ECS Southeast, LLP

Geotechnical Engineering Report

Taco Bell- Sumter, SC

McCray's Mill Road
Sumter, South Carolina

ECS Project Number 38:2571

May 5, 2022

ECS SOUTHEAST, LLP
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May 5, 2022

Mr. Bob Lach
Bell Carolina LLC
6200 Oak Tree Blvd #250
Independence, Ohio

ECS Project No. 38:2571

Reference: Geotechnical Engineering Report
Taco Bell- Sumter, SC
McCray's Mill Road
Sumter, South Carolina

Dear Mr. Lach:

ECS Southeast, LLP (ECS) has completed the subsurface exploration, laboratory testing, and geotechnical engineering analyses for the above-referenced project. Our services were performed in general accordance with our Proposal No. 38-2706-P, dated March 10, 2022. This report presents our understanding of the geotechnical aspects of the project, the results of the field exploration and laboratory services conducted, and our design and construction recommendations.

It has been our pleasure to be of service to Bell Carolina LLC during the design phase of this project. We would appreciate the opportunity to remain involved during the continuation of the design phase, and we would like to provide our services during construction phase operations as well to document the assumptions of subsurface conditions made for this report. Should you have any questions concerning the information contained in this report, or if we can be of further assistance to you, please contact us.

Respectfully submitted,

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1.0 EXECUTIVE SUMMARY

The following summarizes the main findings of the exploration, particularly those that may have a cost impact on the planned development. Further, our principal foundation recommendations are summarized. Information gleaned from the Executive Summary should not be utilized in lieu of reading the entire geotechnical report.

- The project site is located along McCray's Mill Road in Sumter, South Carolina. The proposed project will include the construction of a new Taco Bell Restaurant with associated pavements and dumpster pad.
- Structural loading information was not available at the time of this report. However, we have assumed the maximum column footing loads will not exceed 40 kips and the maximum wall footing loads will not exceed 2 kips per linear foot.
- We have not been provided with a finished floor elevation for the proposed structure. However, we assume existing grades will remain relatively unchanged, except for the approximately 5 feet of wetland infilling.
- Undocumented existing fill are present at the site in the area of the proposed construction. We recommend the existing fill be further evaluated as discussed in subsequent sections of this report.
- Very loose and very soft soils were encountered in WDCP W-01 performed within the existing wetland area. In addition, we anticipate that the soils within the wetland are saturated. Therefore, subgrade stabilization should be expected in this area to provide a working platform prior to placement of new structural fill. Due to existing standing water observed in the wetland area, temporary construction dewatering will be necessary prior to placement of new fill.
- Groundwater was measured, where encountered, at depths ranging from approximately 4 to 5.5 feet below the existing ground surface.
- A net allowable bearing pressure of 2,500 psf is recommended for design of foundations bearing on new structural fill, tested existing fill, or tested natural soils.
- An IBC Seismic Site Class D is recommended for the site.

Specific information regarding the subsurface exploration procedures, the site and subsurface conditions at the time of our exploration, and our conclusions and recommendations concerning the geotechnical design and construction aspects of the project are discussed in detail in the subsequent sections of this report.

2.0 INTRODUCTION

The purpose of this study was to provide geotechnical information for the design of foundations, floor-slabs, seismic, and pavements for the proposed restaurant. The project will include the construction of a new Taco Bell restaurant building and the associated pavements.

The recommendations developed for this report are based on project information supplied by you. This report contains the results of our subsurface exploration and laboratory services programs, site characterization, engineering analyses, and recommendations for the design and construction of the proposed restaurant. The report includes the following:

- Information on site conditions including geologic information and special site features.
- Description of the field exploration procedures.
- Final logs and records of the field exploration in accordance with the standard practice of Geotechnical Engineers. This includes a test location diagram and site location diagram.
- Evaluation of the on-site soil characteristics encountered at the test locations.
- Recommendations regarding site preparation with specific recommendations for existing fill or other unsuitable soils.
- Recommendations regarding shallow foundations for the structure.
- Compaction requirements for fill and backfill areas.
- Recommendations regarding slab-on-grade construction and design including modulus of subgrade reaction.
- Light and heavy duty pavement recommendations.
- Recommendation for seismic site classification.

