SESI
CONSULTING ENGINEERS

Geotechnical
Environmental
Site Civil

959 Route 46E, Fl 3, Ste 300
Parsippany, NJ 07054
973.808.9050
www.sesi.org

Geotechnical Investigation Report
For

The Altshuler Residence
11 Fairlawn Avenue
Dobbs Ferry, Westchester County, New York

Alexander G. Barish Jr., PE

Michael St. Pierre, PE
Lic. No. 080271-01

Prepared for:
Gregory Sharp Architect, PC
September 19, 2023

SESI Contact:
Alexander Barish, PE
Alexander.barish@sesi.org

SESI Project No:
13154

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DRAWING

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1.0 INTRODUCTION

SESI Consulting Engineers (SESI) recently completed a geotechnical investigation for the proposed dwelling to be located at 11 Fairlawn Avenue, Dobbs Ferry, NY. This report summarizes SESI's geotechnical investigation, our findings, and our foundation design recommendations for the currently proposed development. The report also presents recommendations regarding other construction-related aspects of the proposed development, such as site preparation, groundwater control, temporary excavation support, and utility support.

In addition, we have reviewed the following documents in preparation of this geotechnical investigation:

- Submission Set titled *The Altshuler Residence* prepared by Case Development Inc dated June 16, 2023.
- Site Plan Review Response by Gregory Sharp Architect, PC dated June 20th, 2023.
- *Geotechnical Engineering Report* prepared by AKRF, Inc. dated August 24, 2021.
- *Basement Framing and Foundation Plan* prepared by Integral Engineering Services dated June 16, 2023.
- A topographical survey prepared by Link Land Surveyors, P.C., dated March 1, 2021.

2.0 PROJECT DESCRIPTION

2.1.1 Previous Work Completed

AKRF, Inc. previously conducted a geotechnical investigation at the site and prepared a geotechnical investigation report dated August 24, 2021. Their investigation comprised of three (3) borings within or near the footprint of the proposed residence. The borings ranged in depths from 52 to 57 feet below ground surface. The results of their findings are in **Attachment D**.

2.2 Site and Surrounding Conditions

According to the Topographic Survey, the overall site covers approximately 26,164± square feet, and is identified as township tax map Block 134, Lot 12. The site is bounded to the south by a residential dwelling at 9 Fairlawn Avenue, to the west by MTA Metro-North Railroad tracks, to the north by Saint Christophers Inc. property located at 71 Broadway and a wooded area beyond, and to the east by Fairlawn Avenue and residential housing beyond .The site is heavily grassed with five existing retaining walls on the property all situated in a north-south direction; three (3) to the north, one (1) to the south, and one (1) to the west. The retaining walls range in height from 1 to 5 feet high. The western portion of the site is considered a conservation easement with three (3) separate utility easements within it. This portion of the site is to remain undeveloped. Topographically, the upper eastern portion of the site is generally flat until it reaches the three (3) tiered retaining walls, with a high elevation of 88.4 and a low elevation of 81.5. The tiered retaining walls towards the north drops with each step by approximately 5-feet. The high elevation of the top wall is 81.9 and the low elevation of the bottom wall is 66.6. The middle portion of the site slopes steeply downward from the east to west, with a high elevation of 81 and a low elevation of 68. The southern portion of the site is generally flat near the property line and slopes gradually towards a retaining wall, with a high elevation of 85 to a low elevation of 79.5. The bottom of the retaining wall ranges in elevation of 76.2 to 76.5 then gradually slopes to the western retaining wall with a low elevation of 68 at the southwest corner of the property.

The existing slope located on the western portion of the property was previously reconstructed. The slope contains soil nails, spaced at 10-feet, at the north and south ends of the property, and geogrid with compacted fill between the limits of the soil nails. The geogrid was observed in TP-3 during our investigation. In addition, Gabriel E. Senor, P.C. submitted a construction completion letter to the Village of Dobbs Ferry on June 9, 2015 which indicated that the fill was placed in controlled compacted lifts with geogrid in conformance with the design documents. This letter is included in **Attachment E.**

2.3 Proposed Development

Based on our conversations and review of the submitted plan documents, the proposed development will consist of a new two-story private residence. The first-floor footprint of the proposed residence is approximately 2,493 square feet with a detached garage located at the northeast portion of the site with a footprint of 484 square feet. We also understand that the building will have two (2) terraces on the first floor totaling 982 square feet. The property will also consist of an associated driveway with an area of 874 square feet. The basement finished floor elevation is shown to be at elevation 70.42 and the first-floor elevation is shown to be at elevation 84.58. The garage finished floor elevation is shown to be at 84.58. Additionally, we were not provided with any anticipated structural foundation loads for the proposed construction. Once completed, we should be provided with an opportunity to review the plans to confirm that our recommendations remain valid. For the purposes of this report, we have assumed typical lightly loaded wall, floor, and column loading for the proposed structure.

3.0 AVAILABLE INFORMATION REVIEW

We obtained and reviewed available historic topographic maps, historic aerial photographs, and geologic maps for the Site.

- Historic Aerial Photographs – Historic aerial photographs indicate that the existing site and its neighboring properties were undeveloped until 2009-2010. In addition, the site was used as a construction entrance and staging area during the construction of the neighboring properties at 7 and 9 Fairlawn Avenue from approximately 2009 to 2016. During this time, it appears that the retaining walls were constructed and final grading was subsequently reached in 2018.

- Previous Investigation – AKRF performed a geotechnical investigation on the site and wrote a geotechnical investigation report dated August 24, 2021. Their investigation comprised of three (3) borings that extended between 52 and 57 feet below the ground surface. The investigation report states that fill material was found to range between 4 and 20 feet below ground surface, followed by glacial deposits to the extent of the exploration.

4.0 SUBSURFACE INVESTIGATION AND LABORATORY PROGRAM

4.1 Field Investigation

Our engineering study consisted of a review of existing soils and geologic data, and a field investigation consisting of six (6) cone penetrometer tests (CPTs) and three (3) test pits. The investigation was performed on August 16, 2023. The cone penetrometer tests were advanced to depths of approximately 1.25 to 11 feet below the existing ground surface, where probe refusal was encountered, using a subcontracted CPT ATV rig. The test pits extended to depths of 8 to 9 feet below the existing ground surface using your subcontracted excavator. The approximate locations of the CPTs and test pits are shown on the *Exploration Location Plan*, which is included

as **Drawing 1**. Individual test pit logs and a key to SESI soil terminology are presented in **Appendix A.** CPT data is presented in **Appendix C.**

Cone Penetration tests (CPTs) are conducted using an integrated electronic piezcone penetrometer and data acquisition system manufactured by Vertek of Randolph, VT 05060. CPT cones are available in multiple sizes, but the 10 cm^2 and 15 cm^2 cones are the industry standard. Penetrometers are made of high strength steel and designed to resist abrasion by soil. The 10 cm^2 cone was used on this project. The CPT is advanced at a steady rate of 2 cm/s, within acceptable tolerances. Typically, one-meter length rods with an out diameter of 15 cm are added to advance the cone to the sounding termination depth. After cone retraction, final baselines are recorded.

The field work was performed under the direct technical observation of a geotechnical engineer from SESI Consulting Engineers. Our representative located the explorations in the field, maintained continuous logs of the explorations as work proceeded, and coordinated the soil sampling operations in order to develop the desired subsurface information. The cone penetrometer test locations were laid out in the field using Google Earth Mapping software and an electronic device. Ground surface locations and elevations at each of the exploration locations were obtained from Google Earth and correlated to the *Topographic Survey*. The actual cone penetrometer test locations and test pit locations may differ by several feet and should be confirmed by a survey, if required.

4.2 Geotechnical Laboratory Program

Soil samples suitable for identification purposes were extracted from the test pits at various depths. The soil samples were brought to our soil mechanics laboratory for additional classification and appropriate geotechnical testing. The laboratory testing program consisted of two (2) mechanical grain size analysis, and one (1) Modified Proctor test. The results of the percent passing sieve No. 200 tests and the water content determinations are presented on the individual boring logs. The results of the mechanical grain size analyses and Modified Proctor Test are presented on the individual boring logs and in graphical form in Appendix B.

4.3 Subsurface Conditions

The investigation data indicates the subsurface conditions at the Site generally consist of surficial fill, underlain by glacial deposits which includes clays and silts to sands and coarse to fine gravel. The soils encountered in our cone penetrometer tests generally agreed with the published geological records. The following generalized strata are listed in the order of increasing depth.

4.3.1 Surface Materials

Topsoil was encountered at the surface of TP-3 to a depth of 12 inches.

4.3.2 Controlled Fill (F)

Controlled fills were encountered at the ground surface at TP-1 and TP-2 locations and below the topsoil at TP-3. The controlled fill generally consisted of sand with varying amounts of coarse to fine gravel and silts with cobbles and construction debris. The fill extended to the depths explored, which were approximately nine (9) feet below the ground surface. Based on the observed bucket resistance, the controlled fill was generally found to have a medium dense to dense consistency, which is typical for a controlled fill. CPTs refused in this stratum with readings for friction angle between 30 degrees and greater than 50 degrees at refusal depth.

In review of *Geotechnical Engineering Report* prepared by AKRF, Inc. dated August 24, 2021, fill was encountered in all of the borings ranging from 4 to 20 feet below the ground surface. The

material referenced in this report shows significant similarities with the soils found during our investigation.

4.3.3 Glacial Deposits (GD)

Beneath the surficial materials and controlled fill, glacial ground moraine soils were encountered at TP-1. The soils generally consisted of sands varying amounts of coarse to fine gravel and silts.

In review of *Geotechnical Engineering Report* prepared by AKRF, Inc. dated August 24, 2021, glacial deposits were found in all borings beneath the fill layer. The material referenced in this report shows significant similarities with the soils encountered during our investigation.

Based on the observed bucket resistance, the glacial deposits were generally found to have a medium dense consistency.

There is a predominantly silty clay/clay layer encountered in all borings observed by AKRF located between 20-40 feet below the ground surface or elevation 40 to 60. The depth to this layer in B-1 appears to be an outlier as compared to B-2 and B-3, resulting in a maximum thickness of 8.5 feet. Based on the blow counts, the silty clay/clay layer was generally found to be in a very stiff to hard consistency.

4.3.4 Groundwater

Groundwater was not encountered in any of our exploration test pits or in the borings observed by AKRF.

water seepage was encountered in TP-2 at a depth of 6-feet. The infiltration was within the fill layer and is considered to be trapped water from previous rain events. Fluctuations in the groundwater levels should be anticipated based on the time of year and amount of recent precipitation.

5.0 STABILITY ANALYSIS

5.1 Introduction

Stability analyses were performed at the proposed building to evaluate the effects of the proposed loading conditions imposed on the nearby steep slope. The analyses were performed to estimate the optimal construction practices to mitigate slope failure while maintaining a critical design ratio (i.e. factor of safety) greater than 1.5. A factor of safety less than 1.5 is considered unacceptable due to the potential for global instability.

The analysis was performed using the Slide-2 program developed by the Rocscience Company of Toronto, Canada. A general limit equilibrium method of analysis was used for a circular type of failure envelope that is typical in silty sands. The short-term deep-seated global stability is estimated using the undrained shear strength corresponding to existing consolidation stress (i.e., assuming the site is fully consolidated under existing site fill) and assuming an instantaneous loading from the new fill.

5.2 Existing Conditions - Model Parameters

Data obtained from the CPTs, borings (N-value) and laboratory testing performed by Skylands Testing, LLC in Sparta, NJ, were correlated with multiple tables/charts in the Unified Facilities Criteria (UFC) Soil Mechanics (DM 7.1) reference manual to obtain friction angle, cohesion, unit weight, etc. Our design parameters for the individual soil layers were then derived from these correlations.

The geogrid in the slope was modeled at the proposed strength, length and elevations shown in the project plans named *Slope Location Plan & Stationing* prepared by Carlin-Simpson and Associates, dated March 5, 2010. This work was observed to be constructed in accordance with the above stated plans per the letter prepared by and signed by Gariel E. Senor P.C. Dated June 9th, 2015. These plan and details are included in **Attachment F** within Site Plan Review Response by Gregory Sharp Architect, PC dated June 20th, 2023. Geogrid reinforcement was observed during our investigation in TP-3. Our visual observation the type of geogrid and the elevation of the geogrid encountered in our test pit were consistent with the above referenced plans.

5.3 Proposed Construction - Model Parameters

SESI lowered the building slab elevation to elevation +67.5 and added geogrid in the proposed construction limits to achieve an acceptable factor of safety against slope failure.

Six (6) layers of high strength uniaxial geogrid (Miragrid 20XT) are required at a spacing of 6" vertically below the proposed footings. Furthermore, geogrid is required below the landscape/driveway/garage area to the east of the building.

Our analyses were performed under dry soil conditions only. Permanent water control is necessary to maintain global stability throughout its lifetime. This procedure is discussed further within this report.

5.4 Stability Model Conclusion

Three sections of the building/slope were utilized in our analyses along the length of the building. The three sections differ due to the existing type of slope stabilization in place (soil nail or geogrid) and the proximity of the building footprint to the top of the slope. The results of the stability analyses are summarized in Table 1 and supporting output summaries are presented in **Appendix I**.

Table-1 Stability Analysis at Building-Section 1

Section Number	Factor of Safety (static)	Factor of Safety (seismic)	Comments
Section 1	1.515	1.233	Satisfactory
Section 2	1.505	1.251	Satisfactory
Section 3	1.526	1.253	Satisfactory

6.0 RECOMMENDATIONS

6.1 Introduction

Based on the results of our geotechnical study, from a soils standpoint, this site can be considered fair with respect to providing satisfactory support for the proposed structure. The controlled fill and natural soils encountered beneath the surface materials were generally observed to be in a medium dense to dense consistency.

Due to the proximity of the building footprint in relation to the existing slope, the site will require the placement of high strength uniaxial geogrid (Miragrid 20XT) beneath the footings and at the upper area on the east side of the property in order to achieve satisfactory global stability. The

improved soil will provide suitable support for the proposed building using conventional shallow foundations with typical allowable bearing capacities.

The first-floor slab placed at elevation 67.5 is essential to the global stability of the slope. This eliminates the placement of fill at the top of the slope and allows for the placement of the required number of geogrid layers, which is integral for achieving acceptable global stability.

6.2 Site Preparation Procedures

In general, the site preparation procedures should consist of removing the existing retaining walls, topsoil, trees and overgrowth, from within and at least ten (10) feet beyond the limits of the proposed buildings and pavement areas. The topsoil may be stockpiled and reused in future landscape areas (if required).

All clearing activities should be performed in accordance with any approved soil erosion and sediment control plan prepared for the project. All site preparation work should be performed in accordance with any environmental regulations and requirements established for the site, as well as all Local, State, and Federal regulations.

6.3 Earthwork

Following the completion of the stripping and demolition procedures presented above, the footprint of the proposed building should be cut to the lowest proposed geogrid subgrade elevation of +61. During excavation to elevation +61, the existing geogrid encountered should be documented for elevation, length and geogrid type. Our analyses of the slope were performed with the geogrid in place and must be confirmed in field. If the geogrid is not located, SESI reserves the right to stop construction and adjust our design accordingly.

After cutting, and prior to placement of any fill within the building area, the entire building area should be proofrolled with a minimum 8-ton vibratory roller completing a minimum of four (4) complete passes. Any soft areas observed during the proofroll shall be removed and replaced in accordance with the fill/backfill procedures presented in this report.

After the completion of the proofrolling, the geogrid can begin to be placed beneath the proposed building footpring. The geogrid (Miragrid 20XT) is to be placed in six (6) layers spaced at 6-inches vertically under the building footings. The geogrid shall extend at least 5-feet beyond the building footprint to the north and south and placed from the top of the slope to the eastern side of the building. The geogrid (Miragrid 20XT) placed at the upper section of the site is recommended to be placed in two (2) layers, spaced at 12-inches vertically. The geogrid in the upper section must also extend at least 5-feet beyond the north-south building limits and extend from the building to the property line. The depth of this geogrid should be at least 3 feet deep. The primary strength of the geogrid should be the East West direction. A sketch of the proposed Geogrid can be found in **Attachment A.** The backfill from the lowest geogrid up to the footing subgrade shall be a minimum unit weight of 135 pcf and a minimum internal friction angle of 36 degrees. SESI recommends that building area fills be compacted to a minimum of 92 percent with an average of greater than 95 percent of the maximum Modified Proctor density (ASTM D 1557).

Our analyses were performed under dry soil conditions. In order to maintain dry conditions, a permanent footing drain shall be installed around the entire building and either tie into the existing storm water utility line or discharge at the toe of the slope at the western most portion of the site. If the water discharge is to be placed at the toe of the slope, erosion control methods, such as riprap, must be in place at the discharge point.

7.0 FOUNDATION DESIGN CRITERIA

After the site preparation procedures have been successfully completed, the building foundation may be designed as a conventional foundation with spread footings with a conventional slab-on-grade floor system. The spread footings may be placed on the compacted structural fill. The footings may be designed for a maximum net allowable bearing pressure of 1 tsf (2,000 psf). Regardless of the loads, the minimum plan dimension of isolated footings should be 36-inches and the minimum width of continuous footings should be 24-inches.

The floor slab should be designed using a subgrade modulus of 150 pci, assuming that a 6-inch-thick layer of granular material with a maximum particle size of 1.5 inches and a maximum percent passing the No. 200 mesh sieve of 12 percent is placed beneath the floor slab.

Some of the site soils are considered moisture sensitive; they will readily degrade under construction traffic and if left open to the weather. Excavations should therefore be left open for as short a time as practical to avoid excessive disturbance to the exposed subgrade. Should the bottom of an excavation become softened during construction, the soft material should be excavated and replaced with clean ¾-inch crushed stone. We recommend that all footings be over-excavated a minimum of six (6) inches and replaced by a minimum of six (6) inches of ¾-inch clean crushed stone. The stone will provide a stable working mat and a medium through which to pump stormwater runoff. If water is encountered, it should be controlled locally with gravel filled sumps.

After satisfactory completion of the outlined building area preparation procedures, footings and floor slabs founded on the controlled compacted fill should have post-construction settlements less than ¾-inch with less than ½-inch differential settlement over a 30-foot span.

7.1 Seismic Design

The site soils have been classified as Site Class D for seismic design purposes in accordance with ASCE 7-16 and the 2020 Building Code of New York State. Based on a structural occupancy/risk category of IV and information provided by the ASCE 7 Hazard Tool, the following seismic design criteria should be used for this project:

Mapped Spectral Response Acceleration for Short Periods	S_S = 0.298g
Mapped Spectral Response Acceleration for 1-Second Period	S_1 = 0.062g
Site Coefficient	F_a = 1.561
Site Coefficient	F_v = 2.4
Spectral Response for short periods	S_{MS} = 0.446g
Spectral Response for 1 second period	S_{M1} = 0.148g
Design Spectral Response Acceleration for Short Periods	S_{DS} = 0.31g
Design Spectral Response Accelerations for 1-Second Period	S_{D1} = 0.098g
Peak Ground Acceleration	PGA= 0.185g

7.2 Backfill Procedures

The fill materials may be obtained from suitable excavated fill or from off-site borrow sources. We anticipate that the onsite soil will be able to be reused and meet the specification requirements of the backfill material. Based on the above soil descriptions, the majority component of the on-site materials consist of coarse grained materials with a mixture of fine-grained materials, i.e., silts and clays. These soils are generally considered to be highly moisture sensitive and may require moisture conditioning. Moisture sensitive soils will be difficult to work or compact when significantly over optimum water content, and will require drying prior to their reuse. The ease with which moisture sensitive soils can be constructed on this site will, to a degree, depend on

the time of year in which construction takes place and the construction procedures utilized by the earthwork contractor.

If offsite borrow material is required, it should consist of a granular material with the maximum particle size of 3 inches and a maximum amount of fines (percentage passing a No. 200 mesh sieve) of 15% to help facilitate construction during wet weather. The “fines” should be non-plastic.

All controlled compacted fill should consist of suitable onsite soils or imported granular fill placed in maximum 12-inch-thick lifts. Each lift should be compacted using a large vibratory compactor (minimum 8 ton static drum weight) making a minimum of 4 complete coverages. The fill should be compacted using a large vibratory roller to achieve a minimum dry density of 92 percent and an average density of greater than 95 percent of Modified Proctor as determined from laboratory test ASTM D 1557. In-place field density tests should be performed, when applicable, to determine the adequacy of the compacted soil fill. Wetting or drying of the fill material should be accomplished as necessary to achieve the required density.

Backfill in confined areas such as utility trenches and foundations within load bearing or paved areas should be placed in maximum 6-inch-thick layers and compacted to a minimum dry density of 92 percent and an average density of greater than 95 percent of Modified Proctor as determined from laboratory test ASTM D 1557

The subgrade should be graded to drain and tight-rolled at the end of the day, particularly if wet weather is anticipated. If stormwater seepage is encountered during construction, gravel filled sumps with pumps should be installed below the subgrade elevation to allow for dewatering of the excavation.

8.0 ADDITIONAL CONSTRUCTION RECOMMENDATIONS

8.1 Utility Lines

The site soils will provide suitable support for the proposed utility lines. Cobbles greater than 4 inches in diameter should be removed from the utility line subgrade or a minimum 4-inch-thick sand layer placed beneath the utility lines. If utility lines fall within soft soils, the excavation should be extended an additional 12 inches and replaced with ¾-inch clean crushed stone or clean sand and gravel.

Backfill material placed around utility lines to 6 inches above the utility line should have a maximum particle size of 1.5 inches. Backfill of utility trenches that fall within load-bearing areas should be placed in maximum 12-inch-thick lifts and compacted to the same density requirements as in the building/parking areas. Trench backfill in non-load bearing areas should be compacted to 90 percent of Modified Proctor density (ASTM D1557).

8.2 Control of Groundwater

We anticipate some of the proposed construction activities will encounter seepage from trapped water in the fill layer. Seepage levels were observed at a depth of approximately six (6) feet below the ground surface during our investigation at TP-2; approximately EL 74. Seepage may be encountered in excavations extending at or slightly above these elevations due to fluctuations in seasonal groundwater levels and amount of recent precipitation.

The quantity of water should be expected to increase during wet weather conditions. In addition, rainwater can enter excavation areas. We expect that water should be able to be controlled using conventional sump pumps and gravel-filled pits. During excavations, multiple sump pumps may be required. During rainfall events, surface run-off should be prevented from entering open

foundation excavations by properly grading the surrounding site areas to divert surface water away from such excavations.

Groundwater is not expected to be encountered during construction.

8.3 Pavement Areas

After stripping any surface topsoil and excavating to the proposed subgrade elevation, the driveway area subgrade should be proofrolled using a large vibratory compactor (minimum 10-ton static drum weight). The proofrolling should consist of making four (4) complete coverages of the area. If any soft areas are encountered during the proofrolling, they should be excavated to stable material and replaced with a controlled compacted fill. The thickness of individual lifts of soil fill should be limited to 12 inches. The compaction criteria for fills in the roadway areas may consist of 92 percent, except in the uppermost 2 feet where 95 percent should be achieved to provide for good pavement support. Visual observations and in-place field density tests should be made to determine the adequacy of the compaction. The proofrolling should be inspected by a qualified geotechnical engineer prior to placing any compacted fill.

Upon completion of the stripping/excavation/proofrolling operations, the fill required to attain finished subgrade elevation should be placed in lifts and compacted with the same or similar compactor as that used for the proofrolling. The fill materials may be obtained from the existing inorganic onsite soils or from offsite borrow.

If offsite borrow material is required, it should have a maximum particle size of 3 inches and the maximum amount of fines (percentages passing a No. 200 mesh sieve) should be 15% to help facilitate construction during wet weather. The “fines” should be non-plastic.

The fill should be compacted using a large vibratory roller to achieve a minimum dry density of 92 percent and an average density of greater than 95 percent of Modified Proctor density as determined from laboratory test ASTM D 1557.

The subbase materials may consist of Dense Graded Aggregate (DGA), Recycled Concrete Aggregate (RCA) or Asphalt Millings. All subbase materials must be approved by the Geotechnical and Environmental Engineer prior to their placement.

Wetting or drying of the fill material should be accomplished as necessary to achieve the required density.

8.4 Proposed Retaining Wall

The proposed retaining wall located at the top of the slope is an integral part of the overall design of the slope stability. Our slope stability calculations presented above assume that this wall will be designed as a geogrid retaining wall. SESI will design the retaining wall at a later time. If it is designed by others, SESI should review the design documents to confirm that our recommendations remain valid.

8.5 Excavation Support

OSHA requires that all excavations in excess of four (4) feet be shored, braced or adequately benched/sloped in order to provide protection from sidewall collapses in accordance with 29 CFR Part 1926 “Safety and Health Regulations for Construction”, Subpart P “Excavations”. For the open cut excavation required to reach proposed excavation elevations, the upper fill materials and natural soils will need to be supported, if an OSHA approved slope cannot be constructed. Based on the potential excavation depths, the locations of the proposed buildings within the site and the adjacent sewer right-of-way, the site may require a temporary excavation support system

to excavate to the required depth for the excavation. Excavation support systems should be designed by a geotechnical engineer licensed in New York.

9.0 TESTING AND INSPECTION REQUIREMENTS

9.1 Testing Requirements

During the placement of all fills, visual observations and in-place density tests shall be performed to determine the adequacy of the compacted fill. In-place density testing shall be conducted in accordance with appropriate ASTM testing standards. Additionally, SESI recommends utility trench and footing backfill compaction be visually observed, and in-place density tests be performed where deemed necessary by the geotechnical engineer. Density testing should be done in accordance with the following minimum frequency requirements; or as determined by the geotechnical engineer.

Building/garage Pad Subgrade Areas: Minimum of 4 tests per 12-inch lift; spacing not to exceed 50 feet between test locations, or as determined by the geotechnical engineer.

Driveway Area: Minimum of 3 tests per 12-inch lift; spacing not to exceed 100 feet between test locations, or as determined by the geotechnical engineer.

Utility Trenches: Minimum of 1 test per 6-inch lift; spacing not to exceed 50 feet between test locations, or as determined by the geotechnical engineer.

9.2 Inspection

The recommendations presented in the previous sections of this report are based on the assumption that the site preparation procedures will be done under engineering inspection by a representative of this office. SESI should inspect the over-excavation of the building pad down to the lowest geogrid location, the placement of geogrid, the placement of fill/backfill, the proofrolling operations, the subgrade preparation, and pavement placement. Visual observations and in-place density testing should be done throughout fill construction to determine that the work is done in accordance with our recommendations.

We should also inspect and approve the bottom of all footing excavations prior to placement of concrete to determine that the founding materials are capable of supporting the anticipated foundation loads.

10.0 LIMITATIONS

The subsurface investigation performed identifies the subsurface conditions only at the locations of the explorations and at the depths where the samples were taken. Borings were located by our office to provide general information for the site and may not represent the subsurface conditions in the anticipated building footprint. SESI Consulting Engineers reviews the published geologic data and the field and laboratory data and uses their professional judgment and experience to render an opinion on the subsurface conditions throughout the Site. Because the actual subsurface conditions may differ, we recommend that SESI be retained to provide construction inspection in order to minimize the risks associated with unanticipated conditions. This report should not be used:

- When the nature of the proposed building(s) are changed;
- When the size or configuration of the proposed building is altered;
- When the location or orientation of the proposed building is modified;
- When there is a change in ownership; or
- For application to an adjacent or any other site.

SESI shall not accept any responsibility for problems, which may occur if SESI is not consulted when there are changes to the factors considered in this report's development. The soil logs should not be separated from the Engineering Report in order to minimize the possibility of soil log misinterpretation.

11.0 DISCLAIMER

This Report was prepared by SESI for the sole and exclusive use of Gregory Sharp Architect, PC Nothing under the Professional Services Agreement between SESI and its client Gregory Sharp Architect, PC shall be construed to give any rights or benefits to anyone other than Client and SESI, and all duties and responsibilities undertaken pursuant to the Agreement will be for the sole and exclusive benefit of Client and SESI and not for the benefit of any other party. This Report has been prepared and issued subject to the express condition that same is not to be disseminated to anyone other than Client, without the advance written consent of SESI (which SESI, in its sole discretion, is free to grant or withhold). Use of the Report by any other person is unauthorized and such use is at the sole risk of the user.

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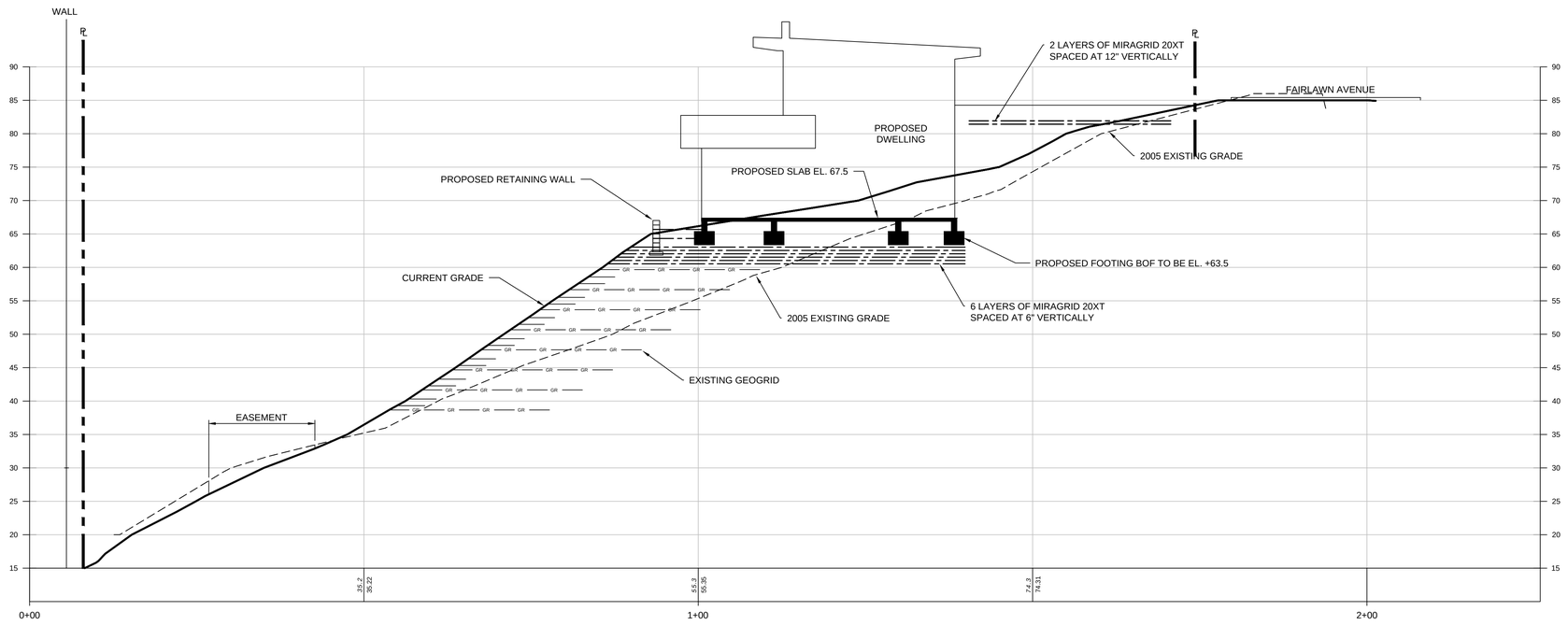
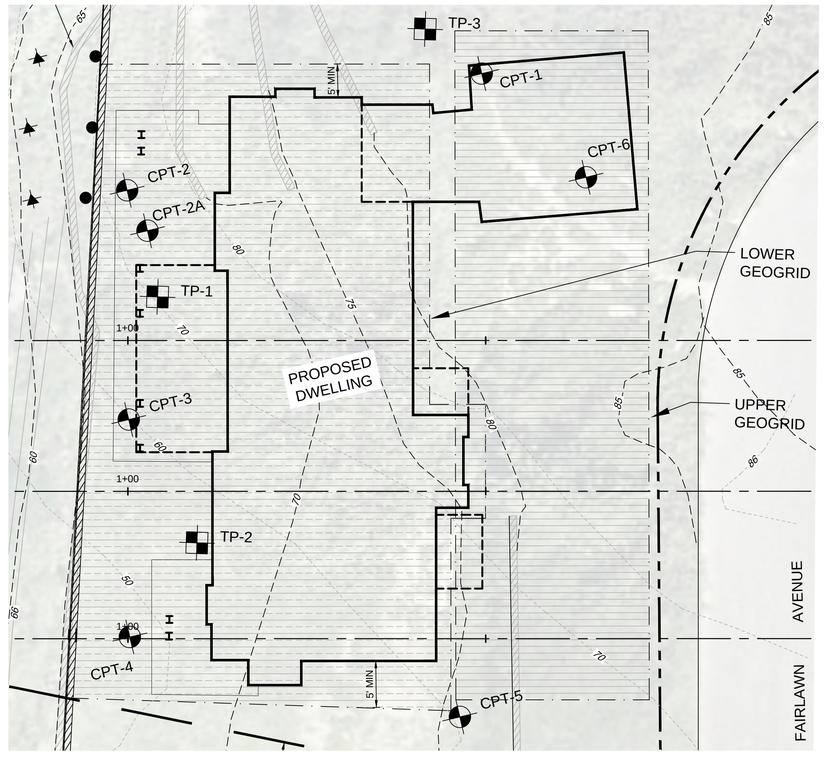
APPENDIX A



CROSS SECTION OF SLOPE SHOWING PROPOSED GEOGRID PLACEMENT

Scale 1"=10'

0 5 10 20 30 40



GEOGRID LOCATION PLAN

N:\CAD\13154\CAD\GEOTECH\13154 DWG GRADING PLAN 2023_09'19'23 04:13:23PM, dtec, LAYOUT:SK--1

rev	date	description	by

dwg by: DWGBY
chk by: CHKBY
scale: AS NOTED
date: 9/19/2023

SESI CONSULTING ENGINEERS
GEOTECHNICAL | ENVIRONMENTAL | SITE CIVIL
959 ROUTE 46E, 3RD FLOOR, PARSIPPANY, NJ 07054 PH: 973.808.9050

11 FAIRLAWN AVENUE
DOBBS FERRY, NEW YORK

title: SKETCH OF PROPOSED GEOGRID PLACEMENT

job no. 13154
drawing no. SK-1

PROJECT NO.	13154	PROJECT	The Altshuler Residence	TEST PIT NO.	1
LOCATION	See Figure 1	APPROX. ELEV.	+67	INSPECTED BY	GM
WATER OBSERVATION	Not Encountered			DATE EXCAVATED	8/16/2023

DEPTH FT.	DESCRIPTION / SOIL CLASSIFICATION	RELATIVE DENSITY OR CONSISTENCY
0	Fill: Dark Brown coarse to fine SAND, some medium to fine Gravel, some Silt, with cobbles, bricks, rebar and geogrid.	
1	GEOGRID WAS FOUND TO BE CONSISTENT WITH THE SPECIFIED GRID IN THE DESIGN DOCUMENTS NAMED SLOPE LOCATION PLAN & STATIONING PREPARED BY CARLIN-SIMPSON AND ASSOCIATES, DATED MARCH 5, 2010.	Medium Dense
2		
3		to
4		
5		Dense
6		
7		
8		
9		
10	Test Pit Complete at ±9 Feet Due to Excavator Limit	
11		
12		
13		
14		
15		

NOTE: Construction debris present throughout

Fig.

SESI CONSULTING ENGINEERS
GEOTECHNICAL | ENVIRONMENTAL | SITE CIVIL

PROJECT NO.	13154	PROJECT	The Altshuler Residence	TEST PIT NO.	2
LOCATION	See Figure 1	APPROX. ELEV.	+68	INSPECTED BY	GM
WATER OBSERVATION	Slight infiltration at +6 Feet			DATE EXCAVATED	8/16/2023

DEPTH FT.	DESCRIPTION / SOIL CLASSIFICATION	RELATIVE DENSITY OR CONSISTENCY
0	Fill: Dark Brown coarse to fine SAND, and coarse to fine Gravel, some Silt, with cobbles, bricks, rebar and geogrid.	
1	GEOGRID WAS FOUND TO BE CONSISTENT WITH THE SPECIFIED GRID IN THE DESIGN DOCUMENTS NAMED SLOPE LOCATION PLAN & STATIONING PREPARED BY CARLIN-SIMPSON AND ASSOCIATES, DATED MARCH 5, 2010.	Medium Dense
2		
3		to
4		
5		Dense
6	Fill: Tan Brown medium to fine SAND, some Silt	Medium Dense
7	Fill: Gray Brown coarse to fine Sand, and Silt, some medium to fine Gravel, bricks and geogrid	Medium Dense
8	GEOGRID WAS FOUND TO BE CONSISTENT WITH THE SPECIFIED GRID IN THE DESIGN DOCUMENTS NAMED SLOPE LOCATION PLAN & STATIONING PREPARED BY CARLIN-SIMPSON AND ASSOCIATES, DATED MARCH 5, 2010.	
9	Test Pit Complete at +9 Feet	
10	Due to Excavator Limit	
11		
12		
13		
14		
15		

NOTE: Construction debris present throughout

Fig.

SESI CONSULTING ENGINEERS
GEOTECHNICAL | ENVIRONMENTAL | SITE CIVIL

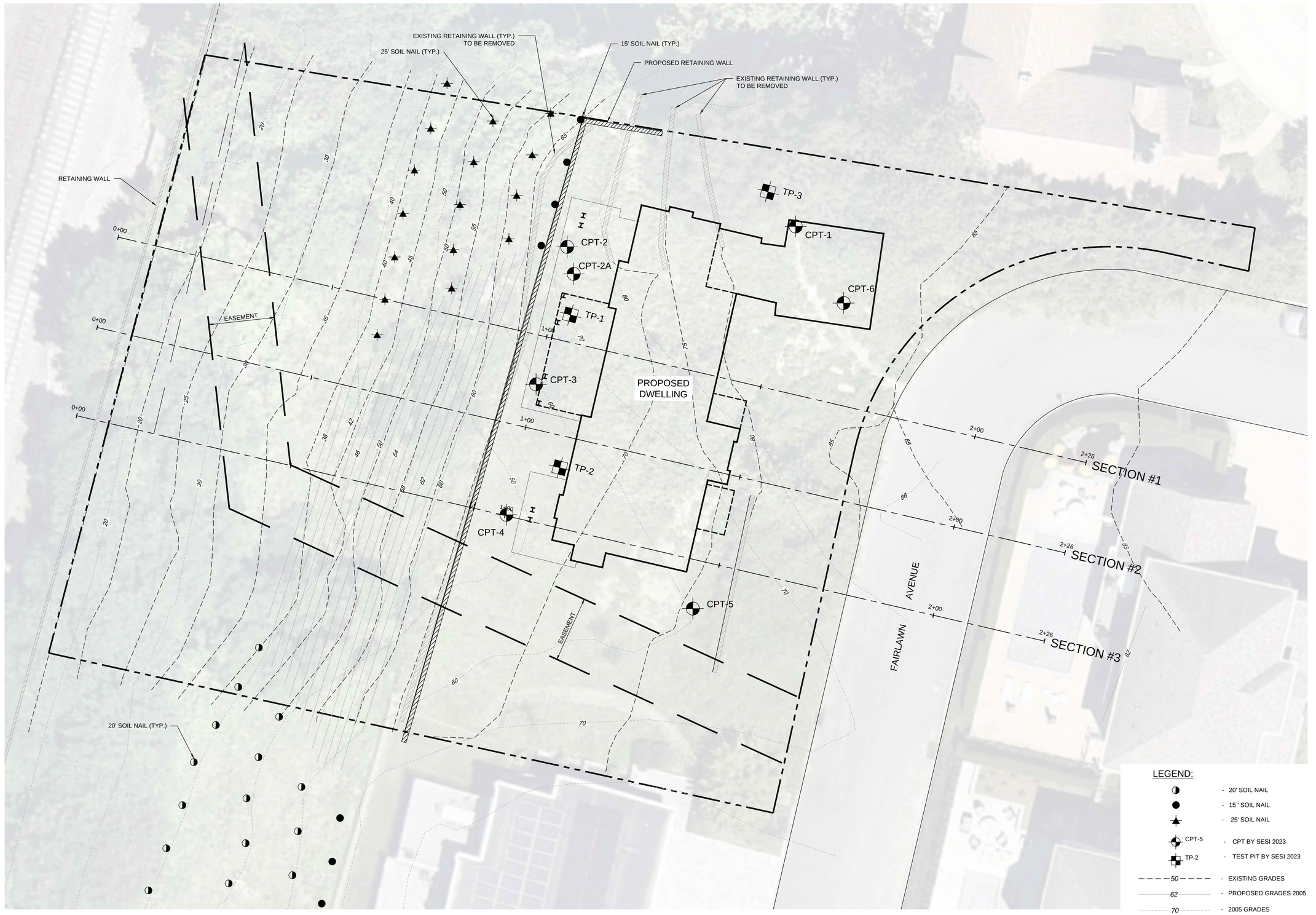
PROJECT NO.	13154	**PROJECT**	The Altshuler Residence	**TEST PIT NO.**	3
LOCATION	See Figure 1	**APPROX. ELEV.**	+82	**INSPECTED BY**	GM
WATER OBSERVATION	Not Encountered			**DATE EXCAVATED**	8/16/2023

DEPTH FT.	DESCRIPTION / SOIL CLASSIFICATION	RELATIVE DENSITY OR CONSISTENCY
0	Top Soil: Dark brown coarse to fine SAND, some coarse to fine Gravel, little Silt, with roots and cobbles.	Medium Dense
1	Dark brown coarse to fine SAND, some Silt, trace medium to fine Gravel.	Medium Dense
4	Tan brown/orange brown medium to fine SAND, some Silt, trace fine Gravel.	Medium Dense
8	Test Pit Complete at ±8 Feet Due to Excavator Limit	
9		
10		
11		
12		
13		
14		
15		

NOTE:

Fig.

SESI CONSULTING ENGINEERS
GEOTECHNICAL | ENVIRONMENTAL | SITE CIVIL



LEGEND:

- 20' SOIL NAIL
- 15 ' SOIL NAIL
- 25' SOIL NAIL
- CPT-5 - CPT BY SESI 2023
- TP-2 - TEST PIT BY SESI 2023
- 50 - EXISTING GRADES
- 62 - PROPOSED GRADES 2005
- 70 - 2005 GRADES
- EASEMENT
- PROPERTY BOUNDARY

Scale 1"=10'

0 5 10 20 30 40

REFERENCE:

1. EXISTING CONDITIONS & BOUNDARY ARE TAKEN FROM "TOPOGRAPHIC SURVEY" PREPARED BY LINK LAND SURVEYORS, P.C., INC., DATED 7/21/2021.
2. TOPOGRAPHIC SURVEY PREPARED BY LANK LAND SURVEYORS, P.C., DATED 3/1/2021. REVISED 7/21/2021.
3. OLD CONSTRUCTION PLANS - DRAFT (CONTOURS) PREPARED BY CARLIN-SIMPSON AND ASSOCIATES, DATED 3/5/2010.

N:\VCAD\13154\CAD\GEOTECH\13154.DWG GRADING PLAN 2023_03\19.DWG 09/19/23 04:15:28PM dan_LAYOUT:G-1

rev	date	description	by

dwg by: AG
chk by: CHKBY
scale: AS NOTED
date: 9/19/2023

SESI CONSULTING ENGINEERS
GEOTECHNICAL | ENVIRONMENTAL | SITE CIVIL
959 ROUTE 46E., 3RD FLOOR, PARSIPPANY, NJ 07054 PH: 973.808.9050

11 FAIRLAWN AVENUE
DOBBS FERRY, NEW YORK

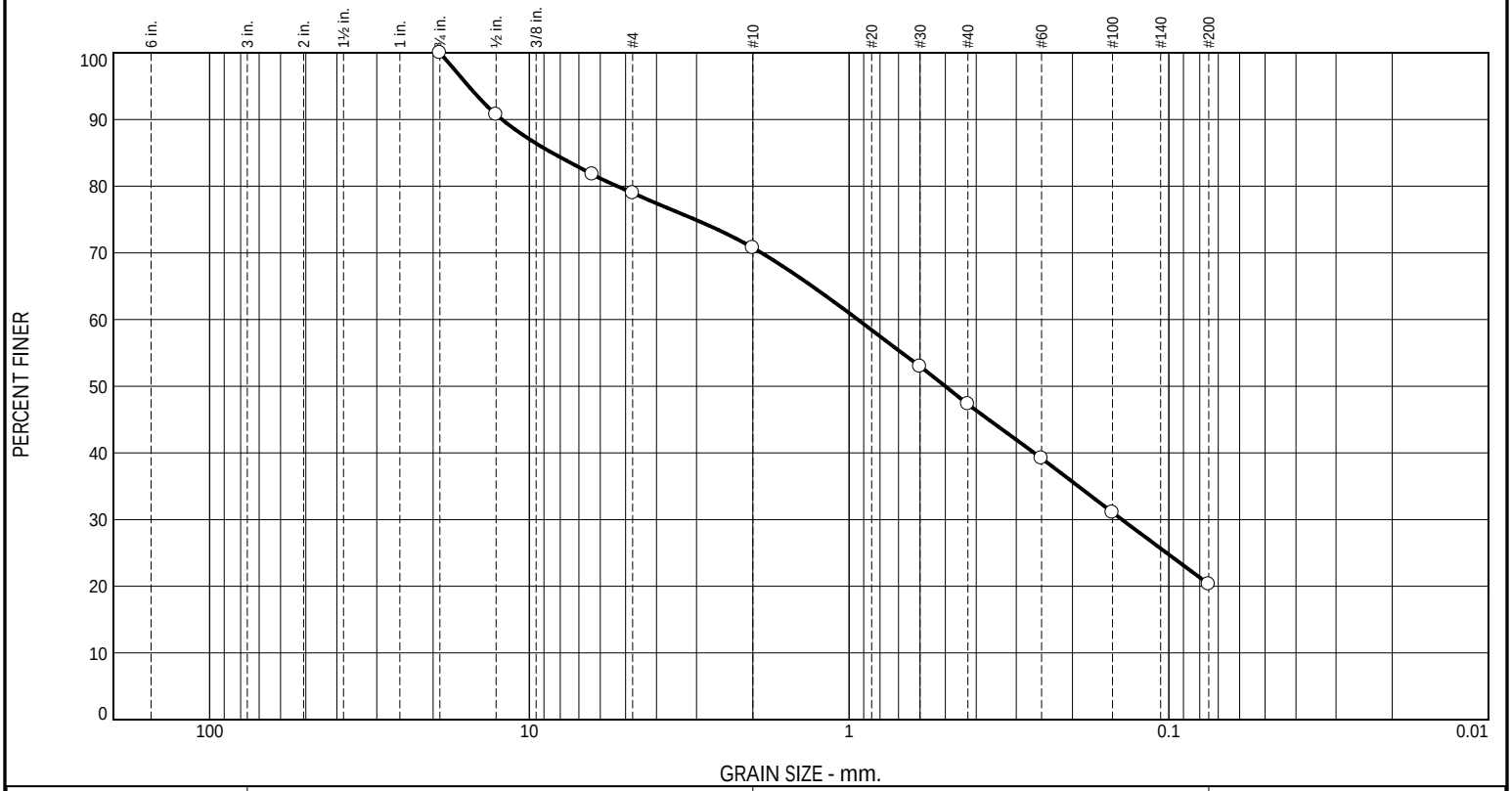
title: GRADING AND EXPLORATION LOCATION PLAN

job no. 13154
drawing no. G-1

APPENDIX B

Particle Size Distribution Report

ASTM D6913



% +3"	% Gravel=29.2			% Sand=50.5			% Fines
	Coarse	Medium	Fine	Coarse	Medium	Fine	
0.0	0.0	13.6	15.6	17.8	13.8	18.9	20.3

Test Results (ASTM D6913)

Sieve Size or Diam. (in.)	Finer (%)	Spec.* (%)	Out of Spec. (%)	Pct. of Fines
.75	100.0			
0.5	90.7			
0.25	81.8			
#4	79.0			
#10	70.8			
#30	53.0			
#40	47.3			
#60	39.2			
#100	31.1			
#200	20.3			

* (no specification provided)

Material Description

Dark brown coarse to fine SAND, some medium to fine Gravel, some Silt, with Roots

Atterberg Limits

PL= LL= PI=

Coefficients

D_{90}= 12.1734 D_{85}= 8.4744 D_{60}= 0.9387
D_{50}= 0.5004 D_{30}= 0.1401 D_{15}=
D_{10}= C_u= C_c=

Classification

USCS= AASHTO=

Test Remarks

Water Content(%)= 12.6
Max. Dry Density(pcf)= 120.5
Opt. Moisture Content(%)= 12.5

Location: TP-1
Sample Number: S-1 Depth: 0'-9' Sample Date: 08/16/2023

SESI CONSULTING ENGINEERS

Client: Gregory Sharp Architect, PC
Project: The Altshuler Residence

Project No: 13154 Figure

Tested By: ELM Checked By: MLT

SAMPLE NO. TP-1 S-1

Scale 1"=5'

0 5 10

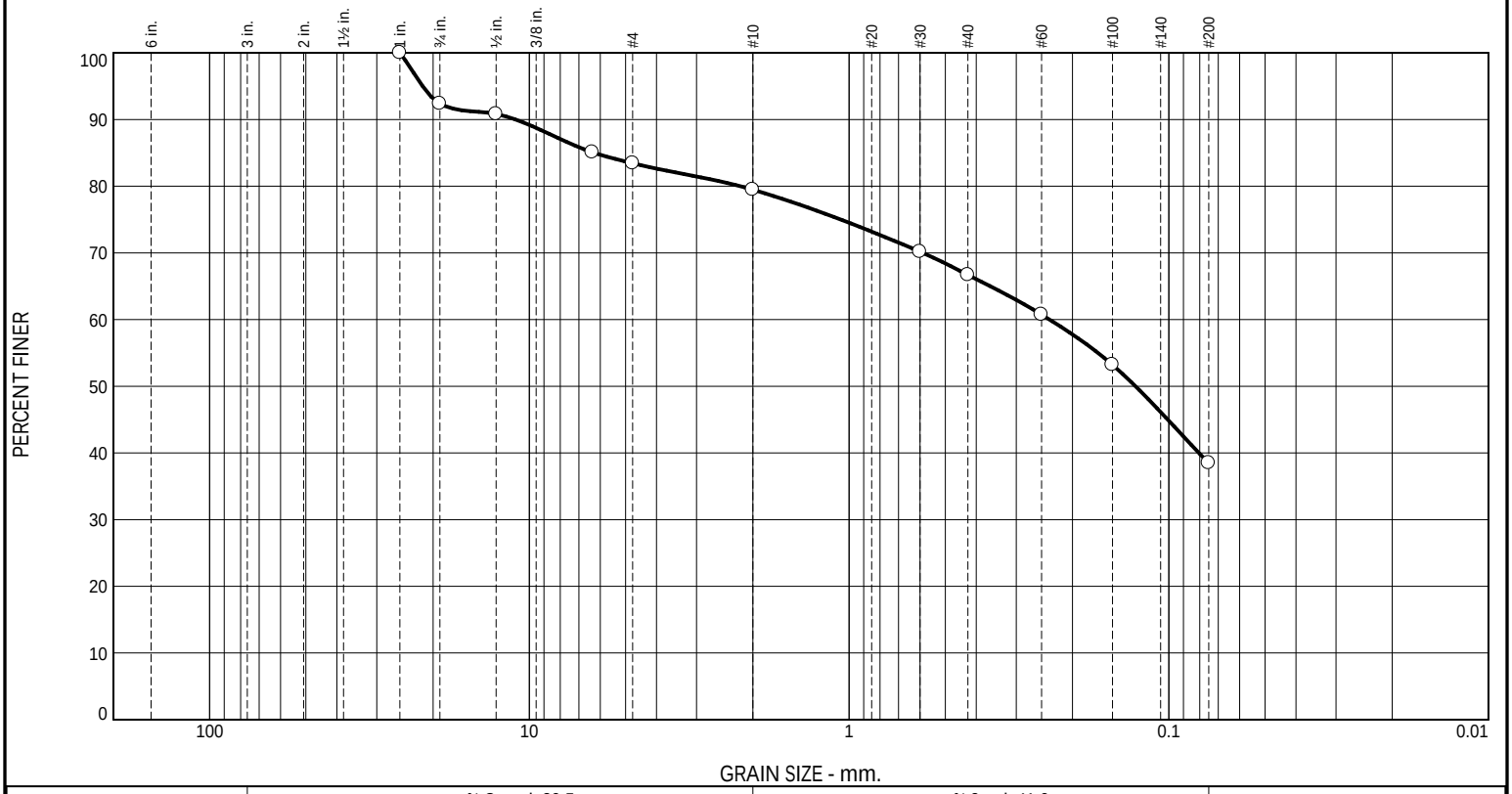
COMPACTION CONTROL CURVE

Cert of Auth #24GA27934700
SESI CONSULTING ENGINEERS
GEOTECHNICAL | ENVIRONMENTAL | SITE CIVIL
959 route 46e, 3rd floor, parsippany, nj 07054 ph: 973.808.9050

DRAWN BY: ELM
CHECKED BY:
SCALE: AS NOTED
DATE: 08/17/2023
JOB NO.: 13154

Particle Size Distribution Report

ASTM D6913



% +3"	% Gravel=20.5			% Sand=41.0			% Fines
	Coarse	Medium	Fine	Coarse	Medium	Fine	
0.0	0.0	11.2	9.3	9.3	9.5	22.2	38.5

Test Results (ASTM D6913)

Sieve Size or Diam. (in.)	Finer (%)	Spec.* (%)	Out of Spec. (%)	Pct. of Fines
1	100.0			
.75	92.4			
0.5	90.8			
0.25	85.1			
#4	83.4			
#10	79.5			
#30	70.2			
#40	66.7			
#60	60.7			
#100	53.2			
#200	38.5			

* (no specification provided)

Material Description

Gray-brown coarse to fine Sand, and Silt, some medium to fine Gravel, with Roots

Atterberg Limits

PL= LL= PI=

Coefficients

D_{90}= 11.0424 D_{85}= 6.2657 D_{60}= 0.2361
D_{50}= 0.1270 D_{30}= D_{15}=
D_{10}= C_u= C_c=

Classification

USCS= AASHTO=

Test Remarks

Water Content(%)= 14.5

Location: TP-2
Sample Number: S-3 Depth: 6.5'-9' Sample Date: 08/16/2023

SESI CONSULTING ENGINEERS

Client: Gregory Sharp Architect, PC
Project: The Altshuler Residence

Project No: 13154 Figure

Tested By: ELM Checked By: MLT

SAMPLE NO. TP-2 S-3

Scale 1"=5'

0 5 10

COMPACTION CONTROL CURVE

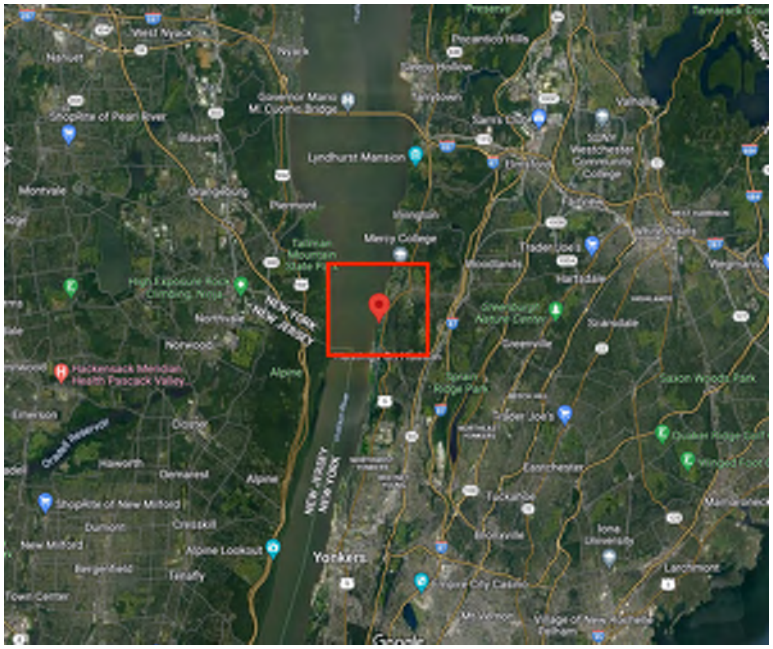
Cert of Auth #24GA27934700
SESI CONSULTING ENGINEERS
GEOTECHNICAL | ENVIRONMENTAL | SITE CIVIL
959 route 46e, 3rd floor, parsippany, nj 07054 ph: 973.808.9050

DRAWN BY: ELM
CHECKED BY:
SCALE: AS NOTED
DATE: 08/16/2023
JOB NO.: 13154

APPENDIX C

PRESENTATION OF SITE INVESTIGATION RESULTS

11 Fair Lawn Ave
Dobbs Ferry NY
Prepared for:
SESI



Prepared by:

Craig Geotechnical Drilling Co., Inc.
PO Box 427
Mays Landing NJ 08330

Tel: 609-625-4862
Fax: 609-625-4306

Email: Kcraig@craigtest.com
www.craigtest.com

Introduction

The enclosed report presents the results of piezocone penetration testing (CPTu or CPT) program carried out at Dobbs Ferry NY. The site investigation was conducted by Craig Geotechnical Drilling Co., Inc. under contract to SESI.

A total of 6 cone penetration tests were completed. The CPT program was performed to evaluate the subsurface soil conditions. CPT sounding locations were selected and numbered under the supervision of SESI personnel.

Project Information

Project	
Client:	SESI
Project:	11 Fair Lawn Ave, Dobbs Ferry NY
Job Number:	235159
Date:	8/16/23

Rig Description	Deployment System	Test Type
CPT ATV Rig	20 Ton Truck (Twin Cylinders)	CPT & SCPT

Cone Penetration Test (CPT)	
Depth Reference	Ground Surface at the time of the investigation.
Seismic Shear Wave Velocity	

Limitations

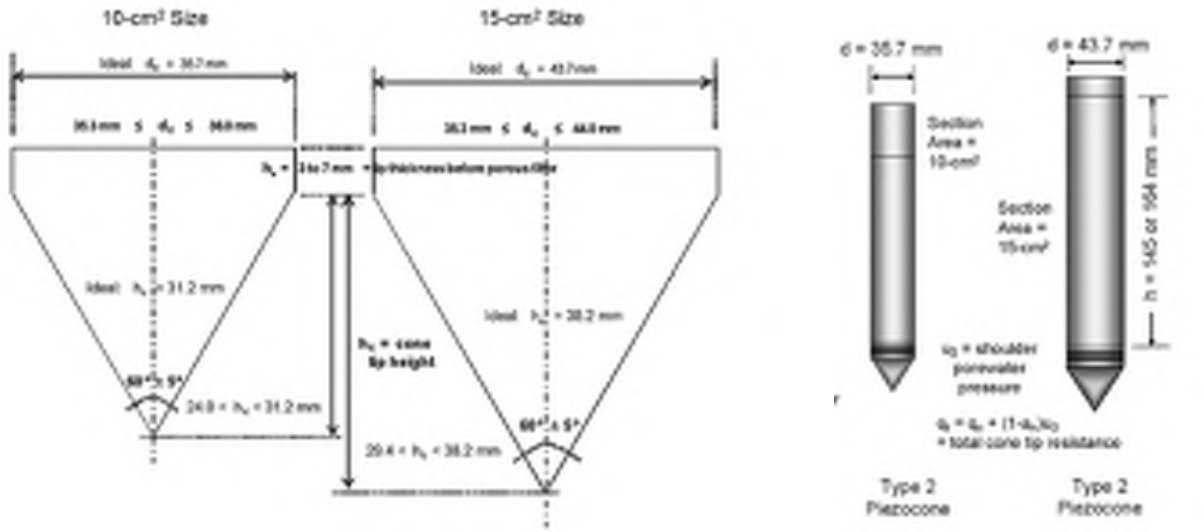
This report has been prepared for the exclusive use of SESI for the project titles “Dobbs Ferry NY”. The report’s contents may not be relied upon by any other party without the express written permission of Craig Geotechnical Drilling Co., Inc.. CGD has provided site investigation services, prepared the factual data reporting, and provided geotechnical parameter calculations consistent with current best practices. No other warranty, expressed or implied, is made.

The information presented in the report document and the accompanying data set pertain to the specific project, site conditions and objectives described to Craig Geotechnical Drilling by the client. In order to properly understand the factual data, assumptions and calculations, reference must be made to the documents provided and their accompanying data sets, in their entirety.

CPT Cones

Cone Penetration tests (CPTu) are conducted using an integrated electronic piezocone penetrometer and data acquisition system manufactured by Vertek of Randolph, VT 05060.

CPT cones are available in multiple sizes, but the10 cm^2 cone and 15 cm^2 cone are the industry standard. Penetrometers are made of high strength steel and designed to resist abrasion by soil. The **10 cm^2 cone** was used on this project.



Minimum and Maximum Cone Measurements

Cone Size (Cross-Sectional Area)	**10 cm^2**			**15 cm^2**		
Measurement	***Min***	***Ideal***	***Max***	***Min***	***Ideal***	***Max***
Cone Diameter (d_c)	35.3 mm	35.7 mm	36.0 mm	35.3 mm	43.7 mm	44.0 mm
Cone Tip Height (h_c)	24.0 mm	31.2 mm	31.2 mm	29.4 mm	38.2 mm	38.2 mm
Cone Tip Angle	55°	60°	65°	55°	60°	65°
Lip Thickness Before Porous Filter (h_e)	3 mm	N/A	7 mm	3 mm	N/A	7 mm
Friction Sleeve Diameter	35.7 mm	35.7 mm	36.05 mm	43.7 mm	43.7 mm	44.05 mm
Friction Sleeve Surface Area	147 cm^2	150 cm^2	153 cm^2	220.5 cm^2	225 cm^2	229.5 cm^2

Cone Penetration Tests

Prior to the start of a CPTu sounding a suitable cone is selected, the cone and data acquisition system are powered on, the pore pressure system is saturated with silicone oil and the baseline readings are recorded with the cone hanging freely in a vertical position. The CPTu is conducted at a steady rate of 2 cm/s, within acceptable tolerances. Typically, one-meter length rods with an outer diameter of 15cm are added to advance the cone to the sounding termination depth. After cone retraction final baselines are recorded.

Dissipation Tests

As a CPT cone is pushed into saturated subsurface soil, it creates a localized increase in pore pressure (denoted excess pore pressure, u_i) as groundwater is pushed out of the way of the cone. In a pore pressure dissipation test, the downward movement of the cone is paused and the time it takes for the pore pressure to stabilize is measured. This stable pore pressure is called equilibrium pore pressure, u_o. This information allows the user to identify important hydrogeologic features:

The water table (or phreatic surface) depth is defined as the distance below the soil surface at which pore pressure is equal to atmospheric pressure. This can be roughly visualized as the level below which subsurface materials are fully saturated with groundwater.

Especially in fine-grained soils, estimating the water table can be more complex than simply detecting moisture, since surface tension draws groundwater upwards, creating negative pore pressures. This is effect is called capillary rise.

Very low or negative pressures can be difficult to measure precisely with the piezocone, which is primarily designed to measure high pressures below the water table. In this case, the water table depth can be calculated by the following formula:

$$d_{water} = d_{cone} - h_w$$

d_{water} = *water table depth*
d_{cone} = *depth of piezocone*
h_w = *water head*

The **water head**, h_w, is the height of the water above the cone, which can be calculated based on the pore pressure and the unit weight of water:

$$h_w = u/\gamma_w + z$$

h_w = *water head*
u_o = *equilibrium pore pressure*
γ_w = *unit weight of water*
z = *distance, if any, between pressure sensor location and depth reference point on the piezocone*

The rate of dissipation indicates the permeability or hydraulic conductivity of the soil – that is, the tendency of the soil to allow or resist the flow of groundwater.

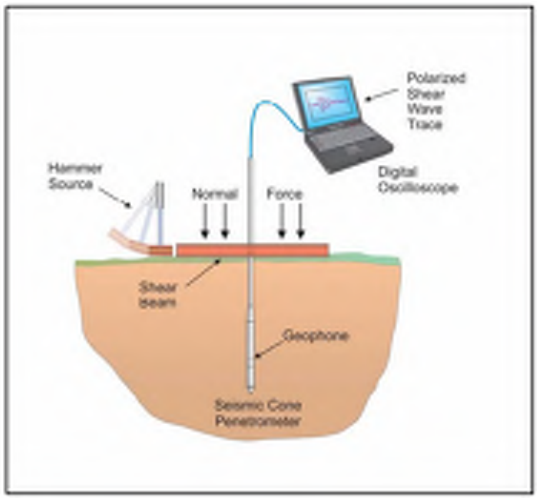
A rapidly dissipating pore pressure indicates the presence of an aquifer (a porous region where groundwater tends to flow), while a slowly dissipating pore pressure indicates an aquitard (a compacted region that resists the flow of groundwater).

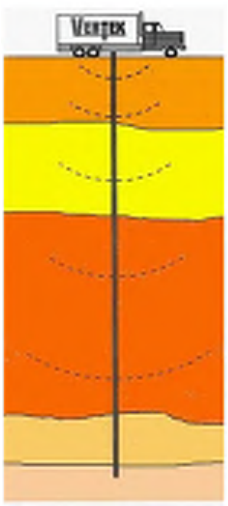
Seismic CPTs

Seismic CPT or SCPT is a method of calculating the *small strain shear modulus* of the soil by measuring shear wave velocity through the soil. The small strain modulus is an important quantity for determining the *dynamic response* of soil during earthquakes, explosive detonations, vibrations from machinery, and during wave loading for offshore structures. The wave speeds and moduli derived from seismic CPT measurements aid in the determination of *soil liquefaction potential* and improve the interpretation of surface seismic surveys by *providing wave speed profiles as a function of depth*.

SCPT Cone: The SCPT cone is a CPT or CPTU cone that is equipped with one or more geophone sensors. These sensors measure the magnitude and arrival time of seismic shear and compression waves.
Wave Generator: Seismic shear waves are generated at the soil surface.
This method uses an electronic wave generator attached to the CPT rig and increases repeatability and reduces physical strain and testing time for the field team.
The CPT test must be paused briefly at the desired intervals to perform the wave generation and data collection.
Data Acquisition System: As seismic waves are registered by the geophone sensors, data is transferred from the cone to the soil surface by wires that run though the push rods. The SCPT data acquisition system logs this data and analyzes it to determine the speed of the waves based on their arrival time and the distance between the wave generator and the sensors.

Calculation of the interval velocities are performed by visually picking a common feature (e.g. the first characteristic peak, trough, or crossover) on all of the recorded wave sets and taking the difference in ray path divided by the time difference between subsequent features. Ray path is defined as the straight-line distance from the seismic source to the geophone, accounting for beam offset, source depth and geophone offset from the cone tip.





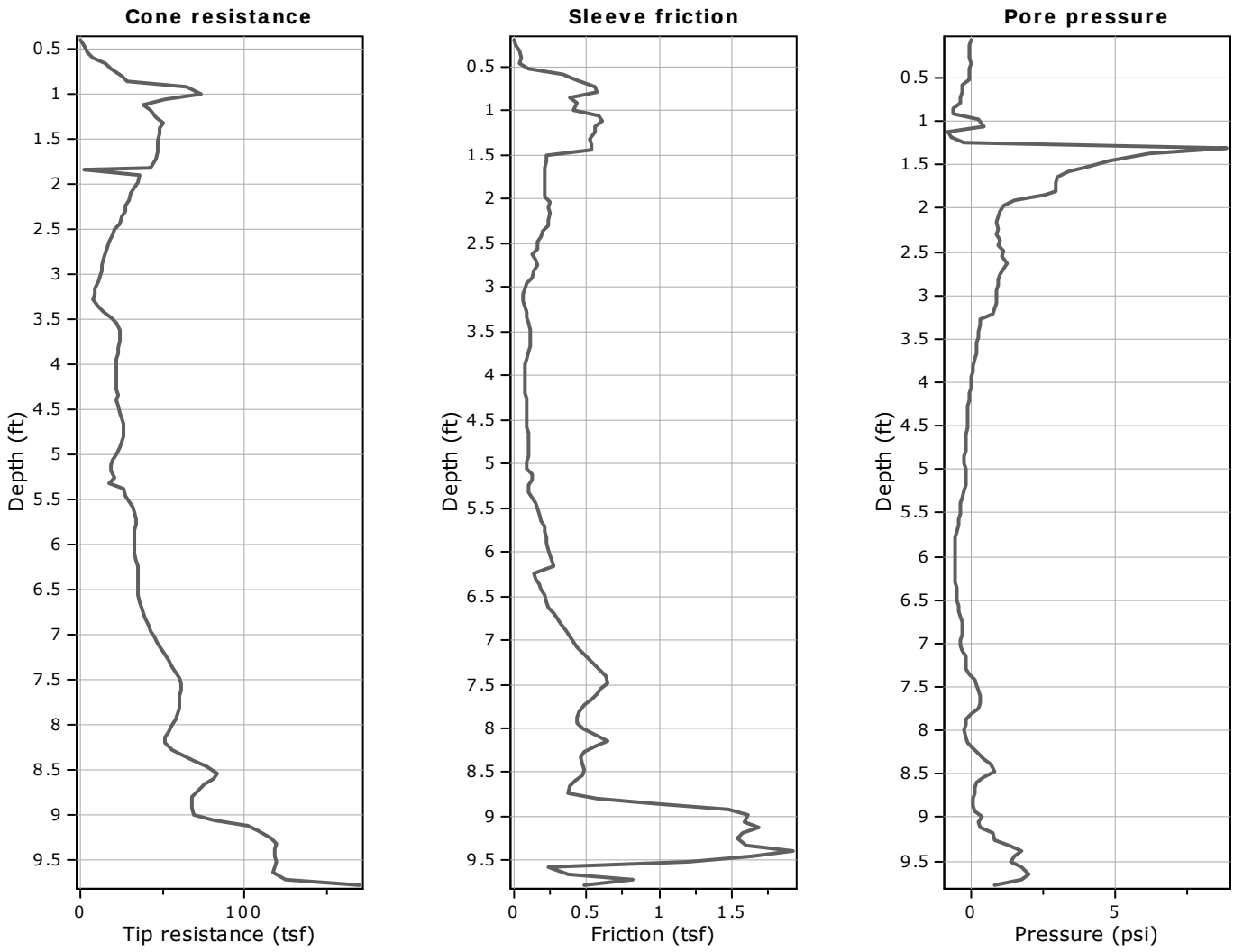
Cone Penetration Test Summary and Cone Penetration Test Plots

Sounding ID	Depth (ft)	Seismic Tests	Pre-Drill Depth (ft)
CPT-1	45.08		
CPT-2	45.08		
CPT-2c	45.08		
CPT-3	45.08		
CPT-3a	47.11		10
CPT-4	38.78		
CPT-5	50.33		
CPT-6	43.64		

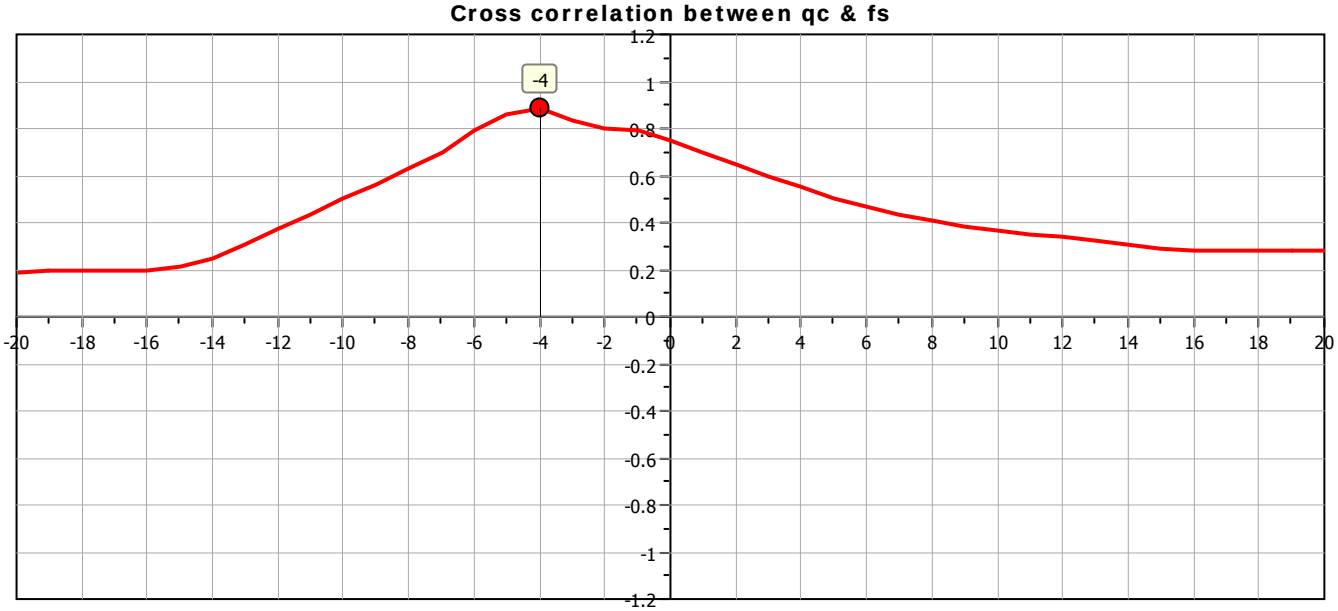
Craig Geotechnical Drilling
5230 Atlantic Ave
Mays Landing, NJ

Project: **SESI**
Location: **Dobbs Ferry NY**

CPT-1
Total depth: 9.78 ft



The plot below presents the cross correlation coeficient between the raw qc and fs values (as measured on the field). X axes presents the lag distance (one lag is the distance between two sucessive CPT measurements).

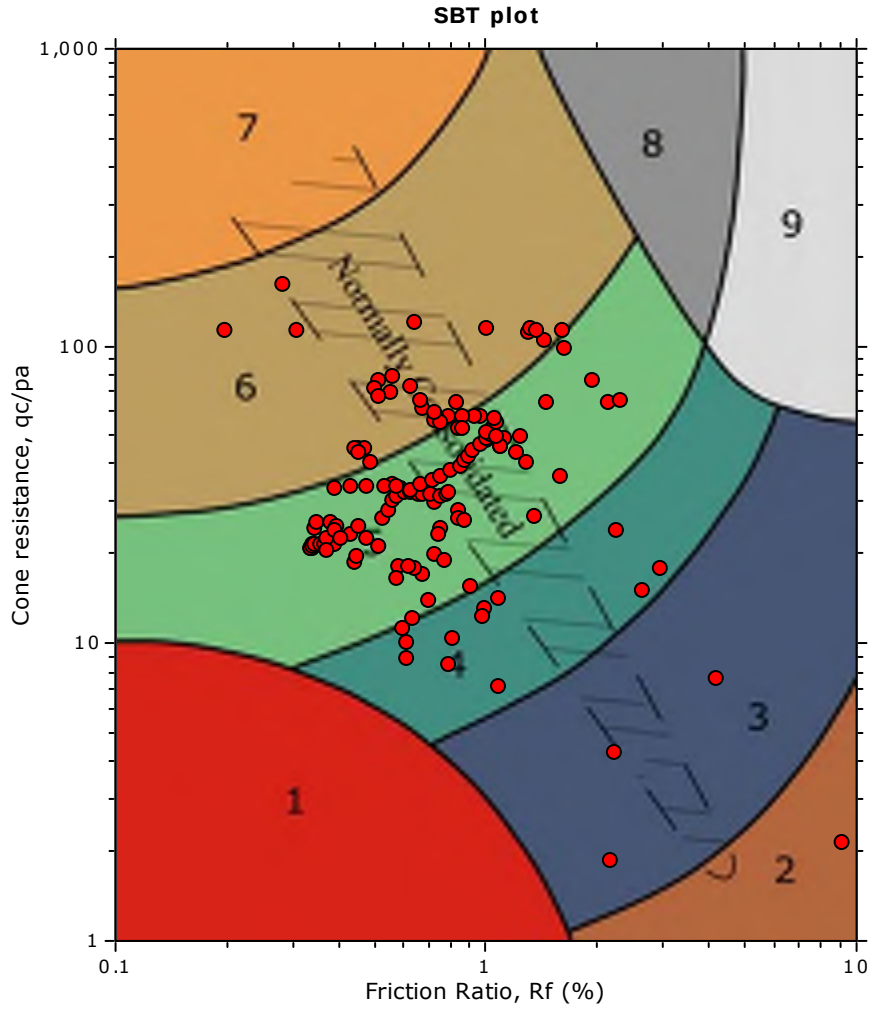


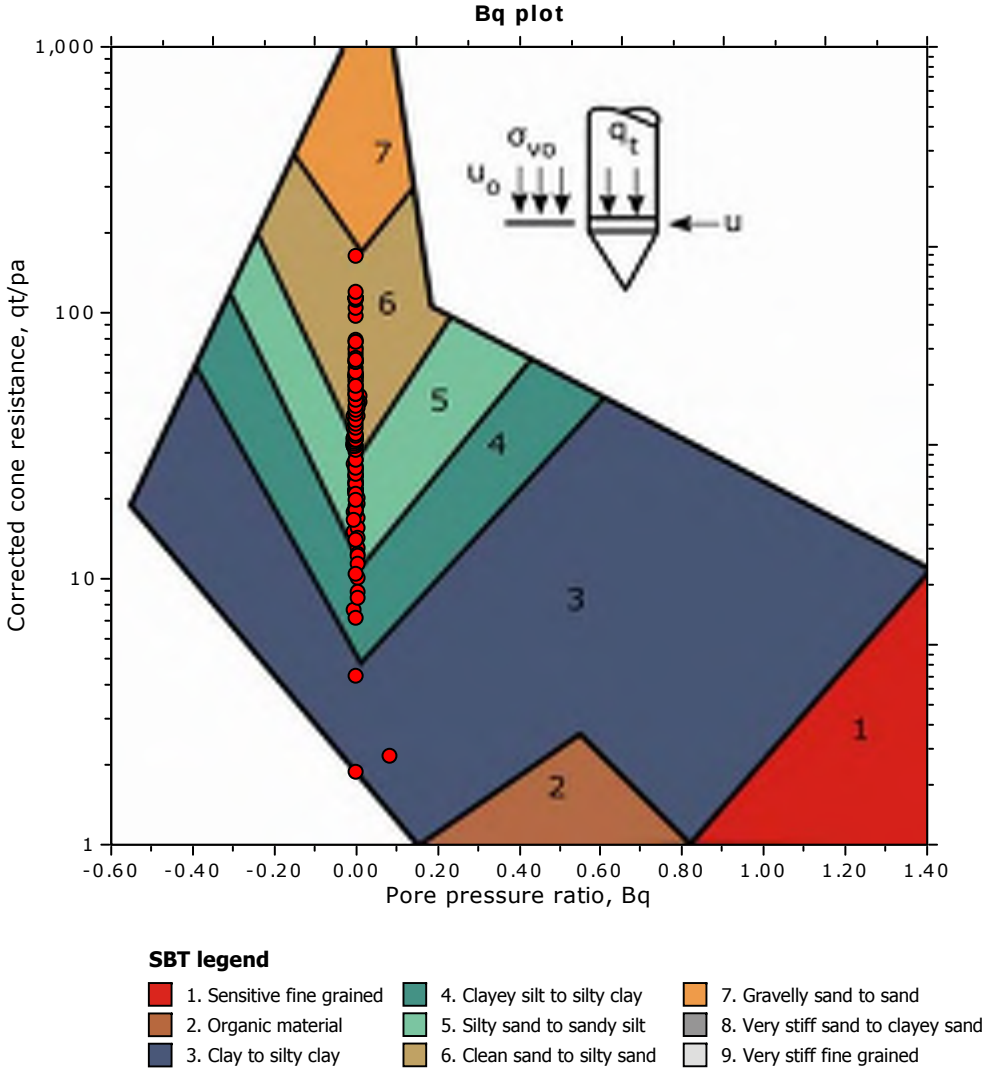
Craig Geotechnical Drilling
5230 Atlantic Ave
Mays Landing, NJ

Project: **SESI**
Location: **Dobbs Ferry NY**

CPT-1
Total depth: 9.78 ft

SBT - Bq plots





SBT legend

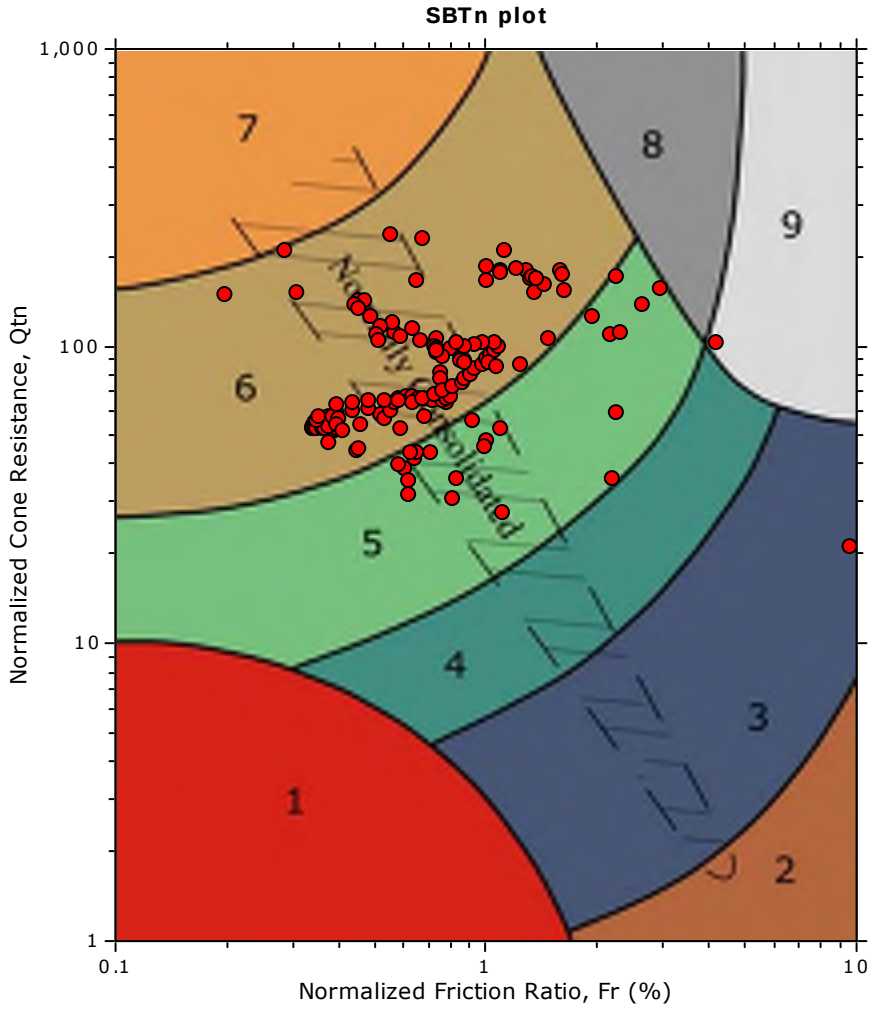
1. Sensitive fine grained	4. Clayey silt to silty clay	7. Gravelly sand to sand
2. Organic material	5. Silty sand to sandy silt	8. Very stiff sand to clayey sand
3. Clay to silty clay	6. Clean sand to silty sand	9. Very stiff fine grained

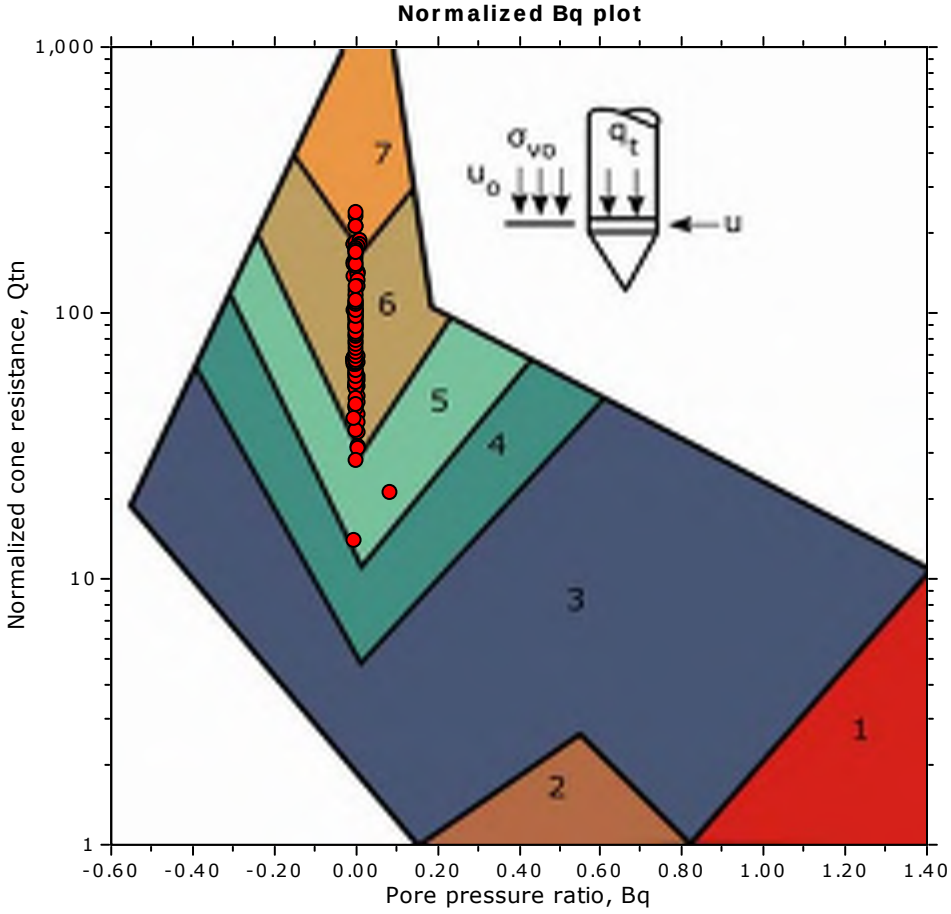
Craig Geotechnical Drilling
5230 Atlantic Ave
Mays Landing, NJ

Project: **SESI**
Location: **Dobbs Ferry NY**

CPT-1
Total depth: 9.78 ft

SBT - Bq plots (normalized)





SBTn legend

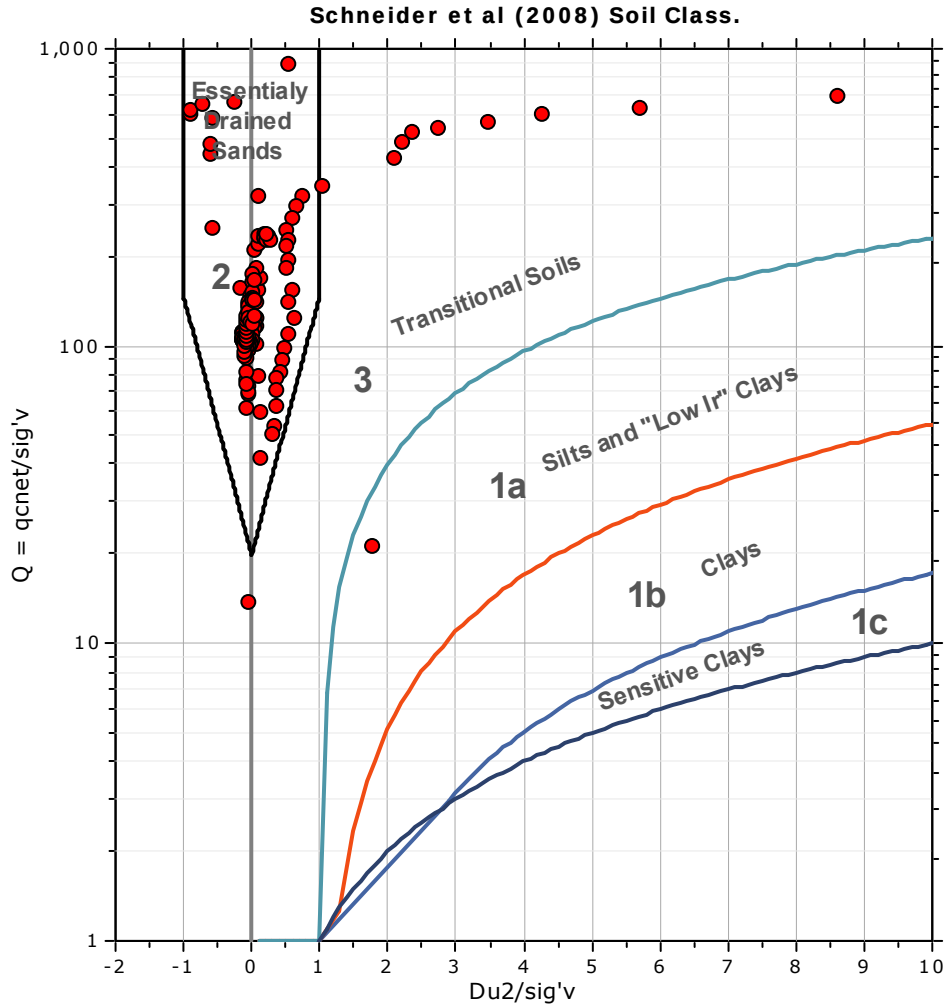
1. Sensitive fine grained	4. Clayey silt to silty clay	7. Gravelly sand to sand
2. Organic material	5. Silty sand to sandy silt	8. Very stiff sand to clayey sand
3. Clay to silty clay	6. Clean sand to silty sand	9. Very stiff fine grained

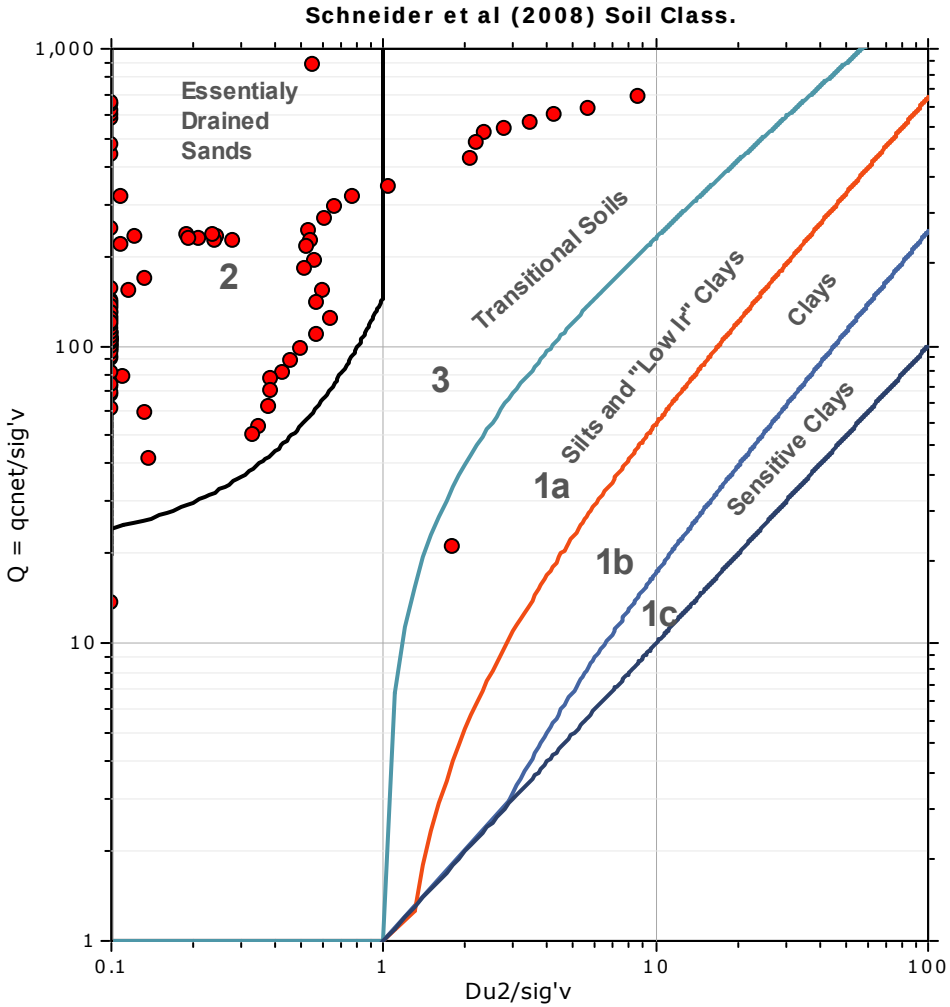
Craig Geotechnical Drilling
5230 Atlantic Ave
Mays Landing, NJ

Project: **SESI**
Location: **Dobbs Ferry NY**

CPT-1
Total depth: 9.78 ft

Bq plots (Schneider)

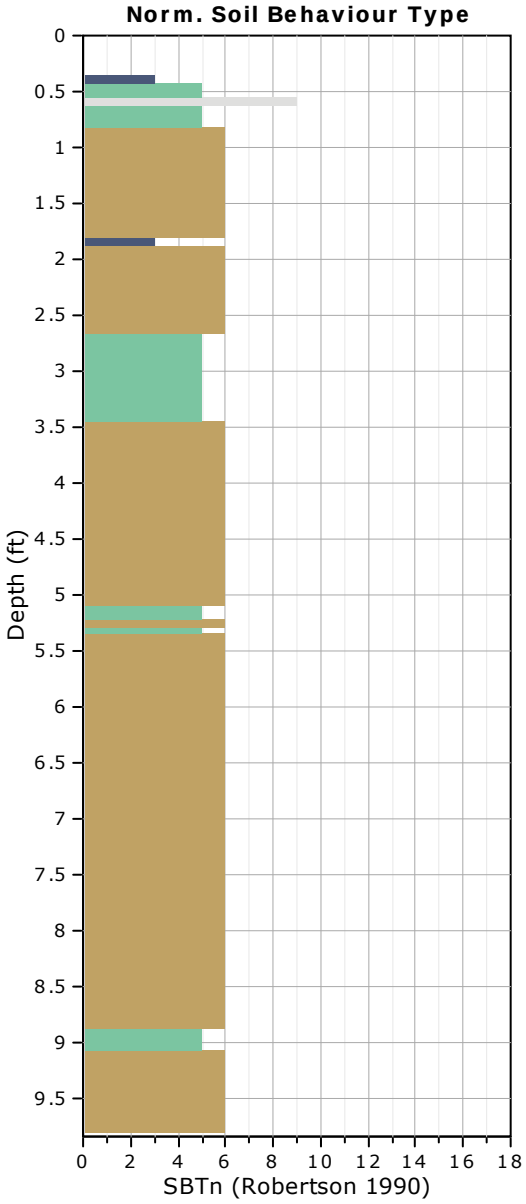


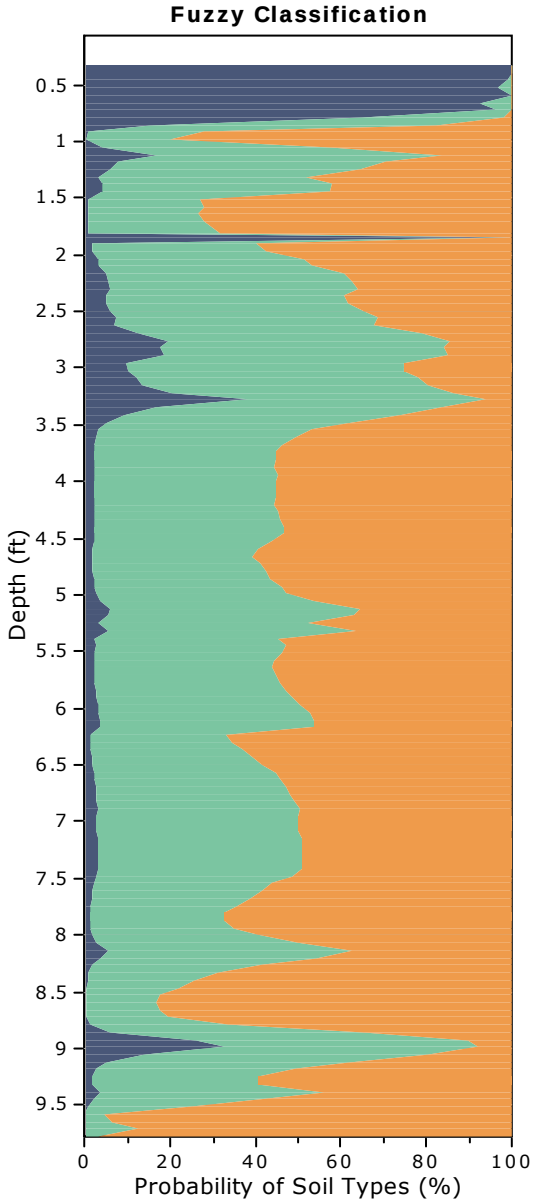


Craig Geotechnical Drilling
5230 Atlantic Ave
Mays Landing, NJ

Project: **SESI**
Location: **Dobbs Ferry NY**

CPT-1
Total depth: 9.78 ft

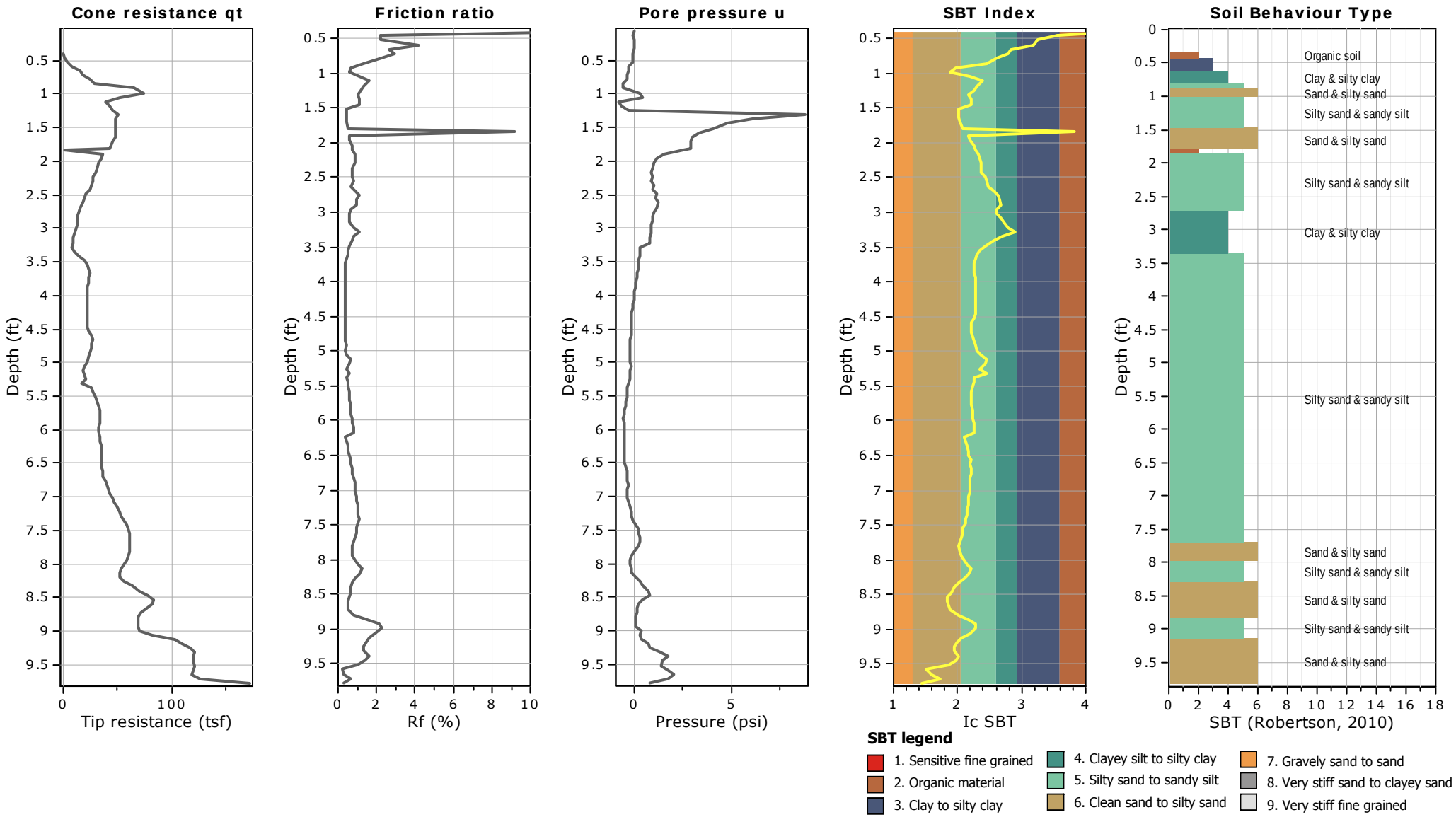




Craig Geotechnical Drilling
5230 Atlantic Ave
Mays Landing, NJ

Project: **SESI**
Location: **Dobbs Ferry NY**

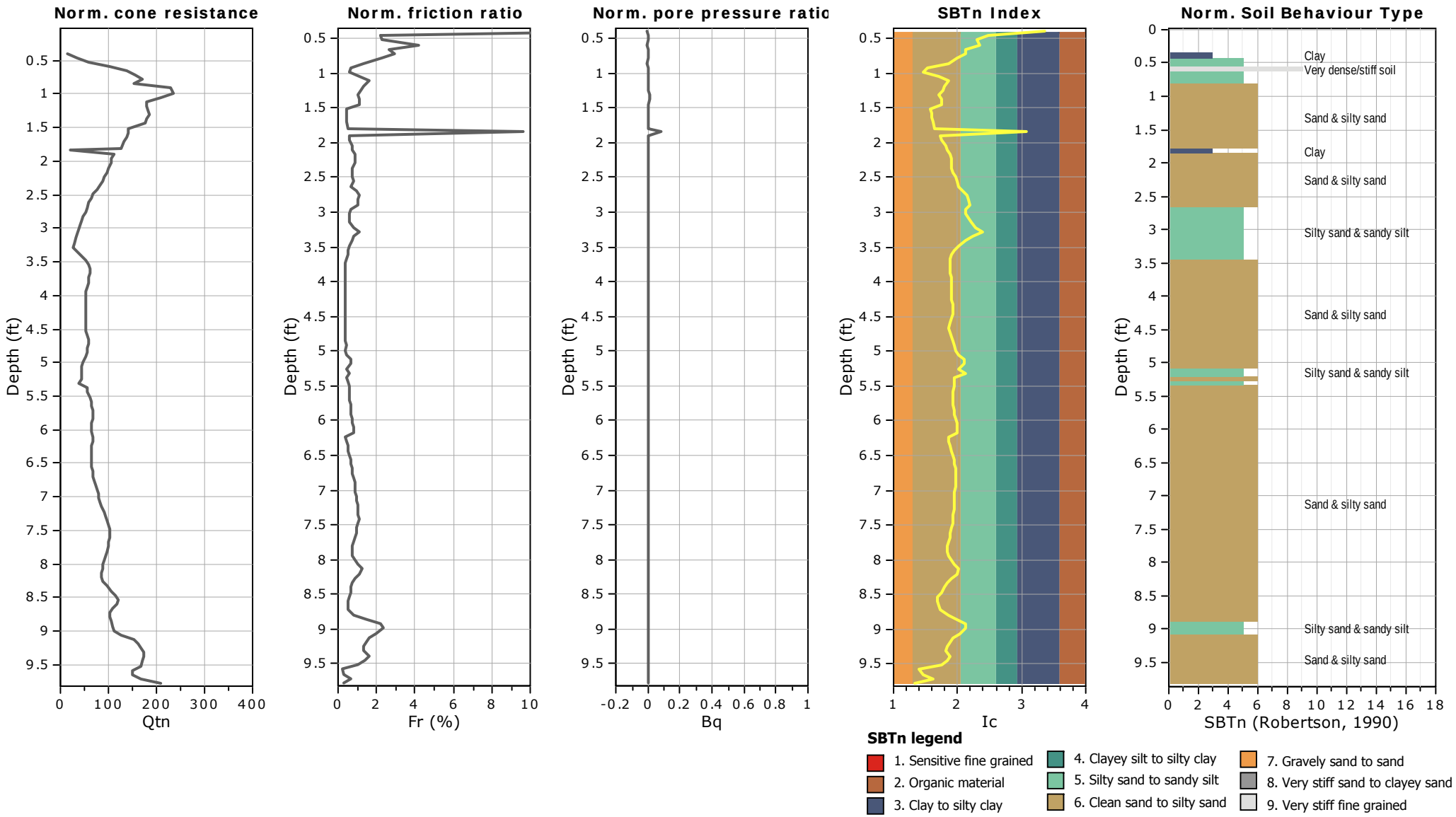
CPT-1
Total depth: 9.78 ft



Craig Geotechnical Drilling
5230 Atlantic Ave
Mays Landing, NJ

Project: **SESI**
Location: **Dobbs Ferry NY**

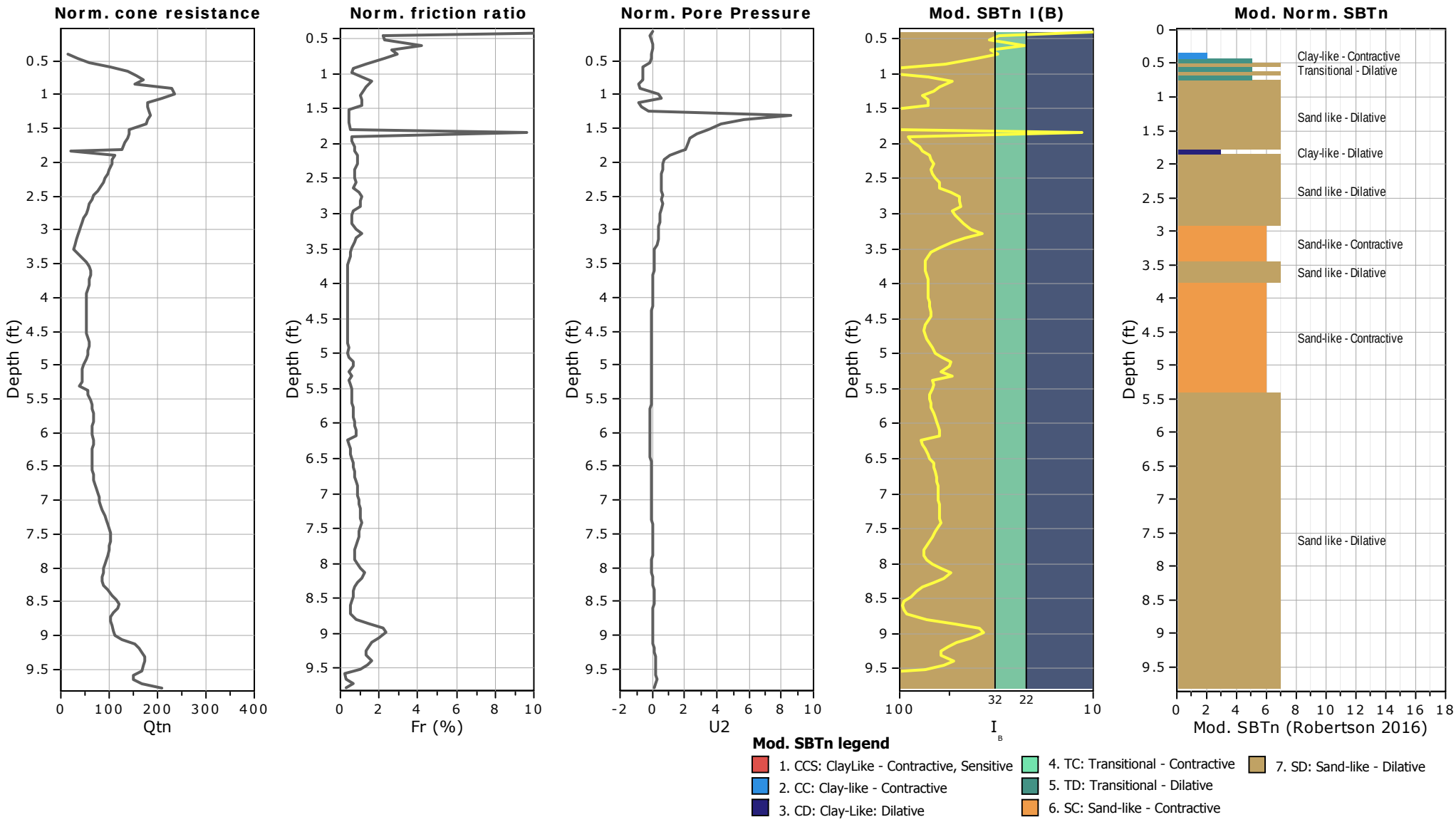
CPT-1
Total depth: 9.78 ft



Craig Geotechnical Drilling
5230 Atlantic Ave
Mays Landing, NJ

Project: **SESI**
Location: **Dobbs Ferry NY**

CPT-1
Total depth: 9.78 ft

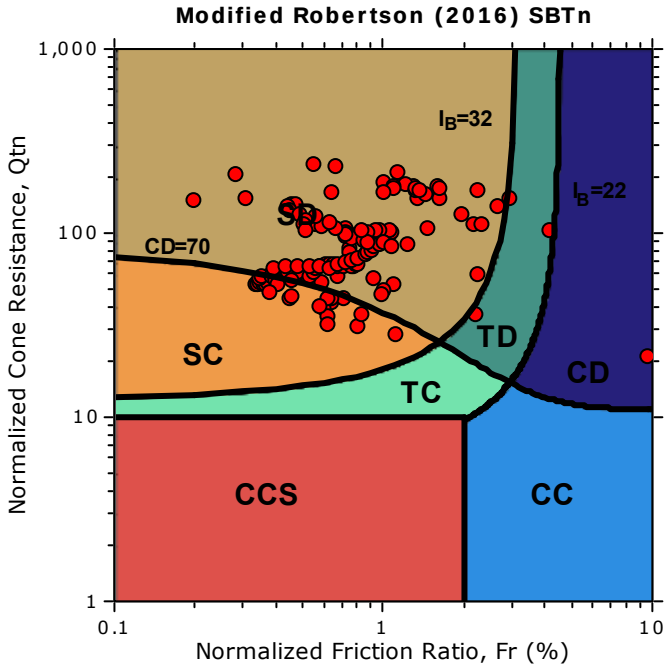


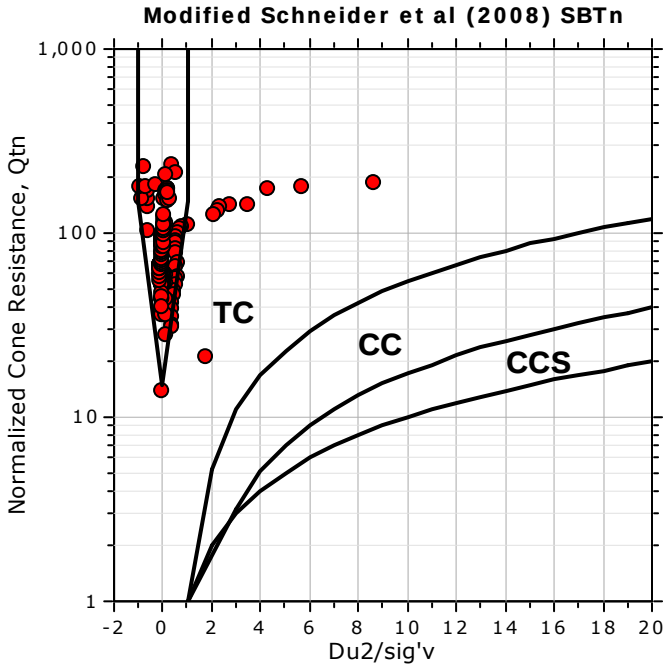
Craig Geotechnical Drilling
5230 Atlantic Ave
Mays Landing, NJ

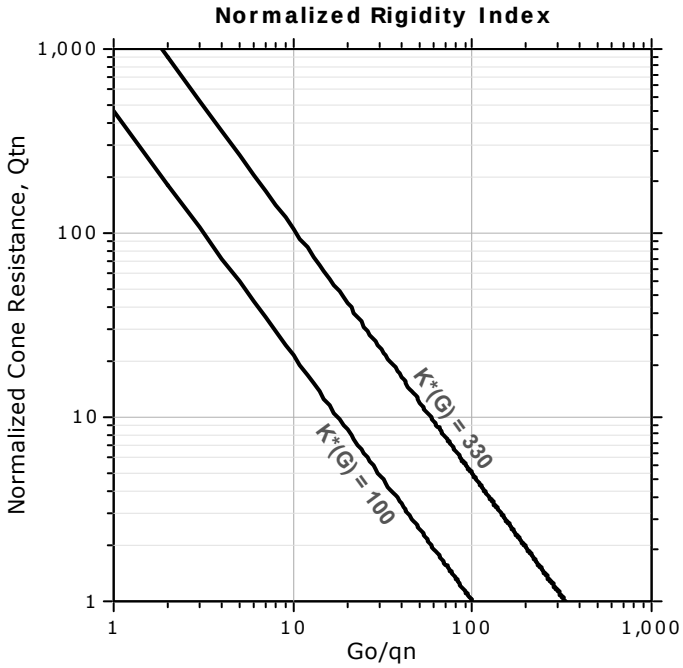
Project: **SESI**
Location: **Dobbs Ferry NY**

CPT-1
Total depth: 9.78 ft

Updated SBTn plots







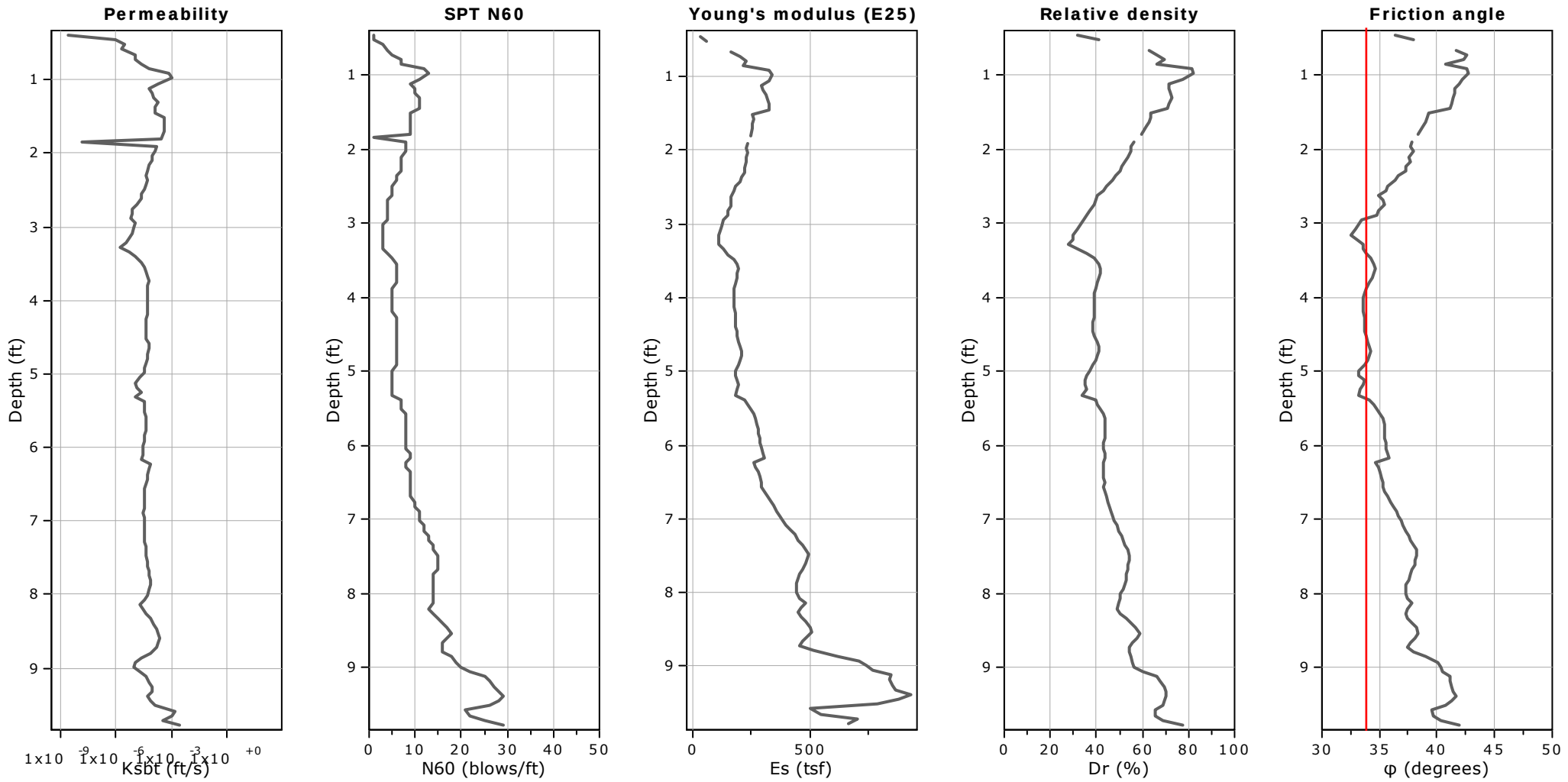
CCS: Clay-like - Contractive - Sensitive
CC: Clay-like - Contractive
CD: Clay-like - Dilative
TC: Transitional - Contractive
TD: Transitional - Dilative
SC: Sand-like - Contractive
SD: Sand-like - Dilative

K(G) > 330: Soils with significant microstructure (e.g. age/cementation)

Craig Geotechnical Drilling
5230 Atlantic Ave
Mays Landing, NJ

Project: **SESI**
Location: **Dobbs Ferry NY**

CPT-1
Total depth: 9.78 ft



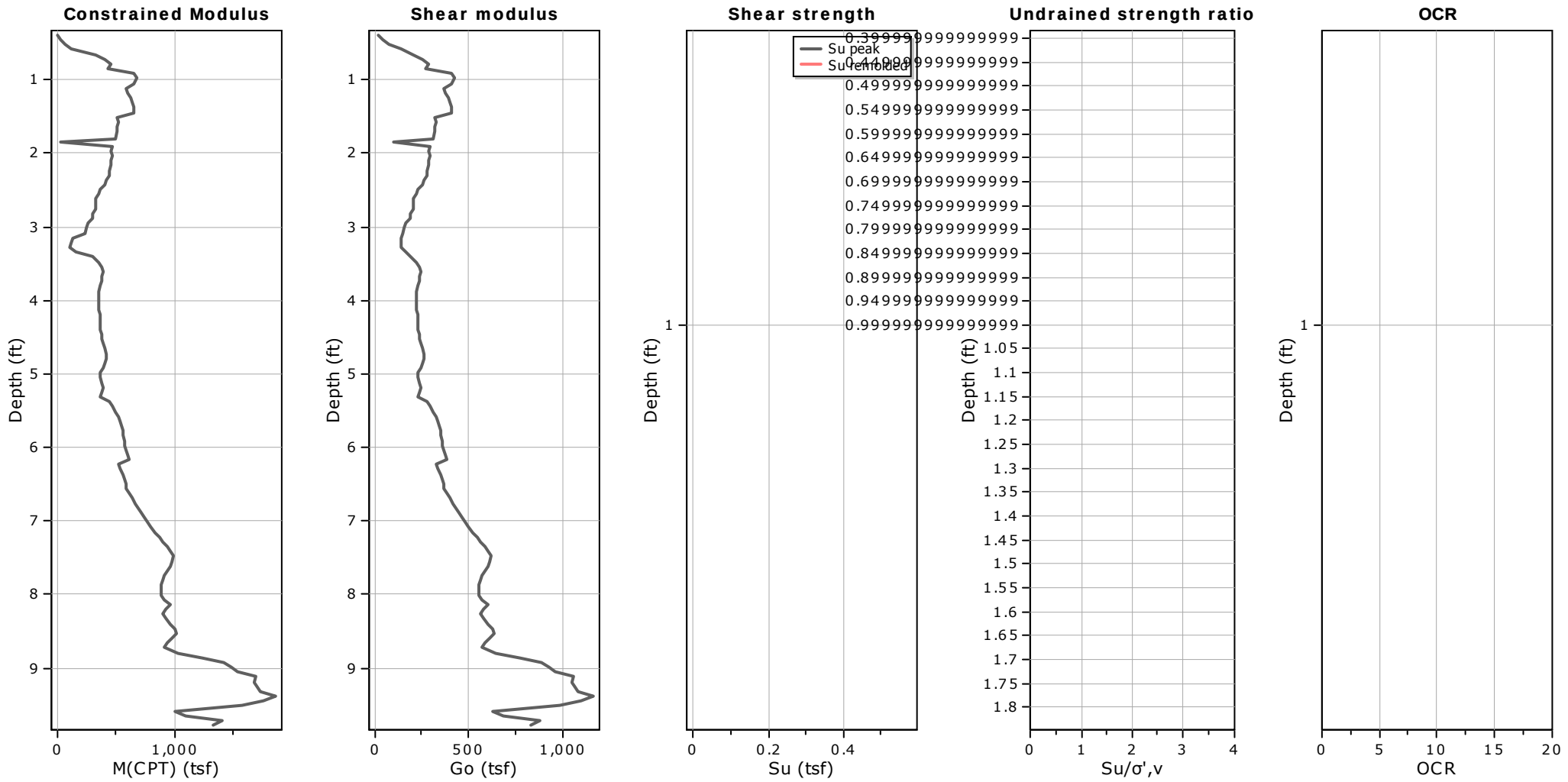
Calculation parameters

Permeability: Based on SBT_n
SPT N_{60}: Based on I_c and q_t
Young's modulus: Based on variable alpha using I_c (Robertson, 2009)
Relative density constant, C_{Dr}: 350.0
Phi: Based on Kulhawy & Mayne (1990)
User defined estimation data

Craig Geotechnical Drilling
5230 Atlantic Ave
Mays Landing, NJ

Project: **SESI**
Location: **Dobbs Ferry NY**

CPT-1
Total depth: 9.78 ft



Calculation parameters

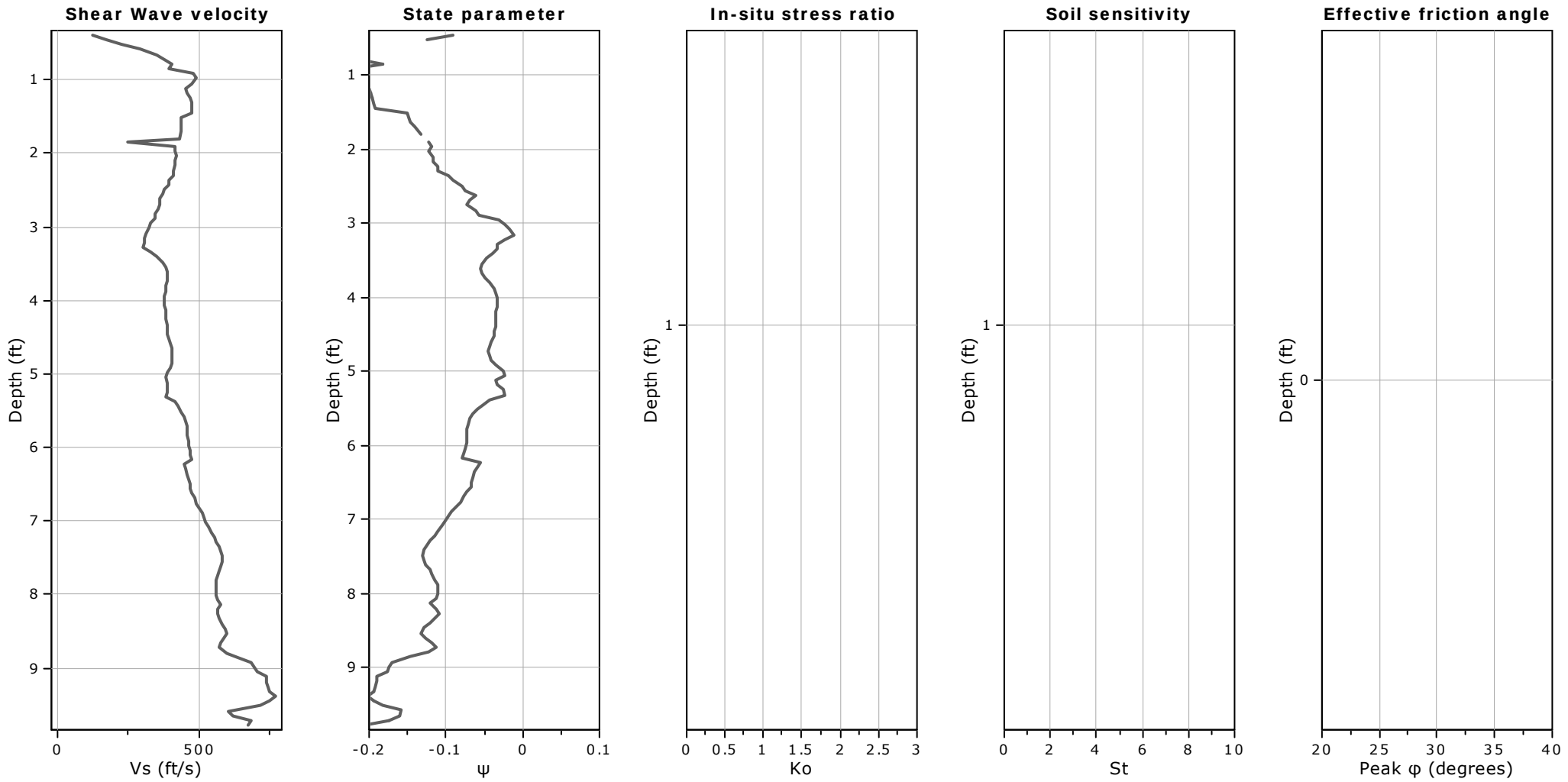
Constrained modulus: Based on variable *alpha* using I_c and Q_{tn} (Robertson, 2009)
Go: Based on variable *alpha* using I_c (Robertson, 2009)
Undrained shear strength cone factor for clays, N_{kt}: 14

OCR factor for clays, N_{kt}: 0.33
User defined estimation data
Flat Dilatometer Test data

Craig Geotechnical Drilling
5230 Atlantic Ave
Mays Landing, NJ

Project: **SESI**
Location: **Dobbs Ferry NY**

CPT-1
Total depth: 9.78 ft



Calculation parameters

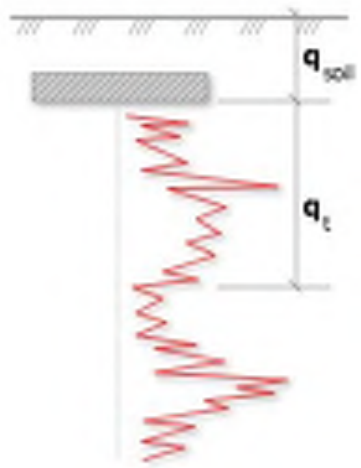
Soil Sensitivity factor, N_S: 350.00

User defined estimation data

Craig Geotechnical Drilling
5230 Atlantic Ave
Mays Landing, NJ

Project: **SESI**
Location: **Dobbs Ferry NY**

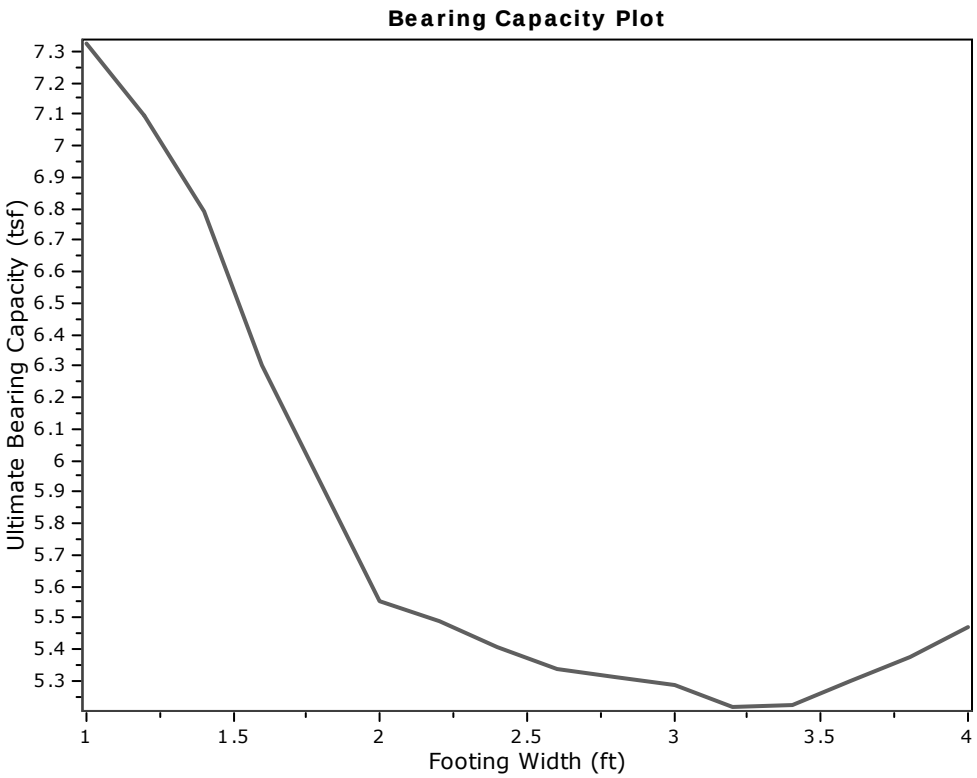
CPT-1
Total depth: 9.78 ft



Bearing Capacity calculation is perfromed based on the formula:

$$Q_{ult} = R_k \times q_t + q_{soil}$$

where:
R_k: Bearing capacity factor
q_t: Average corrected cone resistance over calculation depth
q_{soil}: Pressure applied by soil above footing



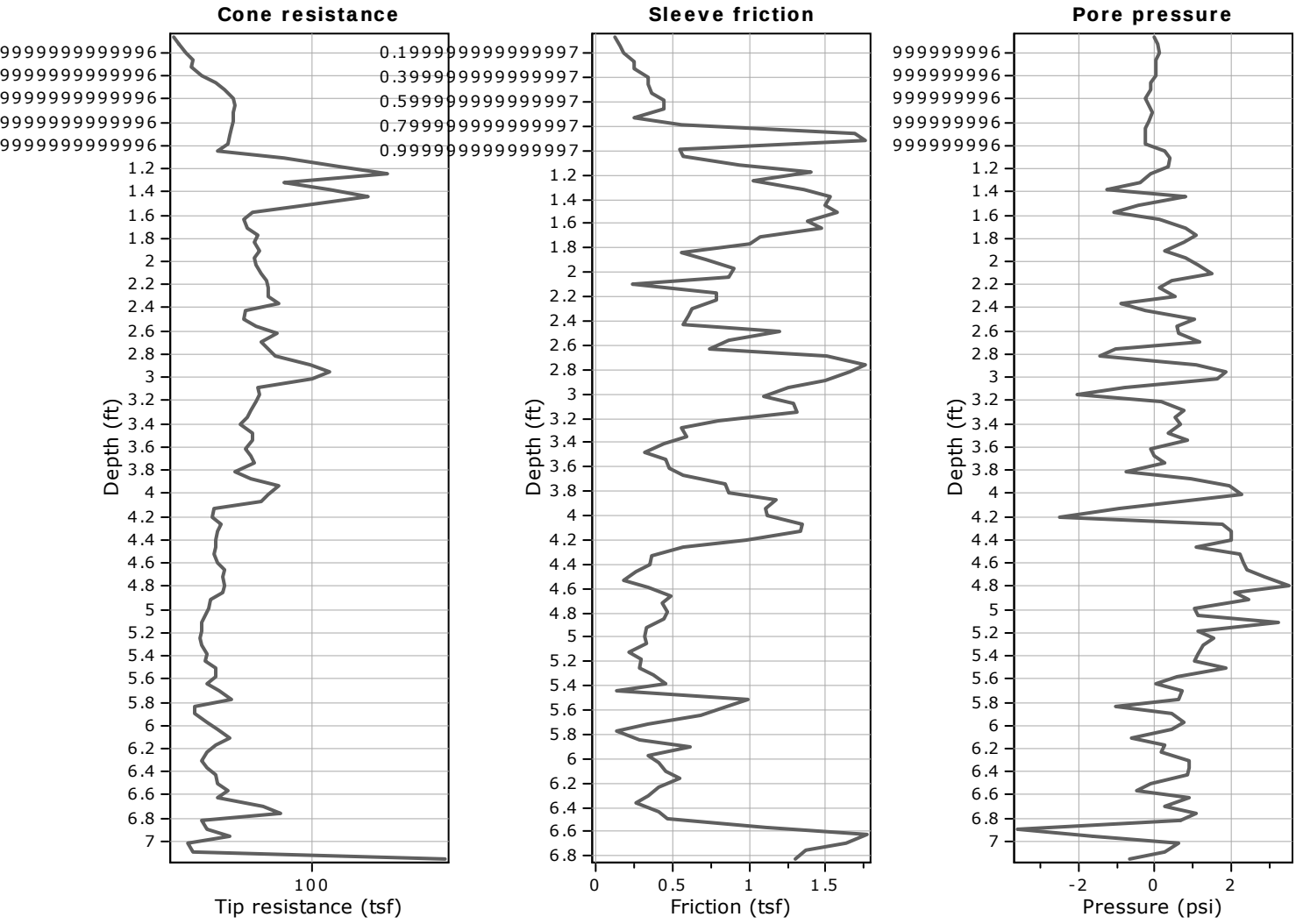
:: Tabular results ::

No	B (ft)	Start Depth (ft)	End Depth (ft)	Ave. q_t (tsf)	R_k	Soil Press. (tsf)	Ult. bearing cap. (tsf)
1	1.00	0.50	2.00	36.47	0.20	0.03	7.32
2	1.20	0.50	2.30	35.34	0.20	0.03	7.10
3	1.40	0.50	2.60	33.82	0.20	0.03	6.79
4	1.60	0.50	2.90	31.37	0.20	0.03	6.30
5	1.80	0.50	3.20	29.44	0.20	0.03	5.92
6	2.00	0.50	3.50	27.61	0.20	0.03	5.55
7	2.20	0.50	3.80	27.31	0.20	0.03	5.49
8	2.40	0.50	4.10	26.88	0.20	0.03	5.41
9	2.60	0.50	4.40	26.52	0.20	0.03	5.33
10	2.80	0.50	4.70	26.42	0.20	0.03	5.31
11	3.00	0.50	5.00	26.30	0.20	0.03	5.29
12	3.20	0.50	5.30	25.93	0.20	0.03	5.22
13	3.40	0.50	5.60	25.97	0.20	0.03	5.22
14	3.60	0.50	5.90	26.33	0.20	0.03	5.30
15	3.80	0.50	6.20	26.74	0.20	0.03	5.38
16	4.00	0.50	6.50	27.21	0.20	0.03	5.47

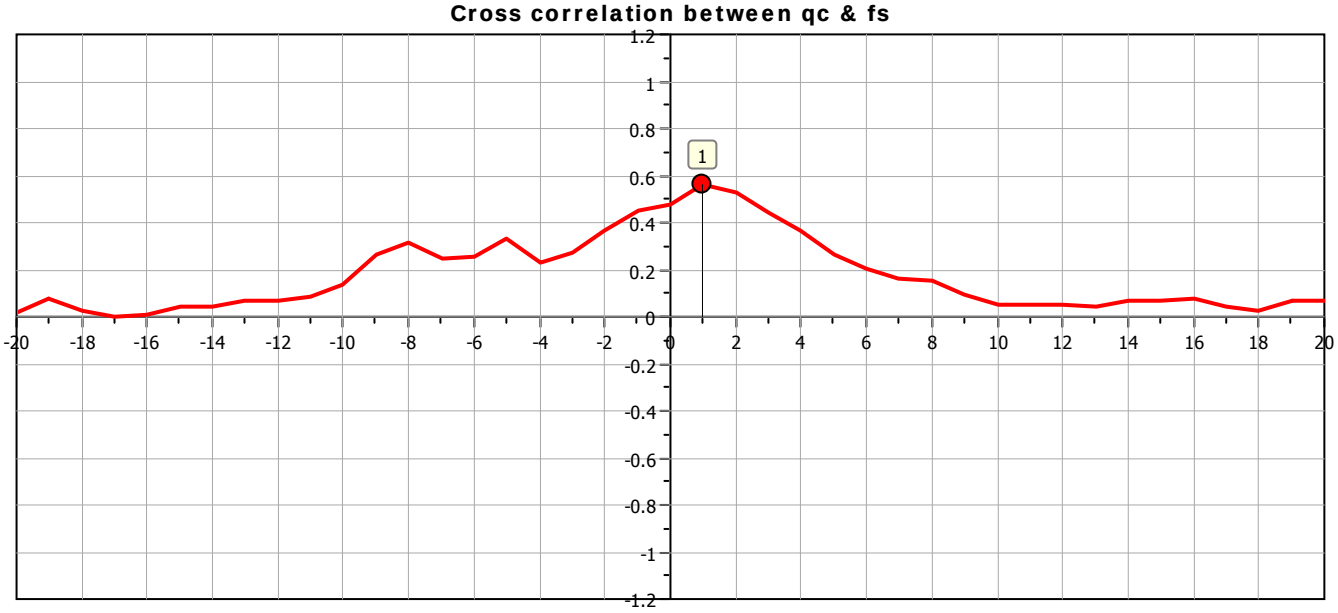
Craig Geotechnical Drilling
5230 Atlantic Ave
Mays Landing, NJ

Project: **SESI**
Location: **Dobbs Ferry NY**

CPT-2
Total depth: 7.15 ft



The plot below presents the cross correlation coeficient between the raw qc and fs values (as measured on the field). X axes presents the lag distance (one lag is the distance between two sucessive CPT measurements).

