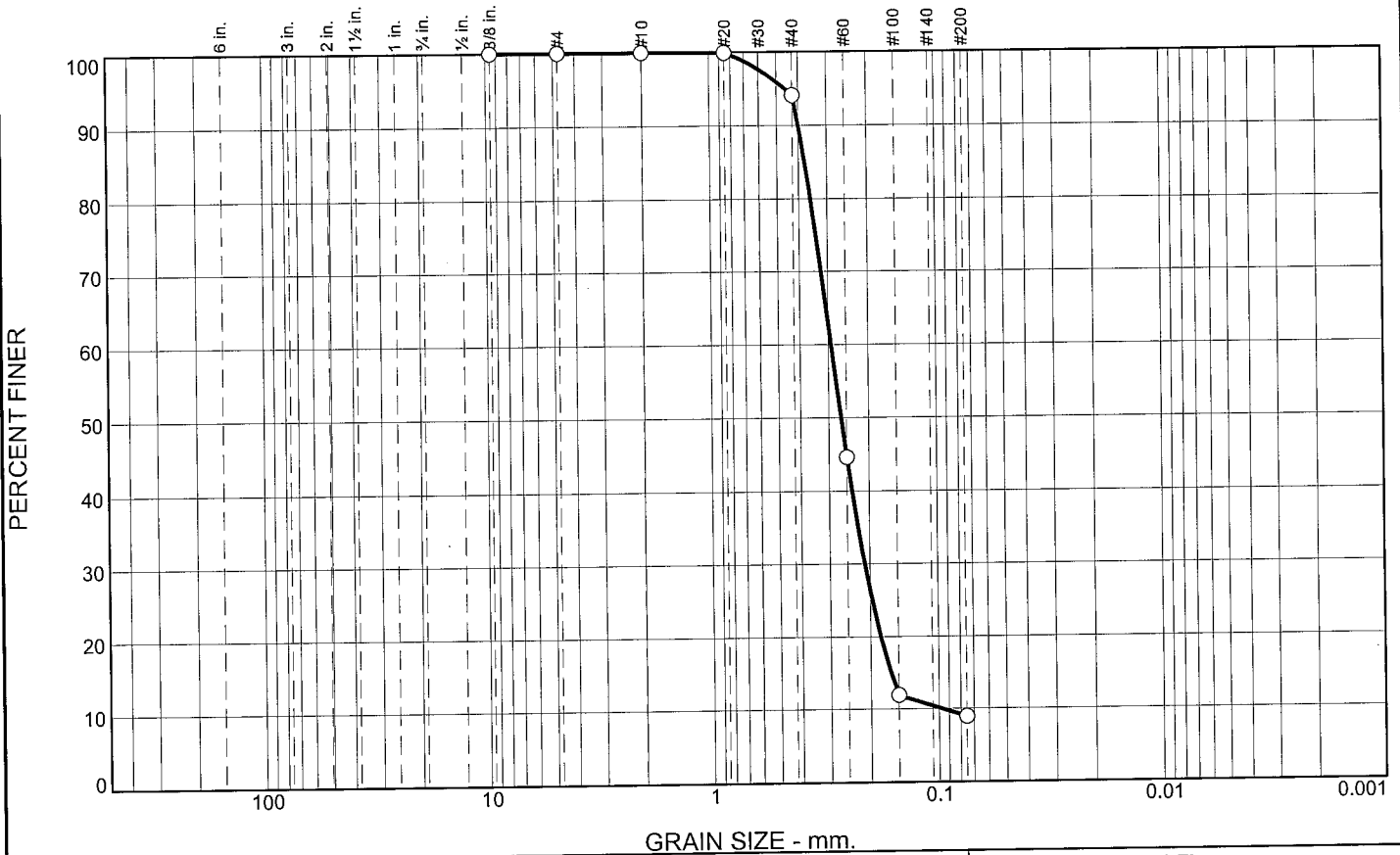
Tested By: G.Fancher Checked By: R.Byrd

Boring Designation BI-PB-125-10

| | | | | |
|--|--|---|--|--|
| DRILLING LOG | | DIVISION South Atlantic | INSTALLATION Mobile District | SHEET 1 OF 1 SHEETS |
| 1. PROJECT MsCIP Barrier Island Restoration Petit Bois Pass- AL East | | | 9. SIZE AND TYPE OF BIT N/A | |
| 2. BORING DESIGNATION BI-PB-125-10 | | 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 | | <input type="checkbox"/> AUTO HAMMER <input type="checkbox"/> MANUAL HAMMER |
| 4. NAME OF DRILLER Construction Solutions International, Inc. | | 12. TOTAL SAMPLES | | DISTURBED 2 |
| 5. DIRECTION OF BORING <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED | | 13. TOTAL NUMBER CORE BOXES | | UNDISTURBED (UD) 0 |
| 6. THICKNESS OF OVERBURDEN N/A | | 14. WATER DEPTH 37 Ft. | | 15. DATE BORING |
| 7. DEPTH DRILLED INTO ROCK N/A | | 16. ELEVATION TOP OF BORING -36.8 Ft. | | STARTED 08-07-10 |
| 8. TOTAL DEPTH OF BORING 10.5 Ft. | | 17. TOTAL RECOVERY FOR BORING 100% | | COMPLETED 08-07-10 |
| 18. SIGNATURE AND TITLE OF INSPECTOR Chris Gillentine, Geologist | | | | |

| ELEV. | DEPTH | LEGEND | CLASSIFICATION OF MATERIALS | SAMPLE | LABORATORY RESULTS |
|-------|-------|--------|--|--------|--|
| -36.8 | 0.0 | | | | |
| | | ••••• | SAND, poorly-graded, mostly fine to medium-grained sand-sized quartz, trace silt, gray (SP) | A | Classification: SP-SM Color: 2.5Y 5/2-grayish brown D50: 0.2642 mm % Fines: 8.9 |
| | | ••••• | | B | Classification: SP-SM Color: 2.5Y 5/1-gray D50: 0.3004 mm % Fines: 9.4 |
| -47.3 | 10.5 | | | NS | |
| | | | NOTES: 1. Soils are field visually classified in accordance with the Unified Soils Classification System. 2. NS = Sample not submitted for laboratory analysis from this interval. 3. Seafloor elevation determined from 2010 USACE survey. | | |

Particle Size Distribution Report



| % +3" | % Gravel | | % Sand | | | % Fines | |
|-------|----------|------|--------|--------|------|---------|------|
| | Coarse | Fine | Coarse | Medium | Fine | Silt | Clay |
| 0.0 | 0.0 | 0.0 | 0.0 | 5.9 | 85.2 | 8.9 | |

| SIEVE SIZE | PERCENT FINER | SPEC.* PERCENT | PASS? (X=NO) |
|------------|---------------|----------------|--------------|
| .375 | 100.0 | | |
| #4 | 100.0 | | |
| #10 | 100.0 | | |
| #20 | 99.9 | | |
| #40 | 94.1 | | |
| #60 | 44.6 | | |
| #100 | 11.9 | | |
| #200 | 8.9 | | |

Material Description

SAND, (SP-SM), fine grained

Atterberg Limits

PL= LL= PI=

Coefficients

D₉₀= 0.3999 D₈₅= 0.3756 D₆₀= 0.2913
D₅₀= 0.2642 D₃₀= 0.2102 D₁₅= 0.1627
D₁₀= 0.0964 C_u= 3.02 C_c= 1.57

Classification

USCS= SP-SM AASHTO=

Remarks

CADD CODE = CH10D965

* (no specification provided)

Location: USACE Sample # BI-PB-125-10A
Sample Number: TE Lab ID: 4622.44

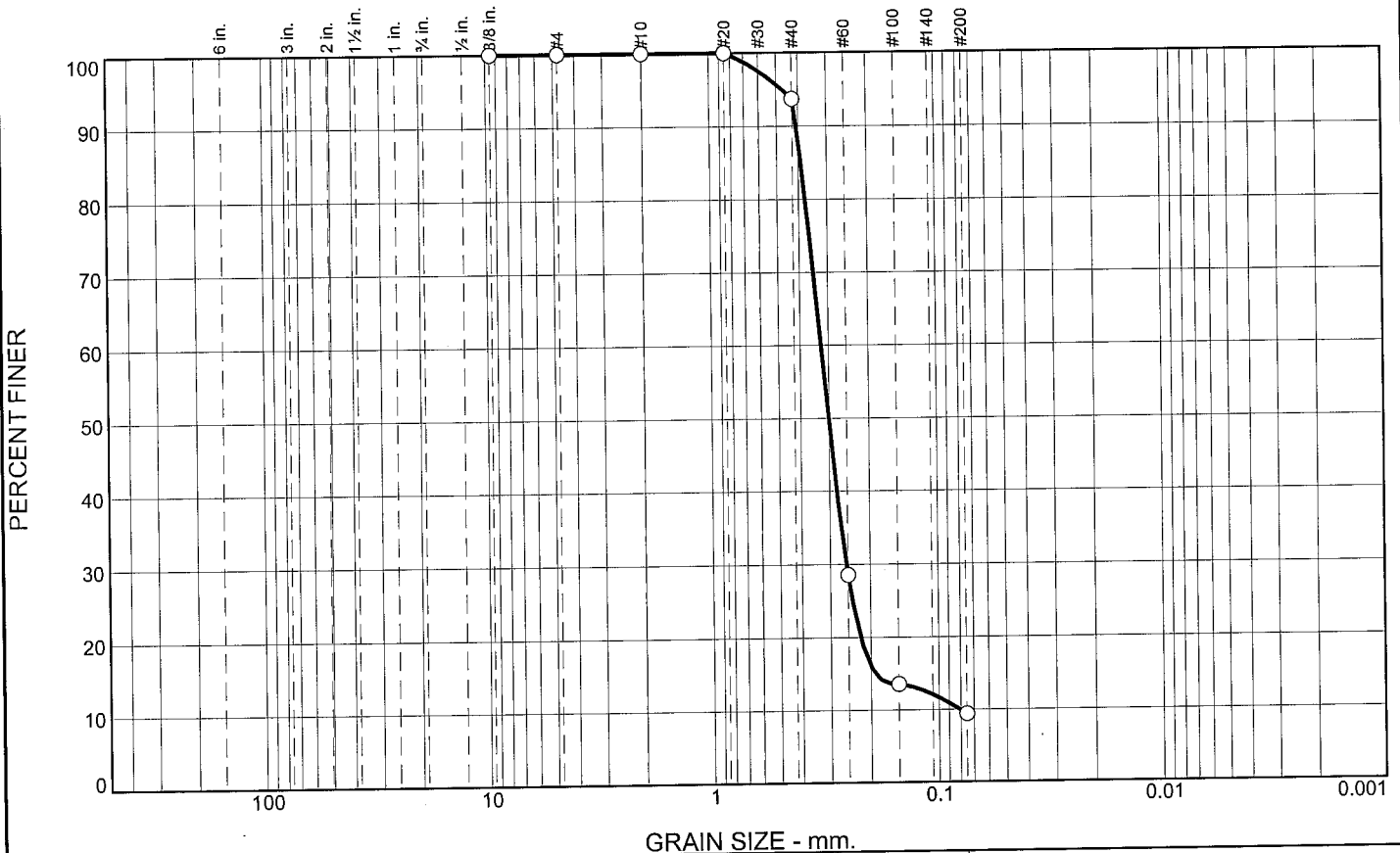
Depth: 0.0 - 5.0 (ft.)

Date: 8/15/10

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

Tested By: G.Fancher Checked By: R.Byrd

Particle Size Distribution Report



| % +3" | % Gravel | | % Sand | | | % Fines | |
|-------|----------|------|--------|--------|------|---------|------|
| | Coarse | Fine | Coarse | Medium | Fine | Silt | Clay |
| 0.0 | 0.0 | 0.0 | 0.0 | 6.3 | 84.3 | 9.4 | |

| SIEVE SIZE | PERCENT FINER | SPEC.* PERCENT | PASS? (X=NO) |
|------------|---------------|----------------|--------------|
| .375 | 100.0 | | |
| #4 | 100.0 | | |
| #10 | 100.0 | | |
| #20 | 100.0 | | |
| #40 | 93.7 | | |
| #60 | 28.5 | | |
| #100 | 13.5 | | |
| #200 | 9.4 | | |

Material Description

SAND, (SP-SM), fine grained

Atterberg Limits

PL= LL= PI=

Coefficients

D₉₀= 0.4088 D₈₅= 0.3905 D₆₀= 0.3230
D₅₀= 0.3004 D₃₀= 0.2539 D₁₅= 0.1906
D₁₀= 0.0804 C_u= 4.02 C_c= 2.48

Classification

USCS= SP-SM AASHTO=

Remarks

CADD CODE = CH10D965

* (no specification provided)

Location: USACE Sample # BI-PB-125-10B
Sample Number: TE Lab ID: 4622.45

Depth: 5.0 - 10.0 (ft.)

Date: 8/15/10

| | |
|--|--|
| <p>Thompson Engineering</p> <p>Mobile, Alabama</p> | <p>Client: US Army Corps of Engineers</p> <p>Project: Contract No. W91278-10-D-0026 - Task 03 Mississippi Barrier Island Restoration Project</p> <p>Project No: 10-2123-0009 Report No.</p> |
|--|--|

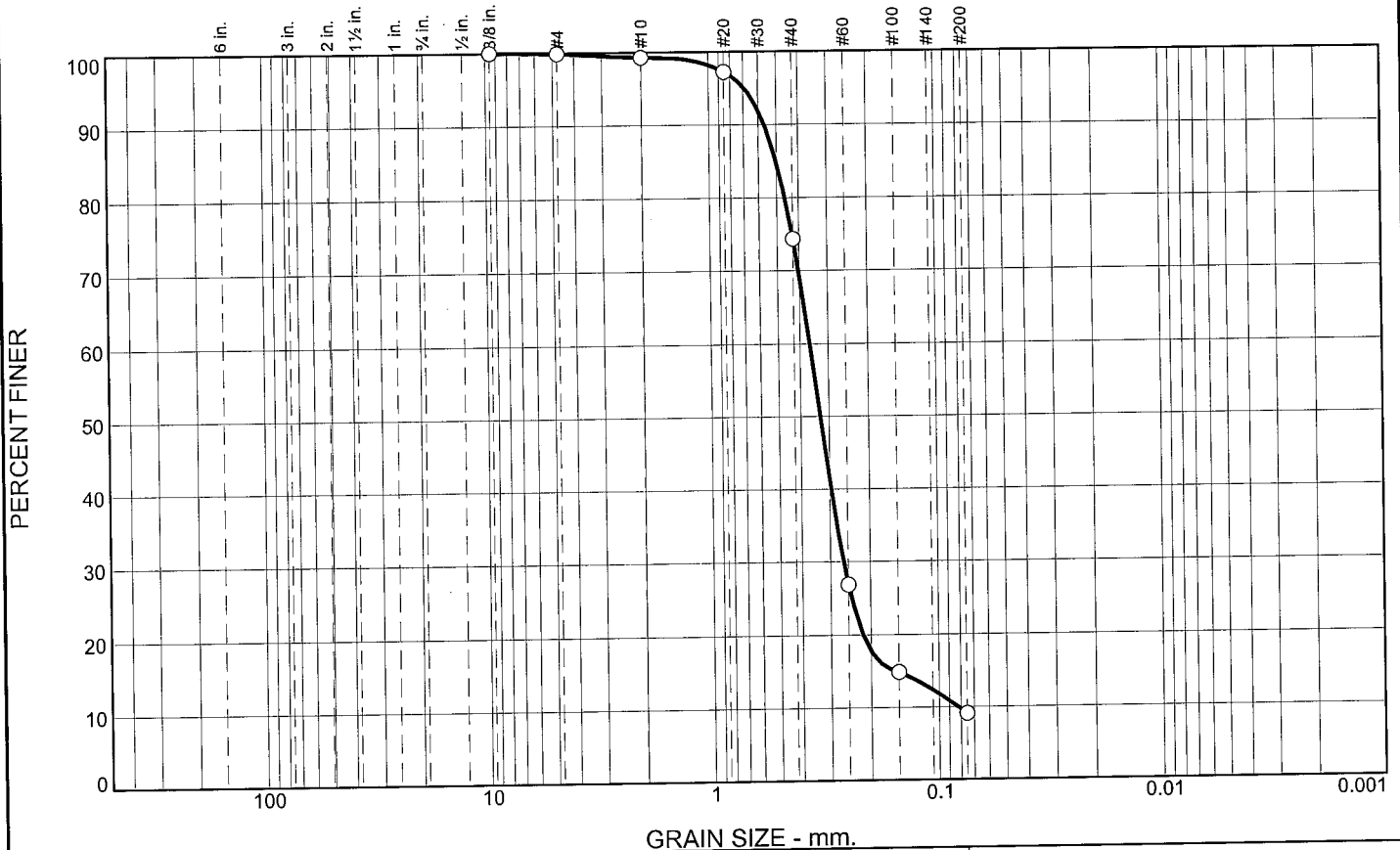
Tested By: G.Fancher **Checked By:** R.Byrd

Boring Designation BI-PB-126-10

| | | | | |
|--|--|---|--|--|
| DRILLING LOG | | DIVISION South Atlantic | INSTALLATION Mobile District | SHEET 1 OF 1 SHEETS |
| 1. PROJECT MsCIP Barrier Island Restoration Petit Bois Pass- AL East | | | 9. SIZE AND TYPE OF BIT N/A | |
| 2. BORING DESIGNATION BI-PB-126-10 | | 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 | | <input type="checkbox"/> AUTO HAMMER <input type="checkbox"/> MANUAL HAMMER |
| 4. NAME OF DRILLER Construction Solutions International, Inc. | | 12. TOTAL SAMPLES | | DISTURBED 3 |
| 5. DIRECTION OF BORING <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED | | 13. TOTAL NUMBER CORE BOXES | | UNDISTURBED (UD) 0 |
| 6. THICKNESS OF OVERBURDEN N/A | | 14. WATER DEPTH 36 Ft. | | 15. DATE BORING |
| 7. DEPTH DRILLED INTO ROCK N/A | | 16. ELEVATION TOP OF BORING -36.1 Ft. | | STARTED 08-07-10 |
| 8. TOTAL DEPTH OF BORING 14.7 Ft. | | 17. TOTAL RECOVERY FOR BORING 100% | | COMPLETED 08-07-10 |
| 18. SIGNATURE AND TITLE OF INSPECTOR Chris Gillentine, Geologist | | | | |

| ELEV. | DEPTH | LEGEND | CLASSIFICATION OF MATERIALS | SAMPLE | LABORATORY RESULTS |
|-------|-------|--------|--|--------|--|
| -36.1 | 0.0 | | | | |
| | | ••••• | SAND, poorly-graded, mostly fine to medium-grained sand-sized quartz, trace shell fragments, trace silt, lt. gray (SP) | A | Classification: SP-SM Color: 2.5Y 5/2-grayish brown D50: 0.3272 mm % Fines: 9.1 |
| | | ••••• | | B | Classification: SP-SM Color: 2.5Y 5/1-gray D50: 0.3205 mm % Fines: 6.2 |
| | | ••••• | | C | Classification: SP-SM Color: 2.5Y 5/1-gray D50: 0.3173 mm % Fines: 11 |
| -50.8 | 14.7 | | NOTES: 1. Soils are field visually classified in accordance with the Unified Soils Classification System. 2. NS = Sample not submitted for laboratory analysis from this interval. 3. Seafloor elevation determined from 2010 USACE survey. | | |

Particle Size Distribution Report



| % +3" | % Gravel | | % Sand | | | % Fines | |
|-------|----------|------|--------|--------|------|---------|------|
| | Coarse | Fine | Coarse | Medium | Fine | Silt | Clay |
| 0.0 | 0.0 | 0.1 | 0.6 | 25.0 | 65.2 | 9.1 | |

| SIEVE SIZE | PERCENT FINER | SPEC.* PERCENT | PASS? (X=NO) |
|------------|---------------|----------------|--------------|
| .375 | 100.0 | | |
| #4 | 99.9 | | |
| #10 | 99.3 | | |
| #20 | 97.2 | | |
| #40 | 74.3 | | |
| #60 | 26.9 | | |
| #100 | 14.9 | | |
| #200 | 9.1 | | |

Material Description

SAND, (SP-SM), medium to fine grained

Atterberg Limits

PL= LL= PI=

Coefficients

D₉₀= 0.5662 D₈₅= 0.5029 D₆₀= 0.3621
D₅₀= 0.3272 D₃₀= 0.2617 D₁₅= 0.1538
D₁₀= 0.0822 C_u= 4.41 C_c= 2.30

Classification

USCS= SP-SM AASHTO=

Remarks

CADD CODE = CH10D965

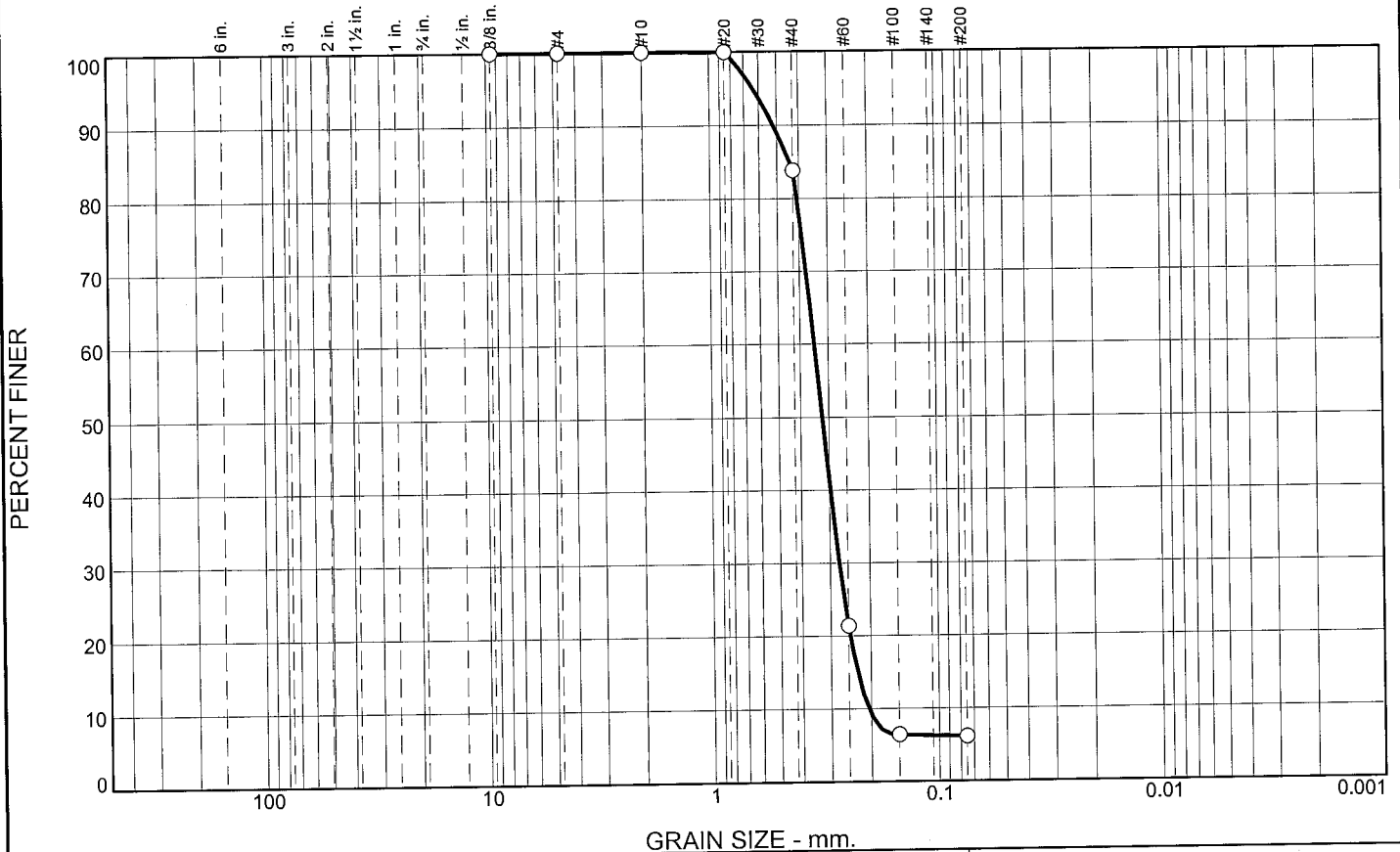
* (no specification provided)

Location: USACE Sample # BI-PB-126-10A Depth: 0.0 - 5.0 (ft.) Date: 8/15/10
Sample Number: TE Lab ID: 4622.41

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

Tested By: G.Fancher Checked By: R.Byrd

Particle Size Distribution Report



| % +3" | % Gravel | | % Sand | | | % Fines | |
|-------|----------|------|--------|--------|------|---------|------|
| | Coarse | Fine | Coarse | Medium | Fine | Silt | Clay |
| 0.0 | 0.0 | 0.0 | 0.0 | 16.1 | 77.7 | 6.2 | |

| SIEVE SIZE | PERCENT FINER | SPEC.* PERCENT | PASS? (X=NO) |
|------------|---------------|----------------|--------------|
| .375 | 100.0 | | |
| #4 | 100.0 | | |
| #10 | 100.0 | | |
| #20 | 99.9 | | |
| #40 | 83.9 | | |
| #60 | 21.4 | | |
| #100 | 6.4 | | |
| #200 | 6.2 | | |

Material Description

SAND, (SP-SM), medium to fine grained

Atterberg Limits

PL= LL= PI=

Coefficients

D₉₀= 0.5195 D₈₅= 0.4399 D₆₀= 0.3458
D₅₀= 0.3205 D₃₀= 0.2727 D₁₅= 0.2289
D₁₀= 0.2051 C_u= 1.69 C_c= 1.05

Classification

USCS= SP-SM AASHTO=

Remarks

CADD CODE = CH10D965

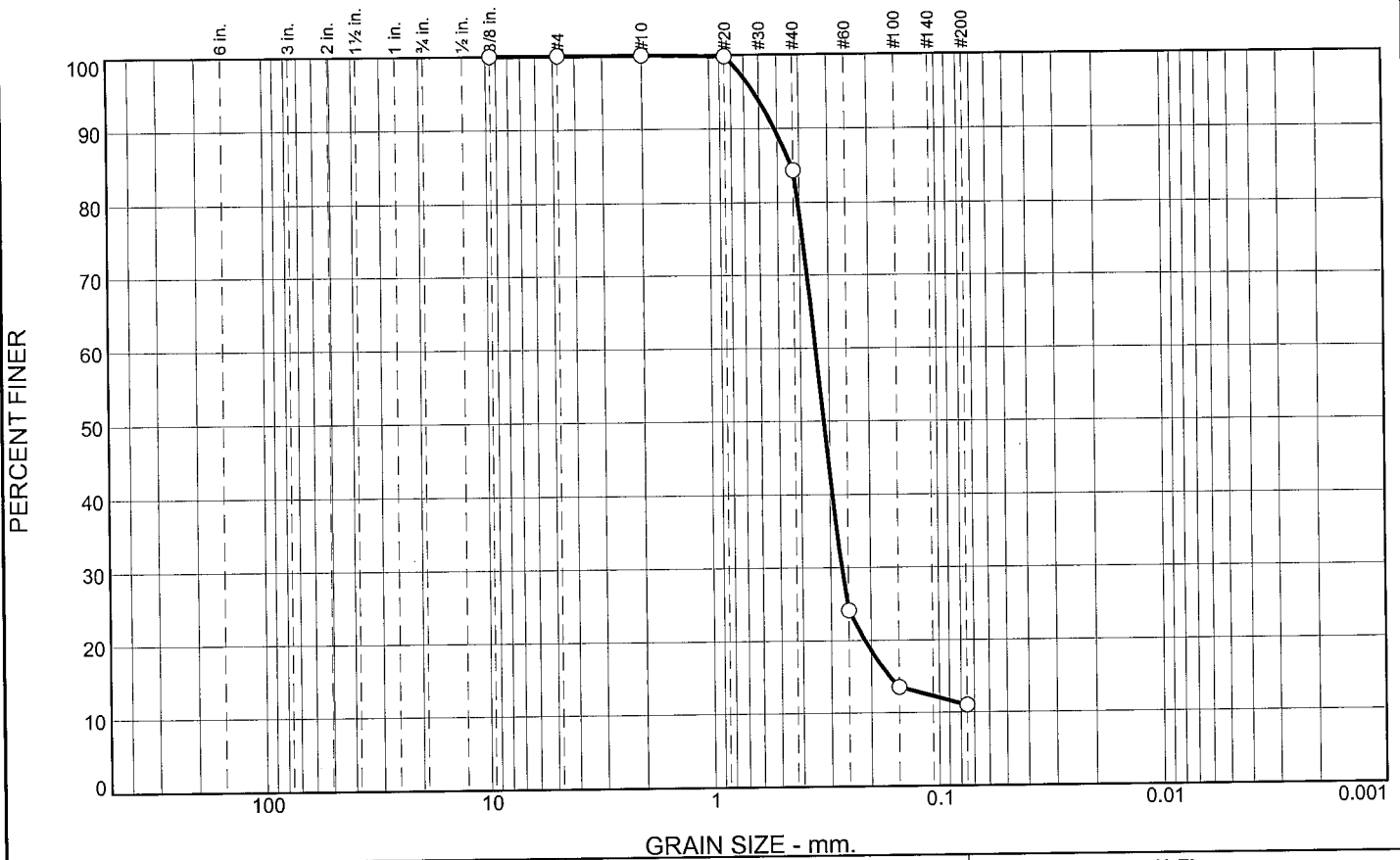
* (no specification provided)

Location: USACE Sample # BI-PB-126-10B Depth: 5.0 - 10.0 (ft.) Date: 8/15/10
Sample Number: TE Lab ID: 4622.42

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

Tested By: G.Fancher Checked By: R.Byrd

Particle Size Distribution Report



| % +3" | % Gravel | | % Sand | | | % Fines | |
|-------|----------|------|--------|--------|------|---------|------|
| | Coarse | Fine | Coarse | Medium | Fine | Silt | Clay |
| 0.0 | 0.0 | 0.0 | 0.0 | 15.6 | 73.4 | 11.0 | |

| SIEVE SIZE | PERCENT FINER | SPEC.* PERCENT | PASS? (X=NO) |
|------------|---------------|----------------|--------------|
| .375 | 100.0 | | |
| #4 | 100.0 | | |
| #10 | 100.0 | | |
| #20 | 99.8 | | |
| #40 | 84.4 | | |
| #60 | 24.1 | | |
| #100 | 13.5 | | |
| #200 | 11.0 | | |

Material Description

SAND, (SP-SM), medium to fine grained

Atterberg Limits

PL= LL= PI=

Coefficients

D₉₀= 0.5148 D₈₅= 0.4335 D₆₀= 0.3431
D₅₀= 0.3173 D₃₀= 0.2671 D₁₅= 0.1659
D₁₀= C_u= C_c=

Classification

USCS= SP-SM AASHTO=

Remarks

CADD CODE = CH10D965

* (no specification provided)

Location: USACE Sample # BI-PB-126-10C Sample Number: TE Lab ID: 4622.43 Depth: 10.0 - 14.7 (ft.) Date: 8/15/10

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

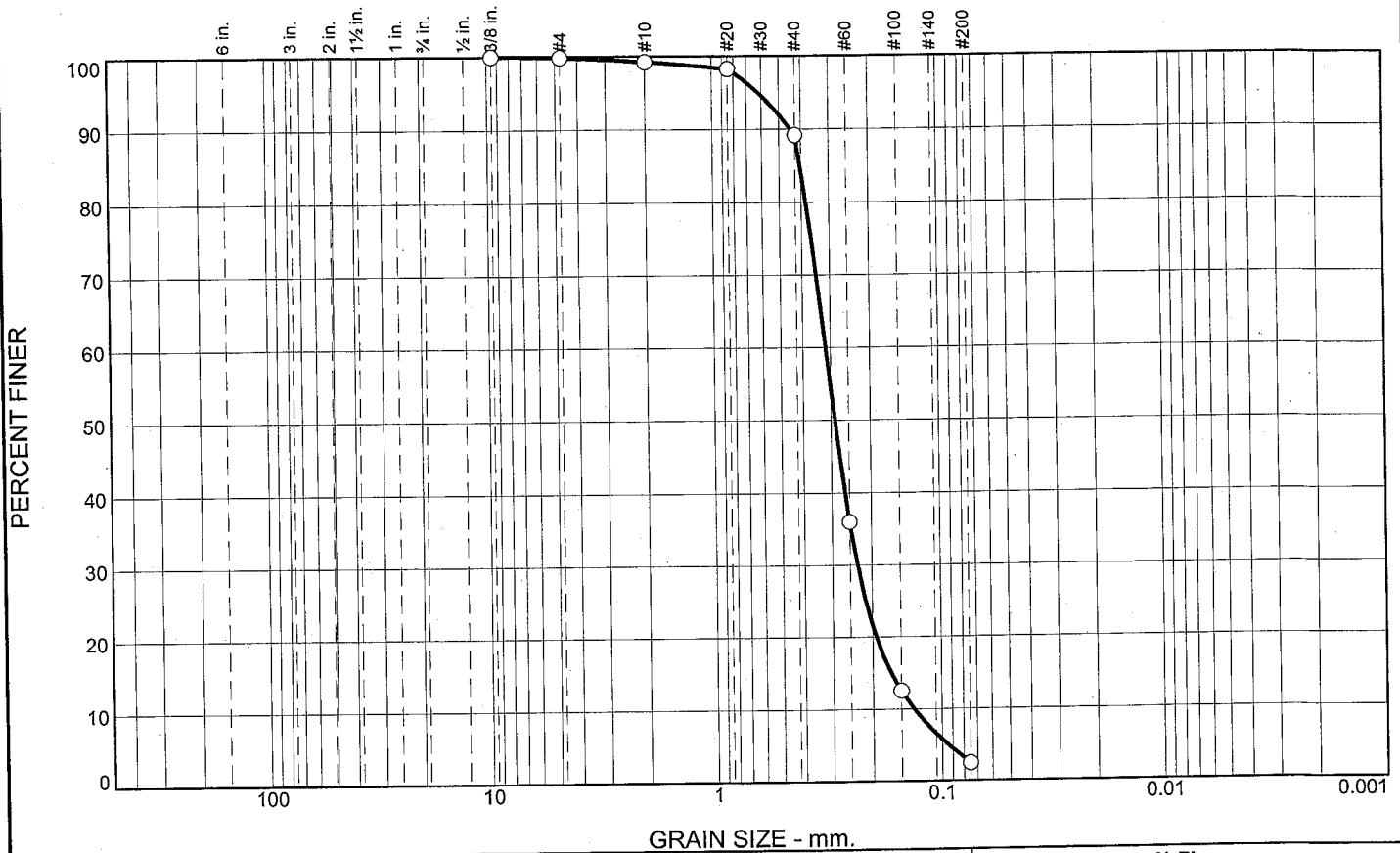
Tested By: G.Fancher Checked By: R.Byrd

Boring Designation BI-PB-127-10

| | | | | |
|--|--|---|--|--|
| DRILLING LOG | | DIVISION South Atlantic | INSTALLATION Mobile District | SHEET 1 OF 1 SHEETS |
| 1. PROJECT MsCIP Barrier Island Restoration Petit Bois Pass- AL West | | | 9. SIZE AND TYPE OF BIT N/A | |
| 2. BORING DESIGNATION BI-PB-127-10 | | 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 | | <input type="checkbox"/> AUTO HAMMER <input type="checkbox"/> MANUAL HAMMER |
| 4. NAME OF DRILLER Construction Solutions International, Inc. | | 12. TOTAL SAMPLES | | DISTURBED 2 |
| 5. DIRECTION OF BORING <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED | | 13. TOTAL NUMBER CORE BOXES | | UNDISTURBED (UD) 0 |
| 6. THICKNESS OF OVERBURDEN N/A | | 14. WATER DEPTH 29 Ft. | | 15. DATE BORING |
| 7. DEPTH DRILLED INTO ROCK N/A | | 16. ELEVATION TOP OF BORING -29.5 Ft. | | STARTED 08-09-10 |
| 8. TOTAL DEPTH OF BORING 15.5 Ft. | | 17. TOTAL RECOVERY FOR BORING 100% | | COMPLETED 08-09-10 |
| 18. SIGNATURE AND TITLE OF INSPECTOR Chris Gillentine, Geologist | | | | |

| ELEV. | DEPTH | LEGEND | CLASSIFICATION OF MATERIALS | SAMPLE | LABORATORY RESULTS |
|---|-------|--------|--|--------|--|
| -29.5 | 0.0 | | | | |
| | | ••••• | SAND, poorly-graded, mostly fine to medium-grained sand-sized quartz, trace shell fragments, dark brown (SP) | A | Classification: SP Color: 10YR 4/2-dark grayish brown D50: 0.2883 mm % Fines: 2.4 |
| -34.5 | 5.0 | | SAND, poorly-graded, mostly fine to medium-grained sand-sized quartz, lt. gray (SP) | B | Classification: SP Color: 2.5Y 5/2-grayish brown D50: 0.2755 mm % Fines: 4.5 |
| -39.5 | 10.0 | // | CLAY, fat, dark gray (CH) | NS | |
| -45.0 | 15.5 | | | | |
| <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 determined from 2010 USACE survey.</p> | | | | | |

Particle Size Distribution Report



| % +3" | % Gravel | | % Sand | | | % Fines | |
|-------|----------|------|--------|--------|------|---------|------|
| | Coarse | Fine | Coarse | Medium | Fine | Silt | Clay |
| 0.0 | 0.0 | 0.2 | 0.6 | 10.0 | 86.8 | 2.4 | |

| SIEVE SIZE | PERCENT FINER | SPEC.* PERCENT | PASS? (X=NO) |
|------------|---------------|----------------|--------------|
| .375 | 100.0 | | |
| #4 | 99.8 | | |
| #10 | 99.2 | | |
| #20 | 98.2 | | |
| #40 | 89.2 | | |
| #60 | 36.0 | | |
| #100 | 12.5 | | |
| #200 | 2.4 | | |

Material Description

SAND, (SP), medium to fine grained

Atterberg Limits

PL= LL= PI=

Coefficients

| | | |
|--------------------------|--------------------------|--------------------------|
| D ₉₀ = 0.4451 | D ₈₅ = 0.4029 | D ₆₀ = 0.3157 |
| D ₅₀ = 0.2883 | D ₃₀ = 0.2314 | D ₁₅ = 0.1661 |
| D ₁₀ = 0.1322 | C _u = 2.39 | C _c = 1.28 |

Classification

USCS= SP AASHTO=

Remarks

CADD CODE = CH10D965

* (no specification provided)

Location: USACE Sample # BI-PB-127-10A
 Sample Number: TE Lab ID: 4636.05

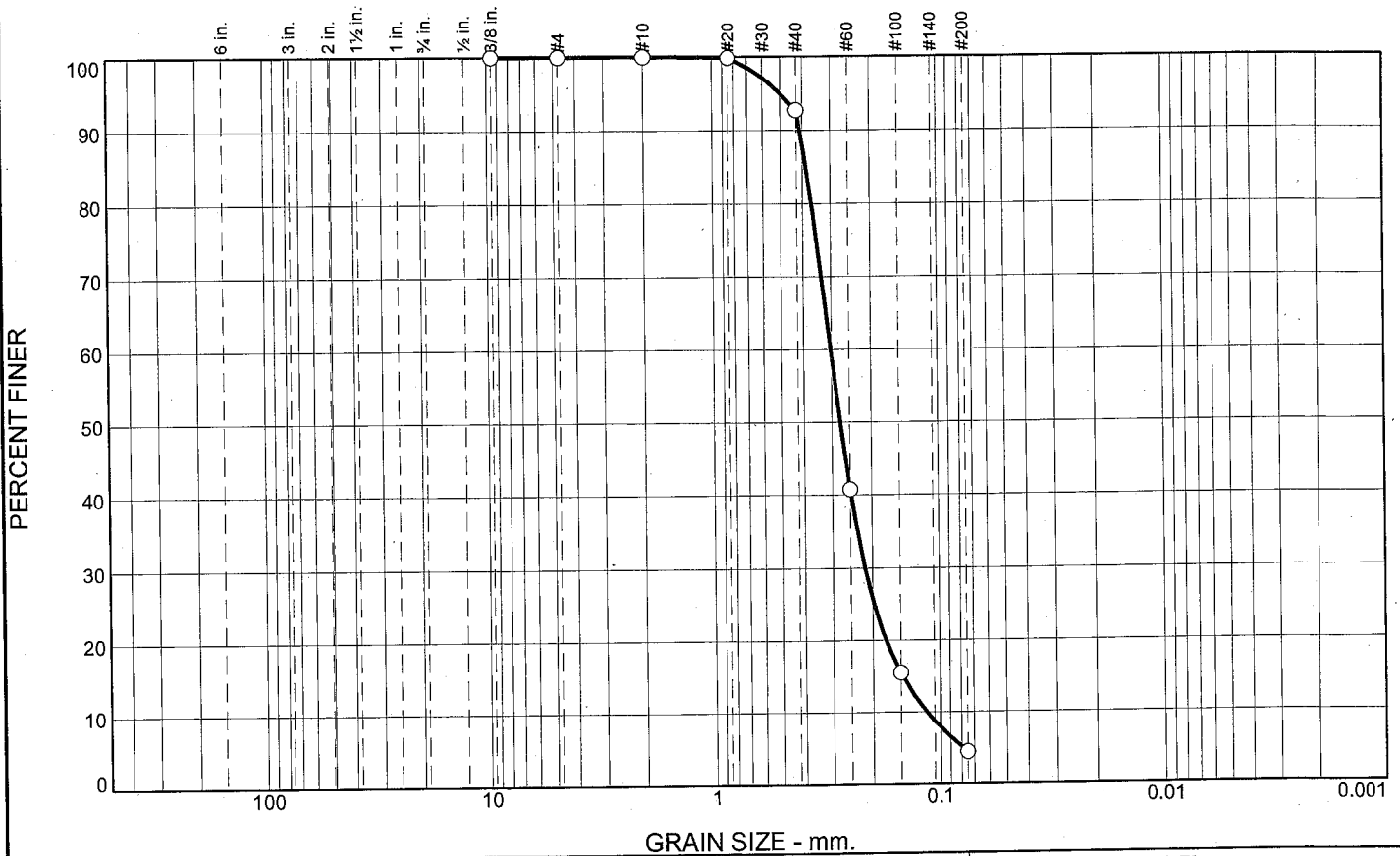
Depth: 0.0 - 5.0 (ft.)

Date: 8/17/10

| | |
|---|--|
| Thompson Engineering Mobile, Alabama | Client: US Army Corps of Engineers Project: Contract No. W91278-10-D-0026 - Task 03 Mississippi Barrier Island Restoration Project Project No: 10-2123-0009 Report #: |
|---|--|

Tested By: R.Martin Checked By: R.Byrd
 L-378

Particle Size Distribution Report



| % +3" | % Gravel | | % Sand | | | % Fines | |
|-------|----------|------|--------|--------|------|---------|------|
| | Coarse | Fine | Coarse | Medium | Fine | Silt | Clay |
| 0.0 | 0.0 | 0.0 | 0.0 | 7.2 | 88.3 | 4.5 | |

| SIEVE SIZE | PERCENT FINER | SPEC.* PERCENT | PASS? (X=NO) |
|------------|---------------|----------------|--------------|
| .375 | 100.0 | | |
| #4 | 100.0 | | |
| #10 | 100.0 | | |
| #20 | 99.9 | | |
| #40 | 92.8 | | |
| #60 | 40.8 | | |
| #100 | 15.5 | | |
| #200 | 4.5 | | |

Material Description

SAND, (SP), fine grained

Atterberg Limits

PL= LL= PI=

Coefficients

D₉₀= 0.4091 D₈₅= 0.3854 D₆₀= 0.3027
D₅₀= 0.2755 D₃₀= 0.2158 D₁₅= 0.1470
D₁₀= 0.1149 C_u= 2.64 C_c= 1.34

Classification

USCS= SP AASHTO=

Remarks

CADD CODE = CH10D965

* (no specification provided)

Location: USACE Sample # BI-PB-127-10B
Sample Number: TE Lab ID: 4636.06

Depth: 5.0 - 10.0 (ft.)

Date: 8/17/10




| | |
|---|--|
| Thompson Engineering Mobile, Alabama | Client: US Army Corps of Engineers Project: Contract No. W91278-10-D-0026 - Task 03 Mississippi Barrier Island Restoration Project Project No: 10-2123-0009 Report #: |
|---|--|

Tested By: R.Martin

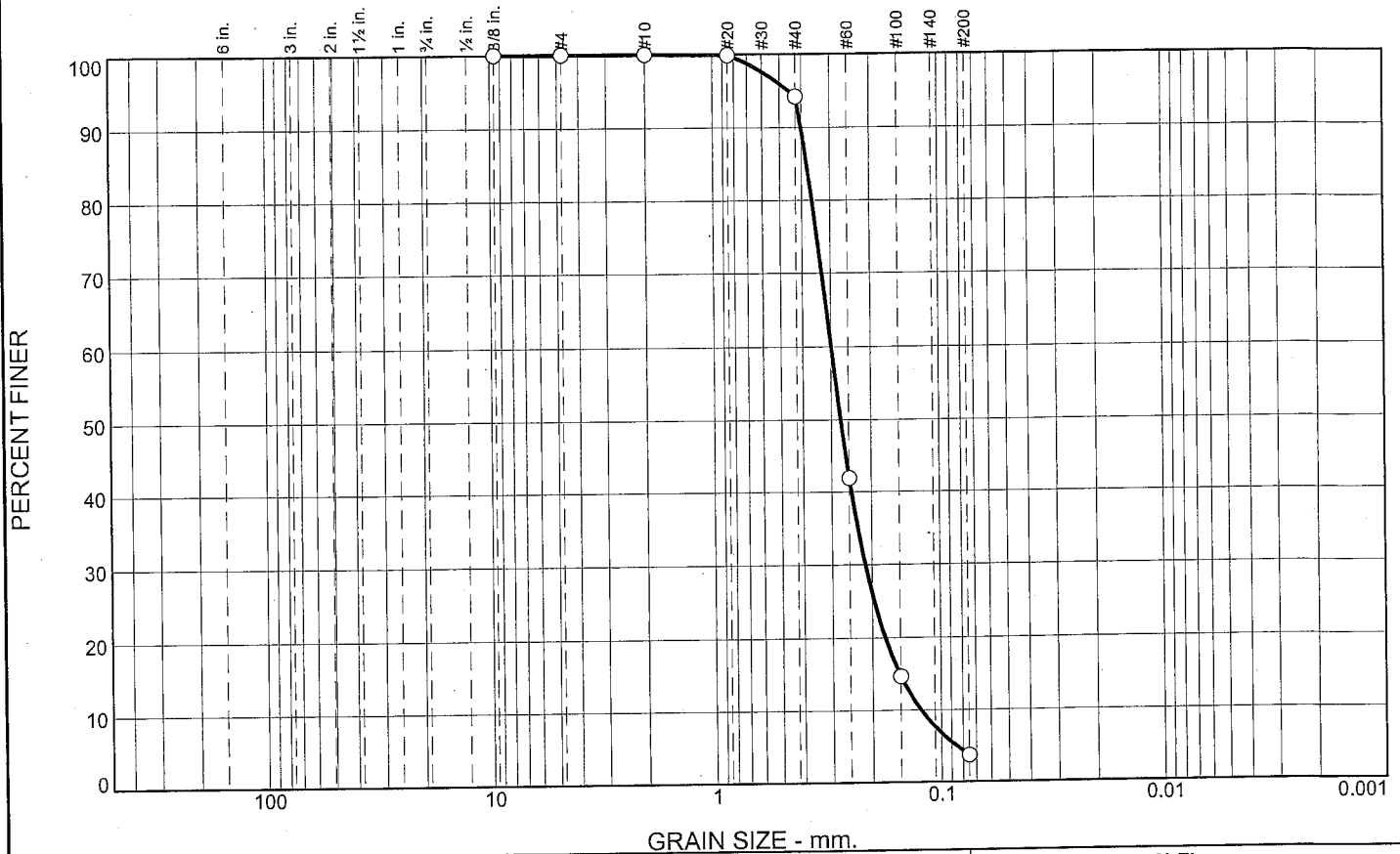
Checked By: R.Byrd

Boring Designation BI-PB-128-10

| | | | | |
|--|--|---|--|--|
| DRILLING LOG | | DIVISION South Atlantic | INSTALLATION Mobile District | SHEET 1 OF 1 SHEETS |
| 1. PROJECT MsCIP Barrier Island Restoration Petit Bois Pass- AL West | | | 9. SIZE AND TYPE OF BIT N/A | |
| 2. BORING DESIGNATION BI-PB-128-10 | | 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 | | <input type="checkbox"/> AUTO HAMMER <input type="checkbox"/> MANUAL HAMMER |
| 4. NAME OF DRILLER Construction Solutions International, Inc. | | 12. TOTAL SAMPLES | | DISTURBED 1 |
| 5. DIRECTION OF BORING <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED | | 13. TOTAL NUMBER CORE BOXES | | UNDISTURBED (UD) 0 |
| 6. THICKNESS OF OVERBURDEN N/A | | 14. WATER DEPTH 30 Ft. | | 15. DATE BORING |
| 7. DEPTH DRILLED INTO ROCK N/A | | 16. ELEVATION TOP OF BORING -29.7 Ft. | | STARTED 08-09-10 |
| 8. TOTAL DEPTH OF BORING 14.0 Ft. | | 17. TOTAL RECOVERY FOR BORING 100% | | COMPLETED 08-09-10 |
| 18. SIGNATURE AND TITLE OF INSPECTOR Chris Gillentine, Geologist | | | | |

| ELEV. | DEPTH | LEGEND | CLASSIFICATION OF MATERIALS | SAMPLE | LABORATORY RESULTS |
|---|-------|---|-----------------------------|--------|---|
| -29.7 | 0.0 | | | | |
| -30.7 | 1.0 |  | SAND, silty (SM) | NS | |
| -36.2 | 6.5 |  | SAND, poorly-graded (SP) | A | Classification: SP Color: 2.5Y 5/2-grayish brown D50: 0.2718 mm % Fines: 3.8 |
| -43.7 | 14.0 |  | CLAY, fat, dark gray (CH) | NS | |
| <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 determined from 2010 USACE survey.</p> | | | | | |

Particle Size Distribution Report



| % +3" | % Gravel | | % Sand | | | % Fines | |
|-------|----------|------|--------|--------|------|---------|------|
| | Coarse | Fine | Coarse | Medium | Fine | Silt | Clay |
| 0.0 | 0.0 | 0.0 | 0.0 | 5.8 | 90.4 | 3.8 | |

| SIEVE SIZE | PERCENT FINER | SPEC.* PERCENT | PASS? (X=NO) |
|------------|---------------|----------------|--------------|
| .375 | 100.0 | | |
| #4 | 100.0 | | |
| #10 | 100.0 | | |
| #20 | 99.9 | | |
| #40 | 94.2 | | |
| #60 | 41.9 | | |
| #100 | 14.7 | | |
| #200 | 3.8 | | |

Material Description

SAND, (SP), fine grained, with trace clay pockets

Atterberg Limits

PL= LL= PI=

Coefficients

D₉₀= 0.4014 D₈₅= 0.3789 D₆₀= 0.2986
D₅₀= 0.2718 D₃₀= 0.2138 D₁₅= 0.1515
D₁₀= 0.1224 C_u= 2.44 C_c= 1.25

Classification

USCS= SP AASHTO=

Remarks

CADD CODE = CH10D965

* (no specification provided)

Location: USACE Sample # BI-PB-128-10A
Sample Number: TE Lab ID: 4636.04

Depth: 1.0 - 6.0 (ft.)

Date: 8/17/10

Thompson Engineering

Mobile, Alabama

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

Tested By: R.Martin

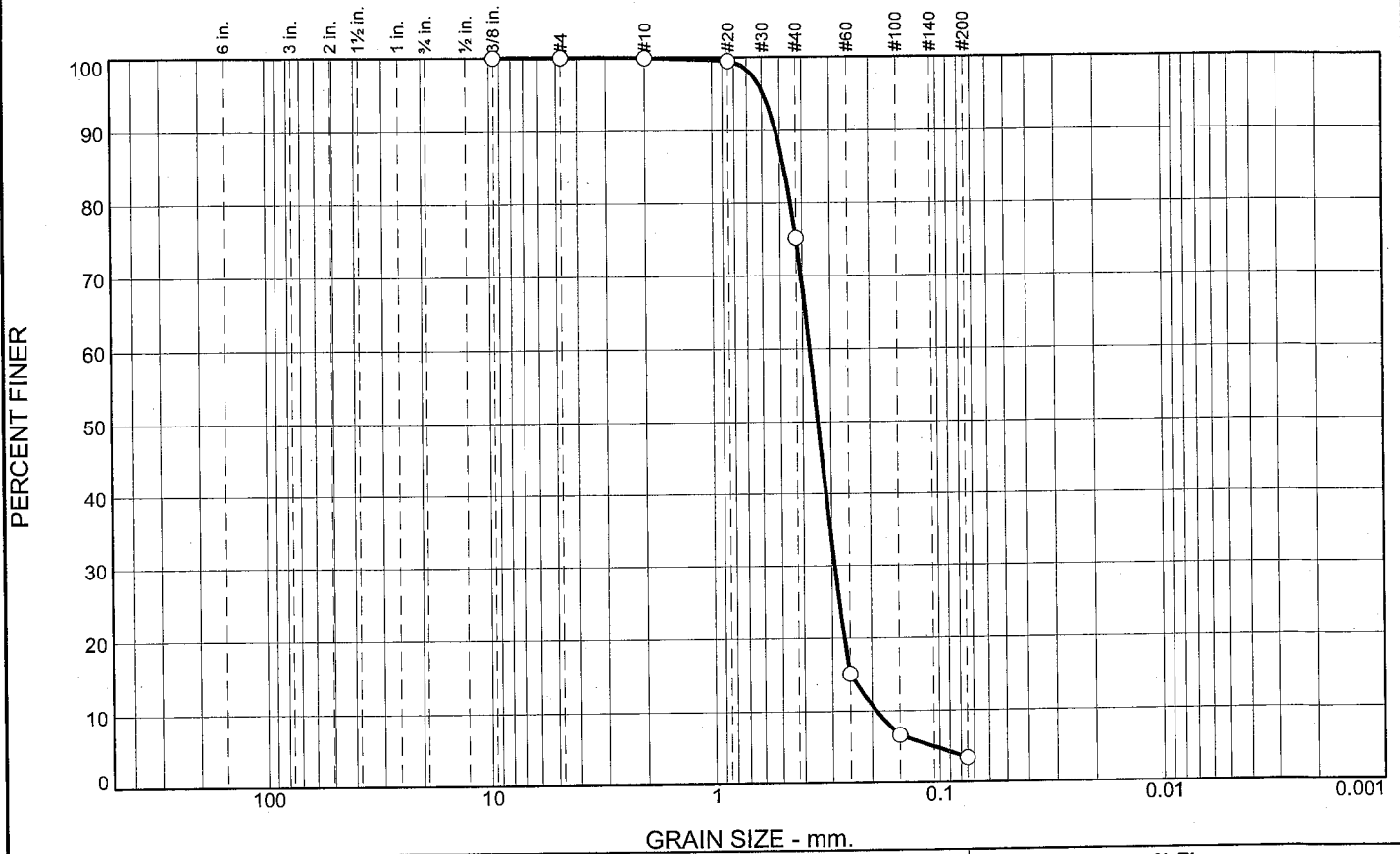
Checked By: R.Byrd
L-381

Boring Designation BI-PB-129-10

| | | | | |
|--|--|--|--|--|
| DRILLING LOG | | DIVISION South Atlantic | INSTALLATION Mobile District | SHEET 1 OF 1 SHEETS |
| 1. PROJECT MsCIP Barrier Island Restoration Petit Bois Pass- AL West | | 9. SIZE AND TYPE OF BIT N/A | | |
| 2. BORING DESIGNATION BI-PB-129-10 | | 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 | | <input type="checkbox"/> AUTO HAMMER <input type="checkbox"/> MANUAL HAMMER |
| 4. NAME OF DRILLER Construction Solutions International, Inc. | | 12. TOTAL SAMPLES | | DISTURBED 2 |
| 5. DIRECTION OF BORING <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED | | 13. TOTAL NUMBER CORE BOXES | | UNDISTURBED (UD) 0 |
| 6. THICKNESS OF OVERBURDEN N/A | | 14. WATER DEPTH 33 Ft. | | |
| 7. DEPTH DRILLED INTO ROCK N/A | | 15. DATE BORING | | STARTED 08-09-10 |
| 8. TOTAL DEPTH OF BORING 17.8 Ft. | | 16. ELEVATION TOP OF BORING -33.6 Ft. | | COMPLETED 08-09-10 |
| | | 17. TOTAL RECOVERY FOR BORING 100% | | |
| | | 18. SIGNATURE AND TITLE OF INSPECTOR Chris Gillentine, Geologist | | |

| ELEV. | DEPTH | LEGEND | CLASSIFICATION OF MATERIALS | SAMPLE | LABORATORY RESULTS |
|-------|-------|--------|--|--------|---|
| -33.6 | 0.0 | | | | |
| -34.6 | 1.0 | | SILT, inorganic-H, trace fine-grained sand-sized quartz, dark gray (MH) | NS | |
| | | | SAND, poorly-graded, lt. tan/gray (SP) | A | Classification: SP Color: 2.5Y 6/2-light brownish gray D50: 0.343 mm % Fines: 3.4 |
| | | | | B | Classification: SP Color: 2.5Y 6/2-light brownish gray D50: 0.2957 mm % Fines: 4.7 |
| -41.6 | 8.0 | | | | |
| | | | CLAY, fat, dark gray (CH) | | |
| -51.4 | 17.8 | | | NS | |
| | | | NOTES: 1. Soils are field visually classified in accordance with the Unified Soils Classification System. 2. NS = Sample not submitted for laboratory analysis from this interval. 3. Seafloor elevation determined from 2010 USACE survey. | | |

Particle Size Distribution Report



| % +3" | % Gravel | | % Sand | | | % Fines | |
|-------|----------|------|--------|--------|------|---------|------|
| | Coarse | Fine | Coarse | Medium | Fine | Silt | Clay |
| 0.0 | 0.0 | 0.0 | 0.1 | 24.8 | 71.7 | 3.4 | |

| SIEVE SIZE | PERCENT FINER | SPEC.* PERCENT | PASS? (X=NO) |
|------------|---------------|----------------|--------------|
| .375 | 100.0 | | |
| #4 | 100.0 | | |
| #10 | 99.9 | | |
| #20 | 99.5 | | |
| #40 | 75.1 | | |
| #60 | 15.1 | | |
| #100 | 6.6 | | |
| #200 | 3.4 | | |

Material Description

SAND, (SP), medium to fine grained

Atterberg Limits
 PL= LL= PI=

Coefficients
 D₉₀= 0.5212 D₈₅= 0.4791 D₆₀= 0.3713
 D₅₀= 0.3430 D₃₀= 0.2918 D₁₅= 0.2487
 D₁₀= 0.1910 C_u= 1.94 C_c= 1.20

Classification
 USCS= SP AASHTO=

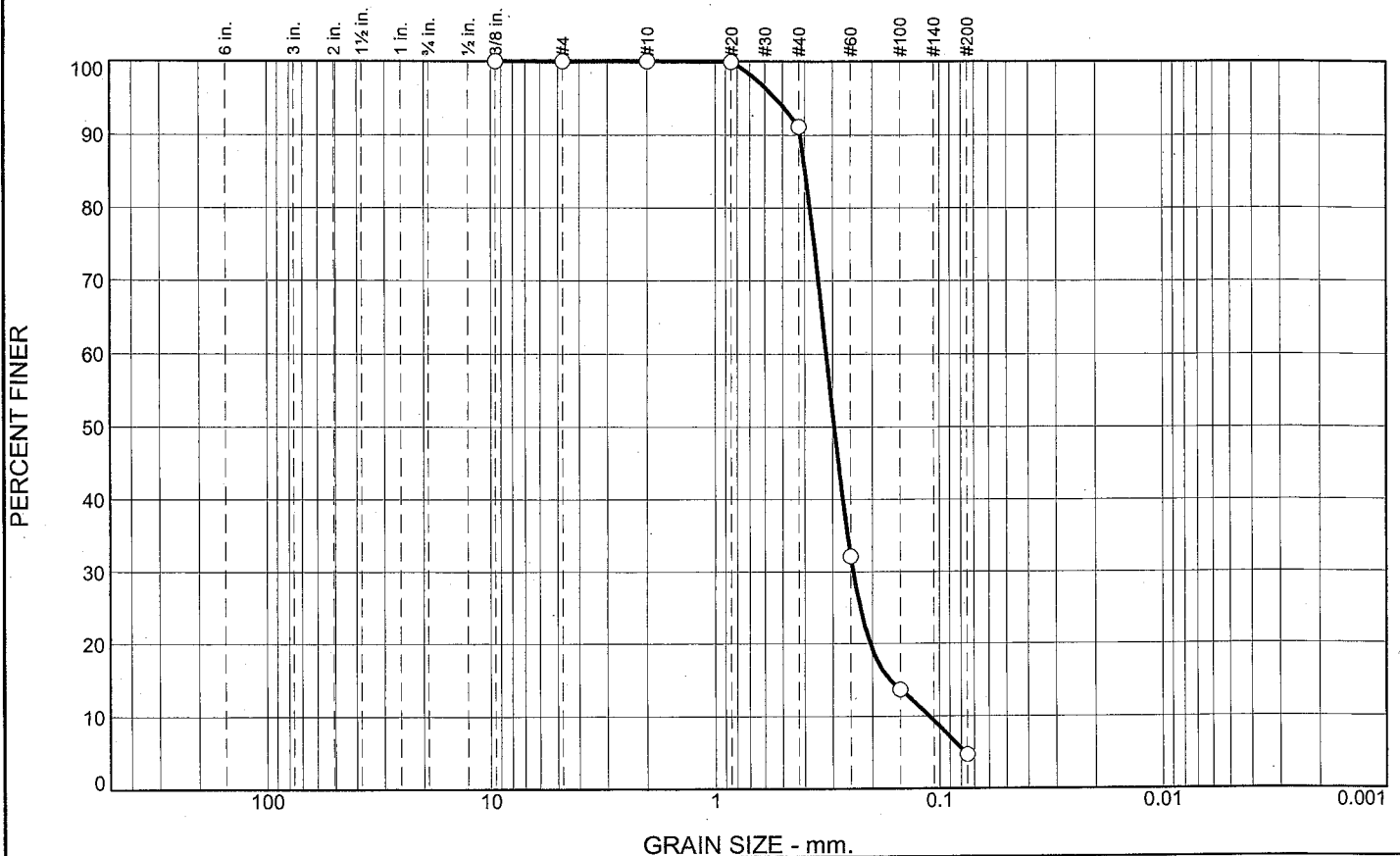
Remarks
 CADD CODE = CH10D965

* (no specification provided)

Location: USACE Sample # BI-PB-129-10A Sample Number: TE Lab ID: 4636.02 Depth: 1.0 - 4.0 (ft.) Date: 8/17/10

| | |
|---|--|
| Thompson Engineering Mobile, Alabama | Client: US Army Corps of Engineers Project: Contract No. W91278-10-D-0026 - Task 03 Mississippi Barrier Island Restoration Project Project No: 10-2123-0009 Report #: |
|---|--|

Particle Size Distribution Report



| % +3" | % Gravel | | % Sand | | | % Fines | |
|-------|----------|------|--------|--------|------|---------|------|
| | Coarse | Fine | Coarse | Medium | Fine | Silt | Clay |
| 0.0 | 0.0 | 0.0 | 0.0 | 8.8 | 86.5 | 4.7 | |

| SIEVE SIZE | PERCENT FINER | SPEC.* PERCENT | PASS? (X=NO) |
|------------|---------------|----------------|--------------|
| .375 | 100.0 | | |
| #4 | 100.0 | | |
| #10 | 100.0 | | |
| #20 | 99.9 | | |
| #40 | 91.2 | | |
| #60 | 32.2 | | |
| #100 | 13.7 | | |
| #200 | 4.7 | | |

Material Description

SAND, (SP), fine grained

Atterberg Limits

PL= LL= PI=

Coefficients

D₉₀= 0.4190 D₈₅= 0.3970 D₆₀= 0.3206
 D₅₀= 0.2957 D₃₀= 0.2435 D₁₅= 0.1664
 D₁₀= 0.1111 C_u= 2.89 C_c= 1.66

Classification

USCS= SP AASHTO=

Remarks

CADD CODE = CH10D965

* (no specification provided)

Location: USACE Sample # BI-PB-129-10B
Sample Number: TE Lab ID: 4636.03

Depth: 4.0 - 8.0 (ft.)

Date: 8/17/10

| | |
|---|--|
| Thompson Engineering Mobile, Alabama | Client: US Army Corps of Engineers Project: Contract No. W91278-10-D-0026 - Task 03 Mississippi Barrier Island Restoration Project Project No: 10-2123-0009 Report #: |
|---|--|

Tested By: G.Fancher

Checked By: R.Byrd

Boring Designation BI-PB-130-10

| | | | | |
|--|--|--|--|--|
| DRILLING LOG | | DIVISION South Atlantic | INSTALLATION Mobile District | SHEET 1 OF 1 SHEETS |
| 1. PROJECT MsCIP Barrier Island Restoration Petit Bois Pass- AL West | | 9. SIZE AND TYPE OF BIT N/A | | |
| 2. BORING DESIGNATION BI-PB-130-10 | | 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 | | <input type="checkbox"/> AUTO HAMMER <input type="checkbox"/> MANUAL HAMMER |
| 4. NAME OF DRILLER Construction Solutions International, Inc. | | 12. TOTAL SAMPLES 0 | | |
| 5. DIRECTION OF BORING <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED | | 13. TOTAL NUMBER CORE BOXES | | UNDISTURBED (UD) 0 |
| 6. THICKNESS OF OVERBURDEN N/A | | 14. WATER DEPTH 36 Ft. | | |
| 7. DEPTH DRILLED INTO ROCK N/A | | 15. DATE BORING STARTED 08-09-10 COMPLETED 08-09-10 | | |
| 8. TOTAL DEPTH OF BORING 16.9 Ft. | | 16. ELEVATION TOP OF BORING -34.7 Ft. | | |
| | | 17. TOTAL RECOVERY FOR BORING 100% | | |
| | | 18. SIGNATURE AND TITLE OF INSPECTOR Chris Gillentine, Geologist | | |

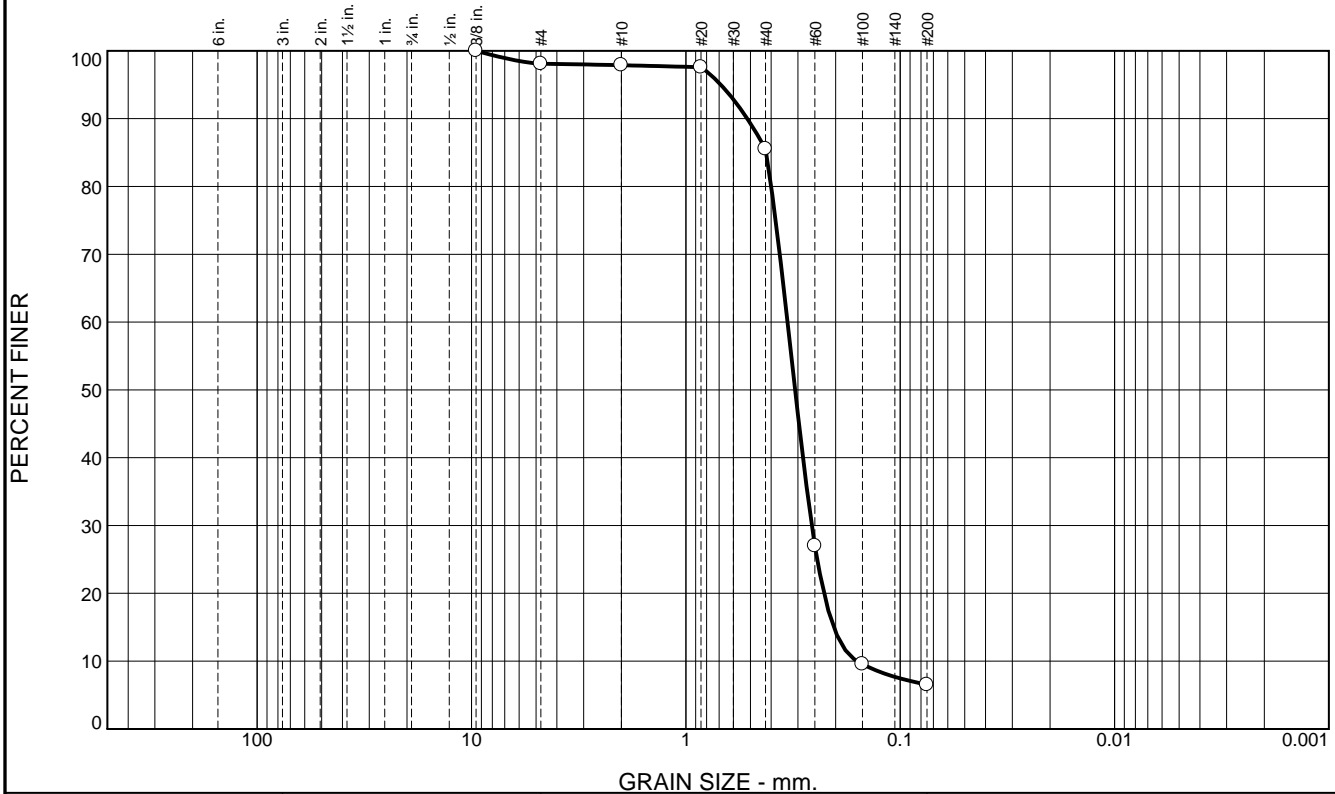
| ELEV. | DEPTH | LEGEND | CLASSIFICATION OF MATERIALS | SAMPLE | LABORATORY RESULTS |
|---|-------|--------|-----------------------------|--------|--------------------|
| -34.7 | 0.0 | | CLAY, fat, dark gray (CH) | NS | |
| -51.6 | 16.9 | | | | |
| NOTES: | | | | | |
| 1. Soils are field visually classified in accordance with the Unified Soils Classification System. | | | | | |
| 2. NS = Sample not submitted for laboratory analysis from this interval. | | | | | |
| 3. Seafloor elevation calculated using sampling vessel's fathometer water depth reading and applying NOAA tidal gauge data conversion factor. | | | | | |

Boring Designation BI-PB-131-11

| | | | | |
|--|--|---|--|--|
| DRILLING LOG | | DIVISION South Atlantic | INSTALLATION Mobile District | SHEET 1 OF 1 SHEETS |
| 1. PROJECT MsCIP Barrier Island Restoration Petit Bois Pass- AL West | | | 9. SIZE AND TYPE OF BIT N/A | |
| 2. BORING DESIGNATION BI-PB-131-11 | | 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 | | <input type="checkbox"/> AUTO HAMMER <input type="checkbox"/> MANUAL HAMMER |
| 4. NAME OF DRILLER Construction Solutions International, Inc. | | 12. TOTAL SAMPLES | | DISTURBED 2 |
| 5. DIRECTION OF BORING <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED | | 13. TOTAL NUMBER CORE BOXES | | UNDISTURBED (UD) 0 |
| 6. THICKNESS OF OVERBURDEN N/A | | 14. WATER DEPTH 28.5 Ft. | | 15. DATE BORING |
| 7. DEPTH DRILLED INTO ROCK N/A | | 16. ELEVATION TOP OF BORING -26.8 Ft. | | STARTED 06-30-11 |
| 8. TOTAL DEPTH OF BORING 14.3 Ft. | | 17. TOTAL RECOVERY FOR BORING 100% | | COMPLETED 06-30-11 |
| 18. SIGNATURE AND TITLE OF INSPECTOR Michele Johnson, Geologist | | | | |

| ELEV. | DEPTH | LEGEND | CLASSIFICATION OF MATERIALS | SAMPLE | LABORATORY RESULTS |
|-------|-------|--------|--|--------|--|
| -26.8 | 0.0 | | | | |
| | | | SAND, poorly-graded, trace shell fragments, lt. gray (SP) | A | Classification: SP-SM Color: 5Y 7/1-light gray D50: 0.3095 mm % Fines: 6.5 |
| -30.1 | 3.3 | | SAND, poorly-graded with silt, trace shell fragments, gray (SP-SM) | B | Classification: SP-SM Color: 2.5Y 6/2-light brownish gray D50: 0.2957 mm % Fines: 7.2 |
| | | | | NS | |
| -41.1 | 14.3 | | | | |
| | | | NOTES: 1. Soils are field visually classified in accordance with the Unified Soils Classification System. 2. NS = Sample not submitted for laboratory analysis from this interval. 3. Seafloor elevation determined from 2010 USACE survey. | | |

Particle Size Distribution Report



| % +3" | % Gravel | | % Sand | | | % Fines | |
|-------|----------|------|--------|--------|------|---------|------|
| | Coarse | Fine | Coarse | Medium | Fine | Silt | Clay |
| 0.0 | 0.0 | 1.9 | 0.2 | 12.4 | 79.0 | 6.5 | |

| SIEVE SIZE | PERCENT FINER | SPEC.* PERCENT | PASS? (X=NO) |
|------------|---------------|----------------|--------------|
| .375 | 100.0 | | |
| #4 | 98.1 | | |
| #10 | 97.9 | | |
| #20 | 97.6 | | |
| #40 | 85.5 | | |
| #60 | 27.0 | | |
| #100 | 9.5 | | |
| #200 | 6.5 | | |

Material Description

Slightly silty SAND (SP-SM), medium to fine grained

Atterberg Limits

PL= LL= PI=

Coefficients

D₉₀= 0.5168 D₈₅= 0.4223 D₆₀= 0.3356
D₅₀= 0.3095 D₃₀= 0.2586 D₁₅= 0.2042
D₁₀= 0.1590 C_u= 2.11 C_c= 1.25

Classification

USCS= SP-SM AASHTO=

Remarks

* (no specification provided)

Location: USACE Sample # BI-PB-131A-11
Sample Number: TE Lab ID: 5054.106

Depth: 0.0 - 3.3 (ft)

Date: 7/18/11

Thompson Engineering

Mobile, Alabama

Client: US Army Corps of Engineers
Project: Contract No. W91278-10-D-0026 - Task 009
Mississippi Barrier Island Restoration Project

Project No: 11-2116-0057

Figure

Particle Size Distribution Report



| % +3" | % Gravel | | % Sand | | | % Fines | |
|-------|----------|------|--------|--------|------|---------|------|
| | Coarse | Fine | Coarse | Medium | Fine | Silt | Clay |
| 0.0 | 0.0 | 0.1 | 0.2 | 11.6 | 80.9 | 7.2 | |

| SIEVE SIZE | PERCENT FINER | SPEC.* PERCENT | PASS? (X=NO) |
|------------|---------------|----------------|--------------|
| .375 | 100.0 | | |
| #4 | 99.9 | | |
| #10 | 99.7 | | |
| #20 | 99.4 | | |
| #40 | 88.1 | | |
| #60 | 33.0 | | |
| #100 | 11.8 | | |
| #200 | 7.2 | | |

Material Description
Slightly silty SAND (SP-SM), medium to fine grained

Atterberg Limits
 PL= LL= PI=

Coefficients
 D₉₀= 0.4625 D₈₅= 0.4092 D₆₀= 0.3227
 D₅₀= 0.2957 D₃₀= 0.2409 D₁₅= 0.1764
 D₁₀= 0.1294 C_u= 2.49 C_c= 1.39

Classification
 USCS= SP-SM AASHTO=

Remarks

* (no specification provided)

Location: USACE Sample # BI-PB-131B-11
Sample Number: TE Lab ID: 5054.107

Depth: 3.3 - 8.3 (ft)

Date: 7/18/11

Thompson Engineering

Mobile, Alabama

Client: US Army Corps of Engineers
Project: Contract No. W91278-10-D-0026 - Task 009
 Mississippi Barrier Island Restoration Project

Project No: 11-2116-0057

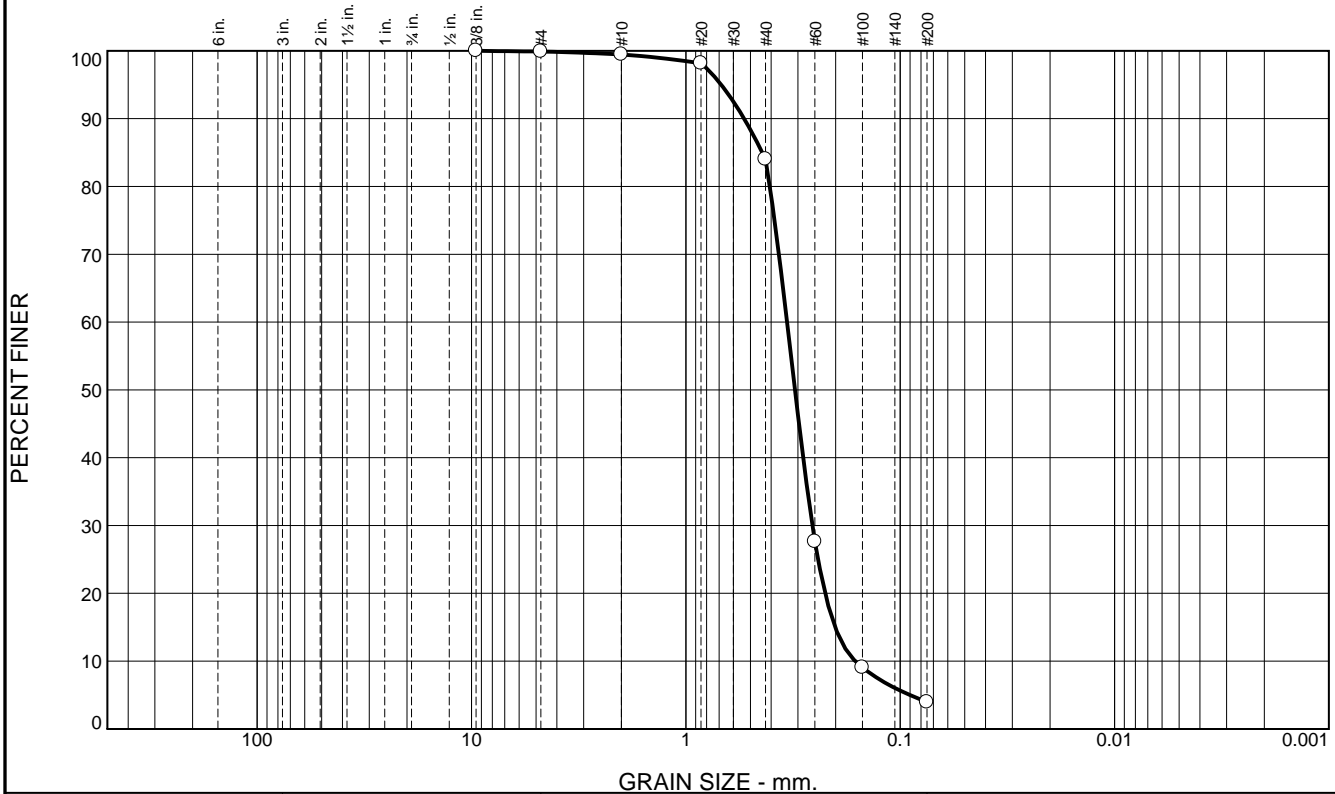
Figure

Boring Designation BI-PB-132-11

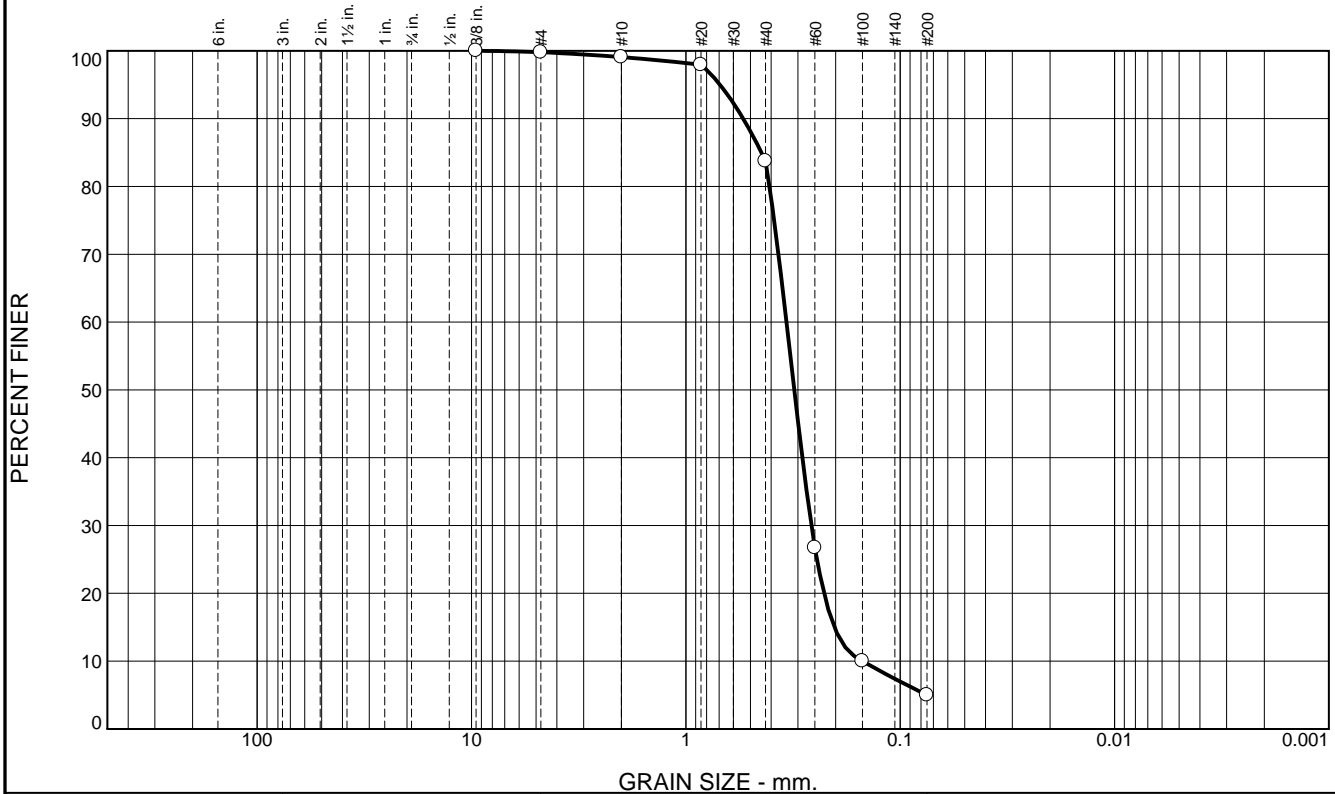
| | | | | |
|--|--|---|--|--|
| DRILLING LOG | | DIVISION South Atlantic | INSTALLATION Mobile District | SHEET 1 OF 1 SHEETS |
| 1. PROJECT MsCIP Barrier Island Restoration Petit Bois Pass- AL West | | | 9. SIZE AND TYPE OF BIT N/A | |
| 2. BORING DESIGNATION BI-PB-132-11 | | 10. COORDINATE SYSTEM/DATUM State Plane, MSE (U.S. Ft.) | | HORIZONTAL NAD83 |
| 3. DRILLING AGENCY Corps of Engineers - CESAM | | 11. MANUFACTURER'S DESIGNATION OF DRILL Vibracore | | <input type="checkbox"/> AUTO HAMMER <input type="checkbox"/> MANUAL HAMMER |
| 4. NAME OF DRILLER Construction Solutions International, Inc. | | 12. TOTAL SAMPLES | | DISTURBED 3 |
| 5. DIRECTION OF BORING <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED | | 13. TOTAL NUMBER CORE BOXES | | UNDISTURBED (UD) 0 |
| 6. THICKNESS OF OVERBURDEN N/A | | 14. WATER DEPTH 33 Ft. | | 15. DATE BORING |
| 7. DEPTH DRILLED INTO ROCK N/A | | 16. ELEVATION TOP OF BORING -31.6 Ft. | | STARTED 06-30-11 |
| 8. TOTAL DEPTH OF BORING 18.0 Ft. | | 17. TOTAL RECOVERY FOR BORING 100% | | COMPLETED 06-30-11 |
| 18. SIGNATURE AND TITLE OF INSPECTOR Michele Johnson, Geologist | | | | |

| ELEV. | DEPTH | LEGEND | CLASSIFICATION OF MATERIALS | SAMPLE | LABORATORY RESULTS |
|-------|-------|--------|--|--------|--|
| -31.6 | 0.0 | | SAND, poorly-graded, mostly medium-grained sand-sized quartz, gray (SP) | A | Classification: SP Color: 2.5Y 6/2-light brownish gray D50: 0.3099 mm % Fines: 4 |
| | | | At El. -36.6 Ft., trace shell fragments, lt. gray | B | Classification: SP-SM Color: 2.5Y 6/2-light brownish gray D50: 0.3122 mm % Fines: 5 |
| | | | | C | Classification: SP Color: 2.5Y 7/1-light gray D50: 0.3152 mm % Fines: 2.5 |
| | | | | NS | |
| -49.6 | 18.0 | | NOTES: 1. Soils are field visually classified in accordance with the Unified Soils Classification System. 2. NS = Sample not submitted for laboratory analysis from this interval. 3. Seafloor elevation determined from 2010 USACE survey. | | |

Particle Size Distribution Report



Particle Size Distribution Report



| % +3" | % Gravel | | % Sand | | | % Fines | |
|-------|----------|------|--------|--------|------|---------|------|
| | Coarse | Fine | Coarse | Medium | Fine | Silt | Clay |
| 0.0 | 0.0 | 0.2 | 0.7 | 15.3 | 78.8 | 5.0 | |

| SIEVE SIZE | PERCENT FINER | SPEC.* PERCENT | PASS? (X=NO) |
|------------|---------------|----------------|--------------|
| .375 | 100.0 | | |
| #4 | 99.8 | | |
| #10 | 99.1 | | |
| #20 | 97.9 | | |
| #40 | 83.8 | | |
| #60 | 26.7 | | |
| #100 | 10.0 | | |
| #200 | 5.0 | | |

Material Description
Slightly silty SAND (SP-SM), medium to fine grained

Atterberg Limits
 PL= LL= PI=

Coefficients
 D₉₀= 0.5400 D₈₅= 0.4440 D₆₀= 0.3394
 D₅₀= 0.3122 D₃₀= 0.2597 D₁₅= 0.2027
 D₁₀= 0.1502 C_u= 2.26 C_c= 1.32

Classification
 USCS= SP-SM AASHTO=

Remarks

* (no specification provided)

Location: USACE Sample # BI-PB-132B-11
Sample Number: TE Lab ID: 5054.104

Depth: 5.0 - 10.0 (ft)

Date: 7/18/11

Thompson Engineering

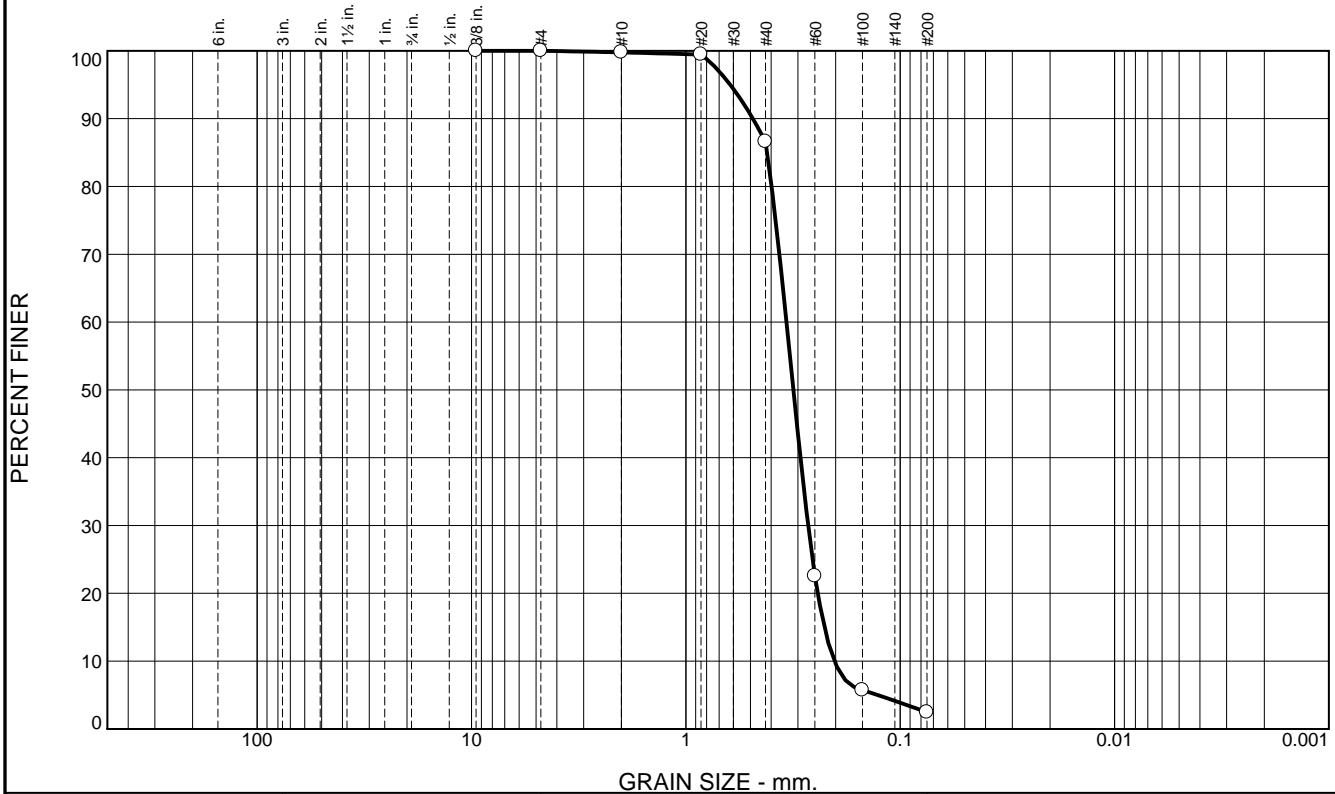
Mobile, Alabama

Client: US Army Corps of Engineers
Project: Contract No. W91278-10-D-0026 - Task 009
 Mississippi Barrier Island Restoration Project

Project No: 11-2116-0057

Figure

Particle Size Distribution Report



| % +3" | % Gravel | | % Sand | | | % Fines | |
|-------|----------|------|--------|--------|------|---------|------|
| | Coarse | Fine | Coarse | Medium | Fine | Silt | Clay |
| 0.0 | 0.0 | 0.0 | 0.2 | 13.2 | 84.1 | 2.5 | |

| SIEVE SIZE | PERCENT FINER | SPEC.* PERCENT | PASS? (X=NO) |
|------------|---------------|----------------|--------------|
| .375 | 100.0 | | |
| #4 | 100.0 | | |
| #10 | 99.8 | | |
| #20 | 99.5 | | |
| #40 | 86.6 | | |
| #60 | 22.6 | | |
| #100 | 5.7 | | |
| #200 | 2.5 | | |

Material Description

SAND (SP), medium to fine grained

Atterberg Limits

PL= LL= PI=

Coefficients

D₉₀= 0.4868 D₈₅= 0.4179 D₆₀= 0.3394
D₅₀= 0.3152 D₃₀= 0.2690 D₁₅= 0.2258
D₁₀= 0.2027 C_u= 1.67 C_c= 1.05

Classification

USCS= SP AASHTO=

Remarks

* (no specification provided)

Location: USACE Sample # BI-PB-132C-11
Sample Number: TE Lab ID: 5054.105

Depth: 10.0 - 14.8 (ft)

Date: 7/18/11

Thompson Engineering

Mobile, Alabama

Client: US Army Corps of Engineers

Project: Contract No. W91278-10-D-0026 - Task 009
Mississippi Barrier Island Restoration Project

Project No: 11-2116-0057

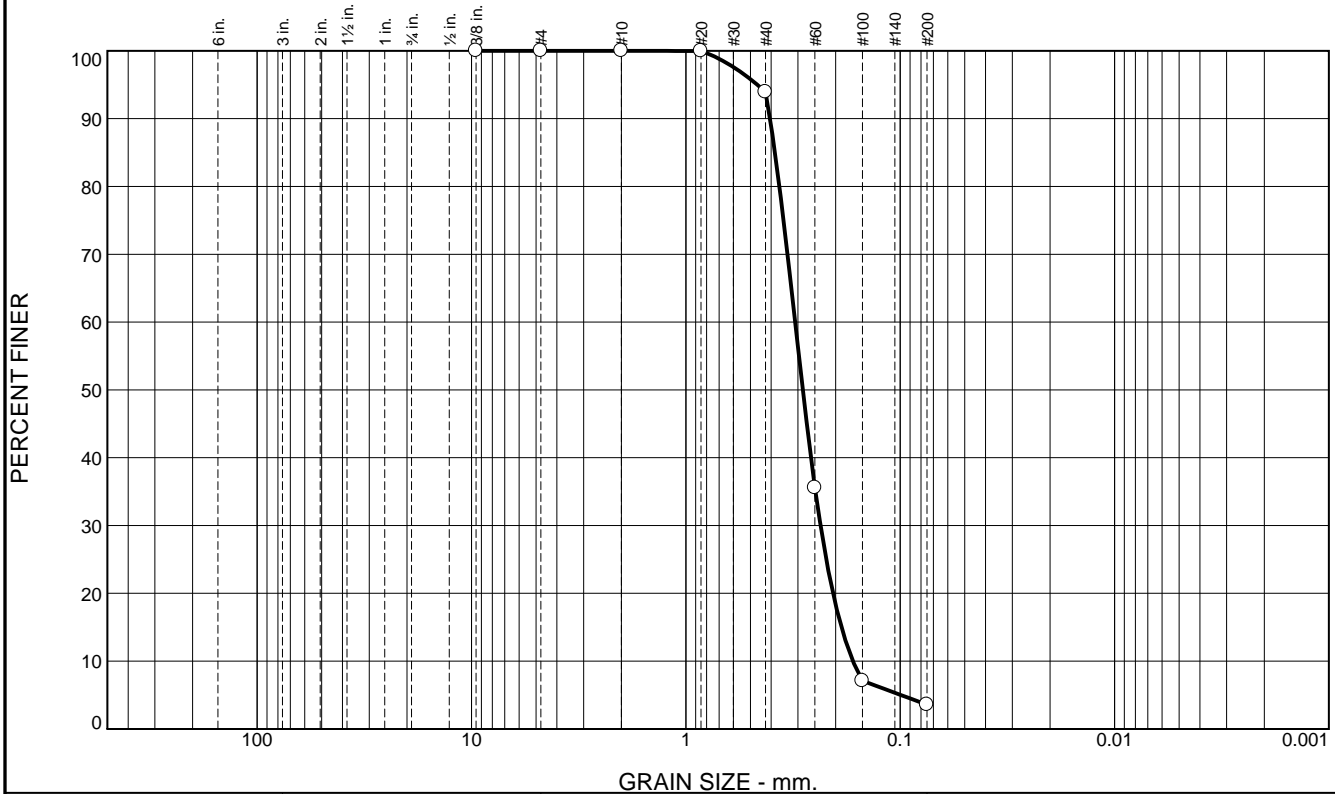
Figure

Boring Designation BI-PB-133-11

| | | | | |
|--|--|--|--|--|
| DRILLING LOG | | DIVISION South Atlantic | INSTALLATION Mobile District | SHEET 1 OF 1 SHEETS |
| 1. PROJECT MsCIP Barrier Island Restoration Petit Bois Pass- AL West | | | 9. SIZE AND TYPE OF BIT N/A | |
| 2. BORING DESIGNATION BI-PB-133-11 | | LOCATION COORDINATES E = 1,132,513 N = 253,727 | | 11. MANUFACTURER'S DESIGNATION OF DRILL Vibracore |
| 3. DRILLING AGENCY Corps of Engineers - CESAM | | CONTRACTOR FILE NO. | | <input type="checkbox"/> AUTO HAMMER <input type="checkbox"/> MANUAL HAMMER |
| 4. NAME OF DRILLER Construction Solutions International, Inc. | | | 12. TOTAL SAMPLES 3 | |
| 5. DIRECTION OF BORING <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED | | DEG. FROM VERTICAL | BEARING | 13. TOTAL NUMBER CORE BOXES |
| 6. THICKNESS OF OVERBURDEN N/A | | | 14. WATER DEPTH 29.5 Ft. | |
| 7. DEPTH DRILLED INTO ROCK N/A | | | 15. DATE BORING STARTED 06-30-11 COMPLETED 06-30-11 | |
| 8. TOTAL DEPTH OF BORING 18.4 Ft. | | | 16. ELEVATION TOP OF BORING -28.3 Ft. | |
| | | | 17. TOTAL RECOVERY FOR BORING 100% | |
| 18. SIGNATURE AND TITLE OF INSPECTOR Michele Johnson, Geologist | | | | |

| ELEV. | DEPTH | LEGEND | CLASSIFICATION OF MATERIALS | SAMPLE | LABORATORY RESULTS |
|-------|-------|--------|--|--------|---|
| -28.3 | 0.0 | | | | |
| | | ••••• | SAND, poorly-graded, mostly medium-grained sand-sized quartz, trace shell fragments, From 2.3 to 5 tan to brown, gray (SP) | A | Classification: SP-SM Color: 2.5Y 7/1-light gray D50: 0.2741 mm % Fines: 6.6 |
| -32.3 | 4.0 | | SAND, poorly-graded, mostly medium-grained sand-sized quartz, lt. gray (SP) | B | Classification: SP Color: 2.5Y 6/2-light brownish gray D50: 0.2848 mm % Fines: 3.6 |
| -36.3 | 8.0 | | SAND, poorly-graded, mostly medium-grained sand-sized quartz, some sand, lt. gray (SP) | C | Classification: SP Color: 2.5Y 6/2-light brownish gray D50: 0.2854 mm % Fines: 2.8 |
| | | | | NS | |
| -46.7 | 18.4 | | | | |
| | | | NOTES: 1. Soils are field visually classified in accordance with the Unified Soils Classification System. 2. NS = Sample not submitted for laboratory analysis from this interval. 3. Seafloor elevation determined from 2010 USACE survey. | | |

Particle Size Distribution Report



| % +3" | % Gravel | | % Sand | | | % Fines | |
|-------|----------|------|--------|--------|------|---------|------|
| | Coarse | Fine | Coarse | Medium | Fine | Silt | Clay |
| 0.0 | 0.0 | 0.0 | 0.0 | 6.1 | 90.3 | 3.6 | |

| SIEVE SIZE | PERCENT FINER | SPEC.* PERCENT | PASS? (X=NO) |
|------------|---------------|----------------|--------------|
| .375 | 100.0 | | |
| #4 | 100.0 | | |
| #10 | 100.0 | | |
| #20 | 100.0 | | |
| #40 | 93.9 | | |
| #60 | 35.6 | | |
| #100 | 7.1 | | |
| #200 | 3.6 | | |

Material Description

SAND (SP), fine grained

| | | |
|--------------------------|--------------------------|--------------------------|
| PL= | Atterberg Limits | PI= |
| | Coefficients | |
| D ₉₀ = 0.4049 | D ₈₅ = 0.3840 | D ₆₀ = 0.3093 |
| D ₅₀ = 0.2848 | D ₃₀ = 0.2354 | D ₁₅ = 0.1880 |
| D ₁₀ = 0.1662 | C _u = 1.86 | C _c = 1.08 |

USCS= SP **Classification** AASHTO=

Remarks

* (no specification provided)

Location: USACE Sample # BI-PB-133B-11
Sample Number: TE Lab ID: 5054.109

Depth: 4.0 - 8.0 (ft)

Date: 7/18/11

Thompson Engineering

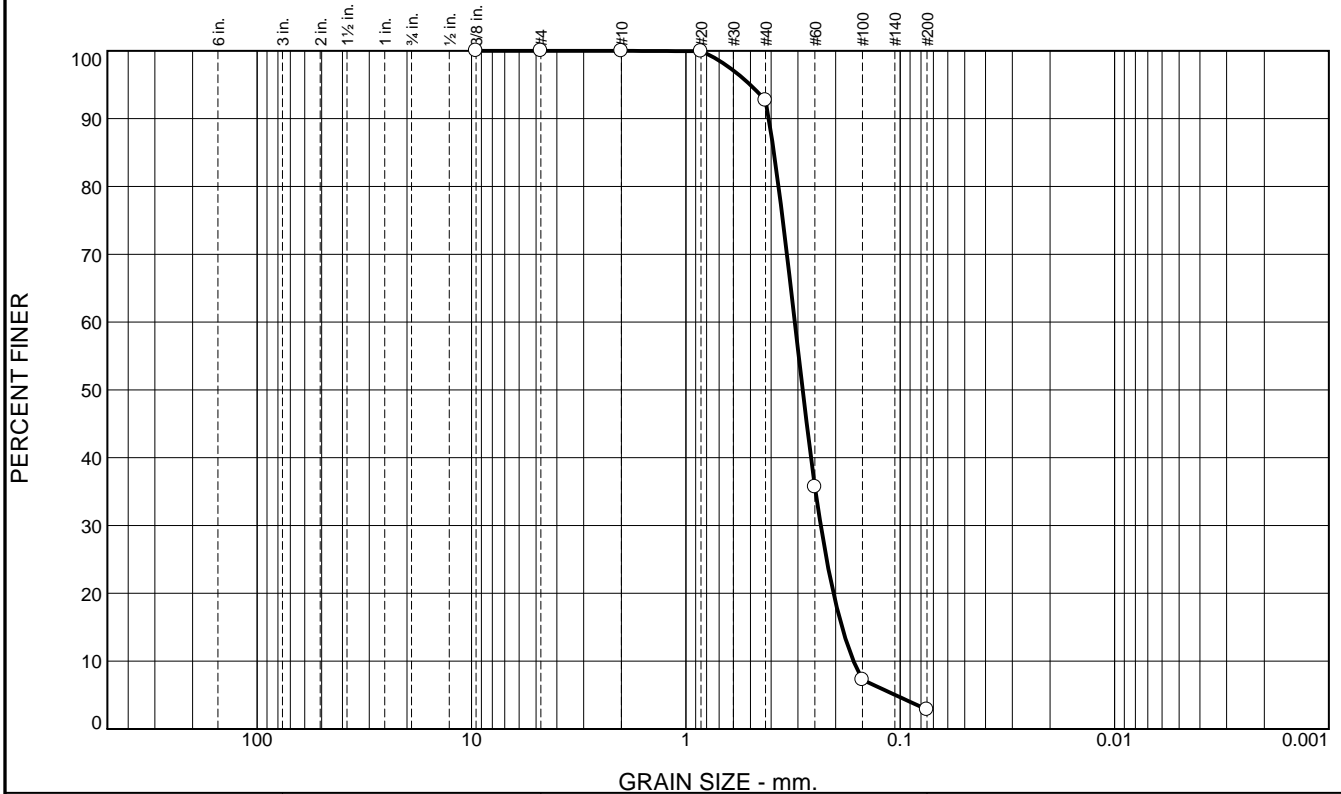
Mobile, Alabama

Client: US Army Corps of Engineers
Project: Contract No. W91278-10-D-0026 - Task 009
 Mississippi Barrier Island Restoration Project

Project No: 11-2116-0057

Figure

Particle Size Distribution Report



| % +3" | % Gravel | | % Sand | | | % Fines | |
|-------|----------|------|--------|--------|------|---------|------|
| | Coarse | Fine | Coarse | Medium | Fine | Silt | Clay |
| 0.0 | 0.0 | 0.0 | 0.0 | 7.3 | 89.9 | 2.8 | |

| SIEVE SIZE | PERCENT FINER | SPEC.* PERCENT | PASS? (X=NO) |
|------------|---------------|----------------|--------------|
| .375 | 100.0 | | |
| #4 | 100.0 | | |
| #10 | 100.0 | | |
| #20 | 99.9 | | |
| #40 | 92.7 | | |
| #60 | 35.7 | | |
| #100 | 7.2 | | |
| #200 | 2.8 | | |

Material Description

SAND (SP), fine grained

Atterberg Limits

PL= LL= PI=

Coefficients

D₉₀= 0.4106 D₈₅= 0.3883 D₆₀= 0.3105
D₅₀= 0.2854 D₃₀= 0.2349 D₁₅= 0.1868
D₁₀= 0.1650 C_u= 1.88 C_c= 1.08

Classification

USCS= SP AASHTO=

Remarks

* (no specification provided)

Location: USACE Sample # BI-PB-133C-11
Sample Number: TE Lab ID: 5054.110

Depth: 8.0 - 13.0 (ft)

Date: 7/18/11

Thompson Engineering

Mobile, Alabama

Client: US Army Corps of Engineers
Project: Contract No. W91278-10-D-0026 - Task 009
Mississippi Barrier Island Restoration Project
Project No: 11-2116-0057

Figure

Boring Designation BI-PB-134-11

| | | | | |
|--|--|---|--|--|
| DRILLING LOG | | DIVISION South Atlantic | INSTALLATION Mobile District | SHEET 1 OF 1 SHEETS |
| 1. PROJECT MsCIP Barrier Island Restoration Petit Bois Pass- AL West | | | 9. SIZE AND TYPE OF BIT N/A | |
| 2. BORING DESIGNATION BI-PB-134-11 | | 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 | | <input type="checkbox"/> AUTO HAMMER <input type="checkbox"/> MANUAL HAMMER |
| 4. NAME OF DRILLER Construction Solutions International, Inc. | | 12. TOTAL SAMPLES | | DISTURBED 2 |
| 5. DIRECTION OF BORING <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED | | 13. TOTAL NUMBER CORE BOXES | | UNDISTURBED (UD) 0 |
| 6. THICKNESS OF OVERBURDEN N/A | | 14. WATER DEPTH 32.5 Ft. | | 15. DATE BORING |
| 7. DEPTH DRILLED INTO ROCK N/A | | 16. ELEVATION TOP OF BORING -31.0 Ft. | | STARTED 06-30-11 |
| 8. TOTAL DEPTH OF BORING 16.4 Ft. | | 17. TOTAL RECOVERY FOR BORING 100% | | COMPLETED 06-30-11 |
| 18. SIGNATURE AND TITLE OF INSPECTOR Michele Johnson, Geologist | | | | |

| ELEV. | DEPTH | LEGEND | CLASSIFICATION OF MATERIALS | SAMPLE | LABORATORY RESULTS |
|-------|-------|--------|--|--------|--|
| -31.0 | 0.0 | | | | |
| | | | SAND, poorly-graded with silt, mostly fine to medium-grained sand-sized quartz, dark gray/brown (SP-SM) | A | Classification: SP Color: 2.5Y 4/2-dark grayish brown D50: 0.3037 mm % Fines: 4.7 |
| -36.0 | 5.0 | | SAND, poorly-graded with silt, mostly fine to medium-grained sand-sized quartz, lt. gray/brown (SP-SM) | B | Classification: SP-SM Color: 2.5Y 5/2-grayish brown D50: 0.2666 mm % Fines: 5.9 |
| | | | | NS | |
| -47.4 | 16.4 | | | | |
| | | | NOTES: 1. Soils are field visually classified in accordance with the Unified Soils Classification System. 2. NS = Sample not submitted for laboratory analysis from this interval. 3. Seafloor elevation determined from 2010 USACE survey. | | |

Particle Size Distribution Report



| % +3" | % Gravel | | % Sand | | | % Fines | |
|-------|----------|------|--------|--------|------|---------|------|
| | Coarse | Fine | Coarse | Medium | Fine | Silt | Clay |
| 0.0 | 0.0 | 0.0 | 0.1 | 8.3 | 86.9 | 4.7 | |

| SIEVE SIZE | PERCENT FINER | SPEC.* PERCENT | PASS? (X=NO) |
|------------|---------------|----------------|--------------|
| .375 | 100.0 | | |
| #4 | 100.0 | | |
| #10 | 99.9 | | |
| #20 | 99.8 | | |
| #40 | 91.6 | | |
| #60 | 26.5 | | |
| #100 | 5.8 | | |
| #200 | 4.7 | | |

Material Description
SAND (SP), fine grained

Atterberg Limits
 PL= LL= PI=

Coefficients
 D₉₀= 0.4175 D₈₅= 0.3975 D₆₀= 0.3266
 D₅₀= 0.3037 D₃₀= 0.2587 D₁₅= 0.2147
 D₁₀= 0.1911 C_u= 1.71 C_c= 1.07

Classification
 USCS= SP AASHTO=

Remarks

* (no specification provided)

Location: USACE Sample # BI-PB-134A-11
Sample Number: TE Lab ID: 5054.111

Depth: 0.0 - 5.0 (ft)

Date: 7/18/11

Thompson Engineering

Mobile, Alabama

Client: US Army Corps of Engineers
Project: Contract No. W91278-10-D-0026 - Task 009
 Mississippi Barrier Island Restoration Project

Project No: 11-2116-0057

Figure

Particle Size Distribution Report



| % +3" | % Gravel | | % Sand | | | % Fines | |
|-------|----------|------|--------|--------|------|---------|------|
| | Coarse | Fine | Coarse | Medium | Fine | Silt | Clay |
| 0.0 | 0.0 | 0.0 | 0.0 | 4.5 | 89.6 | 5.9 | |

| SIEVE SIZE | PERCENT FINER | SPEC.* PERCENT | PASS? (X=NO) |
|------------|---------------|----------------|--------------|
| .375 | 100.0 | | |
| #4 | 100.0 | | |
| #10 | 100.0 | | |
| #20 | 100.0 | | |
| #40 | 95.5 | | |
| #60 | 43.5 | | |
| #100 | 10.7 | | |
| #200 | 5.9 | | |

Material Description

Slightly silty SAND (SP-SM), fine grained

Atterberg Limits

PL= LL= PI=

Coefficients

D₉₀= 0.3938 D₈₅= 0.3717 D₆₀= 0.2925
D₅₀= 0.2666 D₃₀= 0.2140 D₁₅= 0.1674
D₁₀= 0.1358 C_u= 2.15 C_c= 1.15

Classification

USCS= SP-SM AASHTO=

Remarks

* (no specification provided)

Location: USACE Sample # BI-PB-134B-11
Sample Number: TE Lab ID: 5054.112

Depth: 5.0 - 8.0 (ft)

Date: 7/18/11

Thompson Engineering

Mobile, Alabama

Client: US Army Corps of Engineers
Project: Contract No. W91278-10-D-0026 - Task 009
Mississippi Barrier Island Restoration Project

Project No: 11-2116-0057

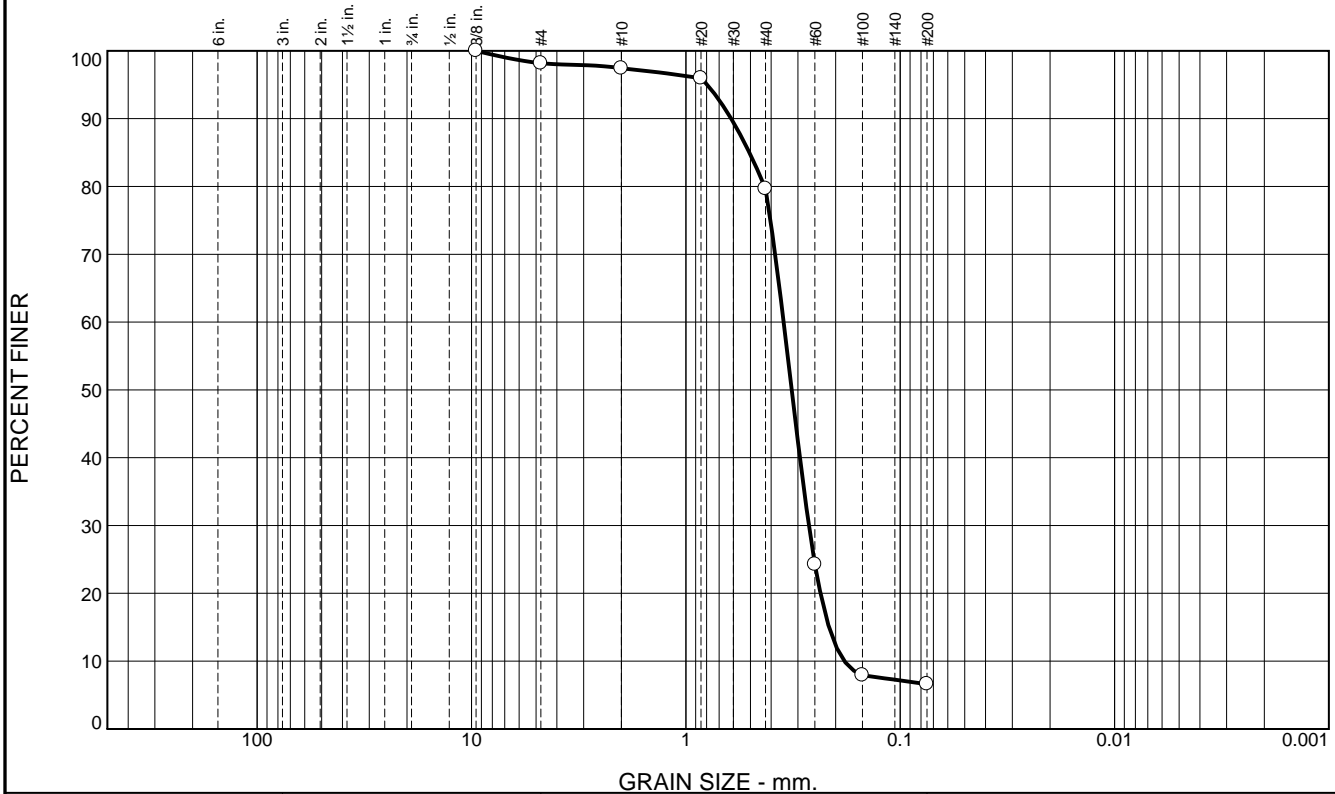
Figure

Boring Designation BI-PB-135-11

| | | | | |
|--|--|---|--|--|
| DRILLING LOG | | DIVISION South Atlantic | INSTALLATION Mobile District | SHEET 1 OF 1 SHEETS |
| 1. PROJECT MsCIP Barrier Island Restoration Petit Bois Pass- AL West | | | 9. SIZE AND TYPE OF BIT N/A | |
| 2. BORING DESIGNATION BI-PB-135-11 | | 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 | | <input type="checkbox"/> AUTO HAMMER <input type="checkbox"/> MANUAL HAMMER |
| 4. NAME OF DRILLER Construction Solutions International, Inc. | | 12. TOTAL SAMPLES | | DISTURBED 2 |
| 5. DIRECTION OF BORING <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED | | 13. TOTAL NUMBER CORE BOXES | | UNDISTURBED (UD) 0 |
| 6. THICKNESS OF OVERBURDEN N/A | | 14. WATER DEPTH 32.5 Ft. | | |
| 7. DEPTH DRILLED INTO ROCK N/A | | 15. DATE BORING | | STARTED 06-30-11 |
| 8. TOTAL DEPTH OF BORING 12.2 Ft. | | 16. ELEVATION TOP OF BORING -31.4 Ft. | | COMPLETED 06-30-11 |
| | | 17. TOTAL RECOVERY FOR BORING 100% | | |
| | | 18. SIGNATURE AND TITLE OF INSPECTOR Michele Johnson, Geologist | | |

| ELEV. | DEPTH | LEGEND | CLASSIFICATION OF MATERIALS | SAMPLE | LABORATORY RESULTS |
|---|-------|-----------|--|--------|--|
| -31.4 | 0.0 | | | | |
| | | ••••• | SAND, poorly-graded with silt, mostly fine to medium-grained sand-sized quartz, dk brown/dk gray (SP-SM) | A | Classification: SP-SM Color: 2.5Y 5/2-grayish brown D50: 0.3209 mm % Fines: 6.6 |
| -35.4 | 4.0 | ••••• | | B | Classification: SP-SM Color: 2.5Y 5/2-grayish brown D50: 0.2445 mm % Fines: 8.4 |
| -37.0 | 5.6 | ••••• | SAND, poorly-graded, mostly fine to medium-grained sand-sized quartz, dk gray (SP) | | |
| | | / / / / / | CLAY, lean, trace fine-grained sand, dk gray (CL) | NS | |
| -43.6 | 12.2 | | | | |
| <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 determined from 2010 USACE survey.</p> | | | | | |

Particle Size Distribution Report



| % +3" | % Gravel | | % Sand | | | % Fines | |
|-------|----------|------|--------|--------|------|---------|------|
| | Coarse | Fine | Coarse | Medium | Fine | Silt | Clay |
| 0.0 | 0.0 | 1.8 | 0.8 | 17.7 | 73.1 | 6.6 | |

| SIEVE SIZE | PERCENT FINER | SPEC.* PERCENT | PASS? (X=NO) |
|------------|---------------|----------------|--------------|
| .375 | 100.0 | | |
| #4 | 98.2 | | |
| #10 | 97.4 | | |
| #20 | 95.9 | | |
| #40 | 79.7 | | |
| #60 | 24.3 | | |
| #100 | 7.9 | | |
| #200 | 6.6 | | |

Material Description
Slightly silty SAND (SP-SM), medium to fine grained

Atterberg Limits
 PL= LL= PI=

Coefficients
 D₉₀= 0.6143 D₈₅= 0.5054 D₆₀= 0.3499
 D₅₀= 0.3209 D₃₀= 0.2669 D₁₅= 0.2148
 D₁₀= 0.1822 C_u= 1.92 C_c= 1.12

Classification
 USCS= SP-SM AASHTO=

Remarks

* (no specification provided)

Location: USACE Sample # BI-PB-135A-11
Sample Number: TE Lab ID: 5054.113

Depth: 0.0 - 2.0 (ft)

Date: 7/18/11

Thompson Engineering

Mobile, Alabama

Client: US Army Corps of Engineers
Project: Contract No. W91278-10-D-0026 - Task 009
 Mississippi Barrier Island Restoration Project
Project No: 11-2116-0057

Figure

Particle Size Distribution Report



| % +3" | % Gravel | | % Sand | | | % Fines | |
|-------|----------|------|--------|--------|------|---------|------|
| | Coarse | Fine | Coarse | Medium | Fine | Silt | Clay |
| 0.0 | 0.0 | 0.1 | 0.0 | 3.8 | 87.7 | 8.4 | |

| SIEVE SIZE | PERCENT FINER | SPEC.* PERCENT | PASS? (X=NO) |
|------------|---------------|----------------|--------------|
| .375 | 100.0 | | |
| #4 | 99.9 | | |
| #10 | 99.9 | | |
| #20 | 99.9 | | |
| #40 | 96.1 | | |
| #60 | 52.0 | | |
| #100 | 15.9 | | |
| #200 | 8.4 | | |

Material Description

Slightly silty SAND (SP-SM), fine grained

Atterberg Limits

PL= LL= PI=

Coefficients

D₉₀= 0.3841 D₈₅= 0.3591 D₆₀= 0.2721
D₅₀= 0.2445 D₃₀= 0.1914 D₁₅= 0.1377
D₁₀= 0.0868 C_u= 3.14 C_c= 1.55

Classification

USCS= SP-SM AASHTO=

Remarks

* (no specification provided)

Location: USACE Sample # BI-PB-135B-11
Sample Number: TE Lab ID: 5054.114

Depth: 2.0 - 5.6 (ft)

Date: 7/18/11

Thompson Engineering

Mobile, Alabama

Client: US Army Corps of Engineers
Project: Contract No. W91278-10-D-0026 - Task 009
Mississippi Barrier Island Restoration Project

Project No: 11-2116-0057

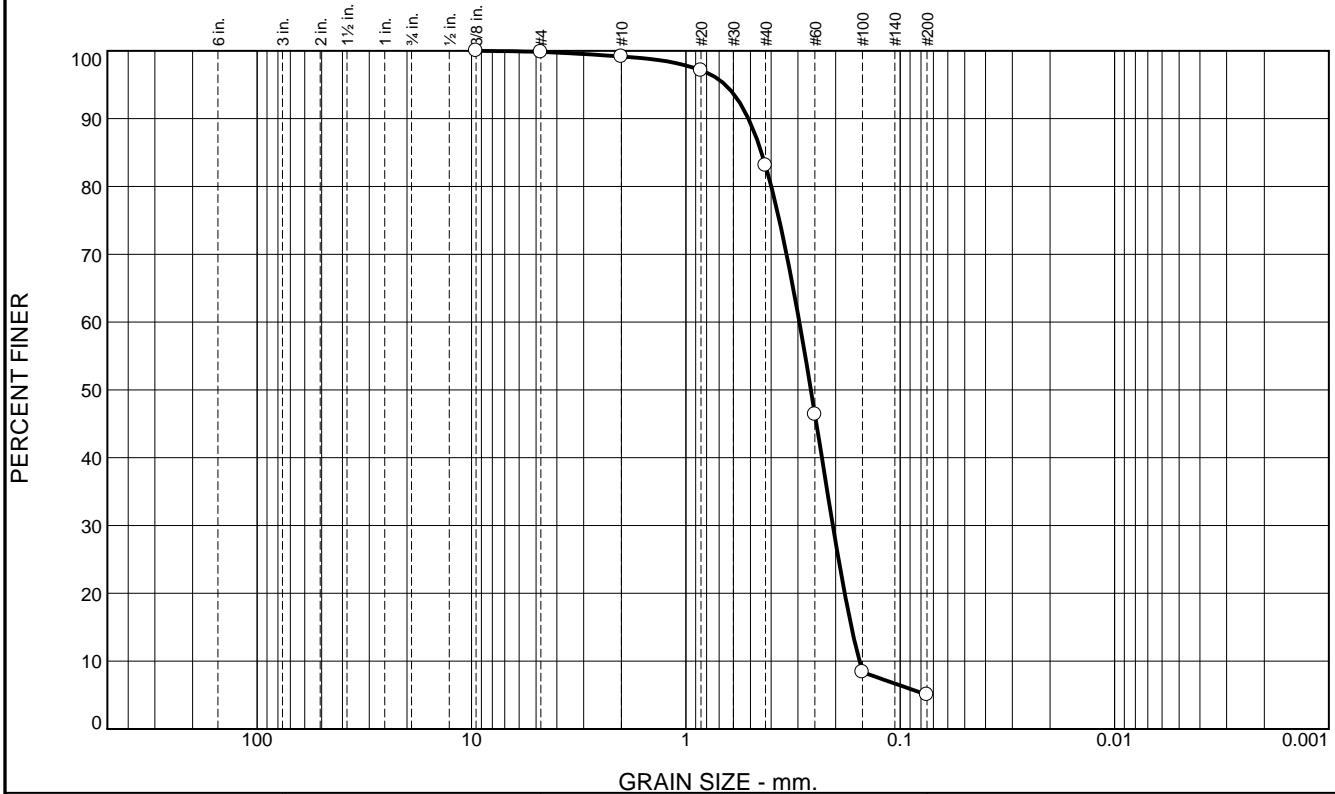
Figure

Boring Designation BI-PB-136-11

| | | | | |
|--|--|---|--|--|
| DRILLING LOG | | DIVISION South Atlantic | INSTALLATION Mobile District | SHEET 1 OF 1 SHEETS |
| 1. PROJECT MsCIP Barrier Island Restoration Petit Bois Pass- AL East | | | 9. SIZE AND TYPE OF BIT N/A | |
| 2. BORING DESIGNATION BI-PB-136-11 | | 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 | | <input type="checkbox"/> AUTO HAMMER <input type="checkbox"/> MANUAL HAMMER |
| 4. NAME OF DRILLER Construction Solutions International, Inc. | | 12. TOTAL SAMPLES | | DISTURBED 2 |
| 5. DIRECTION OF BORING <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED | | 13. TOTAL NUMBER CORE BOXES | | UNDISTURBED (UD) 0 |
| 6. THICKNESS OF OVERBURDEN N/A | | 14. WATER DEPTH 32 Ft. | | 15. DATE BORING |
| 7. DEPTH DRILLED INTO ROCK N/A | | 16. ELEVATION TOP OF BORING -33.7 Ft. | | STARTED 06-30-11 |
| 8. TOTAL DEPTH OF BORING 14.9 Ft. | | 17. TOTAL RECOVERY FOR BORING 100% | | COMPLETED 06-30-11 |
| 18. SIGNATURE AND TITLE OF INSPECTOR Michele Johnson, Geologist | | | | |

| ELEV. | DEPTH | LEGEND | CLASSIFICATION OF MATERIALS | SAMPLE | LABORATORY RESULTS |
|-------|-------|--------|--|--------|---|
| -33.7 | 0.0 | | | | |
| | | ••••• | SAND, poorly-graded with silt, trace shell fragments, gray (SP-SM) | A | Classification: SP-SM Color: 5Y 6/2-light olive gray D50: 0.261 mm % Fines: 5 |
| -36.7 | 3.0 | | | | |
| | | ••••• | SAND, poorly-graded, mostly medium-grained sand-sized quartz, trace shell fragments, dark gray (SP) | B | Classification: SP-SM Color: 5Y 6/2-light olive gray D50: 0.3035 mm % Fines: 7.2 |
| | | ••••• | | NS | |
| -48.6 | 14.9 | | | | |
| | | | NOTES: 1. Soils are field visually classified in accordance with the Unified Soils Classification System. 2. NS = Sample not submitted for laboratory analysis from this interval. 3. Seafloor elevation determined from 2010 USACE survey. | | |

Particle Size Distribution Report



| % +3" | % Gravel | | % Sand | | | % Fines | |
|-------|----------|------|--------|--------|------|---------|------|
| | Coarse | Fine | Coarse | Medium | Fine | Silt | Clay |
| 0.0 | 0.0 | 0.2 | 0.6 | 16.1 | 78.1 | 5.0 | |

| SIEVE SIZE | PERCENT FINER | SPEC.* PERCENT | PASS? (X=NO) |
|------------|---------------|----------------|--------------|
| .375 | 100.0 | | |
| #4 | 99.8 | | |
| #10 | 99.2 | | |
| #20 | 97.1 | | |
| #40 | 83.1 | | |
| #60 | 46.4 | | |
| #100 | 8.4 | | |
| #200 | 5.0 | | |

Material Description

Slightly silty SAND (SP-SM), medium to fine grained

Atterberg Limits

PL= LL= PI=

Coefficients

D₉₀= 0.5105 D₈₅= 0.4433 D₆₀= 0.2957
D₅₀= 0.2610 D₃₀= 0.2061 D₁₅= 0.1688
D₁₀= 0.1550 C_u= 1.91 C_c= 0.93

Classification

USCS= SP-SM AASHTO=

Remarks

* (no specification provided)

Location: USACE Sample # BI-PB-136A-11
Sample Number: TE Lab ID: 5054.124

Depth: 0.0 - 3.0 (ft)

