REPORT OF GEOTECHNICAL ENGINEERING EXPLORATION

Proposed 15th Street Townhomes

NWC of West 15th Street and Davidson Plantation Road

Hinesville, Liberty County, Georgia 31313

WSP Project No. US0049782.2149

Prepared for:

Mr. Elliott Wilson
Project Manager/Designer
M.E. Sack Engineering
515 N. Main Street
Hinesville, Georgia 31313

11/14/2025

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11/12/2025
Revised: 11/14/2025

Mr. Elliott Wilson
Project Manager/Designer
515 N. Main Street
Hinesville, Georgia 31313

Subject: Report of Geotechnical Engineering Exploration
Proposed 15th Street Townhomes
NWC of West 15 Street and Davidson Plantation Road
Hinesville, Liberty County, GA 31313
WSP Project No. US0049782.2149

Dear Mr. Wilson,

WSP USA Inc. (WSP) is pleased to submit this subsurface exploration and geotechnical engineering evaluation report for the above referenced property. This exploration was conducted in general accordance with our proposal revised September 26, 2025. This report briefly discusses our understanding of the project, describes our exploratory procedures and results, and presents our conclusions and recommendations related to the project design and construction. This report has been revised to correct the street address and to reflect updated grading information provided to WSP subsequent to the initial issuance of the report.

We appreciate the opportunity of working with you on this project and look forward to our continued association during the construction phases of the project. Please contact us if you have any questions about this report or if we may be of further service.

Sincerely,

WSP USA Inc.

Garrett.Smith2@wsp.com
Digitally signed by Garrett.Smith2@wsp.com
DN: cn=Garrett.Smith2@wsp.com
Date: 2025.11.14 15:39:48 -05'00'

GEORGIA REGISTERED No. PE042627 PROFESSIONAL ENGINEER YANBO HUANG
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WSP Project No. US0049782.2149

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Mr. Elliott Wilson
Project Manager/Designer
M.E. Sack Engineering
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11/14/2025

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Appendix

1.0 Introduction

WSP has completed a geotechnical exploration for the design phase services of a proposed new multi-family residential development located at the northwest corner of the intersection of West 15th Street and Davidson Plantation Road in Hinesville, Georgia. The objective of this study was to explore the general subsurface conditions at the site of the proposed development and to analyze these conditions as they relate to foundation and pavement design and construction. This report discusses our understanding of the project, describes our exploratory procedures and presents our conclusions and recommendations.

2.0 Project Information

We understand that the proposed new multi-family residential development will be constructed on two parcels totaling 8.67 acres, identified by Liberty County as Parcel IDs 036C 015 and 036C 003. The majority of the site is currently undeveloped and wooded, with a cleared easement running through the eastern portion of the site. During the proposal stage, we were provided with a revised site plan for the proposed development prepared by M.E. Sack and dated August 26, 2025 for our use in planning our exploration and preparing this report. Subsequent to the initial issuance of the report, we were provided with a full set of civil construction plans prepared by M.E. Sack and dated May 29, 2025. Based on the provided plans, we understand that the proposed construction will include five townhome buildings (for a total of 44 units), two stormwater detention ponds, and a paved roadway connecting the buildings to West 15th Street.

WSP was not provided with project-specific structural loading information. Based on the provided concept plan and experience with similar construction, we anticipate that the townhome structures will be supported on conventional shallow spread footings. We have assumed for the purposes of this report that structural loads will not exceed 75 kips per column, 4 kips per linear foot for load-bearing walls, and 200 psf for slabs. Based on the provided grading plan, we understand that the proposed stormwater management ponds will be up to 6 feet deep, and up to 4 feet of cut and/or fill will be required to achieve finished grades in the building and pavement areas. If structural loads are found to vary from those assumed, WSP should be notified so that we may revise our recommendations as necessary.

3.0 Field Exploration

In order to explore the general subsurface conditions in the areas of the planned construction, a total of eight (8) CPT soundings and eight (8) hand auger borings were performed at the approximate locations shown on the attached boring location plan. The CPT soundings were drilled to a maximum depth of 40 feet below existing site grades within the proposed building area and the hand augers borings were drilled to a maximum depth of 5 feet within the proposed pavement areas. The hand auger borings within the stormwater management pond areas were attempted to be advanced to 8 feet, but refusal was encountered between 5 and 6.5 feet because of the boreholes collapsing due to groundwater.

All Cone Penetration Testing (CPT) soundings were performed using a geoprobe drill rig utilizing an instrumented cone. Prior to the commencement of drilling operations, an 811 ticket was created to check for the presence of underground utilities at the site. In addition, WSP utilized a private utility locator subcontractor to scan the boring locations for utilities and other subsurface appurtenances.

The sounding and hand auger boring locations were staked in the field by WSP's driller by measuring distances from existing landmarks and using a handheld GPS device. The sounding and hand auger boring

locations are shown on the Boring Location Plan (Figure 2) in the Appendix and should be considered approximate. Existing topographic information was not provided to WSP. All boring and sounding depths were recorded as from the ground surface at the time of drilling.

The Cone Penetration Test Sounding Records, in the Appendix, graphically show the penetration resistances and present the soil descriptions for each of the CPT soundings. The stratification lines and depth designations on the sounding records represent the approximate boundaries between soil types. In some instances, the transition between types may be gradual.

4.0 Site and Subsurface Conditions

4.1 Area and Site Geology

The subject site is located within the Coastal Plain Physiographic Province. The Coastal Plain is a wedge-shaped deposit of Cretaceous and younger sediments which range in thickness from near zero at the contact with the Piedmont Physiographic Province (the Fall Line) to the northwest, to thousands of feet at the coast. Published USGS geologic mapping indicates the site is classified under Wilcomico Shoreline Complex – marsh and lagoonal facies.

4.2 Subsurface Conditions

4.2.1 General

The subsurface conditions discussed in the following paragraphs and those shown on the Cone Penetration Test Sounding Records and Hand Auger Boring Logs represent an interpretation of the sounding and other data using normally accepted geotechnical engineering judgments considering local geology and experience.

The Sounding Records and Hand Auger Boring Logs represent our interpretation of the field conditions based on an engineer's review of cone penetration testing data. The groundwater conditions indicated on the hand auger borings were encountered during boring and on the CPT Records were estimated based on the pore water pressure and the result from hand auger borings. The lines designating the interfaces between various strata represent approximate boundaries only, as transitions between materials may be gradual. Soil conditions may vary between and away from the sounding locations.

4.2.2 Subsurface Soil Conditions

Based on the sounding data and the samples obtained from the hand auger borings, the natural soils are typical of the Coastal Plain in this area and consist of layers of fine-grained materials (clays/silts), silty/clayey sands, and relatively clean sands. The depositional processes would produce some mixing of these materials, so interbedding and transitions will likely be present.

Topsoil ranging from 6 to 18 inches thick was encountered in all hand auger borings except for HA-7, which was located within the utility easement and appeared to have been previously cleared/stripped. Trace amounts of organics were observed in the surficial soils at HA-7. Below the topsoil, the surficial soils are primarily silty and clayey sands to silty clays in the upper 4 to 14 feet, underlain by silty sands to relatively clean sands interbedded with silty clays to the maximum depth of the CPT soundings at 40 feet below existing grades.

Soils Containing Organics: Soils which appeared to contain trace amounts of organics were encountered in hand auger boring HA-7 starting at the ground surface and continuing to approximately 3.5 feet below grade. If soils containing greater than 2 percent organics by dry weight are encountered within building or pavement areas during construction, some form of remediation, such as removal and replacement with suitable structural fill, will likely be required. Specific recommendations can be made by a qualified geotechnical engineer or their representative based on conditions observed in the field during construction.

4.2.3 Groundwater

Groundwater was encountered in each of the hand auger borings at depths ranging from approximately 2 to 3 ½ feet below existing grades. Groundwater levels can fluctuate with changes in tides, weather, climate, local drainage, and with construction activity in the area. Since groundwater level variations are anticipated, design drawings and specifications should accommodate such possibilities and construction planning should be based on the assumption that variations will occur.

5.0 Conclusions and Recommendations

The following conclusions and recommendations are based on the previously discussed project information, our observations at the site, interpretation of the field data obtained during the exploration, and our experience with similar subsurface conditions. Subsurface conditions in unexplored locations may vary from those encountered at the specific sounding locations. If the construction scheme should vary significantly from that previously described, we request the opportunity to review these recommendations and amend them if necessary.

5.1 Site Preparation

All vegetation, including stumps and root systems, organic topsoil and other deleterious materials should be stripped from proposed construction areas. After clearing and stripping, areas intended to support the structures, including new fill should be carefully assessed by a qualified geotechnical engineer or his representative. This assessment should include proofrolling to locate soft or weak subgrades that may need repair. Any areas that pump or deflect excessively should be addressed as appropriate. Please note, due to the uneven ground surface, the volume of topsoil may be greater than the volume calculated by area times the topsoil thickness indicated on the boring logs.

During the site preparation, after the removal of topsoil, the loose silty and clayey sands on-site will be exposed and will likely cause an unstable subgrade for pavement and footing/slab support in some areas. In particular, very weak soils are likely to be encountered in the vicinity of CPT-7. To achieve stable subgrade, the contractor should expect undercutting and backfilling for those localized soft areas. It is anticipated that subgrade undercutting and backfilling will be required in limited soft areas for foundation and pavement support.

Areas intended to support new fill and/or structures should be proofrolled under the observation of the geotechnical engineer. Proofrolling consists of trafficking the site with a fully loaded, tandem axle dump truck or pneumatic tired vehicle of similar size and weight (20 tons). Proofrolling should detect shallow

soft, wet, or otherwise unsuitable soils. Materials judged to be unstable during proofrolling operations will require remedial action and should be treated as recommended by the engineer. The geotechnical engineer can recommend treatment based on the planned construction in the area and severity of the issues discovered. These recommendations often include harrowing and disking the upper one foot of exposed surface to alter moisture content followed by recompaction of the harrowed materials.

If earthwork is conducted in hot, dry weather favorable for drying soils, issues with wet unstable soils tend to be less of a concern. However, if the required treatment effort and volumes for stabilization become widespread or grading is performed during unfavorable weather conditions, additional measures such as lime or cement stabilization might be required to dry and stabilize the soils in wet or unfavorable weather.

5.2 Excavation and Earthwork Construction Considerations

Upon completion of filling and grading, care should be taken to maintain the subgrade moisture content prior to construction of floor slabs and pavements. Construction traffic over the completed subgrade should be avoided to the extent practical. The site should also be graded to prevent ponding of surface water on the prepared subgrades or in excavations. If the subgrade should become frozen, desiccated, saturated, or disturbed, the affected material should be removed or these materials should be scarified, moisture conditioned, and recompacted prior to floor slab construction and observed by a WSP representative.

Surface water should not be allowed to pond on the site and soak into the soil during construction. Construction staging should provide drainage of surface water and precipitation away from the building area. Any water that collects over or adjacent to construction areas should be promptly removed, along with any softened or disturbed soils. Surface water control in the form of sloping surfaces, drainage ditches and trenches, and sump pits and pumps will be important to avoid ponding and associated delays due to precipitation and seepage.

Groundwater was encountered at depths of approximately 2 to 3 ½ feet below the ground surface during our field exploration. If groundwater is encountered during construction, some form of temporary or permanent dewatering may be required. Conventional dewatering methods, such as pumping from sumps or trenching, should likely be adequate for temporary removal of any groundwater encountered during excavations at the site.

Based on the provided grading plan dated October 30, 2025. We understand the building pad will be graded with up to 4 feet of fill to achieve finished elevations, and that the proposed stormwater ponds will be up to 6 feet deep.

All excavations should be sloped or braced as required by Occupational Health and Safety Administration (OSHA) regulations to provide stability and safe working conditions. The grading contractor, by his contract, is usually responsible for designing and constructing stable, temporary excavations and should shore, slope, or bench the sides of the excavations as required to maintain stability of both the excavation

sides and bottom. All excavations should comply with applicable local, state, and federal safety regulations, including the current OSHA Excavation and Trench Safety Standards.

Construction site safety is the sole responsibility of the contractor who controls the means, methods, and sequencing of construction operations. Under no circumstances shall the information provided herein be interpreted to mean that WSP is assuming any responsibility for construction site safety or the contractor's activities; such responsibility shall neither be implied nor inferred.

5.3 Fill Placement

Fill to replace undercut areas or achieve finished grades should be non-plastic soils with less than 25 percent passing the number 200 sieve in building and pavement areas. Fill should be free of deleterious materials and rock fragments larger than about 3 inches in any dimension. Based on the results of our exploration and laboratory soil testing, some of the on-site silty sands (i.e., those with less than 25 percent fines) would be suitable for re-use as structural fill. All structural fill should be placed in maximum 8-inch thick loose lifts and compacted to at least 95 percent of the soil's maximum dry density as determined by the Modified Proctor compaction test (ASTM D 1557). Soil moisture during placement should be maintained within 3 percent of the optimum moisture content. Fill should be placed in horizontal lifts and adequately keyed into stripped and scarified subgrade soils. In confined areas such as utility trenches or over anchor blocks, portable compaction equipment and thin lifts of 3 to 4 inches may be required to achieve specified degrees of compaction.

Fill placement should be observed by a qualified soils technician under the supervision of the geotechnical engineer and frequent fill density and moisture tests be performed to verify that the specified degree of compaction is being achieved. Areas that do not meet the compaction specifications should be reworked to achieve compliance and retested.

5.4 Foundation Recommendations

Structural loading information was not provided to WSP prior to the issuance of this report. For the purposes of our settlement analysis, we have assume that structural loads for the buildings will not exceed 75 kips per column, 200 psf for slabs, and 4 kips per linear foot for load-bearing walls.

From the settlement analysis result, the total settlement is estimated to be less than one inch under the assumed structural loads. Therefore, conventional, shallow foundations bearing on coastal plain soil or fill compacted in accordance with the recommendations in this report may be designed for an allowable soil bearing pressure of 2,000 psf provided that subgrade improvement will be performed in localized areas where very weak soils are encountered (e.g., in the vicinity of CPT-7).

The allowable foundation bearing pressures apply to dead loads plus design live load conditions. The design bearing pressure may be increased by one-third when considering total loads that include wind or seismic conditions. The weight of the foundation concrete below grade may be neglected in dead load computations. Interior footings should bear a minimum of 12 inches below finished grade. Finished grade is the lowest adjacent grade for perimeter footings and floor level for interior footings.

Footings, foundations, and masonry walls should be reinforced as necessary to reduce the potential for distress caused by differential foundation movement. The use of joints at openings or other discontinuities in masonry walls is recommended.

Foundation excavations should be observed by the geotechnical engineer or their representative. If the soil conditions encountered differ from those presented in this report, supplemental recommendations will be required.

The base of all foundation excavations should be free of water and loose soil prior to placing concrete. Concrete should be placed soon after excavating to reduce bearing soil disturbance. Should the soils at bearing level become excessively dry, disturbed, or saturated, or frozen, the affected soil should be removed prior to placing concrete. Place a lean concrete mud-mat over the bearing soils if the excavations must remain open over night or for an extended period of time. It is recommended that the geotechnical engineer be retained to observe and test the soil foundation bearing materials.

Due to the presence of very weak soils in the upper 5 feet below the existing ground surface in the vicinity of CPT-7, it is anticipated that subgrade undercutting and backfilling will be required in localized areas during subgrade preparation for the building foundations in that area. For budgeting purposes, a minimum depth of 3 feet under the bottom of the footings should be planned for the undercutting and backfilling. The actual depth of undercut should be determined during construction. We recommend hand auger borings and dynamic cone penetration (DCP) testing be performed during construction to evaluate and confirm the subgrade condition under the footings.

If unsuitable bearing soils are encountered in footing excavations, the excavations should be extended deeper to suitable soils and the footings could bear directly on these soils at the lower level or on lean concrete backfill placed in the excavations. Overexcavation for compacted backfill placement below footings should extend laterally beyond all edges of the footings at least 8 inches per foot of overexcavation depth below footing base elevation. The overexcavation should then be backfilled up to the footing base elevation with well-graded granular material placed in lifts of 6 inches or less in loose thickness and compacted to at least 95 percent of the material's maximum Modified Proctor dry density (ASTM D 1557). No. 57 stone is recommended if the excavation volume is relatively small, fill compaction is difficult, the constructure schedule is tight or the weather conditions becomes an adverse factor.

We recommend widths of not less than 24 inches for footings for ease of construction and to reduce the possibility of localized shear failures. In addition, exterior footing bottoms should be at least 18 inches below exterior grades for protection against frost damage. A qualified geotechnical engineer should observe all footing excavations and assess whether the foundations are placed on a competent bearing stratum.

5.5 Floor Slab Recommendations

As discussed in Section 5.1, during the site preparation, after the removal of topsoil, the loose silty and clayey sands on-site are likely to be exposed and may cause an unstable subgrade for slab support in some areas. To achieve stable subgrade, the contractor should expect undercutting and backfilling for localized soft areas. A subgrade prepared and tested as recommended in this report should provide adequate support for lightly loaded floor slabs.

Where appropriate, saw-cut control joints should be placed in the slab to help control the location and extent of cracking. For additional recommendations refer to the ACI Design Manual. Joints or any cracks that develop can be sealed with a waterproof, non-extruding compressible compound.

The floor slab design should include a base course comprised of at least 4-inches of free draining, compacted granular materials. The granular materials may be graded aggregate base (GAB) or sands with fines content less than 5 percent. The use of a vapor retarder or barrier should be considered beneath concrete slabs on grade that will be covered with wood, tile, carpet, or other moisture sensitive or impervious coverings, or when the slab will support equipment sensitive to moisture. When conditions warrant the use of a vapor retarder, the slab designer and slab contractor should refer to ACI 302 and ACI 360 for procedures and cautions regarding the use and placement of a vapor retarder/barrier.

On most project sites, the site grading is generally accomplished early in the construction phase. During construction the subgrade may be disturbed due to utility excavations, construction traffic, desiccation, rainfall, etc. As a result, the floor slab subgrade may not be suitable for placement of base rock and concrete and corrective action may be required.

We recommend the area underlying the floor slab be rough graded and then thoroughly proofrolled with a loaded tandem axle dump truck prior to final grading and placement of base rock. Particular attention should be paid to high traffic areas that were rutted and disturbed earlier and to areas where backfilled trenches are located. Areas where unsuitable conditions are located should be repaired by removing and replacing the affected material with properly compacted fill. All floor slab subgrade areas should be moisture conditioned and properly compacted to the recommendations in this report immediately prior to placement of the base rock and concrete.

The slabs should be isolated from column and wall foundations to reduce the risk of cracking because of the differential loading.

5.6 Pavements

Assuming the finished subgrade will be near the existing ground surface, the near-surface silty and clayey soils encountered on site are considered marginally suitable for subgrade support, and pavements supported on those soils could be subject to more frequent maintenance costs. We recommend the upper two feet of subgrade beneath pavements be relatively clean sands with fines content less than 15 percent.

We recommend that the pavement areas be thoroughly proofrolled as described previously in the Site Preparation section of the report. A modulus of subgrade reaction of about 120 pounds per cubic inch (pci) or a California Bearing Ratio (CBR) value of 8 may be considered for well-prepared subgrade consisting of suitable on-site soils or structural fill. The structural fill bedding material should be compacted to a minimum of 95 percent of Modified Proctor dry density (ASTM D 1557).

Pavements for parking and driveways restricted to automobile traffic (light duty) typically consist of 2.5 inches of asphaltic concrete over a 6-inch graded aggregate base. Pavements for truck traffic (heavy duty) typically consist of 4 inches of asphaltic concrete over 8 inches of graded aggregate base. Rigid Portland Cement Concrete (PCC) pavements are usually more suitable in the areas where tight turns and maneuvering of the trucks is expected. Typical PCC sections usually consist of 5 inches of PCC over a minimum of 4 inches of graded aggregate base for a light duty section and 7 inches of PCC over a minimum of 4 inches of graded aggregate base for a heavy duty section.

Pavement design should be based on traffic or other loading conditions. If project specific traffic loads are provided later, more specific pavement recommendations may be provided, but we do not anticipate those would vary significantly from what is provided above. The pavement thickness was analyzed based on a pavement design life of 20 years. However, some maintenance repairs are typically required within a period of 8 to 10 years.

