

City of Tampa Addendum

ADDENDUM 1

DATE: September 28, 2026

Contract: 26-C-00038 Pump Station Resiliency and Reliability Improvements Contract A

Bidders on the above referenced project are hereby notified that the following addendum is made to the Contract Documents. BIDS TO BE SUBMITTED SHALL CONFORM THIS NOTICE.

Item 1 – Add the attached report and surveys for reference.

These documents for the referenced projects come from uncontrolled sources and do not conform to WCAG 2.1 at level AA. Individuals with disabilities seeking assistance with the individual project plans or specifications should e-mail Contractadministration@tampagov.net.

All other provisions of the Contract Documents and Specifications not in conflict with this Addendum shall remain in full force and effect. Questions are to be e-mailed to

ContractAdministration@tampagov.net

Jim Greiner, P.E., Contract Management Supervisor

Report of Geotechnical Exploration

For

**City of Tampa – Pump Station Improvements
COT Contract No.: 22-D-38004**

MAE Project No. 0135-0005.1

February 23, 2025

Prepared for:



**306 East Jackson St., #6N
Tampa, Florida 33602**

Prepared by:



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February 23, 2026

Mr. Jay Sysak, Engineer III
City of Tampa
306 East Jackson Street, 6N
Tampa, Florida 33602

Reference: Report of Geotechnical Exploration
COT Pump Station Improvements, Tampa, Florida
COT Contract No.: 22-D-38004
MAE Project No.: 0135-0005.1

Dear Mr. Sysak:

Meskel & Associates Engineering, PLLC (MAE) has completed a geotechnical exploration for the subject project in general accordance with our revised proposal dated December 29, 2025; under City of Tampa Task Order 01, Work Order 04, Contract 22-D-38004, authorized on December 30, 2025. The purpose of this exploration was to evaluate subsurface conditions at 11 existing pump station sites, and to provide recommendations for the design and installation of new backup power generators and/or pump station improvements.

As detailed in this report, the borings encountered loose to dense fine sand and fine sands containing silt and clay (SP, SP-SM, SP-SC), often underlain by very loose to medium dense clayey and very clayey fine sands (SC), in some instances to termination depths of 25 and 30 feet below the existing grades. At Borings B-3, B-8 and B-10, the granular soils were underlain by firm to very stiff clay and sandy clay (CH) below depths of 13.5 to 18.5 feet. At Borings B-6, B-7, B-8, B-10 and B-11 highly to moderately weathered (soft) to weathered (hard) limestone was encountered below depths of 13.5 to 23.5 feet. At Boring B-7, a soil sample was not recovered from approximately 13.5 to 15 feet, and the following sample comprised loose clayey sand with significant wood debris (large root fragments) from about 18.5 to 20 feet. Groundwater was observed during drilling at depths ranging from 3.8 to 10 feet below the existing grade, with the estimated normal seasonal high level at depths ranging from 1.5 to 7 feet.

Based on our findings, it is our opinion that the encountered soils are adaptable for supporting the proposed generator foundations and/or pump station improvements, provided the recommendations in this report are followed.

We appreciate the opportunity to serve as your geotechnical consultant for this phase of the project. Should you have any questions or require further assistance, please do not hesitate to contact us.

Sincerely,

Meskel & Associates Engineering, PLLC
MAE FL Registry No. 28142



Taylor Foster
Staff Engineer

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Distribution: Mr. Jay Sysak, Engineer III – City of Tampa (Jay.Sysak@tampagov.net) One (1).pdf

TABLE OF CONTENTS

Subject	Page No.
1.0 PROJECT INFORMATION.....	1
1.1 General	1
1.2 Project Description	1
2.0 FIELD EXPLORATION.....	2
2.1 Standard Penetration Test Borings.....	2
3.0 LABORATORY TESTING	3
3.1 Soil Classification	3
3.2 Index Testing.....	3
4.0 GENERAL SUBSURFACE CONDITIONS	3
4.1 General Soil Profile	3
4.2 Groundwater Level	6
4.3 Review of the USDA Web Soil Survey Map	6
4.4 Seasonal High Groundwater Level.....	7
5.0 DESIGN RECOMMENDATIONS	8
5.1 General	8
5.2 Shallow Foundation Design Recommendations.....	8
5.3 Settlement Estimates	10
5.4 Retaining Wall Design Recommendations.....	10
5.5 Subsurface Structures Bearing Recommendations	12
5.6 Hydrostatic Uplift Resistance	12
5.7 Utility Support Recommendations	12
6.0 SITE PREPARATION AND EARTHWORK RECOMMENDATIONS	13
6.1 Clearing.....	13
6.2 Temporary Groundwater & Surface Water Control	13
6.3 Over-Excavation and Subgrade Compaction in Foundation Areas.....	14
6.4 Open-Cut Utility/Pipeline Support Recommendations	14
6.5 Structural Backfill and Fill Soils	15
6.6 Excavation Protection.....	15
7.0 QUALITY CONTROL TESTING	15
8.0 REPORT LIMITATIONS	15

FIGURES

- Figure 1A-1E. Site Location Map
- Figures 2A-2K. Boring Location Plans
- Figures 3-13. Generalized Soil Profiles

APPENDICES

Appendix A.

- Soil Boring Logs
- Field Exploration Procedures
- Key to Boring Logs – USCS
- Unified Soil Classification System (USCS)

Appendix B.

- Summary of Laboratory Index Test Results
- Summary of Laboratory Test Procedures

1.0 PROJECT INFORMATION

1.1 General

Based on our correspondence and the information provided by Mr. Jay Sysak with the City of Tampa, we understand that the project will include the improvement of 11 stormwater pump station sites throughout Tampa, typically to include siting of a backup power generator and associated improvements. The following project documentation was provided to us to develop our scope of services:

- Request by the City of Tampa Stormwater, Design Section, for “Geotechnical Investigation Services” dated December 18, 2025, with a project overview identifying the subject Site Nos. 1 through 10 and project purpose and geotechnical engineering requirements, including the following:
 - Various topographic surveys and site plans or plan sheets of existing conditions, including “Pump Station Resiliency and Reliability Improvements” prepared by McKim and Creed and DRMP;
 - Aerial photographs showing the respective sites and existing utility installations;
 - “Geotechnical Request for Proposal, City of Tampa – Stormwater Resiliency – Eastridge,” dated December 15, 2025, prepared by McKim and Creed;
 - “Geotechnical Request for Proposal, City of Tampa – Stormwater Resiliency – North Tampa Closed Basin,” dated December 15, 2025, prepared by McKim and Creed; and
 - “Geotechnical Request for Proposal, City of Tampa – Stormwater Resiliency – Robles Park,” dated December 15, 2025, prepared by McKim and Creed.
- “Geotechnical Request for Proposal, City of Tampa – Stormwater Resiliency – Alline Pump Station,” dated December 15, 2025, prepared by McKim and Creed for Site No. 11, including the “Pump Station Resiliency and Reliability Improvements” plan of existing conditions prepared by McKim and Creed, with information on the proposed storm sewer structure.

1.2 Project Description

Based on the information provided, the project involves improvements to 11 existing Pump Station sites throughout Tampa. The addresses of the subject pump station sites are shown on the table below, and the general site locations are illustrated in Figures 1A through 1E.

Site No.	Site Name	Street Address
1	Eastridge	809 W 109th Avenue
2	North Tampa Closed Basin	1250 E 113th Avenue
3	Robles Park	3299 N Avon Avenue
4	Poinsettia	2806 E Poinsettia Avenue
5	Lake Eckles	1315 W Country Club Drive
6	Penalty Lake	11404 W Elbow Drive
7	Copeland Park	11000 N 19th Street
8	Lantana	10102 N Lantana Avenue
9	El Portal	8950 Portal Drive
10	Curiosity Creek	215 West 109th Avenue
11	Alline Avenue	2921 Alline Avenue

Following our discussions with the City of Tampa and the documentation received, we understand that the improvements at the 11 stormwater pump station sites typically will include a new backup power generator and other associated improvements. The generators are expected to be established on equipment slabs with an approximate plan area of 8 feet by 20 feet. The maximum soil bearing pressure beneath the slabs is anticipated to be less than 500 psf. In addition to the generator and equipment pads, the following exceptions are noted:

- The Site No. 1 (Eastridge) backup power generator will include structural support of the generator and associated equipment at design flood elevation (DFE) of El. 31.3 (feet, NAVD88) and the top of the concrete slab supporting the fuel tank and generator will be El. 29.0. The generator and enclosure will be located on top of its fuel tank at El. 31.5, above DFE. Under extreme flooding conditions there is potential for the fuel tank to be submerged under full and empty conditions. Additionally, the preliminary site design anticipates the need for a retention system on the north, east and south side of the new generator to support the structure. The top of wall elevation will be El. 26.8 and the wall will retain approximately 5 to 6 feet of soil.
- The Site No. 3 (Robles Park) backup power generator will include structural support of the generator and associated equipment at DFE of El. 31.6 (feet, NAVD88). The top of concrete slab supporting the fuel tank and generator will be at El. 30.25, and the generator and enclosure will be located on top of its fuel tank at El. 32.2. The fuel tank will be located on a concrete pad with top of slab at El. 30.25; therefore, under extreme flooding conditions there is potential for the fuel tank to be partially submerged under full and empty conditions.
- The Site No. 11 (Alline) already includes a generator slab, and improvements will include the construction of a new storm sewer structure and retention system connecting over to the existing 29" x 45" Elliptical Reinforced Concrete Pipe (ERCP) and adjacent to the existing wet well. This site will require structure foundation support recommendations and pipe bedding and backfill recommendations.

Should actual project conditions differ from those described above, the recommendations provided in this report may require re-evaluation. Any changes to the project scope or subsurface conditions should be communicated promptly to determine whether updated geotechnical recommendations are necessary prior to final design.

2.0 FIELD EXPLORATION

Field exploration activities were conducted on January 19, 2026. Boring location plans were developed by the City of Tampa. To establish coordinates for the borings, the site plans were uploaded and overlain on Google Earth aerial photography. Coordinates were then extracted and marked in the field by MAE personnel.

Following utility clearance through Sunshine 811 and private utility location services using Ground Penetrating Radar (GPR), the field crew mobilized to begin drilling operations. Final GPS coordinates for each boring location were recorded on-site using a Garmin GPSMAP78 handheld receiver. The boring locations shown on the "Boring Location Plan" (Figures 2A to 2K) should be considered approximate due to the layout method employed.

2.1 Standard Penetration Test Borings

To evaluate subsurface conditions at the proposed project locations, a total of eleven (11) Standard Penetration Test (SPT) borings were performed near the proposed pump station improvements, each advanced to a depth of approximately 25 feet below existing pavement or ground surface. The Borings B-1 through B-11 correspond to the respective Site No. 1 through 11. As an exception, Boring B-5 was advanced to a depth of approximately 30 feet.

In advance of the SPT drilling, each boring was first advanced with a hand-held bucket auger to a depth of approximately 4 feet below the existing ground surface in general accordance with the methodology outlined in ASTM D1452. This method of pre-drilling was used for safety reasons, to mitigate the possibility of encountering unmarked utilities.

Following the hand auger drilling, SPT drilling activities were carried out in general accordance with ASTM D1586. Split-spoon soil samples obtained during the borings were visually classified in the field. Representative portions of the auger boring and SPT samples were subsequently transported to our laboratory for further classification and testing. A detailed summary of the field procedures is provided following the boring logs in Appendix A.

3.0 LABORATORY TESTING

3.1 Soil Classification

Representative soil samples obtained during our field exploration were visually classified by a geotechnical engineer using the “Unified Soil Classification System (USCS)” in general accordance with ASTM D2487. Descriptions of the USCS soil classification systems are included in Appendix A, following the boring logs.

3.2 Index Testing

Quantitative laboratory testing was performed on selected samples of the soils encountered during the field exploration to better define the composition of the soils encountered and to provide data for correlation to their anticipated strength and compressibility characteristics. The laboratory testing determined the percent passing the U.S. No. 200 Sieve (percent fines), natural moisture content, Atterberg Limits, gradation, and organic material contents of selected soil samples. The results of the laboratory testing are shown on the “Generalized Soil Profiles” (Figures 3 to 13) and on the soil boring logs at the respective depths from which the tested samples were recovered. The test results are also presented on the “Summary of Laboratory Index Test Results” table in Appendix B.

4.0 GENERAL SUBSURFACE CONDITIONS

4.1 General Soil Profile

Graphical representations of the generalized subsurface conditions are provided in Figures 3 to 13 and detailed boring logs are included in Appendix A. It should be noted that subsurface conditions may vary beyond boring locations. A summary of the general soil profiles and conditions encountered is presented in the following tables.

GENERAL SOIL PROFILE: Site No. 1: Eastridge – Boring No. 1			
TYPICAL DEPTH (ft)		SOIL DESCRIPTION	USCS ¹
FROM	TO		
0	0.2	Topsoil	---
0.2	25	Very loose to loose fine SAND and fine SAND with silt	SP, SP-SM

1. Unified Soil Classification System

GENERAL SOIL PROFILE: Site No. 2: North Tampa Closed Basin – Boring No. 2			
TYPICAL DEPTH (ft)		SOIL DESCRIPTION	USCS ¹
FROM	TO		
0	0.2	Topsoil	---
0.2	13.5	Loose, fine SAND	SP
13.5	25	Medium dense clayey to very clayey SAND	SC

1. Unified Soil Classification System

GENERAL SOIL PROFILE: Site No.3: Robles Park – Boring No. 3			
TYPICAL DEPTH (ft)		SOIL DESCRIPTION	USCS ¹
FROM	TO		
0	0.1	Pavement Section (Asphalt Concrete/Limerock Base Course)	---
0.1	18.5	Medium dense to dense fine SAND, fine SAND with silt and clay	SP, SP-SM, SP-SC
18.5	25	Stiff sandy CLAY	CH

1. Unified Soil Classification System

GENERAL SOIL PROFILE: Site No. 4: Poinsettia – Boring No. 4			
TYPICAL DEPTH (ft)		SOIL DESCRIPTION	USCS ¹
FROM	TO		
0	0.8	Pavement Section (Asphalt Concrete)	---
0.8	6	Loose fine SAND and fine SAND with silt	SP, SP-SM
6	25	Very loose to loose clayey fine SAND	SC

1. Unified Soil Classification System

GENERAL SOIL PROFILE: Site No. 5: Lake Eckles – Boring No. 5			
TYPICAL DEPTH (ft)		SOIL DESCRIPTION	USCS ¹
FROM	TO		
0	0.1	Topsoil	---
0.1	30	Very loose to medium dense fine SAND and fine Sand with silt	SP, SP-SM

1. Unified Soil Classification System

GENERAL SOIL PROFILE: Site No. 6: Penalty Lake – Boring No. 6			
TYPICAL DEPTH (ft)		SOIL DESCRIPTION	USCS ¹
FROM	TO		
0	0.1	Topsoil	---
0.1	8	Very loose to loose fine SAND	SP
8	28.5	Very loose to medium dense clayey to very clayey fine SAND	SC
28.5	30	Moderately weathered soft LIMESTONE	---

1. Unified Soil Classification System

GENERAL SOIL PROFILE: Site No. 7: Copeland Park – Boring No. 7			
TYPICAL DEPTH (ft)		SOIL DESCRIPTION	USCS ¹
FROM	TO		
0	0.1	Topsoil	---
0.1	8	Loose fine SAND	SP
8	28.5	Loose clayey fine SAND As an exception, there was no sample recovery at 13.5 feet	SC
23.5	25	Highly Weathered LIMESTONE sampled as Medium dense clayey GRAVEL with sand	---

1. Unified Soil Classification System

GENERAL SOIL PROFILE: Site No. 8: Lantana – Boring No. 8			
TYPICAL DEPTH (ft)		SOIL DESCRIPTION	USCS ¹
FROM	TO		
0	0.1	Topsoil	---
0.1	4	Fine SAND	SP
4	13.5	Loose to medium dense clayey fine SAND and fine SAND with clay	SC, SP-SC
13.5	15	Very stiff to soft sandy CLAY and very loose fine SAND with clay	CH, SP-SC
20	25	Highly Weathered LIMESTONE sampled as Medium dense clayey SAND, few gravel (limestone fragments)	---

1. Unified Soil Classification System

GENERAL SOIL PROFILE: Site No. 9: El Portal – Boring No. 9			
TYPICAL DEPTH (ft)		SOIL DESCRIPTION	USCS ¹
FROM	TO		
0	0.1	Topsoil	---
0.1	8	Loose fine SAND trace silt	SP
8	25	Medium dense fine SAND with silt	SP-SM

1. Unified Soil Classification System

GENERAL SOIL PROFILE: Site No. 10: Curiosity Creek – Boring No. 10			
TYPICAL DEPTH (ft)		SOIL DESCRIPTION	USCS ¹
FROM	TO		
0	0.2	Pavement Section (Asphalt Concrete)	---
0.2	6	Medium dense to loose fine SAND and fine SAND with clay	SP, SP-SC
6	13.5	Medium dense clayey fine SAND	SC
13.5	18.5	Firm very sandy CLAY	CH
18.5	25	Highly weathered LIMESTONE sampled as medium dense clayey fine SAND with gravel (limestone fragments)	---

1. Unified Soil Classification System

GENERAL SOIL PROFILE: Site No. 11: Alline – Boring No. 11			
TYPICAL DEPTH (ft)		SOIL DESCRIPTION	USCS ¹
FROM	TO		
0	0.1	Topsoil	---
0.1	6	Very loose fine SAND	SP
6	13.5	Very loose to loose clayey fine SAND	SC
13.5	25	Weathered Hard LIMESTONE	---

1. Unified Soil Classification System

4.2 Groundwater Level

The groundwater level was encountered at each of the boring locations and recorded at the time of drilling varying in depth from 3.8 to 10 feet below the existing pavement or ground surface. However, it should be anticipated that the groundwater levels will fluctuate seasonally and with changes in climate. As such, we recommend that the water table be re-measured prior to construction. Estimated groundwater levels are shown in the boring profiles on Figures 3 to 13 and detailed boring logs are included in Appendix A.

4.3 Review of the USDA Web Soil Survey Map

A review of the USDA Soil Survey Conservation Service (SSCS) Web Soil Survey (WSS) of Hillsborough County resulted in the following soil map units at the respective project sites as tabulated below. The soil drainage class, hydrological group, and estimated seasonal high groundwater levels reported in the WSS are as follows:

Map Unit Symbol	Map Unit Name	Drainage Class	Hydrologic Group	Depth to the Water Table ¹ (inches)
Site No. 1; Boring B-1				
5	Basinger, Holopaw and Samsula soils, depressional	Very poorly drained	A/D	0
Site No. 2; Boring B-2				
7	Candler fine sand, 0 to 5 percent slopes	Excessively drained	A	>80
Site No. 3; Boring B-3				
55	Tavares fine sand-Urban land complex ² , 0 to 5 percent slopes	Moderately well drained	A	18 to 42
Site Nos. 4, 5 and 9; Borings B-4, B-5 and B-9				
53	Tavares-Millhopper fine sands, 0 to 5 percent slopes	Moderately well drained	A	42 to 72
Site Nos. 6 and 7; Boring B-6 and B-7				
29	Myakka fine sand, 0 to 2 percent slopes	Poorly drained	A/D	6 to 18
61	Zolfo fine sand, 0 to 2 percent slopes	Somewhat poorly drained	A	18 to 42
Site No. 8; Boring B-8				
61	Zolfo fine sand, 0 to 2 percent slopes	Somewhat poorly drained	A	18 to 42
Site No. 10; Boring B-10				
3	Archbold fine sand	Moderately well drained	A	42 to 72
5	Basinger, Holopaw and Samsula soils, depressional	Very poorly drained	A/D	0
Site No. 11; Boring B-11				
22	Immokalee-Urban land complex ²	Poorly drained	B/D	>80

1. The "Water table" above refers to a saturated zone in the soil which occurs during specified months, typically the summer wet season. Estimates of the upper limit shown in the Web Soil Survey are based mainly on observations of the water table at selected sites and on evidence of a saturated zone, namely grayish colors (redoximorphic features) in the soil. A saturated zone that lasts for less than a month is not considered a water table.

2. The term "complex", as defined by the USDA, refers to a map unit consisting of two or more soils or miscellaneous areas in such an intricate pattern or in such small areas that they cannot be shown separately on the map.

4.4 Seasonal High Groundwater Level

In estimating seasonal high groundwater level, a number of factors are taken into consideration including antecedent rainfall, soil redoximorphic features (i.e., soil mottling), stratigraphy (including presence of hydraulically restrictive layers), vegetative indicators, effects of development, and relief points such as drainage ditches, low-

lying areas, etc.

Based on our interpretation of the current site conditions, including the boring logs and review of published data, we estimate the normal seasonal high groundwater level at the boring locations to be approximately as shown in the "General Soil Profiles," Figures 3 to 13 and on the boring logs in Appendix A. We estimate these depths to vary from 1.5 to 7 feet below the existing site grades.

This field exploration was performed during the typical Florida dry season between the months of November and May, and it is possible that higher groundwater levels may exceed the estimated normal seasonal high groundwater levels as a result of significant or prolonged rains. Therefore, we recommend that design drawings and specifications account for the possibility of groundwater level variations, and construction planning should be based on the assumption that such variations will occur.

5.0 DESIGN RECOMMENDATIONS

5.1 General

The following evaluation and recommendations are based on the provided project information as presented in this report, the results of the field exploration and laboratory testing performed, and the construction techniques recommended in Section 6.0 below. If the described project details are incorrect or changed after this report, or if subsurface conditions encountered during construction are different from those reported, then MAE should be notified so that these recommendations can be re-evaluated and revised, if necessary. We recommend that MAE review the foundation plans and earthwork specifications to verify that the recommendations in this report have been properly interpreted and implemented.

5.2 Shallow Foundation Design Recommendations

Based on the results of our exploration, we consider the subsurface conditions at Site Nos. 1 to 11 to be adaptable for support of the proposed pump station equipment on a monolithic slab-on-grade, or for support of proposed storm sewer improvements, and we consider the subsurface conditions at Site No. 1 to be adaptable for support of the proposed retaining wall on shallow spread footings, provided that all subgrade and foundation bearing soils are properly prepared as outlined in Section 6.0.

5.2.1 Equipment Slab and Shallow Foundation Bearing Pressure

The maximum allowable net foundation bearing pressures will depend on the embedment depth of the foundation, the potential for submerged conditions, the inclination of the ground surface (such as for retaining walls constructed on or adjacent to pond slopes) as well as the corresponding allowable settlements, which will be a function of both the bearing pressure and the size of the foundation. We recommend the following maximum allowable net foundation bearing pressures for monolithic slab foundations and shallow spread footings:

- monolithic slab/mat foundations = 500 psf with 12-inch minimum embedment depth below lowest adjacent grade for turned-down edge at the slab perimeter (considers potential for submerged conditions);
- shallow spread footings with level ground surface = 1,500 psf with 24-inch embedment depth below lowest adjacent grade or top of floor slab (considers potential for submerged conditions); and
- shallow spread footings with sloping ground surface no steeper than 2:1, horizontal:vertical = 750 psf at 24-inch embedment depth below lowest adjacent grade or top of floor slab (considers potential for submerged conditions).