Date: 7/18/11

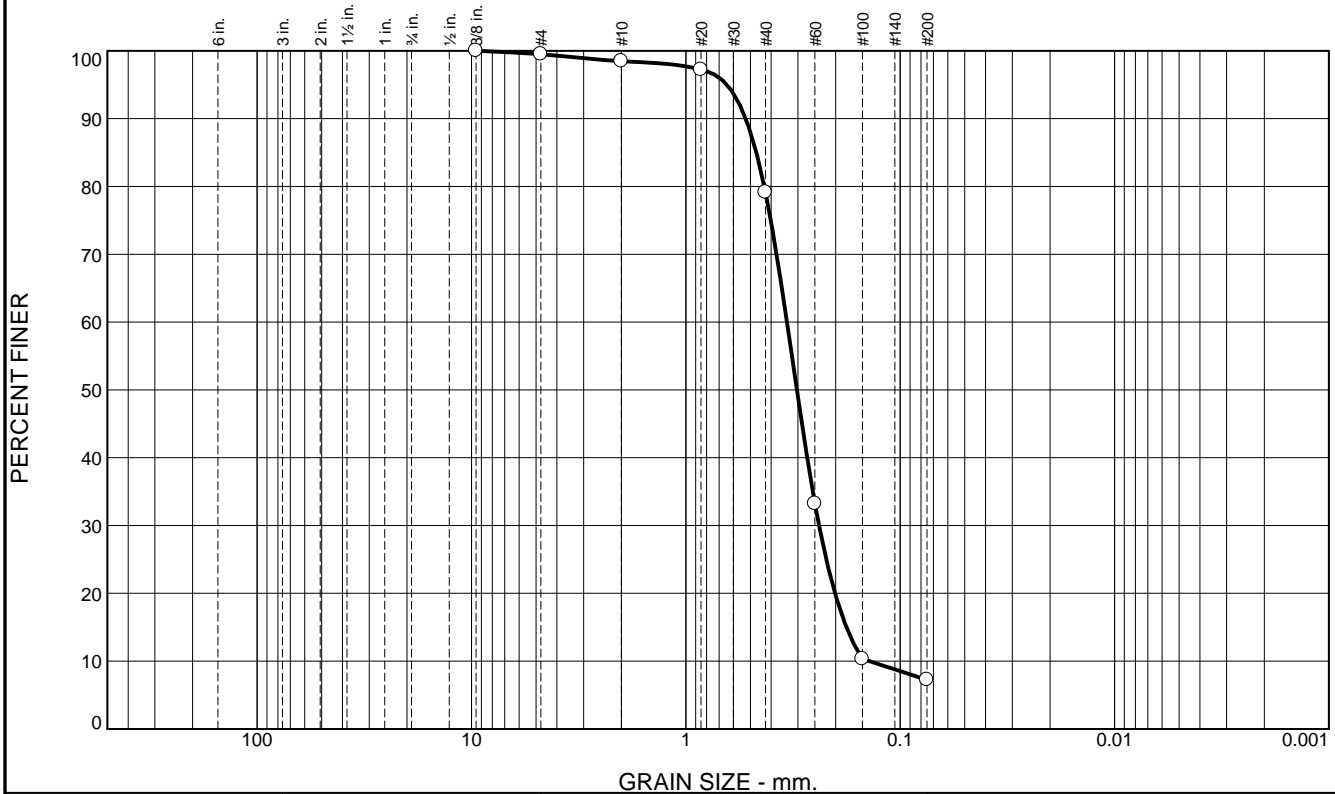
Thompson Engineering

Mobile, Alabama

Client: US Army Corps of Engineers
Project: Contract No. W91278-10-D-0026 - Task 009
Mississippi Barrier Island Restoration Project
Project No: 11-2116-0057

Figure

Particle Size Distribution Report



| % +3" | % Gravel | | % Sand | | | % Fines | |
|-------|----------|------|--------|--------|------|---------|------|
| | Coarse | Fine | Coarse | Medium | Fine | Silt | Clay |
| 0.0 | 0.0 | 0.5 | 1.0 | 19.4 | 71.9 | 7.2 | |

| SIEVE SIZE | PERCENT FINER | SPEC.* PERCENT | PASS? (X=NO) |
|------------|---------------|----------------|--------------|
| .375 | 100.0 | | |
| #4 | 99.5 | | |
| #10 | 98.5 | | |
| #20 | 97.2 | | |
| #40 | 79.1 | | |
| #60 | 33.2 | | |
| #100 | 10.3 | | |
| #200 | 7.2 | | |

Material Description
Slightly silty SAND (SP-SM), medium to fine grained

Atterberg Limits
 PL= LL= PI=

Coefficients
 D₉₀= 0.5256 D₈₅= 0.4687 D₆₀= 0.3377
 D₅₀= 0.3035 D₃₀= 0.2392 D₁₅= 0.1782
 D₁₀= 0.1393 C_u= 2.42 C_c= 1.22

Classification
 USCS= SP-SM AASHTO=

Remarks

* (no specification provided)

Location: USACE Sample # BI-PB-136B-11
Sample Number: TE Lab ID: 5054.125

Depth: 3.0 - 6.5 (ft)

Date: 7/18/11

Thompson Engineering

Mobile, Alabama

Client: US Army Corps of Engineers
Project: Contract No. W91278-10-D-0026 - Task 009
 Mississippi Barrier Island Restoration Project
Project No: 11-2116-0057

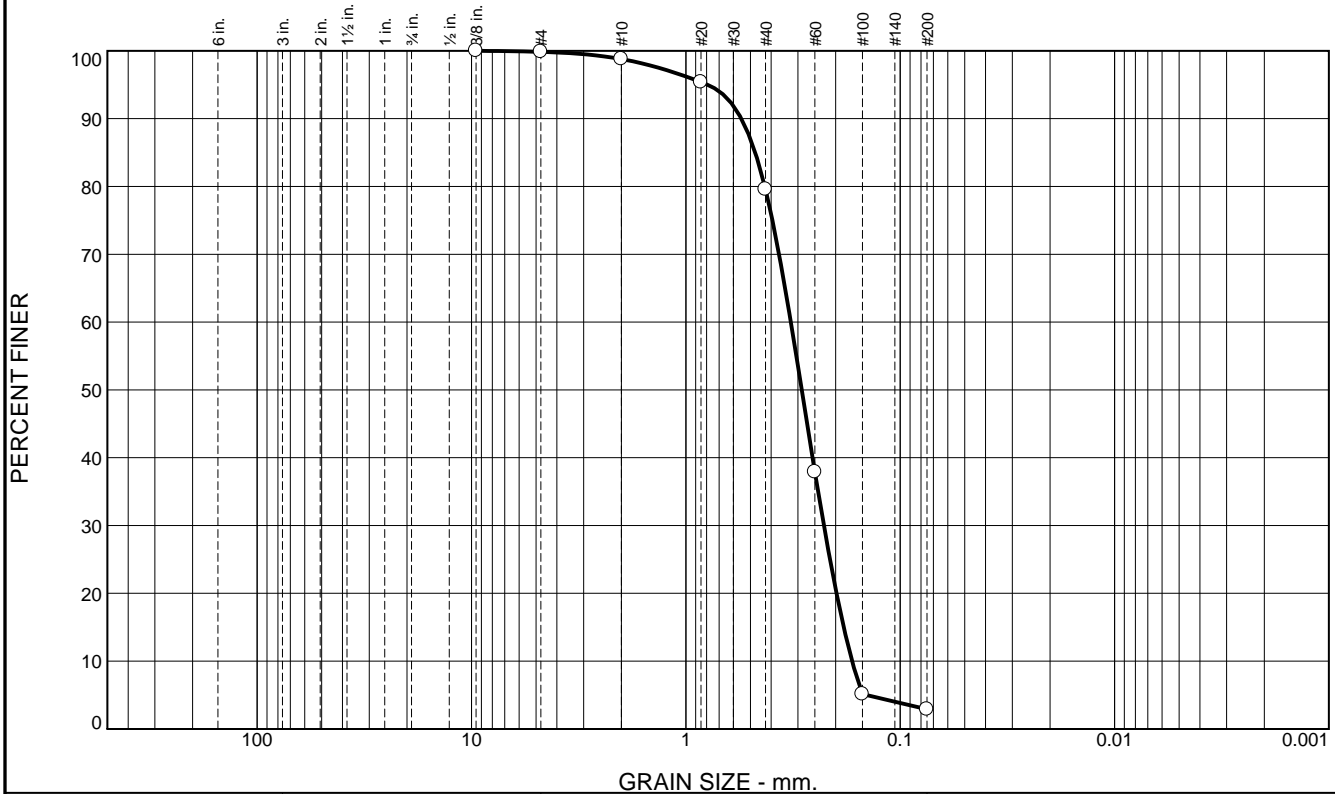
Figure

Boring Designation BI-PB-137-11

| | | | | |
|--|--|---|--|--|
| DRILLING LOG | | DIVISION South Atlantic | INSTALLATION Mobile District | SHEET 1 OF 1 SHEETS |
| 1. PROJECT MsCIP Barrier Island Restoration Petit Bois Pass- AL East | | | 9. SIZE AND TYPE OF BIT N/A | |
| 2. BORING DESIGNATION BI-PB-137-11 | | 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 | | <input type="checkbox"/> AUTO HAMMER <input type="checkbox"/> MANUAL HAMMER |
| 4. NAME OF DRILLER Construction Solutions International, Inc. | | 12. TOTAL SAMPLES | | DISTURBED 4 |
| 5. DIRECTION OF BORING <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED | | 13. TOTAL NUMBER CORE BOXES | | UNDISTURBED (UD) 0 |
| 6. THICKNESS OF OVERBURDEN N/A | | 14. WATER DEPTH 32 Ft. | | 15. DATE BORING |
| 7. DEPTH DRILLED INTO ROCK N/A | | 16. ELEVATION TOP OF BORING -31.7 Ft. | | STARTED 06-30-11 |
| 8. TOTAL DEPTH OF BORING 16.9 Ft. | | 17. TOTAL RECOVERY FOR BORING 100% | | COMPLETED 06-30-11 |
| 18. SIGNATURE AND TITLE OF INSPECTOR Michele Johnson, Geologist | | | | |

| ELEV. | DEPTH | LEGEND | CLASSIFICATION OF MATERIALS | SAMPLE | LABORATORY RESULTS |
|-------|-------|--------|--|--------|--|
| -31.7 | 0.0 | | | | |
| | | | SAND, poorly-graded, mostly medium-grained sand-sized quartz, trace shell fragments, trace organic matter, lt. gray (SP) | A | Classification: SP Color: 5Y 7/1-light gray D50: 0.2881 mm % Fines: 2.9 |
| -35.7 | 4.0 | | SAND, poorly-graded with silt, some fine to medium-grained sand-sized, lt. gray (SP-SM) | B | Classification: SP-SM Color: 2.5Y 6/2-light brownish gray D50: 0.2613 mm % Fines: 6.6 |
| | | | At El. -39.7 Ft., some fine to medium-grained sand-sized, lt. gray | C | Classification: SP Color: 2.5Y 7/2-light gray D50: 0.3004 mm % Fines: 4.9 |
| -43.7 | 12.0 | | SAND, poorly-graded, trace medium-grained sand-sized, gray (SP) | D | Classification: SP Color: 2.5Y 8/1-white D50: 0.2937 mm % Fines: 4.4 |
| -48.6 | 16.9 | | | | |
| | | | NOTES: 1. Soils are field visually classified in accordance with the Unified Soils Classification System. 2. NS = Sample not submitted for laboratory analysis from this interval. 3. Seafloor elevation determined from 2010 USACE survey. | | |

Particle Size Distribution Report



| % +3" | % Gravel | | % Sand | | | % Fines | |
|-------|----------|------|--------|--------|------|---------|------|
| | Coarse | Fine | Coarse | Medium | Fine | Silt | Clay |
| 0.0 | 0.0 | 0.2 | 1.0 | 19.2 | 76.7 | 2.9 | |

| SIEVE SIZE | PERCENT FINER | SPEC.* PERCENT | PASS? (X=NO) |
|------------|---------------|----------------|--------------|
| .375 | 100.0 | | |
| #4 | 99.8 | | |
| #10 | 98.8 | | |
| #20 | 95.4 | | |
| #40 | 79.6 | | |
| #60 | 37.9 | | |
| #100 | 5.1 | | |
| #200 | 2.9 | | |

Material Description
SAND (SP), medium to fine grained

Atterberg Limits
 PL= LL= PI=

Coefficients
 D₉₀= 0.5508 D₈₅= 0.4746 D₆₀= 0.3240
 D₅₀= 0.2881 D₃₀= 0.2269 D₁₅= 0.1834
 D₁₀= 0.1677 C_u= 1.93 C_c= 0.95

Classification
 USCS= SP AASHTO=

Remarks

* (no specification provided)

Location: USACE Sample # BI-PB-137A-11
Sample Number: TE Lab ID: 5054.120

Depth: 0.0 - 4.0 (ft)

Date: 7/18/11

Thompson Engineering

Mobile, Alabama

Client: US Army Corps of Engineers
Project: Contract No. W91278-10-D-0026 - Task 009
 Mississippi Barrier Island Restoration Project

Project No: 11-2116-0057

Figure

Particle Size Distribution Report



| % +3" | % Gravel | | % Sand | | | % Fines | |
|-------|----------|------|--------|--------|------|---------|------|
| | Coarse | Fine | Coarse | Medium | Fine | Silt | Clay |
| 0.0 | 0.0 | 0.0 | 0.3 | 13.2 | 79.9 | 6.6 | |

| SIEVE SIZE | PERCENT FINER | SPEC.* PERCENT | PASS? (X=NO) |
|------------|---------------|----------------|--------------|
| .375 | 100.0 | | |
| #4 | 100.0 | | |
| #10 | 99.7 | | |
| #20 | 98.3 | | |
| #40 | 86.5 | | |
| #60 | 46.3 | | |
| #100 | 13.4 | | |
| #200 | 6.6 | | |

Material Description

Slightly silty SAND (SP-SM), medium to fine grained

Atterberg Limits

PL= LL= PI=

Coefficients

D₉₀= 0.4583 D₈₅= 0.4134 D₆₀= 0.2942

D₅₀= 0.2613 D₃₀= 0.2020 D₁₅= 0.1558

D₁₀= 0.1060 C_u= 2.77 C_c= 1.31

Classification

USCS= SP-SM AASHTO=

Remarks

* (no specification provided)

Location: USACE Sample # BI-PB-137B-11
Sample Number: TE Lab ID: 5054.121

Depth: 4.0 - 8.0 (ft)

Date: 7/18/11

Thompson Engineering

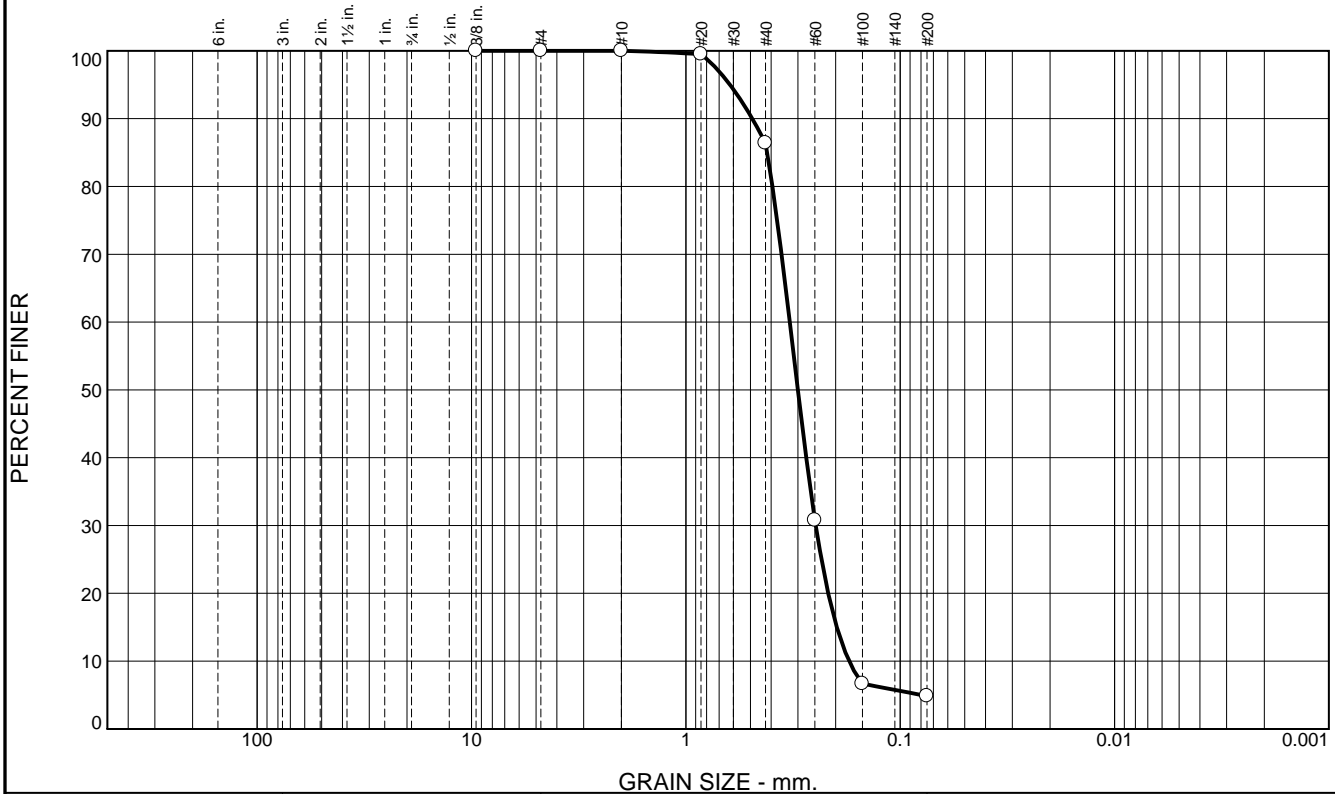
Mobile, Alabama

Client: US Army Corps of Engineers
Project: Contract No. W91278-10-D-0026 - Task 009
 Mississippi Barrier Island Restoration Project

Project No: 11-2116-0057

Figure

Particle Size Distribution Report



| % +3" | % Gravel | | % Sand | | | % Fines | |
|-------|----------|------|--------|--------|------|---------|------|
| | Coarse | Fine | Coarse | Medium | Fine | Silt | Clay |
| 0.0 | 0.0 | 0.0 | 0.0 | 13.6 | 81.5 | 4.9 | |

| SIEVE SIZE | PERCENT FINER | SPEC.* PERCENT | PASS? (X=NO) |
|------------|---------------|----------------|--------------|
| .375 | 100.0 | | |
| #4 | 100.0 | | |
| #10 | 100.0 | | |
| #20 | 99.5 | | |
| #40 | 86.4 | | |
| #60 | 30.8 | | |
| #100 | 6.7 | | |
| #200 | 4.9 | | |

Material Description

SAND (SP), medium to fine grained

Atterberg Limits

PL= LL= PI=

Coefficients

D₉₀= 0.4898 D₈₅= 0.4176 D₆₀= 0.3276
D₅₀= 0.3004 D₃₀= 0.2478 D₁₅= 0.1975
D₁₀= 0.1731 C_u= 1.89 C_c= 1.08

Classification

USCS= SP AASHTO=

Remarks

* (no specification provided)

Location: USACE Sample # BI-PB-137C-11
Sample Number: TE Lab ID: 5054.122

Depth: 8.0 - 12.0 (ft)

Date: 7/18/11

Thompson Engineering

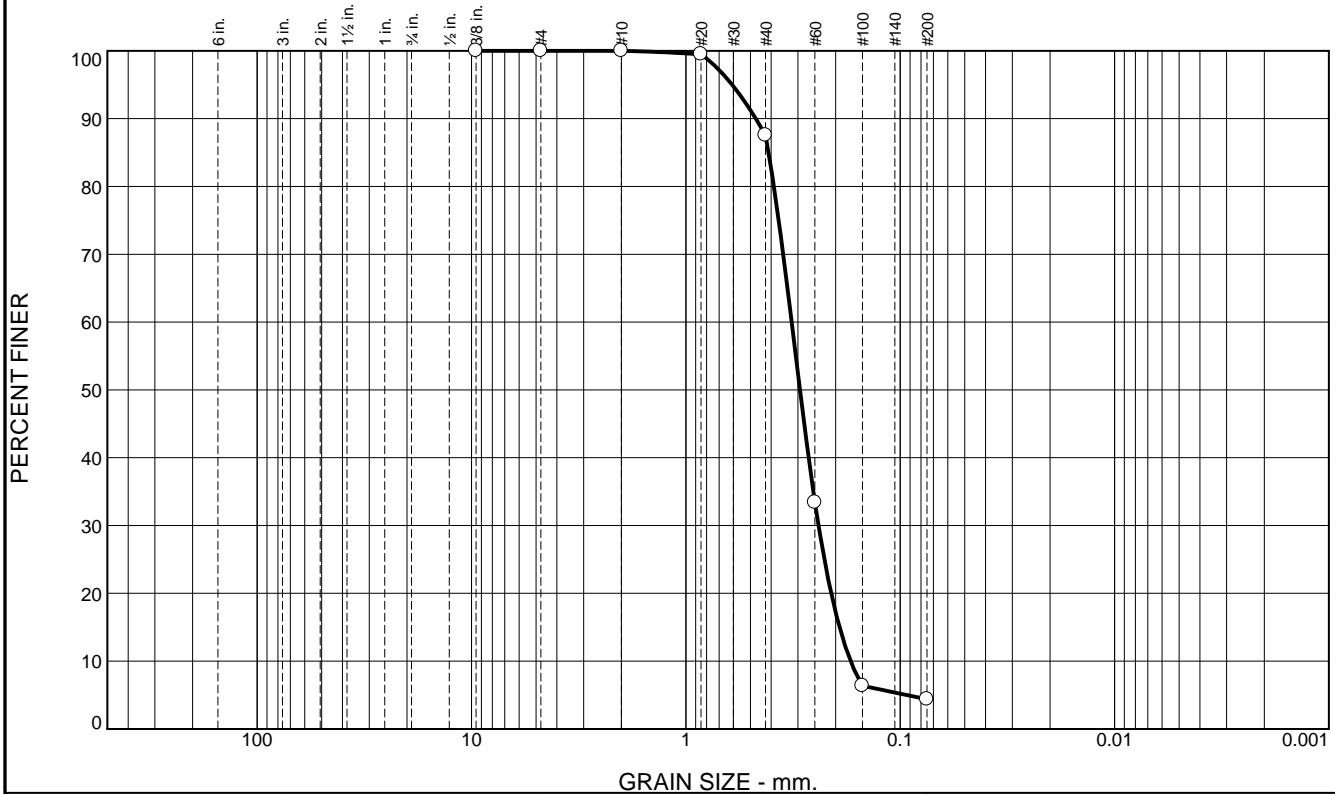
Mobile, Alabama

Client: US Army Corps of Engineers
Project: Contract No. W91278-10-D-0026 - Task 009
Mississippi Barrier Island Restoration Project

Project No: 11-2116-0057

Figure

Particle Size Distribution Report



| % +3" | % Gravel | | % Sand | | | % Fines | |
|-------|----------|------|--------|--------|------|---------|------|
| | Coarse | Fine | Coarse | Medium | Fine | Silt | Clay |
| 0.0 | 0.0 | 0.0 | 0.0 | 12.5 | 83.1 | 4.4 | |

| SIEVE SIZE | PERCENT FINER | SPEC.* PERCENT | PASS? (X=NO) |
|------------|---------------|----------------|--------------|
| .375 | 100.0 | | |
| #4 | 100.0 | | |
| #10 | 100.0 | | |
| #20 | 99.5 | | |
| #40 | 87.5 | | |
| #60 | 33.4 | | |
| #100 | 6.4 | | |
| #200 | 4.4 | | |

Material Description

SAND (SP), medium to fine grained

| | | |
|--------------------------|--------------------------|--------------------------|
| PL= | Atterberg Limits | PI= |
| | Coefficients | |
| D ₉₀ = 0.4718 | D ₈₅ = 0.4113 | D ₆₀ = 0.3211 |
| D ₅₀ = 0.2937 | D ₃₀ = 0.2406 | D ₁₅ = 0.1919 |
| D ₁₀ = 0.1704 | C _u = 1.88 | C _c = 1.06 |

USCS= SP **Classification** AASHTO=

Remarks

* (no specification provided)

Location: USACE Sample # BI-PB-137D-11
Sample Number: TE Lab ID: 5054.123

Depth: 12.0 - 16.9 (ft)

Date: 7/18/11

Thompson Engineering

Mobile, Alabama

Client: US Army Corps of Engineers
Project: Contract No. W91278-10-D-0026 - Task 009
 Mississippi Barrier Island Restoration Project

Project No: 11-2116-0057

Figure

Boring Designation BI-PB-138-11

| | | | | |
|--|--|---|--|--|
| DRILLING LOG | | DIVISION South Atlantic | INSTALLATION Mobile District | SHEET 1 OF 1 SHEETS |
| 1. PROJECT MsCIP Barrier Island Restoration Petit Bois Pass- AL East | | | 9. SIZE AND TYPE OF BIT N/A | |
| 2. BORING DESIGNATION BI-PB-138-11 | | LOCATION COORDINATES E = 1,149,013 N = 253,235 | | 10. COORDINATE SYSTEM/DATUM State Plane, MSE (U.S. Ft.) |
| 3. DRILLING AGENCY Corps of Engineers - CESAM | | CONTRACTOR FILE NO. | | HORIZONTAL NAD83 |
| 4. NAME OF DRILLER Construction Solutions International, Inc. | | 11. MANUFACTURER'S DESIGNATION OF DRILL Vibracore | | <input type="checkbox"/> AUTO HAMMER <input type="checkbox"/> MANUAL HAMMER |
| 5. DIRECTION OF BORING <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED | | DEG. FROM VERTICAL | BEARING | 12. TOTAL SAMPLES 5 |
| 6. THICKNESS OF OVERBURDEN N/A | | 13. TOTAL NUMBER CORE BOXES | | DISTURBED 0 |
| 7. DEPTH DRILLED INTO ROCK N/A | | 14. WATER DEPTH 37.5 Ft. | | UNDISTURBED (UD) 0 |
| 8. TOTAL DEPTH OF BORING 18.5 Ft. | | 15. DATE BORING 06-30-11 | | STARTED 06-30-11 |
| | | 16. ELEVATION TOP OF BORING -36.3 Ft. | | COMPLETED 06-30-11 |
| | | 17. TOTAL RECOVERY FOR BORING 100% | | |
| | | 18. SIGNATURE AND TITLE OF INSPECTOR Michele Johnson, Geologist | | |

| ELEV. | DEPTH | LEGEND | CLASSIFICATION OF MATERIALS | SAMPLE | LABORATORY RESULTS |
|-------|-------|--------|--|--------|---|
| -36.3 | 0.0 | | SAND, poorly-graded, mostly medium-grained sand-sized quartz, lt. gray (SP) | A | Classification: SP-SM Color: 5Y 6/1-gray D50: 0.289 mm % Fines: 8.6 |
| | | | At El. -41.3 Ft., trace shell fragments, lt. gray | B | Classification: SP Color: 5Y 6/1-gray D50: 0.3247 mm % Fines: 3.2 |
| -46.3 | 10.0 | | SAND, poorly-graded with silt, trace fine to medium-grained sand-sized, gray (SP-SM) | C | Classification: SP Color: 2.5Y 7/1-light gray D50: 0.3269 mm % Fines: 2.9 |
| -51.3 | 15.0 | | SAND, poorly-graded, mostly medium-grained sand-sized quartz, dark gray (SP) | D | Classification: SP-SM Color: 2.5Y 7/1-light gray D50: 0.3135 mm % Fines: 5.7 |
| -54.8 | 18.5 | | At El. -52.8 Ft., mostly medium-grained sand-sized quartz, dark gray | E | Classification: SP-SM Color: 2.5Y 7/1-light gray D50: 0.266 mm % Fines: 11.4 |
| | | | NOTES: 1. Soils are field visually classified in accordance with the Unified Soils Classification System. 2. NS = Sample not submitted for laboratory analysis from this interval. 3. Seafloor elevation determined from 2010 USACE survey. | | |

Particle Size Distribution Report



| % +3" | % Gravel | | % Sand | | | % Fines | |
|-------|----------|------|--------|--------|------|---------|------|
| | Coarse | Fine | Coarse | Medium | Fine | Silt | Clay |
| 0.0 | 0.0 | 0.2 | 0.2 | 19.5 | 71.5 | 8.6 | |

| SIEVE SIZE | PERCENT FINER | SPEC.* PERCENT | PASS? (X=NO) |
|------------|---------------|----------------|--------------|
| .375 | 100.0 | | |
| #4 | 99.8 | | |
| #10 | 99.6 | | |
| #20 | 98.4 | | |
| #40 | 80.1 | | |
| #60 | 38.6 | | |
| #100 | 14.0 | | |
| #200 | 8.6 | | |

Material Description
Slightly silty SAND (SP-SM), medium to fine grained

Atterberg Limits
 PL= LL= PI=

Coefficients
 D₉₀= 0.5222 D₈₅= 0.4643 D₆₀= 0.3257
 D₅₀= 0.2890 D₃₀= 0.2193 D₁₅= 0.1553
 D₁₀= 0.0896 C_u= 3.64 C_c= 1.65

Classification
 USCS= SP-SM AASHTO=

Remarks

* (no specification provided)

Location: USACE Sample # BI-PB-138A-11
Sample Number: TE Lab ID: 5054.126

Depth: 0.0 - 5.0 (ft)

Date: 7/18/11

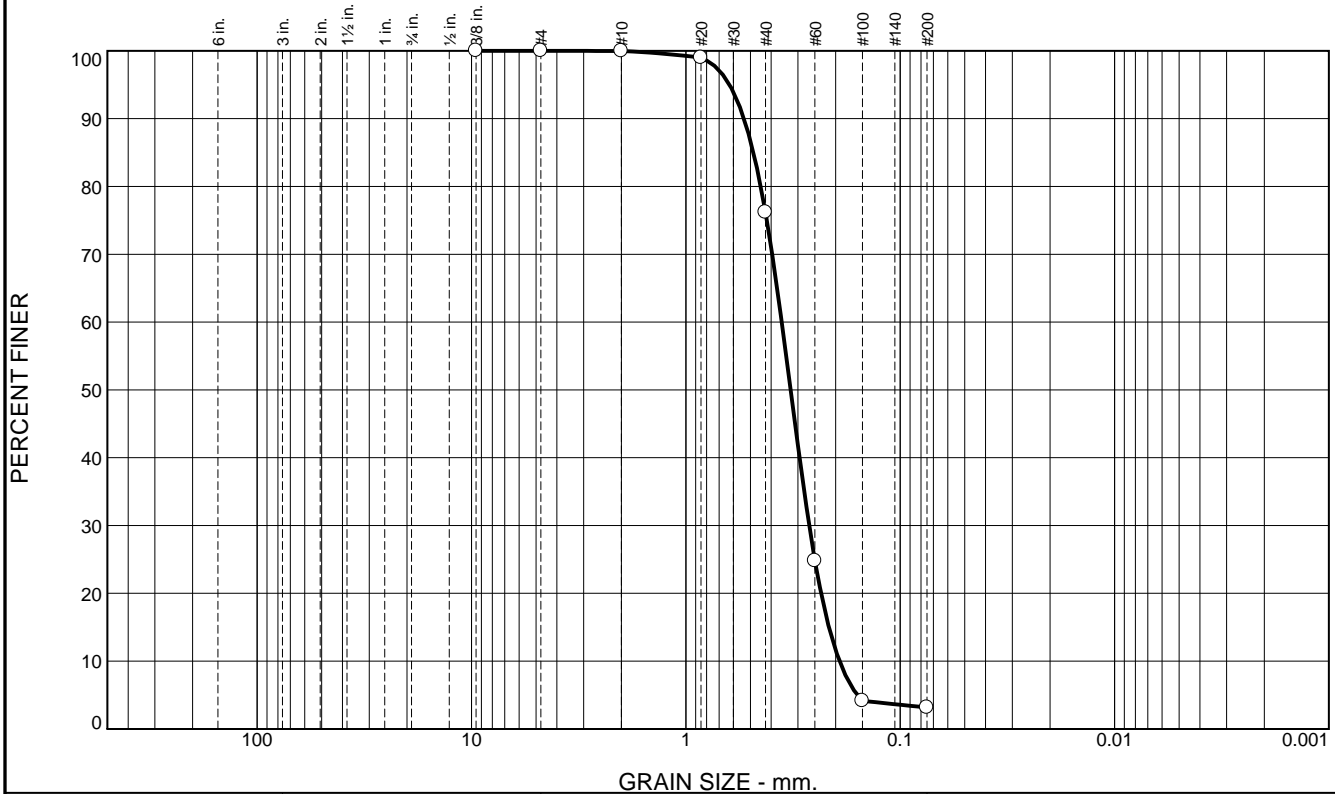
Thompson Engineering

Mobile, Alabama

Client: US Army Corps of Engineers
Project: Contract No. W91278-10-D-0026 - Task 009
 Mississippi Barrier Island Restoration Project
Project No: 11-2116-0057

Figure

Particle Size Distribution Report



| % +3" | % Gravel | | % Sand | | | % Fines | |
|-------|----------|------|--------|--------|------|---------|------|
| | Coarse | Fine | Coarse | Medium | Fine | Silt | Clay |
| 0.0 | 0.0 | 0.0 | 0.0 | 23.8 | 73.0 | 3.2 | |

| SIEVE SIZE | PERCENT FINER | SPEC.* PERCENT | PASS? (X=NO) |
|------------|---------------|----------------|--------------|
| .375 | 100.0 | | |
| #4 | 100.0 | | |
| #10 | 100.0 | | |
| #20 | 99.0 | | |
| #40 | 76.2 | | |
| #60 | 24.8 | | |
| #100 | 4.1 | | |
| #200 | 3.2 | | |

Material Description
SAND (SP), medium to fine grained

Atterberg Limits
 PL= LL= PI=

Coefficients
 D₉₀= 0.5356 D₈₅= 0.4838 D₆₀= 0.3573
 D₅₀= 0.3247 D₃₀= 0.2659 D₁₅= 0.2150
 D₁₀= 0.1919 C_u= 1.86 C_c= 1.03

Classification
 USCS= SP AASHTO=

Remarks

* (no specification provided)

Location: USACE Sample # BI-PB-138B-11
Sample Number: TE Lab ID: 5054.127

Depth: 5.0 - 10.0 (ft)

Date: 7/18/11

Thompson Engineering

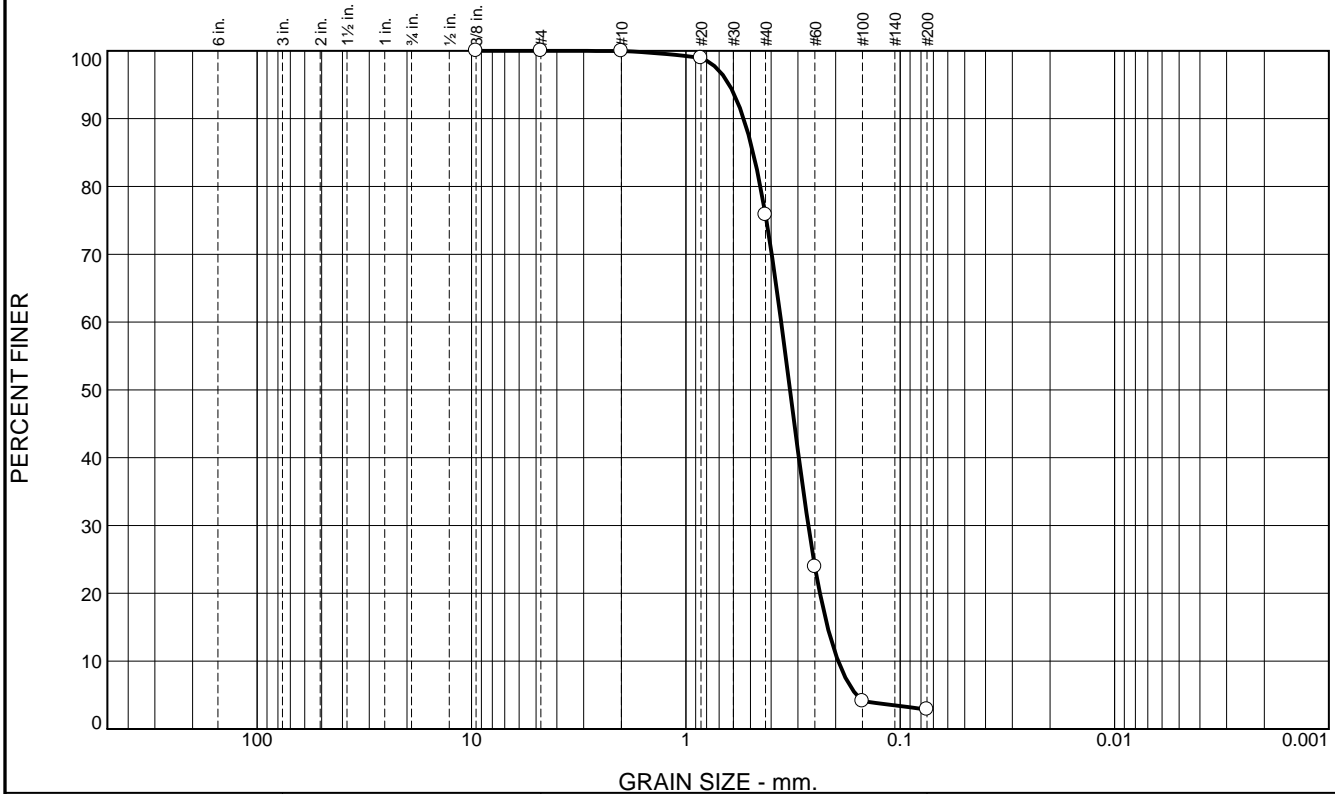
Mobile, Alabama

Client: US Army Corps of Engineers
Project: Contract No. W91278-10-D-0026 - Task 009
 Mississippi Barrier Island Restoration Project

Project No: 11-2116-0057

Figure

Particle Size Distribution Report



| % +3" | % Gravel | | % Sand | | | % Fines | |
|-------|----------|------|--------|--------|------|---------|------|
| | Coarse | Fine | Coarse | Medium | Fine | Silt | Clay |
| 0.0 | 0.0 | 0.0 | 0.0 | 24.2 | 72.9 | 2.9 | |

| SIEVE SIZE | PERCENT FINER | SPEC.* PERCENT | PASS? (X=NO) |
|------------|---------------|----------------|--------------|
| .375 | 100.0 | | |
| #4 | 100.0 | | |
| #10 | 100.0 | | |
| #20 | 99.0 | | |
| #40 | 75.8 | | |
| #60 | 23.9 | | |
| #100 | 4.1 | | |
| #200 | 2.9 | | |

Material Description
SAND (SP), medium to fine grained

Atterberg Limits
 PL= LL= PI=

Coefficients
 D₉₀= 0.5372 D₈₅= 0.4855 D₆₀= 0.3593
 D₅₀= 0.3269 D₃₀= 0.2685 D₁₅= 0.2180
 D₁₀= 0.1947 C_u= 1.85 C_c= 1.03

Classification
 USCS= SP AASHTO=

Remarks

* (no specification provided)

Location: USACE Sample # BI-PB-138C-11
Sample Number: TE Lab ID: 5054.128

Depth: 10.0 - 15.0 (ft)

Date: 7/18/11

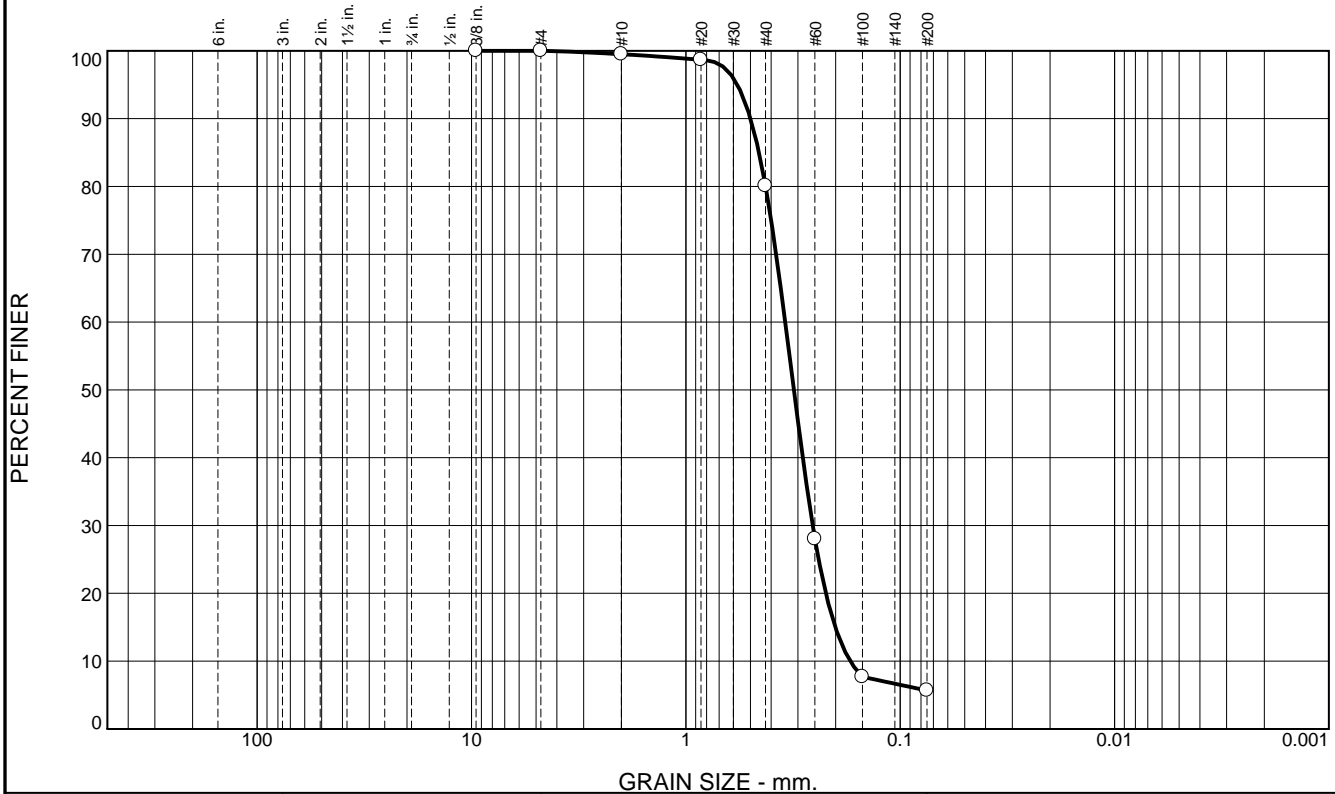
Thompson Engineering

Mobile, Alabama

Client: US Army Corps of Engineers
Project: Contract No. W91278-10-D-0026 - Task 009
 Mississippi Barrier Island Restoration Project
Project No: 11-2116-0057

Figure

Particle Size Distribution Report



| % +3" | % Gravel | | % Sand | | | % Fines | |
|-------|----------|------|--------|--------|------|---------|------|
| | Coarse | Fine | Coarse | Medium | Fine | Silt | Clay |
| 0.0 | 0.0 | 0.0 | 0.5 | 19.4 | 74.4 | 5.7 | |

| SIEVE SIZE | PERCENT FINER | SPEC.* PERCENT | PASS? (X=NO) |
|------------|---------------|----------------|--------------|
| .375 | 100.0 | | |
| #4 | 100.0 | | |
| #10 | 99.5 | | |
| #20 | 98.7 | | |
| #40 | 80.1 | | |
| #60 | 28.0 | | |
| #100 | 7.7 | | |
| #200 | 5.7 | | |

Material Description
Slightly silty SAND (SP-SM), medium to fine grained

Atterberg Limits
 PL= LL= PI=

Coefficients
 D₉₀= 0.4992 D₈₅= 0.4556 D₆₀= 0.3441
 D₅₀= 0.3135 D₃₀= 0.2561 D₁₅= 0.2008
 D₁₀= 0.1710 C_u= 2.01 C_c= 1.11

Classification
 USCS= SP-SM AASHTO=

Remarks

* (no specification provided)

Location: USACE Sample # BI-PB-138D-11
Sample Number: TE Lab ID: 5054.129

Depth: 15.0 - 16.5 (ft)

Date: 7/18/11

Thompson Engineering

Mobile, Alabama

Client: US Army Corps of Engineers
Project: Contract No. W91278-10-D-0026 - Task 009
 Mississippi Barrier Island Restoration Project

Project No: 11-2116-0057

Figure

Particle Size Distribution Report



| % +3" | % Gravel | | % Sand | | | % Fines | |
|-------|----------|------|--------|--------|------|---------|------|
| | Coarse | Fine | Coarse | Medium | Fine | Silt | Clay |
| 0.0 | 0.0 | 0.0 | 0.0 | 12.1 | 76.5 | 11.4 | |

| SIEVE SIZE | PERCENT FINER | SPEC.* PERCENT | PASS? (X=NO) |
|------------|---------------|----------------|--------------|
| .375 | 100.0 | | |
| #4 | 100.0 | | |
| #10 | 100.0 | | |
| #20 | 99.8 | | |
| #40 | 87.9 | | |
| #60 | 44.6 | | |
| #100 | 13.2 | | |
| #200 | 11.4 | | |

Material Description

Slightly silty SAND (SP-SM), medium to fine grained

Atterberg Limits

PL= LL= PI=

Coefficients

D₉₀= 0.4640 D₈₅= 0.4051 D₆₀= 0.2975
D₅₀= 0.2660 D₃₀= 0.2070 D₁₅= 0.1577
D₁₀= C_u= C_c=

Classification

USCS= SP-SM AASHTO=

Remarks

* (no specification provided)

Location: USACE Sample # BI-PB-138E-11
Sample Number: TE Lab ID: 5054.130

Depth: 16.5 - 18.5 (ft)

Date: 7/18/11

Thompson Engineering

Mobile, Alabama

Client: US Army Corps of Engineers
Project: Contract No. W91278-10-D-0026 - Task 009
Mississippi Barrier Island Restoration Project

Project No: 11-2116-0057

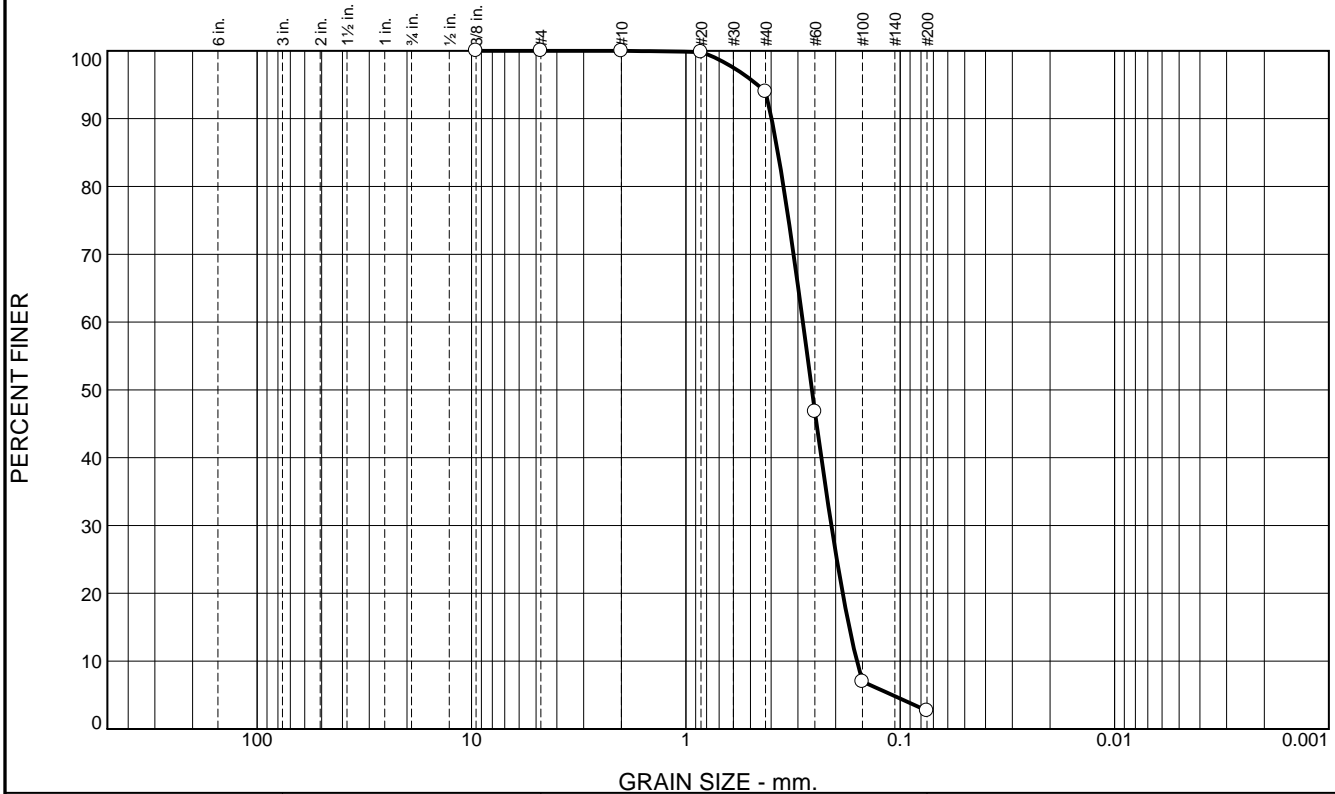
Figure

Boring Designation BI-PB-139-11

| | | | | |
|--|--|---|--|--|
| DRILLING LOG | | DIVISION South Atlantic | INSTALLATION Mobile District | SHEET 1 OF 1 SHEETS |
| 1. PROJECT MsCIP Barrier Island Restoration Petit Bois Pass- AL East | | 9. SIZE AND TYPE OF BIT N/A | | |
| 2. BORING DESIGNATION BI-PB-139-11 | | 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 | | <input type="checkbox"/> AUTO HAMMER <input type="checkbox"/> MANUAL HAMMER |
| 4. NAME OF DRILLER Construction Solutions International, Inc. | | 12. TOTAL SAMPLES | | DISTURBED 3 |
| 5. DIRECTION OF BORING <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED | | 13. TOTAL NUMBER CORE BOXES | | UNDISTURBED (UD) 0 |
| 6. THICKNESS OF OVERBURDEN N/A | | 14. WATER DEPTH 39 Ft. | | |
| 7. DEPTH DRILLED INTO ROCK N/A | | 15. DATE BORING | | STARTED 07-01-11 |
| 8. TOTAL DEPTH OF BORING 6.0 Ft. | | 16. ELEVATION TOP OF BORING -38.3 Ft. | | COMPLETED 07-01-11 |
| | | 17. TOTAL RECOVERY FOR BORING 100% | | |
| | | 18. SIGNATURE AND TITLE OF INSPECTOR Michele Johnson, Geologist | | |

| ELEV. | DEPTH | LEGEND | CLASSIFICATION OF MATERIALS | SAMPLE | LABORATORY RESULTS |
|-------|-------|--------|--|--------|---|
| -38.3 | 0.0 | | | | |
| | | | SAND, poorly-graded, mostly medium-grained sand-sized, lt. gray (SP) | A | Classification: SP Color: 2.5Y 8/1-white D50: 0.2581 mm % Fines: 2.7 |
| | | | At El. -40.3 Ft., mostly medium-grained sand-sized, lt. gray | B | Classification: SP Color: 2.5Y 8/1-white D50: 0.265 mm % Fines: 1.6 |
| -44.3 | 6.0 | | At El. -42.3 Ft., mostly medium-grained sand-sized, lt. gray | C | Classification: SP Color: 2.5Y 8/1-white D50: 0.2646 mm % Fines: 2.9 |
| | | | NOTES: 1. Soils are field visually classified in accordance with the Unified Soils Classification System. 2. NS = Sample not submitted for laboratory analysis from this interval. 3. Seafloor elevation calculated using sampling vessel's fathometer water depth reading and applying NOAA tidal gauge data conversion factor. | | |

Particle Size Distribution Report



| % +3" | % Gravel | | % Sand | | | % Fines | |
|-------|----------|------|--------|--------|------|---------|------|
| | Coarse | Fine | Coarse | Medium | Fine | Silt | Clay |
| 0.0 | 0.0 | 0.0 | 0.0 | 6.0 | 91.3 | 2.7 | |

| SIEVE SIZE | PERCENT FINER | SPEC.* PERCENT | PASS? (X=NO) |
|------------|---------------|----------------|--------------|
| .375 | 100.0 | | |
| #4 | 100.0 | | |
| #10 | 100.0 | | |
| #20 | 99.8 | | |
| #40 | 94.0 | | |
| #60 | 46.8 | | |
| #100 | 7.0 | | |
| #200 | 2.7 | | |

Material Description
SAND (SP), medium to fine grained

Atterberg Limits
 PL= LL= PI=

Coefficients
 D₉₀= 0.3983 D₈₅= 0.3721 D₆₀= 0.2847
 D₅₀= 0.2581 D₃₀= 0.2094 D₁₅= 0.1729
 D₁₀= 0.1593 C_u= 1.79 C_c= 0.97

Classification
 USCS= SP AASHTO=

Remarks

* (no specification provided)

Location: USACE Sample # BI-PB-139A-11
Sample Number: TE Lab ID: 5054.148

Depth: 0.0 - 2.0 (ft)

Date: 7/18/11

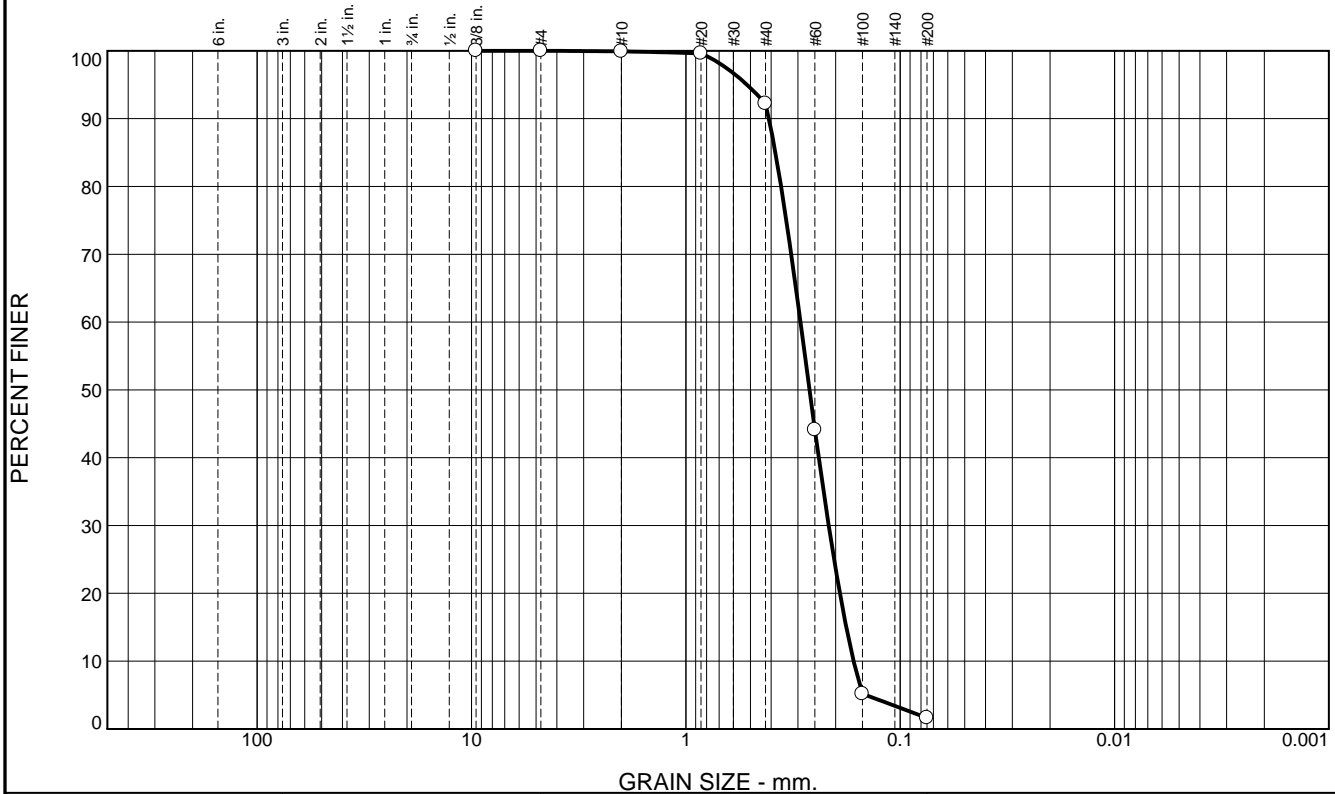
Thompson Engineering

Mobile, Alabama

Client: US Army Corps of Engineers
Project: Contract No. W91278-10-D-0026 - Task 009
 Mississippi Barrier Island Restoration Project
Project No: 11-2116-0057

Figure

Particle Size Distribution Report



| % +3" | % Gravel | | % Sand | | | % Fines | |
|-------|----------|------|--------|--------|------|---------|------|
| | Coarse | Fine | Coarse | Medium | Fine | Silt | Clay |
| 0.0 | 0.0 | 0.0 | 0.1 | 7.7 | 90.6 | 1.6 | |

| SIEVE SIZE | PERCENT FINER | SPEC.* PERCENT | PASS? (X=NO) |
|------------|---------------|----------------|--------------|
| .375 | 100.0 | | |
| #4 | 100.0 | | |
| #10 | 99.9 | | |
| #20 | 99.6 | | |
| #40 | 92.2 | | |
| #60 | 44.1 | | |
| #100 | 5.2 | | |
| #200 | 1.6 | | |

Material Description

SAND (SP), fine grained

Atterberg Limits

PL= LL= PI=

Coefficients

D₉₀= 0.4099 D₈₅= 0.3821 D₆₀= 0.2921
D₅₀= 0.2650 D₃₀= 0.2155 D₁₅= 0.1785
D₁₀= 0.1649 C_u= 1.77 C_c= 0.96

Classification

USCS= SP AASHTO=

Remarks

* (no specification provided)

Location: USACE Sample # BI-PB-139B-11
Sample Number: TE Lab ID: 5054.149

Depth: 2.0 - 4.0 (ft)

Date: 7/18/11

Thompson Engineering

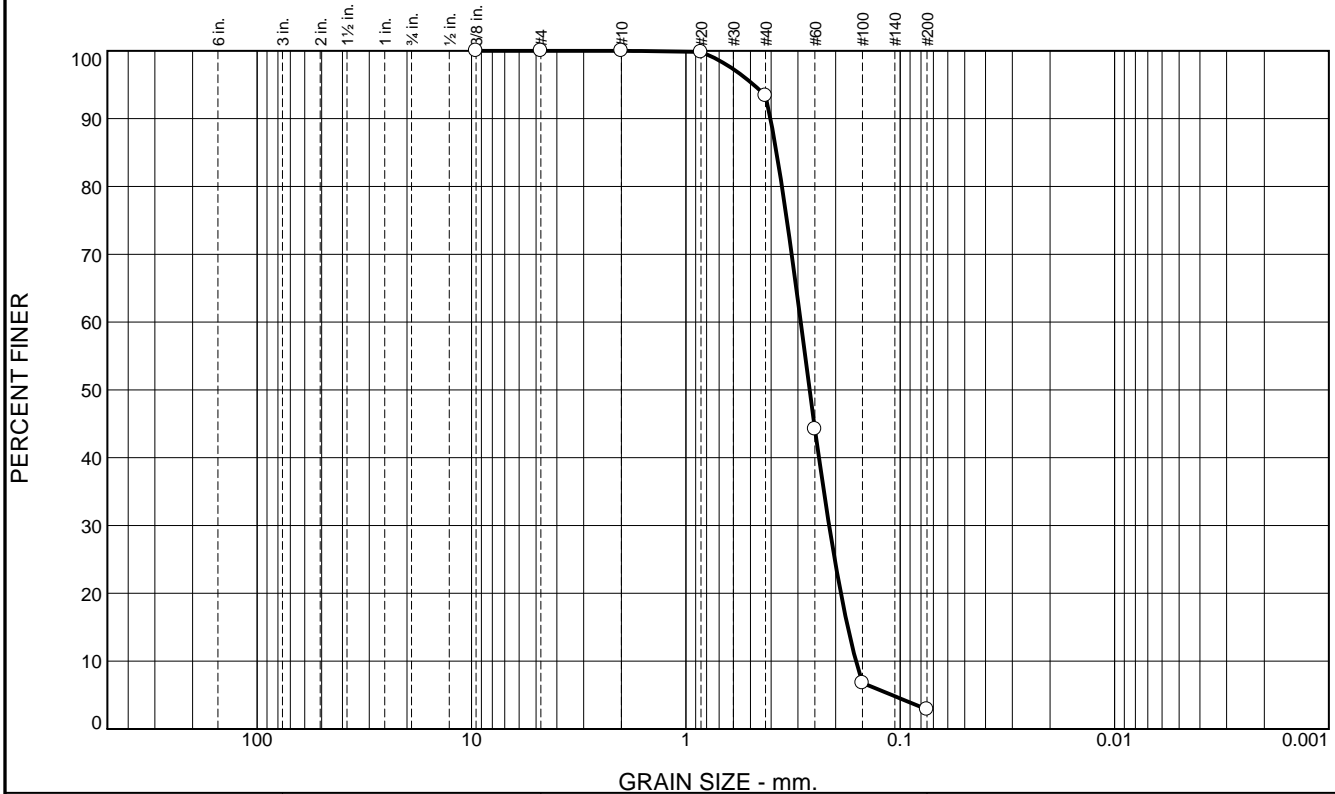
Mobile, Alabama

Client: US Army Corps of Engineers
Project: Contract No. W91278-10-D-0026 - Task 009
Mississippi Barrier Island Restoration Project

Project No: 11-2116-0057

Figure

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 | 90.5 | 2.9 | |

| SIEVE SIZE | PERCENT FINER | SPEC.* PERCENT | PASS? (X=NO) |
|------------|---------------|----------------|--------------|
| .375 | 100.0 | | |
| #4 | 100.0 | | |
| #10 | 100.0 | | |
| #20 | 99.8 | | |
| #40 | 93.4 | | |
| #60 | 44.2 | | |
| #100 | 6.8 | | |
| #200 | 2.9 | | |

Material Description

SAND (SP), fine grained

Atterberg Limits
 PL= LL= PI=

Coefficients
 D₉₀= 0.4032 D₈₅= 0.3775 D₆₀= 0.2913
 D₅₀= 0.2646 D₃₀= 0.2145 D₁₅= 0.1756
 D₁₀= 0.1609 C_u= 1.81 C_c= 0.98

Classification
 USCS= SP AASHTO=

Remarks

* (no specification provided)

Location: USACE Sample # BI-PB-139C-11
Sample Number: TE Lab ID: 5054.150

Depth: 4.0 - 6.0 (ft)

Date: 7/18/11

Thompson Engineering

Mobile, Alabama

Client: US Army Corps of Engineers
Project: Contract No. W91278-10-D-0026 - Task 009
 Mississippi Barrier Island Restoration Project

Project No: 11-2116-0057

Figure

Boring Designation BI-PB-140-11

| | | | | |
|--|--|---|--|--|
| DRILLING LOG | | DIVISION South Atlantic | INSTALLATION Mobile District | SHEET 1 OF 1 SHEETS |
| 1. PROJECT MsCIP Barrier Island Restoration Petit Bois Pass- AL East | | | 9. SIZE AND TYPE OF BIT N/A | |
| 2. BORING DESIGNATION BI-PB-140-11 | | LOCATION COORDINATES E = 1,149,808 N = 252,155 | | 10. COORDINATE SYSTEM/DATUM State Plane, MSE (U.S. Ft.) |
| 3. DRILLING AGENCY Corps of Engineers - CESAM | | CONTRACTOR FILE NO. | | HORIZONTAL NAD83 |
| 4. NAME OF DRILLER Construction Solutions International, Inc. | | 11. MANUFACTURER'S DESIGNATION OF DRILL Vibracore | | VERTICAL NAVD88 |
| 5. DIRECTION OF BORING <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED | | DEG. FROM VERTICAL | BEARING | <input type="checkbox"/> AUTO HAMMER <input type="checkbox"/> MANUAL HAMMER |
| 6. THICKNESS OF OVERBURDEN N/A | | 12. TOTAL SAMPLES | | DISTURBED 3 |
| 7. DEPTH DRILLED INTO ROCK N/A | | 13. TOTAL NUMBER CORE BOXES | | UNDISTURBED (UD) 0 |
| 8. TOTAL DEPTH OF BORING 19.4 Ft. | | 14. WATER DEPTH 38 Ft. | | 15. DATE BORING |
| | | 16. ELEVATION TOP OF BORING -37.7 Ft. | | STARTED 07-01-11 |
| | | 17. TOTAL RECOVERY FOR BORING 100% | | COMPLETED 07-01-11 |
| | | 18. SIGNATURE AND TITLE OF INSPECTOR Michele Johnson, Geologist | | |

| ELEV. | DEPTH | LEGEND | CLASSIFICATION OF MATERIALS | SAMPLE | LABORATORY RESULTS |
|---|-------|--------|---|--------|--|
| -37.7 | 0.0 | | | | |
| | | | SAND, poorly-graded, mostly quartz, dark gray (SP) | A | Classification: SP-SM Color: 2.5Y 6/2-light brownish gray D50: 0.2568 mm % Fines: 9.1 |
| -39.9 | 2.2 | | SAND, silty, mostly fine-grained sand-sized quartz, lt. gray (SM) | B | Classification: SP Color: 2.5Y 7/2-light gray D50: 0.3158 mm % Fines: 3.9 |
| | | | At El. -43.5 Ft., mostly fine-grained sand-sized quartz, lt. gray | C | Classification: SP Color: 2.5Y 7/2-light gray D50: 0.2991 mm % Fines: 3.9 |
| | | | | NS | |
| -57.1 | 19.4 | | | | |
| <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 determined from 2010 USACE survey.</p> | | | | | |

Particle Size Distribution Report



| % +3" | % Gravel | | % Sand | | | % Fines | |
|-------|----------|------|--------|--------|------|---------|------|
| | Coarse | Fine | Coarse | Medium | Fine | Silt | Clay |
| 0.0 | 0.0 | 5.7 | 1.9 | 15.1 | 68.2 | 9.1 | |

| SIEVE SIZE | PERCENT FINER | SPEC.* PERCENT | PASS? (X=NO) |
|------------|---------------|----------------|--------------|
| .75 | 100.0 | | |
| .5 | 96.6 | | |
| .375 | 96.0 | | |
| #4 | 94.3 | | |
| #10 | 92.4 | | |
| #20 | 89.6 | | |
| #40 | 77.3 | | |
| #60 | 48.2 | | |
| #100 | 17.5 | | |
| #200 | 9.1 | | |

Material Description

Slightly silty SAND (SP-SM), medium to fine grained

Atterberg Limits

PL= LL= PI=

Coefficients

D₉₀= 0.9113 D₈₅= 0.5612 D₆₀= 0.3009
D₅₀= 0.2568 D₃₀= 0.1898 D₁₅= 0.1219
D₁₀= 0.0808 C_u= 3.72 C_c= 1.48

Classification

USCS= SP-SM AASHTO=

Remarks

* (no specification provided)

Location: USACE Sample # BI-PB-140A-11
Sample Number: TE Lab ID: 5054.131

Depth: 0.0- 1.5 (ft)

Date: 7/18/11

Thompson Engineering

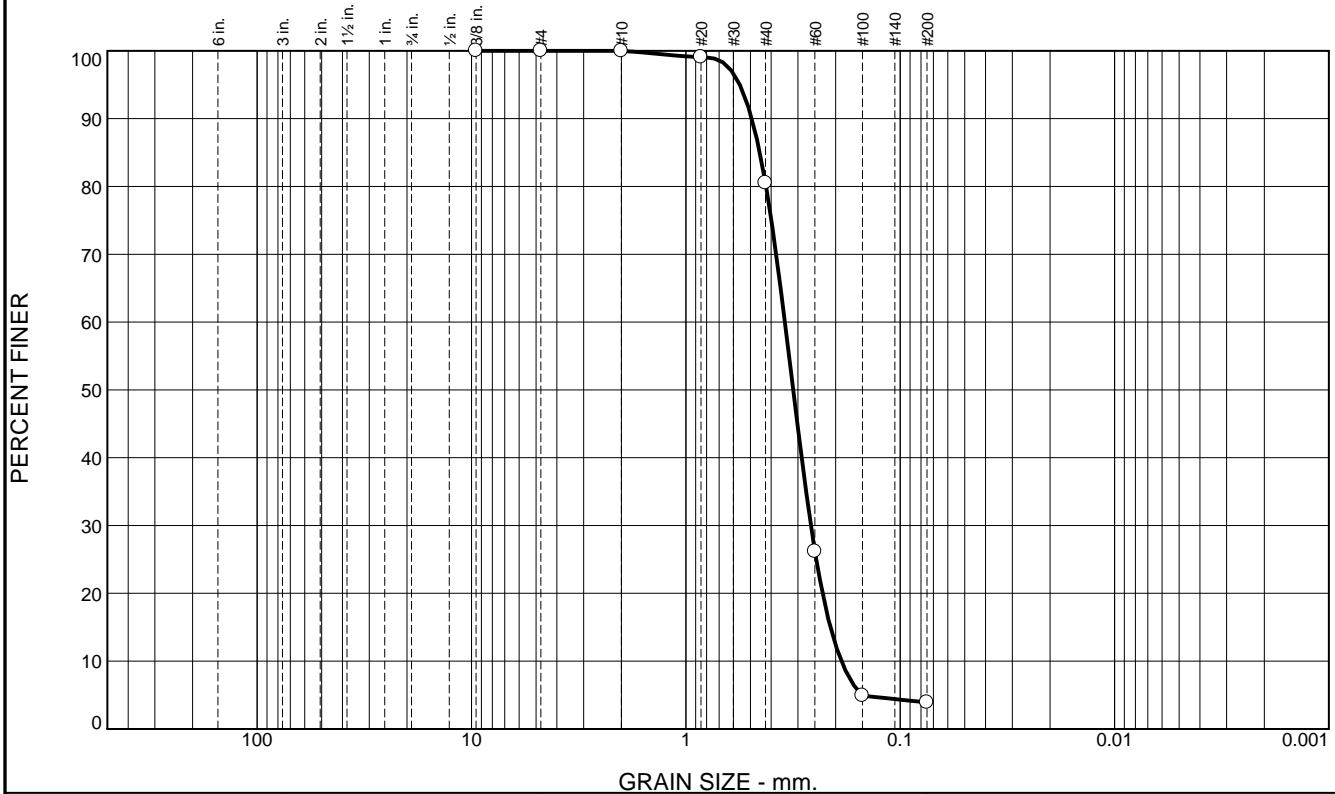
Mobile, Alabama

Client: US Army Corps of Engineers
Project: Contract No. W91278-10-D-0026 - Task 009
Mississippi Barrier Island Restoration Project

Project No: 11-2116-0057

Figure

Particle Size Distribution Report



| % +3" | % Gravel | | % Sand | | | % Fines | |
|-------|----------|------|--------|--------|------|---------|------|
| | Coarse | Fine | Coarse | Medium | Fine | Silt | Clay |
| 0.0 | 0.0 | 0.0 | 0.0 | 19.5 | 76.6 | 3.9 | |

| SIEVE SIZE | PERCENT FINER | SPEC.* PERCENT | PASS? (X=NO) |
|------------|---------------|----------------|--------------|
| .375 | 100.0 | | |
| #4 | 100.0 | | |
| #10 | 100.0 | | |
| #20 | 99.1 | | |
| #40 | 80.5 | | |
| #60 | 26.2 | | |
| #100 | 4.9 | | |
| #200 | 3.9 | | |

Material Description

SAND (SP), medium to fine grained

Atterberg Limits

PL= LL= PI=

Coefficients

D₉₀= 0.4924 D₈₅= 0.4518 D₆₀= 0.3453
D₅₀= 0.3158 D₃₀= 0.2611 D₁₅= 0.2116
D₁₀= 0.1881 C_u= 1.84 C_c= 1.05

Classification

USCS= SP AASHTO=

Remarks

* (no specification provided)

Location: USACE Sample # BI-PB-140B-11
Sample Number: TE Lab ID: 5054.132

Depth: 2.2 - 5.8 (ft)

Date: 7/18/11

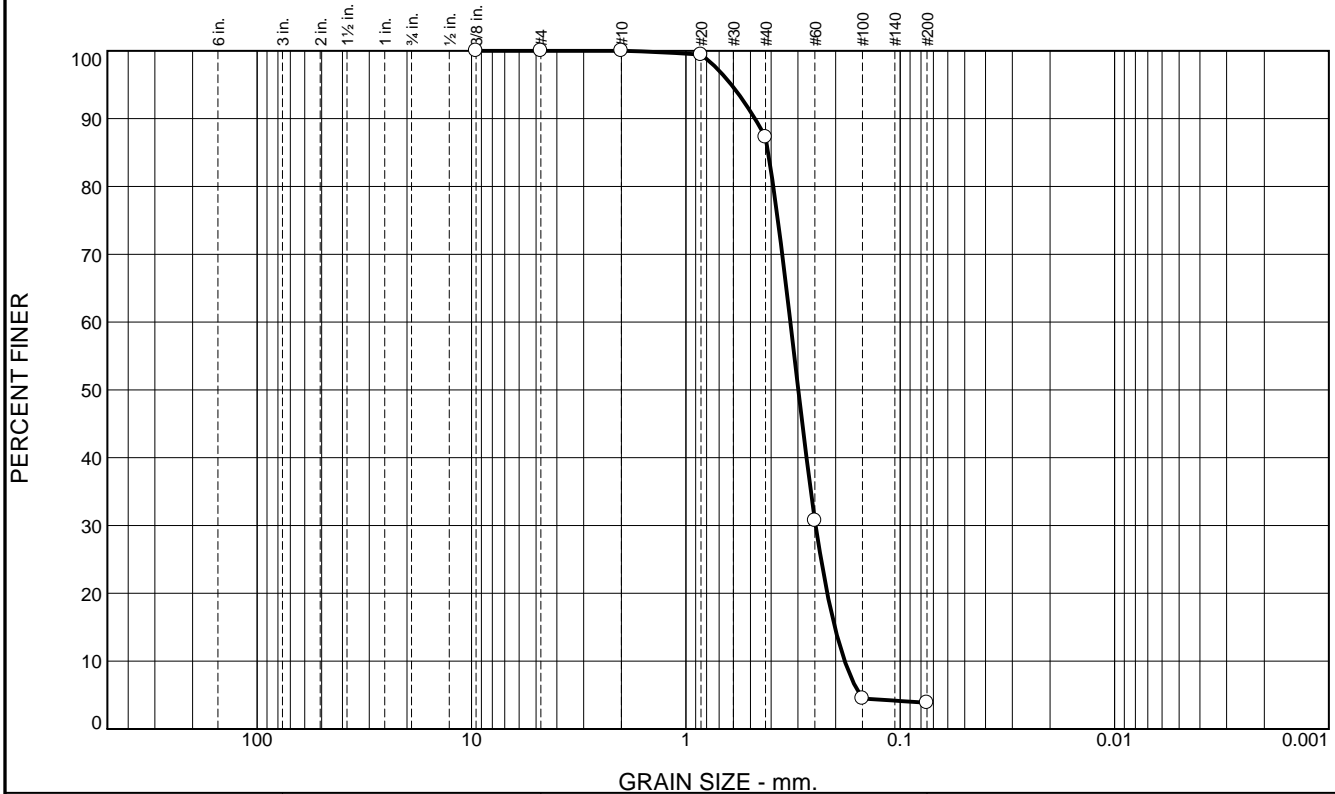
Thompson Engineering

Mobile, Alabama

Client: US Army Corps of Engineers
Project: Contract No. W91278-10-D-0026 - Task 009
Mississippi Barrier Island Restoration Project
Project No: 11-2116-0057

Figure

Particle Size Distribution Report



| % +3" | % Gravel | | % Sand | | | % Fines | |
|-------|----------|------|--------|--------|------|---------|------|
| | Coarse | Fine | Coarse | Medium | Fine | Silt | Clay |
| 0.0 | 0.0 | 0.0 | 0.0 | 12.7 | 83.4 | 3.9 | |

| SIEVE SIZE | PERCENT FINER | SPEC.* PERCENT | PASS? (X=NO) |
|------------|---------------|----------------|--------------|
| .375 | 100.0 | | |
| #4 | 100.0 | | |
| #10 | 100.0 | | |
| #20 | 99.4 | | |
| #40 | 87.3 | | |
| #60 | 30.7 | | |
| #100 | 4.5 | | |
| #200 | 3.9 | | |

Material Description
SAND (SP), medium to fine grained

Atterberg Limits
 PL= LL= PI=

Coefficients
 D₉₀= 0.4763 D₈₅= 0.4131 D₆₀= 0.3256
 D₅₀= 0.2991 D₃₀= 0.2481 D₁₅= 0.2018
 D₁₀= 0.1814 C_u= 1.79 C_c= 1.04

Classification
 USCS= SP AASHTO=

Remarks

* (no specification provided)

Location: USACE Sample # BI-PB-140C-11
Sample Number: TE Lab ID: 5054.133

Depth: 5.8 - 10.5 (ft)

Date: 7/18/11

Thompson Engineering

Mobile, Alabama

Client: US Army Corps of Engineers
Project: Contract No. W91278-10-D-0026 - Task 009
 Mississippi Barrier Island Restoration Project

Project No: 11-2116-0057

Figure

Boring Designation BI-PB-141-11

| | | | | |
|--|--|---|--|--|
| DRILLING LOG | | DIVISION South Atlantic | INSTALLATION Mobile District | SHEET 1 OF 1 SHEETS |
| 1. PROJECT MsCIP Barrier Island Restoration Petit Bois Pass- AL East | | | 9. SIZE AND TYPE OF BIT N/A | |
| 2. BORING DESIGNATION BI-PB-141-11 | | 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 | | <input type="checkbox"/> AUTO HAMMER <input type="checkbox"/> MANUAL HAMMER |
| 4. NAME OF DRILLER Construction Solutions International, Inc. | | 12. TOTAL SAMPLES | | DISTURBED 0 |
| 5. DIRECTION OF BORING <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED | | 13. TOTAL NUMBER CORE BOXES | | UNDISTURBED (UD) 0 |
| 6. THICKNESS OF OVERBURDEN N/A | | 14. WATER DEPTH 40.5 Ft. | | 15. DATE BORING |
| 7. DEPTH DRILLED INTO ROCK N/A | | 16. ELEVATION TOP OF BORING -36.9 Ft. | | STARTED 07-01-11 |
| 8. TOTAL DEPTH OF BORING 18.1 Ft. | | 17. TOTAL RECOVERY FOR BORING 100% | | COMPLETED 07-01-11 |
| 18. SIGNATURE AND TITLE OF INSPECTOR Michele Johnson, Geologist | | | | |

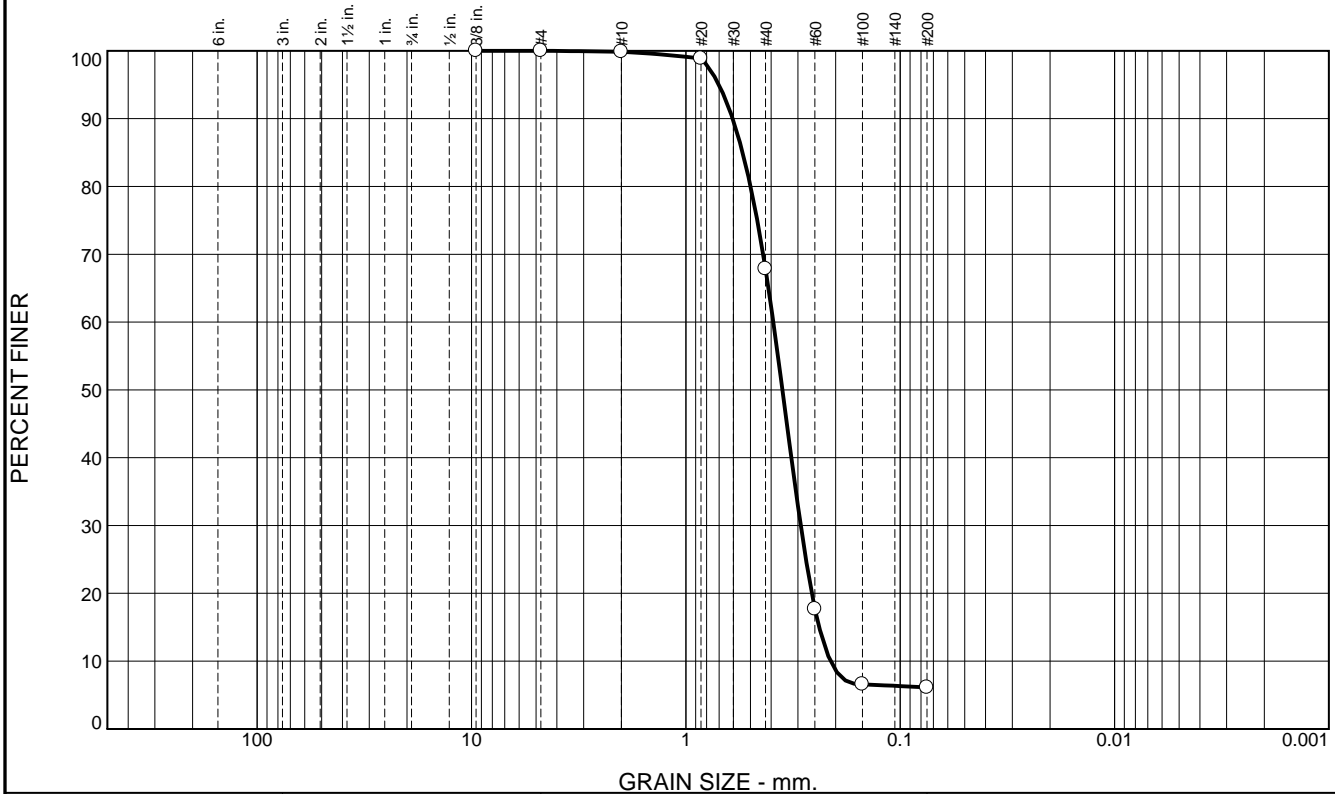
| ELEV. | DEPTH | LEGEND | CLASSIFICATION OF MATERIALS | SAMPLE | LABORATORY RESULTS |
|---|-------|--------|--|--------|--------------------|
| -36.9 | 0.0 | | CLAY, lean, trace fine-grained sand, Some CL interbedded, dark gray (CL) | | |
| -42.9 | 6.0 | | SAND, poorly-graded, some medium-grained sand-sized, dark gray (SP) | NS | |
| -51.9 | 15.0 | | CLAY, lean, trace fine-grained sand, dark gray (CL) | | |
| -55.0 | 18.1 | | | | |
| <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> | | | | | |

Boring Designation BI-PB-142-11

| | | | | |
|--|--|---|--|--|
| DRILLING LOG | | DIVISION South Atlantic | INSTALLATION Mobile District | SHEET 1 OF 1 SHEETS |
| 1. PROJECT MsCIP Barrier Island Restoration Petit Bois Pass- AL East | | | 9. SIZE AND TYPE OF BIT N/A | |
| 2. BORING DESIGNATION BI-PB-142-11 | | LOCATION COORDINATES E = 1,154,108 N = 252,717 | | 10. COORDINATE SYSTEM/DATUM State Plane, MSE (U.S. Ft.) |
| 3. DRILLING AGENCY Corps of Engineers - CESAM | | CONTRACTOR FILE NO. | | HORIZONTAL NAD83 |
| 4. NAME OF DRILLER Construction Solutions International, Inc. | | 11. MANUFACTURER'S DESIGNATION OF DRILL Vibrocure | | <input type="checkbox"/> AUTO HAMMER <input type="checkbox"/> MANUAL HAMMER |
| 5. DIRECTION OF BORING <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED | | DEG. FROM VERTICAL | BEARING | 12. TOTAL SAMPLES 4 |
| 6. THICKNESS OF OVERBURDEN N/A | | 13. TOTAL NUMBER CORE BOXES | | DISTURBED 0 |
| 7. DEPTH DRILLED INTO ROCK N/A | | 14. WATER DEPTH 41 Ft. | | UNDISTURBED (UD) 0 |
| 8. TOTAL DEPTH OF BORING 15.1 Ft. | | 15. DATE BORING | | STARTED 07-01-11 |
| | | 16. ELEVATION TOP OF BORING -39.9 Ft. | | COMPLETED 07-01-11 |
| | | 17. TOTAL RECOVERY FOR BORING 100% | | |
| | | 18. SIGNATURE AND TITLE OF INSPECTOR Michele Johnson, Geologist | | |

| ELEV. | DEPTH | LEGEND | CLASSIFICATION OF MATERIALS | SAMPLE | LABORATORY RESULTS |
|--|-------|--------|--|--------|---|
| -39.9 | 0.0 | | | | |
| | | ••••• | SAND, poorly-graded with silt, mostly fine to medium-grained sand-sized quartz, gray (SP-SM) | NS | |
| -43.9 | 4.0 | ••••• | SAND, poorly-graded with silt, mostly fine to medium-grained sand-sized quartz, gray (SP-SM) | A | Classification: SP-SM Color: 5Y 6/2-light olive gray D50: 0.3546 mm % Fines: 6.1 |
| -48.9 | 9.0 | ••••• | SAND, poorly-graded, mostly medium-grained sand-sized quartz, gray (SP) | B | Classification: SP Color: 5Y 5/2-olive gray D50: 0.3862 mm % Fines: 4.6 |
| | | ••••• | At El. -51.9 Ft., mostly medium-grained sand-sized quartz, gray | C | Classification: SP-SM Color: 5Y 5/2-olive gray D50: 0.3635 mm % Fines: 7.5 |
| -55.0 | 15.1 | ••••• | | D | Classification: SP Color: 5Y 6/1-gray D50: 0.3628 mm % Fines: 4 |
| <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 determined from 2010 USACE survey.</p> | | | | | |

Particle Size Distribution Report



| % +3" | % Gravel | | % Sand | | | % Fines | |
|-------|----------|------|--------|--------|------|---------|------|
| | Coarse | Fine | Coarse | Medium | Fine | Silt | Clay |
| 0.0 | 0.0 | 0.0 | 0.1 | 32.1 | 61.7 | 6.1 | |

| SIEVE SIZE | PERCENT FINER | SPEC.* PERCENT | PASS? (X=NO) |
|------------|---------------|----------------|--------------|
| .375 | 100.0 | | |
| #4 | 100.0 | | |
| #10 | 99.9 | | |
| #20 | 98.9 | | |
| #40 | 67.8 | | |
| #60 | 17.7 | | |
| #100 | 6.6 | | |
| #200 | 6.1 | | |

Material Description
Slightly silty SAND (SP-SM), medium to fine grained

Atterberg Limits
 PL= LL= PI=

Coefficients
 D₉₀= 0.6045 D₈₅= 0.5434 D₆₀= 0.3910
 D₅₀= 0.3546 D₃₀= 0.2913 D₁₅= 0.2389
 D₁₀= 0.2113 C_u= 1.85 C_c= 1.03

Classification
 USCS= SP-SM AASHTO=

Remarks

* (no specification provided)

Location: USACE Sample # BI-PB-142A-11
Sample Number: TE Lab ID: 5054.137

Depth: 1.2 - 4.0 (ft)

Date: 7/18/11

Thompson Engineering

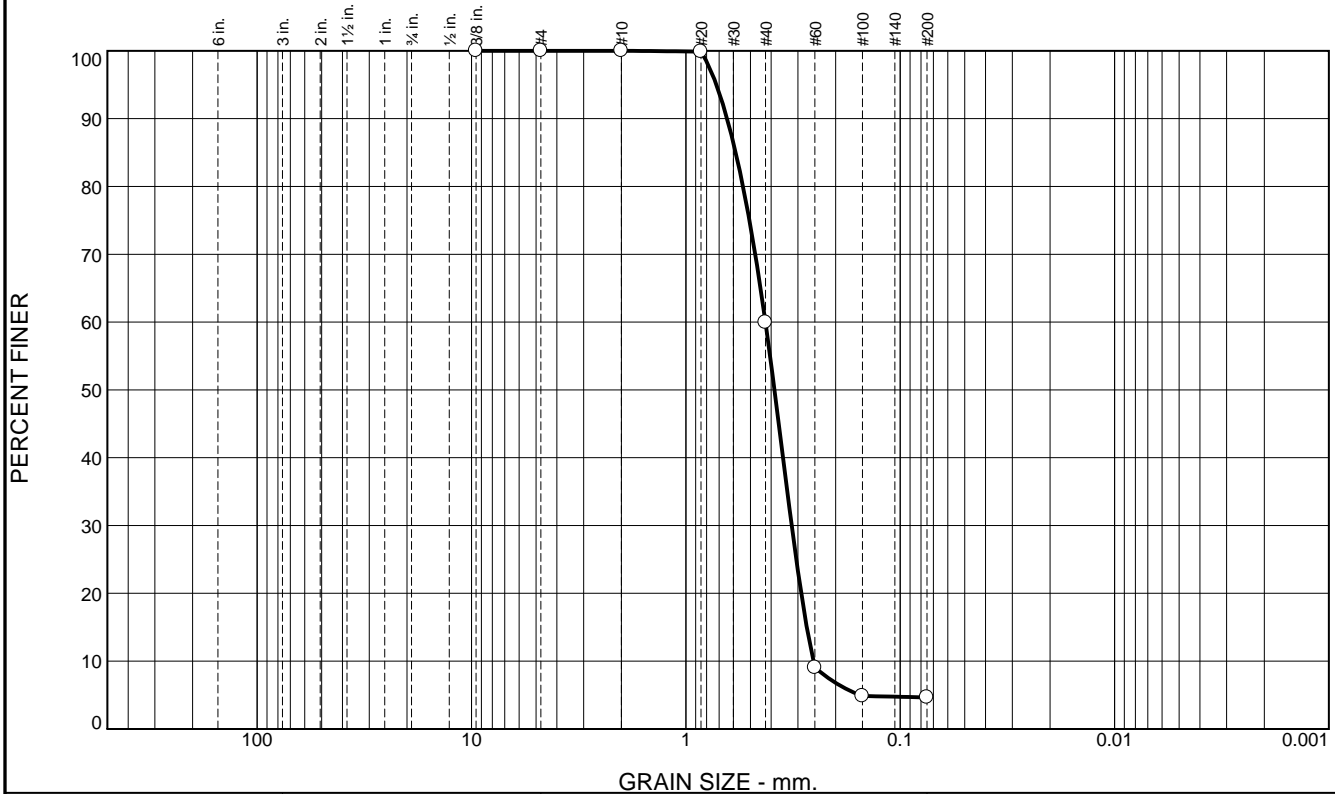
Mobile, Alabama

Client: US Army Corps of Engineers
Project: Contract No. W91278-10-D-0026 - Task 009
 Mississippi Barrier Island Restoration Project

Project No: 11-2116-0057

Figure

Particle Size Distribution Report



| % +3" | % Gravel | | % Sand | | | % Fines | |
|-------|----------|------|--------|--------|------|---------|------|
| | Coarse | Fine | Coarse | Medium | Fine | Silt | Clay |
| 0.0 | 0.0 | 0.0 | 0.0 | 40.1 | 55.3 | 4.6 | |

| SIEVE SIZE | PERCENT FINER | SPEC.* PERCENT | PASS? (X=NO) |
|------------|---------------|----------------|--------------|
| .375 | 100.0 | | |
| #4 | 100.0 | | |
| #10 | 100.0 | | |
| #20 | 99.9 | | |
| #40 | 59.9 | | |
| #60 | 9.0 | | |
| #100 | 4.9 | | |
| #200 | 4.6 | | |

Material Description
SAND (SP), medium to fine grained

Atterberg Limits
 PL= LL= PI=

Coefficients
 D₉₀= 0.6416 D₈₅= 0.5851 D₆₀= 0.4253
 D₅₀= 0.3862 D₃₀= 0.3210 D₁₅= 0.2732
 D₁₀= 0.2542 C_u= 1.67 C_c= 0.95

Classification
 USCS= SP AASHTO=

Remarks

* (no specification provided)

Location: USACE Sample # BI-PB-142B-11
Sample Number: TE Lab ID: 5054.138

Depth: 4.0 - 9.0 (ft)

Date: 7/18/11

Thompson Engineering

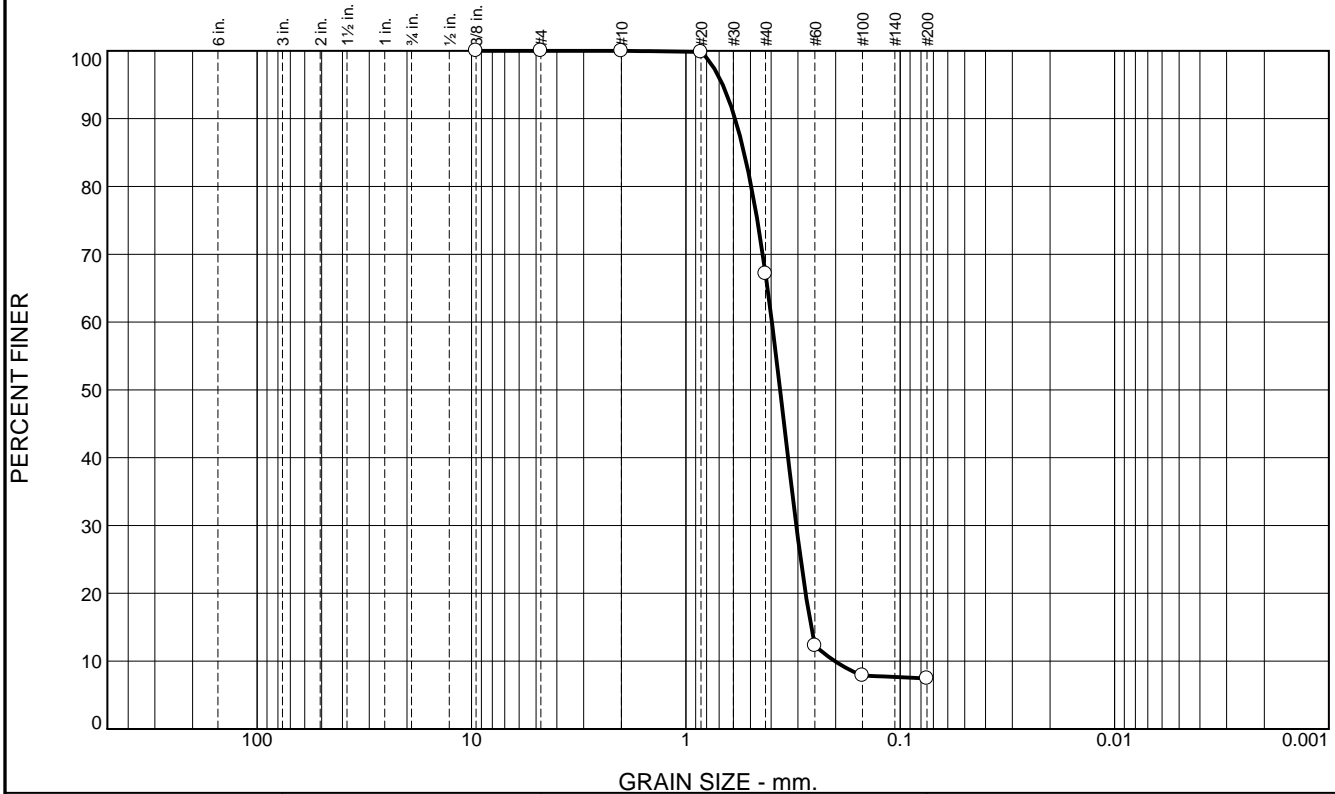
Mobile, Alabama

Client: US Army Corps of Engineers
Project: Contract No. W91278-10-D-0026 - Task 009
 Mississippi Barrier Island Restoration Project

Project No: 11-2116-0057

Figure

Particle Size Distribution Report



| % +3" | % Gravel | | % Sand | | | % Fines | |
|-------|----------|------|--------|--------|------|---------|------|
| | Coarse | Fine | Coarse | Medium | Fine | Silt | Clay |
| 0.0 | 0.0 | 0.0 | 0.0 | 32.9 | 59.6 | 7.5 | |

| SIEVE SIZE | PERCENT FINER | SPEC.* PERCENT | PASS? (X=NO) |
|------------|---------------|----------------|--------------|
| .375 | 100.0 | | |
| #4 | 100.0 | | |
| #10 | 100.0 | | |
| #20 | 99.8 | | |
| #40 | 67.1 | | |
| #60 | 12.3 | | |
| #100 | 7.9 | | |
| #200 | 7.5 | | |

Material Description
Slightly silty SAND (SP-SM), medium to fine grained

Atterberg Limits
 PL= LL= PI=

Coefficients
 D₉₀= 0.5889 D₈₅= 0.5349 D₆₀= 0.3969
 D₅₀= 0.3635 D₃₀= 0.3055 D₁₅= 0.2602
 D₁₀= 0.2017 C_u= 1.97 C_c= 1.17

Classification
 USCS= SP-SM AASHTO=

Remarks

* (no specification provided)

Location: USACE Sample # BI-PB-142C-11
Sample Number: TE Lab ID: 5054.139

Depth: 9.0 - 12.0 (ft)

Date: 7/18/11

Thompson Engineering

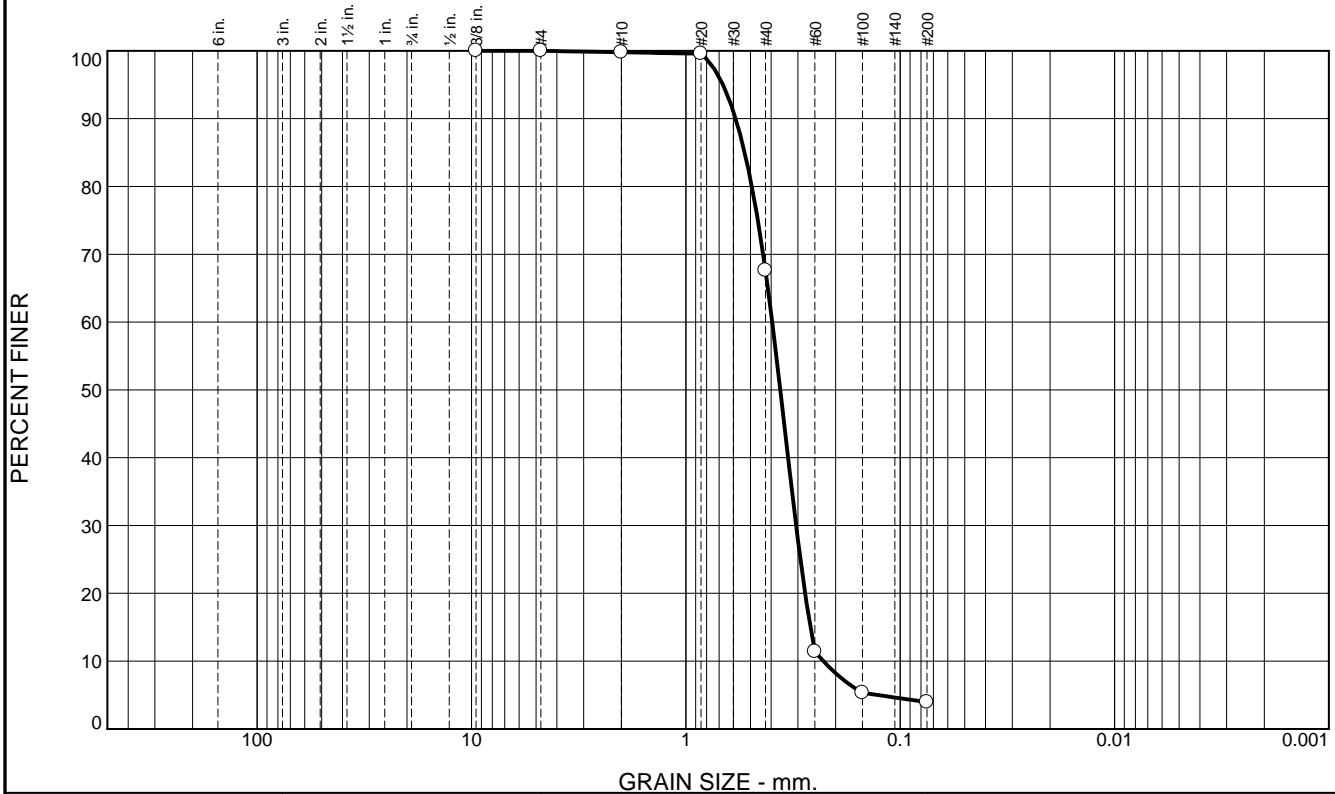
Mobile, Alabama

Client: US Army Corps of Engineers
Project: Contract No. W91278-10-D-0026 - Task 009
 Mississippi Barrier Island Restoration Project

Project No: 11-2116-0057

Figure

Particle Size Distribution Report



| % +3" | % Gravel | | % Sand | | | % Fines | |
|-------|----------|------|--------|--------|------|---------|------|
| | Coarse | Fine | Coarse | Medium | Fine | Silt | Clay |
| 0.0 | 0.0 | 0.0 | 0.2 | 32.2 | 63.6 | 4.0 | |

| SIEVE SIZE | PERCENT FINER | SPEC.* PERCENT | PASS? (X=NO) |
|------------|---------------|----------------|--------------|
| .375 | 100.0 | | |
| #4 | 100.0 | | |
| #10 | 99.8 | | |
| #20 | 99.6 | | |
| #40 | 67.6 | | |
| #60 | 11.4 | | |
| #100 | 5.3 | | |
| #200 | 4.0 | | |

Material Description
SAND (SP), medium to fine grained

Atterberg Limits
 PL= LL= PI=

Coefficients
 D₉₀= 0.5851 D₈₅= 0.5312 D₆₀= 0.3955
 D₅₀= 0.3628 D₃₀= 0.3061 D₁₅= 0.2627
 D₁₀= 0.2283 C_u= 1.73 C_c= 1.04

Classification
 USCS= SP AASHTO=

Remarks

* (no specification provided)

Location: USACE Sample # BI-PB-142D-11
Sample Number: TE Lab ID: 5054.140

Depth: 12.0 - 15.1 (ft)

Date: 7/18/11

Thompson Engineering

Mobile, Alabama

Client: US Army Corps of Engineers
Project: Contract No. W91278-10-D-0026 - Task 009
 Mississippi Barrier Island Restoration Project

Project No: 11-2116-0057

Figure

Boring Designation BI-PB-143-11

| | | | | |
|---|--|--|---------------------------------|--|
| DRILLING LOG | | DIVISION South Atlantic | INSTALLATION Mobile District | SHEET 1 OF 2 SHEETS |
| 1. PROJECT MsCIP Barrier Island Restoration Petit Bois Pass- AL East | | 9. SIZE AND TYPE OF BIT N/A | | 10. COORDINATE SYSTEM/DATUM State Plane, MSE (U.S. Ft.) |
| 2. BORING DESIGNATION BI-PB-143-11 | | LOCATION COORDINATES E = 1,155,503 N = 254,302 | | HORIZONTAL NAD83 |
| 3. DRILLING AGENCY Corps of Engineers - CESAM | | CONTRACTOR FILE NO. | | VERTICAL NAVD88 |
| 4. NAME OF DRILLER Construction Solutions International, Inc. | | 11. MANUFACTURER'S DESIGNATION OF DRILL Vibracore | | <input type="checkbox"/> AUTO HAMMER <input type="checkbox"/> MANUAL HAMMER |
| 5. DIRECTION OF BORING <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED | | DEG. FROM VERTICAL | | BEARING |
| 6. THICKNESS OF OVERBURDEN N/A | | 12. TOTAL SAMPLES | | DISTURBED UNDISTURBED (UD) |
| 7. DEPTH DRILLED INTO ROCK N/A | | 13. TOTAL NUMBER CORE BOXES | | 0 |
| 8. TOTAL DEPTH OF BORING 19.5 Ft. | | 14. WATER DEPTH 41.5 Ft. | | 15. DATE BORING |
| | | 16. ELEVATION TOP OF BORING -39.7 Ft. | | STARTED 07-01-11 |
| | | 17. TOTAL RECOVERY FOR BORING 100% | | COMPLETED 07-01-11 |
| | | 18. SIGNATURE AND TITLE OF INSPECTOR Michele Johnson, Geologist | | |

| ELEV. | DEPTH | LEGEND | CLASSIFICATION OF MATERIALS | SAMPLE | LABORATORY RESULTS |
|-------|-------|--------|---|--------|--------------------|
| -39.7 | 0.0 | | | | |
| | | ▨ | CLAY, fat, some sand, dark gray (CH) | | |
| -47.1 | 7.4 | | | | |
| | | ● | SAND, poorly-graded, mostly medium-grained sand-sized quartz, gray (SP) | NS | |
| -52.1 | 12.4 | | | | |
| | | ▨ | CLAY, fat, dark gray (CH) | | |
| -59.2 | 19.5 | | | | |
| | | | NOTES: 1. Soils are field visually classified in accordance with the Unified Soils Classification System. 2. NS = Sample not submitted for laboratory analysis from this interval. 3. Seafloor elevation calculated using sampling vessel's fathometer water depth reading and | | |

| DRILLING LOG (Cont. Sheet) | | | INSTALLATION Mobile District | | SHEET 2 |
|--|-------|--------|---|----------------------------|---------------------------|
| | | | | | OF 2 SHEETS |
| PROJECT MsCIP Barrier Island Restoration | | | COORDINATE SYSTEM/DATUM State Plane, MSE (U.S. Ft.) | HORIZONTAL NAD83 | VERTICAL NAVD88 |
| LOCATION COORDINATES X = 1,155,503 Y = 254,302 | | | ELEVATION TOP OF BORING -39.7 Ft. | | |
| ELEV. | DEPTH | LEGEND | CLASSIFICATION OF MATERIALS | SAMPLE | LABORATORY RESULTS |
| | | | applying NOAA tidal gauge data conversion factor. | | |



Boring Designation BI-PB-144-11

| | | | | | |
|--|--|--|---|---|--|
| DRILLING LOG | | DIVISION South Atlantic | INSTALLATION Mobile District | | SHEET 1 OF 1 SHEETS |
| 1. PROJECT MsCIP Barrier Island Restoration Petit Bois Pass- AL East | | | 9. SIZE AND TYPE OF BIT N/A | | |
| 2. BORING DESIGNATION BI-PB-144-11 | | LOCATION COORDINATES E = 1,155,524 N = 255,866 | | 10. COORDINATE SYSTEM/DATUM State Plane, MSE (U.S. Ft.) | HORIZONTAL NAD83 |
| 3. DRILLING AGENCY Corps of Engineers - CESAM | | CONTRACTOR FILE NO. | | 11. MANUFACTURER'S DESIGNATION OF DRILL Vibracore | <input type="checkbox"/> AUTO HAMMER <input type="checkbox"/> MANUAL HAMMER |
| 4. NAME OF DRILLER Construction Solutions International, Inc. | | | 12. TOTAL SAMPLES 4 | | |
| 5. DIRECTION OF BORING <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED | | DEG. FROM VERTICAL | BEARING | 13. TOTAL NUMBER CORE BOXES | |
| 6. THICKNESS OF OVERBURDEN N/A | | | 14. WATER DEPTH 35 Ft. | | |
| 7. DEPTH DRILLED INTO ROCK N/A | | | 15. DATE BORING | | STARTED 07-01-11 |
| 8. TOTAL DEPTH OF BORING 16.2 Ft. | | | 16. ELEVATION TOP OF BORING -33.1 Ft. | | |
| | | | 17. TOTAL RECOVERY FOR BORING 100% | | |
| | | | 18. SIGNATURE AND TITLE OF INSPECTOR Michele Johnson, Geologist | | |

| ELEV. | DEPTH | LEGEND | CLASSIFICATION OF MATERIALS | SAMPLE | LABORATORY RESULTS |
|-------|-------|--------|---|--------|--|
| -33.1 | 0.0 | | | | |
| | | ••••• | SAND, poorly-graded, mostly coarse-grained sand-sized quartz, gray (SP) | A | Classification: SP-SM Color: 2.5Y 7/1-light gray D50: 0.2664 mm % Fines: 7.1 |
| -37.1 | 4.0 | ••••• | SAND, poorly-graded with silt, trace shell fragments, dark gray (SP-SM) | B | Classification: SP-SM Color: 2.5Y 6/2-light brownish gray D50: 0.2519 mm % Fines: 5.9 |
| | | ••••• | At El. -41.1 Ft., trace clay, dark gray | C | Classification: SM Color: 2.5Y 5/1-gray D50: 0.2399 mm % Fines: 18.8 |
| | | ••••• | At El. -45.1 Ft., mostly medium-grained sand-sized quartz, dark gray | D | Classification: SM Color: 2.5Y 5/2-grayish brown D50: 0.3375 mm % Fines: 17.9 |
| -49.3 | 16.2 | ••••• | | | |
| | | | NOTES: 1. Soils are field visually classified in accordance with the Unified Soils Classification System. 2. NS = Sample not submitted for laboratory analysis from this interval. 3. Seafloor elevation calculated using sampling vessel's fathometer water depth reading and applying NOAA tidal gauge data conversion factor. | | |

Particle Size Distribution Report



| % +3" | % Gravel | | % Sand | | | % Fines | |
|-------|----------|------|--------|--------|------|---------|------|
| | Coarse | Fine | Coarse | Medium | Fine | Silt | Clay |
| 0.0 | 0.0 | 5.0 | 1.6 | 17.3 | 69.0 | 7.1 | |

| SIEVE SIZE | PERCENT FINER | SPEC.* PERCENT | PASS? (X=NO) |
|------------|---------------|----------------|--------------|
| .5 | 100.0 | | |
| .375 | 97.8 | | |
| #4 | 95.0 | | |
| #10 | 93.4 | | |
| #20 | 90.0 | | |
| #40 | 76.1 | | |
| #60 | 45.5 | | |
| #100 | 11.8 | | |
| #200 | 7.1 | | |

Material Description
Slightly silty SAND (SP-SM), medium to fine grained

Atterberg Limits
 PL= LL= PI=

Coefficients
 D₉₀= 0.8462 D₈₅= 0.5744 D₆₀= 0.3103
 D₅₀= 0.2664 D₃₀= 0.2026 D₁₅= 0.1604
 D₁₀= 0.1152 C_u= 2.69 C_c= 1.15

Classification
 USCS= SP-SM AASHTO=

Remarks
 There are two samples marked BI-PB-144A-11, 0 - 4 ft and no sample marked BI-PB-145A-11. Both samples were tested and marked BI-PB-144A-1-11 and BI-PB-144A-2-11.

* (no specification provided)

Location: USACE Sample # BI-PB-144A-1-11
Sample Number: TE Lab ID: 5054.141

Depth: 0.0 - 4.0 (ft)

Date: 7/18/11

Thompson Engineering

Mobile, Alabama

Client: US Army Corps of Engineers
Project: Contract No. W91278-10-D-0026 - Task 009
 Mississippi Barrier Island Restoration Project

Project No: 11-2116-0057

Figure

Particle Size Distribution Report



| % +3" | % Gravel | | % Sand | | | % Fines | |
|-------|----------|------|--------|--------|------|---------|------|
| | Coarse | Fine | Coarse | Medium | Fine | Silt | Clay |
| 0.0 | 0.0 | 0.0 | 0.2 | 11.0 | 82.9 | 5.9 | |

| SIEVE SIZE | PERCENT FINER | SPEC.* PERCENT | PASS? (X=NO) |
|------------|---------------|----------------|--------------|
| .375 | 100.0 | | |
| #4 | 100.0 | | |
| #10 | 99.8 | | |
| #20 | 99.3 | | |
| #40 | 88.8 | | |
| #60 | 49.3 | | |
| #100 | 9.9 | | |
| #200 | 5.9 | | |

Material Description

Slightly silty SAND (SP-SM), medium to fine grained

Atterberg Limits

PL= LL= PI=

Coefficients

D₉₀= 0.4496 D₈₅= 0.3953 D₆₀= 0.2821
D₅₀= 0.2519 D₃₀= 0.2010 D₁₅= 0.1645
D₁₀= 0.1503 C_u= 1.88 C_c= 0.95

Classification

USCS= SP-SM AASHTO=

Remarks

* (no specification provided)

Location: USACE Sample # BI-PB-144B-11
Sample Number: TE Lab ID: 5054.142

Depth: 4.0 - 8.0 (ft)

Date: 7/18/11

Thompson Engineering

Mobile, Alabama

Client: US Army Corps of Engineers
Project: Contract No. W91278-10-D-0026 - Task 009
Mississippi Barrier Island Restoration Project

Project No: 11-2116-0057

Figure

Particle Size Distribution Report



| % +3" | % Gravel | | % Sand | | | % Fines | |
|-------|----------|------|--------|--------|------|---------|------|
| | Coarse | Fine | Coarse | Medium | Fine | Silt | Clay |
| 0.0 | 0.0 | 0.0 | 0.0 | 11.9 | 69.3 | 18.8 | |

| SIEVE SIZE | PERCENT FINER | SPEC.* PERCENT | PASS? (X=NO) |
|------------|---------------|----------------|--------------|
| .375 | 100.0 | | |
| #4 | 100.0 | | |
| #10 | 100.0 | | |
| #20 | 99.9 | | |
| #40 | 88.1 | | |
| #60 | 52.8 | | |
| #100 | 25.3 | | |
| #200 | 18.8 | | |

Material Description

Silty SAND (SM), medium to fine grained

| | | |
|--------------------------|--------------------------|--------------------------|
| PL= | Atterberg Limits | PI= |
| | LL= | |
| | Coefficients | |
| D ₉₀ = 0.4434 | D ₈₅ = 0.4000 | D ₆₀ = 0.2762 |
| D ₅₀ = 0.2399 | D ₃₀ = 0.1693 | D ₁₅ = |
| D ₁₀ = | C _u = | C _c = |
| | Classification | |
| USCS= SM | AASHTO= | |
| | Remarks | |

* (no specification provided)

Location: USACE Sample # BI-PB-144C-11
Sample Number: TE Lab ID: 5054.143

Depth: 8.0 - 12.0 (ft)

Date: 7/18/11

Thompson Engineering

Mobile, Alabama

Client: US Army Corps of Engineers
Project: Contract No. W91278-10-D-0026 - Task 009
 Mississippi Barrier Island Restoration Project

Project No: 11-2116-0057

Figure

Particle Size Distribution Report



| % +3" | % Gravel | | % Sand | | | % Fines | |
|-------|----------|------|--------|--------|------|---------|------|
| | Coarse | Fine | Coarse | Medium | Fine | Silt | Clay |
| 0.0 | 0.0 | 0.0 | 0.0 | 32.2 | 49.9 | 17.9 | |

| SIEVE SIZE | PERCENT FINER | SPEC.* PERCENT | PASS? (X=NO) |
|------------|---------------|----------------|--------------|
| .375 | 100.0 | | |
| #4 | 100.0 | | |
| #10 | 100.0 | | |
| #20 | 99.6 | | |
| #40 | 67.8 | | |
| #60 | 30.8 | | |
| #100 | 23.6 | | |
| #200 | 17.9 | | |

Material Description
Silty SAND (SM), medium to fine grained

Atterberg Limits
 PL= LL= PI=

Coefficients
 D₉₀= 0.6247 D₈₅= 0.5617 D₆₀= 0.3836
 D₅₀= 0.3375 D₃₀= 0.2455 D₁₅=
 D₁₀= C_u= C_c=

Classification
 USCS= SM AASHTO=

Remarks

* (no specification provided)

Location: USACE Sample # BI-PB-144D-11
Sample Number: TE Lab ID: 5054.144

Depth: 12.0 - 16.2 (ft)

Date: 7/18/11

Thompson Engineering

Mobile, Alabama

Client: US Army Corps of Engineers
Project: Contract No. W91278-10-D-0026 - Task 009
 Mississippi Barrier Island Restoration Project
Project No: 11-2116-0057

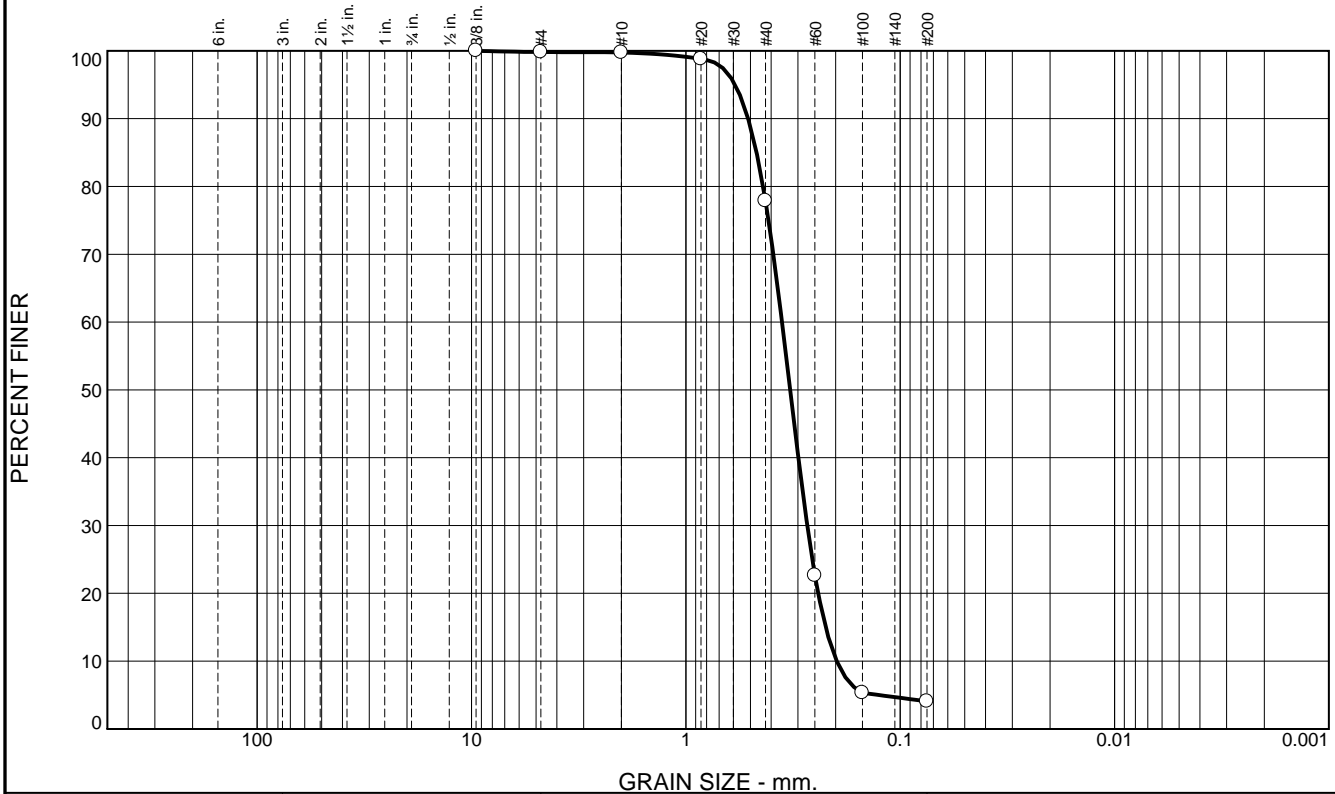
Figure

Boring Designation BI-PB-145-11

| | | | | |
|--|--|---|--|--|
| DRILLING LOG | | DIVISION South Atlantic | INSTALLATION Mobile District | SHEET 1 OF 1 SHEETS |
| 1. PROJECT MsCIP Barrier Island Restoration Petit Bois Pass- AL East | | | 9. SIZE AND TYPE OF BIT N/A | |
| 2. BORING DESIGNATION BI-PB-145-11 | | 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 | | <input type="checkbox"/> AUTO HAMMER <input type="checkbox"/> MANUAL HAMMER |
| 4. NAME OF DRILLER Construction Solutions International, Inc. | | 12. TOTAL SAMPLES | | DISTURBED 3 |
| 5. DIRECTION OF BORING <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED | | 13. TOTAL NUMBER CORE BOXES | | UNDISTURBED (UD) 0 |
| 6. THICKNESS OF OVERBURDEN N/A | | 14. WATER DEPTH 36.6 Ft. | | |
| 7. DEPTH DRILLED INTO ROCK N/A | | 15. DATE BORING | | STARTED 07-01-11 |
| 8. TOTAL DEPTH OF BORING 16.4 Ft. | | 16. ELEVATION TOP OF BORING -34.5 Ft. | | COMPLETED 07-01-11 |
| | | 17. TOTAL RECOVERY FOR BORING 100% | | |
| | | 18. SIGNATURE AND TITLE OF INSPECTOR Michele Johnson, Geologist | | |

| ELEV. | DEPTH | LEGEND | CLASSIFICATION OF MATERIALS | SAMPLE | LABORATORY RESULTS |
|--|-------|--------|---|--------|--|
| -34.5 | 0.0 | | SAND, poorly-graded, mostly medium-grained sand-sized quartz, gray (SP) | A | Classification: SP Color: - D50: 0.3263 mm % Fines: 4.1 |
| -38.5 | 4.0 | | | B | Classification: SP Color: 5Y 7/1-light gray D50: 0.3541 mm % Fines: 2.9 |
| -41.8 | 7.3 | | SAND, clayey, trace shell fragments, clayey, gray (SC) | C | Classification: SM Color: 2.5Y 5/1-gray D50: 0.189 mm % Fines: 21.2 |
| -50.9 | 16.4 | | | NS | |
| <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> | | | | | |

Particle Size Distribution Report



| % +3" | % Gravel | | % Sand | | | % Fines | |
|-------|----------|------|--------|--------|------|---------|------|
| | Coarse | Fine | Coarse | Medium | Fine | Silt | Clay |
| 0.0 | 0.0 | 0.2 | 0.0 | 21.9 | 73.8 | 4.1 | |

| SIEVE SIZE | PERCENT FINER | SPEC.* PERCENT | PASS? (X=NO) |
|------------|---------------|----------------|--------------|
| .375 | 100.0 | | |
| #4 | 99.8 | | |
| #10 | 99.8 | | |
| #20 | 98.8 | | |
| #40 | 77.9 | | |
| #60 | 22.6 | | |
| #100 | 5.3 | | |
| #200 | 4.1 | | |

Material Description
SAND (SP), medium to fine grained

Atterberg Limits
 PL= LL= PI=

Coefficients
 D₉₀= 0.5122 D₈₅= 0.4678 D₆₀= 0.3562
 D₅₀= 0.3263 D₃₀= 0.2716 D₁₅= 0.2227
 D₁₀= 0.1977 C_u= 1.80 C_c= 1.05

Classification
 USCS= SP AASHTO=

Remarks
 There are two samples marked BI-PB-144A-11, 0 - 4 ft and no sample marked BI-PB-145A-11. Both samples were tested and marked BI-PB-144A-1-11 and BI-PB-144A-2-11.