5.7 Seismic Design Parameters – Seismic Site Classification

The International Building Code (IBC) 2018 and ASCE 7-16 describes six Site Class Definitions that range from hard rock (A) to potentially unstable soil (F). Each site class is described by the average shear wave velocity, standard penetration resistance, or soil undrained shear strength in the top 100 feet of the site profile. The shear wave velocity is related to the soil column shear modulus, whereas the standard penetration resistance and undrained shear strength can be empirically related to the shear wave velocity. Each site class is associated with amplification factors that represent the effects that site stiffness (shear modulus) has on the presumed earthquake bedrock motion.

The seismic site class per IBC 2018/ASCE 7-16 for the Site is estimated to be Site Class D based on the CPT data from this study and the general geology of the area.

5.8 Qualifications of Recommendations

Our evaluation of foundation design and construction conditions has been based on our understanding of the site, the available project information, our assumptions, and the data obtained during our field exploration as described herein. The general subsurface conditions used were based on interpolation of the subsurface data at our soundings. The design recommendations in this report have been developed based on the previously described project characteristics and subsurface conditions. If project criteria or locations change, we must be permitted to determine if our recommendations are still applicable or if they must be modified. The findings of such a review will be presented in a supplemental report.

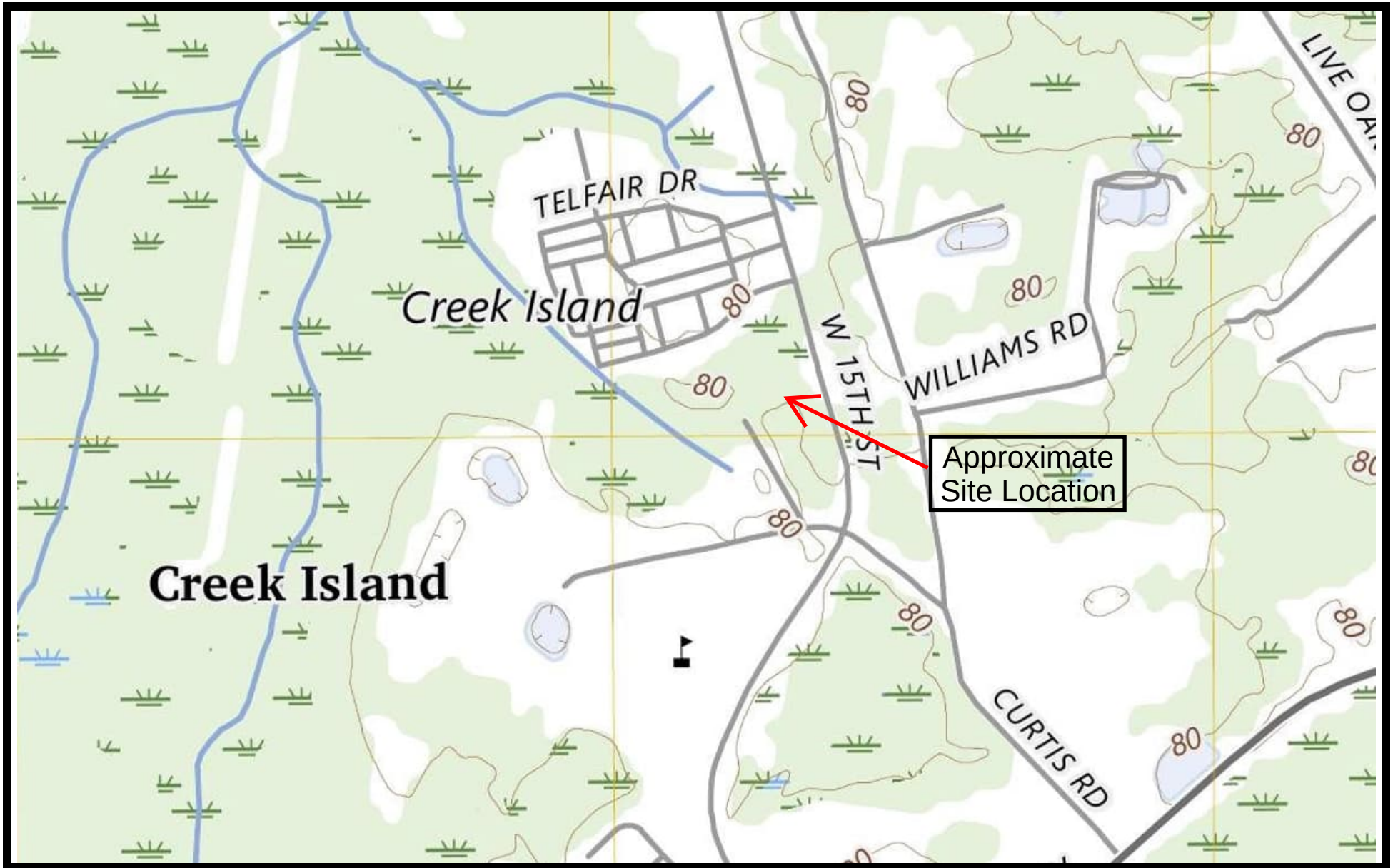
Subsurface conditions in unexplored locations may vary from those encountered at specific boring and sounding locations. The nature and extent of variations may not become evident until the course of construction. If such variations then appear evident, it will be necessary to re-evaluate the recommendations of this report after on-site observations of the conditions.

Regardless of the thoroughness of a subsurface exploration, there is the possibility that conditions will differ from those at the boring and sounding locations, that conditions are not as anticipated by the designers, or that the construction process has altered the soil conditions. Therefore, experienced geotechnical engineers must observe earthwork and foundation construction to assess if the conditions anticipated in design exist.

Our professional services have been performed, our findings derived, and our recommendations prepared in accordance with generally accepted geotechnical engineering principles and practices. This warranty is in lieu of all other warranties either express or implied. This company is not responsible for the conclusions, opinions or recommendations of others based on these data.

Appendix

Figure 1 - Site Location Map
Figure 2 – Boring Location Plan
Cone Penetration Test Sounding Records (8)
WSP Key to Symbols
Hand Auger Boring Logs (8)
Laboratory Test Results (4)
GBA Information About Geotechnical Reports

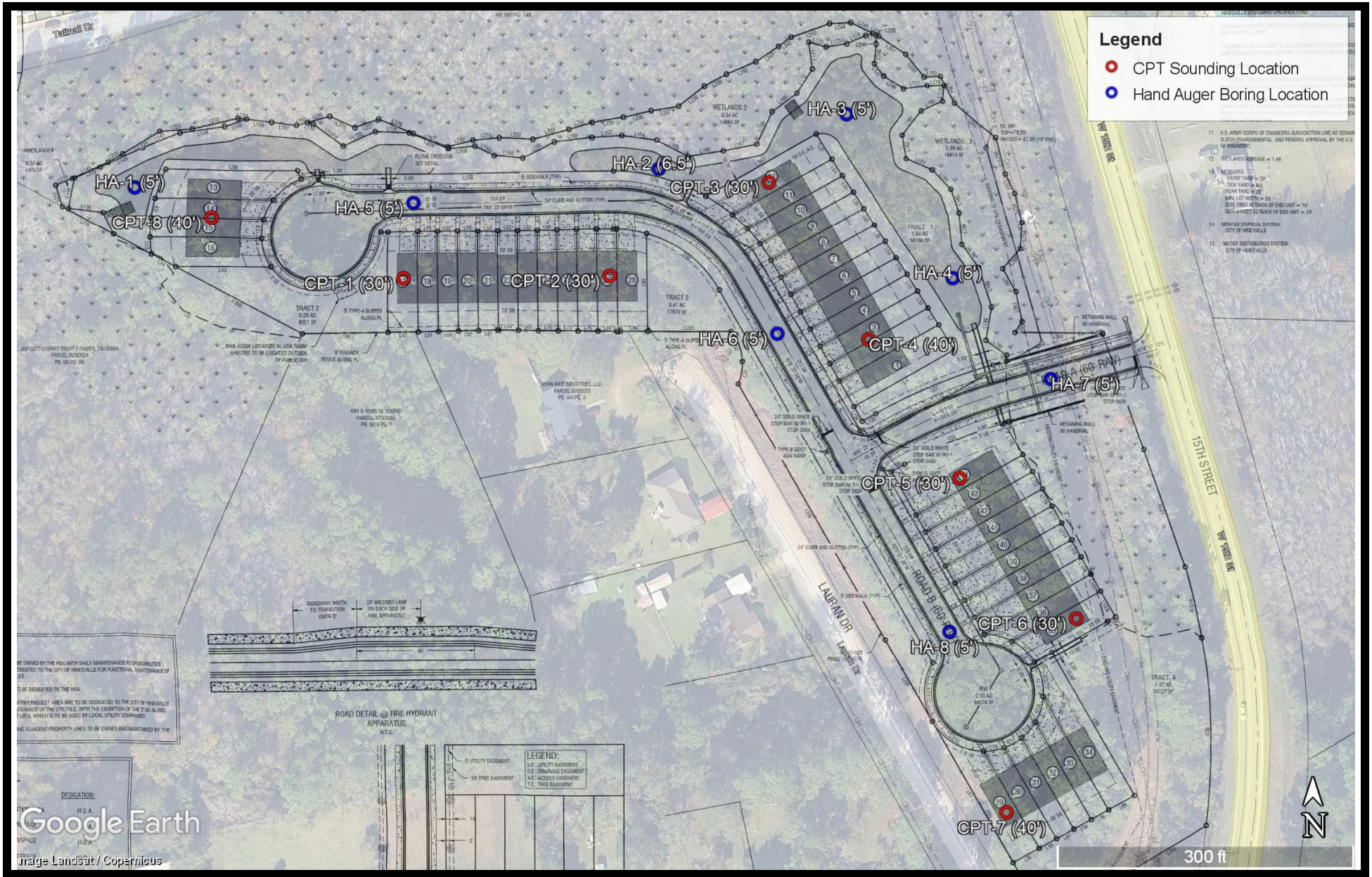


Proposed 15th Street Townhomes
NWC of W 15th Street and Davidson Plantation Road
Hinesville, Georgia

WSP USA Inc.
2000 Business Center Drive, Suite 235
Savannah, Georgia 31405

SITE LOCATION MAP

Project No. US0049782.2149	DATE: November 2025	FIGURE 1



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Hinesville, Georgia

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BORING AND SOUNDING LOCATION PLAN

Project No. US0049782.2149	DATE: November 2025	FIGURE 2

WSP USA
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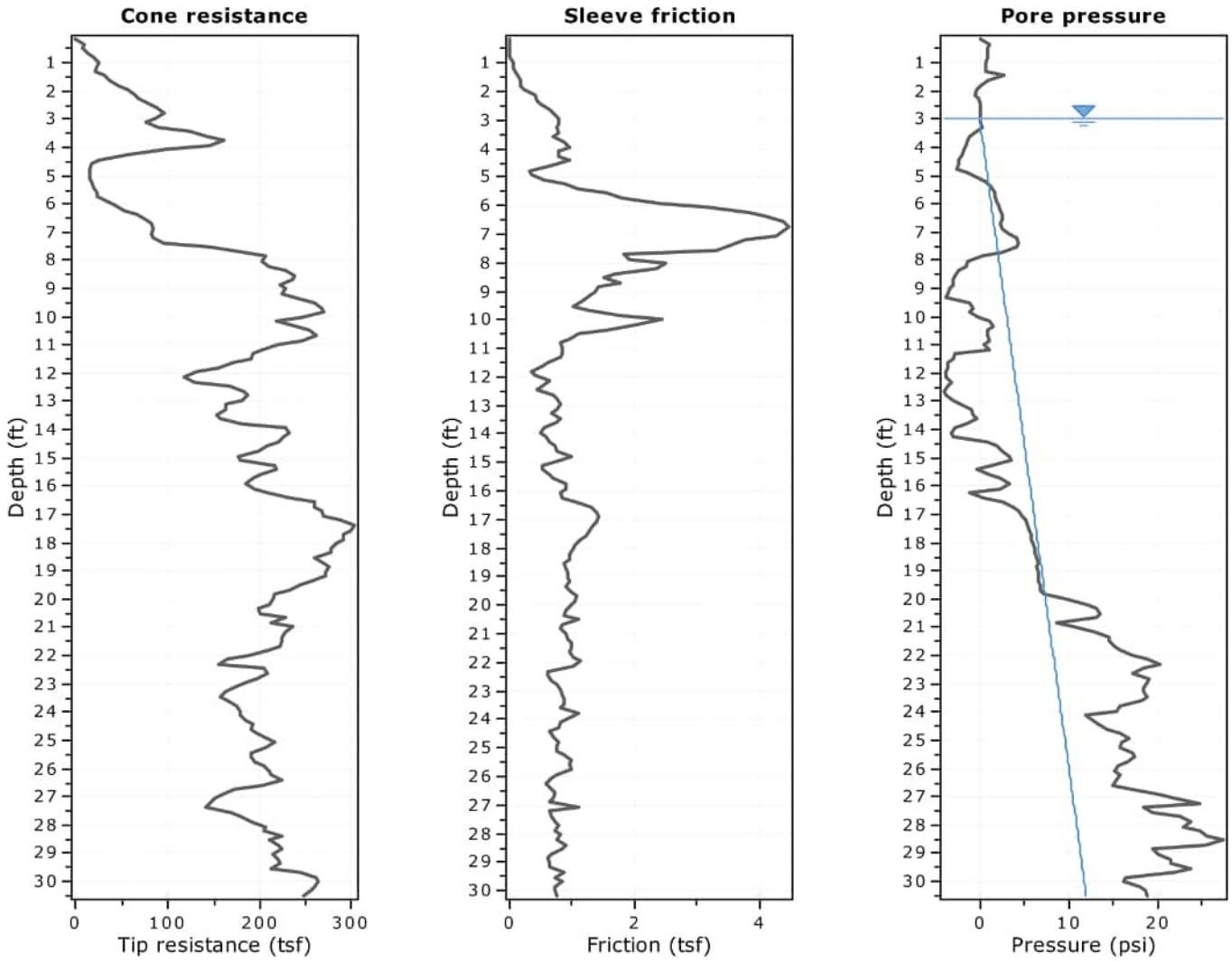
www.wsp.com

CPT-1

Project: **15th Street Townhomes**
Location: **Hinesville, Georgia**

Total depth: 30.51 ft, Date: 10/30/2025
Cone Operator: BM



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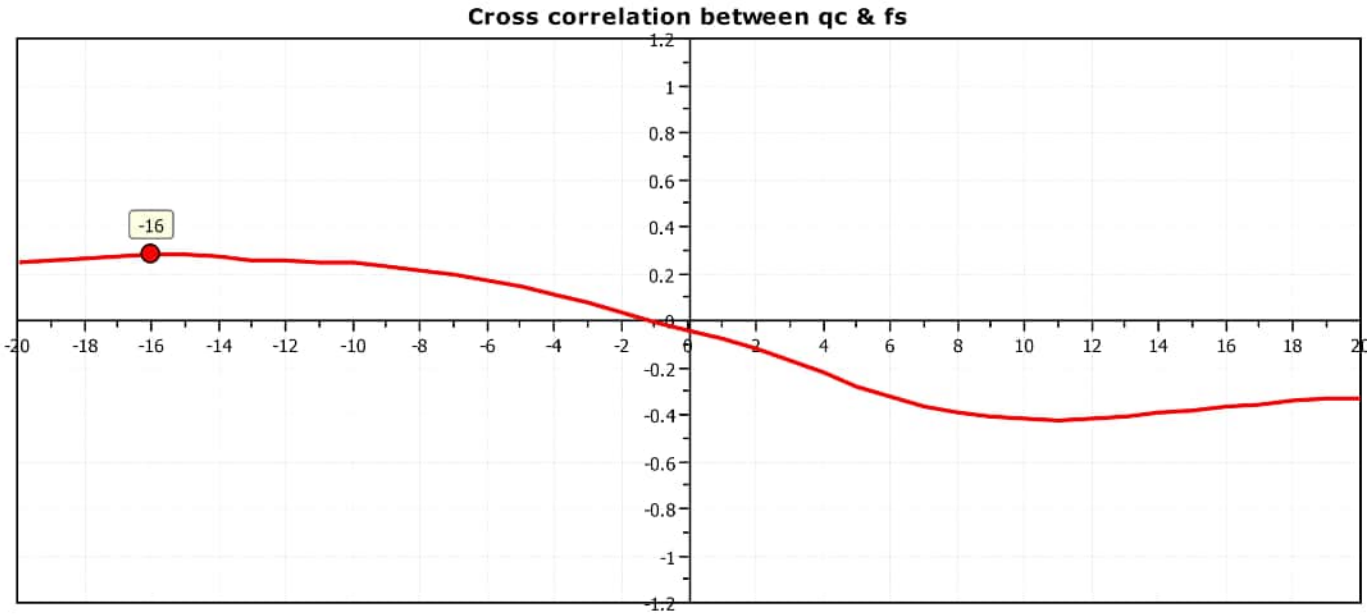

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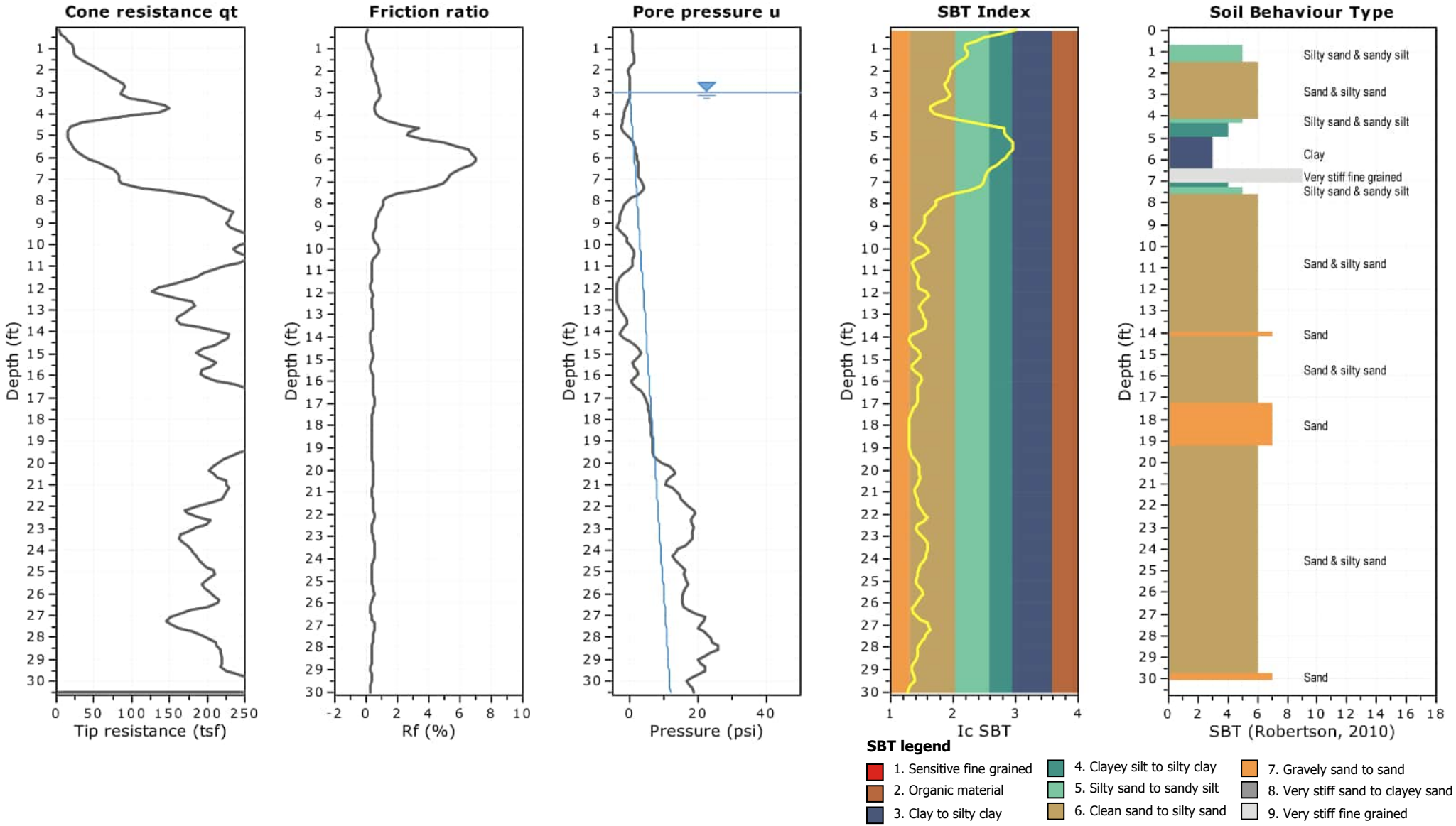
CPT-1

