

ADDENDUM NO. 2 TO CONTRACT DOCUMENTS

Project: Oakwood Drive Bank
Stabilization
City of Havelock, North Carolina

H&S Project No. 30906-018
Contract No. _____

Owner: City of Havelock
North Carolina

Date: December 20, 2018

To All Bidders:

Contractors submitting Proposals for the above named Project shall take note of the following changes, additions, deletions, clarifications, etc., in the Contract Documents, which shall become part of and have precedence over anything contrarily shown or described in the Contract Documents, and all such shall be taken into consideration and be included in the Contractor's Bid Proposal.

Refer to the Attached Sheets.

The return receipt acknowledgement requested below will be deemed evidence that the bidder has received this Addendum and has followed the instructions outlined herein. Please sign, date, clearly print company name, and fax this sheet back to Hazen and Sawyer at 919-833-1828 or email to JMcSwain@hazenandsawyer.com immediately upon receipt.



Company Name

Acknowledgement of Receipt

Date

A handwritten signature in black ink, appearing to read "Tim Schueler", written over a horizontal line.

Tim Schueler, P.E.
HAZEN AND SAWYER

OAKWOOD DRIVE BANK STABILIZATION

ADDENDUM NO. 2

EXISTING GEOTECHNICAL DATA:

Existing geotechnical data is provided in this addendum as attached (6 pages). Subsurface data are offered in good faith solely for placing the Bidder in receipt of all information available to the Owner and Engineer and in no event is to be considered as part of the Contract Documents. The Bidder must interpret such subsurface data according to his own judgment and acknowledge that he is not relying upon the same as accurately describing the subsurface conditions, which may be found to exist.

SPECIFICATIONS:

SECTION 02200 –EARTHWORK

Page 02200-3 Replace Item 6 in Paragraph A under PART 1 – GENERAL, Subsection 1.05 “SUBMITTALS” with the following:

- “6. Construction drawings and structural calculations for any types of excavation support, as described in Subsection 3.03, which may be required to support sides of excavation or to protect pipes and structures from possible damage and to provide safe working conditions. Drawings and calculations shall be sealed by a currently registered Professional Engineer in the State of North Carolina. No additional drawings or calculations are required of the Contractor for the sheet pile wall or imbricated rock wall structures shown on Contract Drawings.

SECTION 02279 – WATERING

Page 02279-1 Substitute the following paragraph for Paragraph A and under PART 3 – EXECUTION, Subsection 3.01 “INSTALLATION”.

- “A. For initial week of installation of seeded areas, sod, herbaceous plants, shrubs, trees, tubelings and livestakes, and in the absence of adequate rainfall (one or more inches per week), watering shall be performed daily or as often as necessary during the first week and in sufficient quantities to maintain moist soil to a depth of 4 inches. Watering should be conducted in the early morning to minimize loss caused by evaporation to prevent wilting.

Page 02279-2 Substitute the following paragraph for Paragraph B and under PART 3 – EXECUTION, Subsection 3.01 “INSTALLATION”.

- “B. After initial week of installation of seeded areas, sod, herbaceous plants, shrubs, trees, tubelings and livestock, and in the absence of adequate rainfall (one or more inches per week), watering shall be performed daily or as often as necessary during the first week and in sufficient quantities to maintain moist soil to a depth of 4 inches. Watering should be conducted in the early morning to minimize loss caused by evaporation to prevent wilting.

August 2, 2018

Tim Schueler
HAZEN & SAWYER
4011 Westchase Boulevard, Suite 500
Raleigh, NC 27607

Re: Subsurface Investigation
Oakwood Drive Slope Failure
Havelock, North Carolina
GeoTechnologies Project No. 1-18-0577-EA

Gentlemen:

GeoTechnologies, Inc. has completed test borings for a stream restoration project on the north side of Oakwood Drive, near the intersection of Highway 70 in Havelock, North Carolina. Based on our observations, water moving through a culvert under Highway 70 is eroding the stream bank resulting in an oversteep slope which is then sloughing. The process has impacted the road above to the point that a section has been blocked with traffic cones. The purpose of this investigation was to perform test borings adjacent to the top of the existing creek bank (Figure 1) to assist with the design of about 60 linear feet of a proposed sheet pile wall.