* (no specification provided)

Location: USACE Sample # BI-PB-144A-2-11
Sample Number: TE Lab ID: 5054.145

Should be labeled BI-PB-145A-11

Depth: 0.0 - 4.0 (ft)

Date: 7/18/11

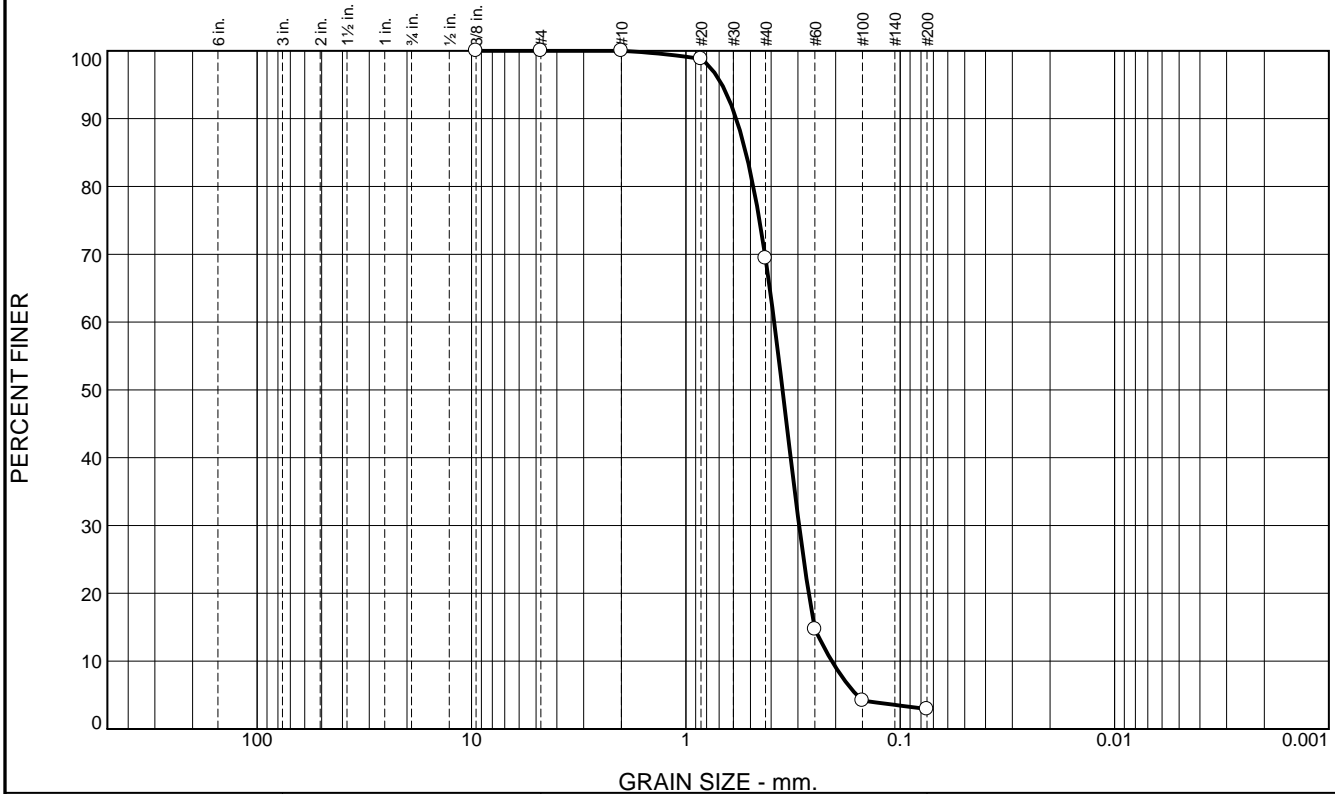
Thompson Engineering

Mobile, Alabama

Client: US Army Corps of Engineers
Project: Contract No. W91278-10-D-0026 - Task 009
 Mississippi Barrier Island Restoration Project
Project No: 11-2116-0057

Figure

Particle Size Distribution Report



| % +3" | % Gravel | | % Sand | | | % Fines | |
|-------|----------|------|--------|--------|------|---------|------|
| | Coarse | Fine | Coarse | Medium | Fine | Silt | Clay |
| 0.0 | 0.0 | 0.0 | 0.0 | 30.6 | 66.5 | 2.9 | |

| SIEVE SIZE | PERCENT FINER | SPEC.* PERCENT | PASS? (X=NO) |
|------------|---------------|----------------|--------------|
| .375 | 100.0 | | |
| #4 | 100.0 | | |
| #10 | 100.0 | | |
| #20 | 98.8 | | |
| #40 | 69.4 | | |
| #60 | 14.7 | | |
| #100 | 4.2 | | |
| #200 | 2.9 | | |

Material Description
SAND (SP), medium to fine grained

Atterberg Limits
 PL= LL= PI=

Coefficients
 D₉₀= 0.5818 D₈₅= 0.5249 D₆₀= 0.3872
 D₅₀= 0.3541 D₃₀= 0.2965 D₁₅= 0.2511
 D₁₀= 0.2083 C_u= 1.86 C_c= 1.09

Classification
 USCS= SP AASHTO=

Remarks

* (no specification provided)

Location: USACE Sample # BI-PB-145B-11
Sample Number: TE Lab ID: 5054.146

Depth: 4.0 - 7.3 (ft)

Date: 7/18/11

Thompson Engineering

Mobile, Alabama

Client: US Army Corps of Engineers
Project: Contract No. W91278-10-D-0026 - Task 009
 Mississippi Barrier Island Restoration Project
Project No: 11-2116-0057

Figure

Particle Size Distribution Report



| % +3" | % Gravel | | % Sand | | | % Fines | |
|-------|----------|------|--------|--------|------|---------|------|
| | Coarse | Fine | Coarse | Medium | Fine | Silt | Clay |
| 0.0 | 0.0 | 0.0 | 0.5 | 6.8 | 71.5 | 21.2 | |

| SIEVE SIZE | PERCENT FINER | SPEC.* PERCENT | PASS? (X=NO) |
|------------|---------------|----------------|--------------|
| .375 | 100.0 | | |
| #4 | 100.0 | | |
| #10 | 99.5 | | |
| #20 | 98.3 | | |
| #40 | 92.7 | | |
| #60 | 66.8 | | |
| #100 | 38.1 | | |
| #200 | 21.2 | | |

Material Description

Silty SAND (SM), fine grained

| | | |
|-----|-------------------------|-----|
| PL= | Atterberg Limits | PI= |
| | LL= | |

| | | |
|--------------------------|--------------------------|--------------------------|
| D ₉₀ = 0.3921 | Coefficients | D ₆₀ = 0.2235 |
| D ₅₀ = 0.1890 | D ₈₅ = 0.3481 | D ₁₅ = |
| D ₁₀ = | D ₃₀ = 0.1189 | C _c = |
| | C _u = | |

| | |
|----------|-----------------------|
| USCS= SM | Classification |
| | AASHTO= |

Remarks

* (no specification provided)

Location: USACE Sample # BI-PB-145C-11
Sample Number: TE Lab ID: 5054.147

Depth: 7.3 - 11.4 (ft)

Date: 7/18/11

Thompson Engineering

Mobile, Alabama

Client: US Army Corps of Engineers
Project: Contract No. W91278-10-D-0026 - Task 009
 Mississippi Barrier Island Restoration Project
Project No: 11-2116-0057

Figure

Boring Designation BI-PB-146-11

| | | | | |
|--|--|--|---|--|
| DRILLING LOG | | DIVISION South Atlantic | INSTALLATION Mobile District | SHEET 1 OF 1 SHEETS |
| 1. PROJECT MsCIP Barrier Island Restoration Petit Bois Pass- AL East | | | 9. SIZE AND TYPE OF BIT N/A | |
| 2. BORING DESIGNATION BI-PB-146-11 | | LOCATION COORDINATES E = 1,147,329 N = 255,271 | | 10. COORDINATE SYSTEM/DATUM State Plane, MSE (U.S. Ft.) |
| 3. DRILLING AGENCY Corps of Engineers - CESAM | | CONTRACTOR FILE NO. | | HORIZONTAL NAD83 |
| 4. NAME OF DRILLER Construction Solutions International, Inc. | | | 11. MANUFACTURER'S DESIGNATION OF DRILL Vibracore | |
| 5. DIRECTION OF BORING <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED | | DEG. FROM VERTICAL | BEARING | <input type="checkbox"/> AUTO HAMMER <input type="checkbox"/> MANUAL HAMMER |
| 6. THICKNESS OF OVERBURDEN N/A | | 12. TOTAL SAMPLES | | DISTURBED 5 |
| 7. DEPTH DRILLED INTO ROCK N/A | | 13. TOTAL NUMBER CORE BOXES | | UNDISTURBED (UD) 0 |
| 8. TOTAL DEPTH OF BORING 18.9 Ft. | | 14. WATER DEPTH 35 Ft. | | 15. DATE BORING |
| | | | STARTED 06-30-11 | COMPLETED 06-30-11 |
| | | | 16. ELEVATION TOP OF BORING -34.0 Ft. | |
| | | | 17. TOTAL RECOVERY FOR BORING 100% | |
| | | | 18. SIGNATURE AND TITLE OF INSPECTOR Michele Johnson, Geologist | |

| ELEV. | DEPTH | LEGEND | CLASSIFICATION OF MATERIALS | SAMPLE | LABORATORY RESULTS |
|-------|-------|--------|--|--------|---|
| -34.0 | 0.0 | | | | |
| | | ••••• | SAND, poorly-graded, mostly medium-grained sand-sized quartz, lt. gray (SP) | A | Classification: SP Color: 2.5Y 7/1-light gray D50: 0.3493 mm % Fines: 3.8 |
| | | ••••• | | B | Classification: SP-SM Color: 2.5Y 7/1-light gray D50: 0.3494 mm % Fines: 5.3 |
| | | ••••• | | C | Classification: SP Color: 2.5Y 7/1-light gray D50: 0.3502 mm % Fines: 3.5 |
| | | ••••• | | D | Classification: SP Color: 2.5Y 7/1-light gray D50: 0.3514 mm % Fines: 2.5 |
| | | ••••• | | E | Classification: SP Color: 2.5Y 8/1-white D50: 0.3606 mm % Fines: 2.1 |
| -52.9 | 18.9 | | | | |
| | | | NOTES: 1. Soils are field visually classified in accordance with the Unified Soils Classification System. 2. NS = Sample not submitted for laboratory analysis from this interval. 3. Seafloor elevation determined from 2010 USACE survey. | | |

Particle Size Distribution Report



| % +3" | % Gravel | | % Sand | | | % Fines | |
|-------|----------|------|--------|--------|------|---------|------|
| | Coarse | Fine | Coarse | Medium | Fine | Silt | Clay |
| 0.0 | 0.0 | 0.0 | 0.0 | 28.4 | 67.8 | 3.8 | |

| SIEVE SIZE | PERCENT FINER | SPEC.* PERCENT | PASS? (X=NO) |
|------------|---------------|----------------|--------------|
| .375 | 100.0 | | |
| #4 | 100.0 | | |
| #10 | 100.0 | | |
| #20 | 99.3 | | |
| #40 | 71.6 | | |
| #60 | 15.1 | | |
| #100 | 5.1 | | |
| #200 | 3.8 | | |

Material Description
SAND (SP), medium to fine grained

Atterberg Limits
 PL= LL= PI=

Coefficients
 D₉₀= 0.5572 D₈₅= 0.5063 D₆₀= 0.3806
 D₅₀= 0.3493 D₃₀= 0.2941 D₁₅= 0.2491
 D₁₀= 0.2020 C_u= 1.88 C_c= 1.12

Classification
 USCS= SP AASHTO=

Remarks

* (no specification provided)

Location: USACE Sample # BI-PB-146A-11
Sample Number: TE Lab ID: 5054.115

Depth: 0.0 - 4.0 (ft)

Date: 7/18/11

Thompson Engineering

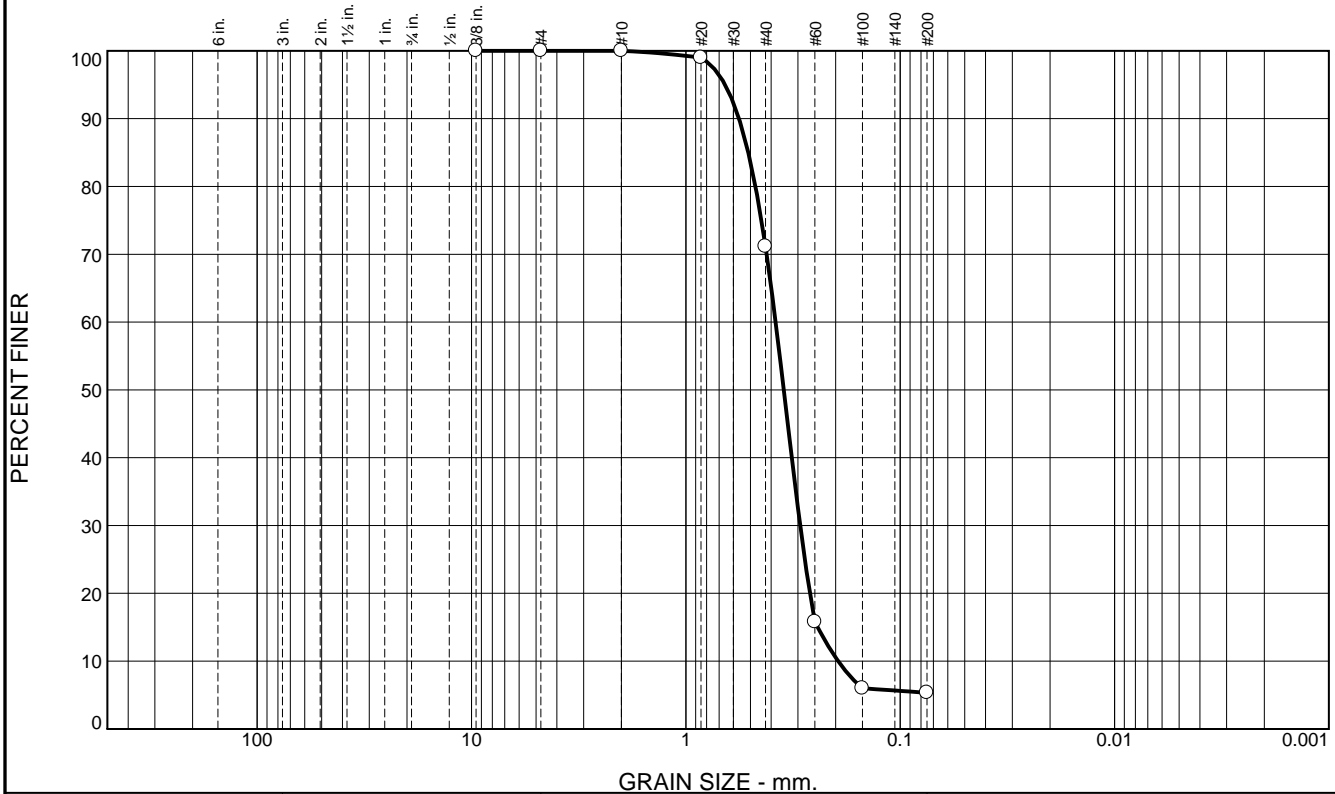
Mobile, Alabama

Client: US Army Corps of Engineers
Project: Contract No. W91278-10-D-0026 - Task 009
 Mississippi Barrier Island Restoration Project

Project No: 11-2116-0057

Figure

Particle Size Distribution Report



| % +3" | % Gravel | | % Sand | | | % Fines | |
|-------|----------|------|--------|--------|------|---------|------|
| | Coarse | Fine | Coarse | Medium | Fine | Silt | Clay |
| 0.0 | 0.0 | 0.0 | 0.0 | 28.8 | 65.9 | 5.3 | |

| SIEVE SIZE | PERCENT FINER | SPEC.* PERCENT | PASS? (X=NO) |
|------------|---------------|----------------|--------------|
| .375 | 100.0 | | |
| #4 | 100.0 | | |
| #10 | 100.0 | | |
| #20 | 99.0 | | |
| #40 | 71.2 | | |
| #60 | 15.8 | | |
| #100 | 6.0 | | |
| #200 | 5.3 | | |

Material Description
Slightly silty SAND (SP-SM), medium to fine grained

Atterberg Limits
 PL= LL= PI=

Coefficients
 D₉₀= 0.5648 D₈₅= 0.5113 D₆₀= 0.3814
 D₅₀= 0.3494 D₃₀= 0.2930 D₁₅= 0.2428
 D₁₀= 0.1947 C_u= 1.96 C_c= 1.16

Classification
 USCS= SP-SM AASHTO=

Remarks

* (no specification provided)

Location: USACE Sample # BI-PB-146B-11
Sample Number: TE Lab ID: 5054.116

Depth: 4.0 - 8.0 (ft)

Date: 7/18/11

Thompson Engineering

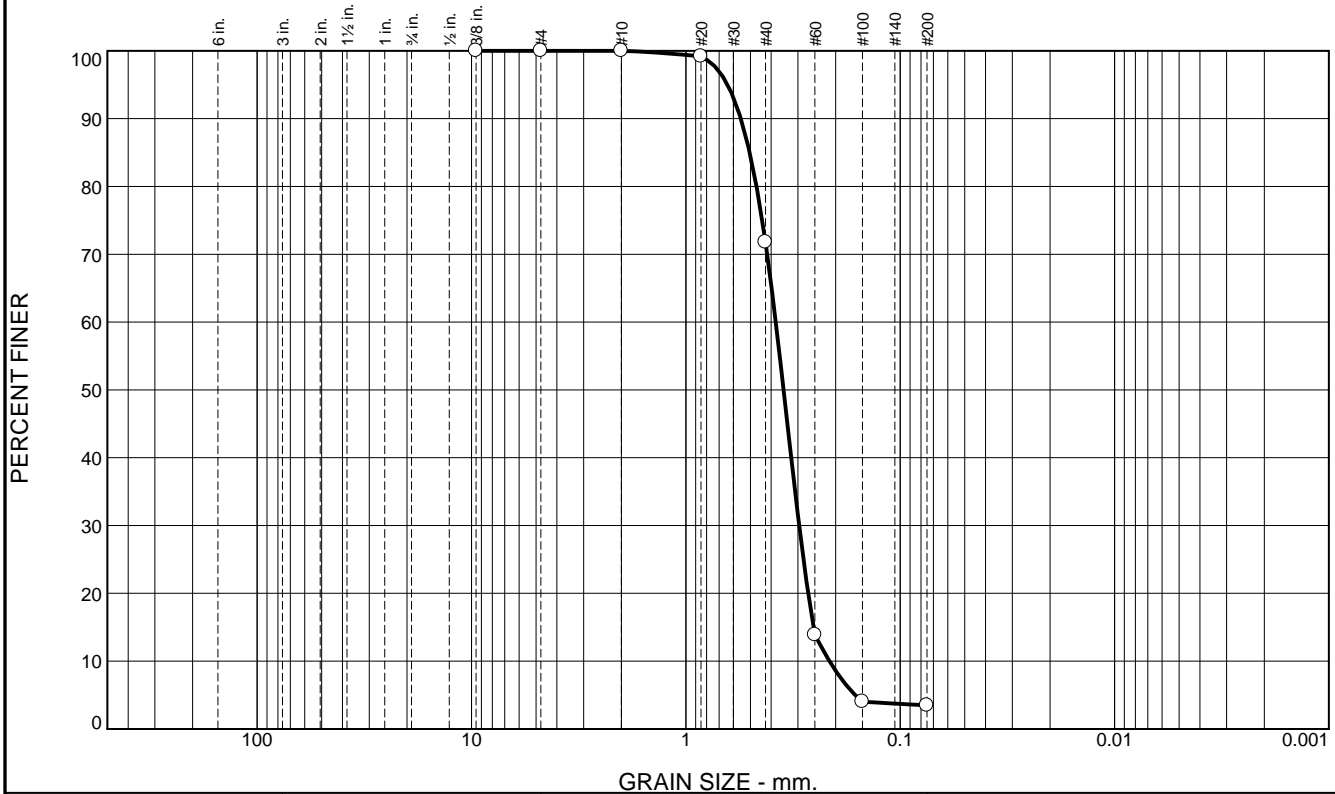
Mobile, Alabama

Client: US Army Corps of Engineers
Project: Contract No. W91278-10-D-0026 - Task 009
 Mississippi Barrier Island Restoration Project

Project No: 11-2116-0057

Figure

Particle Size Distribution Report



| % +3" | % Gravel | | % Sand | | | % Fines | |
|-------|----------|------|--------|--------|------|---------|------|
| | Coarse | Fine | Coarse | Medium | Fine | Silt | Clay |
| 0.0 | 0.0 | 0.0 | 0.0 | 28.2 | 68.3 | 3.5 | |

| SIEVE SIZE | PERCENT FINER | SPEC.* PERCENT | PASS? (X=NO) |
|------------|---------------|----------------|--------------|
| .375 | 100.0 | | |
| #4 | 100.0 | | |
| #10 | 100.0 | | |
| #20 | 99.2 | | |
| #40 | 71.8 | | |
| #60 | 13.9 | | |
| #100 | 4.0 | | |
| #200 | 3.5 | | |

Material Description
SAND (SP), medium to fine grained

Atterberg Limits
 PL= LL= PI=

Coefficients
 D₉₀= 0.5537 D₈₅= 0.5037 D₆₀= 0.3808
 D₅₀= 0.3502 D₃₀= 0.2963 D₁₅= 0.2538
 D₁₀= 0.2138 C_u= 1.78 C_c= 1.08

Classification
 USCS= SP AASHTO=

Remarks

* (no specification provided)

Location: USACE Sample # BI-PB-146C-11
Sample Number: TE Lab ID: 5054.117

Depth: 8.0 - 12.0 (ft)

Date: 7/18/11

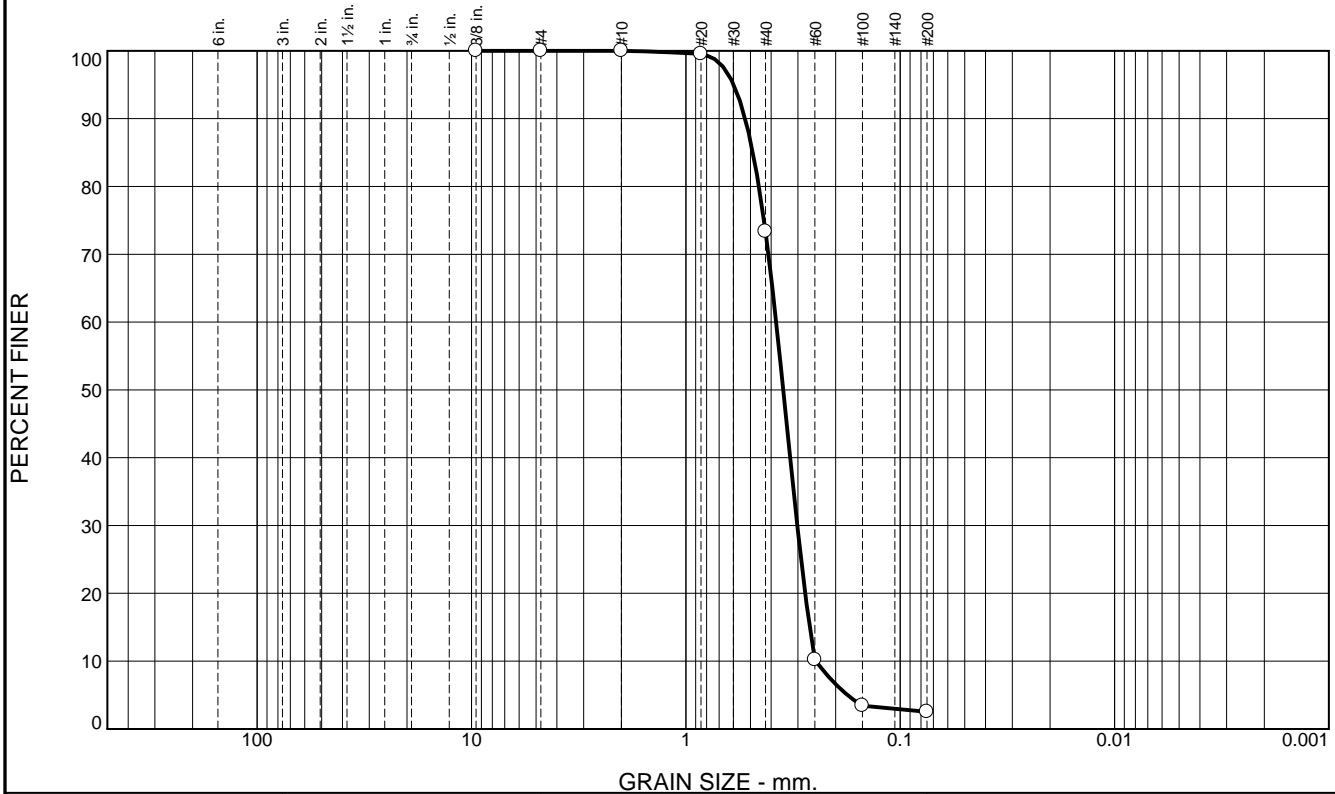
Thompson Engineering

Mobile, Alabama

Client: US Army Corps of Engineers
Project: Contract No. W91278-10-D-0026 - Task 009
 Mississippi Barrier Island Restoration Project
Project No: 11-2116-0057

Figure

Particle Size Distribution Report



| % +3" | % Gravel | | % Sand | | | % Fines | |
|-------|----------|------|--------|--------|------|---------|------|
| | Coarse | Fine | Coarse | Medium | Fine | Silt | Clay |
| 0.0 | 0.0 | 0.0 | 0.0 | 26.6 | 70.9 | 2.5 | |

| SIEVE SIZE | PERCENT FINER | SPEC.* PERCENT | PASS? (X=NO) |
|------------|---------------|----------------|--------------|
| .375 | 100.0 | | |
| #4 | 100.0 | | |
| #10 | 100.0 | | |
| #20 | 99.5 | | |
| #40 | 73.4 | | |
| #60 | 10.2 | | |
| #100 | 3.4 | | |
| #200 | 2.5 | | |

Material Description
SAND (SP), medium to fine grained

Atterberg Limits
 PL= LL= PI=

Coefficients
 D₉₀= 0.5287 D₈₅= 0.4866 D₆₀= 0.3792
 D₅₀= 0.3514 D₃₀= 0.3023 D₁₅= 0.2645
 D₁₀= 0.2475 C_u= 1.53 C_c= 0.97

Classification
 USCS= SP AASHTO=

Remarks

* (no specification provided)

Location: USACE Sample # BI-PB-146D-11
Sample Number: TE Lab ID: 5054.118

Depth: 12.0 - 16.0 (ft)

Date: 7/18/11

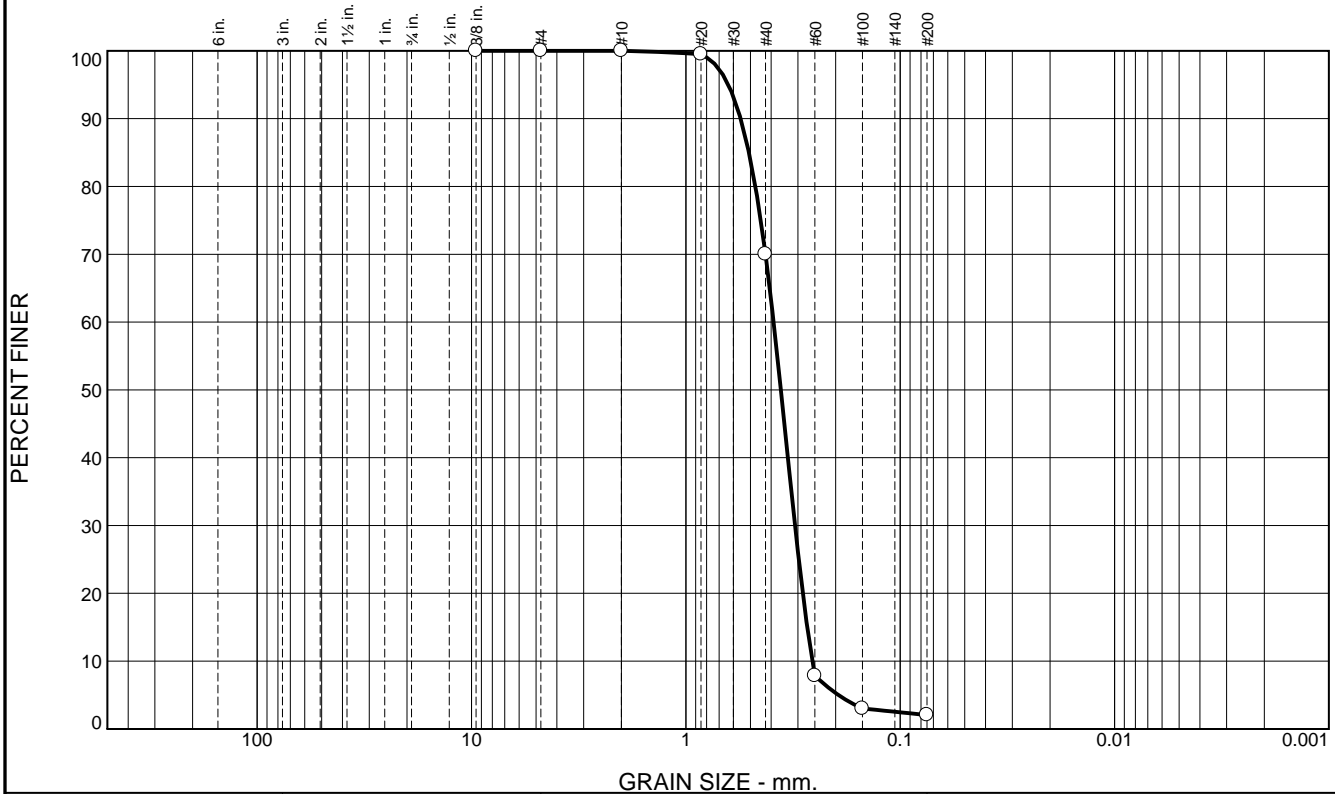
Thompson Engineering

Mobile, Alabama

Client: US Army Corps of Engineers
Project: Contract No. W91278-10-D-0026 - Task 009
 Mississippi Barrier Island Restoration Project
Project No: 11-2116-0057

Figure

Particle Size Distribution Report



| % +3" | % Gravel | | % Sand | | | % Fines | |
|-------|----------|------|--------|--------|------|---------|------|
| | Coarse | Fine | Coarse | Medium | Fine | Silt | Clay |
| 0.0 | 0.0 | 0.0 | 0.0 | 30.0 | 67.9 | 2.1 | |

| SIEVE SIZE | PERCENT FINER | SPEC.* PERCENT | PASS? (X=NO) |
|------------|---------------|----------------|--------------|
| .375 | 100.0 | | |
| #4 | 100.0 | | |
| #10 | 100.0 | | |
| #20 | 99.5 | | |
| #40 | 70.0 | | |
| #60 | 7.8 | | |
| #100 | 3.0 | | |
| #200 | 2.1 | | |

Material Description

SAND (SP), medium to fine grained

| | | |
|--------------------------|--------------------------|--------------------------|
| PL= | Atterberg Limits | PI= |
| | Coefficients | |
| D ₉₀ = 0.5550 | D ₈₅ = 0.5078 | D ₆₀ = 0.3897 |
| D ₅₀ = 0.3606 | D ₃₀ = 0.3098 | D ₁₅ = 0.2718 |
| D ₁₀ = 0.2572 | C _u = 1.52 | C _c = 0.96 |

USCS= SP **Classification** AASHTO=

Remarks

* (no specification provided)

Location: USACE Sample # BI-PB-146E-11
Sample Number: TE Lab ID: 5054.119

Depth: 16.0 - 18.9 (ft)

Date: 7/18/11

Thompson Engineering

Mobile, Alabama

Client: US Army Corps of Engineers
Project: Contract No. W91278-10-D-0026 - Task 009
 Mississippi Barrier Island Restoration Project
Project No: 11-2116-0057

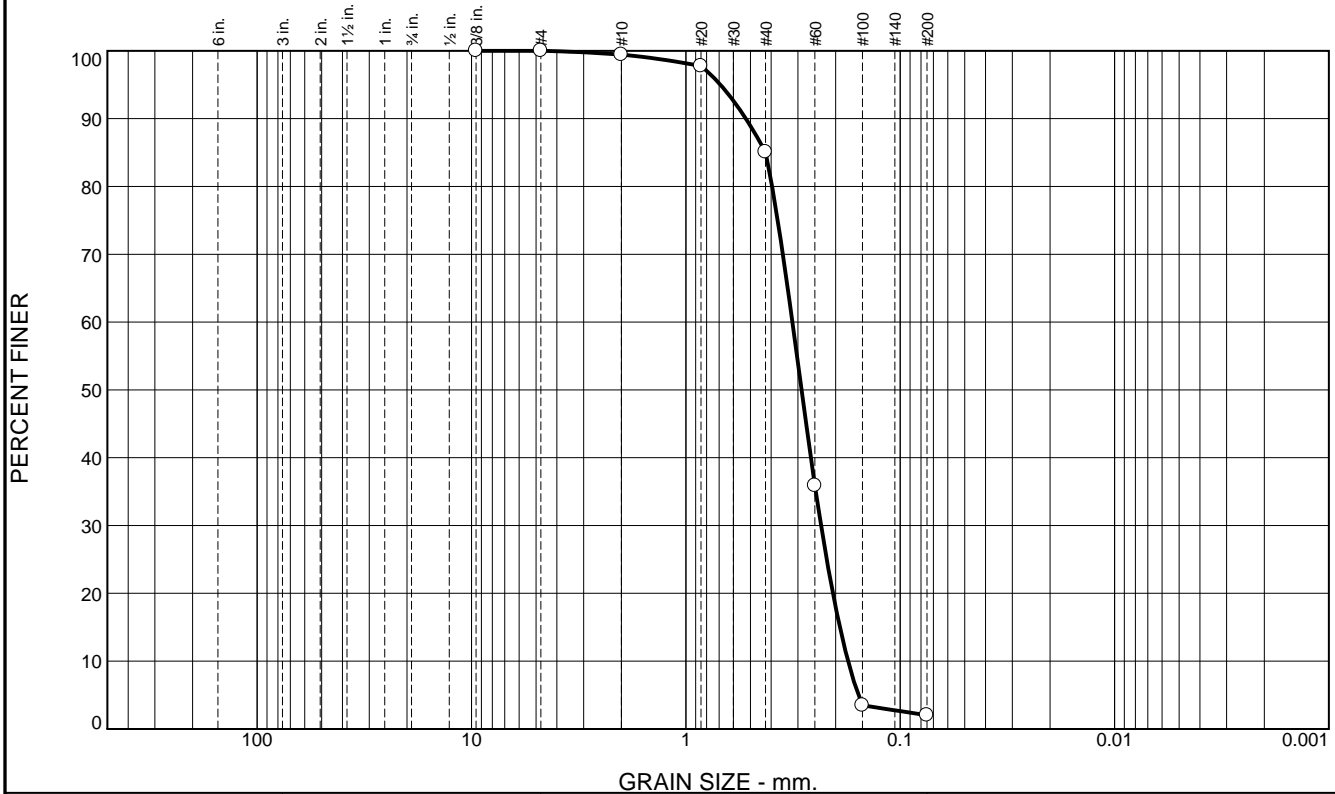
Figure

Boring Designation BI-PB-147-11

| | | | | |
|--|--|---|--|--|
| DRILLING LOG | | DIVISION South Atlantic | INSTALLATION Mobile District | SHEET 1 OF 1 SHEETS |
| 1. PROJECT MsCIP Barrier Island Restoration Petit Bois Pass- AL East | | | 9. SIZE AND TYPE OF BIT N/A | |
| 2. BORING DESIGNATION BI-PB-147-11 | | 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 | | <input type="checkbox"/> AUTO HAMMER <input type="checkbox"/> MANUAL HAMMER |
| 4. NAME OF DRILLER Construction Solutions International, Inc. | | 12. TOTAL SAMPLES | | DISTURBED 3 |
| 5. DIRECTION OF BORING <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED | | 13. TOTAL NUMBER CORE BOXES | | UNDISTURBED (UD) 0 |
| 6. THICKNESS OF OVERBURDEN N/A | | 14. WATER DEPTH 33 Ft. | | 15. DATE BORING |
| 7. DEPTH DRILLED INTO ROCK N/A | | 16. ELEVATION TOP OF BORING -32.1 Ft. | | STARTED 07-01-11 |
| 8. TOTAL DEPTH OF BORING 15.4 Ft. | | 17. TOTAL RECOVERY FOR BORING 100% | | COMPLETED 07-01-11 |
| 18. SIGNATURE AND TITLE OF INSPECTOR Michele Johnson, Geologist | | | | |

| ELEV. | DEPTH | LEGEND | CLASSIFICATION OF MATERIALS | SAMPLE | LABORATORY RESULTS |
|-------|-------|--------|--|--------|--|
| -32.1 | 0.0 | | | | |
| -34.1 | 2.0 | ••••• | SAND, poorly-graded, mostly medium-grained sand-sized quartz, gray (SP) | A | Classification: SP Color: 2.5Y 6/2-light brownish gray D50: 0.2887 mm % Fines: 2 |
| -38.1 | 6.0 | ••••• | SAND, poorly-graded with silt, trace fine to medium-grained sand-sized shell fragments, gray (SP-SM) | B | Classification: SP-SM Color: 2.5Y 6/2-light brownish gray D50: 0.2033 mm % Fines: 6.2 |
| -47.5 | 15.4 | ••••• | SAND, silty, trace fine-grained sand-sized shell fragments, gray (SM) | C | Classification: SP Color: 2.5Y 5/2-grayish brown D50: 0.3213 mm % Fines: 4.4 |
| | | | | NS | |
| | | | NOTES: 1. Soils are field visually classified in accordance with the Unified Soils Classification System. 2. NS = Sample not submitted for laboratory analysis from this interval. 3. Seafloor elevation determined from 2010 USACE survey. | | |

Particle Size Distribution Report



| % +3" | % Gravel | | % Sand | | | % Fines | |
|-------|----------|------|--------|--------|------|---------|------|
| | Coarse | Fine | Coarse | Medium | Fine | Silt | Clay |
| 0.0 | 0.0 | 0.0 | 0.6 | 14.3 | 83.1 | 2.0 | |

| SIEVE SIZE | PERCENT FINER | SPEC.* PERCENT | PASS? (X=NO) |
|------------|---------------|----------------|--------------|
| .375 | 100.0 | | |
| #4 | 100.0 | | |
| #10 | 99.4 | | |
| #20 | 97.8 | | |
| #40 | 85.1 | | |
| #60 | 35.9 | | |
| #100 | 3.5 | | |
| #200 | 2.0 | | |

Material Description

SAND (SP), medium to fine grained

| | | |
|--------------------------|--------------------------|--------------------------|
| PL= | Atterberg Limits | PI= |
| | Coefficients | |
| D ₉₀ = 0.5248 | D ₈₅ = 0.4246 | D ₆₀ = 0.3185 |
| D ₅₀ = 0.2887 | D ₃₀ = 0.2340 | D ₁₅ = 0.1911 |
| D ₁₀ = 0.1751 | C _u = 1.82 | C _c = 0.98 |

USCS= SP **Classification**
AASHTO=

Remarks

* (no specification provided)

Location: USACE Sample # BI-PB-147A-11
Sample Number: TE Lab ID: 5054.134

Depth: 0.0 - 2.0 (ft)

Date: 7/18/11

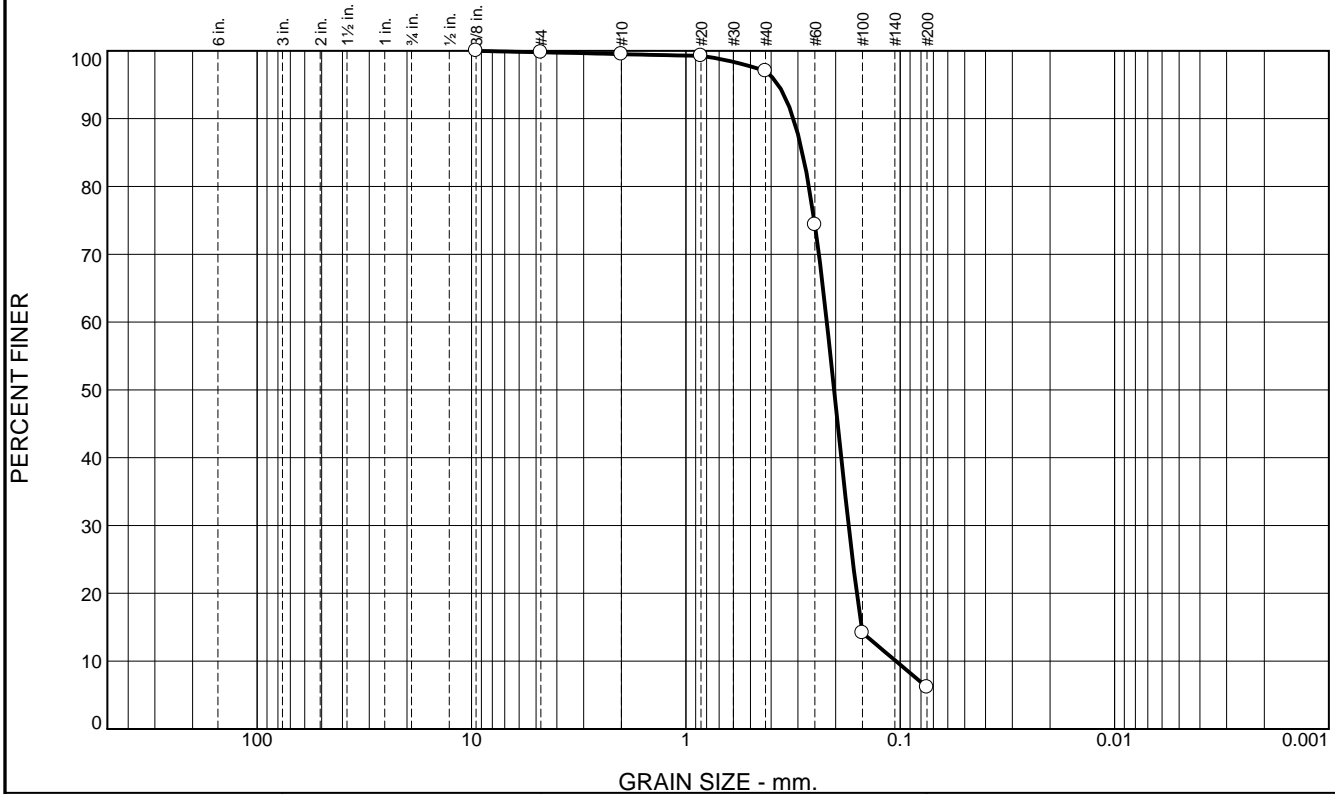
Thompson Engineering

Mobile, Alabama

Client: US Army Corps of Engineers
Project: Contract No. W91278-10-D-0026 - Task 009
 Mississippi Barrier Island Restoration Project
Project No: 11-2116-0057

Figure

Particle Size Distribution Report



| % +3" | % Gravel | | % Sand | | | % Fines | |
|-------|----------|------|--------|--------|------|---------|------|
| | Coarse | Fine | Coarse | Medium | Fine | Silt | Clay |
| 0.0 | 0.0 | 0.2 | 0.3 | 2.5 | 90.8 | 6.2 | |

| SIEVE SIZE | PERCENT FINER | SPEC.* PERCENT | PASS? (X=NO) |
|------------|---------------|----------------|--------------|
| .375 | 100.0 | | |
| #4 | 99.8 | | |
| #10 | 99.5 | | |
| #20 | 99.3 | | |
| #40 | 97.0 | | |
| #60 | 74.4 | | |
| #100 | 14.2 | | |
| #200 | 6.2 | | |

Material Description
Slightly silty SAND (SP-SM), fine grained

Atterberg Limits
 PL= LL= PI=

Coefficients
 D₉₀= 0.3150 D₈₅= 0.2862 D₆₀= 0.2199
 D₅₀= 0.2033 D₃₀= 0.1740 D₁₅= 0.1514
 D₁₀= 0.1046 C_u= 2.10 C_c= 1.32

Classification
 USCS= SP-SM AASHTO=

Remarks

* (no specification provided)

Location: USACE Sample # BI-PB-147B-11
Sample Number: TE Lab ID: 5054.135

Depth: 2.0 - 6.0 (ft)

Date: 7/18/11

Thompson Engineering

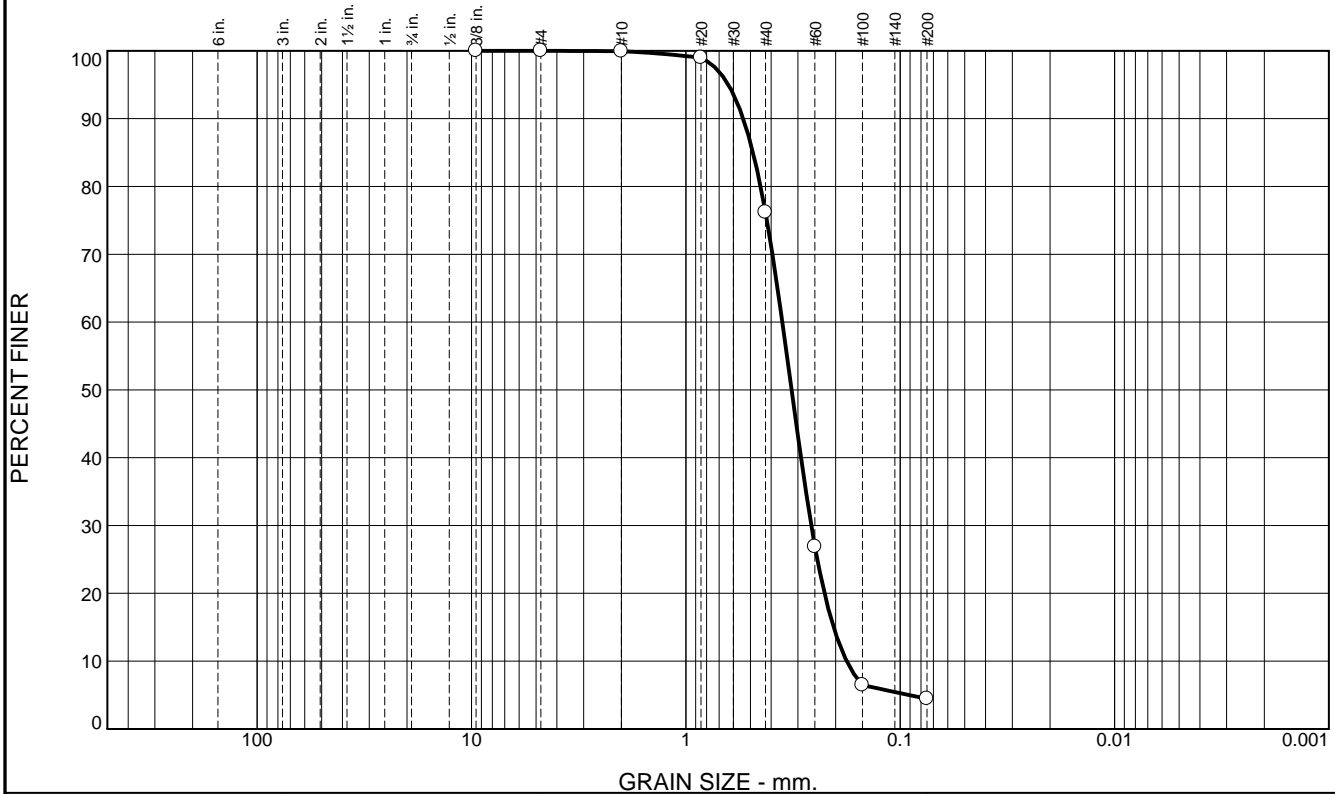
Mobile, Alabama

Client: US Army Corps of Engineers
Project: Contract No. W91278-10-D-0026 - Task 009
 Mississippi Barrier Island Restoration Project

Project No: 11-2116-0057

Figure

Particle Size Distribution Report



| % +3" | % Gravel | | % Sand | | | % Fines | |
|-------|----------|------|--------|--------|------|---------|------|
| | Coarse | Fine | Coarse | Medium | Fine | Silt | Clay |
| 0.0 | 0.0 | 0.0 | 0.1 | 23.7 | 71.8 | 4.4 | |

| SIEVE SIZE | PERCENT FINER | SPEC.* PERCENT | PASS? (X=NO) |
|------------|---------------|----------------|--------------|
| .375 | 100.0 | | |
| #4 | 100.0 | | |
| #10 | 99.9 | | |
| #20 | 99.0 | | |
| #40 | 76.2 | | |
| #60 | 26.9 | | |
| #100 | 6.5 | | |
| #200 | 4.4 | | |

Material Description
SAND (SP), medium to fine grained

Atterberg Limits
 PL= LL= PI=

Coefficients
 D₉₀= 0.5397 D₈₅= 0.4859 D₆₀= 0.3550
 D₅₀= 0.3213 D₃₀= 0.2600 D₁₅= 0.2046
 D₁₀= 0.1777 C_u= 2.00 C_c= 1.07

Classification
 USCS= SP AASHTO=

Remarks

* (no specification provided)

Location: USACE Sample # BI-PB-147C-11
Sample Number: TE Lab ID: 5054.136

Depth: 6.0 - 8.2 (ft)

Date: 7/18/11

Thompson Engineering

Mobile, Alabama

Client: US Army Corps of Engineers
Project: Contract No. W91278-10-D-0026 - Task 009
 Mississippi Barrier Island Restoration Project
Project No: 11-2116-0057

Figure

Boring Designation BI-PB-148-12

| | | | | |
|--|--|---|--|--|
| DRILLING LOG | | DIVISION South Atlantic | INSTALLATION Mobile District | SHEET 1 OF 1 SHEETS |
| 1. PROJECT MsCIP Barrier Island Restoration Petit Bois Pass- AL East | | | 9. SIZE AND TYPE OF BIT N/A | |
| 2. BORING DESIGNATION BI-PB-148-12 | | 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 | | <input type="checkbox"/> AUTO HAMMER <input type="checkbox"/> MANUAL HAMMER |
| 4. NAME OF DRILLER American Vibracore Systems, Inc. | | 12. TOTAL SAMPLES | | DISTURBED 0 |
| 5. DIRECTION OF BORING <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED | | 13. TOTAL NUMBER CORE BOXES | | UNDISTURBED (UD) 0 |
| 6. THICKNESS OF OVERBURDEN N/A | | 14. WATER DEPTH 38.4 Ft. | | |
| 7. DEPTH DRILLED INTO ROCK N/A | | 15. DATE BORING | | STARTED 12-06-12 COMPLETED 12-06-12 |
| 8. TOTAL DEPTH OF BORING 17.1 Ft. | | 16. ELEVATION TOP OF BORING -37.2 Ft. | | |
| | | 17. TOTAL RECOVERY FOR BORING 100% | | |
| | | 18. SIGNATURE AND TITLE OF INSPECTOR Mike FitzHarris, Geologist | | |

| ELEV. | DEPTH | LEGEND | CLASSIFICATION OF MATERIALS | SAMPLE | LABORATORY RESULTS |
|-------|-------|--------|--|--------|--|
| -37.2 | 0.0 | | | | |
| -39.3 | 2.1 | ↑↑↑↑↑ | SAND, silty, mostly fine to medium-grained sand-sized quartz, some silt, some clay, trace clay, gray (SM) | NS | |
| | | ●●●●● | SAND, poorly-graded with silt, mostly fine to medium-grained sand-sized quartz, few silt, silty banding throughout, gray (SP-SM) | A | Classification: SP-SM Color: 2.5Y 6/2-light brownish gray D50: 0.2938 mm % Fines: 7.2 |
| | | ●●●●● | At El. -44.3 Ft., mostly fine to medium-grained sand-sized quartz, few silt, trace clay stringers, gray | B | Classification: SP-SM Color: 2.5Y 6/2-light brownish gray D50: 0.3179 mm % Fines: 6.2 |
| | | ●●●●● | At El. -49.3 Ft., mostly fine to medium-grained sand-sized quartz, few silt, trace clay stringers, gray | C | Classification: SP-SM Color: 2.5Y 6/1-gray D50: 0.3206 mm % Fines: 6.1 |
| -53.7 | 16.5 | ▨▨▨▨▨ | | | |
| -54.3 | 17.1 | ▨▨▨▨▨ | CLAY, lean, mostly clay, some fine-grained sand-sized quartz, low to medium plasticity, gray (CL) | NS | |
| | | | NOTES: 1. Soils are field visually classified in accordance with the Unified Soils Classification System. 2. NS = Sample not submitted for laboratory analysis from this interval. 3. Seafloor elevation determined from 2010 USACE survey. | | |

Project

Mississippi Barrier Island
Restoration Project



Core Identifier BI-PB-148-12

Date 12/06/2012

Water Depth 38.4'

Coordinate System

Latitude / Longitude

Start Time 11:27:47

End Time 11:28:34

Penetration 20.0'

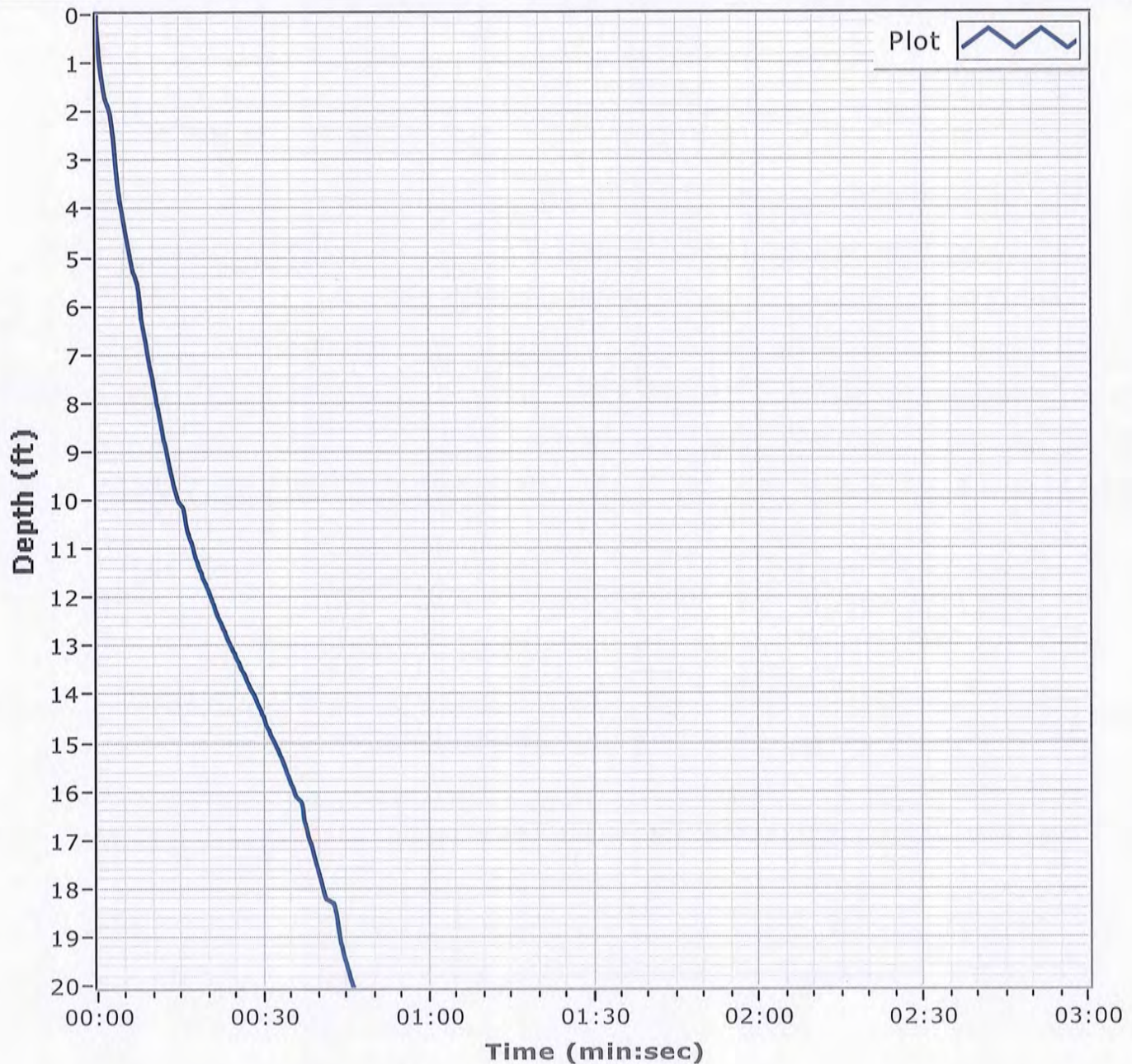
Latitude 30 12.078

Total Time 00:00:46

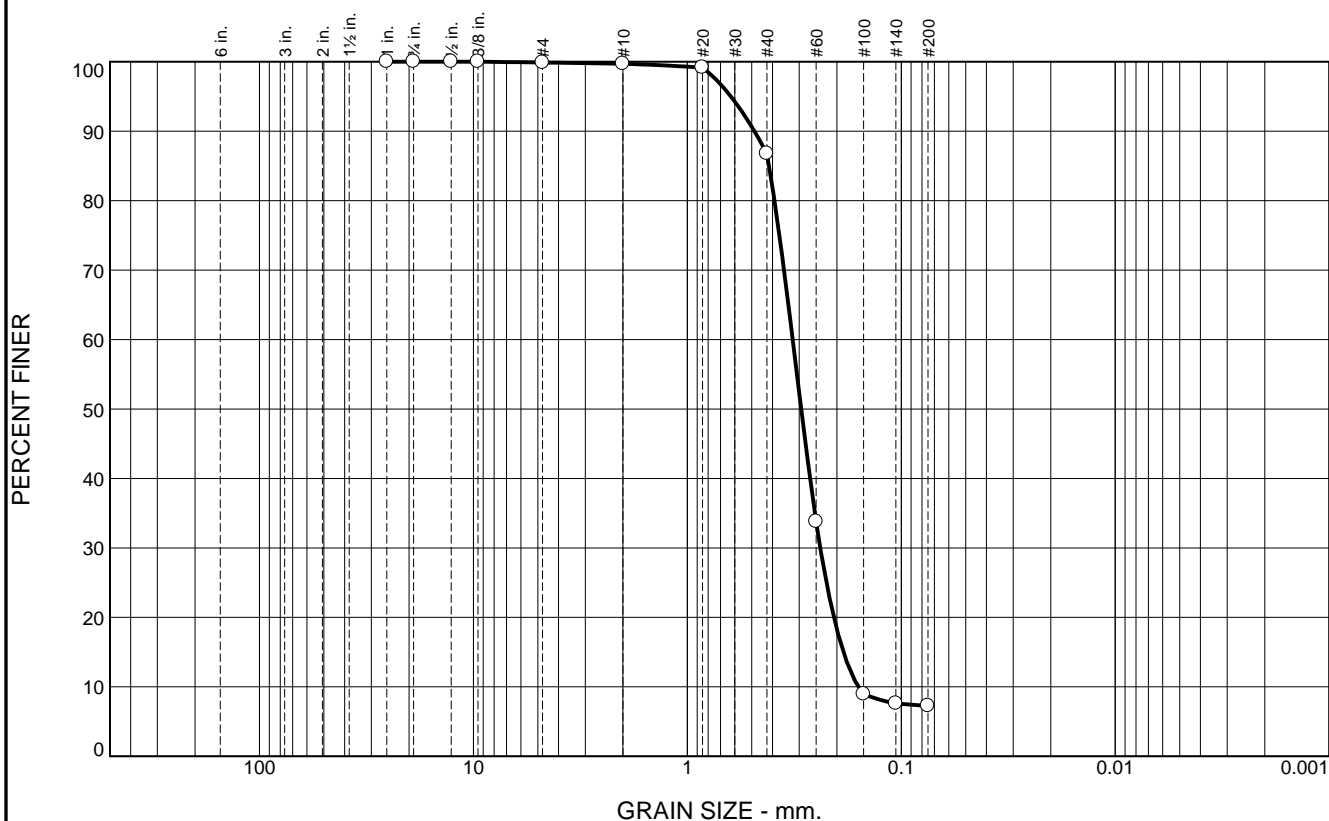
Recovery 17.1'

Longitude 088 17.812

Comments



Particle Size Distribution Report



| % +3" | % Gravel | | % Sand | | | % Fines | |
|-------|----------|------|--------|--------|------|---------|------|
| | Coarse | Fine | Coarse | Medium | Fine | Silt | Clay |
| 0.0 | 0.0 | 0.1 | 0.2 | 12.9 | 79.6 | 7.2 | |

| SIEVE SIZE | PERCENT FINER | SPEC.* PERCENT | PASS? (X=NO) |
|------------|---------------|----------------|--------------|
| 1 | 100.0 | | |
| .75 | 100.0 | | |
| .5 | 100.0 | | |
| .375 | 100.0 | | |
| #4 | 99.9 | | |
| #10 | 99.7 | | |
| #20 | 99.2 | | |
| #40 | 86.8 | | |
| #60 | 33.8 | | |
| #100 | 9.0 | | |
| #140 | 7.6 | | |
| #200 | 7.2 | | |

Material Description
Fine to medium grained, SLIGHTLY SILTY SAND

Atterberg Limits
 PL= LL= PI=

Coefficients
 D₉₀= 0.4863 D₈₅= 0.4152 D₆₀= 0.3219
 D₅₀= 0.2938 D₃₀= 0.2391 D₁₅= 0.1866
 D₁₀= 0.1589 C_u= 2.03 C_c= 1.12

Classification
 USCS= SP-SM AASHTO=

Remarks

* (no specification provided)

Location: BI-PB-148-12 A
Sample Number: 6480 (12)

Depth: 2.1'

Date: 12/07/12

Thompson Engineering

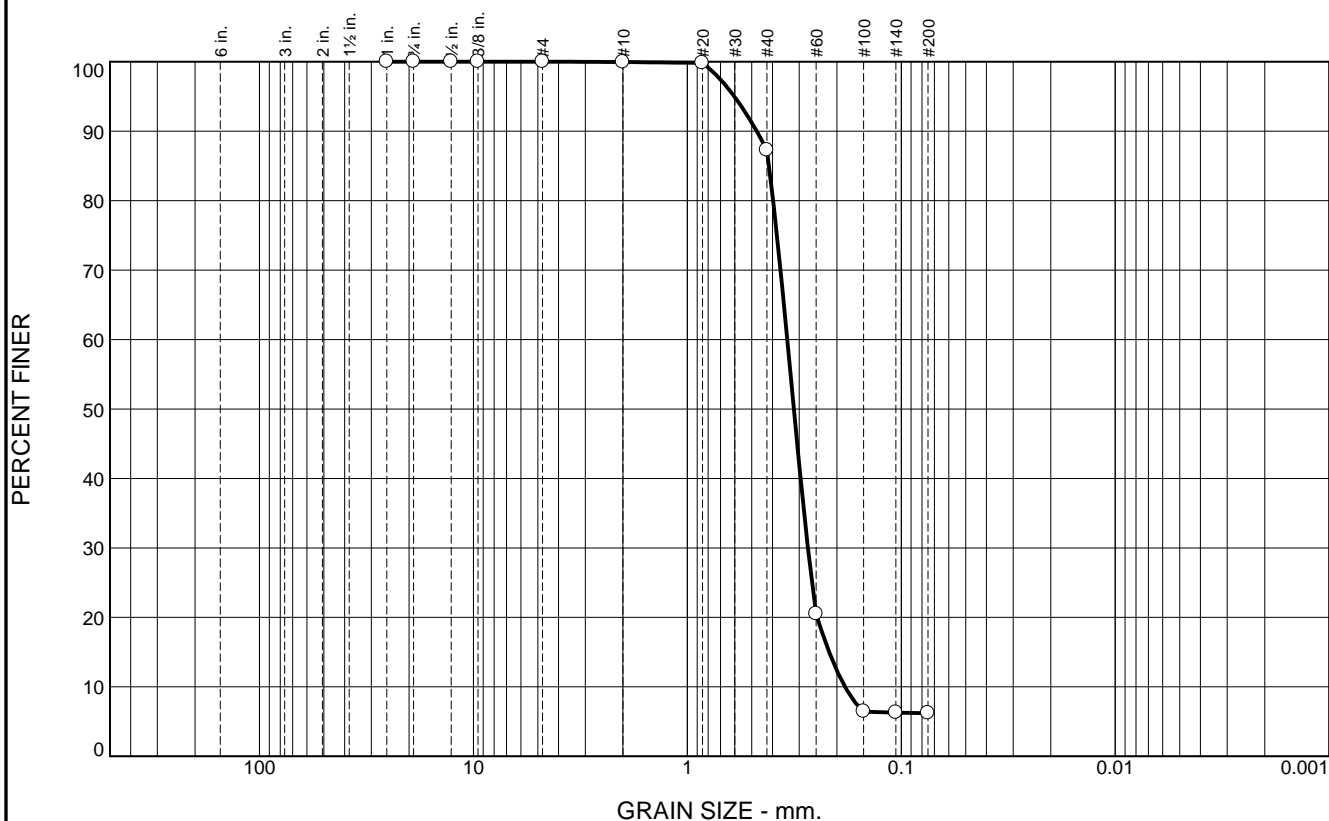
Mobile, Alabama

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

Project No: 1221110095

Figure

Particle Size Distribution Report



| % +3" | % Gravel | | % Sand | | | % Fines | |
|-------|----------|------|--------|--------|------|---------|------|
| | Coarse | Fine | Coarse | Medium | Fine | Silt | Clay |
| 0.0 | 0.0 | 0.0 | 0.1 | 12.6 | 81.1 | 6.2 | |

| SIEVE SIZE | PERCENT FINER | SPEC.* PERCENT | PASS? (X=NO) |
|------------|---------------|----------------|--------------|
| 1 | 100.0 | | |
| .75 | 100.0 | | |
| .5 | 100.0 | | |
| .375 | 100.0 | | |
| #4 | 100.0 | | |
| #10 | 99.9 | | |
| #20 | 99.8 | | |
| #40 | 87.3 | | |
| #60 | 20.5 | | |
| #100 | 6.4 | | |
| #140 | 6.3 | | |
| #200 | 6.2 | | |

Material Description
Fine to medium grained, SLIGHTLY SILTY SAND

Atterberg Limits
 PL= LL= PI=

Coefficients
 D₉₀= 0.4743 D₈₅= 0.4154 D₆₀= 0.3411
 D₅₀= 0.3179 D₃₀= 0.2735 D₁₅= 0.2173
 D₁₀= 0.1833 C_u= 1.86 C_c= 1.20

Classification
 USCS= SP-SM AASHTO=

Remarks

* (no specification provided)

Location: BI-PB-148-12 B
Sample Number: 6480 (13)

Depth: 7.1'

Date: 12/07/12

Thompson Engineering

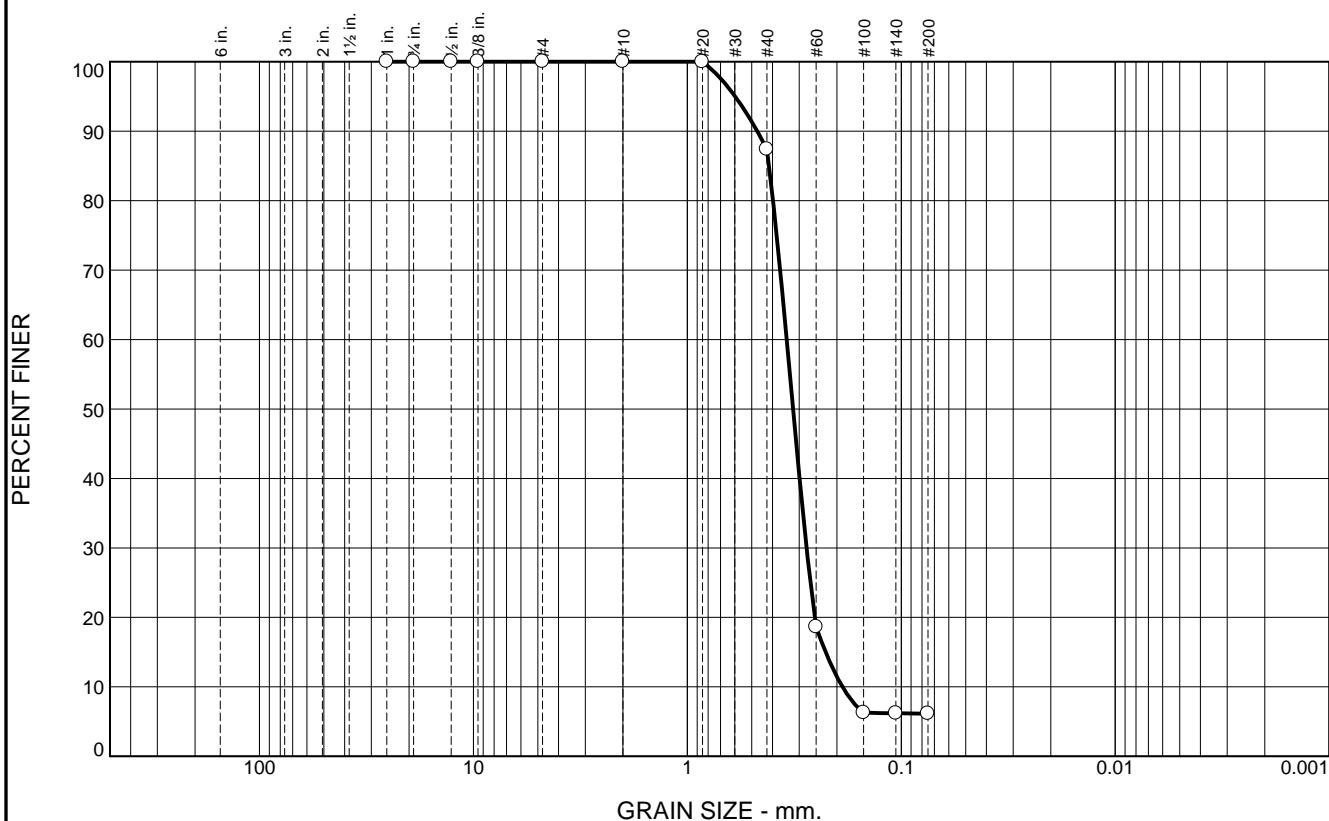
Mobile, Alabama

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

Project No: 1221110095

Figure

Particle Size Distribution Report



| % +3" | % Gravel | | % Sand | | | % Fines | |
|-------|----------|------|--------|--------|------|---------|------|
| | Coarse | Fine | Coarse | Medium | Fine | Silt | Clay |
| 0.0 | 0.0 | 0.0 | 0.0 | 12.6 | 81.3 | 6.1 | |

| SIEVE SIZE | PERCENT FINER | SPEC.* PERCENT | PASS? (X=NO) |
|------------|---------------|----------------|--------------|
| 1 | 100.0 | | |
| .75 | 100.0 | | |
| .5 | 100.0 | | |
| .375 | 100.0 | | |
| #4 | 100.0 | | |
| #10 | 100.0 | | |
| #20 | 100.0 | | |
| #40 | 87.4 | | |
| #60 | 18.6 | | |
| #100 | 6.3 | | |
| #140 | 6.2 | | |
| #200 | 6.1 | | |

Material Description
Fine to medium grained, SLIGHTLY SILTY SAND

Atterberg Limits
 PL= LL= PI=

Coefficients
 D₉₀= 0.4716 D₈₅= 0.4153 D₆₀= 0.3432
 D₅₀= 0.3206 D₃₀= 0.2775 D₁₅= 0.2258
 D₁₀= 0.1885 C_u= 1.82 C_c= 1.19

Classification
 USCS= SP-SM AASHTO=

Remarks

* (no specification provided)

Location: BI-PB-148-12 C Depth: 12.1' Date: 12/07/12
 Sample Number: 6480 (14)

Thompson Engineering

Mobile, Alabama






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

Project No: 1221110095

Figure

Boring Designation BI-PB-149-12

| | | | | |
|--|--|---|--|--|
| DRILLING LOG | | DIVISION South Atlantic | INSTALLATION Mobile District | SHEET 1 OF 1 SHEETS |
| 1. PROJECT MsCIP Barrier Island Restoration Petit Bois Pass- AL East | | | 9. SIZE AND TYPE OF BIT N/A | |
| 2. BORING DESIGNATION BI-PB-149-12 | | 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 | | <input type="checkbox"/> AUTO HAMMER <input type="checkbox"/> MANUAL HAMMER |
| 4. NAME OF DRILLER American Vibracore Systems, Inc. | | 12. TOTAL SAMPLES | | DISTURBED 0 |
| 5. DIRECTION OF BORING <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED | | LOCATION COORDINATES E = 1,147,143 N = 253,186 | 13. TOTAL NUMBER CORE BOXES | |
| 6. THICKNESS OF OVERBURDEN N/A | | CONTRACTOR FILE NO. | 14. WATER DEPTH 37.6 Ft. | |
| 7. DEPTH DRILLED INTO ROCK N/A | | DEG. FROM VERTICAL | 15. DATE BORING STARTED 12-12-12 COMPLETED 12-12-12 | |
| 8. TOTAL DEPTH OF BORING 14.7 Ft. | | BEARING | 16. ELEVATION TOP OF BORING -38.1 Ft. | |
| | | | 17. TOTAL RECOVERY FOR BORING 100% | |
| | | | 18. SIGNATURE AND TITLE OF INSPECTOR Mike FitzHarris, Geologist | |

| ELEV. | DEPTH | LEGEND | CLASSIFICATION OF MATERIALS | SAMPLE | LABORATORY RESULTS |
|--|-------|---|---|--------|--------------------|
| -38.1 | 0.0 | | | | |
| -39.1 | 1.0 |  | SAND, poorly-graded with silt, mostly fine to medium-grained sand-sized quartz, some silt, gray (SP-SM) | NS | 0 |
| -44.1 | 6.0 |  | SAND, clayey, mostly fine-grained sand-sized quartz, trace shell fragments, gray (SC) | | |
| -47.0 | 8.9 |  | CLAY, fat, mostly clay, medium to high plasticity, stiff, dark gray (CH) | | |
| -51.3 | 13.2 |  | SAND, poorly-graded, mostly medium-grained sand-sized quartz, trace silt, lt. gray to white (SP) | | |
| -52.8 | 14.7 |  | CLAY, fat, mostly clay, some fine-grained sand-sized quartz, medium to high plasticity, dark gray (CH) | | |
| <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-149-12

Date 12/12/2012

Water Depth 37.6

Coordinate System

Latitude / Longitude

Start Time 11:26:11

End Time 11:29:01

Penetration 20.0'

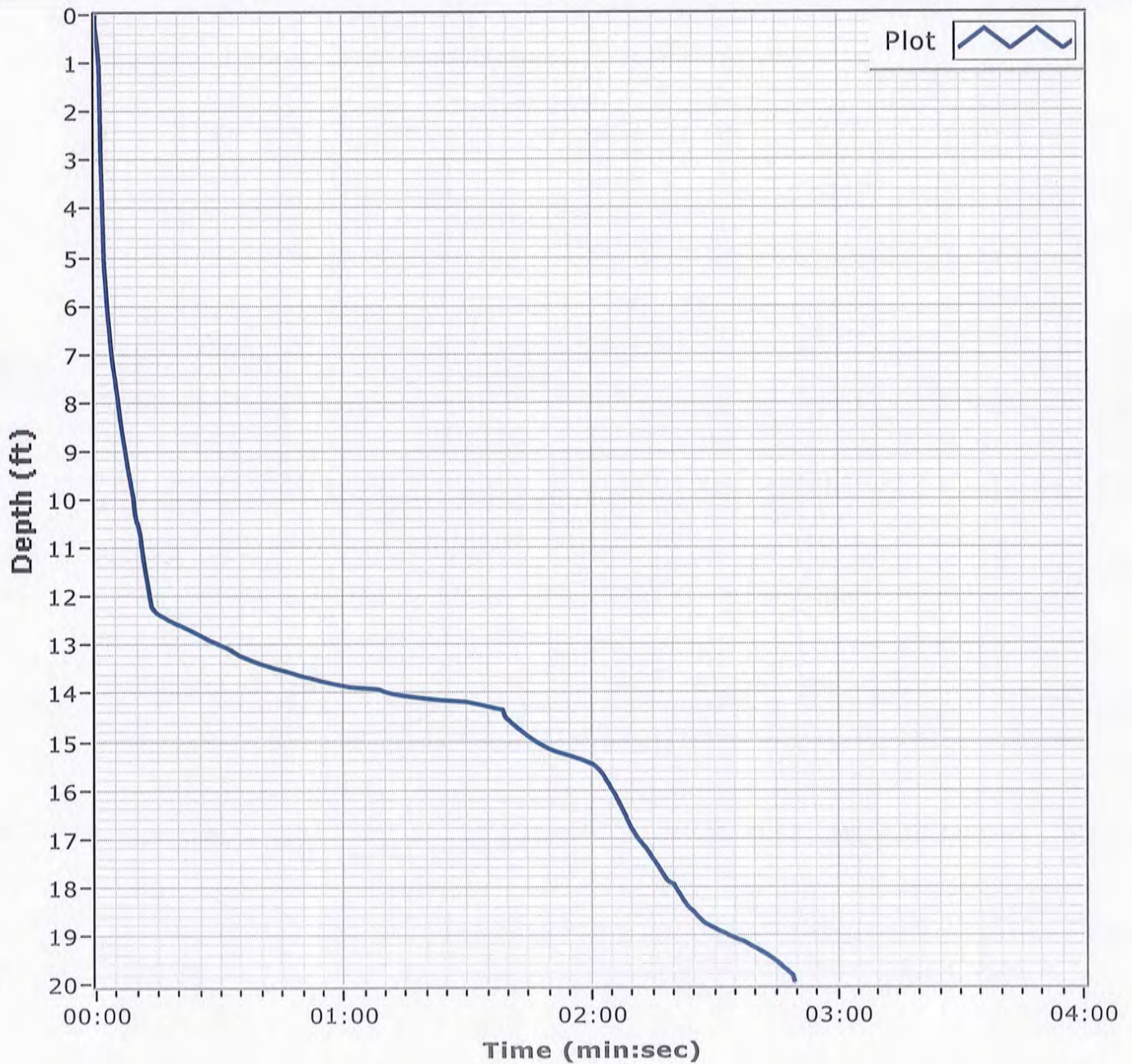
Latitude 30 11.712

Total Time 00:02:49

Recovery 14.7'

Longitude 088 19.064

Comments



Boring Designation BI-PB-150-12

| | | | | |
|--|--|---|--|--|
| DRILLING LOG | | DIVISION South Atlantic | INSTALLATION Mobile District | SHEET 1 OF 1 SHEETS |
| 1. PROJECT MsCIP Barrier Island Restoration Petit Bois Pass- AL East | | | 9. SIZE AND TYPE OF BIT N/A | |
| 2. BORING DESIGNATION BI-PB-150-12 | | 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 | | <input type="checkbox"/> AUTO HAMMER <input type="checkbox"/> MANUAL HAMMER |
| 4. NAME OF DRILLER American Vibracore Systems, Inc. | | 12. TOTAL SAMPLES | | DISTURBED 0 |
| 5. DIRECTION OF BORING <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED | | LOCATION COORDINATES E = 1,145,974 N = 253,217 | 13. TOTAL NUMBER CORE BOXES | |
| 6. THICKNESS OF OVERBURDEN N/A | | CONTRACTOR FILE NO. | 14. WATER DEPTH 39.2 Ft. | |
| 7. DEPTH DRILLED INTO ROCK N/A | | BEARING | 15. DATE BORING STARTED 12-19-12 COMPLETED 12-19-12 | |
| 8. TOTAL DEPTH OF BORING 17.4 Ft. | | 16. ELEVATION TOP OF BORING -39.0 Ft. | | |
| | | 17. TOTAL RECOVERY FOR BORING 100% | | |
| | | 18. SIGNATURE AND TITLE OF INSPECTOR Mike FitzHarris, Geologist | | |

| ELEV. | DEPTH | LEGEND | CLASSIFICATION OF MATERIALS | SAMPLE | LABORATORY RESULTS |
|-------|-------|--------|---|--------|--------------------|
| -39.0 | 0.0 | | CLAY, fat, mostly clay, trace shell fragments, medium to high plasticity, trace shell fragments, stiff, greenish gray (CH) | NS | 0 |
| -53.9 | 14.9 | | CLAY, fat, mostly clay, some silt, trace shell fragments, trace wood debris, medium to high plasticity, stiff, with poorly-graded, fine-grained sand lenses, greenish gray (CH) | | 15 |
| -56.4 | 17.4 | | NOTES: 1. Soils are field visually classified in accordance with the Unified Soils Classification System. 2. NS = Sample not submitted for laboratory analysis from this interval. 3. Seafloor elevation calculated using sampling vessel's fathometer water depth reading and applying NOAA tidal gauge data conversion factor. | | 25 |

Project

Mississippi Barrier Island
Restoration Project



Core Identifier BI-PB-150-12

Date 12/19/2012

Water Depth 39.2'

Coordinate System

Latitude / Longitude

Start Time 12:32:23

End Time 12:35:38

Penetration 20.0'

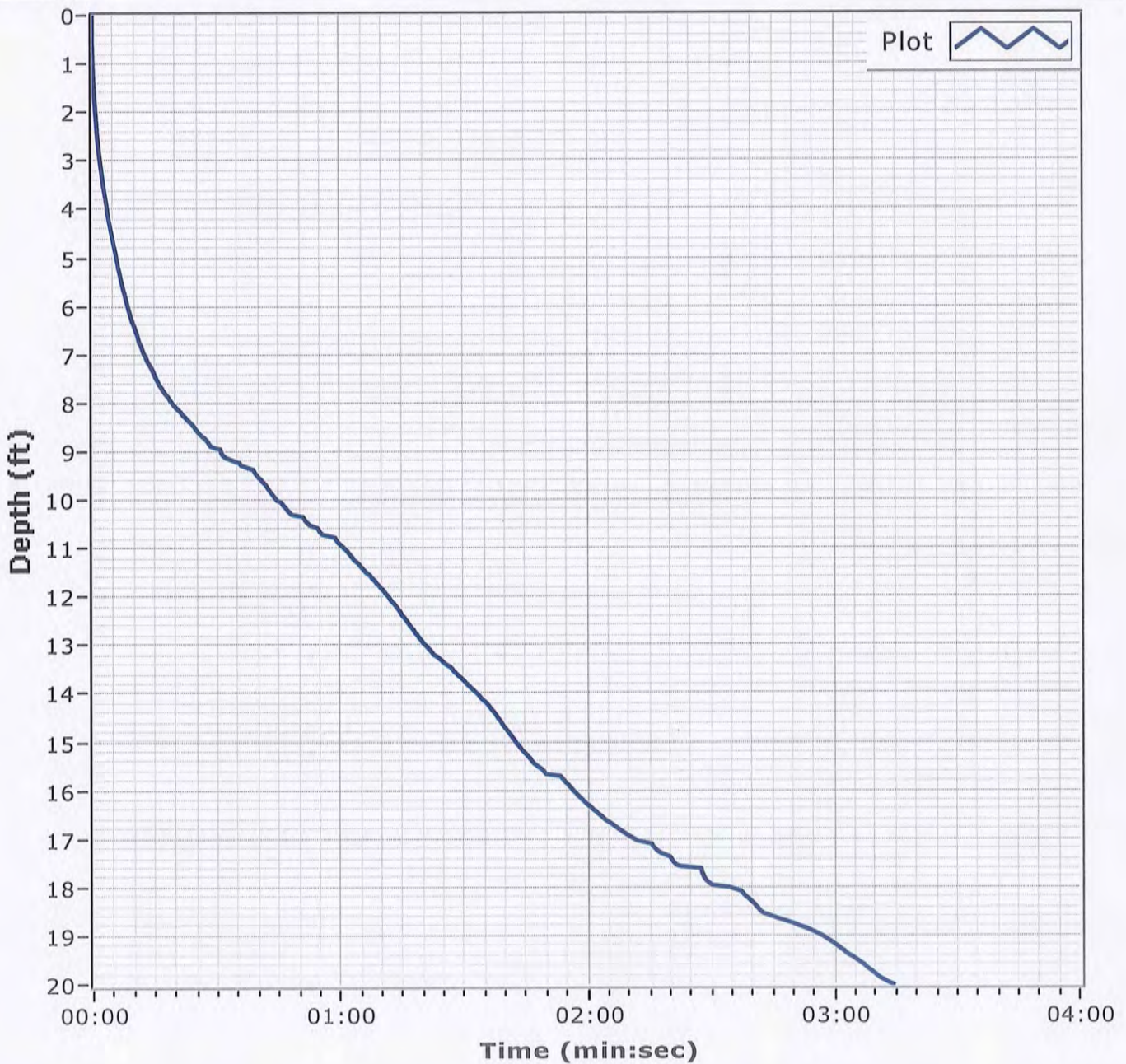
Latitude 30 11.718

Total Time 00:03:14

Recovery 17.4'

Longitude 88 19.285

Comments



Boring Designation BI-PB-151-12

| | | | | |
|--|--|---|--|--|
| DRILLING LOG | | DIVISION South Atlantic | INSTALLATION Mobile District | SHEET 1 OF 2 SHEETS |
| 1. PROJECT MsCIP Barrier Island Restoration Petit Bois Pass- AL East | | | 9. SIZE AND TYPE OF BIT N/A | |
| 2. BORING DESIGNATION BI-PB-151-12 | | LOCATION COORDINATES E = 1,146,145 N = 253,738 | | 10. COORDINATE SYSTEM/DATUM State Plane, MSE (U.S. Ft.) |
| 3. DRILLING AGENCY Corps of Engineers - CESAM | | CONTRACTOR FILE NO. | | HORIZONTAL NAD83 |
| 4. NAME OF DRILLER American Vibracore Systems, Inc. | | 11. MANUFACTURER'S DESIGNATION OF DRILL Vibracore | | <input type="checkbox"/> AUTO HAMMER <input type="checkbox"/> MANUAL HAMMER |
| 5. DIRECTION OF BORING <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED | | DEG. FROM VERTICAL | BEARING | 12. TOTAL SAMPLES |
| 6. THICKNESS OF OVERBURDEN N/A | | 13. TOTAL NUMBER CORE BOXES | | DISTURBED |
| 7. DEPTH DRILLED INTO ROCK N/A | | 14. WATER DEPTH 35.9 Ft. | | UNDISTURBED (UD) 0 |
| 8. TOTAL DEPTH OF BORING 20.0 Ft. | | 15. DATE BORING | | STARTED 12-12-12 |
| | | 16. ELEVATION TOP OF BORING -35.7 Ft. | | COMPLETED 12-12-12 |
| | | 17. TOTAL RECOVERY FOR BORING 100% | | 18. SIGNATURE AND TITLE OF INSPECTOR Mike FitzHarris, Geologist |

| ELEV. | DEPTH | LEGEND | CLASSIFICATION OF MATERIALS | SAMPLE | LABORATORY RESULTS |
|-------|-------|--------|--|--------|--|
| -35.7 | 0.0 | | | | |
| -37.2 | 1.5 | | CLAY, fat, mostly clay, some silt, soft, medium to high plasticity, gray (CH) | NS | |
| | | | SAND, poorly-graded, mostly fine to medium-grained sand-sized quartz, trace fines, trace shell fragments, few clay stringers, gray (SP) | A | Classification: SP Color: 5Y 7/2-light gray D50: 0.3501 mm % Fines: 4.3 |
| | | | At El. -40.7 Ft., mostly fine to medium-grained sand-sized quartz, trace fines, trace shell fragments, trace clay stringers, lt. gray | B | Classification: SP Color: 5Y 8/1-white D50: 0.3798 mm % Fines: 2 |
| -45.5 | 9.8 | | | | |
| | | | CLAY, fat, mostly clay, few fine-grained sand-sized quartz, stiff, trace sandy lenses, greenish gray (CH) | NS | |
| -55.7 | 20.0 | | | | |
| | | | NOTES: 1. Soils are field visually classified in accordance with the Unified Soils Classification System. 2. NS = Sample not submitted for laboratory analysis from this interval. 3. Seafloor elevation determined from 2010 | | |

| DRILLING LOG (Cont. Sheet) | | | INSTALLATION Mobile District | | SHEET 2 |
|---|-------|--------|---|----------------------------|---------------------------|
| | | | | | OF 2 SHEETS |
| PROJECT MsCIP Barrier Island Restoration | | | COORDINATE SYSTEM/DATUM State Plane, MSE (U.S. Ft.) | HORIZONTAL NAD83 | VERTICAL NAVD88 |
| LOCATION COORDINATES X = 1,146,145 Y = 253,738 | | | ELEVATION TOP OF BORING -35.7 Ft. | | |
| ELEV. | DEPTH | LEGEND | CLASSIFICATION OF MATERIALS | SAMPLE | LABORATORY RESULTS |
| | | | USACE survey. | | |



Project

Mississippi Barrier Island
Restoration Project



Core Identifier BI-PB-151-12

Date 12/12/2012

Water Depth 35.9

Coordinate System

Latitude / Longitude

Start Time 10:31:10

End Time 10:32:53

Penetration 20.0'

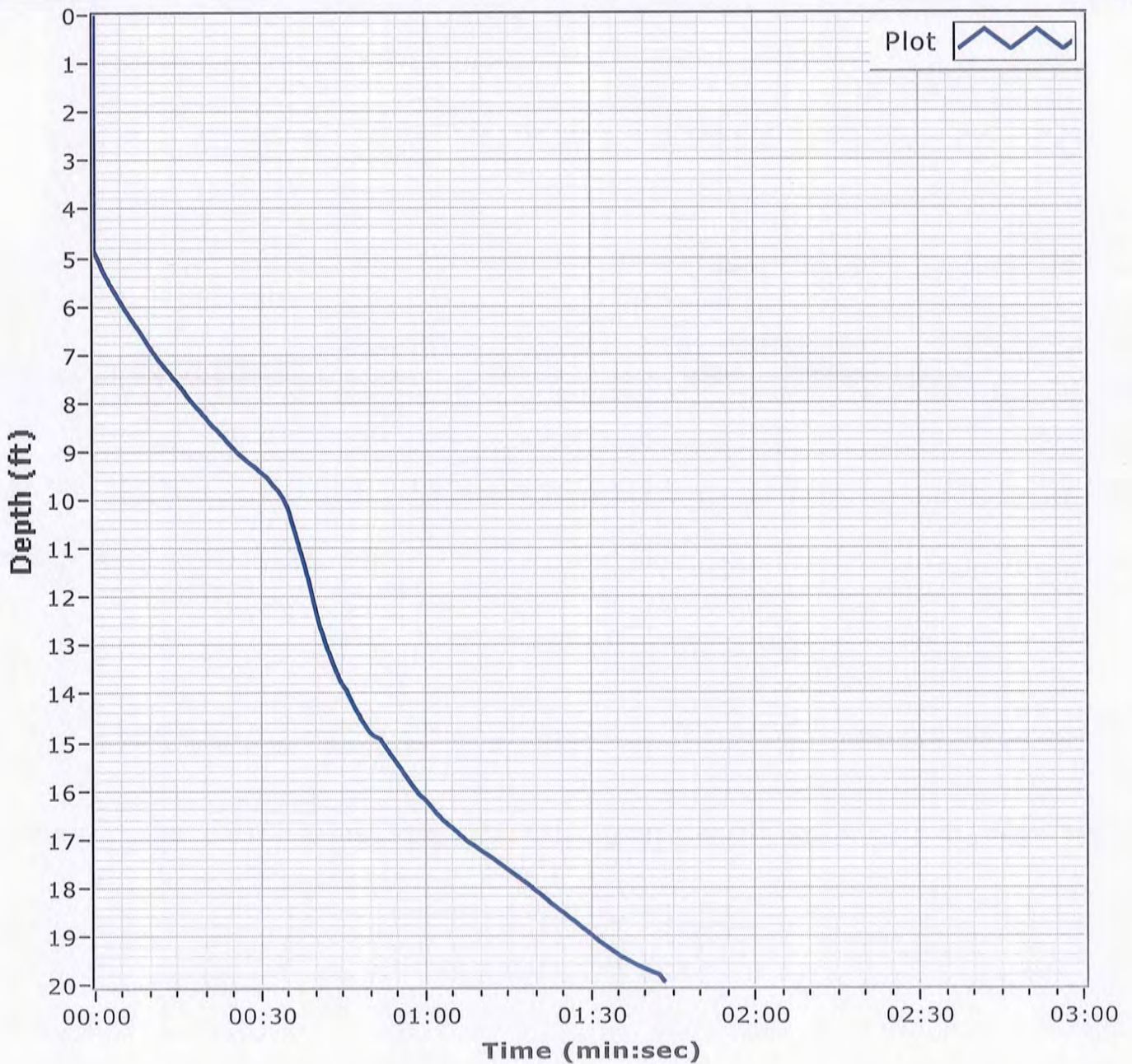
Latitude 30 11.804

Total Time 00:01:43

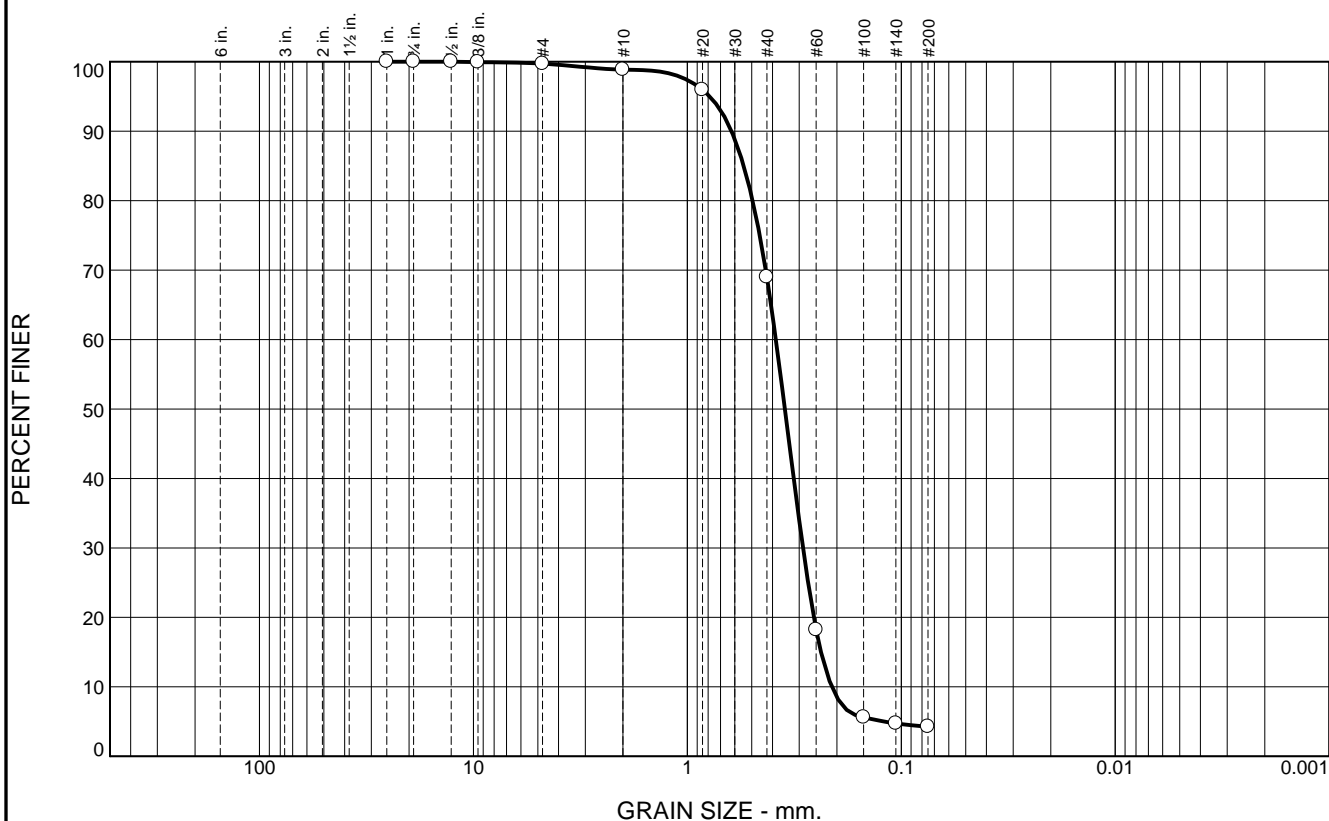
Recovery 20.0'

Longitude 088 19.252

Comments



Particle Size Distribution Report



| % +3" | % Gravel | | % Sand | | | % Fines | |
|-------|----------|------|--------|--------|------|---------|------|
| | Coarse | Fine | Coarse | Medium | Fine | Silt | Clay |
| 0.0 | 0.0 | 0.3 | 0.9 | 29.8 | 64.7 | 4.3 | |

| SIEVE SIZE | PERCENT FINER | SPEC.* PERCENT | PASS? (X=NO) |
|------------|---------------|----------------|--------------|
| 1 | 100.0 | | |
| .75 | 100.0 | | |
| .5 | 100.0 | | |
| .375 | 99.9 | | |
| #4 | 99.7 | | |
| #10 | 98.8 | | |
| #20 | 95.9 | | |
| #40 | 69.0 | | |
| #60 | 18.2 | | |
| #100 | 5.6 | | |
| #140 | 4.7 | | |
| #200 | 4.3 | | |

Material Description
Fine to medium grained, SAND

Atterberg Limits
 PL= LL= PI=

Coefficients
 D₉₀= 0.6218 D₈₅= 0.5451 D₆₀= 0.3857
 D₅₀= 0.3501 D₃₀= 0.2883 D₁₅= 0.2372
 D₁₀= 0.2112 C_u= 1.83 C_c= 1.02

Classification
 USCS= SP AASHTO=

Remarks

* (no specification provided)

Location: BI-PB-151-12 A
Sample Number: 6485 (1)

Depth: 1.5'

Date: 12/07/12

Thompson Engineering

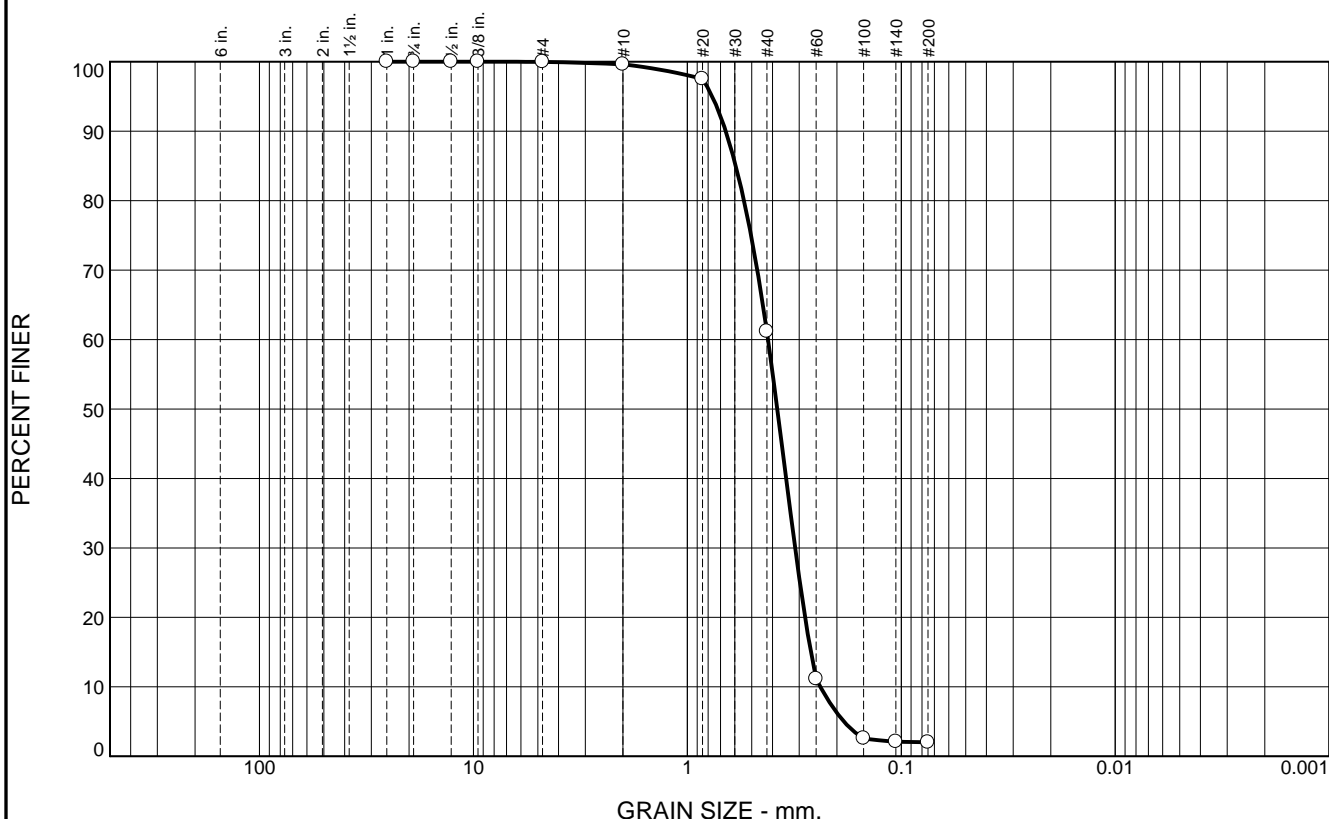
Mobile, Alabama

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

Project No: 1221110095

Figure

Particle Size Distribution Report



| % +3" | % Gravel | | % Sand | | | % Fines | |
|-------|----------|------|--------|--------|------|---------|------|
| | Coarse | Fine | Coarse | Medium | Fine | Silt | Clay |
| 0.0 | 0.0 | 0.0 | 0.4 | 38.5 | 59.1 | 2.0 | |

| SIEVE SIZE | PERCENT FINER | SPEC.* PERCENT | PASS? (X=NO) |
|------------|---------------|----------------|--------------|
| 1 | 100.0 | | |
| .75 | 100.0 | | |
| .5 | 100.0 | | |
| .375 | 100.0 | | |
| #4 | 100.0 | | |
| #10 | 99.6 | | |
| #20 | 97.5 | | |
| #40 | 61.1 | | |
| #60 | 11.1 | | |
| #100 | 2.6 | | |
| #140 | 2.1 | | |
| #200 | 2.0 | | |

Material Description

Fine to medium grained, SAND

Atterberg Limits

PL= LL= PI=

Coefficients

D₉₀= 0.6615 D₈₅= 0.5936 D₆₀= 0.4198
D₅₀= 0.3798 D₃₀= 0.3136 D₁₅= 0.2649
D₁₀= 0.2389 C_u= 1.76 C_c= 0.98

Classification

USCS= SP AASHTO=

Remarks

* (no specification provided)

Location: BI-PB-151-12 B
Sample Number: 6485 (2)

Depth: 5.0'

Date: 12/07/12

Thompson Engineering

Mobile, Alabama

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

Project No: 1221110095

Figure

Boring Designation BI-PB-152-12

| | | | | |
|--|--|---|--|--|
| DRILLING LOG | | DIVISION South Atlantic | INSTALLATION Mobile District | SHEET 1 OF 1 SHEETS |
| 1. PROJECT MsCIP Barrier Island Restoration Petit Bois Pass- AL East | | | 9. SIZE AND TYPE OF BIT N/A | |
| 2. BORING DESIGNATION BI-PB-152-12 | | 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 | | <input type="checkbox"/> AUTO HAMMER <input type="checkbox"/> MANUAL HAMMER |
| 4. NAME OF DRILLER American Vibracore Systems, Inc. | | 12. TOTAL SAMPLES | | DISTURBED 0 |
| 5. DIRECTION OF BORING <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED | | 13. TOTAL NUMBER CORE BOXES | | UNDISTURBED (UD) 0 |
| 6. THICKNESS OF OVERBURDEN N/A | | 14. WATER DEPTH 33.6 Ft. | | |
| 7. DEPTH DRILLED INTO ROCK N/A | | 15. DATE BORING | | STARTED 12-12-12 COMPLETED 12-12-12 |
| 8. TOTAL DEPTH OF BORING 18.8 Ft. | | 16. ELEVATION TOP OF BORING -32.7 Ft. | | |
| | | 17. TOTAL RECOVERY FOR BORING 100% | | |
| | | 18. SIGNATURE AND TITLE OF INSPECTOR Mike FitzHarris, Geologist | | |

| ELEV. | DEPTH | LEGEND | CLASSIFICATION OF MATERIALS | SAMPLE | LABORATORY RESULTS |
|-------|-------|--------|--|--------|--|
| -32.7 | 0.0 | | | | |
| -33.9 | 1.2 | | SAND, poorly-graded, mostly fine to medium-grained sand-sized quartz, trace shell fragments, trace fines, lt. gray (SP) | A | Classification: SP Color: 5Y 7/2-light gray D50: 0.2879 mm % Fines: 2 |
| -35.5 | 2.8 | | SILT, inorganic-L, mostly silt, some clay, some fine-grained sand-sized quartz, trace shell fragments, brownish gray (ML) | NS | |
| | | | SAND, poorly-graded, mostly fine to medium-grained sand-sized quartz, trace coarse-grained sand-sized quartz, trace fines, trace shell fragments, lt. gray (SP) At El. -38.6 Ft., mostly fine-grained sand-sized quartz, trace fines, trace shells, dense, lt. gray | B | Classification: SP Color: 5Y 7/2-light gray D50: 0.3404 mm % Fines: 3.1 |
| | | | | C | Classification: SP Color: 5Y 7/1-light gray D50: 0.3417 mm % Fines: 2.5 |
| -43.6 | 10.9 | | | | |
| -44.7 | 12.0 | | SAND, silty, mostly fine-grained sand-sized quartz, some silt, trace organic matter, trace wood debris, brown to dk. brown (SM) | NS | |
| -46.5 | 13.8 | | SAND, poorly-graded with silt, mostly fine-grained sand-sized quartz, some silt, gray (SP-SM) | D | Classification: SP-SM Color: 5Y 7/1-light gray D50: 0.2892 mm % Fines: 10.7 |
| -47.3 | 14.6 | | SAND, clayey, mostly fine-grained sand-sized quartz, some clay, gray (SC) | | |
| | | | CLAY, fat, mostly clay, medium to high plasticity, stiff, trace fine grain sand lenses throughout, greenish gray (CH) | NS | |
| -51.5 | 18.8 | | | | |
| | | | NOTES: 1. Soils are field visually classified in accordance with the Unified Soils Classification System. 2. NS = Sample not submitted for laboratory analysis from this interval. 3. Seafloor elevation determined from 2010 USACE survey. | | |

Project

Mississippi Barrier Island
Restoration Project



Core Identifier BI-PB-152-12

Date 12/12/2012

Water Depth 33.6'

Coordinate System

Latitude / Longitude

Start Time 09:52:51

End Time 09:55:15

Penetration 20.0'

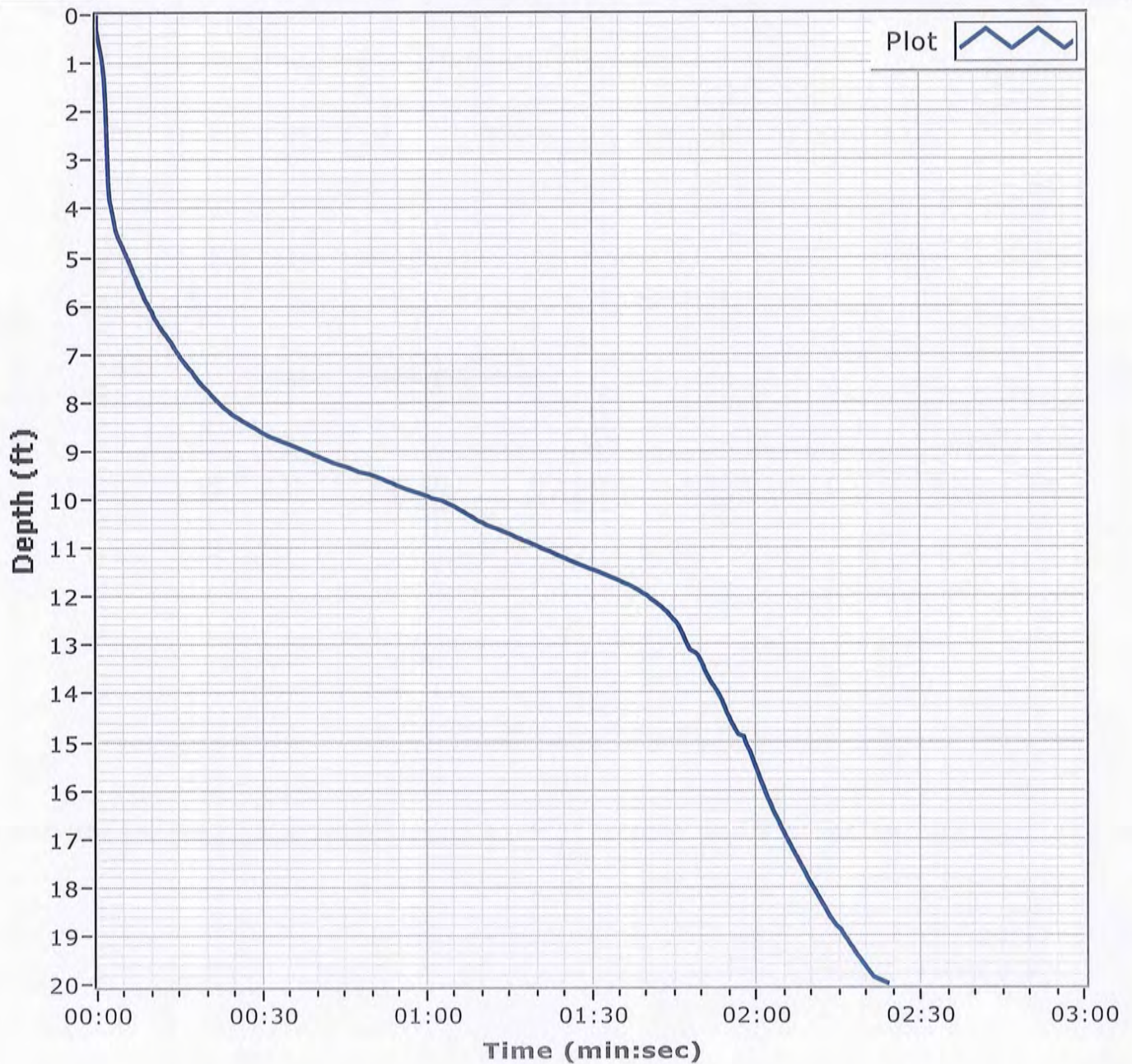
Latitude 30 11.876

Total Time 00:02:24

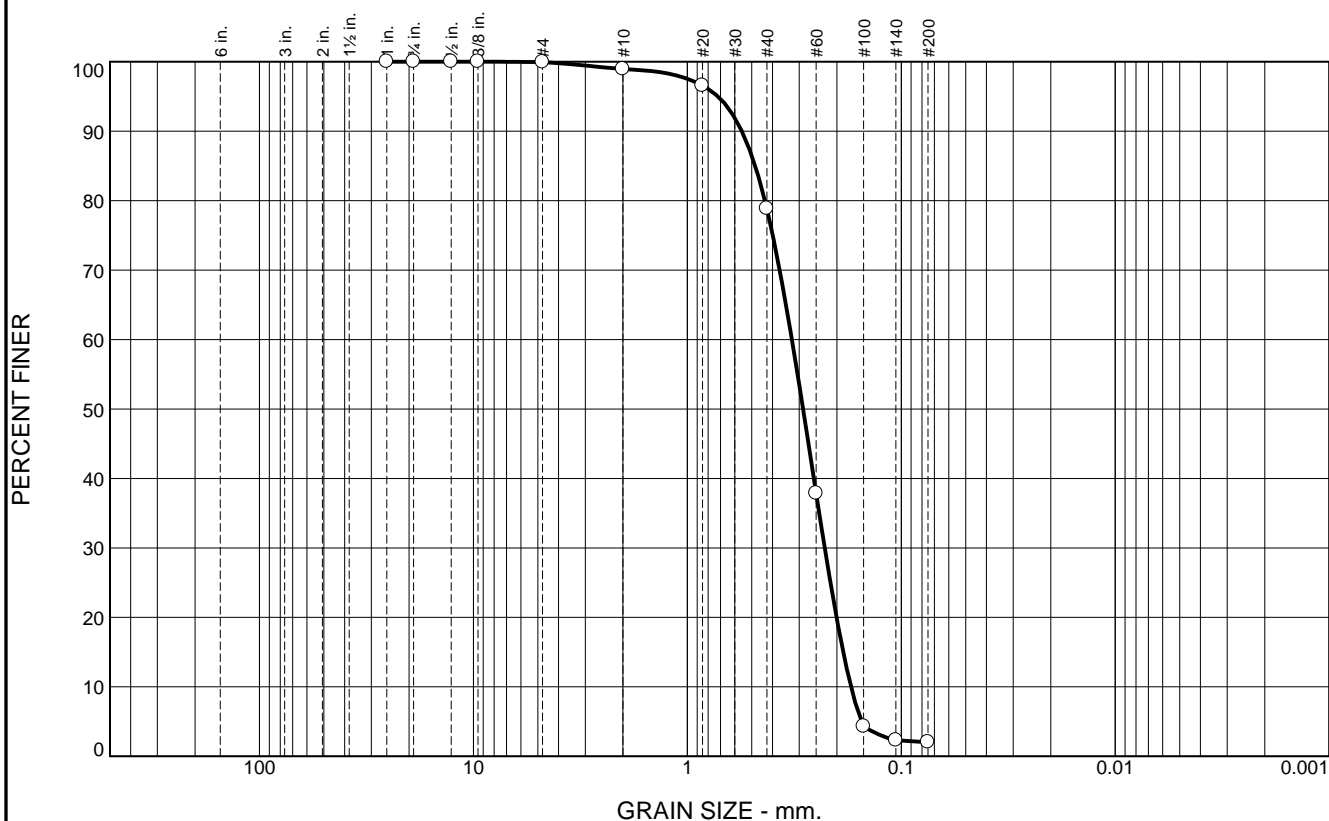
Recovery 18.7'

Longitude 088 19.278

Comments



Particle Size Distribution Report



| % +3" | % Gravel | | % Sand | | | % Fines | |
|-------|----------|------|--------|--------|------|---------|------|
| | Coarse | Fine | Coarse | Medium | Fine | Silt | Clay |
| 0.0 | 0.0 | 0.1 | 0.9 | 20.2 | 76.8 | 2.0 | |

| SIEVE SIZE | PERCENT FINER | SPEC.* PERCENT | PASS? (X=NO) |
|------------|---------------|----------------|--------------|
| 1 | 100.0 | | |
| .75 | 100.0 | | |
| .5 | 100.0 | | |
| .375 | 100.0 | | |
| #4 | 99.9 | | |
| #10 | 99.0 | | |
| #20 | 96.6 | | |
| #40 | 78.8 | | |
| #60 | 37.8 | | |
| #100 | 4.3 | | |
| #140 | 2.3 | | |
| #200 | 2.0 | | |

Material Description

Fine to medium grained, SAND

Atterberg Limits

PL= LL= PI=

Coefficients

D₉₀= 0.5565 D₈₅= 0.4820 D₆₀= 0.3247

D₅₀= 0.2879 D₃₀= 0.2279 D₁₅= 0.1869

D₁₀= 0.1720 C_u= 1.89 C_c= 0.93

Classification

USCS= SP AASHTO=

Remarks

* (no specification provided)

Location: BI-PB-152-12 A
Sample Number: 6485 (3)

Depth: 0.0'

Date: 12/07/12

Thompson Engineering

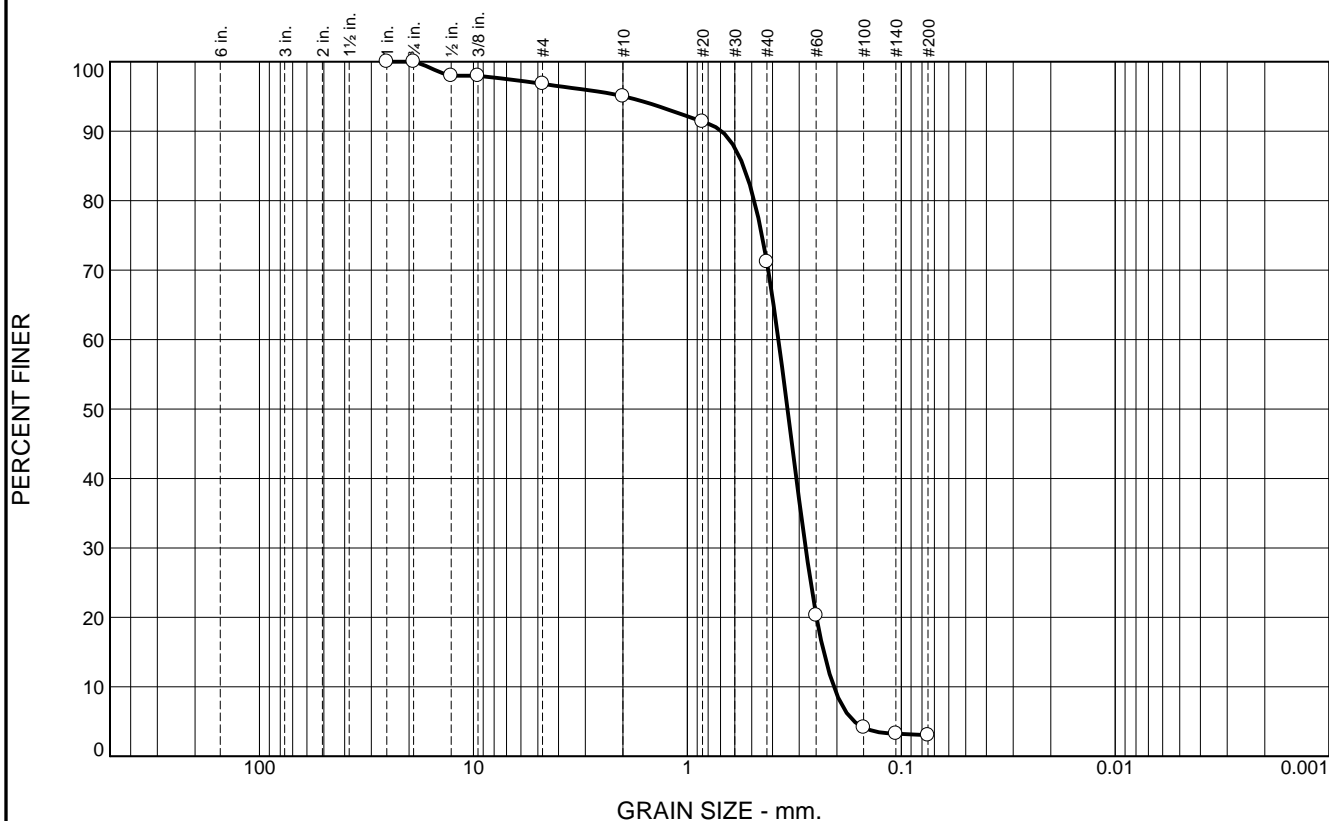
Mobile, Alabama

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

Project No: 1221110095

Figure

Particle Size Distribution Report



| % +3" | % Gravel | | % Sand | | | % Fines | |
|-------|----------|------|--------|--------|------|---------|------|
| | Coarse | Fine | Coarse | Medium | Fine | Silt | Clay |
| 0.0 | 0.0 | 3.2 | 1.8 | 23.8 | 68.1 | 3.1 | |

| SIEVE SIZE | PERCENT FINER | SPEC.* PERCENT | PASS? (X=NO) |
|------------|---------------|----------------|--------------|
| 1 | 100.0 | | |
| .75 | 100.0 | | |
| .5 | 98.0 | | |
| .375 | 98.0 | | |
| #4 | 96.8 | | |
| #10 | 95.0 | | |
| #20 | 91.4 | | |
| #40 | 71.2 | | |
| #60 | 20.3 | | |
| #100 | 4.1 | | |
| #140 | 3.3 | | |
| #200 | 3.1 | | |

Material Description

Fine to medium grained, SAND, with trace SHELL

Atterberg Limits

PL= LL= PI=

Coefficients

D₉₀= 0.6928 D₈₅= 0.5471 D₆₀= 0.3752
 D₅₀= 0.3404 D₃₀= 0.2802 D₁₅= 0.2304
 D₁₀= 0.2067 C_u= 1.81 C_c= 1.01

Classification

USCS= SP AASHTO=

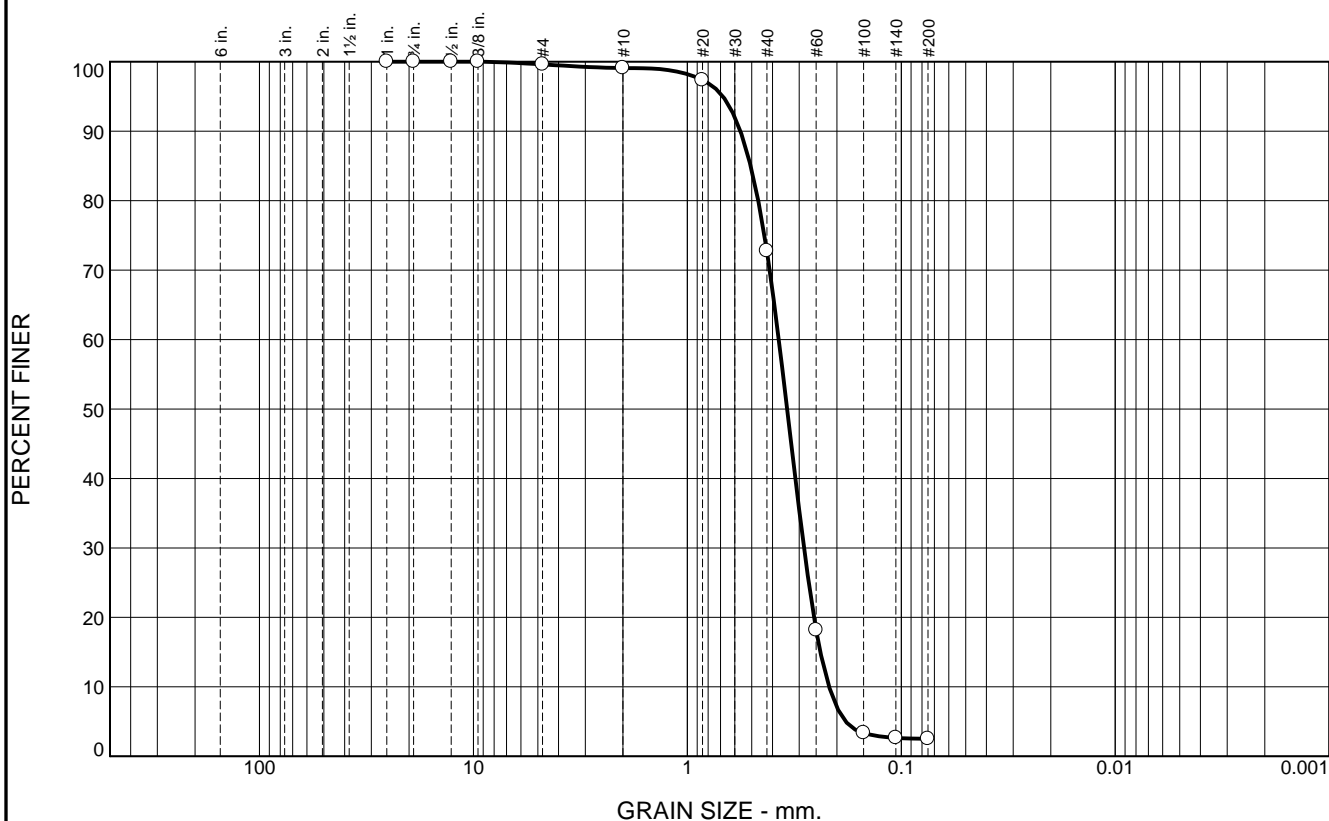
Remarks

* (no specification provided)

Location: BI-PB-152-12 B **Depth:** 2.8' **Date:** 12/07/12
Sample Number: 6485 (4)

| | |
|--|---|
| <p>Thompson Engineering</p> <p>Mobile, Alabama</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 | 0.5 | 26.4 | 70.2 | 2.5 | |

| SIEVE SIZE | PERCENT FINER | SPEC.* PERCENT | PASS? (X=NO) |
|------------|---------------|----------------|--------------|
| 1 | 100.0 | | |
| .75 | 100.0 | | |
| .5 | 100.0 | | |
| .375 | 100.0 | | |
| #4 | 99.6 | | |
| #10 | 99.1 | | |
| #20 | 97.3 | | |
| #40 | 72.7 | | |
| #60 | 18.2 | | |
| #100 | 3.4 | | |
| #140 | 2.7 | | |
| #200 | 2.5 | | |

Material Description

Fine to medium grained, SAND

Atterberg Limits

PL= LL= PI=

Coefficients

D₉₀= 0.5649 D₈₅= 0.5061 D₆₀= 0.3738
D₅₀= 0.3417 D₃₀= 0.2851 D₁₅= 0.2388
D₁₀= 0.2173 C_u= 1.72 C_c= 1.00

Classification

USCS= SP AASHTO=

Remarks

* (no specification provided)

Location: BI-PB-152-12 C
Sample Number: 6485 (5)

Depth: 5.9'

Date: 12/07/12

Thompson Engineering

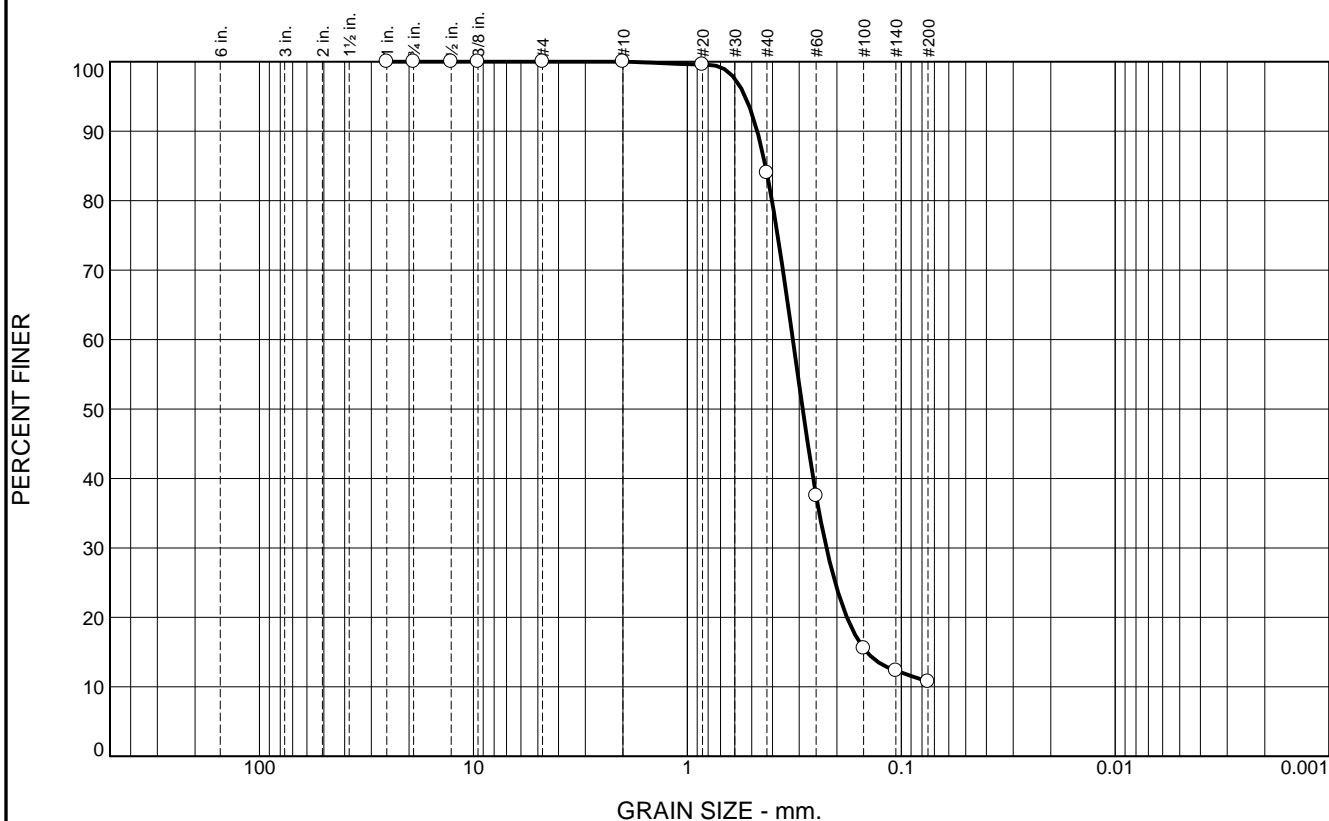
Mobile, Alabama

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

Project No: 1221110095

Figure

Particle Size Distribution Report



| % +3" | % Gravel | | % Sand | | | % Fines | |
|-------|----------|------|--------|--------|------|---------|------|
| | Coarse | Fine | Coarse | Medium | Fine | Silt | Clay |
| 0.0 | 0.0 | 0.0 | 0.0 | 16.0 | 73.3 | 10.7 | |

| 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 | 99.6 | | |
| #40 | 84.0 | | |
| #60 | 37.5 | | |
| #100 | 15.6 | | |
| #140 | 12.3 | | |
| #200 | 10.7 | | |

Material Description
Fine to medium grained, SLIGHTLY SILTY SAND

Atterberg Limits
 PL= LL= PI=

Coefficients
 D₉₀= 0.4714 D₈₅= 0.4314 D₆₀= 0.3214
 D₅₀= 0.2892 D₃₀= 0.2238 D₁₅= 0.1449
 D₁₀= C_u= C_c=

Classification
 USCS= SP-SM AASHTO=

Remarks

* (no specification provided)

Location: BI-PB-152-12 D
Sample Number: 6485 (6)

Depth: 12.0'

