# Joint Permit Application For Work Within the Louisiana Coastal Zone

Louisiana Department of Energy and Natural Resources
Office of Coastal Management

U.S. Army Corps of Engineers (COE)
New Orleans District

**Application Number:** 31230 **Permit Number:** P20230358 **Date Received:** 06/14/2024

## Step 1 of 15 - Applicant Information

**Applicant Name:** Board of Commissioners of the Port of New Orleans **Applicant Type:** GOVERNMENT AGENCY

**Mailing Addr :** 1350 Port of New Orleans Pl.
New Orleans, LA 70130

**Contact Info:** Chris Gilmore
**Phone:** (504) 528-3305 **Fax:** - **Email:** chris.gilmore@portnola.com

## Step 2 of 15 - Agent Information

**Agent Name:** Evans-Graves Engineers

**Mailing Addr:** 909 Poydras St Ste 3050
New Orleans, LA 70112

**Contact Info:** Lee Walker
**Phone:** (504) 913-1857 **Fax:** - **Email:** lwalker@evans-graves.com

## Step 3 of 15 - Permit Type

☒ Coastal Use Permit (CUP) ☐ Solicitation of Views (SOV) ☐ Request for Determination (RFD)

## Step 4 of 15 - Pre-Application Activity

**a. Have you participated in a Pre-Application or Geological Review Meeting for the proposed project?**

☒ No ☐ Yes Date meeting was held:

Attendees:

(Individual or Company Rep) (OCM Representative ) (COE Representative)

**b. Have you obtained an official wetland determination from the COE for the project site?**

☐ No ☒ Yes **If Yes, Please upload a copy with your application.**

**JD Number: MVN2021-00069SL and 00070SL**

**c. Is this application a mitigation plan for another CUP?**

☒ No ☐ Yes OCM Permit Number:

## Step 5 of 15 - Project Information

**a. Describe the project.**

Please see attached "Updated Step 5a"

**b. Is this application a change to an existing permit?**

☒ No ☐ Yes OCM Permit Number:

**c. Have you previously applied for a permit or emergency authoriation for all or any part of the proposed project?**

☐ No ☒ Yes

| Agency | Contact | Permit Number | Decision Status | Decision Date |
|---|---|---|---|---|
| OCM | Sara Krupa | C20210083 | Pending | |
| COE | Angelle Greer | MVN-2021-00270-EG | Pending | |
| Other | | | | |

**Step 6 of 15 - Project Location**

**a. Physical Location**

Street:

City: Violet Parish: Saint Bernard Zip: 70092

Water Body:

**b. Latitude and Longitude**

Latitude: 28 53 28.45 Longitude: -89 53 29.83

**c. Section, Township, and Range**

Section #: 8,9,10 Township #: 13S Range #: 13E
Section #: Township #: Range #:

**d. Lot, Tract, Parcel, or Subdivision Name**

Lot #: Parcel #:

Tract #: Subdivision Name:

**e. Site Direction**

START-I-10 toward Slidell. Exit #246A toward Chalmette/US-510 South. LEFT onto E. St. Bernard Hwy and travel approximately 6.0 miles to property located across St. Bernard Hwy from the old Violet Dock facility -END

**Step 7 of 15 - Adjacent Landowners** - See attached list

**Step 8 of 15 - Project Specifics**

**a. Project Name and/or Title:** Pile Load Test for Louisiana International Terminal Design

**b. Project Type:** Non-Residential

**c. Jurisdiction:** State Concern

**d. Source of Funding** **STATE**

**e. What will be done for the proposed project?**

- ☐ Bridge/Road
- ☐ Bulkhead/Fill
- ☐ DrainageImprovements
- ☐ Drill Barge/ Structure
- ☐ Drill Site
- ☒ Fill
- ☐ Other:
- ☐ Home Site/Driveway
- ☐ Levee Construction
- ☐ Dredging
- ☐ Prop Washing
- ☒ Pilings
- ☐ Marina
- ☐ Pipeline/Flow Line
- ☐ Plug/Abandon
- ☐ Production Barge/Structure
- ☐ Vegetative Plantings
- ☐ Remove Structures
- ☐ Major Industrial/Commercial
- ☐ Rip Rap/Erosion Control
- ☐ Site Clearance
- ☐ Subdivision
- ☐ Wharf/Pier/Boathouse

**f. Why is the proposed project needed?**

To support the design of the Louisiana International Terminal wharf and ramps

**Step 9 of 15 - Project Status**

**a. Proposed start date:** 08/01/2024 **Proposed completion date:** 10/01/2024

**b. Is any of the project work in progress?**

☒ No ☐ Yes

**c. Is any of the project work completed?**

☒ No ☐ Yes

**Step 10 of 15 - Structures, Materials, and Methods for the Pr**

**a. Excavations**

0 Cubic Yards 0 Acres

**b. Fill Areas**

6366 Cubic Yards 1.46 Acres

**c. Fill Materials**

| | | | | | |
|---|---|---|---|---|---|
| ☐ | Concrete: | Cubic Yards | ☐ | Rock: | Cubic Yards |
| ☒ | Crushed Stone or Gravel: | 6366 Cubic Yards | ☐ | Sand: | Cubic Yards |
| ☐ | Excavated and Placed onsite : | Cubic Yards | ☐ | Hauled in Topsoil/Dirt: | Cubic Yards |
| ☐ | Excavated and hauled offsite: | Cubic Yards | | | |
| ☒ | Other: pile | | 0 | Cubic Yards | |

**d. What equipment will be used for the proposed project?**

| | | | | | |
|---|---|---|---|---|---|
| ☐ | Airboat | ☐ | Bulldozer/Grader | ☐ | Marsh Buggy |
| ☐ | Backhoe | ☐ | Dragline/Excavator | ☒ | Other Tracked or Wheeled Vehicles |
| ☐ | Barge Mounted Bucket Dredge | ☐ | Handjet | ☐ | Self Propelled Pipe Laying Barge |
| ☐ | Barge Mounted Drilling Rig | ☐ | Land Based Drilling Rig | ☐ | Tugboat |
| ☒ | Other: Crane, barge | | | | |

**Step 11 of 15 - Project Alternatives**

**a. Total acres of wetlands and/or waterbottoms filled and/or excavated.**

**0** acres

**b. What alternative locations, methods, and access routes were considered to avoid impact to wetlands and/or waterbottoms?**

Rather than access the pile test sites by land over the Mississippi River Levee and/or clearing access between the test pile sites, which would require wetland impacts, floodside piles will be driven from cranes on barges in the river.

**c. What efforts were made to minimize impact to wetlands and/or waterbottoms?**

batture clearing was eliminated by using cranes on barge for pile installation

**d. How are unavoidable impacts to vegetated wetlands to be mitigated?**

no impact to wetlands are anticipated; no compensatory mitigation is required

**Step 12 of 15 - Permit Type and Owners**

**a. Are you applying for a Coastal Use Permit?**

☐ No ☒ Yes

**b. Are you the sole landowner / oyster lease holder?**

☐ No ☒ Yes

☐ The applicant is an owner of the property on which the proposed described activity is to occur.

☐ The applicant has made reasonable effort to determine the identity and current address of the owner(s) of the land on which the proposed described activity is to occur, which included, a search of the public records of the parish in which the proposed activity is to occur.

☐ The applicant hereby attests that a copy of the application has been distributed to the following landowners / oyster lease holders. See attached list.

**c. Does the project involve drilling, production, and/or storage of oil and gas?**

☒ No ☐ Yes **If yes, you must attach a list of all state and federal laws and rules and regulations dealing with spill prevention and containment.**

**Step 13 of 15 - Maps and Drawing Instructions**

Note: OCM Compiled Plats consist of a complete and current set of plats that have been pieced together by OCM using only the most current portions of the plat files provided by the applicant/agent. All out-of-date plats have been excluded.

| | |
|---|---|
| 2024-06-12_LIT_Pile_Load_Test_Permit_Drawings.pdf | 06/14/2024 04:49:40 PM |
| Stone_Pad_and_Revetment_Pile_QTO.pdf | 06/14/2024 04:50:23 PM |
| Updated_Step_5a.pdf | 06/03/2024 06:50:49 PM |
| LONO_23_1066_Seepage_Ananlysis_Appendices.pdf | 06/03/2024 07:01:42 PM |
| LONO_23_1066_Seepage_Ananlysis_compressed.pdf | 06/03/2024 07:01:22 PM |

**Step 14 of 15 - Payment**

**The fee for this permit is:** $ 100.00

**Step 15 of 15 - Payment Processed**

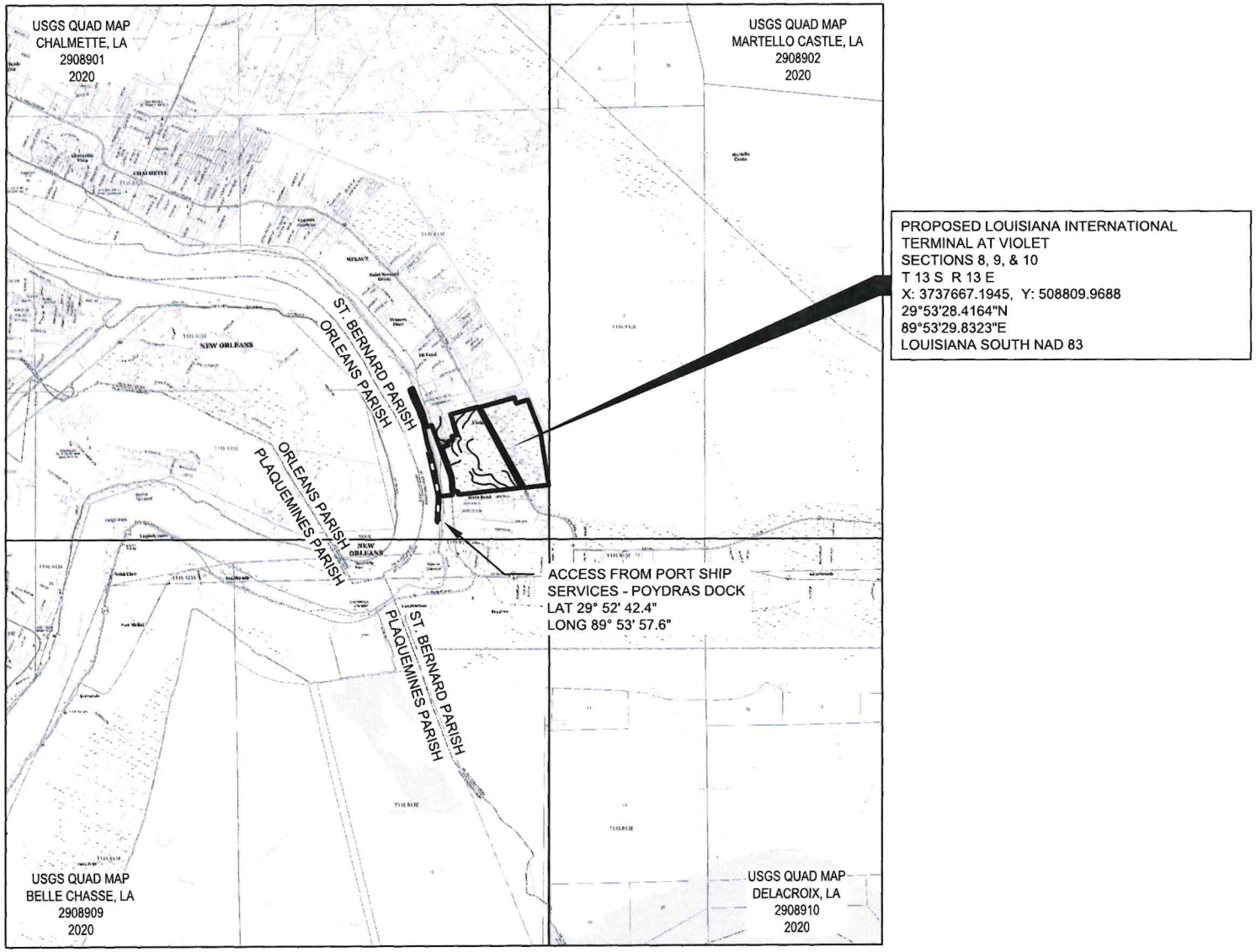
**Applicant Information**

**Applicant Name:** Board of Commissioners of the Port of New Orleans
**Address:** 1350 Port of New Orleans Pl.

New Orleans, LA 70130

To the best of my knowledge the proposed activity described in this permit application complies with, and will be conducted in a manner that is consistent with the Louisiana Coastal Resources Program. If applicable, I also certify that the declarations in Step 12c, oil spill response, are complete and accurate.

## Landowners List




## GEOTECHNICAL SURVEY VICINITY MAP

NTS

LEGEND:

ACCESS ROUTE

**AECOM** Imagine it. Delivered.

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**BOARD OF COMMISSIONERS – PORT OF NEW ORLEANS**

LOUISIANA INTERNATIONAL TERMINAL AT VIOLET

| DATE | SCALE | JOB NO. | DRAWING NO. |
|---|---|---|---|
| 06/12/24 | AS NOTED | 60637250 | FIG 1 |

DESIGNED BY: JAMES HANCE, P.E. LA REGISTRATION NO: 0031270 STATE: LA

PRELIMINARY - FOR PERMIT PURPOSES ONLY

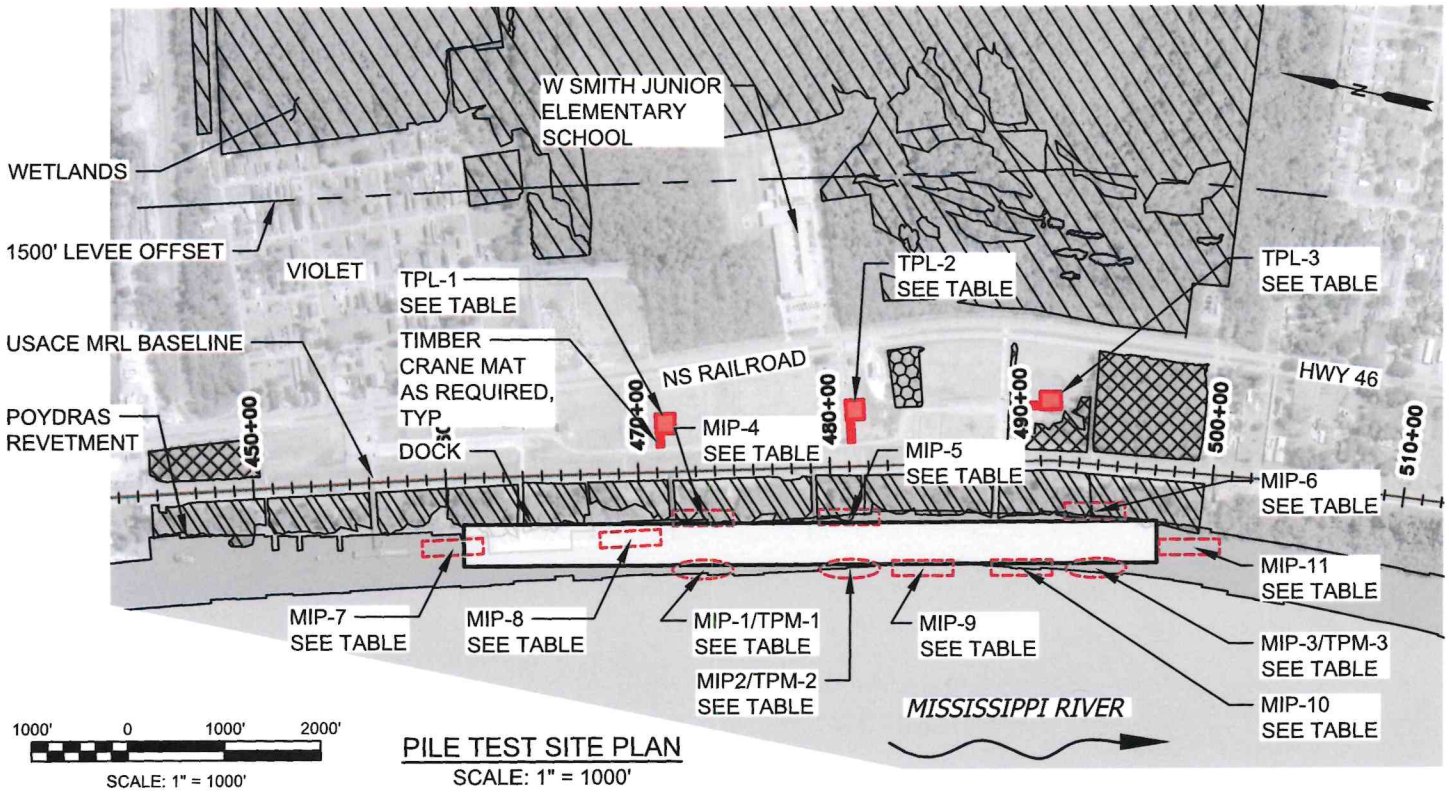
C:\Users\MartinezIIC\ACCDocs\Port of New Orleans\LIT\Project Files\Live Files\SHEET FILES\PERMITTING\Wharf TPP Permit\FIG 1 - SHT 1 OF 1.dwg, Jun 11, 2024 - 2:17:34PM, MartinezIIC

NOTES:

1. ITEMS SHOWN IN RED TO BE PERMITTED UNDER THIS REQUEST.
2. REFER TO JD # 2021-00070-1 DATED MARCH 14, 2022 BY TERRACON
3. SEE FIGURE 3, SHEETS 1 AND 2 FOR DETAILS ON TEST PILE AREAS.
4. TIMBER MATTING TO BE UTILIZED FOR CRANE SUPPORT FOR LANDSIDE TEST PILE AREAS.
5. AS-BUILT DRAWINGS AND/OR PLATS SHALL HAVE WRITTEN ON THEM THE DATE OF COMPLETION OF SAID ACTIVITIES AND SHALL BE SUBMITTED TO THE LOUISIANA DEPARTMENT OF NATURAL RESOURCES, OFFICE OF COASTAL MANAGEMENT, P. O. BOX 44487, BATON ROUGE, LA 70804-4487 WITHIN 30 DAYS FOLLOWING PROJECT COMPLETION.
6. ALL STRUCTURES BUILT UNDER THE AUTHORIZATION AND CONDITIONS OF THIS PERMIT SHALL BE REMOVED FROM THE SITE WITHIN 120 DAYS OF ABANDONMENT OF THE FACILITIES FOR THE HEREIN PERMITTED USE, OR WHEN THESE STRUCTURES FALL INTO A STATE OF DISREPAIR SUCH THAT THEY CAN NO LONGER FUNCTION AS INTENDED. THIS CONDITION DOES NOT PRECLUDE THE NECESSITY FOR REVISING THE CURRENT PERMIT OR OBTAINING A SEPARATE COASTAL USE PERMIT, SHOULD ONE BE REQUIRED, FOR SUCH REMOVAL ACTIVITIES.
7. STRUCTURES MUST ALSO BE MARKED/LIGHTED IN ACCORDANCE WITH U. S. COAST GUARD REGULATIONS.
8. IN ORDER TO ENSURE THE SAFETY OF ALL PARTIES, THE PERMITTEE SHALL CONTACT THE LOUISIANA ONE CALL SYSTEM (1-800-272-3020) A MINIMUM OF 48 HOURS PRIOR TO THE COMMENCEMENT OF ANY EXCAVATION (DIGGING, DREDGING, JETTING, ETC.) OR DEMOLITION ACTIVITY.

LEGEND:

- NON-JURISDICTIONAL FORESTED WETLAND
- JURISDICTIONAL BATTURE WETLANDS
- SCRUB/SHRUB WETLANDS
- JURISDICTIONAL SCRUB/SHRUB WETLANDS
- FORESTED WETLAND
- CLEAR AREAS FOR STONEWORK PADS
- INDICATOR PILE AREA
- TEST PILE AREA




PILE TEST SITE PLAN
SCALE: 1" = 1000'

| TEST PILE AREA TABLE | | |
|---|---|---|
| TEST PILE AREA | APPROXIMATE LATITUDE * | APPROXIMATE LONGITUDE * |
| MIP-1/TPM-1 | 29° 53' 24.73" | 89° 54' 05.24" |
| MIP-2/TPM-2 | 29° 53' 17.32" | 89° 54' 03.40" |
| MIP-3/TPM-3 | 29° 53' 04.90" | 89° 54' 00.34" |
| MIP-4 | 29° 53' 25.29" | 89° 54' 02.23" |
| MIP-5 | 29° 53' 17.92" | 89° 54' 00.39" |
| MIP-6 | 29° 53' 05.58" | 89° 53' 57.02" |
| MIP-7 | 29° 53' 37.57" | 89° 54' 07.01" |
| MIP-8 | 29° 53' 28.71" | 89° 54' 04.32" |
| MIP-9 | 29° 53' 13.64" | 89° 54' 02.46" |
| MIP-10 | 29° 53' 08.66" | 89° 54' 01.25" |
| MIP-11 | 29° 53' 00.41" | 89° 53' 57.99" |
| TPL-1 | 29° 53' 28.19" | 89° 53' 57.22" |
| TPL-2 | 29° 53' 18.79" | 89° 53' 54.11" |
| TPL-3 | 29° 53' 08.98" | 89° 53' 51.16" |

* APPROXIMATE LATITUDE AND LONGITUDE IS FROM CENTER POINT OF TEST PILE AREA ZONE.

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BOARD OF COMMISSIONERS – PORT OF NEW ORLEANS
LOUISIANA INTERNATIONAL TERMINAL AT VIOLET

| DATE | SCALE | JOB NO. | DRAWING NO. |
|---|---|---|---|
| 06/12/24 | AS NOTED | 60637250 | FIG 2 |

DESIGNED BY: JAMES HANCE, P.E. LA REGISTRATION NO: 0031270 STATE: LA

PRELIMINARY - FOR PERMIT PURPOSES ONLY

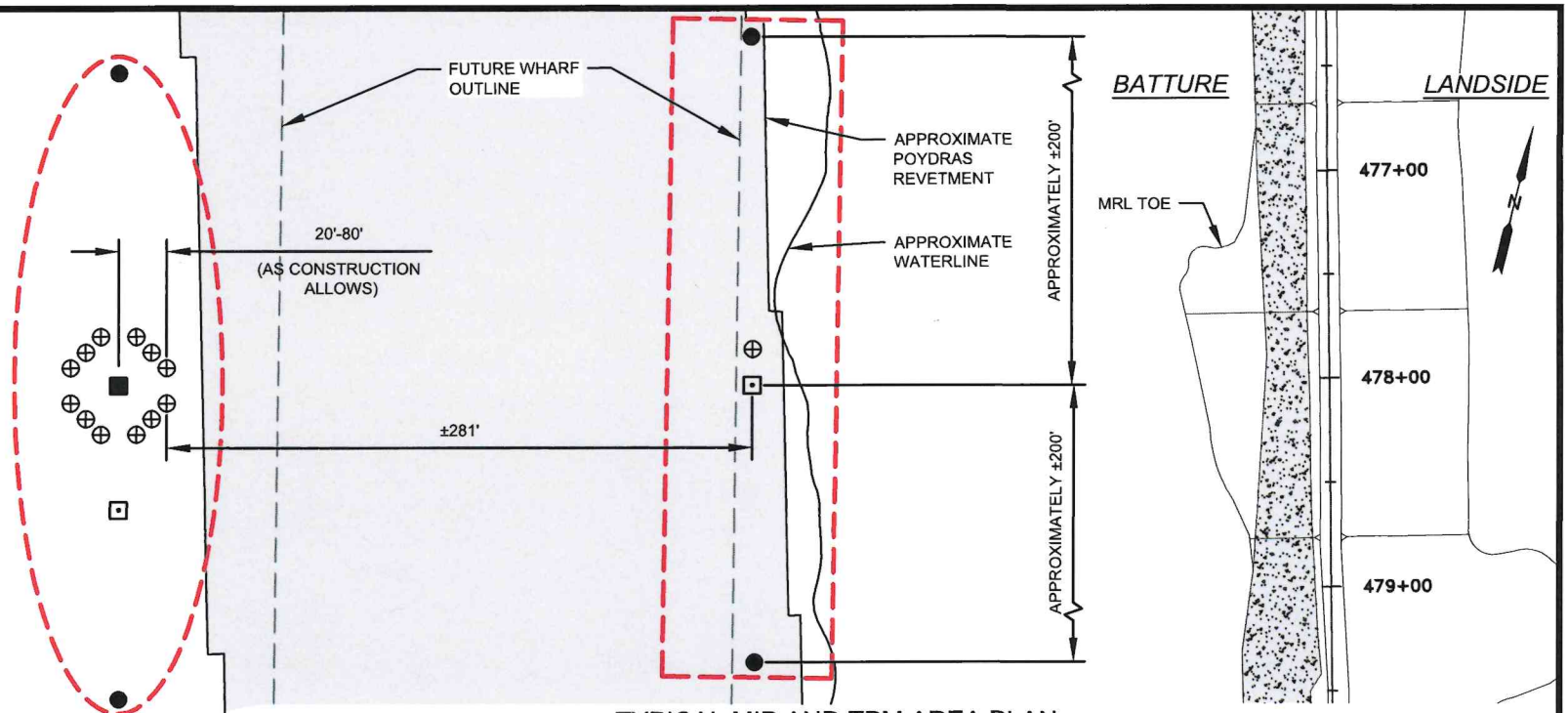
C:\Users\MartinezIIC\ACCDocs\Port of New Orleans\LIT\Project Files\Live Files\SHEET FILES\PERMITTING\Wharf TPP Permit\FIG 2 - SHT 1 OF 1.dwg, Jun 11, 2024 - 2:18:10PM, MartinezIIC

LEGEND

- INSTRUMENTED 36" SQUARE CONCRETE TEST PILE
- 36" SQUARE CONCRETE INDICATOR PILE
- 36" STEEL PIPE REACTION PILE/INDICATOR PILE
- 24" STEEL PIPE ANCHOR PILE
- INDICATOR PILE AREA
- TEST PILE AREA

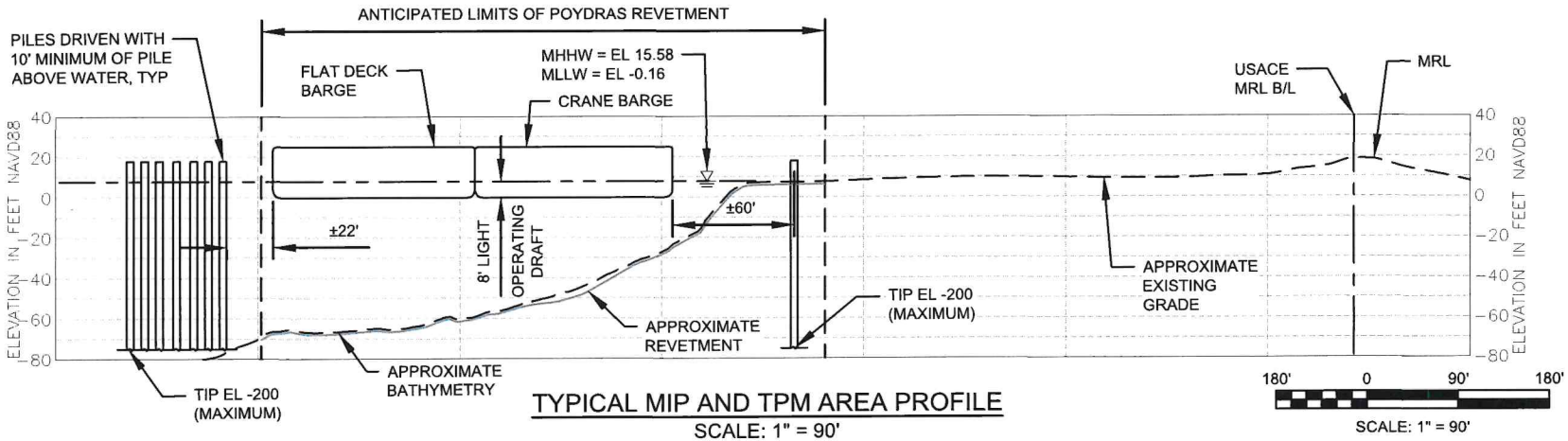
NOTES:

1. INSTRUMENTED TEST PILE TO BE INSTALLED WITHIN RIVER NO CLOSER THAN 400FT FROM FLOODSIDE MRL TOE TO MAXIMUM TIP EL -200.
2. ADDITIONAL INDICATOR PILES WILL BE INSTALLED ON BATTURE AND WITHIN RIVER NEAR EL -60 CONTOUR.
3. ADJUSTMENTS TO SIZES, DEPTHS, QUANTITIES, AND LOCATIONS OF TEST PILE(S) AND INDICATOR PILES MAY BE REQUIRED.
4. SEE FIGURE 2 - SHEET 1 FOR GENERAL NOTES.
5. TPM-2 SHOWN ON THIS DRAWING. TPM-1 AND TPM-3 SIMILAR, SEE FIGURE 2 - SHEET 1 FOR LOCATIONS.
6. ALL TEST PILE WORK FOR TPM AREAS 1, 2, AND 3 SHALL TAKE PLACE WITH MARINE EQUIPMENT ONLY, EXCEPT FOR ANCHORING OF THE BARGES.
7. BARGE ANCHORAGE WILL BE EITHER BY EXISTING SITE ANCHORAGE SYSTEMS, 24" PIPE PILE ANCHORS, OR ANCHOR LINES TIED TO DOZERS WITHIN THE BATTURE AREA.
8. ALL DOZERS WITHIN THE BATTURE WILL BE LESS THAN HS-20 LOADING.




TYPICAL MIP AND TPM AREA PLAN

SCALE: 1" = 90'




TYPICAL MIP AND TPM AREA PROFILE

SCALE: 1" = 90'

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LOUISIANA INTERNATIONAL TERMINAL AT VIOLET

| DATE | SCALE | JOB NO. | DRAWING NO. |
|---|---|---|---|
| 06/12/24 | AS NOTED | 60637250 | FIG 3 |

DESIGNED BY: JAMES HANCE, P.E. LA REGISTRATION NO: 0031270 STATE: LA

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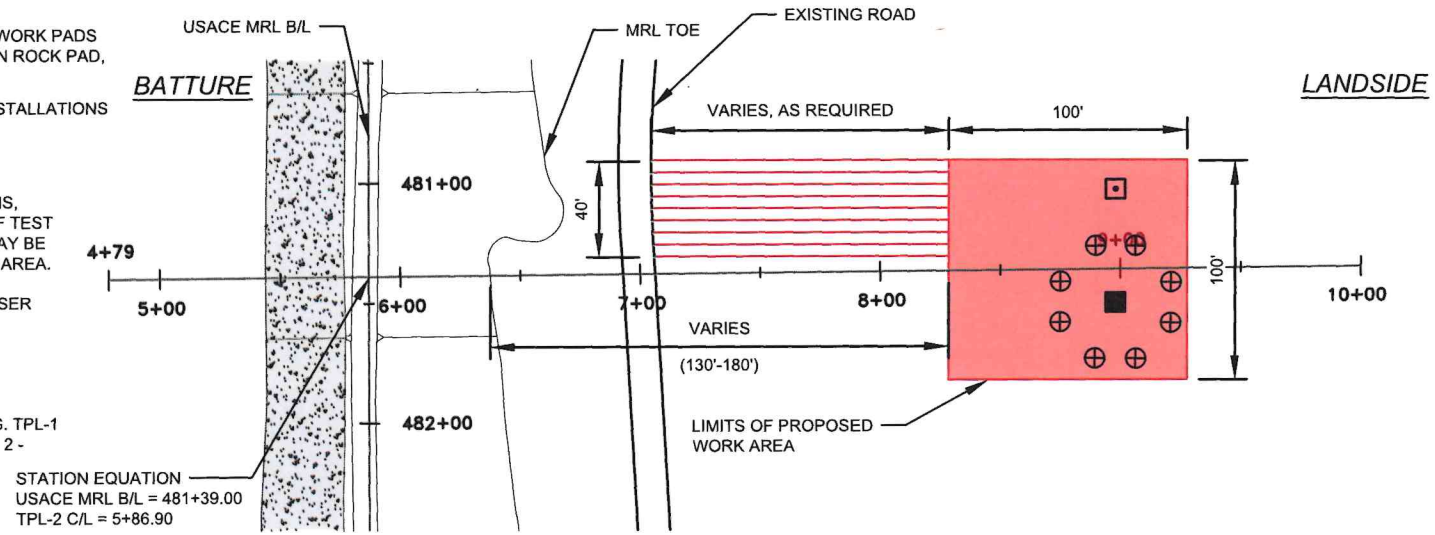
C:\Users\MartinezIIC\ACCDocs\Port of New Orleans\LIT\Project Files\Live Files\SHEET FILES\PERMITTING\Wharf TPP Permit\FIG 3.dwg, Jun 11, 2024 - 2:18:35PM, MartinezIIC

LEGEND

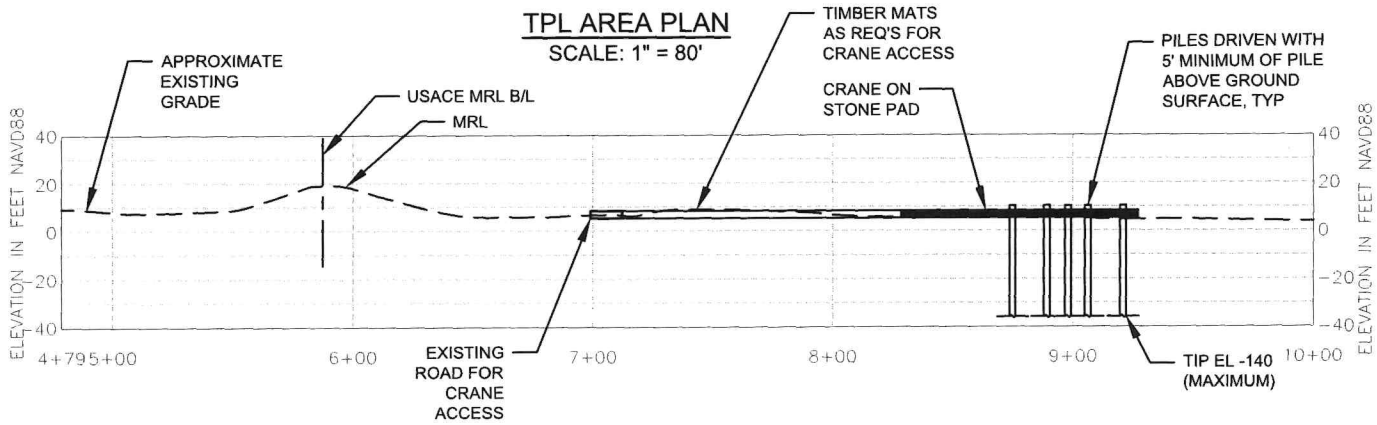
- 24" INSTRUMENTED SQUARE CONCRETE TEST PILE
- 24" SQUARE CONCRETE INDICATOR PILE
- 36" STEEL PIPE REACTION PILE
- CLEAR AREAS FOR STONEWORK PADS (APPROXIMATELY 1,500 TON ROCK PAD, 3' THICK ON GEOGRID)
- CLEAR AREAS FOR PILE INSTALLATIONS
- TIMBER CRANE MATS

NOTES:

1. ADJUSTMENTS TO SIZES, DEPTHS, QUANTITIES, AND LOCATIONS OF TEST PILE(S) AND INDICATOR PILES MAY BE REQUIRED IN PROPOSED WORK AREA.
2. PILES TO BE INSTALLED NO CLOSER THAN 130FT FROM LEVEE TOE.
3. REFER TO FIGURE 2 - SHEET 1 FOR GENERAL NOTES.
4. TPL-2 SHOWN ON THIS DRAWING. TPL-1 AND TPL-3 SIMILAR, SEE FIGURE 2 - SHEET 1 FOR LOCATIONS




TPL AREA PLAN
SCALE: 1" = 80'




TPL AREA PROFILE
SCALE: 1" = 80'

80' 0 80' 160'
SCALE: 1" = 80'

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| DATE | SCALE | JOB NO. | DRAWING NO. |
|---|---|---|---|
| 06/12/24 | AS NOTED | 60637250 | FIG 4 |

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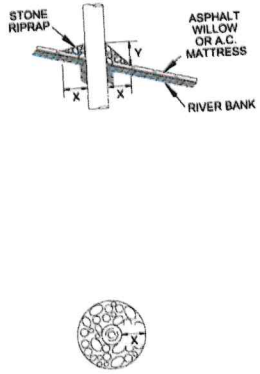
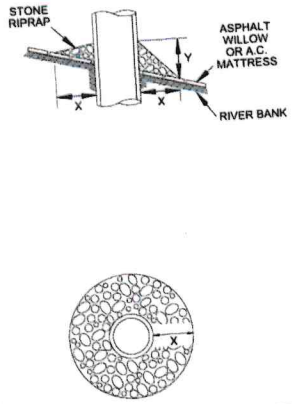
NOTES:

1. SIZE OF RIPRAP TO VARY BETWEEN 6 POUNDS AND 125 POUNDS WITHIN THE RANGE OF 25 POUNDS TO 75 POUNDS.
2. WHEN PENETRATING THE UPPER BANK PAVING IN A REVETMENT AREA WITH PILES, CAISSONS AND/OR PILE CLUSTERS, A 10 INCH THICK RIPRAP STONE LAYER SHALL BE PLACED OVER ALL AREAS WHERE THE BANK PAVING IS DISTURBED BY DRIVING OPERATIONS.
3. WHEN USING AN ANCHOR CHAIN AND BUOY SYSTEM, THE ANCHOR CHAIN MUST BE ATTACHED AT THE TOP OF THE PILE TO MINIMIZE REVETMENT DAMAGE.
4. CONTRACTOR WILL NOT SPUD OR ANCHOR INTO THE EXISTING REVETMENT.
5. BARGES USED FOR PILE DRIVING WILL MAINTAIN A MINIMUM OF THREE FEET OF CLEARANCE OVER THE UNDERWATER REVETMENT DURING ANY RIVER STAGE.
6. ANY DAMAGE TO THE REVETMENT RESULTING FROM APPLICANT ACTIVITIES WILL BE REPAIRED IN ACCORDANCE WITH USACE GUIDELINES AT THE APPLICANT'S EXPENSE.
7. ANY DAMAGE TO THE LEVEE RESULTING FROM APPLICANT'S ACTIVITIES WILL BE REPAIRED IN ACCORDANCE WITH USACE GUIDELINES AT THE APPLICANT'S EXPENSE.
8. BOTH THE CAISSON AND PILE CLUSTER REVETMENT REPAIR DETAIL WILL BE UTILIZED AT THE PILE PENETRATION LOCATIONS.

PILE

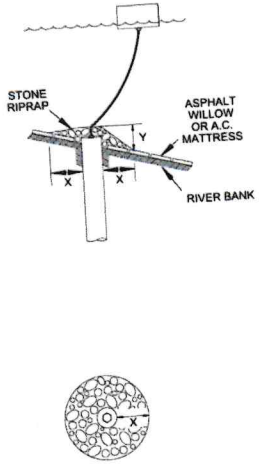



CAISSON

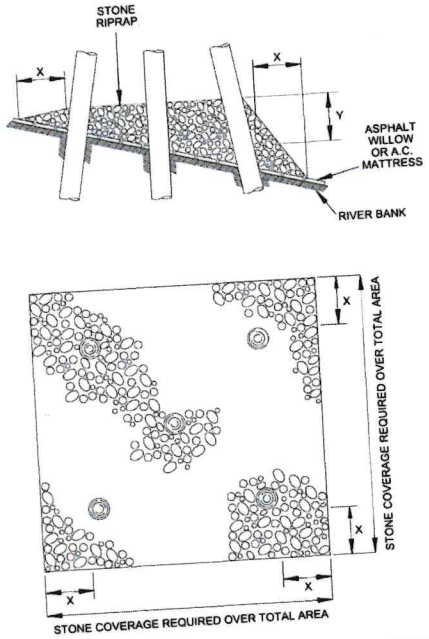



SEE NOTE 8.

SPUD PILE (BUOY AND ANCHOR CHAIN)




PILE CLUSTER




SEE NOTE 8.

| DEPTH OF WATER IN FEET AT POINT OF PENETRATION AT TIME OF STONE PLACEMENT | DIMENSIONS IN FEET FOR PROTECTION AREA REQUIRED | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| | PILE | | CAISSON | | SPUD PILE (BUOY AND ANCHOR CHAIN) | | PILE CLUSTER | |
| | X | Y | X | Y | X | Y | X | Y |
| 1' - 10' | 3 | 1.5 | 5 | 2 | | | 3 | 1 |
| 11' - 40' | 5 | 2 | 8 | 3 | 7 | 3 | 6 | 2 |
| 41' - 60' | 8 | 3 | 12 | 4 | 12 | 4 | 10 | 3 |

## REVETMENT REPAIR DETAILS
NTS

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LOUISIANA INTERNATIONAL TERMINAL AT VIOLET

| DATE | SCALE | JOB NO. | DRAWING NO. |
|---|---|---|---|
| 06/12/24 | AS NOTED | 60637250 | FIG 5 |

DESIGNED BY: JAMES HANCE, P.E. LA REGISTRATION NO: 0031270 STATE: LA

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C:\Users\MartinezIIC\ACCDocs\Port of New Orleans\LIT\Project Files\Live Files\SHEET FILES\PERMITTING\Wharf TPP Permit\FIG 5.dwg, Jun 11, 2024 - 2:37:54PM, MartinezIIC

| | USACE Revet. Detail | | Water Depth (FT) | Length (FT) | Width (FT) | Depth (FT) | Volume (CY) | Unit Wt (TN/CY) | Stone (Tons) | Pile Penetrating Revetment (EA) | Total Pile (EA) |
|---|---|---|---|---|---|---|---|---|---|---|---|
| MIP-1 / TPM-1 | Cluster | 41'-60' | | 70 | 70 | 3 | 544 | 1.25 | 681 | 13 | 13 |
| Precast Indicator Pile near TPM-1 | Caisson | 41'-60' | | 27 | 27 | 4 | 108 | 1.25 | 135 | 1 | 1 |
| Anchor Pile | Caisson | 41'-60' | | 27 | 27 | 4 | 108 | 1.25 | 135 | 1 | 1 |
| Anchor Pile | Caisson | 41'-60' | | 27 | 27 | 4 | 108 | 1.25 | 135 | 1 | 1 |
| | | | | | | | | | 1,086 (Tons) | 16 | 16 |

| | USACE Revet. Detail | | Water Depth (FT) | Length (FT) | Width (FT) | Depth (FT) | Volume (CY) | Unit Wt (TN/CY) | Stone (Tons) | Pile Penetrating Revetment (EA) | Total Pile (EA) |
|---|---|---|---|---|---|---|---|---|---|---|---|
| MIP-2 / TPM-2 | Cluster | 41'-60' | | 70 | 70 | 3 | 544 | 1.25 | 681 | 6 | 13 |
| Precast Indicator Pile near TPM-2 | Caisson | 41'-60' | | 27 | 27 | 4 | 108 | 1.25 | 135 | 0 | 1 |
| Anchor Pile | Caisson | 41'-60' | | 27 | 27 | 4 | 108 | 1.25 | 135 | 1 | 1 |
| Anchor Pile | Caisson | 41'-60' | | 27 | 27 | 4 | 108 | 1.25 | 135 | 1 | 1 |
| | | | | | | | | | 1,086 (Tons) | 8 | 16 |

| | USACE Revet. Detail | | Water Depth (FT) | Length (FT) | Width (FT) | Depth (FT) | Volume (CY) | Unit Wt (TN/CY) | Stone (Tons) | Pile Penetrating Revetment (EA) | Total Pile (EA) |
|---|---|---|---|---|---|---|---|---|---|---|---|
| MIP-3 / TPM-3 | Cluster | 41'-60' | | 70 | 70 | 3 | 544 | 1.25 | 681 | 11 | 13 |
| Indicator Pile near TPM-3 | Caisson | 41'-60' | | 27 | 27 | 4 | 108 | 1.25 | 135 | 1 | 1 |
| Anchor Pile | Caisson | 41'-60' | | 27 | 27 | 4 | 108 | 1.25 | 135 | 1 | 1 |
| Anchor Pile | Caisson | 41'-60' | | 27 | 27 | 4 | 108 | 1.25 | 135 | 1 | 1 |
| | | | | | | | | | 1,086 (Tons) | 14 | 16 |

| | USACE Revet. Detail | | Water Depth (FT) | Length (FT) | Width (FT) | Depth (FT) | Volume (CY) | Unit Wt (TN/CY) | Stone (Tons) | Pile Penetrating Revetment (EA) | Total Pile (EA) |
|---|---|---|---|---|---|---|---|---|---|---|---|
| MIP-4 | Caisson | 1'-10' | | 13 | 13 | 2 | 13 | 1.25 | 16 | 1 | 1 |
| 36" Steel Indicator Pile near MIP-4 | Caisson | 1'-10' | | 13 | 13 | 2 | 13 | 1.25 | 16 | 1 | 1 |
| Anchor Pile | Caisson | 1'-10' | | 13 | 13 | 2 | 13 | 1.25 | 16 | 1 | 1 |
| Anchor Pile | Caisson | 1'-10' | | 13 | 13 | 2 | 13 | 1.25 | 16 | 1 | 1 |
| | | | | | | | | | 63 (Tons) | 4 | 4 |

| | USACE Revet. Detail | | Water Depth (FT) | Length (FT) | Width (FT) | Depth (FT) | Volume (CY) | Unit Wt (TN/CY) | Stone (Tons) | Pile Penetrating Revetment (EA) | Total Pile (EA) |
|---|---|---|---|---|---|---|---|---|---|---|---|
| MIP-5 | Caisson | 1'-10' | | 13 | 13 | 2 | 13 | 1.25 | 16 | 1 | 1 |
| 36" Steel Indicator Pile near MIP-5 | Caisson | 1'-10' | | 13 | 13 | 2 | 13 | 1.25 | 16 | 1 | 1 |
| Anchor Pile | Caisson | 1'-10' | | 13 | 13 | 2 | 13 | 1.25 | 16 | 1 | 1 |
| Anchor Pile | Caisson | 1'-10' | | 13 | 13 | 2 | 13 | 1.25 | 16 | 1 | 1 |
| | | | | | | | | | 63 (Tons) | 4 | 4 |

| | USACE Revet. Detail | | Water Depth (FT) | Length (FT) | Width (FT) | Depth (FT) | Volume (CY) | Unit Wt (TN/CY) | Stone (Tons) | Pile Penetrating Revetment (EA) | Total Pile (EA) |
|---|---|---|---|---|---|---|---|---|---|---|---|
| MIP-6 | Caisson | 1'-10' | | 13 | 13 | 2 | 13 | 1.25 | 16 | 1 | 1 |
| 36" Steel Indicator Pile near MIP-6 | Caisson | 1'-10' | | 13 | 13 | 2 | 13 | 1.25 | 16 | 1 | 1 |
| Anchor Pile | Caisson | 1'-10' | | 13 | 13 | 2 | 13 | 1.25 | 16 | 1 | 1 |
| Anchor Pile | Caisson | 1'-10' | | 13 | 13 | 2 | 13 | 1.25 | 16 | 1 | 1 |
| | | | | | | | | | 63 (Tons) | 4 | 4 |

| | USACE Revet. Detail | | Water Depth (FT) | Length (FT) | Width (FT) | Depth (FT) | Volume (CY) | Unit Wt (TN/CY) | Stone (Tons) | Pile Penetrating Revetment (EA) | Total Pile (EA) |
|---|---|---|---|---|---|---|---|---|---|---|---|
| MIP-7 | Caisson | 11'-40' | | 19 | 19 | 3 | 40 | 1.25 | 50 | 1 | 1 |
| 36" Steel Indicator Pile near MIP-7 | Caisson | 11'-40' | | 19 | 19 | 4 | 53 | 1.25 | 67 | 1 | 1 |
| Anchor Pile | Caisson | 11'-40' | | 19 | 19 | 3 | 40 | 1.25 | 50 | 1 | 1 |
| Anchor Pile | Caisson | 11'-40' | | 19 | 19 | 3 | 40 | 1.25 | 50 | 1 | 1 |
| | | | | | | | | | 217 (Tons) | 4 | 4 |

| | USACE Revet. Detail | | Water Depth (FT) | Length (FT) | Width (FT) | Depth (FT) | Volume (CY) | Unit Wt (TN/CY) | Stone (Tons) | Pile Penetrating Revetment (EA) | Total Pile (EA) |
|---|---|---|---|---|---|---|---|---|---|---|---|
| MIP-8 | Caisson | 11'-40' | | 19 | 19 | 3 | 40 | 1.25 | 50 | 1 | 1 |
| 36" Steel Indicator Pile near MIP-8 | Caisson | 11'-40' | | 19 | 19 | 4 | 53 | 1.25 | 67 | 1 | 1 |
| Anchor Pile | Caisson | 11'-40' | | 19 | 19 | 3 | 40 | 1.25 | 50 | 1 | 1 |
| Anchor Pile | Caisson | 11'-40' | | 19 | 19 | 3 | 40 | 1.25 | 50 | 1 | 1 |
| | | | | | | | | | 217 (Tons) | 4 | 4 |

| | USACE Revet. Detail | | Water Depth (FT) | Length (FT) | Width (FT) | Depth (FT) | Volume (CY) | Unit Wt (TN/CY) | Stone (Tons) | Pile Penetrating Revetment (EA) | Total Pile (EA) |
|---|---|---|---|---|---|---|---|---|---|---|---|
| MIP-9 | Caisson | 41'-60' | | 27 | 27 | 4 | 108 | 1.25 | 135 | 1 | 1 |
| 36" Steel Indicator Pile near MIP-9 | Caisson | 41'-60' | | 27 | 27 | 4 | 108 | 1.25 | 135 | 1 | 1 |
| Anchor Pile | Caisson | 41'-60' | | 27 | 27 | 4 | 108 | 1.25 | 135 | 1 | 1 |
| Anchor Pile | Caisson | 41'-60' | | 27 | 27 | 4 | 108 | 1.25 | 135 | 1 | 1 |
| | | | | | | | | | 540 (Tons) | 4 | 4 |

| | USACE Revet. Detail | | Water Depth (FT) | Length (FT) | Width (FT) | Depth (FT) | Volume (CY) | Unit Wt (TN/CY) | Stone (Tons) | Pile Penetrating Revetment (EA) | Total Pile (EA) |
|---|---|---|---|---|---|---|---|---|---|---|---|
| MIP-10 | Caisson | 41'-60' | | 27 | 27 | 4 | 108 | 1.25 | 135 | 1 | 1 |
| 36" Steel Indicator Pile near MIP-10 | Caisson | 41'-60' | | 27 | 27 | 4 | 108 | 1.25 | 135 | 1 | 1 |
| Anchor Pile | Caisson | 41'-60' | | 27 | 27 | 4 | 108 | 1.25 | 135 | 1 | 1 |
| Anchor Pile | Caisson | 41'-60' | | 27 | 27 | 4 | 108 | 1.25 | 135 | 1 | 1 |
| | | | | | | | | | 540 (Tons) | 4 | 4 |

| | USACE Revet. Detail | | Water Depth (FT) | Length (FT) | Width (FT) | Depth (FT) | Volume (CY) | Unit Wt (TN/CY) | Stone (Tons) | Pile Penetrating Revetment (EA) | Total Pile (EA) |
|---|---|---|---|---|---|---|---|---|---|---|---|
| MIP-11 | Caisson | 11'-40' | | 19 | 19 | 3 | 40 | 1.25 | 50 | 1 | 1 |
| 36" Steel Indicator Pile near MIP-11 | Caisson | 11'-40' | | 19 | 19 | 4 | 53 | 1.25 | 67 | 1 | 1 |
| Anchor Pile | Caisson | 11'-40' | | 19 | 19 | 3 | 40 | 1.25 | 50 | 1 | 1 |
| Anchor Pile | Caisson | 11'-40' | | 19 | 19 | 3 | 40 | 1.25 | 50 | 1 | 1 |
| | | | | | | | | | 217 (Tons) | 4 | 4 |
| | | | | | | | | Marine Test Location Stone = | 5,176 Tons | 70 Piles through Revetment (EA) | 80 Total Piles (EA) |

| | Length (FT) | Width (FT) | Depth (FT) | Volume (CY) | Unit Wt (TN/CY) | Stone (Tons) |
|---|---|---|---|---|---|---|
| Landside Stone Pad | 100 | 100 | 2 | 741 | 1.25 | 926 |
| TPL-1 | 100 | 100 | 2 | 741 | 1.25 | 926 |
| TPL-2 | 100 | 100 | 2 | 741 | 1.25 | 926 |
| TPL-3 | | | | | Landside Test Location Stone = | 2,778 Tons |

Total Stone Req'd (tons) 7,954

31 May 2024

Port of New Orleans
Port Development Division
1350 Port of New Orleans Place
New Orleans, Louisiana 70130

Attention Mr. Chris E. Gilmore, P.E., PMP
PN 1-504-528-3305
Email chris.gilmore@portnola.com

Ladies and Gentlemen:

Additional Engineering Analyses
Port of New Orleans
Test Pile Program for Wharf and Access Ramps
Louisiana International Terminal
Violet, Louisiana
Contract No. PORTNOLA-2022-648
Work Order No. 1-2000
Eustis Engineering Project No. 24618.10

At your request, Eustis Engineering L.L.C. is issuing this letter to transmit the results of additional geotechnical engineering analyses performed for the subject project. Specifically, we were requested to evaluate the potential for seepage/piping along driven piles installed on the protected side of the Mississippi River levee (MRL) as part of a test pile program (TPP) for the wharf and access ramps at the proposed Louisiana International Terminal (LIT) between approximate River Miles 82 and 84 AHP in Violet, Louisiana. We understand these analyses will be submitted to the U.S. Army Corps of Engineers (USACE) for regulatory review of the proposed TPP.

We performed these geotechnical engineering analyses in general accordance with the scope of service outlined in Eustis Engineering's proposal dated 8 May 2023 authorized by the Port of New Orleans (Port NOLA) through execution of Amendment No. 2 to Work Order No. 1-2000 on 27 July 2023. AECOM Technical Services, Inc. (AECOM) is the designer of record for the wharf. Infinity Engineering Consultants, L.L.C. (Infinity), a subconsultant to AECOM, is the designer of record for the access ramps. Kiewit Louisiana Co. (Kiewit) is the Construction Manager at Risk (CMAR) for the project. The Port NOLA is the project owner.

## Furnished Information

We understand new piles for the TPP will be driven no closer than 130 feet from the protected side levee toe. AECOM provided cross-section views dated 19 April 2024 showing topographic and hydrographic survey data developed by C.H. Fenstermaker and Associates, L.L.C. in separate surveys dated 2022 and 2023, respectively. AECOM also provided copies of draft drawings showing the proposed TPP. We provide a copy of the cross-section drawings in Appendix I. The furnished drawings show existing grade in the vicinity of the proposed test pile areas near el 5 (NAVD 88) and the crown of the levee between approximate el 19 and el 22. The three land side test pile areas are denoted on the drawings by AECOM as TPL-1 (adjacent to Ramp A), TPL-2 (adjacent to Ramp B), and TPL-3 (adjacent to Ramp C).

## Available Geotechnical Data

Our analyses incorporate the results of soil borings, cone penetration tests (CPTs), and laboratory test results previously performed by Eustis Engineering at the project site. The results of the exploration were provided in a report entitled "Geotechnical Data Report, Port of New Orleans, Phase 2 Exploration, New Louisiana International Terminal, Violet, Louisiana, Eustis Engineering Project No. 24618.01," dated 6 October 2023. The locations of pertinent boring logs and CPTs referenced for these analyses are shown on Enclosure 2, Sheet 1 of 2. Details of the pertinent borings and CPTs including terminal depth, location in terms of latitude and longitude, and date drilled are summarized on Enclosure 2, Sheet 2 of 2. We provide a copy of pertinent boring logs and CPT records in Appendices II and III, respectively.

## Geology and Soil Design Reaches

The site, which is located on the east bank of the Mississippi River, is underlain by fluvial, deltaic, and marine deposits from the Holocene Epoch that extend to the Pleistocene interface encountered between approximate el -85 and el -110. Based on the available geotechnical data, we identified two soil design reaches, designated by Eustis Engineering as Reach 1 and Reach 2. Reach 1 appears to consist of the approximate two-third upstream portion of waterfront and extends throughout a majority of the project site. We estimate Reach 2 to include the approximate lower (i.e., downriver) one-third of the waterfront and be largely limited to the southwestern corner of the site. Our interpreted reach delineation is shown on Enclosure 2, Sheet 1 of 2.

Review of the boring logs and CPT records indicates Reach 1 can be generally characterized as soft to medium stiff cohesive deposits that extend from el -68 to el -75. Next in the stratigraphy, silty sand of variable densities with interbedded layers of clay and sandy clay continues from el -85 to el -95. Reach 2 is differentiated from Reach 1 by the presence of loose to medium dense cohesionless deposits beginning near el -30 and extending from el -85 to el -95. Underlying these materials, stiff clay with discontinuous strata of loose silty sand and sand silt was encountered from el -150 to el -160 and, in turn, underlain by a stratum of generally medium dense to dense

silty sand and fine sand that continues from el -170 to el -185. Stiff to very stiff clay with isolated layers of dense fine sand continue to the terminal depth of the exploration near el -237.

A subsurface profile showing interpreted stratigraphy at individual boring and CPT locations referenced for these analyses is shown in Enclosure 3. The location of the exploration is shown in plan view on Enclosure 2, Sheet 1 of 2.

Levee Underseepage and Hydrostatic Uplift Analyses

Design Methodology. Seepage analyses were performed for the proposed test pile area conditions by estimating pressure heads at the land side levee toe and location of the proposed pile installation using the blanket theory (Appendix B, USACE's EM 1110-2-1913, Design and Construction of Levees and DIVR 1110-2-4000). Our assumed geometry of the levee and pile location for these analyses is shown in Appendix IV.

Design Assumptions. We evaluated seepage potential for a generalized stratigraphy for each soil design reach. Based on the subsurface stratigraphy encountered at Reach 1, we evaluated seepage potential for a layer of silty sand approximately 17 feet thick located between el -68 and el -85. For Reach 2, we evaluated seepage potential for a layer of silty sand approximately 55 feet thick located between el -30 and el -85. Seepage analyses were performed assuming a high water level (HWL) at el 16.1 (historic high water at the Algiers Lock gauge located approximately 5 miles upriver at River Mile 88.3 AHP). We assumed the natural groundwater level on the protected side of the levee to be at the ground surface at el 5 based on our previous geotechnical exploration.

The distance from the river side toe to the riverbank at the top of the permeable foundation material is approximately 441 feet and 373 feet for Reaches 1 and 2, respectively. The closest pile installation is assumed to be at least 130 feet from the land side toe of the levee.

The horizontal permeability of the substratum silty sands is conservatively assumed as $200 \times 10^{-4}$ cm/sec based on the results of grain size analyses performed and Table 3-4 from TM 5-818-5/AFM 88-5, Chapter 6. The river side and land side blanket permeabilities were assumed to be $0.05 \times 10^{-4}$ cm/sec for the river side blanket and $0.15 \times 10^{-4}$ cm/sec for the land side blanket, based on the USACE's DIVR 1110-1-400, Tables 1 and 4, respectively.