3.0 PROJECT INFORMATION

3.1 PROJECT LOCATION

The proposed site is located along McCray's Mill Road in Sumter, South Carolina, as shown below and on the Site Location Diagram in Appendix A.

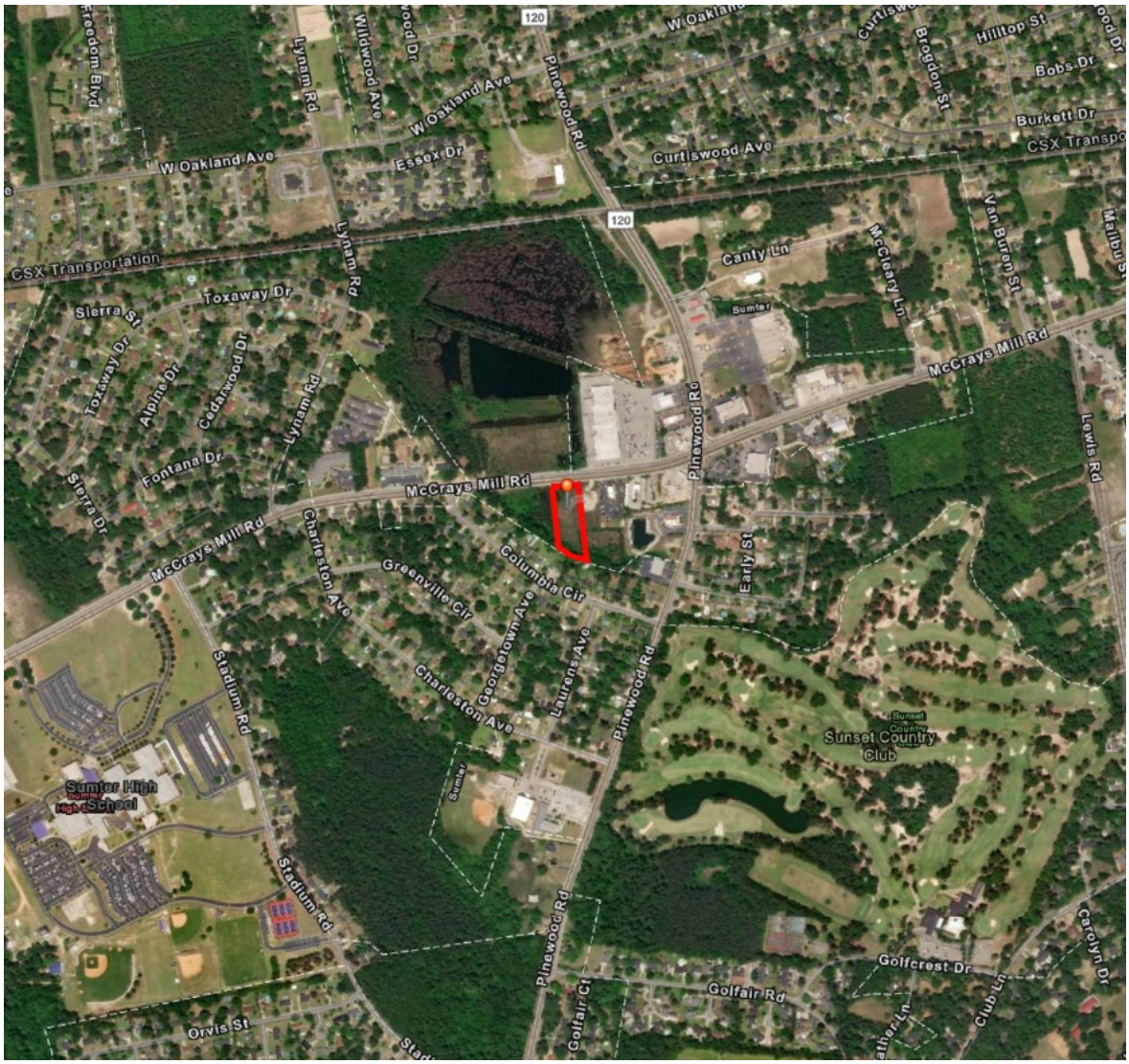


Figure 3-1 Site Location

3.2 PAST SITE HISTORY AND CURRENT SITE CONDITIONS

The proposed site is an approximately 1.76 acre tract that is currently largely grassed and undeveloped. The western and southern portions of the site are undeveloped wetlands. Based on available historical imagery, the site appears to have been graded in 2004. According to the provided topographic information, site grades are generally flat in the area of the proposed development at approximately 165 feet above mean sea level.

3.3 PROPOSED CONSTRUCTION

The proposed project will include the construction of a restaurant building with the associated parking, driveways, and dumpster pad. The following information explains our understanding of the structure and its loads:

Table 3-1 Design Assumptions

SUBJECT	DESIGN INFORMATION / EXPECTATIONS
Building Footprint	Approximately 1,944 square feet
# of Stories	Single-story
Usage	Restaurant
Framing	We anticipate that the building will be wood framing with a slab on grade.
Column Loads	40 kips or less (assumed)
Wall Loads	2 kips per lineal foot or less (assumed)

Design grading information has not been provided to us, but we have assumed that existing grades will remain relatively unchanged in the area of the planned construction, except for the portion of the construction that extends in the wetland area where approximately 5 feet of infilling is anticipated.

4.0 FIELD EXPLORATION AND LABORATORY TESTING

4.1 FIELD EXPLORATION PROGRAM

The field exploration was planned with the objective of characterizing the project site in general geotechnical and geological terms and to evaluate subsequent field and laboratory data to assist in the determination of geotechnical recommendations.

4.1.1 Cone Penetration Test Soundings

Eight (8) cone penetration test (CPT) soundings were advanced at the project site as shown on the Testing Location Diagram in Appendix A. Soundings C-01 through C-04 were located in the proposed building footprint and were extended to depths ranging from approximately 15 to 40 feet below the existing ground surface. Soundings C-05 through C-08 were located in the proposed parking and driveway areas and were extended to a depth of approximately 10 feet below the existing ground surface. The soundings were located in the field with handheld GPS technology. The sounding locations indicated on the Testing Location Diagram should be considered approximate.