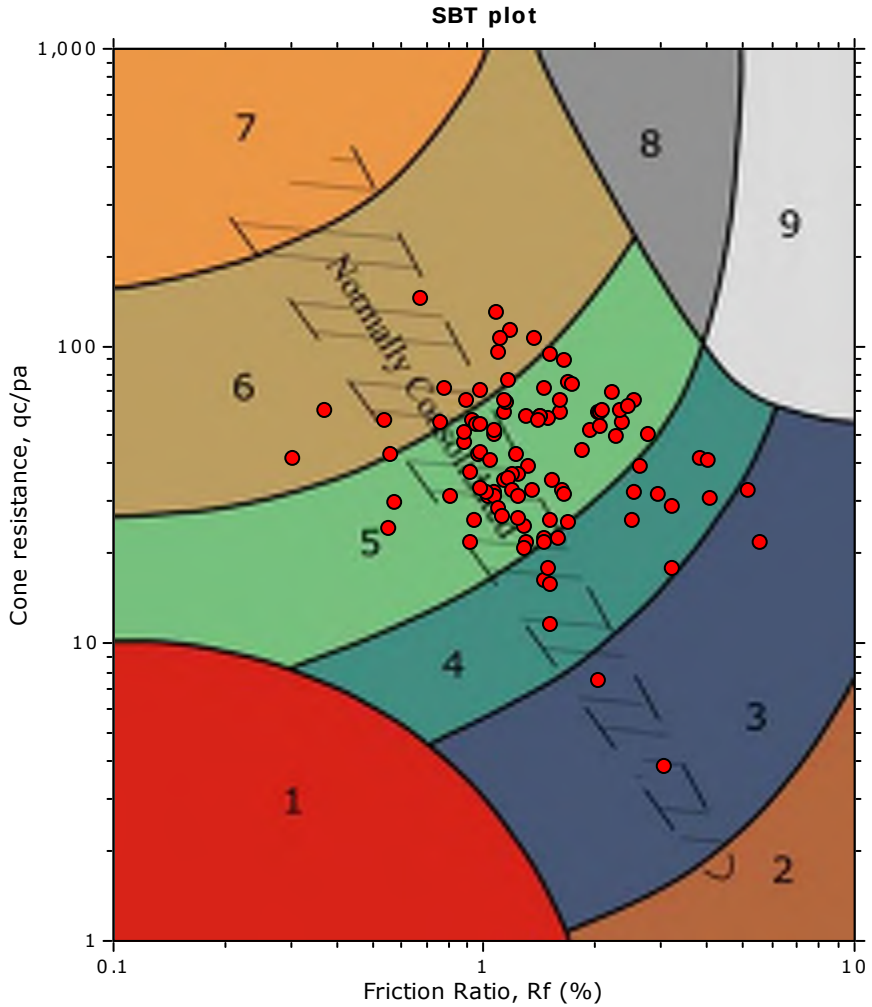


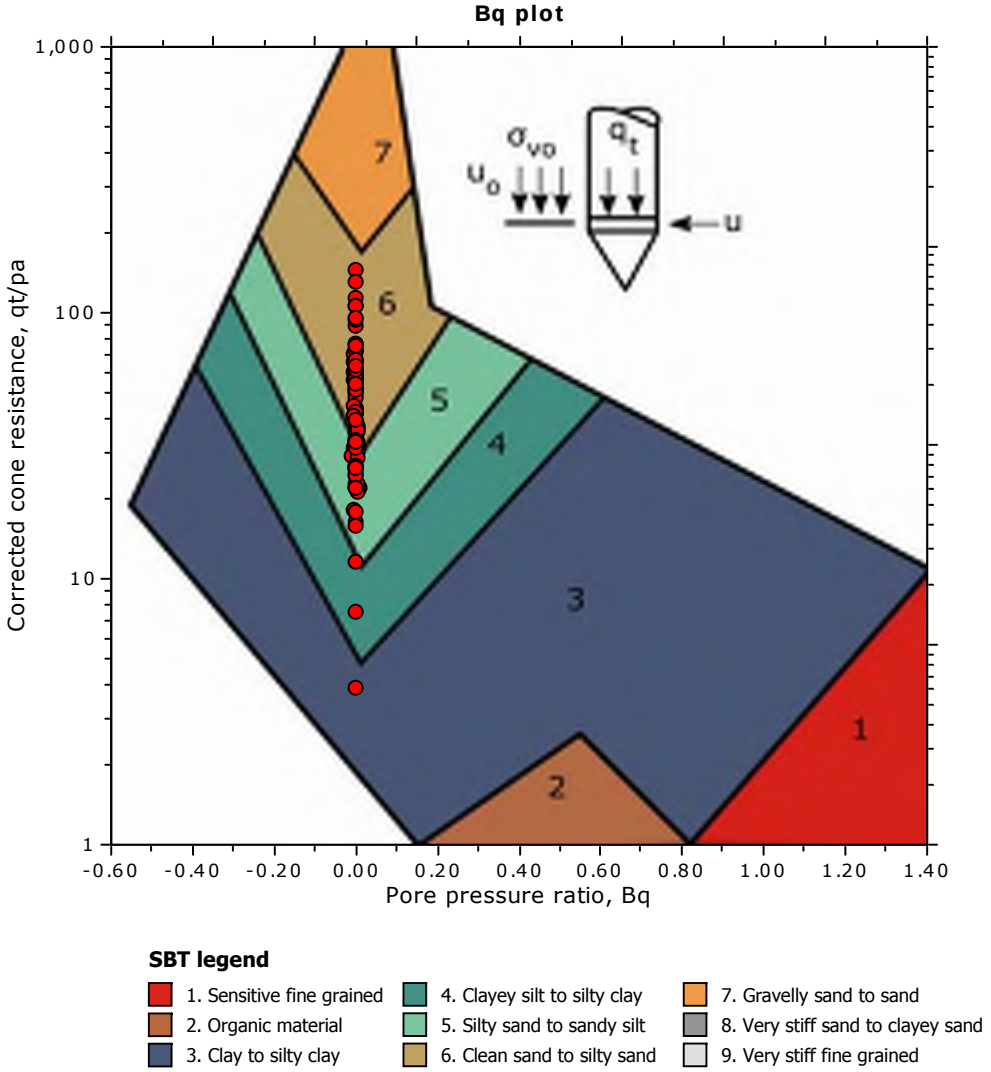
Craig Geotechnical Drilling
5230 Atlantic Ave
Mays Landing, NJ

Project: **SESI**
Location: **Dobbs Ferry NY**

CPT-2
Total depth: 7.15 ft

SBT - Bq plots





SBT legend

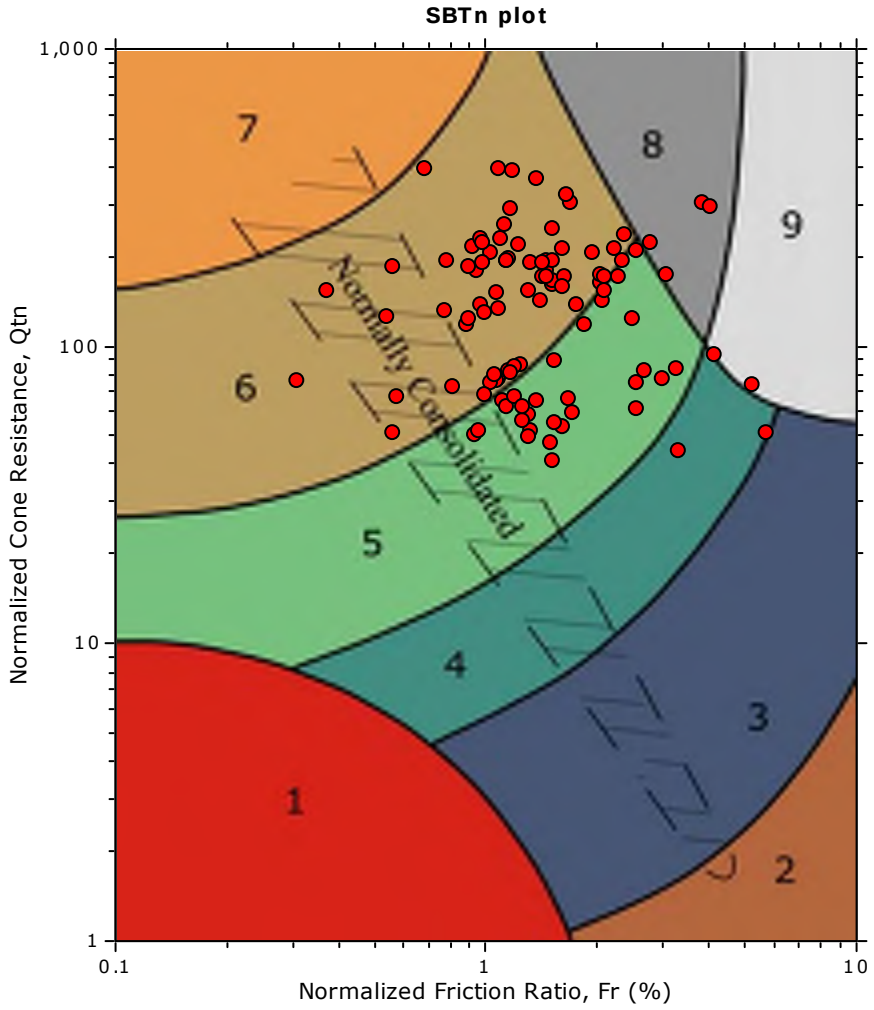
1. Sensitive fine grained	4. Clayey silt to silty clay	7. Gravelly sand to sand
2. Organic material	5. Silty sand to sandy silt	8. Very stiff sand to clayey sand
3. Clay to silty clay	6. Clean sand to silty sand	9. Very stiff fine grained

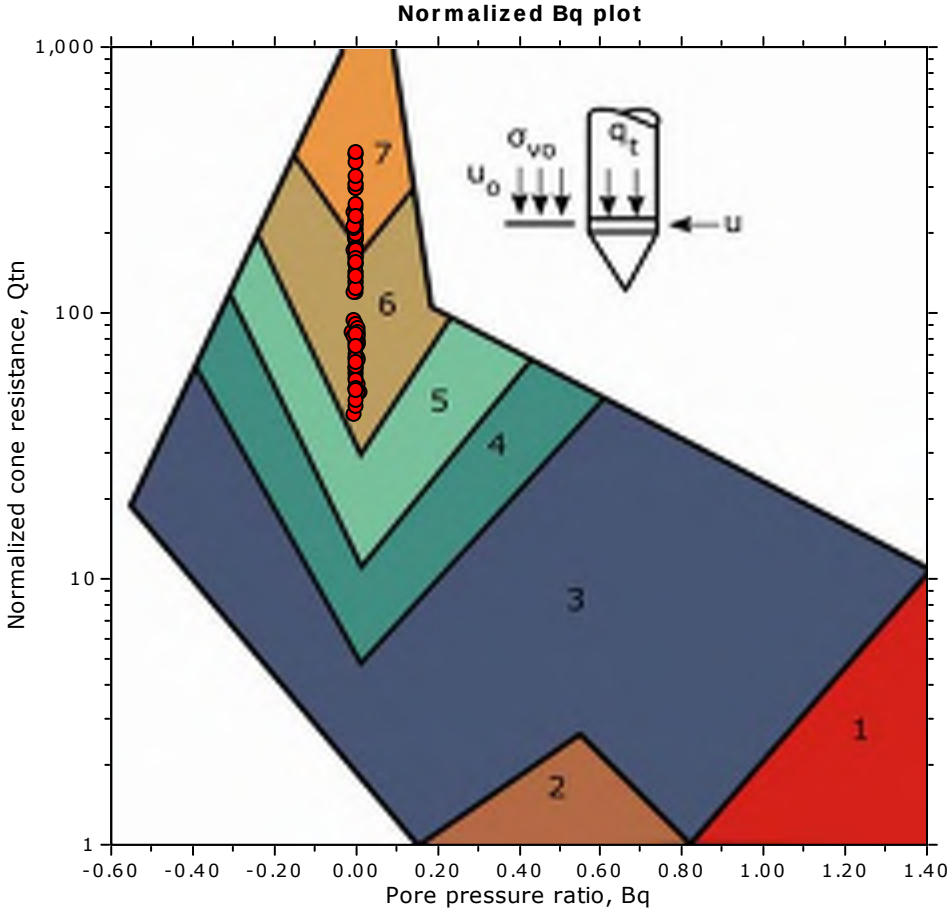
Craig Geotechnical Drilling
5230 Atlantic Ave
Mays Landing, NJ

Project: **SESI**
Location: **Dobbs Ferry NY**

CPT-2
Total depth: 7.15 ft

SBT - Bq plots (normalized)





SBTn legend

1. Sensitive fine grained	4. Clayey silt to silty clay	7. Gravelly sand to sand
2. Organic material	5. Silty sand to sandy silt	8. Very stiff sand to clayey sand
3. Clay to silty clay	6. Clean sand to silty sand	9. Very stiff fine grained

Craig Geotechnical Drilling
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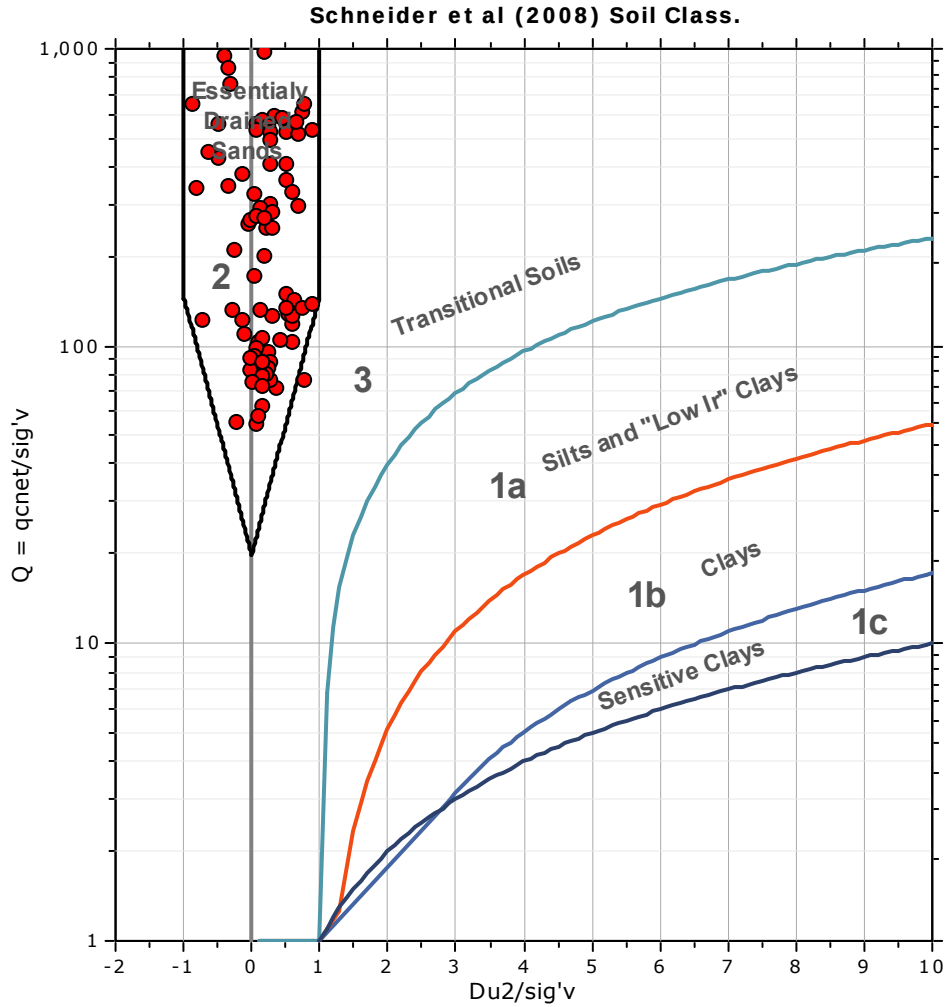
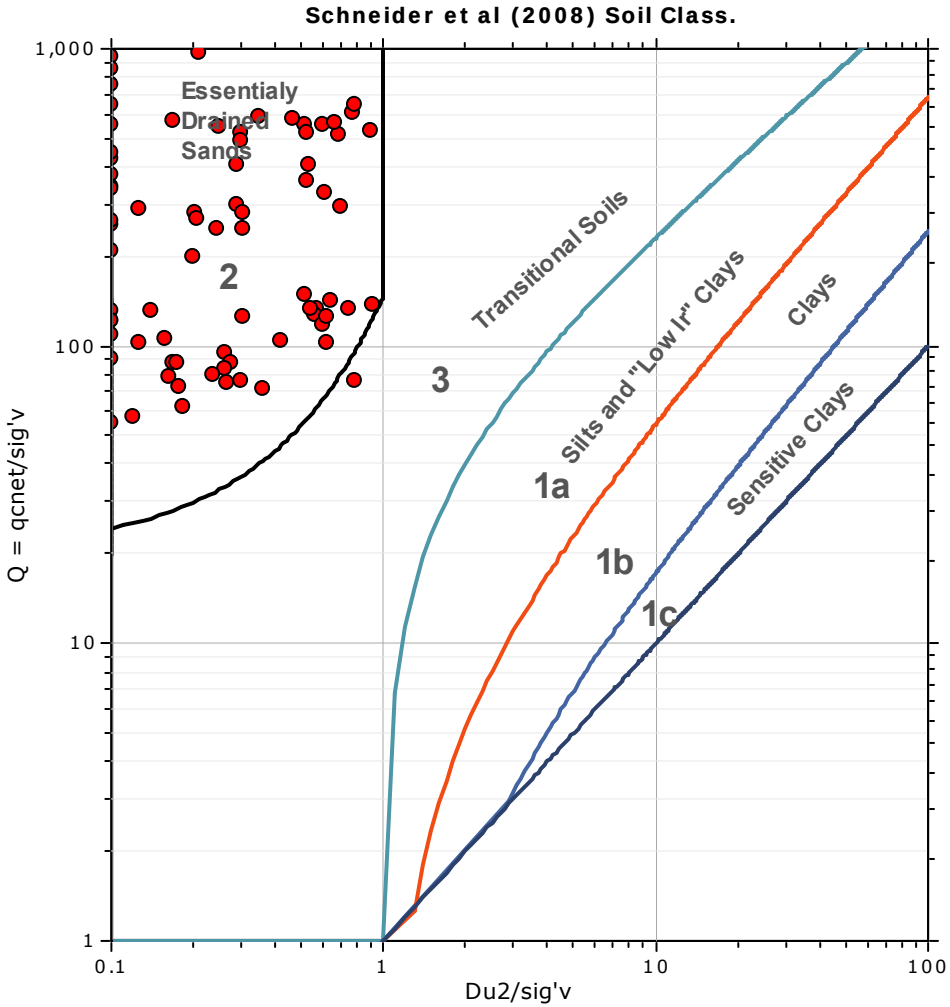
Mays Landing, NJ

Project: **SESI**
Location: **Dobbs Ferry NY**

CPT-2
Total depth: 7.15 ft

Bq plots (Schneider)

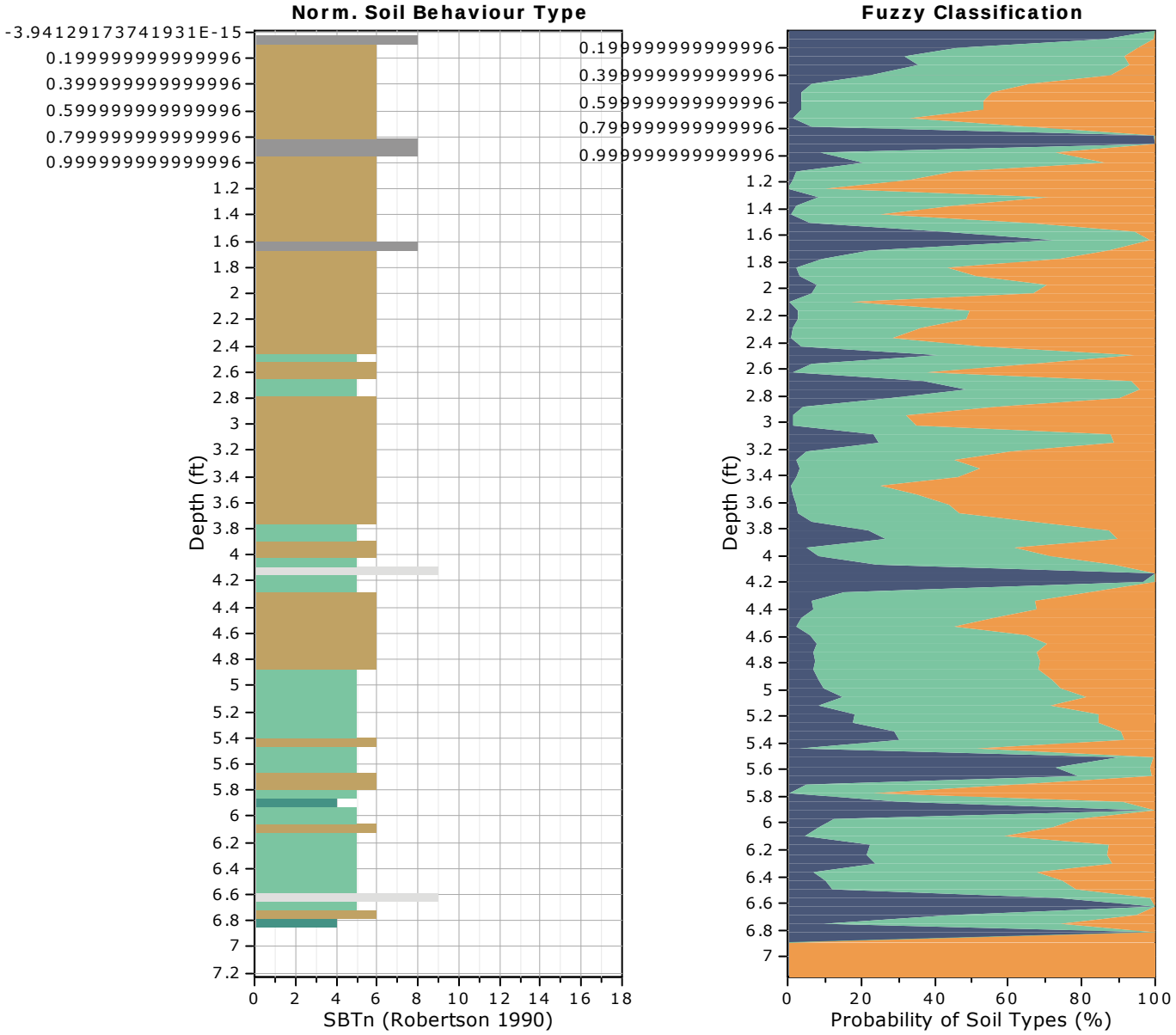




Craig Geotechnical Drilling
5230 Atlantic Ave
Mays Landing, NJ

Project: **SESI**
Location: **Dobbs Ferry NY**

CPT-2
Total depth: 7.15 ft



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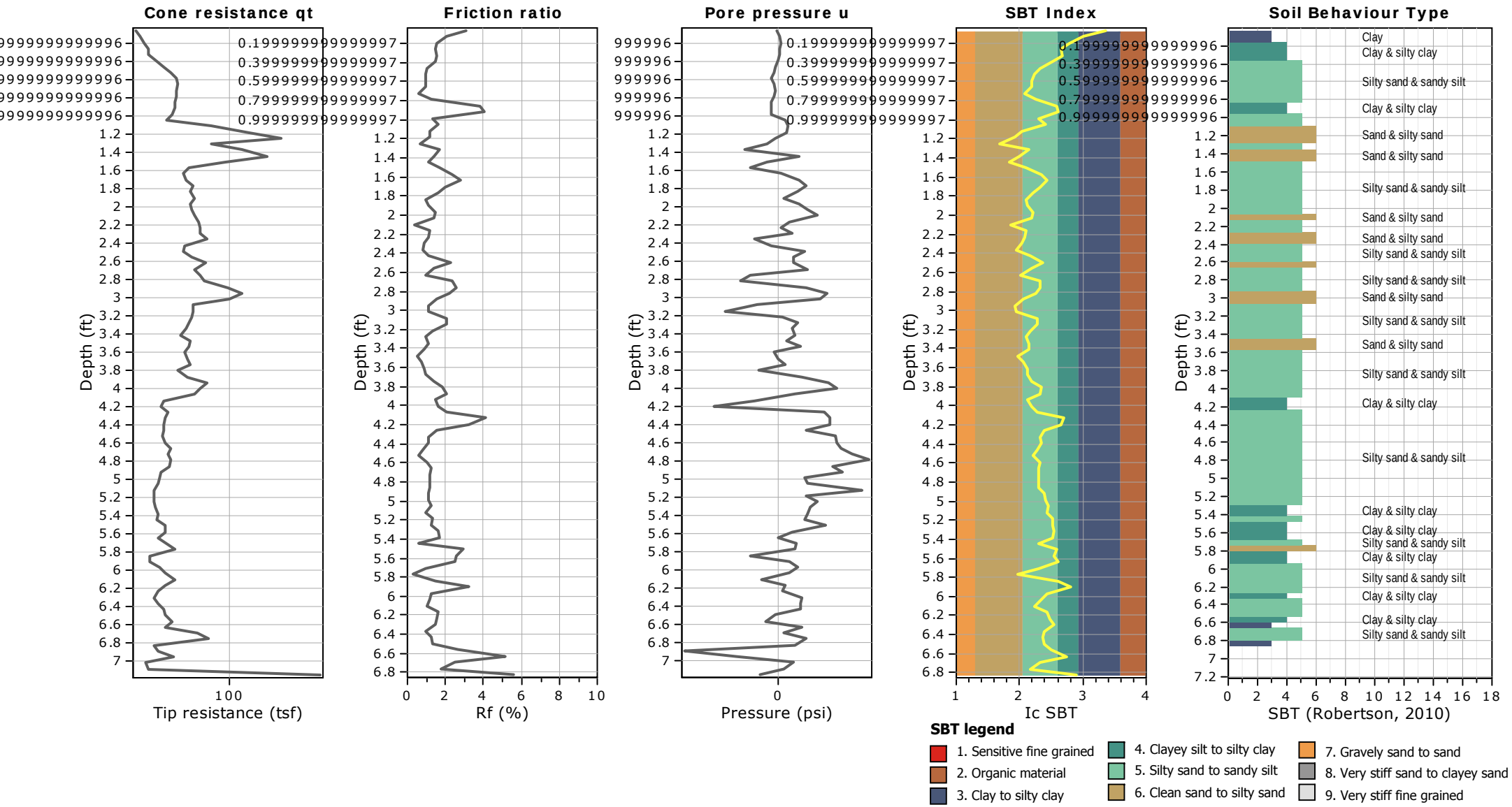
Mays Landing, NJ

Project: **SESI**
Location: **Dobbs Ferry NY**

CPT-2
Total depth: 7.15 ft



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5230 Atlantic Ave
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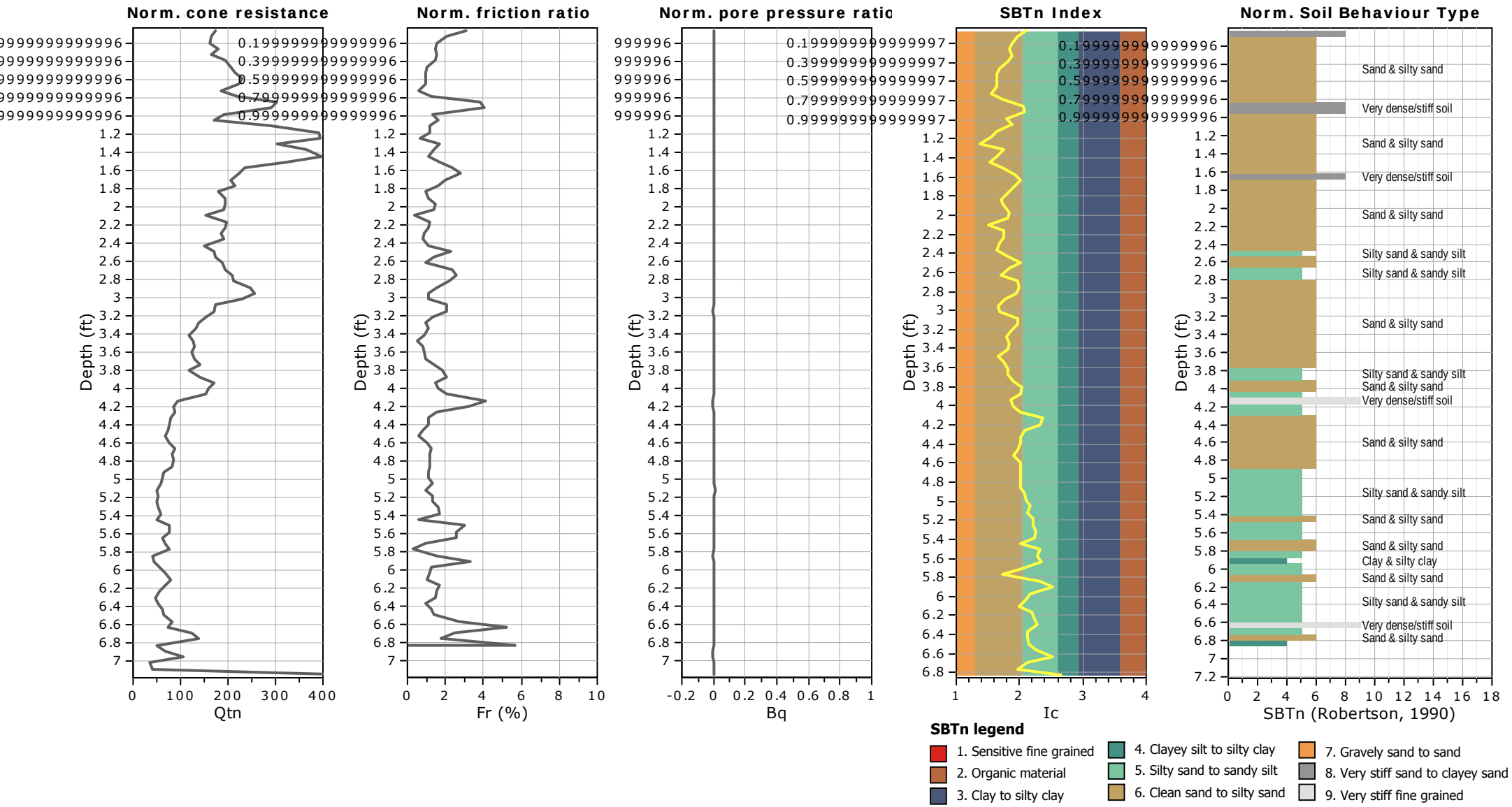
Location: **Dobbs Ferry NY**

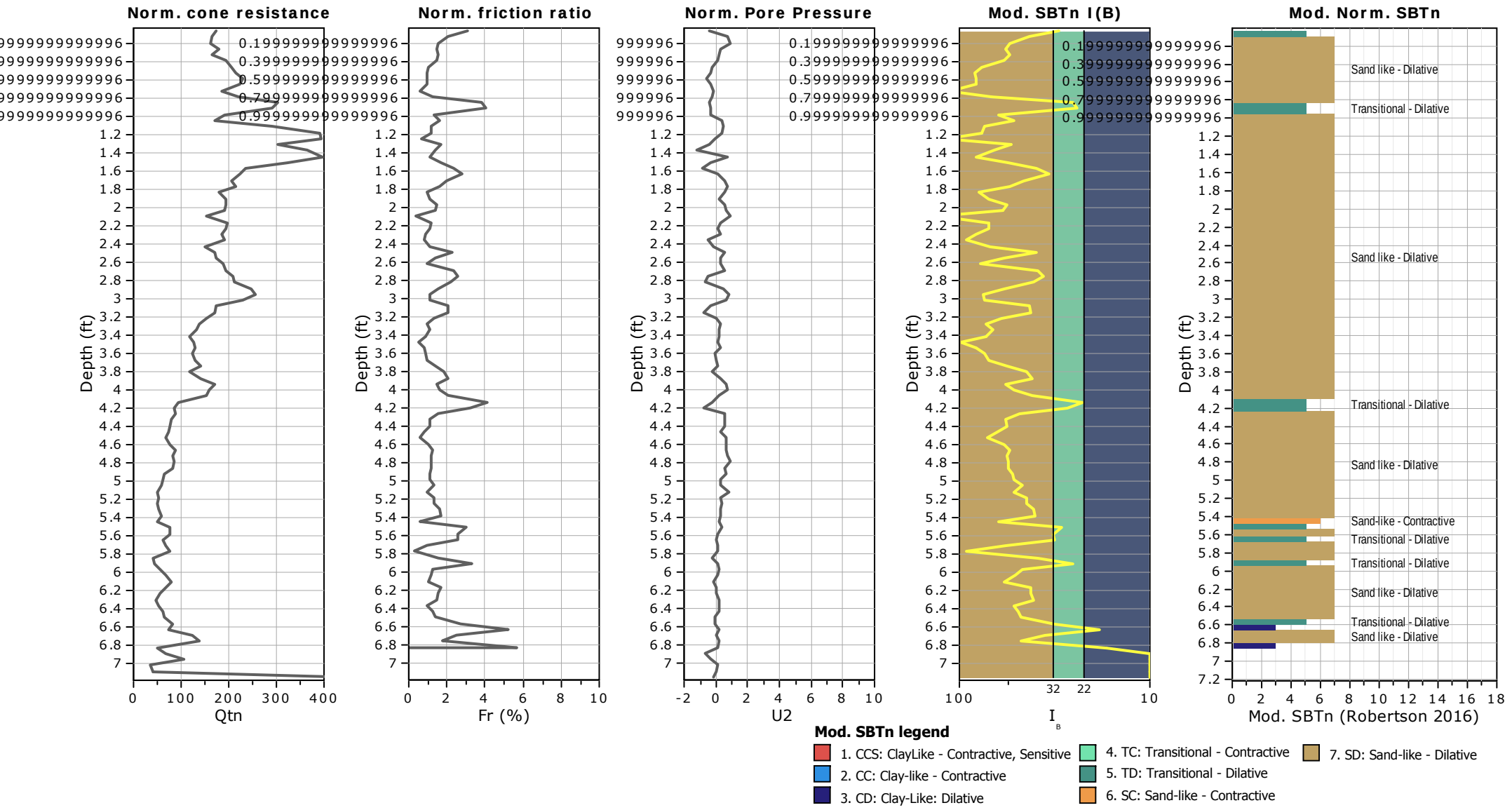
CPT-2
Total depth: 7.15 ft



Craig Geotechnical Drilling
5230 Atlantic Ave
Mays Landing, NJ

Project: SESI
Location: Dobbs Ferry NY

CPT-2
Total depth: 7.15 ft

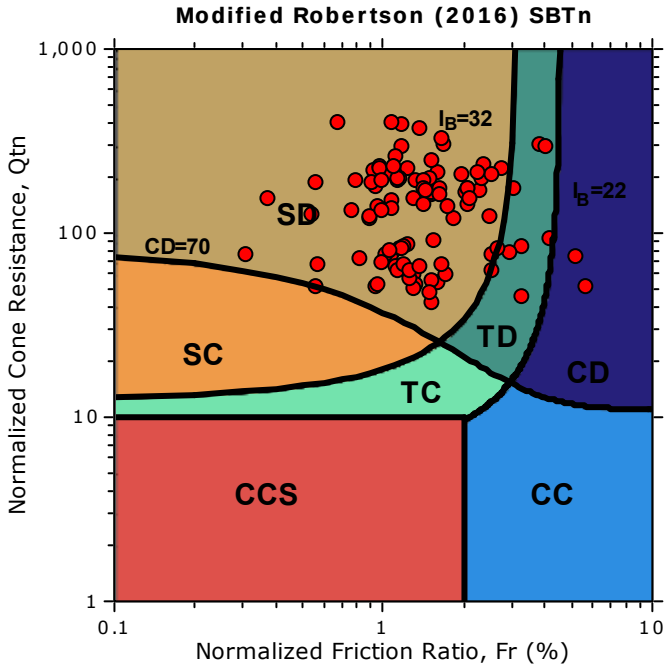


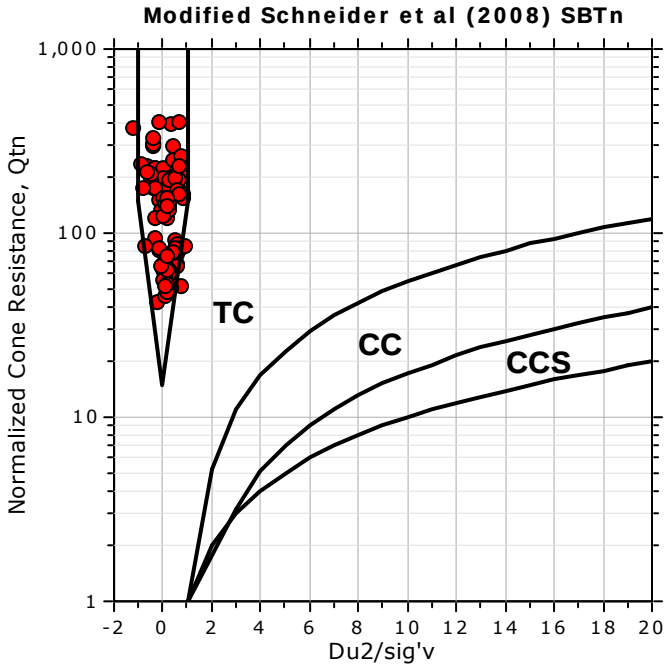
Craig Geotechnical Drilling
5230 Atlantic Ave
Mays Landing, NJ

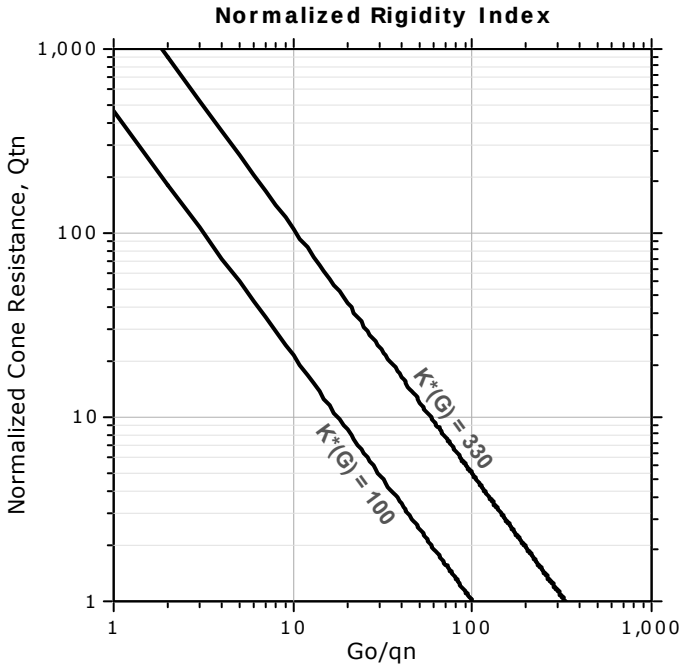
Project: **SESI**
Location: **Dobbs Ferry NY**

CPT-2
Total depth: 7.15 ft

Updated SBTn plots







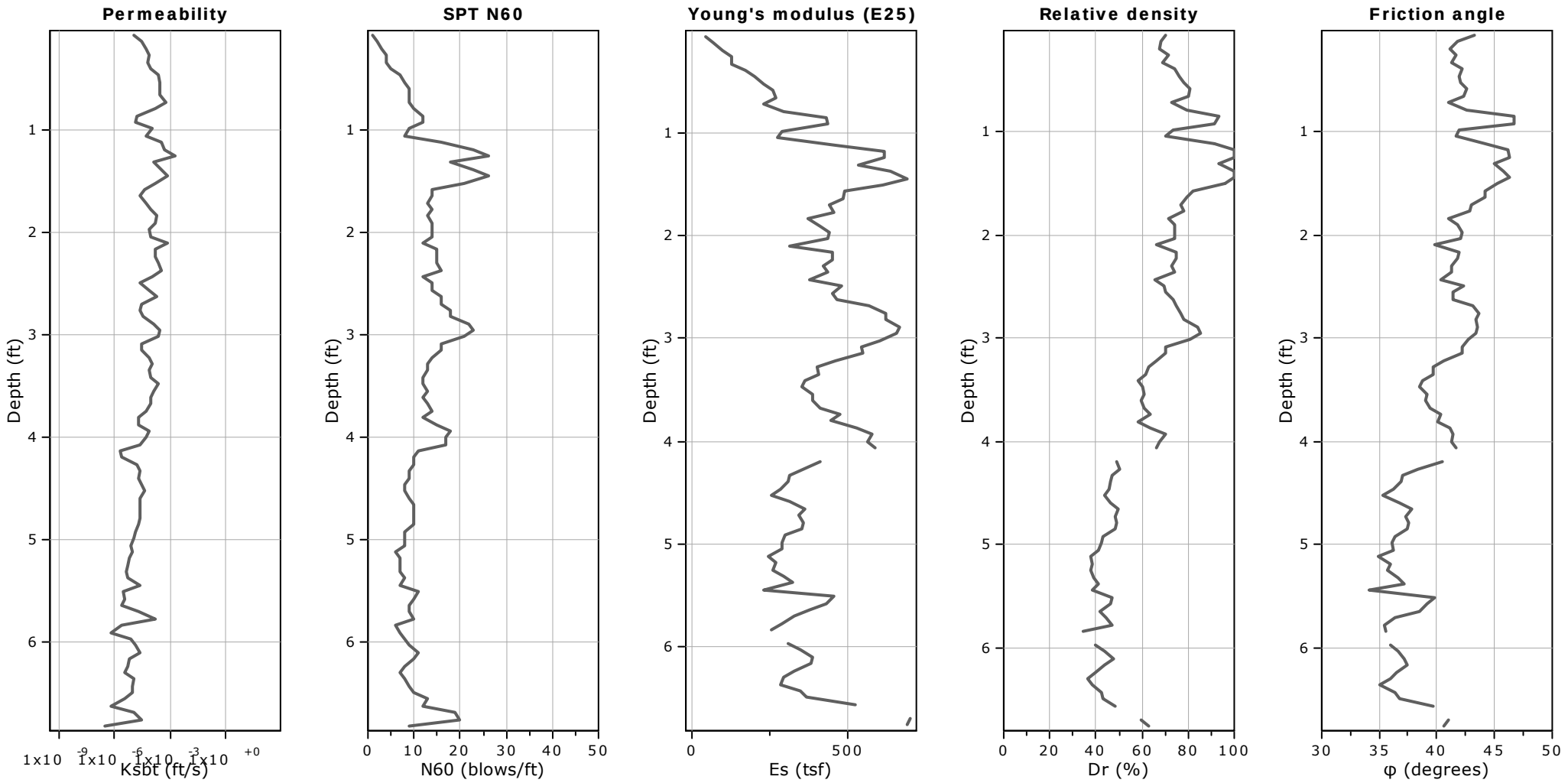
CCS: Clay-like - Contractive - Sensitive
CC: Clay-like - Contractive
CD: Clay-like - Dilative
TC: Transitional - Contractive
TD: Transitional - Dilative
SC: Sand-like - Contractive
SD: Sand-like - Dilative

K(G) > 330: Soils with significant microstructure (e.g. age/cementation)

Craig Geotechnical Drilling
5230 Atlantic Ave
Mays Landing, NJ

Project: **SESI**
Location: **Dobbs Ferry NY**

CPT-2
Total depth: 7.15 ft



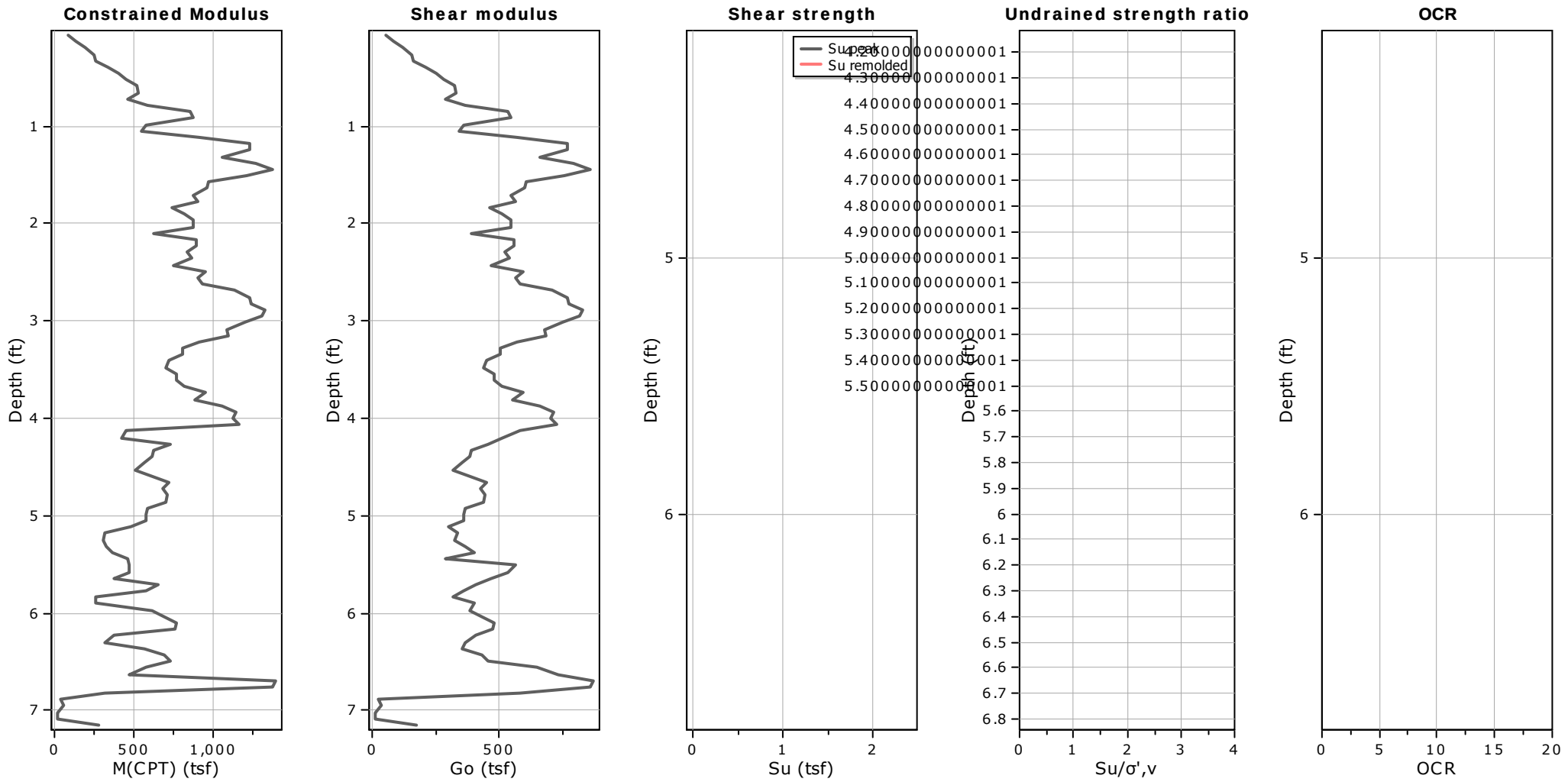
Calculation parameters

Permeability: Based on SBT_n
SPT N_{60}: Based on I_c and q_t
Young's modulus: Based on variable alpha using I_c (Robertson, 2009)
Relative density constant, C_{Dr}: 350.0
Phi: Based on Kulhawy & Mayne (1990)
User defined estimation data

Craig Geotechnical Drilling
5230 Atlantic Ave
Mays Landing, NJ

Project: **SESI**
Location: **Dobbs Ferry NY**

CPT-2
Total depth: 7.15 ft



Calculation parameters

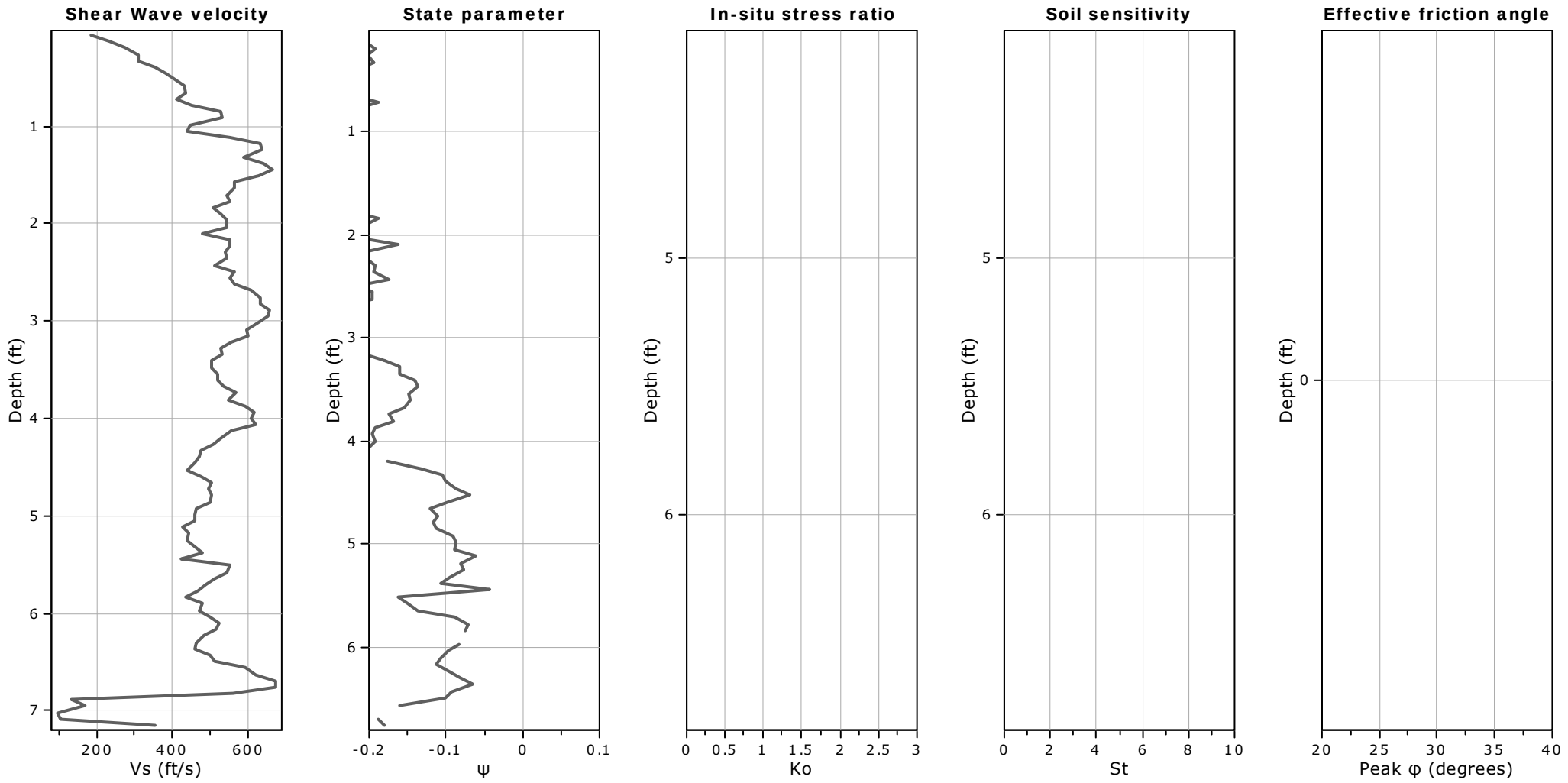
Constrained modulus: Based on variable *alpha* using I_c and Q_{tn} (Robertson, 2009)
Go: Based on variable *alpha* using I_c (Robertson, 2009)
Undrained shear strength cone factor for clays, N_{kt}: 14

OCR factor for clays, N_{kt}: 0.33
User defined estimation data
Flat Dilatometer Test data

Craig Geotechnical Drilling
5230 Atlantic Ave
Mays Landing, NJ

Project: **SESI**
Location: **Dobbs Ferry NY**

CPT-2
Total depth: 7.15 ft



Calculation parameters

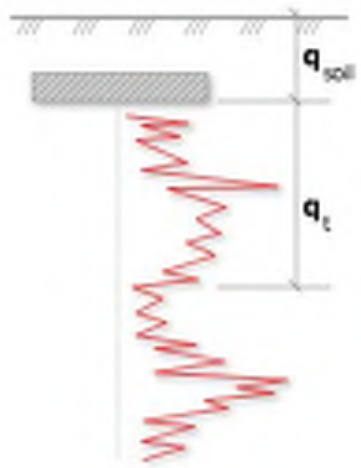
Soil Sensitivity factor, N_S: 350.00

User defined estimation data

Craig Geotechnical Drilling
5230 Atlantic Ave
Mays Landing, NJ

Project: **SESI**
Location: **Dobbs Ferry NY**

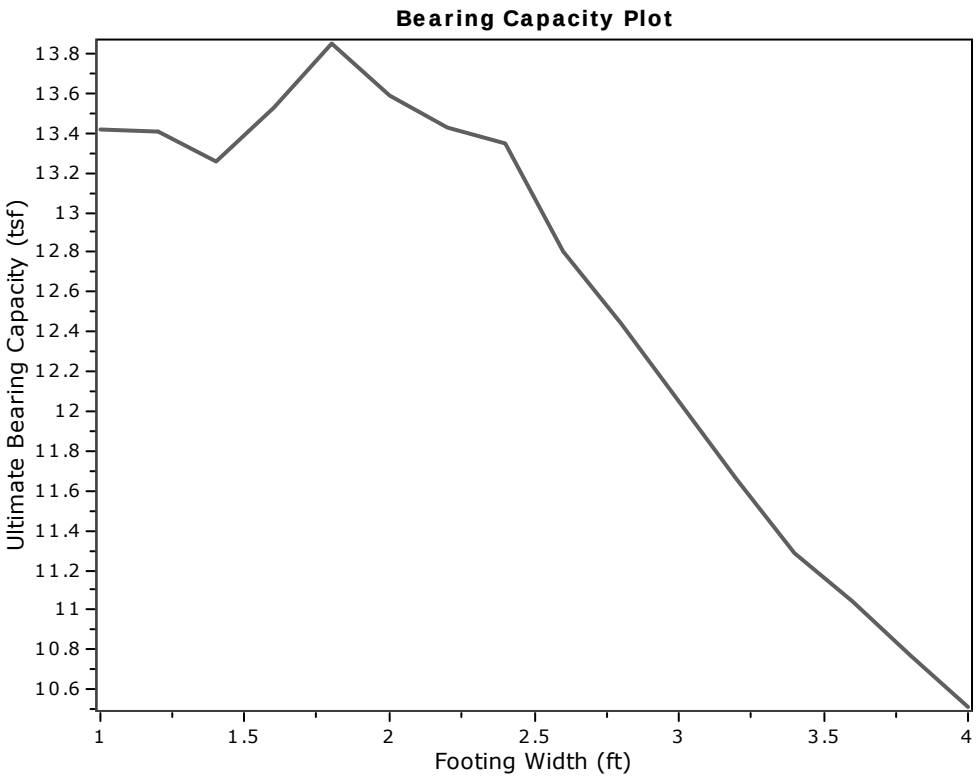
CPT-2
Total depth: 7.15 ft



Bearing Capacity calculation is perfromed based on the formula:

$$Q_{ult} = R_k \times q_t + q_{soil}$$

where:
R_k: Bearing capacity factor
q_t: Average corrected cone resistance over calculation depth
q_{soil}: Pressure applied by soil above footing



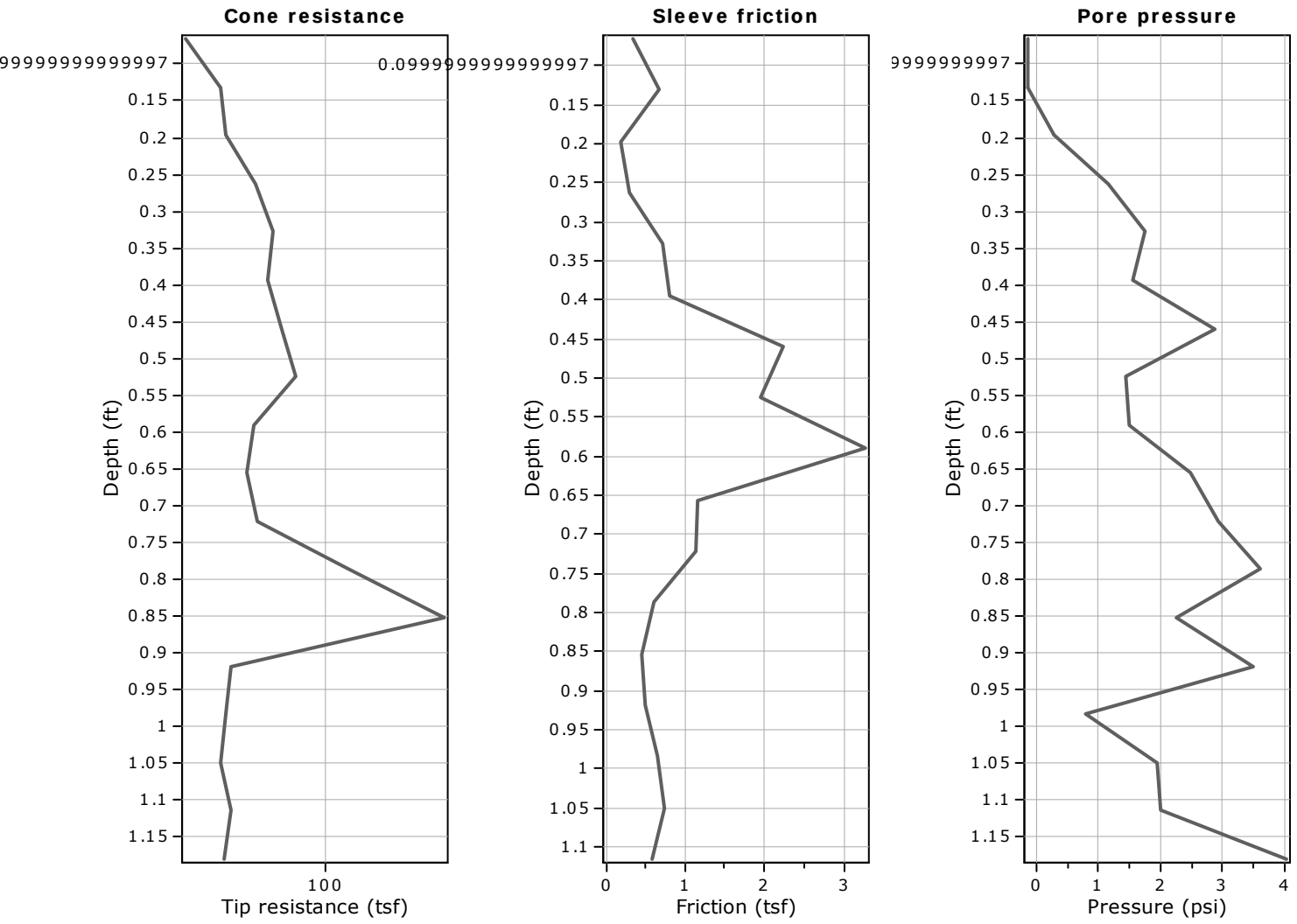
:: Tabular results ::

No	B (ft)	Start Depth (ft)	End Depth (ft)	Ave. q_t (tsf)	R_k	Soil Press. (tsf)	Ult. bearing cap. (tsf)
1	1.00	0.50	2.00	66.92	0.20	0.03	13.41
2	1.20	0.50	2.30	66.87	0.20	0.03	13.40
3	1.40	0.50	2.60	66.14	0.20	0.03	13.26
4	1.60	0.50	2.90	67.48	0.20	0.03	13.53
5	1.80	0.50	3.20	69.10	0.20	0.03	13.85
6	2.00	0.50	3.50	67.78	0.20	0.03	13.59
7	2.20	0.50	3.80	66.97	0.20	0.03	13.42
8	2.40	0.50	4.10	66.61	0.20	0.03	13.35
9	2.60	0.50	4.40	63.89	0.20	0.03	12.81
10	2.80	0.50	4.70	62.08	0.20	0.03	12.45
11	3.00	0.50	5.00	60.11	0.20	0.03	12.05
12	3.20	0.50	5.30	58.13	0.20	0.03	11.66
13	3.40	0.50	5.60	56.27	0.20	0.03	11.28
14	3.60	0.50	5.90	55.08	0.20	0.03	11.05
15	3.80	0.50	6.20	53.74	0.20	0.03	10.78
16	4.00	0.50	6.50	52.41	0.20	0.03	10.51

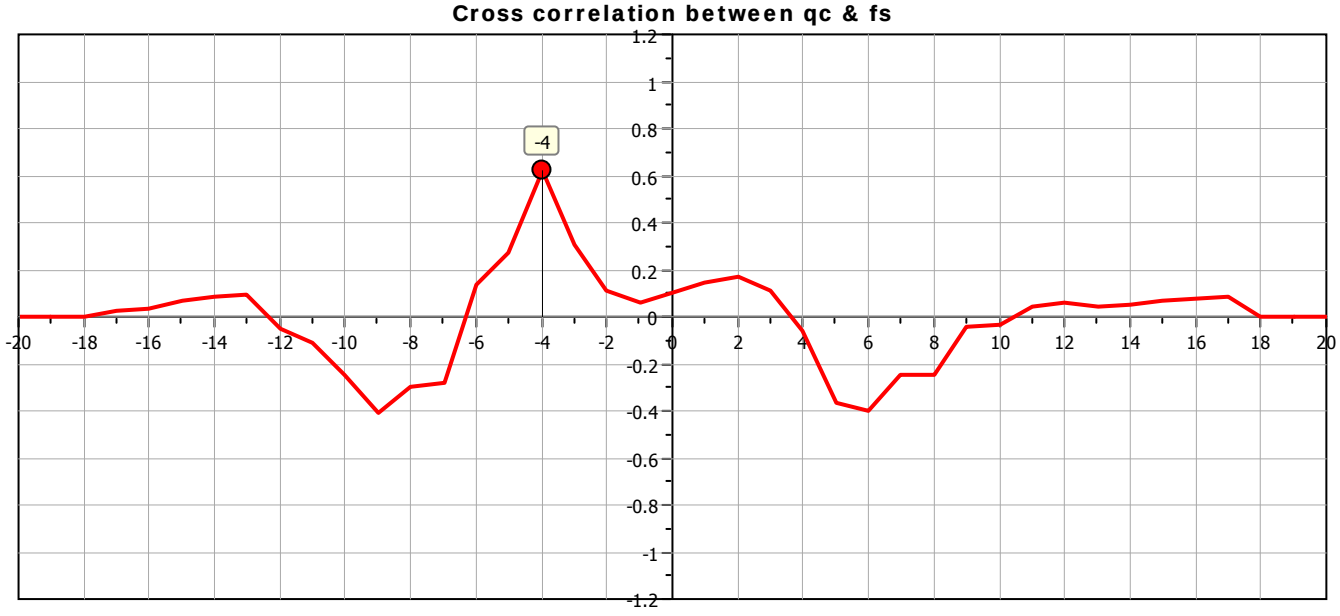
Craig Geotechnical Drilling
5230 Atlantic Ave
Mays Landing, NJ

Project: **SESI**
Location: **Dobbs Ferry NY**

CPT-2c
Total depth: 1.18 ft



The plot below presents the cross correlation coeficient between the raw qc and fs values (as measured on the field). X axes presents the lag distance (one lag is the distance between two sucessive CPT measurements).

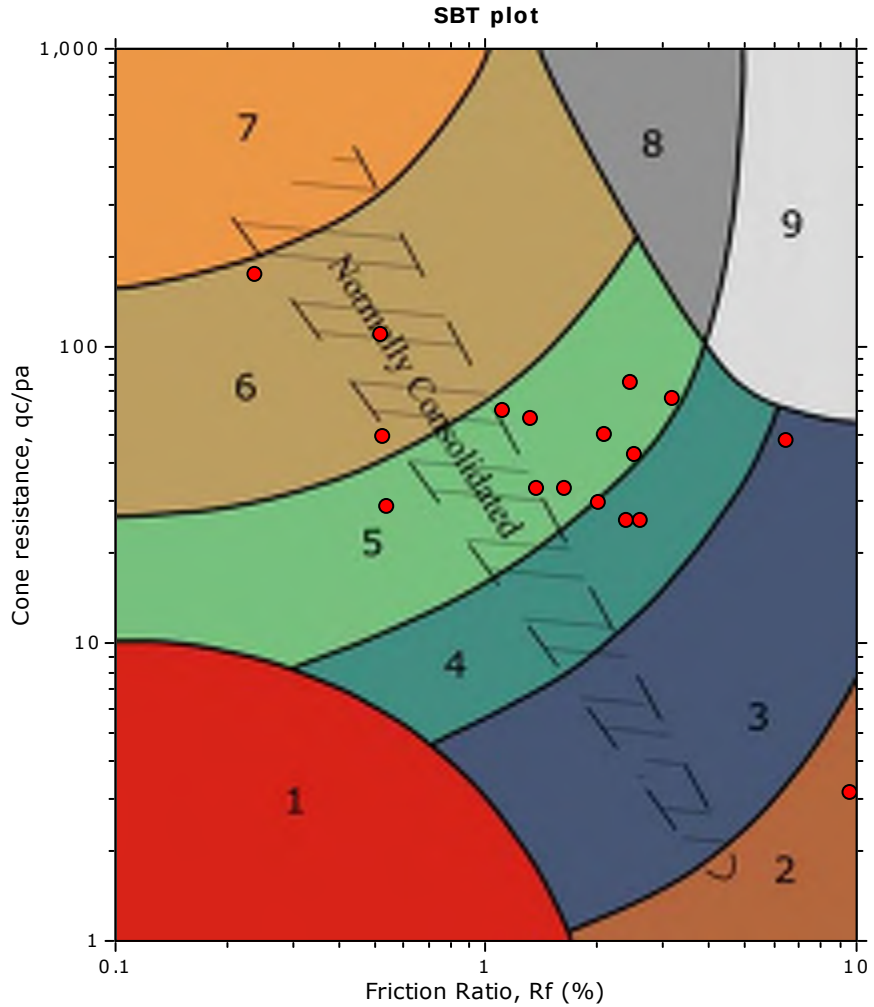


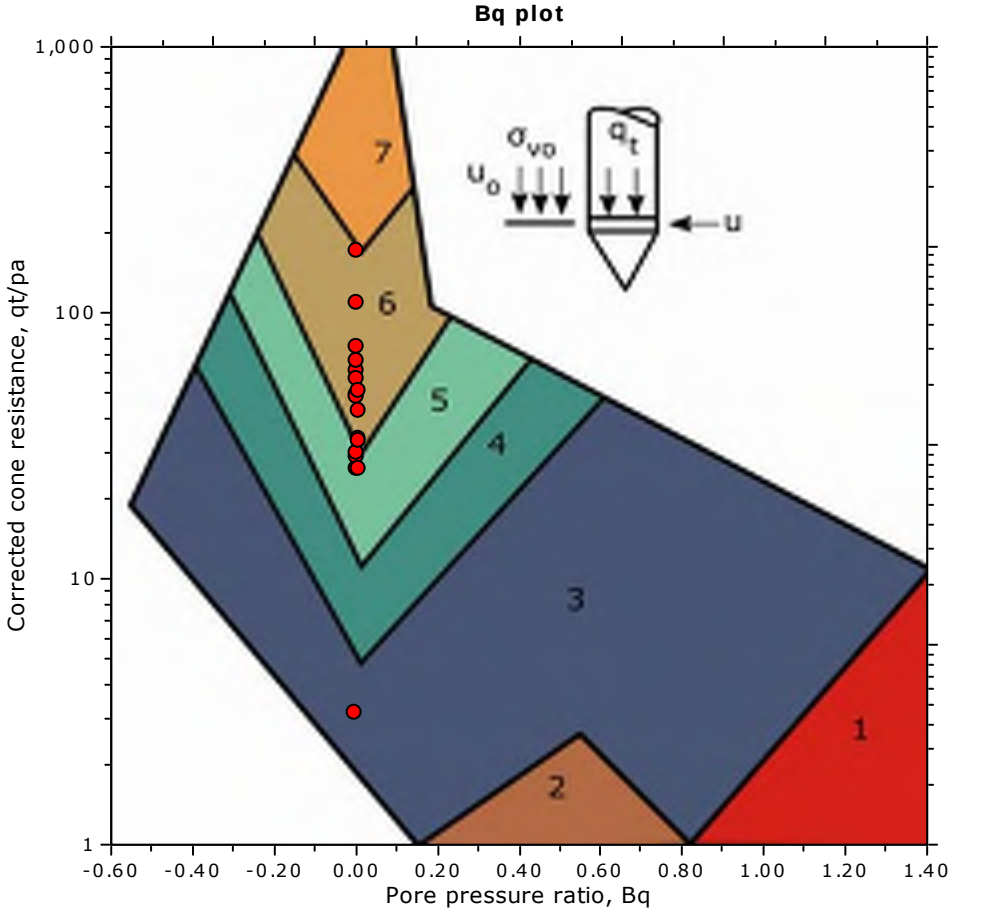
Craig Geotechnical Drilling
5230 Atlantic Ave
Mays Landing, NJ

Project: **SESI**
Location: **Dobbs Ferry NY**

CPT-2c
Total depth: 1.18 ft

SBT - Bq plots





SBT legend

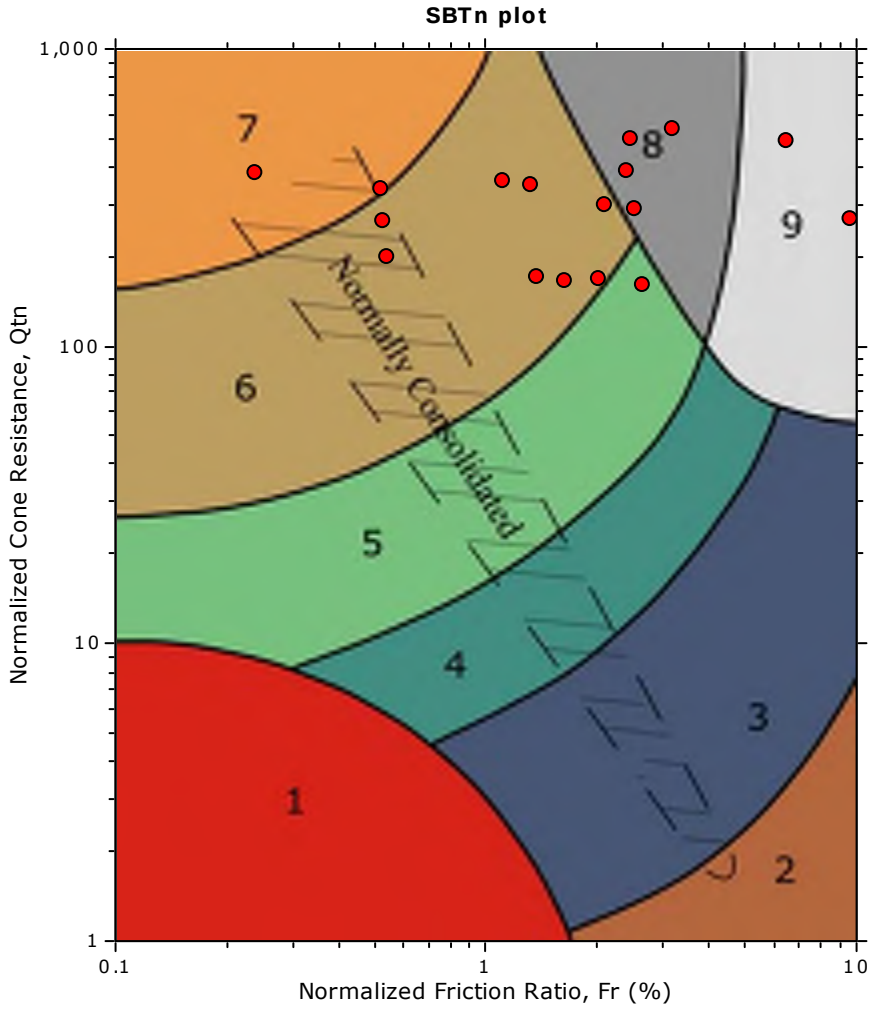
1. Sensitive fine grained	4. Clayey silt to silty clay	7. Gravelly sand to sand
2. Organic material	5. Silty sand to sandy silt	8. Very stiff sand to clayey sand
3. Clay to silty clay	6. Clean sand to silty sand	9. Very stiff fine grained

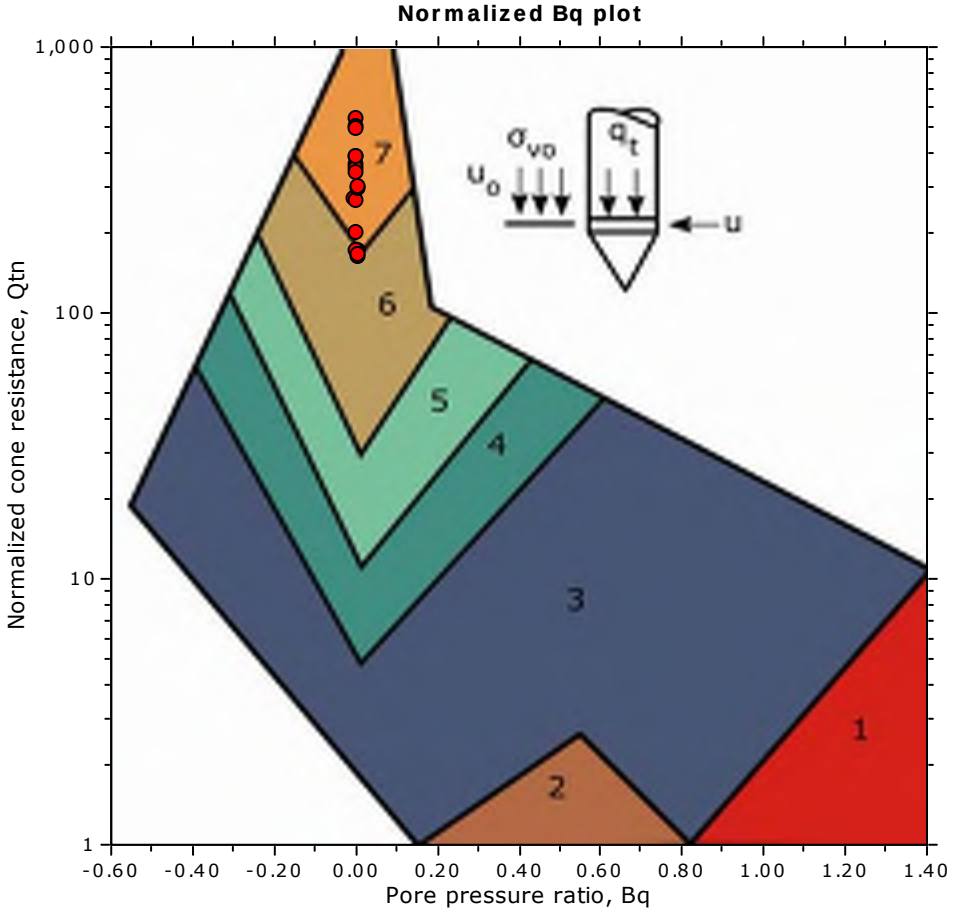
Craig Geotechnical Drilling
5230 Atlantic Ave
Mays Landing, NJ

Project: **SESI**
Location: **Dobbs Ferry NY**

CPT-2c
Total depth: 1.18 ft

SBT - Bq plots (normalized)





SBTn legend

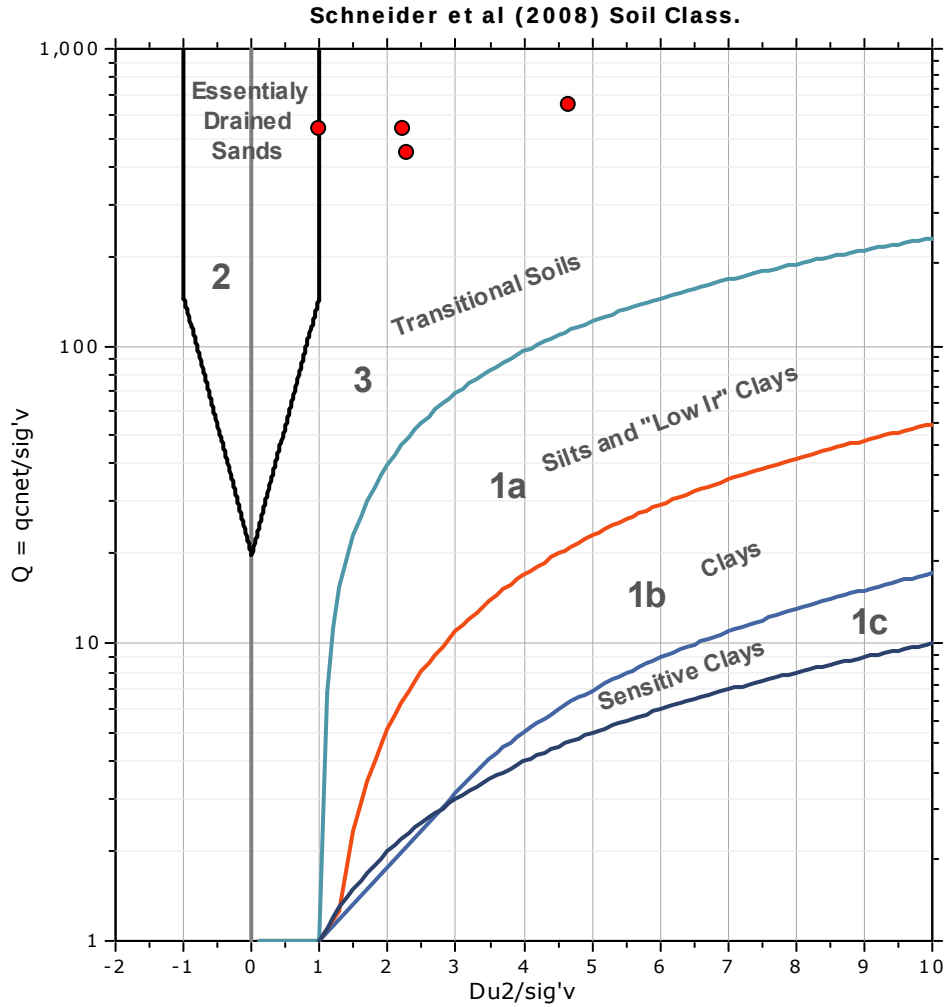
1. Sensitive fine grained	4. Clayey silt to silty clay	7. Gravelly sand to sand
2. Organic material	5. Silty sand to sandy silt	8. Very stiff sand to clayey sand
3. Clay to silty clay	6. Clean sand to silty sand	9. Very stiff fine grained

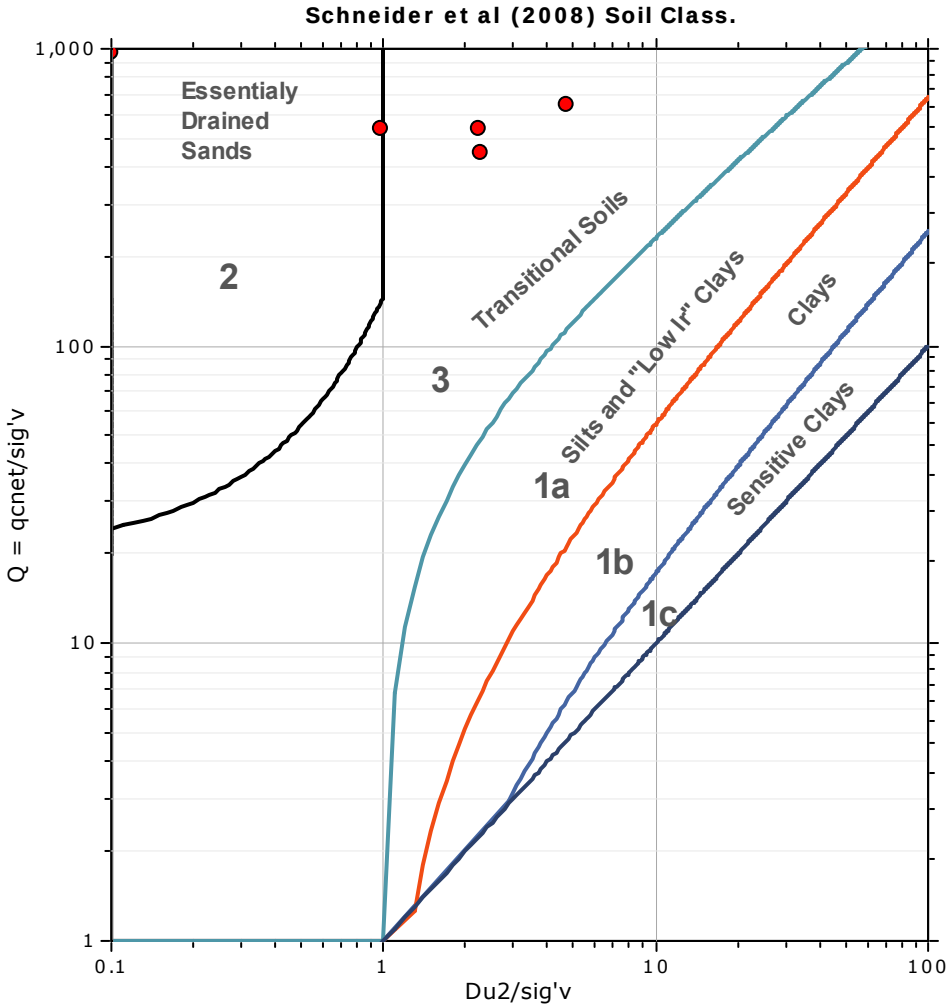
Craig Geotechnical Drilling
5230 Atlantic Ave
Mays Landing, NJ

Project: **SESI**
Location: **Dobbs Ferry NY**

CPT-2c
Total depth: 1.18 ft

Bq plots (Schneider)





Craig Geotechnical Drilling
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Mays Landing, NJ

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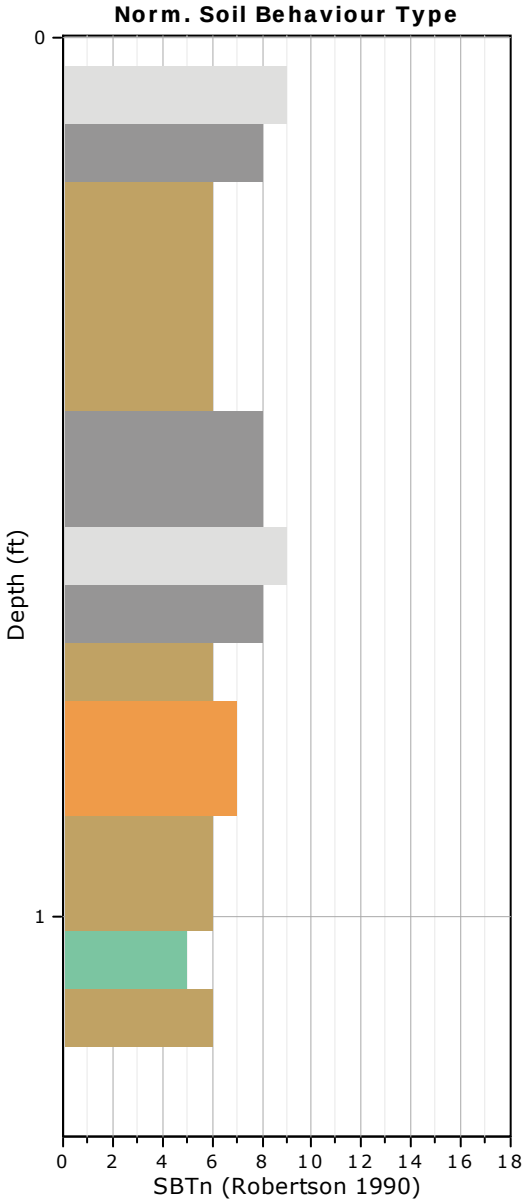
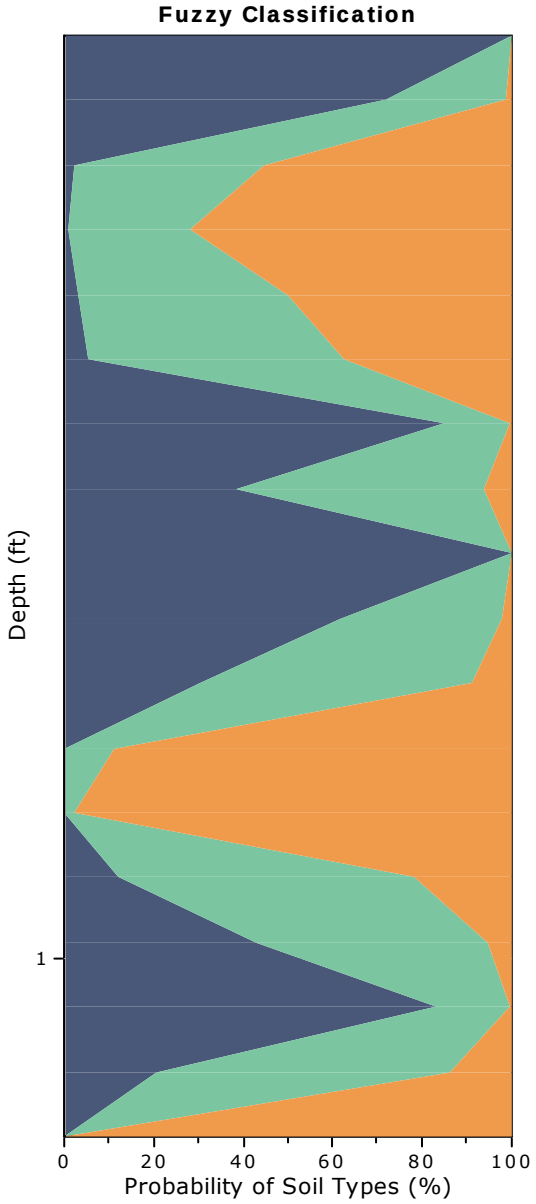
Location: **Dobbs Ferry NY**

CPT-2c
Total depth: 1.18 ft





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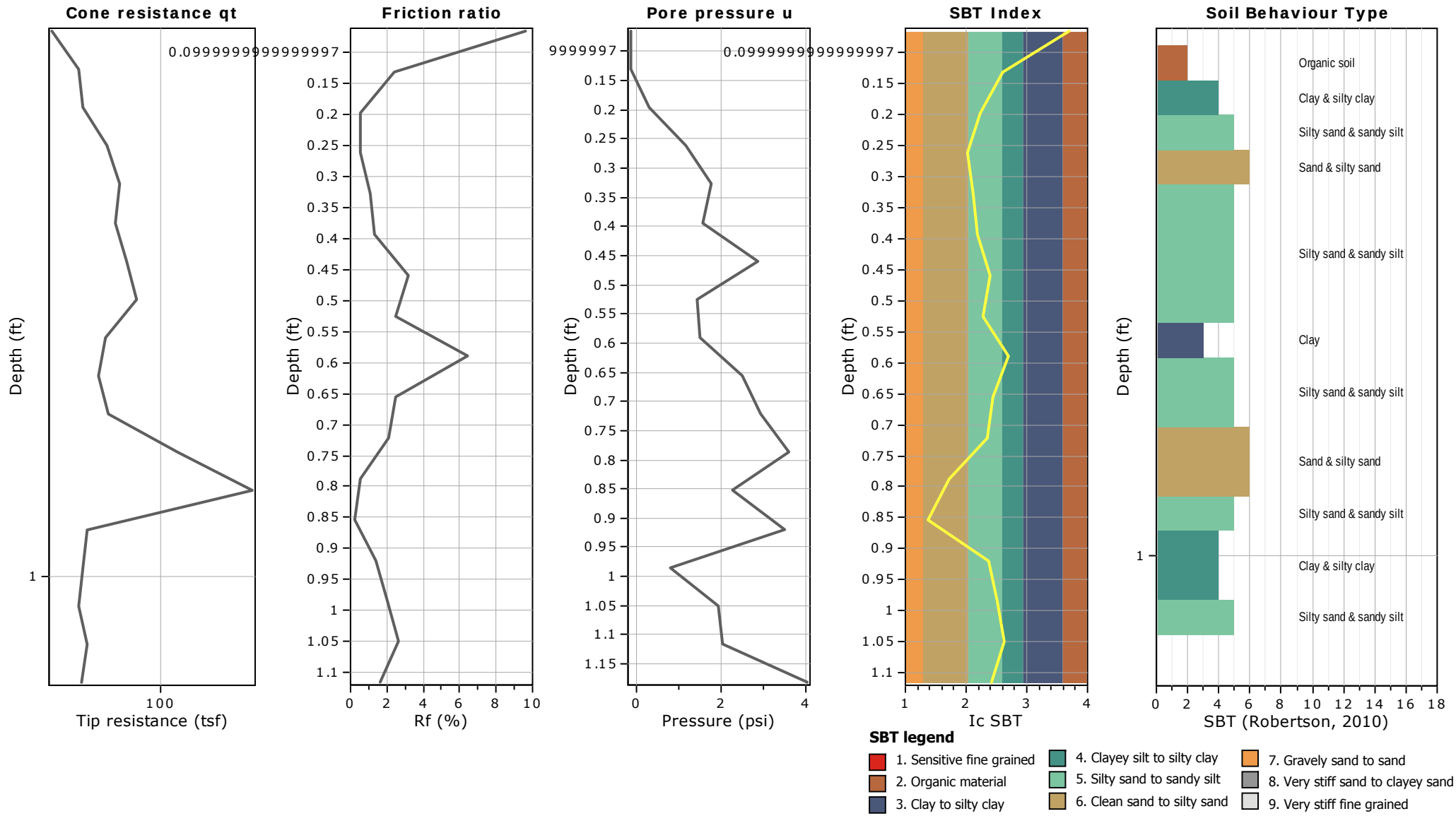
Project: **SESI**
Location: **Dobbs Ferry NY**

CPT-2c
Total depth: 1.18 ft



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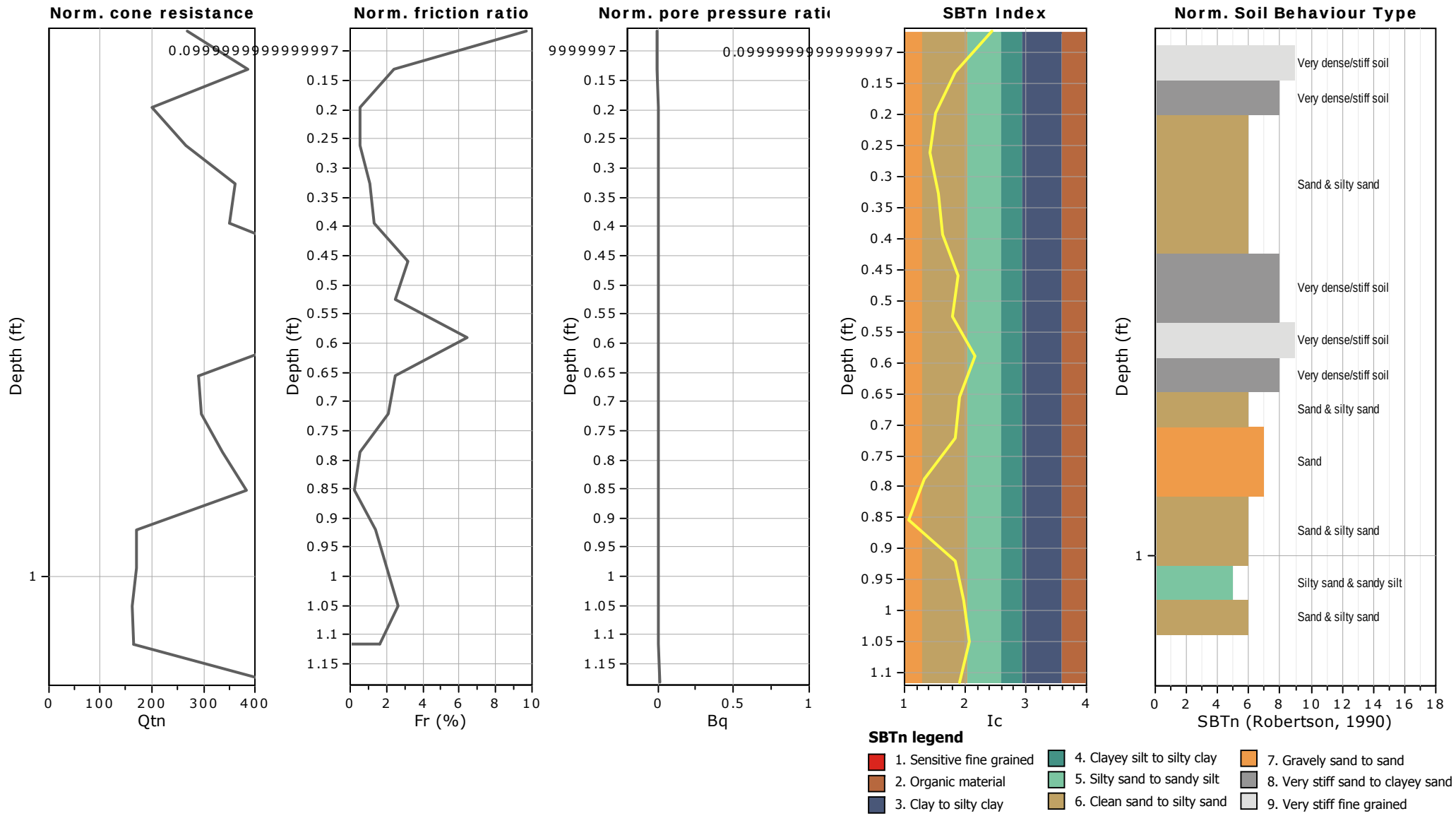
CPT-2c
Total depth: 1.18 ft



Craig Geotechnical Drilling
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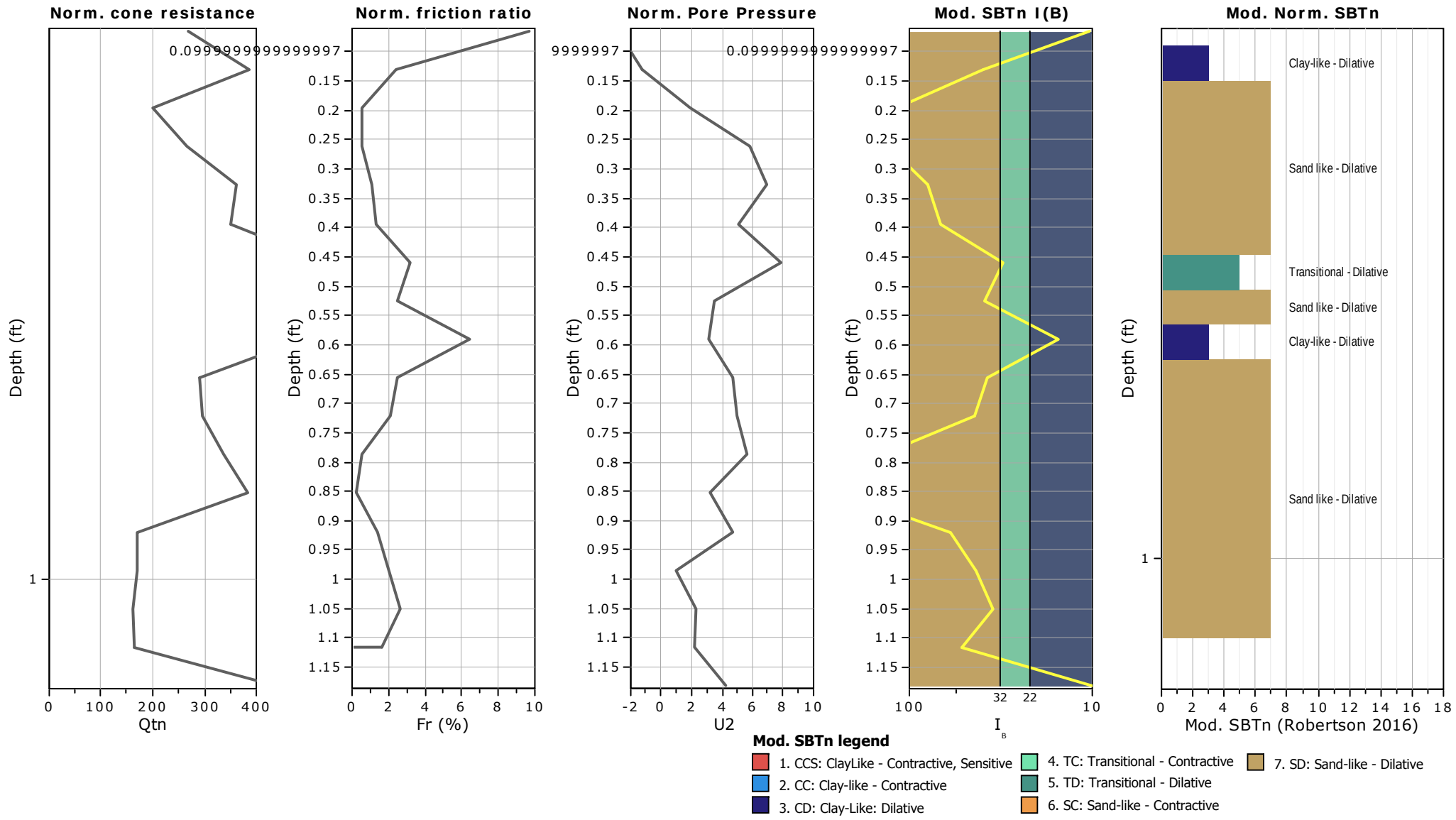
Project: **SESI**
Location: **Dobbs Ferry NY**

CPT-2c
Total depth: 1.18 ft



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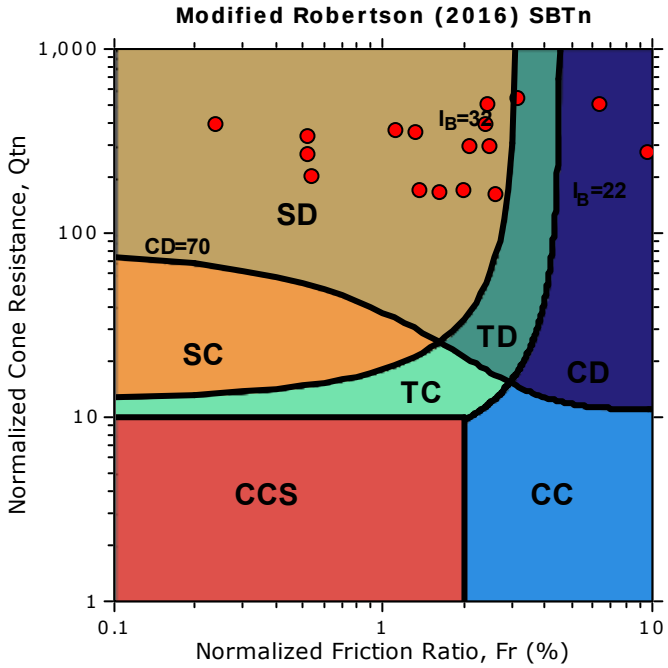
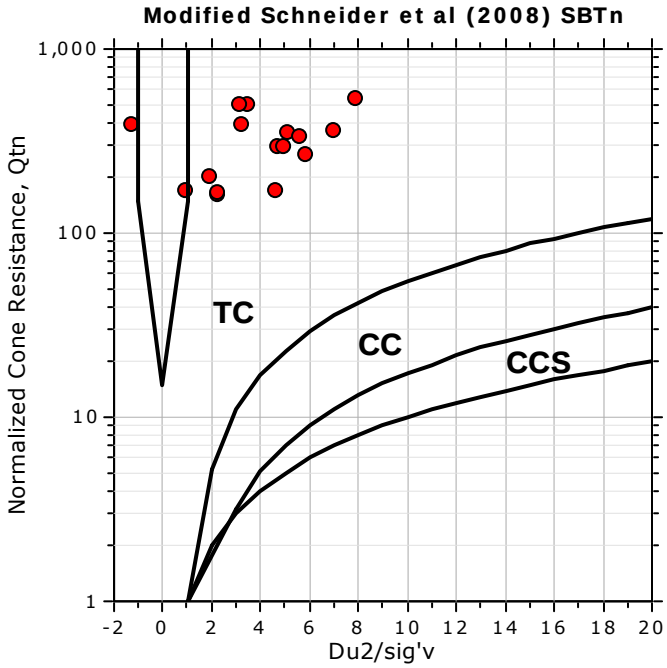
Mays Landing, NJ

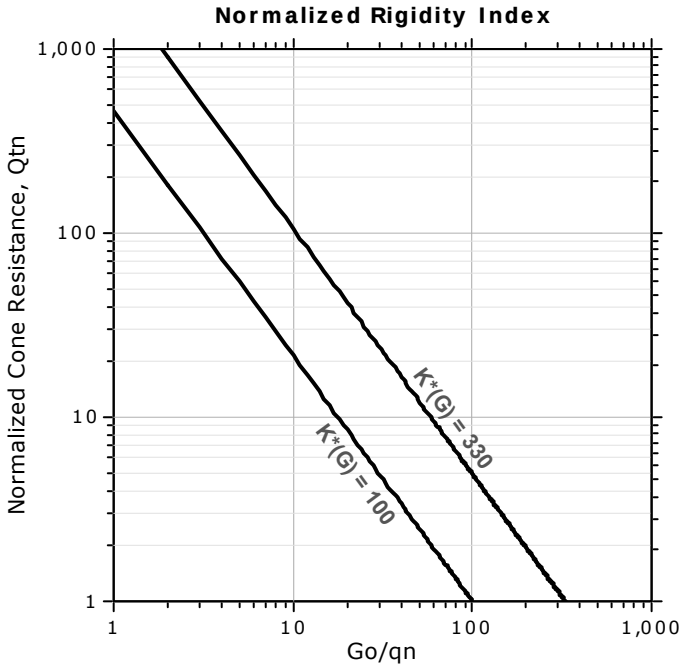
Project: **SESI**
Location: **Dobbs Ferry NY**

CPT-2c
Total depth: 1.18 ft

Updated SBTn plots







CCS: Clay-like - Contractive - Sensitive
CC: Clay-like - Contractive
CD: Clay-like - Dilative
TC: Transitional - Contractive
TD: Transitional - Dilative
SC: Sand-like - Contractive
SD: Sand-like - Dilative

K(G) > 330: Soils with significant microstructure (e.g. age/cementation)

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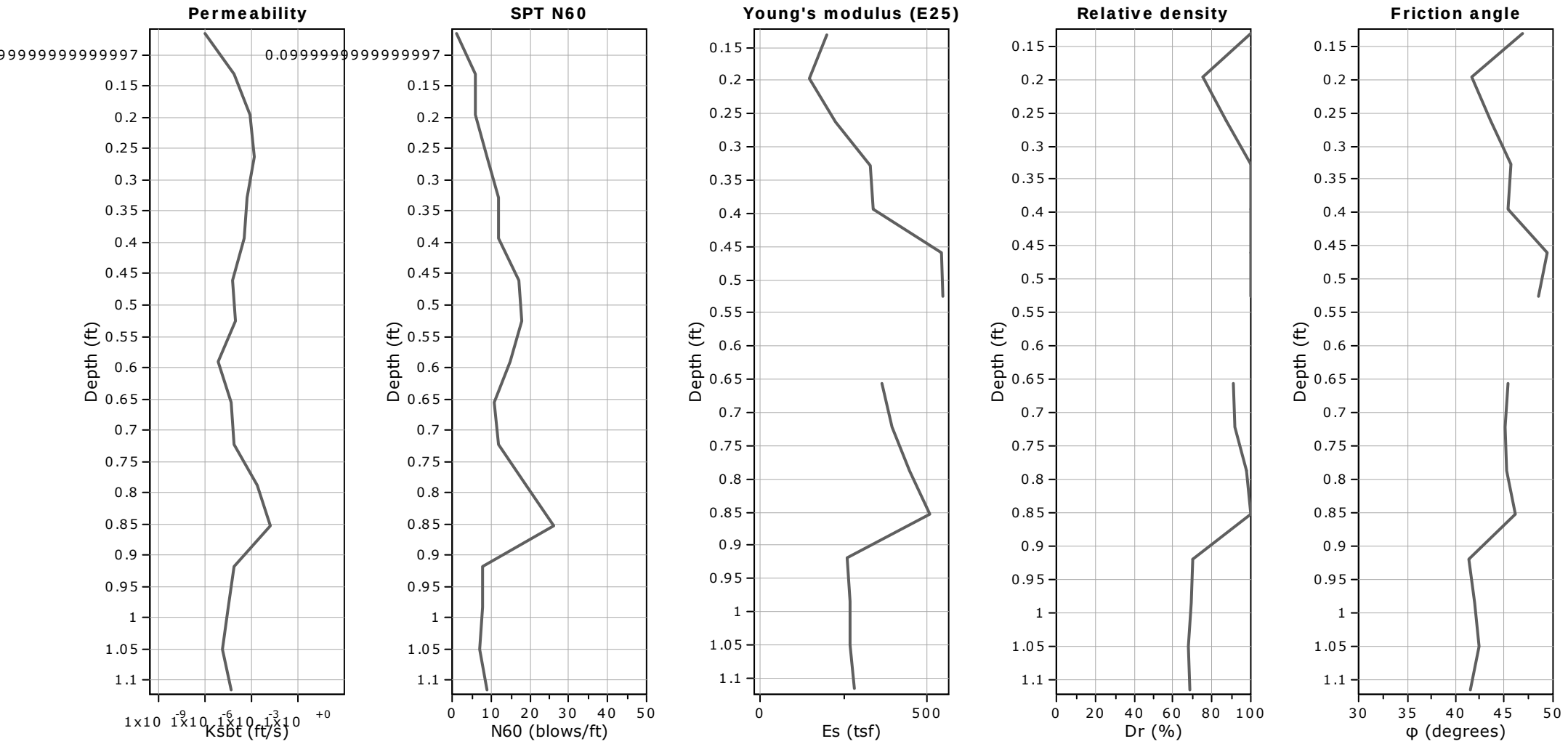
Location: **Dobbs Ferry NY**

CPT-2c
Total depth: 1.18 ft



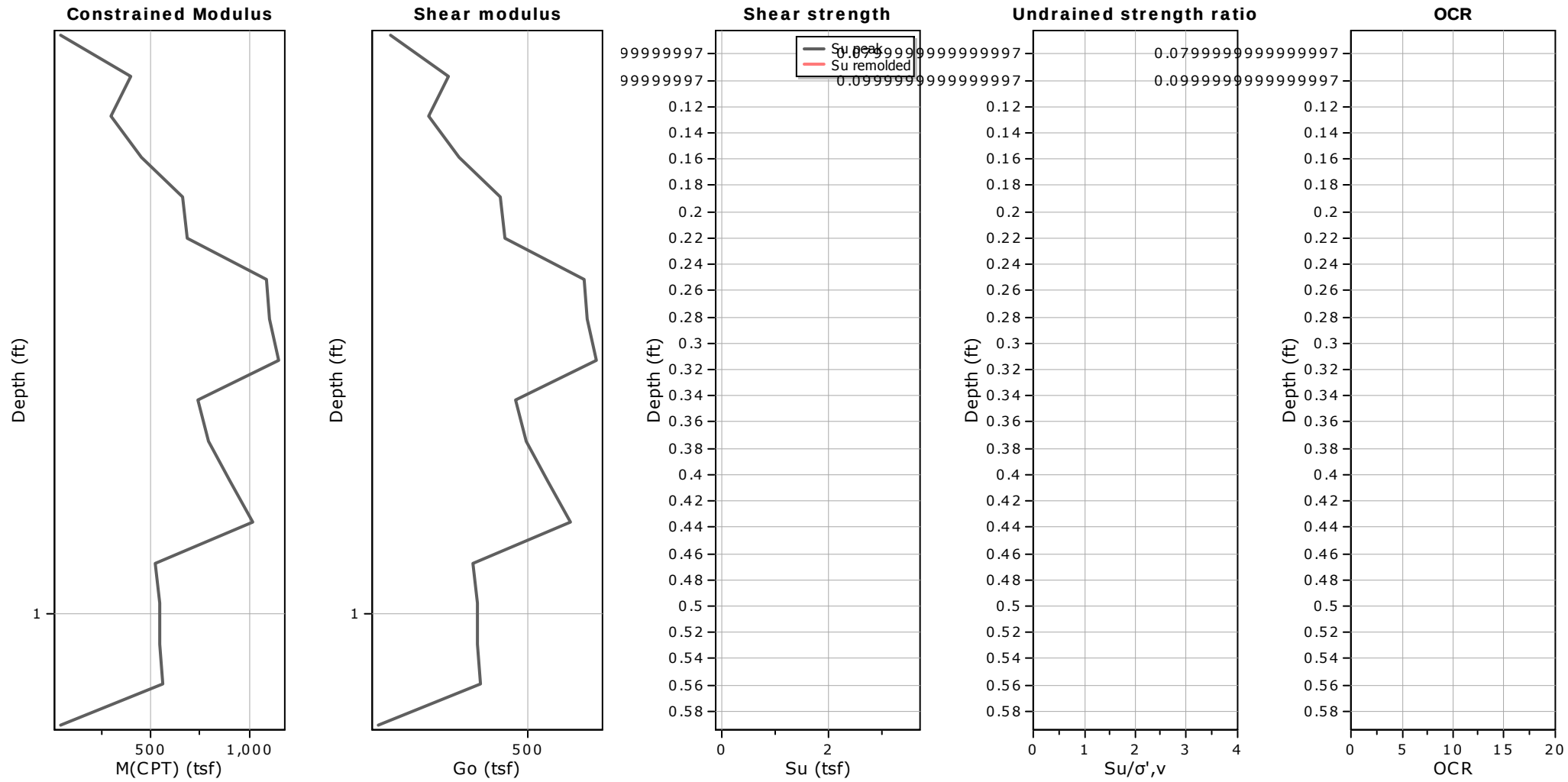
Calculation parameters

Permeability: Based on SBT_n
SPT N_{60}: Based on I_c and q_t
Young's modulus: Based on variable alpha using I_c (Robertson, 2009)
Relative density constant, C_{Dr}: 350.0
Phi: Based on Kulhawy & Mayne (1990)
User defined estimation data

Craig Geotechnical Drilling
5230 Atlantic Ave
Mays Landing, NJ

Project: **SESI**
Location: **Dobbs Ferry NY**

CPT-2c
Total depth: 1.18 ft



Calculation parameters

Constrained modulus: Based on variable *alpha* using I_c and Q_{tn} (Robertson, 2009)
Go: Based on variable *alpha* using I_c (Robertson, 2009)
Undrained shear strength cone factor for clays, N_{kt}: 14
OCR factor for clays, N_{kt}: 0.33
User defined estimation data
Flat Dilatometer Test data

Craig Geotechnical Drilling
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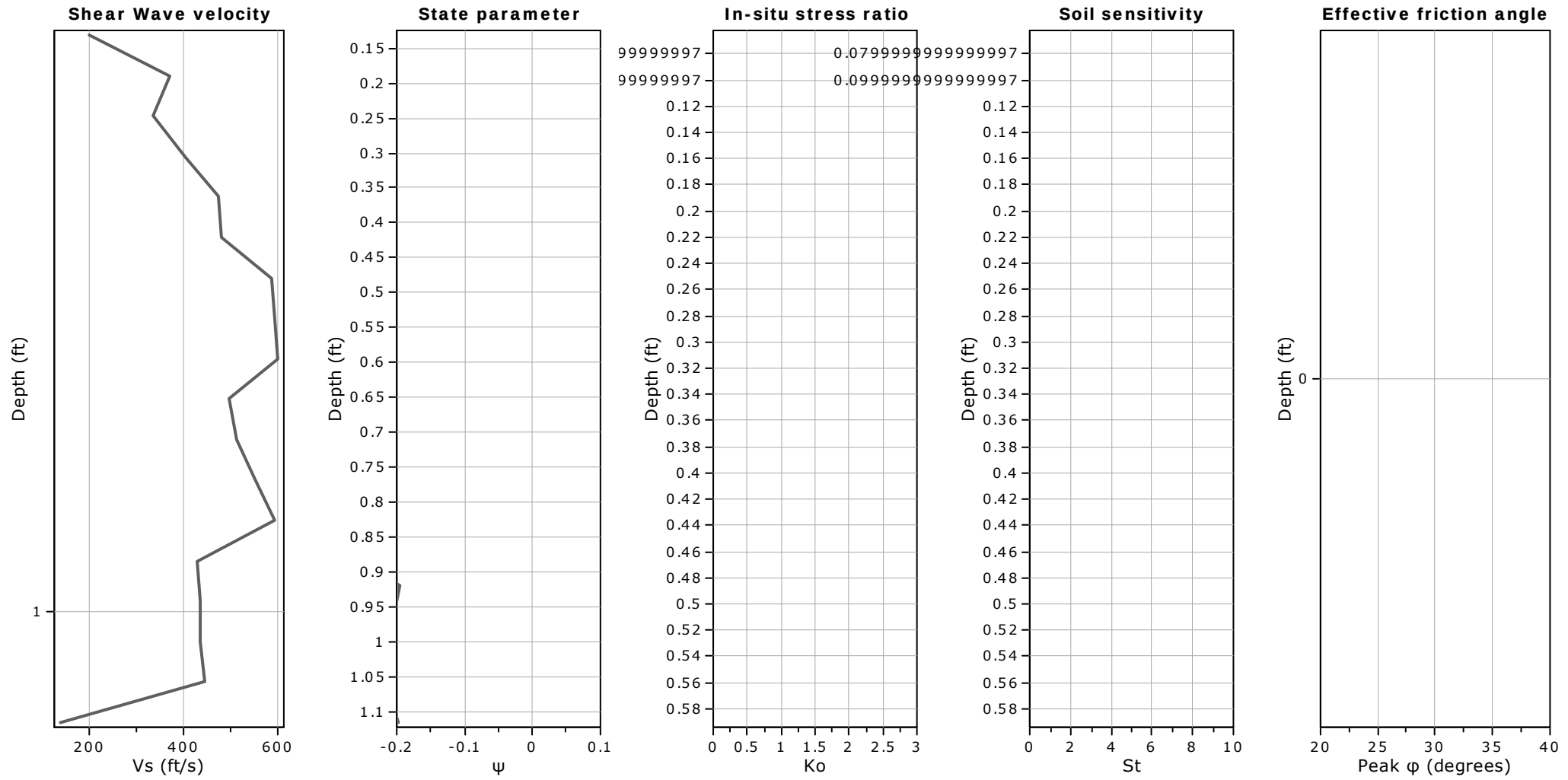
Mays Landing, NJ

Project: **SESI**
Location: **Dobbs Ferry NY**

CPT-2c
Total depth: 1.18 ft



Calculation parameters

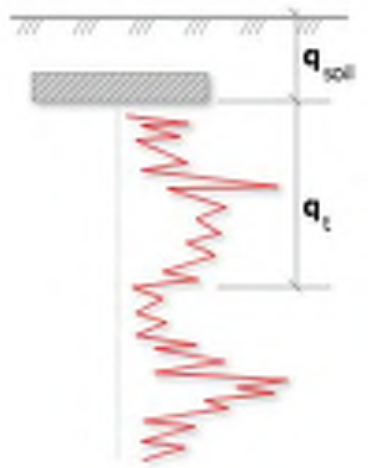
Soil Sensitivity factor, N_S: 350.00

User defined estimation data

Craig Geotechnical Drilling
5230 Atlantic Ave
Mays Landing, NJ

Project: **SESI**
Location: **Dobbs Ferry NY**

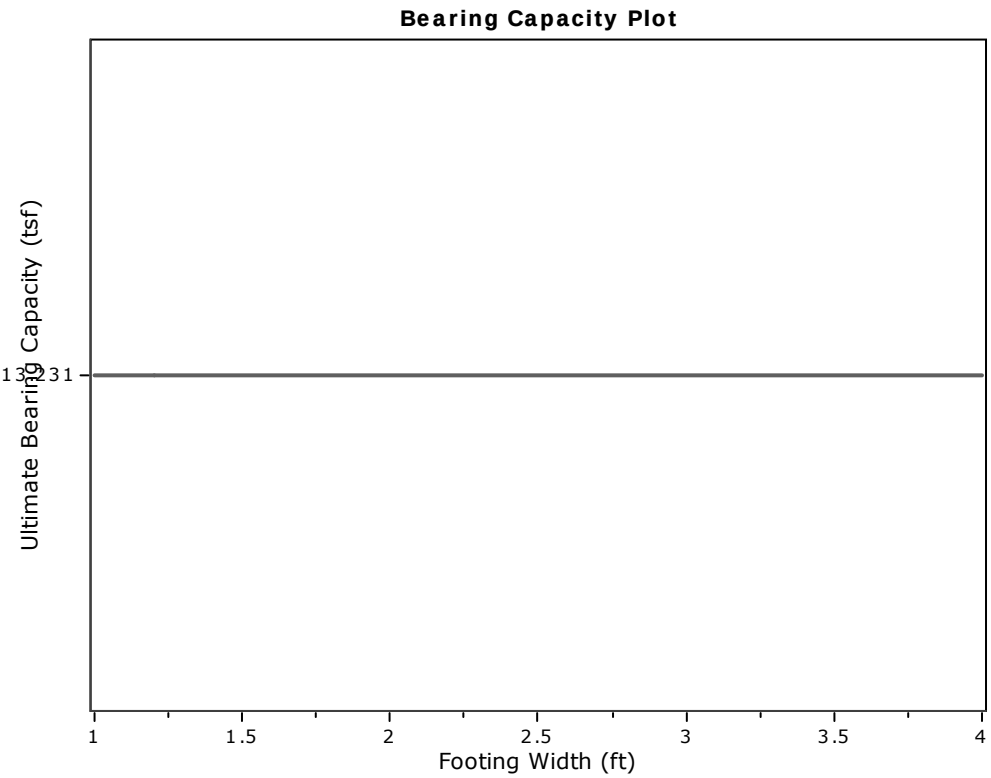
CPT-2c
Total depth: 1.18 ft



Bearing Capacity calculation is perfromed based on the formula:

$$Q_{ult} = R_k \times q_t + q_{soil}$$

where:
R_k: Bearing capacity factor
q_t: Average corrected cone resistance over calculation depth
q_{soil}: Pressure applied by soil above footing



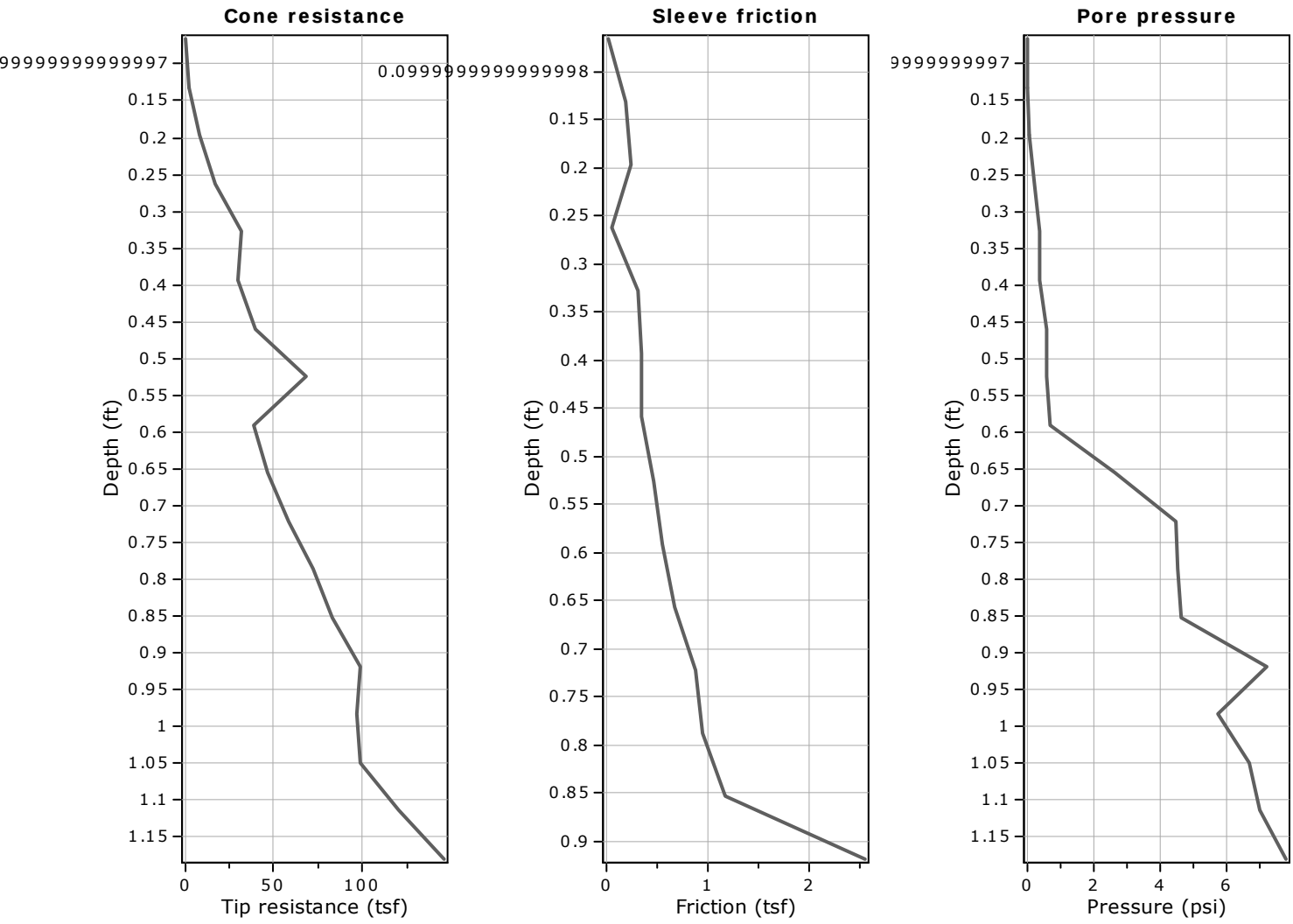
:: Tabular results ::

No	B (ft)	Start Depth (ft)	End Depth (ft)	Ave. q_t (tsf)	R_k	Soil Press. (tsf)	Ult. bearing cap. (tsf)
1	1.00	0.50	2.00	66.01	0.20	0.03	13.23
2	1.20	0.50	2.30	66.01	0.20	0.03	13.23
3	1.40	0.50	2.60	66.01	0.20	0.03	13.23
4	1.60	0.50	2.90	66.01	0.20	0.03	13.23
5	1.80	0.50	3.20	66.01	0.20	0.03	13.23
6	2.00	0.50	3.50	66.01	0.20	0.03	13.23
7	2.20	0.50	3.80	66.01	0.20	0.03	13.23
8	2.40	0.50	4.10	66.01	0.20	0.03	13.23
9	2.60	0.50	4.40	66.01	0.20	0.03	13.23
10	2.80	0.50	4.70	66.01	0.20	0.03	13.23
11	3.00	0.50	5.00	66.01	0.20	0.03	13.23
12	3.20	0.50	5.30	66.01	0.20	0.03	13.23
13	3.40	0.50	5.60	66.01	0.20	0.03	13.23
14	3.60	0.50	5.90	66.01	0.20	0.03	13.23
15	3.80	0.50	6.20	66.01	0.20	0.03	13.23
16	4.00	0.50	6.50	66.01	0.20	0.03	13.23

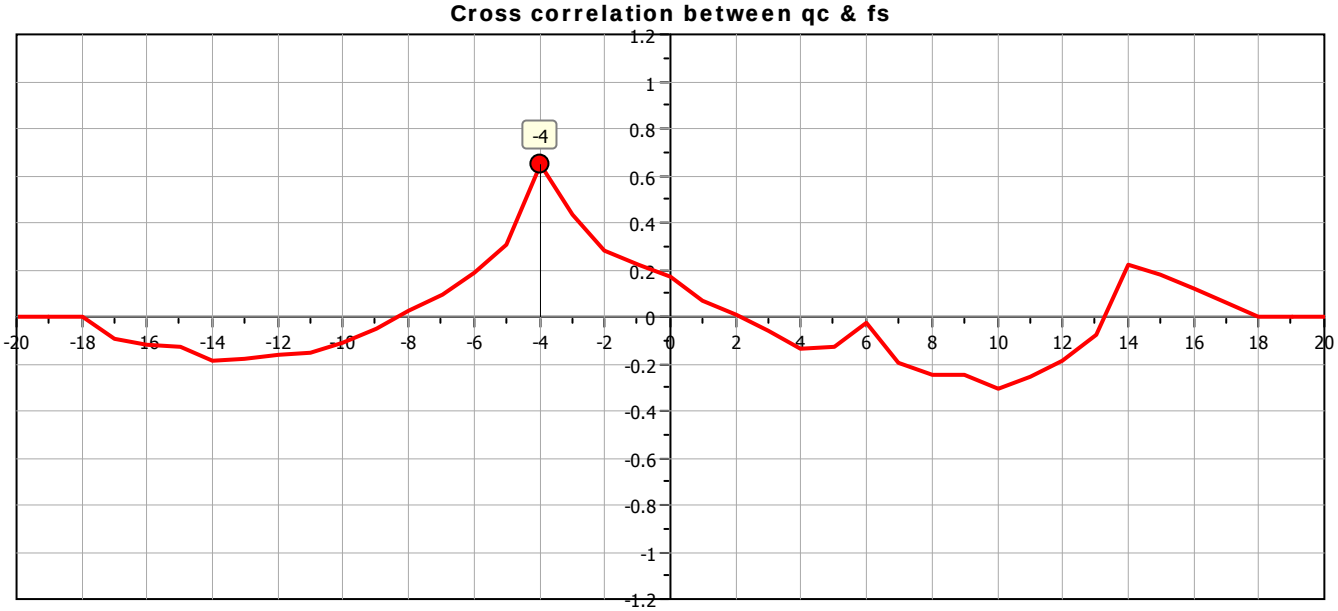
Craig Geotechnical Drilling
5230 Atlantic Ave
Mays Landing, NJ

Project: **SESI**
Location: **Dobbs Ferry NY**

CPT-3
Total depth: 1.18 ft



The plot below presents the cross correlation coeficient between the raw qc and fs values (as measured on the field). X axes presents the lag distance (one lag is the distance between two sucessive CPT measurements).



