

**BOARD OF COUNTY COMMISSIONERS
PALM BEACH COUNTY, FLORIDA
ENGINEERING AND PUBLIC WORKS
ROADWAY PRODUCTION DIVISION**

**Project Name: CR-880 and Sam Senter Road over the South Florida Water
Management District (SFWMD) Ocean Canal Intersection Improvements and
Bridge Replacement.**

Project Number: 2019803

Addendum No. 4

Date of Issuance: October 9, 2026

SPECIFICATIONS

Delete	Insert	Add
Sheet A	Sheet A-D	
SP-15	SP-15D	
SP-35 & SP-36	SP-35D & SP-36D	
SP-43	SP-43D	
		SP-44D thru SP-50D
		SSP-1D thru SSP-114D GCME, Inc. Geotechnical Report -Bridge Structure (dated 11/25/24)
		SSP-115D thru SSP-216D GCME, Inc. Geotechnical Report - Roadway Improvements (dated 10/21/22

PLANS

Delete	Insert	Add
		Geotechnical Sheets Pages GR1-GR6 (dated 09/12/22)
		Standard Civil Details- Vehicle Barrier Gate Details Page C2, (1 of 3). (dates 10/2019)
		Standard Civil Details- Vehicle Barrier Gate Details Page C2, (3 of 3). (dated 10/2019)
Foundation Layout Plan Sheet B1- 5, 32 of 95 (dated 02/26/25)	Foundation Layout Plan Sheet B1- 5 , 32 of 95 (dated 09/03/26)	

P-PAGES

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It is required that **ADDENDUM NO. 4** be acknowledged in the space provided on the **PROPOSAL FORM**.

Approved By: Kathleen O. Farrell

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SPECIAL PROVISIONS

The Contractor shall also comply with to Section 9-3.1 in relation to unit prices.

27. CONTINGENT ITEMS: The Contractor shall not use contingent items to meet the SBD goal(s) participation for the Contract. The SBE participation goals established for the Contract, as specified in the Instructions to Bidders, shall include all pay items for the project, less the contingency items. The use of contingent pay items shall only increase the SBE participation of the Contract, over and above the required goals achieved by use of regular pay items.

28. CLEARING AND GRUBBING: The Contractor is required to notify the owner of any fences, irrigation systems, or any items that lie within the Right-of-Way, to give them the courtesy to remove them before construction. The Contractor shall replace fences, shrubbery, sod, trees and other vegetation within the limits of construction and outside the Right-of-Way to their original condition, unless otherwise directed by the Engineer. Cost of which is incidental to construction. All Work associated with the re-establishment and/or temporary relocation of mailboxes shall be done in accordance with Index no. 532 of the current FDOT Roadway and Traffic Design Standards. Specific attention should be directed to coordination with the local postmaster. Payment for all Work required to establish each mailbox in the temporary and/or final location, including any material required to construct the mailbox to current standards, shall be included in the cost of clearing and grubbing, unless the Contract includes a pay item for the Work.

29. SUBSOIL EXCAVATION: Where muck, rock, clay, or other material within the limits of the Roadway is unsuitable in its original position, excavate such material to the cross-sections shown in the Plans or indicated by the Engineer, and backfill with suitable material. Shape backfill material to the required cross-sections. Where the removal of plastic soils below the finished earthwork grade is required, meet a construction tolerance, from the lines shown in the Plans as the removal limits, of ± 0.2 feet in depth and ± 6 inches (each side) in width. Final payment for the Subsoil Excavation, CY will be based on initial and final cross sections, and signed and sealed quantity computations which are to be prepared by a Professional Land Surveyor or Professional Engineer licensed in the State of Florida, and submitted to the Department for acceptance. Initial cross sections shall be taken at 50 foot intervals, or as otherwise directed by the Engineer. When the excavation of unsuitable material is completed to satisfy field conditions, and verified as such by the Engineer, final cross sections shall be taken at 50 foot intervals, or as otherwise directed by the Engineer. The cross sections shall show elevations at the appropriate break points and shall be plotted. Quantity computations shall be prepared (using the Average End Area Method), and submitted to the Engineer for acceptance. The Contractor is advised that no compensation will be made for excavation below the depth required to satisfactorily remove the unsuitable material. The cost for the cross sections and computations shall be incidental to the pay item, Subsoil Excavation, CY, shall include the cost of embankment to replace the excavated subsoil, labor, Materials, Equipment, fuel, transportation and other related Work to complete the pay item. **Exceptions:** Station: 80+00.03 to 109+00.11 is excluded from this special provision. See Technical Special Provisions for Rigid Inclusions. This project includes a subsoil improvement and will not be required to meet this section(Sub-Soil Excavation). Please refer to the Rigid Inclusion section of the technical specifications. Between Stations: 76+00.00 to 80.00.03 & 109+00.11 to 118+85.53 milling and resurfacing and overbuild of the existing roadway will be required. Shoulder construction will include vegetation removal and filling and subgrade preparation and compaction per the typical section. On Sam Senter Road, from Station 11+73.35 to 14+00.00 will not require excavation of subsoil in the proposed widening.

30. EMBANKMENT: The quantity will be at the plan quantity compacted in place. Where payment for embankment is not to be included in the payment for the excavation, and is to be paid for on a cubic yard basis for the item of Embankment, the plan quantities to be paid for will be calculated by the method of average end areas unless the Engineer determines that another method of calculation will provide a more accurate result. The measurement will include only material actually placed above the original ground line, within the lines and grades indicated in the Plans

SPECIAL PROVISIONS

57. UTILITIES CONTACTS: The following are the names and telephone numbers of persons the Contractor shall contact to arrange for protection or adjustment of Utilities as provided in Section 7 or when utility conflicts are suspected:

Comcast Cable Communications	Steven Rosa	Steven_Rosa@cable.comcast.net	(561)436-9034
Florida Power and Light Transmission	Michelle King	michelle.king@fpl.com	(772)486-2503
Palm Beach County Traffic Operations	Superintendent		(561)233-3900
Verizon Business (MCI)	Anthony Martinez	Anthony.martinez@verizonwireless.com	(201)290-1253
AT&T FL Telecommunications Co.	Greg Kuehn	gk4122@att.com	(561)699-8598
Florida Power & Light Company	David Fuchs	david.fuchs@fpl.com	(321)214-3814
Palm Beach County Water Utilities	Jerome Small	jsmall@pbwater.com	(561)493-6116
Crown Castle Fiber	Danny Haskett	danny.haskett@crowncastle.com	(786)610-7073
Palm Beach County Traffic Signals	May Cheng	mcheng@pbc.gov	(561)684-4138

The Contractor shall fully cooperate at all times with the owners of utility companies in order to maintain the operation of the existing utilities with the least amount of interference and interruption possible.

When utility installation/adjustments are included as part of the Proposal, all utility companies (including Palm Beach County Water Utilities Dept.) reserve the right to accept or reject bid items on their part of Work and perform their Work by their forces or other contracted forces.

FPL Transmission Power Line:

The Contractor shall make all arrangements required to construct under and near power lines. The Contractor shall comply with the National Electrical Safety Code (NESC) or OSHA standards, whichever is more stringent. The Contractor can opt to contact FPL Transmission Services to make arrangements to carry out the work in a safe manner.

FPL Transmission Services
Contact: Michelle King
Phone: (772)486-2503
Email: Michelle.king@fpl.com

58. MAINTENANCE OF TRAFFIC: Maintenance of Traffic (MOT) shall be a lump sum item. If the Contractor and/or its subcontractors do not perform the MOT and do not install and maintain those items covered under MOT according to the requirements of the standards, then Palm Beach County reserves the right to reduce said item based on the pro rata performance as determined by the Department on each payment application or \$1,000.00 per day, whichever is greater.

The Contractor shall assure compliance with FDOT Index 600 of the current Roadway and Traffic Design Standards. All references to “determinations by engineer” will be the responsibility of the Contractor, and shall be brought to the attention of the Department prior to implementation. The cost of complying with the stated standards shall be incidental to the MOT pay item. The Contractor shall ensure that at no time will traffic (temporary or otherwise) be permitted over installed exfiltration trenches.

MOT plans will not be approved until signal modification plans have been approved by the Department.

Pedestrian MOT:

Pedestrian traffic must be maintained throughout the duration of construction unless otherwise indicated.

All pedestrian detours for MOT to be pre-approved by the Department.

SPECIAL PROVISIONS

All projects that impact pedestrian traffic of any type shall include "Pedestrian MOT" in accordance with the General Provisions, the cost of which will be incidental to the MOT pay item.

Closures:

For any lane closures that extend into the peak hour(s) or any other lane closure time restriction presented in the Contract Documents, the Contractor may be charged up to \$1,000.00 per lane per ½ hour.

Lights and flags are required on the first two warning signs in the series.

The Contractor shall not close any existing auxiliary traffic lanes during construction at signalized intersections. Entrances to schools, hospitals, high volume shopping centers, and residential developments shall not be closed unless preapproved by the Department.

One lane of travel in each direction on CR880 shall be maintained at all times throughout the Contract. Any temporary pavement required is incidental to the "Maintenance of Traffic" pay item.

Access to all existing side streets and driveways shall be maintained at all times.

Included in this package a suggested Temporary Traffic Control Detour Plan is provided. The Contractor may use this general layout to create, submit and gain approval of a Maintenance of Traffic Plan for the project along the detour route. The Maintenance of Traffic/Detour Plan shall be approved by all governmental agency roadways the detour will affect. The written governmental approvals shall be provided to PBC Construction Coordination prior to scheduling a preconstruction meeting.

Traffic Signal MOT:

The Contractor shall maintain existing traffic signal operations at all times.

Any traffic signal modifications necessary for the Work must be approved by the Department. Traffic signal modification requests must include a legible plan which clearly shows the signal head faces and their alignment with proposed traffic lanes and signal phasing. All traffic signal modifications must comply with the MUTCD.

Traffic signal heads must be aligned properly with traffic lanes and an adequate number of signal heads must be provided for all lanes.

Prior to activating a new traffic signal or modifying/replacing an existing traffic signal the Contractor shall confirm with the Department that all traffic lanes are operational. The Contractor shall obtain Department approval prior to activating a traffic signal.

If traffic lanes are not operational when a new traffic signal is activated, the Contractor shall modify the signal heads to align with the existing traffic lanes at the time of activation. When all of the final traffic lanes are operational, the Contractor shall adjust the signal heads to align with the final traffic lanes.

The Department will provide traffic signal timing details for the different phases of the Work. The Contractor shall notify the Department at least one week prior to any Work at signalized intersections. For Traffic Signal topics the Department can be contacted at:

Palm Beach County Engineering Department
Traffic Division / Timing Section
(561) 684-4030 or (561) 681-4320

Any necessary signal timing changes made by the Contractor to address safety and/or operational issues must be communicated to the Department within two hours.

SPECIAL PROVISIONS

62. CROP SPRAYING ACTIVITIES: The Contractor will coordinate with the crop spraying by the farming industry to ensure access to the farm fields:

Antonio De Corral, Sr. Managing Hydraulic Engineer
Florida Crystal Corporation
State Road 880 & Atlantic Sugar Mill Road Belle Glade, Florida 33430
Phone: (561)676-4397
Email: Antonio.decorral@floridacrystals.com

63. RIGID INCLUSION PILES: The Contractor shall have a Florida licensed professional engineer complete the design of the rigid inclusion pile system for this project. The design shall be completed and submitted to the Roadway Production Division for review within 60 days of Notice to Proceed. See Technical Special Provisions.

Spoil material resulting from the construction of the rigid inclusion piles shall be disposed of by the Contractor off site. A portion of the material may be peat in nature and cannot be used as embankment. The cost of hauling and disposal of the spoil material will be included in the rigid inclusion piles pay item.

64. SAM SENTER BRIDGE CLOSURE: Sam Senter Road Bridge may be closed to complete construction of the bridge from the date of the Notice to Proceed until the end date of September 15, 2028. A minimum closure of 365 days shall be in effect. The Contractor shall substantially complete construction of the bridge and roadway approaches to open the bridge no later than September 15, 2028. The opening shall include the certification and acceptance of the bridge by all governmental agencies.

65. BRIDGE DEMOLITION AND ASBESTOS REMOVAL: A pre-demolition asbestos survey of the CR 880 and SAM SENTER BRIDGE was performed by GFA International, Inc. No Inspected Materials were found to contain asbestos. No other suspected Materials were found to contain asbestos. The report is included herein for further details. Please note that bearing pads were not accessible for testing.

If asbestos containing pads are to be removed and disposed by a Florida Licensed Asbestos Abatement Contractor overseen by a Florida Licensed Asbestos Consultant and disposed of properly. Palm Beach County Risk Management coordinates such activities. Please contact Hassan Samii at 561 233-5400 to schedule the abatement to coincide with the Bridge demolition with a minimum six week notice. (Abatement will be quick due to the pads' size and location.)

The Department of Environmental Protection Agency (EPA) requires a 10 day NESHAP notification of demolition for bridges, regardless of asbestos identification. The Contractor shall submit the notification to the Department of Environmental Protection SE District, at the address below.

Department of Environmental Protection SE District
3301 Gun Club Road
MSC 7210-1
West Palm Beach, FL 33406

<http://www.dep.state.fl.us/air/emission/asbestos.htm>

Also, refer to the General Provisions of these Specifications "Section 800" for Special Conditions, and Asbestos Procedures for Demolition of Structures and Asbestos Material Removal.

SPECIAL PROVISIONS

RESPONSE TO CONTRACTORS REQUESTS FOR INFORMATION

August 14, 2026, 10:46 AM
Brothers' Construction, Inc.
lyza@brothersconstructionfl.com

QUESTION: What is the anticipated start date for construction?

RESPONSE: See GP-8-3.3 for allowable time between Contract and Notice to Proceed.

QUESTION: Is there a flexible acquisition period?

RESPONSE: No

August 14, 2026, 4:06 PM
General Asphalt
Rigoberto Tirado <rtirado@generalasphalt.com>

QUESTION: The bridge plans call for the substructure to be precast. Please let us know if it would be acceptable to replace the precast substructure with cast-in-place concrete.

RESPONSE: Precast Substructure only.

August 17, 2026, 1:54 PM
Cone & Graham
Krystina DeRienzo <KDeRienzo@ConeGraham.com>

QUESTION: Please provide a copy of the schedule that Palm Beach County used in calculating the number of days for this project. We are particularly looking for the pile driving and the excavation and rip rap installation. Along with the time to place the piles. To confirm we need the entire schedule. There does not seem to be enough time to construct this project.

RESPONSE: It is the contractor's responsibility to prepare the schedule to meet the timeline for construction in the bid specifications.

QUESTION: Please tell us any means and methods that we could anticipate using to drive the piles under the power lines. How many pile splices you intend to have on these piles.

RESPONSE: Construction means and methods are the contractor's responsibility.

QUESTION: Please provide the exact location of each pile (in the areas of the power lines) relative to each line that exist on the power poles crossing the canal. Please provide the KV of this line. Please provide the elevation of these power lines. These power line need to be relocated if the county truly believes in safety.

RESPONSE: Refer to Sheet 23 of the roadway plans for the power line voltage.

QUESTION: You are showing pre-casting of the caps. If we want to pour these caps in place, can we use all the reinforcing steel shown on the plans? When we are driving piles these longs and in these soil conditions you have a greater chance of driving the piles out of tolerance. If you are going to mandate the precast the caps please provide the pickup locations for each of the pieces. You have a cap the weighs around 160,000/lbs +- for round numbers. A cap this large is going to

SPECIAL PROVISIONS

need to be engineered by the county to show all the pickup points. I realize that you have notes on the intermediate bent B1-10. Requiring us to design the cap to make sure we pick it up in the right place and it does not bend is another expense that we do not need to incur. It is not a time saver to precast if we have to wait until the piles are driven.

RESPONSE: The substructure shall be precast as shown on the bid documents. The pre-castor shall design the lifting points to be used.

QUESTION: Does the channel excavation include the bottom of the rip rap area?

RESPONSE: Yes.

QUESTION: You are only allowing Sam Senter Road to be closed 365 days and with this much rip rap and channel excavation of rock we will not have enough time to complete the bridge in 365 days

RESPONSE: The bridge closure duration will not be modified.

QUESTION: We do not have any bid items for removal of unsuitable soils so based upon this; all of the regular excavation is suitable soils.

RESPONSE: Please refer to the Pay Item sheet included in this addendum.

QUESTION: The lengths of the precast panels are excessive. The Concrete Sheet Panels are going down to - 1.349 and -2.886. We would have to dig this rock out, down at this elevation before you could install the sheeting. Your own scour elevations at end bent in the worst case is 11.2. You have rip rap on the slopes of this entire channel. This canal cannot scour out anything on the end bents. You have control structures that even wide open cannot move that kind of water.

RESPONSE: Noted.

QUESTION: Please identify that this is FDOT Rubble Rap as your pay item numbers identify this type of rip rap. Please confirm the quantity of Rubble Rip Rap

RESPONSE: Refer to SFWMD Permit 16961-R, Page 5m note 25 for Rip-Rap specifications.

QUESTION: I do not see a quantity for bedding stone on the proposal sheet?

RESPONSE: See the updated bid sheet in the addendum.

QUESTION: Based upon the complexity of the job and the issues requiring additional review and clarification, we are requesting a 30-day extension to the bid letting date, currently scheduled for September 1, 2026.

RESPONSE: Refer to Addendum 1, previously issued.

August 19, 2026, 4:43 PM

Cone & Graham

Krystina DeRienzo <KDeRienzo@ConeGraham.com>

QUESTION: Please provide a Geotechnical report that would support the design for the rigid inclusion. Please note that our subcontractor, in order to calculate the rigid inclusions, would need a boring done every 100 feet. If you are asking us to base our design on the 2 borings shown on

SPECIAL PROVISIONS

the structure's plans, we can do that but any variance from that report will require a change order. Please direct us on how to proceed

RESPONSE: The geotechnical reports for this project has been added in the addendum.

August 20, 2026, 10:53 AM

Ranger Construction Industries, Inc.

John Centi John.Centi@rangerconstruction.com

QUESTION: Please provide a copy of the soil reports and/or soil borings for CR 880, as they do not appear to be included in the specifications or plans.

RESPONSE: The geotechnical reports for this project has been added in the addendum.

QUESTION: Please confirm whether the County will perform testing and density verification for the roadway and bridge work. Additionally, please clarify whether the Contractor is responsible for performing testing on the rigid inclusions.

RESPONSE: The roadway and bridge work will be inspected by Palm Beach County. The Rigid Inclusion system will be certified by design engineer. Palm Beach County will perform verification testing. Refer to the Technical Specification for Soil Stabilization Improvement by Rigid Inclusion (RI) Columns.

QUESTION: Bid Item No. 36, Pay Item 530-3-3, Rip-Rap Rubble: please confirm whether this item includes bedding stone. There is also a contingency item for bedding stone; however, it is unclear why bedding stone is listed under contingency items. Please clarify whether bedding stone should be included in Bid Item No. 36 or handled under the contingency item.

RESPONSE: See the revised pay item sheet for clarification.

QUESTION: Bid Items 5 through 8, Earthwork Items, show quantities that differ from the Summary of Pay Items, Summary of Quantities, and cross-section quantities. Please clarify the reason for these quantity discrepancies.

RESPONSE: No Response Provided

August 21, 2026, 10:12 AM

Rosso Site Development, Inc.

Joseph Rosso III <Joe3@rossositedevelopment.com>

QUESTION: . Plan Sheet 36. The note for the SFWMD gate says to refer to the SFWMD gate details. I don't see the detail in the plans. Can the detail be provided?

RESPONSE: Refer to SFWMD Permit for gate detail, Sheets 1 and 3.

QUESTION: Cross section sheets 3-5. The stabilized subgrade is shown 3' past the edge of pavement and the full depth is more than 12". Will this area also be paid for under the stabilized subgrade (12") bid item even though it is more than 12" thick?

RESPONSE: Yes

QUESTION: Spec Book Page SP-14, 29. Subsoil Excavation. Please advise if the muck is to remain in this situation.

SPECIAL PROVISIONS

RESPONSE: See updated specifications, Special Provision 29 for direction.

QUESTION: Can the full soil report be provided? This is needed for the rigid inclusion quote.

RESPONSE: The Geotechnical Reports for the project has been provided in the Addendum.

QUESTION: . Can muck that needs to be excavated for the roadway be re-used in landscape areas or does it need to be hauled away?

RESPONSE: Organic soils may be used as required by the landscape specifications. The remainder of the material shall be disposed of. No filling with this material will be allowed within the right of way of CR880.

QUESTION: Are there any asphalt cores that can be provided? The existing roadway asphalt thickness is needed in order to properly quote the demolition.

RESPONSE: Geotechnical Reports provided.

QUESTION: . Will CR 880 be allowed to be closed?

RESPONSE: Two travel lanes are required at all times.

August 20, 2026 3:43 PM

Cone & Graham

Krystina DeRienzo <KDeRienzo@ConeGraham.com

QUESTION: Could you provide the Soil Survey sheets in the roadway plans? They are mentioned in the table of contents, but the sheets are missing in the plans.

RESPONSE: Sheets GR1 – GR6 have been provided in this addendum.

QUESTION: It appears plan sheets C2 1 of 3, C2 3 of 3, and GR-1 thru GR-6 are missing from the bid documents. They are listed on the cover sheet. Can they please be provided?

RESPONSE: Sheets C2 1 of 3, C2 3 of 3 and GR1 – GR6 have been provided in the addendum.

Monday, August 24, 2026 8:34 AM

Cone & Graham

Krystina DeRienzo <KDeRienzo@ConeGraham.com

QUESTION: Please Provide a copy of the Geotechnical Report for the bridge (especially looking for pile information.

RESPONSE: Geotechnical Report provided with this addendum.

QUESTION: The Pile data table on page B1-6 does not match the pile foundation plan on page B1-5

RESPONSE: End Bent on Sheet B1-5 should say 9 spaces at 5'-10". See revised sheet in this addendum.

QUESTION: Piles on the pile data are listed twice (1st two lines)

SPECIAL PROVISIONS

RESPONSE: No change to the bid documents.

QUESTION: Pile Data Table, Preformed elevations are lower than Minimum tip elevations

RESPONSE: Preformed tip elevations to remain.

QUESTION: The Test Pile Quantity is incorrect

RESPONSE: No Change to Quantities.

QUESTION: Concrete Sheet Panels are extremely long for the site conditions. Please shorten the lengths.

RESPONSE: Length of panels not changed.

August 24, 2026 3:50 PM

Ferreira Construction

Cecilia Hein; Chein@ferreiraconstruction.com

QUESTION: Are stay in place forms allowed for the CIP bridge deck?

RESPONSE: No.

August 25, 2026 9:58 AM

Ferreira Construction

Cecilia Hein; Chein@ferreiraconstruction.com

QUESTION: Could you please provide the P2 and P3 forms in Excel format?

RESPONSE: Yes, Revised Sheets P2 and P3 forms have been provided in Excel format with this addendum.

Wednesday, August 26, 2026 4:43 PM

Ferreira Construction

Cecilia Hein; Chein@ferreiraconstruction.com

QUESTION: Has there been any discussion about deenergizing overhead electric?

RESPONSE: Refer to SP-57 in the bid documents

QUESTION: Can a lane be closed during duration of Rigid inclusion columns utilizing temporary traffic signals?

RESPONSE: No

QUESTION: Are there any circumstances allowing full road closures?

RESPONSE: No

QUESTION: Will the County consider detouring CR 880 around project site during IR installation?

RESPONSE: No

Wednesday, September 9, 2026 12:16 PM

SPECIAL PROVISIONS

Palm Beach Aggregates, LLC
Justo Navarro, JNavarro@siboneycc.com

QUESTION: Will the steel Bridge at CR 880 & SR 80 allow its crossing with 27 ton Gross Vehicle Weight Limit, or will it remain posted with 5 tons GVW?

RESPONSE: Remain at 5 Ton rating

Wednesday, September 15, 2026
MJC Land Development
Kevin Hosford, Publicitb@mjcclanddev.com

QUESTION: The cross sections in the plans contain what appears to be soil boring log information. The boring logs show numbered strata layers. Where can the legend or description of the strata layers be found? Is there a geotechnical report or any other data available which contains information about the physical properties of the these strata?

RESPONSE: See the geotechnical report for requested information.

Wednesday, September 15, 2026 12:34 PM
Posillico
Jack Germano <jgermano@posillicoinc.com

QUESTION: Palm Beach County typically uses one of their own consultants to perform soil testing and concrete testing. Does this apply to this project?

RESPONSE: This will apply to all project testing except for the Inclusion Piles.

QUESTION: Please provide specifications for the Rigid Inclusions. Is there an FDOT specification for the Rigid Inclusions for this project?

RESPONSE: See Technical Specifications

QUESTION: Please provide the Roadway Soil Survey sheets GR-1 thru GR-6.

RESPONSE: Provided in this Addendum

QUESTION: In the document named 2019803 Roadway Plans_Part 2 of 3.pdf there are 2 Control Structures (Ditch Bottom Inlet Type D) (Special) shown. The bid form only contains 1 for this item. There is also no mention of the Control Structures (Ditch Bottom Inlet Type C) (Special) in any of the plan sets. Please clarify

RESPONSE: Pay items have been adjusted

QUESTION: Has Palm Beach County confirmed with the respective power authority that the conflicted power lines above the bridge can be de-energized during piling activities?

RESPONSE: Refer to SP-57 in the bid documents

QUESTION: In the document named 2019803 Structures Plans_Part 1 of 2 Sheet B1-1: Plan and Elevation, the Bridge Elevation View outlines that bridge deck spans 1,2, and 5 require cast in place concrete for the reinforcement slabs whereas bridge deck spans 3 and 4 display precast planks being applied for the reinforcement slabs. Will Palm Beach County accept the application of precast planks for bridge deck spans 1, 2, and 5 instead of Cast in Place concrete?

SPECIAL PROVISIONS

RESPONSE: Spans 1, 2 & 5 are flaring sections, no change to the bid documents.

QUESTION: Clarification on whether the contractor can dewater into the canal during bridge construction activities. If so, are there any limitations on how far one can dewater along the canal.

RESPONSE: Contact SFWMD for dewatering criteria.

Tuesday, September 15, 2026

Ferreira Construction

Job Ireland; jireland@ferreiraconstruction.com

QUESTION: Are stay in place forms allowed?

RESPONSE: No

QUESTION: Can the bents be cast in place instead of precast?

RESPONSE: No

QUESTION: Will a temporary traffic signal be allowed during land closures?

RESPONSE: No

QUESTION: Confirm that the bridge is to be completed prior to the CR880 improvements?

RESPONSE: The bridge is required to be completed no later than September 15, 2028.

QUESTION: Can Senter Road remain closed until the CR880 improvements are complete or will it be required to reopen 365 after commencement of bridge work?

RESPONSE: No, The bridge is required to be completed no later than September 15, 2028.

QUESTION: Will there be a staging area along CR880 in the work area to support RI Concrete operations.

RESPONSE: It is the contractors responsibility to secure staging areas.

Thursday, September 17, 2026

Ferreira Construction

Job Ireland; jireland@ferreiraconstruction.com

QUESTION: Sheet 36 of Roadway Plans part 2 of 3 references – “See SFWMD Gate Details”

RESPONSE: Gate details provided in this addendum.

QUESTION: In the Roadway Plans part 1 of 3 – on sheet 1 in the index of roadway plans indicates that sheets C2 are the “SFWMD Standard Civil Details Vehicle Barrier Two Span Gate”

RESPONSE: Gate details provided in this addendum.

QUESTION: We cannot find the C2 sheets – “SFWMD Standard Civil Details Vehicle Barrier Two Span Gate”.

RESPONSE: Gate details provided in this addendum.

DATE OF SURVEY: 7/18/22 - 8/16/22
SURVEY MADE BY: GCME, INC.
SUBMITTED BY: PARTHA GHOSH, P.E.

DISTRICT: -
ROAD NO.: CR-880
COUNTY: PALM BEACH

PALM BEACH COUNTY

PBC PROJECT No: 2019803
PROJECT NAME: CR-880: SAM SENTER ROAD OVER SFWMD OCEAN CANAL

CROSS SECTION SOIL SURVEY FOR THE DESIGN OF ROADS

SURVEY BEGINS STA. : 76+00 SURVEY ENDS STA. : 118+00

REFERENCE: CR-880

STRATUM NO.	ORGANIC CONTENT		MOISTURE CONTENT		SIEVE ANALYSIS RESULTS					ATTERBERG LIMITS (%)				DESCRIPTION	CORROSION TEST RESULTS					
	NO. OF TESTS	% ORGANIC	NO. OF TESTS	MOISTURE CONTENT	NO. OF TESTS	10 MESH	40 MESH	60 MESH	100 MESH	200 MESH	NO. OF TESTS	LIQUID LIMIT	PLASTIC INDEX		AASHTO GROUP	NO. OF TESTS	RESISTIVITY ohm-cm	CHLORIDE ppm	SULFATES ppm	pH
P	-	-	-	-	-	-	-	-	-	-	-	-	-	-	ASPHALT PAVEMENT	-	-	-	-	-
I	-	-	7	12-17	7	36-86	25-70	22-59	19-49	17-34	-	-	-	A-1-b, A-2-4	LIGHT BROWN TO GRAY FINE TO MEDIUM SAND, SOME SHELL FRAGMENTS AND LIMEROCK GRAVELS, SOME CLAYEY SAND LENSES	-	-	-	-	-
1A	-	-	-	-	-	-	-	-	-	-	-	-	-	A-8	DARK BROWN TO BROWN SAND WITH TRACE ROOTS	-	-	-	-	-
2	22	6-89	22	18-426	-	-	-	-	-	-	-	-	-	A-8	DARK BROWN TO BLACK SILTY, CLAYEY PEAT	-	-	-	-	-
3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	LIGHT BROWN TO GRAY SILTY, SANDY LIMESTONE, SHELL FRAGMENTS, WEAKLY TO WELL CEMENTED	-	-	-	-	-
4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	LIGHT GRAY WEATHERED LIMESTONE	-	-	-	-	-
5	-	-	8	20-43	8	48-91	39-56	30-48	18-42	12-35	-	-	-	A-1-b, A-2-4	LIGHT BROWN TO GRAY SILTY SAND WITH FEW TO SOME LIMESTONE FRAGMENTS AND SHELL FRAGMENTS	1	4200	22	150	8.5
5A	-	-	12	16-63	12	64-94	52-73	45-69	41-65	37-60	-	-	-	A-4	LIGHT BROWN TO GRAY SILT WITH TRACE TO FEW LIMESTONE FRAGMENTS	1	4200	9	160	8.5
5B	-	-	-	-	-	-	-	-	-	-	-	-	-	A-3	BROWN SAND WITH SILT, TRACE TO FEW LIMEROCK FRAGMENTS	1 (WATER)	1900	63	28	8.5
5C	-	-	1	27	1	61	38	30	20	12	-	-	-	A-1-b	LIGHT BROWN SILTY SAND AND SOME SHELL FRAGMENTS	-	-	-	-	-

EMBANKMENT AND SUBGRADE MATERIAL

STRATA BOUNDARIES ARE APPROXIMATE. MAKE FINAL CHECK AFTER GRADING.

▽ - WATER TABLE ENCOUNTERED

GNE - GROUNDWATER NOT ENCOUNTERED

- NOTES: (1) STRATUM P IS ASPHALT PAVEMENT
- (2) STRATUM I IS FILL MATERIALS. IT CONSISTS OF SELECT MATERIALS AND ARE ADEQUATE FOR SUBGRADE AND EMBANKMENT SUPPORT, AND SHOULD BE UTILIZED ACCORDING TO STANDARD PLANS, INDEX 120-001.
- (3) THE MATERIAL FROM STRATUM 1A IS TOPSOIL (A-8) AND CONSIDERED TO BE UNSUITABLE MATERIAL AND IT SHALL BE REMOVED IN ACCORDANCE WITH SUBSOIL EXCAVATION REFERENCED IN FDOT STANDARD PLANS INDEX 120-002 AND STANDARD SPECIFICATIONS SECTION 120.
- (4) STRATUM 2 CONSISTS OF ORGANIC MATERIALS WITH ORGANIC CONTENT OVER 5%. IT SHALL BE REMOVED AND REPLACED WITH SELECT FILL IN ACCORDANCE WITH SUBSOIL EXCAVATION REFERENCED IN FDOT STANDARD PLANS INDEX 120-002. THIS SOIL EXCHANGE WILL NOT BE FEASIBLE, AND HENCE WILL BE HANDLED BY RIGID INCLUSION.
- (5) STRATUM 3 AND 4 CONSIST OF LIMESTONE. SPECIALIZED TOOLS AND EQUIPMENT ARE NECESSARY TO EXCAVATE AND/OR PENETRATE THE LIMESTONE LAYER.
- (6) STRATUM 5 AND 5C CONSIST OF SELECT MATERIALS AND ARE GENERALLY ADEQUATE FOR SUBGRADE AND EMBANKMENT SUPPORT, AND SHOULD BE UTILIZED ACCORDING TO STANDARD PLANS, INDEX 120-001. HOWEVER, SOME PORTIONS OF THESE SOILS HAVE HIGH FINES CONTENT, AND HENCE WILL RETAIN EXCESS MOISTURE, AND WILL BE DIFFICULT TO HANDLE, PLACE AND COMPACT. THESE MATERIALS MAY BE USED IN THE ROADWAY SUBGRADE WITH EXTRA CAUTION AND PROPER SUPERVISION AND QUALITY CONTROL. A-2-4 MATERIAL PLACED BELOW THE EXISTING WATER LEVEL MUST BE NONPLASTIC AND CONTAIN LESS THAN 15% PASSING THE No. 200 U.S. STANDARD SIEVE.
- (7) STRATUM 5A CONSISTS OF PLASTIC MATERIALS. THESE SOILS ARE PRESENT ABOUT 2 FEET OR MORE BELOW EXISTING GRADE, AND BASED ON PROPOSED ROADWAY GRADE, REMOVAL OF THESE SOILS WILL NOT BE NECESSARY.
- (8) STRATUM 5B CONSISTS OF SELECT MATERIALS AND ARE ADEQUATE FOR SUBGRADE AND EMBANKMENT SUPPORT, AND SHOULD BE UTILIZED ACCORDING TO STANDARD PLANS, INDEX 120-001. HOWEVER, PORTIONS MAY RETAIN EXCESS MOISTURE DUE TO SLIGHTLY HIGH FINES CONTENT AND COULD BE MORE DIFFICULT TO HANDLE, PLACE AND COMPACT THAN ORDINARY A-3 MATERIAL.

GCME PROJECT NO. 2000-01-21005

GCME

GCME, INC.
1730 W. 10TH STREET
RIVIERA BEACH, FLORIDA 33404
CERTIFICATE OF AUTHORIZATION NO. 9076
PHONE (561) 845-8727

Seal:

xx
P.E.# x

No.	Revisions	By	Date



PALM BEACH COUNTY
ENGINEERING AND PUBLIC WORKS
ROADWAY PRODUCTION
P.O. BOX 21229, WEST PALM BEACH, FLORIDA

SCALE: N.T.S.
APPROVED: PG
DRAWN: FP
CHECKED: ZP
DATE: 09/12/22

ROADWAY SOIL SURVEY

SHEET:
OF: GR-1

PROJECT NO.
2019803

f.pier

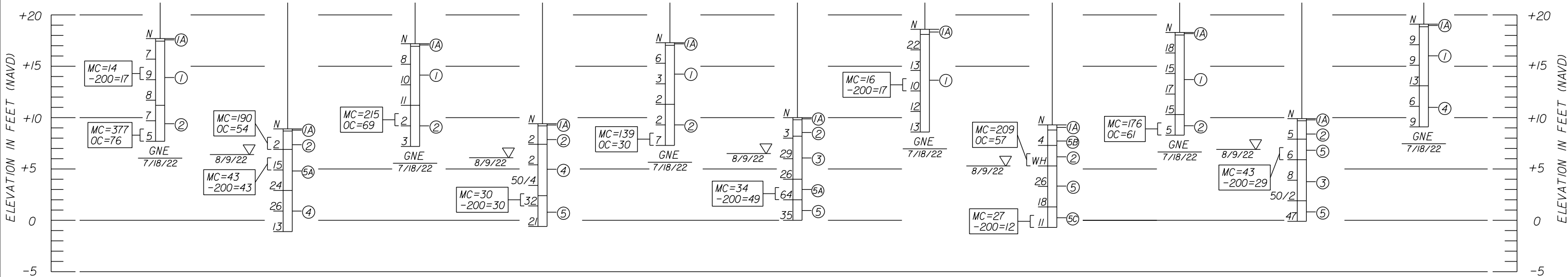
10/21/2022

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FIGURE: RSS-1 NOTICE: THE OFFICIAL RECORD OF THIS SHEET IS THE ELECTRONIC FILE DIGITALLY SIGNED AND SEALED UNDER RULE 61G15-23.004, F.A.C.

GCME PROJECT NO. 2000-01-21005

BORING NO. STATION OFFSET ELEVATION LATITUDE LONGITUDE HAMMER DATE	R-101 76+00 12.8' RT +17.7' 26.6751° -80.5445° AUTOMATIC 7/18/22	R-102 78+03 38.3' RT +8.9' 26.6754° -80.5440° AUTOMATIC 8/9/22	R-103 79+98 5.2' RT +17.2' 26.6758° -80.5436° AUTOMATIC 7/18/22	R-104 82+13 28.7' RT +9.4' 26.6762° -80.5431° AUTOMATIC 8/9/22	R-105 83+92 2.7' RT +17.3' 26.6766° -80.5427° AUTOMATIC 7/18/22	R-106 86+36 24.7' RT +10.0' 26.6770° -80.5422° AUTOMATIC 8/9/22	R-107 87+95 0.5' RT +18.6' 26.6773° -80.5418° AUTOMATIC 7/18/22	R-108 89+94 27.6' RT +9.3' 26.6775° -80.5412° AUTOMATIC 8/9/22	R-109 92+24 4.2' RT +18.3' 26.6778° -80.5406° AUTOMATIC 7/18/22	R-110 94+08 24.9' RT +9.9' 26.6779° -80.5401° AUTOMATIC 8/9/22	R-111 96+07 2.7' LT +19.1' 26.6781° -80.5395° AUTOMATIC 7/18/22
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LEGEND

P. ASPHALT PAVEMENTS

1. LIGHT BROWN TO GRAY FINE TO MEDIUM SAND, SOME SHELL FRAGMENTS AND LIMEROCK GRAVELS, SOME CLAYEY SAND LENSES (A-1-b, A-2-4)
- 1A. DARK BROWN TO BROWN SAND WITH TRACE ROOTS (A-8) (TOPSOIL)
2. DARK BROWN TO BLACK SILTY, CLAYEY PEAT (A-8)
3. LIGHT BROWN TO GRAY SILTY, SANDY LIMESTONE, SHELL FRAGMENTS, WEAKLY TO WELL CEMENTED LIMESTONE
4. LIGHT GRAY WEATHERED LIMESTONE
5. LIGHT BROWN TO GRAY SILTY SAND WITH FEW TO SOME LIMESTONE FRAGMENTS AND SHELL FRAGMENTS (A-1-b, A-2-4)
- 5A. LIGHT BROWN TO GRAY SILT WITH TRACE TO FEW LIMESTONE FRAGMENTS (A-4)
- 5B. BROWN SAND WITH SILT, TRACE TO FEW LIMEROCK FRAGMENTS (A-3)
- 5C. LIGHT BROWN SILTY SAND AND SOME SHELL FRAGMENTS (A-1-b)

NOTES

- GROUNDWATER LEVEL RECORDED ON THE DATE OF DRILLING.
- GNE: WATER TABLE NOT ENCOUNTERED WITHIN THE DEPTH OF EXPLORATION.
- DRILLED BY: ANDI GARCIA / ALEXANDRE / MIQUEL LOBO
- COORDINATES INFORMATION ARE MEASURED BY HANDHELD GPS.
- STATION / OFFSET / ELEVATION INFORMATION ARE PROVIDED BY SURVEYORS
- N - STANDARD PENETRATION RESISTANCE IN BLOWS PER 12 INCHES.
- MC - NATURAL MOISTURE CONTENT (%)
- 200 - FINES PASSING #200 SIEVE (%)
- OC - ORGANIC CONTENT (%)
- (A-3) - AASHTO SOIL SYMBOL

SCALE: 1"=10'V

GCME

GCME, INC.
1730 W. 10TH STREET
RIVIERA BEACH, FLORIDA 33404
CERTIFICATE OF AUTHORIZATION NO. 9076
PHONE (561) 845-8727

Seal:

xx
P.E.# x

No.

Revisions

By

Date



PALM BEACH COUNTY
ENGINEERING AND PUBLIC WORKS
ROADWAY PRODUCTION
P.O. BOX 21229, WEST PALM BEACH, FLORIDA

SCALE: N.T.S.
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DRAWN: FP
CHECKED: ZP
DATE: 09/12/22

ROADWAY SOIL SURVEY

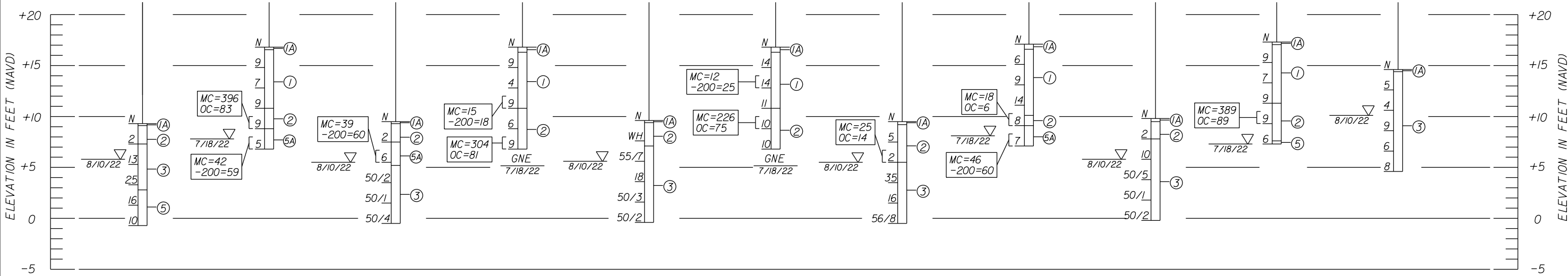
SHEET:
OF GR-2

PROJECT NO.
2019803

NOTICE: THE OFFICIAL RECORD OF THIS SHEET IS THE ELECTRONIC FILE DIGITALLY SIGNED AND SEALED UNDER RULE 61G15-23.004, F.A.C. FIGURE: 1

GCME PROJECT NO. 2000-01-21005

BORING NO.	R-112	R-113	R-114	R-115	R-116	R-117	R-118	R-119	R-120	R-121	R-122
STATION	98+09	99+96	102+16	103+92	105+92	107+94	110+03	112+04	114+09	115+97	117+70
OFFSET	25.3' RT	3.2' RT	24.5' RT	3.5' RT	24.9' RT	3.0' RT	25.8' RT	6.5' RT	32.8' RT	10.5' RT	33.5' RT
ELEVATION	+9.3'	+16.8'	+9.5'	+16.8'	+9.6'	+16.8'	+9.5'	+17.1'	+9.8'	+17.3'	+14.6'
LATITUDE	26.6781°	26.6782°	26.6781°	26.6782°	26.6781°	26.6782°	26.6781°	26.6782°	26.6781°	26.6782°	26.6781°
LONGITUDE	-80.5389°	-80.5383°	-80.5377°	-80.5371°	-80.5365°	-80.5359°	-80.5352°	-80.5346°	-80.5340°	-80.5334°	-80.5329°
HAMMER	AUTOMATIC	AUTOMATIC	AUTOMATIC	AUTOMATIC	AUTOMATIC	AUTOMATIC	AUTOMATIC	AUTOMATIC	AUTOMATIC	AUTOMATIC	AUTOMATIC
DATE	8/10/22	7/18/22	8/10/22	7/18/22	8/10/22	7/18/22	8/10/22	7/18/22	8/10/22	7/18/22	8/10/22



LEGEND

P. ASPHALT PAVEMENTS

- 1. LIGHT BROWN TO GRAY FINE TO MEDIUM SAND, SOME SHELL FRAGMENTS AND LIMEROCK GRAVELS, SOME CLAYEY SAND LENSES (A-1-b, A-2-4)
- 1A. DARK BROWN TO BROWN SAND WITH TRACE ROOTS (A-8) (TOPSOIL)
- 2. DARK BROWN TO BLACK SILTY, CLAYEY PEAT (A-8)
- 3. LIGHT BROWN TO GRAY SILTY, SANDY LIMESTONE, SHELL FRAGMENTS, WEAKLY TO WELL CEMENTED LIMESTONE
- 4. LIGHT GRAY WEATHERED LIMESTONE
- 5. LIGHT BROWN TO GRAY SILTY SAND WITH FEW TO SOME LIMESTONE FRAGMENTS AND SHELL FRAGMENTS (A-1-b, A-2-4)
- 5A. LIGHT BROWN TO GRAY SILT WITH TRACE TO FEW LIMESTONE FRAGMENTS (A-4)
- 5B. BROWN SAND WITH SILT, TRACE TO FEW LIMEROCK FRAGMENTS (A-3)
- 5C. LIGHT BROWN SILTY SAND AND SOME SHELL FRAGMENTS (A-1-b)

NOTES

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P.O. BOX 21229, WEST PALM BEACH, FLORIDA

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ROADWAY SOIL SURVEY

SHEET:
OF: GR-3

PROJECT NO.
2019803

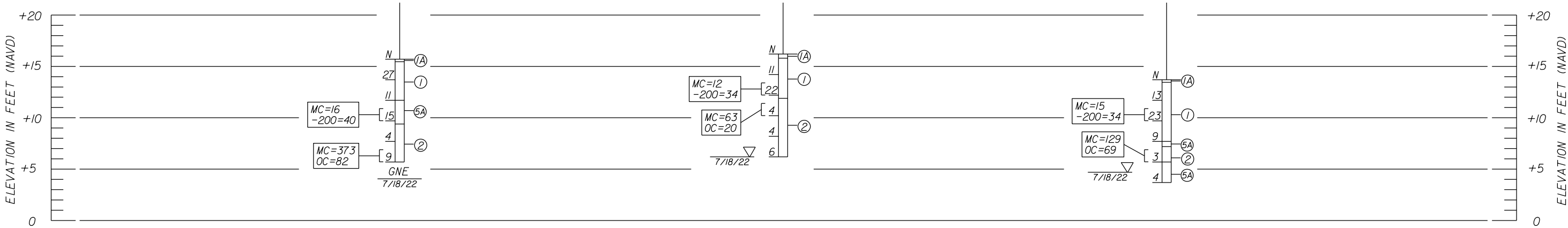
GCME PROJECT NO. 2000-01-21005

BORING NO.
STATION
OFFSET
ELEVATION
LATITUDE
LONGITUDE
HAMMER
DATE

R-201
11+96 (CL SSR)
24.4' LT
+15.7'
26.6787°
-80.5386°
AUTOMATIC
7/18/22

R-202 (CL SSR)
13+07
6.7' RT
+16.2'
26.6790°
-80.5385°
AUTOMATIC
7/18/22

R-203 (CL SSR)
13+97
20.3' LT
+13.7'
26.6793°
-80.5386°
AUTOMATIC
7/18/22



LEGEND

- P. ASPHALT PAVEMENTS
1. LIGHT BROWN TO GRAY FINE TO MEDIUM SAND, SOME SHELL FRAGMENTS AND LIMEROCK GRAVELS, SOME CLAYEY SAND LENSES (A-1-b, A-2-4)
 - 1A. DARK BROWN TO BROWN SAND WITH TRACE ROOTS (A-8)(TOPSOIL)
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 - 5B. BROWN SAND WITH SILT, TRACE TO FEW LIMEROCK FRAGMENTS (A-3)
 - 5C. LIGHT BROWN SILTY SAND AND SOME SHELL FRAGMENTS (A-1-b)

NOTES

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- (A-3) - AASHTO SOIL SYMBOL

SCALE: 1"=10'V

GCME

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PALM BEACH COUNTY
ENGINEERING AND PUBLIC WORKS
ROADWAY PRODUCTION
P.O. BOX 21229, WEST PALM BEACH, FLORIDA

SCALE: N.T.S.
APPROVED: PG
DRAWN: FP
CHECKED: ZP
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ROADWAY SOIL SURVEY

SHEET:
OF: GR-4

PROJECT NO.
2019803

GCME PROJECT NO. 2000-01-21005

BORING NO.
STATION
OFFSET
ELEVATION
LATITUDE
LONGITUDE
HAMMER
DATE

R-301
85+03 (CL SSR)
31.3' RT
+8.6'
26.6767°
-80.5424°
AUTOMATIC
8/9/22

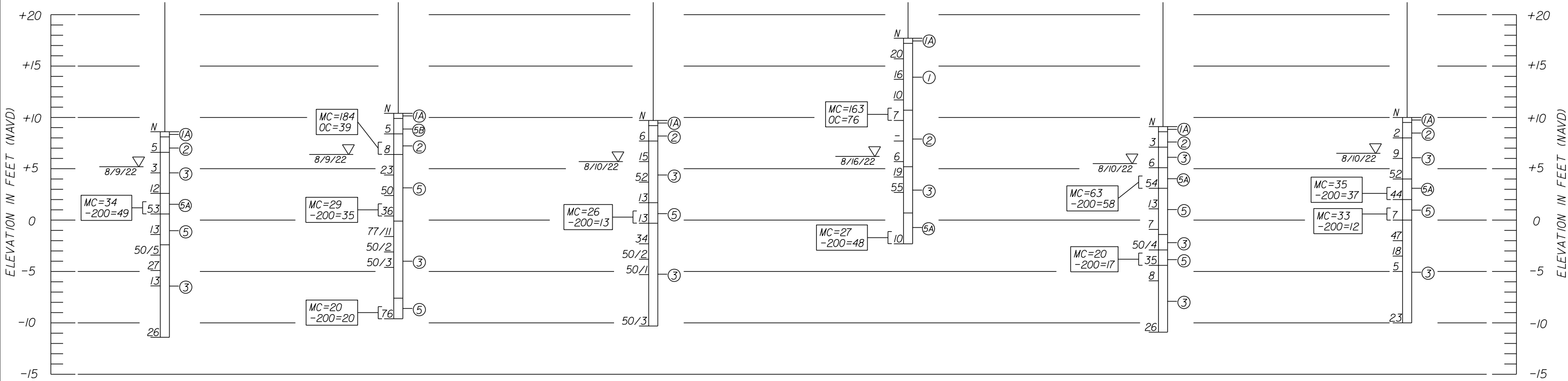
R-302
91+39
25.8'
+10.4'
26.6777°
-80.5409°
AUTOMATIC
8/9/22

R-303
94+95
25.1' RT
+9.7'
26.6780°
-80.5398°
AUTOMATIC
8/10/22

R-304
101+34
0.4' LT
+17.7'
26.6782°
-80.5379°
AUTOMATIC
8/16/22

R-305
107+09
26.1' RT
+9.1'
26.6781°
-80.5361°
AUTOMATIC
8/10/22

R-306
113+01
32.0' RT
+10.0'
26.6781°
-80.5343°
AUTOMATIC
8/10/22



LEGEND

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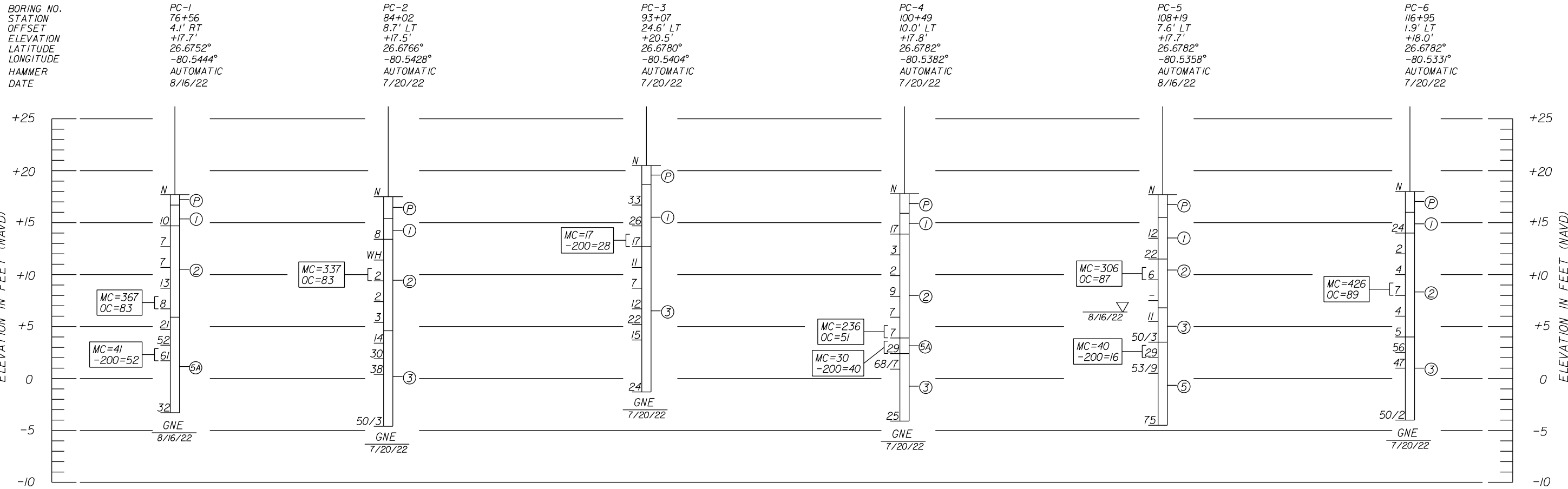
ROADWAY SOIL SURVEY

SHEET:
OF: GR-5

PROJECT NO.
2019803

NOTICE: THE OFFICIAL RECORD OF THIS SHEET IS THE ELECTRONIC FILE DIGITALLY SIGNED AND SEALED UNDER RULE 61G15-23.004, F.A.C. FIGURE: 4