Distance to Effective Seepage Entrance and Width of Levee ($X_1$ and $L_2$). Estimated distances of 2,318 and 3,003 feet (for Reach 1 and Reach 2, respectively) were computed as the distances from the river side levee toe to a "potential" seepage entrance ($X_1$). We utilized the "effective" seepage entrance ($L_1$) of 441 feet and 373 feet in Reaches 1 and 2, respectively, based on an assumption of the permeable stratum "daylighting" into the riverbank at these distances. Based on the levee cross-section, the levee width ($L_2$) is approximately 98.5 feet and 122.5 feet for Reach 1 and Reach 2, respectively.

Distance to the Effective Seepage Exit ($X_3$). The distance from the land side levee toe to where the hydraulic gradient line intersects the tailwater elevation (or ground surface) defines the location of the effective seepage exit ($X_3$). The $X_3$ distance for the seepage and heave evaluations described below was calculated using the formulas provided in Appendix B of EM 1110-2-1913 (consistent with the USACE's DIVR 1110-1-400). We considered tailwater at the existing ground surface (approximate el 5) to establish $h_o$, the excess head at the levee toe. We estimated $X_3$ as 1,286 feet and 1,602 feet for Reach 1 and Reach 2, respectively.

Seepage Analyses Results for Piles. For the configurations depicted in our calculations presented in Appendix IV, we estimate the existing blankets will provide minimum factors of safety of 7.5 and 3.6 for Reaches 1 and 2, respectively, against potential uplift (heave) at the pile penetrations. We assumed a minimum factor of safety of 1.5 would be required. As a secondary check, we assessed the potential for piping by the Lane's Weighted Creep Ratio (LWCR) method. A minimum LWCR of 3.0 was considered acceptable for seepage within the permeable deposits with clay cover. We computed a minimum LWCR of 10.4 and 4.5 for Reaches 1 and 2, respectively, for the proposed seepage path analyzed at high water conditions. Based on the results of the analyses, seepage potential does not appear to be a design consideration for installation of piles for the TPP. Our seepage analyses, calculations, and supporting documentation are presented in Appendix IV.

## Limitations

Eustis Engineering has striven to provide engineering services in accordance with generally accepted geotechnical engineering practices in this locality at this time. No warranty or guarantee is expressed or implied.

This letter has been prepared for the exclusive use of the Port NOLA for specific application to the subject site. In the event of any changes in the nature, design, or location of the proposed test pile installations, the conclusions and recommendations contained in this letter shall not be considered valid unless the changes are reviewed and the conclusions of this letter are modified and verified in writing by Eustis Engineering. Should these data be used by anyone other than the Port NOLA, the user should contact Eustis Engineering for interpretation of data and to secure any other information pertinent to this project.

This letter is issued with the understanding that the owner or owner's representative has the responsibility to bring the information and recommendations contained herein to the attention of the engineers for the project so they are incorporated into the plans and specifications for the project. The owner or owner's representative is responsible for the submittal of this letter to the appropriate governing agencies.

Closing

Thank you for asking us to perform these services. Should you have any questions, please do not hesitate to contact us.

Yours very truly,

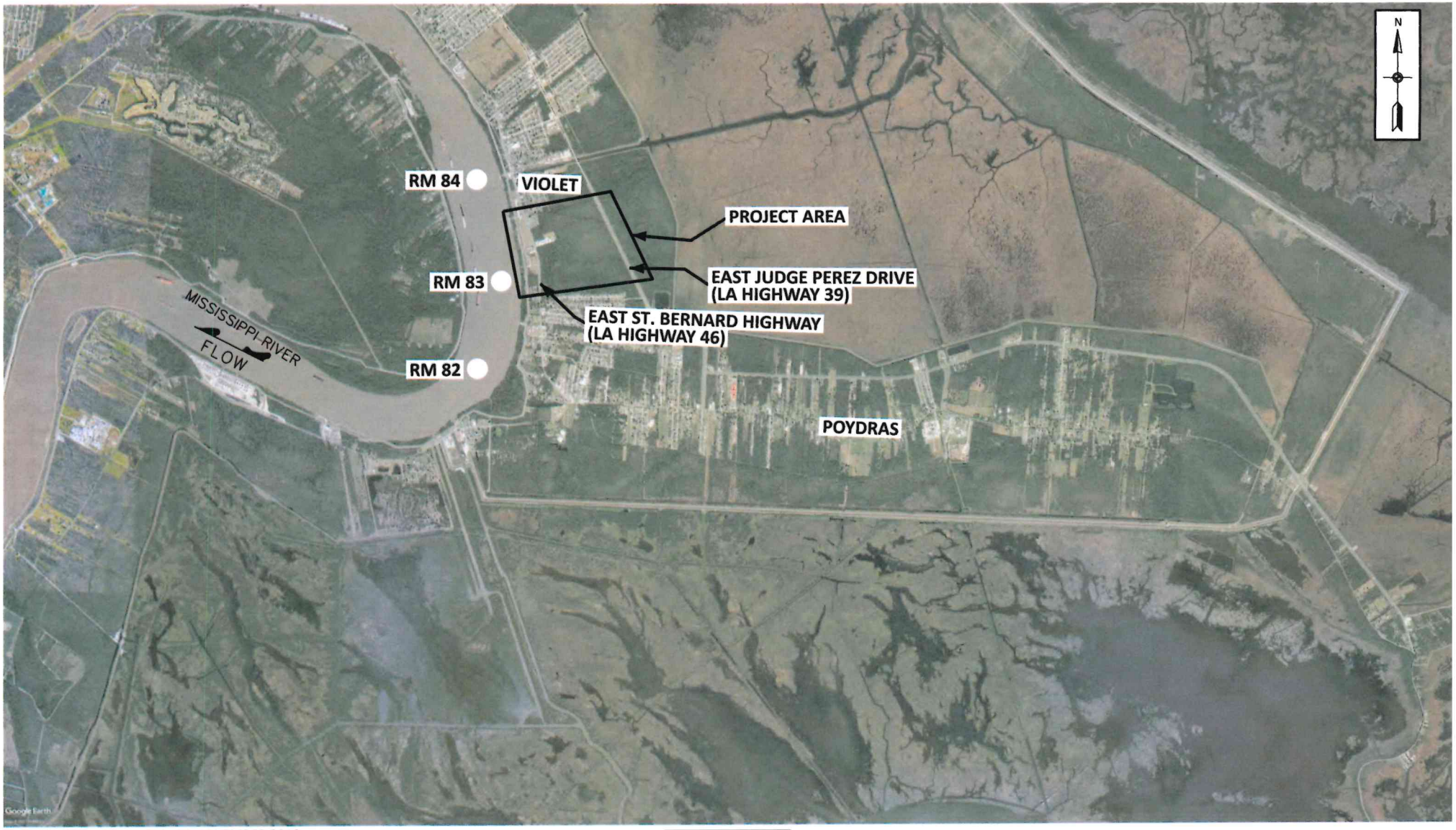
EUSTIS ENGINEERING L.L.C.

PATRICK A. THURMOND, P.E.

STATE OF LOUISIANA
PATRICK A. THURMOND
License No. 44237
PROFESSIONAL ENGINEER
IN
CIVIL ENGINEERING

A.E. Carvajal:sec/asp

Enclosures 1 through 3
Appendices I through IV




SATELLITE IMAGERY DATED: 15 NOVEMBER 2019

**NOT TO SCALE**

SITE VICINITY MAP

PORT OF NEW ORLEANS
TEST PILE PROGRAM FOR WHARF AND ACCESS RAMPS
LOUISIANA INTERNATIONAL TERMINAL
VIOLET, LOUISIANA

| | | |
|---|---|---|
| EUSTIS ENGINEERING L.L.C. SINCE 1946 | DRAWN BY: A.E.C. | JOB NO.: 24618.10 |
| | CHECKED BY: P.A.T. | DATE: 29 MAY 2024 |
| | CADD FILE: VICINITY PLAN.DGN | ENCLOSURE 1 |


SATELLITE IMAGERY DATED: 20 OCTOBER 2022

| SYMBOL | TYPE | PROJECT NUMBER |
|---|---|---|
| ⊕ | BORING | 24618.01 |
| ▲ | CPT | 24618.01 |
| ⊕▲ | COLOCATED BORING & CPT | 24618.01 |
| ◒ | BORING | 24618 |
| ⊕ | BORING | 9386 |

NOTES:

1. SEE ENCLOSURE 2, SHEET 2, FOR TABULATED SUMMARY OF EXPLORATIONS.

REFERENCED GEOTECHNICAL DATA

PORT OF NEW ORLEANS
TEST PILE PROGRAM FOR WHARF AND ACCESS RAMPS
LOUISIANA INTERNATIONAL TERMINAL
VIOLET, LOUISIANA

EUSTIS ENGINEERING LLC

| | |
|---|---|
| DRAWN BY: A.E.C. | JOB NO.: 24618.10 |
| CHECKED BY: P.A.T. | DATE: 30 MAY 2024 |
| CADD FILE: LOCATION PLAN.DGN | ENCLOSURE 2 (SHEET 1 OF 2) |

| AVAILABLE GEOTECHNICAL DATA | | | | | |
|---|---|---|---|---|---|
| PROJECT NUMBER | DESIGNATION | TERMINATION DEPTH | LATITUDE | LONGITUDE | DATE DRILLED |
| SOIL BORINGS | | | | | |
| EE 9386 | B-4 | 100 | 29.88623 | -89.89822 | 3/20/1986 |
| PHASE 1 - INTERIM EXPLORATION | | | | | |
| SOIL BORINGS | | | | | |
| EE 24618 | B-1 | 100 | 29.89210 | -89.89994 | 7/13/2021 |
| | B-2 | 100 | 29.88916 | -89.89836 | 7/21/2021 |
| | B-3 | 50 | 29.88718 | -89.89781 | 7/20/2021 |
| | B-4 | 150 | 29.88350 | -89.89780 | 7/19/2021 |
| PHASE 2 - GENERAL EXPLORATION | | | | | |
| SOIL BORINGS | | | | | |
| EE 24618.01 | GB-5 | 125 | 29.89414 | -89.90043 | 4/26/2023 |
| | GB-6 | 125 | 29.88769 | -89.89845 | 5/1/2023 |
| | GB-7 | 125 | 29.89169 | -89.89880 | 5/5/2023 |
| | GB-8 | 125 | 29.88425 | -89.89716 | 7/27/2023 |
| | GB-10 | 125 | 29.88623 | -89.89718 | 5/3/2023 |
| CONE PENETRATION TESTS | | | | | |
| EE 24618.01 | GC-8 | 125 | 29.89350 | -89.89968 | 5/23/2023 |
| | GC-9 | 125 | 29.89508 | -89.90040 | 5/23/2023 |
| | GC-10 | 90 | 29.89077 | -89.89910 | 5/24/2023 |
| | GC-11 | 90 | 29.88908 | -89.89860 | 5/25/2023 |
| | GC-12 | 125 | 29.88988 | -89.89860 | 5/25/2023 |
| | GC-13 | 91 | 29.88706 | -89.89820 | 5/26/2023 |
| | GC-14 | 125 | 29.88623 | -89.89790 | 5/30/2023 |
| | GC-15 | 125 | 29.88506 | -89.89779 | 5/30/2023 |
| | GC-16 | 85 | 29.88409 | -89.89768 | 5/31/2023 |
| | GC-17 | 125 | 29.89228 | -89.89900 | 5/24/2023 |
| | GCS-6 | 87 | 29.88769 | -89.89845 | 6/7/2023 |
| | GCS-7 | 125 | 29.89169 | -89.89888 | 6/8/2023 |
| | GCS-10 | 125 | 29.88623 | -89.89718 | 6/9/2023 |

NOTES:

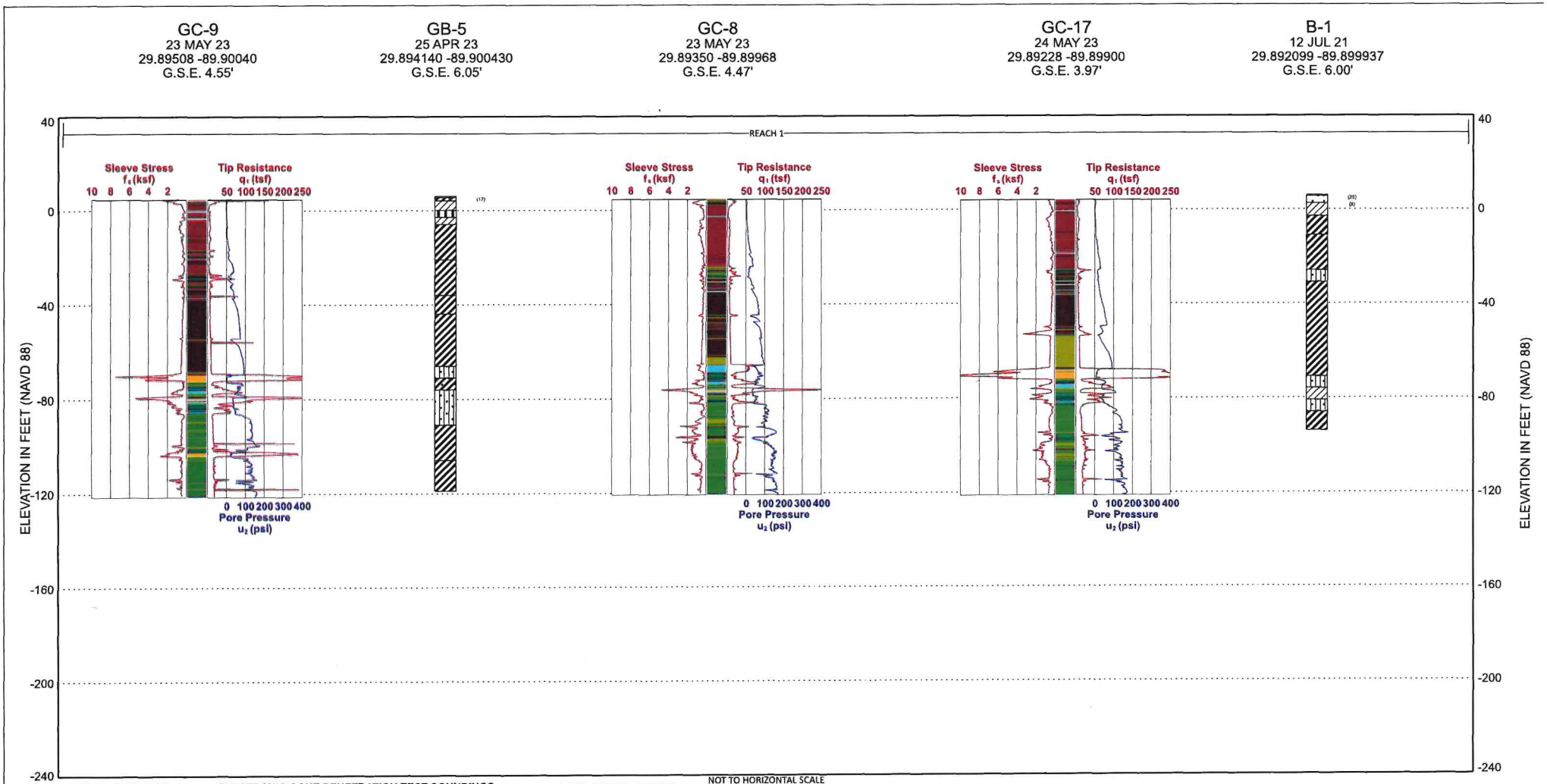
1. THE TERMINATION DEPTHS SHOWN IN THE TABLE ABOVE ARE IN UNITS OF FEET BELOW THE EXISTING GROUND SURFACE/MUDLINE.

TABULATED SUMMARY OF EXPLORATION POINTS

PORT OF NEW ORLEANS
TEST PILE PROGRAM FOR WHARF AND ACCESS RAMPS
LOUISIANA INTERNATIONAL TERMINAL
VIOLET, LOUISIANA

EUSTIS ENGINEERING LLC SINCE 1996

| | |
|---|---|
| DRAWN BY: A.E.C. | JOB NO.: 24618.10 |
| CHECKED BY: P.A.T. | DATE: 30 MAY 2024 |
| CADD FILE: LOCATION PLAN.DGN | ENCLOSURE 2 (SHEET 2 OF 2) |




NOT TO HORIZONTAL SCALE

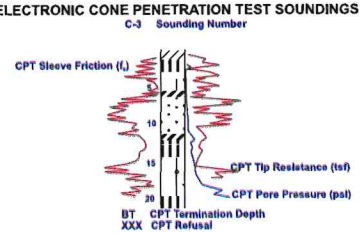
**CPT MATERIAL GRAPHICS**

- SENSITIVE FINE GRAINED
- ORGANIC SOILS, PEATS
- CLAY
- SILTY CLAY TO CLAY
- CLAYEY SILT TO SILTY CLAY
- SANDY SILT TO CLAYEY SILT
- SILTY SAND TO SANDY SILT
- SAND TO SILTY SAND
- SAND
- GRAVELLY SAND TO SAND
- VERY STIFF FINE GRAINED (*)
- SAND TO CLAYEY SAND (*)

* OVERCONSOLIDATED OR CEMENTED

Robertson et al (1986) $q_c$ vs Rf

**ELECTRONIC CONE PENETRATION TEST SOUNDINGS**




**BORING MATERIAL GRAPHICS**

- FAT CLAY
- CLAYEY SILT
- SILTY CLAY
- LEAN CLAY
- SAND
- SANDY CLAY
- SILTY SAND
- CONCRETE
- CLAYEY SAND
- SILT

NOTES:

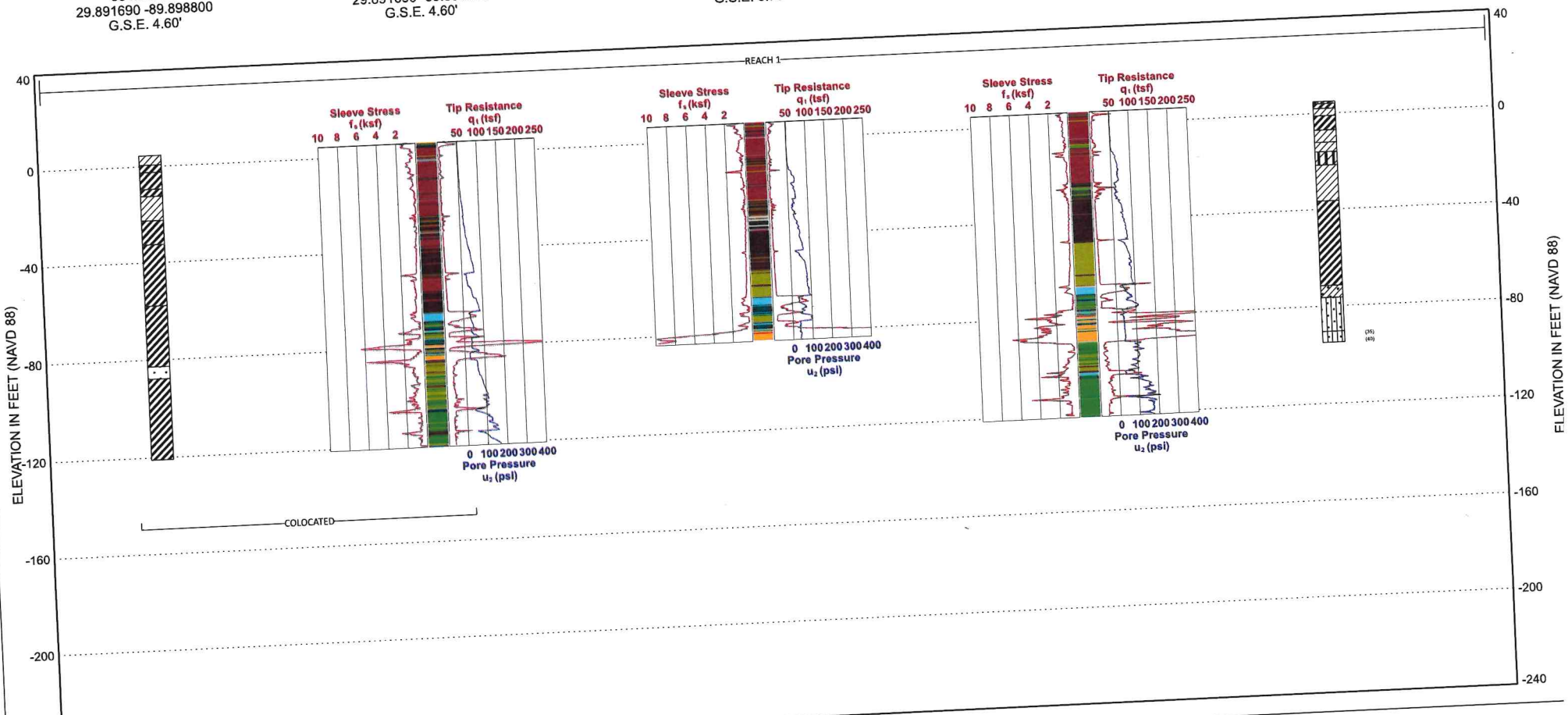
1. THE NUMBERS TO THE RIGHT OF THE BORING LOGS REPRESENT THE RESULTS OF THE STANDARD PENETRATION TESTS.
2. G.S.E. = GROUND SURFACE ELEVATIONS IN NAVD 88.

SUBSURFACE PROFILES

PORT OF NEW ORLEANS
TEST PILE PROGRAM FOR WHARF AND ACCESS RAMPS
LOUISIANA INTERNATIONAL TERMINAL
VIOLET, LOUISIANA

EUSTIS ENGINEERING L.L.C. SINCE 1986

| | |
|---|---|
| DRAWN BY: A.E.C. | JOB NO.: 24618.10 |
| CHECKED BY: P.A.T. | DATE: 30 MAY 2024 |
| CADD FILE: PROFILES.DGN | ENCLOSURE 3 (SHEET 1 OF 5) |




NOT TO HORIZONTAL SCALE

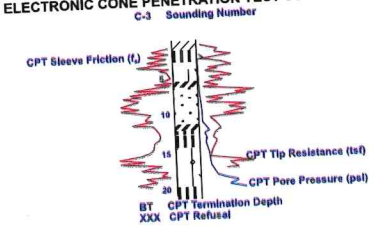
**CPT MATERIAL GRAPHICS**

- SENSITIVE FINE GRAINED
- ORGANIC SOILS, PEATS
- CLAY
- SILTY CLAY TO CLAY
- CLAYEY SILT TO SILTY CLAY
- SANDY SILT TO CLAYEY SILT
- SILTY SAND TO SANDY SILT
- SAND TO SILTY SAND
- SAND
- GRAVELLY SAND TO SAND
- VERY STIFF FINE GRAINED (*)
- SAND TO CLAYEY SAND (*)

* OVERCONSOLIDATED OR CEMENTED

Robertson et al (1986) $q_c$ vs Rf

**ELECTRONIC CONE PENETRATION TEST SOUNDINGS**




**BORING MATERIAL GRAPHICS**

- FAT CLAY
- SILTY CLAY
- SAND
- SILTY SAND
- CLAYEY SAND
- SILT
- CLAYEY SILT
- LEAN CLAY

NOTES:

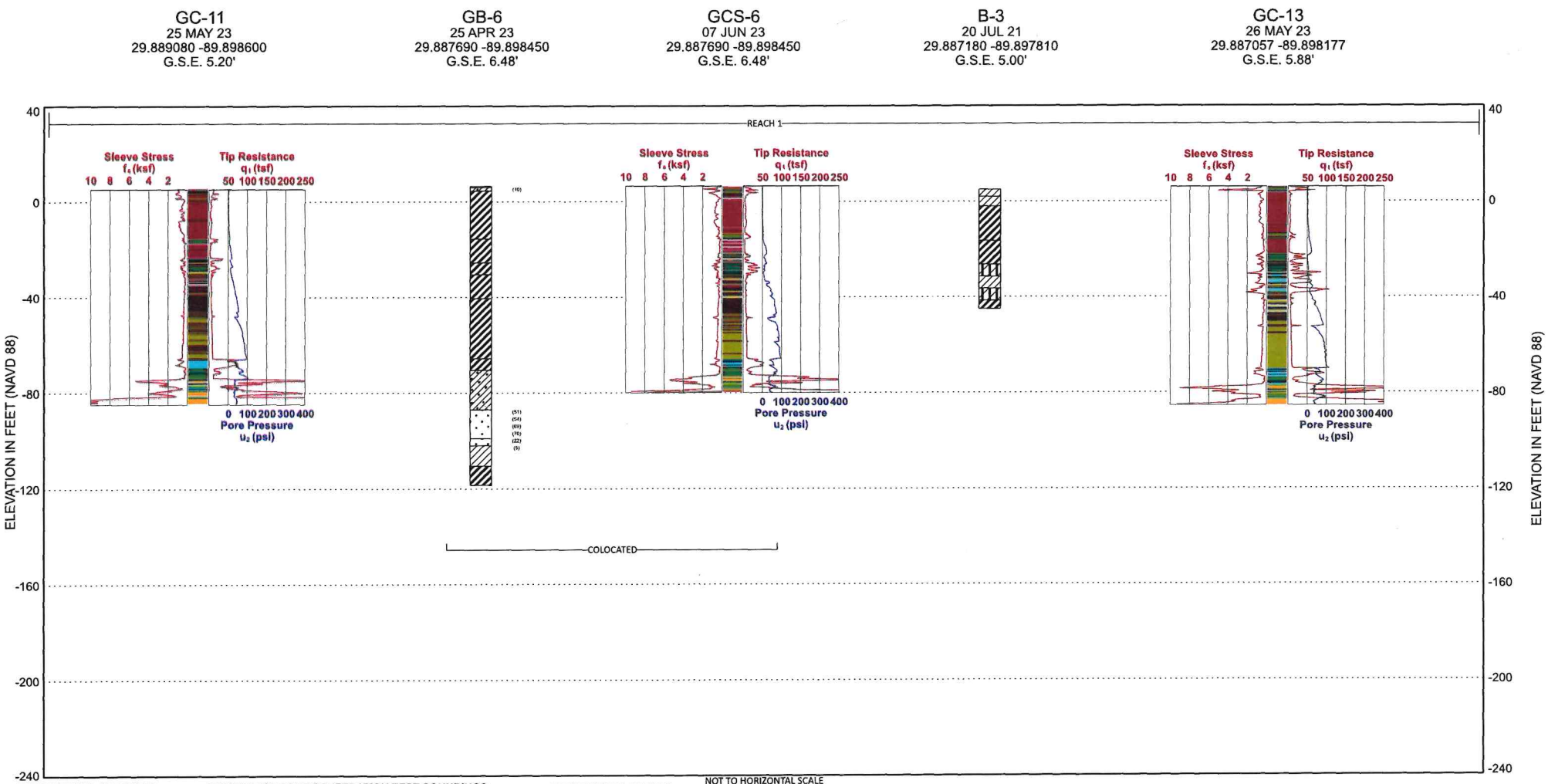
1. THE NUMBERS TO THE RIGHT OF THE BORING LOGS REPRESENT THE RESULTS OF THE STANDARD PENETRATION TESTS.
2. G.S.E. = GROUND SURFACE ELEVATIONS IN NAVD 88.

SUBSURFACE PROFILES

PORT OF NEW ORLEANS
TEST PILE PROGRAM FOR WHARF AND ACCESS RAMPS
LOUISIANA INTERNATIONAL TERMINAL
VIOLET, LOUISIANA

EUSTIS ENGINEERING L.L.C. SINCE 1946

| | |
|---|---|
| DRAWN BY: A.E.C. | JOB NO.: 2461 |
| CHECKED BY: P.A.T. | DATE: 30 MAY |
| CADD FILE: PROFILES.DGN | ENCLOSU (SHEET 2 ( |




NOT TO HORIZONTAL SCALE

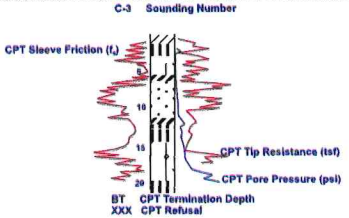
**CPT MATERIAL GRAPHICS**

- SENSITIVE FINE GRAINED
- ORGANIC SOILS, PEATS
- CLAY
- SILTY CLAY TO CLAY
- CLAYEY SILT TO SILTY CLAY
- SANDY SILT TO CLAYEY SILT
- SILTY SAND TO SANDY SILT
- SAND TO SILTY SAND
- SAND
- GRAVELLY SAND TO SAND
- VERY STIFF FINE GRAINED (*)
- SAND TO CLAYEY SAND (*)

* OVERCONSOLIDATED OR CEMENTED

Robertson et al (1986) $q_c$ vs Rf

**ELECTRONIC CONE PENETRATION TEST SOUNDINGS**




**BORING MATERIAL GRAPHICS**

- FAT CLAY
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- SAND
- SILTY SAND
- CLAYEY SAND
- SILT
- CLAYEY SILT
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SUBSURFACE PROFILES

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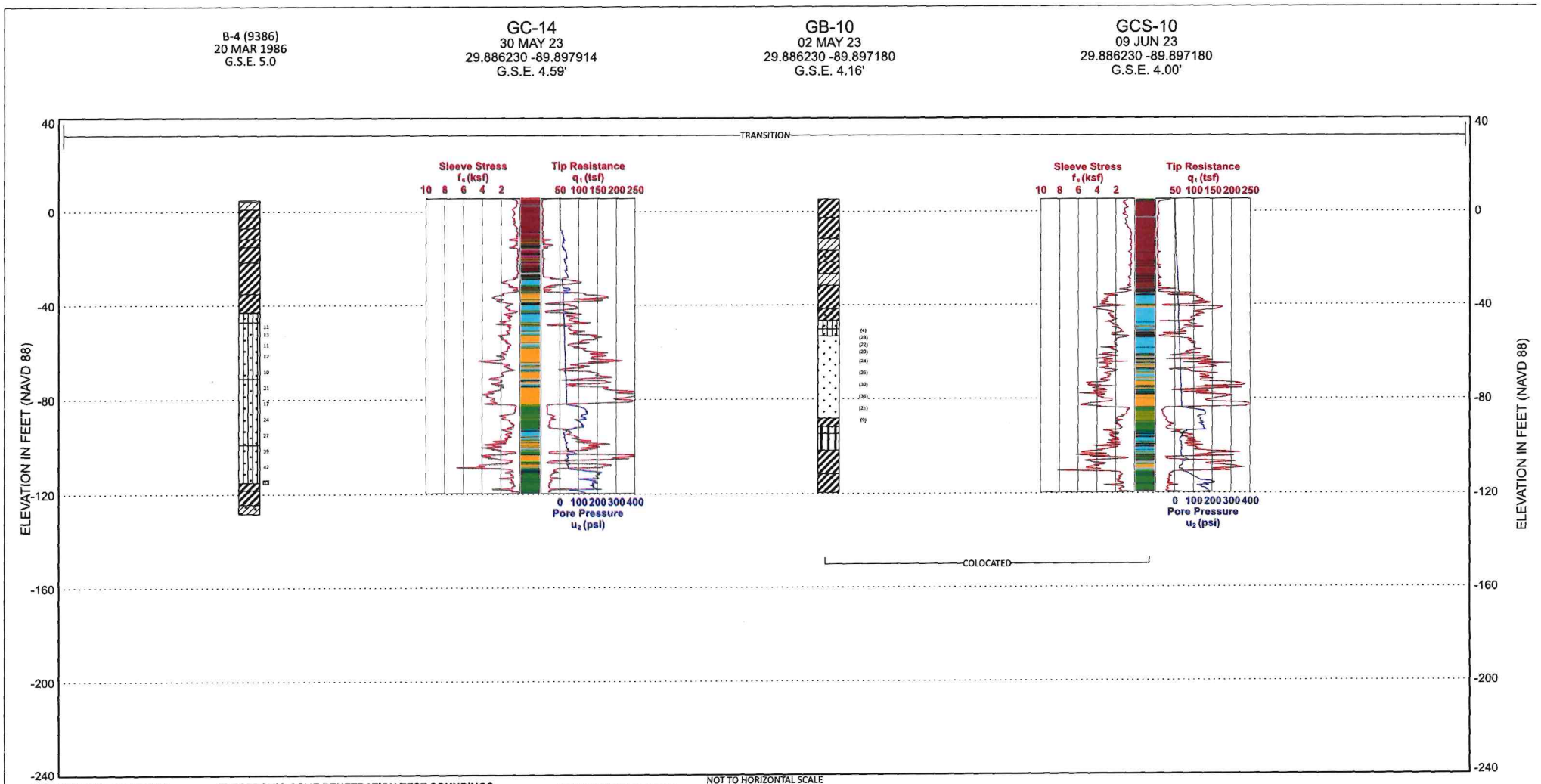
LOUISIANA INTERNATIONAL TERMINAL
VIOLET, LOUISIANA

EUSTIS ENGINEERING L.L.C. SINCE 1946

| | |
|---|---|
| DRAWN BY: A.E.C. | JOB NO.: 24618.10 |
| CHECKED BY: P.A.T. | DATE: 30 MAY 2024 |
| CADD FILE: PROFILES.DGN | ENCLOSURE 3 (SHEET 3 OF 5) |




NOT TO HORIZONTAL SCALE

**CPT MATERIAL GRAPHICS**

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- ORGANIC SOILS, PEATS
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- SILTY SAND TO SANDY SILT
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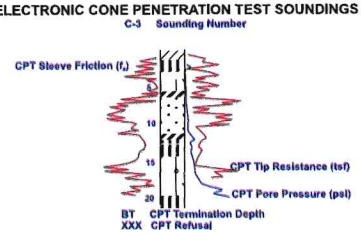


**BORING MATERIAL GRAPHICS**

- FAT CLAY
- LEAN CLAY
- SANDY CLAY
- SAND
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- SILT
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NOTES:

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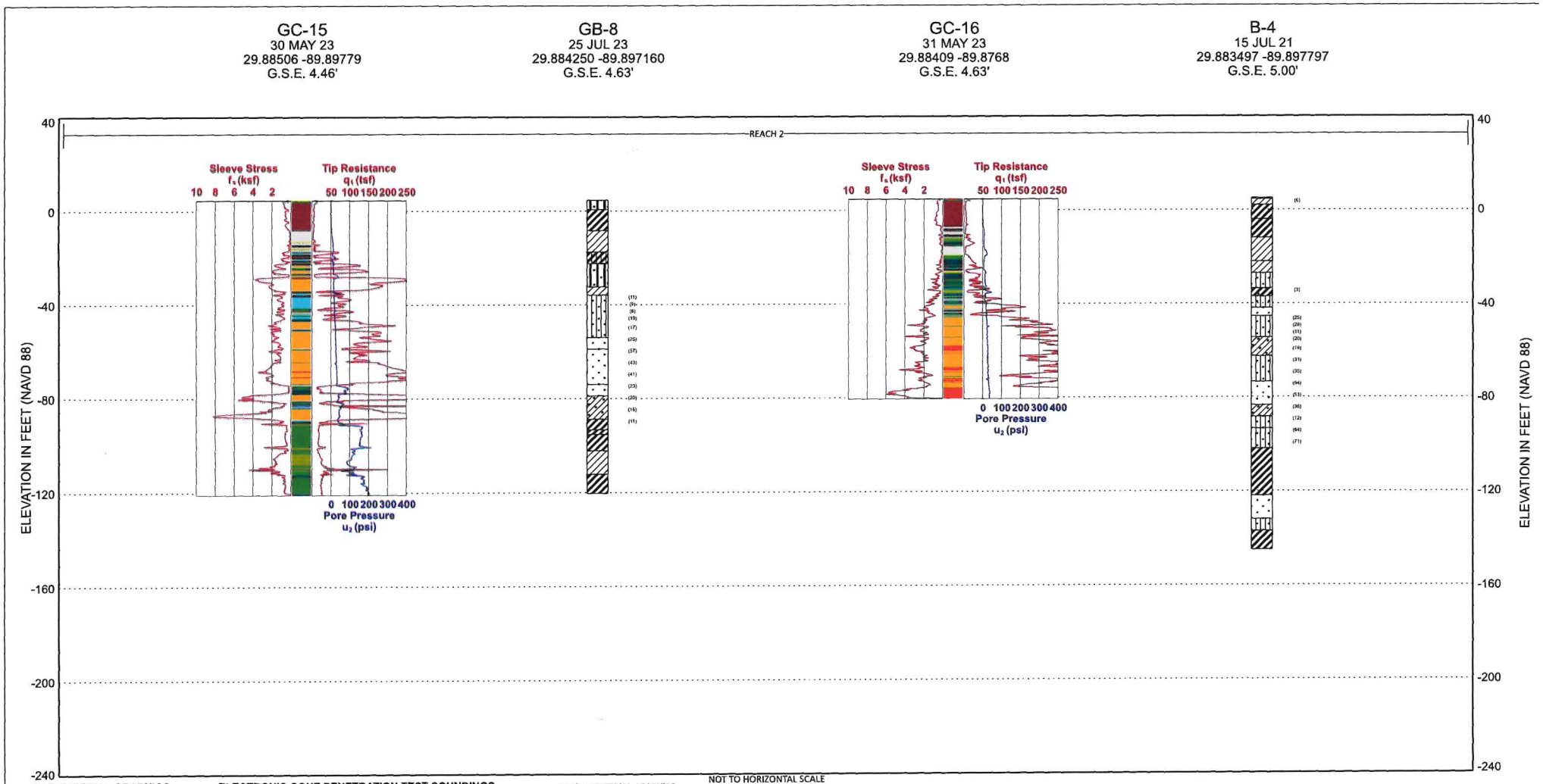
VIOLET, LOUISIANA

EUSTIS ENGINEERING LLC SINCE 1946

| | |
|---|---|
| DRAWN BY: A.E.C. | JOB NO.: 24618.10 |
| CHECKED BY: P.A.T. | DATE: 30 MAY 2024 |
| CADD FILE: PROFILES.DGN | ENCLOSURE 3 (SHEET 4 OF 5) |




NOT TO HORIZONTAL SCALE

**CPT MATERIAL GRAPHICS**

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- GRAVELLY SAND TO SAND
- VERY STIFF FINE GRAINED (*)
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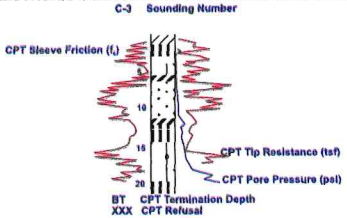
* OVERCONSOLIDATED OR CEMENTED

Robertson et al (1986) $q_c$ vs Rf

**ELECTRONIC CONE PENETRATION TEST SOUNDINGS**




**BORING MATERIAL GRAPHICS**

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SUBSURFACE PROFILES

PORT OF NEW ORLEANS
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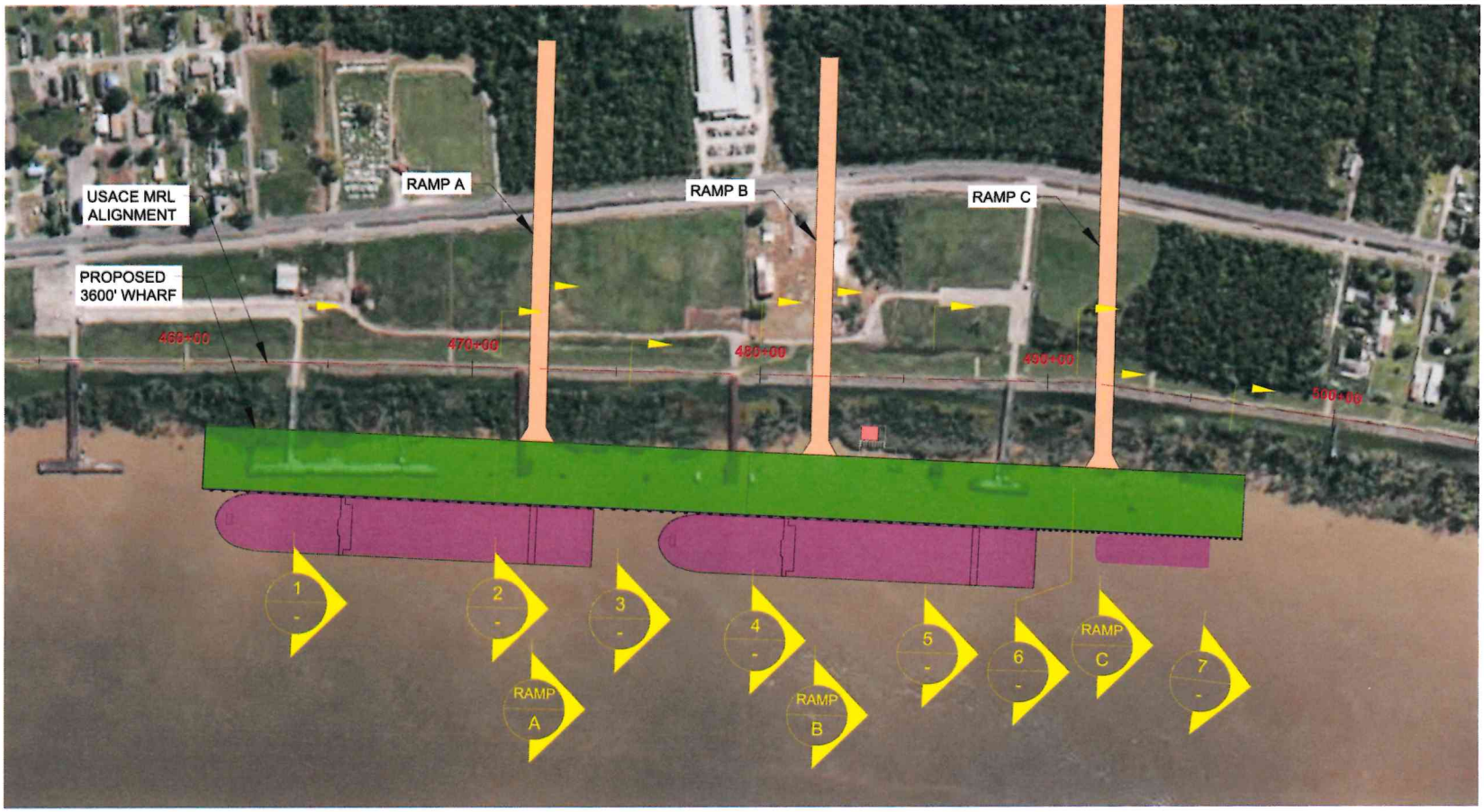
LOUISIANA INTERNATIONAL TERMINAL
VIOLET, LOUISIANA

EUSTIS ENGINEERING L.L.C. SINCE 1986

| | |
|---|---|
| DRAWN BY: A.E.C. | JOB NO.: 24618.10 |
| CHECKED BY: P.A.T. | DATE: 30 MAY 2024 |
| CADD FILE: PROFILES.DGN | ENCLOSURE 3 (SHEET 5 OF 5) |

# APPENDIX I




## WHARF AND RAMP PLAN VIEW

SCALE: 1" = 600'

0' 600' 1200'

SCALE: 1" = 600'

AECOM Imagine it. Delivered.

1555 POYDRAS ST., SUITE 1200 NEW ORLEANS, LA., 70112

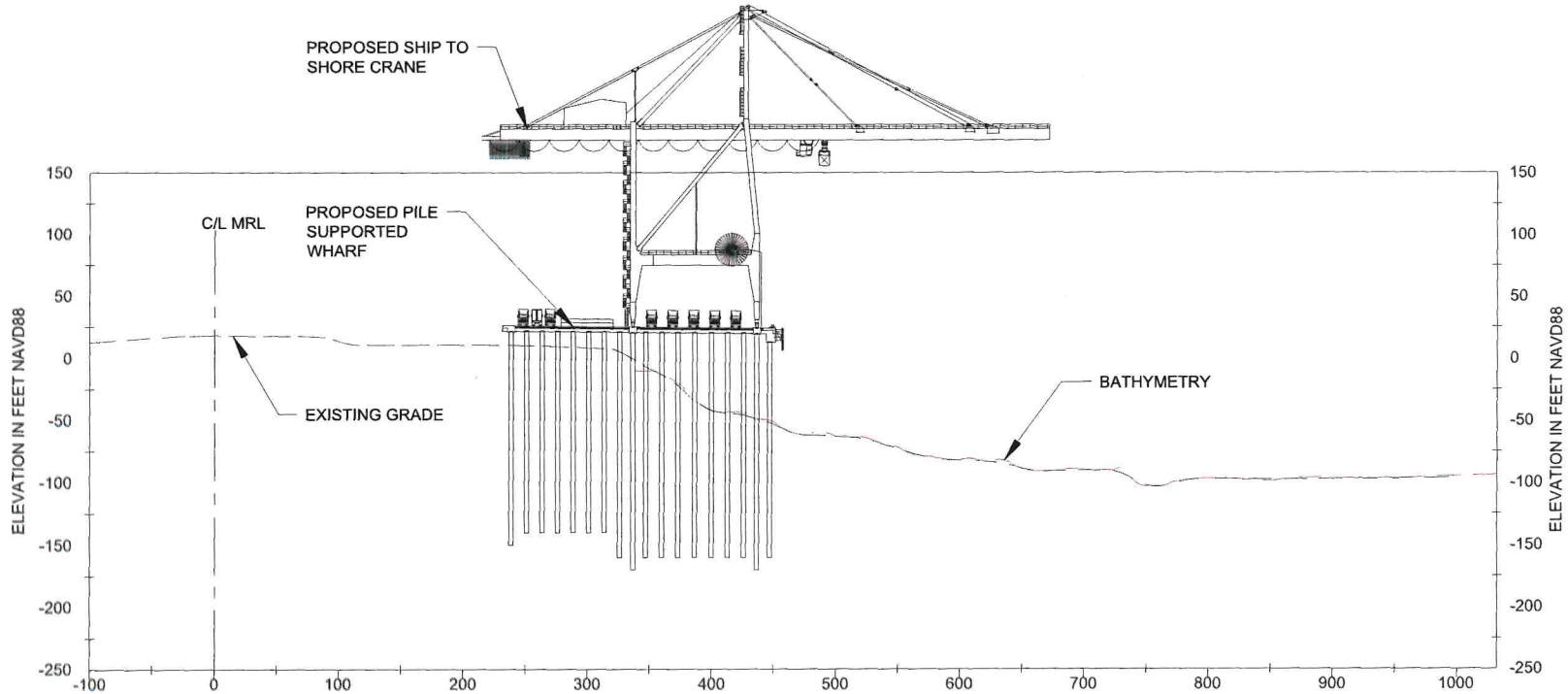
BOARD OF COMMISSIONERS – PORT OF NEW ORLEANS

LOUISIANA INTERNATIONAL TERMINAL AT VIOLET

| DATE | SCALE | JOB NO. | DRAWING NO. |
|---|---|---|---|
| 4/19/24 | AS NOTED | 60637250 | |

DESIGNED BY: BRL LA REGISTRATION NO: 29393 STATE: LA

C:\Users\MartinezJl\CACDocs\Port of New Orleans\LIT\Project Files\Live Files\SHEET FILES\Exhibits\Wharf Exhibit\Eustis Cross Sections\LIT - Wharf_Ramp Sections.dwg, Apr 30, 2024 - 6:54:40PM, MartinezJ




1 / - CROSS SECTION AT STA 464+00.00

SCALE: 1" = 150'

## LEGEND

- - - - - - - - EXISTING GRADE (FENSTERMAKER TOPOGRAPHIC SURVEY - 2022)

- - - - - - - - BATHYMETRY (FENSTERMAKER TOPOGRAPHIC SURVEY - 2023)

SURVEY HORIZONTAL DATUM IS NAD 1983, VERTICAL DATUM IS NAVD88.

0' 150' 300'

SCALE: 1" = 150'

AECOM Imagine it. Delivered.

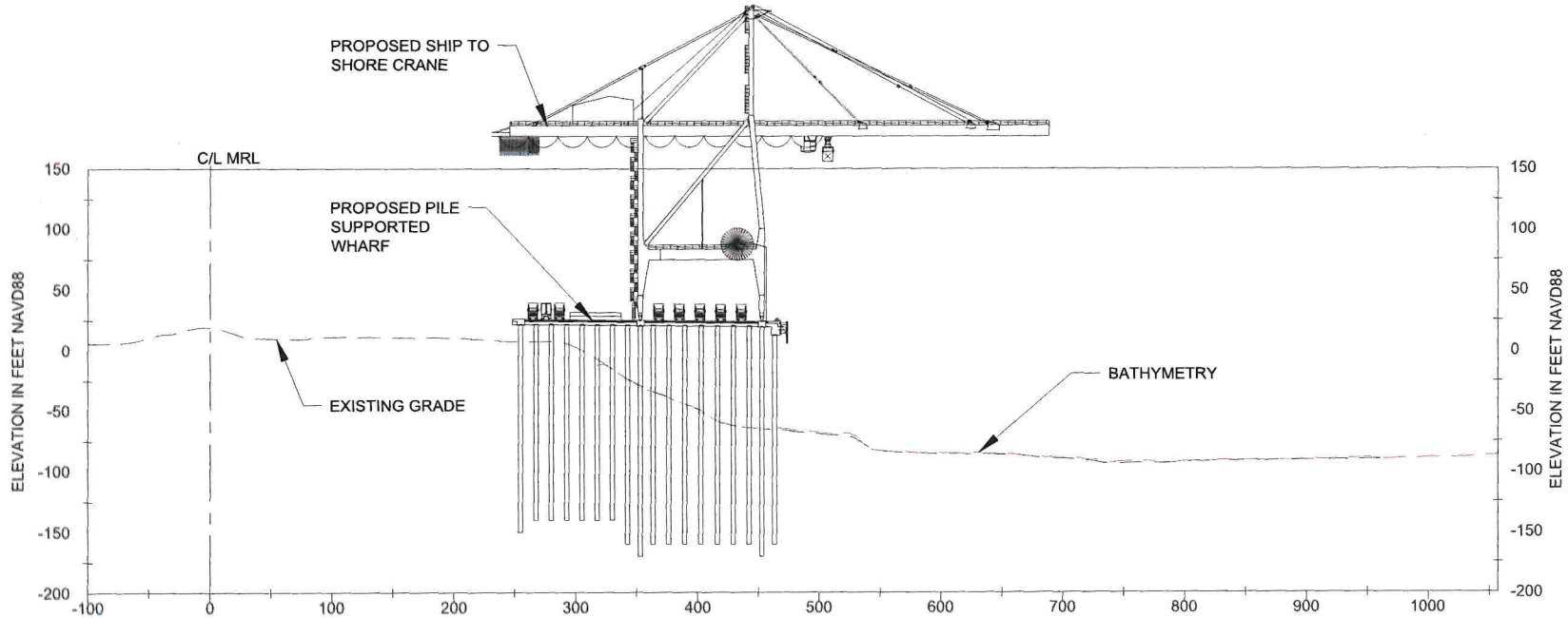
1555 POYDRAS ST., SUITE 1200 NEW ORLEANS, LA., 70112

BOARD OF COMMISSIONERS – PORT OF NEW ORLEANS

LOUISIANA INTERNATIONAL TERMINAL AT VIOLET

| DATE | SCALE | JOB NO. | DRAWING NO. |
|---|---|---|---|
| 4/19/24 | AS NOTED | 60637250 | |

DESIGNED BY: BRL LA REGISTRATION NO: 29393 STATE: LA




2 / - CROSS SECTION AT STA 471+00.00

SCALE: 1" = 150'

## LEGEND

EXISTING GRADE (FENSTERMAKER TOPOGRAPHIC SURVEY - 2022)

BATHYMETRY (FENSTERMAKER TOPOGRAPHIC SURVEY - 2023)

SURVEY HORIZONTAL DATUM IS NAD 1983, VERTICAL DATUM IS NAVD88.

0' 150' 300'

SCALE: 1" = 150'

AECOM Imagine it. Delivered.

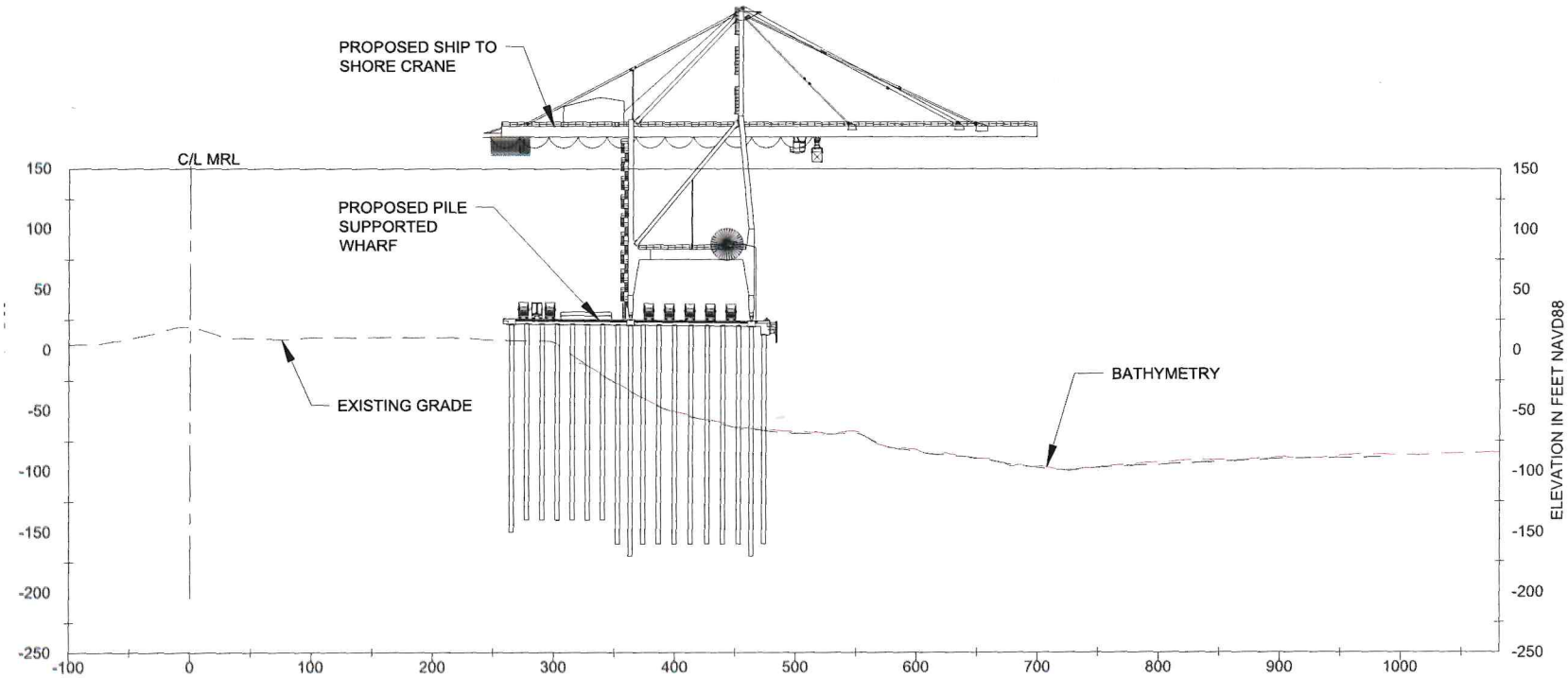
1555 POYDRAS ST., SUITE 1200 NEW ORLEANS, LA., 70112

BOARD OF COMMISSIONERS – PORT OF NEW ORLEANS

LOUISIANA INTERNATIONAL TERMINAL AT VIOLET

| DATE | SCALE | JOB NO. | DRAWING NO. |
|---|---|---|---|
| 4/19/24 | AS NOTED | 60637250 | |

DESIGNED BY: BRL LA REGISTRATION NO: 29393 STATE: LA




3 / - CROSS SECTION AT STA 475+50.00

SCALE: 1" = 150'

## LEGEND

- - - - - - - - EXISTING GRADE (FENSTERMAKER TOPOGRAPHIC SURVEY - 2022)

- - - - - - - - BATHYMETRY (FENSTERMAKER TOPOGRAPHIC SURVEY - 2023)

SURVEY HORIZONTAL DATUM IS NAD 1983, VERTICAL DATUM IS NAVD88.

0' 150' 300'

SCALE: 1" = 150'

AECOM Imagine it. Delivered.

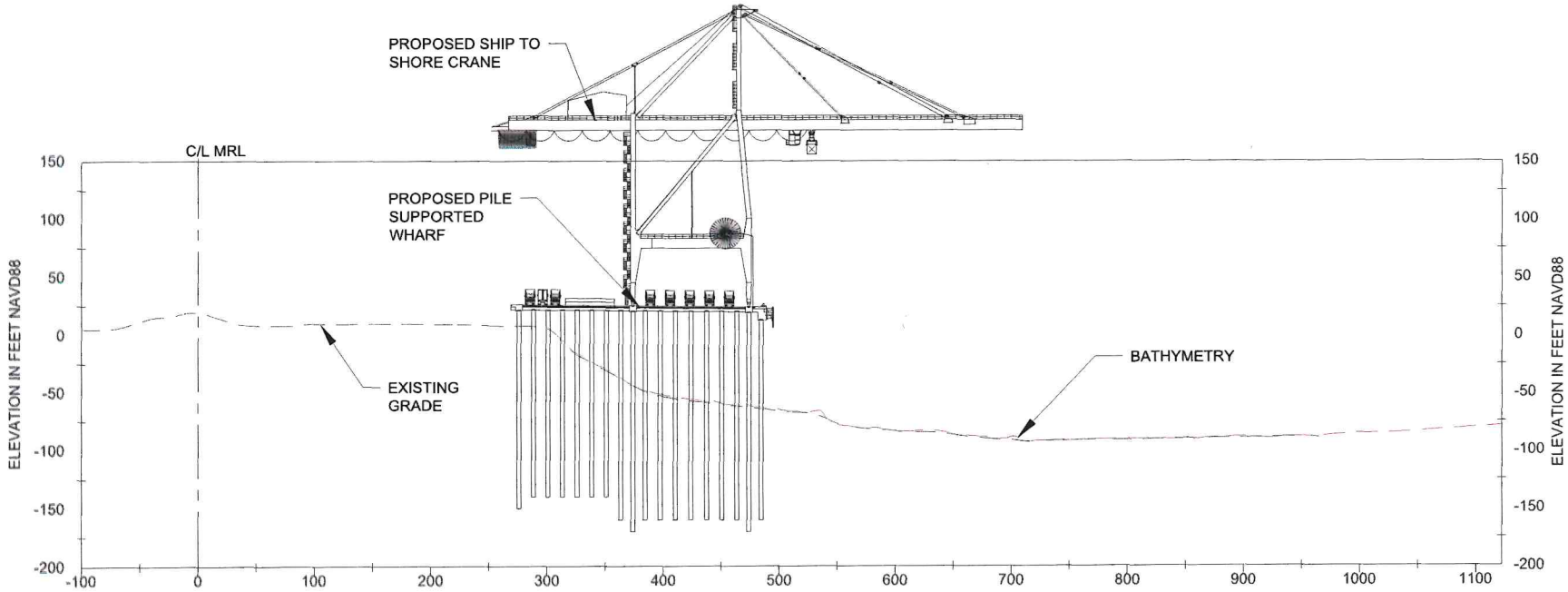
1555 POYDRAS ST., SUITE 1200 NEW ORLEANS, LA., 70112

BOARD OF COMMISSIONERS – PORT OF NEW ORLEANS

LOUISIANA INTERNATIONAL TERMINAL AT VIOLET

| DATE | SCALE | JOB NO. | DRAWING NO. |
|---|---|---|---|
| 4/19/24 | AS NOTED | 60637250 | |

DESIGNED BY: BRL LA REGISTRATION NO: 29393 STATE: LA




4 / - CROSS SECTION AT STA 480+00.00

SCALE: 1" = 150'

## LEGEND

- - - - - - - - EXISTING GRADE (FENSTERMAKER TOPOGRAPHIC SURVEY - 2022)

- - - - - - - - BATHYMETRY (FENSTERMAKER TOPOGRAPHIC SURVEY - 2023)

SURVEY HORIZONTAL DATUM IS NAD 1983, VERTICAL DATUM IS NAVD88.