The test borings were advanced with an ATV drill rig equipped with a conventional drop hammer to a termination depth of approximately 40 feet below site grade utilizing standard penetration test procedures at selected intervals to evaluate the consistency and density of the subsurface soils. This report presents the findings of our investigation.

SITE AND PROJECT INFORMATION

It is our understanding that the slope will be stabilized with a sheet pile wall as indicated on Figure 1. The top of the wall will be at about El. 20, while the bottom of the creek is at about El. 8. However, probing of the bottom indicates that about 1 to 3 feet of loose soils are present, and as such, the wall will be designed with about 15 feet of unsupported length.

SUBSURFACE CONDITIONS

A generalized subsurface profile prepared from the test boring data is attached to this report as Figure 2 to graphically illustrate subsurface conditions encountered at this site. More detailed descriptions of the conditions encountered at the individual test boring locations are then presented on the attached test boring records.

Conditions in the borings consisted of surface topsoil which was underlain by 8 to 12 feet of fill or possible fill which was typically sandy. Penetration resistances in the fill/possible fill ranged from 3 to 13 blows per foot (bpf). Below the fill or possible fill, the borings typically encountered 5 to 24 bpf clean sands to about 27 feet where very soft (2 bpf) clays were present to about 32 feet. Below 32 feet, the borings encountered clayey to silty sands with varying amounts of shell hash. Penetration resistances in these soils were in the range of 6 to 25 bpf. The borings were terminated at about 40 feet.

Groundwater was encountered or estimated at about 5.5 feet below grade at the time of boring completion. Water levels are expected to be higher during and after significant rain events.

RECOMMENDATIONS

The following recommendations are made based upon a review of the attached test boring data. As stabilization plans are developed, they should be provided to us so that our recommendations can be extended or modified as necessary.

Based on the test boring results, ultimate (unfactored) soil parameters are given in the tables below. If an anchored design is needed, we recommend that an appropriate number of test anchors be load tested to verify the design capacity.

RECOMMENDED ULTIMATE STRENGTH PARAMETERS. APPROPRIATE SAFETY FACTOR SHOULD BE APPLIED.

DEPTH (FT)	C (PSF)	ϕ' (DEGREES)	UNIT WEIGHT (PCF)**	E50	K (PCI)
0-12	0	29	120	NA	30
12-27	0	32	125	NA	60
27-32	250	0	120	0.02	NA
32-40	0	31	120	NA	50

****USE BOUYANT UNIT WEIGHT BELOW DESIGN HIGH WATER TABLE**

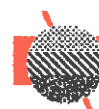
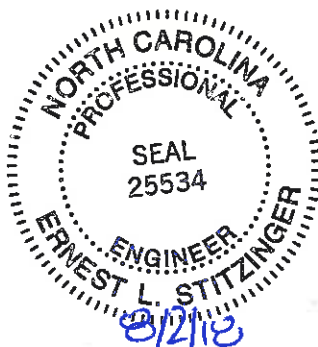
Wall Backfilling. If post-installation wall backfilling is needed, we recommend backfilling with a granular material which can be easily compacted. We recommend capping granular backfill with 18 to 24 inches of compacted clay to limit surface water intrusion behind the wall. We recommend that all backfill be compacted to 95% of the standard Proctor maximum dry density. If compacted granular soils are used, a design friction angle of 30 degrees and a unit weight of 120 pcf can be used for design. Additional backfill details can be provided as necessary.

GeoTechnologies, Inc. appreciates the opportunity to be of service on this phase of the project. Please contact us if you have any questions concerning this letter or if we may be of additional service on this or other projects.

Sincerely,

GeoTechnologies, Inc.