GCME PROJECT NO. 2000-01-21005



LEGEND

P. ASPHALT PAVEMENTS

1. LIGHT BROWN TO GRAY FINE TO MEDIUM SAND, SOME SHELL FRAGMENTS AND LIMEROCK GRAVELS, SOME CLAYEY SAND LENSES (A-1-b, A-2-4)
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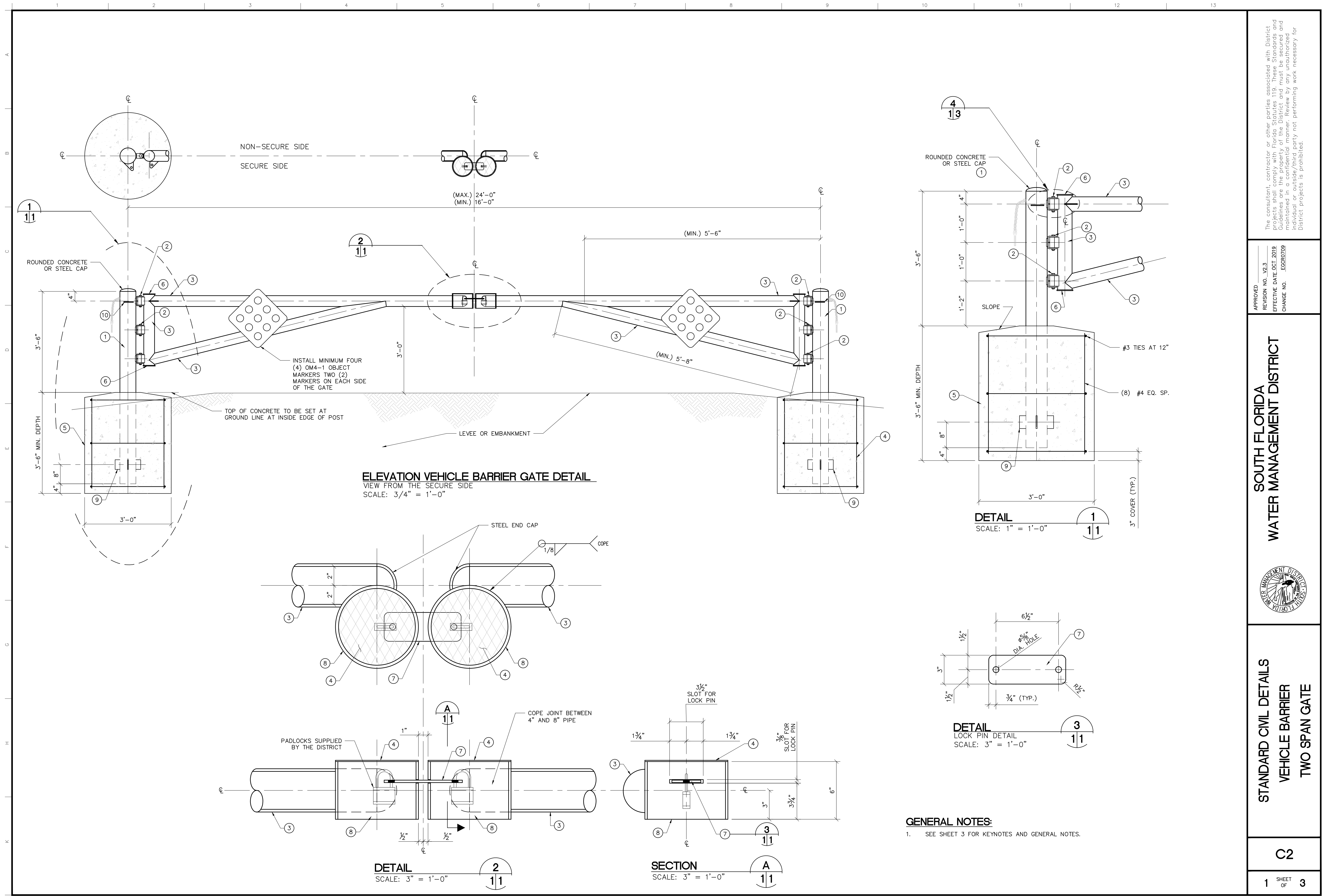
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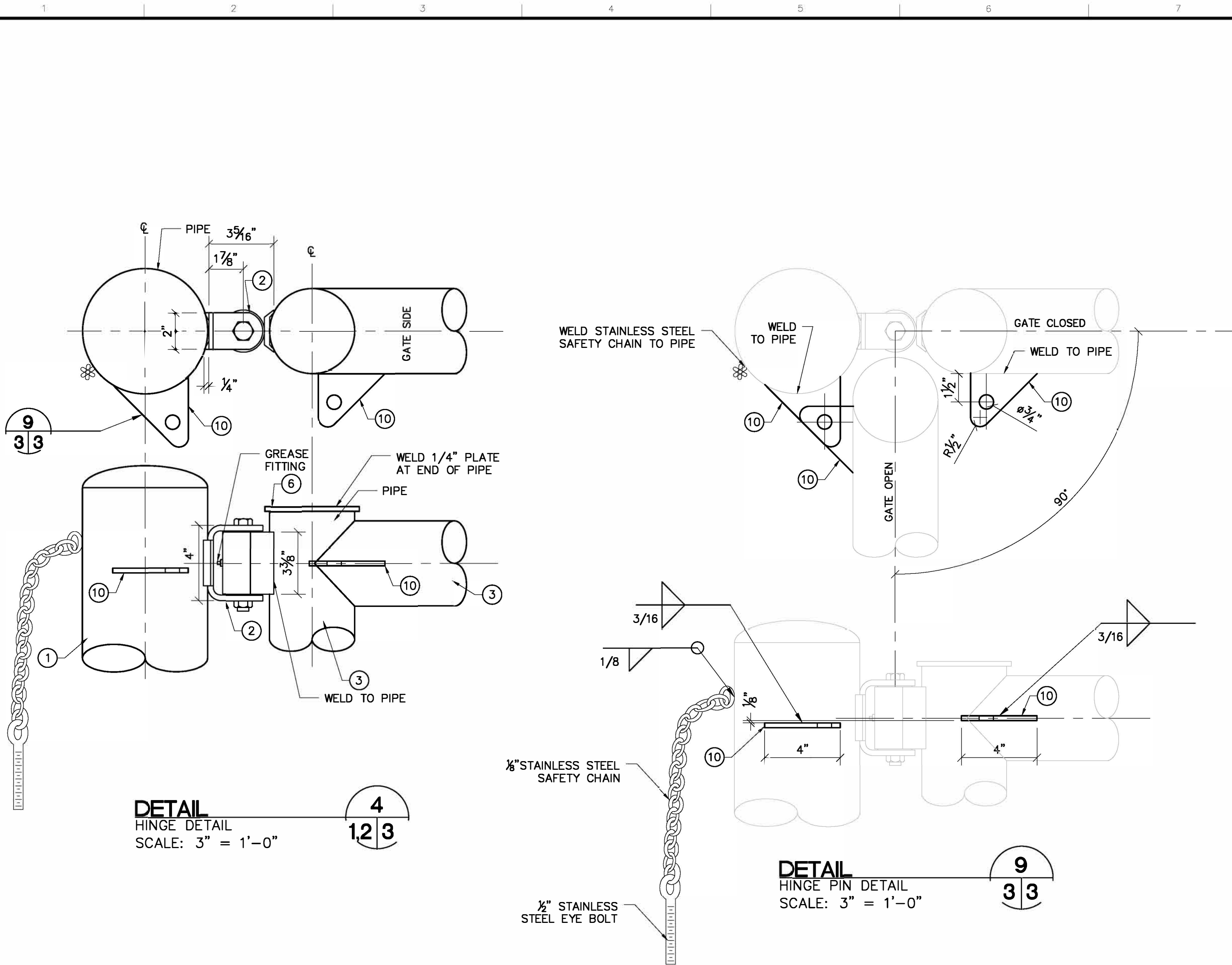
SCALE: N.T.S.
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ROADWAY SOIL SURVEY

SHEET:
OF: GR-6

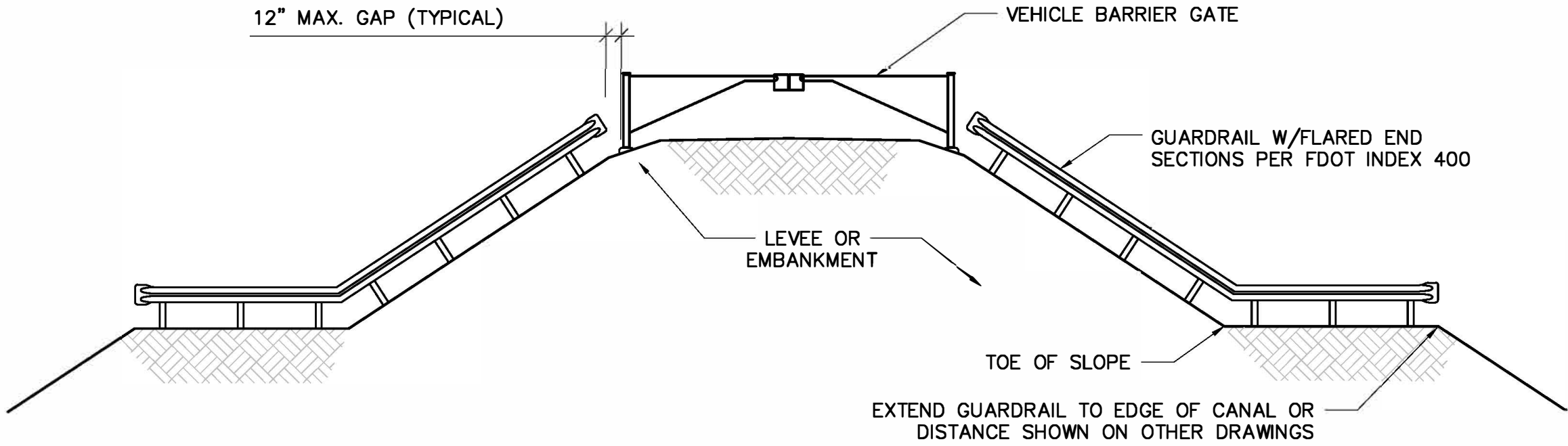
PROJECT NO.
2019803



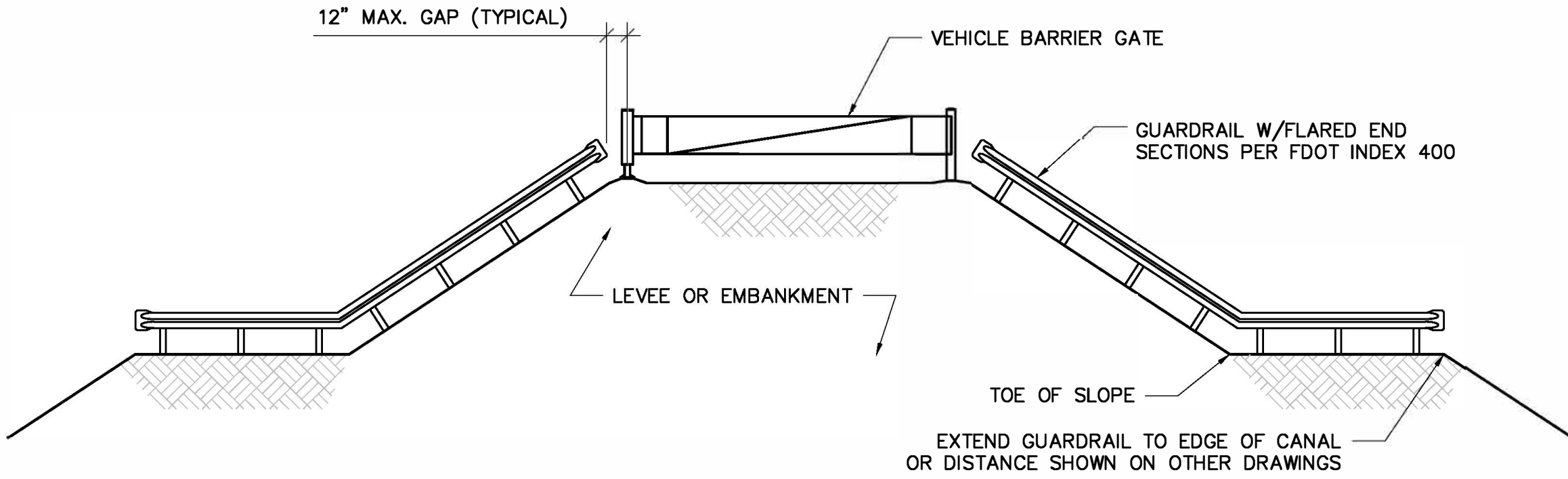


GENERAL NOTES:

1. ALL POST AND FRAMEWORK SHALL BE GALVANIZED STEEL SCHEDULE 40 PIPE.
2. ALL WELDS SHALL BE COATED WITH COLD GALVANIZING COMPOUND.
3. ALL JOINTS SHALL BE WELDED ALL AROUND AND WELDS TO BE GROUND SMOOTH.
4. WELDS AT HINGE SHALL BE SIZED TO DEVELOP FULL CAPACITY OF THE HINGE.
5. FINISH FOR ALL METAL SURFACES SHALL BE HOT-DIPPED GALVANIZED IN ACCORDANCE WITH ASTM 123.
6. PADLOCKS TO BE PROVIDED BY DISTRICT.
7. ALL CONCRETE SHALL BE 3,000 PSI.
8. ALL EXPOSED STEEL SURFACES OF THE GATE SHALL BE COATED WITH COATING SYSTEM S-7 PER SECTION 09900. COATING COLOR SHALL BE OSHA SAFETY YELLOW.
9. GATES TO SWING IN TOWARD THE SECURE SIDE OF FACILITY ACCESS ROAD.
10. USE HEAVY DUTY ROLLER BEARING HINGE AS MANUFACTURED BY GUARDIAN, OR APPROVED EQUAL. MINIMUM HINGE CAPACITY 3000 LB. PER PAIR.
11. SHOP SUBMITTALS INDICATING DIMENSIONS, WELDMENTS, DETAILS, HINGES AND ASSEMBLIES ARE REQUIRED IN ACCORDANCE WITH SECTION 01300-SUBMITTALS.
12. SPECIFY CABLE AND CHAIN BERM BARRIERS AT LOCATIONS DESIGNATED BY THE DISTRICT AS HIGH SECURITY.



TYPICAL VEHICLE BARRIER GATE INSTALLATION
TWO SPAN GATE
NOT TO SCALE



TYPICAL VEHICLE BARRIER GATE INSTALLATION
ONE SPAN GATE
NOT TO SCALE

KEY NOTES		
MARK	DESCRIPTION	REMARKS
①	6" DIA. SCH 40 PIPE (GALV.)	CONCRETE FILLED
②	HEAVY DUTY HINGE, (GALV.)	(3) REQ'D. FOR (1) SPAN (SEE NOTE 10)
③	4" DIA. SCH 40 PIPE (GALV.)	
④	EXPANDED METAL COVER	
⑤	CONCRETE BASE	3000 PSI
⑥	1/4" PLATE (GALV.)	CAP PLATE (TOP AND BOTTOM)
⑦	1/4" PLATE (GALV.)	LOCK PIN
⑧	8" DIA. SCH 40 PIPE (GALV.)	
⑨	1/4"x 2"x 4" PLATE (GALV.)	(4) EACH REQ'D PER POST
⑩	1/4" PLATE (GALV.)	HINGE PIN
⑪	HHS (HOLLOW STRUCTURAL SECTION) 6"x2"x $\frac{1}{8}$ "	SLOT LINER FOR LOCK PIN TONGUE
⑫	1/4" PLATE (GALV.)	LOCK PIN TONGUE
⑬	2" DIA SCH 40 PIPE (GALV)	
⑭	4" DIA SCH 40 90° PIPE ELBOW (GALV)	
⑮	1/4" PLATE (GALV.)	



Date: November 25, 2024

Prepared by: **GCME, Inc.**

TO: Stanley Consultants, Inc.
1641 Worthington Road, Suite 400
West Palm Beach, FL 33409

Attention: **Mr. Amin Ahmed, P.E.**
Senior Project Manager

SUBJECT: **Geotechnical Services Report – Final Revised
Bridge Structure**
CR-880: Sam Senter Road over SFWMD Ocean Canal
Palm Beach County, Florida
PBC Project No.: 2019803
GCME Project No.: 2000-01-21005

Dear Mr. Ahmed,

GCME, Inc. has completed the Final Geotechnical Services Report for Bridge Structures in connection with the subject project. The purpose of this report is to provide geotechnical information to the structural engineers for preparation of the bridge plans for the above mentioned bridge structures foundation design. The following report includes the methods of study, evaluations and recommendations concerning geotechnical aspects of the proposed improvements. This report incorporates the comments made in reference to our earlier report dated September 5, 2023.

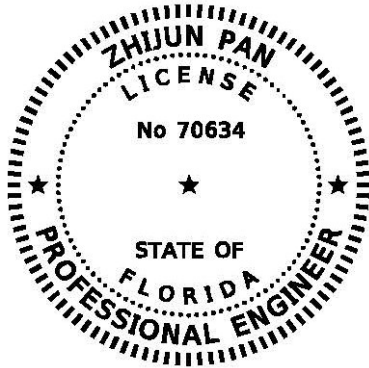
The work was completed following our contract with your firm and followed the basic guidelines of the Florida Department of Transportation (FDOT) Soils and Foundations Handbook, 2020. This report is written using English units.

-00000-

We are pleased to be of continued service to Stanley Consultants, Inc. and Palm Beach County. If you have any questions or comments regarding the contents of the following report, please call.

Very truly yours,

GCME, INC.



Zhijun Pan, P.E.
Senior Project Engineer
FL. Reg. No. 70634

Partha Ghosh, P.E.
Principal Engineer
FL Reg. No. 51377

This item has been electronically signed and sealed by Zhijun Pan, PE using a Digital Signature. Printed copies of this document are not considered signed and sealed and the signature must be verified on any electronic copies.

ZP/PG: mg
21005_PBC-2019803_CR-880 Bridge GeoRpt

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1.0 INTRODUCTION

This project is to replace the Sam Senter Road Bridge over the SFWMD Ocean Canal connecting CR-880 / E Canal Street S.

The entire project site is located in Palm Beach County. Land in the project vicinity is rural. Terrain in the area is relatively flat.

The purpose of this study was to explore the subsurface conditions within the general vicinity of the proposed bridge structure in order to catalog the general subsurface stratigraphy and provide geotechnical recommendations to guide the design and construction of the proposed bridge structure. Based on available information and field exploration performed, we have prepared an engineering report summarizing our field and laboratory testing, the subsurface soil and groundwater conditions encountered and evaluation and design recommendations for bridge foundation design and construction.

2.0 FIELD INVESTIGATION

The field exploration conducted for the bridge structure consists of drilling four (4) Standard Penetration Test (SPT) borings on land, along the alignment of the bridge. The borings were generally located proximate to the four corners of the existing bridge. The borings were extended to 100 feet below existing grade.

The numbering schedule and locations of the borings drilled for the proposed bridge structures are as follows:

- Bridge Borings: Four (4) borings, numbered B-1 thru. B-4.

The locations of the bridge borings are presented in Plate-1 titled 'Approximate Boring Location Plan'. The station, offset and elevation information at the boring locations are provided by the project surveyor.

The subsurface geologic profiles encountered at the boring location along with the SPT results, are presented in Figures 1 and 2 for bridge borings. The soil profiles are drawn with reference to elevation.

The SPT borings were advanced using mud rotary procedures. The borings were drilled to depth of 100 feet below grade. Samples of the in-place materials were recovered with a standard split barrel advanced with a 140-pound hammer falling 30 inches (the SPT after ASTM D 1586). Soil samples were field classified, placed in sealed containers and transported to our laboratory for further analysis by a soils engineer. Classification of the subsoils found in the borings followed the Unified Soil Classification System (ASTM D 2487). The borehole was filled with cement grout at the completion of the drilling activities.

The above subsurface description is a generalized nature provided to highlight the major soil strata encountered. The records of subsurface exploration included in the boring logs should be reviewed for specific information as to individual boring locations. The stratifications shown on the records of subsurface exploration represent the conditions only at the actual boring location. The

stratifications represent the proximate boundary between subsurface materials and the transition may be gradual.

3.0 SUBSURFACE CONDITIONS

3.1 Stratigraphy – Bridge Structures

The borings drilled along the project alignment generally indicated the site to be underlain with interlayering of sands, silty sands and limestone.

The SPT results (N-value) for the borings drilled proximate to the existing bridge indicate that the subsoils are generally loose soils (silty sand and peat) followed by weakly to well cemented limestone up to approximate 50 feet below grade, then followed by medium dense sands or silty sands to the termination depth of the borings.

Details regarding the interlayering of the subsoil layers are shown on the soil profile sheets titled “Report of Core Borings”, which is presented in Figures 1 and 2.

3.2 Groundwater

The depths of groundwater tables were measured at the locations of the structural borings drilled.

In the bridge borings drilled on land, groundwater was encountered at the depth of 10.2 to 12.7 feet below existing ground surface, i.e., elevation +4.1 to +7.4 feet (NAVD). Fluctuations of the groundwater should be anticipated. The groundwater table levels measured are shown on the “Report of Core Borings” sheets, Figures 1 and 2 adjacent to the boring logs.

The groundwater levels along the project corridor are largely impacted by the control water level in the SFWMD Ocean Canal that runs along the CR-880 project corridor.

Groundwater condition will vary with environmental variation and seasonal condition, such as the frequency and magnitude of rainfall patterns, as well as man-made influences, such as existing swales, drainage ponds, and under drains. We recommend that the contractor determine the actual groundwater levels at the time of the construction to determine groundwater impact on his or her construction procedure.

3.3 Laboratory Test Results

Index property tests such as moisture content, organic content and grain size distribution are being performed on representative samples from the bridge borings. All the available laboratory test results are presented in Table – 1.

The corrosion parameters of pH, resistivity, sulfates and chlorides were measured for canal water samples and soil sample from the borings. The test results were compared with FDOT criteria for corrosivity to enable the materials to be classified accordingly. Corrosion series tests results are presented in Table – 2.

4.0 BRIDGE STRUCTURE FOUNDATION ALTERNATIVES

4.1 General

The borings generally indicated that the project site was underlain by thick deposits of loose to very dense granular soils. We believe that high structural loads will be transferred to the foundation system and differential settlement should be negligible in order to maintain structural integrity. Bridge structural engineers have looked into the option of generally supporting the bridge structure on prestressed, precast concrete piles. We are informed that the bridge design engineers are utilizing 18-inch square prestressed, precast concrete piles for the proposed bridge.

4.2 Engineering Analysis

Vertical capacities were studied for the deep foundation alternative, prestressed, precast concrete piles, using the subsurface information gathered in the field. The vertical load analysis was completed with loading conditions and combinations provided by your office and detailed under the following section of the report titled "Design Loads".

The vertical capacity analysis at the bridge location was completed with borings drilled proximate to the bridge bents/piers. Computer program "FB-Deep, Version 2.06" developed by Florida Bridge Software Institute, University of Florida, was utilized to generate tables which present the vertical capacities for 18-inch and 24-inch square concrete piles, with reference to embedded pile lengths (please note information for 24-inch piles are for reference only).

Lateral stability analyses of concrete piles were performed by your office using Group/L-Pile program. L-Pile input parameters for subsoils were provided to your office. Tables of their values are presented in subsequent sections of the report.

5.0 BRIDGE STRUCTURE FOUNDATION EVALUATIONS

5.1 Precast Concrete Driven Piles

5.1.1 Design Loads

We understand that the Sam Senter Road Bridge over SFWMD Ocean Canal is designed by your office. The applicable information for the bridge with reference to precast concrete pile sizes, locations, pile cut-off elevations, axial loading conditions, necessary for foundation design are provided by the bridge design engineers of your office. The above information for the proposed bridge is detailed below.

- Foundation Type: 18-inch square pre-stressed precast concrete piles.
- Pile Cut-off Elevation:

+14.5 feet	[EB 1]
+14.7 feet	[IB 2]
+14.4 feet	[IB 3]
+14.3 feet	[IB 4]
+14.2 feet	[IB 5]
+13.7 feet	[EB 6]

- Factored Axial Load: 108.6 Tons [EB 1]
 131.3 Tons [IB 2]
 137.2 Tons [IB 3]
 137.8 Tons [IB 4]
 111.2 Tons [IB 5]
 81.9 Tons [EB 6]

- Scour Elevation: +11.8 feet [EB 1]
 +2.2 feet [IB 2]
 -6.4 feet [IB 3]
 -6.4 feet [IB 4]
 +2.2 feet [IB 5]
 +11.8 feet [EB 6]

5.1.2 Axial Capacity of Precast Concrete Piles

We have considered 18 inch and 24-inch square, precast concrete piles of various lengths based on above information in order to provide a range of design compressive capacities. Though, only 18-inch square piles are utilized for the bridge structure, capacities for 24-inch square piles are also included in the report for information and reference only. The capacities were estimated from a computer-generated analysis based on a method to predict Davisson vertical pile capacity versus depth in sand. The computer program “FB-Deep Version 2.06” developed by Florida Bridge Software Institute; University of Florida was utilized to perform the axial capacity analysis of the driven concrete piles. The analysis was done for each individual boring drilled at the project site.

The vertical capacity analysis at the bridge location was completed with ground lines set approximately at the elevation of the boring locations, i.e., ground elevations for borings B-1 through B-4 drilled on land.

The capacities (FB-Deep outputs) for 18-inch and 24-inch square piles are presented in Appendix - A. The corresponding FB-Deep output graphs are presented in Appendix - B.

We recommend using a resistance factor (Φ) equal to 0.65 for Load Resistance Factor Design (LRFD) for driven precast piles. Please note that the pile tip elevations mentioned in Appendix – A are based on ground elevations of the borings.

For portions of the piles within embankment/wall volume (if applicable), we recommend that portions be wrapped with polyethylene sheeting, per FDOT Standard Specifications for Road and Bridge Construction, Section 459. We recommend that the piles in a group be driven such that the center-to-center spacing between adjacent piles is at least 3 times the butt width. We recommend that the ultimate capacity of a pile group be determined by summing the single pile capacities in that group.

The results of the vertical load capacity analysis are detailed in Table – 3. The table indicates the boring/borings utilized for analyzing a particular pier/bent.

Please note, the scour elevation is provided by your office, and the scour resistances are

also detailed in Table – 3. For intermediate bents 2 through 5, the scour elevations are detailed in section 5.1.1, the scour resistances are based on the skin friction (calculated from FB-Deep outputs) from the ground surface / canal bottom elevation (at the corresponding bent) to the corresponding scour elevation. For end bents 1 and 6, the scour elevations are +11.81 feet, however, due to the bottom of muck layer at elevations +6.11 to +5.11 feet, we recommend to predrill to the elevations below the muck layer. So, no scour resistance is considered for end bents 1 and 6.

In addition, based on the soil profiles of all four borings at the bridge location, there is hard limestone/sand layer up to elevation -35.0 feet, which will cause construction difficulties to achieve minimum tip elevation during pile driving. Hence, we have considered an option of preforming pile holes to elevation -35.0 feet. In this case, there will be no scour resistance because preform elevation is much lower than scour elevation. The results are also presented in Table – 3.

5.1.3 Lateral Load Capacity of Precast Concrete Piles

The lateral load analyses and determination of minimum tip elevations were performed by your office, utilizing L-Pile soil parameters (as detailed in Section 5.2) provided by our office. Our office has checked and coordinated with your office regarding the Group/L-Pile program input soil parameters and hence concur with the minimum tip elevations.

5.1.4 Settlement

The pile settlement is estimated to be ≤ 0.5 inch based on subsurface soils condition. Due to the granular nature of the subsurface materials, we anticipate these settlements will occur as the structural dead load is applied.

5.1.5 Downdrag

The amount of relative settlement between the soil and pile that is necessary to mobilize negative pile resistance (downdrag) is about $\frac{1}{2}$ inches. The depth to which downdrag could occur is estimated from the tip of the pile upwards along the length of the pile. Once the cumulative settlement along the pile length reaches $\frac{1}{2}$ inch, this is the point considered to be the neutral plane or depth to which downdrag could occur. Based on the height of fill soil placement at the End Bents, we understand that pile downdrag is not anticipated for End Bents.

5.1.6 Construction Considerations

We recommend the piles be installed according to the latest edition of Standard Specifications for Road and Bridge Construction. Precast, concrete pile foundations are common in South Florida and can be constructed by local contractors. We believe that the driven pile option should involve monitoring of test piles using the Pile Driving Analyzer, with associated wave equation studies. The test program would confirm design capacities, required penetration, and driving criteria.

Vibrations resulting from pile driving at the project location should be carefully monitored to limit the impact of ground motion on existing structures. A precondition survey is often prudent to evaluate existing conditions (if any) before pile driving operations. Also, during pile driving operation, vibration resulting from the operation and its impact on the existing structures (if any) should be monitored constantly in order to limit/avoid any impact of ground motion on the existing structures.

During driving operations, records should be kept for each pile that detail pertinent information such as the pile type, length, date driven and blows count per foot. The capacity of each pile should be reviewed based on its final tip elevation and driving record. We recommend that pile-driving operations be continuously monitored by experienced technical personnel working under the direct supervision of a professional geotechnical engineer.

Temporary and/or permanent sheet pile wall (if applicable) proposed during construction of bridge foundation should strictly adhere to the following guidelines.

Construction of ‘Temporary’ and/or ‘Permanent’ sheet pile walls less than five (5) times the size of the pile measured from the near face of the pile, and the ratio of sheet pile walls embedment depth to pile embedment depth greater than 0.5, should be notified to us prior to the test pile program and construction of the production pile. This is due to the fact that such sheet pile wall will interfere with the capacity of the proposed pile foundations, and we need to evaluate the proposed impact during the test pile program and recommend driving criteria accordingly. [Reference: FDOT Research Documents & Publications, <Effect of Proximity of Sheet Pile Walls on the Approximate Capacity of Driven Displacement Piles: Final Report>, 08-2018]

5.1.7 Pile Data Table

The pile lengths are estimated based on vertical and lateral load capacity analysis performed with reference to existing subsoil conditions, and axial and lateral loads anticipated on each pile foundation. The required tip elevation is generally determined by using the deeper of (1) the elevations and blow count criteria required for vertical capacity (from the test pile / PDA data, as applicable) and (2) the elevation required for lateral stability, and (3) penetration requirements as per Section 455 of FDOT Standard Specifications for Road and Bridge Construction, latest version. The pile data table for the proposed bridge widening is presented in Appendix – C. In general, the minimum tip elevation mentioned in the pile data table is based on lateral load analysis (lateral stability).

5.2 Soil Parameters for L-Pile Analysis

As requested by the structural engineers, we have considered 18-inch and 24-inch square, precast concrete piles and prepared the soil parameters required for Group/L-Pile analysis. The parameters are presented in Table – 4. Please note, we have considered the condition of predrilling/preforming to elevation below the bottom of muck layer.

6.0 LIMITATIONS OF STUDY

The geotechnical engineer warrants that the findings, recommendations, specifications, or professional advice contained herein have been presented after being prepared following generally accepted professional engineering practice in the fields of foundation engineering, soil mechanics and engineering geology. This company is not responsible for the conclusion, opinion, or recommendations made by others based on this data. No other warranties are expressed or implied.

The scope of the investigation was intended to evaluate soil conditions within the influence of foundations and does not include an evaluation of potential deep soil problems such as sinkholes. The analysis and recommendations submitted in this report are based upon the data obtained from the soil borings performed at the locations indicated. If any subsoil variations become evident during the course of this project, a re-evaluation of the recommendations contained in this report will be necessary after we have had an opportunity to observe the characteristics of the conditions encountered. The applicability of the report should also be reviewed in the event significant changes occur in the design, nature, or location of the proposed roadway and structures.

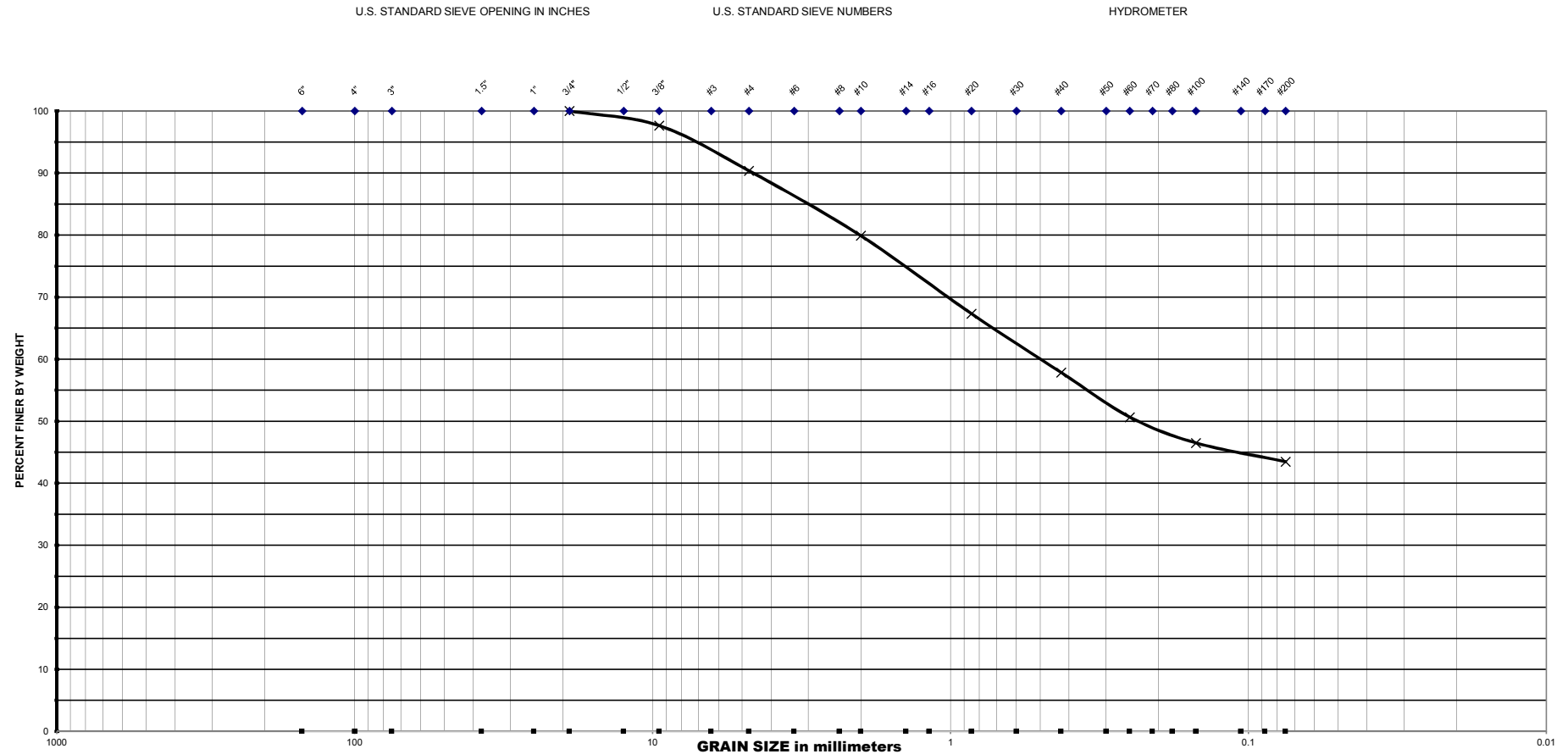
The scope of our services does not include any environmental assessment or investigation for the presence or absence of hazardous or toxic materials in the soil, groundwater, or surface water within or beyond the site studied. Any statements in the report regarding odors, staining of soils, or other unusual conditions observed are strictly for the information of our client.

TABLE - 1**SUMMARY OF LABORATORY TESTING RESULTS [PBC Project No. 2019803]****Project: CR-880: Sam Senter Road over SFWMD Ocean Canal**

Boring No.	Sample Depth (ft)	USCS Symbol	Natural Moisture Content (%)	Organic Content (%)	Atterberg Limits			Sieve Analysis								
					LL (%)	PL (%)	PI (%)	3/4"	3/8"	#4	#10	#20	#40	#60	#100	#200
B-1	6.0 - 8.0	OL (PT)	334.8	84.4												
B-1	16.0 - 18.0	SM	22.7					100.0	97.7	90.4	79.9	67.3	57.9	50.7	46.5	43.5
B-1	46.0 - 48.0	SP-SM	18.6					90.7	85.7	81.2	72.6	61.9	53.2	43.1	29.8	11.1
B-1	58.0 - 60.0	SP-SM	26.1					100.0	100.0	99.2	94.9	69.5	39.0	21.9	14.3	9.3
B-1	73.0 - 75.0	SM	28.7					100.0	100.0	98.7	96.6	94.6	93.3	92.3	87.1	18.5
B-1	86.0 - 88.0	SM	24.3													15.1
B-2	8.0 - 10.0	OL (PT)	393.9	86.4												
B-2	18.0 - 20.0	SM	27.3					100.0	98.7	93.7	81.6	56.0	43.1	37.1	32.5	27.2
B-2	41.0 - 43.0	SP-SM	20.1					100.0	96.0	91.0	78.8	65.5	56.9	49.5	31.9	8.1
B-2	56.0 - 58.0	SP-SM	23.9					100.0	98.5	91.7	82.0	70.7	60.7	49.1	26.9	7.4
B-2	68.0 - 70.0	SM	25.5					100.0	95.9	87.2	78.0	73.7	71.8	70.4	56.5	12.5
B-2	91.0 - 93.0	SM	23.2													14.2
B-3	4.0 - 6.0	OL (PT)	306.8	77.8												
B-3	18.0 - 20.0	SM	28.7					100.0	96.0	93.1	84.2	63.9	51.7	48.0	44.5	39.8
B-3	36.0 - 38.0	SM	22.5					96.6	91.3	82.5	72.8	65.7	60.1	54.7	39.5	14.1
B-3	53.0 - 55.0	SP-SM	27.7					100.0	98.4	96.0	89.5	61.8	32.8	18.5	11.6	7.1
B-3	66.0 - 68.0	SP-SM	27.0													7.9
B-3	73.0 - 75.0	SP-SM	28.5					100.0	99.0	96.3	93.5	90.6	85.6	75.1	20.9	11.5
B-3	83.0 - 85.0	SP-SM	29.1													10.1
B-4	10.0 - 12.0	OL (PT)	349.9	82.3												
B-4	18.0 - 20.0	SM	28.7					100.0	98.2	92.6	77.7	50.5	33.4	29.4	26.5	22.2
B-4	26.0 - 28.0	SP-SM	18.5					100.0	97.4	78.9	67.3	61.0	56.7	52.1	36.0	9.7
B-4	56.0 - 58.0	SP-SM	18.8					100.0	94.0	85.3	74.1	63.7	56.6	48.6	26.6	5.1
B-4	76.0 - 78.0	SM	27.8					100.0	98.5	97.5	94.7	91.8	89.2	84.3	71.6	12.7
B-4	96.0 - 98.0	SP-SM	24.3					100.0	96.5	91.5	80.8	68.8	57.6	49.7	35.8	10.8

GCME

Geotechnical - Consulting - Engineering - Testing



Project Name : CR-880: Sam Senter Road over SFWMD Ocean Canal

Project No. : 2000-01-21005

Date : 8/22/2022

U.S SIEVE NO.	CUMM. % PASSING
---------------	-----------------

3/4"	100.0
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3/8"	97.7
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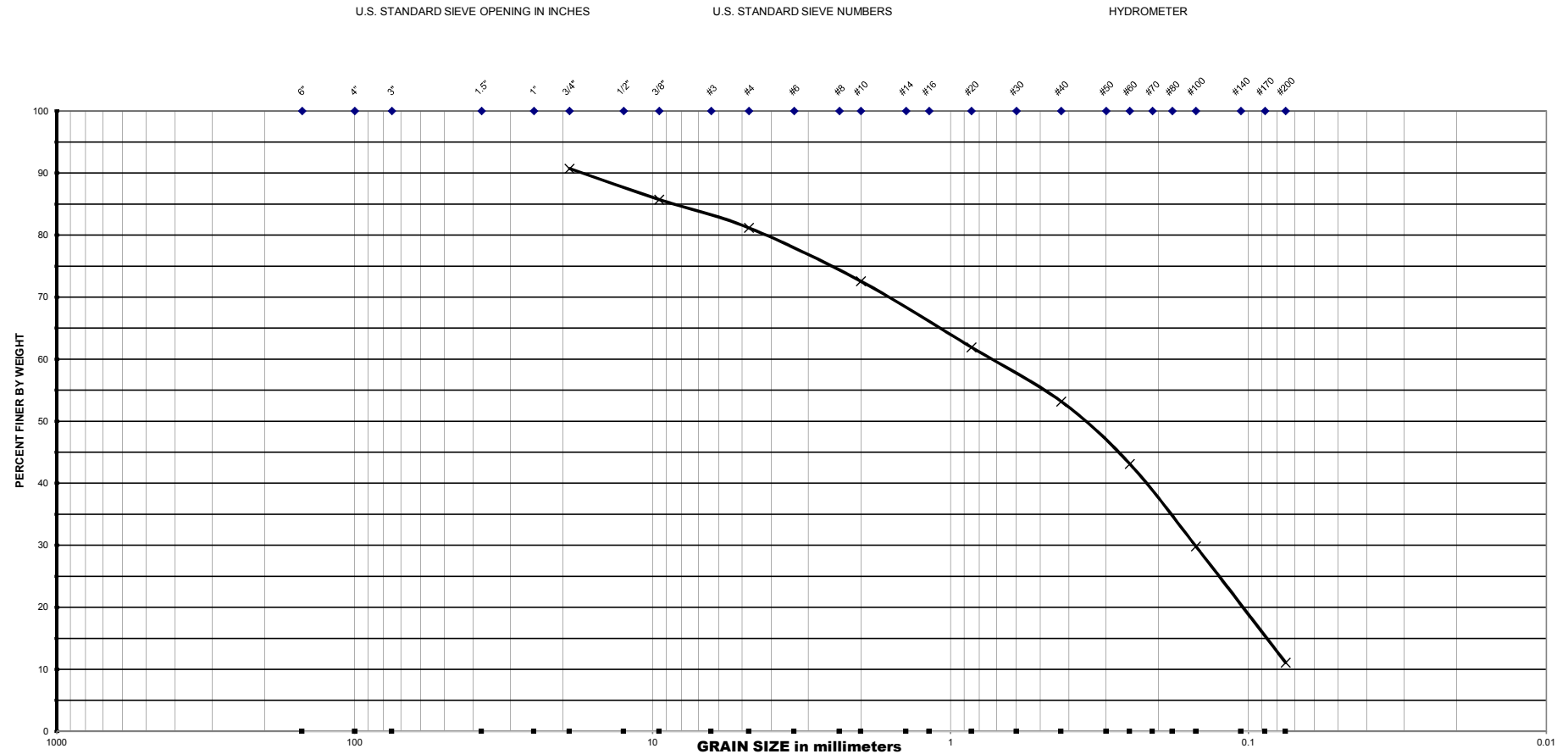
#4	90.4
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BORING NO.	DEPTH INTERVAL [FT]	SOIL DESCRIPTION	MC	OC	U.S SIEVE NO.	CUMM. % PASSING
B-1	16.0 - 18.0	SM	22.7		#10	79.9
					#20	67.3
					#40	57.9
					#60	50.7
Note : MC - Moisture Content (%) OC - Organic Content (%)					#100	46.5
					#200	43.5

SSP-13D

GCME

Geotechnical - Consulting - Engineering - Testing



Project Name : CR-880: Sam Senter Road over SFWMD Ocean Canal

Project No. : 2000-01-21005

Date : 8/22/2022

U.S SIEVE NO.	CUMM. % PASSING
---------------	-----------------

3/4"	90.7
------	------

3/8"	85.7
------	------

#4	81.2
----	------

#10	72.6
-----	------

#20	61.9
-----	------

#40	53.2
-----	------

#60	43.1
-----	------

Note : MC - Moisture Content (%)

#100	29.8
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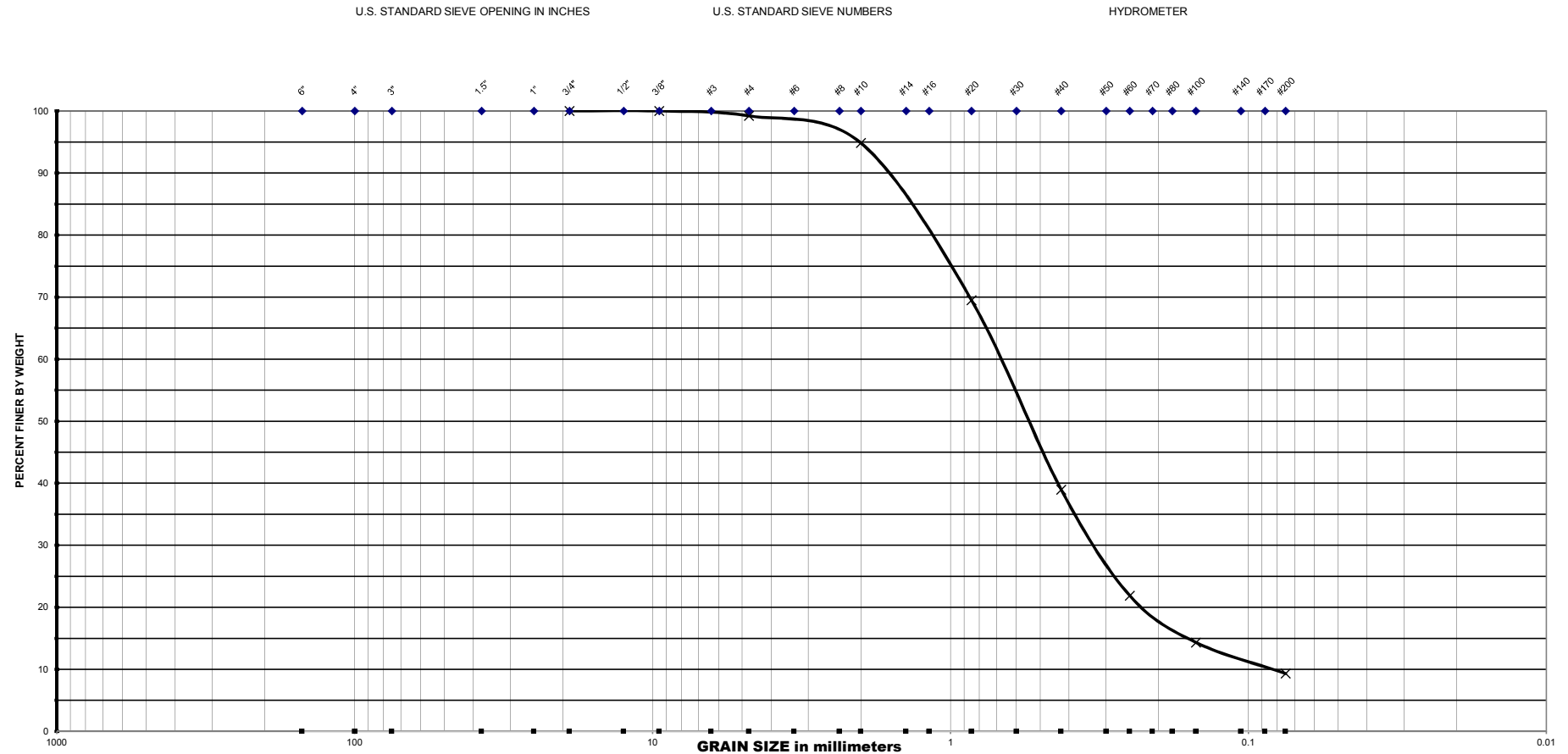
OC - Organic Content (%)

#200	11.1
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SSP-14D

GCME

Geotechnical - Consulting - Engineering - Testing

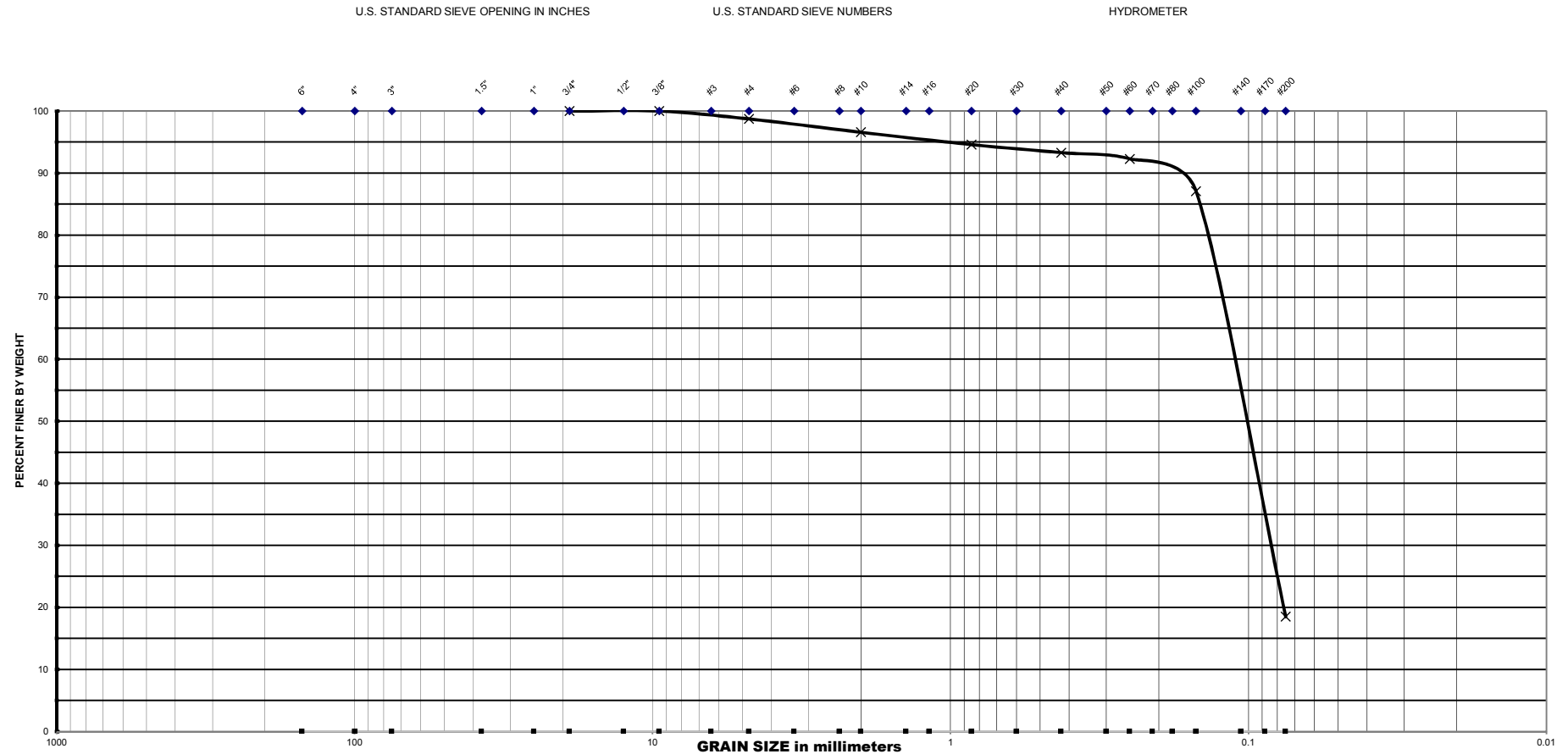


Project Name : <u>CR-880: Sam Senter Road over SFWMD Ocean Canal</u>					U.S SIEVE NO.	CUMM. % PASSING
Project No. : <u>2000-01-21005</u> Date : <u>8/22/2022</u>					3/4"	100.0
					3/8"	100.0
					#4	99.2
BORING NO.	DEPTH INTERVAL [FT]	SOIL DESCRIPTION	MC	OC	#10	94.9
B-1	58.0 - 60.0	SP-SM	26.1		#20	69.5
					#40	39.0
					#60	21.9
Note : MC - Moisture Content (%) OC - Organic Content (%)					#100	14.3
					#200	9.3

SSP-15D

GCME

Geotechnical - Consulting - Engineering - Testing



Project Name : CR-880: Sam Senter Road over SFWMD Ocean Canal

Project No. : 2000-01-21005

Date : 8/22/2022

U.S SIEVE NO.	CUMM. % PASSING
---------------	-----------------

3/4"	100.0
------	-------

3/8"	100.0
------	-------

#4	98.7
----	------

#10	96.6
-----	------

#20	94.6
-----	------

#40	93.3
-----	------

#60	92.3
-----	------

Note : MC - Moisture Content (%)

#100	87.1
------	------

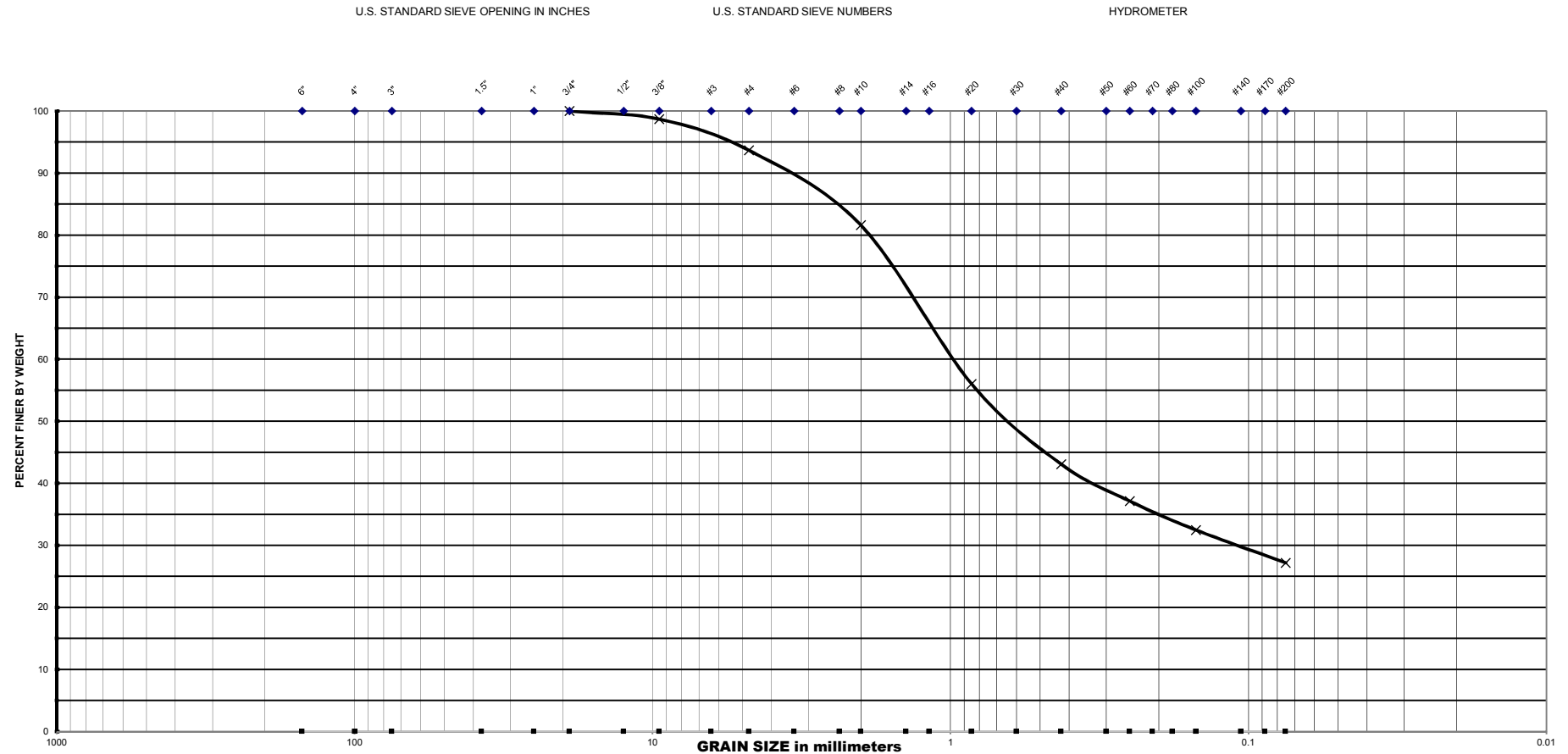
OC - Organic Content (%)

#200	18.5
------	------

SSP-16D

GCME

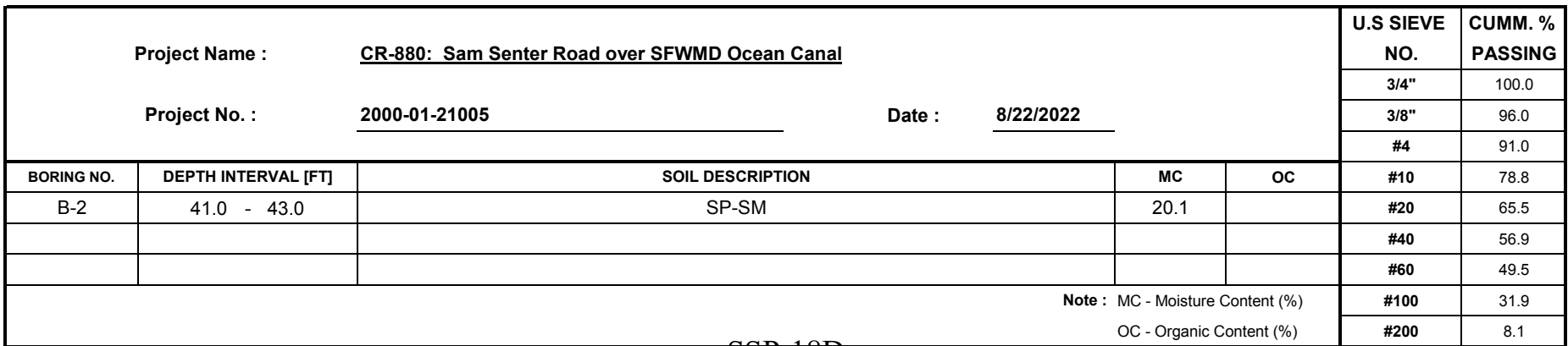
Geotechnical - Consulting - Engineering - Testing



Project Name : <u>CR-880: Sam Senter Road over SFWMD Ocean Canal</u>					U.S SIEVE NO.	CUMM. % PASSING
Project No. : <u>2000-01-21005</u> Date : <u>8/22/2022</u>					3/4"	100.0
					3/8"	98.7
					#4	93.7
BORING NO.	DEPTH INTERVAL [FT]	SOIL DESCRIPTION	MC	OC	#10	81.6
B-2	18.0 - 20.0	SM	27.3		#20	56.0
					#40	43.1
					#60	37.1
Note : MC - Moisture Content (%) OC - Organic Content (%)					#100	32.5
					#200	27.2