Project: **15th Street Townhomes**
Location: **Hinesville, Georgia**

Total depth: 30.51 ft, Date: 10/30/2025
Cone Operator: BM



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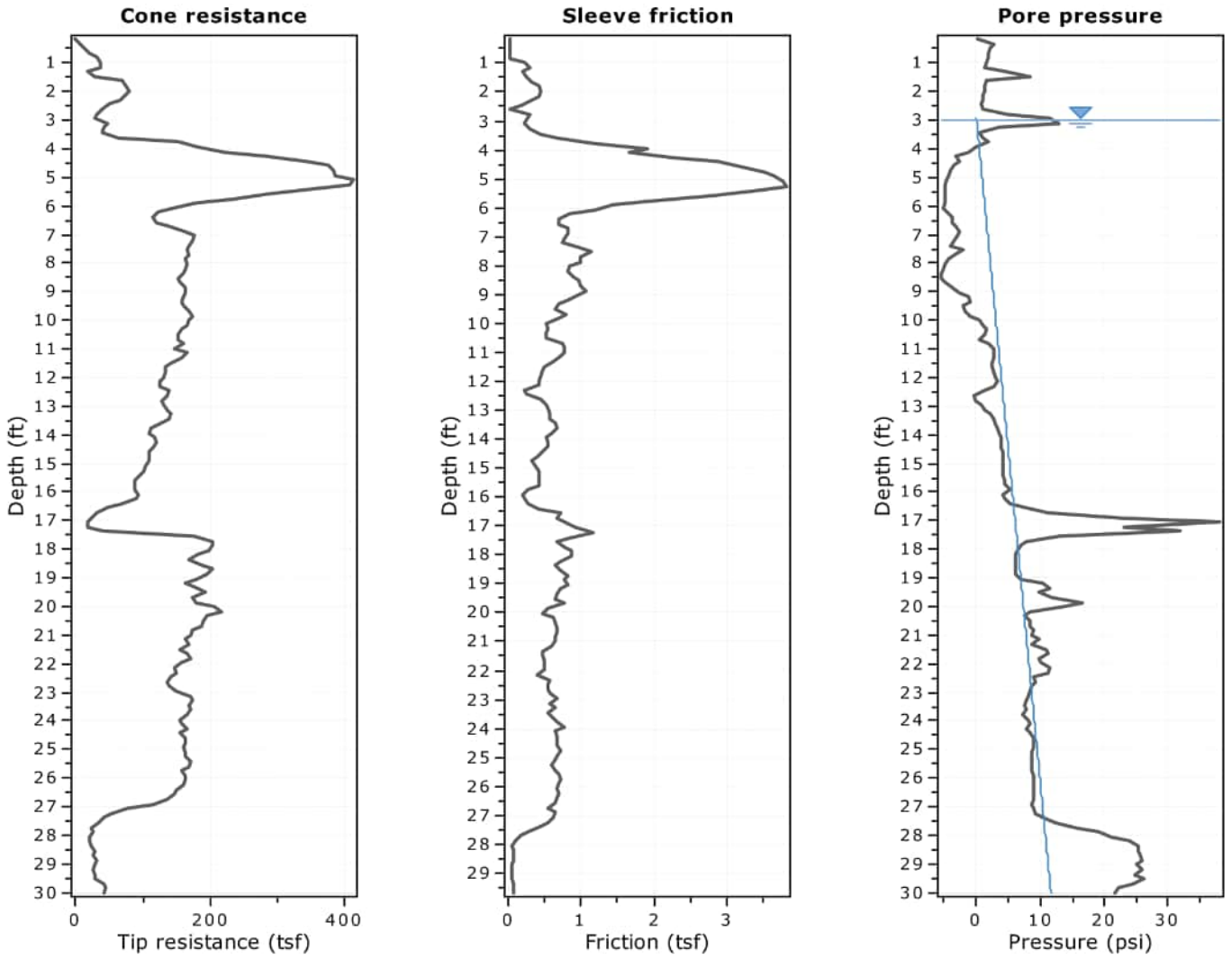
CPT-2

Project: **15th Street Townhomes**
Location: **Hinesville, Georgia**

Total depth: 30.02 ft, Date: 10/30/2025
Cone Operator: BM



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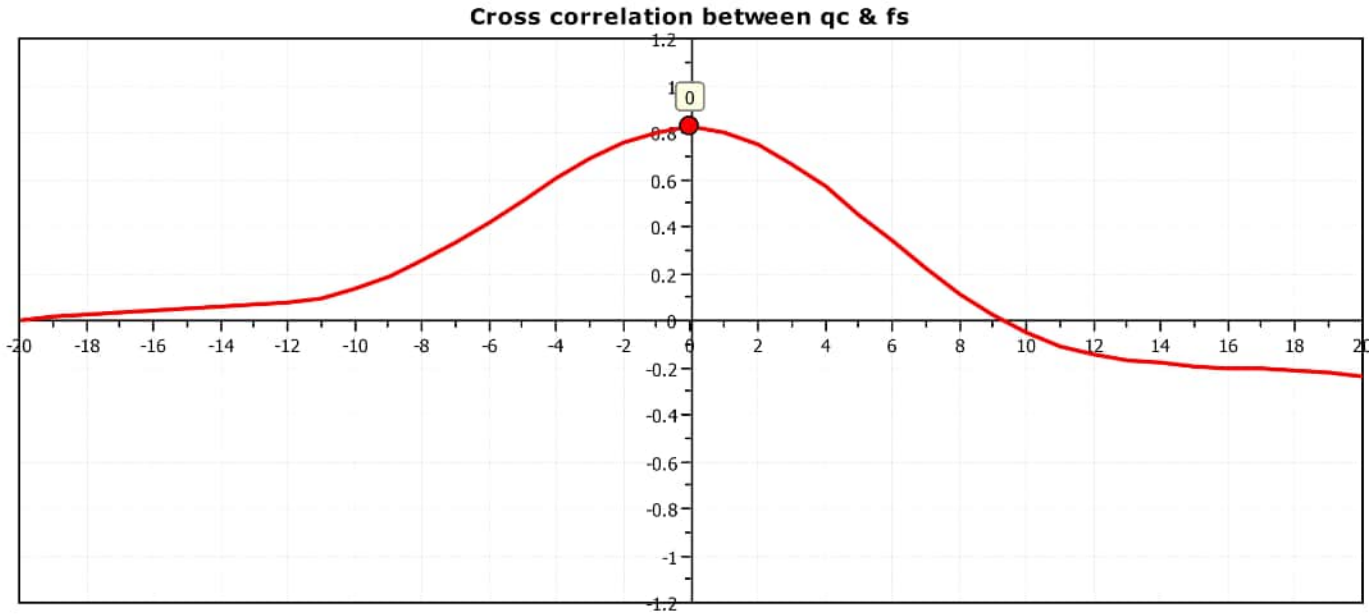

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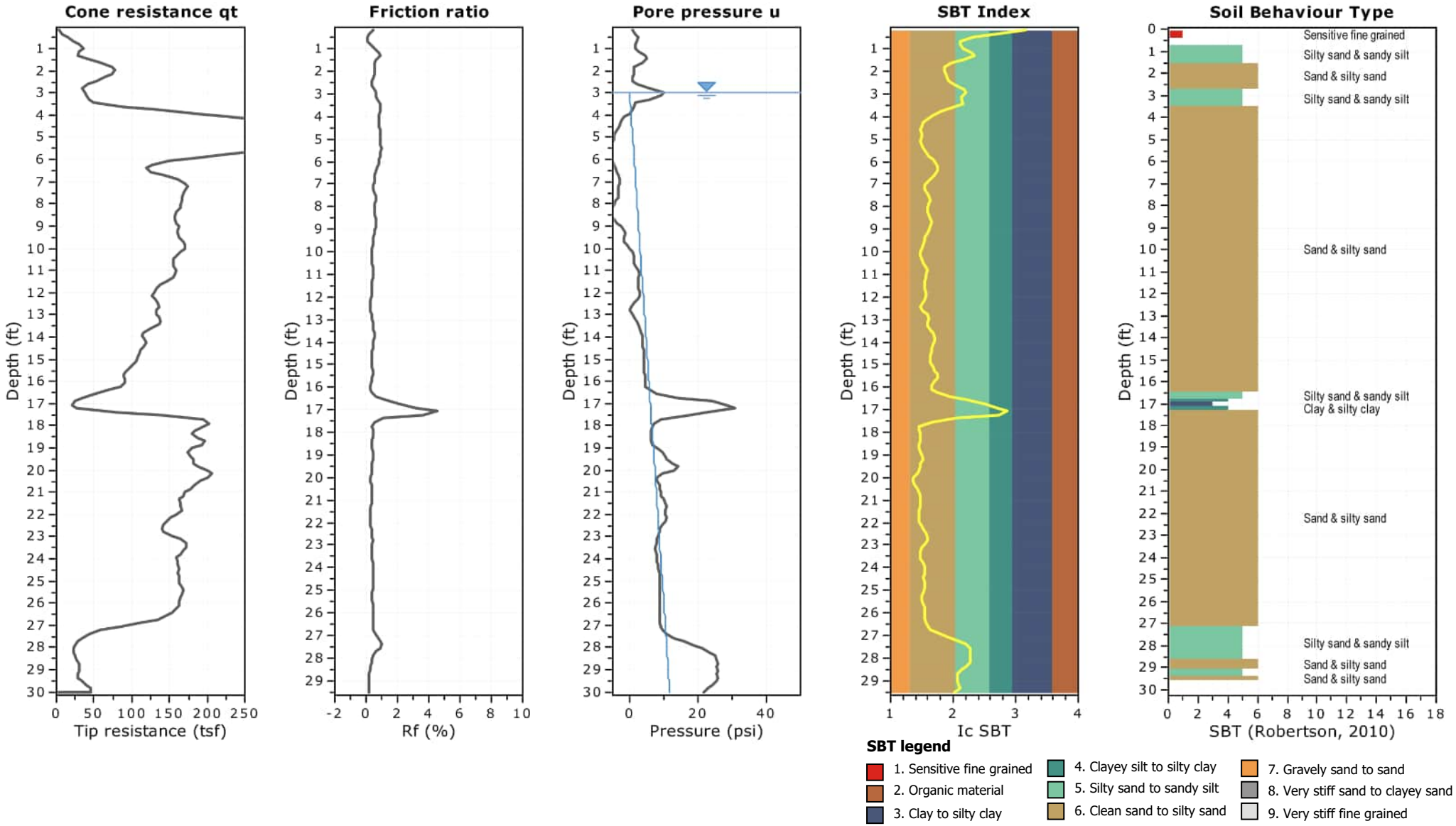
CPT-2

Project: **15th Street Townhomes**
Location: **Hinesville, Georgia**

Total depth: 30.02 ft, Date: 10/30/2025
Cone Operator: BM



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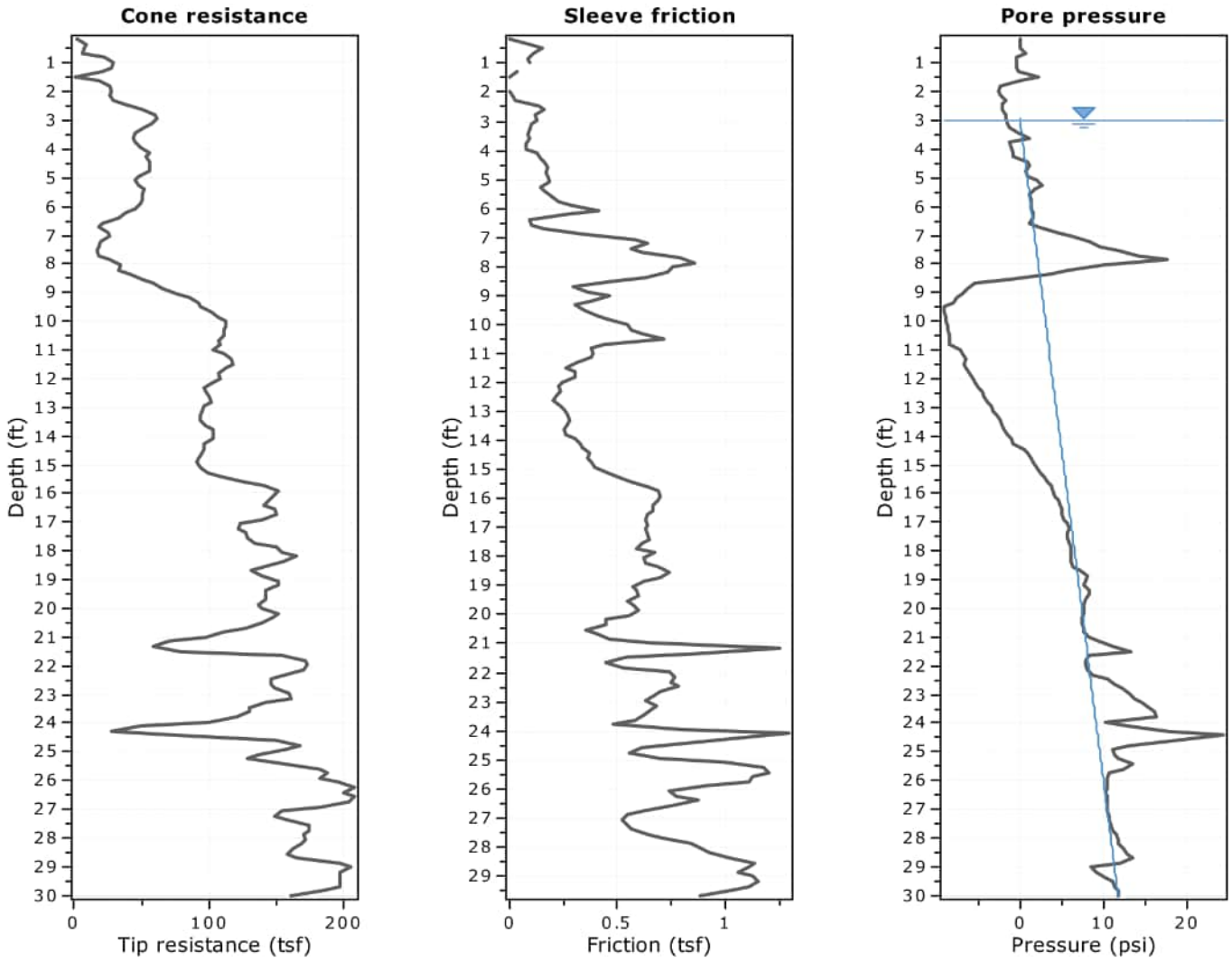
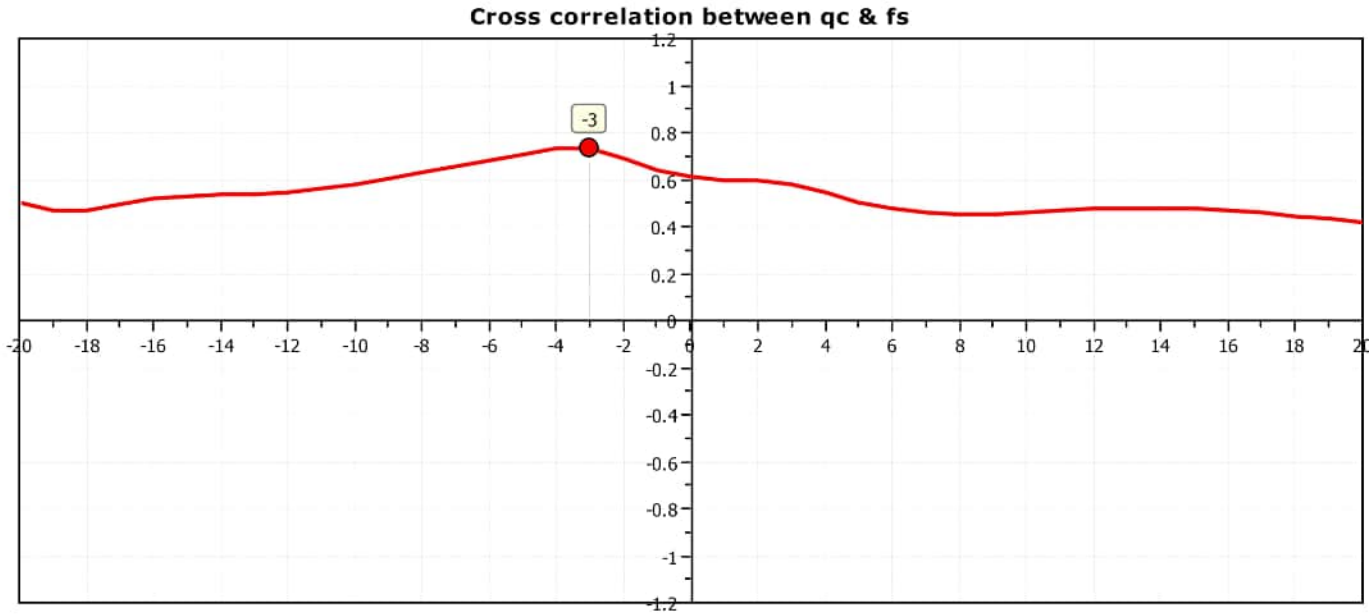
CPT-3

Project: **15th Street Townhomes**
Location: **Hinesville, Georgia**

Total depth: 30.02 ft, Date: 10/30/2025
Cone Operator: BM



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).