Date: 12/07/12

Thompson Engineering

Mobile, Alabama

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

Project No: 1221110095

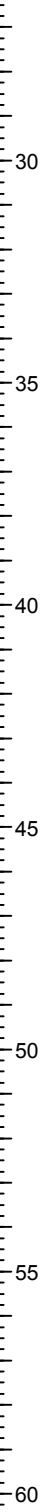
Figure

Boring Designation BI-PB-153-12

| | | | | | | | |
|--|--|---|----------------|---|--|--|------------------------------|
| DRILLING LOG | | DIVISION South Atlantic | | INSTALLATION Mobile District | | SHEET 1 OF 2 SHEETS | |
| | | 1. PROJECT MsCIP Barrier Island Restoration Petit Bois Pass- AL East | | | | 9. SIZE AND TYPE OF BIT N/A | |
| 2. BORING DESIGNATION BI-PB-153-12 | | LOCATION COORDINATES E = 1,146,590 N = 253,184 | | 10. COORDINATE SYSTEM/DATUM State Plane, MSE (U.S. Ft.) | | HORIZONTAL NAD83 | VERTICAL NAVD88 |
| 3. DRILLING AGENCY Corps of Engineers - CESAM | | CONTRACTOR FILE NO. | | 11. MANUFACTURER'S DESIGNATION OF DRILL Vibracore | | <input type="checkbox"/> AUTO HAMMER <input type="checkbox"/> MANUAL HAMMER | |
| 4. NAME OF DRILLER American Vibracore Systems, Inc. | | | | 12. TOTAL SAMPLES | | DISTURBED | UNDISTURBED (UD) 0 |
| 5. DIRECTION OF BORING <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED | | DEG. FROM VERTICAL | BEARING | 13. TOTAL NUMBER CORE BOXES | | | |
| 6. THICKNESS OF OVERBURDEN N/A | | | | 14. WATER DEPTH 38.7 Ft. | | | |
| 7. DEPTH DRILLED INTO ROCK N/A | | | | 15. DATE BORING | | STARTED 12-12-12 | COMPLETED 12-12-12 |
| 8. TOTAL DEPTH OF BORING 20.0 Ft. | | | | 16. ELEVATION TOP OF BORING -39.2 Ft. | | | |
| | | | | 17. TOTAL RECOVERY FOR BORING 100% | | | |
| | | | | 18. SIGNATURE AND TITLE OF INSPECTOR Mike FitzHarris, Geologist | | | |

| ELEV. | DEPTH | LEGEND | CLASSIFICATION OF MATERIALS | SAMPLE | LABORATORY RESULTS |
|-------|-------|--------|---|--------|--------------------|
| -39.2 | 0.0 | | | | |
| | | | CLAY, fat, mostly clay, trace shell fragments, sandy clay between 5-10 ft., medium to high plasticity, some sandy pockets, fine grained-sand lenses between 12-20 ft., greenish gray (CH) | NS | |
| -59.2 | 20.0 | | | | |
| | | | NOTES: 1. Soils are field visually classified in accordance with the Unified Soils Classification System. 2. NS = Sample not submitted for laboratory analysis from this interval. 3. Seafloor elevation calculated using sampling | | |

| DRILLING LOG (Cont. Sheet) | | | INSTALLATION Mobile District | | | SHEET 2 |
|--|-------|--------|---|----------------------------|---------------------------|--------------------|
| | | | | | | OF 2 SHEETS |
| PROJECT MsCIP Barrier Island Restoration | | | COORDINATE SYSTEM/DATUM State Plane, MSE (U.S. Ft.) | HORIZONTAL NAD83 | VERTICAL NAVD88 | |
| LOCATION COORDINATES X = 1,146,590 Y = 253,184 | | | ELEVATION TOP OF BORING -39.2 Ft. | | | |
| ELEV. | DEPTH | LEGEND | CLASSIFICATION OF MATERIALS | SAMPLE | LABORATORY RESULTS | |
| | | | vessel's fathometer water depth reading and applying NOAA tidal gauge data conversion factor. | | | |



Project

Mississippi Barrier Island
Restoration Project



Core Identifier BI-PB-153-12

Date 12/12/2012

Water Depth 38.7'

Coordinate System

Latitude / Longitude

Start Time 10:58:53

End Time 11:01:13

Penetration 20.0'

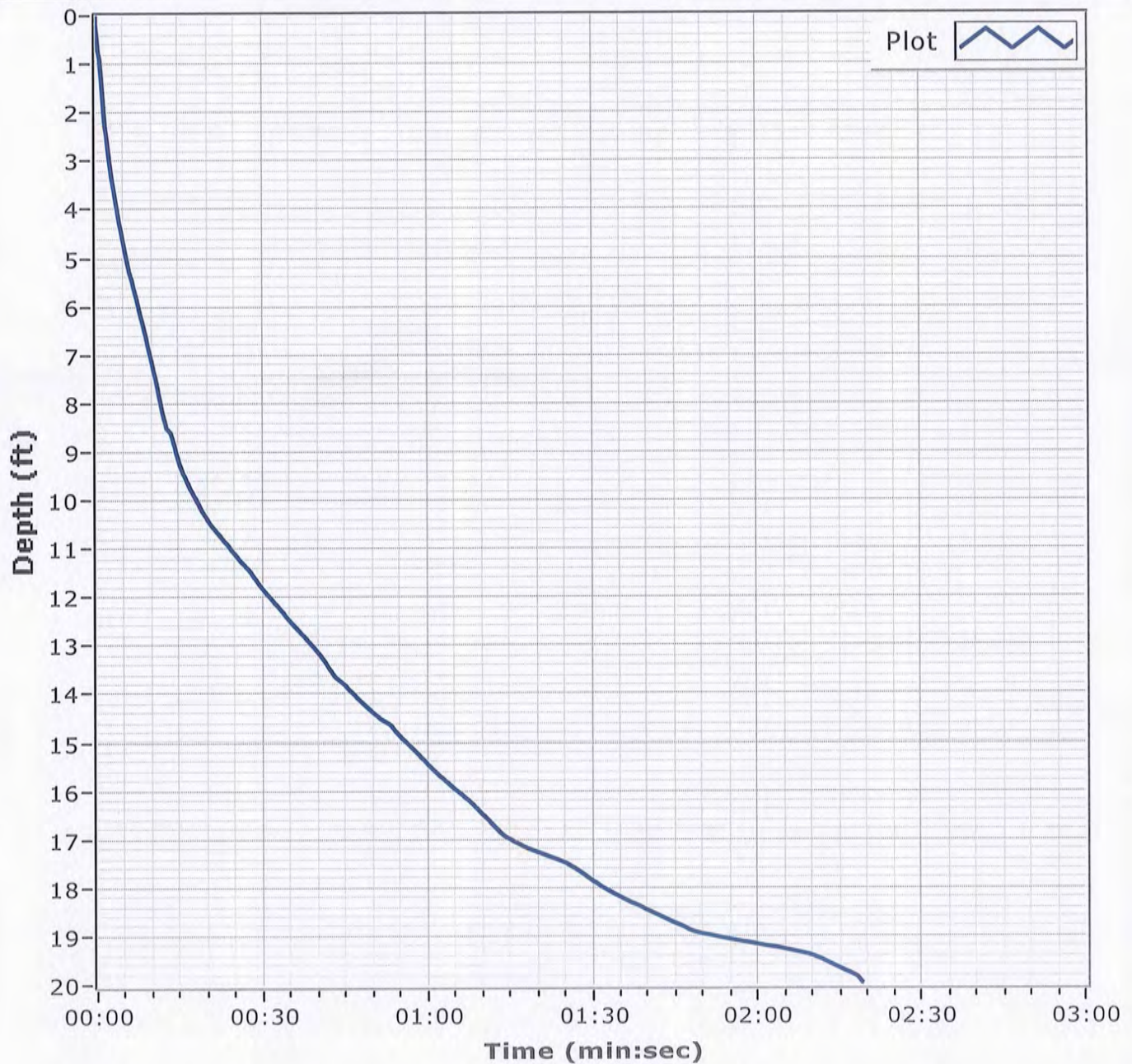
Latitude 30 11.712

Total Time 00:02:19

Recovery 20.0'

Longitude 088 19.168

Comments



Boring Designation BI-PB-154-12

| | | | | |
|--|--|---|--|--|
| DRILLING LOG | | DIVISION South Atlantic | INSTALLATION Mobile District | SHEET 1 OF 1 SHEETS |
| 1. PROJECT MsCIP Barrier Island Restoration Petit Bois Pass- AL East | | 9. SIZE AND TYPE OF BIT N/A | | |
| 2. BORING DESIGNATION BI-PB-154-12 | | 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 | | <input type="checkbox"/> AUTO HAMMER <input type="checkbox"/> MANUAL HAMMER |
| 4. NAME OF DRILLER American Vibracore Systems, Inc. | | 12. TOTAL SAMPLES | | |
| 5. DIRECTION OF BORING <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED | | 13. TOTAL NUMBER CORE BOXES | | UNDISTURBED (UD) 0 |
| 6. THICKNESS OF OVERBURDEN N/A | | 14. WATER DEPTH 33.4 Ft. | | |
| 7. DEPTH DRILLED INTO ROCK N/A | | 15. DATE BORING | | STARTED 12-11-12 COMPLETED 12-11-12 |
| 8. TOTAL DEPTH OF BORING 15.0 Ft. | | 16. ELEVATION TOP OF BORING -32.9 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 |
|--|-------|--------|--|--------|---|
| -32.9 | 0.0 | | | | |
| -35.2 | 2.3 | ••••• | SAND, poorly-graded, mostly fine to medium-grained sand-sized quartz, trace clay, trace shell fragments, gray (SP) | A | Classification: SP Color: 5Y 7/2-light gray D50: 0.296 mm % Fines: 2.9 |
| -46.8 | 13.9 | // | CLAY, fat, mostly clay, trace shell fragments, medium to high plasticity, stiff, greenish gray (CH) | NS | |
| -47.9 | 15.0 | ••••• | SAND, clayey, mostly fine-grained sand-sized quartz, some clay, trace shell fragments, greenish gray (SC) | | |
| <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-154-12

Date 12/11/2012

Water Depth 33.4

Coordinate System

Latitude / Longitude

Start Time 14:05:25

End Time 14:07:19

Penetration 20.0'

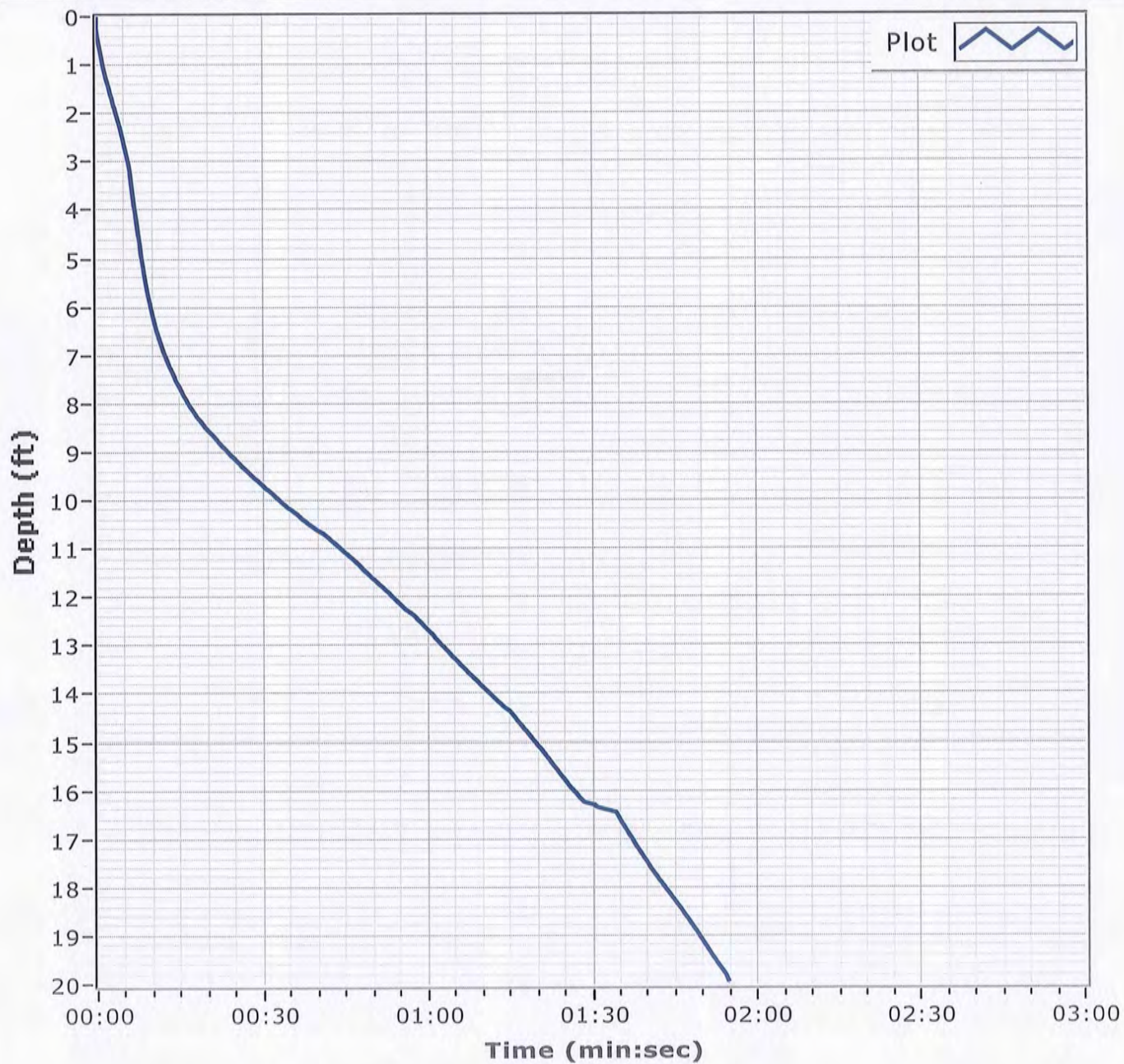
Latitude 33 11.801

Total Time 00:01:54

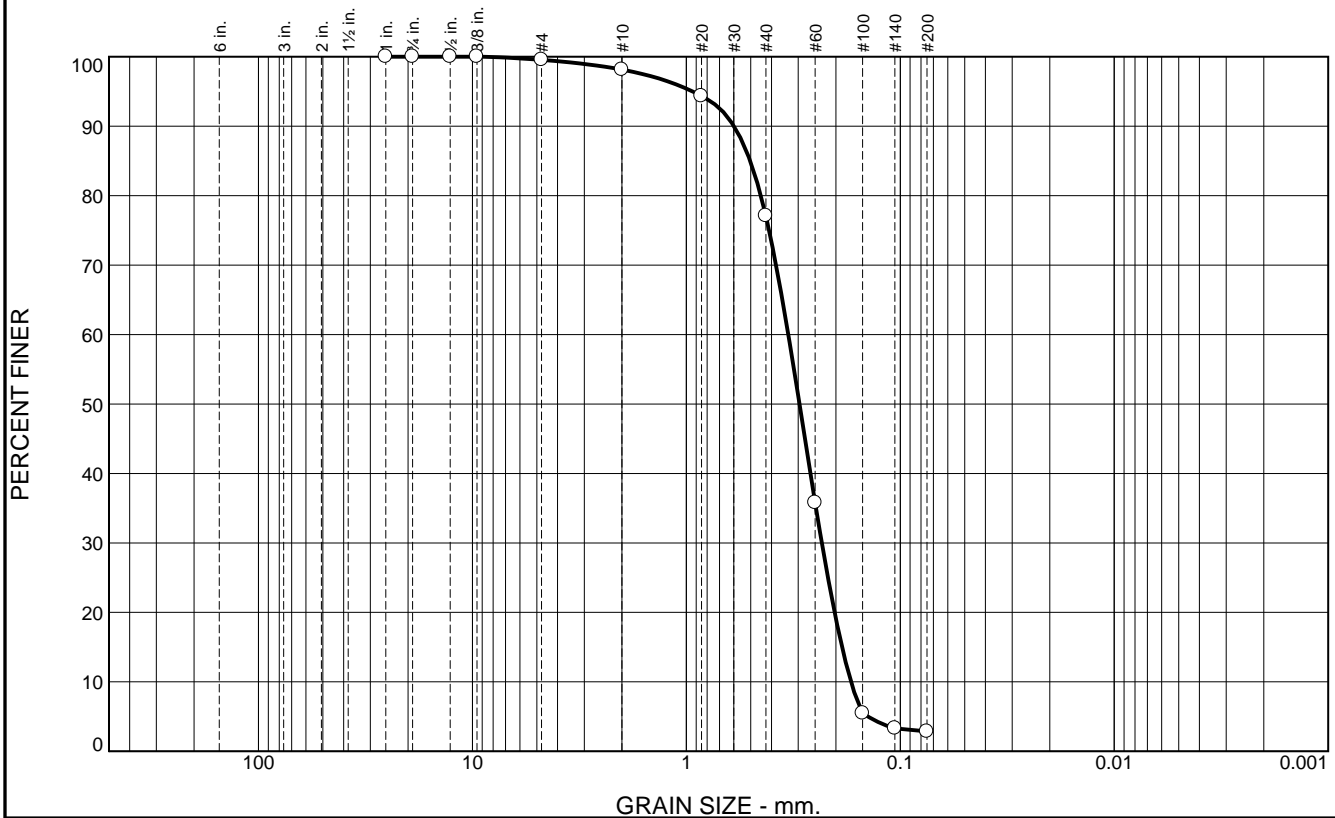
Recovery 15.0'

Longitude 088 19.576

Comments



Particle Size Distribution Report



| % +3" | % Gravel | | % Sand | | | % Fines | |
|-------|----------|------|--------|--------|------|---------|------|
| | Coarse | Fine | Coarse | Medium | Fine | Silt | Clay |
| 0.0 | 0.0 | 0.5 | 1.4 | 21.0 | 74.2 | 2.9 | |

| SIEVE SIZE | PERCENT FINER | SPEC.* PERCENT | PASS? (X=NO) |
|------------|---------------|----------------|--------------|
| 1 | 100.0 | | |
| .75 | 100.0 | | |
| .5 | 100.0 | | |
| .375 | 100.0 | | |
| #4 | 99.5 | | |
| #10 | 98.1 | | |
| #20 | 94.3 | | |
| #40 | 77.1 | | |
| #60 | 35.8 | | |
| #100 | 5.5 | | |
| #140 | 3.3 | | |
| #200 | 2.9 | | |

Material Description

Fine to medium grained, SAND

Atterberg Limits

PL= LL= PI=

Coefficients

D₉₀= 0.5988 D₈₅= 0.5033 D₆₀= 0.3339
D₅₀= 0.2960 D₃₀= 0.2326 D₁₅= 0.1873
D₁₀= 0.1702 C_u= 1.96 C_c= 0.95

Classification

USCS= SP AASHTO=

Remarks

* (no specification provided)

Location: BI-PB-154-12 A
Sample Number: 6485 (7)

Depth: 0.0'

Date: 12/07/12

Thompson Engineering

Mobile, Alabama

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

Project No: 1221110095

Figure

Boring Designation BI-PB-155-12

| | | | | |
|--|--|---|--|--|
| DRILLING LOG | | DIVISION South Atlantic | INSTALLATION Mobile District | SHEET 1 OF 1 SHEETS |
| 1. PROJECT MsCIP Barrier Island Restoration Petit Bois Pass- AL East | | | 9. SIZE AND TYPE OF BIT N/A | |
| 2. BORING DESIGNATION BI-PB-155-12 | | 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 | | <input type="checkbox"/> AUTO HAMMER <input type="checkbox"/> MANUAL HAMMER |
| 4. NAME OF DRILLER American Vibracore Systems, Inc. | | 12. TOTAL SAMPLES | | DISTURBED 0 |
| 5. DIRECTION OF BORING <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED | | 13. TOTAL NUMBER CORE BOXES | | UNDISTURBED (UD) 0 |
| 6. THICKNESS OF OVERBURDEN N/A | | 14. WATER DEPTH 35.1 Ft. | | |
| 7. DEPTH DRILLED INTO ROCK N/A | | 15. DATE BORING | | STARTED 12-07-12 COMPLETED 12-07-12 |
| 8. TOTAL DEPTH OF BORING 13.4 Ft. | | 16. ELEVATION TOP OF BORING -34.2 Ft. | | |
| | | 17. TOTAL RECOVERY FOR BORING 100% | | |
| | | 18. SIGNATURE AND TITLE OF INSPECTOR Mike FitzHarris, Geologist | | |

| ELEV. | DEPTH | LEGEND | CLASSIFICATION OF MATERIALS | SAMPLE | LABORATORY RESULTS |
|-------|-------|--------|---|--------|--|
| -34.2 | 0.0 | | | | |
| -34.4 | 0.2 | | SILT, inorganic-L, mostly silt, trace fine-grained sand-sized quartz, trace shell fragments, gray (ML) | NS | |
| | | | CLAY, fat, mostly clay, very stiff, medium to high plasticity, few sandy lenses, greenish gray (CH) | | |
| -40.8 | 6.6 | | | | |
| -42.6 | 8.4 | | SAND, clayey, mostly fine-grained sand-sized quartz, some clay, trace shell fragments, greenish gray (SC) | | |
| | | | SAND, poorly-graded, mostly fine-grained sand-sized quartz, trace fines, lt. gray (SP) | A | Classification: SP Color: 5Y 6/4-pale olive D50: 0.2932 mm % Fines: 3.3 |
| -47.6 | 13.4 | | | | |
| | | | NOTES: 1. Soils are field visually classified in accordance with the Unified Soils Classification System. 2. NS = Sample not submitted for laboratory analysis from this interval. 3. Seafloor elevation calculated using sampling vessel's fathometer water depth reading and applying NOAA tidal gauge data conversion factor. | | |

Project

Mississippi Barrier Island
Restoration Project



Core Identifier BI-PB-155-12

Date 12/07/2012

Water Depth 35.1'

Coordinate System

Latitude / Longitude

Start Time 14:40:19

End Time 14:48:24

Penetration 14.9'

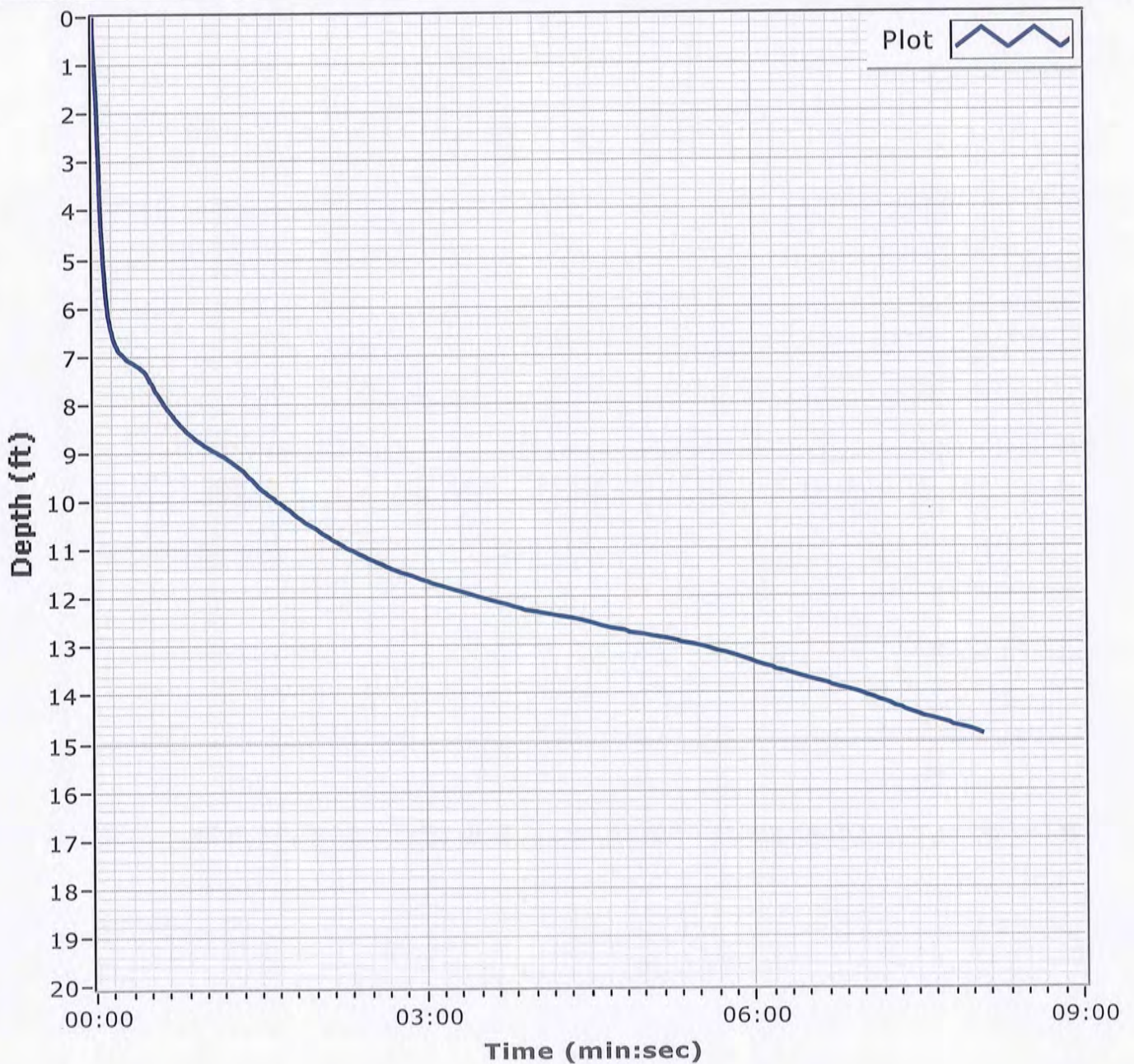
Latitude 30 11.939

Total Time 00:08:05

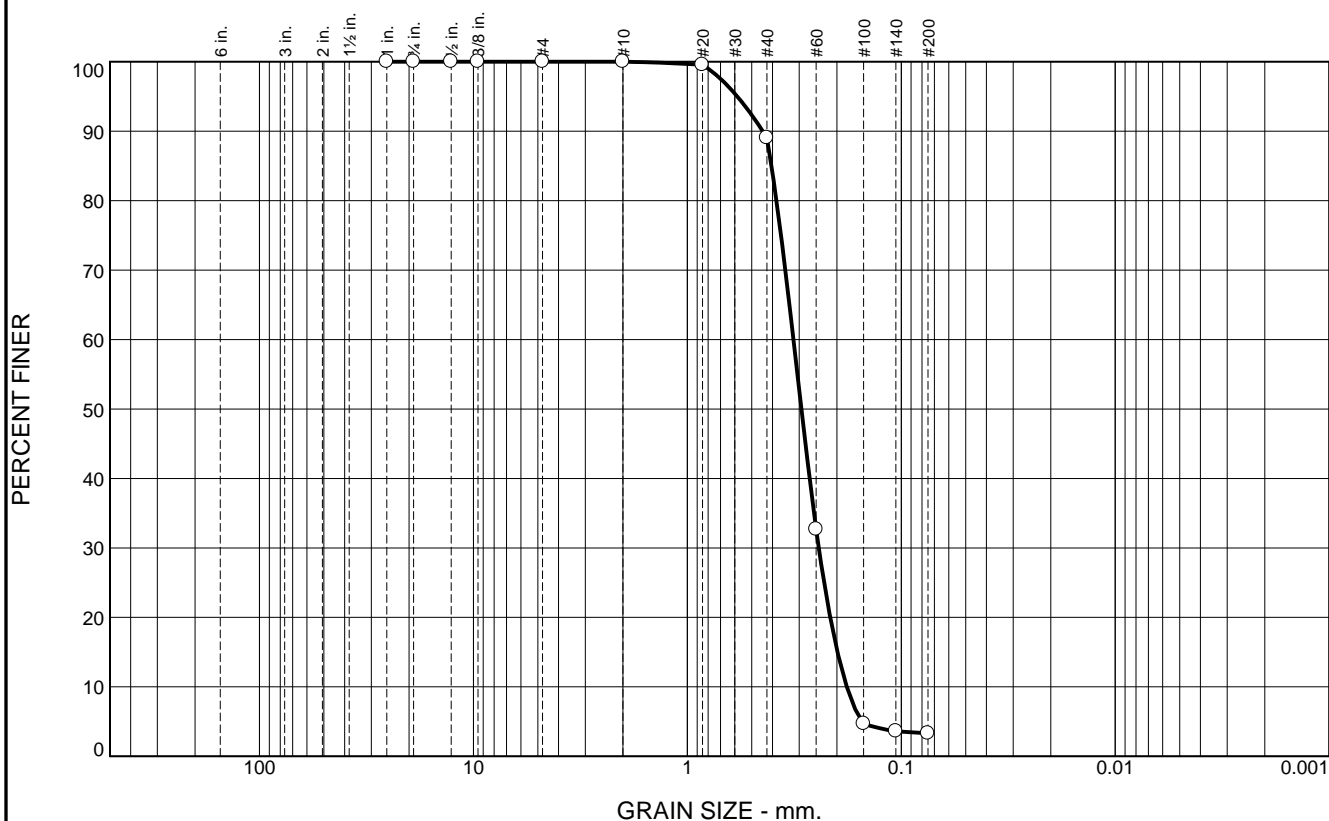
Recovery 13.4'

Longitude 088 19.659

Comments



Particle Size Distribution Report



| % +3" | % Gravel | | % Sand | | | % Fines | |
|-------|----------|------|--------|--------|------|---------|------|
| | Coarse | Fine | Coarse | Medium | Fine | Silt | Clay |
| 0.0 | 0.0 | 0.0 | 0.0 | 11.0 | 85.7 | 3.3 | |

| SIEVE SIZE | PERCENT FINER | SPEC.* PERCENT | PASS? (X=NO) |
|------------|---------------|----------------|--------------|
| 1 | 100.0 | | |
| .75 | 100.0 | | |
| .5 | 100.0 | | |
| .375 | 100.0 | | |
| #4 | 100.0 | | |
| #10 | 100.0 | | |
| #20 | 99.6 | | |
| #40 | 89.0 | | |
| #60 | 32.7 | | |
| #100 | 4.7 | | |
| #140 | 3.6 | | |
| #200 | 3.3 | | |

Material Description
Fine to medium grained, SAND

Atterberg Limits
 PL= LL= PI=

Coefficients
 D₉₀= 0.4446 D₈₅= 0.4043 D₆₀= 0.3193
 D₅₀= 0.2932 D₃₀= 0.2430 D₁₅= 0.1988
 D₁₀= 0.1799 C_u= 1.78 C_c= 1.03

Classification
 USCS= SP AASHTO=

Remarks

* (no specification provided)

Location: BI-PB-155-12 A
Sample Number: 6482 (1)

Depth: 8.4'

Date: 12/12/12

Thompson Engineering

Mobile, Alabama

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

Project No: 1221110095

Figure

Boring Designation BI-PB-156-12

| | | | | |
|--|--|---|--|--|
| DRILLING LOG | | DIVISION South Atlantic | INSTALLATION Mobile District | SHEET 1 OF 1 SHEETS |
| 1. PROJECT MsCIP Barrier Island Restoration Petit Bois Pass- AL East | | | 9. SIZE AND TYPE OF BIT N/A | |
| 2. BORING DESIGNATION BI-PB-156-12 | | 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 | | <input type="checkbox"/> AUTO HAMMER <input type="checkbox"/> MANUAL HAMMER |
| 4. NAME OF DRILLER American Vibracore Systems, Inc. | | 12. TOTAL SAMPLES | | DISTURBED 0 |
| 5. DIRECTION OF BORING <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED | | 13. TOTAL NUMBER CORE BOXES | | UNDISTURBED (UD) 0 |
| 6. THICKNESS OF OVERBURDEN N/A | | 14. WATER DEPTH 35.4 Ft. | | 15. DATE BORING |
| 7. DEPTH DRILLED INTO ROCK N/A | | 16. ELEVATION TOP OF BORING -35.1 Ft. | | STARTED 12-19-12 |
| 8. TOTAL DEPTH OF BORING 15.6 Ft. | | 17. TOTAL RECOVERY FOR BORING 100% | | COMPLETED 12-19-12 |
| 18. SIGNATURE AND TITLE OF INSPECTOR Mike FitzHarris, Geologist | | | | |

| ELEV. | DEPTH | LEGEND | CLASSIFICATION OF MATERIALS | SAMPLE | LABORATORY RESULTS |
|--|-------|--------|---|--------|--|
| -35.1 | 0.0 | | | | |
| -36.7 | 1.6 | ••••• | SAND, poorly-graded, mostly fine to medium-grained sand-sized quartz, trace shell fragments, lt. gray (SP) | A | Classification: SP Color: 5Y 7/2-light gray D50: 0.2901 mm % Fines: 1.5 |
| -37.1 | 2.0 | | | | |
| | | // | SAND, silty, mostly fine-grained sand-sized quartz, some silt, trace clay, trace shell fragments, brownish gray (SM) CLAY, fat, mostly clay, trace shell fragments, medium to high plasticity, stiff, trace pockets of fine-grained sand, greenish gray (CH) | NS | |
| -50.7 | 15.6 | | | | |
| <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-156-12

Date 12/19/2012

Water Depth 33.7'

Coordinate System

Start Time 13:31:36

Latitude / Longitude

End Time 13:33:50

Penetration 20.0'

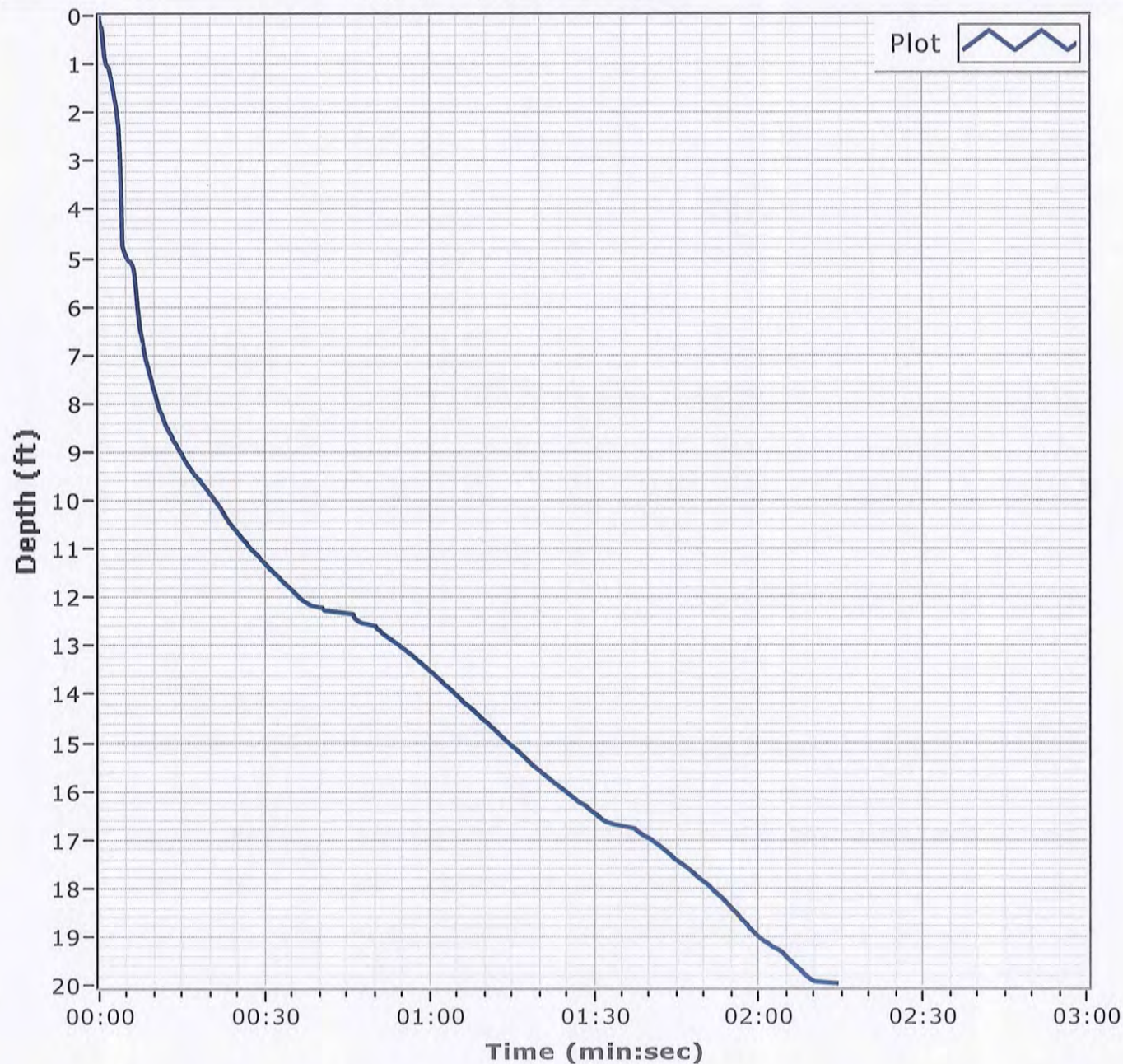
Latitude 30 11.722

Total Time 00:02:14

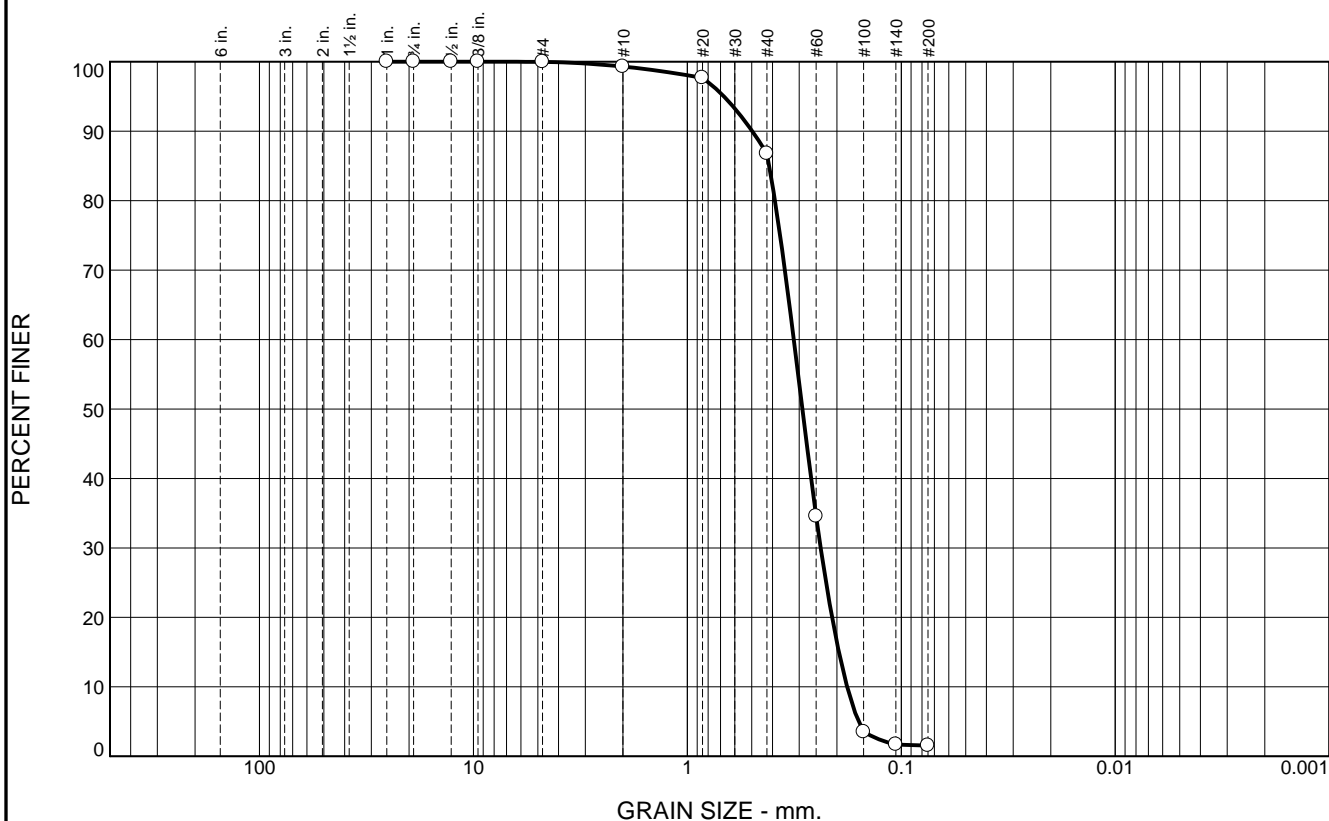
Recovery 15.6'

Longitude 88 19.544

Comments



Particle Size Distribution Report



| % +3" | % Gravel | | % Sand | | | % Fines | |
|-------|----------|------|--------|--------|------|---------|------|
| | Coarse | Fine | Coarse | Medium | Fine | Silt | Clay |
| 0.0 | 0.0 | 0.0 | 0.7 | 12.5 | 85.3 | 1.5 | |

| SIEVE SIZE | PERCENT FINER | SPEC.* PERCENT | PASS? (X=NO) |
|------------|---------------|----------------|--------------|
| 1 | 100.0 | | |
| .75 | 100.0 | | |
| .5 | 100.0 | | |
| .375 | 100.0 | | |
| #4 | 100.0 | | |
| #10 | 99.3 | | |
| #20 | 97.7 | | |
| #40 | 86.8 | | |
| #60 | 34.6 | | |
| #100 | 3.5 | | |
| #140 | 1.7 | | |
| #200 | 1.5 | | |

Material Description

Fine to medium grained, SAND

Atterberg Limits

PL= LL= PI=

Coefficients

D₉₀= 0.4975 D₈₅= 0.4145 D₆₀= 0.3182
D₅₀= 0.2901 D₃₀= 0.2381 D₁₅= 0.1958
D₁₀= 0.1792 C_u= 1.78 C_c= 0.99

Classification

USCS= SP AASHTO=

Remarks

* (no specification provided)

Location: BI-PB-156-12 A
Sample Number: 6494 (63)

Depth: 0.0'

Date: 12/26/12

Thompson Engineering

Mobile, Alabama

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

Project No: 1221110095

Figure

Boring Designation BI-PB-157-12

| | | | | |
|--|--|---|--|--|
| DRILLING LOG | | DIVISION South Atlantic | INSTALLATION Mobile District | SHEET 1 OF 1 SHEETS |
| 1. PROJECT MsCIP Barrier Island Restoration Petit Bois Pass- AL East | | | 9. SIZE AND TYPE OF BIT N/A | |
| 2. BORING DESIGNATION BI-PB-157-12 | | 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 | | <input type="checkbox"/> AUTO HAMMER <input type="checkbox"/> MANUAL HAMMER |
| 4. NAME OF DRILLER American Vibracore Systems, Inc. | | 12. TOTAL SAMPLES | | DISTURBED 0 |
| 5. DIRECTION OF BORING <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED | | 13. TOTAL NUMBER CORE BOXES | | UNDISTURBED (UD) 0 |
| 6. THICKNESS OF OVERBURDEN N/A | | 14. WATER DEPTH 36.7 Ft. | | |
| 7. DEPTH DRILLED INTO ROCK N/A | | 15. DATE BORING | | STARTED 12-11-12 COMPLETED 12-11-12 |
| 8. TOTAL DEPTH OF BORING 19.8 Ft. | | 16. ELEVATION TOP OF BORING -34.8 Ft. | | |
| | | 17. TOTAL RECOVERY FOR BORING 100% | | |
| | | 18. SIGNATURE AND TITLE OF INSPECTOR Mike FitzHarris, Geologist | | |

| ELEV. | DEPTH | LEGEND | CLASSIFICATION OF MATERIALS | SAMPLE | LABORATORY RESULTS |
|-------|-------|-----------|--|--------|--|
| -34.8 | 0.0 | | | | |
| | | ••••• | SAND, poorly-graded, mostly fine to medium-grained sand-sized quartz, trace silt, trace clayey nodules, gray to light gray (SP) | A | Classification: SP Color: 2.5Y 7/2-light gray D50: 0.3406 mm % Fines: 2.4 |
| | | ••••• | | B | Classification: SP Color: 2.5Y 8/1-white D50: 0.3525 mm % Fines: 1.9 |
| -42.4 | 7.6 | | | | |
| | | | SAND, silty, mostly fine-grained sand-sized quartz, some silt, trace clay, trace shell fragments, greenish gray (SM) | | |
| | | | | NS | |
| -49.1 | 14.3 | | | | |
| | | / / / / / | CLAY, fat, mostly clay, medium to high plasticity, trace sandy pockets, greenish gray (CH) | | |
| -54.6 | 19.8 | | | | |
| | | | NOTES: 1. Soils are field visually classified in accordance with the Unified Soils Classification System. 2. NS = Sample not submitted for laboratory analysis from this interval. 3. Seafloor elevation determined from 2010 USACE survey. | | |

Project

Mississippi Barrier Island
Restoration Project



Core Identifier BI-PB-157-12

Date 12/11/2012

Water Depth 36.7'

Coordinate System

Latitude / Longitude

Start Time 14:33:57

End Time 14:36:28

Penetration 20.0'

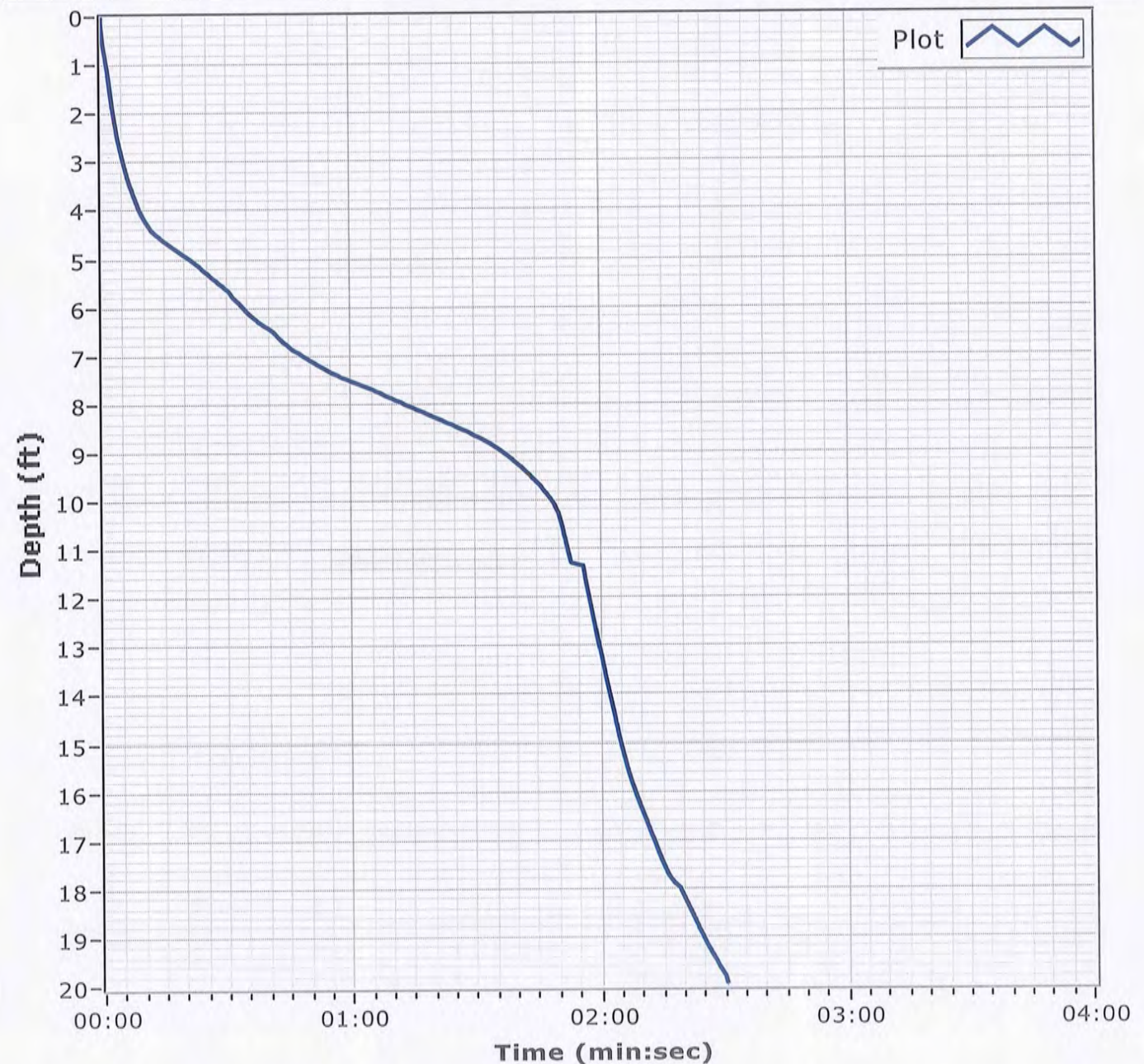
Latitude 33 11.842

Total Time 00:02:30

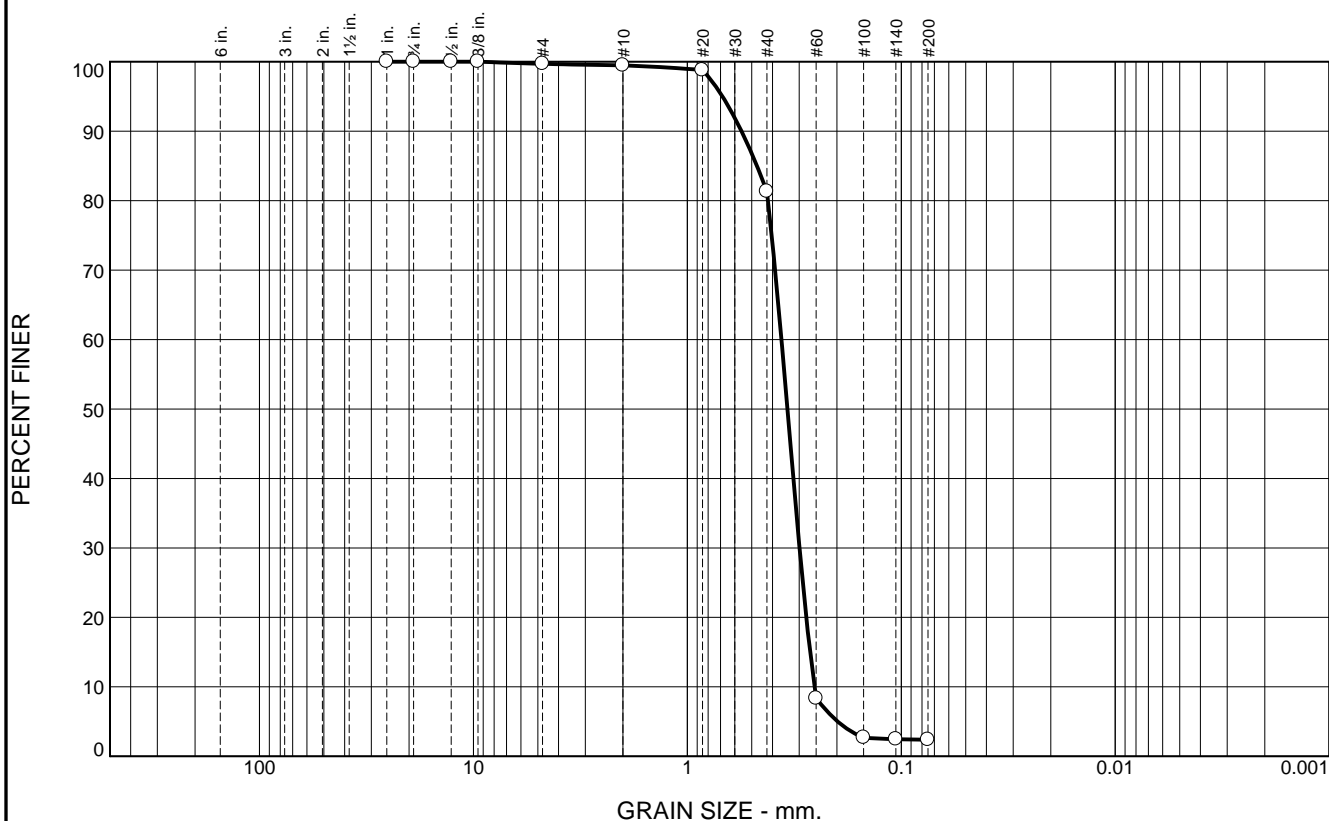
Recovery 19.8'

Longitude 088 19.494

Comments



Particle Size Distribution Report



| % +3" | % Gravel | | % Sand | | | % Fines | |
|-------|----------|------|--------|--------|------|---------|------|
| | Coarse | Fine | Coarse | Medium | Fine | Silt | Clay |
| 0.0 | 0.0 | 0.3 | 0.2 | 18.2 | 78.9 | 2.4 | |

| SIEVE SIZE | PERCENT FINER | SPEC.* PERCENT | PASS? (X=NO) |
|------------|---------------|----------------|--------------|
| 1 | 100.0 | | |
| .75 | 100.0 | | |
| .5 | 100.0 | | |
| .375 | 100.0 | | |
| #4 | 99.7 | | |
| #10 | 99.5 | | |
| #20 | 98.8 | | |
| #40 | 81.3 | | |
| #60 | 8.3 | | |
| #100 | 2.7 | | |
| #140 | 2.5 | | |
| #200 | 2.4 | | |

Material Description
Fine to medium grained, SAND

Atterberg Limits
 PL= LL= PI=

Coefficients
 D₉₀= 0.5583 D₈₅= 0.4730 D₆₀= 0.3631
 D₅₀= 0.3406 D₃₀= 0.2992 D₁₅= 0.2671
 D₁₀= 0.2547 C_u= 1.43 C_c= 0.97

Classification
 USCS= SP AASHTO=

Remarks

* (no specification provided)

Location: BI-PB-157-12 A
Sample Number: 6485 (8)

Depth: 0.0'

Date: 12/07/12

Thompson Engineering

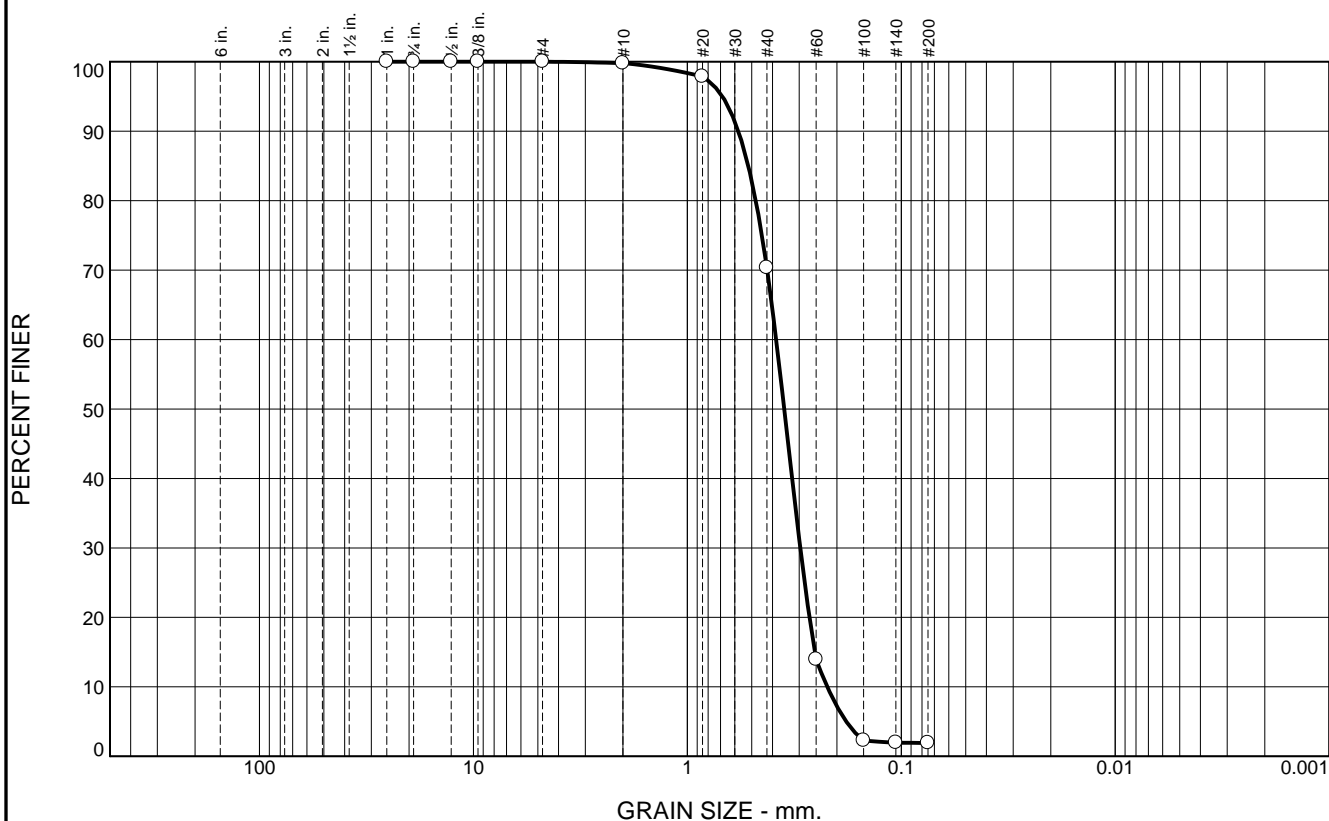
Mobile, Alabama

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

Project No: 1221110095

Figure

Particle Size Distribution Report



| % +3" | % Gravel | | % Sand | | | % Fines | |
|-------|----------|------|--------|--------|------|---------|------|
| | Coarse | Fine | Coarse | Medium | Fine | Silt | Clay |
| 0.0 | 0.0 | 0.0 | 0.2 | 29.5 | 68.4 | 1.9 | |

| SIEVE SIZE | PERCENT FINER | SPEC.* PERCENT | PASS? (X=NO) |
|------------|---------------|----------------|--------------|
| 1 | 100.0 | | |
| .75 | 100.0 | | |
| .5 | 100.0 | | |
| .375 | 100.0 | | |
| #4 | 100.0 | | |
| #10 | 99.8 | | |
| #20 | 97.9 | | |
| #40 | 70.3 | | |
| #60 | 13.9 | | |
| #100 | 2.3 | | |
| #140 | 2.0 | | |
| #200 | 1.9 | | |

Material Description
Fine to medium grained, SAND

Atterberg Limits
 PL= LL= PI=

Coefficients
 D₉₀= 0.5774 D₈₅= 0.5190 D₆₀= 0.3845
 D₅₀= 0.3525 D₃₀= 0.2968 D₁₅= 0.2536
 D₁₀= 0.2217 C_u= 1.73 C_c= 1.03

Classification
 USCS= SP AASHTO=

Remarks

* (no specification provided)

Location: BI-PB-157-12 B
Sample Number: 6485 (9)

Depth: 5.0'

Date: 12/07/12

Thompson Engineering

Mobile, Alabama

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

Project No: 1221110095

Figure

Boring Designation BI-PB-158-12

| | | | | |
|--|--|---|--|--|
| DRILLING LOG | | DIVISION South Atlantic | INSTALLATION Mobile District | SHEET 1 OF 1 SHEETS |
| 1. PROJECT MsCIP Barrier Island Restoration Petit Bois Pass- AL East | | | 9. SIZE AND TYPE OF BIT N/A | |
| 2. BORING DESIGNATION BI-PB-158-12 | | 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 | | <input type="checkbox"/> AUTO HAMMER <input type="checkbox"/> MANUAL HAMMER |
| 4. NAME OF DRILLER American Vibracore Systems, Inc. | | 12. TOTAL SAMPLES | | DISTURBED 0 |
| 5. DIRECTION OF BORING <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED | | 13. TOTAL NUMBER CORE BOXES | | UNDISTURBED (UD) 0 |
| 6. THICKNESS OF OVERBURDEN N/A | | 14. WATER DEPTH 36.4 Ft. | | 15. DATE BORING |
| 7. DEPTH DRILLED INTO ROCK N/A | | 16. ELEVATION TOP OF BORING -36.1 Ft. | | STARTED 12-12-12 |
| 8. TOTAL DEPTH OF BORING 19.7 Ft. | | 17. TOTAL RECOVERY FOR BORING 100% | | COMPLETED 12-12-12 |
| 18. SIGNATURE AND TITLE OF INSPECTOR Mike FitzHarris, Geologist | | | | |

| ELEV. | DEPTH | LEGEND | CLASSIFICATION OF MATERIALS | SAMPLE | LABORATORY RESULTS |
|---|-------|---|--|--------|--|
| -36.1 | 0.0 | | | | |
| -37.5 | 1.4 | [Dotted pattern] | SAND, poorly-graded, mostly fine to medium-grained sand-sized quartz, trace silt, trace shell fragments, lt. gray (SP) | A | Classification: SP Color: 5Y 7/2-light gray D50: 0.4123 mm % Fines: 2.1 |
| -40.8 | 4.7 | | SAND, poorly-graded, mostly fine to medium-grained sand-sized quartz, trace fines, clayey band @ 1.7 ft., lt. gray to white (SP) | B | Classification: SP-SM Color: 2.5Y 8/1-white D50: 0.3581 mm % Fines: 5.8 |
| -43.4 | 7.3 | [Vertical lines] | SAND, poorly-graded with silt, mostly fine-grained sand-sized quartz, few silt, trace shell fragments, gray (SP-SM) | C | Classification: SP Color: 2.5Y 8/1-white D50: 0.3364 mm % Fines: 1.8 |
| -52.6 | 16.5 | [Diagonal lines] | SAND, silty, mostly fine-grained sand-sized quartz, some silt, with clay stringers, gray (SM) | D | Classification: SP-SM Color: 5Y 5/2-olive gray D50: 0.259 mm % Fines: 8.9 |
| -53.4 | 17.3 | | SAND, clayey, mostly fine-grained sand-sized quartz, some clay, stiff, greenish gray (SC) | NS | |
| -55.8 | 19.7 | CLAY, fat, mostly clay, medium to high plasticity, stiff, dark green (CH) | | | |
| <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 determined from 2010 USACE survey.</p> | | | | | |

Project

Mississippi Barrier Island
Restoration Project



Core Identifier BI-PB-158-12

Date 12/12/2012

Water Depth 36.4'

Coordinate System

Latitude / Longitude

Start Time 09:16:27

End Time 09:18:56

Penetration 20.0'

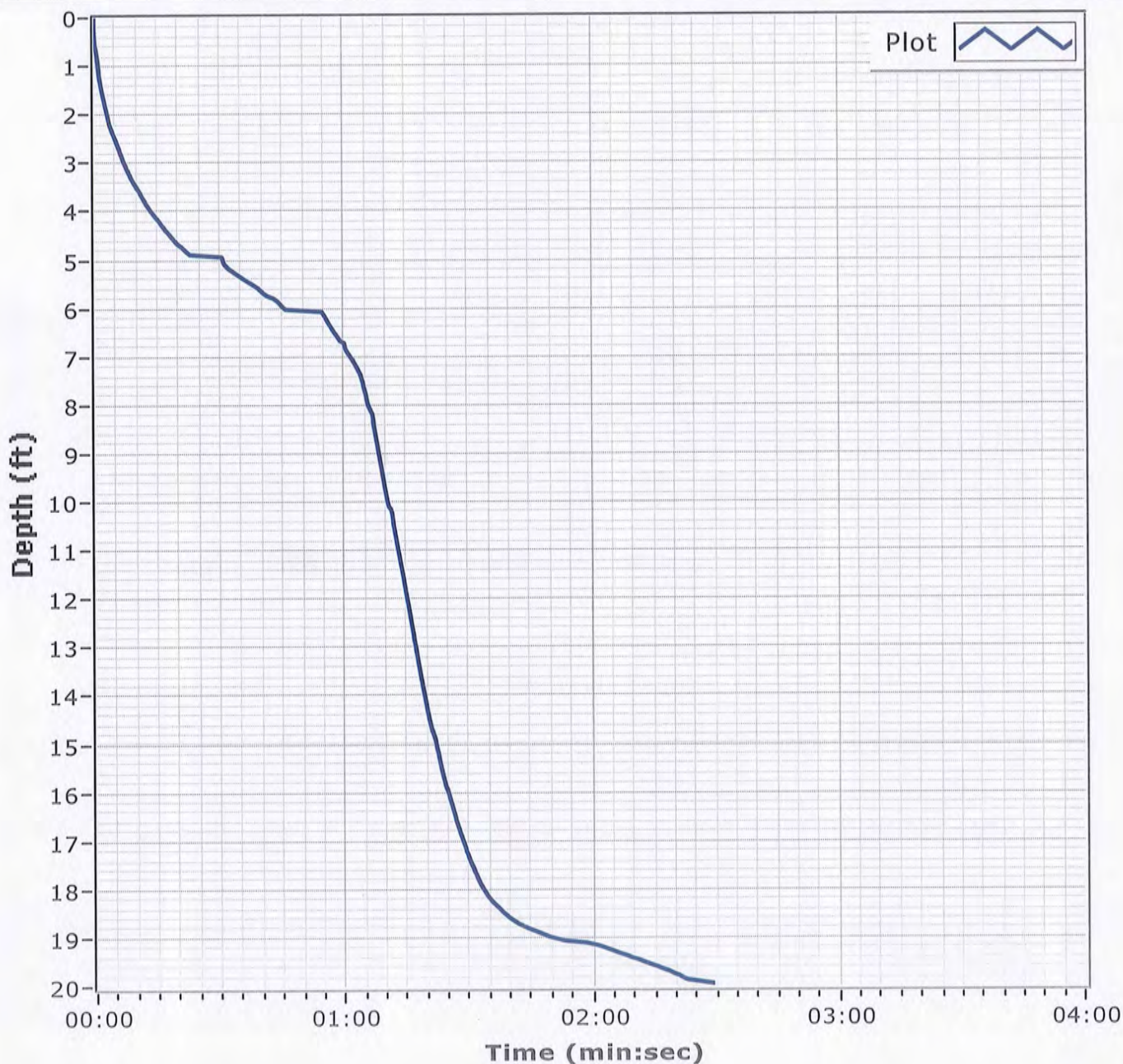
Latitude 30 11.827

Total Time 00:02:29

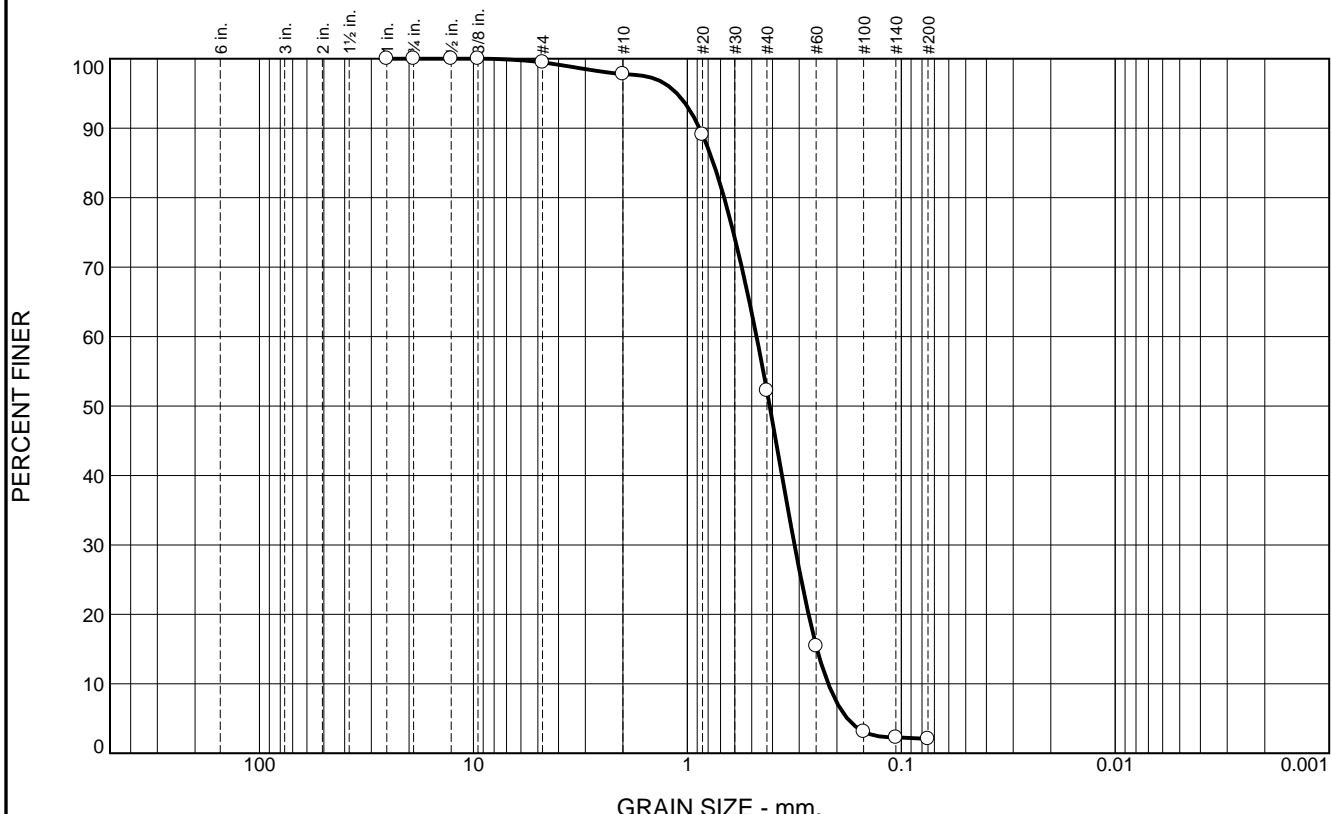
Recovery 19.7'

Longitude 088 19.382

Comments



Particle Size Distribution Report



| % +3" | % Gravel | | % Sand | | | % Fines | |
|-------|----------|------|--------|--------|------|---------|------|
| | Coarse | Fine | Coarse | Medium | Fine | Silt | Clay |
| 0.0 | 0.0 | 0.5 | 1.7 | 45.6 | 50.1 | 2.1 | |

| SIEVE SIZE | PERCENT FINER | SPEC.* PERCENT | PASS? (X=NO) |
|------------|---------------|----------------|--------------|
| 1 | 100.0 | | |
| .75 | 100.0 | | |
| .5 | 100.0 | | |
| .375 | 100.0 | | |
| #4 | 99.5 | | |
| #10 | 97.8 | | |
| #20 | 89.1 | | |
| #40 | 52.2 | | |
| #60 | 15.5 | | |
| #100 | 3.1 | | |
| #140 | 2.3 | | |
| #200 | 2.1 | | |

Material Description
Fine to medium grained, SAND

Atterberg Limits
 PL= LL= PI=

Coefficients
 D₉₀= 0.8772 D₈₅= 0.7562 D₆₀= 0.4750
 D₅₀= 0.4123 D₃₀= 0.3157 D₁₅= 0.2477
 D₁₀= 0.2194 C_u= 2.16 C_c= 0.96

Classification
 USCS= SP AASHTO=

Remarks

* (no specification provided)

Location: BI-PB-158-12 A Depth: 0.0' Date: 12/07/12
 Sample Number: 6485 (10)

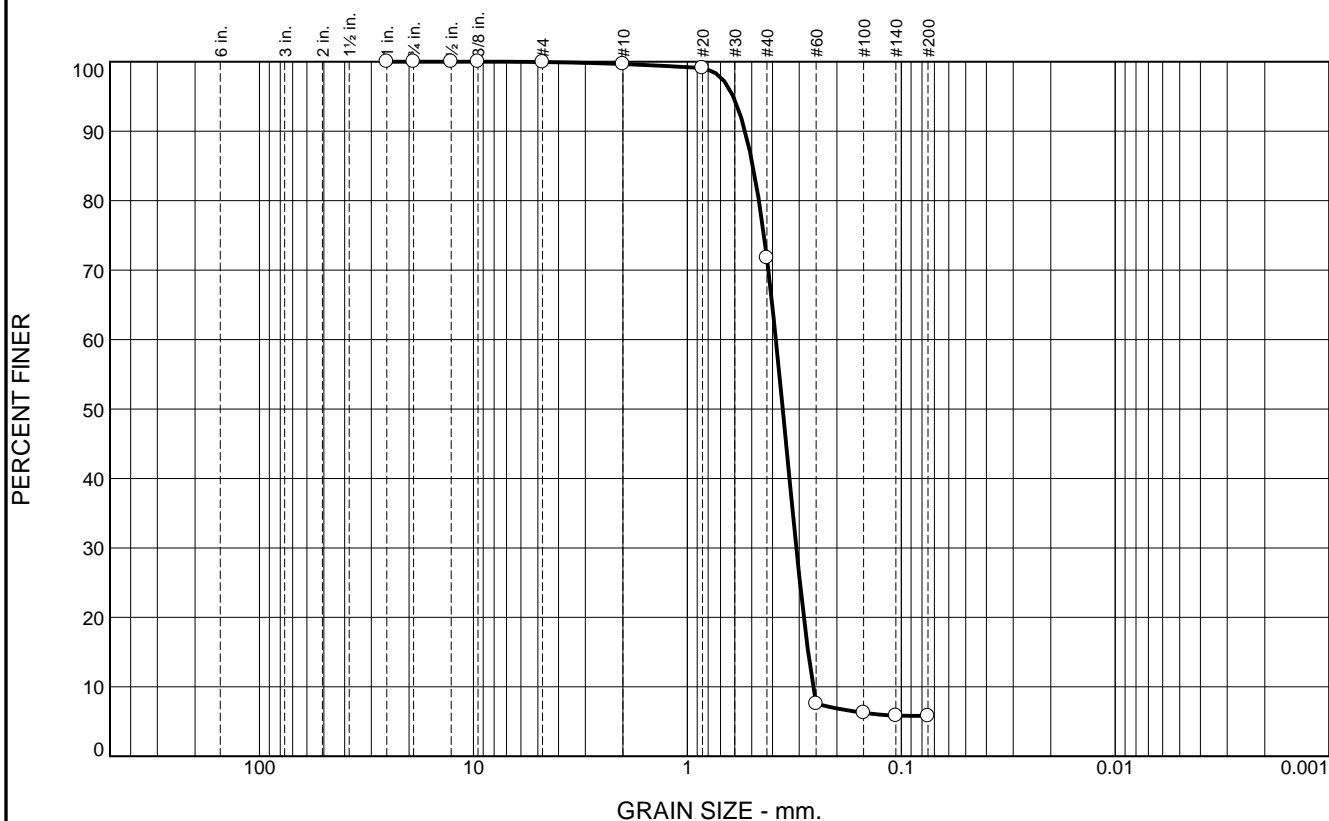
Thompson Engineering

Mobile, Alabama

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

 Project No: 1221110095 Figure

Particle Size Distribution Report



| % +3" | % Gravel | | % Sand | | | % Fines | |
|-------|----------|------|--------|--------|------|---------|------|
| | Coarse | Fine | Coarse | Medium | Fine | Silt | Clay |
| 0.0 | 0.0 | 0.0 | 0.3 | 28.0 | 65.9 | 5.8 | |

| SIEVE SIZE | PERCENT FINER | SPEC.* PERCENT | PASS? (X=NO) |
|------------|---------------|----------------|--------------|
| 1 | 100.0 | | |
| .75 | 100.0 | | |
| .5 | 100.0 | | |
| .375 | 100.0 | | |
| #4 | 100.0 | | |
| #10 | 99.7 | | |
| #20 | 99.1 | | |
| #40 | 71.7 | | |
| #60 | 7.6 | | |
| #100 | 6.3 | | |
| #140 | 5.8 | | |
| #200 | 5.8 | | |

Material Description

Fine to medium grained, SLIGHTLY SILTY SAND

Atterberg Limits

PL= LL= PI=

Coefficients

D₉₀= 0.5373 D₈₅= 0.4941 D₆₀= 0.3856
D₅₀= 0.3581 D₃₀= 0.3096 D₁₅= 0.2728
D₁₀= 0.2583 C_u= 1.49 C_c= 0.96

Classification

USCS= SP-SM AASHTO=

Remarks

* (no specification provided)

Location: BI-PB-158-12 B
Sample Number: 6485 (11)

Depth: 1.4'

Date: 12/07/12

Thompson Engineering

Mobile, Alabama

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

Project No: 1221110095

Figure

Particle Size Distribution Report



| % +3" | % Gravel | | % Sand | | | % Fines | |
|-------|----------|------|--------|--------|------|---------|------|
| | Coarse | Fine | Coarse | Medium | Fine | Silt | Clay |
| 0.0 | 0.0 | 0.0 | 0.1 | 14.5 | 83.6 | 1.8 | |

| SIEVE SIZE | PERCENT FINER | SPEC.* PERCENT | PASS? (X=NO) |
|------------|---------------|----------------|--------------|
| 1 | 100.0 | | |
| .75 | 100.0 | | |
| .5 | 100.0 | | |
| .375 | 100.0 | | |
| #4 | 100.0 | | |
| #10 | 99.9 | | |
| #20 | 99.9 | | |
| #40 | 85.4 | | |
| #60 | 7.2 | | |
| #100 | 1.9 | | |
| #140 | 1.8 | | |
| #200 | 1.8 | | |

Material Description

Fine to medium grained, SAND

Atterberg Limits

PL= LL= PI=

Coefficients

D₉₀= 0.5003 D₈₅= 0.4234 D₆₀= 0.3570
D₅₀= 0.3364 D₃₀= 0.2982 D₁₅= 0.2686
D₁₀= 0.2572 C_u= 1.39 C_c= 0.97

Classification

USCS= SP AASHTO=

Remarks

* (no specification provided)

Location: BI-PB-158-12 C
Sample Number: 6485 (12)

Depth: 4.7'

Date: 12/07/12

Thompson Engineering

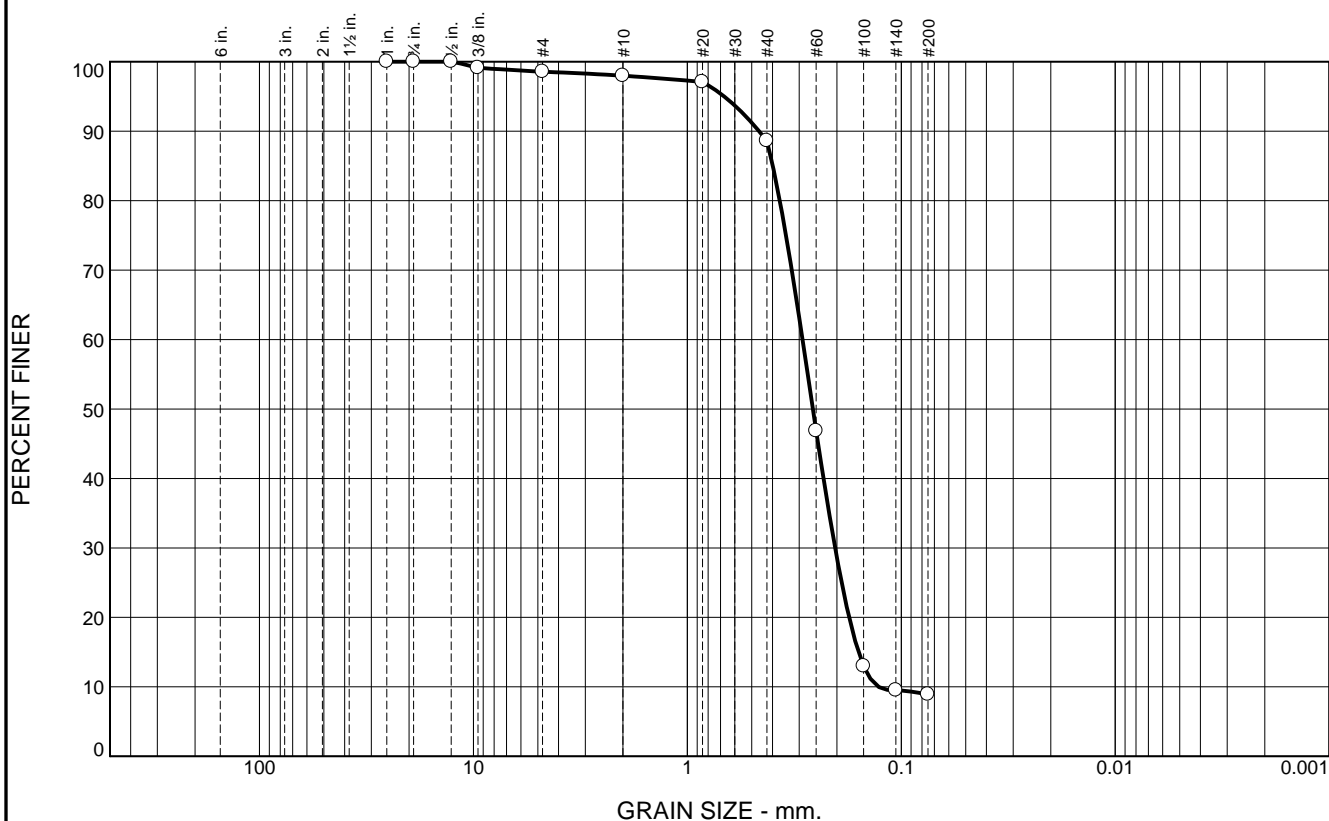
Mobile, Alabama

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

Project No: 1221110095

Figure

Particle Size Distribution Report



| % +3" | % Gravel | | % Sand | | | % Fines | |
|-------|----------|------|--------|--------|------|---------|------|
| | Coarse | Fine | Coarse | Medium | Fine | Silt | Clay |
| 0.0 | 0.0 | 1.4 | 0.6 | 9.4 | 79.7 | 8.9 | |

| SIEVE SIZE | PERCENT FINER | SPEC.* PERCENT | PASS? (X=NO) |
|------------|---------------|----------------|--------------|
| 1 | 100.0 | | |
| .75 | 100.0 | | |
| .5 | 100.0 | | |
| .375 | 99.1 | | |
| #4 | 98.6 | | |
| #10 | 98.0 | | |
| #20 | 97.1 | | |
| #40 | 88.6 | | |
| #60 | 46.9 | | |
| #100 | 13.0 | | |
| #140 | 9.5 | | |
| #200 | 8.9 | | |

Material Description

Fine grained, SLIGHTLY SILTY SAND, with trace SHELL

Atterberg Limits

PL= LL= PI=

Coefficients

D₉₀= 0.4624 D₈₅= 0.3985 D₆₀= 0.2896
D₅₀= 0.2590 D₃₀= 0.2039 D₁₅= 0.1586
D₁₀= 0.1277 C_u= 2.27 C_c= 1.12

Classification

USCS= SP-SM AASHTO=

Remarks

* (no specification provided)

Location: BI-PB-158-12 D
Sample Number: 6485 (13)

Depth: 7.3'

Date: 12/07/12

Thompson Engineering

Mobile, Alabama

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

Project No: 1221110095

Figure

Boring Designation BI-PB-159-12

| | | | | |
|--|--|---|--|--|
| DRILLING LOG | | DIVISION South Atlantic | INSTALLATION Mobile District | SHEET 1 OF 1 SHEETS |
| 1. PROJECT MsCIP Barrier Island Restoration Petit Bois Pass- AL East | | | 9. SIZE AND TYPE OF BIT N/A | |
| 2. BORING DESIGNATION BI-PB-159-12 | | 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 | | <input type="checkbox"/> AUTO HAMMER <input type="checkbox"/> MANUAL HAMMER |
| 4. NAME OF DRILLER American Vibracore Systems, Inc. | | 12. TOTAL SAMPLES | | DISTURBED 0 |
| 5. DIRECTION OF BORING <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED | | 13. TOTAL NUMBER CORE BOXES | | UNDISTURBED (UD) 0 |
| 6. THICKNESS OF OVERBURDEN N/A | | 14. WATER DEPTH 36.2 Ft. | | 15. DATE BORING |
| 7. DEPTH DRILLED INTO ROCK N/A | | 16. ELEVATION TOP OF BORING -36.0 Ft. | | STARTED 12-19-12 |
| 8. TOTAL DEPTH OF BORING 17.0 Ft. | | 17. TOTAL RECOVERY FOR BORING 100% | | COMPLETED 12-19-12 |
| 18. SIGNATURE AND TITLE OF INSPECTOR Mike FitzHarris, Geologist | | | | |

| ELEV. | DEPTH | LEGEND | CLASSIFICATION OF MATERIALS | SAMPLE | LABORATORY RESULTS |
|-------|-------|--------|---|--------|--------------------|
| -36.0 | 0.0 | | | | |
| -36.5 | 0.5 | | SAND, poorly-graded with silt, mostly fine to medium-grained sand-sized quartz, few silt, trace shell fragments, stiff, gray (SP-SM) | | |
| | | | CLAY, fat, mostly clay, trace shell fragments, sandy lenses between 13.8 and 17.0 ft., stiff, greenish gray (CH) | NS | |
| -53.0 | 17.0 | | | | |
| | | | NOTES: 1. Soils are field visually classified in accordance with the Unified Soils Classification System. 2. NS = Sample not submitted for laboratory analysis from this interval. 3. Seafloor elevation calculated using sampling vessel's fathometer water depth reading and applying NOAA tidal gauge data conversion factor. | | |

Project

Mississippi Barrier Island
Restoration Project



Core Identifier BI-PB-159-12

Date 12/19/2012

Water Depth 36.2'

Coordinate System

Latitude / Longitude

Start Time 13:00:41

End Time 13:03:24

Penetration 20.0'

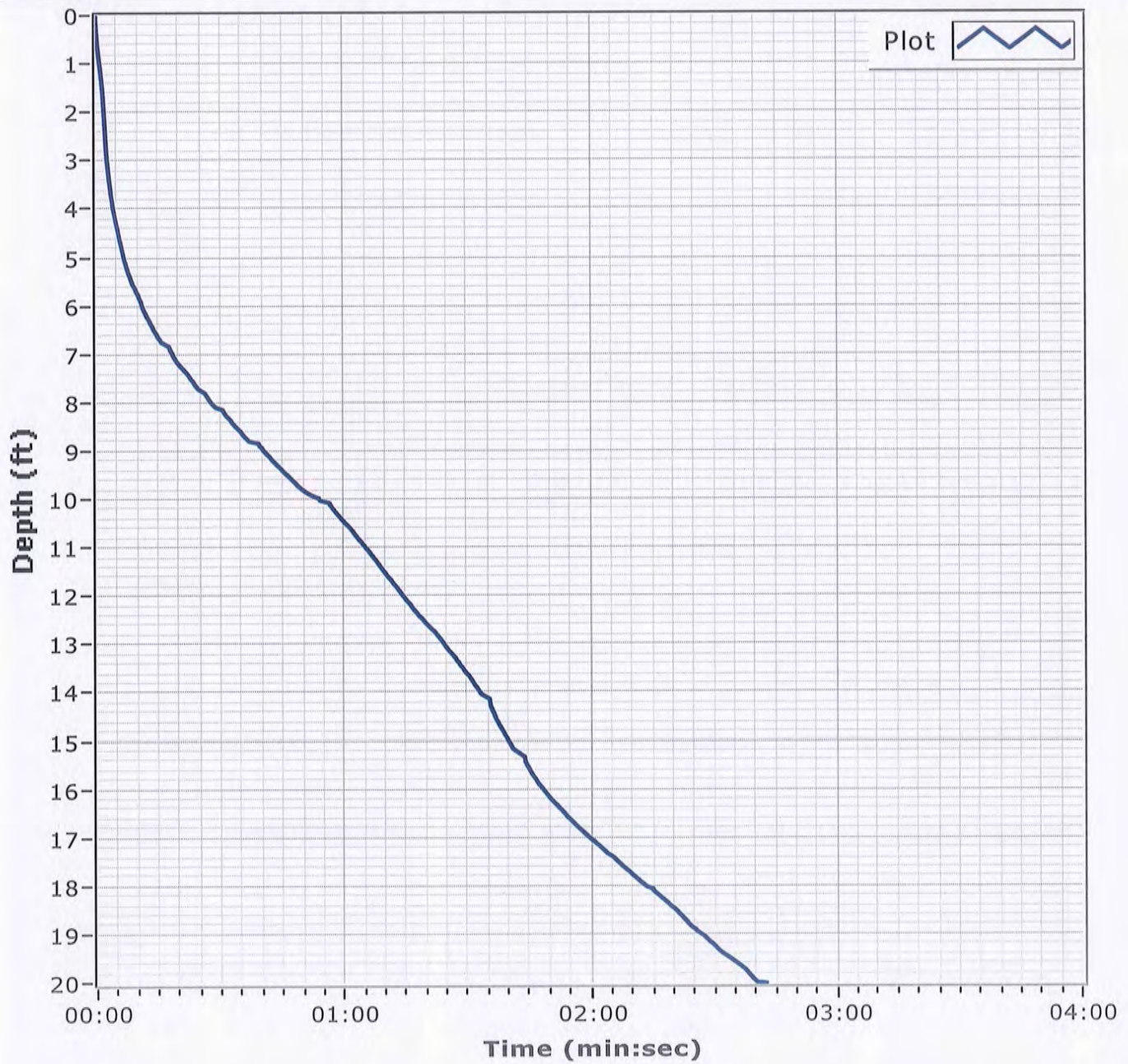
Latitude 30 11.722

Total Time 00:02:43

Recovery 17.0'

Longitude 88 19.409

Comments

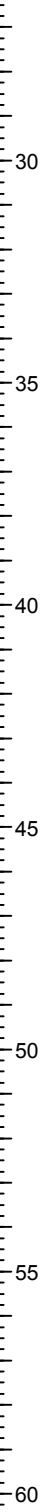


Boring Designation BI-PB-160-12

| | | | | |
|--|--|--|--|--|
| DRILLING LOG | | DIVISION South Atlantic | INSTALLATION Mobile District | SHEET 1 OF 2 SHEETS |
| 1. PROJECT MsCIP Barrier Island Restoration Petit Bois Pass- AL East | | 9. SIZE AND TYPE OF BIT N/A | | |
| 2. BORING DESIGNATION BI-PB-160-12 | | 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 | | <input type="checkbox"/> AUTO HAMMER <input type="checkbox"/> MANUAL HAMMER |
| 4. NAME OF DRILLER American Vibracore Systems, Inc. | | 12. TOTAL SAMPLES DISTURBED: UNDISTURBED (UD): 0 | | |
| 5. DIRECTION OF BORING <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED | | 13. TOTAL NUMBER CORE BOXES | | 14. WATER DEPTH 39.8 Ft. |
| 6. THICKNESS OF OVERBURDEN N/A | | 15. DATE BORING STARTED: 12-12-12 COMPLETED: 12-12-12 | | 16. ELEVATION TOP OF BORING -39.9 Ft. |
| 7. DEPTH DRILLED INTO ROCK N/A | | 17. TOTAL RECOVERY FOR BORING 100% | | 18. SIGNATURE AND TITLE OF INSPECTOR Mike FitzHarris, Geologist |
| 8. TOTAL DEPTH OF BORING 19.2 Ft. | | | | |

| ELEV. | DEPTH | LEGEND | CLASSIFICATION OF MATERIALS | SAMPLE | LABORATORY RESULTS |
|-------|-------|--------|---|--------|--------------------|
| -39.9 | 0.0 | | | | |
| -40.3 | 0.4 | | SAND, silty, mostly fine-grained sand-sized quartz, some silt, trace clay, grayish brown (SM) | | |
| -44.8 | 4.9 | | CLAY, fat, mostly clay, medium to high plasticity, clayey sand pockets throughout interval, dark gray (CH) | | |
| -47.5 | 7.6 | | SAND, clayey, mostly fine-grained sand-sized quartz, some clay, trace shell fragments, gray (SC) | | |
| -59.1 | 19.2 | | SAND, poorly-graded, mostly fine-grained sand-sized quartz, trace fines, occasional clay lenses, lt. gray (SP) | NS | |
| | | | NOTES: 1. Soils are field visually classified in accordance with the Unified Soils Classification System. 2. NS = Sample not submitted for laboratory analysis from this interval. 3. Seafloor elevation calculated using sampling vessel's fathometer water depth reading and applying NOAA tidal gauge data conversion | | |

| DRILLING LOG (Cont. Sheet) | | | INSTALLATION Mobile District | | | SHEET 2 |
|--|-------|--------|---|--------|----------------------------|---------------------------|
| | | | | | | OF 2 SHEETS |
| PROJECT MsCIP Barrier Island Restoration | | | COORDINATE SYSTEM/DATUM State Plane, MSE (U.S. Ft.) | | HORIZONTAL NAD83 | VERTICAL NAVD88 |
| LOCATION COORDINATES X = 1,147,443 Y = 252,508 | | | ELEVATION TOP OF BORING -39.9 Ft. | | | |
| ELEV. | DEPTH | LEGEND | CLASSIFICATION OF MATERIALS | SAMPLE | LABORATORY RESULTS | |
| | | | factor. | | | |



Project

Mississippi Barrier Island
Restoration Project



Core Identifier BI-PB-160-12

Date 12/12/2012

Water Depth 39.8'

Coordinate System

Latitude / Longitude

Start Time 14:15:27

End Time 14:22:02

Penetration 20.0'

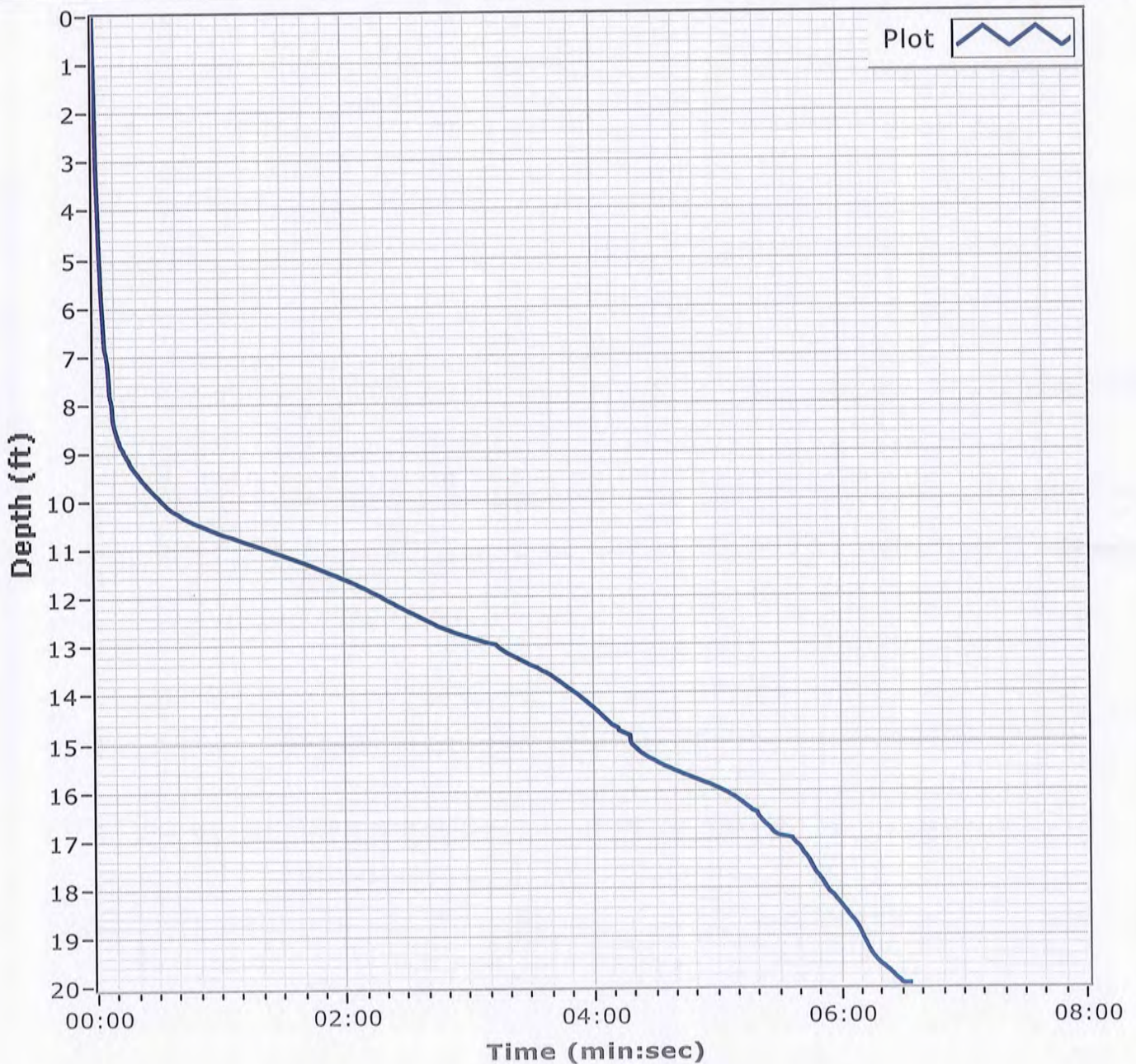
Latitude 30 11.600

Total Time 00:06:34

Recovery 19.3'

Longitude 088 19.007

Comments



Boring Designation BI-PB-161-12

| | | | | |
|--|--|---|--|--|
| DRILLING LOG | | DIVISION South Atlantic | INSTALLATION Mobile District | SHEET 1 OF 1 SHEETS |
| 1. PROJECT MsCIP Barrier Island Restoration Petit Bois Pass- AL East | | | 9. SIZE AND TYPE OF BIT N/A | |
| 2. BORING DESIGNATION BI-PB-161-12 | | 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 | | <input type="checkbox"/> AUTO HAMMER <input type="checkbox"/> MANUAL HAMMER |
| 4. NAME OF DRILLER American Vibracore Systems, Inc. | | 12. TOTAL SAMPLES | | DISTURBED 0 |
| 5. DIRECTION OF BORING <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED | | LOCATION COORDINATES E = 1,147,992 N = 252,019 | 13. TOTAL NUMBER CORE BOXES | |
| 6. THICKNESS OF OVERBURDEN N/A | | 14. WATER DEPTH 41.7 Ft. | | 15. DATE BORING |
| 7. DEPTH DRILLED INTO ROCK N/A | | 16. ELEVATION TOP OF BORING -41.7 Ft. | | STARTED 12-12-12 |
| 8. TOTAL DEPTH OF BORING 11.6 Ft. | | 17. TOTAL RECOVERY FOR BORING 100% | | COMPLETED 12-12-12 |
| 18. SIGNATURE AND TITLE OF INSPECTOR Mike FitzHarris, Geologist | | | | |

| ELEV. | DEPTH | LEGEND | CLASSIFICATION OF MATERIALS | SAMPLE | LABORATORY RESULTS |
|--|-------|--------|--|--------|--------------------|
| -41.7 | 0.0 | | | | |
| -42.5 | 0.8 | | CLAY, lean, mostly clay, some silt, little shell fragments, trace fine-grained sand-sized quartz, soft, grayish brown (CL) | NS | |
| -45.9 | 4.2 | | CLAY, fat, mostly clay, some fine-grained sand-sized quartz, trace shell fragments, stiff, medium to high plasticity, gray (CH) | | |
| -46.9 | 5.2 | | SAND, clayey, mostly fine-grained sand-sized quartz, some clay, few shell fragments, gray (SC) | | |
| | | | SAND, poorly-graded, mostly fine-grained sand-sized quartz, trace fines, trace clay lenses throughout interval, lt. gray to white (SP) | | |
| -53.3 | 11.6 | | | | |
| <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-161-12

Date 12/12/2012

Water Depth 41.7'

Coordinate System

Latitude / Longitude

Start Time 14:48:57

End Time 14:56:02

Penetration 12.7'

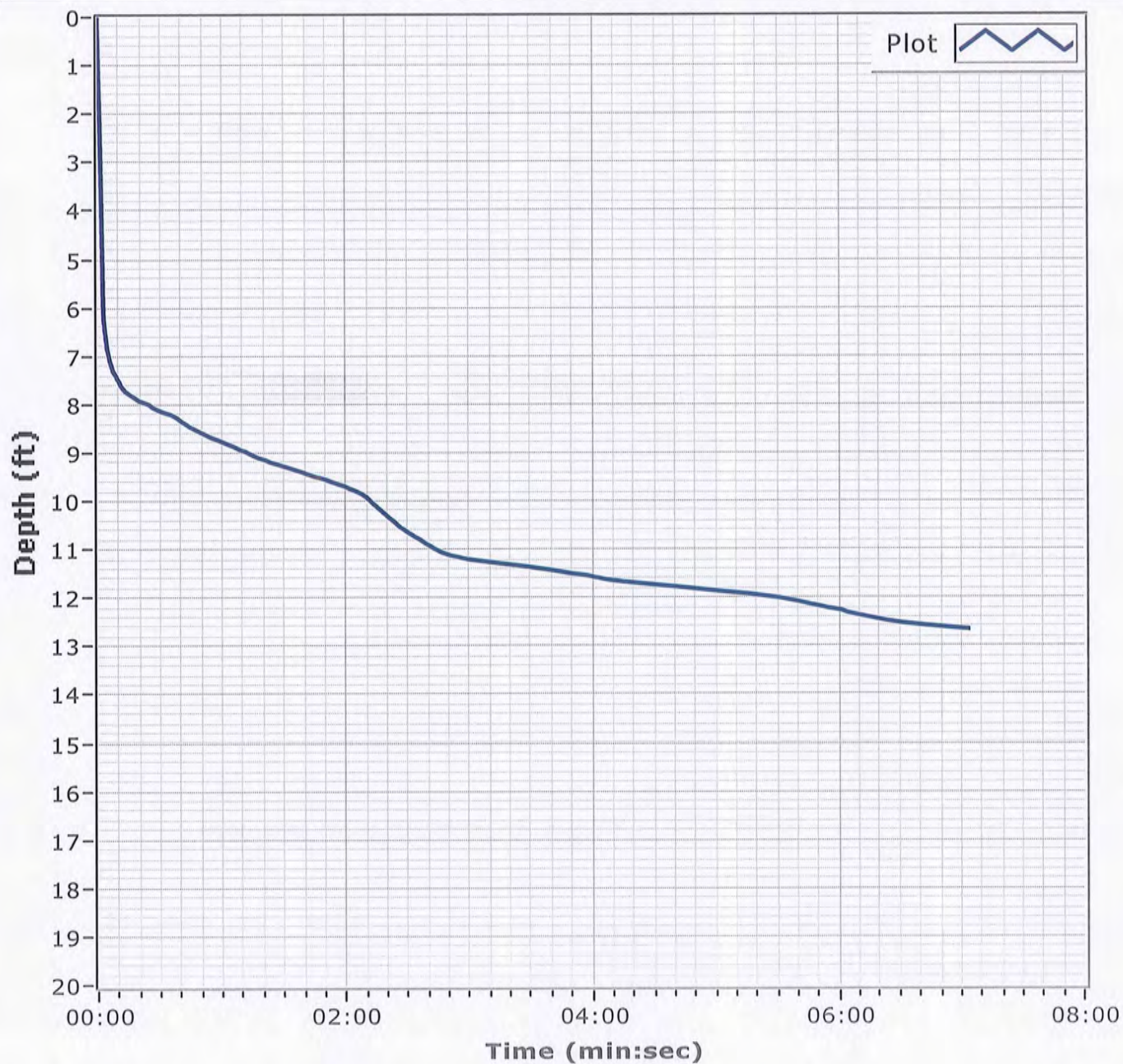
Latitude 30 11.895

Total Time 00:07:04

Recovery 11.6'








Longitude 088 18.903

Comments



Boring Designation BI-PB-162-12

| | | | | |
|--|--|---|--|--|
| DRILLING LOG | | DIVISION South Atlantic | INSTALLATION Mobile District | SHEET 1 OF 2 SHEETS |
| 1. PROJECT MsCIP Barrier Island Restoration Petit Bois Pass- AL East | | | 9. SIZE AND TYPE OF BIT N/A | |
| 2. BORING DESIGNATION BI-PB-162-12 | | 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 | | <input type="checkbox"/> AUTO HAMMER <input type="checkbox"/> MANUAL HAMMER |
| 4. NAME OF DRILLER American Vibracore Systems, Inc. | | 12. TOTAL SAMPLES | | DISTURBED 0 |
| 5. DIRECTION OF BORING <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED | | 13. TOTAL NUMBER CORE BOXES | | UNDISTURBED (UD) 0 |
| 6. THICKNESS OF OVERBURDEN N/A | | 14. WATER DEPTH 40.6 Ft. | | 15. DATE BORING |
| 7. DEPTH DRILLED INTO ROCK N/A | | 16. ELEVATION TOP OF BORING -40.1 Ft. | | STARTED 12-06-12 |
| 8. TOTAL DEPTH OF BORING 20.0 Ft. | | 17. TOTAL RECOVERY FOR BORING 100% | | COMPLETED 12-06-12 |
| 18. SIGNATURE AND TITLE OF INSPECTOR Mike FitzHarris, Geologist | | | | |

| ELEV. | DEPTH | LEGEND | CLASSIFICATION OF MATERIALS | SAMPLE | LABORATORY RESULTS |
|---|-------|---|--|--------|---|
| -40.1 | 0.0 | | | | |
| -41.4 | 1.3 |  | SAND, poorly-graded, mostly fine to medium-grained sand-sized quartz, few shell fragments, trace silt, trace clay, gray (SP) | A | Classification: SP Color: 2.5Y 6/2-light brownish gray D50: 0.33 mm % Fines: 4.8 |
| | |  | SAND, poorly-graded with silt, mostly fine to medium-grained sand-sized quartz, few silt, trace clayey stringers, gray (SP-SM) | B | Classification: SP Color: 2.5Y 5/2-grayish brown D50: 0.316 mm % Fines: 4.7 |
| | |  | | C | Classification: SP-SM Color: 2.5Y 6/1-gray D50: 0.3059 mm % Fines: 7.8 |
| -55.1 | 15.0 |  | | | |
| -56.8 | 16.7 |  | SAND, clayey, mostly fine-grained sand-sized quartz, some clay, gray (SC) | | |
| | |  | CLAY, fat, mostly clay, medium to high plasticity, sandy at 16.8 and 18.7 ft., stiff, gray (CH) | NS | |
| -60.1 | 20.0 |  | | | |
| <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 determined from 2010</p> | | | | | |

| DRILLING LOG (Cont. Sheet) | | | INSTALLATION Mobile District | | | SHEET 2 |
|--|-------|--------|---|----------------------------|---------------------------|--------------------|
| | | | | | | OF 2 SHEETS |
| PROJECT MsCIP Barrier Island Restoration | | | COORDINATE SYSTEM/DATUM State Plane, MSE (U.S. Ft.) | HORIZONTAL NAD83 | VERTICAL NAVD88 | |
| LOCATION COORDINATES X = 1,154,862 Y = 254,331 | | | ELEVATION TOP OF BORING -40.1 Ft. | | | |
| ELEV. | DEPTH | LEGEND | CLASSIFICATION OF MATERIALS | SAMPLE | LABORATORY RESULTS | |
| | | | USACE survey. | | | |



Project

Mississippi Barrier Island
Restoration Project



Core Identifier BI-PB-162-12

Date 12/06/2012

Water Depth 40.6'

Coordinate System

Latitude / Longitude

Start Time 13:24:22

End Time 13:26:11

Penetration 20.0'

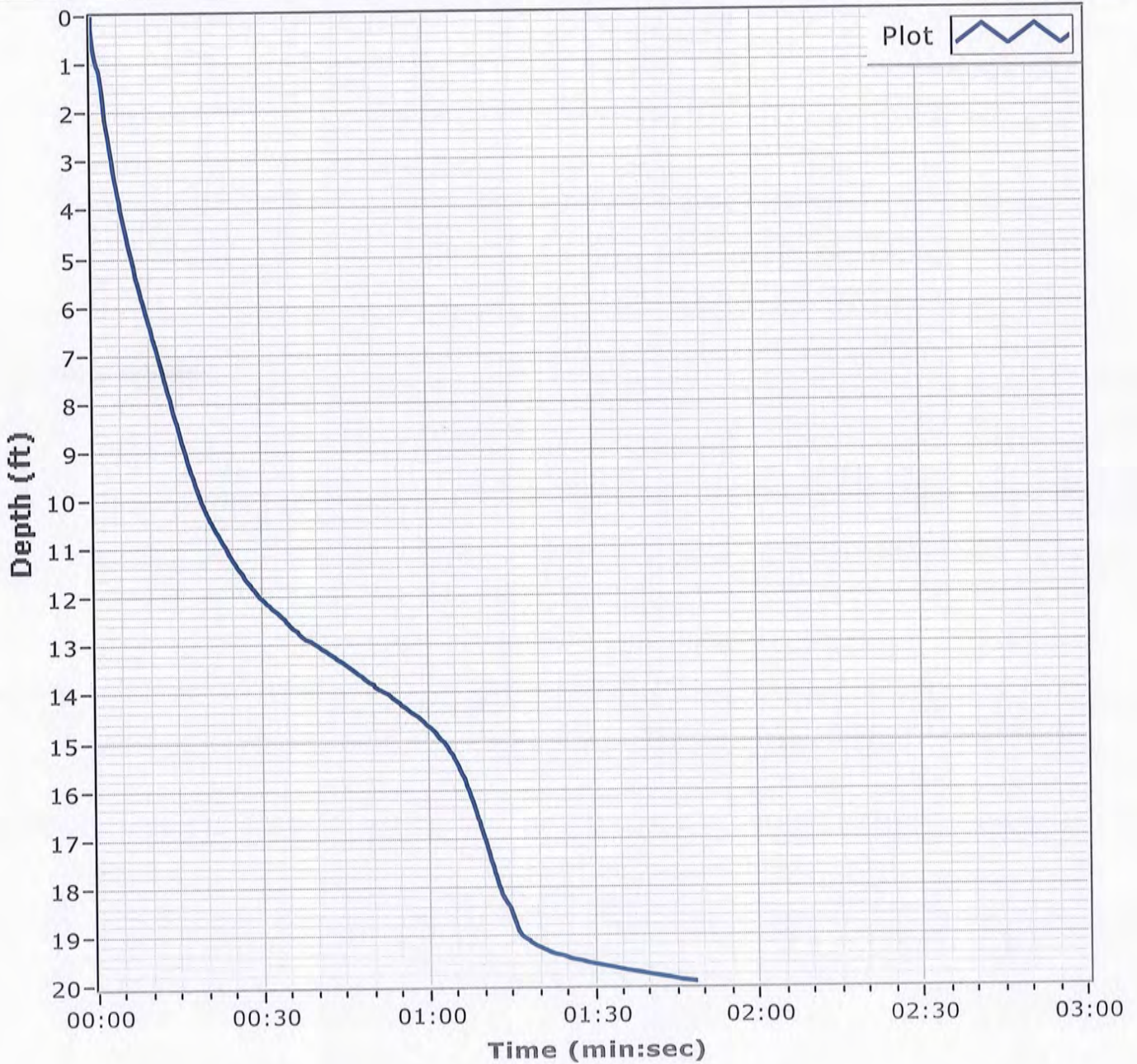
Latitude 30 11.895

Total Time 00:01:48

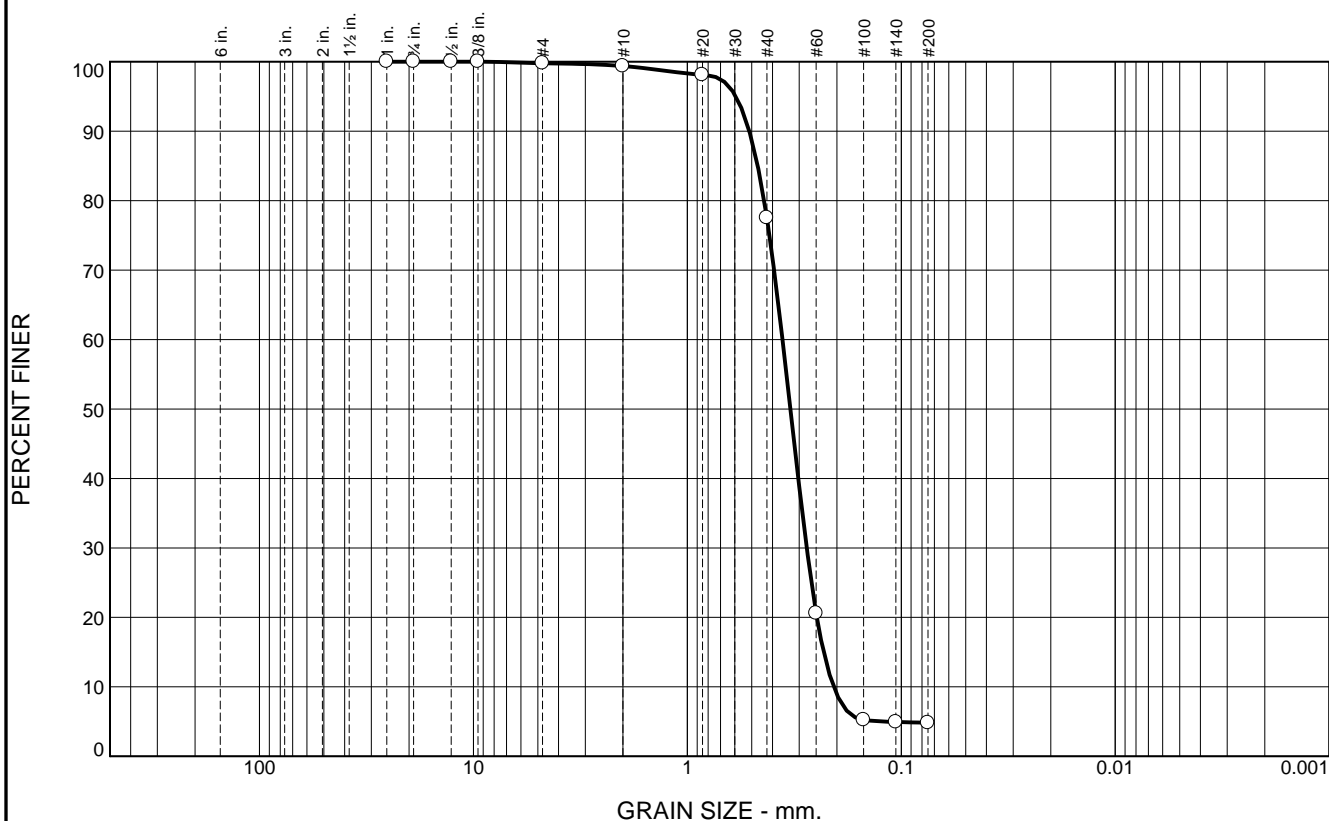
Recovery 20.0'

Longitude 088 17.596

Comments



Particle Size Distribution Report



| % +3" | % Gravel | | % Sand | | | % Fines | |
|-------|----------|------|--------|--------|------|---------|------|
| | Coarse | Fine | Coarse | Medium | Fine | Silt | Clay |
| 0.0 | 0.0 | 0.2 | 0.4 | 21.9 | 72.7 | 4.8 | |

| SIEVE SIZE | PERCENT FINER | SPEC.* PERCENT | PASS? (X=NO) |
|------------|---------------|----------------|--------------|
| 1 | 100.0 | | |
| .75 | 100.0 | | |
| .5 | 100.0 | | |
| .375 | 100.0 | | |
| #4 | 99.8 | | |
| #10 | 99.4 | | |
| #20 | 98.1 | | |
| #40 | 77.5 | | |
| #60 | 20.6 | | |
| #100 | 5.2 | | |
| #140 | 4.9 | | |
| #200 | 4.8 | | |

Material Description
Fine to medium grained, SAND

Atterberg Limits
 PL= LL= PI=

Coefficients
 D₉₀= 0.5134 D₈₅= 0.4690 D₆₀= 0.3592
 D₅₀= 0.3300 D₃₀= 0.2768 D₁₅= 0.2305
 D₁₀= 0.2071 C_u= 1.73 C_c= 1.03

Classification
 USCS= SP AASHTO=

Remarks

* (no specification provided)

Location: BI-PB-162-12 A
Sample Number: 6480 (15)

Depth: 0.0'

Date: 12/07/12

Thompson Engineering

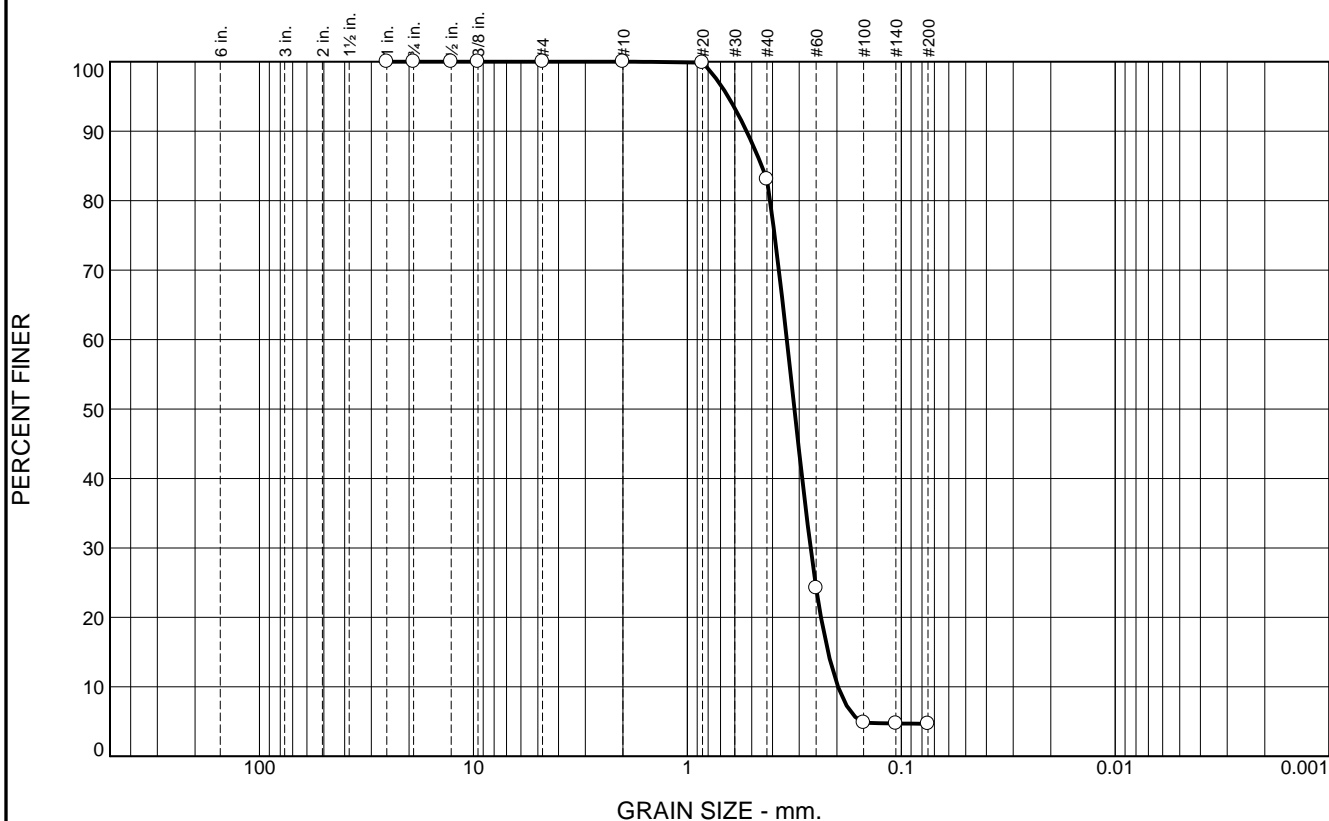
Mobile, Alabama

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 | 16.9 | 78.4 | 4.7 | |

| SIEVE SIZE | PERCENT FINER | SPEC.* PERCENT | PASS? (X=NO) |
|------------|---------------|----------------|--------------|
| 1 | 100.0 | | |
| .75 | 100.0 | | |
| .5 | 100.0 | | |
| .375 | 100.0 | | |
| #4 | 100.0 | | |
| #10 | 100.0 | | |
| #20 | 99.9 | | |
| #40 | 83.1 | | |
| #60 | 24.2 | | |
| #100 | 4.8 | | |
| #140 | 4.7 | | |
| #200 | 4.7 | | |

Material Description

Fine to medium grained, SAND

Atterberg Limits

PL= LL= PI=

Coefficients

D₉₀= 0.5289 D₈₅= 0.4494 D₆₀= 0.3429

D₅₀= 0.3160 D₃₀= 0.2656 D₁₅= 0.2199

D₁₀= 0.1976 C_u= 1.74 C_c= 1.04

Classification

USCS= SP AASHTO=

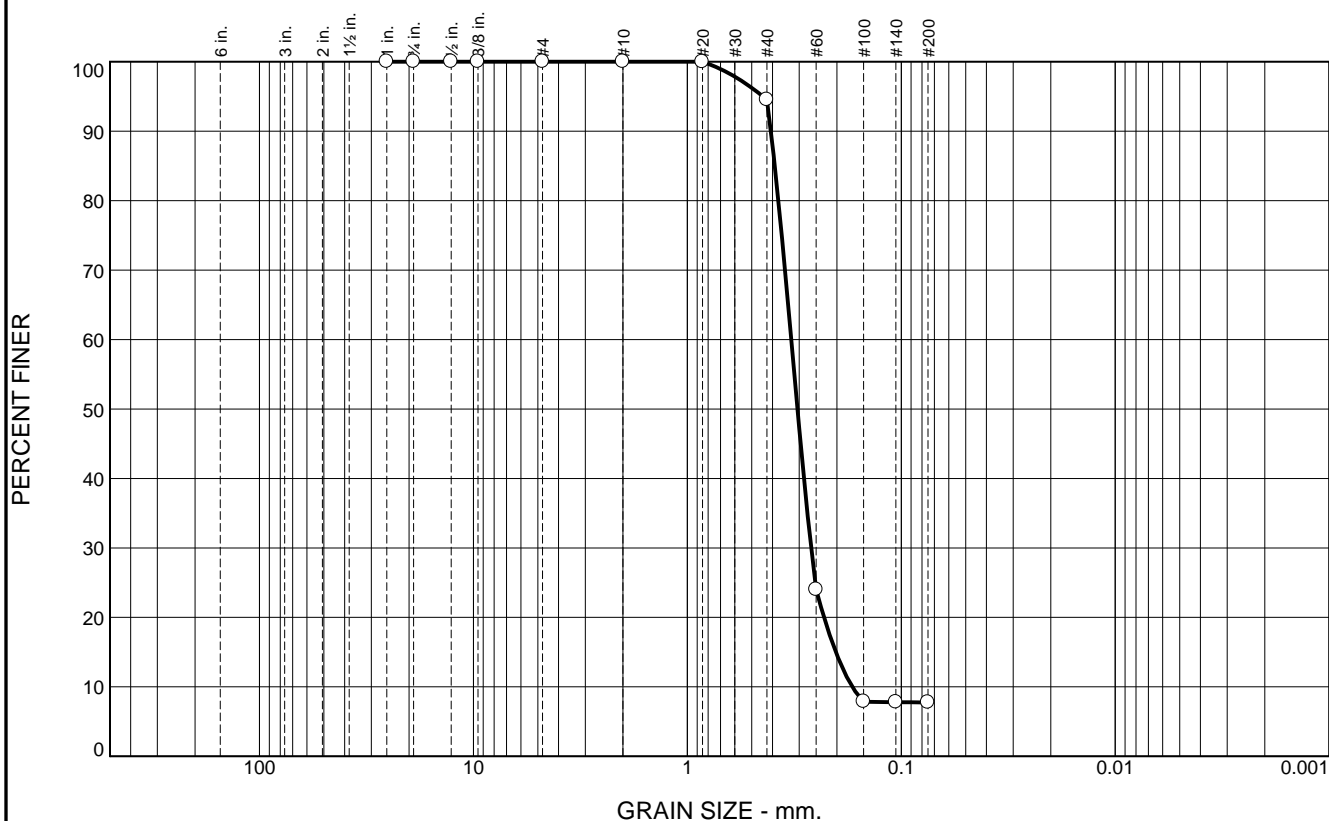
Remarks

* (no specification provided)

Location: BI-PB-162-12 B Depth: 5.0' Date: 12/07/12

| | |
|--|---|
| <p>Thompson Engineering</p> <p>Mobile, Alabama</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 | 5.5 | 86.7 | 7.8 | |

| SIEVE SIZE | PERCENT FINER | SPEC.* PERCENT | PASS? (X=NO) |
|------------|---------------|----------------|--------------|
| 1 | 100.0 | | |
| .75 | 100.0 | | |
| .5 | 100.0 | | |
| .375 | 100.0 | | |
| #4 | 100.0 | | |
| #10 | 100.0 | | |
| #20 | 100.0 | | |
| #40 | 94.5 | | |
| #60 | 24.0 | | |
| #100 | 7.9 | | |
| #140 | 7.8 | | |
| #200 | 7.8 | | |

Material Description
Fine grained, SLIGHTLY SILTY SAND

Atterberg Limits
 PL= LL= PI=

Coefficients
 D₉₀= 0.4068 D₈₅= 0.3900 D₆₀= 0.3269
 D₅₀= 0.3059 D₃₀= 0.2641 D₁₅= 0.2023
 D₁₀= 0.1696 C_u= 1.93 C_c= 1.26

Classification
 USCS= SP-SM AASHTO=

Remarks

* (no specification provided)

Location: BI-PB-162-12 C Depth: 10.0' Date: 12/07/12
 Sample Number: 6480 (17)

Thompson Engineering

Mobile, Alabama

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

Project No: 1221110095

Figure

Boring Designation BI-PB-163-12

| | | | | |
|--|--|---|--|--|
| DRILLING LOG | | DIVISION South Atlantic | INSTALLATION Mobile District | SHEET 1 OF 2 SHEETS |
| 1. PROJECT MsCIP Barrier Island Restoration Petit Bois Pass- AL East | | | 9. SIZE AND TYPE OF BIT N/A | |
| 2. BORING DESIGNATION BI-PB-163-12 | | 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 | | <input type="checkbox"/> AUTO HAMMER <input type="checkbox"/> MANUAL HAMMER |
| 4. NAME OF DRILLER American Vibracore Systems, Inc. | | 12. TOTAL SAMPLES | | DISTURBED 0 |
| 5. DIRECTION OF BORING <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED | | 13. TOTAL NUMBER CORE BOXES | | UNDISTURBED (UD) 0 |
| 6. THICKNESS OF OVERBURDEN N/A | | 14. WATER DEPTH 38.2 Ft. | | 15. DATE BORING |
| 7. DEPTH DRILLED INTO ROCK N/A | | 16. ELEVATION TOP OF BORING -38.7 Ft. | | STARTED 12-06-12 |
| 8. TOTAL DEPTH OF BORING 20.0 Ft. | | 17. TOTAL RECOVERY FOR BORING 100% | | COMPLETED 12-06-12 |
| 18. SIGNATURE AND TITLE OF INSPECTOR Mike FitzHarris, Geologist | | | | |

| ELEV. | DEPTH | LEGEND | CLASSIFICATION OF MATERIALS | SAMPLE | LABORATORY RESULTS |
|---|-------|--------|--|--------|---|
| -38.7 | 0.0 | | SAND, poorly-graded with silt, mostly fine-grained sand-sized quartz, few silt, trace clay streaks, gray (SP-SM) | A | Classification: SP-SM Color: 2.5Y 6/2-light brownish gray D50: 0.304 mm % Fines: 7.2 |
| | | | | B | Classification: SP-SM Color: 2.5Y 5/2-grayish brown D50: 0.3062 mm % Fines: 5.7 |
| -51.9 | 13.2 | | | C | Classification: SP-SM Color: 2.5Y 6/1-gray D50: 0.3121 mm % Fines: 6.9 |
| -58.7 | 20.0 | | CLAY, fat, mostly clay, few sandy pockets throughout, medium to high plasticity, stiff, gray (CH) | NS | |
| <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 determined from 2010</p> | | | | | |

| DRILLING LOG (Cont. Sheet) | | | INSTALLATION Mobile District | | | SHEET 2 |
|--|-------|--------|---|----------------------------|---------------------------|--------------------|
| | | | | | | OF 2 SHEETS |
| PROJECT MsCIP Barrier Island Restoration | | | COORDINATE SYSTEM/DATUM State Plane, MSE (U.S. Ft.) | HORIZONTAL NAD83 | VERTICAL NAVD88 | |
| LOCATION COORDINATES X = 1,154,858 Y = 255,102 | | | ELEVATION TOP OF BORING -38.7 Ft. | | | |
| ELEV. | DEPTH | LEGEND | CLASSIFICATION OF MATERIALS | SAMPLE | LABORATORY RESULTS | |
| | | | USACE survey. | | | |