The cone penetration test soundings were performed with a skid steer mounted rig in general conformance with ASTM D5778. The cone used in the soundings has a tip area of 15 cm^2 and a sleeve area of 225 cm^2. The CPT soundings recorded tip resistance and sleeve friction measurements to assist in determining pertinent index and engineering properties of the site soils. The ratio of the sleeve friction to tip resistance is then used to aid in assessing the soil types through which the tip is advanced. The sounding logs are included in Appendix B.

4.1.2 Hand Auger Borings

Eight (8) hand auger borings were performed adjacent to the CPT sounding locations indicated on the Testing Location Diagram. The hand auger borings were extended to a depth approximately 4 feet below the existing ground surface.

Representative soil samples were obtained by means of the hand operated auger sampling procedure in general accordance with ASTM D1452. In this procedure, the auger boring is made by rotating and advancing the auger bucket to the desired depths while periodically removing the bucket from the hole to clear and examine the auger cuttings. The auger cuttings were observed in the field for visual classification. Representative portions of each sample were then sealed in air tight containers and brought to our laboratory. The hand auger boring logs are included in Appendix B.

4.1.3 Wildcat Dynamic Cone Penetrometer Testing

Wildcat© Dynamic Cone Penetrometer (WDCP) testing was performed in the existing wetland area. The water depth at the test locations was approximately 3 feet at the time of testing, and the WDCP soundings were extended to approximate depths of 5.5 to 8 feet below the mudline. In WDCP testing, a cone with a diameter of 1.47 inches is driven into the soil by a 35-pound hammer falling 15 inches. The number of blows required to drive the cone through 10-centimeter intervals is recorded. The incremental blows obtained from WDCP testing can be correlated to Standard Penetration Test (SPT) N-values. Soil samples were not collected during the WDCP testing and the WDCP logs are included in Appendix B.