0' 150' 300'

SCALE: 1" = 150'

AECOM Imagine it. Delivered.

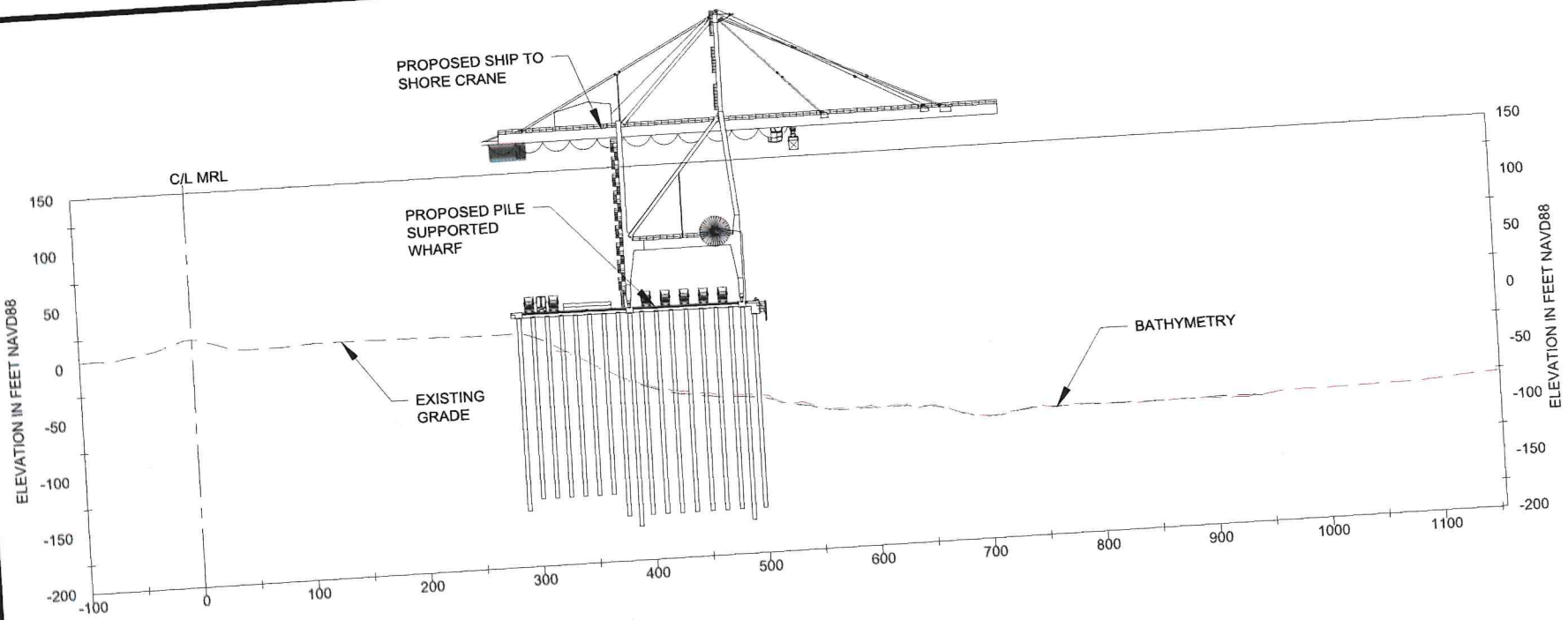
1555 POYDRAS ST., SUITE 1200 NEW ORLEANS, LA., 70112

BOARD OF COMMISSIONERS – PORT OF NEW ORLEANS

LOUISIANA INTERNATIONAL TERMINAL AT VIOLET

| DATE | SCALE | JOB NO. | DRAWING NO. |
|---|---|---|---|
| 4/19/24 | AS NOTED | 60637250 | |

DESIGNED BY: BRL LA REGISTRATION NO: 29393 STATE: LA




5 / - CROSS SECTION AT STA 486+00.00

SCALE: 1" = 150'

LEGEND

EXISTING GRADE (FENSTERMAKER TOPOGRAPHIC SURVEY - 2022)

BATHYMETRY (FENSTERMAKER TOPOGRAPHIC SURVEY - 2023)

SURVEY HORIZONTAL DATUM IS NAD 1983, VERTICAL DATUM IS NAVD88.

0' 150' 300'

SCALE: 1" = 150'

AECOM Imagine it. Delivered.

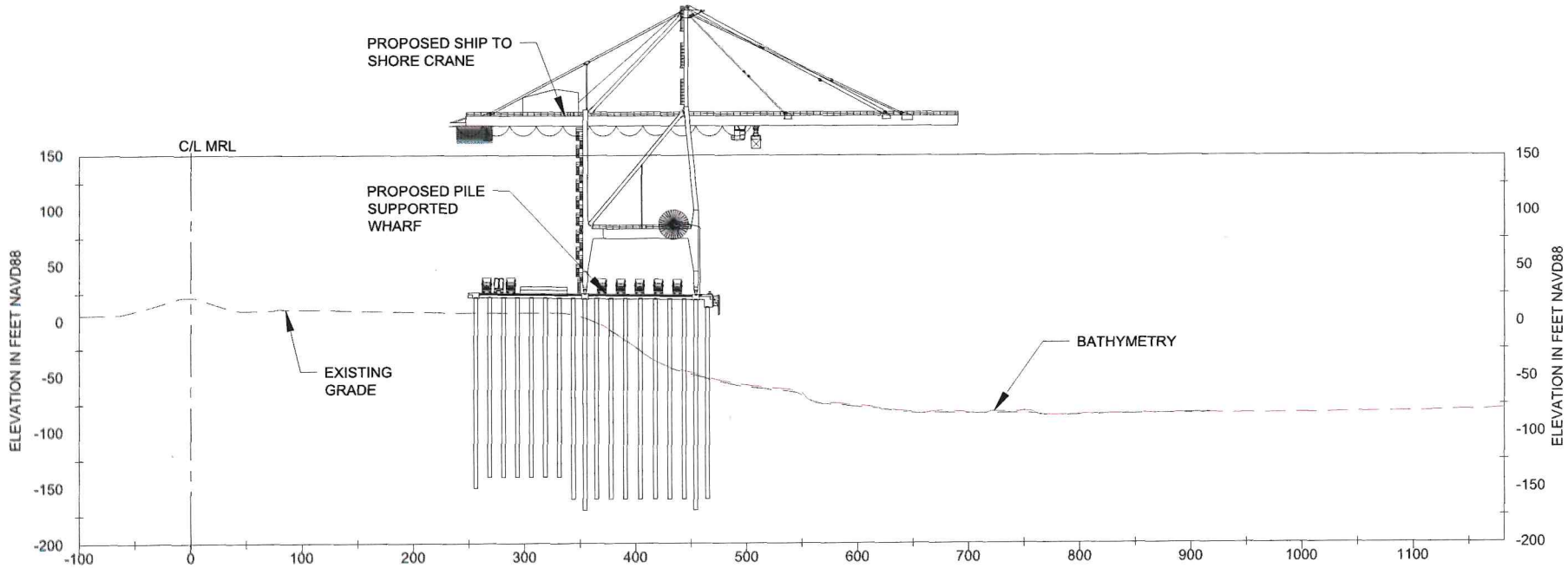
1555 POYDRAS ST., SUITE 1200 NEW ORLEANS, LA., 70112

BOARD OF COMMISSIONERS – PORT OF NEW ORLEANS

LOUISIANA INTERNATIONAL TERMINAL AT VIOLET

| DATE | SCALE | JOB NO. | DRAWING NO. |
|---|---|---|---|
| 4/19/24 | AS NOTED | 60637250 | |

DESIGNED BY: BRL LA REGISTRATION NO: 29393 STATE: LA




7 / - CROSS SECTION AT STA 498+00.00

SCALE: 1" = 150'

## LEGEND

- - - - - - - - EXISTING GRADE (FENSTERMAKER TOPOGRAPHIC SURVEY - 2022)

- - - - - - - - BATHYMETRY (FENSTERMAKER TOPOGRAPHIC SURVEY - 2023)

SURVEY HORIZONTAL DATUM IS NAD 1983, VERTICAL DATUM IS NAVD88.

0' 150' 300'

SCALE: 1" = 150'

AECOM Imagine it. Delivered.

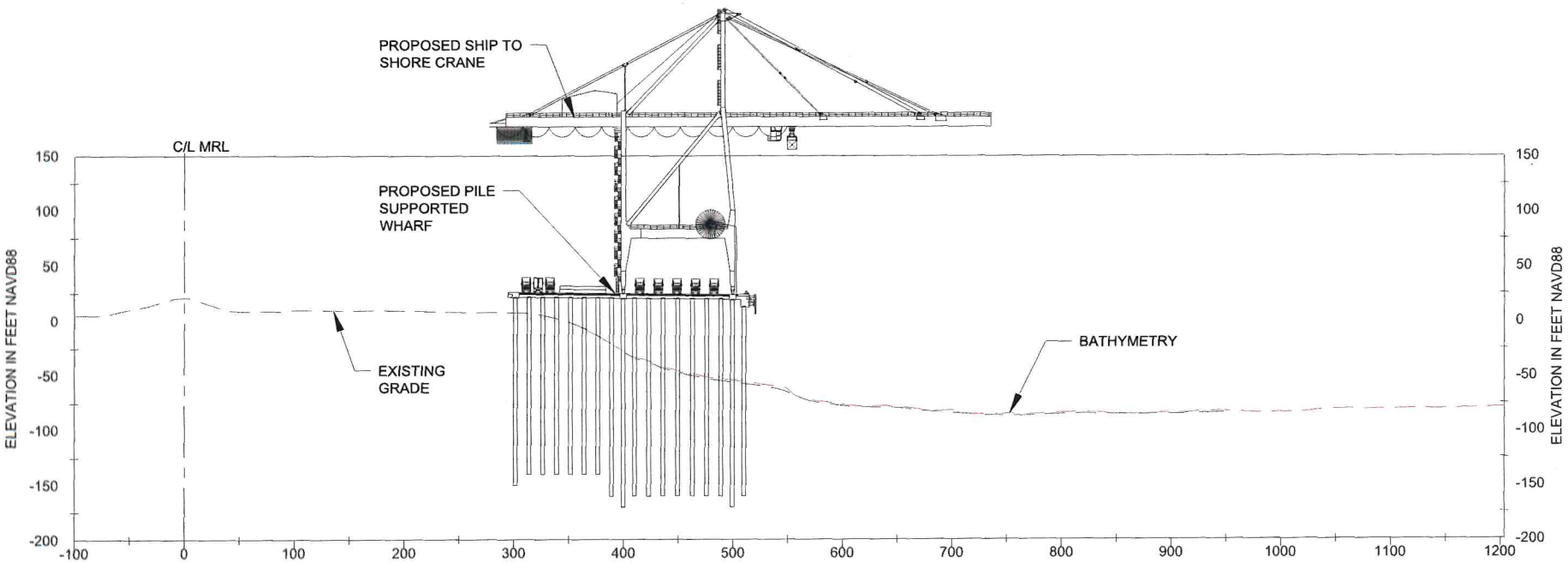
1555 POYDRAS ST., SUITE 1200 NEW ORLEANS, LA., 70112

BOARD OF COMMISSIONERS – PORT OF NEW ORLEANS

LOUISIANA INTERNATIONAL TERMINAL AT VIOLET

| DATE | SCALE | JOB NO. | DRAWING NO. |
|---|---|---|---|
| 4/19/24 | AS NOTED | 60637250 | |

DESIGNED BY: BRL LA REGISTRATION NO: 29393 STATE: LA




6 / - CROSS SECTION AT STA 491+00.00

SCALE: 1" = 150'

## LEGEND

- - - - - - - - EXISTING GRADE (FENSTERMAKER TOPOGRAPHIC SURVEY - 2022)

- - - - - - - - BATHYMETRY (FENSTERMAKER TOPOGRAPHIC SURVEY - 2023)

SURVEY HORIZONTAL DATUM IS NAD 1983, VERTICAL DATUM IS NAVD88.

0' 150' 300'

SCALE: 1" = 150'

AECOM Imagine it. Delivered.

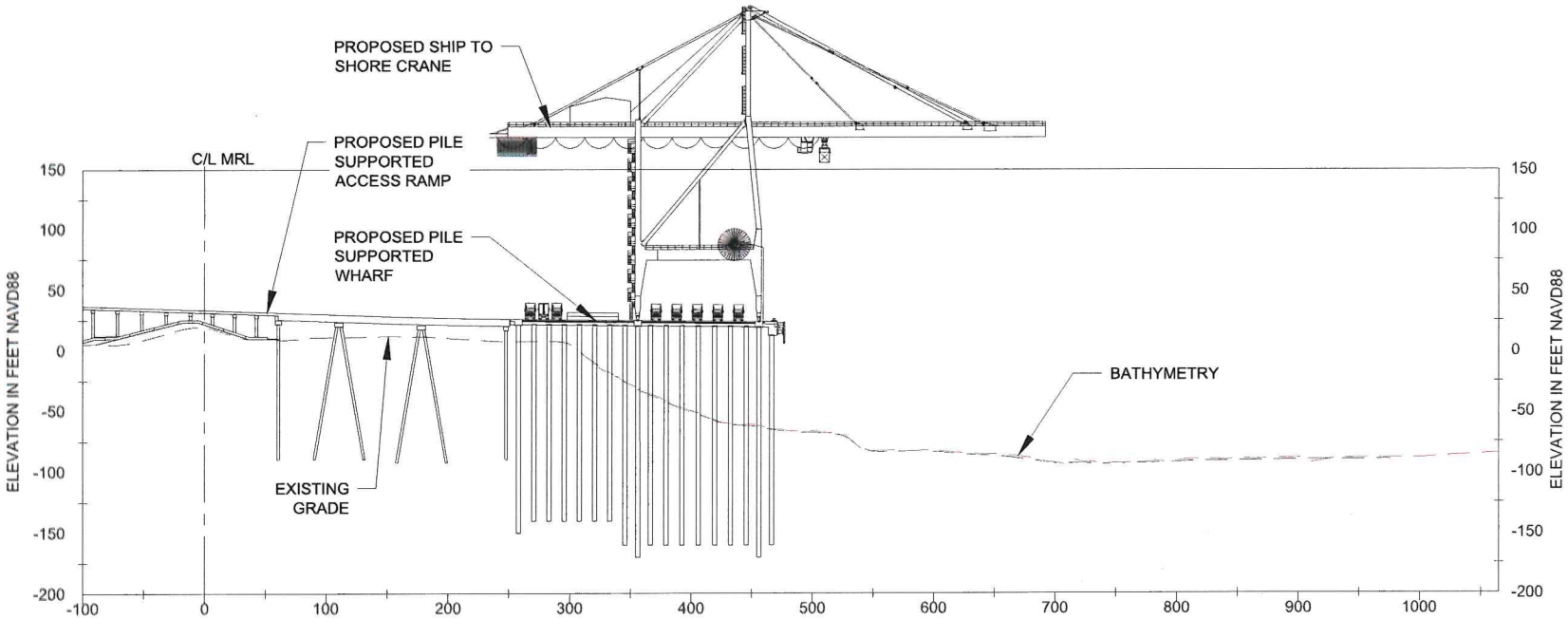
1555 POYDRAS ST., SUITE 1200 NEW ORLEANS, LA., 70112

BOARD OF COMMISSIONERS – PORT OF NEW ORLEANS

LOUISIANA INTERNATIONAL TERMINAL AT VIOLET

| DATE | SCALE | JOB NO. | DRAWING NO. |
|---|---|---|---|
| 4/19/24 | AS NOTED | 60637250 | |

DESIGNED BY: BRL LA REGISTRATION NO: 29393 STATE: LA




## PARTIAL CROSS SECTION AT RAMP A

SCALE: 1" = 150'

## LEGEND

EXISTING GRADE (FENSTERMAKER TOPOGRAPHIC SURVEY - 2022)

BATHYMETRY (FENSTERMAKER TOPOGRAPHIC SURVEY - 2023)

SURVEY HORIZONTAL DATUM IS NAD 1983, VERTICAL DATUM IS NAVD88.

0' 150' 300'

SCALE: 1" = 150'

AECOM Imagine it. Delivered.

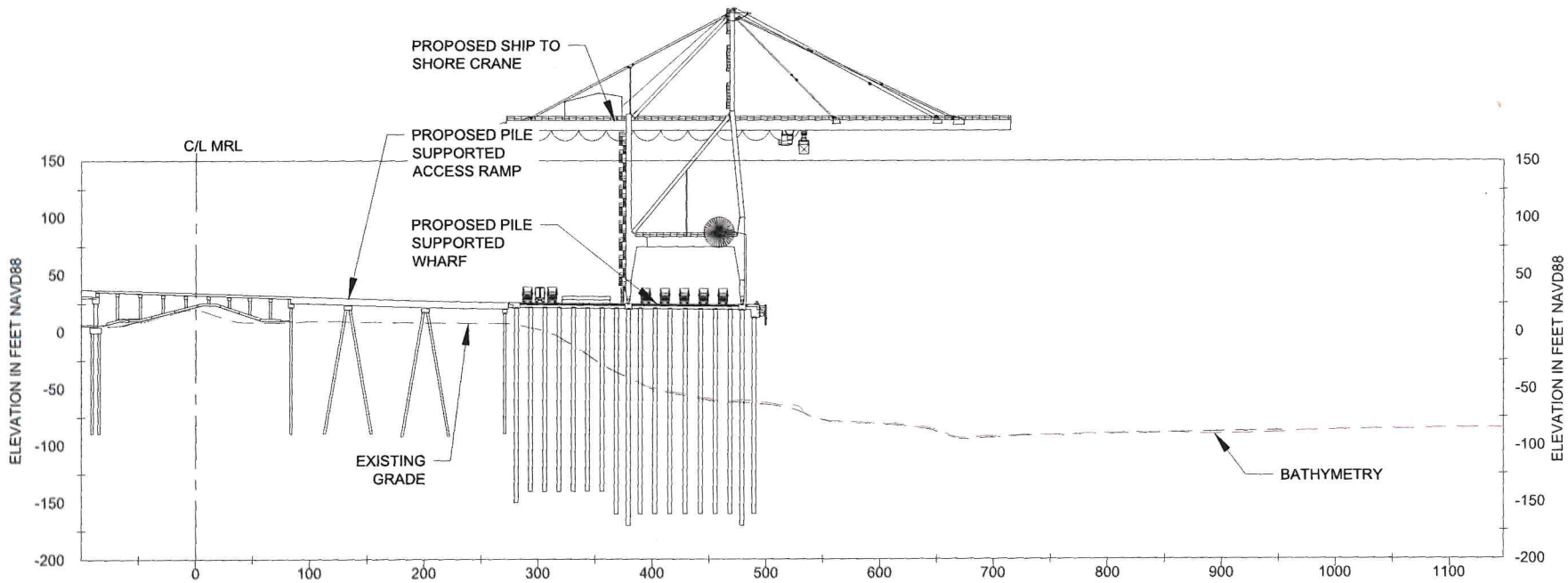
1555 POYDRAS ST., SUITE 1200 NEW ORLEANS, LA., 70112

BOARD OF COMMISSIONERS – PORT OF NEW ORLEANS

LOUISIANA INTERNATIONAL TERMINAL AT VIOLET

| DATE | SCALE | JOB NO. | DRAWING NO. |
|---|---|---|---|
| 4/19/24 | AS NOTED | 60637250 | |

DESIGNED BY: BRL LA REGISTRATION NO: 29393 STATE: LA




## PARTIAL CROSS SECTION AT RAMP B

SCALE: 1" = 150'

## LEGEND

- - - - - - - - EXISTING GRADE (FENSTERMAKER TOPOGRAPHIC SURVEY - 2022)
- - - - - - - - BATHYMETRY (FENSTERMAKER TOPOGRAPHIC SURVEY - 2023)

SURVEY HORIZONTAL DATUM IS NAD 1983, VERTICAL DATUM IS NAVD88.

0' 150' 300'
SCALE: 1" = 150'

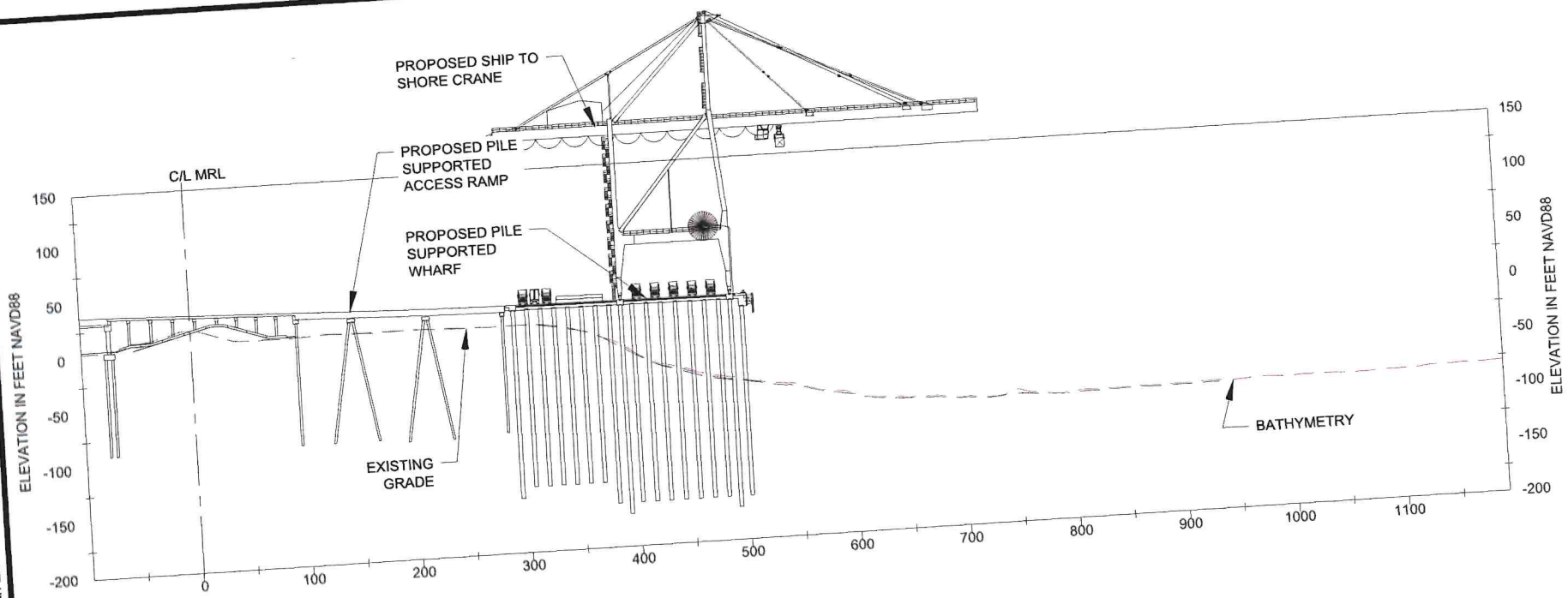
AECOM Imagine it. Delivered.

1555 POYDRAS ST., SUITE 1200 NEW ORLEANS, LA., 70112

BOARD OF COMMISSIONERS – PORT OF NEW ORLEANS
LOUISIANA INTERNATIONAL TERMINAL AT VIOLET

| DATE | SCALE | JOB NO | DRAWING NO. |
|---|---|---|---|
| 4/19/24 | AS NOTED | 60637250 | |

DESIGNED BY: BRL LA REGISTRATION NO: 29393 STATE: LA




## PARTIAL CROSS SECTION AT RAMP C

SCALE: 1" = 150'

## LEGEND

EXISTING GRADE (FENSTERMAKER TOPOGRAPHIC SURVEY - 2022)

BATHYMETRY (FENSTERMAKER TOPOGRAPHIC SURVEY - 2023)

SURVEY HORIZONTAL DATUM IS NAD 1983, VERTICAL DATUM IS NAVD88.

0' 150' 300'

SCALE: 1" = 150'

AECOM Imagine it. Delivered.

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LOUISIANA INTERNATIONAL TERMINAL AT VIOLET

| DATE | SCALE | JOB NO. | DRAWING NO. |
|---|---|---|---|
| 4/19/24 | AS NOTED | 60637250 | |

DESIGNED BY: BRL LA REGISTRATION NO: 29393 STATE: LA

# APPENDIX II

EUSTIS ENGINEERING CO.
SOIL AND FOUNDATION CONSULTANTS
METAIRIE, LA.



# LOG OF BORING

Name of Project: St. Bernard Parish Container Terminal
Violet, Louisiana

For: Burk & Associates, Inc., New Orleans, Louisiana

Boring No. 4 Soil Technician George Hardee Date 20 March 1986

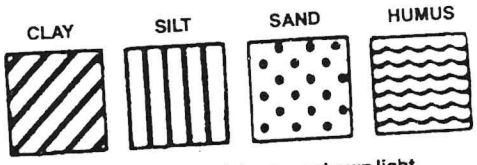
Ground Elev. Datum Gr. Water Depth See Text

| Sample No. | SAMPLE Depth — Feet From | SAMPLE Depth — Feet To | DEPTH STRATUM Feet From | DEPTH STRATUM Feet To | VISUAL CLASSIFICATION | *STANDARD PENETRATION TEST | |
|---|---|---|---|---|---|---|---|
| | | | 0.0 | 0.5 | Miscellaneous fill (shells, bricks, clay, etc.) | | |
| 1 | 2.0 | 2.5 | 0.5 | 3.0 | Medium stiff tan & gray silty clay w/shells & brick fragments | | |
| 2 | 4.5 | 5.5 | 3.0 | 5.5 | Medium stiff tan & gray clay w/silt pockets | | |
| 3 | 7.5 | 8.5 | 5.5 | 9.0 | Soft gray clay w/roots | | |
| 4 | 10.5 | 11.5 | 9.0 | 12.5 | Medium stiff gray & tan clay w/silt pockets | | |
| 5 | 13.5 | 14.5 | 12.5 | 15.0 | Soft gray & tan clay w/silt pockets | | |
| 6 | 18.5 | 19.5 | 15.0 | 20.0 | Medium stiff gray clay w/silty clay layers | | |
| 7 | 23.5 | 24.5 | 20.0 | | Soft gray clay w/clayey silt lenses | | |
| 8 | 28.5 | 29.5 | | 30.0 | Ditto | | |
| 9 | 33.5 | 34.5 | 30.0 | 36.0 | Soft gray clay w/silt lenses | | |
| 10 | 38.0 | 39.0 | 36.0 | 39.0 | Loose gray silty sand w/clay layers | 3 | 11 |
| 11 | 39.0 | 40.5 | 39.0 | | Medium dense gray silty sand w/clay layers | 1 | 13 |
| 12 | 41.5 | 43.0 | | | Ditto | 2 | 11 |
| 13 | 45.0 | 46.5 | | | Ditto | 3 | 12 |
| 14 | 48.5 | 50.0 | | | Ditto | 2 | 10 |
| 15 | 53.5 | 55.0 | | 57.0 | Ditto | 6 | 21 |
| 16 | 58.5 | 60.0 | 57.0 | | Medium dense gray silty sand | 4 | 17 |
| 17 | 63.5 | 65.0 | | | Ditto | 5 | 24 |
| 18 | 68.5 | 70.0 | | | Ditto | 6 | 27 |
| 19 | 73.5 | 75.0 | | 78.0 | Ditto | | |

*Number in first column indicates number of blows of 140-lb. hammer dropped 30 in. required to seat 2-in. O. D. splitspoon sampler 6 in. Number in second column indicates number of blows of 140-lb. hammer dropped 30 in. required to drive 2-in. O. D. splitspoon sampler 1 ft. after seating 6 in.

WHILE THIS LOG OF BORING IS CONSIDERED TO BE REPRESENTATIVE OF SUBSURFACE CONDITIONS AT ITS RESPECTIVE LOCATION ON THE DATE SHOWN, IT IS NOT WARRANTED THAT IT IS REPRESENTATIVE OF SUBSURFACE CONDITIONS AT OTHER LOCATIONS AND TIMES.

Remarks:




Predominant type shown heavy. Modifying type shown light.

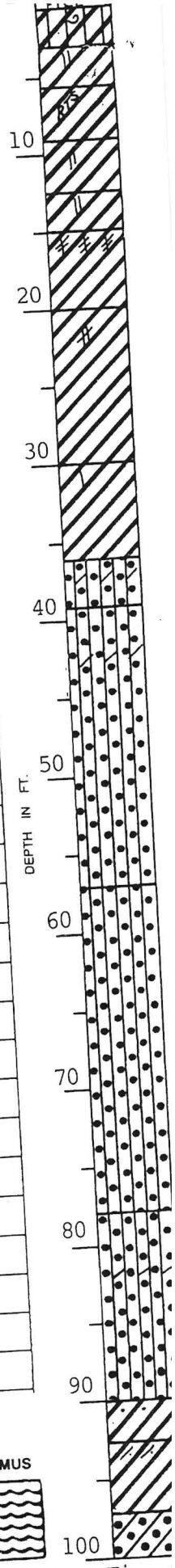



Fig.

EUSTIS ENGINEERING COMPANY
SOIL AND FOUNDATION CONSULTANTS
METAIRIE, LA.



# LOG OF BORING

Name of Project: St. Bernard Parish Container Terminal
Violet, Louisiana

For: Burk & Associates, Inc., New Orleans, Louisiana

Boring No. 4 (Cont'd) Soil Technician George Hardee Date 20 March 1986

Ground Elev. _____ Datum _____ Gr. Water Depth See Text

| Sample No. | SAMPLE Depth — Feet From | SAMPLE Depth — Feet To | DEPTH STRATUM Feet From | DEPTH STRATUM Feet To | VISUAL CLASSIFICATION | *STANDARD PENETRATION TEST | |
|---|---|---|---|---|---|---|---|
| 20 | 78.5 | 80.0 | 78.0 | | Dense gray silty sand | 6 | 39 |
| 21 | 83.5 | 85.0 | | | Ditto | 10 | 42 |
| 22 | 88.5 | 90.0 | | 90.0 | Dense gray silty sand w/clay layers | 10 | 31 |
| 23 | 91.5 | 92.0 | 90.0 | 92.5 | Stiff gray clay w/sand pockets | | |
| 24 | 93.5 | 94.5 | 92.5 | 97.0 | Stiff greenish-gray clay w/clayey sand | | |
| | | | | | pockets | | |
| 25 | 98.5 | 99.5 | 97.0 | 100.0 | Medium dense greenish-gray clayey sand | | |

DEPTH IN FT.

*Number in first column indicates number of blows of 140-lb. hammer dropped 30 in. required to seat 2-in. O. D. splitspoon sampler 6 in. Number in second column indicates number of blows of 140-lb. hammer dropped 30 in. required to drive 2-in. O. D. splitspoon sampler 1 ft. after seating 6 in.

**WHILE THIS LOG OF BORING IS CONSIDERED TO BE REPRESENTATIVE OF SUBSURFACE CONDITIONS AT ITS RESPECTIVE LOCATION ON THE DATE SHOWN, IT IS NOT WARRANTED THAT IT IS REPRESENTATIVE OF SUBSURFACE CONDITIONS AT OTHER LOCATIONS AND TIMES.**

CLAY SILT SAND HUMUS

**Remarks:** _____

**Predominant type shown heavy. Modifying type shown light.**

Fig. 5

EUSTIS ENGINEERING SINCE 1946

# LEGEND AND NOTES FOR LOG OF BORING AND TEST RESULTS

PP Pocket penetrometer: Resistance in tons per square foot

SPT Standard Penetration Test: Number of blows of a 140-lb hammer dropped 30 inches required to drive 2-in. O.D., 1.4-in. I.D. sampler a distance of 1 foot into the soil after first seating it 6 inches. Values shown have not been corrected.

SPLR Type of Sampling: Shelby, SPT, Auger, Vibracore, Geoprobe, No sample

SYMBOL Clay, Silt, Sand, Peat/Humus, Shells, Stone/Gravel

Predominant type shown heavy; modifying type shown light

USC Unified Soil Classification

DENSITY Unit weight in pounds per cubic foot

SHEAR TESTS

TYPE

- UC Unconfined compression shear
- OB Unconsolidated undrained triaxial compression shear on one specimen confined at the approximate overburden pressure
- UU Unconsolidated undrained triaxial compression shear
- $\phi$ Angle of internal friction in degrees
- c Cohesion in pounds per square foot

ATTERBERG LIMITS

- LL Liquid Limit
- PL Plastic Limit
- PI Plasticity Index

OTHER TESTS

- CON Consolidation
- -#200 Percent passing a U.S. No. 200 sieve
- SV Particle size distribution (sieve only)
- PD Particle size distribution (sieve and hydrometer)
- k Coefficient of permeability in centimeters per second
- SP Swelling pressure in pounds per square foot

Other laboratory test results reported on separate figures

GENERAL NOTES

(1) If a ground water depth is shown on the boring log, these observations were made at the time of drilling and were measured below the existing ground surface. These observations are shown on the boring logs. However, ground water levels may vary due to seasonal fluctuations and other factors. If important to construction, the depth to ground water should be determined by those persons responsible for construction immediately prior to beginning work.

(2) While the individual logs of borings are considered to be representative of subsurface conditions at their respective locations on the dates shown, it is not warranted that they are representative of subsurface conditions at other locations and times.

# LOG OF BORING AND TEST RESULTS

EUSTIS ENGINEERING SINCE 1946

**Port of New Orleans**
**Phase I Exploration and Preliminary Analyses**
**New Container Terminal**
**Violet, Louisiana**

## Boring: B-1

**Project No:** 24618
**Date:** 07/12/2021 - 07/13/2021
**Latitude:** 29.89210°
**Longitude:** -89.89994°

**Elevation:** 8.0
**Datum:** NAVD88
**Water Depth:** See Text
**Total Depth:** 100.0 ft

| Scale in Feet | PP | SPT | SPLR | Symbol | Visual Classification | USC | Sample Number | Depth in Feet | Water Content % | Density Dry pcf | Density Wet pcf | Shear Tests Type | Shear Tests ϕ | Shear Tests C psf | Atterberg Limits LL | Atterberg Limits PL | Atterberg Limits PI | | Other Tests |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 0 | | | | | Gray SILT w/shell & rock (asphalt) | ML | PB-1 | 0 | 10 | | | | | | | | | | |
| | | 25 | | | Moist, medium dense gray & tan FINE SAND w/silt, shell fragments, & trace of clay pockets | SP-SM | PB-2 | 0.5 | | | | | | | | | | | |
| | | 9 | | | Moist, very soft gray & tan LEAN CLAY w/sand (fi), trace of concretions, & organic matter | CL | PB-3 | 3.5 | 32 | | | | | | | | | | |
| 5 | 1.00 | | | | | | 4 | 5 | 34 | | | | | | | | | | |
| | | | | | | | 5 | 6 | 33 | 90 | 119 | UC | -- | 190 | | | | | |
| | 0.25 | | | | | | | | | | | | | | | | | | |
| 10 | | | | | Moist, soft gray & tan FAT CLAY w/silt pockets & trace of roots | CH | 6 | 9 | 45 | | | | | | | | | | |
| | 0.50 | | | | | | 7 | 12 | 43 | 78 | 112 | UC | -- | 410 | | | | | |
| 15 | 0.50 | | | | | | | | | | | | | | | | | | |
| | 0.50 | | | | Moist, soft gray FAT CLAY w/roots, concretions, silty sand pockets, decayed wood, & roots | CH | 8 | 18 | 77 | 55 | 97 | OB | 0 | 358 | | | | | |
| 20 | | | | | | | | | | | | | | | | | | | |
| | 0.50 | | | | | | 9 | 23 | 70 | | | | | | | | | | |
| 25 | | | | | | | | | | | | | | | | | | | |
| | 0.50 | | | | | | 10 | 28 | 61 | | | | | | | | | | |
| 30 | | | | | | | | | | | | | | | | | | | |
| | | | | | Very loose gray SILTY FINE SAND w/trace of clay | SM | 11 | 33 | 30 | 92 | 120 | OB | 0 | 561 | | | | | |
| 35 | | | | | | | | | | | | | | | | | | | |
| | | | | | Moist, medium stiff gray FAT CLAY w/trace of silt pockets & silty sand pockets (flocculated) | CH | 12 | 38 | 69 | | | | | | 97 | 34 | 63 | | |
| 40 | | | | | | | | | | | | | | | | | | | |
| | 0.25 | | | | | | 13 | 43 | 60 | 64 | 103 | OB | 0 | 501 | | | | | |
| 45 | | | | | | | | | | | | | | | | | | | |
| | 0.25 | | | | | | 14 | 48 | 49 | | | | | | | | | | |
| 50 | | | | | | | | | | | | | | | | | | | |

**NOTES:**

# LOG OF BORING AND TEST RESULTS

EUSTIS ENGINEERING SINCE 1946

**Port of New Orleans**
**Phase I Exploration and Preliminary Analyses**
**New Container Terminal**
**Violet, Louisiana**

## Boring: B-1

**Project No:** 24618
**Date:** 07/12/2021 - 07/13/2021
**Latitude:** 29.89210°
**Longitude:** -89.89994°

**Elevation:** 8.0
**Datum:** NAVD88
**Water Depth:** See Text
**Total Depth:** 100.0 ft

| Scale in Feet | PP | SPT | SPLR | Symbol | Visual Classification | USC | Sample Number | Depth in Feet | Water Content % | Density Dry pcf | Density Wet pcf | Shear Tests Type | Shear Tests ϕ | Shear Tests C psf | Atterberg Limits LL | Atterberg Limits PL | Atterberg Limits PI | | Other Tests |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 50 | | | | | Moist, medium stiff gray FAT CLAY w/trace of silt pockets & silty sand pockets (flocculated) | CH | | | | | | | | | | | | | |
| | 0.50 | | | | | | 15 | 53 | 52 | 71 | 107 | UC | -- | 644 | | | | | |
| 55 | | | | | | | | | | | | | | | | | | | |
| | 0.50 | | | | | | 16 | 58 | 43 | 78 | 112 | OB | 0 | 469 | | | | | |
| 60 | | | | | | | | | | | | | | | | | | | |
| | 0.50 | | | | | | 17 | 63 | 53 | 69 | 106 | UC | -- | 949 | | | | | |
| 65 | | | | | | | | | | | | | | | | | | | |
| | 0.50 | | | | | | 18 | 68 | 55 | | | | | | | | | | |
| 70 | | | | | | | | | | | | | | | | | | | |
| | 0.50 | | | | | | 19 | 73 | 47 | 75 | 110 | UC | -- | 801 | | | | | |
| 75 | | | | | | | | | | | | | | | | | | | |
| | 0.50 | | | | Moist, very loose gray SILTY FINE SAND w/shell fragments | SM | 20 | 78 | 25 | | | | | | | | | | |
| 80 | | | | | | | | | | | | | | | | | | | |
| | 0.50 | | | | Moist, medium stiff gray LEAN CLAY w/shell fragments | CL | 21 | 83 | 35 | 85 | 115 | OB | 0 | 619 | | | | | |
| 85 | | | | | | | | | | | | | | | | | | | |
| | 0.50 | | | | Moist, very loose gray SILTY SAND w/shell fragments | SM | 22 | 88 | 33 | | | | | | | | | | -#200 = 26.0% |
| 90 | | | | | | | | | | | | | | | | | | | |
| | 1.50 | | | | Moist, stiff gay & tan FAT CLAY w/few silty sand pockets | CH | 23 | 93 | 45 | 76 | 110 | UC | -- | 1697 | | | | | |
| 95 | | | | | | | | | | | | | | | | | | | |
| | 1.00 | | | | | | 24 | 98 | 44 | 76 | 110 | OB | 0 | 1371 | | | | | |
| 100 | | | | | | | | | | | | | | | | | | | |

**NOTES:**

EUSTIS_GINT_LIBRARY_4_20_2024.GLB EE STANDARD BORING LOG 24618 - ANNIE.GPJ 5/30/24

# LOG OF BORING AND TEST RESULTS

EUSTIS ENGINEERING SINCE 1946

**Port of New Orleans**
**Phase I Exploration and Preliminary Analyses**
**New Container Terminal**
**Violet, Louisiana**

## Boring: B-2

**Project No:** 24618
**Date:** 07/21/2021
**Latitude:** 29.88916°
**Longitude:** -89.89836°

**Elevation:** 6.0
**Datum:** NAVD88
**Water Depth:** See Text
**Total Depth:** 100.0 ft

| Scale in Feet | PP | SPT | SPLR | Symbol | Visual Classification | USC | Sample Number | Depth in Feet | Water Content % | Density Dry pcf | Density Wet pcf | Shear Tests Type | Shear Tests ϕ | Shear Tests C psf | Atterberg Limits LL | Atterberg Limits PL | Atterberg Limits PI | | Other Tests |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 0 | | | | | Soft gray SILTY CLAY | CL | PB-1 | 0 | | | | | | | | | | | |
| | 1.00 | | | | Moist, stiff gray & tan FAT CLAY w/trace of silt pockets, & concretions | CH | 2 | 2 | 33 | | | | | | | | | | |
| | 1.00 | | | | Moist, stiff gray & tan LEAN CLAY w/silty clay layers & trace of roots | CL | 3 | 5 | 28 | 93 | 119 | UC | -- | 1667 | | | | | |
| 5 | 0.50 | | | | Moist, soft to medium stiff gray & tan FAT CLAY w/few silt pockets & trace of wood (flocculated) | CH | 4 | 8 | 37 | | | | | | | | | | |
| | 1.25 | | | | | | 5 | 11 | 48 | 72 | 107 | UC | -- | 419 | | | | | |
| 10 | 0.25 | | | | Moist, soft gray & tan LEAN CLAY | CL | 6 | 14 | 37 | | | | | | | | | | |
| | 0.25 | | | | | | 7 | 18 | 35 | 87 | 117 | OB | 0 | 477 | | | | | |
| 15 | 0.25 | | | | Moist, loose gray CLAYEY SILT w/few clay pockets | ML | 8 | 23 | 34 | | | | | | | | | | |
| 20 | 0.25 | | | | Moist, soft gray LEAN CLAY w/trace of wood | CL | 9 | 28 | 36 | 83 | 113 | UC | -- | 432 | | | | | |
| 25 | 0.25 | | | | | | 10 | 33 | 45 | | | | | | 48 | 20 | 28 | | |
| 30 | 0.25 | | | | | | 11 | 38 | 36 | | | | | | | | | | |
| 35 | 0.25 | | | | Moist, soft to medium stiff gray FAT CLAY w/trace of silt pockets & lenses (flocculated) | CH | 12 | 43 | 54 | 67 | 104 | OB | 0 | 314 | | | | | |
| 40 | 0.25 | | | | | | 13 | 48 | 49 | | | | | | | | | | |
| 45 | 0.25 | | | | | | | | | | | | | | | | | | |
| 50 | | | | | | | | | | | | | | | | | | | |

**NOTES:**

EUSTIS_GINT_LIBRARY_4_20_2024.GLB EE STANDARD BORING LOG 24618 - ANNIE.GPJ 5/30/24

# LOG OF BORING AND TEST RESULTS

EUSTIS ENGINEERING SINCE 1946

**Port of New Orleans**
**Phase I Exploration and Preliminary Analyses**
**New Container Terminal**
**Violet, Louisiana**

## Boring: B-2

**Project No:** 24618
**Date:** 07/21/2021
**Latitude:** 29.88916°
**Longitude:** -89.89836°

**Elevation:** 6.0
**Datum:** NAVD88
**Water Depth:** See Text
**Total Depth:** 100.0 ft

| Scale in Feet | PP | SPT | SPLR | Symbol | Visual Classification | USC | Sample Number | Depth in Feet | Water Content % | Density Dry pcf | Density Wet pcf | Shear Tests Type | Shear Tests ϕ | Shear Tests C psf | Atterberg Limits LL | Atterberg Limits PL | Atterberg Limits PI | | Other Tests |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 50 | | | | | Moist, soft to medium stiff gray FAT CLAY w/trace of silt pockets & lenses (flocculated) | CH | 14 | 53 | 55 | 65 | 101 | UC | -- | 652 | | | | | |
| | 0.50 | | | | | | | | | | | | | | | | | | |
| 55 | | | | | | | 15 | 59 | 51 | | | | | | | | | | |
| | 0.50 | | | | | | | | | | | | | | | | | | |
| 60 | | | | | | | 16 | 63 | 57 | 64 | 100 | OB | 0 | 617 | | | | | |
| | 1.00 | | | | | | | | | | | | | | | | | | |
| 65 | | | | | | | 17 | 68 | 52 | | | | | | | | | | |
| | 1.00 | | | | | | | | | | | | | | | | | | |
| 70 | | | | | | | 18 | 73 | 55 | 68 | 105 | OB | 0 | 416 | | | | | |
| | 0.50 | | | | | | | | | | | | | | | | | | -#200 = 19.2% |
| 75 | | | | | Moist, loose gray CLAYEY SAND w/shell fragments | SC | 19 | 78 | 27 | | | | | | | | | | |
| | 0.25 | | | | | | | | | | | | | | | | | | |
| 80 | | | | | Moist, loose gray fine SILTY SAND w/trace of clay & shell fragments | SM | 20 | 83 | 33 | 88 | 117 | OB | 0 | 588 | | | | | |
| | 0.25 | | | | | | | | | | | | | | | | | | |
| 85 | | | | | | | 21 | 88 | 24 | 100 | 124 | OB | 0 | 495 | | | | | |
| | 0.25 | | | | | | PB-22 | 91.5 | 27 | | | | | | | | | | |
| 90 | | | | | Moist, dense gray SILTY SAND | SM | | | | | | | | | | | | | |
| | | | | | | | PB-23 | 95.5 | | | | | | | | | | | |
| 95 | | | 35 | | | | PB-24 | 98.5 | 29 | | | | | | | | | | |
| 100 | | | 40 | | | | | | | | | | | | | | | | |

**NOTES:**

# LOG OF BORING AND TEST RESULTS

EUSTIS ENGINEERING SINCE 1946

**Port of New Orleans**
**Phase I Exploration and Preliminary Analyses**
**New Container Terminal**
**Violet, Louisiana**

## Boring: B-3

**Project No:** 24618
**Date:** 07/20/2021
**Latitude:** 29.88718°
**Longitude:** -89.89781°

**Elevation:** 7.0
**Datum:** NAVD88
**Water Depth:** See Text
**Total Depth:** 50.0 ft

| Scale in Feet | PP | SPT | SPLR | Symbol | Visual Classification | USC | Sample Number | Depth in Feet | Water Content % | Density Dry pcf | Density Wet pcf | Shear Tests Type | Shear Tests ϕ | Shear Tests C psf | Atterberg Limits LL | Atterberg Limits PL | Atterberg Limits PI | | Other Tests |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 0 | | | | | Moist, soft gray & tan LEAN CLAY w/fine sand pockets, roots, & trace of shell fragments | CL | PB-1 | 0 | | | | | | | | | | | |
| | 0.50 | | | | | | B-2 | 2 | 22 | | | | | | | | | | |
| 5 | 0.75 | | | | Moist, soft gray & tan LEAN CLAY w/trace of concretions (brittle) | CL | 3 | 5 | 31 | 87 | 114 | OB | 0 | 288 | | | | | |
| | 0.50 | | | | Moist, soft to medium stiff gray & tan FAT CLAY w/silty sand pockets, decayed wood, & organic matter | CH | 4 | 8 | 41 | | | | | | | | | | |
| 10 | 0.50 | | | | | | 5 | 11 | 46 | 72 | 105 | UC | -- | 476 | | | | | |
| 15 | 0.75 | | | | | | 6 | 14 | 44 | | | | | | | | | | |
| 20 | 0.75 | | | | | | 7 | 18 | 42 | 79 | 112 | OB | 0 | 691 | | | | | |
| 25 | 0.50 | | | | | | 8 | 23 | 82 | | | | | | | | | | |
| 30 | 0.50 | | | | | | 9 | 28 | 73 | 54 | 93 | UC | -- | 279 | | | | | |
| 35 | | | | | Moist, loose gray CLAYEY SILT w/trace of sand (fi) | ML | 10 | 33 | 35 | | | | | | | | | | |
| 40 | | | | | Moist, soft to medium stiff gray LEAN CLAY w/sand (fi) & silt pockets | CL | 11 | 38 | 43 | 76 | 109 | OB | 0 | 508 | | | | | |
| 45 | | | | | Moist, loose CLAYEY SILT w/trace of silty sand | ML | 12 | 43 | 38 | | | | | | NP | NP | NP | | |
| 50 | | | | | Moist, very soft gray FAT CLAY w/fine sand pockets | CH | PB-13 | 48.5 | 44 | | | | | | | | | | |

**NOTES:**

EUSTIS_GINT_LIBRARY_4_20_2024.GLB EE STANDARD BORING LOG 24618 - ANNIE.GPJ 5/30/24

# LOG OF BORING AND TEST RESULTS

EUSTIS ENGINEERING SINCE 1946

**Port of New Orleans**
**Phase I Exploration and Preliminary Analyses**
**New Container Terminal**
**Violet, Louisiana**

## Boring: B-4

**Project No:** 24618
**Date:** 07/15/2021 - 07/19/2021
**Latitude:** 29.88350°
**Longitude:** -89.89780°

**Elevation:** 8.0
**Datum:** NAVD88
**Water Depth:** See Text
**Total Depth:** 150.0 ft

| Scale in Feet | PP | SPT | SPLR | Symbol | Visual Classification | USC | Sample Number | Depth in Feet | Water Content % | Density Dry pcf | Density Wet pcf | Shear Tests Type | Shear Tests ϕ | Shear Tests C psf | Atterberg Limits LL | Atterberg Limits PL | Atterberg Limits PI | | Other Tests |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 0 | | | | | Brown SILTY CLAY w/ shells | CL | PB-1 | 0 | 28 | | | | | | | | | | |
| | 0.75 | 6 | | | Moist, soft gray & tan LEAN CLAY w/trace of decayed wood | CL | PB-2 | 0.5 | | | | | | | | | | | |
| | | | | | | | 3 | 2 | 33 | 86 | 114 | UC | -- | 366 | | | | | |
| | | | | | Moist, soft gray & tan FAT CLAY w/trace of concretions (flocculated) | CH | 4 | 3 | 40 | | | | | | | | | | |
| 5 | 0.50 | | | | | | 5 | 6 | 44 | 75 | 107 | UC | -- | 478 | | | | | |
| | 1.00 | | | | | | 6 | 9 | 42 | 79 | 112 | OB | 0 | 577 | | | | | |
| 10 | | | | | Moist, medium stiff gray & tan FAT CLAY w/few roots & concretions (flocculated) | CH | | | | | | | | | | | | | |
| | 1.50 | | | | | | 7 | 12 | 42 | 79 | 112 | UC | -- | 551 | | | | | |
| 15 | 1.50 | | | | | | | | | | | | | | | | | | |
| | 1.50 | | | | Moist, medium stiff gray LEAN CLAY w/trace of shell fragments | CL | 8 | 18 | 29 | | | | | | | | | | |
| 20 | | | | | | | | | | | | | | | | | | | |
| | 1.50 | | | | | | 9 | 23 | 33 | 88 | 117 | UC | -- | 625 | | | | | |
| 25 | | | | | | | | | | | | | | | | | | | |
| | 2.25 | | | | Moist, very soft to soft gray LEAN CLAY w/few silt lenses & trace of organic matter | CL | 10 | 28 | 50 | 72 | 108 | OB | 0 | 288 | | | | | |
| 30 | | | | | | | | | | | | | | | | | | | |
| | | | | | Very loose gray SILTY FINE SAND | SM | 11 | 33 | 24 | | | | | | | | | | |
| 35 | | | | | | | | | | | | | | | | | | | |
| | | | | | | | PB-12 | 38 | 38 | | | | | | | | | | -#200 = 60.6% |
| 40 | | 3 | | | Moist, soft gray SANDY LEAN CLAY | CL | | | | | | | | | | | | | |
| | | | | | Very loose gray SILTY FINE SAND w/clay | SM | 13 | 43 | 39 | | | | | | | | | | |
| 45 | | | | | | | | | | | | | | | | | | | |
| | 0.50 | | | | Moist, medium dense gray & tan FINE SAND w/few clay pockets & trace of clay lenses | SP | 14 | 48 | 28 | 96 | 122 | | | | | | | | |
| 50 | | | | | | | | | | | | | | | | | | | |

**NOTES:**

EUSTIS_GINT_LIBRARY_4_20_2024.GLB EE STANDARD BORING LOG 24618 - ANNIE.GPJ 5/30/24

# LOG OF BORING AND TEST RESULTS

EUSTIS ENGINEERING SINCE 1946

**Port of New Orleans**
**Phase I Exploration and Preliminary Analyses**
**New Container Terminal**
**Violet, Louisiana**

## Boring: B-4

**Project No:** 24618
**Date:** 07/15/2021 - 07/19/2021
**Latitude:** 29.88350°
**Longitude:** -89.89780°

**Elevation:** 8.0
**Datum:** NAVD88
**Water Depth:** See Text
**Total Depth:** 150.0 ft

| Scale in Feet | PP | SPT | SPLR | Symbol | Visual Classification | USC | Sample Number | Depth in Feet | Water Content % | Density Dry pcf | Density Wet pcf | Shear Tests Type | Shear Tests ϕ | Shear Tests C psf | Atterberg Limits LL | Atterberg Limits PL | Atterberg Limits PI | | Other Tests |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 50 | | 25 | X | | Moist, medium dense gray & tan SILTY FINE SAND | SM | PB-15 | 50.5 | 24 | | | | | | | | | | |
| | | 28 | X | | | | PB-16 | 53.5 | 23 | | | | | | | | | | |
| 55 | | 11 | X | | | | PB-17 | 56.5 | | | | | | | | | | | |
| 60 | | 20 | X | | Moist, medium dense gray & tan CLAYEY FINE SAND | SC | PB-18 | 59.5 | 32 | | | | | | | | | | |
| 65 | | 18 | X | | | | PB-19 | 63.5 | | | | | | | | | | | |
| 70 | | 31 | X | | Moist, dense gray & tan SILTY FINE SAND | SM | PB-20 | 68.5 | 23 | | | | | | | | | | |
| 75 | | 35 | X | | | | PB-21 | 73.5 | | | | | | | | | | | |
| 80 | | 54 | X | | Moist, very dense tan & gray FINE SAND w/trace of organic matter, silt, & concretions | SP | PB-22 | 78.5 | 21 | | | | | | | | | | |
| 85 | | 51 | X | | | | PB-23 | 83.5 | 19 | | | | | | | | | | |
| 90 | | 36 | X | | Moist, dense gray CLAYEY FINE SAND w/shell fragments | SC | PB-24 | 88.5 | 28 | | | | | | | | | | |
| 95 | | 12 | X | | Moist, loose to medium dense gray SILTY FINE SAND w/clay & shell fragments | SM | PB-25 | 93.5 | 27 | | | | | | | | | | |
| 100 | | 64 | X | | | SM | PB-26 | 98.5 | 24 | | | | | | | | | | |

**NOTES:**

EUSTIS_GINT_LIBRARY_4_20_2024.GLB EE STANDARD BORING LOG 24618 - ANNIE.GPJ 5/30/24

# LOG OF BORING AND TEST RESULTS

EUSTIS ENGINEERING SINCE 1946

**Port of New Orleans**
**Phase I Exploration and Preliminary Analyses**
**New Container Terminal**
**Violet, Louisiana**

## Boring: B-4

**Project No:** 24618
**Date:** 07/15/2021 - 07/19/2021
**Latitude:** 29.88350°
**Longitude:** -89.89780°

**Elevation:** 8.0
**Datum:** NAVD88
**Water Depth:** See Text
**Total Depth:** 150.0 ft

| Scale in Feet | PP | SPT | SPLR | Symbol | Visual Classification | USC | Sample Number | Depth in Feet | Water Content % | Density Dry pcf | Density Wet pcf | Shear Tests Type | Shear Tests ϕ | Shear Tests C psf | Atterberg Limits LL | Atterberg Limits PL | Atterberg Limits PI | | Other Tests |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 100 | | | | | Very dense gray SILTY FINE SAND w/few clay pockets & trace of shell fragments | SM | | | | | | | | | | | | | |
| 105 | | 71 | ☒ | | w/trace of silt | | PB-27 | 103.5 | 26 | | | | | | | | | | |
| 110 | 1.50 | | | | Moist, stiff gray FAT CLAY w/trace of silt pockets, decayed wood, & fine sand pockets | CH | 28 | 108 | 45 | 75 | 109 | UC | -- | 1194 | | | | | |
| 115 | 1.75 | | | | | | 29 | 113 | 50 | 71 | 107 | UC | -- | 1341 | | | | | |
| 120 | 1.75 | | | | | | 30 | 118 | | | | | | | | | | | |
| 125 | 1.50 | | | | | | 31 | 123 | 36 | 84 | 114 | UC | -- | 970 | | | | | |
| 130 | | | | | Very loose gray FINE SAND w/silt | SP-SM | 32 | 128 | 24 | 99 | 122 | | | | | | | | |
| 135 | | | | | | | 33 | 133 | | | | | | | | | | | |
| 140 | | | | | Very loose gray & tan SILTY FINE SAND | SM | 34 | 138 | 22 | 102 | 124 | | | | | | | | |
| 145 | 1.50 | | | | Moist, stiff to very stiff gray FAT CLAY w/few silt pockets & trace of shell fragments (fissured) | CH | 35 | 143 | 40 | 80 | 112 | UC | -- | 2654 | | | | | |
| 150 | 1.50 | | | | | | 36 | 148 | 37 | 83 | 114 | UC | -- | 1718 | | | | | |