Project

Mississippi Barrier Island
Restoration Project



Core Identifier BI-PB-163-12

Date 12/06/2012

Water Depth 38.2'

Coordinate System

Start Time 12:16:39

Latitude / Longitude

End Time 12:17:34

Penetration 20.0'

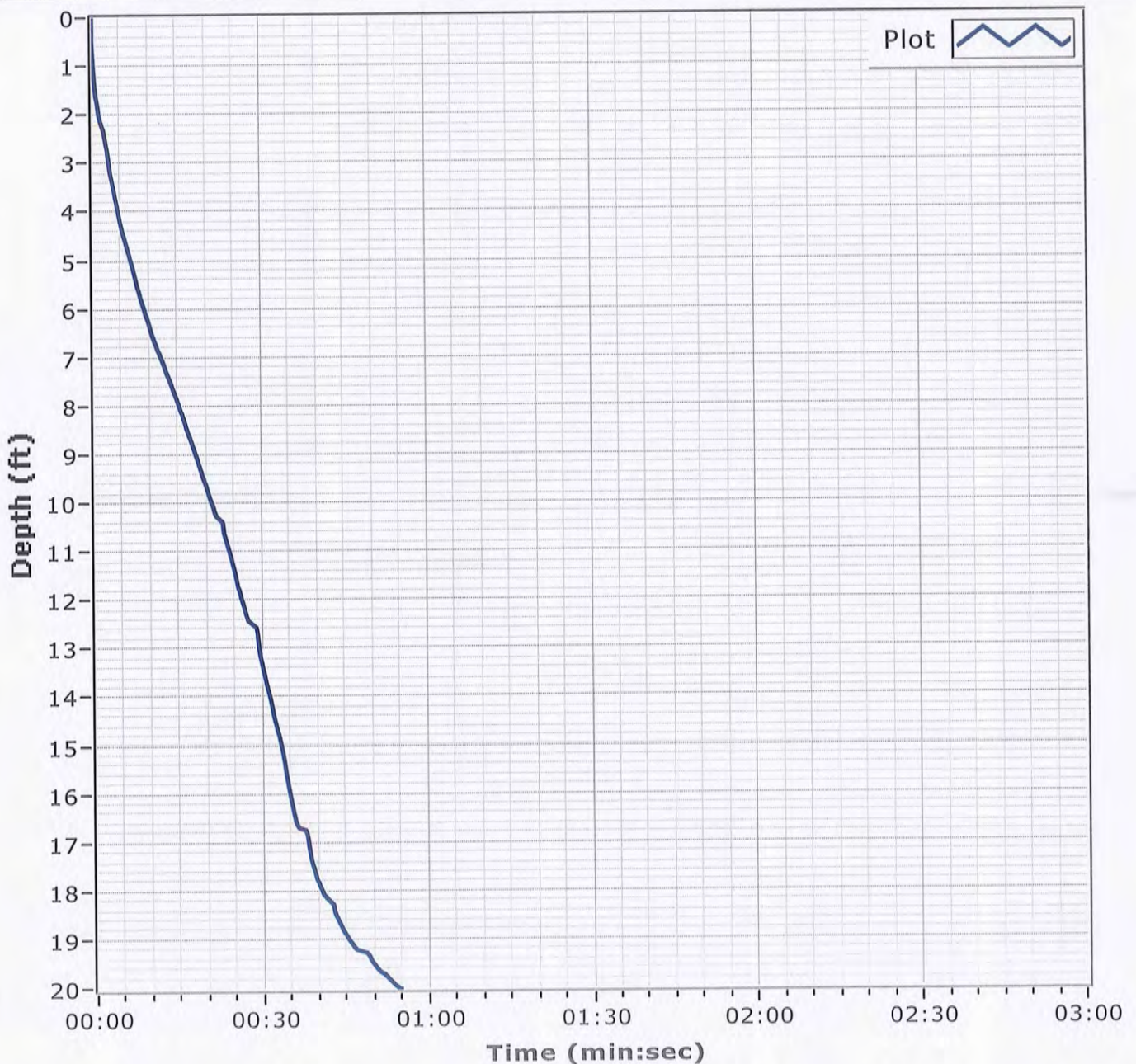
Latitude 30 12.022

Total Time 00:00:55

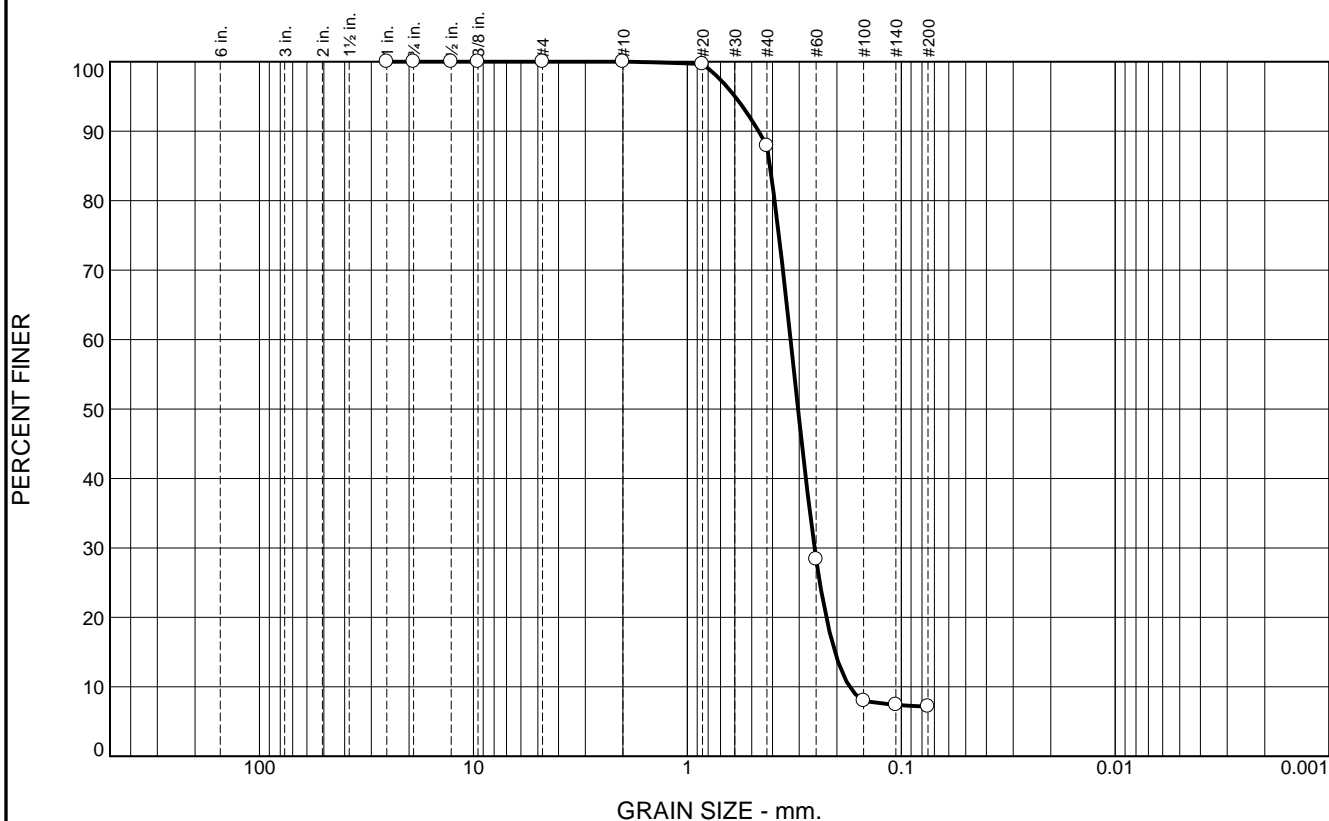
Recovery 20.0'

Longitude 088 17.596

Comments



Particle Size Distribution Report



| % +3" | % Gravel | | % Sand | | | % Fines | |
|-------|----------|------|--------|--------|------|---------|------|
| | Coarse | Fine | Coarse | Medium | Fine | Silt | Clay |
| 0.0 | 0.0 | 0.0 | 0.0 | 12.1 | 80.7 | 7.2 | |

| SIEVE SIZE | PERCENT FINER | SPEC.* PERCENT | PASS? (X=NO) |
|------------|---------------|----------------|--------------|
| 1 | 100.0 | | |
| .75 | 100.0 | | |
| .5 | 100.0 | | |
| .375 | 100.0 | | |
| #4 | 100.0 | | |
| #10 | 100.0 | | |
| #20 | 99.7 | | |
| #40 | 87.9 | | |
| #60 | 28.4 | | |
| #100 | 8.0 | | |
| #140 | 7.4 | | |
| #200 | 7.2 | | |

Material Description

Fine to medium grained, SLIGHTLY SILTY SAND

Atterberg Limits

PL= LL= PI=

Coefficients

D₉₀= 0.4649 D₈₅= 0.4111 D₆₀= 0.3294
D₅₀= 0.3040 D₃₀= 0.2544 D₁₅= 0.2043
D₁₀= 0.1745 C_u= 1.89 C_c= 1.13

Classification

USCS= SP-SM AASHTO=

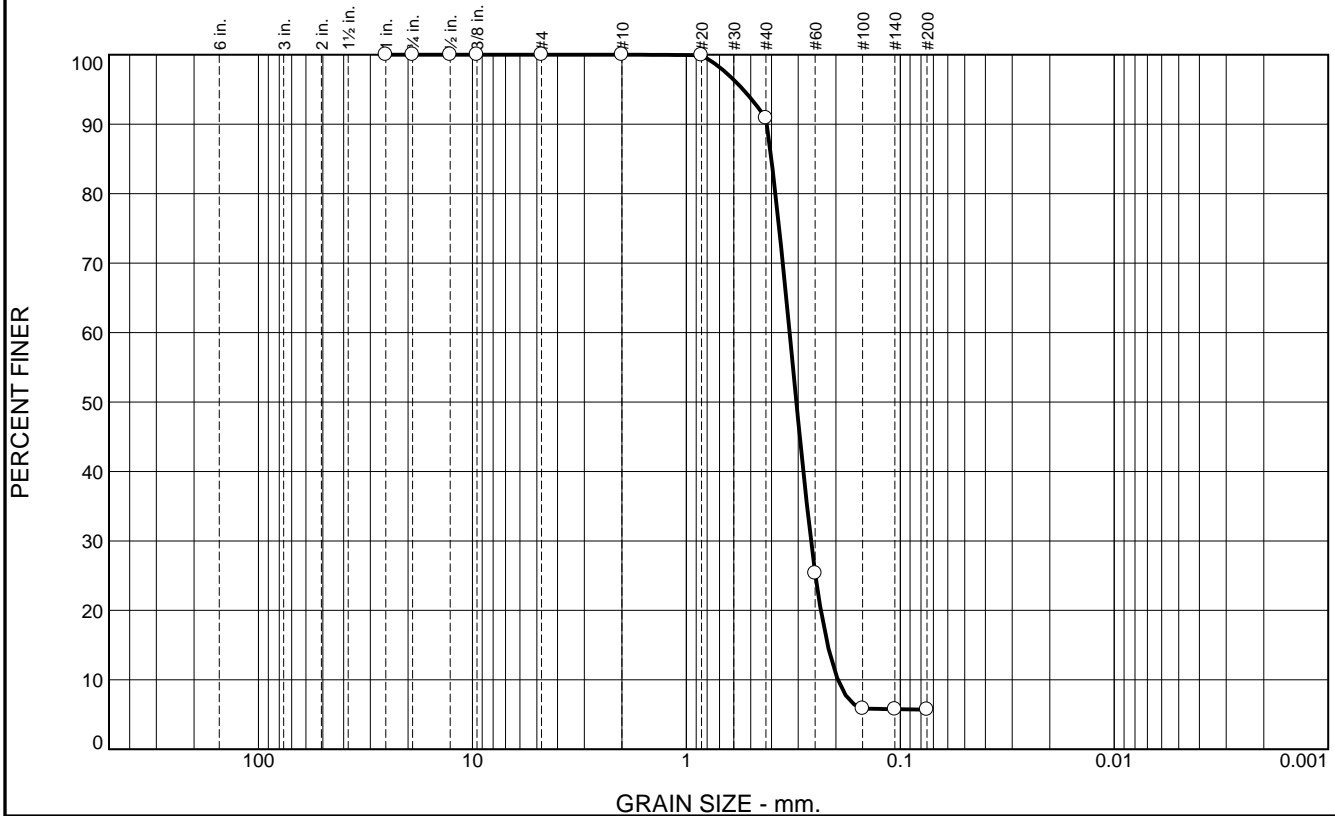
Remarks

* (no specification provided)

Location: BI-PB-163-12 A Depth: 0.0' Date: 12/07/12
Sample Number: 6480 (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 | 9.1 | 85.2 | 5.7 | |

| SIEVE SIZE | PERCENT FINER | SPEC.* PERCENT | PASS? (X=NO) |
|------------|---------------|----------------|--------------|
| 1 | 100.0 | | |
| .75 | 100.0 | | |
| .5 | 100.0 | | |
| .375 | 100.0 | | |
| #4 | 100.0 | | |
| #10 | 100.0 | | |
| #20 | 99.9 | | |
| #40 | 90.9 | | |
| #60 | 25.3 | | |
| #100 | 5.9 | | |
| #140 | 5.8 | | |
| #200 | 5.7 | | |

Material Description
Fine grained, SLIGHTLY SILTY SAND

Atterberg Limits
 PL= LL= PI=

Coefficients
 D₉₀= 0.4209 D₈₅= 0.4005 D₆₀= 0.3292
 D₅₀= 0.3062 D₃₀= 0.2614 D₁₅= 0.2185
 D₁₀= 0.1957 C_u= 1.68 C_c= 1.06

Classification
 USCS= SP-SM AASHTO=

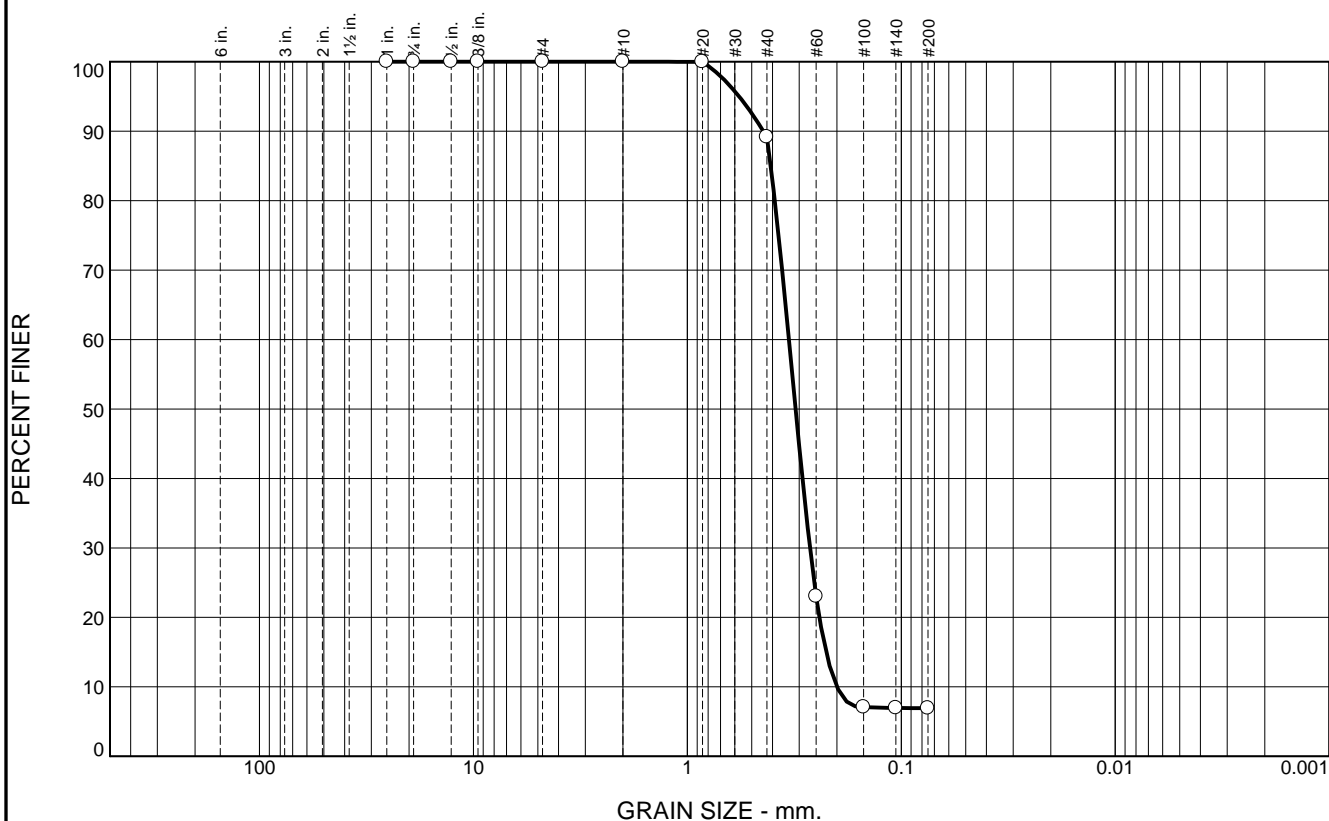
Remarks

* (no specification provided)

Location: BI-PB-163-12 B **Depth:** 5.0' **Date:** 12/07/12
Sample Number: 6480 (19)

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

Particle Size Distribution Report



| % +3" | % Gravel | | % Sand | | | % Fines | |
|-------|----------|------|--------|--------|------|---------|------|
| | Coarse | Fine | Coarse | Medium | Fine | Silt | Clay |
| 0.0 | 0.0 | 0.0 | 0.0 | 10.8 | 82.3 | 6.9 | |

| SIEVE SIZE | PERCENT FINER | SPEC.* PERCENT | PASS? (X=NO) |
|------------|---------------|----------------|--------------|
| 1 | 100.0 | | |
| .75 | 100.0 | | |
| .5 | 100.0 | | |
| .375 | 100.0 | | |
| #4 | 100.0 | | |
| #10 | 100.0 | | |
| #20 | 100.0 | | |
| #40 | 89.2 | | |
| #60 | 23.0 | | |
| #100 | 7.1 | | |
| #140 | 7.0 | | |
| #200 | 6.9 | | |

Material Description
Fine to medium grained, SLIGHTLY SILTY SAND

Atterberg Limits
 PL= LL= PI=

Coefficients
 D₉₀= 0.4416 D₈₅= 0.4077 D₆₀= 0.3352
 D₅₀= 0.3121 D₃₀= 0.2674 D₁₅= 0.2245
 D₁₀= 0.1999 C_u= 1.68 C_c= 1.07

Classification
 USCS= SP-SM AASHTO=

Remarks

* (no specification provided)

Location: BI-PB-163-12 C Depth: 10.0' Date: 12/07/12
 Sample Number: 6480 (20)

Thompson Engineering

Mobile, Alabama

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

Project No: 1221110095

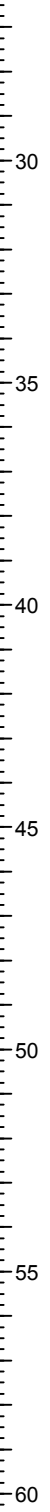
Figure

Boring Designation BI-PB-164-12

| | | | | |
|--|--|---|--|--|
| DRILLING LOG | | DIVISION South Atlantic | INSTALLATION Mobile District | SHEET 1 OF 2 SHEETS |
| 1. PROJECT MsCIP Barrier Island Restoration Petit Bois Pass- AL East | | | 9. SIZE AND TYPE OF BIT N/A | |
| 2. BORING DESIGNATION BI-PB-164-12 | | 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 | | <input type="checkbox"/> AUTO HAMMER <input type="checkbox"/> MANUAL HAMMER |
| 4. NAME OF DRILLER American Vibracore Systems, Inc. | | 12. TOTAL SAMPLES | | DISTURBED 0 |
| 5. DIRECTION OF BORING <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED | | 13. TOTAL NUMBER CORE BOXES | | UNDISTURBED (UD) 0 |
| 6. THICKNESS OF OVERBURDEN N/A | | 14. WATER DEPTH 34 Ft. | | |
| 7. DEPTH DRILLED INTO ROCK N/A | | 15. DATE BORING | | STARTED 12-06-12 COMPLETED 12-06-12 |
| 8. TOTAL DEPTH OF BORING 20.0 Ft. | | 16. ELEVATION TOP OF BORING -32.4 Ft. | | |
| | | 17. TOTAL RECOVERY FOR BORING 100% | | |
| | | 18. SIGNATURE AND TITLE OF INSPECTOR Mike FitzHarris, Geologist | | |

| ELEV. | DEPTH | LEGEND | CLASSIFICATION OF MATERIALS | SAMPLE | LABORATORY RESULTS |
|-------|-------|--------|---|--------|--|
| -32.4 | 0.0 | | | | |
| -35.0 | 2.6 | | SAND, poorly-graded, mostly fine to medium-grained sand-sized quartz, trace silt, trace shell fragments, pale lt. brown to gray (SP) | A | Classification: SP Color: 5Y 6/2-light olive gray D50: 0.3369 mm % Fines: 2 |
| -37.4 | 5.0 | | SAND, poorly-graded, mostly fine to medium-grained sand-sized quartz, trace silt, trace shell fragments, lt. gray (SP) | B | Classification: SP Color: 2.5Y 7/2-light gray D50: 0.3388 mm % Fines: 4.2 |
| -41.1 | 8.7 | | SAND, poorly-graded, mostly fine to medium-grained sand-sized quartz, trace clay stringers, lt. gray to white (SP) | C | Classification: SP Color: 5Y 7/2-light gray D50: 0.3269 mm % Fines: 3 |
| -42.4 | 10.0 | | SAND, poorly-graded with clay, mostly fine-grained sand-sized quartz, few clay, clay content increases with depth, lt. gray to gray (SP-SC) | D | Classification: SP-SM Color: 2.5Y 6/2-light brownish gray D50: 0.3079 mm % Fines: 5.6 |
| -48.5 | 16.1 | | SAND, clayey, mostly fine-grained sand-sized quartz, some clay, some silt, few shell fragments, gray (SC) | NS | |
| -49.4 | 17.0 | | CLAY, lean, mostly clay, some fine-grained sand-sized quartz, trace shell fragments, sandy clay, gray (CL) | | |
| -50.7 | 18.3 | | SAND, clayey, mostly fine-grained sand-sized quartz, some clay, trace shell fragments, clayey sand, gray (SC) | | |
| -52.4 | 20.0 | | CLAY, lean, mostly clay, some fine-grained sand-sized, trace shell fragments, sandy clay, gray (CL) | | |
| | | | NOTES: 1. Soils are field visually classified in accordance with the Unified Soils Classification System. | | |

| DRILLING LOG (Cont. Sheet) | | | INSTALLATION Mobile District | | | SHEET 2 |
|--|-------|--------|--|----------------------------|---------------------------|--------------------|
| | | | | | | OF 2 SHEETS |
| PROJECT MsCIP Barrier Island Restoration | | | COORDINATE SYSTEM/DATUM State Plane, MSE (U.S. Ft.) | HORIZONTAL NAD83 | VERTICAL NAVD88 | |
| LOCATION COORDINATES X = 1,154,851 Y = 256,670 | | | ELEVATION TOP OF BORING -32.4 Ft. | | | |
| ELEV. | DEPTH | LEGEND | CLASSIFICATION OF MATERIALS | SAMPLE | LABORATORY RESULTS | |
| | | | 2. NS = Sample not submitted for laboratory analysis from this interval. 3. Seafloor elevation determined from 2010 USACE survey. | | | |



Project

Mississippi Barrier Island
Restoration Project



Core Identifier BI-PB-164-12

Date 12/06/2012

Water Depth 34.0'

Coordinate System

Latitude / Longitude

Start Time 10:37:41

End Time 10:38:28

Penetration 20.0'

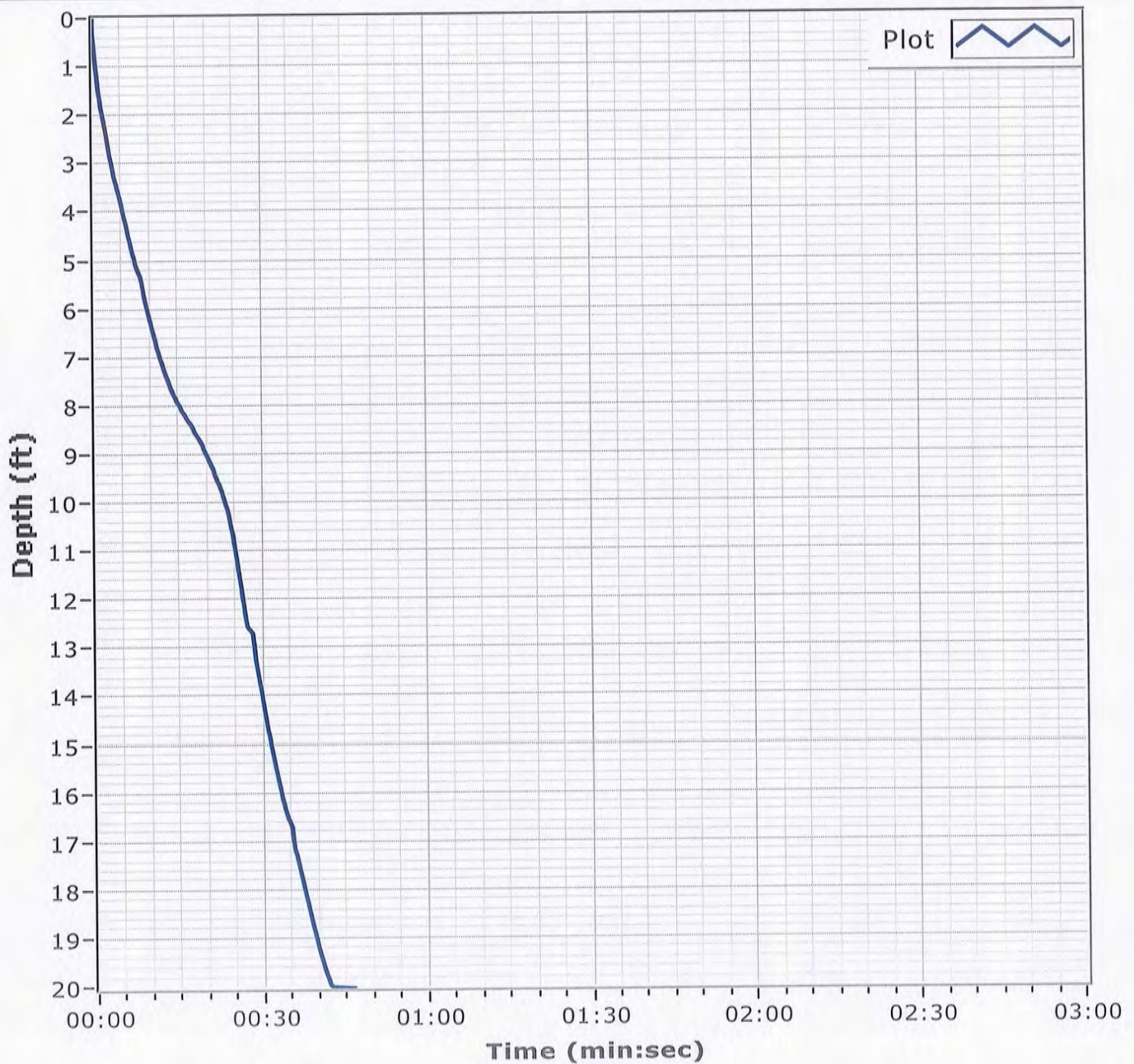
Latitude 30 12.281

Total Time 00:00:46

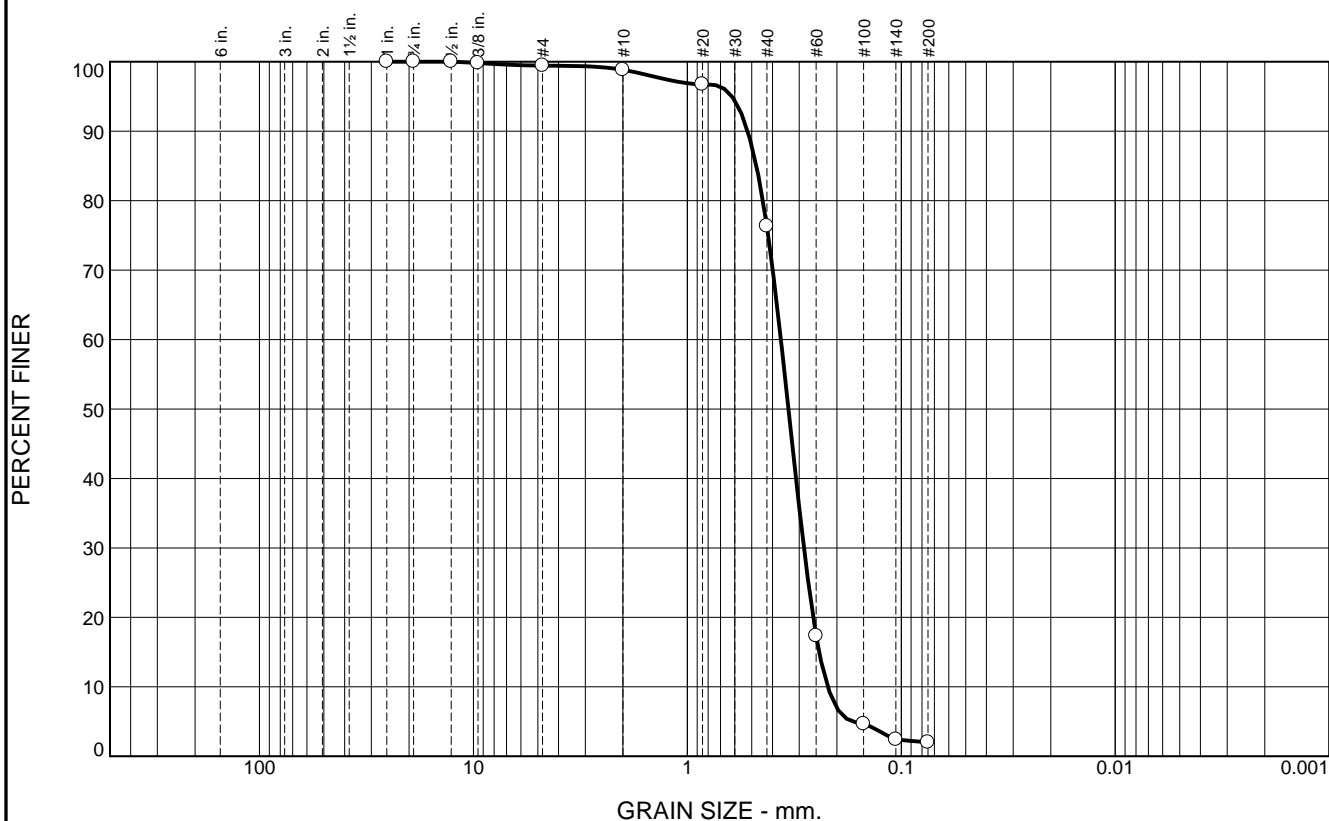
Recovery 20.0'

Longitude 088 17.596

Comments



Particle Size Distribution Report



| % +3" | % Gravel | | % Sand | | | % Fines | |
|-------|----------|------|--------|--------|------|---------|------|
| | Coarse | Fine | Coarse | Medium | Fine | Silt | Clay |
| 0.0 | 0.0 | 0.6 | 0.6 | 22.5 | 74.3 | 2.0 | |

| SIEVE SIZE | PERCENT FINER | SPEC.* PERCENT | PASS? (X=NO) |
|------------|---------------|----------------|--------------|
| 1 | 100.0 | | |
| .75 | 100.0 | | |
| .5 | 100.0 | | |
| .375 | 99.8 | | |
| #4 | 99.4 | | |
| #10 | 98.8 | | |
| #20 | 96.7 | | |
| #40 | 76.3 | | |
| #60 | 17.3 | | |
| #100 | 4.7 | | |
| #140 | 2.4 | | |
| #200 | 2.0 | | |

Material Description

Fine to medium grained, SAND

Atterberg Limits

PL= LL= PI=

Coefficients

D₉₀= 0.5225 D₈₅= 0.4756 D₆₀= 0.3654
D₅₀= 0.3369 D₃₀= 0.2853 D₁₅= 0.2420
D₁₀= 0.2206 C_u= 1.66 C_c= 1.01

Classification

USCS= SP AASHTO=

Remarks

* (no specification provided)

Location: BI-PB-164-12 A Depth: 0.0' Date: 12/07/12
Sample Number: 6480 (21)

Thompson Engineering

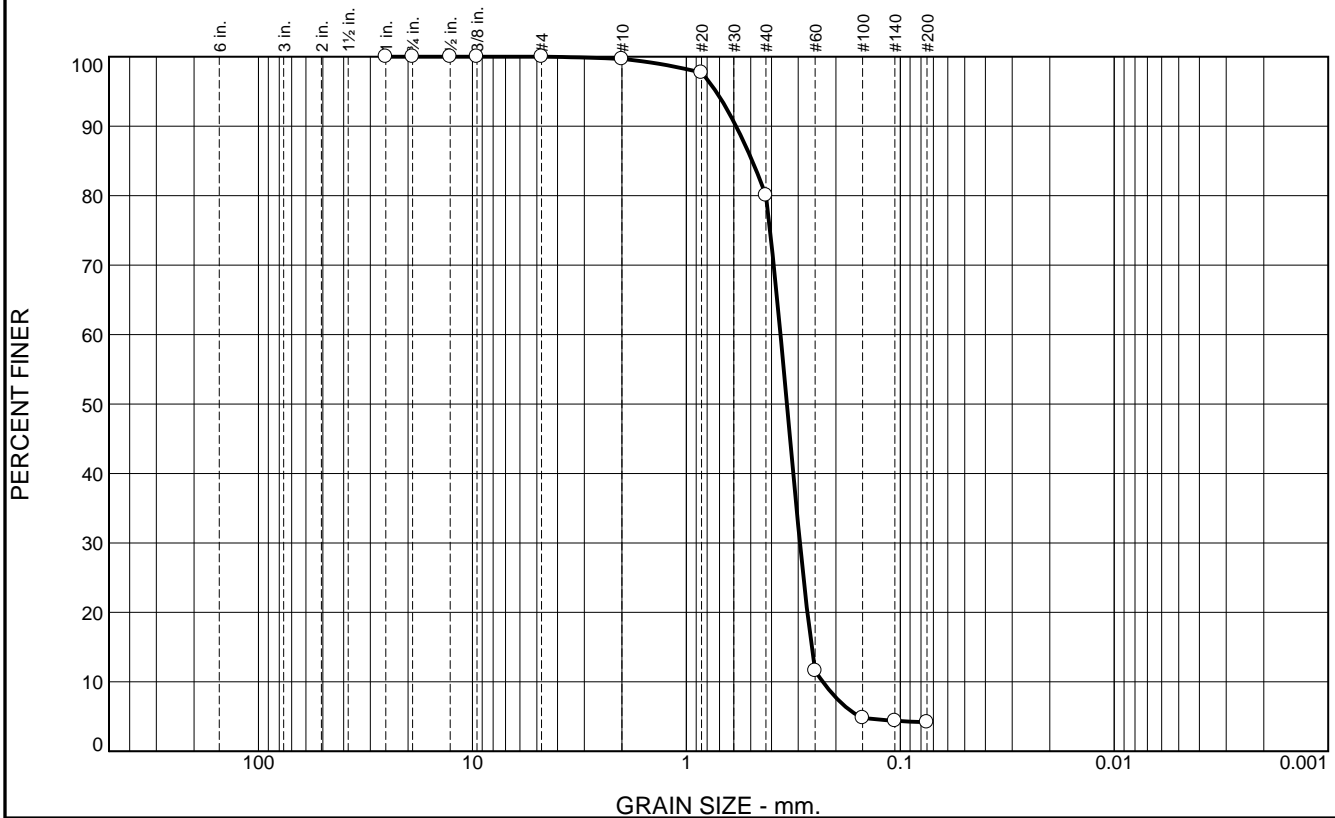
Mobile, Alabama

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

Project No: 1221110095

Figure

Particle Size Distribution Report



| % +3" | % Gravel | | % Sand | | | % Fines | |
|-------|----------|------|--------|--------|------|---------|------|
| | Coarse | Fine | Coarse | Medium | Fine | Silt | Clay |
| 0.0 | 0.0 | 0.0 | 0.3 | 19.6 | 75.9 | 4.2 | |

| SIEVE SIZE | PERCENT FINER | SPEC.* PERCENT | PASS? (X=NO) |
|------------|---------------|----------------|--------------|
| 1 | 100.0 | | |
| .75 | 100.0 | | |
| .5 | 100.0 | | |
| .375 | 100.0 | | |
| #4 | 100.0 | | |
| #10 | 99.7 | | |
| #20 | 97.7 | | |
| #40 | 80.1 | | |
| #60 | 11.6 | | |
| #100 | 4.8 | | |
| #140 | 4.4 | | |
| #200 | 4.2 | | |

Material Description
Fine to medium grained, SAND

Atterberg Limits
 PL= LL= PI=

Coefficients
 D₉₀= 0.5855 D₈₅= 0.4923 D₆₀= 0.3629
 D₅₀= 0.3388 D₃₀= 0.2948 D₁₅= 0.2597
 D₁₀= 0.2302 C_u= 1.58 C_c= 1.04

Classification
 USCS= SP AASHTO=

Remarks

* (no specification provided)

Location: BI-PB-164-12 B
Sample Number: 6480 (22)

Depth: 2.6'

Date: 12/07/12

Thompson Engineering

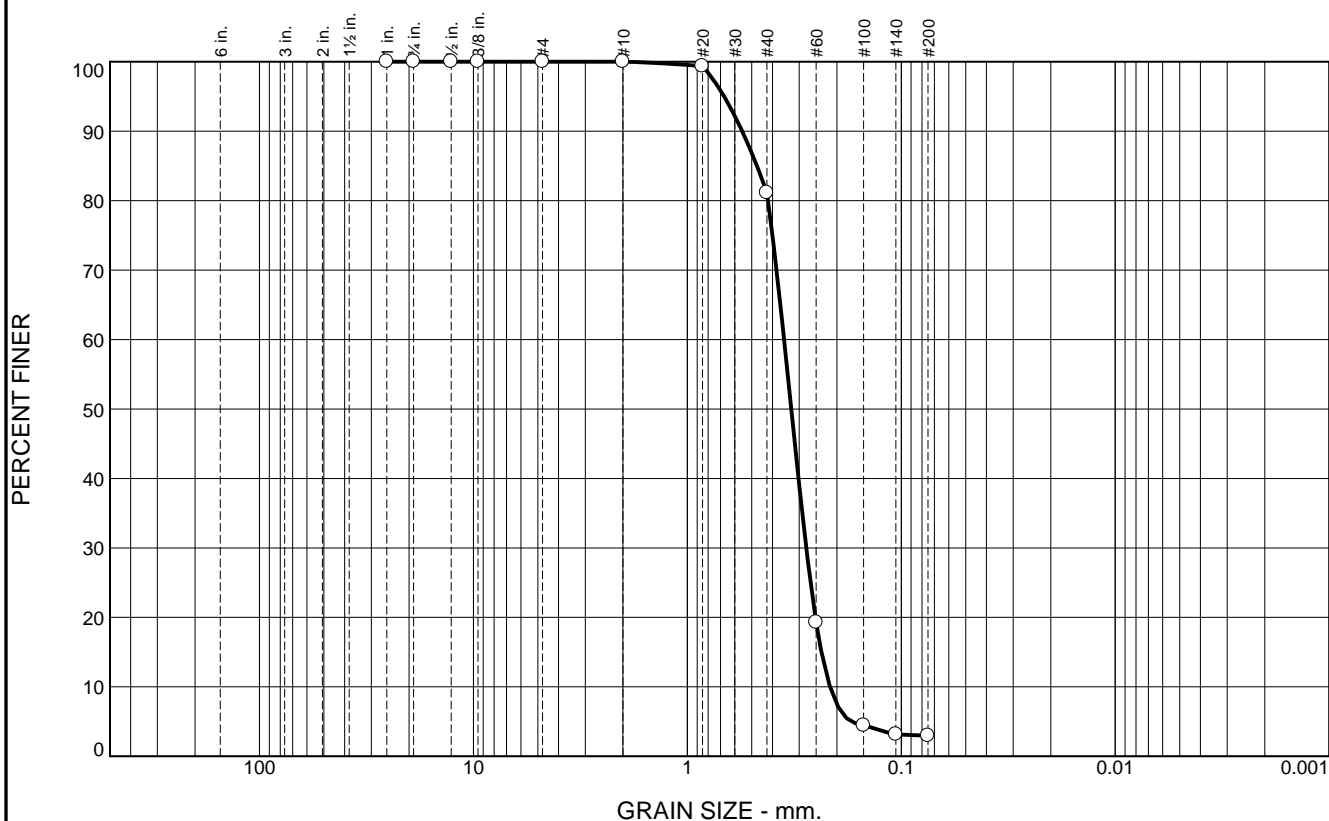
Mobile, Alabama

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

Project No: 1221110095

Figure

Particle Size Distribution Report



| % +3" | % Gravel | | % Sand | | | % Fines | |
|-------|----------|------|--------|--------|------|---------|------|
| | Coarse | Fine | Coarse | Medium | Fine | Silt | Clay |
| 0.0 | 0.0 | 0.0 | 0.0 | 18.9 | 78.1 | 3.0 | |

| SIEVE SIZE | PERCENT FINER | SPEC.* PERCENT | PASS? (X=NO) |
|------------|---------------|----------------|--------------|
| 1 | 100.0 | | |
| .75 | 100.0 | | |
| .5 | 100.0 | | |
| .375 | 100.0 | | |
| #4 | 100.0 | | |
| #10 | 100.0 | | |
| #20 | 99.4 | | |
| #40 | 81.1 | | |
| #60 | 19.3 | | |
| #100 | 4.4 | | |
| #140 | 3.1 | | |
| #200 | 3.0 | | |

Material Description

Fine to medium grained, SAND

Atterberg Limits

PL= LL= PI=

Coefficients

D₉₀= 0.5543 D₈₅= 0.4731 D₆₀= 0.3530
D₅₀= 0.3269 D₃₀= 0.2783 D₁₅= 0.2362
D₁₀= 0.2153 C_u= 1.64 C_c= 1.02

Classification

USCS= SP AASHTO=

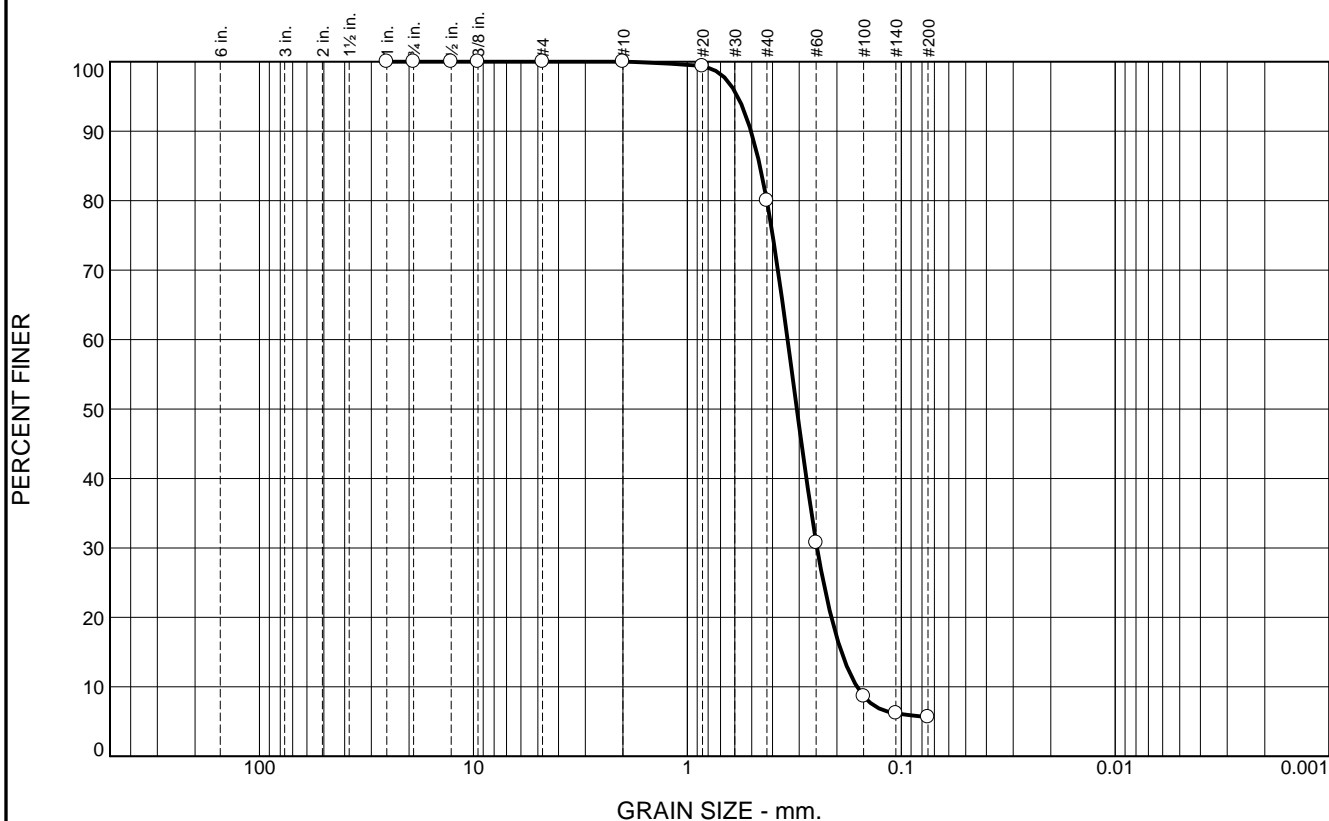
Remarks

* (no specification provided)

Location: BI-PB-164-12 C **Depth:** 5.0' **Date:** 12/07/12
Sample Number: 6480 (23)

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

Particle Size Distribution Report



| % +3" | % Gravel | | % Sand | | | % Fines | |
|-------|----------|------|--------|--------|------|---------|------|
| | Coarse | Fine | Coarse | Medium | Fine | Silt | Clay |
| 0.0 | 0.0 | 0.0 | 0.0 | 20.0 | 74.4 | 5.6 | |

| SIEVE SIZE | PERCENT FINER | SPEC.* PERCENT | PASS? (X=NO) |
|------------|---------------|----------------|--------------|
| 1 | 100.0 | | |
| .75 | 100.0 | | |
| .5 | 100.0 | | |
| .375 | 100.0 | | |
| #4 | 100.0 | | |
| #10 | 100.0 | | |
| #20 | 99.4 | | |
| #40 | 80.0 | | |
| #60 | 30.8 | | |
| #100 | 8.7 | | |
| #140 | 6.2 | | |
| #200 | 5.6 | | |

Material Description

Fine to medium grained, SLIGHTLY SILTY SAND

Atterberg Limits

PL= LL= PI=

Coefficients

D₉₀= 0.5041 D₈₅= 0.4580 D₆₀= 0.3401
D₅₀= 0.3079 D₃₀= 0.2476 D₁₅= 0.1905
D₁₀= 0.1612 C_u= 2.11 C_c= 1.12

Classification

USCS= SP-SM AASHTO=

Remarks

* (no specification provided)

Location: BI-PB-164-12 D Depth: 8.7' Date: 12/07/12
Sample Number: 6480 (24)

Thompson Engineering

Mobile, Alabama

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

Project No: 1221110095

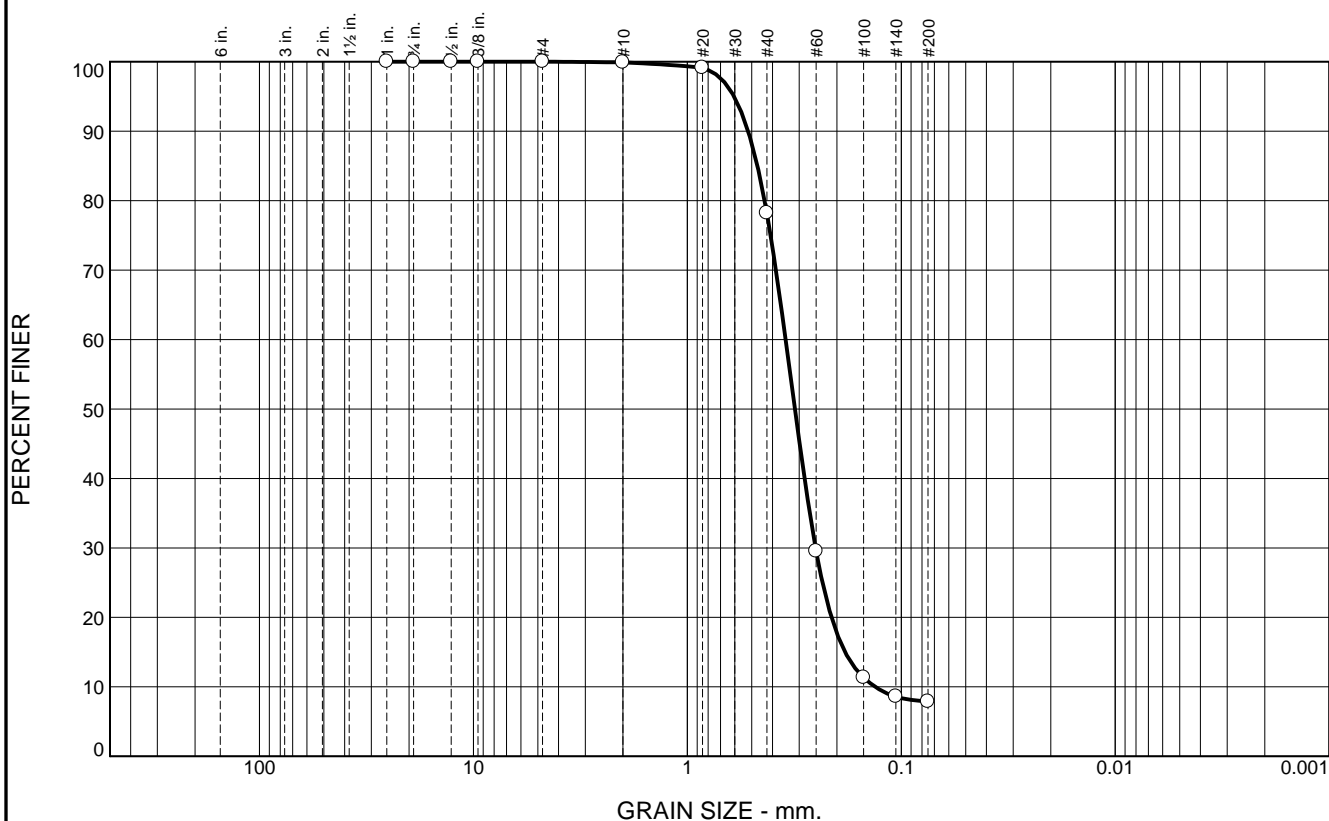
Figure

Boring Designation BI-PB-165-12

| | | | | |
|--|--|---|--|--|
| DRILLING LOG | | DIVISION South Atlantic | INSTALLATION Mobile District | SHEET 1 OF 1 SHEETS |
| 1. PROJECT MsCIP Barrier Island Restoration Petit Bois Pass- AL East | | | 9. SIZE AND TYPE OF BIT N/A | |
| 2. BORING DESIGNATION BI-PB-165-12 | | 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 | | <input type="checkbox"/> AUTO HAMMER <input type="checkbox"/> MANUAL HAMMER |
| 4. NAME OF DRILLER American Vibracore Systems, Inc. | | 12. TOTAL SAMPLES | | DISTURBED 0 |
| 5. DIRECTION OF BORING <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED | | 13. TOTAL NUMBER CORE BOXES | | UNDISTURBED (UD) 0 |
| 6. THICKNESS OF OVERBURDEN N/A | | 14. WATER DEPTH 33.1 Ft. | | |
| 7. DEPTH DRILLED INTO ROCK N/A | | 15. DATE BORING | | STARTED 12-06-12 COMPLETED 12-06-12 |
| 8. TOTAL DEPTH OF BORING 15.0 Ft. | | 16. ELEVATION TOP OF BORING -32.5 Ft. | | |
| | | 17. TOTAL RECOVERY FOR BORING 100% | | |
| | | 18. SIGNATURE AND TITLE OF INSPECTOR Mike FitzHarris, Geologist | | |

| ELEV. | DEPTH | LEGEND | CLASSIFICATION OF MATERIALS | SAMPLE | LABORATORY RESULTS |
|-------|-------|--------|---|--------|---|
| -32.5 | 0.0 | | | | |
| -33.1 | 0.6 | | SAND, clayey, mostly fine-grained sand-sized quartz, some clay, gray (SC) | NS | |
| -33.8 | 1.3 | | SILT, inorganic-L, mostly silt, trace fine-grained sand-sized quartz, medium to high plasticity, brownish gray (ML) | A | Classification: SP-SM Color: 2.5Y 7/2-light gray D50: 0.3143 mm % Fines: 7.9 |
| | | | SAND, poorly-graded, mostly fine to medium-grained sand-sized quartz, clay band at 1.7 ft., gray (SP) At El. -34.4 Ft., mostly fine to medium-grained sand-sized quartz, trace silt, trace shell fragments, gray At El. -35.3 Ft., mostly fine to medium-grained sand-sized quartz, trace silt, dense, lt. gray to white | B | Classification: SP Color: 5Y 8/1-white D50: 0.3783 mm % Fines: 2.1 |
| | | | | C | Classification: SP Color: 2.5Y 8.5/1- D50: 0.3381 mm % Fines: 1.3 |
| | | | | D | Classification: SP Color: 2.5Y 7/1-light gray D50: 0.3332 mm % Fines: 2.4 |
| | | | | E | Classification: SP Color: 2.5Y 8/1-white D50: 0.3237 mm % Fines: 1.9 |
| -47.5 | 15.0 | | NOTES: 1. Soils are field visually classified in accordance with the Unified Soils Classification System. 2. NS = Sample not submitted for laboratory analysis from this interval. 3. Seafloor elevation calculated using sampling vessel's fathometer water depth reading and applying NOAA tidal gauge data conversion factor. | NS | |

Particle Size Distribution Report



| % +3" | % Gravel | | % Sand | | | % Fines | |
|-------|----------|------|--------|--------|------|---------|------|
| | Coarse | Fine | Coarse | Medium | Fine | Silt | Clay |
| 0.0 | 0.0 | 0.0 | 0.1 | 21.7 | 70.3 | 7.9 | |

| SIEVE SIZE | PERCENT FINER | SPEC.* PERCENT | PASS? (X=NO) |
|------------|---------------|----------------|--------------|
| 1 | 100.0 | | |
| .75 | 100.0 | | |
| .5 | 100.0 | | |
| .375 | 100.0 | | |
| #4 | 100.0 | | |
| #10 | 99.9 | | |
| #20 | 99.1 | | |
| #40 | 78.2 | | |
| #60 | 29.5 | | |
| #100 | 11.3 | | |
| #140 | 8.6 | | |
| #200 | 7.9 | | |

Material Description
Fine to medium grained, SLIGHTLY SILTY SAND

Atterberg Limits
 PL= LL= PI=

Coefficients
 D₉₀= 0.5199 D₈₅= 0.4705 D₆₀= 0.3473
 D₅₀= 0.3143 D₃₀= 0.2516 D₁₅= 0.1833
 D₁₀= 0.1325 C_u= 2.62 C_c= 1.38

Classification
 USCS= SP-SM AASHTO=

Remarks

* (no specification provided)

Location: BI-PB-165-12 A
Sample Number: 6480 (25)

Depth: 1.3'

Date: 12/07/12

Thompson Engineering

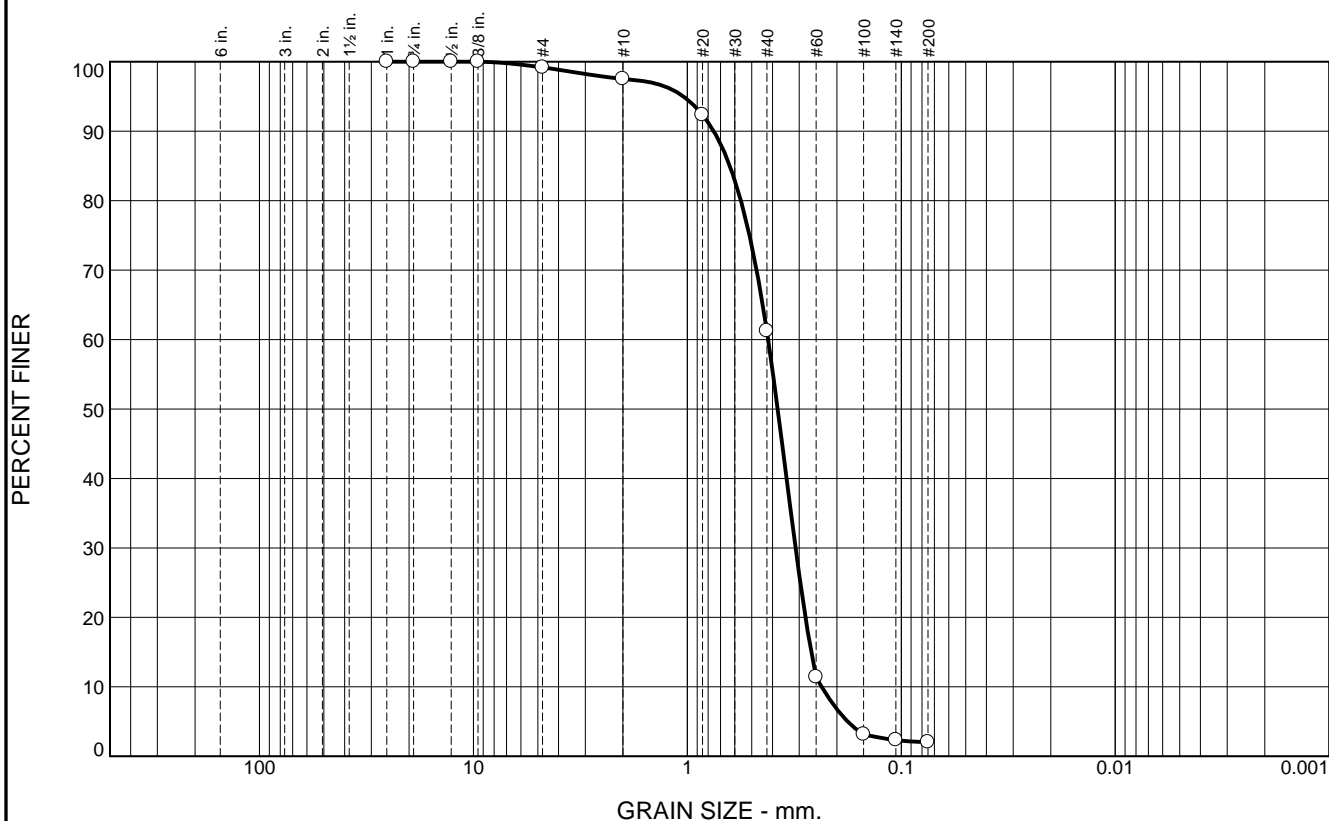
Mobile, Alabama

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

Project No: 1221110095

Figure

Particle Size Distribution Report



| % +3" | % Gravel | | % Sand | | | % Fines | |
|-------|----------|------|--------|--------|------|---------|------|
| | Coarse | Fine | Coarse | Medium | Fine | Silt | Clay |
| 0.0 | 0.0 | 0.8 | 1.7 | 36.3 | 59.1 | 2.1 | |

| SIEVE SIZE | PERCENT FINER | SPEC.* PERCENT | PASS? (X=NO) |
|------------|---------------|----------------|--------------|
| 1 | 100.0 | | |
| .75 | 100.0 | | |
| .5 | 100.0 | | |
| .375 | 100.0 | | |
| #4 | 99.2 | | |
| #10 | 97.5 | | |
| #20 | 92.3 | | |
| #40 | 61.2 | | |
| #60 | 11.4 | | |
| #100 | 3.2 | | |
| #140 | 2.3 | | |
| #200 | 2.1 | | |

Material Description
Fine to medium grained, SAND

Atterberg Limits
 PL= LL= PI=

Coefficients
 D₉₀= 0.7529 D₈₅= 0.6329 D₆₀= 0.4192
 D₅₀= 0.3783 D₃₀= 0.3122 D₁₅= 0.2638
 D₁₀= 0.2355 C_u= 1.78 C_c= 0.99

Classification
 USCS= SP AASHTO=

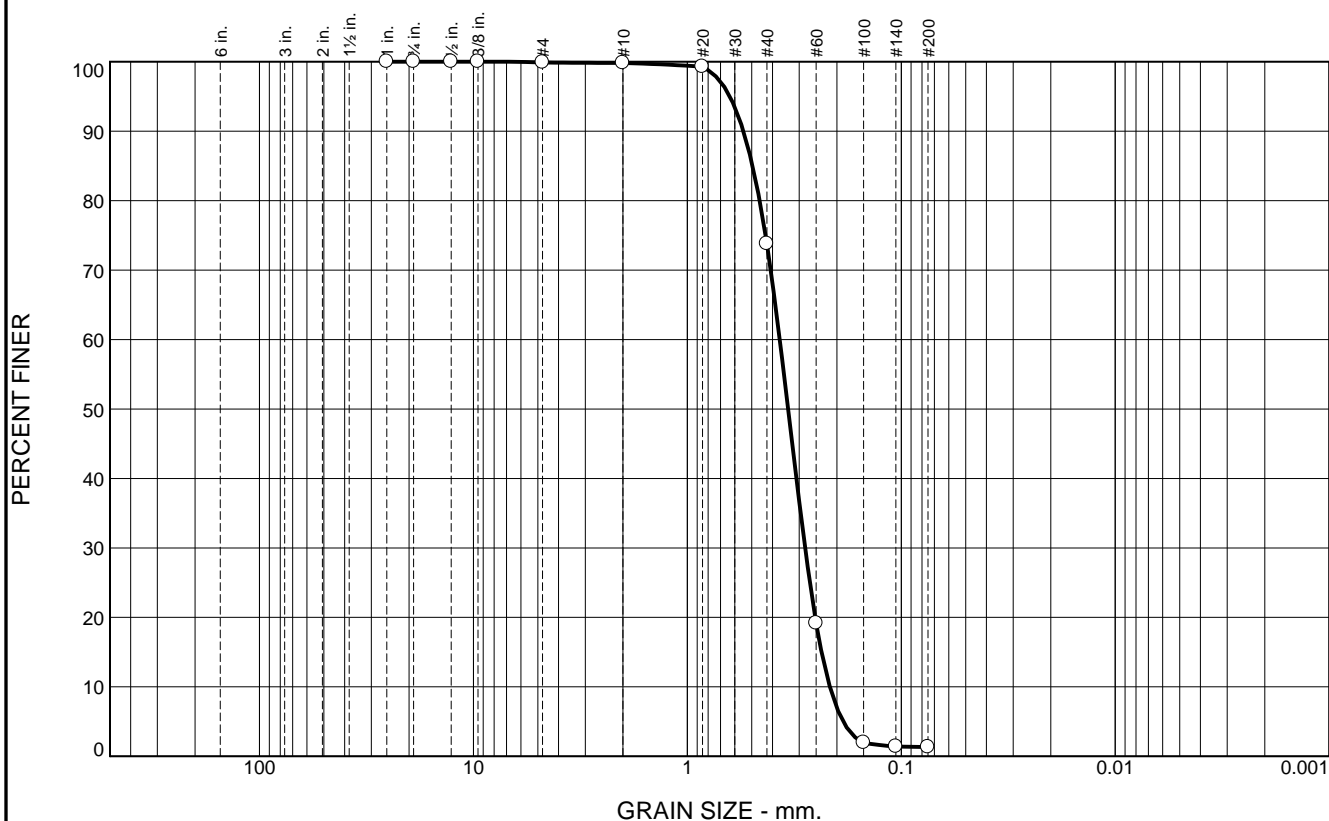
Remarks

* (no specification provided)

Location: BI-PB-165-12 B **Depth:** 1.9' **Date:** 12/07/12
Sample Number: 6480 (26)

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

Particle Size Distribution Report



| % +3" | % Gravel | | % Sand | | | % Fines | |
|-------|----------|------|--------|--------|------|---------|------|
| | Coarse | Fine | Coarse | Medium | Fine | Silt | Clay |
| 0.0 | 0.0 | 0.1 | 0.1 | 26.0 | 72.5 | 1.3 | |

| SIEVE SIZE | PERCENT FINER | SPEC.* PERCENT | PASS? (X=NO) |
|------------|---------------|----------------|--------------|
| 1 | 100.0 | | |
| .75 | 100.0 | | |
| .5 | 100.0 | | |
| .375 | 100.0 | | |
| #4 | 99.9 | | |
| #10 | 99.8 | | |
| #20 | 99.3 | | |
| #40 | 73.8 | | |
| #60 | 19.2 | | |
| #100 | 2.0 | | |
| #140 | 1.4 | | |
| #200 | 1.3 | | |

Material Description
Fine to medium grained, SAND

Atterberg Limits
 PL= LL= PI=

Coefficients
 D₉₀= 0.5469 D₈₅= 0.4958 D₆₀= 0.3699
 D₅₀= 0.3381 D₃₀= 0.2817 D₁₅= 0.2359
 D₁₀= 0.2157 C_u= 1.72 C_c= 0.99

Classification
 USCS= SP AASHTO=

Remarks

* (no specification provided)

Location: BI-PB-165-12 C
Sample Number: 6480 (27)

Depth: 2.8'

Date: 12/07/12

Thompson Engineering

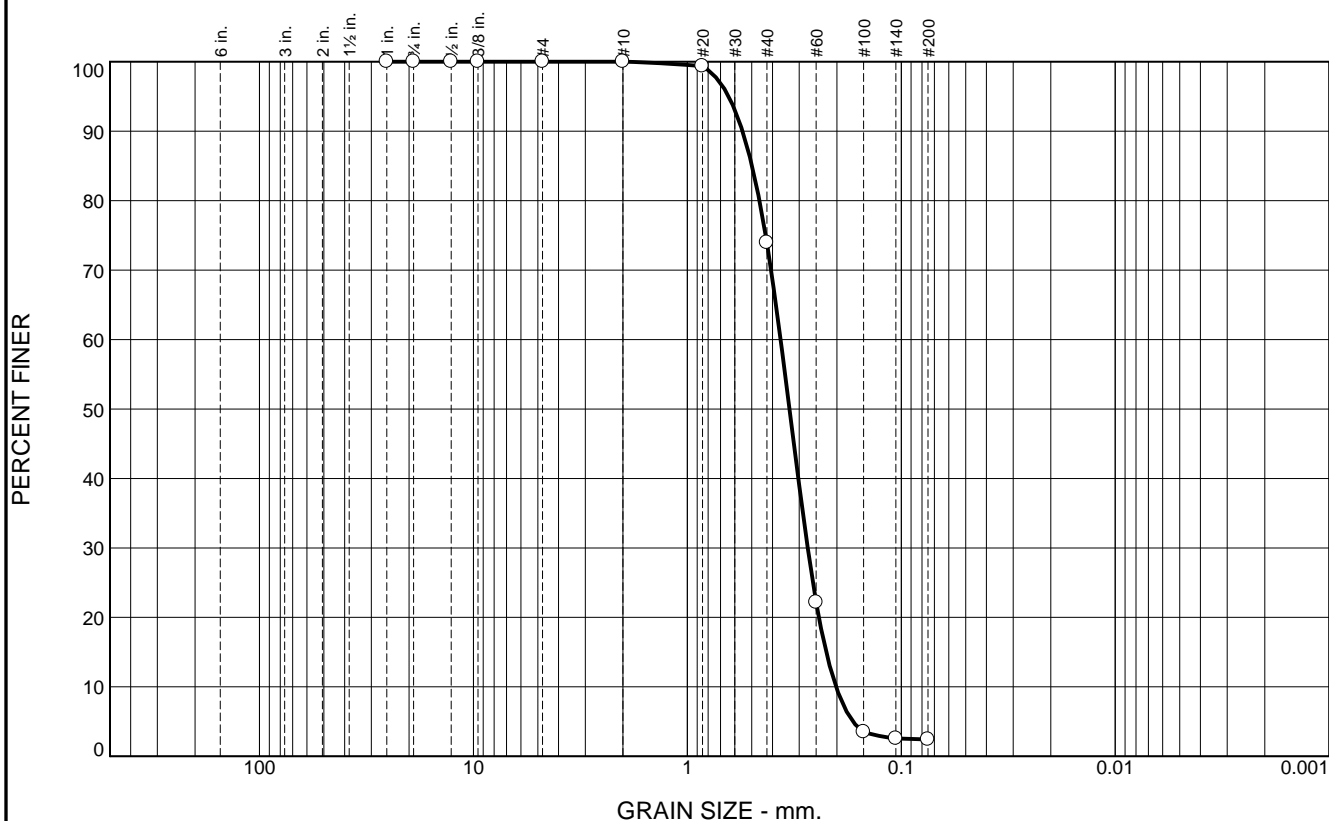
Mobile, Alabama

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

Project No: 1221110095

Figure

Particle Size Distribution Report



| % +3" | % Gravel | | % Sand | | | % Fines | |
|-------|----------|------|--------|--------|------|---------|------|
| | Coarse | Fine | Coarse | Medium | Fine | Silt | Clay |
| 0.0 | 0.0 | 0.0 | 0.0 | 26.1 | 71.5 | 2.4 | |

| SIEVE SIZE | PERCENT FINER | SPEC.* PERCENT | PASS? (X=NO) |
|------------|---------------|----------------|--------------|
| 1 | 100.0 | | |
| .75 | 100.0 | | |
| .5 | 100.0 | | |
| .375 | 100.0 | | |
| #4 | 100.0 | | |
| #10 | 100.0 | | |
| #20 | 99.4 | | |
| #40 | 73.9 | | |
| #60 | 22.2 | | |
| #100 | 3.5 | | |
| #140 | 2.6 | | |
| #200 | 2.4 | | |

Material Description
Fine to medium grained, SAND

Atterberg Limits
 PL= LL= PI=

Coefficients
 D₉₀= 0.5521 D₈₅= 0.4986 D₆₀= 0.3665
 D₅₀= 0.3332 D₃₀= 0.2739 D₁₅= 0.2244
 D₁₀= 0.2019 C_u= 1.82 C_c= 1.01

Classification
 USCS= SP AASHTO=

Remarks

* (no specification provided)

Location: BI-PB-165-12 D Depth: 5.0' Date: 12/07/12
 Sample Number: 6480 (28)

Thompson Engineering

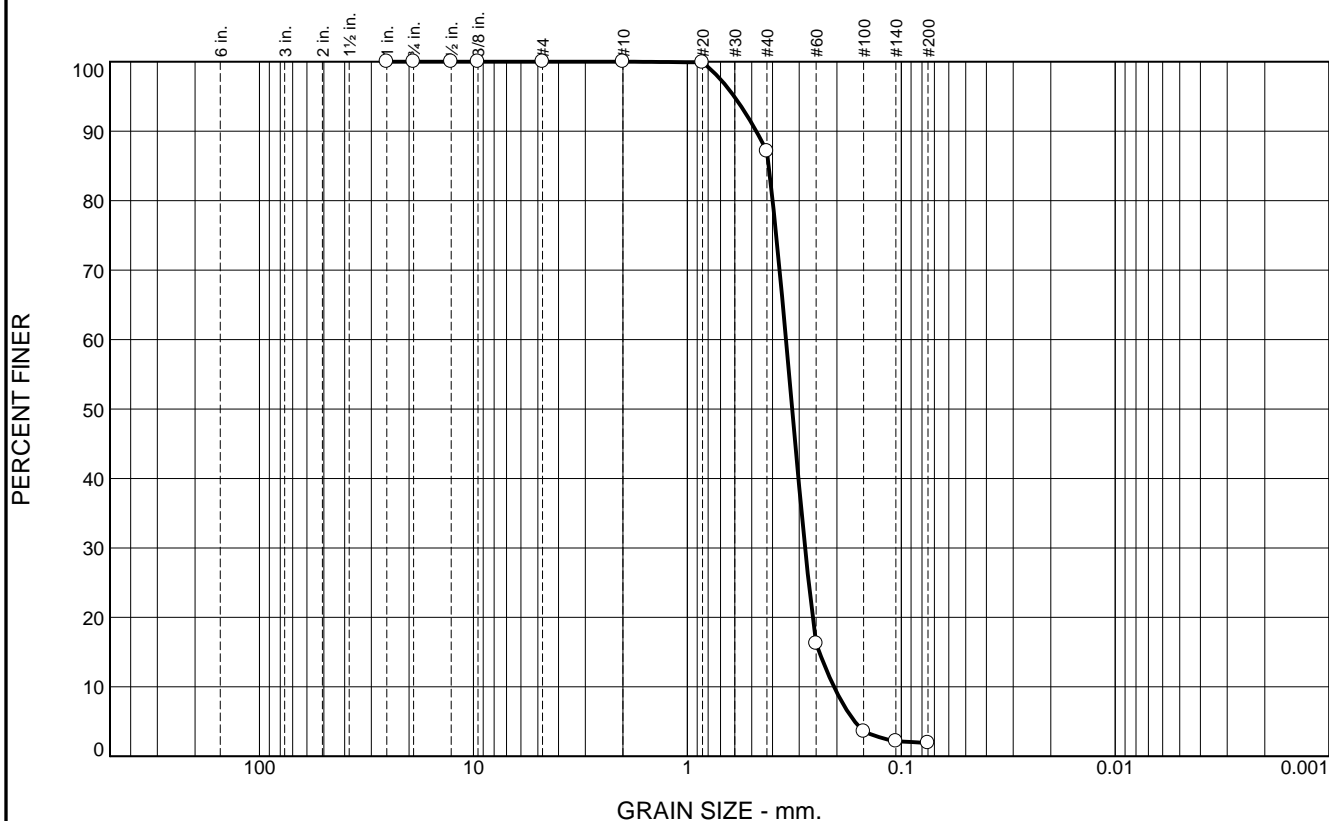
Mobile, Alabama

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

Project No: 1221110095

Figure

Particle Size Distribution Report



| % +3" | % Gravel | | % Sand | | | % Fines | |
|-------|----------|------|--------|--------|------|---------|------|
| | Coarse | Fine | Coarse | Medium | Fine | Silt | Clay |
| 0.0 | 0.0 | 0.0 | 0.0 | 12.9 | 85.2 | 1.9 | |

| SIEVE SIZE | PERCENT FINER | SPEC.* PERCENT | PASS? (X=NO) |
|------------|---------------|----------------|--------------|
| 1 | 100.0 | | |
| .75 | 100.0 | | |
| .5 | 100.0 | | |
| .375 | 100.0 | | |
| #4 | 100.0 | | |
| #10 | 100.0 | | |
| #20 | 99.9 | | |
| #40 | 87.1 | | |
| #60 | 16.3 | | |
| #100 | 3.6 | | |
| #140 | 2.2 | | |
| #200 | 1.9 | | |

Material Description
Fine to medium grained, SAND

Atterberg Limits
 PL= LL= PI=

Coefficients
 D₉₀= 0.4765 D₈₅= 0.4166 D₆₀= 0.3459
 D₅₀= 0.3237 D₃₀= 0.2819 D₁₅= 0.2415
 D₁₀= 0.2063 C_u= 1.68 C_c= 1.11

Classification
 USCS= SP AASHTO=

Remarks

* (no specification provided)

Location: BI-PB-165-12 E Depth: 10.0' Date: 12/07/12
 Sample Number: 6480 (29)

Thompson Engineering

Mobile, Alabama

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

Project No: 1221110095

Figure

Boring Designation BI-PB-166-12

| | | | | |
|--|--|---|---|---|
| DRILLING LOG | | DIVISION South Atlantic | INSTALLATION Mobile District | SHEET 1 OF 1 SHEETS |
| 1. PROJECT MsCIP Barrier Island Restoration Petit Bois Pass- AL East | | | 9. SIZE AND TYPE OF BIT N/A | |
| 2. BORING DESIGNATION BI-PB-166-12 | | 10. COORDINATE SYSTEM/DATUM State Plane, MSE (U.S. Ft.) | | 11. MANUFACTURER'S DESIGNATION OF DRILL Vibracore |
| 3. DRILLING AGENCY Corps of Engineers - CESAM | | 12. TOTAL SAMPLES | | 13. TOTAL NUMBER CORE BOXES |
| 4. NAME OF DRILLER American Vibracore Systems, Inc. | | 14. WATER DEPTH 32.3 Ft. | | 15. DATE BORING |
| 5. DIRECTION OF BORING <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED | | 16. ELEVATION TOP OF BORING -32.1 Ft. | 17. TOTAL RECOVERY FOR BORING 100% | 18. SIGNATURE AND TITLE OF INSPECTOR Mike FitzHarris, Geologist |
| 6. THICKNESS OF OVERBURDEN N/A | | 19. HORIZONTAL NAD83 | | 20. VERTICAL NAVD88 |
| 7. DEPTH DRILLED INTO ROCK N/A | | 21. DEGREE FROM VERTICAL | | 22. BEARING |
| 8. TOTAL DEPTH OF BORING 10.2 Ft. | | 23. DISTURBED | | 24. UNDISTURBED (UD) 0 |

| ELEV. | DEPTH | LEGEND | CLASSIFICATION OF MATERIALS | SAMPLE | LABORATORY RESULTS |
|--|-------|--------|--|--------|--------------------|
| -32.1 | 0.0 | | | | |
| -32.3 | 0.2 | | SAND, poorly-graded, mostly fine to medium-grained sand-sized quartz, trace silt, lt. brown (SP) | NS | 0 |
| | | | CLAY, fat, mostly clay, trace silt, medium plasticity, gray (CH) At El. -33.8 Ft., mostly clay, trace wood debris, high plasticity, gray mottled with brown | | |
| -38.6 | 6.5 | | | | |
| -39.5 | 7.4 | | SAND, poorly-graded, mostly fine to medium-grained sand-sized quartz, trace silt, trace clay, lt. gray (SP) | NS | 5 |
| | | | CLAY, fat, mostly clay, trace silt, trace wood debris, medium to high plasticity, gray (CH) | | |
| -42.3 | 10.2 | | | | |
| <p>NOTES:</p> <ol style="list-style-type: none"> 1. Soils are field visually classified in accordance with the Unified Soils Classification System. 2. NS = Sample not submitted for laboratory 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-166-12

Date 11/29/2012

Water Depth 32.3'

Coordinate System

Latitude / Longitude

Start Time 14:34:13

End Time 14:37:39

Penetration 20.0'

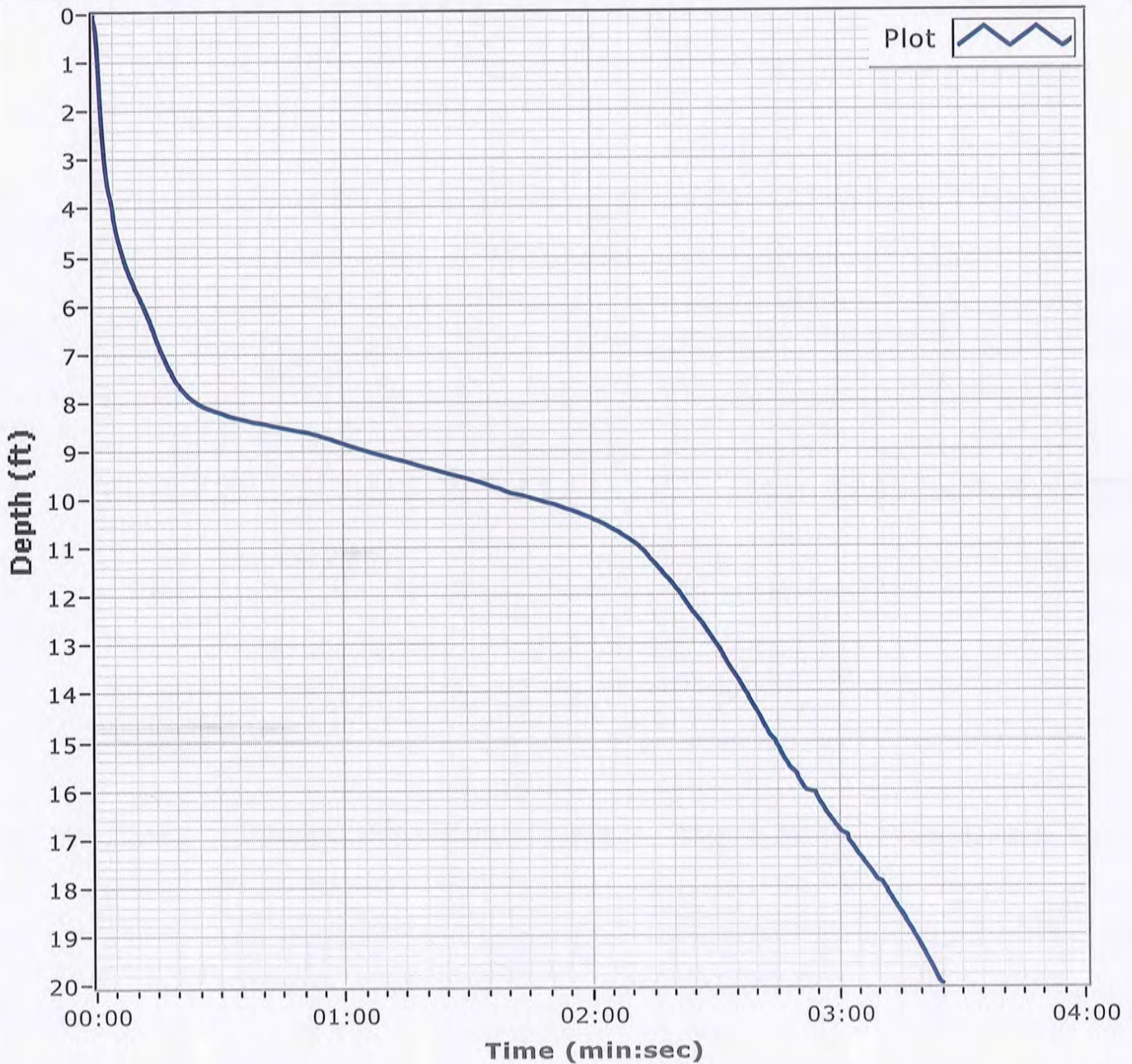
Latitude 30 12.684

Total Time 00:03:25

Recovery 10.3'

Longitude 088 17.625

Comments



Boring Designation BI-PB-167-12

| | | | | |
|--|--|---|--|--|
| DRILLING LOG | | DIVISION South Atlantic | INSTALLATION Mobile District | SHEET 1 OF 1 SHEETS |
| 1. PROJECT MsCIP Barrier Island Restoration Petit Bois Pass- AL East | | | 9. SIZE AND TYPE OF BIT N/A | |
| 2. BORING DESIGNATION BI-PB-167-12 | | 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 | | <input type="checkbox"/> AUTO HAMMER <input type="checkbox"/> MANUAL HAMMER |
| 4. NAME OF DRILLER American Vibracore Systems, Inc. | | 12. TOTAL SAMPLES | | DISTURBED 0 |
| 5. DIRECTION OF BORING <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED | | 13. TOTAL NUMBER CORE BOXES | | UNDISTURBED (UD) 0 |
| 6. THICKNESS OF OVERBURDEN N/A | | 14. WATER DEPTH 29.7 Ft. | | 15. DATE BORING |
| 7. DEPTH DRILLED INTO ROCK N/A | | 16. ELEVATION TOP OF BORING -29.6 Ft. | | STARTED 11-29-12 |
| 8. TOTAL DEPTH OF BORING 15.5 Ft. | | 17. TOTAL RECOVERY FOR BORING 100% | | COMPLETED 11-29-12 |
| 18. SIGNATURE AND TITLE OF INSPECTOR Mike FitzHarris, Geologist | | | | |

| ELEV. | DEPTH | LEGEND | CLASSIFICATION OF MATERIALS | SAMPLE | LABORATORY RESULTS |
|---|-------|--------|---|--------|--------------------|
| -29.6 | 0.0 | | | | |
| -30.3 | 0.7 | | SAND, poorly-graded, mostly fine to medium-grained sand-sized quartz, trace silt, lt. brown to lt. gray (SP) | | |
| -31.0 | 1.4 | | SAND, clayey, mostly fine-grained sand-sized quartz, trace silt, gray (SC) | | |
| | | | CLAY, fat, mostly clay, trace silt, medium to high plasticity, gray to brownish gray (CH) | NS | |
| -40.0 | 10.4 | | | | |
| -40.5 | 10.9 | | SAND, clayey, mostly fine-grained sand-sized quartz, trace silt, brownish gray (SC) | | |
| | | | SAND, poorly-graded with silt, mostly fine-grained sand-sized quartz, little silt, little wood debris, trace organic matter, brownish gray mottled with brown (SP-SM) | | |
| -43.5 | 13.9 | | | | |
| -44.7 | 15.1 | | SAND, poorly-graded, mostly fine-grained sand-sized quartz, trace silt, lt. gray (SP) | | |
| -45.1 | 15.5 | | SAND, clayey, mostly fine-grained sand-sized quartz, some clay, trace shell fragments, gray (SC) | | |
| NOTES: | | | | | |
| 1. Soils are field visually classified in accordance with the Unified Soils Classification System. | | | | | |
| 2. NS = Sample not submitted for laboratory analysis from this interval. | | | | | |
| 3. Seafloor elevation calculated using sampling vessel's fathometer water depth reading and applying NOAA tidal gauge data conversion factor. | | | | | |

Project

Mississippi Barrier Island
Restoration Project



Core Identifier BI-PB-167-12

Date 11/29/2012

Water Depth 29.7'

Coordinate System

Latitude / Longitude

Start Time 13:51:18

End Time 13:53:01

Penetration 20.0'

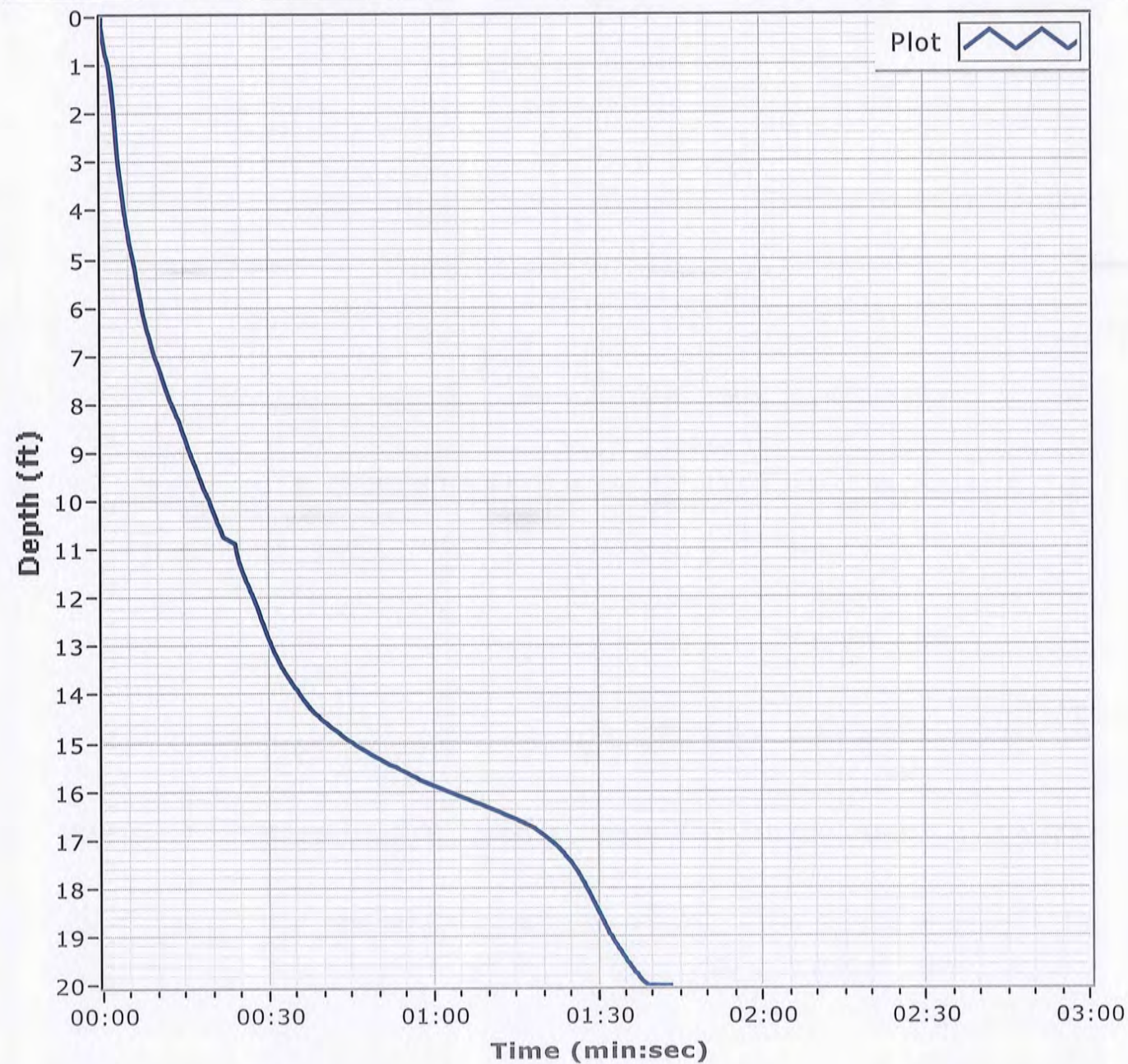
Latitude 30 12.694

Total Time 00:01:43

Recovery 15.5'

Longitude 088 17.866

Comments



Boring Designation BI-PB-168-12

| | | | | |
|--|--|---|--|--|
| DRILLING LOG | | DIVISION South Atlantic | INSTALLATION Mobile District | SHEET 1 OF 1 SHEETS |
| 1. PROJECT MsCIP Barrier Island Restoration Petit Bois Pass- AL East | | | 9. SIZE AND TYPE OF BIT N/A | |
| 2. BORING DESIGNATION BI-PB-168-12 | | 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 | | <input type="checkbox"/> AUTO HAMMER <input type="checkbox"/> MANUAL HAMMER |
| 4. NAME OF DRILLER American Vibracore Systems, Inc. | | 12. TOTAL SAMPLES | | DISTURBED 0 |
| 5. DIRECTION OF BORING <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED | | 13. TOTAL NUMBER CORE BOXES | | UNDISTURBED (UD) 0 |
| 6. THICKNESS OF OVERBURDEN N/A | | 14. WATER DEPTH 29.2 Ft. | | 15. DATE BORING |
| 7. DEPTH DRILLED INTO ROCK N/A | | 16. ELEVATION TOP OF BORING -29.2 Ft. | | STARTED 11-29-12 |
| 8. TOTAL DEPTH OF BORING 16.6 Ft. | | 17. TOTAL RECOVERY FOR BORING 100% | | COMPLETED 11-29-12 |
| 18. SIGNATURE AND TITLE OF INSPECTOR Mike FitzHarris, Geologist | | | | |

| ELEV. | DEPTH | LEGEND | CLASSIFICATION OF MATERIALS | SAMPLE | LABORATORY RESULTS |
|--|-------|--------|---|--------|---|
| -29.2 | 0.0 | | | | |
| -29.4 | 0.2 | | SAND, poorly-graded, mostly fine to medium-grained sand-sized quartz, trace silt, brownish gray (SP) | NS | |
| -31.0 | 1.8 | | SAND, clayey, mostly fine-grained sand-sized quartz, trace silt, gray (SC) CLAY, fat, mostly clay, medium to high plasticity, gray to brownish gray (CH) | | |
| -39.4 | 10.2 | | SAND, silty, mostly fine-grained sand-sized quartz, some silt, trace wood debris, clayey stringers, brownish gray (SM) | A | Classification: SP Color: 2.5Y 6/2-light brownish gray D50: 0.3461 mm % Fines: 4.1 |
| -41.3 | 12.1 | | SAND, poorly-graded with silt, mostly fine-grained sand-sized quartz, little silt, trace wood debris, lt brown mottled with brown (SP-SM) | | |
| -42.7 | 13.5 | | SAND, poorly-graded, mostly fine to medium-grained sand-sized quartz, trace wood debris, lt. brown to gray (SP) | NS | |
| -45.8 | 16.6 | | | | |
| <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-168-12

Date 11/29/2012

Water Depth 29.2'

Coordinate System

Latitude / Longitude

Start Time 12:57:52

End Time 13:01:58

Penetration 20.0'

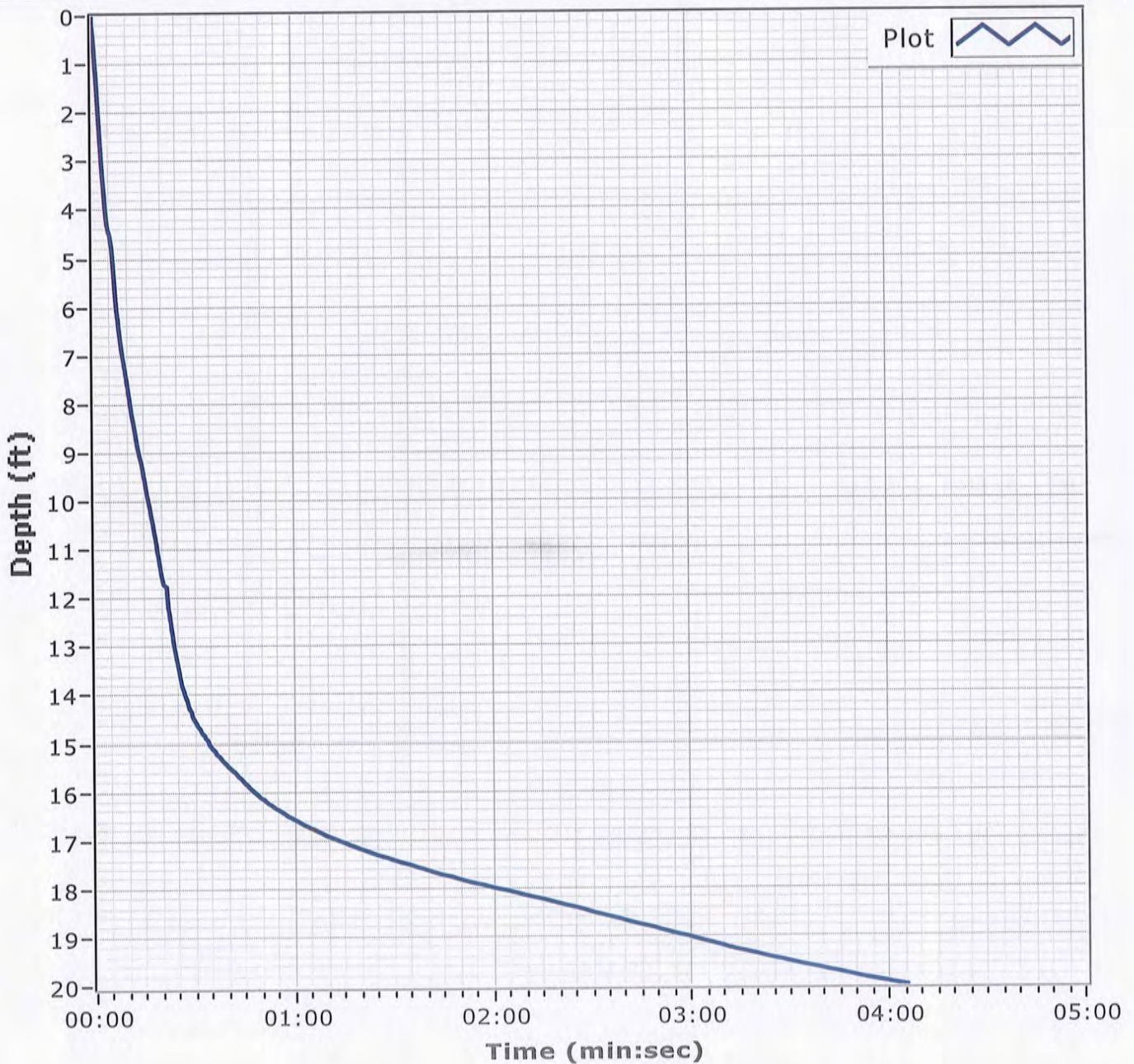
Latitude 30 12.710

Total Time 00:04:06

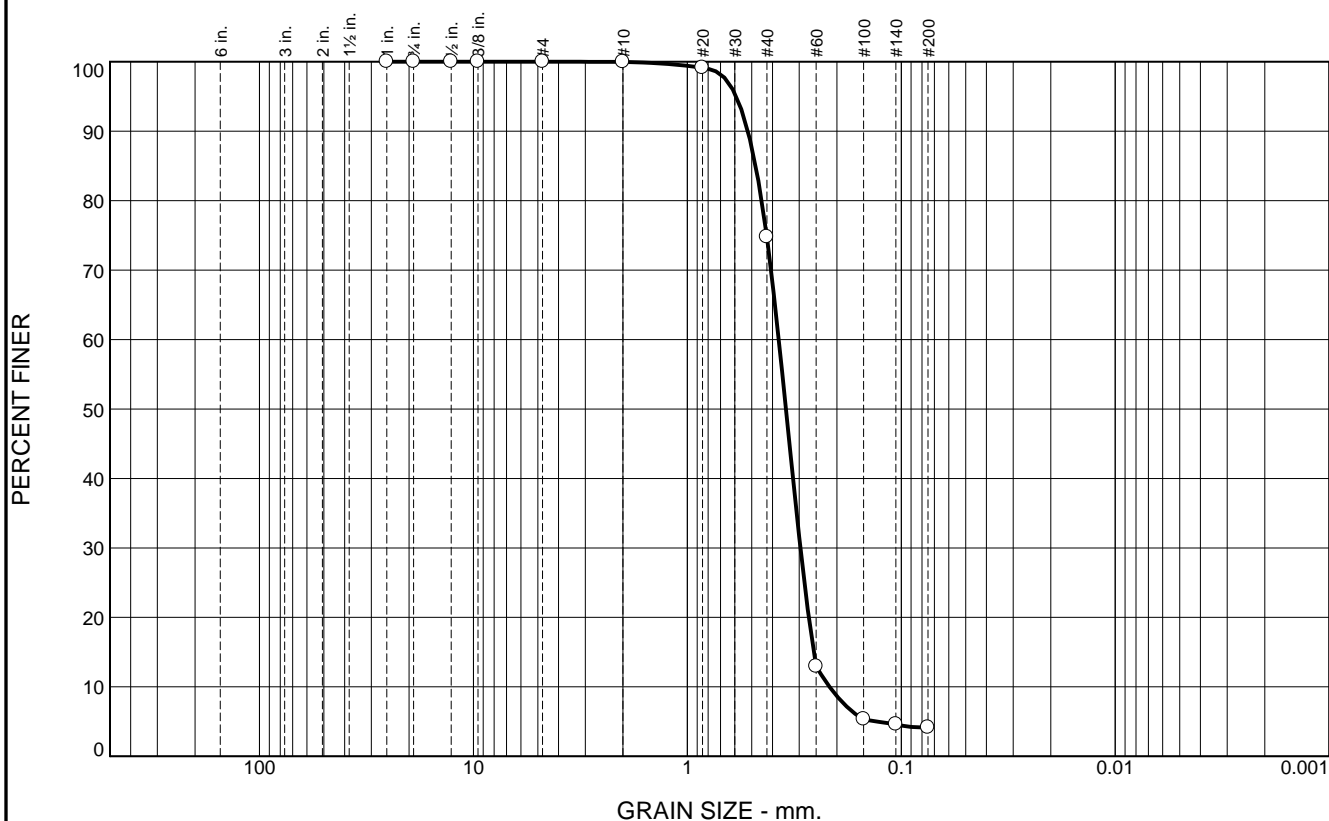
Recovery 16.6'

Longitude 088 18.111

Comments



Particle Size Distribution Report



| % +3" | % Gravel | | % Sand | | | % Fines | |
|-------|----------|------|--------|--------|------|---------|------|
| | Coarse | Fine | Coarse | Medium | Fine | Silt | Clay |
| 0.0 | 0.0 | 0.0 | 0.0 | 25.2 | 70.7 | 4.1 | |

| SIEVE SIZE | PERCENT FINER | SPEC.* PERCENT | PASS? (X=NO) |
|------------|---------------|----------------|--------------|
| 1 | 100.0 | | |
| .75 | 100.0 | | |
| .5 | 100.0 | | |
| .375 | 100.0 | | |
| #4 | 100.0 | | |
| #10 | 100.0 | | |
| #20 | 99.1 | | |
| #40 | 74.8 | | |
| #60 | 12.9 | | |
| #100 | 5.3 | | |
| #140 | 4.6 | | |
| #200 | 4.1 | | |

Material Description

Fine to medium grained, SAND

Atterberg Limits

PL= LL= PI=

Coefficients

D₉₀= 0.5213 D₈₅= 0.4797 D₆₀= 0.3738
D₅₀= 0.3461 D₃₀= 0.2963 D₁₅= 0.2566
D₁₀= 0.2164 C_u= 1.73 C_c= 1.09

Classification

USCS= SP AASHTO=

Remarks

* (no specification provided)

Location: BI-PB-168-12 A Depth: 13.5' Date: 12/03/12
Sample Number: 6471 (39)

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

Boring Designation BI-PB-169-12

| | | | | |
|--|--|---|--|--|
| DRILLING LOG | | DIVISION South Atlantic | INSTALLATION Mobile District | SHEET 1 OF 1 SHEETS |
| 1. PROJECT MsCIP Barrier Island Restoration Petit Bois Pass- AL East | | | 9. SIZE AND TYPE OF BIT N/A | |
| 2. BORING DESIGNATION BI-PB-169-12 | | 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 | | <input type="checkbox"/> AUTO HAMMER <input type="checkbox"/> MANUAL HAMMER |
| 4. NAME OF DRILLER American Vibracore Systems, Inc. | | 12. TOTAL SAMPLES | | DISTURBED 0 |
| 5. DIRECTION OF BORING <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED | | 13. TOTAL NUMBER CORE BOXES | | UNDISTURBED (UD) 0 |
| 6. THICKNESS OF OVERBURDEN N/A | | 14. WATER DEPTH 28.7 Ft. | | 15. DATE BORING |
| 7. DEPTH DRILLED INTO ROCK N/A | | 16. ELEVATION TOP OF BORING -28.8 Ft. | | STARTED 11-29-12 |
| 8. TOTAL DEPTH OF BORING 14.9 Ft. | | 17. TOTAL RECOVERY FOR BORING 100% | | COMPLETED 11-29-12 |
| 18. SIGNATURE AND TITLE OF INSPECTOR Mike FitzHarris, Geologist | | | | |

| ELEV. | DEPTH | LEGEND | CLASSIFICATION OF MATERIALS | SAMPLE | LABORATORY RESULTS |
|--|-------|--------|---|--------|---|
| -28.8 | 0.0 | | | | |
| -29.6 | 0.2 | ↑↑↑↑ | SAND, poorly-graded, mostly fine to medium-grained sand-sized quartz, trace silt, gray (SP) | NS | Classification: SM Color: 5Y 5/2-olive gray D50: 0.1874 mm % Fines: 17.3 |
| -31.2 | 2.4 | | SAND, silty, mostly fine-grained sand-sized quartz, trace clay, trace wood debris, gray (SM) | A | |
| | | ▨▨▨▨ | CLAY, fat, mostly clay, medium to high plasticity, gray (CH) | NS | |
| | | | At El. -33.7 Ft., mostly clay, medium to high plasticity, brownish gray | | |
| | | | At El. -38.7 Ft., mostly clay, trace silt, trace wood debris, medium to high plasticity, greenish gray mottled with brownish gray | | |
| -42.3 | 13.5 | | | | |
| -43.7 | 14.9 | ▨▨▨▨ | SAND, clayey, mostly fine-grained sand-sized quartz, some clay, trace wood debris, gray (SC) | | |
| <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-169-12

Date 11/29/2012

Water Depth 28.7'

Coordinate System

Start Time 12:18:55

Latitude / Longitude

End Time 12:20:21

Penetration 20.0'

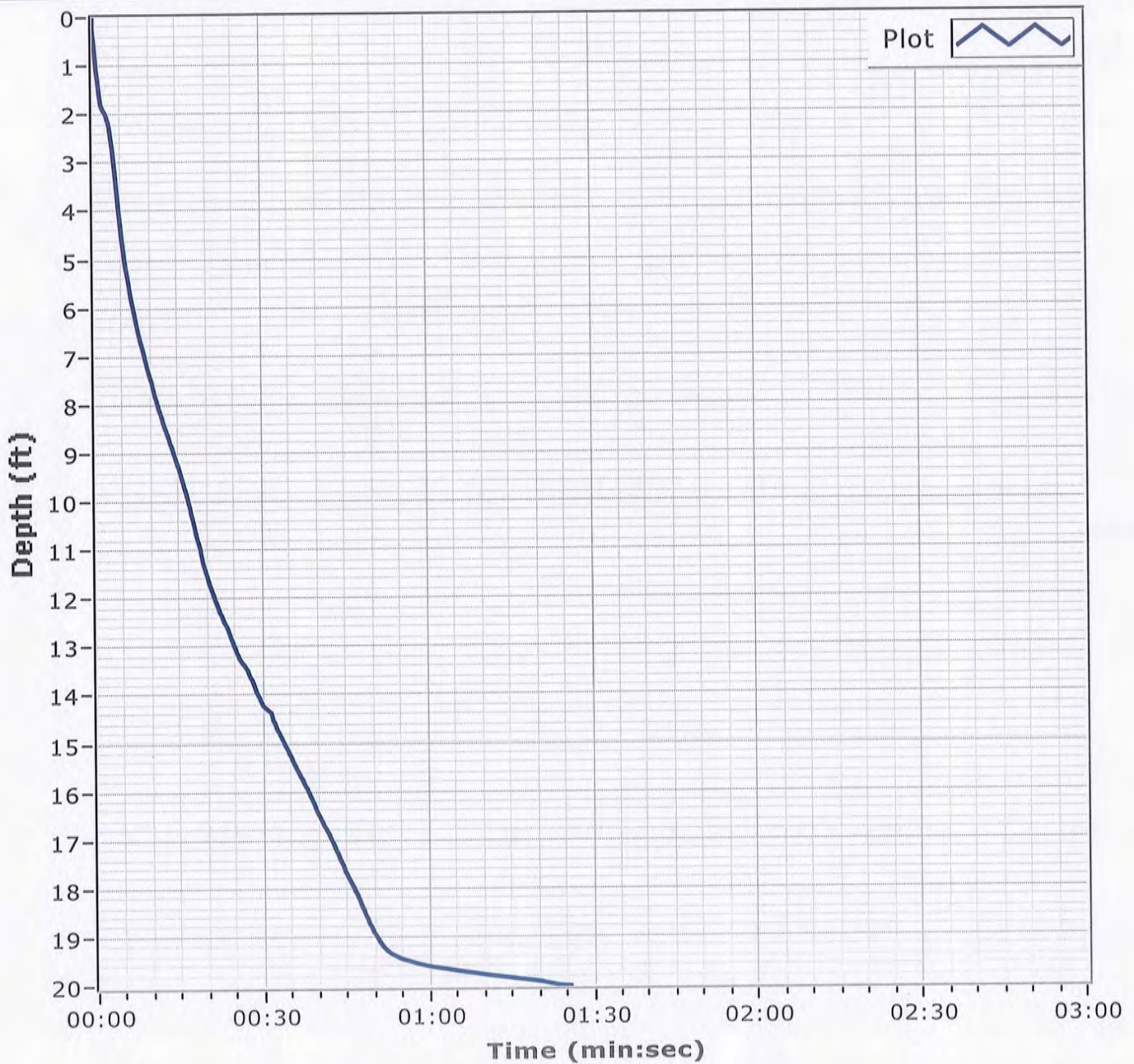
Latitude 30 12.712

Total Time 00:01:25

Recovery 15.0'



Longitude 088 18.301

Comments



Boring Designation BI-PB-170-12

| | | | | |
|--|--|---|--|--|
| DRILLING LOG | | DIVISION South Atlantic | INSTALLATION Mobile District | SHEET 1 OF 1 SHEETS |
| 1. PROJECT MsCIP Barrier Island Restoration Petit Bois Pass- AL East | | | 9. SIZE AND TYPE OF BIT N/A | |
| 2. BORING DESIGNATION BI-PB-170-12 | | 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 | | <input type="checkbox"/> AUTO HAMMER <input type="checkbox"/> MANUAL HAMMER |
| 4. NAME OF DRILLER American Vibracore Systems, Inc. | | 12. TOTAL SAMPLES | | DISTURBED 0 |
| 5. DIRECTION OF BORING <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED | | 13. TOTAL NUMBER CORE BOXES | | UNDISTURBED (UD) 0 |
| 6. THICKNESS OF OVERBURDEN N/A | | 14. WATER DEPTH 31.7 Ft. | | |
| 7. DEPTH DRILLED INTO ROCK N/A | | 15. DATE BORING | | STARTED 12-05-12 COMPLETED 12-05-12 |
| 8. TOTAL DEPTH OF BORING 11.5 Ft. | | 16. ELEVATION TOP OF BORING -31.4 Ft. | | |
| | | 17. TOTAL RECOVERY FOR BORING 100% | | |
| | | 18. SIGNATURE AND TITLE OF INSPECTOR Mike FitzHarris, Geologist | | |

| ELEV. | DEPTH | LEGEND | CLASSIFICATION OF MATERIALS | SAMPLE | LABORATORY RESULTS |
|-------|-------|---|---|--------|--------------------|
| -31.4 | 0.0 | | | | |
| -31.6 | 0.2 |  | SAND, poorly-graded, mostly fine to medium-grained sand-sized quartz, trace silt, lt. gray (SP) | NS | |
| | | | CLAY, fat, mostly clay, trace fine-grained sand-sized quartz, medium to high plasticity, medium stiff, greenish gray to gray (CH) | | |
| | | | At El. -36.3 Ft., mostly clay, little silt, high plasticity, stiff, few green silty bands, lt. gray mottled with brown and green | | |
| -40.1 | 8.7 |  | SAND, poorly-graded, mostly fine to medium-grained sand-sized quartz, trace silt, gray w/lt. brown streaking (SP) | | |
| -42.8 | 11.5 | | CLAY, lean, mostly clay, some fine-grained sand-sized quartz, sandy, low to medium plasticity, greenish gray (CL) | | |
| | | | NOTES: 1. Soils are field visually classified in accordance with the Unified Soils Classification System. 2. NS = Sample not submitted for laboratory analysis from this interval. 3. Seafloor elevation calculated using sampling vessel's fathometer water depth reading and applying NOAA tidal gauge data conversion factor. | | |

Project

Mississippi Barrier Island
Restoration Project



Core Identifier BI-PB-170-12

Date 12/05/2012

Water Depth 31.7'

Coordinate System

Latitude / Longitude

Start Time 10:05:13

End Time 10:09:25

Penetration 20.0'

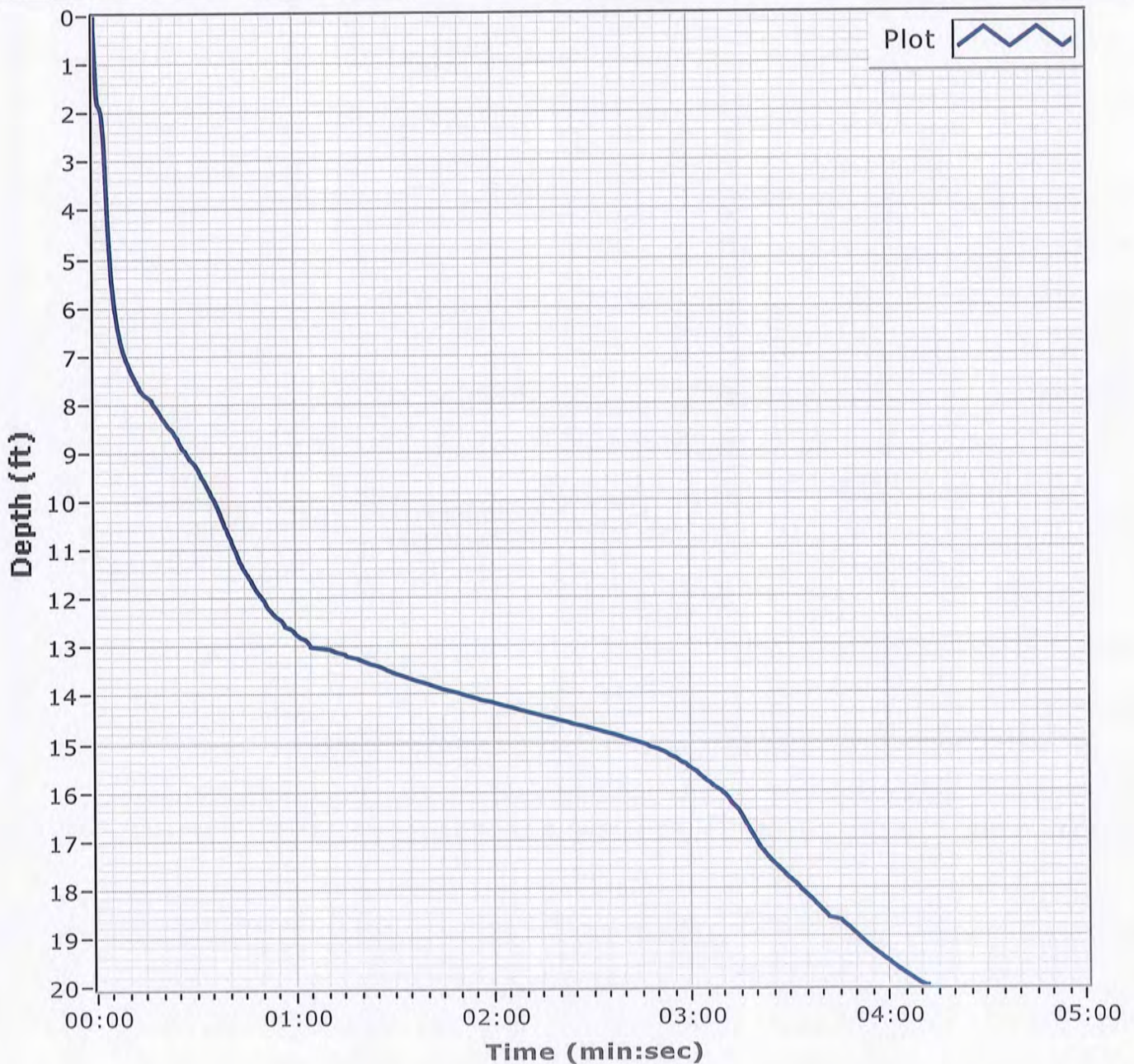
Latitude 30 12.604

Total Time 00:04:12

Recovery 11.5'

Longitude 088 18.246

Comments

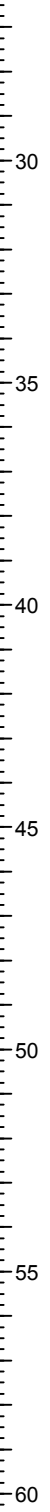


Boring Designation BI-PB-171-12

| | | | | |
|--|--|---|--|--|
| DRILLING LOG | | DIVISION South Atlantic | INSTALLATION Mobile District | SHEET 1 OF 2 SHEETS |
| 1. PROJECT MsCIP Barrier Island Restoration Petit Bois Pass- AL East | | | 9. SIZE AND TYPE OF BIT N/A | |
| 2. BORING DESIGNATION BI-PB-171-12 | | 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 | | <input type="checkbox"/> AUTO HAMMER <input type="checkbox"/> MANUAL HAMMER |
| 4. NAME OF DRILLER American Vibracore Systems, Inc. | | 12. TOTAL SAMPLES | | DISTURBED 0 |
| 5. DIRECTION OF BORING <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED | | 13. TOTAL NUMBER CORE BOXES | | UNDISTURBED (UD) 0 |
| 6. THICKNESS OF OVERBURDEN N/A | | 14. WATER DEPTH 31.6 Ft. | | |
| 7. DEPTH DRILLED INTO ROCK N/A | | 15. DATE BORING | | STARTED 12-05-12 COMPLETED 12-05-12 |
| 8. TOTAL DEPTH OF BORING 20.0 Ft. | | 16. ELEVATION TOP OF BORING -31.1 Ft. | | |
| | | 17. TOTAL RECOVERY FOR BORING 100% | | |
| | | 18. SIGNATURE AND TITLE OF INSPECTOR Mike FitzHarris, Geologist | | |

| ELEV. | DEPTH | LEGEND | CLASSIFICATION OF MATERIALS | SAMPLE | LABORATORY RESULTS |
|-------|-------|--------|---|--------|--|
| -31.1 | 0.0 | | | | |
| -32.8 | 1.7 | | CLAY, lean, mostly clay, trace fine-grained sand-sized quartz, trace silt, moderately stiff, low to medium plasticity, greenish gray (CL) | NS | |
| -33.8 | 2.7 | | SAND, poorly-graded with clay, mostly fine-grained sand-sized quartz, some clay, few silt, gray (SP-SC) | A | Classification: SM Color: 2.5Y 5.5/2-brownish gray D50: 0.3161 mm % Fines: 14.8 |
| | | | SAND, poorly-graded, mostly fine to medium-grained sand-sized quartz, trace silt, trace clay, clayey lense at 4.7 ft., gray (SP) | B | Classification: SP-SM Color: 2.5Y 6/1-gray D50: 0.3062 mm % Fines: 9.2 |
| | | | At El. -36.1 Ft., mostly fine to medium-grained sand-sized quartz, trace silt, gray | C | Classification: SP-SM Color: 2.5Y 6/2-light brownish gray D50: 0.3267 mm % Fines: 8.2 |
| -41.1 | 10.0 | | | | |
| | | | CLAY, lean, mostly clay, some fine-grained sand-sized quartz, low to medium plasticity, gray (CL) | NS | |
| -45.3 | 14.2 | | | | |
| | | | SAND, poorly-graded, mostly fine to medium-grained sand-sized quartz, trace silt, clayey pocket at 15.6 ft., lt. gray (SP) | D | Classification: SP-SM Color: 2.5Y 7.5/2- D50: 0.3833 mm % Fines: 10.8 |
| -47.4 | 16.3 | | | | |
| -48.1 | 17.0 | | SAND, poorly-graded with silt, mostly fine-grained sand-sized quartz, few silt, gray (SP-SM) | NS | |
| -50.6 | 19.5 | | SAND, silty, mostly fine-grained sand-sized quartz, some silt, some wood debris, little organic matter, brownish gray (SM) | | |
| -51.1 | 20.0 | | SAND, poorly-graded, mostly fine-grained sand-sized quartz, trace silt, lt. gray (SP) | | |
| | | | NOTES: 1. Soils are field visually classified in accordance with the Unified Soils Classification System. 2. NS = Sample not submitted for laboratory | | |

| DRILLING LOG (Cont. Sheet) | | | INSTALLATION Mobile District | | | SHEET 2 |
|--|-------|--------|--|----------------------------|---------------------------|--------------------|
| | | | | | | OF 2 SHEETS |
| PROJECT MsCIP Barrier Island Restoration | | | COORDINATE SYSTEM/DATUM State Plane, MSE (U.S. Ft.) | HORIZONTAL NAD83 | VERTICAL NAVD88 | |
| LOCATION COORDINATES X = 1,152,204 Y = 257,974 | | | ELEVATION TOP OF BORING -31.1 Ft. | | | |
| ELEV. | DEPTH | LEGEND | CLASSIFICATION OF MATERIALS | SAMPLE | LABORATORY RESULTS | |
| | | | <p>analysis from this interval.</p> <p>3. Seafloor elevation calculated using sampling vessel's fathometer water depth reading and applying NOAA tidal gauge data conversion factor.</p> | | | |



Project

Mississippi Barrier Island
Restoration Project



Core Identifier BI-PB-171-12

Date 12/05/2012

Water Depth 31.6'

Coordinate System

Latitude / Longitude

Start Time 15:04:46

End Time 15:07:45

Penetration 19.5'

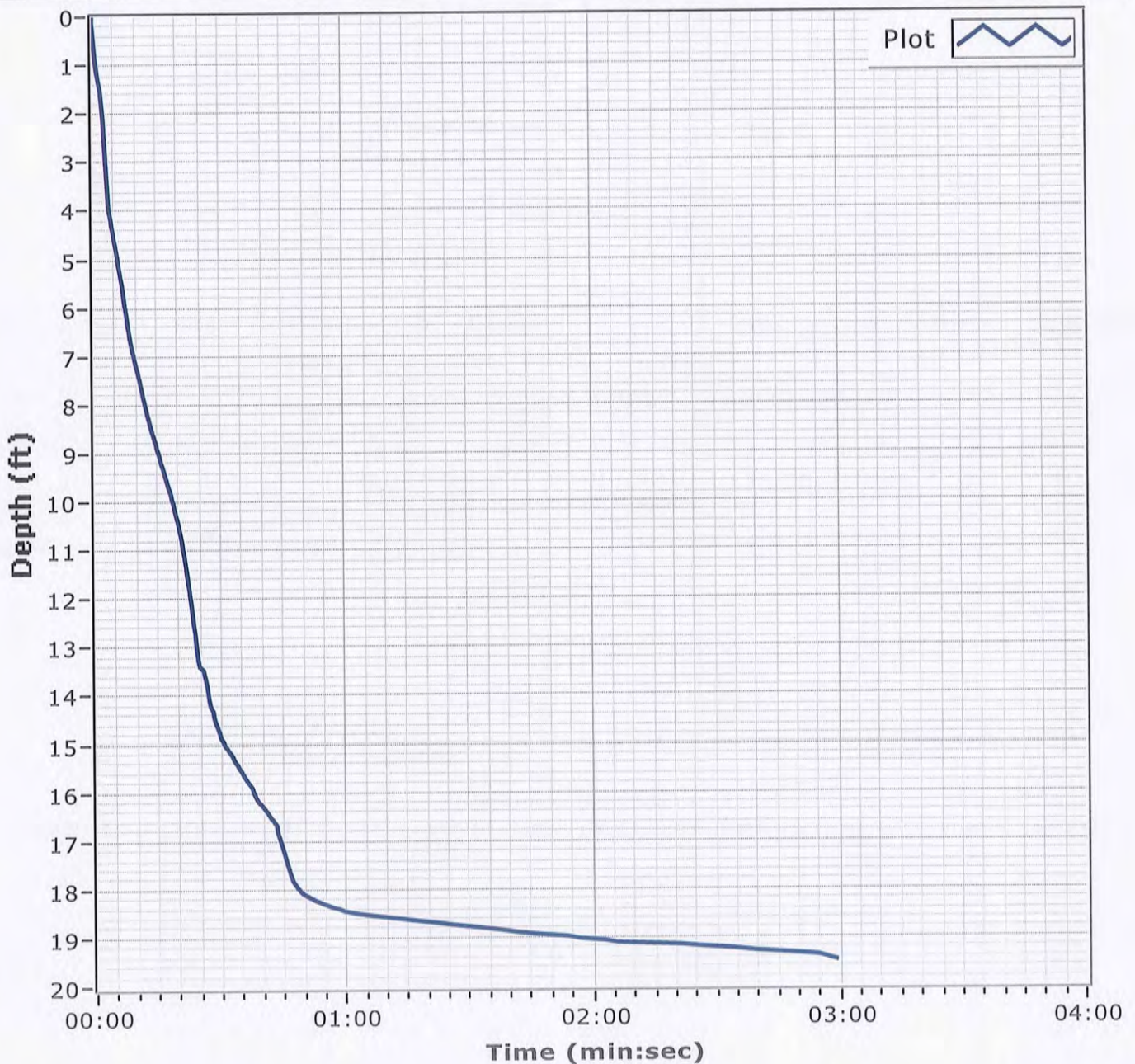
Latitude 30 12.489

Total Time 00:02:59

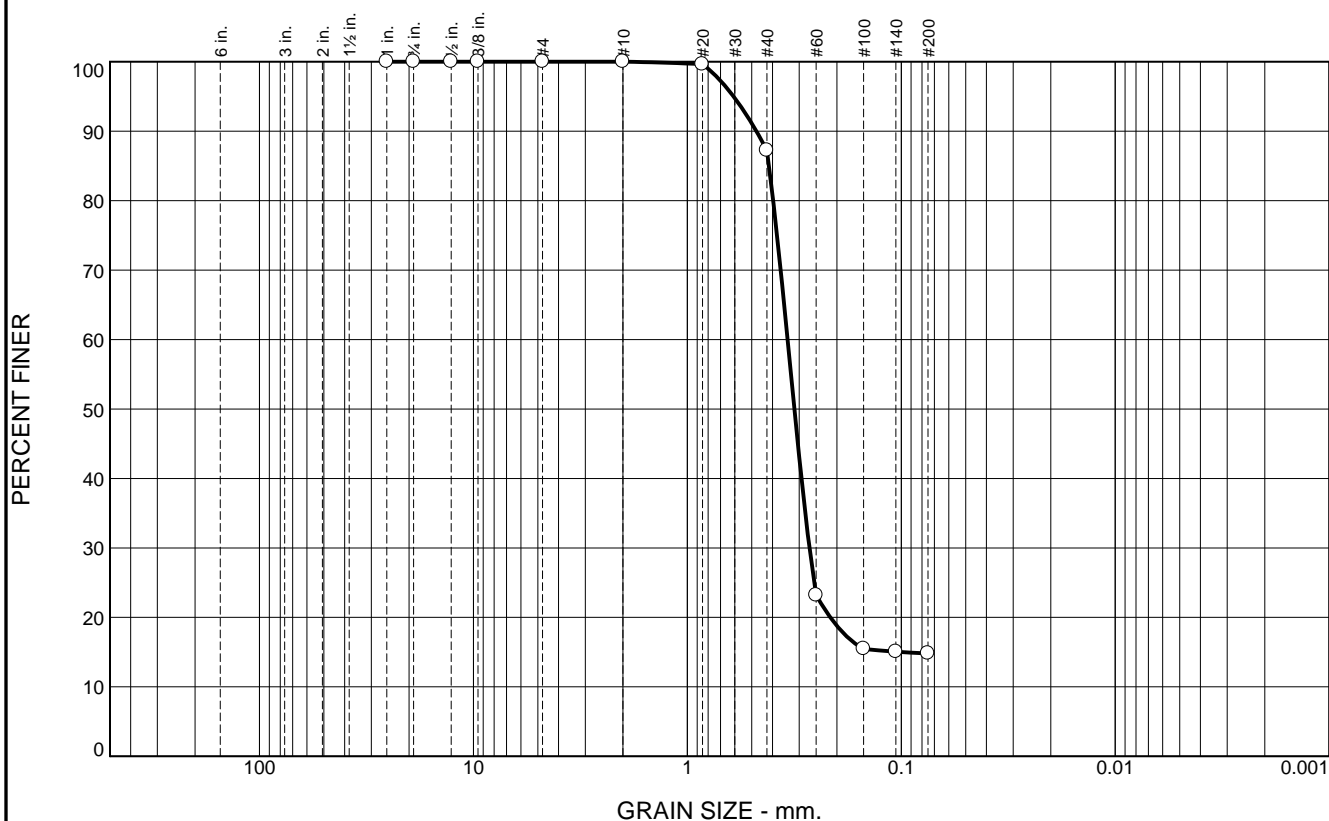
Recovery 19.5'