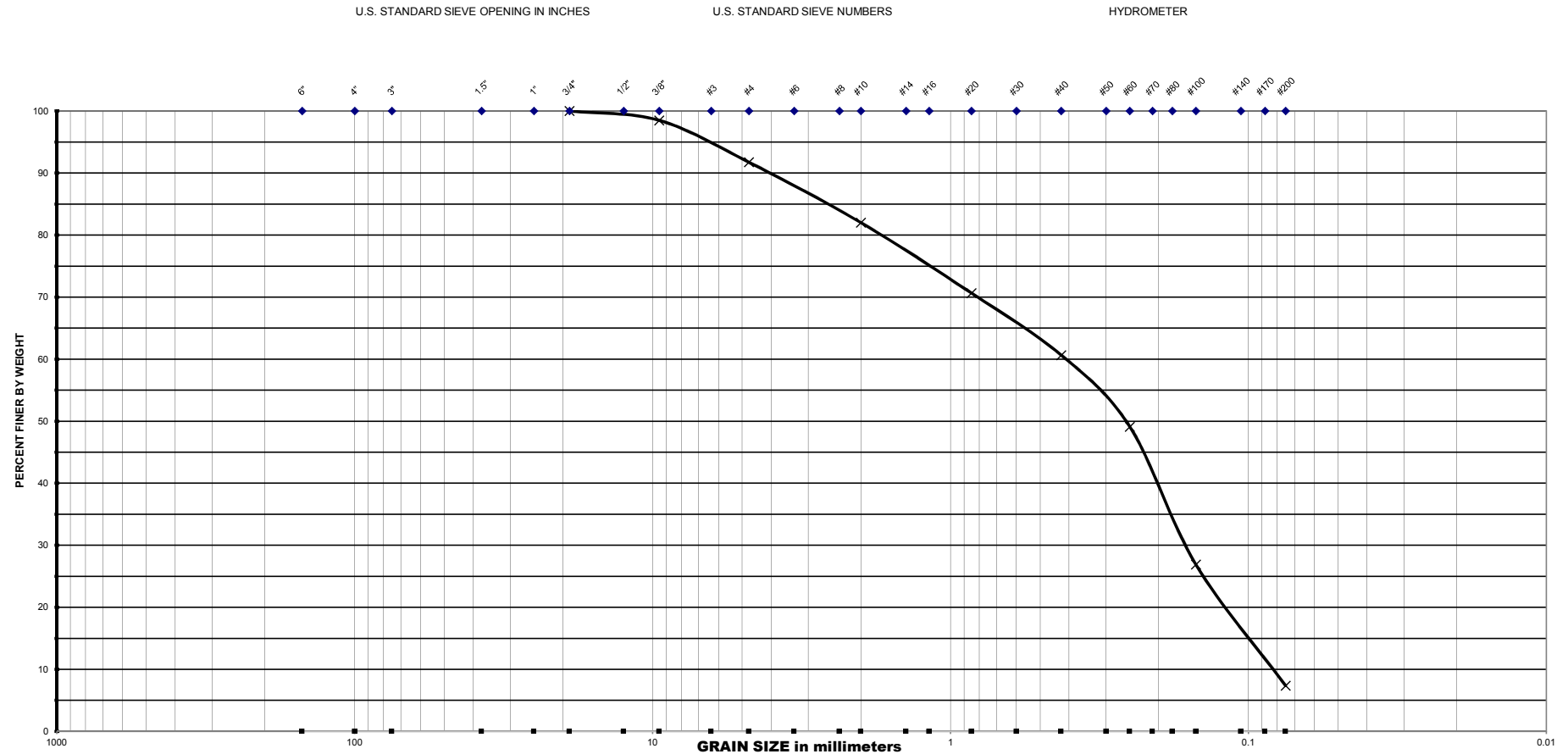
SSP-17D

Geotechnical - Consulting - Engineering - Testing



GCME

Geotechnical - Consulting - Engineering - Testing

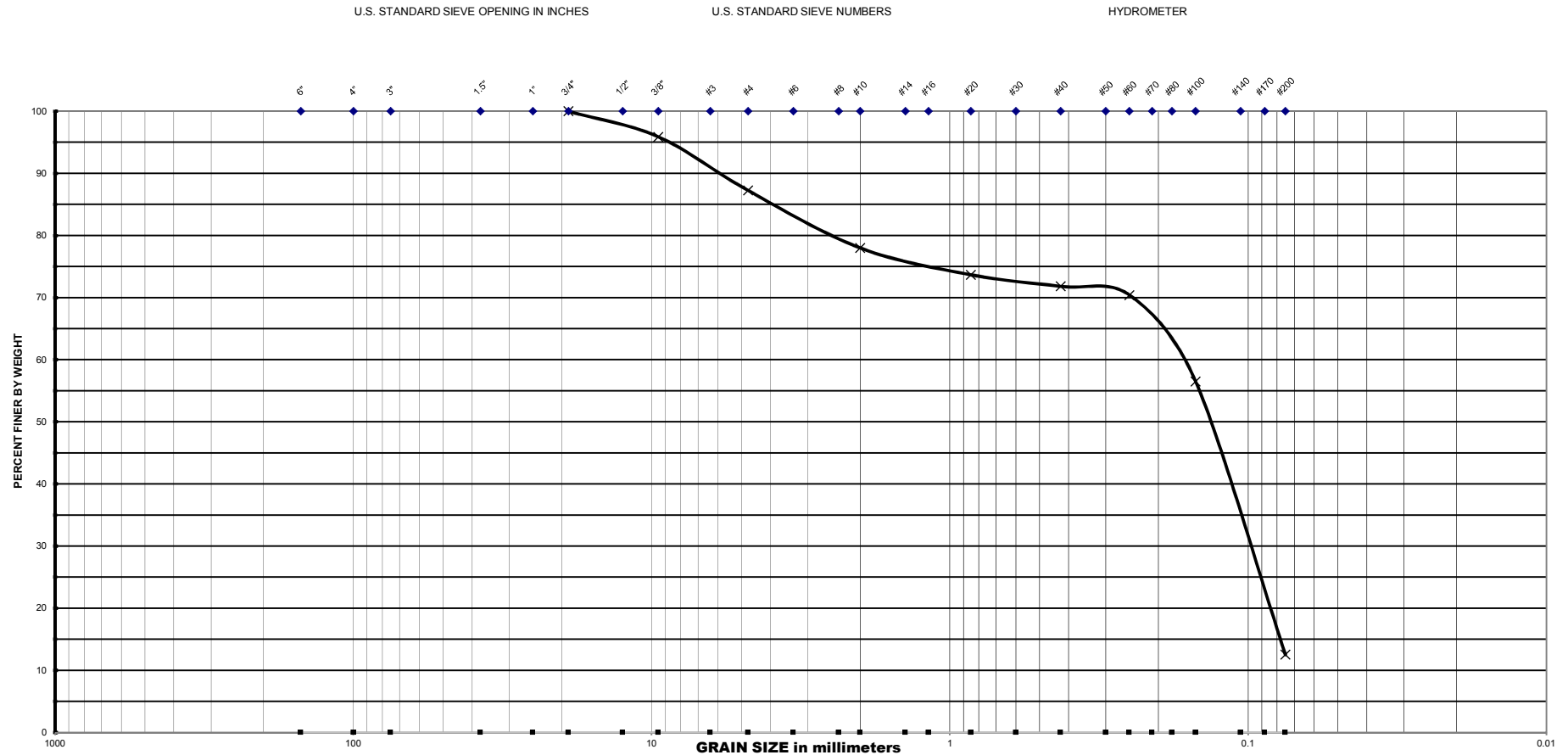


Project Name : <u>CR-880: Sam Senter Road over SFWMD Ocean Canal</u>					U.S SIEVE NO.	CUMM. % PASSING
Project No. : <u>2000-01-21005</u> Date : <u>8/22/2022</u>					3/4"	100.0
					3/8"	98.5
					#4	91.7
BORING NO.	DEPTH INTERVAL [FT]	SOIL DESCRIPTION	MC	OC	#10	82.0
B-2	56.0 - 58.0	SP-SM	23.9		#20	70.7
					#40	60.7
					#60	49.1
Note : MC - Moisture Content (%) OC - Organic Content (%)					#100	26.9
					#200	7.4

SSP-19D

GCME

Geotechnical - Consulting - Engineering - Testing



Project Name : CR-880: Sam Senter Road over SFWMD Ocean Canal

Project No. : 2000-01-21005

Date : 8/22/2022

U.S SIEVE NO.	CUMM. % PASSING
---------------	-----------------

3/4"	100.0
------	-------

3/8"	95.9
------	------

#4	87.2
----	------

#10	78.0
-----	------

#20	73.7
-----	------

#40	71.8
-----	------

#60	70.4
-----	------

Note : MC - Moisture Content (%)

#100	56.5
------	------

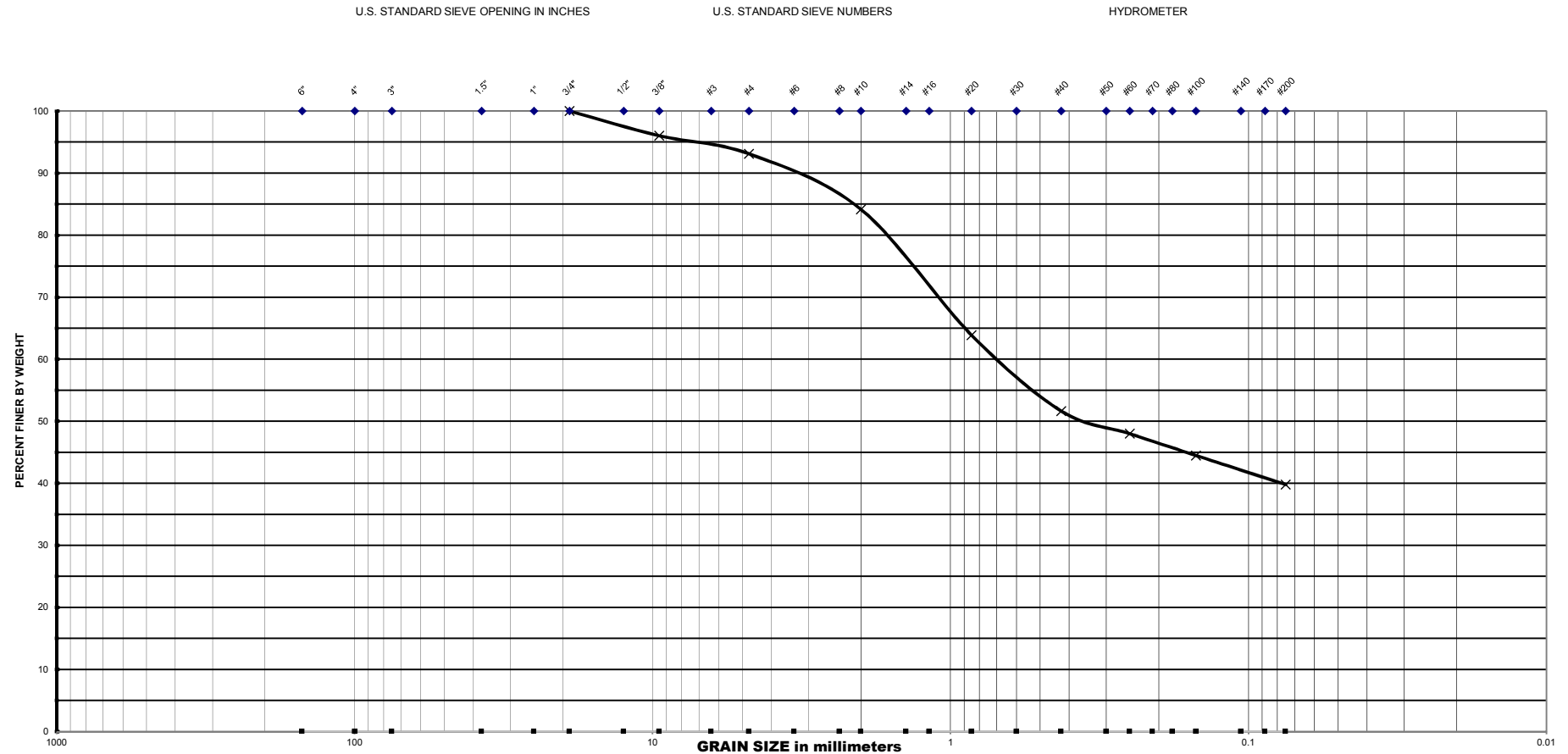
OC - Organic Content (%)

#200	12.5
------	------

SSP-20D

GCME

Geotechnical - Consulting - Engineering - Testing

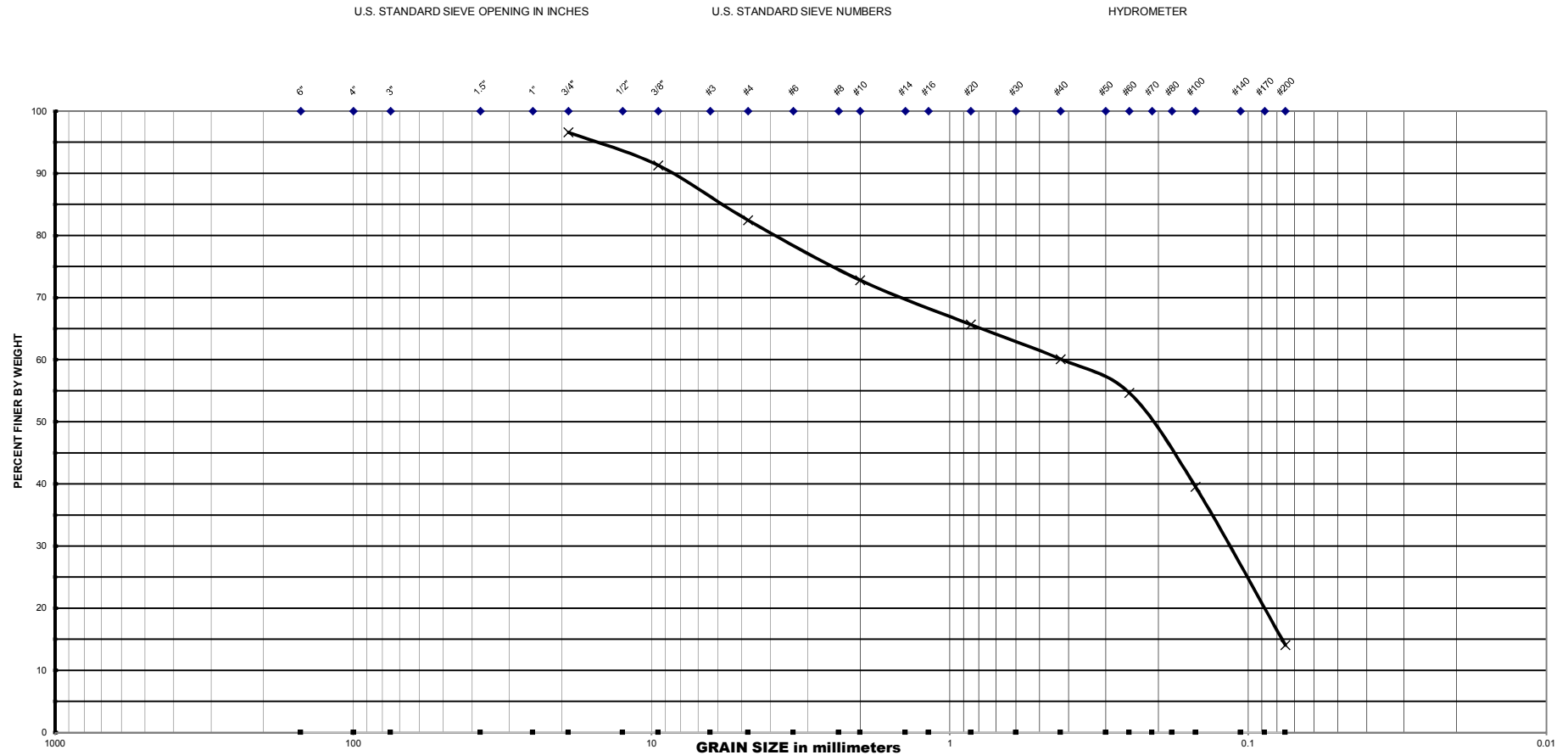


Project Name : <u>CR-880: Sam Senter Road over SFWMD Ocean Canal</u> Project No. : <u>2000-01-21005</u> Date : <u>8/22/2022</u>					U.S SIEVE NO.	CUMM. % PASSING
					3/4"	100.0
					3/8"	96.0
					#4	93.1
BORING NO.	DEPTH INTERVAL [FT]	SOIL DESCRIPTION	MC	OC	#10	84.2
B-3	18.0 - 20.0	SM	28.7		#20	63.9
					#40	51.7
					#60	48.0
Note : MC - Moisture Content (%) OC - Organic Content (%)					#100	44.5
					#200	39.8

SSP-21D

GCME

Geotechnical - Consulting - Engineering - Testing



Project Name : CR-880: Sam Senter Road over SFWMD Ocean Canal

Project No. : 2000-01-21005

Date : 8/22/2022

U.S SIEVE NO.	CUMM. % PASSING
---------------	-----------------

3/4"	96.6
------	------

3/8"	91.3
------	------

#4	82.5
----	------

#10	72.8
-----	------

#20	65.7
-----	------

#40	60.1
-----	------

#60	54.7
-----	------

Note : MC - Moisture Content (%)

#100	39.5
------	------

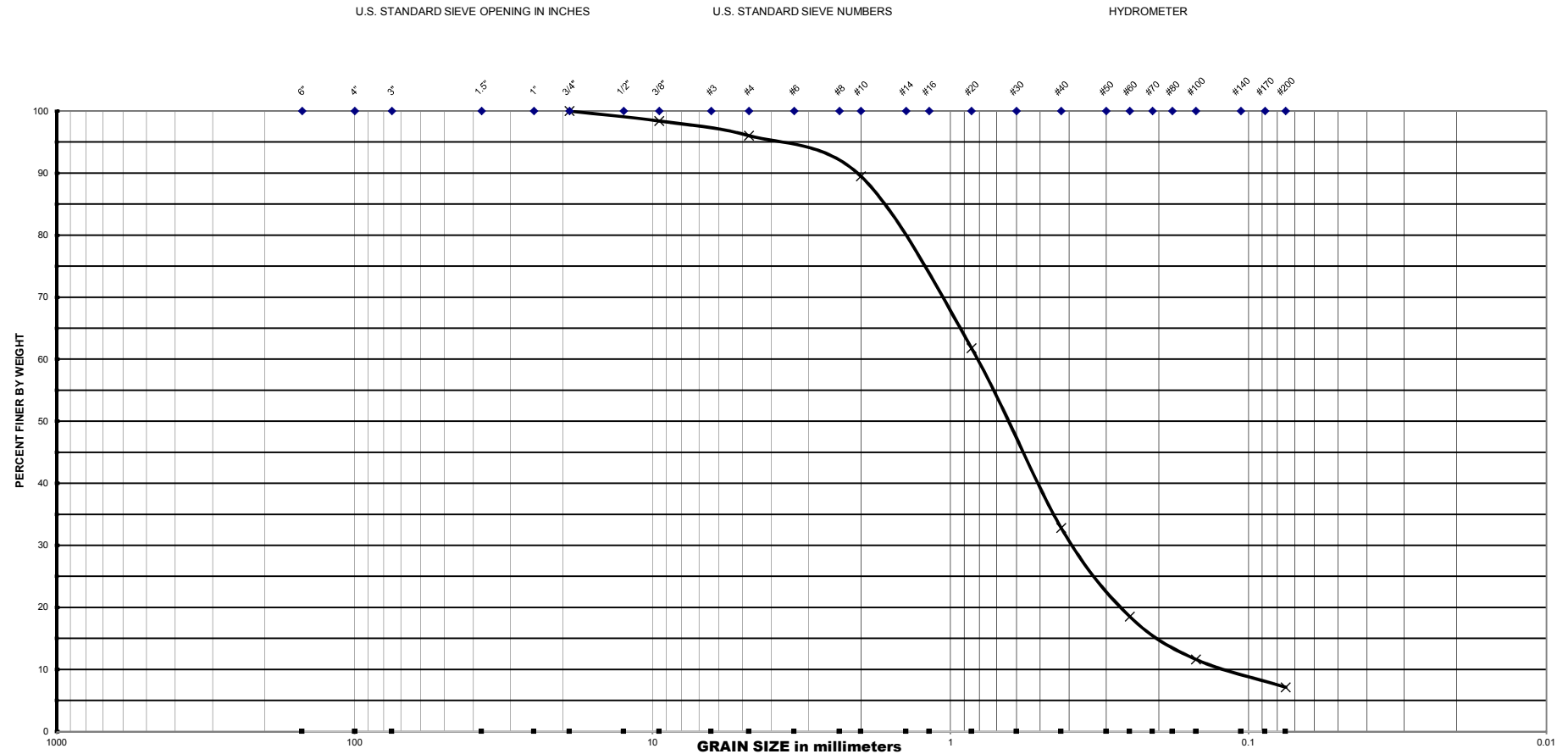
OC - Organic Content (%)

#200	14.1
------	------

SSP-22D

GCME

Geotechnical - Consulting - Engineering - Testing



Project Name : CR-880: Sam Senter Road over SFWMD Ocean Canal

Project No. : 2000-01-21005

Date : 8/22/2022

U.S SIEVE NO.	CUMM. % PASSING
---------------	-----------------

3/4"	100.0
------	-------

3/8"	98.4
------	------

#4	96.0
----	------

#10	89.5
-----	------

#20	61.8
-----	------

#40	32.8
-----	------

#60	18.5
-----	------

Note : MC - Moisture Content (%)

#100	11.6
------	------

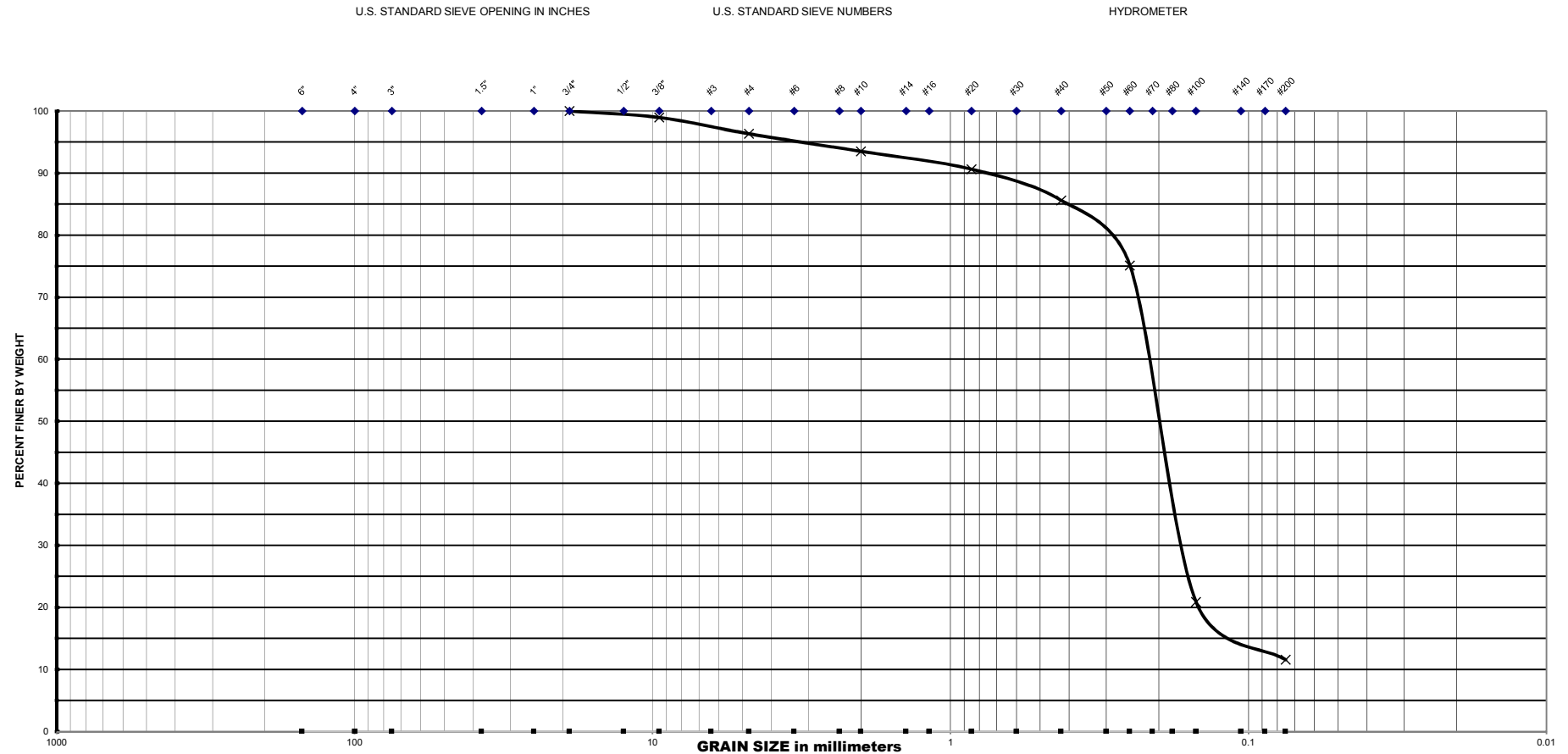
OC - Organic Content (%)

#200	7.1
------	-----

SSP-23D

GCME

Geotechnical - Consulting - Engineering - Testing

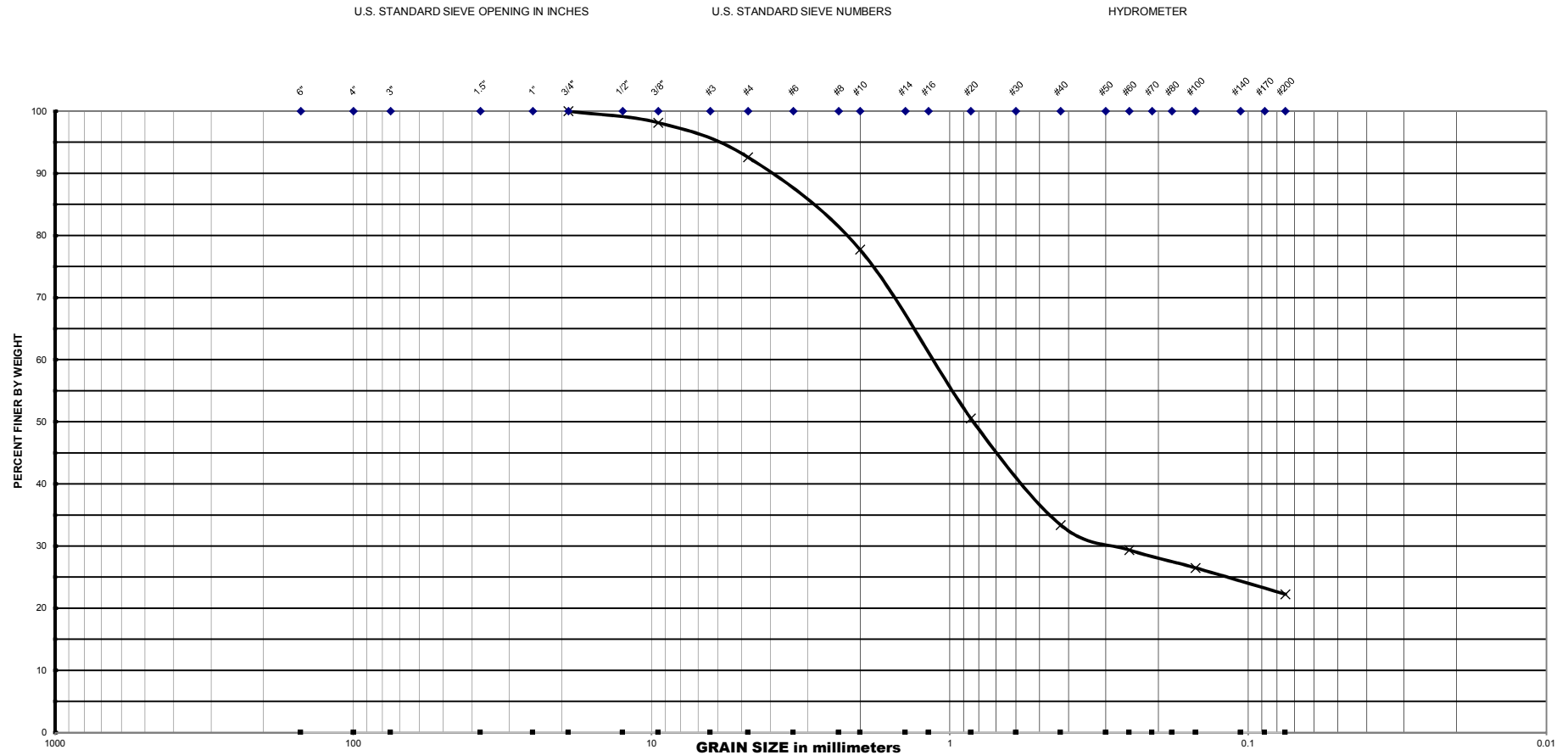


Project Name : <u>CR-880: Sam Senter Road over SFWMD Ocean Canal</u>					U.S SIEVE NO.	CUMM. % PASSING
Project No. : <u>2000-01-21005</u> Date : <u>8/22/2022</u>					3/4"	100.0
					3/8"	99.0
					#4	96.3
BORING NO.	DEPTH INTERVAL [FT]	SOIL DESCRIPTION	MC	OC	#10	93.5
B-3	73.0 - 75.0	SP-SM	28.5		#20	90.6
					#40	85.6
					#60	75.1
Note : MC - Moisture Content (%) OC - Organic Content (%)					#100	20.9
					#200	11.5

SSP-24D

GCME

Geotechnical - Consulting - Engineering - Testing

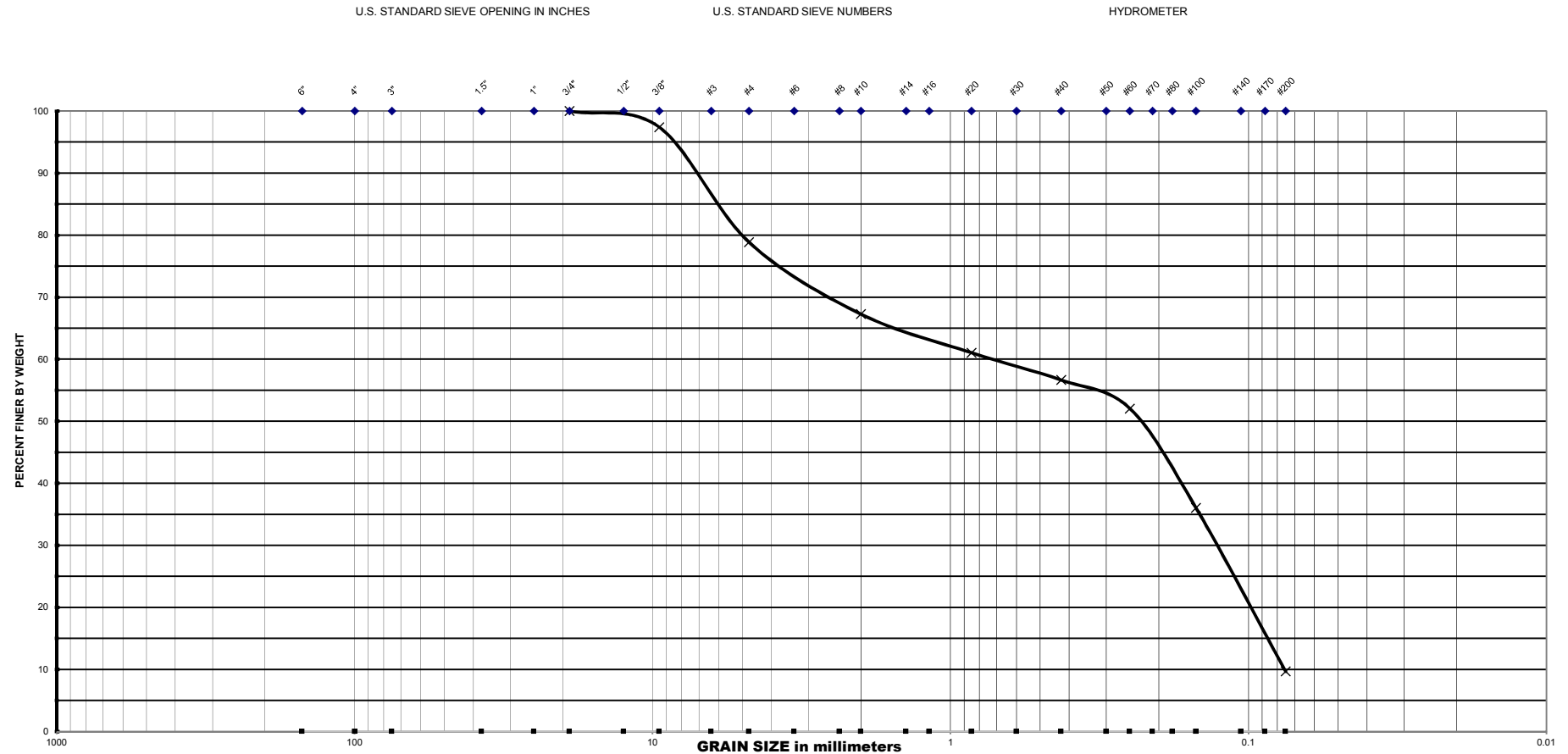


Project Name : <u>CR-880: Sam Senter Road over SFWMD Ocean Canal</u> Project No. : <u>2000-01-21005</u> Date : <u>8/22/2022</u>					U.S SIEVE NO.	CUMM. % PASSING
					3/4"	100.0
					3/8"	98.2
					#4	92.6
BORING NO.	DEPTH INTERVAL [FT]	SOIL DESCRIPTION	MC	OC	#10	77.7
B-4	18.0 - 20.0	SM	28.7		#20	50.5
					#40	33.4
					#60	29.4
Note : MC - Moisture Content (%) OC - Organic Content (%)					#100	26.5
					#200	22.2

SSP-25D

GCME

Geotechnical - Consulting - Engineering - Testing



Project Name : <u>CR-880: Sam Senter Road over SFWMD Ocean Canal</u> Project No. : <u>2000-01-21005</u> Date : <u>8/22/2022</u>					U.S SIEVE NO.	CUMM. % PASSING
					3/4"	100.0
					3/8"	97.4
					#4	78.9
BORING NO.	DEPTH INTERVAL [FT]	SOIL DESCRIPTION	MC	OC	#10	67.3
B-4	26.0 - 28.0	SP-SM	18.5		#20	61.0
					#40	56.7
					#60	52.1
Note : MC - Moisture Content (%) OC - Organic Content (%)					#100	36.0
					#200	9.7

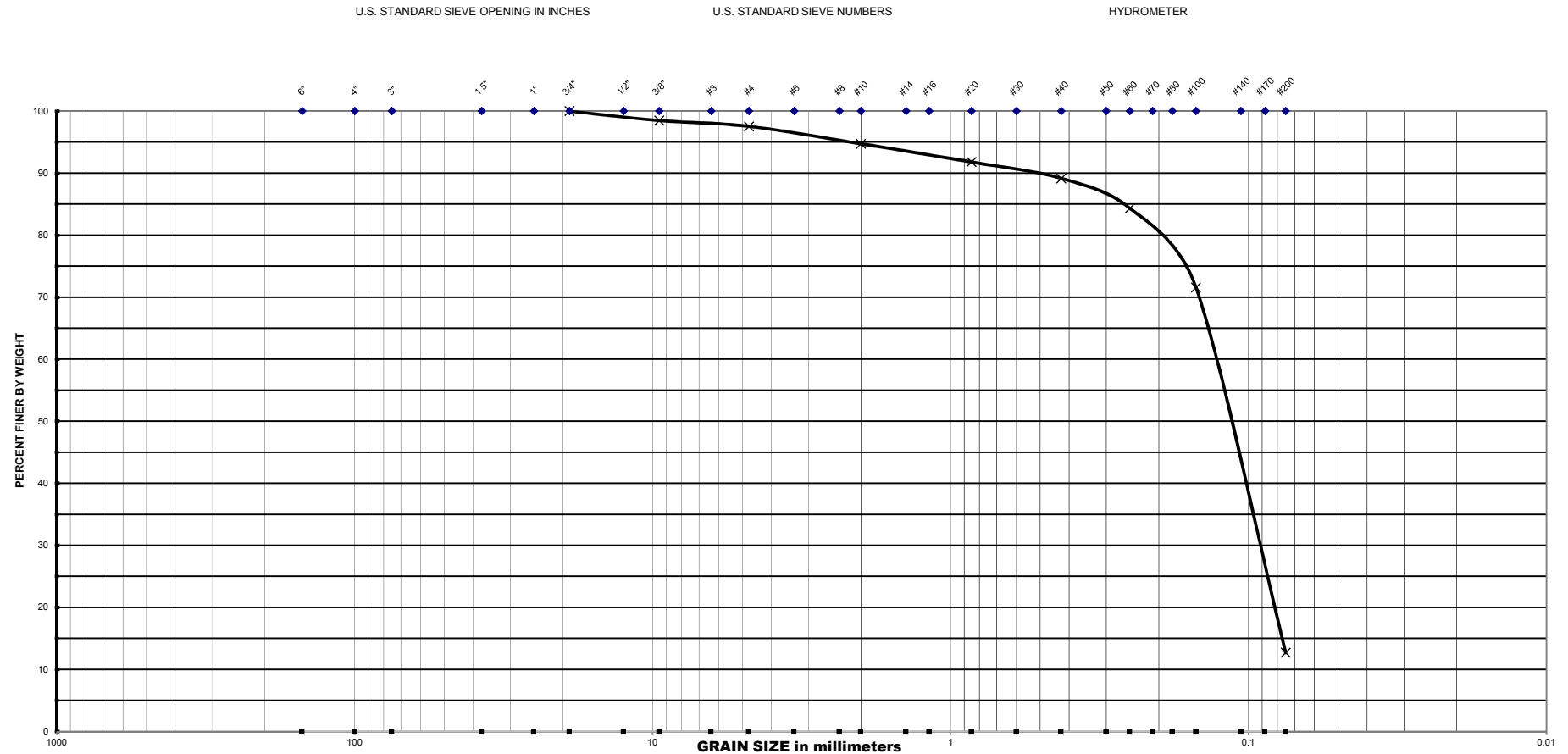
SSP-26D



Project Name :			CR-880: Sam Senter Road over SFWMD Ocean Canal				
Project No. :			2000-01-21005				
			Date : 8/22/2022				

GCME

Geotechnical - Consulting - Engineering - Testing



Project Name : CR-880: Sam Senter Road over SFWMD Ocean Canal

Project No. : 2000-01-21005

Date : 8/22/2022

U.S SIEVE NO.	CUMM. % PASSING
---------------	-----------------

3/4"	100.0
------	-------

3/8"	98.5
------	------

#4	97.5
----	------

#10	94.7
-----	------

#20	91.8
-----	------

#40	89.2
-----	------

#60	84.3
-----	------

Note : MC - Moisture Content (%)

#100	71.6
------	------

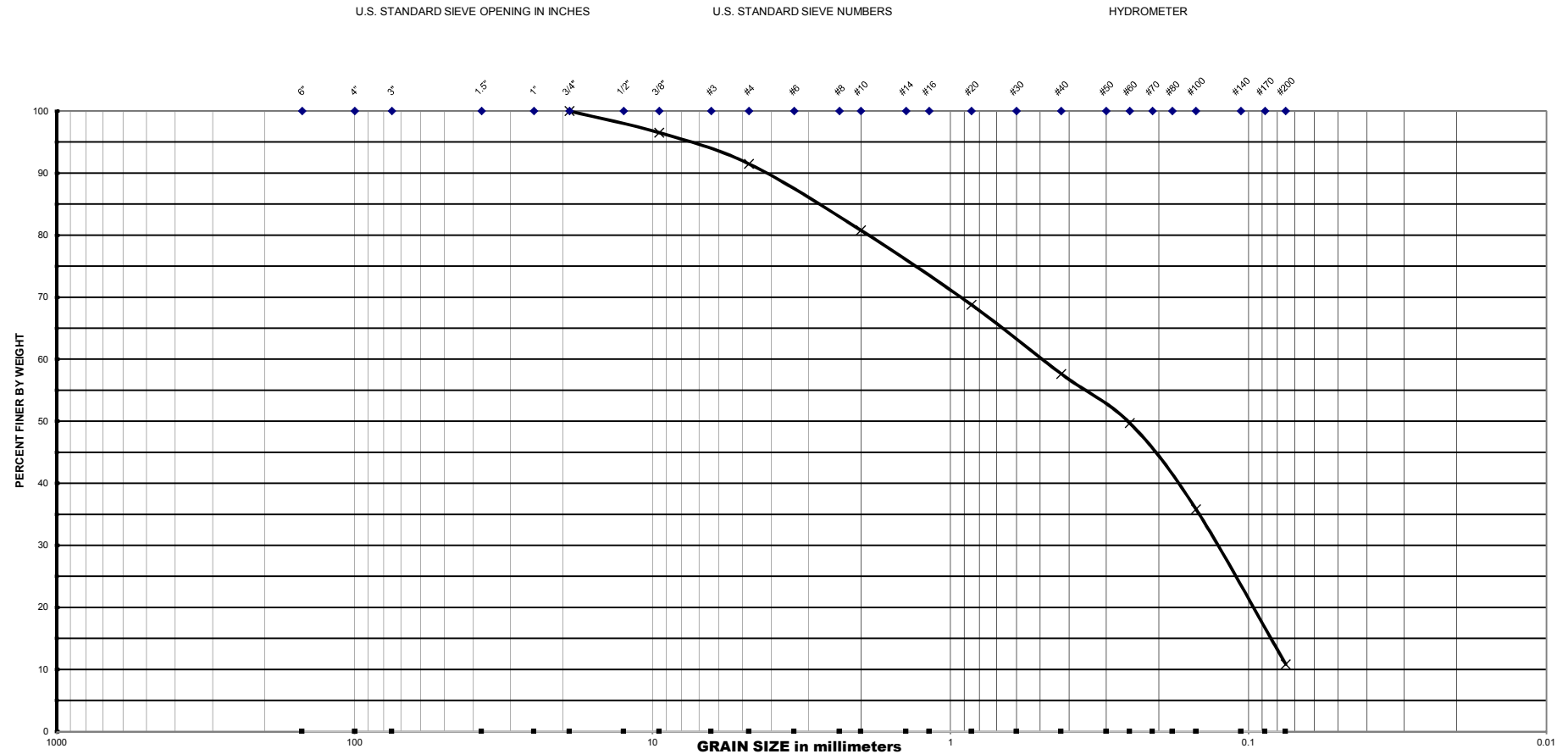
OC - Organic Content (%)

#200	12.7
------	------

SSP-28D

GCME

Geotechnical - Consulting - Engineering - Testing



Project Name : CR-880: Sam Senter Road over SFWMD Ocean Canal

Project No. : 2000-01-21005

Date : 8/22/2022

U.S SIEVE NO.	CUMM. % PASSING
---------------	-----------------

3/4"	100.0
------	-------

3/8"	96.5
------	------

#4	91.5
----	------

#10	80.8
-----	------

#20	68.8
-----	------

#40	57.6
-----	------

#60	49.7
-----	------

Note : MC - Moisture Content (%)

#100	35.8
------	------

OC - Organic Content (%)

#200	10.8
------	------

SSP-29D

TABLE - 2**SUMMARY OF CORROSION TEST RESULTS [PBC Project No. 2019803]****Project: CR-880: Sam Senter Road over SFWMD Ocean Canal**

Boring No.	Latitude	Longitude	Soil Type	Sample	Stratum	Depth Interval	pH	Resistivity (ohm-cm)	Chloride (ppm)	Sulfate (ppm)	Environmental Classification (Substructure)	
											Steel	Concrete
B-3	26.678282°	-80.538475°	SM	Soil	5	12.0 - 13.5	8.5	4200	22.0	150.0	Moderately Aggressive	Slightly Aggressive
R-102	26.675412°	-80.544005°	SM	Soil	5A	4.0 - 6.0	8.5	4200	8.9	160.0	Moderately Aggressive	Slightly Aggressive
Canal Water				Water			8.5	1900	63.0	28.0	Moderately Aggressive	Moderately Aggressive

Table 1.3.2-1 Criteria for Substructure Environmental Classifications

Classification	Environmental Condition	Units	Steel		Concrete	
			Water	Soil	Water	Soil
Extremely Aggressive (If any of these conditions exist)	pH		< 6.0		< 5.0	
	Cl	ppm	> 2000		> 2000	
	SO ₄	ppm	N.A.		> 1500	> 2000
	Resistivity	Ohm-cm	< 1000		< 500	
Slightly Aggressive (If all of these conditions exist)	pH		> 7.0		> 6.0	
	Cl	ppm	<500		< 500	
	SO ₄	ppm	N.A.		< 150	< 1000
	Resistivity	Ohm-cm	> 5000		> 3000	
Moderately Aggressive	This classification must be used at all sites not meeting requirements for either slightly aggressive or extremely aggressive environments.					
pH = acidity (-log ₁₀ H ⁺ ; potential of Hydrogen), Cl = chloride content, SO ₄ = Sulfate content.						

TABLE - 3
BRIDGE ANALYSIS SUMMARY

DESIGN DATA AND VERTICAL / LATERAL LOAD ANALYSIS SUMMARY (18" PSC PILE) [Test Pile]
PROJECT: CR-880 Sam Senter Road over SFWMD Ocean Canal [PBC Project No. 2019803]

BRIDGE No.	PIER/BENT No.	PILE #	PILE SIZE	BORING No. USED	BORING ELEV. (FT)	GSE ELEV. (FT)	SCOUR/MUCK ELEV. (FT)	VOID DEPTH (FT) **	PREFORM ELEV. (FT) ***	FACTORED AXIAL LOAD (TONS)	FACTORED UPLIFT LOAD (TONS)	LONG TERM SCOUR ELEV. (FT)	NET SCOUR RESISTANCE (TONS)	DOWN DRAG (TONS)	RESISTANCE FACTOR ϕ	NBR / UBC (TONS)	PILE CUT-OFF ELEV. (FT)	ESTIMATED PILE TIP ELEV. (FT)	ESTIMATED DAVISSON CAPACITY (tons)	CALCULATED PILE LENGTH (FT)	TEST PILE LENGTH (FT)	MIN. TIP ELEV. (FT) *
XXXXXX	EB 1 (West)	15	18	B-1	17.3	13.5	11.81 / 5.11	12.50	-35.00	108.6	N/A	11.81	0	0	0.65	168	14.5	-45.66	168.49	61	76	-37
	EB 1 (East)	15	18	B-3	16.6	13.5	11.81 / 5.11	11.60	-35.00	108.6	N/A	11.81	0	0	0.65	168	14.5	-24.44	198.60	52	67	-37
	IB 2 (West)	9	18	B-1	17.3	5.2	2.21	12.50	-35.00	131.3	N/A	2.21	0	0	0.65	202	14.7	-62.66	203.30	78	93	-46
	IB 2 (East)	9	18	B-3	16.6	5.2	2.21	11.60	-35.00	131.3	N/A	2.21	0	0	0.65	202	14.7	-39.44	202.13	61	76	-46
	IB 3 (West)	7	18	B-1	17.3	-3.4	-6.39	21.00	-35.00	137.2	N/A	-6.39	0	0	0.65	212	14.4	-67.66	214.54	83	98	-61
	IB 3 (East)	7	18	B-3	16.6	-3.4	-6.39	20.20	-35.00	137.2	N/A	-6.39	0	0	0.65	212	14.4	-44.44	217.45	76	91	-61
	IB 4 (West)	7	18	B-2	16.8	-3.4	-6.39	20.50	-35.00	137.8	N/A	-6.39	0	0	0.65	212	14.3	-70.25	213.77	85	100	-51
	IB 4 (East)	7	18	B-4	17.3	-3.4	-6.39	21.00	-35.00	137.8	N/A	-6.39	0	0	0.65	212	14.3	-76.70	219.47	91	106	-51
	IB 5 (West)	7	18	B-2	16.8	5.2	2.21	12.00	-35.00	111.2	N/A	2.21	0	0	0.65	172	14.2	-60.25	175.73	75	90	-46
	IB 5 (East)	7	18	B-4	17.3	5.2	2.21	12.50	-35.00	111.2	N/A	2.21	0	0	0.65	172	14.2	-72.70	171.72	87	102	-46
	EB 6 (West)	8	18	B-2	16.8	13.5	11.81 / 5.11	12.00	-35.00	81.9	N/A	11.81	0	0	0.65	126	13.7	-40.25	126.38	54	69	-37
	EB 6 (East)	8	18	B-4	17.3	13.5	11.81 / 5.11	12.50	-35.00	81.9	N/A	11.81	0	0	0.65	126	13.7	-46.70	126.78	61	76	-37

Notes: * Minimum tip elevation is based on lateral analysis and add 5 feet or 20% to the penetration at which the foundation becomes unstable.[SDG 3.5.8])

** Void depth is the depth of the cavity layer in FB-Deep analysis. It is the bottom of muck layer at EB 1 & EB 6. It is the canal bottom at IB 2 through IB 5.