Craig Geotechnical Drilling
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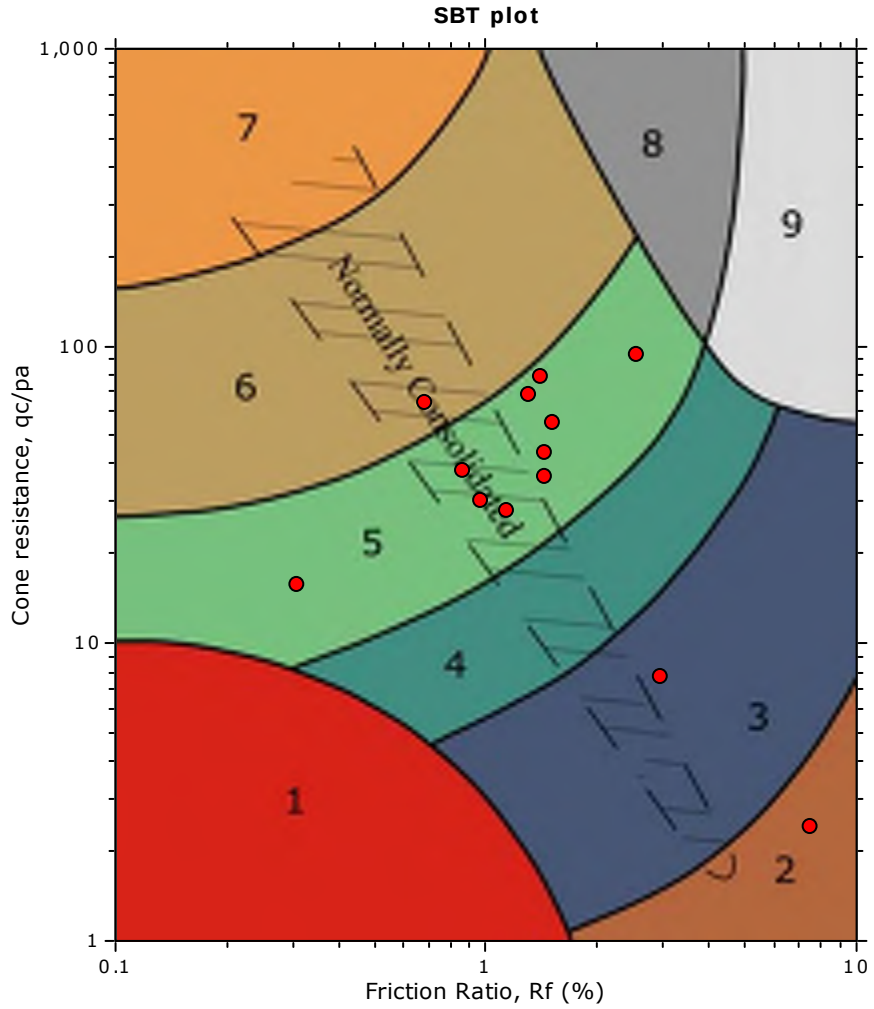
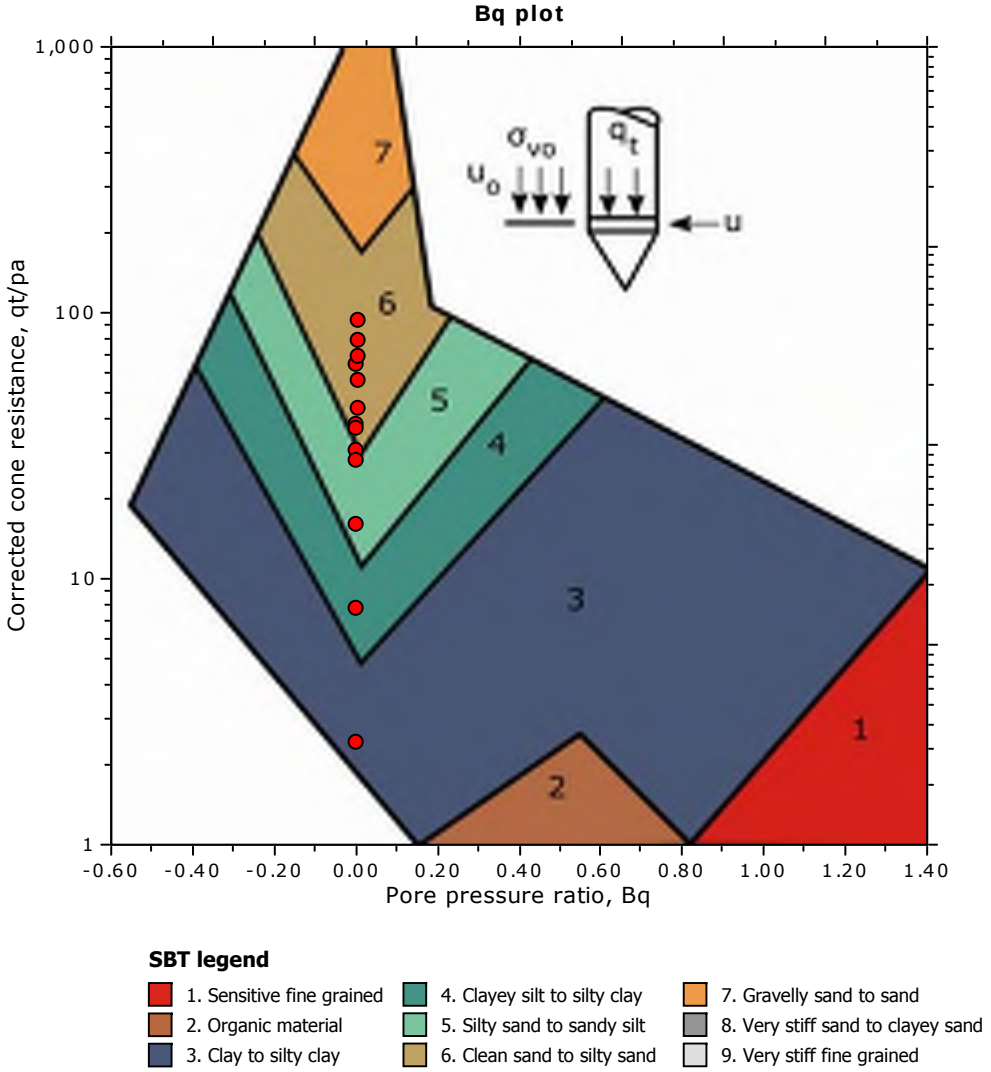
Project: **SESI**
Location: **Dobbs Ferry NY**

CPT-3
Total depth: 1.18 ft

SBT - Bq plots





SBT legend

1. Sensitive fine grained	4. Clayey silt to silty clay	7. Gravelly sand to sand
2. Organic material	5. Silty sand to sandy silt	8. Very stiff sand to clayey sand
3. Clay to silty clay	6. Clean sand to silty sand	9. Very stiff fine grained

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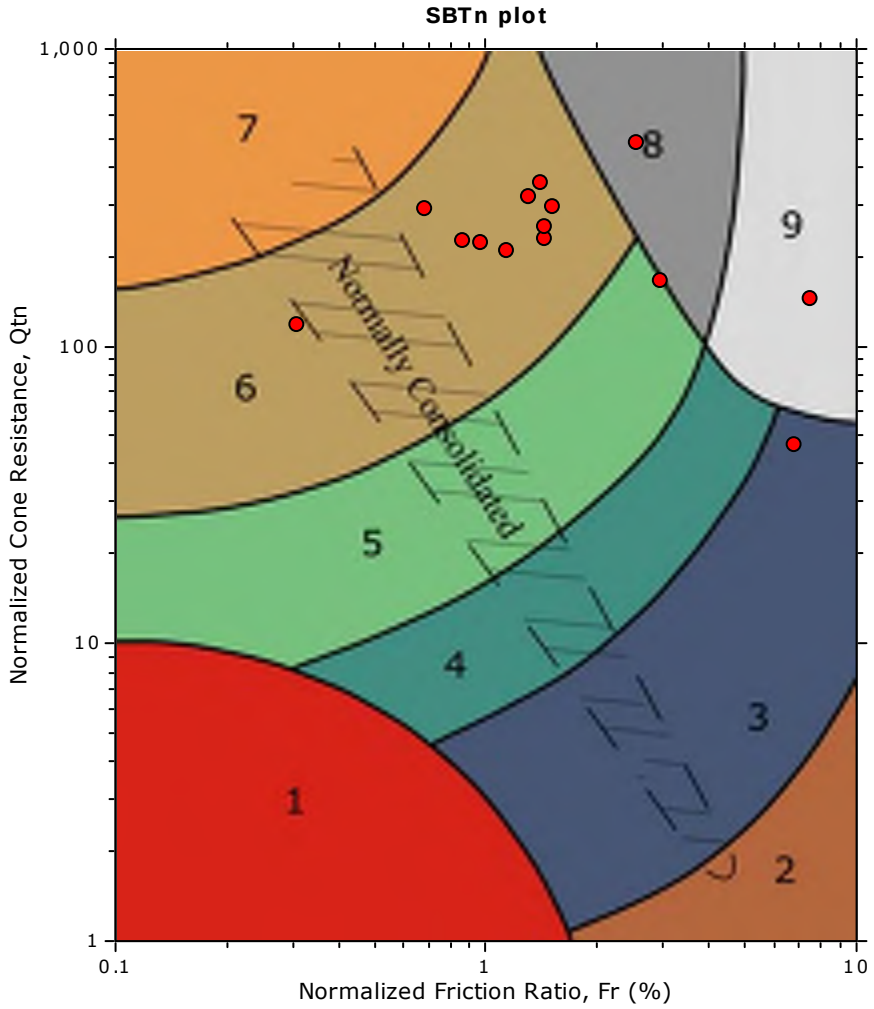
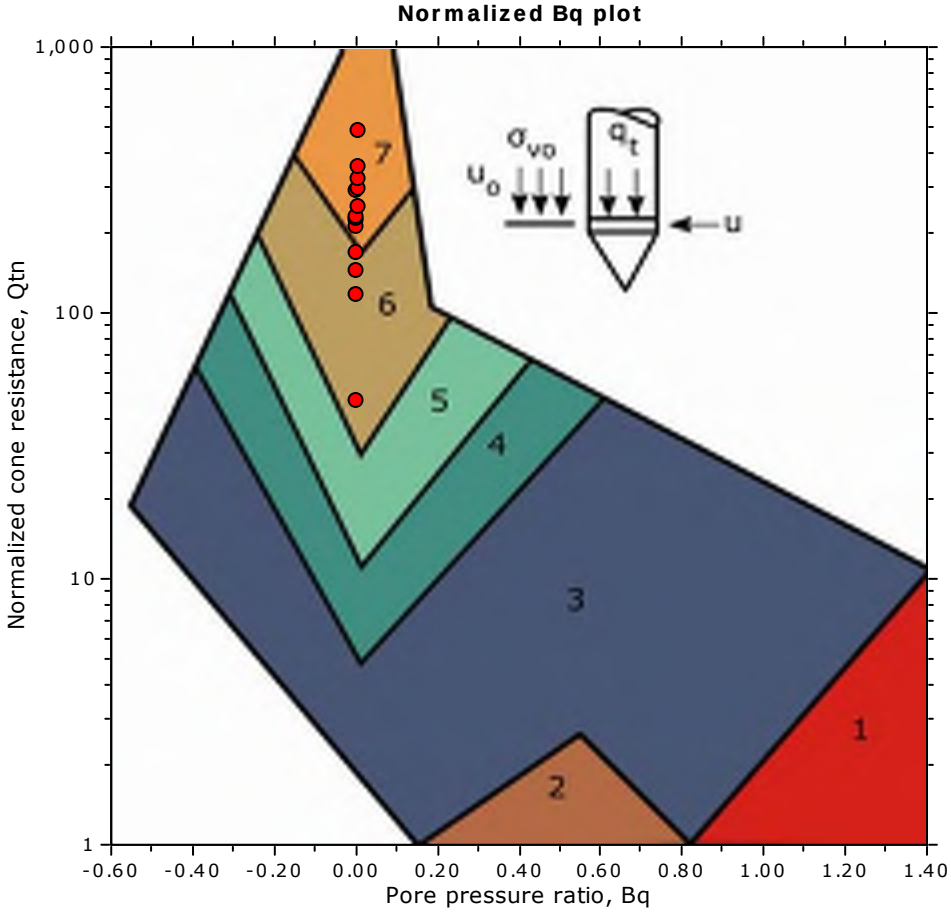
Mays Landing, NJ

Project: **SESI**
Location: **Dobbs Ferry NY**

CPT-3
Total depth: 1.18 ft

SBT - Bq plots (normalized)





SBTn legend

1. Sensitive fine grained	4. Clayey silt to silty clay	7. Gravelly sand to sand
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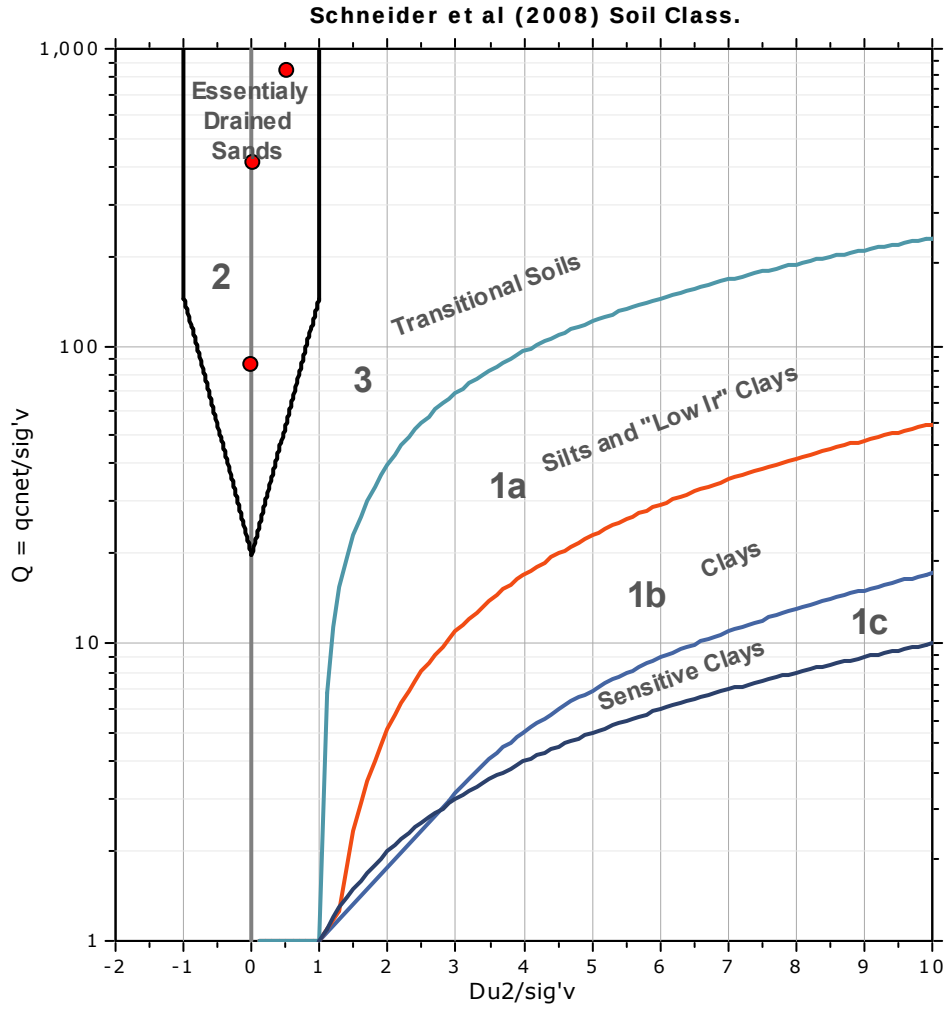
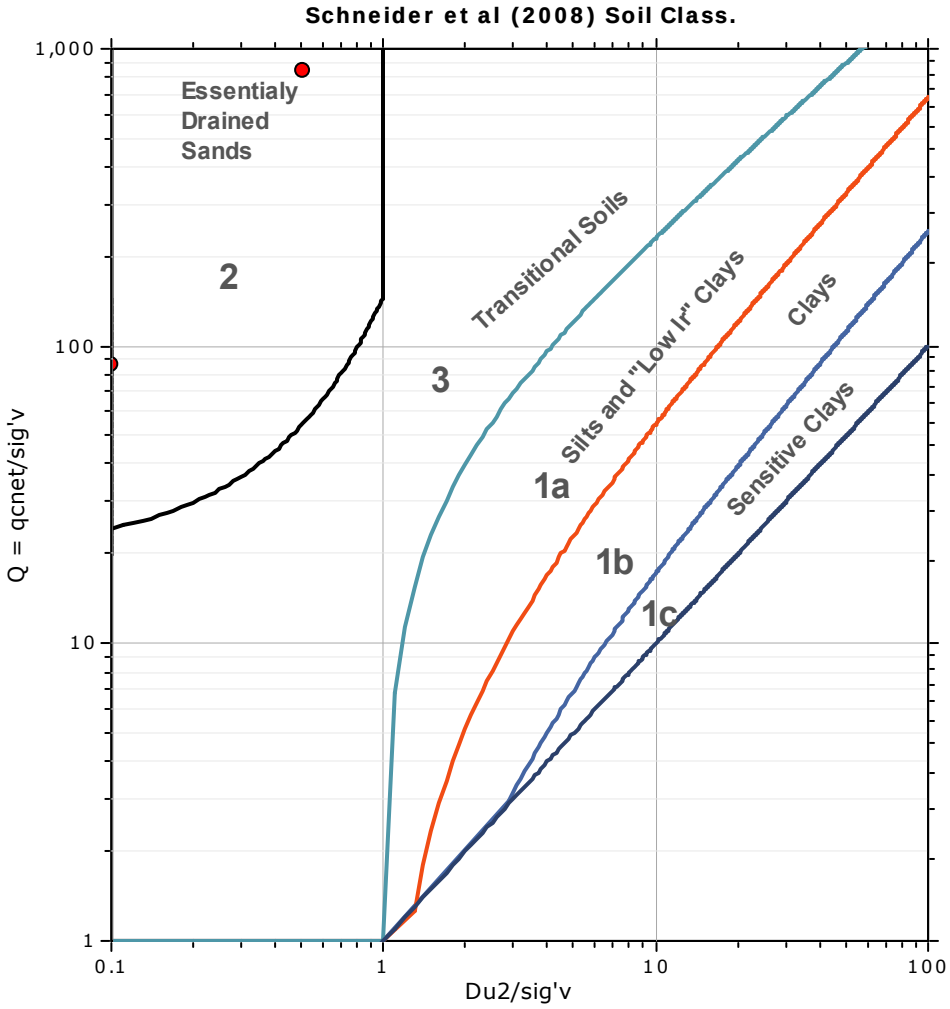
Project: **SESI**
Location: **Dobbs Ferry NY**

CPT-3
Total depth: 1.18 ft

Bq plots (Schneider)





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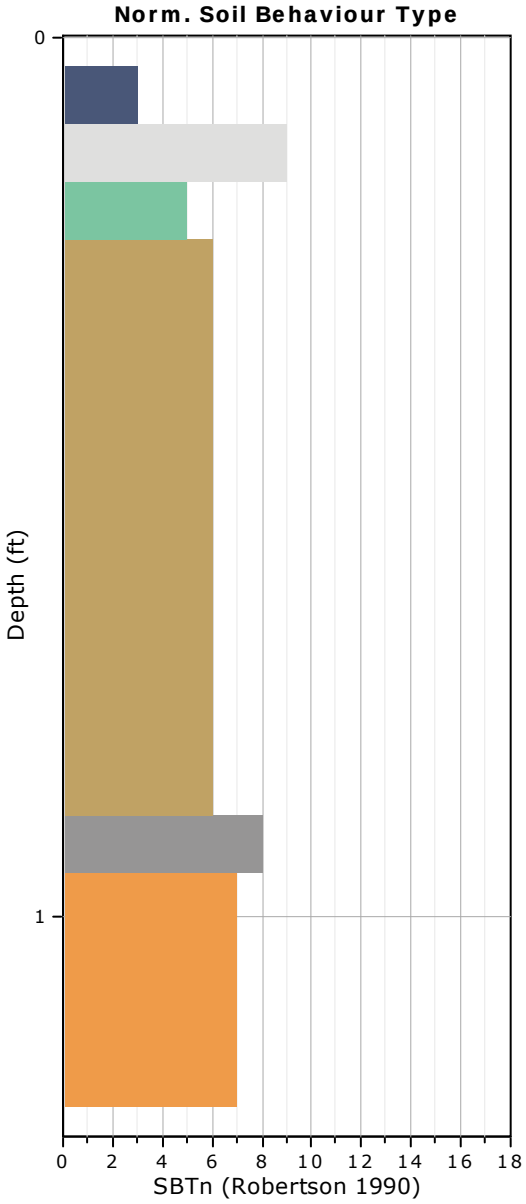

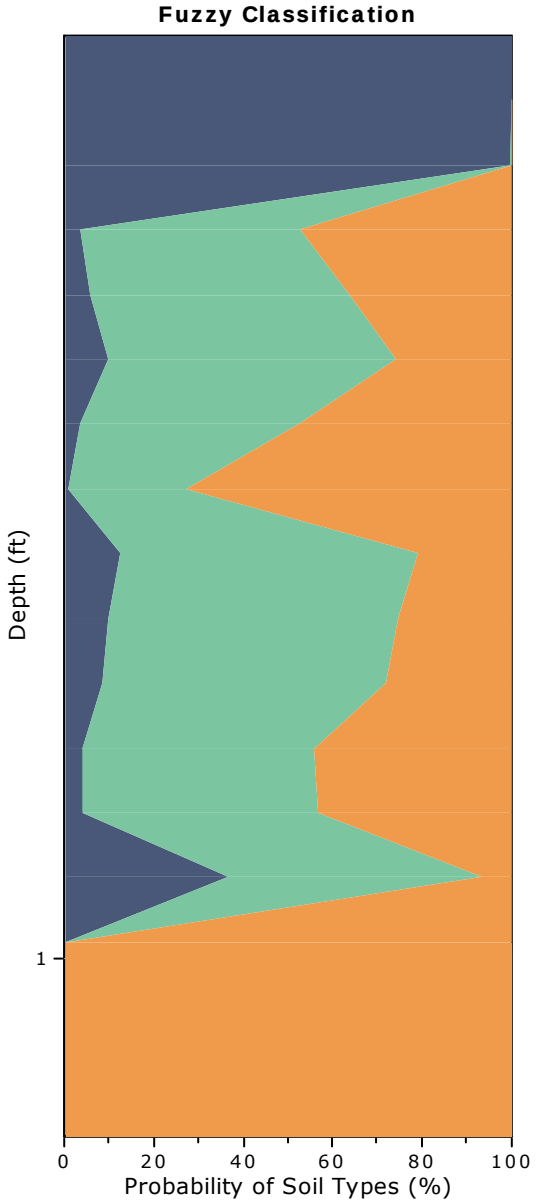

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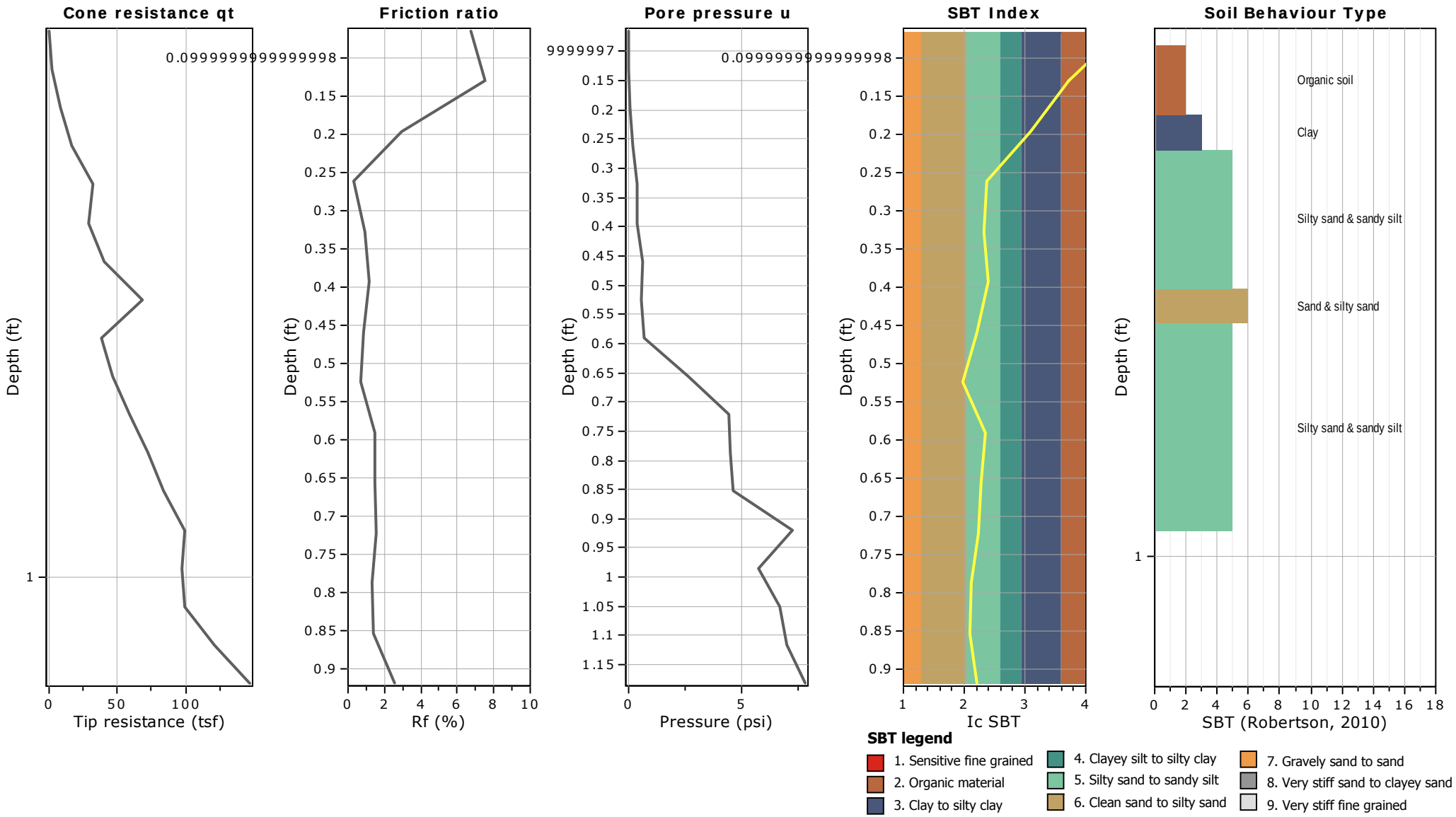

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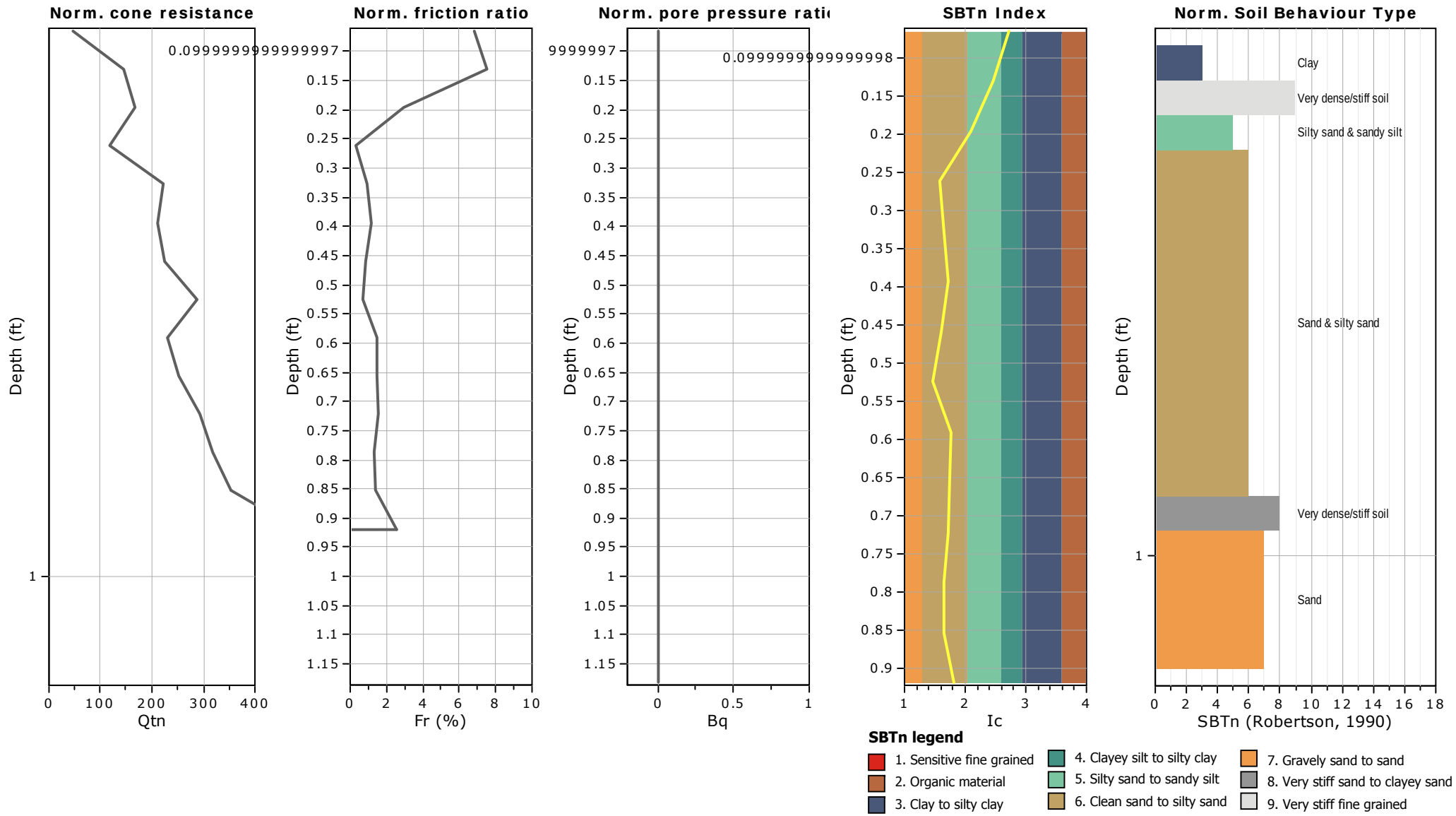
CPT-3
Total depth: 1.18 ft



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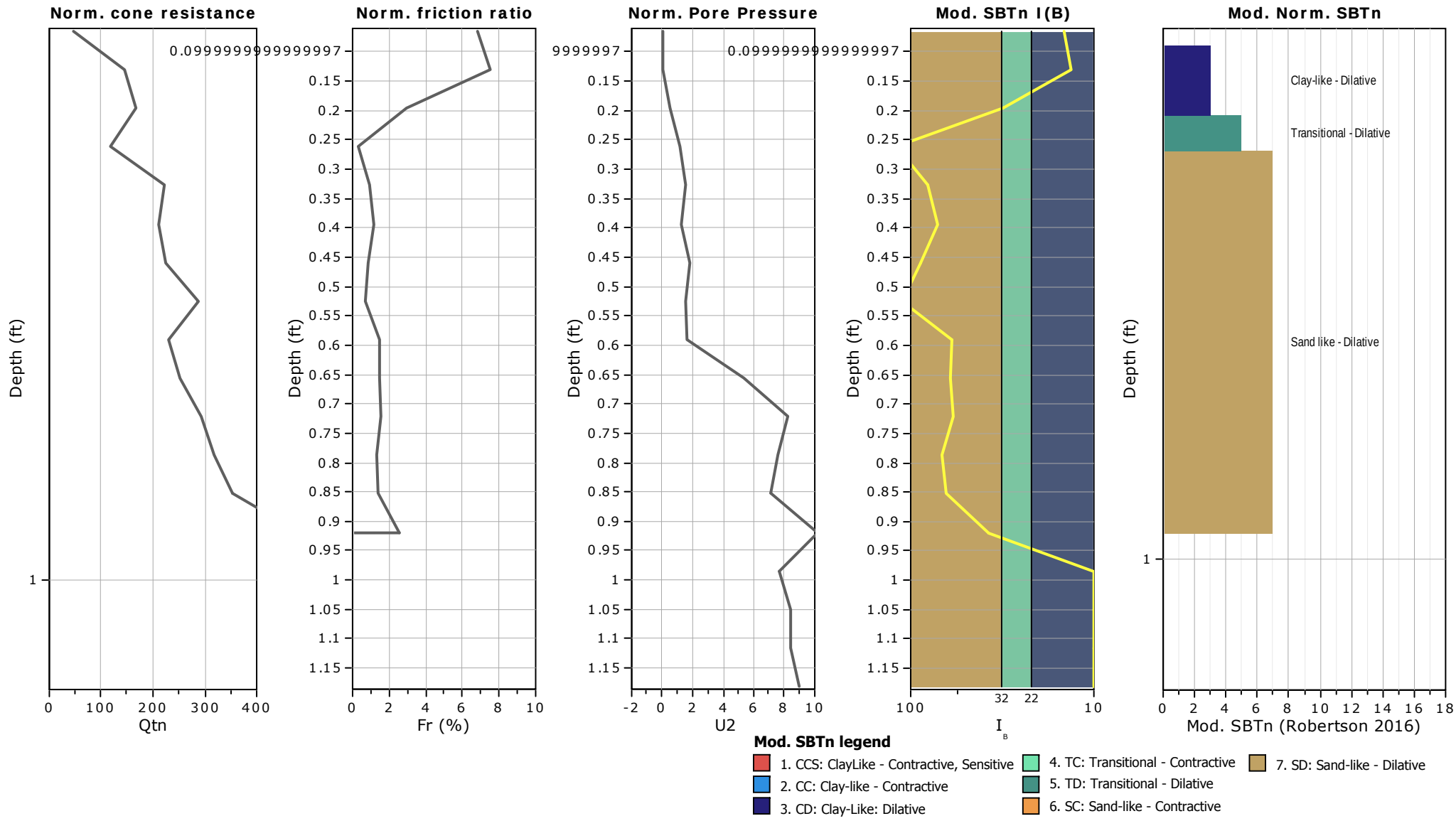
Location: **Dobbs Ferry NY**

CPT-3
Total depth: 1.18 ft



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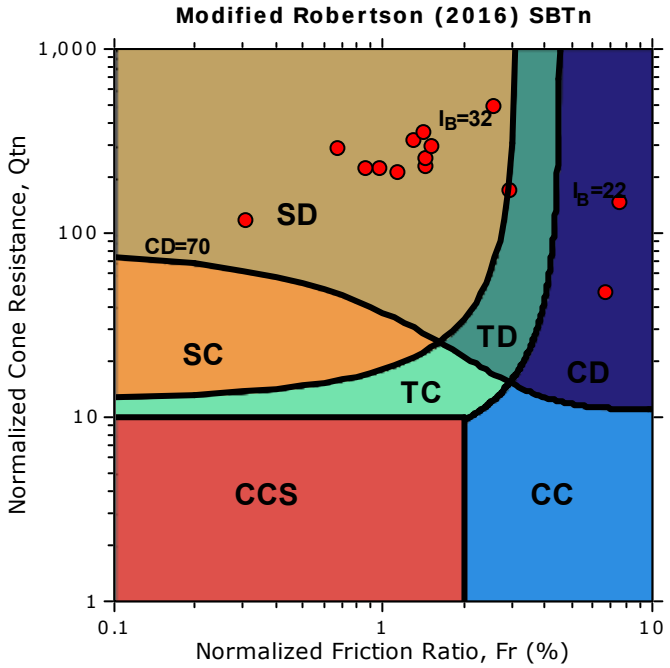
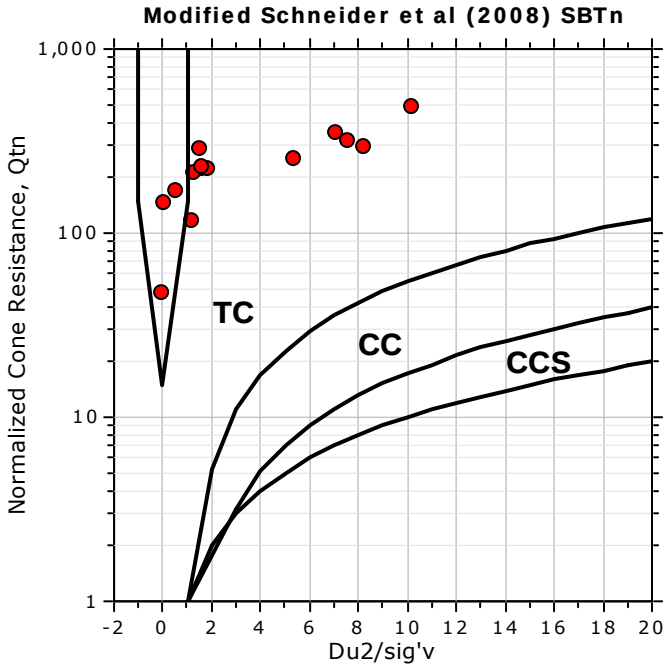
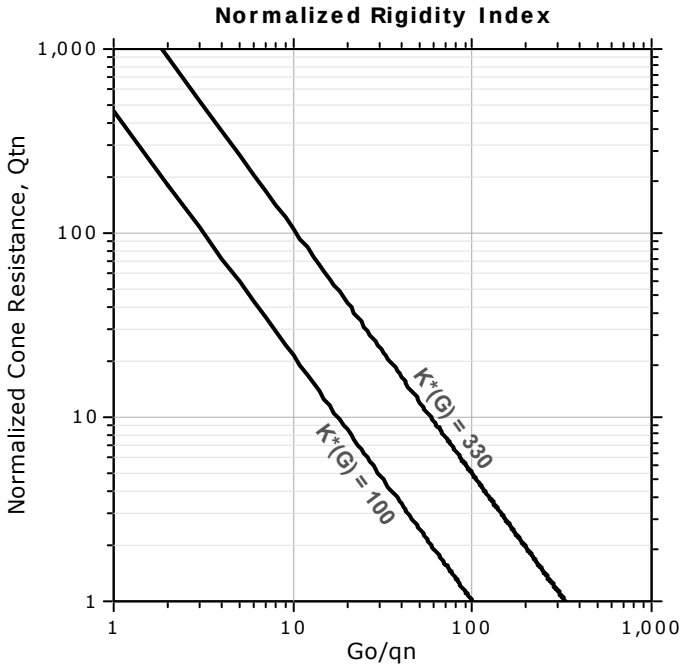
Project: **SESI**
Location: **Dobbs Ferry NY**

CPT-3
Total depth: 1.18 ft

Updated SBTn plots







CCS: Clay-like - Contractive - Sensitive
CC: Clay-like - Contractive
CD: Clay-like - Dilative
TC: Transitional - Contractive
TD: Transitional - Dilative
SC: Sand-like - Contractive
SD: Sand-like - Dilative

K(G) > 330: Soils with significant microstructure (e.g. age/cementation)

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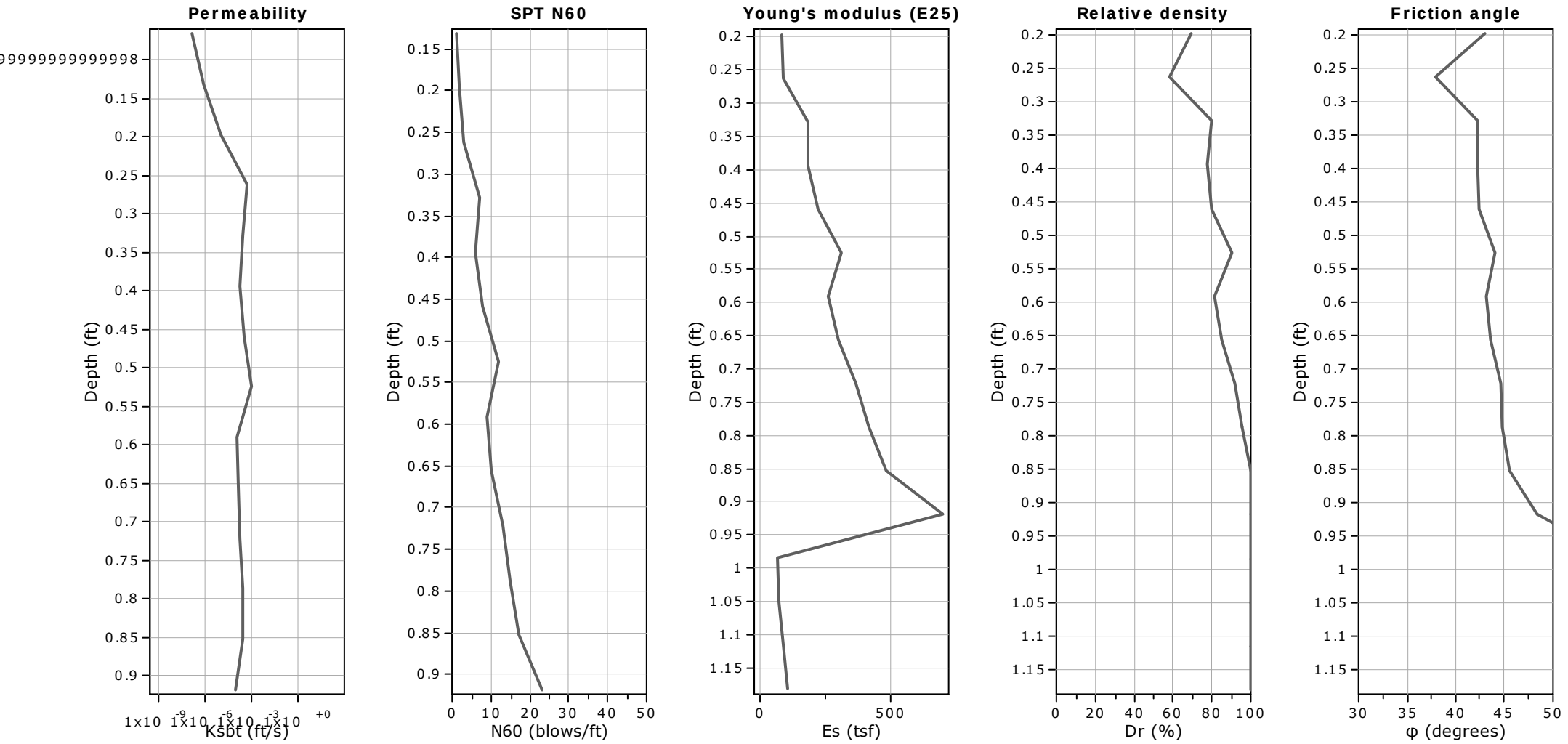
Project: **SESI**
Location: **Dobbs Ferry NY**

CPT-3
Total depth: 1.18 ft



Calculation parameters

Permeability: Based on SBT_n
SPT N_{60}: Based on I_c and q_t
Young's modulus: Based on variable alpha using I_c (Robertson, 2009)
Relative density constant, C_{Dr}: 350.0
Phi: Based on Kulhawy & Mayne (1990)
User defined estimation data

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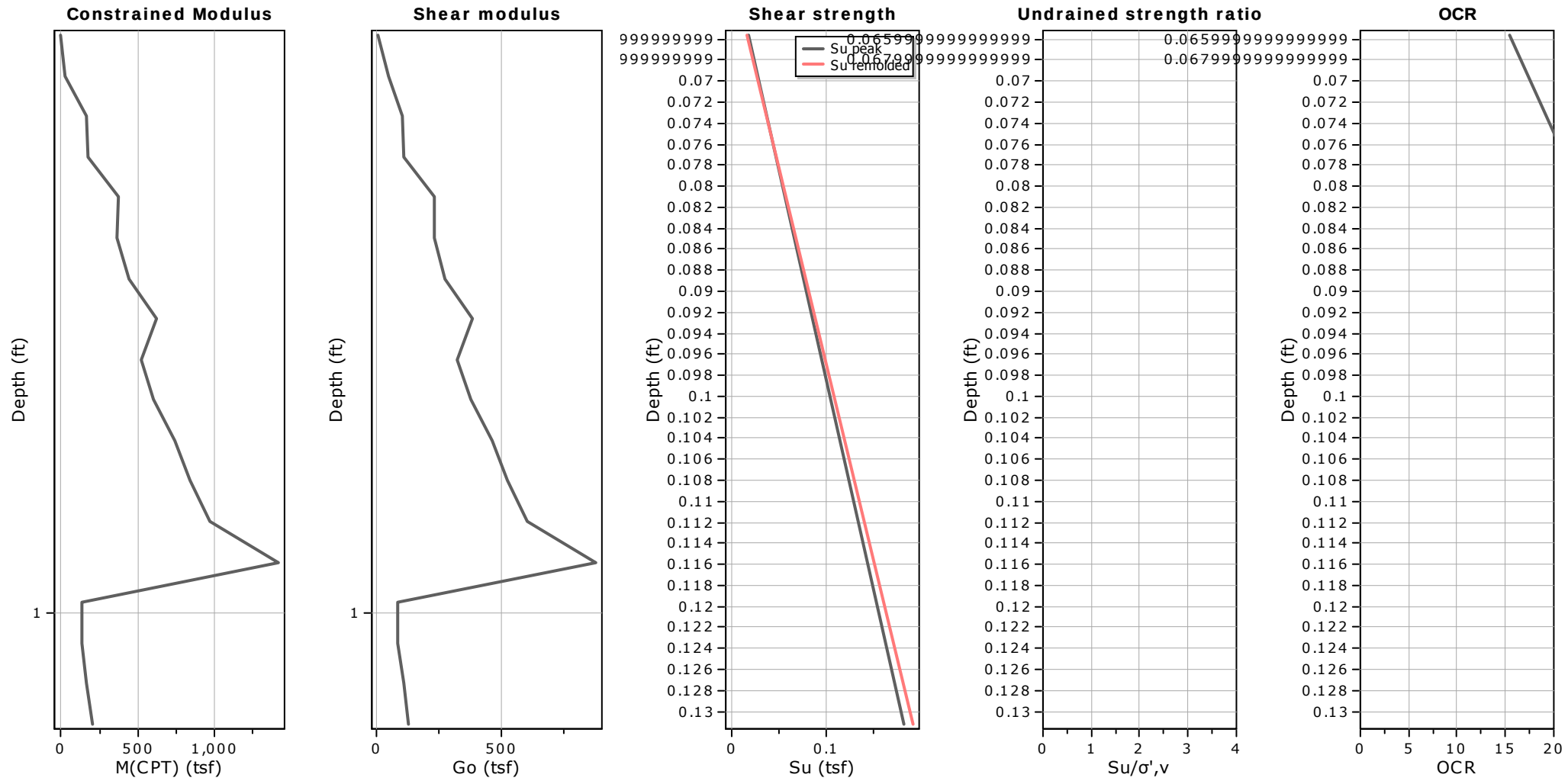
Location: **Dobbs Ferry NY**

CPT-3
Total depth: 1.18 ft



Calculation parameters

Constrained modulus: Based on variable *alpha* using I_c and Q_{tn} (Robertson, 2009)
Go: Based on variable *alpha* using I_c (Robertson, 2009)
Undrained shear strength cone factor for clays, N_{kt}: 14

OCR factor for clays, N_{kt}: 0.33
User defined estimation data
Flat Dilatometer Test data

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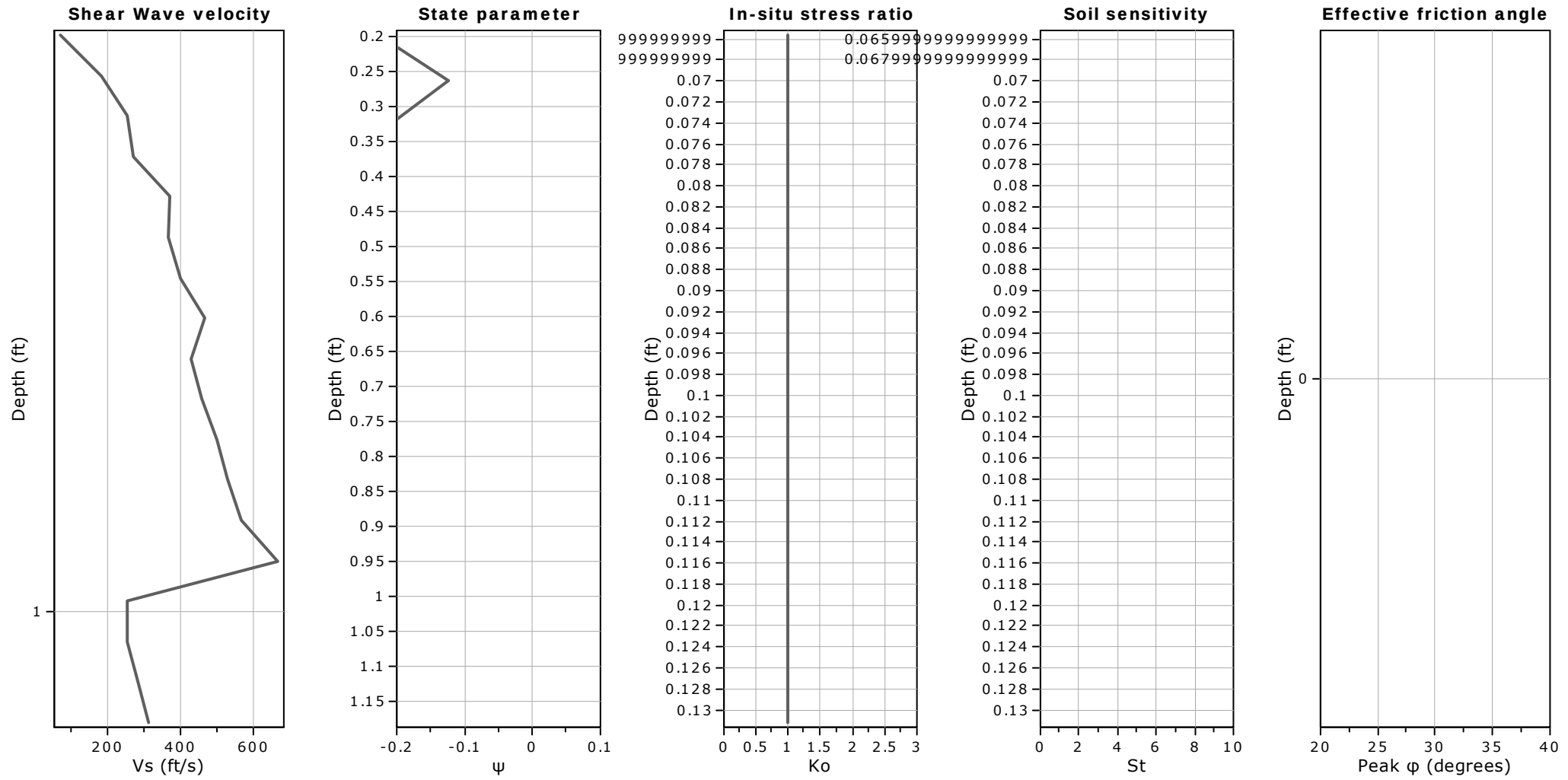
Project: **SESI**
Location: **Dobbs Ferry NY**

CPT-3
Total depth: 1.18 ft



Calculation parameters

Soil Sensitivity factor, N_S: 350.00

User defined estimation data

Craig Geotechnical Drilling
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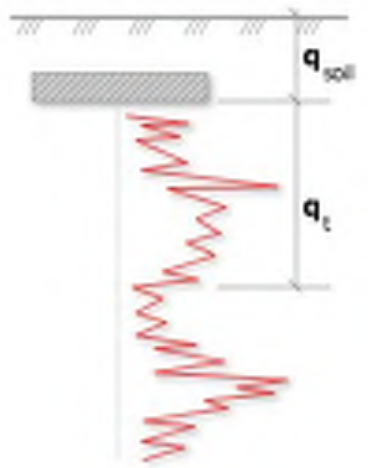
Mays Landing, NJ

Project: **SESI**
Location: **Dobbs Ferry NY**

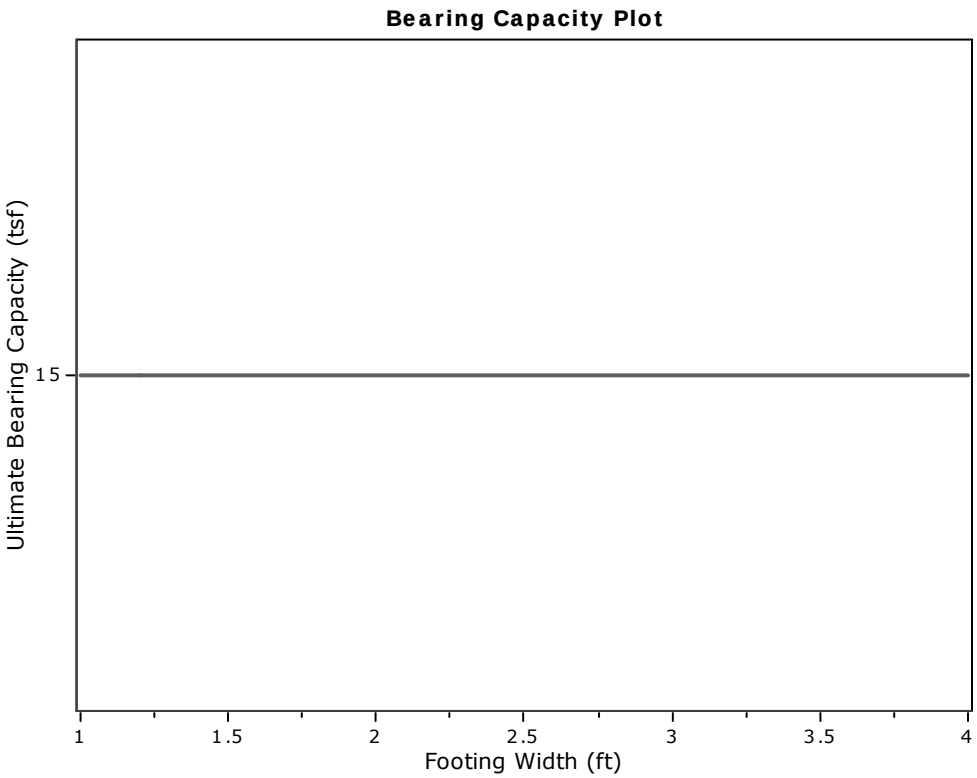
CPT-3
Total depth: 1.18 ft



Bearing Capacity calculation is perfromed based on the formula:

$$Q_{ult} = R_k \times q_t + q_{soil}$$

where:
R_k: Bearing capacity factor
q_t: Average corrected cone resistance over calculation depth
q_{soil}: Pressure applied by soil above footing



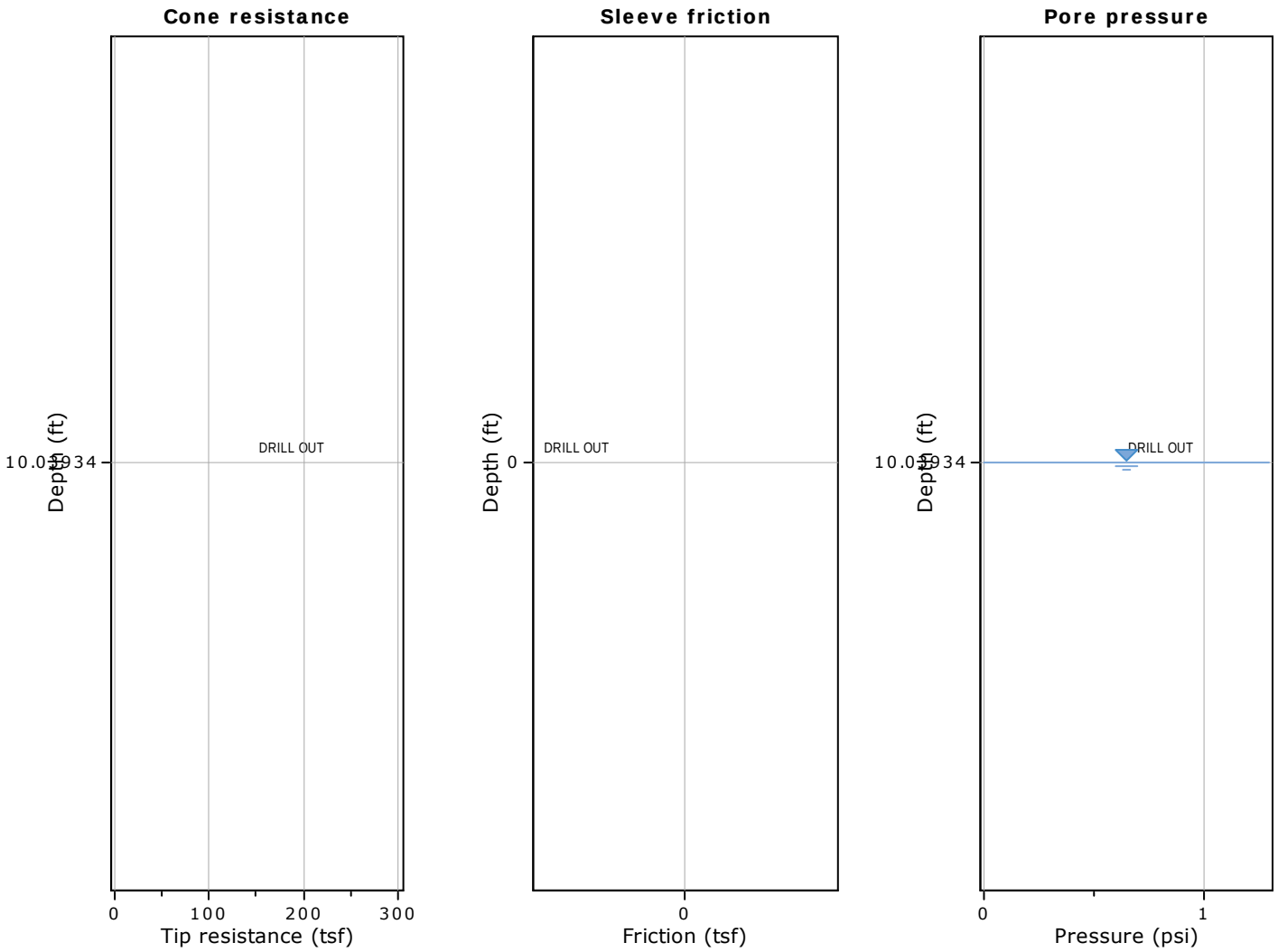
:: Tabular results ::

No	B (ft)	Start Depth (ft)	End Depth (ft)	Ave. q_t (tsf)	R_k	Soil Press. (tsf)	Ult. bearing cap. (tsf)
1	1.00	0.50	2.00	74.85	0.20	0.03	15.00
2	1.20	0.50	2.30	74.85	0.20	0.03	15.00
3	1.40	0.50	2.60	74.85	0.20	0.03	15.00
4	1.60	0.50	2.90	74.85	0.20	0.03	15.00
5	1.80	0.50	3.20	74.85	0.20	0.03	15.00
6	2.00	0.50	3.50	74.85	0.20	0.03	15.00
7	2.20	0.50	3.80	74.85	0.20	0.03	15.00
8	2.40	0.50	4.10	74.85	0.20	0.03	15.00
9	2.60	0.50	4.40	74.85	0.20	0.03	15.00
10	2.80	0.50	4.70	74.85	0.20	0.03	15.00
11	3.00	0.50	5.00	74.85	0.20	0.03	15.00
12	3.20	0.50	5.30	74.85	0.20	0.03	15.00
13	3.40	0.50	5.60	74.85	0.20	0.03	15.00
14	3.60	0.50	5.90	74.85	0.20	0.03	15.00
15	3.80	0.50	6.20	74.85	0.20	0.03	15.00
16	4.00	0.50	6.50	74.85	0.20	0.03	15.00

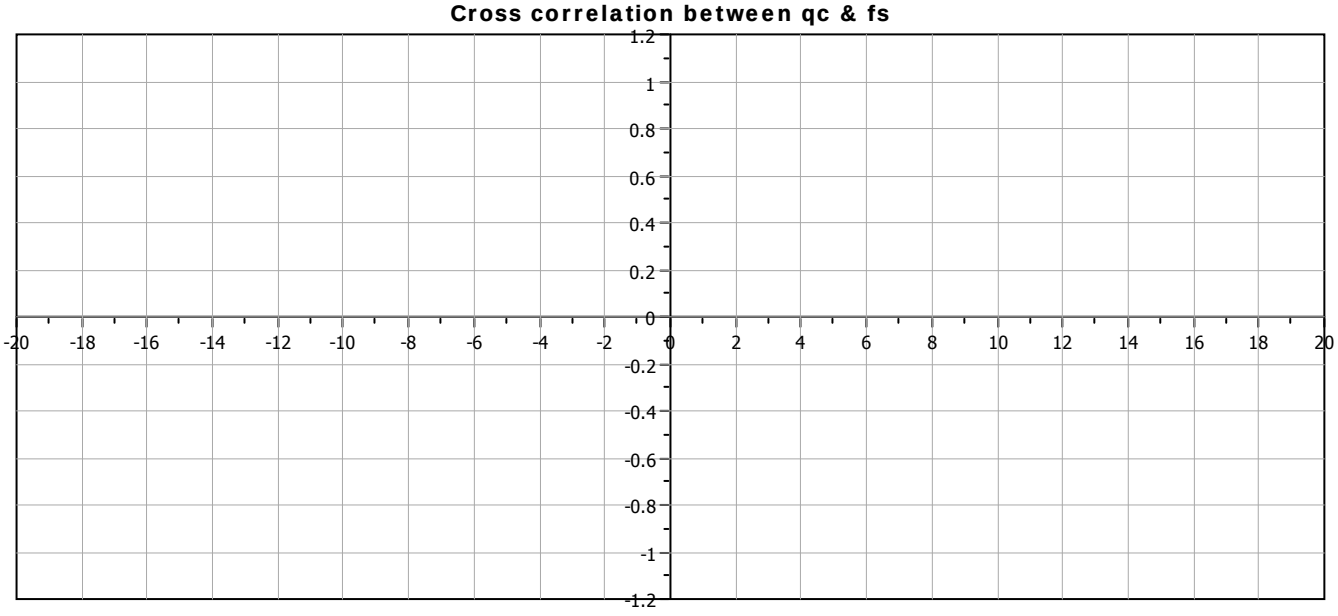
Craig Geotechnical Drilling
5230 Atlantic Ave
Mays Landing, NJ

Project: **SESI**
Location: **Dobbs Ferry NY**

CPT-3a
Total depth: 10.04 ft



The plot below presents the cross correlation coeficient between the raw qc and fs values (as measured on the field). X axes presents the lag distance (one lag is the distance between two sucessive CPT measurements).



Craig Geotechnical Drilling
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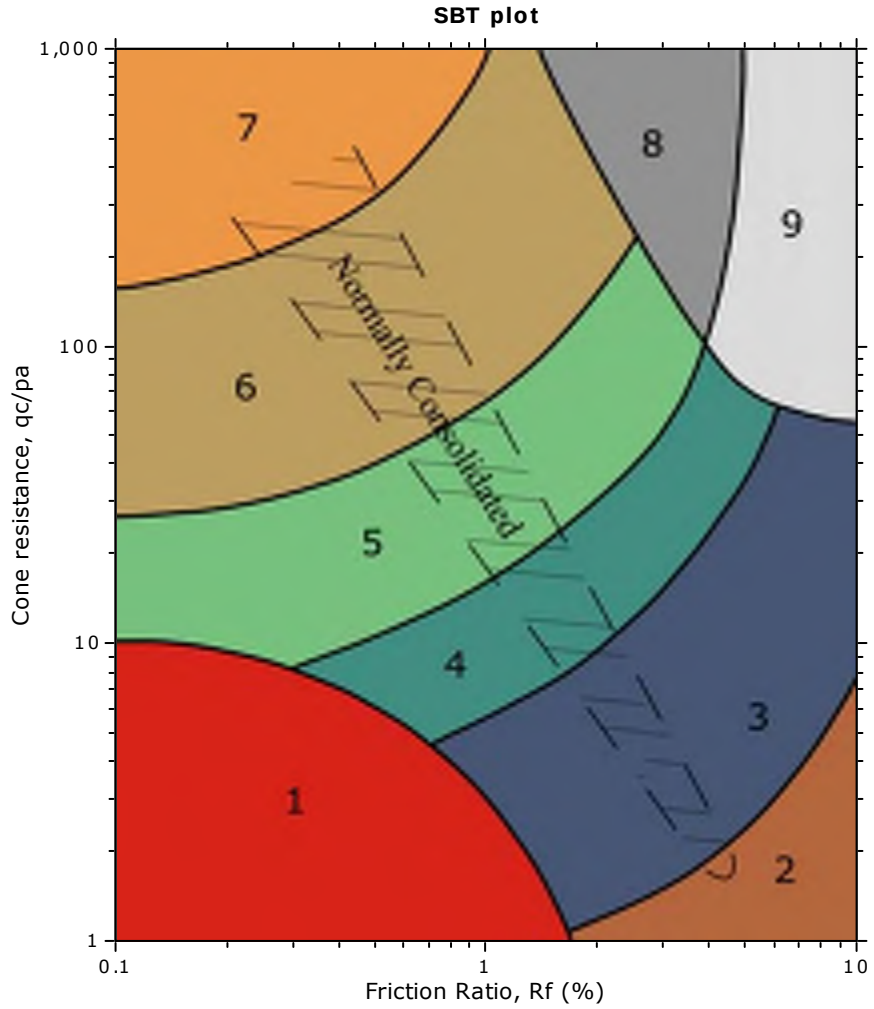
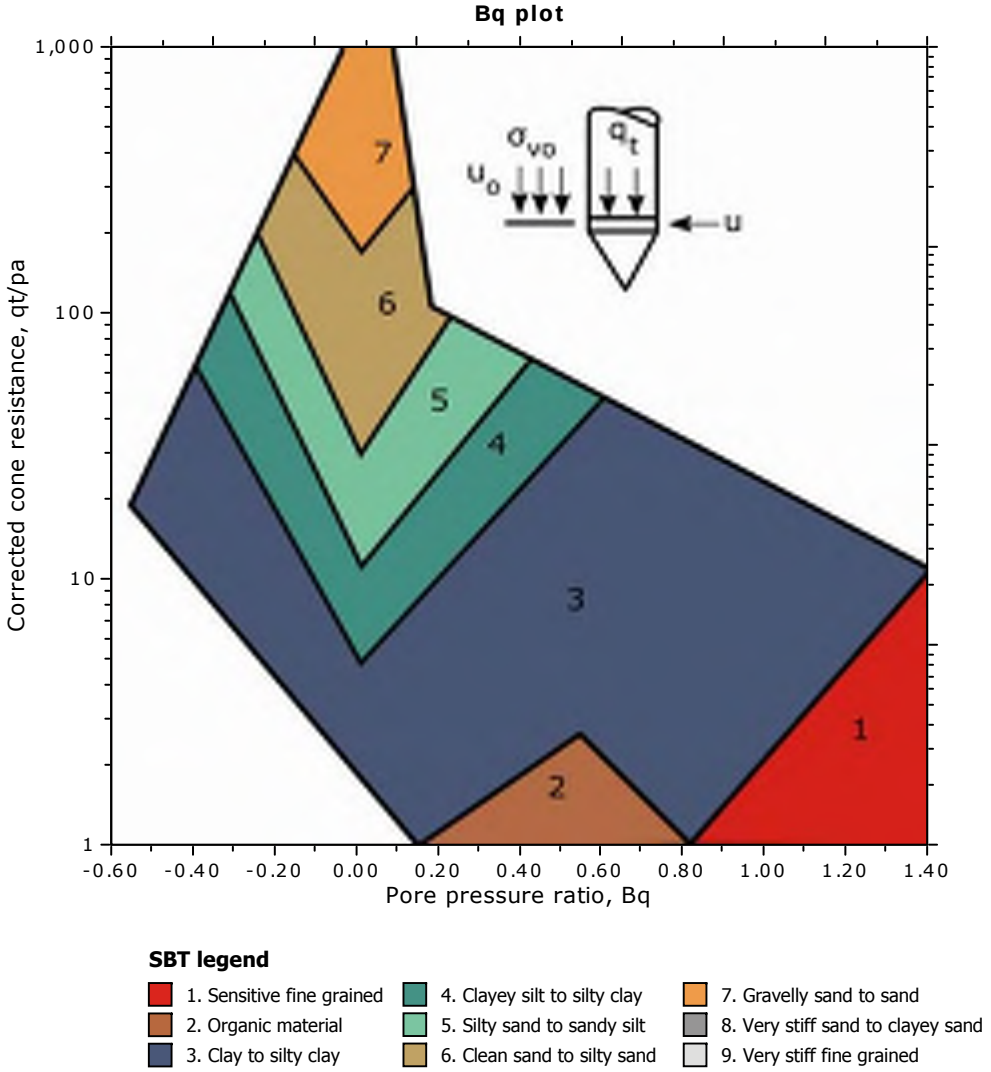
Mays Landing, NJ

Project: **SESI**
Location: **Dobbs Ferry NY**

CPT-3a
Total depth: 10.04 ft

SBT - Bq plots





SBT legend

- 1. Sensitive fine grained
- 2. Organic material
- 3. Clay to silty clay
- 4. Clayey silt to silty clay
- 5. Silty sand to sandy silt
- 6. Clean sand to silty sand
- 7. Gravelly sand to sand
- 8. Very stiff sand to clayey sand
- 9. Very stiff fine grained

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CPT-3a
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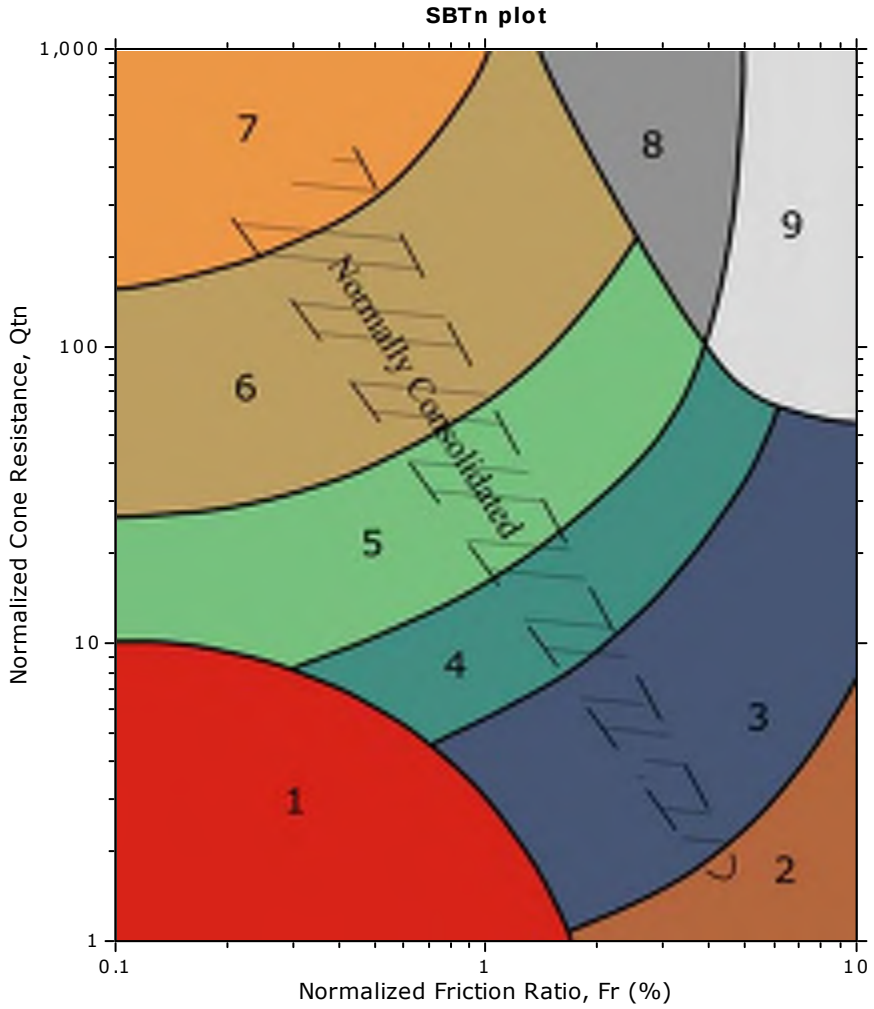
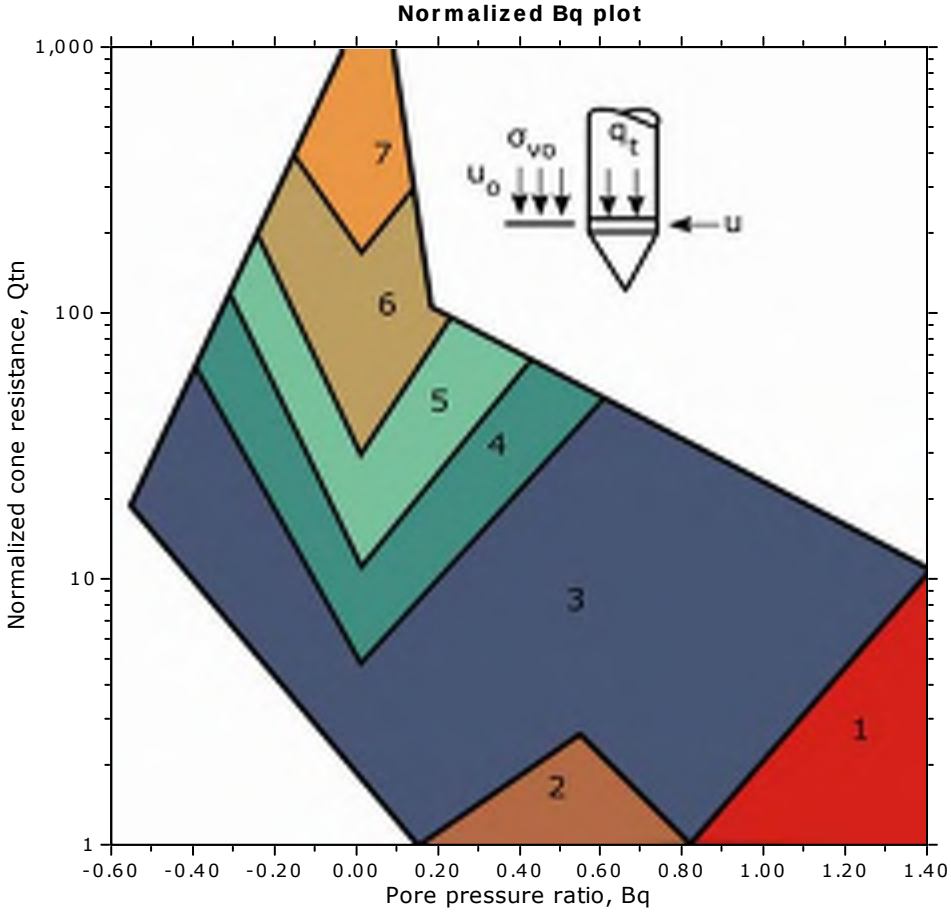
SBT - Bq plots (normalized)





SBTn legend

1. Sensitive fine grained	4. Clayey silt to silty clay	7. Gravelly sand to sand
2. Organic material	5. Silty sand to sandy silt	8. Very stiff sand to clayey sand
3. Clay to silty clay	6. Clean sand to silty sand	9. Very stiff fine grained

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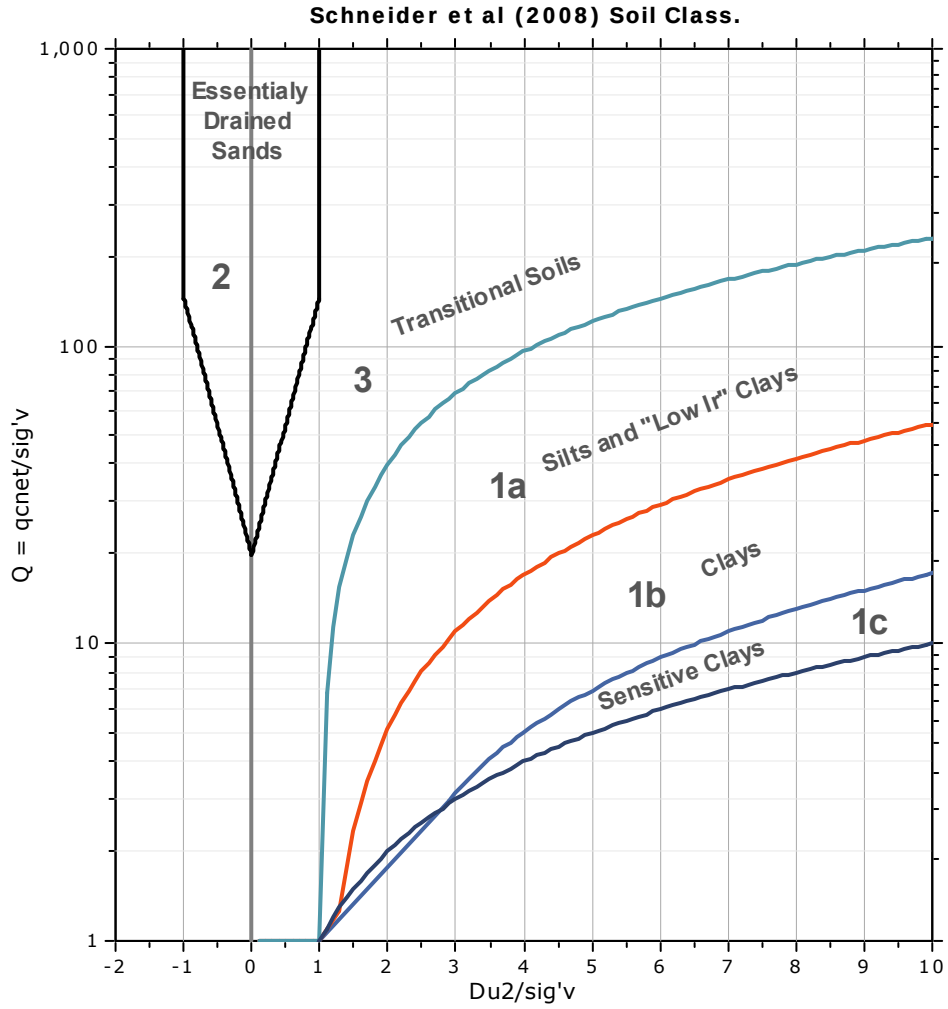
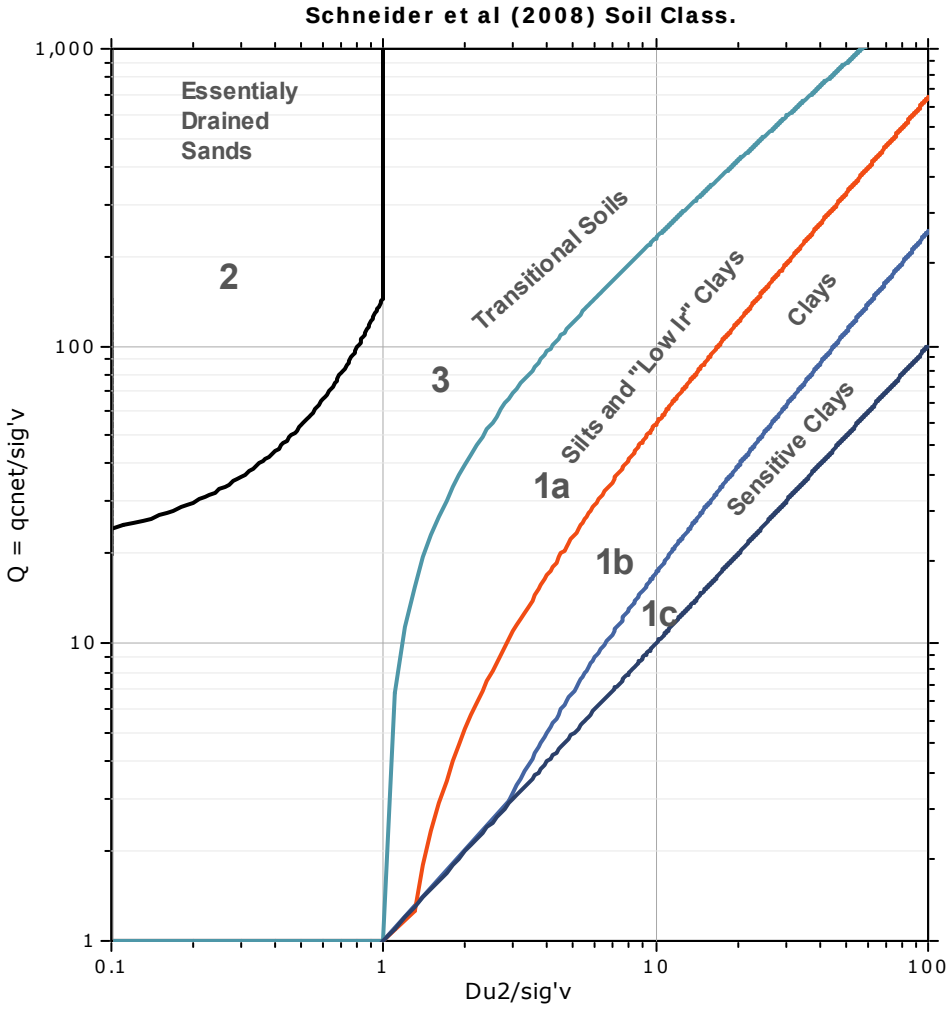
CPT-3a
Total depth: 10.04 ft

Bq plots (Schneider)





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CPT-3a
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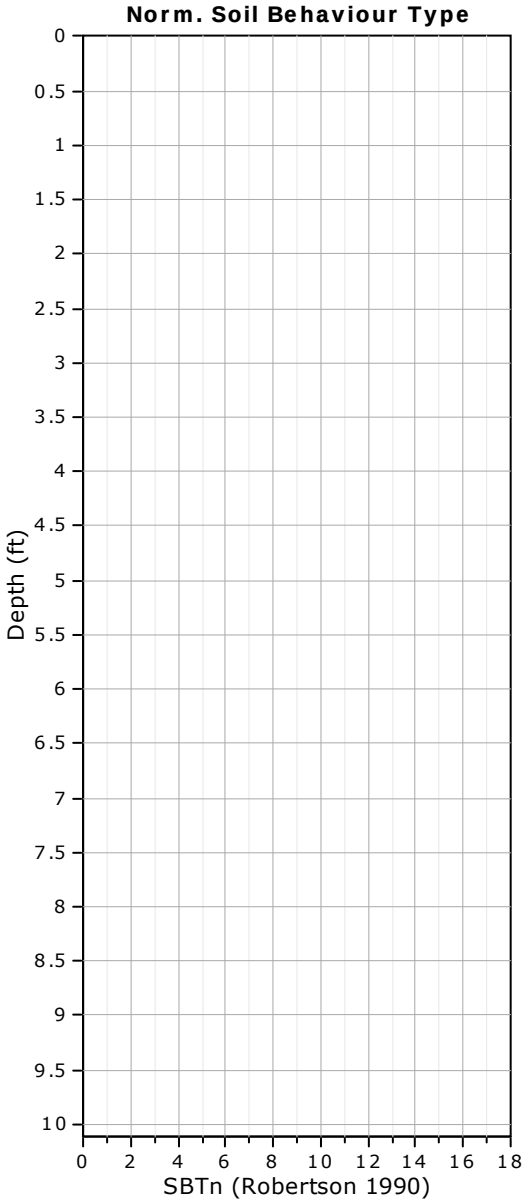

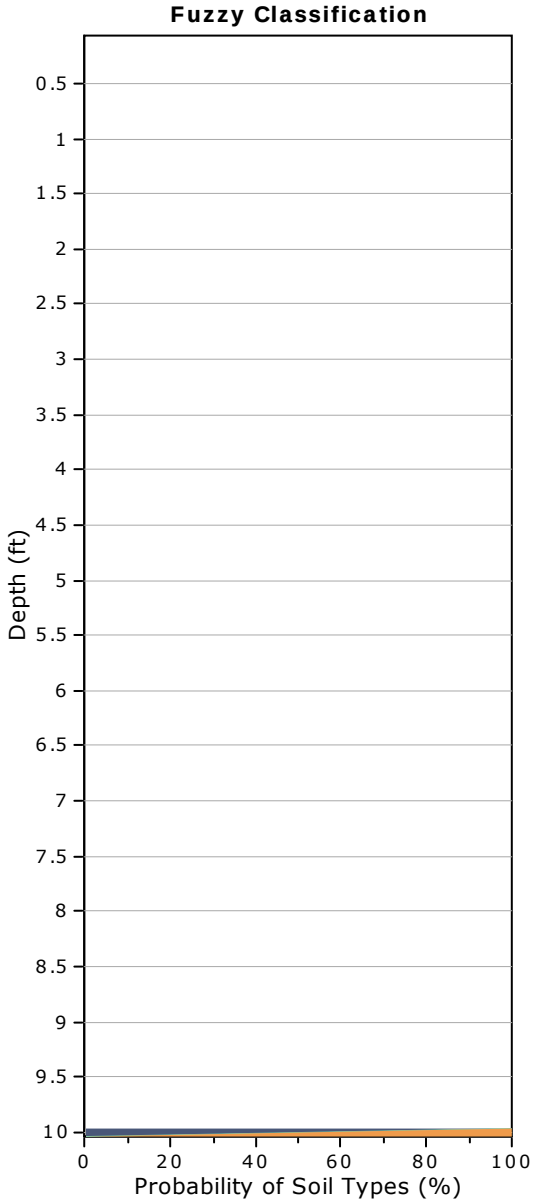

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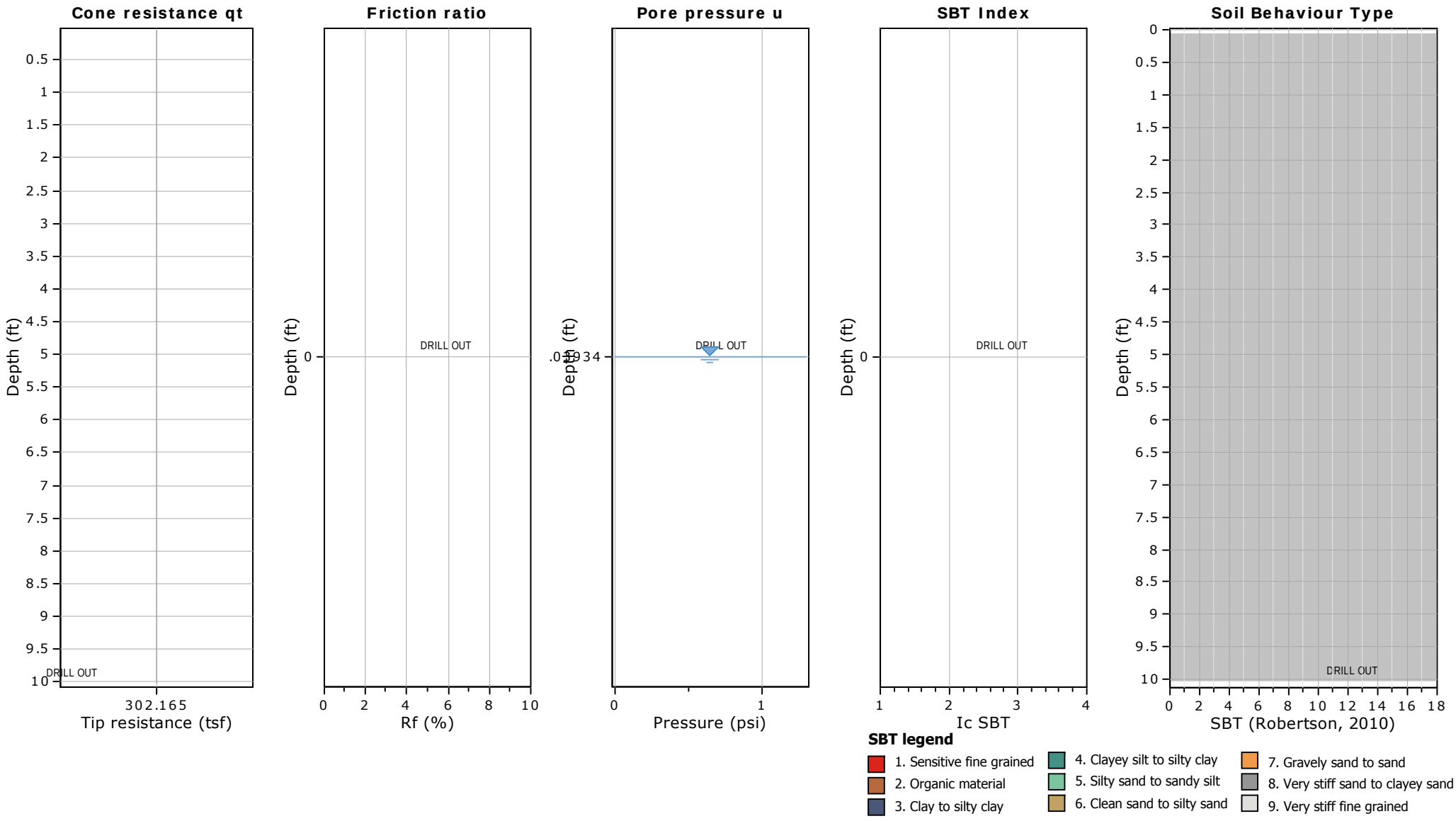

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Project: **SESI**
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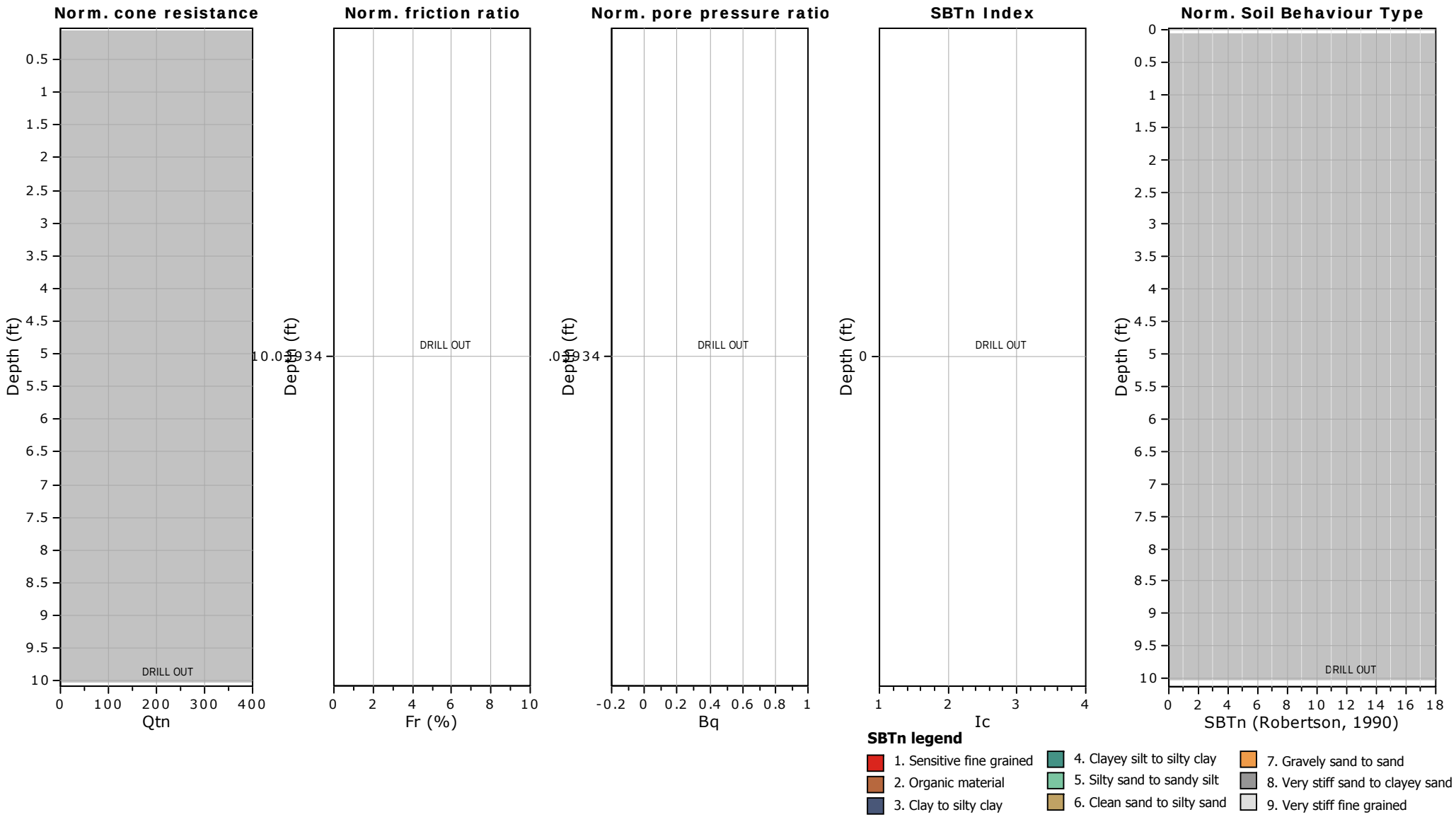

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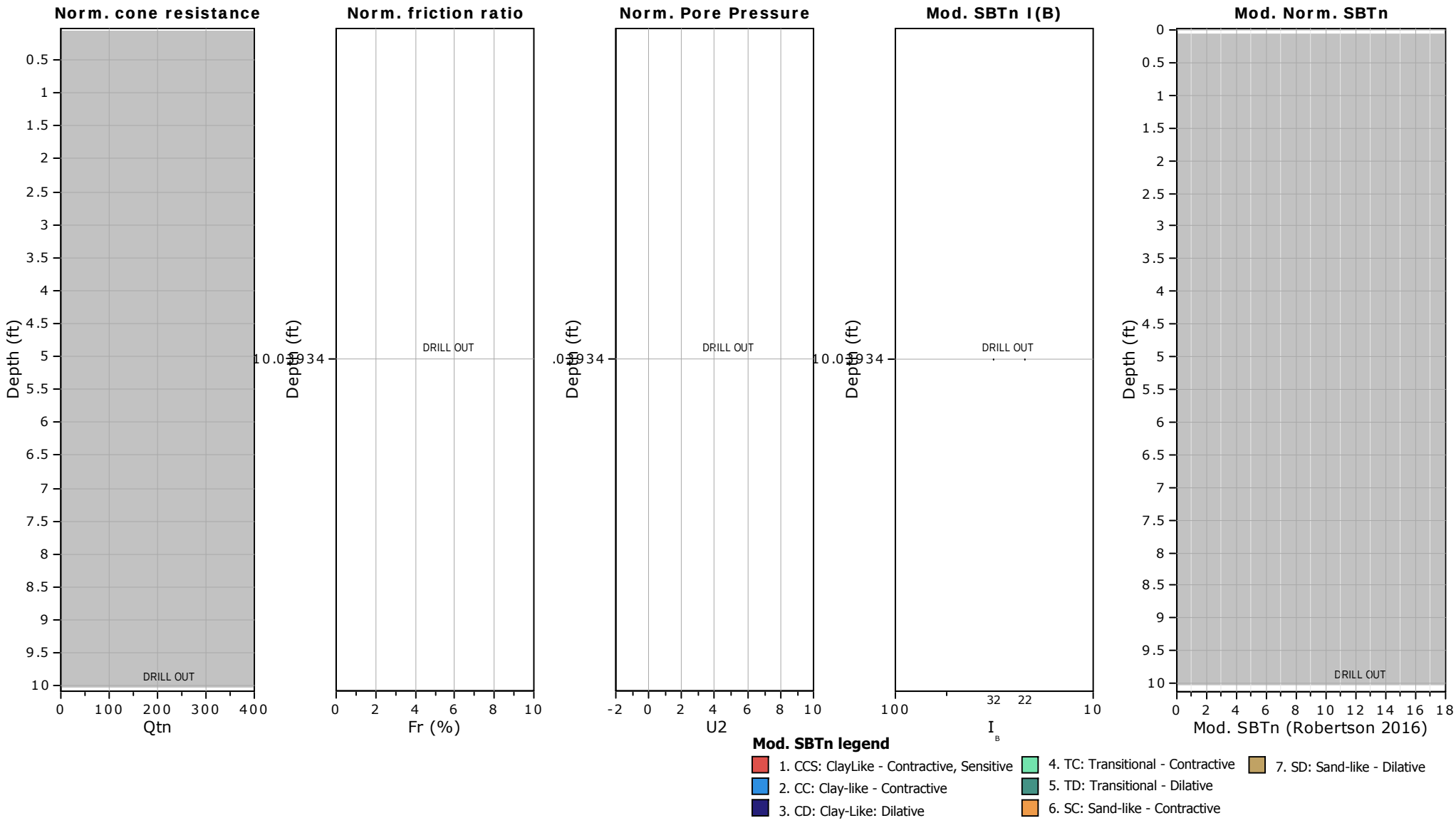
CPT-3a
Total depth: 10.04 ft



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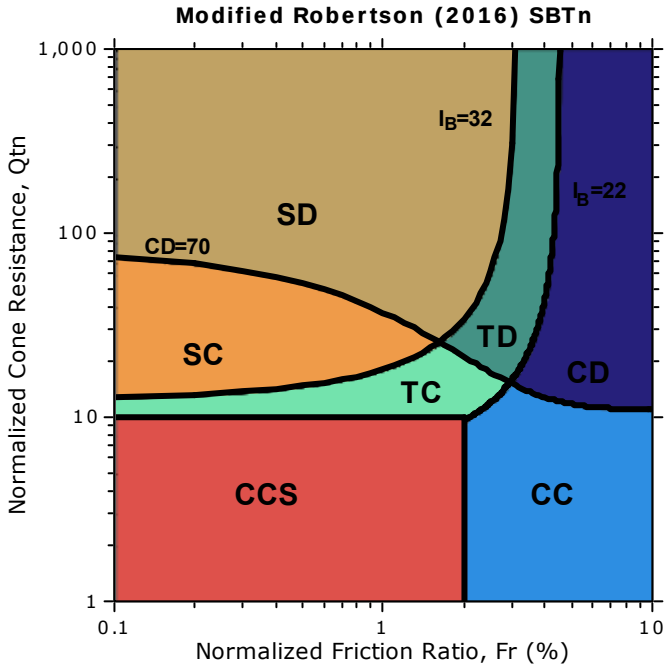
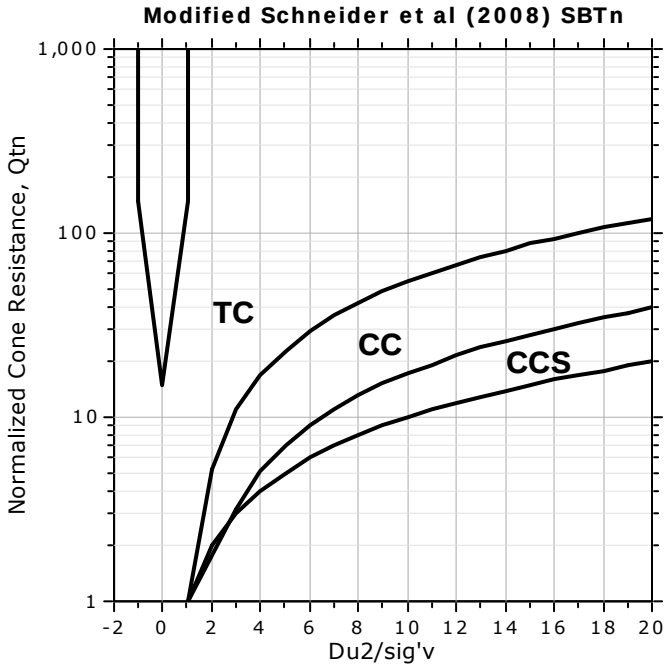
5230 Atlantic Ave
Mays Landing, NJ

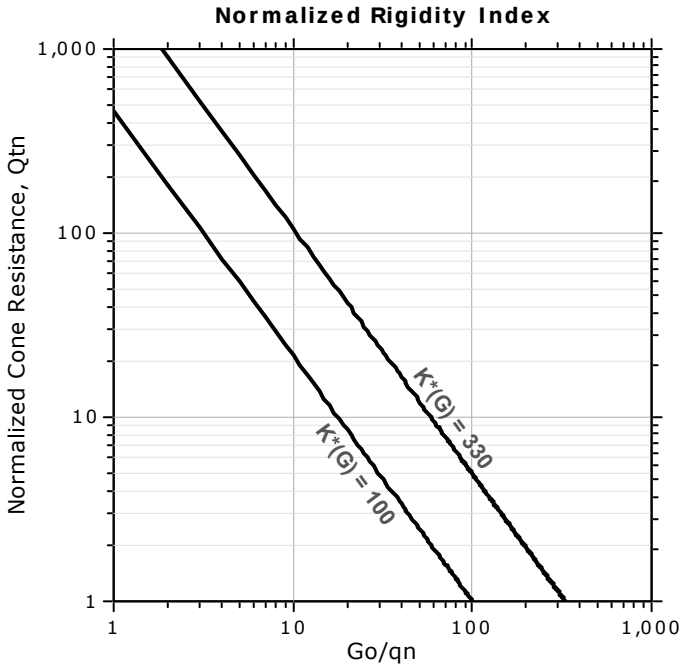
Project: **SESI**
Location: **Dobbs Ferry NY**

CPT-3a
Total depth: 10.04 ft

Updated SBTn plots







CCS: Clay-like - Contractive - Sensitive
CC: Clay-like - Contractive
CD: Clay-like - Dilative
TC: Transitional - Contractive
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SD: Sand-like - Dilative

K(G) > 330: Soils with significant microstructure (e.g. age/cementation)

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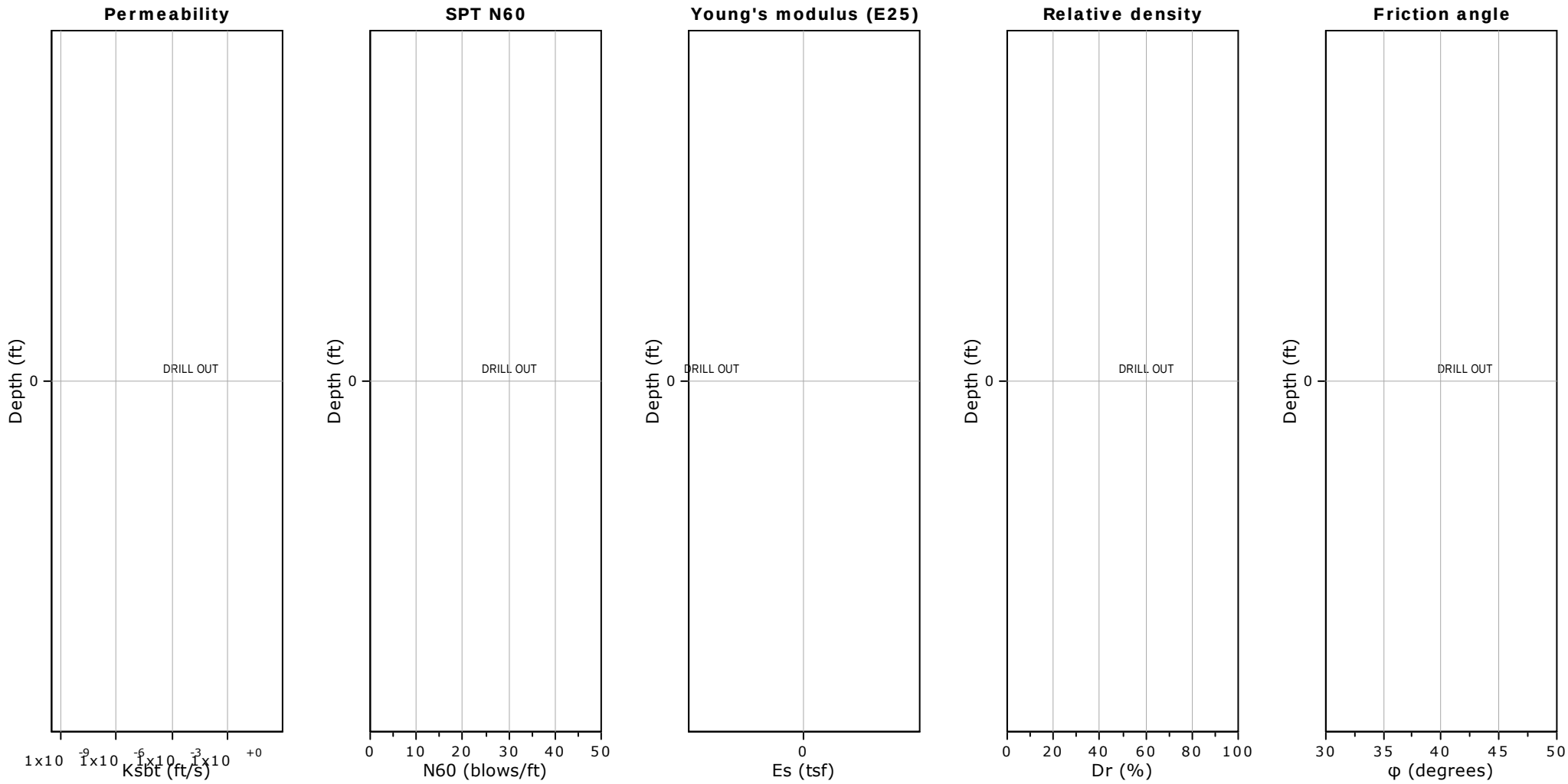
Project: **SESI**
Location: **Dobbs Ferry NY**

CPT-3a
Total depth: 10.04 ft



Calculation parameters

Permeability: Based on SBT_n
SPT N_{60}: Based on I_c and q_t
Young's modulus: Based on variable alpha using I_c (Robertson, 2009)
Relative density constant, C_{Dr}: 350.0
Phi: Based on Kulhawy & Mayne (1990)
User defined estimation data

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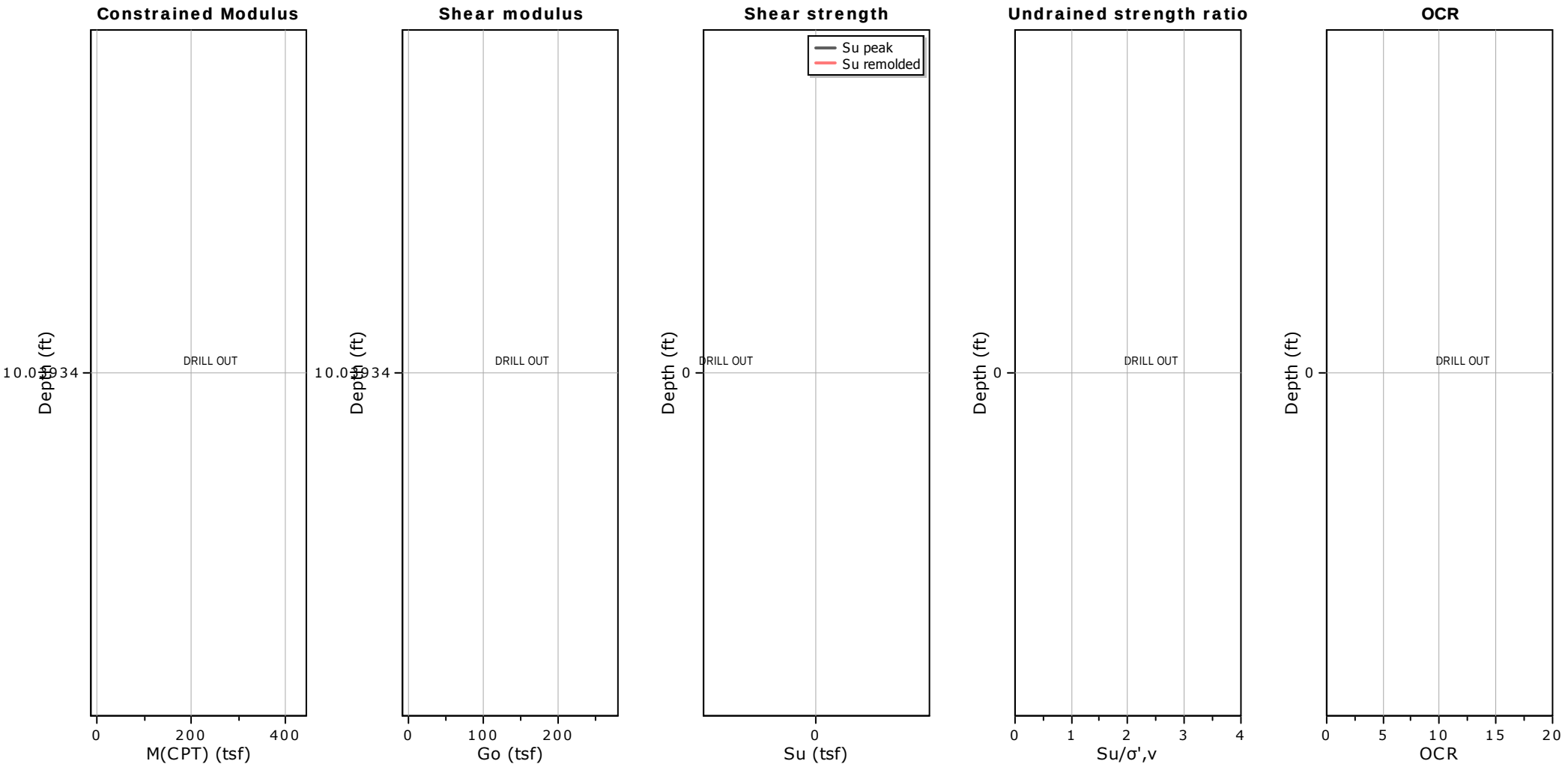
5230 Atlantic Ave
Mays Landing, NJ

Project: **SESI**
Location: **Dobbs Ferry NY**

CPT-3a
Total depth: 10.04 ft



Calculation parameters

Constrained modulus: Based on variable *alpha* using I_c and Q_{tn} (Robertson, 2009)
Go: Based on variable *alpha* using I_c (Robertson, 2009)
Undrained shear strength cone factor for clays, N_{kt}: 14

OCR factor for clays, N_{kt}: 0.33
User defined estimation data
Flat Dilatometer Test data

Craig Geotechnical Drilling
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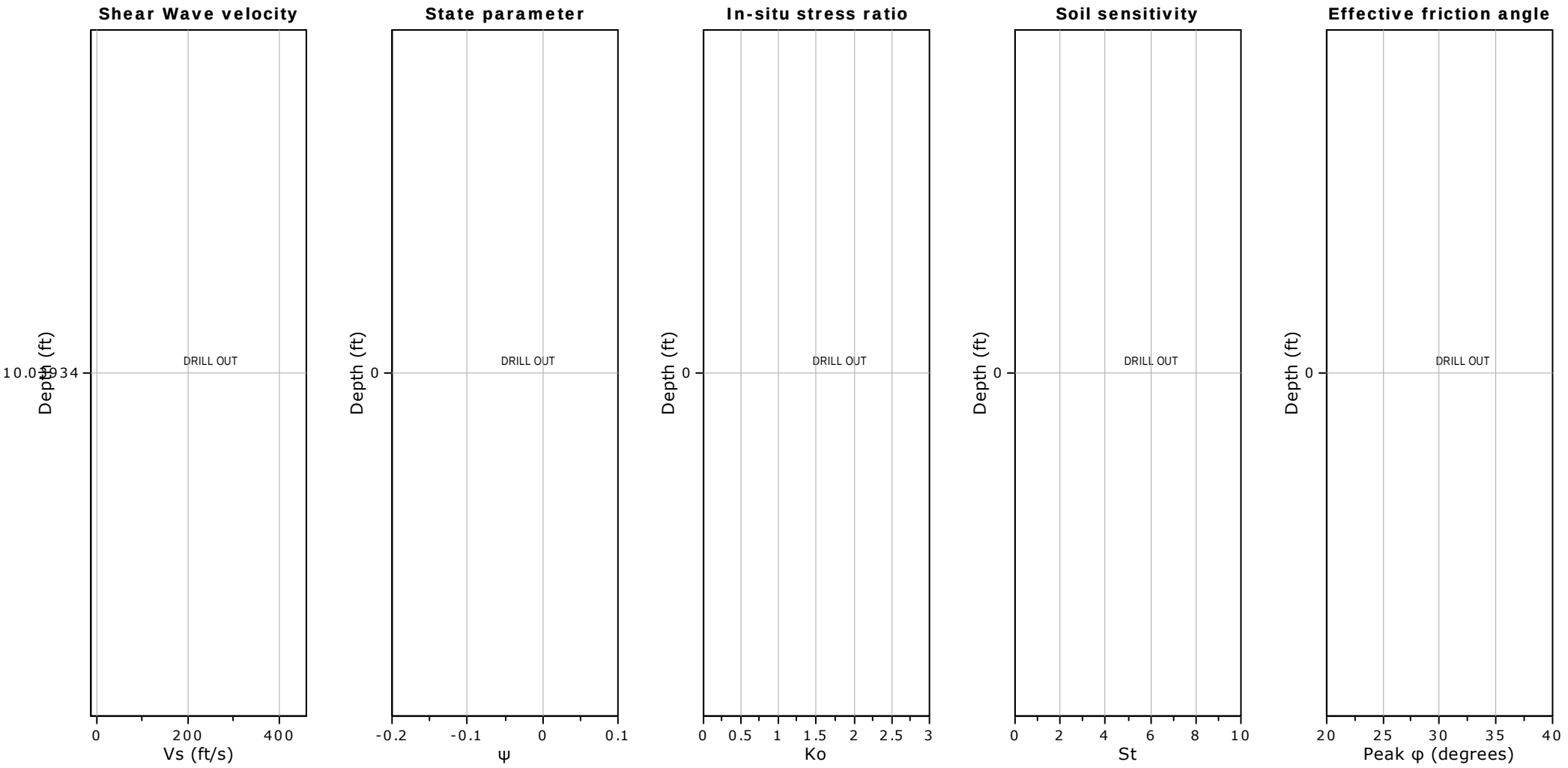
CPT-3a
Total depth: 10.04 ft



Calculation parameters

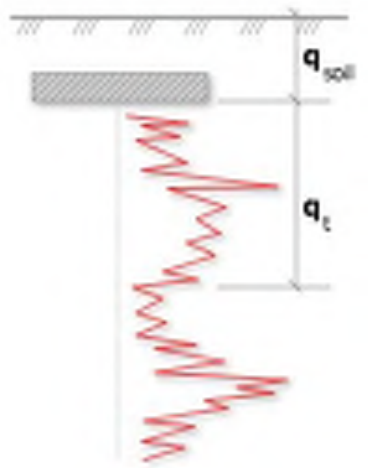
Soil Sensitivity factor, N_S: 350.00

User defined estimation data

Craig Geotechnical Drilling
5230 Atlantic Ave
Mays Landing, NJ

Project: **SESI**
Location: **Dobbs Ferry NY**

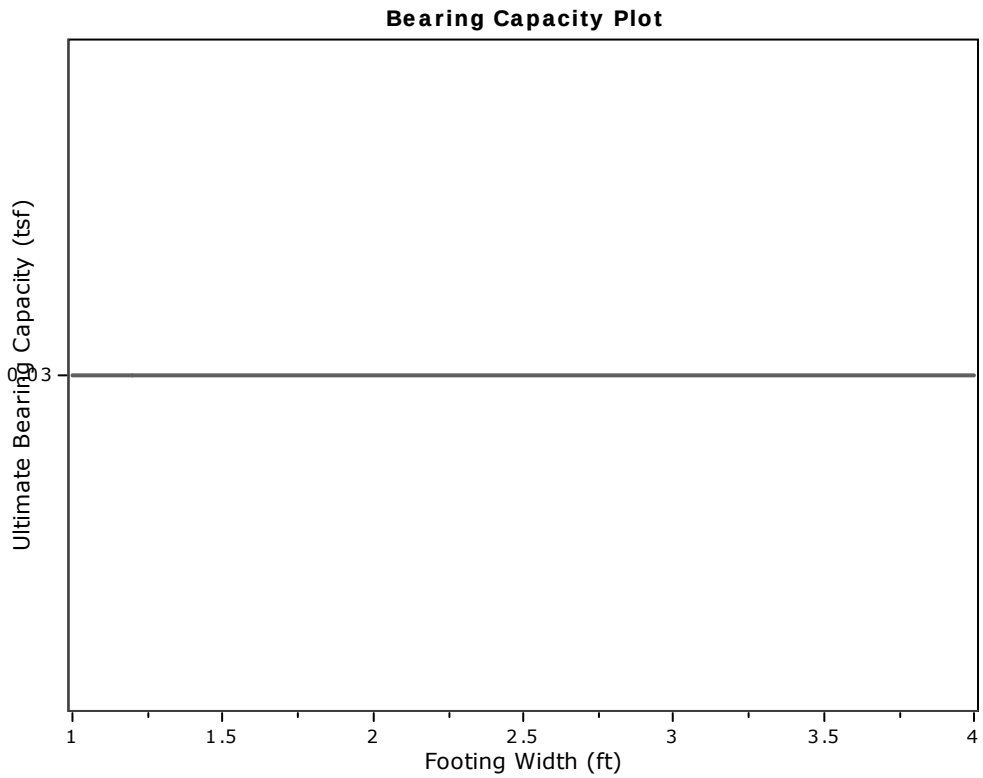
CPT-3a
Total depth: 10.04 ft



Bearing Capacity calculation is perfromed based on the formula:

$$Q_{ult} = R_k \times q_t + q_{soil}$$

where:
R_k: Bearing capacity factor
q_t: Average corrected cone resistance over calculation depth
q_{soil}: Pressure applied by soil above footing



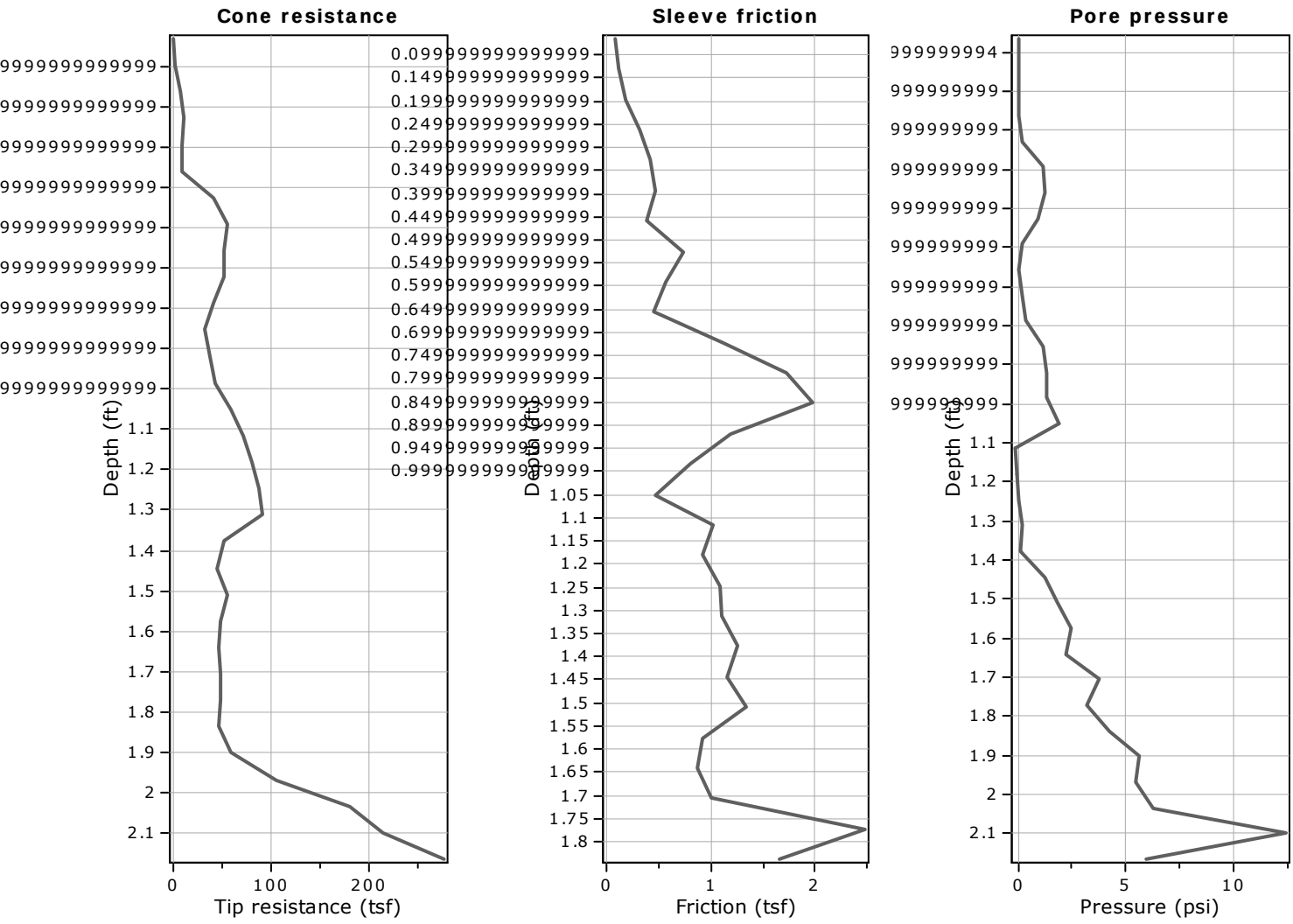
:: Tabular results ::

No	B (ft)	Start Depth (ft)	End Depth (ft)	Ave. q_t (tsf)	R_k	Soil Press. (tsf)	Ult. bearing cap. (tsf)
1	1.00	0.50	2.00	0.00	0.20	0.03	0.03
2	1.20	0.50	2.30	0.00	0.20	0.03	0.03
3	1.40	0.50	2.60	0.00	0.20	0.03	0.03
4	1.60	0.50	2.90	0.00	0.20	0.03	0.03
5	1.80	0.50	3.20	0.00	0.20	0.03	0.03
6	2.00	0.50	3.50	0.00	0.20	0.03	0.03
7	2.20	0.50	3.80	0.00	0.20	0.03	0.03
8	2.40	0.50	4.10	0.00	0.20	0.03	0.03
9	2.60	0.50	4.40	0.00	0.20	0.03	0.03
10	2.80	0.50	4.70	0.00	0.20	0.03	0.03
11	3.00	0.50	5.00	0.00	0.20	0.03	0.03
12	3.20	0.50	5.30	0.00	0.20	0.03	0.03
13	3.40	0.50	5.60	0.00	0.20	0.03	0.03
14	3.60	0.50	5.90	0.00	0.20	0.03	0.03
15	3.80	0.50	6.20	0.00	0.20	0.03	0.03
16	4.00	0.50	6.50	0.00	0.20	0.03	0.03

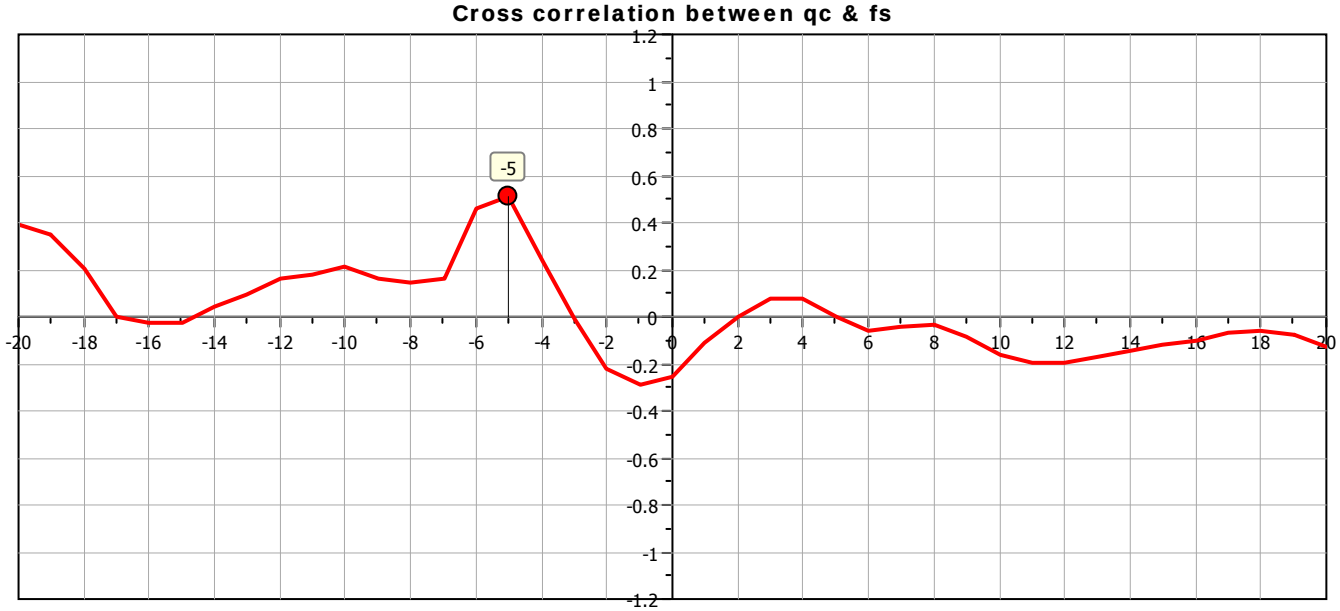
Craig Geotechnical Drilling
5230 Atlantic Ave
Mays Landing, NJ

Project: **SESI**
Location: **Dobbs Ferry NY**

CPT-4
Total depth: 2.17 ft



The plot below presents the cross correlation coeficient between the raw qc and fs values (as measured on the field). X axes presents the lag distance (one lag is the distance between two sucessive CPT measurements).