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Savannah, Georgia
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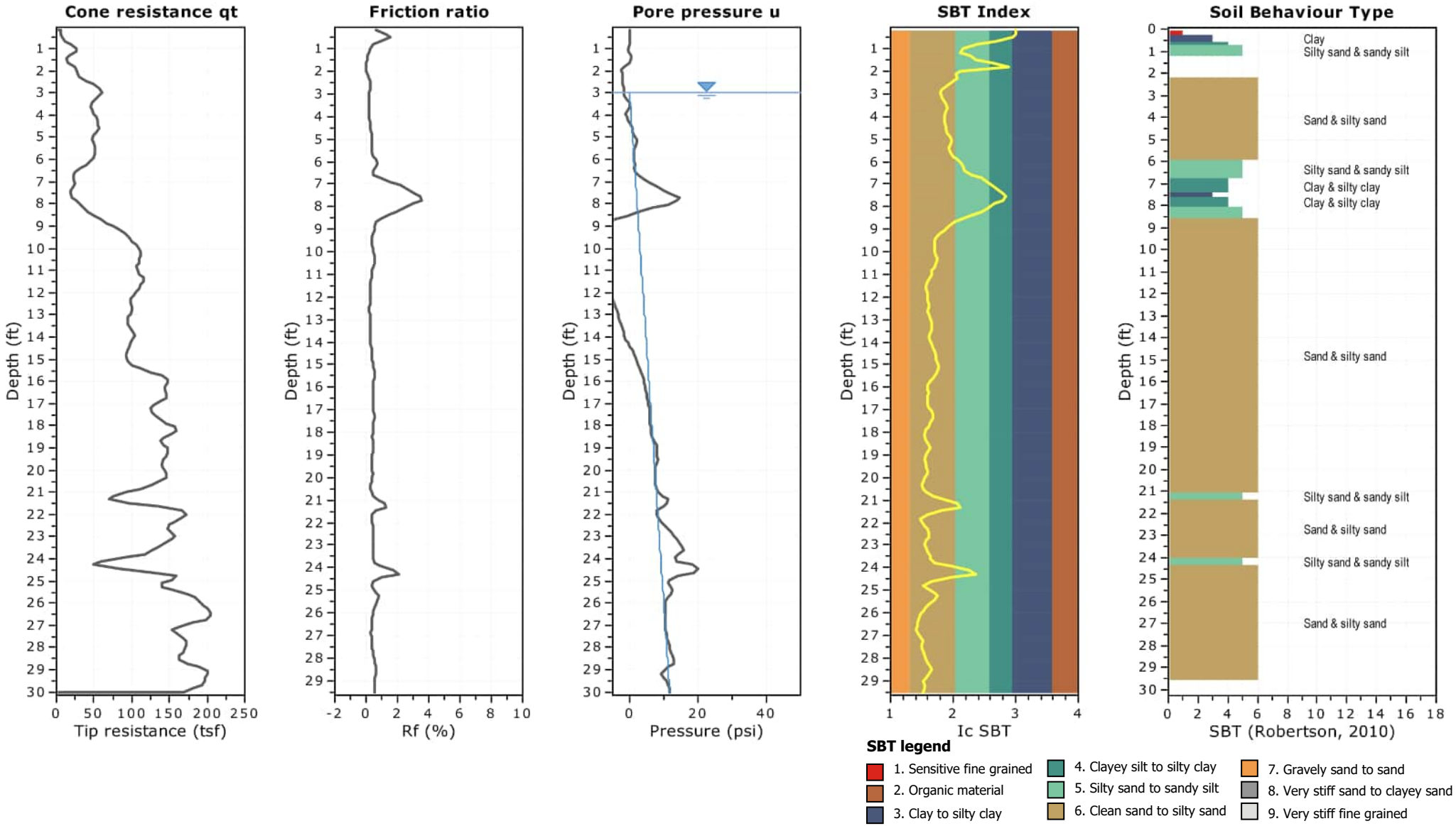
CPT-3

Project: **15th Street Townhomes**
Location: **Hinesville, Georgia**

Total depth: 30.02 ft, Date: 10/30/2025
Cone Operator: BM



WSP USA
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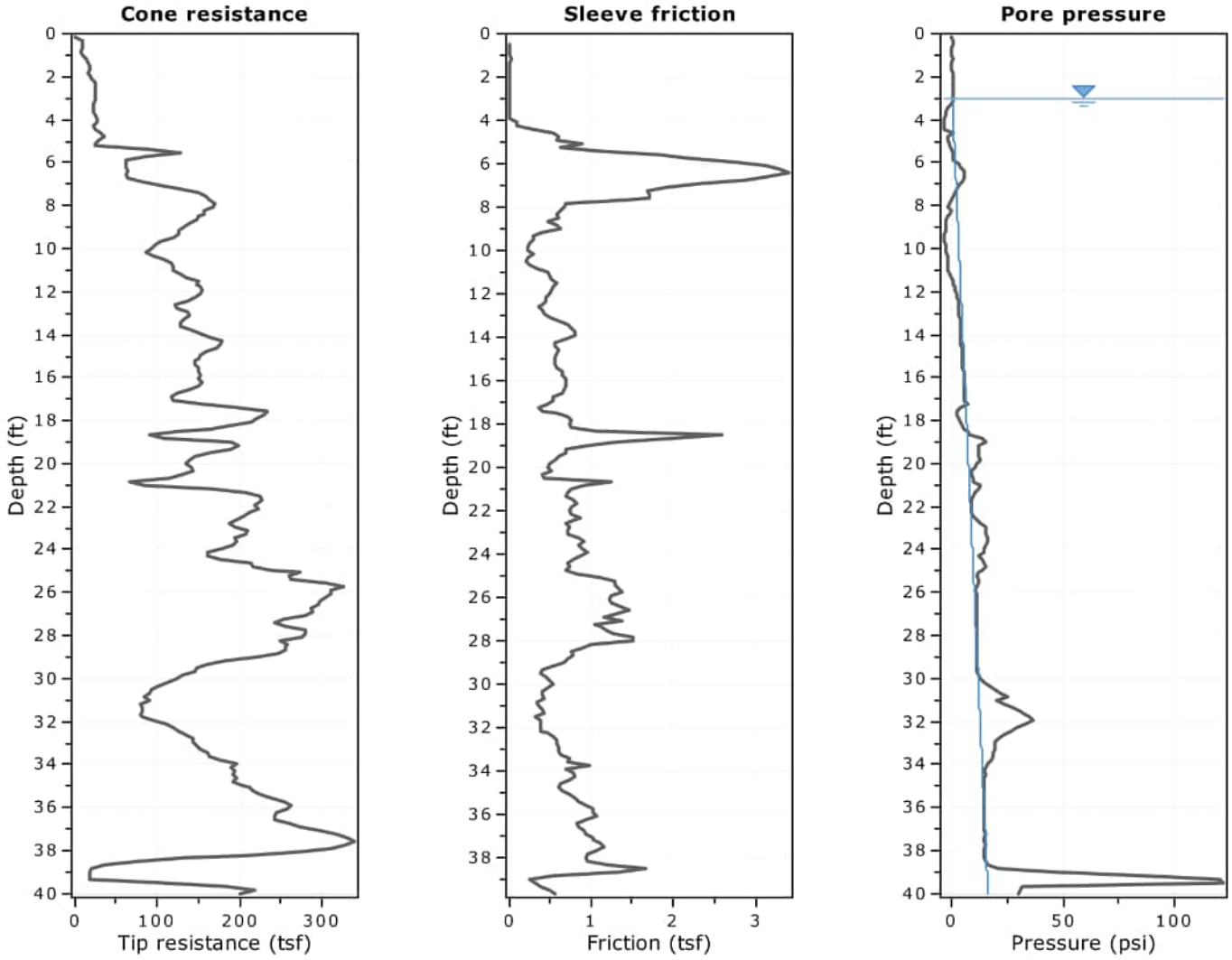
Savannah, Georgia
www.wsp.com

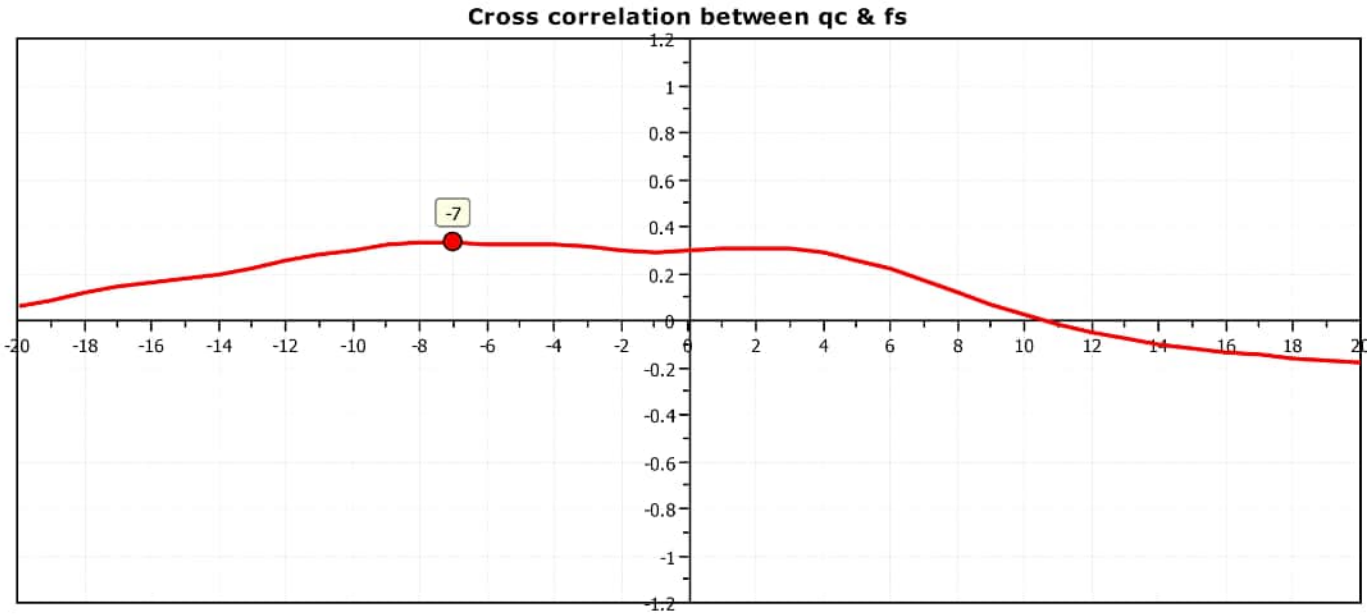
CPT-4

Project: **15th Street Townhomes**
Location: **Hinesville, Georgia**

Total depth: 40.03 ft, Date: 10/30/2025
Cone Operator: BM



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).



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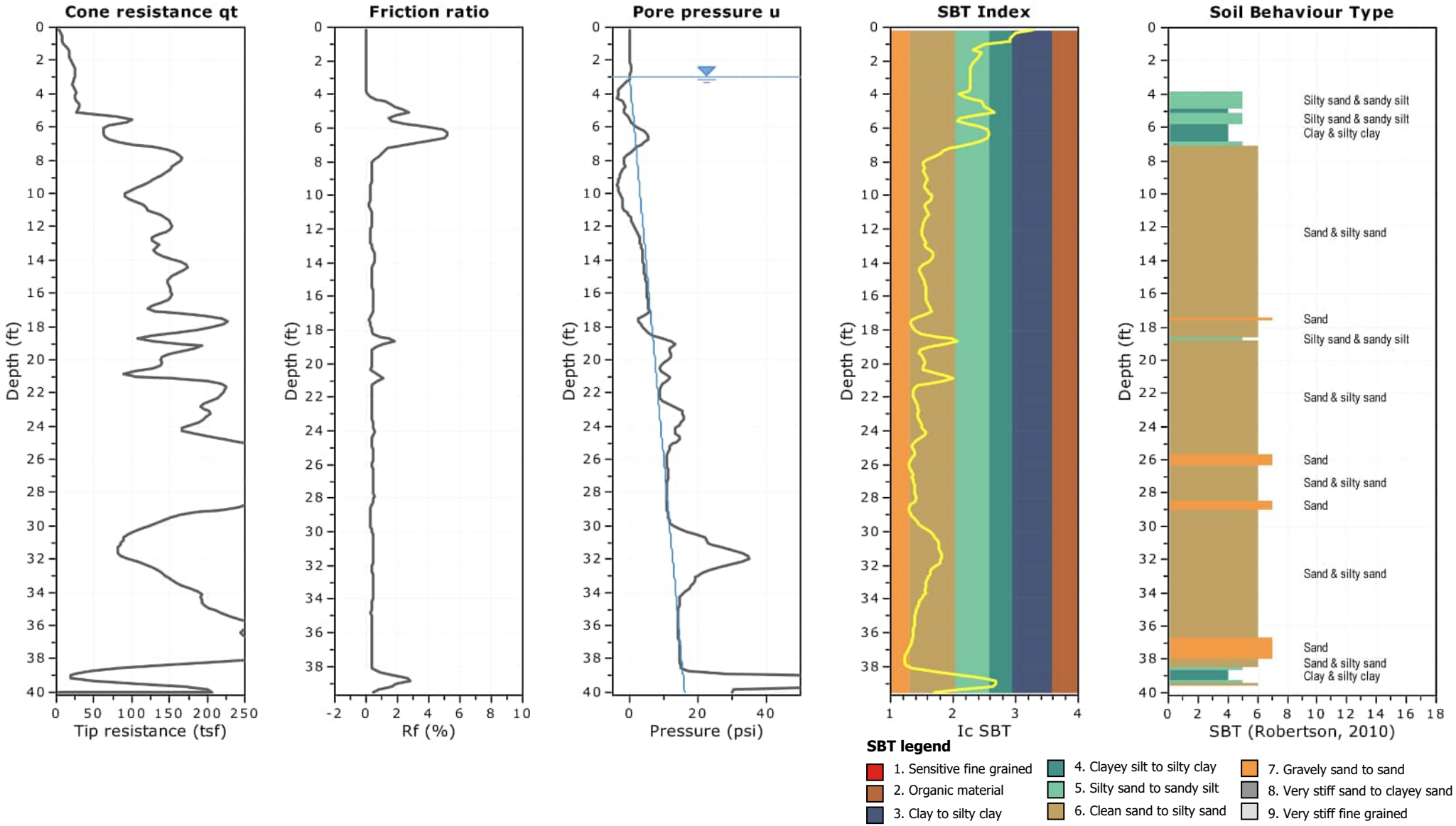
CPT-4

Project: **15th Street Townhomes**
Location: **Hinesville, Georgia**

Total depth: 40.03 ft, Date: 10/30/2025
Cone Operator: BM



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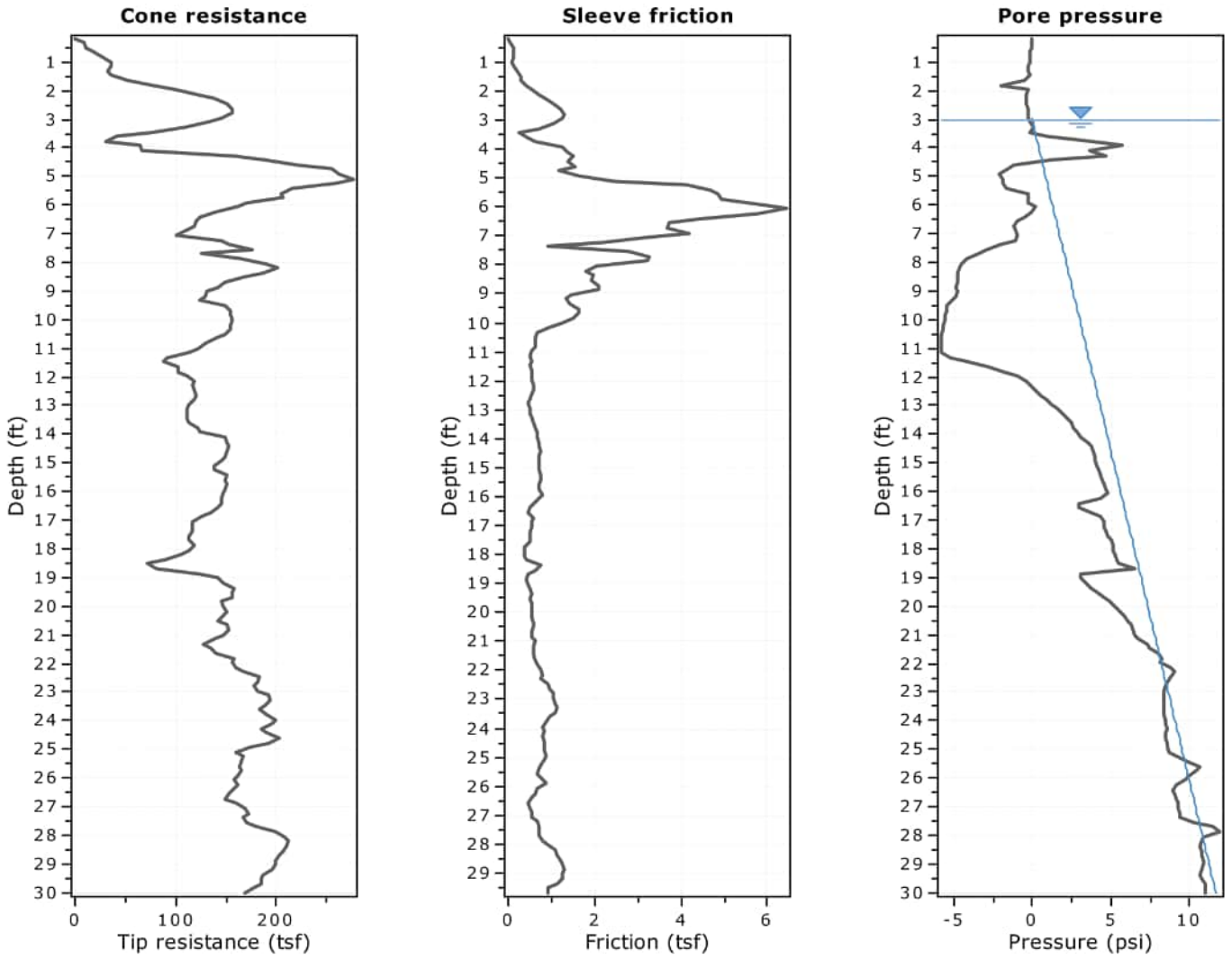
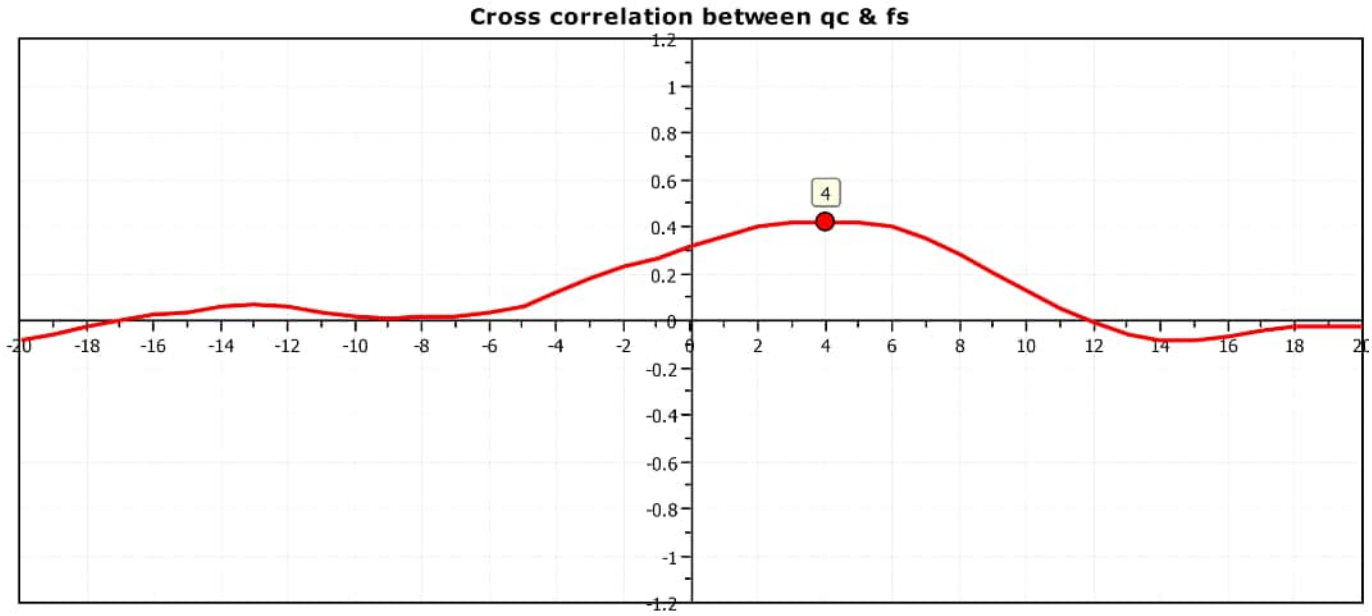
CPT-5

Project: **15th Street Townhomes**
Location: **Hinesville, Georgia**

Total depth: 30.02 ft, Date: 10/30/2025
Cone Operator: BM



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).