*** Because preform elevation -35.00 feet is below scour elevation, no scour resistance is required.

TABLE - 4.1**Project: CR-880: Sam Senter Road over SFWMD Ocean Canal [Bridge]****End Bent 1 [Reference Boring: B-1] [Model: Sand]****Summary of Recommended Soil Parameters for L-Pile Analysis for 18" & 24" PSC-Piles****Note: 1. * Layer 1 and Layer 2 soils should not be considered; Assume 12 feet of unsupported length.****2. Model all soil layer as sand (limestone as sandy gravel).**

Elevations and Soil Type:	Layer 1 *	Layer 2 *	Layer 3	Layer 4	Layer 5	Layer 6	Layer 7	Layer 8	Layer 9	Layer 10	Layer 11
Depth at top of layer (ft) Ground Level	0	4	12	16	26	46	53	55	65	70	88
Depth at bottom of layer (ft)	4	12	16	26	46	53	55	65	70	88	100
Depth at water table (ft)	11.8										
Elevation at top of layer (ft, NAVD)	17.3	13.3	5.3	1.3	-8.7	-28.7	-35.7	-37.7	-47.7	-52.7	-70.7
Elevation at bottom of layer (ft, NAVD)	13.3	5.3	1.3	-8.7	-28.7	-35.7	-37.7	-47.7	-52.7	-70.7	-82.7
Water Table Elevation (ft, NAVD)	5.5										
Soil Layer Type (Cohesionless/Cohesive,Rock)	Cohesionless	Cohesive	Cohesionless	Rock	Rock	Cohesionless	Rock	Cohesionless	Cohesionless	Cohesionless	Cohesionless
USCS Soil Layer Type	SP-SM, SM	OL (Peat)	LS (Model as Sand)	LS (Model as Sandy Gravel)	LS (Model as Sandy Gravel)	SP-SM	LS (Model as Sandy Gravel)	SP-SM	SP-SM	SM	SM
Average SPT N value (Blows/ft) (Safety)	7.1	4.8	10.5	32.6	74.4	59.9	37.2	18.6	35.3	17.2	24.6
Soil Properties for Lateral Soil Model:											
Lateral Soil Model			Sand (Reese)	Sand (Reese)	Sand (Reese)	Sand (Reese)	Sand (Reese)	Sand (Reese)	Sand (Reese)	Sand (Reese)	Sand (Reese)
Internal Friction Angle, Φ (degrees)			31	40	40	38	40	33	37	27	29
Subgrade Soil Modulus, RK (pci)			29	90	125	125	103	52	98	48	68
Total Unit Weight, γ (pcf)			110.4	136.9	150.0	140.0	140.4	116.5	129.0	115.4	120.9
Effective Unit Weight, γ (pcf)			48.0	74.5	87.6	77.6	78.0	54.1	66.6	53.0	58.5
Effective Unit Weight, γ (pci)			0.0278	0.0431	0.0507	0.0449	0.0451	0.0313	0.0385	0.0307	0.0339
Clay - Major Principal Strain ϵ_{50}											
Clay - Major Principal Strain ϵ_{100}											
Clay - Undrained Shear Strength, C_u (psi) =											
Clay - Undrained Shear Strength, C_u (psf) =											
Rock - Young's Modulus, E_r (psi) =											
Rock - Uniaxial/Unconfined Compressive Strength, q_u (psi) =											
Rock - RQD (%) =											
Rock - k_{rm} =											
Ultimate Unit Side Friction (psf)											
Ultimate Unit Tip Resistance (ksi)											

TABLE - 4.2**Project: CR-880: Sam Senter Road over SFWMD Ocean Canal [Bridge]****End Bent 2 [Reference Boring: B-2] [Model: Sand]****Summary of Recommended Soil Parameters for L-Pile Analysis for 18" & 24" PSC-Piles****Note: 1. * Layer 1 and Layer 2 soils should not be considered; Assume 12 feet of unsupported length.****2. Model all soil layer as sand (limestone as sandy gravel).**

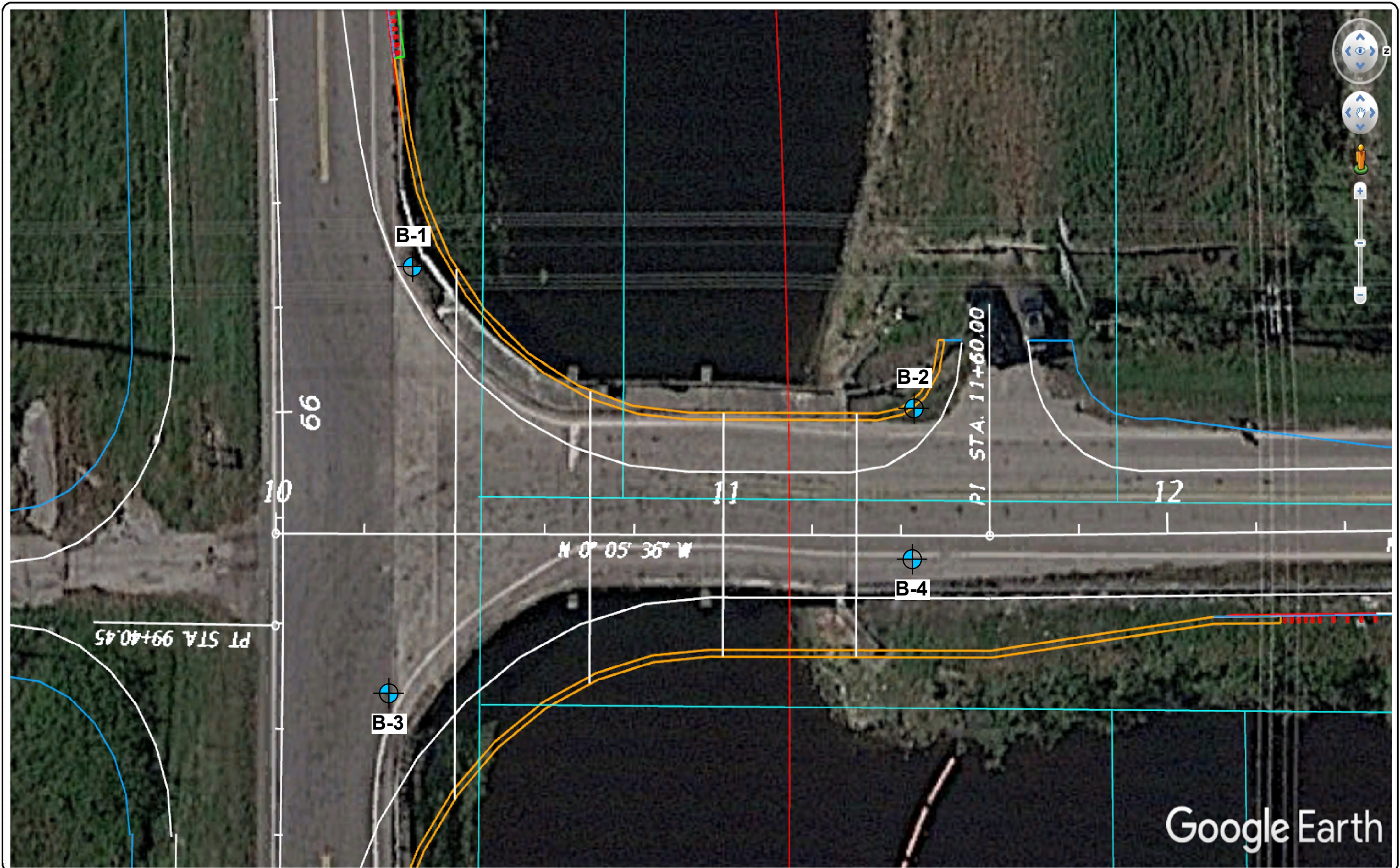
Elevations and Soil Type:	Layer 1 *	Layer 2 *	Layer 3	Layer 4	Layer 5	Layer 6	Layer 7	Layer 8	Layer 9	Layer 10	Layer 11	Layer 12	Layer 13	Layer 14
Depth at top of layer (ft) Ground Level	0	6	12	16	18	21	26	31	36	41	46	51	68	95
Depth at bottom of layer (ft)	6	12	16	18	21	26	31	36	41	46	51	68	95	100
Depth at water table (ft)	12.7													
Elevation at top of layer (ft, NAVD)	16.8	10.8	4.8	0.8	-1.2	-4.2	-9.2	-14.2	-19.2	-24.2	-24.2	-24.2	-24.2	-29.2
Elevation at bottom of layer (ft, NAVD)	10.8	4.8	0.8	-1.2	-4.2	-9.2	-14.2	-19.2	-24.2	-29.2	-34.2	-51.2	-78.2	-83.2
Water Table Elevation (ft, NAVD)	4.1													
Soil Layer Type (Cohesionless/Cohesive,Rock)	Cohesionless	Cohesive	Rock	Rock	Cohesionless	Cohesionless	Rock	Cohesionless	Rock	Cohesionless	Rock	Cohesionless	Cohesionless	Cohesionless
USCS Soil Layer Type	SP-SM, SM	OL (Peat)	LS (Model as Sandy Gravel)	LS	SM	LS (Model as Sand)	LS	LS (Model as Sand)	LS	SP-SM	LS	SP-SM	SM	SP-SM
Average SPT N value (Blows/ft) (Safety)	9.9	2.9	16.1	74.4	16.1	11.2	86.8	4.3	74.4	84.9	74.4	17.5	20.1	63.2
Soil Properties for Lateral Soil Model:														
Lateral Soil Model			Sand (Reese)	Sand (Reese)	Sand (Reese)	Sand (Reese)	Sand (Reese)	Sand (Reese)	Sand (Reese)	Sand (Reese)	Sand (Reese)	Sand (Reese)	Sand (Reese)	Sand (Reese)
Internal Friction Angle, Φ (degrees)			37	40	27	31	40	29	40	38	40	32	28	38
Subgrade Soil Modulus, RK (pci)			45	125	45	31	125	12	125	125	125	49	56	125
Total Unit Weight, γ (pcf)			124.6	150.0	114.6	110.9	150.0	91.1	150.0	140.0	150.0	115.7	117.5	140.0
Effective Unit Weight, γ (pcf)			62.2	87.6	52.2	48.5	87.6	28.7	87.6	77.6	87.6	53.3	55.1	77.6
Effective Unit Weight, γ (pci)			0.0360	0.0507	0.0302	0.0280	0.0507	0.0166	0.0507	0.0449	0.0507	0.0308	0.0319	0.0449
Clay - Major Principal Strain ϵ_{50}														
Clay - Major Principal Strain ϵ_{100}														
Clay - Undrained Shear Strength, C_u (psi) =														
Clay - Undrained Shear Strength, C_u (psf) =														
Rock - Young's Modulus, E_r (psi) =														
Rock - Uniaxial/Unconfined Compressive Strength, q_u (psi) =														
Rock - RQD (%) =														
Rock - k_{rm} =														
Ultimate Unit Side Friction (psf)														
Ultimate Unit Tip Resistance (ksi)														

TABLE - 4.3**Project: CR-880: Sam Senter Road over SFWMD Ocean Canal [Bridge]****End Bent 1 [Reference Boring: B-3] [Model: Sand]****Summary of Recommended Soil Parameters for L-Pile Analysis for 18" & 24" PSC-Piles****Note: 1. * Layer 1 and Layer 2 soils should not be considered; Assume 11 feet of unsupported length.****2. Model all soil layer as sand (limestone as sandy gravel).**

Elevations and Soil Type:	Layer 1 *	Layer 2 *	Layer 3	Layer 4	Layer 5	Layer 6	Layer 7	Layer 8	Layer 9	Layer 10	Layer 11	Layer 12	Layer 13	Layer 14
Depth at top of layer (ft) Ground Level	1	5	11	13	15	17	22	27	34	40	51	61	64	99
Depth at bottom of layer (ft)	5	11	13	15	17	22	27	34	40	51	61	64	99	101
Depth at water table (ft)	10.2													
Elevation at top of layer (ft, NAVD)	17.6	12.6	6.6	4.6	2.6	0.6	-4.4	-9.4	-16.4	-22.4	-22.4	-22.4	-22.4	-33.4
Elevation at bottom of layer (ft, NAVD)	12.6	6.6	4.6	2.6	0.6	-4.4	-9.4	-16.4	-22.4	-33.4	-43.4	-46.4	-81.4	-83.4
Water Table Elevation (ft, NAVD)	7.4													
Soil Layer Type (Cohesionless/Cohesive,Rock)	Cohesionless	Cohesive	Cohesionless	Cohesionless	Rock	Cohesionless	Cohesionless	Rock	Cohesionless	Rock	Cohesionless	Rock	Cohesionless	Rock
USCS Soil Layer Type	SP-SM, SM	OL (Peat)	LS (Model as Sand)	SM	LS	SM	SM	LS	SM	LS	SP-SM	LS	SP-SM	LS
Average SPT N value (Blows/ft) (Safety)	11.8	2.3	11.2	93.0	74.4	14.9	57.7	74.4	37.8	74.4	21.4	74.4	21.6	74.4
Soil Properties for Lateral Soil Model:														
Lateral Soil Model			Sand (Reese)	Sand (Reese)	Sand (Reese)	Sand (Reese)	Sand (Reese)	Sand (Reese)	Sand (Reese)	Sand (Reese)	Sand (Reese)	Sand (Reese)	Sand (Reese)	Sand (Reese)
Internal Friction Angle, Φ (degrees)			31	35	40	27	35	40	32	40	33	40	33	40
Subgrade Soil Modulus, RK (pci)			31	125	125	41	125	125	105	125	59	125	60	125
Total Unit Weight, γ (pcf)			110.9	140.0	150.0	113.7	140.0	150.0	130.9	150.0	118.5	150.0	118.7	150.0
Effective Unit Weight, γ (pcf)			48.5	77.6	87.6	51.3	77.6	87.6	68.5	87.6	56.1	87.6	56.3	87.6
Effective Unit Weight, γ (pci)			0.0280	0.0449	0.0507	0.0297	0.0449	0.0507	0.0396	0.0507	0.0325	0.0507	0.0326	0.0507
Clay - Major Principal Strain ϵ_{50}														
Clay - Major Principal Strain ϵ_{100}														
Clay - Undrained Shear Strength, C_u (psi) =														
Clay - Undrained Shear Strength, C_u (psf) =														
Rock - Young's Modulus, E_r (psi) =														
Rock - Uniaxial/Unconfined Compressive Strength, q_u (psi) =														
Rock - RQD (%) =														
Rock - k_{rm} =														
Ultimate Unit Side Friction (psf)														
Ultimate Unit Tip Resistance (ksi)														

TABLE - 4.4**Project: CR-880: Sam Senter Road over SFWMD Ocean Canal [Bridge]****End Bent 2 [Reference Boring: B-4] [Model: Sand]****Summary of Recommended Soil Parameters for L-Pile Analysis for 18" & 24" PSC-Piles****Note: 1. * Layer 1 and Layer 2 soils should not be considered; Assume 13 feet of unsupported length.****2. Model all soil layer as sand (limestone as sandy gravel).**

Elevations and Soil Type:	Layer 1 *	Layer 2 *	Layer 3	Layer 4	Layer 5	Layer 6	Layer 7	Layer 8	Layer 9	Layer 10	Layer 11	Layer 12	Layer 13
Depth at top of layer (ft) Ground Level	1	7	13	14.5	17	21	27	29	31	36	51	56	99
Depth at bottom of layer (ft)	7	13	14.5	17	21	27	29	31	36	51	56	99	101
Depth at water table (ft)	12.6												
Elevation at top of layer (ft, NAVD)	18.3	11.3	5.3	3.8	1.3	-2.7	-8.7	-10.7	-12.7	-17.7	-17.7	-17.7	-17.7
Elevation at bottom of layer (ft, NAVD)	11.3	5.3	3.8	1.3	-2.7	-8.7	-10.7	-12.7	-17.7	-32.7	-37.7	-80.7	-82.7
Water Table Elevation (ft, NAVD)	5.7												
Soil Layer Type (Cohesionless/Cohesive,Rock)	Cohesionless	Cohesive	Cohesionless	Rock	Cohesionless	Rock	Cohesionless	Cohesionless	Cohesionless	Rock	Cohesionless	Cohesionless	Rock
USCS Soil Layer Type	SP-SM, SM	OL (Peat)	SM	LS	SM	LS	SP-SM	SP-SM	LS (Model as Sand)	LS	LS (Model as Sand)	SP-SM	LS
Average SPT N value (Blows/ft) (Safety)	4.1	3.1	34.7	39.7	15.5	74.4	36.0	74.4	9.9	74.4	14.9	15.3	74.4
Soil Properties for Lateral Soil Model:													
Lateral Soil Model			Sand (Reese)	Sand (Reese)	Sand (Reese)	Sand (Reese)	Sand (Reese)	Sand (Reese)	Sand (Reese)	Sand (Reese)	Sand (Reese)	Sand (Reese)	Sand (Reese)
Internal Friction Angle, Φ (degrees)			32	40	27	40	37	38	30	40	32	32	40
Subgrade Soil Modulus, RK (pci)			96	110	43	125	100	125	28	125	41	43	125
Total Unit Weight, γ (pcf)			128.5	142.3	114.1	150.0	129.5	140.0	109.7	150.0	113.7	114.0	150.0
Effective Unit Weight, γ (pcf)			66.1	79.9	51.7	87.6	67.1	77.6	47.3	87.6	51.3	51.6	87.6
Effective Unit Weight, γ (pci)			0.0383	0.0462	0.0299	0.0507	0.0388	0.0449	0.0274	0.0507	0.0297	0.0299	0.0507
Clay - Major Principal Strain ϵ_{50}													
Clay - Major Principal Strain ϵ_{100}													
Clay - Undrained Shear Strength, C_u (psi) =													
Clay - Undrained Shear Strength, C_u (psf) =													
Rock - Young's Modulus, E_r (psi) =													
Rock - Uniaxial/Unconfined Compressive Strength, q_u (psi) =													
Rock - RQD (%) =													
Rock - k_{rm} =													
Ultimate Unit Side Friction (psf)													
Ultimate Unit Tip Resistance (ksi)													



GCME

GCME, INC.
1730 W. 10TH STREET
RIVIERA BEACH, FLORIDA 33404
CERTIFICATE OF AUTHORIZATION NO. 9076
PHONE (561) 845-8727

Seal:

xx
PE# x

No.	Revisions	By	Date
	LEGEND: B-# - Bridge Boring Location		

SSR-36



PALM BEACH COUNTY
ENGINEERING AND PUBLIC WORKS
ROADWAY PRODUCTION
P.O. BOX 21228, WEST PALM BEACH, FLORIDA

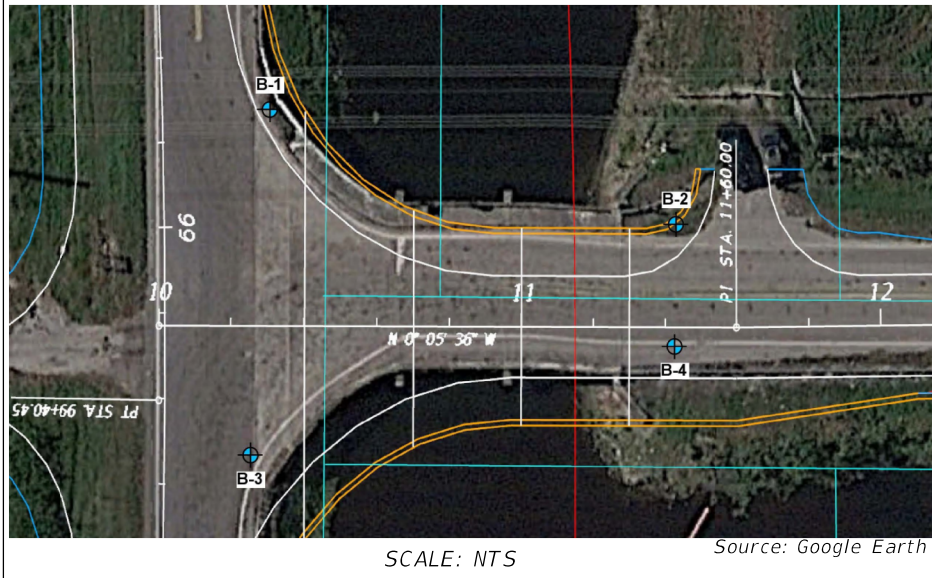
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APPROVED: PG
DRAWN: FP
CHECKED: ZP
DATE:

APPROXIMATE BORING
LOCATION PLAN
PLATE-1

SHEET:
OF:
PROJECT NO.

GCME PROJECT NO. 2000-01-21005

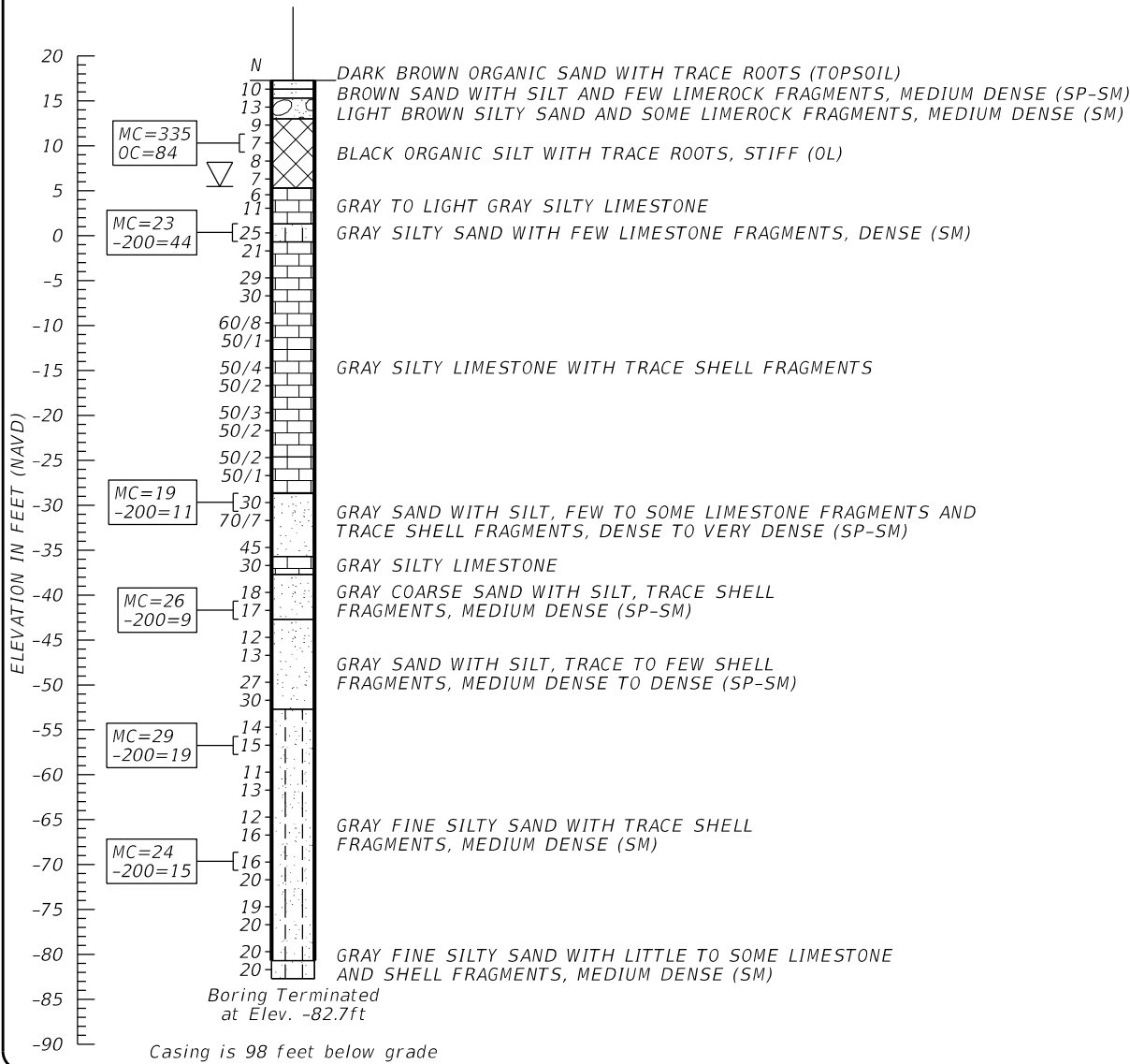
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STA. 10+35 (CL SRR)
OFF. 50.6' LT
ELEV. +17.3'
DATE 8/9/2022
DRILLER Alexandre / Miquel
HAMMER Auto
RIG CME-45
COORDINATES 26.6783°
-80.5387°



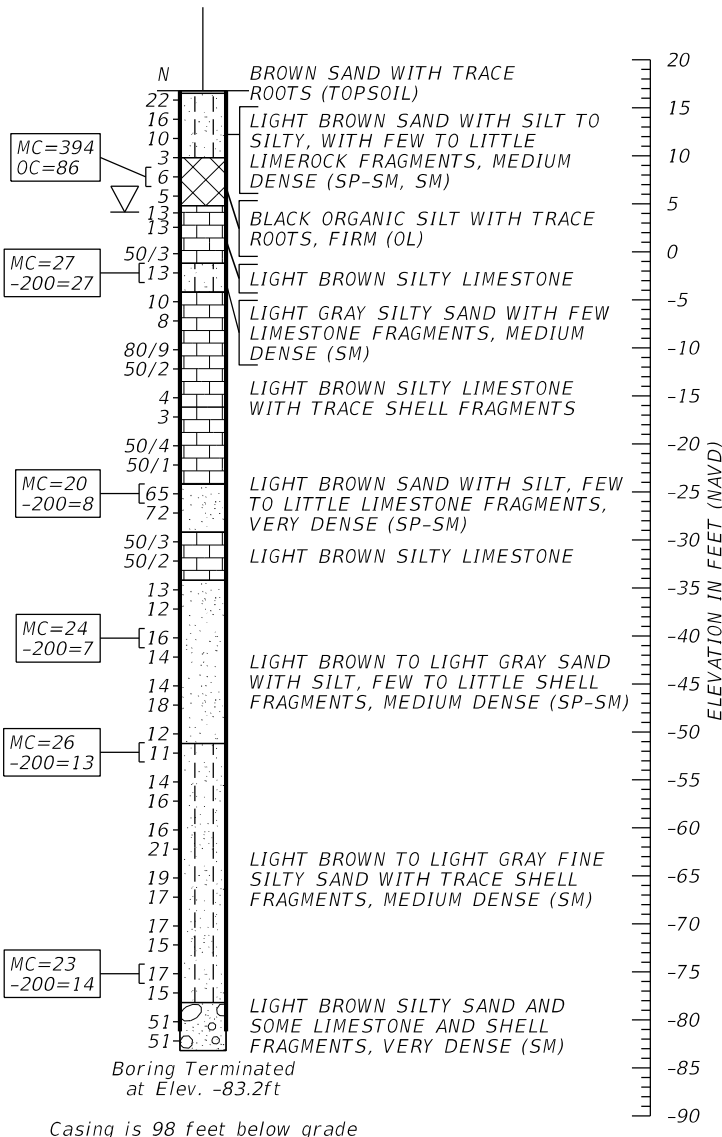
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Source: Google Earth

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STA. 11+49 (CL SRR)
OFF. 24.9' LT
ELEV. +16.8'
DATE 7/14/2022
DRILLER Alexandre / Miquel
HAMMER Auto
RIG CME-45
COORDINATES 26.6786°
-80.5386°



SCALE: 1"=20'V



(SP) UNIFIED SOIL CLASSIFICATION SYSTEM SYMBOL

N STANDARD PENETRATION RESISTANCE IN BLOWS PER 12 inches UNLESS OTHERWISE NOTED. 50/3 INDICATES (50) BLOWS REQUIRED TO DRIVE A SAMPLING SPOON 3 INCHES.

8/9/22 WATER LEVEL WITH DATE OF READING

LOSS OF CIRCULATION

WR SAMPLER DROPPED DUE TO WEIGHT OF ROD

WH SAMPLER DROPPED DUE TO WEIGHT OF HAMMER

HA DRILLED WITH A HAND AUGER IN ORDER TO CLEAR LOCATION FROM UNDERGROUND UTILITIES

NR NO RECOVERY- NO SOIL/ROCK WAS RECOVERED IN THE SAMPLING SPOON

STATION / OFFSET / ELEVATION / COORDINATE INFORMATION ARE PROVIDED BY SURVEYORS.

MC= NATURAL MOISTURE CONTENT (%)
-200= FINES PASSING #200 SIEVE (%)
OC= ORGANIC CONTENT (%)
LL= LIQUID LIMIT (%)
PI= PLASTICITY INDEX (%)
NP= INDICATES NON-PLASTIC

NOTES: STRATA BOUNDARIES ARE APPROXIMATE AND MAY VARY BETWEEN OR AWAY FROM BORING LOCATIONS.

DRILLER: ALEXANDRE / MIQUEL

STANDARD PENETRATION TEST DATA

SPOON INSIDE DIA.	1.375 inches
SPOON OUTSIDE DIA.	2.0 inches
AVG. HAMMER DROP	30.0 inches
HAMMER WEIGHT	140.0 pounds

SPT CONSISTENCY CHART

SILTS AND CLAYS-	SAFETY HAMMER	AUTOMATIC HAMMER
CONSISTENCY	SPT (BLOWS/1.0 ft)	SPT (BLOWS/1.0 ft)
VERY SOFT	LESS THAN 2	LESS THAN 1
SOFT	2 - 4	1 - 3
FIRM	4 - 8	3 - 6
STIFF	8 - 15	6 - 12
VERY STIFF	15 - 30	12 - 24
HARD	GREATER THAN 30	GREATER THAN 24

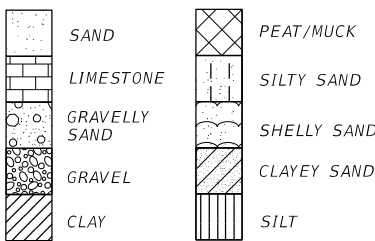
SPT DENSITY CHART

GRANULAR MATERIALS-	SAFETY HAMMER	AUTOMATIC HAMMER
RELATIVE DENSITY	SPT (BLOWS/1.0 ft)	SPT (BLOWS/1.0 ft)
VERY LOOSE	LESS THAN 4	LESS THAN 3
LOOSE	4 - 10	3 - 8
MEDIUM DENSE	10 - 30	8 - 24
DENSE	30 - 50	24 - 40
VERY DENSE	GREATER THAN 50	GREATER THAN 40

ENVIRONMENTAL CLASSIFICATION:

SUBSTRUCTURE:	SLIGHTLY AGGRESSIVE (CONCRETE) MODERATELY AGGRESSIVE (STEEL)
SUPERSTRUCTURE:	SLIGHTLY AGGRESSIVE

SOIL TYPE SYMBOLS:



GCME

GCME, INC.
1730 W. 10TH STREET
RIVIERA BEACH, FLORIDA 33404
CERTIFICATE OF AUTHORIZATION NO. 9076
PHONE (561) 845-8727

Seal:

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P.E.# x

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SSP-3-ND



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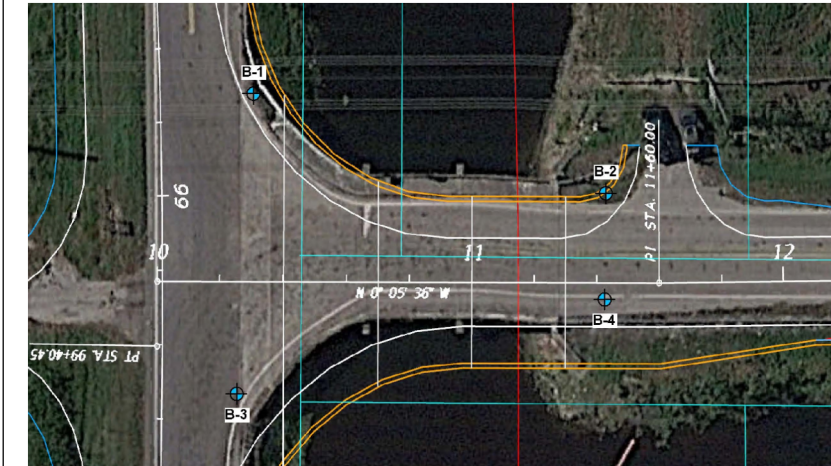
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APPROVED: PG
DRAWN: FP
CHECKED: ZP
DATE: 09/12/22

CR 880 AT SAM SENTER ROAD
INTERSECTION IMPROVEMENT AND BRIDGE REPLACEMENT
REPORT OF CORE BORINGS

SHEET: B1-3
OF:
PROJECT NO. 2019803

NOTICE: THE OFFICAL RECORD OF THIS SHEET IS THE ELECTRONIC FILE DIGITALLY SIGNED AND SEALED UNDER RULE 61G15-23.004, F.A.C. FIGURE: 1

GCME PROJECT NO. 2000-01-21005

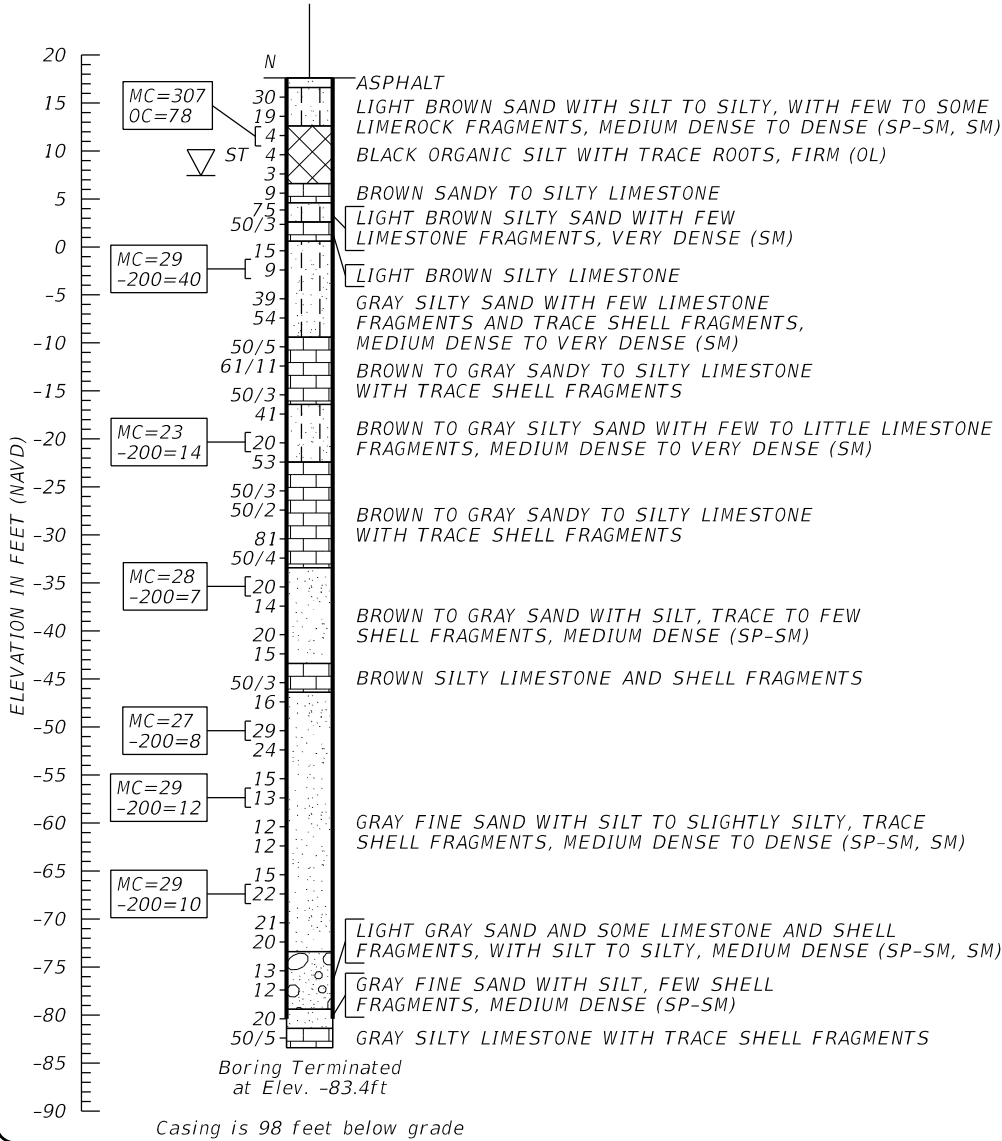


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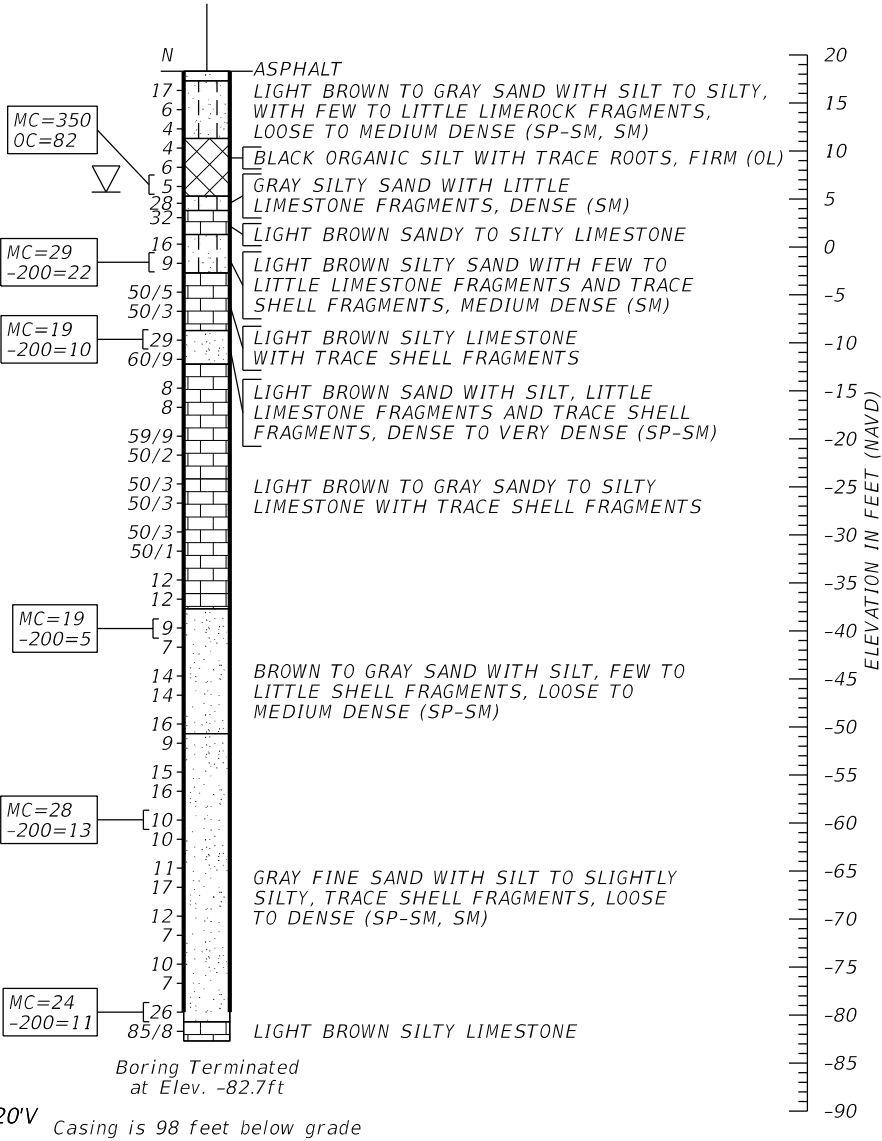
Source: Google Earth

BOR # B-3
STA. 10+29 (CL SRR)
OFF. 30.4' RT
ELEV. +17.6'
DATE 8/17/22
DRILLER Carlos Charris
HAMMER Auto
RIG CME-55
COORDINATES 26.6783°
-80.5385°

BOR # B-4
STA. 11+47 (CL SRR)
OFF. 4.1' RT
ELEV. +18.3'
DATE 7/15/22
DRILLER Alexandre / Miquel
HAMMER Auto
RIG CME-45
COORDINATES 26.6786°
-80.5386°



SCALE: 1"=20'



LEGEND

- (SP) UNIFIED SOIL CLASSIFICATION SYSTEM SYMBOL
- N STANDARD PENETRATION RESISTANCE IN BLOWS PER 12 inches UNLESS OTHERWISE NOTED. 50/3 INDICATES (50) BLOWS REQUIRED TO DRIVE A SAMPLING SPOON 3 INCHES.
- 7/15/22 WATER LEVEL WITH DATE OF READING
- LOSS OF CIRCULATION
- WR SAMPLER DROPPED DUE TO WEIGHT OF ROD
- WH SAMPLER DROPPED DUE TO WEIGHT OF HAMMER
- HA DRILLED WITH A HAND AUGER IN ORDER TO CLEAR LOCATION FROM UNDERGROUND UTILITIES
- ST SHELBY TUBE SAMPLE OBTAINED FROM DEPTH INTERVAL SHOWN.
- NR NO RECOVERY- NO SOIL/ROCK WAS RECOVERED IN THE SAMPLING SPOON
- STATION / OFFSET / ELEVATION / COORDINATE INFORMATION ARE PROVIDED BY SURVEYORS.
- MC= NATURAL MOISTURE CONTENT (%)
-200= FINES PASSING #200 SIEVE (%)
OC= ORGANIC CONTENT (%)
LL= LIQUID LIMIT (%)
PI= PLASTICITY INDEX (%)
NP= INDICATES NON-PLASTIC

NOTES: STRATA BOUNDARIES ARE APPROXIMATE AND MAY VARY BETWEEN OR AWAY FROM BORING LOCATIONS.

DRILLER: ALEXANDRE / MIQUEL

STANDARD PENETRATION TEST DATA

SPOON INSIDE DIA. 1.375 inches
SPOON OUTSIDE DIA. 2.0 inches
AVG. HAMMER DROP 30.0 inches
HAMMER WEIGHT 140.0 pounds

SPT CONSISTENCY CHART

SILTS AND CLAYS-	SAFETY HAMMER	AUTOMATIC HAMMER
CONSISTENCY	SPT (BLOWS/1.0 ft)	SPT (BLOWS/1.0 ft)
VERY SOFT	LESS THAN 2	LESS THAN 1
SOFT	2 - 4	1 - 3
FIRM	4 - 8	3 - 6
STIFF	8 - 15	6 - 12
VERY STIFF	15 - 30	12 - 24
HARD	GREATER THAN 30	GREATER THAN 24

SPT DENSITY CHART

GRANULAR MATERIALS-	SAFETY HAMMER	AUTOMATIC HAMMER
RELATIVE DENSITY	SPT (BLOWS/1.0 ft)	SPT (BLOWS/1.0 ft)
VERY LOOSE	LESS THAN 4	LESS THAN 3
LOOSE	4 - 10	3 - 8
MEDIUM DENSE	10 - 30	8 - 24
DENSE	30 - 50	24 - 40
VERY DENSE	GREATER THAN 50	GREATER THAN 40

ENVIRONMENTAL CLASSIFICATION:

SUBSTRUCTURE:	SLIGHTLY AGGRESSIVE (CONCRETE) MODERATELY AGGRESSIVE (STEEL)
SUPERSTRUCTURE:	SLIGHTLY AGGRESSIVE

SOIL TYPE SYMBOLS:

SAND	PEAT/MUCK
LIMESTONE	SILTY SAND
GRAVELLY SAND	SHELLY SAND
GRAVEL	CLAYEY SAND
CLAY	SILT

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CERTIFICATE OF AUTHORIZATION NO. 9076
PHONE (561) 845-8727

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No.

Revisions

By

Date

SSP-381



PALM BEACH COUNTY
ENGINEERING AND PUBLIC WORKS
ROADWAY PRODUCTION
P.O. BOX 21229, WEST PALM BEACH, FLORIDA

SCALE: N.T.S.
APPROVED: PG
DRAWN: FP
CHECKED: ZP
DATE: 09/12/22

CR 880 AT SAM SENTER ROAD
INTERSECTION IMPROVEMENT AND BRIDGE REPLACEMENT
REPORT OF CORE BORINGS

SHEET: B1-4
OF:
PROJECT NO. 2019803

NOTICE: THE OFFICAL RECORD OF THIS SHEET IS THE ELECTRONIC FILE DIGITALLY SIGNED AND SEALED UNDER RULE 61G15-23.004, F.A.C. FIGURE: 2

APPENDIX – A

FB DEEP OUTPUTS – VERTICAL CAPACITY ANALYSIS OF
PRECAST CONCRETE PILES

General Information:

Input file: e\FB-Deep\Pile\Rev\2-Preform\B-1-Void-12.5ft_Preform(-35ft).in
 Project number: 2000-01-21005
 Job name: CR-880
 Engineer: ZP
 Units: English

Analysis Information:

Analysis Type: SPT

Soil Information:

Boring date: 8-9-2022, Boring Number: B-1
 Station number: 10+35 (CL SRR) Offset: -50.6

Ground Elevation: 17.340(ft)

Hammer type: Automatic Hammer, Correction factor = 1.24

ID	Depth (ft)	No. of Blows (Blows/ft)	Soil Type
1	0.00	10.00	5- Cavity layer
2	2.00	13.00	5- Cavity layer
3	4.00	9.00	5- Cavity layer
4	6.00	7.00	5- Cavity layer
5	8.00	8.00	5- Cavity layer
6	10.00	7.00	5- Cavity layer
7	12.00	6.00	5- Cavity layer
8	12.50	3.00	4- Lime Stone/Very shelly sand
9	13.50	6.00	4- Lime Stone/Very shelly sand
10	15.00	13.00	2- Clay and silty sand
11	18.00	11.00	4- Lime Stone/Very shelly sand
12	20.50	15.00	4- Lime Stone/Very shelly sand
13	23.00	15.00	4- Lime Stone/Very shelly sand
14	25.50	30.00	4- Lime Stone/Very shelly sand
15	28.00	30.00	4- Lime Stone/Very shelly sand
16	30.50	30.00	4- Lime Stone/Very shelly sand
17	33.00	30.00	4- Lime Stone/Very shelly sand
18	35.50	30.00	4- Lime Stone/Very shelly sand
19	38.00	30.00	4- Lime Stone/Very shelly sand
20	40.50	30.00	4- Lime Stone/Very shelly sand
21	43.00	30.00	4- Lime Stone/Very shelly sand
22	45.50	15.00	3- Clean sand
23	48.00	35.00	3- Clean sand
24	50.50	23.00	3- Clean sand
25	52.50	45.00	3- Clean sand
26	53.00	30.00	4- Lime Stone/Very shelly sand
27	55.50	18.00	3- Clean sand
28	58.00	17.00	3- Clean sand
29	60.50	12.00	3- Clean sand
30	63.00	13.00	3- Clean sand
31	65.50	27.00	3- Clean sand
32	68.00	30.00	3- Clean sand
33	70.50	14.00	2- Clay and silty sand
34	73.00	15.00	2- Clay and silty sand
35	75.50	11.00	2- Clay and silty sand
36	78.00	13.00	2- Clay and silty sand
37	80.50	12.00	2- Clay and silty sand
38	83.00	16.00	2- Clay and silty sand
39	85.50	16.00	2- Clay and silty sand
40	88.00	20.00	2- Clay and silty sand
41	90.50	19.00	2- Clay and silty sand
42	93.00	20.00	2- Clay and silty sand

43	95.50	20.00	2- Clay and silty sand
44	98.00	20.00	2- Clay and silty sand
45	100.00	20.00	2- Clay and silty sand

Blowcount Average Per Soil Layer

Layer Num.	Starting Elevation (ft)	Bottom Elevation (ft)	Thickness (ft)	Average Blowcount (Blows/ft)	Soil Type
1	17.34	4.84	12.50	8.88	5-Void
2	4.84	2.34	2.50	4.80	4-Limestone, very Shelly Sand
3	2.34	-0.66	3.00	13.00	2-Clay and Silty Sand
4	-0.66	-28.16	27.50	25.55	4-Limestone, very Shelly Sand
5	-28.16	-35.66	7.50	25.80	3-Clean Sand
6	-35.66	-38.16	2.50	30.00	4-Limestone, very Shelly sand
7	-38.16	-53.16	15.00	19.50	3-Clean Sand
8	-53.16	-82.66	29.50	16.27	2-Clay and silty sand

Driven Pile Data:

=====

Pile unit weight = 150.00(pcf), Section Type: Square

Pile Geometry:

Width (in)	Length (ft)	Tip Elev. (ft)
18.00	10.00	7.34
18.00	11.00	6.34
18.00	12.00	5.34
18.00	13.00	4.34
18.00	14.00	3.34
18.00	15.00	2.34
18.00	16.00	1.34
18.00	17.00	0.34
18.00	18.00	-0.66
18.00	19.00	-1.66
18.00	20.00	-2.66
18.00	21.00	-3.66
18.00	22.00	-4.66
18.00	23.00	-5.66
18.00	24.00	-6.66
18.00	25.00	-7.66
18.00	26.00	-8.66
18.00	27.00	-9.66
18.00	28.00	-10.66
18.00	29.00	-11.66
18.00	30.00	-12.66
18.00	31.00	-13.66
18.00	32.00	-14.66
18.00	33.00	-15.66
18.00	34.00	-16.66
18.00	35.00	-17.66
18.00	36.00	-18.66
18.00	37.00	-19.66
18.00	38.00	-20.66
18.00	39.00	-21.66
18.00	40.00	-22.66
18.00	41.00	-23.66
18.00	42.00	-24.66
18.00	43.00	-25.66
18.00	44.00	-26.66
18.00	45.00	-27.66
18.00	46.00	-28.66
18.00	47.00	-29.66
18.00	48.00	-30.66
18.00	49.00	-31.66
18.00	50.00	-32.66

B-1-Void-12.5ft_Preform(-35ft).out

18.00	51.00	-33.66
18.00	52.00	-34.66
18.00	53.00	-35.66
18.00	54.00	-36.66
18.00	55.00	-37.66
18.00	56.00	-38.66
18.00	57.00	-39.66
18.00	58.00	-40.66
18.00	59.00	-41.66
18.00	60.00	-42.66
18.00	61.00	-43.66
18.00	62.00	-44.66
18.00	63.00	-45.66
18.00	64.00	-46.66
18.00	65.00	-47.66
18.00	66.00	-48.66
18.00	67.00	-49.66
18.00	68.00	-50.66
18.00	69.00	-51.66
18.00	70.00	-52.66
18.00	71.00	-53.66
18.00	72.00	-54.66
18.00	73.00	-55.66
18.00	74.00	-56.66
18.00	75.00	-57.66
18.00	76.00	-58.66
18.00	77.00	-59.66
18.00	78.00	-60.66
18.00	79.00	-61.66
18.00	80.00	-62.66
18.00	81.00	-63.66
18.00	82.00	-64.66
18.00	83.00	-65.66
18.00	84.00	-66.66
18.00	85.00	-67.66
18.00	86.00	-68.66
18.00	87.00	-69.66
18.00	88.00	-70.66
18.00	89.00	-71.66
18.00	90.00	-72.66
18.00	91.00	-73.66
18.00	92.00	-74.66
18.00	93.00	-75.66
18.00	94.00	-76.66
18.00	95.00	-77.66
24.00	10.00	7.34
24.00	11.00	6.34
24.00	12.00	5.34
24.00	13.00	4.34
24.00	14.00	3.34
24.00	15.00	2.34
24.00	16.00	1.34
24.00	17.00	0.34
24.00	18.00	-0.66
24.00	19.00	-1.66
24.00	20.00	-2.66
24.00	21.00	-3.66
24.00	22.00	-4.66
24.00	23.00	-5.66
24.00	24.00	-6.66
24.00	25.00	-7.66
24.00	26.00	-8.66
24.00	27.00	-9.66
24.00	28.00	-10.66
24.00	29.00	-11.66
24.00	30.00	-12.66
24.00	31.00	-13.66
24.00	32.00	-14.66
24.00	33.00	-15.66
24.00	34.00	-16.66
24.00	35.00	-17.66
24.00	36.00	-18.66
24.00	37.00	-19.66

24.00	38.00	-20.66
24.00	39.00	-21.66
24.00	40.00	-22.66
24.00	41.00	-23.66
24.00	42.00	-24.66
24.00	43.00	-25.66
24.00	44.00	-26.66
24.00	45.00	-27.66
24.00	46.00	-28.66
24.00	47.00	-29.66
24.00	48.00	-30.66
24.00	49.00	-31.66
24.00	50.00	-32.66
24.00	51.00	-33.66
24.00	52.00	-34.66
24.00	53.00	-35.66
24.00	54.00	-36.66
24.00	55.00	-37.66
24.00	56.00	-38.66
24.00	57.00	-39.66
24.00	58.00	-40.66
24.00	59.00	-41.66
24.00	60.00	-42.66
24.00	61.00	-43.66
24.00	62.00	-44.66
24.00	63.00	-45.66
24.00	64.00	-46.66
24.00	65.00	-47.66
24.00	66.00	-48.66
24.00	67.00	-49.66
24.00	68.00	-50.66
24.00	69.00	-51.66
24.00	70.00	-52.66
24.00	71.00	-53.66
24.00	72.00	-54.66
24.00	73.00	-55.66
24.00	74.00	-56.66
24.00	75.00	-57.66
24.00	76.00	-58.66
24.00	77.00	-59.66
24.00	78.00	-60.66
24.00	79.00	-61.66
24.00	80.00	-62.66
24.00	81.00	-63.66
24.00	82.00	-64.66
24.00	83.00	-65.66
24.00	84.00	-66.66
24.00	85.00	-67.66
24.00	86.00	-68.66
24.00	87.00	-69.66
24.00	88.00	-70.66
24.00	89.00	-71.66
24.00	90.00	-72.66
24.00	91.00	-73.66
24.00	92.00	-74.66
24.00	93.00	-75.66
24.00	94.00	-76.66
24.00	95.00	-77.66

Driven Pile Capacity:

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Section Type: Square
Pile width: 18.00 (in)

Test Pile	Pile width	Ultimate Side	Mobilized End	Estimated Davisson	Allowable Pile	Ultimate Pile
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B-1-Void-12.5ft_Preform(-35ft).out

Length (ft)	(in)	Friction (tons)	Bearing (tons)	Capacity (tons)	Capacity (tons)	Capacity (tons)
10.00	18.0	0.00	0.00	0.00	0.00	0.00
11.00	18.0	0.00	0.00	0.00	0.00	0.00
12.00	18.0	0.00	0.00	0.00	0.00	0.00
13.00	18.0	0.20	20.80	20.99	10.50	62.59
14.00	18.0	0.91	23.81	24.71	12.36	72.33
15.00	18.0	3.70	14.26	17.96	8.98	46.49
16.00	18.0	6.71	14.64	21.35	10.67	50.62
17.00	18.0	8.38	15.73	24.11	12.06	55.57
18.00	18.0	10.87	34.41	45.28	22.64	114.09
19.00	18.0	11.75	39.72	51.47	25.73	130.90
20.00	18.0	12.74	46.71	59.45	29.73	152.88
21.00	18.0	13.84	53.47	67.31	33.65	174.24
22.00	18.0	14.96	60.14	75.10	37.55	195.37
23.00	18.0	16.08	66.81	82.89	41.44	216.51
24.00	18.0	17.42	72.15	89.56	44.78	233.86
25.00	18.0	19.20	74.82	94.02	47.01	243.65
26.00	18.0	21.38	75.15	96.53	48.26	246.83
27.00	18.0	23.61	75.15	98.76	49.38	249.06
28.00	18.0	25.84	75.15	100.99	50.50	251.29
29.00	18.0	28.07	75.15	103.22	51.61	253.53
30.00	18.0	30.31	75.15	105.46	52.73	255.76
31.00	18.0	32.54	75.15	107.69	53.84	257.99
32.00	18.0	34.77	75.15	109.92	54.96	260.22
33.00	18.0	37.00	75.15	112.15	56.08	262.45
34.00	18.0	39.23	75.15	114.38	57.19	264.69
35.00	18.0	41.47	75.15	116.62	58.31	266.92
36.00	18.0	43.70	75.15	118.85	59.42	269.15
37.00	18.0	45.93	75.15	121.08	60.54	271.38
38.00	18.0	48.16	74.13	122.29	61.15	270.56
39.00	18.0	50.39	71.08	121.48	60.74	263.64
40.00	18.0	52.63	66.75	119.37	59.69	252.87
41.00	18.0	54.86	65.63	120.49	60.24	251.75
42.00	18.0	57.09	68.48	125.57	62.79	262.53
43.00	18.0	59.32	72.13	131.45	65.72	275.70
44.00	18.0	61.53	74.41	135.94	67.97	284.75
45.00	18.0	63.70	77.32	141.02	70.51	295.66
46.00	18.0	65.95	76.01	141.95	70.98	293.97
47.00	18.0	68.96	76.37	145.33	72.67	298.08
48.00	18.0	72.95	76.88	149.83	74.91	303.58
49.00	18.0	77.50	76.89	154.39	77.19	308.17
50.00	18.0	81.58	76.69	158.27	79.14	311.66
51.00	18.0	85.47	76.23	161.70	80.85	314.17
52.00	18.0	90.47	73.23	163.70	81.85	310.16
53.00	18.0	95.61	56.45	152.06	76.03	264.96
54.00	18.0	97.90	51.59	149.49	74.75	252.67
55.00	18.0	100.32	47.32	147.64	73.82	242.29
56.00	18.0	102.78	47.14	149.93	74.96	244.21
57.00	18.0	105.29	47.12	152.41	76.20	246.64
58.00	18.0	107.76	46.14	153.90	76.95	246.19
59.00	18.0	110.02	45.84	155.87	77.93	247.56
60.00	18.0	111.95	47.15	159.10	79.55	253.39
61.00	18.0	113.09	48.43	161.52	80.76	258.38
62.00	18.0	114.09	50.52	164.61	82.31	265.65
63.00	18.0	115.08	53.40	168.49	84.24	275.30
64.00	18.0	116.77	55.66	172.43	86.21	283.75
65.00	18.0	119.70	55.89	175.58	87.79	287.36
66.00	18.0	123.95	53.80	177.75	88.87	285.34
67.00	18.0	128.93	50.65	179.58	89.79	280.89
68.00	18.0	134.44	46.49	180.93	90.47	273.91
69.00	18.0	138.68	42.21	180.89	90.45	265.32
70.00	18.0	142.90	39.23	182.13	91.06	260.58
71.00	18.0	147.11	20.29	167.39	83.70	207.97
72.00	18.0	151.43	20.24	171.68	85.84	212.16
73.00	18.0	155.83	20.10	175.94	87.97	216.15
74.00	18.0	160.08	19.83	179.91	89.96	219.57
75.00	18.0	163.93	19.49	183.41	91.71	222.38
76.00	18.0	167.45	19.28	186.73	93.36	225.30
77.00	18.0	171.10	19.40	190.49	95.25	229.29
78.00	18.0	174.95	19.75	194.71	97.35	234.21
79.00	18.0	178.86	20.17	199.04	99.52	239.38

EB 1 (West)
NBR=168tons

B-1-Void-12.5ft Preform(-35ft).out

80.00	18.0	182.67	20.63	203.30	101.65	244.55
81.00	18.0	186.44	21.17	207.61	103.80	249.94
82.00	18.0	190.54	21.83	212.37	106.18	256.03
83.00	18.0	195.03	22.55	217.57	108.79	262.66
84.00	18.0	199.71	23.17	222.88	111.44	269.22
85.00	18.0	204.39	23.71	228.10	114.05	275.53
86.00	18.0	209.12	24.25	233.37	116.68	281.87
87.00	18.0	214.14	24.83	238.97	119.48	288.63
88.00	18.0	219.50	25.42	244.92	122.46	295.75
89.00	18.0	225.00	25.94	250.94	125.47	302.82
90.00	18.0	230.41	26.45	256.85	128.43	309.75
91.00	18.0	235.76	26.97	262.72	131.36	316.65
92.00	18.0	241.17	27.48	268.66	134.33	323.62
93.00	18.0	246.66	27.98	274.64	137.32	330.61
94.00	18.0	252.20	28.38	280.57	140.29	337.33
95.00	18.0	Soil Elevations Must Extend At or Below Contribution Zone				

IB 2 (West)
NBR=202tons

Section Type: Square
Pile width: 24.00 (in)

Test Pile Length (ft)	Pile width (in)	Ultimate Side Friction (tons)	Mobilized End Bearing (tons)	Estimated Davisson Capacity (tons)	Allowable Pile Capacity (tons)	Ultimate Pile Capacity (tons)
10.00	24.0	0.00	0.00	0.00	0.00	0.00
11.00	24.0	0.00	0.00	0.00	0.00	0.00
12.00	24.0	0.00	0.00	0.00	0.00	0.00
13.00	24.0	0.26	42.36	42.62	21.31	127.33
14.00	24.0	1.21	47.24	48.45	24.23	142.93
15.00	24.0	4.93	26.94	31.87	15.94	85.76
16.00	24.0	9.10	27.30	36.40	18.20	91.00
17.00	24.0	11.34	28.63	39.97	19.98	97.23
18.00	24.0	14.49	75.27	89.77	44.88	240.31
19.00	24.0	15.66	85.91	101.58	50.79	273.40
20.00	24.0	16.99	95.68	112.67	56.34	304.04
21.00	24.0	18.46	104.69	123.15	61.57	332.52
22.00	24.0	19.95	113.58	133.53	66.77	360.70
23.00	24.0	21.43	122.48	143.92	71.96	388.88
24.00	24.0	23.22	129.60	152.82	76.41	412.01
25.00	24.0	25.60	133.16	158.76	79.38	425.07
26.00	24.0	28.50	133.60	162.10	81.05	429.31
27.00	24.0	31.48	133.60	165.08	82.54	432.28
28.00	24.0	34.45	133.60	168.06	84.03	435.26
29.00	24.0	37.43	133.60	171.03	85.52	438.23
30.00	24.0	40.41	133.60	174.01	87.00	441.21
31.00	24.0	43.38	133.60	176.98	88.49	444.19
32.00	24.0	46.36	133.60	179.96	89.98	447.16
33.00	24.0	49.33	133.60	182.94	91.47	450.14
34.00	24.0	52.31	133.60	185.91	92.96	453.11
35.00	24.0	55.29	133.60	188.89	94.44	456.09
36.00	24.0	58.26	132.25	190.51	95.25	455.00
37.00	24.0	61.24	128.18	189.42	94.71	445.77
38.00	24.0	64.21	122.40	186.61	93.31	431.41
39.00	24.0	67.19	120.91	188.10	94.05	429.91
40.00	24.0	70.17	124.71	194.88	97.44	444.29
41.00	24.0	73.14	129.57	202.71	101.36	461.85
42.00	24.0	76.12	131.25	207.37	103.69	469.88
43.00	24.0	79.09	131.07	210.16	105.08	472.30
44.00	24.0	82.04	138.21	220.25	110.13	496.67
45.00	24.0	84.93	151.16	236.09	118.05	538.42
46.00	24.0	87.92	141.45	229.37	114.69	512.28
47.00	24.0	92.18	141.56	233.74	116.87	516.87
48.00	24.0	98.13	141.20	239.33	119.67	521.74
49.00	24.0	104.27	137.02	241.29	120.65	515.33
50.00	24.0	109.51	133.59	243.10	121.55	510.27
51.00	24.0	114.22	130.60	244.82	122.41	506.03
52.00	24.0	120.63	125.25	245.87	122.94	496.37
53.00	24.0	127.47	92.66	220.14	110.07	405.46
54.00	24.0	130.53	85.12	215.66	107.83	385.90

B-1-Void-12.5ft_Preform(-35ft).out

55.00	24.0	133.76	79.77	213.53	106.76	373.06
56.00	24.0	136.99	79.40	216.39	108.19	375.18
57.00	24.0	140.12	79.67	219.80	109.90	379.15
58.00	24.0	143.09	80.13	223.22	111.61	383.48
59.00	24.0	145.61	81.05	226.66	113.33	388.76
60.00	24.0	147.62	82.47	230.08	115.04	395.01
61.00	24.0	149.16	84.56	233.73	116.86	402.85
62.00	24.0	150.79	86.83	237.62	118.81	411.29
63.00	24.0	152.85	88.20	241.05	120.52	417.44
64.00	24.0	155.84	88.18	244.02	122.01	420.38
65.00	24.0	160.06	87.35	247.41	123.70	422.10
66.00	24.0	165.56	85.60	251.16	125.58	422.35
67.00	24.0	171.99	82.81	254.79	127.40	420.41
68.00	24.0	179.26	78.59	257.85	128.93	415.04
69.00	24.0	184.90	72.46	257.37	128.68	402.29
70.00	24.0	190.53	68.04	258.58	129.29	394.66
71.00	24.0	196.08	34.97	231.05	115.53	300.98
72.00	24.0	201.68	35.09	236.78	118.39	306.97
73.00	24.0	207.49	35.17	242.65	121.33	312.98
74.00	24.0	213.28	35.06	248.34	124.17	318.46
75.00	24.0	218.56	34.91	253.47	126.74	323.30
76.00	24.0	223.20	34.97	258.17	129.09	328.12
77.00	24.0	227.81	35.35	263.15	131.58	333.85
78.00	24.0	232.64	35.91	268.55	134.27	340.37
79.00	24.0	237.69	36.57	274.26	137.13	347.39
80.00	24.0	242.78	37.45	280.22	140.11	355.12
81.00	24.0	247.80	38.66	286.46	143.23	363.78
82.00	24.0	253.26	39.90	293.17	146.58	372.97
83.00	24.0	259.24	40.93	300.17	150.08	382.02
84.00	24.0	265.47	41.79	307.26	153.63	390.83
85.00	24.0	271.71	42.67	314.37	157.19	399.71
86.00	24.0	278.00	43.57	321.57	160.79	408.71
87.00	24.0	284.69	44.33	329.01	164.51	417.67
88.00	24.0	291.82	44.87	336.70	168.35	426.45
89.00	24.0	299.13	45.33	344.46	172.23	435.11
90.00	24.0	306.34	45.87	352.21	176.10	443.95
91.00	24.0	313.47	46.58	360.04	180.02	453.19
92.00	24.0	320.67	47.36	368.03	184.02	462.75
93.00	24.0	327.99	48.06	376.05	188.02	472.16
94.00	24.0	Soil Elevations Must Extend At or Below Contribution Zone				
95.00	24.0	Soil Elevations Must Extend At or Below Contribution Zone				

NOTES

1. MOBILIZED END BEARING IS 1/3 OF THE ORIGINAL RB-121 VALUES.
2. DAVISSEON PILE CAPACITY IS AN ESTIMATE BASED ON FAILURE CRITERIA, AND EQUALS ULTIMATE SIDE FRICTION PLUS MOBILIZED END BEARING.
3. ALLOWABLE PILE CAPACITY IS 1/2 THE DAVISSEON PILE CAPACITY.
4. ULTIMATE PILE CAPACITY IS ULTIMATE SIDE FRICTION PLUS 3 x THE MOBILIZED END BEARING.
EXCEPTION: FOR H-PILES TIPPED IN SAND OR LIMESTONE, THE ULTIMATE PILE CAPACITY IS ULTIMATE SIDE FRICTION PLUS 2 x THE MOBILIZED END BEARING.