Craig Geotechnical Drilling
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Mays Landing, NJ

Project: **SESI**
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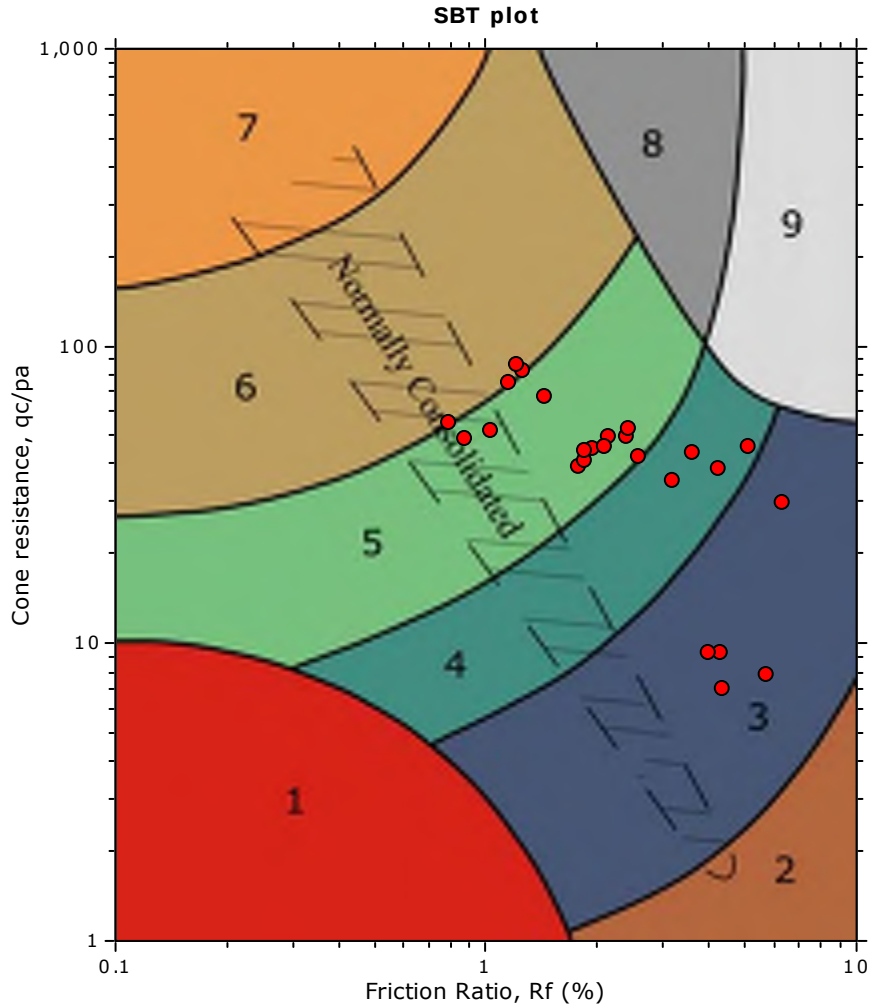
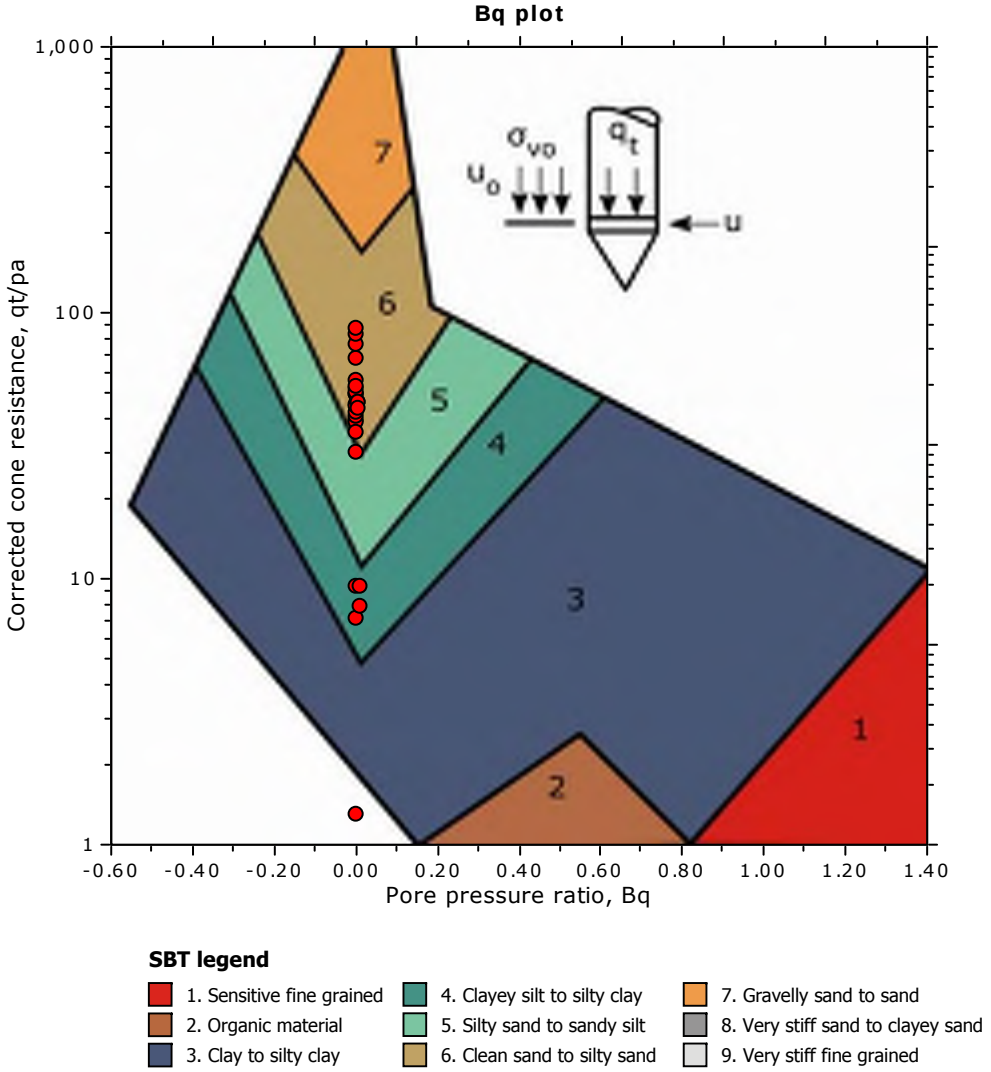
CPT-4
Total depth: 2.17 ft

SBT - Bq plots





Craig Geotechnical Drilling
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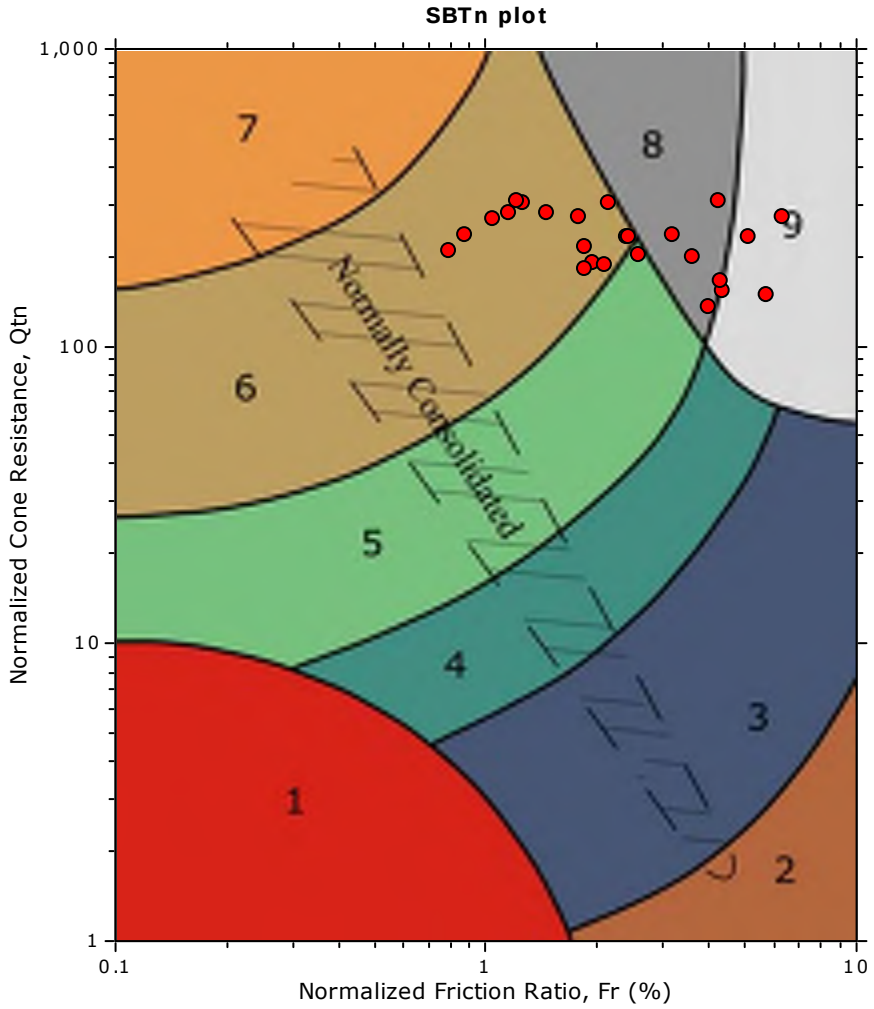
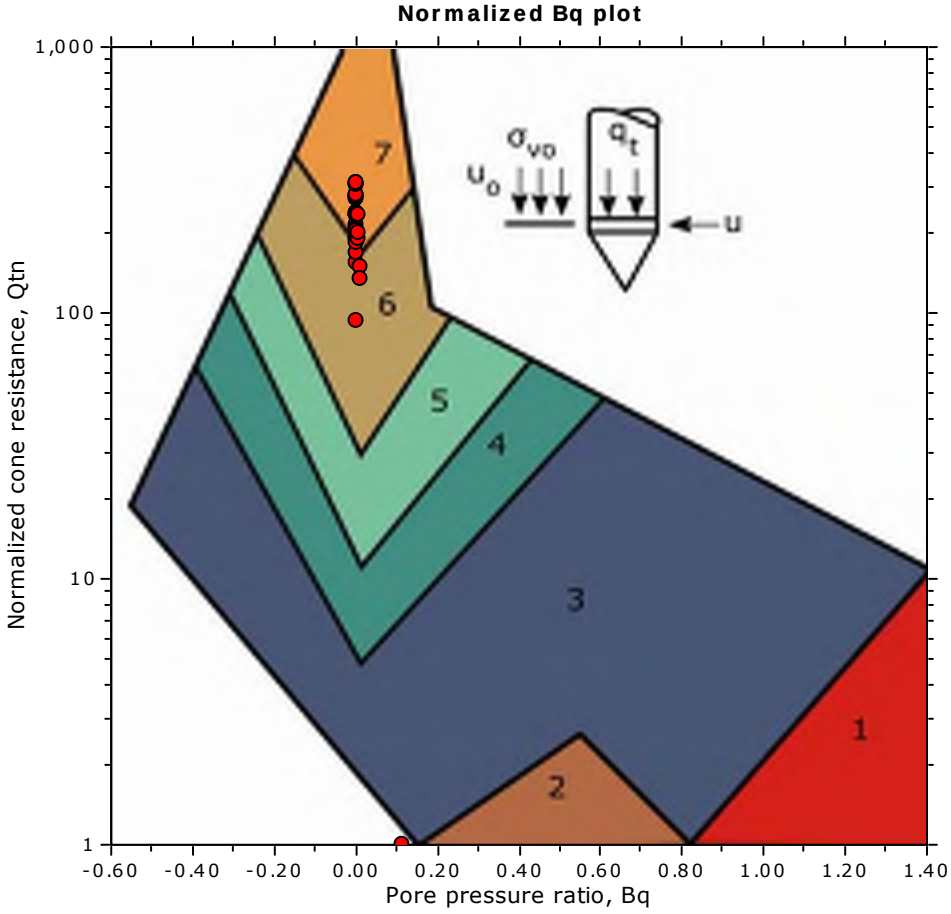
Mays Landing, NJ

Project: **SESI**
Location: **Dobbs Ferry NY**

CPT-4
Total depth: 2.17 ft

SBT - Bq plots (normalized)





SBTn legend

1. Sensitive fine grained	4. Clayey silt to silty clay	7. Gravelly sand to sand
2. Organic material	5. Silty sand to sandy silt	8. Very stiff sand to clayey sand
3. Clay to silty clay	6. Clean sand to silty sand	9. Very stiff fine grained

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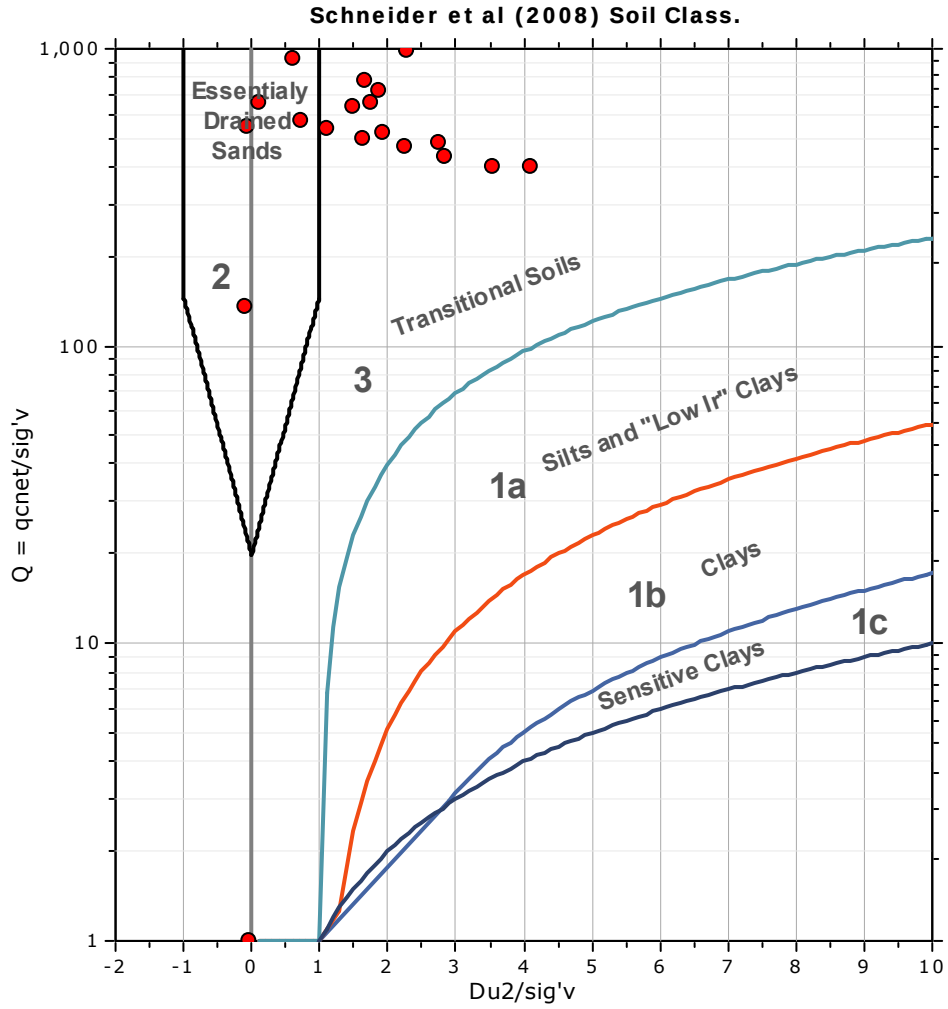
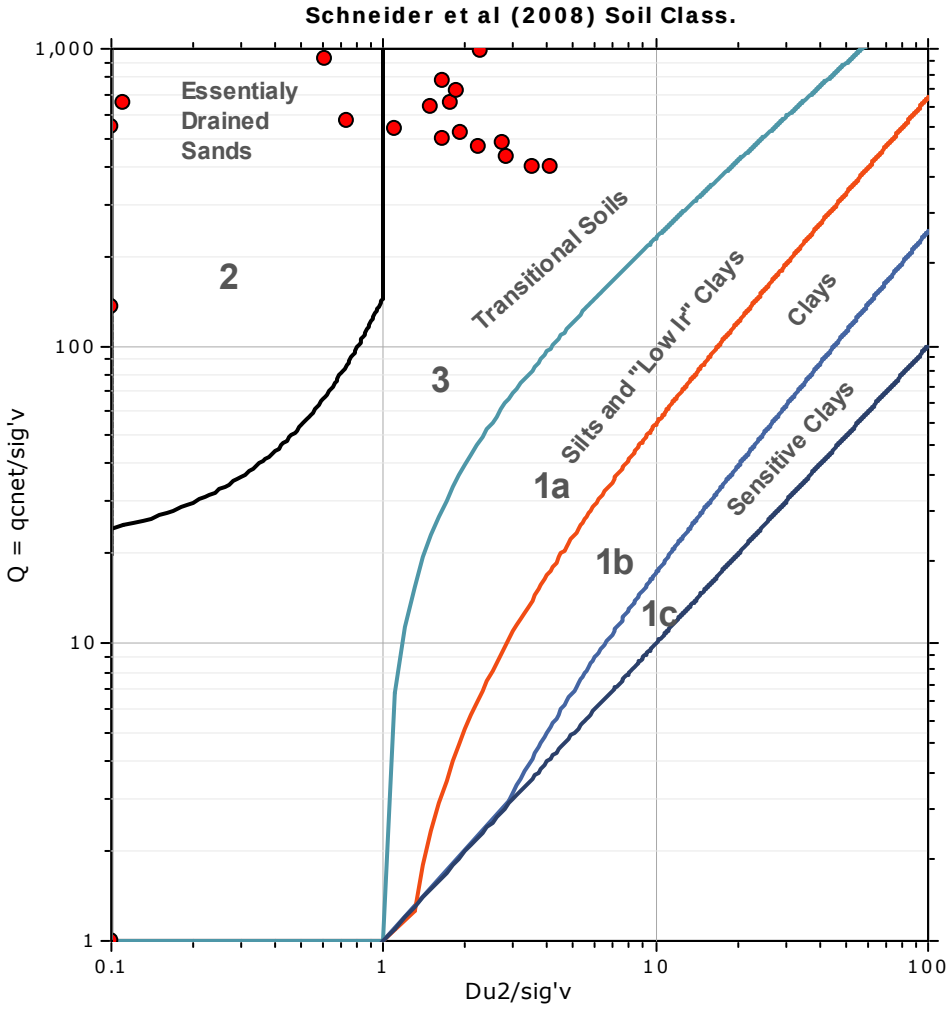
CPT-4
Total depth: 2.17 ft

Bq plots (Schneider)





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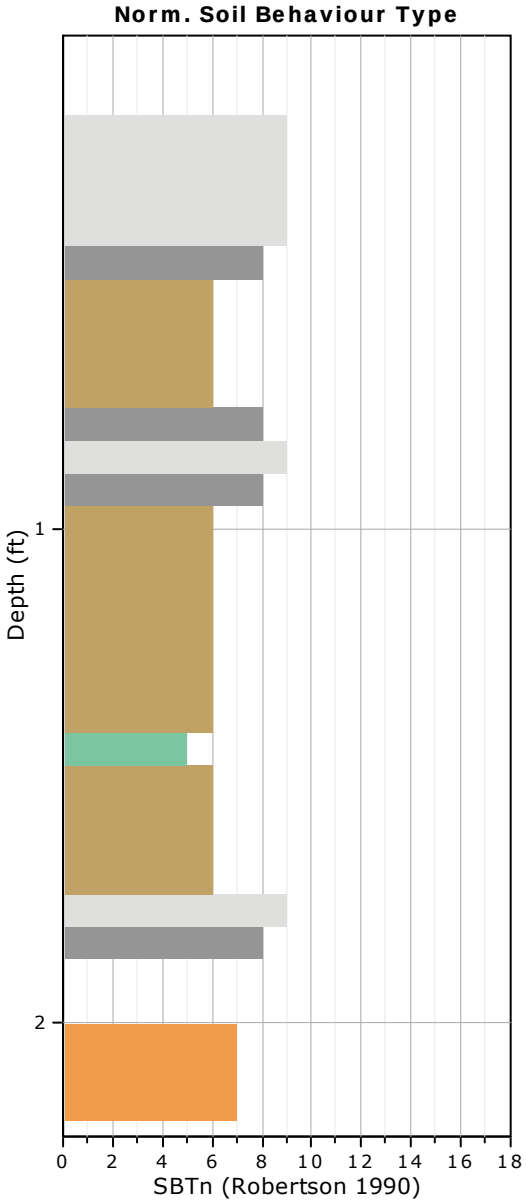

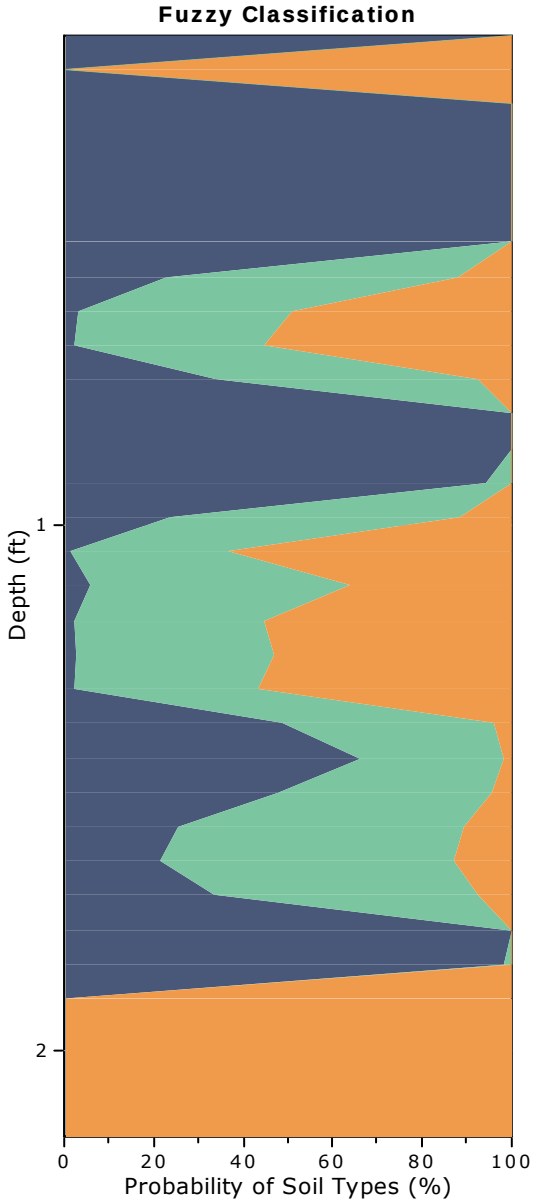

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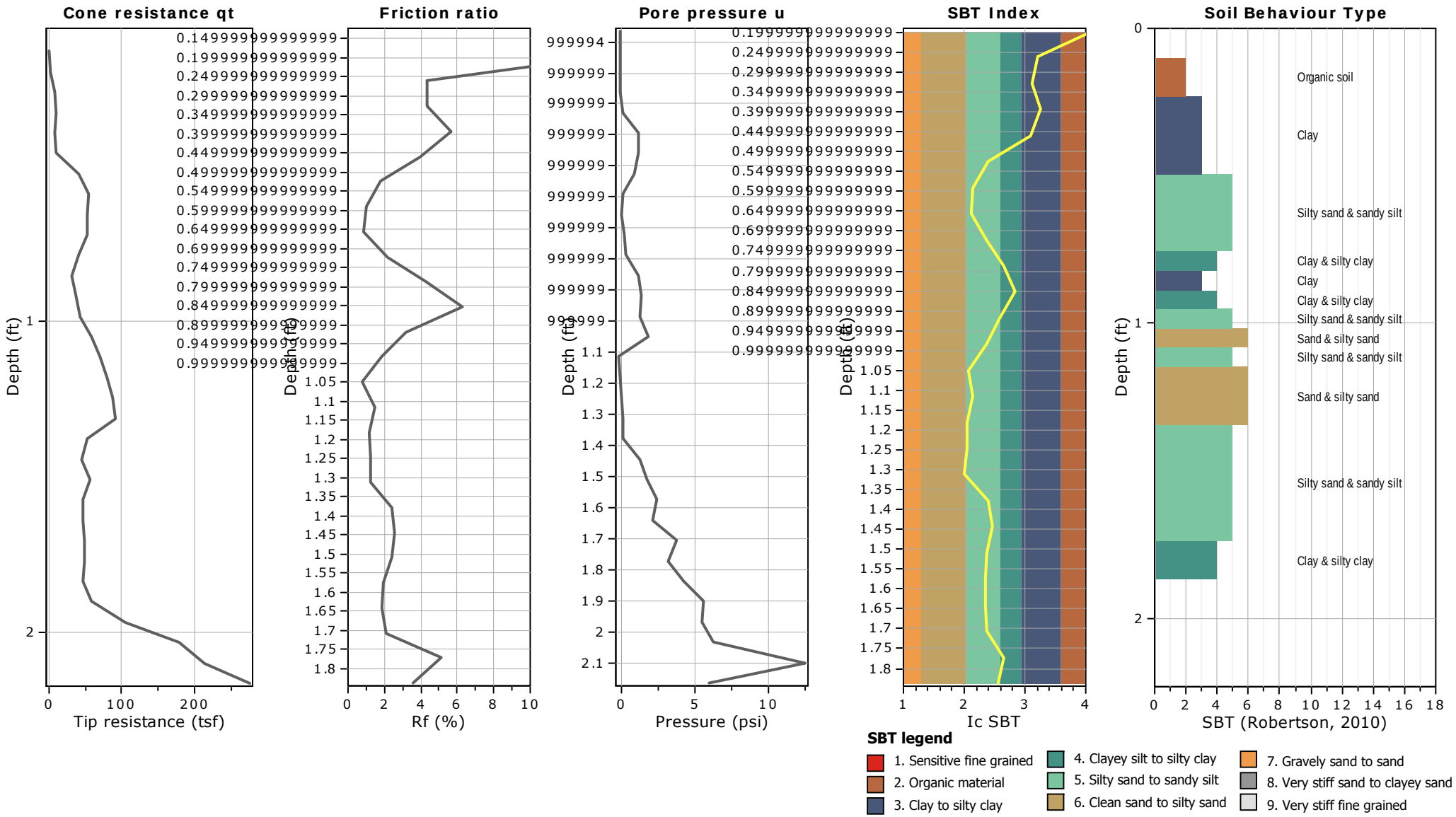

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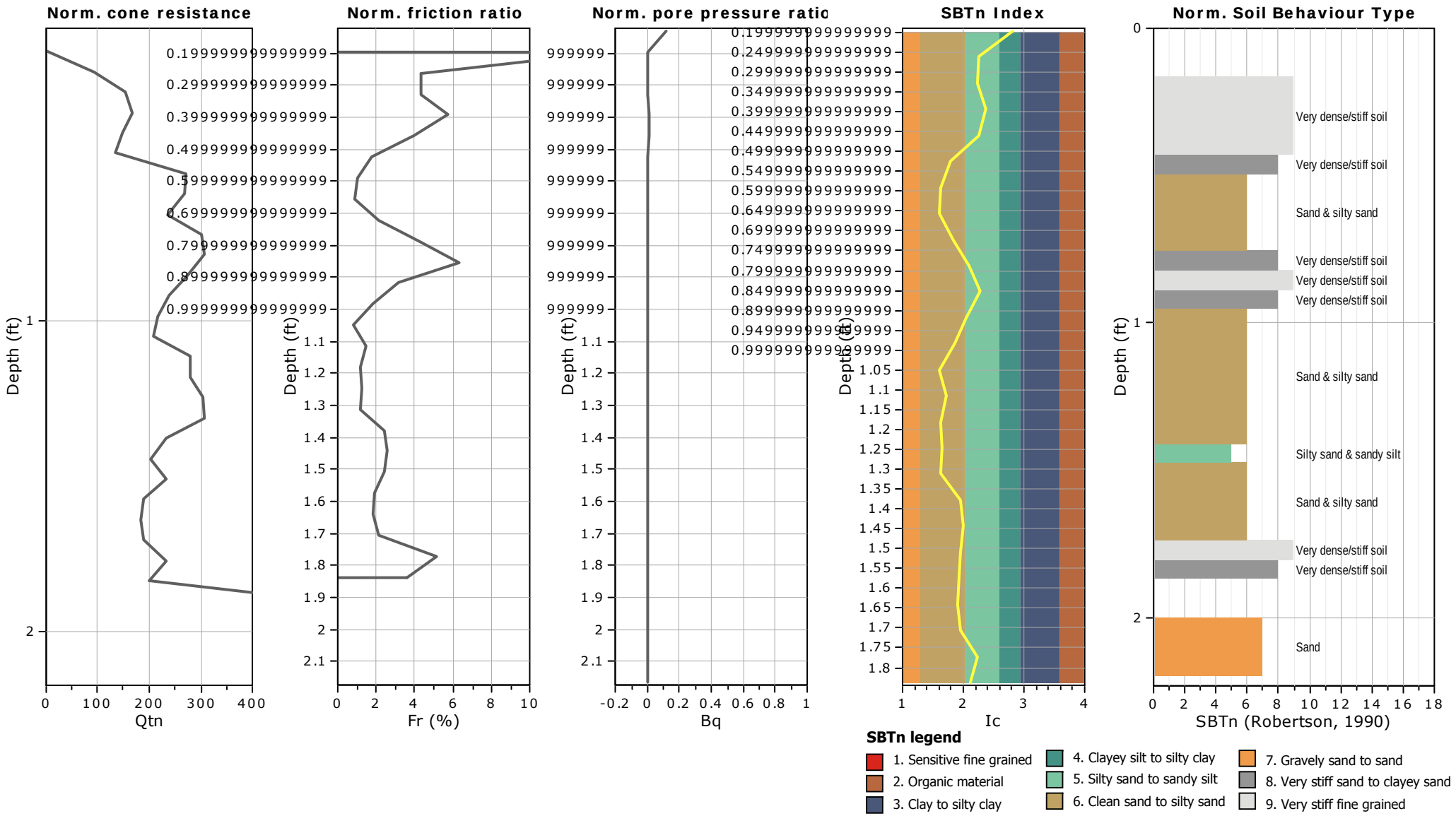

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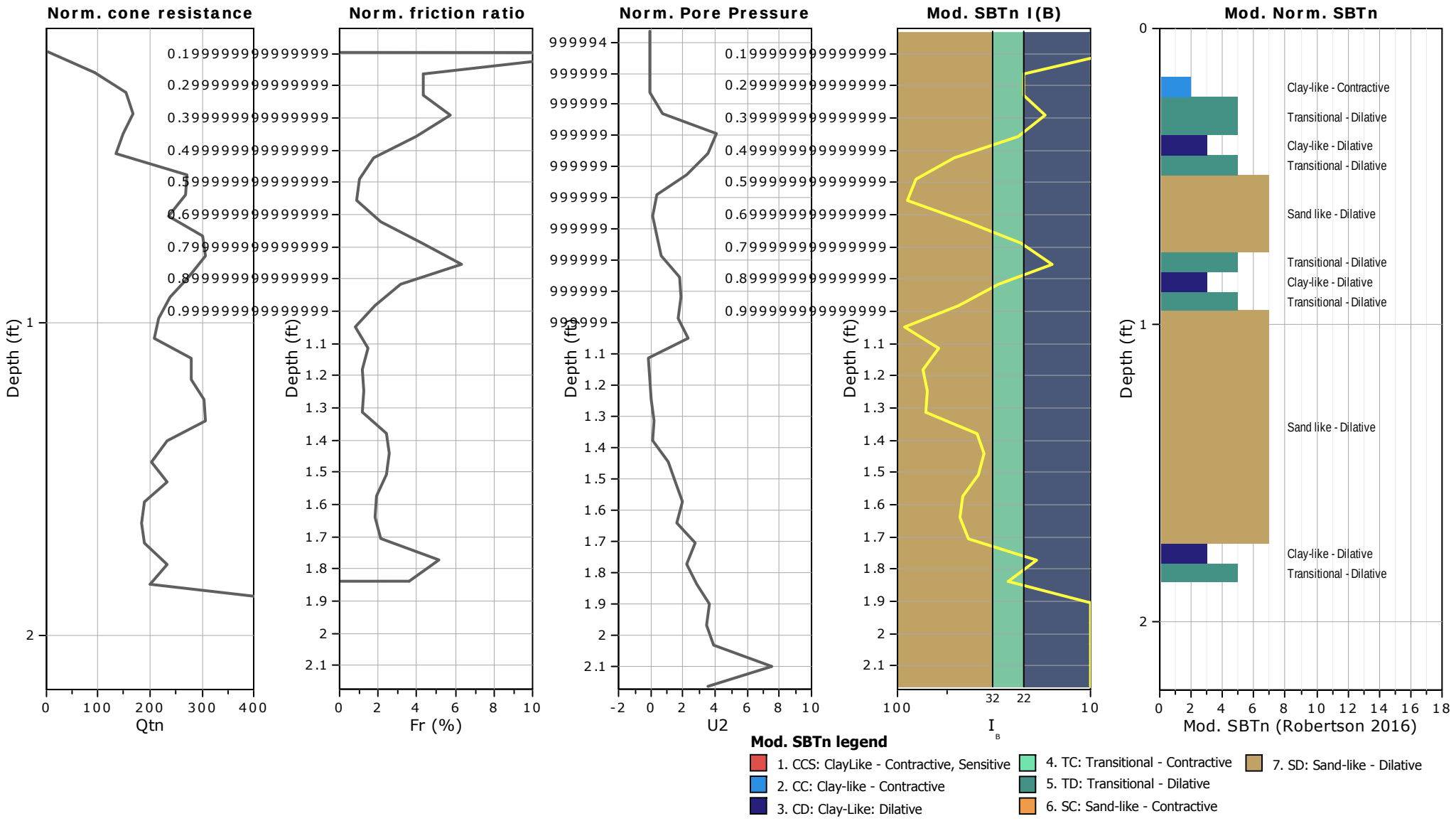

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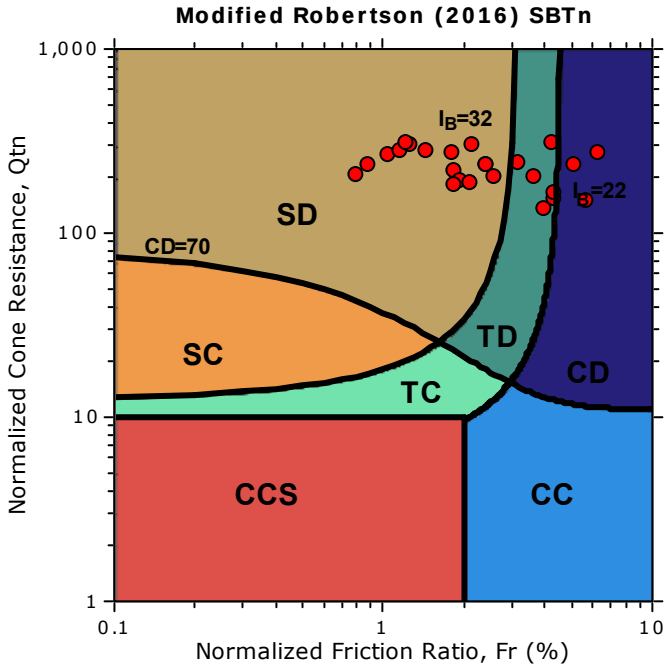
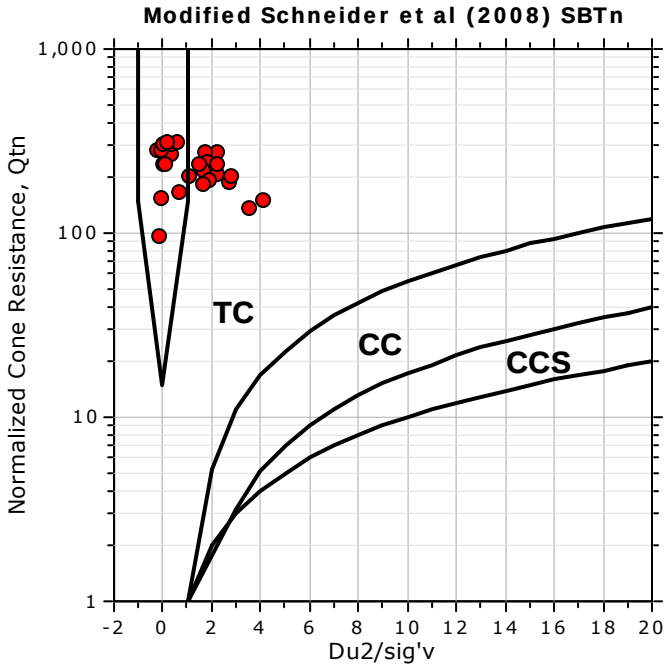
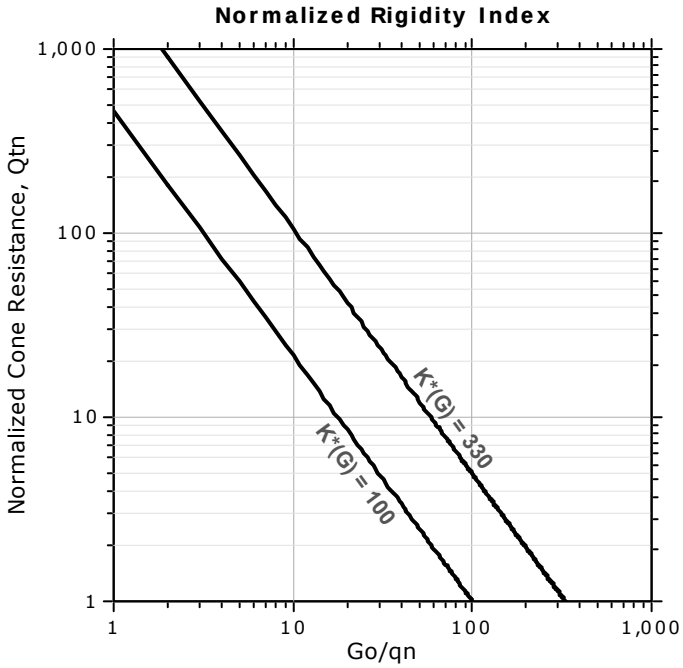
CPT-4
Total depth: 2.17 ft

Updated SBTn plots







CCS: Clay-like - Contractive - Sensitive
CC: Clay-like - Contractive
CD: Clay-like - Dilative
TC: Transitional - Contractive
TD: Transitional - Dilative
SC: Sand-like - Contractive
SD: Sand-like - Dilative

K(G) > 330: Soils with significant microstructure (e.g. age/cementation)

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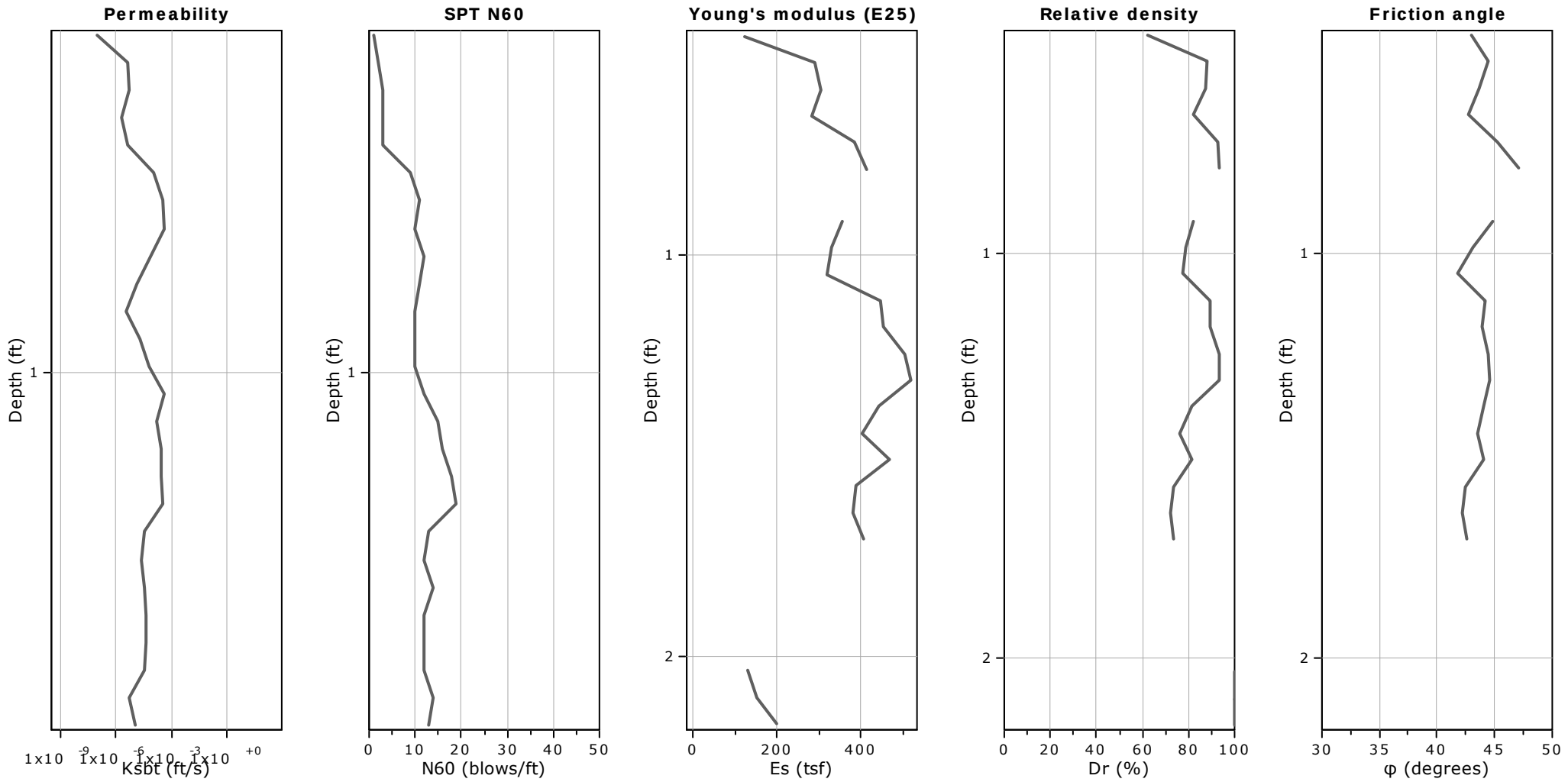
Project: **SESI**
Location: **Dobbs Ferry NY**

CPT-4
Total depth: 2.17 ft



Calculation parameters

Permeability: Based on SBT_n
SPT N_{60}: Based on I_c and q_t
Young's modulus: Based on variable alpha using I_c (Robertson, 2009)
Relative density constant, C_{Dr}: 350.0
Phi: Based on Kulhawy & Mayne (1990)
User defined estimation data

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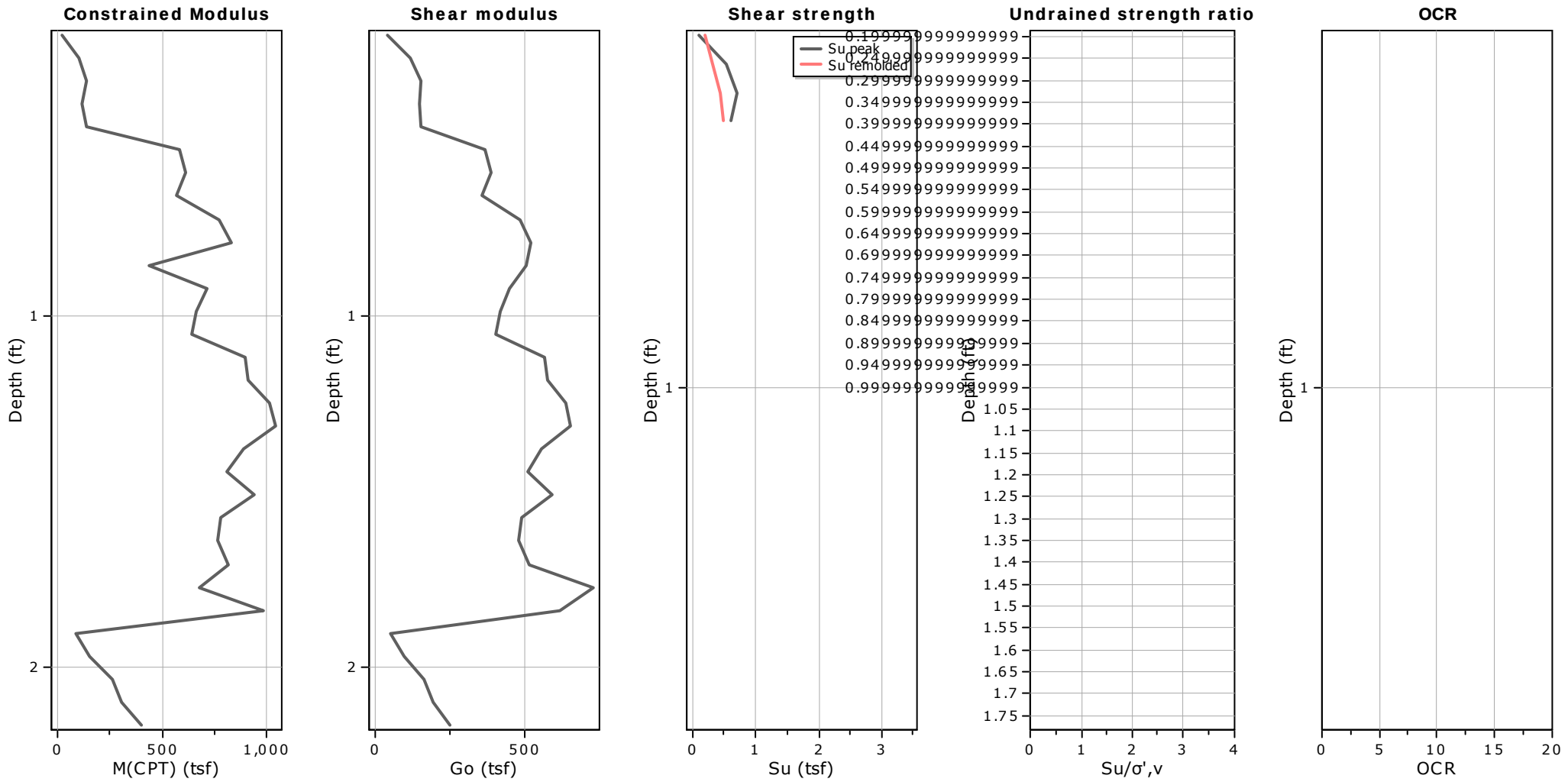
CPT-4
Total depth: 2.17 ft



Calculation parameters

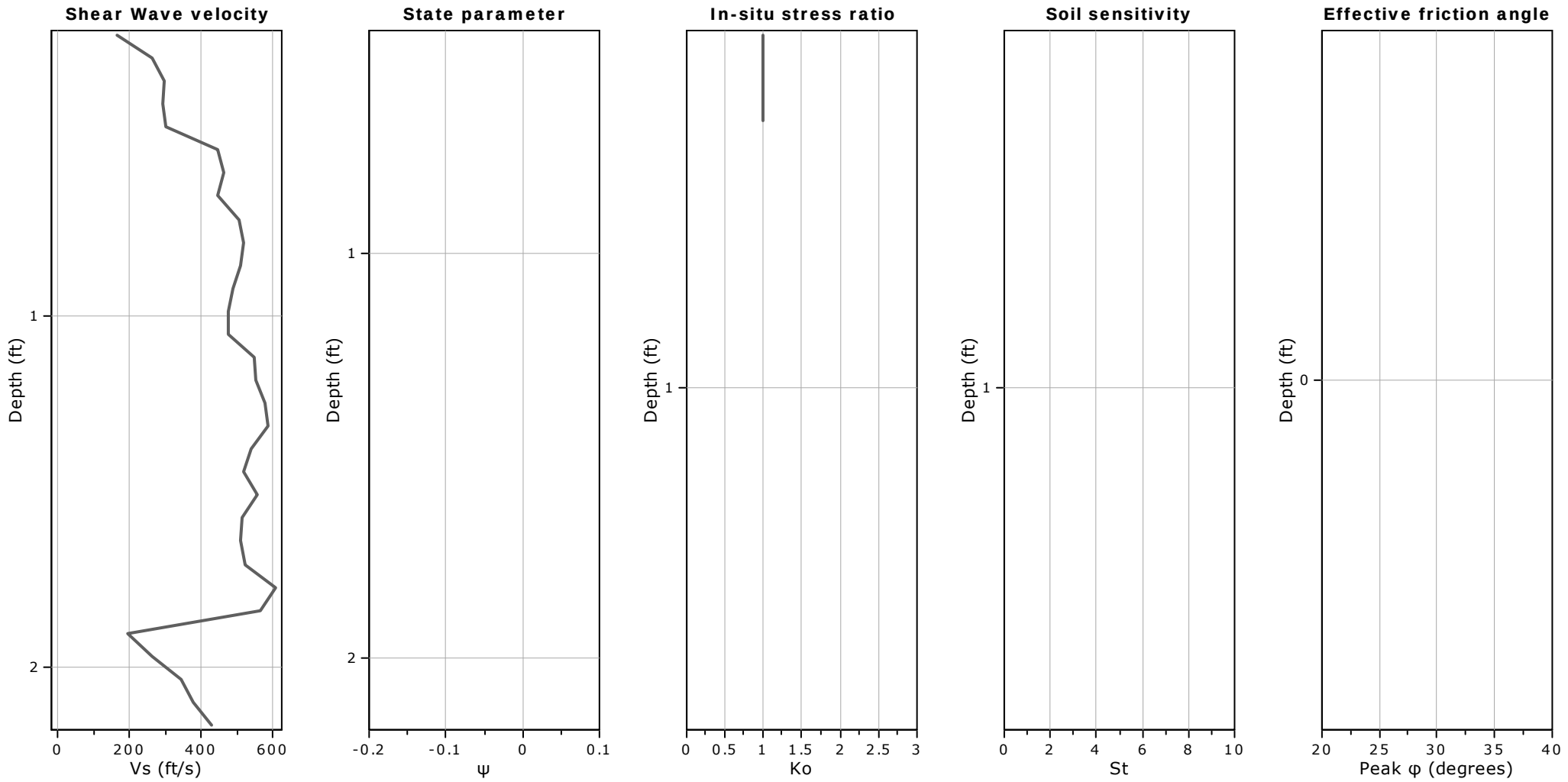
Constrained modulus: Based on variable *alpha* using I_c and Q_{tn} (Robertson, 2009)
Go: Based on variable *alpha* using I_c (Robertson, 2009)
Undrained shear strength cone factor for clays, N_{kt}: 14

OCR factor for clays, N_{kt}: 0.33
User defined estimation data
Flat Dilatometer Test data

Craig Geotechnical Drilling
5230 Atlantic Ave
Mays Landing, NJ

Project: **SESI**
Location: **Dobbs Ferry NY**

CPT-4
Total depth: 2.17 ft



Calculation parameters

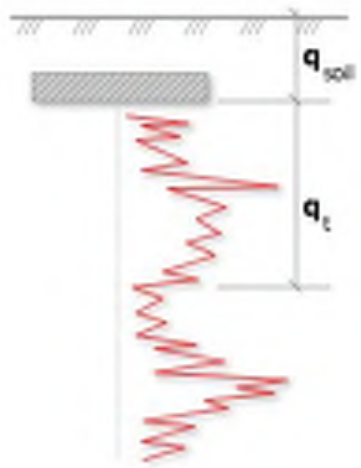
Soil Sensitivity factor, N_S: 350.00

User defined estimation data

Craig Geotechnical Drilling
5230 Atlantic Ave
Mays Landing, NJ

Project: **SESI**
Location: **Dobbs Ferry NY**

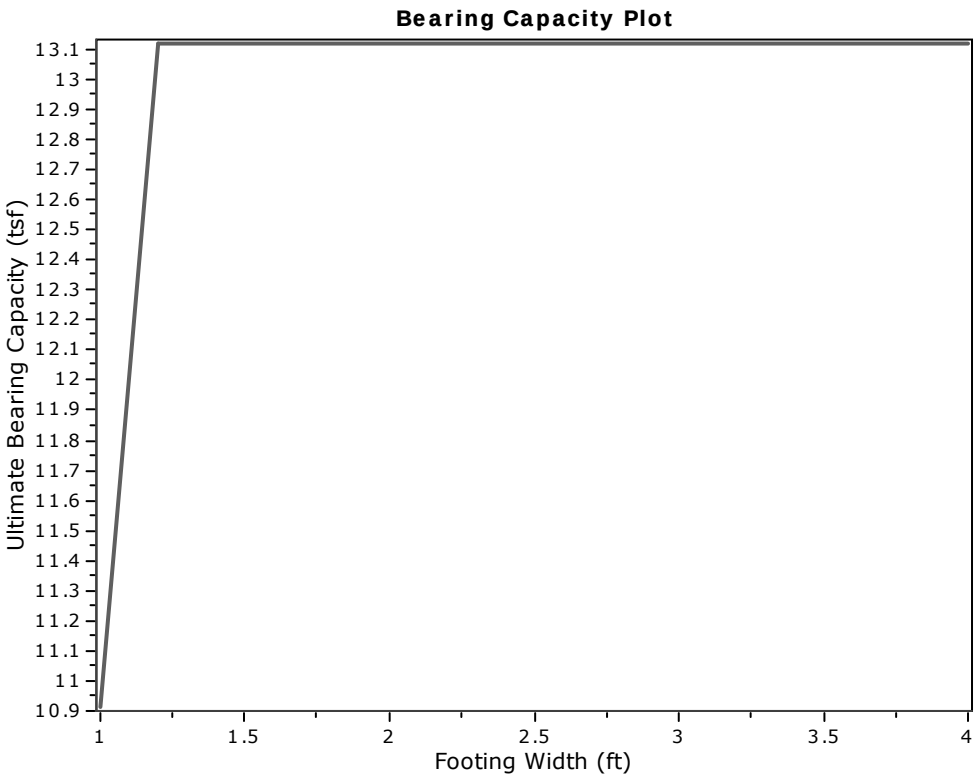
CPT-4
Total depth: 2.17 ft



Bearing Capacity calculation is perfromed based on the formula:

$$Q_{ult} = R_k \times q_t + q_{soil}$$

where:
R_k: Bearing capacity factor
q_t: Average corrected cone resistance over calculation depth
q_{soil}: Pressure applied by soil above footing



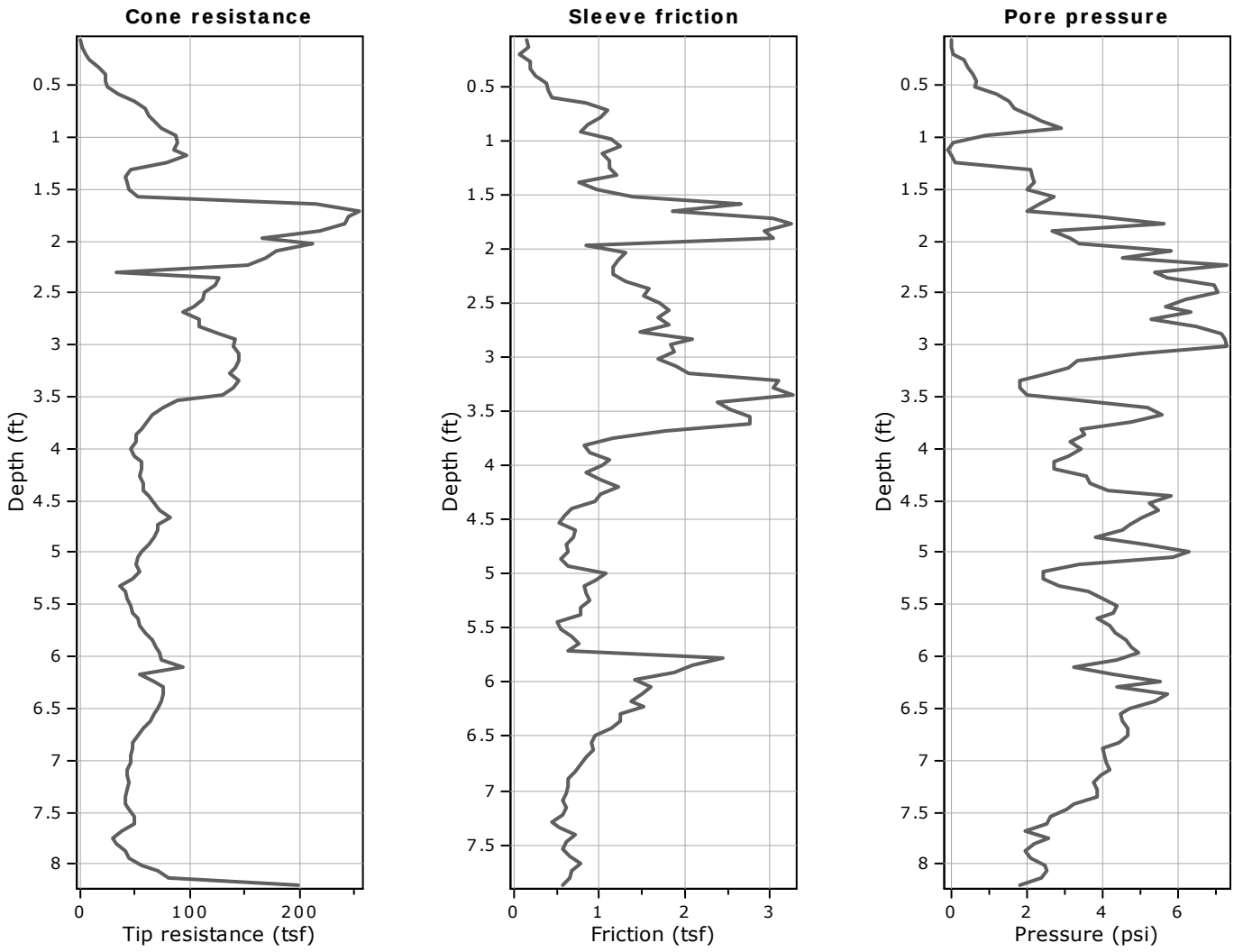
:: Tabular results ::

No	B (ft)	Start Depth (ft)	End Depth (ft)	Ave. q_t (tsf)	R_k	Soil Press. (tsf)	Ult. bearing cap. (tsf)
1	1.00	0.50	2.00	54.42	0.20	0.03	10.91
2	1.20	0.50	2.30	65.45	0.20	0.03	13.12
3	1.40	0.50	2.60	65.45	0.20	0.03	13.12
4	1.60	0.50	2.90	65.45	0.20	0.03	13.12
5	1.80	0.50	3.20	65.45	0.20	0.03	13.12
6	2.00	0.50	3.50	65.45	0.20	0.03	13.12
7	2.20	0.50	3.80	65.45	0.20	0.03	13.12
8	2.40	0.50	4.10	65.45	0.20	0.03	13.12
9	2.60	0.50	4.40	65.45	0.20	0.03	13.12
10	2.80	0.50	4.70	65.45	0.20	0.03	13.12
11	3.00	0.50	5.00	65.45	0.20	0.03	13.12
12	3.20	0.50	5.30	65.45	0.20	0.03	13.12
13	3.40	0.50	5.60	65.45	0.20	0.03	13.12
14	3.60	0.50	5.90	65.45	0.20	0.03	13.12
15	3.80	0.50	6.20	65.45	0.20	0.03	13.12
16	4.00	0.50	6.50	65.45	0.20	0.03	13.12

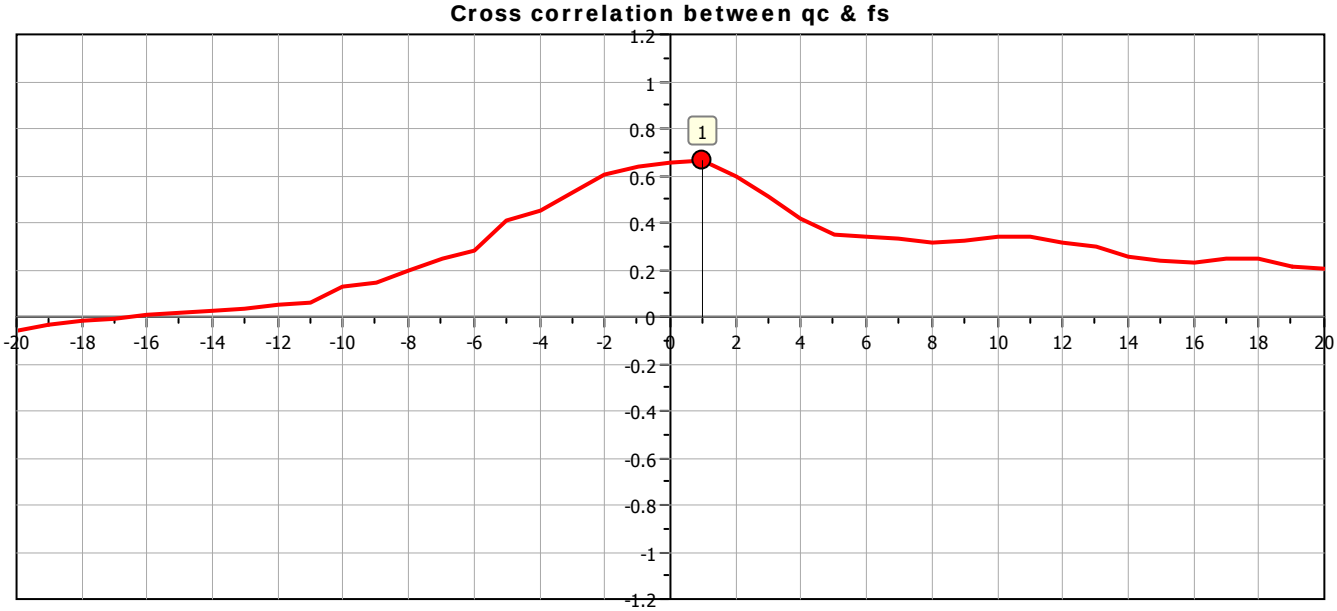
Craig Geotechnical Drilling
5230 Atlantic Ave
Mays Landing, NJ

Project: **SESI**
Location: **Dobbs Ferry NY**

CPT-5
Total depth: 8.20 ft



The plot below presents the cross correlation coeficient between the raw qc and fs values (as measured on the field). X axes presents the lag distance (one lag is the distance between two sucessive CPT measurements).

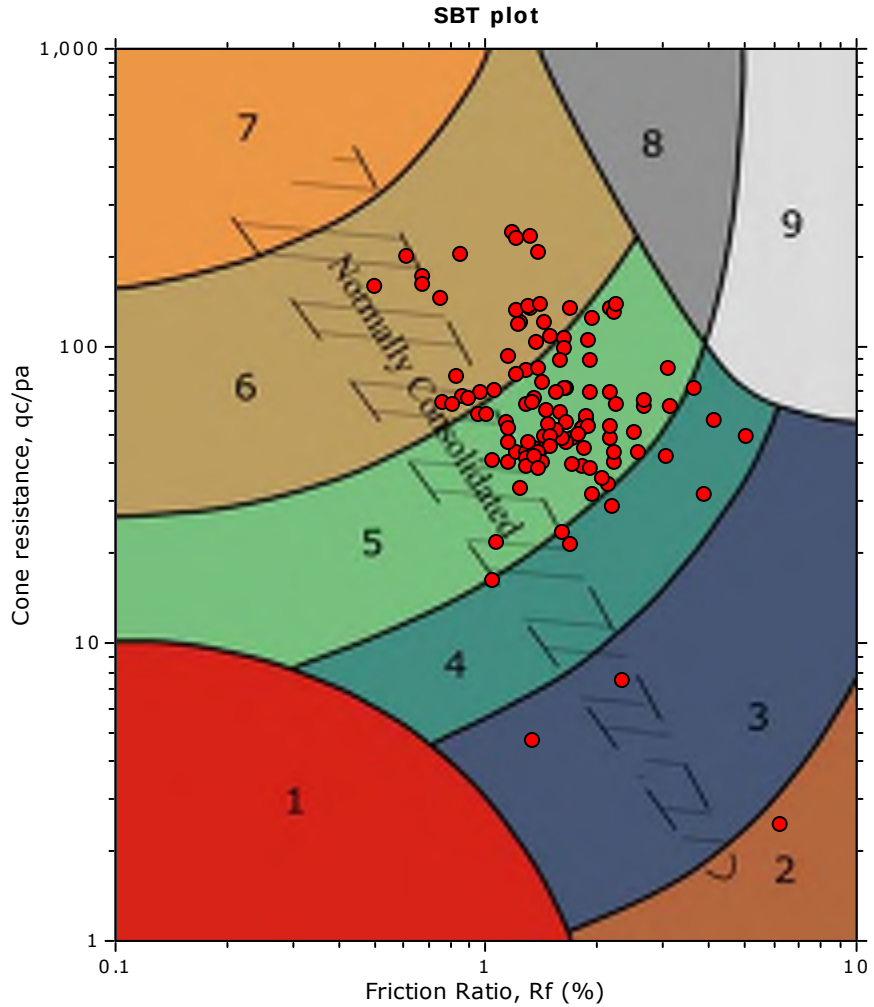


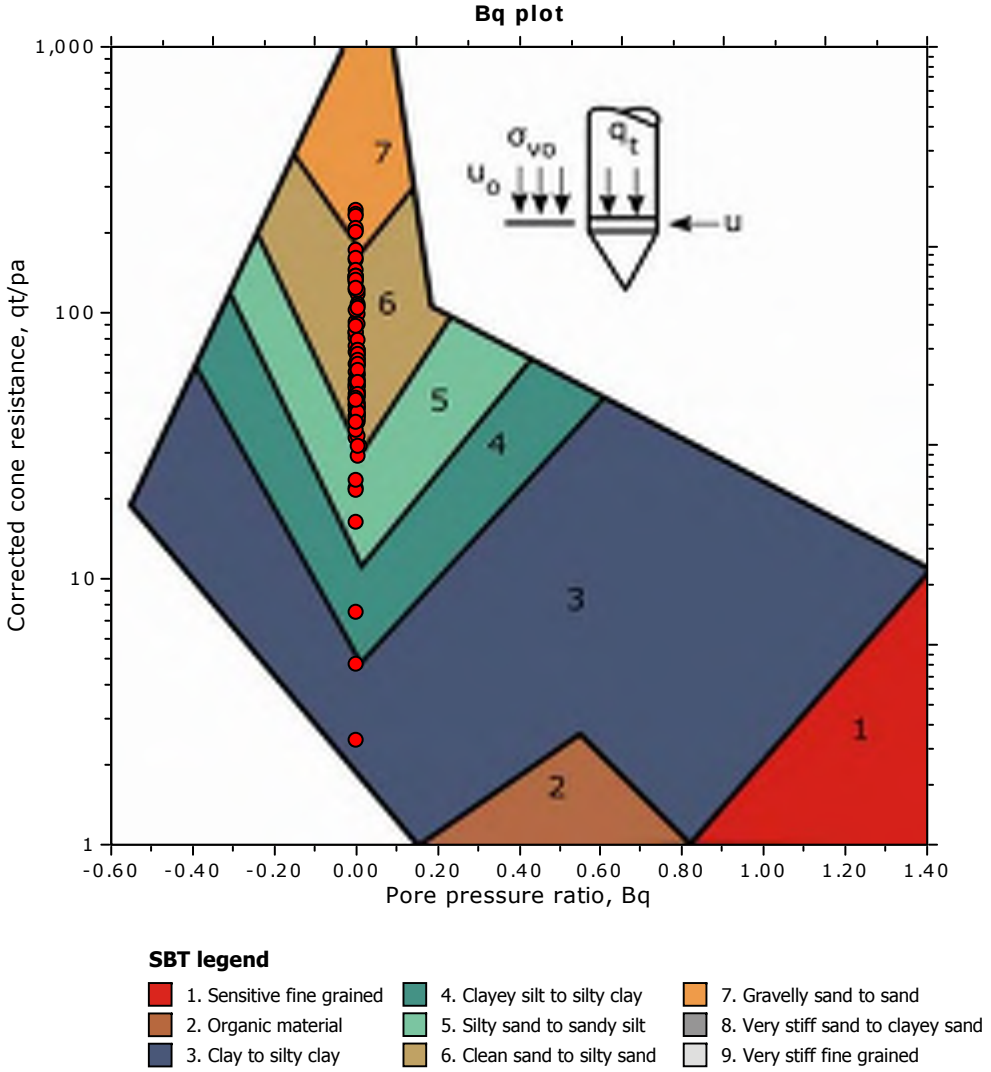
Craig Geotechnical Drilling
5230 Atlantic Ave
Mays Landing, NJ

Project: **SESI**
Location: **Dobbs Ferry NY**

CPT-5
Total depth: 8.20 ft

SBT - Bq plots



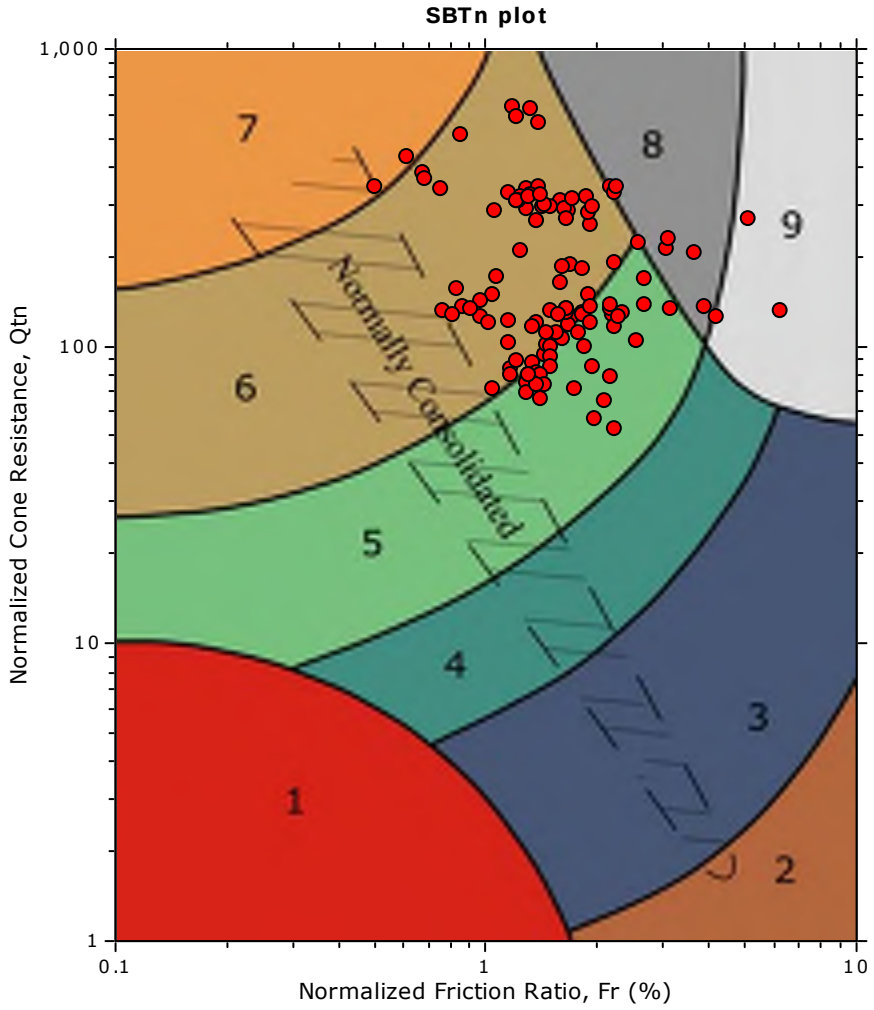


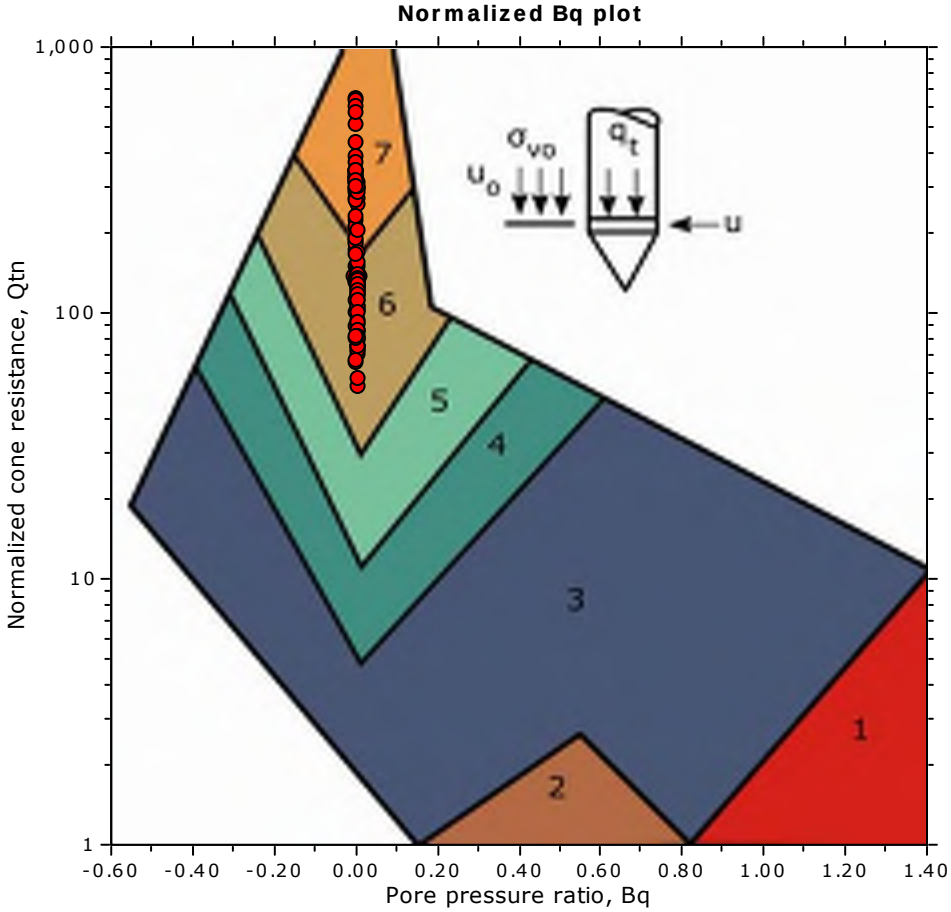
Craig Geotechnical Drilling
5230 Atlantic Ave
Mays Landing, NJ

Project: **SESI**
Location: **Dobbs Ferry NY**

CPT-5
Total depth: 8.20 ft

SBT - Bq plots (normalized)





SBTn legend

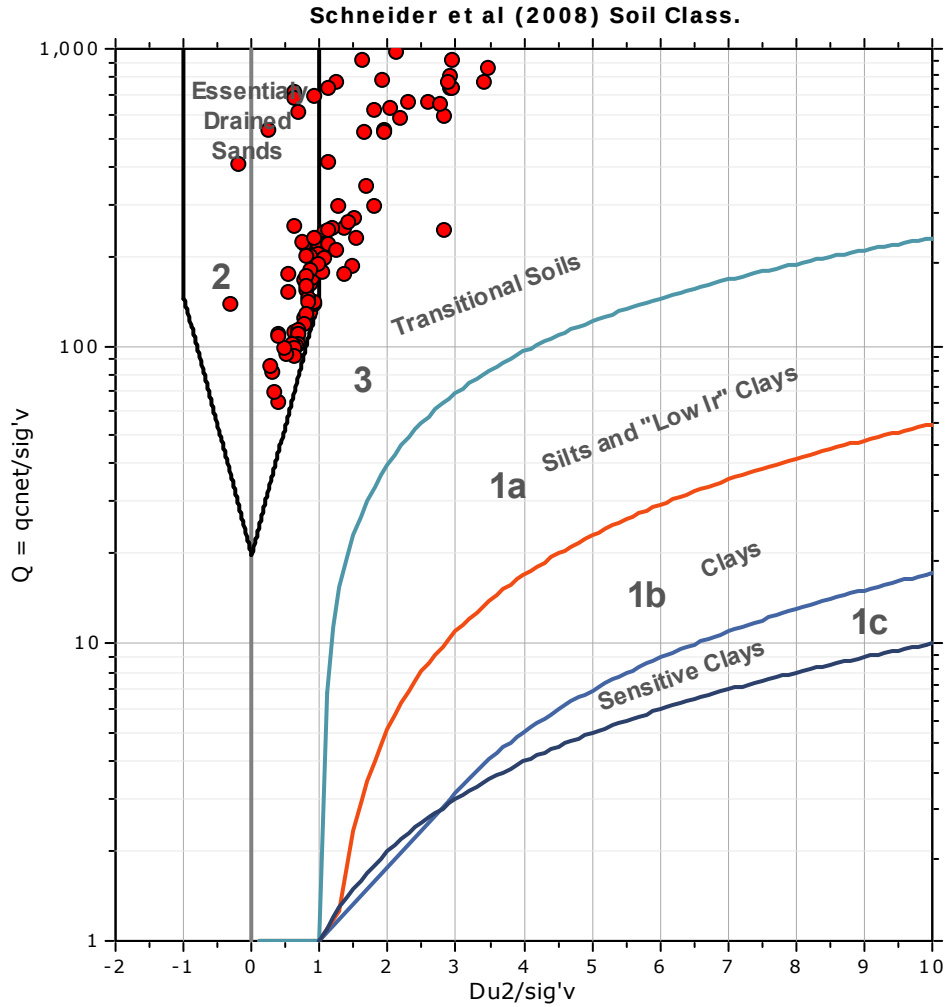
1. Sensitive fine grained	4. Clayey silt to silty clay	7. Gravelly sand to sand
2. Organic material	5. Silty sand to sandy silt	8. Very stiff sand to clayey sand
3. Clay to silty clay	6. Clean sand to silty sand	9. Very stiff fine grained

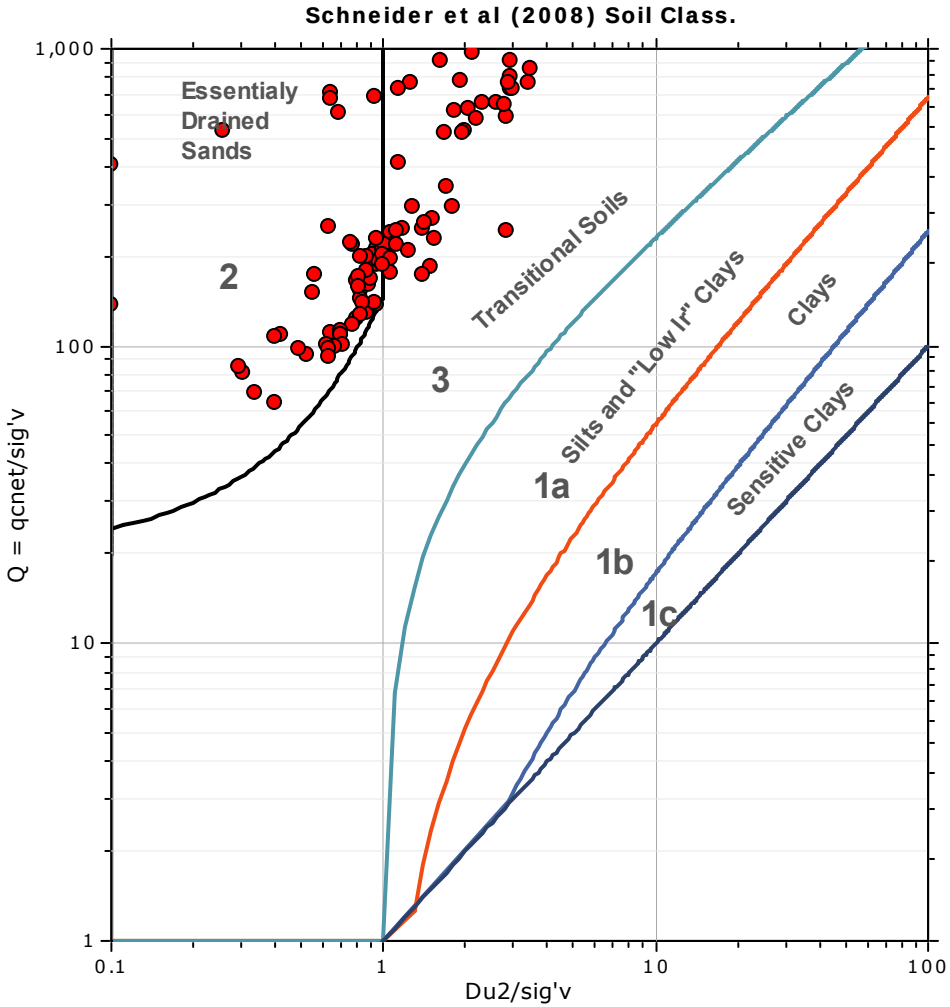
Craig Geotechnical Drilling
5230 Atlantic Ave
Mays Landing, NJ

Project: **SESI**
Location: **Dobbs Ferry NY**

CPT-5
Total depth: 8.20 ft

Bq plots (Schneider)

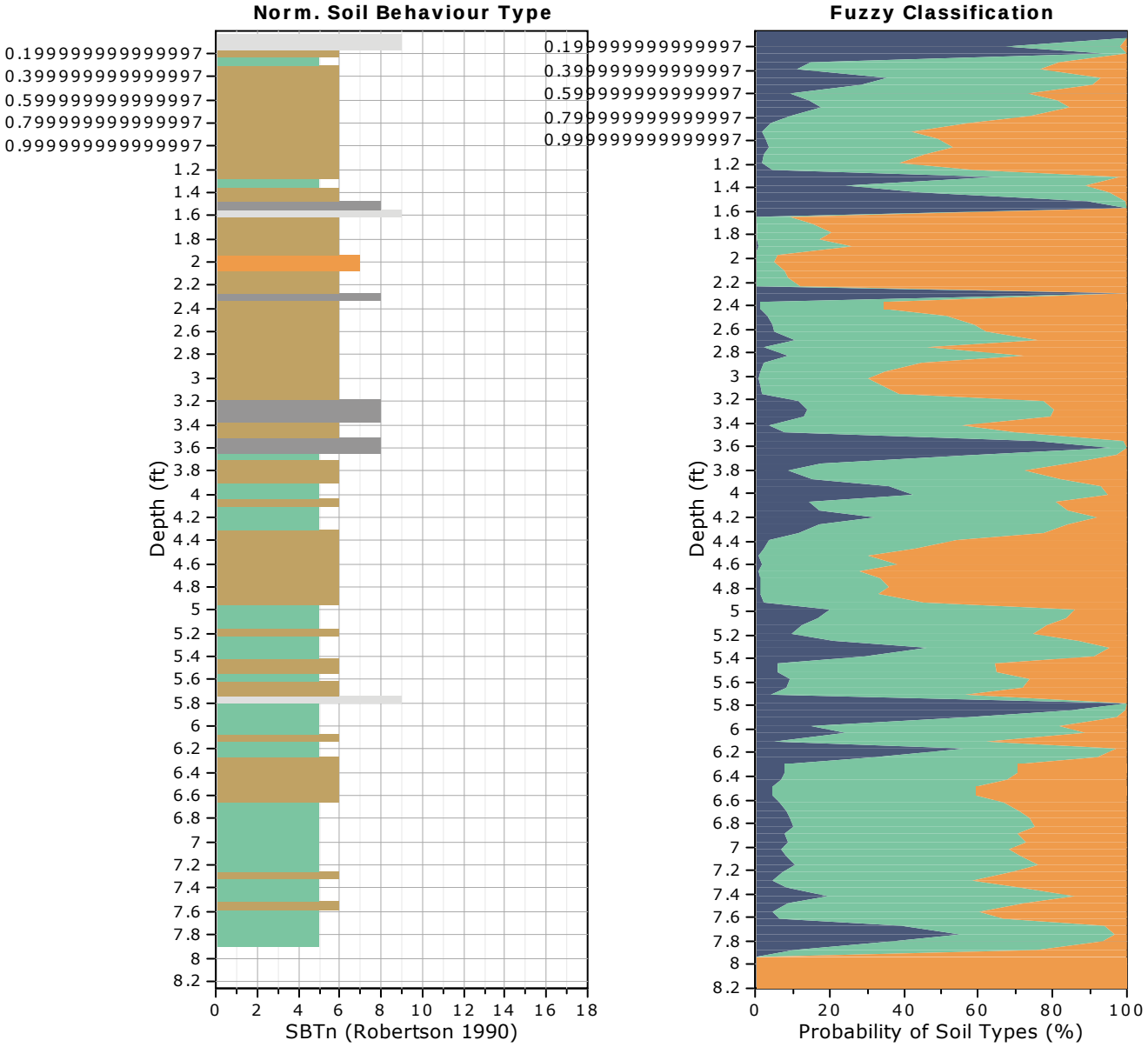




Craig Geotechnical Drilling
5230 Atlantic Ave
Mays Landing, NJ

Project: **SESI**
Location: **Dobbs Ferry NY**

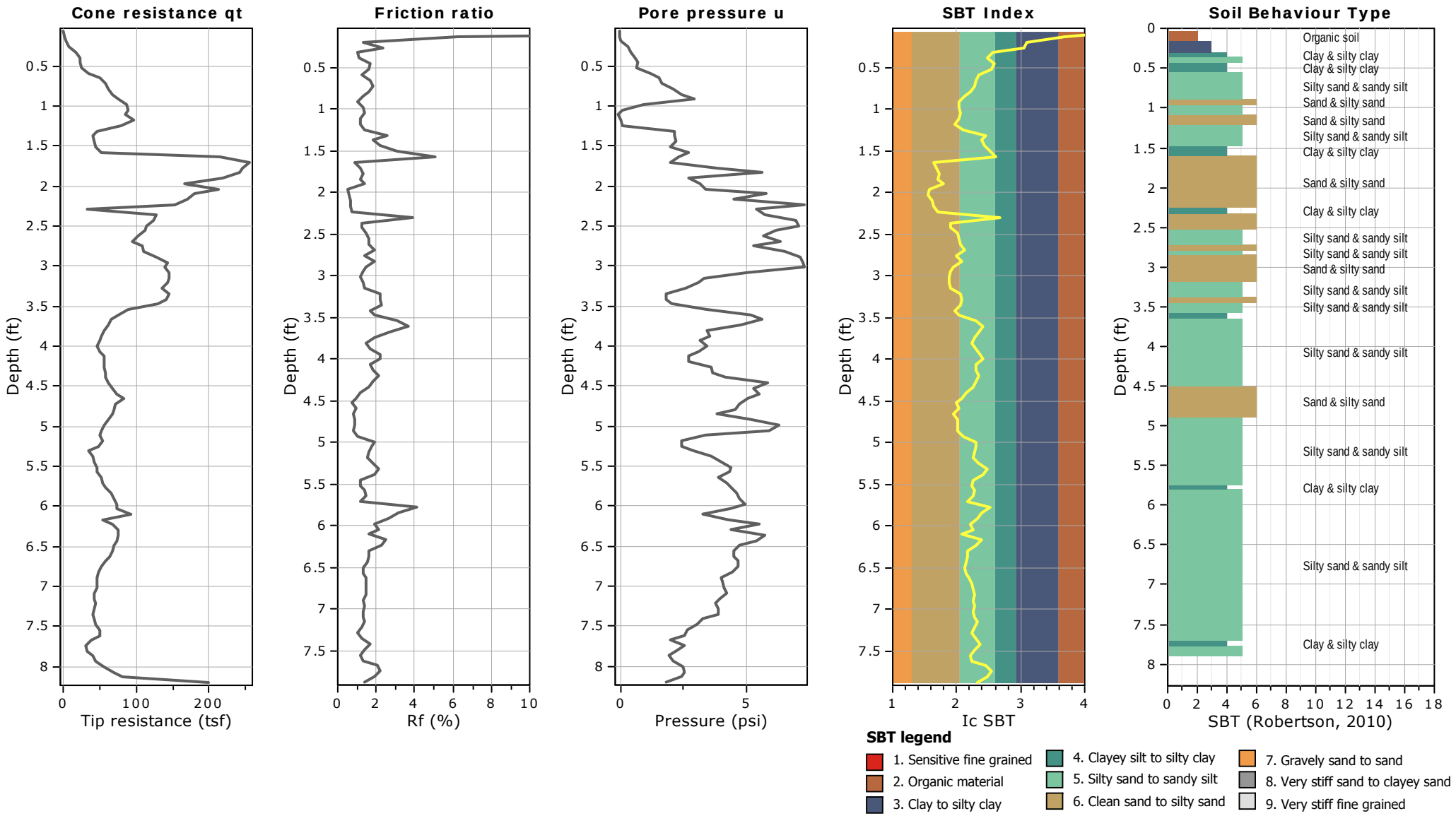
CPT-5
Total depth: 8.20 ft



Craig Geotechnical Drilling
5230 Atlantic Ave
Mays Landing, NJ

Project: **SESI**
Location: **Dobbs Ferry NY**

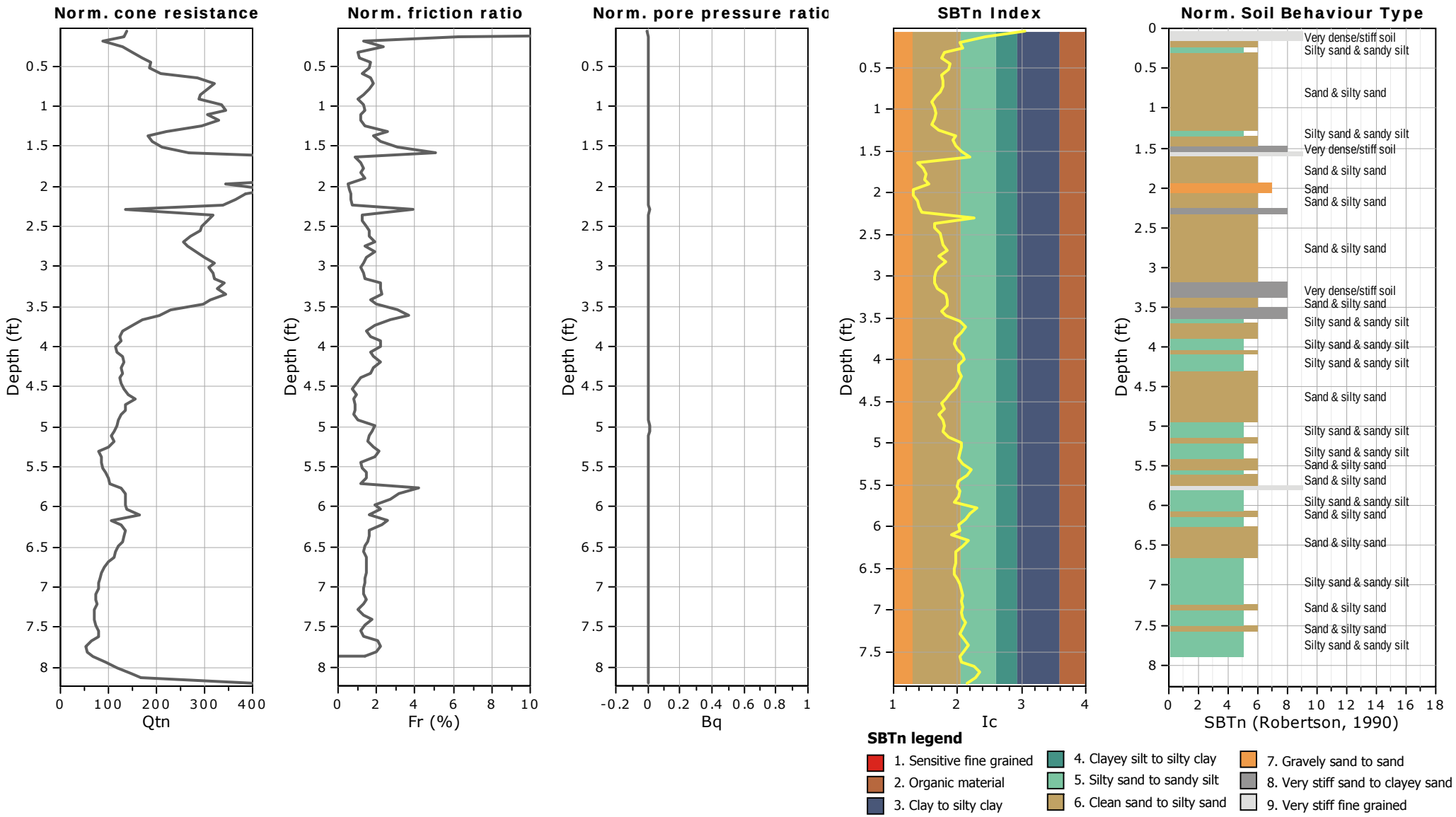
CPT-5
Total depth: 8.20 ft



Craig Geotechnical Drilling
5230 Atlantic Ave
Mays Landing, NJ

Project: **SESI**
Location: **Dobbs Ferry NY**

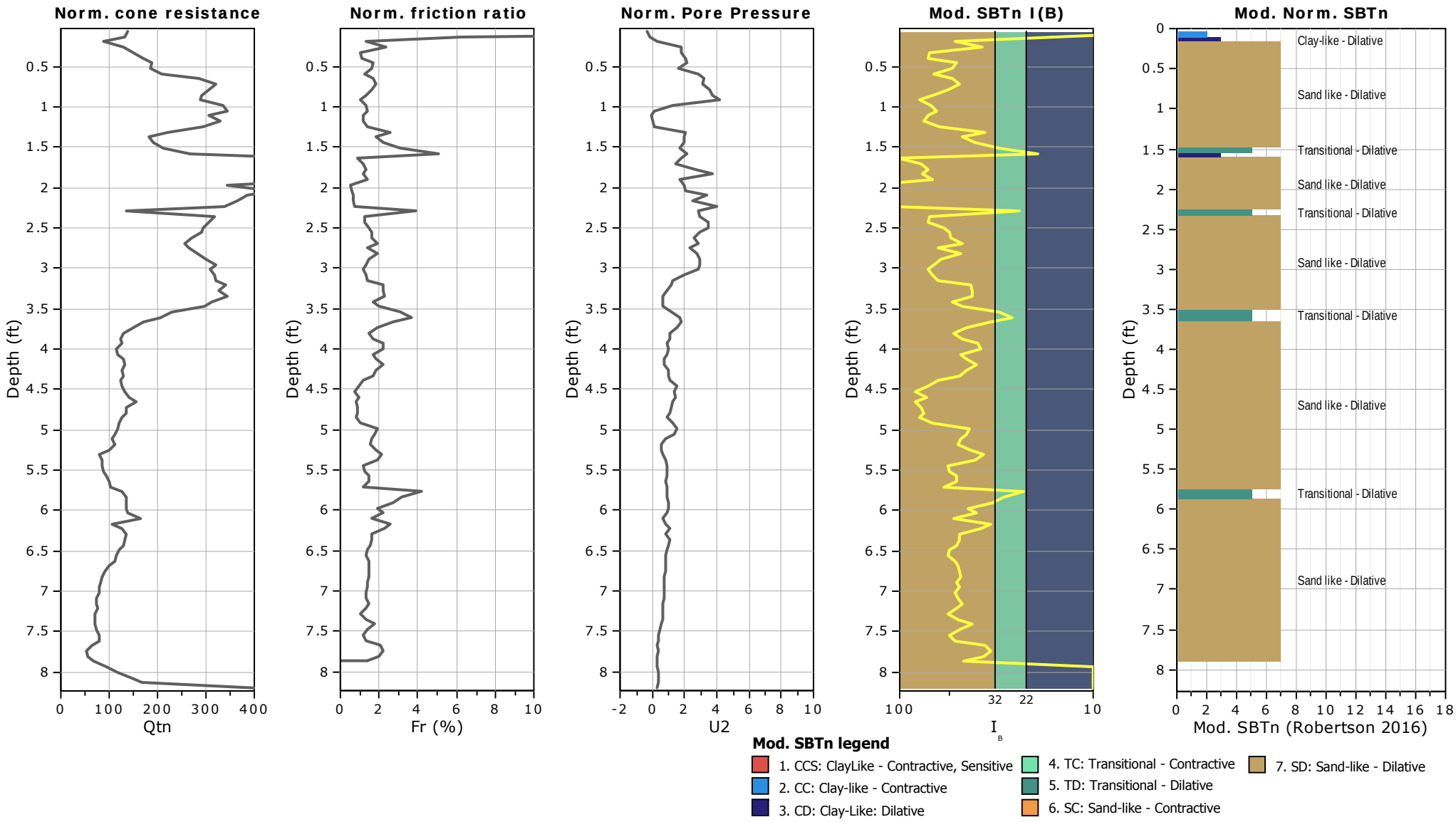
CPT-5
Total depth: 8.20 ft



Craig Geotechnical Drilling
5230 Atlantic Ave
Mays Landing, NJ

Project: **SESI**
Location: **Dobbs Ferry NY**

CPT-5
Total depth: 8.20 ft

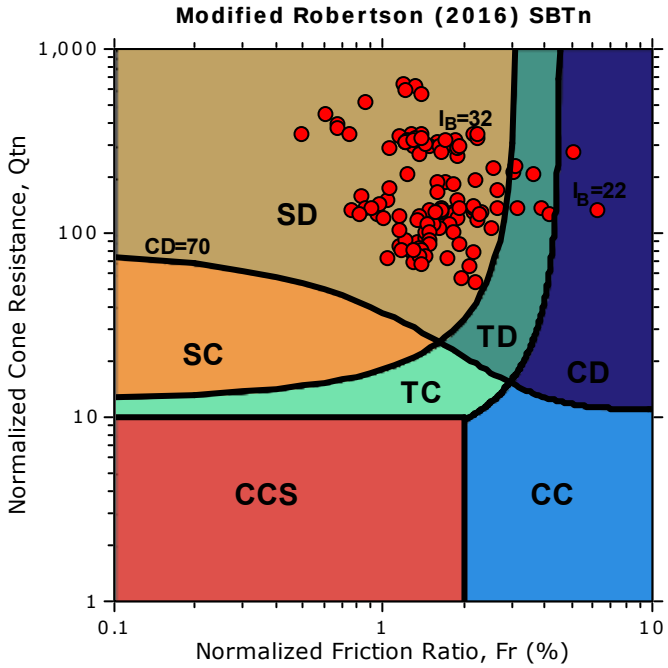


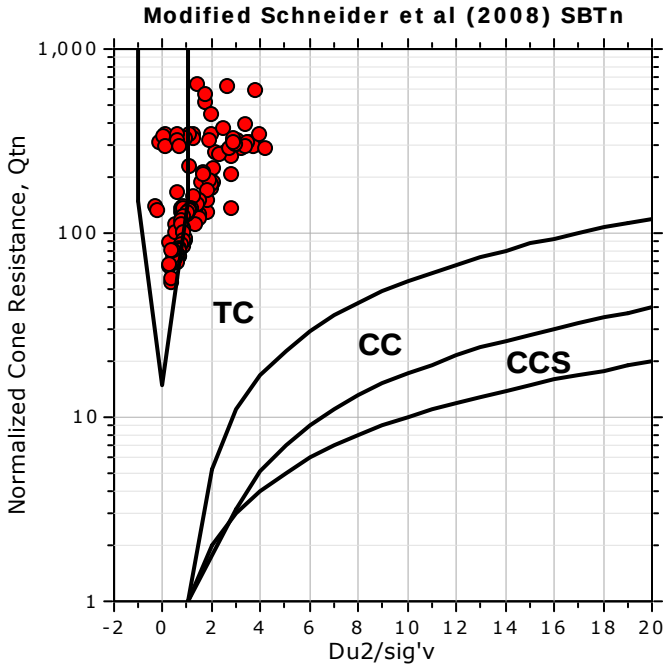
Craig Geotechnical Drilling
5230 Atlantic Ave
Mays Landing, NJ

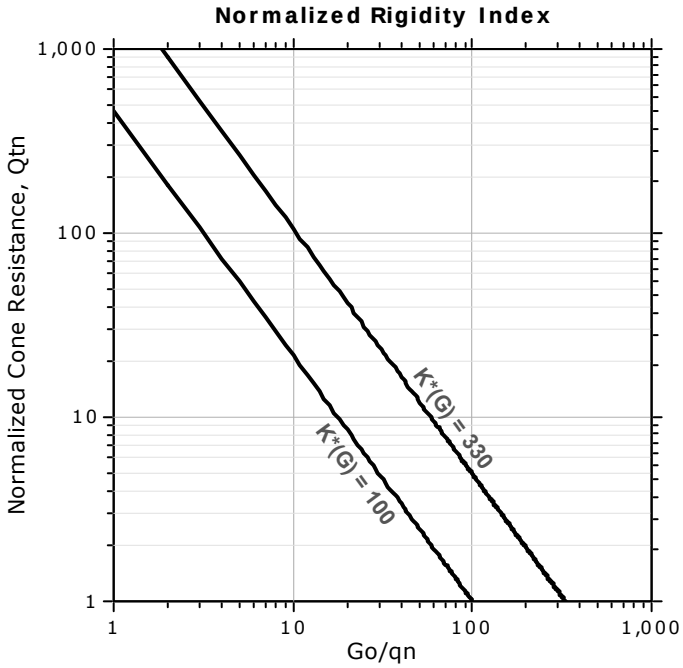
Project: **SESI**
Location: **Dobbs Ferry NY**

CPT-5
Total depth: 8.20 ft

Updated SBTn plots







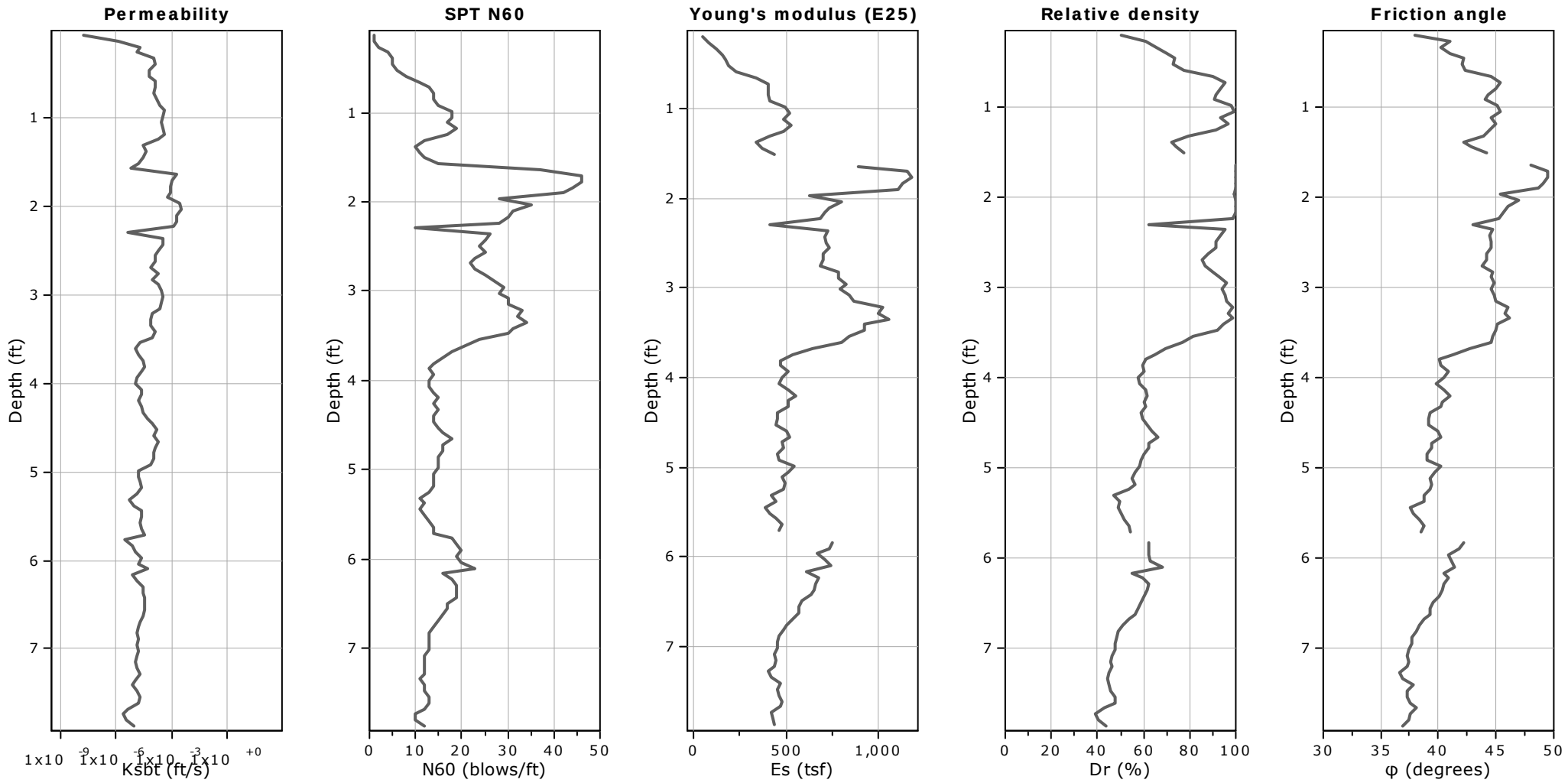
CCS: Clay-like - Contractive - Sensitive
CC: Clay-like - Contractive
CD: Clay-like - Dilative
TC: Transitional - Contractive
TD: Transitional - Dilative
SC: Sand-like - Contractive
SD: Sand-like - Dilative

K(G) > 330: Soils with significant microstructure (e.g. age/cementation)

Craig Geotechnical Drilling
5230 Atlantic Ave
Mays Landing, NJ

Project: **SESI**
Location: **Dobbs Ferry NY**

CPT-5
Total depth: 8.20 ft



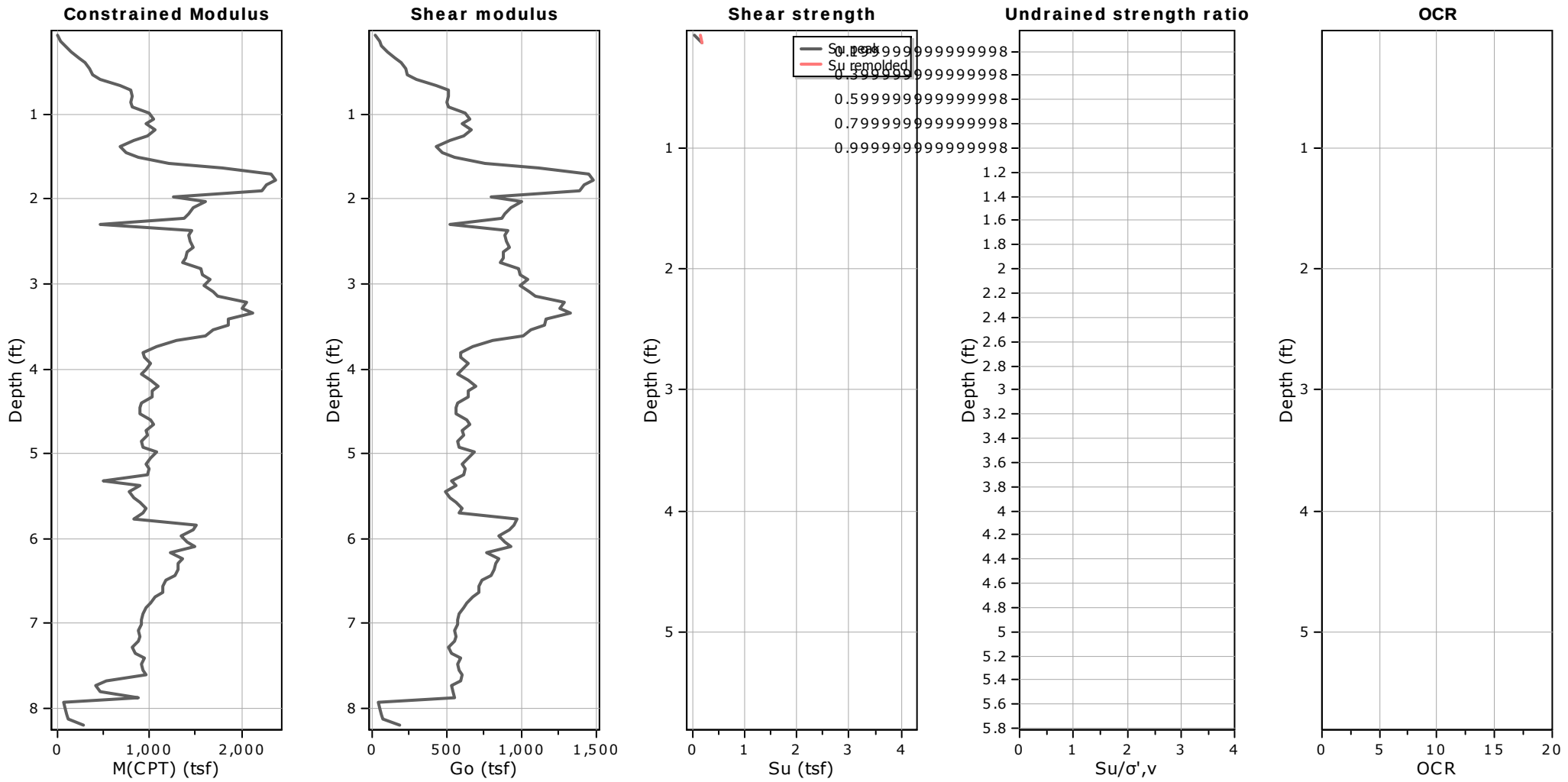
Calculation parameters

Permeability: Based on SBT_n
SPT N_{60}: Based on I_c and q_t
Young's modulus: Based on variable alpha using I_c (Robertson, 2009)
Relative density constant, C_{Dr}: 350.0
Phi: Based on Kulhawy & Mayne (1990)
User defined estimation data

Craig Geotechnical Drilling
5230 Atlantic Ave
Mays Landing, NJ

Project: **SESI**
Location: **Dobbs Ferry NY**

CPT-5
Total depth: 8.20 ft



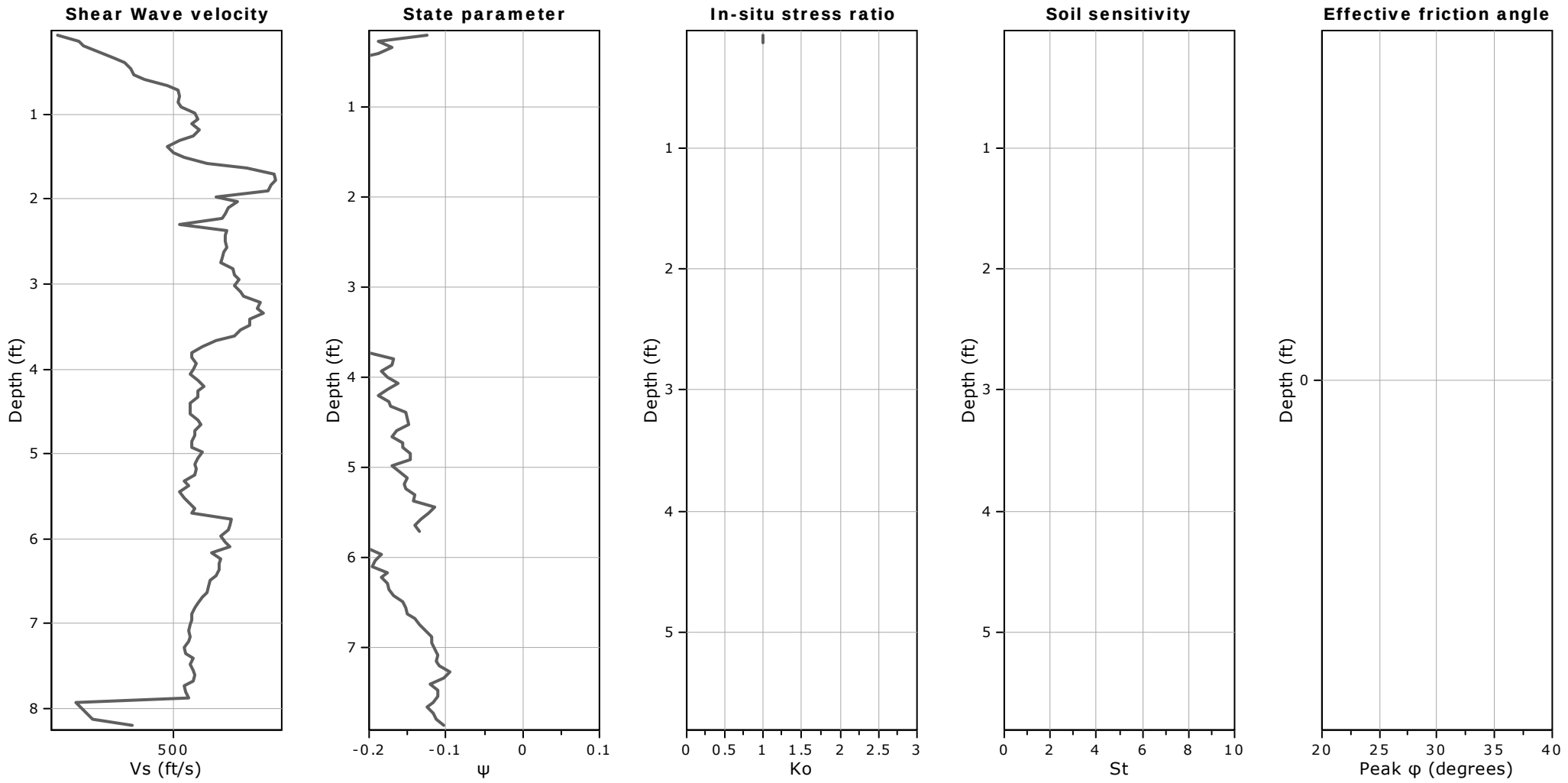
Calculation parameters

Constrained modulus: Based on variable *alpha* using I_c and Q_{tn} (Robertson, 2009)
Go: Based on variable *alpha* using I_c (Robertson, 2009)
Undrained shear strength cone factor for clays, N_{kt}: 14
OCR factor for clays, N_{kt}: 0.33
User defined estimation data
Flat Dilatometer Test data

Craig Geotechnical Drilling
5230 Atlantic Ave
Mays Landing, NJ

Project: **SESI**
Location: **Dobbs Ferry NY**

CPT-5
Total depth: 8.20 ft



Calculation parameters

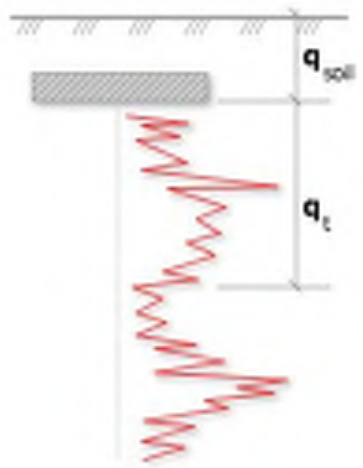
Soil Sensitivity factor, N_S: 350.00

User defined estimation data

Craig Geotechnical Drilling
5230 Atlantic Ave
Mays Landing, NJ

Project: **SESI**
Location: **Dobbs Ferry NY**

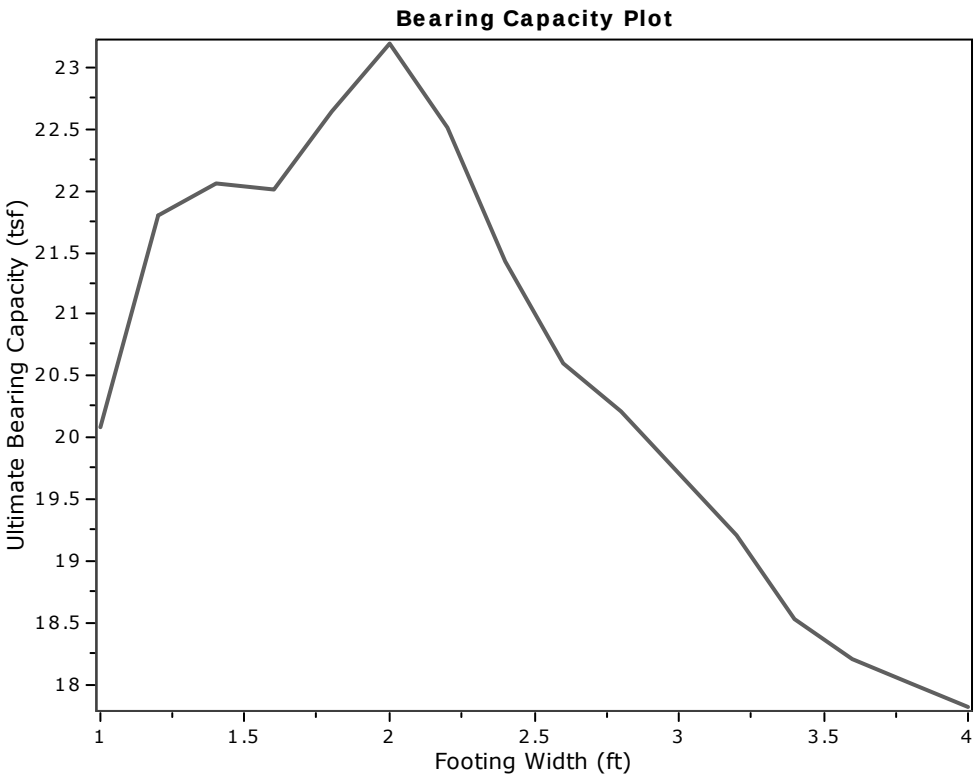
CPT-5
Total depth: 8.20 ft



Bearing Capacity calculation is perfromed based on the formula:

$$Q_{ult} = R_k \times q_t + q_{soil}$$

where:
R_k: Bearing capacity factor
q_t: Average corrected cone resistance over calculation depth
q_{soil}: Pressure applied by soil above footing



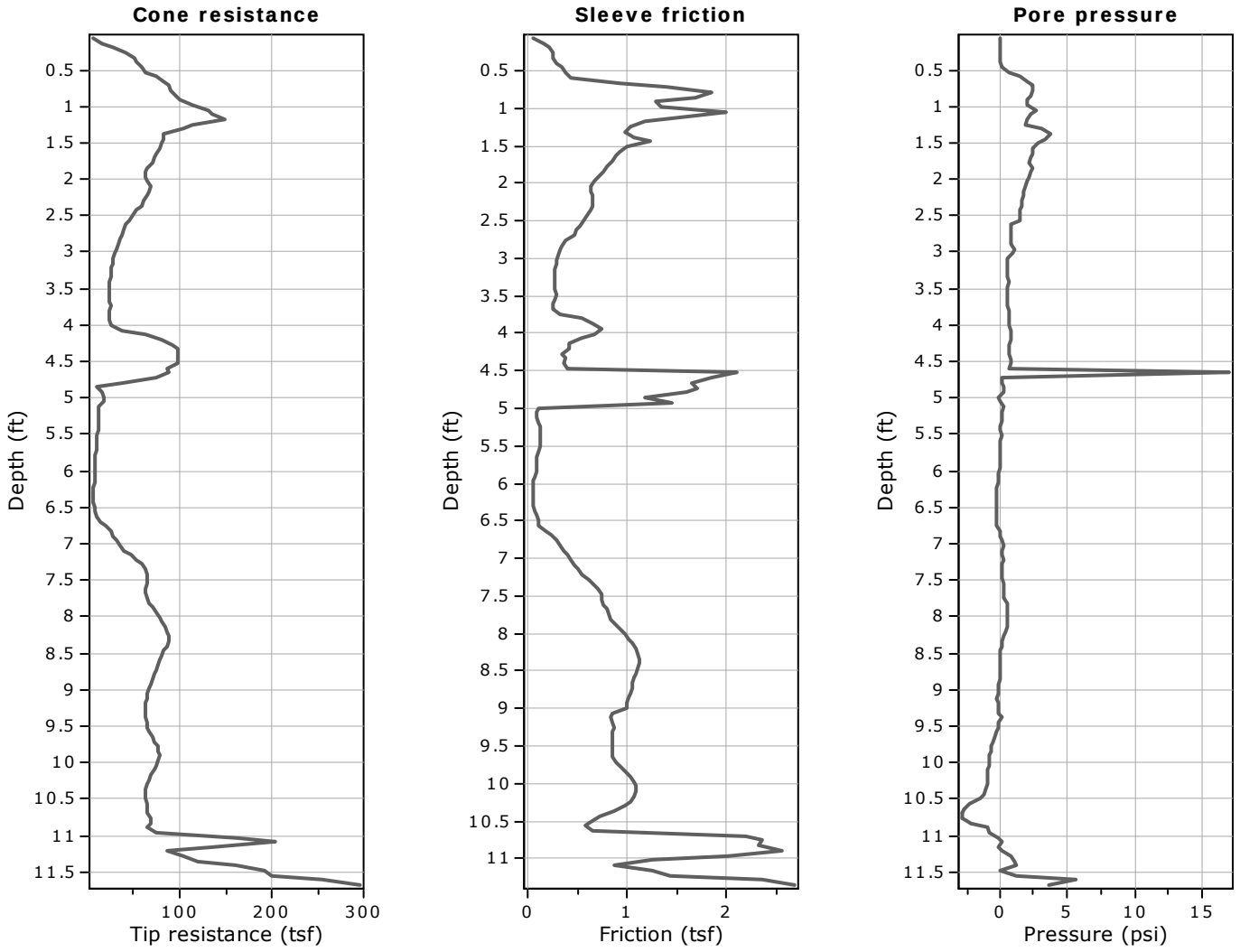
:: Tabular results ::

No	B (ft)	Start Depth (ft)	End Depth (ft)	Ave. q_t (tsf)	R_k	Soil Press. (tsf)	Ult. bearing cap. (tsf)
1	1.00	0.50	2.00	100.31	0.20	0.03	20.09
2	1.20	0.50	2.30	108.84	0.20	0.03	21.80
3	1.40	0.50	2.60	110.12	0.20	0.03	22.05
4	1.60	0.50	2.90	109.92	0.20	0.03	22.01
5	1.80	0.50	3.20	113.07	0.20	0.03	22.64
6	2.00	0.50	3.50	115.81	0.20	0.03	23.19
7	2.20	0.50	3.80	112.45	0.20	0.03	22.52
8	2.40	0.50	4.10	106.97	0.20	0.03	21.42
9	2.60	0.50	4.40	102.86	0.20	0.03	20.60
10	2.80	0.50	4.70	100.95	0.20	0.03	20.22
11	3.00	0.50	5.00	98.43	0.20	0.03	19.72
12	3.20	0.50	5.30	95.91	0.20	0.03	19.21
13	3.40	0.50	5.60	92.55	0.20	0.03	18.54
14	3.60	0.50	5.90	90.90	0.20	0.03	18.21
15	3.80	0.50	6.20	89.88	0.20	0.03	18.01
16	4.00	0.50	6.50	88.95	0.20	0.03	17.82

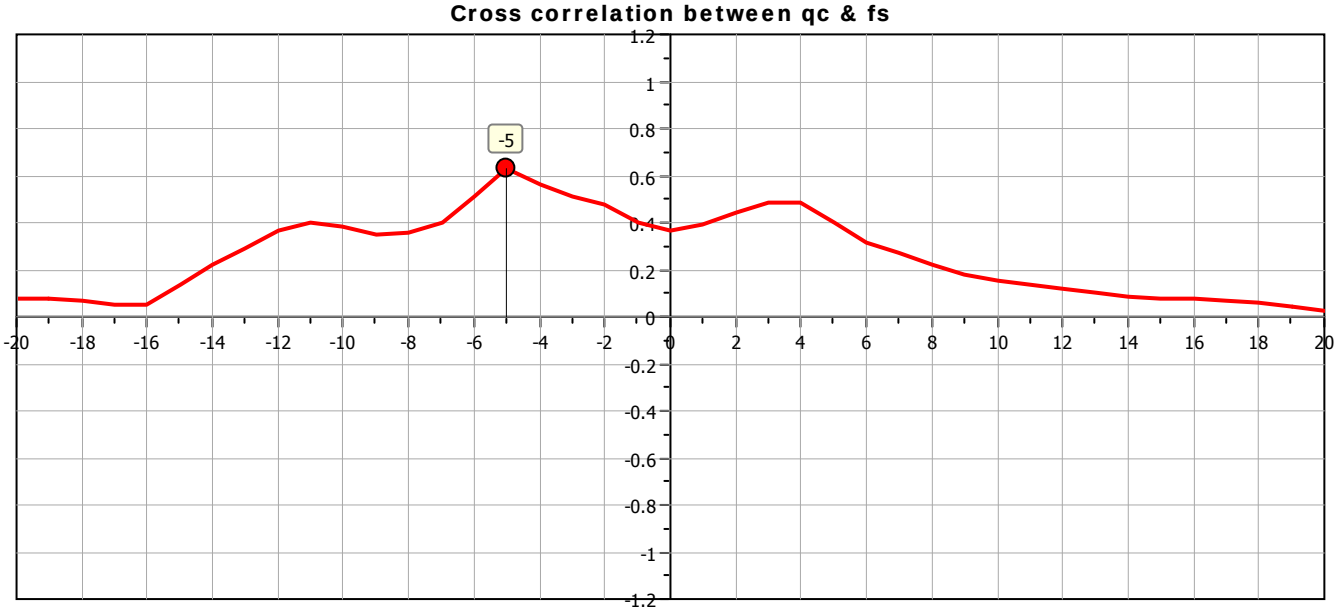
Craig Geotechnical Drilling
5230 Atlantic Ave
Mays Landing, NJ

Project: **SESI**
Location: **Dobbs Ferry NY**

Cpt-6
Total depth: 11.68 ft



The plot below presents the cross correlation coeficient between the raw qc and fs values (as measured on the field). X axes presents the lag distance (one lag is the distance between two sucessive CPT measurements).