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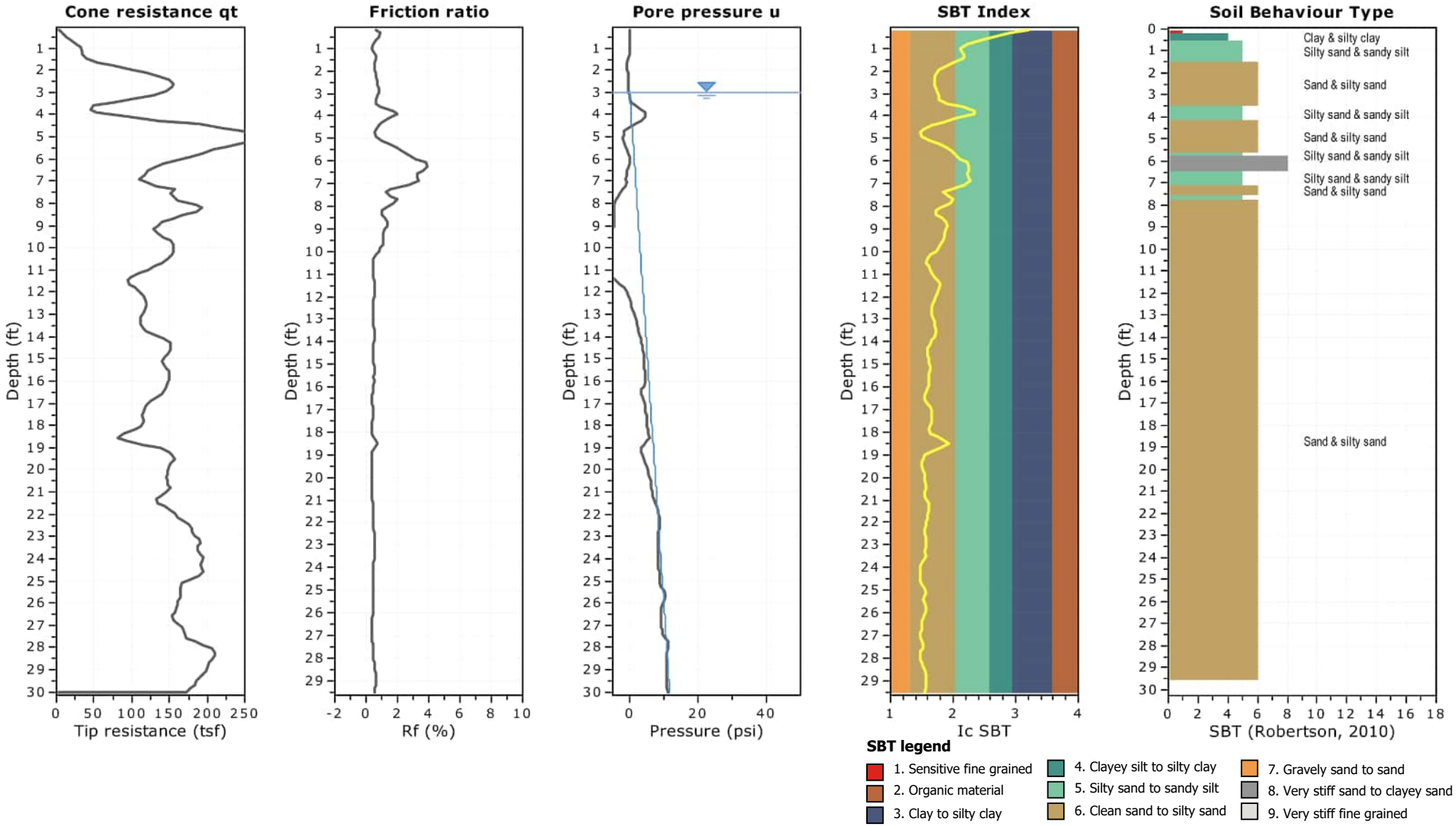
CPT-5

Project: **15th Street Townhomes**
Location: **Hinesville, Georgia**

Total depth: 30.02 ft, Date: 10/30/2025
Cone Operator: BM



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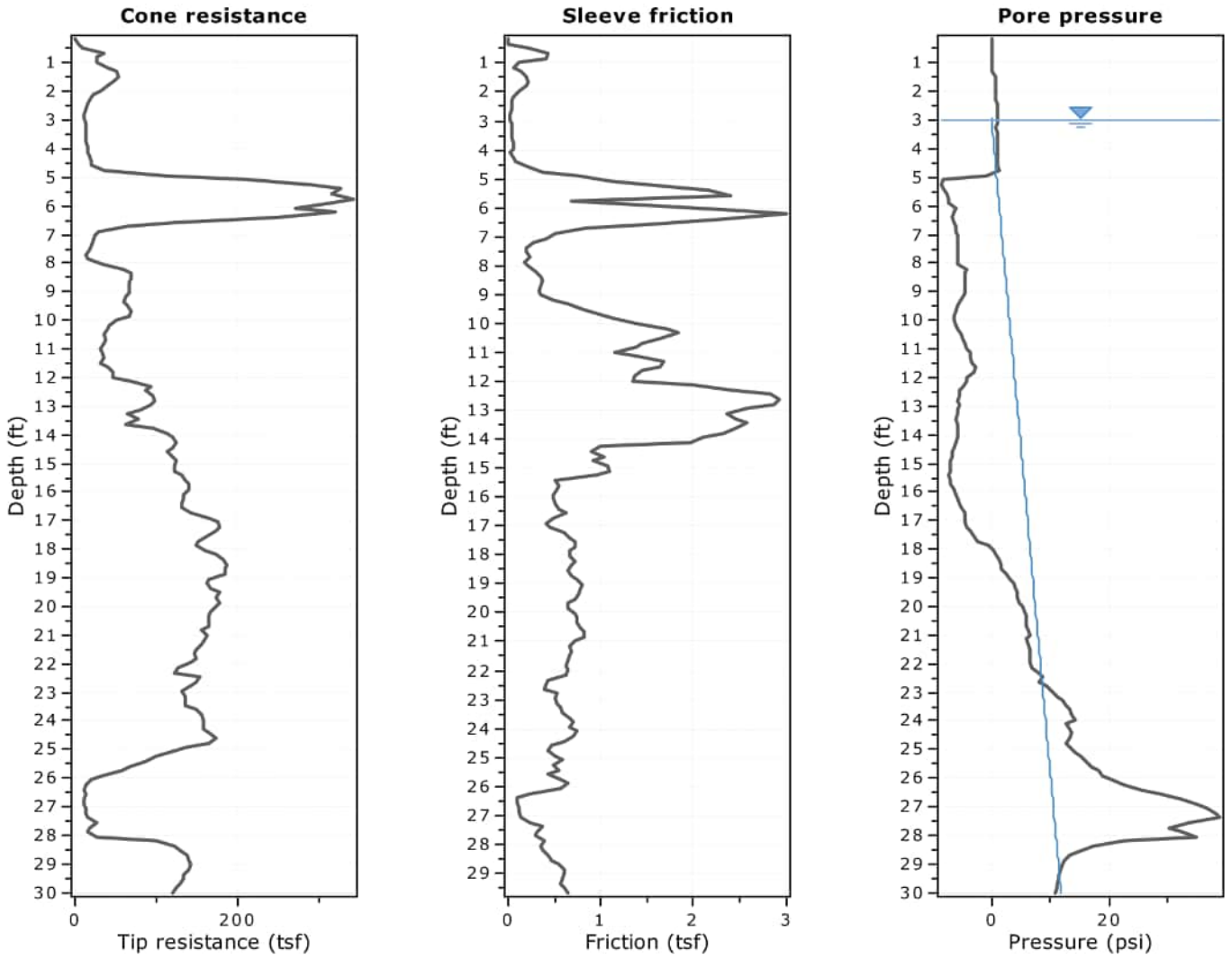
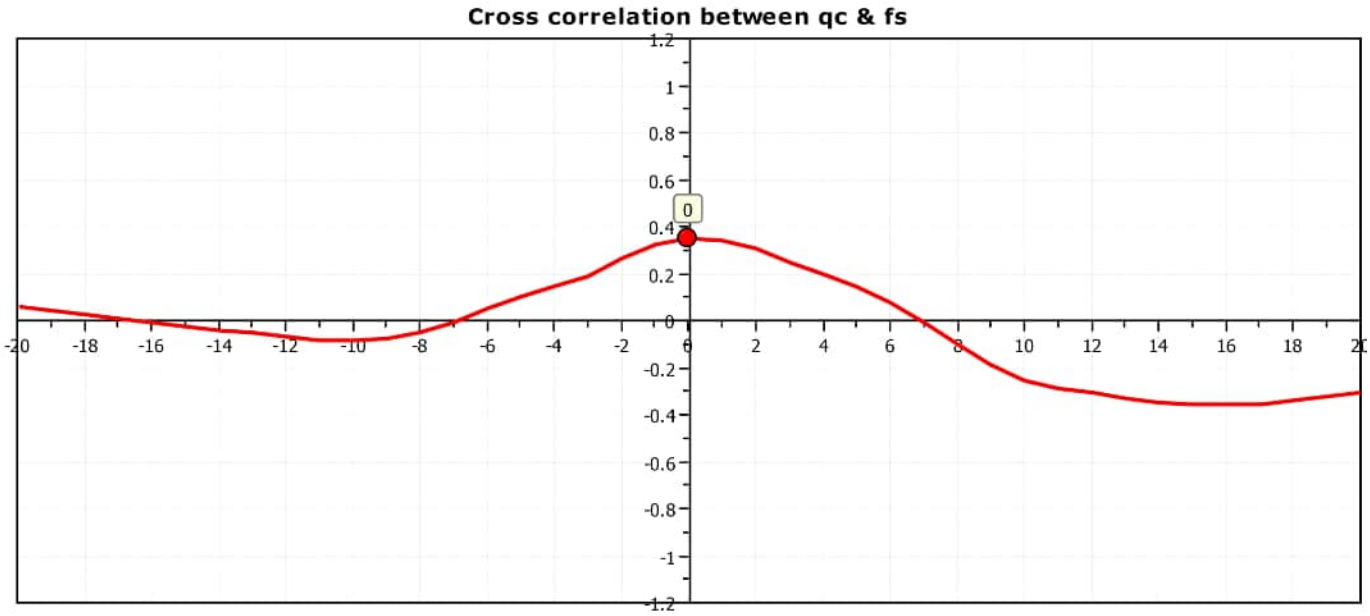
CPT-6

Project: **15th Street Townhomes**
Location: **Hinesville, Georgia**

Total depth: 30.02 ft, Date: 10/30/2025
Cone Operator: BM



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).



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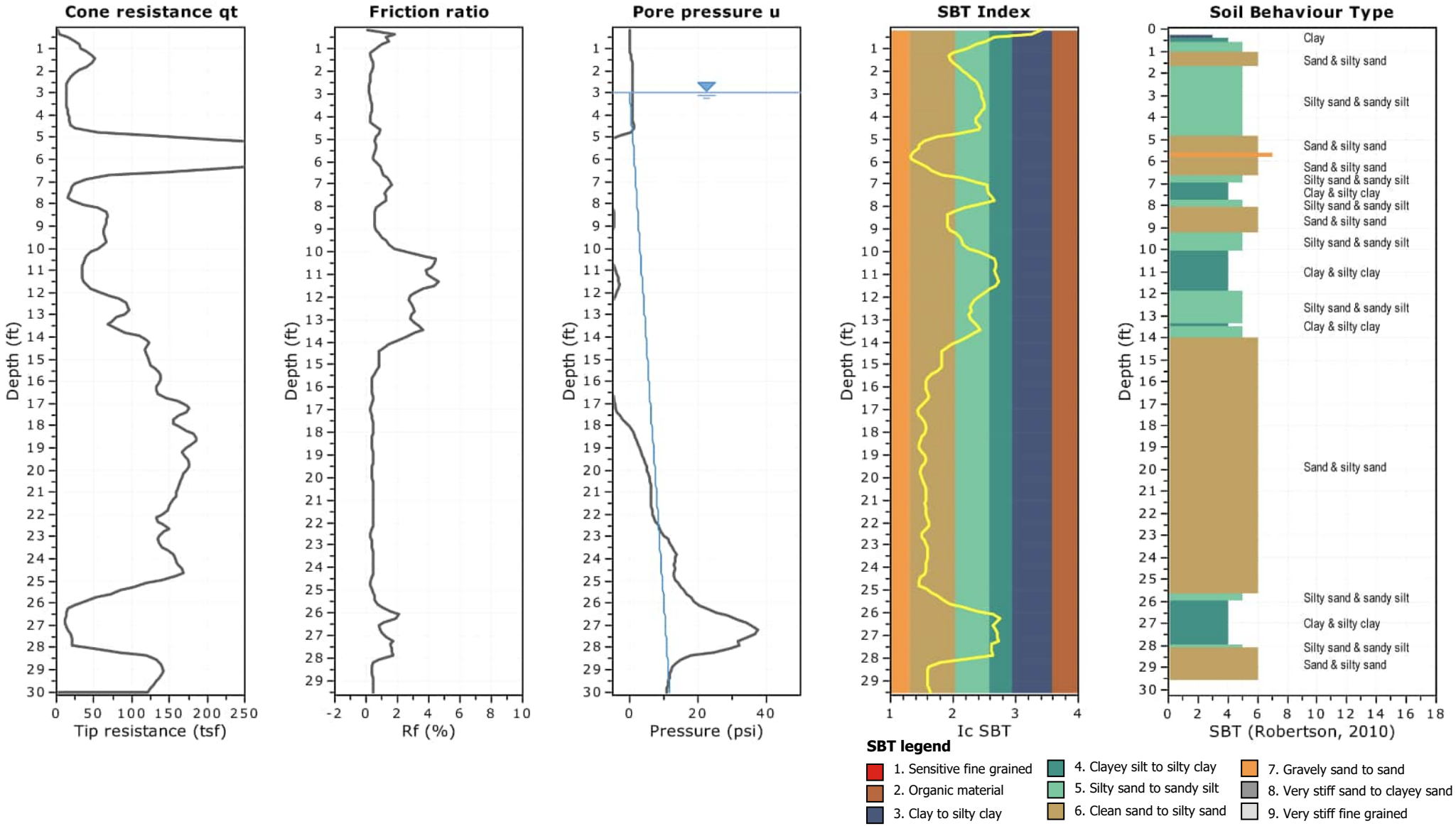
CPT-6

Project: **15th Street Townhomes**
Location: **Hinesville, Georgia**

Total depth: 30.02 ft, Date: 10/30/2025
Cone Operator: BM



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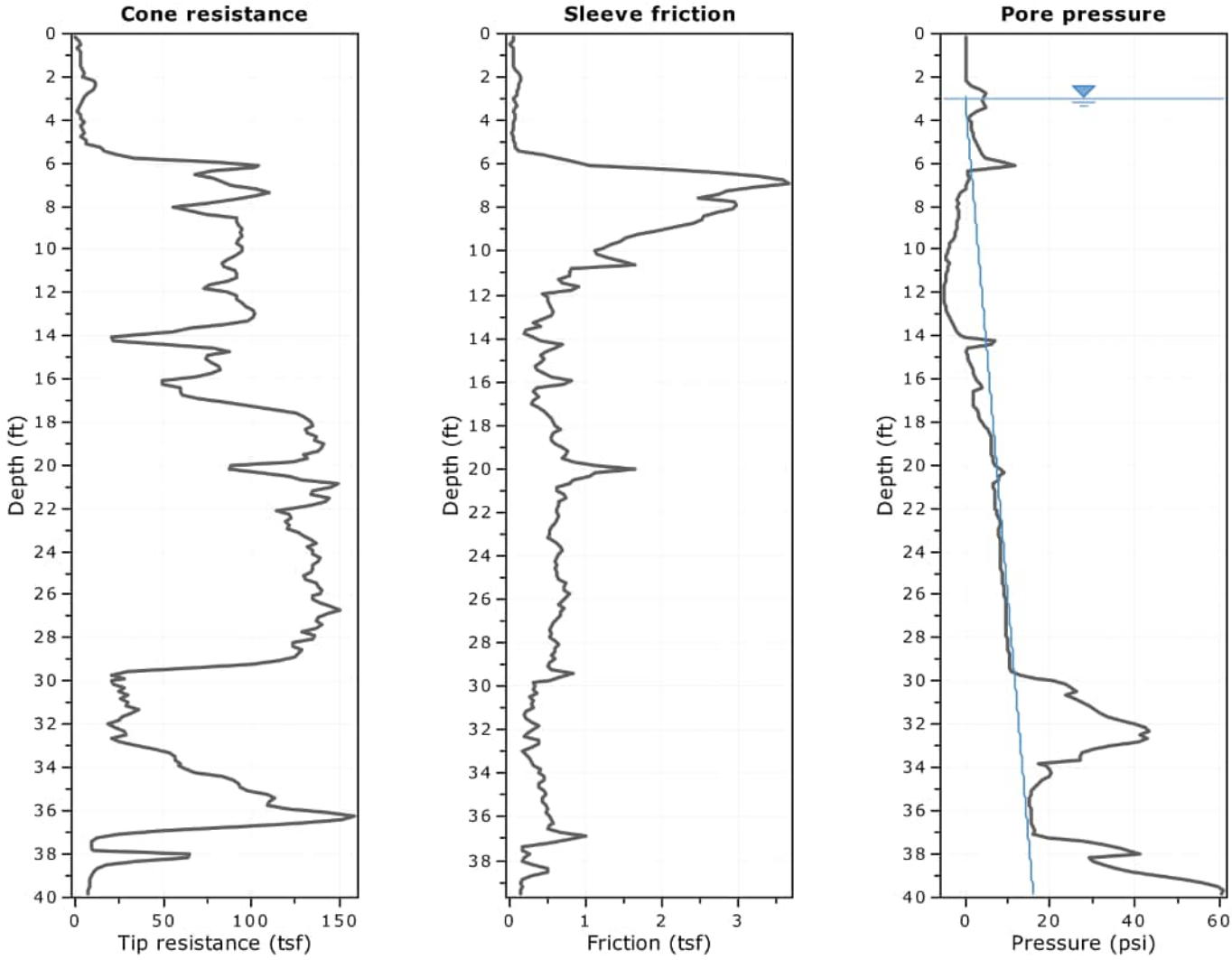
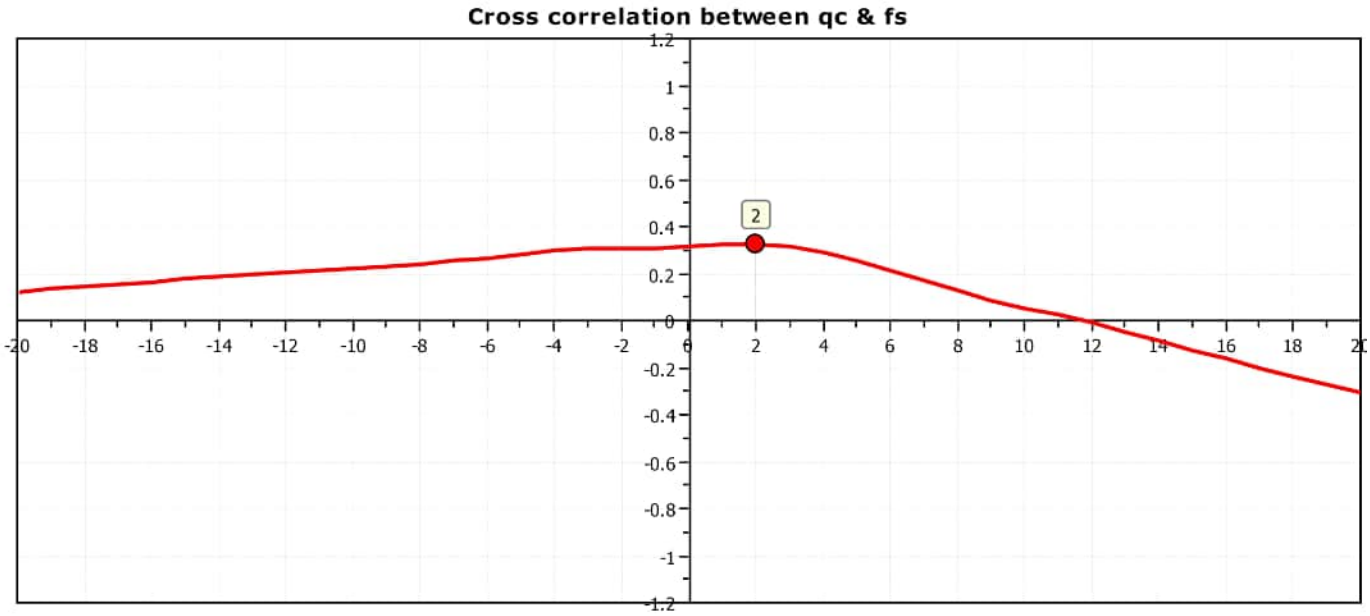
CPT-7

Project: **15th Street Townhomes**
Location: **Hinesville, Georgia**

Total depth: 39.86 ft, Date: 10/30/2025
Cone Operator: BM



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).