General Information:

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Input file: e\FB-Deep\Pile\Rev\2-Preform\B-1-Void-21.0ft_Preform(-35ft).in
 Project number: 2000-01-21005
 Job name: CR-880
 Engineer: ZP
 Units: English

Analysis Information:

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Analysis Type: SPT

Soil Information:

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Boring date: 8-9-2022, Boring Number: B-1
 Station number: 10+35 (CL SRR) Offset: -50.6

Ground Elevation: 17.340(ft)

Hammer type: Automatic Hammer, Correction factor = 1.24

ID	Depth (ft)	No. of Blows (Blows/ft)	Soil Type

1	0.00	10.00	5- Cavity layer
2	2.00	13.00	5- Cavity layer
3	4.00	9.00	5- Cavity layer
4	6.00	7.00	5- Cavity layer
5	8.00	8.00	5- Cavity layer
6	10.00	7.00	5- Cavity layer
7	12.00	6.00	5- Cavity layer
8	13.50	11.00	5- Cavity layer
9	15.00	25.00	5- Cavity layer
10	18.00	21.00	5- Cavity layer
11	20.50	29.00	5- Cavity layer
12	21.00	15.00	4- Lime Stone/Very shelly sand
13	23.00	15.00	4- Lime Stone/Very shelly sand
14	25.50	30.00	4- Lime Stone/Very shelly sand
15	28.00	30.00	4- Lime Stone/Very shelly sand
16	30.50	30.00	4- Lime Stone/Very shelly sand
17	33.00	30.00	4- Lime Stone/Very shelly sand
18	35.50	30.00	4- Lime Stone/Very shelly sand
19	38.00	30.00	4- Lime Stone/Very shelly sand
20	40.50	30.00	4- Lime Stone/Very shelly sand
21	43.00	30.00	4- Lime Stone/Very shelly sand
22	45.50	15.00	3- Clean sand
23	48.00	35.00	3- Clean sand
24	50.50	23.00	3- Clean sand
25	52.50	45.00	3- Clean sand
26	53.00	30.00	4- Lime Stone/Very shelly sand
27	55.50	18.00	3- Clean sand
28	58.00	17.00	3- Clean sand
29	60.50	12.00	3- Clean sand
30	63.00	13.00	3- Clean sand
31	65.50	27.00	3- Clean sand
32	68.00	30.00	3- Clean sand
33	70.50	14.00	2- Clay and silty sand
34	73.00	15.00	2- Clay and silty sand
35	75.50	11.00	2- Clay and silty sand
36	78.00	13.00	2- Clay and silty sand
37	80.50	12.00	2- Clay and silty sand
38	83.00	16.00	2- Clay and silty sand
39	85.50	16.00	2- Clay and silty sand
40	88.00	20.00	2- Clay and silty sand
41	90.50	19.00	2- Clay and silty sand
42	93.00	20.00	2- Clay and silty sand

43	95.50	20.00	2- Clay and silty sand
44	98.00	20.00	2- Clay and silty sand
45	100.00	20.00	2- Clay and silty sand

Blowcount Average Per Soil Layer

Layer Num.	Starting Elevation (ft)	Bottom Elevation (ft)	Thickness (ft)	Average Blowcount (Blows/ft)	Soil Type
1	17.34	-3.66	21.00	13.12	5-Void
2	-3.66	-28.16	24.50	27.24	4-Limestone, very shelly sand
3	-28.16	-35.66	7.50	25.80	3-Clean Sand
4	-35.66	-38.16	2.50	30.00	4-Limestone, very shelly sand
5	-38.16	-53.16	15.00	19.50	3-Clean Sand
6	-53.16	-82.66	29.50	16.27	2-Clay and silty sand

Driven Pile Data:

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Pile unit weight = 150.00(pcf), Section Type: Square

Pile Geometry:

Width (in)	Length (ft)	Tip Elev. (ft)
18.00	10.00	7.34
18.00	11.00	6.34
18.00	12.00	5.34
18.00	13.00	4.34
18.00	14.00	3.34
18.00	15.00	2.34
18.00	16.00	1.34
18.00	17.00	0.34
18.00	18.00	-0.66
18.00	19.00	-1.66
18.00	20.00	-2.66
18.00	21.00	-3.66
18.00	22.00	-4.66
18.00	23.00	-5.66
18.00	24.00	-6.66
18.00	25.00	-7.66
18.00	26.00	-8.66
18.00	27.00	-9.66
18.00	28.00	-10.66
18.00	29.00	-11.66
18.00	30.00	-12.66
18.00	31.00	-13.66
18.00	32.00	-14.66
18.00	33.00	-15.66
18.00	34.00	-16.66
18.00	35.00	-17.66
18.00	36.00	-18.66
18.00	37.00	-19.66
18.00	38.00	-20.66
18.00	39.00	-21.66
18.00	40.00	-22.66
18.00	41.00	-23.66
18.00	42.00	-24.66
18.00	43.00	-25.66
18.00	44.00	-26.66
18.00	45.00	-27.66
18.00	46.00	-28.66
18.00	47.00	-29.66
18.00	48.00	-30.66
18.00	49.00	-31.66
18.00	50.00	-32.66
18.00	51.00	-33.66
18.00	52.00	-34.66

B-1-Void-21.0ft_Preform(-35ft).out

18.00	53.00	-35.66
18.00	54.00	-36.66
18.00	55.00	-37.66
18.00	56.00	-38.66
18.00	57.00	-39.66
18.00	58.00	-40.66
18.00	59.00	-41.66
18.00	60.00	-42.66
18.00	61.00	-43.66
18.00	62.00	-44.66
18.00	63.00	-45.66
18.00	64.00	-46.66
18.00	65.00	-47.66
18.00	66.00	-48.66
18.00	67.00	-49.66
18.00	68.00	-50.66
18.00	69.00	-51.66
18.00	70.00	-52.66
18.00	71.00	-53.66
18.00	72.00	-54.66
18.00	73.00	-55.66
18.00	74.00	-56.66
18.00	75.00	-57.66
18.00	76.00	-58.66
18.00	77.00	-59.66
18.00	78.00	-60.66
18.00	79.00	-61.66
18.00	80.00	-62.66
18.00	81.00	-63.66
18.00	82.00	-64.66
18.00	83.00	-65.66
18.00	84.00	-66.66
18.00	85.00	-67.66
18.00	86.00	-68.66
18.00	87.00	-69.66
18.00	88.00	-70.66
18.00	89.00	-71.66
18.00	90.00	-72.66
18.00	91.00	-73.66
18.00	92.00	-74.66
18.00	93.00	-75.66
18.00	94.00	-76.66
18.00	95.00	-77.66
24.00	10.00	7.34
24.00	11.00	6.34
24.00	12.00	5.34
24.00	13.00	4.34
24.00	14.00	3.34
24.00	15.00	2.34
24.00	16.00	1.34
24.00	17.00	0.34
24.00	18.00	-0.66
24.00	19.00	-1.66
24.00	20.00	-2.66
24.00	21.00	-3.66
24.00	22.00	-4.66
24.00	23.00	-5.66
24.00	24.00	-6.66
24.00	25.00	-7.66
24.00	26.00	-8.66
24.00	27.00	-9.66
24.00	28.00	-10.66
24.00	29.00	-11.66
24.00	30.00	-12.66
24.00	31.00	-13.66
24.00	32.00	-14.66
24.00	33.00	-15.66
24.00	34.00	-16.66
24.00	35.00	-17.66
24.00	36.00	-18.66
24.00	37.00	-19.66
24.00	38.00	-20.66
24.00	39.00	-21.66

24.00	40.00	-22.66
24.00	41.00	-23.66
24.00	42.00	-24.66
24.00	43.00	-25.66
24.00	44.00	-26.66
24.00	45.00	-27.66
24.00	46.00	-28.66
24.00	47.00	-29.66
24.00	48.00	-30.66
24.00	49.00	-31.66
24.00	50.00	-32.66
24.00	51.00	-33.66
24.00	52.00	-34.66
24.00	53.00	-35.66
24.00	54.00	-36.66
24.00	55.00	-37.66
24.00	56.00	-38.66
24.00	57.00	-39.66
24.00	58.00	-40.66
24.00	59.00	-41.66
24.00	60.00	-42.66
24.00	61.00	-43.66
24.00	62.00	-44.66
24.00	63.00	-45.66
24.00	64.00	-46.66
24.00	65.00	-47.66
24.00	66.00	-48.66
24.00	67.00	-49.66
24.00	68.00	-50.66
24.00	69.00	-51.66
24.00	70.00	-52.66
24.00	71.00	-53.66
24.00	72.00	-54.66
24.00	73.00	-55.66
24.00	74.00	-56.66
24.00	75.00	-57.66
24.00	76.00	-58.66
24.00	77.00	-59.66
24.00	78.00	-60.66
24.00	79.00	-61.66
24.00	80.00	-62.66
24.00	81.00	-63.66
24.00	82.00	-64.66
24.00	83.00	-65.66
24.00	84.00	-66.66
24.00	85.00	-67.66
24.00	86.00	-68.66
24.00	87.00	-69.66
24.00	88.00	-70.66
24.00	89.00	-71.66
24.00	90.00	-72.66
24.00	91.00	-73.66
24.00	92.00	-74.66
24.00	93.00	-75.66
24.00	94.00	-76.66
24.00	95.00	-77.66

Driven Pile Capacity:

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Section Type: Square
Pile width: 18.00 (in)

Test Pile Length (ft)	Pile width (in)	Ultimate Side Friction (tons)	Mobilized End Bearing (tons)	Estimated Davisson Capacity (tons)	Allowable Pile Capacity (tons)	Ultimate Pile Capacity (tons)
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B-1-Void-21.0ft_Preform(-35ft).out

10.00	18.0	0.00	0.00	0.00	0.00	0.00
11.00	18.0	0.00	0.00	0.00	0.00	0.00
12.00	18.0	0.00	0.00	0.00	0.00	0.00
13.00	18.0	0.00	0.00	0.00	0.00	0.00
14.00	18.0	0.00	0.00	0.00	0.00	0.00
15.00	18.0	0.00	0.00	0.00	0.00	0.00
16.00	18.0	0.00	0.00	0.00	0.00	0.00
17.00	18.0	0.00	0.00	0.00	0.00	0.00
18.00	18.0	0.00	0.00	0.00	0.00	0.00
19.00	18.0	0.00	0.00	0.00	0.00	0.00
20.00	18.0	0.00	0.00	0.00	0.00	0.00
21.00	18.0	0.28	53.47	53.74	26.87	160.68
22.00	18.0	1.40	60.14	61.53	30.77	181.81
23.00	18.0	2.51	66.81	69.32	34.66	202.94
24.00	18.0	3.85	72.15	76.00	38.00	220.29
25.00	18.0	5.64	74.82	80.45	40.23	230.09
26.00	18.0	7.81	75.15	82.96	41.48	233.26
27.00	18.0	10.04	75.15	85.19	42.60	235.50
28.00	18.0	12.28	75.15	87.43	43.71	237.73
29.00	18.0	14.51	75.15	89.66	44.83	239.96
30.00	18.0	16.74	75.15	91.89	45.95	242.19
31.00	18.0	18.97	75.15	94.12	47.06	244.42
32.00	18.0	21.20	75.15	96.35	48.18	246.66
33.00	18.0	23.44	75.15	98.59	49.29	248.89
34.00	18.0	25.67	75.15	100.82	50.41	251.12
35.00	18.0	27.90	75.15	103.05	51.53	253.35
36.00	18.0	30.13	75.15	105.28	52.64	255.58
37.00	18.0	32.36	75.15	107.51	53.76	257.82
38.00	18.0	34.60	74.13	108.73	54.36	257.00
39.00	18.0	36.83	71.08	107.91	53.96	250.08
40.00	18.0	39.06	66.75	105.81	52.90	239.30
41.00	18.0	41.29	65.63	106.92	53.46	238.18
42.00	18.0	43.52	68.48	112.01	56.00	248.97
43.00	18.0	45.76	72.13	117.88	58.94	262.13
44.00	18.0	47.97	74.41	122.37	61.19	271.19
45.00	18.0	50.13	77.32	127.45	63.73	282.09
46.00	18.0	52.38	76.01	128.39	64.19	280.40
47.00	18.0	55.40	76.37	131.77	65.88	284.51
48.00	18.0	59.38	76.88	136.26	68.13	290.02
49.00	18.0	63.93	76.89	140.82	70.41	294.61
50.00	18.0	68.02	76.69	144.71	72.35	298.09
51.00	18.0	71.91	76.23	148.14	74.07	300.61
52.00	18.0	76.91	73.23	150.14	75.07	296.59
53.00	18.0	82.04	56.45	138.49	69.25	251.40
54.00	18.0	84.34	51.59	135.93	67.96	239.11
55.00	18.0	86.75	47.32	134.08	67.04	228.73
56.00	18.0	89.22	47.14	136.36	68.18	230.64
57.00	18.0	91.72	47.12	138.84	69.42	233.08
58.00	18.0	94.20	46.14	140.34	70.17	232.62
59.00	18.0	96.46	45.84	142.30	71.15	233.99
60.00	18.0	98.39	47.15	145.53	72.77	239.82
61.00	18.0	99.53	48.43	147.96	73.98	244.82
62.00	18.0	100.53	50.52	151.05	75.52	252.09
63.00	18.0	101.52	53.40	154.92	77.46	261.73
64.00	18.0	103.20	55.66	158.86	79.43	270.18
65.00	18.0	106.13	55.89	162.02	81.01	273.79
66.00	18.0	110.39	53.80	164.18	82.09	271.78
67.00	18.0	115.36	50.65	166.02	83.01	267.33
68.00	18.0	120.88	46.49	167.37	83.68	260.35
69.00	18.0	125.11	42.21	167.33	83.66	251.75
70.00	18.0	129.34	39.23	168.56	84.28	247.02
71.00	18.0	133.54	20.29	153.83	76.91	194.40
72.00	18.0	137.87	20.24	158.11	79.06	198.60
73.00	18.0	142.27	20.10	162.37	81.19	202.58
74.00	18.0	146.52	19.83	166.35	83.17	206.00
75.00	18.0	150.36	19.49	169.85	84.92	208.82
76.00	18.0	153.88	19.28	173.16	86.58	211.73
77.00	18.0	157.53	19.40	176.93	88.46	215.73
78.00	18.0	161.39	19.75	181.14	90.57	220.64
79.00	18.0	165.30	20.17	185.47	92.74	225.82
80.00	18.0	169.11	20.63	189.73	94.87	230.99
81.00	18.0	172.88	21.17	194.04	97.02	236.37

B-1-Void-21.0ft_Preform(-35ft).out

82.00	18.0	176.97	21.83	198.80	99.40	242.46
83.00	18.0	181.46	22.55	204.01	102.00	249.10
84.00	18.0	186.14	23.17	209.31	104.66	255.65
85.00	18.0	190.83	23.71	214.54	107.27	261.96
86.00	18.0	195.55	24.25	219.80	109.90	268.30
87.00	18.0	200.58	24.83	225.40	112.70	275.06
88.00	18.0	205.94	25.42	231.35	115.68	282.19
89.00	18.0	211.43	25.94	237.37	118.69	289.25
90.00	18.0	216.84	26.45	243.29	121.64	296.18
91.00	18.0	222.19	26.97	249.16	124.58	303.09
92.00	18.0	227.61	27.48	255.09	127.55	310.06
93.00	18.0	233.10	27.98	261.08	130.54	317.04
94.00	18.0	238.63	28.38	267.01	133.50	323.76
95.00	18.0	Soil Elevations Must Extend At or Below Contribution Zone				

IB 3 (West)
NBR=212tons

Section Type: Square
Pile width: 24.00 (in)

Test Pile Length (ft)	Pile width (in)	Ultimate Side Friction (tons)	Mobilized End Bearing (tons)	Estimated Davisson Capacity (tons)	Allowable Pile Capacity (tons)	Ultimate Pile Capacity (tons)
10.00	24.0	0.00	0.00	0.00	0.00	0.00
11.00	24.0	0.00	0.00	0.00	0.00	0.00
12.00	24.0	0.00	0.00	0.00	0.00	0.00
13.00	24.0	0.00	0.00	0.00	0.00	0.00
14.00	24.0	0.00	0.00	0.00	0.00	0.00
15.00	24.0	0.00	0.00	0.00	0.00	0.00
16.00	24.0	0.00	0.00	0.00	0.00	0.00
17.00	24.0	0.00	0.00	0.00	0.00	0.00
18.00	24.0	0.00	0.00	0.00	0.00	0.00
19.00	24.0	0.00	0.00	0.00	0.00	0.00
20.00	24.0	0.00	0.00	0.00	0.00	0.00
21.00	24.0	0.37	104.69	105.06	52.53	314.44
22.00	24.0	1.86	113.58	115.44	57.72	342.61
23.00	24.0	3.35	122.48	125.83	62.91	370.79
24.00	24.0	5.13	129.60	134.73	67.37	393.93
25.00	24.0	7.51	133.16	140.67	70.34	406.98
26.00	24.0	10.42	133.60	144.02	72.01	411.22
27.00	24.0	13.39	133.60	146.99	73.50	414.20
28.00	24.0	16.37	133.60	149.97	74.98	417.17
29.00	24.0	19.34	133.60	152.95	76.47	420.15
30.00	24.0	22.32	133.60	155.92	77.96	423.12
31.00	24.0	25.30	133.60	158.90	79.45	426.10
32.00	24.0	28.27	133.60	161.87	80.94	429.08
33.00	24.0	31.25	133.60	164.85	82.42	432.05
34.00	24.0	34.22	133.60	167.83	83.91	435.03
35.00	24.0	37.20	133.60	170.80	85.40	438.00
36.00	24.0	40.18	132.25	172.42	86.21	436.91
37.00	24.0	43.15	128.18	171.33	85.66	427.68
38.00	24.0	46.13	122.40	168.53	84.26	413.32
39.00	24.0	49.10	120.91	170.01	85.01	411.83
40.00	24.0	52.08	124.71	176.79	88.39	426.21
41.00	24.0	55.06	129.57	184.62	92.31	443.76
42.00	24.0	58.03	131.25	189.29	94.64	451.79
43.00	24.0	61.01	131.07	192.08	96.04	454.22
44.00	24.0	63.95	138.21	202.17	101.08	478.59
45.00	24.0	66.84	151.16	218.01	109.00	520.34
46.00	24.0	69.83	141.45	211.29	105.64	494.19
47.00	24.0	74.09	141.56	215.66	107.83	498.78
48.00	24.0	80.04	141.20	221.25	110.62	503.65
49.00	24.0	86.19	137.02	223.21	111.60	497.24
50.00	24.0	91.43	133.59	225.01	112.51	492.18
51.00	24.0	96.13	130.60	226.74	113.37	487.94
52.00	24.0	102.54	125.25	227.79	113.89	478.28
53.00	24.0	109.39	92.66	202.05	101.03	387.38
54.00	24.0	112.45	85.12	197.57	98.78	367.81
55.00	24.0	115.67	79.77	195.44	97.72	354.97
56.00	24.0	118.90	79.40	198.30	99.15	357.10

B-1-Void-21.0ft_Preform(-35ft).out

57.00	24.0	122.04	79.67	201.71	100.86	361.06
58.00	24.0	125.00	80.13	205.13	102.57	365.40
59.00	24.0	127.52	81.05	208.57	104.29	370.67
60.00	24.0	129.53	82.47	212.00	106.00	376.93
61.00	24.0	131.08	84.56	215.64	107.82	384.77
62.00	24.0	132.70	86.83	219.54	109.77	393.21
63.00	24.0	134.76	88.20	222.96	111.48	399.36
64.00	24.0	137.76	88.18	225.93	112.97	402.29
65.00	24.0	141.97	87.35	229.32	114.66	404.02
66.00	24.0	147.48	85.60	233.07	116.54	404.27
67.00	24.0	153.90	82.81	236.71	118.35	402.32
68.00	24.0	161.17	78.59	239.76	119.88	396.95
69.00	24.0	166.82	72.46	239.28	119.64	384.21
70.00	24.0	172.45	68.04	240.49	120.24	376.57
71.00	24.0	178.00	34.97	212.96	106.48	282.90
72.00	24.0	183.60	35.09	218.69	109.35	288.88
73.00	24.0	189.40	35.17	224.57	112.28	294.90
74.00	24.0	195.19	35.06	230.25	115.13	300.38
75.00	24.0	200.47	34.91	235.39	117.69	305.21
76.00	24.0	205.11	34.97	240.09	120.04	310.04
77.00	24.0	209.72	35.35	245.07	122.53	315.77
78.00	24.0	214.55	35.91	250.46	125.23	322.28
79.00	24.0	219.61	36.57	256.17	128.09	329.30
80.00	24.0	224.69	37.45	262.14	131.07	337.03
81.00	24.0	229.72	38.66	268.38	134.19	345.70
82.00	24.0	235.18	39.90	275.08	137.54	354.89
83.00	24.0	241.15	40.93	282.08	141.04	363.93
84.00	24.0	247.39	41.79	289.17	144.59	372.75
85.00	24.0	253.62	42.67	296.29	148.14	381.62
86.00	24.0	259.91	43.57	303.48	151.74	390.62
87.00	24.0	266.60	44.33	310.93	155.46	399.58
88.00	24.0	273.74	44.87	318.61	159.31	408.36
89.00	24.0	281.05	45.33	326.37	163.19	417.02
90.00	24.0	288.25	45.87	334.12	167.06	425.86
91.00	24.0	295.38	46.58	341.96	170.98	435.11
92.00	24.0	302.59	47.36	349.95	174.97	444.66
93.00	24.0	309.90	48.06	357.96	178.98	454.07
94.00	24.0	Soil Elevations Must Extend At or Below Contribution Zone				
95.00	24.0	Soil Elevations Must Extend At or Below Contribution Zone				

NOTES

1. MOBILIZED END BEARING IS 1/3 OF THE ORIGINAL RB-121 VALUES.
2. DAVISSON PILE CAPACITY IS AN ESTIMATE BASED ON FAILURE CRITERIA, AND EQUALS ULTIMATE SIDE FRICTION PLUS MOBILIZED END BEARING.
3. ALLOWABLE PILE CAPACITY IS 1/2 THE DAVISSON PILE CAPACITY.
4. ULTIMATE PILE CAPACITY IS ULTIMATE SIDE FRICTION PLUS 3 x THE MOBILIZED END BEARING.
EXCEPTION: FOR H-PILES TIPPED IN SAND OR LIMESTONE, THE ULTIMATE PILE CAPACITY IS ULTIMATE SIDE FRICTION PLUS 2 x THE MOBILIZED END BEARING.

General Information:

Input file: e\FB-Deep\Pile\Rev\2-Preform\B-2-Void-12.0ft_Preform(-35ft).in
 Project number: 2000-01-21005
 Job name: CR-880
 Engineer: ZP
 Units: English

Analysis Information:

Analysis Type: SPT

Soil Information:

Boring date: 7-14-2022, Boring Number: B-2
 Station number: 11+49 (CL SRR) Offset: -24.9

Ground Elevation: 16.750(ft)

Hammer type: Automatic Hammer, Correction factor = 1.24

ID	Depth (ft)	No. of Blows (Blows/ft)	Soil Type
1	0.00	22.00	5- Cavity layer
2	2.00	16.00	5- Cavity layer
3	4.00	10.00	5- Cavity layer
4	6.00	3.00	5- Cavity layer
5	8.00	6.00	5- Cavity layer
6	10.00	5.00	5- Cavity layer
7	12.00	7.00	4- Lime Stone/Very shelly sand
8	13.50	7.00	4- Lime Stone/Very shelly sand
9	15.00	30.00	4- Lime Stone/Very shelly sand
10	18.00	7.00	2- Clay and silty sand
11	20.50	5.00	4- Lime Stone/Very shelly sand
12	23.00	4.00	4- Lime Stone/Very shelly sand
13	25.50	40.00	4- Lime Stone/Very shelly sand
14	28.00	30.00	4- Lime Stone/Very shelly sand
15	30.50	2.00	4- Lime Stone/Very shelly sand
16	33.00	2.00	4- Lime Stone/Very shelly sand
17	35.50	30.00	4- Lime Stone/Very shelly sand
18	38.00	30.00	4- Lime Stone/Very shelly sand
19	40.50	33.00	3- Clean sand
20	43.00	36.00	3- Clean sand
21	45.50	30.00	4- Lime Stone/Very shelly sand
22	48.00	30.00	4- Lime Stone/Very shelly sand
23	50.50	7.00	3- Clean sand
24	52.00	13.00	3- Clean sand
25	53.00	12.00	3- Clean sand
26	55.50	16.00	3- Clean sand
27	58.00	14.00	3- Clean sand
28	60.50	14.00	3- Clean sand
29	63.00	18.00	3- Clean sand
30	65.50	12.00	3- Clean sand
31	68.00	11.00	2- Clay and silty sand
32	70.50	14.00	2- Clay and silty sand
33	73.00	16.00	2- Clay and silty sand
34	75.50	16.00	2- Clay and silty sand
35	78.00	21.00	2- Clay and silty sand
36	80.50	19.00	2- Clay and silty sand
37	83.00	17.00	2- Clay and silty sand
38	85.50	17.00	2- Clay and silty sand
39	88.00	15.00	2- Clay and silty sand
40	90.50	17.00	2- Clay and silty sand
41	93.00	15.00	2- Clay and silty sand
42	95.50	51.00	2- Clay and silty sand

43	98.00	51.00	2- Clay and silty sand
44	100.00	51.00	2- Clay and silty sand

Blowcount Average Per Soil Layer

Layer Num.	Starting Elevation (ft)	Bottom Elevation (ft)	Thickness (ft)	Average Blowcount (Blows/ft)	Soil Type
1	16.75	4.75	12.00	10.33	5-Void
2	4.75	-1.25	6.00	18.50	4-Limestone, very Shelly Sand
3	-1.25	-3.75	2.50	7.00	2-Clay and Silty Sand
4	-3.75	-23.75	20.00	17.88	4-Limestone, very Shelly sand
5	-23.75	-28.75	5.00	34.50	3-Clean Sand
6	-28.75	-33.75	5.00	30.00	4-Limestone, very Shelly sand
7	-33.75	-51.25	17.50	13.63	3-Clean Sand
8	-51.25	-83.25	32.00	21.08	2-Clay and Silty Sand

Driven Pile Data:

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Pile unit weight = 150.00(pcf), Section Type: Square

Pile Geometry:

width (in)	Length (ft)	Tip Elev. (ft)
18.00	10.00	6.75
18.00	11.00	5.75
18.00	12.00	4.75
18.00	13.00	3.75
18.00	14.00	2.75
18.00	15.00	1.75
18.00	16.00	0.75
18.00	17.00	-0.25
18.00	18.00	-1.25
18.00	19.00	-2.25
18.00	20.00	-3.25
18.00	21.00	-4.25
18.00	22.00	-5.25
18.00	23.00	-6.25
18.00	24.00	-7.25
18.00	25.00	-8.25
18.00	26.00	-9.25
18.00	27.00	-10.25
18.00	28.00	-11.25
18.00	29.00	-12.25
18.00	30.00	-13.25
18.00	31.00	-14.25
18.00	32.00	-15.25
18.00	33.00	-16.25
18.00	34.00	-17.25
18.00	35.00	-18.25
18.00	36.00	-19.25
18.00	37.00	-20.25
18.00	38.00	-21.25
18.00	39.00	-22.25
18.00	40.00	-23.25
18.00	41.00	-24.25
18.00	42.00	-25.25
18.00	43.00	-26.25
18.00	44.00	-27.25
18.00	45.00	-28.25
18.00	46.00	-29.25
18.00	47.00	-30.25
18.00	48.00	-31.25
18.00	49.00	-32.25
18.00	50.00	-33.25
18.00	51.00	-34.25

B-2-Void-12.0ft_Preform(-35ft).out

18.00	52.00	-35.25
18.00	53.00	-36.25
18.00	54.00	-37.25
18.00	55.00	-38.25
18.00	56.00	-39.25
18.00	57.00	-40.25
18.00	58.00	-41.25
18.00	59.00	-42.25
18.00	60.00	-43.25
18.00	61.00	-44.25
18.00	62.00	-45.25
18.00	63.00	-46.25
18.00	64.00	-47.25
18.00	65.00	-48.25
18.00	66.00	-49.25
18.00	67.00	-50.25
18.00	68.00	-51.25
18.00	69.00	-52.25
18.00	70.00	-53.25
18.00	71.00	-54.25
18.00	72.00	-55.25
18.00	73.00	-56.25
18.00	74.00	-57.25
18.00	75.00	-58.25
18.00	76.00	-59.25
18.00	77.00	-60.25
18.00	78.00	-61.25
18.00	79.00	-62.25
18.00	80.00	-63.25
18.00	81.00	-64.25
18.00	82.00	-65.25
18.00	83.00	-66.25
18.00	84.00	-67.25
18.00	85.00	-68.25
18.00	86.00	-69.25
18.00	87.00	-70.25
18.00	88.00	-71.25
18.00	89.00	-72.25
18.00	90.00	-73.25
18.00	91.00	-74.25
18.00	92.00	-75.25
18.00	93.00	-76.25
18.00	94.00	-77.25
18.00	95.00	-78.25
24.00	10.00	6.75
24.00	11.00	5.75
24.00	12.00	4.75
24.00	13.00	3.75
24.00	14.00	2.75
24.00	15.00	1.75
24.00	16.00	0.75
24.00	17.00	-0.25
24.00	18.00	-1.25
24.00	19.00	-2.25
24.00	20.00	-3.25
24.00	21.00	-4.25
24.00	22.00	-5.25
24.00	23.00	-6.25
24.00	24.00	-7.25
24.00	25.00	-8.25
24.00	26.00	-9.25
24.00	27.00	-10.25
24.00	28.00	-11.25
24.00	29.00	-12.25
24.00	30.00	-13.25
24.00	31.00	-14.25
24.00	32.00	-15.25
24.00	33.00	-16.25
24.00	34.00	-17.25
24.00	35.00	-18.25
24.00	36.00	-19.25
24.00	37.00	-20.25
24.00	38.00	-21.25

24.00	39.00	-22.25
24.00	40.00	-23.25
24.00	41.00	-24.25
24.00	42.00	-25.25
24.00	43.00	-26.25
24.00	44.00	-27.25
24.00	45.00	-28.25
24.00	46.00	-29.25
24.00	47.00	-30.25
24.00	48.00	-31.25
24.00	49.00	-32.25
24.00	50.00	-33.25
24.00	51.00	-34.25
24.00	52.00	-35.25
24.00	53.00	-36.25
24.00	54.00	-37.25
24.00	55.00	-38.25
24.00	56.00	-39.25
24.00	57.00	-40.25
24.00	58.00	-41.25
24.00	59.00	-42.25
24.00	60.00	-43.25
24.00	61.00	-44.25
24.00	62.00	-45.25
24.00	63.00	-46.25
24.00	64.00	-47.25
24.00	65.00	-48.25
24.00	66.00	-49.25
24.00	67.00	-50.25
24.00	68.00	-51.25
24.00	69.00	-52.25
24.00	70.00	-53.25
24.00	71.00	-54.25
24.00	72.00	-55.25
24.00	73.00	-56.25
24.00	74.00	-57.25
24.00	75.00	-58.25
24.00	76.00	-59.25
24.00	77.00	-60.25
24.00	78.00	-61.25
24.00	79.00	-62.25
24.00	80.00	-63.25
24.00	81.00	-64.25
24.00	82.00	-65.25
24.00	83.00	-66.25
24.00	84.00	-67.25
24.00	85.00	-68.25
24.00	86.00	-69.25
24.00	87.00	-70.25
24.00	88.00	-71.25
24.00	89.00	-72.25
24.00	90.00	-73.25
24.00	91.00	-74.25
24.00	92.00	-75.25
24.00	93.00	-76.25
24.00	94.00	-77.25
24.00	95.00	-78.25

Driven Pile Capacity:

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Section Type: Square
Pile width: 18.00 (in)

Test Pile Length	Pile width	Ultimate Side Friction	Mobilized End Bearing	Estimated Davisson Capacity	Allowable Pile Capacity	Ultimate Pile Capacity
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B-2-Void-12.0ft_Preform(-35ft).out

(ft)	(in)	(tons)	(tons)	(tons)	(tons)	(tons)
10.00	18.0	0.00	0.00	0.00	0.00	0.00
11.00	18.0	0.13	0.00	0.13	0.07	0.13
12.00	18.0	0.52	36.72	37.24	18.62	110.69
13.00	18.0	1.04	35.85	36.89	18.44	108.58
14.00	18.0	1.71	34.20	35.90	17.95	104.30
15.00	18.0	3.37	26.81	30.18	15.09	83.81
16.00	18.0	5.61	17.80	23.41	11.71	59.02
17.00	18.0	7.88	12.24	20.11	10.06	44.59
18.00	18.0	10.17	10.60	20.77	10.38	41.97
19.00	18.0	11.74	11.03	22.77	11.39	44.83
20.00	18.0	12.07	13.56	25.63	12.81	52.74
21.00	18.0	13.69	51.03	64.72	32.36	166.78
22.00	18.0	14.04	62.83	76.87	38.43	202.53
23.00	18.0	14.35	71.29	85.64	42.82	228.21
24.00	18.0	15.18	71.61	86.79	43.39	230.00
25.00	18.0	17.09	61.14	78.22	39.11	200.50
26.00	18.0	19.89	44.69	64.58	32.29	153.95
27.00	18.0	22.57	29.18	51.75	25.87	110.10
28.00	18.0	24.95	18.16	43.11	21.56	79.44
29.00	18.0	26.74	15.66	42.39	21.20	73.71
30.00	18.0	27.63	22.55	50.17	25.09	95.26
31.00	18.0	27.74	34.44	62.18	31.09	131.07
32.00	18.0	27.74	46.97	74.71	37.35	168.65
33.00	18.0	27.74	60.26	88.00	44.00	208.53
34.00	18.0	28.19	72.59	100.78	50.39	245.95
35.00	18.0	29.53	81.32	110.85	55.43	273.50
36.00	18.0	31.65	86.39	118.03	59.02	290.81
37.00	18.0	33.88	91.42	125.30	62.65	308.14
38.00	18.0	36.11	95.69	131.80	65.90	323.17
39.00	18.0	38.83	97.05	135.88	67.94	329.98
40.00	18.0	42.52	95.01	137.53	68.77	327.55
41.00	18.0	47.09	71.04	118.13	59.06	260.21
42.00	18.0	51.89	71.24	123.13	61.56	265.60
43.00	18.0	56.68	71.43	128.11	64.05	270.97
44.00	18.0	61.07	71.56	132.63	66.32	275.75
45.00	18.0	64.67	71.36	136.03	68.02	278.76
46.00	18.0	67.19	52.49	119.68	59.84	224.65
47.00	18.0	69.42	46.16	115.58	57.79	207.91
48.00	18.0	71.66	39.99	111.64	55.82	191.61
49.00	18.0	73.64	36.41	110.05	55.03	182.88
50.00	18.0	75.13	37.11	112.23	56.12	186.45
51.00	18.0	76.25	31.82	108.07	54.03	171.71
52.00	18.0	77.80	35.93	113.73	56.87	185.60
53.00	18.0	79.55	37.72	117.27	58.64	192.72
54.00	18.0	81.21	38.03	119.24	59.62	195.29
55.00	18.0	83.06	38.41	121.47	60.73	198.28
56.00	18.0	85.09	38.81	123.90	61.95	201.53
57.00	18.0	86.99	39.39	126.38	63.19	205.17
58.00	18.0	88.69	40.28	128.97	64.48	209.52
59.00	18.0	90.41	41.09	131.50	65.75	213.67
60.00	18.0	92.30	41.51	133.81	66.90	216.84
61.00	18.0	94.41	41.37	135.78	67.89	218.51
62.00	18.0	97.03	40.29	137.32	68.66	217.90
63.00	18.0	100.16	38.37	138.53	69.27	215.28
64.00	18.0	102.80	36.07	138.87	69.43	211.01
65.00	18.0	104.83	34.08	138.91	69.46	207.08
66.00	18.0	106.66	32.60	139.25	69.63	204.45
67.00	18.0	109.05	31.44	140.49	70.24	203.36
68.00	18.0	112.14	20.62	132.76	66.38	174.00
69.00	18.0	115.74	19.56	135.30	67.65	174.43
70.00	18.0	119.64	20.46	140.10	70.05	181.03
71.00	18.0	123.57	20.94	144.51	72.26	186.40
72.00	18.0	127.49	21.65	149.14	74.57	192.44
73.00	18.0	131.49	22.76	154.25	77.13	199.78
74.00	18.0	135.68	24.10	159.78	79.89	207.97
75.00	18.0	140.33	24.81	165.14	82.57	214.75
76.00	18.0	145.05	25.34	170.39	85.19	221.06
77.00	18.0	150.11	25.62	175.73	87.86	226.96
78.00	18.0	155.58	25.60	181.18	90.59	232.37
79.00	18.0	161.18	25.43	186.61	93.31	237.48
80.00	18.0	166.64	25.27	191.91	95.96	242.46

EB 6 (West)
NBR=126tons

IB 5 (West)
NBR=172tons

B-2-Void-12.0ft_Preform(-35ft).out

81.00	18.0	171.95	25.42	197.37	98.68	248.20
82.00	18.0	177.10	25.44	202.54	101.27	253.42
83.00	18.0	182.09	25.35	207.43	103.72	258.13
84.00	18.0	186.99	25.29	212.28	106.14	262.85
85.00	18.0	191.90	25.29	217.18	108.59	267.76
86.00	18.0	196.78	25.32	222.10	111.05	272.75
87.00	18.0	201.51	25.31	226.81	113.41	277.43
88.00	18.0	206.05	25.29	231.34	115.67	281.92
89.00	18.0	210.60	26.49	237.09	118.55	290.07
90.00	18.0	215.33	29.40	244.72	122.36	303.52
91.00	18.0	220.19	33.58	253.77	126.88	320.92
92.00	18.0	224.91	37.92	262.83	131.42	338.66
93.00	18.0	229.46	42.37	271.83	135.91	356.56
94.00	18.0	234.59	46.37	280.96	140.48	373.69
95.00	18.0	Soil Elevations Must Extend At or Below Contribution Zone				

Section Type: Square
Pile width: 24.00 (in)

Test Pile Length (ft)	Pile Width (in)	Ultimate Side Friction (tons)	Mobilized End Bearing (tons)	Estimated Davisson Capacity (tons)	Allowable Pile Capacity (tons)	Ultimate Pile Capacity (tons)
10.00	24.0	0.00	0.00	0.00	0.00	0.00
11.00	24.0	0.17	0.00	0.17	0.09	0.17
12.00	24.0	0.69	53.73	54.43	27.21	161.90
13.00	24.0	1.39	52.67	54.06	27.03	159.41
14.00	24.0	2.27	50.35	52.62	26.31	153.31
15.00	24.0	4.49	40.13	44.62	22.31	124.87
16.00	24.0	7.48	32.08	39.56	19.78	103.72
17.00	24.0	10.50	37.37	47.87	23.93	122.60
18.00	24.0	13.56	37.32	50.88	25.44	125.51
19.00	24.0	16.00	37.56	53.55	26.78	128.67
20.00	24.0	16.74	40.44	57.19	28.59	138.08
21.00	24.0	18.26	99.43	117.68	58.84	316.54
22.00	24.0	18.72	103.82	122.53	61.27	330.16
23.00	24.0	19.13	102.57	121.70	60.85	326.83
24.00	24.0	20.24	96.31	116.55	58.28	309.17
25.00	24.0	22.78	81.52	104.30	52.15	267.33
26.00	24.0	26.52	62.92	89.44	44.72	215.29
27.00	24.0	30.09	52.26	82.36	41.18	186.88
28.00	24.0	33.27	50.10	83.37	41.68	183.57
29.00	24.0	35.65	53.44	89.09	44.54	195.97
30.00	24.0	36.84	63.46	100.30	50.15	227.22
31.00	24.0	36.99	80.35	117.34	58.67	278.04
32.00	24.0	36.99	100.13	137.11	68.56	337.36
33.00	24.0	36.99	121.79	158.78	79.39	402.36
34.00	24.0	37.58	141.07	178.65	89.33	460.79
35.00	24.0	39.37	154.46	193.83	96.91	502.75
36.00	24.0	42.20	160.98	203.18	101.59	525.14
37.00	24.0	45.17	163.83	209.00	104.50	536.65
38.00	24.0	48.15	164.18	212.33	106.16	540.69
39.00	24.0	51.77	163.16	214.93	107.46	541.24
40.00	24.0	56.69	160.08	216.78	108.39	536.94
41.00	24.0	62.78	129.92	192.70	96.35	452.54
42.00	24.0	69.23	125.33	194.56	97.28	445.22
43.00	24.0	75.90	118.04	193.94	96.97	430.02
44.00	24.0	81.92	109.52	191.44	95.72	410.47
45.00	24.0	86.42	104.05	190.47	95.24	398.58
46.00	24.0	89.59	86.71	176.30	88.15	349.73
47.00	24.0	92.56	79.54	172.10	86.05	331.18
48.00	24.0	95.54	73.22	168.76	84.38	315.20
49.00	24.0	98.19	68.99	167.17	83.59	305.14
50.00	24.0	100.17	69.05	169.22	84.61	307.32
51.00	24.0	101.66	57.44	159.11	79.55	273.99
52.00	24.0	103.74	63.87	167.60	83.80	295.33
53.00	24.0	106.09	67.08	173.17	86.59	307.33
54.00	24.0	108.51	68.97	177.47	88.74	315.41
55.00	24.0	111.10	70.44	181.55	90.77	322.43

B-2-Void-12.0ft_Preform(-35ft).out

56.00	24.0	113.69	71.18	184.88	92.44	327.25
57.00	24.0	116.20	71.93	188.14	94.07	332.00
58.00	24.0	118.73	72.38	191.11	95.55	335.86
59.00	24.0	121.38	72.40	193.78	96.89	338.59
60.00	24.0	124.29	71.83	196.12	98.06	339.78
61.00	24.0	127.59	70.47	198.07	99.03	339.01
62.00	24.0	130.65	67.43	198.08	99.04	332.94
63.00	24.0	133.89	64.08	197.98	98.99	326.14
64.00	24.0	137.06	60.92	197.98	98.99	319.82
65.00	24.0	139.77	58.31	198.08	99.04	314.70
66.00	24.0	142.21	56.35	198.56	99.28	311.25
67.00	24.0	145.40	55.55	200.95	100.47	312.04
68.00	24.0	149.52	38.07	187.60	93.80	263.75
69.00	24.0	154.32	35.26	189.58	94.79	260.09
70.00	24.0	159.52	37.03	196.56	98.28	270.63
71.00	24.0	164.83	38.40	203.23	101.62	280.04
72.00	24.0	169.94	39.39	209.33	104.67	288.12
73.00	24.0	175.28	40.60	215.88	107.94	297.08
74.00	24.0	180.85	41.90	222.75	111.37	306.56
75.00	24.0	186.58	43.22	229.79	114.90	316.22
76.00	24.0	192.57	44.47	237.04	118.52	325.99
77.00	24.0	199.30	44.78	244.08	122.04	333.65
78.00	24.0	206.57	44.88	251.45	125.72	341.20
79.00	24.0	214.02	44.79	258.81	129.41	348.39
80.00	24.0	221.29	44.53	265.82	132.91	354.89
81.00	24.0	228.36	44.13	272.49	136.24	360.75
82.00	24.0	235.22	43.76	278.98	139.49	366.50
83.00	24.0	241.87	43.60	285.47	142.73	372.68
84.00	24.0	248.40	43.59	292.00	146.00	379.19
85.00	24.0	254.94	43.89	298.83	149.42	386.61
86.00	24.0	261.45	43.94	305.40	152.70	393.29
87.00	24.0	267.76	45.17	312.92	156.46	403.25
88.00	24.0	273.82	48.92	322.75	161.37	420.60
89.00	24.0	279.89	54.83	334.72	167.36	444.37
90.00	24.0	286.19	60.92	347.12	173.56	468.96
91.00	24.0	292.67	66.96	359.63	179.82	493.55
92.00	24.0	298.97	73.04	372.01	186.01	518.08
93.00	24.0	305.04	79.05	384.09	192.05	542.20
94.00	24.0	Soil Elevations Must Extend At or Below Contribution Zone				
95.00	24.0	Soil Elevations Must Extend At or Below Contribution Zone				

NOTES

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1. MOBILIZED END BEARING IS 1/3 OF THE ORIGINAL RB-121 VALUES.
 2. DAVISSON PILE CAPACITY IS AN ESTIMATE BASED ON FAILURE CRITERIA, AND EQUALS ULTIMATE SIDE FRICTION PLUS MOBILIZED END BEARING.
 3. ALLOWABLE PILE CAPACITY IS 1/2 THE DAVISSON PILE CAPACITY.
 4. ULTIMATE PILE CAPACITY IS ULTIMATE SIDE FRICTION PLUS 3 x THE MOBILIZED END BEARING.
EXCEPTION: FOR H-PILES TIPPED IN SAND OR LIMESTONE, THE ULTIMATE PILE CAPACITY IS ULTIMATE SIDE FRICTION PLUS 2 x THE MOBILIZED END BEARING.