Net bearing pressure is defined as the soil bearing pressure at the foundation bearing level in excess of the

overburden effective pressure at that level. The foundations should be designed based on the maximum load that could be imposed by all loading conditions.

Maximum allowable net foundation bearing pressures assume the embedment depths provided are maintained during the life of the structure foundations. Protection should be provided against erosion adjacent to foundations, particularly where foundations are constructed on or adjacent to pond slopes.

5.2.2 Foundation Size

The minimum width recommended for the turned-down edges of lightly loaded monolithic equipment slabs is 12 inches. The minimum width recommended for any isolated column footings and continuous wall footings are 24 inches and 18 inches, respectively. Even though the maximum allowable soil bearing pressure may not be achieved, these width recommendations should control the size of the foundations.

5.2.3 Bearing Depth

The turned down edges of the monolithic slab-on-grade should bear at a depth of at least 12 inches below the exterior final grades. It is recommended that stormwater be diverted away from these slabs to reduce the possibility of erosion beneath the slabs.

For spread footings the foundations should bear at a depth of at least 24 inches below the lowest adjacent final grades. The maximum allowable net bearing pressure for this bearing depth is presented in Section 5.2.1, considering the conditions anticipated for the foundations. It is recommended that stormwater be diverted away from the foundation exterior to reduce the possibility of erosion beneath the exterior footings. **Maximum allowable net foundation bearing pressures assume the embedment depths provided are maintained during the life of the structure foundations. Protection should be provided against erosion adjacent to foundations, particularly where foundations are constructed on or adjacent to pond slopes.**

5.2.4 Bearing Material

The subgrade soils below the monolithic slab-on-grade and shallow spread foundations should consist of approved on-site or import structural fill soils. The fine sands (SP), fine sands with silt (SP-SM), and fine sands with clay (SP-SC) as encountered in the near surface soils are approved onsite soils for foundation support if properly prepared as outlined in Section 6.0. Proper preparation includes a limited over-excavation to maximum bottom of turned-down edge or bottom of footing elevation followed by proof-roll and proper subgrade compaction. The subgrade soils should be compacted to at least 95 percent of the soil's modified Proctor Maximum Dry Density (ASTM D1557) to a depth of at least one foot below the slab or foundation bearing levels. Control of the soil's moisture content will be necessary to achieve the required level of compaction.

5.2.5 Equipment Slab Support

The equipment slabs can be constructed as a slab-on-ground with turned-down edges as recommended herein, provided unsuitable material is removed during stripping and grubbing, recommended over-excavation and proof-roll are completed, and excavated soils are replaced with properly compacted structural fill as outlined in Section 6.0. Where moisture sensitive equipment will be placed on the slabs, it is recommended that the slab bearing soils be covered with an impervious membrane to reduce moisture entry and slab dampness. A minimum 6-mil thick plastic membrane is commonly used for this purpose. Care should be exercised to not tear the membrane during placement of reinforcing steel and concrete. In addition, we recommend that a minimum separation of 2 feet be maintained between the finished slab levels and the estimated normal seasonal high groundwater level.

Provided the subgrade preparation and placement of structural fill is performed per the recommendations discussed herein in Section 6.0 of this report, the equipment slabs may be designed assuming a modulus of subgrade

reaction (k_1) of approximately 15 pci (lbs/cubic inch), assuming approximate slab dimensions of 8 feet by 20 feet under the expected loading conditions outlined herein. For slabs with smaller loaded areas (point loading), a modulus of subgrade reaction (k_1) of approximately 150 pci is recommended. This higher modulus of subgrade reaction value is based on a 1 ft by 1 ft plate load test and should only be used for comparable loading conditions.

5.3 Settlement Estimates

Post-construction settlements will be influenced by several interrelated factors, such as (1) subsurface stratification and strength/compressibility characteristics; (2) slab size, bearing level, applied loads, and resulting bearing pressure beneath the slab; and (3) site preparation and earthwork construction techniques used by the contractor. Our settlement estimates are based on the use of site preparation/earthwork construction techniques as recommended in Section 6.0 of this report. Any deviation from these recommendations could result in an increase in the estimated post-construction settlements of the structure.

Due to the predominant sandy nature of the subgrade soils supporting the equipment slab, and the relatively low bearing pressures expected for the equipment slabs, we expect the majority of settlement to occur in an elastic manner and fairly rapidly during construction and upon loading of the foundation. Using the recommended maximum bearing pressure and the field and laboratory test data that we have correlated to geotechnical strength and compressibility characteristics of the subsurface soils, we estimate that total settlement for both equipment slabs and shallow spread footings, designed in accordance with the recommendations provided herein, to be on the order of one (1) inch or less.

Differential settlements result from differences in applied bearing pressures and variations in the compressibility characteristics of the subsurface soils. Because of the general uniformity of the subsurface conditions and the recommended site preparation and earthwork construction techniques outlined in Section 6.0, we estimate the differential settlement of both structures to be on the order of one-half (1/2) inch or less.

5.4 Retaining Wall Design Recommendations

Based on the results of our exploration, we consider the subsurface conditions at the site adaptable for support of the proposed retaining wall at Site No. 1 when constructed on a properly designed shallow foundation system, in accordance with Section 5.2, Shallow Foundation Design Recommendations. Provided the site preparation and earthwork construction recommendations outlined in Section 6.0 of this report are performed, the following lateral pressure design parameters may be used for retaining wall design.

5.4.1 Lateral Pressure Design Parameters

In general, structures that have adjacent compacted fill will be subjected to lateral earth pressures. Walls that are restrained at the top and bottom will be subjected to at-rest soil pressures, while walls that are not restrained at the top, and where sufficient movement is anticipated, will be subjected to active earth pressures. Surcharge effects for sloped backfill, point or area loads behind the walls (i.e., generator foundation loading), and potential traffic loading. Adequate drainage provisions should be incorporated in the design to prevent hydrostatic pressure build-up behind the wall; typically with the use of a free-draining granular soil having less than 5 percent fines behind the wall, wall drains and weep holes through the wall. Passive resistance resulting from footing embedment at the wall toe could be neglected for safer design. **Where passive resistance is included in the design, the resistance should take into consideration submerged conditions at the toe of the retaining wall foundation (see Section 5.4.2).**

The following soil parameters can be used where approved structural fill soils are placed and compacted adjacent to structures as described in Section 6.0:

Lateral Pressure Design Soil Parameter	Value
Backfill Soil Unit Weight, Saturated (γ_{sat})	120 pcf
Backfill Soil Unit Weight, Moist (γ_m)	115 pcf
Backfill Soil Angle of Internal Friction (ϕ)	30 degrees
Coefficient of Active Earth Pressure (k_a)	0.33
Coefficient of At-Rest Earth Pressure (k_o)	0.50
Coefficient of Passive Earth Pressure (k_p)	3.0
Foundation Soil Unit Weight, Moist (γ_m)	110 pcf*
Foundation Soil Unit Weight, Submerged (γ_m)	58 pcf**
Foundation Soil Angle of Internal Friction (ϕ)	30 degrees

*Assumes optimum moisture at 95% Modified Proctor

**Applicable for passive earth pressure where footings are subjected to standing water

The above parameters are based on approved structural sand backfill (SP, SP-SM, SP-SC) having less than or equal to 12 percent fines, placed and compacted against structures as discussed in Section 6.0 below. A coefficient of friction between concrete and sand of 0.3 for precast concrete or 0.45 for cast-in-place concrete may be used in the design. The structures should be designed to include all temporary construction and permanent traffic and surcharge loads acting on the structures.

For the design of lateral loads on below-grade structures, we recommend that the groundwater level be assumed to be at the ground surface. Lateral pressure distributions in accordance with the above do not take into account forces from construction equipment, wheel loads or other surcharge loads such as the equipment slab loading. **To account for this loading, a pressure equal to 0.5 times the anticipated surface surcharge should be applied over the full height of all walls where the loading will occur within a 1:1 zone, horizontal:vertical, extending upward and away from the bottom of the wall.**

5.4.2 Resisting Lateral Forces

Horizontal forces can be resisted to some extent by the passive earth pressures that develop in contact with the buried perpendicular face of the structure, and by shearing resistance mobilized along the structure base (foundation) and subgrade interface. Allowable passive earth pressure resistance may be determined using the following equivalent fluid densities; a factor of safety of 3 has been taken into consideration for these values:

- Above Water Table - Equivalent Fluid Density 110 lb/ft³
- Below Water Table - Equivalent Fluid Density 58 lb/ft³

It is assumed the below-grade structure components are surrounded by properly compacted structural backfill extending at least 5 feet horizontally beyond the vertical bearing face, as described in Section 6.0 below. In addition, it is presumed that the structures can withstand horizontal movements on the order of 0.5-inch before mobilizing full passive resistance.

The allowable sliding shearing resistance mobilized along the base of the structure foundation may be determined by the following formula:

$$P = \frac{1}{3}V \tan \left(\frac{2}{3}\phi \right)$$

Where: P = Allowable shearing resistance force
V = Net vertical force (total weight of block and soil overlying the structure minus hydrostatic uplift forces)
 ϕ = Angle of internal friction = 30°

The following unit weights can be used to calculate the weight of the overburden soil:

- | | |
|------------------------|------------------------|
| ▪ Compacted Moist Soil | 110 lb/ft ³ |
| ▪ Saturated Soil | 120 lb/ft ³ |
| ▪ Submerged Soil | 58 lb/ft ³ |

5.5 Subsurface Structures Bearing Recommendations

Given the information provided by McKim and Creed, we understand the work at Site No. 11 (Alline Avenue) will include construction of a new storm sewer structure over to the existing 29"x 45" ERCP and adjacent to an existing wet well. Detailed information on the structure design was not provided; however, we expect that this storm sewer structure may consist of a subsurface prefabricated vault with associated piping. The planned embedment depth has not been provided but is presumed herein to be approximately within the upper 10 feet below the existing site grade. Boring B-11 encountered clayey sand (SC) soils from a depth of approximately 6 feet to 13.5 feet, which was underlain by weathered hard limestone. Based on our evaluation, the clayey fine sand (SC) is not recommended for support the proposed structure. If the storm sewer structure bottom elevation will be within the clayey sand soil, then the excavation should be extended at least 2 feet below the planned bottom elevation, or additionally until adequately stable and/or compactable bearing materials are encountered. The bottom soil within the excavation should be compacted as noted in Section 6.0 below. The excavation should then be backfilled to achieve the required bearing elevation, either with approved structural backfill or with a graded coarse aggregate such as FDOT No. 57 stone. Where No. 57 stone is used, the gravel should be wrapped in a filter fabric to prevent migration of finer sand and clay fines into the gravel and should be placed in 6-inch lifts with each lift compacted to form a stable working surface.

5.6 Hydrostatic Uplift Resistance

It is anticipated that generator fuel tanks constructed below DFE or other buried structures such as the storm sewer structure at Site No. 11 will be subject to hydrostatic uplift pressures, particularly when the tank or buried structures are empty and exert little or no net downward pressure on the supporting soils. Generator slabs and underground structures subject to buoyant forces should be designed to resist hydrostatic uplift pressures appropriate for their depth, considering the normal seasonal high groundwater level and/or DFE. Hydrostatic uplift forces can be resisted in several ways including:

- Addition of dead weight to the structure; and
- Mobilizing the dead weight of the soil surrounding the structure through extension of footings outside the perimeter of the structure.

A moist compacted soil unit weight of 110 pcf may be used in designing the structure resistance to buoyancy except where the soils may be completely submerged. Where soils will be completely submerged, a buoyant unit weight of 58 pcf may be used in designing the structure resistance to uplift.

5.7 Utility Support Recommendations

Based on the expected utility installations for the planned pump station improvements, we consider the subsurface

conditions encountered in the borings to be adaptable for supporting the proposed utility installations when constructed by the cut-and-cover method upon properly prepared subgrade soils.

Based on our evaluation, the fine sand (SP), fine sand with silt (SP-SM) and fine sand with clay (SP-SC) may be used to support the proposed utility installations. We do not recommend supporting utility installations directly on clayey sand (SC) or clay (CH) soils. If the pipe invert elevation for utility installations will be within the clayey or clay soils, then the trench excavation should be extended 2 feet below the utility bearing depth. The excavation should then be backfilled with structural fill in compacted lifts to achieve the required utility bearing depth. The fine sands and fine sands with silt and clay (SP, SP-SM, SP-SC) encountered in the borings may be used for trench backfill material. All utility bearing soil and backfill should be placed and compacted as discussed in Section 6.0.

6.0 SITE PREPARATION AND EARTHWORK RECOMMENDATIONS

Site preparation as outlined in this section should be performed to provide more uniform foundation bearing conditions and to reduce the potential for post-construction settlements of the planned foundations.

6.1 Clearing

Prior to construction, the location of existing underground utility lines within the construction area should be established. Provisions should then be made to relocate interfering utilities to appropriate locations or the utility lines should be properly abandoned in place. MAE should have the opportunity to review construction plans where utilities will be abandoned in place. It should be noted that if underground pipes are not properly removed or plugged, they may serve as conduits for subsurface erosion which may subsequently lead to excessive settlement of overlying pipelines, pavements or structures.

During the excavation process, pavement materials should be stockpiled a safe distance from the construction areas to be removed from the site. We do not recommend use of pavement materials as utility bedding or backfill within the trench excavations. The actual depths of topsoil and surficial organic soils should be determined by MAE using visual observation and judgment during earthwork operations. The topsoil and surficial organic soils should not be reused as backfill material within utility or pipeline excavations. However, they may be stockpiled and used subsequently in areas to be grassed.

6.2 Temporary Groundwater & Surface Water Control

The groundwater level, where encountered, was recorded at the time of drilling ranging from 3.8 to 10 feet below the existing top of pavement or ground surface, with the estimated normal seasonal high groundwater level estimated to vary approximately in the range of 1.5 to 7 feet below the ground surface. Because of the need for excavation and compaction of the subgrade materials within the areas of foundation and utility installation it may be necessary to install temporary groundwater control measures to dewater the construction areas to facilitate the excavation and compaction processes.

Groundwater control measures should be determined by the contractor but can consist of sumps or wellpoints (or a combination of these or other methods) capable of lowering the groundwater level to at least 2 feet below the required depth of excavation. The dewatering system should not be decommissioned until excavation, compaction, and fill placement is complete, and sufficient deadweight exists on the structures to prevent uplift. During excavation of trenches, surface water during rainfall events should be diverted or captured and re-routed to avoid impacts to the excavation.

Note that discharge of produced groundwater to surface waters of the state from dewatering operations or other site activities is regulated and requires a permit from the State of Florida Department of Environmental Protection (FDEP). This permit is termed *Notice of Intent to use the Generic Permit for Discharge of Ground Water from Dewatering Operations*, Subsection 62-621.300(2), F.A.C. If discharge of produced groundwater is anticipated, we

recommend sampling and testing of the groundwater early in the site design phase to prevent project delays during construction. MAE can provide the sampling, testing, and professional consulting required to evaluate compliance with the regulations.

6.3 Over-Excavation and Subgrade Compaction in Foundation Areas

Due to the presence of very loose soils encountered at a majority of the sites, we recommend over-excavation of existing soils within all equipment slab and footing areas to a minimum depth of foundation bearing level, or at least one (1) foot below existing site grades, whichever is lower. The over-excavation should occur within the slab/foundation areas and 5 feet beyond in plan view. Prior to equipment slab area or foundation area compaction, proof-rolling of these areas with a loaded dump truck or other approved heavy equipment is recommended to locate any unforeseen soft or yielding areas, or unsuitable surface or near-surface soils subject to deflection under loading. Following proof-rolling and approval of subgrade conditions by the geotechnical engineer or other authorized representative, the exposed equipment slab and foundation areas should be compacted with a vibratory drum roller having a minimum static, at-drum weight, on the order of 5 tons or heavier. **It is recommended that the vibratory roller remain a minimum of 50 feet from existing structures. Within this 50-foot zone, use of a track-mounted bulldozer or a vibratory roller operating in the static mode, is recommended.** During compaction the slab/foundation supporting material being compacted should exhibit moisture contents within ± 2 percent of the modified Proctor optimum moisture content (ASTM D1557). Compaction should continue until densities of at least 95 percent of the modified Proctor maximum dry density (ASTM D1557) have been achieved at least within the upper 1 foot of the compacted natural soils at the site. Should the surface soils experience pumping and soil strength loss during the proof-rolling or compaction operations, compaction work should be immediately terminated. The disturbed (unstable or deflecting) soils should be removed and backfilled with dry structural fill soils, which are then compacted, or the excess moisture content within the disturbed soils should be allowed to dissipate before recompacting.

Care should be exercised to avoid damaging any nearby structures while the compaction operation is underway. Compaction should cease if deemed detrimental to adjacent structures, and MAE should be contacted immediately.

6.4 Open-Cut Utility/Pipeline Support Recommendations

Where open-cut installation of utilities or pipelines will occur, we consider the subsurface conditions encountered in the borings to be adaptable for supporting the proposed utilities or pipeline when constructed by open-cut methods and established upon properly prepared subgrade soils.

The near-surface soils at the sites (upper 4 to 6 feet) predominantly consisted of fine sands and fine sands with silt and clay (SP, SP-SM, SP-SC). These soils may be used as utility/pipe bedding and may be used as utility/pipe backfill. These soils should be placed and/or compacted as discussed in Section 6.5 below.

If unsuitable soils such as clayey sand (SC) or sandy clay (CH) are observed at the utility/pipe bearing depth, then these soils should be removed to a depth of at least 2 feet below the utility bearing depth plus a lateral margin of at least 2 feet on both sides of the utility. Backfill consisting of approved on-site soils or import fill should be placed and compacted in accordance with the recommendations included herein (Section 6.5) to the utility or pipe bottom elevation. Alternatively, a graded aggregate conforming to ASTM No. 67 stone may be used as utility/pipe bedding where clay/clayey or silty soils are present. However, if the graded aggregate is used then the unsuitable soils only require excavation to a depth of 12 inches below the utility/pipe invert elevation. Where ASTM No. 67 stone is used, a non-woven geotextile should be placed completely around the stone at the gravel-soil interface to function as a separation and reduce the potential for infiltration of the soil fines and sand into the gravel material. The stone should be placed in equal lifts of 6 inches or less, with each lift compacted to form a stable working surface. The purpose of this is to provide more uniform bearing conditions, and to reduce the potential for post construction settlements of the utility/pipeline.

6.5 Structural Backfill and Fill Soils

Imported structural fill should consist of a non-plastic, inorganic, granular soil having less than 10 percent material passing the No. 200 mesh sieve and containing less than 4 percent organic material. The fine sands (SP) and fine sands with silt and clay (SP-SM, SP-SC), as encountered in the borings, may be used as structural fill materials or utility trench backfill material and, with proper moisture control, should densify using conventional compaction methods. It should be noted that soils with more than 12 percent passing the No. 200 sieve will be more difficult to compact, due to their nature to retain soil moisture, and may require drying. Typically, the material should exhibit moisture contents within ± 2 percent of the modified Proctor optimum moisture content (ASTM D1557) during the compaction operations. Compaction should continue until densities of at least 95 percent of the modified Proctor maximum dry density (ASTM D1557) have been achieved within each lift of the compacted structural fill.

6.6 Excavation Protection

Excavation work will be required to meet OSHA Excavation Standard Subpart P regulations for Type C Soils. The use of excavation support systems will be necessary where there is not sufficient space to allow the side slopes of the excavation to be laidback to at least 1.5:1 (1.5 horizontal:1 vertical) to provide a safe and stable working area and to facilitate adequate compaction along the sides of the excavation. In addition, it should be anticipated that an excavation support system may be necessary to protect adjacent existing structures, pavement and/or utilities that are located adjacent to the proposed excavations.

The method of excavation support should be determined by the contractor but can consist of a trench box, drilled-in soldier piles with lagging, interlocking steel sheeting or other methods. The support structure should be designed according to OSHA sheeting and bracing requirements by a Florida licensed Professional Engineer. Where excavations and the construction of excavation support systems are within 50 feet of existing structures, the existing structures should be monitored for adverse reactions to construction vibrations and dewatering activities.

7.0 QUALITY CONTROL TESTING

A representative number of field in-place density tests should be made in the upper 2 feet of compacted natural soils, in each lift of compacted backfill and fill, and in the upper 12 inches below the bearing levels in the footing excavations. The density tests are considered necessary to verify that satisfactory compaction operations have been performed. We recommend density testing be performed as listed below:

- Two locations for every equipment slab foundation area;
- One test per lift of backfill placed beneath foundations or behind or against subsurface walls;
- One location for every 150 feet of utility installation, at the utility installation bearing depth and for each lift of compacted trench backfill.

8.0 REPORT LIMITATIONS

This report has been prepared for the exclusive use of City of Tampa and their authorized project representatives for specific application to the design and construction of the COT Pump Station Improvements at the Site Nos. 1 to 11 reported on herein. An electronically signed and sealed version, and a version of our report that is signed and sealed in blue ink, may be considered an original of the report. Copies of an original should not be relied on unless specifically allowed by MAE in writing. Our work for this project was performed in accordance with generally accepted geotechnical engineering practice. No warranty, express or implied, is made.