Ernest L. Stitzinger, P.E.
NC Registration No. 25534



GeoTechnologies, Inc.

www.geotechpa.com

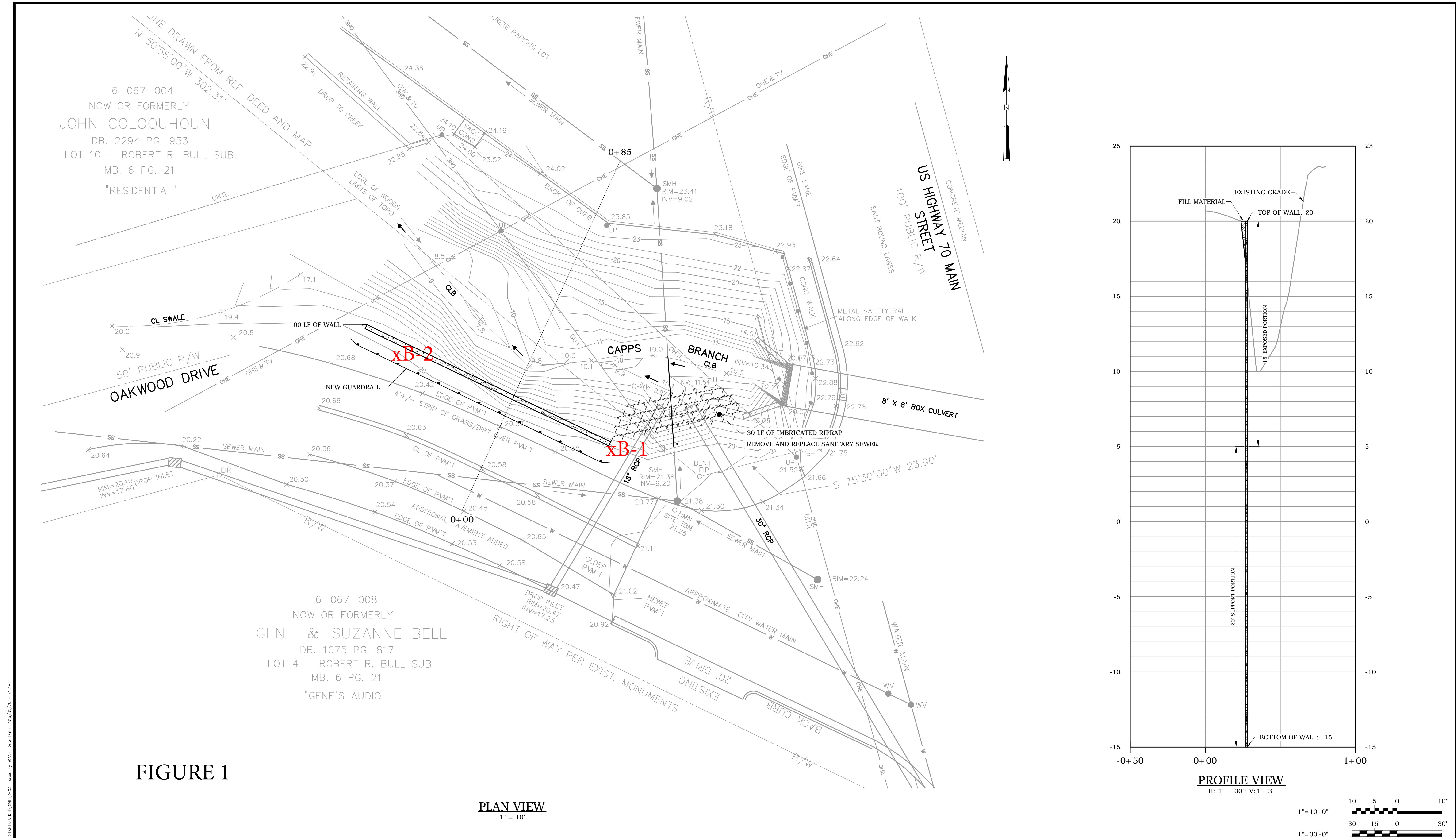


FIGURE 1

PLAN VIEW
1" = 10'