General Information:

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Input file: e\FB-Deep\Pile\Rev\2-Preform\B-2-Void-20.5ft_Preform(-35ft).in
 Project number: 2000-01-21005
 Job name: CR-880
 Engineer: ZP
 Units: English

Analysis Information:

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Analysis Type: SPT

Soil Information:

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Boring date: 7-14-2022, Boring Number: B-2
 Station number: 11+49 (CL SRR) Offset: -24.9

Ground Elevation: 16.750(ft)

Hammer type: Automatic Hammer, Correction factor = 1.24

ID	Depth (ft)	No. of Blows (Blows/ft)	Soil Type

1	0.00	22.00	5- Cavity layer
2	2.00	16.00	5- Cavity layer
3	4.00	10.00	5- Cavity layer
4	6.00	3.00	5- Cavity layer
5	8.00	6.00	5- Cavity layer
6	10.00	5.00	5- Cavity layer
7	12.00	13.00	5- Cavity layer
8	13.50	13.00	5- Cavity layer
9	15.00	60.00	5- Cavity layer
10	18.00	13.00	5- Cavity layer
11	20.50	5.00	4- Lime Stone/Very shelly sand
12	23.00	4.00	4- Lime Stone/Very shelly sand
13	25.50	40.00	4- Lime Stone/Very shelly sand
14	28.00	30.00	4- Lime Stone/Very shelly sand
15	30.50	2.00	4- Lime Stone/Very shelly sand
16	33.00	2.00	4- Lime Stone/Very shelly sand
17	35.50	30.00	4- Lime Stone/Very shelly sand
18	38.00	30.00	4- Lime Stone/Very shelly sand
19	40.50	33.00	3- Clean sand
20	43.00	36.00	3- Clean sand
21	45.50	30.00	4- Lime Stone/Very shelly sand
22	48.00	30.00	4- Lime Stone/Very shelly sand
23	50.50	7.00	3- Clean sand
24	52.00	13.00	3- Clean sand
25	53.00	12.00	3- Clean sand
26	55.50	16.00	3- Clean sand
27	58.00	14.00	3- Clean sand
28	60.50	14.00	3- Clean sand
29	63.00	18.00	3- Clean sand
30	65.50	12.00	3- Clean sand
31	68.00	11.00	2- Clay and silty sand
32	70.50	14.00	2- Clay and silty sand
33	73.00	16.00	2- Clay and silty sand
34	75.50	16.00	2- Clay and silty sand
35	78.00	21.00	2- Clay and silty sand
36	80.50	19.00	2- Clay and silty sand
37	83.00	17.00	2- Clay and silty sand
38	85.50	17.00	2- Clay and silty sand
39	88.00	15.00	2- Clay and silty sand
40	90.50	17.00	2- Clay and silty sand
41	93.00	15.00	2- Clay and silty sand
42	95.50	51.00	2- Clay and silty sand

43	98.00	51.00	2- Clay and silty sand
44	100.00	51.00	2- Clay and silty sand

Blowcount Average Per Soil Layer

Layer Num.	Starting Elevation (ft)	Bottom Elevation (ft)	Thickness (ft)	Average Blowcount (Blows/ft)	Soil Type
1	16.75	-3.75	20.50	18.32	5-Void
2	-3.75	-23.75	20.00	17.88	4-Limestone, very Shelly Sand
3	-23.75	-28.75	5.00	34.50	3-Clean Sand
4	-28.75	-33.75	5.00	30.00	4-Limestone, very Shelly sand
5	-33.75	-51.25	17.50	13.63	3-Clean Sand
6	-51.25	-83.25	32.00	21.08	2-Clay and Silty sand

Driven Pile Data:

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Pile unit weight = 150.00(pcf), Section Type: Square

Pile Geometry:

Width (in)	Length (ft)	Tip Elev. (ft)
18.00	10.00	6.75
18.00	11.00	5.75
18.00	12.00	4.75
18.00	13.00	3.75
18.00	14.00	2.75
18.00	15.00	1.75
18.00	16.00	0.75
18.00	17.00	-0.25
18.00	18.00	-1.25
18.00	19.00	-2.25
18.00	20.00	-3.25
18.00	21.00	-4.25
18.00	22.00	-5.25
18.00	23.00	-6.25
18.00	24.00	-7.25
18.00	25.00	-8.25
18.00	26.00	-9.25
18.00	27.00	-10.25
18.00	28.00	-11.25
18.00	29.00	-12.25
18.00	30.00	-13.25
18.00	31.00	-14.25
18.00	32.00	-15.25
18.00	33.00	-16.25
18.00	34.00	-17.25
18.00	35.00	-18.25
18.00	36.00	-19.25
18.00	37.00	-20.25
18.00	38.00	-21.25
18.00	39.00	-22.25
18.00	40.00	-23.25
18.00	41.00	-24.25
18.00	42.00	-25.25
18.00	43.00	-26.25
18.00	44.00	-27.25
18.00	45.00	-28.25
18.00	46.00	-29.25
18.00	47.00	-30.25
18.00	48.00	-31.25
18.00	49.00	-32.25
18.00	50.00	-33.25
18.00	51.00	-34.25
18.00	52.00	-35.25
18.00	53.00	-36.25

B-2-Void-20.5ft_Preform(-35ft).out

18.00	54.00	-37.25
18.00	55.00	-38.25
18.00	56.00	-39.25
18.00	57.00	-40.25
18.00	58.00	-41.25
18.00	59.00	-42.25
18.00	60.00	-43.25
18.00	61.00	-44.25
18.00	62.00	-45.25
18.00	63.00	-46.25
18.00	64.00	-47.25
18.00	65.00	-48.25
18.00	66.00	-49.25
18.00	67.00	-50.25
18.00	68.00	-51.25
18.00	69.00	-52.25
18.00	70.00	-53.25
18.00	71.00	-54.25
18.00	72.00	-55.25
18.00	73.00	-56.25
18.00	74.00	-57.25
18.00	75.00	-58.25
18.00	76.00	-59.25
18.00	77.00	-60.25
18.00	78.00	-61.25
18.00	79.00	-62.25
18.00	80.00	-63.25
18.00	81.00	-64.25
18.00	82.00	-65.25
18.00	83.00	-66.25
18.00	84.00	-67.25
18.00	85.00	-68.25
18.00	86.00	-69.25
18.00	87.00	-70.25
18.00	88.00	-71.25
18.00	89.00	-72.25
18.00	90.00	-73.25
18.00	91.00	-74.25
18.00	92.00	-75.25
18.00	93.00	-76.25
18.00	94.00	-77.25
18.00	95.00	-78.25
24.00	10.00	6.75
24.00	11.00	5.75
24.00	12.00	4.75
24.00	13.00	3.75
24.00	14.00	2.75
24.00	15.00	1.75
24.00	16.00	0.75
24.00	17.00	-0.25
24.00	18.00	-1.25
24.00	19.00	-2.25
24.00	20.00	-3.25
24.00	21.00	-4.25
24.00	22.00	-5.25
24.00	23.00	-6.25
24.00	24.00	-7.25
24.00	25.00	-8.25
24.00	26.00	-9.25
24.00	27.00	-10.25
24.00	28.00	-11.25
24.00	29.00	-12.25
24.00	30.00	-13.25
24.00	31.00	-14.25
24.00	32.00	-15.25
24.00	33.00	-16.25
24.00	34.00	-17.25
24.00	35.00	-18.25
24.00	36.00	-19.25
24.00	37.00	-20.25
24.00	38.00	-21.25
24.00	39.00	-22.25
24.00	40.00	-23.25

B-2-Void-20.5ft_Preform(-35ft).out

24.00	41.00	-24.25
24.00	42.00	-25.25
24.00	43.00	-26.25
24.00	44.00	-27.25
24.00	45.00	-28.25
24.00	46.00	-29.25
24.00	47.00	-30.25
24.00	48.00	-31.25
24.00	49.00	-32.25
24.00	50.00	-33.25
24.00	51.00	-34.25
24.00	52.00	-35.25
24.00	53.00	-36.25
24.00	54.00	-37.25
24.00	55.00	-38.25
24.00	56.00	-39.25
24.00	57.00	-40.25
24.00	58.00	-41.25
24.00	59.00	-42.25
24.00	60.00	-43.25
24.00	61.00	-44.25
24.00	62.00	-45.25
24.00	63.00	-46.25
24.00	64.00	-47.25
24.00	65.00	-48.25
24.00	66.00	-49.25
24.00	67.00	-50.25
24.00	68.00	-51.25
24.00	69.00	-52.25
24.00	70.00	-53.25
24.00	71.00	-54.25
24.00	72.00	-55.25
24.00	73.00	-56.25
24.00	74.00	-57.25
24.00	75.00	-58.25
24.00	76.00	-59.25
24.00	77.00	-60.25
24.00	78.00	-61.25
24.00	79.00	-62.25
24.00	80.00	-63.25
24.00	81.00	-64.25
24.00	82.00	-65.25
24.00	83.00	-66.25
24.00	84.00	-67.25
24.00	85.00	-68.25
24.00	86.00	-69.25
24.00	87.00	-70.25
24.00	88.00	-71.25
24.00	89.00	-72.25
24.00	90.00	-73.25
24.00	91.00	-74.25
24.00	92.00	-75.25
24.00	93.00	-76.25
24.00	94.00	-77.25
24.00	95.00	-78.25

Driven Pile Capacity:

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Section Type: Square
Pile width: 18.00 (in)

Test Pile Length (ft)	Pile width (in)	Ultimate Side Friction (tons)	Mobilized End Bearing (tons)	Estimated Davisson Capacity (tons)	Allowable Pile Capacity (tons)	Ultimate Pile Capacity (tons)
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B-2-Void-20.5ft_Preform(-35ft).out

10.00	18.0	0.00	0.00	0.00	0.00	0.00
11.00	18.0	0.00	0.00	0.00	0.00	0.00
12.00	18.0	0.00	0.00	0.00	0.00	0.00
13.00	18.0	0.00	0.00	0.00	0.00	0.00
14.00	18.0	0.00	0.00	0.00	0.00	0.00
15.00	18.0	0.00	0.00	0.00	0.00	0.00
16.00	18.0	0.00	0.00	0.00	0.00	0.00
17.00	18.0	0.00	0.00	0.00	0.00	0.00
18.00	18.0	0.00	0.00	0.00	0.00	0.00
19.00	18.0	0.07	0.00	0.07	0.04	0.07
20.00	18.0	0.30	0.00	0.30	0.15	0.30
21.00	18.0	0.65	51.03	51.68	25.84	153.73
22.00	18.0	0.99	62.83	63.82	31.91	189.49
23.00	18.0	1.30	71.29	72.59	36.29	215.16
24.00	18.0	2.14	71.61	73.74	36.87	216.96
25.00	18.0	4.04	61.14	65.18	32.59	187.45
26.00	18.0	6.84	44.69	51.53	25.77	140.90
27.00	18.0	9.52	29.18	38.70	19.35	97.05
28.00	18.0	11.90	18.16	30.07	15.03	66.39
29.00	18.0	13.69	15.66	29.35	14.67	60.66
30.00	18.0	14.58	22.55	37.13	18.56	82.22
31.00	18.0	14.69	34.44	49.14	24.57	118.03
32.00	18.0	14.69	46.97	61.66	30.83	155.60
33.00	18.0	14.69	60.26	74.96	37.48	195.48
34.00	18.0	15.14	72.59	87.73	43.86	232.91
35.00	18.0	16.48	81.32	97.80	48.90	260.45
36.00	18.0	18.60	86.39	104.99	52.49	277.76
37.00	18.0	20.83	91.42	112.25	56.13	295.10
38.00	18.0	23.06	95.69	118.75	59.38	310.12
39.00	18.0	25.78	97.05	122.83	61.42	316.93
40.00	18.0	29.47	95.01	124.49	62.24	314.51
41.00	18.0	34.04	71.04	105.08	52.54	247.16
42.00	18.0	38.85	71.24	110.08	55.04	252.55
43.00	18.0	43.63	71.43	115.06	57.53	257.92
44.00	18.0	48.03	71.56	119.59	59.79	262.70
45.00	18.0	51.62	71.36	122.99	61.49	265.71
46.00	18.0	54.14	52.49	106.63	53.32	211.60
47.00	18.0	56.38	46.16	102.54	51.27	194.86
48.00	18.0	58.61	39.99	98.59	49.30	178.56
49.00	18.0	60.59	36.41	97.01	48.50	169.83
50.00	18.0	62.08	37.11	99.19	49.59	173.40
51.00	18.0	63.20	31.82	95.02	47.51	158.67
52.00	18.0	64.76	35.93	100.69	50.34	172.55
53.00	18.0	66.50	37.72	104.23	52.11	179.67
54.00	18.0	68.16	38.03	106.19	53.10	182.24
55.00	18.0	70.02	38.41	108.42	54.21	185.24
56.00	18.0	72.04	38.81	110.86	55.43	188.48
57.00	18.0	73.94	39.39	113.34	56.67	192.12
58.00	18.0	75.65	40.28	115.92	57.96	196.47
59.00	18.0	77.36	41.09	118.45	59.23	200.63
60.00	18.0	79.25	41.51	120.76	60.38	203.79
61.00	18.0	81.36	41.37	122.73	61.37	205.47
62.00	18.0	83.98	40.29	124.27	62.14	204.85
63.00	18.0	87.12	38.37	125.49	62.74	202.23
64.00	18.0	89.75	36.07	125.82	62.91	197.96
65.00	18.0	91.78	34.08	125.87	62.93	194.03
66.00	18.0	93.61	32.60	126.21	63.10	191.40
67.00	18.0	96.00	31.44	127.44	63.72	190.32
68.00	18.0	99.10	20.62	119.72	59.86	160.95
69.00	18.0	102.69	19.56	122.26	61.13	161.38
70.00	18.0	106.59	20.46	127.06	63.53	167.99
71.00	18.0	110.52	20.94	131.47	65.73	173.35
72.00	18.0	114.44	21.65	136.09	68.05	179.39
73.00	18.0	118.44	22.76	141.20	70.60	186.73
74.00	18.0	122.63	24.10	146.73	73.36	194.92
75.00	18.0	127.29	24.81	152.09	76.05	201.70
76.00	18.0	132.00	25.34	157.34	78.67	208.02
77.00	18.0	137.06	25.62	162.68	81.34	213.92
78.00	18.0	142.53	25.60	168.13	84.06	219.32
79.00	18.0	148.13	25.43	173.57	86.78	224.43
80.00	18.0	153.59	25.27	178.87	89.43	229.41
81.00	18.0	158.90	25.42	184.32	92.16	235.15
82.00	18.0	164.05	25.44	189.49	94.75	240.37

B-2-Void-20.5ft_Preform(-35ft).out

83.00	18.0	169.04	25.35	194.39	97.19	245.08
84.00	18.0	173.94	25.29	199.23	99.62	249.80
85.00	18.0	178.85	25.29	204.14	102.07	254.71
86.00	18.0	183.73	25.32	209.05	104.53	259.70
87.00	18.0	188.46	25.31	213.77	106.88	264.38
88.00	18.0	193.01	25.29	218.30	109.15	268.87
89.00	18.0	197.55	26.49	224.04	112.02	277.03
90.00	18.0	202.28	29.40	231.68	115.84	290.47
91.00	18.0	207.14	33.58	240.72	120.36	307.88
92.00	18.0	211.87	37.92	249.78	124.89	325.62
93.00	18.0	216.41	42.37	258.78	129.39	343.52
94.00	18.0	221.54	46.37	267.91	133.95	360.65
95.00	18.0	Soil Elevations Must Extend At or Below Contribution Zone				

IB 4 (West)
NBR=212tons

Section Type: Square
Pile width: 24.00 (in)

Test Pile Length (ft)	Pile width (in)	Ultimate Side Friction (tons)	Mobilized End Bearing (tons)	Estimated Davisson Capacity (tons)	Allowable Pile Capacity (tons)	Ultimate Pile Capacity (tons)
10.00	24.0	0.00	0.00	0.00	0.00	0.00
11.00	24.0	0.00	0.00	0.00	0.00	0.00
12.00	24.0	0.00	0.00	0.00	0.00	0.00
13.00	24.0	0.00	0.00	0.00	0.00	0.00
14.00	24.0	0.00	0.00	0.00	0.00	0.00
15.00	24.0	0.00	0.00	0.00	0.00	0.00
16.00	24.0	0.00	0.00	0.00	0.00	0.00
17.00	24.0	0.00	0.00	0.00	0.00	0.00
18.00	24.0	0.00	0.00	0.00	0.00	0.00
19.00	24.0	0.10	0.00	0.10	0.05	0.10
20.00	24.0	0.40	0.00	0.40	0.20	0.40
21.00	24.0	0.86	99.43	100.29	50.14	299.14
22.00	24.0	1.32	103.82	105.14	52.57	312.77
23.00	24.0	1.74	102.57	104.30	52.15	309.43
24.00	24.0	2.85	96.31	99.16	49.58	291.78
25.00	24.0	5.39	81.52	86.90	43.45	249.94
26.00	24.0	9.13	62.92	72.05	36.02	197.89
27.00	24.0	12.70	52.26	64.96	32.48	169.48
28.00	24.0	15.87	50.10	65.97	32.99	166.17
29.00	24.0	18.25	53.44	71.69	35.85	178.57
30.00	24.0	19.44	63.46	82.90	41.45	209.83
31.00	24.0	19.59	80.35	99.94	49.97	260.64
32.00	24.0	19.59	100.13	119.72	59.86	319.97
33.00	24.0	19.59	121.79	141.38	70.69	384.97
34.00	24.0	20.19	141.07	161.26	80.63	443.40
35.00	24.0	21.97	154.46	176.43	88.22	485.35
36.00	24.0	24.80	160.98	185.78	92.89	507.75
37.00	24.0	27.78	163.83	191.60	95.80	519.25
38.00	24.0	30.75	164.18	194.93	97.47	523.29
39.00	24.0	34.38	163.16	197.53	98.77	523.84
40.00	24.0	39.30	160.08	199.38	99.69	519.54
41.00	24.0	45.38	129.92	175.31	87.65	435.15
42.00	24.0	51.83	125.33	177.16	88.58	427.82
43.00	24.0	58.50	118.04	176.54	88.27	412.62
44.00	24.0	64.53	109.52	174.04	87.02	393.08
45.00	24.0	69.03	104.05	173.08	86.54	381.18
46.00	24.0	72.19	86.71	158.91	79.45	332.33
47.00	24.0	75.17	79.54	154.71	77.35	313.78
48.00	24.0	78.14	73.22	151.36	75.68	297.80
49.00	24.0	80.79	68.99	149.78	74.89	287.75
50.00	24.0	82.77	69.05	151.82	75.91	289.93
51.00	24.0	84.27	57.44	141.71	70.85	256.59
52.00	24.0	86.34	63.87	150.21	75.10	277.94
53.00	24.0	88.70	67.08	155.78	77.89	289.93
54.00	24.0	91.11	68.97	160.08	80.04	298.01
55.00	24.0	93.71	70.44	164.15	82.07	305.03
56.00	24.0	96.30	71.18	167.48	83.74	309.85
57.00	24.0	98.81	71.93	170.74	85.37	314.61

B-2-Void-20.5ft_Preform(-35ft).out

58.00	24.0	101.34	72.38	173.71	86.86	318.47
59.00	24.0	103.98	72.40	176.39	88.19	321.19
60.00	24.0	106.90	71.83	178.73	89.36	322.38
61.00	24.0	110.20	70.47	180.67	90.34	321.62
62.00	24.0	113.26	67.43	180.68	90.34	315.54
63.00	24.0	116.50	64.08	180.58	90.29	308.75
64.00	24.0	119.66	60.92	180.58	90.29	302.42
65.00	24.0	122.38	58.31	180.69	90.34	297.30
66.00	24.0	124.81	56.35	181.16	90.58	293.86
67.00	24.0	128.01	55.55	183.55	91.78	294.65
68.00	24.0	132.13	38.07	170.20	85.10	246.35
69.00	24.0	136.92	35.26	172.18	86.09	242.70
70.00	24.0	142.13	37.03	179.16	89.58	253.23
71.00	24.0	147.44	38.40	185.84	92.92	262.64
72.00	24.0	152.54	39.39	191.94	95.97	270.72
73.00	24.0	157.88	40.60	198.49	99.24	279.69
74.00	24.0	163.45	41.90	205.35	102.68	289.16
75.00	24.0	169.18	43.22	212.40	106.20	298.83
76.00	24.0	175.17	44.47	219.65	109.82	308.59
77.00	24.0	181.91	44.78	226.69	113.34	316.25
78.00	24.0	189.18	44.88	234.05	117.03	323.81
79.00	24.0	196.63	44.79	241.42	120.71	331.00
80.00	24.0	203.89	44.53	248.43	124.21	337.49
81.00	24.0	210.96	44.13	255.09	127.55	343.35
82.00	24.0	217.82	43.76	261.59	130.79	349.11
83.00	24.0	224.47	43.60	268.07	134.04	355.28
84.00	24.0	231.01	43.59	274.60	137.30	361.79
85.00	24.0	237.55	43.89	281.44	140.72	369.21
86.00	24.0	244.06	43.94	288.00	144.00	375.89
87.00	24.0	250.36	45.17	295.53	147.76	385.86
88.00	24.0	256.43	48.92	305.35	152.68	403.20
89.00	24.0	262.49	54.83	317.32	158.66	426.97
90.00	24.0	268.80	60.92	329.72	164.86	451.57
91.00	24.0	275.28	66.96	342.24	171.12	476.15
92.00	24.0	281.58	73.04	354.61	177.31	500.69
93.00	24.0	287.64	79.05	366.70	183.35	524.81
94.00	24.0	Soil Elevations Must Extend At or Below Contribution Zone				
95.00	24.0	Soil Elevations Must Extend At or Below Contribution Zone				

NOTES

1. MOBILIZED END BEARING IS 1/3 OF THE ORIGINAL RB-121 VALUES.
2. DAVISSON PILE CAPACITY IS AN ESTIMATE BASED ON FAILURE CRITERIA, AND EQUALS ULTIMATE SIDE FRICTION PLUS MOBILIZED END BEARING.
3. ALLOWABLE PILE CAPACITY IS 1/2 THE DAVISSON PILE CAPACITY.
4. ULTIMATE PILE CAPACITY IS ULTIMATE SIDE FRICTION PLUS 3 x THE MOBILIZED END BEARING.
EXCEPTION: FOR H-PILES TIPPED IN SAND OR LIMESTONE, THE ULTIMATE PILE CAPACITY IS ULTIMATE SIDE FRICTION PLUS 2 x THE MOBILIZED END BEARING.

General Information:

Input file: e\FB-Deep\Pile\Rev\2-Preform\B-3-Void-11.6ft_Preform(-35ft).in
 Project number: 2000-01-21005
 Job name: CR-880
 Engineer: ZP
 Units: English

Analysis Information:

Analysis Type: SPT

Soil Information:

Boring date: 8-17-2022, Boring Number: B-3
 Station number: 10+29 (CL SRR) Offset: +30.4

Ground Elevation: 16.560(ft)

Hammer type: Automatic Hammer, Correction factor = 1.24

ID	Depth (ft)	No. of Blows (Blows/ft)	Soil Type
1	0.00	30.00	5- Cavity layer
2	2.00	19.00	5- Cavity layer
3	4.00	4.00	5- Cavity layer
4	6.00	4.00	5- Cavity layer
5	8.00	3.00	5- Cavity layer
6	10.00	9.00	5- Cavity layer
7	11.60	5.00	4- Lime Stone/Very shelly sand
8	12.00	38.00	2- Clay and silty sand
9	13.50	30.00	4- Lime Stone/Very shelly sand
10	15.00	8.00	2- Clay and silty sand
11	18.00	5.00	2- Clay and silty sand
12	20.50	20.00	2- Clay and silty sand
13	23.00	27.00	2- Clay and silty sand
14	25.50	30.00	4- Lime Stone/Very shelly sand
15	28.00	31.00	4- Lime Stone/Very shelly sand
16	30.50	30.00	4- Lime Stone/Very shelly sand
17	33.00	21.00	2- Clay and silty sand
18	35.50	10.00	2- Clay and silty sand
19	38.00	27.00	2- Clay and silty sand
20	40.50	30.00	4- Lime Stone/Very shelly sand
21	43.00	30.00	4- Lime Stone/Very shelly sand
22	45.50	40.00	4- Lime Stone/Very shelly sand
23	48.00	30.00	4- Lime Stone/Very shelly sand
24	50.50	10.00	3- Clean sand
25	52.00	20.00	3- Clean sand
26	53.00	14.00	3- Clean sand
27	55.50	20.00	3- Clean sand
28	58.00	15.00	3- Clean sand
29	60.50	60.00	4- Lime Stone/Very shelly sand
30	63.00	16.00	3- Clean sand
31	65.50	29.00	3- Clean sand
32	68.00	24.00	3- Clean sand
33	70.50	15.00	3- Clean sand
34	73.00	13.00	3- Clean sand
35	75.50	12.00	3- Clean sand
36	78.00	12.00	3- Clean sand
37	80.50	15.00	3- Clean sand
38	83.00	22.00	3- Clean sand
39	85.50	21.00	3- Clean sand
40	88.00	20.00	3- Clean sand
41	90.50	13.00	3- Clean sand
42	93.00	12.00	3- Clean sand

43	95.50	20.00	3- Clean sand
44	98.00	60.00	4- Lime Stone/Very shelly sand
45	100.00	60.00	4- Lime Stone/Very shelly sand

Blowcount Average Per Soil Layer

Layer Num.	Starting Elevation (ft)	Bottom Elevation (ft)	Thickness (ft)	Average Blowcount (Blows/ft)	Soil Type
1	16.56	4.96	11.60	11.59	5-Void
2	4.96	4.56	0.40	5.00	4-Limestone, very Shelly Sand
3	4.56	3.06	1.50	38.00	2-Clay and Silty Sand
4	3.06	1.56	1.50	30.00	4-Limestone, very Shelly Sand
5	1.56	-8.94	10.50	14.67	2-Clay and Silty Sand
6	-8.94	-16.44	7.50	30.33	4-Limestone, very Shelly Sand
7	-16.44	-23.94	7.50	19.33	2-Clay and Silty Sand
8	-23.94	-33.94	10.00	32.50	4-Limestone, very Shelly Sand
9	-33.94	-43.94	10.00	15.75	3-Clean Sand
10	-43.94	-46.44	2.50	60.00	4-Limestone, very Shelly Sand
11	-46.44	-81.44	35.00	17.43	3-Clean Sand
12	-81.44	-83.44	2.00	60.00	4-Limestone, very Shelly Sand

Driven Pile Data:

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Pile unit weight = 150.00(pcf), Section Type: Square

Pile Geometry:

Width (in)	Length (ft)	Tip Elev. (ft)
18.00	10.00	6.56
18.00	11.00	5.56
18.00	12.00	4.56
18.00	13.00	3.56
18.00	14.00	2.56
18.00	15.00	1.56
18.00	16.00	0.56
18.00	17.00	-0.44
18.00	18.00	-1.44
18.00	19.00	-2.44
18.00	20.00	-3.44
18.00	21.00	-4.44
18.00	22.00	-5.44
18.00	23.00	-6.44
18.00	24.00	-7.44
18.00	25.00	-8.44
18.00	26.00	-9.44
18.00	27.00	-10.44
18.00	28.00	-11.44
18.00	29.00	-12.44
18.00	30.00	-13.44
18.00	31.00	-14.44
18.00	32.00	-15.44
18.00	33.00	-16.44
18.00	34.00	-17.44
18.00	35.00	-18.44
18.00	36.00	-19.44
18.00	37.00	-20.44
18.00	38.00	-21.44
18.00	39.00	-22.44
18.00	40.00	-23.44
18.00	41.00	-24.44
18.00	42.00	-25.44
18.00	43.00	-26.44
18.00	44.00	-27.44
18.00	45.00	-28.44
18.00	46.00	-29.44

B-3-Void-11.6ft_Preform(-35ft).out

18.00	47.00	-30.44
18.00	48.00	-31.44
18.00	49.00	-32.44
18.00	50.00	-33.44
18.00	51.00	-34.44
18.00	52.00	-35.44
18.00	53.00	-36.44
18.00	54.00	-37.44
18.00	55.00	-38.44
18.00	56.00	-39.44
18.00	57.00	-40.44
18.00	58.00	-41.44
18.00	59.00	-42.44
18.00	60.00	-43.44
18.00	61.00	-44.44
18.00	62.00	-45.44
18.00	63.00	-46.44
18.00	64.00	-47.44
18.00	65.00	-48.44
18.00	66.00	-49.44
18.00	67.00	-50.44
18.00	68.00	-51.44
18.00	69.00	-52.44
18.00	70.00	-53.44
18.00	71.00	-54.44
18.00	72.00	-55.44
18.00	73.00	-56.44
18.00	74.00	-57.44
18.00	75.00	-58.44
18.00	76.00	-59.44
18.00	77.00	-60.44
18.00	78.00	-61.44
18.00	79.00	-62.44
18.00	80.00	-63.44
18.00	81.00	-64.44
18.00	82.00	-65.44
18.00	83.00	-66.44
18.00	84.00	-67.44
18.00	85.00	-68.44
18.00	86.00	-69.44
18.00	87.00	-70.44
18.00	88.00	-71.44
18.00	89.00	-72.44
18.00	90.00	-73.44
18.00	91.00	-74.44
18.00	92.00	-75.44
18.00	93.00	-76.44
18.00	94.00	-77.44
18.00	95.00	-78.44
24.00	10.00	6.56
24.00	11.00	5.56
24.00	12.00	4.56
24.00	13.00	3.56
24.00	14.00	2.56
24.00	15.00	1.56
24.00	16.00	0.56
24.00	17.00	-0.44
24.00	18.00	-1.44
24.00	19.00	-2.44
24.00	20.00	-3.44
24.00	21.00	-4.44
24.00	22.00	-5.44
24.00	23.00	-6.44
24.00	24.00	-7.44
24.00	25.00	-8.44
24.00	26.00	-9.44
24.00	27.00	-10.44
24.00	28.00	-11.44
24.00	29.00	-12.44
24.00	30.00	-13.44
24.00	31.00	-14.44
24.00	32.00	-15.44
24.00	33.00	-16.44

B-3-Void-11.6ft_Preform(-35ft).out

24.00	34.00	-17.44
24.00	35.00	-18.44
24.00	36.00	-19.44
24.00	37.00	-20.44
24.00	38.00	-21.44
24.00	39.00	-22.44
24.00	40.00	-23.44
24.00	41.00	-24.44
24.00	42.00	-25.44
24.00	43.00	-26.44
24.00	44.00	-27.44
24.00	45.00	-28.44
24.00	46.00	-29.44
24.00	47.00	-30.44
24.00	48.00	-31.44
24.00	49.00	-32.44
24.00	50.00	-33.44
24.00	51.00	-34.44
24.00	52.00	-35.44
24.00	53.00	-36.44
24.00	54.00	-37.44
24.00	55.00	-38.44
24.00	56.00	-39.44
24.00	57.00	-40.44
24.00	58.00	-41.44
24.00	59.00	-42.44
24.00	60.00	-43.44
24.00	61.00	-44.44
24.00	62.00	-45.44
24.00	63.00	-46.44
24.00	64.00	-47.44
24.00	65.00	-48.44
24.00	66.00	-49.44
24.00	67.00	-50.44
24.00	68.00	-51.44
24.00	69.00	-52.44
24.00	70.00	-53.44
24.00	71.00	-54.44
24.00	72.00	-55.44
24.00	73.00	-56.44
24.00	74.00	-57.44
24.00	75.00	-58.44
24.00	76.00	-59.44
24.00	77.00	-60.44
24.00	78.00	-61.44
24.00	79.00	-62.44
24.00	80.00	-63.44
24.00	81.00	-64.44
24.00	82.00	-65.44
24.00	83.00	-66.44
24.00	84.00	-67.44
24.00	85.00	-68.44
24.00	86.00	-69.44
24.00	87.00	-70.44
24.00	88.00	-71.44
24.00	89.00	-72.44
24.00	90.00	-73.44
24.00	91.00	-74.44
24.00	92.00	-75.44
24.00	93.00	-76.44
24.00	94.00	-77.44
24.00	95.00	-78.44

Driven Pile Capacity:

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Section Type: Square
Pile width: 18.00 (in)

Test Pile Length (ft)	Pile width (in)	Ultimate Side Friction (tons)	Mobilized End Bearing (tons)	Estimated Davisson Capacity (tons)	Allowable Pile Capacity (tons)	Ultimate Pile Capacity (tons)
10.00	18.0	0.00	0.00	0.00	0.00	0.00
11.00	18.0	0.12	0.00	0.12	0.06	0.12
12.00	18.0	1.92	18.76	20.68	10.34	58.19
13.00	18.0	7.84	16.17	24.01	12.00	56.35
14.00	18.0	10.56	15.79	26.35	13.18	57.93
15.00	18.0	13.04	13.02	26.06	13.03	52.10
16.00	18.0	15.34	13.17	28.51	14.26	54.86
17.00	18.0	16.92	14.01	30.93	15.46	58.94
18.00	18.0	18.02	15.80	33.83	16.91	65.43
19.00	18.0	19.42	19.38	38.80	19.40	77.56
20.00	18.0	21.92	25.33	47.25	23.63	97.92
21.00	18.0	25.72	33.56	59.28	29.64	126.41
22.00	18.0	30.95	38.97	69.91	34.96	147.85
23.00	18.0	36.73	44.00	80.73	40.37	168.73
24.00	18.0	42.14	48.35	90.49	45.24	187.18
25.00	18.0	46.17	51.65	97.82	48.91	201.12
26.00	18.0	56.08	73.03	129.11	64.55	275.16
27.00	18.0	58.34	66.98	125.33	62.66	259.29
28.00	18.0	60.63	58.74	119.37	59.69	236.85
29.00	18.0	62.93	49.40	112.33	56.16	211.13
30.00	18.0	65.19	39.51	104.70	52.35	183.73
31.00	18.0	67.60	31.50	99.09	49.55	162.09
32.00	18.0	71.23	27.75	98.98	49.49	154.48
33.00	18.0	76.25	26.09	102.34	51.17	154.52
34.00	18.0	80.96	26.61	107.56	53.78	160.77
35.00	18.0	84.27	27.95	112.22	56.11	168.12
36.00	18.0	86.49	30.99	117.48	58.74	179.45
37.00	18.0	89.48	36.04	125.52	62.76	197.60
38.00	18.0	93.77	42.76	136.53	68.27	222.06
39.00	18.0	98.31	51.44	149.75	74.87	252.62
40.00	18.0	102.52	57.06	159.58	79.79	273.69
41.00	18.0	112.00	86.59	198.60	99.30	371.78
42.00	18.0	114.24	87.59	201.82	100.91	377.00
43.00	18.0	116.47	86.07	202.54	101.27	374.69
44.00	18.0	118.85	80.54	199.39	99.69	360.47
45.00	18.0	121.53	70.78	192.31	96.15	333.87
46.00	18.0	124.43	62.05	186.48	93.24	310.57
47.00	18.0	127.11	54.97	182.08	91.04	292.01
48.00	18.0	129.49	48.99	178.48	89.24	276.45
49.00	18.0	131.56	46.71	178.26	89.13	271.67
50.00	18.0	133.30	48.37	181.66	90.83	278.40
51.00	18.0	134.87	43.04	177.91	88.95	263.99
52.00	18.0	137.23	48.24	185.46	92.73	281.93
53.00	18.0	139.63	49.17	188.80	94.40	287.15
54.00	18.0	141.36	50.13	191.49	95.74	291.74
55.00	18.0	142.62	53.20	195.83	97.91	302.23
56.00	18.0	143.81	58.32	202.13	101.06	318.76
57.00	18.0	145.30	62.72	208.02	104.01	333.45
58.00	18.0	147.05	65.46	212.51	106.26	343.44
59.00	18.0	149.21	67.71	216.92	108.46	352.34
60.00	18.0	152.27	69.29	221.56	110.78	360.14
61.00	18.0	162.17	81.01	243.18	121.59	405.20
62.00	18.0	165.76	72.89	238.65	119.32	384.43
63.00	18.0	168.46	72.78	241.24	120.62	386.79
64.00	18.0	171.09	64.83	235.92	117.96	365.58
65.00	18.0	174.45	66.97	241.42	120.71	375.36
66.00	18.0	178.42	66.65	245.07	122.54	378.37
67.00	18.0	182.24	64.27	246.51	123.25	375.04
68.00	18.0	185.78	61.11	246.89	123.44	369.11
69.00	18.0	188.91	57.85	246.76	123.38	362.46
70.00	18.0	191.54	54.89	246.43	123.22	356.21
71.00	18.0	193.71	52.46	246.17	123.09	351.09
72.00	18.0	195.72	50.49	246.21	123.11	347.19
73.00	18.0	197.61	48.91	246.53	123.26	344.35
74.00	18.0	199.42	47.88	247.30	123.65	343.07
75.00	18.0	201.18	47.43	248.61	124.30	343.47

EB 1 (East)
NBR=168tons

IB 2 (East)
NBR=202tons

B-3-Void-11.6ft_Preform(-35ft).out

76.00	18.0	202.88	47.67	250.55	125.27	345.88
77.00	18.0	204.58	48.05	252.62	126.31	348.72
78.00	18.0	206.27	48.66	254.93	127.47	352.25
79.00	18.0	208.05	49.45	257.50	128.75	356.41
80.00	18.0	210.00	50.19	260.19	130.10	360.57
81.00	18.0	212.15	50.94	263.09	131.54	364.96
82.00	18.0	214.67	51.60	266.27	133.14	369.47
83.00	18.0	217.58	52.09	269.67	134.84	373.85
84.00	18.0	220.66	51.93	272.59	136.29	376.44
85.00	18.0	223.69	51.13	274.82	137.41	377.09
86.00	18.0	226.66	49.88	276.53	138.27	376.28
87.00	18.0	229.57	48.60	278.17	139.08	375.36
88.00	18.0	232.42	47.34	279.77	139.88	374.45
89.00	18.0	235.05	46.97	282.02	141.01	375.97
90.00	18.0	237.29	47.95	285.24	142.62	381.14
91.00	18.0	239.17	51.13	290.30	145.15	392.56
92.00	18.0	240.95	58.50	299.45	149.73	416.46
93.00	18.0	242.67	69.97	312.64	156.32	452.59
94.00	18.0	244.60	82.11	326.71	163.36	490.94
95.00	18.0	Soil Elevations Must Extend At or Below Contribution Zone				

Section Type: Square
Pile width: 24.00 (in)

Test Pile Length (ft)	Pile width (in)	Ultimate Side Friction (tons)	Mobilized End Bearing (tons)	Estimated Davisson Capacity (tons)	Allowable Pile Capacity (tons)	Ultimate Pile Capacity (tons)
10.00	24.0	0.00	0.00	0.00	0.00	0.00
11.00	24.0	0.15	0.00	0.15	0.08	0.15
12.00	24.0	2.56	27.70	30.26	15.13	85.66
13.00	24.0	10.45	26.54	36.99	18.49	90.06
14.00	24.0	14.08	35.07	49.16	24.58	119.30
15.00	24.0	17.39	26.91	44.30	22.15	98.12
16.00	24.0	20.41	27.20	47.60	23.80	101.99
17.00	24.0	22.48	28.51	50.98	25.49	108.00
18.00	24.0	23.75	31.58	55.33	27.67	118.49
19.00	24.0	25.36	37.30	62.65	31.33	137.25
20.00	24.0	28.36	45.47	73.83	36.92	164.78
21.00	24.0	32.80	55.65	88.46	44.23	199.76
22.00	24.0	38.24	67.36	105.61	52.80	240.33
23.00	24.0	44.76	80.24	125.00	62.50	285.49
24.00	24.0	51.73	86.18	137.92	68.96	310.28
25.00	24.0	57.11	89.09	146.20	73.10	324.39
26.00	24.0	74.77	112.48	187.26	93.63	412.22
27.00	24.0	77.79	100.29	178.08	89.04	378.66
28.00	24.0	80.85	86.85	167.69	83.85	341.39
29.00	24.0	83.90	75.19	159.10	79.55	309.49
30.00	24.0	86.92	66.04	152.96	76.48	285.05
31.00	24.0	90.13	60.28	150.41	75.21	270.98
32.00	24.0	94.97	61.08	156.04	78.02	278.20
33.00	24.0	101.67	59.63	161.30	80.65	280.57
34.00	24.0	108.53	59.74	168.27	84.13	287.74
35.00	24.0	113.40	60.82	174.22	87.11	295.85
36.00	24.0	116.87	63.32	180.19	90.09	306.82
37.00	24.0	120.97	68.43	189.40	94.70	326.27
38.00	24.0	126.23	76.59	202.82	101.41	356.00
39.00	24.0	131.31	87.64	218.95	109.47	394.22
40.00	24.0	135.26	99.43	234.69	117.34	433.55
41.00	24.0	149.34	148.17	297.51	148.75	593.84
42.00	24.0	152.31	142.11	294.43	147.21	578.66
43.00	24.0	155.29	133.08	288.37	144.19	554.54
44.00	24.0	158.47	126.08	284.54	142.27	536.70
45.00	24.0	162.04	116.64	278.68	139.34	511.96
46.00	24.0	165.91	104.02	269.93	134.96	477.98
47.00	24.0	169.48	94.98	264.46	132.23	454.43
48.00	24.0	172.65	89.82	262.47	131.23	442.11
49.00	24.0	175.41	87.04	262.45	131.22	436.53
50.00	24.0	177.73	86.97	264.70	132.35	438.65

B-3-Void-11.6ft_Preform(-35ft).out

51.00	24.0	179.83	76.18	256.01	128.00	408.36
52.00	24.0	182.97	87.64	270.61	135.30	445.88
53.00	24.0	185.50	90.52	276.02	138.01	457.06
54.00	24.0	187.07	93.82	280.89	140.45	468.54
55.00	24.0	189.06	97.68	286.74	143.37	482.10
56.00	24.0	191.68	100.64	292.33	146.16	493.61
57.00	24.0	194.32	103.00	297.33	148.66	503.33
58.00	24.0	196.53	106.23	302.75	151.38	515.21
59.00	24.0	198.95	110.30	309.26	154.63	529.86
60.00	24.0	202.61	113.44	316.05	158.02	542.93
61.00	24.0	216.23	139.23	355.46	177.73	633.91
62.00	24.0	221.01	124.17	345.18	172.59	593.52
63.00	24.0	224.61	123.42	348.04	174.02	594.88
64.00	24.0	228.12	109.69	337.80	168.90	557.18
65.00	24.0	232.60	112.94	345.54	172.77	571.41
66.00	24.0	237.90	113.47	351.37	175.68	578.30
67.00	24.0	242.99	110.41	353.40	176.70	574.23
68.00	24.0	247.70	105.98	353.68	176.84	565.65
69.00	24.0	251.88	101.13	353.02	176.51	555.29
70.00	24.0	255.39	96.55	351.95	175.97	545.05
71.00	24.0	258.28	92.65	350.93	175.47	536.23
72.00	24.0	260.96	89.66	350.62	175.31	529.93
73.00	24.0	263.49	87.68	351.17	175.58	526.54
74.00	24.0	265.90	86.71	352.61	176.30	526.02
75.00	24.0	268.24	87.09	355.33	177.66	529.51
76.00	24.0	270.51	88.85	359.36	179.68	537.06
77.00	24.0	272.77	91.28	364.05	182.03	546.62
78.00	24.0	275.03	93.73	368.76	184.38	556.23
79.00	24.0	277.40	96.04	373.45	186.72	565.53
80.00	24.0	280.01	97.82	377.82	188.91	573.46
81.00	24.0	282.87	98.29	381.16	190.58	577.73
82.00	24.0	286.23	96.89	383.11	191.56	576.88
83.00	24.0	290.11	94.01	384.12	192.06	572.15
84.00	24.0	294.22	90.27	384.49	192.24	565.03
85.00	24.0	298.25	86.81	385.06	192.53	558.69
86.00	24.0	302.21	83.89	386.09	193.05	553.87
87.00	24.0	306.09	82.11	388.20	194.10	552.42
88.00	24.0	309.90	81.82	391.71	195.86	555.34
89.00	24.0	313.40	83.78	397.18	198.59	564.73
90.00	24.0	316.38	91.65	408.03	204.01	591.32
91.00	24.0	318.89	105.90	424.79	212.39	636.59
92.00	24.0	321.26	123.25	444.52	222.26	691.02
93.00	24.0	323.56	140.70	464.26	232.13	745.66
94.00	24.0	Soil Elevations Must Extend At or Below Contribution Zone				
95.00	24.0	Soil Elevations Must Extend At or Below Contribution Zone				

NOTES

1. MOBILIZED END BEARING IS 1/3 OF THE ORIGINAL RB-121 VALUES.
2. DAVISSON PILE CAPACITY IS AN ESTIMATE BASED ON FAILURE CRITERIA, AND EQUALS ULTIMATE SIDE FRICTION PLUS MOBILIZED END BEARING.
3. ALLOWABLE PILE CAPACITY IS 1/2 THE DAVISSON PILE CAPACITY.
4. ULTIMATE PILE CAPACITY IS ULTIMATE SIDE FRICTION PLUS 3 x THE MOBILIZED END BEARING.
EXCEPTION: FOR H-PILES TIPPED IN SAND OR LIMESTONE, THE ULTIMATE PILE CAPACITY IS ULTIMATE SIDE FRICTION PLUS 2 x THE MOBILIZED END BEARING.

General Information:

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Input file: e\FB-Deep\Pile\Rev\2-Preform\B-3-Void-20.2ft_Preform(-35ft).in
 Project number: 2000-01-21005
 Job name: CR-880
 Engineer: ZP
 Units: English

Analysis Information:

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Analysis Type: SPT

Soil Information:

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Boring date: 8-17-2022, Boring Number: B-3
 Station number: 10+29 (CL SRR) Offset: +30.4

Ground Elevation: 16.560(ft)

Hammer type: Automatic Hammer, Correction factor = 1.24

ID	Depth (ft)	No. of Blows (Blows/ft)	Soil Type
1	0.00	30.00	5- Cavity layer
2	2.00	19.00	5- Cavity layer
3	4.00	4.00	5- Cavity layer
4	6.00	4.00	5- Cavity layer
5	8.00	3.00	5- Cavity layer
6	10.00	9.00	5- Cavity layer
7	12.00	75.00	5- Cavity layer
8	13.50	60.00	5- Cavity layer
9	15.00	15.00	5- Cavity layer
10	18.00	9.00	5- Cavity layer
11	20.20	5.00	2- Clay and silty sand
12	20.50	20.00	2- Clay and silty sand
13	23.00	27.00	2- Clay and silty sand
14	25.50	30.00	4- Lime Stone/Very shelly sand
15	28.00	30.00	4- Lime Stone/Very shelly sand
16	30.50	30.00	4- Lime Stone/Very shelly sand
17	33.00	21.00	2- Clay and silty sand
18	35.50	10.00	2- Clay and silty sand
19	38.00	27.00	2- Clay and silty sand
20	40.50	30.00	4- Lime Stone/Very shelly sand
21	43.00	30.00	4- Lime Stone/Very shelly sand
22	45.50	40.00	4- Lime Stone/Very shelly sand
23	48.00	30.00	4- Lime Stone/Very shelly sand
24	50.50	10.00	3- Clean sand
25	52.00	20.00	3- Clean sand
26	53.00	14.00	3- Clean sand
27	55.50	20.00	3- Clean sand
28	58.00	15.00	3- Clean sand
29	60.50	60.00	4- Lime Stone/Very shelly sand
30	63.00	16.00	3- Clean sand
31	65.50	29.00	3- Clean sand
32	68.00	24.00	3- Clean sand
33	70.50	15.00	3- Clean sand
34	73.00	13.00	3- Clean sand
35	75.50	12.00	3- Clean sand
36	78.00	12.00	3- Clean sand
37	80.50	15.00	3- Clean sand
38	83.00	22.00	3- Clean sand
39	85.50	21.00	3- Clean sand
40	88.00	20.00	3- Clean sand
41	90.50	13.00	3- Clean sand
42	93.00	12.00	3- Clean sand

43	95.50	20.00	3- Clean sand
44	98.00	60.00	4- Lime Stone/Very shelly sand
45	100.00	60.00	4- Lime Stone/Very shelly sand

Blowcount Average Per Soil Layer

Layer Num.	Starting Elevation (ft)	Bottom Elevation (ft)	Thickness (ft)	Average Blowcount (Blows/ft)	Soil Type
1	16.56	-3.64	20.20	20.06	5-Void
2	-3.64	-8.94	5.30	22.45	2-Clay and silty sand
3	-8.94	-16.44	7.50	30.00	4-Limestone, very Shelly sand
4	-16.44	-23.94	7.50	19.33	2-Clay and Silty Sand
5	-23.94	-33.94	10.00	32.50	4-Limestone, very Shelly sand
6	-33.94	-43.94	10.00	15.75	3-Clean Sand
7	-43.94	-46.44	2.50	60.00	4-Limestone, very Shelly sand
8	-46.44	-81.44	35.00	17.43	3-Clean Sand
9	-81.44	-83.44	2.00	60.00	4-Limestone, very Shelly sand

Driven Pile Data:

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Pile unit weight = 150.00(pcf), Section Type: Square

Pile Geometry:

width (in)	Length (ft)	Tip Elev. (ft)
18.00	10.00	6.56
18.00	11.00	5.56
18.00	12.00	4.56
18.00	13.00	3.56
18.00	14.00	2.56
18.00	15.00	1.56
18.00	16.00	0.56
18.00	17.00	-0.44
18.00	18.00	-1.44
18.00	19.00	-2.44
18.00	20.00	-3.44
18.00	21.00	-4.44
18.00	22.00	-5.44
18.00	23.00	-6.44
18.00	24.00	-7.44
18.00	25.00	-8.44
18.00	26.00	-9.44
18.00	27.00	-10.44
18.00	28.00	-11.44
18.00	29.00	-12.44
18.00	30.00	-13.44
18.00	31.00	-14.44
18.00	32.00	-15.44
18.00	33.00	-16.44
18.00	34.00	-17.44
18.00	35.00	-18.44
18.00	36.00	-19.44
18.00	37.00	-20.44
18.00	38.00	-21.44
18.00	39.00	-22.44
18.00	40.00	-23.44
18.00	41.00	-24.44
18.00	42.00	-25.44
18.00	43.00	-26.44
18.00	44.00	-27.44
18.00	45.00	-28.44
18.00	46.00	-29.44
18.00	47.00	-30.44
18.00	48.00	-31.44
18.00	49.00	-32.44

B-3-Void-20.2ft_Preform(-35ft).out

18.00	50.00	-33.44
18.00	51.00	-34.44
18.00	52.00	-35.44
18.00	53.00	-36.44
18.00	54.00	-37.44
18.00	55.00	-38.44
18.00	56.00	-39.44
18.00	57.00	-40.44
18.00	58.00	-41.44
18.00	59.00	-42.44
18.00	60.00	-43.44
18.00	61.00	-44.44
18.00	62.00	-45.44
18.00	63.00	-46.44
18.00	64.00	-47.44
18.00	65.00	-48.44
18.00	66.00	-49.44
18.00	67.00	-50.44
18.00	68.00	-51.44
18.00	69.00	-52.44
18.00	70.00	-53.44
18.00	71.00	-54.44
18.00	72.00	-55.44
18.00	73.00	-56.44
18.00	74.00	-57.44
18.00	75.00	-58.44
18.00	76.00	-59.44
18.00	77.00	-60.44
18.00	78.00	-61.44
18.00	79.00	-62.44
18.00	80.00	-63.44
18.00	81.00	-64.44
18.00	82.00	-65.44
18.00	83.00	-66.44
18.00	84.00	-67.44
18.00	85.00	-68.44
18.00	86.00	-69.44
18.00	87.00	-70.44
18.00	88.00	-71.44
18.00	89.00	-72.44
18.00	90.00	-73.44
18.00	91.00	-74.44
18.00	92.00	-75.44
18.00	93.00	-76.44
18.00	94.00	-77.44
18.00	95.00	-78.44
24.00	10.00	6.56
24.00	11.00	5.56
24.00	12.00	4.56
24.00	13.00	3.56
24.00	14.00	2.56
24.00	15.00	1.56
24.00	16.00	0.56
24.00	17.00	-0.44
24.00	18.00	-1.44
24.00	19.00	-2.44
24.00	20.00	-3.44
24.00	21.00	-4.44
24.00	22.00	-5.44
24.00	23.00	-6.44
24.00	24.00	-7.44
24.00	25.00	-8.44
24.00	26.00	-9.44
24.00	27.00	-10.44
24.00	28.00	-11.44
24.00	29.00	-12.44
24.00	30.00	-13.44
24.00	31.00	-14.44
24.00	32.00	-15.44
24.00	33.00	-16.44
24.00	34.00	-17.44
24.00	35.00	-18.44
24.00	36.00	-19.44

24.00	37.00	-20.44
24.00	38.00	-21.44
24.00	39.00	-22.44
24.00	40.00	-23.44
24.00	41.00	-24.44
24.00	42.00	-25.44
24.00	43.00	-26.44
24.00	44.00	-27.44
24.00	45.00	-28.44
24.00	46.00	-29.44
24.00	47.00	-30.44
24.00	48.00	-31.44
24.00	49.00	-32.44
24.00	50.00	-33.44
24.00	51.00	-34.44
24.00	52.00	-35.44
24.00	53.00	-36.44
24.00	54.00	-37.44
24.00	55.00	-38.44
24.00	56.00	-39.44
24.00	57.00	-40.44
24.00	58.00	-41.44
24.00	59.00	-42.44
24.00	60.00	-43.44
24.00	61.00	-44.44
24.00	62.00	-45.44
24.00	63.00	-46.44
24.00	64.00	-47.44
24.00	65.00	-48.44
24.00	66.00	-49.44
24.00	67.00	-50.44
24.00	68.00	-51.44
24.00	69.00	-52.44
24.00	70.00	-53.44
24.00	71.00	-54.44
24.00	72.00	-55.44
24.00	73.00	-56.44
24.00	74.00	-57.44
24.00	75.00	-58.44
24.00	76.00	-59.44
24.00	77.00	-60.44
24.00	78.00	-61.44
24.00	79.00	-62.44
24.00	80.00	-63.44
24.00	81.00	-64.44
24.00	82.00	-65.44
24.00	83.00	-66.44
24.00	84.00	-67.44
24.00	85.00	-68.44
24.00	86.00	-69.44
24.00	87.00	-70.44
24.00	88.00	-71.44
24.00	89.00	-72.44
24.00	90.00	-73.44
24.00	91.00	-74.44
24.00	92.00	-75.44
24.00	93.00	-76.44
24.00	94.00	-77.44
24.00	95.00	-78.44

Driven Pile Capacity:

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Section Type: Square
Pile width: 18.00 (in)

Test	Pile	Ultimate	Mobilized	Estimated	Allowable	Ultimate
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Pile Length (ft)	Width (in)	Side Friction (tons)	End Bearing (tons)	Davisson Capacity (tons)	Pile Capacity (tons)	Pile Capacity (tons)
10.00	18.0	0.00	0.00	0.00	0.00	0.00
11.00	18.0	0.00	0.00	0.00	0.00	0.00
12.00	18.0	0.00	0.00	0.00	0.00	0.00
13.00	18.0	0.00	0.00	0.00	0.00	0.00
14.00	18.0	0.00	0.00	0.00	0.00	0.00
15.00	18.0	0.00	0.00	0.00	0.00	0.00
16.00	18.0	0.00	0.00	0.00	0.00	0.00
17.00	18.0	0.00	0.00	0.00	0.00	0.00
18.00	18.0	0.00	0.00	0.00	0.00	0.00
19.00	18.0	0.38	0.00	0.38	0.19	0.38
20.00	18.0	1.53	0.00	1.53	0.77	1.53
21.00	18.0	5.14	23.18	28.33	14.16	74.70
22.00	18.0	9.19	25.55	34.74	17.37	85.85
23.00	18.0	13.21	29.60	42.81	21.40	102.00
24.00	18.0	16.98	35.04	52.02	26.01	122.10
25.00	18.0	20.04	41.43	61.46	30.73	144.31
26.00	18.0	30.53	71.86	102.38	51.19	246.10
27.00	18.0	32.76	66.00	98.76	49.38	230.77
28.00	18.0	34.99	58.14	93.13	46.57	209.41
29.00	18.0	37.22	49.19	86.41	43.20	184.79
30.00	18.0	39.45	39.49	78.94	39.47	157.92
31.00	18.0	41.86	31.50	73.36	36.68	136.35
32.00	18.0	45.49	27.75	73.24	36.62	128.74
33.00	18.0	50.52	26.09	76.60	38.30	128.78
34.00	18.0	55.22	26.61	81.83	40.91	135.04
35.00	18.0	58.54	27.95	86.49	43.24	142.39
36.00	18.0	60.76	30.99	91.74	45.87	153.71
37.00	18.0	63.74	36.04	99.78	49.89	171.87
38.00	18.0	68.04	42.76	110.80	55.40	196.32
39.00	18.0	72.58	51.44	124.01	62.01	226.88
40.00	18.0	76.78	57.06	133.84	66.92	247.96
41.00	18.0	86.27	86.59	172.86	86.43	346.05
42.00	18.0	88.50	87.59	176.09	88.04	351.26
43.00	18.0	90.73	86.07	176.81	88.40	348.96
44.00	18.0	93.11	80.54	173.65	86.83	334.73
45.00	18.0	95.79	70.78	166.57	83.29	308.14
46.00	18.0	98.69	62.05	160.74	80.37	284.83
47.00	18.0	101.37	54.97	156.34	78.17	266.28
48.00	18.0	103.75	48.99	152.74	76.37	250.71
49.00	18.0	105.82	46.71	152.52	76.26	245.93
50.00	18.0	107.56	48.37	155.93	77.96	252.66
51.00	18.0	109.13	43.04	152.17	76.09	238.25
52.00	18.0	111.49	48.24	159.72	79.86	256.20
53.00	18.0	113.89	49.17	163.06	81.53	261.41
54.00	18.0	115.62	50.13	165.75	82.87	266.00
55.00	18.0	116.89	53.20	170.09	85.04	276.49
56.00	18.0	118.07	58.32	176.39	88.20	293.03
57.00	18.0	119.56	62.72	182.28	91.14	307.72
58.00	18.0	121.32	65.46	186.78	93.39	317.70
59.00	18.0	123.47	67.71	191.18	95.59	326.60
60.00	18.0	126.53	69.29	195.82	97.91	334.40
61.00	18.0	136.44	81.01	217.45	108.72	379.46
62.00	18.0	140.02	72.89	212.91	106.45	358.69
63.00	18.0	142.72	72.78	215.50	107.75	361.05
64.00	18.0	145.35	64.83	210.18	105.09	339.84
65.00	18.0	148.72	66.97	215.69	107.84	349.63
66.00	18.0	152.69	66.65	219.34	109.67	352.63
67.00	18.0	156.50	64.27	220.77	110.39	349.30
68.00	18.0	160.04	61.11	221.15	110.57	343.37
69.00	18.0	163.18	57.85	221.02	110.51	336.72
70.00	18.0	165.81	54.89	220.70	110.35	330.47
71.00	18.0	167.98	52.46	220.44	110.22	325.35
72.00	18.0	169.98	50.49	220.47	110.24	321.46
73.00	18.0	171.88	48.91	220.79	110.39	318.61
74.00	18.0	173.69	47.88	221.57	110.78	317.33
75.00	18.0	175.44	47.43	222.87	111.44	317.73
76.00	18.0	177.14	47.67	224.81	112.41	320.15
77.00	18.0	178.84	48.05	226.89	113.44	322.98
78.00	18.0	180.54	48.66	229.19	114.60	326.51

IB 3 (East)
NBR=212tons

B-3-Void-20.2ft_Preform(-35ft).out

79.00	18.0	182.32	49.45	231.77	115.88	330.67
80.00	18.0	184.27	50.19	234.46	117.23	334.83
81.00	18.0	186.42	50.94	237.35	118.68	339.22
82.00	18.0	188.93	51.60	240.53	120.27	343.74
83.00	18.0	191.84	52.09	243.93	121.97	348.11
84.00	18.0	194.93	51.93	246.85	123.43	350.71
85.00	18.0	197.95	51.13	249.08	124.54	351.35
86.00	18.0	200.92	49.88	250.80	125.40	350.55
87.00	18.0	203.83	48.60	252.43	126.21	349.62
88.00	18.0	206.69	47.34	254.03	127.02	348.72
89.00	18.0	209.32	46.97	256.29	128.14	350.23
90.00	18.0	211.55	47.95	259.50	129.75	355.41
91.00	18.0	213.43	51.13	264.56	132.28	366.82
92.00	18.0	215.21	58.50	273.72	136.86	390.72
93.00	18.0	216.94	69.97	286.91	143.45	426.85
94.00	18.0	218.86	82.11	300.97	150.49	465.20
95.00	18.0	Soil Elevations Must Extend At or Below Contribution Zone				

Section Type: Square
Pile width: 24.00 (in)

Test Pile Length (ft)	Pile width (in)	Ultimate Side Friction (tons)	Mobilized End Bearing (tons)	Estimated Davisson Capacity (tons)	Allowable Pile Capacity (tons)	Ultimate Pile Capacity (tons)
10.00	24.0	0.00	0.00	0.00	0.00	0.00
11.00	24.0	0.00	0.00	0.00	0.00	0.00
12.00	24.0	0.00	0.00	0.00	0.00	0.00
13.00	24.0	0.00	0.00	0.00	0.00	0.00
14.00	24.0	0.00	0.00	0.00	0.00	0.00
15.00	24.0	0.00	0.00	0.00	0.00	0.00
16.00	24.0	0.00	0.00	0.00	0.00	0.00
17.00	24.0	0.00	0.00	0.00	0.00	0.00
18.00	24.0	0.00	0.00	0.00	0.00	0.00
19.00	24.0	0.51	0.00	0.51	0.26	0.51
20.00	24.0	2.04	0.00	2.04	1.02	2.04
21.00	24.0	7.11	47.41	54.51	27.26	149.33
22.00	24.0	13.10	49.78	62.87	31.44	162.42
23.00	24.0	18.90	53.82	72.72	36.36	180.36
24.00	24.0	24.01	59.13	83.14	41.57	201.40
25.00	24.0	28.08	64.14	92.22	46.11	220.51
26.00	24.0	40.70	110.92	151.62	75.81	373.47
27.00	24.0	43.68	98.98	142.66	71.33	340.63
28.00	24.0	46.65	86.05	132.71	66.35	304.81
29.00	24.0	49.63	74.91	124.54	62.27	274.35
30.00	24.0	52.61	66.01	118.62	59.31	250.64
31.00	24.0	55.81	60.28	116.10	58.05	236.66
32.00	24.0	60.65	61.08	121.73	60.86	243.88
33.00	24.0	67.35	59.63	126.99	63.49	246.26
34.00	24.0	74.22	59.74	133.95	66.98	253.43
35.00	24.0	79.09	60.82	139.90	69.95	261.54
36.00	24.0	82.55	63.32	145.87	72.93	272.51
37.00	24.0	86.66	68.43	155.09	77.54	291.95
38.00	24.0	91.91	76.59	168.50	84.25	321.69
39.00	24.0	96.99	87.64	184.63	92.32	359.91
40.00	24.0	100.94	99.43	200.37	100.19	399.23
41.00	24.0	115.02	148.17	263.19	131.59	559.52
42.00	24.0	118.00	142.11	260.11	130.06	544.34
43.00	24.0	120.97	133.08	254.06	127.03	520.23
44.00	24.0	124.15	126.08	250.23	125.11	502.39
45.00	24.0	127.72	116.64	244.36	122.18	477.64
46.00	24.0	131.59	104.02	235.61	117.81	443.66
47.00	24.0	135.16	94.98	230.14	115.07	420.11
48.00	24.0	138.33	89.82	228.15	114.08	407.79
49.00	24.0	141.09	87.04	228.13	114.07	402.21
50.00	24.0	143.41	86.97	230.39	115.19	404.33
51.00	24.0	145.51	76.18	221.69	110.84	374.05
52.00	24.0	148.65	87.64	236.29	118.15	411.57
53.00	24.0	151.18	90.52	241.70	120.85	422.75

B-3-Void-20.2ft_Preform(-35ft).out

54.00	24.0	152.76	93.82	246.58	123.29	434.22
55.00	24.0	154.75	97.68	252.43	126.21	447.79
56.00	24.0	157.37	100.64	258.01	129.01	459.30
57.00	24.0	160.01	103.00	263.01	131.50	469.01
58.00	24.0	162.21	106.23	268.44	134.22	480.89
59.00	24.0	164.64	110.30	274.94	137.47	495.55
60.00	24.0	168.29	113.44	281.73	140.87	508.61
61.00	24.0	181.92	139.23	321.14	160.57	599.60
62.00	24.0	186.69	124.17	310.86	155.43	559.20
63.00	24.0	190.30	123.42	313.72	156.86	560.57
64.00	24.0	193.80	109.69	303.49	151.74	522.86
65.00	24.0	198.29	112.94	311.22	155.61	537.10
66.00	24.0	203.58	113.47	317.05	158.52	543.98
67.00	24.0	208.67	110.41	319.09	159.54	539.92
68.00	24.0	213.38	105.98	319.37	159.68	531.33
69.00	24.0	217.57	101.13	318.70	159.35	520.97
70.00	24.0	221.07	96.55	317.63	158.81	510.74
71.00	24.0	223.97	92.65	316.62	158.31	501.92
72.00	24.0	226.64	89.66	316.30	158.15	495.61
73.00	24.0	229.17	87.68	316.85	158.43	492.22
74.00	24.0	231.58	86.71	318.29	159.15	491.71
75.00	24.0	233.92	87.09	321.01	160.51	495.20
76.00	24.0	236.19	88.85	325.04	162.52	502.74
77.00	24.0	238.45	91.28	329.74	164.87	512.30
78.00	24.0	240.71	93.73	334.45	167.22	521.91
79.00	24.0	243.09	96.04	339.13	169.57	531.22
80.00	24.0	245.69	97.82	343.51	171.75	539.14
81.00	24.0	248.55	98.29	346.84	173.42	543.41
82.00	24.0	251.91	96.89	348.80	174.40	542.57
83.00	24.0	255.79	94.01	349.81	174.90	537.83
84.00	24.0	259.90	90.27	350.17	175.09	530.72
85.00	24.0	263.93	86.81	350.75	175.37	524.38
86.00	24.0	267.89	83.89	351.78	175.89	519.55
87.00	24.0	271.78	82.11	353.88	176.94	518.10
88.00	24.0	275.58	81.82	357.40	178.70	521.03
89.00	24.0	279.09	83.78	362.86	181.43	530.42
90.00	24.0	282.07	91.65	373.71	186.86	557.00
91.00	24.0	284.57	105.90	390.47	195.24	602.27
92.00	24.0	286.95	123.25	410.20	205.10	656.71
93.00	24.0	289.25	140.70	429.95	214.97	711.35
94.00	24.0	Soil Elevations Must Extend At or Below Contribution Zone				
95.00	24.0	Soil Elevations Must Extend At or Below Contribution Zone				

NOTES

1. MOBILIZED END BEARING IS 1/3 OF THE ORIGINAL RB-121 VALUES.
2. DAVISSON PILE CAPACITY IS AN ESTIMATE BASED ON FAILURE CRITERIA, AND EQUALS ULTIMATE SIDE FRICTION PLUS MOBILIZED END BEARING.
3. ALLOWABLE PILE CAPACITY IS 1/2 THE DAVISSON PILE CAPACITY.
4. ULTIMATE PILE CAPACITY IS ULTIMATE SIDE FRICTION PLUS 3 x THE MOBILIZED END BEARING.
EXCEPTION: FOR H-PILES TIPPED IN SAND OR LIMESTONE, THE ULTIMATE PILE CAPACITY IS ULTIMATE SIDE FRICTION PLUS 2 x THE MOBILIZED END BEARING.