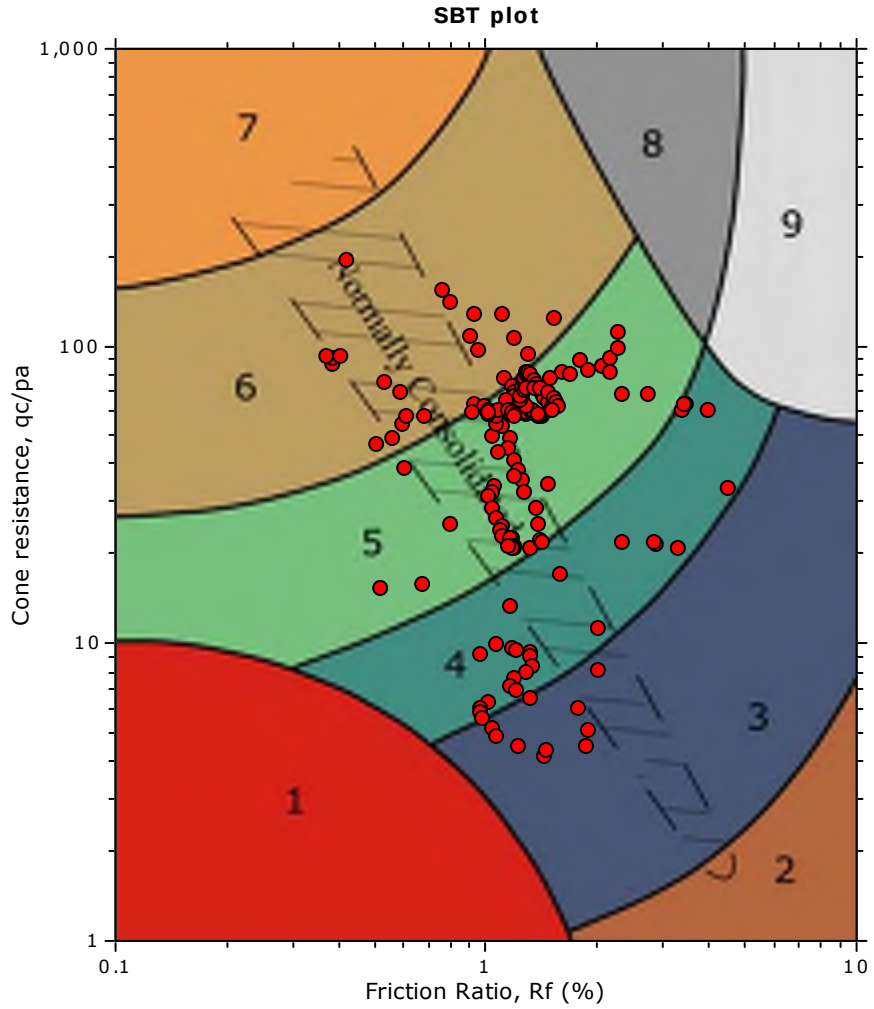


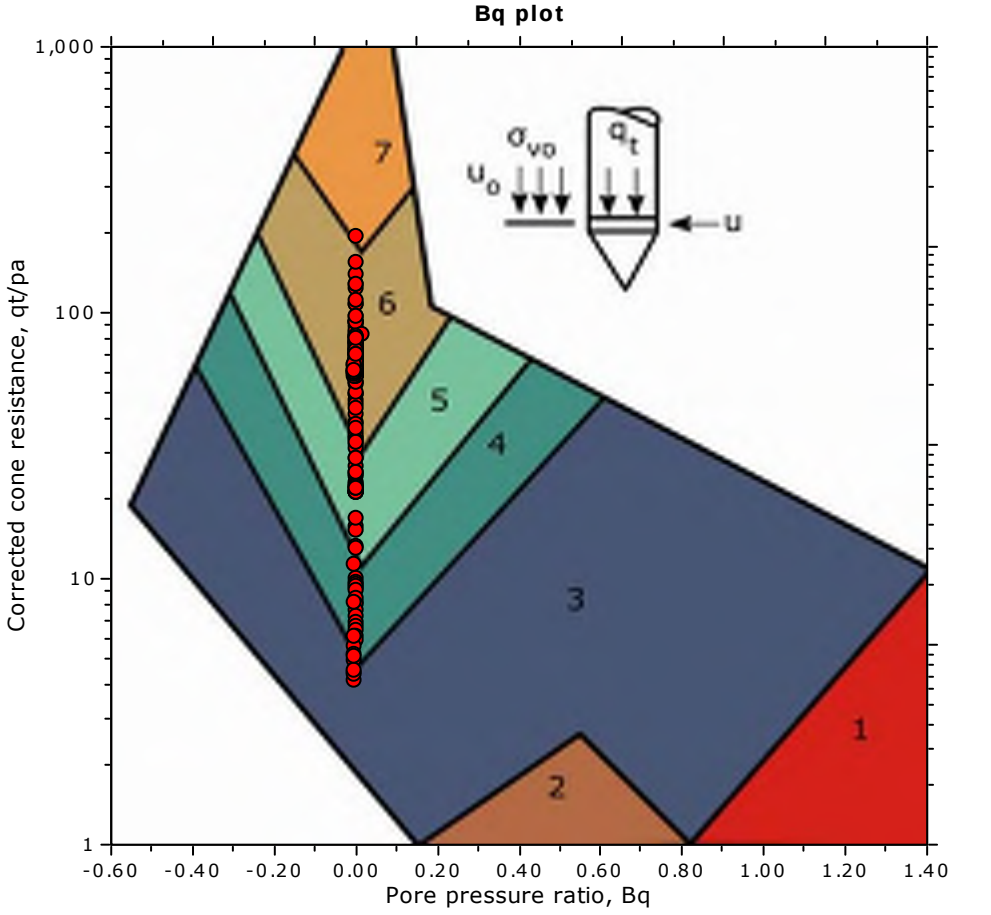
Craig Geotechnical Drilling
5230 Atlantic Ave
Mays Landing, NJ

Project: **SESI**
Location: **Dobbs Ferry NY**

Cpt-6
Total depth: 11.68 ft

SBT - Bq plots





SBT legend

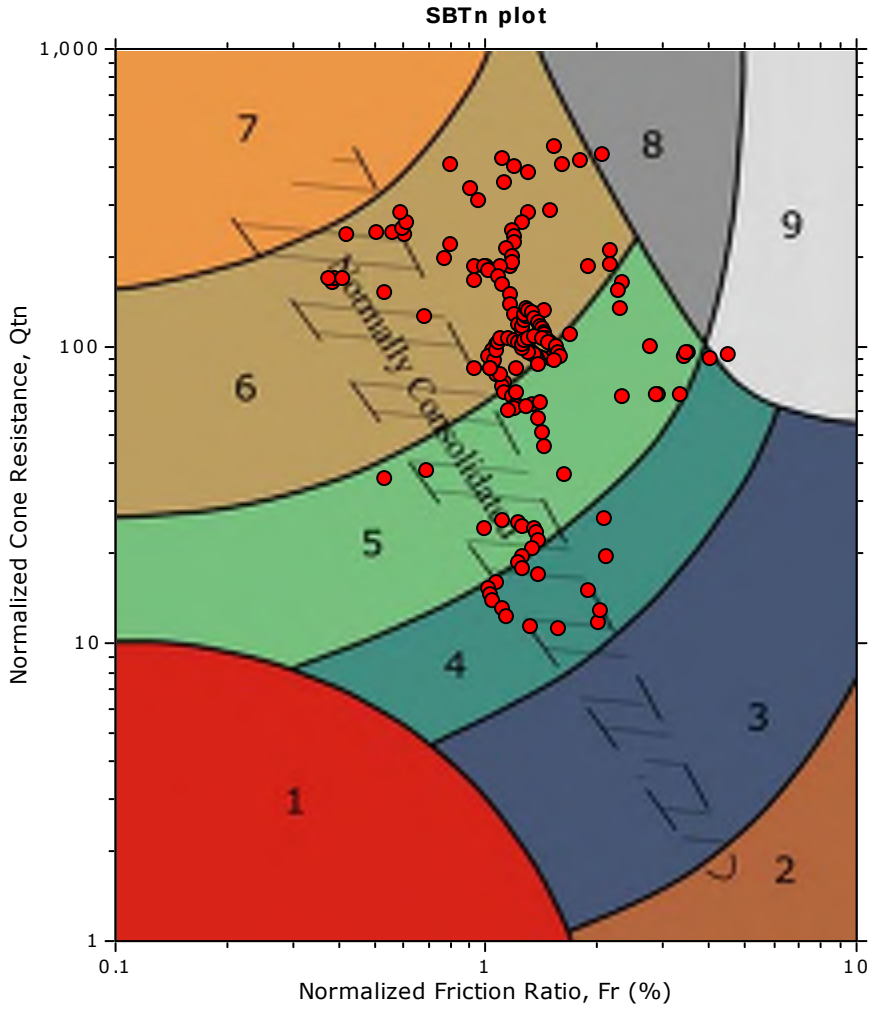
1. Sensitive fine grained	4. Clayey silt to silty clay	7. Gravelly sand to sand
2. Organic material	5. Silty sand to sandy silt	8. Very stiff sand to clayey sand
3. Clay to silty clay	6. Clean sand to silty sand	9. Very stiff fine grained

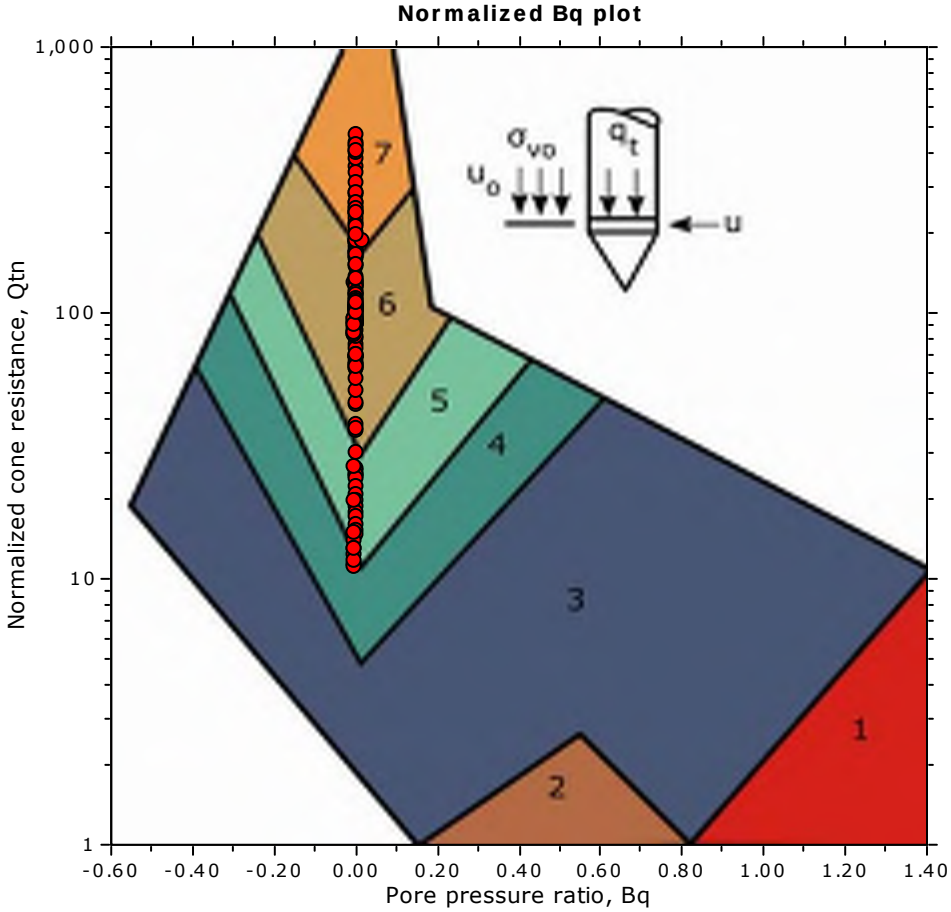
Craig Geotechnical Drilling
5230 Atlantic Ave
Mays Landing, NJ

Project: **SESI**
Location: **Dobbs Ferry NY**

Cpt-6
Total depth: 11.68 ft

SBT - Bq plots (normalized)





SBTn legend

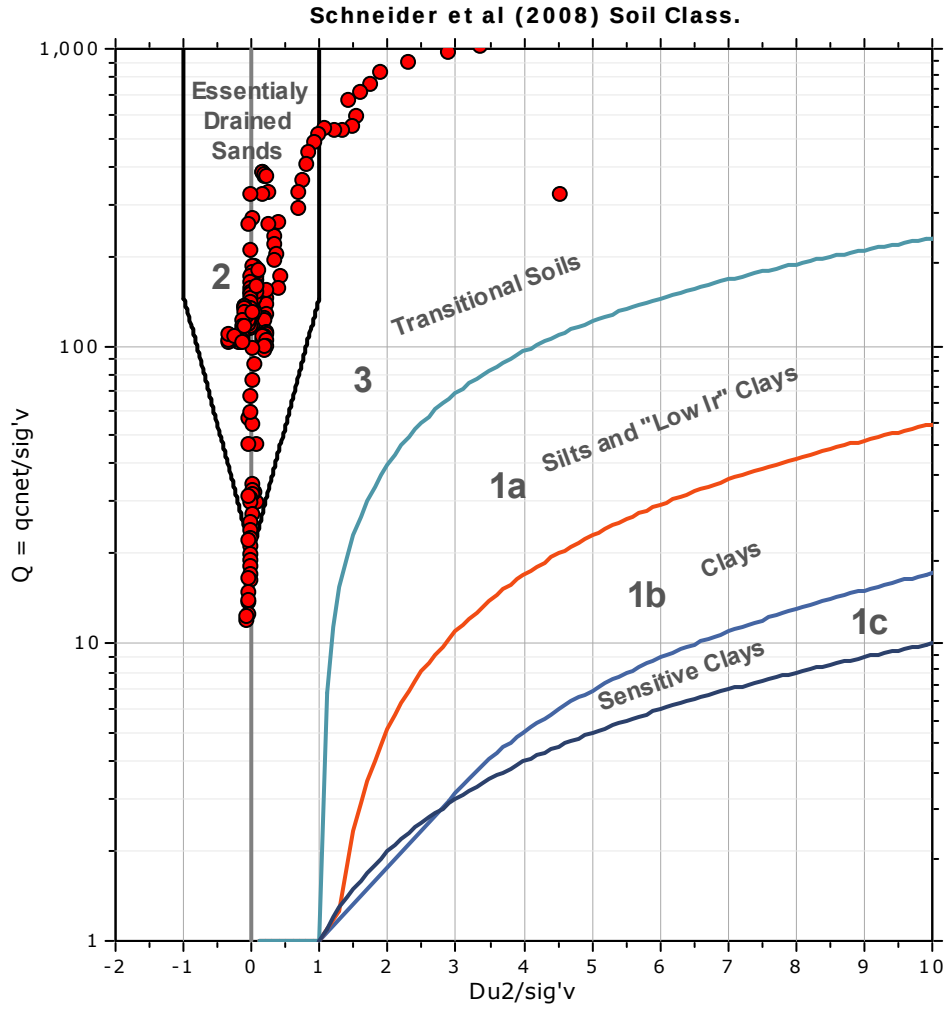
1. Sensitive fine grained	4. Clayey silt to silty clay	7. Gravelly sand to sand
2. Organic material	5. Silty sand to sandy silt	8. Very stiff sand to clayey sand
3. Clay to silty clay	6. Clean sand to silty sand	9. Very stiff fine grained

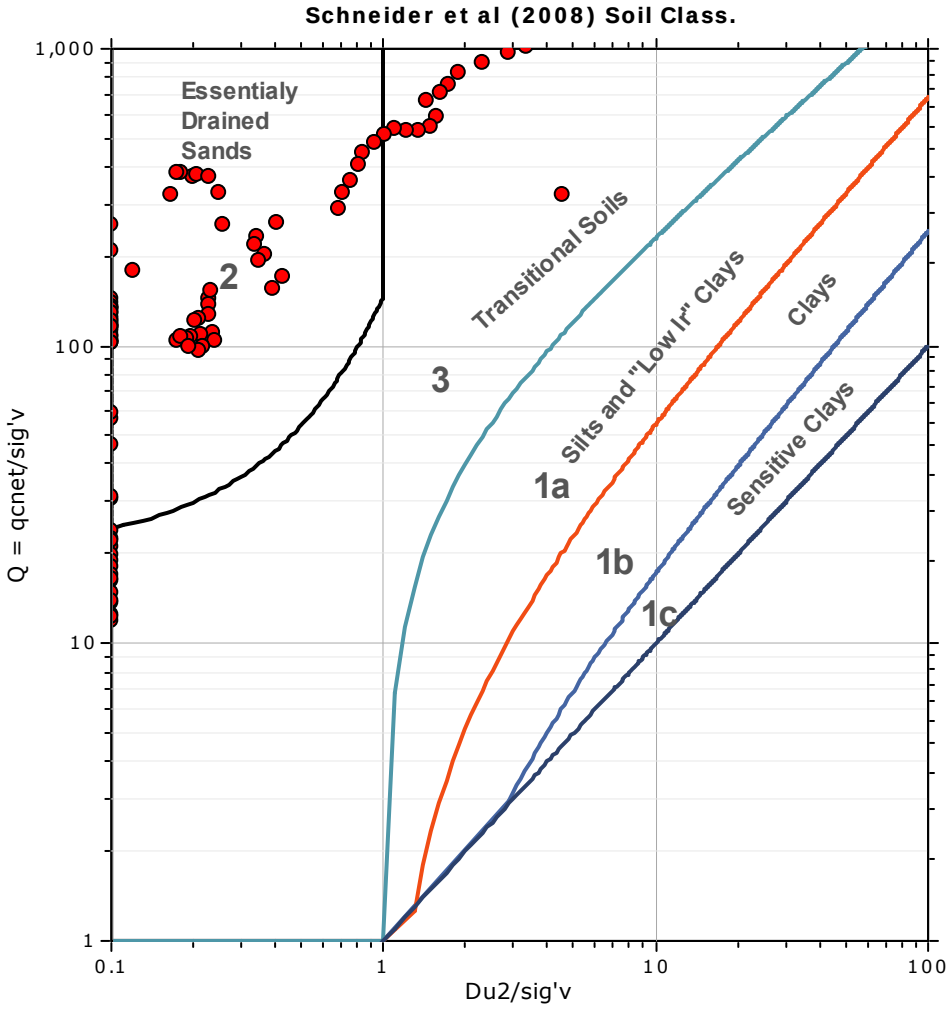
Craig Geotechnical Drilling
5230 Atlantic Ave
Mays Landing, NJ

Project: **SESI**
Location: **Dobbs Ferry NY**

Cpt-6
Total depth: 11.68 ft

Bq plots (Schneider)

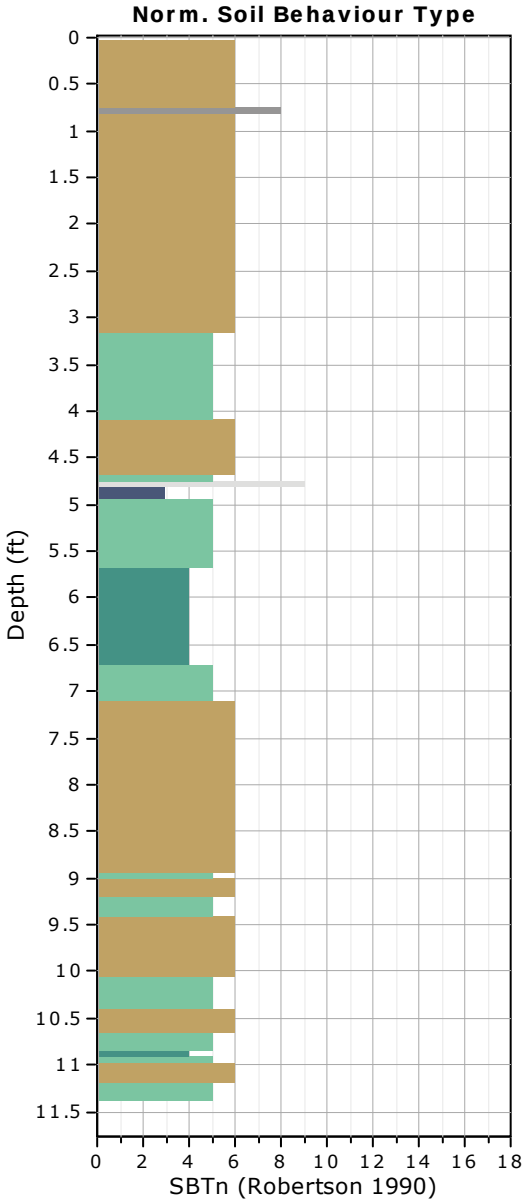


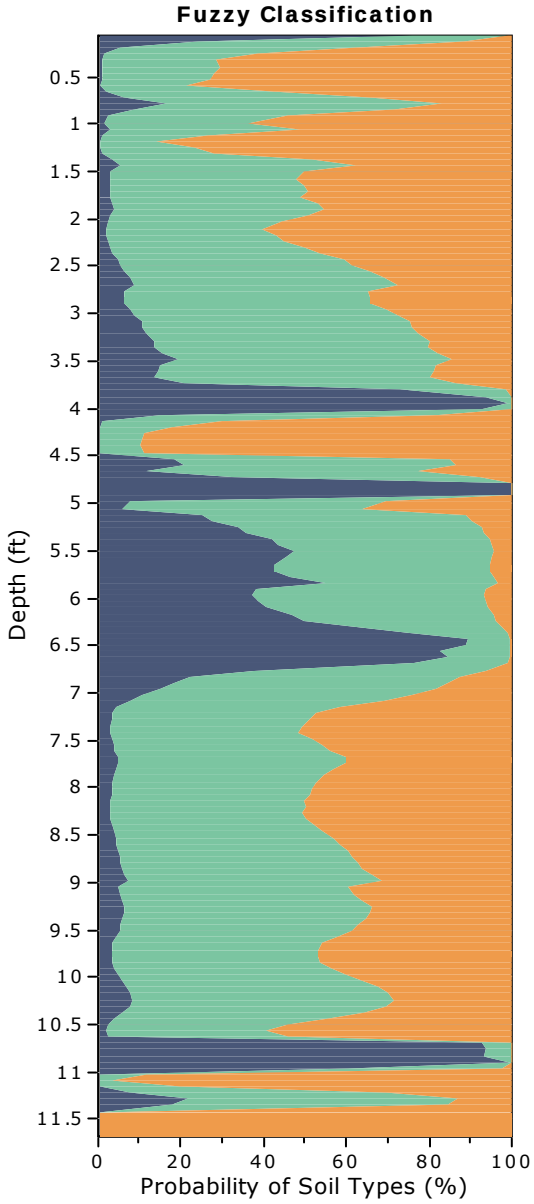


Craig Geotechnical Drilling
5230 Atlantic Ave
Mays Landing, NJ

Project: **SESI**
Location: **Dobbs Ferry NY**

Cpt-6
Total depth: 11.68 ft

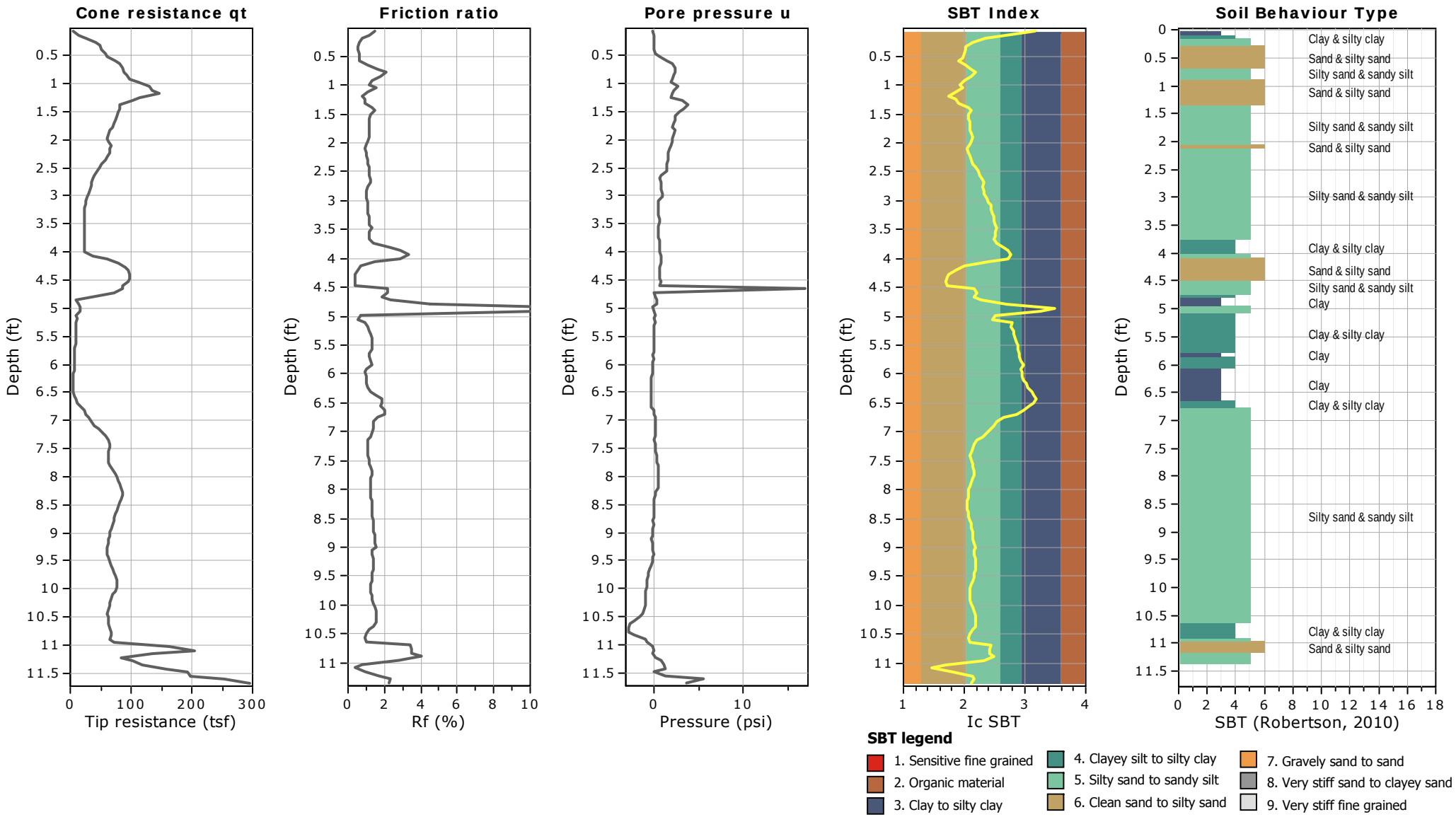




Craig Geotechnical Drilling
5230 Atlantic Ave
Mays Landing, NJ

Project: SESI
Location: Dobbs Ferry NY

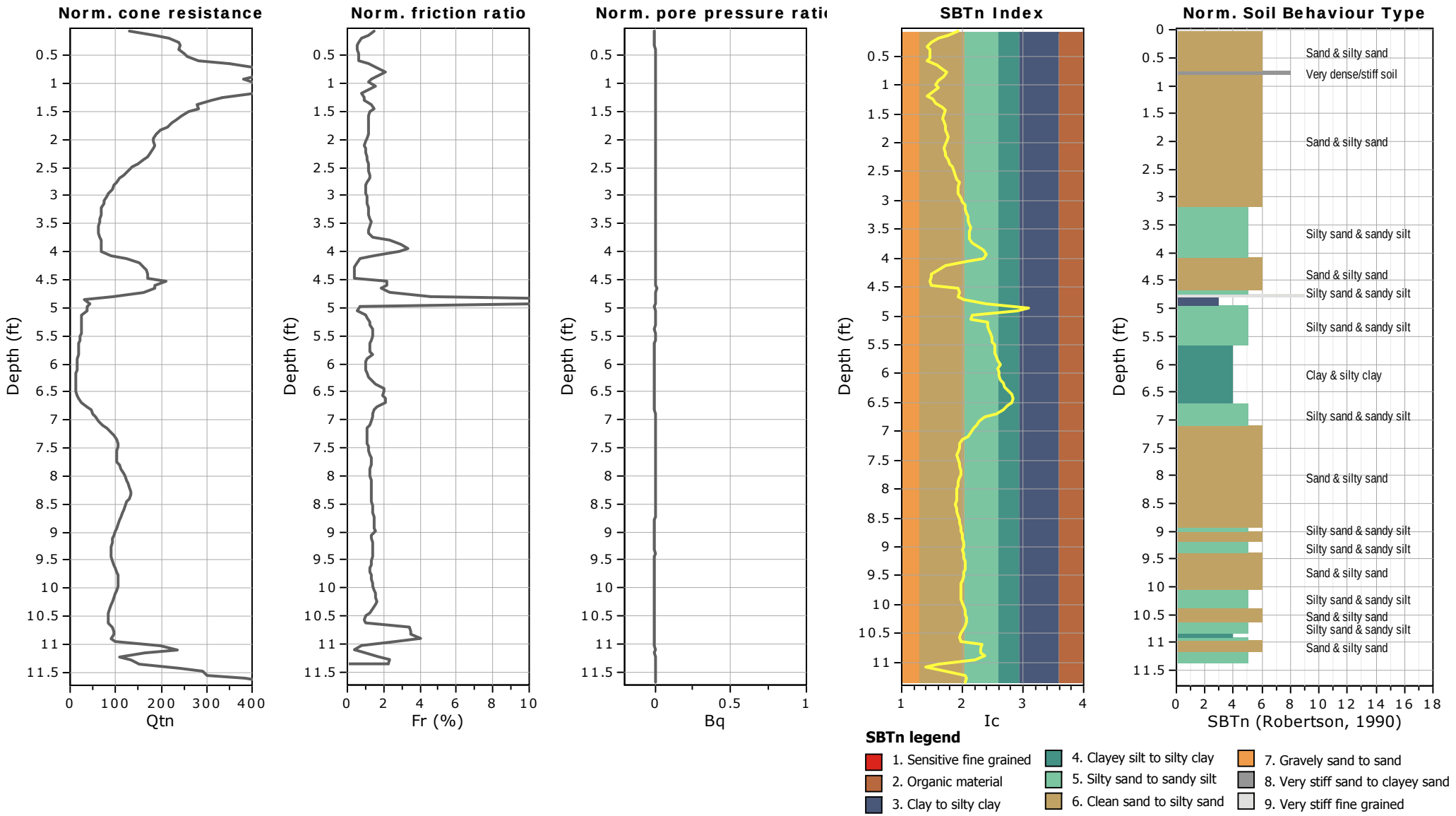
Cpt-6
Total depth: 11.68 ft



Craig Geotechnical Drilling
5230 Atlantic Ave
Mays Landing, NJ

Project: **SESI**
Location: **Dobbs Ferry NY**

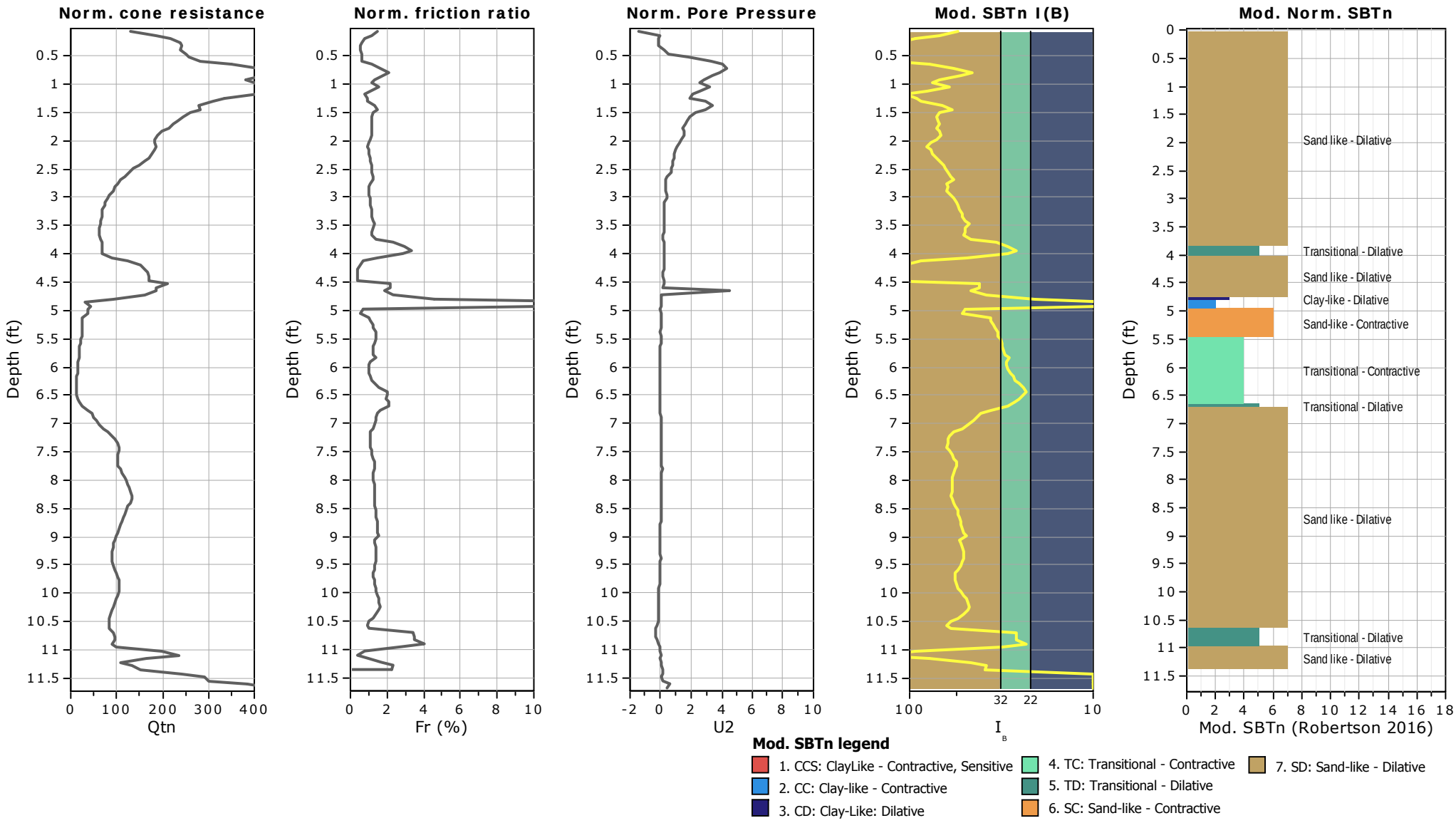
Cpt-6
Total depth: 11.68 ft



Craig Geotechnical Drilling
5230 Atlantic Ave
Mays Landing, NJ

Project: **SESI**
Location: **Dobbs Ferry NY**

Cpt-6
Total depth: 11.68 ft

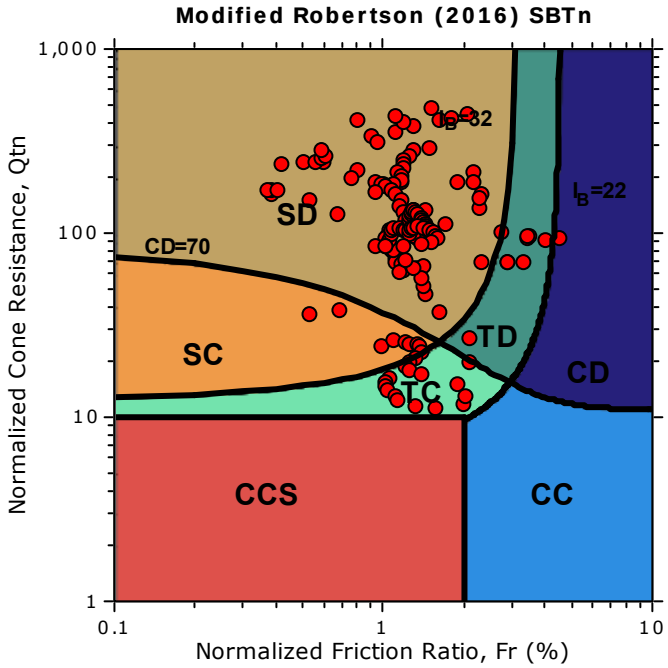


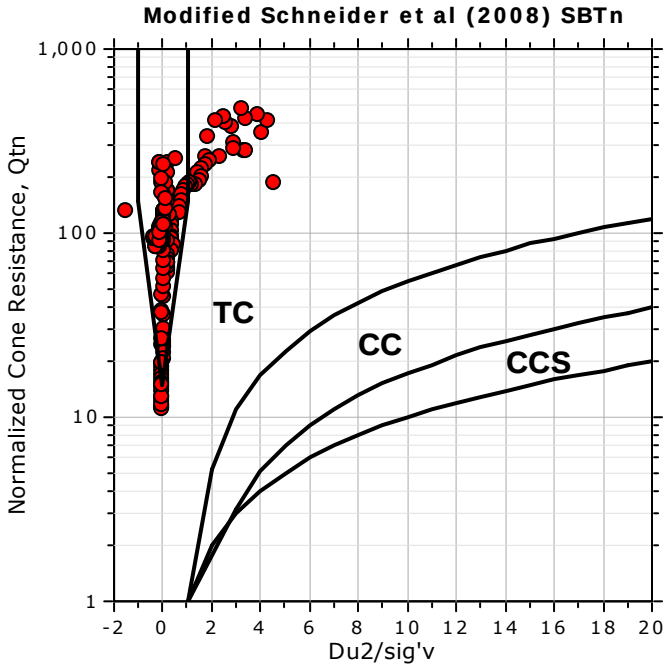
Craig Geotechnical Drilling
5230 Atlantic Ave
Mays Landing, NJ

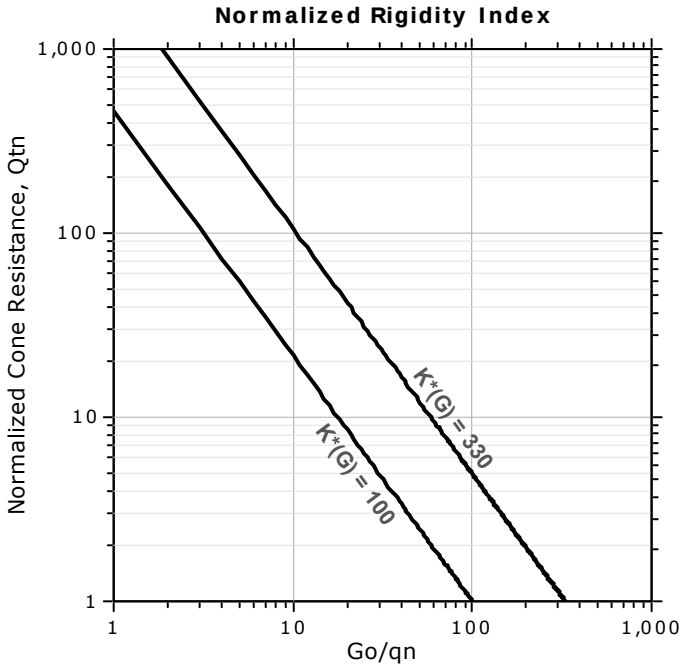
Project: **SESI**
Location: **Dobbs Ferry NY**

Cpt-6
Total depth: 11.68 ft

Updated SBTn plots







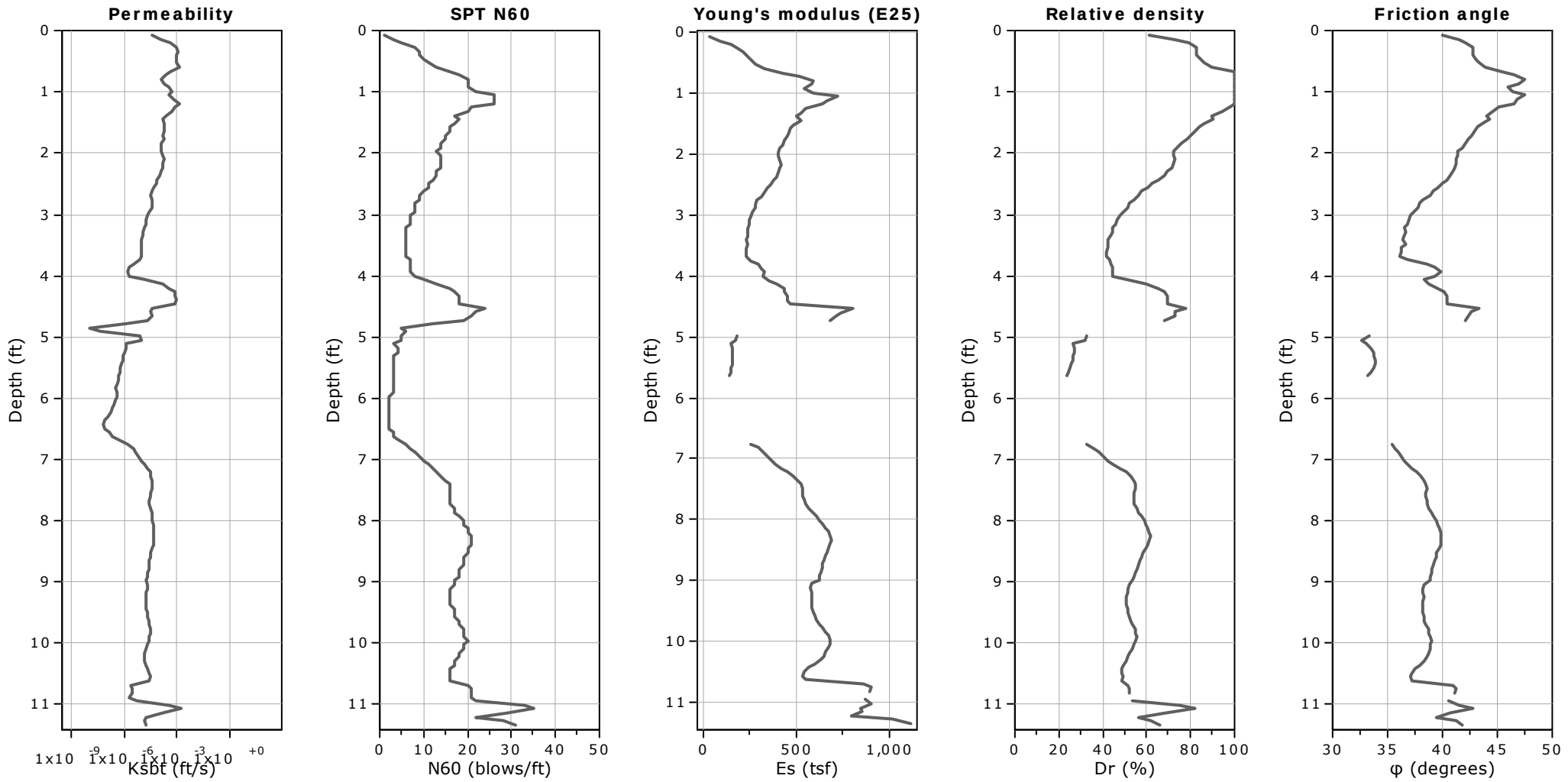
CCS: Clay-like - Contractive - Sensitive
CC: Clay-like - Contractive
CD: Clay-like - Dilative
TC: Transitional - Contractive
TD: Transitional - Dilative
SC: Sand-like - Contractive
SD: Sand-like - Dilative

K(G) > 330: Soils with significant microstructure (e.g. age/cementation)

Craig Geotechnical Drilling
5230 Atlantic Ave
Mays Landing, NJ

Project: **SESI**
Location: **Dobbs Ferry NY**

Cpt-6
Total depth: 11.68 ft



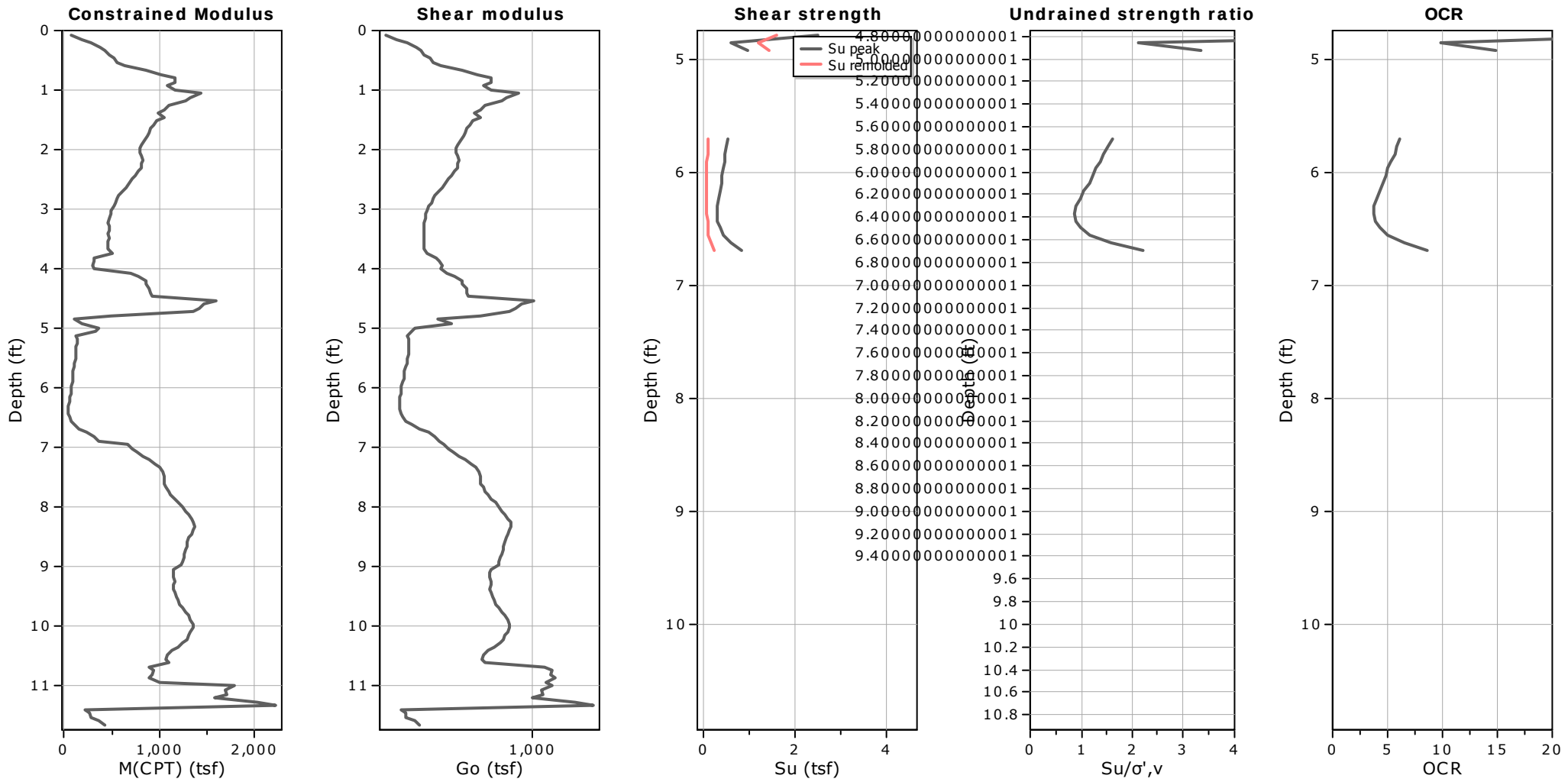
Calculation parameters

Permeability: Based on SBT_n
SPT N_{60}: Based on I_c and q_t
Young's modulus: Based on variable alpha using I_c (Robertson, 2009)
Relative density constant, C_{Dr}: 350.0
Phi: Based on Kulhawy & Mayne (1990)
User defined estimation data

Craig Geotechnical Drilling
5230 Atlantic Ave
Mays Landing, NJ

Project: **SESI**
Location: **Dobbs Ferry NY**

Cpt-6
Total depth: 11.68 ft



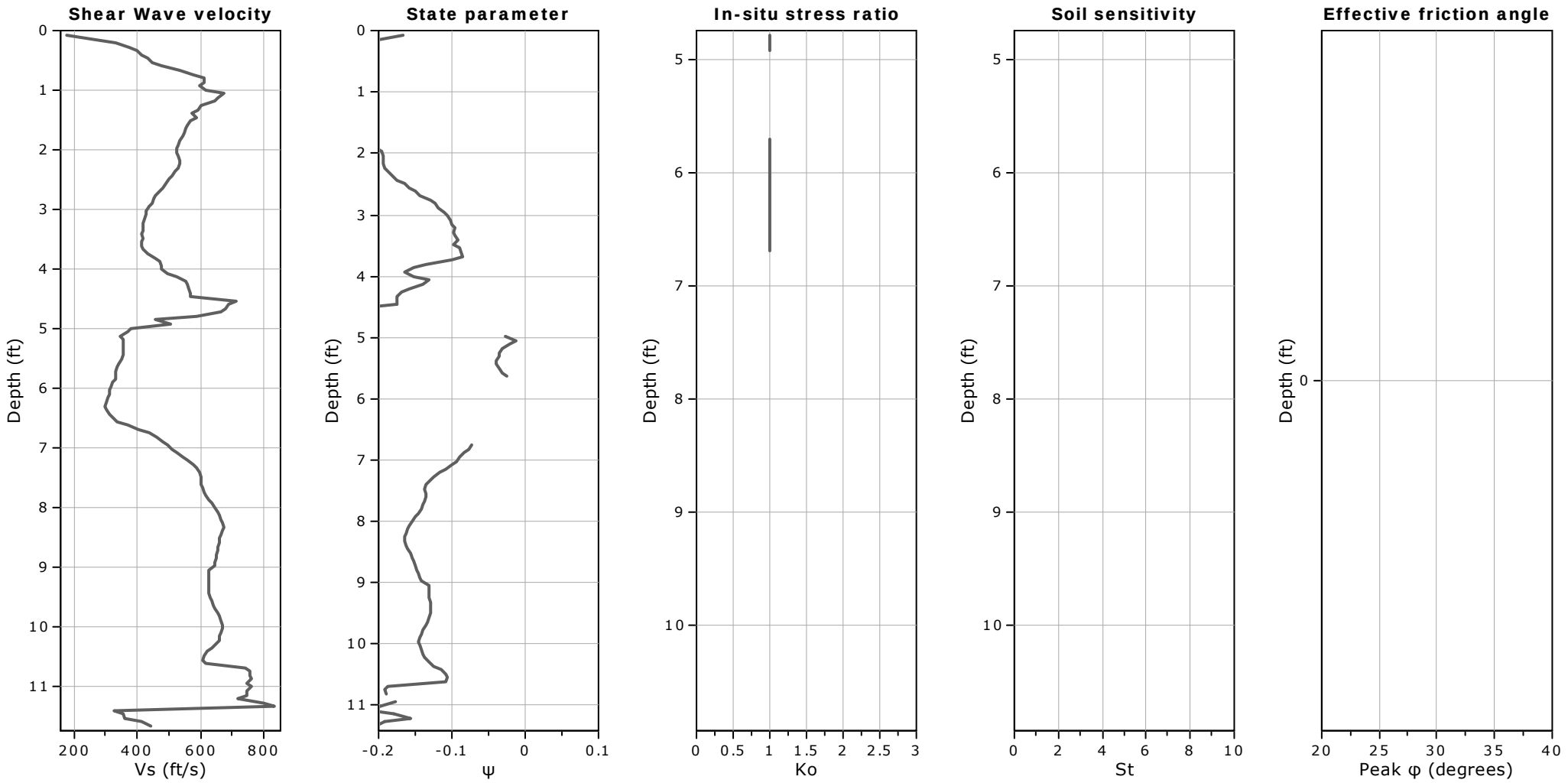
Calculation parameters

Constrained modulus: Based on variable *alpha* using I_c and Q_{tn} (Robertson, 2009)
Go: Based on variable *alpha* using I_c (Robertson, 2009)
Undrained shear strength cone factor for clays, N_{kt}: 14
OCR factor for clays, N_{kt}: 0.33
User defined estimation data
Flat Dilatometer Test data

Craig Geotechnical Drilling
5230 Atlantic Ave
Mays Landing, NJ

Project: **SESI**
Location: **Dobbs Ferry NY**

Cpt-6
Total depth: 11.68 ft



Calculation parameters

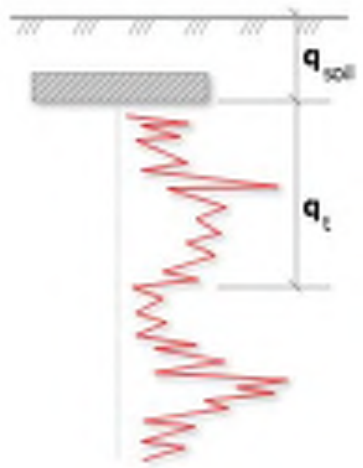
Soil Sensitivity factor, N_S: 350.00

User defined estimation data

Craig Geotechnical Drilling
5230 Atlantic Ave
Mays Landing, NJ

Project: **SESI**
Location: **Dobbs Ferry NY**

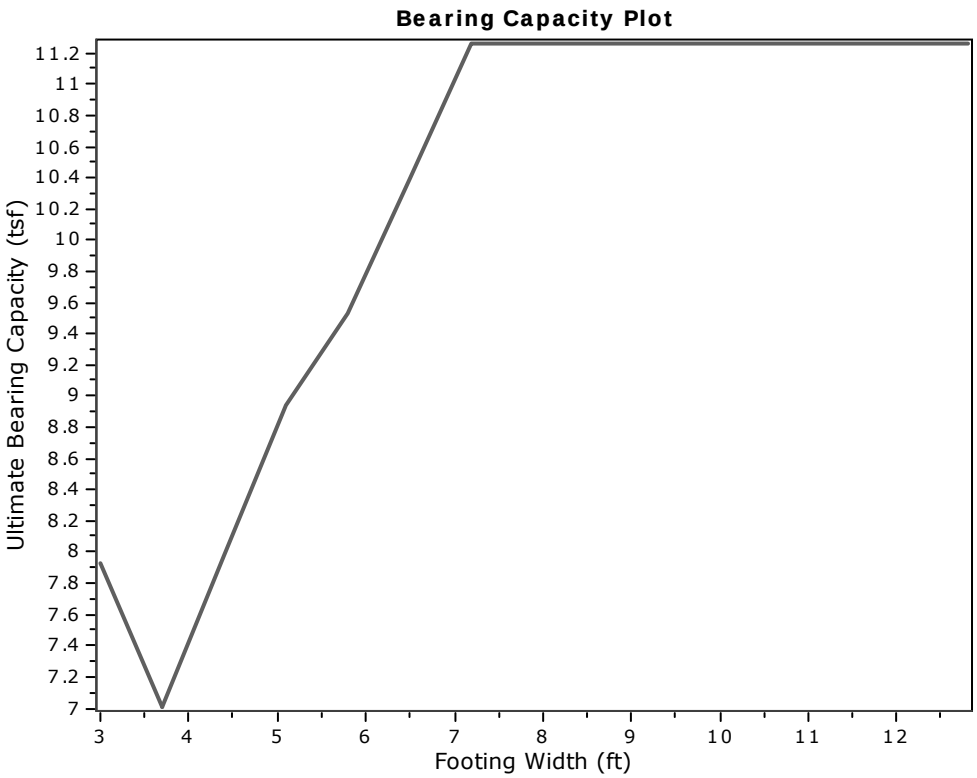
Cpt-6
Total depth: 11.68 ft



Bearing Capacity calculation is perfromed based on the formula:

$$Q_{ult} = R_k \times q_t + q_{soil}$$

where:
R_k: Bearing capacity factor
q_t: Average corrected cone resistance over calculation depth
q_{soil}: Pressure applied by soil above footing



:: Tabular results ::

No	B (ft)	Start Depth (ft)	End Depth (ft)	Ave. q_t (tsf)	R_k	Soil Press. (tsf)	Ult. bearing cap. (tsf)
1	3.00	1.60	6.10	39.19	0.20	0.10	7.93
2	3.70	1.60	7.15	34.56	0.20	0.10	7.01
3	4.40	1.60	8.20	39.43	0.20	0.10	7.98
4	5.10	1.60	9.25	44.21	0.20	0.10	8.94
5	5.80	1.60	10.30	47.16	0.20	0.10	9.53
6	6.50	1.60	11.35	51.49	0.20	0.10	10.39
7	7.20	1.60	12.40	55.82	0.20	0.10	11.26
8	7.90	1.60	13.45	55.82	0.20	0.10	11.26
9	8.60	1.60	14.50	55.82	0.20	0.10	11.26
10	9.30	1.60	15.55	55.82	0.20	0.10	11.26
11	10.00	1.60	16.60	55.82	0.20	0.10	11.26
12	10.70	1.60	17.65	55.82	0.20	0.10	11.26
13	11.40	1.60	18.70	55.82	0.20	0.10	11.26
14	12.10	1.60	19.75	55.82	0.20	0.10	11.26
15	12.80	1.60	20.80	55.82	0.20	0.10	11.26

Presented below is a list of formulas used for the estimation of various soil properties. The formulas are presented in SI unit system and assume that all components are expressed in the same units.

:: Unit Weight, g (kN/m³) ::

$$g = g_w \cdot \left(0.27 \cdot \log(R_f) + 0.36 \cdot \log(\frac{q_t}{p_a}) + 1.236 \right)$$

where g_w = water unit weight

:: Permeability, k (m/s) ::

$I_c < 3.27$ and $I_c > 1.00$ then $k = 10^{0.952-3.04 \cdot I_c}$

$I_c \leq 4.00$ and $I_c > 3.27$ then $k = 10^{-4.52-1.37 \cdot I_c}$

:: N_{SPT} (blows per 30 cm) ::

$$N_{60} = \left(\frac{q_c}{P_a} \right) \cdot \frac{1}{10^{1.1268-0.2817 \cdot I_c}}$$

$$N_{1(60)} = Q_{tn} \cdot \frac{1}{10^{1.1268-0.2817 \cdot I_c}}$$

:: Young's Modulus, Es (MPa) ::

$$(q_t - \sigma_v) \cdot 0.015 \cdot 10^{0.55 \cdot I_c + 1.68}$$

(applicable only to $I_c < I_{c\_cutoff}$)

:: Relative Density, Dr (%) ::

$$100 \cdot \sqrt{\frac{Q_{tn}}{k_{DR}}}$$ (applicable only to SBT_n: 5, 6, 7 and 8 or $I_c < I_{c\_cutoff}$)

:: State Parameter, ψ ::

$$\psi = 0.56 - 0.33 \cdot \log(Q_{tn,cs})$$

:: Drained Friction Angle, φ (°) ::

$$\varphi = \varphi'_{cv} + 15.94 \cdot \log(Q_{tn,cs}) - 26.88$$

(applicable only to SBT_n: 5, 6, 7 and 8 or $I_c < I_{c\_cutoff}$)

:: 1-D constrained modulus, M (MPa) ::

If $I_c > 2.20$
$\alpha = 14$ for $Q_{tn} > 14$
$\alpha = Q_{tn}$ for $Q_{tn} \leq 14$
$M_{CPT} = \alpha \cdot (q_t - \sigma_v)$

If $I_c \geq 2.20$

$$M_{CPT} = 0.03 \cdot (q_t - \sigma_v) \cdot 10^{0.55 \cdot I_c + 1.68}$$

:: Small strain shear Modulus, Go (MPa) ::

$$G_0 = (q_t - \sigma_v) \cdot 0.0188 \cdot 10^{0.55 \cdot I_c + 1.68}$$

:: Shear Wave Velocity, Vs (m/s) ::

$$V_s = \left(\frac{G_0}{\rho} \right)^{0.50}$$

:: Undrained peak shear strength, Su (kPa) ::

$N_{kt} = 10.50 + 7 \cdot \log(F_r)$ or user defined

$$S_u = \frac{(q_t - \sigma_v)}{N_{kt}}$$

(applicable only to SBT_n: 1, 2, 3, 4 and 9 or $I_c > I_{c\_cutoff}$)

:: Remolded undrained shear strength, Su(rem) (kPa) ::

$S_{u(rem)} = f_s$ (applicable only to SBT_n: 1, 2, 3, 4 and 9 or $I_c > I_{c\_cutoff}$)

:: Overconsolidation Ratio, OCR ::

$$k_{OCR} = \left[\frac{Q_{tn}^{0.20}}{0.25 \cdot (10.50 \cdot +7 \cdot \log(F_r))} \right]^{1.25}$$ or user defined

$OCR = k_{OCR} \cdot Q_{tn}$

(applicable only to SBT_n: 1, 2, 3, 4 and 9 or $I_c > I_{c\_cutoff}$)

:: In situ Stress Ratio, Ko ::

$$K_O = (1 - \sin\varphi') \cdot OCR^{\sin\varphi'}$$

(applicable only to SBT_n: 1, 2, 3, 4 and 9 or $I_c > I_{c\_cutoff}$)

:: Soil Sensitivity, S_t ::

$$S_t = \frac{N_S}{F_r}$$

(applicable only to SBT_n: 1, 2, 3, 4 and 9 or $I_c > I_{c\_cutoff}$)

:: Peak Friction Angle, φ' (°) ::

$$\varphi' = 29.5° \cdot B_q^{0.121} \cdot (0.256 + 0.336 \cdot B_q + \log Q_t)$$

(applicable for $0.10 < B_q < 1.00$)

References

• Robertson, P.K., Cabal K.L., Guide to Cone Penetration Testing for Geotechnical Engineering, Gregg Drilling & Testing, Inc., 5th Edition, November 2012

• Robertson, P.K., Interpretation of Cone Penetration Tests - a unified approach., Can. Geotech. J. 46(11): 1337–1355 (2009)

APPENDIX D

PROPOSED PRIVATE RESIDENCE
11 Fairlawn Avenue
DOBBS FERRY, NEW YORK

Geotechnical Engineering Report

AKRF Project Number: 210176

Prepared for:

Stephen Tilly, Architect
22 Elm Street
Dobbs Ferry, NY 10522

Prepared by:

AKRF, Inc.
440 Park Avenue South
New York, NY 10016
212-696-0670

AUGUST 24, 2021

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1.0 INTRODUCTION

AKRF, Inc. (AKRF) has prepared this geotechnical engineering report to provide geotechnical recommendations for the proposed private residence (the "project") located at 11 Fairlawn Avenue in the Village of Dobbs Ferry, Westchester County, NY, also known as Town of Greenburgh / Village of Dobbs Ferry Section 3.150, Block 134, Lot 12 (the "site"). The geotechnical evaluations and recommendations presented herein are in accordance with the 2020 Building Code of New York State (BCNYS).

The exploration work described in this report was performed by AKRF in accordance with AKRF's May 12, 2021 proposal, authorized by Stephen Tilly, Architect (the "Client" or the "Project Architect") on May 19, 2021. AKRF used the following information in preparation of this report:

- A topographical survey prepared by Link Land Surveyors, P.C., dated March 1, 2021.[1]
- Architectural schematic site plan developed by the Client, dated May 31, 2021.
- Soil Nail Line As-Built drawing prepared by Gabriel E. Senor, P.C. dated August 2, 2015.

2.0 SITE DESCRIPTION

The site is located at the top of a hill bounded by Fairlawn Avenue to the east, a residential structure at 9 Fairlawn Avenue (Section 3.150, Block 134, Lot 11) to the south, by MTA Metro-North Railroad tracks to the west, and by the St. Christopher Inc. property at 71 Broadway (Section 3.110, Block 103, Lot 2) to the north (see Figure 1). The Hudson River is located to the west of the Metro-North Railroad tracks, about 180 feet from the western edge of the site.

The site is currently undeveloped with an area of about 26,160 square feet (about 0.60 acres) and is primarily separated by an upper area and lower area. The upper area is considered to be the eastern half of the site and includes a downward sloping earth ramp running parallel with Fairlawn Avenue. A concrete retaining wall is located along this earth ramp, near the southeastern edge of the site. This retaining wall appears to be retaining soils directly along Fairlawn Avenue. There are also three separate retaining walls located near the northern side of the site, each running in a north-south direction. These retaining walls vary in height between about 1 foot and 5 feet high.

The western half of the site, considered the lower area, is currently a conservation easement which cannot be developed. A 2-foot high concrete retaining wall running in a north-south direction acts as a boundary and generally delineates the eastern edge of the conservation easement.

Ground surface elevations within the upper area of the site slope downwards towards the west from about elevation (el.) +85.0 at street level to about el. +67.0 at the concrete retaining wall delineating the conservation easement. Ground surface elevations within the lower area of the site, within the conservation easement, slope downward from east to west starting from about el. +67.0 at the concrete retaining wall, to about el. +13.0, near the Metro-North Railroad tracks.

The Soil Nail Line As-Built drawing states that 4 rows of soil nails were installed near the middle of the site (near the edge of the conservation area), however the soil nail rows are not shown on the plan. The plan

[1] All elevations (el.) cited in this report are based on this survey, measured in feet, and reference the North American Vertical Datum of 1988 (NAVD88).

does show locations where 7 soil nails were installed; however, no information regarding the capacity, diameter, or embedment length of the soil nails is indicated on the plan.

3.0 PROPOSED DEVELOPMENT

The proposed development involves the construction of a new one- to two-story private residence located within the upper area of the site. The first-floor footprint area of the proposed residence is about 2,200 square feet. It is our understanding that the residence is to include three connected sections that will be progressively stepped downward from north to south, with finished floor elevations of about el. +81.0, el. +79.0, and el. +77.0, respectively. A partial below-grade basement is proposed beneath the middle section of the residence with a finished floor elevation of about el. +70.0. The basement will daylight on its western side onto a deck. The proposed development also includes the construction of a garage at the northeast corner of the site with a footprint area of about 500 square feet, and an at-grade landscaped terrace at the southeast corner of the residence with a footprint area of about 325 square feet.

Demolition of the retaining wall located on the eastern side of the site will be required for the construction of the new residence.

4.0 REVIEW OF AVAILABLE INFORMATION

4.1 Geologic Setting

The site is located in the Village of Dobbs Ferry within the Manhattan Prong physiographic province, situated between the Hudson Highlands to the north and the Atlantic Coastal Plain to the south. The physical features of Manhattan Prong were formed during the most recent glacial event, approximately 21,000 years ago, during which the entire Hudson basin was scoured by the advancement of the Wisconsin ice sheet. The Lower Hudson River and Long Island Sound became a freshwater basin as water from the Great Lakes and Champlain Basins became impounded by dams of glacial material left by the melting ice. The tidal mouth of the Hudson River was then created when the morainal dam was breached at Verrazano Narrows approximately 13,000 years ago and the ocean flooded the Hudson Valley.

The site is located directly adjacent to the eastern shore of the Hudson River where glacial till deposits are typically found beneath surficial fill soils (Figure 2). Glacial till deposits are generally variable in texture and includes a mixture of gravel, sand, silt, and clay along with cobbles and boulders. The Manhattan Prong is composed of various marbles, quartzites, and schists overlying a complex of gneiss. The Paleozoic rocks belong to the Inwood Marble formation, and the basement Precambrian rock to the Fordham Gneiss. Review of the Geologic Map of New York – Lower Hudson Sheet indicates that the bedrock underlying the site is typically Inwood Marble with instances of Fordham Gneiss (Figure 3). The Inwood Marble is generally comprised of white calcite-dolomite marble, which weathers to a medium gray and tan material with a fine sugary-textured surface.

4.2 Historic Land Use

We reviewed available historic aerial photographs from the Westchester County GIS database to determine historical land use at the site. Figures 4 through 7 appear to show the site as undeveloped, however, construction of residential houses within the vicinity of the site appears to have occurred between 1976 and 2009 (Figures 5 through 7).

The extension of Fairlawn Avenue began construction around 2010 (Figure 8), with development and grading in the general area of the project site occurring about the same time. Based on the aerial

photographs, it is our assumption that the site was used as an access ramp and staging area for equipment used during the construction of the two residential structures to the south, located at 9 Fairlawn Avenue and 7 Fairlawn Avenue, between 2010 and 2016 (Figure 9). It appears that during that time, several retaining structures were constructed to provide access to the southern properties. Final grading of the site occurred following the construction of the two adjacent structures between 2016 and 2018 (Figure 10), with the eastern-most retaining structures near Fairlawn Avenue remaining at the site. Aerial photographs confirm that the site has remained in this configuration from 2018 up to present day.

5.0 SUBSURFACE EXPLORATION

The subsurface exploration program was performed between July 7, 2021 and July 9, 2021 and consisted of drilling three geotechnical borings within or near the footprint of the proposed residence. The locations of the borings are shown in Figure 11.

5.1 Boring Program

Three borings, designated B-1 through B-3, were drilled at the site as part of our subsurface exploration program. The borings were drilled at the site between July 7, 2021 and July 9, 2021. The borings were subject to continuous NYS Special Inspection oversight by an AKRF geotechnical engineer and were advanced to depths ranging between 52 feet and 57 feet below existing grade.

Drilling was performed by Associated Environmental Services, Ltd. of Hauppauge, NY using a track-mounted Geoprobe 7822DT drill rig equipped with an automatic hammer. The borings were advanced using rotary drilling techniques with a 3-7/8-inch diameter tri-cone roller bit. Soil samples were obtained in the borings in accordance with the American Society for Testing and Materials (ASTM) Standard D1586. The Standard Penetration Test (SPT) consists of driving a 2-inch outside diameter (OD) split spoon sampler for a depth of 24 inches with repeated blows of a 140-pound hammer free-falling 30 inches. The standard penetration, or N-value, is defined as the number of blows required to drive the sampler for a 12-inch interval after an initial 6 inches of penetration and is measured in blows per foot (bpf). The soil samples obtained from the borings were visually classified using the Unified Soil Classification System (USCS) and the NYCBC designations.

The boring logs are included in Appendix A.

5.2 Geotechnical Laboratory Testing

Geotechnical laboratory testing was performed on selected soil samples collected during the exploration. The purpose of the geotechnical laboratory testing was to confirm field soil classifications and to define the mechanical and physical soil properties for use in the foundation design and construction recommendations. The geotechnical laboratory testing consisted of eighteen sieve analyses with hydrometer tests performed in accordance with ASTM Standards D6913 and D7928, and five Atterberg Limits tests in accordance with ASTM Standard D4318.

The geotechnical laboratory results are included in Appendix B.

6.0 GENERALIZED SUBSURFACE CONDITIONS

Based on our review of the logs, we present our interpretation of the generalized subsurface conditions with the following strata and groundwater descriptions. Subsurface conditions may be summarized by the following brief descriptions of the major strata, listed in their order of occurrence with depth:

6.1 Fill Material

A layer of sandy fill material was encountered beneath surficial gravel and topsoil in the borings to depths ranging from about 4 feet to about 20 feet below the existing ground surface (bgs), corresponding to elevations of about el. +54.5 and about +81.0. The fill material generally consisted of brown to gray, fine- to coarse-grained sand with varying amounts of gravel, silt, clay, and construction debris, including brick.

6.2 Glacial Deposits (Classes 3, 4, and 5) [2]

Glacial deposits were encountered beneath the fill material in all borings to termination depths ranging between about 51.7 feet and about 57.0 feet below existing ground surface, corresponding to elevations of about el. +22.8 and about el. +33.0. The glacial deposits generally consisted of a heterogeneous strata of brown, fine- to coarse-grained sand with varying amounts of silt, clay, and gravel.

Uncorrected SPT N-values obtained in the glacial soils ranged from 4 bpf to values exceeding 100 bpf. Sieve analyses performed within these strata indicate that the soils are comprised of sand ranging from 16.6 percent to 82 percent, silt ranging from 5.3 percent to 79.0 percent, gravel ranging from 0 percent to 55.7 percent, and clay ranging from 2.2 percent to 56.2 percent. Further laboratory testing performed within these strata indicate that, where encountered, the fine-grained soils (silt and clay) have a plastic limit ranging from 12 percent to 15 percent, and a liquid limit ranging from 18 percent to 28 percent.

The glacial deposits are classified as BCNYS Material Class 3, 4, and 5.

6.3 Groundwater Level

The presence of groundwater within soil samples was monitored during the drilling of borings as part of the subsurface exploration program. No groundwater was observed within the samples and borings.

Based on the existing ground surface elevations and location of the site, we expect that any water encountered may be perched groundwater located above the medium dense to dense soils as a result of surficial runoff and/or precipitation. Other factors may affect the depth to the groundwater level, including but not limited to, seasonal fluctuations, leaking or broken utility lines, and construction and dewatering activities—all of which are outside of the scope of this report.

7.0 FOUNDATION DESIGN RECOMMENDATIONS

This section presents engineering evaluations and recommendations for the design of the foundations. The evaluations and recommendations are based on the results of the subsurface exploration, our experience on other projects, and the information we have been provided to date on the design requirements for the proposed addition.

7.1 Seismic Evaluation

7.1.1 Assessment of Liquefaction Potential

Liquefaction is the full or partial loss of shear strength of granular or cohesionless soils during an earthquake. The potential consequences of liquefaction could include loss of bearing capacity causing collapse or excessive settlement of ground. Potentially liquefiable soil types include clean sands, silty sands, and silts located below the water table and to a depth of 50 feet below ground surface. Since groundwater

[2] Class numbers indicate material class in accordance with the BCNYS.

was not observed within the boring locations and the glacial deposits underlying the fill are medium dense to very dense, we recommend that liquefaction is not a concern for the site.

7.1.2 Seismic Site Class and Seismic Design Category

The seismic design recommendations presented in this section are in accordance with BCNYS Section 1613. The subsurface exploration generally revealed a profile consisting of medium dense to dense soil. Therefore, AKRF recommends a "stiff soil profile" is assigned with a corresponding Site Class D. We assume that the proposed structure will be assigned to Structural Occupancy/Risk Category (SO/RC) II. The appropriate SO/RC should be confirmed by the Project's architect or structural engineer. Based on the recommended Site Class and our assumed SO/RC, the recommended Seismic Design Category is B.

7.2 Foundation Recommendations

7.2.1 Slope Stabilization Piles

Considering the large grade changes throughout the site, we performed several slope stability analyses to determine a factor of safety of the existing slopes at the site. We implemented methods outlined by Bishop (1955) through the use of SLIDE software. The simplified Bishop method uses the method of slices to separate a trial circular failure surface within a slope into separate wedges, calculating the applied stresses acting on the wedges, and therefore determining a factor of safety against sliding. Typically, desired factors of safety for permanent slopes are on the order of about 1.5.[3]

Upon completion of our analysis, factors of safety of existing slopes at the site, prior to the construction of the proposed residence, were between about 1.2 and 1.3. While factors of safety greater than 1.0 are considered stable, these values are less than 1.5; therefore, we recommend slope stabilization piles be installed to achieve a factor of safety of 1.5 or greater.

Slope stabilization piles are typically drilled or driven piles that are installed in one or more rows to prevent landslides or potential instability of currently stable slopes. They are piles that are usually subject to lateral forces through horizontal movements of the surrounding soil and are implemented when factors of safety for slope stability are less than those considered in accepted engineering practice.

We recommend one row of stabilization piles be located about 6 feet east of the retaining wall that delineates the conservation easement. These piles should consist of PP12.75"x0.5", concrete filled piles, spaced at about 5 feet on center. We recommend another row of stabilization piles be located on the north side of the site, about 40 feet east of the retaining wall that delineates the conservation easement. These piles should also consist of PP12.75"x0.5", concrete filled piles, spaced at about 5 feet on center.

Considering the proximity of the piles to the conservation easement and nearby retaining wall, we do not recommend the stabilization piles be driven, as vibrations during pile driving may cause unexpected movements in the retaining wall or may cause slope instability. Therefore, we recommend all stabilization piles are drilled in place. Note that the installation of stabilization piles should be coordinated with the locations of soil nails (if present). See Table 1 for a summary of the stabilization piles to be used at the site along with Figure 12 which shows the locations of proposed stabilization piles.

See Appendix C for our slope stability analysis results.

[3] Note that factors of safety greater than 1.0 are considered stable conditions.

Table 1 – Stabilization Piles

Steel Casing Outside Diameter (inches)	Steel Casing Thickness (inches)	Center to Center Spacing (ft)	Minimum Estimated Pile Length (Ft)	Minimum Toe Elevation
12.75	0.500	5	30 - 45	el. +35

Notes:
1. The steel casing should have a minimum yield strength of 50 kips per square inch (ksi).
2. The grout should have minimum compression strength of 5,000 psi.

7.2.2 Foundation Drilled Micropiles

Considering the existing slopes at the site, and to further reduce the potential for slope instability, we recommend the foundation for the proposed residence consist of drilled micropiles. Micropiles consist of an open-ended steel pipe (casing) drilled to the proposed pile toe elevation. Duplex drilling techniques are used whereby a drilling bit is mounted inside the casing. The bit and casing are advanced simultaneously so there is never an uncased shaft section in the soil. After drilling, the micropile is constructed by installing the required reinforcement and placing cement grout from the bottom of the hole to replace the drilling fluid. Additional grout is injected under a constant pressure through the casing while the casing is withdrawn. A grout socket or bond zone is formed in the soil below the base of the casing that allows the pile to develop its frictional resistance with the surrounding soil. Considering the proximity the micropiles will be installed to slopes, drilling with air shall be prohibited.

Micropiles are expected to be cased through the fill materials and extend into the glacial deposits encountered at a depth beginning at about 25 feet below existing ground surface. The recommended maximum allowable compressive capacity for micropiles is 20 tons. See Table 2 below for additional information regarding the recommended micropile.

Table 2 – Estimated Micropile Foundation Capacities

Allowable Compressive Capacity (tons)	Steel Casing Outside Diameter (inches)	Steel Casing Thickness (inches)	Number and Size of Reinforcing Bars	Minimum Estimated Cased Length (feet)	Minimum Estimated Bond Length (feet)	Minimum Estimated Pile Length (feet)
20	9.625	0.500	1 - #8	25	15	40

Notes:
1. The steel casing and reinforcing bar should have minimum yield strengths of 50 kips per square inch (ksi) and 75 ksi, respectively.
2. The grout should have minimum compression strength of 5,000 psi.
3. The minimum bond length diameter is estimated to equal the outside diameter of the steel casing.
4. The Pile Length is equal to the Cased Length plus the Bond Length (in satisfactory bearing materials of BCNYS Material Class 4 or better).

The bottom of pile caps should be at least 3.5 feet below proposed finished grade with grade beams at least 18 inches below proposed finished grade for frost protection.

7.2.3 Uplift Loads

Piles may be designed for uplift loads, provided a minimum factor of safety of 3.0 is considered during the engineering analysis. Alternatively, uplift load tests can be performed on piles.

7.2.4 Lateral Loads

We recommend a maximum basic lateral load of 1 ton per foundation pile. Should lateral resistance in excess of 1 ton per pile be required, lateral load tests must be performed, along with analysis to demonstrate capacity and group effects.

7.2.5 Ground Floor Slab

Considering the existing slopes and grade changes at the site, we recommend ground floor slabs be designed as a structural slab supported by the grade beams and the pile caps of the deep foundation system.

7.3 Permanent Groundwater Control

Considering the possible drainage of water into the site from the upper area to the east, and to limit seepage and liquid water infiltration through concrete, cold joints, shrinkage cracks, and/or utility penetrations, we recommend that all foundation walls and slabs be fully waterproofed. We recommend a membrane type waterproofing be used, such as Preprufe® by GCP Applied Technologies. For horizontal applications, we recommend that the membrane be installed on compacted and levelled subgrade soils or fill materials.

The installation of all foundation waterproofing elements should be performed by a certified installer and be inspected on a full-time basis to confirm that the waterproofing is being installed as per the manufacturer's specifications and details.

7.4 Lateral Earth Pressures for Foundation Wall Design

Permanent below grade walls should be designed to resist lateral loading from static earth pressure, water pressure (where present), and vertical surcharge (as applicable). The recommended design at-rest lateral earth pressure for soil above the static groundwater level is 60 pounds per square foot (psf) per foot of depth. Hydrostatic pressures should be added as a triangular pressure distribution having an equivalent fluid weight of 63 psf per foot of depth below the static groundwater level.

In addition to the lateral earth, and hydrostatic pressures, lateral pressures due to surcharge loads from the ground surface or adjacent building foundations should be included. Surcharge lateral loads should have a uniform distribution based on a pressure equal to 0.5 times the vertical surcharge for the entire depth of the wall. The magnitude of the surcharge loads should be determined by the Project's structural engineer.

Backfill should not be placed against any below-grade walls for at least 7 days and until the concrete has reached its 28-day compressive strength and after adequate lateral bracing has been provided to prevent rotation of the wall, or otherwise directed by the Project's structural engineer.

8.0 FOUNDATION CONSTRUCTION RECOMMENDATIONS

This section presents a discussion of our recommendations regarding the likely foundation construction aspects of the proposed addition that should be addressed in the project specifications and contract documents.

8.1 Excavation

The general excavation will primarily involve the removal of fill material and sand, and can be performed with conventional earth-moving equipment such as backhoes, excavators, and dozers.

All excavation should be performed in accordance with OSHA requirements including, but not limited to, temporary shoring, use of trench boxes, and proper benching, where necessary.

8.2 Support of Excavation

Excavation will be required to construct the basement level of the proposed residence, therefore the contractor must take appropriate measures to stabilize the work area and prevent lateral movement of the adjacent areas into the excavation. It is anticipated that the SOE system for excavations in the fill material will likely include proper benching and sloping as necessary, with sloped edges pitched no steeper than 1.5H:1V. If proper benching and sloping is not feasible, we expect the SOE system to include soldier pile and lagging with lateral restraints (e.g. tiebacks, rakers, bracing, etc.) as necessary.

The final design and inspection of the SOE systems should be performed by a Professional Engineer currently registered in the State of New York, who is retained directly by the foundation contractor. The SOE systems must be developed for the project-specific conditions at the site and for the proposed construction. Careful consideration must be given to the surcharge loads imposed by the existing buildings bordering the site.

8.3 Construction Dewatering

All foundation work should be conducted "in the dry." Groundwater is not expected to be encountered during site excavation and foundation construction. Any water encountered during construction can likely be handled by localized sump pits and pumps. The contractor is responsible for the design and operation of the dewatering system. Groundwater must be discharged in accordance with the New York State Department of Environmental Conservation (DEC).

8.4 Deep Foundation Load Testing

8.4.1 Installation

We recommend installing index piles that are the same in every aspect to production piles at the start of the pile installation operations. The recommended number of index piles is about 5 percent to 10 percent of the total number of piles required. Index piles allow for estimating pile lengths and identifying unusual conditions that might require modifications to pile installation and/or pile type.

8.4.2 Compression Load Testing

We recommend that static axial compressive load tests be required for any driven pile with an allowable load greater than 40 tons, and any drilled pile with capacities exceeding 20 tons. Provided the maximum allowable axial load for the recommended drilled foundation piles does not exceed 20 tons, we do not recommend load testing is needed for the project. If pile capacities greater than 20 tons are required, we recommend that a minimum of one load test be conducted. The static load test should be performed in accordance with ASTM Standard D1143. Production piles should be installed in the same manner as the successfully load-tested piles.

8.4.3 Uplift Load Testing

In the event uplift load testing is considered for piles, we recommend one uplift load test be conducted.

The uplift load tests should be performed in accordance with ASTM Standard D3689. Where uplift load tests are performed, the maximum allowable uplift load shall not exceed the ultimate load capacity divided by a factor of safety of 2.0. The allowable uplift load for a pile group shall not exceed the sum of the allowable uplift loads of the individual piles in the group, nor the uplift capacity calculating the group action of the pile in accordance with accepted engineering practice where the calculated ultimate group capacity is divided by a safety factor of 2.5.

8.4.4 Lateral Load Testing

If the required lateral load per foundation pile exceeds the basic lateral load capacity of 1 ton, we recommend 1 lateral load test be performed on each selected pile type in accordance with ASTM Standard D3966. For free-headed piles, the maximum allowable lateral load shall not be more than one-half the test load producing a gross lateral movement of 1-inch at the ground surface. For fixed headed piles, the results of the load test shall be used to verify the input parameters used in the lateral load analysis.

8.5 Subgrade Preparation

To minimize soil disturbance within excavations for pile caps and utilities, excavation within the last foot above final subgrade elevation should be performed by hand, or by using an excavator fitted with a straightedge bucket or bucket with a flat plate welded across the teeth.

Subgrade soils for the construction of pile-supported foundations do not require approval prior to construction, however it is recommended to protect construction subgrades from precipitation, freezing weather, and construction traffic until concrete is placed. Methods of protection include sealing with lean concrete (mud slab) or placement of a gravel layer. The contractor shall not place any concrete for foundations on frozen ground, or where snow or standing water are present.

8.6 Controlled Structural Fill Material and Compaction Criteria

We expect existing natural soil can be used as backfill material given the following requirements in this section. Controlled fill material should have less than 10 percent by dry weight passing the No. 200 sieve, and should be free of organics, clay, and other deleterious or compressible materials and should have a maximum particle size of three inches. Soils meetings these requirements shall be used as controlled fill material.

Any fill material placed in restricted areas where only hand-operated compactors can be used should be placed in maximum lifts of 8 inches thick. We recommend using a 0.5-ton maximum walk-behind roller or other equipment capable of effecting the necessary compaction. The appropriate water content at the time of compaction should be plus or minus two percentage points of optimum as determined by the laboratory compaction tests of proposed fill material, performed in accordance with ASTM Standard D1557. No backfill material should be placed on areas where free water is standing or on frozen subsoil areas. Compaction of all fill material should be verified by the on-site geotechnical engineer using visual inspection and the performance of in-place nuclear density tests.

8.7 Construction Documents and Quality Assurance

Design specifications and drawings should incorporate our recommendations to verify that subsurface conditions and other geotechnical issues at the site are adequately addressed in the construction documents. AKRF should assist the design team in preparing specification sections related to geotechnical issues such as subgrade preparation and fill placement and compaction. When authorized, AKRF should also review

foundation design drawings and details, and all contractor submittals and construction procedures related o geotechnical work to verify the proposed design and methods include the essence of our recommendations.

The construction of foundations (foundation subgrade preparation, deep foundation installation, earthwork, etc.) requires Special Inspection, along with geotechnical quality assurance and observation, by a Professional Engineer currently registered in the State of New York. The Professional Engineer must be employed by a Special Inspection Agency that is authorized to perform Special Inspection services. Since AKRF has explored the subsurface conditions and developed design recommendations for the proposed development at the site, and we are also a Special Inspection Agency, we are best-qualified to provide geotechnical-related Special Inspection and quality assurance observation during foundation construction.

9.0 LIMITATIONS

The conclusions and recommendations provided by AKRF in this report have been prepared based on professional judgment of the subsurface conditions inferred from limited observations made at the site, as well as plans and/or drawings provided by the Client. The recommendations provided are solely for the conditions encountered at the site, and should not be used independently at other sites where other subsurface conditions are presumed to exist.

In the event that the proposed addition is changed, modified, or its location moved, AKRF should be informed to determine whether such modification would change AKRF's recommendations as presented herein. Geological and groundwater conditions presented herein represent conditions encountered at the time and specific locations where exploration work was performed. In the event that conditions during construction differ from those presented in this report, they should be brought to AKRF's immediate attention for evaluation, as recommendations in this report may be affected.

AKRF has prepared this geotechnical engineering report for the site at the proposed elevator addition, located at 11 Fairlawn Avenue in the Village of Dobbs Ferry, NY for use by the Owner, Project Architect, and the Project's structural engineer in the design process and is only applicable for this specific site and the planned design work. The information in this report should not be relied upon by engineers or contractors involved in other unrelated aspects of design or construction work at the site without first verifying from AKRF whether the information contained herein is applicable for such use.

Special Inspections have been recommended as part of the foundation construction. When authorized, AKRF is able to provide the Owner with the appropriate Special Inspection and quality assurance observations during foundation construction. By providing this service, AKRF will be able to continue its responsibility on this project to verify geotechnical-related foundation construction and quality assurance follows our recommendations provided in this report. If the Owner opts to retain another entity to perform these services, the other entity will be responsible for final geotechnical design along with the required Special Inspection and quality assurance observations. This entity will also serve as the geotechnical engineer of record. The foundation contractor's Professional Engineer will be responsible for the design, construction, and inspection of the support of excavation.

Environmental issues (such as potentially contaminated soil and groundwater) are outside the scope of this study.

10.0 REFERENCES

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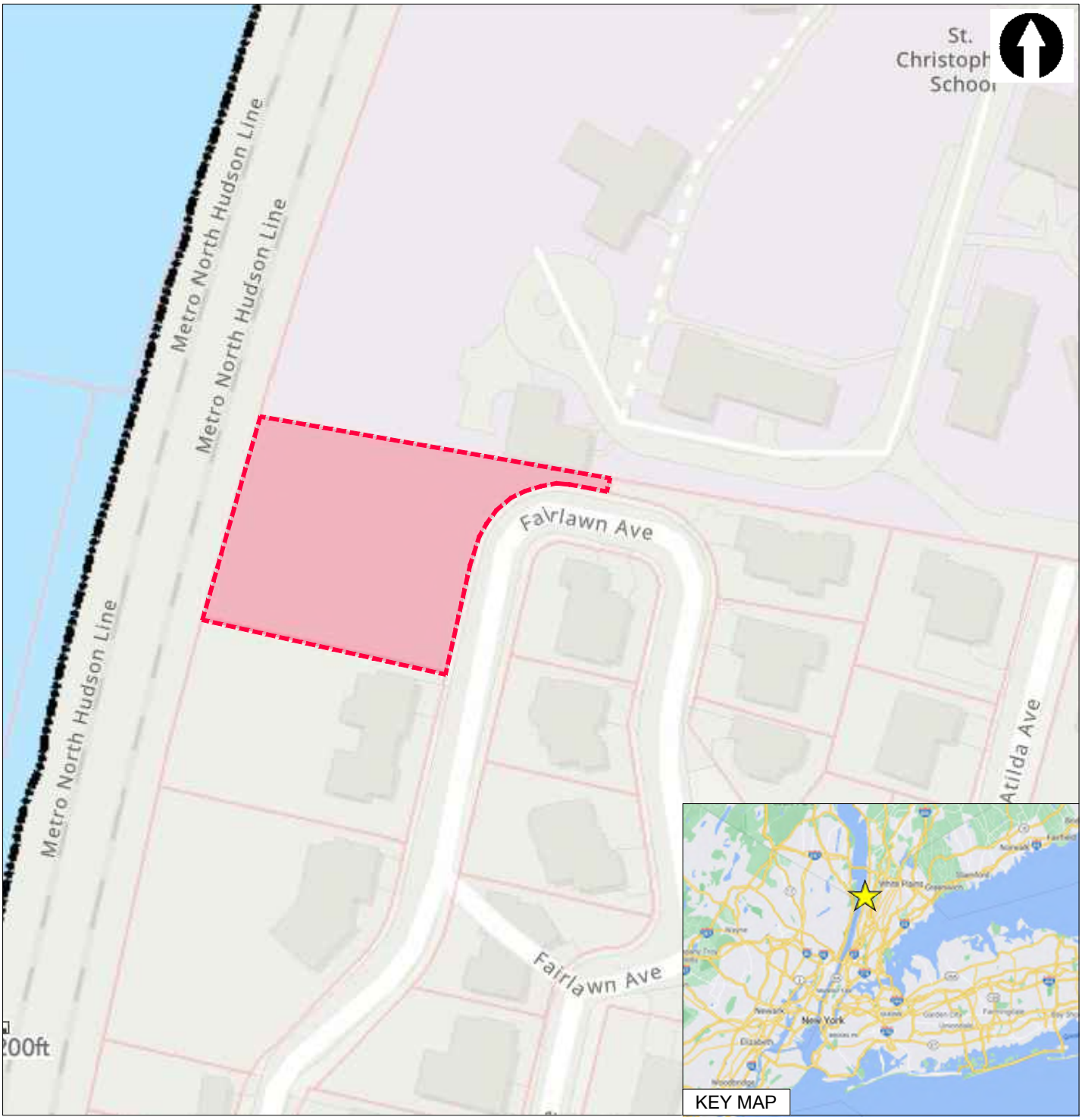
- ---. ASTM Standard D4318. "Standard Test Methods for Liquid Limit, Plastic Limit, and Plasticity Index of Soils." West Conshohocken, PA: ASTM International, 2017.
- ---. ASTM Standard D6913. "Standard Test Methods for Particle-Size Distribution (Gradation) of Soils Using Sieve Analysis." West Conshohocken, PA: ASTM International, 2017.
- ---. ASTM Standard D7928. "Standard Test Methods for Particle-Size Distribution (Gradation) of Fine-Grained Soils the Sedimentation (Hydrometer) Analysis." West Conshohocken, PA: ASTM International, 2021.
- 2020 Building Code of New York State. New York, NY. 2020.
- NYSGS "Surficial Geologic Map of New York – Lower Hudson Sheet." 1989.
- NYSGS "Geologic Map of New York – Lower Hudson Sheet." 1970
- Westchester Country GIS. https://giswww.westchestergov.com/GISMap/index.html. Accessed August 13, 2021

FIGURES



Source: Westchester County GIS
Scale: 1" = 100'

LEGEND

APPROXIMATE LOCATION OF PROJECT SITE

PROJECT LOCATION

11 FAIRLAWN AVENUE
DOBBS FERRY, NY 10522

GEOTECHNICAL EXPLORATION
11 FAIRLAWN AVENUE PRIVATE RESIDENCE
DOBBS FERRY, NY

SITE LOCATION MAP

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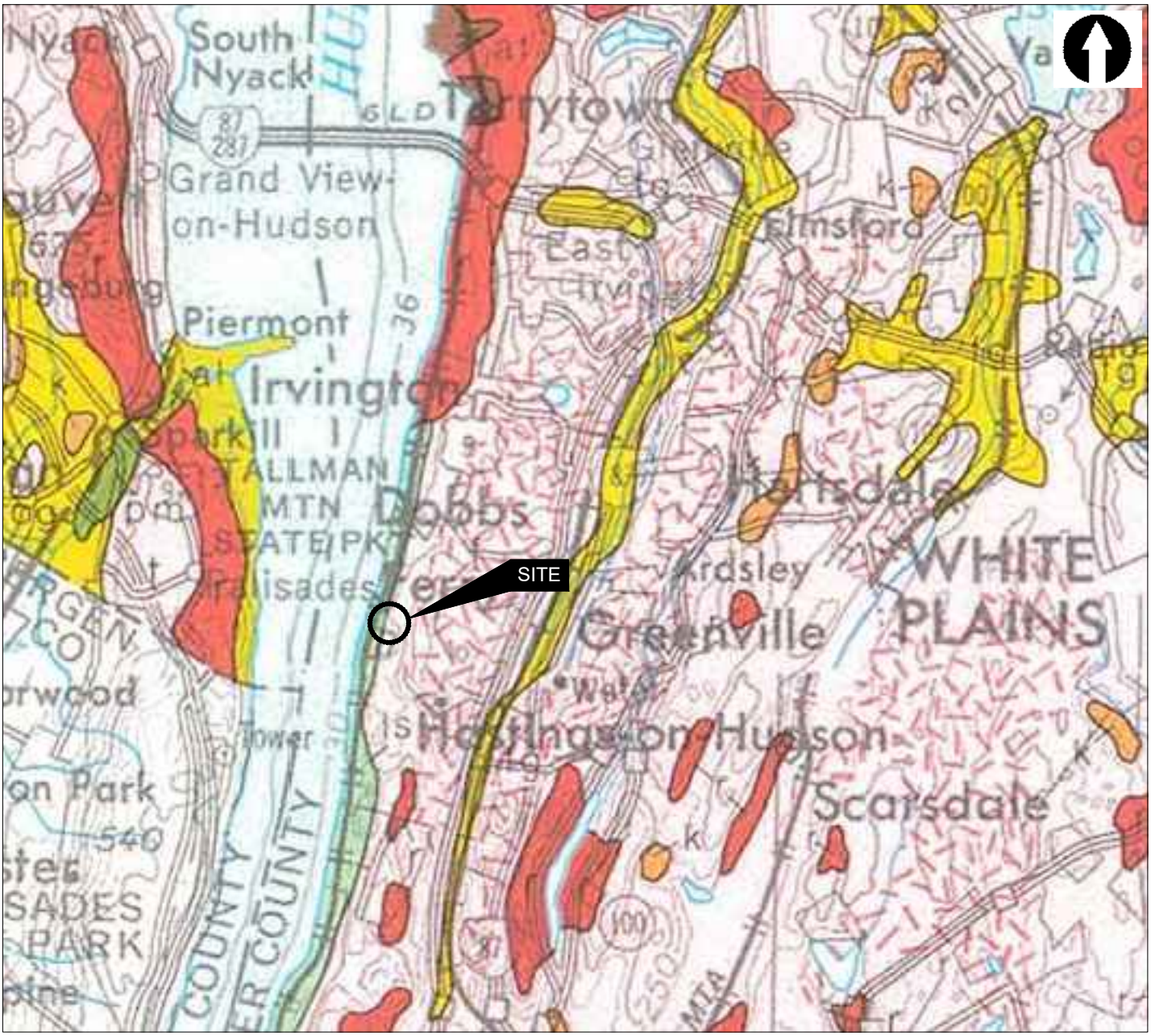
DATE
08/24/2021

PROJECT No.
210176

FIGURE
1



Source: Surficial Geologic Map of New York - Lower Hudson Sheet. © 1989 by NYSGS.
Note: Not to scale.

LEGEND

- TILL
- LACUSTRINE SAND
- BEDROCK
- APPROXIMATE LOCATION OF PROJECT SITE

PROJECT LOCATION

11 FAIRLAWN AVENUE
DOBBS FERRY, NY 10522

GEOTECHNICAL EXPLORATION
11 FAIRLAWN AVENUE PRIVATE RESIDENCE
DOBBS FERRY, NY

SURFICIAL GEOLOGIC MAP

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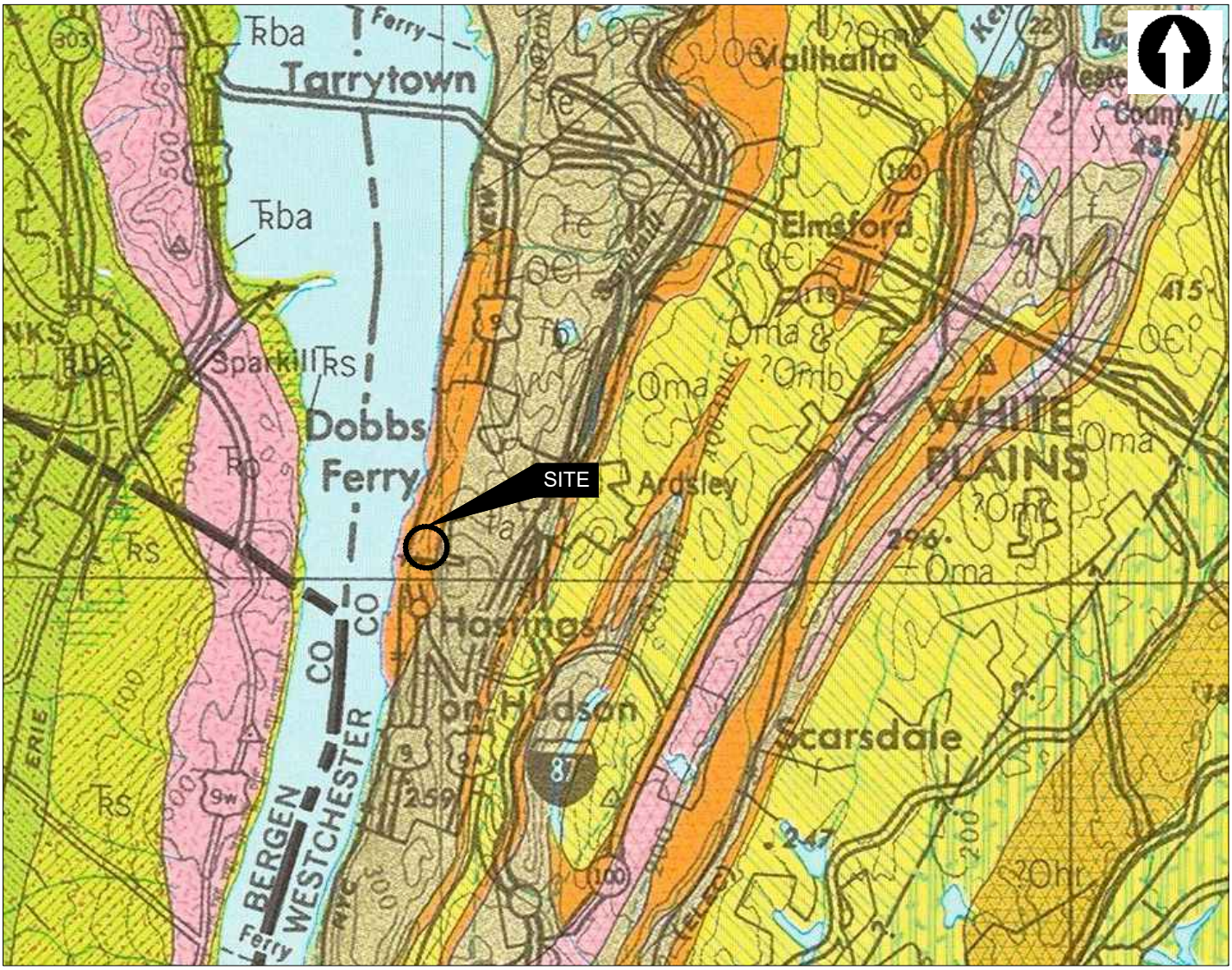
PROJECT No. 210176
FIGURE 2



Source: Geologic Map of New York - Lower Hudson Sheet. © 1970 by NYSGS.

Note: Not to scale.

LEGEND

OCi: Inwood Marble; 0-4,000 feet (Wappinger and Stockbridge Groups) - Dolomite marble, calc-schist, granulite, and quartzite, overlain by calcite marble; grades into underlying patchu Lowerre Quartzite of Early Cambrian age.

fa: Fordham Gneiss - Garnet-biotite-quartz-plagioclase gneiss, amphibolite, biotite - hornblende-quartz-plagioclase gneiss, quartz-feldspar granulite.