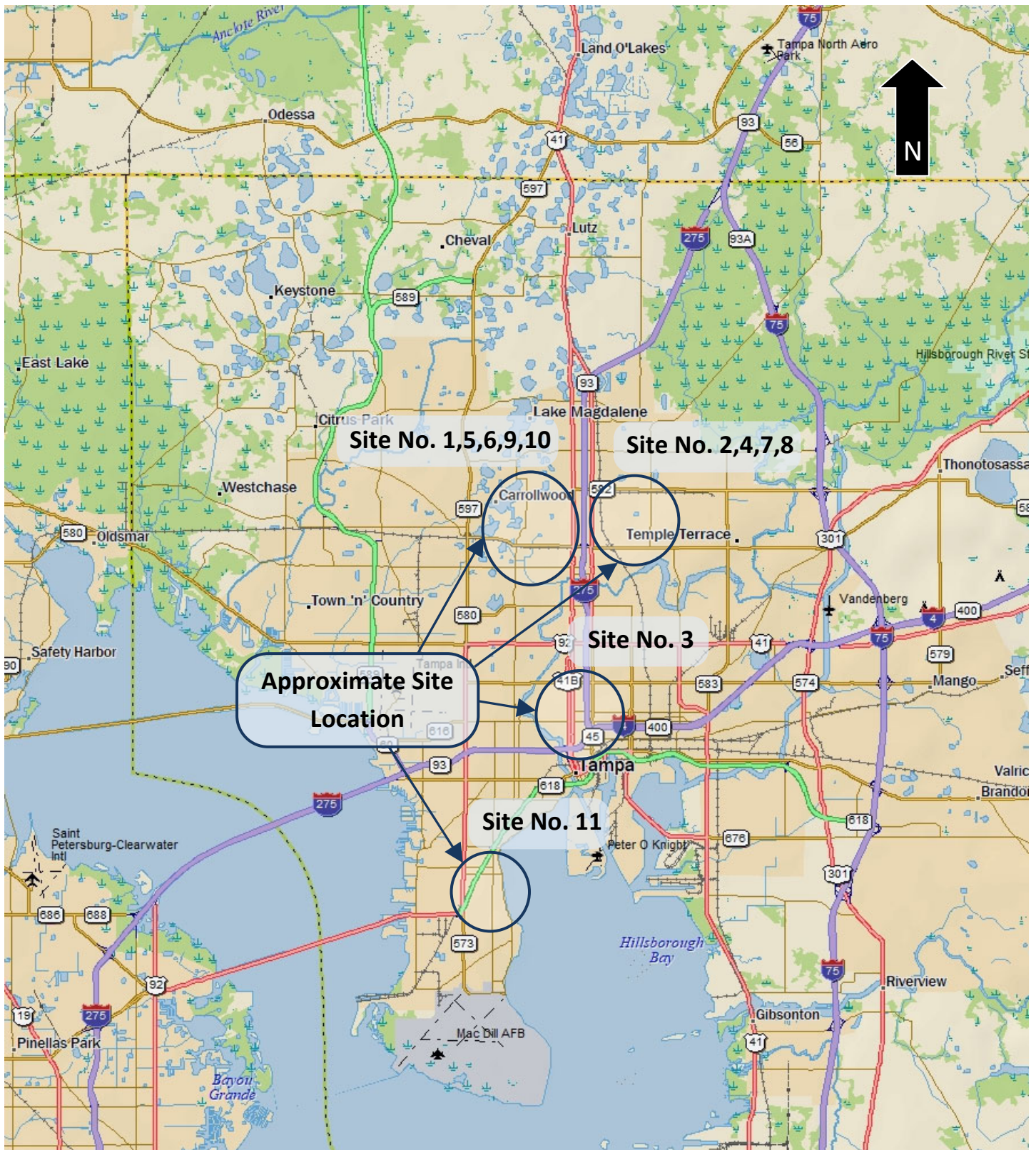
The analyses and recommendations contained in this report are based on the data obtained from this project. This

testing indicates subsurface conditions only at the specific locations and times, and only to the depths explored. These results do not reflect subsurface variations that may exist away from the boring locations and/or at depths below the boring termination depths. Subsurface conditions and water levels at other locations may differ from conditions occurring at the tested locations. In addition, it should be understood that the passage of time may result in a change in the conditions at the tested locations. If variations in subsurface conditions from those described in this report are observed during construction, then the recommendations in this report must be re-evaluated.

The scope of our services did not include any environmental assessment or testing for the presence or absence of hazardous or toxic materials in the soil, groundwater, or surface water within or beyond the subject site. Any statements made in this report, and/or notations made on the generalized soil profiles or boring logs, regarding odors or other potential environmental concerns are based on observations made during execution of our scope of services and as such are strictly for the information of our client. No opinion of any environmental concern of such observations is made or implied. Unless complete environmental information regarding the site is already available, an environmental assessment is recommended.

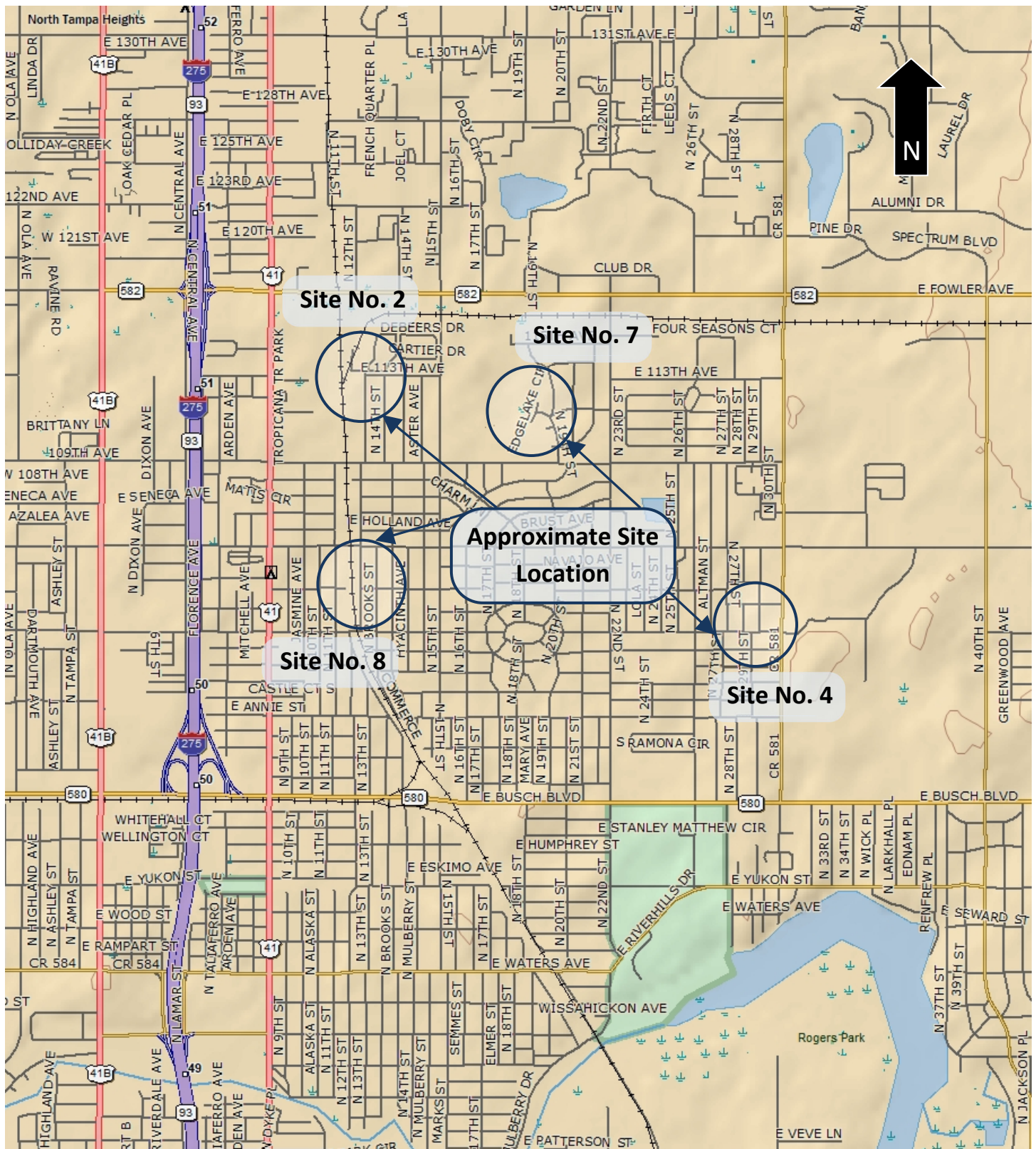
If changes in the design or location of the proposed structures occur, then the conclusions and recommendations contained in this report may need to be modified. We recommend that these changes be provided to us for our consideration. MAE is not responsible for conclusions, interpretations, opinions or recommendations made by others based on the data contained in this report.

Figures



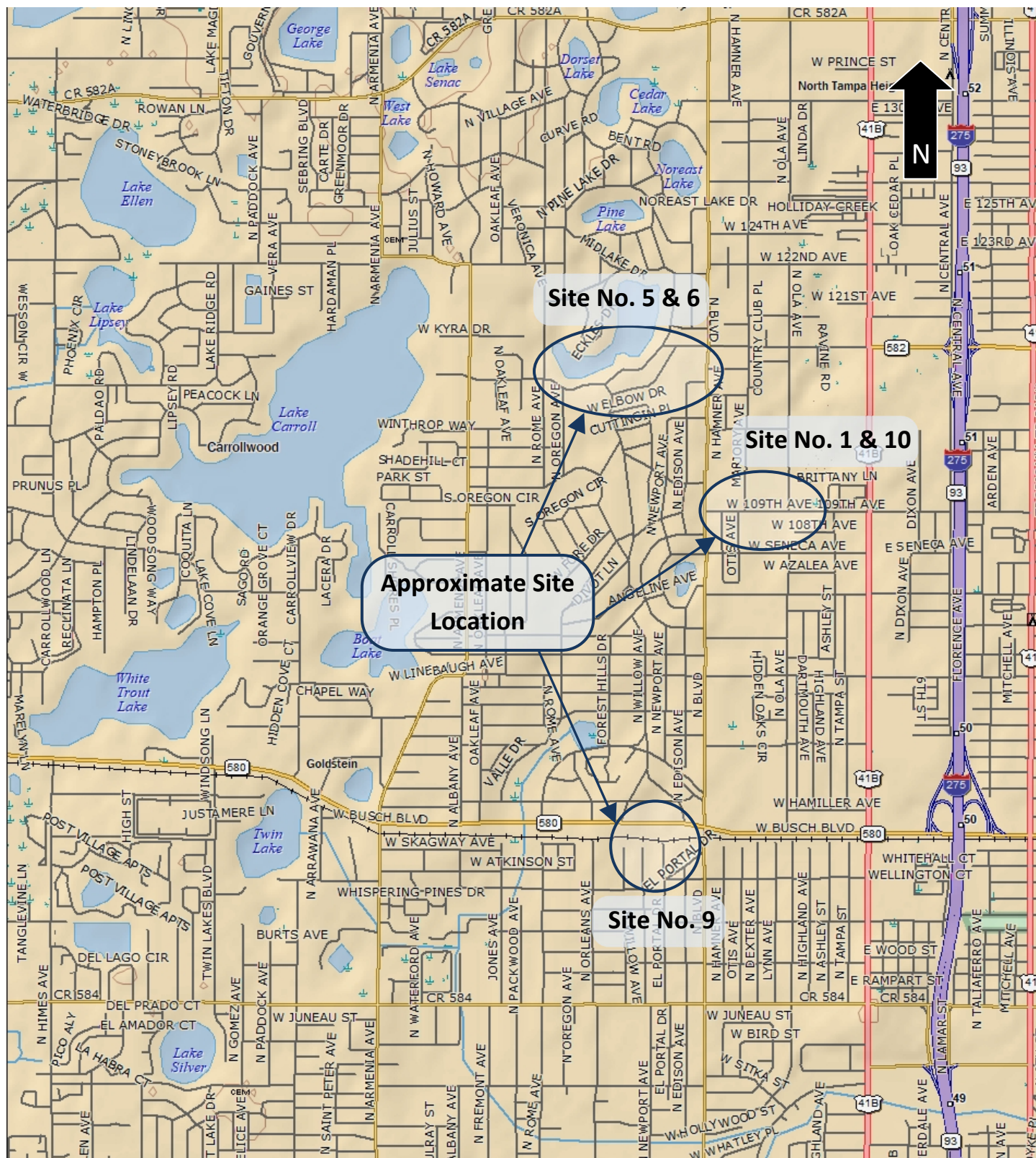
Site Location Map - All Sites

PREPARED BY	PROJECT NAME	
 Meskel & Associates Engineering	COT Pump Station Resiliency and Reliability Improvements Tampa, Florida	
	REFERENCE Delorme XMap 7.0	SCALE NTS
PREPARED FOR City of Tampa	MAE PROJECT NO. 0135-0005.01	FIGURE NO. 1A



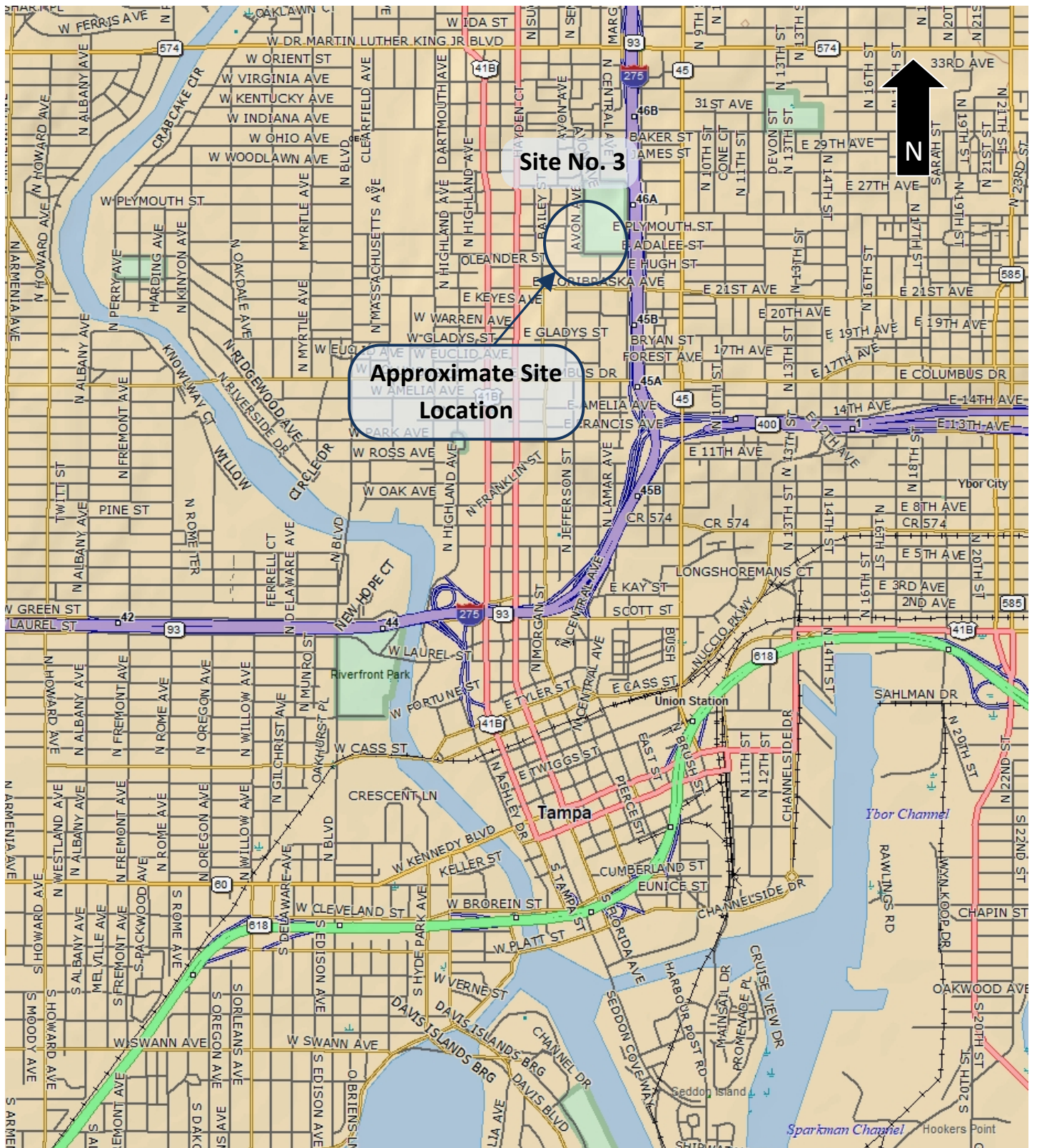
Site Location Map - Vicinity

PREPARED BY	PROJECT NAME	
 Meskel & Associates Engineering	COT Pump Station Resiliency and Reliability Improvements Tampa, Florida	
	REFERENCE Delorme XMap 7.0 MAE PROJECT NO. 0135-0005.01	SCALE NTS FIGURE NO. 1B
PREPARED FOR City of Tampa		



Site Location Map - Vicinity

PREPARED BY		PROJECT NAME	
		COT Pump Station Resiliency and Reliability Improvements Tampa, Florida	
		REFERENCE	SCALE
		Delorme XMap 7.0	NTS
PREPARED FOR		MAE PROJECT NO.	FIGURE NO.
City of Tampa		0135-0005.01	1C



Site Location Map - Vicinity

PREPARED BY	PROJECT NAME	
 Meskel & Associates Engineering	COT Pump Station Resiliency and Reliability Improvements Tampa, Florida	
	REFERENCE Delorme XMap 7.0 MAE PROJECT NO.	SCALE NTS FIGURE NO.
PREPARED FOR City of Tampa	0135-0005.01	1D



Project Manager:	TF
Drawn by:	DPR
Checked by:	TF
Approved by:	MK

Project No.	0135-0005.01
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File Name:	0135-0005.01.BLP
Date:	1/5/2026



Meskel & Associates Engineering

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BORING LOCATION PLAN – SITE NO. 2
COT PUMP STATION RESILIENCY AND RELIABILITY IMPROVEMENTS
TAMPA, FLORIDA

FIG NO.
2B



Project Manager:	TF
Drawn by:	DPR
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Approved by:	MK

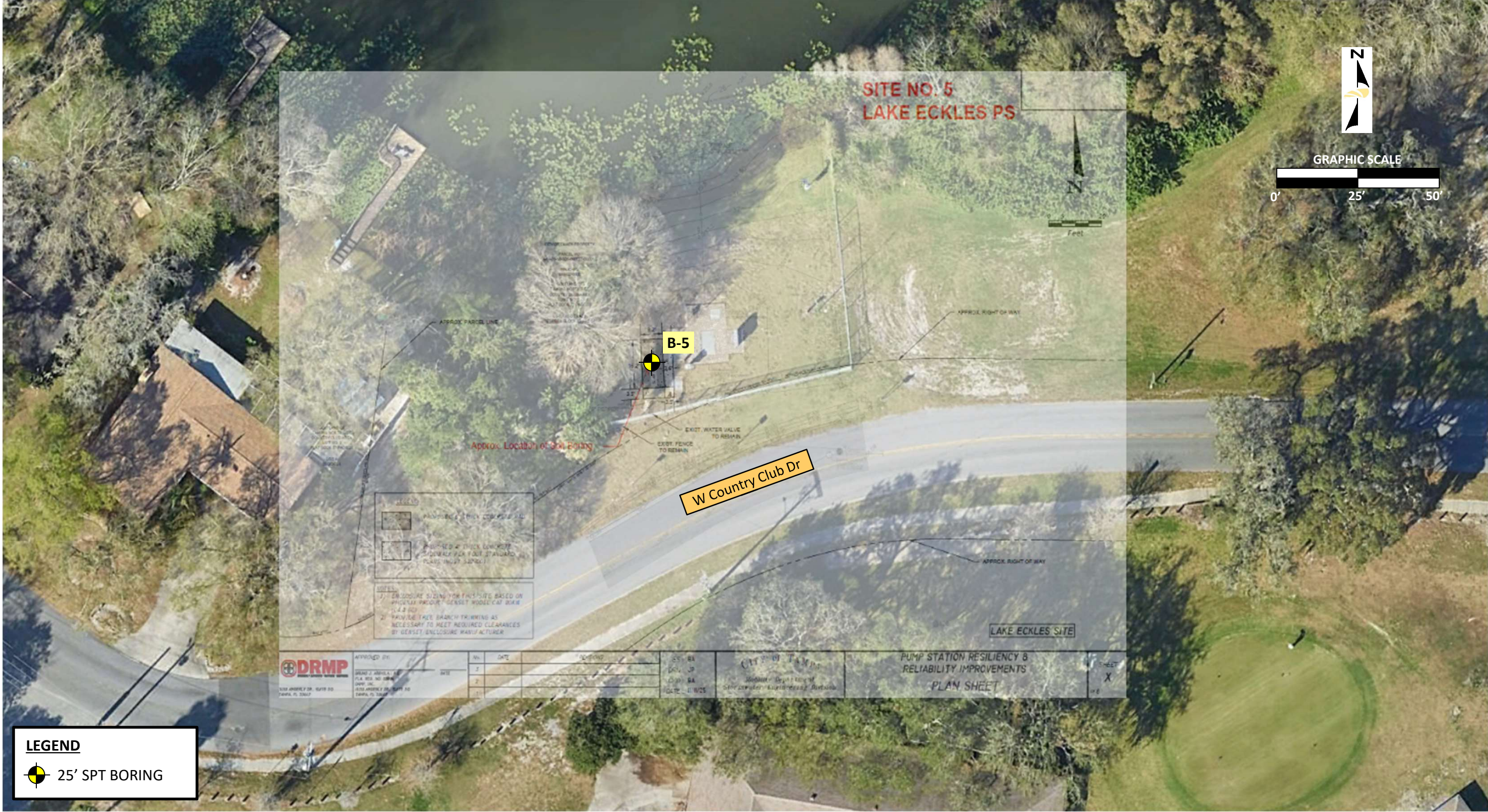
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BORING LOCATION PLAN – SITE NO. 4
COT PUMP STATION RESILIENCY AND RELIABILITY IMPROVEMENTS TAMPA, FLORIDA

FIG NO.
2D



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BORING LOCATION PLAN – SITE NO. 5
COT PUMP STATION RESILIENCY AND RELIABILITY IMPROVEMENTS
TAMPA, FLORIDA

FIG NO.
2E



Project Manager:	TF
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Approved by:	MK

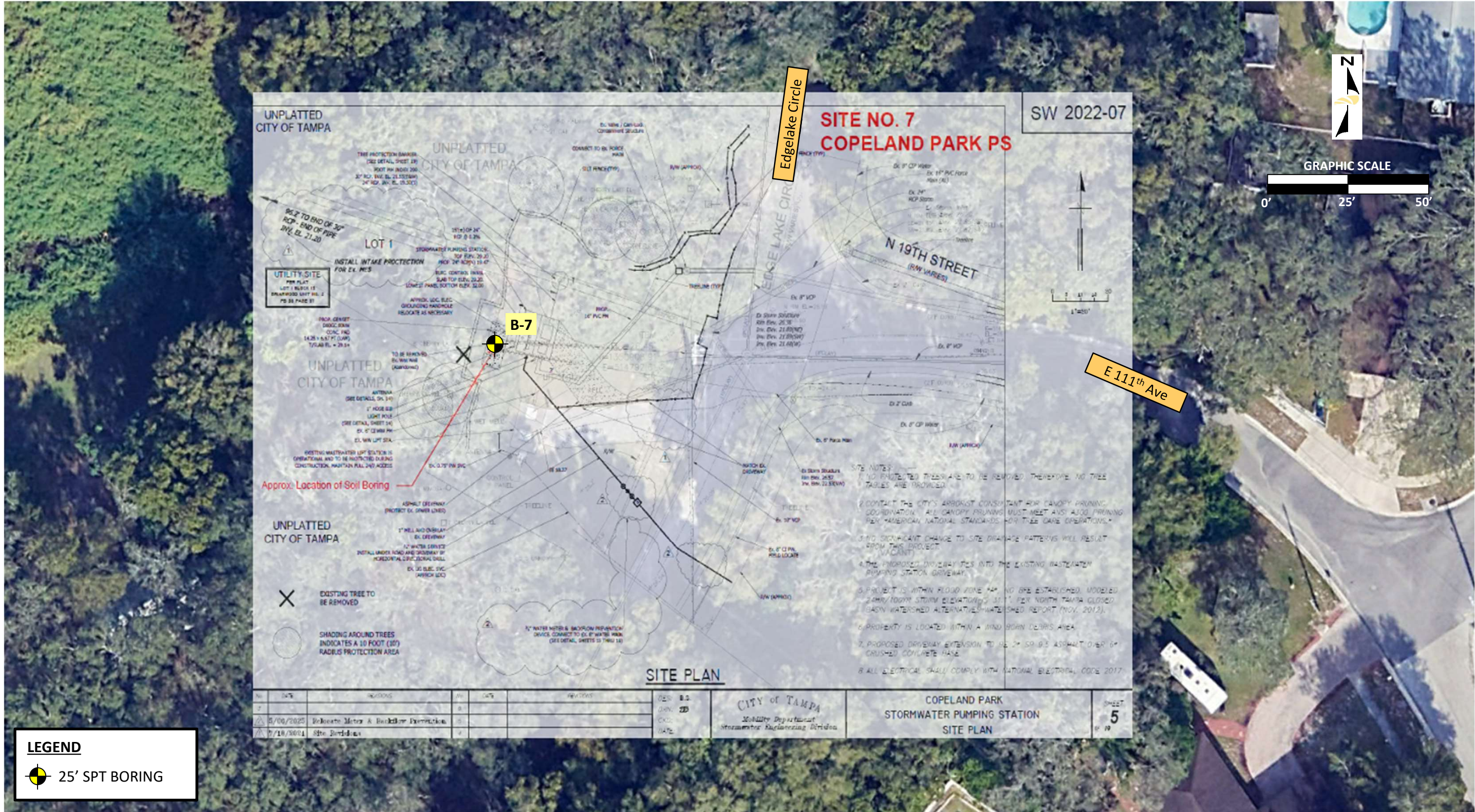
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Date:	1/5/2026