Longitude 088 18.098

Comments



Particle Size Distribution Report



| % +3" | % Gravel | | % Sand | | | % Fines | |
|-------|----------|------|--------|--------|------|---------|------|
| | Coarse | Fine | Coarse | Medium | Fine | Silt | Clay |
| 0.0 | 0.0 | 0.0 | 0.0 | 12.8 | 72.4 | 14.8 | |

| SIEVE SIZE | PERCENT FINER | SPEC.* PERCENT | PASS? (X=NO) |
|------------|---------------|----------------|--------------|
| 1 | 100.0 | | |
| .75 | 100.0 | | |
| .5 | 100.0 | | |
| .375 | 100.0 | | |
| #4 | 100.0 | | |
| #10 | 100.0 | | |
| #20 | 99.6 | | |
| #40 | 87.2 | | |
| #60 | 23.2 | | |
| #100 | 15.5 | | |
| #140 | 15.1 | | |
| #200 | 14.8 | | |

Material Description

Fine to medium grained, SILTY SAND

Atterberg Limits

PL= LL= PI=

Coefficients

D₉₀= 0.4759 D₈₅= 0.4155 D₆₀= 0.3400
D₅₀= 0.3161 D₃₀= 0.2690 D₁₅= 0.0998
D₁₀= C_u= C_c=

Classification

USCS= SM AASHTO=

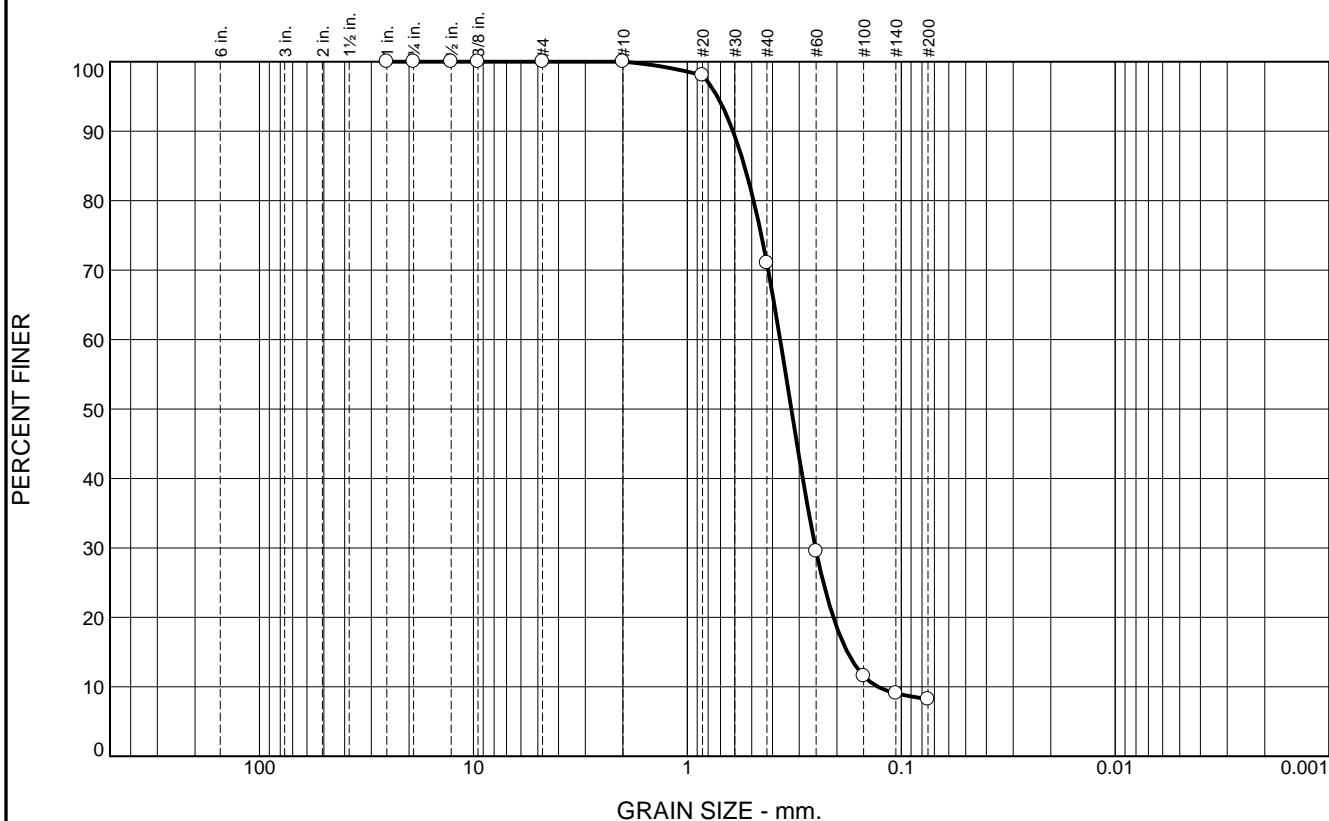
Remarks

* (no specification provided)

Location: BI-PB-171-12 A Depth: 1.7' Date: 12/07/12
Sample Number: 6480 (30)

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

Particle Size Distribution Report



| % +3" | % Gravel | | % Sand | | | % Fines | |
|-------|----------|------|--------|--------|------|---------|------|
| | Coarse | Fine | Coarse | Medium | Fine | Silt | Clay |
| 0.0 | 0.0 | 0.0 | 0.0 | 29.0 | 62.8 | 8.2 | |

| SIEVE SIZE | PERCENT FINER | SPEC.* PERCENT | PASS? (X=NO) |
|------------|---------------|----------------|--------------|
| 1 | 100.0 | | |
| .75 | 100.0 | | |
| .5 | 100.0 | | |
| .375 | 100.0 | | |
| #4 | 100.0 | | |
| #10 | 100.0 | | |
| #20 | 98.0 | | |
| #40 | 71.0 | | |
| #60 | 29.5 | | |
| #100 | 11.6 | | |
| #140 | 9.1 | | |
| #200 | 8.2 | | |

Material Description
Fine to medium grained, SLIGHTLY SILTY SAND

Atterberg Limits
 PL= LL= PI=

Coefficients
 D₉₀= 0.6114 D₈₅= 0.5409 D₆₀= 0.3683
 D₅₀= 0.3267 D₃₀= 0.2518 D₁₅= 0.1787
 D₁₀= 0.1287 C_u= 2.86 C_c= 1.34

Classification
 USCS= SP-SM AASHTO=

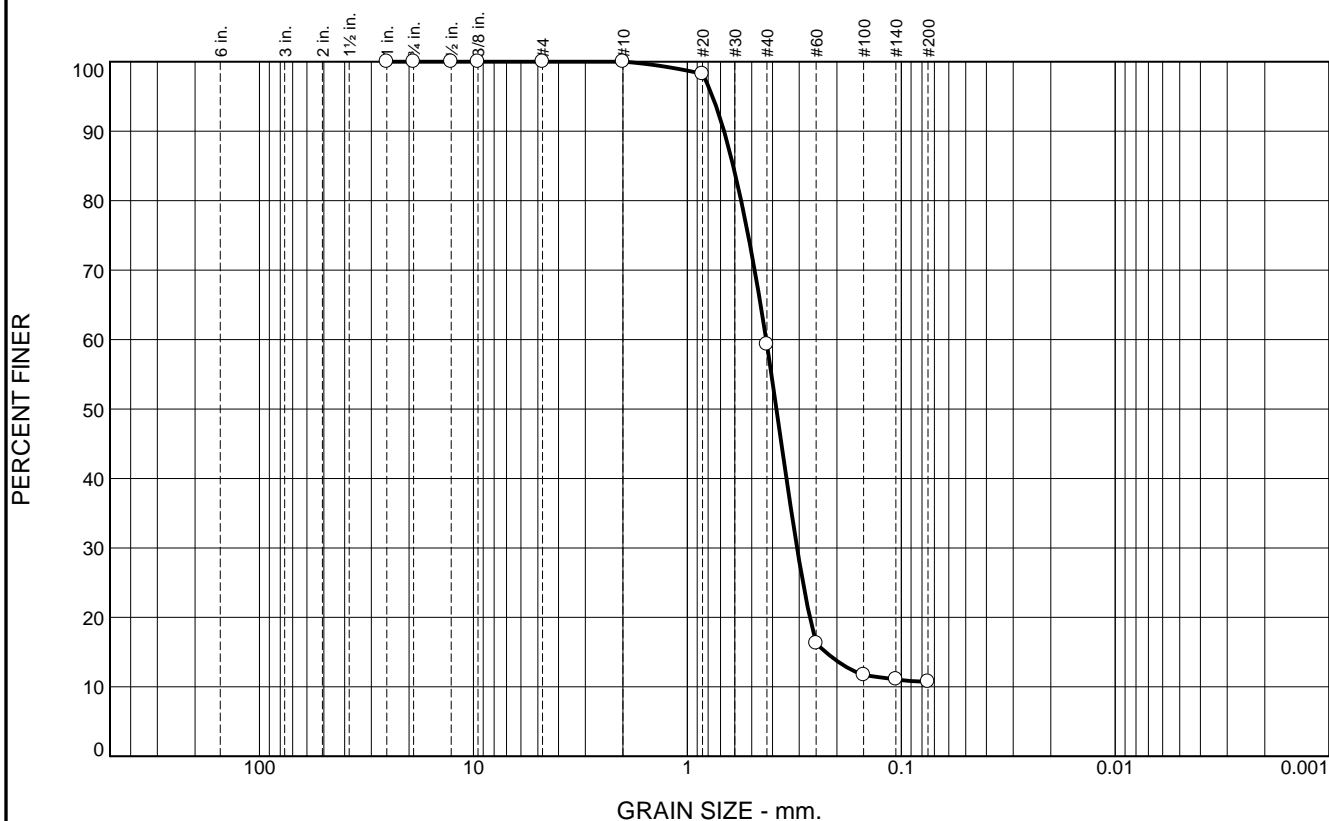
Remarks

* (no specification provided)

Location: BI-PB-171-12 C Depth: 5.0' Date: 12/07/12
 Sample Number: 6480 (32)

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

Particle Size Distribution Report



| % +3" | % Gravel | | % Sand | | | % Fines | |
|-------|----------|------|--------|--------|------|---------|------|
| | Coarse | Fine | Coarse | Medium | Fine | Silt | Clay |
| 0.0 | 0.0 | 0.0 | 0.0 | 40.7 | 48.5 | 10.8 | |

| SIEVE SIZE | PERCENT FINER | SPEC.* PERCENT | PASS? (X=NO) |
|------------|---------------|----------------|--------------|
| 1 | 100.0 | | |
| .75 | 100.0 | | |
| .5 | 100.0 | | |
| .375 | 100.0 | | |
| #4 | 100.0 | | |
| #10 | 100.0 | | |
| #20 | 98.2 | | |
| #40 | 59.3 | | |
| #60 | 16.3 | | |
| #100 | 11.7 | | |
| #140 | 11.1 | | |
| #200 | 10.8 | | |

Material Description

Fine to medium grained, SLIGHTLY SILTY SAND

Atterberg Limits

PL= LL= PI=

Coefficients

D₉₀= 0.6739 D₈₅= 0.6102 D₆₀= 0.4283
D₅₀= 0.3833 D₃₀= 0.3072 D₁₅= 0.2255
D₁₀= C_u= C_c=

Classification

USCS= SP-SM AASHTO=

Remarks

* (no specification provided)

Location: BI-PB-171-12 D
Sample Number: 6480 (33)

Depth: 14.2'

Date: 12/07/12

Thompson Engineering

Mobile, Alabama

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

Project No: 1221110095

Figure

Boring Designation BI-PB-172-12

| | | | | |
|--|--|---|--|--|
| DRILLING LOG | | DIVISION South Atlantic | INSTALLATION Mobile District | SHEET 1 OF 1 SHEETS |
| 1. PROJECT MsCIP Barrier Island Restoration Petit Bois Pass- AL East | | | 9. SIZE AND TYPE OF BIT N/A | |
| 2. BORING DESIGNATION BI-PB-172-12 | | 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 | | <input type="checkbox"/> AUTO HAMMER <input type="checkbox"/> MANUAL HAMMER |
| 4. NAME OF DRILLER American Vibracore Systems, Inc. | | 12. TOTAL SAMPLES | | DISTURBED 0 |
| 5. DIRECTION OF BORING <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED | | 13. TOTAL NUMBER CORE BOXES | | UNDISTURBED (UD) 0 |
| 6. THICKNESS OF OVERBURDEN N/A | | 14. WATER DEPTH 30.1 Ft. | | |
| 7. DEPTH DRILLED INTO ROCK N/A | | 15. DATE BORING | | STARTED 12-05-12 COMPLETED 12-05-12 |
| 8. TOTAL DEPTH OF BORING 10.9 Ft. | | 16. ELEVATION TOP OF BORING -29.8 Ft. | | |
| | | 17. TOTAL RECOVERY FOR BORING 100% | | |
| | | 18. SIGNATURE AND TITLE OF INSPECTOR Mike FitzHarris, Geologist | | |

| ELEV. | DEPTH | LEGEND | CLASSIFICATION OF MATERIALS | SAMPLE | LABORATORY RESULTS |
|--|-------|--------|--|--------|---|
| -29.8 | 0.0 | | | | |
| -30.3 | 0.5 | | SAND, poorly-graded, mostly fine to medium-grained sand-sized quartz, trace shell fragments, pale brown (SP) | A | Classification: SP Color: 2.5Y 7/2-light gray D50: 0.351 mm % Fines: 0.3 |
| | | | | NS | |
| -32.9 | 3.1 | | CLAY, lean, mostly clay, few fine-grained sand-sized quartz, medium plasticity, SP layer at 1.2 ft., gets sandier near 3.1 ft., gray mottled with brownish gray (CL) | B | Classification: SC Color: 2.5Y 5.5/2-brownish gray D50: 0.2973 mm % Fines: 19.9 |
| -33.4 | 3.6 | | | C | Classification: SP Color: 2.5Y 6/2-light brownish gray D50: 0.2958 mm % Fines: 2.9 |
| -35.0 | 5.2 | | SAND, poorly-graded with clay, mostly fine-grained sand-sized quartz, few clay, trace wood debris, clay band at 3.3 ft., gray (SP-SC) | | |
| | | | SAND, poorly-graded with silt, mostly fine-grained sand-sized quartz, few silt, trace wood debris, gray (SP-SM) | D | Classification: SP-SM Color: 2.5Y 7/1-light gray D50: 0.2886 mm % Fines: 7.1 |
| | | | SAND, poorly-graded, mostly fine to medium-grained sand-sized quartz, trace silt, very dense, lt. gray (SP) | | |
| -40.7 | 10.9 | | | NS | |
| <p>NOTES:</p> <ol style="list-style-type: none"> Soils are field visually classified in accordance with the Unified Soils Classification System. NS = Sample not submitted for laboratory analysis from this interval. Sand was very dense. Stopped vibracore machine after 5 minutes due to lack of penetration. 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-172-12

Date 12/05/2012

Water Depth 30.1'

Coordinate System

Latitude / Longitude

Start Time 13:10:32

End Time 13:15:34

Penetration 13.4'

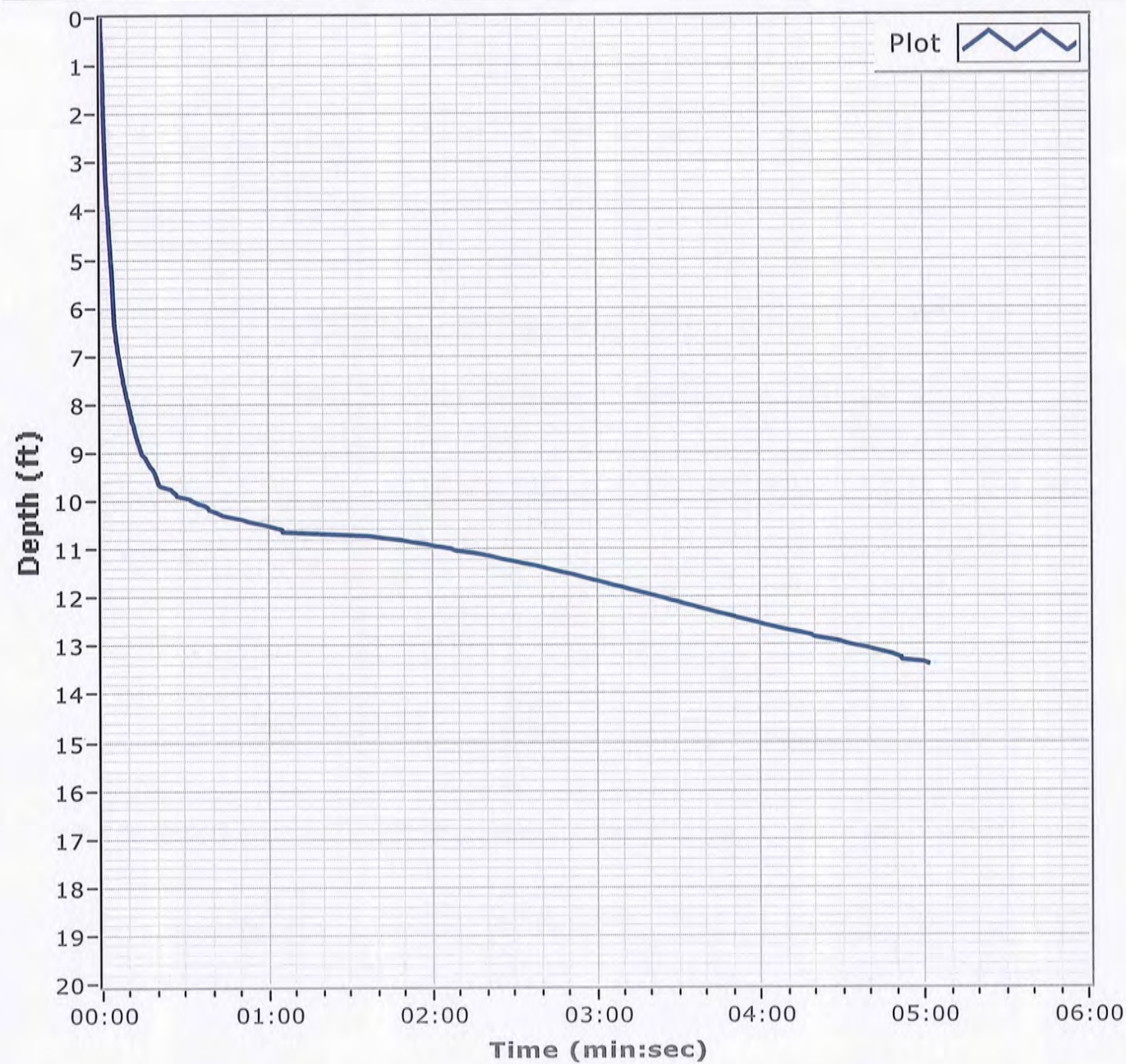
Latitude 30 12.478

Total Time 00:05:02

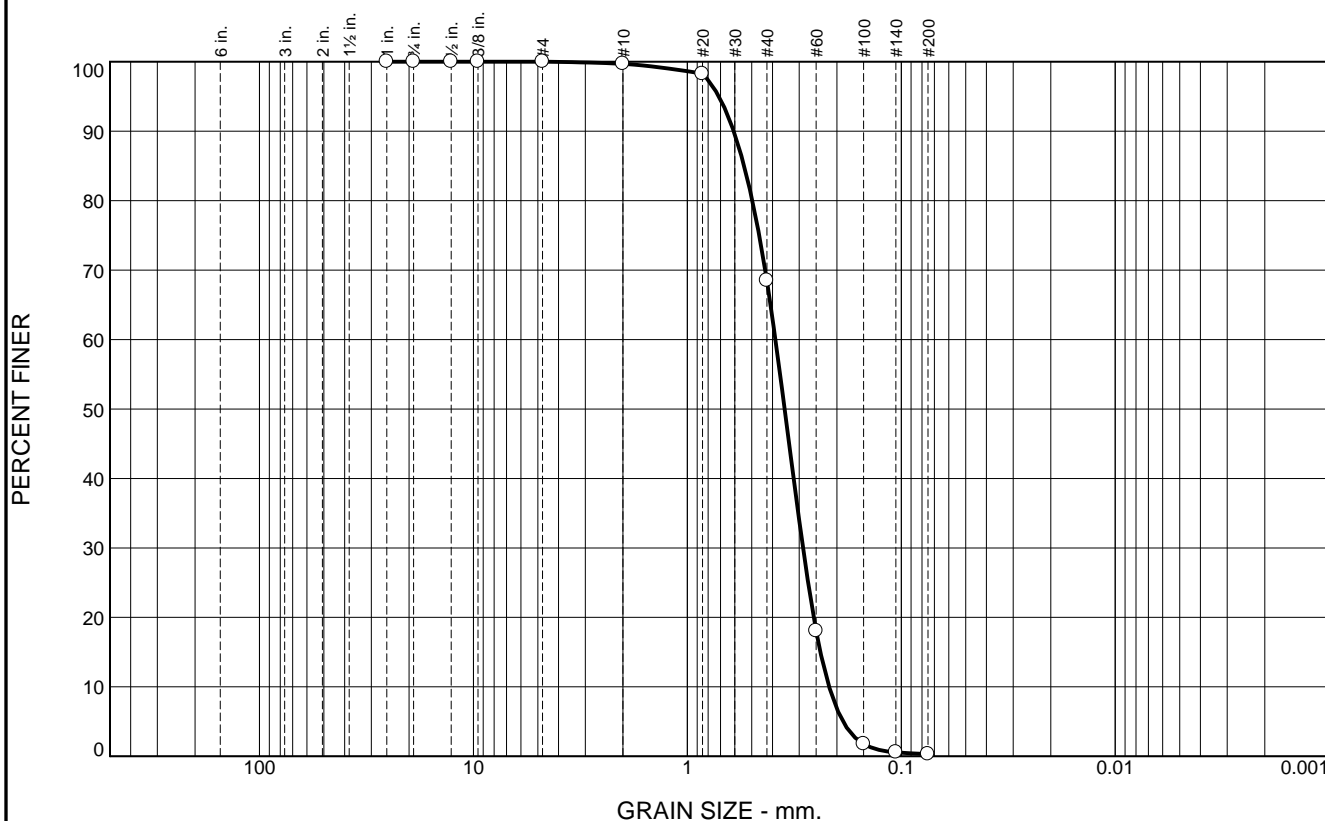
Recovery 10.9'

Longitude 088 18.454

Comments



Particle Size Distribution Report



| % +3" | % Gravel | | % Sand | | | % Fines | |
|-------|----------|------|--------|--------|------|---------|------|
| | Coarse | Fine | Coarse | Medium | Fine | Silt | Clay |
| 0.0 | 0.0 | 0.0 | 0.3 | 31.2 | 68.2 | 0.3 | |

| SIEVE SIZE | PERCENT FINER | SPEC.* PERCENT | PASS? (X=NO) |
|------------|---------------|----------------|--------------|
| 1 | 100.0 | | |
| .75 | 100.0 | | |
| .5 | 100.0 | | |
| .375 | 100.0 | | |
| #4 | 100.0 | | |
| #10 | 99.7 | | |
| #20 | 98.3 | | |
| #40 | 68.5 | | |
| #60 | 18.1 | | |
| #100 | 1.8 | | |
| #140 | 0.6 | | |
| #200 | 0.3 | | |

Material Description

Fine to medium grained, SAND

Atterberg Limits

PL= LL= PI=

Coefficients

D₉₀= 0.6071 D₈₅= 0.5428 D₆₀= 0.3875
D₅₀= 0.3510 D₃₀= 0.2881 D₁₅= 0.2388
D₁₀= 0.2173 C_u= 1.78 C_c= 0.99

Classification

USCS= SP AASHTO=

Remarks

* (no specification provided)

Location: BI-PB-172-12 A Depth: 0.0' Date: 12/07/12
Sample Number: 6480 (34)

Thompson Engineering

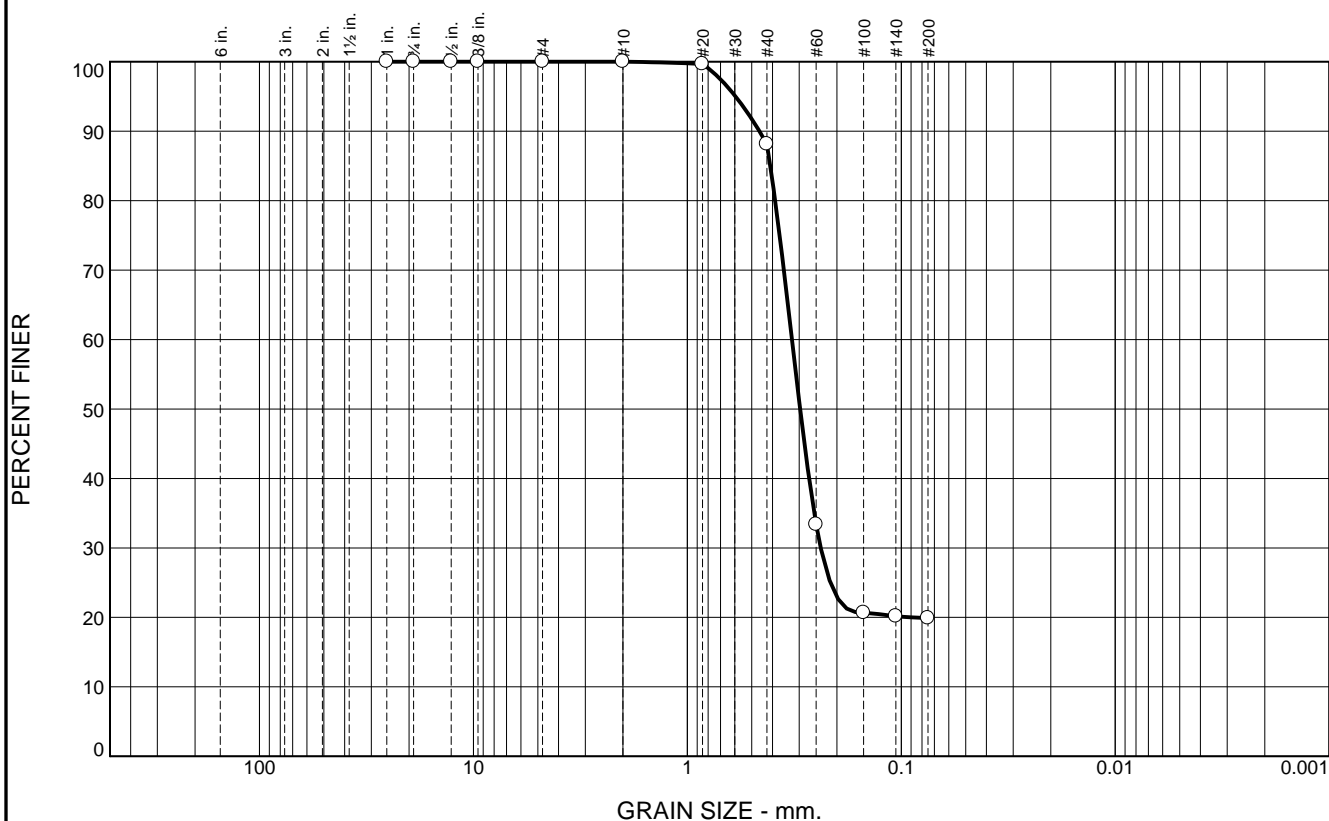
Mobile, Alabama

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 | 11.9 | 68.2 | 19.9 | |

| SIEVE SIZE | PERCENT FINER | SPEC.* PERCENT | PASS? (X=NO) |
|------------|---------------|----------------|--------------|
| 1 | 100.0 | | |
| .75 | 100.0 | | |
| .5 | 100.0 | | |
| .375 | 100.0 | | |
| #4 | 100.0 | | |
| #10 | 100.0 | | |
| #20 | 99.7 | | |
| #40 | 88.1 | | |
| #60 | 33.4 | | |
| #100 | 20.7 | | |
| #140 | 20.2 | | |
| #200 | 19.9 | | |

Material Description

Fine to medium grained, CLAYEY SAND

Atterberg Limits

PL= LL= PI=

Coefficients

D₉₀= 0.4608 D₈₅= 0.4095 D₆₀= 0.3245
D₅₀= 0.2973 D₃₀= 0.2379 D₁₅=
D₁₀= C_u= C_c=

Classification

USCS= SC AASHTO=

Remarks

* (no specification provided)

Location: BI-PB-172-12 B
Sample Number: 6480 (35)

Depth: 3.1'

Date: 12/07/12

Thompson Engineering

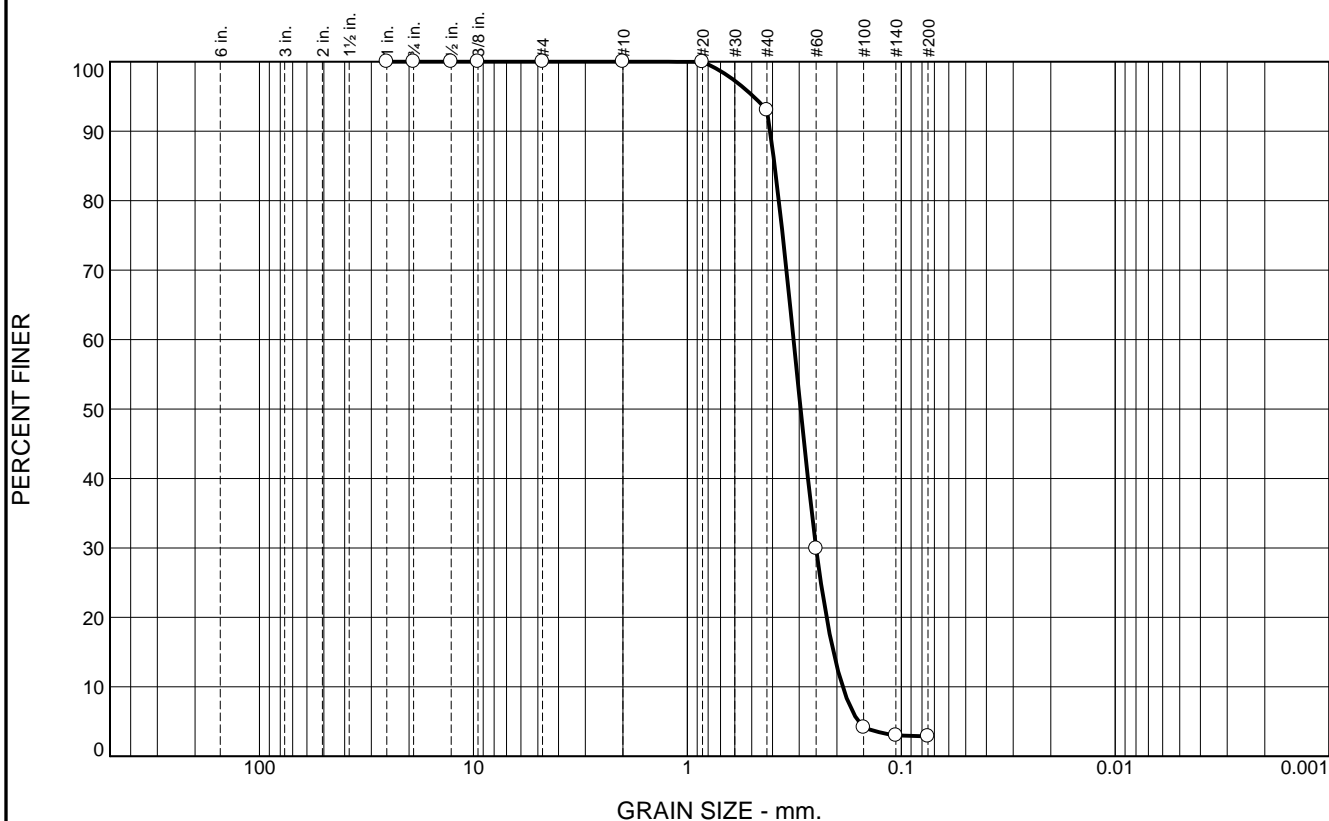
Mobile, Alabama

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

Project No: 1221110095

Figure

Particle Size Distribution Report



| % +3" | % Gravel | | % Sand | | | % Fines | |
|-------|----------|------|--------|--------|------|---------|------|
| | Coarse | Fine | Coarse | Medium | Fine | Silt | Clay |
| 0.0 | 0.0 | 0.0 | 0.0 | 7.0 | 90.1 | 2.9 | |

| SIEVE SIZE | PERCENT FINER | SPEC.* PERCENT | PASS? (X=NO) |
|------------|---------------|----------------|--------------|
| 1 | 100.0 | | |
| .75 | 100.0 | | |
| .5 | 100.0 | | |
| .375 | 100.0 | | |
| #4 | 100.0 | | |
| #10 | 100.0 | | |
| #20 | 100.0 | | |
| #40 | 93.0 | | |
| #60 | 29.9 | | |
| #100 | 4.1 | | |
| #140 | 3.0 | | |
| #200 | 2.9 | | |

Material Description

Fine grained, SAND

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

Coefficients

D₉₀= 0.4105 D₈₅= 0.3905 D₆₀= 0.3190
D₅₀= 0.2958 D₃₀= 0.2502 D₁₅= 0.2076
D₁₀= 0.1880 C_u= 1.70 C_c= 1.04

USCS= SP **Classification** AASHTO=

Remarks

* (no specification provided)

Location: BI-PB-172-12 C
Sample Number: 6480 (36)

Depth: 3.6'

Date: 12/07/12

Thompson Engineering

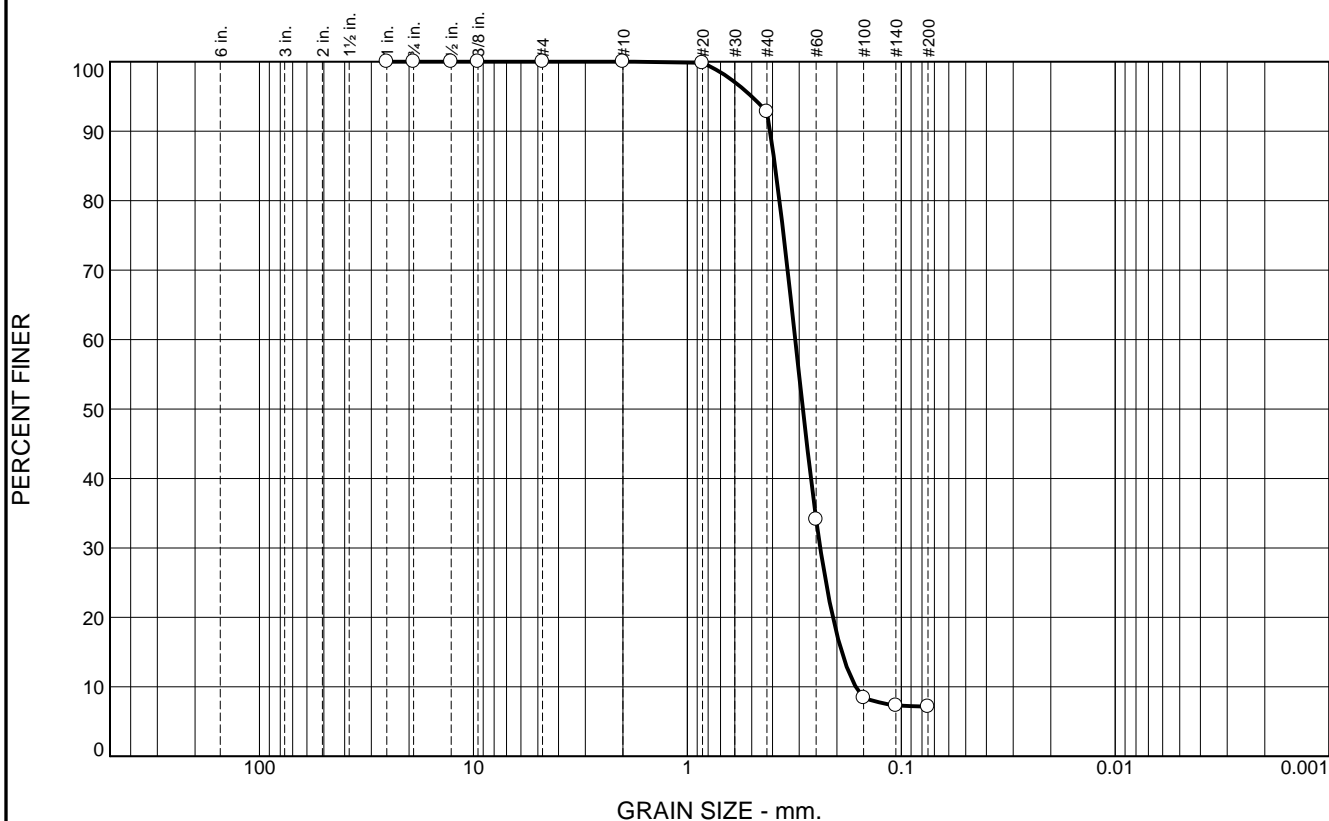
Mobile, Alabama

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

Project No: 1221110095

Figure

Particle Size Distribution Report



| % +3" | % Gravel | | % Sand | | | % Fines | |
|-------|----------|------|--------|--------|------|---------|------|
| | Coarse | Fine | Coarse | Medium | Fine | Silt | Clay |
| 0.0 | 0.0 | 0.0 | 0.0 | 7.2 | 85.7 | 7.1 | |

| SIEVE SIZE | PERCENT FINER | SPEC.* PERCENT | PASS? (X=NO) |
|------------|---------------|----------------|--------------|
| 1 | 100.0 | | |
| .75 | 100.0 | | |
| .5 | 100.0 | | |
| .375 | 100.0 | | |
| #4 | 100.0 | | |
| #10 | 100.0 | | |
| #20 | 99.8 | | |
| #40 | 92.8 | | |
| #60 | 34.1 | | |
| #100 | 8.4 | | |
| #140 | 7.3 | | |
| #200 | 7.1 | | |

Material Description

Fine to medium grained, SLIGHTLY SILTY SAND

Atterberg Limits

PL= LL= PI=

Coefficients

D₉₀= 0.4107 D₈₅= 0.3891 D₆₀= 0.3132
D₅₀= 0.2886 D₃₀= 0.2392 D₁₅= 0.1898
D₁₀= 0.1635 C_u= 1.92 C_c= 1.12

Classification

USCS= SP-SM AASHTO=

Remarks

* (no specification provided)

Location: BI-PB-172-12 D
Sample Number: 6480 (37)

Depth: 5.2'

Date: 12/07/12

Thompson Engineering

Mobile, Alabama

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

Project No: 1221110095

Figure

Boring Designation BI-PB-173-12

| | | | | |
|--|--|--|---|--|
| DRILLING LOG | | DIVISION South Atlantic | INSTALLATION Mobile District | SHEET 1 OF 1 SHEETS |
| 1. PROJECT MsCIP Barrier Island Restoration Petit Bois Pass- AL East | | | 9. SIZE AND TYPE OF BIT N/A | |
| 2. BORING DESIGNATION BI-PB-173-12 | | LOCATION COORDINATES E = 1,154,122 N = 258,503 | | 10. COORDINATE SYSTEM/DATUM State Plane, MSE (U.S. Ft.) |
| 3. DRILLING AGENCY Corps of Engineers - CESAM | | CONTRACTOR FILE NO. | | HORIZONTAL NAD83 |
| 4. NAME OF DRILLER American Vibracore Systems, Inc. | | | 11. MANUFACTURER'S DESIGNATION OF DRILL Vibracore | |
| 5. DIRECTION OF BORING <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED | | DEG. FROM VERTICAL | BEARING | <input type="checkbox"/> AUTO HAMMER <input type="checkbox"/> MANUAL HAMMER |
| 6. THICKNESS OF OVERBURDEN N/A | | 7. DEPTH DRILLED INTO ROCK N/A | | 12. TOTAL SAMPLES |
| 8. TOTAL DEPTH OF BORING 13.6 Ft. | | | | DISTURBED |
| | | | 13. TOTAL NUMBER CORE BOXES | |
| | | | 14. WATER DEPTH 31.1 Ft. | |
| | | | 15. DATE BORING | |
| | | | STARTED 11-29-12 | |
| | | | COMPLETED 11-29-12 | |
| | | | 16. ELEVATION TOP OF BORING -30.9 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 |
|---|-------|--------|---|--------|--|
| -30.9 | 0.0 | | | | |
| -31.7 | 0.8 | | SAND, poorly-graded, mostly fine to medium-grained sand-sized quartz, trace silt, lt. brown to gray (SP) | A | Classification: SP Color: 2.5Y 7/2-light gray D50: 0.3643 mm % Fines: 1.4 |
| -32.8 | 1.9 | | | NS | |
| -34.0 | 3.1 | | SAND, clayey, mostly fine-grained sand-sized quartz, trace silt, gray (SC) | B | Classification: SM Color: 2.5Y 6/2-light brownish gray D50: 0.3054 mm % Fines: 17.8 |
| | | | SAND, poorly-graded with clay, mostly fine-grained sand-sized quartz, little clay, trace silt, gray (SP-SC) | NS | |
| | | | | C | Classification: SP Color: 2.5Y 8/2-pale yellow D50: 0.3463 mm % Fines: 2 |
| | | | SAND, poorly-graded, mostly fine to medium-grained sand-sized quartz, trace silt, orange staining from 3.6 to 4.9 ft., lt. gray to white (SP) | D | Classification: SP Color: 5Y 8/1-white D50: 0.3297 mm % Fines: 1.7 |
| -44.5 | 13.6 | | | NS | |
| NOTES: 1. Soils are field visually classified in accordance with the Unified Soils Classification System. 2. NS = Sample not submitted for laboratory analysis from this interval. 3. Seafloor elevation calculated using sampling vessel's fathometer water depth reading and applying NOAA tidal gauge data conversion factor. | | | | | |

Project

Mississippi Barrier Island
Restoration Project



Core Identifier BI-PB-173-12

Date 11/29/2012

Water Depth 31.1'

Coordinate System

Latitude / Longitude

Start Time 15:10:11

End Time 15:18:16

Penetration 15.1'

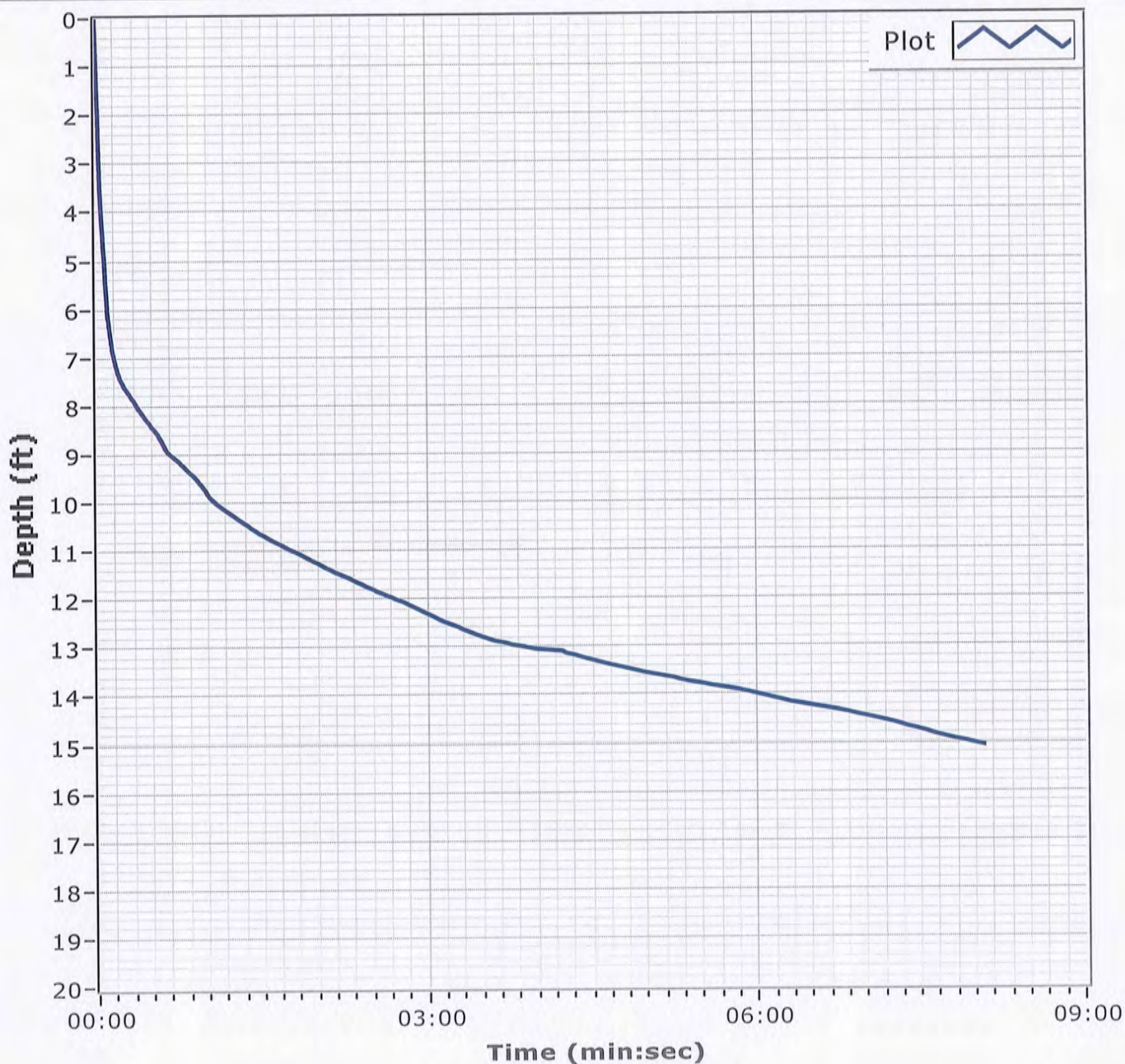
Latitude 30 12.584

Total Time 00:08:05

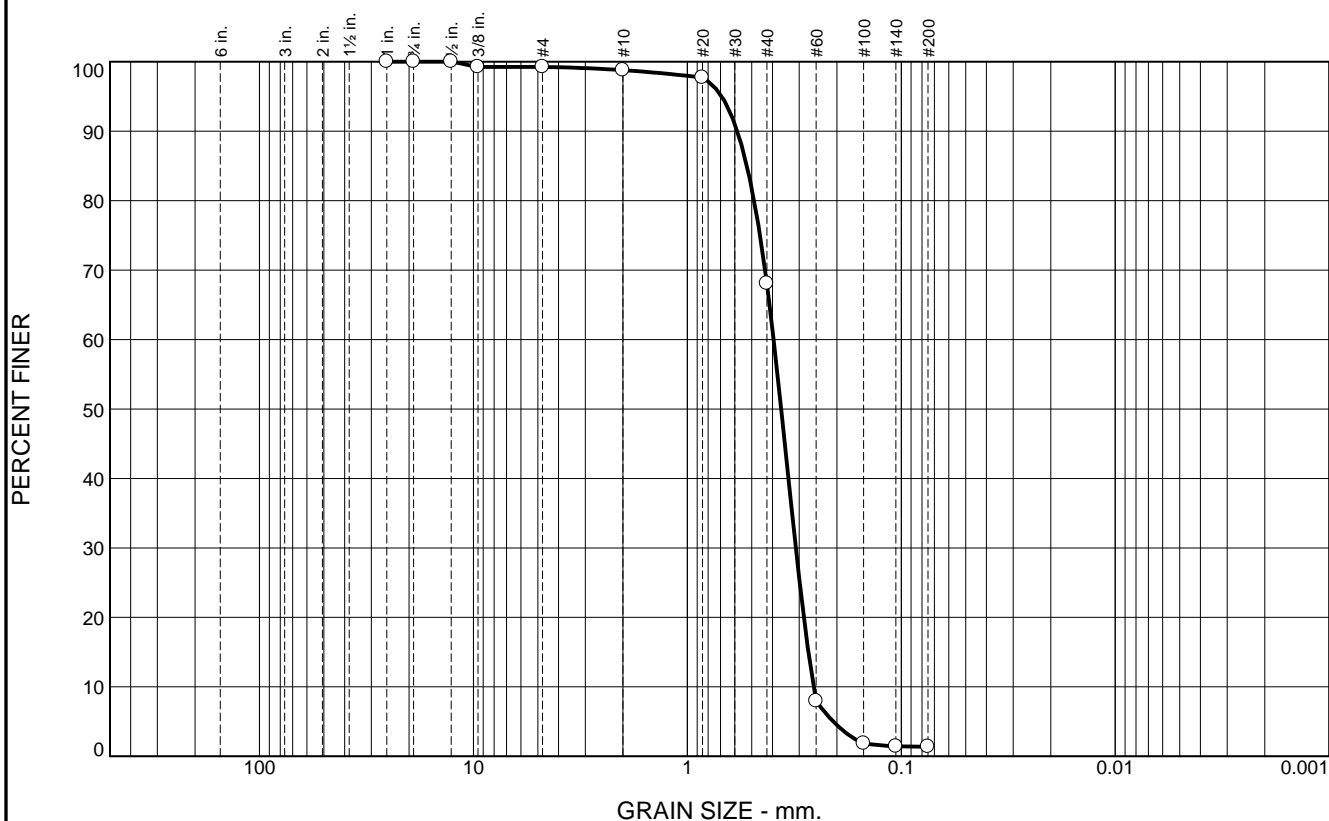
Recovery 13.6'

Longitude 088 17.733

Comments



Particle Size Distribution Report



| % +3" | % Gravel | | % Sand | | | % Fines | |
|-------|----------|------|--------|--------|------|---------|------|
| | Coarse | Fine | Coarse | Medium | Fine | Silt | Clay |
| 0.0 | 0.0 | 0.8 | 0.4 | 30.7 | 66.7 | 1.4 | |

| SIEVE SIZE | PERCENT FINER | SPEC.* PERCENT | PASS? (X=NO) |
|------------|---------------|----------------|--------------|
| 1 | 100.0 | | |
| .75 | 100.0 | | |
| .5 | 100.0 | | |
| .375 | 99.2 | | |
| #4 | 99.2 | | |
| #10 | 98.8 | | |
| #20 | 97.7 | | |
| #40 | 68.1 | | |
| #60 | 7.9 | | |
| #100 | 1.9 | | |
| #140 | 1.4 | | |
| #200 | 1.4 | | |

Material Description

Fine to medium grained, SAND

Atterberg Limits

PL= LL= PI=

Coefficients

D₉₀= 0.5839 D₈₅= 0.5268 D₆₀= 0.3951
D₅₀= 0.3643 D₃₀= 0.3113 D₁₅= 0.2721
D₁₀= 0.2570 C_u= 1.54 C_c= 0.95

Classification

USCS= SP AASHTO=

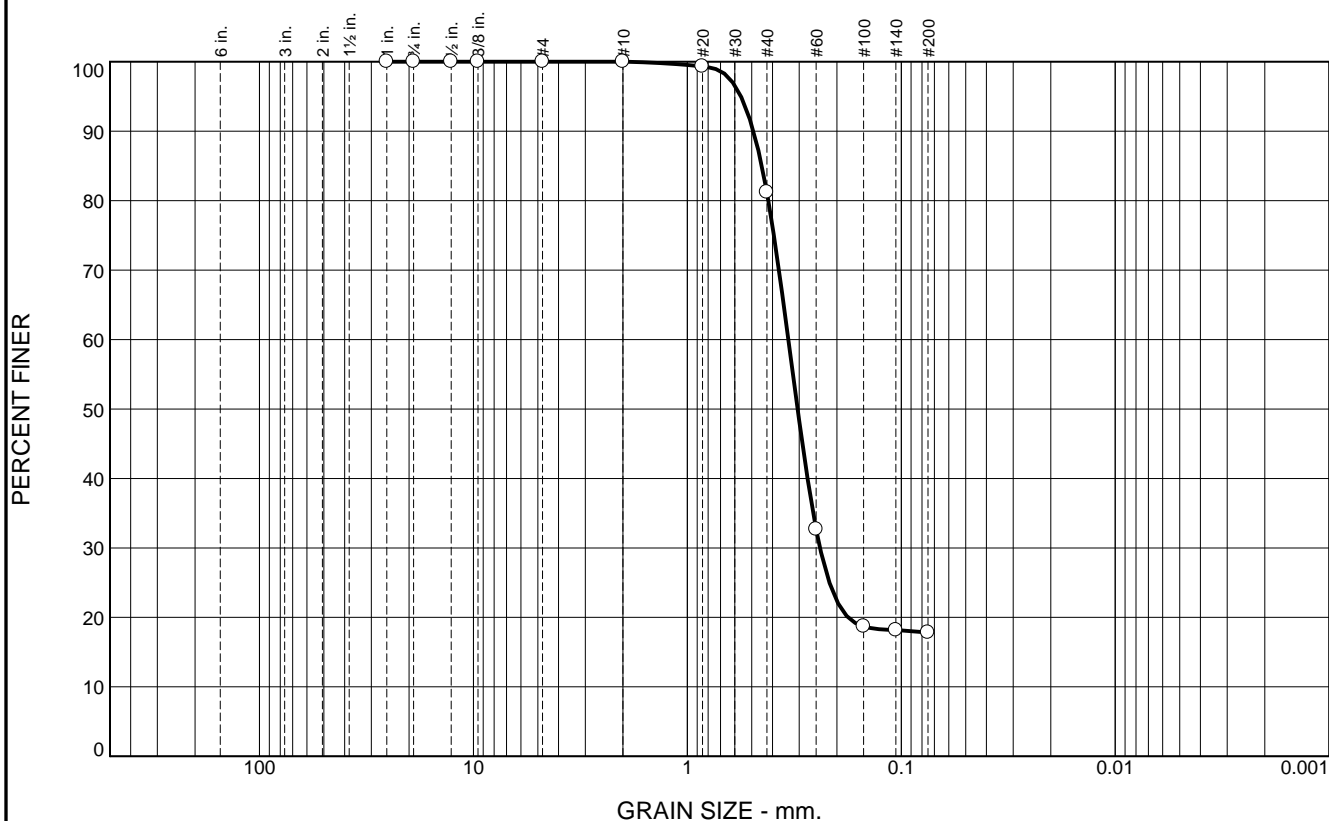
Remarks

* (no specification provided)

Location: BI-PB-173-12 A Depth: 0.0' Date: 12/03/12
Sample Number: 6471 (41)

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

Particle Size Distribution Report



| % +3" | % Gravel | | % Sand | | | % Fines | |
|-------|----------|------|--------|--------|------|---------|------|
| | Coarse | Fine | Coarse | Medium | Fine | Silt | Clay |
| 0.0 | 0.0 | 0.0 | 0.0 | 18.8 | 63.4 | 17.8 | |

| SIEVE SIZE | PERCENT FINER | SPEC.* PERCENT | PASS? (X=NO) |
|------------|---------------|----------------|--------------|
| 1 | 100.0 | | |
| .75 | 100.0 | | |
| .5 | 100.0 | | |
| .375 | 100.0 | | |
| #4 | 100.0 | | |
| #10 | 100.0 | | |
| #20 | 99.3 | | |
| #40 | 81.2 | | |
| #60 | 32.7 | | |
| #100 | 18.7 | | |
| #140 | 18.2 | | |
| #200 | 17.8 | | |

Material Description
Fine to medium grained, SILTY SAND

Atterberg Limits
 PL= LL= PI=

Coefficients
 D₉₀= 0.4912 D₈₅= 0.4489 D₆₀= 0.3373
 D₅₀= 0.3054 D₃₀= 0.2398 D₁₅=
 D₁₀= C_u= C_c=

Classification
 USCS= SM AASHTO=

Remarks

* (no specification provided)

Location: BI-PB-173-12 B
Sample Number: 6471 (42)

Depth: 1.9'

Date: 12/03/12

Thompson Engineering

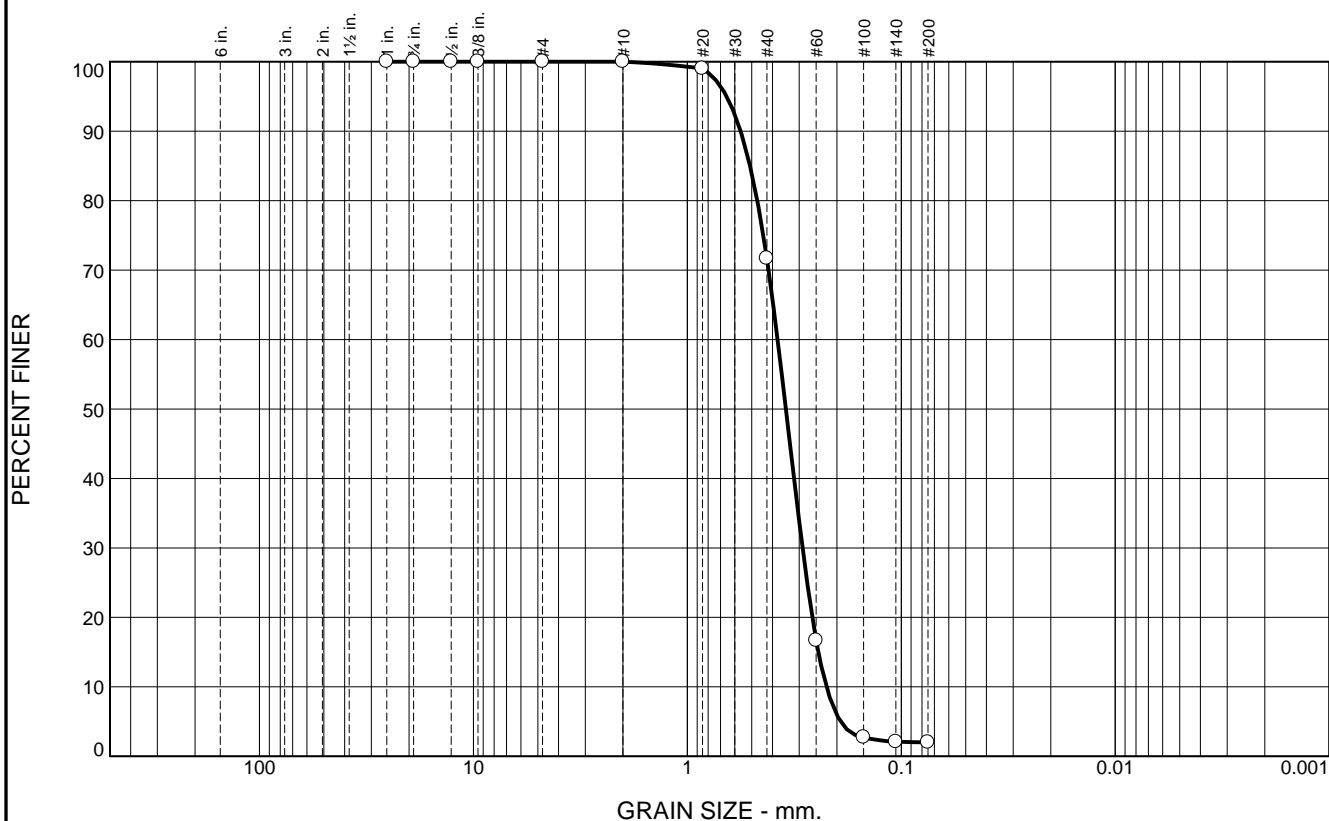
Mobile, Alabama

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

Project No: 1221110095

Figure

Particle Size Distribution Report



| % +3" | % Gravel | | % Sand | | | % Fines | |
|-------|----------|------|--------|--------|------|---------|------|
| | Coarse | Fine | Coarse | Medium | Fine | Silt | Clay |
| 0.0 | 0.0 | 0.0 | 0.0 | 28.3 | 69.7 | 2.0 | |

| SIEVE SIZE | PERCENT FINER | SPEC.* PERCENT | PASS? (X=NO) |
|------------|---------------|----------------|--------------|
| 1 | 100.0 | | |
| .75 | 100.0 | | |
| .5 | 100.0 | | |
| .375 | 100.0 | | |
| #4 | 100.0 | | |
| #10 | 100.0 | | |
| #20 | 99.0 | | |
| #40 | 71.7 | | |
| #60 | 16.7 | | |
| #100 | 2.7 | | |
| #140 | 2.1 | | |
| #200 | 2.0 | | |

Material Description

Fine to medium grained, SAND

Atterberg Limits

PL= LL= PI=

Coefficients

D₉₀= 0.5635 D₈₅= 0.5096 D₆₀= 0.3785
D₅₀= 0.3463 D₃₀= 0.2896 D₁₅= 0.2442
D₁₀= 0.2238 C_u= 1.69 C_c= 0.99

Classification

USCS= SP AASHTO=

Remarks

* (no specification provided)

Location: BI-PB-173-12 C
Sample Number: 6471 (43)

Depth: 3.6'

Date: 12/03/12

Thompson Engineering

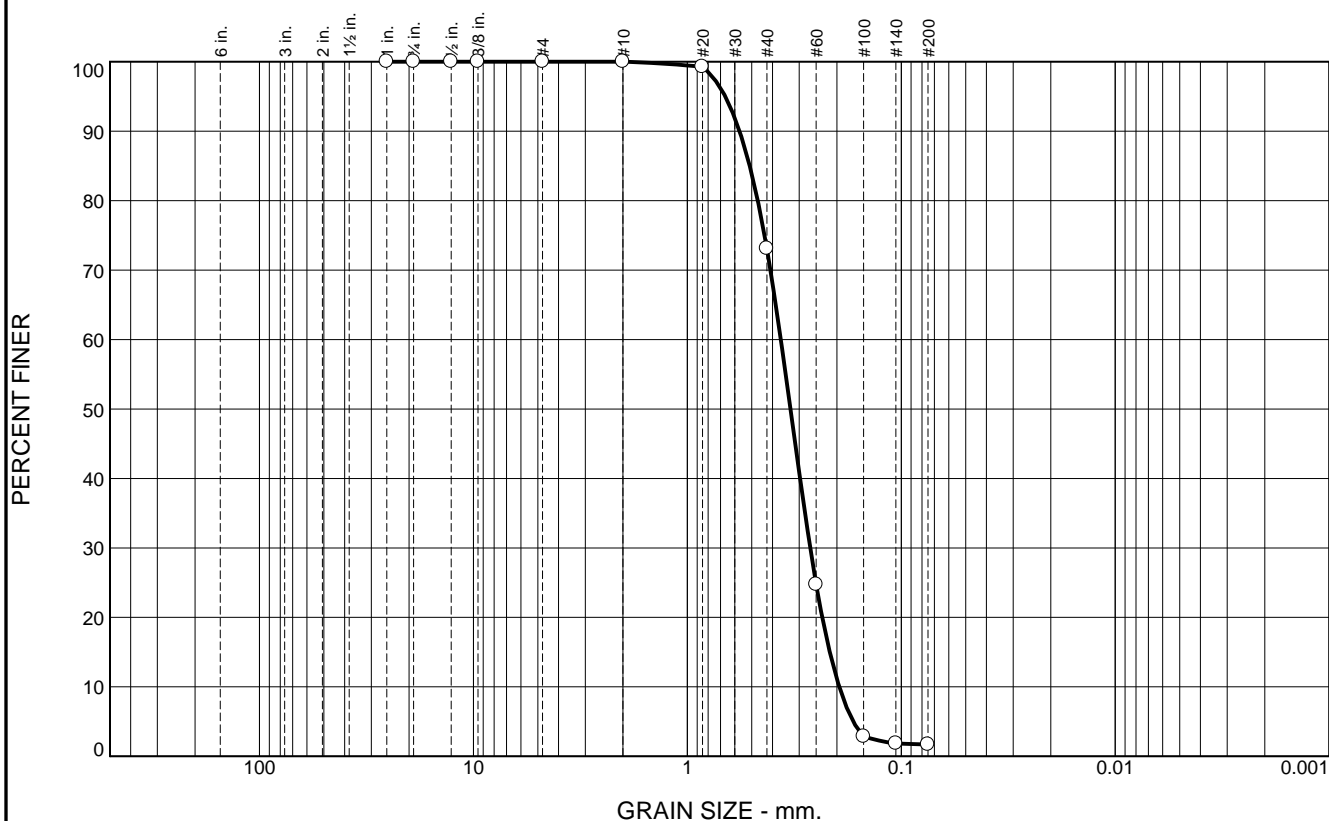
Mobile, Alabama

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

Project No: 1221110095

Figure

Particle Size Distribution Report



| % +3" | % Gravel | | % Sand | | | % Fines | |
|-------|----------|------|--------|--------|------|---------|------|
| | Coarse | Fine | Coarse | Medium | Fine | Silt | Clay |
| 0.0 | 0.0 | 0.0 | 0.0 | 26.9 | 71.4 | 1.7 | |

| SIEVE SIZE | PERCENT FINER | SPEC.* PERCENT | PASS? (X=NO) |
|------------|---------------|----------------|--------------|
| 1 | 100.0 | | |
| .75 | 100.0 | | |
| .5 | 100.0 | | |
| .375 | 100.0 | | |
| #4 | 100.0 | | |
| #10 | 100.0 | | |
| #20 | 99.3 | | |
| #40 | 73.1 | | |
| #60 | 24.7 | | |
| #100 | 2.9 | | |
| #140 | 1.8 | | |
| #200 | 1.7 | | |

Material Description

Fine to medium grained, SAND

Atterberg Limits

PL= LL= PI=

Coefficients

D₉₀= 0.5699 D₈₅= 0.5111 D₆₀= 0.3656
D₅₀= 0.3297 D₃₀= 0.2666 D₁₅= 0.2159
D₁₀= 0.1950 C_u= 1.88 C_c= 1.00

Classification

USCS= SP AASHTO=

Remarks

* (no specification provided)

Location: BI-PB-173-12 D Depth: 8.6' Date: 12/03/12
Sample Number: 6471 (44)

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

Boring Designation BI-PB-174-12

| | | | | |
|--|--|---|--|--|
| DRILLING LOG | | DIVISION South Atlantic | INSTALLATION Mobile District | SHEET 1 OF 1 SHEETS |
| 1. PROJECT MsCIP Barrier Island Restoration Petit Bois Pass- AL East | | | 9. SIZE AND TYPE OF BIT N/A | |
| 2. BORING DESIGNATION BI-PB-174-12 | | 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 | | <input type="checkbox"/> AUTO HAMMER <input type="checkbox"/> MANUAL HAMMER |
| 4. NAME OF DRILLER American Vibracore Systems, Inc. | | 12. TOTAL SAMPLES | | DISTURBED 0 |
| 5. DIRECTION OF BORING <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED | | LOCATION COORDINATES E = 1,152,596 N = 258,565 | 13. TOTAL NUMBER CORE BOXES | |
| 6. THICKNESS OF OVERBURDEN N/A | | CONTRACTOR FILE NO. | 14. WATER DEPTH 30.9 Ft. | |
| 7. DEPTH DRILLED INTO ROCK N/A | | DEG. FROM VERTICAL | 15. DATE BORING | |
| 8. TOTAL DEPTH OF BORING 7.3 Ft. | | BEARING | STARTED 11-29-12 | COMPLETED 11-29-12 |
| | | 16. ELEVATION TOP OF BORING -30.5 Ft. | | |
| | | 17. TOTAL RECOVERY FOR BORING 100% | | |
| | | 18. SIGNATURE AND TITLE OF INSPECTOR Mike FitzHarris, Geologist | | |

| ELEV. | DEPTH | LEGEND | CLASSIFICATION OF MATERIALS | SAMPLE | LABORATORY RESULTS |
|-------|-------|--------|--|--------|--------------------|
| -30.5 | 0.0 | | | | |
| -31.0 | 0.5 | | | | |
| | | ▨ | SAND, poorly-graded, mostly fine to medium-grained sand-sized quartz, trace silt, lt. brown (SP) | NS | 0 |
| | | ▨ | CLAY, fat, mostly clay, trace fine-grained sand-sized quartz, trace silt, trace wood debris, medium to high plasticity, gray mottled with orange and greenish gray (CH) | | 5 |
| -35.1 | 4.6 | ▨ | | | 10 |
| | | ••• | SAND, poorly-graded, mostly fine to medium-grained sand-sized quartz, trace silt, trace clay, trace wood debris, lt. gray with orange stains (SP) | | 15 |
| -37.8 | 7.3 | ••• | | | 20 |
| | | | <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. Sand was extremely dense and vibracore could not advance past 7.3 ft.</p> <p>4. Seafloor elevation calculated using sampling vessel's fathometer water depth reading and applying NOAA tidal gauge data conversion factor.</p> | | 25 |

Project

Mississippi Barrier Island
Restoration Project



Core Identifier BI-PB-174-12

Date 11/29/2012

Water Depth 30.9'

Coordinate System

Latitude / Longitude

Start Time 15:52:22

End Time 15:58:34

Penetration 13.0'

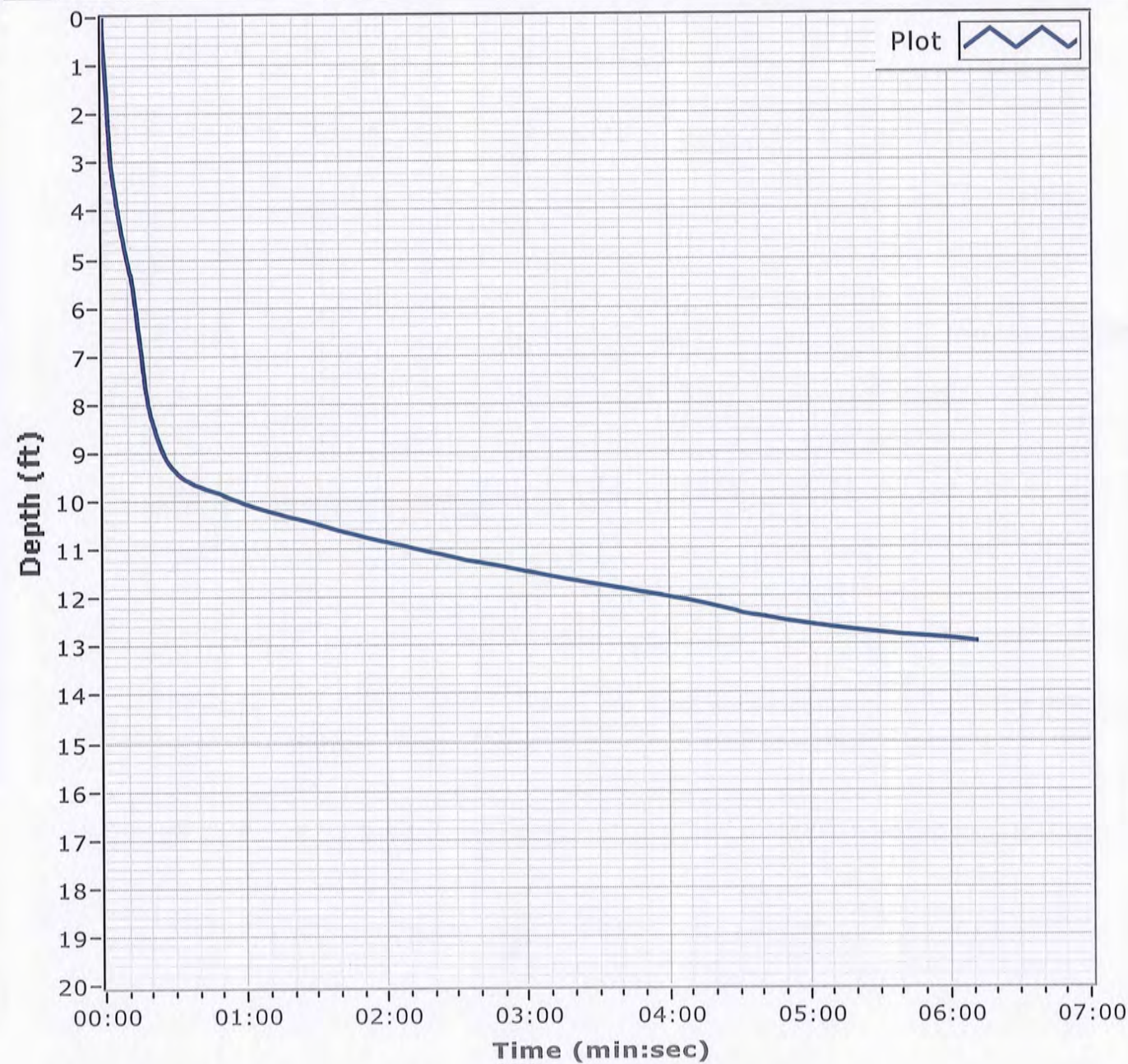
Latitude 30 12.595

Total Time 00:06:12

Recovery 7.3'







Longitude 088 18.023

Comments



Boring Designation BI-PB-175-12

| | | | | |
|--|--|---|--|--|
| DRILLING LOG | | DIVISION South Atlantic | INSTALLATION Mobile District | SHEET 1 OF 1 SHEETS |
| 1. PROJECT MsCIP Barrier Island Restoration Petit Bois Pass- AL East | | | 9. SIZE AND TYPE OF BIT N/A | |
| 2. BORING DESIGNATION BI-PB-175-12 | | 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 | | <input type="checkbox"/> AUTO HAMMER <input type="checkbox"/> MANUAL HAMMER |
| 4. NAME OF DRILLER American Vibracore Systems, Inc. | | 12. TOTAL SAMPLES | | DISTURBED 0 |
| 5. DIRECTION OF BORING <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED | | 13. TOTAL NUMBER CORE BOXES | | UNDISTURBED (UD) 0 |
| 6. THICKNESS OF OVERBURDEN N/A | | 14. WATER DEPTH 30.1 Ft. | | |
| 7. DEPTH DRILLED INTO ROCK N/A | | 15. DATE BORING | | STARTED 12-05-12 COMPLETED 12-05-12 |
| 8. TOTAL DEPTH OF BORING 15.8 Ft. | | 16. ELEVATION TOP OF BORING -29.7 Ft. | | |
| | | 17. TOTAL RECOVERY FOR BORING 100% | | |
| | | 18. SIGNATURE AND TITLE OF INSPECTOR Mike FitzHarris, Geologist | | |

| ELEV. | DEPTH | LEGEND | CLASSIFICATION OF MATERIALS | SAMPLE | LABORATORY RESULTS |
|--|-------|---|---|--------|--|
| -29.7 | 0.0 | | | | |
| -30.0 | 0.3 | | | | |
| -30.7 | 1.0 |  | SAND, poorly-graded, mostly fine to medium-grained sand-sized quartz, trace silt, trace shell fragments, pale brown (SP) | NS | |
| | | | SAND, silty, mostly fine-grained sand-sized quartz, some silt, gray (SM) | | |
| -33.9 | 4.2 |  | CLAY, fat, mostly clay, trace wood debris, medium to high plasticity, trace fine grain sandy pockets, gray (CH) | A | Classification: SM Color: 2.5Y 6/2-light brownish gray D50: 0.3147 mm % Fines: 12.1 |
| -35.5 | 5.8 |  | SAND, poorly-graded with silt, mostly fine to medium-grained sand-sized quartz, few silt, trace clay, gray (SP-SM) | B | Classification: SP-SM Color: 2.5Y 7/1-light gray D50: 0.3027 mm % Fines: 5.7 |
| | |  | SAND, poorly-graded, mostly fine to medium-grained sand-sized quartz, trace clay, trace clay lenses, lt. gray (SP) | C | Classification: SP Color: 2.5Y 7/2-light gray D50: 0.3228 mm % Fines: 2.7 |
| | | | At El. -38.0 Ft., mostly fine to medium-grained sand-sized quartz, trace silt, dense, lt. gray to white | | |
| | |  | At El. -41.0 Ft., mostly fine to medium-grained sand-sized quartz, trace silt, trace clay, dense, clay band at 15.7 ft., lt. gray | D | Classification: SP Color: 2.5Y 8/1-white D50: 0.3078 mm % Fines: 3.8 |
| -45.5 | 15.8 |  | | NS | |
| NOTES: 1. Soils are field visually classified in accordance with the Unified Soils Classification System. 2. NS = Sample not submitted for laboratory analysis from this interval. 3. Buoy approximately 150 m SE of boring location. 4. Seafloor elevation calculated using sampling vessel's fathometer water depth reading and applying NOAA tidal gauge data conversion factor. | | | | | |

Project

Mississippi Barrier Island
Restoration Project



Core Identifier BI-PB-175-12

Date 12/05/2012

Water Depth 30.1'

Coordinate System

Latitude / Longitude

Start Time 14:03:56

End Time 14:11:01

Penetration 17.4'

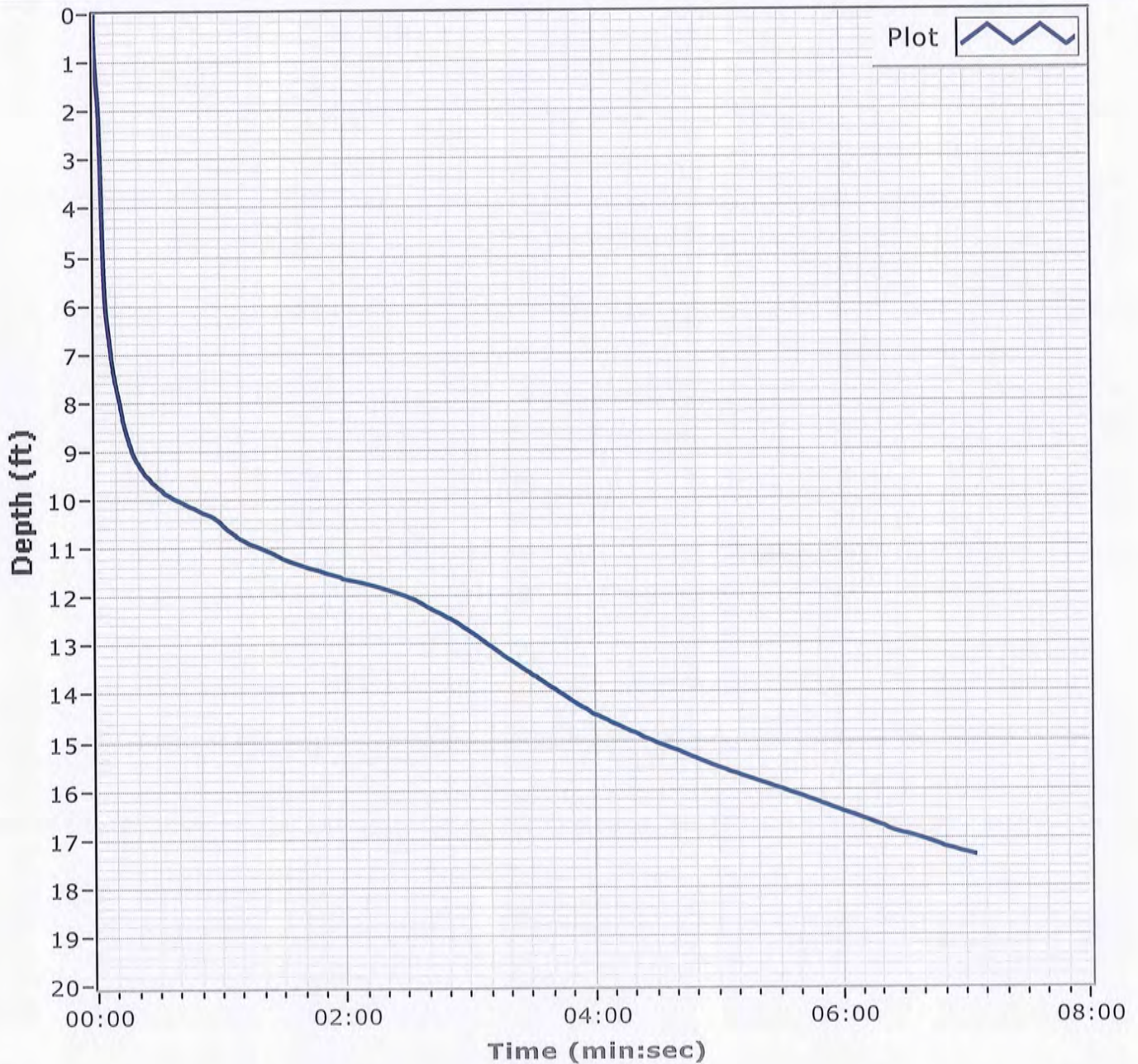
Latitude 30 12.484

Total Time 00:07:05

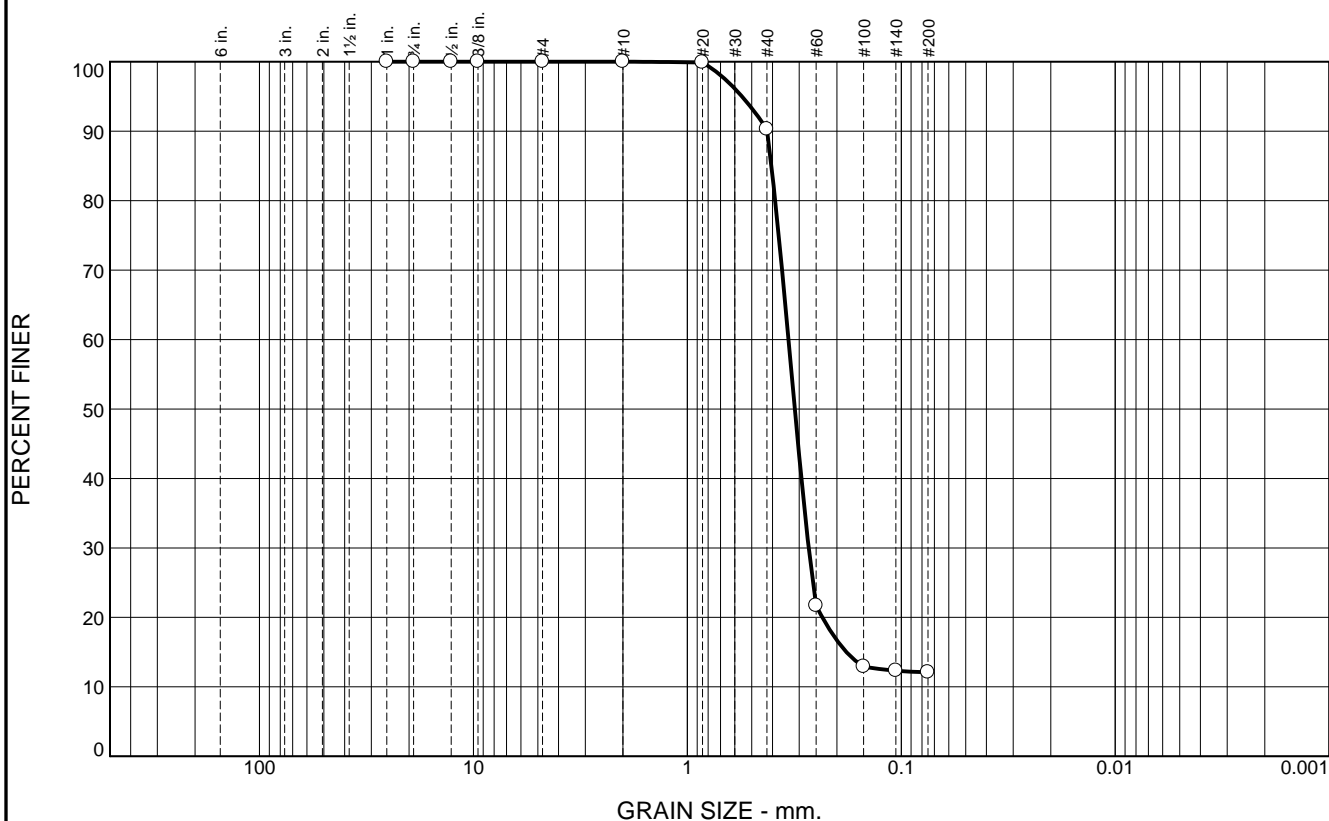
Recovery 15.8'

Longitude 088 18.284

Comments



Particle Size Distribution Report



| % +3" | % Gravel | | % Sand | | | % Fines | |
|-------|----------|------|--------|--------|------|---------|------|
| | Coarse | Fine | Coarse | Medium | Fine | Silt | Clay |
| 0.0 | 0.0 | 0.0 | 0.0 | 9.7 | 78.2 | 12.1 | |

| SIEVE SIZE | PERCENT FINER | SPEC.* PERCENT | PASS? (X=NO) |
|------------|---------------|----------------|--------------|
| 1 | 100.0 | | |
| .75 | 100.0 | | |
| .5 | 100.0 | | |
| .375 | 100.0 | | |
| #4 | 100.0 | | |
| #10 | 100.0 | | |
| #20 | 99.9 | | |
| #40 | 90.3 | | |
| #60 | 21.7 | | |
| #100 | 12.9 | | |
| #140 | 12.3 | | |
| #200 | 12.1 | | |

Material Description

Fine grained, SILTY SAND

Atterberg Limits

PL= LL= PI=

Coefficients

D₉₀= 0.4238 D₈₅= 0.4046 D₆₀= 0.3368

D₅₀= 0.3147 D₃₀= 0.2712 D₁₅= 0.1806

D₁₀= C_u= C_c=

Classification

USCS= SM AASHTO=

Remarks

* (no specification provided)

Location: BI-PB-175-12 A
Sample Number: 6480 (38)

Depth: 4.2'

Date: 12/07/12

Thompson Engineering

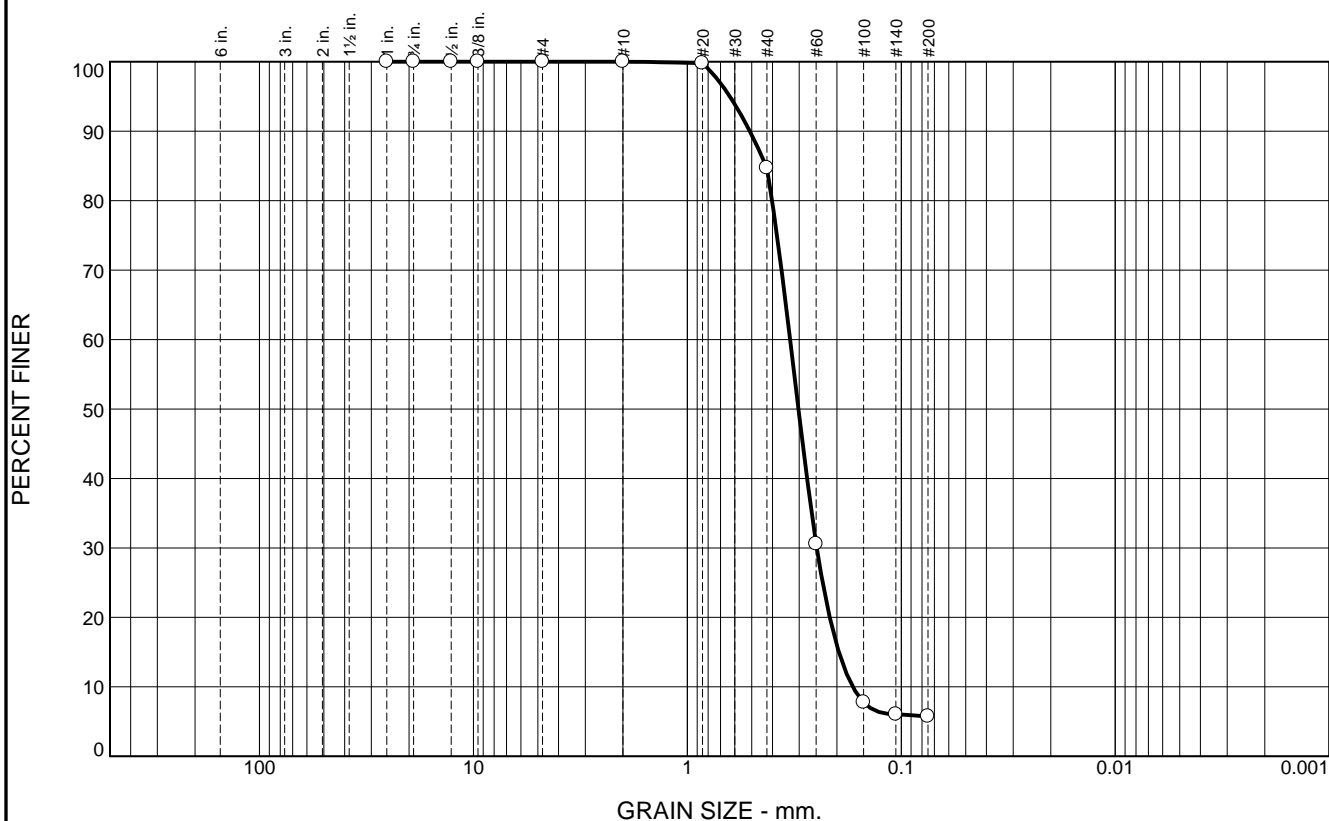
Mobile, Alabama

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

Project No: 1221110095

Figure

Particle Size Distribution Report



| % +3" | % Gravel | | % Sand | | | % Fines | |
|-------|----------|------|--------|--------|------|---------|------|
| | Coarse | Fine | Coarse | Medium | Fine | Silt | Clay |
| 0.0 | 0.0 | 0.0 | 0.0 | 15.3 | 79.0 | 5.7 | |

| SIEVE SIZE | PERCENT FINER | SPEC.* PERCENT | PASS? (X=NO) |
|------------|---------------|----------------|--------------|
| 1 | 100.0 | | |
| .75 | 100.0 | | |
| .5 | 100.0 | | |
| .375 | 100.0 | | |
| #4 | 100.0 | | |
| #10 | 100.0 | | |
| #20 | 99.8 | | |
| #40 | 84.7 | | |
| #60 | 30.6 | | |
| #100 | 7.8 | | |
| #140 | 6.0 | | |
| #200 | 5.7 | | |

Material Description
Fine to medium grained, SLIGHTLY SILTY SAND

Atterberg Limits
 PL= LL= PI=

Coefficients
 D₉₀= 0.5108 D₈₅= 0.4291 D₆₀= 0.3310
 D₅₀= 0.3027 D₃₀= 0.2483 D₁₅= 0.1959
 D₁₀= 0.1688 C_u= 1.96 C_c= 1.10

Classification
 USCS= SP-SM AASHTO=

Remarks

* (no specification provided)

Location: BI-PB-175-12 B
Sample Number: 6480 (39)

Depth: 5.8'

Date: 12/07/12

Thompson Engineering

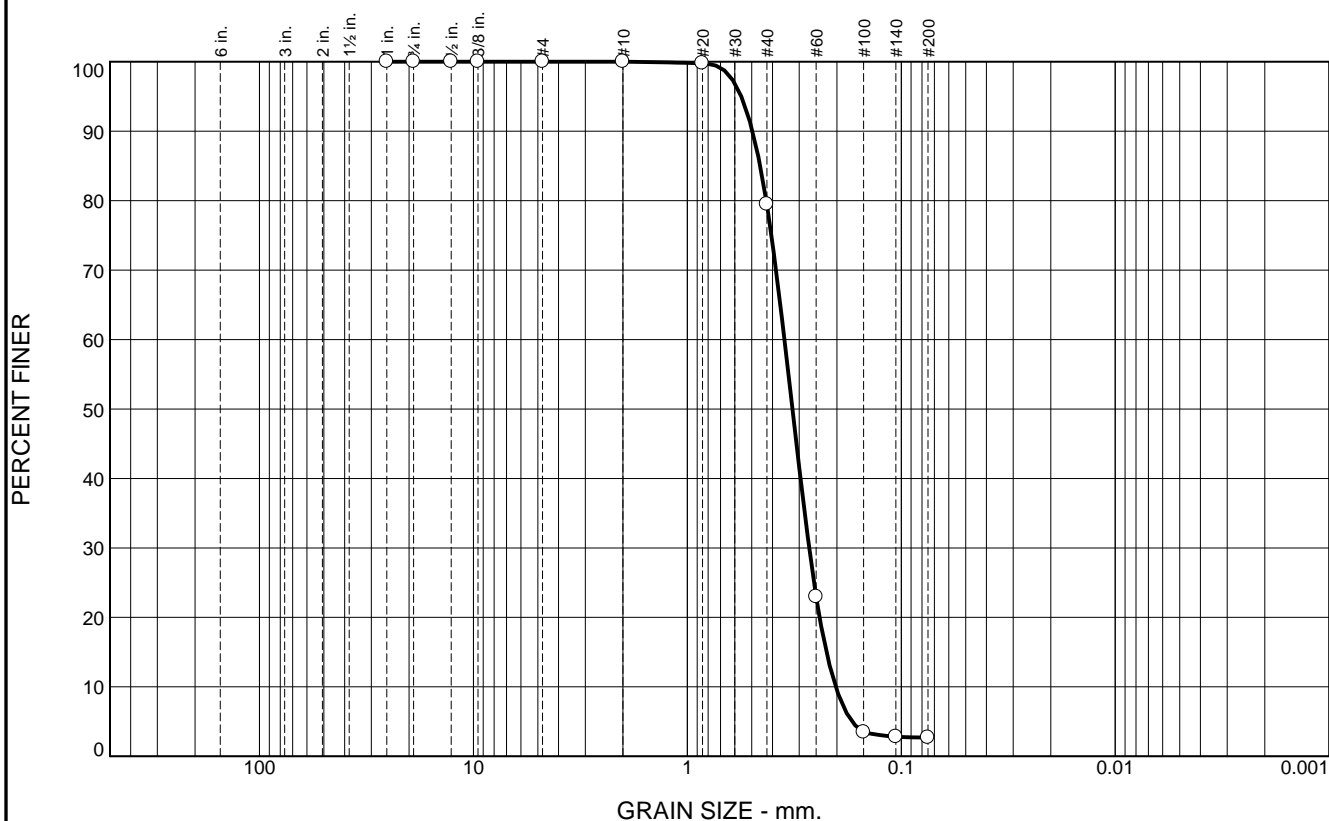
Mobile, Alabama

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

Project No: 1221110095

Figure

Particle Size Distribution Report



| % +3" | % Gravel | | % Sand | | | % Fines | |
|-------|----------|------|--------|--------|------|---------|------|
| | Coarse | Fine | Coarse | Medium | Fine | Silt | Clay |
| 0.0 | 0.0 | 0.0 | 0.0 | 20.5 | 76.8 | 2.7 | |

| SIEVE SIZE | PERCENT FINER | SPEC.* PERCENT | PASS? (X=NO) |
|------------|---------------|----------------|--------------|
| 1 | 100.0 | | |
| .75 | 100.0 | | |
| .5 | 100.0 | | |
| .375 | 100.0 | | |
| #4 | 100.0 | | |
| #10 | 100.0 | | |
| #20 | 99.8 | | |
| #40 | 79.5 | | |
| #60 | 23.0 | | |
| #100 | 3.5 | | |
| #140 | 2.8 | | |
| #200 | 2.7 | | |

Material Description

Fine to medium grained, SAND

Atterberg Limits

PL= LL= PI=

Coefficients

D₉₀= 0.4962 D₈₅= 0.4567 D₆₀= 0.3517
D₅₀= 0.3228 D₃₀= 0.2697 D₁₅= 0.2237
D₁₀= 0.2025 C_u= 1.74 C_c= 1.02

Classification

USCS= SP AASHTO=

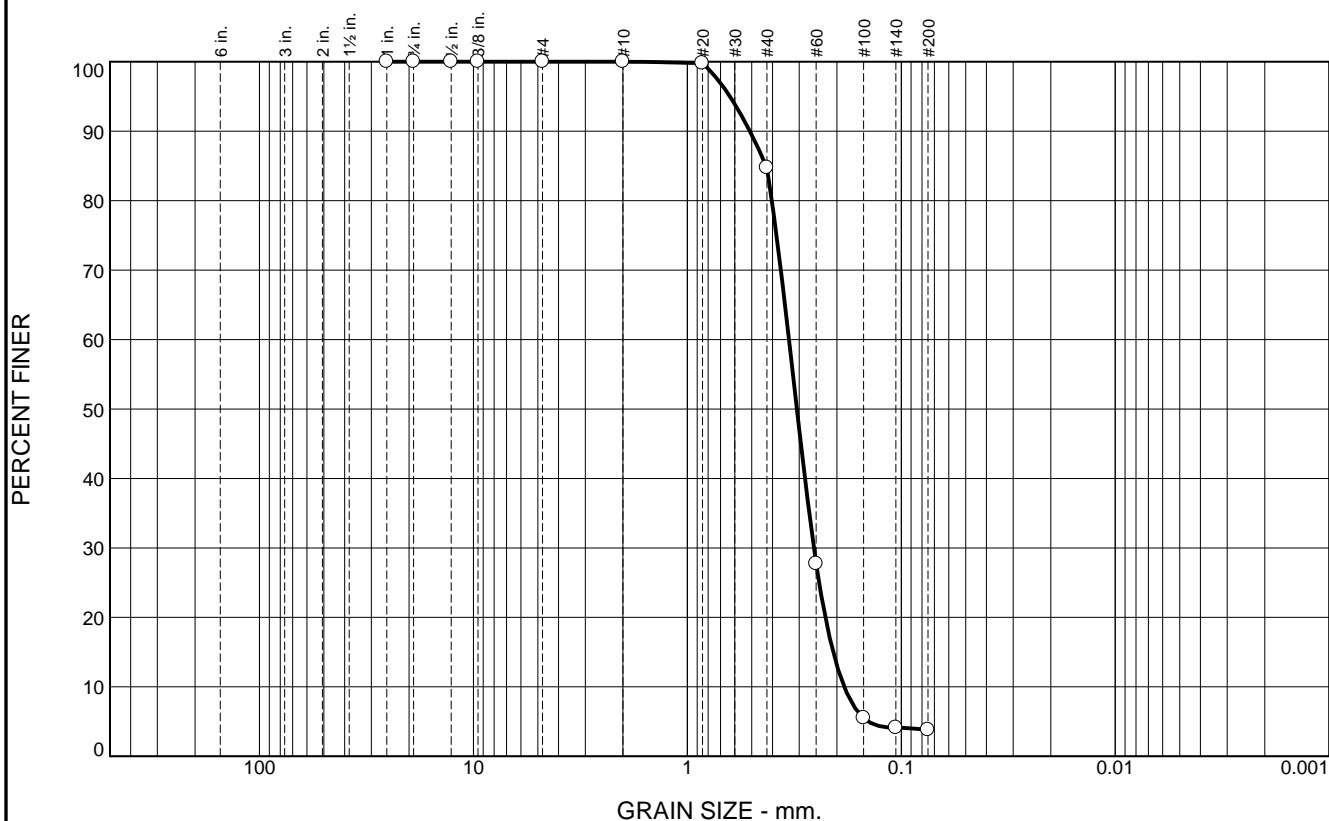
Remarks

* (no specification provided)

Location: BI-PB-175-12 C Depth: 8.3' Date: 12/07/12
Sample Number: 6480 (40)

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

Particle Size Distribution Report



| % +3" | % Gravel | | % Sand | | | % Fines | |
|-------|----------|------|--------|--------|------|---------|------|
| | Coarse | Fine | Coarse | Medium | Fine | Silt | Clay |
| 0.0 | 0.0 | 0.0 | 0.0 | 15.3 | 80.9 | 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 | 99.8 | | |
| #40 | 84.7 | | |
| #60 | 27.7 | | |
| #100 | 5.5 | | |
| #140 | 4.1 | | |
| #200 | 3.8 | | |

Material Description
Fine to medium grained, SAND

Atterberg Limits
 PL= LL= PI=

Coefficients
 D₉₀= 0.5104 D₈₅= 0.4288 D₆₀= 0.3349
 D₅₀= 0.3078 D₃₀= 0.2562 D₁₅= 0.2083
 D₁₀= 0.1850 C_u= 1.81 C_c= 1.06

Classification
 USCS= SP AASHTO=

Remarks







* (no specification provided)

Location: BI-PB-175-12 D Depth: 11.3' Date: 12/07/12
 Sample Number: 6480 (41)

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

Boring Designation BI-PB-176-12

| | | | | |
|--|--|---|--|--|
| DRILLING LOG | | DIVISION South Atlantic | INSTALLATION Mobile District | SHEET 1 OF 1 SHEETS |
| 1. PROJECT MsCIP Barrier Island Restoration Petit Bois Pass- AL East | | | 9. SIZE AND TYPE OF BIT N/A | |
| 2. BORING DESIGNATION BI-PB-176-12 | | 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 | | <input type="checkbox"/> AUTO HAMMER <input type="checkbox"/> MANUAL HAMMER |
| 4. NAME OF DRILLER American Vibracore Systems, Inc. | | 12. TOTAL SAMPLES | | DISTURBED 0 |
| 5. DIRECTION OF BORING <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED | | 13. TOTAL NUMBER CORE BOXES | | UNDISTURBED (UD) 0 |
| 6. THICKNESS OF OVERBURDEN N/A | | 14. WATER DEPTH 33.7 Ft. | | 15. DATE BORING |
| 7. DEPTH DRILLED INTO ROCK N/A | | 16. ELEVATION TOP OF BORING -33.2 Ft. | | STARTED 12-05-12 |
| 8. TOTAL DEPTH OF BORING 14.3 Ft. | | 17. TOTAL RECOVERY FOR BORING 100% | | COMPLETED 12-05-12 |
| 18. SIGNATURE AND TITLE OF INSPECTOR Mike FitzHarris, Geologist | | | | |

| ELEV. | DEPTH | LEGEND | CLASSIFICATION OF MATERIALS | SAMPLE | LABORATORY RESULTS |
|---|-------|---|--|--------|--|
| -33.2 | 0.0 | | | | |
| -34.2 | 1.0 |  | SAND, poorly-graded, mostly fine-grained sand-sized quartz, trace silt, clay bandt at 0.2 ft., pale brown to gray (SP) | A | Classification: SP-SM Color: 2.5Y 7/2-light gray D50: 0.3059 mm % Fines: 10.9 |
| -35.8 | 2.6 |  | CLAY, lean, mostly clay, some fine-grained sand-sized quartz, low to medium plasticity, gray (CL) | NS | |
| -36.9 | 3.7 |  | SAND, silty, mostly fine-grained sand-sized quartz, some silt, trace clay, gray (SM) | B | Classification: SP-SM Color: 2.5Y 6/1-gray D50: 0.3161 mm % Fines: 10.5 |
| -38.0 | 4.8 |  | SAND, poorly-graded with silt, mostly fine-grained sand-sized quartz, few silt, trace clay, gray (SP-SM) | C | Classification: SP-SM Color: 2.5Y 7/1-light gray D50: 0.3331 mm % Fines: 6.3 |
| | |  | SAND, poorly-graded, mostly fine to medium-grained sand-sized quartz, trace silt, gray (SP-SM) | D | Classification: SP Color: 2.5Y 8/1-white D50: 0.3417 mm % Fines: 0.5 |
| | |  | SAND, poorly-graded, mostly fine to medium-grained sand-sized quartz, trace silt, lt. gray to white (SP) | E | Classification: SP Color: 2.5Y 8/1-white D50: 0.3202 mm % Fines: 1.8 |
| -47.5 | 14.3 | | | NS | |
| NOTES: 1. Soils are field visually classified in accordance with the Unified Soils Classification System. 2. NS = Sample not submitted for laboratory analysis from this interval. 3. Seafloor elevation calculated using sampling vessel's fathometer water depth reading and applying NOAA tidal gauge data conversion factor. | | | | | |

Project

Mississippi Barrier Island
Restoration Project



Core Identifier BI-PB-176-12

Date 12/05/2012

Water Depth 33.7

Coordinate System

Latitude / Longitude

Start Time 16:05:12

End Time 16:12:16

Penetration 14.5'

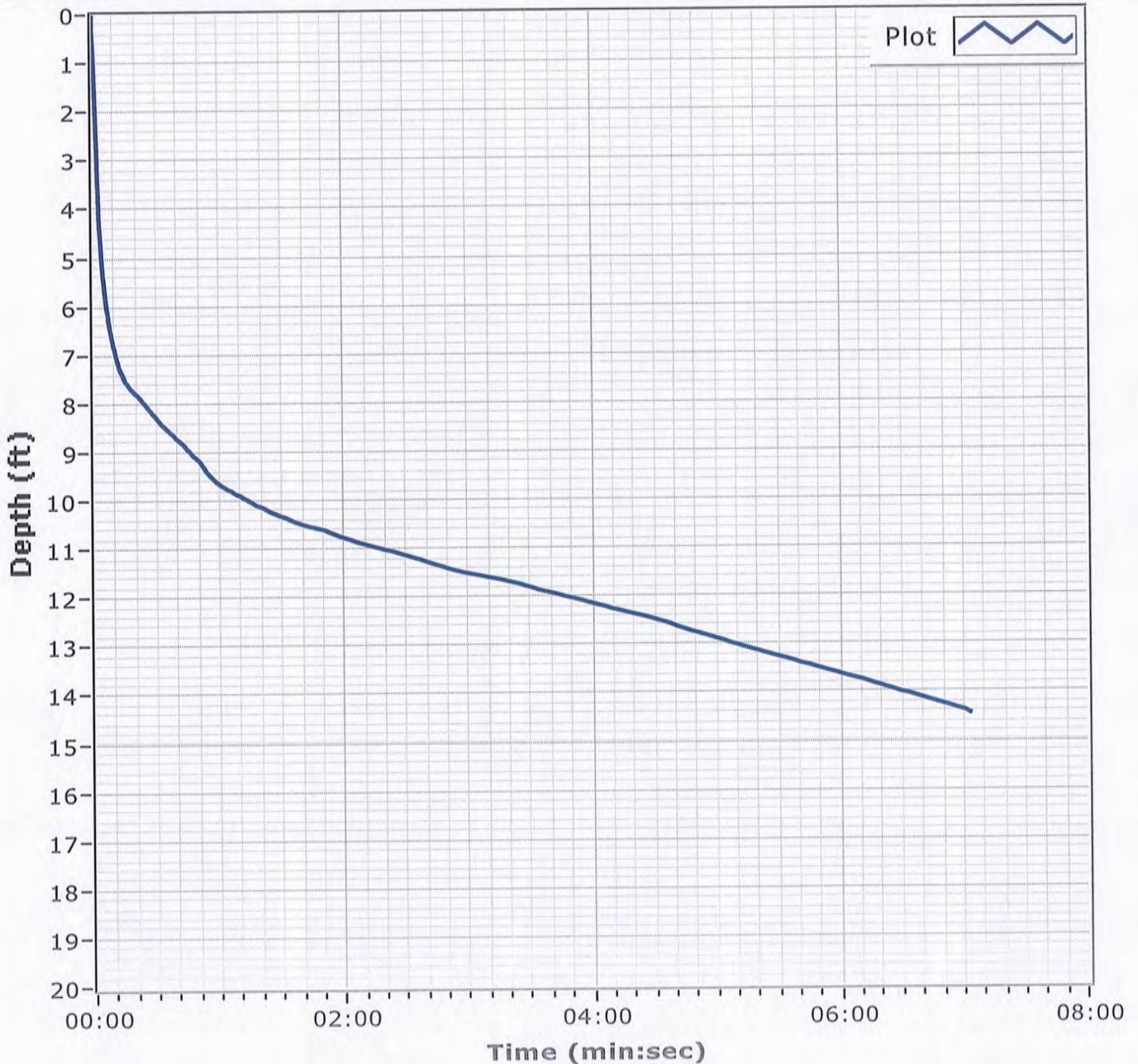
Latitude 30 12.493

Total Time 00:07:04

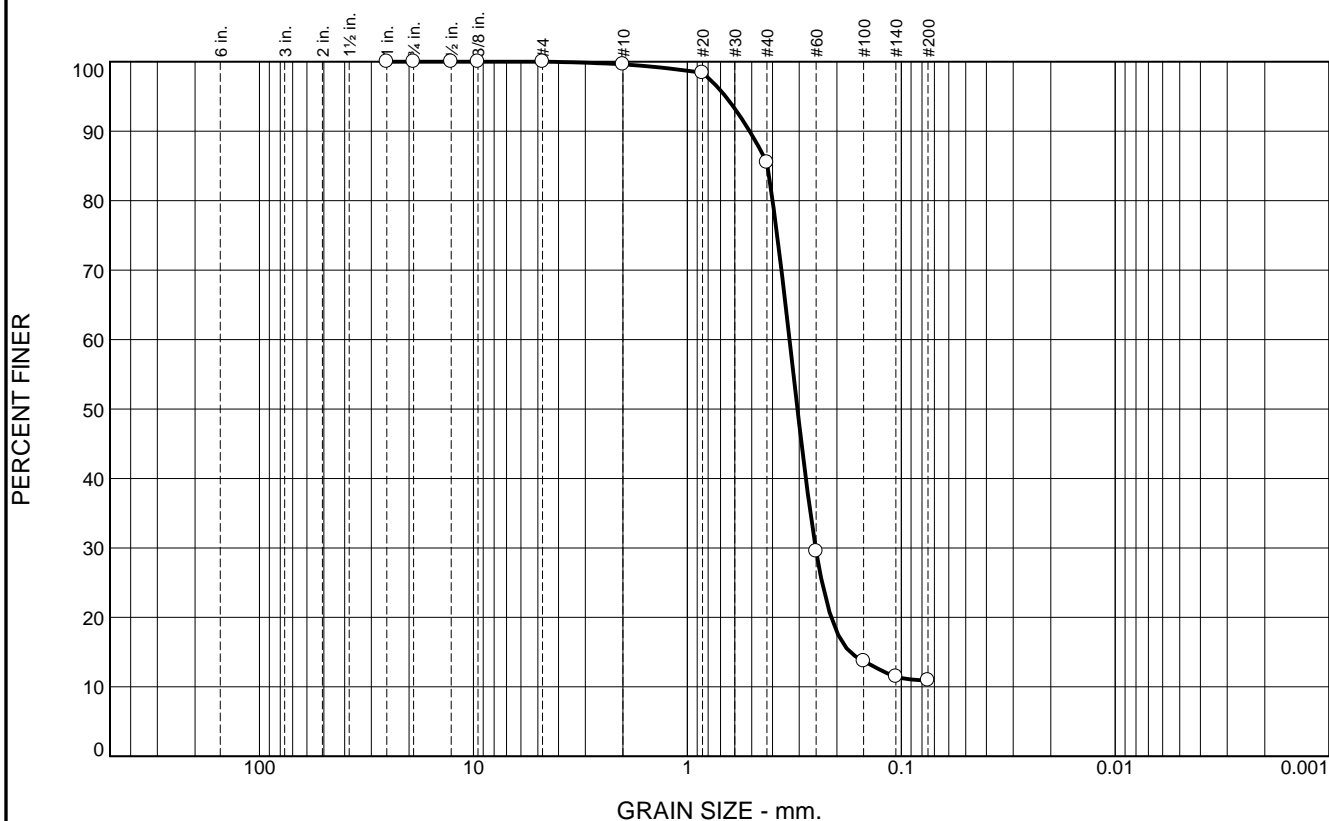
Recovery 14.3'

Longitude 088 17.859

Comments



Particle Size Distribution Report



| % +3" | % Gravel | | % Sand | | | % Fines | |
|-------|----------|------|--------|--------|------|---------|------|
| | Coarse | Fine | Coarse | Medium | Fine | Silt | Clay |
| 0.0 | 0.0 | 0.0 | 0.4 | 14.1 | 74.6 | 10.9 | |

| SIEVE SIZE | PERCENT FINER | SPEC.* PERCENT | PASS? (X=NO) |
|------------|---------------|----------------|--------------|
| 1 | 100.0 | | |
| .75 | 100.0 | | |
| .5 | 100.0 | | |
| .375 | 100.0 | | |
| #4 | 100.0 | | |
| #10 | 99.6 | | |
| #20 | 98.4 | | |
| #40 | 85.5 | | |
| #60 | 29.5 | | |
| #100 | 13.7 | | |
| #140 | 11.5 | | |
| #200 | 10.9 | | |

Material Description

Fine to medium grained, SLIGHTLY SILTY SAND

Atterberg Limits

PL= LL= PI=

Coefficients

D₉₀= 0.5117 D₈₅= 0.4224 D₆₀= 0.3331

D₅₀= 0.3059 D₃₀= 0.2515 D₁₅= 0.1735

D₁₀= C_u= C_c=

Classification

USCS= SP-SM AASHTO=

Remarks

* (no specification provided)

Location: BI-PB-176-12 A
Sample Number: 6480 (42)

Depth: 0.0'

Date: 12/07/12

Thompson Engineering

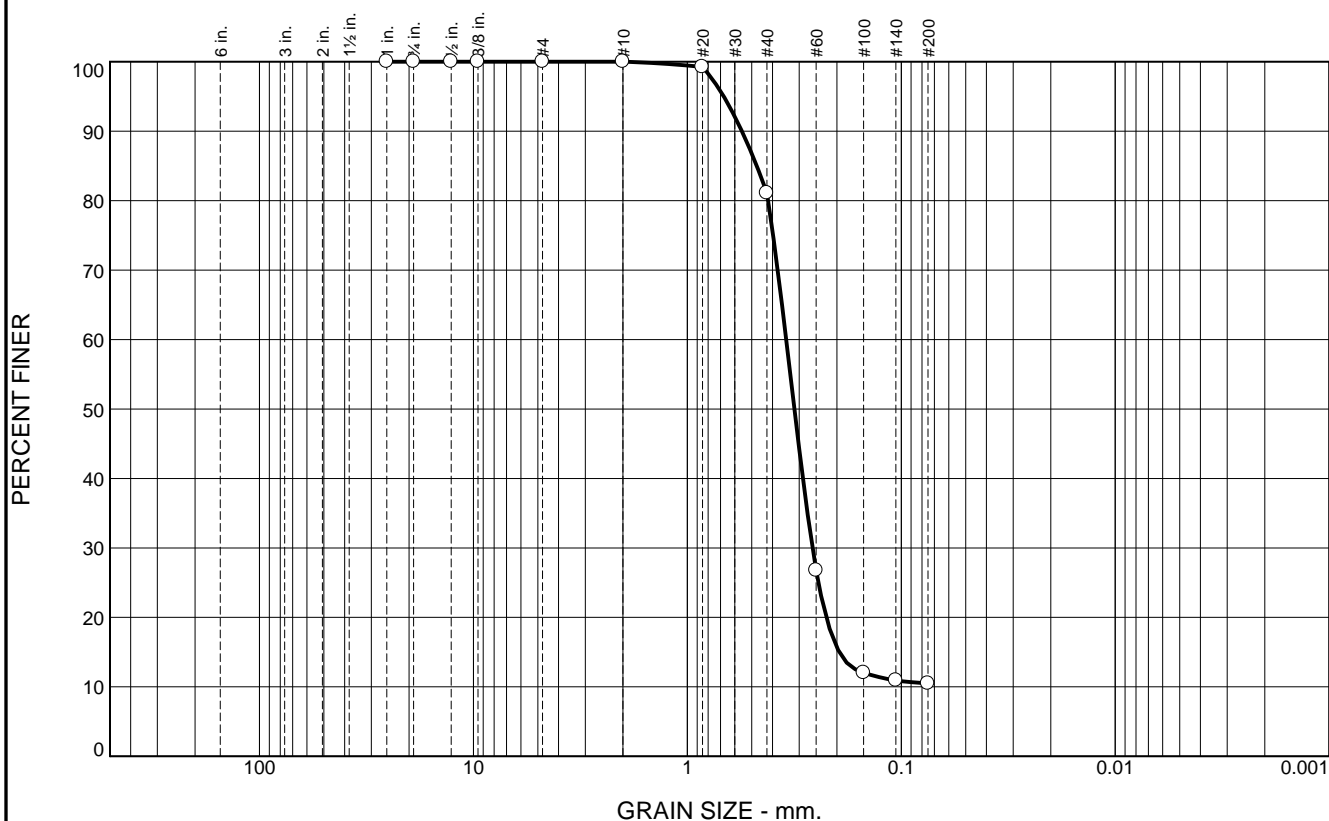
Mobile, Alabama

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

Project No: 1221110095

Figure

Particle Size Distribution Report



| % +3" | % Gravel | | % Sand | | | % Fines | |
|-------|----------|------|--------|--------|------|---------|------|
| | Coarse | Fine | Coarse | Medium | Fine | Silt | Clay |
| 0.0 | 0.0 | 0.0 | 0.0 | 18.9 | 70.6 | 10.5 | |

| SIEVE SIZE | PERCENT FINER | SPEC.* PERCENT | PASS? (X=NO) |
|------------|---------------|----------------|--------------|
| 1 | 100.0 | | |
| .75 | 100.0 | | |
| .5 | 100.0 | | |
| .375 | 100.0 | | |
| #4 | 100.0 | | |
| #10 | 100.0 | | |
| #20 | 99.2 | | |
| #40 | 81.1 | | |
| #60 | 26.8 | | |
| #100 | 12.0 | | |
| #140 | 10.9 | | |
| #200 | 10.5 | | |

Material Description
Fine to medium grained, SLIGHTLY SILTY SAND

Atterberg Limits
 PL= LL= PI=

Coefficients
 D₉₀= 0.5561 D₈₅= 0.4740 D₆₀= 0.3451
 D₅₀= 0.3161 D₃₀= 0.2601 D₁₅= 0.1950
 D₁₀= C_u= C_c=

Classification
 USCS= SP-SM AASHTO=

Remarks

* (no specification provided)

Location: BI-PB-176-12 B
Sample Number: 6480 (43)

Depth: 2.6'

Date: 12/07/12

Thompson Engineering

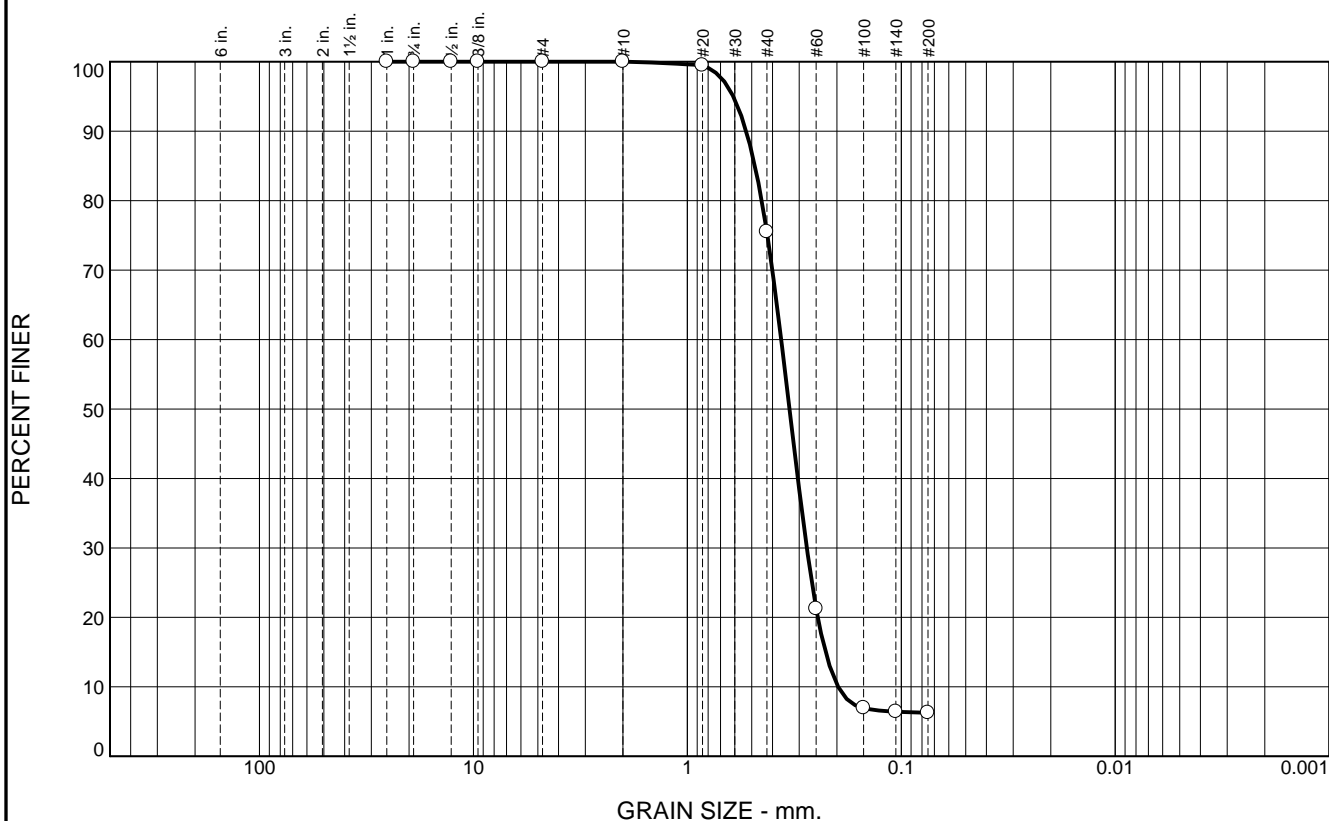
Mobile, Alabama

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

Project No: 1221110095

Figure

Particle Size Distribution Report



| % +3" | % Gravel | | % Sand | | | % Fines | |
|-------|----------|------|--------|--------|------|---------|------|
| | Coarse | Fine | Coarse | Medium | Fine | Silt | Clay |
| 0.0 | 0.0 | 0.0 | 0.0 | 24.5 | 69.2 | 6.3 | |

| SIEVE SIZE | PERCENT FINER | SPEC.* PERCENT | PASS? (X=NO) |
|------------|---------------|----------------|--------------|
| 1 | 100.0 | | |
| .75 | 100.0 | | |
| .5 | 100.0 | | |
| .375 | 100.0 | | |
| #4 | 100.0 | | |
| #10 | 100.0 | | |
| #20 | 99.5 | | |
| #40 | 75.5 | | |
| #60 | 21.3 | | |
| #100 | 7.0 | | |
| #140 | 6.4 | | |
| #200 | 6.3 | | |

Material Description

Fine to medium grained, SLIGHTLY SILTY SAND

Atterberg Limits

PL= LL= PI=

Coefficients

D₉₀= 0.5307 D₈₅= 0.4833 D₆₀= 0.3642
D₅₀= 0.3331 D₃₀= 0.2766 D₁₅= 0.2259
D₁₀= 0.1973 C_u= 1.85 C_c= 1.07

Classification

USCS= SP-SM AASHTO=

Remarks

* (no specification provided)

Location: BI-PB-176-12 C
Sample Number: 6480 (44)

Depth: 3.7'

Date: 12/07/12

Thompson Engineering

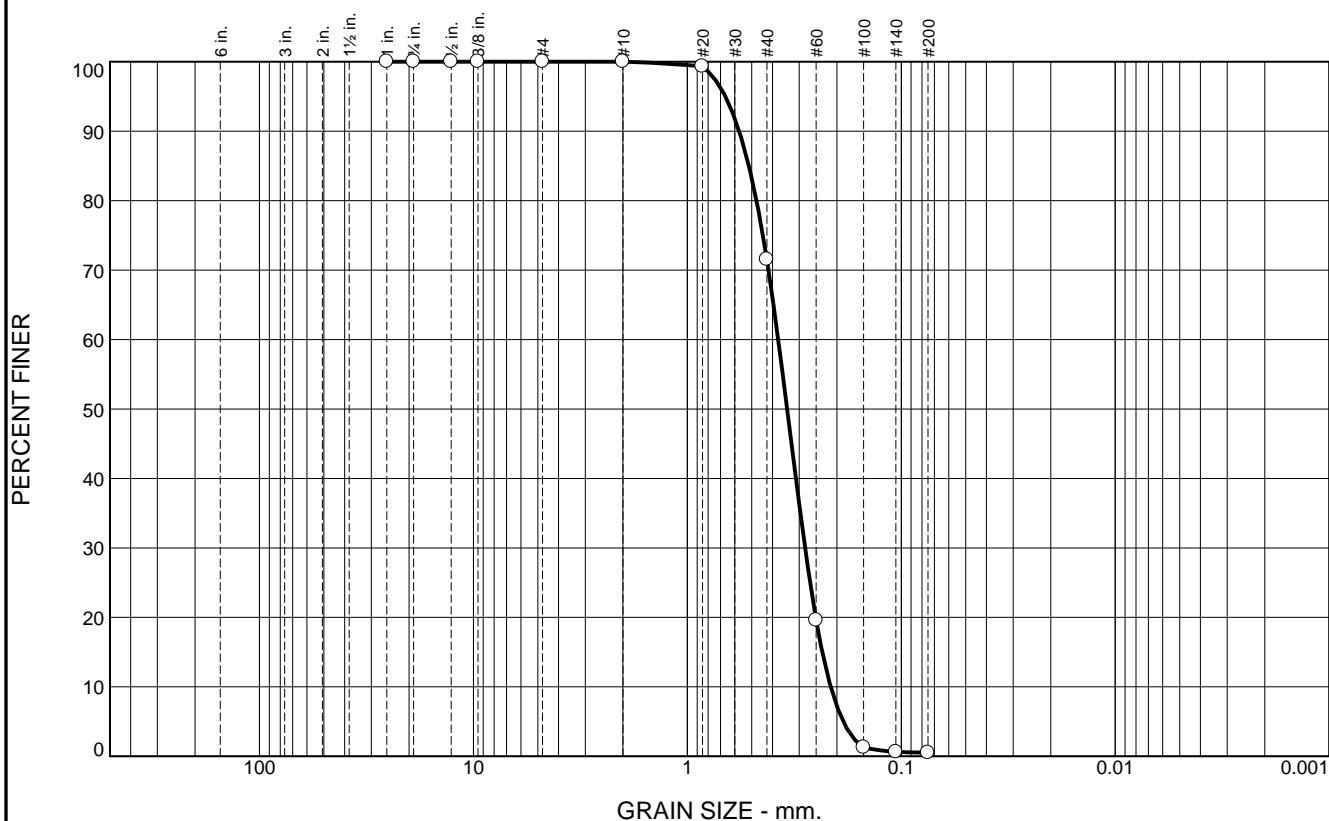
Mobile, Alabama

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

Project No: 1221110095

Figure

Particle Size Distribution Report



| % +3" | % Gravel | | % Sand | | | % Fines | |
|-------|----------|------|--------|--------|------|---------|------|
| | Coarse | Fine | Coarse | Medium | Fine | Silt | Clay |
| 0.0 | 0.0 | 0.0 | 0.0 | 28.5 | 71.0 | 0.5 | |

| SIEVE SIZE | PERCENT FINER | SPEC.* PERCENT | PASS? (X=NO) |
|------------|---------------|----------------|--------------|
| 1 | 100.0 | | |
| .75 | 100.0 | | |
| .5 | 100.0 | | |
| .375 | 100.0 | | |
| #4 | 100.0 | | |
| #10 | 100.0 | | |
| #20 | 99.3 | | |
| #40 | 71.5 | | |
| #60 | 19.6 | | |
| #100 | 1.3 | | |
| #140 | 0.6 | | |
| #200 | 0.5 | | |