4.1.4 Infiltration Testing

Infiltration testing was conducted within hand auger borings C-06 and C-08 utilizing a compact constant head permeameter (CCHP). The CCHP is a field testing device that provides the means to collect data for determining in-situ saturated hydraulic conductivity (Ksat) of the vadose (unsaturated) zone.

4.2 LABORATORY SERVICES

The laboratory services performed by ECS for this project consisted of classifications performed on samples obtained during our field exploration. An experienced Engineering Geologist visually classified each soil sample from the field exploration on the basis of texture and plasticity in accordance with the Unified Soil Classification System (ASTM D2487) and the Description and Identification of Soils-Visual/Manual Procedures (ASTM D2488). After classification, the Engineering Geologist grouped the various soil types into the major zones noted on the logs. The group symbols for each soil type are indicated in parentheses following the soil descriptions on

the logs. The stratification lines designating the interfaces between earth materials on the boring logs are approximate; in situ, the transitions may be gradual.

Representative soil samples were then selected and tested to check visual classifications and to help determine pertinent index properties of the site soils. Laboratory testing included the following index property tests:

- Moisture Content (ASTM D2216),
- Washed Sieve Analysis (ASTM D1140), and
- Atterberg Limits (ASTM D4318).

The laboratory testing was performed in general conformance with the referenced ASTM standards. The Laboratory Testing Summary is included in Appendix C.

5.0 SUBSURFACE CONDITIONS

5.1 REGIONAL/SITE GEOLOGY

5.1.1 Coastal Plain

The site is located in the Coastal Plain Physiographic Province of South Carolina. The Coastal Plain is composed of seven terraces, each representing a former level of the Atlantic Ocean. Soils in this area generally consist of sedimentary materials transported from other areas by the ocean or rivers. These deposits vary in thickness from a thin veneer along the western edge of the region to more than 10,000 feet near the coast. The sedimentary deposits of the Coastal Plain rest upon consolidated rocks similar to those underlying the adjacent Piedmont Physiographic Province. In general, shallow unconfined groundwater movement within the overlying soils is largely controlled by topographic gradients. Recharge occurs primarily by infiltration along higher elevations and typically discharges into streams or other surface water bodies. The elevation of the shallow water table is transient and can vary greatly with seasonal fluctuations in precipitation.

5.1.2 Existing Fill

The natural geology of portions of the site was modified in the past by grading activities resulting in the placement of undocumented fill materials. The quality of man-made fills can vary significantly, and it is often difficult to assess the engineering properties of fill. Furthermore, there is no specific correlation between resistance values from penetration testing and the degree of compaction of existing fill soils. However, a qualitative assessment of existing fills can sometimes be made based on the resistance values obtained and observations of the materials sampled in the borings.

No construction quality assurance/control (QA/QC) records related to the existing fill placement have been provided to ECS. Consequently, the existing fills must be considered undocumented at this time. If such records are available, they should be provided to ECS for review relative to the analyses, conclusions and recommendations developed for the project.

5.2 SUBSURFACE CHARACTERIZATION

The subsurface conditions encountered were generally consistent with published geological mapping. The following table provides generalized characterizations of the soil strata encountered during our subsurface exploration. For subsurface information at a specific location, refer to the logs presented in Appendix B.

Table 5-1 Subsurface Stratigraphy

Stratum	Approximate Bottom of Stratum Depth Range	Description	Range of Resistance Values
SURFICIAL MATERIALS	See Description	Topsoil: 4 to 6 inches	NA
EXISTING FILL	3 to 4 feet	Soil Behavior Types: sand, silty sand, sandy silt, and very dense/stiff soil. USCS Classifications: SC.	CPT: 15 to 150 TSF
COASTAL PLAIN	End of Sounding	Soil Behavior Types: sand, silty sand, sandy silt, clay, silty clay, and very dense/stiff soil.	CPT: 5 to 300 TSF

Notes: (1) Surficial materials are approximate and should not be relied upon for surficial material removal takeoffs. (2) Resistance Values: CPT – cone penetration testing tip resistance. (3) Existing fill soils were encountered in all hand auger borings performed.