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BORING LOCATION PLAN – SITE NO. 6
COT PUMP STATION RESILIENCY AND RELIABILITY IMPROVEMENTS TAMPA, FLORIDA

FIG NO.
2F



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Approved by:	MK

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BORING LOCATION PLAN – SITE NO. 7
COT PUMP STATION RESILIENCY AND RELIABILITY IMPROVEMENTS
TAMPA, FLORIDA

FIG NO.
2G



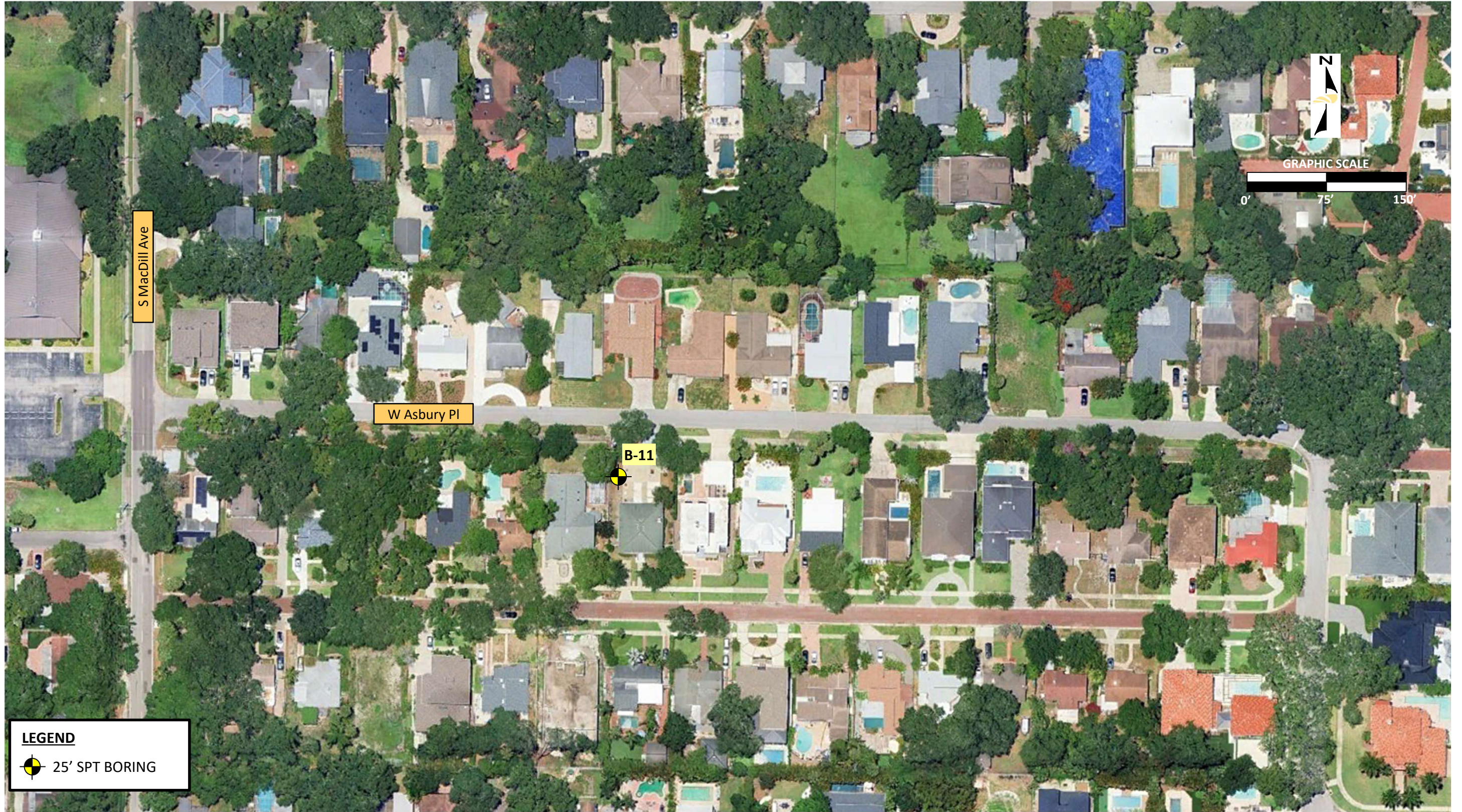
Project Manager:	TF	Project No.	0135-0005.01		3728 PHILIPS HIGHWAY, SUITE 208, JACKSONVILLE, FL 32207 PH. (904) 519-6990 • FAX (904) 519-6992 • www.MeskelEngineering.com	BORING LOCATION PLAN – SITE NO. 8		FIG NO.
Drawn by:	DPR	Scale:	AS SHOWN			COT PUMP STATION RESILIENCY AND RELIABILITY IMPROVEMENTS TAMPA, FLORIDA	2H	
Checked by:	TF	File Name:	0135-0005.01.BLP					
Approved by:	MK	Date:	1/5/2026					



LEGEND

 25' SPT BORING

Project Manager:	TF	Project No.	0135-0005.01	 3728 PHILIPS HIGHWAY, SUITE 208, JACKSONVILLE, FL 32207 PH. (904) 519-6990 • FAX (904) 519-6992 • www.MeskelEngineering.com	BORING LOCATION PLAN – SITE NO. 9		FIG NO.
Drawn by:	DPR	Scale:	AS SHOWN		COT PUMP STATION RESILIENCY AND RELIABILITY IMPROVEMENTS TAMPA, FLORIDA	21	
Checked by:	TF	File Name:	0135-0005.01.BLP				
Approved by:	MK	Date:	1/5/2026				



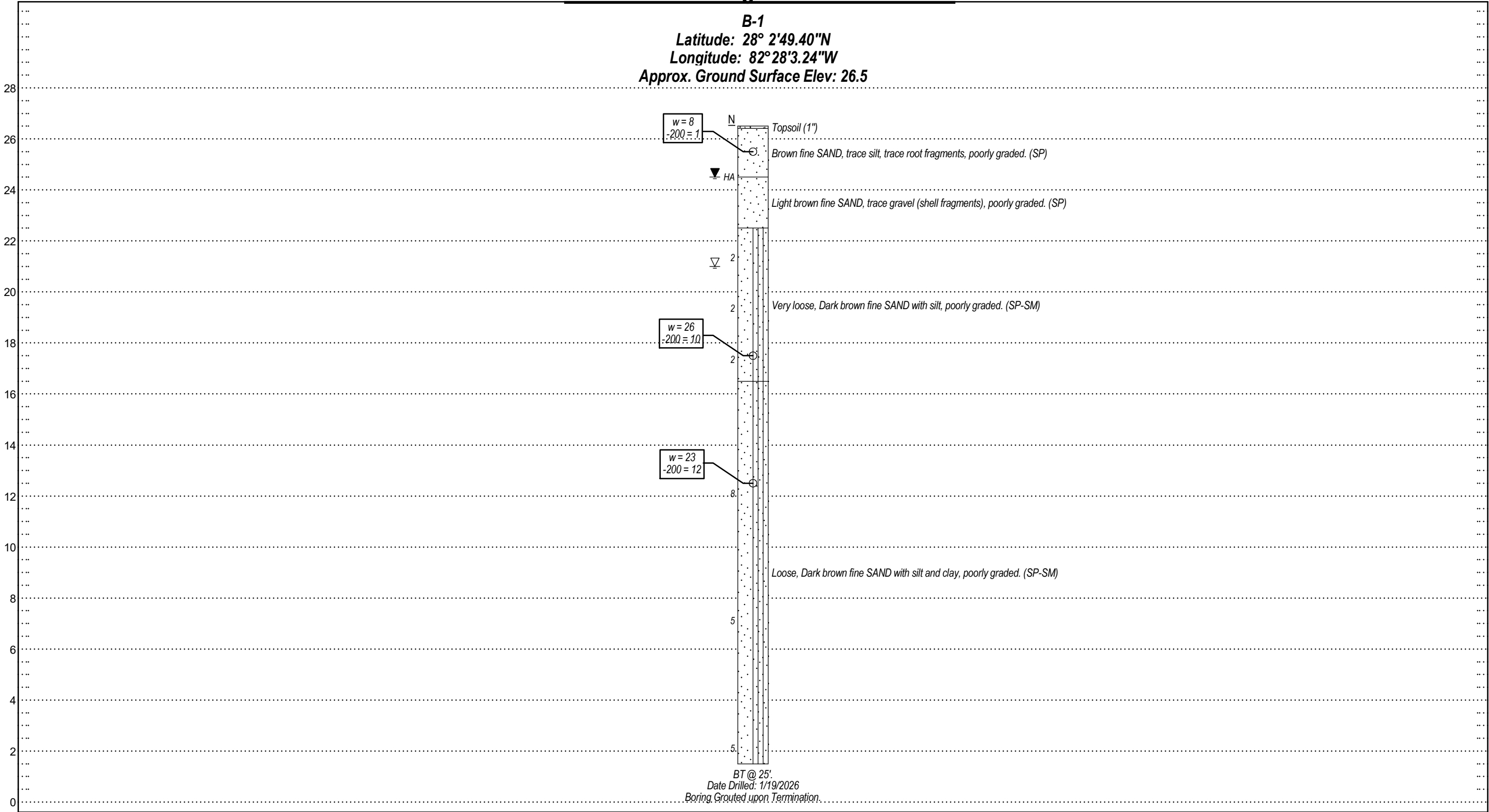
Project Manager:	TF	Project No.	0135-0005.01
Drawn by:	DPR	Scale:	AS SHOWN
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Approved by:	MK	Date:	1/5/2026

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			COT PUMP STATION RESILIENCY AND RELIABILITY IMPROVEMENTS TAMPA, FLORIDA		2K

Site No.1: Eastridge - 809 W.109th Ave

B-1
Latitude: 28° 2'49.40"N
Longitude: 82° 28'3.24"W
Approx. Ground Surface Elev: 26.5

Elevation (ft)



Elevation (ft)

Legend



Topsoil



Fine Sand



Fine Sand with Silt

N Standard Penetration Resistance, Blows/Foot
BT Boring Terminated at Depth Below Existing Grade
HA Hand Auger

(SP) Unified Soil Classification System (USCS)
▽ Depth to Groundwater at Time of Drilling
▼ Estimated Seasonal High Groundwater Level

w Natural Moisture Content (%)
-200 % Passing No. 200 U.S. Standard Sieve

REVISIONS					
DATE	BY	DESCRIPTION	DATE	BY	DESCRIPTION

MAXIMILIAN KEMNITZ, P.E. P.E. NO.: 93191

MAE

Meskel & Associates Engineering

FL Registry No. 28142

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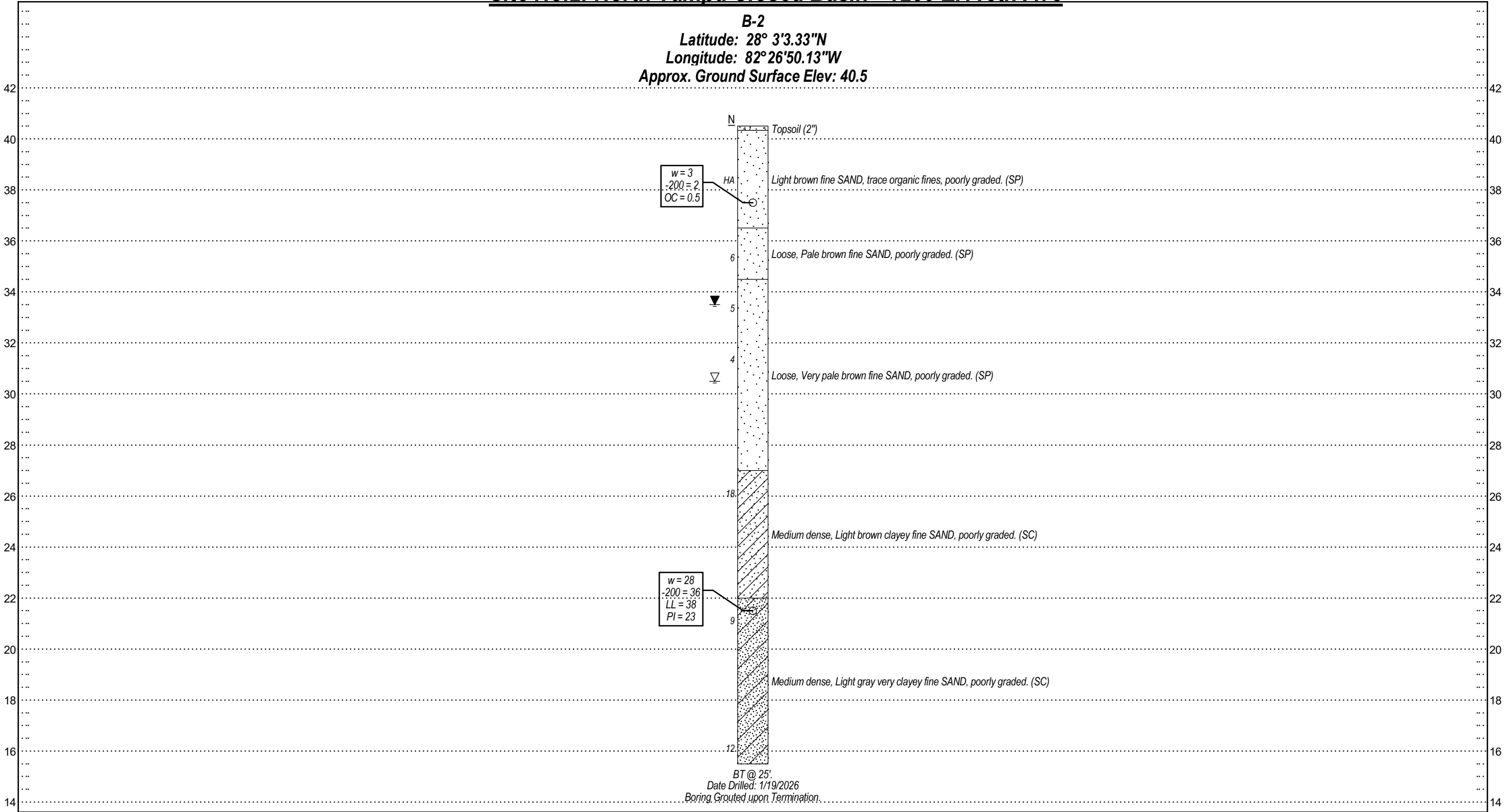
City of Tampa	
DATE	MAE PROJECT NO.
2/20/2026	0135-0005.01

SHEET TITLE:	
Generalized Soil Profiles	
PROJECT NAME:	FIGURE NO.
COT Pump Station Resiliency and Reliability Improvements Tampa, Florida	3

Site No.2: North Tampa Closed Basin - 1250 E.113th Ave

B-2
Latitude: 28° 3'3.33"N
Longitude: 82° 26'50.13"W
Approx. Ground Surface Elev: 40.5

Elevation (ft)



Elevation (ft)

Legend

- Topsoil, Fine Sand, Clayey Fine Sand, Very Clayey Fine Sand

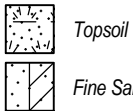
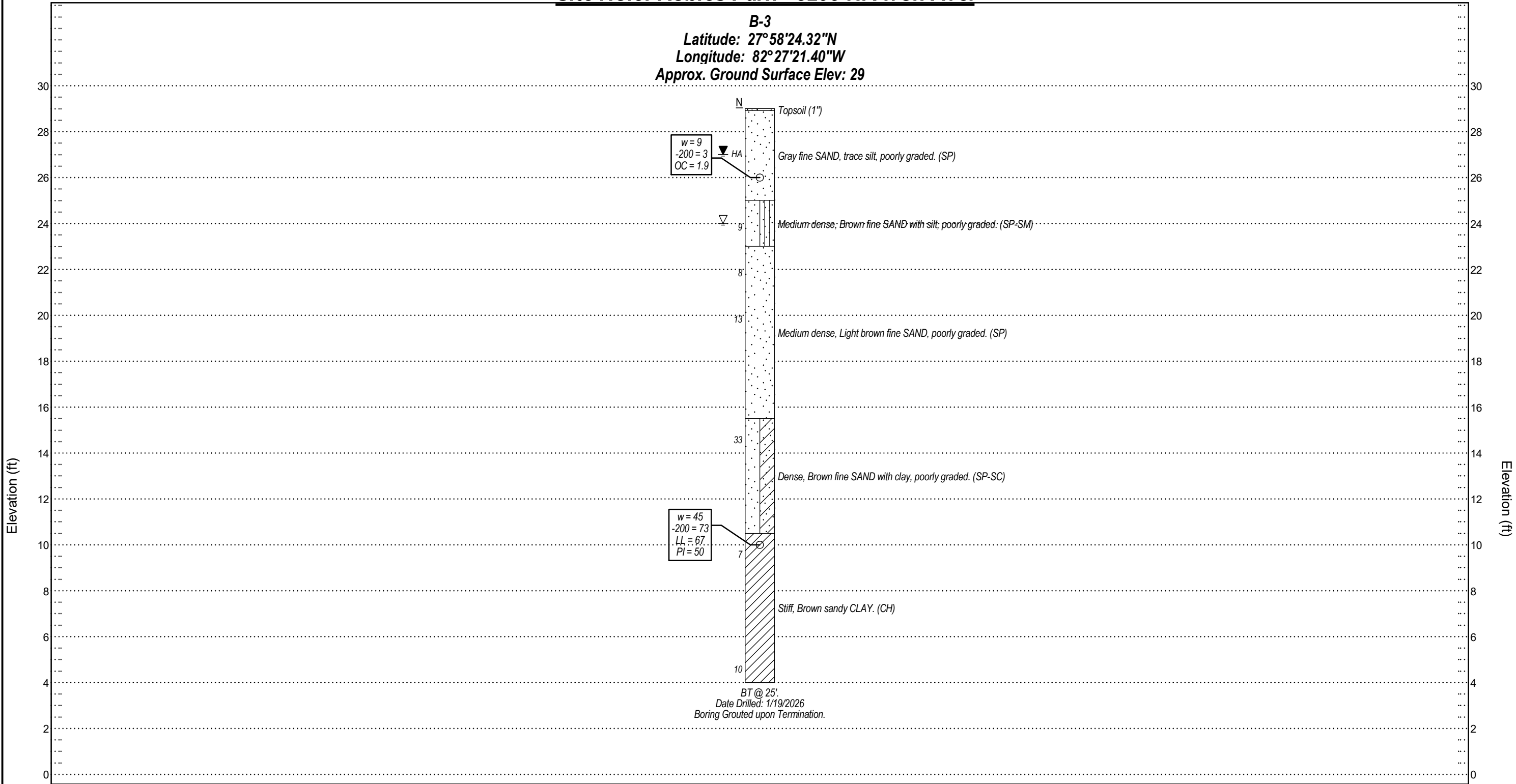
- N Standard Penetration Resistance, Blows/Foot, (SP) Unified Soil Classification System (USCS), w Natural Moisture Content (%), LL Liquid Limit, BT Boring Terminated at Depth Below Existing Grade, Depth to Groundwater at Time of Drilling, -200 % Passing No. 200 U.S. Standard Sieve, PI Plasticity Index, HA Hand Auger, Estimated Seasonal High Groundwater Level, OC Organic Content (%)

REVISIONS						City of Tampa		Generalized Soil Profiles	
DATE	BY	DESCRIPTION	DATE	BY	DESCRIPTION	DATE	MAE PROJECT NO.	PROJECT NAME:	FIGURE NO.
						2/20/2026	0135-0005.01	COT Pump Station Resiliency and Reliability Improvements Tampa, Florida	4

MAXIMILIAN KEMNITZ, P.E. P.E. NO.: 93191
MAE
Meskel & Associates Engineering
FL Registry No. 28142
3728 Philips Highway, Suite 208, Jacksonville, FL 32207

Site No.3: Robles Park - 3299 N. Avon Ave.