Material Description
Fine to medium grained, SAND

Atterberg Limits
 PL= LL= PI=

Coefficients
 D₉₀= 0.5725 D₈₅= 0.5159 D₆₀= 0.3761
 D₅₀= 0.3417 D₃₀= 0.2817 D₁₅= 0.2341
 D₁₀= 0.2138 C_u= 1.76 C_c= 0.99

Classification
 USCS= SP AASHTO=

Remarks

* (no specification provided)

Location: BI-PB-176-12 D
Sample Number: 6480 (45)

Depth: 4.8'

Date: 12/07/12

Thompson Engineering

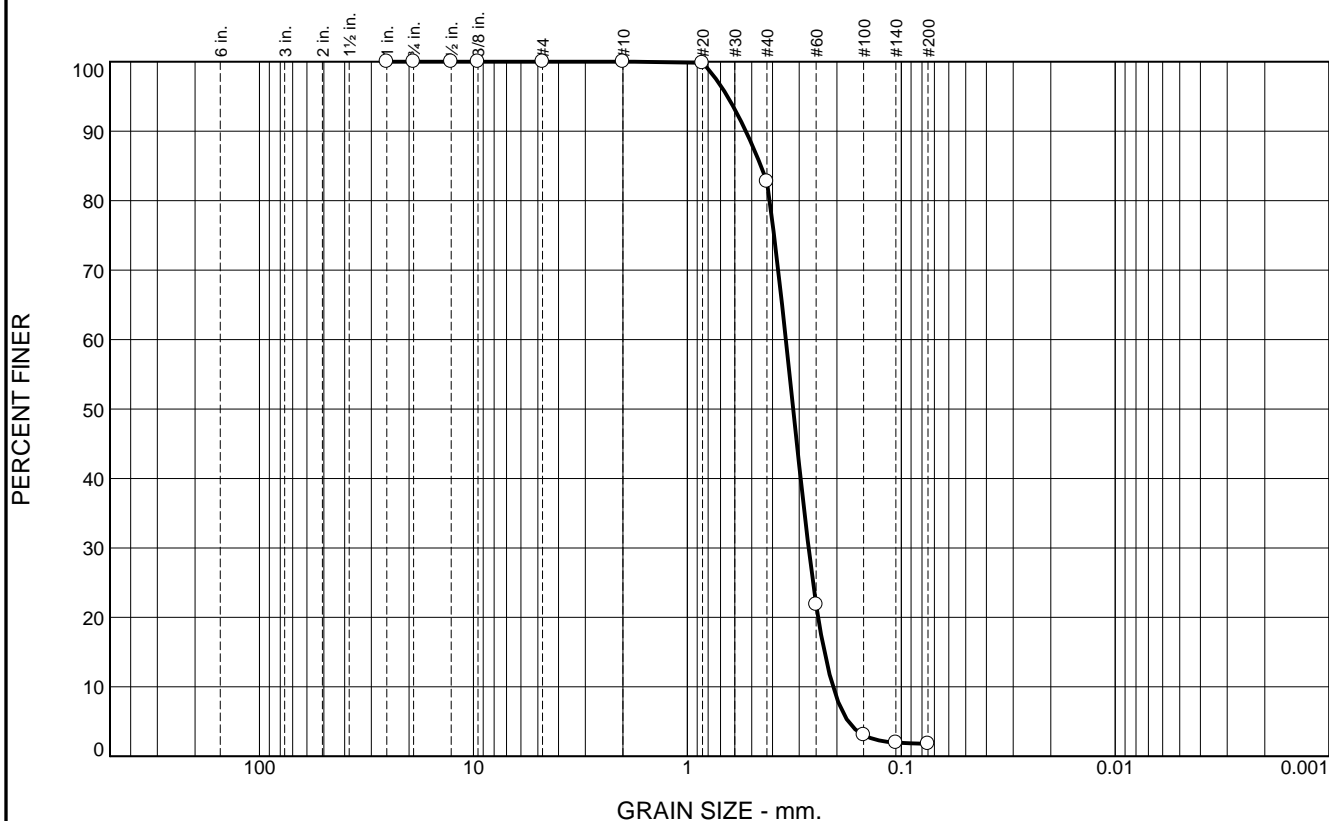
Mobile, Alabama

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

Project No: 1221110095

Figure

Particle Size Distribution Report



| % +3" | % Gravel | | % Sand | | | % Fines | |
|-------|----------|------|--------|--------|------|---------|------|
| | Coarse | Fine | Coarse | Medium | Fine | Silt | Clay |
| 0.0 | 0.0 | 0.0 | 0.0 | 17.2 | 81.0 | 1.8 | |

| SIEVE SIZE | PERCENT FINER | SPEC.* PERCENT | PASS? (X=NO) |
|------------|---------------|----------------|--------------|
| 1 | 100.0 | | |
| .75 | 100.0 | | |
| .5 | 100.0 | | |
| .375 | 100.0 | | |
| #4 | 100.0 | | |
| #10 | 100.0 | | |
| #20 | 99.8 | | |
| #40 | 82.8 | | |
| #60 | 21.8 | | |
| #100 | 3.1 | | |
| #140 | 2.0 | | |
| #200 | 1.8 | | |

Material Description
Fine to medium grained, SAND

Atterberg Limits
 PL= LL= PI=

Coefficients
 D₉₀= 0.5330 D₈₅= 0.4535 D₆₀= 0.3464
 D₅₀= 0.3202 D₃₀= 0.2714 D₁₅= 0.2286
 D₁₀= 0.2085 C_u= 1.66 C_c= 1.02

Classification
 USCS= SP AASHTO=

Remarks

* (no specification provided)

Location: BI-PB-176-12 E
Sample Number: 6480 (46)

Depth: 9.3'

Date: 12/07/12

Thompson Engineering

Mobile, Alabama

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

Project No: 1221110095

Figure

Boring Designation BI-PB-177-12

| | | | | |
|--|--|---|--|--|
| DRILLING LOG | | DIVISION South Atlantic | INSTALLATION Mobile District | SHEET 1 OF 1 SHEETS |
| 1. PROJECT MsCIP Barrier Island Restoration Petit Bois Pass- AL East | | | 9. SIZE AND TYPE OF BIT N/A | |
| 2. BORING DESIGNATION BI-PB-177-12 | | LOCATION COORDINATES E = 1,153,351 N = 253,051 | | 10. COORDINATE SYSTEM/DATUM State Plane, MSE (U.S. Ft.) |
| 3. DRILLING AGENCY Corps of Engineers - CESAM | | CONTRACTOR FILE NO. | | HORIZONTAL NAD83 |
| 4. NAME OF DRILLER American Vibracore Systems, Inc. | | 11. MANUFACTURER'S DESIGNATION OF DRILL Vibracore | | <input type="checkbox"/> AUTO HAMMER <input type="checkbox"/> MANUAL HAMMER |
| 5. DIRECTION OF BORING <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED | | DEG. FROM VERTICAL | BEARING | 12. TOTAL SAMPLES DISTURBED UNDISTURBED (UD) 0 |
| 6. THICKNESS OF OVERBURDEN N/A | | 13. TOTAL NUMBER CORE BOXES | | 14. WATER DEPTH 40.7 Ft. |
| 7. DEPTH DRILLED INTO ROCK N/A | | 15. DATE BORING | | STARTED 12-19-12 COMPLETED 12-19-12 |
| 8. TOTAL DEPTH OF BORING 19.3 Ft. | | 16. ELEVATION TOP OF BORING -40.3 Ft. | | 17. TOTAL RECOVERY FOR BORING 100% |
| 18. SIGNATURE AND TITLE OF INSPECTOR Mike FitzHarris, Geologist | | | | |

| ELEV. | DEPTH | LEGEND | CLASSIFICATION OF MATERIALS | SAMPLE | LABORATORY RESULTS |
|-------|-------|--------|---|--------|--|
| -40.3 | 0.0 | | | | |
| -40.7 | 0.4 | | | | |
| -40.9 | 0.6 | | SAND, poorly-graded, mostly fine to medium-grained sand-sized quartz, trace fines, gray (SP) CLAY, lean, mostly clay, some fine-grained sand-sized quartz, soft, dark gray (CL) | A | Classification: SP-SM Color: 2.5Y 5/2-grayish brown D50: 0.3539 mm % Fines: 5.9 |
| -44.6 | 4.3 | | SAND, poorly-graded with silt, mostly fine-grained sand-sized quartz, few silt, trace clay, gray (SP-SM) SAND, poorly-graded, mostly fine to medium-grained sand-sized quartz, trace fines, gray to light gray (SP) | B | Classification: SP Color: 2.5Y 7/1-light gray D50: 0.3615 mm % Fines: 1.9 |
| | | | At El. -49.6 Ft., mostly fine to medium-grained sand-sized quartz, trace fines, lt. gray | C | Classification: SP Color: 5Y 7/1-light gray D50: 0.3621 mm % Fines: 0.7 |
| | | | | D | Classification: SP Color: 5Y 7/1-light gray D50: 0.3802 mm % Fines: 1.6 |
| -59.6 | 19.3 | | | | |
| | | | NOTES: 1. Soils are field visually classified in accordance with the Unified Soils Classification System. 2. NS = Sample not submitted for laboratory analysis from this interval. 3. Seafloor elevation determined from 2010 USACE survey. | | |

Project

Mississippi Barrier Island
Restoration Project



Core Identifier BI-PB-177-12

Date 12/19/2012

Water Depth 40.7'

Coordinate System

Latitude / Longitude

Start Time 09:51:25

End Time 09:56:40

Penetration 20.0'

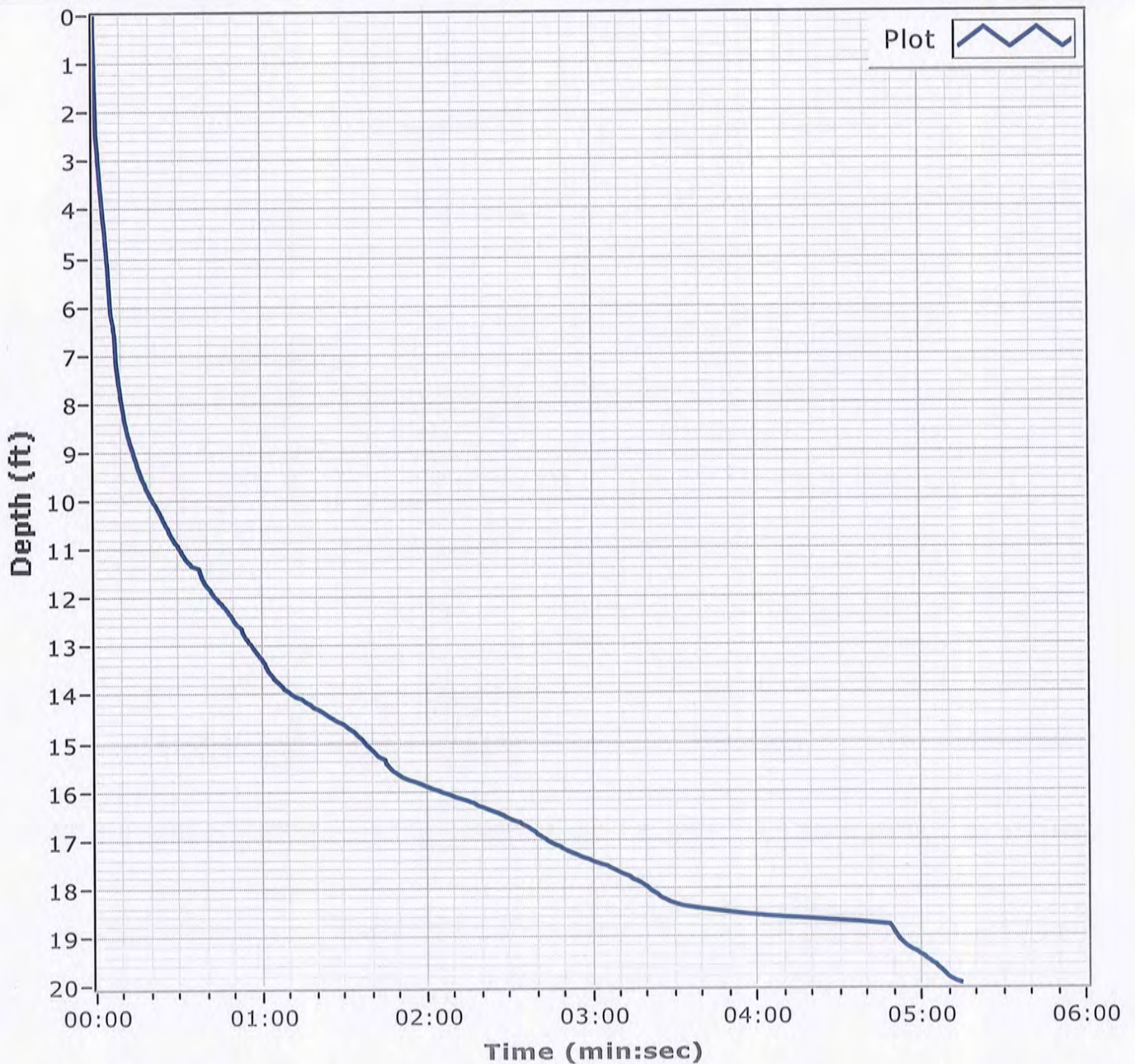
Latitude 30 11.685

Total Time 00:05:15

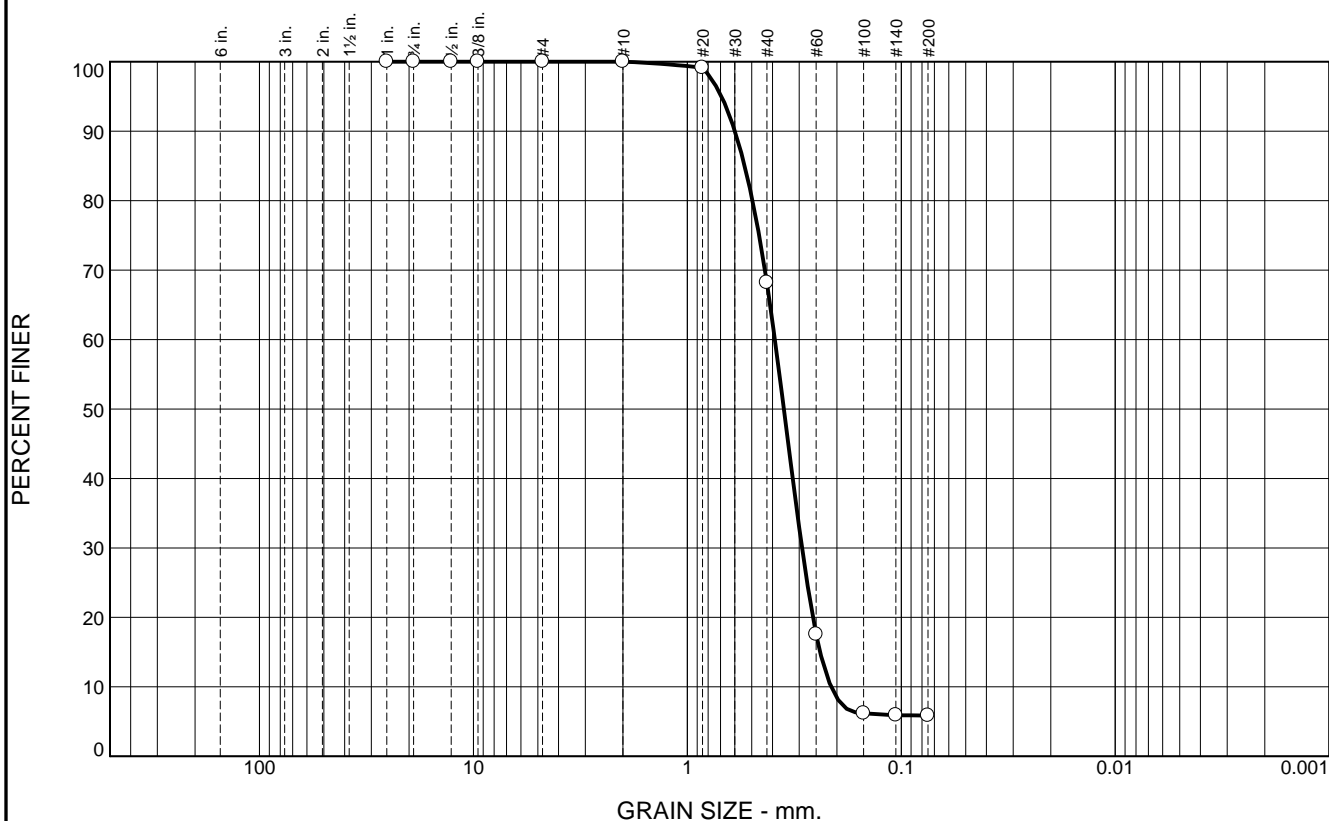
Recovery 19.3'

Longitude 88 17.884

Comments



Particle Size Distribution Report



| % +3" | % Gravel | | % Sand | | | % Fines | |
|-------|----------|------|--------|--------|------|---------|------|
| | Coarse | Fine | Coarse | Medium | Fine | Silt | Clay |
| 0.0 | 0.0 | 0.0 | 0.0 | 31.8 | 62.3 | 5.9 | |

| SIEVE SIZE | PERCENT FINER | SPEC.* PERCENT | PASS? (X=NO) |
|------------|---------------|----------------|--------------|
| 1 | 100.0 | | |
| .75 | 100.0 | | |
| .5 | 100.0 | | |
| .375 | 100.0 | | |
| #4 | 100.0 | | |
| #10 | 100.0 | | |
| #20 | 99.1 | | |
| #40 | 68.2 | | |
| #60 | 17.6 | | |
| #100 | 6.2 | | |
| #140 | 5.9 | | |
| #200 | 5.9 | | |

Material Description

Fine to medium grained, SLIGHTLY SILTY SAND

Atterberg Limits

PL= LL= PI=

Coefficients

D₉₀= 0.5992 D₈₅= 0.5395 D₆₀= 0.3899
D₅₀= 0.3539 D₃₀= 0.2912 D₁₅= 0.2396
D₁₀= 0.2129 C_u= 1.83 C_c= 1.02

Classification

USCS= SP-SM AASHTO=

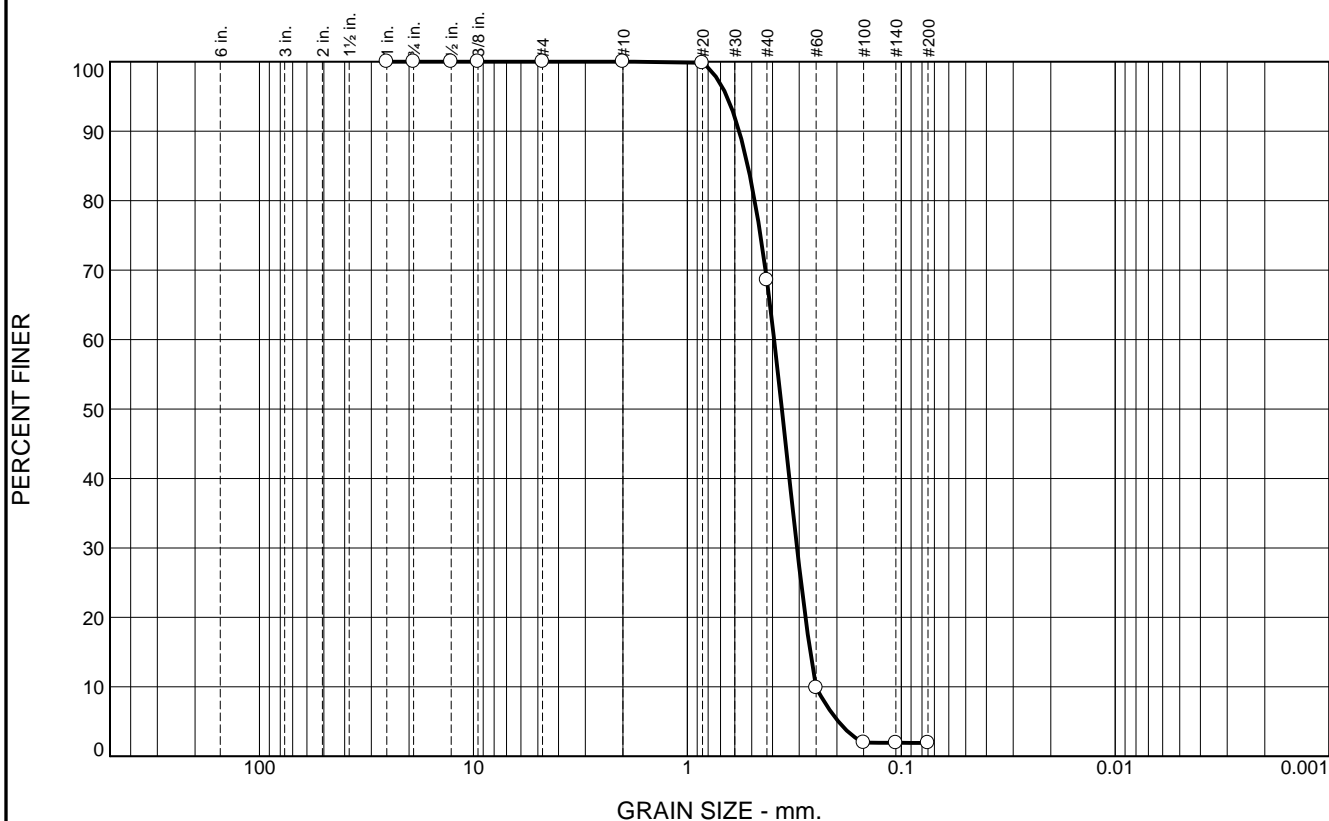
Remarks

* (no specification provided)

Location: BI-PB-177-12 A Depth: 0.0' Date: 12/26/12
Sample Number: 6494 (64)

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

Particle Size Distribution Report



| % +3" | % Gravel | | % Sand | | | % Fines | |
|-------|----------|------|--------|--------|------|---------|------|
| | Coarse | Fine | Coarse | Medium | Fine | Silt | Clay |
| 0.0 | 0.0 | 0.0 | 0.0 | 31.4 | 66.7 | 1.9 | |

| SIEVE SIZE | PERCENT FINER | SPEC.* PERCENT | PASS? (X=NO) |
|------------|---------------|----------------|--------------|
| 1 | 100.0 | | |
| .75 | 100.0 | | |
| .5 | 100.0 | | |
| .375 | 100.0 | | |
| #4 | 100.0 | | |
| #10 | 100.0 | | |
| #20 | 99.8 | | |
| #40 | 68.6 | | |
| #60 | 9.9 | | |
| #100 | 2.0 | | |
| #140 | 1.9 | | |
| #200 | 1.9 | | |

Material Description
Fine to medium grained, SAND

Atterberg Limits
 PL= LL= PI=

Coefficients
 D₉₀= 0.5724 D₈₅= 0.5215 D₆₀= 0.3929
 D₅₀= 0.3615 D₃₀= 0.3073 D₁₅= 0.2665
 D₁₀= 0.2504 C_u= 1.57 C_c= 0.96

Classification
 USCS= SP AASHTO=

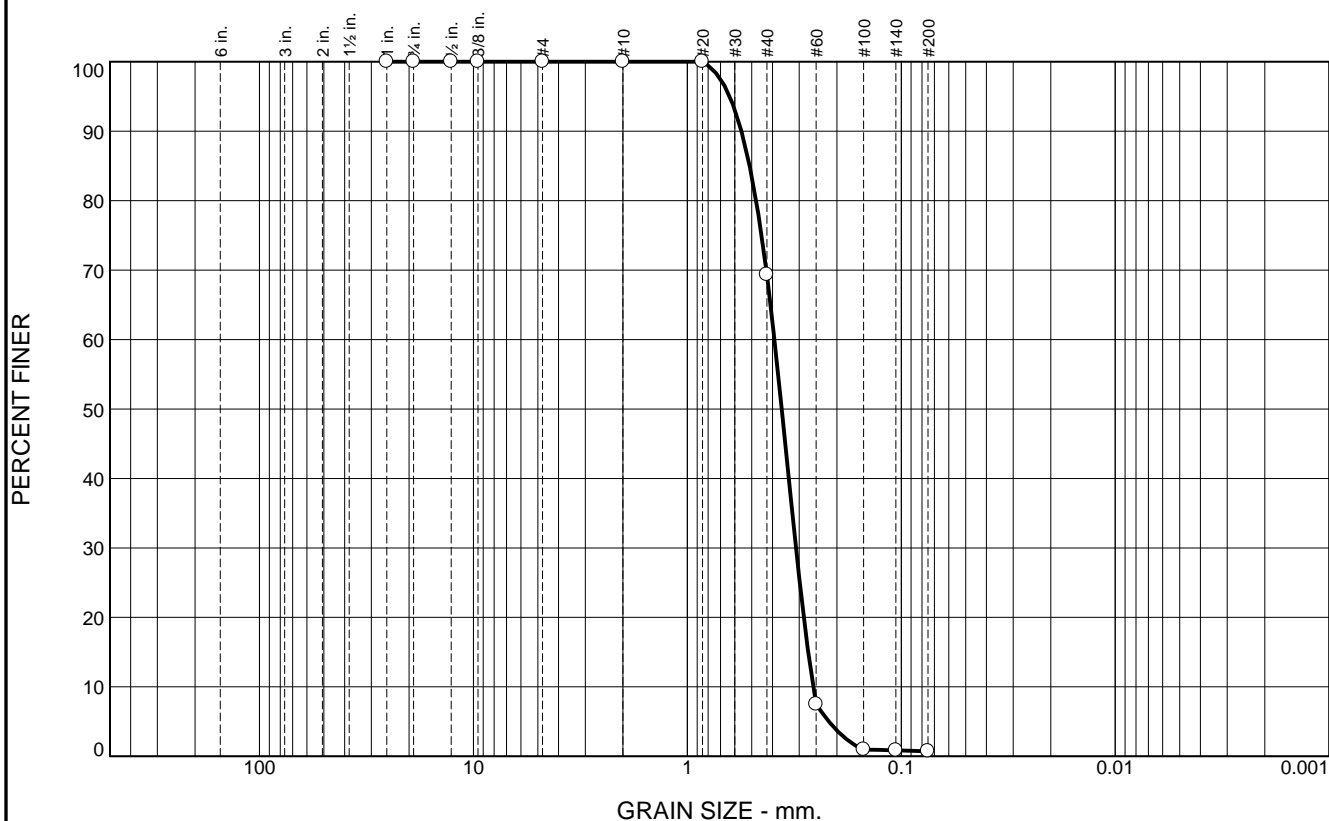
Remarks

* (no specification provided)

Location: BI-PB-177-12 B Depth: 4.3' Date: 12/26/12
 Sample Number: 6494 (65)

| | |
|---|--|
| Thompson Engineering Mobile, Alabama | Client: CDM/Thompson Engineering JV Project: MsCIP Barrier Island Restoration 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 | 30.6 | 68.7 | 0.7 | |

| SIEVE SIZE | PERCENT FINER | SPEC.* PERCENT | PASS? (X=NO) |
|------------|---------------|----------------|--------------|
| 1 | 100.0 | | |
| .75 | 100.0 | | |
| .5 | 100.0 | | |
| .375 | 100.0 | | |
| #4 | 100.0 | | |
| #10 | 100.0 | | |
| #20 | 100.0 | | |
| #40 | 69.4 | | |
| #60 | 7.5 | | |
| #100 | 1.0 | | |
| #140 | 0.9 | | |
| #200 | 0.7 | | |

Material Description
Fine to medium grained, SAND

Atterberg Limits
 PL= LL= PI=

Coefficients
 D₉₀= 0.5587 D₈₅= 0.5116 D₆₀= 0.3917
 D₅₀= 0.3621 D₃₀= 0.3108 D₁₅= 0.2727
 D₁₀= 0.2582 C_u= 1.52 C_c= 0.95

Classification
 USCS= SP AASHTO=

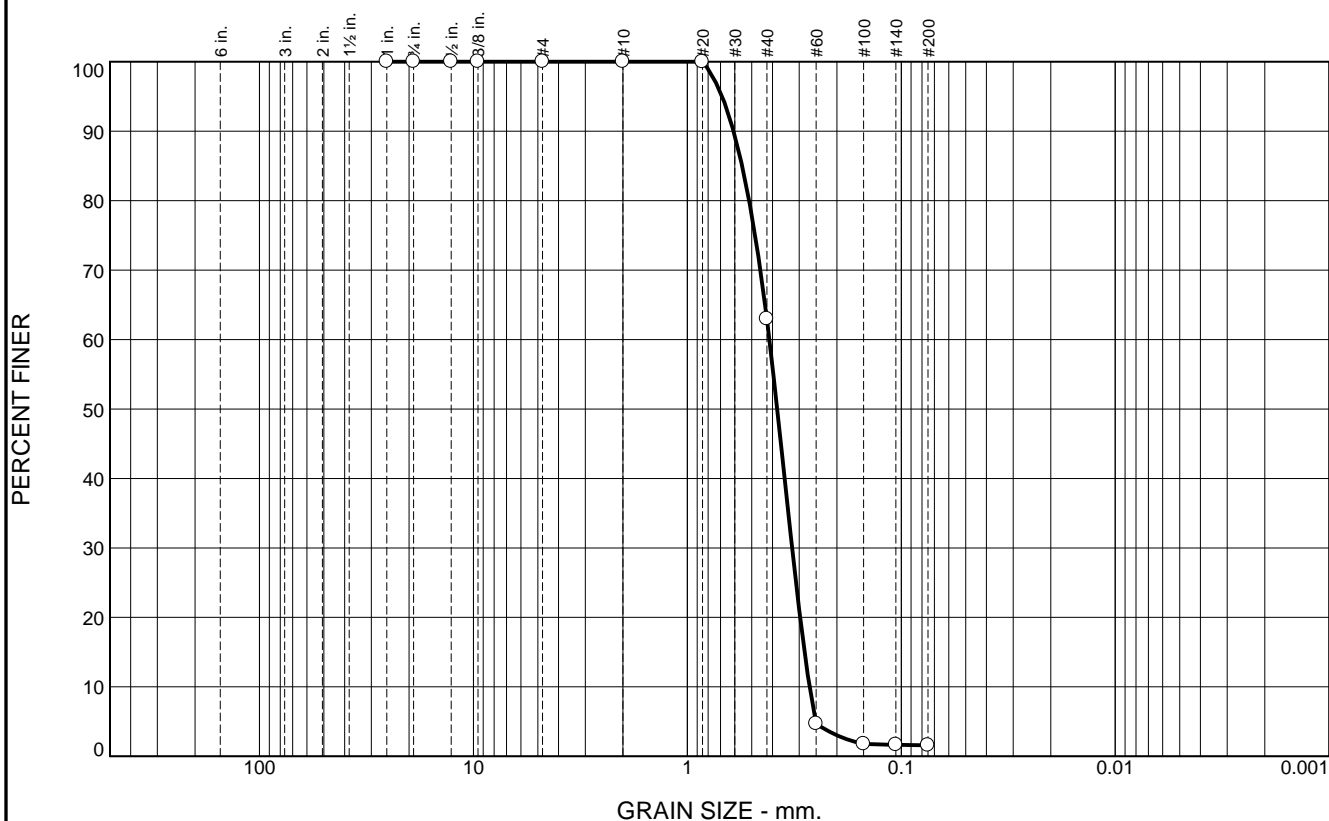
Remarks

* (no specification provided)

Location: BI-PB-177-12 C Depth: 9.3' Date: 12/26/12
 Sample Number: 6494 (66)

| | |
|---|--|
| Thompson Engineering Mobile, Alabama | Client: CDM/Thompson Engineering JV Project: MsCIP Barrier Island Restoration 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 | 37.0 | 61.4 | 1.6 | |

| SIEVE SIZE | PERCENT FINER | SPEC.* PERCENT | PASS? (X=NO) |
|------------|---------------|----------------|--------------|
| 1 | 100.0 | | |
| .75 | 100.0 | | |
| .5 | 100.0 | | |
| .375 | 100.0 | | |
| #4 | 100.0 | | |
| #10 | 100.0 | | |
| #20 | 100.0 | | |
| #40 | 63.0 | | |
| #60 | 4.7 | | |
| #100 | 1.8 | | |
| #140 | 1.7 | | |
| #200 | 1.6 | | |

Material Description

Fine to medium grained, SAND

Atterberg Limits

PL= LL= PI=

Coefficients

D₉₀= 0.6081 D₈₅= 0.5545 D₆₀= 0.4137

D₅₀= 0.3802 D₃₀= 0.3239 D₁₅= 0.2835

D₁₀= 0.2687 C_u= 1.54 C_c= 0.94

Classification

USCS= SP AASHTO=

Remarks

* (no specification provided)

Location: BI-PB-177-12 D
Sample Number: 6494 (67)

Depth: 14.3'

Date: 12/26/12

Thompson Engineering

Mobile, Alabama

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

Project No: 1221110095

Figure

Boring Designation BI-PB-179-12

| | | | | |
|--|--|---|--|--|
| DRILLING LOG | | DIVISION South Atlantic | INSTALLATION Mobile District | SHEET 1 OF 1 SHEETS |
| 1. PROJECT MsCIP Barrier Island Restoration Petit Bois Pass- AL East | | | 9. SIZE AND TYPE OF BIT N/A | |
| 2. BORING DESIGNATION BI-PB-179-12 | | 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 | | <input type="checkbox"/> AUTO HAMMER <input type="checkbox"/> MANUAL HAMMER |
| 4. NAME OF DRILLER American Vibracore Systems, Inc. | | 12. TOTAL SAMPLES | | DISTURBED 0 |
| 5. DIRECTION OF BORING <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED | | 13. TOTAL NUMBER CORE BOXES | | UNDISTURBED (UD) 0 |
| 6. THICKNESS OF OVERBURDEN N/A | | 14. WATER DEPTH 37.1 Ft. | | 15. DATE BORING |
| 7. DEPTH DRILLED INTO ROCK N/A | | 16. ELEVATION TOP OF BORING -36.5 Ft. | | STARTED 12-19-12 |
| 8. TOTAL DEPTH OF BORING 19.1 Ft. | | 17. TOTAL RECOVERY FOR BORING 100% | | COMPLETED 12-19-12 |
| 18. SIGNATURE AND TITLE OF INSPECTOR Mike FitzHarris, Geologist | | | | |

| ELEV. | DEPTH | LEGEND | CLASSIFICATION OF MATERIALS | SAMPLE | LABORATORY RESULTS |
|-------|-------|--------|--|--------|--|
| -36.5 | 0.0 | | | | |
| -38.7 | 2.2 | ••••• | SAND, poorly-graded, mostly fine to medium-grained sand-sized quartz, trace fines, trace shell fragments, lt. gray (SP) | A | Classification: SP Color: 2.5Y 7/2-light gray D50: 0.3679 mm % Fines: 0.9 |
| | | ••••• | SAND, poorly-graded with silt, mostly fine-grained sand-sized quartz, trace clay stringers, lt brownish gray (SP-SM) | B | Classification: SP-SM Color: 2.5Y 5/2-grayish brown D50: 0.3187 mm % Fines: 8.2 |
| | | ••••• | | C | Classification: SP-SM Color: 2.5Y 6/1-gray D50: 0.306 mm % Fines: 5.8 |
| | | ••••• | | D | Classification: SP-SM Color: 5Y 5/1-gray D50: 0.305 mm % Fines: 5.9 |
| -55.6 | 19.1 | ••••• | At El. -53.7 Ft., mostly fine-grained sand-sized quartz, trace thin clay bands, lt. gray | NS | |
| | | | NOTES: 1. Soils are field visually classified in accordance with the Unified Soils Classification System. 2. NS = Sample not submitted for laboratory analysis from this interval. 3. Seafloor elevation determined from 2010 USACE survey. | | |

Project

Mississippi Barrier Island
Restoration Project



Core Identifier BI-PB-179-12

Date 12/19/2012

Water Depth 37.1'

Coordinate System

Latitude / Longitude

Start Time 09:22:20

End Time 09:23:36

Penetration 20.0'

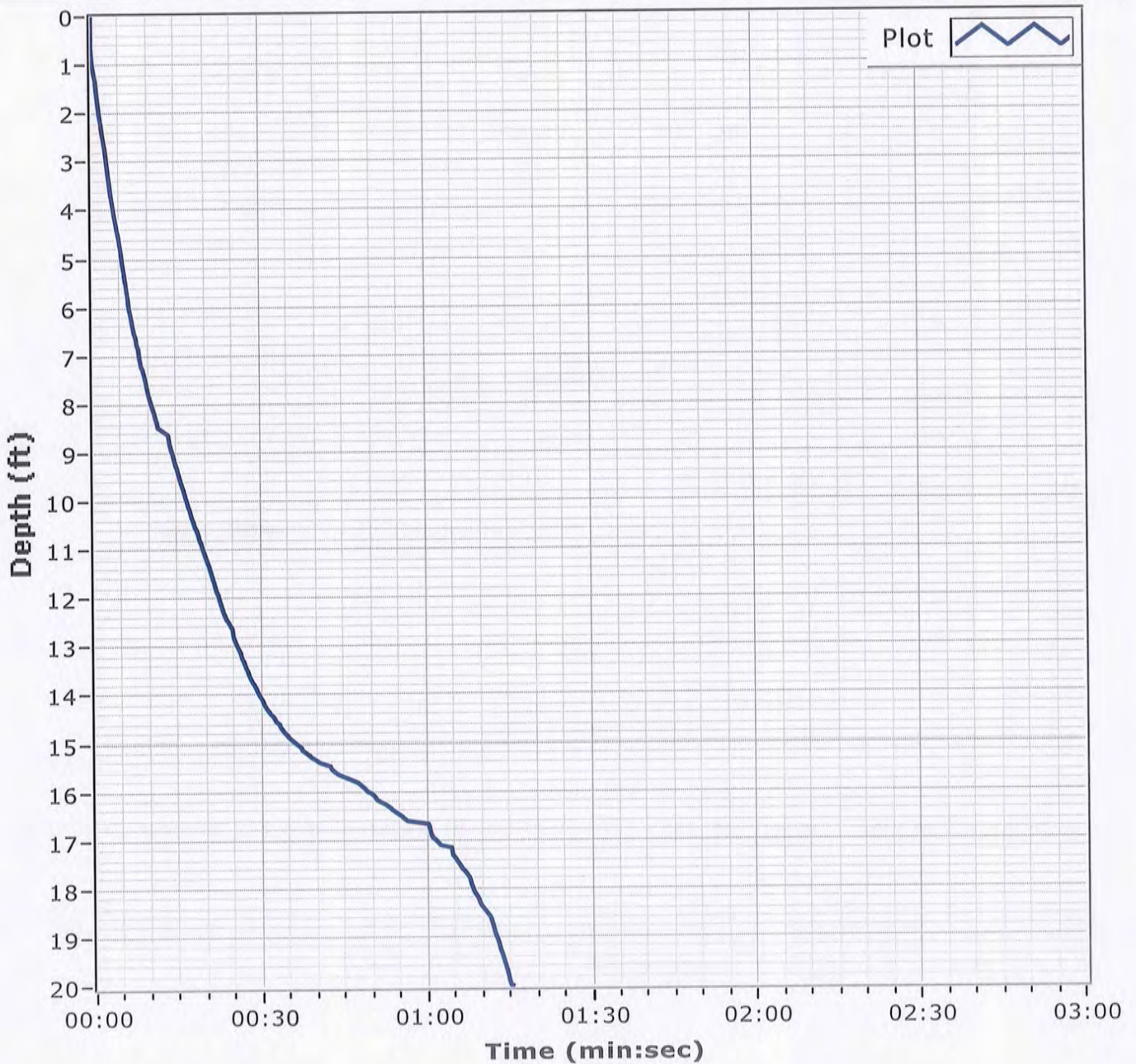
Latitude 30 11.760

Total Time 00:01:15

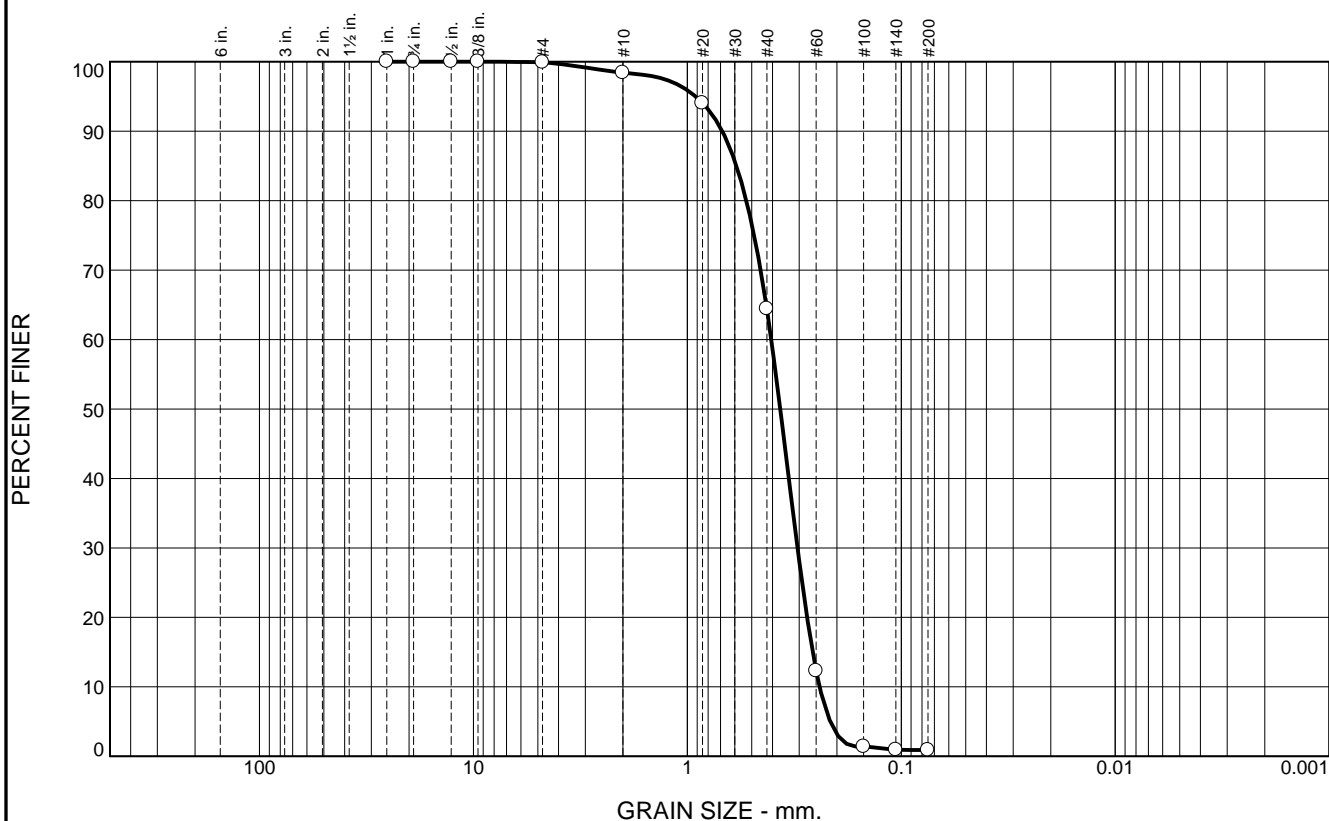
Recovery 19.1'

Longitude 88 17.673

Comments



Particle Size Distribution Report



| % +3" | % Gravel | | % Sand | | | % Fines | |
|-------|----------|------|--------|--------|------|---------|------|
| | Coarse | Fine | Coarse | Medium | Fine | Silt | Clay |
| 0.0 | 0.0 | 0.1 | 1.5 | 34.0 | 63.5 | 0.9 | |

| SIEVE SIZE | PERCENT FINER | SPEC.* PERCENT | PASS? (X=NO) |
|------------|---------------|----------------|--------------|
| 1 | 100.0 | | |
| .75 | 100.0 | | |
| .5 | 100.0 | | |
| .375 | 100.0 | | |
| #4 | 99.9 | | |
| #10 | 98.4 | | |
| #20 | 94.0 | | |
| #40 | 64.4 | | |
| #60 | 12.3 | | |
| #100 | 1.4 | | |
| #140 | 0.9 | | |
| #200 | 0.9 | | |

Material Description

Fine to medium grained, SAND

Atterberg Limits

PL= LL= PI=

Coefficients

D₉₀= 0.6868 D₈₅= 0.5894 D₆₀= 0.4054
D₅₀= 0.3679 D₃₀= 0.3057 D₁₅= 0.2596
D₁₀= 0.2409 C_u= 1.68 C_c= 0.96

Classification

USCS= SP AASHTO=

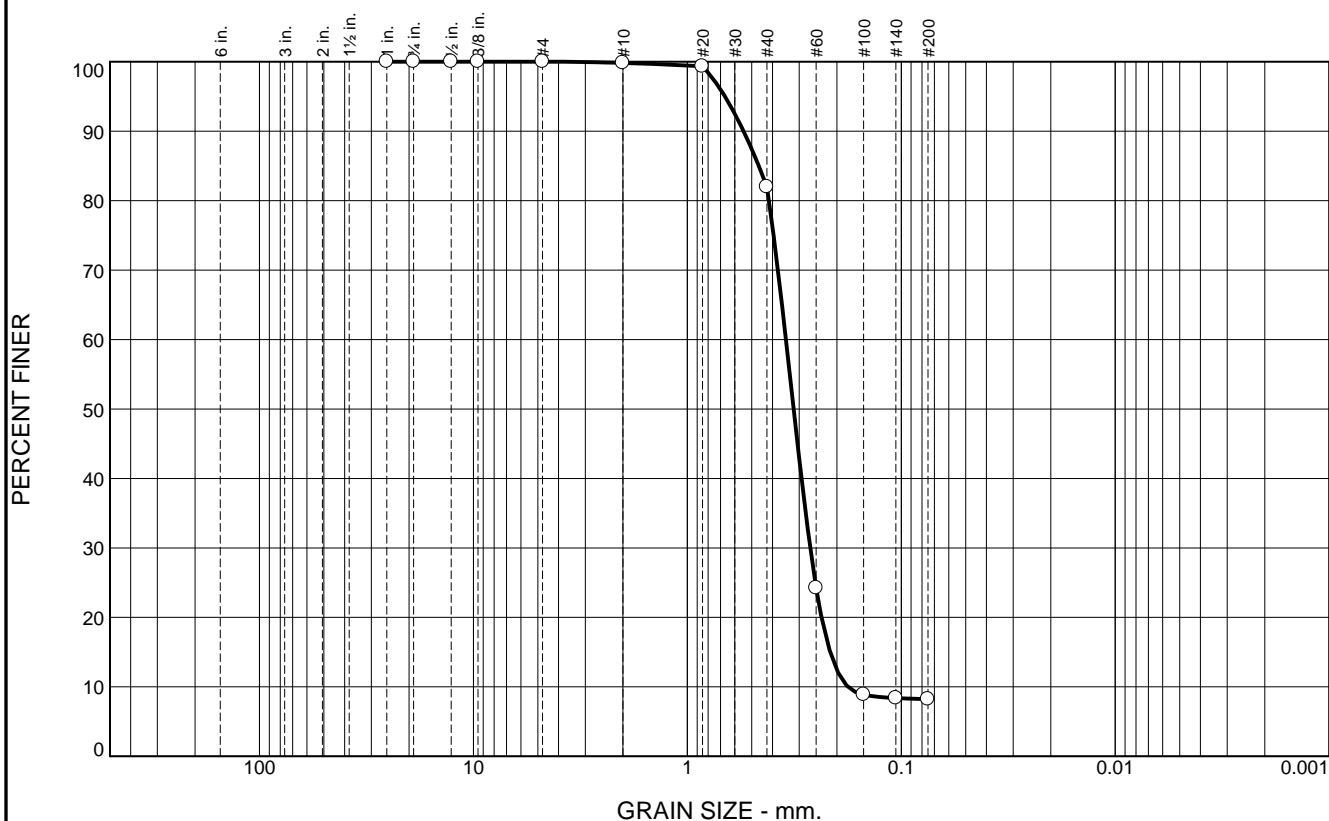
Remarks

* (no specification provided)

Location: BI-PB-179-12 A **Depth:** 0.0' **Date:** 12/26/12
Sample Number: 6494 (68)

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

Particle Size Distribution Report



| % +3" | % Gravel | | % Sand | | | % Fines | |
|-------|----------|------|--------|--------|------|---------|------|
| | Coarse | Fine | Coarse | Medium | Fine | Silt | Clay |
| 0.0 | 0.0 | 0.0 | 0.2 | 17.8 | 73.8 | 8.2 | |

| SIEVE SIZE | PERCENT FINER | SPEC.* PERCENT | PASS? (X=NO) |
|------------|---------------|----------------|--------------|
| 1 | 100.0 | | |
| .75 | 100.0 | | |
| .5 | 100.0 | | |
| .375 | 100.0 | | |
| #4 | 100.0 | | |
| #10 | 99.8 | | |
| #20 | 99.3 | | |
| #40 | 82.0 | | |
| #60 | 24.2 | | |
| #100 | 8.9 | | |
| #140 | 8.4 | | |
| #200 | 8.2 | | |

Material Description
Fine to medium grained, SLIGHTLY SILTY SAND

Atterberg Limits
 PL= LL= PI=

Coefficients
 D₉₀= 0.5461 D₈₅= 0.4639 D₆₀= 0.3461
 D₅₀= 0.3187 D₃₀= 0.2666 D₁₅= 0.2149
 D₁₀= 0.1777 C_u= 1.95 C_c= 1.16

Classification
 USCS= SP-SM AASHTO=

Remarks

* (no specification provided)

Location: BI-PB-179-12 B
Sample Number: 6494 (69)

Depth: 2.2'

Date: 12/26/12

Thompson Engineering

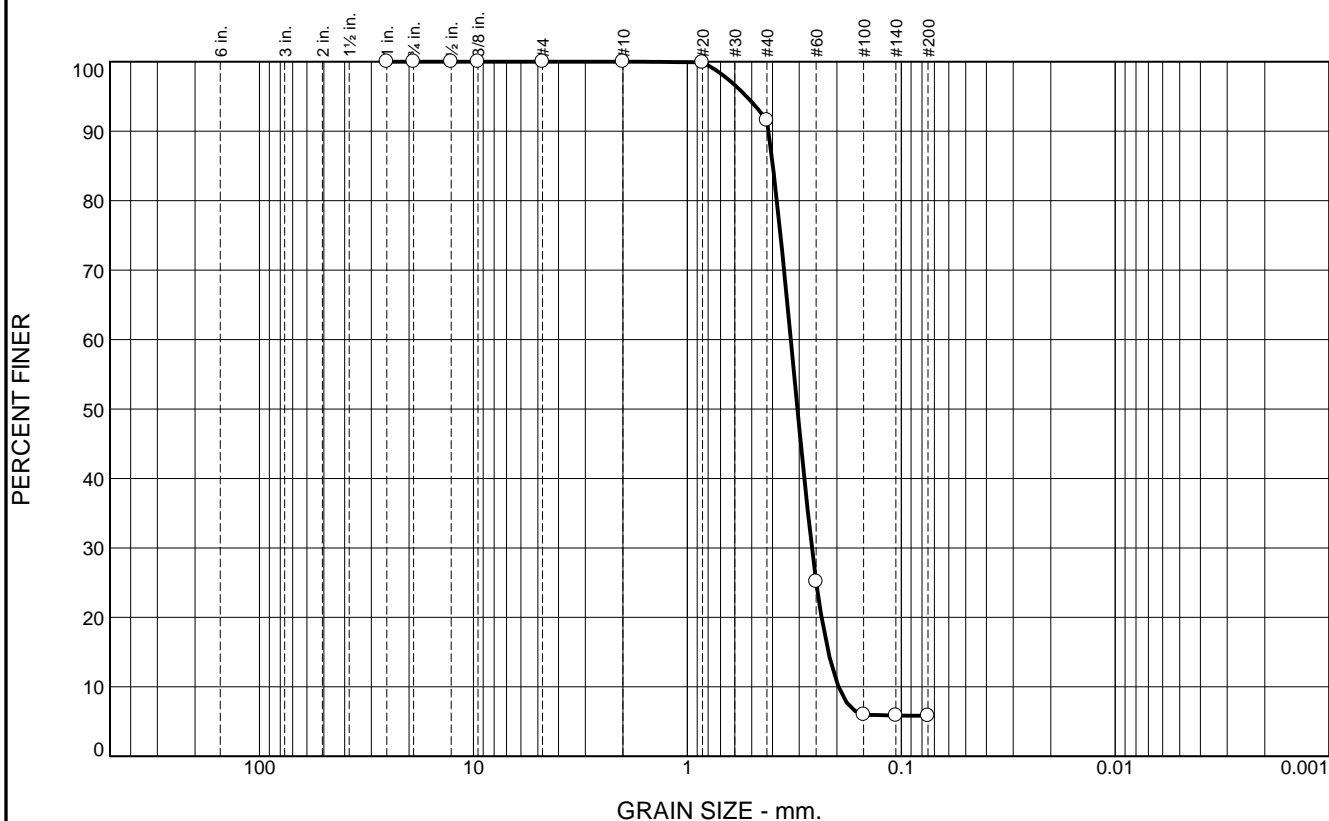
Mobile, Alabama

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

Project No: 1221110095

Figure

Particle Size Distribution Report



| % +3" | % Gravel | | % Sand | | | % Fines | |
|-------|----------|------|--------|--------|------|---------|------|
| | Coarse | Fine | Coarse | Medium | Fine | Silt | Clay |
| 0.0 | 0.0 | 0.0 | 0.0 | 8.4 | 85.8 | 5.8 | |

| SIEVE SIZE | PERCENT FINER | SPEC.* PERCENT | PASS? (X=NO) |
|------------|---------------|----------------|--------------|
| 1 | 100.0 | | |
| .75 | 100.0 | | |
| .5 | 100.0 | | |
| .375 | 100.0 | | |
| #4 | 100.0 | | |
| #10 | 100.0 | | |
| #20 | 99.9 | | |
| #40 | 91.6 | | |
| #60 | 25.1 | | |
| #100 | 6.0 | | |
| #140 | 5.9 | | |
| #200 | 5.8 | | |

Material Description
Fine grained, SLIGHTLY SILTY SAND

Atterberg Limits
 PL= LL= PI=

Coefficients
 D₉₀= 0.4179 D₈₅= 0.3982 D₆₀= 0.3285
 D₅₀= 0.3060 D₃₀= 0.2618 D₁₅= 0.2193
 D₁₀= 0.1964 C_u= 1.67 C_c= 1.06

Classification
 USCS= SP-SM AASHTO=

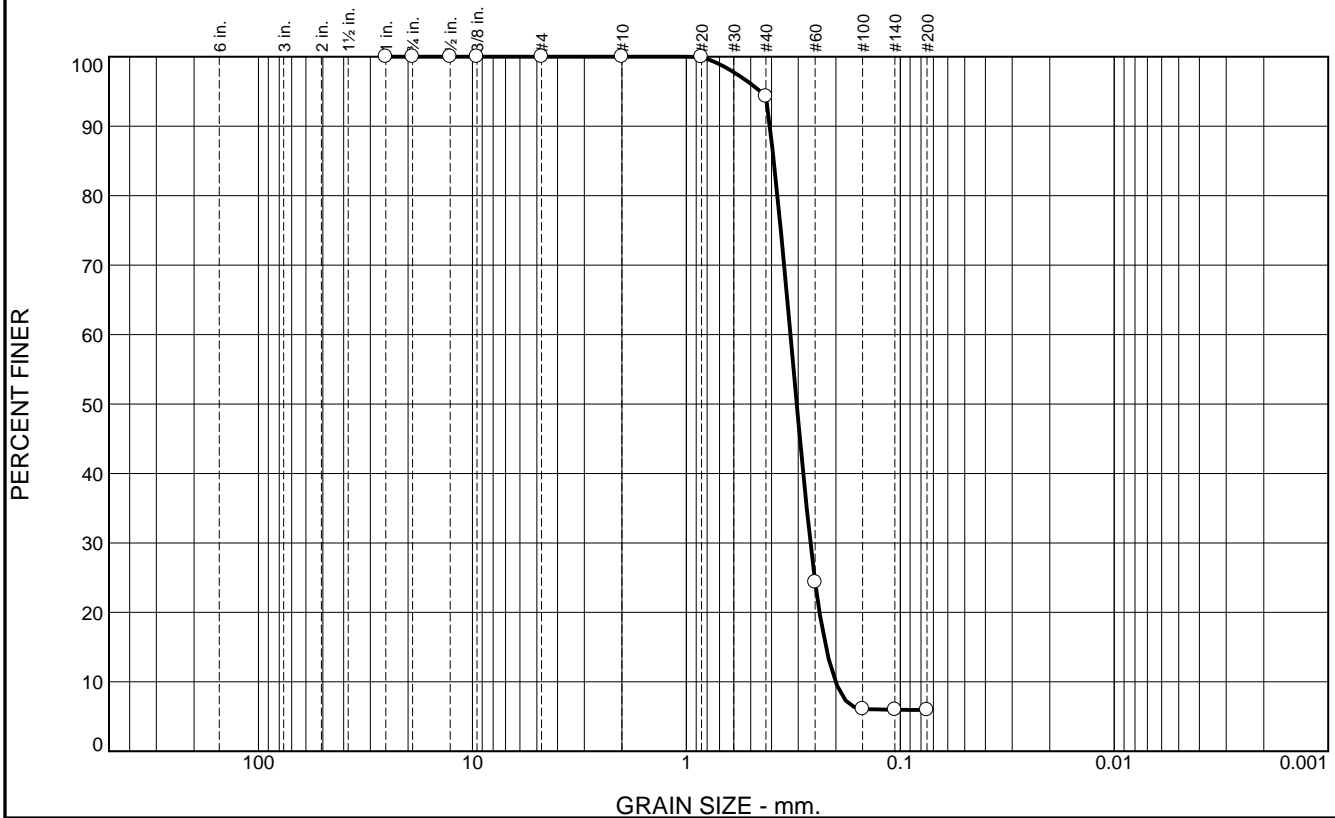
Remarks

* (no specification provided)

Location: BI-PB-179-12 C Depth: 7.2' Date: 12/26/12
 Sample Number: 6494 (70)

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

Particle Size Distribution Report



| % +3" | % Gravel | | % Sand | | | % Fines | |
|-------|----------|------|--------|--------|------|---------|------|
| | Coarse | Fine | Coarse | Medium | Fine | Silt | Clay |
| 0.0 | 0.0 | 0.0 | 0.0 | 5.7 | 88.4 | 5.9 | |

| SIEVE SIZE | PERCENT FINER | SPEC.* PERCENT | PASS? (X=NO) |
|------------|---------------|----------------|--------------|
| 1 | 100.0 | | |
| .75 | 100.0 | | |
| .5 | 100.0 | | |
| .375 | 100.0 | | |
| #4 | 100.0 | | |
| #10 | 100.0 | | |
| #20 | 100.0 | | |
| #40 | 94.3 | | |
| #60 | 24.4 | | |
| #100 | 6.1 | | |
| #140 | 6.0 | | |
| #200 | 5.9 | | |

Material Description

Fine grained, SLIGHTLY SILTY SAND

Atterberg Limits

PL= LL= PI=

Coefficients

D₉₀= 0.4073 D₈₅= 0.3901 D₆₀= 0.3263
D₅₀= 0.3050 D₃₀= 0.2631 D₁₅= 0.2227
D₁₀= 0.2007 C_u= 1.63 C_c= 1.06

Classification

USCS= SP-SM AASHTO=

Remarks

* (no specification provided)

Location: BI-PB-179-12 D
Sample Number: 6494 (71)

Depth: 12.2'

Date: 12/26/12

Thompson Engineering

Mobile, Alabama

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

Project No: 1221110095

Figure

Boring Designation BI-PB-181-12

| | | | | |
|--|--|---|---|--|
| DRILLING LOG | | DIVISION South Atlantic | INSTALLATION Mobile District | SHEET 1 OF 1 SHEETS |
| 1. PROJECT MsCIP Barrier Island Restoration Petit Bois Pass- AL East | | | 9. SIZE AND TYPE OF BIT N/A | |
| 2. BORING DESIGNATION BI-PB-181-12 | | 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 | | <input type="checkbox"/> AUTO HAMMER <input type="checkbox"/> MANUAL HAMMER |
| 4. NAME OF DRILLER American Vibracore Systems, Inc. | | 12. TOTAL SAMPLES | | DISTURBED 0 |
| 5. DIRECTION OF BORING <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED | | LOCATION COORDINATES E = 1,151,693 N = 252,414 | 13. TOTAL NUMBER CORE BOXES | |
| 6. THICKNESS OF OVERBURDEN N/A | | CONTRACTOR FILE NO. | 14. WATER DEPTH 40.7 Ft. | |
| 7. DEPTH DRILLED INTO ROCK N/A | | BEARING | 15. DATE BORING STARTED 12-19-12 COMPLETED 12-19-12 | |
| 8. TOTAL DEPTH OF BORING 15.4 Ft. | | 16. ELEVATION TOP OF BORING -40.3 Ft. | | |
| | | 17. TOTAL RECOVERY FOR BORING 100% | | |
| | | 18. SIGNATURE AND TITLE OF INSPECTOR Mike FitzHarris, Geologist | | |

| ELEV. | DEPTH | LEGEND | CLASSIFICATION OF MATERIALS | SAMPLE | LABORATORY RESULTS |
|-------|-------|--------|--|--------|---|
| -40.3 | 0.0 | | | | |
| | | | SAND, poorly-graded with silt, mostly fine-grained sand-sized quartz, few silt, few alternating bands of soft clay, gray (SP-SM) | A | Classification: SP-SM Color: 5Y 5/2-olive gray D50: 0.3268 mm % Fines: 7.8 |
| -43.8 | 3.5 | | SAND, poorly-graded, mostly fine to medium-grained sand-sized quartz, trace fines, dense, lt. gray to white (SP) | B | Classification: SP Color: 2.5Y 7/1-light gray D50: 0.3526 mm % Fines: 1.2 |
| | | | | C | Classification: SP Color: 5Y 8/1-white D50: 0.3366 mm % Fines: 0.6 |
| | | | | D | Classification: SP Color: 2.5Y 8.5/1- D50: 0.3225 mm % Fines: 0.8 |
| -55.7 | 15.4 | | NOTES: 1. Soils are field visually classified in accordance with the Unified Soils Classification System. 2. NS = Sample not submitted for laboratory analysis from this interval. 3. Seafloor elevation determined from 2010 USACE survey. | | |

Project

Mississippi Barrier Island
Restoration Project



Core Identifier BI-PB-181-12

Date 12/19/2012

Water Depth 40.7'

Coordinate System

Latitude / Longitude

Start Time 10:22:41

End Time 10:29:22

Penetration 14.1'

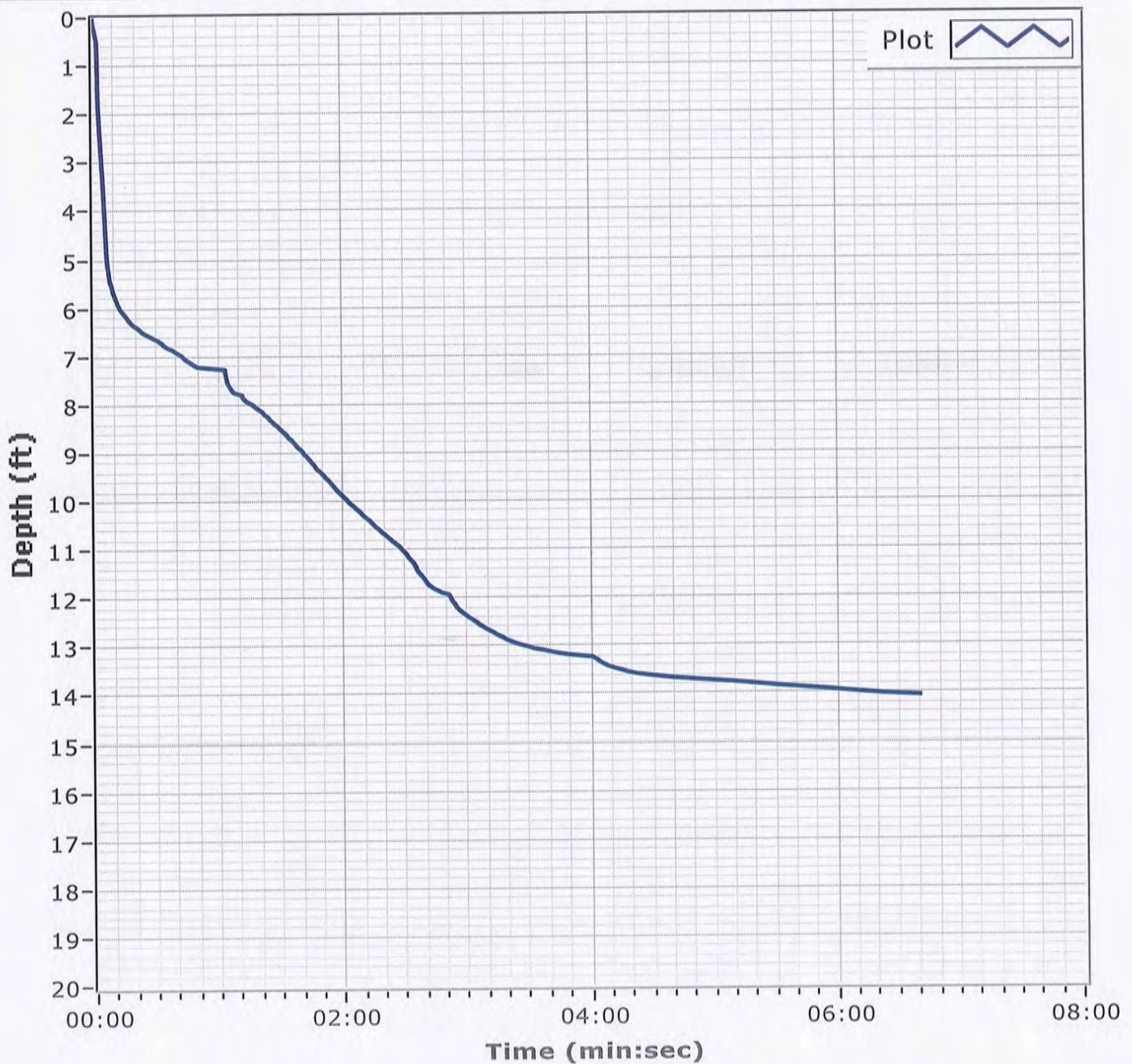
Latitude 30 11.581

Total Time 00:06:41

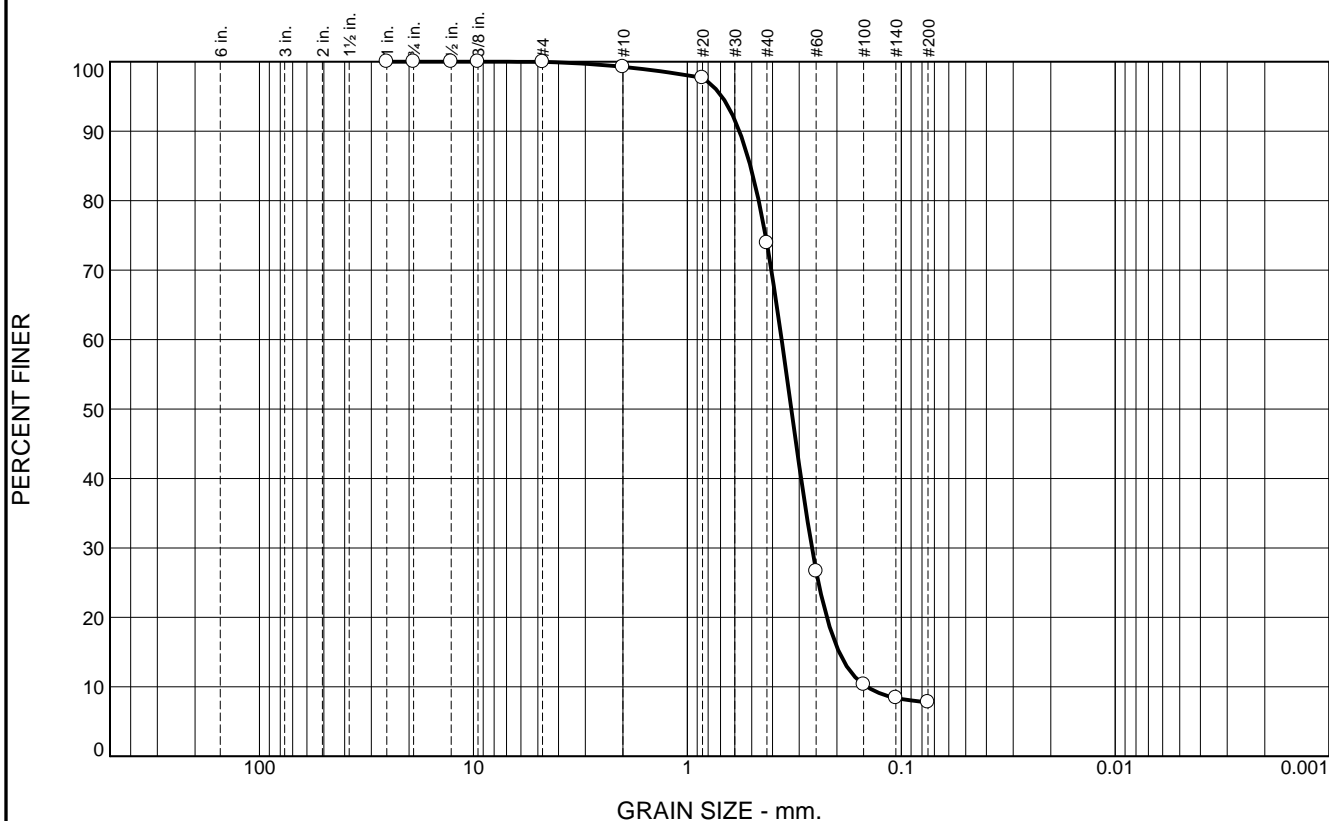
Recovery 15.3'

Longitude 88 18.200

Comments



Particle Size Distribution Report



| % +3" | % Gravel | | % Sand | | | % Fines | |
|-------|----------|------|--------|--------|------|---------|------|
| | Coarse | Fine | Coarse | Medium | Fine | Silt | Clay |
| 0.0 | 0.0 | 0.0 | 0.7 | 25.4 | 66.1 | 7.8 | |

| SIEVE SIZE | PERCENT FINER | SPEC.* PERCENT | PASS? (X=NO) |
|------------|---------------|----------------|--------------|
| 1 | 100.0 | | |
| .75 | 100.0 | | |
| .5 | 100.0 | | |
| .375 | 100.0 | | |
| #4 | 100.0 | | |
| #10 | 99.3 | | |
| #20 | 97.7 | | |
| #40 | 73.9 | | |
| #60 | 26.7 | | |
| #100 | 10.3 | | |
| #140 | 8.4 | | |
| #200 | 7.8 | | |

Material Description

Fine to medium grained, SLIGHTLY SILTY SAND

Atterberg Limits

PL= LL= PI=

Coefficients

D₉₀= 0.5710 D₈₅= 0.5074 D₆₀= 0.3624
D₅₀= 0.3268 D₃₀= 0.2617 D₁₅= 0.1954
D₁₀= 0.1444 C_u= 2.51 C_c= 1.31

Classification

USCS= SP-SM AASHTO=

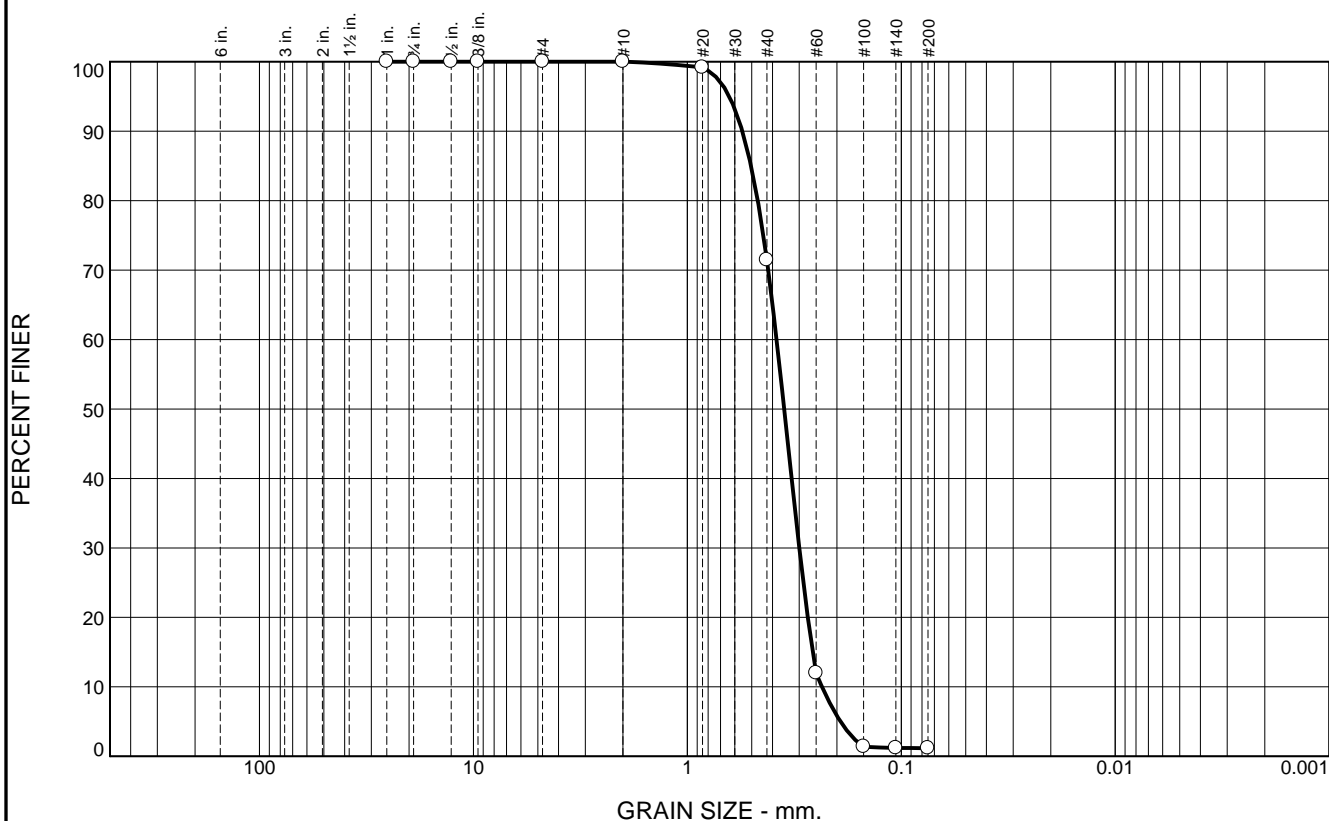
Remarks

* (no specification provided)

Location: BI-PB-181-12 A Depth: 0.0' Date: 12/26/12
Sample Number: 6494 (72)

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

Particle Size Distribution Report



| % +3" | % Gravel | | % Sand | | | % Fines | |
|-------|----------|------|--------|--------|------|---------|------|
| | Coarse | Fine | Coarse | Medium | Fine | Silt | Clay |
| 0.0 | 0.0 | 0.0 | 0.0 | 28.5 | 70.3 | 1.2 | |

| SIEVE SIZE | PERCENT FINER | SPEC.* PERCENT | PASS? (X=NO) |
|------------|---------------|----------------|--------------|
| 1 | 100.0 | | |
| .75 | 100.0 | | |
| .5 | 100.0 | | |
| .375 | 100.0 | | |
| #4 | 100.0 | | |
| #10 | 100.0 | | |
| #20 | 99.2 | | |
| #40 | 71.5 | | |
| #60 | 12.0 | | |
| #100 | 1.4 | | |
| #140 | 1.2 | | |
| #200 | 1.2 | | |

Material Description
Fine to medium grained, SAND

Atterberg Limits
 PL= LL= PI=

Coefficients
 D₉₀= 0.5533 D₈₅= 0.5040 D₆₀= 0.3827
 D₅₀= 0.3526 D₃₀= 0.2999 D₁₅= 0.2596
 D₁₀= 0.2347 C_u= 1.63 C_c= 1.00

Classification
 USCS= SP AASHTO=

Remarks

* (no specification provided)

Location: BI-PB-181-12 B
Sample Number: 6494 (73)

Depth: 3.5'

Date: 12/26/12

Thompson Engineering

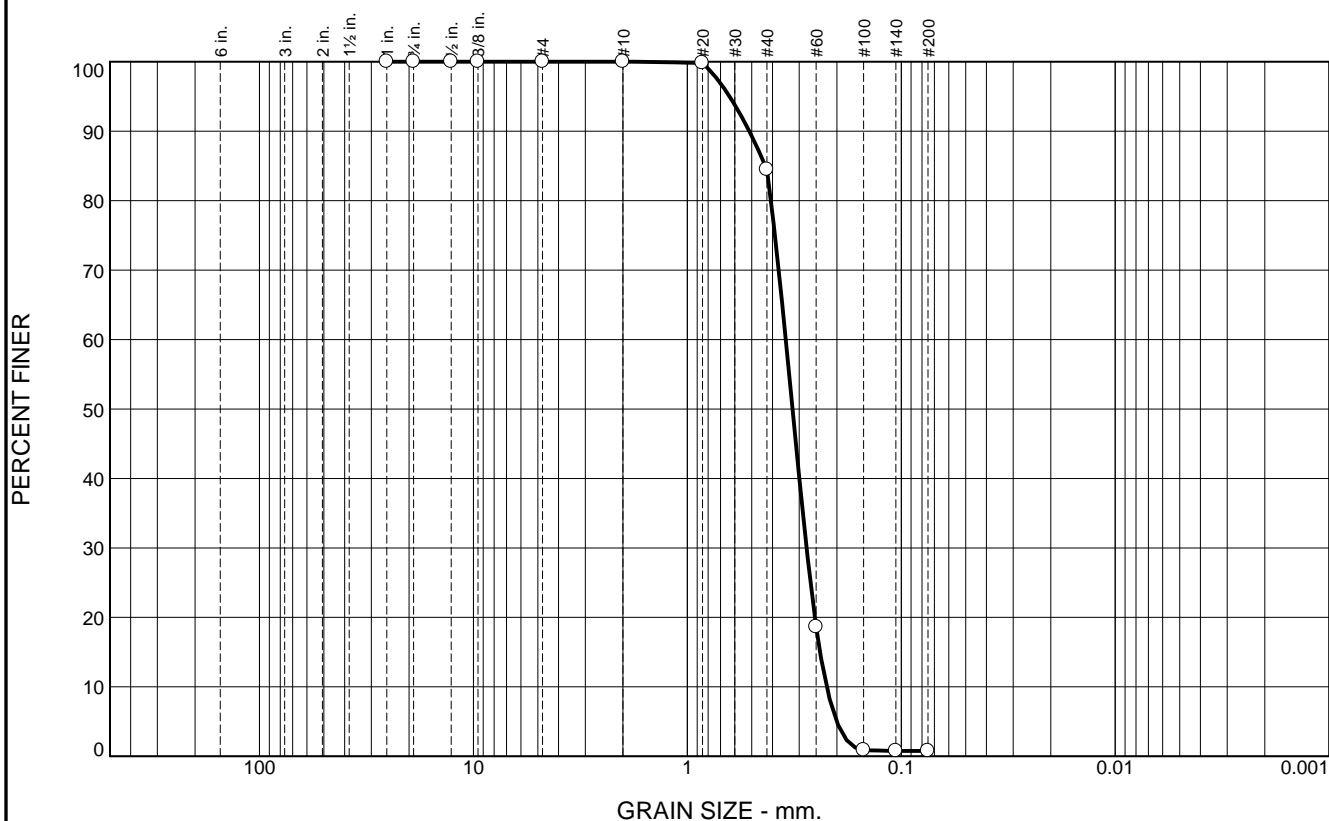
Mobile, Alabama

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

Project No: 1221110095

Figure

Particle Size Distribution Report



| % +3" | % Gravel | | % Sand | | | % Fines | |
|-------|----------|------|--------|--------|------|---------|------|
| | Coarse | Fine | Coarse | Medium | Fine | Silt | Clay |
| 0.0 | 0.0 | 0.0 | 0.0 | 15.5 | 83.7 | 0.8 | |

| SIEVE SIZE | PERCENT FINER | SPEC.* PERCENT | PASS? (X=NO) |
|------------|---------------|----------------|--------------|
| 1 | 100.0 | | |
| .75 | 100.0 | | |
| .5 | 100.0 | | |
| .375 | 100.0 | | |
| #4 | 100.0 | | |
| #10 | 100.0 | | |
| #20 | 99.8 | | |
| #40 | 84.5 | | |
| #60 | 18.6 | | |
| #100 | 0.9 | | |
| #140 | 0.8 | | |
| #200 | 0.8 | | |

Material Description

Fine to medium grained, SAND

Atterberg Limits

PL= LL= PI=

Coefficients

D₉₀= 0.5135 D₈₅= 0.4323 D₆₀= 0.3467
D₅₀= 0.3225 D₃₀= 0.2774 D₁₅= 0.2398
D₁₀= 0.2232 C_u= 1.55 C_c= 0.99

Classification

USCS= SP AASHTO=

Remarks

* (no specification provided)

Location: BI-PB-181-12 D
Sample Number: 6494 (75)

Depth: 10.4'

Date: 12/26/12

Thompson Engineering

Mobile, Alabama

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

Project No: 1221110095

Figure

Boring Designation BI-PB-182-12

| | | | | |
|--|--|---|--|--|
| DRILLING LOG | | DIVISION South Atlantic | INSTALLATION Mobile District | SHEET 1 OF 1 SHEETS |
| 1. PROJECT MsCIP Barrier Island Restoration Petit Bois Pass- AL East | | | 9. SIZE AND TYPE OF BIT N/A | |
| 2. BORING DESIGNATION BI-PB-182-12 | | 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 | | <input type="checkbox"/> AUTO HAMMER <input type="checkbox"/> MANUAL HAMMER |
| 4. NAME OF DRILLER American Vibracore Systems, Inc. | | 12. TOTAL SAMPLES | | DISTURBED 0 |
| 5. DIRECTION OF BORING <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED | | 13. TOTAL NUMBER CORE BOXES | | UNDISTURBED (UD) 0 |
| 6. THICKNESS OF OVERBURDEN N/A | | 14. WATER DEPTH 38.4 Ft. | | |
| 7. DEPTH DRILLED INTO ROCK N/A | | 15. DATE BORING | | STARTED 12-12-12 COMPLETED 12-12-12 |
| 8. TOTAL DEPTH OF BORING 12.0 Ft. | | 16. ELEVATION TOP OF BORING -38.8 Ft. | | |
| | | 17. TOTAL RECOVERY FOR BORING 100% | | |
| | | 18. SIGNATURE AND TITLE OF INSPECTOR Mike FitzHarris, Geologist | | |

| ELEV. | DEPTH | LEGEND | CLASSIFICATION OF MATERIALS | SAMPLE | LABORATORY RESULTS |
|---|-------|--------|---|--------|--|
| -38.8 | 0.0 | | | | |
| -40.8 | 2.0 | ••••• | SAND, poorly-graded, mostly fine to medium-grained sand-sized quartz, trace fines, gray (SP) | A | Classification: SP Color: 5Y 6/3-pale olive D50: 0.3259 mm % Fines: 1.2 |
| -42.6 | 3.8 | // | CLAY, lean, mostly clay, some silt, low to medium plasticity, some fine grain layers between 3.1 to 3.6 ft., dark gray (CL) | NS | |
| -43.8 | 5.0 | ••••• | SAND, poorly-graded, mostly fine-grained sand-sized quartz, trace fines, dense, clay lens at 4.5 ft., lt. gray (SP) | B | Classification: SP-SM Color: 5Y 6/1-gray D50: 0.2826 mm % Fines: 6.9 |
| -45.8 | 7.0 | // | CLAY, lean, mostly clay, some fine-grained, sand-sized quartz layers, lt. brown (CL) | NS | |
| -50.8 | 12.0 | ••••• | SAND, poorly-graded, mostly fine-grained sand-sized quartz, trace fines, thin clay bands between 8.7 to 10.3 ft., clay band at 11.6 ft., lt. gray to white (SP) | C | Classification: SP Color: 5Y 7/1-light gray D50: 0.2569 mm % Fines: 2.7 |
| <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 determined from 2010 USACE survey.</p> | | | | | |

Project

Mississippi Barrier Island
Restoration Project



Core Identifier BI-PB-182-12

Date 12/12/2012

Water Depth 38.4'

Coordinate System

Latitude / Longitude

Start Time 15:48:36

End Time 15:55:30

Penetration 15.1'

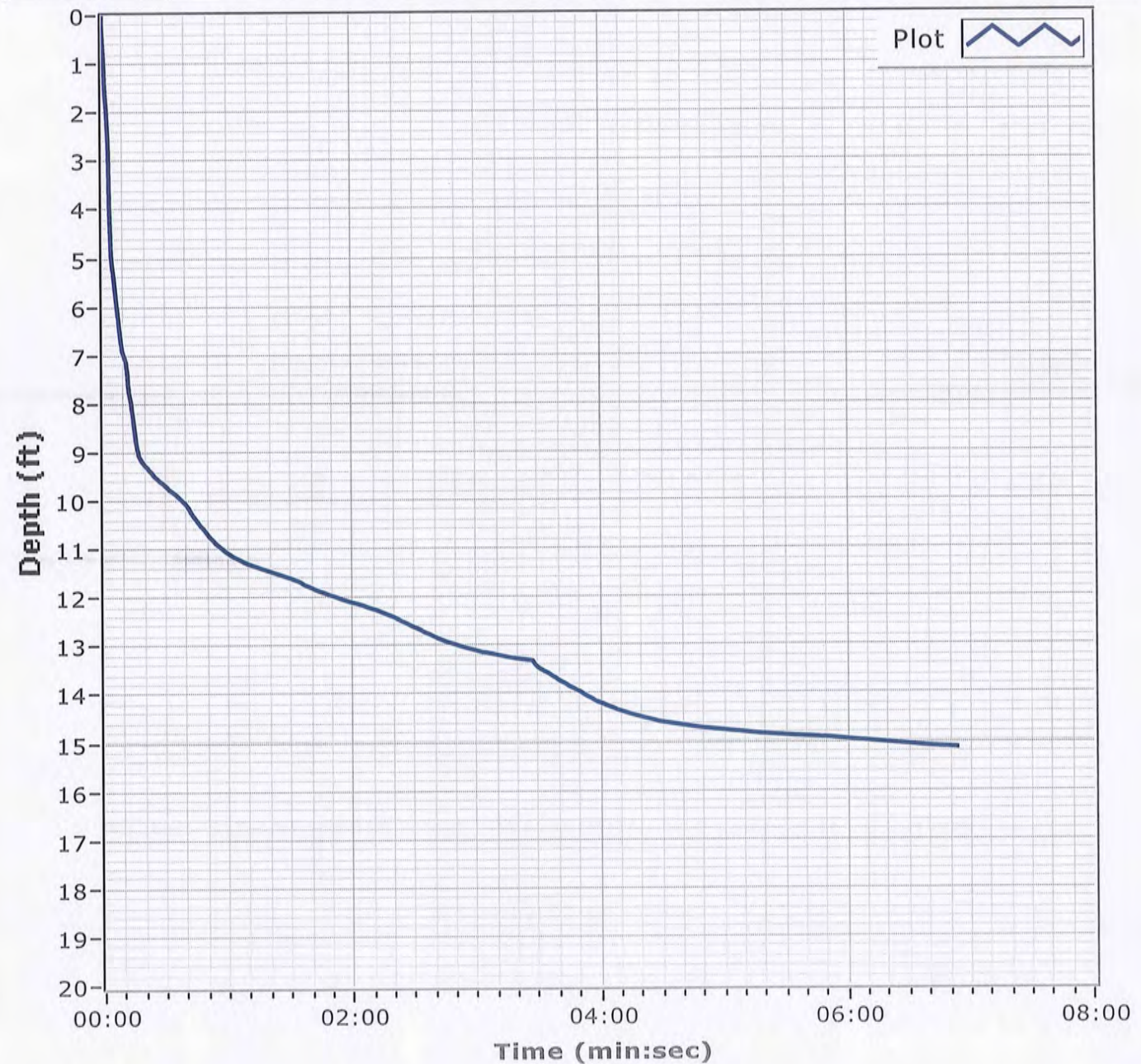
Latitude 30 11.561

Total Time 00:06:54

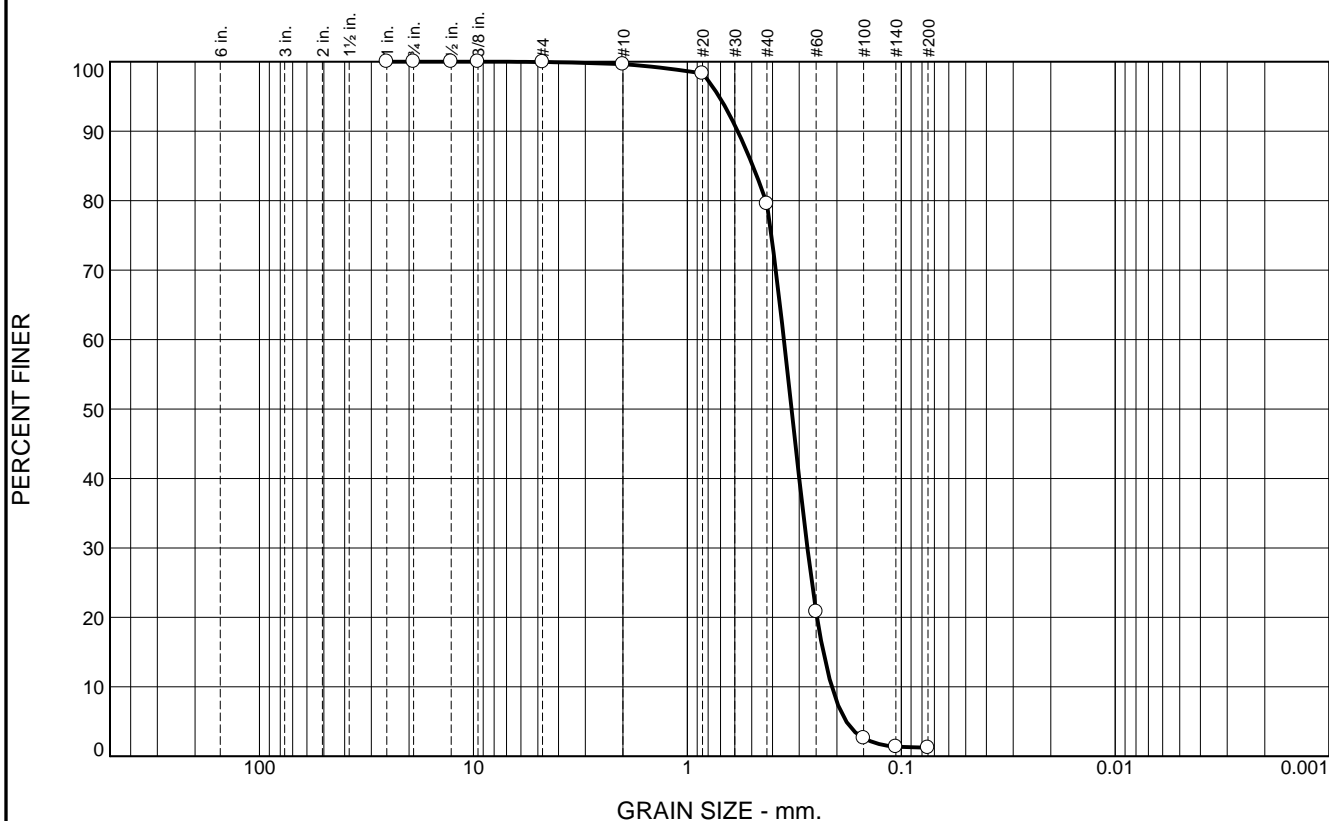
Recovery 12.1'

Longitude 088 18.371

Comments



Particle Size Distribution Report



| % +3" | % Gravel | | % Sand | | | % Fines | |
|-------|----------|------|--------|--------|------|---------|------|
| | Coarse | Fine | Coarse | Medium | Fine | Silt | Clay |
| 0.0 | 0.0 | 0.0 | 0.4 | 20.0 | 78.4 | 1.2 | |

| SIEVE SIZE | PERCENT FINER | SPEC.* PERCENT | PASS? (X=NO) |
|------------|---------------|----------------|--------------|
| 1 | 100.0 | | |
| .75 | 100.0 | | |
| .5 | 100.0 | | |
| .375 | 100.0 | | |
| #4 | 100.0 | | |
| #10 | 99.6 | | |
| #20 | 98.3 | | |
| #40 | 79.6 | | |
| #60 | 20.8 | | |
| #100 | 2.6 | | |
| #140 | 1.4 | | |
| #200 | 1.2 | | |

Material Description
Fine to medium grained, SAND

Atterberg Limits
 PL= LL= PI=

Coefficients
 D₉₀= 0.5816 D₈₅= 0.4944 D₆₀= 0.3538
 D₅₀= 0.3259 D₃₀= 0.2749 D₁₅= 0.2314
 D₁₀= 0.2113 C_u= 1.67 C_c= 1.01

Classification
 USCS= SP AASHTO=

Remarks

* (no specification provided)

Location: BI-PB-182-12 A Depth: 0.0' Date: 12/07/12
 Sample Number: 6485 (14)

Thompson Engineering

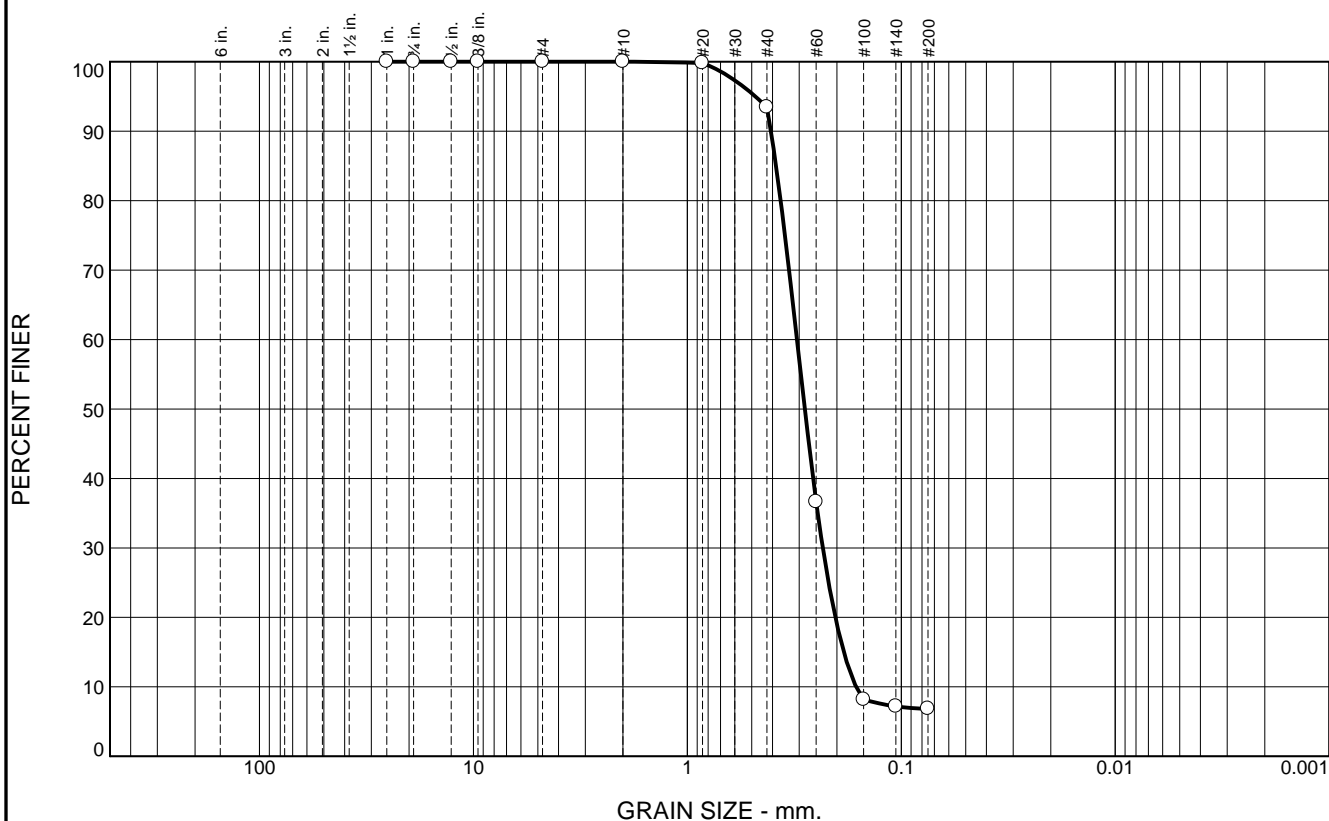
Mobile, Alabama

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

Project No: 1221110095

Figure

Particle Size Distribution Report



| % +3" | % Gravel | | % Sand | | | % Fines | |
|-------|----------|------|--------|--------|------|---------|------|
| | Coarse | Fine | Coarse | Medium | Fine | Silt | Clay |
| 0.0 | 0.0 | 0.0 | 0.0 | 6.6 | 86.5 | 6.9 | |

| SIEVE SIZE | PERCENT FINER | SPEC.* PERCENT | PASS? (X=NO) |
|------------|---------------|----------------|--------------|
| 1 | 100.0 | | |
| .75 | 100.0 | | |
| .5 | 100.0 | | |
| .375 | 100.0 | | |
| #4 | 100.0 | | |
| #10 | 100.0 | | |
| #20 | 99.8 | | |
| #40 | 93.4 | | |
| #60 | 36.6 | | |
| #100 | 8.2 | | |
| #140 | 7.2 | | |
| #200 | 6.9 | | |

Material Description
Fine grained, SLIGHTLY SILTY SAND

Atterberg Limits
 PL= LL= PI=

Coefficients
 D₉₀= 0.4066 D₈₅= 0.3847 D₆₀= 0.3076
 D₅₀= 0.2826 D₃₀= 0.2327 D₁₅= 0.1858
 D₁₀= 0.1628 C_u= 1.89 C_c= 1.08

Classification
 USCS= SP-SM AASHTO=

Remarks

* (no specification provided)

Location: BI-PB-182-12 B Depth: 3.8' Date: 12/07/12
 Sample Number: 6485 (15)

Thompson Engineering

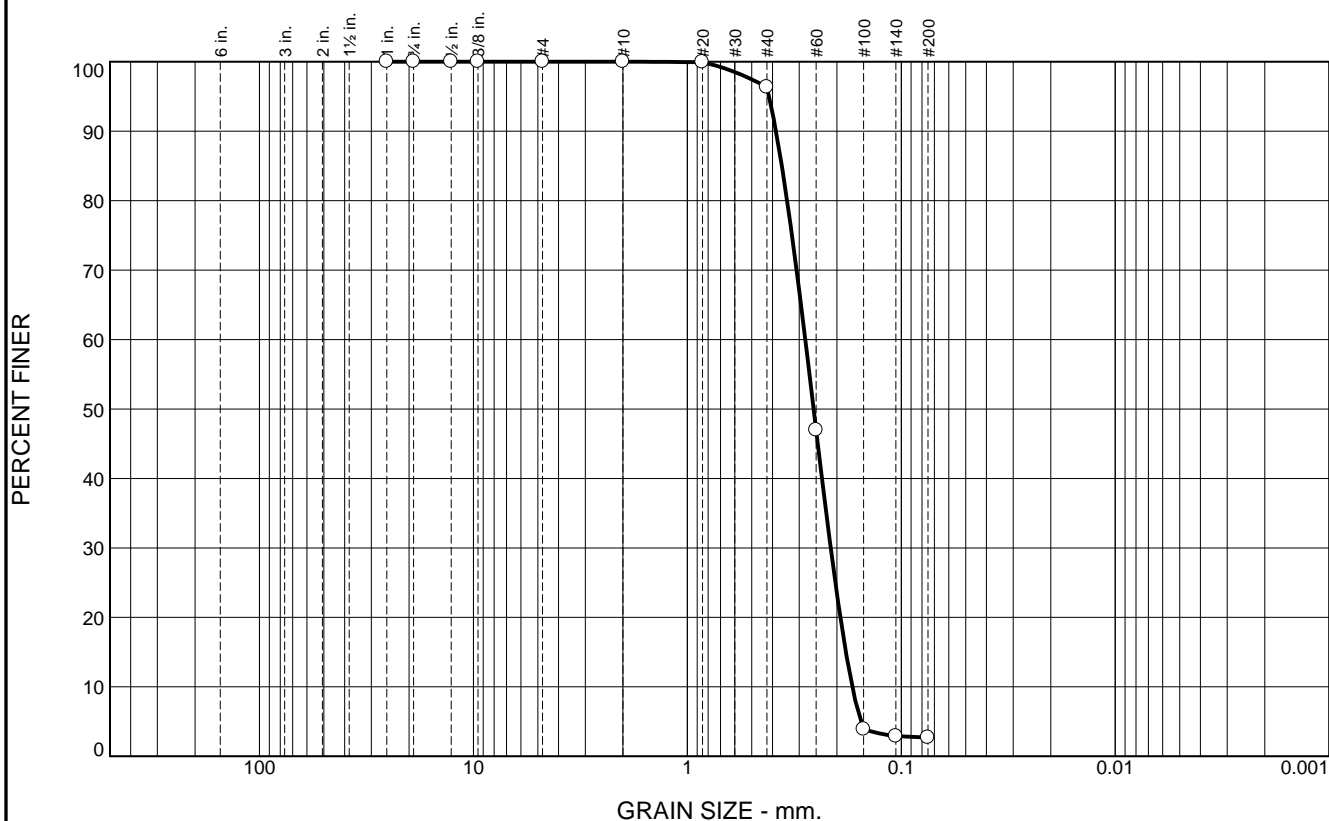
Mobile, Alabama

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

Project No: 1221110095

Figure

Particle Size Distribution Report



| % +3" | % Gravel | | % Sand | | | % Fines | |
|-------|----------|------|--------|--------|------|---------|------|
| | Coarse | Fine | Coarse | Medium | Fine | Silt | Clay |
| 0.0 | 0.0 | 0.0 | 0.0 | 3.7 | 93.6 | 2.7 | |

| SIEVE SIZE | PERCENT FINER | SPEC.* PERCENT | PASS? (X=NO) |
|------------|---------------|----------------|--------------|
| 1 | 100.0 | | |
| .75 | 100.0 | | |
| .5 | 100.0 | | |
| .375 | 100.0 | | |
| #4 | 100.0 | | |
| #10 | 100.0 | | |
| #20 | 99.9 | | |
| #40 | 96.3 | | |
| #60 | 46.9 | | |
| #100 | 3.9 | | |
| #140 | 2.9 | | |
| #200 | 2.7 | | |

Material Description

Fine grained, SAND

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

Coefficients

D₉₀= 0.3850 D₈₅= 0.3615 D₆₀= 0.2812
D₅₀= 0.2569 D₃₀= 0.2138 D₁₅= 0.1817
D₁₀= 0.1696 C_u= 1.66 C_c= 0.96

USCS= SP **Classification** AASHTO=

Remarks

* (no specification provided)

Location: BI-PB-182-12 C
Sample Number: 6485 (16)

Depth: 7.0'

Date: 12/07/12

Thompson Engineering

Mobile, Alabama

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

Project No: 1221110095

Figure

Boring Designation BI-PB-183-12

| | | | | |
|--|--|---|--|--|
| DRILLING LOG | | DIVISION South Atlantic | INSTALLATION Mobile District | SHEET 1 OF 1 SHEETS |
| 1. PROJECT MsCIP Barrier Island Restoration Petit Bois Pass- AL East | | | 9. SIZE AND TYPE OF BIT N/A | |
| 2. BORING DESIGNATION BI-PB-183-12 | | LOCATION COORDINATES E = 1,142,874 N = 255,433 | | 10. COORDINATE SYSTEM/DATUM State Plane, MSE (U.S. Ft.) |
| 3. DRILLING AGENCY Corps of Engineers - CESAM | | CONTRACTOR FILE NO. | | HORIZONTAL NAD83 |
| 4. NAME OF DRILLER American Vibracore Systems, Inc. | | 11. MANUFACTURER'S DESIGNATION OF DRILL Vibracore | | <input type="checkbox"/> AUTO HAMMER <input type="checkbox"/> MANUAL HAMMER |
| 5. DIRECTION OF BORING <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED | | DEG. FROM VERTICAL | BEARING | 12. TOTAL SAMPLES |
| 6. THICKNESS OF OVERBURDEN N/A | | 13. TOTAL NUMBER CORE BOXES | | DISTURBED |
| 7. DEPTH DRILLED INTO ROCK N/A | | 14. WATER DEPTH 27 Ft. | | UNDISTURBED (UD) 0 |
| 8. TOTAL DEPTH OF BORING 12.6 Ft. | | 15. DATE BORING | | STARTED 12-07-12 |
| | | 16. ELEVATION TOP OF BORING -26.4 Ft. | | COMPLETED 12-07-12 |
| | | 17. TOTAL RECOVERY FOR BORING 100% | | 18. SIGNATURE AND TITLE OF INSPECTOR Mike FitzHarris, Geologist |

| ELEV. | DEPTH | LEGEND | CLASSIFICATION OF MATERIALS | SAMPLE | LABORATORY RESULTS |
|-------|-------|--------|---|--------|--|
| -26.4 | 0.0 | | | | |
| -28.6 | 2.2 | | SAND, poorly-graded, mostly fine to medium-grained sand-sized quartz, trace silt, trace shell fragments, lt. gray (SP) | A | Classification: SP Color: 5Y 7/2-light gray D50: 0.3904 mm % Fines: 1.3 |
| -33.6 | 7.2 | | SAND, poorly-graded, mostly fine-grained sand-sized quartz, trace shell fragments, trace clay streaks at 1.4 ft., lt. gray (SP) | B | Classification: SP Color: 5Y 7/2-light gray D50: 0.2611 mm % Fines: 2 |
| -38.6 | 12.2 | | SAND, poorly-graded, mostly fine-grained sand-sized quartz, lt. gray (SP) | C | Classification: SP Color: 2.5Y 8/1-white D50: 0.3022 mm % Fines: 1.2 |
| -39.0 | 12.6 | | SAND, poorly-graded, mostly fine to medium-grained sand-sized quartz, trace silt, trace shell fragments, trace clayey nodules, lt. gray (SP) | NS | |
| | | | NOTES: 1. Soils are field visually classified in accordance with the Unified Soils Classification System. 2. NS = Sample not submitted for laboratory analysis from this interval. 3. Seafloor elevation calculated using sampling vessel's fathometer water depth reading and applying NOAA tidal gauge data conversion factor. | | |

Project

Mississippi Barrier Island
Restoration Project



Core Identifier BI-PB-183-12

Date 12/07/2012

Water Depth 27.0'

Coordinate System

Start Time 11:43:49

Latitude / Longitude

End Time 11:50:21

Penetration 14.1'

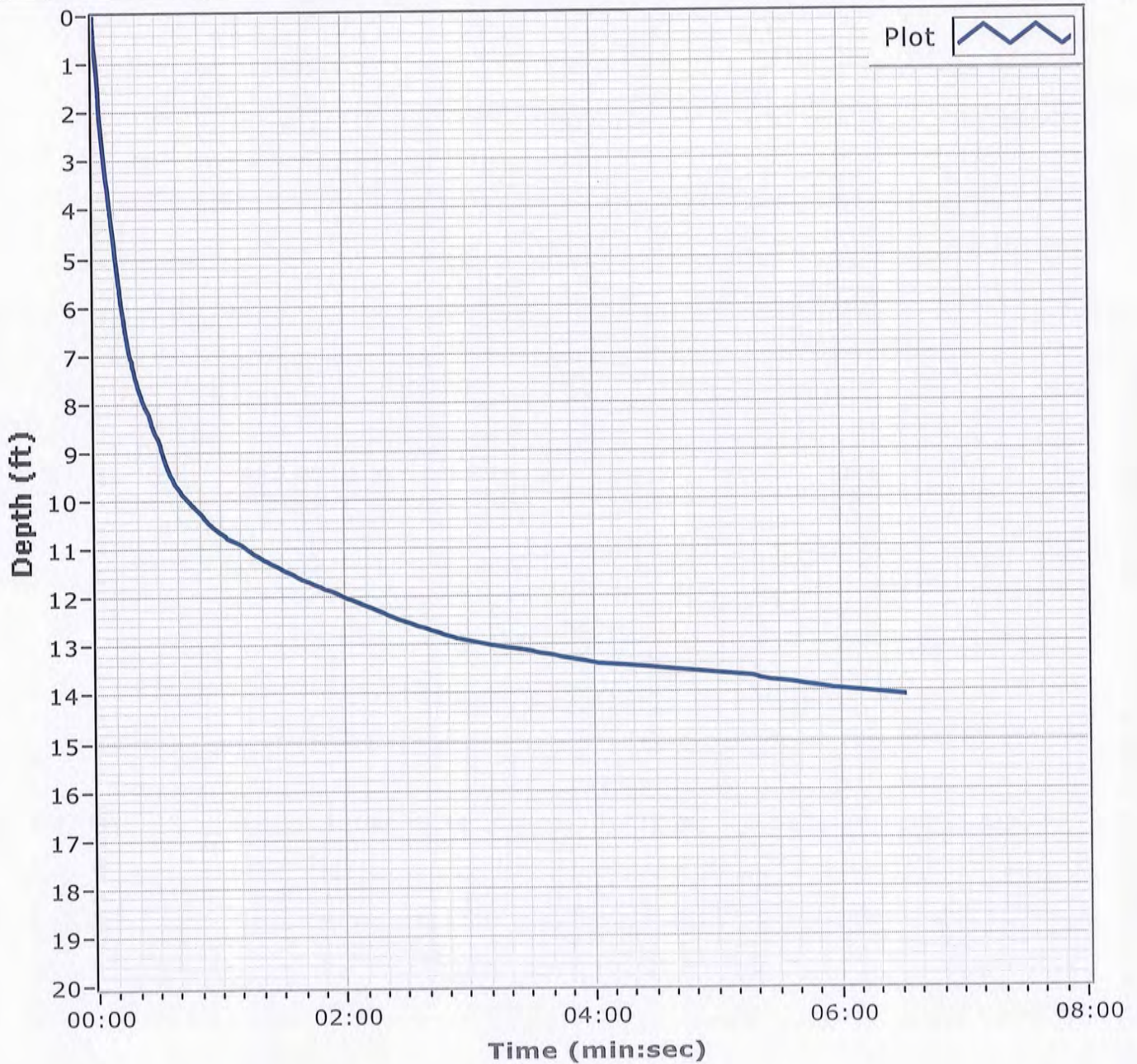
Latitude 30 12.086

Total Time 00:06:32

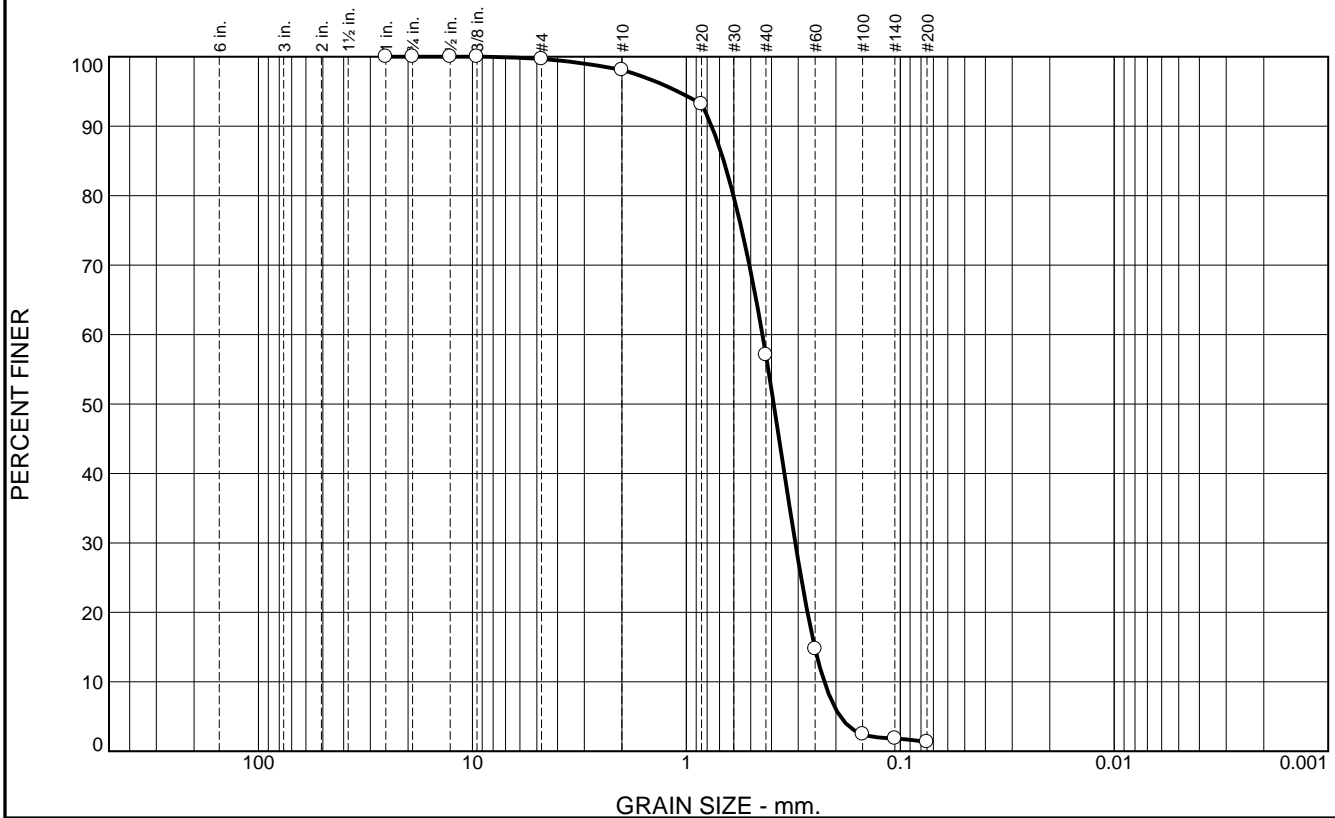
Recovery 12.6

Longitude 088 19.872

Comments



Particle Size Distribution Report



| % +3" | % Gravel | | % Sand | | | % Fines | |
|-------|----------|------|--------|--------|------|---------|------|
| | Coarse | Fine | Coarse | Medium | Fine | Silt | Clay |
| 0.0 | 0.0 | 0.3 | 1.6 | 41.0 | 55.8 | 1.3 | |

| SIEVE SIZE | PERCENT FINER | SPEC.* PERCENT | PASS? (X=NO) |
|------------|---------------|----------------|--------------|
| 1 | 100.0 | | |
| .75 | 100.0 | | |
| .5 | 100.0 | | |
| .375 | 100.0 | | |
| #4 | 99.7 | | |
| #10 | 98.1 | | |
| #20 | 93.2 | | |
| #40 | 57.1 | | |
| #60 | 14.7 | | |
| #100 | 2.5 | | |
| #140 | 1.9 | | |
| #200 | 1.3 | | |

Material Description

Fine to medium grained, SAND

Atterberg Limits

PL= LL= PI=

Coefficients

D₉₀= 0.7622 D₈₅= 0.6689 D₆₀= 0.4411

D₅₀= 0.3904 D₃₀= 0.3097 D₁₅= 0.2512

D₁₀= 0.2265 C_u= 1.95 C_c= 0.96

Classification

USCS= SP AASHTO=

Remarks

* (no specification provided)

Location: BI-PB-183-12 A
Sample Number: 6482 (2)

Depth: 0.0'

Date: 12/12/12

Thompson Engineering

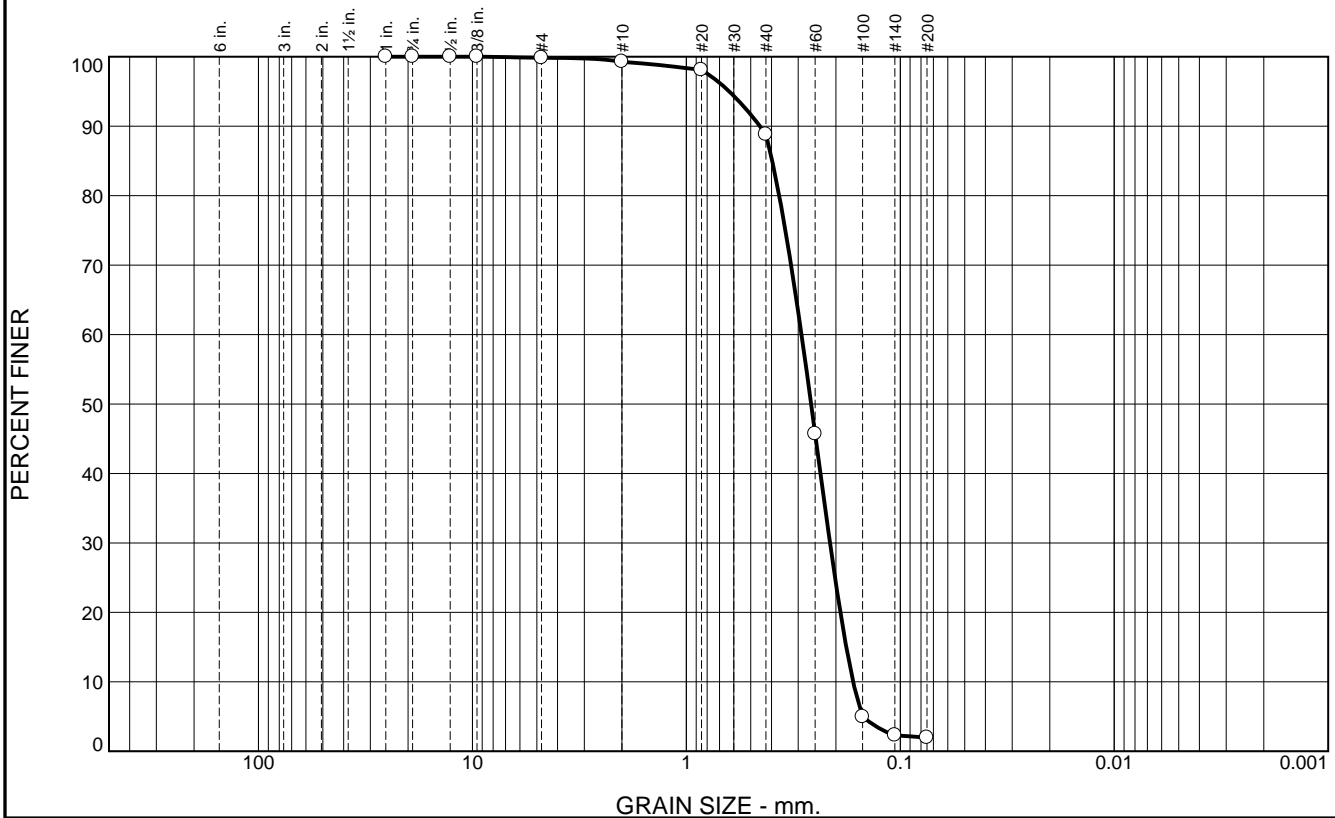
Mobile, Alabama

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

Project No: 1221110095

Figure

Particle Size Distribution Report



| % +3" | % Gravel | | % Sand | | | % Fines | |
|-------|----------|------|--------|--------|------|---------|------|
| | Coarse | Fine | Coarse | Medium | Fine | Silt | Clay |
| 0.0 | 0.0 | 0.2 | 0.5 | 10.5 | 86.8 | 2.0 | |

| SIEVE SIZE | PERCENT FINER | SPEC.* PERCENT | PASS? (X=NO) |
|------------|---------------|----------------|--------------|
| 1 | 100.0 | | |
| .75 | 100.0 | | |
| .5 | 100.0 | | |
| .375 | 100.0 | | |
| #4 | 99.8 | | |
| #10 | 99.3 | | |
| #20 | 98.1 | | |
| #40 | 88.8 | | |
| #60 | 45.7 | | |
| #100 | 5.0 | | |
| #140 | 2.3 | | |
| #200 | 2.0 | | |

Material Description

Fine to medium grained, SAND

Atterberg Limits

PL= LL= PI=

Coefficients

D₉₀= 0.4535 D₈₅= 0.3968 D₆₀= 0.2898

D₅₀= 0.2611 D₃₀= 0.2131 D₁₅= 0.1790

D₁₀= 0.1663 C_u= 1.74 C_c= 0.94

Classification

USCS= SP AASHTO=

Remarks

* (no specification provided)

Location: BI-PB-183-12 B
Sample Number: 6482 (3)

Depth: 2.2'

Date: 12/12/12

Thompson Engineering

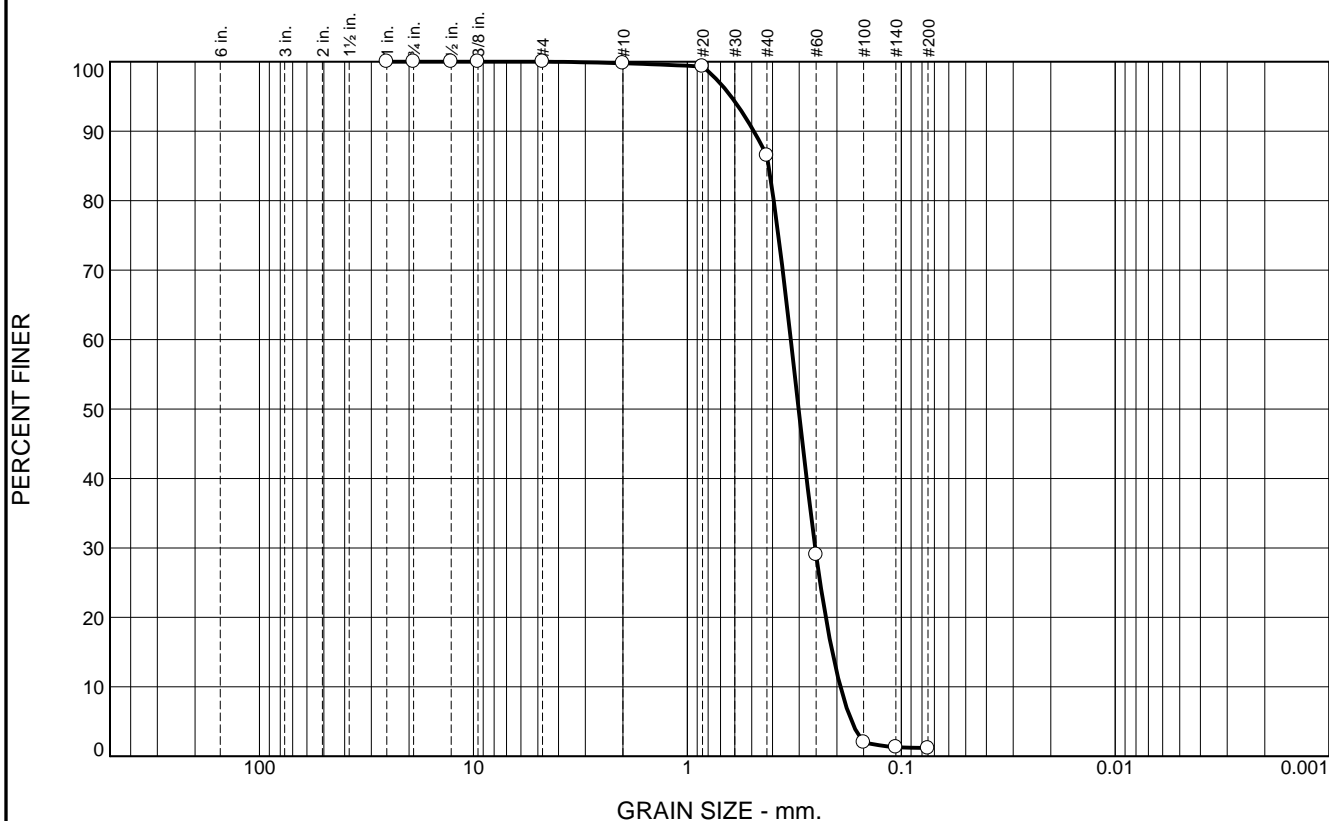
Mobile, Alabama

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

Project No: 1221110095

Figure

Particle Size Distribution Report



| % +3" | % Gravel | | % Sand | | | % Fines | |
|-------|----------|------|--------|--------|------|---------|------|
| | Coarse | Fine | Coarse | Medium | Fine | Silt | Clay |
| 0.0 | 0.0 | 0.0 | 0.2 | 13.3 | 85.3 | 1.2 | |

| SIEVE SIZE | PERCENT FINER | SPEC.* PERCENT | PASS? (X=NO) |
|------------|---------------|----------------|--------------|
| 1 | 100.0 | | |
| .75 | 100.0 | | |
| .5 | 100.0 | | |
| .375 | 100.0 | | |
| #4 | 100.0 | | |
| #10 | 99.8 | | |
| #20 | 99.3 | | |
| #40 | 86.5 | | |
| #60 | 29.0 | | |
| #100 | 2.0 | | |
| #140 | 1.3 | | |
| #200 | 1.2 | | |

Material Description

Fine to medium grained, SAND

Atterberg Limits

PL= LL= PI=

Coefficients

D₉₀= 0.4893 D₈₅= 0.4172 D₆₀= 0.3286
D₅₀= 0.3022 D₃₀= 0.2525 D₁₅= 0.2101
D₁₀= 0.1927 C_u= 1.71 C_c= 1.01

Classification

USCS= SP AASHTO=

Remarks

* (no specification provided)