5.3 GROUNDWATER OBSERVATIONS

Water levels were measured at the test locations during our field exploration as noted on the logs in Appendix B. Groundwater was encountered at depths ranging from approximately 4 to 5.5 feet below the existing ground surface in soundings C-01 through C-04.

Normally, the shallowest groundwater levels occur in late winter and spring and the deepest levels occur in late summer and fall. Groundwater elevations should be expected to vary depending on seasonal fluctuations in precipitation, surface water absorption characteristics, and other factors not readily apparent at the time of our exploration, and may be higher or lower than inferred from the recent test boring data.

5.4 INFILTRATION TESTING RESULTS

The seasonal high water table (SHWT) was estimated and groundwater depth was measured within the hand auger borings performed. A summary of the findings are as follows:

Table 5-2 SHWT and Groundwater Depths

Location	SHWT	Groundwater
C-06	NE	NE
C-08	NE	NE

NE= Not Encountered

Below is a summary of the soil conditions encountered at the test depth and the hydraulic conductivity test results:

Table 5-3 Testing Results

Location	Description	Rate	Test Depth
C-06	(SC) Clayey Sand	0.023 in./hr.	47 in.
C-08	(SC FILL) Clayey Sand	0.023 in./hr.	47 in.

Hydraulic conductivity and SHWT depths may vary within the proposed site due to changes in elevation and subsurface conditions. The values provided are field values. An appropriate factor of safety should be applied for design.

6.0 DESIGN RECOMMENDATIONS

6.1 DESIGN IMPLICATIONS OF UNDOCUMENTED FILL

As previously noted, existing fill materials were encountered in the hand auger borings performed to depths ranging from approximately 3 to 4 feet below the existing ground surface. The presence and depth of these materials presents a problem in quantifying the risk that unsuitable inclusions or low density soils may exist beneath the proposed building footprint. If very loose soils or pockets of organics or debris exist within the fill and are not removed during construction, then localized excessive differential settlements could occur in response to new structural loads and the on-going process of volume change which may still occur in the fill. If such non-uniform settlements occur, then moderate structural distress could result.

Based on the relative strength and stiffness of the existing fill soils indicated by the CPT tip resistance values, the lack of deleterious materials in soil samples retrieved from our hand auger borings, and our experience with similar pre-graded sites, we anticipate the fill material was probably placed in a semi-controlled manner and may be suitable for low-rise construction. As such, provided the client is willing to accept the potential risk associated with existing fills, the existing fill may remain in place. However, the existing fill should be further evaluated by proofrolling and Dynamic Cone Penetrometer (DCP) testing as discussed below.

6.2 SHALLOW FOUNDATIONS

Provided subgrades and structural fills are prepared as discussed herein, the proposed structure can be supported by conventional shallow foundations: individual column footings and continuous wall footings. The design of the foundation should utilize the following parameters:

Table 6-1 Foundation Design

Design Parameter	Column Footing	Wall Footing
Net Allowable Bearing Pressure	2,500 psf	2,500 psf
Acceptable Bearing Soil Material	Tested existing fill, new structural fill, or tested natural soils	
Minimum Width	30 inches	18 inches
Minimum Footing Embedment Depth (below slab or finished grade)	18 inches	18 inches
Maximum Estimated Total Settlement	1 inch or less	1 inch or less
Maximum Estimated Differential Settlement	0.5 inches or less between columns	0.5 inches or less over 50 feet

Net allowable bearing pressure is the applied pressure in excess of the surrounding overburden soils above the base of the foundation.