**NOTES:**

# LOG OF BORING AND TEST RESULTS

EUSTIS ENGINEERING SINCE 1946

**Port of New Orleans**
**Phase 2 Exploration**
**New Louisiana International Terminal**
**Violet, Louisiana**

## Boring: GB-5

**Project No:** 24618.01
**Date:** 04/25/2023 - 04/26/2023
**Latitude:** 29.89414°
**Longitude:** -89.90043°

**Elevation:** 6.1
**Datum:** NAVD88
**Water Depth:** See Text
**Total Depth:** 125.0 ft

| Scale in Feet | PP | SPT | SPLR | Symbol | Visual Classification | USC | Sample Number | Depth in Feet | Water Content % | Density Dry pcf | Density Wet pcf | Shear Tests Type | Shear Tests ϕ | Shear Tests C psf | Atterberg Limits LL | Atterberg Limits PL | Atterberg Limits PI | | Other Tests |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 0 | | | | | 6" CONCRETE | | PB-1 | 0.5 | 44 | | | | | | | | | | -#200 = 39.5% |
| | 0.50 | 17 | | | Moist, medium stiff brown & gray fine SANDY LEAN CLAY | CL | | | | | | | | | | | | | |
| | | | | | Moist, medium stiff tan & gray LEAN CLAY w/trace of organic matter | CL | 2 | 3 | 30 | 93 | 121 | UC | -- | 790 | 45 | 19 | 26 | | |
| 5 | 0.25 | | | | | | 3 | 5 | 31 | | | | | | | | | | |
| | | | | | Moist, loose gray & tan SILT w/few fine sand, trace of clay lenses, & roots | ML | | | | | | | | | | | | | |
| | 0.00 | | | | | | 4 | 8 | 26 | | | | | | | | | | -#200 = 87.4% |
| 10 | | | | | Moist, soft gray & tan LEAN CLAY | CL | | | | | | | | | | | | | |
| | 0.00 | | | | | | 5 | 11 | 32 | | | | | | | | | | |
| | | | | | Moist, very soft gray FAT CLAY w/trace of silt pockets & decayed wood | CH | | | | | | | | | | | | | |
| 15 | 0.50 | | | | | | 6 | 14 | 48 | | | | | | | | | | |
| | 0.50 | | | | | | 7 | 19 | 47 | | | | | | 85 | 22 | 63 | | |
| 20 | | | | | | | | | | | | | | | | | | | |
| | 0.00 | | | | w/trace of silt layers | | 8 | 24 | 59 | 65 | 103 | OB | 0 | 200 | | | | | |
| 25 | | | | | | | | | | | | | | | | | | | |
| | | | | | Moist, soft gray FAT CLAY w/trace of roots | CH | | | | | | | | | | | | | |
| | 0.25 | | | | | | 9 | 29 | 56 | 64 | 100 | UC | -- | 419 | | | | | |
| 30 | | | | | | | | | | | | | | | | | | | |
| | 0.00 | | | | w/silt pockets & lenses | | 10 | 34 | 55 | 68 | 105 | OB | 0 | 417 | | | | | |
| 35 | | | | | | | | | | | | | | | | | | | |
| | 0.00 | | | | | | 11 | 39 | 28 | | | | | | | | | | |
| 40 | | | | | | | | | | | | | | | | | | | |
| | | | | | Moist, medium stiff gray FAT CLAY w/trace of silt pockets & decayed wood | CH | | | | | | | | | | | | | |
| | 0.25 | | | | | | 12 | 44 | 47 | 72 | 106 | OB | 0 | 524 | | | | | |
| 45 | | | | | | | | | | | | | | | | | | | |
| | 0.00 | | | | | | 13 | 49 | 32 | | | | | | | | | | |
| 50 | | | | | | | | | | | | | | | | | | | |

**NOTES:**

# LOG OF BORING AND TEST RESULTS

EUSTIS ENGINEERING SINCE 1946

**Port of New Orleans**
**Phase 2 Exploration**
**New Louisiana International Terminal**
**Violet, Louisiana**

## Boring: GB-5

**Project No:** 24618.01
**Date:** 04/25/2023 - 04/26/2023
**Latitude:** 29.89414°
**Longitude:** -89.90043°

**Elevation:** 6.1
**Datum:** NAVD88
**Water Depth:** See Text
**Total Depth:** 125.0 ft

| Scale in Feet | PP | SPT | SPLR | Symbol | Visual Classification | USC | Sample Number | Depth in Feet | Water Content % | Density Dry pcf | Density Wet pcf | Shear Tests Type | Shear Tests ϕ | Shear Tests C psf | Atterberg Limits LL | Atterberg Limits PL | Atterberg Limits PI | | Other Tests |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 50 | | | | | Moist, soft to medium stiff gray FAT CLAY w/trace of silt pockets & decayed wood | CH | | | | | | | | | | | | | |
| | 0.25 | | | | | | 14 | 54 | 44 | 74 | 106 | OB | 0 | 814 | | | | | |
| 55 | | | | | | | | | | | | | | | | | | | |
| | 0.25 | | | | | | 15 | 59 | 55 | | | | | | 89 | 27 | 62 | | |
| 60 | | | | | | | | | | | | | | | | | | | |
| | 0.25 | | | | w/trace of silt pockets & lenses | | 16 | 64 | 41 | 76 | 107 | OB | 0 | 771 | | | | | |
| 65 | | | | | | | | | | | | | | | | | | | |
| | 0.25 | | | | | | 17 | 69 | 41 | | | | | | | | | | |
| 70 | | | | | | | | | | | | | | | | | | | |
| | 0.50 | | | | Wet, loose gray fine SILTY SAND w/trace of clay & shell fragments | SM | 18 | 74 | 31 | | | | | | | | | | -#200 = 16.8% |
| 75 | | | | | | | | | | | | | | | | | | | |
| | 0.25 | | | | Moist, medium stiff gray fine SANDY LEAN CLAY w/trace of shell fragments | CL | 19 | 79 | 32 | | | | | | | | | | |
| 80 | | | | | | | | | | | | | | | | | | | |
| | 0.00 | | | | Moist, loose gray fine SILTY SAND w/trace of clay & shell fragments | SM | 20 | 84 | 28 | | | | | | | | | | SV |
| 85 | | | | | | | | | | | | | | | | | | | |
| | 0.75 | | | | | | 21 | 89 | 19 | 112 | 133 | | | | | | | | |
| 90 | | | | | | | | | | | | | | | | | | | |
| | 0.50 | | | | | | 22 | 94 | 20 | | | | | | NP | NP | NP | | |
| 95 | | | | | | | | | | | | | | | | | | | |
| | 2.25 | | | | Moist, very stiff gray & tan FAT CLAY w/trace of concretions, & silt pockets & lenses | CH | 23 | 99 | 23 | 101 | 125 | UC | -- | 2421 | | | | | |
| 100 | | | | | | | | | | | | | | | | | | | |

**NOTES:**

# LOG OF BORING AND TEST RESULTS

EUSTIS ENGINEERING SINCE 1946

**Port of New Orleans**
**Phase 2 Exploration**
**New Louisiana International Terminal**
**Violet, Louisiana**

## Boring: GB-5

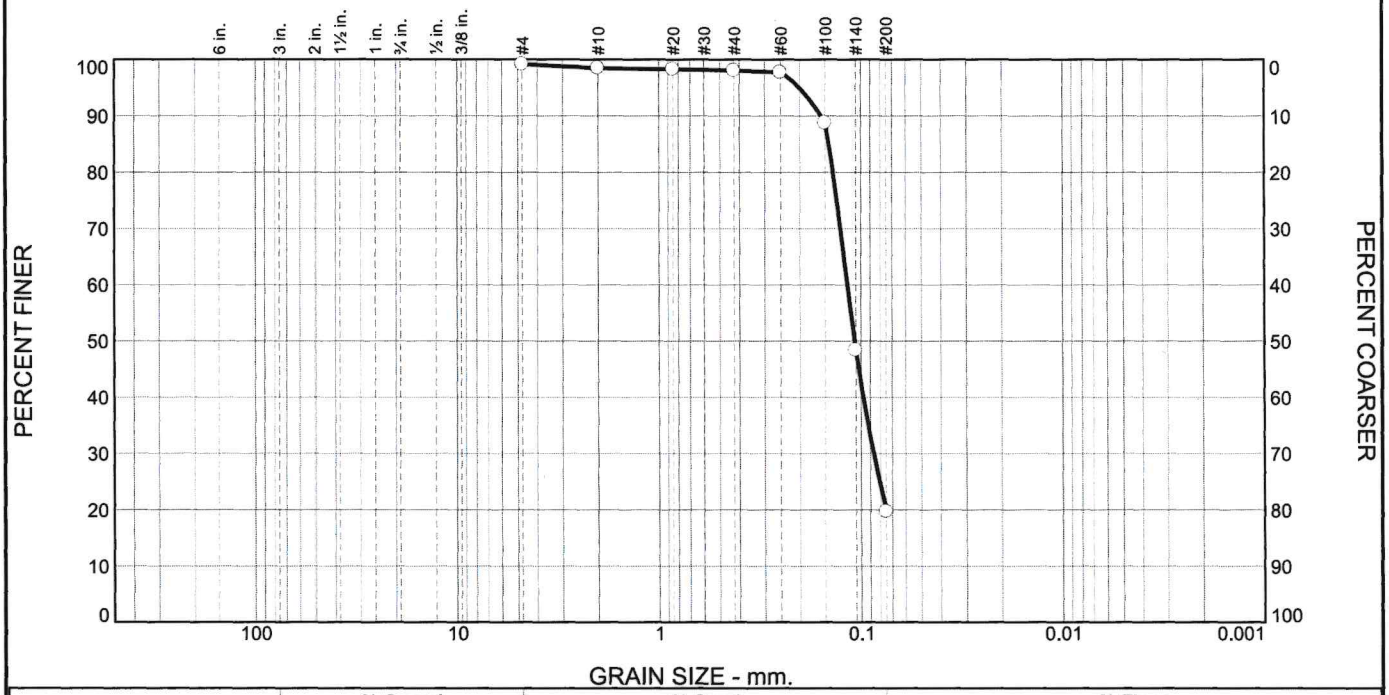
**Project No:** 24618.01
**Date:** 04/25/2023 - 04/26/2023
**Latitude:** 29.89414°
**Longitude:** -89.90043°

**Elevation:** 6.1
**Datum:** NAVD88
**Water Depth:** See Text
**Total Depth:** 125.0 ft

| Scale in Feet | PP | SPT | SPLR | Symbol | Visual Classification | USC | Sample Number | Depth in Feet | Water Content % | Density Dry pcf | Density Wet pcf | Shear Tests Type | Shear Tests ϕ | Shear Tests C psf | Atterberg Limits LL | Atterberg Limits PL | Atterberg Limits PI | | Other Tests |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 100 | | | | | Moist, very stiff gray & tan FAT CLAY w/trace of concretions, & silt pockets & lenses | CH | | | | | | | | | | | | | |
| | 1.50 | | | | | | 24 | 104 | 24 | 99 | 123 | OB | 0 | 2056 | | | | | |
| 105 | | | | | | | | | | | | | | | | | | | |
| | 1.50 | | | | | | 25 | 109 | 32 | | | | | | | | | | |
| 110 | | | | | | | | | | | | | | | | | | | |
| | | | | | Moist, medium stiff to stiff gray FAT CLAY | CH | | | | | | | | | | | | | |
| | 1.50 | | | | | | 26 | 114 | 35 | 88 | 118 | OB | 0 | 1186 | | | | | |
| 115 | | | | | | | | | | | | | | | | | | | |
| | 1.00 | | | | | | 27 | 119 | 41 | | | | | | | | | | |
| 120 | | | | | | | | | | | | | | | | | | | |
| | 1.50 | | | | | | 28 | 124 | 36 | 80 | 109 | OB | 0 | 880 | | | | | |
| 125 | | | | | | | | | | | | | | | | | | | |
| 130 | | | | | | | | | | | | | | | | | | | |
| 135 | | | | | | | | | | | | | | | | | | | |
| 140 | | | | | | | | | | | | | | | | | | | |
| 145 | | | | | | | | | | | | | | | | | | | |
| 150 | | | | | | | | | | | | | | | | | | | |

**NOTES:**

# Particle Size Distribution Report




| % +3" | % Gravel | | % Sand | | | % Fines | |
|---|---|---|---|---|---|---|---|
| | Coarse | Fine | Coarse | Medium | Fine | Silt | Clay |
| | | | 0.7 | 0.5 | 78.3 | 19.7 | |

**TEST RESULTS**

| Opening Size | Percent Finer | Spec.* (Percent) | Pass? (X=Fail) |
|---|---|---|---|
| #4 | 99.2 | | |
| #10 | 98.5 | | |
| #20 | 98.3 | | |
| #40 | 98.0 | | |
| #60 | 97.7 | | |
| #100 | 88.8 | | |
| #140 | 48.3 | | |
| #200 | 19.7 | | |

* (no specification provided)

**Material Description**

Wet, loose gray fine SILTY SAND w/ trace clay & shell fragments

**Atterberg Limits (ASTM D 4318)**

PL= LL= PI=

**Classification**

USCS (D 2487)= SM AASHTO (M 145)=

**Coefficients**

$D_{90}$= 0.1575 $D_{85}$= 0.1439 $D_{60}$= 0.1168
$D_{50}$= 0.1076 $D_{30}$= 0.0867 $D_{15}$=
$D_{10}$= $C_u$= $C_c$=

**Remarks**

**Date Received:** 5/4/23 **Date Tested:** 5/10/23

**Tested By:** DC

**Checked By:** RR

**Title:** Lab Manager

**Source of Sample:** GB5 **Depth:** 84 **Date Sampled:**

**Sample Number:** 20

EUSTIS ENGINEERING SINCE 1946

**Client:** PORT OF NEW ORLEANS, NEW ORLEANS, LOUISIANA

**Project:** PORT OF NEW ORLEANS
PHASE 2 EXPLORATION

**Project No:** 24618.01 **Figure**

# LOG OF BORING AND TEST RESULTS

EUSTIS ENGINEERING SINCE 1946

**Port of New Orleans**
**Phase 2 Exploration**
**New Louisiana International Terminal**
**Violet, Louisiana**

## Boring: GB-6

**Project No:** 24618.01
**Date:** 04/25/2023 - 05/01/2023
**Latitude:** 29.88769°
**Longitude:** -89.89845°

**Elevation:** 6.5
**Datum:** NAVD88
**Water Depth:** See Text
**Total Depth:** 125.0 ft

| Scale in Feet | PP | SPT | SPLR | Symbol | Visual Classification | USC | Sample Number | Depth in Feet | Water Content % | Density Dry pcf | Density Wet pcf | Shear Tests Type | Shear Tests ϕ | Shear Tests C psf | Atterberg Limits LL | Atterberg Limits PL | Atterberg Limits PI | | Other Tests |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 0 | | | | | Moist, soft gray LEAN CLAY w/few roots | CL | PB-1 | 0 | 25 | | | | | | | | | | -#200 = 95.1% |
| | | | | | | | PB-2 | 0.5 | 25 | | | | | | | | | | -#200 = 48.7% |
| | | 10 | | | Moist, stiff dark gray & brown fine CLAYEY SAND w/trace of fine sand | SC | 3 | 3 | 34 | | | | | | | | | | |
| | 0.75 | | | | Moist, medium stiff gray FAT CLAY w/trace of silt pockets, roots, & wood | CH | 4 | 5 | 40 | 81 | 114 | OB | 0 | 483 | | | | | |
| 5 | 0.75 | | | | | | 5 | 8 | 41 | 80 | 113 | UC | -- | 767 | | | | | |
| | 0.50 | | | | | | 6 | 11 | 38 | 80 | 110 | OB | 0 | 845 | 83 | 20 | 63 | | |
| 10 | 0.75 | | | | | | 7 | 14 | 36 | 86 | 117 | OB | 0 | 576 | | | | | |
| 15 | 0.50 | | | | | | 8 | 19 | 45 | | | | | | | | | | |
| 20 | 0.50 | | | | Moist, soft gray FAT CLAY w/trace of silt lenses | CH | 9 | 24 | 66 | 61 | 101 | OB | 0 | 333 | | | | | |
| 25 | 0.25 | | | | | | 10 | 29 | 71 | | | | | | 78 | 26 | 52 | | |
| 30 | 0.25 | | | | Moist, stiff gray FAT CLAY w/trace of organic matter | CH | 11 | 34 | 78 | 54 | 96 | OB | 0 | 1076 | | | | | |
| 35 | 0.25 | | | | Moist, soft gray FAT CLAY w/few silt pockets & lenses | CH | 12 | 39 | 44 | | | | | | 42 | 23 | 19 | | CONS, -#200 = 9 |
| 40 | 0.00 | | | | | | 13 | 44 | 40 | 82 | 114 | OB | 0 | 441 | | | | | |
| 45 | 0.00 | | | | Moist, medium stiff gray FAT CLAY w/few silt pockets & lenses | CH | 14 | 49 | 60 | | | | | | 63 | 21 | 42 | | |
| 50 | 0.00 | | | | | | | | | | | | | | | | | | |

EUSTIS_GINT_LIBRARY_4_20_2023.GLB EE STANDARD BORING LOG 24618.01.GPJ 10/6/23

**NOTES:**

# LOG OF BORING AND TEST RESULTS

EUSTIS ENGINEERING SINCE 1946

**Port of New Orleans**
**Phase 2 Exploration**
**New Louisiana International Terminal**
**Violet, Louisiana**

## Boring: GB-6

**Project No:** 24618.01
**Date:** 04/25/2023 - 05/01/2023
**Latitude:** 29.88769°
**Longitude:** -89.89845°

**Elevation:** 6.5
**Datum:** NAVD88
**Water Depth:** See Text
**Total Depth:** 125.0 ft

| Scale in Feet | PP | SPT | SPLR | Symbol | Visual Classification | USC | Sample Number | Depth in Feet | Water Content % | Density Dry pcf | Density Wet pcf | Shear Tests Type | Shear Tests ϕ | Shear Tests C psf | Atterberg Limits LL | Atterberg Limits PL | Atterberg Limits PI | | Other Tests |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 50 | | | | | Moist, medium stiff gray FAT CLAY w/few silt pockets & lenses | CH | | | | | | | | | | | | | |
| | 0.25 | | | | | | 15 | 54 | 52 | 69 | 105 | OB | 0 | 737 | | | | | |
| 55 | | | | | | | | | | | | | | | | | | | |
| | 0.00 | | | | | | 16 | 59 | 46 | 70 | 102 | UC | -- | 494 | | | | | |
| 60 | | | | | | | | | | | | | | | | | | | |
| | 0.50 | | | | | | 17 | 64 | 49 | 69 | 103 | OB | 0 | 885 | 65 | 19 | 46 | | CONS |
| 65 | | | | | | | | | | | | | | | | | | | |
| | 0.50 | | | | | | 18 | 69 | 52 | | | | | | | | | | |
| 70 | | | | | Moist, stiff gray FAT CLAY | CH | | | | | | | | | | | | | |
| | 0.50 | | | | | | 19 | 74 | 52 | 66 | 101 | OB | 0 | 1058 | 91 | 25 | 66 | | |
| 75 | | | | | Moist, loose gray fine CLAYEY SAND | SC | | | | | | | | | | | | | |
| | 0.50 | | | | | | 20 | 79 | 27 | | | | | | | | | | |
| 80 | | | | | | | | | | | | | | | | | | | |
| | 0.00 | | | | | | 21 | 84 | 33 | | | | | | | | | | -#200 = 39.7% |
| 85 | | | | | w/sandy clay layers & trace of shell fragments | | | | | | | | | | | | | | |
| | 0.00 | | | | | | 22 | 89 | 28 | 91 | 117 | OB | 0 | 732 | | | | | |
| 90 | | | | | | | | | | | | | | | | | | | |
| | | | | | | | PB-23 | 93.5 | 23 | | | | | | | | | | SV |
| 95 | | 51 | | | Moist, very dense gray fine POORLY GRADED SAND W/SILT | SP-SM | | | | | | | | | | | | | |
| | | 54 | | | | | PB-24 | 96.5 | 24 | | | | | | | | | | |
| 100 | | | | | | | | | | | | | | | | | | | |

**NOTES:**

EUSTIS_GINT_LIBRARY_4_20_2023.GLB EE STANDARD BORING LOG 24618.01.GPJ 10/6/23

# LOG OF BORING AND TEST RESULTS

EUSTIS ENGINEERING SINCE 1946

**Port of New Orleans**
**Phase 2 Exploration**
**New Louisiana International Terminal**
**Violet, Louisiana**

## Boring: GB-6

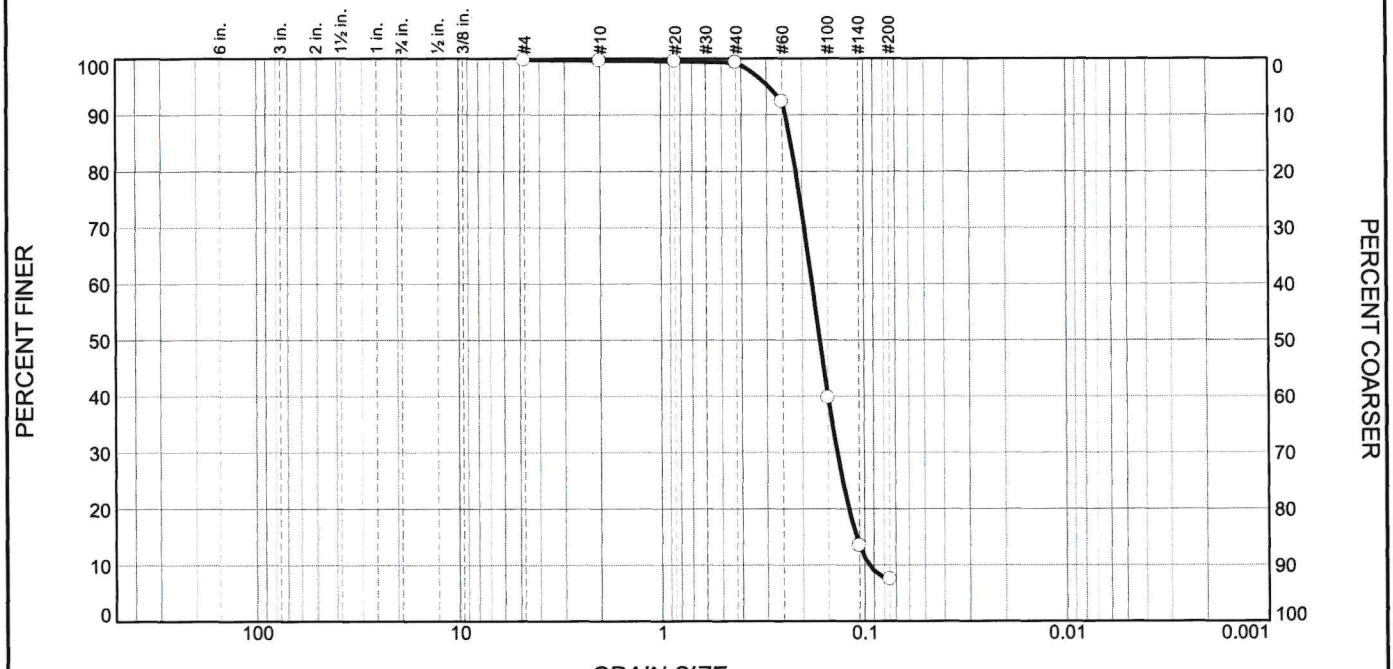
**Project No:** 24618.01
**Date:** 04/25/2023 - 05/01/2023
**Latitude:** 29.88769°
**Longitude:** -89.89845°

**Elevation:** 6.5
**Datum:** NAVD88
**Water Depth:** See Text
**Total Depth:** 125.0 ft

| Scale in Feet | PP | SPT | SPLR | Symbol | Visual Classification | USC | Sample Number | Depth in Feet | Water Content % | Density Dry pcf | Density Wet pcf | Shear Tests Type | Shear Tests ϕ | Shear Tests C psf | Atterberg Limits LL | Atterberg Limits PL | Atterberg Limits PI | | Other Tests |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 100 | | 69 | | | Moist, very dense gray fine POORLY GRADED SAND W/SILT | SP-SM | PB-25 | 99.5 | 22 | | | | | | | | | | |
| | | 70 | | | | | PB-26 | 102.5 | 22 | | | | | | | | | | SV |
| 105 | | 22 | | | Moist, medium dense gray fine POORLY GRADED SAND W/SILT | SP-SM | PB-27 | 105.5 | 20 | | | | | | | | | | |
| 110 | | 5 | | | Moist, medium stiff tan LEAN CLAY w/few silt pockets | CL | PB-28 | 108.5 | 29 | | | | | | | | | | |
| 115 | 1.00 | | | | | | 29 | 114 | 31 | 92 | 120 | OB | 0 | 426 | 40 | 15 | 25 | | |
| 120 | 1.00 | | | | Moist, medium stiff gray FAT CLAY w/few fine sand pockets | CH | 30 | 119 | 32 | 82 | 108 | UC | -- | 138 | | | | | |
| 125 | 1.25 | | | | w/few silt pockets & lenses | | 31 | 124 | 31 | 81 | 106 | OB | 0 | 716 | | | | | |
| 130 | | | | | | | | | | | | | | | | | | | |
| 135 | | | | | | | | | | | | | | | | | | | |
| 140 | | | | | | | | | | | | | | | | | | | |
| 145 | | | | | | | | | | | | | | | | | | | |
| 150 | | | | | | | | | | | | | | | | | | | |

**NOTES:**

# Particle Size Distribution Report




| % +3" | % Gravel | | % Sand | | | % Fines | |
|---|---|---|---|---|---|---|---|
| | Coarse | Fine | Coarse | Medium | Fine | Silt | Clay |
| | | | 0.1 | 0.4 | 91.9 | 7.4 | |

**Test Results (ASTM D 6913 & ASTM D 1140)**

| Opening Size | Percent Finer | Spec.* (Percent) | Pass? (X=Fail) |
|---|---|---|---|
| #4 | 99.8 | | |
| #10 | 99.7 | | |
| #20 | 99.5 | | |
| #40 | 99.3 | | |
| #60 | 92.3 | | |
| #100 | 39.7 | | |
| #140 | 13.4 | | |
| #200 | 7.4 | | |

* (no specification provided)

**Material Description**

Moist, very dense gray fine POORLY GRADED SAND W/ SILT

**Atterberg Limits (ASTM D 4318)**

**PL=** **LL=** **PI=**

**Classification**

**USCS (D 2487)=** SP-SM **AASHTO (M 145)=**

**Coefficients**

$D_{90}$= 0.2417 $D_{85}$= 0.2272 $D_{60}$= 0.1796
$D_{50}$= 0.1647 $D_{30}$= 0.1357 $D_{15}$= 0.1096
$D_{10}$= 0.0952 $C_u$= 1.89 $C_c$= 1.08

**Remarks**

**Date Received:** 5/9/23 **Date Tested:** 5/24/23

**Tested By:** AD

**Checked By:** RR

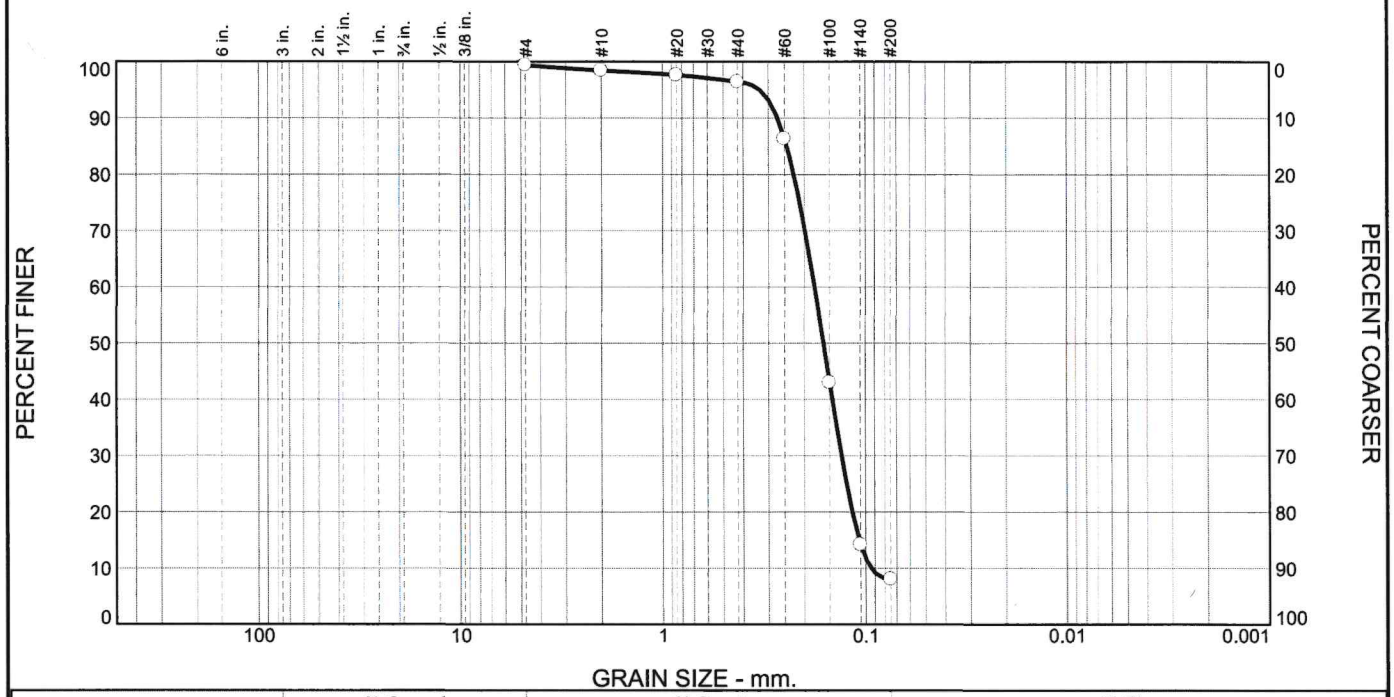
**Title:** Lab Manager

**Source of Sample:** GB-6 **Depth:** 93.5 **Date Sampled:**
**Sample Number:** PB-23

EUSTIS ENGINEERING SINCE 1946

**Client:** PORT OF NEW ORLEANS, NEW ORLEANS, LOUISIANA
**Project:** PORT OF NEW ORLEANS
PHASE 2 EXPLORATION
**Project No:** 24618.01 **Figure**

# Particle Size Distribution Report




| % +3" | % Gravel | | % Sand | | | % Fines | |
|---|---|---|---|---|---|---|---|
| | Coarse | Fine | Coarse | Medium | Fine | Silt | Clay |
| | | | 1.0 | 2.0 | 88.3 | 8.1 | |

**Test Results (ASTM D 6913 & ASTM D 1140)**

| Opening Size | Percent Finer | Spec.* (Percent) | Pass? (X=Fail) |
|---|---|---|---|
| #4 | 99.4 | | |
| #10 | 98.4 | | |
| #20 | 97.6 | | |
| #40 | 96.4 | | |
| #60 | 86.4 | | |
| #100 | 43.0 | | |
| #140 | 14.2 | | |
| #200 | 8.1 | | |

* (no specification provided)

**Material Description**

Moist, very dense gray fine POORLY GRADED SAND W/ SILT

**Atterberg Limits (ASTM D 4318)**

**PL=** **LL=** **PI=**

**Classification**

**USCS (D 2487)=** SP-SM **AASHTO (M 145)=**

**Coefficients**

$D_{90}$= 0.2707 $D_{85}$= 0.2439 $D_{60}$= 0.1782
$D_{50}$= 0.1609 $D_{30}$= 0.1312 $D_{15}$= 0.1076
$D_{10}$= 0.0941 $C_u$= 1.89 $C_c$= 1.03

**Remarks**

**Date Received:** 5/9/23 **Date Tested:** 5/24/23

**Tested By:** AD

**Checked By:** RR

**Title:** Lab Manager

**Source of Sample:** GB-6 **Depth:** 102.5 **Date Sampled:**

**Sample Number:** PB-26

EUSTIS ENGINEERING SINCE 1946

**Client:** PORT OF NEW ORLEANS, NEW ORLEANS, LOUISIANA

**Project:** PORT OF NEW ORLEANS
PHASE 2 EXPLORATION

**Project No:** 24618.01 **Figure**

# LOG OF BORING AND TEST RESULTS

EUSTIS ENGINEERING SINCE 1946

**Port of New Orleans**
**Phase 2 Exploration**
**New Louisiana International Terminal**
**Violet, Louisiana**

## Boring: GB-7

**Project No:** 24618.01
**Date:** 05/03/2023 - 05/05/2023
**Latitude:** 29.89169°
**Longitude:** -89.89880°

**Elevation:** 4.6
**Datum:** NAVD88
**Water Depth:** See Text
**Total Depth:** 125.0 ft

| Scale in Feet | PP | SPT | SPLR | Symbol | Visual Classification | USC | Sample Number | Depth in Feet | Water Content % | Density Dry pcf | Density Wet pcf | Shear Tests Type | Shear Tests ϕ | Shear Tests C psf | Atterberg Limits LL | Atterberg Limits PL | Atterberg Limits PI | | Other Tests |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 0 | | | | | Moist, medium stiff brown & gray LEAN CLAY w/few organic matter | CL | PB-1 | 0 | | | | | | | | | | | |
| | 0.50 | | | | | | 2 | 2 | 27 | 95 | 121 | OB | 0 | 767 | 38 | 19 | 19 | | |
| 5 | 0.25 | | | | Moist, soft brown & gray FAT CLAY w/few silt pockets & concretions | CH | 3 | 5 | 34 | 85 | 113 | UC | -- | 378 | | | | | ORG = 6.4% |
| | 0.50 | | | | Moist, soft gray & tan FAT CLAY w/trace of silt pockets & concretions | CH | 4 | 8 | 37 | 81 | 111 | OB | 0 | 490 | | | | | |
| 10 | 1.25 | | | | | | 5 | 11 | 40 | 76 | 107 | UC | -- | 445 | | | | | |
| | 1.00 | | | | Moist, medium stiff gray & tan FAT CLAY | CH | 6 | 14 | 33 | 85 | 113 | OB | 0 | 921 | 77 | 24 | 53 | | |
| 15 | | | | | | | | | | | | | | | | | | | |
| | 0.75 | | | | Moist, medium stiff gray LEAN CLAY | CL | 7 | 18 | 31 | 93 | 121 | OB | 0 | 526 | | | | | |
| 20 | | | | | | | | | | | | | | | | | | | |
| | 0.75 | | | | | | 8 | 23 | 32 | | | | | | | | | | |
| 25 | | | | | | | | | | | | | | | | | | | |
| | 0.50 | | | | Moist, very soft gray FAT CLAY w/few silt pockets & lenses | CH | 9 | 28 | 44 | 73 | 105 | OB | 0 | 240 | | | | | |
| 30 | | | | | | | | | | | | | | | | | | | |
| | 0.50 | | | | | | 10 | 33 | 48 | | | | | | 73 | 26 | 47 | | |
| 35 | | | | | | | | | | | | | | | | | | | |
| | 0.50 | | | | Moist, soft to medium stiff gray FAT CLAY w/trace of silt pockets | CH | 11 | 38 | 40 | 78 | 109 | OB | 0 | 435 | | | | | |
| 40 | | | | | | | | | | | | | | | | | | | |
| | 1.25 | | | | | | 12 | 43 | 46 | 66 | 96 | UC | -- | 632 | 89 | 25 | 64 | | CONS |
| 45 | | | | | | | | | | | | | | | | | | | |
| | 0.50 | | | | | | 13 | 48 | 39 | 79 | 109 | OB | 0 | 492 | | | | | |
| 50 | | | | | | | | | | | | | | | | | | | |

**NOTES:**

# LOG OF BORING AND TEST RESULTS

EUSTIS ENGINEERING SINCE 1946

**Port of New Orleans**
**Phase 2 Exploration**
**New Louisiana International Terminal**
**Violet, Louisiana**

## Boring: GB-7

**Project No:** 24618.01
**Date:** 05/03/2023 - 05/05/2023
**Latitude:** 29.89169°
**Longitude:** -89.89880°

**Elevation:** 4.6
**Datum:** NAVD88
**Water Depth:** See Text
**Total Depth:** 125.0 ft

| Scale in Feet | PP | SPT | SPLR | Symbol | Visual Classification | USC | Sample Number | Depth in Feet | Water Content % | Density Dry pcf | Density Wet pcf | Shear Tests Type | Shear Tests ϕ | Shear Tests C psf | Atterberg Limits LL | Atterberg Limits PL | Atterberg Limits PI | | Other Tests |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 50 | | | | | Moist, soft to medium stiff gray FAT CLAY w/trace of silt pockets | CH | | | | | | | | | | | | | |
| | 0.50 | | | | | | 14 | 53 | 41 | | | | | | | | | | |
| 55 | | | | | | | | | | | | | | | | | | | |
| | 0.75 | | | | | | 15 | 58 | 35 | 83 | 112 | OB | 0 | 543 | | | | | |
| 60 | | | | | | | | | | | | | | | | | | | |
| | 0.75 | | | | Moist, medium stiff gray FAT CLAY | CH | 16 | 63 | 41 | 76 | 107 | UC | -- | 1002 | 80 | 26 | 54 | | CONS |
| 65 | | | | | | | | | | | | | | | | | | | |
| | 1.00 | | | | | | 17 | 68 | 39 | 79 | 109 | OB | 0 | 810 | | | | | |
| 70 | | | | | | | | | | | | | | | | | | | |
| | 1.25 | | | | | | 18 | 73 | 46 | | | | | | 80 | 22 | 58 | | |
| 75 | | | | | | | | | | | | | | | | | | | |
| | 1.00 | | | | w/trace of silt pockets & concretions | | 19 | 78 | 40 | 77 | 108 | OB | 0 | 674 | | | | | |
| 80 | | | | | | | | | | | | | | | | | | | |
| | 1.50 | | | | w/sand layers | | 20 | 83 | | | | | | | | | | | |
| 85 | | | | | | | | | | | | | | | | | | | |
| | 0.75 | | | | Moist, loose gray & tan fine POORLY GRADED SAND W/SILT | SP-SM | 21 | 88 | 23 | | | | | | | | | | SV |
| 90 | | | | | | | | | | | | | | | | | | | |
| | 2.50 | | | | Moist, stiff gray & tan FAT CLAY w/trace of silt pockets & lenses, & concretions | CH | 22 | 93 | 25 | | | | | | 69 | 23 | 46 | | |
| 95 | | | | | | | | | | | | | | | | | | | |
| | 2.00 | | | | | | 23 | 98 | 23 | 101 | 124 | OB | 0 | 1788 | | | | | |
| 100 | | | | | | | | | | | | | | | | | | | |

**NOTES:**

# LOG OF BORING AND TEST RESULTS

EUSTIS ENGINEERING SINCE 1946

**Port of New Orleans**
**Phase 2 Exploration**
**New Louisiana International Terminal**
**Violet, Louisiana**

## Boring: GB-7

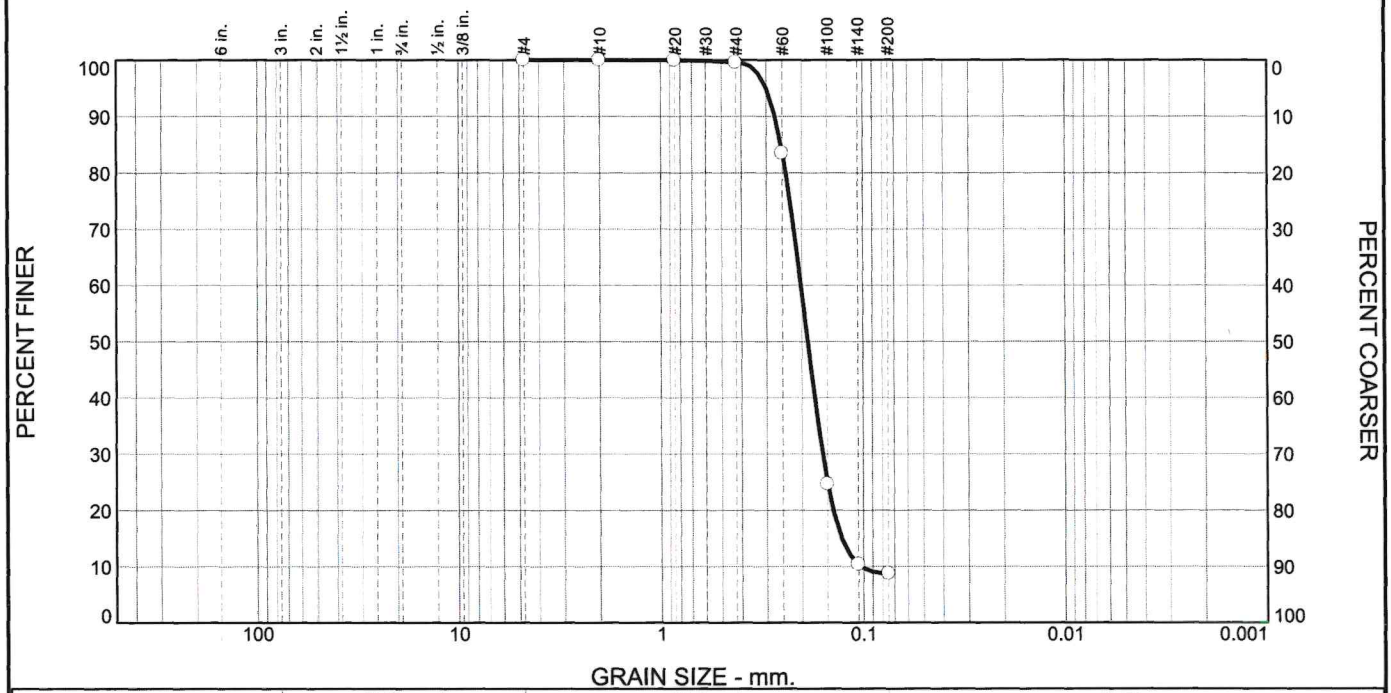
**Project No:** 24618.01
**Date:** 05/03/2023 - 05/05/2023
**Latitude:** 29.89169°
**Longitude:** -89.89880°

**Elevation:** 4.6
**Datum:** NAVD88
**Water Depth:** See Text
**Total Depth:** 125.0 ft

| Scale in Feet | PP | SPT | SPLR | Symbol | Visual Classification | USC | Sample Number | Depth in Feet | Water Content % | Density Dry pcf | Density Wet pcf | Shear Tests Type | Shear Tests ϕ | Shear Tests C psf | Atterberg Limits LL | Atterberg Limits PL | Atterberg Limits PI | | Other Tests |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 100 | | | | | Moist, stiff gray & tan FAT CLAY w/trace of silt pockets & lenses, & concretions | CH | | | | | | | | | | | | | |
| | 2.00 | | | | w/trace to few fine sand pockets & concretions | | 24 | 103 | 26 | | | | | | | | | | |
| 105 | | | | | | | | | | | | | | | | | | | |
| | 2.25 | | | | | | 25 | 108 | 32 | 90 | 119 | OB | 0 | 1402 | | | | | |
| 110 | | | | | | | | | | | | | | | | | | | |
| | 1.25 | | | | w/trace of silt pockets | | 26 | 113 | 35 | | | | | | | | | | |
| 115 | | | | | | | | | | | | | | | | | | | |
| | 1.00 | | | | | | 27 | 118 | 32 | 86 | 114 | OB | 0 | 957 | | | | | |
| 120 | | | | | | | | | | | | | | | | | | | |
| | 1.50 | | | | | | 28 | 123 | 37 | | | | | | | | | | |
| 125 | | | | | | | | | | | | | | | | | | | |
| 130 | | | | | | | | | | | | | | | | | | | |
| 135 | | | | | | | | | | | | | | | | | | | |
| 140 | | | | | | | | | | | | | | | | | | | |
| 145 | | | | | | | | | | | | | | | | | | | |
| 150 | | | | | | | | | | | | | | | | | | | |

**NOTES:**

# Particle Size Distribution Report




| % +3" | % Gravel | | % Sand | | | % Fines | |
|---|---|---|---|---|---|---|---|
| | Coarse | Fine | Coarse | Medium | Fine | Silt | Clay |
| 0.0 | 0.0 | 0.0 | 0.0 | 0.4 | 90.9 | 8.7 | |

**Test Results (ASTM D 6913 & ASTM D 1140)**

| Opening Size | Percent Finer | Spec.* (Percent) | Pass? (X=Fail) |
|---|---|---|---|
| #4 | 100.0 | | |
| #10 | 100.0 | | |
| #20 | 100.0 | | |
| #40 | 99.6 | | |
| #60 | 83.5 | | |
| #100 | 24.7 | | |
| #140 | 10.4 | | |
| #200 | 8.7 | | |

* (no specification provided)

**Material Description**

Moist, loose gray & tan fine POORLY GRADED SAND W/ SILT

**Atterberg Limits (ASTM D 4318)**

PL= LL= PI=

**Classification**

USCS (D 2487)= SP-SM AASHTO (M 145)=

**Coefficients**

$D_{90}$= 0.2726 $D_{85}$= 0.2544 $D_{60}$= 0.2031
$D_{50}$= 0.1879 $D_{30}$= 0.1588 $D_{15}$= 0.1281
$D_{10}$= 0.1029 $C_u$= 1.97 $C_c$= 1.21

**Remarks**

**Date Received:** 5/9/23 **Date Tested:** 5/24/23

**Tested By:** AD

**Checked By:** RR

**Title:** Lab Manager

**Source of Sample:** GB-7 **Depth:** 88 **Date Sampled:**

**Sample Number:** 21

EUSTIS ENGINEERING SINCE 1946

**Client:** PORT OF NEW ORLEANS, NEW ORLEANS, LOUISIANA

**Project:** PORT OF NEW ORLEANS
PHASE 2 EXPLORATION

**Project No:** 24618.01 **Figure**

# LOG OF BORING AND TEST RESULTS

EUSTIS ENGINEERING SINCE 1946

**Port of New Orleans**
**Phase 2 Exploration**
**New Louisiana International Terminal**
**Violet, Louisiana**

## Boring: GB-8

**Project No:** 24618.01
**Date:** 07/25/2023 - 07/27/2023
**Latitude:** 29.88425°
**Longitude:** -89.89716°

**Elevation:** 4.6
**Datum:** NAVD88
**Water Depth:** See Text
**Total Depth:** 125.0 ft

| Scale in Feet | PP | SPT | SPLR | Symbol | Visual Classification | USC | Sample Number | Depth in Feet | Water Content % | Density Dry pcf | Density Wet pcf | Shear Tests Type | Shear Tests ϕ | Shear Tests C psf | Atterberg Limits LL | Atterberg Limits PL | Atterberg Limits PI | | Other Tests |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 0 | 0.75 | | | | Moist, medium compact gray fine SANDY SILT | ML | PB-1 | 0 | | | | | | | | | | | |
| | | | | | | | 2 | 3 | | | | | | | | | | | -#200 = 59.8% |
| 5 | 1.00 | | | | Moist, medium stiff greenish-gray FAT CLAY w/trace of organic matter, concretions, & roots | CH | 3 | 6 | 46 | 76 | 111 | OB | 0 | 737 | 67 | 26 | 41 | | |
| | 1.50 | | | | w/few roots | | 4 | 8 | 54 | 70 | 107 | UC | -- | 401 | | | | | |
| 10 | | | | | | | 5 | 11 | 41 | 80 | 113 | OB | 0 | 760 | | | | | |
| 15 | 0.25 | | | | Moist, medium stiff gray LEAN CLAY w/few fine sand pockets | CL | 6 | 14 | 29 | 96 | 123 | OB | 0 | 978 | 33 | 20 | 13 | | |
| 20 | 0.25 | | | | | | 7 | 18 | 29 | 94 | 121 | OB | 0 | 739 | | | | | |
| 25 | 0.50 | | | | Moist, soft gray SILTY CLAY W/SAND (fine) | CL-ML | 8 | 24 | 27 | | | | | | 27 | 21 | 6 | | |
| 30 | 0.50 | | | | Moist, medium compact gray fine SANDY SILT | ML | 9 | 29 | 24 | 101 | 125 | | | | | | | | |
| 35 | 0.75 | | | | | | 10 | 34 | 24 | | | | | | | | | | -#200 = 54.4% |
| 40 | 0.25 | | | | Moist, very soft gray LEAN CLAY w/few fine sand layers | CL | 11 | 39 | 41 | 80 | 113 | OB | 0 | 240 | | | | | |
| | | 11 | | | Moist, loose to medium dense gray fine SILTY SAND | SM | PB-12 | 40.5 | 25 | | | | | | | | | | |
| 45 | | 9 | | | | | PB-13 | 43.5 | 25 | | | | | | | | | | SV |
| | | 8 | | | | | PB-14 | 46.5 | 26 | | | | | | | | | | |
| 50 | | | | | | | | | | | | | | | | | | | |

**NOTES:**

EUSTIS_GINT_LIBRARY_4_20_2023.GLB EE STANDARD BORING LOG 24618.01.GPJ 10/6/23

# LOG OF BORING AND TEST RESULTS

EUSTIS ENGINEERING SINCE 1946

**Port of New Orleans**
**Phase 2 Exploration**
**New Louisiana International Terminal**
**Violet, Louisiana**

## Boring: GB-8

**Project No:** 24618.01
**Date:** 07/25/2023 - 07/27/2023
**Latitude:** 29.88425°
**Longitude:** -89.89716°

**Elevation:** 4.6
**Datum:** NAVD88
**Water Depth:** See Text
**Total Depth:** 125.0 ft

| Scale in Feet | PP | SPT | SPLR | Symbol | Visual Classification | USC | Sample Number | Depth in Feet | Water Content % | Density Dry pcf | Density Wet pcf | Shear Tests Type | Shear Tests ϕ | Shear Tests C psf | Atterberg Limits LL | Atterberg Limits PL | Atterberg Limits PI | | Other Tests |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 50 | | 10 | X | | Moist, loose to medium dense gray fine SILTY SAND | SM | PB-15 | 49.5 | 27 | | | | | | | | | | |
| 55 | | 17 | X | | | | PB-16 | 53.5 | 24 | | | | | | | | | | |
| 60 | | 25 | X | | Moist, medium dense gray fine POORLY GRADED SAND W/SILT | SP-SM | PB-17 | 58.5 | 23 | | | | | | | | | | |
| 65 | | 57 | X | | Moist, dense gray fine POORLY GRADED SAND W/SILT | SP-SM | PB-18 | 63.5 | 22 | | | | | | | | | | SV |
| 70 | | 43 | X | | | | PB-19 | 68.5 | 23 | | | | | | | | | | |
| 75 | | 41 | X | | | | PB-20 | 73.5 | 24 | | | | | | | | | | |
| 80 | | 23 | X | | Moist, medium dense gray fine POORLY GRADED SAND W/SILT | SP-SM | PB-21 | 78.5 | 19 | | | | | | | | | | |
| 85 | | 20 | X | | Moist, medium dense gray fine CLAYEY SAND | SC | PB-22 | 83.5 | 28 | | | | | | | | | | |
| 90 | | 16 | X | | | | PB-23 | 88.5 | 24 | | | | | | | | | | |
| 95 | | 11 | X | | Moist, stiff gray FAT CLAY W/SAND (fine) | CH | PB-24 | 93.5 | 48 | | | | | | | | | | |
| 100 | 2.50 | | ■ | | Moist, stiff greenish-gray FAT CLAY w/trace of shells (flocculated | CH | 25 | 98 | 44 | 78 | 112 | OB | 0 | 1155 | | | | | |

**NOTES:**

EUSTIS_GINT_LIBRARY_4_20_2023.GLB EE STANDARD BORING LOG 24618.01.GPJ 10/6/23

# LOG OF BORING AND TEST RESULTS

EUSTIS ENGINEERING SINCE 1946

**Port of New Orleans**
**Phase 2 Exploration**
**New Louisiana International Terminal**
**Violet, Louisiana**

## Boring: GB-8

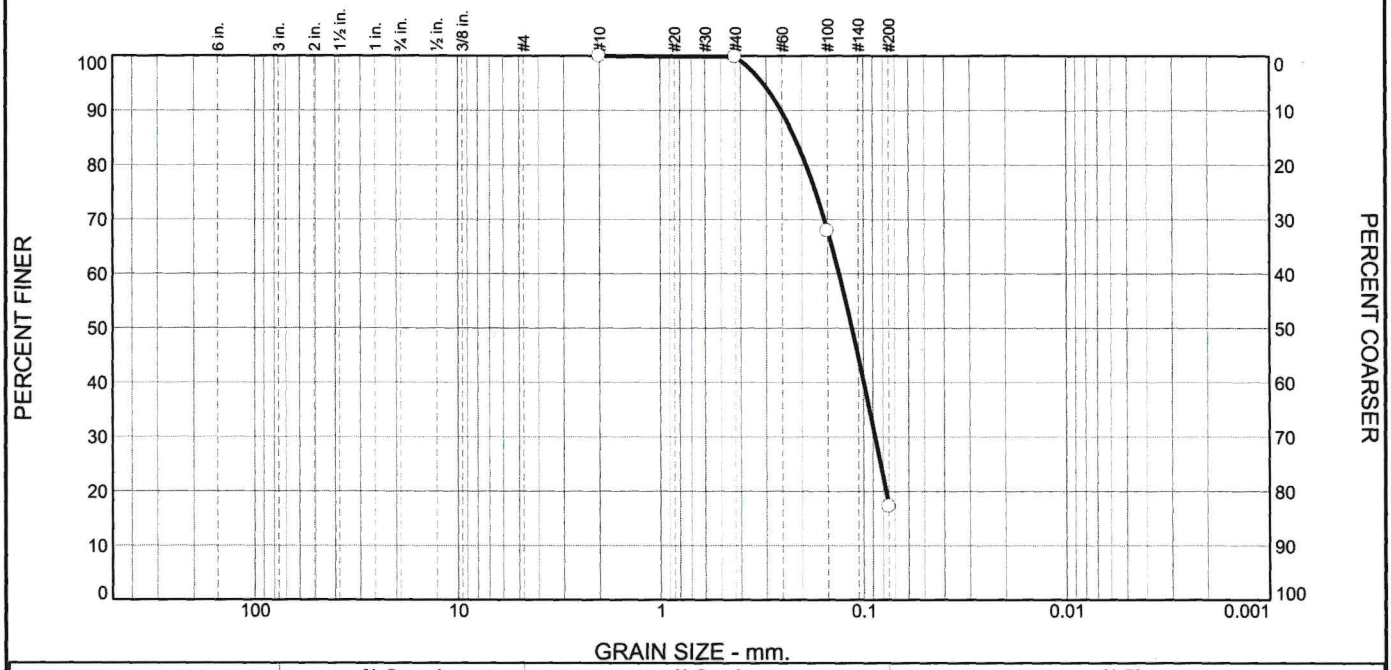
**Project No:** 24618.01
**Date:** 07/25/2023 - 07/27/2023
**Latitude:** 29.88425°
**Longitude:** -89.89716°

**Elevation:** 4.6
**Datum:** NAVD88
**Water Depth:** See Text
**Total Depth:** 125.0 ft

| Scale in Feet | PP | SPT | SPLR | Symbol | Visual Classification | USC | Sample Number | Depth in Feet | Water Content % | Density Dry pcf | Density Wet pcf | Shear Tests Type | Shear Tests ϕ | Shear Tests C psf | Atterberg Limits LL | Atterberg Limits PL | Atterberg Limits PI | | Other Tests |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 100 | | | | | Moist, stiff greenish-gray FAT CLAY w/few fine sand pockets & trace of shells | CH | | | | | | | | | | | | | |
| | 2.00 | | | | | | 26 | 103 | 49 | 73 | 109 | UC | -- | 1340 | 79 | 25 | 54 | | |
| 105 | | | | | | | | | | | | | | | | | | | |
| | 3.25 | | | | Moist, stiff greenish-gray LEAN CLAY W/SAND (fine, lenses & layers) (flocculated) | CL | 27 | 108 | 29 | 95 | 122 | OB | 0 | 1545 | | | | | |
| 110 | | | | | | | | | | | | | | | | | | | |
| | 3.25 | | | | | | 28 | 113 | 31 | 93 | 121 | UC | -- | 1494 | | | | | |
| 115 | | | | | | | | | | | | | | | | | | | |
| | 3.50 | | | | Moist, stiff gray FAT CLAY | CH | 29 | 118 | 48 | 73 | 109 | UC | -- | 1407 | | | | | |
| 120 | | | | | | | | | | | | | | | | | | | |
| | | | | | | | 30 | 123 | | | | | | | | | | | |
| 125 | | | | | | | | | | | | | | | | | | | |
| 130 | | | | | | | | | | | | | | | | | | | |
| 135 | | | | | | | | | | | | | | | | | | | |
| 140 | | | | | | | | | | | | | | | | | | | |
| 145 | | | | | | | | | | | | | | | | | | | |
| 150 | | | | | | | | | | | | | | | | | | | |

**NOTES:**

# Particle Size Distribution Report




| % +3" | % Gravel | | % Sand | | | % Fines | |
|---|---|---|---|---|---|---|---|
| | Coarse | Fine | Coarse | Medium | Fine | Silt | Clay |
| 0.0 | 0.0 | 0.0 | 0.0 | 0.1 | 82.6 | 17.3 | |

**Test Results (ASTM D 6913 / D6913M & ASTM D 1140)**

| Opening Size | Percent Finer | Spec.* (Percent) | Pass? (X=Fail) |
|---|---|---|---|
| #10 | 100.0 | | |
| #40 | 99.9 | | |
| #100 | 67.9 | | |
| #200 | 17.3 | | |

* (no specification provided)

**Material Description**

moist, dense gray fine SILTY SAND

**Atterberg Limits (ASTM D 4318)**

PL= LL= PI=

**Classification**

USCS (D 2487)= SM AASHTO (M 145)=

**Coefficients**

$D_{90}$= 0.2534 $D_{85}$= 0.2169 $D_{60}$= 0.1320
$D_{50}$= 0.1142 $D_{30}$= 0.0879 $D_{15}$=
$D_{10}$= $C_u$= $C_c$=

**Remarks**

**Date Received:** **Date Tested:**

**Tested By:** KP

**Checked By:**

**Title:**

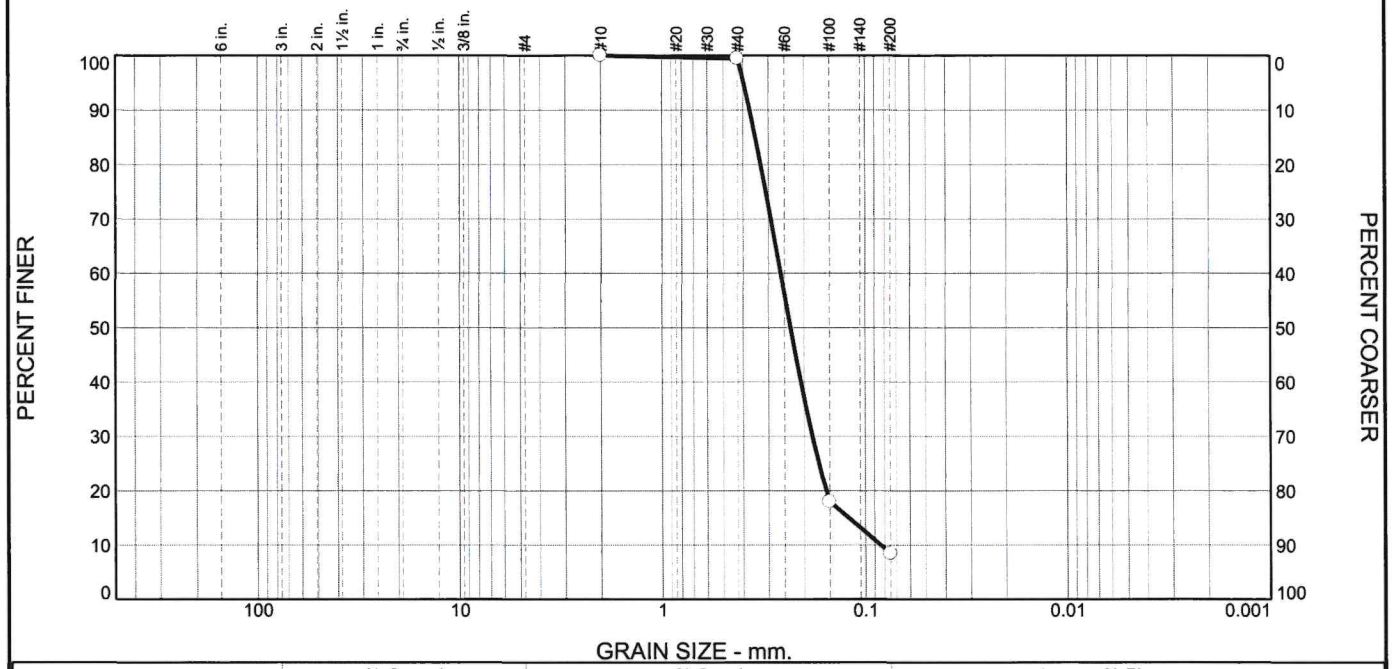
**Source of Sample:** GB-8 **Depth:** 43.5 **Date Sampled:**
**Sample Number:** PB-13