Approximate location of project site

PROJECT LOCATION

11 FAIRLAWN AVENUE
DOBBS FERRY, NY 10522

GEOTECHNICAL EXPLORATION
11 FAIRLAWN AVENUE PRIVATE RESIDENCE
DOBBS FERRY, NY

BEDROCK GEOLOGIC MAP

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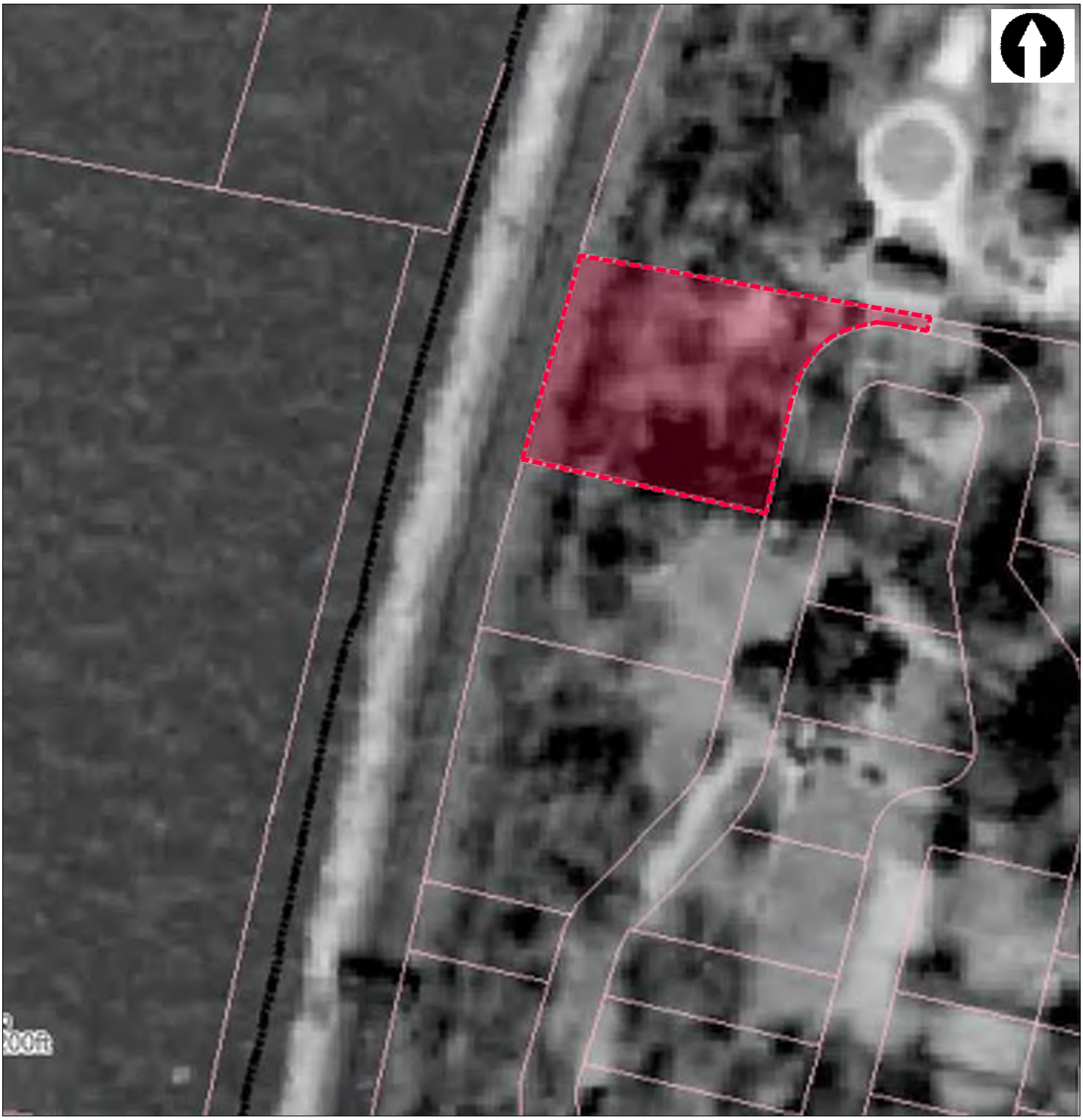
PROJECT No. 210176
FIGURE 3



Source: Westchester County GIS
Scale: 1" = 100'

LEGEND

APPROXIMATE LOCATION
OF PROJECT SITE

PROJECT LOCATION

11 FAIRLAWN AVENUE
DOBBS FERRY, NY 10522

GEOTECHNICAL EXPLORATION
11 FAIRLAWN AVENUE PRIVATE RESIDENCE
DOBBS FERRY, NY

1947 AERIAL PHOTOGRAPH

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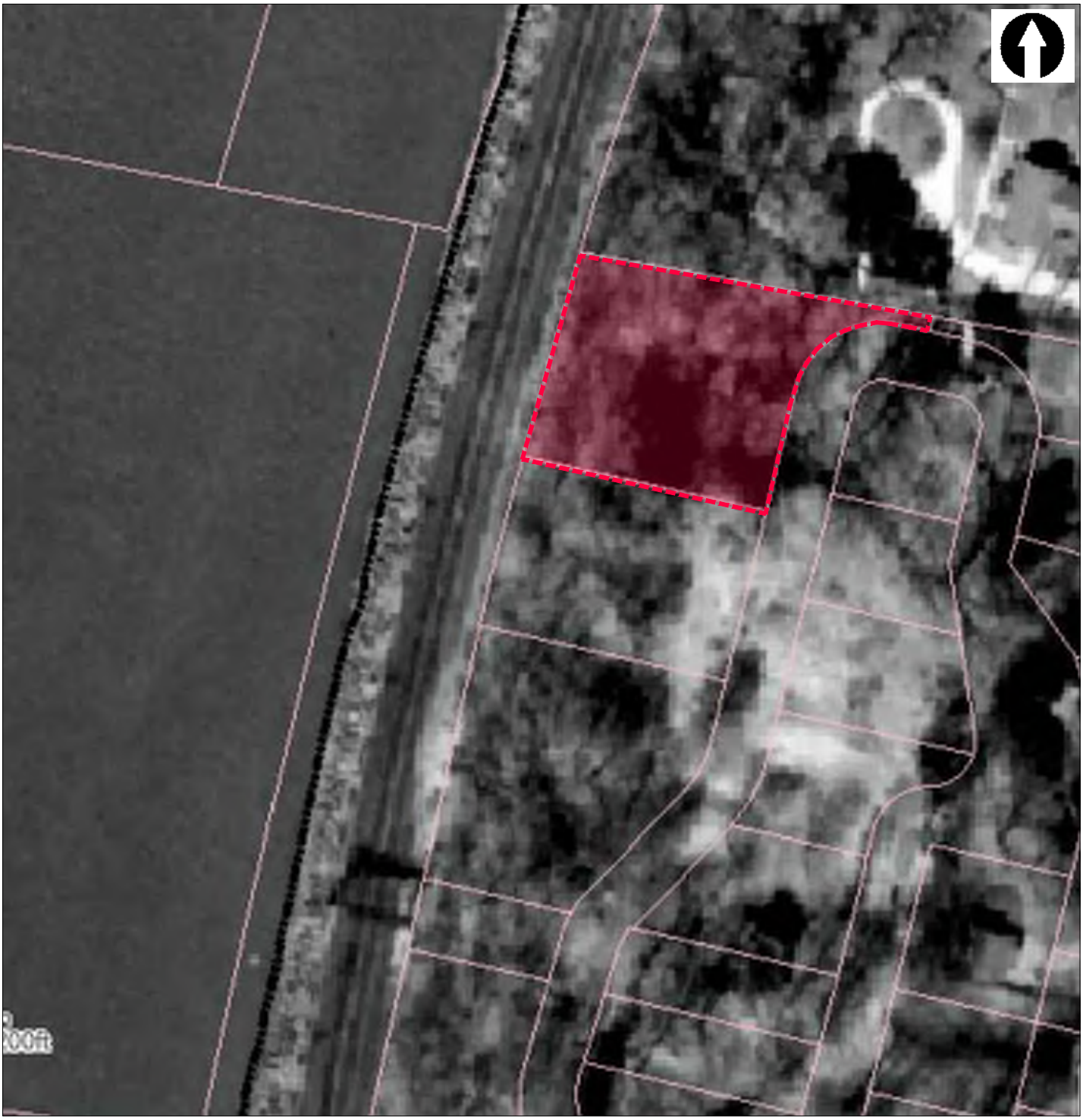
FIGURE
4



Source: Westchester County GIS
Scale: 1" = 100'

LEGEND

APPROXIMATE LOCATION
OF PROJECT SITE

PROJECT LOCATION

11 FAIRLAWN AVENUE
DOBBS FERRY, NY 10522

GEOTECHNICAL EXPLORATION
11 FAIRLAWN AVENUE PRIVATE RESIDENCE
DOBBS FERRY, NY

1976 AERIAL PHOTOGRAPH

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210176

FIGURE
5

Source: Westchester County GIS
Scale: 1" = 100'

LEGEND

APPROXIMATE LOCATION
OF PROJECT SITE

PROJECT LOCATION

11 FAIRLAWN AVENUE
DOBBS FERRY, NY 10522

GEOTECHNICAL EXPLORATION
11 FAIRLAWN AVENUE PRIVATE RESIDENCE
DOBBS FERRY, NY

2000 AERIAL PHOTOGRAPH

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FIGURE
6

Source: Westchester County GIS
Scale: 1" = 100'

LEGEND

APPROXIMATE LOCATION
OF PROJECT SITE

PROJECT LOCATION

11 FAIRLAWN AVENUE
DOBBS FERRY, NY 10522

GEOTECHNICAL EXPLORATION
11 FAIRLAWN AVENUE PRIVATE RESIDENCE
DOBBS FERRY, NY

2009 AERIAL PHOTOGRAPH

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210176

FIGURE
7

Source: Westchester County GIS
Scale: 1" = 100'

LEGEND

APPROXIMATE LOCATION
OF PROJECT SITE

PROJECT LOCATION

11 FAIRLAWN AVENUE
DOBBS FERRY, NY 10522

GEOTECHNICAL EXPLORATION
11 FAIRLAWN AVENUE PRIVATE RESIDENCE
DOBBS FERRY, NY

2010 AERIAL PHOTOGRAPH

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PROJECT No.
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FIGURE
8

Source: Westchester County GIS
Scale: 1" = 100'

LEGEND

APPROXIMATE LOCATION
OF PROJECT SITE

PROJECT LOCATION

11 FAIRLAWN AVENUE
DOBBS FERRY, NY 10522

GEOTECHNICAL EXPLORATION
11 FAIRLAWN AVENUE PRIVATE RESIDENCE
DOBBS FERRY, NY

2016 AERIAL PHOTOGRAPH

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PROJECT No.
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FIGURE
9

Source: Westchester County GIS
Scale: 1" = 100'

LEGEND

APPROXIMATE LOCATION
OF PROJECT SITE

PROJECT LOCATION

11 FAIRLAWN AVENUE
DOBBS FERRY, NY 10522

GEOTECHNICAL EXPLORATION
11 FAIRLAWN AVENUE PRIVATE RESIDENCE
DOBBS FERRY, NY

2018 AERIAL PHOTOGRAPH

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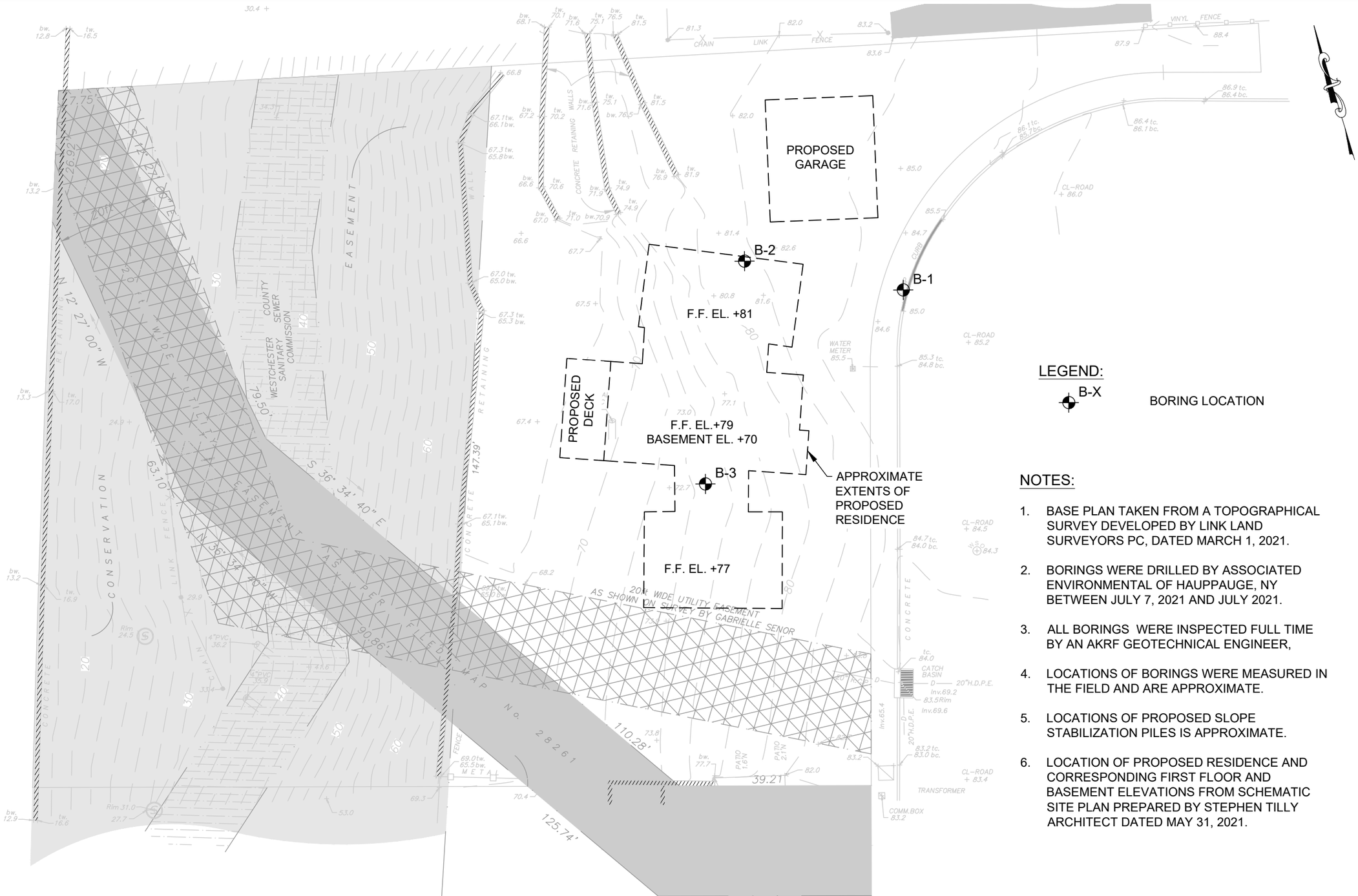
PROJECT No.
210176

FIGURE
10



- BORING LOCATION PLAN
- SCALE 1"=20'

LEGEND:

B-X BORING LOCATION

NOTES:

1. BASE PLAN TAKEN FROM A TOPOGRAPHICAL SURVEY DEVELOPED BY LINK LAND SURVEYORS PC, DATED MARCH 1, 2021.
2. BORINGS WERE DRILLED BY ASSOCIATED ENVIRONMENTAL OF HAUPPAUGE, NY BETWEEN JULY 7, 2021 AND JULY 2021.
3. ALL BORINGS WERE INSPECTED FULL TIME BY AN AKRF GEOTECHNICAL ENGINEER,
4. LOCATIONS OF BORINGS WERE MEASURED IN THE FIELD AND ARE APPROXIMATE.
5. LOCATIONS OF PROPOSED SLOPE STABILIZATION PILES IS APPROXIMATE.
6. LOCATION OF PROPOSED RESIDENCE AND CORRESPONDING FIRST FLOOR AND BASEMENT ELEVATIONS FROM SCHEMATIC SITE PLAN PREPARED BY STEPHEN TILLY ARCHITECT DATED MAY 31, 2021.

0 10 20 40

SCALE: 1" = 20'

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440 PARK AVENUE SOUTH
NEW YORK, NY 10016
(212) 696-0670 (PHONE)
(212) 726-0942 (FAX)

PROJECT

PROPOSED PRIVATE RESIDENCE
11 FAIRLAWN AVENUE
DOBBS FERRY, NY

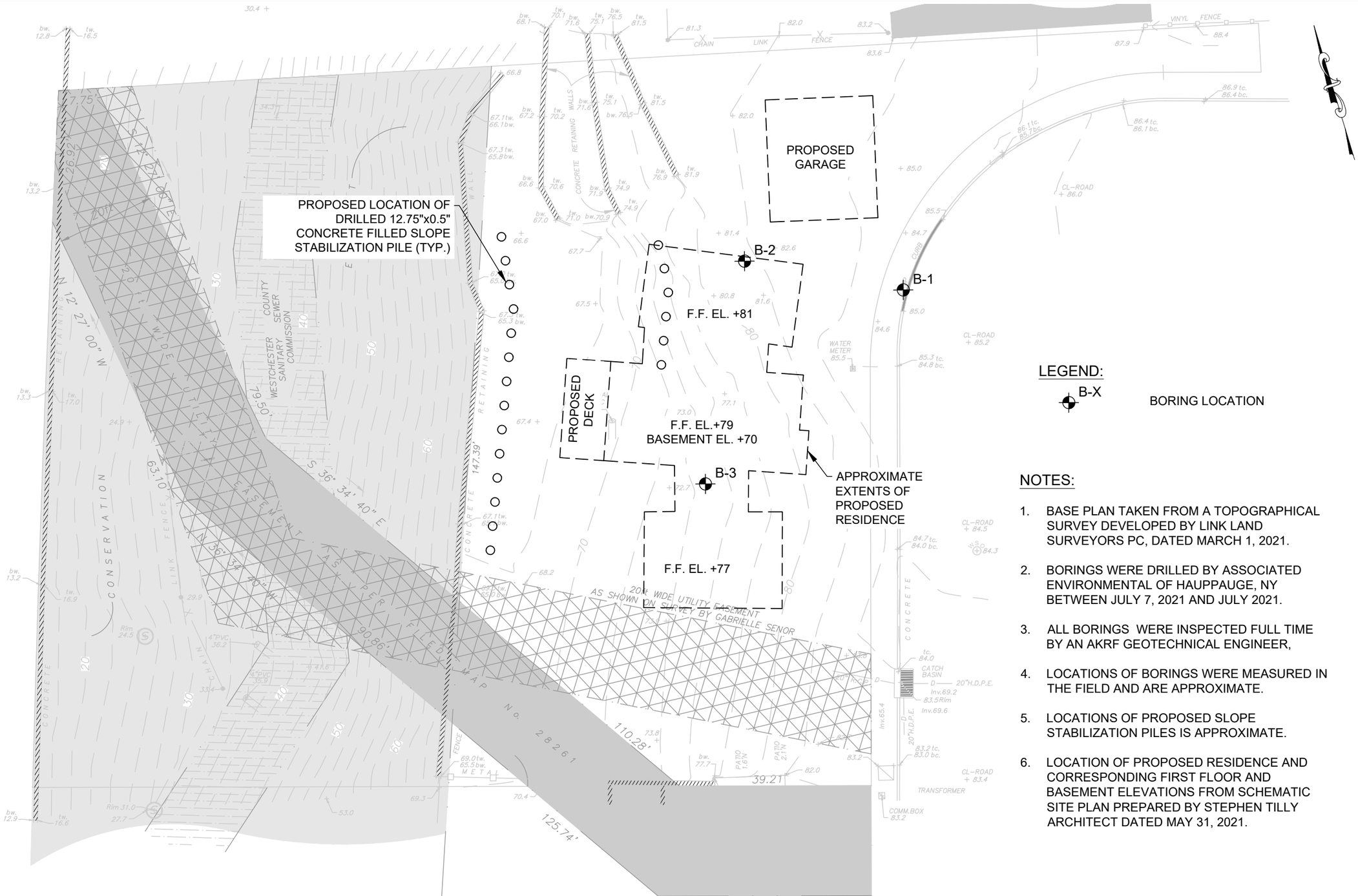
DRAWN BY	CHECKED BY
JH	GM
SCALE	DATE
1" = 20'	08/24/2021

SHEET TITLE

BORING LOCATION PLAN

SHEET NO.

FIGURE 11



- BORING LOCATION PLAN
- SCALE 1"=20'

LEGEND:

B-X BORING LOCATION

NOTES:

1. BASE PLAN TAKEN FROM A TOPOGRAPHICAL SURVEY DEVELOPED BY LINK LAND SURVEYORS PC, DATED MARCH 1, 2021.
2. BORINGS WERE DRILLED BY ASSOCIATED ENVIRONMENTAL OF HAUPPAUGE, NY BETWEEN JULY 7, 2021 AND JULY 2021.
3. ALL BORINGS WERE INSPECTED FULL TIME BY AN AKRF GEOTECHNICAL ENGINEER,
4. LOCATIONS OF BORINGS WERE MEASURED IN THE FIELD AND ARE APPROXIMATE.
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0 10 20 40

SCALE: 1" = 20'

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NEW YORK, NY 10016
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(212) 726-0942 (FAX)

PROJECT

PROPOSED PRIVATE RESIDENCE
11 FAIRLAWN AVENUE
DOBBS FERRY, NY

DRAWN BY	CHECKED BY
JH	GM
SCALE	DATE
1" = 20'	08/24/2021

SHEET TITLE

BORING LOCATION PLAN WITH SLOPE STABILIZATION PILES

SHEET NO.

FIGURE 12

APPENDIX A

SOIL BORING LOGS

Table A-1: Unified Soil Classification System

COARSE -GRAINED SOILS (50% > #200 Sieve)	Gravels and Gravelly Soils (50% > #4 Sieve)	Clean Gravels (No more than 5% < #200 Sieve)	GW	Well-graded gravels, or gravel-sand mixtures. Little to no fines.
			GP	Poorly-graded gravels, gravel-sand mixtures, little or no fines
		Dirty Gravels (more than 12% > #200 Sieve)	GM	Silty gravels, or gravel-sand-silt mixtures
			GC	Clayey gravels, or gravel-sand-silt mixtures
	Sands and Sandy Soils (50% < #4 Sieve)	Clean Sands (No more than 5% < #200 Sieve)	SW	Well-graded sands, or gravelly sands. Little to no fines
			SP	Poorly graded sands, or gravelly sands. Little to no fines
		Dirty Sands (more than 12% > #200 Sieve)	SM	Silty sands, or sand-silt mixtures
			SC	Clayey sands, or sand-clay mixtures
FINE-GRAINED SOILS (50% < #200 Sieve)	Silts and Clays (LL < 50%)	ML		Inorganic silt, rock flour, or clayey silts with slight plasticity
		CL		Inorganic, lean clays of low to medium plasticity; gravelly, sandy or silty clays.
		OL		Organic silty or organic silty clays of low plasticity.
	Silts and Clays (LL >= 50%)	MH		Inorganic silt, spongy, talcy, micaceous, diatomaceous, or fine sandy silt
		CH		Inorganic, fat clays of high plasticity
		OH		Organic fat clay of high plasticity
	Peat	PT		Peats or other highly organic soils
Fill Material		F	FILL	Brick, concrete, wood, etc.
Rock			R	Weathered Rock
			R	Competent Rock

Table A-2: Particle Sizes of Geologic Material

Material Size	Size Range	Passing Sieve Size	Retained Sieve Size
Boulder	Greater than 12 in.	---	---
Cobble	3 in. to 12 in.	---	—
Coarse Gravel	$\frac{3}{4}$ in. to 3 in.	3 inch	$\frac{3}{4}$ inch
Fine Gravel	19.1 mm ($\frac{3}{4}$ in.) to 4.76 mm	$\frac{3}{4}$ inch	No. 4
Coarse Sand	4.75 mm to 2.00 mm	No. 4	No. 10
Medium Sand	2.00 mm to 0.425 mm	No. 10	No. 40
Fine Sand	0.425 mm to 0.074 mm	No. 40	No. 200
Silt	0.074 mm to 0.005 mm	Requires Hydrometer Analysis	
Clay	Less than 0.005 mm		

Table A-3: Quantity Descriptors

Descriptor	Percentage of Sample (by weight)	Examples
CAPITALIZED	> 50%	Brown *SAND*
and	35 to 50%	*and* silt
some	20 to 35%	*some* gravel
little	10 to 20%	*little* clay
trace	< 10%	*trace* silt

AKRF, Inc.
440 Park Avenue South
New York, NY 10016

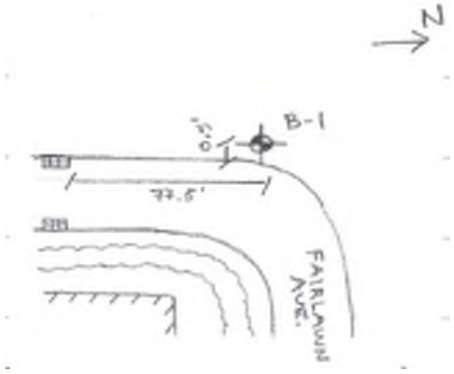
LOG OF BORING B-1

PAGE 1 **OF** 4

PROJECT NAME:	11 FAIRLAWN AVENUE	**CONTRACTOR:**	ASSOCIATED ENVIRONMENTAL
PROJECT NO.:	210176	**RIG TYPE & FORMAN:**	GEOPROBE 7822DT / EDDIE
PROJECT LOCATION:	DOBBS FERRY, NY	**SAMPLER TYPE(S):**	2" O.D. STANDARD SPLIT SPOON
BOREHOLE COORD. (N/E):	41.005511 / -73.882239	**HAMMER TYPE(S):**	AUTOMATIC
ELEVATION/DATUM:	EL. +85 / NAVD88	**DRILL BIT TYPE/DIA.:**	3 7/8" TRICONE ROLLER BIT
BORING START:	7/7/2021	**CASING TYPE/DIA.:**	4" I.D. STEEL FLUSH JOINT
BORING END:	7/7/2021	**WATER LEVEL:**	**1ST:** - **END:** - **24HR:** -
LOGGED BY:	D. ALLEN, P.E.	**NO. OF SAMPLES:**	**SS** 14 **U** - **C** -
		DRILLING METHOD:	MUD ROTARY

GRAPHIC LOG	MATERIAL & CLASS	DEPTH (FT)	MATERIAL DESCRIPTION	SAMPLE NO.	SAMPLE REC. (IN.)	SAMPLE TYPE	SAMPLE BLOWS PER 6 INCH
	FILL	1	**S-1 (0' - 2'):** FILL - Brown F-M-C SAND, little Fine Gravel, trace Silt, trace Brick Fragments (FILL)	S-1	13	SS	4, 5, 9, 7
		2	**S-2 (2' - 4'):** NO RECOVERY	S-2	0	SS	7, 7, 5, 3
		3					
		4					
	SAND (Class 4)	5	**S-3 (4' - 6'):** Brown FINE SAND, and Silt, trace Fine Gravel (SM) (Class 4)	S-3	24	SS	3, 3, 4, 6
		6					
		7	**S-4 (6' - 8'):** Brown FINE SAND, some Silt, trace Fine Gravel (SM) (Class 4)	S-4	19	SS	5, 6, 7, 9
		8					
		9	**S-5 (8' - 10'):** Brown FINE SAND, some Silt, little Fine Gravel (SM) (Class 4)	S-5	15	SS	9, 8, 6, 4
		10					
		11	**S-6 (10' - 12'):** Brown F-M-C SAND, some F-C Gravel, trace Silt, trace Clay (SM) (Class 4)	S-6	10	SS	8, 12, 14, 24
		12					
		13					
		14					

OBSERVATIONS & NOTES



LOCATION PLAN (NTS)

- Start: 7/7/2021 8:00 am
- Weather: SUNNY / 92°F
- Sample S-1 (0' - 2')
- Sample S-2 (2' - 4')
- No Recovery
- Install casing to about 4' bgs; Clean out borehole
- Sample S-3 (4' - 6')
- Sample S-4 (6' - 8')
- Install casing to about 8' bgs; Clean out borehole
- Sample S-5 (8' - 10')
- Sample S-6 (10' - 12')
- Install casing to about 15' bgs; Clean out borehole

LOG OF BORING B-1

GRAPHIC LOG	MATERIAL & CLASS	DEPTH (FT)	MATERIAL DESCRIPTION	SAMPLE NO.	SAMPLE REC. (IN.)	SAMPLE TYPE	SAMPLE BLOWS PER 6 INCH	OBSERVATIONS & NOTES
	SAND (Class 4)	15						
		16	**S-7 (15' - 17'):** Gray F-M-C SAND, little Silt, trace Fine Gravel, trace Clay (SM) (Class 4)	S-7	12	SS	17 63 27 22	• Sample S-7 (15' - 17') • Apparent cobble/boulder encountered at about 15.25' • Install casing to about 20' bgs; Clean out borehole
		17						
		18						
		19						
		20						
		21	**S-8 (20' - 22'):** Brown F-M-C SAND, some Fine Gravel, trace Silt (SP) (Class 4)	S-8	4	SS	31 15 10 21	• Sample S-8 (20' - 22') • Drill to 25' bgs; Smooth drilling; Brown backwash
		22						
		23						
		24						
		25						
		26	**S-9 (25' - 27'):** Gray-brown F-M-C SAND, little Silt, little Clay, trace Fine Gravel (SM) (Class 4)	S-9	10	SS	9 13 15 15	• Sample S-9 (25' - 27') • Drill to 30' bgs; Smooth drilling; Brown backwash
		27						
		28						
		29						
		30						
	SILT (5)	31	**S-10 (30' - 32'):** Brown SILT, and F-M-C Sand, trace Clay (ML) (Class 5)	S-10	12	SS	12 22 23 22	• Sample S-10 (30' - 32') • Drill to 35' bgs; Smooth drilling; Brown backwash
		32						

LOG OF BORING B-1

PAGE 3 **OF** 4

GRAPHIC LOG	MATERIAL & CLASS	DEPTH (FT)	MATERIAL DESCRIPTION	SAMPLE NO.	SAMPLE REC. (IN.)	SAMPLE TYPE	SAMPLE BLOWS PER 6 INCH	OBSERVATIONS & NOTES
	SILT (Class 5)	33 34 35						
	SAND (Class 4)	36 37	**S-11 (35' - 37'):** Gray-brown F-M SAND, and Silt, trace Fine Gravel (SM) (Class 4)	S-11	14	SS	20 21 20 28	• Sample S-11 (35' - 37') • Drill to 40' bgs; Smooth drilling; Brown backwash elevation 48
		38 39 40						elevation 45
	CLAY (Class 5)	41 42 43 44 45	**S-12 (40' - 42'):** Gray-brown SILTY CLAY, some F-M-C SAND (CL-ML) (Class 5)	S-12	16	SS	23 29 24 25	• Sample S-12 (40' - 42') • Drill to 45' bgs; Smooth drilling; Brown backwash elevation 40
	SAND (Class 4)	46 47 48 49 50	**S-13 (45' - 47'):** Gray-brown F-M SAND, little Fine Gravel, little Silt (SM) (Class 4)	S-13	14	SS	33 35 48 65	• Sample S-13 (45' - 47') • Drill to 50' bgs; Smooth drilling; Brown backwash

LOG OF BORING B-1

PAGE 4 **OF** 4

GRAPHIC LOG	MATERIAL & CLASS	DEPTH (FT)	MATERIAL DESCRIPTION	SAMPLE NO.	SAMPLE REC. (IN.)	SAMPLE TYPE	SAMPLE BLOWS PER 6 INCH	OBSERVATIONS & NOTES
	SAND (4)	51	**S-14 (50' - 52'):** Gray-brown F-M SAND, little Silt, trace Fine Gravel, trace Clay (SM) (Class 4)	S-14	12	SS	40 48 67 74	• Sample S-14 (50' - 52') • Boring terminated at about 52'
		52	End Borehole at about 52' bgs 7/7/2021					
		53						
		54						
		55						
		56						
		57						
		58						
		59						
		60						
		61						
		62						
		63						
		64						
		65						
		66						
		67						
		68						

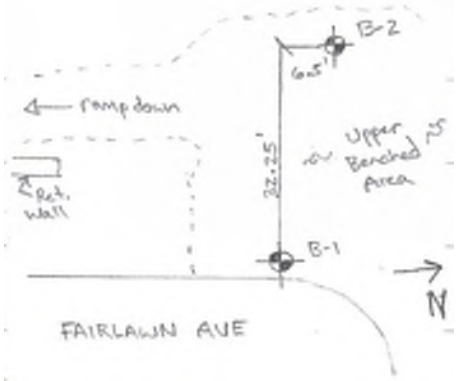
AKRF, Inc.
440 Park Avenue South
New York, NY 10016

LOG OF BORING B-2

PAGE 1 **OF** 4

PROJECT NAME:	11 FAIRLAWN AVENUE	**CONTRACTOR:**	ASSOCIATED ENVIRONMENTAL
PROJECT NO.:	210176	**RIG TYPE & FORMAN:**	GEOPROBE 7822DT / EDDIE
PROJECT LOCATION:	DOBBS FERRY, NY	**SAMPLER TYPE(S):**	2" O.D. STANDARD SPLIT SPOON
BOREHOLE COORD. (N/E):	41.005493 / -73.882230	**HAMMER TYPE(S):**	AUTOMATIC
ELEVATION/DATUM:	EL. +82 / NAVD88	**DRILL BIT TYPE/DIA.:**	3 7/8" TRICONE ROLLER BIT
BORING START:	7/8/2021	**CASING TYPE/DIA.:**	4" I.D. STEEL FLUSH JOINT
BORING END:	7/9/2021	**WATER LEVEL:**	**1ST:** - **END:** - **24HR:** -
LOGGED BY:	D. ALLEN, P.E.	**NO. OF SAMPLES:**	**SS** 15 **U** - **C** -
		DRILLING METHOD:	MUD ROTARY

GRAPHIC LOG	MATERIAL & CLASS	DEPTH (FT)	MATERIAL DESCRIPTION	SAMPLE NO.	SAMPLE REC. (IN.)	SAMPLE TYPE	SAMPLE BLOWS PER 6 INCH
	FILL	1	**S-1 (0' - 2'):** FILL - Brown F-M-C SAND, little Fine Gravel, trace Silt, trace Debris Fragments (FILL)	S-1	14	SS	3, 4, 5, 7
	FILL	2 3 4	**S-2 (2' - 4'):** FILL - Brown F-M-C SAND, little Fine Gravel, little Silt, trace Debris Fragments (FILL)	S-2	11	SS	3, 3, 4, 4
	SAND (4)	5 6	**S-3 (4' - 6'):** Brown FINE SAND, some Silt, little Fine Gravel (SM) (Class 4)	S-3	4	SS	3, 2, 2, 2
	SILT (5)	7 8	**S-4 (6' - 8'):** Brown SILT, little Fine Sand, trace Clay (ML) (Class 5)	S-4	19	SS	2, 2, 4, 4
	SAND (4)	9 10	**S-5 (8' - 10'):** Brown F-M-C SAND, little Silt, little Fine Gravel (SM) (Class 4)	S-5	16	SS	3, 8, 10, 4
	GRAVEL (Class 3)	11 12 13 14	**S-6 (10' - 12'):** Brown F-C GRAVEL, and F-M-C Sand, trace Silt, trace Clay (GP) (Class 3)	S-6	5	SS	3, 6, 9, 11



LOCATION PLAN (NTS)

- Start: 7/8/2021 7:15 am
- Weather: SUNNY / 85°F
- Sample S-1 (0' - 2')
- Sample S-2 (2' - 4')
- Install casing to about 4' bgs; Clean out borehole
- Sample S-3 (4' - 6')
- Sample S-4 (6' - 8')
- Install casing to about 8' bgs; Clean out borehole
- Sample S-5 (8' - 10')
- Sample S-6 (10' - 12')
- Install casing to about 15' bgs; Clean out borehole

LOG OF BORING B-2

GRAPHIC LOG	MATERIAL & CLASS	DEPTH (FT)	MATERIAL DESCRIPTION	SAMPLE NO.	SAMPLE REC. (IN.)	SAMPLE TYPE	SAMPLE BLOWS PER 6 INCH	OBSERVATIONS & NOTES
	GRAVEL (Class 3)	15						
		16	**S-7 (15' - 17'):** Brown F-C GRAVEL, some F-M-C Sand, trace Silt (GP) (Class 3) *Apparent cobble/boulder fragments encountered	S-7	3	SS	16 15 12 9	• Sample S-7 (15' - 17') • Install casing to about 20' bgs; Clean out borehole
		17						
		18						
		19						
		20						
	SAND (Class 4)	21	**S-8 (20' - 22'):** Brown F-M-C SAND, some Silt, some F-C Gravel (SM) (Class 4)	S-8	3	SS	8 5 8 7	• Sample S-8 (20' - 22') • Install casing to about 25' bgs; Clean out borehole elevation 60
		22						
		23						elevation 57
		24						
		25						
	CLAY (Class 5)	26	**S-9 (25' - 27'):** Brown CLAY, and Silt, some F-M Sand, trace Fine Gravel (CL) (Class 5)	S-9	19	SS	7 12 17 16	• Sample S-9 (25' - 27') • Drill to 30' bgs; Smooth drilling; Brown backwash
		27						
		28						elevation 52
		29						
		30						
	SAND (4)	31	**S-10 (30' - 32'):** Gray F-M SAND, and Silt, trace Fine Gravel (SM) (Class 4)	S-10	20	SS	10 11 15 15	• Sample S-10 (30' - 32') • Drill to 35' bgs; Smooth drilling; Brown backwash
		32						

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LOG OF BORING B-2

GRAPHIC LOG	MATERIAL & CLASS	DEPTH (FT)	MATERIAL DESCRIPTION	SAMPLE NO.	SAMPLE REC. (IN.)	SAMPLE TYPE	SAMPLE BLOWS PER 6 INCH	OBSERVATIONS & NOTES
	SAND (Class 4)	33						
		34						
		35						
		36	**S-11 (35' - 37'):** Gray-brown F-M-C SAND, little Silt, little Clay, little F-C Gravel (SM) (Class 4)	S-11	20	SS	8 15 23 25	• Sample S-11 (35' - 37') • Drill to 40' bgs; Smooth drilling; Brown backwash
		37						
		38						
		39						
		40						
		41	**S-12 (40' - 42'):** Gray-brown F-M SAND, little Fine Gravel, trace Silt (SP) (Class 4)	S-12	19	SS	21 25 28 32	• Sample S-12 (40' - 42') • Drill to 45' bgs; Smooth drilling; Brown backwash
		42						
		43						
		44						
		45						
		46	**S-13 (45' - 47'):** Gray-brown F-M SAND, some F-C Gravel, trace Silt, trace Clay (SM) (Class 4)	S-13	15	SS	39 46 35 39	• Sample S-13 (45' - 47') • Drill to 50' bgs; Smooth drilling; Brown backwash
		47						
		48						
		49						
		50						

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LOG OF BORING B-2

PAGE 4 **OF** 4

GRAPHIC LOG	MATERIAL & CLASS	DEPTH (FT)	MATERIAL DESCRIPTION	SAMPLE NO.	SAMPLE REC. (IN.)	SAMPLE TYPE	SAMPLE BLOWS PER 6 INCH	OBSERVATIONS & NOTES
	SAND (Class 4)	51	**S-14 (50' - 52'):** Gray-brown F-M SAND, little Fine Gravel, trace Silt (SP) (Class 4)	S-14	21	SS	37	• Sample S-14 (50' - 52')
							56	• Install casing to 40'; Drill to 55' bgs; Smooth drilling; Brown backwash
		52					73	
							100/4"	
		53						
		54						
		55						
		56	**S-15 (55' - 57'):** Gray-brown F-M SAND, little Silt, trace Clay, trace Fine Gravel (SM) (Class 4)	S-15	22	SS	45	• Sample S-15 (55' - 57')
							66	• Boring terminated at about 57'
							53	
		57					67	
		58	End Borehole at about 57' bgs 7/9/2021					
		59						
		60						
		61						
		62						
		63						
		64						
		65						
		66						
		67						
		68						

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440 Park Avenue South
New York, NY 10016

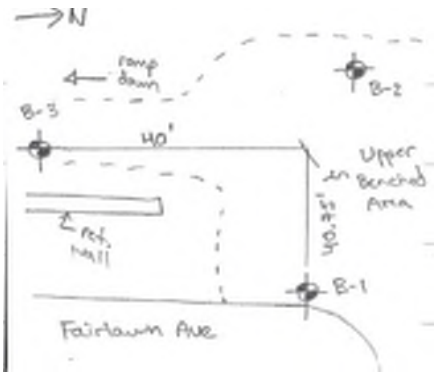
LOG OF BORING B-3

PAGE 1 **OF** 4

PROJECT NAME:	11 FAIRLAWN AVENUE	**CONTRACTOR:**	ASSOCIATED ENVIRONMENTAL
PROJECT NO.:	210176	**RIG TYPE & FORMAN:**	GEOPROBE 7822DT / EDDIE
PROJECT LOCATION:	DOBBS FERRY, NY	**SAMPLER TYPE(S):**	2" O.D. STANDARD SPLIT SPOON
BOREHOLE COORD. (N/E):	41.005418 / -73.882289	**HAMMER TYPE(S):**	AUTOMATIC
ELEVATION/DATUM:	EL. +74.5 / NAVD88	**DRILL BIT TYPE/DIA.:**	3 7/8" TRICONE ROLLER BIT
BORING START:	7/9/2021	**CASING TYPE/DIA.:**	4" I.D. STEEL FLUSH JOINT
BORING END:	7/9/2021	**WATER LEVEL:**	**1ST:** - **END:** - **24HR:** -
LOGGED BY:	D. ALLEN, P.E.	**NO. OF SAMPLES:**	**SS** 14 **U** - **C** -
		DRILLING METHOD:	MUD ROTARY

GRAPHIC LOG	MATERIAL & CLASS	DEPTH (FT)	MATERIAL DESCRIPTION	SAMPLE NO.	SAMPLE REC. (IN.)	SAMPLE TYPE	SAMPLE BLOWS PER 6 INCH
	FILL	1	**S-1 (0' - 2'):** FILL - Gray-Brown F-M-C SAND, some Silt, little Fine Gravel, trace Brick Fragments, trace Debris Fragments (FILL)	S-1	12	SS	4, 16, 7, 7
		2					
		3	**S-2 (2' - 4'):** FILL - Gray-brown F-M-C SAND, little Silt, little Fine Gravel, trace Brick Fragments, trace Debris Fragments (FILL)	S-2	12	SS	7, 7, 8, 7
		4					
		5	**S-3 (4' - 6'):** FILL - Gray F-M-C SAND, some Silt, trace Fine Gravel, trace Clay, trace Brick Fragments (FILL)	S-3	10	SS	7, 5, 6, 9
		6					
		7	**S-4 (6' - 8'):** FILL - Gray F-M-C SAND, some F-C Gravel, trace Silt (FILL)	S-4	2	SS	7, 4, 4, 4
		8					
		9	**S-5 (8' - 10'):** NO RECOVERY	S-5	0	SS	2, 1, WH, WH
		10					
		11	**S-6 (10' - 12'):** FILL - Gray F-M-C SAND, some F-C Gravel, trace Silt, trace Brick Fragments (FILL)	S-6	4	SS	10, 20, 17, 6
		12					
		13					
		14					

OBSERVATIONS & NOTES



LOCATION PLAN (NTS)

- Start: 7/9/2021 9:00 am
- Weather: Rain / Sunny / 82°F
- Sample S-1 (0' - 2')
- Sample S-2 (2' - 4')
- Install casing to about 4' bgs; Clean out borehole
- Sample S-3 (4' - 6')
- Sample S-4 (6' - 8')
- Install casing to about 8' bgs; Clean out borehole
- Sample S-5 (8' - 10')
- No Recovery
- Sample S-6 (10' - 12')
- Install casing to about 15' bgs; Clean out borehole

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LOG OF BORING B-3

PAGE 2 **OF** 4

GRAPHIC LOG	MATERIAL & CLASS	DEPTH (FT)	MATERIAL DESCRIPTION	SAMPLE NO.	SAMPLE REC. (IN.)	SAMPLE TYPE	SAMPLE BLOWS PER 6 INCH	OBSERVATIONS & NOTES
		15						elevation 57.5
	FILL	16	**S-7 (15' - 17'):** FILL - Gray F-M-C SAND, some F-C Gravel, little Silt, little Clay, trace Organics (Grass and Lumber) (FILL)	S-7	6	SS	4 5 2 4	• Sample S-7 (15' - 17') • Install casing to about 20' bgs; Clean out borehole
		17						
		18						elevation 54.5
		19						
		20						
	CLAY (Class 5)	21	**S-8 (20' - 22'):** Gray-brown CLAY, some F-M-C Sand, some Silt, trace Fine Gravel (CL) (Class 5)	S-8	20	SS	12 10 11 15	• Sample S-8 (20' - 22') • Install casing to about 25' bgs; Clean out borehole
		22						
		23						elevation 51.5
		24						
		25						
	SAND (Class 4)	26	**S-9 (25' - 27'):** Gray F-M SAND, and Silt, trace Fine Gravel (SM) (Class 4)	S-9	22	SS	13 20 33 44	• Sample S-9 (25' - 27') • Drill to 30' bgs; Smooth drilling; Brown backwash
		27						
		28						
		29						
		30						
		31	**S-10 (30' - 32'):** Gray-brown F-M SAND, little Silt, trace Clay, trace Fine Gravel (SM) (Class 4)	S-10	18	SS	33 58 68 64	• Sample S-10 (30' - 32') • Drill to 35' bgs; Smooth drilling; Brown backwash
		32						

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LOG OF BORING B-3

PAGE 3 **OF** 4

GRAPHIC LOG	MATERIAL & CLASS	DEPTH (FT)	MATERIAL DESCRIPTION	SAMPLE NO.	SAMPLE REC. (IN.)	SAMPLE TYPE	SAMPLE BLOWS PER 6 INCH	OBSERVATIONS & NOTES
	SAND (Class 4)	33						
		34						
		35						
		36	**S-11 (35' - 37'):** Gray-brown F-M SAND, little Fine Gravel, trace Silt (SP) (Class 4)	S-11	12	SS	26 44 39 43	• Sample S-11 (35' - 37') • Drill to 40' bgs; Smooth drilling; Brown backwash
		37						
		38						
		39						
		40						
		41	**S-12 (40' - 42'):** Gray-brown F-M SAND, little Silt, trace Clay, trace Fine Gravel (SM) (Class 4)	S-12	14	SS	31 57 66 69	• Sample S-12 (40' - 42') • Drill to 45' bgs; Smooth drilling; Brown backwash
		42						
		43						
		44						
		45						
		46	**S-13 (45' - 47'):** Gray-brown F-M SAND, trace Fine Gravel, trace Silt (SP) (Class 4)	S-13	2	SS	100/4" - -	• Sample S-13 (45' - 47') • Drill to 50' bgs; Smooth drilling; Brown backwash
		47					-	
		48						
		49						
		50						

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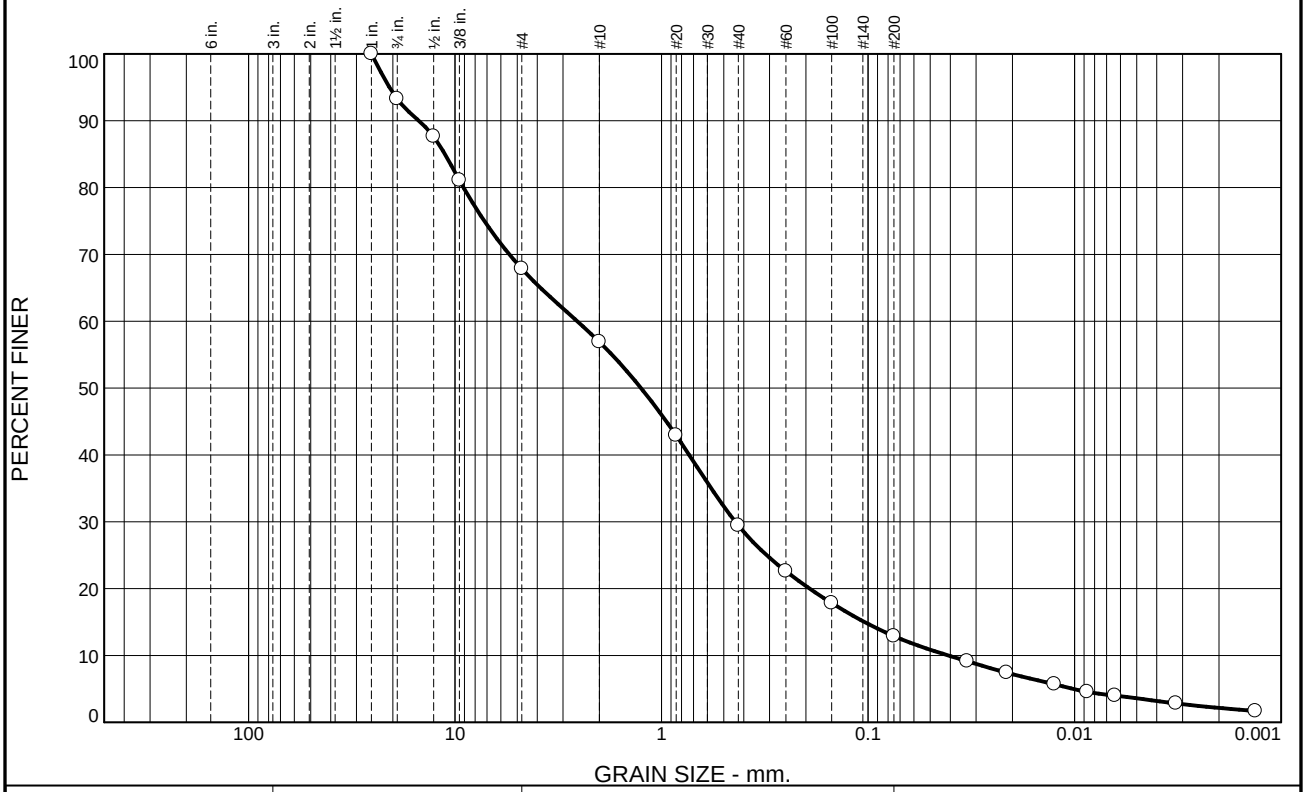
LOG OF BORING B-3

PAGE 4 **OF** 4

GRAPHIC LOG	MATERIAL & CLASS	DEPTH (FT)	MATERIAL DESCRIPTION	SAMPLE NO.	SAMPLE REC. (IN.)	SAMPLE TYPE	SAMPLE BLOWS PER 6 INCH	OBSERVATIONS & NOTES
	SAND (4)	51	**S-14 (50' - 51.7'):** Gray-brown F-M SAND, little Clay, little Silt, trace Fine Gravel (SM) (Class 4)	S-14	14	SS	38 52 78 100/4"	• Sample S-14 (50' - 51.7') • Boring terminated at about 51.7'
		52	End Borehole at about 51.7' bgs 7/9/2021					
		53						
		54						
		55						
		56						
		57						
		58						
		59						
		60						
		61						
		62						
		63						
		64						
		65						
		66						
		67						
		68						

APPENDIX B
LABORATORY TEST RESULTS

Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	6.7	25.4	11.0	27.4	16.6	9.3	3.6

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
1	100.0		
.75	93.3		
.5	87.6		
.375	81.1		
#4	67.9		
#10	56.9		
#20	42.9		
#40	29.5		
#60	22.6		
#100	17.8		
#200	12.9		

* (no specification provided)

Material Description

Brown silty sand with gravel

Atterberg Limits

PL= LL= PI=

Coefficients

D_{90}= 14.9668 D_{85}= 11.1922 D_{60}= 2.5595
D_{50}= 1.2573 D_{30}= 0.4392 D_{15}= 0.1039
D_{10}= 0.0409 C_u= 62.63 C_c= 1.84

Classification

USCS= ML AASHTO=

Remarks

Moisture content=5%
Sample washed on #200 sieve
USCS based on dilatancy & plasticity per ASTM D2488

Source of Sample: B-1 **Depth:** 10-12 ft.
Sample Number: S-6

Date: 7-19-2021

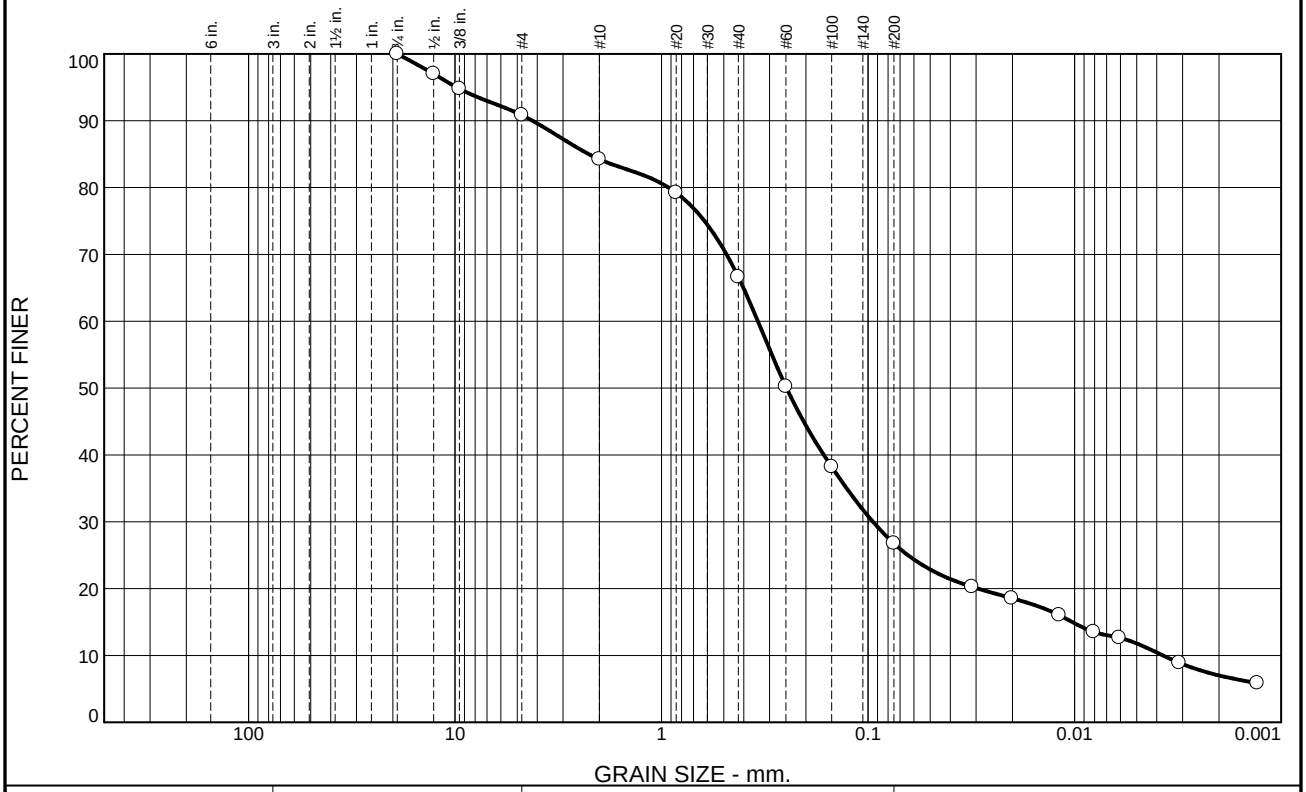
SKYLANDS TESTING, LLC

Sparta, NJ

Client: AKRF
Project: 11 Fairlawn Ave
Dobbs Ferry, NY
Project No: 21-080 **Fig.**

Tested By: EH, DB **Checked By:** EJS

Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	9.2	6.6	17.6	39.8	15.0	11.8

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
.75	100.0		
.5	97.0		
.375	94.8		
#4	90.8		
#10	84.2		
#20	79.2		
#40	66.6		
#60	50.2		
#100	38.2		
#200	26.8		

* (no specification provided)

Material Description

Brown silty sand

Atterberg Limits

PL= LL= PI=

Coefficients

D_{90}= 4.2129 D_{85}= 2.2485 D_{60}= 0.3415
D_{50}= 0.2482 D_{30}= 0.0947 D_{15}= 0.0103
D_{10}= 0.0037 C_u= 91.55 C_c= 7.04

Classification

USCS= SM AASHTO=

Remarks

Moisture content=10%
USCS based on dilatancy & plasticity per ASTM D2488

Source of Sample: B-1 **Depth:** 25-27 ft.
Sample Number: S-9

Date: 7-19-2021

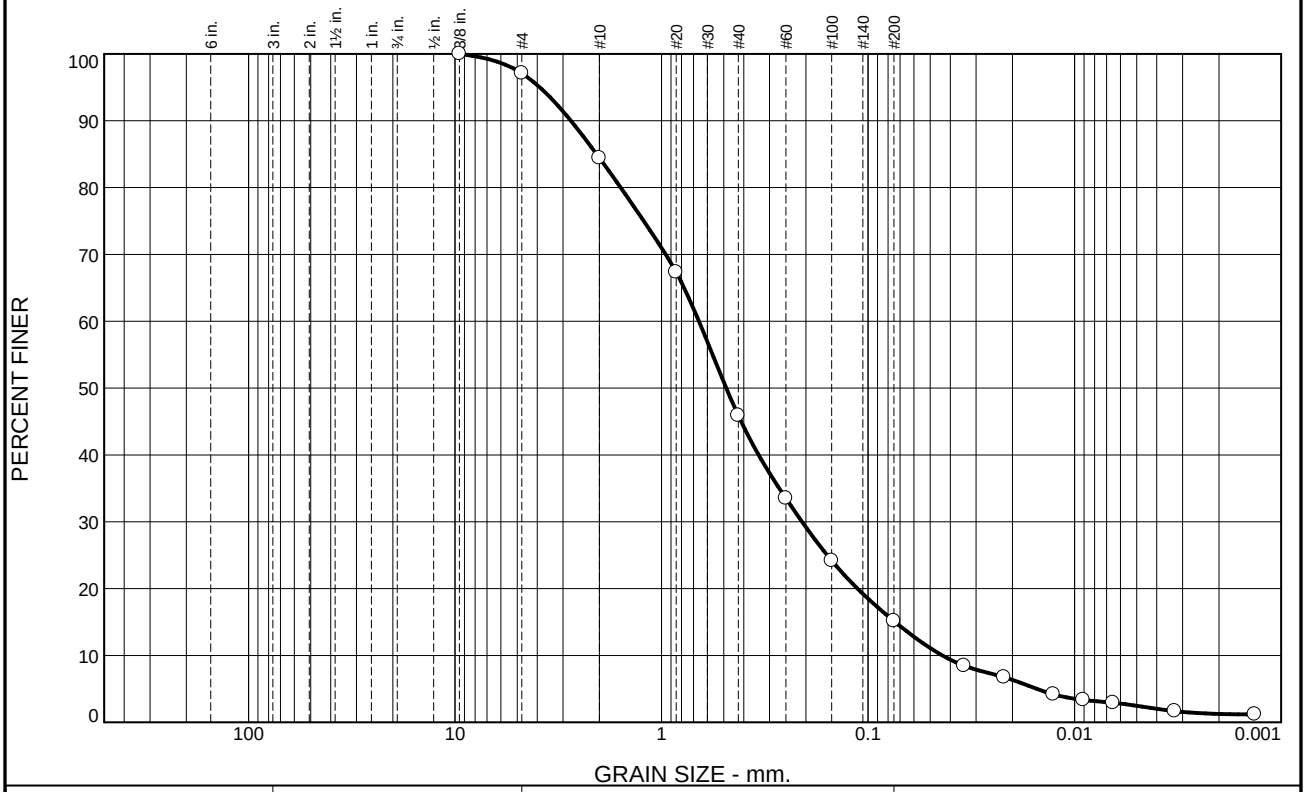
SKYLANDS TESTING, LLC

Sparta, NJ

Client: AKRF
Project: 11 Fairlawn Ave
Dobbs Ferry, NY
Project No: 21-080 **Fig.**

Tested By: EH, DB **Checked By:** EJS

Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	2.9	12.7	38.5	30.8	12.6	2.5

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
.375	100.0		
#4	97.1		
#10	84.4		
#20	67.4		
#40	45.9		
#60	33.5		
#100	24.2		
#200	15.1		

* (no specification provided)

Material Description

Blue-gray-brown silty sand

Atterberg Limits

PL= LL= PI=

Coefficients

D_{90}= 2.7487 D_{85}= 2.0632 D_{60}= 0.6593
D_{50}= 0.4860 D_{30}= 0.2088 D_{15}= 0.0740
D_{10}= 0.0437 C_u= 15.08 C_c= 1.51

Classification

USCS= SM AASHTO=

Remarks

Moisture content=4.8%
USCS based on dilatancy & plasticity per ASTM D2488

Source of Sample: B-1 **Depth:** 15-17 ft.
Sample Number: S-7

Date: 7-19-2021

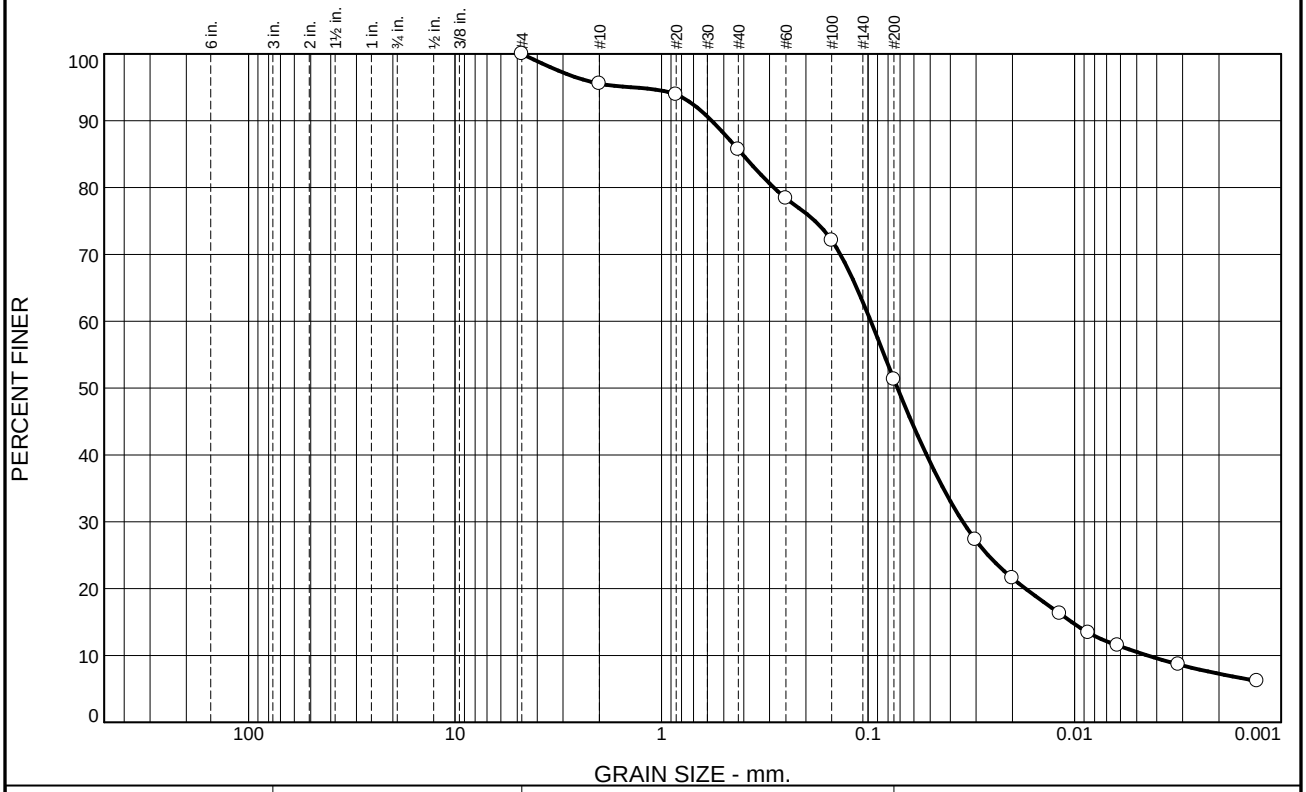
SKYLANDS TESTING, LLC

Sparta, NJ

Client: AKRF
Project: 11 Fairlawn Ave
Dobbs Ferry, NY
Project No: 21-080 **Fig.**

Tested By: EH, DB **Checked By:** EJS

Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.0	4.5	9.8	34.4	40.8	10.5

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
#4	100.0		
#10	95.5		
#20	93.9		
#40	85.7		
#60	78.4		
#100	72.1		
#200	51.3		

* (no specification provided)

Material Description

Brown sandy silt

Atterberg Limits

PL= NP LL= 18 PI= NP

Coefficients

D_{90}= 0.5716 D_{85}= 0.4064 D_{60}= 0.0970
D_{50}= 0.0721 D_{30}= 0.0348 D_{15}= 0.0103
D_{10}= 0.0044 C_u= 21.87 C_c= 2.81

Classification

USCS= ML AASHTO=

Remarks

Moisture content=18.5%

Source of Sample: B-1 **Depth:** 30-32 ft.
Sample Number: S-10

elevation 55

Date: 7-19-2021

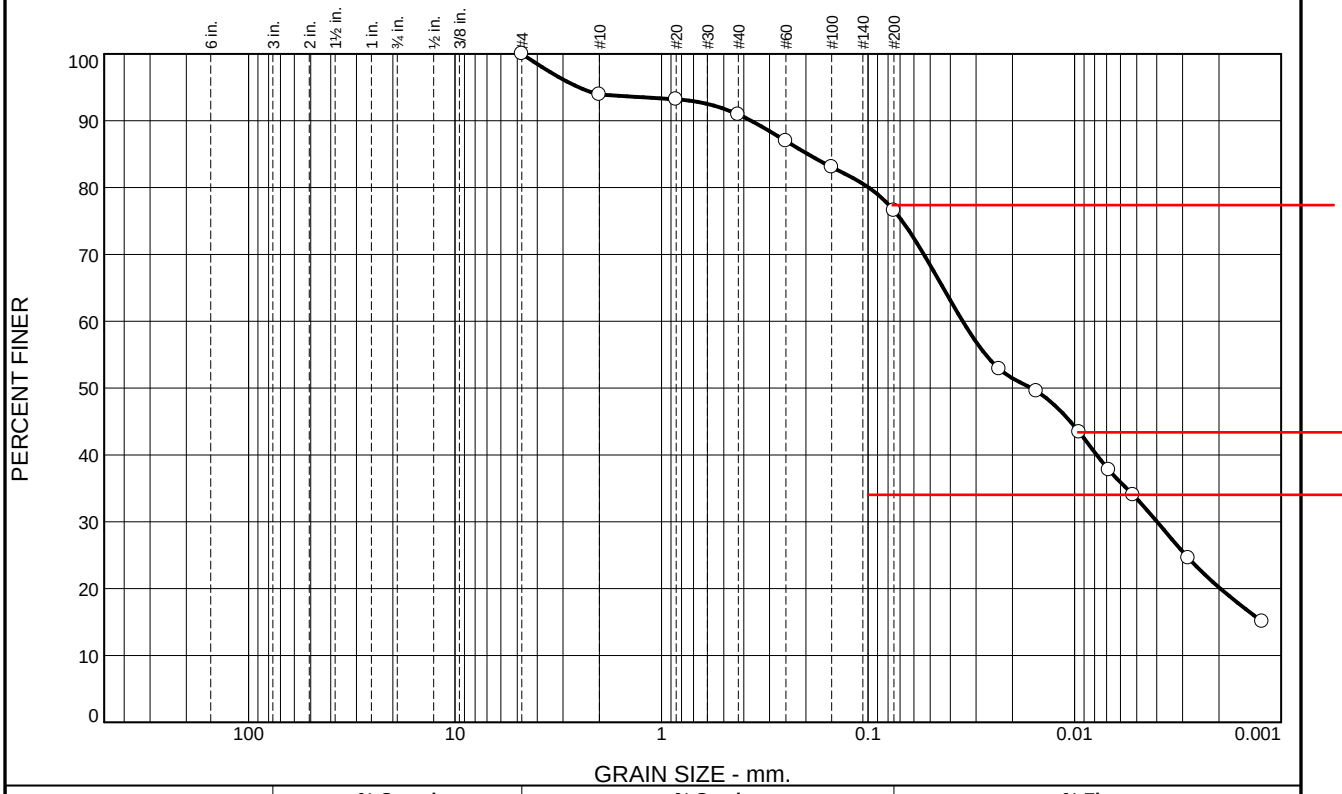
SKYLANDS TESTING, LLC

Sparta, NJ

Client: AKRF
Project: 11 Fairlawn Ave
Dobbs Ferry, NY
Project No: 21-080 **Fig.**

Tested By: EH, DB **Checked By:** EJS

Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.0	6.1	3.0	14.3	43.2	33.4

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
#4	100.0		
#10	93.9		
#20	93.2		
#40	90.9		
#60	87.0		
#100	83.1		
#200	76.6		

* (no specification provided)

Material Description

Gray-brown silty clay with sand

7

Atterberg Limits

PL= 12 LL= 19 PI= 7

Coefficients

D_{90}= 0.3687 D_{85}= 0.1954 D_{60}= 0.0348
D_{50}= 0.0162 D_{30}= 0.0040 D_{15}=
D_{10}= C_u= C_c=

Classification

USCS= CL-ML AASHTO=

Remarks

Moisture content=24.6%

Source of Sample: B-1 **Depth:** 40-42 ft.
Sample Number: S-12

Date: 7-19-2021

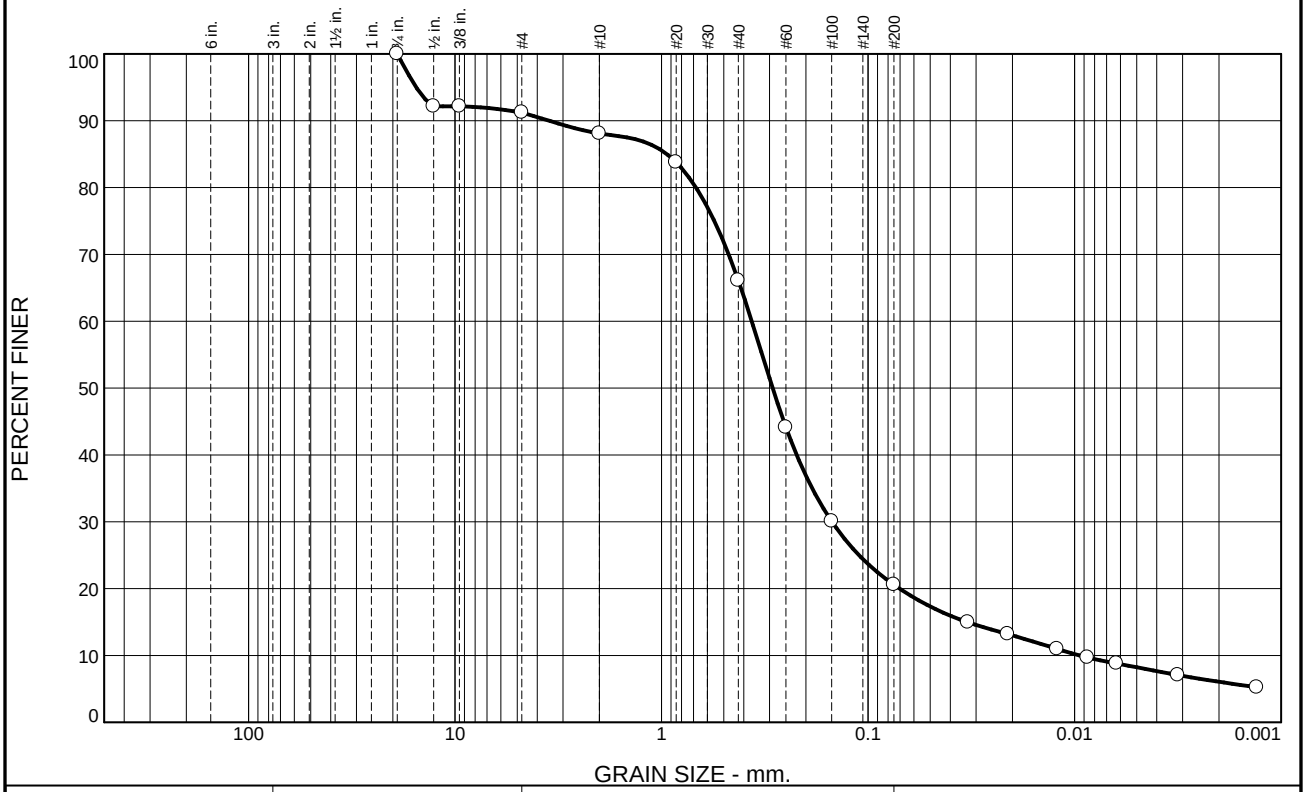
SKYLANDS TESTING, LLC

Sparta, NJ

Client: AKRF
Project: 11 Fairlawn Ave
Dobbs Ferry, NY
Project No: 21-080 **Fig.**

Tested By: EH, DB **Checked By:** EJS

Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	8.8	3.1	22.0	45.5	12.4	8.2

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
.75	100.0		
.5	92.2		
.375	92.2		
#4	91.2		
#10	88.1		
#20	83.8		
#40	66.1		
#60	44.1		
#100	30.1		
#200	20.6		

* (no specification provided)

Material Description

Gray-brown silty sand

Atterberg Limits

PL= LL= PI=

Coefficients

D_{90}= 3.5019 D_{85}= 0.9418 D_{60}= 0.3658
D_{50}= 0.2897 D_{30}= 0.1495 D_{15}= 0.0331
D_{10}= 0.0095 C_u= 38.63 C_c= 6.45

Classification

USCS= SM AASHTO=

Remarks

Moisture content=7%
USCS based on dilatancy & plasticity per ASTM D2488

Source of Sample: B-1 **Depth:** 50-52 ft.
Sample Number: S-14

Date: 7-19-2021

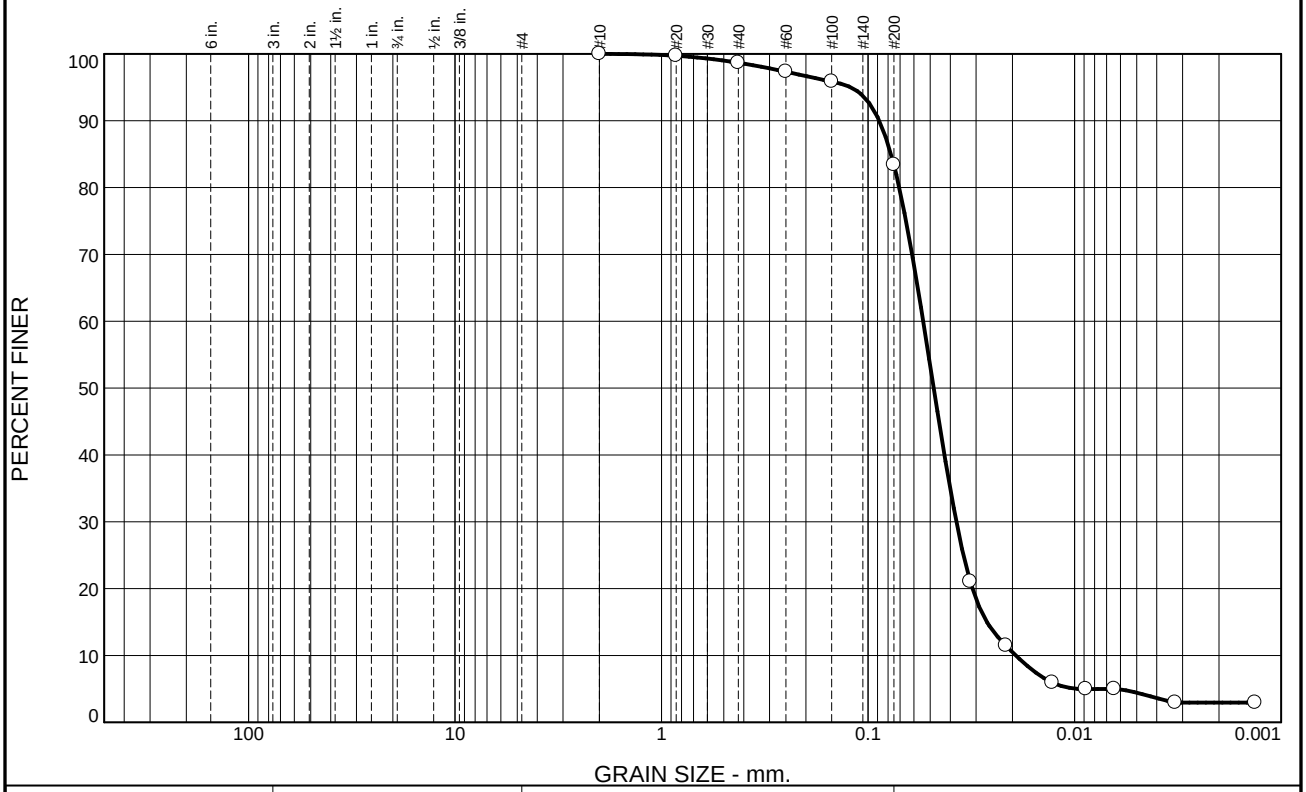
SKYLANDS TESTING, LLC

Sparta, NJ

Client: AKRF
Project: 11 Fairlawn Ave
Dobbs Ferry, NY
Project No: 21-080 **Fig.**

Tested By: EH, DB **Checked By:** EJS

Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.0	0.0	1.3	15.3	79.0	4.4

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
#10	100.0		
#20	99.7		
#40	98.7		
#60	97.3		
#100	95.9		
#200	83.4		

* (no specification provided)

Material Description

Gray-brown and brown silt with sand

Atterberg Limits

PL= LL= PI=

Coefficients

D_{90}= 0.0883 D_{85}= 0.0774 D_{60}= 0.0541
D_{50}= 0.0481 D_{30}= 0.0374 D_{15}= 0.0266
D_{10}= 0.0193 C_u= 2.81 C_c= 1.34

Classification

USCS= ML AASHTO=

Remarks

Moisture content=27.1%
USCS based on dilatancy & plasticity per ASTM D2488

Source of Sample: B-2 **Depth:** 6-8 ft.
Sample Number: S-4

Date: 7-19-2021

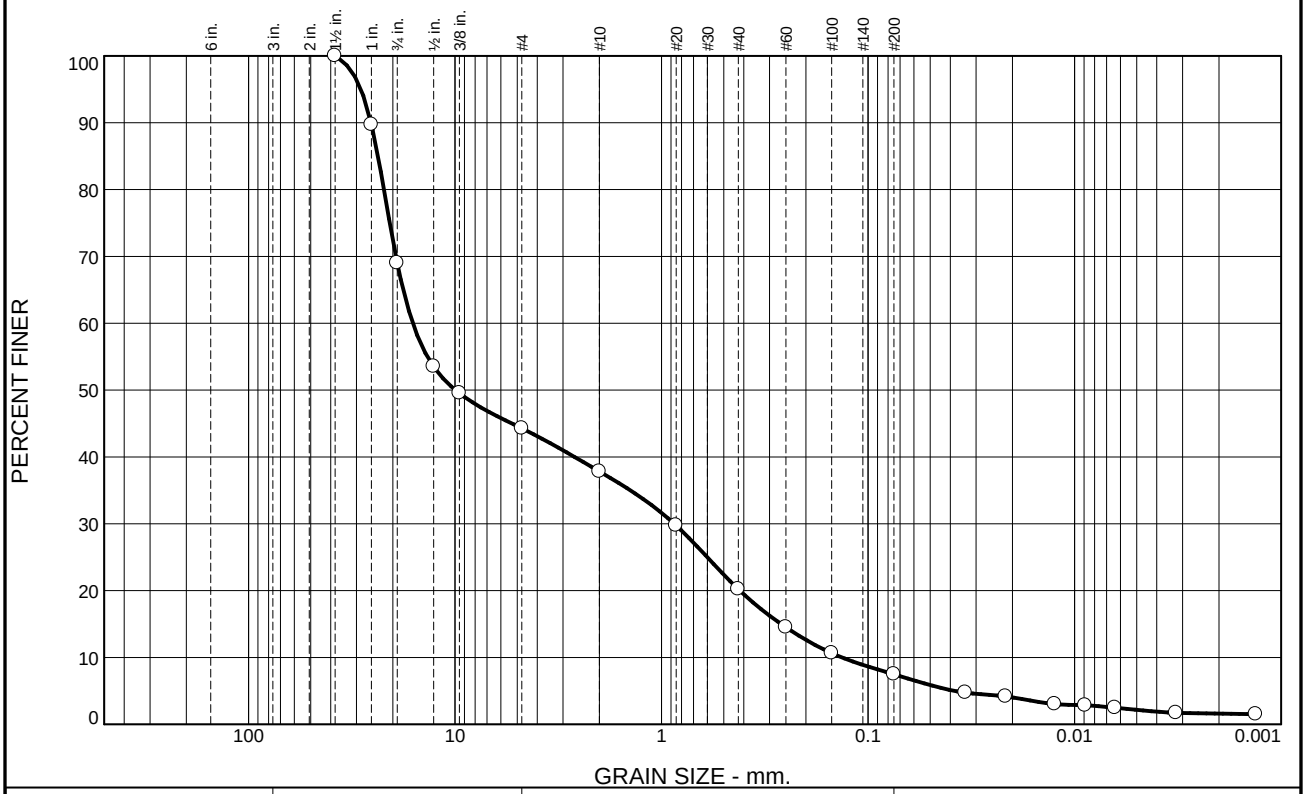
SKYLANDS TESTING, LLC

Sparta, NJ

Client: AKRF
Project: 11 Fairlawn Ave
Dobbs Ferry, NY
Project No: 21-080 **Fig.**

Tested By: EH, DB **Checked By:** EJS

Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	31.0	24.7	6.5	17.6	12.7	5.3	2.2

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
1.5	100.0		
1	89.7		
.75	69.0		
.5	53.5		
.375	49.5		
#4	44.3		
#10	37.8		
#20	29.7		
#40	20.2		
#60	14.5		
#100	10.6		
#200	7.5		

* (no specification provided)

Material Description

Brown and gray poorly graded gravel with silt and sand

Atterberg Limits

PL= LL= PI=

Coefficients

D_{90}= 25.5247 D_{85}= 23.6231 D_{60}= 16.0129
D_{50}= 9.9477 D_{30}= 0.8679 D_{15}= 0.2634
D_{10}= 0.1338 C_u= 119.68 C_c= 0.35

Classification

USCS= SM AASHTO=

Remarks

Moisture content=5%
USCS based on dilatancy & plasticity per ASTM D2488

Source of Sample: B-2 **Depth:** 10-12 ft.
Sample Number: S-6

Date: 7-19-2021

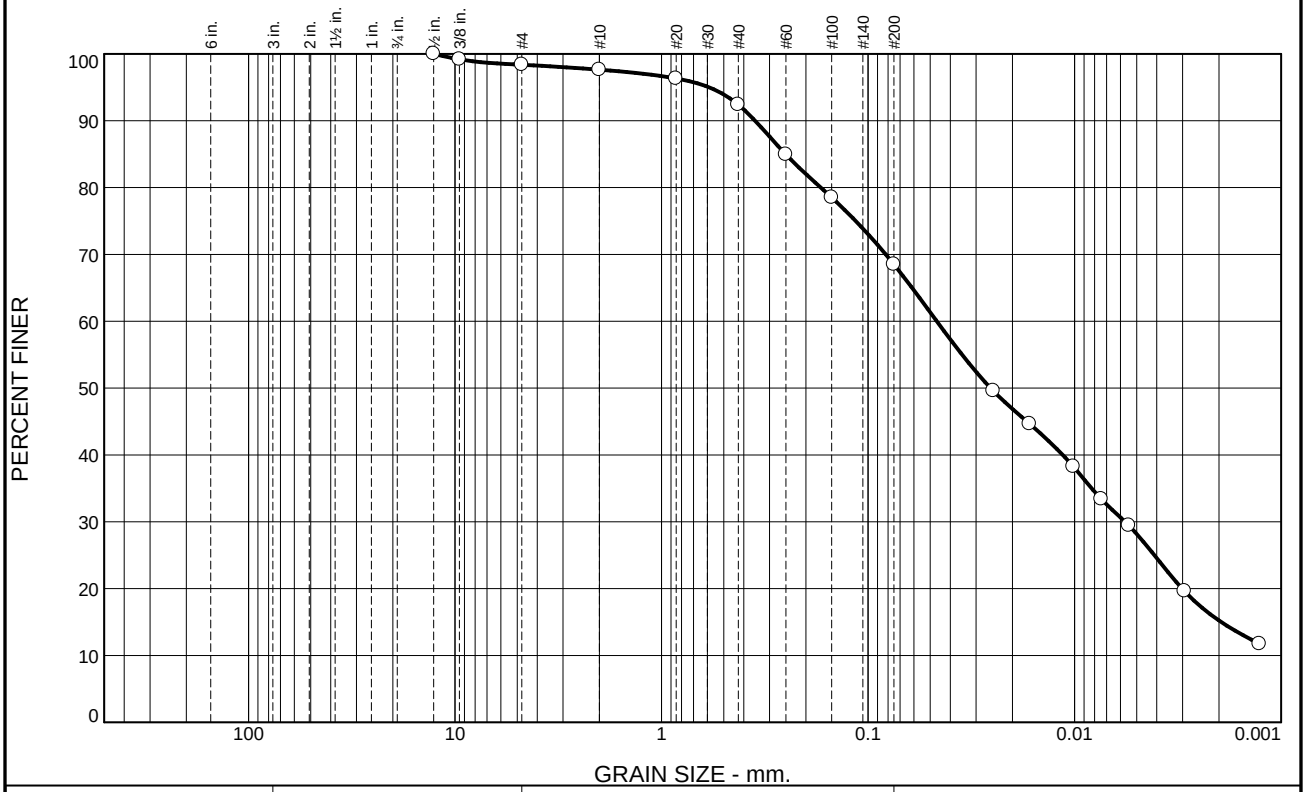
SKYLANDS TESTING, LLC

Sparta, NJ

Client: AKRF
Project: 11 Fairlawn Ave
Dobbs Ferry, NY
Project No: 21-080 **Fig.**

Tested By: EH, DB **Checked By:** EJS

Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	1.6	0.8	5.2	23.9	40.3	28.2

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
.5	100.0		
.375	99.2		
#4	98.4		
#10	97.6		
#20	96.3		
#40	92.4		
#60	84.9		
#100	78.5		
#200	68.5		

* (no specification provided)

Material Description

9

Brown sandy lean clay

Atterberg Limits

PL= 14 LL= 23 PI= 9

Coefficients

D_{90}= 0.3524 D_{85}= 0.2510 D_{60}= 0.0465
D_{50}= 0.0255 D_{30}= 0.0057 D_{15}= 0.0019
D_{10}= C_u= C_c=

Classification

USCS= CL AASHTO=

Remarks

Moisture content=15.1%
USCS based on dilatancy & plasticity per ASTM D2488

Source of Sample: B-2 **Depth:** 25-27 ft.
Sample Number: S-9

Date: 7-19-2021

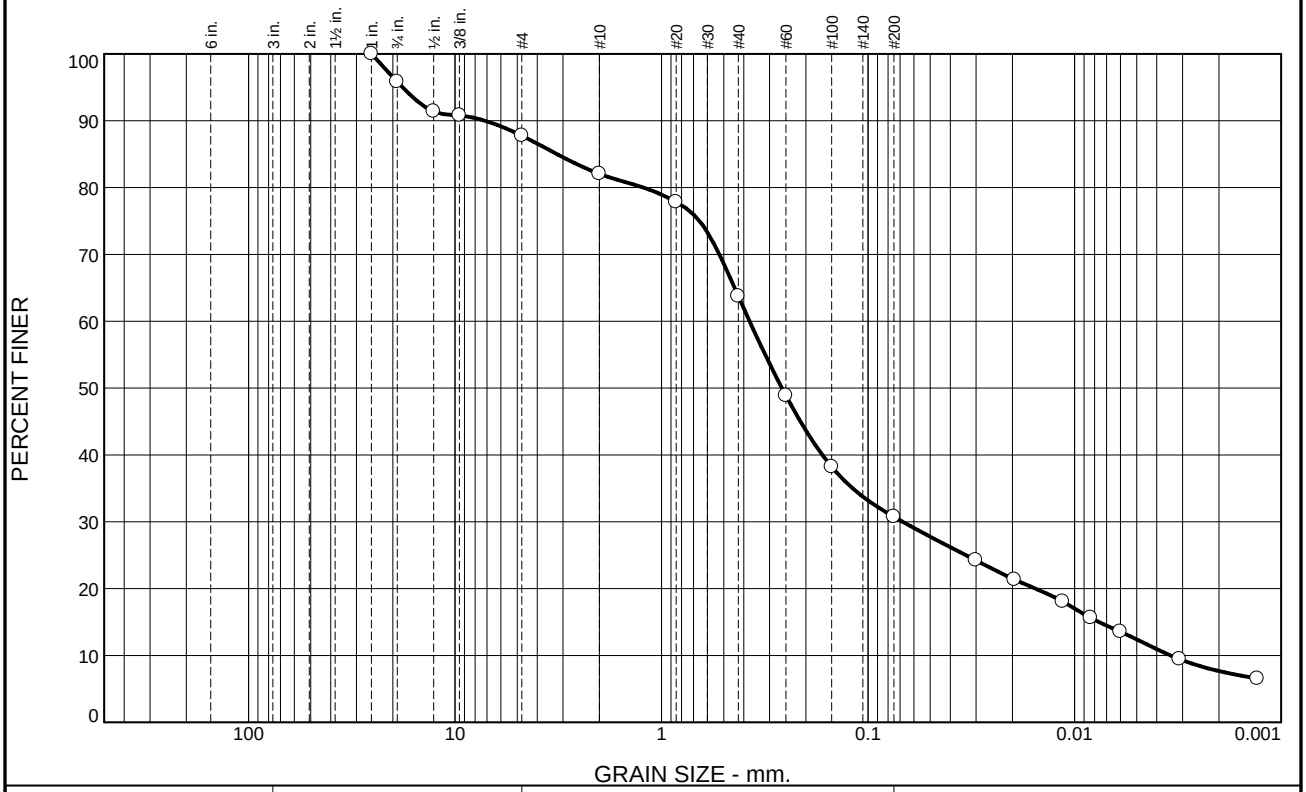
SKYLANDS TESTING, LLC

Sparta, NJ

Client: AKRF
Project: 11 Fairlawn Ave
Dobbs Ferry, NY
Project No: 21-080 **Fig.**

Tested By: EH, DB **Checked By:** EJS

Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	4.2	8.0	5.7	18.3	33.0	18.4	12.4

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
1	100.0		
.75	95.8		
.5	91.4		
.375	90.8		
#4	87.8		
#10	82.1		
#20	77.8		
#40	63.8		
#60	48.9		
#100	38.2		
#200	30.8		

* (no specification provided)

Material Description

Brown silty sand

Atterberg Limits

PL= LL= PI=

Coefficients

D_{90}= 7.1596 D_{85}= 3.2041 D_{60}= 0.3747
D_{50}= 0.2613 D_{30}= 0.0680 D_{15}= 0.0076
D_{10}= 0.0034 C_u= 109.28 C_c= 3.59

Classification

USCS= SM AASHTO=

Remarks

Moisture content=9%
USCS based on dilatancy & plasticity per ASTM D2488

Source of Sample: B-2 **Depth:** 35-37 ft.
Sample Number: S-11

Date: 7-19-2021

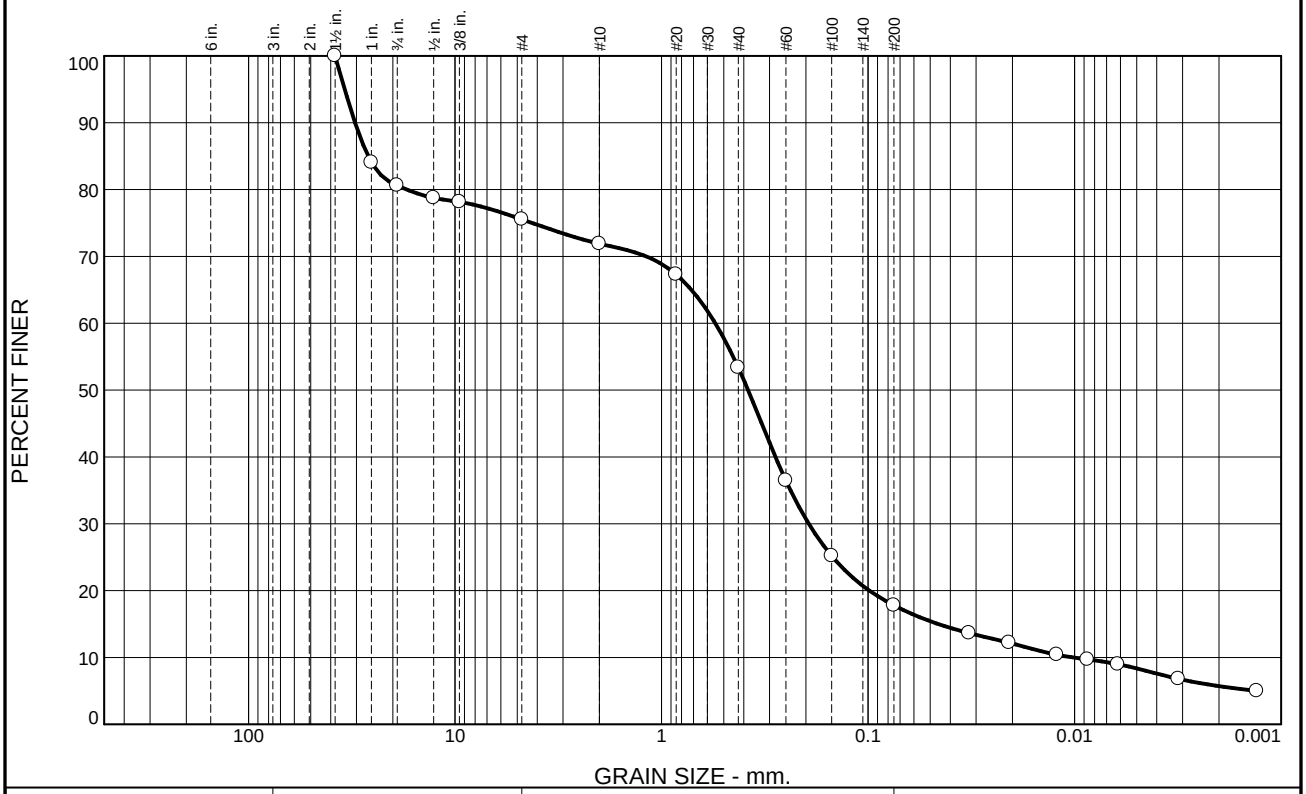
SKYLANDS TESTING, LLC

Sparta, NJ

Client: AKRF
Project: 11 Fairlawn Ave
Dobbs Ferry, NY
Project No: 21-080 **Fig.**

Tested By: EH, DB **Checked By:** EJS

Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	19.4	5.1	3.6	18.5	35.6	9.4	8.4

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
1.5	100.0		
1	84.1		
.75	80.6		
.5	78.7		
.375	78.2		
#4	75.5		
#10	71.9		
#20	67.3		
#40	53.4		
#60	36.5		
#100	25.2		
#200	17.8		

* (no specification provided)

Material Description

Brown and blue-white silty sand with gravel

Atterberg Limits

PL= LL= PI=

Coefficients

D_{90}= 30.4823 D_{85}= 26.3482 D_{60}= 0.5494
D_{50}= 0.3810 D_{30}= 0.1937 D_{15}= 0.0457
D_{10}= 0.0102 C_u= 54.05 C_c= 6.72

Classification

USCS= SM AASHTO=

Remarks

Moisture content=6%
USCS based on dilatancy & plasticity per ASTM D2488

Source of Sample: B-2 **Depth:** 45-47 ft.
Sample Number: S-13

Date: 7-19-2021

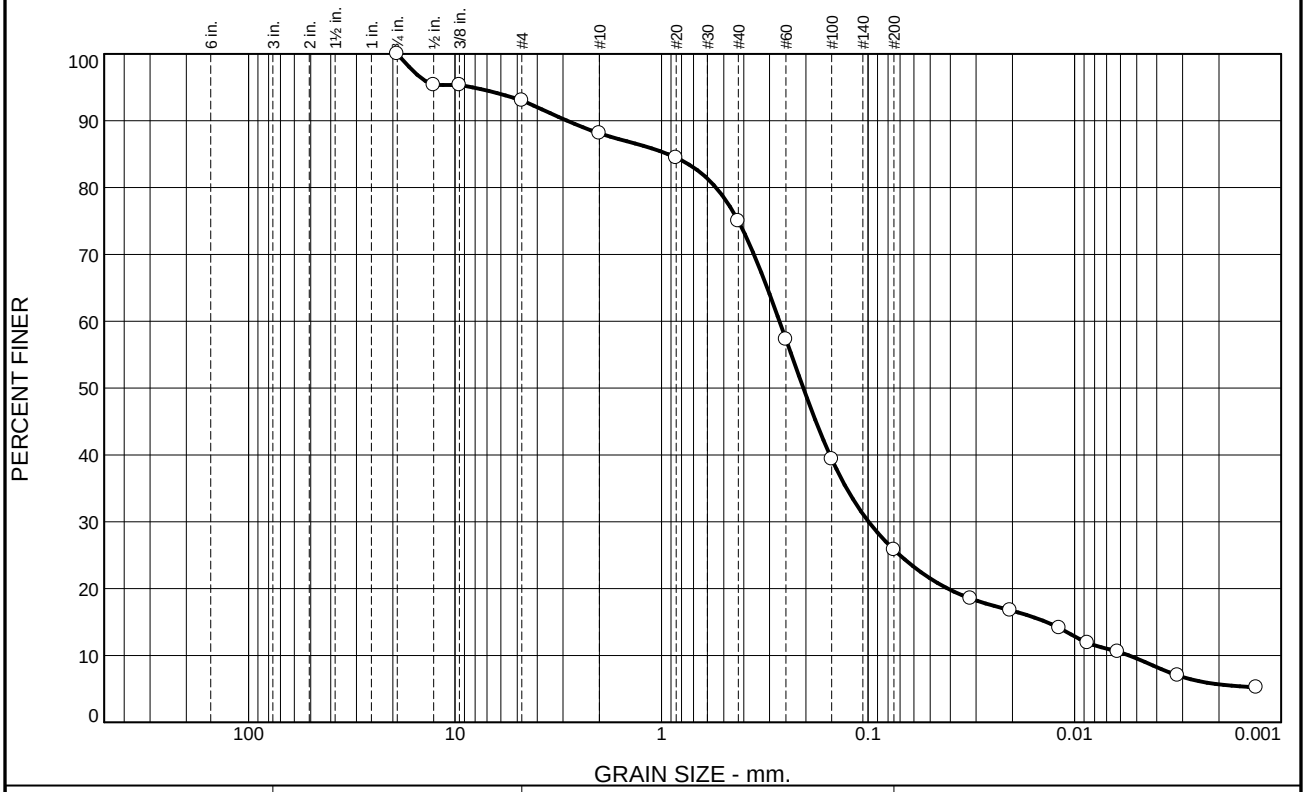
SKYLANDS TESTING, LLC

Sparta, NJ

Client: AKRF
Project: 11 Fairlawn Ave
Dobbs Ferry, NY
Project No: 21-080 **Fig.**

Tested By: EH, DB **Checked By:** EJS

Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	6.9	5.0	13.1	49.2	16.3	9.5

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
.75	100.0		
.5	95.3		
.375	95.3		
#4	93.1		
#10	88.1		
#20	84.5		
#40	75.0		
#60	57.3		
#100	39.4		
#200	25.8		

* (no specification provided)

Material Description

Gray-brown silty sand

Atterberg Limits

PL= LL= PI=

Coefficients

D_{90}= 2.8631 D_{85}= 0.9313 D_{60}= 0.2686
D_{50}= 0.2058 D_{30}= 0.0994 D_{15}= 0.0137
D_{10}= 0.0055 C_u= 49.27 C_c= 6.74

Classification

USCS= SM AASHTO=

Remarks

Moisture content=12%
USCS based on dilatancy & plasticity per ASTM D2488

Source of Sample: B-2 **Depth:** 55-57 ft.
Sample Number: S-15

Date: 7-19-2021

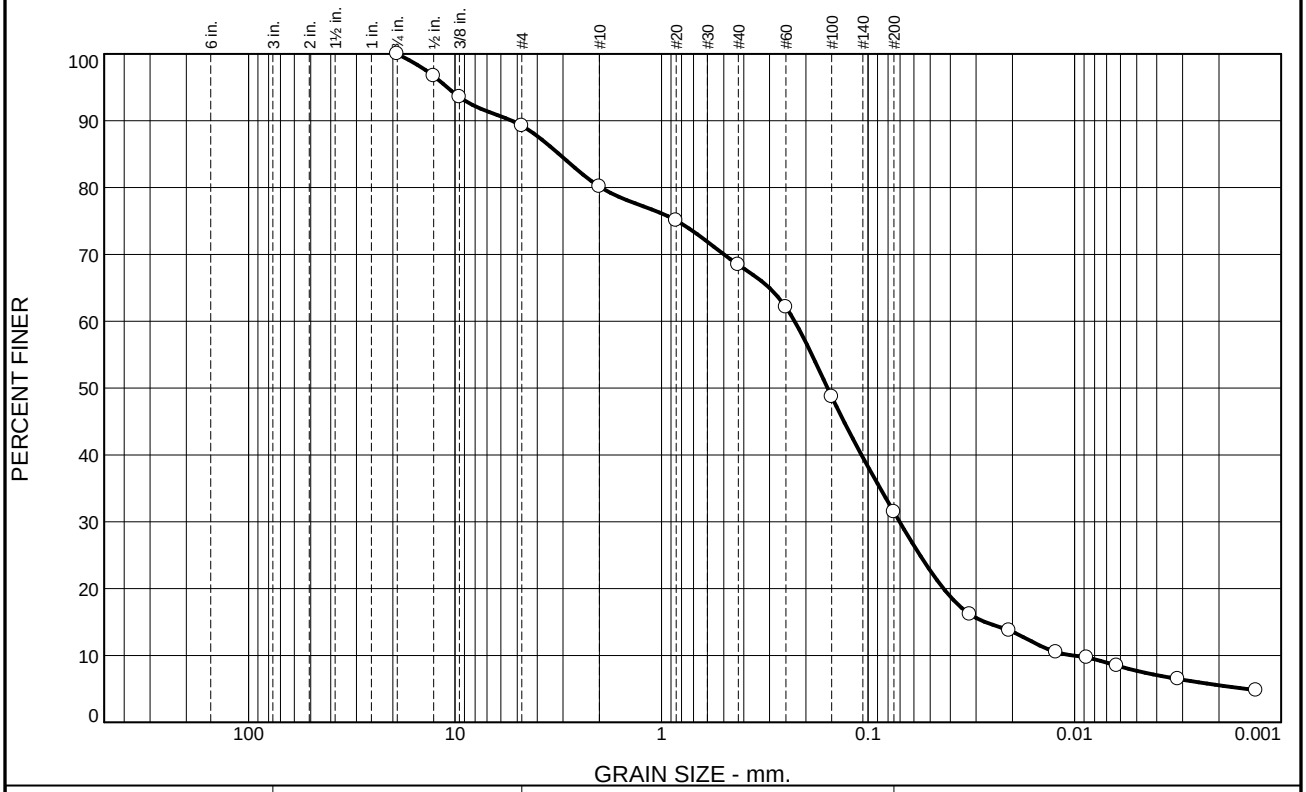
SKYLANDS TESTING, LLC

Sparta, NJ

Client: AKRF
Project: 11 Fairlawn Ave
Dobbs Ferry, NY
Project No: 21-080 **Fig.**

Tested By: EH, DB **Checked By:** EJS

Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	10.7	9.1	11.8	36.9	23.8	7.7

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
.75	100.0		
.5	96.7		
.375	93.5		
#4	89.3		
#10	80.2		
#20	75.1		
#40	68.4		
#60	62.1		
#100	48.7		
#200	31.5		

* (no specification provided)

Material Description

Brown silty sand

Atterberg Limits

PL= LL= PI=

Coefficients

D_{90}= 5.3116 D_{85}= 3.1323 D_{60}= 0.2267
D_{50}= 0.1571 D_{30}= 0.0703 D_{15}= 0.0271
D_{10}= 0.0102 C_u= 22.27 C_c= 2.14

Classification

USCS= SM AASHTO=

Remarks

Moisture content=16%
USCS based on dilatancy & plasticity per ASTM D2488

Source of Sample: B-3 **Depth:** 4-6 ft.
Sample Number: S-3

Date: 7-19-2021

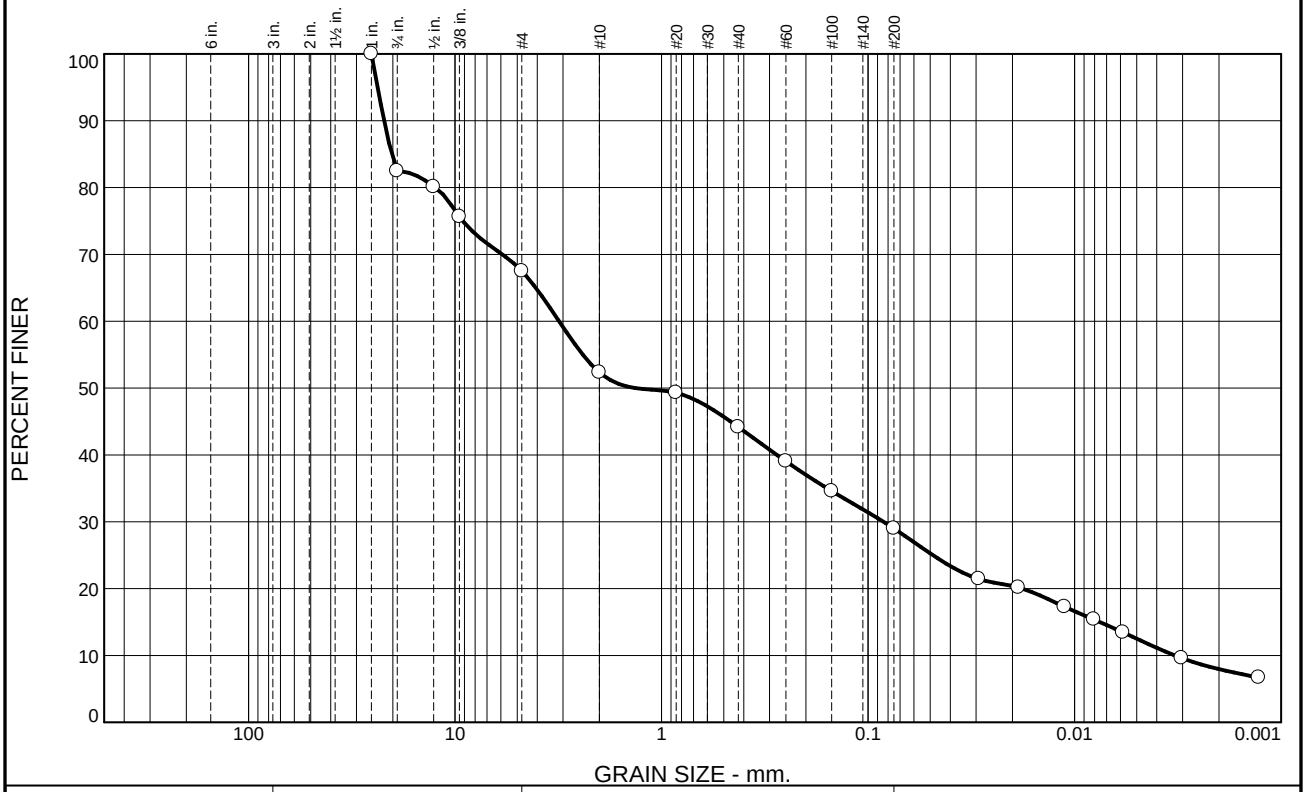
SKYLANDS TESTING, LLC

Sparta, NJ

Client: AKRF
Project: 11 Fairlawn Ave
Dobbs Ferry, NY
Project No: 21-080 **Fig.**

Tested By: EH, DB **Checked By:** EJS

Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	17.5	15.0	15.1	8.2	15.2	16.5	12.5

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
1	100.0		
.75	82.5		
.5	80.1		
.375	75.7		
#4	67.5		
#10	52.4		
#20	49.3		
#40	44.2		
#60	39.1		
#100	34.6		
#200	29.0		

* (no specification provided)

Material Description

Blue-gray-brown clayey sand with gravel; w/organic odor

9

Atterberg Limits

PL= 14 LL= 23 PI= 9

Coefficients

D_{90}= 22.0616 D_{85}= 20.2245 D_{60}= 3.1355
D_{50}= 1.3391 D_{30}= 0.0842 D_{15}= 0.0076
D_{10}= 0.0033 C_u= 958.91 C_c= 0.69

Classification

USCS= SC AASHTO=

Remarks

Moisture content=28.4%
USCS based on dilatancy & plasticity per ASTM D2488

Source of Sample: B-3 **Depth:** 15-17 ft.
Sample Number: S-7

Date: 7-19-2021

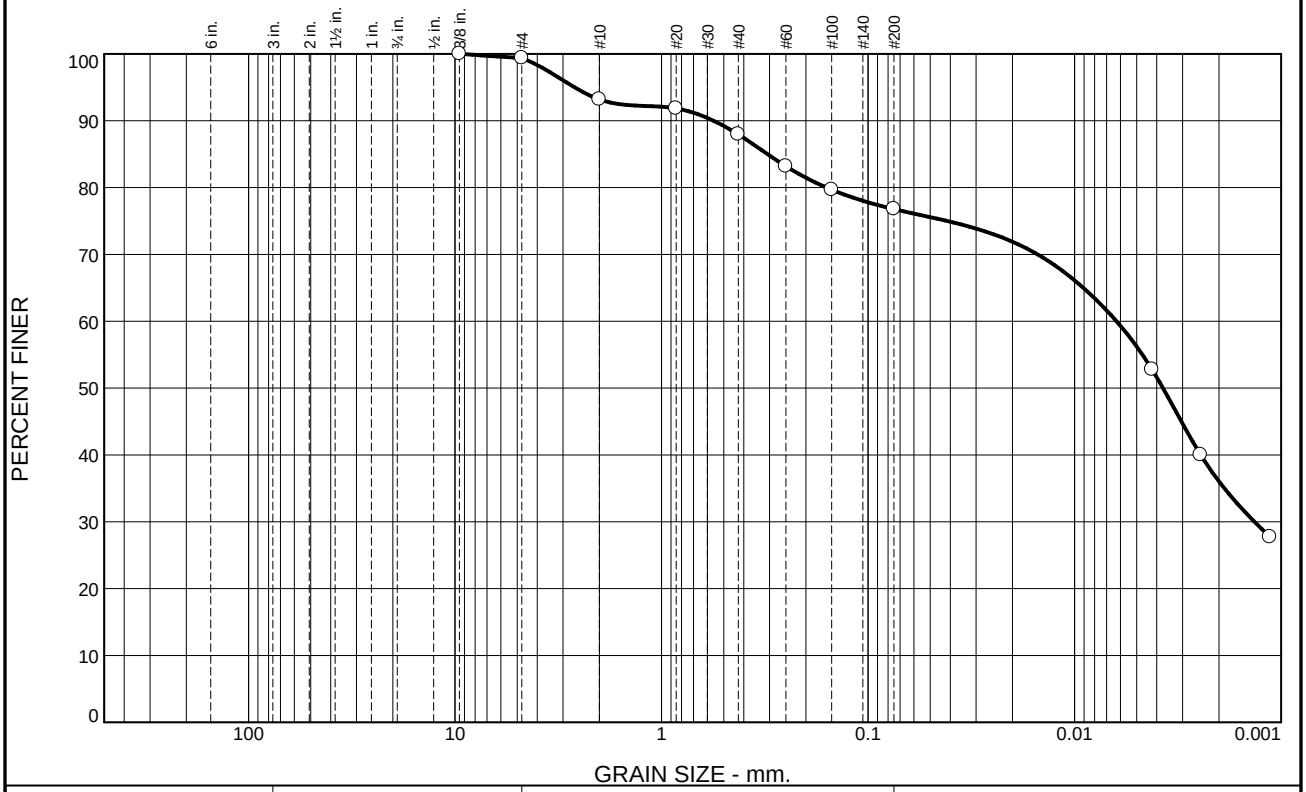
SKYLANDS TESTING, LLC

Sparta, NJ

Client: AKRF
Project: 11 Fairlawn Ave
Dobbs Ferry, NY
Project No: 21-080 **Fig.**

Tested By: EH, DB **Checked By:** EJS

Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.6	6.2	5.2	11.2	20.6	56.2

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
.375	100.0		
#4	99.4		
#10	93.2		
#20	91.8		
#40	88.0		
#60	83.2		
#100	79.7		
#200	76.8		

* (no specification provided)

Material Description

Red-gray-brown lean clay with sand

13

Atterberg Limits

PL= 15 LL= 28 PI= 13

Coefficients

D_{90}= 0.5600 D_{85}= 0.3067 D_{60}= 0.0063
D_{50}= 0.0037 D_{30}= 0.0013 D_{15}=
D_{10}= C_u= C_c=

Classification

USCS= CL AASHTO= A-6(8)

Remarks

Moisture content=24.2%
USCS based on dilatancy & plasticity per ASTM D2488

Source of Sample: B-3 **Depth:** 20-22 ft.
Sample Number: S-8

Date: 7-19-2021

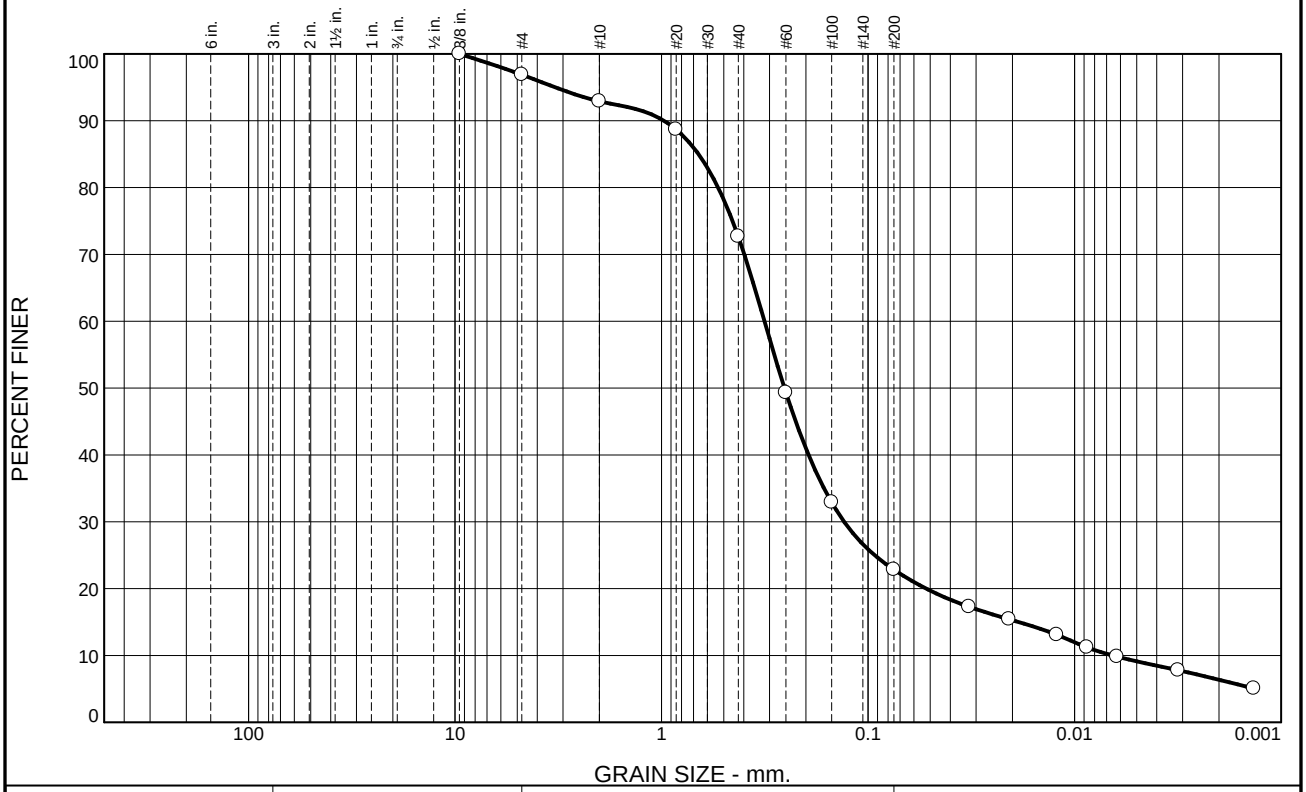
SKYLANDS TESTING, LLC

Sparta, NJ

Client: AKRF
Project: 11 Fairlawn Ave
Dobbs Ferry, NY
Project No: 21-080 **Fig.**

Tested By: EH, DB **Checked By:** EJS

Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	3.1	4.0	20.2	49.9	13.7	9.1

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
.375	100.0		
#4	96.9		
#10	92.9		
#20	88.7		
#40	72.7		
#60	49.3		
#100	32.9		
#200	22.8		

* (no specification provided)

Material Description

Gray-brown silty sand

Atterberg Limits

PL= LL= PI=

Coefficients

D_{90}= 0.9737 D_{85}= 0.6621 D_{60}= 0.3173
D_{50}= 0.2540 D_{30}= 0.1305 D_{15}= 0.0187
D_{10}= 0.0065 C_u= 48.52 C_c= 8.21

Classification

USCS= SM AASHTO=

Remarks

Moisture content=7.9%
USCS based on dilatancy & plasticity per ASTM D2488

Source of Sample: B-3 **Depth:** 30-32 ft.
Sample Number: S-10

Date: 7-19-2021

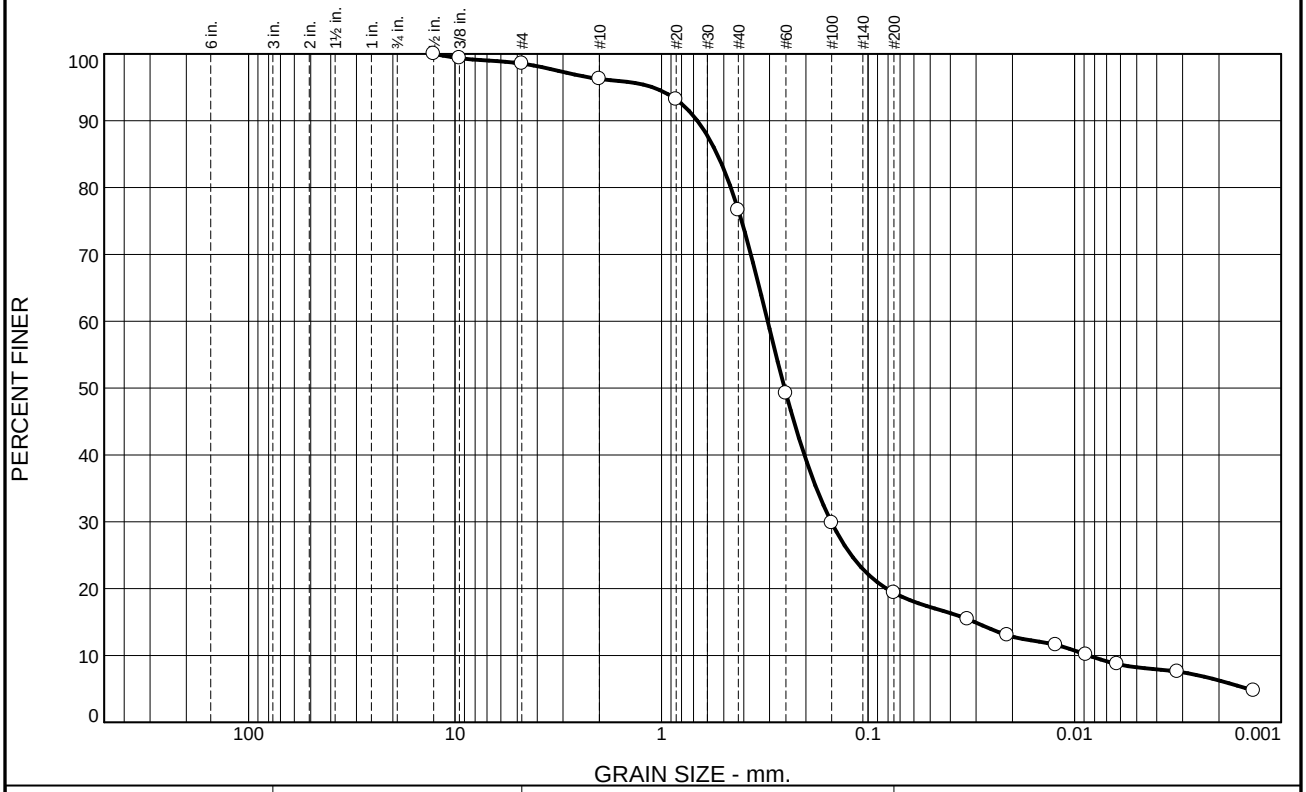
SKYLANDS TESTING, LLC

Sparta, NJ

Client: AKRF
Project: 11 Fairlawn Ave
Dobbs Ferry, NY
Project No: 21-080 **Fig.**

Tested By: EH, DB **Checked By:** EJS

Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	1.4	2.3	19.6	57.3	11.2	8.2

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
.5	100.0		
.375	99.4		
#4	98.6		
#10	96.3		
#20	93.2		
#40	76.7		
#60	49.2		
#100	29.8		
#200	19.4		

* (no specification provided)

Material Description

Gray-brown silty sand

Atterberg Limits

PL= LL= PI=

Coefficients

D_{90}= 0.6707 D_{85}= 0.5379 D_{60}= 0.3064
D_{50}= 0.2538 D_{30}= 0.1509 D_{15}= 0.0304
D_{10}= 0.0086 C_u= 35.79 C_c= 8.68

Classification

USCS= SM AASHTO=

Remarks

Moisture content=8%
USCS based on dilatancy & plasticity per ASTM D2488

Source of Sample: B-3 **Depth:** 40-42 ft.
Sample Number: S-12

Date: 7-19-2021

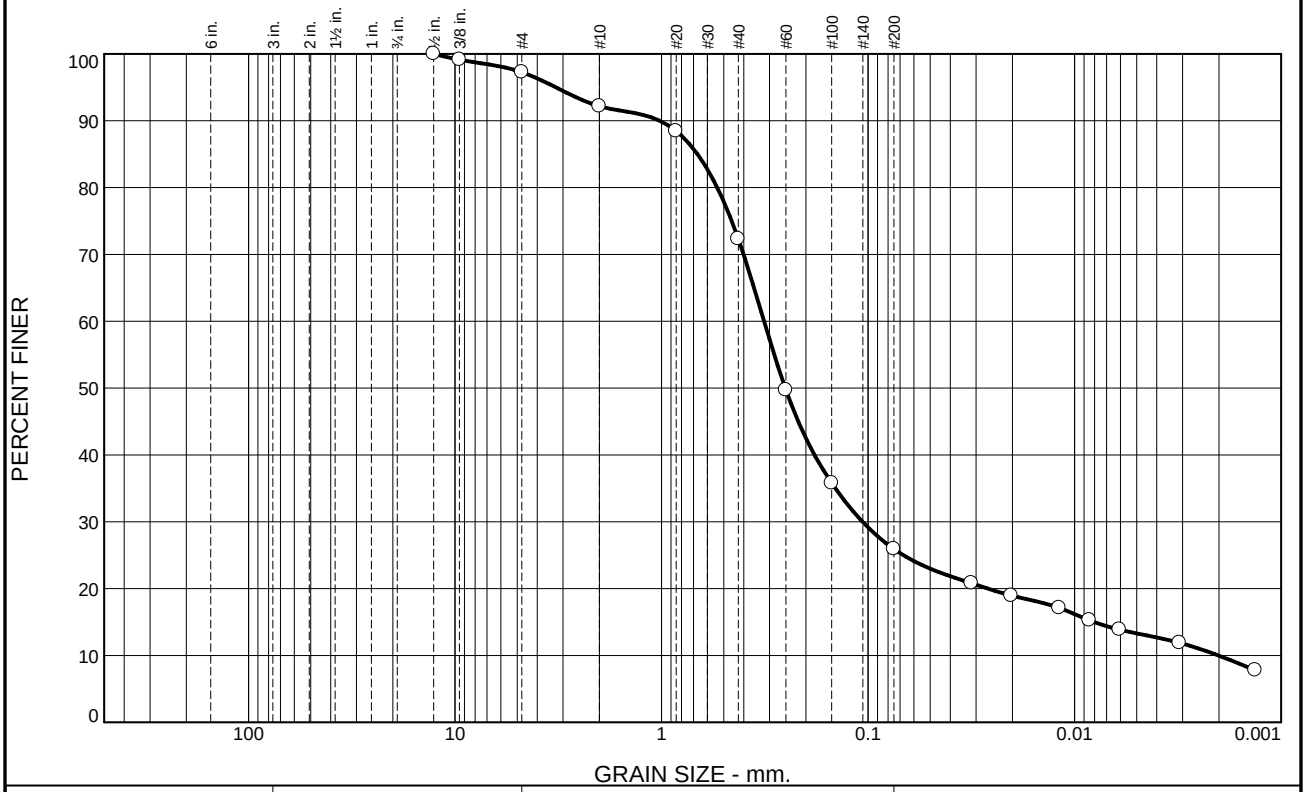
SKYLANDS TESTING, LLC

Sparta, NJ

Client: AKRF
Project: 11 Fairlawn Ave
Dobbs Ferry, NY
Project No: 21-080 **Fig.**

Tested By: EH, DB **Checked By:** EJS

Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	2.7	5.1	19.9	46.4	12.6	13.3

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
.5	100.0		
.375	99.1		
#4	97.3		
#10	92.2		
#20	88.5		
#40	72.3		
#60	49.7		
#100	35.8		
#200	25.9		

* (no specification provided)

Material Description

Gray-brown silty sand

Atterberg Limits

PL= LL= PI=

Coefficients

D_{90}= 1.0206 D_{85}= 0.6694 D_{60}= 0.3189
D_{50}= 0.2518 D_{30}= 0.1064 D_{15}= 0.0081
D_{10}= 0.0020 C_u= 158.26 C_c= 17.61

Classification

USCS= SM AASHTO=

Remarks

Moisture content=10%
USCS based on dilatancy & plasticity per ASTM D2488

Source of Sample: B-3 **Depth:** 50-52 ft.
Sample Number: S-14

Date: 7-19-2021

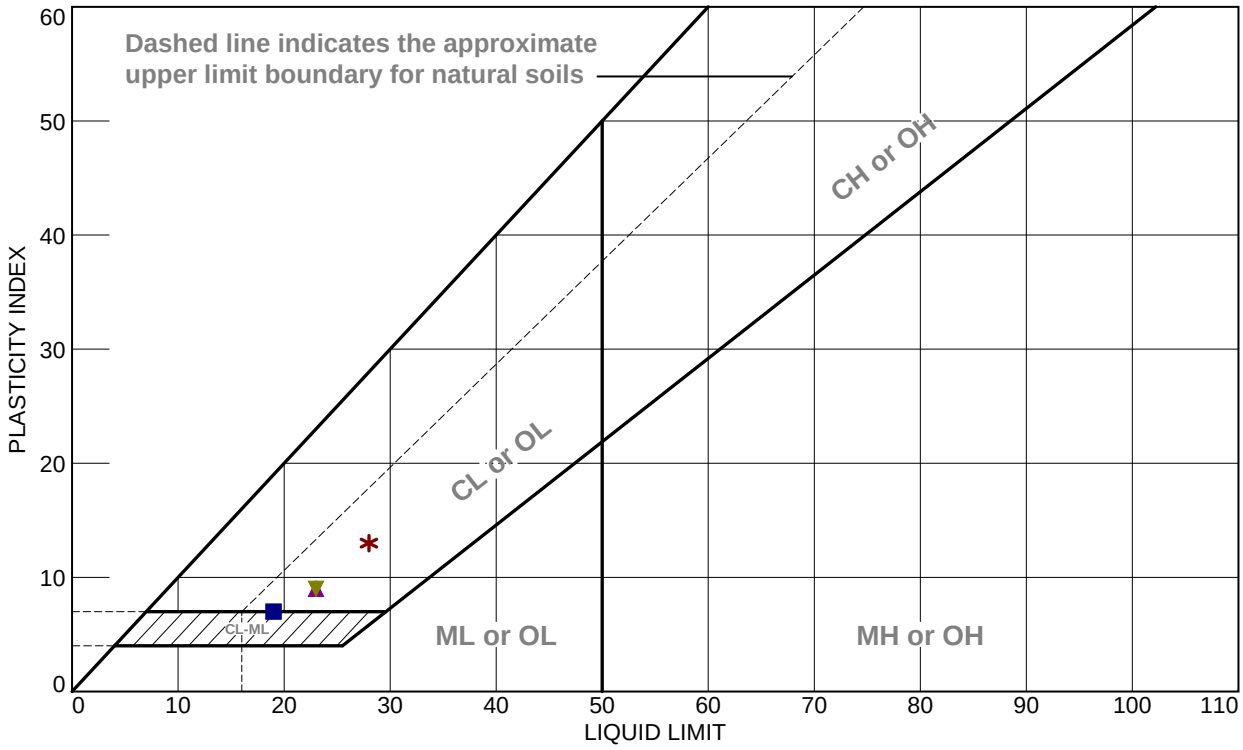
SKYLANDS TESTING, LLC

Sparta, NJ

Client: AKRF
Project: 11 Fairlawn Ave
Dobbs Ferry, NY
Project No: 21-080 **Fig.**

Tested By: EH, DB **Checked By:** EJS

ATTERBERG LIMITS REPORT



n=45

n=53

SOIL DATA

	SOURCE	SAMPLE NO.	DEPTH	NATURAL WATER CONTENT (%)	PLASTIC LIMIT (%)	LIQUID LIMIT (%)	PLASTICITY INDEX (%)	LIQUIDITY INDEX	USCS
●	B-1	S-10	30-32 ft.	18.5	NP	18	NP		ML
■	B-1	S-12	40-42 ft.	24.6	12	19	7	1.8	CL-ML
▲	B-2	S-9	25-27 ft.	15.1	14	23	9	0.1	CL
◆	B-2	S-11	35-37 ft.			NP			SM
▼	B-3	S-7	15-17 ft.	28.4	14	23	9	1.6	SC
✱	B-3	S-8	20-22 ft.	24.2	15	28	13	0.7	CL

n=29

n=29

n=21

something wrong here

SKYLANDS TESTING, LLC

Sparta, NJ

Client: AKRF **Date:** 7-19-2021

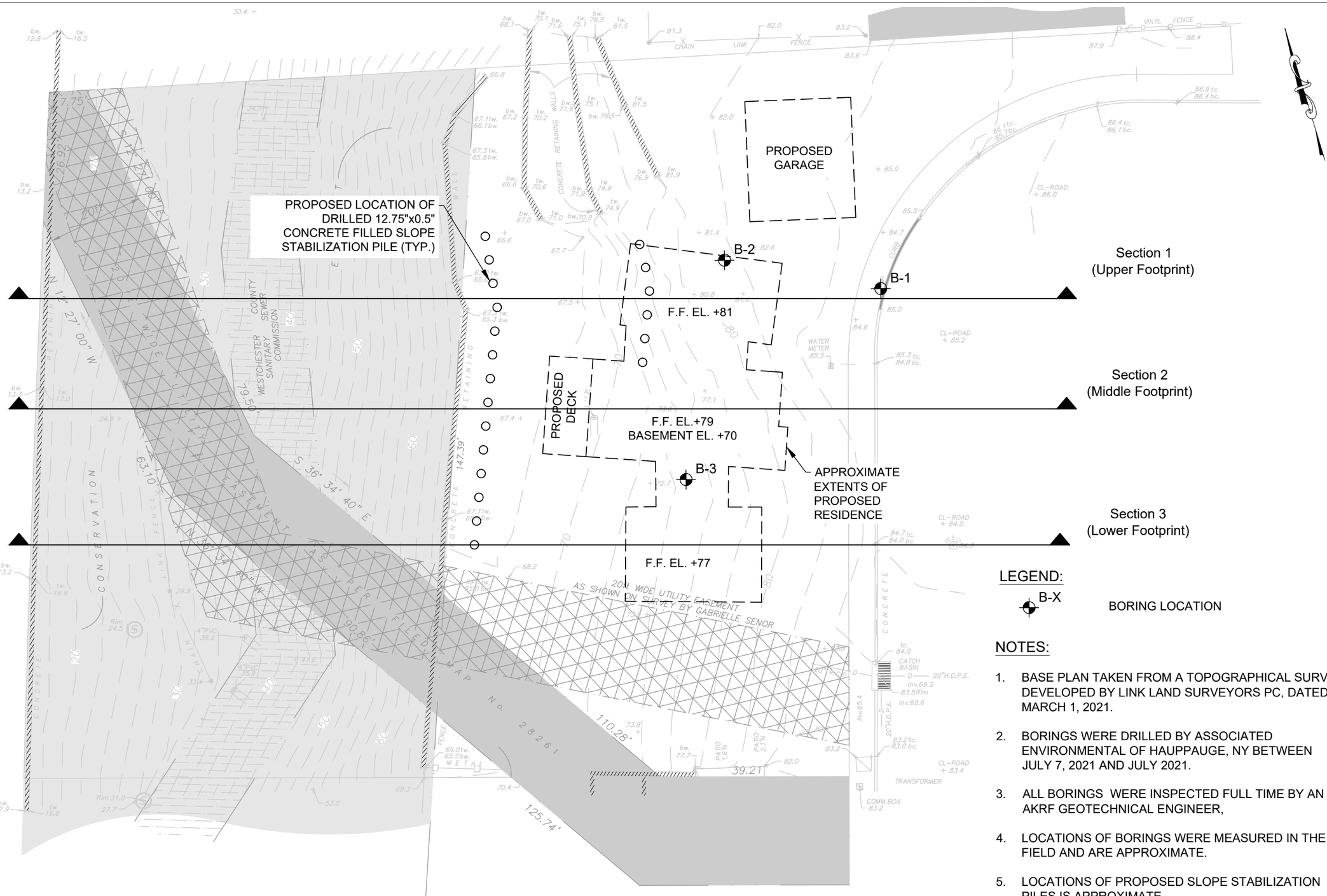
Project: 11 Fairlawn Ave
Dobbs Ferry, NY

Project No.: 21-080 **Fig.**

Tested By: EH **Checked By:** EJS

APPENDIX C

SLOPE STABILITY ANALYSIS RESULTS



- SECTIONS PLAN
- SCALE 1"=20'

LEGEND:

B-X BORING LOCATION

NOTES:

1. BASE PLAN TAKEN FROM A TOPOGRAPHICAL SURVEY DEVELOPED BY LINK LAND SURVEYORS PC, DATED MARCH 1, 2021.
2. BORINGS WERE DRILLED BY ASSOCIATED ENVIRONMENTAL OF HAUPPAUGE, NY BETWEEN JULY 7, 2021 AND JULY 2021.
3. ALL BORINGS WERE INSPECTED FULL TIME BY AN AKRF GEOTECHNICAL ENGINEER,
4. LOCATIONS OF BORINGS WERE MEASURED IN THE FIELD AND ARE APPROXIMATE.
5. LOCATIONS OF PROPOSED SLOPE STABILIZATION PILES IS APPROXIMATE.
6. LOCATION OF PROPOSED RESIDENCE AND CORRESPONDING FIRST FLOOR AND BASEMENT ELEVATIONS FROM SCHEMATIC SITE PLAN PREPARED BY STEPHEN TILLY ARCHITECT DATED MAY 31, 2021.