B-3
Latitude: 27°58'24.32"N
Longitude: 82°27'21.40"W
Approx. Ground Surface Elev: 29



Topsoil



Fine Sand



Fine Sand with Silt



Fine Sand with Clay



Clay, High Plasticity

Legend

N Standard Penetration Resistance, Blows/Foot

BT Boring Terminated at Depth Below Existing Grade

HA Hand Auger

(SP) Unified Soil Classification System (USCS)

▽ Depth to Groundwater at Time of Drilling

▼ Estimated Seasonal High Groundwater Level

w Natural Moisture Content (%)

-200 % Passing No. 200 U.S. Standard Sieve

OC Organic Content (%)

LL Liquid Limit

PI Plasticity Index

REVISIONS					
DATE	BY	DESCRIPTION	DATE	BY	DESCRIPTION

MAXIMILIAN KEMNITZ, P.E. P.E. NO.: 93191

MAE

Meskel & Associates Engineering

FL Registry No. 28142

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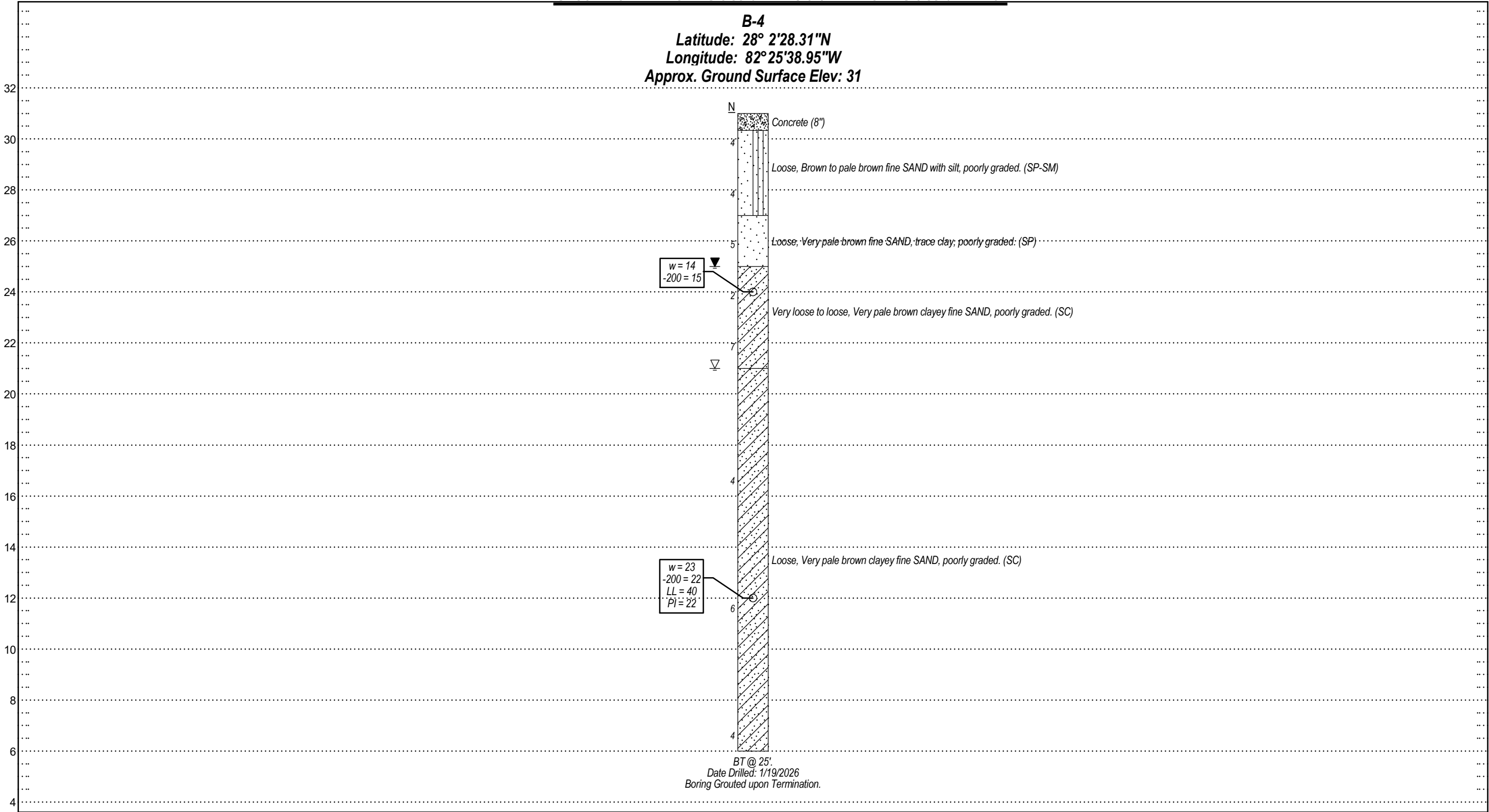
City of Tampa	
DATE	MAE PROJECT NO.
2/20/2026	0135-0005.01

SHEET TITLE:	
Generalized Soil Profiles	
PROJECT NAME:	FIGURE NO.
COT Pump Station Resiliency and Reliability Improvements Tampa, Florida	5

Site No.4: Poinsettia - 2806 E.Poinsettia Ave.

B-4
Latitude: 28° 2'28.31"N
Longitude: 82° 25'38.95"W
Approx. Ground Surface Elev: 31

Elevation (ft)



Elevation (ft)

Legend



Concrete



Fine Sand with Silt



Fine Sand



Clayey Fine Sand

N Standard Penetration Resistance, Blows/Foot

BT Boring Terminated at Depth Below Existing Grade

(SP) Unified Soil Classification System (USCS)

▽ Depth to Groundwater at Time of Drilling

▼ Estimated Seasonal High Groundwater Level

w Natural Moisture Content (%)

-200 % Passing No. 200 U.S. Standard Sieve

LL Liquid Limit

PI Plasticity Index

REVISIONS					
DATE	BY	DESCRIPTION	DATE	BY	DESCRIPTION

MAXIMILIAN KEMNITZ, P.E. P.E. NO.: 93191

MAE

Meskel & Associates Engineering

FL Registry No. 28142

3728 Philips Highway, Suite 208, Jacksonville, FL 32207

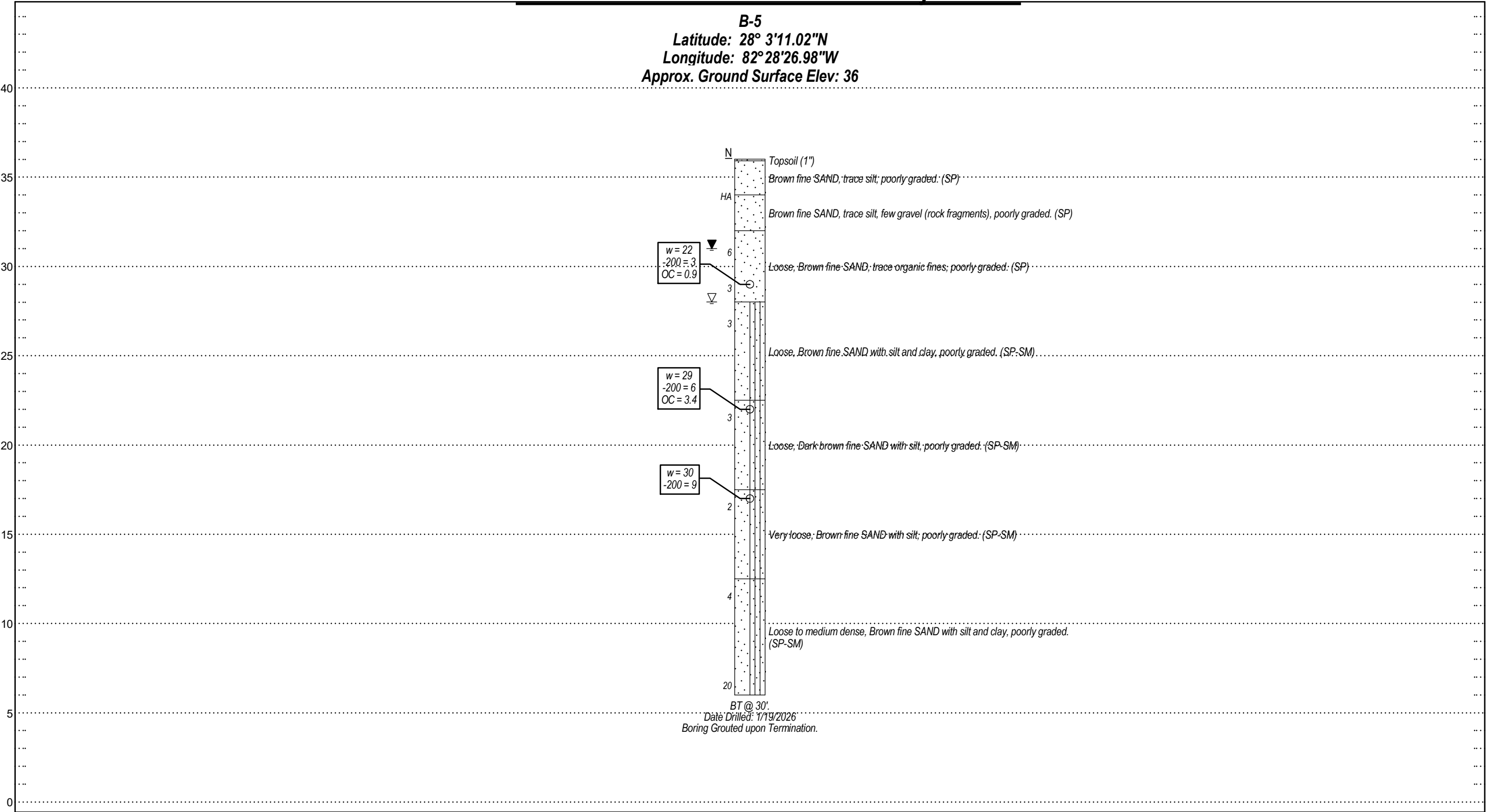
City of Tampa	
DATE	MAE PROJECT NO.
2/20/2026	0135-0005.01

SHEET TITLE:	
Generalized Soil Profiles	
PROJECT NAME:	FIGURE NO.
COT Pump Station Resiliency and Reliability Improvements Tampa, Florida	6

Site No.5: Lake Eckles - 1315 W. Country Club Dr.

B-5
Latitude: 28° 3'11.02"N
Longitude: 82° 28'26.98"W
Approx. Ground Surface Elev: 36

Elevation (ft)



Elevation (ft)

Legend



Topsoil



Fine Sand



Fine Sand with Silt

N

Standard Penetration Resistance, Blows/Foot

BT

Boring Terminated at Depth Below Existing Grade

HA

Hand Auger

(SP)

Unified Soil Classification System (USCS)

▽

Depth to Groundwater at Time of Drilling

▽

Estimated Seasonal High Groundwater Level

w

Natural Moisture Content (%)

-200

% Passing No. 200 U.S. Standard Sieve

OC

Organic Content (%)

REVISIONS

DATE	BY	DESCRIPTION	DATE	BY	DESCRIPTION

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City of Tampa

DATE	MAE PROJECT NO.
2/20/2026	0135-0005.01

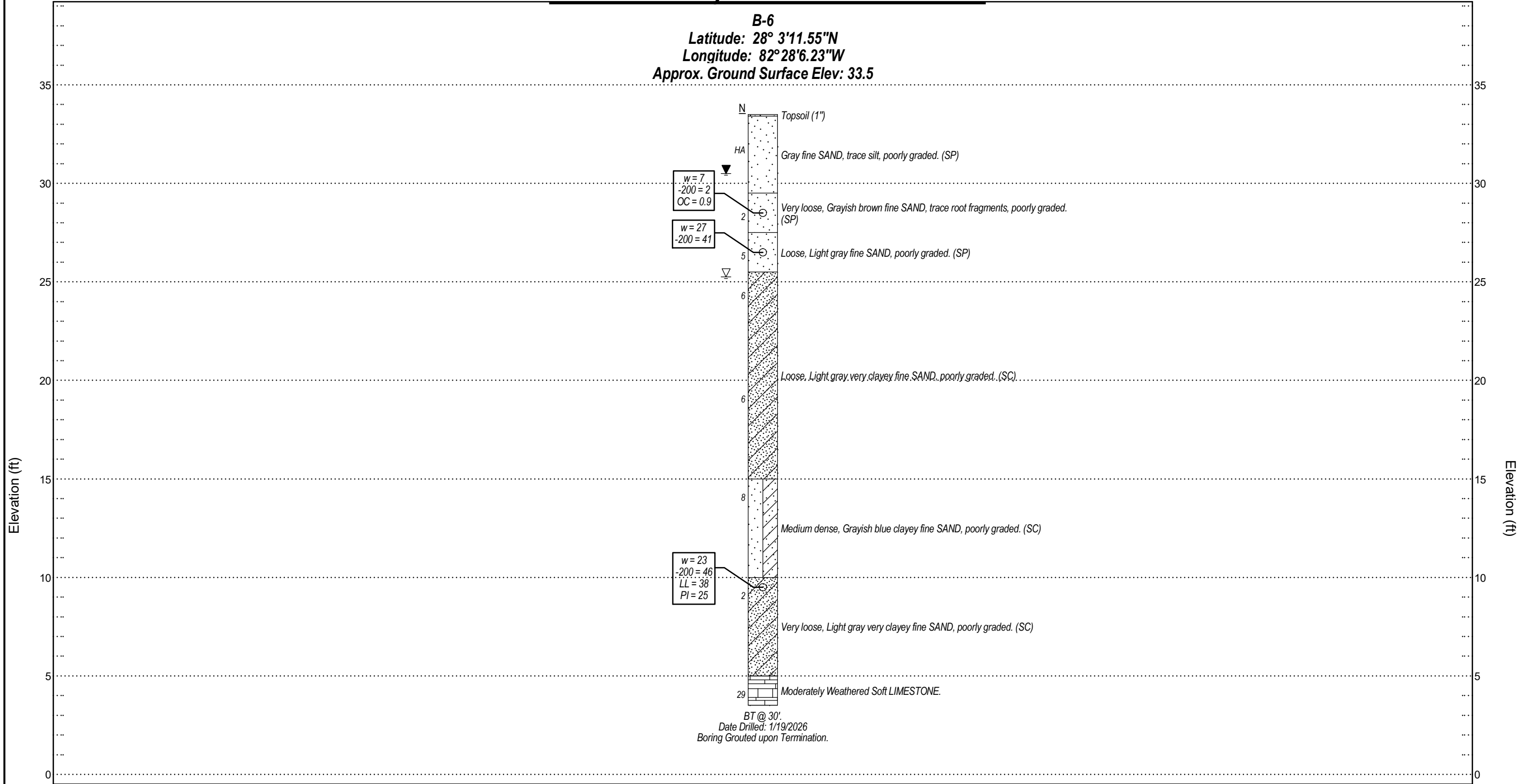
SHEET TITLE:	
Generalized Soil Profiles	
PROJECT NAME:	FIGURE NO.
COT Pump Station Resiliency and Reliability Improvements Tampa, Florida	7

Site No.6: Penalty Lake - 11404 W. Elbow Dr.

B-6
Latitude: 28° 3'11.55"N
Longitude: 82° 28'6.23"W
Approx. Ground Surface Elev: 33.5

Elevation (ft)

Elevation (ft)



Legend



Topsoil



Fine Sand



Very Clayey Fine Sand



Fine Sand with Clay



Highly Weathered Limestone

N

Standard Penetration Resistance,
Blows/Foot

BT

Boring Terminated at Depth Below Existing
Grade

HA

Hand Auger

(SP)

Unified Soil Classification System (USCS)

▽

Depth to Groundwater at Time of Drilling

▼

Estimated Seasonal High Groundwater Level

w

Natural Moisture Content (%)

-200

% Passing No. 200 U.S. Standard Sieve

OC

Organic Content (%)

LL

Liquid Limit

PI

Plasticity Index

REVISIONS						City of Tampa		Generalized Soil Profiles	
DATE	BY	DESCRIPTION	DATE	BY	DESCRIPTION	DATE	MAE PROJECT NO.	PROJECT NAME:	FIGURE NO.
						2/20/2026	0135-0005.01	COT Pump Station Resiliency and Reliability Improvements Tampa, Florida	8

MAXIMILIAN KEMNITZ, P.E. P.E. NO.: 93191

MAE

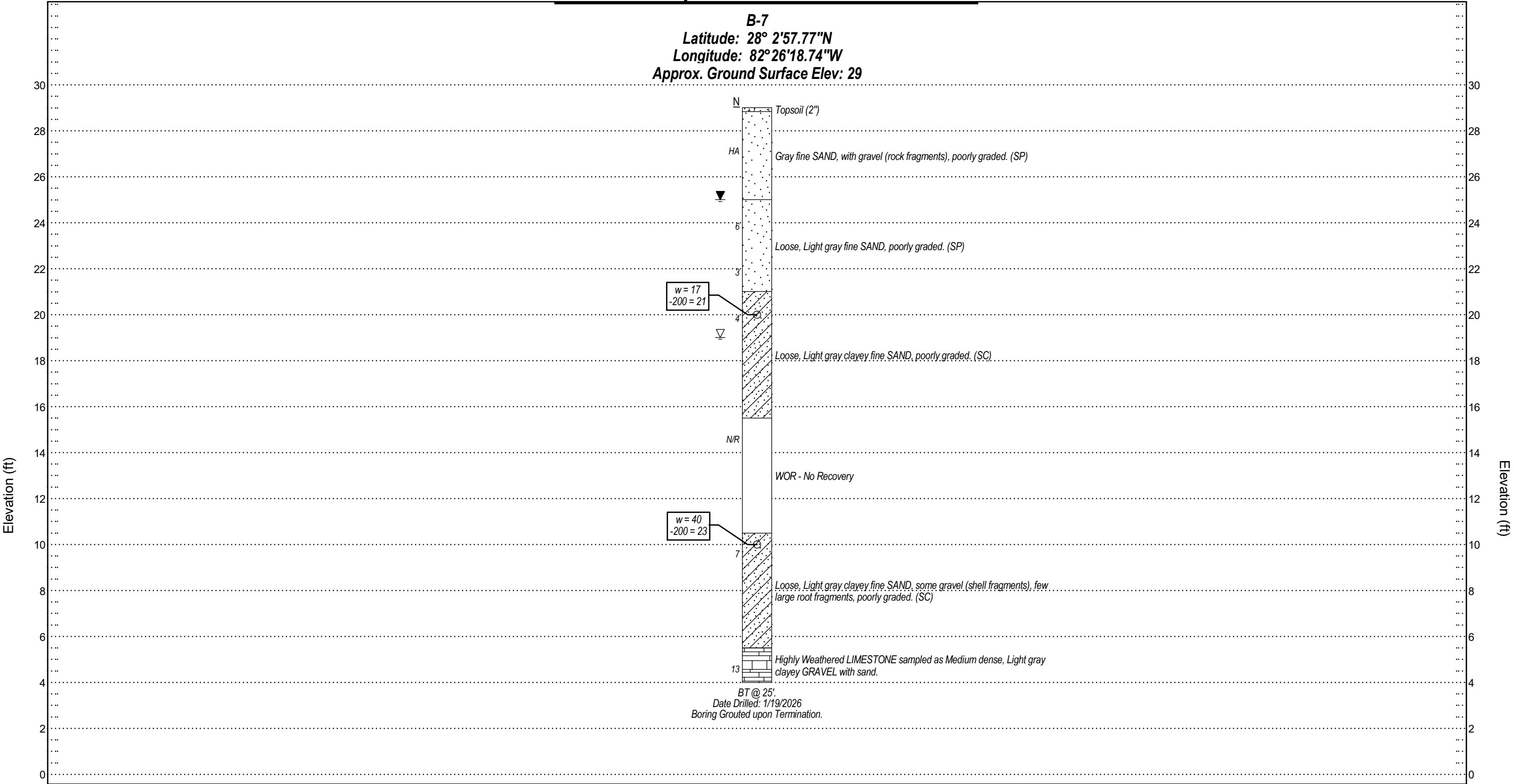
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Site No.7: Copeland Park - 11000 N.19th St.

B-7
Latitude: 28° 2'57.77"N
Longitude: 82° 26'18.74"W
Approx. Ground Surface Elev: 29



Legend

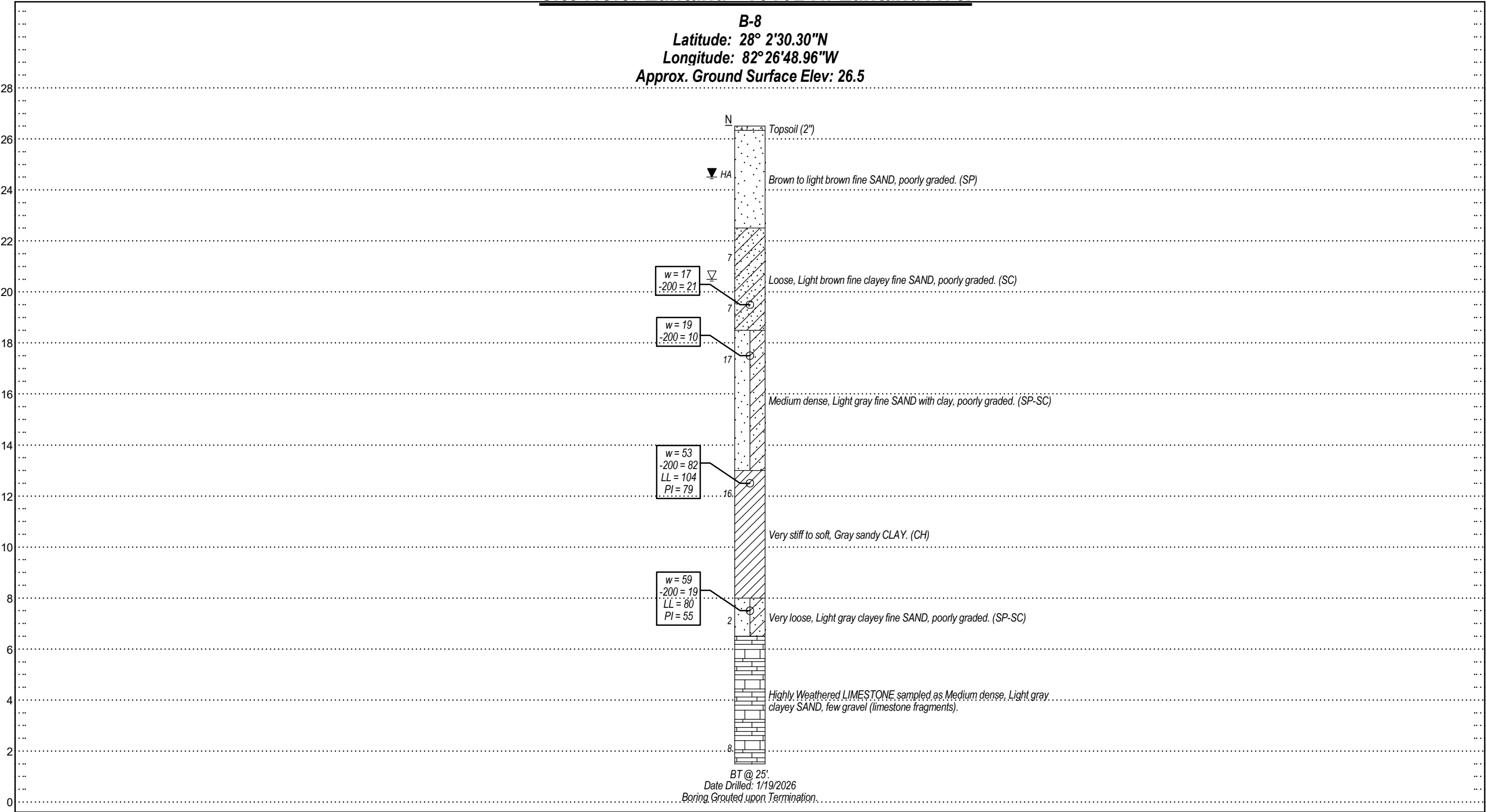
- Topsoil Fine Sand Clayey Fine Sand Standard Penetration Resistance, Blows/Foot (SP) Unified Soil Classification System (USCS) w Natural Moisture Content (%)
- Highly Weathered Limestone BT Boring Terminated at Depth Below Existing Grade ▽ Depth to Groundwater at Time of Drilling -200 % Passing No. 200 U.S. Standard Sieve
- HA Hand Auger ▼ Estimated Seasonal High Groundwater Level

REVISIONS						MAXIMILIAN KEMNITZ, P.E. P.E. NO.: 93191		City of Tampa		SHEET TITLE: Generalized Soil Profiles	
DATE	BY	DESCRIPTION	DATE	BY	DESCRIPTION	 Meskel & Associates Engineering FL Registry No. 28142 3728 Philips Highway, Suite 208, Jacksonville, FL 32207		DATE	MAE PROJECT NO.	PROJECT NAME:	FIGURE NO.
								2/20/2026	0135-0005.01	COT Pump Station Resiliency and Reliability Improvements Tampa, Florida	9

Site No.8: Lantana - 10102 N. Lantana Ave.