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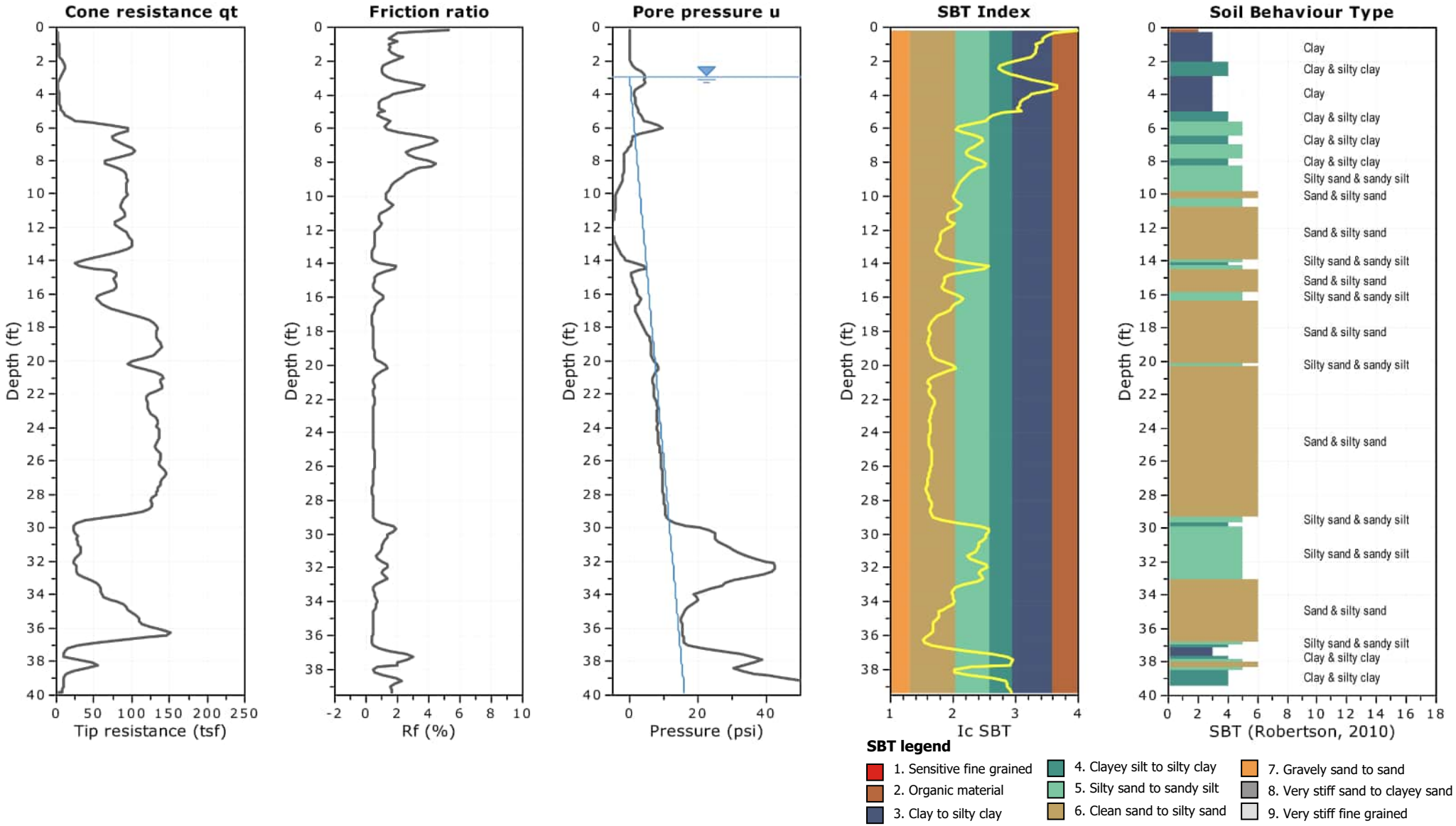
CPT-7

Project: **15th Street Townhomes**
Location: **Hinesville, Georgia**

Total depth: 39.86 ft, Date: 10/30/2025
Cone Operator: BM



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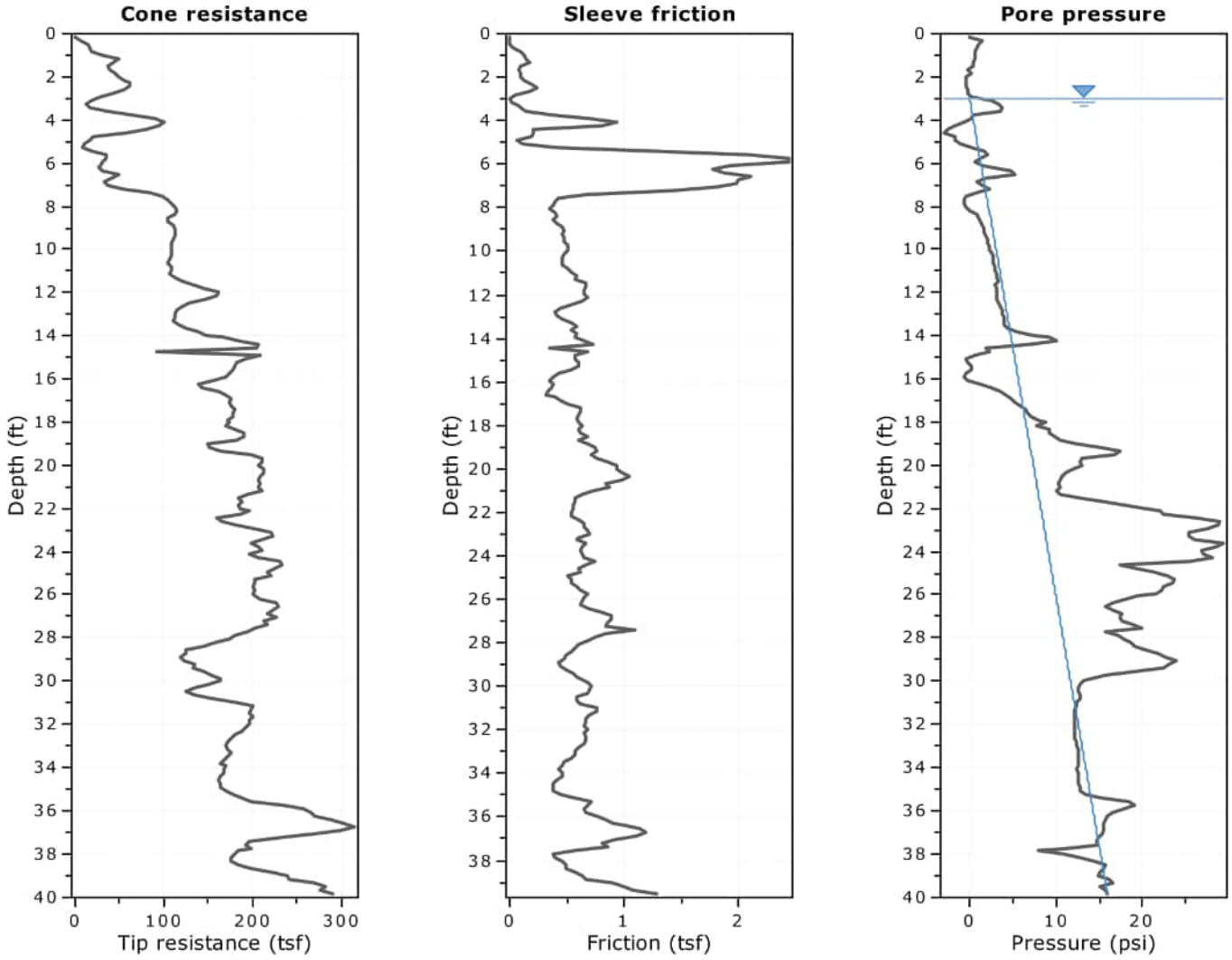
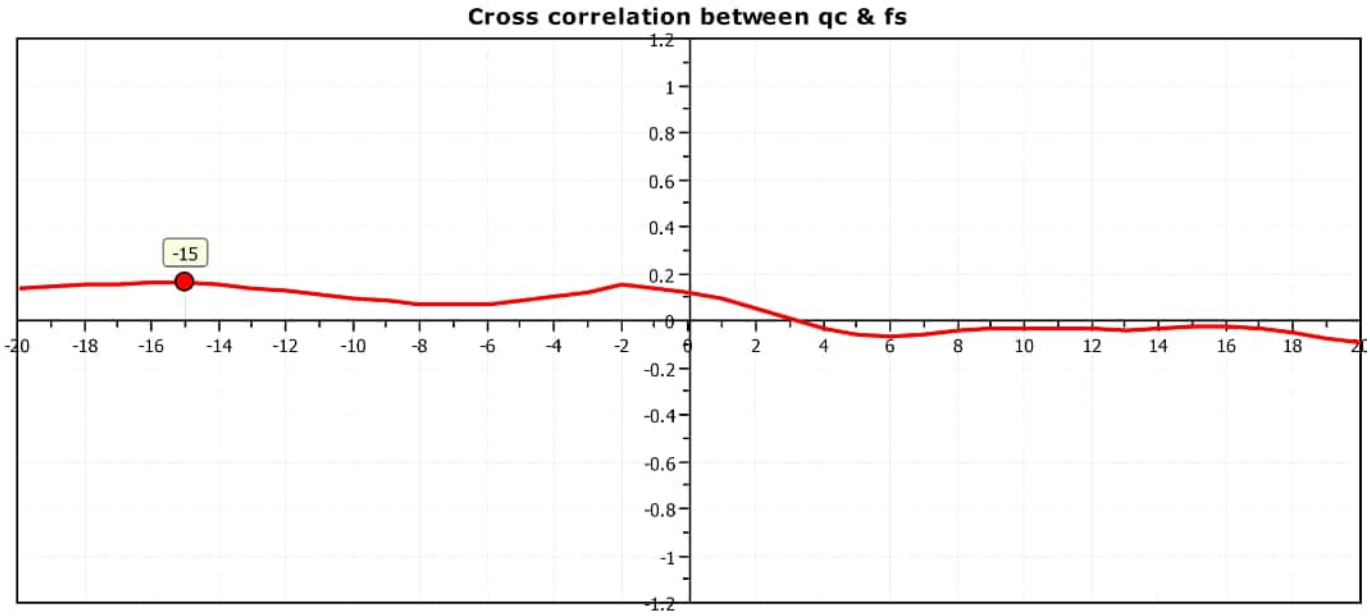
CPT-8

Project: **15th Street Townhomes**
Location: **Hinesville, Georgia**

Total depth: 39.86 ft, Date: 10/30/2025
Cone Operator: BM



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).



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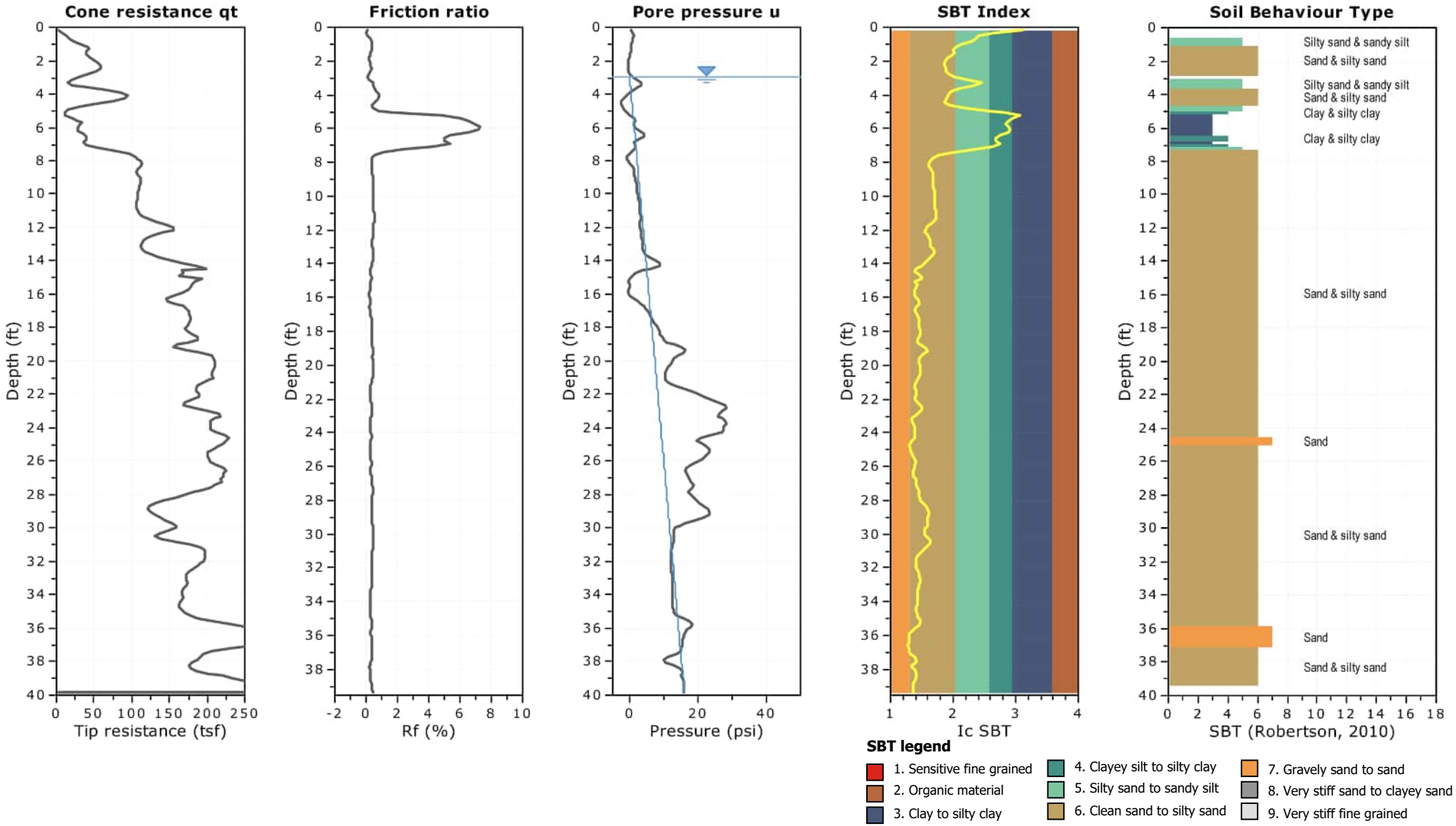
CPT-8

Project: **15th Street Townhomes**
Location: **Hinesville, Georgia**

Total depth: 39.86 ft, Date: 10/30/2025
Cone Operator: BM



MAJOR DIVISIONS			GROUP SYMBOLS		TYPICAL NAMES
COARSE GRAINED SOILS (More than 50% of material is LARGER than No. 200 sieve size)	GRAVELS (More than 50% of coarse fraction is LARGER than the No. 4 sieve size)	CLEAN GRAVELS (Little or no fines)		GW	Well graded gravels, gravel - sand mixtures, little or no fines.
				GP	Poorly graded gravels or grave - sand mixtures, little or no fines.
		GRAVELS WITH FINES (Appreciable amount of fines)		GM	Silty gravels, gravel - sand - silt mixtures.
				GC	Clayey gravels, gravel - sand - clay mixtures.
	SANDS (More than 50% of coarse fraction is SMALLER than the No. 4 Sieve Size)	CLEAN SANDS (Little or no fines)		SW	Well graded sands, gravelly sands, little or no fines.
				SP	Poorly graded sands or gravelly sands, little or no fines.
		SANDS WITH FINES (Appreciable amount of fines)		SM	Silty sands, sand - silt mixtures
				SC	Clayey sands, sand - clay mixtures.
FINE GRAINED SOILS (More than 50% of material is SMALLER than No. 200 sieve size)	SILTS AND CLAYS (Liquid limit LESS than 50)			ML	Inorganic silts and very fine sands, rock flour, silty of clayey fine sands or clayey silts and with slight plasticity.
				CL	Inorganic lays of low to medium plasticity, gravelly clays, sandy clays, silty clays, lean clays.
				OL	Organic silts and organic silty clays of low plasticity.
	SILTS AND CLAYS (Liquid limit GREATER than 50)			MH	Inorganic silts, micaceous or diatomaceous fine sandy or silty soils, elastic silts.
				CH	Inorganic clays of high plasticity, fat clays
				OH	Organic clays of medium to high plasticity, organic silts.
HIGHLY ORGANIC SOILS				PT	Peat and other highly organic soils.
FILL					Fill

	Undisturbed Sample		Auger Cuttings
	Standard Penetration Test or Dynamic Cone Penetration Test		Bulk Sample
	Rock Core		Crandall Sampler
	Dilatometer		Pressure Meter
	Packer		No Recovery
	Water Table at time of boring		Water Table after 24 hours

Correlation of Standard Penetration Resistance with Relative Density and Consistency

SAND & GRAVEL		SILT & CLAY	
No. of Blows	Relative Density	No. of Blows	Consistency
0 - 4	Very Loose	0 - 2	Very Soft
5 - 10	Loose	3 - 4	Soft
11 - 30	Medium Dense	5 - 8	Firm
31 - 50	Dense	9 - 15	Stiff
Over 50	Very Dense	16 - 30	Very Stiff
		31 - 50	Hard
		Over 50	Very Hard

Correlation of Dynamic Cone Penetration Resistance with Relative Density and Consistency (Piedmont Residual Soils)

SAND & GRAVEL		SILT & CLAY	
No. of Blows	Relative Density	No. of Blows	Consistency
0 - 4	Very Loose	0 - 2	Very Soft
5 - 15	Loose	3 - 4	Soft
16 - 30	Medium Dense	5 - 10	Firm
		11 - 30	Stiff

BOUNDARY CLASSIFICATIONS: Soils possessing characteristics of two groups are designated by combinations of group symbols.

SILT OR CLAY	SAND			GRAVEL		Cobbles	Boulders
	Fine	Medium	Coarse	Fine	Coarse		

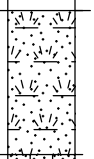
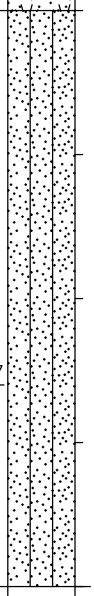
No.200 No.40 No.10 No.4 3/4" 3" 12"

U.S. STANDARD SIEVE SIZE

Reference: The Unified Soil Classification System, Corps of Engineers, U.S. Army Technical Memorandum No. 3-357, Vol. 1, March, 1953 (Revised April, 1960)

KEY TO SYMBOLS AND DESCRIPTIONS

WSP

DEPTH (ft)	SOIL CLASSIFICATION AND REMARKS SEE KEY SHEET FOR EXPLANATION OF SYMBOLS AND ABBREVIATIONS USED BELOW.	LEGEND	ELEV (ft)
0	**TOPSOIL LAYER:** Approximately 12"		
	Dark Gray Fine Silty Sand (SM) with trace roots and organics at 1'-2.5'		
	Gray		
	Dark Brown ▽		
5	Hand auger boring encountered refusal at approximately 5 feet below current grades.		
10			

SOIL TEST BORING LANDINGS HARBOR MARINA.GPJ GINT WSP STD.GDT 11/12/25

DRILLER:	WSP
EQUIPMENT:	
METHOD:	Hand Auger
HOLE DIA.:	4"
REMARKS:	Groundwater encountered at approximately 3.6 feet below current grades.

PREPARED BY: GS REVIEWED BY: YH

THIS RECORD IS A REASONABLE INTERPRETATION OF SUBSURFACE CONDITIONS AT THE EXPLORATION LOCATION. SUBSURFACE CONDITIONS AT OTHER LOCATIONS AND AT OTHER TIMES MAY DIFFER. INTERFACES BEWEEN STRATA ARE APPROXIMATE. TRANSITIONS BETWEEN STRATA MAY BE GRADUAL.

HAND AUGER BORING RECORD

BORING NO.: HA-1
PROJECT: Proposed 15th Street Townhomes
LOCATION: NWC of W 15th St and Davidson Plantation Rd
DRILLED: October 14, 2025
PROJECT NO.: US0049782.2149 **PAGE** 1 **OF** 1

WSP

DEPTH (ft)	SOIL CLASSIFICATION AND REMARKS SEE KEY SHEET FOR EXPLANATION OF SYMBOLS AND ABBREVIATIONS USED BELOW.	LEGEND	ELEV (ft)
0	**TOPSOIL:** Approximately 12" Topsoil		
	Gray Fine Silty Sand (SM)		
	Gray to Yellowish Brown Fine Silty Clayey Sand (SC-SM)		
5	Light Gray Fine Silty Sand (SM)		
	Hand auger boring encountered refusal at approximately 6.5 feet below current grades.		
10			

SOIL TEST BORING LANDINGS HARBOR MARINA.GPJ GINT WSP STD.GDT 11/12/25

DRILLER:	WSP
EQUIPMENT:	
METHOD:	Hand Auger
HOLE DIA.:	4"
REMARKS:	Groundwater encountered at approximately 3.4 feet below current grades.