EUSTIS ENGINEERING SINCE 1946

**Client:** PORT OF NEW ORLEANS, NEW ORLEANS, LOUISIANA
**Project:** PORT OF NEW ORLEANS
PHASE 2 EXPLORATION
**Project No:** 24618.01 **Figure**

**Tested By:** **Checked By:**

# Particle Size Distribution Report




| % +3" | % Gravel | | % Sand | | | % Fines | |
|---|---|---|---|---|---|---|---|
| | Coarse | Fine | Coarse | Medium | Fine | Silt | Clay |
| 0.0 | 0.0 | 0.0 | 0.0 | 0.5 | 91.1 | 8.4 | |

**Test Results (ASTM D 6913 / D6913M & ASTM D 1140)**

| Opening Size | Percent Finer | Spec.* (Percent) | Pass? (X=Fail) |
|---|---|---|---|
| #10 | 100.0 | | |
| #40 | 99.5 | | |
| #100 | 18.0 | | |
| #200 | 8.4 | | |

* (no specification provided)

**Material Description**

Moist, dense gray fine POORLY GRADED SAND W/ SILT

**Atterberg Limits (ASTM D 4318)**

PL= LL= PI=

**Classification**

USCS (D 2487)= SP-SM AASHTO (M 145)=

**Coefficients**

$D_{90}$= 0.3709 $D_{85}$= 0.3481 $D_{60}$= 0.2615
$D_{50}$= 0.2338 $D_{30}$= 0.1829 $D_{15}$= 0.1209
$D_{10}$= 0.0841 $C_u$= 3.11 $C_c$= 1.52

**Remarks**

**Date Received:** **Date Tested:**

**Tested By:** KP

**Checked By:**

**Title:**

**Source of Sample:** GB-8 **Depth:** 63.5 **Date Sampled:**
**Sample Number:** PB-18

EUSTIS ENGINEERING SINCE 1946

**Client:** PORT OF NEW ORLEANS, NEW ORLEANS, LOUISIANA
**Project:** PORT OF NEW ORLEANS
PHASE 2 EXPLORATION
**Project No:** 24618.01 **Figure**

**Tested By:** **Checked By:**

# LOG OF BORING AND TEST RESULTS

EUSTIS ENGINEERING SINCE 1946

**Port of New Orleans**
**Phase 2 Exploration**
**New Louisiana International Terminal**
**Violet, Louisiana**

## Boring: GB-10

**Project No:** 24618.01
**Date:** 05/02/2023 - 05/03/2023
**Latitude:** 29.88623°
**Longitude:** -89.89718°

**Elevation:** 4.2
**Datum:** NAVD88
**Water Depth:** See Text
**Total Depth:** 125.0 ft

| Scale in Feet | PP | SPT | SPLR | Symbol | Visual Classification | USC | Sample Number | Depth in Feet | Water Content % | Density Dry pcf | Density Wet pcf | Shear Tests Type | Shear Tests ϕ | Shear Tests C psf | Atterberg Limits LL | Atterberg Limits PL | Atterberg Limits PI | | Other Tests |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 0 | | | | | Moist, soft gray & tan FAT CLAY w/trace to few silt pockets & organic matter | CH | PB-1 | 0 | | | | | | | | | | | |
| | 0.75 | | | | | | 2 | 2 | 38 | 79 | 109 | OB | 0 | 433 | 83 | 27 | 56 | | |
| 5 | 0.50 | | | | | | 3 | 5 | 41 | 79 | 111 | UC | -- | 271 | | | | | |
| | 0.00 | | | | Moist, soft greenish-gray FAT CLAY w/trace of silt pockets, roots, & organic matter | CH | 4 | 8 | 56 | 67 | 105 | OB | 0 | 420 | | | | | |
| 10 | 0.25 | | | | | | 5 | 11 | 47 | 72 | 106 | UC | -- | 343 | 85 | 28 | 57 | | CONS |
| 15 | 0.50 | | | | | | 6 | 14 | 45 | 76 | 111 | OB | 0 | 413 | | | | | |
| | 0.00 | | | | Moist, very soft gray LEAN CLAY | CL | 7 | 19 | 46 | | | | | | 33 | 17 | 16 | | |
| 20 | | | | | | | | | | | | | | | | | | | |
| | 0.00 | | | | Moist, very soft gray SANDY LEAN CLAY | CL | 8 | 24 | 40 | 81 | 113 | OB | 0 | 148 | | | | | |
| 25 | | | | | | | | | | | | | | | | | | | |
| | 0.00 | | | | Moist, soft gray FAT CLAY w/few silt pockets | CH | 9 | 29 | 50 | | | | | | | | | | |
| 30 | | | | | | | | | | | | | | | | | | | |
| | 0.00 | | | | Moist, soft gray LEAN CLAY | CL | 10 | 34 | 47 | 75 | 110 | OB | 0 | 378 | | | | | |
| 35 | | | | | | | | | | | | | | | | | | | |
| | 0.00 | | | | Moist, soft gray FAT CLAY w/trace of silt pockets & few lenses | CH | 11 | 39 | 46 | | | | | | | | | | |
| 40 | | | | | | | | | | | | | | | | | | | |
| | 0.00 | | | | | | 12 | 44 | 64 | 62 | 102 | OB | 0 | 269 | | | | | |
| 45 | | | | | | | | | | | | | | | | | | | |
| | 0.00 | | | | Moist, soft gray SANDY LEAN CLAY | CL | 13 | 49 | 31 | | | | | | 45 | 19 | 26 | | |
| 50 | | | | | | | | | | | | | | | | | | | |

**NOTES:**

EUSTIS_GINT_LIBRARY_4_20_2023.GLB EE STANDARD BORING LOG 24618.01.GPJ 10/6/23

# LOG OF BORING AND TEST RESULTS

EUSTIS ENGINEERING SINCE 1946

**Port of New Orleans**
**Phase 2 Exploration**
**New Louisiana International Terminal**
**Violet, Louisiana**

## Boring: GB-10

**Project No:** 24618.01
**Date:** 05/02/2023 - 05/03/2023
**Latitude:** 29.88623°
**Longitude:** -89.89718°

**Elevation:** 4.2
**Datum:** NAVD88
**Water Depth:** See Text
**Total Depth:** 125.0 ft

| Scale in Feet | PP | SPT | SPLR | Symbol | Visual Classification | USC | Sample Number | Depth in Feet | Water Content % | Density Dry pcf | Density Wet pcf | Shear Tests Type | Shear Tests ϕ | Shear Tests C psf | Atterberg Limits LL | Atterberg Limits PL | Atterberg Limits PI | | Other Tests |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 50 | | | | | Moist, soft gray SANDY LEAN CLAY | CL | | | | | | | | | | | | | |
| | 0.00 | | | | Moist, loose gray SILTY SAND | SM | 14 | 54 | 26 | | | | | | | | | | |
| 55 | | 4 | | | Wet, very loose gray fine SILTY SAND | SM | PB-15 | 55.7 | 36 | | | | | | | | | | -#200 = 38.3% |
| | | 28 | | | Moist, medium dense tan fine POORLY GRADED SAND W/SILT | SP-SM | PB-16 | 58.5 | 23 | | | | | | | | | | SV |
| 60 | | 22 | | | | | PB-17 | 61.5 | 23 | | | | | | | | | | |
| 65 | | 20 | | | | | PB-18 | 64.5 | 27 | | | | | | | | | | |
| 70 | | 24 | | | | | PB-19 | 68.5 | 26 | | | | | | | | | | SV |
| 75 | | 26 | | | | | PB-20 | 73.5 | 25 | | | | | | | | | | |
| 80 | | 30 | | | | | PB-21 | 77.5 | 26 | | | | | | | | | | |
| 85 | | 36 | | | | | PB-22 | 83.5 | 23 | | | | | | | | | | SV |
| 90 | | 21 | | | | | PB-23 | 88.5 | 24 | | | | | | | | | | |
| 95 | | 9 | | | Moist, stiff gray FAT CLAY w/trace of silt pockets | CH | PB-24 | 93.5 | 37 | | | | | | | | | | |
| | 0.00 | | | | Moist, loose tan & gray fine SANDY SILT | ML | 25 | 99 | 26 | | | | | | NP | NP | NP | | |
| 100 | | | | | | | | | | | | | | | | | | | |

**NOTES:**

EUSTIS_GINT_LIBRARY_4_20_2023.GLB EE STANDARD BORING LOG 24618.01.GPJ 10/6/23

# LOG OF BORING AND TEST RESULTS

EUSTIS ENGINEERING SINCE 1946

**Port of New Orleans**
**Phase 2 Exploration**
**New Louisiana International Terminal**
**Violet, Louisiana**

## Boring: GB-10

**Project No:** 24618.01
**Date:** 05/02/2023 - 05/03/2023
**Latitude:** 29.88623°
**Longitude:** -89.89718°

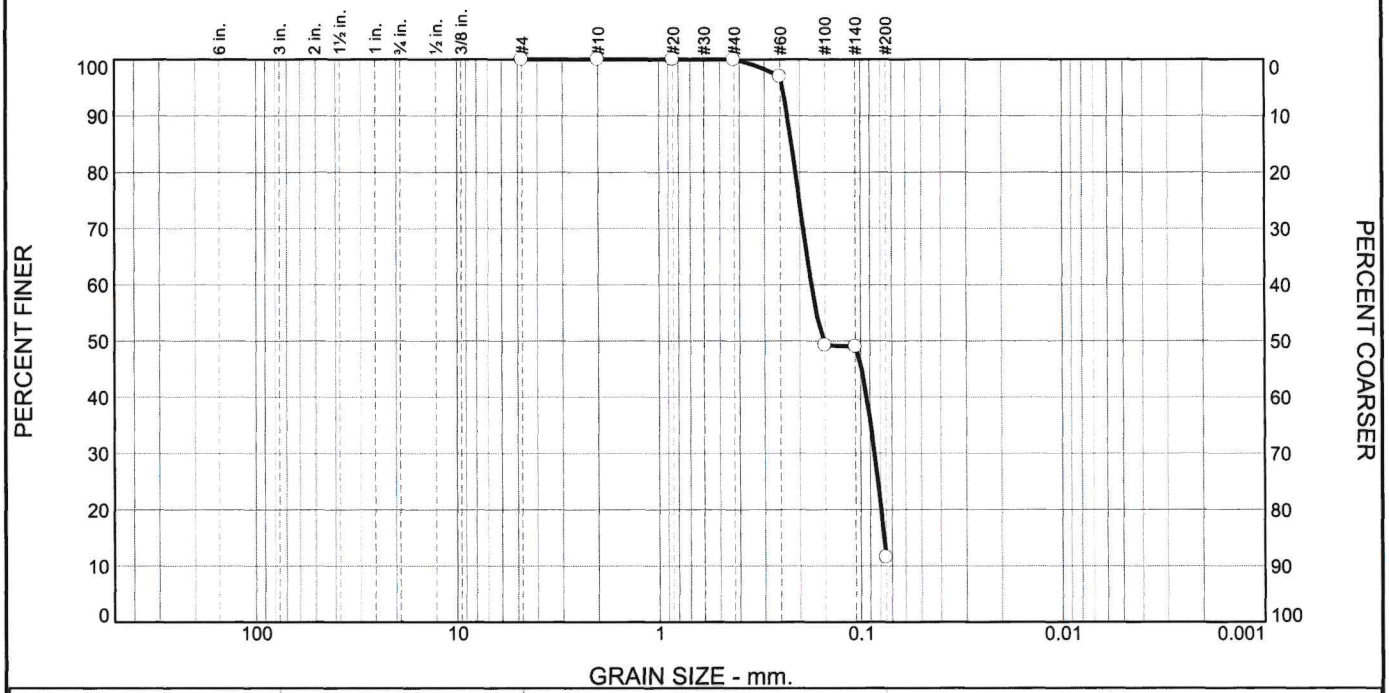
**Elevation:** 4.2
**Datum:** NAVD88
**Water Depth:** See Text
**Total Depth:** 125.0 ft

| Scale in Feet | PP | SPT | SPLR | Symbol | Visual Classification | USC | Sample Number | Depth in Feet | Water Content % | Density Dry pcf | Density Wet pcf | Shear Tests Type | Shear Tests ϕ | Shear Tests C psf | Atterberg Limits LL | Atterberg Limits PL | Atterberg Limits PI | | Other Tests |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 100 | | | | | Moist, loose tan & gray fine SANDY SILT | ML | | | | | | | | | | | | | |
| | 0.25 | | | | | | 26 | 104 | 23 | | | | | | | | | | |
| 105 | | | | | | | | | | | | | | | | | | | |
| | 2.75 | | | | Moist, stiff gray & tan FAT CLAY w/trace of silt lenses & organic matter | CH | 27 | 109 | 35 | 46 | 62 | OB | 0 | 1134 | | | | | |
| 110 | | | | | | | | | | | | | | | | | | | |
| | 2.75 | | | | | | 28 | 114 | 37 | | | | | | 57 | 19 | 38 | | CONS |
| 115 | | | | | | | | | | | | | | | | | | | |
| | 2.50 | | | | Moist, stiff to very stiff gray & tan FAT CLAY w/few silt layers & lenses | CH | 29 | 119 | 27 | 95 | 121 | OB | 0 | 2324 | | | | | |
| 120 | | | | | | | | | | | | | | | | | | | |
| | 1.75 | | | | | | 30 | 124 | 29 | 90 | 116 | OB | 0 | 1389 | | | | | |
| 125 | | | | | | | | | | | | | | | | | | | |
| 130 | | | | | | | | | | | | | | | | | | | |
| 135 | | | | | | | | | | | | | | | | | | | |
| 140 | | | | | | | | | | | | | | | | | | | |
| 145 | | | | | | | | | | | | | | | | | | | |
| 150 | | | | | | | | | | | | | | | | | | | |

EUSTIS_GINT_LIBRARY_4_20_2023.GLB EE STANDARD BORING LOG 24618.01.GPJ 10/6/23

**NOTES:**

# Particle Size Distribution Report




| % +3" | % Gravel | | % Sand | | | % Fines | |
|---|---|---|---|---|---|---|---|
| | Coarse | Fine | Coarse | Medium | Fine | Silt | Clay |
| 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 88.5 | 11.5 | |

**Test Results (ASTM C 136 & ASTM D 1140)**

| Opening Size | Percent Finer | Spec.* (Percent) | Pass? (X=Fail) |
|---|---|---|---|
| #4 | 100.0 | | |
| #10 | 100.0 | | |
| #20 | 100.0 | | |
| #40 | 100.0 | | |
| #60 | 97.0 | | |
| #100 | 49.2 | | |
| #140 | 49.0 | | |
| #200 | 11.5 | | |

* (no specification provided)

**Material Description**

Moist, medium dense fine POORLY GRADED SAND W/ SILT

**Atterberg Limits (ASTM D 4318)**

PL= LL= PI=

**Classification**

USCS (D 2487)= SM AASHTO (M 145)=

**Coefficients**

$D_{90}$= 0.2306 $D_{85}$= 0.2198 $D_{60}$= 0.1756
$D_{50}$= 0.1532 $D_{30}$= 0.0857 $D_{15}$= 0.0768
$D_{10}$= $C_u$= $C_c$=

**Remarks**

**Date Received:** **Date Tested:** 5/25/23

**Tested By:** AD

**Checked By:** RR

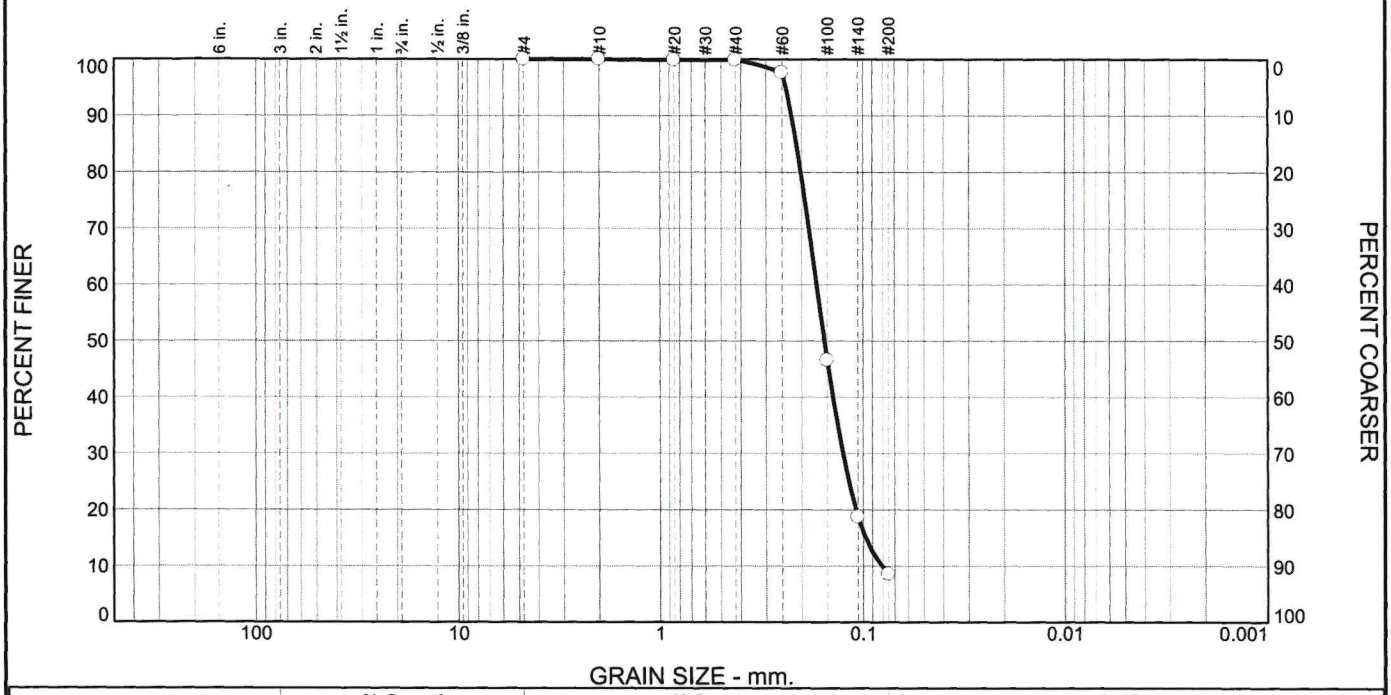
**Title:** Lab Manager

**Source of Sample:** GB-10 **Depth:** 58.5 **Date Sampled:**
**Sample Number:** PB-16

EUSTIS ENGINEERING SINCE 1946

**Client:** PORT OF NEW ORLEANS, NEW ORLEANS, LOUISIANA
**Project:** PORT OF NEW ORLEANS
PHASE 2 EXPLORATION
**Project No:** 24618.01 **Figure**

# Particle Size Distribution Report




| % +3" | % Gravel | | % Sand | | | % Fines | |
|---|---|---|---|---|---|---|---|
| | Coarse | Fine | Coarse | Medium | Fine | Silt | Clay |
| 0.0 | 0.0 | 0.0 | 0.0 | 0.1 | 91.4 | 8.5 | |

**Test Results (ASTM C 136 & ASTM D 1140)**

| Opening Size | Percent Finer | Spec.* (Percent) | Pass? (X=Fail) |
|---|---|---|---|
| #4 | 100.0 | | |
| #10 | 100.0 | | |
| #20 | 99.9 | | |
| #40 | 99.9 | | |
| #60 | 97.6 | | |
| #100 | 46.6 | | |
| #140 | 18.7 | | |
| #200 | 8.5 | | |

* (no specification provided)

**Material Description**

Moist, medium dense fine POORLY GRADED SAND W/ SILT

**Atterberg Limits (ASTM D 4318)**

PL= LL= PI=

**Classification**

USCS (D 2487)= SP-SM AASHTO (M 145)=

**Coefficients**

$D_{90}$= 0.2246 $D_{85}$= 0.2126 $D_{60}$= 0.1692
$D_{50}$= 0.1549 $D_{30}$= 0.1257 $D_{15}$= 0.0974
$D_{10}$= 0.0810 $C_u$= 2.09 $C_c$= 1.15

**Remarks**

**Date Received:** **Date Tested:** 5/25/23

**Tested By:** AD

**Checked By:** RR

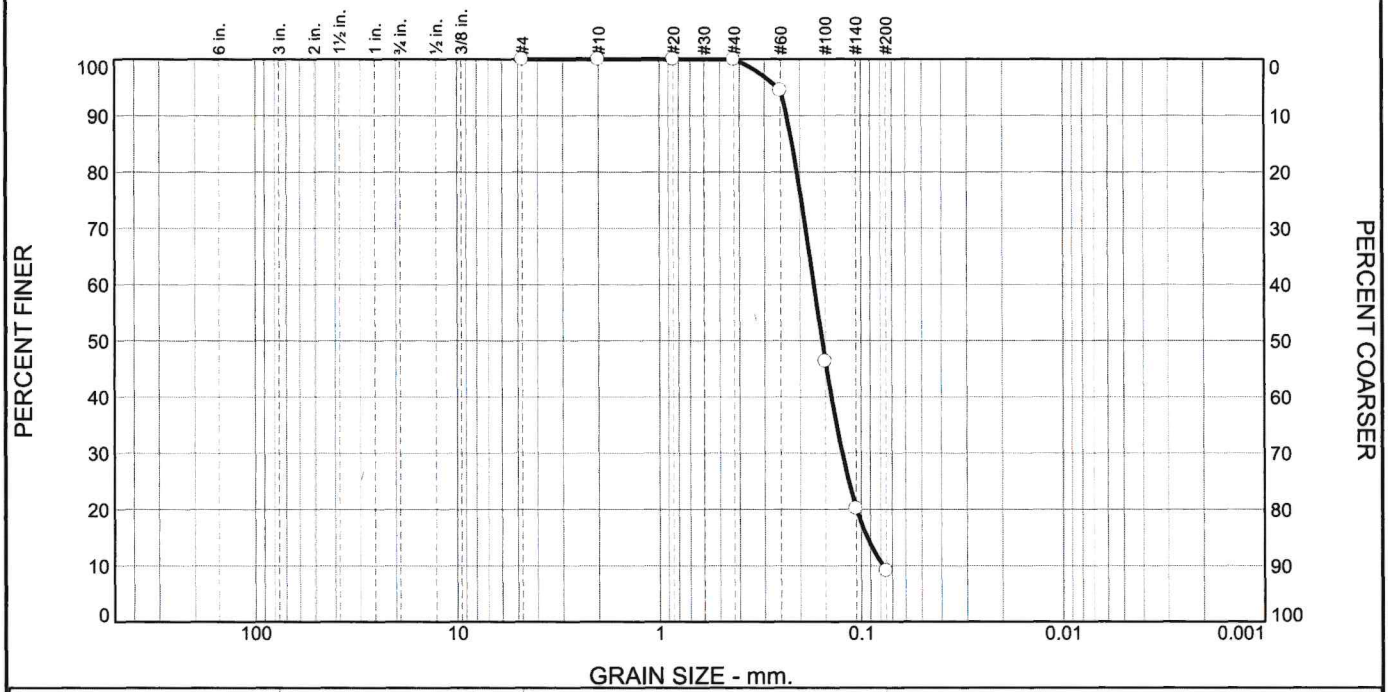
**Title:** Lab Manager

**Source of Sample:** GB-10 **Depth:** 68.5
**Sample Number:** PB-19 **Date Sampled:**

EUSTIS ENGINEERING SINCE 1946

**Client:** PORT OF NEW ORLEANS, NEW ORLEANS, LOUISIANA
**Project:** PORT OF NEW ORLEANS
PHASE 2 EXPLORATION
**Project No:** 24618.01 **Figure**

# Particle Size Distribution Report




| % +3" | % Gravel | | % Sand | | | % Fines | |
|---|---|---|---|---|---|---|---|
| | Coarse | Fine | Coarse | Medium | Fine | Silt | Clay |
| 0.0 | 0.0 | 0.0 | 0.0 | 0.1 | 90.8 | 9.1 | |

**Test Results (ASTM C 136 & ASTM D 1140)**

| Opening Size | Percent Finer | Spec.* (Percent) | Pass? (X=Fail) |
|---|---|---|---|
| #4 | 100.0 | | |
| #10 | 100.0 | | |
| #20 | 100.0 | | |
| #40 | 99.9 | | |
| #60 | 94.5 | | |
| #100 | 46.3 | | |
| #140 | 20.2 | | |
| #200 | 9.1 | | |

* (no specification provided)

**Material Description**

Moist, medium dense fine POORLY GRADED SAND W/ SILT

**Atterberg Limits (ASTM D 4318)**

**PL=** **LL=** **PI=**

**Classification**

**USCS (D 2487)=** SP-SM **AASHTO (M 145)=**

**Coefficients**

$D_{90}$= 0.2335 $D_{85}$= 0.2195 $D_{60}$= 0.1712
$D_{50}$= 0.1556 $D_{30}$= 0.1241 $D_{15}$= 0.0936
$D_{10}$= 0.0781 $C_u$= 2.19 $C_c$= 1.15

**Remarks**

**Date Received:** **Date Tested:** 5/25/23

**Tested By:** AD

**Checked By:** RR

**Title:** Lab Manager

**Source of Sample:** GB-10 **Depth:** 83.5 **Date Sampled:**
**Sample Number:** PB-22

EUSTIS ENGINEERING SINCE 1946

**Client:** PORT OF NEW ORLEANS, NEW ORLEANS, LOUISIANA
**Project:** PORT OF NEW ORLEANS
PHASE 2 EXPLORATION
**Project No:** 24618.01 **Figure**

# APPENDIX III

EUSTIS ENGINEERING
SINCE 1946

# CONE PENETRATION SOIL BEHAVIOR TYPE LEGEND

- 1 - SENSITIVE FINE GRAINED
- 2 - ORGANIC MATERIAL
- 3 - CLAY
- 4 - SILTY CLAY TO CLAY
- 5 - CLAYEY SILT TO SILTY CLAY
- 6 - SANDY SILT TO CLAYEY SILT
- 7 - SILTY SAND TO SANDY SILT
- 8 - SAND TO SILTY SAND
- 9 - SAND
- 10 - GRAVELLY SAND TO SAND
- 11 - VERY STIFF FINE GRAINED (*)
- 12 - SAND TO CLAYEY SAND (*)

*OVERCONSOLIDATED OR CEMENTED

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SINCE 1946

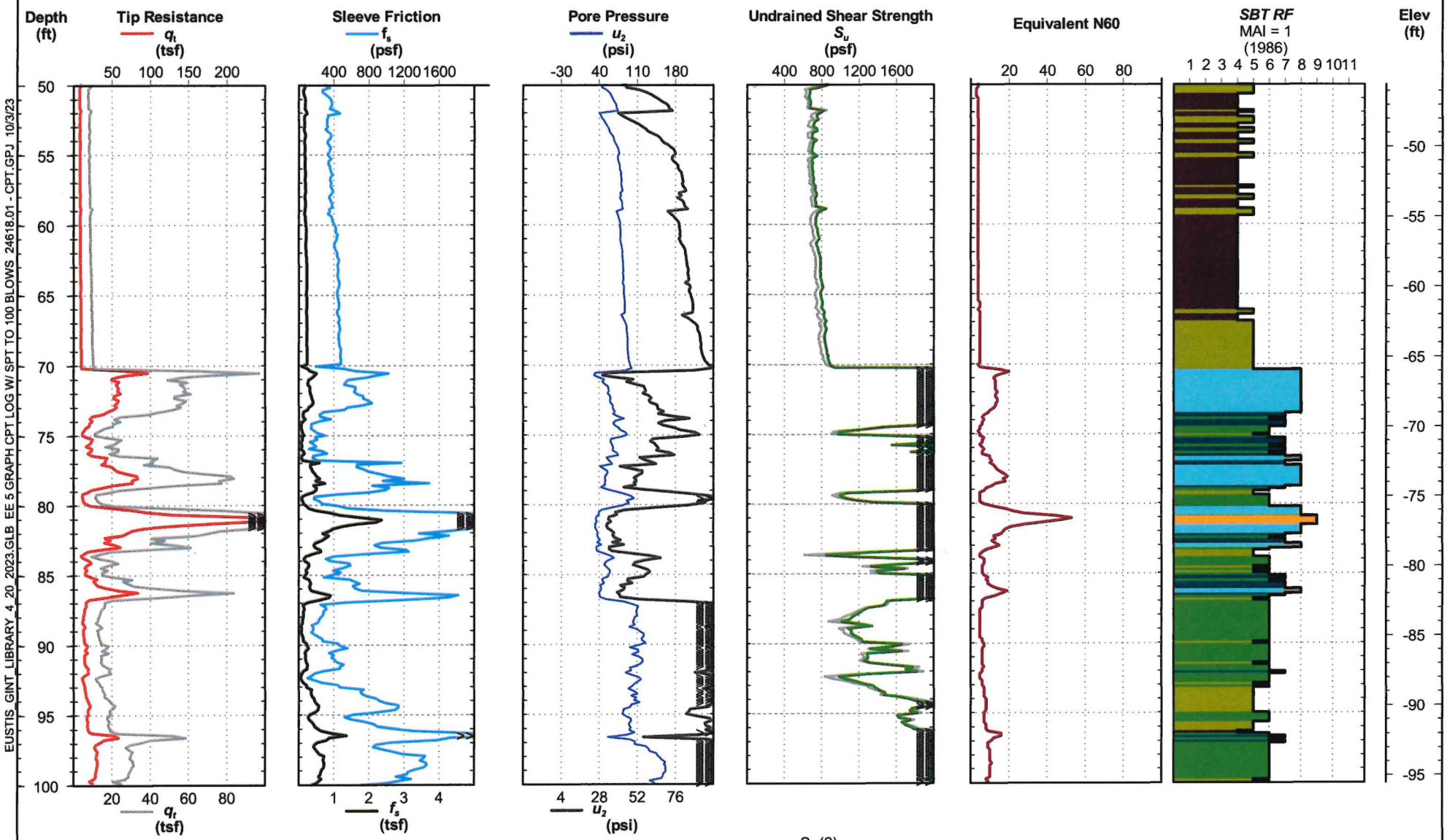
**Port of New Orleans**
**Phase 2 Exploration**
**New Louisiana International Terminal**
**Violet, Louisiana**

# CONE PENETRATION TEST

## GC-8

**Project No:** 24618.01
**Date:** 05/23/2023
**Latitude:** 29.89350°
**Longitude:** -89.89968°
**CPT ID:** DSA1082

**Elevation:** 4.5
**Datum:** NAVD88
**Est. Water Depth:** 3.0 ft
**Total Depth:** 125.3 ft
**Operator:** E.Held




Notes: Soil behavior type was determined using friction ratio classification chart (after Robertson*et al.*, 1986).
Test performed in general accordance with ASTM D5778-20.

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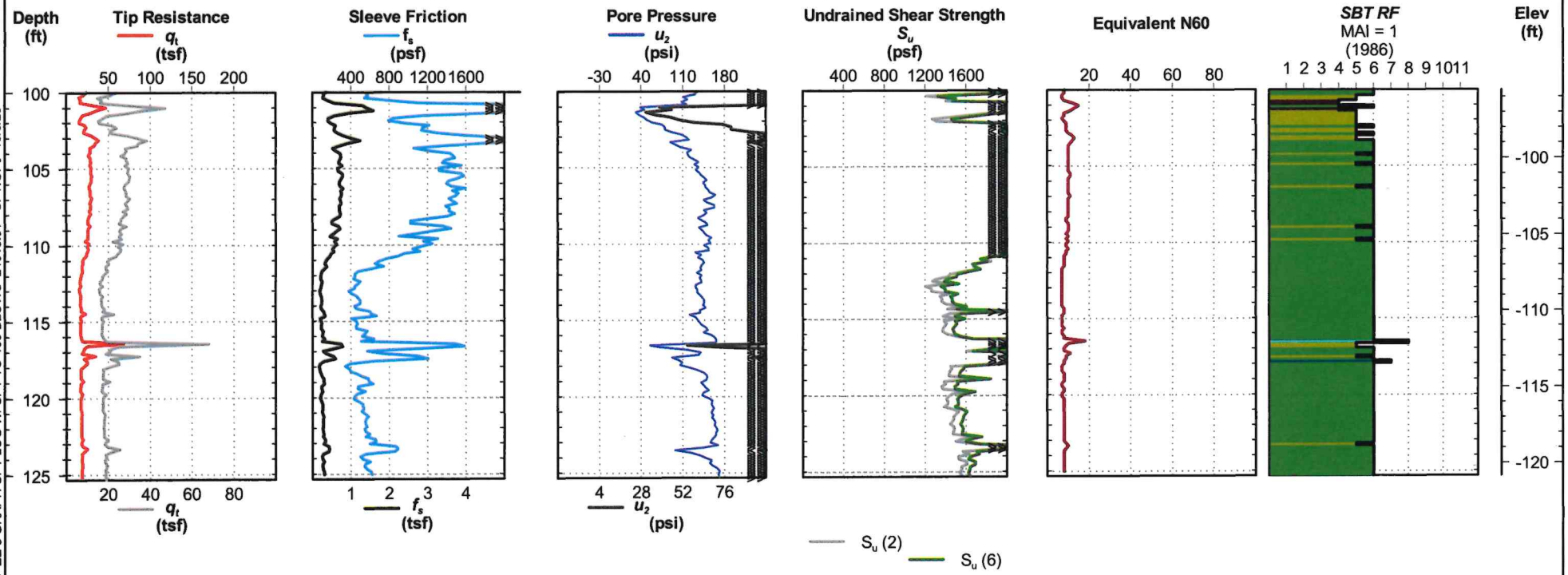
**Port of New Orleans**
**Phase 2 Exploration**
**New Louisiana International Terminal**
**Violet, Louisiana**

# CONE PENETRATION TEST

## GC-8

**Project No:** 24618.01
**Date:** 05/23/2023
**Latitude:** 29.89350°
**Longitude:** -89.89968°
**CPT ID:** DSA1082

**Elevation:** 4.5
**Datum:** NAVD88
**Est. Water Depth:** 3.0 ft
**Total Depth:** 125.3 ft
**Operator:** E.Held




Notes: Soil behavior type was determined using friction ratio classification chart (after Robertson*et al.*, 1986).
Test performed in general accordance with ASTM D5778-20.

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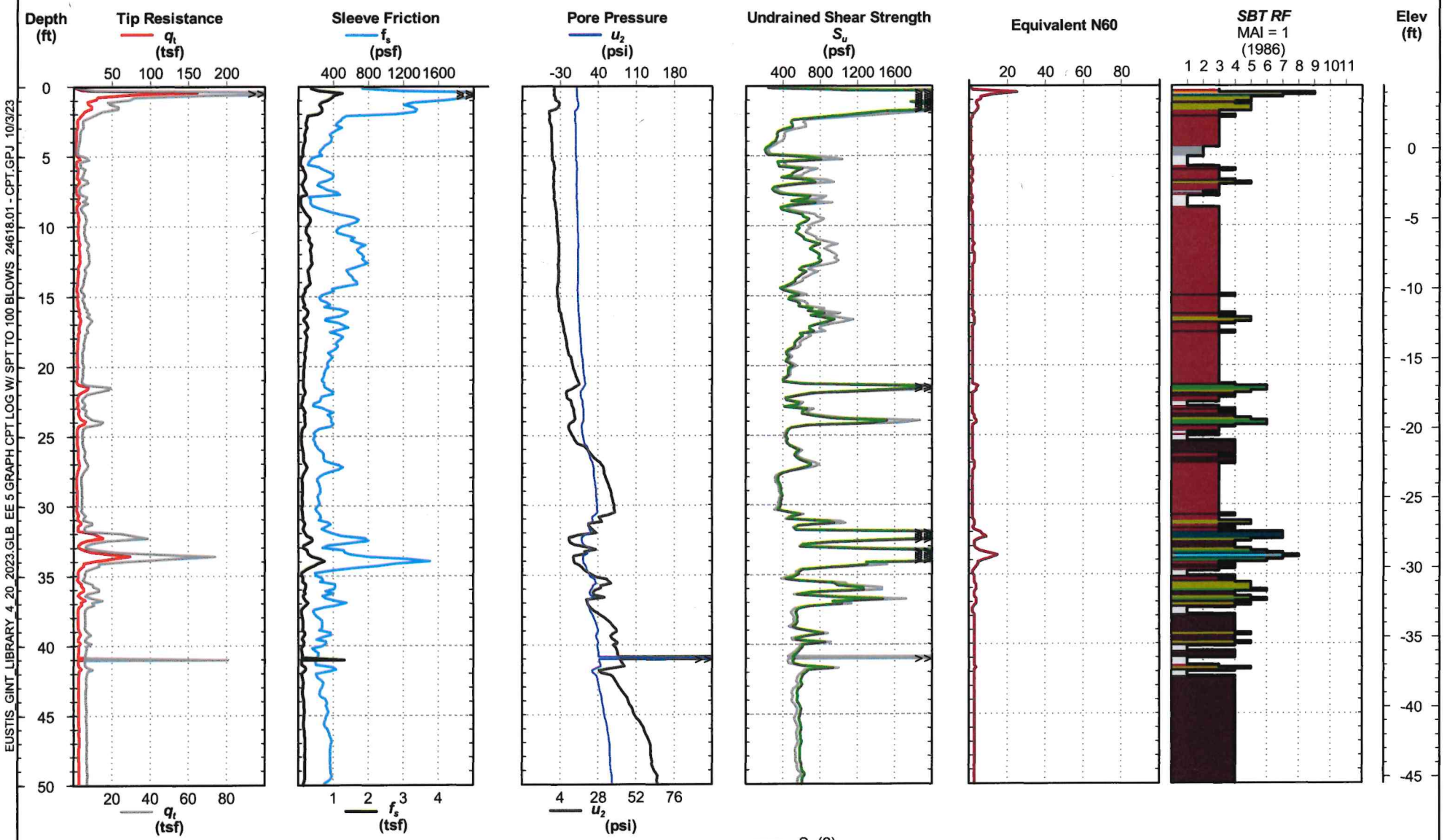
**Phase 2 Exploration**
**New Louisiana International Terminal**
**Violet, Louisiana**

# CONE PENETRATION TEST

## GC-9

**Project No:** 24618.01
**Date:** 05/23/2023
**Latitude:** 29.89508°
**Longitude:** -89.90040°
**CPT ID:** DSA1082

**Elevation:** 4.6
**Datum:** NAVD88
**Est. Water Depth:** 3.0 ft
**Total Depth:** 126.0 ft
**Operator:** E.Held




Notes: Soil behavior type was determined using friction ratio classification chart (after Robertson *et al.*, 1986).
Test performed in general accordance with ASTM D5778-20.

*Electronic Filename: 24618.01GC-9.cpt*

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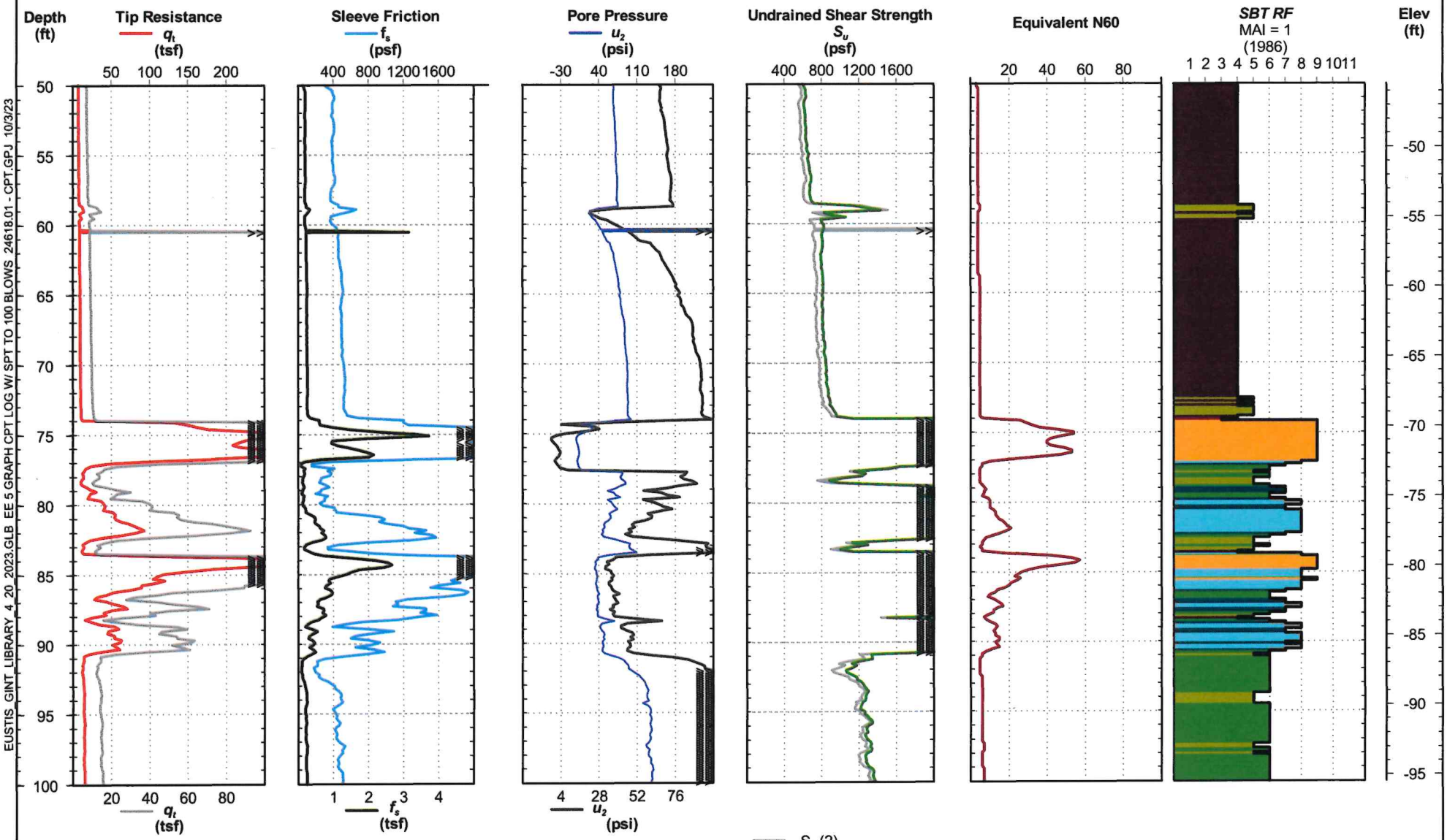
**Port of New Orleans**
**Phase 2 Exploration**
**New Louisiana International Terminal**
**Violet, Louisiana**

# CONE PENETRATION TEST

## GC-9

**Project No:** 24618.01
**Date:** 05/23/2023
**Latitude:** 29.89508°
**Longitude:** -89.90040°
**CPT ID:** DSA1082

**Elevation:** 4.6
**Datum:** NAVD88
**Est. Water Depth:** 3.0 ft
**Total Depth:** 126.0 ft
**Operator:** E.Held




Notes: Soil behavior type was determined using friction ratio classification chart (after Robertson*et al.*, 1986).
Test performed in general accordance with ASTM D5778-20.

*Electronic Filename: 24618.01GC-9.cpt*

EUSTIS ENGINEERING SINCE 1946

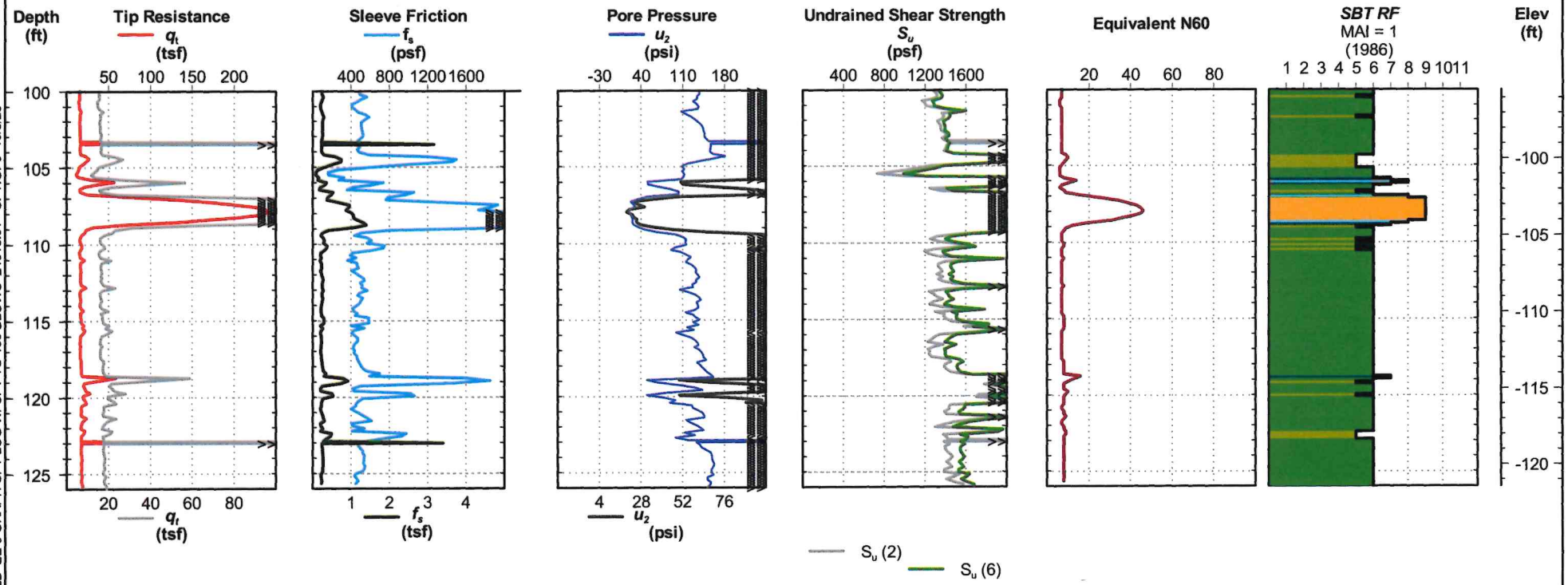
**Port of New Orleans**
**Phase 2 Exploration**
**New Louisiana International Terminal**
**Violet, Louisiana**

# CONE PENETRATION TEST

## GC-9

**Project No:** 24618.01
**Date:** 05/23/2023
**Latitude:** 29.89508°
**Longitude:** -89.90040°
**CPT ID:** DSA1082

**Elevation:** 4.6
**Datum:** NAVD88
**Est. Water Depth:** 3.0 ft
**Total Depth:** 126.0 ft
**Operator:** E.Held




Notes: Soil behavior type was determined using friction ratio classification chart (after Robertson*et al.*, 1986).
Test performed in general accordance with ASTM D5778-20.

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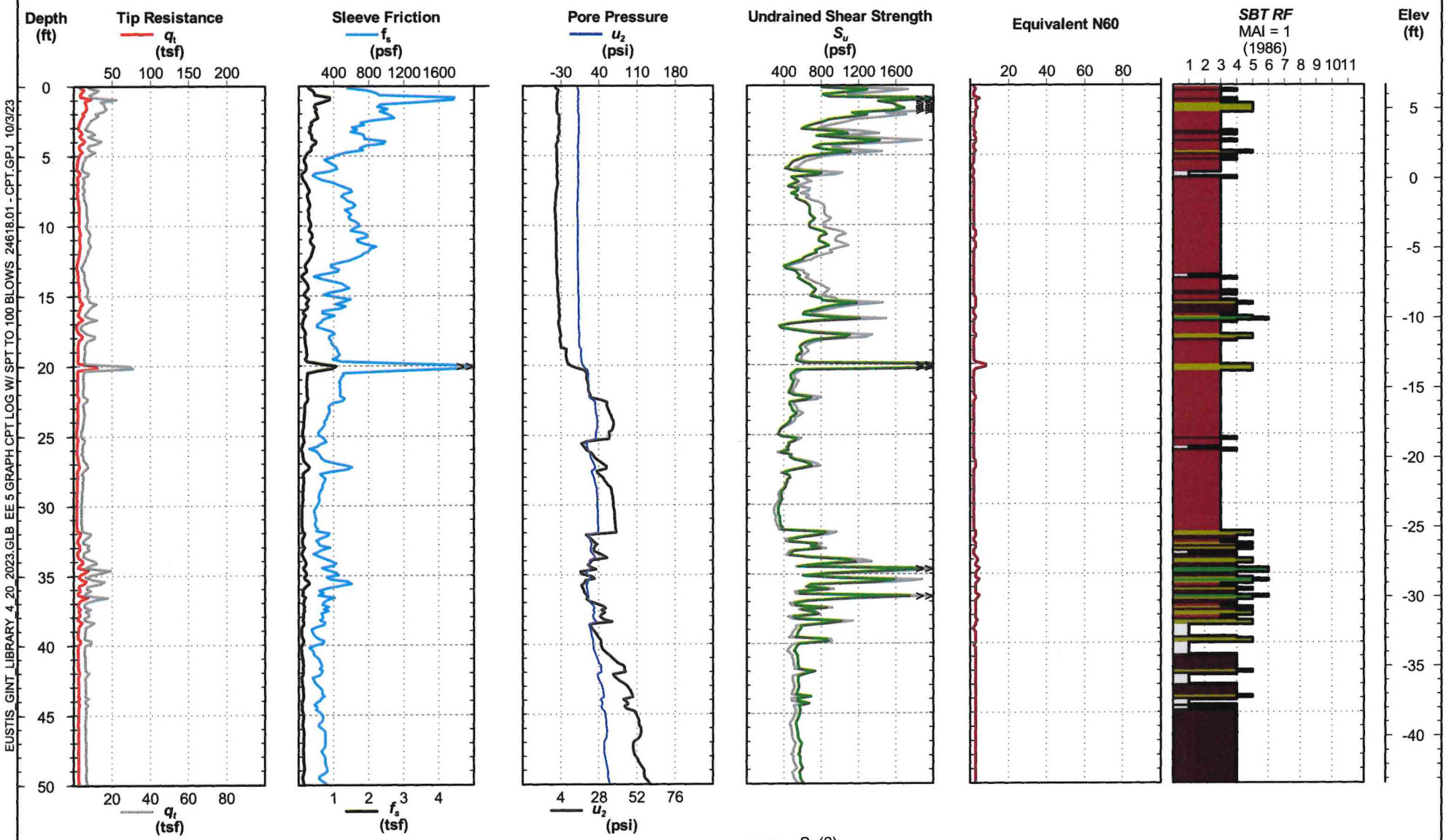
**Port of New Orleans**
**Phase 2 Exploration**
**New Louisiana International Terminal**
**Violet, Louisiana**

# CONE PENETRATION TEST

## GC-10

**Project No:** 24618.01
**Date:** 05/24/2023
**Latitude:** 29.89077°
**Longitude:** -89.89910°
**CPT ID:** DSA1082

**Elevation:** 6.7
**Datum:** NAVD88
**Est. Water Depth:** 3.0 ft
**Total Depth:** 89.9 ft
**Operator:** E.Held




Notes: Soil behavior type was determined using friction ratio classification chart (after Robertson*et al.*, 1986).
Test performed in general accordance with ASTM D5778-20.

*Electronic Filename: 24618.01GC-10.cpt*

EUSTIS ENGINEERING SINCE 1946

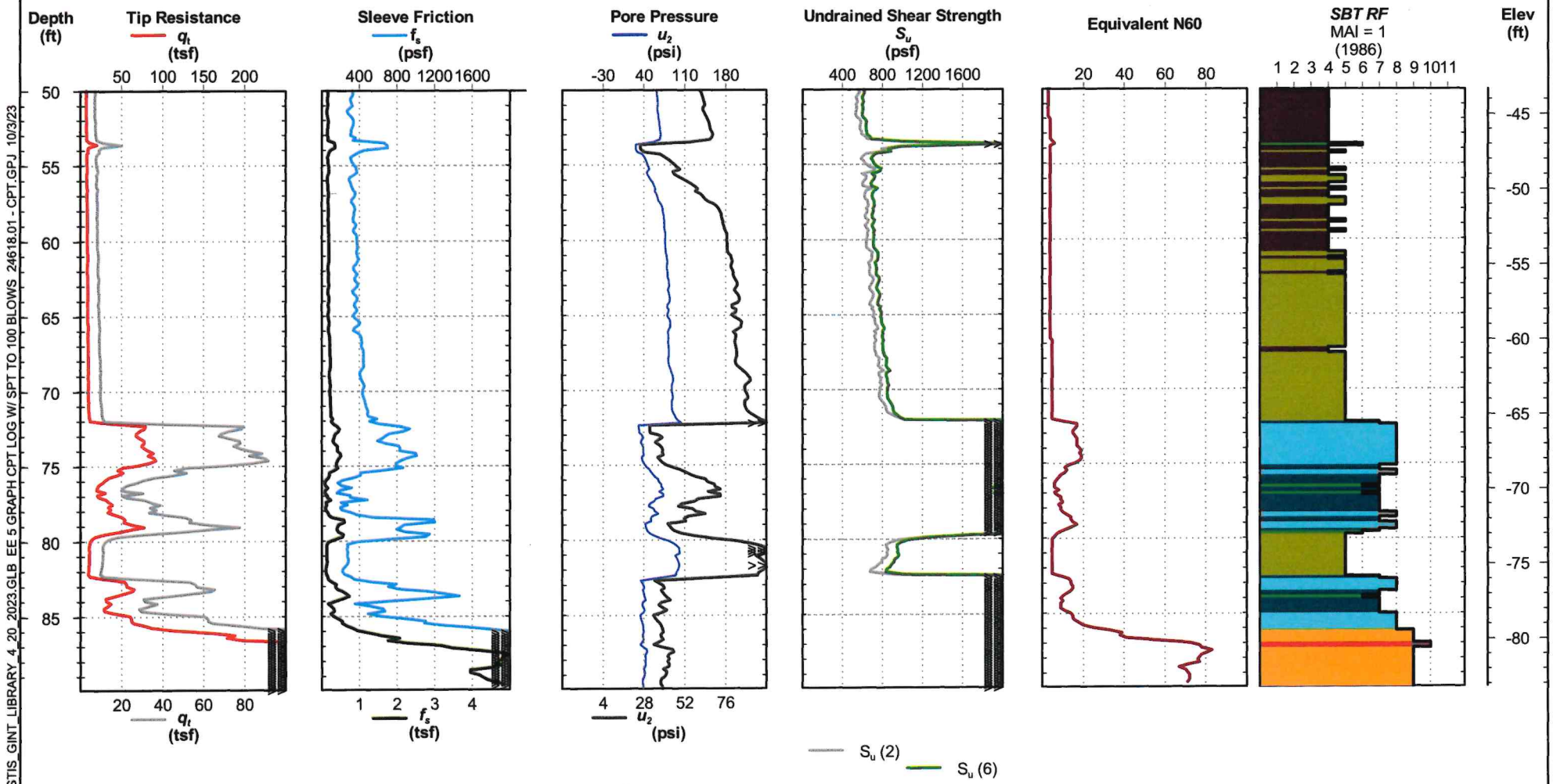
**Port of New Orleans**
**Phase 2 Exploration**
**New Louisiana International Terminal**
**Violet, Louisiana**

# CONE PENETRATION TEST

## GC-10

**Project No:** 24618.01
**Date:** 05/24/2023
**Latitude:** 29.89077°
**Longitude:** -89.89910°
**CPT ID:** DSA1082

**Elevation:** 6.7
**Datum:** NAVD88
**Est. Water Depth:** 3.0 ft
**Total Depth:** 89.9 ft
**Operator:** E.Held




Notes: Soil behavior type was determined using friction ratio classification chart (after Robertson*et al.*, 1986).
Test performed in general accordance with ASTM D5778-20.

*Electronic Filename: 24618.01GC-10.cpt*

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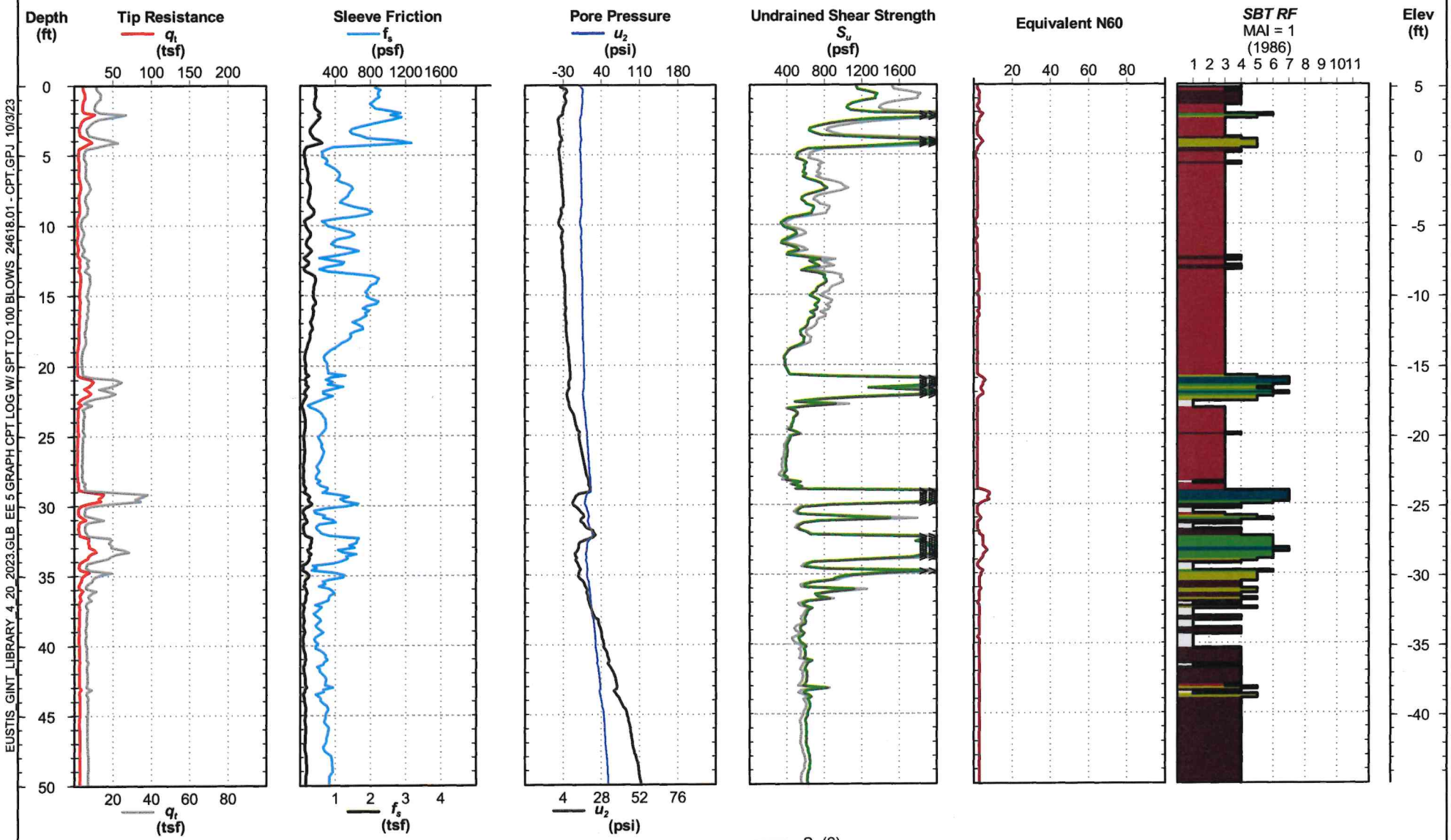
**Port of New Orleans**
**Phase 2 Exploration**
**New Louisiana International Terminal**
**Violet, Louisiana**

# CONE PENETRATION TEST

## GC-11

**Project No:** 24618.01
**Date:** 05/25/2023
**Latitude:** 29.88908°
**Longitude:** -89.89860°
**CPT ID:** DSA1082

**Elevation:** 5.2
**Datum:** NAVD88
**Est. Water Depth:** 3.0 ft
**Total Depth:** 89.9 ft
**Operator:** E.Held




Notes: Soil behavior type was determined using friction ratio classification chart (after Robertson*et al.*, 1986).
Test performed in general accordance with ASTM D5778-20.