EB 6 (East)
IB 5 (East)

General Information:

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Input file: e\FB-Deep\Pile\Rev\2-Preform\B-4-Void-12.5ft_Preform(-35ft).in
 Project number: 2000-01-21005
 Job name: CR-880
 Engineer: ZP
 Units: English

Analysis Information:

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Analysis Type: SPT

Soil Information:

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Boring date: 7-15-2022, Boring Number: B-4
 Station number: 11+47 (CL SRR) Offset: +4.1

Ground Elevation: 17.300(ft)

Hammer type: Automatic Hammer, Correction factor = 1.24

ID	Depth (ft)	No. of Blows (Blows/ft)	Soil Type
1	0.00	17.00	5- Cavity layer
2	2.00	6.00	5- Cavity layer
3	4.00	4.00	5- Cavity layer
4	6.00	4.00	5- Cavity layer
5	8.00	6.00	5- Cavity layer
6	10.00	5.00	5- Cavity layer
7	12.00	28.00	5- Cavity layer
8	12.50	14.00	2- Clay and silty sand
9	13.50	16.00	4- Lime Stone/Very shelly sand
10	15.00	8.00	2- Clay and silty sand
11	18.00	5.00	2- Clay and silty sand
12	20.50	30.00	4- Lime Stone/Very shelly sand
13	23.00	30.00	4- Lime Stone/Very shelly sand
14	25.50	15.00	3- Clean sand
15	28.00	30.00	3- Clean sand
16	30.50	4.00	4- Lime Stone/Very shelly sand
17	33.00	4.00	4- Lime Stone/Very shelly sand
18	35.50	30.00	4- Lime Stone/Very shelly sand
19	38.00	30.00	4- Lime Stone/Very shelly sand
20	40.50	30.00	4- Lime Stone/Very shelly sand
21	43.00	30.00	4- Lime Stone/Very shelly sand
22	45.50	30.00	4- Lime Stone/Very shelly sand
23	48.00	30.00	4- Lime Stone/Very shelly sand
24	50.50	6.00	4- Lime Stone/Very shelly sand
25	52.50	12.00	4- Lime Stone/Very shelly sand
26	53.00	12.00	4- Lime Stone/Very shelly sand
27	55.50	9.00	3- Clean sand
28	58.00	7.00	3- Clean sand
29	60.50	14.00	3- Clean sand
30	63.00	14.00	3- Clean sand
31	65.50	16.00	3- Clean sand
32	68.00	9.00	3- Clean sand
33	70.50	15.00	3- Clean sand
34	73.00	16.00	3- Clean sand
35	75.50	10.00	3- Clean sand
36	78.00	10.00	3- Clean sand
37	80.50	11.00	3- Clean sand
38	83.00	17.00	3- Clean sand
39	85.50	12.00	3- Clean sand
40	88.00	7.00	3- Clean sand
41	90.50	10.00	3- Clean sand
42	93.00	7.00	3- Clean sand

43	95.50	26.00	3- Clean sand
44	98.00	85.00	4- Lime Stone/Very shelly sand
45	100.00	85.00	4- Lime Stone/Very shelly sand

Blowcount Average Per Soil Layer

Layer Num.	Starting Elevation (ft)	Bottom Elevation (ft)	Thickness (ft)	Average Blowcount (Blows/ft)	Soil Type
1	17.30	4.80	12.50	7.84	5-Void
2	4.80	3.80	1.00	14.00	2-Clay and silty sand
3	3.80	2.30	1.50	16.00	4-Limestone, very Shelly sand
4	2.30	-3.20	5.50	6.64	2-Clay and Silty Sand
5	-3.20	-8.20	5.00	30.00	4-Limestone, very Shelly sand
6	-8.20	-13.20	5.00	22.50	3-Clean Sand
7	-13.20	-38.20	25.00	20.72	4-Limestone, very Shelly sand
8	-38.20	-80.70	42.50	12.35	3-Clean Sand
9	-80.70	-82.70	2.00	85.00	4-Limestone, very Shelly sand

Driven Pile Data:

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Pile unit weight = 150.00(pcf), Section Type: Square

Pile Geometry:

width (in)	Length (ft)	Tip Elev. (ft)
18.00	10.00	7.30
18.00	11.00	6.30
18.00	12.00	5.30
18.00	13.00	4.30
18.00	14.00	3.30
18.00	15.00	2.30
18.00	16.00	1.30
18.00	17.00	0.30
18.00	18.00	-0.70
18.00	19.00	-1.70
18.00	20.00	-2.70
18.00	21.00	-3.70
18.00	22.00	-4.70
18.00	23.00	-5.70
18.00	24.00	-6.70
18.00	25.00	-7.70
18.00	26.00	-8.70
18.00	27.00	-9.70
18.00	28.00	-10.70
18.00	29.00	-11.70
18.00	30.00	-12.70
18.00	31.00	-13.70
18.00	32.00	-14.70
18.00	33.00	-15.70
18.00	34.00	-16.70
18.00	35.00	-17.70
18.00	36.00	-18.70
18.00	37.00	-19.70
18.00	38.00	-20.70
18.00	39.00	-21.70
18.00	40.00	-22.70
18.00	41.00	-23.70
18.00	42.00	-24.70
18.00	43.00	-25.70
18.00	44.00	-26.70
18.00	45.00	-27.70
18.00	46.00	-28.70
18.00	47.00	-29.70
18.00	48.00	-30.70
18.00	49.00	-31.70

B-4-Void-12.5ft_Preform(-35ft).out

18.00	50.00	-32.70
18.00	51.00	-33.70
18.00	52.00	-34.70
18.00	53.00	-35.70
18.00	54.00	-36.70
18.00	55.00	-37.70
18.00	56.00	-38.70
18.00	57.00	-39.70
18.00	58.00	-40.70
18.00	59.00	-41.70
18.00	60.00	-42.70
18.00	61.00	-43.70
18.00	62.00	-44.70
18.00	63.00	-45.70
18.00	64.00	-46.70
18.00	65.00	-47.70
18.00	66.00	-48.70
18.00	67.00	-49.70
18.00	68.00	-50.70
18.00	69.00	-51.70
18.00	70.00	-52.70
18.00	71.00	-53.70
18.00	72.00	-54.70
18.00	73.00	-55.70
18.00	74.00	-56.70
18.00	75.00	-57.70
18.00	76.00	-58.70
18.00	77.00	-59.70
18.00	78.00	-60.70
18.00	79.00	-61.70
18.00	80.00	-62.70
18.00	81.00	-63.70
18.00	82.00	-64.70
18.00	83.00	-65.70
18.00	84.00	-66.70
18.00	85.00	-67.70
18.00	86.00	-68.70
18.00	87.00	-69.70
18.00	88.00	-70.70
18.00	89.00	-71.70
18.00	90.00	-72.70
18.00	91.00	-73.70
18.00	92.00	-74.70
18.00	93.00	-75.70
18.00	94.00	-76.70
18.00	95.00	-77.70
24.00	10.00	7.30
24.00	11.00	6.30
24.00	12.00	5.30
24.00	13.00	4.30
24.00	14.00	3.30
24.00	15.00	2.30
24.00	16.00	1.30
24.00	17.00	0.30
24.00	18.00	-0.70
24.00	19.00	-1.70
24.00	20.00	-2.70
24.00	21.00	-3.70
24.00	22.00	-4.70
24.00	23.00	-5.70
24.00	24.00	-6.70
24.00	25.00	-7.70
24.00	26.00	-8.70
24.00	27.00	-9.70
24.00	28.00	-10.70
24.00	29.00	-11.70
24.00	30.00	-12.70
24.00	31.00	-13.70
24.00	32.00	-14.70
24.00	33.00	-15.70
24.00	34.00	-16.70
24.00	35.00	-17.70
24.00	36.00	-18.70

B-4-Void-12.5ft_Preform(-35ft).out

24.00	37.00	-19.70
24.00	38.00	-20.70
24.00	39.00	-21.70
24.00	40.00	-22.70
24.00	41.00	-23.70
24.00	42.00	-24.70
24.00	43.00	-25.70
24.00	44.00	-26.70
24.00	45.00	-27.70
24.00	46.00	-28.70
24.00	47.00	-29.70
24.00	48.00	-30.70
24.00	49.00	-31.70
24.00	50.00	-32.70
24.00	51.00	-33.70
24.00	52.00	-34.70
24.00	53.00	-35.70
24.00	54.00	-36.70
24.00	55.00	-37.70
24.00	56.00	-38.70
24.00	57.00	-39.70
24.00	58.00	-40.70
24.00	59.00	-41.70
24.00	60.00	-42.70
24.00	61.00	-43.70
24.00	62.00	-44.70
24.00	63.00	-45.70
24.00	64.00	-46.70
24.00	65.00	-47.70
24.00	66.00	-48.70
24.00	67.00	-49.70
24.00	68.00	-50.70
24.00	69.00	-51.70
24.00	70.00	-52.70
24.00	71.00	-53.70
24.00	72.00	-54.70
24.00	73.00	-55.70
24.00	74.00	-56.70
24.00	75.00	-57.70
24.00	76.00	-58.70
24.00	77.00	-59.70
24.00	78.00	-60.70
24.00	79.00	-61.70
24.00	80.00	-62.70
24.00	81.00	-63.70
24.00	82.00	-64.70
24.00	83.00	-65.70
24.00	84.00	-66.70
24.00	85.00	-67.70
24.00	86.00	-68.70
24.00	87.00	-69.70
24.00	88.00	-70.70
24.00	89.00	-71.70
24.00	90.00	-72.70
24.00	91.00	-73.70
24.00	92.00	-74.70
24.00	93.00	-75.70
24.00	94.00	-76.70
24.00	95.00	-77.70

Driven Pile Capacity:

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Section Type: Square
Pile width: 18.00 (in)

Test	Pile	Ultimate	Mobilized	Estimated	Allowable	Ultimate
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Pile Length (ft)	Width (in)	Side Friction (tons)	End Bearing (tons)	Davisson Capacity (tons)	Pile Capacity (tons)	Pile Capacity (tons)
10.00	18.0	0.00	0.00	0.00	0.00	0.00
11.00	18.0	0.00	0.00	0.00	0.00	0.00
12.00	18.0	0.00	0.00	0.00	0.00	0.00
13.00	18.0	2.78	8.89	11.67	5.83	29.45
14.00	18.0	4.47	19.76	24.22	12.11	63.74
15.00	18.0	6.60	21.77	28.37	14.18	71.92
16.00	18.0	8.97	21.89	30.86	15.43	74.65
17.00	18.0	10.30	23.96	34.26	17.13	82.19
18.00	18.0	11.26	28.04	39.30	19.65	95.39
19.00	18.0	12.32	33.93	46.25	23.13	114.12
20.00	18.0	13.81	40.39	54.20	27.10	134.99
21.00	18.0	19.03	64.51	83.55	41.77	212.58
22.00	18.0	21.27	65.38	86.65	43.32	217.41
23.00	18.0	23.50	65.06	88.56	44.28	218.67
24.00	18.0	25.71	60.40	86.10	43.05	206.89
25.00	18.0	27.87	53.08	80.95	40.48	187.11
26.00	18.0	30.10	50.49	80.59	40.30	181.56
27.00	18.0	33.07	49.85	82.92	41.46	182.62
28.00	18.0	36.89	47.59	84.48	42.24	179.66
29.00	18.0	40.34	44.25	84.60	42.30	173.10
30.00	18.0	42.22	42.53	84.75	42.37	169.81
31.00	18.0	42.71	39.28	81.99	41.00	160.56
32.00	18.0	43.01	50.32	93.33	46.66	193.97
33.00	18.0	43.31	61.36	104.66	52.33	227.37
34.00	18.0	43.99	70.18	114.18	57.09	254.54
35.00	18.0	45.45	74.60	120.05	60.02	269.25
36.00	18.0	47.59	75.15	122.74	61.37	273.04
37.00	18.0	49.82	75.15	124.97	62.48	275.27
38.00	18.0	52.05	75.15	127.20	63.60	277.50
39.00	18.0	54.28	75.15	129.43	64.72	279.73
40.00	18.0	56.51	75.15	131.66	65.83	281.97
41.00	18.0	58.75	75.15	133.90	66.95	284.20
42.00	18.0	60.98	75.15	136.13	68.06	286.43
43.00	18.0	63.21	73.10	136.31	68.15	282.50
44.00	18.0	65.44	66.93	132.37	66.19	266.24
45.00	18.0	67.67	57.32	124.99	62.50	239.64
46.00	18.0	69.91	48.23	118.14	59.07	214.60
47.00	18.0	72.14	40.18	112.32	56.16	192.68
48.00	18.0	74.37	32.25	106.61	53.31	171.11
49.00	18.0	76.24	26.30	102.55	51.27	155.15
50.00	18.0	77.40	24.36	101.77	50.88	150.49
51.00	18.0	77.97	25.52	103.48	51.74	154.52
52.00	18.0	78.64	25.75	104.39	52.19	155.89
53.00	18.0	79.50	25.44	104.95	52.47	155.83
54.00	18.0	80.47	26.41	106.88	53.44	159.70
55.00	18.0	81.59	28.65	110.24	55.12	167.55
56.00	18.0	82.83	27.93	110.76	55.38	166.63
57.00	18.0	83.94	28.29	112.23	56.12	168.81
58.00	18.0	84.86	28.58	113.44	56.72	170.61
59.00	18.0	85.79	29.24	115.03	57.51	173.50
60.00	18.0	86.97	30.27	117.23	58.62	177.77
61.00	18.0	88.42	31.44	119.86	59.93	182.74
62.00	18.0	90.04	32.30	122.34	61.17	186.94
63.00	18.0	91.85	32.68	124.53	62.27	189.89
64.00	18.0	93.75	33.03	126.78	63.39	192.84
65.00	18.0	95.70	33.63	129.33	64.66	196.60
66.00	18.0	97.63	34.52	132.15	66.08	201.19
67.00	18.0	99.22	35.80	135.02	67.51	206.63
68.00	18.0	100.33	37.88	138.21	69.11	213.97
69.00	18.0	101.51	40.03	141.54	70.77	221.61
70.00	18.0	103.28	40.45	143.73	71.86	224.63
71.00	18.0	105.31	39.91	145.22	72.61	225.05
72.00	18.0	107.43	38.91	146.33	73.17	224.14
73.00	18.0	109.61	37.53	147.14	73.57	222.20
74.00	18.0	111.66	36.36	148.02	74.01	220.73
75.00	18.0	113.42	35.67	149.09	74.55	220.44
76.00	18.0	114.91	35.55	150.46	75.23	221.56
77.00	18.0	116.35	36.04	152.40	76.20	224.48
78.00	18.0	117.80	37.13	154.93	77.46	229.18

EB 6 (East)
NBR=126tons

B-4-Void-12.5ft_Preform(-35ft).out

79.00	18.0	119.26	38.26	157.52	78.76	234.04
80.00	18.0	120.78	39.11	159.89	79.94	238.10
81.00	18.0	122.38	39.31	161.69	80.84	240.30
82.00	18.0	124.26	38.30	162.56	81.28	239.16
83.00	18.0	126.46	36.11	162.56	81.28	234.78
84.00	18.0	128.68	33.88	162.57	81.28	230.34
85.00	18.0	130.65	32.27	162.92	81.46	227.46
86.00	18.0	132.35	31.25	163.60	81.80	226.10
87.00	18.0	133.78	30.53	164.31	82.16	225.37
88.00	18.0	134.95	30.12	165.07	82.54	225.32
89.00	18.0	136.06	31.27	167.34	83.67	229.88
90.00	18.0	137.33	34.38	171.72	85.86	240.48
91.00	18.0	138.72	40.81	179.53	89.77	261.15
92.00	18.0	139.99	54.07	194.06	97.03	302.20
93.00	18.0	141.10	74.11	215.21	107.60	363.43
94.00	18.0	142.63	95.31	237.94	118.97	428.57
95.00	18.0	Soil Elevations Must Extend At or Below Contribution Zone				

IB 5 (East)
NBR=172tons

Section Type: Square
Pile width: 24.00 (in)

Test Pile Length (ft)	Pile width (in)	Ultimate Side Friction (tons)	Mobilized End Bearing (tons)	Estimated Davisson Capacity (tons)	Allowable Pile Capacity (tons)	Ultimate Pile Capacity (tons)
10.00	24.0	0.00	0.00	0.00	0.00	0.00
11.00	24.0	0.00	0.00	0.00	0.00	0.00
12.00	24.0	0.00	0.00	0.00	0.00	0.00
13.00	24.0	3.41	17.94	21.35	10.68	57.23
14.00	24.0	5.95	58.99	64.95	32.47	182.93
15.00	24.0	8.79	35.35	44.14	22.07	114.85
16.00	24.0	11.20	37.08	48.27	24.14	122.43
17.00	24.0	12.94	40.52	53.46	26.73	134.50
18.00	24.0	14.40	45.18	59.57	29.79	149.93
19.00	24.0	15.84	51.45	67.28	33.64	170.18
20.00	24.0	17.44	60.57	78.01	39.00	199.15
21.00	24.0	25.38	120.14	145.52	72.76	385.81
22.00	24.0	28.35	112.57	140.93	70.46	366.07
23.00	24.0	31.33	98.75	130.08	65.04	327.58
24.00	24.0	34.28	85.39	119.67	59.83	290.45
25.00	24.0	37.16	74.74	111.91	55.95	261.39
26.00	24.0	40.10	78.29	118.39	59.19	274.96
27.00	24.0	43.79	78.63	122.42	61.21	279.68
28.00	24.0	48.20	79.44	127.64	63.82	286.52
29.00	24.0	52.22	80.20	132.42	66.21	292.81
30.00	24.0	54.69	80.48	135.17	67.59	296.12
31.00	24.0	56.95	85.78	142.73	71.36	314.28
32.00	24.0	57.35	100.49	157.84	78.92	358.82
33.00	24.0	57.74	115.21	172.95	86.48	403.37
34.00	24.0	58.66	126.98	185.64	92.82	439.59
35.00	24.0	60.60	132.87	193.47	96.73	459.20
36.00	24.0	63.45	133.60	197.05	98.52	464.25
37.00	24.0	66.42	133.60	200.02	100.01	467.23
38.00	24.0	69.40	133.60	203.00	101.50	470.20
39.00	24.0	72.37	133.60	205.98	102.99	473.18
40.00	24.0	75.35	133.60	208.95	104.48	476.15
41.00	24.0	78.33	130.86	209.19	104.59	470.91
42.00	24.0	81.30	122.64	203.95	101.97	449.23
43.00	24.0	84.28	109.83	194.11	97.05	413.76
44.00	24.0	87.25	97.71	184.97	92.48	380.39
45.00	24.0	90.23	86.97	177.21	88.60	351.15
46.00	24.0	93.21	76.39	169.60	84.80	322.39
47.00	24.0	96.18	65.73	161.91	80.96	293.37
48.00	24.0	99.16	54.93	154.09	77.04	263.94
49.00	24.0	101.66	46.39	148.05	74.02	240.82
50.00	24.0	103.21	42.80	146.01	73.00	231.61
51.00	24.0	103.96	44.47	148.43	74.21	237.37
52.00	24.0	104.85	47.30	152.15	76.07	246.74
53.00	24.0	106.00	50.36	156.36	78.18	257.08

B-4-Void-12.5ft_Preform(-35ft).out

54.00	24.0	107.30	53.50	160.79	80.40	267.79
55.00	24.0	108.79	56.72	165.51	82.75	278.95
56.00	24.0	110.44	52.32	162.76	81.38	267.40
57.00	24.0	111.99	53.61	165.59	82.80	272.80
58.00	24.0	113.38	55.50	168.88	84.44	279.87
59.00	24.0	114.77	56.58	171.35	85.68	284.51
60.00	24.0	116.55	57.36	173.90	86.95	288.62
61.00	24.0	118.82	57.97	176.79	88.39	292.73
62.00	24.0	121.23	58.42	179.65	89.82	296.49
63.00	24.0	123.56	59.09	182.65	91.33	300.84
64.00	24.0	125.85	60.08	185.93	92.96	306.08
65.00	24.0	128.27	61.16	189.43	94.71	311.75
66.00	24.0	130.75	62.32	193.07	96.53	317.70
67.00	24.0	132.88	63.46	196.34	98.17	323.27
68.00	24.0	134.66	64.37	199.03	99.52	327.78
69.00	24.0	136.58	64.80	201.38	100.69	330.97
70.00	24.0	139.06	64.76	203.82	101.91	333.33
71.00	24.0	142.07	64.22	206.29	103.15	334.74
72.00	24.0	145.20	63.69	208.90	104.45	336.28
73.00	24.0	148.33	63.46	211.79	105.90	338.72
74.00	24.0	151.15	63.56	214.71	107.35	341.82
75.00	24.0	153.49	64.59	218.09	109.04	347.27
76.00	24.0	155.45	66.52	221.98	110.99	355.03
77.00	24.0	157.36	68.19	225.55	112.78	361.93
78.00	24.0	159.27	69.04	228.31	114.15	366.38
79.00	24.0	161.21	69.09	230.30	115.15	368.48
80.00	24.0	163.22	68.24	231.45	115.73	367.92
81.00	24.0	165.35	66.35	231.70	115.85	364.41
82.00	24.0	167.86	63.81	231.67	115.83	359.28
83.00	24.0	170.81	61.59	232.40	116.20	355.59
84.00	24.0	173.80	60.14	233.94	116.97	354.21
85.00	24.0	176.43	58.80	235.23	117.62	352.83
86.00	24.0	178.70	57.04	235.73	117.87	349.81
87.00	24.0	180.60	56.55	237.15	118.58	350.26
88.00	24.0	182.13	59.26	241.39	120.70	359.91
89.00	24.0	183.59	65.65	249.24	124.62	380.53
90.00	24.0	185.27	80.34	265.61	132.80	426.28
91.00	24.0	187.11	104.41	291.52	145.76	500.35
92.00	24.0	188.78	133.62	322.40	161.20	589.65
93.00	24.0	190.24	163.13	353.37	176.69	679.64
94.00	24.0	Soil Elevations Must Extend At or Below Contribution Zone				
95.00	24.0	Soil Elevations Must Extend At or Below Contribution Zone				

NOTES

1. MOBILIZED END BEARING IS 1/3 OF THE ORIGINAL RB-121 VALUES.
2. DAVISSON PILE CAPACITY IS AN ESTIMATE BASED ON FAILURE CRITERIA, AND EQUALS ULTIMATE SIDE FRICTION PLUS MOBILIZED END BEARING.
3. ALLOWABLE PILE CAPACITY IS 1/2 THE DAVISSON PILE CAPACITY.
4. ULTIMATE PILE CAPACITY IS ULTIMATE SIDE FRICTION PLUS 3 x THE MOBILIZED END BEARING.
EXCEPTION: FOR H-PILES TIPPED IN SAND OR LIMESTONE, THE ULTIMATE PILE CAPACITY IS ULTIMATE SIDE FRICTION PLUS 2 x THE MOBILIZED END BEARING.

General Information:

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Input file: e\FB-Deep\Pile\Rev\2-Preform\B-4-Void-21.0ft_Preform(-35ft).in
 Project number: 2000-01-21005
 Job name: CR-880
 Engineer: ZP
 Units: English

Analysis Information:

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Analysis Type: SPT

Soil Information:

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Boring date: 7-15-2022, Boring Number: B-4
 Station number: 11+47 (CL SRR) Offset: +4.1

Ground Elevation: 17.300(ft)

Hammer type: Automatic Hammer, Correction factor = 1.24

ID	Depth (ft)	No. of Blows (Blows/ft)	Soil Type

1	0.00	17.00	5- Cavity layer
2	2.00	6.00	5- Cavity layer
3	4.00	4.00	5- Cavity layer
4	6.00	4.00	5- Cavity layer
5	8.00	6.00	5- Cavity layer
6	10.00	5.00	5- Cavity layer
7	12.00	28.00	5- Cavity layer
8	13.50	32.00	5- Cavity layer
9	15.00	16.00	5- Cavity layer
10	18.00	9.00	5- Cavity layer
11	20.50	60.00	5- Cavity layer
12	21.00	30.00	4- Lime Stone/Very shelly sand
13	23.00	30.00	4- Lime Stone/Very shelly sand
14	25.50	15.00	3- Clean sand
15	28.00	30.00	3- Clean sand
16	30.50	4.00	4- Lime Stone/Very shelly sand
17	33.00	4.00	4- Lime Stone/Very shelly sand
18	35.50	30.00	4- Lime Stone/Very shelly sand
19	38.00	30.00	4- Lime Stone/Very shelly sand
20	40.50	30.00	4- Lime Stone/Very shelly sand
21	43.00	30.00	4- Lime Stone/Very shelly sand
22	45.50	30.00	4- Lime Stone/Very shelly sand
23	48.00	30.00	4- Lime Stone/Very shelly sand
24	50.50	6.00	4- Lime Stone/Very shelly sand
25	52.50	12.00	4- Lime Stone/Very shelly sand
26	53.00	12.00	4- Lime Stone/Very shelly sand
27	55.50	9.00	3- Clean sand
28	58.00	7.00	3- Clean sand
29	60.50	14.00	3- Clean sand
30	63.00	14.00	3- Clean sand
31	65.50	16.00	3- Clean sand
32	68.00	9.00	3- Clean sand
33	70.50	15.00	3- Clean sand
34	73.00	16.00	3- Clean sand
35	75.50	10.00	3- Clean sand
36	78.00	10.00	3- Clean sand
37	80.50	11.00	3- Clean sand
38	83.00	17.00	3- Clean sand
39	85.50	12.00	3- Clean sand
40	88.00	7.00	3- Clean sand
41	90.50	10.00	3- Clean sand
42	93.00	7.00	3- Clean sand

43	95.50	26.00	3- Clean sand
44	98.00	85.00	4- Lime Stone/Very shelly sand
45	100.00	85.00	4- Lime Stone/Very shelly sand

Blowcount Average Per Soil Layer

Layer Num.	Starting Elevation (ft)	Bottom Elevation (ft)	Thickness (ft)	Average Blowcount (Blows/ft)	Soil Type
1	17.30	-3.70	21.00	13.07	5-Void
2	-3.70	-8.20	4.50	30.00	4-Limestone, very shelly sand
3	-8.20	-13.20	5.00	22.50	3-Clean Sand
4	-13.20	-38.20	25.00	20.72	4-Limestone, very shelly sand
5	-38.20	-80.70	42.50	12.35	3-Clean Sand
6	-80.70	-82.70	2.00	85.00	4-Limestone, very shelly sand

Driven Pile Data:

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Pile unit weight = 150.00(pcf), Section Type: Square

Pile Geometry:

Width (in)	Length (ft)	Tip Elev. (ft)
18.00	10.00	7.30
18.00	11.00	6.30
18.00	12.00	5.30
18.00	13.00	4.30
18.00	14.00	3.30
18.00	15.00	2.30
18.00	16.00	1.30
18.00	17.00	0.30
18.00	18.00	-0.70
18.00	19.00	-1.70
18.00	20.00	-2.70
18.00	21.00	-3.70
18.00	22.00	-4.70
18.00	23.00	-5.70
18.00	24.00	-6.70
18.00	25.00	-7.70
18.00	26.00	-8.70
18.00	27.00	-9.70
18.00	28.00	-10.70
18.00	29.00	-11.70
18.00	30.00	-12.70
18.00	31.00	-13.70
18.00	32.00	-14.70
18.00	33.00	-15.70
18.00	34.00	-16.70
18.00	35.00	-17.70
18.00	36.00	-18.70
18.00	37.00	-19.70
18.00	38.00	-20.70
18.00	39.00	-21.70
18.00	40.00	-22.70
18.00	41.00	-23.70
18.00	42.00	-24.70
18.00	43.00	-25.70
18.00	44.00	-26.70
18.00	45.00	-27.70
18.00	46.00	-28.70
18.00	47.00	-29.70
18.00	48.00	-30.70
18.00	49.00	-31.70
18.00	50.00	-32.70
18.00	51.00	-33.70
18.00	52.00	-34.70

B-4-Void-21.0ft_Preform(-35ft).out

18.00	53.00	-35.70
18.00	54.00	-36.70
18.00	55.00	-37.70
18.00	56.00	-38.70
18.00	57.00	-39.70
18.00	58.00	-40.70
18.00	59.00	-41.70
18.00	60.00	-42.70
18.00	61.00	-43.70
18.00	62.00	-44.70
18.00	63.00	-45.70
18.00	64.00	-46.70
18.00	65.00	-47.70
18.00	66.00	-48.70
18.00	67.00	-49.70
18.00	68.00	-50.70
18.00	69.00	-51.70
18.00	70.00	-52.70
18.00	71.00	-53.70
18.00	72.00	-54.70
18.00	73.00	-55.70
18.00	74.00	-56.70
18.00	75.00	-57.70
18.00	76.00	-58.70
18.00	77.00	-59.70
18.00	78.00	-60.70
18.00	79.00	-61.70
18.00	80.00	-62.70
18.00	81.00	-63.70
18.00	82.00	-64.70
18.00	83.00	-65.70
18.00	84.00	-66.70
18.00	85.00	-67.70
18.00	86.00	-68.70
18.00	87.00	-69.70
18.00	88.00	-70.70
18.00	89.00	-71.70
18.00	90.00	-72.70
18.00	91.00	-73.70
18.00	92.00	-74.70
18.00	93.00	-75.70
18.00	94.00	-76.70
18.00	95.00	-77.70
24.00	10.00	7.30
24.00	11.00	6.30
24.00	12.00	5.30
24.00	13.00	4.30
24.00	14.00	3.30
24.00	15.00	2.30
24.00	16.00	1.30
24.00	17.00	0.30
24.00	18.00	-0.70
24.00	19.00	-1.70
24.00	20.00	-2.70
24.00	21.00	-3.70
24.00	22.00	-4.70
24.00	23.00	-5.70
24.00	24.00	-6.70
24.00	25.00	-7.70
24.00	26.00	-8.70
24.00	27.00	-9.70
24.00	28.00	-10.70
24.00	29.00	-11.70
24.00	30.00	-12.70
24.00	31.00	-13.70
24.00	32.00	-14.70
24.00	33.00	-15.70
24.00	34.00	-16.70
24.00	35.00	-17.70
24.00	36.00	-18.70
24.00	37.00	-19.70
24.00	38.00	-20.70
24.00	39.00	-21.70

24.00	40.00	-22.70
24.00	41.00	-23.70
24.00	42.00	-24.70
24.00	43.00	-25.70
24.00	44.00	-26.70
24.00	45.00	-27.70
24.00	46.00	-28.70
24.00	47.00	-29.70
24.00	48.00	-30.70
24.00	49.00	-31.70
24.00	50.00	-32.70
24.00	51.00	-33.70
24.00	52.00	-34.70
24.00	53.00	-35.70
24.00	54.00	-36.70
24.00	55.00	-37.70
24.00	56.00	-38.70
24.00	57.00	-39.70
24.00	58.00	-40.70
24.00	59.00	-41.70
24.00	60.00	-42.70
24.00	61.00	-43.70
24.00	62.00	-44.70
24.00	63.00	-45.70
24.00	64.00	-46.70
24.00	65.00	-47.70
24.00	66.00	-48.70
24.00	67.00	-49.70
24.00	68.00	-50.70
24.00	69.00	-51.70
24.00	70.00	-52.70
24.00	71.00	-53.70
24.00	72.00	-54.70
24.00	73.00	-55.70
24.00	74.00	-56.70
24.00	75.00	-57.70
24.00	76.00	-58.70
24.00	77.00	-59.70
24.00	78.00	-60.70
24.00	79.00	-61.70
24.00	80.00	-62.70
24.00	81.00	-63.70
24.00	82.00	-64.70
24.00	83.00	-65.70
24.00	84.00	-66.70
24.00	85.00	-67.70
24.00	86.00	-68.70
24.00	87.00	-69.70
24.00	88.00	-70.70
24.00	89.00	-71.70
24.00	90.00	-72.70
24.00	91.00	-73.70
24.00	92.00	-74.70
24.00	93.00	-75.70
24.00	94.00	-76.70
24.00	95.00	-77.70

Driven Pile Capacity:

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Section Type: Square
Pile width: 18.00 (in)

Test Pile Length (ft)	Pile width (in)	Ultimate Side Friction (tons)	Mobilized End Bearing (tons)	Estimated Davisson Capacity (tons)	Allowable Pile Capacity (tons)	Ultimate Pile Capacity (tons)
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B-4-Void-21.0ft_Preform(-35ft).out

10.00	18.0	0.00	0.00	0.00	0.00	0.00
11.00	18.0	0.00	0.00	0.00	0.00	0.00
12.00	18.0	0.00	0.00	0.00	0.00	0.00
13.00	18.0	0.00	0.00	0.00	0.00	0.00
14.00	18.0	0.00	0.00	0.00	0.00	0.00
15.00	18.0	0.00	0.00	0.00	0.00	0.00
16.00	18.0	0.00	0.00	0.00	0.00	0.00
17.00	18.0	0.00	0.00	0.00	0.00	0.00
18.00	18.0	0.00	0.00	0.00	0.00	0.00
19.00	18.0	0.00	0.00	0.00	0.00	0.00
20.00	18.0	0.00	0.00	0.00	0.00	0.00
21.00	18.0	0.56	64.51	65.07	32.54	194.10
22.00	18.0	2.79	65.38	68.17	34.09	198.93
23.00	18.0	5.02	65.06	70.08	35.04	200.20
24.00	18.0	7.23	60.40	67.63	33.81	188.42
25.00	18.0	9.40	53.08	62.48	31.24	168.64
26.00	18.0	11.63	50.49	62.12	31.06	163.09
27.00	18.0	14.60	49.85	64.45	32.22	164.15
28.00	18.0	18.41	47.59	66.00	33.00	161.19
29.00	18.0	21.87	44.25	66.12	33.06	154.63
30.00	18.0	23.74	42.53	66.27	33.14	151.34
31.00	18.0	24.24	39.28	63.52	31.76	142.08
32.00	18.0	24.53	50.32	74.85	37.43	175.49
33.00	18.0	24.83	61.36	86.19	43.09	208.90
34.00	18.0	25.52	70.18	95.70	47.85	236.07
35.00	18.0	26.97	74.60	101.57	50.79	250.77
36.00	18.0	29.11	75.15	104.26	52.13	254.56
37.00	18.0	31.34	75.15	106.49	53.25	256.79
38.00	18.0	33.57	75.15	108.72	54.36	259.03
39.00	18.0	35.81	75.15	110.96	55.48	261.26
40.00	18.0	38.04	75.15	113.19	56.59	263.49
41.00	18.0	40.27	75.15	115.42	57.71	265.72
42.00	18.0	42.50	75.15	117.65	58.83	267.95
43.00	18.0	44.73	73.10	117.83	58.91	264.02
44.00	18.0	46.97	66.93	113.90	56.95	247.76
45.00	18.0	49.20	57.32	106.52	53.26	221.16
46.00	18.0	51.43	48.23	99.66	49.83	196.13
47.00	18.0	53.66	40.18	93.84	46.92	174.20
48.00	18.0	55.89	32.25	88.14	44.07	152.63
49.00	18.0	57.77	26.30	84.07	42.03	136.67
50.00	18.0	58.93	24.36	83.29	41.65	132.02
51.00	18.0	59.49	25.52	85.01	42.50	136.04
52.00	18.0	60.16	25.75	85.91	42.96	137.41
53.00	18.0	61.03	25.44	86.47	43.23	137.36
54.00	18.0	62.00	26.41	88.40	44.20	141.22
55.00	18.0	63.12	28.65	91.77	45.88	149.07
56.00	18.0	64.35	27.93	92.29	46.14	148.15
57.00	18.0	65.47	28.29	93.76	46.88	150.33
58.00	18.0	66.39	28.58	94.97	47.48	152.13
59.00	18.0	67.31	29.24	96.55	48.27	155.02
60.00	18.0	68.49	30.27	98.76	49.38	159.29
61.00	18.0	69.94	31.44	101.38	50.69	164.26
62.00	18.0	71.57	32.30	103.87	51.93	168.46
63.00	18.0	73.37	32.68	106.05	53.03	171.42
64.00	18.0	75.27	33.03	108.30	54.15	174.36
65.00	18.0	77.22	33.63	110.85	55.43	178.12
66.00	18.0	79.16	34.52	113.68	56.84	182.72
67.00	18.0	80.74	35.80	116.55	58.27	188.16
68.00	18.0	81.86	37.88	119.74	59.87	195.49
69.00	18.0	83.03	40.03	123.07	61.53	203.13
70.00	18.0	84.80	40.45	125.25	62.63	206.16
71.00	18.0	86.83	39.91	126.75	63.37	206.58
72.00	18.0	88.95	38.91	127.86	63.93	205.67
73.00	18.0	91.13	37.53	128.66	64.33	203.72
74.00	18.0	93.19	36.36	129.54	64.77	202.25
75.00	18.0	94.94	35.67	130.62	65.31	201.97
76.00	18.0	96.43	35.55	131.98	65.99	203.09
77.00	18.0	97.88	36.04	133.92	66.96	206.00
78.00	18.0	99.32	37.13	136.45	68.22	210.71
79.00	18.0	100.79	38.26	139.05	69.52	215.56
80.00	18.0	102.30	39.11	141.41	70.70	219.62
81.00	18.0	103.90	39.31	143.21	71.61	221.82

B-4-Void-21.0ft_Preform(-35ft).out

82.00	18.0	105.78	38.30	144.08	72.04	220.68
83.00	18.0	107.98	36.11	144.09	72.04	216.30
84.00	18.0	110.21	33.88	144.09	72.05	211.86
85.00	18.0	112.17	32.27	144.44	72.22	208.99
86.00	18.0	113.87	31.25	145.12	72.56	207.63
87.00	18.0	115.31	30.53	145.83	72.92	206.89
88.00	18.0	116.47	30.12	146.60	73.30	206.85
89.00	18.0	117.59	31.27	148.86	74.43	211.40
90.00	18.0	118.86	34.38	153.24	76.62	222.01
91.00	18.0	120.25	40.81	161.06	80.53	242.68
92.00	18.0	121.52	54.07	175.59	87.79	283.72
93.00	18.0	122.62	74.11	196.73	98.37	344.96
94.00	18.0	124.16	95.31	219.47	109.73	410.09
95.00	18.0	Soil Elevations Must Extend At or Below Contribution Zone				

IB 4 (East)
NBR=212tons

Section Type: Square
Pile width: 24.00 (in)

Test Pile Length (ft)	Pile width (in)	Ultimate Side Friction (tons)	Mobilized End Bearing (tons)	Estimated Davisson Capacity (tons)	Allowable Pile Capacity (tons)	Ultimate Pile Capacity (tons)
10.00	24.0	0.00	0.00	0.00	0.00	0.00
11.00	24.0	0.00	0.00	0.00	0.00	0.00
12.00	24.0	0.00	0.00	0.00	0.00	0.00
13.00	24.0	0.00	0.00	0.00	0.00	0.00
14.00	24.0	0.00	0.00	0.00	0.00	0.00
15.00	24.0	0.00	0.00	0.00	0.00	0.00
16.00	24.0	0.00	0.00	0.00	0.00	0.00
17.00	24.0	0.00	0.00	0.00	0.00	0.00
18.00	24.0	0.00	0.00	0.00	0.00	0.00
19.00	24.0	0.00	0.00	0.00	0.00	0.00
20.00	24.0	0.00	0.00	0.00	0.00	0.00
21.00	24.0	0.74	120.14	120.89	60.44	361.18
22.00	24.0	3.72	112.57	116.29	58.15	341.43
23.00	24.0	6.70	98.75	105.45	52.72	302.94
24.00	24.0	9.64	85.39	95.03	47.52	265.81
25.00	24.0	12.53	74.74	87.27	43.64	236.76
26.00	24.0	15.47	78.29	93.75	46.88	250.32
27.00	24.0	19.16	78.63	97.79	48.89	255.05
28.00	24.0	23.56	79.44	103.00	51.50	261.88
29.00	24.0	27.58	80.20	107.78	53.89	268.18
30.00	24.0	30.06	80.48	110.54	55.27	271.49
31.00	24.0	32.31	85.78	118.09	59.05	289.65
32.00	24.0	32.71	100.49	133.20	66.60	334.19
33.00	24.0	33.11	115.21	148.32	74.16	378.73
34.00	24.0	34.02	126.98	161.00	80.50	414.96
35.00	24.0	35.96	132.87	168.83	84.42	434.56
36.00	24.0	38.81	133.60	172.41	86.21	439.62
37.00	24.0	41.79	133.60	175.39	87.69	442.59
38.00	24.0	44.76	133.60	178.37	89.18	445.57
39.00	24.0	47.74	133.60	181.34	90.67	448.54
40.00	24.0	50.72	133.60	184.32	92.16	451.52
41.00	24.0	53.69	130.86	184.55	92.28	446.28
42.00	24.0	56.67	122.64	179.31	89.66	424.60
43.00	24.0	59.64	109.83	169.47	84.74	389.13
44.00	24.0	62.62	97.71	160.33	80.17	355.75
45.00	24.0	65.60	86.97	152.57	76.29	326.52
46.00	24.0	68.57	76.39	144.97	72.48	297.76
47.00	24.0	71.55	65.73	137.28	68.64	268.74
48.00	24.0	74.52	54.93	129.45	64.73	239.30
49.00	24.0	77.02	46.39	123.41	61.71	216.19
50.00	24.0	78.57	42.80	121.37	60.69	206.97
51.00	24.0	79.32	44.47	123.79	61.90	212.74
52.00	24.0	80.22	47.30	127.51	63.76	222.10
53.00	24.0	81.37	50.36	131.73	65.86	232.44
54.00	24.0	82.66	53.50	136.16	68.08	243.15
55.00	24.0	84.15	56.72	140.87	70.44	254.31
56.00	24.0	85.81	52.32	138.13	69.06	242.77

B-4-Void-21.0ft_Preform(-35ft).out

57.00	24.0	87.35	53.61	140.96	70.48	248.17
58.00	24.0	88.75	55.50	144.24	72.12	255.23
59.00	24.0	90.13	56.58	146.72	73.36	259.88
60.00	24.0	91.91	57.36	149.27	74.63	263.98
61.00	24.0	94.19	57.97	152.15	76.08	268.09
62.00	24.0	96.59	58.42	155.01	77.51	271.86
63.00	24.0	98.92	59.09	158.02	79.01	276.20
64.00	24.0	101.22	60.08	161.29	80.65	281.44
65.00	24.0	103.63	61.16	164.79	82.40	287.12
66.00	24.0	106.11	62.32	168.43	84.22	293.07
67.00	24.0	108.24	63.46	171.71	85.85	298.64
68.00	24.0	110.02	64.37	174.40	87.20	303.14
69.00	24.0	111.95	64.80	176.74	88.37	306.34
70.00	24.0	114.43	64.76	179.18	89.59	308.69
71.00	24.0	117.44	64.22	181.66	90.83	310.10
72.00	24.0	120.57	63.69	184.26	92.13	311.65
73.00	24.0	123.69	63.46	187.16	93.58	314.08
74.00	24.0	126.52	63.56	190.07	95.04	317.18
75.00	24.0	128.86	64.59	193.45	96.73	322.64
76.00	24.0	130.82	66.52	197.34	98.67	330.39
77.00	24.0	132.73	68.19	200.92	100.46	337.29
78.00	24.0	134.63	69.04	203.67	101.84	341.75
79.00	24.0	136.57	69.09	205.66	102.83	343.84
80.00	24.0	138.58	68.24	206.82	103.41	343.29
81.00	24.0	140.71	66.35	207.07	103.53	339.77
82.00	24.0	143.23	63.81	207.03	103.52	334.65
83.00	24.0	146.18	61.59	207.77	103.88	330.95
84.00	24.0	149.17	60.14	209.31	104.65	329.58
85.00	24.0	151.80	58.80	210.60	105.30	328.20
86.00	24.0	154.06	57.04	211.10	105.55	325.17
87.00	24.0	155.96	56.55	212.52	106.26	325.63
88.00	24.0	157.50	59.26	216.76	108.38	335.28
89.00	24.0	158.96	65.65	224.60	112.30	355.90
90.00	24.0	160.63	80.34	240.97	120.49	401.65
91.00	24.0	162.47	104.41	266.89	133.44	475.72
92.00	24.0	164.15	133.62	297.77	148.89	565.01
93.00	24.0	165.60	163.13	328.74	164.37	655.00
94.00	24.0	Soil Elevations Must Extend At or Below Contribution Zone				
95.00	24.0	Soil Elevations Must Extend At or Below Contribution Zone				

NOTES

1. MOBILIZED END BEARING IS 1/3 OF THE ORIGINAL RB-121 VALUES.
2. DAVISSEON PILE CAPACITY IS AN ESTIMATE BASED ON FAILURE CRITERIA, AND EQUALS ULTIMATE SIDE FRICTION PLUS MOBILIZED END BEARING.
3. ALLOWABLE PILE CAPACITY IS 1/2 THE DAVISSEON PILE CAPACITY.
4. ULTIMATE PILE CAPACITY IS ULTIMATE SIDE FRICTION PLUS 3 x THE MOBILIZED END BEARING.
EXCEPTION: FOR H-PILES TIPPED IN SAND OR LIMESTONE, THE ULTIMATE PILE CAPACITY IS ULTIMATE SIDE FRICTION PLUS 2 x THE MOBILIZED END BEARING.

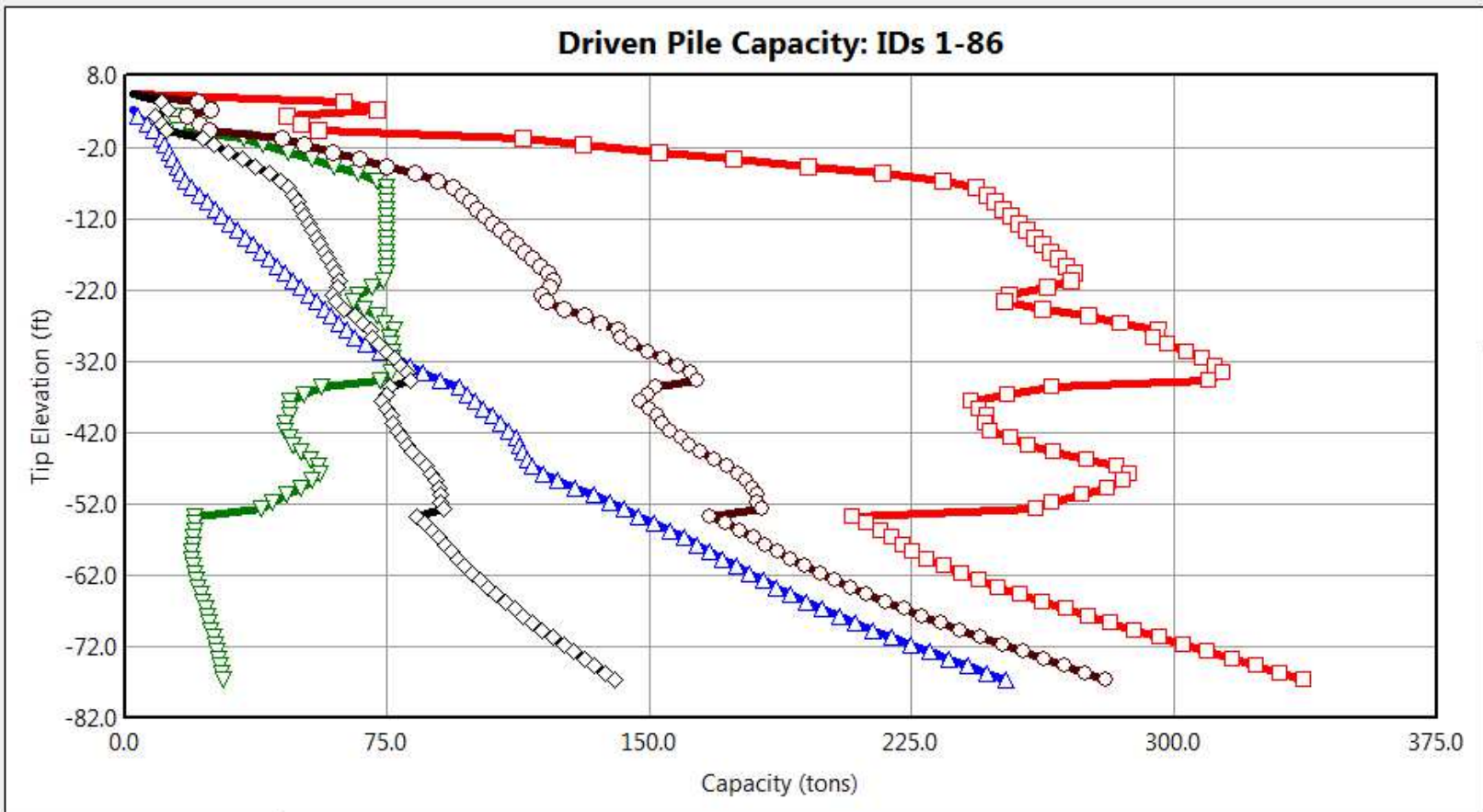
APPENDIX – B

GRAPHS – VERTICAL CAPACITY ANALYSIS OF

PRECAST CONCRETE PILES

Job Name: CR-880

State Job (Project) #: 2000-01-21005



Curves

☒ Ultimate Side Friction☒ Mobilized End Bearing☒ Ultimate Pile Capacity☒ Estimated Davisson Capacity☒ Allowable Pile Capacity

*The 'Save to File' button saves the currently selected Curves to a text file.

Driven Pile Data

Boring Number: B-1
Ground Surface Elevation 17.34 (ft)
Section: Square
Width 18.00 (in)

Project Data

File: B-1-Void-12
Date: Sep 05, 2023
Engineer: ZP

Analysis Data

Analysis Type: SPT

Plot Options

CustomizeUpdate PlotPrint PlotPrint WindowSave To File

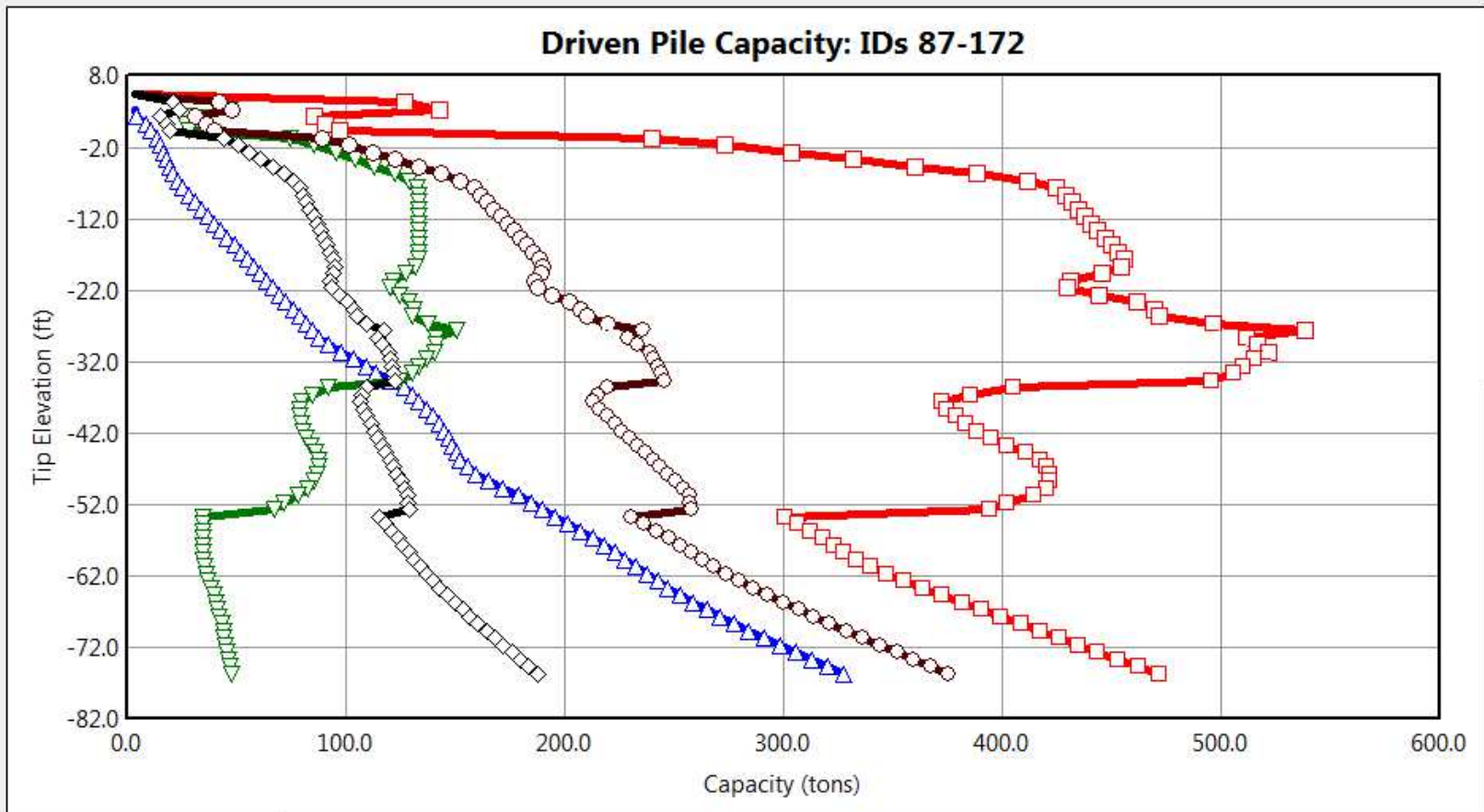
SSP-97D

Close

B-1-Void-12.5ft_Preform(-35ft).in

Job Name: CR-880

State Job (Project) #: 2000-01-21005



Curves

☒ Ultimate Side Friction☒ Mobilized End Bearing☒ Ultimate Pile Capacity☒ Estimated Davisson Capacity☒ Allowable Pile Capacity

*The 'Save to File' button saves the currently selected Curves to a text file.