PREPARED BY: GS REVIEWED BY: YH

THIS RECORD IS A REASONABLE INTERPRETATION OF SUBSURFACE CONDITIONS AT THE EXPLORATION LOCATION. SUBSURFACE CONDITIONS AT OTHER LOCATIONS AND AT OTHER TIMES MAY DIFFER. INTERFACES BEWEEN STRATA ARE APPROXIMATE. TRANSITIONS BETWEEN STRATA MAY BE GRADUAL.

HAND AUGER BORING RECORD

BORING NO.: HA-2
PROJECT: Proposed 15th Street Townhomes
LOCATION: NWC of W 15th St and Davidson Plantation Rd
DRILLED: October 14, 2025
PROJECT NO.: US0049782.2149 **PAGE** 1 **OF** 1

WSP

DEPTH (ft)	SOIL CLASSIFICATION AND REMARKS SEE KEY SHEET FOR EXPLANATION OF SYMBOLS AND ABBREVIATIONS USED BELOW.	LEGEND	ELEV (ft)
0	**TOPSOIL LAYER:** Approximately 8"		
	Gray Fine Silty Sand (SM)		
	Yellowish Brown to Gray Fine Silty Clayey Sand (SC-SM)		
5	Hand auger boring encountered refusal at approximately 5 feet below current grades.		
10			

SOIL TEST BORING LANDINGS HARBOR MARINA.GPJ GINT WSP STD.GDT 11/12/25

DRILLER:	WSP
EQUIPMENT:	
METHOD:	Hand Auger
HOLE DIA.:	4"
REMARKS:	Groundwater encountered at approximately 2.5 feet below current grades.

PREPARED BY: GS REVIEWED BY: YH

THIS RECORD IS A REASONABLE INTERPRETATION OF SUBSURFACE CONDITIONS AT THE EXPLORATION LOCATION. SUBSURFACE CONDITIONS AT OTHER LOCATIONS AND AT OTHER TIMES MAY DIFFER. INTERFACES BEWEEN STRATA ARE APPROXIMATE. TRANSITIONS BETWEEN STRATA MAY BE GRADUAL.

HAND AUGER BORING RECORD

BORING NO.: HA-3
PROJECT: Proposed 15th Street Townhomes
LOCATION: NWC of W 15th St and Davidson Plantation Rd
DRILLED: October 14, 2025
PROJECT NO.: US0049782.2149 **PAGE** 1 **OF** 1

WSP

DEPTH (ft)	SOIL CLASSIFICATION AND REMARKS SEE KEY SHEET FOR EXPLANATION OF SYMBOLS AND ABBREVIATIONS USED BELOW.	LEGEND	ELEV (ft)
0	**TOPSOIL/ROOT MAT LAYER:** Approximately 18"		
	Brown Fine Silty Sand (SM)		
	Light Brown Fine Silty Sand (SP-SM)		
5	Hand auger boring encountered refusal at approximately 5 feet below current grades.		
10			

SOIL TEST BORING LANDINGS HARBOR MARINA.GPJ GINT WSP STD.GDT 11/12/25

DRILLER:	WSP
EQUIPMENT:	
METHOD:	Hand Auger
HOLE DIA.:	4"
REMARKS:	Groundwater encountered at approximately 2.0 feet below current grades.

PREPARED BY: GS REVIEWED BY: YH

THIS RECORD IS A REASONABLE INTERPRETATION OF SUBSURFACE CONDITIONS AT THE EXPLORATION LOCATION. SUBSURFACE CONDITIONS AT OTHER LOCATIONS AND AT OTHER TIMES MAY DIFFER. INTERFACES BEWEEN STRATA ARE APPROXIMATE. TRANSITIONS BETWEEN STRATA MAY BE GRADUAL.

HAND AUGER BORING RECORD

BORING NO.:	HA-4
PROJECT:	Proposed 15th Street Townhomes
LOCATION:	NWC of W 15th St and Davidson Plantation Rd
DRILLED:	October 14, 2025
PROJECT NO.:	US0049782.2149

WSP

DEPTH (ft)	SOIL CLASSIFICATION AND REMARKS SEE KEY SHEET FOR EXPLANATION OF SYMBOLS AND ABBREVIATIONS USED BELOW.	LEGEND	ELEV (ft)
0	**TOPSOIL:** Approximately 12"		
	Dark Gray Fine Silty Sand (SM)		
	Gray Fine Silty Clayey Sand (SC-SM)		
5	Hand auger boring terminated at approximately 5 feet below current grades.		
10			

SOIL TEST BORING LANDINGS HARBOR MARINA.GPJ GINT WSP STD.GDT 11/12/25

DRILLER:	WSP
EQUIPMENT:	
METHOD:	Hand Auger
HOLE DIA.:	4"
REMARKS:	Groundwater encountered at approximately 3.4 feet below current grades.

PREPARED BY: GS REVIEWED BY: YH

THIS RECORD IS A REASONABLE INTERPRETATION OF SUBSURFACE CONDITIONS AT THE EXPLORATION LOCATION. SUBSURFACE CONDITIONS AT OTHER LOCATIONS AND AT OTHER TIMES MAY DIFFER. INTERFACES BEWEEN STRATA ARE APPROXIMATE. TRANSITIONS BETWEEN STRATA MAY BE GRADUAL.

HAND AUGER BORING RECORD

BORING NO.: HA-5
PROJECT: Proposed 15th Street Townhomes
LOCATION: NWC of W 15th St and Davidson Plantation Rd
DRILLED: October 14, 2025
PROJECT NO.: US0049782.2149 **PAGE** 1 **OF** 1

WSP

DEPTH (ft)	SOIL CLASSIFICATION AND REMARKS SEE KEY SHEET FOR EXPLANATION OF SYMBOLS AND ABBREVIATIONS USED BELOW.	LEGEND	ELEV (ft)
0	**TOPSOIL LAYER:** 18"		
	Light Brown to Gray Fine Silty Sand (SM)		
	Yellowish Brown		
	Gray		
5	Hand auger boring terminated at approximately 5 feet below current grades.		
10			

SOIL TEST BORING LANDINGS HARBOR MARINA.GPJ GINT WSP STD.GDT 11/12/25

DRILLER:	WSP
EQUIPMENT:	
METHOD:	Hand Auger
HOLE DIA.:	4"
REMARKS:	Groundwater encountered at approximately 3.6 feet below current grades.

PREPARED BY: GS REVIEWED BY: YH

THIS RECORD IS A REASONABLE INTERPRETATION OF SUBSURFACE CONDITIONS AT THE EXPLORATION LOCATION. SUBSURFACE CONDITIONS AT OTHER LOCATIONS AND AT OTHER TIMES MAY DIFFER. INTERFACES BEWEEN STRATA ARE APPROXIMATE. TRANSITIONS BETWEEN STRATA MAY BE GRADUAL.

HAND AUGER BORING RECORD

BORING NO.: HA-6
PROJECT: Proposed 15th Street Townhomes
LOCATION: NWC of W 15th St and Davidson Plantation Rd
DRILLED: October 14, 2025
PROJECT NO.: US0049782.2149 **PAGE** 1 **OF** 1

WSP

DEPTH (ft)	SOIL CLASSIFICATION AND REMARKS SEE KEY SHEET FOR EXPLANATION OF SYMBOLS AND ABBREVIATIONS USED BELOW.	LEGEND	ELEV (ft)
0	Dark Gray to Black Fine Silty Sand (SM) with trace soot at 0'-3.5'		
	Dark Gray		
5	Hand auger boring terminated at approximately 5 feet below current grades.		
10			

SOIL TEST BORING LANDINGS HARBOR MARINA.GPJ GINT WSP STD.GDT 11/12/25

DRILLER:	WSP
EQUIPMENT:	
METHOD:	Hand Auger
HOLE DIA.:	4"
REMARKS:	Groundwater encountered at approximately 3.5 feet below current grades.
PREPARED BY: GS	REVIEWED BY: YH

THIS RECORD IS A REASONABLE INTERPRETATION OF SUBSURFACE CONDITIONS AT THE EXPLORATION LOCATION. SUBSURFACE CONDITIONS AT OTHER LOCATIONS AND AT OTHER TIMES MAY DIFFER. INTERFACES BEWEEN STRATA ARE APPROXIMATE. TRANSITIONS BETWEEN STRATA MAY BE GRADUAL.

HAND AUGER BORING RECORD

BORING NO.: HA-7
PROJECT: Proposed 15th Street Townhomes
LOCATION: NWC of W 15th St and Davidson Plantation Rd
DRILLED: October 14, 2025
PROJECT NO.: US0049782.2149 **PAGE** 1 **OF** 1

WSP

DEPTH (ft)	SOIL CLASSIFICATION AND REMARKS SEE KEY SHEET FOR EXPLANATION OF SYMBOLS AND ABBREVIATIONS USED BELOW.	LEGEND	ELEV (ft)
0	**TOPSOIL:** Approximately 6"		
	Gray Fine Silty Sand (SM)		
5	Hand auger boring terminated at approximately 5 feet below current grades.		
10			

SOIL TEST BORING LANDINGS HARBOR MARINA.GPJ GINT WSP STD.GDT 11/12/25

DRILLER:	WSP
EQUIPMENT:	
METHOD:	Hand Auger
HOLE DIA.:	4"
REMARKS:	Groundwater encountered at approximately 2.8 feet below current grades.
PREPARED BY: GS	REVIEWED BY: YH

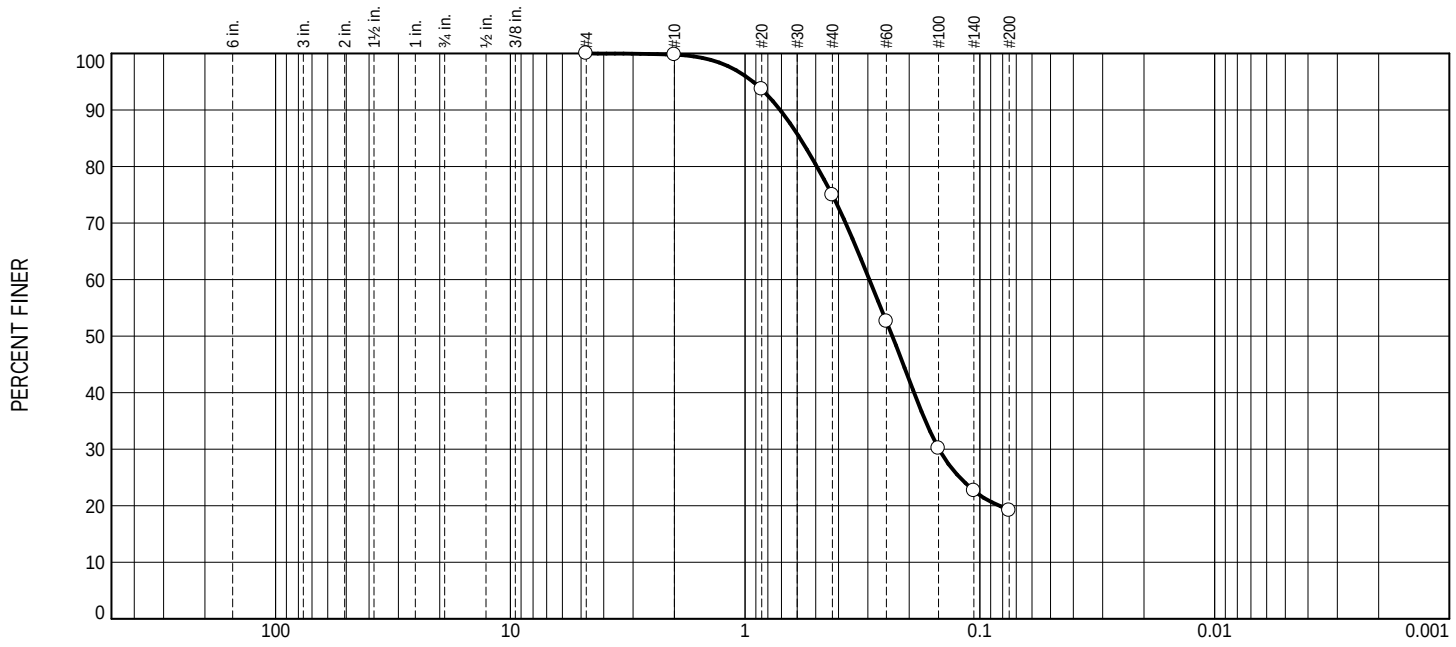
THIS RECORD IS A REASONABLE INTERPRETATION OF SUBSURFACE CONDITIONS AT THE EXPLORATION LOCATION. SUBSURFACE CONDITIONS AT OTHER LOCATIONS AND AT OTHER TIMES MAY DIFFER. INTERFACES BEWEEN STRATA ARE APPROXIMATE. TRANSITIONS BETWEEN STRATA MAY BE GRADUAL.

HAND AUGER BORING RECORD

BORING NO.: HA-8
PROJECT: Proposed 15th Street Townhomes
LOCATION: NWC of W 15th St and Davidson Plantation Rd
DRILLED: October 14, 2025
PROJECT NO.: US0049782.2149 **PAGE** 1 **OF** 1

WSP

Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines
	Coarse	Fine	Coarse	Medium	Fine	
0.0	0.0	0.0	0.2	24.9	55.8	19.1

Test Results (ASTM D6913 & D1140)			
Sieve Size or Diam. (mm.)	Finer (%)	Spec.* (%)	Out of Spec. (%)
#4	100.0		
#10	99.8		
#20	93.7		
#40	74.9		
#60	52.6		
#100	30.1		
#140	22.6		
#200	19.1		

* (no specification provided)

Location: HA-1
Sample Number: 630 Depth: 1.0'-2.5'

Material Description
Brown Silty Sand

Atterberg (ASTM D4318)
PL= N/A LL= N/A PI= N/A

Coefficients
D_{90}= 0.7085 D_{85}= 0.5836
D_{60}= 0.2957 D_{50}= 0.2359
D_{30}= 0.1493 D_{15}=
D_{10}=
C_u= C_c=

Sieve Test (ASTM D6913 & D1140)
Test Date: 10-29-25 Technician: B. Moseley

Test Notes
N/A

Hydrometer Test
Test Date: N/A Technician: N/A

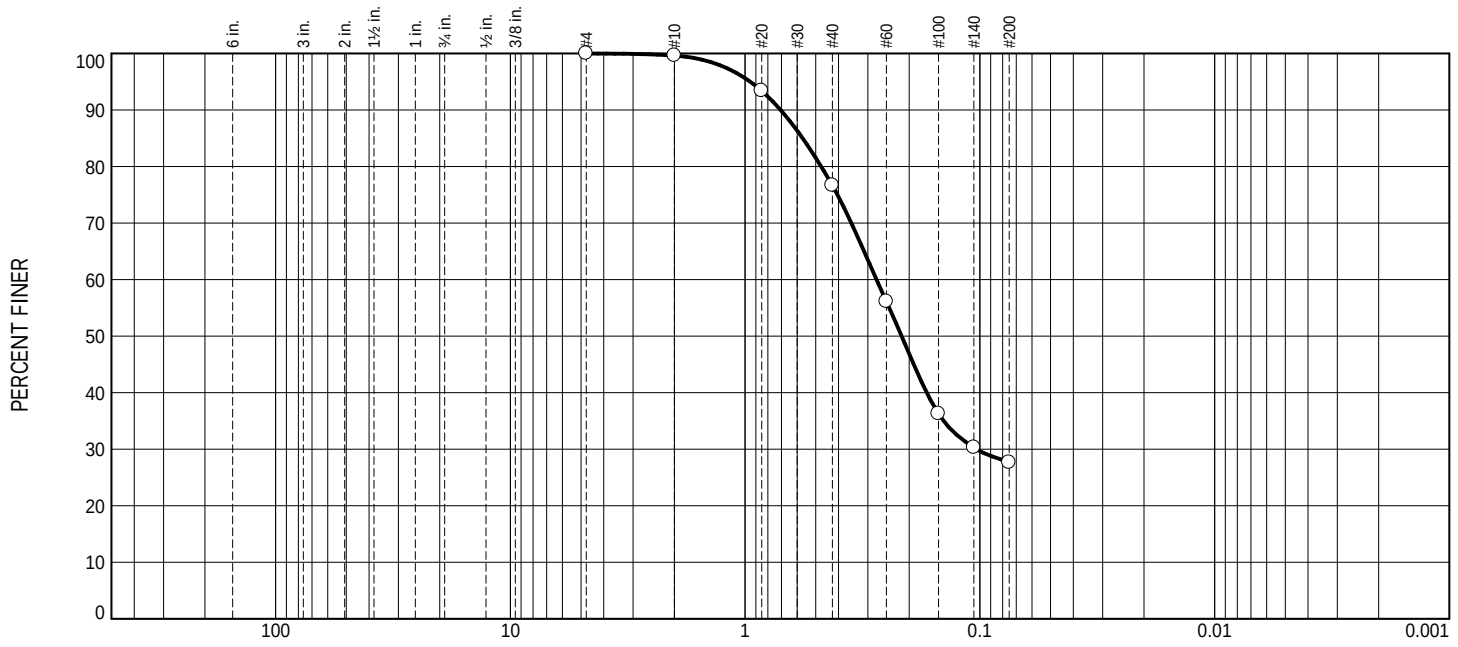
Test Notes
N/A

USCS (ASTM D2487)
SM

Date Sampled: 10-14-25
Date Received: 10-14-25
Checked By: G. Smith
Title: Lab Manager

Client: M.E. Sack Engineering
Project: Proposed 15th Street Townhomes NWC of W 15th St and Davidson Plantation Rd Hinesville, GA 31313
Project No: US0049782.2149 Figure

Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines
	Coarse	Fine	Coarse	Medium	Fine	
0.0	0.0	0.0	0.4	22.9	49.1	27.6

Test Results (ASTM D6913 & D1140)			
Sieve Size or Diam. (mm.)	Finer (%)	Spec.* (%)	Out of Spec. (%)
#4	100.0		
#10	99.6		
#20	93.4		
#40	76.7		
#60	56.1		
#100	36.3		
#140	30.3		
#200	27.6		

* (no specification provided)

Location: HA-1
Sample Number: 640 Depth: 2.5'-3.5'

Material Description
Tan Silty Sand

Atterberg (ASTM D4318)
PL= N/A LL= N/A PI= N/A

Coefficients
D_{90}= 0.7053 D_{85}= 0.5685
D_{60}= 0.2756 D_{50}= 0.2154
D_{30}= 0.1035 D_{15}=
D_{10}=
C_u= C_c=

Sieve Test (ASTM D6913 & D1140)
Test Date: 10-30-25 Technician: B. Moseley
Test Notes

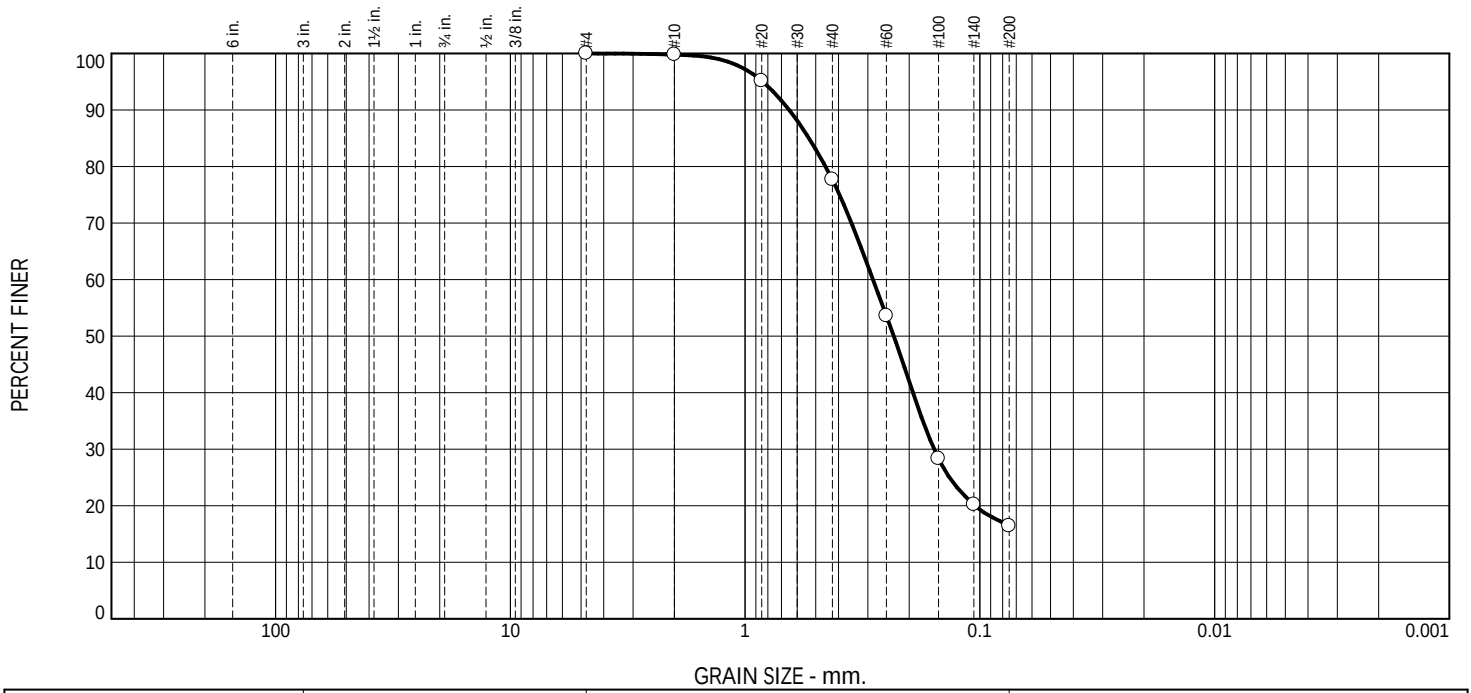
Hydrometer Test
Test Date: N/A Technician: N/A
Test Notes
N/A