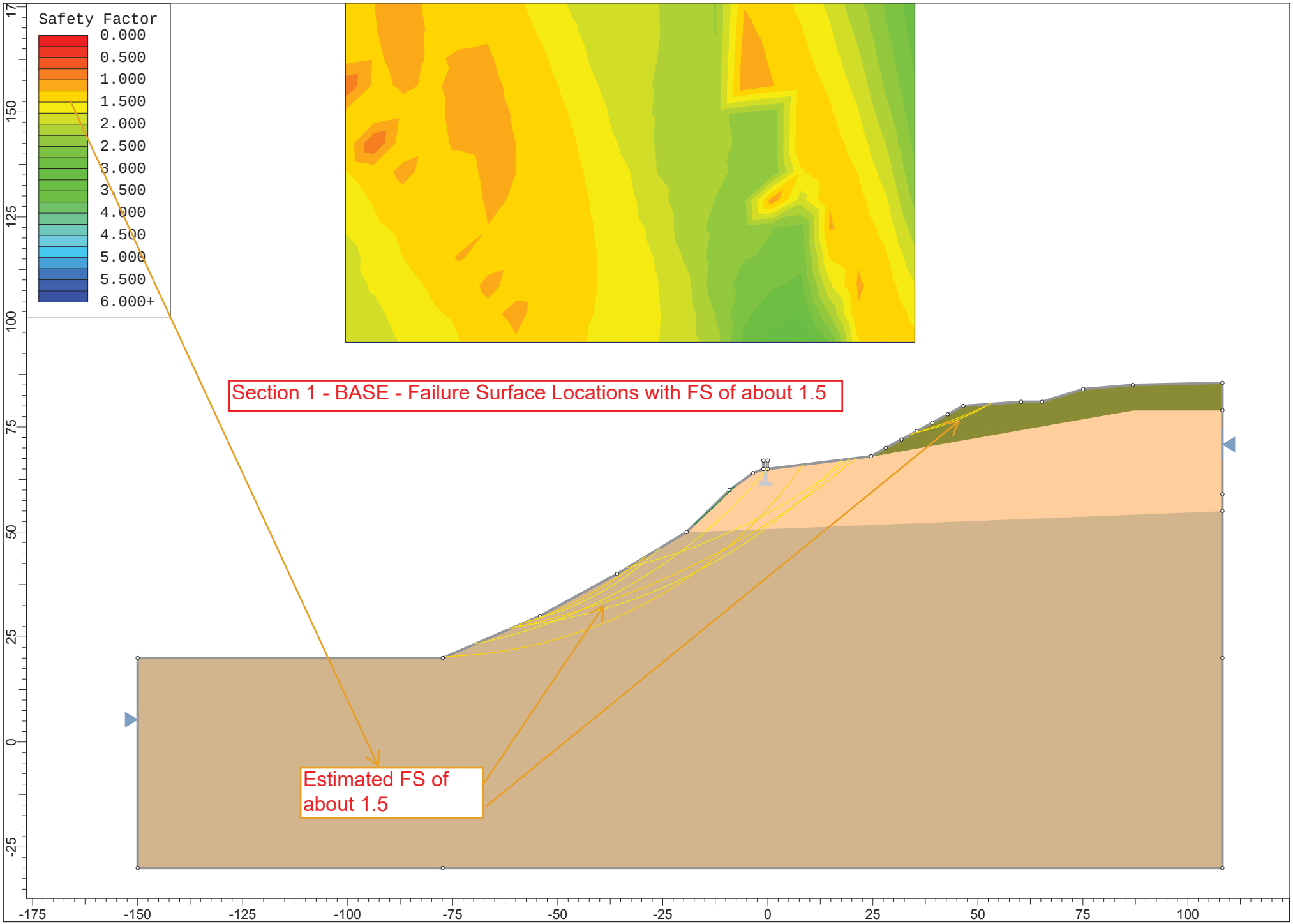
AKRF, INC.
440 PARK AVENUE SOUTH
NEW YORK, NY 10016
(212) 696-0670 (PHONE)
(212) 726-0942 (FAX)

PROJECT
PROPOSED PRIVATE RESIDENCE
11 FAIRLAWN AVENUE
DOBBS FERRY, NY

DRAWN BY	CHECKED BY
JH	GM
SCALE	DATE
1" = 20'	08/24/2021

SHEET TITLE
SECTIONS PLAN

SHEET NO.
APPENDIX C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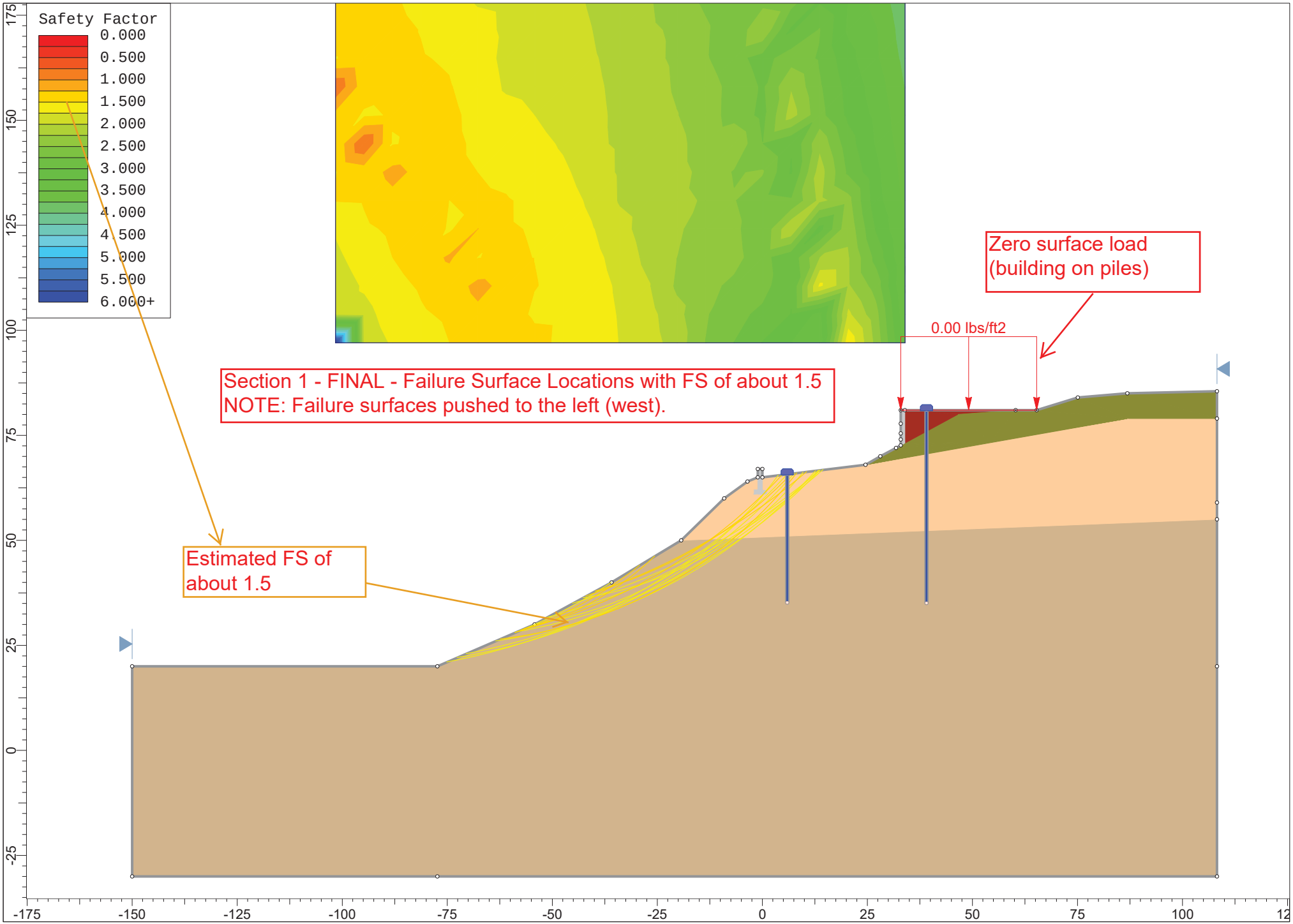
0.500
1.000
1.500
2.000
2.500
3.000
3.500
4.000
4.500
5.000
5.500
6.000+
Section 1 - BASE - Failure Surface Locations with FS of about 1.5
Estimated FS of about 1.5
175
150
125
100
75
50
25
0
-25
-175
-150
-125
-100
-75
-50
-25
0
25
50
75
100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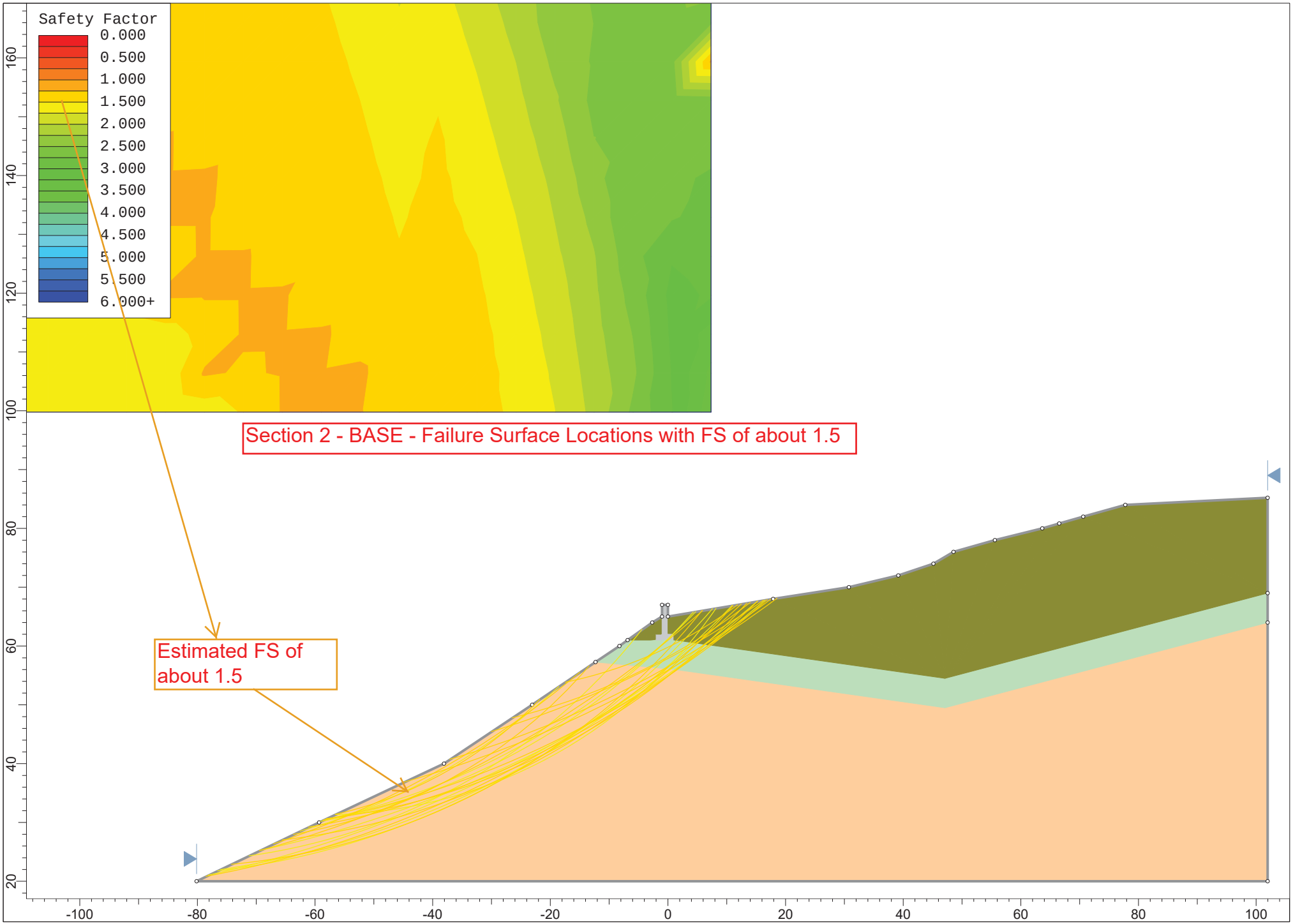
0.000
0.500
1.000
1.500
2.000
2.500
3.000
3.500
4.000
4.500
5.000
5.500
6.000+
Zero surface load
(building on piles)
0.00 lbs/ft2
Section 1 - FINAL - Failure Surface Locations with FS of about 1.5
NOTE: Failure surfaces pushed to the left (west).
Estimated FS of
about 1.5
175
150
125
100
75
50
25
0
-25
-175
-150
-125
-100
-75
-50
-25
0
25
50
75
100
12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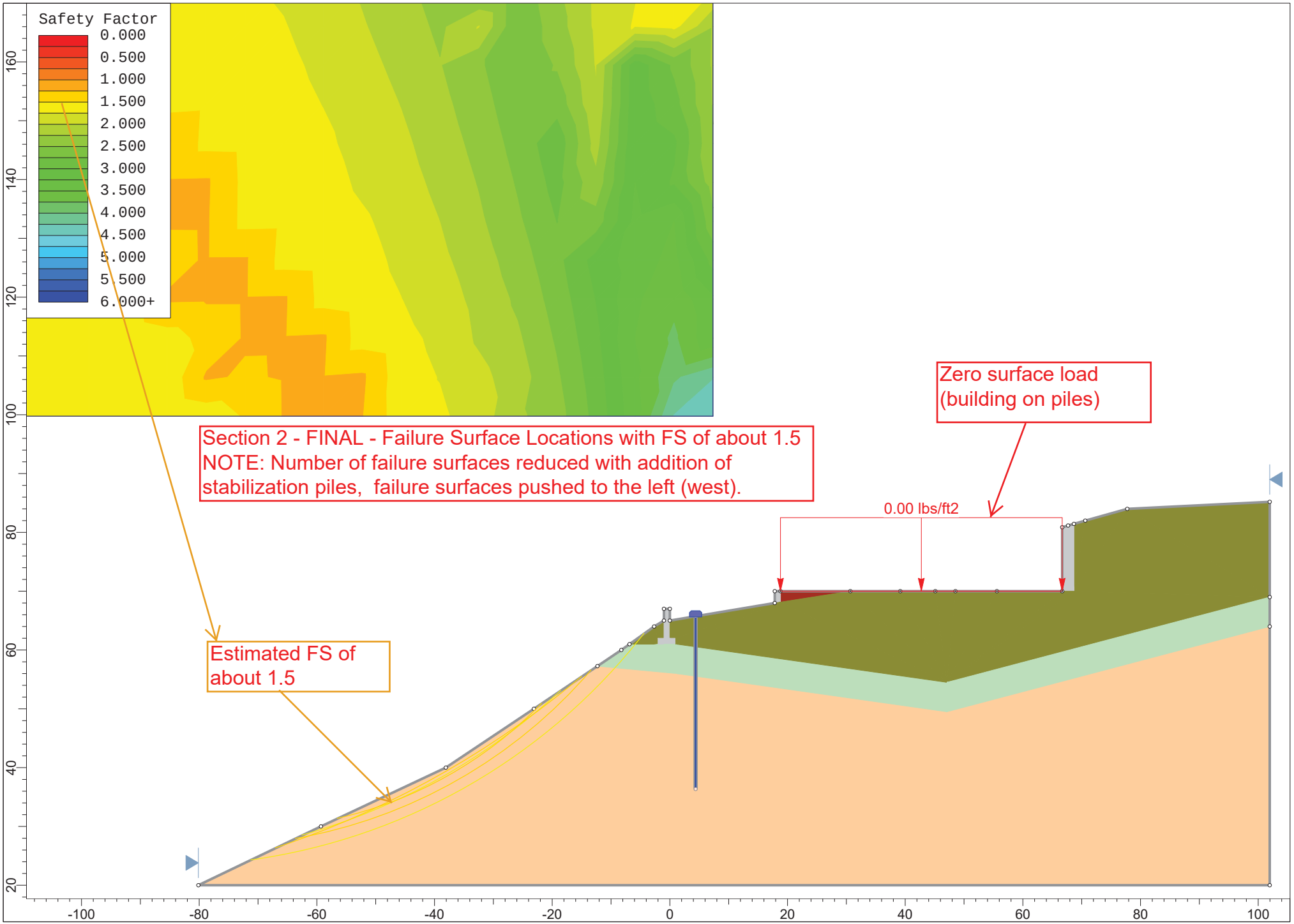
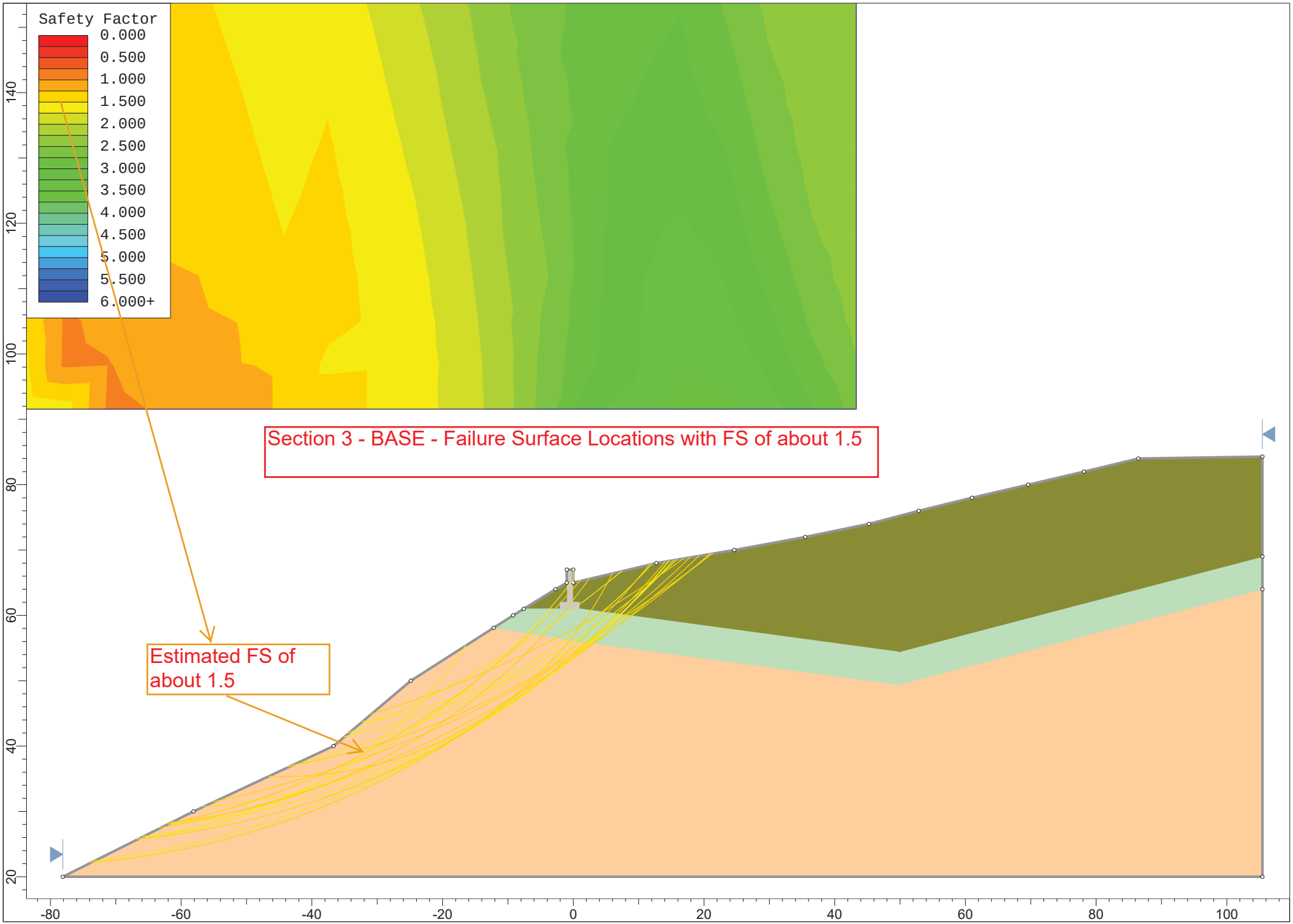
0.000
0.500
1.000
1.500
2.000
2.500
3.000
3.500
4.000
4.500
5.000
5.500
6.000+
Section 2 - BASE - Failure Surface Locations with FS of about 1.5
Estimated FS of about 1.5
160
140
120
100
80
60
40
20
-100
-80
-60
-40
-20
0
20
40
60
80
100


Safety Factor
0.000
0.500
1.000
1.500
2.000
2.500
3.000
3.500
4.000
4.500
5.000
5.500
6.000+
Section 2 - FINAL - Failure Surface Locations with FS of about 1.5
NOTE: Number of failure surfaces reduced with addition of stabilization piles, failure surfaces pushed to the left (west).
Zero surface load (building on piles)
0.00 lbs/ft2
Estimated FS of about 1.5
160
140
120
100
80
60
40
20
-100
-80
-60
-40
-20
0
20
40
60
80
100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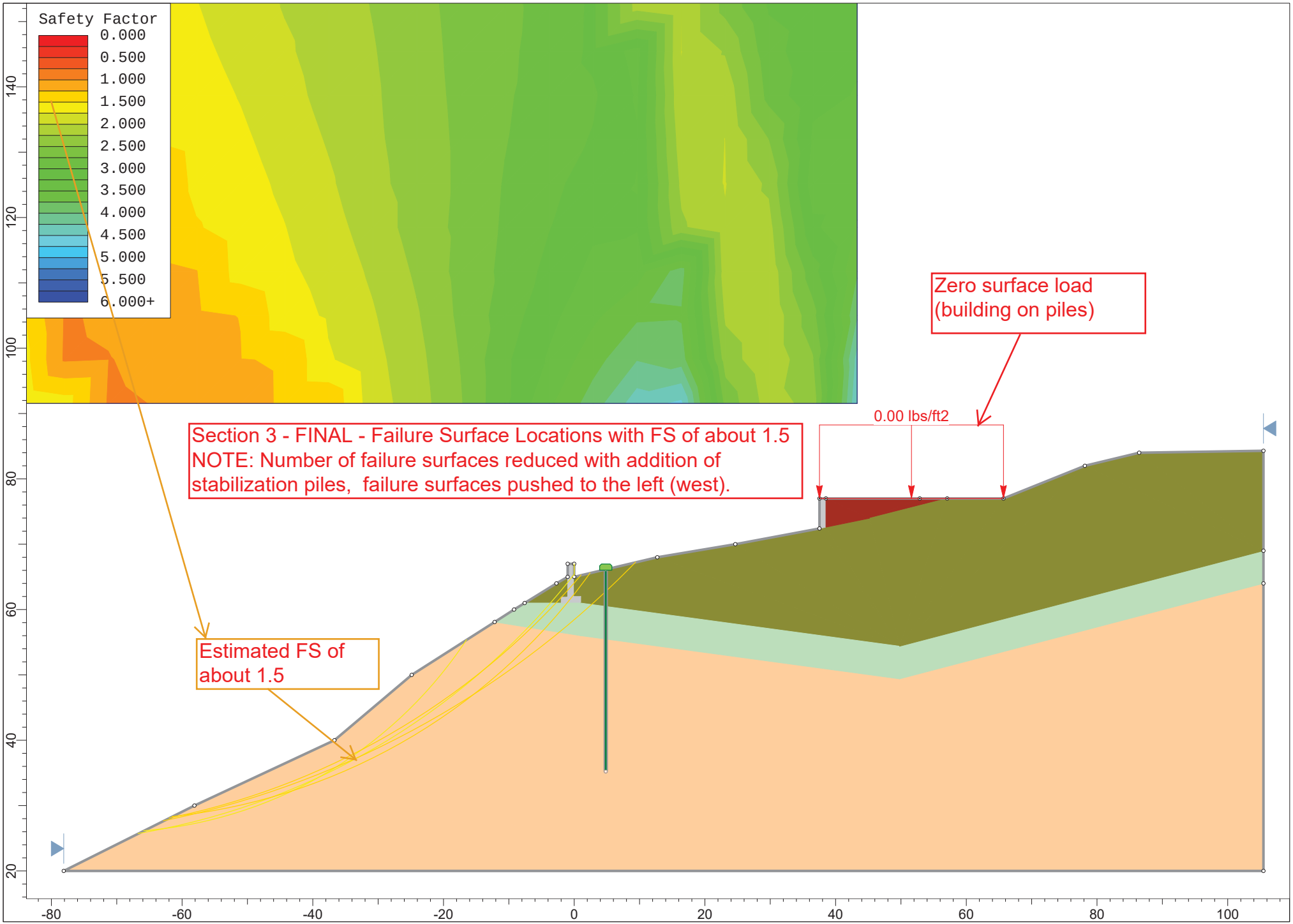
0.000
0.500
1.000
1.500
2.000
2.500
3.000
3.500
4.000
4.500
5.000
5.500
6.000+
Section 3 - BASE - Failure Surface Locations with FS of about 1.5
Estimated FS of about 1.5
140
120
100
80
60
40
20
-80
-60
-40
-20
0
20
40
60
80
100


Safety Factor
0.000
0.500
1.000
1.500
2.000
2.500
3.000
3.500
4.000
4.500
5.000
5.500
6.000+
Zero surface load
(building on piles)
0.00 lbs/ft2
Section 3 - FINAL - Failure Surface Locations with FS of about 1.5
NOTE: Number of failure surfaces reduced with addition of
stabilization piles, failure surfaces pushed to the left (west).
Estimated FS of
about 1.5
140
120
100
80
60
40
20
-80
-60
-40
-20
0
20
40
60
80
100

APPENDIX E

The Altshuler Residence

11 Fairlawn Avenue, Dobbs Ferry, New York 10522

NOTES

1. Approval subject to all requirements and resolutions of the Planning Board of the Village of Dobbs Ferry, New York. Any change, erasure, modification, or revision of this plan, absent re-approval from the Planning Board, shall void this approval.
2. All construction work shall be performed in compliance with the administrative Building Code of the village of Dobbs Ferry, NY, and all other applicable ordinances and regulation of all Governing Agencies having jurisdiction over the work.
3. All Construction, including Plumbing, Mechanical and Electrical work, to be performed by Licensed Contractors and all required permits and certification shall be obtained prior to commencement of work.
4. The services of Gregory Sharp Architect (GSA) are being performed solely for the client's benefit and no Contractor, Subcontractor, Supplier, Fabricator, Manufacturer, Tenant, Vendor, Consultant or other third party shall have any claim against GSA as a result of the architectural agreement with the client or the performance or non-performance of GSA' services. It is understood that this provision will be brought to the attention of the parties with whom the client contracts and have them do the same with those who they contract.
5. The Construction and vendor contracts shall include provision describing GSA's role as stated in this agreement with respect to construction and installation of the furnishing and require the Contractor(s) (and any Vendors(s) working on the job site) to indemnify the client and GSA as set forth in the indemnification clause below, which shall appearing in the Construction and Vendor Contracts. This obligation shall be insured by the contactor(s) and its subcontractors and any vendor working on the job site.
6. The contractor(s) shall defend, indemnify and hold harmless GSA and their respective directors, officers, partners, employees, and agents, from any and all claims directly or indirectly arising or alleged to arise out of the adjoining land or driveways, or streets or alleys used in connection with the performance of the work, and from any and all claims by Workmen, Suppliers or Subcontractors who are involved in the performance of the work.
7. The obligators set forth in this provision shall specifically include, but not be limited to, all claims directly or indirectly arising or alleged to arise under any scaffolding, structural work with respect to the protection of adjacent landowners.
8. The Contractor(s) shall be notified of any claims against GSA and given such reasonable information, authority and assistance as may be requested by him to enable him to perform the obligations set forth in this section. Failure to notify the Contractor(s) of a claim or to give such information, authority and assistance shall not discharge the obligations set forth in this section unless the Contractor(s) has been prejudiced in the defense of such a claim.
9. The Contractor(s) also expressly warrants and guarantees to GSA that all work performed by the Contractor(s), its Workmen, Suppliers and Subcontractors, shall conform to the requirements of the the contract documents and shall be performed in a safe and careful manner. The foregoing shall not deprive GSA of any other action, right or remedy otherwise available to them, at common law or otherwise. The term "Work" for purposes of this section means the obligations undertaken by the Contractor(s) pursuant to the contract documents. Work includes, unless specifically excepted, Furnishing all Material, Labor, Equipment, Supplies, Plant, Tools, Scaffolding, Transportation, Superintendence, Insurance, Taxes and all other Services, Facilities, and Expenses necessary for the full performance and Completion of the Requirements of the Contract Documents. Work also includes that which produced, constructed or built pursuant to the Contract Documents.
10. The Construction Contacts shall include a provision requiring the Contractor(s) or Vendor(s) to warrant to the Client and GSA that all Materials and Equipment Furnished will be new unless otherwise specified, and that all work will be of good quality, free from faults and defects and in conformance with the Construction Documents.

General Construction Notes: Building Department

1.0 The Building is a Single Family Residence
2.0 The New International Type Building Code went into effect in New York State on 2020.
3.0 Special Inspection Items:
*Sediment and Erosion Control
*Footing
*Preparation for Concrete Slabs and Walls
*Framing
*Building Systems, including underground rough in.
*Fire resistant Construction and Penetrations
*Insulation
*Solid Fuel
*Foundation and Footing drain
*Energy Code Compliance
*Final Inspection for Cof O
*Additional State and Local Law Inspections as required.

4.1 Scope of work: New Home and Garage to built.
The project can be summarized as a Basement plus 1 floor with attached Garage.
4.2 All Proposed work will be set on undisturbed soil.
4.3 All doors marked F.P.S.C. shall be at least 1 hour fire rated.
4.4 All masonry partitions shall be braced.
All finishes over .036 of an inch in thickness shall comply with flame spread rating or be approved by the Board of Standards and Appeals.
Sprinkler and Mechanical System will be filed under separate application.

General Safety Notes

1.2 Construction operations shall be confined to normal working hours:
7 am - 7 pm MONDAY-SATURDAY, except legal holidays.
2.1 All work shall be done in accordance with the New York State Building Code and regulations of all other state, local or federal agencies having jurisdiction.
2.2 The Contractor shall provide adequate bracing and shoring to ensure the structural stability of the premises.
2.3 The Contractor must conduct their activities so as not to endanger any individual.
Contractors shall comply with all applicable OSHA codes.
2.4 All Contractors shall be equipped with safety equipment including gloves, eye protection or other specialized equipment required for the work being performed.
2.5 The Contractor shall maintain work areas and access ways thereto safe against intrusion of unauthorized persons. The Contractor shall be responsible for keeping unauthorized persons out of the work area and for protecting the safety and security of the Owners and general public.
2.6 The Contractor shall be required to protect from falling debris all persons and property in areas beneath and adjoining the work area.
2.7 Work which necessitates the use of chemicals or equipment that produces noxious fumes or excessive noise, will be allowed during normal business hours. Should such work be required, arrangements shall be made with the the Owner. The Owner reserves the right to stop any work, which causes excessive disturbances.
2.8 Separate access to the affected areas shall be provided by the Contractor and shall be made safe and non-accessible during non-working hours. Construction-related traffic shall be permitted as designated by the Owner.
3.0 Storage
3.1 No flammable, toxic or hazardous materials or supplies shall be allowed in the Building unless specifically approved by the Owner. Storage of such materials is to be in a manner and location designated by the Property Owner.
3.2 Material Safety Data Statements covering safety information, contents and antidotes will be filed with the Property Owner for all materials used in the Building.
3.3 Contractor materials are not to be stored in any public or occupied areas Owner is not responsible for the theft or damage of construction equipment or materials stored in the building.
3.4 All building materials stored at the construction area and/or in any area of the building are to be secured in a locked area. Access to such areas to be controlled by Owner and/or Contractor.
4.0 Deliveries
5.0 Sprinklers and Fire Alarms
5.1 No work is to be done which affects any aspect of the Buildings sprinkler or fire alarm system without prior approval of the Property Owner. Alarm panels must be returned to full operation by the end of the day.
5.2 There must be one (1) fire extinguisher for every seventy-five feet (75'-0") on the job at all times. ABC type all-purpose extinguishers shall be used.
5.3 All required permits, a Fire Watch (by persons caring of Qualification and Fitness) and protective blankets are required for all burning and welding.
6.0 Trash Removal
6.1 Construction debris and all trash shall be removed from the work area daily and placed in a legal container arranged for by the Contractor. Contractor is responsible for general area of where debris is disposed of (ie where trash drops or is blown from the container).
7.0 Damage
7.2 The Contractor shall assume responsibility to protect all materials from loss or damage at no cost to the Owner, until they are finally incorporated into the work and accepted, whether or not the Owner has paid them for.
8.0 Disconnecting Equipment, Utilities

Required Notes from Town:

All work must conform to the satisfaction of the building inspector.
- The Building Inspector or Village Engineer may require additional erosion control measures if deemed appropriate to mitigate unforeseen siltation and erosion of disturbed soils.
- "As-Built" drawings of the site improvements shall be submitted to the Village Engineer for the review prior to obtaining Certificate of Occupancy.
- Infiltration system access ports shall be shown on the "As-Built".
- The infiltration system must not be connected until construction is complete and the site is stabilized. A note, stating as much, should be added to the plans.
- Cut/Fill material shall not be imported to or exported from the site.
- Fill material imported to the site shall be certified in writing by a New York Licensed Professional Engineer as clean, non contaminated fill suitable for the intended use.
- Before the plan site is signed by the chairman of the planning board, the applicant shall be required to post a performance bond or other type of acceptable monetary guarantee wich shall be in the amount determined by the Planning Borad and the Village Engineer and in a form satisfactory to the Village Attorney.

ZONING AS PER TABLES B-5, B-5 (SLIDING SCALES)				
PROPERTY LOCATION: 11 FAIRLAWN AVENUE, DOBBS FERRY N.Y. BLOCK:134 LOT:12 TAX ID: 3.150-134-12				
OWNER: THE ALTSHULER RESIDENCE				
ZONING DISTRICT : 0F-6 ONE-FAMILY RESIDENTIAL 6				
REQUIREMENT	UNITS	REQUIRED / ALLOWED	EXISTING	PROPOSED
MINIMUM NET LOT AREA	S.F.	5,000	26, 164 SF.	37% SLOPE (-50% OFF LOT AREA) 13,082
MINIMUN LOT WIDTH	FT.	50	151	N/A
MINIMUN LOT DEPTH	FT.	100	169	N/A
MAXIMUM LOT COVERAGE BY BUILDING	S.F.	13,082 x.75= 9,811.5	0	3,255 S.F.
MAX. LOT COVERAGE BY IMPERVIOUS SURFACES	%	13,082 x.75= 9,811.5	438 S.F.	5,287 S.F.
MINIMUM YARDS				
FRONT YARD SETBACK	FT.	40	N/A	9'-2"
SIDE YARD SETBACK (EACH)	FT.	20	N/A	16-45
SIDE YARD SETBACK (BOTH)	FT.	50	N/A	61
REAR YARD SETBACK	FT.	40	N/A	90
STORIES	#	2 1/2	N/A	1
MAXIMUM HEIGHT	FT.	35	N/A	28
FAR	S.F.		N/A	4,473
OFF STREET PARKING	#	2	2	2

TABLE OF CONTENTS

CLIMATIC AND GEOGRAPHIC DESIGN CRITERIA (Effective 10/03/2016)													
Location: Village of Dobbs Ferry Zip Code: 10522													
Ground Snow Load	Wind Design				Seismic Design Category (RONY Only)	Subject to Damage From			Climate Zone	Ice Barrier Underlayment Reqd	Flood Hazards	Air Freezing Index	Mean Annual Temp
	Speed (mph)	Topo Effects	Special Wind Region	Wind - borne Debris Zone		Weathering	Frost Line Depth	Termite					
30	*Special Wind Region	NO	NO	NO	C	Severe	42"	Moderate to Heavy	4A	YES	**FIRM COMMUNITY - PANEL MAP # 36119C0261F EFFECTIVE DATE. 9-28-2007	2000	51.6

NYS Stretch Energy Code 2020 Building Envelope Fenestration Maximum U-Factor and SHGC Requirements Table C402.4			
Climate Zone : 4			
Vertical Fenestration			
U-Factor	Fixed Fenestration	0.36	
	Operable Fenestration	0.43	
	All Other Vertical Fenestration		
SHGC	All Fenestration	0.30	
	Entrance doors	0.77	
	PF < 0.2	0.36	
	0.2 =< PF < 0.5	0.43	
	PF >= 0.5	0.58	
Skylights	U-Factor	0.48	
	SHGC	0.38	
SHGC	SHGC	SHGC	
PF = Projection Factor.			
a. U-factor and SHGC shall be rated in accordance with NFRC 100.			

NYS Stretch Energy Code 2020 Opaque Thermal Envelope Assembly Maximum Requirements, U-Factor Method. Table C402.1.4			
Climate Zone : 4			
		All other	Group R
Roofs	Insulation Entirely above roof deck	U-0.030	U-0.030
	Metal Buildings	U-0.035	U-0.035
	Attic and other	U-0.020	U-0.020
Walls, above grade	Mass	U-0.099	U-0.086
	Metal Building	U-0.048	U-0.048
	Metal framed	U-0.061	U-0.061
	Wood framed and other	U-0.061	U-0.061
Walls, below grade	Below-grade wall	C-0.119	C-0.092
Floors	Mass	U-0.057	U-0.051
	Joist/ framing	U-0.033	U-0.033
Slab-on-grade floors	Unheated slabs	U-0.052	U-0.052
	Heated slabs	U-0.063	U-0.063
Opaque Doors	Swinging	U-0.050	U-0.050
	Garage door <14% glazing	U-0.031	U-0.031

*115 MPH to 120 MPH. The specialist wind region should serve as warning to design professionals is evaluating wind loading conditions. Wind speed higher than the derived values taken from Section 1609 of the IBC and Figure R301.2(4)A of the IRC are likely to occur and should be consider in the design.
*State if applicable. For Flood Hazards the Design Professional shall state if they are applicable, Y/N. Verify with FIRM Maps. Maps are available on the FIMA we site http://floodmap.floodsimple.com/

2.Construction Sequences

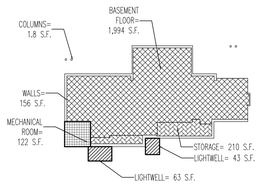
Phase 1 - 3 weeks.
General Site Work, Silt Fence, Tree Protection, Tree removal, Excavation, Utility Connections, Locate Concrete Footings and Foundation Preparation.
Phase 1.2 - 4 weeks
Concrete Foundation, Underground plumbing,
Phase1.3 - 3 weeks
Basement Concrete Slab, Backfilling foundation, Site Grading, Soil Retention, Site Drainage.
Phase 2 - 16 Weeks
Rough Framing, Structural Steel work, Wood Framing, Sub-floors, Sub-Roof, Sheathing, Air Barrier.
Phase 2.1 - 8 Weeks
Roofing, Installing Windows, Installing Siding and Exterior Finishes, Interior Framing and Stairs
Phase 2.2 - 12 Weeks
All rough in Mechanical, Electrical, and Plumbing. Modifying Framing as required, prepare to accommodate finishes etc.
Phase 3 - 12 Weeks
Install Sheetrock, Tape and Prime, Tile and Stone Finishes, Bathroom and Kitchen Waterproofing, Wood Flooring, Decking etc.
Phase 4 - 12 Weeks
Install Millwork, Cabinets, Closets, Doors, Hardware, Appliances, Final Paint and Accessories
Phase 4.1 - 6 Weeks
Final Landscaping, Hardscape, Plantings, Clean Up, Close Out, C of O. Punch List.
*Case Development Projects that this project will take approximately 15 Months in total construction time and there will be some overlap between the phases. We are hoping to begin upon approval from the Village in the early spring 2017.

3.Maintenance Guidelines For Cultec Stormwater System

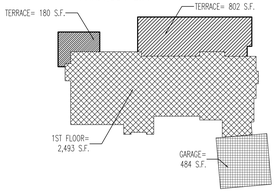
The following guidelines shall be adhered to for the operation and maintenance of the CULTEC stormwater management system:
a. The owner shall keep a maintenance log which shall include details of any events which would have an effect on the system's operational capacity.
b. The operation and maintenance procedure shall be reviewed periodically and changed to meet site conditions.
c. Maintenance of the stormwater management system shall be performed by qualified workers and shall follow applicable occupational health and safety requirements.
d. Debris removed from the stormwater management system shall be disposed of in accordance with applicable laws and regulations.

4. Suggested Maintenance Schedules

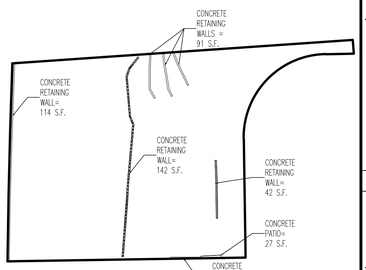
a. Minor Maintenance
The following suggested schedule shall be followed for routine maintenance during the regular operation of the stormwater system:
Frequency Action Monthly in first year Check inlets and outlets for clogging and remove any debris as required.
Spring and Fall Check inlets and outlets for clogging and remove any debris as required.
One year after commissioning and every third year following
Check inlets and outlets for clogging and remove any debris as required.
b. Major Maintenance
The following suggested maintenance schedule shall be followed to maintain the performance of the CULTEC stormwater management chambers. Additional work may be necessary due to insuffi cient performance and other issues that might be found during the inspection of the stormwater management chambers.



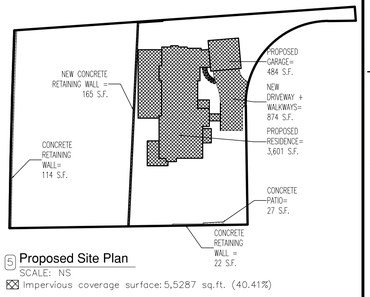
2 Zoning Diagram - Basement
SCALE: NS
Building (Basement): 1,994 S.F.
Mechanical: 122 S.F.
Storage: 210 S.F.
Walls: 156 S.F.
Columns: 1.8 S.F.
Lightwells: 106 S.F.
FAR: 1,994 S.F.



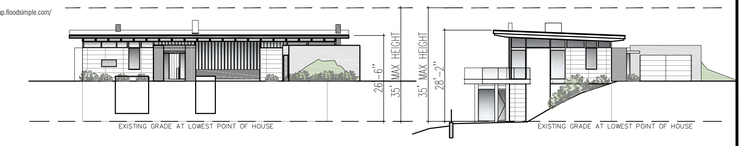
3 Zoning Diagram - First Floor
SCALE: NS
Building (1st. Floor): 2,479 S.F.
Garage: 484 S.F.
Terraces: 983 S.F.
FAR: 2,479 S.F.



4 Existing Site Plan
SCALE: NS
Impervious coverage surface: 438 sq.ft. (3.34%)



5 Proposed Site Plan
SCALE: NS
Impervious coverage surface: 5,5287 sq.ft. (40.41%)

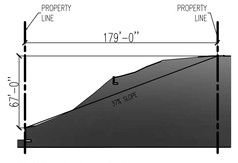


6 Proposed Front Elevation
SCALE: NS

7 Proposed Side Elevation
SCALE: NS

8 Proposed Rear Elevation
SCALE: NS

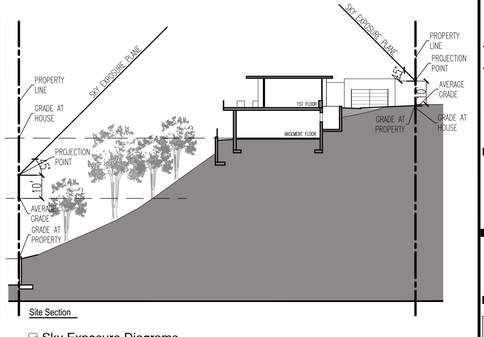
9 Proposed Side Elevation
SCALE: NS



10 Site Section- % Slope Diagram
SCALE: NS

Front Elevation

Site Plan



11 Land Parcel and Surrounds from above
Do Not Scale See – Dimensions

12 Sky Exposure Diagrams
SCALE: NS

Project Architect:
GSA
GREGORY SHARP ARCHITECT,PC
145 PALISADE STREET, SUITE 211
DOBBS FERRY
DIRECT 917 597 1982
INFO@CASEDEVELOPMENT.COM
OWNER'S REP / PROJECT MANAGER
CASE DEVELOPMENT
Case Development Inc
145 PALISADE STREET, SUITE 211
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www.casedevelopment.com
DIRECT 917 597 1982

D.O.B CONSULTANT

LANDSCAPE ARCHITECT

ARBORIST

STRUCTURAL ENGINEER

PROJECT ENGINEER

NOTES

SYMBOL LEGEND

See Detail
Elevation
Section Cut
Window Number
Interior Elevation
Coordination Tag
Door Number
Wall Type
0.0" Elevation Target
Revision

North Arrow:

DRAWING INFORMATION

ISSUED FOR PRE-FILE	12-8-2022
ISSUED FOR PRE-FILE	1-24-2023
ISSUED FOR PRE-FILE	2-14-2023
ISSUED FOR AHRB	3-15-2023

D.O.B. No. -

A New House located in
Dobbs Ferry, NY developed by:

The Altshuler Residence

PROJECT:
THE ALTSHULER RESIDENCE
11 FAIRLAWN AVENUE,
DOBBS FERRY, NY 10522

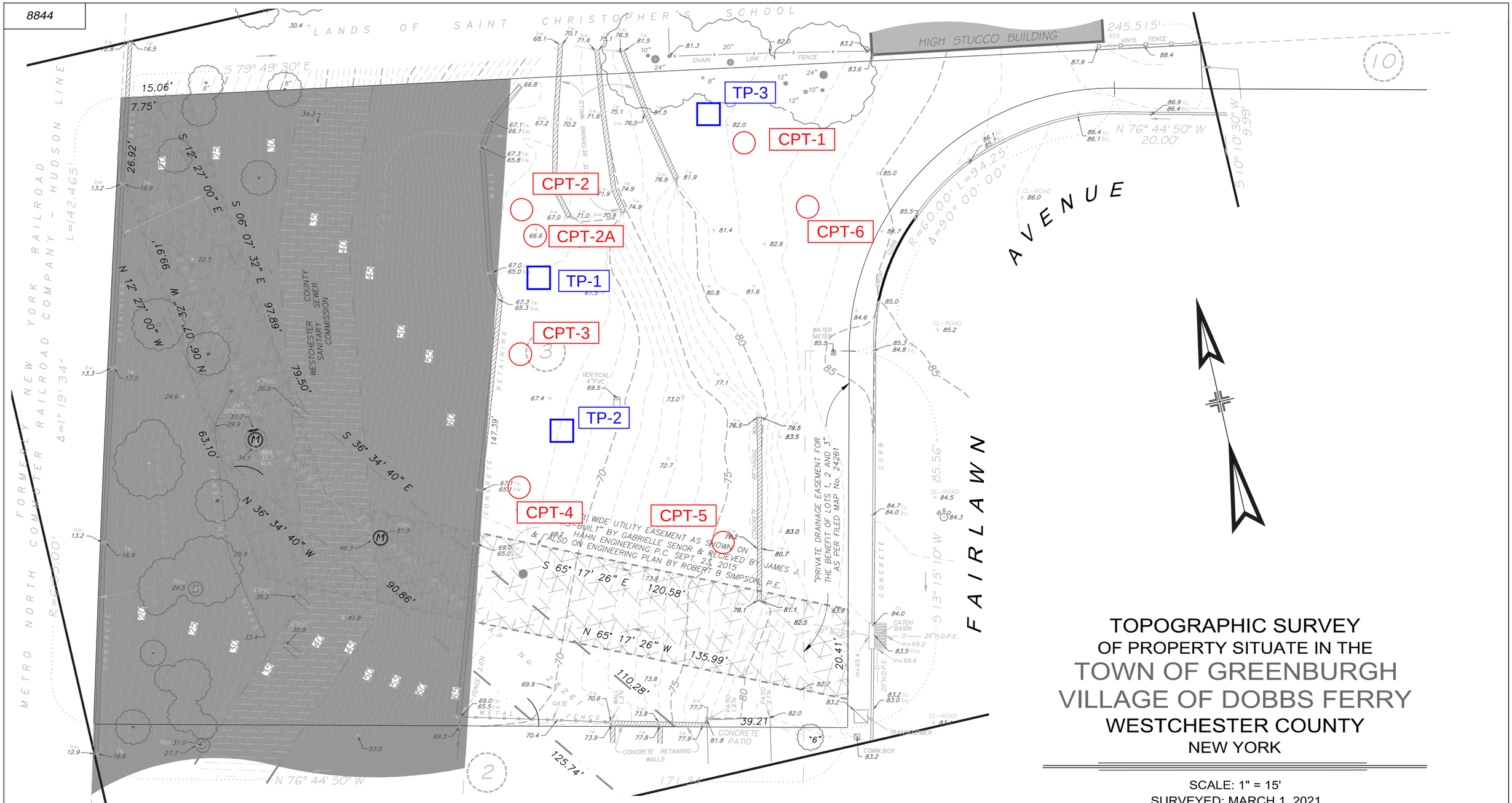
TITLE PAGE

SEAL AND SIGNATURE:
REGISTERED ARCHITECT GREGORY CASE SHARP 026750 STATE OF NEW YORK

DATE: 3/15/2023
PROJECT No: ALTSHULER 2023
DRAWING BY: GS
CHK BY:
DWG No: T-001.00
CADD No:

BSCAN:

8844



- THE PREMISES SHOWN HEREON BEING KNOWN AND DESIGNATED AS LOT No. 3 ON A CERTAIN MAP ENTITLED, "SUBDIVISION MAP OF WATERS EDGE AT DOBBS FERRY" DATED MAY 17, 2006 AND A FINAL REVISION DATE OF JULY 17, 2009 MADE BY PAUL PETRETTI, P.E. & L.S. FILED IN THE WESTCHESTER COUNTY CLERK'S OFFICE, DIVISION OF LAND RECORDS ON AUGUST 24, 2009 AS FILED MAP No. 28261
- PREMISES ARE DESIGNATED ON THE TAX MAPS FOR THE
  TOWN OF GREENBURGH / VILLAGE OF DOBBS FERRY
  SECTION: 3.150 BLOCK: 134 LOT: 12
  PROPERTY ADDRESS: 11 FAIRLAWN AVENUE
  PROPERTY AREA: 26,164 Sq.Ft. - 0.6007 ACRE
- THIS MAP IS BASED UPON THE INFORMATION SUPPLIED BY THE CLIENT AND/OR HIS REPRESENTATIVE AND SUBJECT TO THE FINDINGS THAT A COMPLETE ABSTRACT OF TITLE MAY UNCOVER
- THE ELEVATIONS SHOWN HEREON ARE IN THE "NAVD 88", (NORTH AMERICAN VERTICAL DATUM 1988).
- THE OFFSETS SHOWN HEREON ARE NOT INTENDED TO ESTABLISH PROPERTY LINES FOR THE ERECTION OF FENCES, STRUCTURES OR ANY OTHER IMPROVEMENTS.
- ENCROACHMENTS BELOW GRADE AND/OR SUBSURFACE FEATURES, IF ANY, NOT LOCATED OR SHOWN HEREON.
- UNAUTHORIZED ALTERATION OR ADDITION TO A SURVEY MAP BEARING A LICENSED LAND SURVEYOR'S SEAL IS A VIOLATION OF SECTION 7209, SUBDIVISION 2, OF THE NEW YORK STATE EDUCATION LAWS.
- THE INFORMATION DEPICTED HEREON IS BASED UPON AN ACTUAL FIELD SURVEY AND IS AN OPINION BASED UPON SAID SURVEY. VARIATIONS IN OFFSETS FROM THAT OF THE OTHERS CAN AND MAY EXIST.
- ONLY COPIES FROM THE ORIGINAL OF THIS SURVEY MARKED WITH AN ORIGINAL OF THE LAND SURVEYOR'S SEAL SHALL BE CONSIDERED TO BE TRUE VALID COPIES.
- THIS MAP WAS PREPARED FROM AN ACTUAL FIELD SURVEY CONDUCTED ON THE DATE SHOWN AND THAT SAID SURVEY WAS PERFORMED IN ACCORDANCE WITH THE EXISTING " CODE OF PRACTICE FOR LAND SURVEYS " ADOPTED BY THE NEW YORK STATE ASSOCIATION OF PROFESSIONAL LAND SURVEYORS.

PREPARED FOR: JEANETTE LURIER

TOPOGRAPHIC SURVEY
OF PROPERTY SITUATE IN THE
TOWN OF GREENBURGH
VILLAGE OF DOBBS FERRY
WESTCHESTER COUNTY
NEW YORK

SCALE: 1" = 15'
SURVEYED: MARCH 1, 2021
SURVEY AMENDED TO SHOW TREES, WALL & 1ft CONTOURS: JULY 21, 2021

Link
Land Surveyors P.C.
21 Clark Place, Suite 1-B
Mahopac N.Y. 10541
Phone 845-628-5857
Fax 845-621-0013

ERIK J. LINK
NEW YORK STATE LICENSED
LAND SURVEYOR NO. 050542

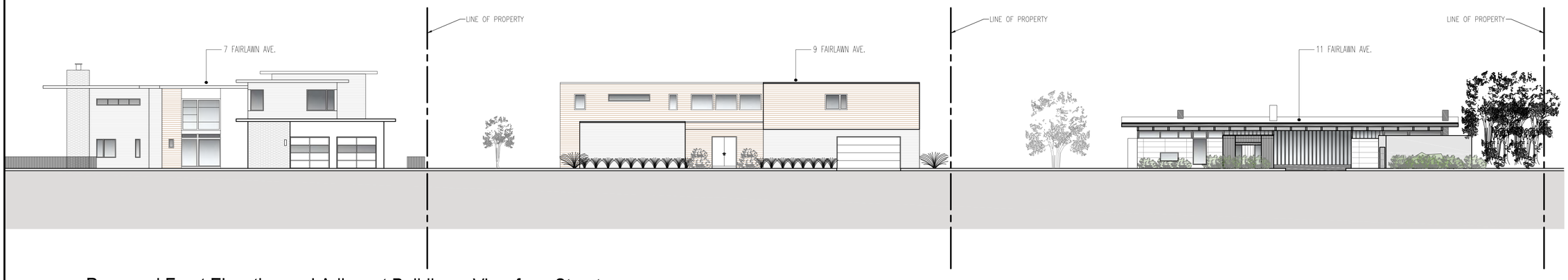








1 Neighborhood Pictures



2 Proposed Front Elevation and Adjacent Buildings- View from Street

Scale: 1/8"=1'-0"

Project Architect:

GREGORY SHARP ARCHITECT,PC
145 PALISADE STREET, SUITE 211
DOBBS FERRY
DIRECT 917 597 1982
INFO@CASEDEVELOPMENT.COM

OWNER'S REP / PROJECT MANAGER

CASE DEVELOPMENT

Case Development Inc
145 PALISADE STREET, SUITE 211
DOBBS FERRY, NY 10522
www.casedevelopment.com
DIRECT 917 597 1982

D.O.B CONSULTANT

LANDSCAPE ARCHITECT

ARBORIST

STRUCTURAL ENGINEER

PROJECT ENGINEER

NOTES

SYMBOL LEGEND

- See Detail
- Elevation
- Section Cut
- Window Number
- Interior Elevation
- Coordination Tag
- Door Number
- Wall Type
- 0.0" Elevation Target
- Revision

North Arrow:

DRAWING INFORMATION

ISSUED FOR PRE-FILE	12-8-2022
ISSUED FOR PRE-FILE	1-24-2023
ISSUED FOR PRE-FILE	2-14-2023
ISSUED FOR AHRB	3-15-2023

D.O.B. No. -

A New House located in
Dobbs Ferry, NY developed by:

The Altshuler Residence

PROJECT:

THE ALTSHULER RESIDENCE
11 FAIRLAWN AVENUE,
DOBBS FERRY, NY 10522

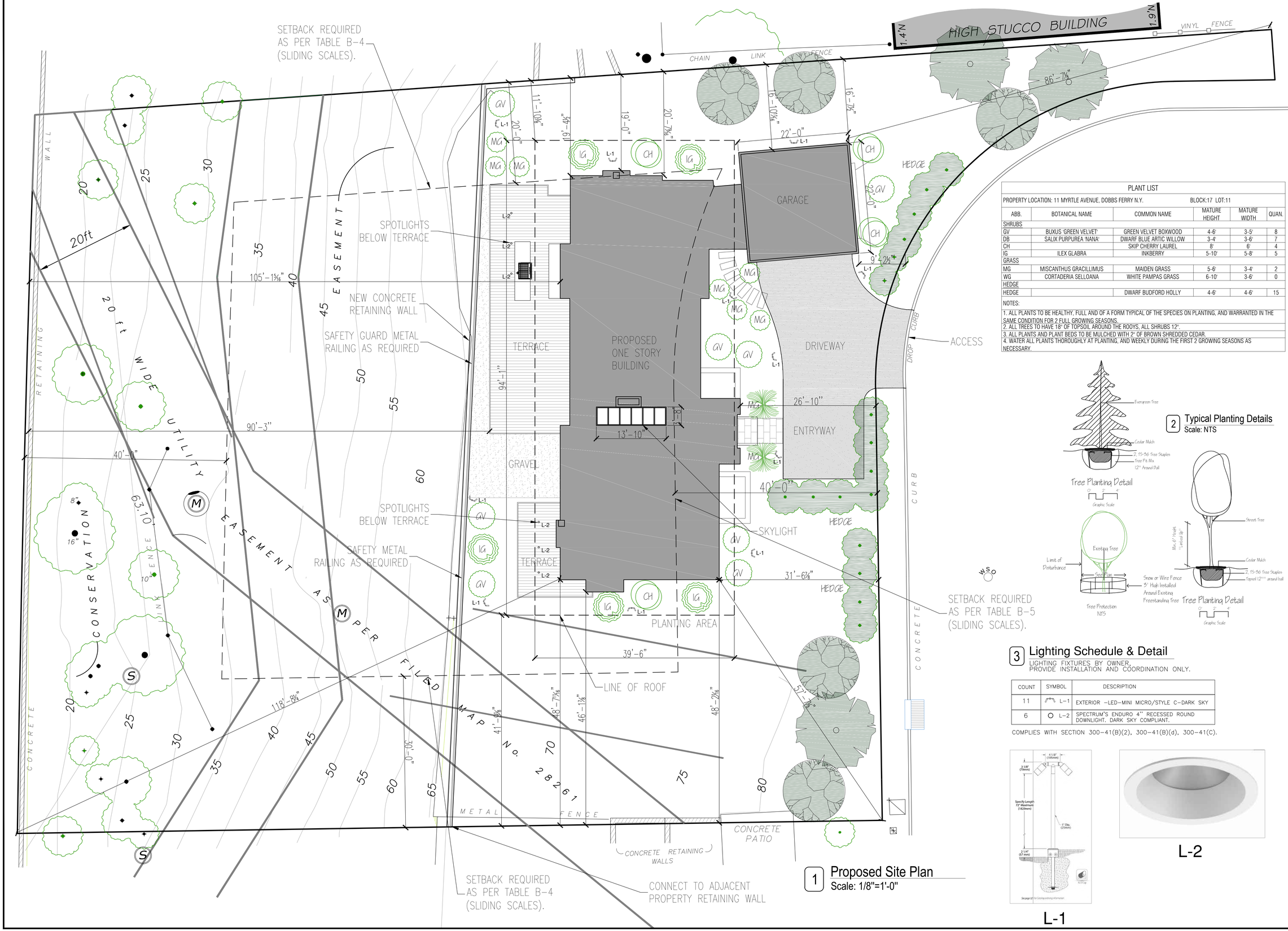
NEIGHBOORS PICTURES ADJACENT BUILDINGS

SEAL AND SIGNATURE:

REGISTERED ARCHITECT GREGORY CASE SHARP 026106-1 STATE OF NEW YORK

DATE:	3/15/2023
PROJECT No:	ALTSHULER 2023
DRAWING BY:	GS
CHK BY:	
DWG No:	T-002.00
CADD No:	

BSCAN:



1 Proposed Site Plan
Scale: 1/8"=1'-0"

PLANT LIST					
PROPERTY LOCATION: 11 MYRTLE AVENUE, DOBBS FERRY N.Y.			BLOCK:17 LOT:11		
ABB.	BOTANICAL NAME	COMMON NAME	MATURE HEIGHT	MATURE WIDTH	QUAN.
SHRUBS					
GV	BUXUS 'GREEN VELVET'	GREEN VELVET BOXWOOD	4-6'	3-5'	8
DB	SALIX PURPUREA 'NANA'	DWARF BLUE ARTIC WILLOW	3-4'	3-6'	7
CH		SKIP CHERRY LAUREL	8'	6'	4
IG	ILEX GLABRA	INKBERRY	5-10'	5-8'	5
GRASS					
MG	MISCANTHUS GRACILLIMUS	MAIDEN GRASS	5-6'	3-4'	2
WG	CORTADERIA SELLOANA	WHITE PAMPAS GRASS	6-10'	3-6'	0
HEDGE					
HEDGE		DWARF BUDFORD HOLLY	4-6'	4-6'	15
NOTES:					
1. ALL PLANTS TO BE HEALTHY, FULL AND OF A FORM TYPICAL OF THE SPECIES ON PLANTING, AND WARRANTED IN THE SAME CONDITION FOR 2 FULL GROWING SEASONS.					
2. ALL TREES TO HAVE 18" OF TOPSOIL AROUND THE ROOYS, ALL SHRUBS 12".					
3. ALL PLANTS AND PLANT BEDS TO BE MULCHED WITH 2" OF BROWN SHREDDED CEDAR.					
4. WATER ALL PLANTS THOROUGHLY AT PLANTING, AND WEEKLY DURING THE FIRST 2 GROWING SEASONS AS NECESSARY.					

2 Typical Planting Details
Scale: NTS

3 Lighting Schedule & Detail

LIGHTING FIXTURES BY OWNER.
PROVIDE INSTALLATION AND COORDINATION ONLY.

COUNT	SYMBOL	DESCRIPTION
11	L-1	EXTERIOR -LED-MINI MICRO/STYLE C-DARK SKY
6	L-2	SPECTRUM'S ENDURO 4" RECESSED ROUND DOWNLIGHT, DARK SKY COMPLIANT.

COMPLIES WITH SECTION 300-41(B)(2), 300-41(B)(d), 300-41(C).

L-1

L-2

Project Architect:
GSA
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www.casedevelopment.com
DIRECT 917 597 1982

D.O.B CONSULTANT

LANDSCAPE ARCHITECT

ARBORIST

STRUCTURAL ENGINEER

PROJECT ENGINEER

NOTES

SYMBOL LEGEND

See Detail		Interior Elevation	
Elevation		Coordination Tag	
Section Cut		Door Number	
Window Number		Wall Type	
		0.0" Elevation Target	
		Revision	

North Arrow:

DRAWING INFORMATION

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ISSUED FOR PRE-FILE	2-14-2023
ISSUED FOR AHRB	3-15-2023

D.O.B. No. -

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The Altshuler Residence

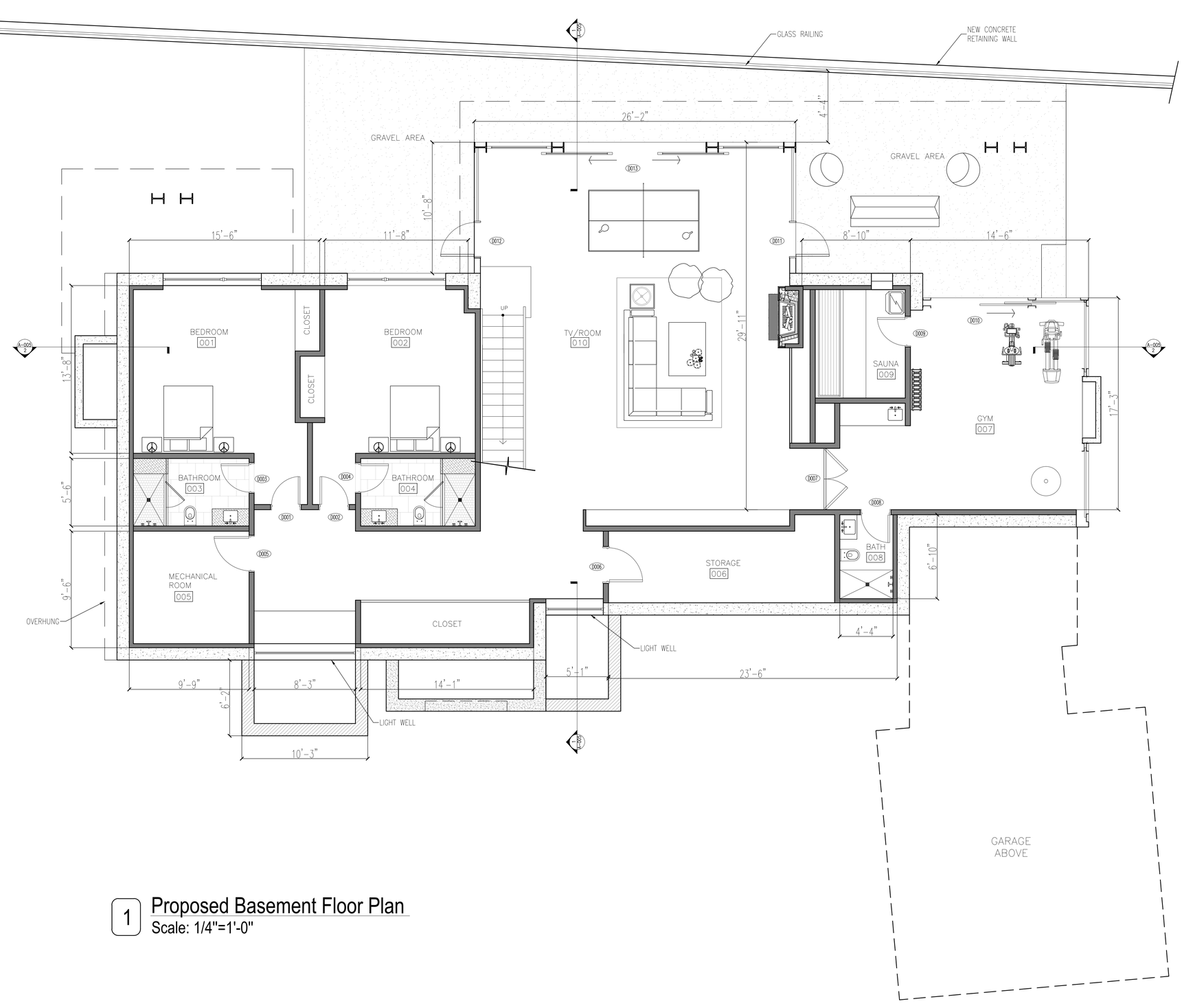
PROJECT:
THE ALTSHULER RESIDENCE
11 FAIRLAWN AVENUE,
DOBBS FERRY, NY 10522

PROPOSED SITE PLAN

SEAL AND SIGNATURE:
REGISTERED ARCHITECT GREGORY CASE SHARP 026196-1 STATE OF NEW YORK

DATE:	3/15/2023
PROJECT No:	ALTSHULER 2023
DRAWING BY:	GS
CHK BY:	
DWG No:	A-001.00
CADD No:	

BSCAN:



1 Proposed Basement Floor Plan

Scale: 1/4"=1'-0"

Project Architect:

GSA

GREGORY SHARP ARCHITECT,PC
145 PALISADE STREET, SUITE 211
DOBBS FERRY
DIRECT 917 597 1982
INFO@CASEDEVELOPMENT.COM

OWNER'S REP / PROJECT MANAGER

CASE DEVELOPMENT

Case Development Inc
145 PALISADE STREET, SUITE 211
DOBBS FERRY, NY 10522
www.casedevelopment.com
DIRECT 917 597 1982

D.O.B CONSULTANT

LANDSCAPE ARCHITECT

ARBORIST

STRUCTURAL ENGINEER

PROJECT ENGINEER

NOTES

SYMBOL LEGEND

- See Detail
- Elevation
- Section Cut
- Window Number
- Interior Elevation
- Coordination Tag
- Door Number
- Wall Type
- 0.0" Elevation Target
- Revision

North Arrow:

DRAWING INFORMATION

ISSUED FOR PRE-FILE	12-8-2022
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ISSUED FOR PRE-FILE	2-14-2023
ISSUED FOR AHRB	3-15-2023

D.O.B. No. -

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Dobbs Ferry, NY developed by:

The Altshuler Residence

PROJECT:

THE ALTSHULER RESIDENCE
11 FAIRLAWN AVENUE,
DOBBS FERRY, NY 10522

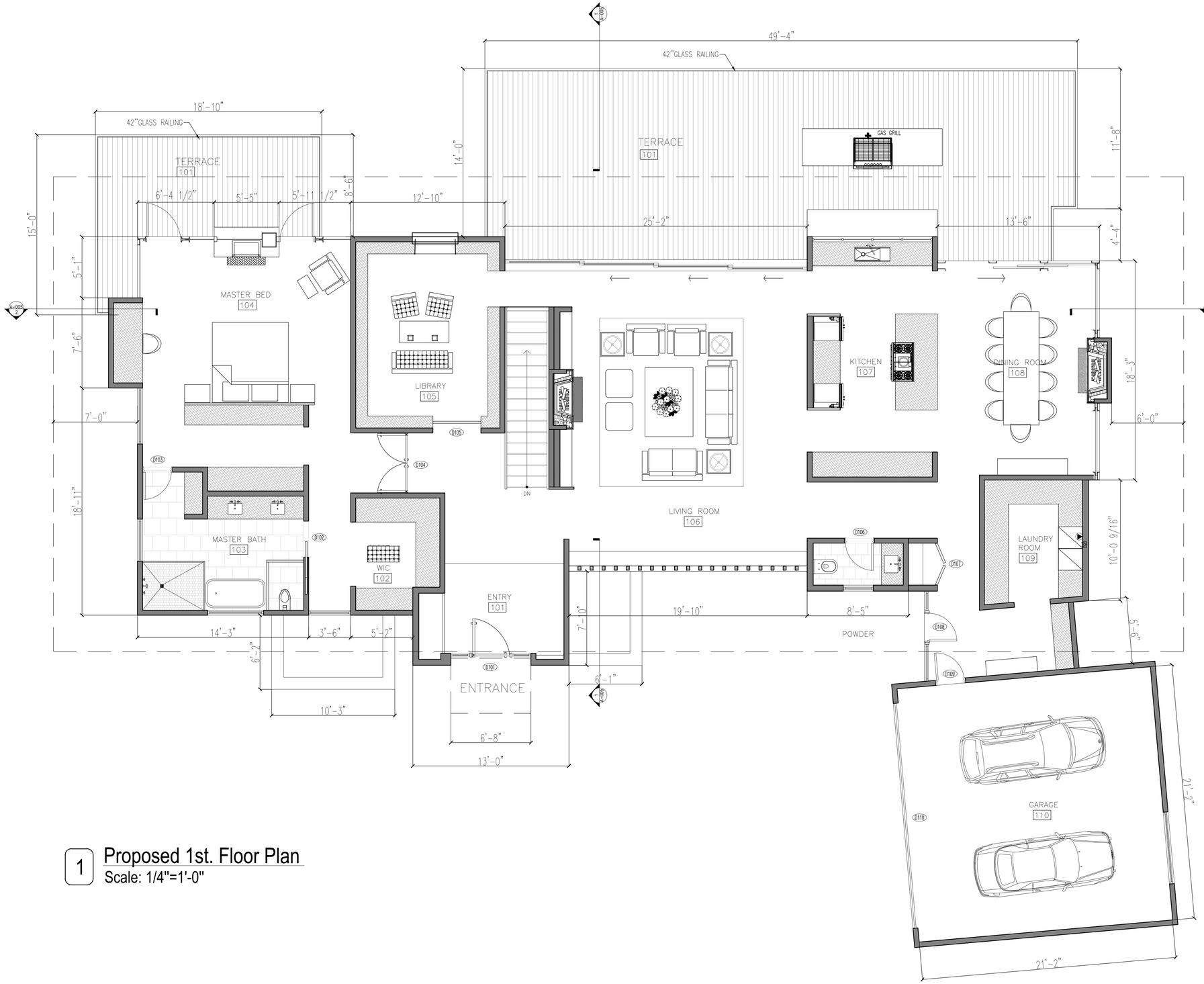
PROPOSED BASEMENT

SEAL AND SIGNATURE:

REGISTERED ARCHITECT GREGORY CASE SHARP LICENSED STATE OF NEW YORK

DATE:	3/15/2023
PROJECT No:	ALTSHULER 2023
DRAWING BY:	GS
CHK BY:	
DWG No:	A-002.00
CADD No:	

BSCAN:



1 **Proposed 1st. Floor Plan**
Scale: 1/4"=1'-0"

Project Architect:

GREGORY SHARP ARCHITECT,PC
145 PALISADE STREET, SUITE 211
DOBBS FERRY
DIRECT 917 597 1982
INFO@CASEDEVELOPMENT.COM

OWNER'S REP / PROJECT MANAGER

CASE DEVELOPMENT

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145 PALISADE STREET, SUITE 211
DOBBS FERRY, NY 10522
www.casedevelopment.com
DIRECT 917 597 1982

D.O.B CONSULTANT

LANDSCAPE ARCHITECT

ARBORIST

STRUCTURAL ENGINEER

PROJECT ENGINEER

NOTES

SYMBOL LEGEND

- See Detail
- Elevation
- Section Cut
- Window Number
- Interior Elevation
- Coordination Tag
- Door Number
- Wall Type
- Elevation Target
- Revision

North Arrow:

DRAWING INFORMATION

ISSUED FOR PRE-FILE	12-8-2022
ISSUED FOR PRE-FILE	1-24-2023
ISSUED FOR PRE-FILE	2-14-2023
ISSUED FOR AHRB	3-15-2023

D.O.B. No. -

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The Altshuler Residence

PROJECT:

THE ALTSHULER RESIDENCE
11 FAIRLAWN AVENUE,
DOBBS FERRY, NY 10522

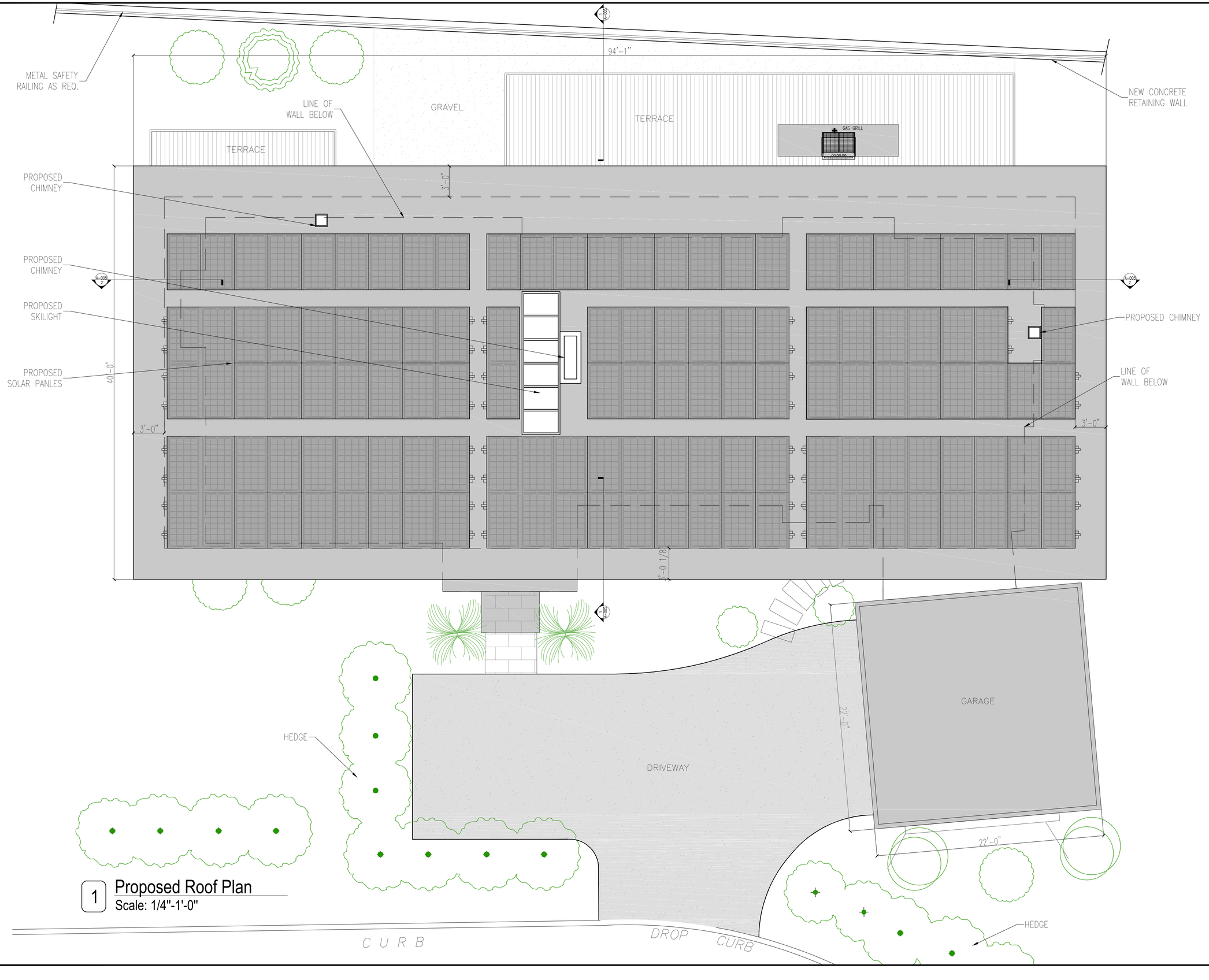
PROPOSED FIRST FLOOR

SEAL AND SIGNATURE:

REGISTERED ARCHITECT GREGORY CASE SHARP 026106-1 STATE OF NEW YORK

DATE: 3/15/2023
PROJECT No: ALTSHULER 2023
DRAWING BY: GS
CHK BY:
DWG No: A-003.00
CADD No:

BSCAN:



1 **Proposed Roof Plan**
Scale: 1/4"-1'-0"

Project Architect:
GSA
GREGORY SHARP ARCHITECT,PC
145 PALISADE STREET, SUITE 211
DOBBS FERRY
DIRECT 917 597 1982
INFO@CASEDEVELOPMENT.COM

OWNER'S REP / PROJECT MANAGER
CASE DEVELOPMENT
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145 PALISADE STREET, SUITE 211
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DIRECT 917 597 1982

D.O.B CONSULTANT

LANDSCAPE ARCHITECT

ARBORIST

STRUCTURAL ENGINEER

PROJECT ENGINEER

NOTES

SYMBOL LEGEND

- See Detail
- Elevation
- Section Cut
- Window Number
- Interior Elevation
- Coordination Tag
- Door Number
- Wall Type
- 0.0" Elevation Target
- Revision

North Arrow:

DRAWING INFORMATION

ISSUED FOR PRE-FILE	12-8-2022
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ISSUED FOR PRE-FILE	2-14-2023
ISSUED FOR AHRB	3-15-2023

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The Altshuler Residence

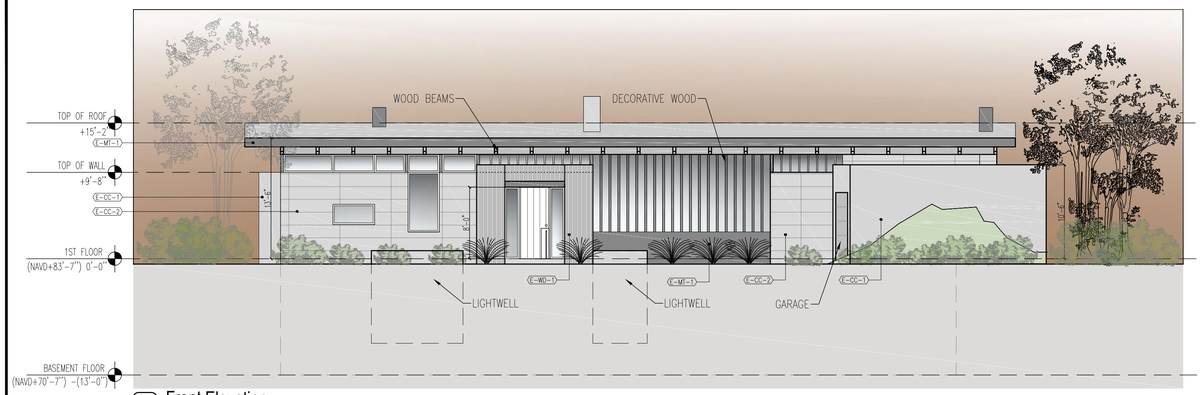
PROJECT:
THE ALTSHULER RESIDENCE
11 FAIRLAWN AVENUE,
DOBBS FERRY, NY 10522

PROPOSED ROOF PLAN

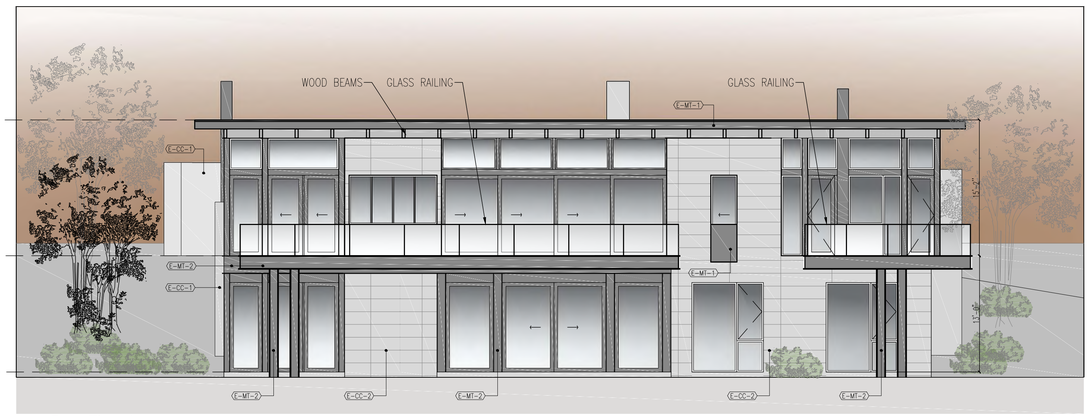
SEAL AND SIGNATURE:
REGISTERED ARCHITECT GREGORY CASE SHARP 027706-1 STATE OF NEW YORK

DATE:	3/15/2023
PROJECT No:	ALTSHULER 2023
DRAWING BY:	GS
CHK BY:	
DWG No:	A-004.00
CADD No:	

BSCAN:

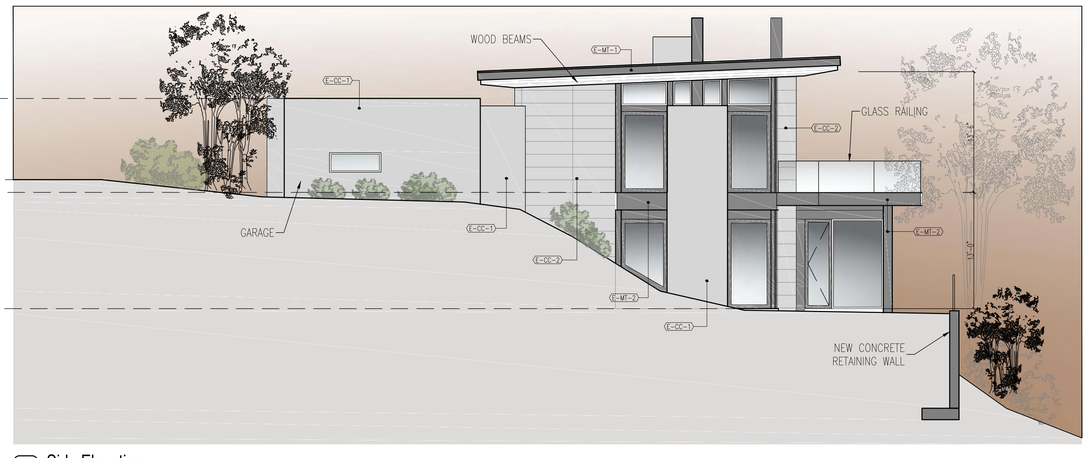


1 Front Elevation
Scale: 1/8"=1'-0"

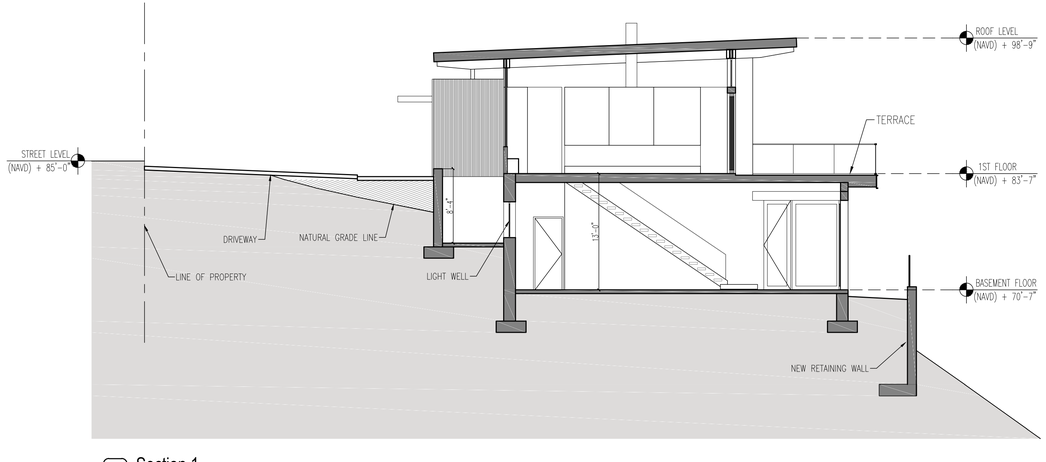


2 Rear Elevation
Scale: 1/8"=1'-0"

3 Side Elevation
Scale: 1/8"=1'-0"



4 Side Elevation
Scale: 1/8"=1'-0"



5 Section 1
Scale: 1/8"=1'-0"

6 Section 2
Scale: 1/8"=1'-0"

Project Architect:
GSA
GREGORY SHARP ARCHITECT,PC
145 Palisade Street, Suite 211
Dobbs Ferry
DIRECT 917 597 1982
INFO@CASEDEVELOPMENT.COM

OWNER'S REP / PROJECT MANAGER

CASE DEVELOPMENT

Case Development Inc
145 Palisade Street, suite 211
Dobbs Ferry, NY 10522
www.casedevelopment.com
DIRECT 917 597 1982

D.O.B CONSULTANT

LANDSCAPE ARCHITECT

ARBORIST

STRUCTURAL ENGINEER

PROJECT ENGINEER

NOTES

SYMBOL LEGEND

- See Detail
- Elevation
- Section Cut
- Window Number
- Interior Elevation
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- Door Number
- Wall Type
- 0.0" Elevation Target
- Revision

North Arrow:

DRAWING INFORMATION

ISSUED FOR PRE-FILE	12-8-2022
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ISSUED FOR PRE-FILE	2-14-2023
ISSUED FOR AHRB	3-15-2023

D.O.B. No. -

A New House located in
Dobbs Ferry, NY developed by:

The Altshuler Residence

PROJECT:
THE ALTSHULER RESIDENCE
11 FAIRLAWN AVENUE,
DOBBS FERRY, NY 10522

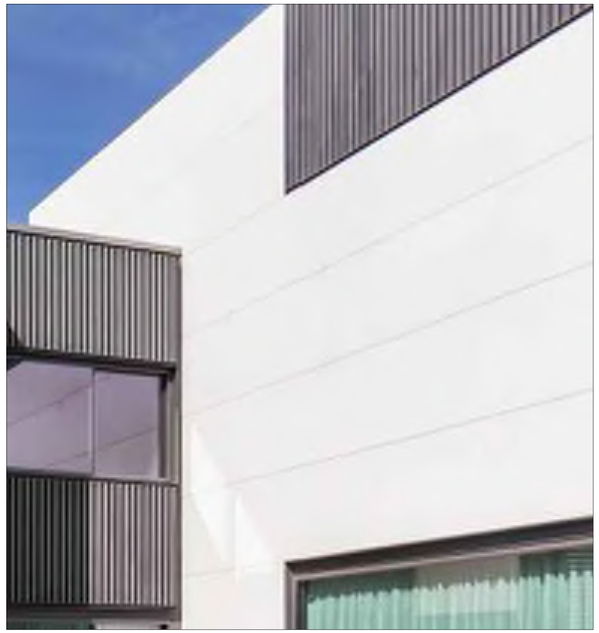
PROPOSED ELEVATIONS

SEAL AND SIGNATURE:

REGISTERED ARCHITECT
GREGORY CASE SHARP
No. 028706-1
STATE OF NEW YORK

DATE:	3/15/2023
PROJECT No:	ALTSHULER 2023
DRAWING BY:	GS
CHK BY:	
DWG No:	A-005.00
CADD No:	

BSCAN:



CONCRETE PANEL
RIEDER- OFF WHITE/FERRO LIGHT

DECORATIVE WOOD

E-WD-2

WOOD GARAGE DOOR

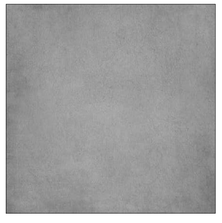
E-MT-1

BLACK ALUMINUM FACIA

E-MT-2

STEEL- BLACK FINISH

E-CC-1



GREY STUCCO FINISH

E-CC-2

CONCRETE PANEL -RIEDER-OFF WHITE/FERRO LIGHT

Project Architect:
GSA
GREGORY SHARP ARCHITECT,PC
145 PALISADE STREET, SUITE 211
DOBBS FERRY
DIRECT 917 597 1982
INFO@CASEDEVELOPMENT.COM

OWNER'S REP / PROJECT MANAGER

CASE DEVELOPMENT

Case Development Inc
145 PALISADE STREET, SUITE 211
DOBBS FERRY, NY 10522
www.casedevelopment.com
DIRECT 917 597 1982

D.O.B CONSULTANT

LANDSCAPE ARCHITECT

ARBORIST

STRUCTURAL ENGINEER

PROJECT ENGINEER

NOTES

SYMBOL LEGEND

- See Detail
- Elevation
- Section Cut
- Window Number
- Interior Elevation
- Coordination Tag
- Door Number
- Wall Type
- 0.0" Elevation Target
- Revision

North Arrow:

DRAWING INFORMATION

ISSUED FOR PRE-FILE	12-8-2022
ISSUED FOR PRE-FILE	1-24-2023
ISSUED FOR PRE-FILE	2-14-2023
ISSUED FOR AHRB	3-15-2023

D.O.B. No. -

A New House located in
Dobbs Ferry, NY developed by:

The Altshuler Residence

PROJECT:
THE ALTSHULER RESIDENCE
11 FAIRLAWN AVENUE,
DOBBS FERRY, NY 10522

PROPOSED ELEVATIONS

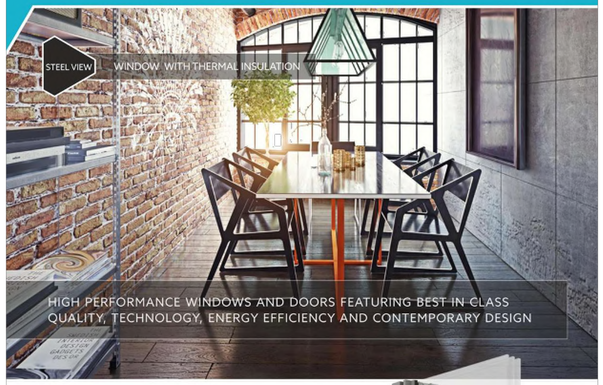
SEAL AND SIGNATURE:

REGISTERED ARCHITECT
GREGORY CASE SHARP
028706-1
STATE OF NEW YORK

DATE:	3/15/2023
PROJECT No:	ALTSHULER 2023
DRAWING BY:	GS
CHK BY:	
DWG No:	A-005.02
CADD No:	

BSCAN:

BOLD and BRILLIANT. Say YES to YAWAL USA



Say YES to the YAWAL USA Steel View WINDOWS

The Steel View system window brings together, steel look, performance and narrow siteline that allows you to enjoy more of the view and natural light that comes with it. Steel View is a modern window system that's perfect for many applications including both new constructions and retrofit.

The Steel View window uses innovative technology to meet and exceed standards and guidelines, thanks to the ultra-thin profiles used to build the system, you have virtually unlimited contact with nature. Multiple glass options are available to meet the designer/end user's aesthetic appeal, and our full range of custom frame finishes make Steel View a great choice for architects, builders, dealers and consumers. Operable window Steel View is available in sizes up to 5 feet wide, up to 10 feet high, while the fixed version is unlimited by size restrictions.

yawalusa.com

ALUMINUM + ARCHITECTURE

STEEL VIEW WINDOW WITH THERMAL INSULATION

STEEL VIEW WINDOW SIGNIFICANT BENEFITS

More natural light, jumbo capability	Meets and Exceed the most rigorous Energy codes and guidelines
Will reduce building Energy costs	A sustainable choice- enviromentally focused
Superior U-Value range of 0.13	Fully tested and Warranted
Narrow siteline allowing more of light and view	Easy to order, procure and install
Endless Design Options included Steel look, custom frame finishes, glass choices, shapes and sizes	

ONE SYSTEM THREE DIFFERENT STYLES

STANDARD

INDUSTRIAL

STEEL

CONFIGURATIONS POSSIBILITIES:

TURN

TURN AND TILT

TILT AND TURN

TILT WINDOW WITH SIDE HANDLE

TECHNICAL SPECIFICATIONS - STEEL VIEW WINDOW	
U-Value	0.13
Acoustic insulation	STC 39-44 dB
Water tightness	16 psf
Design pressure	AW PG 65
SHGC	0.20-0.48

YAWAL USA - 11 West Hudson Ave. Englewood, NJ 07631, USA
T: +1 (551) 250 3614, office@yawalusa.com, www.yawalusa.com

On.:
7

Constructions:

Pos. 7
#007 TV Room
Fixed unit
System: TM 77 / Pano
Size: B = 5ft 4in, H = 10ft 0in
Weight = 507,9 lbs
Thermal Calculation:
U =0,14 BTU/hft^2 F
SHGC= 0,28

Quantity:

1

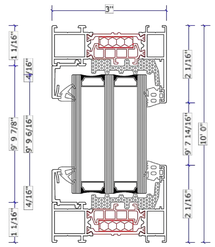
Description:

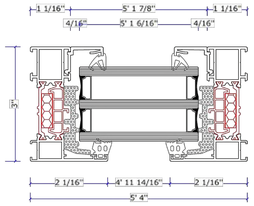
Profiles colour:RAL5803A 9005 0A00
Hardware colour:Attached Spec
Fillings:6T/16/6T/16/6T SHGC 0.31 LT 68%

View:

View from the outside

FACTORY ASSEMBLED, UNGLAZED





7 (45)

2023-02-16

1 Windows- Details
Scale: ns

On.:
6

Constructions:

Pos. 6
#006 TV Room
Outswing door + fixed unit
System: TM 77 / Pano
Size: B = 9ft 0in, H = 10ft 0in
Weight = 854,4 lbs
Thermal Calculation:
U =0,15 BTU/hft^2 F
SHGC= 0,26

Quantity:

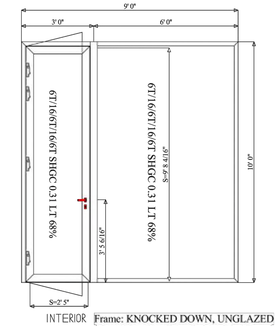
1

Description:

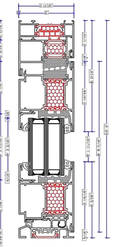
Profiles colour:RAL5803A 9005 0A00
Hardware colour:Attached Spec
Fillings:6T/16/6T/16/6T SHGC 0.31 LT 68%

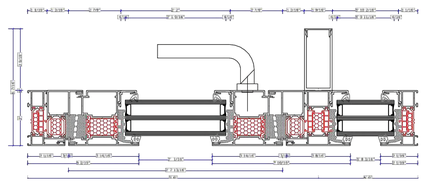
View:

View from the outside



INTERIOR Frame: KNOCKED DOWN, UNGLAZED
EXTERIOR Operable sash : ASSEMBLED, GLAZED





6 (45)

2023-02-16

2 Doors- Details
Scale: ns

MICRO NITE™/STYLE C
TWIN STAFF STAR™

TF-C-MN

"Micro Nite™ Twin Staff Star™ Style C's rotational control is second to none because it can be aimed along two axes perched atop a "T" stem. This unassuming fixture has the potential to illuminate ground level, landscaping features as well serve as an upward facing flood when equipped with its appropriate B style caps."

Karen Duffy, LC, B-K Lighting, Regional Sales Manager/BKU Instructor

MATERIAL
ALU

FOR USE WITH
Power Supplies
Options
Mounting

B-K LIGHTING | PATH / AREA

B-K LIGHTING "Quality to Last a Lifetime" www.bklighting.com

91

3 Exterior Lights- Specs
Scale: ns

enviro lights

PROJECT:
TYPE:

Recessed Fixtures

4" ROUND DEEP DOWNLIGHT
WILDLIFE FRIENDLY

UNIVERSAL HOUSINGS WITH INTERCHANGEABLE TRIMS

Spectrum's Enduro 4" recessed round downlight series features a trim and variety of options for accent and general illumination.

LUMENS AND WATTAGE CHART

PART NUMBER	LUMENS	SOURCE LUMENS¹	DELIVERED LUMENS²	SYSTEM WATTS	LPW
RDD4F	TASL	600	390	16	25
RDD4F	TD10L	1000	800	16	51

AVAILABLE HOUSING TYPES

SR4MO - New Construction

SR4MR - Remodel Construction

FIXTURE HOUSING SPECIFICATION

SERIES		LUMENS		DRIVER / DIMMING / VOLTAGE			OPTIONS		MOUNTING	
SR4MO	New Construction	AMBER ONLY¹		DO10_	1%, 0-10V	1	120V	EB Black Housing	H12'	12" - 24" Expandable Bars
SR4MR	Remodel Construction	TASL	600 Lm Amber Only			2	277V	FB* Consult Factory	BK27	27" Solid Bars
		DUAL CIRCUIT²		DS2W_	ELV/MLV, 120V	1	120V		CB24	24" C-Channel Bars
		TD10L	CW 1 1000 Lm at 3000K							
			CW 2 600 Lm Amber Only							

AVAILABLE TRIM / MODULE TYPES

RDD4F

TRIM / MODULE SPECIFICATION

TRIM	CCT		FINISH		FLANGE FINISH		LENS⁹		OPTIONS	
RDD4F	Downlight	AMBER ONLY¹	MW	Matte White	WF	White Flange	SO¹⁰	Micro Prism Satin™ Lens	FB*	Consult Factory
		AMB 600 Lm Amber Only	MB	Matte Black	MF	Matching Flange	GL	Clear Glass Lens		
			PT	Platinum Silver			FG	Frosted Glass Lens		
			BZ	Bronze						
			CH	Chromed						
			OB	Oil Rubbed Bronze						
			AS	Sapphire						
			AM	Malachite						
			BN	Bur Gold						
			CO	Copper Metallic						
			GH	Graphite						
			CC⁷	Custom Color						

- Full Shielding.
- Die-cast aluminum trim with a wide variety of options.
- Deep regressed trim.
- Universal housing accepts all trim types, including N-Line trimless.
- 5 year warranty on fixture and electronics.
- Sustainable fixture.

EXAMPLE: SR4MOTASLDS2W1/H12/RDD4FAMBCHWFSO

EXAMPLE: SR4MOTD10LDS2W1/H12/RDD4F30KCHWFSO

NOTES:
1 Nominal Source Lumens 2 Nominal Delivered Lumens 3 Specify with TA Only 4 Specify with TD Only, TD/Dual Circuit Option Requires Dedicated on Site Controls by Others. Controls by Others Are Not to Allow Both Circuits to be Energized Simultaneously. Consult Factory for More Information 5 Contact Factory 6 Standard Bar Hangers 7 Standard Finish 8 Contact Factory for Special Finishes 9 Lens is Required 10 Standard Lens

Dimensions and values shown are nominal. Spectrum Lighting continually works to improve products and reserves the right to make changes which may alter the performance or appearance of products.

SPECTRUM LIGHTING INC.

WWW.SPECLIGHT.COM • 994 JEFFERSON STREET, FALL RIVER, MA 02721 • 508.678.2303 FAX 508.678.2260

83-70912_0A

Project Architect:
GSA
GREGORY SHARP ARCHITECT,PC
145 Palisade Street, Suite 211
Dobbs Ferry
DIRECT 917 597 1982
INFO@CASEDEVELOPMENT.COM

OWNER'S REP / PROJECT MANAGER
CASE DEVELOPMENT
Case Development Inc
145 Palisade Street, suite 211
Dobbs Ferry, NY 10522
www.casedevelopment.com
DIRECT 917 597 1982

D.O.B CONSULTANT

LANDSCAPE ARCHITECT

ARBORIST

STRUCTURAL ENGINEER

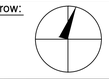
PROJECT ENGINEER

NOTES

SYMBOL LEGEND

A8	See Detail	8 A10 A9	Interior Elevation
A8	Elevation	PF-1.2	Coordination Tag
A8	Section Cut	15	Door Number
115	Window Number	3	Wall Type
		0.0"	Elevation Target
		1	Revision

North Arrow:



DRAWING INFORMATION

ISSUED FOR PRE-FILE	12-8-2022
ISSUED FOR PRE-FILE	1-24-2023
ISSUED FOR PRE-FILE	2-14-2023
ISSUED FOR AHRB	3-15-2023

D.O.B. No. -

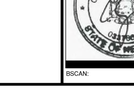
A New House located in
Dobbs Ferry, NY developed by:

The Altshuler Residence

PROJECT:
THE ALTSHULER RESIDENCE
11 FAIRLAWN AVENUE,
DOBBS FERRY, NY 10522

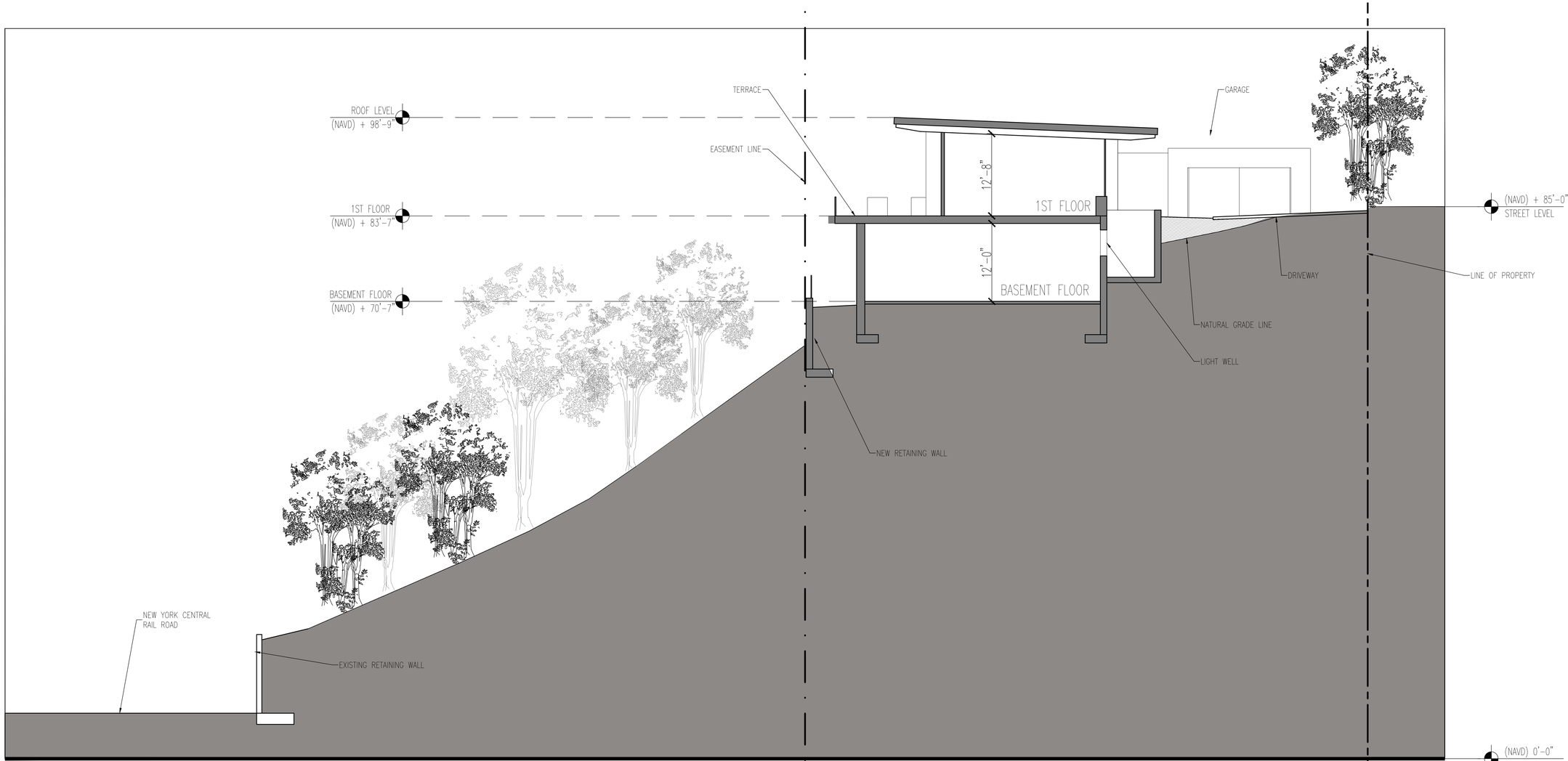
SPECIFICATIONS

SEAL AND SIGNATURE:



DATE: 3/15/2023
PROJECT No: ALTSHULER 2023
DRAWING BY: GS
CHK BY:
DWG No: A-005.03
CADD No:

BSCAN:



1 Site Section
Scale: 1/8"=1'-0"

Project Architect:
GSA
GREGORY SHARP ARCHITECT,PC
145 PALISADE STREET, SUITE 211
DOBBS FERRY
DIRECT 917 597 1982
INFO@CASEDEVELOPMENT.COM

OWNER'S REP / PROJECT MANAGER

CASE DEVELOPMENT

Case Development Inc
145 PALISADE STREET, SUITE 211
DOBBS FERRY, NY 10522
www.casedevelopment.com
DIRECT 917 597 1982

D.O.B CONSULTANT

LANDSCAPE ARCHITECT

ARBORIST

STRUCTURAL ENGINEER

PROJECT ENGINEER

NOTES

SYMBOL LEGEND

- See Detail
- Elevation
- Section Cut
- Window Number
- Interior Elevation
- Coordination Tag
- Door Number
- Wall Type
- 0.0" Elevation Target
- Revision

North Arrow:

DRAWING INFORMATION

ISSUED FOR PRE-FILE	12-8-2022
ISSUED FOR PRE-FILE	1-24-2023
ISSUED FOR PRE-FILE	2-14-2023
ISSUED FOR AHRB	3-15-2023

D.O.B. No. -

A New House located in
Dobbs Ferry, NY developed by:

The Altshuler Residence

PROJECT:
THE ALTSHULER RESIDENCE
11 FAIRLAWN AVENUE,
DOBBS FERRY, NY 10522

SITE SECTION
FRONT ELEVATIONS

SEAL AND SIGNATURE:
REGISTERED ARCHITECT
GREGORY CASE SHARP
STATE OF NEW YORK

DATE:	3/15/2023
PROJECT No:	ALTSHULER 2023
DRAWING BY:	GS
CHK BY:	
DWG No:	A-006.00
CADD No:	

BSCAN:

1 Front View

2 Side View

3 Side View

4 Rear View

Project Architect:

GSA

GREGORY SHARP ARCHITECT,PC
145 PALISADE STREET, SUITE 211
DOBBS FERRY
DIRECT 917 597 1982
INFO@CASEDEVELOPMENT.COM

OWNER'S REP / PROJECT MANAGER

CASE DEVELOPMENT

Case Development Inc
145 PALISADE STREET, SUITE 211
DOBBS FERRY, NY 10522
www.casedevelopment.com
DIRECT 917 597 1982

D.O.B CONSULTANT

LANDSCAPE ARCHITECT

ARBORIST

STRUCTURAL ENGINEER

PROJECT ENGINEER

NOTES

SYMBOL LEGEND

See Detail		Interior Elevation	
Elevation		Coordination Tag	PF-1.2
Section Cut		Door Number	15
Window Number	115	Wall Type	3
		0.0" Elevation Target	
		Revision	1

North Arrow:

DRAWING INFORMATION

ISSUED FOR PRE-FILE	12-8-2022
ISSUED FOR PRE-FILE	1-24-2023
ISSUED FOR PRE-FILE	2-14-2023
ISSUED FOR AHRB	3-15-2023

D.O.B. No. -

A New House located in
Dobbs Ferry, NY developed by:

The Altshuler Residence

PROJECT:

THE ALTSHULER RESIDENCE
11 FAIRLAWN AVENUE,
DOBBS FERRY, NY 10522

PERSPECTIVES

SEAL AND SIGNATURE:

REGISTERED ARCHITECT GREGORY CASE SHARP 026106-1 STATE OF NEW YORK

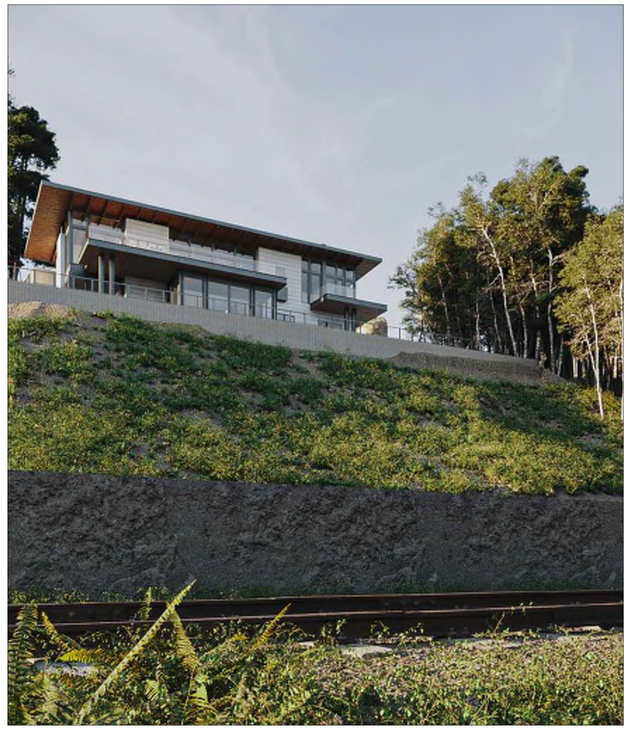
DATE:	3/15/2023
PROJECT No:	ALTSHULER 2023
DRAWING BY:	GS
CHK BY:	
DWG No:	A-007.00
CADD No:	

BSCAN:

1 Front View

2 Rear View

3 Rear View



4 Rear View From Railroad Level

Project Architect:

GSA

GREGORY SHARP ARCHITECT,PC
145 PALISADE STREET, SUITE 211
DOBBS FERRY
DIRECT 917 597 1982
INFO@CASEDEVELOPMENT.COM

OWNER'S REP / PROJECT MANAGER

CASE DEVELOPMENT

Case Development Inc
145 PALISADE STREET, SUITE 211
DOBBS FERRY, NY 10522
www.casedevelopment.com
DIRECT 917 597 1982

D.O.B CONSULTANT

LANDSCAPE ARCHITECT

ARBORIST

STRUCTURAL ENGINEER

PROJECT ENGINEER

NOTES

SYMBOL LEGEND

See Detail		Interior Elevation	
Elevation		Coordination Tag	
Section Cut		Door Number	
Window Number		Wall Type	
		Elevation Target	
		Revision	

North Arrow:

DRAWING INFORMATION

ISSUED FOR PRE-FILE	12-8-2022
ISSUED FOR PRE-FILE	1-24-2023
ISSUED FOR PRE-FILE	2-14-2023
ISSUED FOR AHRB	3-15-2023

D.O.B. No. -

A New House located in
Dobbs Ferry, NY developed by:

The Altshuler Residence

PROJECT:

THE ALTSHULER RESIDENCE
11 FAIRLAWN AVENUE,
DOBBS FERRY, NY 10522

PERSPECTIVES

SEAL AND SIGNATURE:

REGISTERED ARCHITECT GREGORY CASE SHARP 026786 STATE OF NEW YORK

DATE:	3/15/2023
PROJECT No:	ALTSHULER 2023
DRAWING BY:	GS
CHK BY:	
DWG No:	A-008.00
CADO No:	

BSCAN:

APPENDIX F

GREGORY SHARP
ARCHITECT

To: Anthony Oliveri, P.E. Village Engineer and
Stephen Hunter, Planning Board Chairman

June 20th, 2023

CC: Planning Board Members
Dan Roemer, Building Inspector
Dan Pozin, Planning Board Attorney
Valerie Monastra, Village Planner

From: Gregory Sharp Architect, PC
145 Palisade Street, Suite 211
Dobbs Ferry, NY, 10522
gregsharp@casedevelopment.com
917.597.1982

Subject: Response to; Site Plan Review
Job Location: 11 Fairlawn Ave.
OF-6 Zone

……

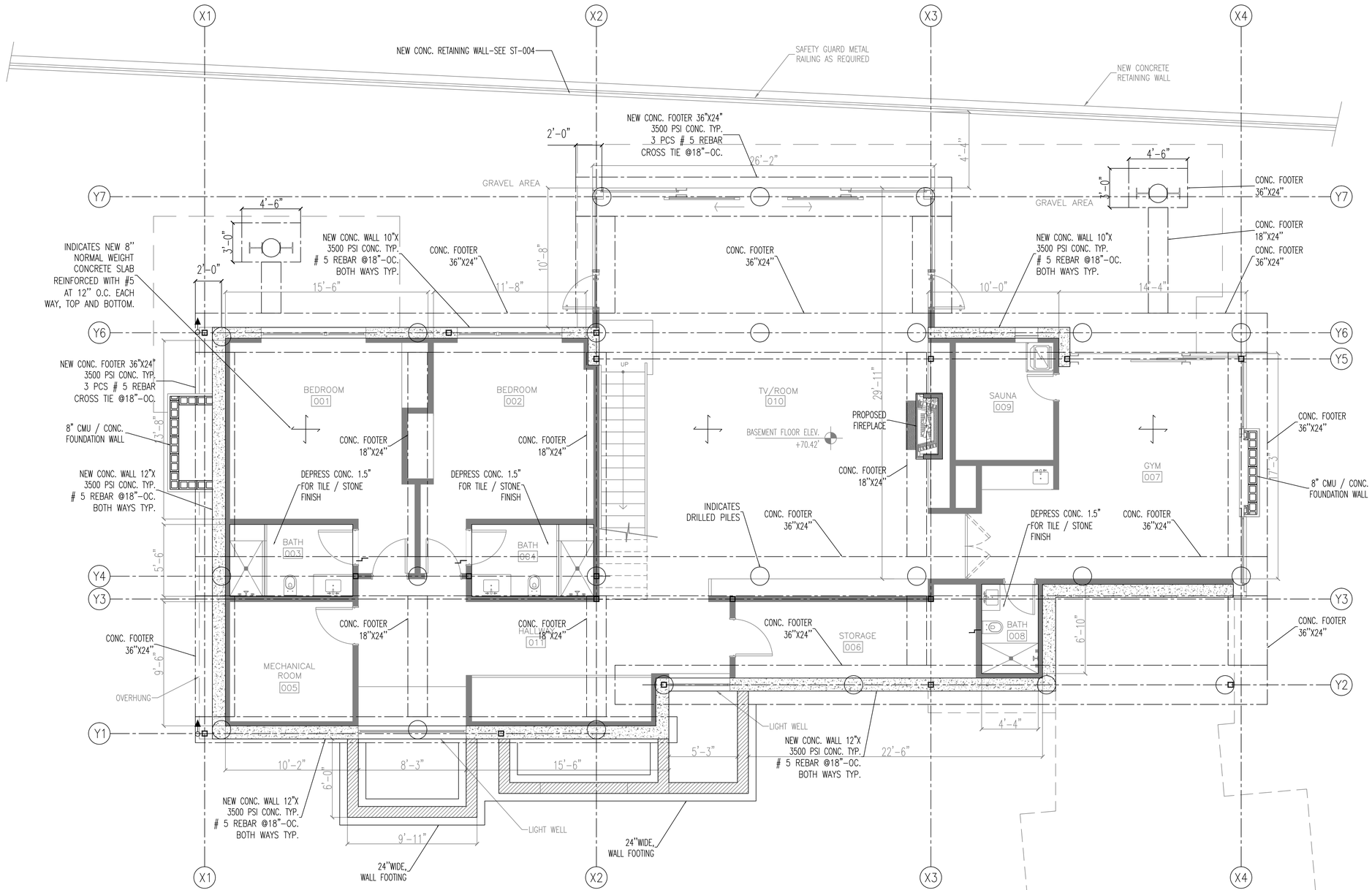
In response to the comments prepared by Anthony Oliveri, P.E.,

1. A geotechnical engineering report has been provided. The project Structural engineer has provided a detailed solution based on those recommendations for site stabilization.
2. Our Structural Engineer has provided pre-construction drawing plans for the retaining wall and foundation. At this time, we are requesting site plan approval from the planning board while we continue to further develop the final construction drawings for permit. As requested, we are providing how we plan to build on the site based on the information from the previous site developers. We understand that this is not a building permit and further structural work Is needed to obtain the final construction document for permit.

We appreciate your time in reviewing this application. Please let us know if you have any questions or anything else that you need at this time.

Thank You,
Greg Sharp

APPENDIX G



1 Construction Plan- Basement Framing & Foundation Plan

Scale: 1/4"=1'-0"

NOTES:

SYMBOL	DESCRIPTION
□	HSS 5X5X1/2 STEEL POST.
○	DRILLED PILES CONSISTING OF PP9.625"X0.5" STEEL CASING (Fy=50ksi) FILLED WITH 5000 psi HIGH STRENGTH, NON-SHRINK GROUT AND 1 #8 REBAR (Fy=75ksi), AS RECOMMENDED IN THE GEOTECH REPORT PREPARED BY AKRF, INC. DATED DATED 8/24/2021
⌖	INDICATES NEW 8" NORMAL WEIGHT CONCRETE SLAB REINFORCED WITH #5 AT 12 O.C. EACH WAY, TOP AND BOTTOM.