Driven Pile Data

Boring Number: B-1
Ground Surface Elevation 17.34 (ft)
Section: Square
Width 24.00 (in)

Project Data

File: B-1-Void-12
Date: Sep 05, 2023
Engineer: ZP

Analysis Data

Analysis Type: SPT

Plot Options

CustomizeUpdate PlotPrint PlotPrint WindowSave To File

SSP-98D

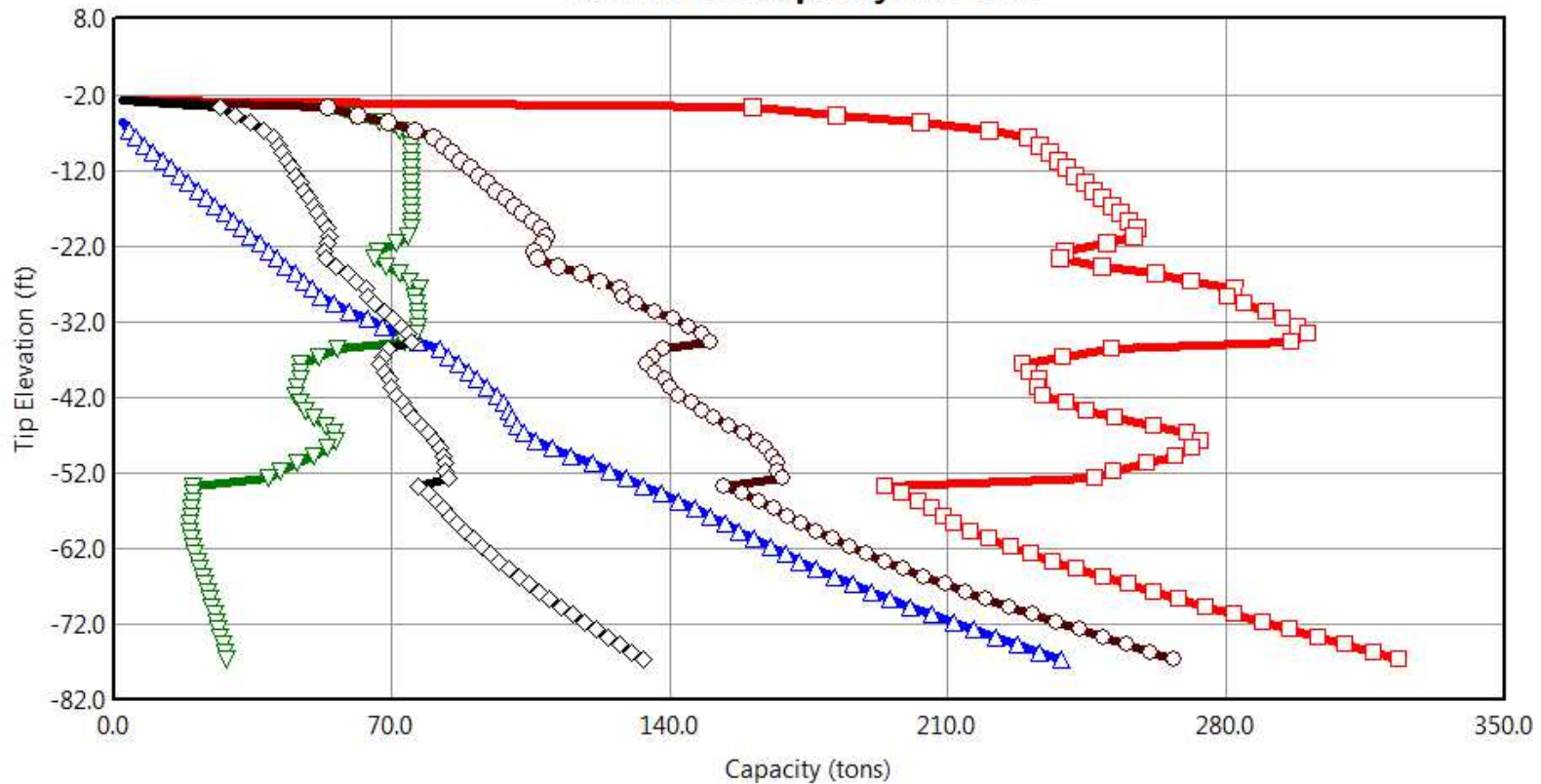
Close

B-1-Void-12.5ft_Preform(-35ft).in

Job Name: CR-880

State Job (Project) #: 2000-01-21005

Driven Pile Capacity: IDs 1-86



Curves

☒ Ultimate Side Friction☒ Mobilized End Bearing☒ Ultimate Pile Capacity☒ Estimated Davisson Capacity☒ Allowable Pile Capacity

*The 'Save to File' button saves the currently selected Curves to a text file.

Driven Pile Data

Boring Number: B-1
Ground Surface Elevation 17.34 (ft)
Section: Square
Width 18.00 (in)

Project Data

File: B-1-Void-21
Date: Sep 05, 2023
Engineer: ZP

Analysis Data

Analysis Type: SPT

Plot Options

CustomizeUpdate PlotPrint PlotPrint WindowSave To File

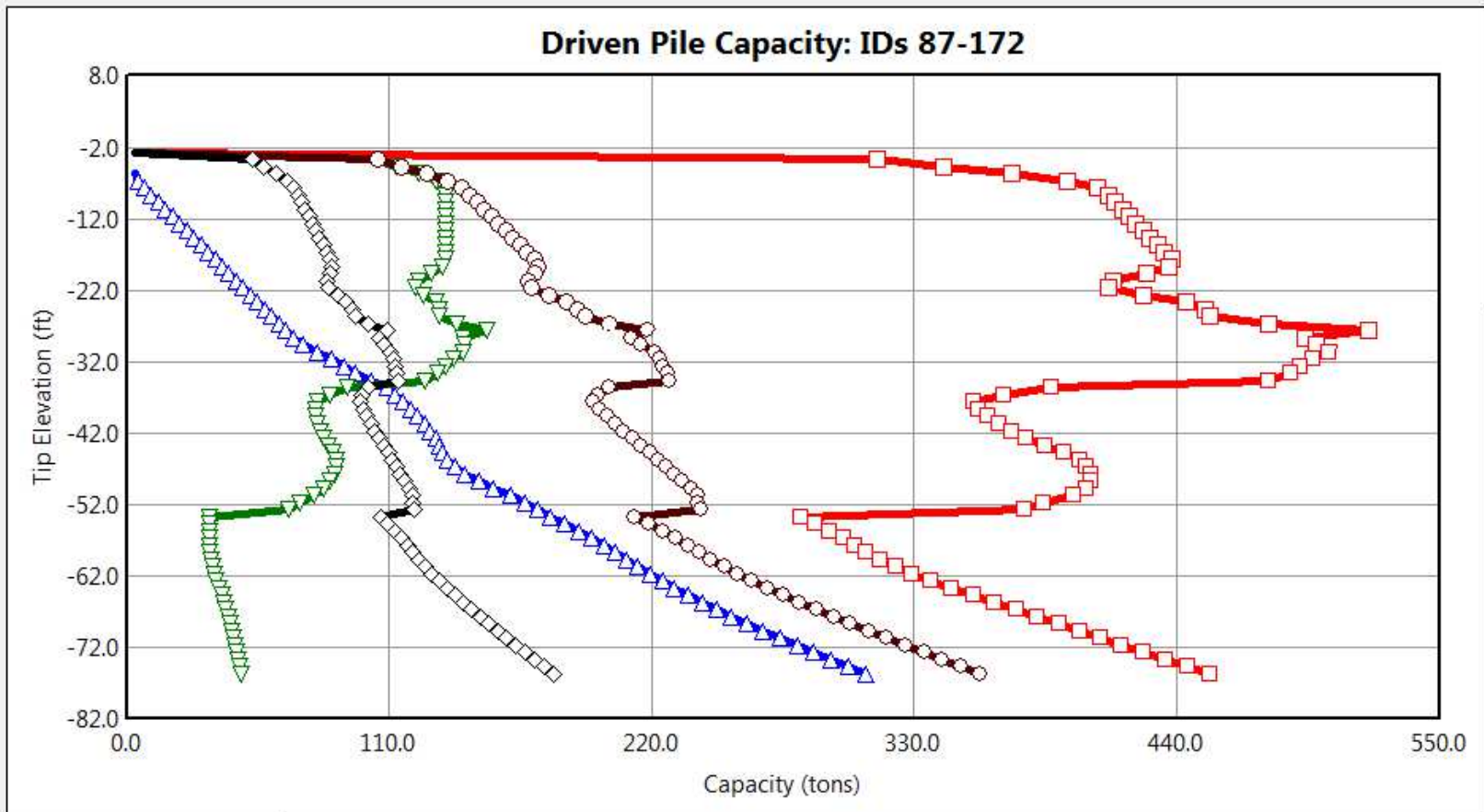
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Close

B-1-Void-21.0ft_Preform(-35ft).in

Job Name: CR-880

State Job (Project) #: 2000-01-21005



Curves

☒ Ultimate Side Friction☒ Mobilized End Bearing☒ Ultimate Pile Capacity☒ Estimated Davisson Capacity☒ Allowable Pile Capacity

*The 'Save to File' button saves the currently selected Curves to a text file.

Driven Pile Data

Boring Number: B-1
Ground Surface Elevation: 17.34 (ft)
Section: Square
Width: 24.00 (in)

Project Data

File: B-1-Void-21
Date: Sep 05, 2023
Engineer: ZP

Analysis Data

Analysis Type: SPT

Plot Options

CustomizeUpdate PlotPrint PlotPrint WindowSave To File

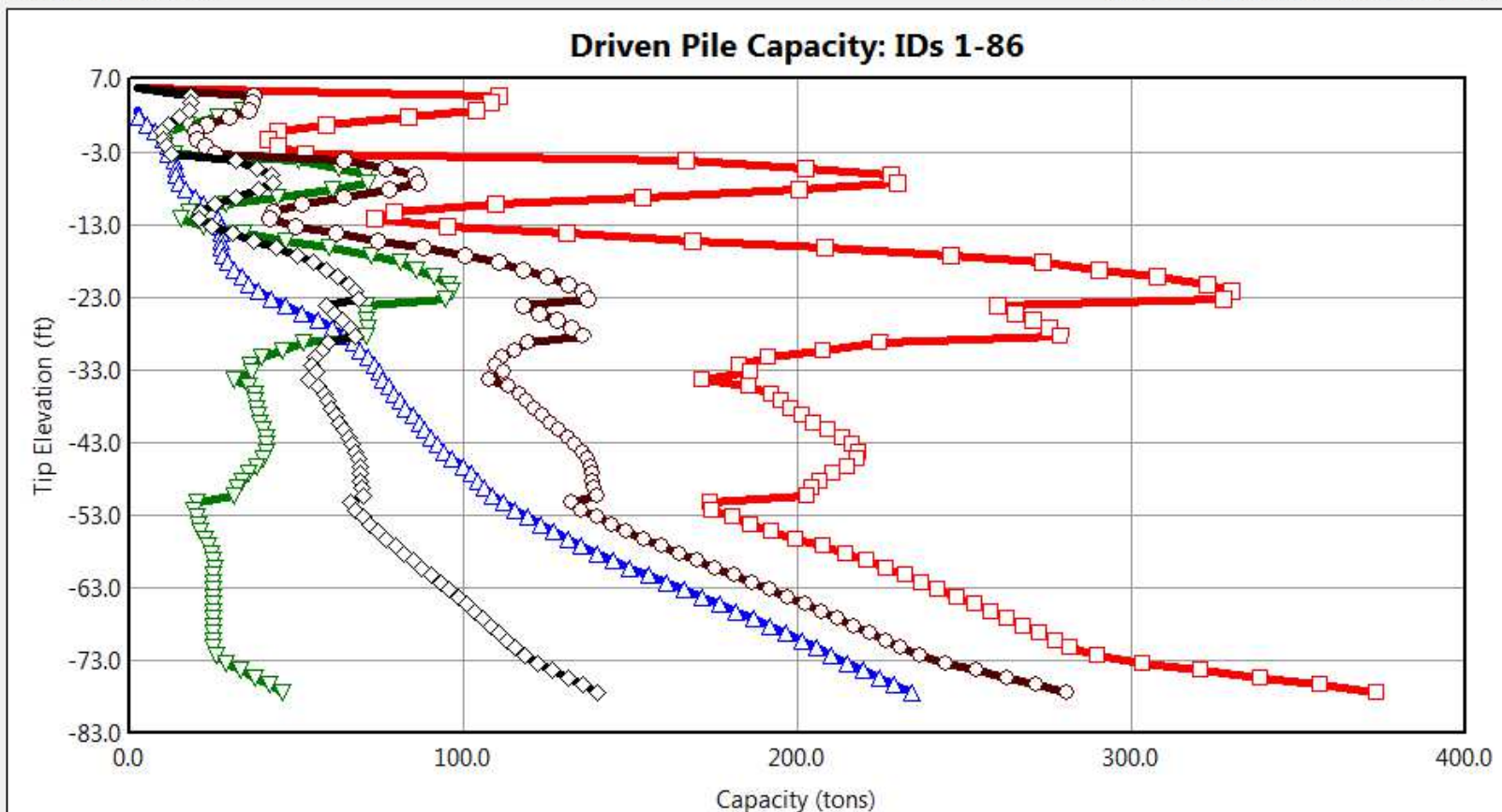
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Close

B-1-Void-21.0ft_Preform(-35ft).in

Job Name: CR-880

State Job (Project) #: 2000-01-21005



Curves

☒ Ultimate Side Friction☒ Mobilized End Bearing☒ Ultimate Pile Capacity☒ Estimated Davisson Capacity☒ Allowable Pile Capacity

*The 'Save to File' button saves the currently selected Curves to a text file.

Driven Pile Data

Boring Number: B-2
Ground Surface Elevation 16.75 (ft)
Section: Square
Width 18.00 (in)

Project Data

File: B-2-Void-12
Date: Sep 05, 2023
Engineer: ZP

Analysis Data

Analysis Type: SPT

Plot Options

CustomizeUpdate PlotPrint PlotPrint WindowSave To File

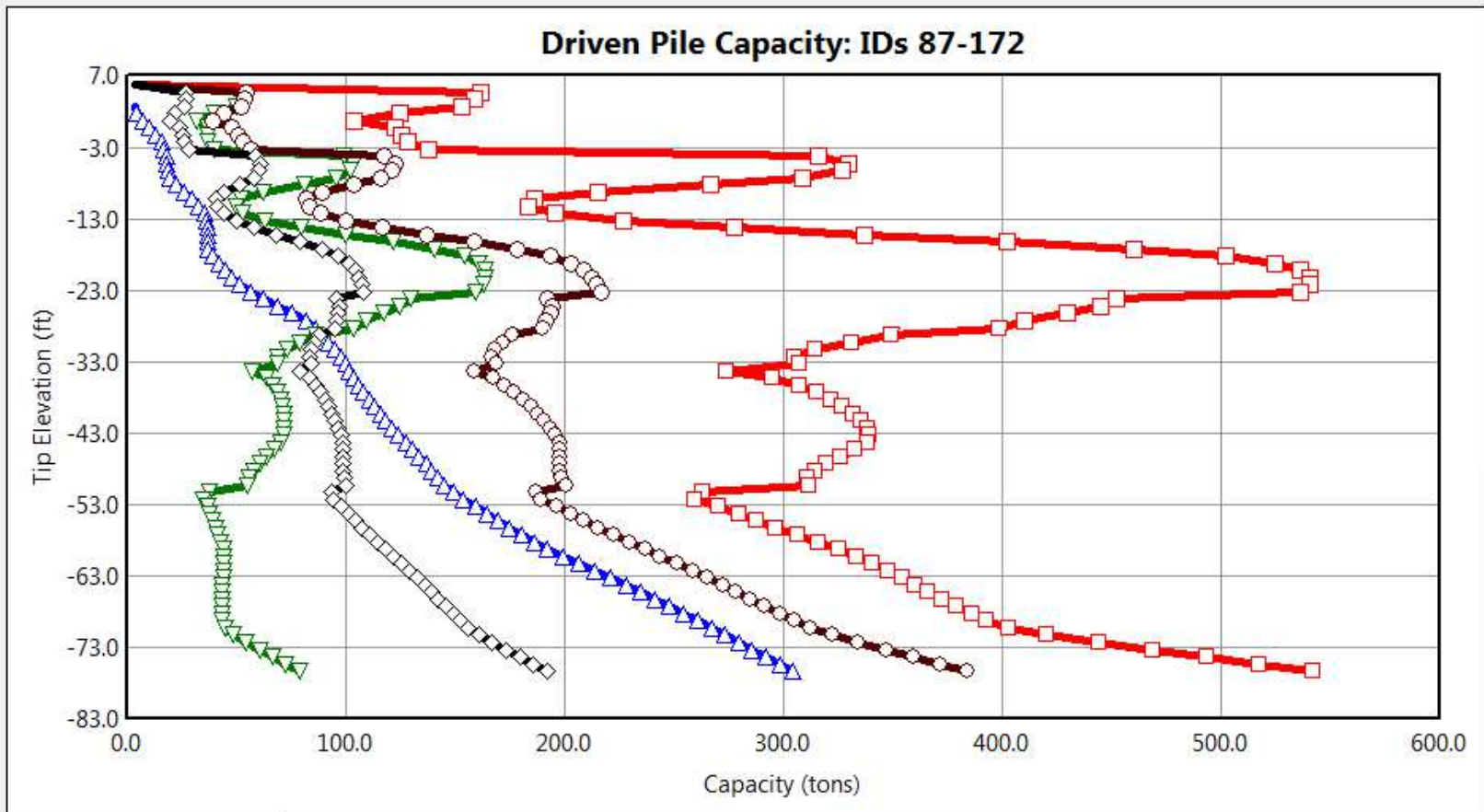
SSP-101D

Close

B-2-Void-12.0ft_Preform(-35ft).in

Job Name: CR-880

State Job (Project) #: 2000-01-21005



Curves

☒ Ultimate Side Friction☒ Mobilized End Bearing☒ Ultimate Pile Capacity☒ Estimated Davisson Capacity☒ Allowable Pile Capacity

*The 'Save to File' button saves the currently selected Curves to a text file.

Driven Pile Data

Boring Number: B-2
Ground Surface Elevation 16.75 (ft)
Section: Square
Width 24.00 (in)

Project Data

File: B-2-Void-12
Date: Sep 05, 2023
Engineer: ZP

Analysis Data

Analysis Type: SPT

Plot Options

CustomizeUpdate PlotPrint PlotPrint WindowSave To File

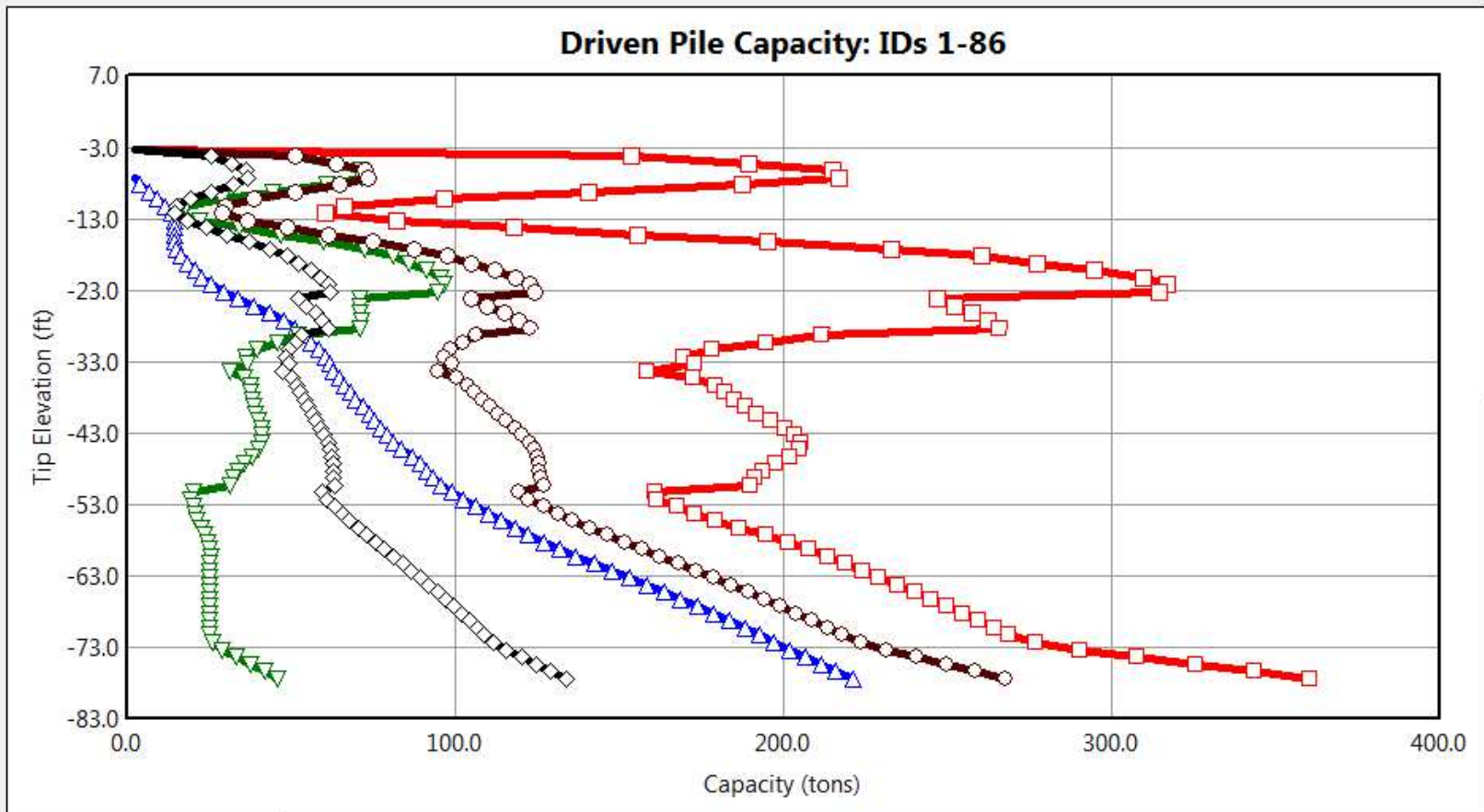
SSP-102D

Close

B-2-Void-12.0ft_Preform(-35ft).in

Job Name: CR-880

State Job (Project) #: 2000-01-21005



Curves

☒ Ultimate Side Friction☒ Mobilized End Bearing☒ Ultimate Pile Capacity☒ Estimated Davisson Capacity☒ Allowable Pile Capacity

*The 'Save to File' button saves the currently selected Curves to a text file.

Driven Pile Data

Boring Number: B-2
Ground Surface Elevation 16.75 (ft)
Section: Square
Width 18.00 (in)

Project Data

File: B-2-Void-20
Date: Sep 05, 2023
Engineer: ZP

Analysis Data

Analysis Type: SPT

Plot Options

CustomizeUpdate PlotPrint PlotPrint WindowSave To File

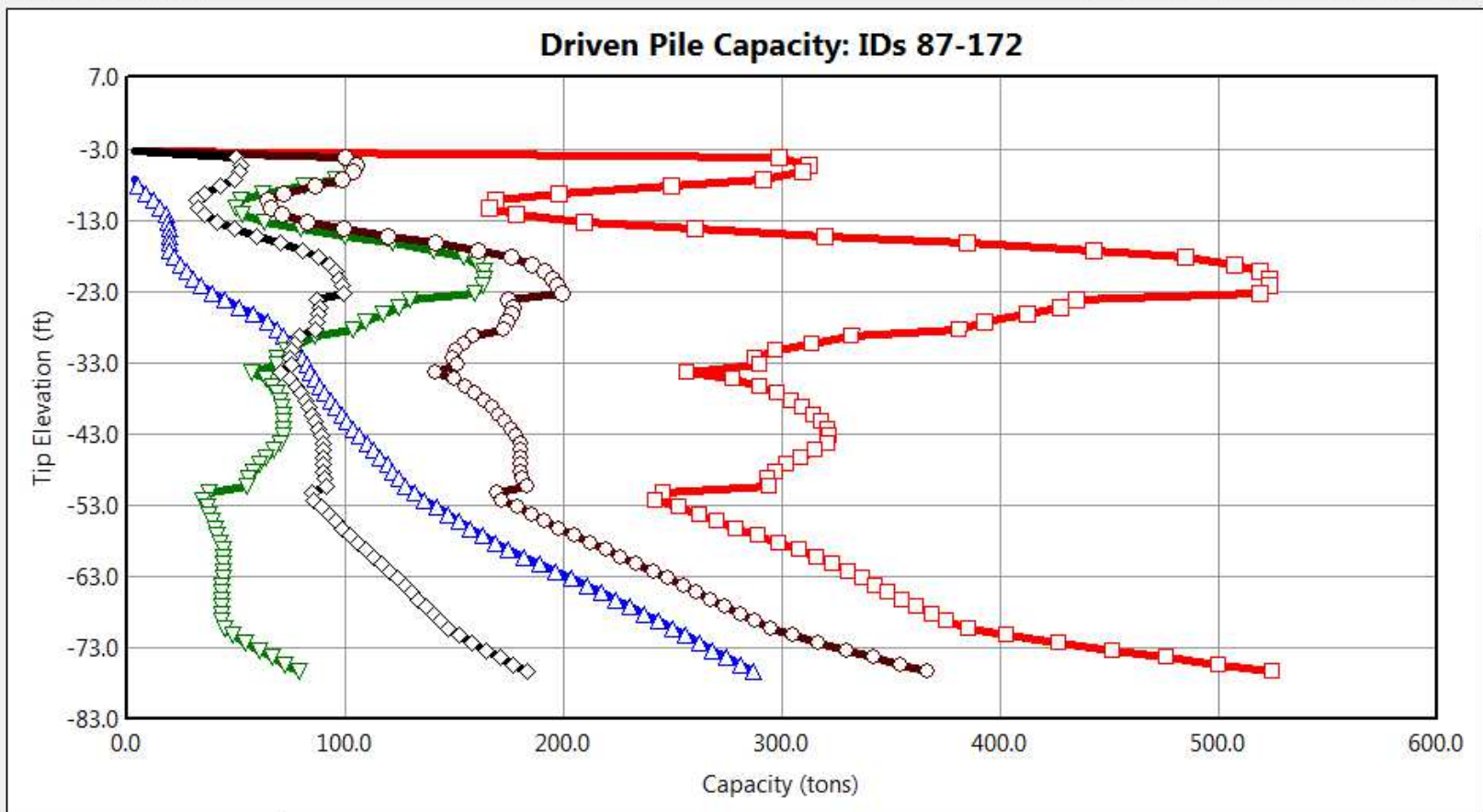
SSP-103D

Close

B-2-Void-20.5ft_Preform(-35ft).in

Job Name: CR-880

State Job (Project) #: 2000-01-21005



Curves

☒ Ultimate Side Friction☒ Mobilized End Bearing☒ Ultimate Pile Capacity☒ Estimated Davisson Capacity☒ Allowable Pile Capacity

*The 'Save to File' button saves the currently selected Curves to a text file.

Driven Pile Data

Boring Number: B-2
Ground Surface Elevation 16.75 (ft)
Section: Square
Width 24.00 (in)

Project Data

File: B-2-Void-20
Date: Sep 05, 2023
Engineer: ZP

Analysis Data

Analysis Type: SPT

Plot Options

CustomizeUpdate PlotPrint PlotPrint WindowSave To File

SSP-104D

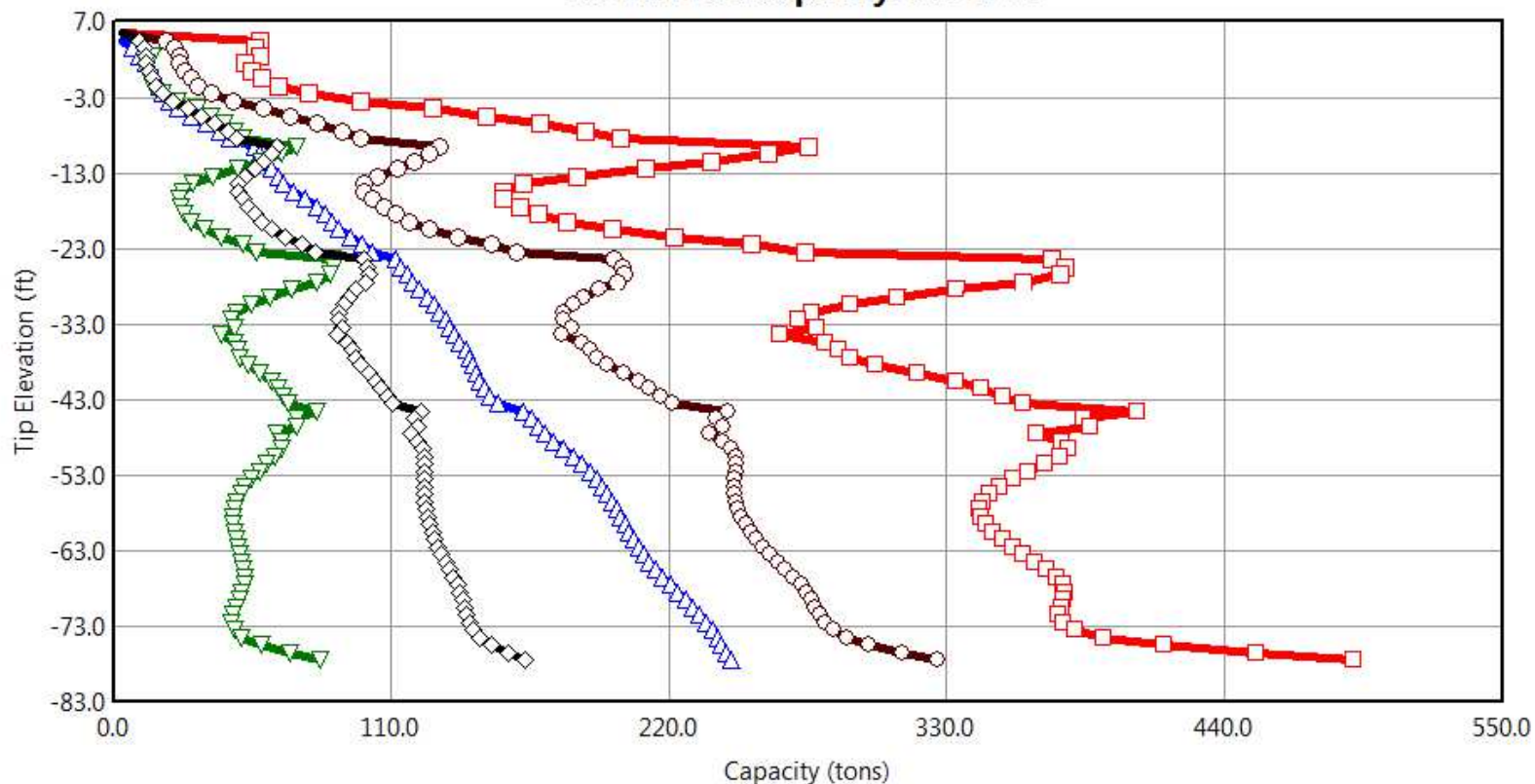
Close

B-2-Void-20.5ft_Prefom(-35ft).in

Job Name: CR-880

State Job (Project) #: 2000-01-21005

Driven Pile Capacity: IDs 1-86



Curves

☒ Ultimate Side Friction☒ Mobilized End Bearing☒ Ultimate Pile Capacity☒ Estimated Davisson Capacity☒ Allowable Pile Capacity

*The 'Save to File' button saves the currently selected Curves to a text file.

Driven Pile Data

Boring Number: B-3
Ground Surface Elevation 16.56 (ft)
Section: Square
Width 18.00 (in)

Project Data

File: B-3-Void-11
Date: Sep 05, 2023
Engineer: ZP

Analysis Data

Analysis Type: SPT

Plot Options

CustomizeUpdate PlotPrint PlotPrint WindowSave To File

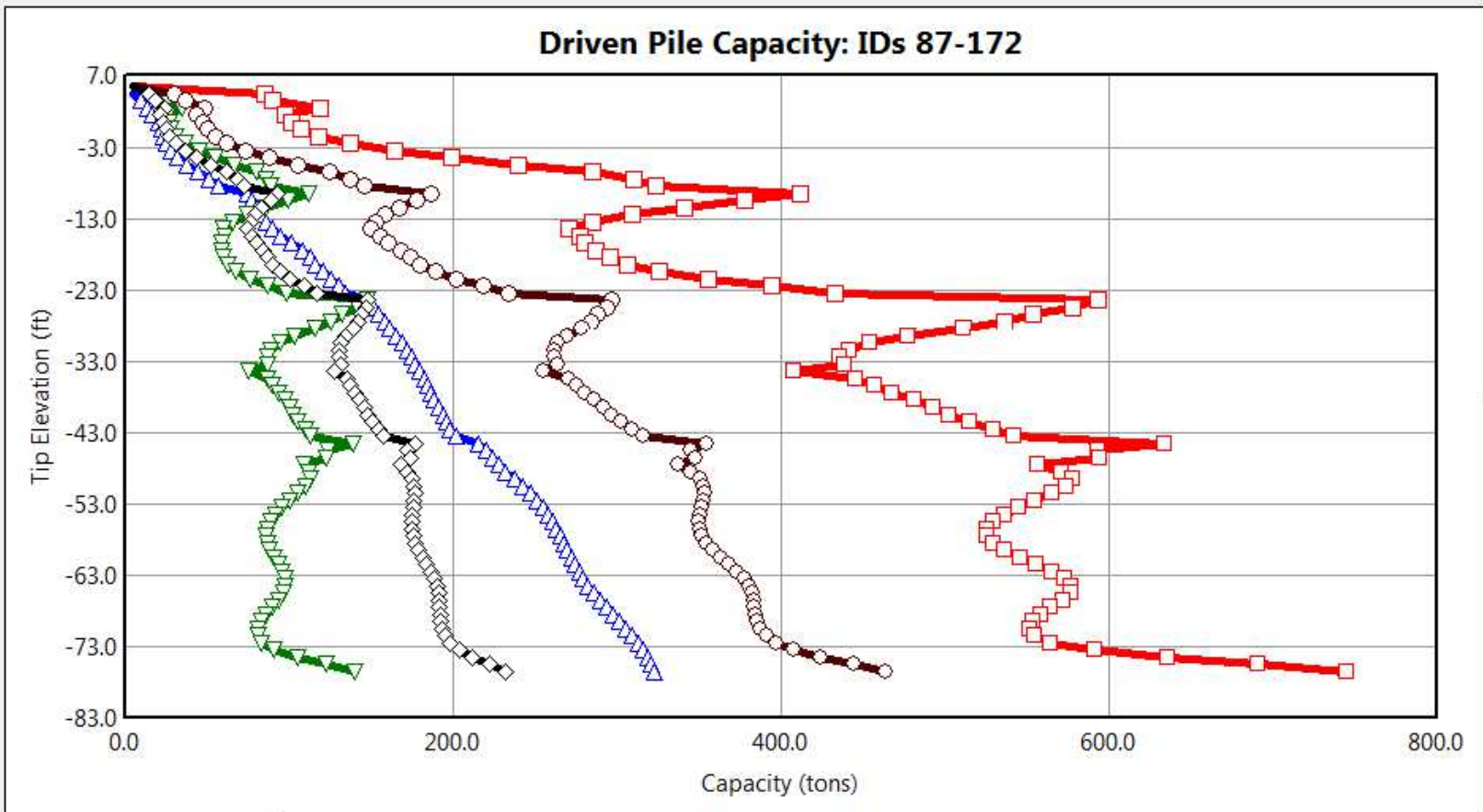
SSP-105D

Close

B-3-Void-11.6ft_Preform(-35ft).in

Job Name: CR-880

State Job (Project) #: 2000-01-21005



Curves

☒ Ultimate Side Friction☒ Mobilized End Bearing☒ Ultimate Pile Capacity☒ Estimated Davisson Capacity☒ Allowable Pile Capacity

*The 'Save to File' button saves the currently selected Curves to a text file.

Driven Pile Data

Boring Number:

B-3

Ground Surface Elevation

16.56 (ft)

Section:

Square

Width

24.00 (in)

Project Data

File:

B-3-Void-11

Date:

Sep 05, 2023

Engineer:

ZP

Analysis Data

Analysis Type:

SPT

Plot Options

CustomizeUpdate PlotPrint PlotPrint WindowSave To File

SSP-106D

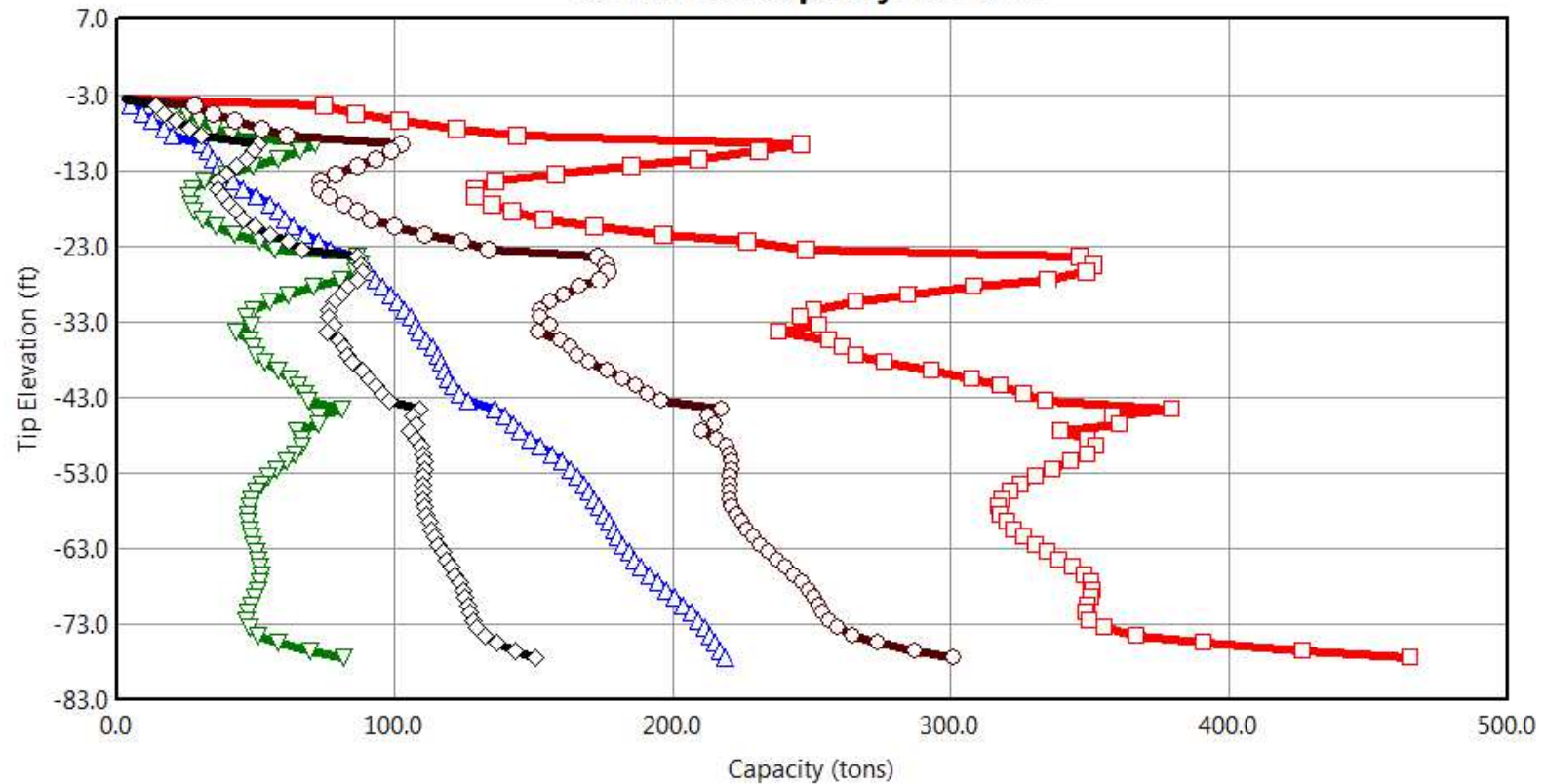
Close

B-3-Void-11.6ft_Preform(-35ft).in

Job Name: CR-880

State Job (Project) #: 2000-01-21005

Driven Pile Capacity: IDs 1-86



Curves

- ☒ Ultimate Side Friction
- ☒ Mobilized End Bearing
- ☒ Ultimate Pile Capacity
- ☒ Estimated Davisson Capacity
- ☒ Allowable Pile Capacity

*The 'Save to File' button saves the currently selected Curves to a text file.

Driven Pile Data

Boring Number: B-3
Ground Surface Elevation: 16.56 (ft)
Section: Square
Width: 18.00 (in)

Project Data

File: B-3-Void-20
Date: Sep 05, 2023
Engineer: ZP

Analysis Data

Analysis Type: SPT

Plot Options

Customize

Update Plot

Print Plot

Print Window

Save To File

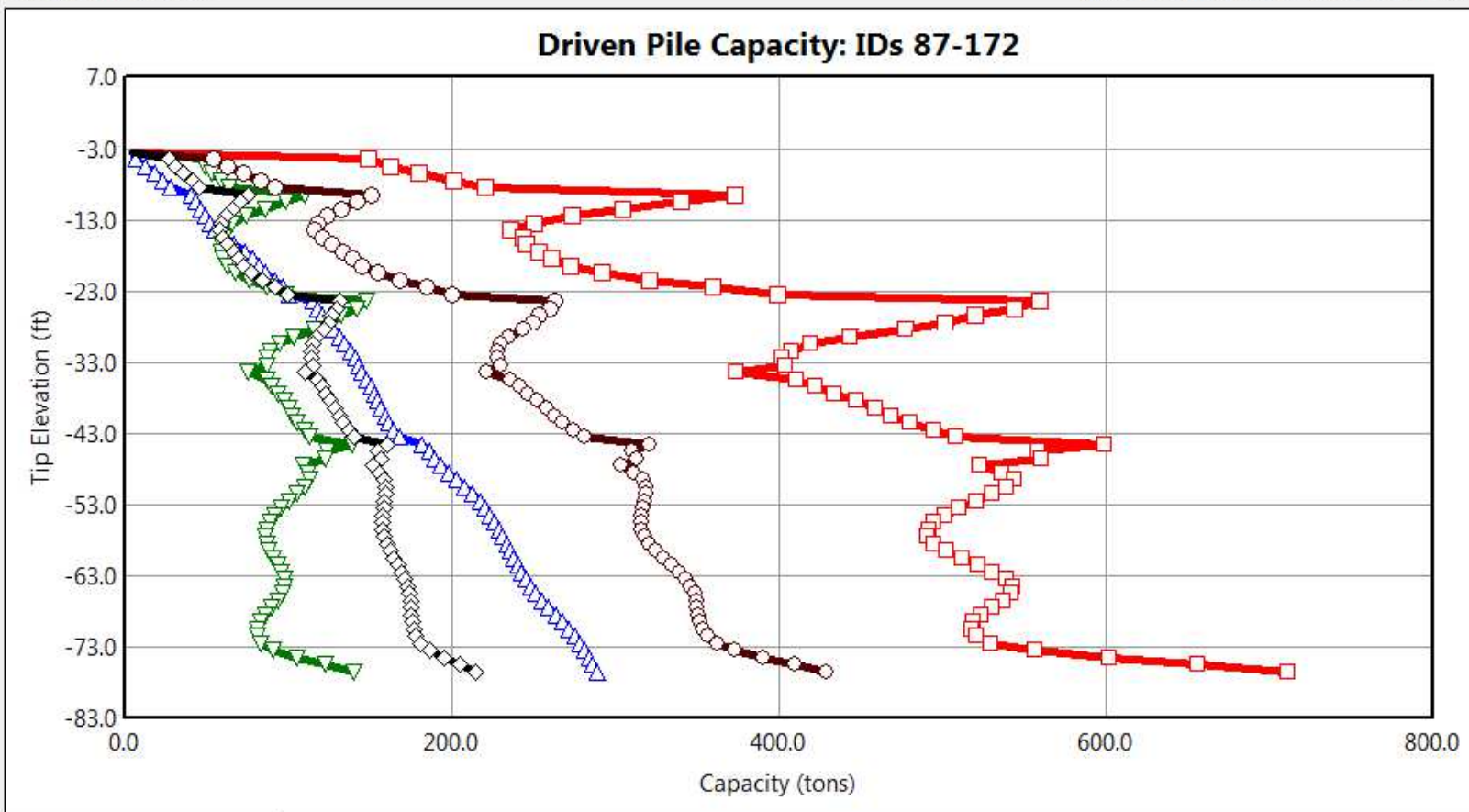
SSP-107D

Close

B-3-Void-20.2ft_Preform(-35ft).in

Job Name: CR-880

State Job (Project) #: 2000-01-21005



Curves

☒ Ultimate Side Friction☒ Mobilized End Bearing☒ Ultimate Pile Capacity☒ Estimated Davisson Capacity☒ Allowable Pile Capacity

*The 'Save to File' button saves the currently selected Curves to a text file.

Driven Pile Data

Boring Number: B-3
Ground Surface Elevation 16.56 (ft)
Section: Square
Width 24.00 (in)

Project Data

File: B-3-Void-20
Date: Sep 05, 2023
Engineer: ZP

Analysis Data

Analysis Type: SPT

Plot Options

CustomizeUpdate PlotPrint PlotPrint WindowSave To File

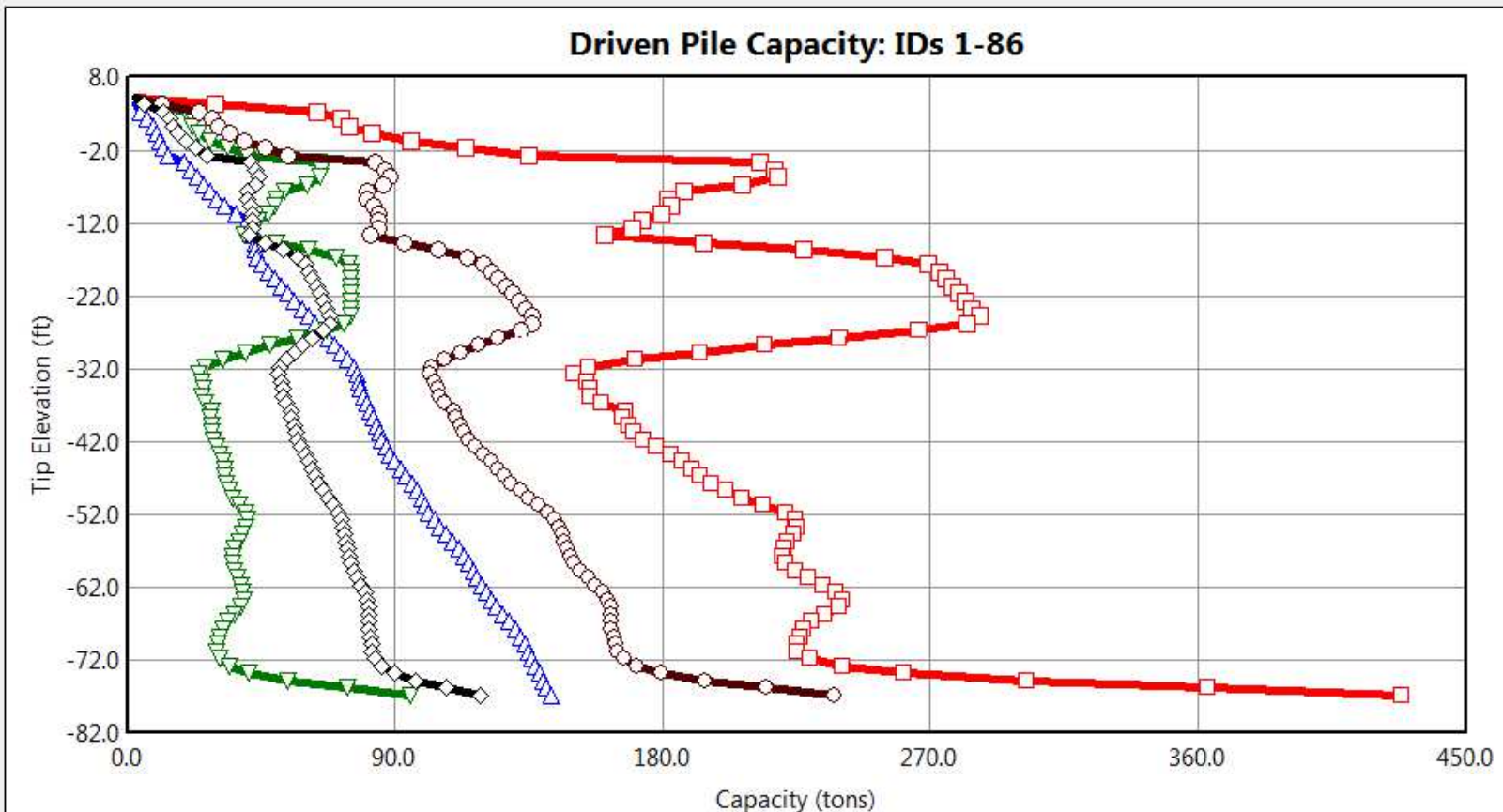
SSP-108D

Close

B-3-Void-20.2ft_Preform(-35ft).in

Job Name: CR-880

State Job (Project) #: 2000-01-21005



Curves

☒ Ultimate Side Friction☒ Mobilized End Bearing☒ Ultimate Pile Capacity☒ Estimated Davisson Capacity☒ Allowable Pile Capacity

*The 'Save to File' button saves the currently selected Curves to a text file.

Driven Pile Data

Boring Number: B-4
Ground Surface Elevation 17.30 (ft)
Section: Square
Width 18.00 (in)

Project Data

File: B-4-Void-12
Date: Sep 05, 2023
Engineer: ZP

Analysis Data

Analysis Type: SPT

Plot Options

CustomizeUpdate PlotPrint PlotPrint WindowSave To File

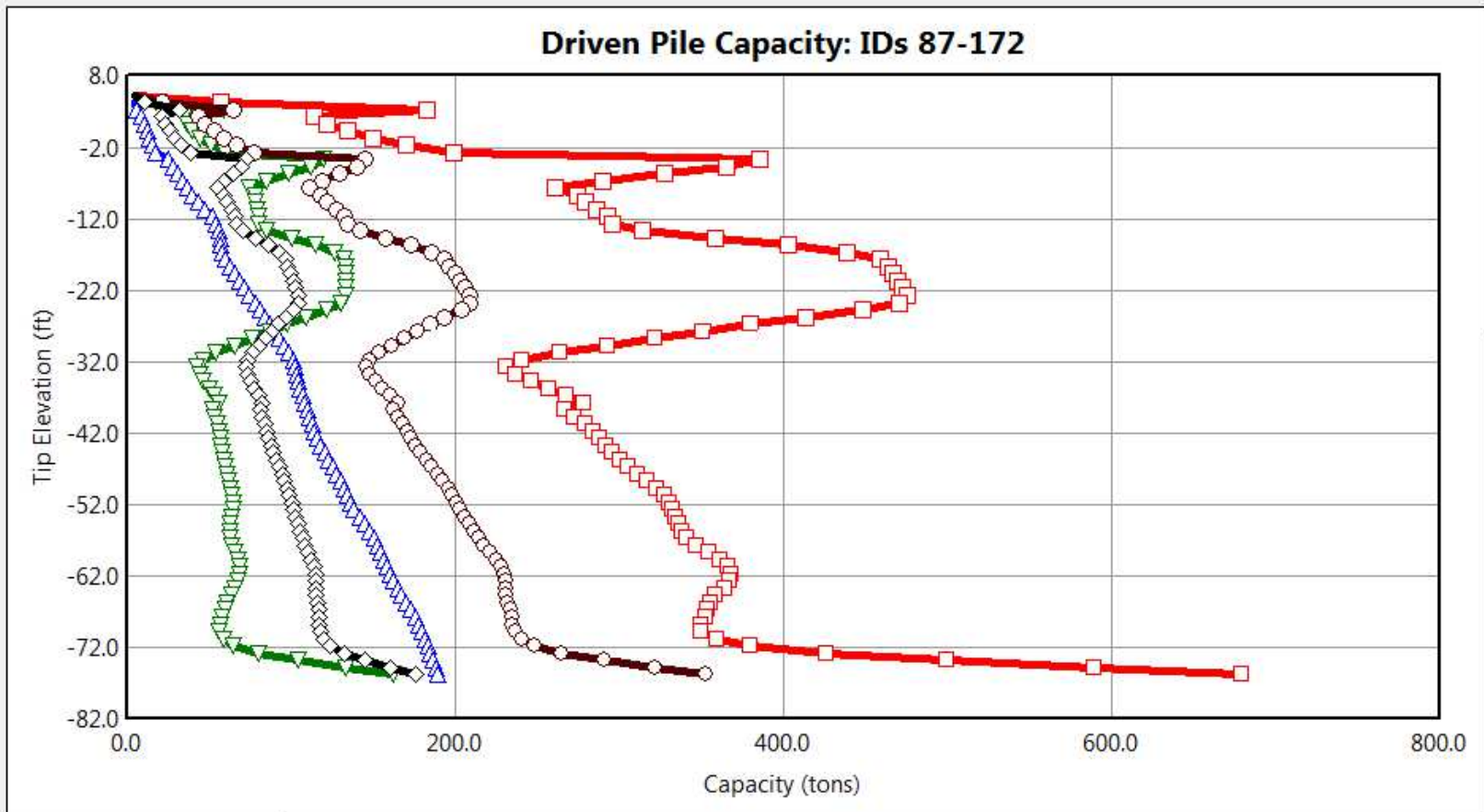
SSP-109D

Close

B-4-Void-12.5ft_Preform(-35ft).in

Job Name: CR-880

State Job (Project) #: 2000-01-21005



Curves

☒ Ultimate Side Friction☒ Mobilized End Bearing☒ Ultimate Pile Capacity☒ Estimated Davisson Capacity☒ Allowable Pile Capacity

*The 'Save to File' button saves the currently selected Curves to a text file.

Driven Pile Data

Boring Number: B-4
Ground Surface Elevation 17.30 (ft)
Section: Square
Width 24.00 (in)

Project Data

File: B-4-Void-12
Date: Sep 05, 2023
Engineer: ZP

Analysis Data

Analysis Type: SPT

Plot Options

CustomizeUpdate PlotPrint PlotPrint WindowSave To File

SSP-110D

Close

B-4-Void-12.5ft_Preform(-35ft).in