USCS (ASTM D2487)
N/A

Date Sampled: 10-14-25
Date Received: 10-14-25
Checked By: G. Smith
Title: Lab Manager

Client: M.E. Sack Engineering
Project: Proposed 15th Street Townhomes NWC of W 15th St and Davidson Plantation Rd Hinesville, GA 31313
Project No: US0049782.2149 Figure

Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines
	Coarse	Fine	Coarse	Medium	Fine	
0.0	0.0	0.0	0.2	22.1	61.3	16.4

Test Results (ASTM D6913 & D1140)

Sieve Size or Diam. (mm.)	Finer (%)	Spec.* (%)	Out of Spec. (%)
#4	100.0		
#10	99.8		
#20	95.2		
#40	77.7		
#60	53.6		
#100	28.3		
#140	20.2		
#200	16.4		

* (no specification provided)

Location: HA-7
Sample Number: 641 Depth: 0.0'-3.5'

Material Description
Black Silty Sand with trace organics

Atterberg (ASTM D4318)
PL= N/A LL=N/A PI= N/A

Coefficients
D_{90}= 0.6489 D_{85}= 0.5344
D_{60}= 0.2854 D_{50}= 0.2325
D_{30}= 0.1566 D_{15}=
D_{10}=
C_u= C_c=

Sieve Test (ASTM D6913 & D1140)

Test Date: 10-30-25 Technician: B. Moseley

Test Notes

Hydrometer Test

Test Date: N/A Technician: N/A

Test Notes
N/A

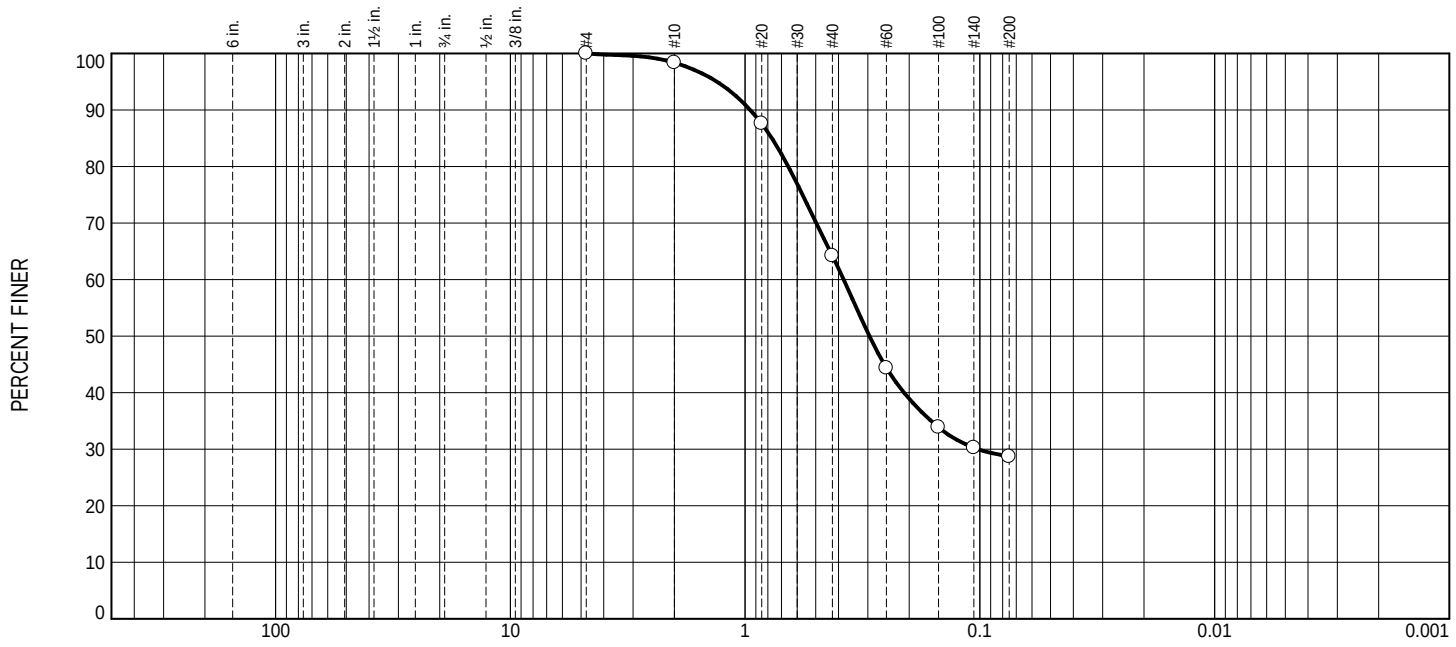
USCS (ASTM D2487)
N/A

Date Sampled: 10-14-25
Date Received: 10-14-25
Checked By: G. Smith
Title: Lab Manager

Client: M.E. Sack Engineering
Project: Proposed 15th Street Townhomes NWC of W 15th St and Davidson Plantation Rd Hinesville, GA 31313
Project No: US0049782.2149

Figure

Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines
	Coarse	Fine	Coarse	Medium	Fine	
0.0	0.0	0.0	1.6	34.2	35.5	28.7

Test Results (ASTM C117 & C136)			
Sieve Size or Diam. (mm.)	Finer (%)	Spec.* (%)	Out of Spec. (%)
#4	100.0		
#10	98.4		
#20	87.6		
#40	64.2		
#60	44.4		
#100	33.9		
#140	30.2		
#200	28.7		

* (no specification provided)

Location: HA-2
Sample Number: 650 Depth: 3.5'-5.0'

Material Description
Gray to Yellowish Brown Clayey Sand

Atterberg (ASTM D4318)
PL= 23 LL= 30 PI= 7

Coefficients
D_{90}= 0.9506 D_{85}= 0.7683
D_{60}= 0.3801 D_{50}= 0.2954
D_{30}= 0.1024 D_{15}=
D_{10}=
C_u= C_c=

Sieve Test (ASTM C117 & C136)
Test Date: 11-6-25 Technician: B. Moseley

Test Notes

Hydrometer Test
Test Date: N/A Technician: N/A

Test Notes
N/A

USCS (ASTM D2487)
SM

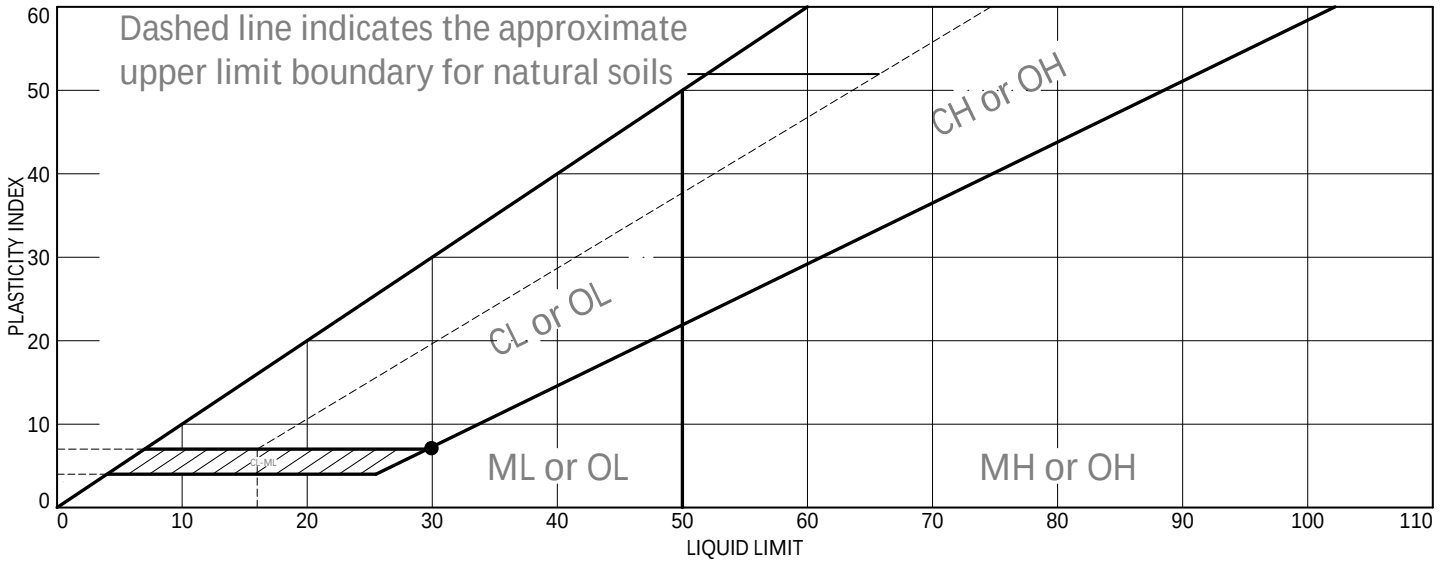
Date Sampled: 10-14-25
Date Received: 10-15-25
Checked By:
Title:

Client: M.E. Sack Engineering
Project: Proposed 15th Street Townhomes NWC of W 15th St and Davidson Plantation Rd Hinesville, GA 31313
Project No: US0049782.2149

Figure

LIQUID AND PLASTIC LIMITS TEST REPORT

ASTM D4318



	Sample Identification	Sampled	Received	Tested	Technician
●	Location: HA-2 Sample Number: 650 Depth: 3.5'-5.0'	10-14-25	10-15-25	11-6-2025	B. Moseley

	Material Description	USCS	LL	PL	PI	NM	%<#40
●	Gray to Yellowish Brown Clayey Sand	SC	30	23	7	19.8	49.9

	PL Rolling Method	LL Device	Grooving Tool	Test Remarks
●	Hand rolled	Manual	Metal	

Project No. US0049782.2149 Client: M.E. Sack Engineering

Project: Proposed 15th Street Townhomes NWC of W 15th St and Davidson Plantation Rd

Checked by: G. Smith

Title: Lab Manager

MOISTURE CONTENT AND FINES CONTENT

ASTM D1140-17 ASTM D2216-19

Project Name: Proposed 15th Street Townhomes
Project No.: US0049782.2149
Tested By: Blake Moseley
Reviewed By: G. Smith
Test Date: 10/29 - 11/6
Review Date: 10/31/2025

Hand Auger No.	Sample No.	Depth (Ft)	Lab No.	Tare No.	Tare Wt. (grams)	Wet Soil + Tare (grams)	Dry Soil + Tare (grams)	Dry Soil Wt (grams)	Moisture Content (%)	% Passing #200 (%)
HA-1	630	1.0'-2.5'	6162	B-1	173.9	685.1	601.8	427.9	19.5	19.0
HA-1	640	2.5'-3.5'	6162	B-1	173.9	689.3	638.9	465.0	10.8	27.3
HA-7	641	0.0'-3.5'	6162	B-1	173.9	691.6	618.8	444.9	16.4	16.2
HA-2	650	3.5'-5.0'	6162	8	222.6	763.2	673.8	451.2	19.8	28.5

Important Information about This

Geotechnical-Engineering Report

Subsurface problems are a principal cause of construction delays, cost overruns, claims, and disputes.

While you cannot eliminate all such risks, you can manage them. The following information is provided to help.

The Geoprofessional Business Association (GBA) has prepared this advisory to help you – assumedly a client representative – interpret and apply this geotechnical-engineering report as effectively as possible. In that way, clients can benefit from a lowered exposure to the subsurface problems that, for decades, have been a principal cause of construction delays, cost overruns, claims, and disputes. If you have questions or want more information about any of the issues discussed below, contact your GBA-member geotechnical engineer. Active involvement in the Geoprofessional Business Association exposes geotechnical engineers to a wide array of risk-confrontation techniques that can be of genuine benefit for everyone involved with a construction project.

Geotechnical-Engineering Services Are Performed for Specific Purposes, Persons, and Projects

Geotechnical engineers structure their services to meet the specific needs of their clients. A geotechnical-engineering study conducted for a given civil engineer will not likely meet the needs of a civil-works constructor or even a different civil engineer. Because each geotechnical-engineering study is unique, each geotechnical-engineering report is unique, prepared *solely* for the client. *Those who rely on a geotechnical-engineering report prepared for a different client can be seriously misled*. No one except authorized client representatives should rely on this geotechnical-engineering report without first conferring with the geotechnical engineer who prepared it. *And no one – not even you – should apply this report for any purpose or project except the one originally contemplated.*

Read this Report in Full

Costly problems have occurred because those relying on a geotechnical-engineering report did not read it *in its entirety*. Do not rely on an executive summary. Do not read selected elements only. *Read this report in full.*

You Need to Inform Your Geotechnical Engineer about Change

Your geotechnical engineer considered unique, project-specific factors when designing the study behind this report and developing the confirmation-dependent recommendations the report conveys. A few typical factors include:

- the client's goals, objectives, budget, schedule, and risk-management preferences;
- the general nature of the structure involved, its size, configuration, and performance criteria;
- the structure's location and orientation on the site; and
- other planned or existing site improvements, such as retaining walls, access roads, parking lots, and underground utilities.

Typical changes that could erode the reliability of this report include those that affect:

- the site's size or shape;
- the function of the proposed structure, as when it's changed from a parking garage to an office building, or from a light-industrial plant to a refrigerated warehouse;
- the elevation, configuration, location, orientation, or weight of the proposed structure;
- the composition of the design team; or
- project ownership.

As a general rule, *always* inform your geotechnical engineer of project changes – even minor ones – and request an assessment of their impact. *The geotechnical engineer who prepared this report cannot accept responsibility or liability for problems that arise because the geotechnical engineer was not informed about developments the engineer otherwise would have considered.*

This Report May Not Be Reliable

Do not rely on this report if your geotechnical engineer prepared it:

- for a different client;
- for a different project;
- for a different site (that may or may not include all or a portion of the original site); or
- before important events occurred at the site or adjacent to it; e.g., man-made events like construction or environmental remediation, or natural events like floods, droughts, earthquakes, or groundwater fluctuations.

Note, too, that it could be unwise to rely on a geotechnical-engineering report whose reliability may have been affected by the passage of time, because of factors like changed subsurface conditions; new or modified codes, standards, or regulations; or new techniques or tools. *If your geotechnical engineer has not indicated an "apply-by" date on the report, ask what it should be*, and, in general, *if you are the least bit uncertain* about the continued reliability of this report, contact your geotechnical engineer before applying it. A minor amount of additional testing or analysis – if any is required at all – could prevent major problems.

Most of the "Findings" Related in This Report Are Professional Opinions

Before construction begins, geotechnical engineers explore a site's subsurface through various sampling and testing procedures. *Geotechnical engineers can observe actual subsurface conditions only at those specific locations where sampling and testing were performed*. The data derived from that sampling and testing were reviewed by your geotechnical engineer, who then applied professional judgment to form opinions about subsurface conditions throughout the site. Actual sitewide-subsurface conditions may differ – maybe significantly – from those indicated in this report. Confront that risk by retaining your geotechnical engineer to serve on the design team from project start to project finish, so the individual can provide informed guidance quickly, whenever needed.

This Report's Recommendations Are Confirmation-Dependent

The recommendations included in this report – including any options or alternatives – are confirmation-dependent. In other words, *they are not final*, because the geotechnical engineer who developed them relied heavily on judgment and opinion to do so. Your geotechnical engineer can finalize the recommendations *only after observing actual subsurface conditions* revealed during construction. If through observation your geotechnical engineer confirms that the conditions assumed to exist actually do exist, the recommendations can be relied upon, assuming no other changes have occurred. *The geotechnical engineer who prepared this report cannot assume responsibility or liability for confirmation-dependent recommendations if you fail to retain that engineer to perform construction observation.*

This Report Could Be Misinterpreted

Other design professionals' misinterpretation of geotechnical-engineering reports has resulted in costly problems. Confront that risk by having your geotechnical engineer serve as a full-time member of the design team, to:

- confer with other design-team members,
- help develop specifications,
- review pertinent elements of other design professionals' plans and specifications, and
- be on hand quickly whenever geotechnical-engineering guidance is needed.

You should also confront the risk of constructors misinterpreting this report. Do so by retaining your geotechnical engineer to participate in prebid and preconstruction conferences and to perform construction observation.

Give Constructors a Complete Report and Guidance

Some owners and design professionals mistakenly believe they can shift unanticipated-subsurface-conditions liability to constructors by limiting the information they provide for bid preparation. To help prevent the costly, contentious problems this practice has caused, include the complete geotechnical-engineering report, along with any attachments or appendices, with your contract documents, *but be certain to note conspicuously that you've included the material for informational purposes only*. To avoid misunderstanding, you may also want to note that "informational purposes" means constructors have no right to rely on the interpretations, opinions, conclusions, or recommendations in the report, but they may rely on the factual data relative to the specific times, locations, and depths/elevations referenced. Be certain that constructors know they may learn about specific project requirements, including options selected from the report, *only* from the design drawings and specifications. Remind constructors that they may perform their own studies if they want to, and *be sure to allow enough time* to permit them to do so. Only then might you be in a position to give constructors the information available to you, while requiring them to at least share some of the financial responsibilities stemming from unanticipated conditions. Conducting prebid and preconstruction conferences can also be valuable in this respect.

Read Responsibility Provisions Closely

Some client representatives, design professionals, and constructors do not realize that geotechnical engineering is far less exact than other engineering disciplines. That lack of understanding has nurtured unrealistic expectations that have resulted in disappointments, delays, cost overruns, claims, and disputes. To confront that risk, geotechnical engineers commonly include explanatory provisions in their reports. Sometimes labeled "limitations," many of these provisions indicate where geotechnical engineers' responsibilities begin and end, to help others recognize their own responsibilities and risks. *Read these provisions closely*. Ask questions. Your geotechnical engineer should respond fully and frankly.

Geoenvironmental Concerns Are Not Covered

The personnel, equipment, and techniques used to perform an environmental study – e.g., a "phase-one" or "phase-two" environmental site assessment – differ significantly from those used to perform a geotechnical-engineering study. For that reason, a geotechnical-engineering report does not usually relate any environmental findings, conclusions, or recommendations; e.g., about the likelihood of encountering underground storage tanks or regulated contaminants. *Unanticipated subsurface environmental problems have led to project failures*. If you have not yet obtained your own environmental information, ask your geotechnical consultant for risk-management guidance. As a general rule, *do not rely on an environmental report prepared for a different client, site, or project, or that is more than six months old.*

Obtain Professional Assistance to Deal with Moisture Infiltration and Mold

While your geotechnical engineer may have addressed groundwater, water infiltration, or similar issues in this report, none of the engineer's services were designed, conducted, or intended to prevent uncontrolled migration of moisture – including water vapor – from the soil through building slabs and walls and into the building interior, where it can cause mold growth and material-performance deficiencies. Accordingly, ***proper implementation of the geotechnical engineer's recommendations will not of itself be sufficient to prevent moisture infiltration.*** Confront the risk of moisture infiltration by including building-envelope or mold specialists on the design team. ***Geotechnical engineers are not building-envelope or mold specialists.***

GEOPROFESSIONAL BUSINESS ASSOCIATION

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