Location: BI-PB-183-12 C
Sample Number: 6482 (4)

Depth: 7.2'

Date: 12/12/12

Thompson Engineering

Mobile, Alabama

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

Project No: 1221110095

Figure

Boring Designation BI-PB-184-12

| | | | | |
|--|--|---|--|--|
| DRILLING LOG | | DIVISION South Atlantic | INSTALLATION Mobile District | SHEET 1 OF 1 SHEETS |
| 1. PROJECT MsCIP Barrier Island Restoration Petit Bois Pass- AL East | | | 9. SIZE AND TYPE OF BIT N/A | |
| 2. BORING DESIGNATION BI-PB-184-12 | | 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 | | <input type="checkbox"/> AUTO HAMMER <input type="checkbox"/> MANUAL HAMMER |
| 4. NAME OF DRILLER American Vibracore Systems, Inc. | | 12. TOTAL SAMPLES | | DISTURBED 0 |
| 5. DIRECTION OF BORING <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED | | 13. TOTAL NUMBER CORE BOXES | | UNDISTURBED (UD) 0 |
| 6. THICKNESS OF OVERBURDEN N/A | | 14. WATER DEPTH 28.2 Ft. | | 15. DATE BORING |
| 7. DEPTH DRILLED INTO ROCK N/A | | 16. ELEVATION TOP OF BORING -27.6 Ft. | | STARTED 12-07-12 |
| 8. TOTAL DEPTH OF BORING 18.5 Ft. | | 17. TOTAL RECOVERY FOR BORING 100% | | COMPLETED 12-07-12 |
| 18. SIGNATURE AND TITLE OF INSPECTOR Mike FitzHarris, Geologist | | | | |

| ELEV. | DEPTH | LEGEND | CLASSIFICATION OF MATERIALS | SAMPLE | LABORATORY RESULTS |
|--|-------|--------|---|------------|---|
| -27.6 | 0.0 | | | | |
| -30.4 | 2.8 | | SAND, poorly-graded, mostly fine to medium-grained sand-sized quartz, trace silt, trace shell fragments, lt. gray (SP) | A | Classification: SP Color: 5Y 7/2-light gray D50: 0.3403 mm % Fines: 1.6 |
| -33.7 | 6.1 | | SAND, poorly-graded with clay, mostly fine-grained sand-sized quartz, few clay, trace silt, trace shell fragments, few clay stringers, gray to lt. gray (SP-SC) | B | Classification: SP Color: 5Y 6/3-pale olive D50: 0.2845 mm % Fines: 4 |
| -40.0 | 12.4 | | SAND, poorly-graded, mostly fine-grained sand-sized quartz, trace silt, lt. gray (SP) At El. -36.1 Ft., mostly fine-grained sand-sized quartz, trace silt, lt. gray to white | C D | Classification: SP Color: 5Y 8/1-white D50: 0.2723 mm % Fines: 1.6 Classification: SP Color: 2.5Y 7/2-light gray D50: 0.2834 mm % Fines: 1.9 |
| -42.7 | 15.1 | | CLAY, fat, mostly clay, medium to high plasticity, gray (CH) | NS | |
| -43.7 | 16.1 | | SAND, clayey, mostly fine-grained sand-sized quartz, some clay, gray (SC) | | |
| -46.1 | 18.5 | | SAND, poorly-graded, mostly fine-grained sand-sized quartz, trace clay, gray (SP) | | |
| NOTES: 1. Soils are field visually classified in accordance with the Unified Soils Classification System. 2. NS = Sample not submitted for laboratory analysis from this interval. 3. Seafloor elevation calculated using sampling vessel's fathometer water depth reading and applying NOAA tidal gauge data conversion factor. | | | | | |

Project

Mississippi Barrier Island
Restoration Project



Core Identifier BI-PB-184-12

Date 12/07/2012

Water Depth 28.2'

Coordinate System

Latitude / Longitude

Start Time 10:53:48

End Time 10:59:39

Penetration 19.3'

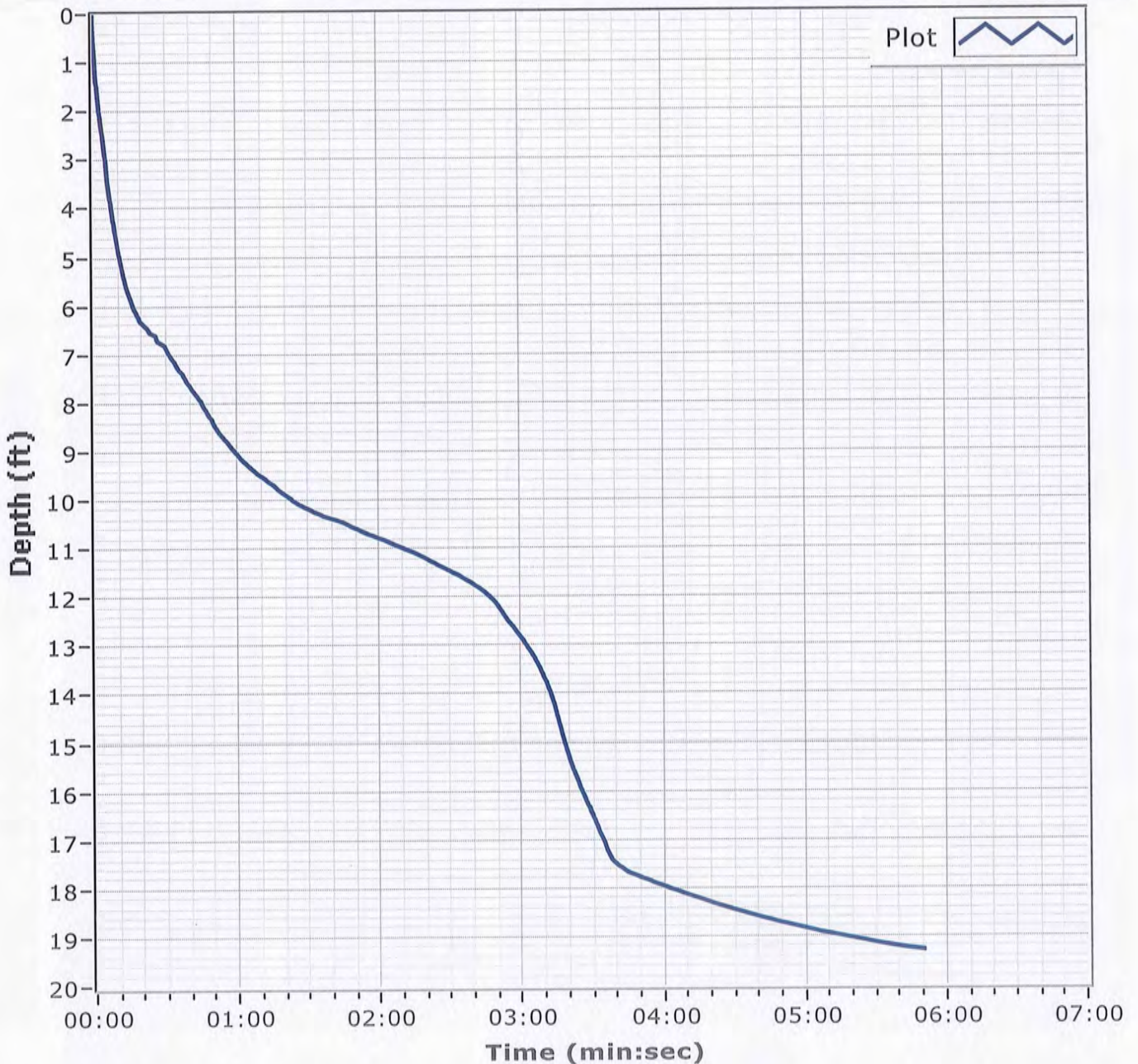
Latitude 30 12.082

Total Time 00:05:50

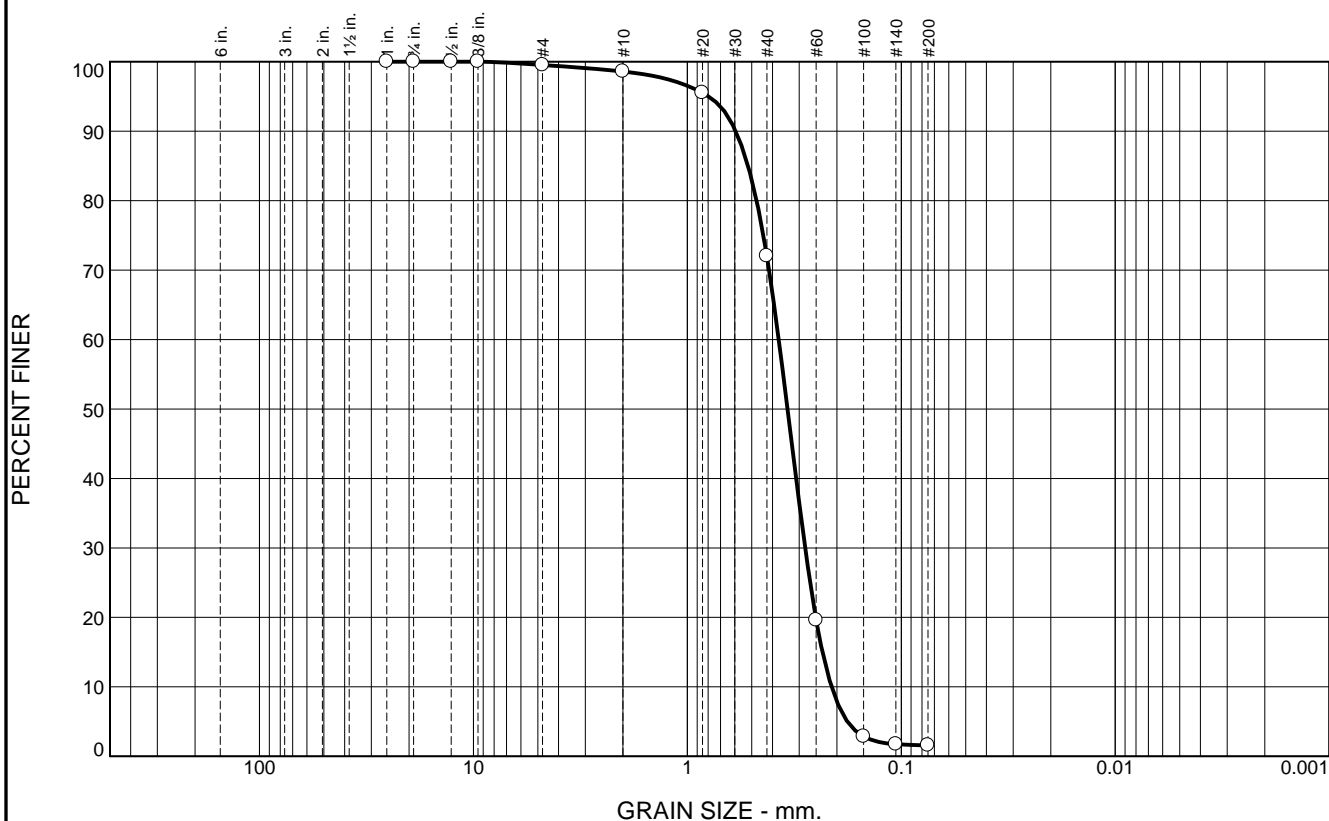
Recovery 18.5'

Longitude 088 19.775

Comments



Particle Size Distribution Report



| % +3" | % Gravel | | % Sand | | | % Fines | |
|-------|----------|------|--------|--------|------|---------|------|
| | Coarse | Fine | Coarse | Medium | Fine | Silt | Clay |
| 0.0 | 0.0 | 0.5 | 0.9 | 26.6 | 70.4 | 1.6 | |

| SIEVE SIZE | PERCENT FINER | SPEC.* PERCENT | PASS? (X=NO) |
|------------|---------------|----------------|--------------|
| 1 | 100.0 | | |
| .75 | 100.0 | | |
| .5 | 100.0 | | |
| .375 | 100.0 | | |
| #4 | 99.5 | | |
| #10 | 98.6 | | |
| #20 | 95.5 | | |
| #40 | 72.0 | | |
| #60 | 19.6 | | |
| #100 | 2.9 | | |
| #140 | 1.8 | | |
| #200 | 1.6 | | |

Material Description
Fine to medium grained, SAND

Atterberg Limits
 PL= LL= PI=

Coefficients
 D₉₀= 0.5941 D₈₅= 0.5205 D₆₀= 0.3739
 D₅₀= 0.3403 D₃₀= 0.2815 D₁₅= 0.2336
 D₁₀= 0.2118 C_u= 1.77 C_c= 1.00

Classification
 USCS= SP AASHTO=

Remarks

* (no specification provided)

Location: BI-PB-184-12 A
Sample Number: 6482 (5)

Depth: 0.0'

Date: 12/12/12

Thompson Engineering

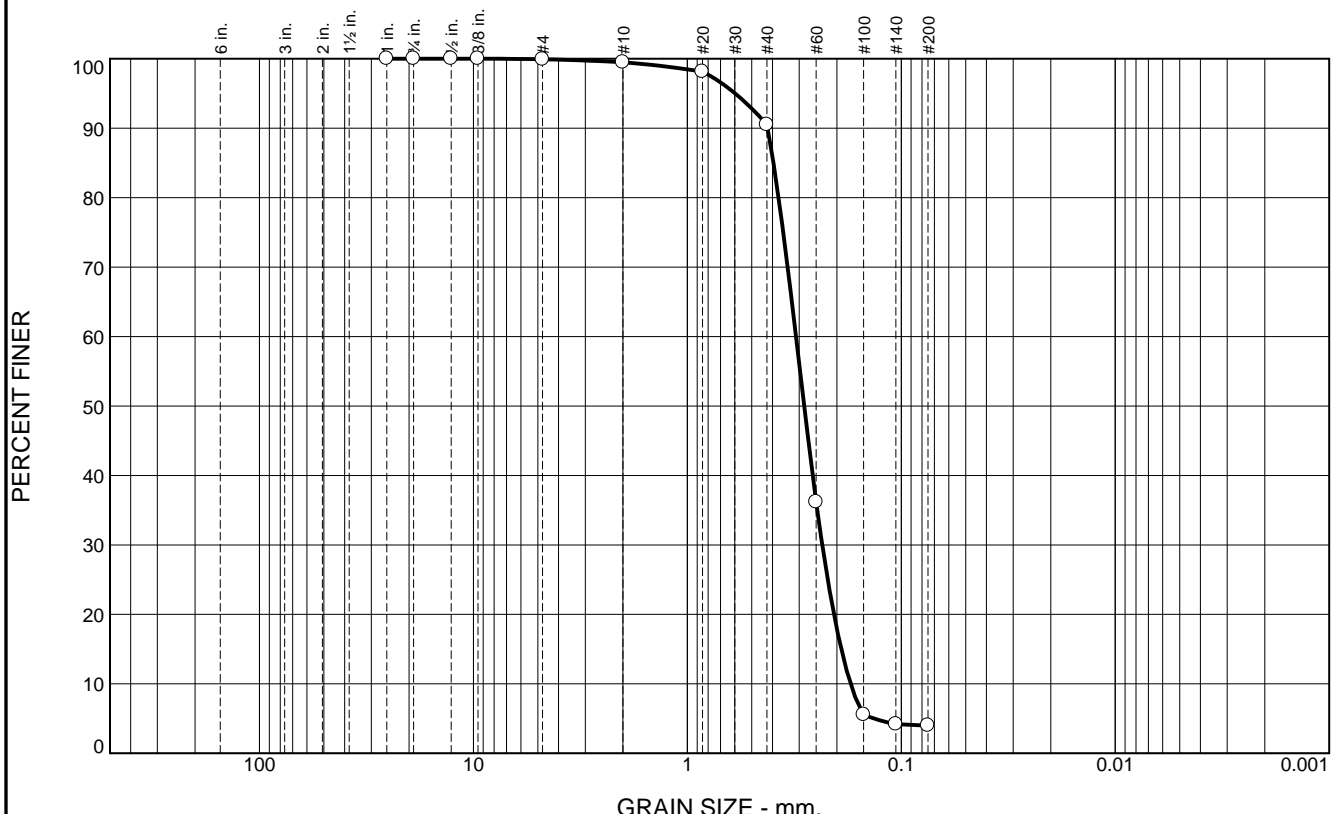
Mobile, Alabama

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

Project No: 1221110095

Figure

Particle Size Distribution Report



| % +3" | % Gravel | | % Sand | | | % Fines | |
|-------|----------|------|--------|--------|------|---------|------|
| | Coarse | Fine | Coarse | Medium | Fine | Silt | Clay |
| 0.0 | 0.0 | 0.1 | 0.4 | 9.0 | 86.5 | 4.0 | |

| SIEVE SIZE | PERCENT FINER | SPEC.* PERCENT | PASS? (X=NO) |
|------------|---------------|----------------|--------------|
| 1 | 100.0 | | |
| .75 | 100.0 | | |
| .5 | 100.0 | | |
| .375 | 100.0 | | |
| #4 | 99.9 | | |
| #10 | 99.5 | | |
| #20 | 98.1 | | |
| #40 | 90.5 | | |
| #60 | 36.2 | | |
| #100 | 5.6 | | |
| #140 | 4.2 | | |
| #200 | 4.0 | | |

Material Description

Fine grained, SAND

Atterberg Limits

PL= LL= PI=

Coefficients

D₉₀= 0.4219 D₈₅= 0.3957 D₆₀= 0.3107
D₅₀= 0.2845 D₃₀= 0.2341 D₁₅= 0.1909
D₁₀= 0.1728 C_u= 1.80 C_c= 1.02

Classification

USCS= SP AASHTO=

Remarks

* (no specification provided)

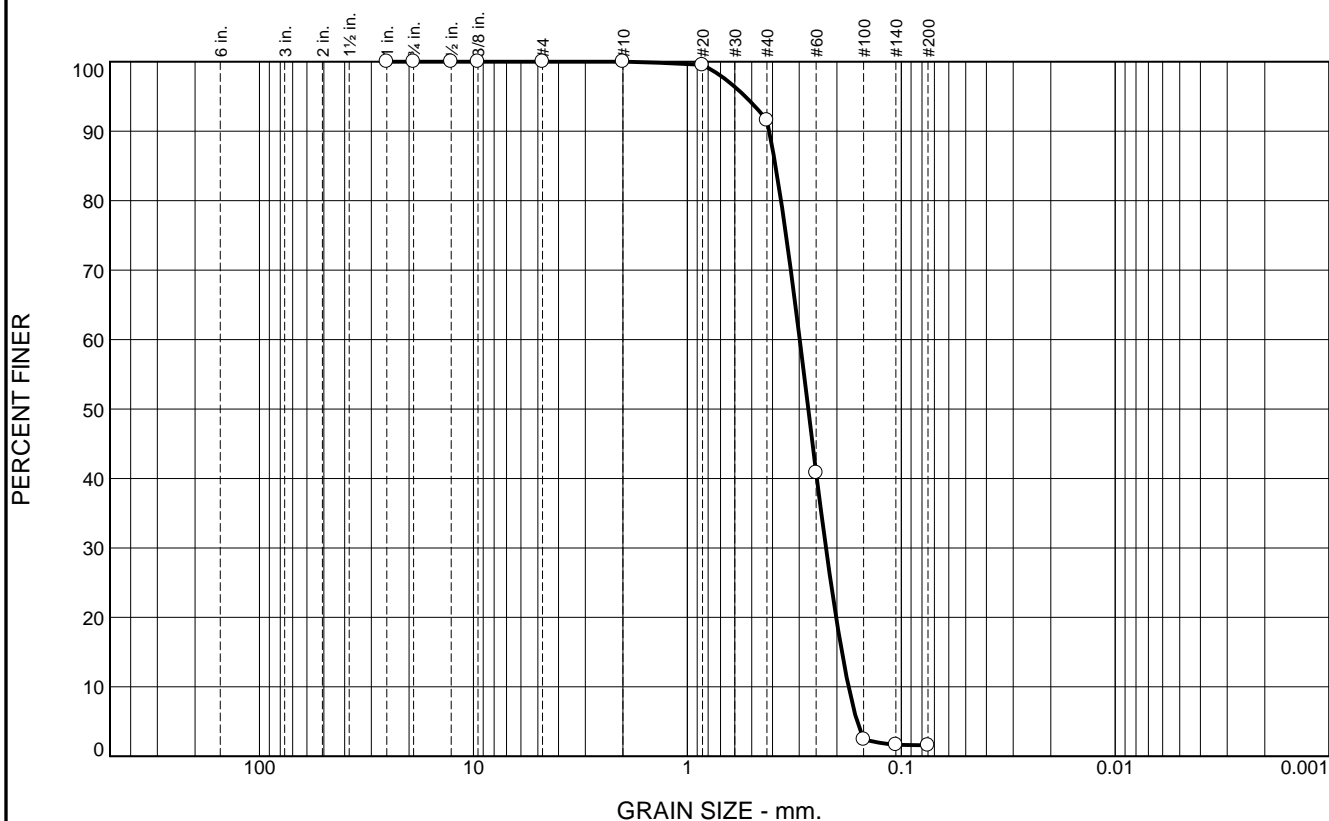
Location: BI-PB-184-12 B **Depth:** 2.8' **Date:** 12/12/12
Sample Number: 6482 (6)

Thompson Engineering

Mobile, Alabama

Client: CDM/Thompson Engineering JV
Project: MsCIP Barrier Island Restoration GT
Project No: 1221110095 **Figure**

Particle Size Distribution Report



| % +3" | % Gravel | | % Sand | | | % Fines | |
|-------|----------|------|--------|--------|------|---------|------|
| | Coarse | Fine | Coarse | Medium | Fine | Silt | Clay |
| 0.0 | 0.0 | 0.0 | 0.0 | 8.4 | 90.0 | 1.6 | |

| SIEVE SIZE | PERCENT FINER | SPEC.* PERCENT | PASS? (X=NO) |
|------------|---------------|----------------|--------------|
| 1 | 100.0 | | |
| .75 | 100.0 | | |
| .5 | 100.0 | | |
| .375 | 100.0 | | |
| #4 | 100.0 | | |
| #10 | 100.0 | | |
| #20 | 99.5 | | |
| #40 | 91.6 | | |
| #60 | 40.8 | | |
| #100 | 2.4 | | |
| #140 | 1.7 | | |
| #200 | 1.6 | | |

Material Description

Fine grained, SAND

Atterberg Limits

PL= LL= PI=

Coefficients

D₉₀= 0.4145 D₈₅= 0.3870 D₆₀= 0.2986
D₅₀= 0.2723 D₃₀= 0.2249 D₁₅= 0.1896
D₁₀= 0.1765 C_u= 1.69 C_c= 0.96

Classification

USCS= SP AASHTO=

Remarks

* (no specification provided)

Location: BI-PB-184-12 C
Sample Number: 6482 (7)

Depth: 6.1'

Date: 12/12/12

Thompson Engineering

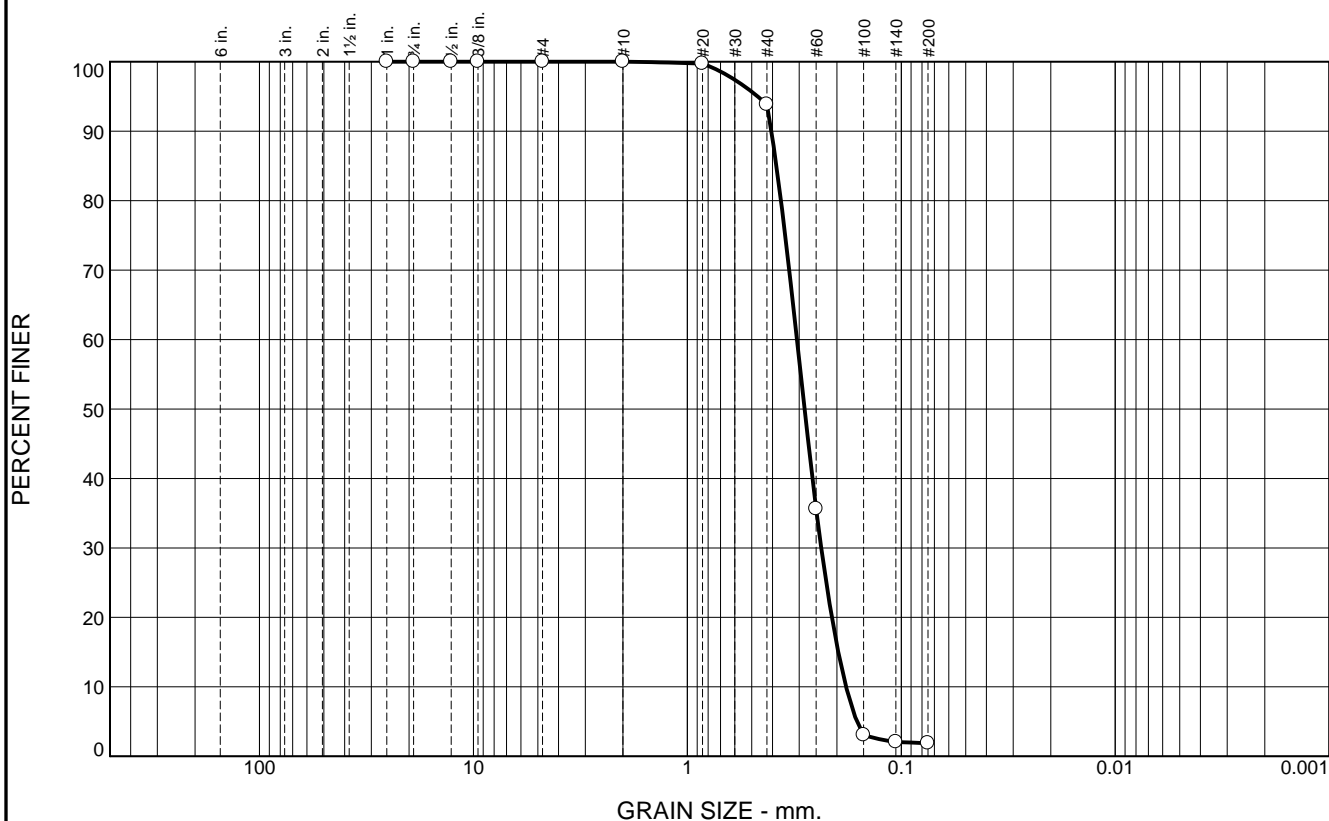
Mobile, Alabama

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

Project No: 1221110095

Figure

Particle Size Distribution Report



| % +3" | % Gravel | | % Sand | | | % Fines | |
|-------|----------|------|--------|--------|------|---------|------|
| | Coarse | Fine | Coarse | Medium | Fine | Silt | Clay |
| 0.0 | 0.0 | 0.0 | 0.0 | 6.2 | 91.9 | 1.9 | |

| SIEVE SIZE | PERCENT FINER | SPEC.* PERCENT | PASS? (X=NO) |
|------------|---------------|----------------|--------------|
| 1 | 100.0 | | |
| .75 | 100.0 | | |
| .5 | 100.0 | | |
| .375 | 100.0 | | |
| #4 | 100.0 | | |
| #10 | 100.0 | | |
| #20 | 99.7 | | |
| #40 | 93.8 | | |
| #60 | 35.6 | | |
| #100 | 3.1 | | |
| #140 | 2.1 | | |
| #200 | 1.9 | | |

Material Description

Fine grained, SAND

Atterberg Limits

PL= LL= PI=

Coefficients

D₉₀= 0.4047 D₈₅= 0.3832 D₆₀= 0.3076
D₅₀= 0.2834 D₃₀= 0.2366 D₁₅= 0.1971
D₁₀= 0.1813 C_u= 1.70 C_c= 1.00

Classification

USCS= SP AASHTO=

Remarks

* (no specification provided)

Location: BI-PB-184-12 D
Sample Number: 6482 (8)

Depth: 8.5'

Date: 12/12/12

Thompson Engineering

Mobile, Alabama

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

Project No: 1221110095

Figure

Boring Designation BI-PB-185-12

| | | | | |
|---|--|--|---------------------------------|---|
| DRILLING LOG | | DIVISION South Atlantic | INSTALLATION Mobile District | SHEET 1 OF 1 SHEETS |
| 1. PROJECT MsCIP Barrier Island Restoration Petit Bois Pass- AL East | | 9. SIZE AND TYPE OF BIT N/A | | |
| 2. BORING DESIGNATION BI-PB-185-12 | | 10. COORDINATE SYSTEM/DATUM State Plane, MSE (U.S. Ft.) | | HORIZONTAL NAD83 |
| | | 11. MANUFACTURER'S DESIGNATION OF DRILL Vibracore | | VERTICAL NAVD88 |
| 3. DRILLING AGENCY Corps of Engineers - CESAM | | 12. TOTAL SAMPLES DISTURBED UNDISTURBED (UD) 0 | | |
| 4. NAME OF DRILLER American Vibracore Systems, Inc. | | 13. TOTAL NUMBER CORE BOXES | | |
| 5. DIRECTION OF BORING <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED | | 14. WATER DEPTH 31 Ft. | | 15. DATE BORING STARTED 12-07-12 COMPLETED 12-07-12 |
| 6. THICKNESS OF OVERBURDEN N/A | | 16. ELEVATION TOP OF BORING -30.3 Ft. | | |
| 7. DEPTH DRILLED INTO ROCK N/A | | 17. TOTAL RECOVERY FOR BORING 100% | | |
| 8. TOTAL DEPTH OF BORING 5.1 Ft. | | 18. SIGNATURE AND TITLE OF INSPECTOR Mike FitzHarris, Geologist | | |

| ELEV. | DEPTH | LEGEND | CLASSIFICATION OF MATERIALS | SAMPLE | LABORATORY RESULTS |
|--|-------|--------|--|--------|--|
| -30.3 | 0.0 | | | | |
| -32.4 | 2.1 | ••••• | SAND, poorly-graded, mostly fine to medium-grained sand-sized quartz, trace silt, trace shells at 2.1 ft., lt. gray to gray (SP) | A | Classification: SP Color: 5Y 6/2-light olive gray D50: 0.2625 mm % Fines: 2 |
| -35.4 | 5.1 | ••••• | SAND, poorly-graded, mostly fine-grained sand-sized quartz, trace silt, trace shell fragments, very dense sand, lt. gray (SP) | B | Classification: SP Color: 2.5Y 8/1-white D50: 0.3152 mm % Fines: 1.3 |
| <p>NOTES:</p> <ol style="list-style-type: none"> 1. Soils are field visually classified in accordance with the Unified Soils Classification System. 2. NS = Sample not submitted for laboratory analysis from this interval. 3. Very dense sand prevented vibracore from progressing deeper than 5.1 ft. 4. Seafloor elevation calculated using sampling vessel's fathometer water depth reading and applying NOAA tidal gauge data conversion factor. | | | | | |

Project

Mississippi Barrier Island
Restoration Project



Core Identifier BI-PB-185-12

Date 12/07/2012

Water Depth 31.9'

Coordinate System

Latitude / Longitude

Start Time 13:10:07

End Time 13:16:14

Penetration 9.1'

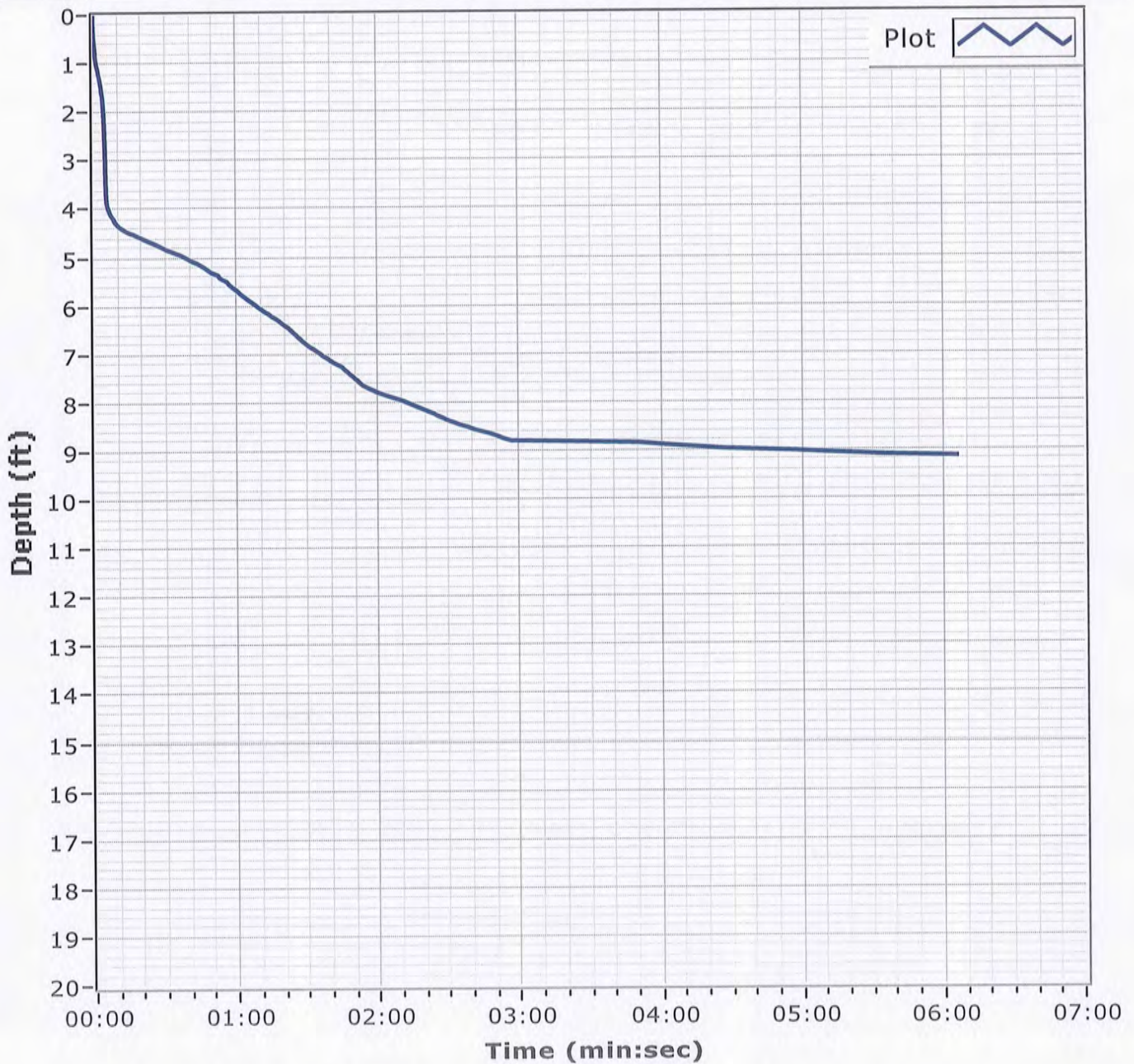
Latitude 30 12.009

Total Time 00:06:06

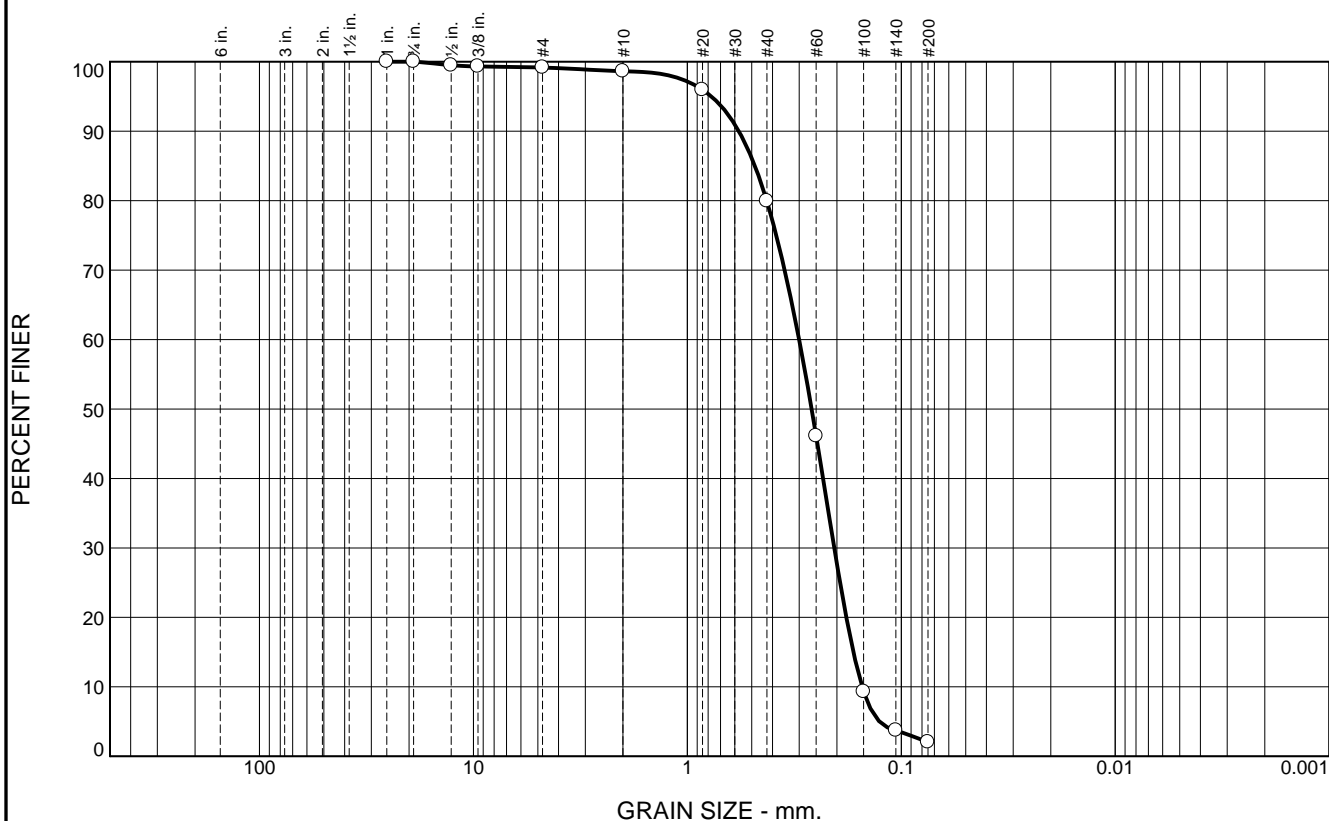
Recovery 5.1'

Longitude 088 19.932

Comments



Particle Size Distribution Report



| % +3" | % Gravel | | % Sand | | | % Fines | |
|-------|----------|------|--------|--------|------|---------|------|
| | Coarse | Fine | Coarse | Medium | Fine | Silt | Clay |
| 0.0 | 0.0 | 0.8 | 0.6 | 18.7 | 77.9 | 2.0 | |

| SIEVE SIZE | PERCENT FINER | SPEC.* PERCENT | PASS? (X=NO) |
|------------|---------------|----------------|--------------|
| 1 | 100.0 | | |
| .75 | 100.0 | | |
| .5 | 99.5 | | |
| .375 | 99.3 | | |
| #4 | 99.2 | | |
| #10 | 98.6 | | |
| #20 | 96.0 | | |
| #40 | 79.9 | | |
| #60 | 46.1 | | |
| #100 | 9.3 | | |
| #140 | 3.7 | | |
| #200 | 2.0 | | |

Material Description
Fine to medium grained, SAND

Atterberg Limits
 PL= LL= PI=

Coefficients
 D₉₀= 0.5747 D₈₅= 0.4836 D₆₀= 0.3005
 D₅₀= 0.2625 D₃₀= 0.2058 D₁₅= 0.1676
 D₁₀= 0.1525 C_u= 1.97 C_c= 0.92

Classification
 USCS= SP AASHTO=

Remarks

* (no specification provided)

Location: BI-PB-185-12 A
Sample Number: 6482 (9)

Depth: 0.0'

Date: 12/12/12

Thompson Engineering

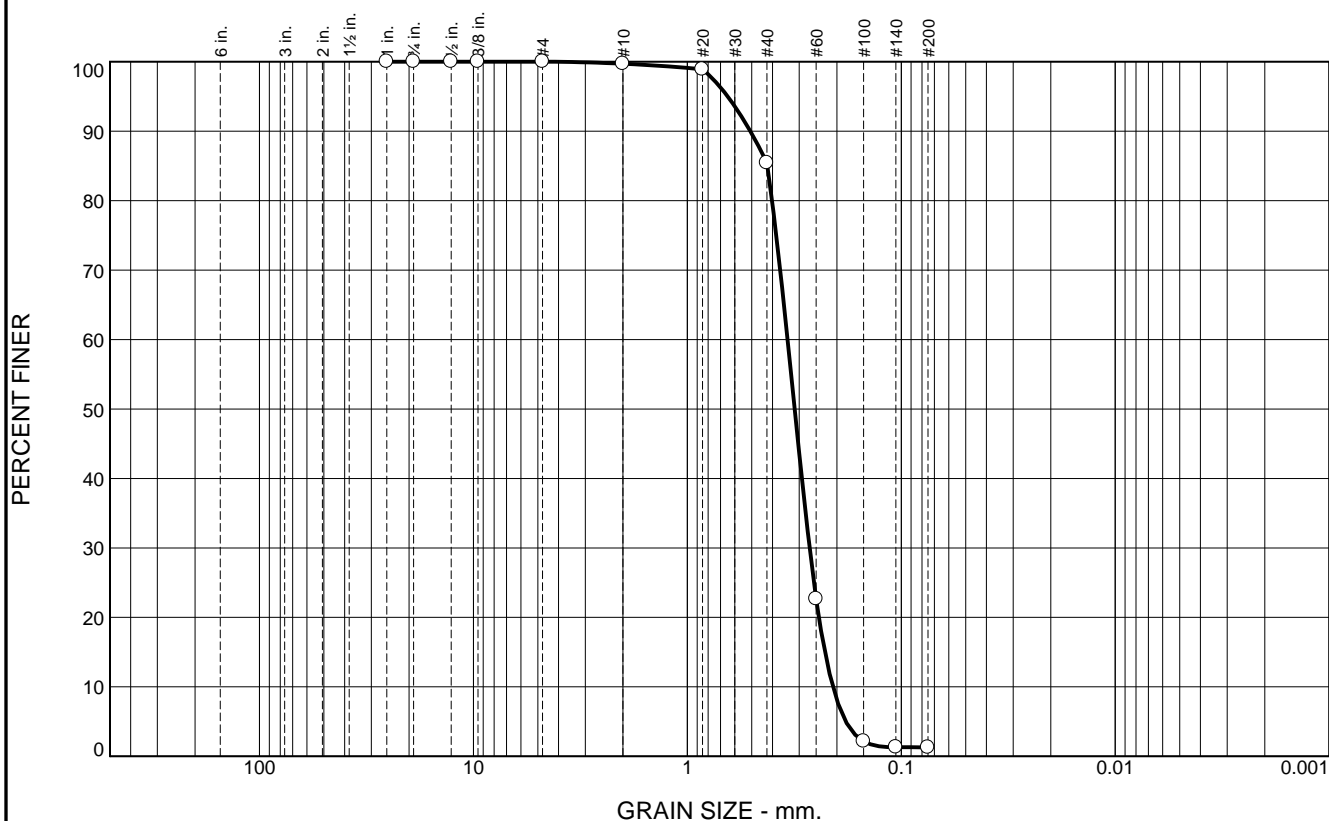
Mobile, Alabama

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

Project No: 1221110095

Figure

Particle Size Distribution Report



| % +3" | % Gravel | | % Sand | | | % Fines | |
|-------|----------|------|--------|--------|------|---------|------|
| | Coarse | Fine | Coarse | Medium | Fine | Silt | Clay |
| 0.0 | 0.0 | 0.0 | 0.3 | 14.3 | 84.1 | 1.3 | |

| SIEVE SIZE | PERCENT FINER | SPEC.* PERCENT | PASS? (X=NO) |
|------------|---------------|----------------|--------------|
| 1 | 100.0 | | |
| .75 | 100.0 | | |
| .5 | 100.0 | | |
| .375 | 100.0 | | |
| #4 | 100.0 | | |
| #10 | 99.7 | | |
| #20 | 98.9 | | |
| #40 | 85.4 | | |
| #60 | 22.6 | | |
| #100 | 2.2 | | |
| #140 | 1.3 | | |
| #200 | 1.3 | | |

Material Description

Fine to medium grained, SAND

Atterberg Limits

PL= LL= PI=

Coefficients

D₉₀= 0.5079 D₈₅= 0.4229 D₆₀= 0.3401

D₅₀= 0.3152 D₃₀= 0.2684 D₁₅= 0.2275

D₁₀= 0.2088 C_u= 1.63 C_c= 1.01

Classification

USCS= SP AASHTO=

Remarks

* (no specification provided)

Location: BI-PB-185-12 B Depth: 2.1' Date: 12/12/12

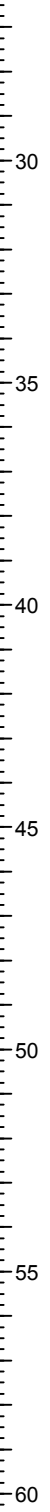
| | |
|--|---|
| <p>Thompson Engineering</p> <p>Mobile, Alabama</p> | <p>Client: CDM/Thompson Engineering JV</p> <p>Project: MsCIP Barrier Island Restoration GT</p> <p>Project No: 1221110095</p> <p style="text-align: right;">Figure</p> |
|--|---|

Boring Designation BI-PB-186-12

| | | | | |
|--|--|---|--|--|
| DRILLING LOG | | DIVISION South Atlantic | INSTALLATION Mobile District | SHEET 1 OF 2 SHEETS |
| 1. PROJECT MsCIP Barrier Island Restoration Petit Bois Pass- AL East | | | 9. SIZE AND TYPE OF BIT N/A | |
| 2. BORING DESIGNATION BI-PB-186-12 | | 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 | | <input type="checkbox"/> AUTO HAMMER <input type="checkbox"/> MANUAL HAMMER |
| 4. NAME OF DRILLER American Vibracore Systems, Inc. | | 12. TOTAL SAMPLES | | DISTURBED 0 |
| 5. DIRECTION OF BORING <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED | | LOCATION COORDINATES E = 1,143,075 N = 254,950 | 13. TOTAL NUMBER CORE BOXES | |
| 6. THICKNESS OF OVERBURDEN N/A | | 14. WATER DEPTH 28.8 Ft. | | 15. DATE BORING |
| 7. DEPTH DRILLED INTO ROCK N/A | | 16. ELEVATION TOP OF BORING -27.9 Ft. | | STARTED 12-07-12 |
| 8. TOTAL DEPTH OF BORING 18.9 Ft. | | 17. TOTAL RECOVERY FOR BORING 100% | | COMPLETED 12-07-12 |
| 18. SIGNATURE AND TITLE OF INSPECTOR Mike FitzHarris, Geologist | | | | |

| ELEV. | DEPTH | LEGEND | CLASSIFICATION OF MATERIALS | SAMPLE | LABORATORY RESULTS |
|--|-------|--------|--|--------|---|
| -27.9 | 0.0 | | | | |
| | | ••••• | SAND, poorly-graded, mostly fine to medium-grained sand-sized quartz, trace silt, trace shell fragments, lt. gray (SP) | A | Classification: SP Color: 5Y 7/3-pale yellow D50: 0.3092 mm % Fines: 1.5 |
| | | ••••• | SAND, poorly-graded, mostly fine-grained sand-sized quartz, trace clay, trace shell fragments, clayey band at 6.7 ft., gray (SP) | B | Classification: SP Color: 2.5Y 6/2-light brownish gray D50: 0.2199 mm % Fines: 4.5 |
| | | ••••• | SAND, poorly-graded, mostly fine to medium-grained sand-sized quartz, few silt, trace clay, trace shell fragments, gray to lt. gray (SP) | C | Classification: SP Color: 5Y 6/2-light olive gray D50: 0.3275 mm % Fines: 3.3 |
| | | // | CLAY, fat, mostly clay, trace shell fragments, medium to high plasticity, very stiff, sandy at 18.4 ft., greenish gray (CH) | NS | |
| | | // | | | |
| -46.5 | 18.6 | | | | |
| -46.8 | 18.9 | | SAND, clayey, mostly clay, few fine-grained sand-sized quartz, gray (SC) | | |
| <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</p> | | | | | |

| DRILLING LOG (Cont. Sheet) | | | INSTALLATION Mobile District | | | SHEET 2 |
|--|-------|--------|---|----------------------------|---------------------------|--------------------|
| | | | | | | OF 2 SHEETS |
| PROJECT MsCIP Barrier Island Restoration | | | COORDINATE SYSTEM/DATUM State Plane, MSE (U.S. Ft.) | HORIZONTAL NAD83 | VERTICAL NAVD88 | |
| LOCATION COORDINATES X = 1,143,075 Y = 254,950 | | | ELEVATION TOP OF BORING -27.9 Ft. | | | |
| ELEV. | DEPTH | LEGEND | CLASSIFICATION OF MATERIALS | SAMPLE | LABORATORY RESULTS | |
| | | | vessel's fathometer water depth reading and applying NOAA tidal gauge data conversion factor. | | | |



Project

Mississippi Barrier Island
Restoration Project



Core Identifier BI-PB-186-12

Date 12/07/2012

Water Depth 28.8'

Coordinate System

Latitude / Longitude

Start Time 13:50:08

End Time 13:53:41

Penetration 20.0'

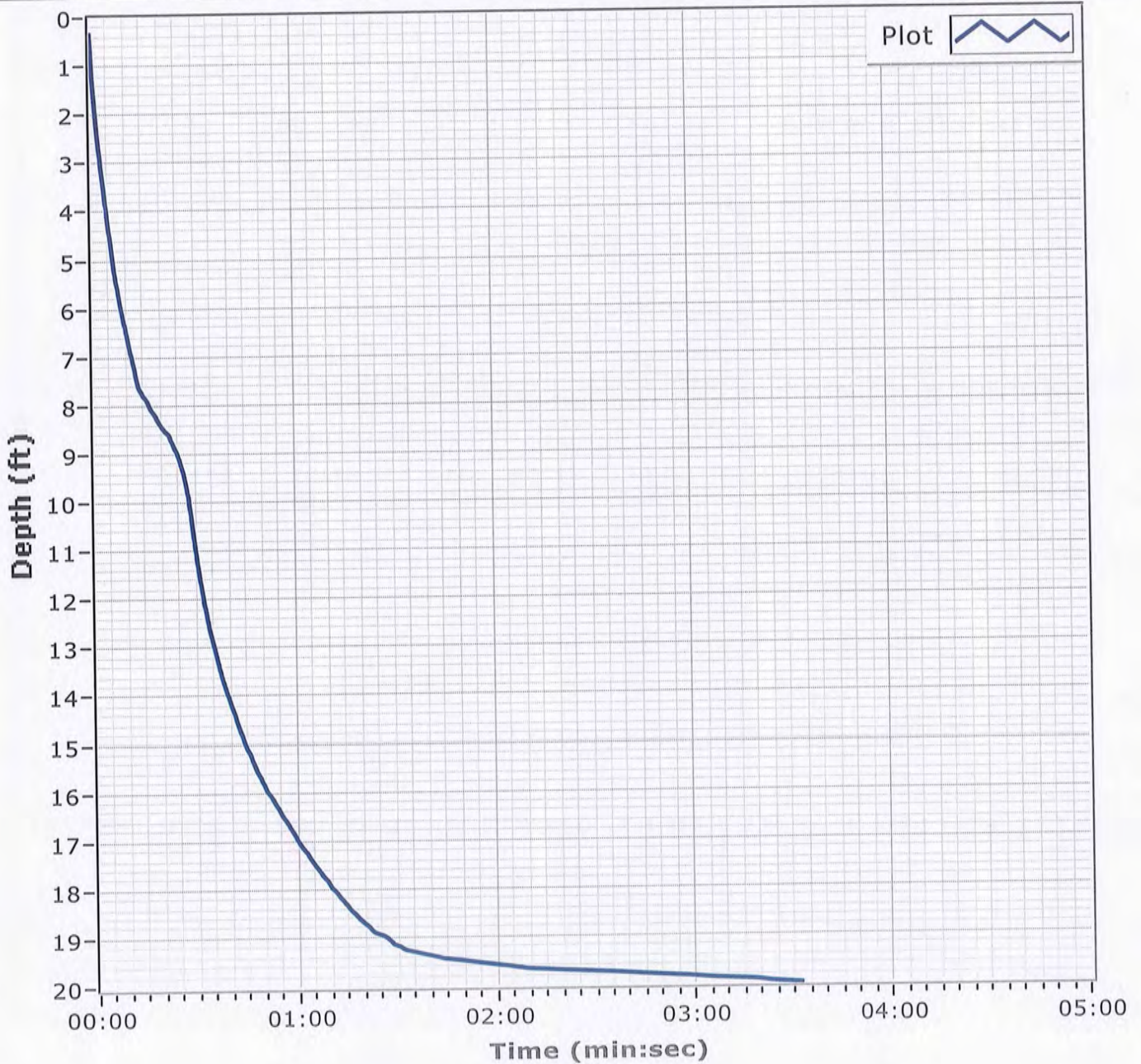
Latitude 30 12.006

Total Time 00:03:32

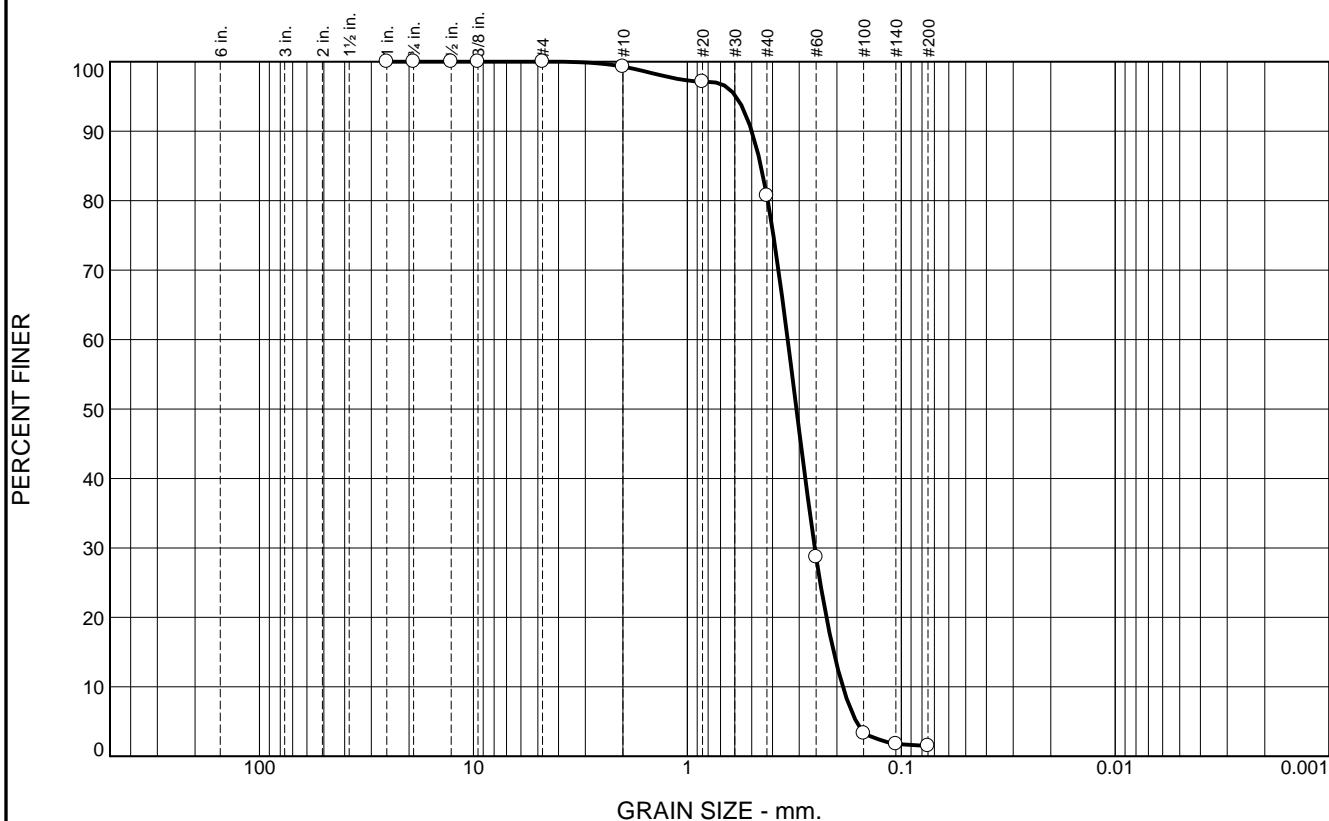
Recovery 18.9'

Longitude 088 19.834

Comments



Particle Size Distribution Report



| % +3" | % Gravel | | % Sand | | | % Fines | |
|-------|----------|------|--------|--------|------|---------|------|
| | Coarse | Fine | Coarse | Medium | Fine | Silt | Clay |
| 0.0 | 0.0 | 0.0 | 0.7 | 18.6 | 79.2 | 1.5 | |

| SIEVE SIZE | PERCENT FINER | SPEC.* PERCENT | PASS? (X=NO) |
|------------|---------------|----------------|--------------|
| 1 | 100.0 | | |
| .75 | 100.0 | | |
| .5 | 100.0 | | |
| .375 | 100.0 | | |
| #4 | 100.0 | | |
| #10 | 99.3 | | |
| #20 | 97.1 | | |
| #40 | 80.7 | | |
| #60 | 28.7 | | |
| #100 | 3.3 | | |
| #140 | 1.8 | | |
| #200 | 1.5 | | |

Material Description

Fine to medium grained, SAND

Atterberg Limits

PL= LL= PI=

Coefficients

D₉₀= 0.4998 D₈₅= 0.4531 D₆₀= 0.3397
D₅₀= 0.3092 D₃₀= 0.2537 D₁₅= 0.2070
D₁₀= 0.1877 C_u= 1.81 C_c= 1.01

Classification

USCS= SP AASHTO=

Remarks

* (no specification provided)

Location: BI-PB-186-12 A **Depth:** 0.0' **Date:** 12/12/12
Sample Number: 6482 (11)

Thompson Engineering

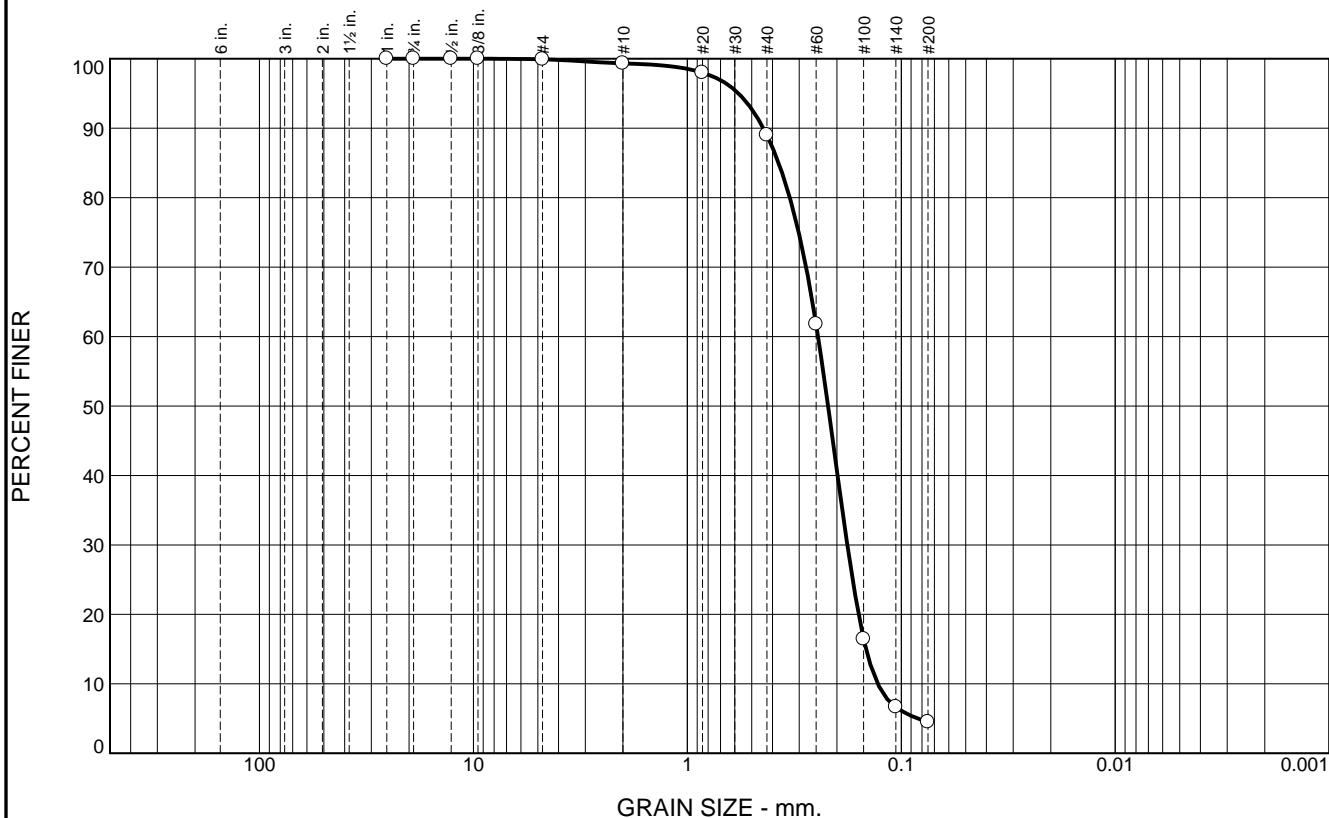
Mobile, Alabama

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

Project No: 1221110095

Figure

Particle Size Distribution Report



| % +3" | % Gravel | | % Sand | | | % Fines | |
|-------|----------|------|--------|--------|------|---------|------|
| | Coarse | Fine | Coarse | Medium | Fine | Silt | Clay |
| 0.0 | 0.0 | 0.1 | 0.6 | 10.3 | 84.5 | 4.5 | |

| SIEVE SIZE | PERCENT FINER | SPEC.* PERCENT | PASS? (X=NO) |
|------------|---------------|----------------|--------------|
| 1 | 100.0 | | |
| .75 | 100.0 | | |
| .5 | 100.0 | | |
| .375 | 100.0 | | |
| #4 | 99.9 | | |
| #10 | 99.3 | | |
| #20 | 98.0 | | |
| #40 | 89.0 | | |
| #60 | 61.8 | | |
| #100 | 16.4 | | |
| #140 | 6.7 | | |
| #200 | 4.5 | | |

Material Description
Fine to medium grained, SAND

Atterberg Limits
 PL= LL= PI=

Coefficients
 D₉₀= 0.4416 D₈₅= 0.3745 D₆₀= 0.2449
 D₅₀= 0.2199 D₃₀= 0.1789 D₁₅= 0.1462
 D₁₀= 0.1289 C_u= 1.90 C_c= 1.01

Classification
 USCS= SP AASHTO=

Remarks

* (no specification provided)

Location: BI-PB-186-12 B
Sample Number: 6482 (12)

Depth: 3.9'

Date: 12/12/12

Thompson Engineering

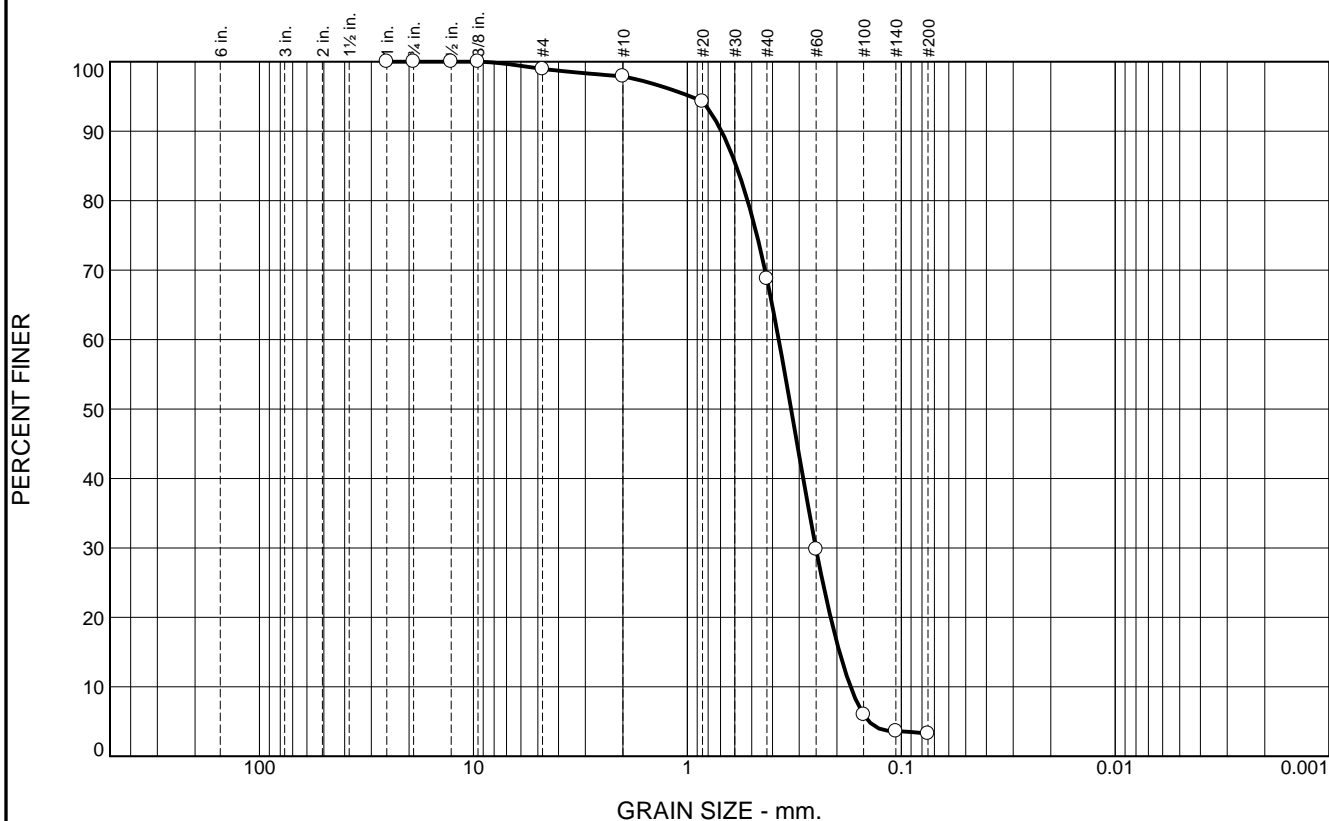
Mobile, Alabama

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

Project No: 1221110095

Figure

Particle Size Distribution Report



| % +3" | % Gravel | | % Sand | | | % Fines | |
|-------|----------|------|--------|--------|------|---------|------|
| | Coarse | Fine | Coarse | Medium | Fine | Silt | Clay |
| 0.0 | 0.0 | 1.1 | 1.0 | 29.1 | 65.5 | 3.3 | |

| SIEVE SIZE | PERCENT FINER | SPEC.* PERCENT | PASS? (X=NO) |
|------------|---------------|----------------|--------------|
| 1 | 100.0 | | |
| .75 | 100.0 | | |
| .5 | 100.0 | | |
| .375 | 100.0 | | |
| #4 | 98.9 | | |
| #10 | 97.9 | | |
| #20 | 94.3 | | |
| #40 | 68.8 | | |
| #60 | 29.8 | | |
| #100 | 6.0 | | |
| #140 | 3.6 | | |
| #200 | 3.3 | | |

Material Description

Fine to medium grained, SAND, with trace SHELL

Atterberg Limits

PL= LL= PI=

Coefficients

D₉₀= 0.6929 D₈₅= 0.5907 D₆₀= 0.3740
D₅₀= 0.3275 D₃₀= 0.2508 D₁₅= 0.1945
D₁₀= 0.1728 C_u= 2.16 C_c= 0.97

Classification

USCS= SP AASHTO=

Remarks

* (no specification provided)

Location: BI-PB-186-12 C **Depth:** 6.9' **Date:** 12/12/12
Sample Number: 6482 (13)

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

Boring Designation BI-PB-187-12

| | | | | |
|--|--|---|--|--|
| DRILLING LOG | | DIVISION South Atlantic | INSTALLATION Mobile District | SHEET 1 OF 1 SHEETS |
| 1. PROJECT MsCIP Barrier Island Restoration Petit Bois Pass- AL East | | | 9. SIZE AND TYPE OF BIT N/A | |
| 2. BORING DESIGNATION BI-PB-187-12 | | 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 | | <input type="checkbox"/> AUTO HAMMER <input type="checkbox"/> MANUAL HAMMER |
| 4. NAME OF DRILLER American Vibracore Systems, Inc. | | 12. TOTAL SAMPLES | | DISTURBED 0 |
| 5. DIRECTION OF BORING <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED | | LOCATION COORDINATES E = 1,142,412 N = 254,231 | 13. TOTAL NUMBER CORE BOXES | |
| 6. THICKNESS OF OVERBURDEN N/A | | 14. WATER DEPTH 33.7 Ft. | | 15. DATE BORING |
| 7. DEPTH DRILLED INTO ROCK N/A | | 16. ELEVATION TOP OF BORING -34.0 Ft. | | STARTED 12-11-12 |
| 8. TOTAL DEPTH OF BORING 15.5 Ft. | | 17. TOTAL RECOVERY FOR BORING 100% | | COMPLETED 12-11-12 |
| 18. SIGNATURE AND TITLE OF INSPECTOR Mike FitzHarris, Geologist | | | | |

| ELEV. | DEPTH | LEGEND | CLASSIFICATION OF MATERIALS | SAMPLE | LABORATORY RESULTS |
|-------|-------|-----------|---|--------|---|
| -34.0 | 0.0 | | | | |
| -35.1 | 1.1 | | SILT, inorganic-L, mostly silt, some shell fragments, trace fine-grained sand-sized quartz, dark gray (ML) | NS | |
| -36.2 | 2.2 | | SAND, poorly-graded with silt, mostly fine to medium-grained sand-sized quartz, few silt, gray (SP-SM) | A | Classification: SP-SM Color: 5Y 6/3-pale olive D50: 0.2865 mm % Fines: 5.3 |
| | | | SAND, poorly-graded, mostly fine to medium-grained sand-sized quartz, trace fines, trace shell fragments, dense, lt. gray (SP) | B | Classification: SP Color: 2.5Y 7/2-light gray D50: 0.3462 mm % Fines: 1.2 |
| | | | | C | Classification: SP Color: 2.5Y 8/1-white D50: 0.3258 mm % Fines: 3 |
| | | | | D | Classification: SP Color: 2.5Y 8/1-white D50: 0.3816 mm % Fines: 1.6 |
| -49.5 | 15.5 | | NOTES: 1. Soils are field visually classified in accordance with the Unified Soils Classification System. 2. NS = Sample not submitted for laboratory analysis from this interval. 3. Seafloor elevation calculated using sampling vessel's fathometer water depth reading and applying NOAA tidal gauge data conversion factor. | | |

Project

Mississippi Barrier Island
Restoration Project

AVS
AMERICAN VIBRACORE
S E R V I C E S

Core Identifier BI-PB-187-12

Date 12/11/2012

Water Depth 33.7'

Coordinate System

Latitude / Longitude

Start Time 09:17:37

End Time 09:25:59

Penetration 15.5'

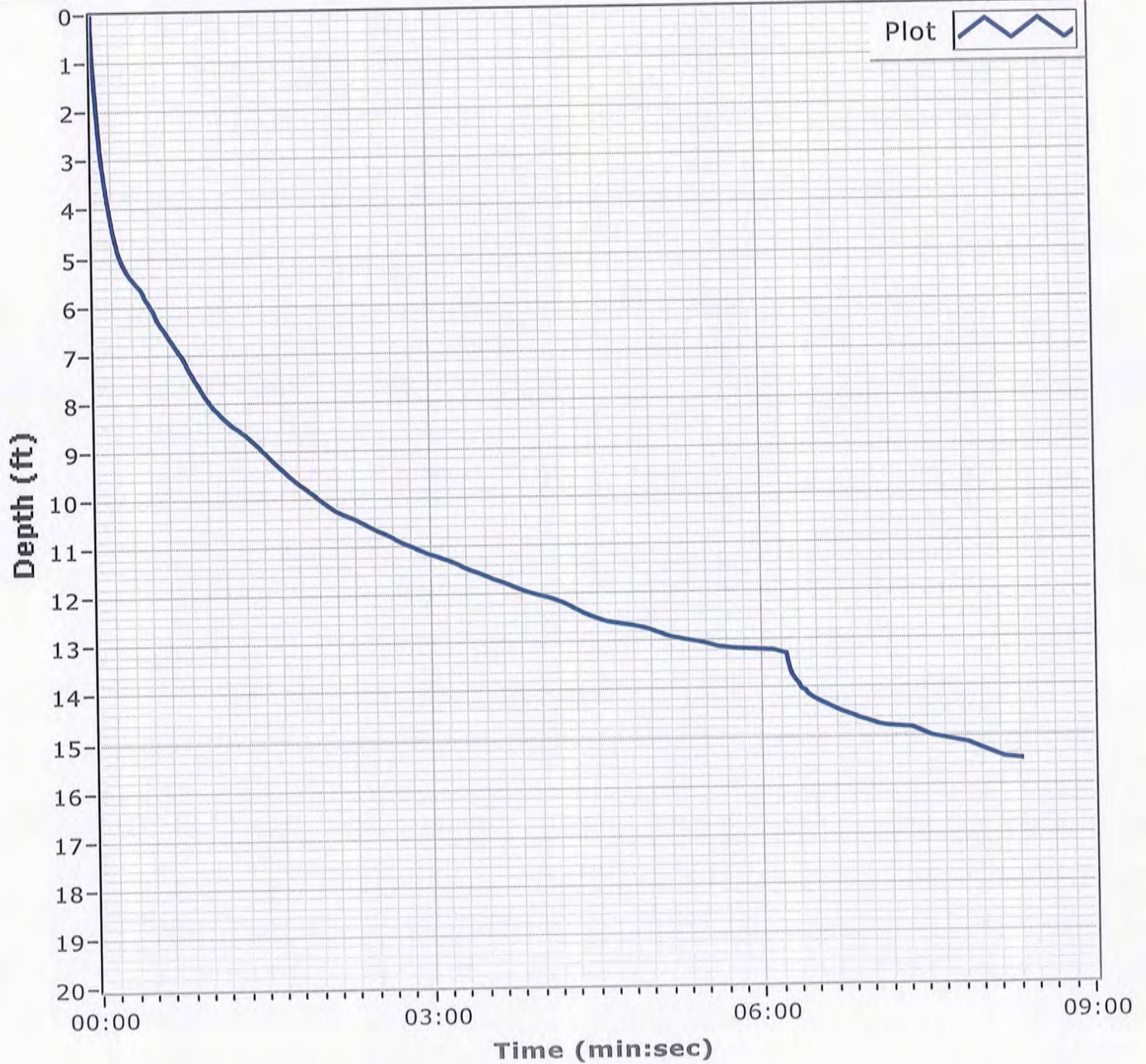
Latitude 33 11.888

Total Time 00:08:22

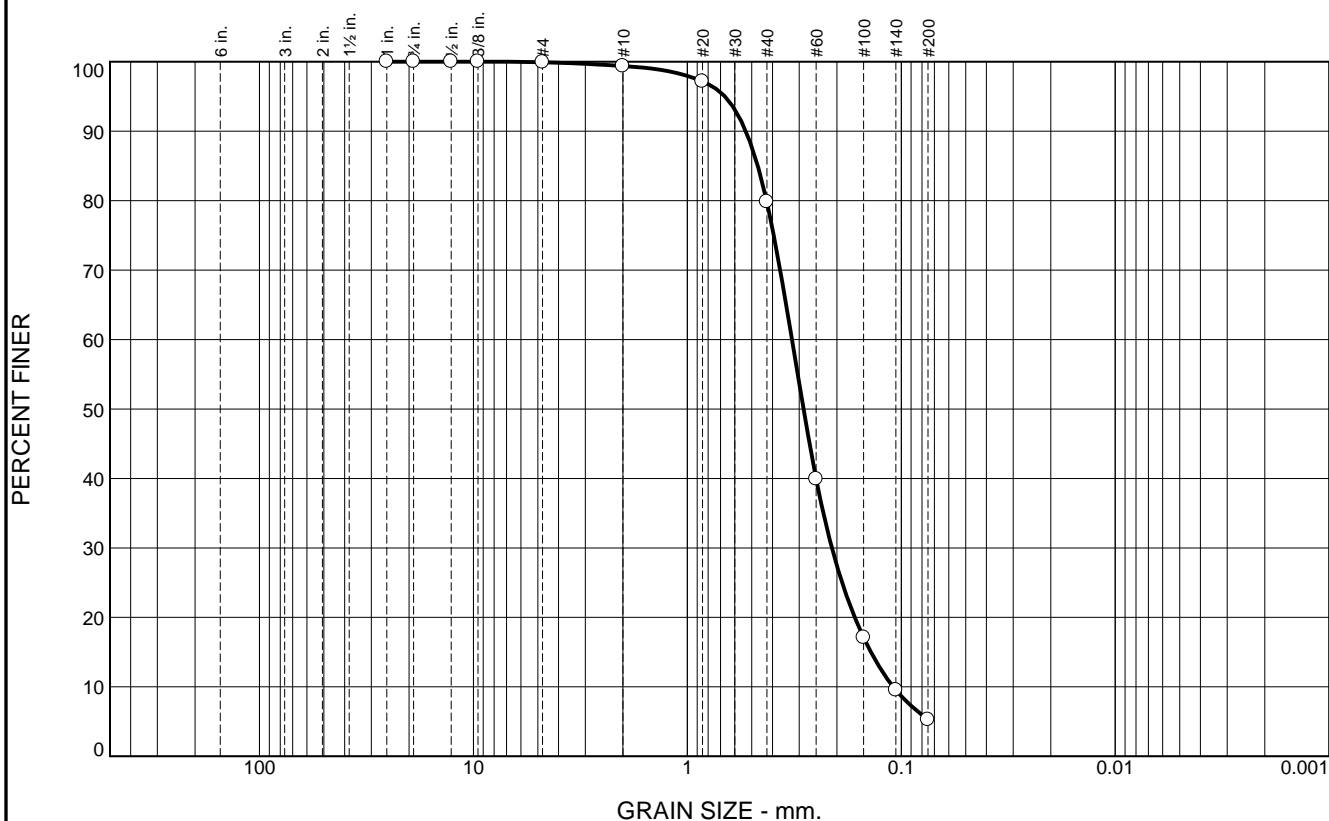
Recovery 15.5'

Longitude 088 19.961

Comments



Particle Size Distribution Report



| % +3" | % Gravel | | % Sand | | | % Fines | |
|-------|----------|------|--------|--------|------|---------|------|
| | Coarse | Fine | Coarse | Medium | Fine | Silt | Clay |
| 0.0 | 0.0 | 0.1 | 0.5 | 19.6 | 74.5 | 5.3 | |

| SIEVE SIZE | PERCENT FINER | SPEC.* PERCENT | PASS? (X=NO) |
|------------|---------------|----------------|--------------|
| 1 | 100.0 | | |
| .75 | 100.0 | | |
| .5 | 100.0 | | |
| .375 | 100.0 | | |
| #4 | 99.9 | | |
| #10 | 99.4 | | |
| #20 | 97.2 | | |
| #40 | 79.8 | | |
| #60 | 39.9 | | |
| #100 | 17.1 | | |
| #140 | 9.5 | | |
| #200 | 5.3 | | |

Material Description

Fine to medium grained, SLIGHTLY SILTY SAND

Atterberg Limits

PL= LL= PI=

Coefficients

D₉₀= 0.5330 D₈₅= 0.4687 D₆₀= 0.3244
D₅₀= 0.2865 D₃₀= 0.2111 D₁₅= 0.1387
D₁₀= 0.1091 C_u= 2.97 C_c= 1.26

Classification

USCS= SP-SM AASHTO=

Remarks

* (no specification provided)

Location: BI-PB-187-12 A
Sample Number: 6485 (17)

Depth: 1.1'

Date: 12/07/12

Thompson Engineering

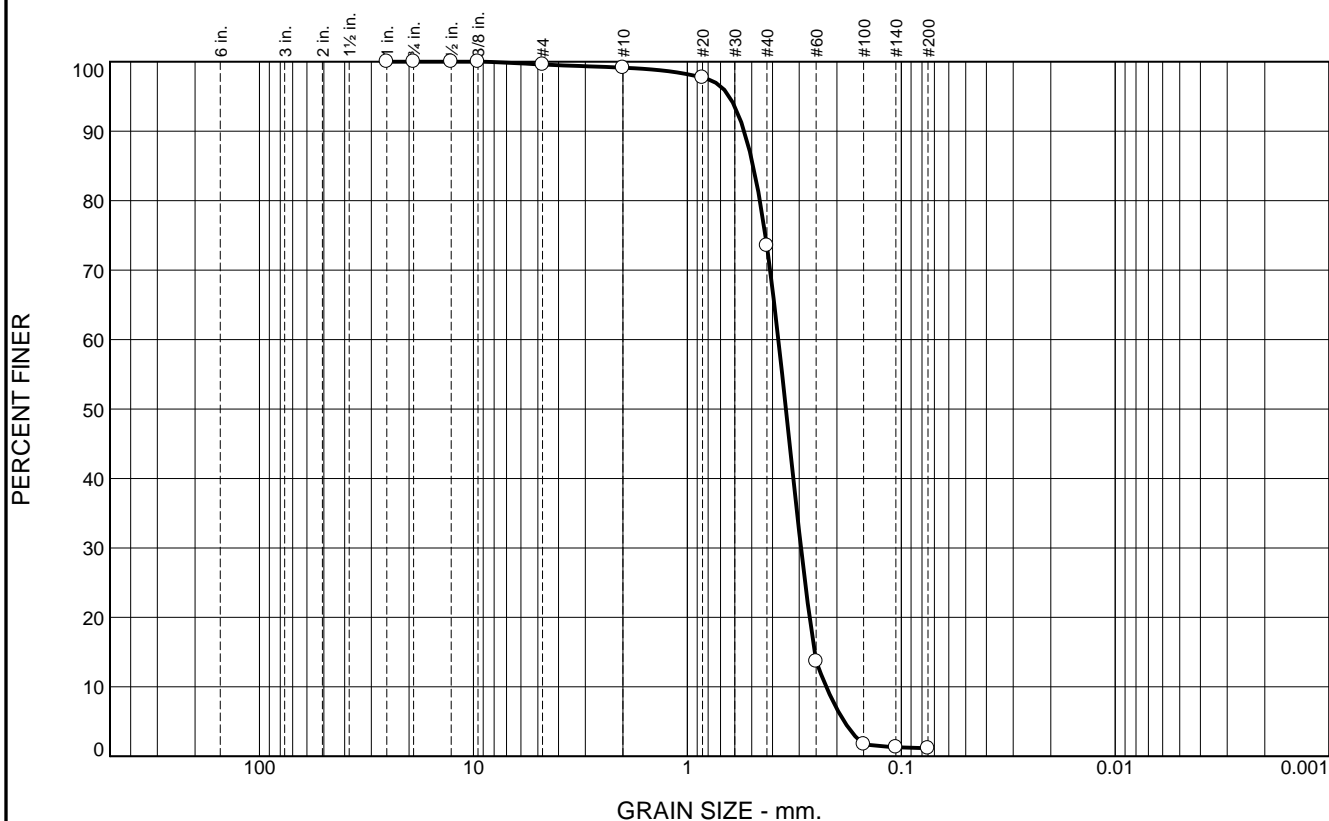
Mobile, Alabama

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

Project No: 1221110095

Figure

Particle Size Distribution Report



| % +3" | % Gravel | | % Sand | | | % Fines | |
|-------|----------|------|--------|--------|------|---------|------|
| | Coarse | Fine | Coarse | Medium | Fine | Silt | Clay |
| 0.0 | 0.0 | 0.4 | 0.5 | 25.6 | 72.3 | 1.2 | |

| SIEVE SIZE | PERCENT FINER | SPEC.* PERCENT | PASS? (X=NO) |
|------------|---------------|----------------|--------------|
| 1 | 100.0 | | |
| .75 | 100.0 | | |
| .5 | 100.0 | | |
| .375 | 100.0 | | |
| #4 | 99.6 | | |
| #10 | 99.1 | | |
| #20 | 97.7 | | |
| #40 | 73.5 | | |
| #60 | 13.7 | | |
| #100 | 1.7 | | |
| #140 | 1.3 | | |
| #200 | 1.2 | | |

Material Description

Fine to medium grained, SAND

Atterberg Limits

PL= LL= PI=

Coefficients

D₉₀= 0.5422 D₈₅= 0.4925 D₆₀= 0.3755

D₅₀= 0.3462 D₃₀= 0.2945 D₁₅= 0.2541

D₁₀= 0.2241 C_u= 1.68 C_c= 1.03

Classification

USCS= SP AASHTO=

Remarks

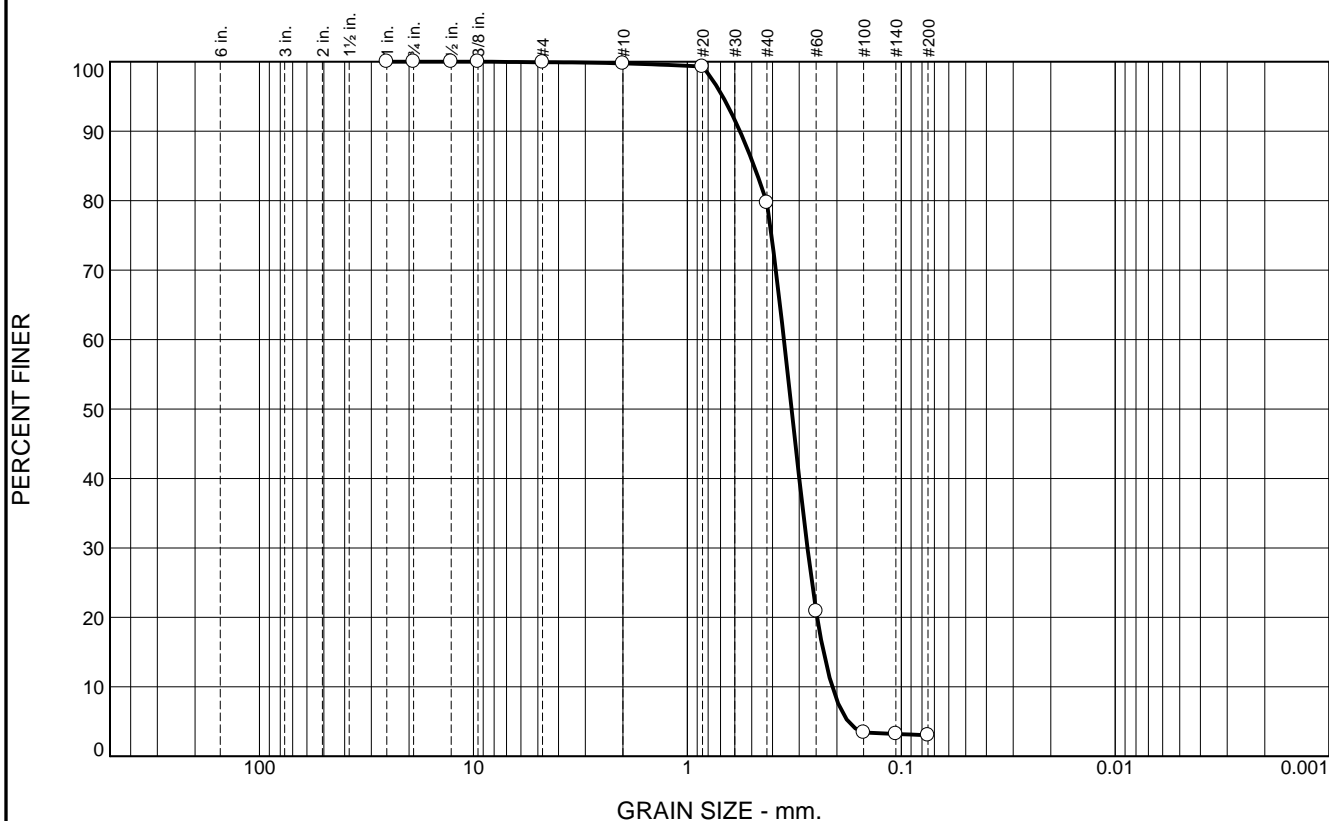
* (no specification provided)

Location: BI-PB-187-12 B **Depth:** 2.2' **Date:** 12/07/12

Sample Number: 6485 (18)

| | |
|--|---|
| <p>Thompson Engineering</p> <p>Mobile, Alabama</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 | 0.1 | 0.1 | 20.1 | 76.7 | 3.0 | |

| SIEVE SIZE | PERCENT FINER | SPEC.* PERCENT | PASS? (X=NO) |
|------------|---------------|----------------|--------------|
| 1 | 100.0 | | |
| .75 | 100.0 | | |
| .5 | 100.0 | | |
| .375 | 100.0 | | |
| #4 | 99.9 | | |
| #10 | 99.8 | | |
| #20 | 99.3 | | |
| #40 | 79.7 | | |
| #60 | 20.9 | | |
| #100 | 3.4 | | |
| #140 | 3.2 | | |
| #200 | 3.0 | | |

Material Description

Fine to medium grained, SAND

Atterberg Limits

PL= LL= PI=

Coefficients

D₉₀= 0.5681 D₈₅= 0.4882 D₆₀= 0.3537
D₅₀= 0.3258 D₃₀= 0.2747 D₁₅= 0.2309
D₁₀= 0.2103 C_u= 1.68 C_c= 1.01

Classification

USCS= SP AASHTO=

Remarks

* (no specification provided)

Location: BI-PB-187-12 C
Sample Number: 6485 (19)

Depth: 7.2'

Date: 12/07/12

Thompson Engineering

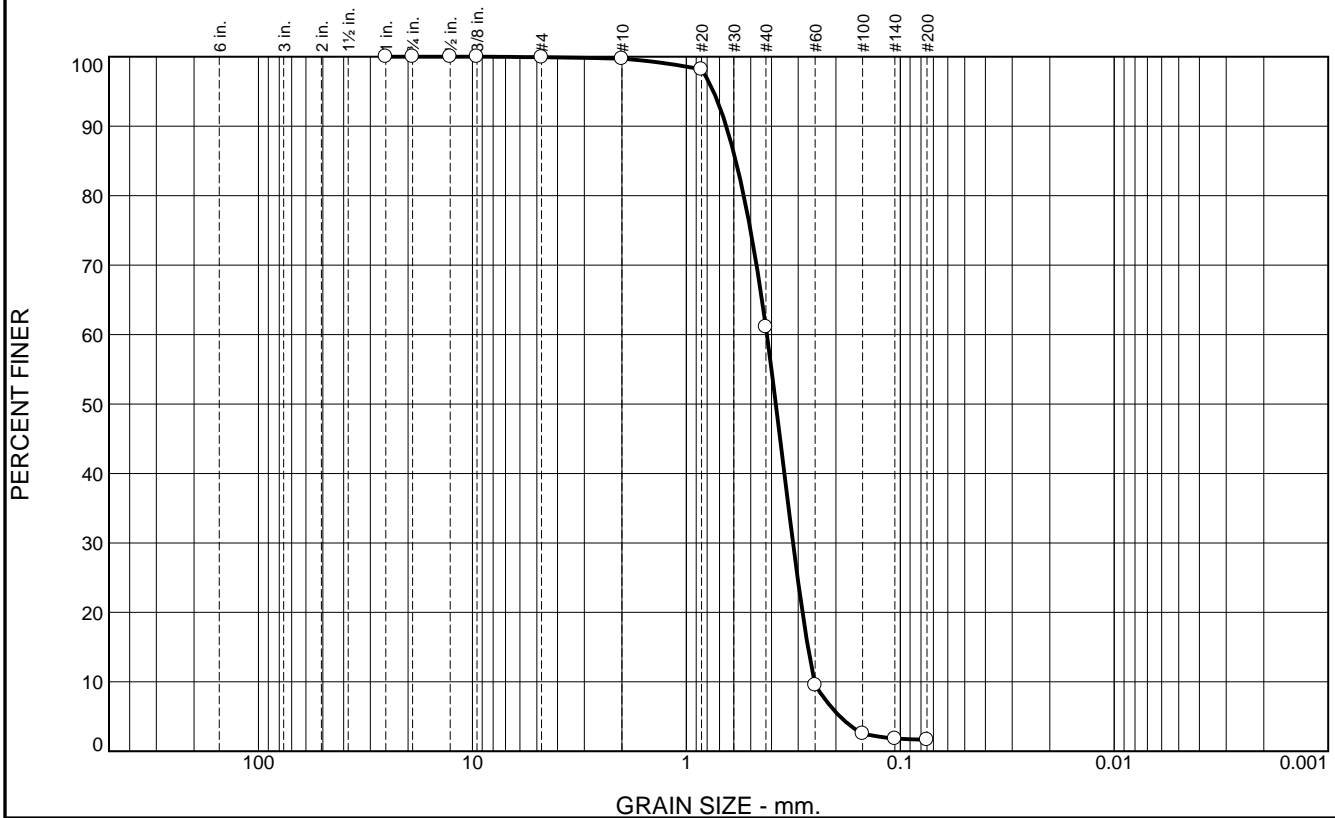
Mobile, Alabama

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

Project No: 1221110095

Figure

Particle Size Distribution Report



| % +3" | % Gravel | | % Sand | | | % Fines | |
|-------|----------|------|--------|--------|------|---------|------|
| | Coarse | Fine | Coarse | Medium | Fine | Silt | Clay |
| 0.0 | 0.0 | 0.1 | 0.2 | 38.6 | 59.5 | 1.6 | |

| SIEVE SIZE | PERCENT FINER | SPEC.* PERCENT | PASS? (X=NO) |
|------------|---------------|----------------|--------------|
| 1 | 100.0 | | |
| .75 | 100.0 | | |
| .5 | 100.0 | | |
| .375 | 100.0 | | |
| #4 | 99.9 | | |
| #10 | 99.7 | | |
| #20 | 98.2 | | |
| #40 | 61.1 | | |
| #60 | 9.5 | | |
| #100 | 2.5 | | |
| #140 | 1.8 | | |
| #200 | 1.6 | | |

Material Description

Fine to medium grained, SAND

Atterberg Limits

PL= LL= PI=

Coefficients

D₉₀= 0.6509 D₈₅= 0.5868 D₆₀= 0.4203
D₅₀= 0.3816 D₃₀= 0.3174 D₁₅= 0.2705
D₁₀= 0.2519 C_u= 1.67 C_c= 0.95

Classification

USCS= SP AASHTO=

Remarks

* (no specification provided)

Location: BI-PB-187-12 D
Sample Number: 6485 (20)

Depth: 12.2'

Date: 12/07/12

Thompson Engineering

Mobile, Alabama

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

Project No: 1221110095

Figure

Boring Designation BI-PB-189-12

| | | | | |
|---|--|--|---------------------------------|--|
| DRILLING LOG | | DIVISION South Atlantic | INSTALLATION Mobile District | SHEET 1 OF 1 SHEETS |
| 1. PROJECT MsCIP Barrier Island Restoration Petit Bois Pass- AL East | | 9. SIZE AND TYPE OF BIT N/A | | 10. COORDINATE SYSTEM/DATUM State Plane, MSE (U.S. Ft.) |
| 2. BORING DESIGNATION BI-PB-189-12 | | LOCATION COORDINATES E = 1,142,877 N = 253,269 | | HORIZONTAL NAD83 |
| 3. DRILLING AGENCY Corps of Engineers - CESAM | | CONTRACTOR FILE NO. | | VERTICAL NAVD88 |
| 4. NAME OF DRILLER American Vibracore Systems, Inc. | | 11. MANUFACTURER'S DESIGNATION OF DRILL Vibracore | | <input type="checkbox"/> AUTO HAMMER <input type="checkbox"/> MANUAL HAMMER |
| 5. DIRECTION OF BORING <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED | | DEG. FROM VERTICAL | | BEARING |
| 6. THICKNESS OF OVERBURDEN N/A | | 12. TOTAL SAMPLES | | DISTURBED UNDISTURBED (UD) |
| 7. DEPTH DRILLED INTO ROCK N/A | | 13. TOTAL NUMBER CORE BOXES | | 0 |
| 8. TOTAL DEPTH OF BORING 15.6 Ft. | | 14. WATER DEPTH 36.4 Ft. | | 15. DATE BORING |
| | | 16. ELEVATION TOP OF BORING -36.4 Ft. | | STARTED 12-11-12 |
| | | 17. TOTAL RECOVERY FOR BORING 100% | | COMPLETED 12-11-12 |
| | | 18. SIGNATURE AND TITLE OF INSPECTOR Mike FitzHarris, Geologist | | |

| ELEV. | DEPTH | LEGEND | CLASSIFICATION OF MATERIALS | SAMPLE | LABORATORY RESULTS |
|-------|-------|--------|---|--------|--------------------|
| -36.4 | 0.0 | | | | |
| -37.9 | 1.5 | | SILT, inorganic-L, mostly silt, some clay, trace fine-grained sand-sized quartz, trace shell fragments, brownish gray (ML) | | |
| | | // | CLAY, fat, mostly clay, medium to high plasticity, stiff, sandy lenses between 1.5 and 3.5 ft., greenish gray (CH) | NS | |
| -52.0 | 15.6 | | | | |
| | | | NOTES: 1. Soils are field visually classified in accordance with the Unified Soils Classification System. 2. NS = Sample not submitted for laboratory analysis from this interval. 3. Seafloor elevation calculated using sampling vessel's fathometer water depth reading and applying NOAA tidal gauge data conversion factor. | | |

Project

Mississippi Barrier Island
Restoration Project



Core Identifier BI-PB-189-12

Date 12/11/2012

Water Depth 36.4'

Coordinate System

Latitude / Longitude

Start Time 11:22:13

End Time 11:25:02

Penetration 20.0'

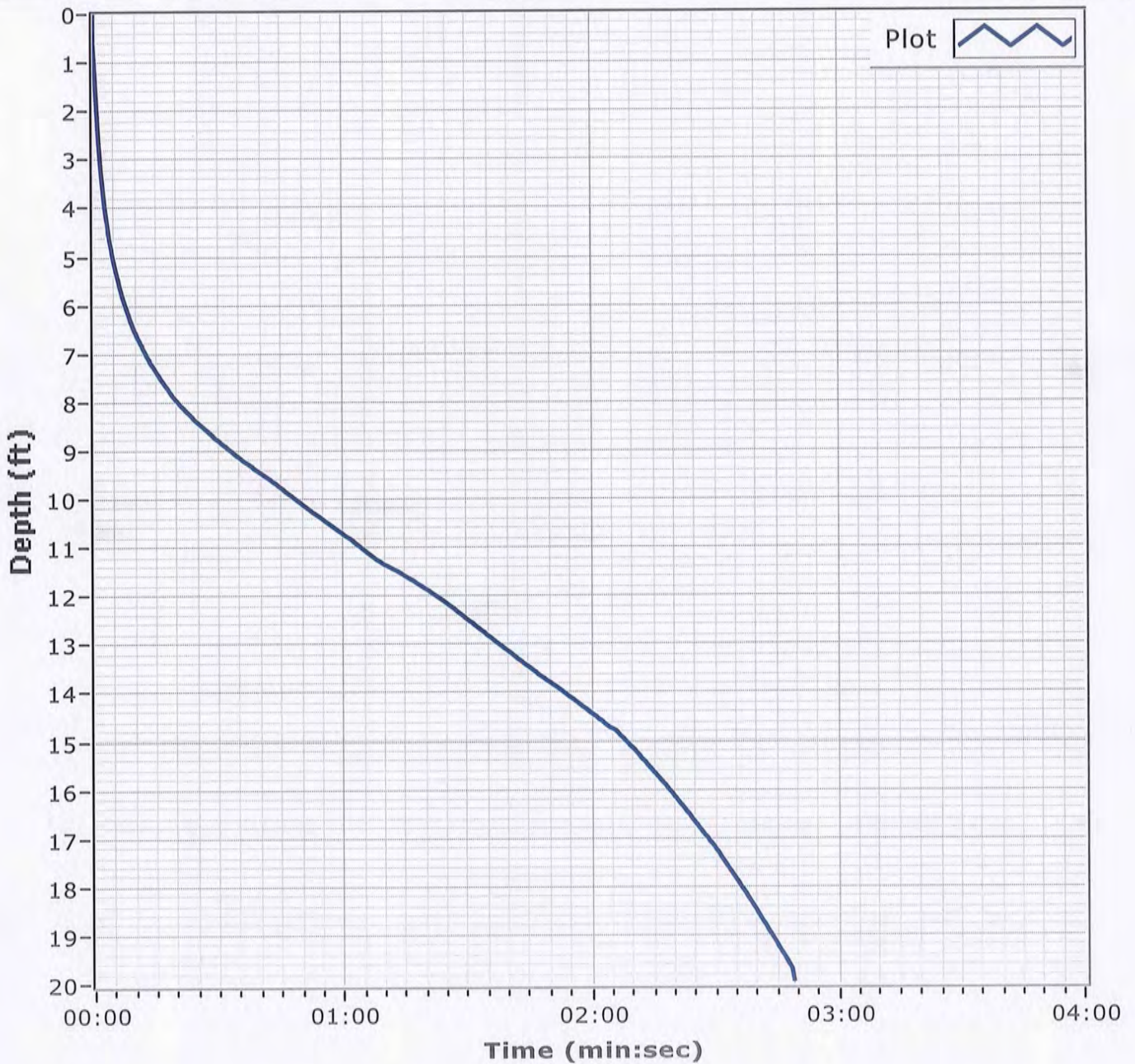
Latitude 33 11.729

Total Time 00:02:49

Recovery 15.5'

Longitude 088 19.873

Comments



Boring Designation BI-PB-190-12

| | | | | |
|--|--|---|--|--|
| DRILLING LOG | | DIVISION South Atlantic | INSTALLATION Mobile District | SHEET 1 OF 2 SHEETS |
| 1. PROJECT MsCIP Barrier Island Restoration Petit Bois Pass- AL East | | | 9. SIZE AND TYPE OF BIT N/A | |
| 2. BORING DESIGNATION BI-PB-190-12 | | 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 | | <input type="checkbox"/> AUTO HAMMER <input type="checkbox"/> MANUAL HAMMER |
| 4. NAME OF DRILLER American Vibracore Systems, Inc. | | 12. TOTAL SAMPLES | | DISTURBED 0 |
| 5. DIRECTION OF BORING <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED | | 13. TOTAL NUMBER CORE BOXES | | UNDISTURBED (UD) 0 |
| 6. THICKNESS OF OVERBURDEN N/A | | 14. WATER DEPTH 34.5 Ft. | | |
| 7. DEPTH DRILLED INTO ROCK N/A | | 15. DATE BORING | | STARTED 12-11-12 COMPLETED 12-11-12 |
| 8. TOTAL DEPTH OF BORING 18.2 Ft. | | 16. ELEVATION TOP OF BORING -34.7 Ft. | | |
| | | 17. TOTAL RECOVERY FOR BORING 100% | | |
| | | 18. SIGNATURE AND TITLE OF INSPECTOR Mike FitzHarris, Geologist | | |

| ELEV. | DEPTH | LEGEND | CLASSIFICATION OF MATERIALS | SAMPLE | LABORATORY RESULTS |
|--|-------|--------|--|--------|---|
| -34.7 | 0.0 | | | | |
| -36.1 | 1.4 | | CLAY, lean, mostly clay, some fine-grained sand-sized quartz, gray (CL) | NS | |
| -37.9 | 3.2 | | SAND, silty, mostly fine-grained sand-sized quartz, some silt, trace clay, trace clay stringers, gray (SM) | A | Classification: SP-SM Color: 5Y 6/2-light olive gray D50: 0.2746 mm % Fines: 7.7 |
| -45.0 | 10.3 | | SAND, poorly-graded, mostly fine to medium-grained sand-sized quartz, trace clay, trace clay stringers, dense, lt. gray (SP) | B | Classification: SP Color: 5Y 8/1-white D50: 0.3087 mm % Fines: 2.3 |
| -52.4 | 17.7 | | CLAY, fat, mostly clay, trace fine-grained sand-sized sand, trace shell fragments, medium to high plasticity, greenish gray (CH) | NS | |
| -52.9 | 18.2 | | SAND, clayey, mostly fine-grained sand-sized quartz, some clay, trace shell fragments, greenish gray (SC) | | |
| <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</p> | | | | | |

| DRILLING LOG (Cont. Sheet) | | | INSTALLATION Mobile District | | | SHEET 2 |
|--|-------|--------|---|----------------------------|---------------------------|--------------------|
| | | | | | | OF 2 SHEETS |
| PROJECT MsCIP Barrier Island Restoration | | | COORDINATE SYSTEM/DATUM State Plane, MSE (U.S. Ft.) | HORIZONTAL NAD83 | VERTICAL NAVD88 | |
| LOCATION COORDINATES X = 1,142,619 Y = 253,730 | | | ELEVATION TOP OF BORING -34.7 Ft. | | | |
| ELEV. | DEPTH | LEGEND | CLASSIFICATION OF MATERIALS | SAMPLE | LABORATORY RESULTS | |
| | | | applying NOAA tidal gauge data conversion factor. | | | |



Project

Mississippi Barrier Island
Restoration Project



Core Identifier BI-PB-190-12

Date 12/11/2012

Water Depth 34.5'

Coordinate System

Latitude / Longitude

Start Time 10:08:03

End Time 10:12:19

Penetration 19.8'

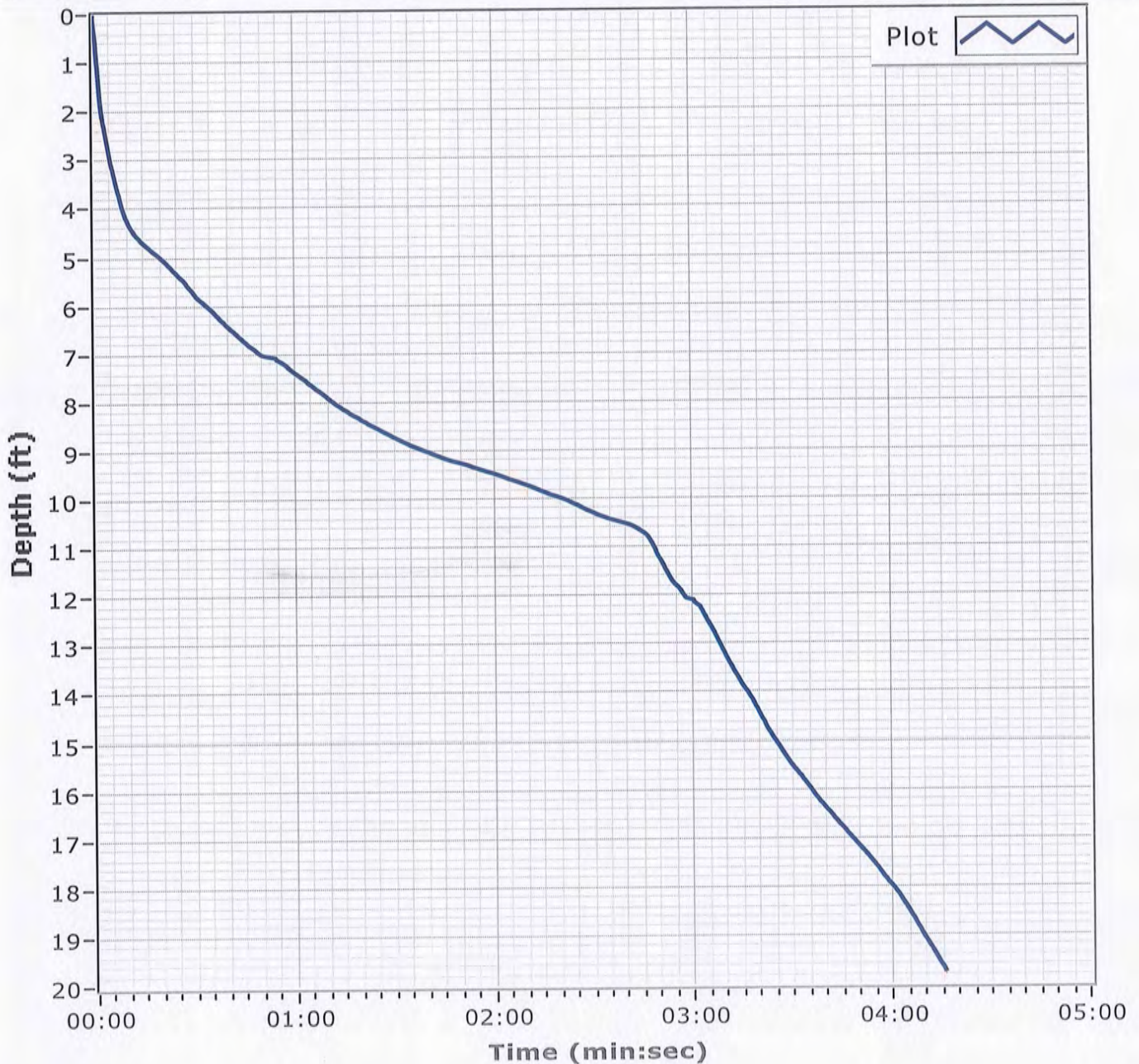
Latitude 33 11.805

Total Time 00:04:16

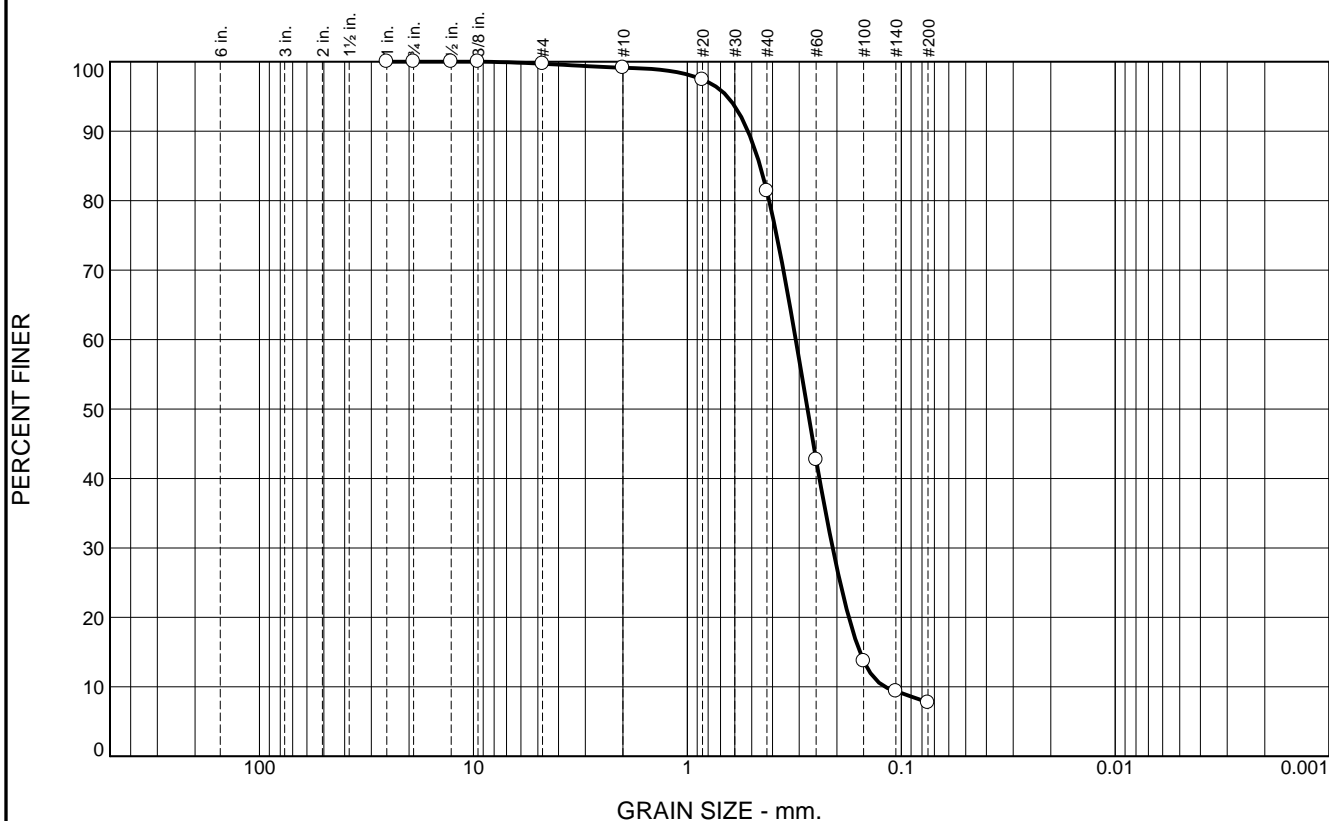
Recovery 18.2'

Longitude 088 19.922

Comments



Particle Size Distribution Report



| % +3" | % Gravel | | % Sand | | | % Fines | |
|-------|----------|------|--------|--------|------|---------|------|
| | Coarse | Fine | Coarse | Medium | Fine | Silt | Clay |
| 0.0 | 0.0 | 0.3 | 0.6 | 17.7 | 73.7 | 7.7 | |

| SIEVE SIZE | PERCENT FINER | SPEC.* PERCENT | PASS? (X=NO) |
|------------|---------------|----------------|--------------|
| 1 | 100.0 | | |
| .75 | 100.0 | | |
| .5 | 100.0 | | |
| .375 | 100.0 | | |
| #4 | 99.7 | | |
| #10 | 99.1 | | |
| #20 | 97.4 | | |
| #40 | 81.4 | | |
| #60 | 42.7 | | |
| #100 | 13.7 | | |
| #140 | 9.4 | | |
| #200 | 7.7 | | |

Material Description
Fine to medium grained, SLIGHTLY SILTY SAND

Atterberg Limits
 PL= LL= PI=

Coefficients
 D₉₀= 0.5208 D₈₅= 0.4570 D₆₀= 0.3116
 D₅₀= 0.2746 D₃₀= 0.2093 D₁₅= 0.1562
 D₁₀= 0.1191 C_u= 2.62 C_c= 1.18

Classification
 USCS= SP-SM AASHTO=

Remarks

* (no specification provided)

Location: BI-PB-190-12 A Depth: 1.4' Date: 12/07/12
 Sample Number: 6485 (21)

Thompson Engineering

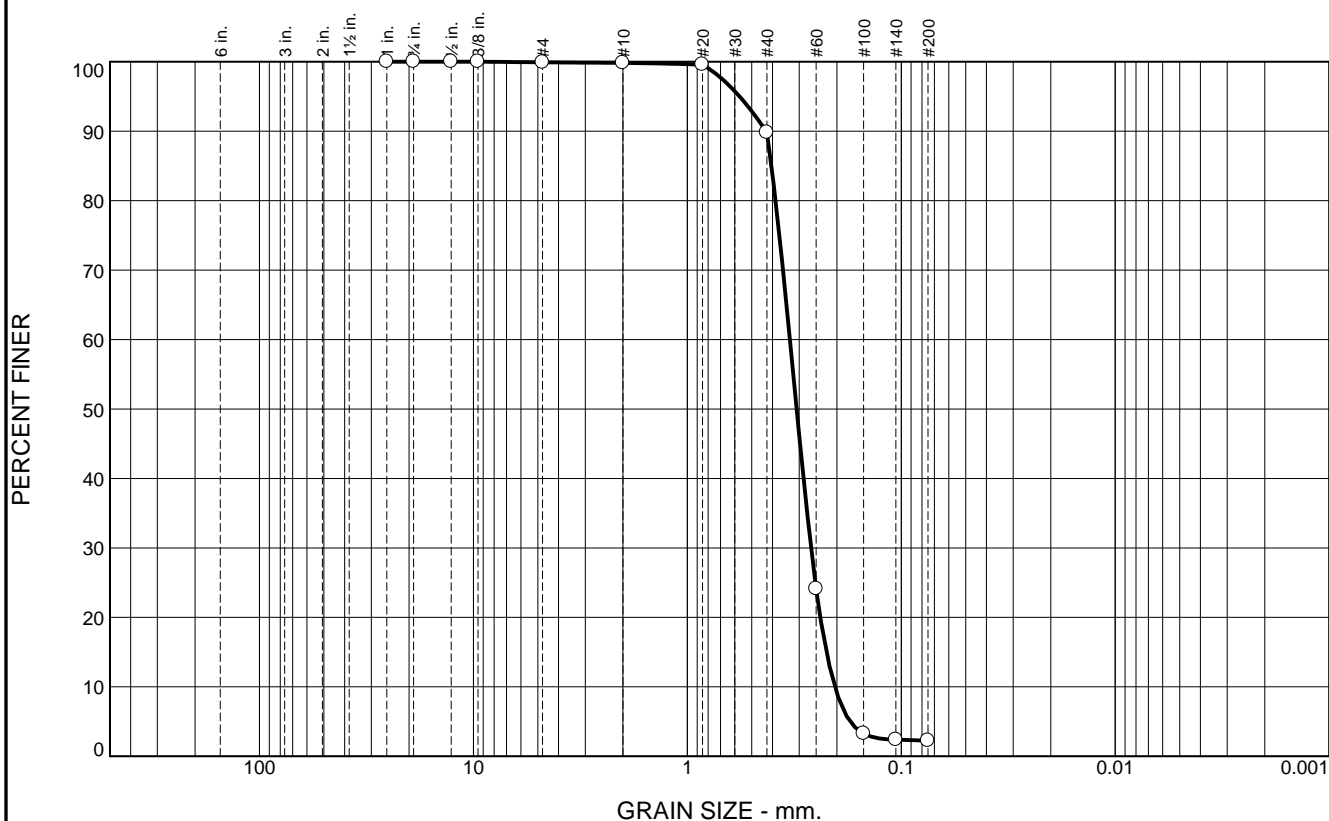
Mobile, Alabama

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

Project No: 1221110095

Figure

Particle Size Distribution Report



| % +3" | % Gravel | | % Sand | | | % Fines | |
|-------|----------|------|--------|--------|------|---------|------|
| | Coarse | Fine | Coarse | Medium | Fine | Silt | Clay |
| 0.0 | 0.0 | 0.1 | 0.1 | 10.0 | 87.5 | 2.3 | |

| SIEVE SIZE | PERCENT FINER | SPEC.* PERCENT | PASS? (X=NO) |
|------------|---------------|----------------|--------------|
| 1 | 100.0 | | |
| .75 | 100.0 | | |
| .5 | 100.0 | | |
| .375 | 100.0 | | |
| #4 | 99.9 | | |
| #10 | 99.8 | | |
| #20 | 99.6 | | |
| #40 | 89.8 | | |
| #60 | 24.1 | | |
| #100 | 3.3 | | |
| #140 | 2.4 | | |
| #200 | 2.3 | | |

Material Description
Fine to medium grained, SAND

Atterberg Limits
 PL= LL= PI=

Coefficients
 D₉₀= 0.4290 D₈₅= 0.4046 D₆₀= 0.3318
 D₅₀= 0.3087 D₃₀= 0.2642 D₁₅= 0.2237
 D₁₀= 0.2044 C_u= 1.62 C_c= 1.03

Classification
 USCS= SP AASHTO=

Remarks

* (no specification provided)

Location: BI-PB-190-12 B
Sample Number: 6485 (22)

Depth: 3.2'

Date: 12/07/12

Thompson Engineering

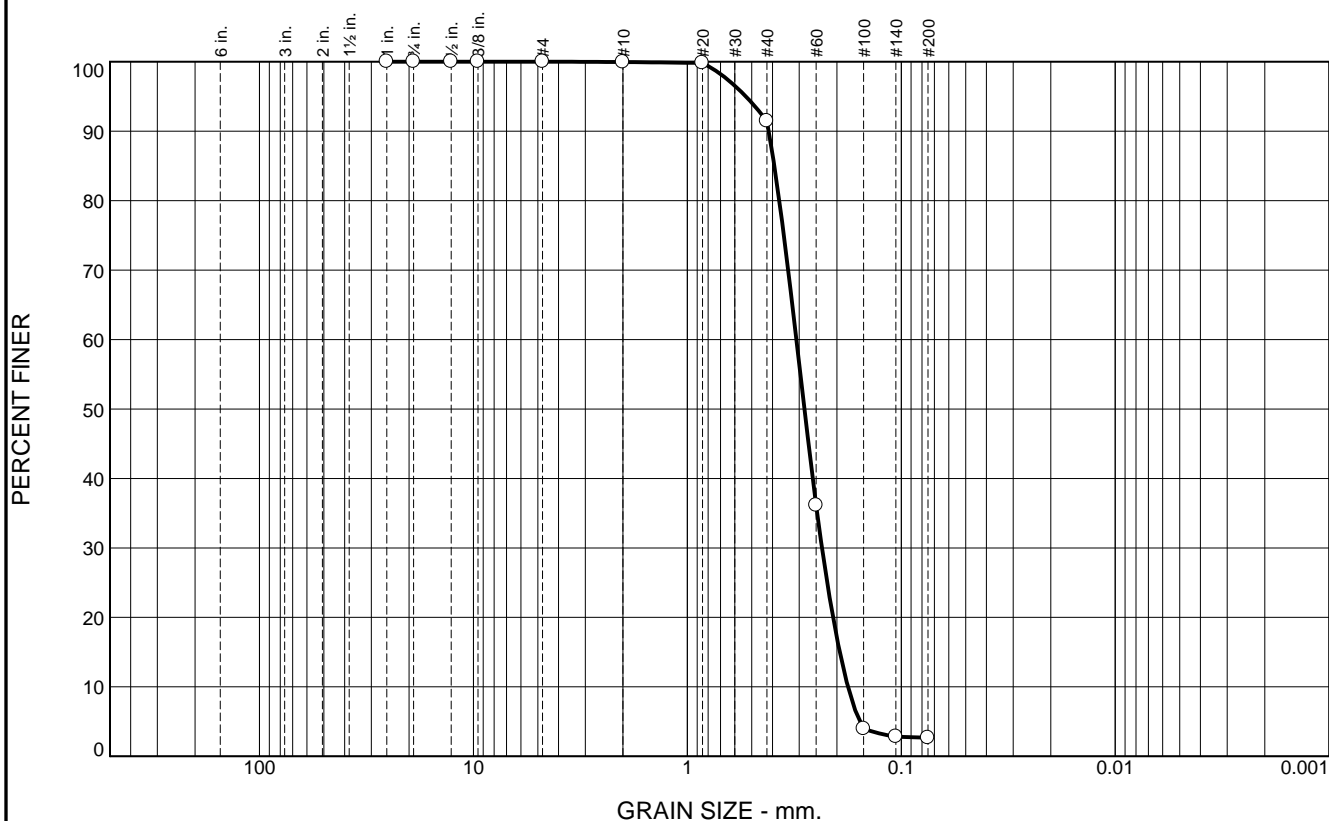
Mobile, Alabama

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

Project No: 1221110095

Figure

Particle Size Distribution Report



| % +3" | % Gravel | | % Sand | | | % Fines | |
|-------|----------|------|--------|--------|------|---------|------|
| | Coarse | Fine | Coarse | Medium | Fine | Silt | Clay |
| 0.0 | 0.0 | 0.0 | 0.1 | 8.4 | 88.8 | 2.7 | |

| SIEVE SIZE | PERCENT FINER | SPEC.* PERCENT | PASS? (X=NO) |
|------------|---------------|----------------|--------------|
| 1 | 100.0 | | |
| .75 | 100.0 | | |
| .5 | 100.0 | | |
| .375 | 100.0 | | |
| #4 | 100.0 | | |
| #10 | 99.9 | | |
| #20 | 99.8 | | |
| #40 | 91.5 | | |
| #60 | 36.1 | | |
| #100 | 4.0 | | |
| #140 | 2.8 | | |
| #200 | 2.7 | | |

Material Description

Fine grained, SAND

Atterberg Limits

PL= LL= PI=

Coefficients

D₉₀= 0.4165 D₈₅= 0.3919 D₆₀= 0.3094
D₅₀= 0.2838 D₃₀= 0.2348 D₁₅= 0.1940
D₁₀= 0.1777 C_u= 1.74 C_c= 1.00

Classification

USCS= SP AASHTO=

Remarks

* (no specification provided)

Location: BI-PB-190-12 C
Sample Number: 6485 (23)

Depth: 8.2'

Date: 12/07/12

Thompson Engineering

Mobile, Alabama




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

Project No: 1221110095

Figure

Boring Designation BI-PB-191-12

| | | | | |
|--|--|---|--|--|
| DRILLING LOG | | DIVISION South Atlantic | INSTALLATION Mobile District | SHEET 1 OF 1 SHEETS |
| 1. PROJECT MsCIP Barrier Island Restoration Petit Bois Pass- AL East | | 9. SIZE AND TYPE OF BIT N/A | | |
| 2. BORING DESIGNATION BI-PB-191-12 | | 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 | | <input type="checkbox"/> AUTO HAMMER <input type="checkbox"/> MANUAL HAMMER |
| 4. NAME OF DRILLER American Vibracore Systems, Inc. | | 12. TOTAL SAMPLES | | DISTURBED 0 |
| 5. DIRECTION OF BORING <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED | | 13. TOTAL NUMBER CORE BOXES | | UNDISTURBED (UD) 0 |
| 6. THICKNESS OF OVERBURDEN N/A | | 14. WATER DEPTH 34.8 Ft. | | 15. DATE BORING |
| 7. DEPTH DRILLED INTO ROCK N/A | | 16. ELEVATION TOP OF BORING -34.9 Ft. | | STARTED 12-11-12 |
| 8. TOTAL DEPTH OF BORING 15.8 Ft. | | 17. TOTAL RECOVERY FOR BORING 100% | | COMPLETED 12-11-12 |
| 18. SIGNATURE AND TITLE OF INSPECTOR Mike FitzHarris, Geologist | | | | |

| ELEV. | DEPTH | LEGEND | CLASSIFICATION OF MATERIALS | SAMPLE | LABORATORY RESULTS |
|--|-------|---|---|--------|--------------------|
| -34.9 | 0.0 | | | | |
| -36.2 | 1.3 |  | SILT, inorganic-L, mostly silt, little fine-grained sand-sized quartz, trace clay, brownish gray (ML) | | |
| | |  | CLAY, fat, mostly clay, trace fine-grained sand-sized quartz, trace shell fragments, medium to high plasticity, stiff, greenish gray (CH) | NS | |
| -50.3 | 15.4 | | | | |
| -50.7 | 15.8 |  | SAND, clayey, mostly fine-grained sand-sized quartz, some clay, trace shell fragments, greenish gray (SC) | | |
| <p>NOTES:</p> <ol style="list-style-type: none"> Soils are field visually classified in accordance with the Unified Soils Classification System. NS = Sample not submitted for laboratory analysis from this interval. Seafloor elevation calculated using sampling vessel's fathometer water depth reading and applying NOAA tidal gauge data conversion factor. | | | | | |