Project Architect:
GSA
GREGORY SHARP ARCHITECT,PC
145 PALISADE STREET, SUITE 211
DOBBS FERRY
DIRECT 917 597 1982
INFO@CASEDEVELOPMENT.COM

OWNER'S REP / PROJECT MANAGER
CASE DEVELOPMENT
Case Development Inc
145 PALISADE STREET, SUITE 211
DOBBS FERRY, NY 10522
www.casedevelopment.com
DIRECT 917 597 1982

D.O.B CONSULTANT

LANDSCAPE ARCHITECT

ARBORIST

STRUCTURAL ENGINEER
Integral Engineering Services
27 Main Street : a
Dobbs Ferry, NY 10522
914-274-8874 : o
914-774-0343 : m
info@integralengrg.com : e
www.integralengrg.com : w

NOTES

SYMBOL LEGEND

See Detail		Interior Elevation	
Elevation		Coordination Tag	PF-1.2
Section Cut		Door Number	15
Window Number	115	Wall Type	3
		Elevation Target	0.0"
		Revision	

North Arrow:

DRAWING INFORMATION

ISSUED FOR PRE-FILE	12-8-2022
ISSUED FOR PRE-FILE	1-24-2023
ISSUED FOR PRE-FILE	2-14-2023
ISSUED FOR AHRB	3-15-2023

D.O.B. No. -

A New House located in
Dobbs Ferry, NY developed by:

The Altshuler Residence

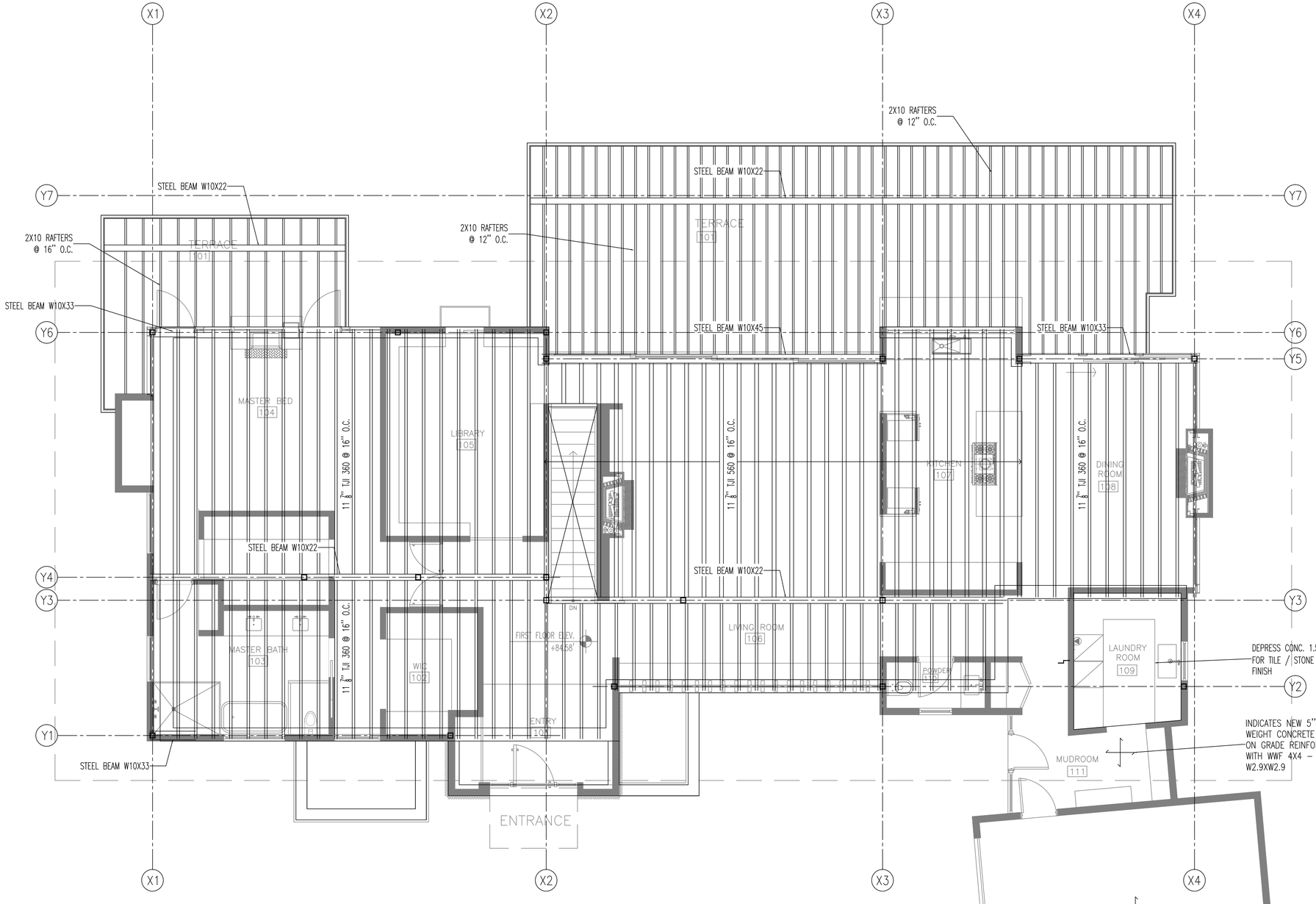
PROJECT:
THE ALTSHULER RESIDENCE
11 FAIRLAWN AVENUE,
DOBBS FERRY, NY 10522

BASEMEN FRAMING & FOUNDATION PLAN

SEAL AND SIGNATURE:
REGISTERED ARCHITECT GREGORY CASE SHARP 026156-1 STATE OF NEW YORK

DATE:	6/16/2023
PROJECT No:	ALTSHULER 2023
DRAWING BY:	GS
CHK BY:	
DWG No:	ST-001.00
CADD No:	

BSCAN:



1 Construction Plan- 1st. Fl. Framing

Scale: 1/4"=1'-0"

NOTES:

SYMBOL	DESCRIPTION
□	HSS 5X5X1/2 STEEL POST.
⌖	INDICATES NEW 5" NORMAL WEIGHT CONCRETE SLAB ON GRADE REINFORCED WITH WWF 4X4– W2.9XW2.9

Project Architect:

GSA

GREGORY SHARP ARCHITECT,PC
145 PALISADE STREET, SUITE 211
DOBBS FERRY
DIRECT 917 597 1982
INFO@CASEDEVELOPMENT.COM

OWNER'S REP / PROJECT MANAGER

CASE DEVELOPMENT

Case Development Inc
145 PALISADE STREET, SUITE 211
DOBBS FERRY, NY 10522
www.casedevelopment.com
DIRECT 917 597 1982

D.O.B CONSULTANT

LANDSCAPE ARCHITECT

ARBORIST

STRUCTURAL ENGINEER

Integral Engineering Services
27 Main Street : a
Dobbs Ferry, NY 10522
914-274-8874 : o
914-774-0343 : m
info@integralengrg.com : e
www.integralengrg.com : w

NOTES

SYMBOL LEGEND

- See Detail
- Elevation
- Section Cut
- Window Number
- Interior Elevation
- Coordination Tag
- Door Number
- Wall Type
- 0.0" Elevation Target
- Revision

North Arrow:

DRAWING INFORMATION

ISSUED FOR PRE-FILE	12-8-2022
ISSUED FOR PRE-FILE	1-24-2023
ISSUED FOR PRE-FILE	2-14-2023
ISSUED FOR AHRB	3-15-2023

D.O.B. No. -

A New House located in
Dobbs Ferry, NY developed by:

The Altshuler Residence

PROJECT:

THE ALTSHULER RESIDENCE
11 FAIRLAWN AVENUE,
DOBBS FERRY, NY 10522

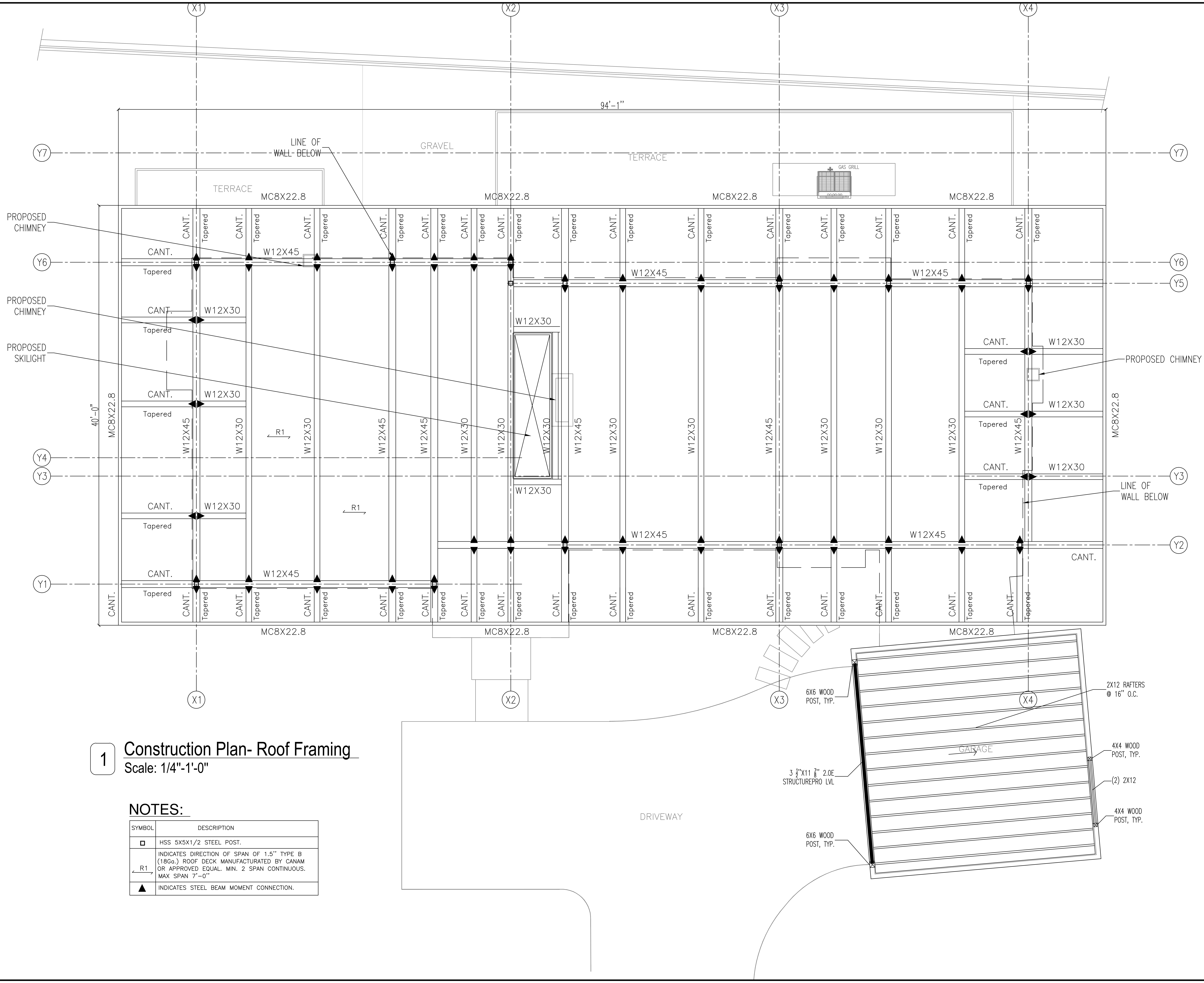
1ST FL FRAMING PLAN

SEAL AND SIGNATURE:

REGISTERED ARCHITECT GREGORY CASE SHARP 031961 STATE OF NEW YORK

DATE:	5/16/2023
PROJECT No:	ALTSHULER 2023
DRAWING BY:	GS
CHK BY:	
DWG No:	ST-002.00
CADD No:	

BSCAN:



1 Construction Plan- Roof Framing

Scale: 1/4"-1'-0"

NOTES:

SYMBOL	DESCRIPTION
◻	HSS 5X5X1/2 STEEL POST.
R1 (arrow)	INDICATES DIRECTION OF SPAN OF 1.5" TYPE B (18Ga.) ROOF DECK MANUFACTURATED BY CANAM OR APPROVED EQUAL. MIN. 2 SPAN CONTINUOUS. MAX SPAN 7'-0"
▲	INDICATES STEEL BEAM MOMENT CONNECTION.

Project Architect:
GREGORY SHARP ARCHITECT,PC
145 Palisade Street, Suite 211
Dobbs Ferry
DIRECT 917 597 1982
INFO@CASEDEVELOPMENT.COM

OWNER'S REP / PROJECT MANAGER
CASE DEVELOPMENT
Case Development Inc
145 Palisade Street, suite 211
Dobbs Ferry, NY 10522
www.casedevelopment.com
DIRECT 917 597 1982

D.O.B CONSULTANT

LANDSCAPE ARCHITECT

ARBORIST

STRUCTURAL ENGINEER
Integral Engineering Services
27 Main Street : a
Dobbs Ferry, NY 10522
914-274-8874 : o
914-774-0343 : m
info@integralengrg.com : e
www.integralengrg.com : w

NOTES

SYMBOL LEGEND

- See Detail
- Elevation
- Section Cut
- Window Number
- Interior Elevation
- Coordination Tag
- Door Number
- Wall Type
- 0.0" Elevation Target
- Revision

North Arrow:

DRAWING INFORMATION

ISSUED FOR PRE-FILE	12-8-2022
ISSUED FOR PRE-FILE	1-24-2023
ISSUED FOR PRE-FILE	2-14-2023
ISSUED FOR AHRB	3-15-2023

D.O.B. No. -

A New House located in
Dobbs Ferry, NY developed by:

The Altshuler Residence

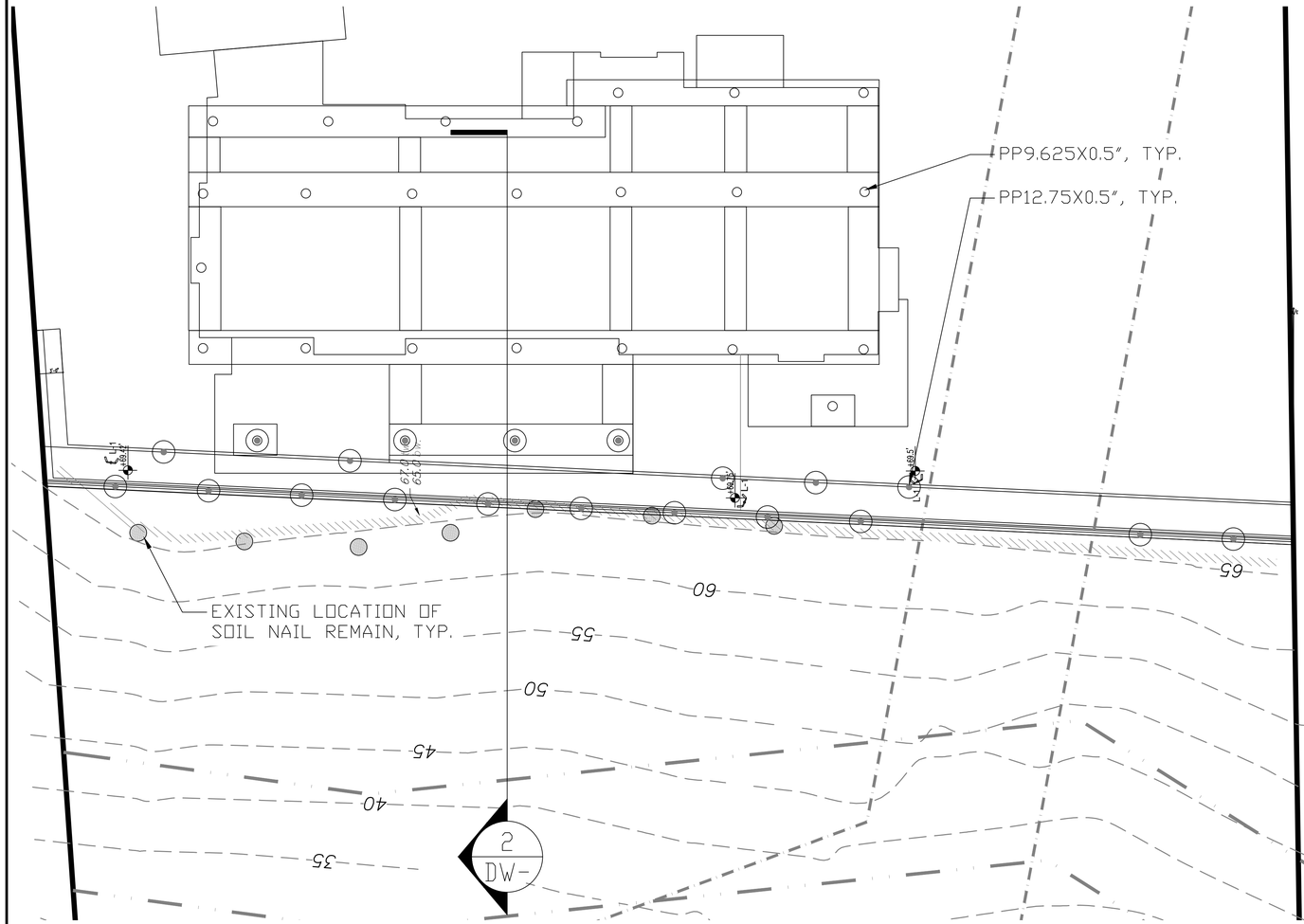
PROJECT:
THE ALTSHULER RESIDENCE
11 FAIRLAWN AVENUE,
DOBBS FERRY, NY 10522

ROOF FRAMING PLAN

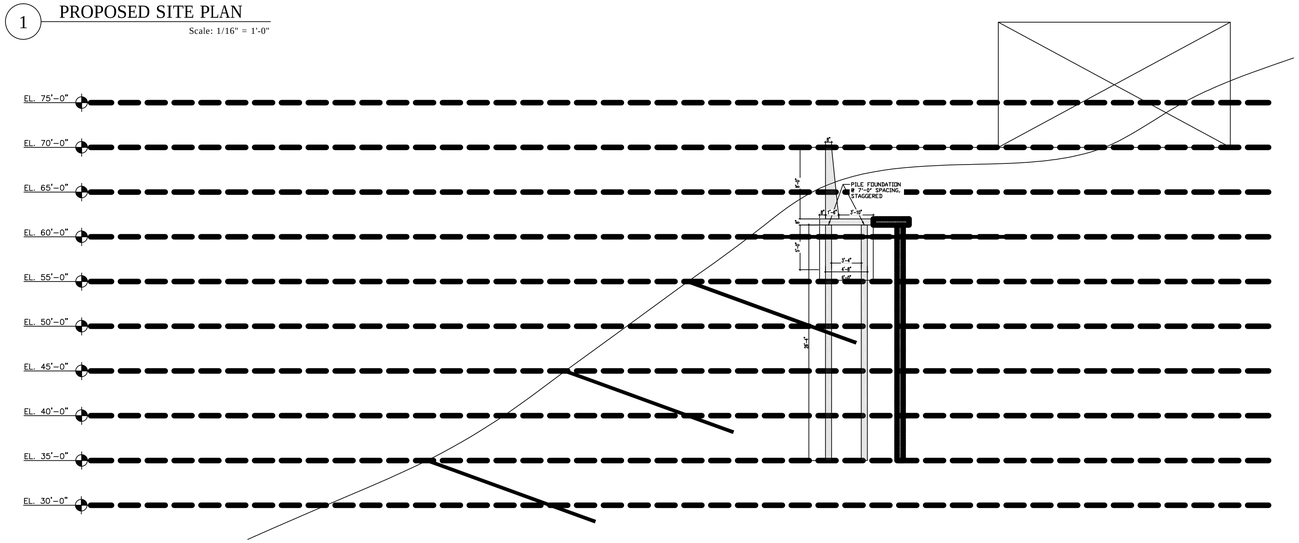
SEAL AND SIGNATURE:
REGISTERED ARCHITECT GREGORY CASE SHARP 033790-1 STATE OF NEW YORK

DATE:	6/16/2023
PROJECT No:	ALTSHULER 2023
DRAWING BY:	GS
CHK BY:	
DWG No:	ST-003.00
CADO No:	

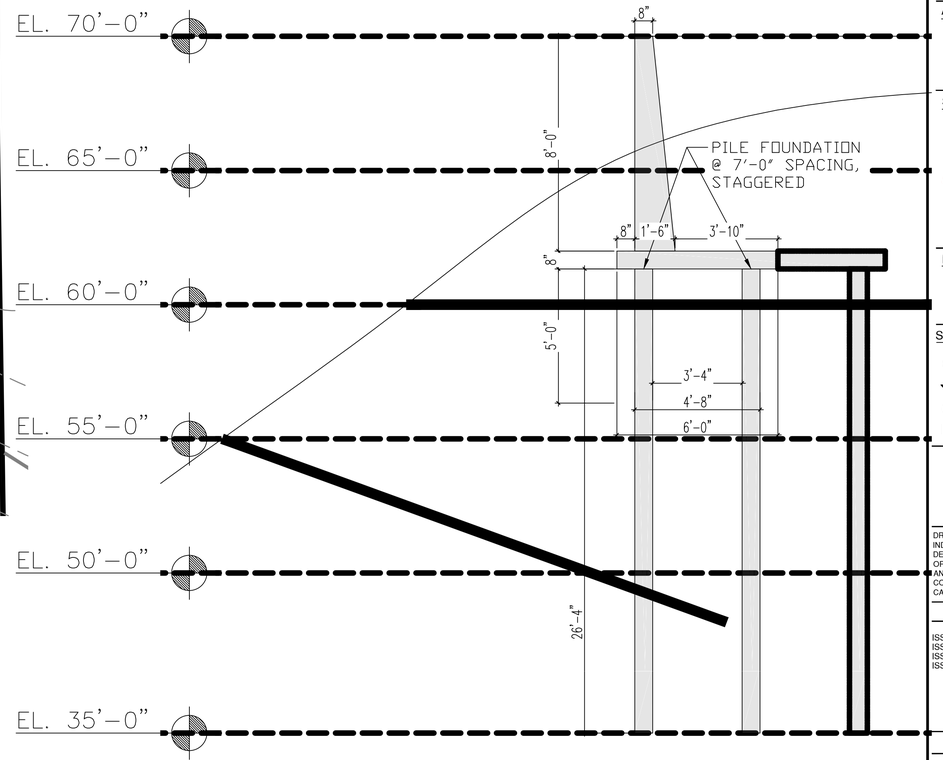
BSCAN:



1 PROPOSED SITE PLAN
Scale: 1/16" = 1'-0"



2 PROPOSED SITE SECTION
Scale: 1/16" = 1'-0"



3 DIMENSIONAL DETAILS
Scale: 3/8" = 1'-0"

Project Architect:
GSA
GREGORY SHARP ARCHITECT,PC
145 Palisade Street, Suite 211
Dobbs Ferry
DIRECT 917 597 1982
INFO@CASEDEVELOPMENT.COM

OWNER'S REP / PROJECT MANAGER
CASE DEVELOPMENT
Case Development Inc
145 Palisade Street, suite 211
Dobbs Ferry, NY 10522
www.casedevelopment.com
DIRECT 917 597 1982

D.O.B CONSULTANT

LANDSCAPE ARCHITECT

ARBORIST

STRUCTURAL ENGINEER
Integral Engineering Services
27 Main Street : a
Dobbs Ferry, NY 10522
914-274-0874 : o
914-774-0343 : m
info@integralengrg.com : e
www.integralengrg.com : w

NOTES

SYMBOL LEGEND

1/A8	See Detail	A10	Interior Elevation
2/A8	Elevation	PF-1.2	Coordination Tag
1/A8	Section Cut	15	Door Number
115	Window Number	3	Wall Type
			0.0" Elevation Target
		4	Revision

North Arrow:

DRAWING INFORMATION

ISSUED FOR PRE-FILE	12-8-2022
ISSUED FOR PRE-FILE	1-24-2023
ISSUED FOR PRE-FILE	2-14-2023
ISSUED FOR AHRB	3-15-2023

D.O.B. No. -

A New House located in
Dobbs Ferry, NY developed by:

The Altshuler Residence

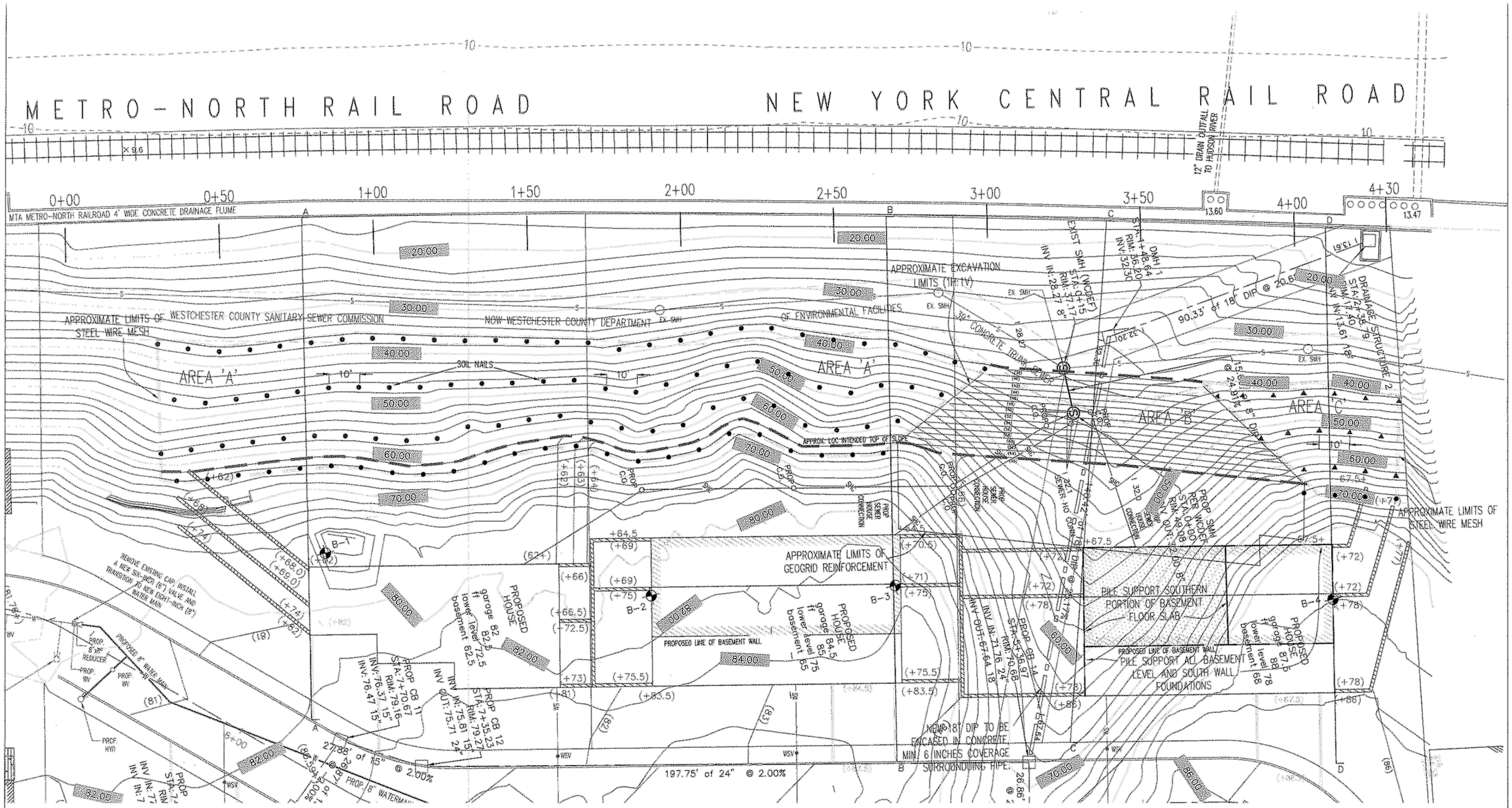
PROJECT:
THE ALTSHULER RESIDENCE
11 FAIRLAWN AVENUE,
DOBBS FERRY, NY 10522

RETAINING WALL

SEAL AND SIGNATURE
REGISTERED ARCHITECT
GREGORY CASE SHARP
028766
STATE OF NEW YORK

DATE:	6/16/2023
PROJECT No:	ALTSHULER 2023
DRAWING BY:	GS
CHK BY:	
DWG No:	ST-004.00
CADD No:	

BSCAN:



GENERAL NOTES:

1. CONSTRUCTION OF AREA 'B' MECHANICALLY STABILIZED (REINFORCED) EARTH SLOPE SHALL BE PERFORMED PRIOR TO THE INSTALLATION OF THE SOIL NAILS AS SLOPE MAY BE DISTURBED BEYOND EXCAVATION LIMITS SHOWN. ADJUSTMENTS TO SOIL NAIL LOCATIONS MAY BE REQUIRED.
2. INSTALLATION OF UTILITIES THROUGHOUT REINFORCED ZONE MUST BE INSTALLED CONCURRENTLY WITH THE SLOPE CONSTRUCTION. ALL PIPES SHALL HAVE WATER TIGHT SEALS AND/OR GASKETS.
3. THE 18" DIP STORM PIPE MUST HAVE WATER TIGHT SEALS AND/OR GASKETS. IN ADDITION THE PIPE SHALL BE COMPLETELY ENCASED IN CONCRETE BETWEEN PROPOSED CATCH BASIN CB-1 AND EXISTING MANHOLE DMH-1. A MINIMUM COVERAGE OF 6 INCHES OF CONCRETE SHALL COMPLETELY SURROUND THE PIPE.
4. LOT 3 - THE BASEMENT LEVEL AND SOUTH WALL FOUNDATIONS SHALL BE PILE SUPPORTED. THE BASEMENT FLOOR SLAB IN WESTERN PORTION OF BUILDING, AS INDICATED ON PLAN ALSO SHALL BE PILE SUPPORTED. PILES SHALL BE EITHER DRIVEN H-PILES OR DRILLED-IN MINIPILES TO BE DESIGNED BY OTHERS.
5. UPON COMPLETION OF SLOPE CONSTRUCTION, DEVELOPER SHALL INSTALL A FENCE ALONG THE TOP OF SLOPE. FENCE TYPE TO BE DESIGNED BY OTHERS.
6. IT IS THE RESPONSIBILITY OF THE PROPERTY OWNER(S) TO ENSURE THAT FUTURE CONSTRUCTION ACTIVITIES ON THE SITE DO NOT RESULT IN EXCAVATIONS WITHIN THE GEOGRID REINFORCED SLOPE. SUCH EXCAVATIONS COULD INDUCE SLOPE FAILURE. REFER TO FIGURE-3 FOR ADDITIONAL INFORMATION.
7. OWNER/DEVELOPER SHALL RETAIN THE SERVICES OF CARLIN-SIMPSON & ASSOCIATES TO PROVIDE FULL TIME INSPECTION OF THE CONSTRUCTION OF THE SOIL NAILED SLOPE WITH STEEL WIRE MESH AND MECHANICALLY STABILIZED EARTH (MSE) SLOPE SYSTEMS. INSPECTION SHALL INCLUDE BUT NOT BE LIMITED TO:
   - A. THE INSTALLATION AND TESTING OF THE SOIL NAILS AND STEEL WIRE MESH.
   - B. THE PREPARATION OF THE SUBGRADE FOR THE MECHANICALLY STABILIZED EARTH (MSE) SLOPE, INCLUDING THE REMOVAL OF UNSUITABLE SOILS, PROOFROLLING AND BENCHING OF THE SLOPE.
   - C. THE INSTALLATION OF THE DRAINAGE COMPOSITE, DRAIN PIPES, GEOGRID REINFORCEMENT, UTILITIES AND STRUCTURES WITHIN THE REINFORCED ZONE, CONTROLLED COMPACTED FILL, AND TURF REINFORCEMENT MAT.

CARLIN-SIMPSON & ASSOCIATES IS NOT RESPONSIBEL OR LIABLE FOR THE PERFORMANCE OF THE SOIL NAILED SLOPE WITH STEEL WIRE MESH AND MECHANICALLY STABILIZED EARTH (MSE) SLOPE SYSTEMS IF CARLIN-SIMPSON & ASSOCIATES IS NOT RETAINED TO PERFORM THESE OBSERVATION AND TESTING SERVICES.

Area A	Number of Nails	Estimated Depth
Row 1	24	15'
Row 2	25	20'
Row 3	26	20'
Row 4	28	20'
Total	79	20'
	24	15'

Area C	Number of Nails	Estimated Depth
Row 1	4	15'
Row 2	4	25'
Row 3	5	25'
Row 4	7	25'
Total	16	25'
	4	15'

LEGEND:

- ● - 20' LONG SOIL NAIL
- ▲ - 25' LONG SOIL NAIL
- ● - 15' LONG SOIL NAIL
- ✣ - BORING LOCATION
- A_A - CROSS-SECTION LOCATION

ROBERT B. SIMPSON, P.E.
PROFESSIONAL ENGINEER
081840 — LICENSE NO. — SIGNATURE — 5 MAR 10 — DATE

SLOPE LOCATION PLAN & STATIONING

PROPOSED STABILIZED SOIL SLOPE
THE VIEW AT DOBBS FERRY
DOBBS FERRY, WESTCHESTER COUNTY, NEW YORK

DRAWN	SCALE	
MRA	1" = 15'	CARLIN-SIMPSON AND ASSOCIATES
DESIGNED	DATE	61 Main Street
RHB	5 MAR 10	Sayreville, NJ 08872
PROJECT NO.	DWG NO.	
06-118	FIG -1	Consulting Geotechnical and Environmental Engineers

Project Architect:
GSA
GREGORY SHARP ARCHITECT,PC
145 Palisade Street, Suite 211
Dobbs Ferry
DIRECT 917 597 1982
INFO@CASEDEVELOPMENT.COM

OWNER'S REP / PROJECT MANAGER
CASE DEVELOPMENT
Case Development Inc
145 Palisade Street, suite 211
Dobbs Ferry, NY 10522
www.casedevelopment.com
DIRECT 917 597 1982

D.O.B CONSULTANT

LANDSCAPE ARCHITECT

ARBORIST

STRUCTURAL ENGINEER
Integral Engineering Services
27 Main Street : a
Dobbs Ferry, NY 10522
914-274-0874 : o
914-774-0343 : m
info@integralengrg.com : e
www.integralengrg.com : w

NOTES

SYMBOL LEGEND

A8 / D1	See Detail	A101	Interior Elevation
A8 / D1	Elevation	PF-1.2	Coordination Tag
A8 / D1	Section Cut	15	Door Number
115	Window Number	3	Wall Type
		0.0"	Elevation Target
		1	Revision

North Arrow:

DRAWINGS AND SPCECIFICATIONS REPRESENTED AND OR INDICATED HEREBY ARE THE PROPERTY OF CASE DEVELOPMENT, AND ARE NOT TO BE USED, EITHER IN WHOLE OR IN PART, FOR ANY OTHER PROJECTS OR PURPOSES, BY ANY PARTIES OTHER THAN THOSE AUTHORIZED BY CONTRACT, WITHOUT PRIOR WRITTEN AUTHORIZATION FROM CASE DEVELOPMENT.

DRAWING INFORMATION

ISSUED FOR PRE-FILE	12-8-2022
ISSUED FOR PRE-FILE	1-24-2023
ISSUED FOR PRE-FILE	2-14-2023
ISSUED FOR AHRB	3-15-2023

D.O.B. No. -

A New House located in
Dobbs Ferry, NY developed by:

The Altshuler Residence

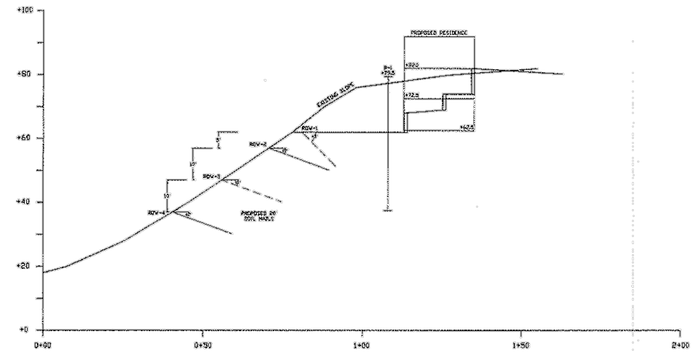
PROJECT:
THE ALTSHULER RESIDENCE
11 FAIRLAWN AVENUE,
DOBBS FERRY, NY 10522

SLOPE LOCATION PLAN & STATIONING

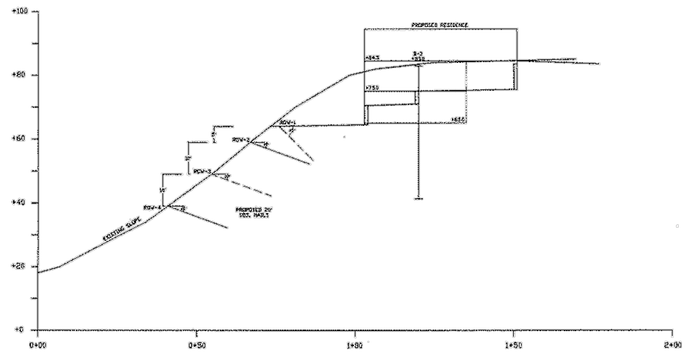
SEAL AND SIGNATURE: REGISTERED ARCHITECT GREGORY CASE SHARP 026780 STATE OF NEW YORK

DATE:	6/16/2023
PROJECT No:	ALTSHULER 2023
DRAWING BY:	GS
CHK BY:	
DWG No:	ST-005.00
CADD No:	

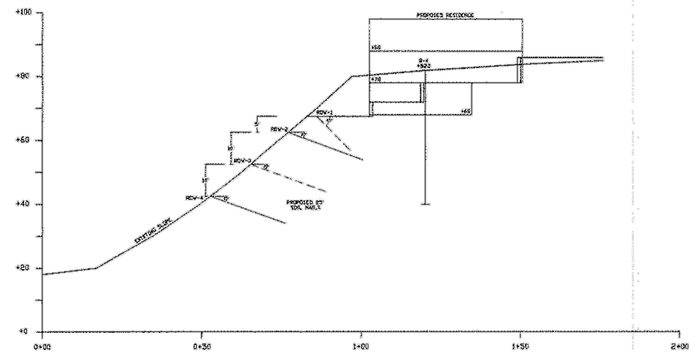
BSCAN:



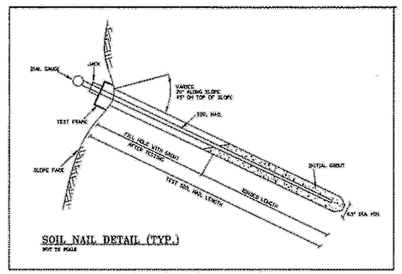
SECTION A-A - STATION 0+77
SCALE: 1" = 20'



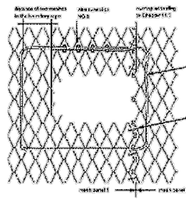
SECTION B-B - STATION 2+67
SCALE: 1" = 20'



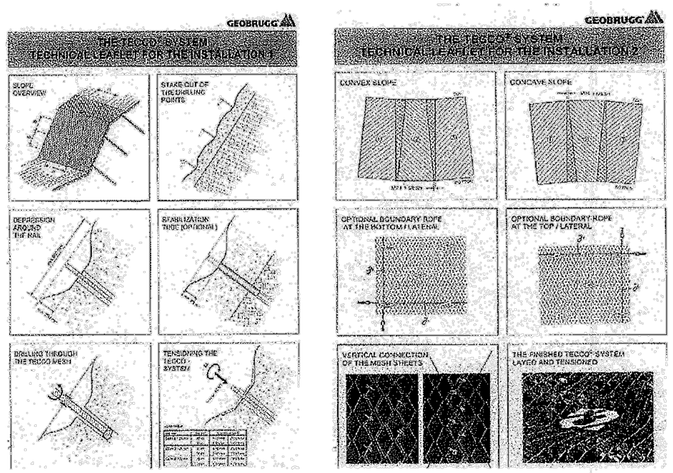
SECTION D-D - STATION 4+10
SCALE: 1" = 20'

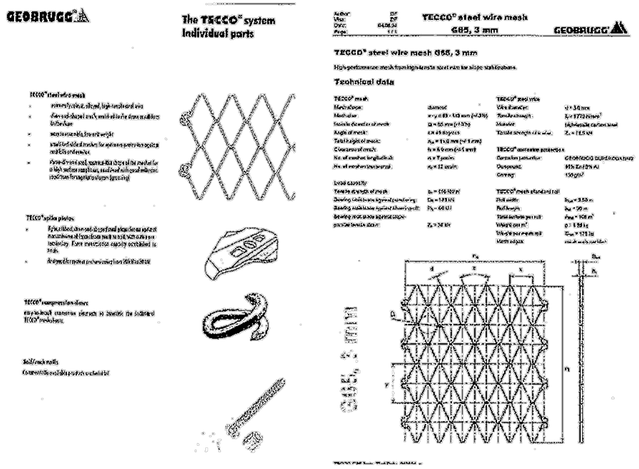


SOIL NAIL DETAIL (TYP.)
NOT TO SCALE



MESH HOLE FOR TREES & PLANTING
NOT TO SCALE





SPECIFICATIONS

Soil Nailed Slope With Steel Wire Mesh (Areas 'A' and 'C')

Description:

The work under this item shall consist of furnishing, installing, and testing a TECCO System (soil nailed slope with steel wire mesh), at the locations shown on the Contract Drawings or as ordered by the Geotechnical Engineer (Carlin-Simpson & Associates). These areas are identified as Area 'A' (Station 0+35 to 3+00) and Area 'C' (Station 3+70 to 4+30) on the drawings.

Contractor Qualifications:

The Contractor performing this work shall have prior experience installing soil nailed structures, as described in this specification. The Contractor performing the anchor installation shall have installed permanent ground anchors for a minimum of three (3) years. The Contractor shall submit a list containing at least five (5) projects, completed within the last three (3) years, where the Contractor has installed permanent anchors. A brief description of each project and a reference shall be included for each project listed. At a minimum, the reference shall include an individual's name and current phone number.

Contract Drawings:

Contract drawings show the location, procedure, and layout of the soil nail installation. This includes the pattern, spacing, type, size, and lengths of the nails, as well as, the required embedment depths, and the angled inclination of the soil nails. The drawings also indicate other details such as the anchor spike plate, and additional required corrosion protection for the nail and its components, minimum concrete cover over the bar and the end of the nail, space of centralizers, and test nail details, if required.

Submittals:

Prior to starting work, shop drawings, when necessary, as well as related data such as catalog cuts, product details, and brochures, shall be submitted to the Geotechnical Engineer (Carlin-Simpson & Associates) for review.

Materials:

All materials used in the construction of this system, with the exception of the soil nails, centralizers, and nail grout shall be supplied by Geobrugg North America, LLC (or equivalent) and must be approved by the Geotechnical Engineer.

TECCO Steel Wire Mesh G65 shall meet the following requirements:

A) The wire shall be alloyed high strength carbon steel wire with a tensile strength of 1630 to 1830 MPa. The minimum diameter of the wire shall be 3 mm.

B) The mesh shall be woven construction and diamond shaped. The ends of each wire shall be formed in a loop and twisted. The loops of the wire mesh shall be fastened together to prevent unraveling of the mesh. The size of the mesh opening shall be 83 mm by 137 mm (+/- 2%) and the depth of the mesh shall be 15 mm (+/- 1 mm). The mesh shall have seven (7) meshes per meter going across the mesh and 12 meshes per meter going down the mesh.

C) The wire shall be galvanized with a 95 % Zinc / 5% Aluminum coating with a minimum weight of 260 g/m2.

TECCO Compression Claws shall be carbon steel bar with a minimum diameter of 6 mm. The claws shall be hot-dipped galvanized with a minimum layer thickness of 85 µ.

TECCO Spike Plates shall be diamond shaped 10 mm thick steel plates with a width of 190 mm (7.5 inches) and a length of 330 mm (13.0 inches). The plates shall be hot-dipped galvanized with a minimum layer thickness of 85 µ.

Boundary ropes, if required by design, shall have 6 by 19 construction, a minimum diameter of 13 mm and have a minimum breaking strength of 106 kN. The rope shall meet the requirements of Federal Specification R-R-W-410D, including galvanizing.

Soil Nails shall be furnished complete with all accessories, and shall be a standard product of a company regularly engaged in their manufacture such as Williams Form Engineering Corporation or Dywidag Systems International. The Soil Nails shall be epoxy coated Grade 75 All Thread Rebar steel with a diameter of 28 mm (#9 bar) as required by the design. The length of the soil nails is specified on the design drawings.

Soil nails that have been severely bent, nicked, cut, compressed (flattened in the thread section down to the minor diameter) or nails that are worn out due to other uses, misuse or have external threads corroded with permanent pitting should be inspected to determine if its strength capacities are diminished. Also, if the soil nails have been previously tensioned beyond their rated yield strength, they should be discarded. On site tensile testing or services of an independent test lab may be necessary to assure that the nails are capable or sustaining the specified design loads.

Nail grout shall consist of Williams Wil-X Cement Grout (or an engineer-approved alternative). The grout shall be non-shrink, high bond value, crack resistant, and capable of 4,000 psi minimum compressive strength in seven (7) days.

Admixtures which control bleed, improve flowability, reduce water content, and retard set may be used in the grout subject to review and acceptance by the Geotechnical Engineer (Carlin-Simpson & Associates). Accelerators and expansive admixtures are not permitted. Admixtures shall be compatible with the grout and mixed in accordance with the manufacturer's recommendations.

Nail centralizers shall be manufactured from Schedule 80 PVC pipe or tube, steel or any material not detrimental to the nail steel (except that wood shall not be used).

All miscellaneous materials such as wire rope clips, thimbles, etc. shall be hot-dipped galvanized and supplied by the TECCO system manufacturer.

Inspection Services:

Owner/developer shall retain the services of Carlin-Simpson & Associates to provide full time inspection during the construction of the soil nailed slope with steel wire mesh. Inspection services shall include but not limited to observing: the installation and testing of the soil nails and the installation of the steel wire mesh. Carlin-Simpson & Associates is not responsible for the performance of the soil nail slope and wire mesh, if Carlin-Simpson & Associates is not retained to perform these observation services.

Construction Procedures:

Carlin-Simpson & Associates shall provide a qualified representative on the site full time during the construction of the TECCO system to ensure that the Contractor installs the system in accordance with the plans, specifications, and approved shop drawings.

The locations and elevations of the soil nails must be verified by Carlin-Simpson & Associates during construction. Field adjustments may be necessary. Any modified soil nail locations must be approved by Carlin-Simpson & Associates.

The existing vegetation shall be trimmed and cut down but all existing root masses shall be left in place. Existing trees can be cut with the stumps left or the trees can remain in place. Refer to the TECCO System Manual for installation of wire mesh around trees. See Plating detail. THE SLOPE AREA MUST NOT BE CLEARED OF ALL VEGETATION. COMPLETE REMOVAL OF VEGETATION AND ROOT MASSES COULD RESULT IN SLOPE INSTABILITY.

Positive control and discharge of all surface water that will affect the installation of the soil nailed slope system shall be provided throughout construction. All ditches, pipes, or conduits used to control surface water shall be maintained during construction. Damage caused by surface water shall be repaired at no additional cost. Upon substantial completion of the soil nailed slope system, as determine by the Geotechnical Engineer, surface water control pipes or conduits shall be removed from the site.

Nails shall be installed at the locations and to the inclination and length shown on the Contract Drawings. The nail holes shall be progressed by rotary drilling, percussion drilling, or auger drilling. Install temporary casings as required to keep the hole clean and open. The drill bit diameter shall not be smaller than the specified hole diameter minus 3 mm. The hole shall extend two (2) feet beyond the designed nail length shown on the Contract Drawings. The holes shall be drilled to the inclination shown on the Contract Drawings within a three-degree tolerance.

For Area A, the system consists of four (4) rows of soil nails with a horizontal nail spacing of ten (10) feet between Rows 2 to 4. Row 1 shall be installed three (3) feet behind the top of slope and Row 2 is located approximately five (5) feet vertically below the top of slope. The design depth of the soil nails (Rows 2-4) is 20 feet at an inclination of 20 degrees from the horizontal. The soil nails in Row 1 are 15 feet deep at an inclination of 45 degrees from the horizontal.

For Area C, the system consists of four (4) rows of soil nails with a horizontal nail spacing of 10 feet (Rows 2 to 4). Row 1 shall be installed three (3) feet behind the top of slope and Row 2 is approximately five (5) feet vertically below the top of slope. The design depth of the soil nails (Rows 2-4) is 25 feet at an inclination of 20 degrees from the horizontal. The soil nails in Row 1 are 15 feet deep at an inclination of 45 degrees from the horizontal.

The nails shall be equipped with centralizers at a maximum center to center spacing of seven (7) feet throughout the length of the nail. A centralizer shall also be placed within two (2) feet of the top and the bottom of the nail. The centralizers shall be fabricated to provide a minimum grout cover over the nail bar of 1 inch. The sag of the nail shall be taken into account when selecting centralizer diameter and spacing. The centralizers shall be sized to allow the insertion of a tremie tube to the bottom of the drill hole and allow grout the freely flow up the drill hole.

The nail shall be inserted in the casing or hole after the hole is drilled to the final depth. The nail shall be located within a six (6) inch tolerance, in any direction, of the position shown on the Contract Drawings. Location tolerances are applicable to only one nail and not accumulative over large slope areas.

Grouting equipment shall be capable of continuous mixing and producing grout free of lumps. The grouting equipment shall be sized to enable the entire nail to be grouted in one continuous operation. The grout shall be placed within 60 minutes after mixing or within the time recommended by the admixture manufacturer, if admixtures are used. Grout not placed in the allowed time limit will be rejected.

The grouting operation shall be performed after the nail in inserted. Each drill hole shall be grouted within two (2) hours of completion of drilling, unless otherwise approved by the Geotechnical Engineer. To prevent air voids, the hole shall be filled with grout progressively from the bottom to the top. The drill hole shall be completely filled in one continuous operation, except for soil nails that will be proof tested.

For soil nails that will be proof tested, the grout shall be installed in one continuous operation for the nail bonded length of ten (10) feet. The soil nails will then be proof tested as described below. Once proof testing is complete and the soil nail has been approved by Carlin-Simpson & Associates, the remainder of the drill hole shall be filled with grout in one continuous operation.

For drill holes advanced by either cased or auger methods, a sufficient grout level shall be maintained within the casing during casing removal, to offset the external groundwater/soil pressure and prevent hole caving. A sufficient grout head or grout pressure shall be maintained to ensure that the drill hole will be completely filled with grout and to prevent unstable soil or groundwater from contaminating or diluting the grout.

The grout and nail shall be removed and replaced with fresh grout and undamaged nail bar at the no additional cost if grouting is suspended for more than 30 minutes or does not satisfy the requirements of this specification or the Contract Drawings.

Nail Testing:

All nail testing shall be performed under full time inspection by Carlin-Simpson & Associates. Designated nails shall be proof tested. Proof tests shall be performed on nails at locations selected by the Geotechnical Engineer, Carlin-Simpson & Associates, and as described herein. Nail testing shall not be performed until the nail grout has cured for at least 72 hours and attained at least its specified 3-day compressive strength. Testing in less than 72 hours will only be allowed in the Contractor submits compressive strength test results, for tests performed by a qualified independent testing laboratory, verifying that the nail grout being used will provide the specified 3-day compressive strength in the lesser time.

Proof tests shall be performed on five (5) percent (1 in 20) of the nails in each row or a minimum of one (1) per row. The Geotechnical Engineer shall designate the locations.

Incrementally load the proof test nail to a maximum test load of 1.5 times the Design Load (P) in accordance with the following schedule. Record the soil nail movements (to the nearest 0.025 mm) at each load increment.

Design Load (P) = 10 kips

Load	Hold Time
AL	Minimum of 1 minute
0.25 P	Minimum of 1 minute
0.50 P	Minimum of 1 minute
0.75 P	Minimum of 1 minute
1.00 P	Minimum of 1 minute
1.25 P	Minimum of 1 minute
1.50 P	(Max Test Load) See below

Hold each load increment, except for the 1.50 (P) load, until the deflection stabilizes.

All load increments shall be maintained within 5 percent of the intended load. Depending on the performance, with 10 minutes or 60 minute creep tests shall be performed at the maximum test load (1.50 P). The creep period shall start as soon as the maximum test load is applied and the nail movement shall be measured and recorded at 1 minute, 2, 3, 5, 6, and 10 minutes. Where the nail movement between 1 minute and 10 minutes exceeds 1 mm, the maximum test load shall be maintained as additional 50 minutes and movements shall be recorded at 20 minutes, 30, 50, and 60 minutes.

The Geotechnical Engineer shall review all proof tests to determine if the nail is acceptable. A nail will be accepted if the following three criteria are met.

A) A total creep movement of less than 1 mm per log cycle of time between the 1 and 10 minute readings or a total creep movement of less than 2 mm per log cycle of time between the 6 and 60 minute readings and the creep rate is linear or decreasing throughout the creep test load hold period.

B) The total measured movement at the maximum test load exceeds 80 percent of the theoretical elastic elongation of the test nail unbonded length.

C) A pullout failure does not occur at the maximum test load. Pullout failure is defined as the load at which attempts to further increase the test load simply result in continued pullout movement of the test nail. The pullout failure load shall be recorded as part of the test data.

For nails that the Geotechnical Engineer finds unacceptable, the Contractor shall submit a written proposal containing a suggested course of action.

Mesh Installation:

Hollows shall be formed around each nail head in preparation for mesh placement and pretensioning. The hollows shall be between 4 and 12 inches deep. The threads of the exposed nail shall be cleaned of mortar remnants.

Lay the mesh on the slope by positioning the mesh roll at the top of the slope and unrolling it down the slope. Adjacent mesh sheets are to overlap by the width of at least one (1) mesh, and be secured by one (1) compression claw over each boundary knot as directed by the on-site representative. Splices made to connect ends of successive rolls of mesh shall be as directed by the on-site representative.

If required by the design, install boundary ropes as directed by the on-site representative.

The spike plates and anchor bail nuts shall be fitted over each nail head and pretensioned to a load of 5 kips or approved by Carlin-Simpson & Associates.

ROBERT B. SIMPSON, P.E.
PROFESSIONAL ENGINEER
081840 — LICENSE NO.
5 MAR 10 — DATE

SOIL NAILED SLOPE WITH STEEL WIRE MESH

PROPOSED STABILIZED SOIL SLOPE
THE VIEW AT DOBBS FERRY
DOBBS FERRY, WESTCHESTER COUNTY, NEW YORK

DRAWN	SCALE	CARLIN-SIMPSON AND ASSOCIATES
MRA	AS SHOWN	61 Main Street
CHECKED	DATE	Sayreville, NJ 08872
RHB	5 MAR 10	Consulting Geotechnical and Environmental Engineers
PROJECT NO.	DWG NO.	
06-118	FIG -2	
APPROVED		

Project Architect:
GREGORY SHARP ARCHITECT,PC
145 Palisade Street, Suite 211
Dobbs Ferry
DIRECT 917 597 1982
INFO@CASEDEVELOPMENT.COM

OWNER'S REP / PROJECT MANAGER
CASE DEVELOPMENT
Case Development Inc
145 Palisade Street, suite 211
Dobbs Ferry, NY 10522
www.casedevelopment.com
DIRECT 917 597 1982

D.O.B CONSULTANT

LANDSCAPE ARCHITECT

ARBORIST

STRUCTURAL ENGINEER
Integral Engineering Services
27 Main Street : a
Dobbs Ferry, NY 10522
914-274-0874 : o
914-774-0343 : m
info@integralengrg.com : e
www.integralengrg.com : w

NOTES

SYMBOL LEGEND
See Detail
Elevation
Section Cut
Window Number
Interior Elevation
Coordination Tag
Door Number
Wall Type
0.0" Elevation Target
Revision

North Arrow:

DRAWINGS AND SPCECIFICATIONS REPRESENTED AND OR INDICATED HEREBY ARE THE PROPERTY OF CASE DEVELOPMENT, AND ARE NOT TO BE USED, EITHER IN WHOLE OR IN PART, FOR ANY OTHER PROJECTS OR PURPOSES, BY ANY PARTIES OTHER THAN THOSE AUTHORIZED BY CONTRACT, WITHOUT PRIOR WRITTEN AUTHORIZATION FROM CASE DEVELOPMENT.

DRAWING INFORMATION

ISSUED FOR PRE-FILE	12-8-2022
ISSUED FOR PRE-FILE	1-24-2023
ISSUED FOR PRE-FILE	2-14-2023
ISSUED FOR AHRB	3-15-2023

D.O.B. No. -

A New House located in
Dobbs Ferry, NY developed by:

The Altshuler Residence

PROJECT:
THE ALTSHULER RESIDENCE
11 FAIRLAWN AVENUE,
DOBBS FERRY, NY 10522

SOIL NAILED SLOPE WITH STEEL WIRE MESH

SEAL AND SIGNATURE:
REGISTERED ARCHITECT GREGORY CASE SHARP STATE OF NEW YORK

DATE:	6/16/2023
PROJECT No:	ALTSHULER 2023
DRAWING BY:	GS
CHK BY:	
DWG No:	ST-006.00
CADD No:	

BSCAN:

Gabriel E. Senor, P.C.
Engineers Planners Surveyors
90 N Central Park Avenue
Hartsdale, NY 10530
Tel: (914) 422-0070
Fax: (914) 422-3009
E-Mail: info@gesenor.com

June 9, 2015

BY EMAIL

Village of Dobbs Ferry
c/o Hahn Engineering
Putnam Business Park
1689 Route 22
Brewster, NY 10509
Attn: George E. Pommer, P.E.

Village of Dobbs Ferry
112 Main Street
Dobbs Ferry, NY 10522
Attn: Brian Cook
Building Department

Re: Slope Stabilization on Lots 1, 2 & 3 on Subdivision Map of Waters Edge at Dobbs Ferry
Property Address: 7, 9 & 11 Fairlawn Ave., Dobbs Ferry

Dear George and Brian:

This letter shall confirm that the slope stabilization at the rear of Lots 1, 2 & 3 of the Subdivision Map of Waters Edge at Dobbs Ferry was constructed in conformance with the specifications set forth by Robert B. Simpson in his plans of "Proposed Stabilized Soil Slope" of March 5, 2010, as approved.

Our firm performed onsite supervision of the placement of soil nails and geogrid on the slope and development of the slope according to the specifications. The soil nails were tested in accordance with the nail section of the plans (testing data enclosed) and conform to the requirements outlined therein.

Accordingly, we hereby confirm that the slope is appropriately constructed per the design plans.

Please feel free to call me if you have any questions.

Very truly yours,

Eliot Senor, P.E., L.S

attachments

ANCHOR TESTING AT THE VIEW AT DOBBS ON DECEMBER 12, 2010

TESTING WAS PERFORMED USING A NIKE CH 30-150 JACK

		ANCHOR #	1	2	3	4
	TIME	PRESSURE	UPLIFT	UPLIFT	UPLIFT	UPLIFT
25%	1 MIN	375 PSI	0.106"	0.116"	0.121"	0.119"
50%	1 MIN	750 PSI	0.158"	0.125"	0.137"	0.148"
75%	1 MIN	1125 PSI	0.162"	0.175"	0.186"	0.162"
100%	1 MIN	1500 PSI	0.196"	0.195"	0.201"	0.196"
125%	1 MIN	1875 PSI	0.203"	0.224"	0.225"	0.203"
150%	10 MIN	2250 PSI	0.256"	0.282"	0.262"	0.243"

Testing was performed and recorded by :

Roland Jarl
Enterprising Europa, Inc
439 Route 17 N
Mahwah nj 07430

Force on an Nike CH 30-150
Cylinder @ Various Pressures
(326.7 kn) 32.78 ton @ 10,000psi

PSI	LBS FORCE	TONS FORCE
100	65.56	0.3278
200	131.12	0.6556
300	196.68	0.9834
400	262.24	1.3112
500	327.8	1.639
600	393.36	1.9668
700	458.92	2.2946
800	524.48	2.6224
900	590.04	2.9502
1000	655.6	3.278
1100	721.16	3.6058
1200	786.72	3.9336
1300	852.28	4.2614
1400	917.84	4.5892
1500	983.4	4.917
1600	1048.96	5.2448
1700	1114.52	5.5726
1800	1180.08	5.9004
1900	1245.64	6.2282
2000	1311.2	6.556
2100	1376.76	6.8838
2200	1442.32	7.2116
2300	1507.88	7.5394
2400	1573.44	7.8672
2500	1639	8.195
2600	1704.56	8.5228
2700	1770.12	8.8506
2800	1835.68	9.1784
2900	1901.24	9.5062
3000	1966.8	9.834
3100	2032.36	10.1618
3200	2097.92	10.4896
3300	2163.48	10.8174
3400	2229.04	11.1452
3500	2294.6	11.473
3600	2360.16	11.8008
3700	2425.72	12.1286
3800	2491.28	12.4564
3900	2556.84	12.7842
4000	2622.4	13.112
4100	2687.96	13.4398
4200	2753.52	13.7676
4300	2819.08	14.0954
4400	2884.64	14.4232
4500	2950.2	14.751
4600	3015.76	15.0788
4700	3081.32	15.4066
4800	3146.88	15.7344
4900	3212.44	16.0622
5000	3278	16.39

PSI	LBS FORCE	TONS FORCE
5100	3343.56	16.7178
5200	3409.12	17.0456
5300	3474.68	17.3734
5400	3540.24	17.7012
5500	3605.8	18.029
5600	3671.36	18.3568
5700	3736.92	18.6846
5800	3802.48	19.0124
5900	3868.04	19.3402
6000	3933.6	19.668
6100	3999.16	19.9958
6200	4064.72	20.3236
6300	4130.28	20.6514
6400	4195.84	20.9792
6500	4261.4	21.307
6600	4326.96	21.6348
6700	4392.52	21.9626
6800	4458.08	22.2904
6900	4523.64	22.6182
7000	4589.2	22.946
7100	4654.76	23.2738
7200	4720.32	23.6016
7300	4785.88	23.9294
7400	4851.44	24.2572
7500	4917	24.585
7600	4982.56	24.9128
7700	5048.12	25.2406
7800	5113.68	25.5684
7900	5179.24	25.8962
8000	5244.8	26.224
8100	5310.36	26.5518
8200	5375.92	26.8796
8300	5441.48	27.2074
8400	5507.04	27.5352
8500	5572.6	27.863
8600	5638.16	28.1908
8700	5703.72	28.5186
8800	5769.28	28.8464
8900	5834.84	29.1742
9000	5900.4	29.502
9100	5965.96	29.8298
9200	6031.52	30.1576
9300	6097.08	30.4854
9400	6162.64	30.8132
9500	6228.2	31.141
9600	6293.76	31.4688
9700	6359.32	31.7966
9800	6424.88	32.1244
9900	6490.44	32.4522
10000	6556	32.78

Advantages of the Williams Geo-Drill Injection Anchor System

- Fast, single-step anchoring system with simple equipment.
- Eliminates the need for a cased borehole in collapsing soils.
- Efficient installation since drilling and grouting can be performed in a single operation, saving both time and money.
- Continuously drilling and grouting under high pressure causes the grout to permeate into looser soils and creates a bulb-effect for increased bond capacity.
- Suitable for working in limited space and areas of difficult access.
- Multiple ranges of drill bits suitable for most soil conditions.
- Installed with standard track drill (top hammer) or hand-held drilling equipment, eliminating the need for larger casing rigs.
- Continuously threaded bar pattern can be cut and coupled anywhere along its length.
- Full stock of 10 foot long anchors, accessories and drill bits available in two different warehouse locations.
- Corrosion protection systems available upon request.
- FHWA approved for use as a micro pile.
- Domestic material available upon special request

B7X Geo-Drill Bar

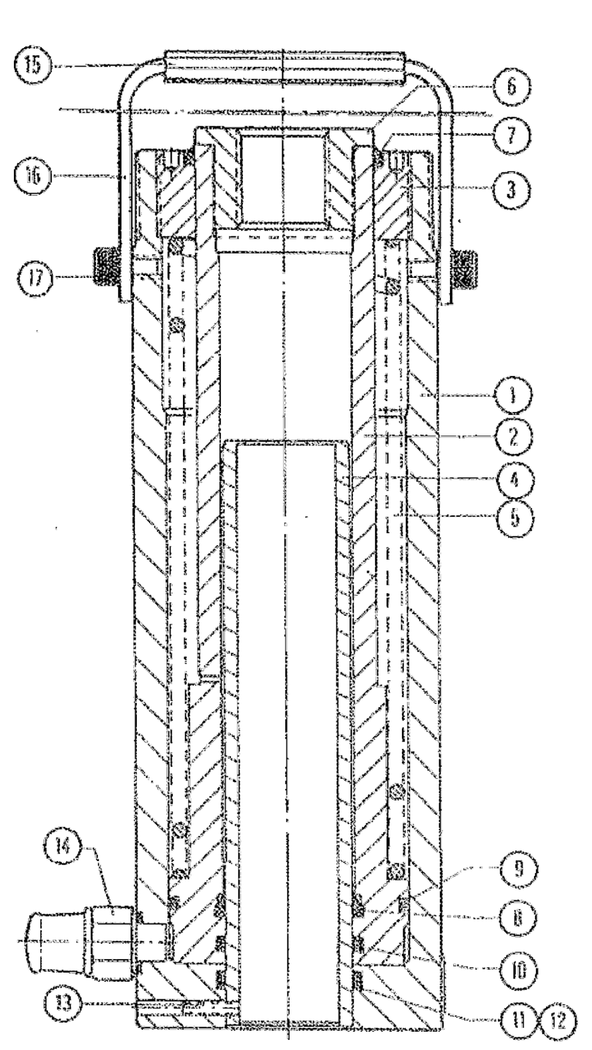
Bar Diameter	Minimum Net Area Through Threads	Minimum Ultimate Strength	Minimum Yield Strength	Nominal Weight	Average Inner Diameter	Part Number
32 mm (1-1/4")	0.556 in² (359 mm²)	58.4 kips (260 kN)	47.2 kips (210 kN)	2.1 lbs/ft (3.1 Kg/M)	0.787" (20.0 mm)	B7X1-32

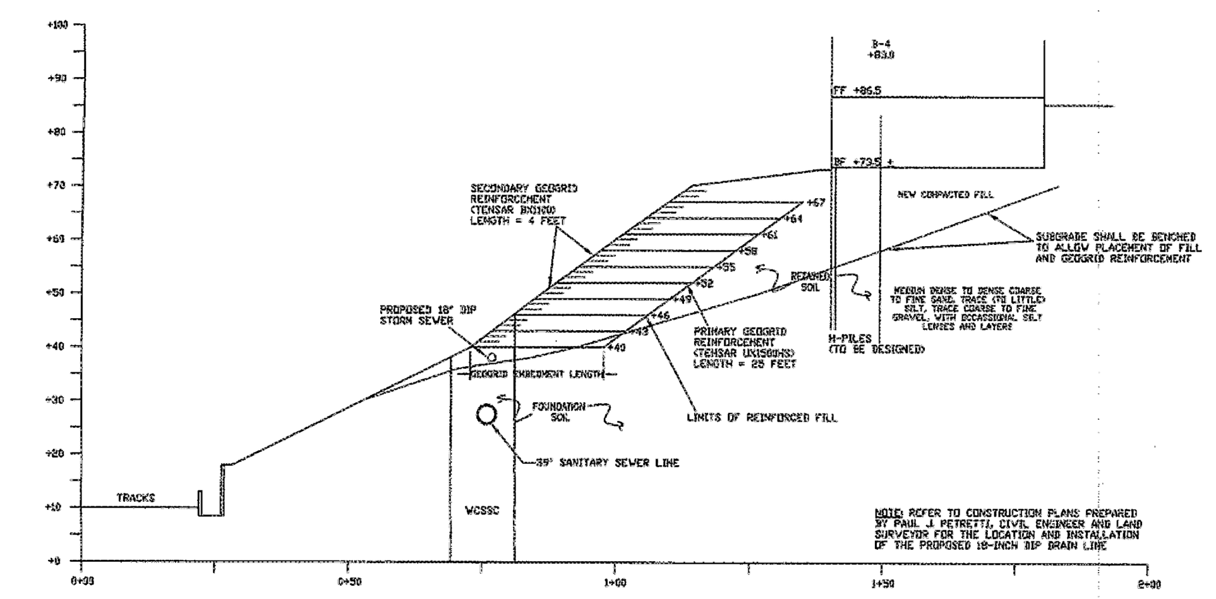
NIKE HYDRAULICS

Cylinder / Ram / Zylinder — CH 30-150

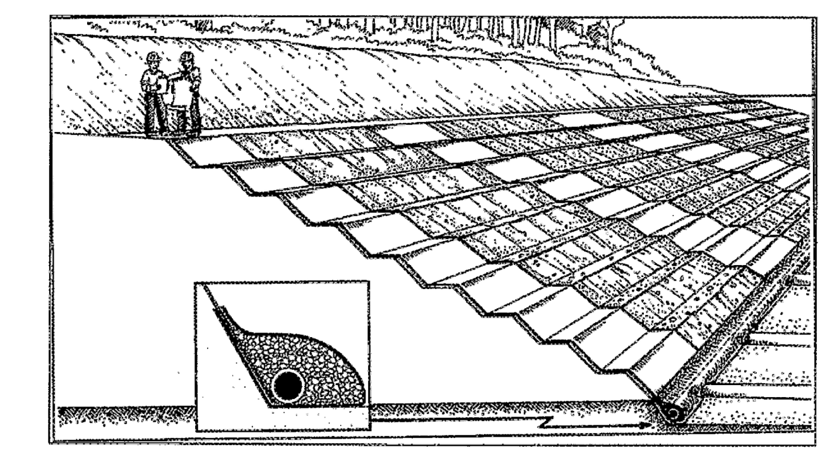
Reservdelsförteckning / Spare part list / Ersatzteile — SV EN TY 5299-1

	Max. arbetstryck Max. working pressure Max. Arbeitsdruck	Slaglängd Stroke Hub	Slagvolym Oil capacity Hub raum	Kolvarea Piston area Kolben fläche
kN	MPa	mm	cm³	cm²
326,7	80	150	613	40,84

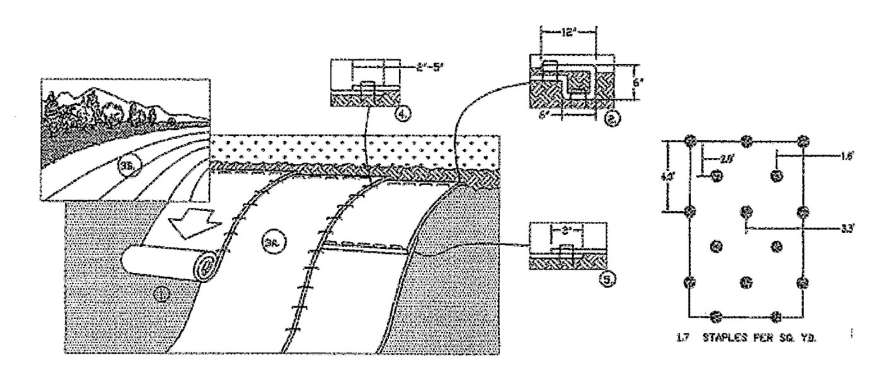




SECTION B-B – STATION 3+43
SCALE: 1" = 20'



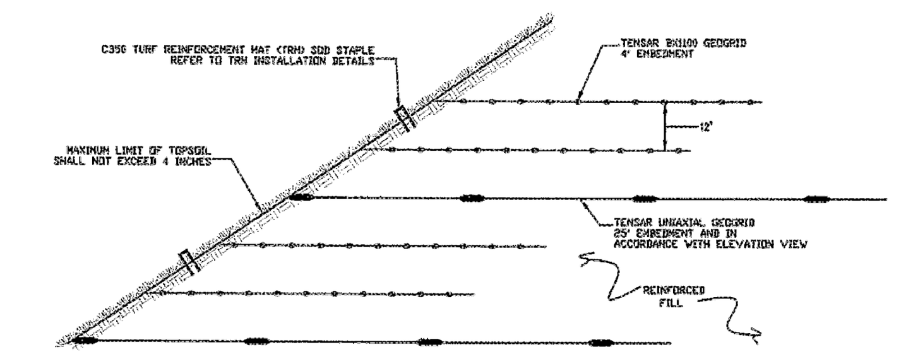
BENCHED BACKCUT AND DRAINAGE
NOT TO SCALE



1. PREPARE SOIL BEFORE INSTALLING BLANKETS, INCLUDING ANY NECESSARY APPLICATION OF LIME, FERTILIZER, AND SEED.
2. BEGIN AT THE TOP OF THE SLOPE BY ANCHORING THE BLANKET IN A 6" DEEP BY 6" WIDE TRENCH WITH APPROXIMATELY 12" OF BLANKET EXTENDED BEYOND THE UP-SLOPE PORTION OF THE TRENCH. ANCHOR THE BLANKET WITH A ROW OF STAPLES/STAKES APPROXIMATELY 12" APART IN THE BOTTOM OF THE TRENCH. BACKFILL AND COMPACT THE TRENCH AFTER STAPLING. APPLY SEED TO COMPACTED SOIL AND FOLD REMAINING 12" PORTION OF BLANKET BACK OVER SEED AND COMPACTED SOIL. SECURE BLANKET OVER COMPACTED SOIL WITH A ROW OF STAPLES/STAKES SPACED APPROXIMATELY 12" APART ACROSS THE WIDTH OF THE BLANKET.
3. ROLL THE BLANKETS (A) DOWN OR (B) HORIZONTALLY ACROSS THE SLOPE. BLANKETS WILL UNROLL WITH APPROPRIATE SIDE AGAINST THE SOIL SURFACE. ALL BLANKETS MUST BE SECURELY FASTENED TO SOIL SURFACE BY PLACING STAPLES/STAKES IN APPROPRIATE LOCATIONS AS SHOWN IN THE STAPLE PATTERN GUIDE. WHEN USING THE DOT SYSTEM, STAPLES/STAKES SHOULD BE PLACED THROUGH EACH OF THE COLORED DOTS CORRESPONDING TO THE APPROPRIATE STAPLE PATTERN.
4. THE EDGES OF PARALLEL BLANKETS MUST BE STAPLED WITH APPROXIMATELY 2" TO 5" OVERLAP DEPENDING ON BLANKET TYPE.
5. CONSECUTIVE BLANKETS SPLICED DOWN THE SLOPE MUST BE PLACED END OVER END (SHINGLE STYLE) WITH AN APPROXIMATE 3" OVERLAP. STAPLE THROUGH OVERLAPPED AREA, APPROXIMATELY 12" APART ACROSS ENTIRE BLANKET WIDTH.

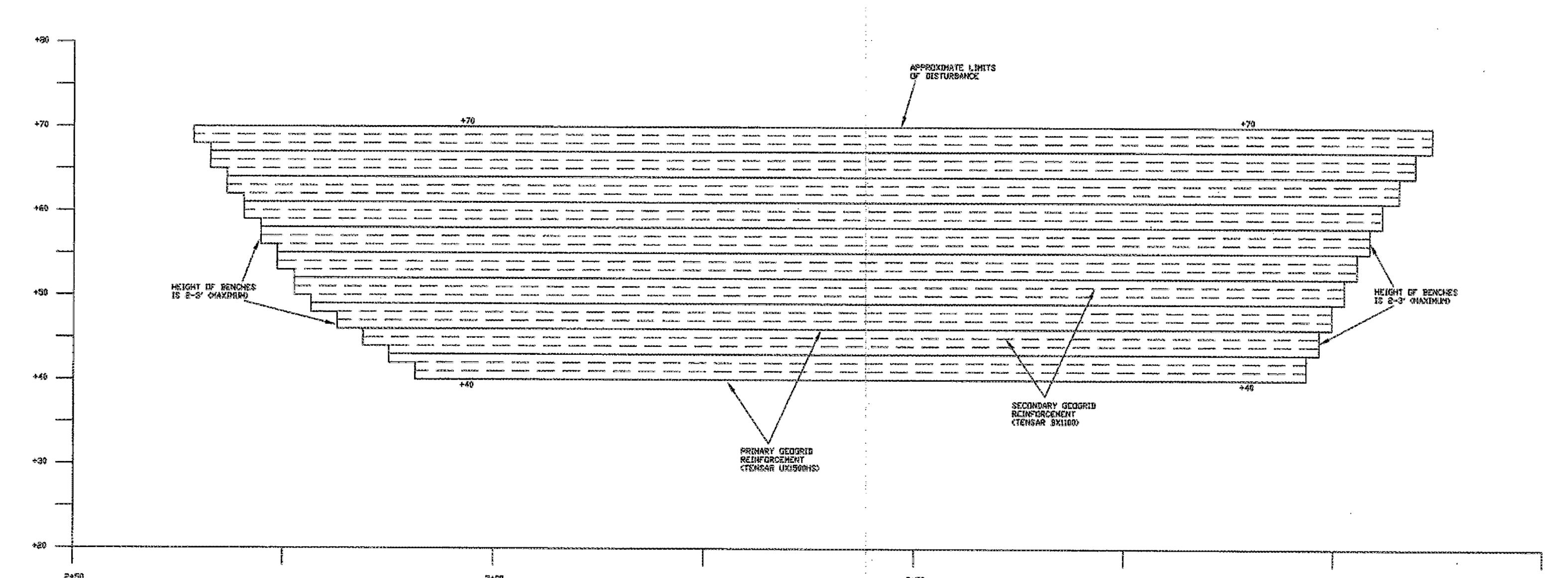
NOTE: IN LOOSE SOIL CONDITIONS, THE USE OF STAPLE OR STAKE LENGTHS GREATER THAN 6" MAY BE NECESSARY TO PROPERLY SECURE THE BLANKETS.

TURF REINFORCEMENT INSTALLATION
NOT TO SCALE



NOTE: TOPSOIL SHALL BE LOAMY SAND OR FINER GRADATION WITH 10% - 15% ORGANIC CONTENT OR MATERIAL APPROVED BY A QUALIFIED LANDSCAPE ARCHITECT. VEGETATION TYPE SHALL BE SPECIFIED BY A QUALIFIED LANDSCAPE ARCHITECT.

REINFORCED SLOPE DETAIL
NOT TO SCALE



REINFORCED SLOPE PROFILE (STATION 2+64.25 TO 4+11.75)
SCALE: 1" = 10'

Project Architect:
GSA
GREGORY SHARP ARCHITECT,PC
145 PALISADE STREET, SUITE 211
DOBBS FERRY
DIRECT 917 597 1982
INFO@CASEDEVELOPMENT.COM

OWNER'S REP / PROJECT MANAGER
CASE DEVELOPMENT
Case Development Inc
145 PALISADE STREET, SUITE 211
DOBBS FERRY, NY 10522
www.casedevelopment.com
DIRECT 917 597 1982

D.O.B CONSULTANT

LANDSCAPE ARCHITECT

ARBORIST

STRUCTURAL ENGINEER
Integral Engineering Services
27 Main Street : a
Dobbs Ferry, NY 10522
914-274-8874 : o
914-774-0343 : m
info@integralengrg.com : e
www.integralengrg.com : w

NOTES

SYMBOL LEGEND
See Detail — Interior Elevation
Elevation — Coordination Tag
Section Cut — Door Number
Window Number — Wall Type
Elevation Target
Revision

North Arrow:

DRAWING INFORMATION

ISSUED FOR PRE-FILE	12-8-2022
ISSUED FOR PRE-FILE	1-24-2023
ISSUED FOR PRE-FILE	2-14-2023
ISSUED FOR AHRB	3-15-2023

D.O.B. No. -

A New House located in
Dobbs Ferry, NY developed by:

The Altshuler Residence

PROJECT:
THE ALTSHULER RESIDENCE
11 FAIRLAWN AVENUE,
DOBBS FERRY, NY 10522

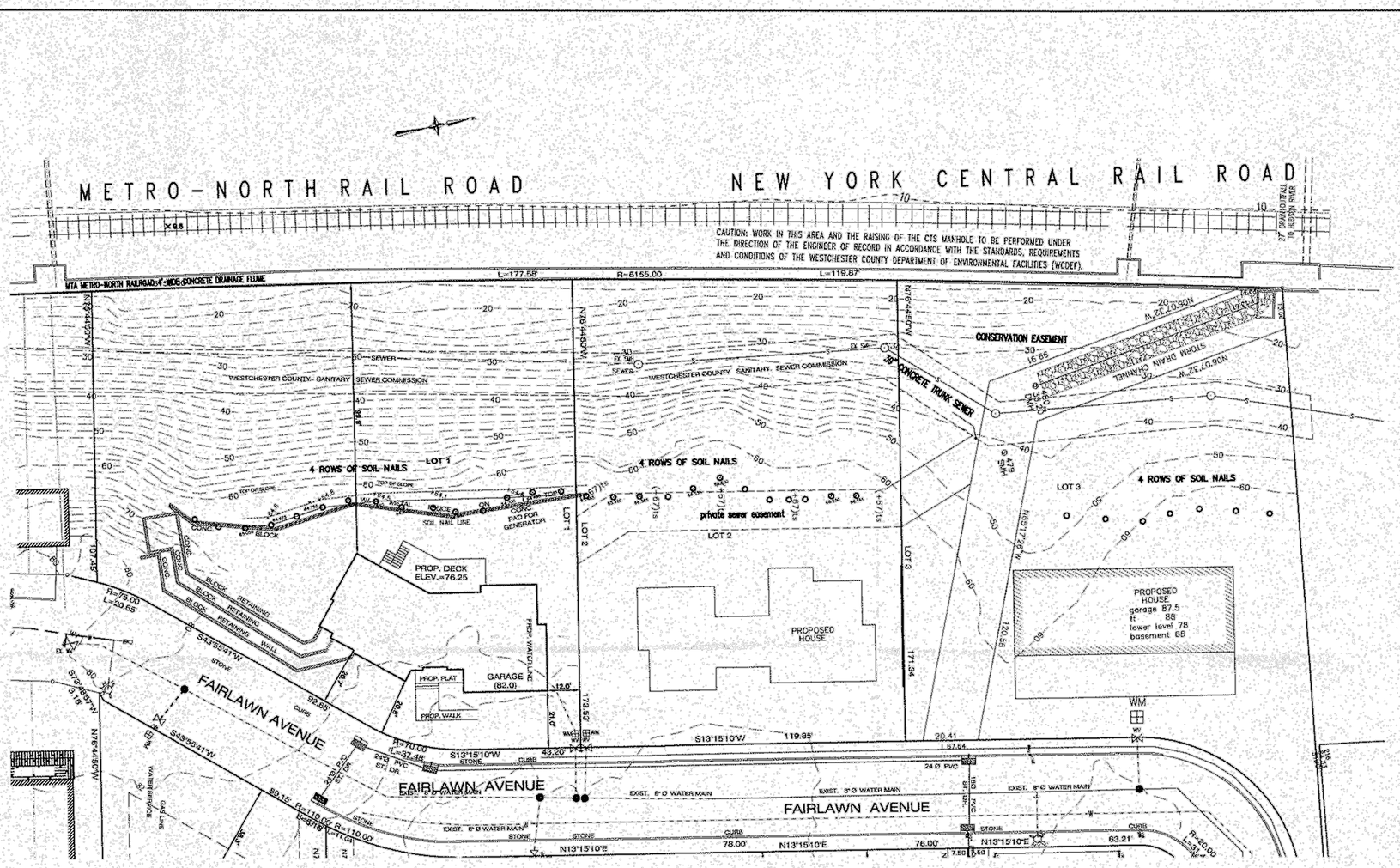
LETTER & DETAILS

SEAL AND SIGNATURE: REGISTERED ARCHITECT GREGORY CASE SHARP 033766-1 STATE OF NEW YORK

DATE:	6/16/2023
PROJECT No:	ALTSHULER 2023
DRAWING BY:	GS
CHK BY:	
DWG No:	ST-007.00
CADO No:	

BSCAN:

JOB NUMBER: R.O. 28261-1



NO	DATE	DESC	BY
REVISIONS			

RECEIVED
SEP 23 2015
JAMES J. HAHN
ENGINEERING P.C.

SOIL NAIL LINE AS-BUILT

WATERS EDGE AT DOBBS FERRY
LOCATED IN THE
TOWN OF GREENBURGH
WESTCHESTER COUNTY, NEW YORK

GABRIEL E. SENOR, P.C.
CONSULTING ENGINEER • LAND SURVEYORS
90 NORTH CENTRAL AVE., HARTSDALE, NEW YORK, 10530
(914) 422-0070 FAX 422-3029

STATE OF NEW YORK
ELIOT SENOR
NO. 049621
LICENSED LAND SURVEYOR

SCALE: 1" = 20'	
DATE: AUG 2, 2015	
DRAWN BY: MCN.	CHECKED BY: ES.
DWG NO.	

DWG Drawings\RO#\RO28261-SWQ-lot2 SITE PLAN JULY 8, 2013.dwg, 9/17/2015 5:11:14 PM

Project Architect:
GSA
GREGORY SHARP ARCHITECT,PC
145 PALISADE STREET, SUITE 211
DOBBS FERRY
DIRECT 917 597 1982
INFO@CASEDEVELOPMENT.COM

OWNER'S REP / PROJECT MANAGER
CASE DEVELOPMENT
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LANDSCAPE ARCHITECT

ARBORIST

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914-274-0874 : o
914-774-0343 : m
info@integralengrg.com : e
www.integralengrg.com : w

NOTES

SYMBOL LEGEND

- See Detail
- Elevation
- Section Cut
- Window Number
- Interior Elevation
- Coordination Tag
- Door Number
- Wall Type
- 0.0" Elevation Target
- Revision

North Arrow:

DRAWING INFORMATION

ISSUED FOR PRE-FILE	12-8-2022
ISSUED FOR PRE-FILE	1-24-2023
ISSUED FOR PRE-FILE	2-14-2023
ISSUED FOR AHRB	3-15-2023

D.O.B. No. -

A New House located in
Dobbs Ferry, NY developed by:

The Altshuler Residence

PROJECT:
THE ALTSHULER RESIDENCE
11 FAIRLAWN AVENUE,
DOBBS FERRY, NY 10522

SOIL NAIL LINE AS-BUILT

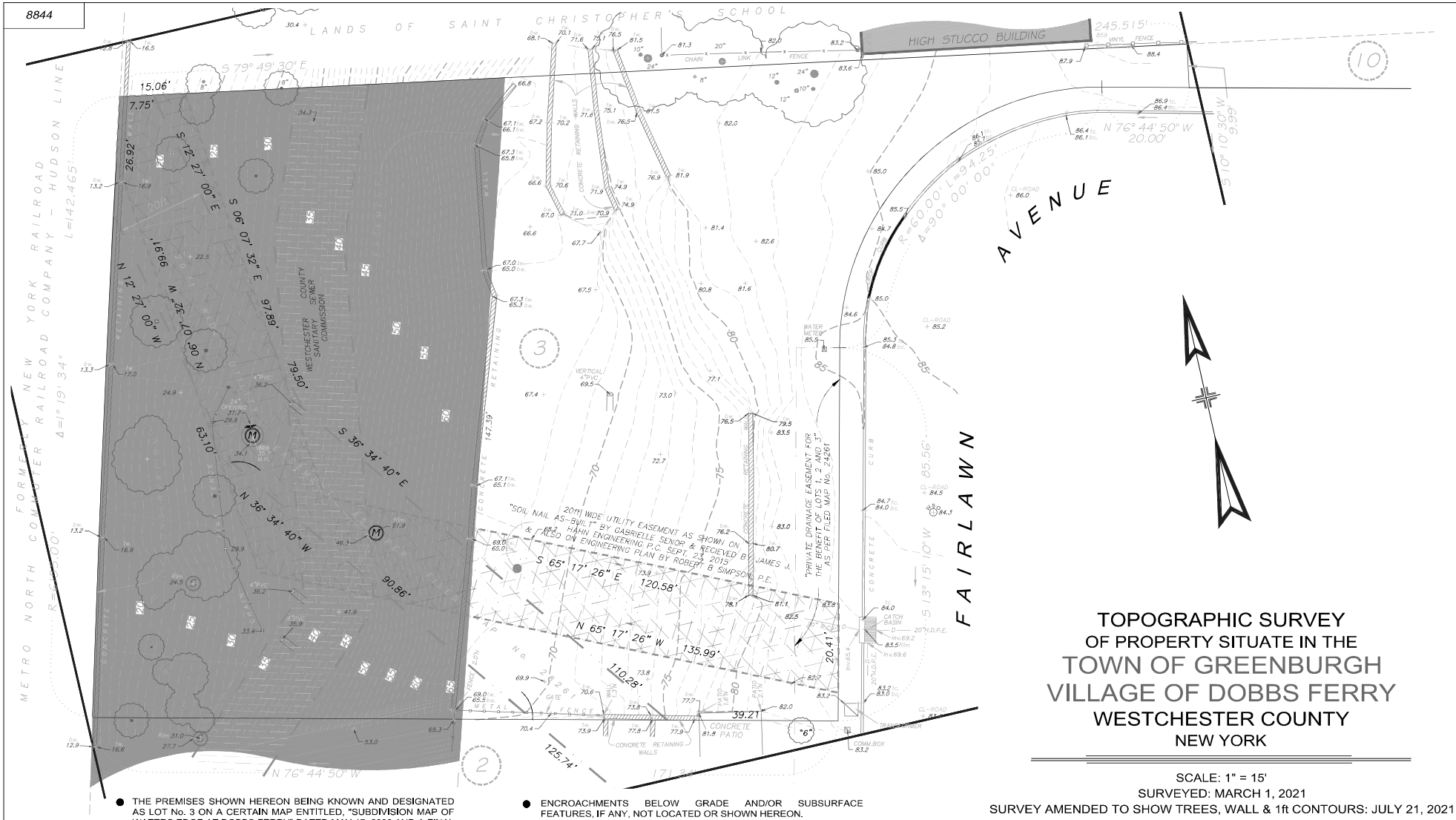
SEAL AND SIGNATURE:
REGISTERED ARCHITECT
GREGORY CASE SHARP
STATE OF NEW YORK

DATE:	6/16/2023
PROJECT No:	ALTSHULER 2023
DRAWING BY:	GS
CHK BY:	
DWG No:	ST-008.00
CADD No:	

BSCAN:

APPENDIX H

8844



TOPOGRAPHIC SURVEY
OF PROPERTY SITUATE IN THE
TOWN OF GREENBURGH
VILLAGE OF DOBBS FERRY
WESTCHESTER COUNTY
NEW YORK

SCALE: 1" = 15'
SURVEYED: MARCH 1, 2021
SURVEY AMENDED TO SHOW TREES, WALL & 1ft CONTOURS: JULY 21, 2021

- THE PREMISES SHOWN HEREON BEING KNOWN AND DESIGNATED AS LOT No. 3 ON A CERTAIN MAP ENTITLED, "SUBDIVISION MAP OF WATERS EDGE AT DOBBS FERRY" DATED MAY 17, 2006 AND A FINAL REVISION DATE OF JULY 17, 2009 MADE BY PAUL PETRETTI, P.E. & L.S. FILED IN THE WESTCHESTER COUNTY CLERK'S OFFICE, DIVISION OF LAND RECORDS ON AUGUST 24, 2009 AS FILED MAP No. 28261
- PREMISES ARE DESIGNATED ON THE TAX MAPS FOR THE TOWN OF GREENBURGH / VILLAGE OF DOBBS FERRY
  SECTION: 3.150 BLOCK: 134 LOT: 12
  PROPERTY ADDRESS: 11 FAIRLAWN AVENUE
  PROPERTY AREA: 26,164 Sq.Ft. - 0.6007 ACRE
- THIS MAP IS BASED UPON THE INFORMATION SUPPLIED BY THE CLIENT AND/OR HIS REPRESENTATIVE AND SUBJECT TO THE FINDINGS THAT A COMPLETE ABSTRACT OF TITLE MAY UNCOVER
- THE ELEVATIONS SHOWN HEREON ARE IN THE "NAVD 88", (NORTH AMERICAN VERTICAL DATUM 1988).
- THE OFFSETS SHOWN HEREON ARE NOT INTENDED TO ESTABLISH PROPERTY LINES FOR THE ERECTION OF FENCES, STRUCTURES OR ANY OTHER IMPROVEMENTS.
- ENCROACHMENTS BELOW GRADE AND/OR SUBSURFACE FEATURES, IF ANY, NOT LOCATED OR SHOWN HEREON.
- UNAUTHORIZED ALTERATION OR ADDITION TO A SURVEY MAP BEARING A LICENSED LAND SURVEYOR'S SEAL IS A VIOLATION OF SECTION 7209, SUBDIVISION 2, OF THE NEW YORK STATE EDUCATION LAWS.
- THE INFORMATION DEPICTED HEREON IS BASED UPON AN ACTUAL FIELD SURVEY AND IS AN OPINION BASED UPON SAID SURVEY. VARIATIONS IN OFFSETS FROM THAT OF THE OTHERS CAN AND MAY EXIST.
- ONLY COPIES FROM THE ORIGINAL OF THIS SURVEY MARKED WITH AN ORIGINAL OF THE LAND SURVEYOR'S SEAL SHALL BE CONSIDERED TO BE TRUE VALID COPIES.
- THIS MAP WAS PREPARED FROM AN ACTUAL FIELD SURVEY CONDUCTED ON THE DATE SHOWN AND THAT SAID SURVEY WAS PERFORMED IN ACCORDANCE WITH THE EXISTING " CODE OF PRACTICE FOR LAND SURVEYS " ADOPTED BY THE NEW YORK STATE ASSOCIATION OF PROFESSIONAL LAND SURVEYORS.

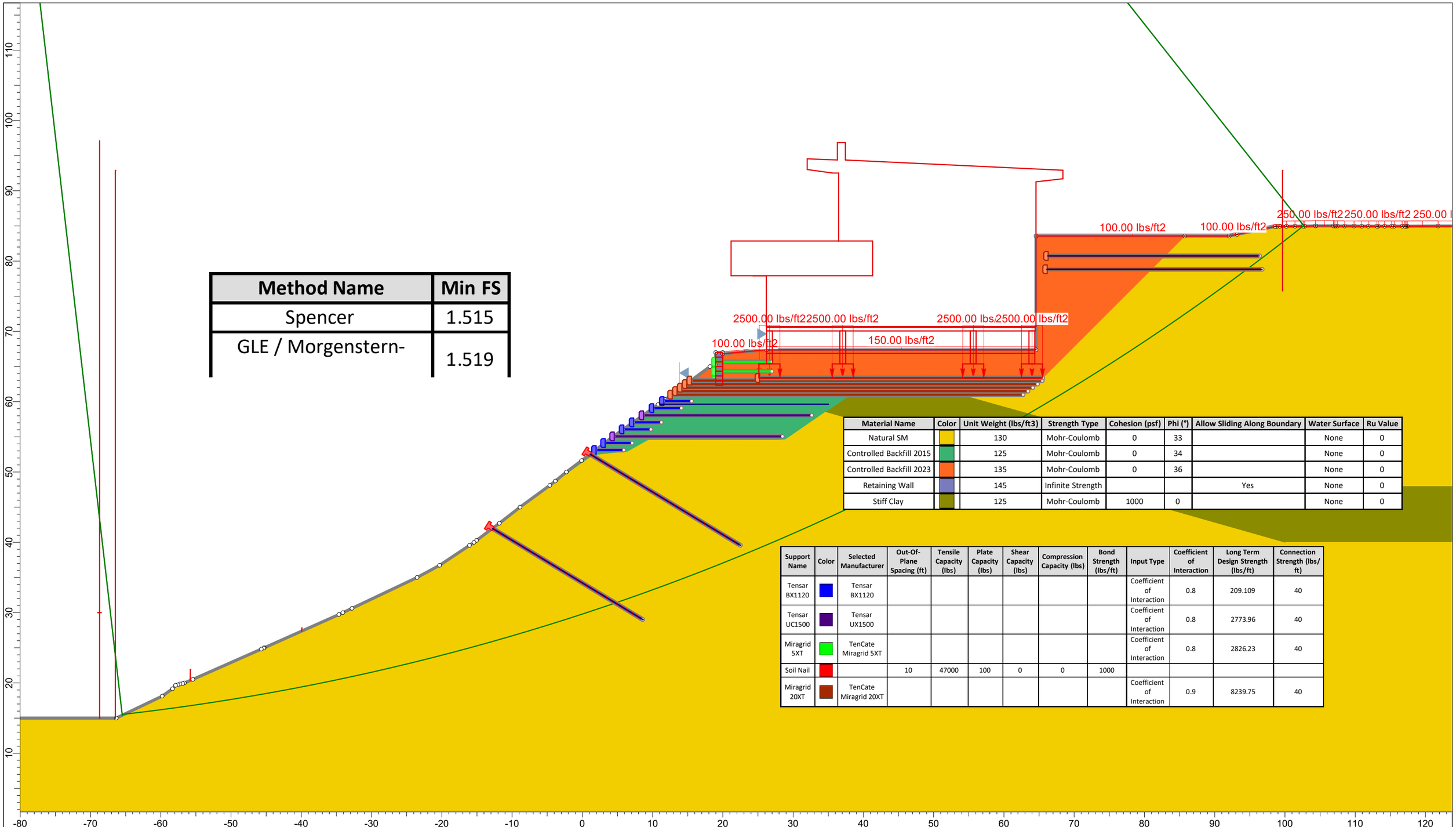
PREPARED FOR: JEANETTE LURIER

Link
Land Surveyors P.C.
21 Clark Place, Suite 1-B
Mahopac N.Y. 10541
Phone 845-628-5857
Fax 845-621-0013

ERIK J. LINK
NEW YORK STATE LICENSED
LAND SURVEYOR NO. 050542

APPENDIX I

Method Name	Min FS
Spencer	1.515
GLE / Morgenstern-	1.519



Material Name	Color	Unit Weight (lbs/ft3)	Strength Type	Cohesion (psf)	Phi (°)	Allow Sliding Along Boundary	Water Surface	Ru Value
Natural SM		130	Mohr-Coulomb	0	33		None	0
Controlled Backfill 2015		125	Mohr-Coulomb	0	34		None	0
Controlled Backfill 2023		135	Mohr-Coulomb	0	36		None	0
Retaining Wall		145	Infinite Strength			Yes	None	0
Stiff Clay		125	Mohr-Coulomb	1000	0		None	0

Support Name	Color	Selected Manufacturer	Out-Of-Plane Spacing (ft)	Tensile Capacity (lbs)	Plate Capacity (lbs)	Shear Capacity (lbs)	Compression Capacity (lbs)	Bond Strength (lbs/ft)	Input Type	Coefficient of Interaction	Long Term Design Strength (lbs/ft)	Connection Strength (lbs/ft)
Tensar BX1120		Tensar BX1120							Coefficient of Interaction	0.8	209.109	40
Tensar UC1500		Tensar UX1500							Coefficient of Interaction	0.8	2773.96	40
Miragrid 5XT		TenCate Miragrid 5XT							Coefficient of Interaction	0.8	2826.23	40
Soil Nail			10	47000	100	0	0	1000				
Miragrid 20XT		TenCate Miragrid 20XT							Coefficient of Interaction	0.9	8239.75	40

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Project	Slope Stabilty Analysis		
Group	Section 1	Scenario	New Grids
Drawn By		Company	SESI Consulting Engineers
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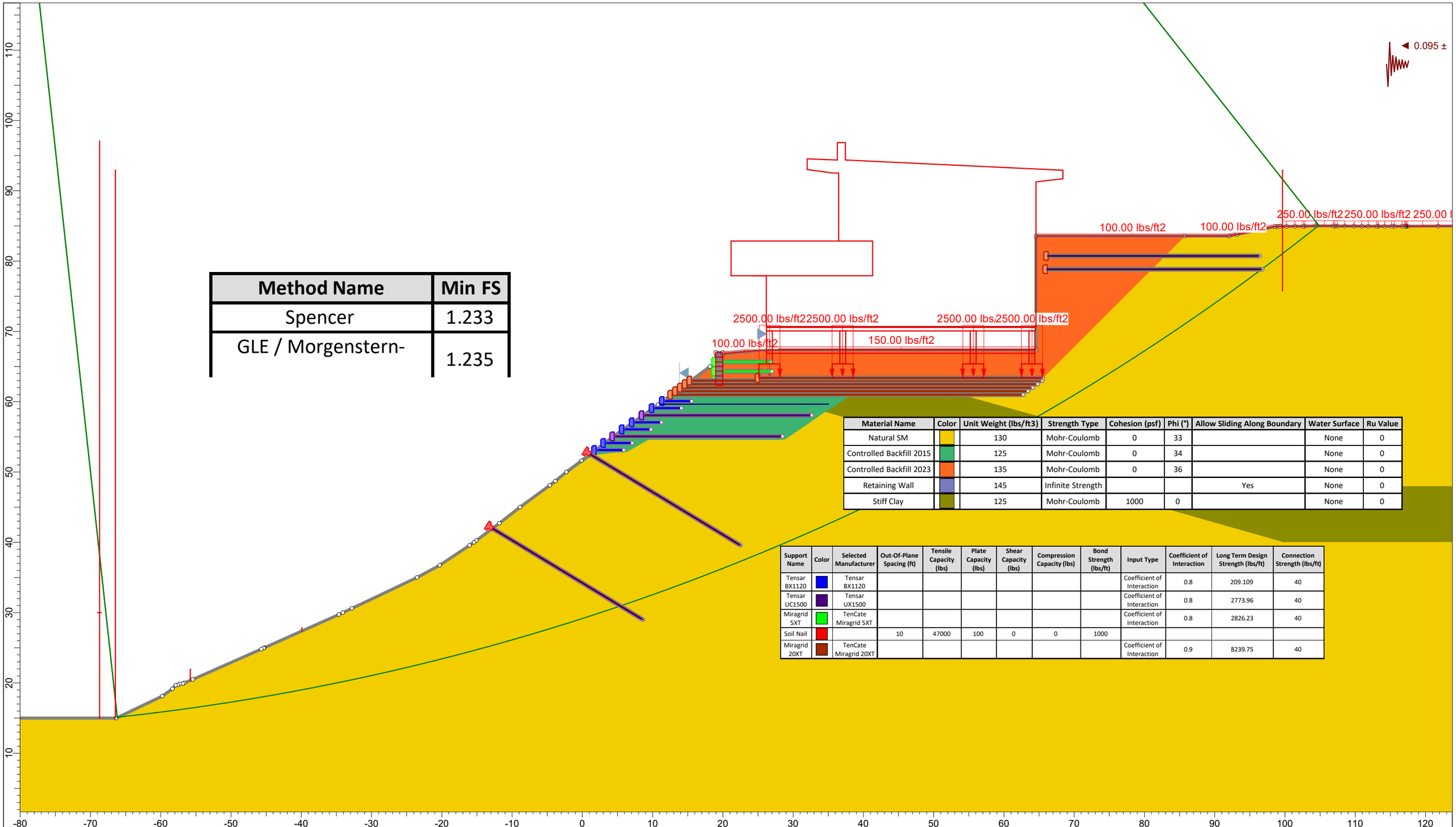
Method Name	Min FS
Spencer	1.233
GLE / Morgenstern-	1.235



Material Name	Color	Unit Weight (lbs/ft3)	Strength Type	Cohesion (psf)	Phi (°)	Allow Sliding Along Boundary	Water Surface	Ru Value
Natural SM		130	Mohr-Coulomb	0	33		None	0
Controlled Backfill 2015		125	Mohr-Coulomb	0	34		None	0
Controlled Backfill 2023		135	Mohr-Coulomb	0	36		None	0
Retaining Wall		145	Infinite Strength			Yes	None	0
Stiff Clay		125	Mohr-Coulomb	1000	0		None	0

Support Name	Color	Selected Manufacturer	Out-Of-Plane Spacing (ft)	Tensile Capacity (lbs)	Plate Capacity (lbs)	Shear Capacity (lbs)	Compression Capacity (lbs)	Bond Strength (lbs/ft)	Input Type	Coefficient of Interaction	Long Term Design Strength (lbs/ft)	Connection Strength (lbs/ft)
Tensar BX1120		Tensar BX1120							Coefficient of Interaction	0.8	209.109	40
Tensar UC1500		Tensar UX1500							Coefficient of Interaction	0.8	2773.96	40
Miragrid 5XT		TenCate Miragrid 5XT							Coefficient of Interaction	0.8	2826.23	40
Soil Nail			10	47000	100	0	0	1000				
Miragrid 20XT		TenCate Miragrid 20XT							Coefficient of Interaction	0.9	8239.75	40

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Project	Slope Stabilty Analysis		
Group	Section 1	*Scenario*	New Grids - Siesmic
Drawn By		*Company*	SESI Consulting Engineers
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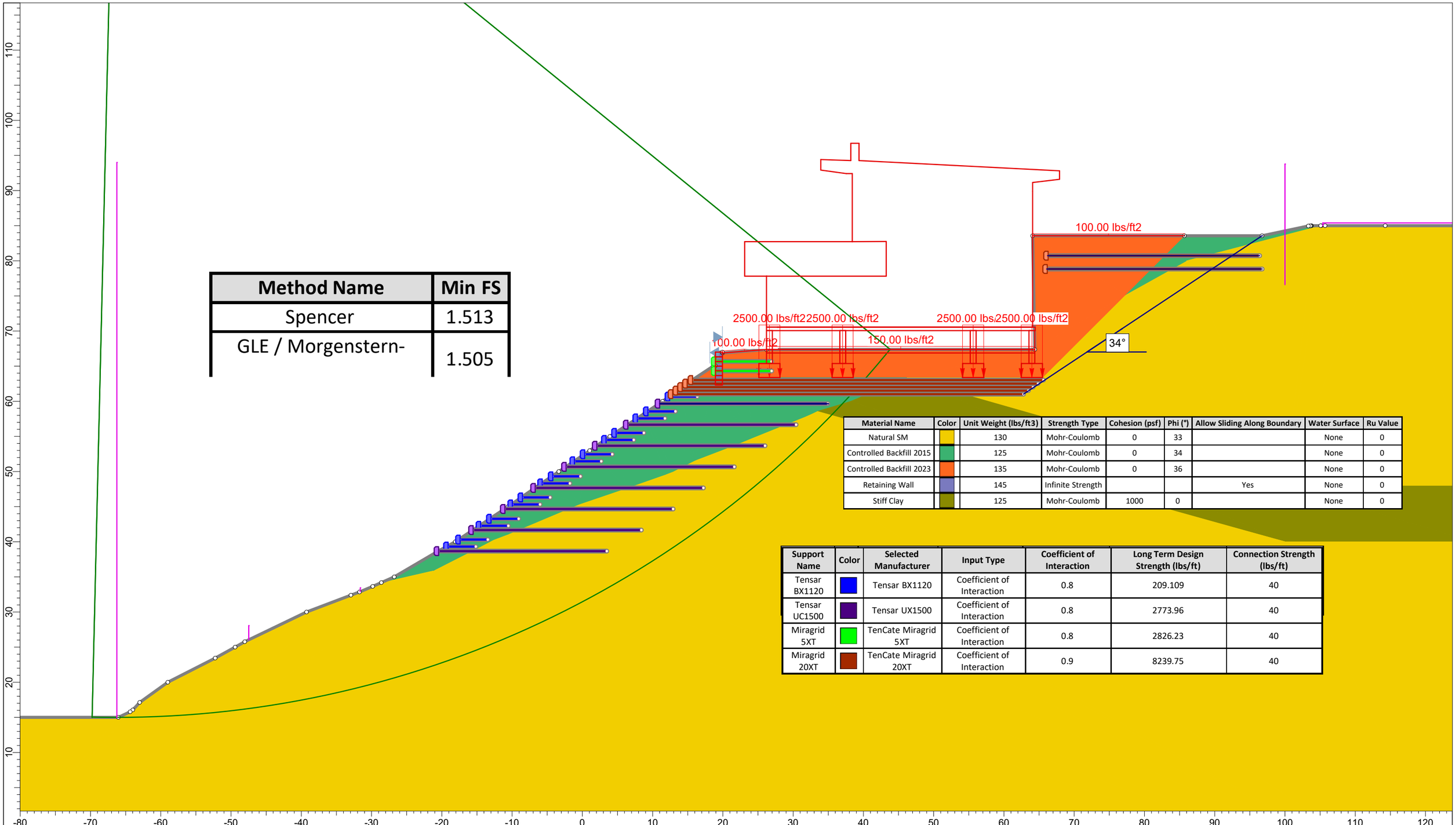
Method Name	Min FS
Spencer	1.513
GLE / Morgenstern-	1.505



Material Name	Color	Unit Weight (lbs/ft3)	Strength Type	Cohesion (psf)	Phi (°)	Allow Sliding Along Boundary	Water Surface	Ru Value
Natural SM		130	Mohr-Coulomb	0	33		None	0
Controlled Backfill 2015		125	Mohr-Coulomb	0	34		None	0
Controlled Backfill 2023		135	Mohr-Coulomb	0	36		None	0
Retaining Wall		145	Infinite Strength			Yes	None	0
Stiff Clay		125	Mohr-Coulomb	1000	0		None	0

Support Name	Color	Selected Manufacturer	Input Type	Coefficient of Interaction	Long Term Design Strength (lbs/ft)	Connection Strength (lbs/ft)
Tensar BX1120		Tensar BX1120	Coefficient of Interaction	0.8	209.109	40
Tensar UC1500		Tensar UX1500	Coefficient of Interaction	0.8	2773.96	40
Miragrid 5XT		TenCate Miragrid 5XT	Coefficient of Interaction	0.8	2826.23	40
Miragrid 20XT		TenCate Miragrid 20XT	Coefficient of Interaction	0.9	8239.75	40

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Project	Slope Stabilty Analysis		
Group	Section 2	Scenario	New Grids
Drawn By		Company	SESI Consulting Engineers
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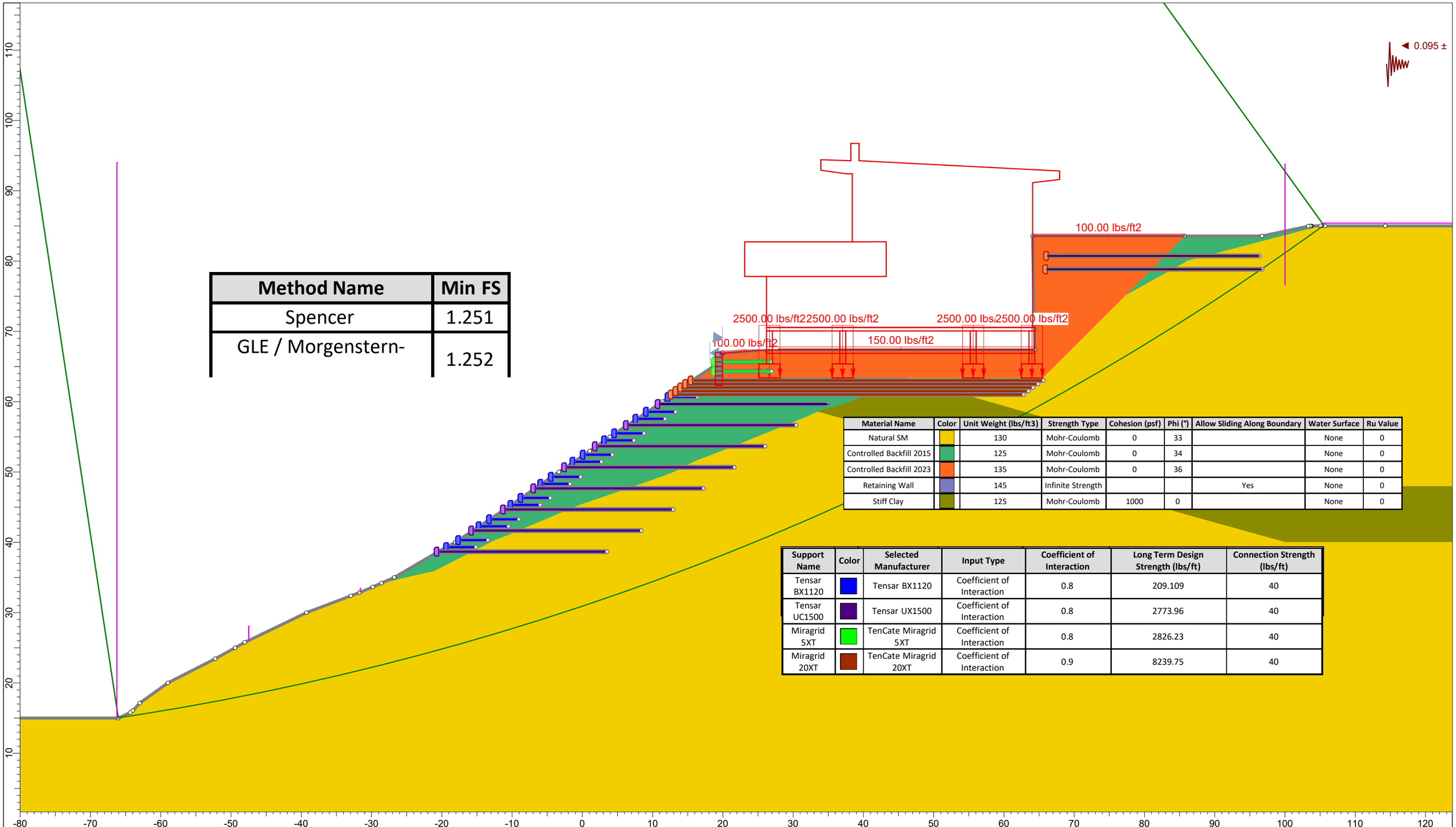
Method Name	Min FS
Spencer	1.251
GLE / Morgenstern-	1.252



Material Name	Color	Unit Weight (lbs/ft3)	Strength Type	Cohesion (psf)	Phi (°)	Allow Sliding Along Boundary	Water Surface	Ru Value
Natural SM		130	Mohr-Coulomb	0	33		None	0
Controlled Backfill 2015		125	Mohr-Coulomb	0	34		None	0
Controlled Backfill 2023		135	Mohr-Coulomb	0	36		None	0
Retaining Wall		145	Infinite Strength			Yes	None	0
Stiff Clay		125	Mohr-Coulomb	1000	0		None	0

Support Name	Color	Selected Manufacturer	Input Type	Coefficient of Interaction	Long Term Design Strength (lbs/ft)	Connection Strength (lbs/ft)
Tensar BX1120		Tensar BX1120	Coefficient of Interaction	0.8	209.109	40
Tensar UC1500		Tensar UX1500	Coefficient of Interaction	0.8	2773.96	40
Miragrid 5XT		TenCate Miragrid 5XT	Coefficient of Interaction	0.8	2826.23	40
Miragrid 20XT		TenCate Miragrid 20XT	Coefficient of Interaction	0.9	8239.75	40

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Project	Slope Stabilty Analysis		
Group	Section 2	Scenario	New Grids - Siesmic
Drawn By		Company	SESI Consulting Engineers
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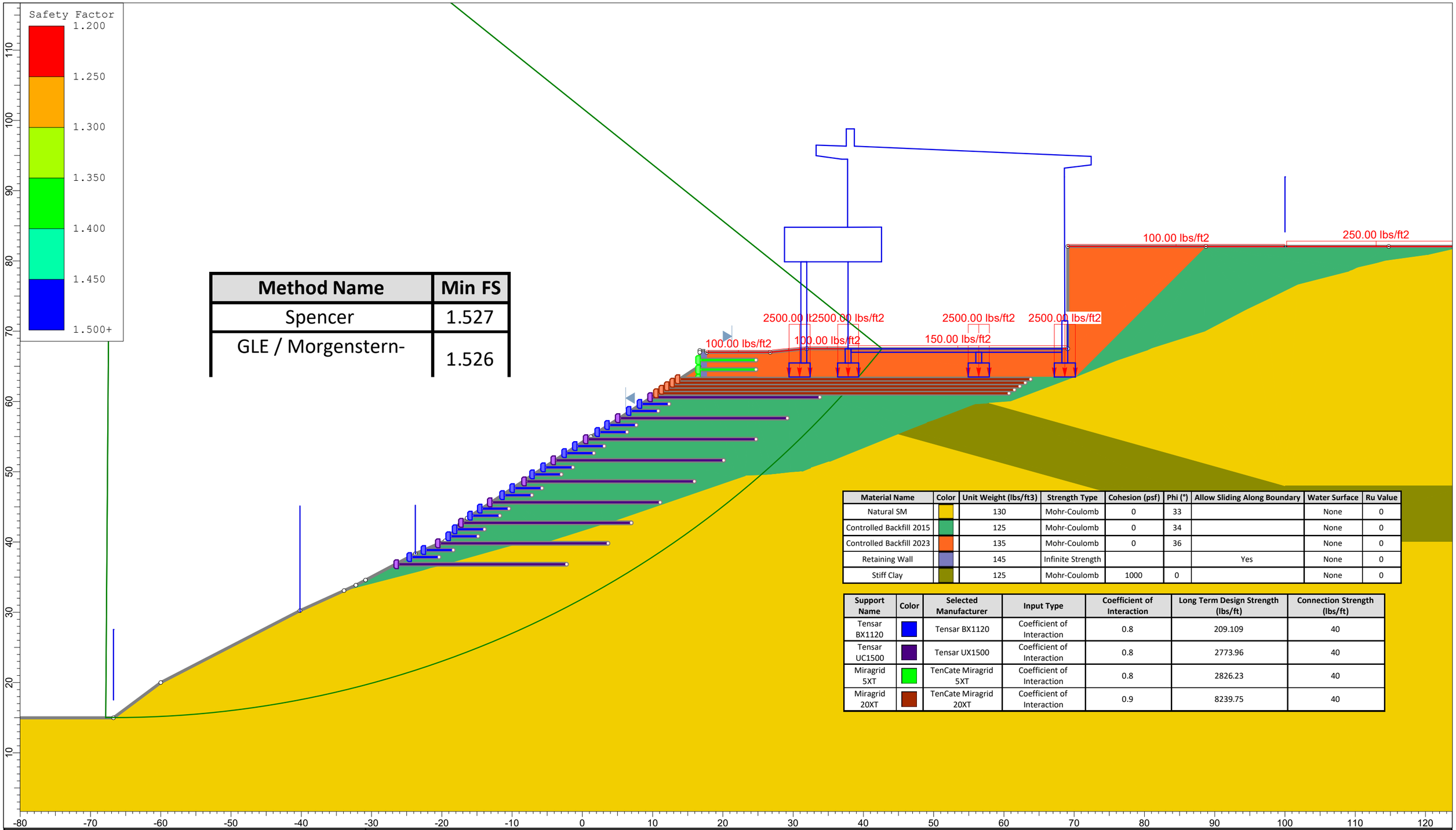

Method Name	Min FS
Spencer	1.527
GLE / Morgenstern-	1.526

Material Name	Color	Unit Weight (lbs/ft3)	Strength Type	Cohesion (psf)	Phi (°)	Allow Sliding Along Boundary	Water Surface	Ru Value
Natural SM		130	Mohr-Coulomb	0	33		None	0
Controlled Backfill 2015		125	Mohr-Coulomb	0	34		None	0
Controlled Backfill 2023		135	Mohr-Coulomb	0	36		None	0
Retaining Wall		145	Infinite Strength			Yes	None	0
Stiff Clay		125	Mohr-Coulomb	1000	0		None	0

Support Name	Color	Selected Manufacturer	Input Type	Coefficient of Interaction	Long Term Design Strength (lbs/ft)	Connection Strength (lbs/ft)
Tensar BX1120		Tensar BX1120	Coefficient of Interaction	0.8	209.109	40
Tensar UC1500		Tensar UX1500	Coefficient of Interaction	0.8	2773.96	40
Miragrid 5XT		TenCate Miragrid 5XT	Coefficient of Interaction	0.8	2826.23	40
Miragrid 20XT		TenCate Miragrid 20XT	Coefficient of Interaction	0.9	8239.75	40

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Project	Slope Stabilty Analysis		
Group	Section 3	Scenario	New Grids
Drawn By		Company	SESI Consulting Engineers
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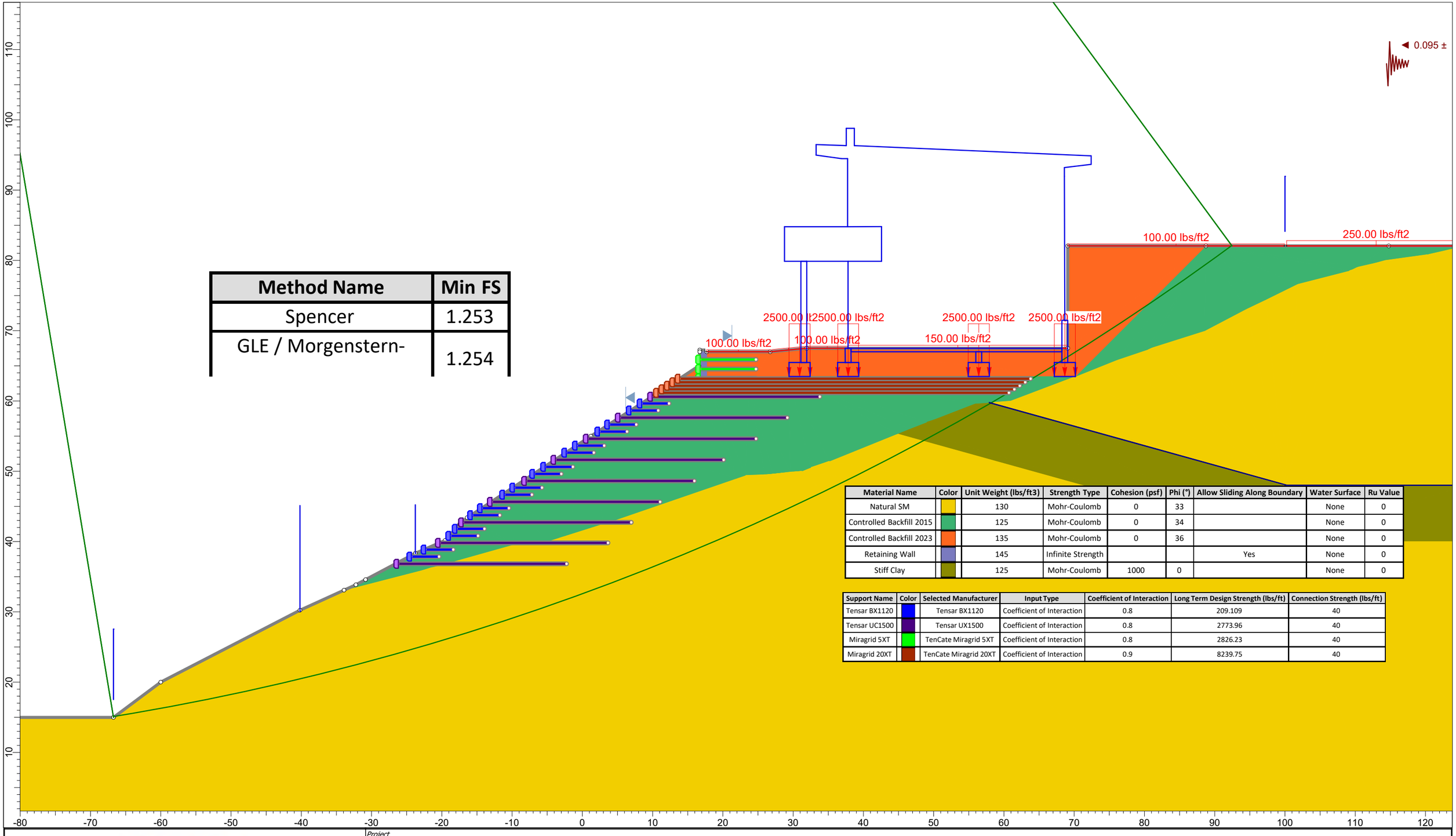
Method Name	Min FS
Spencer	1.253
GLE / Morgenstern-	1.254



Material Name	Color	Unit Weight (lbs/ft3)	Strength Type	Cohesion (psf)	Phi (°)	Allow Sliding Along Boundary	Water Surface	Ru Value
Natural SM		130	Mohr-Coulomb	0	33		None	0
Controlled Backfill 2015		125	Mohr-Coulomb	0	34		None	0
Controlled Backfill 2023		135	Mohr-Coulomb	0	36		None	0
Retaining Wall		145	Infinite Strength			Yes	None	0
Stiff Clay		125	Mohr-Coulomb	1000	0		None	0

Support Name	Color	Selected Manufacturer	Input Type	Coefficient of Interaction	Long Term Design Strength (lbs/ft)	Connection Strength (lbs/ft)
Tensar BX1120		Tensar BX1120	Coefficient of Interaction	0.8	209.109	40
Tensar UC1500		Tensar UX1500	Coefficient of Interaction	0.8	2773.96	40
Miragrid 5XT		TenCate Miragrid 5XT	Coefficient of Interaction	0.8	2826.23	40
Miragrid 20XT		TenCate Miragrid 20XT	Coefficient of Interaction	0.9	8239.75	40

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Project	Slope Stabilty Analysis		
Group	Section 3	*Scenario*	New Grids - Siesmic
Drawn By		*Company*	SESI Consulting Engineers
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