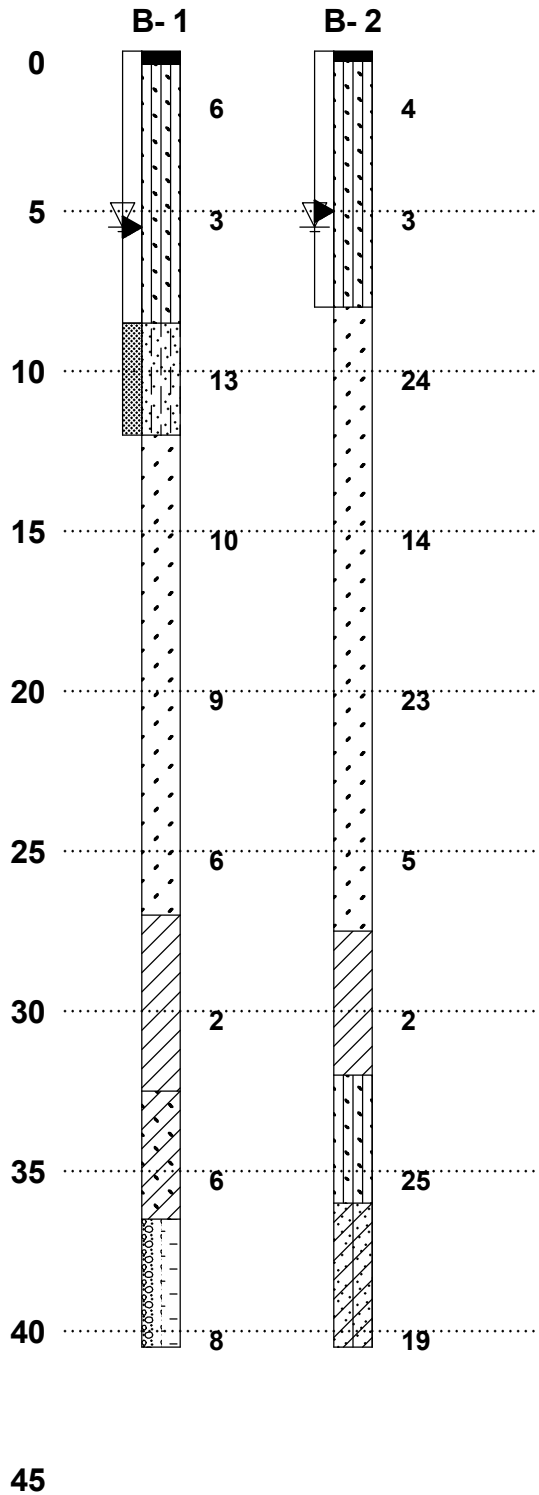
PROFILE VIEW
H: 1" = 30'; V: 1" = 3'

				PROJECT ENGINEER: T. SCHUELER		<div>PRELIMINARY DRAWING DO NOT USE FOR CONSTRUCTION</div>	<div><div>Hazen</div><div>HAZEN AND SAWYER 4011 WESTCHASE BOULEVARD, SUITE 500 RALEIGH, NORTH CAROLINA 27607 LICENSE NO. : C-0381</div></div>	CITY OF HAVELOCK, NORTH CAROLINA		<div>CONCEPT SITE PLAN</div>	DATE: MAY 2016	
				DESIGNED BY: T. SCHUELER				HAZEN NO.: 30906-006			HAZEN NO.: 30906-006	
				DRAWN BY: S. KANE				CONTRACT NO.: 1			CONTRACT NO.: 1	
				CHECKED BY: --							DRAWING NUMBER: ----	
				IF THIS BAR DOES NOT MEASURE 1" THEN DRAWING IS NOT TO FULL SCALE								
REV	ISSUED FOR	DATE	BY			<div><div>01/21"</div></div>						

PLOT DATE: 2016/05/20 9:55:25 AM BY: SKANE
FILE C:\PROJECTS\2016\05\20\30906-006\30906-006-001\30906-006-001-001.DWG STABILIZATION\DWG\30906-006-001-001.DWG

GENERALIZED SUBSURFACE PROFILE

Depth (Ft.)