*Electronic Filename: 24618.01GC-11.cpt*

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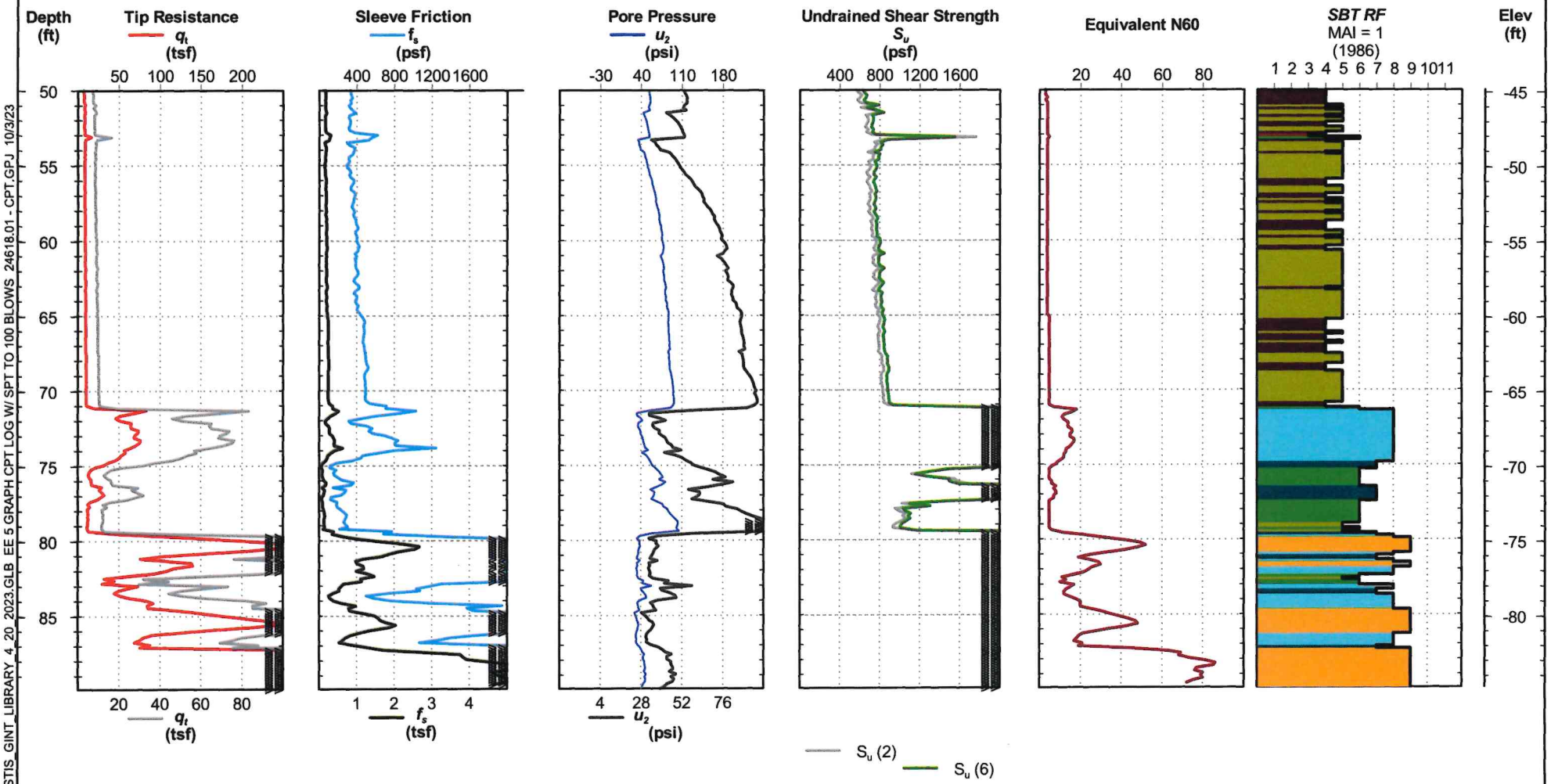
**Port of New Orleans**
**Phase 2 Exploration**
**New Louisiana International Terminal**
**Violet, Louisiana**

# CONE PENETRATION TEST

## GC-11

**Project No:** 24618.01
**Date:** 05/25/2023
**Latitude:** 29.88908°
**Longitude:** -89.89860°
**CPT ID:** DSA1082

**Elevation:** 5.2
**Datum:** NAVD88
**Est. Water Depth:** 3.0 ft
**Total Depth:** 89.9 ft
**Operator:** E.Held




Notes: Soil behavior type was determined using friction ratio classification chart (after Robertson*et al.*, 1986).
Test performed in general accordance with ASTM D5778-20.

*Electronic Filename: 24618.01GC-11.cpt*

EUSTIS
ENGINEERING
SINCE 1946

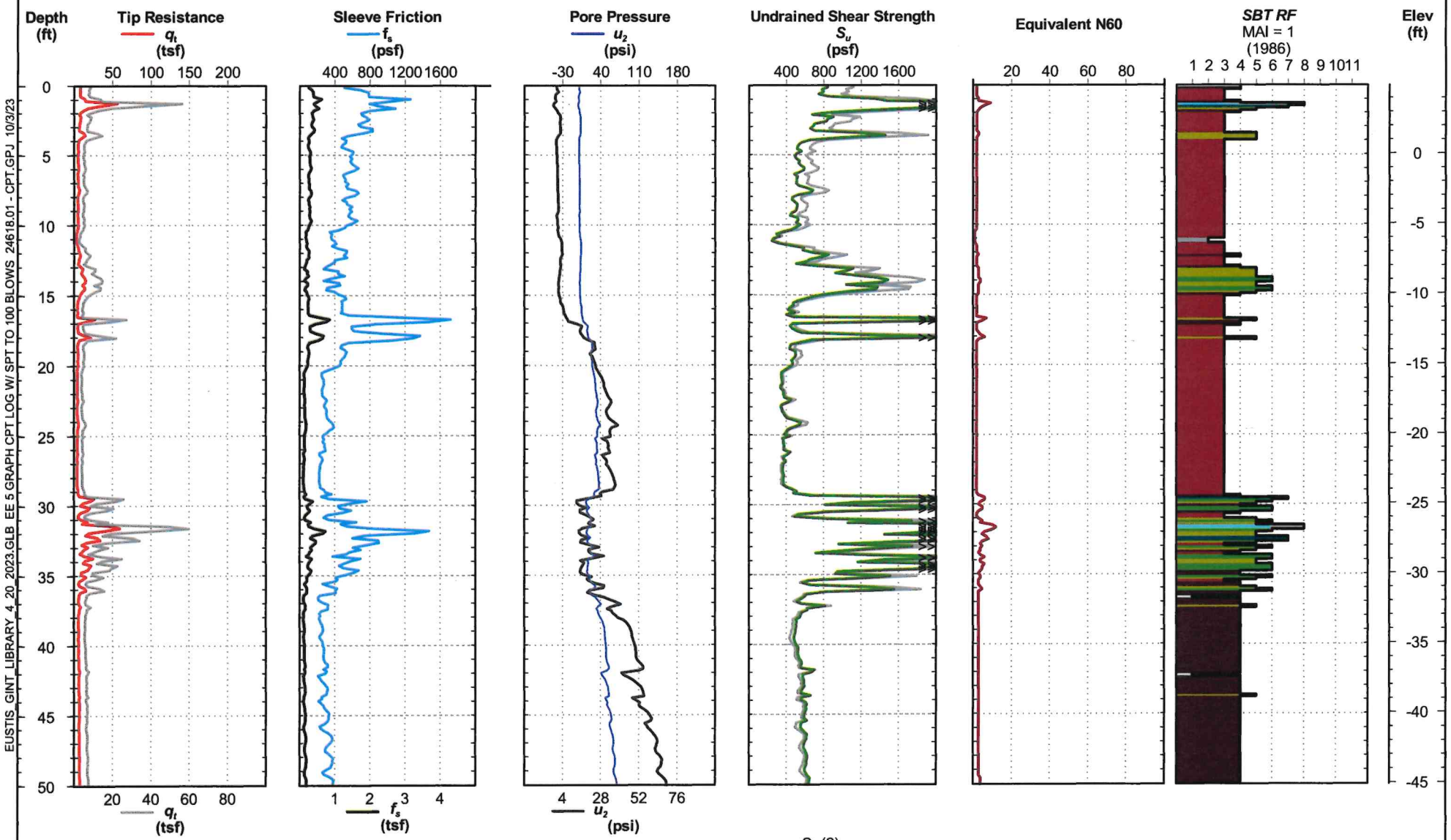
**Port of New Orleans**
**Phase 2 Exploration**
**New Louisiana International Terminal**
**Violet, Louisiana**

# CONE PENETRATION TEST

## GC-12

**Project No:** 24618.01
**Date:** 05/25/2023
**Latitude:** 29.88988°
**Longitude:** -89.89860°
**CPT ID:** DSA1082

**Elevation:** 4.9
**Datum:** NAVD88
**Est. Water Depth:** 3.0 ft
**Total Depth:** 125.5 ft
**Operator:** E.Held




Notes: Soil behavior type was determined using friction ratio classification chart (after Robertson*et al.*, 1986).
Test performed in general accordance with ASTM D5778-20.

*Electronic Filename: 24618.01GC-12.cpt*

EUSTIS
ENGINEERING
SINCE 1946

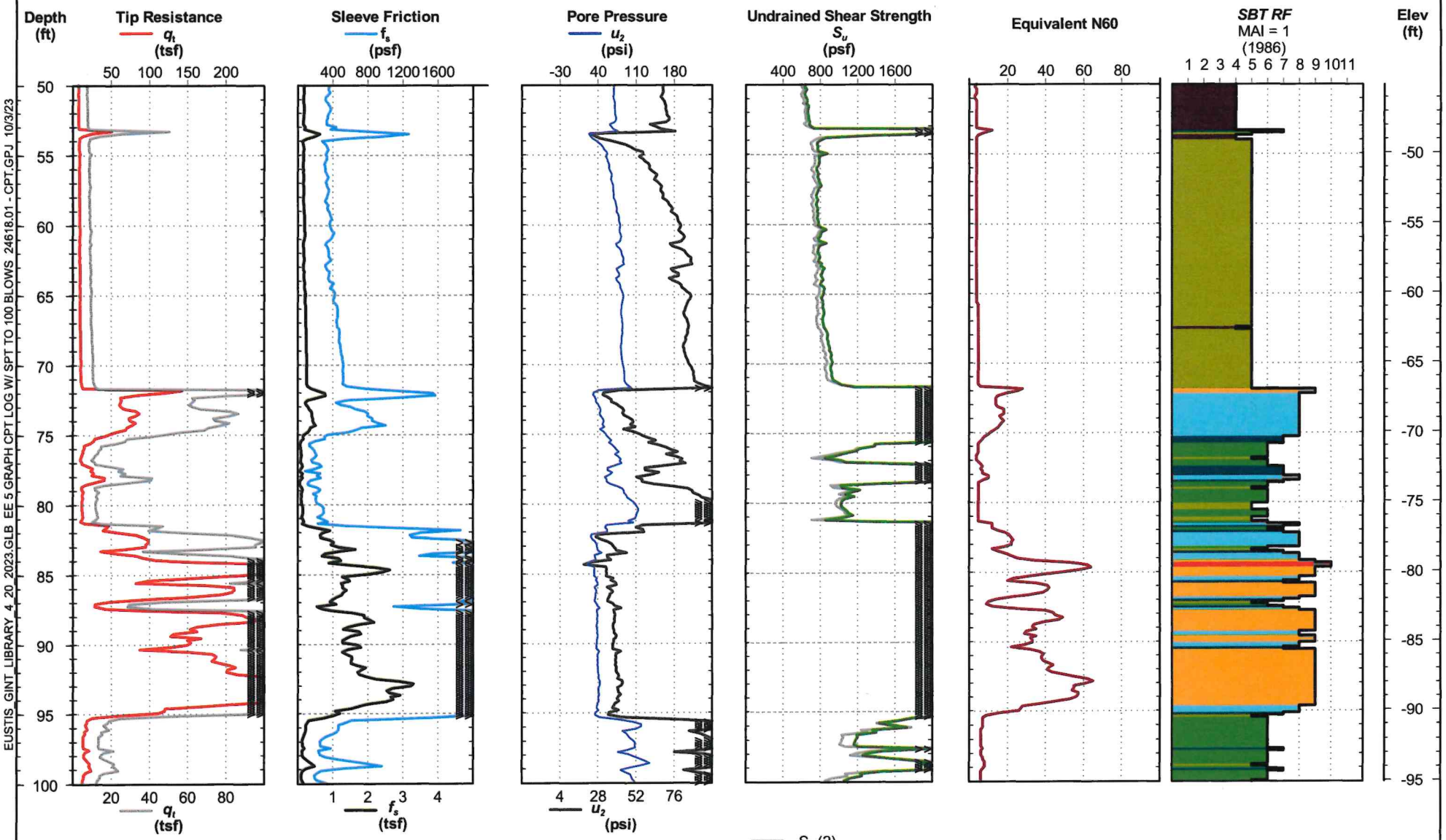
**Port of New Orleans**
**Phase 2 Exploration**
**New Louisiana International Terminal**
**Violet, Louisiana**

# CONE PENETRATION TEST

## GC-12

**Project No:** 24618.01
**Date:** 05/25/2023
**Latitude:** 29.88988°
**Longitude:** -89.89860°
**CPT ID:** DSA1082

**Elevation:** 4.9
**Datum:** NAVD88
**Est. Water Depth:** 3.0 ft
**Total Depth:** 125.5 ft
**Operator:** E.Held




Notes: Soil behavior type was determined using friction ratio classification chart (after Robertson*et al.*, 1986).
Test performed in general accordance with ASTM D5778-20.

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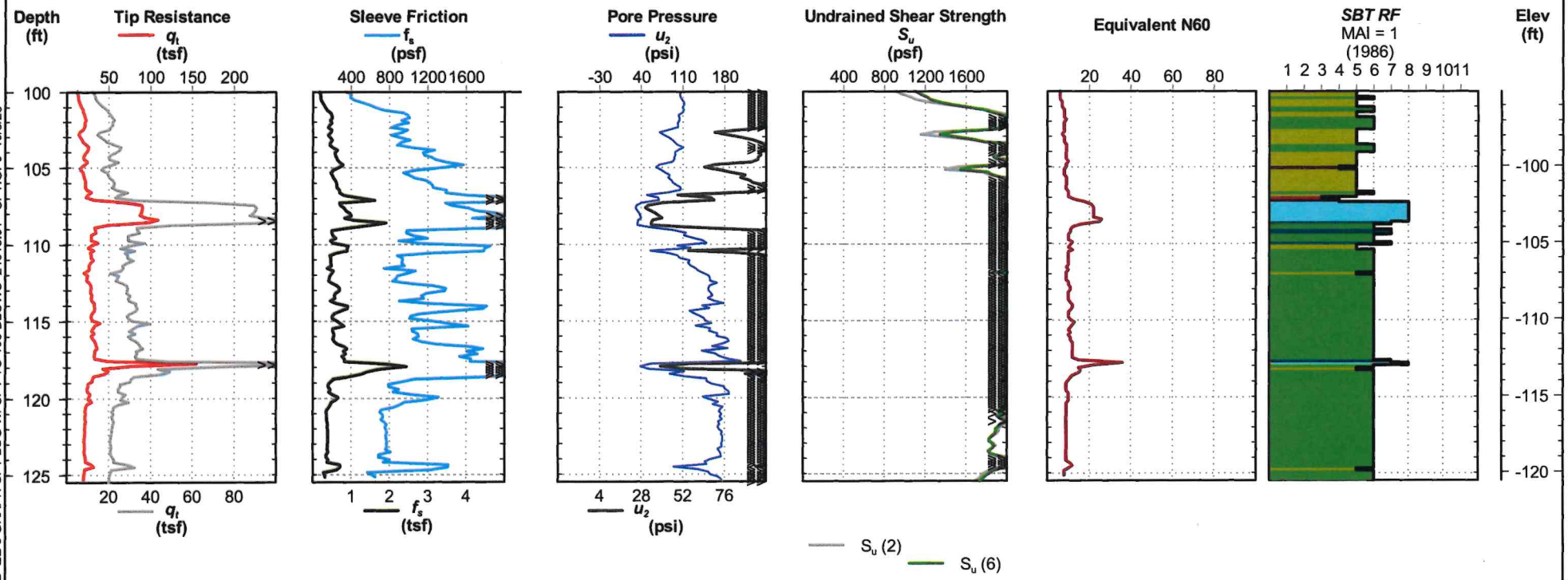
**Phase 2 Exploration**
**New Louisiana International Terminal**
**Violet, Louisiana**

# CONE PENETRATION TEST

## GC-12

**Project No:** 24618.01
**Date:** 05/25/2023
**Latitude:** 29.88988°
**Longitude:** -89.89860°
**CPT ID:** DSA1082

**Elevation:** 4.9
**Datum:** NAVD88
**Est. Water Depth:** 3.0 ft
**Total Depth:** 125.5 ft
**Operator:** E.Held




Notes: Soil behavior type was determined using friction ratio classification chart (after Robertson*et al.*, 1986).
Test performed in general accordance with ASTM D5778-20.

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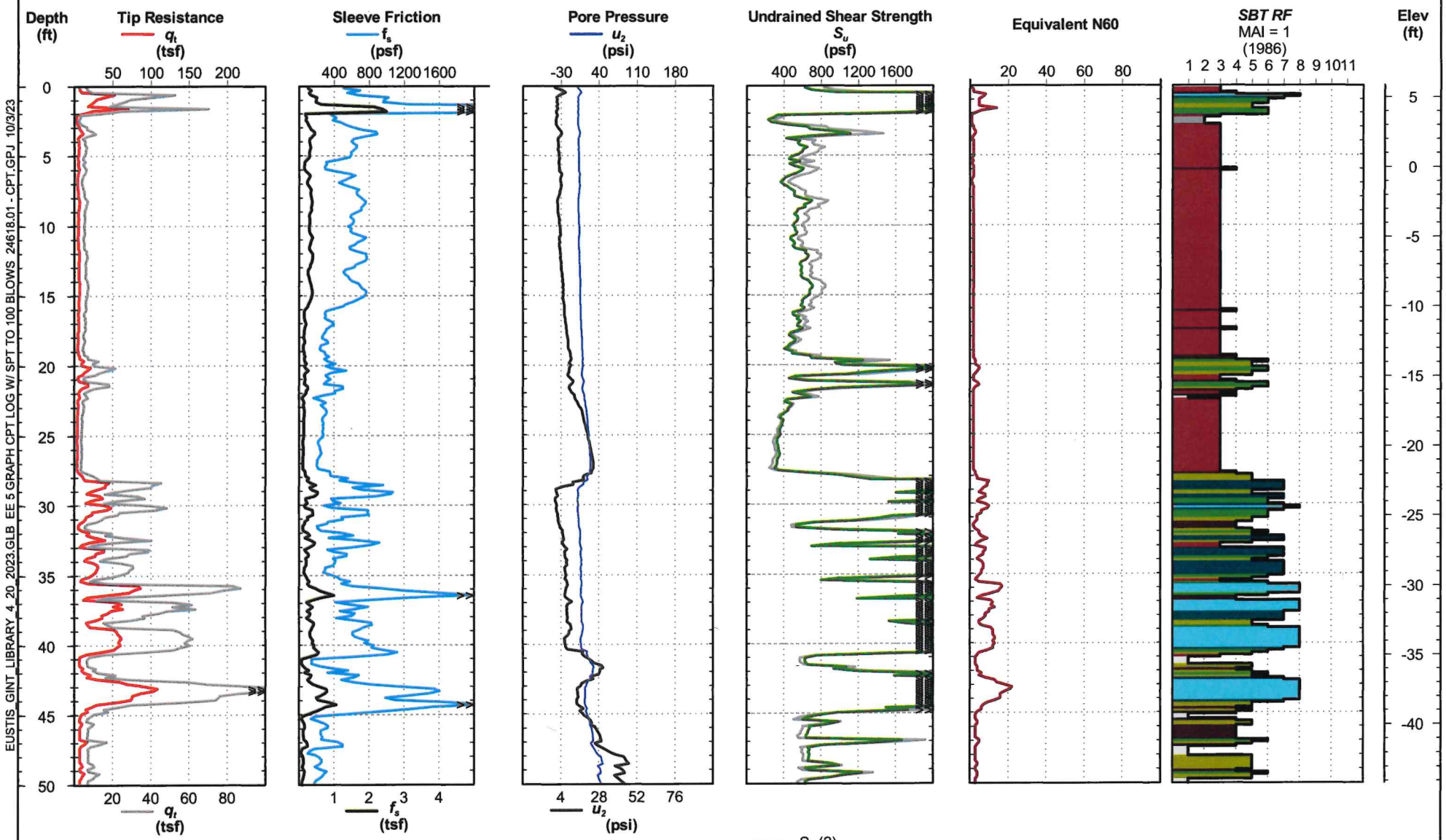
# CONE PENETRATION TEST

## GC-13

**Project No:** 24618.01
**Date:** 05/26/2023
**Latitude:** 29.88706°
**Longitude:** -89.89820°
**CPT ID:** DSA1082

**Elevation:** 5.9
**Datum:** NAVD88
**Est. Water Depth:** 3.0 ft
**Total Depth:** 91.4 ft
**Operator:** E.Held




Notes: Soil behavior type was determined using friction ratio classification chart (after Robertson *et al.*, 1986).
Test performed in general accordance with ASTM D5778-20.

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**Phase 2 Exploration**
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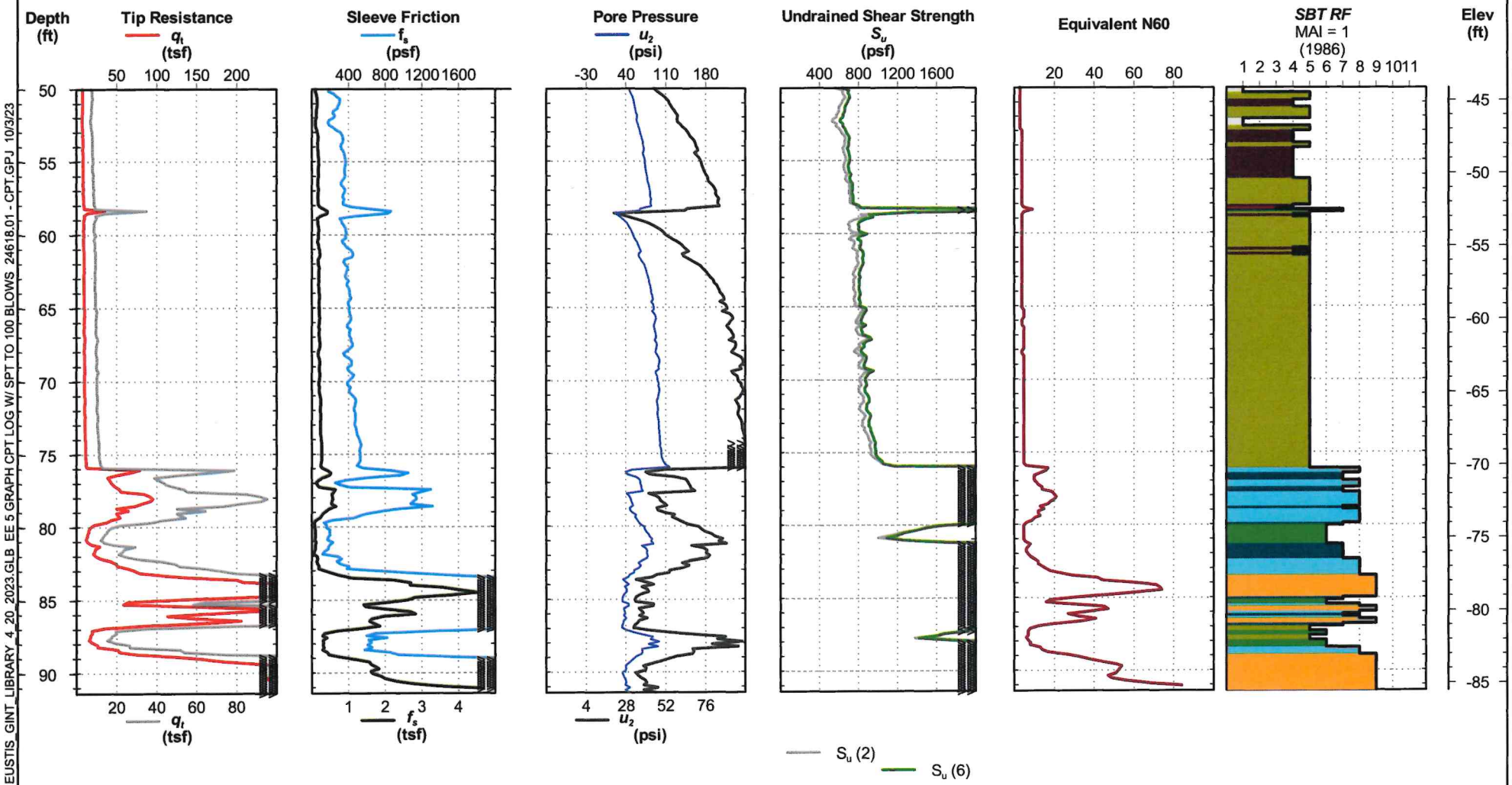
# CONE PENETRATION TEST

## GC-13

**Project No:** 24618.01
**Date:** 05/26/2023
**Latitude:** 29.88706°
**Longitude:** -89.89820°
**CPT ID:** DSA1082

**Elevation:** 5.9
**Datum:** NAVD88
**Est. Water Depth:** 3.0 ft
**Total Depth:** 91.4 ft
**Operator:** E.Held




Notes: Soil behavior type was determined using friction ratio classification chart (after Robertson*et al.*, 1986).
Test performed in general accordance with ASTM D5778-20.

*Electronic Filename: 24618.01GC-13.cpt*

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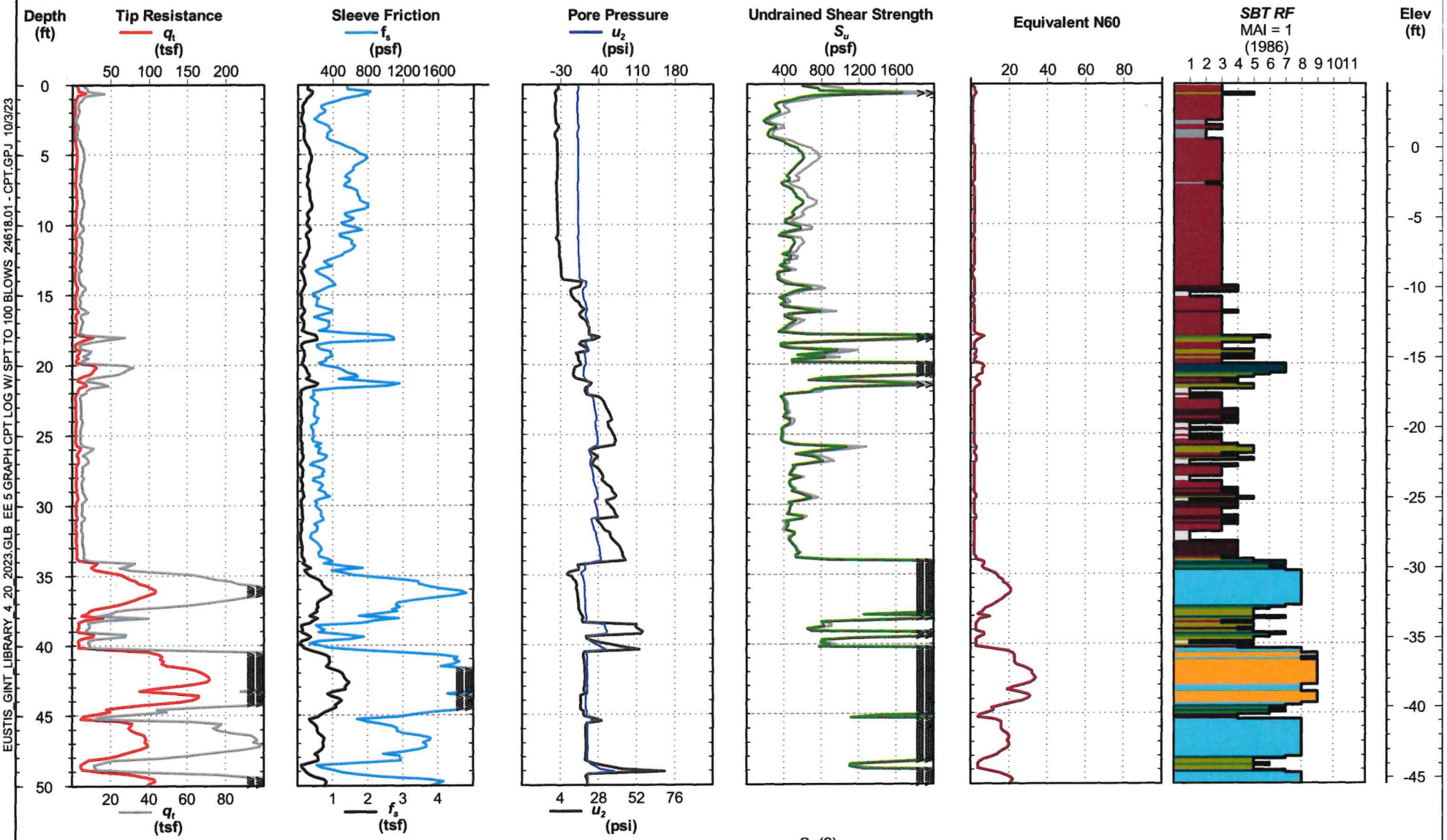
# CONE PENETRATION TEST

## GC-14

**Project No:** 24618.01
**Date:** 05/30/2023
**Latitude:** 29.88623°
**Longitude:** -89.89790°
**CPT ID:** DSA1082

**Elevation:** 4.6
**Datum:** NAVD88
**Est. Water Depth:** 3.0 ft
**Total Depth:** 125.5 ft
**Operator:** E.Held




Notes: Soil behavior type was determined using friction ratio classification chart (after Robertson*et al.*, 1986).
Test performed in general accordance with ASTM D5778-20.

*Electronic Filename: 24618.01GC-14.cpt*

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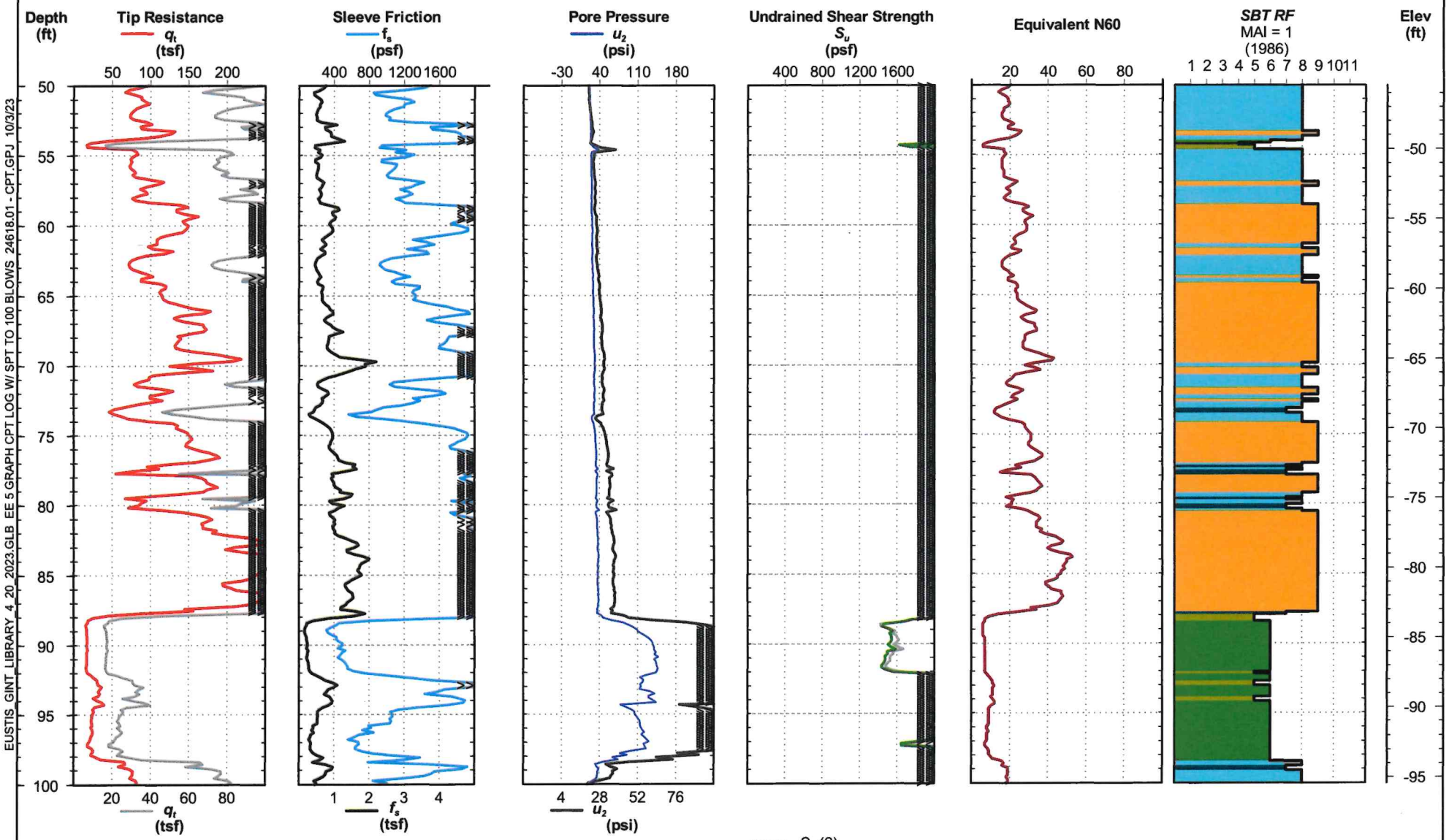
**Violet, Louisiana**

# CONE PENETRATION TEST

## GC-14

**Project No:** 24618.01
**Date:** 05/30/2023
**Latitude:** 29.88623°
**Longitude:** -89.89790°
**CPT ID:** DSA1082

**Elevation:** 4.6
**Datum:** NAVD88
**Est. Water Depth:** 3.0 ft
**Total Depth:** 125.5 ft
**Operator:** E.Held




Notes: Soil behavior type was determined using friction ratio classification chart (after Robertson*et al.*, 1986).
Test performed in general accordance with ASTM D5778-20.

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**Phase 2 Exploration**
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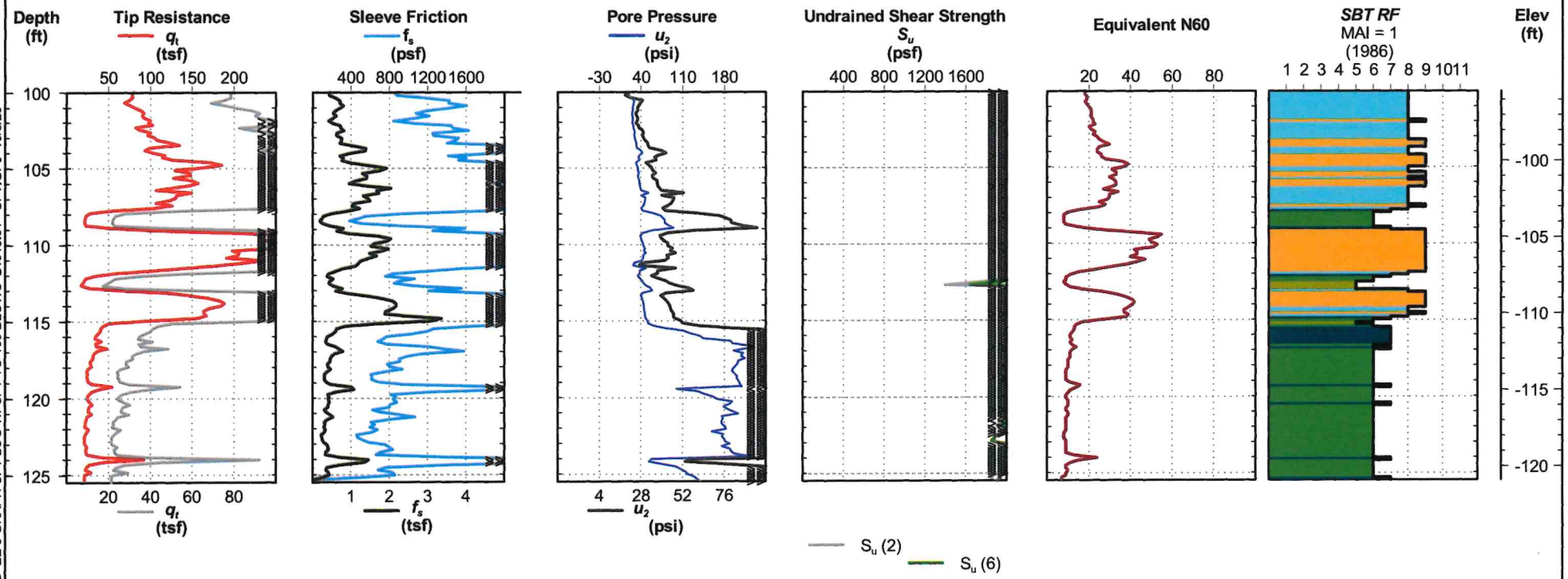
# CONE PENETRATION TEST

## GC-14

**Project No:** 24618.01
**Date:** 05/30/2023
**Latitude:** 29.88623°
**Longitude:** -89.89790°
**CPT ID:** DSA1082

**Elevation:** 4.6
**Datum:** NAVD88
**Est. Water Depth:** 3.0 ft
**Total Depth:** 125.5 ft
**Operator:** E.Held




Notes: Soil behavior type was determined using friction ratio classification chart (after Robertson*et al.*, 1986).
Test performed in general accordance with ASTM D5778-20.

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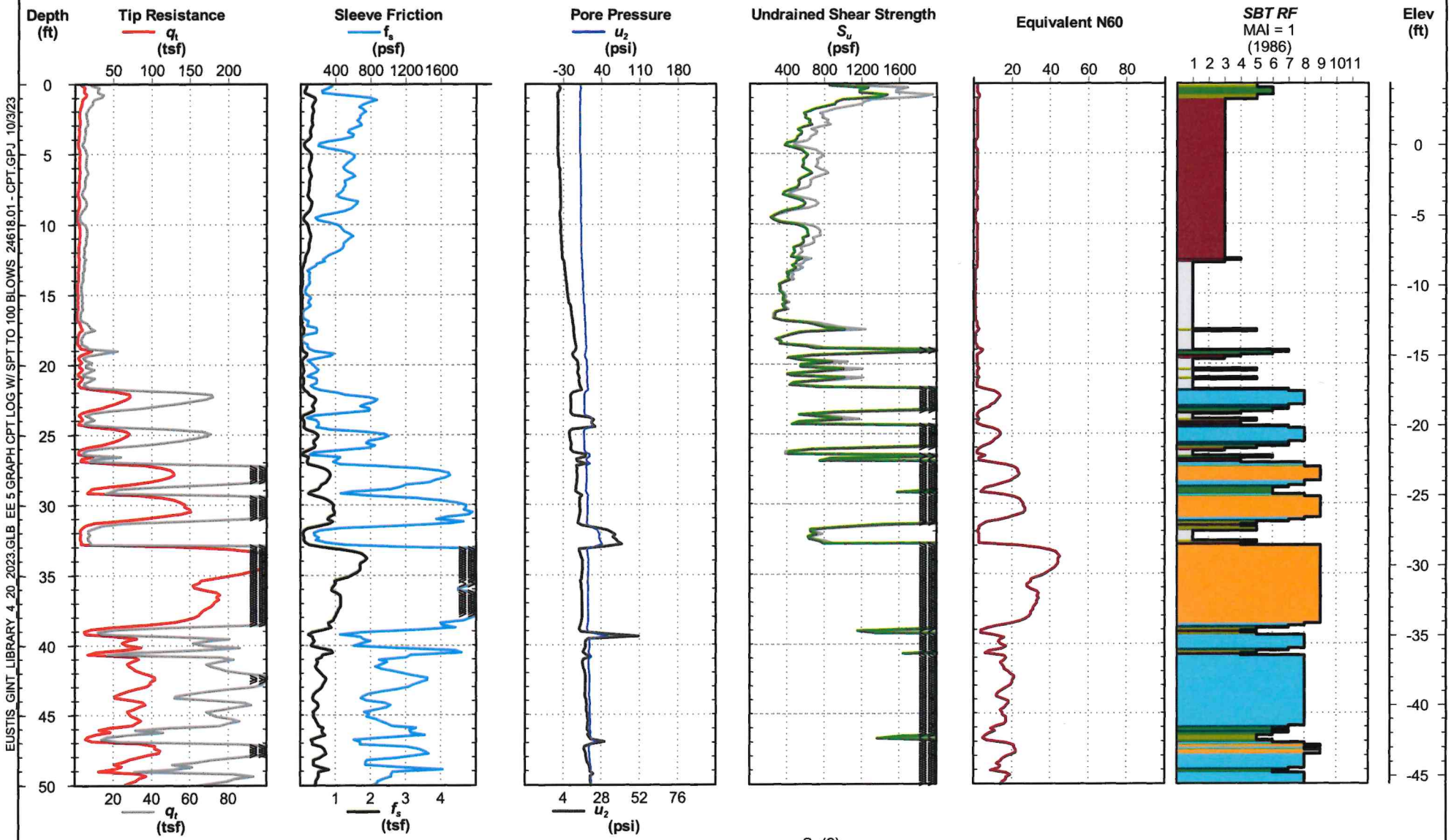
# CONE PENETRATION TEST

## GC-15

**Project No:** 24618.01
**Date:** 05/30/2023
**Latitude:** 29.88506°
**Longitude:** -89.89779°
**CPT ID:** DSA1082

**Elevation:** 4.5
**Datum:** NAVD88
**Est. Water Depth:** 3.0 ft
**Total Depth:** 125.5 ft
**Operator:** E.Held




Notes: Soil behavior type was determined using friction ratio classification chart (after Robertson*et al.*, 1986).
Test performed in general accordance with ASTM D5778-20.

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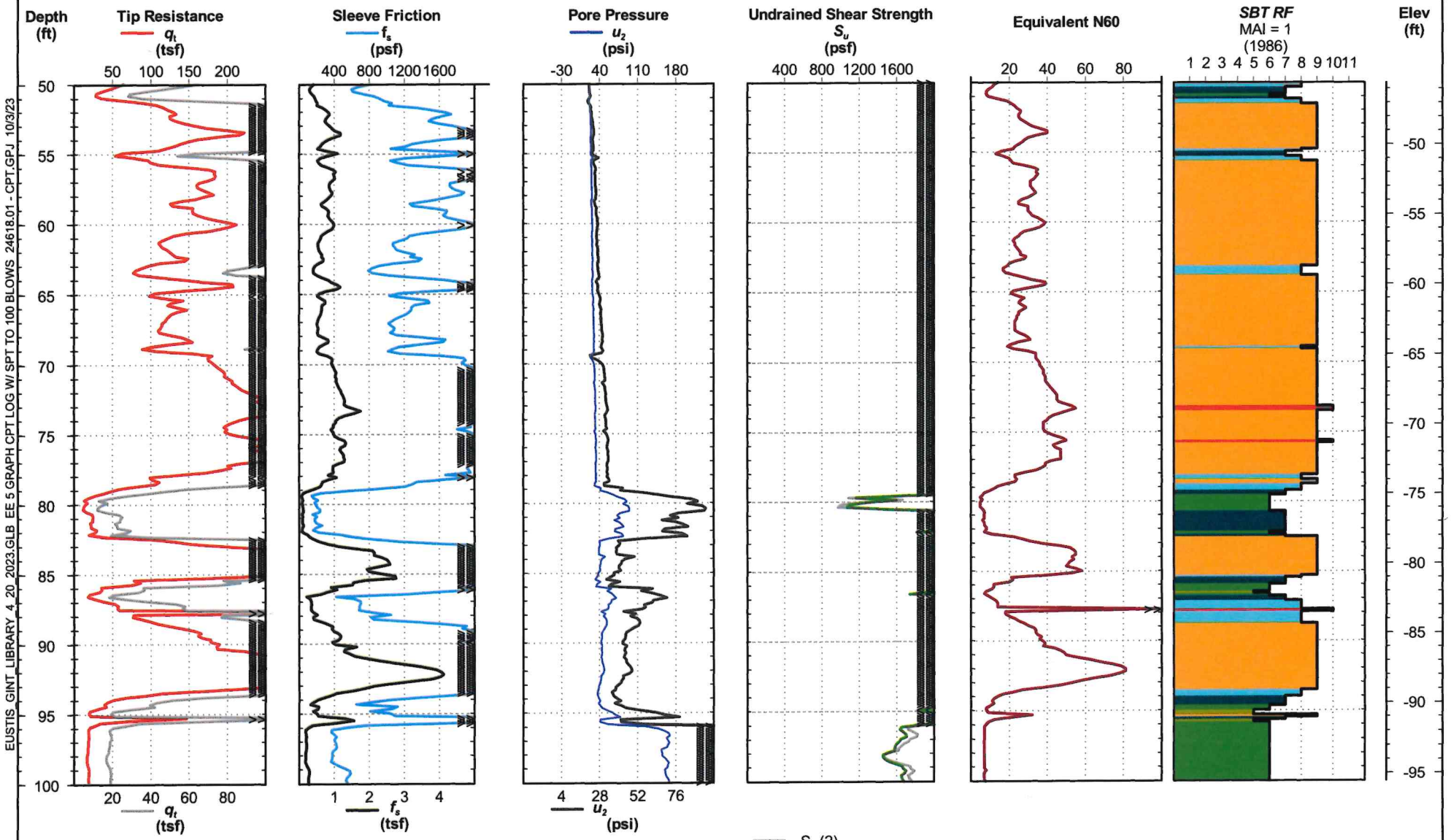
# CONE PENETRATION TEST

## GC-15

**Project No:** 24618.01
**Date:** 05/30/2023
**Latitude:** 29.88506°
**Longitude:** -89.89779°
**CPT ID:** DSA1082

**Elevation:** 4.5
**Datum:** NAVD88
**Est. Water Depth:** 3.0 ft
**Total Depth:** 125.5 ft
**Operator:** E.Held




Notes: Soil behavior type was determined using friction ratio classification chart (after Robertson *et al.*, 1986).
Test performed in general accordance with ASTM D5778-20.

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**Phase 2 Exploration**
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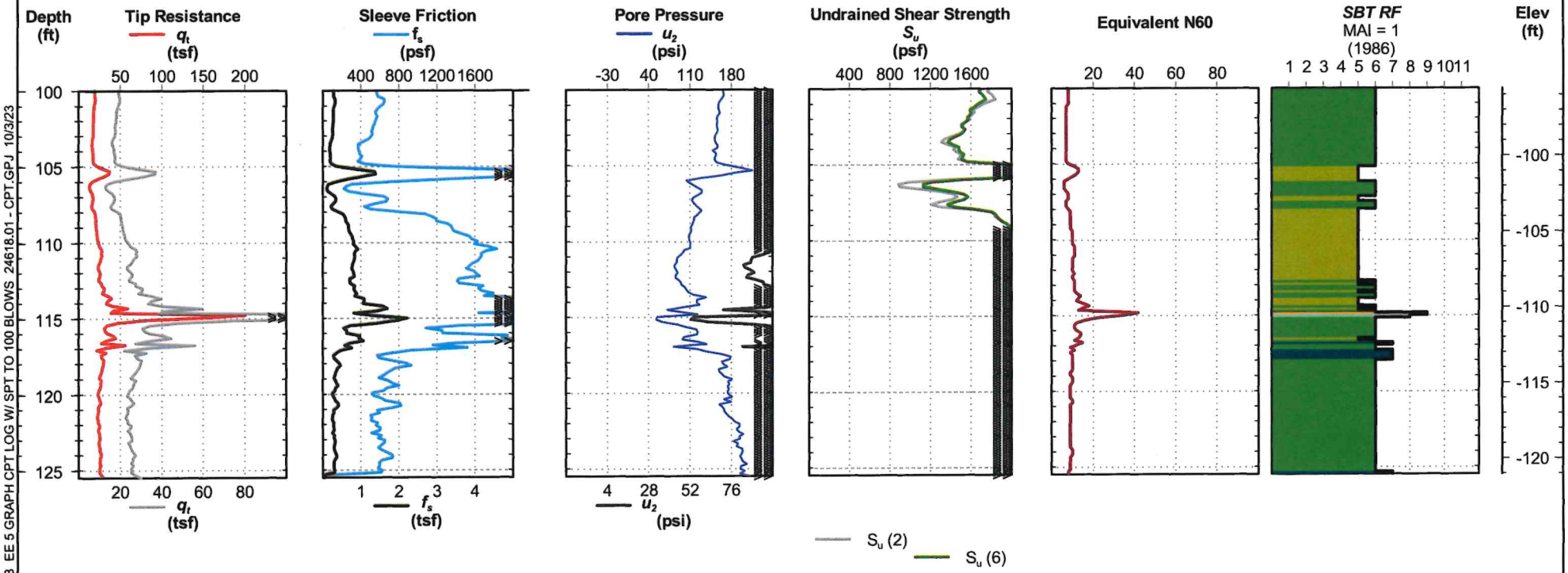
# CONE PENETRATION TEST

## GC-15

**Project No:** 24618.01
**Date:** 05/30/2023
**Latitude:** 29.88506°
**Longitude:** -89.89779°
**CPT ID:** DSA1082

**Elevation:** 4.5
**Datum:** NAVD88
**Est. Water Depth:** 3.0 ft
**Total Depth:** 125.5 ft
**Operator:** E.Held




Notes: Soil behavior type was determined using friction ratio classification chart (after Robertson*et al.*, 1986).
Test performed in general accordance with ASTM D5778-20.

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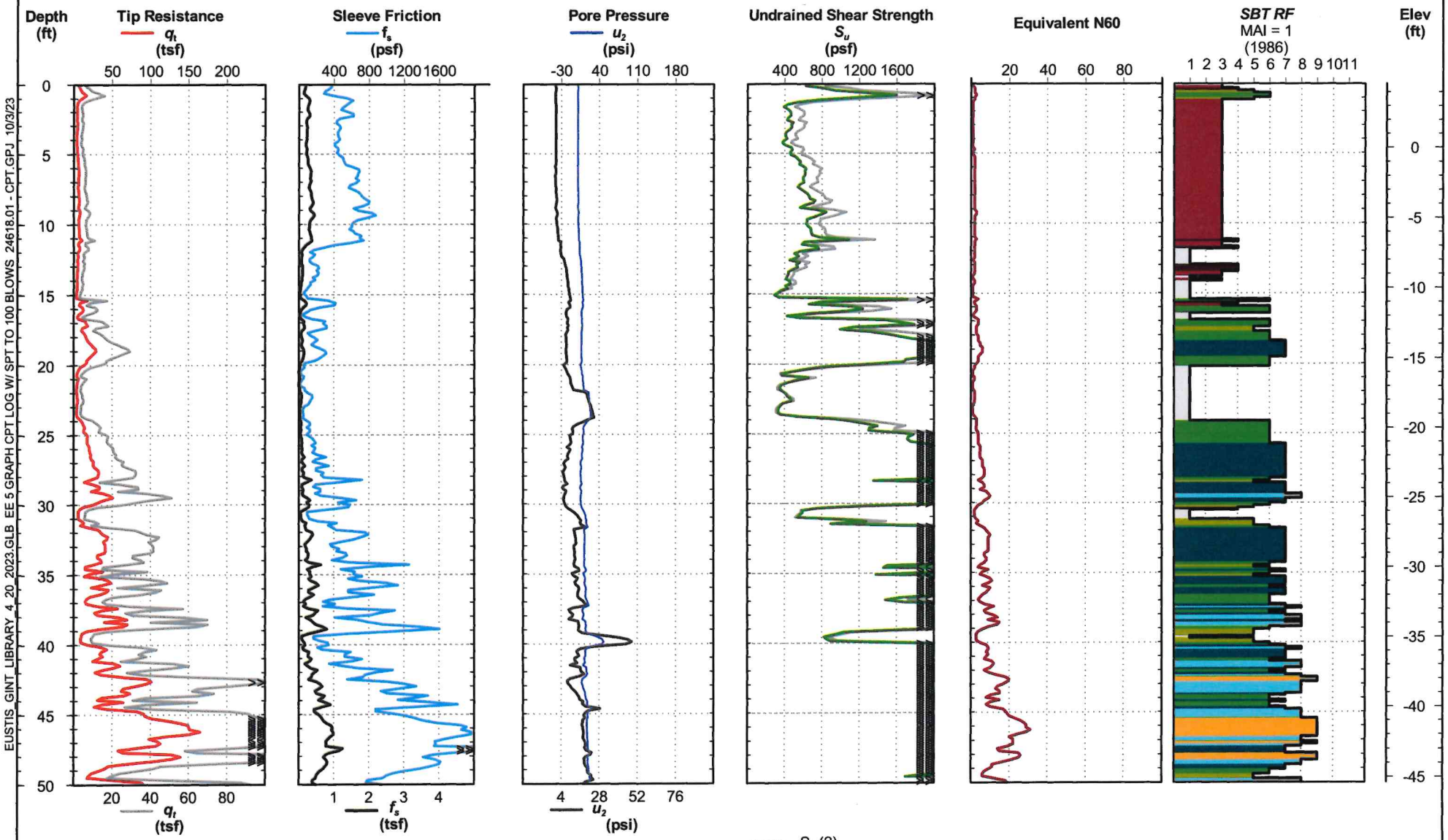
# CONE PENETRATION TEST

## GC-16

**Project No:** 24618.01
**Date:** 05/31/2023
**Latitude:** 29.88409°
**Longitude:** -89.89768°
**CPT ID:** DSA1082

**Elevation:** 4.6
**Datum:** NAVD88
**Est. Water Depth:** 3.0 ft
**Total Depth:** 85.3 ft
**Operator:** E.Held




Notes: Soil behavior type was determined using friction ratio classification chart (after Robertson*et al.*, 1986).
Test performed in general accordance with ASTM D5778-20.

*Electronic Filename: 24618.01GC-16.cpt*

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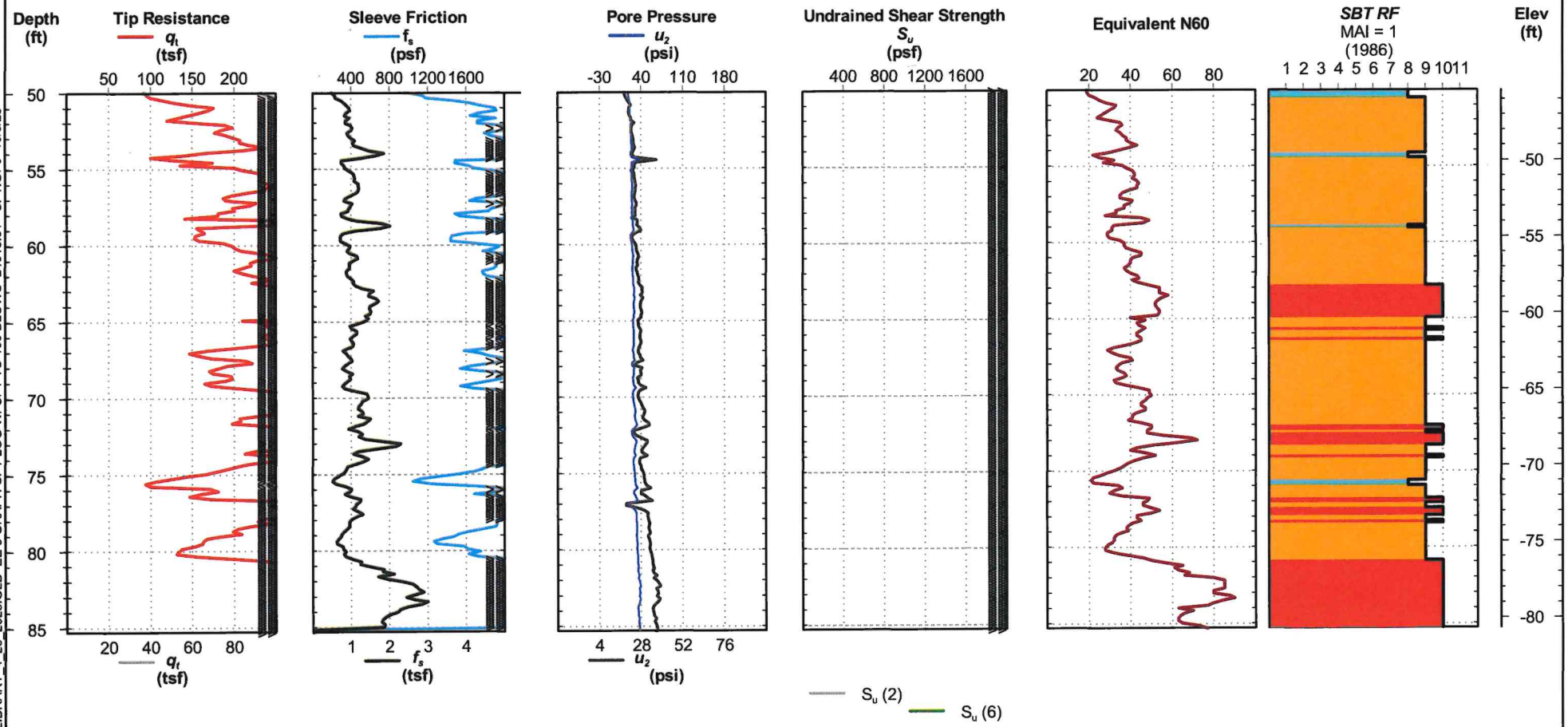
# CONE PENETRATION TEST

## GC-16

**Project No:** 24618.01
**Date:** 05/31/2023
**Latitude:** 29.88409°
**Longitude:** -89.89768°
**CPT ID:** DSA1082

**Elevation:** 4.6
**Datum:** NAVD88
**Est. Water Depth:** 3.0 ft
**Total Depth:** 85.3 ft
**Operator:** E.Held




Notes: Soil behavior type was determined using friction ratio classification chart (after Robertson*et al.*, 1986).
Test performed in general accordance with ASTM D5778-20.