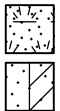
B-8
Latitude: 28° 2'30.30"N
Longitude: 82° 26'48.96"W
Approx. Ground Surface Elev: 26.5

Elevation (ft)

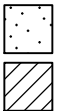


Elevation (ft)

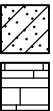
Legend



Topsoil



Fine Sand



Clayey Fine Sand



Fine Sand with Clay



Clay, High Plasticity



Highly Weathered Limestone

N Standard Penetration Resistance, Blows/Foot
BT Boring Terminated at Depth Below Existing Grade
HA Hand Auger

(SP) Unified Soil Classification System (USCS)
▽ Depth to Groundwater at Time of Drilling
▽ Estimated Seasonal High Groundwater Level

w Natural Moisture Content (%)
-200 % Passing No. 200 U.S. Standard Sieve
LL Liquid Limit
PI Plasticity Index

REVISIONS					
DATE	BY	DESCRIPTION	DATE	BY	DESCRIPTION

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FL Registry No. 28142

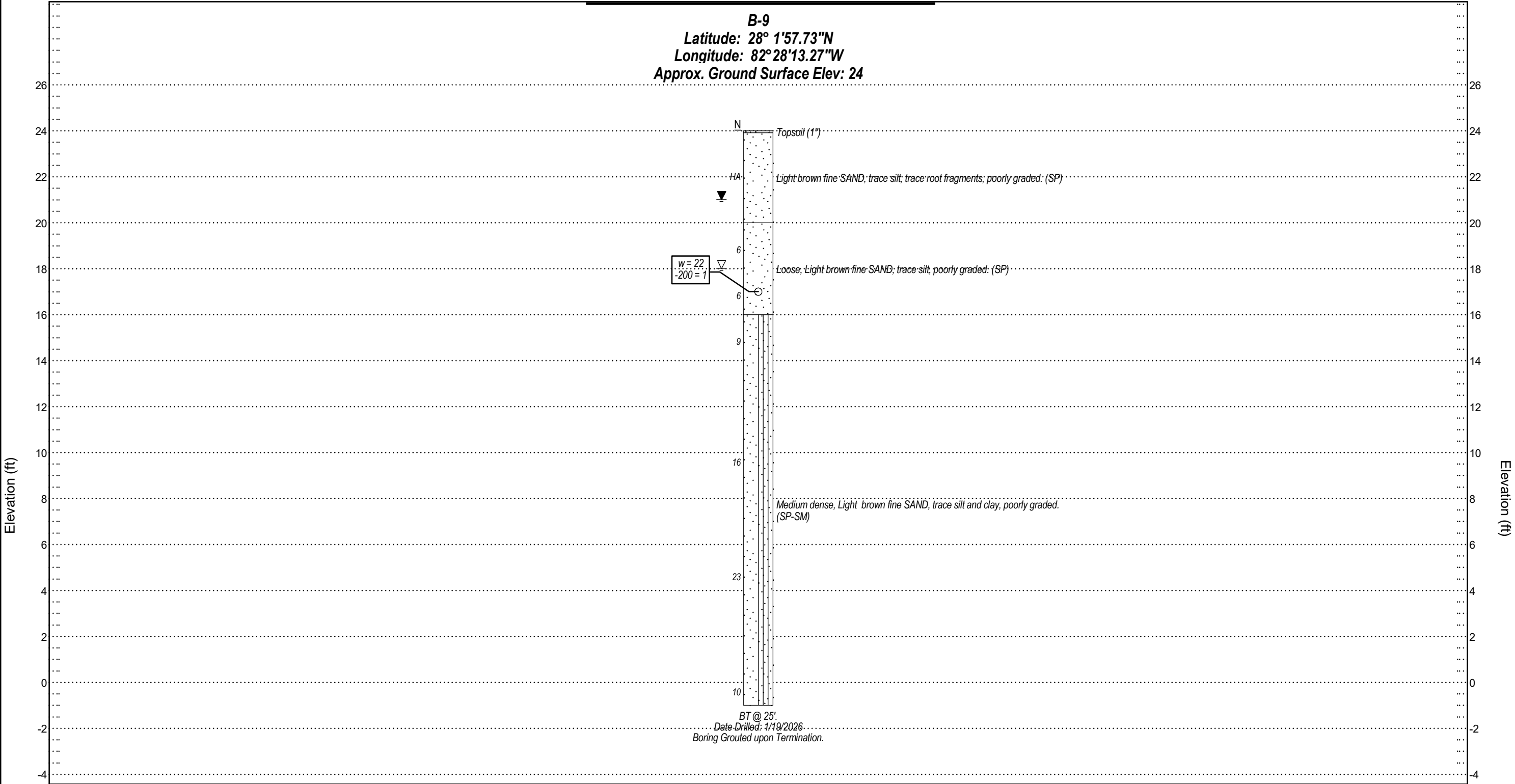
3728 Philips Highway, Suite 208, Jacksonville, FL 32207

City of Tampa	
DATE	MAE PROJECT NO.
2/20/2026	0135-0005.01

SHEET TITLE:	
Generalized Soil Profiles	
PROJECT NAME:	FIGURE NO.
COT Pump Station Resiliency and Reliability Improvements Tampa, Florida	10

Site No.9: El Portal - 8950 Portal Dr.

B-9
Latitude: 28° 1'57.73"N
Longitude: 82° 28'13.27"W
Approx. Ground Surface Elev: 24



Legend



Topsoil



Fine Sand



Fine Sand with Silt

N Standard Penetration Resistance, Blows/Foot
BT Boring Terminated at Depth Below Existing Grade
HA Hand Auger

(SP) Unified Soil Classification System (USCS)
▽ Depth to Groundwater at Time of Drilling
▼ Estimated Seasonal High Groundwater Level

w Natural Moisture Content (%)
-200 % Passing No. 200 U.S. Standard Sieve

REVISIONS					
DATE	BY	DESCRIPTION	DATE	BY	DESCRIPTION

MAXIMILIAN KEMNITZ, P.E. P.E. NO.: 93191

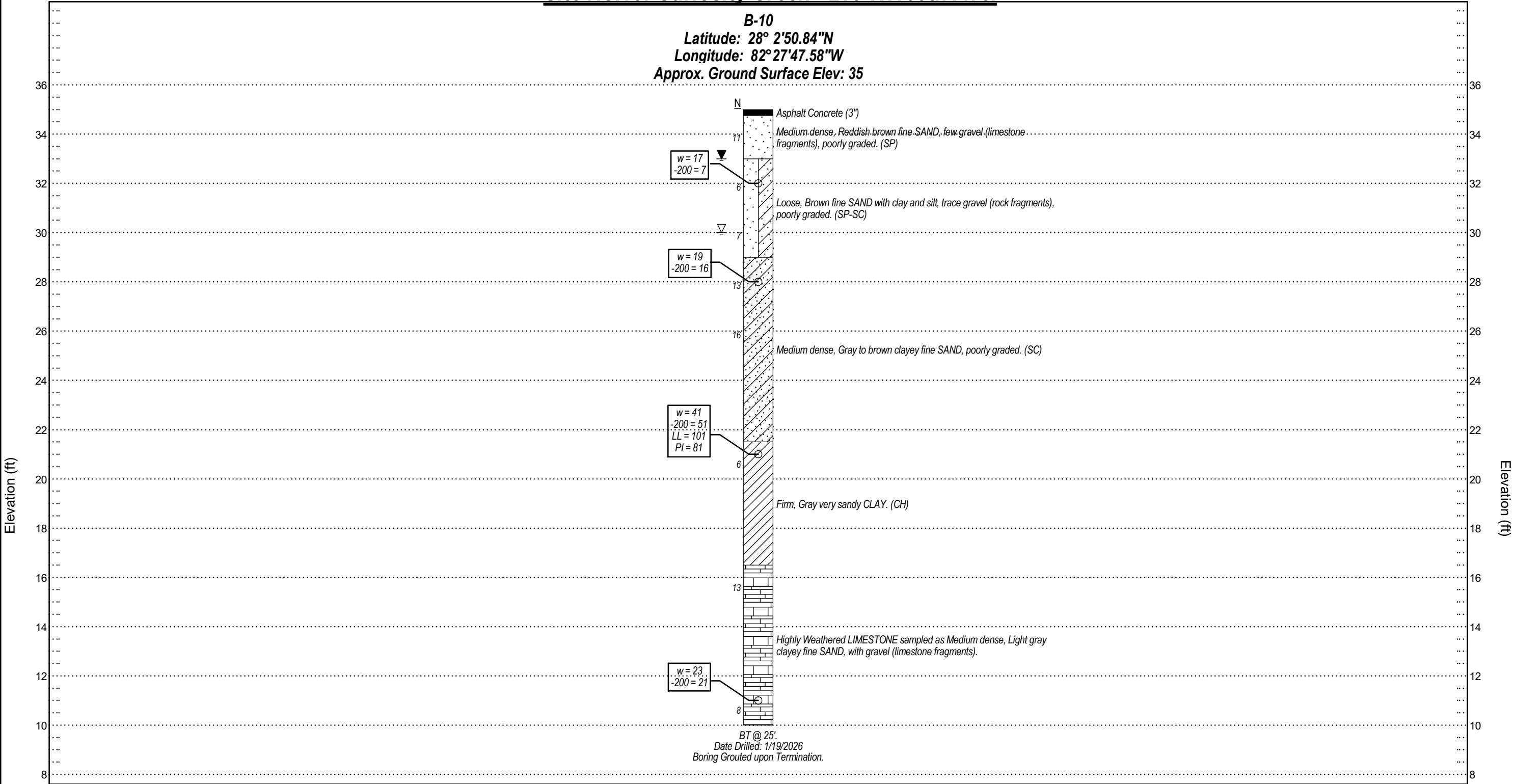

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City of Tampa	
DATE	MAE PROJECT NO.
2/20/2026	0135-0005.01

SHEET TITLE:	
Generalized Soil Profiles	
PROJECT NAME:	FIGURE NO.
COT Pump Station Resiliency and Reliability Improvements Tampa, Florida	11

Site No.10: Curiosity Creek - 215 W.109th Ave.

B-10
Latitude: 28° 2'50.84"N
Longitude: 82° 27'47.58"W
Approx. Ground Surface Elev: 35



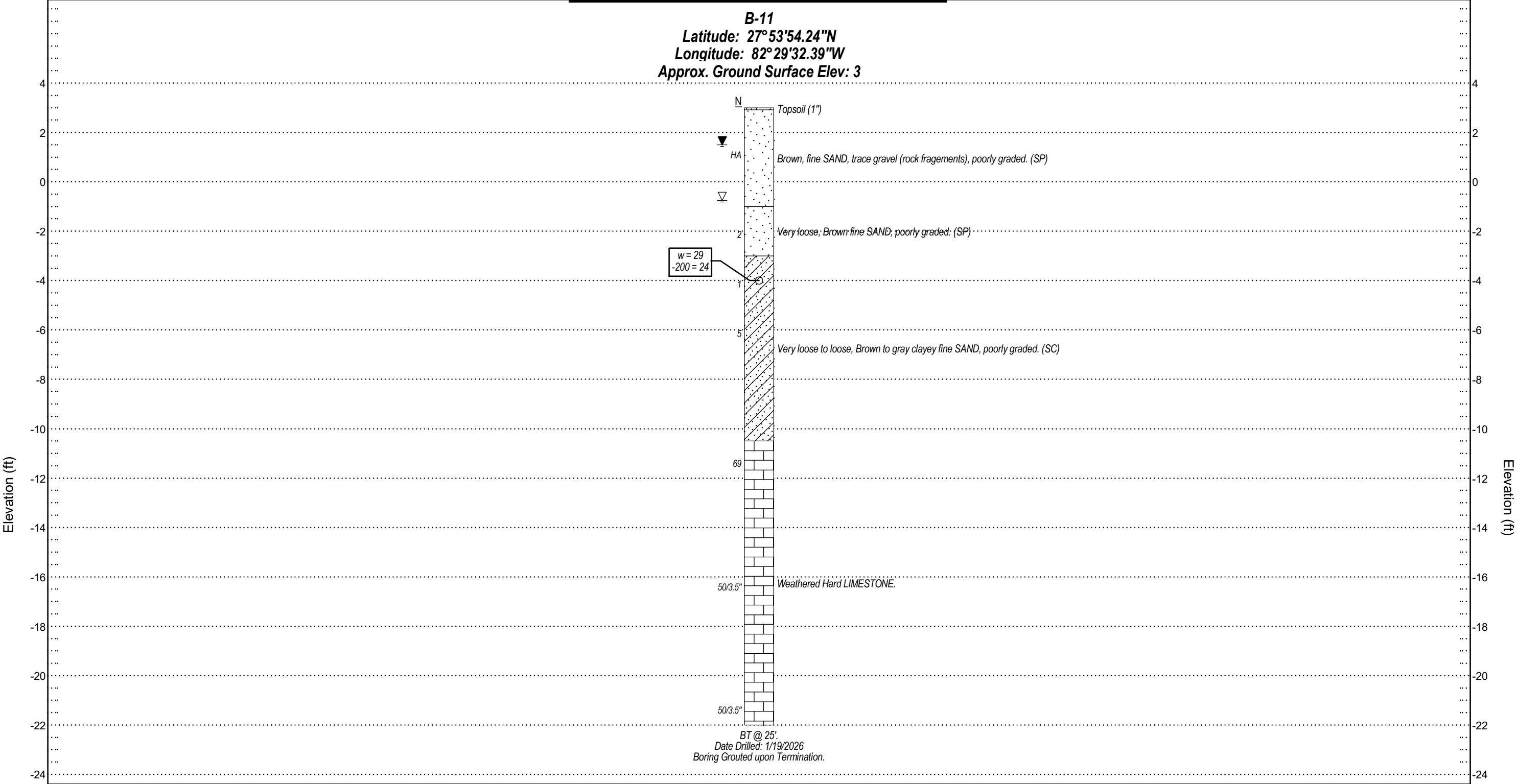
Legend

- | | | | | | | |
|------------------|-----------------------|----------------------------|--|--|--|---------------------|
| Asphalt | Fine Sand | Fine Sand with Clay | Standard Penetration Resistance, Blows/Foot | (SP) Unified Soil Classification System (USCS) | w Natural Moisture Content (%) | LL Liquid Limit |
| Clayey Fine Sand | Clay, High Plasticity | Highly Weathered Limestone | BT Boring Terminated at Depth Below Existing Grade | Depth to Groundwater at Time of Drilling | -200 % Passing No. 200 U.S. Standard Sieve | PI Plasticity Index |
| | | | | Estimated Seasonal High Groundwater Level | | |

REVISIONS						MAXIMILIAN KEMNITZ, P.E. P.E. NO.: 93191		City of Tampa		SHEET TITLE: Generalized Soil Profiles	
DATE	BY	DESCRIPTION	DATE	BY	DESCRIPTION	 Meskel & Associates Engineering FL Registry No. 28142 3728 Philips Highway, Suite 208, Jacksonville, FL 32207		DATE	MAE PROJECT NO.	PROJECT NAME:	FIGURE NO.
								2/20/2026	0135-0005.01	COT Pump Station Resiliency and Reliability Improvements Tampa, Florida	12

Site No.11: Alline - 2921 W. Alline Ave.

B-11
Latitude: 27°53'54.24"N
Longitude: 82°29'32.39"W
Approx. Ground Surface Elev: 3



Topsoil



Fine Sand



Clayey Fine Sand



Limestone

Legend

N Standard Penetration Resistance, Blows/Foot

BT Boring Terminated at Depth Below Existing Grade

HA Hand Auger

(SP) Unified Soil Classification System (USCS)

▽ Depth to Groundwater at Time of Drilling

▼ Estimated Seasonal High Groundwater Level

w Natural Moisture Content (%)

-200 % Passing No. 200 U.S. Standard Sieve

REVISIONS					
DATE	BY	DESCRIPTION	DATE	BY	DESCRIPTION

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City of Tampa	
DATE	MAE PROJECT NO.
2/20/2026	0135-0005.01

SHEET TITLE:	
Generalized Soil Profiles	
PROJECT NAME:	FIGURE NO.
COT Pump Station Resiliency and Reliability Improvements Tampa, Florida	13

Appendix A

Meskel & Associates Engineering, PLLC

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**BORING B-1**

PAGE 1 OF 1

PROJECT NO. 0135-0005.01

PROJECT NAME COT Pump Station Resiliency and Reliability Improvements**PROJECT LOCATION** Tampa, Florida**CLIENT** City of Tampa**DATE STARTED** 1/19/2026**COMPLETED** 1/19/2026**LATITUDE** 28° 2'49.40"N**LONGITUDE** 82°28'3.24"W**DRILLING CONTRACTOR** Suncoast Drilling**DRILLING METHOD** Standard Penetration Test**LOGGED BY** Parker**CHECKED BY** T.Foster**APPROX. GROUND ELEV:** 26.5 ft**HAMMER TYPE** Automatic

ELEVATION (ft)	SAMPLE DEPTH NUMBER	MATERIAL DESCRIPTION	USCS	GRAPHIC LOG	BLOW COUNTS	N-VALUE	MOISTURE CONTENT (%)	FINES CONTENT (%)	ORGANIC CONTENT (%)	LIQUID LIMIT	PLASTICITY INDEX	POCKET PEN. (tsf)	RECOVERY % (RQD)	REMARKS
25	1	Topsoil (1") Brown fine SAND, trace silt, trace root fragments, poorly graded.	SP			HA	8	1						
	2	Light brown fine SAND, trace gravel (shell fragments), poorly graded.	SP											
20	3				2 1 1 2	2								
	4	Very loose, Dark brown fine SAND with silt, poorly graded.	SP-SM		1 1 1 1	2								
	5				1 1 1 1	2	26	10						
15														
	6				2 4 4	8	23	12						
10														
	7	Loose, Dark brown fine SAND with silt and clay, poorly graded.	SP-SM		2 2 3	5								
5														
	8				2 1 4	5								
		Bottom of borehole at EL 1.5 feet.												
NOTES Boring backfilled with soil cuttings.					GROUND WATER LEVELS									
					▽ AT TIME OF DRILLING 5.50 ft / Elev 21.00 ft ▽ ESHGWT 2.00 ft / Elev 24.50 ft									

NEW MAE LAT/LONG USCS-ELEV_GS_ESHGWT - NEW TEMPLATE 7-30-12.GDT - 2/20/26 09:13 - F:\GINT\GINT FILES\PROJECTS\0135-0005.01\COT PUMP STATION.GPJ

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**BORING B-10**

PAGE 1 OF 1

PROJECT NO. 0135-0005.01

PROJECT NAME COT Pump Station Resiliency and Reliability Improvements**PROJECT LOCATION** Tampa, Florida**CLIENT** City of Tampa**DATE STARTED** 1/19/2026**COMPLETED** 1/19/2026**LATITUDE** 28° 2'50.84"N**LONGITUDE** 82°27'47.58"W**DRILLING CONTRACTOR** Suncoast Drilling**DRILLING METHOD** Standard Penetration Test**LOGGED BY** Parker**CHECKED BY** T.Foster**APPROX. GROUND ELEV:** 35 ft**HAMMER TYPE** Automatic

35 ELEVATION (ft)	SAMPLE DEPTH NUMBER	MATERIAL DESCRIPTION	USCS	GRAPHIC LOG	BLOW COUNTS	N-VALUE	MOISTURE CONTENT (%)	FINES CONTENT (%)	ORGANIC CONTENT (%)	LIQUID LIMIT	PLASTICITY INDEX	POCKET PEN. (tsf)	RECOVERY % (RQD)	REMARKS
	1	Asphalt Concrete (3") Medium dense, Reddish brown fine SAND, few gravel (limestone fragments), poorly graded.	SP		10 6 5 5	11								
	2	Loose, Brown fine SAND with clay and silt, trace gravel (rock fragments), poorly graded.	SP-SC		5 3 3 5	6	17	7						
30	3				5 2 5 8	7								
	4				6 7 6 8	13	19	16						
	5	Medium dense, Gray to brown clayey fine SAND, poorly graded.	SC		6 8 8 11	16								
25														
	6	Firm, Gray very sandy CLAY.	CH		2 3 3	6	41	51		101	81			
20														
	7	Highly Weathered LIMESTONE sampled as Medium dense, Light gray clayey fine SAND, with gravel (limestone fragments).			6 6 7	13								
15														
	8				6 5 3	8	23	21						
10														
		Bottom of borehole at EL 10.0 feet.												
NOTES Boring backfilled with soil cuttings.					GROUND WATER LEVELS									
					▽ AT TIME OF DRILLING 5.00 ft / Elev 30.00 ft ▼ ESHGWT 2.00 ft / Elev 33.00 ft									

NEW MAE LAT/LONG USCS-ELEV_GS_ESHGWT - NEW TEMPLATE 7-30-12.GDT - 2/20/26 09:13 - F:\GINT\GINT FILES\PROJECTS\0135-0005.01\COT PUMP STATION.GPJ

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**BORING B-11**

PAGE 1 OF 1

PROJECT NO. 0135-0005.01

PROJECT NAME COT Pump Station Resiliency and Reliability Improvements**PROJECT LOCATION** Tampa, Florida**CLIENT** City of Tampa**DATE STARTED** 1/19/2026**COMPLETED** 1/19/2026**LATITUDE** 27°53'54.24"N**LONGITUDE** 82°29'32.39"W**DRILLING CONTRACTOR** Suncoast Drilling**DRILLING METHOD** Standard Penetration Test**LOGGED BY** Parker**CHECKED BY** T.Foster**APPROX. GROUND ELEV:** 3 ft**HAMMER TYPE** Automatic

ELEVATION (ft)	SAMPLE DEPTH NUMBER	MATERIAL DESCRIPTION	USCS	GRAPHIC LOG	BLOW COUNTS	N-VALUE	MOISTURE CONTENT (%)	FINES CONTENT (%)	ORGANIC CONTENT (%)	LIQUID LIMIT	PLASTICITY INDEX	POCKET PEN. (tsf)	RECOVERY % (RQD)	REMARKS
		Topsoil (1")												
0	1	▼ Brown, fine SAND, trace gravel (rock fragements), poorly graded.	SP			HA								
	2	▽												
	3	Very loose, Brown fine SAND, poorly graded.	SP		1 1 1 1	2								
-5	4	Very loose to loose, Brown to gray clayey fine SAND, poorly graded.	SC	1 WOH	1	29	24							
	5			1 WOH	1									
				2 2 3 20	5									
-10														
	6	Weathered Hard LIMESTONE.			19 29 40	69								
-15														
	7			50/3.5"	50 /3.5"									
-20														
	8			50/3.5"	50 /3.5"									
		Bottom of borehole at EL -22.0 feet.												
NOTES Boring backfilled with soil cuttings.					GROUND WATER LEVELS									
					▽ AT TIME OF DRILLING 3.75 ft / Elev -0.75 ft ▼ ESHGWT 1.50 ft / Elev 1.50 ft									