LEGEND

- Topsoil
- Silty Sand
- Poorly-graded Sand with Silt
- Poorly-graded Sand
- Low Plasticity Clay
- Clayey Sand
- Slightly Silty Sand
- Slightly Clayey Fine to Medium SAND
- Fill
- Possible Fill
- Standard Penetration Resistance
- Groundwater at Time of Boring
- Cave Depth

PROJECT:

Oakwood Dr. Slope Stabilization
Havelock, North Carolina

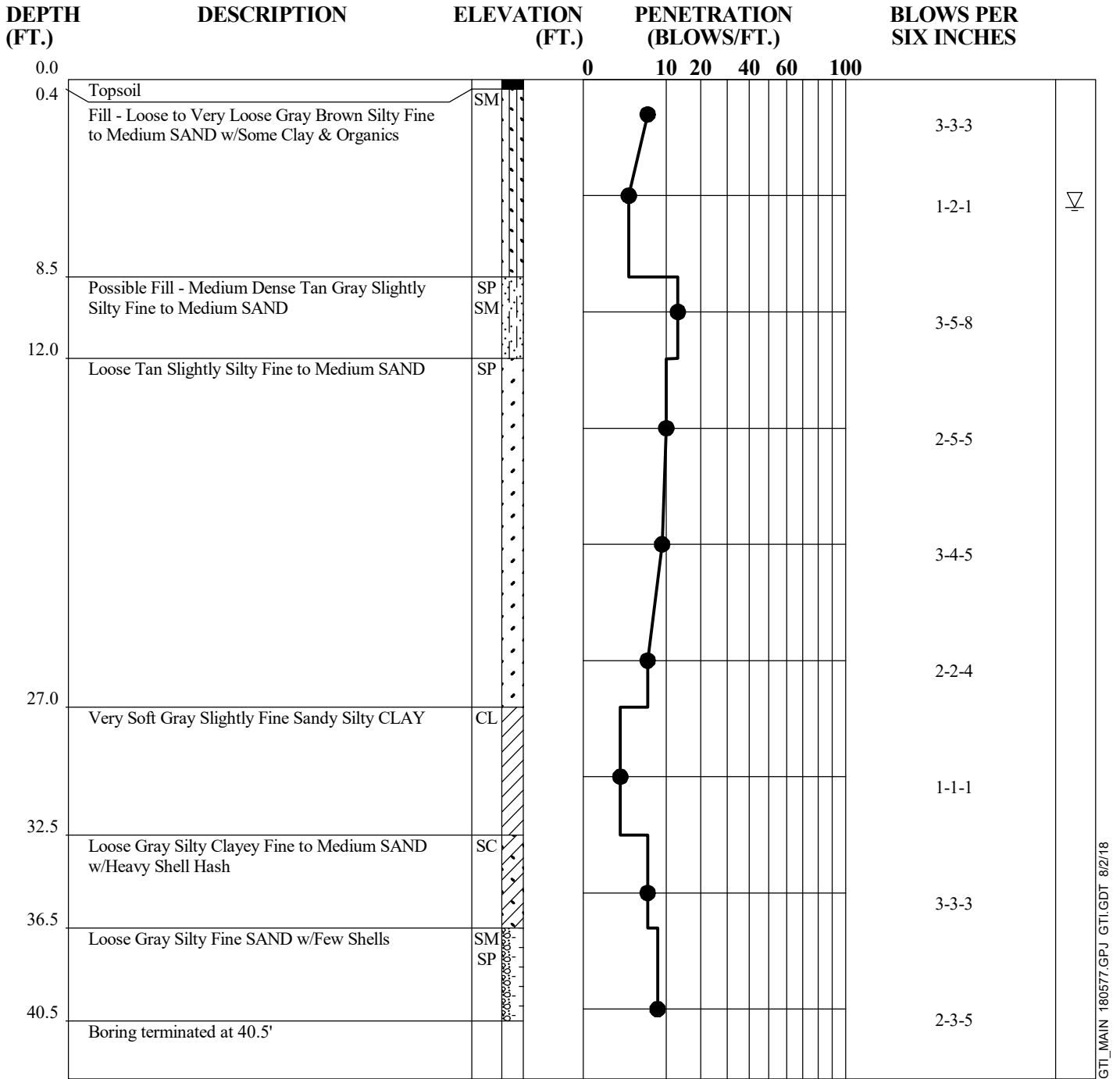