*Electronic Filename:* *24618.01GC-16.cpt*

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**Phase 2 Exploration**
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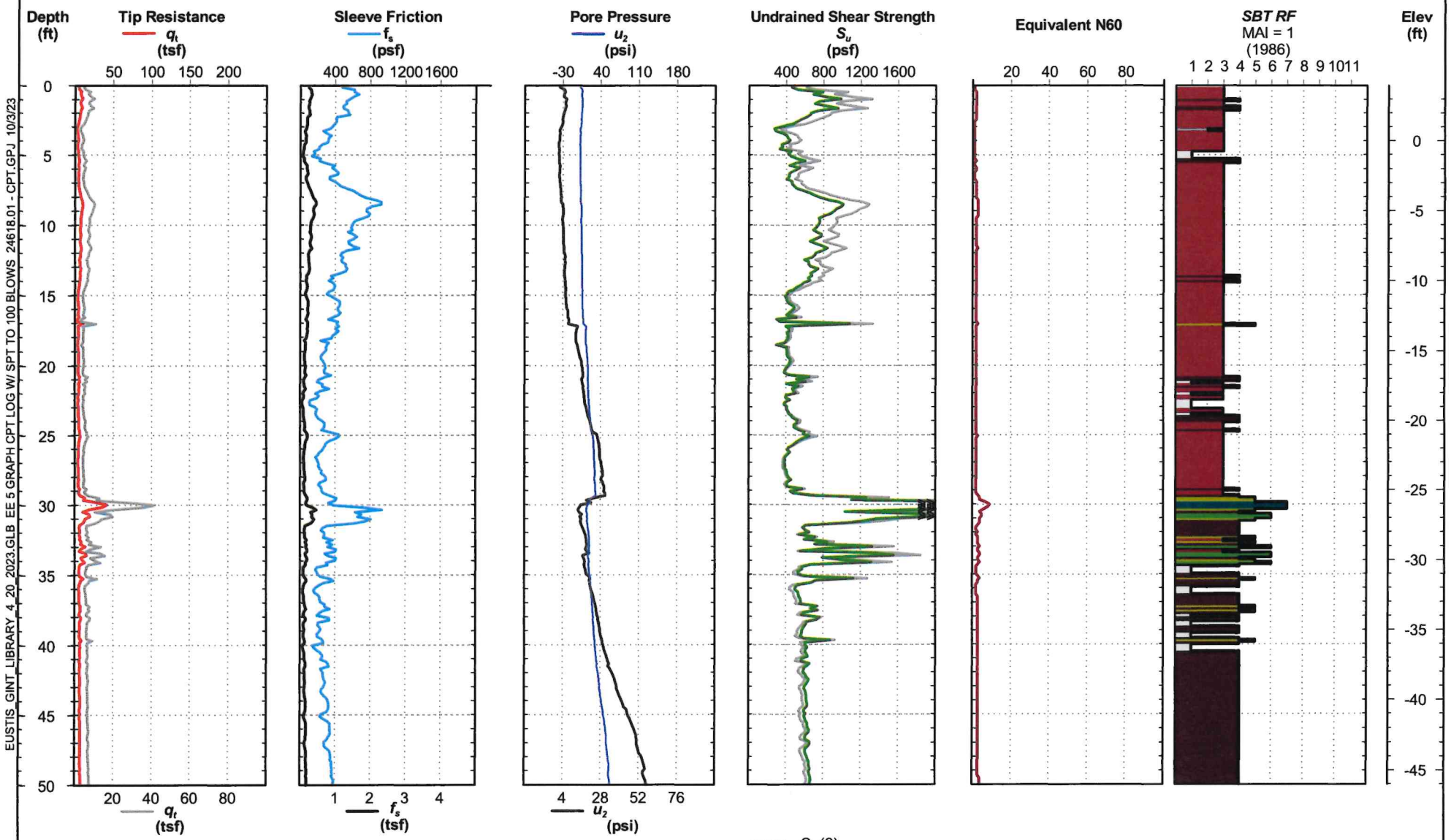
# CONE PENETRATION TEST

## GC-17

**Project No:** 24618.01
**Date:** 05/24/2023
**Latitude:** 29.89228°
**Longitude:** -89.89900°
**CPT ID:** DSA1082

**Elevation:** 4.0
**Datum:** NAVD88
**Est. Water Depth:** 3.0 ft
**Total Depth:** 125.3 ft
**Operator:** E.Held




Notes: Soil behavior type was determined using friction ratio classification chart (after Robertson*et al.*, 1986).
Test performed in general accordance with ASTM D5778-20.

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**Port of New Orleans**
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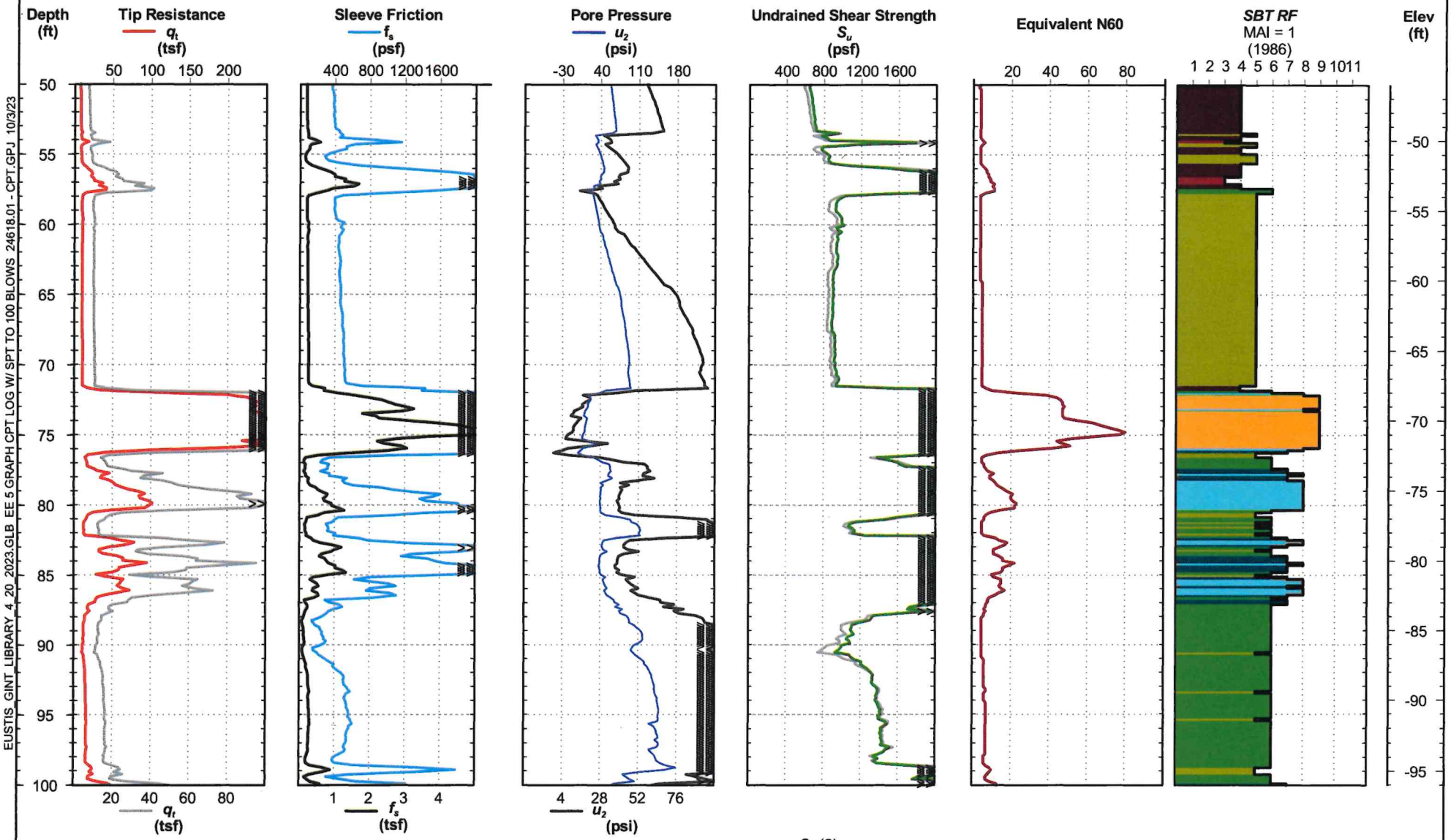
**New Louisiana International Terminal**
**Violet, Louisiana**

# CONE PENETRATION TEST

## GC-17

**Project No:** 24618.01
**Date:** 05/24/2023
**Latitude:** 29.89228°
**Longitude:** -89.89900°
**CPT ID:** DSA1082

**Elevation:** 4.0
**Datum:** NAVD88
**Est. Water Depth:** 3.0 ft
**Total Depth:** 125.3 ft
**Operator:** E.Held




Notes: Soil behavior type was determined using friction ratio classification chart (after Robertson*et al.*, 1986).
Test performed in general accordance with ASTM D5778-20.

*Electronic Filename: 24618.01GC-17.cpt*

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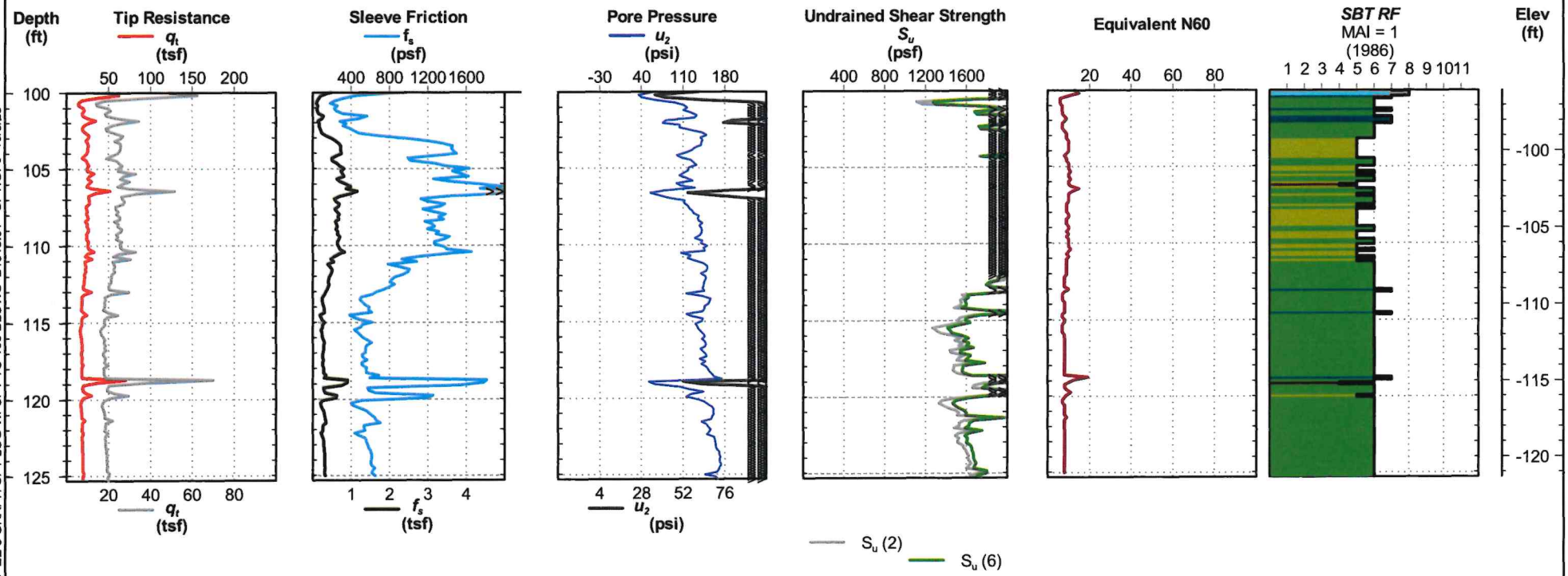
**Port of New Orleans**
**Phase 2 Exploration**
**New Louisiana International Terminal**
**Violet, Louisiana**

# CONE PENETRATION TEST

## GC-17

**Project No:** 24618.01
**Date:** 05/24/2023
**Latitude:** 29.89228°
**Longitude:** -89.89900°
**CPT ID:** DSA1082

**Elevation:** 4.0
**Datum:** NAVD88
**Est. Water Depth:** 3.0 ft
**Total Depth:** 125.3 ft
**Operator:** E.Held




Notes: Soil behavior type was determined using friction ratio classification chart (after Robertson*et al.*, 1986).
Test performed in general accordance with ASTM D5778-20.

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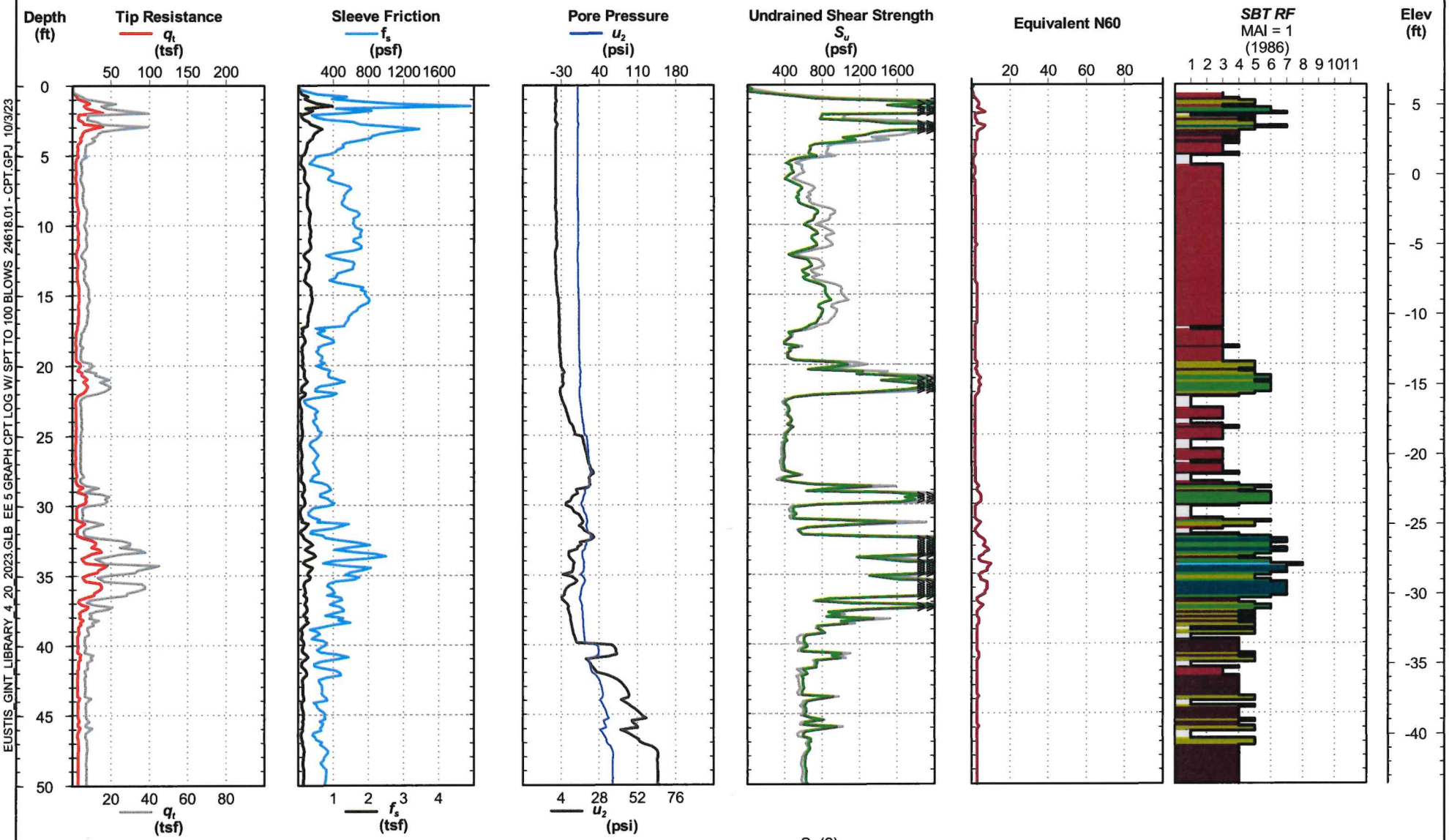
**Phase 2 Exploration**
**New Louisiana International Terminal**
**Violet, Louisiana**

# CONE PENETRATION TEST

## GCS-6

**Project No:** 24618.01
**Date:** 06/07/2023
**Latitude:** 29.88769°
**Longitude:** -89.89845°
**CPT ID:** DDG1644

**Elevation:** 6.5
**Datum:** NAVD88
**Est. Water Depth:** 4.4 ft
**Total Depth:** 86.5 ft
**Operator:** E.Held




Notes: Soil behavior type was determined using friction ratio classification chart (after Robertson*et al.*, 1986).
Test performed in general accordance with ASTM D5778-20.

*Electronic Filename: 24618.01GCS-6.cpt*

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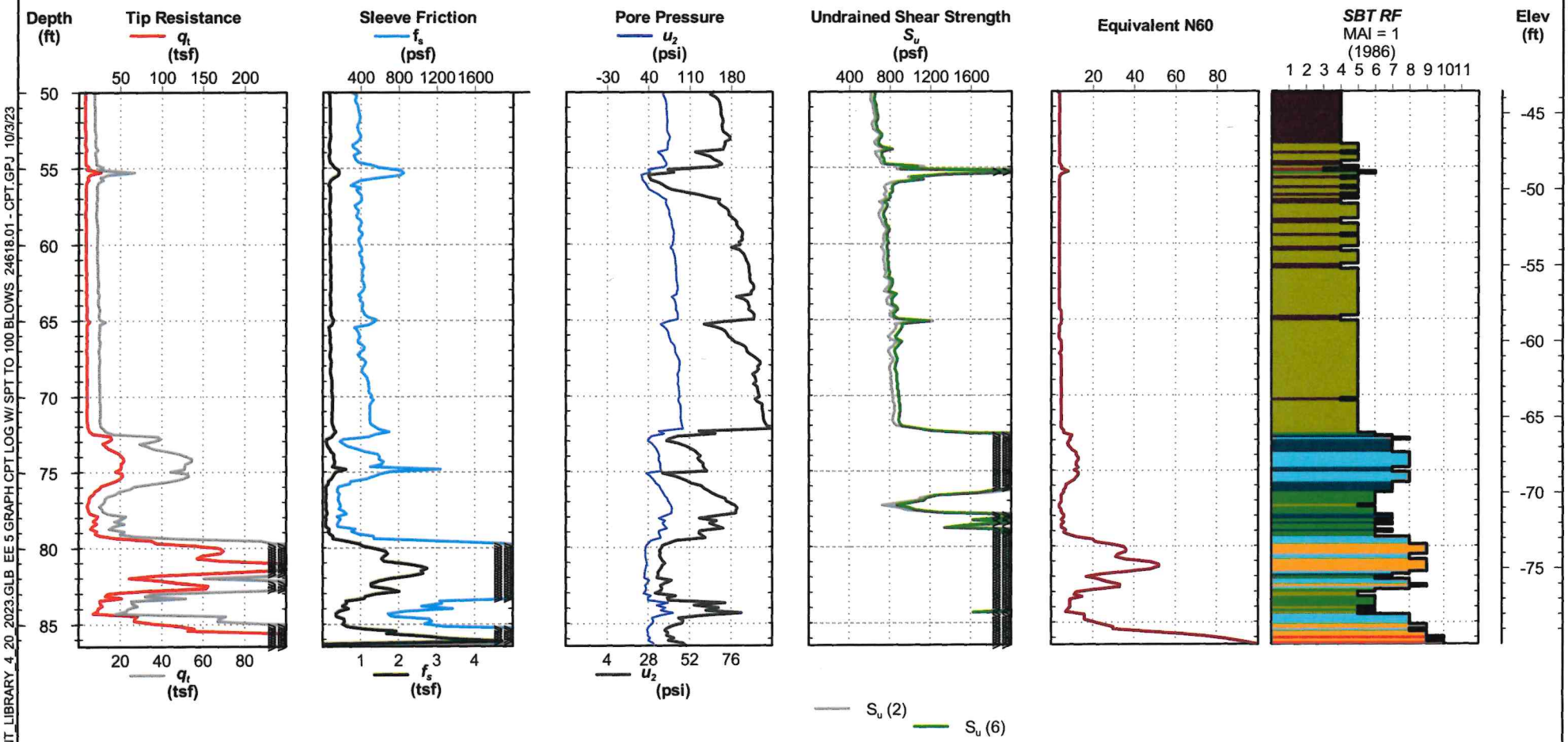
# CONE PENETRATION TEST

## GCS-6

**Project No:** 24618.01
**Date:** 06/07/2023
**Latitude:** 29.88769°
**Longitude:** -89.89845°
**CPT ID:** DDG1644

**Elevation:** 6.5
**Datum:** NAVD88
**Est. Water Depth:** 4.4 ft
**Total Depth:** 86.5 ft
**Operator:** E.Held




Notes: Soil behavior type was determined using friction ratio classification chart (after Robertson*et al.*, 1986).
Test performed in general accordance with ASTM D5778-20.

*Electronic Filename: 24618.01GCS-6.cpt*

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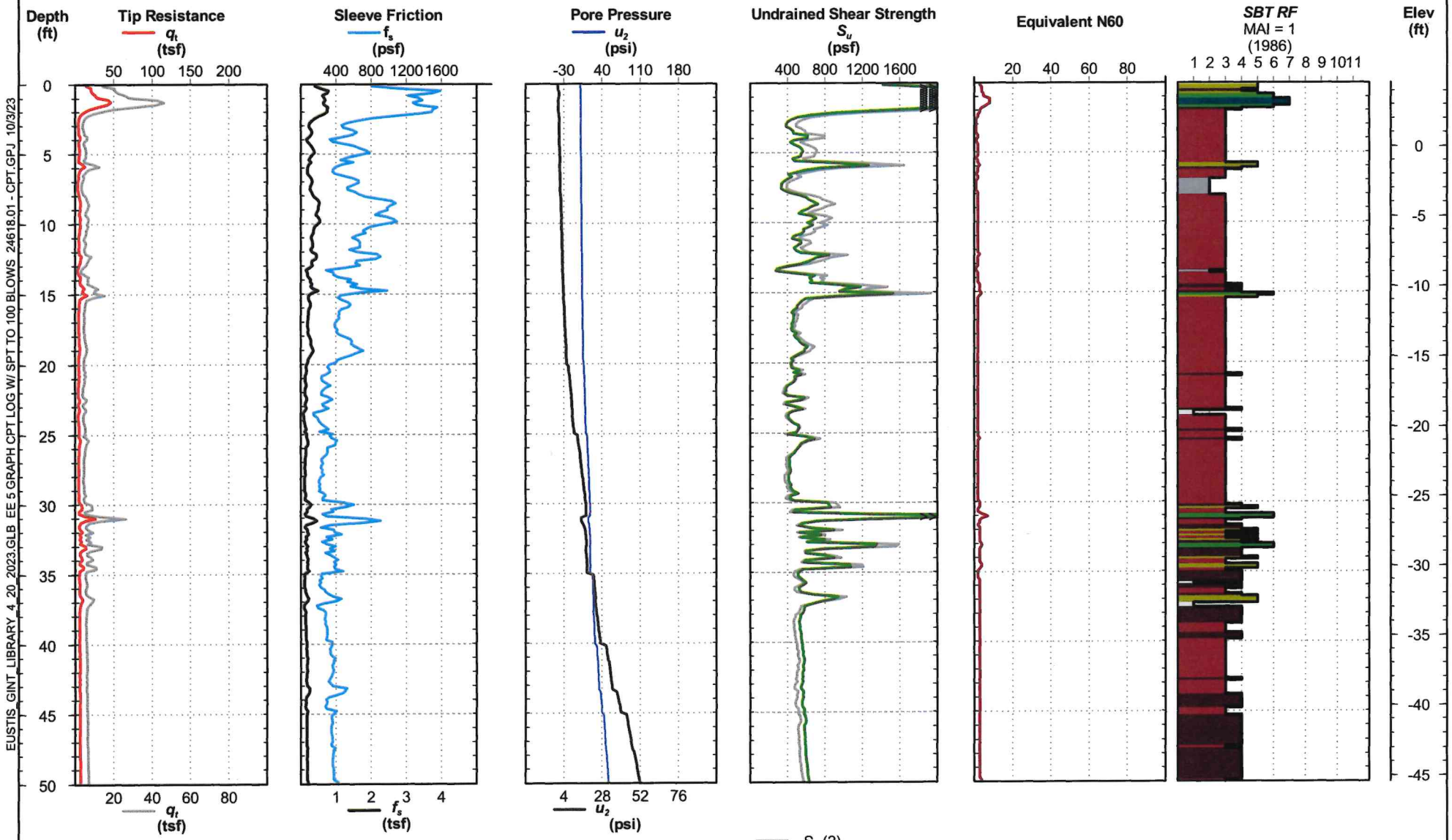
# CONE PENETRATION TEST

## GCS-7

**Project No:** 24618.01
**Date:** 06/08/2023
**Latitude:** 29.89169°
**Longitude:** -89.89888°
**CPT ID:** DSG0709

**Elevation:** 4.6
**Datum:** NAVD88
**Est. Water Depth:** 2.6 ft
**Total Depth:** 125.0 ft
**Operator:** E.Held




Notes: Soil behavior type was determined using friction ratio classification chart (after Robertson *et al.*, 1986).
Test performed in general accordance with ASTM D5778-20.

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**Phase 2 Exploration**
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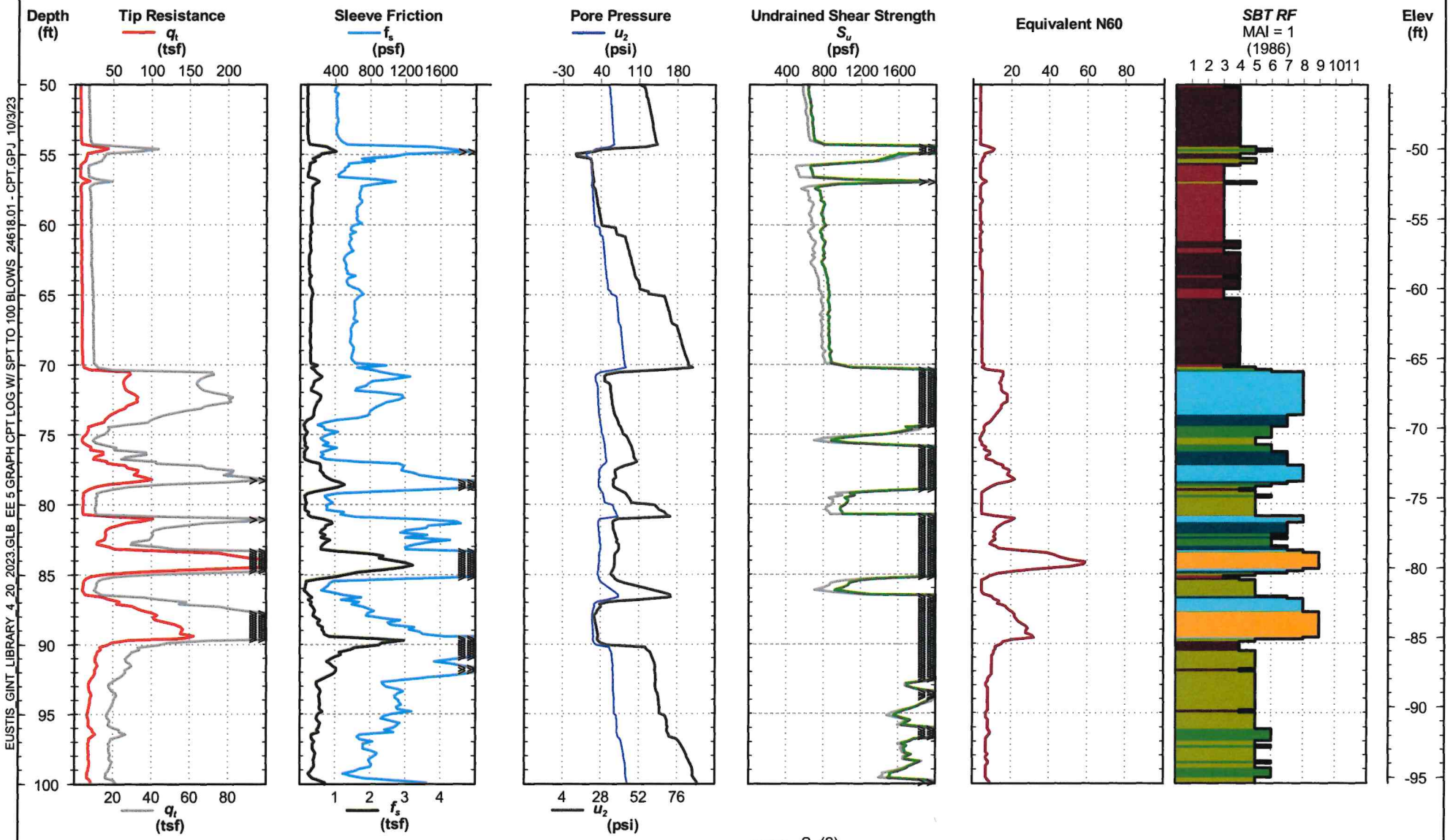
**Violet, Louisiana**

# CONE PENETRATION TEST

## GCS-7

**Project No:** 24618.01
**Date:** 06/08/2023
**Latitude:** 29.89169°
**Longitude:** -89.89888°
**CPT ID:** DSG0709

**Elevation:** 4.6
**Datum:** NAVD88
**Est. Water Depth:** 2.6 ft
**Total Depth:** 125.0 ft
**Operator:** E.Held




Notes: Soil behavior type was determined using friction ratio classification chart (after Robertson*et al.*, 1986).
Test performed in general accordance with ASTM D5778-20.

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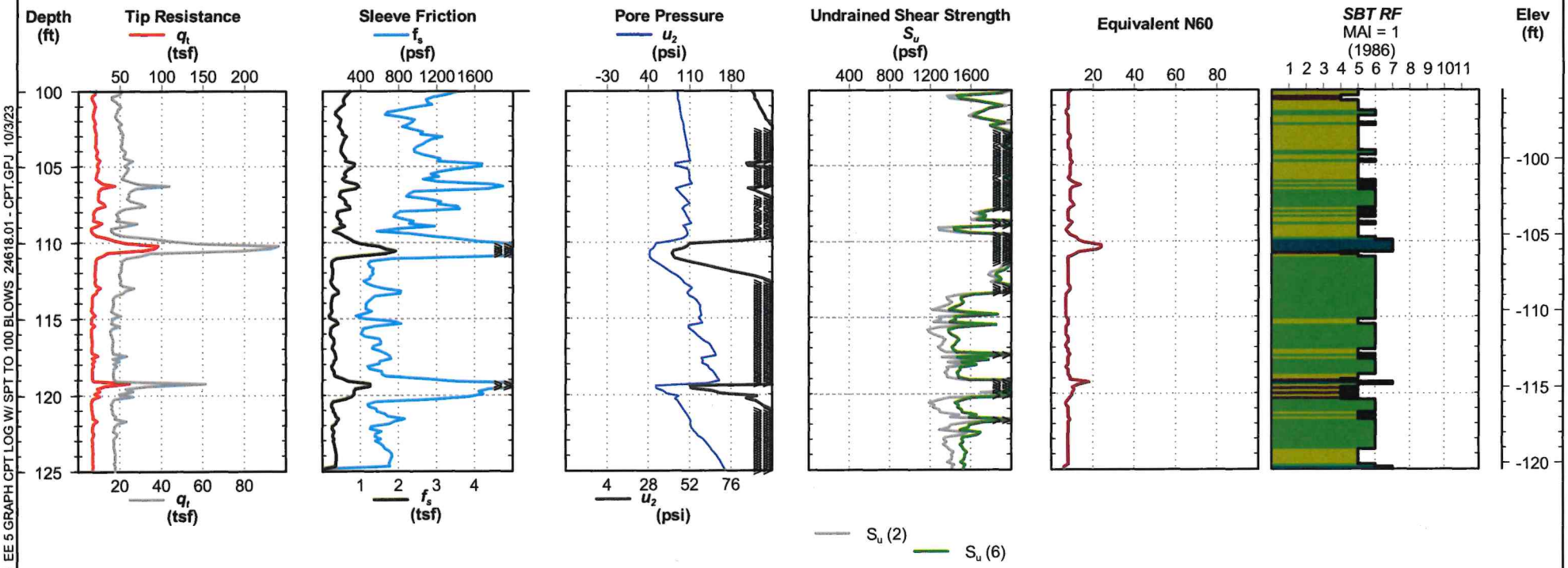
**Violet, Louisiana**

# CONE PENETRATION TEST

## GCS-7

**Project No:** 24618.01
**Date:** 06/08/2023
**Latitude:** 29.89169°
**Longitude:** -89.89888°
**CPT ID:** DSG0709

**Elevation:** 4.6
**Datum:** NAVD88
**Est. Water Depth:** 2.6 ft
**Total Depth:** 125.0 ft
**Operator:** E.Held




Notes: Soil behavior type was determined using friction ratio classification chart (after Robertson*et al.*, 1986).
Test performed in general accordance with ASTM D5778-20.

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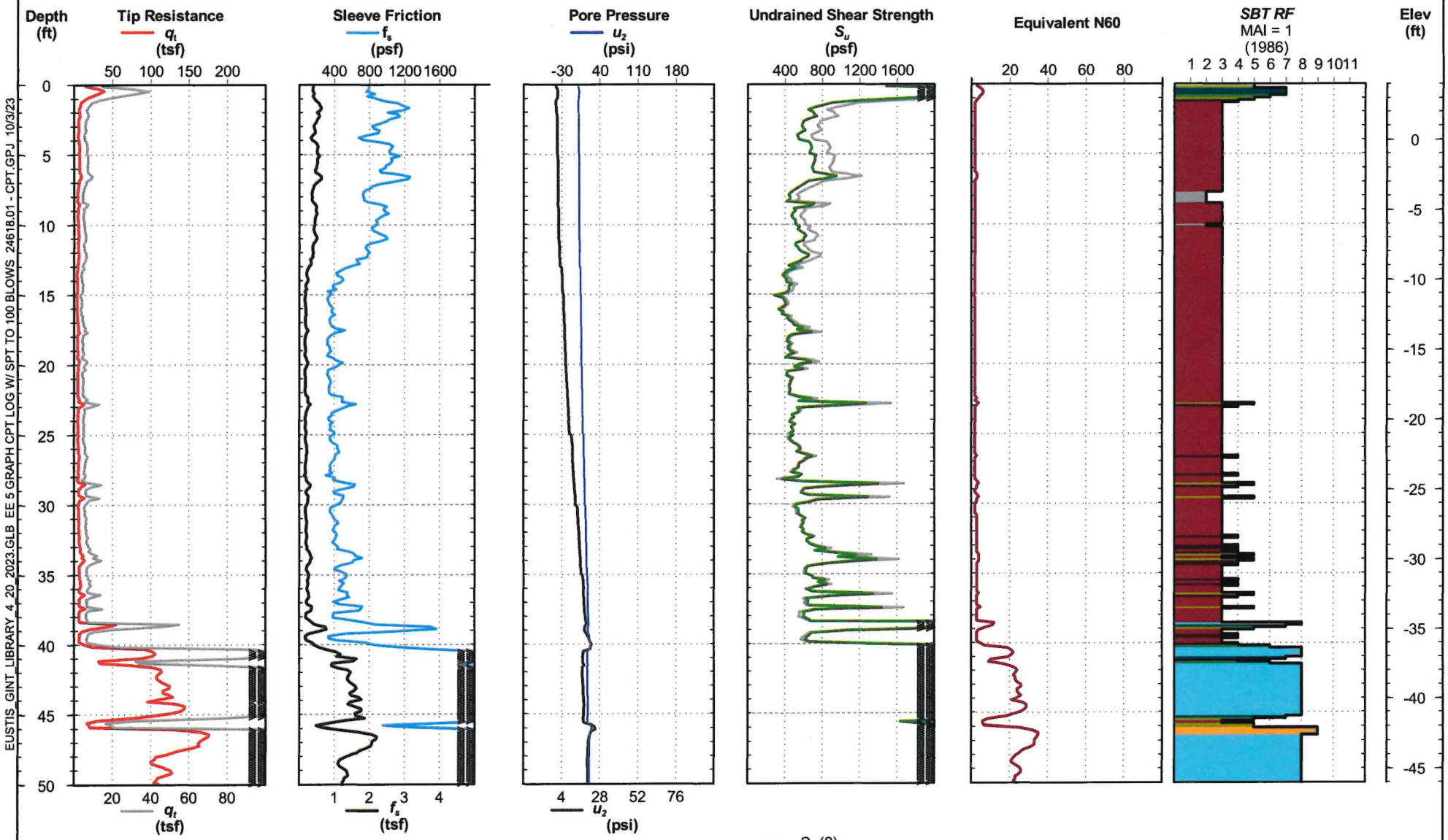
**Violet, Louisiana**

# CONE PENETRATION TEST

## GCS-10

**Project No:** 24618.01
**Date:** 06/09/2023
**Latitude:** 29.88623°
**Longitude:** -89.89718°
**CPT ID:** DSG0709

**Elevation:** 4.0
**Datum:** NAVD88
**Est. Water Depth:** 2.0 ft
**Total Depth:** 125.0 ft
**Operator:** E.Held




Notes: Soil behavior type was determined using friction ratio classification chart (after Robertson*et al.*, 1986).
Test performed in general accordance with ASTM D5778-20.

*Electronic Filename: 24618.01GCS-10.cpt*

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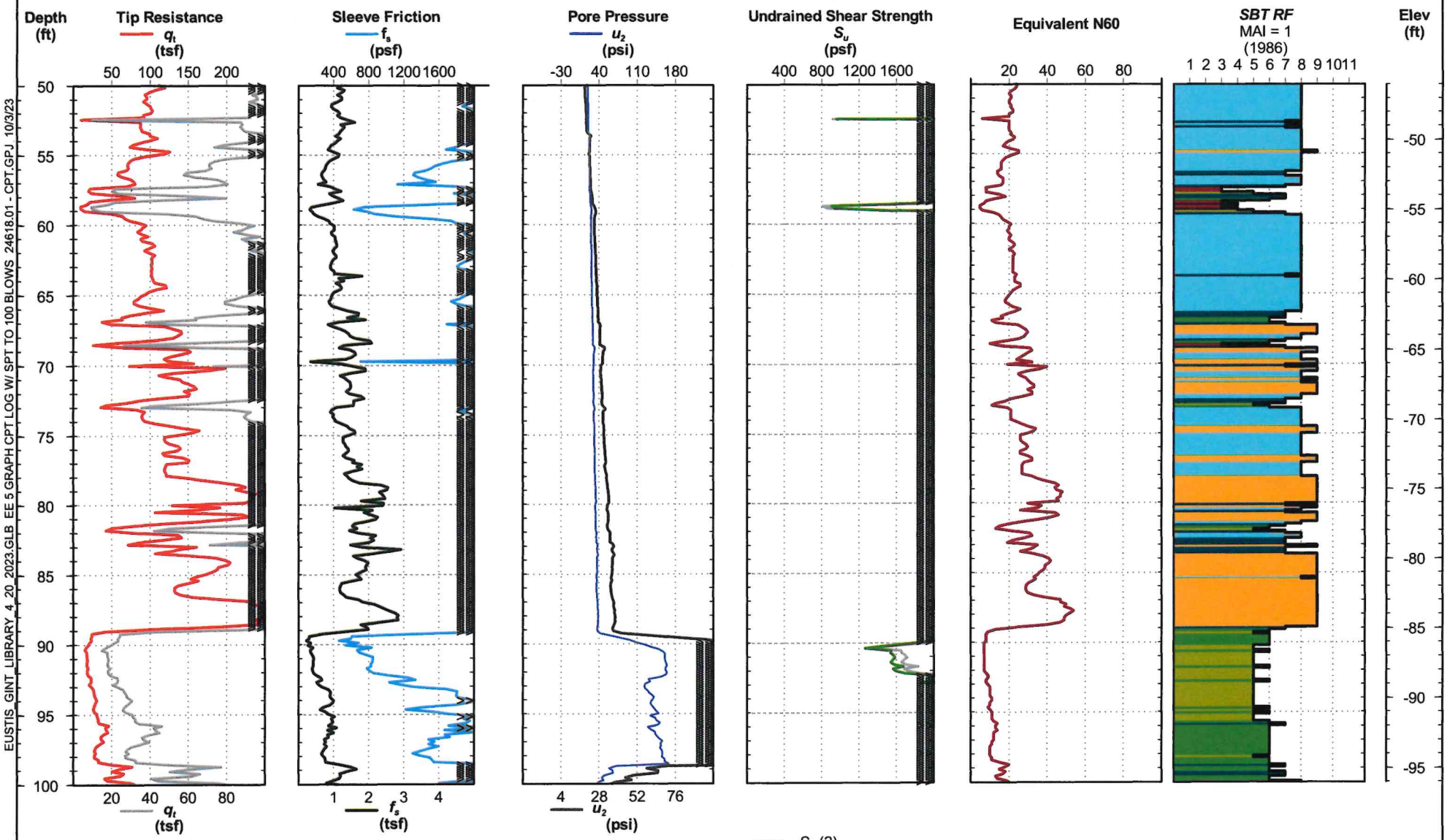
**Violet, Louisiana**

# CONE PENETRATION TEST

## GCS-10

**Project No:** 24618.01
**Date:** 06/09/2023
**Latitude:** 29.88623°
**Longitude:** -89.89718°
**CPT ID:** DSG0709

**Elevation:** 4.0
**Datum:** NAVD88
**Est. Water Depth:** 2.0 ft
**Total Depth:** 125.0 ft
**Operator:** E.Held




Notes: Soil behavior type was determined using friction ratio classification chart (after Robertson*et al.*, 1986).
Test performed in general accordance with ASTM D5778-20.

*Electronic Filename: 24618.01GCS-10.cpt*

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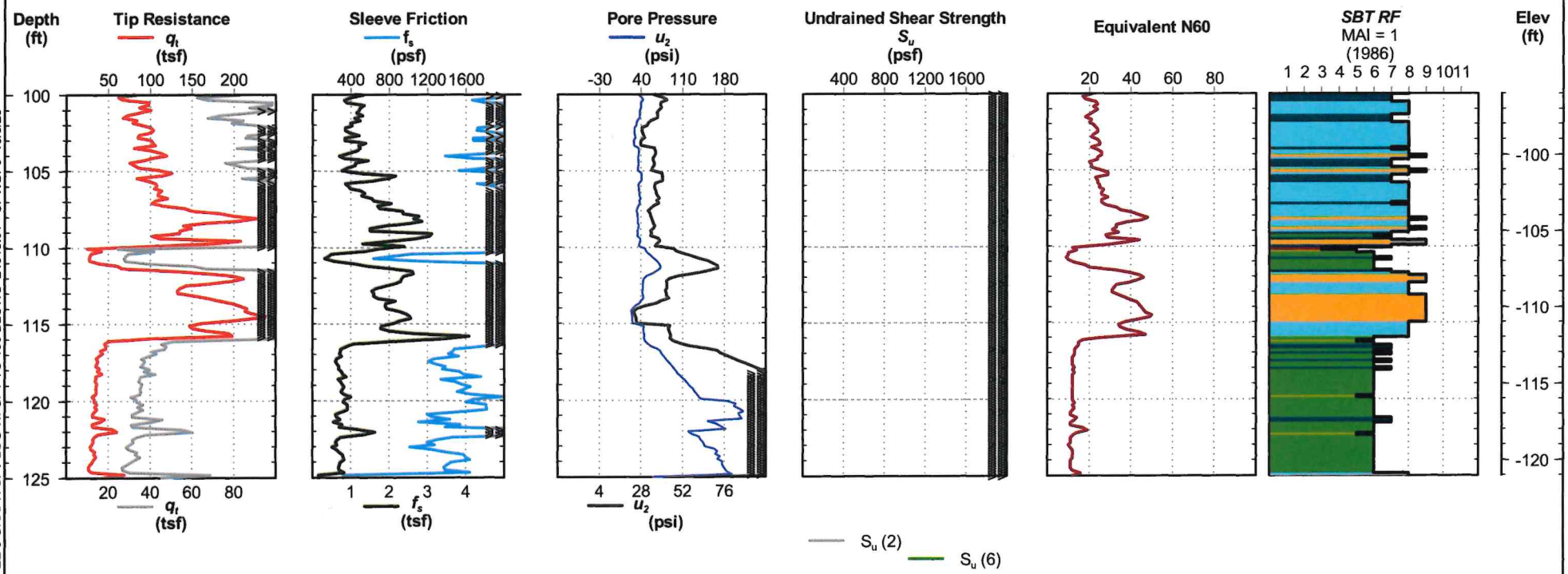
**Violet, Louisiana**

# CONE PENETRATION TEST

## GCS-10

**Project No:** 24618.01
**Date:** 06/09/2023
**Latitude:** 29.88623°
**Longitude:** -89.89718°
**CPT ID:** DSG0709

**Elevation:** 4.0
**Datum:** NAVD88
**Est. Water Depth:** 2.0 ft
**Total Depth:** 125.0 ft
**Operator:** E.Held




Notes: Soil behavior type was determined using friction ratio classification chart (after Robertson*et al.*, 1986).
Test performed in general accordance with ASTM D5778-20.

# CPT Correlations

References are next to the appropriate equation.

**General**

$p_a$=atmospheric pressure (for unit normalization)
$q_t$=corrected cone tip resistance (tsf)
$f_s$=friction sleeve resistance (tsf)
$R_f = 100\% \cdot (f_s/q_t)$
$u_2$=pore pressure behind cone tip (tsf)
$u_0$=hydrostatic pressure

$B_q = (u_2-u_0)/(q_t-\sigma_{vo})$
$Q_t=(q_t-\sigma_{vo})/\sigma'_{vo}$
$F_r=100\% \cdot f_s/(q_t-\sigma_{vo})$

| | | |
|---|---|---|
| $I_c = ((3.47-\log Q_t)^2 + (\log F_r+1.22)^2)^{0.5}$ | | 2 |
| $I_{SBT} = ((3.47-\log(q_c/p_a))^2+(\log F_r+1.22)^2)^{0.5}$ | | 23 |
| $I_{c\ J\&D} = \sqrt{\{3-\log(Q_t \cdot (1-B_q)\}^2 + [1.5+1.3\cdot\log(F_r)]^2}$ | | 27 |
| $I_{c\ J\&B} = \sqrt{\{3-\log(Q_t \cdot (1-B_q) + 1\}^2 + [1.5+1.3\cdot\log(F_r)]^2}$ | | 28 |

**$K_o$**

| | | |
|---|---|---|
| $K_0$ (1) | $K_o = (1-\sin\varphi)OCR^{\sin\varphi}$ | |
| $K_0$ (2) | $K_o = 0.1(Q_t)$ | 1 |

**Stress History**

$OCR = \sigma_p'/\sigma'_{vo}$

| | | |
|---|---|---|
| OCR (1) | $\sigma_p' = 0.33(q_t - \sigma_{vo})$ - clays | 8 |
| OCR (2) | $\sigma_p' = 0.53(u_2 - u_o)$ - clays | 9 |
| OCR (3) | $\sigma_p' = 0.60(q_t - u_2)$ - clays | 9 |
| OCR (4) | $OCR = 0.25\ Q_t^{1.25}$ – clays | 37 |
| OCR (5) | $OCR = \left[\frac{0.192*(q_t/p_a)^{0.22}}{(1-\sin(\emptyset')\cdot(\sigma'_{v0}/p_a{}^{0.31})}\right]^{\frac{1}{\sin(\emptyset'-0.27)}}$ – sands | 35 |
| OCR (6) | $\sigma_p' = .101 \cdot p_a{}^{0.102} \cdot G_{max}{}^{0.478} \cdot \sigma'_{v0}{}^{0.420}$ – all soils | 36 |

**N-Value**

| | | |
|---|---|---|
| $N_{60} = (q_t/p_a)/[8.5(1-I_c/4.6)]$ | | 6 |

**Undrained Shear Strength**

| | | | |
|---|---|---|---|
| $S_u$ (1) | $S_u = (u_2 - u_o)/N_u$ | where $7 \le N_u \le 9$ | 10 |
| $S_u$ (2) | $S_u = (q_t - \sigma_{vo})/N_{kT}$ | where $15 \le N_{kT} \le 20$ | 11 |
| $S_u$ (3) | $S_u = 0.091 * ((\sigma'_{vo}{}^{0.2}) * (q_t - \sigma_{vo})^{0.8}$ | | 21 |
| $S_u$ (4) | $S_u = (q_c - \sigma_{vo})/N_k$ | where $15 \le N_k \le 20$ | 11 |
| $S_u$ (5) | $S_u = q_t/N_c$ | where $XXX \le N_c \le YYY$ | |
| $S_u$ (6) | $S_u = q_c/N_c$ | where $XXX \le N_c \le YYY$ | |

**Effective Cohesion**

$c' = 0.02 * \sigma_p'$ 38

**Drained Friction Angle**

| | | |
|---|---|---|
| $\varphi'$ (1) | $\varphi' = 17.6 + 11.0\text{Log}[q_t/(\sigma_{vo}')^{0.5}]$ | 1 |
| $\varphi'$ (2) | $\varphi' = \arctan[0.1 + 0.38\text{Log}(q_t/\sigma_{vo}')]$ | 13 |
| $\varphi'$ (3) | $\varphi' = 30.8\text{Log}[(f_s/\sigma_{vo}')+1.26]$ (for clays or sands) | 14 |
| $\varphi'$ (4) | $\varphi' = 29.5\, B_q^{0.121}\,(0.256 + 0.33\, B_q + \text{Log}(Q_t))$ | 24 |

**Unit Weight**

$\rho = \gamma/\gamma_w$

$\rho = 0.8\text{Log}(V_s)$ $V_s$ in m/sec 17

**Relative Density and Void Ratio**

| | | |
|---|---|---|
| $D_R$ (1) | $D_R = 100(q_{c1}/305)^{1/2}$ where, $q_{c1} = q_c/(\sigma_{vo}')^{1/2}$ | 1 |
| $D_R$ (2) | $D_R = -1.292 + 0.268\ln(q_c \cdot (\sigma_{vo}'^{-0.5}))$ | 18 |
| $D_R$ (3) | $D_R = (1/2.41)\cdot\ln(q_{c1}/15.7)$ | 3 |
| $D_R$ (4) | $D_R = 1/2.91 * \ln((q_c/(61* \sigma'_{vo}{}^{0.71}))*100$ | 20 |
| $D_R$ (5) | $D_R = 100*(0.268*\ln((q_t/p_a)/(\sigma'_{vo}/p_a)\text{^}0.5) - 0.675)$ | 34 |

$e_o = 1.099 - 0.204\log(q_{c1})$ 1

$E_D = 5\, q_t$ $I_D = 2.0 - 0.14(R_f)$ $K_D = E_D/(34.7\cdot I_D\cdot \sigma_{vo}')$

**Compressibility**

$M(1) = R_m E_D$ where $R_m$= function($I_D$, $K_D$) see the following table 22

| | |
|---|---|
| $I_D <= 0.6$ | $R_M = 0.14 + 2.36 \log K_D$ |
| $I_D >= 3$ | $R_M = 0.5 + 2 \log K_D$ |
| $0.6 < I_D < 3$ | $R_M = R_{M,D} + (2.5 - R_{M,D})\log K_D$ |
| | $R_{M,D} = 0.14 + 0.15(I_D - 0.6)$ |
| $K_D > 10$ | $R_M = 0.32 + 2.18 \log K_D$ |
| $R_M < 0.85$ | $R_M = 0.85$ |

| | | |
|---|---|---|
| M (2) | $M = q_c\cdot 10^{(1.09-0.0075D}R^{)}$ *sands* | 1 |
| M (3) | $M = 8.25\,(q_t - \sigma_{vo})$ *clays* | 1 |
| M (4) | $M = \alpha \cdot G_{max}$ *where* $0.02 < \alpha < 2$ and $G_{max}$ *is from Vs* | 33 |

**Rigidity Index**

$I_R = exp\left[\left(\frac{1.5}{M} + 2.925\right)\cdot\left(\frac{q_t-\sigma_{vo}}{q_t-u_2}\right) - 2.925\right]$ where $M = 6\sin\emptyset'/(3-\sin\emptyset')$ 39

**Sensitivity**

| | | |
|---|---|---|
| $S_t$ (1) | $S_t = 7.5/R_f$ | 2 |
| $S_t$ (2) | $S_t = (q_t - \sigma_{vo})/(15\cdot f_s)$ | 2 |

**Fines Content**

$FC = [(3.58-\log(q_t))^2+(1.43+\log(R_f))^2]^{1.8}$ 4

$FC = [5.31(I_{cfs})^{2.31}]+9.61$, where $I_{cfs} = [(1.95-\text{Log}Q_t)^2+(\log F_r+1.78)^2]^{0.5}$

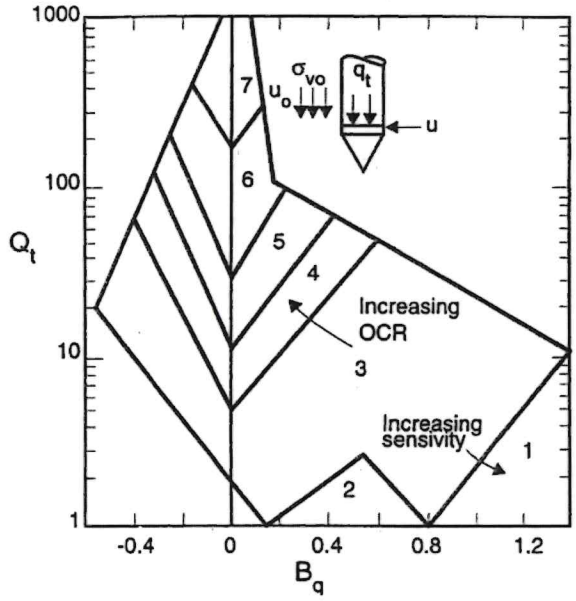
## Shear Wave Velocity

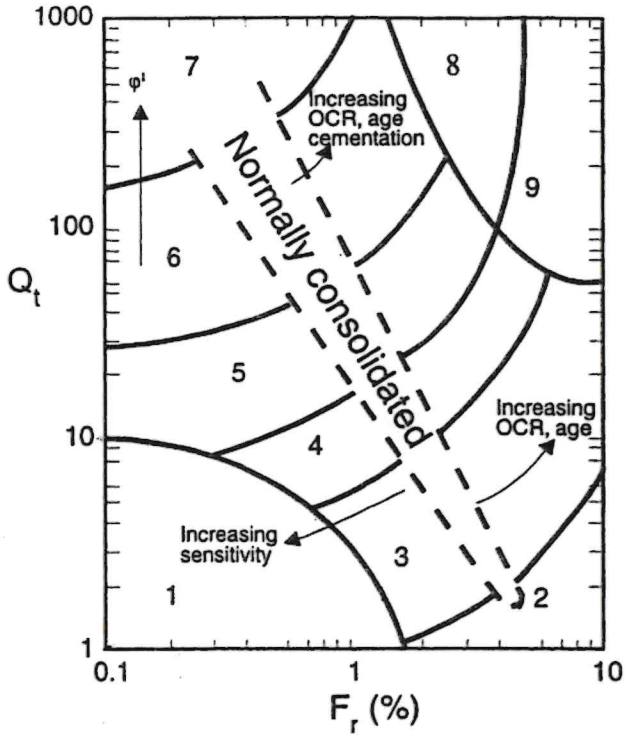
| | | |
|---|---|---|
| $V_s(1) = 277 \cdot q_t^{0.13} \cdot \sigma_{vo}'^{\,0.27}$ | (sands) - m/s and MPa | 29 |
| $V_s(2) = 1.75 \cdot q_t^{0.627}$ | (clays) - m/s and kPa | 30 |
| $V_s(3) = (10.1 \cdot \log q_t - 11.4)^{1.67} \cdot (\frac{f_s}{q_t} \cdot 100)^{0.3}$ | (all soils) – m/s and kPa | 31 |
| $V_s(4) = 118.8 \cdot \log f_s + 18.5$ | (all soils) – m/s and kPa | 32 |
| $G_{max} = \rho V_s^2$ | | |

## Hydraulic Conductivity

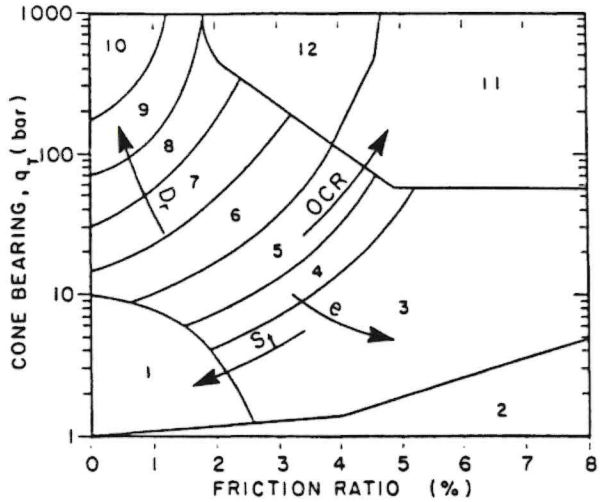
Lookup based on SBT and SBTn (1986 and 1990) 40

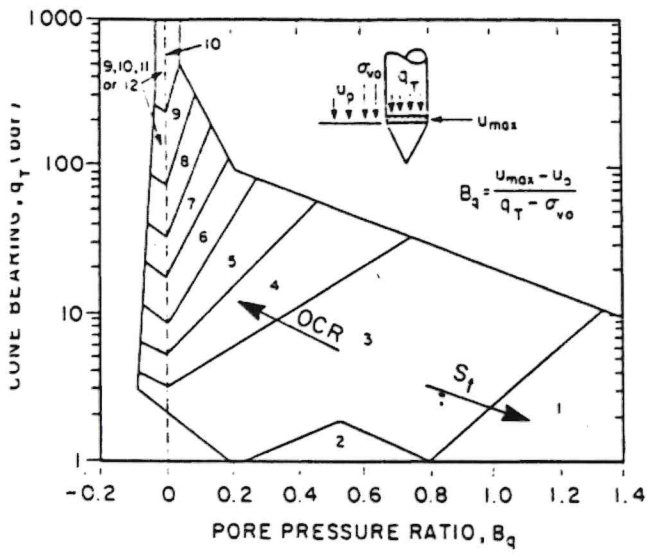
# Normalized Soil Behavior Types - Robertson & Campanella (1990)



## Non-Normalized Soil Behavior Types – Robertson & Campanella (1986)



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# APPENDIX IV

PROJECT TITLE: Port of New Orleans PAGE: 1

SUBJECT: Seepage Analyses - Reach 2 JOB NO: 24618.10

BY: AEC DATE: 5/20/24 CHECKED BY: PAT DATE: 5-28-2024

EUSTIS ENGINEERING L.L.C. SINCE 1946

## Technical Reference

1. DIVR 1110-1-400, Section G, Part B, Item 1, dated 12 Feb 1998.
2. HSDRRS Design Guidelines - Interim, USACE New Orleans District, Engineering Divisions with revisions through June 2012, Section 30, Geotechnical, Updated 4 June
3. EM 1110-2-1913, Design + Construction of Levees, Appendix 13, dated 30 April 2000.
4. Army Technical Manual No. 5-818-5, NAVFAC D418, Air Force AFM 88-5 Chapter 5, Dewatering: Groundwater Control Nov. 1983.