NEW MAE LAT/LONG USCS-ELEV_GS_ESHGWT - NEW TEMPLATE 7-30-12.GDT - 2/20/26 09:13 - F:\GINT\GINT FILES\PROJECTS\0135-0005.01\COT PUMP STATION.GPJ

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**BORING B-2**

PAGE 1 OF 1

PROJECT NO. 0135-0005.01

PROJECT NAME COT Pump Station Resiliency and Reliability Improvements**PROJECT LOCATION** Tampa, Florida**CLIENT** City of Tampa**DATE STARTED** 1/19/2026**COMPLETED** 1/19/2026**LATITUDE** 28° 3'3.33"N**LONGITUDE** 82°26'50.13"W**DRILLING CONTRACTOR** Suncoast Drilling**DRILLING METHOD** Standard Penetration Test**LOGGED BY** Chance**CHECKED BY** T.Foster**APPROX. GROUND ELEV:** 40.5 ft**HAMMER TYPE** Automatic

ELEVATION (ft)	SAMPLE DEPTH NUMBER	MATERIAL DESCRIPTION	USCS	GRAPHIC LOG	BLOW COUNTS	N-VALUE	MOISTURE CONTENT (%)	FINES CONTENT (%)	ORGANIC CONTENT (%)	LIQUID LIMIT	PLASTICITY INDEX	POCKET PEN. (tsf)	RECOVERY % (RQD)	REMARKS
40		Topsoil (2")												
	1	Light brown fine SAND, trace organic fines, poorly graded.	SP			HA	3	2	0.5					
	2													
35	3	Loose, Pale brown fine SAND, poorly graded.	SP		2 3 3 4	6								
	4	Loose, Very pale brown fine SAND, poorly graded.	SP		3 2 2 3	5								
	5				2 2 2 3	4								
30														
	6				7 9 9	18								
25		Medium dense, Light brown clayey fine SAND, poorly graded.	SC											
	7	Medium dense, Light gray very clayey fine SAND, poorly graded.	SC		3 4 5	9	28	36		38	23			
20														
	8				5 7 5	12								
		Bottom of borehole at EL 15.5 feet.												
NOTES Boring backfilled with soil cuttings.					GROUND WATER LEVELS									
					▽ AT TIME OF DRILLING 10.00 ft / Elev 30.50 ft ▽ ESHGWT 7.00 ft / Elev 33.50 ft									

NEW MAE LAT/LONG USCS-ELEV_GS_ESHGWT - NEW TEMPLATE 7-30-12.GDT - 2/20/26 09:13 - F:\GINT\GINT FILES\PROJECTS\0135-0005.01\COT PUMP STATION.GPJ

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**BORING B-3**

PAGE 1 OF 1

PROJECT NO. 0135-0005.01

PROJECT NAME COT Pump Station Resiliency and Reliability Improvements**PROJECT LOCATION** Tampa, Florida**CLIENT** City of Tampa**DATE STARTED** 1/19/2026**COMPLETED** 1/19/2026**LATITUDE** 27°58'24.32"N**LONGITUDE** 82°27'21.40"W**DRILLING CONTRACTOR** Suncoast Drilling**DRILLING METHOD** Standard Penetration Test**LOGGED BY** Parker**CHECKED BY** T.Foster**APPROX. GROUND ELEV:** 29 ft**HAMMER TYPE** Automatic

ELEVATION (ft)	SAMPLE DEPTH NUMBER	MATERIAL DESCRIPTION	USCS	GRAPHIC LOG	BLOW COUNTS	N-VALUE	MOISTURE CONTENT (%)	FINES CONTENT (%)	ORGANIC CONTENT (%)	LIQUID LIMIT	PLASTICITY INDEX	POCKET PEN. (tsf)	RECOVERY % (RQD)	REMARKS
		Topsoil (1")												
	1	▼ Gray fine SAND, trace silt, poorly graded.	SP			HA								
25	2						9	3	1.9					
	3	▽ Medium dense, Brown fine SAND with silt, poorly graded.	SP-SM		6 5 4 5 5	9								
	4				3 4 4 4 5	8								
20	5	Medium dense, Light brown fine SAND, poorly graded.	SP		5 7 6 9	13								
15	6	Dense, Brown fine SAND with clay, poorly graded.	SP-SC		18 18 15	33								
10	7	Stiff, Brown sandy CLAY.	CH		3 3 4	7	45	73		67	50			
5	8				8 5 5	10								
		Bottom of borehole at EL 4.0 feet.												
NOTES Boring backfilled with soil cuttings.					GROUND WATER LEVELS									
					▽ AT TIME OF DRILLING 5.00 ft / Elev 24.00 ft ▼ ESHGWT 2.00 ft / Elev 27.00 ft									

NEW MAE LAT/LONG USCS-ELEV_GS_ESHGWT - NEW TEMPLATE 7-30-12.GDT - 2/20/26 09:13 - F:\GINT\GINT FILES\PROJECTS\0135-0005.01\COT PUMP STATION.GPJ

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**BORING B-4**

PAGE 1 OF 1

PROJECT NO. 0135-0005.01

PROJECT NAME COT Pump Station Resiliency and Reliability Improvements

PROJECT LOCATION Tampa, Florida

CLIENT City of Tampa

DATE STARTED 1/19/2026

COMPLETED 1/19/2026

LATITUDE 28° 2'28.31"N

LONGITUDE 82°25'38.95"W

DRILLING CONTRACTOR Suncoast Drilling

DRILLING METHOD Standard Penetration Test

LOGGED BY Chance

CHECKED BY T.Foster

APPROX. GROUND ELEV: 31 ft

HAMMER TYPE Automatic

NEW MAE LAT/LONG USCS-ELEV. GS. ESHGWT - NEW TEMPLATE 7-30-12.GDT - 2/20/26 09:13 - F:\GINT\GINT FILES\PROJECTS\0135-0005-01\DOT PUMP STATION.GPJ																
ELEVATION (ft)	SAMPLE DEPTH NUMBER	MATERIAL DESCRIPTION	USCS	GRAPHIC LOG	BLOW COUNTS	N-VALUE	MOISTURE CONTENT (%)	FINES CONTENT (%)	ORGANIC CONTENT (%)	LIQUID LIMIT	PLASTICITY INDEX	POCKET PEN. (tsf)	RECOVERY % (RQD)	REMARKS		
30	1	Concrete (8")			2											
	2	(SP-SM) Loose, Brown to pale brown fine SAND with silt, poorly graded.	SP-SM		2 2 2 2 3	4										
	3	(SP) Loose, Very pale brown fine SAND, trace clay, poorly graded.	SP		1 2 3 3 5	5										
25	4	(SC) Very loose to loose, Very pale brown clayey fine SAND, poorly graded.	SC		1 1 1 1	2	14	15								
	5				3 3 4 5	7										
20		(SC) Loose, Very pale brown clayey fine SAND, poorly graded.	SC													
	6				1 2 2	4										
15																
	7				3 3 3	6	23	22		40	22					
10																
	8				2 2 2	4										
		Bottom of borehole at EL 6.0 feet.														
NOTES				GROUND WATER LEVELS												
Boring backfilled with soil cuttings.				▽ AT TIME OF DRILLING 10.00 ft / Elev 21.00 ft ▽ ESHGWT 6.00 ft / Elev 25.00 ft												

NEW MAE LAT/LONG USCS-ELEV_GS_ESHGWT - NEW TEMPLATE 7-30-12.GDT - 2/20/26 09:13 - F:\GINT\GINT FILES\PROJECTS\0135-0005.01\COT PUMP STATION.GPJ

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**BORING B-5**

PAGE 1 OF 1

PROJECT NO. 0135-0005.01

PROJECT NAME COT Pump Station Resiliency and Reliability Improvements**PROJECT LOCATION** Tampa, Florida**CLIENT** City of Tampa**DATE STARTED** 1/19/2026**COMPLETED** 1/19/2026**LATITUDE** 28° 3'11.02"N**LONGITUDE** 82°28'26.98"W**DRILLING CONTRACTOR** Suncoast Drilling**DRILLING METHOD** Standard Penetration Test**LOGGED BY** Parker**CHECKED BY** T.Foster**APPROX. GROUND ELEV:** 36 ft**HAMMER TYPE** Automatic

NEW MAE LAT/LONG USCS-ELEV. GS. ESHGWT - NEW TEMPLATE 7-30-12.GDT - 2/20/26 09:13 - F:\GINT\GINT FILES\PROJECTS\0135-0005.01\COT PUMP STATION.GPJ

ELEVATION (ft)	SAMPLE DEPTH NUMBER	MATERIAL DESCRIPTION	USCS	GRAPHIC LOG	BLOW COUNTS	N-VALUE	MOISTURE CONTENT (%)	FINES CONTENT (%)	ORGANIC CONTENT (%)	LIQUID LIMIT	PLASTICITY INDEX	POCKET PEN. (tsf)	RECOVERY % (RQD)	REMARKS
35	1	Topsoil (1") Brown fine SAND, trace silt, poorly graded.	SP			HA								
	2	Brown fine SAND, trace silt, few gravel (rock fragments), poorly graded.	SP											
	3	▼ Loose, Brown fine SAND, trace organic fines, poorly graded.	SP		3 3 3 3	6								
30	4	▽ Loose, Brown fine SAND with silt and clay, poorly graded.	SP		3 1 2 1	3	22	3	0.9					
	5	Loose, Brown fine SAND with silt and clay, poorly graded.	SP-SM		2 1 2 2	3								
25	6	Loose, Dark brown fine SAND with silt, poorly graded.	SP-SM		WOH WOH 3	3	29	6	3.4					
20	7	Very loose, Brown fine SAND with silt, poorly graded.	SP-SM		1 WOH WOH	1	30	9						
15	8	Loose to medium dense, Brown fine SAND with silt and clay, poorly graded.	SP-SM		1 2 2	4								
10	9				6 9 11	20								

Bottom of borehole at EL 6.0 feet.

NOTES Boring backfilled with soil cuttings.**GROUND WATER LEVELS**

▼ AT TIME OF DRILLING 8.00 ft / Elev 28.00 ft ▼ ESHGWT 5.00 ft / Elev 31.00 ft

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**BORING B-6**

PAGE 1 OF 1

PROJECT NO. 0135-0005.01

PROJECT NAME COT Pump Station Resiliency and Reliability Improvements**PROJECT LOCATION** Tampa, Florida**CLIENT** City of Tampa**DATE STARTED** 1/19/2026**COMPLETED** 1/19/2026**LATITUDE** 28° 3'11.55"N**LONGITUDE** 82°28'6.23"W**DRILLING CONTRACTOR** Suncoast Drilling**DRILLING METHOD** Standard Penetration Test**LOGGED BY** Parker**CHECKED BY** T.Foster**APPROX. GROUND ELEV:** 33.5 ft**HAMMER TYPE** Automatic

ELEVATION (ft)	SAMPLE DEPTH NUMBER	MATERIAL DESCRIPTION	USCS	GRAPHIC LOG	BLOW COUNTS	N-VALUE	MOISTURE CONTENT (%)	FINES CONTENT (%)	ORGANIC CONTENT (%)	LIQUID LIMIT	PLASTICITY INDEX	POCKET PEN. (tsf)	RECOVERY % (RQD)	REMARKS
	1	Topsoil (1")												
	2	Gray fine SAND, trace silt, poorly graded.	SP			HA								
30														
	3	Very loose, Grayish brown fine SAND, trace root fragments, poorly graded.	SP		1 1 1 2	2	7	2	0.9					
	4	Loose, Light gray fine SAND, poorly graded.	SP		2 2 3 3	5	27	41						
25														
	5				4 3 3 4	6								
20														
	6	Loose, Light gray very clayey fine SAND, poorly graded.	SC		2 2 4	6								
15														
	7				4 4 4	8								
	8	Medium dense, Grayish blue clayey fine SAND, poorly graded.	SC											
10														
	8				1 1 1	2	23	46		38	25			
5														
	9	Moderately Weathered Soft LIMESTONE.			11 13 16	29								
Bottom of borehole at EL 3.5 feet.														
NOTES Boring backfilled with soil cuttings.														
GROUND WATER LEVELS														
▽ AT TIME OF DRILLING 8.25 ft / Elev 25.25 ft ▼ ESHGWT 3.00 ft / Elev 30.50 ft														

NEW MAE LAT/LONG USCS-ELEV. GS. ESHGWT - NEW TEMPLATE 7-30-12.GDT - 2/20/26 09:13 - F:\GINT\GINT FILES\PROJECTS\0135-0005.01\COT PUMP STATION.GPJ

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**BORING B-7**

PAGE 1 OF 1

PROJECT NO. 0135-0005.01

PROJECT NAME COT Pump Station Resiliency and Reliability Improvements**PROJECT LOCATION** Tampa, Florida**CLIENT** City of Tampa**DATE STARTED** 1/19/2026**COMPLETED** 1/19/2026**LATITUDE** 28° 2'57.77"N**LONGITUDE** 82°26'18.74"W**DRILLING CONTRACTOR** Suncoast Drilling**DRILLING METHOD** Standard Penetration Test**LOGGED BY** Chance**CHECKED BY** T.Foster**APPROX. GROUND ELEV:** 29 ft**HAMMER TYPE** Automatic

ELEVATION (ft)	SAMPLE DEPTH NUMBER	MATERIAL DESCRIPTION	USCS	GRAPHIC LOG	BLOW COUNTS	N-VALUE	MOISTURE CONTENT (%)	FINES CONTENT (%)	ORGANIC CONTENT (%)	LIQUID LIMIT	PLASTICITY INDEX	POCKET PEN. (tsf)	RECOVERY % (RQD)	REMARKS
		Topsoil (2")												
	1	Gray fine SAND, with gravel (rock fragments), poorly graded.	SP			HA								
	2													
25					2									
	3	Loose, Light gray fine SAND, poorly graded.	SP		3	6								
	4				3									
					4									
	4				2	3								
					1									
20	5	Loose, Light gray clayey fine SAND, poorly graded.	SC		1	4	17	21						
					2									
					2									
					2									
15	6	WOR - No Recovery			-	N/R								
10	7	Loose, Light gray clayey fine SAND, some gravel (shell fragments), few large root fragments, poorly graded.	SC		6	7	40	23						
					4									
					3									
5	8	Highly Weathered LIMESTONE sampled as Medium dense, Light gray clayey GRAVEL with sand.			21	13								
					9									
					4									
		Bottom of borehole at EL 4.0 feet.												
NOTES Boring backfilled with soil cuttings.					GROUND WATER LEVELS									
					▽ AT TIME OF DRILLING 10.00 ft / Elev 19.00 ft ▽ ESHGWT 4.00 ft / Elev 25.00 ft									

NEW MAE LAT/LONG USCS-ELEV_GS_ESHGWT - NEW TEMPLATE 7-30-12.GDT - 2/20/26 09:13 - F:\GINT\GINT FILES\PROJECTS\0135-0005.01\COT PUMP STATION.GPJ

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**BORING B-8**

PAGE 1 OF 1

PROJECT NO. 0135-0005.01

PROJECT NAME COT Pump Station Resiliency and Reliability Improvements**PROJECT LOCATION** Tampa, Florida**CLIENT** City of Tampa**DATE STARTED** 1/19/2026**COMPLETED** 1/19/2026**LATITUDE** 28° 2'30.30"N**LONGITUDE** 82°26'48.96"W**DRILLING CONTRACTOR** Suncoast Drilling**DRILLING METHOD** Standard Penetration Test**LOGGED BY** Chance**CHECKED BY** T.Foster**APPROX. GROUND ELEV:** 26.5 ft**HAMMER TYPE** Automatic

NEW MAE LAT/LONG USCS-ELEV. GS. ESHGWT - NEW TEMPLATE 7-30-12 GDT - 2/20/26 09:13 - F:\GINT\GINT FILES\PROJECTS\0135-0005-01\COOT PUMP STATION.GPJ														
ELEVATION (ft)	SAMPLE DEPTH NUMBER	MATERIAL DESCRIPTION	USCS	GRAPHIC LOG	BLOW COUNTS	N-VALUE	MOISTURE CONTENT (%)	FINES CONTENT (%)	ORGANIC CONTENT (%)	LIQUID LIMIT	PLASTICITY INDEX	POCKET PEN. (tsf)	RECOVERY % (RQD)	REMARKS
25	1	Topsoil (2")												
	2	▼ Brown to light brown fine SAND, poorly graded.	SP			HA								
	3				2									
	4	▽ Loose, Light brown fine clayey fine SAND, poorly graded.	SC		3	7								
20	5				4		17	21						
	6				5									
	7				6									
	8				7									
	9				8		19	10						
15	10	Medium dense, Light gray fine SAND with clay, poorly graded.	SP-SC		9									
	11				10									
	12				11									
	13				12									
	14				13									
	15				14									
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PAGE 1 OF 1

PROJECT NO. 0135-0005.01

PROJECT LOCATION Tampa, Florida

CLIENT City of Tampa

DATE STARTED 1/19/2026

COMPLETED 1/19/2026

LATITUDE 28° 1'57.73"N

LONGITUDE 82°28'13.27"W

DRILLING CONTRACTOR Suncoast Drilling

DRILLING METHOD Standard Penetration Test

LOGGED BY Parker

CHECKED BY T.Foster

APPROX. GROUND ELEV: 24 ft

HAMMER TYPE Automatic

NEW MAE LAT/LONG USCS-ELEV. GS. ESHGWT - NEW TEMPLATE 7-30-12.GDT - 2/20/26 09:13 - F:\GINT\GINT FILES\PROJECTS\0135-0005.01\COT PUMP STATION.GPJ																
ELEVATION (ft)	SAMPLE DEPTH NUMBER	MATERIAL DESCRIPTION	USCS	GRAPHIC LOG	BLOW COUNTS	N-VALUE	MOISTURE CONTENT (%)	FINES CONTENT (%)	ORGANIC CONTENT (%)	LIQUID LIMIT	PLASTICITY INDEX	POCKET PEN. (tsf)	RECOVERY % (RQD)	REMARKS		
	1	Topsoil (1")														
	2	Light brown fine SAND, trace silt, trace root fragments, poorly graded.	SP			HA										
20																
	3	Loose, Light brown fine SAND, trace silt, poorly graded.	SP		2	6	22	1								
	3															
	3															
	4				2	6										
					3											
15	5	Medium dense, Light brown fine SAND, trace silt and clay, poorly graded.	SP-SM		4	9										
					4											
					5											
10	6						4	16								
							6									
							10									
5	7						4	23								
				10												
				13												
0	8															
				3	10											
				3												
				7												
		Bottom of borehole at EL -1.0 feet.														
NOTES Boring backfilled with soil cuttings.				GROUND WATER LEVELS												
				▽ AT TIME OF DRILLING 6.00 ft / Elev 18.00 ft ▽ ESHGWT 3.00 ft / Elev 21.00 ft												

FIELD EXPLORATION PROCEDURES

Standard Penetration Test (SPT) Borings

The Standard Penetration Test (SPT) boring(s) were performed in general accordance with the latest revision of ASTM D 1586, "Standard Test Method for Standard Penetration Test (SPT) and Split-Barrel Sampling of Soils." The borings were advanced by rotary drilling techniques. A split-barrel sampler was inserted to the borehole bottom and driven 18 to 24 inches into the soil using a 140-pound hammer falling an average of 30 inches per hammer blow. The number of hammer blows for the final 12 inches of penetration (18" sample) or for the sum of the middle 12 inches of penetration (24" sample) is termed the "penetration resistance, blow count, or N-value." This value is an index to several in-situ geotechnical properties of the material tested, such as relative density and Young's Modulus.

After driving the sampler, it was retrieved from the borehole and representative samples of the material within the split-barrel were containerized and sealed. After completing the drilling operations, the samples for each boring were transported to the laboratory where they were examined by a geotechnical engineer to verify the field descriptions and classify the soil, and to select samples for laboratory testing.

Hand Auger Boring

The auger boring(s) were performed manually by the use of a hand-held bucket auger in general accordance with the latest revision of ASTM D 1452, "Standard Practice for Soil Exploration and Sampling by Auger Borings." Representative samples of the soils brought to the ground surface by the auger were placed in sealed containers and transported to our laboratory where they were examined by a geotechnical engineer to verify the field descriptions and classify the soil, and to select samples for laboratory testing.

KEY TO BORING LOGS – USCS

Soil Classification

Soil classification of samples obtained at the boring locations is based on the Unified Soil Classification System (USCS). Coarse grained soils have more than 50% of their dry weight retained on a #200 sieve. Their principal descriptors are: sand, cobbles and boulders. Fine grained soils have less than 50% of their dry weight retained on a #200 sieve. They are principally described as clays if they are plastic and silts if they are slightly to non-plastic. Major constituents may be added as modifiers and minor constituents may be added according to the relative proportions based on grain size. In addition to gradation, coarse-grained soils are defined on the basis of their in-place relative density and fine-grained soils on the basis of their consistency.