SCALE: As Shown

JOB NO: 1-18-0577-EA

FIG NO: 2

TEST BORING RECORD

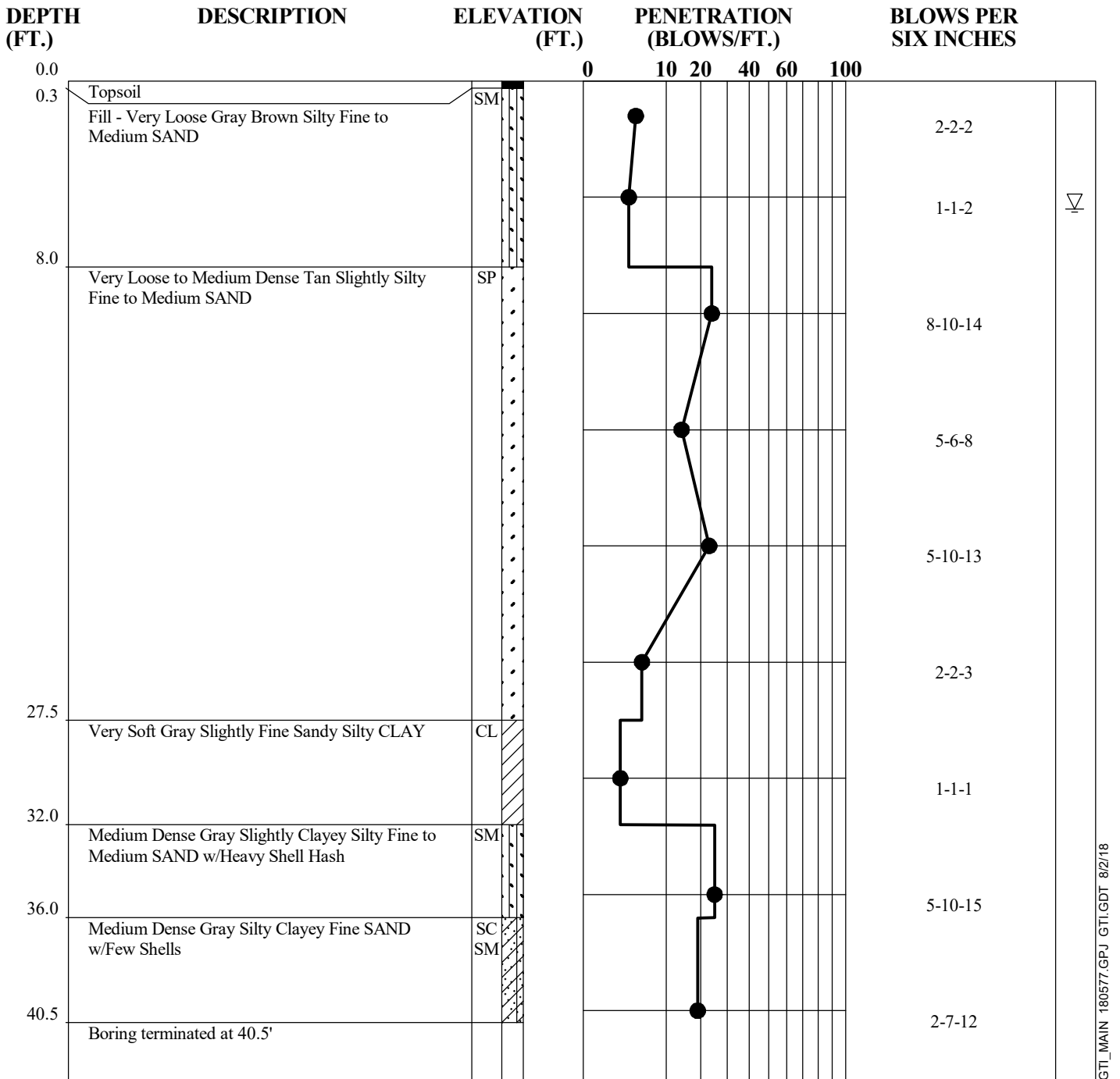


GTI_MAIN 180577.GPJ GTI.GDT 8/2/18

Caved at 5.5'. Groundwater at 5.5' at time of boring.

JOB NUMBER 1-18-0577-EA
BORING NUMBER B- 1
DATE 8-2-18

TEST BORING RECORD



Caved at 5'. Groundwater at 5.5' at time of boring.

JOB NUMBER 1-18-0577-EA
BORING NUMBER B- 2
DATE 8-2-18