## Survey Data

Refencing Furnished cross-sections provided by AECOM dated 21 Jul 2023.

## Assumptions

Piles will be driven at a maximum of ~~200~~ 130-ft from the levee toe.

Using Soil Parameters for Seepage Analyses.

PROJECT TITLE: Port NOLA LIT PAGE: 2

SUBJECT: Seepage Analyses JOB NO: 24618.10

BY: PTD DATE: 5/20/24 CHECKED BY: PAT DATE: 5-28-2024

EUSTIS ENGINEERING L.L.C. SINCE 1946

Reach 1 Analyses (Sta.

- Checking seepage for sand stratum at el -68 to el -85 using EM 1110-2-1913 (30 Apr 2000) Case 2, Page 13-22.

① $x_1 = \sqrt{\frac{K_{F1}\, Z_{BR1}\, d_1}{K_{BR1}}}$

$= \sqrt{\frac{200\times10^{-4}\,cm/s\,(79')\,17'}{0.05\times10^{-4}\,cm/s}}$

$= 2{,}318'$ — $L_1 = 441'$, use $L_1$ as $< x_1$

② $L_2 = 31.5' + 66.8' = 98.3'$

③ $x_3 = \sqrt{\frac{K_{F1}\, Z_{BL1}\, d_1}{K_{BL1}}}$

$= \sqrt{\frac{200\times10^{-4}\,cm/s\,(73')\,17'}{0.15\times10^{-4}}}$

$= 1{,}286'$, use as $L_3$

④ $h_0 = \frac{H\,L_3}{\Sigma L} = \frac{11'\,(1286')}{(441' + 98.3' + 1{,}286')}$

$= 7.7'$

⑤ $h_x = \frac{h_0\,(L_3 - x)}{L_3} = \frac{7.7'(1286-130')}{1286}$

$= 7.0'$

⑥ $FOS = \frac{\bar{\gamma}\, Z_{BL}}{\gamma_w\, h_x} = \frac{44.6\,pcf\,(73)}{62.4\,(7.0)} = \underline{\underline{7.5 > 1.5,\ ok}}$

⑦ $LWCR = \frac{\cancel{L_{BL}}^{\text{neglect}} + L_V}{h_x} = \frac{73'}{7.0'} = \underline{\underline{10.4 > 3,\ ok}}$

- $K_{F1}$ = horizontal permeability of permeable layer
  ↳ Assume $K_{F1} = K_V$

  From Table 3-4 (TM-5-818-5) $K_V$ of permeable soil with $D_{10} = 0.1$ results in a $K \doteq 200\times10^{-4}$ cm/s
- $Z_{BR1}$ = Distance to permeable stratum from ground @ flood side toe
  = el 11 - el -68 = 79'
- $d_1$ = thickness of permeable stratum = 17'
- Per Table 1 (DIVR 1110-1-400) $K_{BR1} = 0.05\times10^{-4}$ cm/s for clay blanket >15'
- $L_2$ = base width of Levee
- $Z_{BL}$ = distance to permeable stratum at land side toe
  = el 5 - el -68 = 73
- H = head differential @ High water
  = el 16.1 - el 5 = 11'
- x = distance from landside toe to pile
  = 130'

  Per Table 4 (DIVR 1110-1-400) $K_{BL} = 0.15\times10^{-4}$ for landside clay >30'

## Analyses

Check seepage for silty sand assumed at EL -30 to -85.
Using EM 1110-2-1913 (30 Apr 2000) Case 2, Pg 13-22.

① $x_1 = \sqrt{\frac{K_{F1} Z_{BR1} d_1}{K_{BR1}}}$

$= \sqrt{\frac{(200\times10^{-4} cm/s)(41 ft)(55 ft)}{(0.05\times10^{-4} cm/s)}}$

$= 3{,}003.33$ -ft

$L_1 = 373$-ft $\quad x_1 > L_1$, use $L_1$

② $L_2 = 122.5$-ft

③ $x_3 = \sqrt{\frac{K_{F1} Z_{BL1} d_1}{K_{BL1}}}$

$= \sqrt{\frac{(200\times10^{-4} cm/s)(35 ft)(55 ft)}{(1.5\times10^{-5} cm/s)}}$

$= 1602.08$-ft, use as $L_3$

④ $h_o = \frac{H L_3}{\Sigma x} = \frac{(11.1 ft)(1602 ft)}{(373 ft + 122.5 ft + 1602 ft)}$

$= 8.48$ ft

⑤ $h_x = \frac{h_o(L_3 - x_2)}{L_3}$

$= \frac{8.48(1602 - 130)}{1602}$

$= 7.79$ ft

⑥ $FOS = \frac{\bar{\gamma} Z_{BL}}{\gamma_w h_x} = \frac{(50.5 pcf)(35 ft)}{(62.4 pcf)(7.79 ft)}$

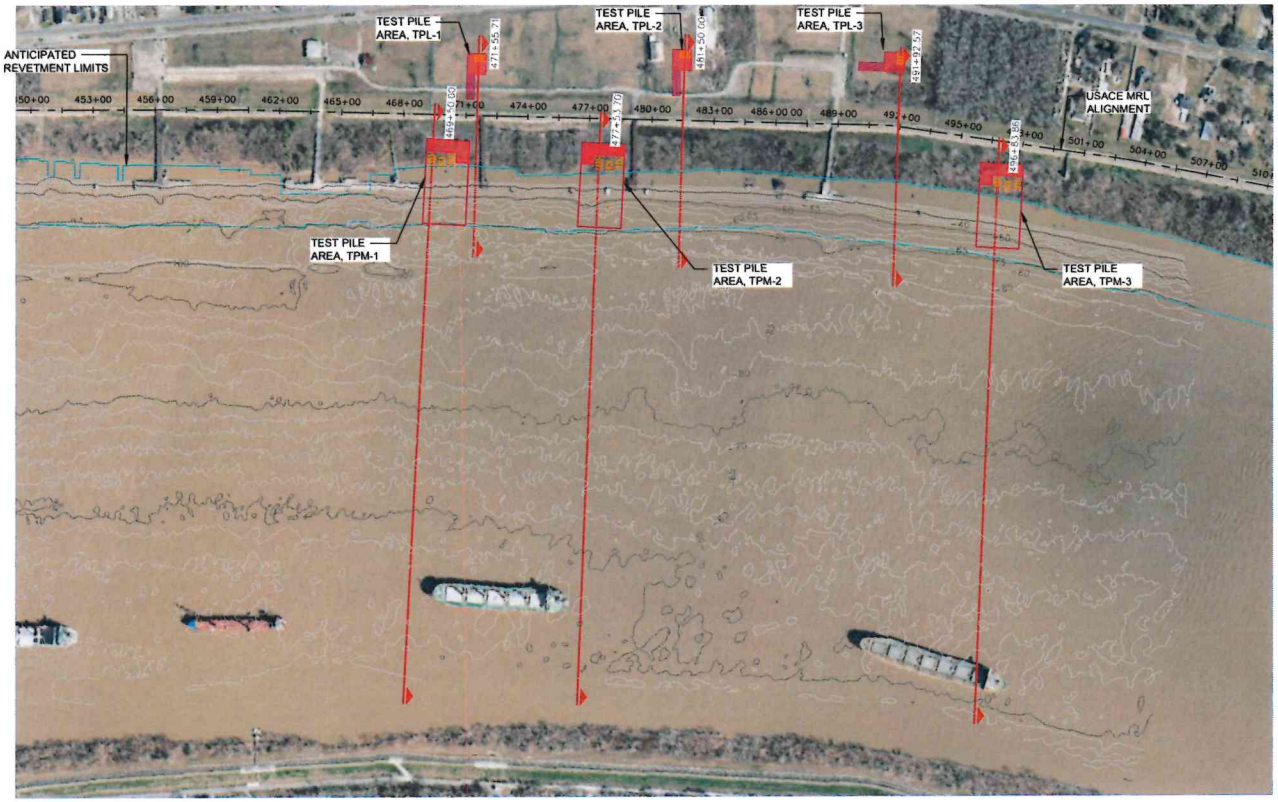
$= 3.6 > 1.5$ OK

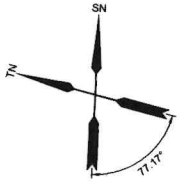
⑦ $LWCR = \frac{(L_H/3) + L_V}{h_x}$ neglect to be conservative

$= \frac{(695.5 ft/3) + 35 ft}{7.79 ft}$

$= 4.49 > 3$ OK

- $K_{F1}$ = horizontal permeability of permeable layer
  - Assume $K_{F1} = K_{V1}$
  - From Figure 3-4 (TM-5-818-5) Assume $K_{V1} = 200\times10^{-4}$ cm/s
- $Z_{BR}$ = distance to permeable stratum from ground at flood side toe. Assume $Z_{BR} = 41$-ft
- $d_1$ = thickness of permeable stratum. Assume $d_1 = 55$-ft
- Per Table 1 (DIVR 1110-1-400) $K_{BR1} = 0.05\times10^{-4}$ cm/s for clay blanket >15-ft.
- $Z_{BL}$ = distance to permeable stratum from ground at land side toe $= 35$-ft
- $H$ = Head differential at high water. = el 16.1 - el 5 = 11.1-ft
- $L_H$ = horizontal distance from pile to permeable face flood side $= 130$-ft + 373-ft + 122.5-ft $= 695.5$-ft
- $x_2$ = distance from PS toe to FS toe. $= 40$-ft + 82.5-ft $= 122.5$-ft
- $\bar{\gamma}$ = average effective unit weight $= 112.9$ pcf - 62.4 pcf = 50.5 pcf




## OVERALL TEST PILE SITE PLAN

SCALE: 1" = 300'

NOTE:

1. BATHYMETRY AND REVETMENT LIMITS SHOWN IN EXHIBIT IS FROM SURVEY DATA RECEIVED FROM FENSTERMAKER ON OCTOBER 16TH, 2023.

CONSULTING ENGINEERS

AECOM

1515 POYDRAS ST. SUITE 1900
NEW ORLEANS, LA 70112

30% DESIGN REVIEW

PRELIMINARY - NOT FOR RECORDATION, CONVEYANCES OR SALES
PRELIMINARY - NOT FOR CONSTRUCTION

BRENTON M. JONES — ENGINEER OF RECORD
LA — STATE
36010 — LICENSE NO.
STRUCTURAL — DISCIPLINE
MARCH 2023 — DATE

DRAWN CM
DESIGNED MR
CHECKED BMJ
APPROVED BRL

IDENTIFICATION NO.

BOARD OF COMMISSIONERS
PORT OF NEW ORLEANS

PORT NOLA

LOUISIANA INTERNATIONAL TERMINAL

OVERALL TEST PILE SITE PLAN

SCALE 1" = 300'
DATE 07-21-2023

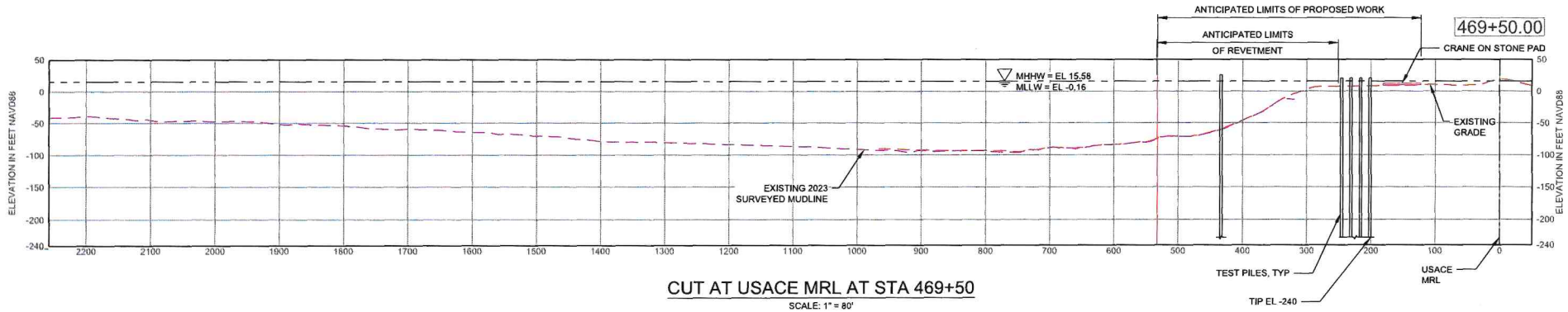
TBD
PORT PROJECT ENGINEER

DWG. NO. XXXX
XXXXX

| REV | BY | DATE |
|---|---|---|
| 6 | | |
| 5 | | |
| 4 | | |
| 3 | | |
| 2 | | |
| 1 | | |

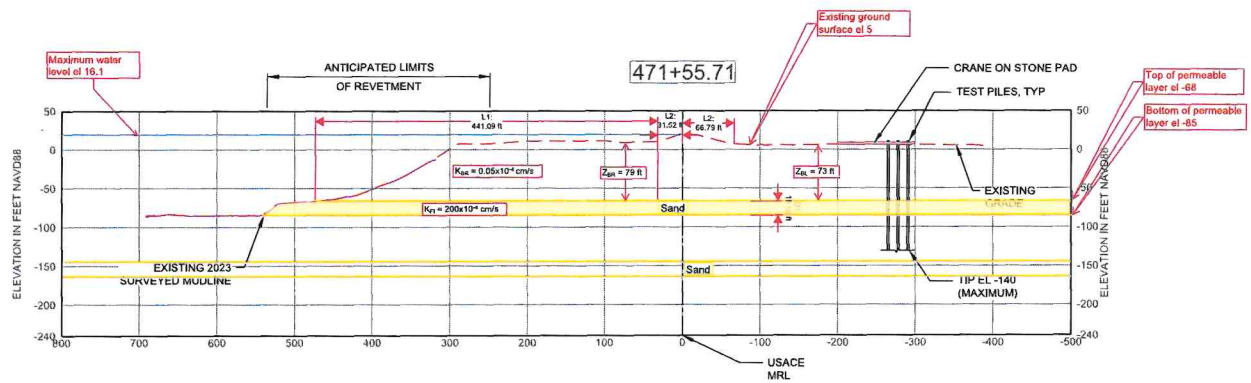
SCALE 1" = 60'
FULL SIZE 22"x34"
REDUCED 11"x17"

C:\Users\Workspace\ACCDocs\Port of New Orleans\LIT\Project Files\Live Files\MODEL-REFS\MODELS\STRUCTURAL\Wharf Sections - REV B\148110075-0008.dwg, Oct 20, 2023 - 3:45:53PM, Workspace




## CUT AT USACE MRL AT STA 469+50

SCALE: 1" = 80'




## CUT AT USACE MRL AT STA 471+55

SCALE: 1" = 80'

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NEW ORLEANS LA 70112

30% DESIGN REVIEW

PRELIMINARY - NOT FOR RECORDATION, CONVEYANCES OR SALES
PRELIMINARY - NOT FOR CONSTRUCTION

BRENTON M. JONES — STRUCTURAL
ENGINEER OF RECORD — DISCIPLINE
LA — 28938 — MARCH 2023
STATE — LICENSE NO — DATE

DRAWN CM
DESIGNED MR
CHECKED BMJ
APPROVED BRL

IDENTIFICATION NO.

BOARD OF COMMISSIONERS
PORT OF NEW ORLEANS

PORT NOLA

LOUISIANA INTERNATIONAL TERMINAL

TEST PILE SECTIONS - 1 OF 3

SCALE 1" = 80' DATE 07-21-2023

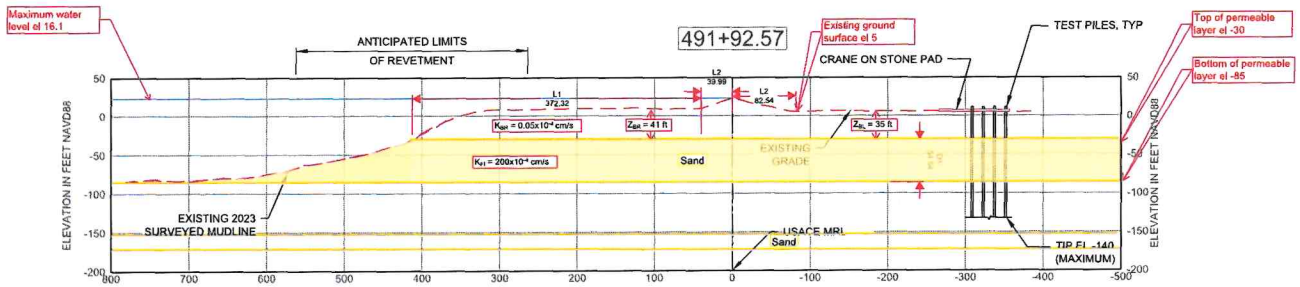
TBD
PORT PROJECT ENGINEER

DWG. NO. XXXX XXXXX

| REV. | BY | DATE |
|---|---|---|
| 6 | | |
| 5 | | |
| 4 | | |
| 3 | | |
| 2 | | |
| 1 | | |

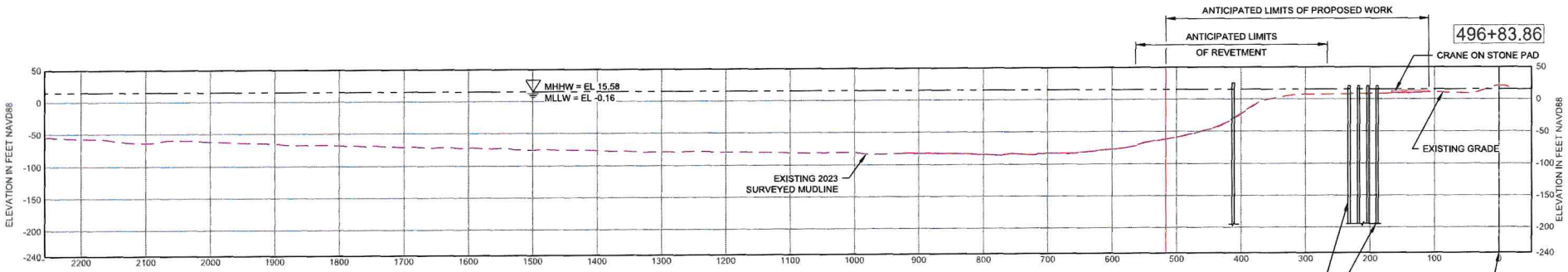
SCALE 1" = 80'
FULL SIZE 30"x36"
REDUCED 11"x17"

C:\Users\MorlineJIC\ACCDocs\Port of New Orleans\UT\Project Files\Live Files\MODEL-REFS\MODEL5\STRUCTURAL\Wharf Sections - REV B\148110075-0008.dwg Oct 20, 2023 - 3:45:09PM, MorlineJIC




## CUT AT USACE MRL AT STA 491+92

SCALE: 1" = 80'




## CUT AT USACE MRL AT STA 496+83

SCALE: 1" = 80'

CONSULTING ENGINEERS

AECOM

1555 POYDRAS ST., SUITE 1700
NEW ORLEANS LA 70112

30% DESIGN REVIEW

PRELIMINARY - NOT FOR RECORDATION, CONVEYANCES OR SALES
PRELIMINARY - NOT FOR CONSTRUCTION

BRENTON M. JONES — ENGINEER OF RECORD
STRUCTURAL — DISCIPLINE
LA — STATE
36026 — LICENSE NO.
MARCH 2023 — DATE

DRAWN CM
DESIGNED MR
CHECKED BMJ
APPROVED BRL

IDENTIFICATION NO.

BOARD OF COMMISSIONER
PORT OF NEW ORLEANS

PORT NOLA

LOUISIANA INTERNATIONAL TERMINA

TEST PILE SECTIONS - 3 OF 3

SCALE 1" = 80'
DATE 07-21-20

TBD
PORT PROJECT ENGINEER

DWG. NO. XXXX

| REV. | BY | DATE |
|---|---|---|
| 6 | | |
| 5 | | |
| 4 | | |
| 3 | | |
| 2 | | |
| 1 | | |

SCALE 1" = 50'
FULL SIZE 22"x34"
REDUCED 11"x17"

C:\Users\MerlinesBC\ACCDocs\Port of New Orleans\LIT\Project Files\Line Files\MODEL-REFS\MODELS\STRUCTURAL\Wharf Sections - REV 6\14911007S-0008.dwg, Oct 20, 2023 - 3:53:53PM, MerlinesBC

Page 7

Table 3-4. *Approximate Coefficient of Permeability for Various Sands*

| Type of Sand (Unified Soil Classification System) | Coefficient of Permeability k | |
|---|---|---|
| | x $10^{-4}$ cm/sec | x $10^{-4}$ ft/min |
| Sandy silt | 5-20 | 10-40 |
| Silty sand | 20-50 | 40-100 |
| Very fine sand | 50-200 | 100-400 |
| Fine sand | 200-500 | 400-1,000 |
| Fine to medium sand | 500-1,000 | 1,000-2,000 |
| Medium sand | 1,000-1,500 | 2,000-3,000 |
| Medium to coarse sand | 1,500-2,000 | 3,000-4,000 |
| Coarse sand and gravel | 2,000-5,000 | 4,000-10,000 |

U. S. Army Corps of Engineers

pirical relations between $D_{10}$ and k (fig. 3-4), which were developed from laboratory and field pumping tests for sands in the Mississippi and Arkansas River valleys. An investigation of the permeability of filter sands revealed that the permeability of clean, relatively uniform, remolded sand could be estimated from the empirical relation:

$$k = C\,(D_{10})^2 \qquad (3\text{-}2)$$

where

k = coefficient of permeability, centimetres per second

C ≅ 100 (may vary from 40 to 150)

$D_{10}$ = effective grain size, centimetres

Empirical relations between $D_{10}$ and k are *only approximate* and should be *used with reservation* until a correlation based on local experience is available.

*c. Field pumping tests.* Field pumping tests are the most reliable procedure for determining the in situ permeability of a water-bearing formation. For large dewatering jobs, a pumping test on a well that fully penetrates the sand stratum to be dewatered is warranted; such tests should be made during the design phase so that results can be used for design purposes and will be available for bidders. However, for small dewatering jobs, it may be more economical to select a more conservative value of k based on empirical relations than to make a field pumping test. Pumping tests are discussed in detail in appendix C.

*d. Simple field tests in wells or piezometers.* The permeability of a water-bearing formation can be estimated from constant or falling head tests made in wells or piezometers in a manner similar to laboratory permeameter tests. Figure 3-5 presents formulas for determining the permeability using various types and installations of well screens. As these tests are sensitive to details of the installation and execution of the test, exact dimensions of the well screen, casing, and filter surrounding the well screen, and the rate of inflow or fall in water level must be accurately measured. Disturbance of the soil adjacent to a borehole or filter, leakage up the borehole around the casing, clogging or removal of the fine-grained particles of the aquifer, or the accumulation of gas bubbles in or around the well screen can make the test completely unreliable. Data from such tests must be evaluated

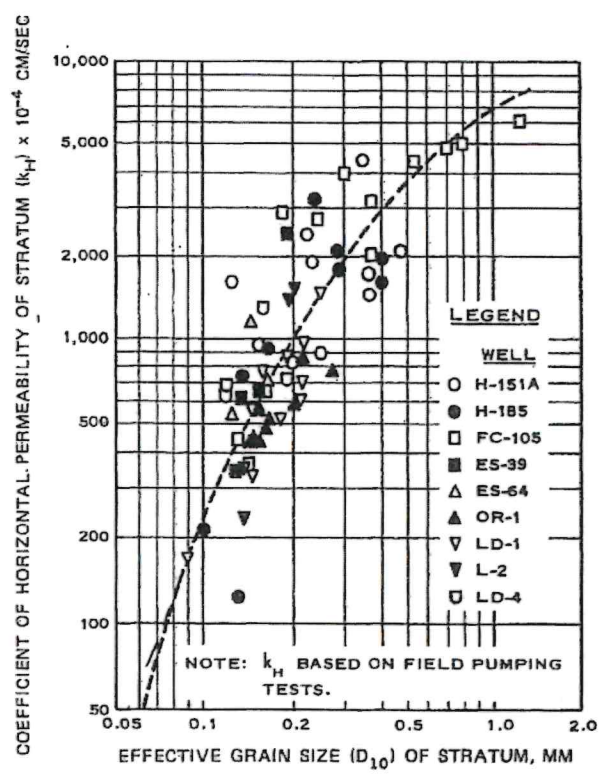



*Figure 3-4. $D_{10}$ versus in situ coefficient of horizontal permeability-Mississippi River valley and Arkansas River valley.*

Table 1

Suggested Design Values of Effective Lengths
and
Vertical Permeability of Riverside Blankets

| Soil Type | Blanket Thickness (ft) | Suggested Design Values* $k_{br}$ ($10^{-4}$cm /sec) | $x_1$ (ft) |
|---|---|---|---|
| Sand | ----- | --- | 250 |
| Silty Sand | <5 | 7.0 | 300 |
| | 5 to 10 | 2.5 | 600 |
| Silt and Sandy Silt | <5 | 2.0 | 400 |
| | 5 to 10 | 1.5 | 800 |
| | >10 | 1.0 | 1200 |
| Clay | <5 | 0.8 | 600 |
| | 5 to 10 | 0.5 | 1300 |
| | 10 to 15 | 0.2 | 2500 |
| | >15 | 0.05 | 4000 |

*Use $L_1$ for $x_1$ where $L_1$ is less than $x_1$. ($L_1$ is the distance from the riverside toe of the levee to the riverside bank).

(From WES TM 3-424)

**Table 3**

Suggested Design Values for Ratio of Permeability of Pervious Substratum to Landside Top Stratum and Permeability of Top Stratum

| Soil Type | Blanket Thickness (ft) | Suggested Design Values $k_{bl}$ ($10^{-4}$ cm/sec) | $k_f / k_{bl}$ |
|---|---|---|---|
| Silty Sand | <5 | 10 | 125 |
| | 5 to 10 | 8 | 150 |
| | >10 | 6 | 200 |
| Silt and Sandy Silt | <5 | 5 | 250 |
| | 5 to 10 | 4 | 300 |
| | 10 to 15 | 3 | 400 |
| | >15 | 2 | 600 |
| Clay and Silty Clay | <5 | 4 | 250 |
| | 5 to 10 | 3 | 400 |
| | 10 to 15 | 1.5 | 800 |
| | 15 to 20 | 0.5 | 2500 |
| | >20 | 0.08 | 15000 |

(From WES TM 3-424)

**Table 4**

Permeability of Landside Blanket

| $z_{bl}$ (Feet) | $k_{bl}$ ($10^{-4}$ cm/sec) Clay | Silt | Silty Sand |
|---|---|---|---|
| 1 | 4.56 | 5.70 | 10.50 |
| 2 | 4.30 | 5.40 | 10.10 |
| 3 | 4.06 | 5.10 | 9.80 |
| 4 | 3.80 | 4.80 | 9.40 |
| 5 | 3.57 | 4.50 | 9.00 |
| 6 | 3.30 | 4.25 | 8.60 |
| 7 | 3.10 | 4.00 | 8.30 |
| 8 | 2.88 | 3.80 | 8.00 |
| 9 | 2.66 | 3.60 | 7.80 |
| 10 | 2.45 | 3.40 | 7.55 |
| 11 | 2.25 | 3.23 | 7.30 |
| 12 | 2.08 | 3.10 | 7.10 |
| 13 | 1.89 | 2.95 | 6.95 |
| 14 | 1.72 | 2.81 | 6.80 |
| 15 | 1.57 | 2.70 | 6.60 |
| 16 | 1.41 | 2.60 | 6.50 |
| 17 | 1.28 | 2.50 | 6.40 |
| 18 | 1.14 | 2.40 | 6.20 |
| 19 | 1.01 | 2.30 | 6.10 |
| 20 | 0.90 | 2.22 | 6.00 |
| 21 | 0.78 | 2.14 | 5.85 |
| 22 | 0.69 | 2.05 | 5.80 |
| 23 | 0.60 | 1.98 | 5.65 |
| 24 | 0.52 | 1.90 | 5.60 |
| 25 | 0.45 | 1.83 | 5.45 |
| 26 | 0.38 | 1.78 | 5.40 |
| 27 | 0.31 | 1.71 | 5.30 |
| 28 | 0.25 | 1.66 | 5.20 |
| 29 | 0.20 | 1.60 | 5.15 |
| 30 | 0.15 | 1.56 | 5.10 |
| >30 | 0.15 | | |

**Louisiana International Terminal Pile Load Test**

***Updated Step 5a***

As part of the design effort for the Louisiana International Terminal (LIT), the Port of New Orleans needs to conduct pile load tests to determine the load capacity of the type of piling that is expected to be used for the construction of the wharf and ramp portions of the LIT project. Three test pile clusters would be installed on the floodside of the Mississippi River Levee (MRL) and three would be installed between the MRL and Highway 46. Each floodside cluster (locations indicated by dashed ovals in Figure 2 and pile configuration shown in dashed oval in Figure 3) would be comprised of one instrumented 36" square concrete test pile, one 36" square concrete indicator pile, and twelve 36" steel pipe reaction/indicator piles. These pile clusters would have a maximum tip elevation of -200 and would be installed no closer than 400 feet from the floodside toe of the MRL. Additional individual 36" square concrete indicator piles and 36" steel pipe reaction piles would be installed with and adjacent to the footprint of the proposed LIT wharf (locations indicated by dashed rectangles in Figure 2 and pile configuration shown in dashed rectangle in Figure 3).

Installation of floodside piles would be completed using a crane on barge in the river. The barges would be anchored in place during pile installation using either existing site anchorage for the existing Violet Dock, 24" steel pipe anchor piles as shown in Figure 3, or anchor lines tied to bulldozers placed within the batture area. All bulldozers temporarily placed in the batture area would be less than HS-20 loading. No land clearing is anticipated within the batture, although some tree branches could be impacted by movement of any anchor lines tied to features on shore. On-batture cranes and stone pads in previously submitted application drawings have been removed from the Pile Load Test design; therefore, stability analysis as requested by Madeline Carlos (USACE) on 1/23/24 is no longer required.

Piles penetrating the Poydras revetment will have riprap placed around them as addressed in the Corps of Engineers standard drawing, "Repair Procedures Required When Penetrating Revetments with Piles, Caissons and/or Pile Clusters", file No. H-18-45204. There will be no spudding into the exiting revetment. Barges used for pile driving will maintain a minimum of three feet of clearance over the underwater revetment during any river stage. Any damage to the revetment as the result of the applicant's activities will be repaired at the applicant's expense.

Each test pile cluster between the MRL and Hwy 46 (locations shown in Figure 2 and pile configuration shown in Figure 4) would be comprised of up to one 24" instrumented square concrete test pile, one 24" square concrete indicator pile, and eight 36" steel pipe reaction piles with a maximum tip elevation of -140 installed no closer than 130 feet from the landside toe of the MRL. Additionally, stone work pads may be required to provide safe operation of equipment within each pile test cluster work area. These areas would be up to 10,000 square feet at each land side work sites. These pads would require the placement of up to 8,433 cy of rock.

In response to a request for additional information from Madeline Carlos (USACE) dated 1/23/24, a seepage analysis for the pile load clusters between the MRL and Hwy 46 is provided (See "LONO_23_1066_Seepage_Ananlysis").

**Tuesday, June 25, 2024 3:09 PM**

---

**From:** "Office of Coastal Management"
**Date:** Tuesday, June 25, 2024 3:09 PM
**To:** CHRIS.GILMORE@PORTNOLA.COM;LWALKER@EVANS-GRAVES.COM;SAMUEL.WELTY@LA.GOV;JLANE@SBPG.NET;EMILY.ELEY@LA.GOV;DNRPERMITS@USACE.ARMY.MIL;DBUTLER@WLF.LA.G
**Cc:**
**Subject:** P20230358 - Processing Complete


---

If you would like to respond, provide comment or contact someone about this application please click the OCM Analyst name below to send an email to the permit analyst, use the "Make Comments" link below to post a comment to the administrative record or call the OCM Analyst at 225-342-7591 or 800-267-4019. Be sure to reference your P# as found in the subject of this email. Do not use the "reply" button to respond to this email as this account is not monitored for incoming messages.

Coastal Use Permit Application Information

| | |
|---|---|
| Applicant: | Board of Commissioners of the Port of New Orleans |
| Project: | Pile Load Test for Louisiana International Terminal Design |
| Project Parish(es): | SAINT BERNARD |

| | |
|---|---|
| OCM Analyst: | Emily Eley (Emily.Eley@la.gov) |
| Final Determination: | Exempt, NDSI |
| Application Modification: | Total fill required reduced from 8,433 cy to 6,366 cy (fill to be installed for landside stone pads, and at the base of pilings that penetrate the revetment). Revetment repair details provided (see figure 5, and step 13 for these additional details). No changes to scope of work or sensitive features since last distribution on 06/05/2024. |

Processing of the above application has been completed. Click the link below to view the final determination:

Authorization

# Coastal Use Permit Application Impact Calculations Form

## P# P20230358 – NDSI / Exempt (>5' MSL/ fastland)

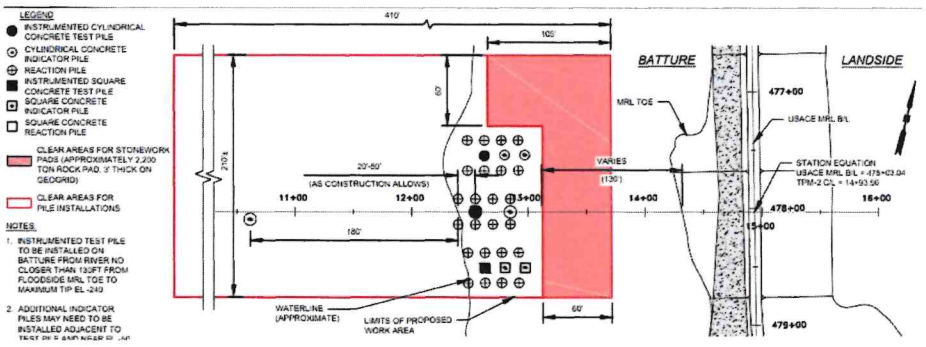
In the space provided below (attach additional sheets if more space is needed), identify each type of habitat impacted and calculate the disturbed area (in acres to the nearest hundredth) that will result from the proposed activity for each habitat impacted. Provide a sketch with dimensions and calculations showing how disturbed area figure was derived.

1. Pre-application meeting? No __X__ Yes _____ Date _____

2. Disturbed area in original application ___0.01 ac. R1UBV (NDSI only)___

Test Piles Installed in NDSI Habitat: R1UBV
Approximately 3, 42" diameter test piles in MS river for 3 workspaces

3.5' * 3.5' * 3 test piles * 3 workspaces = 110.25 sq. ft. R1UBV = 0.003 ac. R1UBV




3. Disturbed area as finally issued ___same as above___

4. Disturbed area as revised ___**0.77 ac. R1UBV**___
*NDSI portion of work, only*

Pile Cluster sites (3 sites; 70' * 70') = 3 sites * 70' * 70' = 14,700 sq. ft. R1UBV

Caissons (17 sites; 27' * 27') = 17 sites * 27' * 27' = 12,393 sq. ft. R1UBV

Caissons (12 sites; 13' * 13') = 12 sites * 13' * 13' = 2,028 sq. ft. R1UBV

Caissons (12 sites; 19' * 19') = 12 sites * 19' * 19' = 4,332 sq. ft. R1UBV

Total = **0.77 ac. R1UBV**

See document *Stone_Pad_and_Revetment_Pile_QTO.pdf* in step 13 of the application for details / figure 5 of the plats

# Needs / Alternatives Review

CUP#: **P20230358** Final Determination: NDSI

1. Project impacts:

| Impacted Habitats | Impacts | |
|---|---|---|
| | Acres | % Total Impact |
| Uplands | | |
| Open Water | 0.77 | 100% |
| Beach/Dune | | |
| Scrub Shrub | | |
| Forested Wetlands | | |
| Herbaceous Wetlands | | |
| Total Project Impacts | 0.77 | |

2. NAJ guides and level of detail used (select all that apply):

☐Commercial ☒Introduction ☐Oil & Gas ☐Recreation ☐Utilities
☐Drainage ☐Levees ☐Pipelines ☐Residential
☐Industrial ☐Marinas ☐Ports ☐Transportation

Level of review (if multiple guides used, copy and paste the below line and select the appropriate level for each guide used):

Alternatives: Introduction; Justification: Introduction

3. HMIA review: Level 1; Date approved (if applicable): 06/20/2024

4. The information provided by the applicant, as identified below, is sufficient to demonstrate a need for the proposed activity and that the least damaging feasible alternative has been selected. (List all documents used to make this decision)

JPA; plats; GIS
Step 13 document: *Stone_Pad_and_Revetment_Pile_QTO.pdf*

| **Approved by** (initial and date): | | | |
|---|---|---|---|
| PA: ee | Date: 06/20/2024 | PM/MM/PC/MC/ADM: CMC | Date: 06/24/2024 |

PREPARED BY ee

DATE 09/07/2023

# CMD - PERMIT CODING FORM

DATE PRINTED: 07/14/2023

| CUPNO | APPLICANT NAME | REVIEWER | PARISH (ES) |
|---|---|---|---|
| P20230358 | BOARD OF COMMISSIONERS OF THE PORT OF NEW ORLE/ | ELEY, EMILY | ST. BERNARD |

| DATERECD | ACKNOWL | TOWNSHIP | RANGE | SECTION | QUAD # | LATITUDE | LONGITUDE |
|---|---|---|---|---|---|---|---|
| 04/26/2023 | 05/23/2023 | 13S | 13E | 8,9,10 | 200-A | 28° - 53 - 28. | 89° - 53 - 30. |

CONCERN: (●) STATE ( ) LOCAL

CZ: (●) IN ( ) OUT

CP: ( ) IN (●) OUT

PGP [ ] 1 [ ] 2 [ ] NOT PGP

WELLNAME

WELL#

APPLICANT TYPE: 14

STATUS: ~~12~~ 31

REVISION # ____ REVISION ISSUE DATE __/__/____

EXEMPT: 6

( ) MAJOR (●) MINOR

CUBIC YARDS: 8433

DREDGE: 4 RIG: 0 PIPELINE: 0 MISC: 99 H2O BLOCK: 9 DEVELOP: 0

FIELD AREA: 2

TRANSFER: ( ) YES ( ) NO

ENTER THE NEW NAME IN APPLICANT FIELD

FIELD INVESTIGATION REQUESTED: ( ) YES (●) NO

REVISED: ( ) YES ( ) NO

AMENDED: ( ) YES ( ) NO

MODIFIED: ( ) YES ( ) NO

EXTENDED: ( ) YES ( ) NO

FOLLOW-UP REQUESTED: ( ) YES (●) NO

FINAL DETERMINATION (S) (SEPARATE BY COMMAS): NDSI,EXEMPT

| ON-HOLD DATE | OFF-HOLD DATE | PUBLIC NOTICE DATE | PDRAFT DATE | PUBLIC NOTICE TYPE |
|---|---|---|---|---|
| __/__/____ | __/__/____ | __/__/____ | __/__/____ | (●) 0 ( ) 2 ( ) 4 ( ) 6 ( ) 8 ( ) 1 ( ) 3 ( ) 5 ( ) 7 ( ) 9 |

| ISSUE DATE | COMMENCE DATE | WITHDRAWN DATE | PUBLIC HEARING DATE | APPEAL DATE |
|---|---|---|---|---|
| 09/07/2023 | __/__/____ | __/__/____ | __/__/____ | __/__/____ |

X-REFERENCE

COMMENTS

MISC.: Pile load tests

# IMPACTED HABITAT FORM

PREPARED BY ee

DATE 09/07/2023

P20230358 — CUPNO/CONNO

BOARD OF COMMISSIONERS OF THE PORT OF NEW ORLEANS — APPLICANT NAME



DATE PRINTED 07/14/2023

---

| HABITAT CODE | DRAINAGE BASIN | DIST'D ACRES PROP. | DIST'D ACRES SUBM. |
|---|---|---|---|
| R1UBV | PO | 0.01 | 0.01 |

| DIST'D ACRES ISSUED | AAHU | YEARS | HSI | CHU LOST |
|---|---|---|---|---|
| 0.01 | | | | |

| MIT REQ'D (Y,N OR W) | ACRES REQUIRING MIT. | ADD. PERMIT REQ'D | MIT PROJ CUP/CON NO |
|---|---|---|---|
| N | | | |

COMMENTS: NDSI PORTION ONLY

---

| HABITAT CODE | DRAINAGE BASIN | DIST'D ACRES PROP. | DIST'D ACRES SUBM. |
|---|---|---|---|
| | | | |

| DIST'D ACRES ISSUED | AAHU | YEARS | HSI | CHU LOST |
|---|---|---|---|---|
| | | | | |

| MIT REQ'D (Y,N OR W) | ACRES REQUIRING MIT. | ADD. PERMIT REQ'D | MIT PROJ CUP/CON NO |
|---|---|---|---|
| | | | |

COMMENTS

# Coastal Use Permit Application Impact Calculations Form

## P# P20230358 – NDSI / Exempt (>5' MSL/ fastland)

In the space provided below (attach additional sheets if more space is needed), identify each type of habitat impacted and calculate the disturbed area (in acres to the nearest hundredth) that will result from the proposed activity for each habitat impacted. Provide a sketch with dimensions and calculations showing how disturbed area figure was derived.

1. Pre-application meeting? No __X__ Yes _____ Date _____

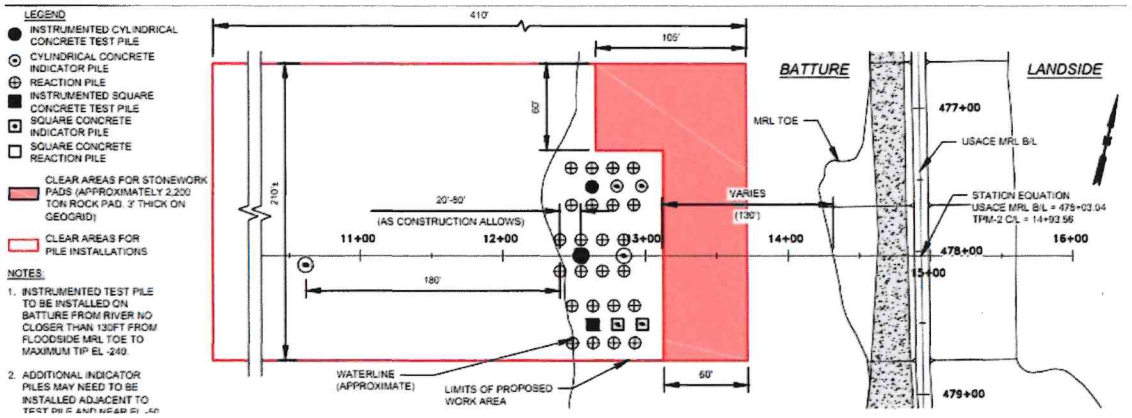
   Disturbed Area N/A

2. Disturbed area in original application **0.01 ac. R1UBV (NDSI only)**

Test Piles Installed in NDSI Habitat: R1UBV

Approximately 3, 42'' diameter test piles in MS river for 3 workspaces

3.5' * 3.5' * 3 test piles * 3 workspaces = 110.25 sq. ft. R1UBV = **0.003 ac. R1UBV**




3. Disturbed area as finally issued _____

**Thursday, September 7, 2023 11:34 AM**

---

**From:** "Office of Coastal Management"
**Date:** Thursday, September 7, 2023 11:34 AM
**To:** CHRIS.GILMORE@PORTNOLA.COM;LWALKER@EVANS-GRAVES.COM;SAMUEL.WELTY@LA.GOV;MBAYHAM@SBPG.NET;EMILY.ELEY@LA.GOV;DNRPERMITS@USACE.ARMY.MIL;DBUTLER@WLF.LA.GOV;PERMIT@FLOODAUTHORITY.ORG;SAR
**Cc:**
**Subject:** P20230358 - Processing Complete

Louisiana.gov > Department of Natural Resources

If you would like to respond, provide comment or contact someone about this application please click the OCM Analyst name below to send an email to the permit analyst, use the "Make Comments" link below to post a comment to the administrative record or call the OCM Analyst at 225-342-7591 or 800-267-4019. Be sure to reference your P# as found in the subject of this email. Do not use the "reply" button to respond to this email as this account is not monitored for incoming messages.

Coastal Use Permit Application Information

| | |
|---|---|
| Applicant: | Board of Commissioners of the Port of New Orleans |
| Project: | Pile Load Test for Louisiana International Terminal Design |
| Project Parish(es): | SAINT BERNARD |

| | |
|---|---|
| OCM Analyst: | Emily Eley (Emily.Eley@la.gov) |
| Final Determination: | Exempt, NDSI |
| Application Modification: | Note 7. on Figure 3 - Sheet 1 of 2 added to plats. Note explains what will be done with the cleared batture vegetation. No changes to sensitive features since last distribution on 08/15/2023. |

Processing of the above application has been completed. Click the link below to view the final determination:

Authorization

# Needs / Alternatives Review

CUP#: **P20230358** Final Determination: NDSI

1. Project impacts: 0.01 ac. R1UBV (NDSI)

| Sensitive Features | Chit, SWB, OCPR Levees | | | |
|---|---|---|---|---|
| Impacted Habitats | Acres of Impact and % Total Impact (type/total)100 | | | |
| | Exempt | % Total Impact | Non-exempt | % Total Impact |
| Uplands | | | | |
| Open Water | 0.01 | 100% | | |
| Mud Flats | | | | |
| Scrub Shrub | | | | |
| Forested Wetlands | | | | |
| Herbaceous Wetlands | | | | |
| Total Project Impacts | 0.01 | | | |

2. NAJ guides and level of detail used (select all that apply):

☐Commercial ☒Introduction ☐Oil & Gas ☐Recreation ☐Utilities
☐Drainage ☐Levees ☐Pipelines ☐Residential
☐Industrial ☐Marinas ☐Ports ☐Transportation

Level of review (if multiple guides, copy and paste additional entries for each guide used):

Alternatives: Introduction; Justification: Introduction

3. HMIA review: Level 1; Date approved: 05/25/2023

4. Applicable Coastal Use Guidelines (select all that apply):

☒§701.F Evaluation ☒§705 Linear Facilities ☐§713 Hyd/Sed Trans
☒§701.G Adverse Impacts ☐§707 Dredged Spoil ☐§715 Disposal of Wastes
☒§701.H MEP ☐§709 Shoreline Mod. ☐§717 Alt. of Waters
☐§703 Levees ☒§711 Surface Alts. ☐§719 Oil and Gas

5. The information provided by the applicant, as identified below, is sufficient to demonstrate a need for the proposed activity and that the least damaging feasible alternative has been selected. (List all documents used to make this decision)

JPA Application/Plats, GIS Review

| **Approved by** (initial and date): | | | |
|---|---|---|---|
| PA: ee | Date:08/18/2023 | PM/MM/PC/ADM: CMC | Date: 09/01/2023 |

**From:** Lee Walker
**To:** Emily Eley
**Subject:** RE: P20230358 - RFI Vegetation Clearing
**Date:** Monday, August 21, 2023 9:50:13 AM

---

**EXTERNAL EMAIL:** Please do not click on links or attachments unless you know the content is safe.

Good morning Emily,
The contractor plans to stockpile the cleared vegetation on-site and then haul it off to a landfill. They would also chip the smaller diameter vegetation (under 6-inches diameter) and leave it on site for soil stabilization/mulch.

Thanks,
Lee

Lee Walker
Evans-Graves Engineers
504-913-1857

**From:** Emily Eley <Emily.Eley@LA.GOV>
**Sent:** Friday, August 18, 2023 1:45 PM
**To:** Lee Walker <lwalker@evans-graves.com>
**Subject:** P20230358 - RFI Vegetation Clearing

Good afternoon Lee,

Following up on our phone call this afternoon, please provide an explanation for what will be done with the vegetation cleared from the batture wetlands.

Thank you,
Emily

Emily Eley
Coastal Resources Scientist
Louisiana Dept. of Natural Resources
Office of Coastal Management
Phone: (225) 342-7942

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**From:** Lee Walker
**To:** Emily Eley
**Subject:** RE: P20230358 Joint Permit Application; Request for Information
**Date:** Tuesday, August 15, 2023 1:09:23 PM

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**EXTERNAL EMAIL:** Please do not click on links or attachments unless you know the content is safe.

Hi Emily,
Yes, you are correct. Figure 3 sheet 1 of 2 represents the layout for all three floodside (batture/river) sites, and Figure 3 2 of 2 represents the layout for all three landside sites.

Thanks,
Lee

**From:** Emily Eley <Emily.Eley@LA.GOV>
**Sent:** Tuesday, August 15, 2023 12:23 PM
**To:** Lee Walker <lwalker@evans-graves.com>
**Subject:** P20230358 Joint Permit Application; Request for Information

Good afternoon Lee,

Following up on the phone call we had this afternoon, we discussed the configuration of the pilings for each test site in P20230358. As we discussed, please respond to this email confirming that the proposed configuration of test piles will be identical for all three test sites TPM-1, TPM-2, and TPM-3 (see figure 3 sheet 1/2). Additionally, that the configuration of test piles is the same for all three land-based sites TPL-1, TPL-2, TPL-3 (see figure 3 sheet 2/2).

Please give me a call or email if there are any questions.

Thank you,
Emily

Emily Eley
Coastal Resources Scientist
Louisiana Dept. of Natural Resources
Office of Coastal Management
Phone: (225) 342-7942

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**From:** Emily Eley
**To:** "lwalker@evans-graves.com"
**Subject:** P20230358 Joint Permit Application; Permit Analyst Change
**Date:** Friday, July 14, 2023 11:03:00 AM

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Good morning Lee,

I am reaching out to inform you that I am now the permit analyst processing your permit application with the Office of Coastal Management (P20230358).

My contact information is:
Email: Emily.Eley@la.gov
Office: 225-342-7942

I am currently reviewing the file and I see that there will be updates to the proposed project, and your application will be on hold until the new testing site is added to the application/plats/HMIA. Do you have any questions or anything you would like to discuss?

Thank you and I look forward to working with you,
Emily Eley

Emily Eley
Coastal Resources Scientist
Louisiana Dept. of Natural Resources
Office of Coastal Management
Phone: (225) 342-7942
Mon.-Fri. 7:15-3:45

**From:** Lee Walker
**To:** Sarah Roy
**Cc:** Chris Gilmore
**Subject:** RE: P20230358 Request for HMIA Level 1 Information/Statement
**Date:** Thursday, June 22, 2023 4:04:32 AM

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Good morning Sarah,

It looks like our engineers are planning to add an additional test site but have not yet completed the design. When they have the design completed, I'll update the application to include the new site and any erosion control measures they plan to employ. So for now, please put review of this application on hold until I update the application.

Thanks!
Lee

**From:** Lee Walker <lwalker@evans-graves.com>
**Sent:** Friday, June 16, 2023 12:20 PM
**To:** Sarah Roy <Sarah.Roy@LA.GOV>
**Cc:** Chris Gilmore <chris.gilmore@portnola.com>
**Subject:** RE: P20230358 Request for HMIA Level 1 Information/Statement

Hi Sarah,
I'll give you a call next week to discuss. Thanks,
Lee

On Jun 15, 2023 7:38 PM, Sarah Roy <Sarah.Roy@LA.GOV> wrote:
Lee,

Give me a call when you have a moment, the letter is great except that it mentions the use of rip-rap and the placement of rip-rap(rock) is not mentioned in the application (Step 10) or in the plats. We will need the Step 10 updated as well as the plats if Rip-Rap is being placed.

Thank you,

**Sarah Roy** | **Louisiana Department of Natural Resources**
Coastal Resources Scientist | Office of Coastal Management
225.342.7941 | sarah.roy@la.gov

**From:** Lee Walker <lwalker@evans-graves.com>
**Sent:** Thursday, June 15, 2023 11:14 AM
**To:** Sarah Roy <Sarah.Roy@LA.GOV>
**Cc:** Chris Gilmore <chris.gilmore@portnola.com>
**Subject:** RE: P20230358 Request for HMIA Level 1 Information/Statement

Hi Sarah,
Please see the attached statement from the applicant and let me know if this fulfills the request for information.

Thanks so much,
Lee

**From:** Sarah Roy <Sarah.Roy@LA.GOV>
**Sent:** Wednesday, June 14, 2023 7:38 AM
**To:** Lee Walker <lwalker@evans-graves.com>
**Subject:** P20230358 Request for HMIA Level 1 Information/Statement

Good Morning Lee,

I wanted to follow up on the Request for Information I sent out on June 7th, 2023. There is an option for this level of HMIA (Level 1) if applicable, that allows for a simple statement that hydrology and water quality will be the same both pre- and post-construction. Should this be the case, you can respond to this email or upload a comment to the application file that attests to this zero impact to hydrology and water quality.

Please let me know if you have any questions.

Thank you,

**Sarah Roy** | **Louisiana Department of Natural Resources**
Coastal Resources Scientist | Office of Coastal Management
617 North Third Street, Suite 1078 | Baton Rouge, LA 70804
225.342.7941
sarah.roy@la.gov

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**Subject:** FW: Consistency with the Master Plan

**From:** Scott Hemmerling
**Sent:** Friday, October 19, 2012 9:43 AM
**To:** Jason Byrd; Dallas Shearer; Ed Haywood; Christopher Robertson
**Cc:** Karl Morgan; Christine Charrier; Terrell Morrison; Eric Roquemore; Sandra Bernard
**Subject:** RE: Master Plan layer CUP update

Dallas,

To reiterate, for the purposes of CUP reporting, we would like to treat the 2012 Master Plan data just like the Infrastructure and Project Boundary data. The CUP Status field will be used to identify those projects that will get CUP hits, while the Web Status field will show which projects are shown on the spatial viewer. Hopefully by standardizing our databases in this way, we can streamline and simplify the process.

Thanks!

Scott

**Scott A. Hemmerling**
**Geographer**
U.S. Geological Survey
Coastal Protection and Restoration Authority
Chase Bank - North Tower
450 Laurel Street
12th Floor, Room 1200-Y
Baton Rouge, LA 70801
☺ Office: (225) 342-4645
☒ Email: scott.hemmerling@la.gov

PORT NOLA
THE PORT OF NEW ORLEANS

June 14, 2023

**Via email**
Louisiana Department of Natural Resources
Office of Coastal Management
Sarah Roy, Coastal Resources Scientist
617 North Third Street
Suite 1078
Baton Rouge, Louisiana 70804

Re: P20230358

Dear Ms. Roy:

We have received your letter dated June 7, 2023 requesting additional information regarding hydrology and water quality impacts of our recent Coastal Use Permit Application.

In order to reduce sediment runoff during and immediately after construction of the pile load test sites, the construction contractor will use appropriate best management practices such as silt fencing and riprap installation over exposed soils. As such, site runoff with regard to hydrology and water quality will be the same both pre- and post-construction.

I appreciate your consideration of this matter. If you should have any questions or require additional information, please do not hesitate to contact me.

Sincerely,

Chris Gilmore
Director of Engineering and Environmental
Port of New Orleans

LA DENR OFFICE OF COASTAL MANAGEMENT

# View Comments

**Permit Number:** **P20230358**

Go Actions

| Office | Commentor | Comment Date | |
|---|---|---|---|
| Other | CAPTURE | 06/25/2024 15:09:53 | 14832646 - OUTGOING CORRESPONDENCE - P20230358 - Processing Complete |
| OCM | EMILY ELEY | 06/25/2024 10:28:07 | P20230358_Impact_Calculations_06.25.2024.pdf |
| Other | CAPTURE | 06/25/2024 08:35:49 | 14831693 - NEEDS / ALTERNATIVES REVIEW - |
| State Land | Lawrence "Les" Rosso, Jr. | 06/24/2024 07:46:49 | Previous Comment Remains the Same. |
| OCM | EMILY ELEY | 06/20/2024 13:30:46 | Hydrologic Modification Impact Analysis – Please refer to HMIA comment uploaded 06/15/2023. |
| LDWF | Dave Butler LDWF | 06/20/2024 12:47:52 | LDWF comments remain the same. |
| State Land | Lawrence "Les" Rosso, Jr. | 06/06/2024 11:17:12 | Previous Comment Remains the Same. |
| LDWF | Dave Butler LDWF | 06/06/2024 10:55:49 | WDP comments: No impacts to rare, threatened or endangered species or critical habitats are anticipated from the proposed project. No state or federal parks, wildlife refuges, wildlife management areas or scenic rivers are known at the specified site or within ¼ mile of the proposed project. The Wildlife Diversity Program (WDP) reports summarize the existing information known at the time of the request regarding the location in question. WDP reports should not be considered final statements on the biological elements or areas being considered, nor should they be substituted for on-site surveys required for environmental assessments. If at any time WPD tracked species are encountered within the project area, please contact our biologist at 225-763-3554. |
| OCM | DONNA THOMPSON | 09/13/2023 09:39:13 | P20230358_Code_Sheets.pdf |
| Other | CAPTURE | 09/07/2023 11:34:35 | 14539896 - OUTGOING CORRESPONDENCE - P20230358 - Processing Complete |
| Other | CAPTURE | 09/05/2023 09:14:02 | 14536959 - NEEDS / ALTERNATIVES REVIEW - |
| State Land | Lawrence "Les" Rosso, Jr. | 08/30/2023 07:13:04 | No Permit Required. |
| Other | LEE WALKER | 08/21/2023 10:51:20 | P20230358_RFI_VegetationClearing.pdf |
| State Land | Lawrence "Les" Rosso, Jr. | 08/21/2023 09:24:37 | Previous Comment Remains the Same. |
| Other | LEE WALKER | 08/15/2023 14:45:31 | P20230358_PileConfiguration_AllTestSites.pdf |
| OCM | EMILY ELEY | 07/17/2023 07:38:29 | P20230358_NoticeOfTransfer_PAchange.pdf |
| OCM | EMILY ELEY | 07/14/2023 10:58:16 | RE_P20230358_HoldApplication_06222023.pdf |
| Other | SCOTT HEMMERLING | 06/15/2023 11:59:41 | ConsistencywiththeMasterPlanReview.pdf |
| Other | CHRIS GILMORE | 06/15/2023 11:58:51 | P20230358_HMIA_statement_06142023.pdf |
| State Land | Lawrence "Les" Rosso, Jr. | 05/24/2023 07:07:35 | No Objection. |

1 - 20 of 20

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