BORING LOG LEGEND	
Symbol	Description
N	Standard Penetration Resistance, the number of blows required to advance a standard spoon sampler 12" when driven by a 140-lb hammer dropping 30".
WOR	Split Spoon sampler advanced under the weight of the drill rods
WOH	Split Spoon sampler advanced under the weight of the SPT hammer
50/2"	Indicates 50 hammer blows drove the split spoon 2 inches; 50 Hammer blows for less than 6-inches of split spoon driving is considered "Refusal".
(SP)	Unified Soil Classification System
-200	Fines content, % Passing No. 200 U.S. Standard Sieve
w	Natural Moisture Content (%)
OC	Organic Content (%)
LL	Liquid Limit
PI	Plasticity Index
NP	Non-Plastic
PP	Pocket Penetrometer in tons per square foot (tsf)

MODIFIERS	
SECONDARY CONSTITUENTS (Sand, Silt or Clay)	
Trace	Less than 5%
With	5% to 12%
Sandy, Silty or Clayey	12% to 35%
Very Sandy, Very Silty or Very Clayey	35% to 50%
ORGANIC CONTENT	
Trace	Less than 5%
Organic Soils	5% to 20%
Highly Organic Soils (Muck)	20% to 75%
PEAT	Greater than 75%
MINOR COMPONENTS (Shell, Rock, Debris, Roots, etc.)	
Trace	Less than 5%
Few	5% to 10%
Little	15% to 25%
Some	30% to 45%

RELATIVE DENSITY (Coarse-Grained Soils)	
Relative Density	N-Value *
Very Loose	Less than 3
Loose	3 to 8
Medium Dense	8 to 24
Dense	24 to 40
Very Dense	Greater than 40
CONSISTENCY (Fine-Grained Soils)	
Consistency	N-Value *
Very Soft	Less than 1
Soft	1 to 3
Firm	3 to 6
Stiff	6 to 12
Very Stiff	12 to 24
Hard	Greater than 24
RELATIVE HARDNESS (Limestone)	
Relative Hardness	N-Value *
Soft	Less than 50
Hard	Greater than 50

* Using Automatic Hammer

Unified Soil Classification System (USCS)

(from ASTM D 2487)

Major Divisions			Group Symbol	Typical Names
Coarse-Grained Soils More than 50% retained on the 0.075 mm (No. 200) sieve	Gravels 50% or more of coarse fraction retained on the 4.75 mm (No. 4) sieve	Clean Gravels	GW	Well-graded gravels and gravel-sand mixtures, little or no fines
			GP	Poorly graded gravels and gravel-sand mixtures, little or no fines
		Gravels with Fines	GM	Silty gravels, gravel-sand-silt mixtures
			GC	Clayey gravels, gravel-sand-clay mixtures
	Sands 50% or more of coarse fraction passes the 4.75 (No. 4) sieve	Clean Sands	SW	Well-graded sands and gravelly sands, little or no fines
			SP	Poorly graded sands and gravelly sands, little or no fines
		Sands with Fines	SM	Silty sands, sand-silt mixtures
			SC	Clayey sands, sand-clay mixtures
Fine-Grained Soils More than 50% passes the 0.075 mm (No. 200) sieve	Silts and Clays Liquid Limit 50% or less		ML	Inorganic silts and sandy silts with low to medium plasticity, rock flour
			CL	Inorganic clays of low to medium plasticity, gravelly/sandy/silty/lean clays
			OL	Organic silts and organic silty clays of low plasticity
	Silts and Clays Liquid Limit greater than 50%		MH	Inorganic silts and sandy silts with high plasticity
			CH	Inorganic clays or high plasticity, fat clays
			OH	Organic clays of medium to high plasticity
Highly Organic Soils			PT	Peat, muck, and other highly organic soils

Prefix: G = Gravel, S = Sand, M = Silt, C = Clay, O = Organic

Suffix: W = Well Graded, P = Poorly Graded, M = Silty, C=Clayey, L=Low Plastic, LL < 50%, H = High Plastic, LL > 50%

Table 1
Summary of Laboratory Index Test Results
COT Pump Station Resiliency and Reliability Improvements
Tampa, Florida
MAE Project No.: 0135-0005

Boring No.	Sample No.	Approximate Test Depth ⁽¹⁾ (ft)	Gradation Test, % Passing							Natural Moisture Content (%)	Organic Content (%)	Liquid Limit	Plastic Limit	Plasticity Index	USCS ⁽²⁾ Classification
			No. 4	No. 10	No. 20	No. 40	No. 60	No. 100	No. 200						
B-1	2	2 to 4	---	---	---	---	---	---	1	8	---	---	---	---	SP
B-1	5	8 to 10	---	---	---	---	---	---	10	26	---	---	---	---	SP-SM
B-1	6	13.5 to 15	---	---	---	---	---	---	12	23	---	---	---	---	SP-SM
B-2	2	2 to 4	---	---	---	---	---	---	2	3	0.5	---	---	---	SP
B-2	7	18.5 to 20	---	---	---	---	---	---	36	28	---	38	15	23	SC
B-3	2	2 to 4	---	---	---	---	---	---	3	9	1.9	---	---	---	SP
B-3	7	18.5 to 20	---	---	---	---	---	---	73	45	---	67	17	50	CH
B-4	4	6 to 8	---	---	---	---	---	---	15	14	---	---	---	---	SC
B-4	7	18.5 to 20	---	---	---	---	---	---	22	23	---	40	18	22	SC
B-5	4	6 to 8	---	---	---	---	---	---	3	22	0.9	---	---	---	SP
B-5	6	13.5 to 15	---	---	---	---	---	---	6	29	3.4	---	---	---	SP-SM
B-5	7	18.5 to 20	---	---	---	---	---	---	9	30	---	---	---	---	SP-SM
B-6	3	4 to 6	---	---	---	---	---	---	2	7	0.9	---	---	---	SP
B-6	5	8 to 10	---	---	---	---	---	---	41	27	---	---	---	---	SC
B-6	8	23.5 to 25	---	---	---	---	---	---	46	23	---	38	13	25	SC
B-7	5	8 to 10	---	---	---	---	---	---	21	17	---	---	---	---	SC
B-7	7	18.5 to 20	56	54	52	51	49	40	23	40	---	---	---	---	SC

Table 1
Summary of Laboratory Index Test Results
COT Pump Station Resiliency and Reliability Improvements
Tampa, Florida
MAE Project No.: 0135-0005

Boring No.	Sample No.	Approximate Test Depth ⁽¹⁾ (ft)	Gradation Test, % Passing							Natural Moisture Content (%)	Organic Content (%)	Liquid Limit	Plastic Limit	Plasticity Index	USCS ⁽²⁾ Classification
			No. 4	No. 10	No. 20	No. 40	No. 60	No. 100	No. 200						
B-8	4	6 to 8	---	---	---	---	---	---	21	17	---	---	---	---	SC
B-8	5	8 to 10	---	---	---	---	---	---	10	19	---	---	---	---	SP-SC
B-8	6	13.5 to 15	---	---	---	---	---	---	82	53	---	104	25	79	CH
B-8	7	18.5 to 20	---	---	---	---	---	---	19	59	---	80	25	55	SC
B-9	4	6 to 8	---	---	---	---	---	---	1	22	---	---	---	---	SP
B-10	2	2 to 4	---	---	---	---	---	---	7	17	---	---	---	---	SP-SC
B-10	4	6 to 8	---	---	---	---	---	---	16	19	---	---	---	---	SC
B-10	6	13.5 to 15	---	---	---	---	---	---	51	41	---	101	20	81	CH
B-10	8	23.5 to 25	---	---	---	---	---	---	21	23	---	---	---	---	SC
B-11	4	6 to 8	---	---	---	---	---	---	24	29	---	---	---	---	SC

⁽¹⁾ Feet below existing ground surface.

⁽²⁾ Unified Soil Classification System.

LABORATORY TEST PROCEDURES

Percent Fines Content

The percent fines or material passing the No. 200 mesh sieve of the sample tested was determined in general accordance with the latest revision of ASTM D 1140. The percent fines are the soil particles in the silt and clay size range.

Natural Moisture Content

The water content of the tested sample was determined in general accordance with the latest revision of ASTM D 2216. The water content is defined as the ratio of “pore” or “free” water in a given mass of material to the mass of solid material particles.

Atterberg Limits

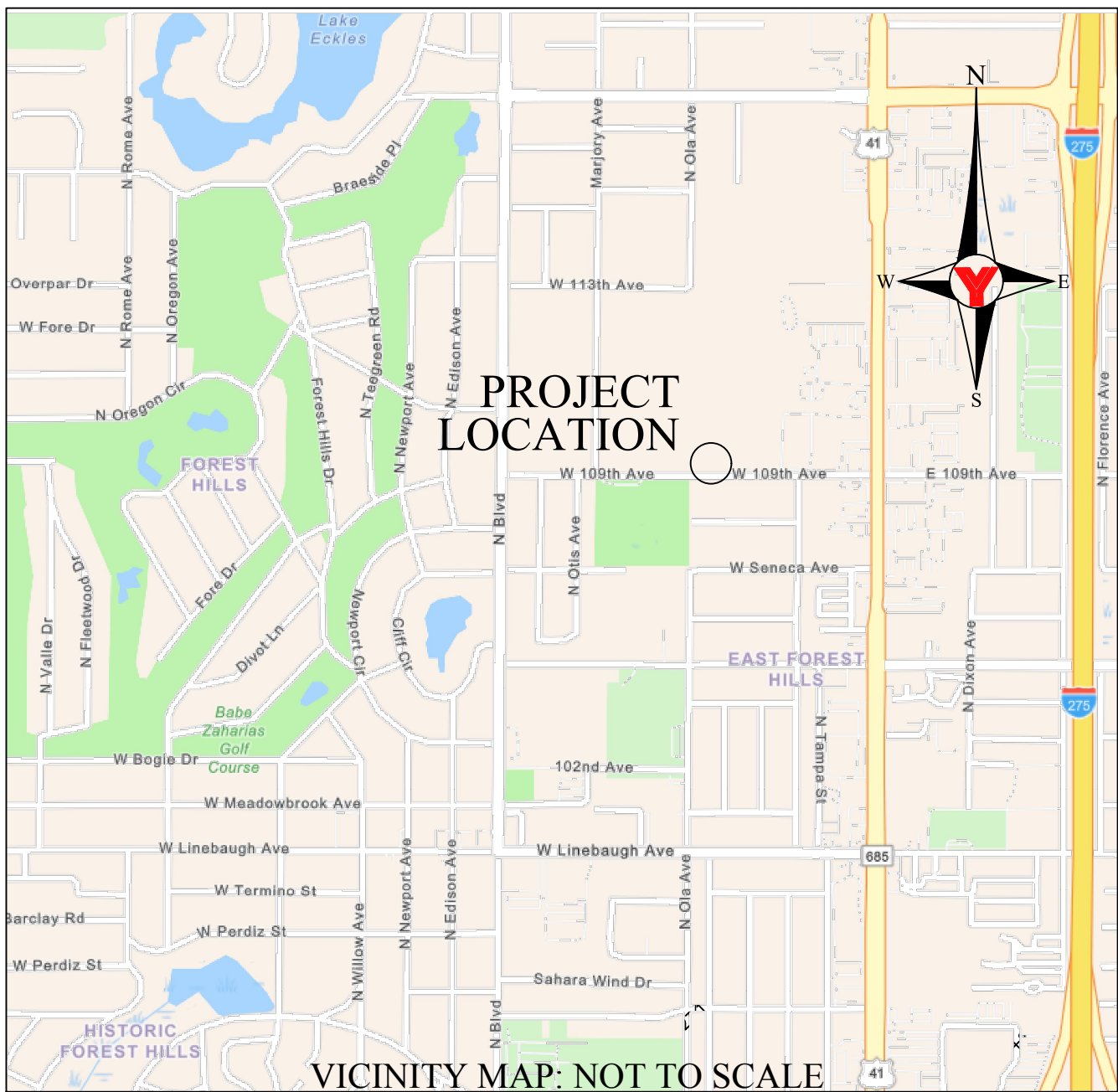
The Atterberg Limits consist of the Liquid Limit (LL) and the Plastic Limit (PL). The LL and PL were determined in general accordance with the latest revision of ASTM D 4318. The LL is the water content of the material denoting the boundary between the liquid and plastic states. The PL is the water content denoting the boundary between the plastic and semi-solid states. The Plasticity Index (PI) is the range of water content over which a soil behaves plastically and is denoted numerically by the difference between the LL and the PL. The water content of the sample tested was determined in general accordance with the latest revision of ASTM D 2216. The water content is defined as the ration of “pore” or “free” water in a given mass of material to the mass of solid material particles.

Organic Loss on Ignition (Percent Organics)

The organic loss on ignition or percent organic material in the sample tested was determined in general accordance with ASTM D 2974. The percent organics is the material, expressed as a percentage, which is burned off in a muffle furnace at 455 ± 10 degrees Celsius.

Gradation

The particle size analysis or gradation of the sample tested was determined in general accordance with latest revision of ASTM D 422. This test procedure determines the grain size distribution of the tested sample by passing the sample through a standard set of nested sieves.

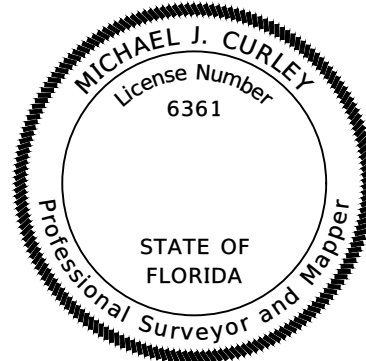


SURVEYOR'S NOTES:

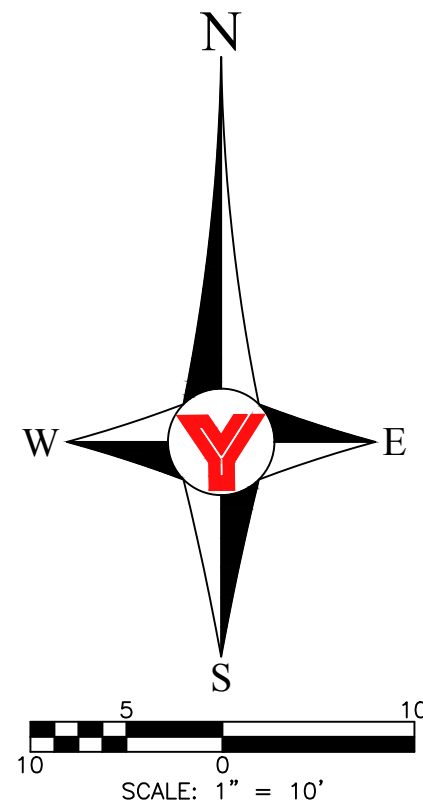
- A Topographic and Record Survey of 215 West 109th Avenue, City of Tampa, Florida, lying in Section 13, Township 28 South, Range 18 East.
- Survey Date: April 3, 2025.
- HORIZONTAL: Coordinates of site control points were established by Real-Time Kinematic (RTK) GPS methodology, using the Florida Permanent Reference Network (FPRN) for corrections and tied to NGS Monument *E A I* (PID=DG8947, Northing=1,346,545.76, Easting=499,955.68. Coordinates are relative to the North American Datum of 1983, 2011 Adjustment (NAD83/11), Florida State Plane Coordinate System, West Zone, U.S. Survey Feet.
- VERTICAL: Elevations of site control points were established by differential digital level, and are relative to the North American Vertical Datum of 1988, (NAVD88) based on Southwest Florida Water Management District Benchmark *670748* (Elevation=35.05 feet).
- TOPOGRAPHIC SURVEY includes any hardscape elements and above ground utilities, including but not limited to all retaining walls, fences, culverts, drainage structures, paved ditches, water meters, valves, junction boxes, manholes, driveways, parking lots, utility/light poles, overhead utility lines, trees of 4" diameter or greater, and any other significant feature within the survey areas identified above. Visible above ground utilities are shown herein however additional utilities may exist. The location of footers, foundations and structures beneath the ground surface has not been determined.
- Excluded from this survey are hedges, small bushes, sprinkler systems and non-permanent landscaping such as planters with timber borders, and vertical location of overhead utility lines, .
- RECORD SURVEY includes apparent right-of-way and subsurface utilities.
- This is not a Boundary Survey. Apparent right-of-way and property lines shown herein are based upon plats and deeds available to the public on the Hillsborough County Property Appraiser Website, and tied to limited found monumentation. A title search was not obtained for this survey. Apparent Right-of-Way should be considered approximate and used for reference purposes only. Additional easements may exist.

- A ticket was filed with Sunshine One-Call to mark subsurface utilities in the field. Markings were found and located by George F. Young Inc. on subsequent field visits and shown herein as Quality Level B utility designation. George F. Young Inc. and the undersigned make no representation as to the accuracy of said markings or lack thereof.
- Forty-Eight (48) hours before digging, boring, pile-driving, planting, etc, call Sunshine State One Call System, 1-800-432-4770 so that underground utilities may be field spotted.
- This map of survey is intended to be displayed at a scale of 1" = 10' or 1:120.
- Additions or deletions to survey maps or reports by other than the signing party or parties are prohibited without the written consent of the signing party or parties.
- Certification is understood to be an expression of professional opinion by the signing surveyor and mapper based on the surveyor and mapper's knowledge and information, and it is not a guarantee or warranty, express or implied.
- This map of survey or the copies thereof are not valid without the original signature and seal of a Florida licensed Surveyor and Mapper.
- Printed copies of this document are not considered signed and sealed and the signature must be verified on any electronic copies.
- This report has been digitally signed and sealed under Rule 5J-17.062 of the Florida Administrative Code.

CONTROL POINTS				
NAME	NORTHING	EASTING	ELEV	DESCRIPTION
117	1350159.19	506859.73	29.121	Set Nail and Disk GFY
118	1350162.36	506607.77	27.246	Set Nail and Disk GFY
119	1350287.21	506846.00	31.135	Set Nail and Disk GFY
120	1350206.94	507161.29	29.739	Set 12" Iron Rod and Cap GFY
121	1350250.78	506737.12	30.514	Set Nail and Disk GFY
122	1350220.69	506788.13	29.597	Set Nail and Disk GFY



Michael J. Curley, PSM
Florida Professional Surveyor and Mapper
License Number LS 6361
George F. Young Inc. LB21

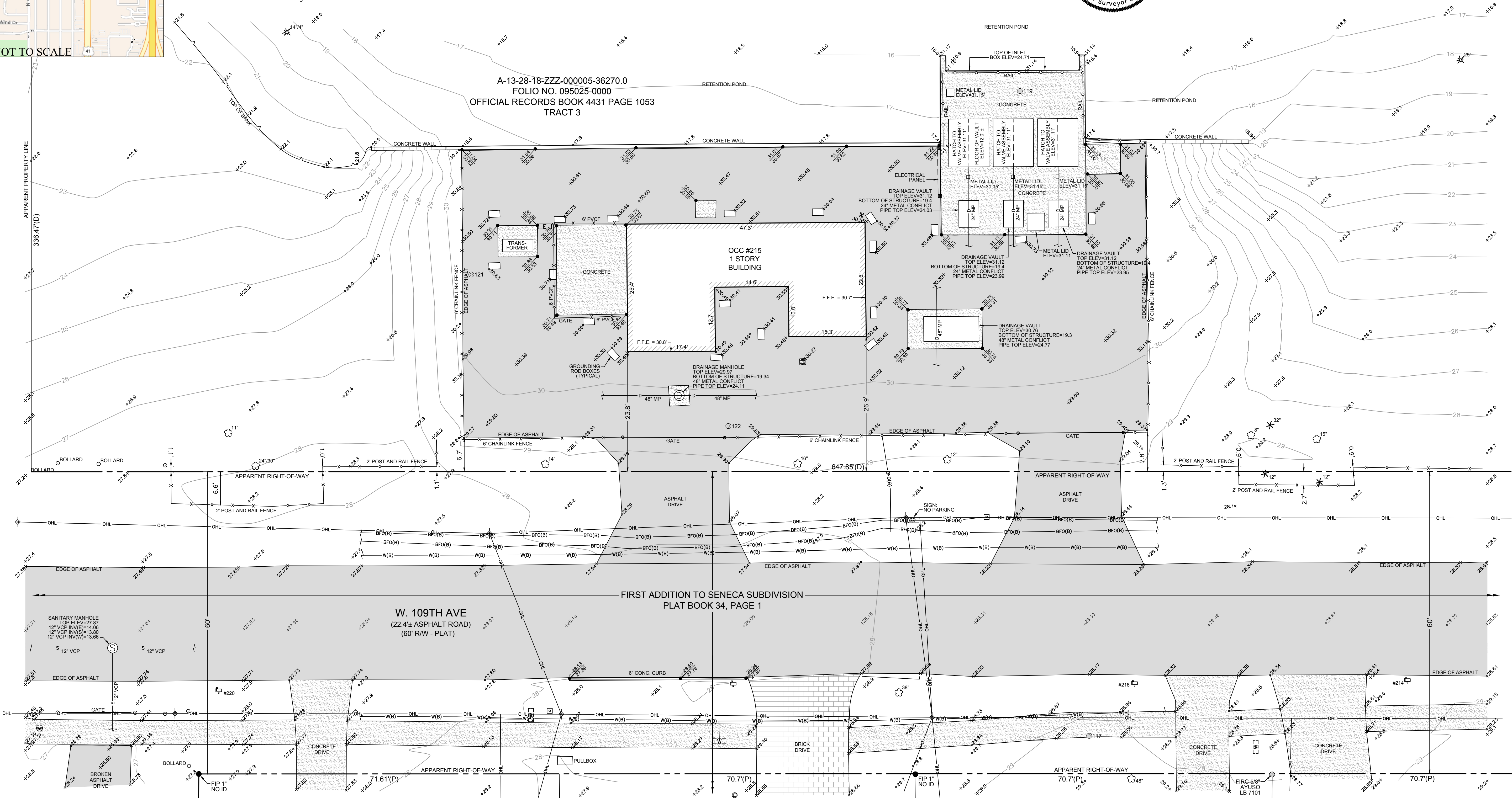


- LEGEND:
- CONC. Concrete
(D) Deed
ELEV Elevation
FIP Found Iron Pipe
FIR Found Iron Rod
FIRC Found Iron Rod and Cap
ID. Identification
INV Invert Elev
LB Licensed Business
LS Licensed Surveyor
MP Metal Pipe
OCC Occupation
OHL Overhead Utility Line
(P) Plat
PSM Professional Surveyor and Mapper
PVCF Polyvinyl Chloride Fence
QL Quality Level B
RCP Reinforced Concrete Pipe
VCP Vitreous Clay Pipe

- SYMBOL LEGEND:
- Found Iron Rod
Set Nail and Disk
Antenna
Bollard
Drainage Manhole
Electrical Service Box
Light Pole
Mail Box
Meter - Electric
Post
Shared Utility Pole
Stand Pipe
Telecommunications Pedestal
Tree - Cypress
Tree - Oak
Tree - Palm

- LINE TYPE LEGEND:
- Drainage Pipe
Sanitary Pipe
Fence
Overhead Utility Line
Buried Fiber Optic (QL B)
Water Line (QL B)

- HATCHING LEGEND:
- Asphalt
Brick
Concrete



REVISED	NO.	BY	DATE	DESCRIPTION
	1			
	2			
	3			
	4			
	5			

REVISED	NO.	BY	DATE	DESCRIPTION
	6			
	7			
	8			
	9			
	10			

INITIALS	DATE
CREW CHIEF	KD 4/3/25
DRAWN	DE 4/4/25
CHECKED	MC 4/7/25
FIELD BOOK	DIGITAL
FIELD DATE	4/3/25

PREPARED FOR:
Stormwater Engineering Division- City of Tampa
306 E Jackson St, 6N
Tampa, FL 33602
813-274-8937



George F. Young, Inc.

299 DR. MARTIN LUTHER KING JR. STREET, N. ST. PETERSBURG, FLORIDA 33701
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BUSINESS ENTITY: LB21
CIVIL, TRANSPORTATION, SUBSURFACE & STRUCTURAL ENGINEERING
ECOLOGICAL GIS PLANNING & SURVEYING
ST. PETERSBURG • LAKEWOOD RANCH • TAMPA • GAINESVILLE • LAKE WALES • PUNTA GORDA

Michael J. Curley PSM LS 6361
DATE

City of Tampa Pump Station - W. 109th Ave
Topographic Survey

SECTION 13, TOWNSHIP 28S., RANGE 18E.

JOB NO.
23009803LS
SHEET NO.
1 OF 1

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