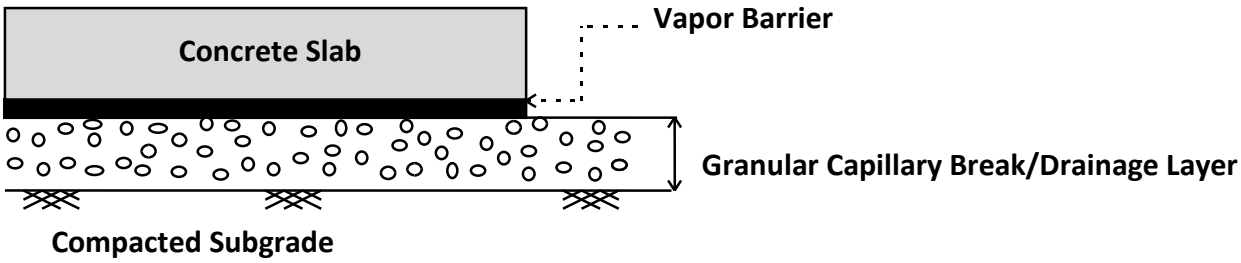
Foundation bearing soils should be evaluated by ECS to document that the bearing soils are capable of supporting the recommended net allowable bearing pressure. These evaluations should include visual observations, hand rod probing, and dynamic cone penetrometer (ASTM STP 399) testing, or other methods deemed appropriate by the Geotechnical Engineer at the time of construction, in each column footing excavation and at intervals not greater than 25 feet in continuous footing excavations.

If loose, soft, or unsuitable soils are observed at the footing bearing elevations, these soils should be undercut and removed. Any undercut should be backfilled up to the original design bottom of footing elevation with one of the following:

- Lean concrete (f'c ≥ 1,000 psi at 28 days); the original footing should be constructed on top of the hardened lean concrete. If lean concrete is used, ECS should be contacted to observe the undercut subgrade prior to placement of these materials.
- Compacted structural fill (with additional compaction testing and soil bearing evaluation); the original footing should be constructed on top of the fill. If compacted structural fill is used to replace the deficient soil, the excavation should extend laterally from both sides of the proposed foundation approximately 0.5H:1V.

6.3 FLOOR SLAB DESIGN

Provided slab subgrades are prepared as discussed in the subsequent sections of this report, the on-site natural soils are considered suitable for support of slab-on-grade construction. The following graphic depicts our soil-supported slab recommendations:



1. Drainage Layer Thickness: 4 inches
2. Drainage Layer Material: GRAVEL (GP, GW), SAND (SP, SW)
3. Subgrade compacted to 98% maximum dry density per ASTM D698

Figure 6-1 Concrete slab-on-grade diagram

Subgrade Modulus: Provided the placement of Structural Fill and Granular Drainage Layer per the recommendations discussed herein, the slab may be designed assuming a modulus of subgrade reaction, k_1 of 150 pci (pounds per cubic inch).

Vapor Barrier: Before the placement of concrete, a vapor barrier may be placed on top of the granular drainage layer to provide additional protection against moisture penetration through the floor slab. When a vapor barrier is used, special attention should be given to surface curing of the slab to reduce the potential for uneven drying, curling and/or cracking of the slab. Depending on proposed flooring material types, the structural engineer and/or the architect may choose to eliminate the vapor barrier.

Slab Isolation: Soil-supported slabs should be isolated from the foundations and foundation-supported elements of the structure so that differential movement between the foundations and slab will not induce excessive shear and bending stresses in the floor slab. Where the structural configuration prevents the use of a free-floating slab such as in a drop down footing/monolithic slab configuration, the slab should be designed with suitable reinforcement and load transfer devices to preclude overstressing of the slab.

6.4 SEISMIC DESIGN CONSIDERATIONS

In accordance with the 2018 IBC, ASCE 7 requires site classification for seismic design based on the upper 100 feet of a soil profile. Three methods are utilized in classifying sites, namely the shear wave velocity (Vs) method; the Standard Penetration Resistance (N-value) method; and the undrained shear strength (Su) method. The seismic site class definitions for the weighted average of shear wave velocity, SPT N-value, and undrained shear strength in the upper 100 feet of the soil profile are shown in the following table:

Table 6-2 Seismic Site Classification

Site Class	Soil Profile Name	Shear Wave Velocity, V_s (ft/s)	N value (bpf)	Undrained Shear Strength, S_u (psf)
A	Hard Rock	$V_s > 5,000$	N/A	N/A
B	Rock	$2,500 < V_s \leq 5,000$	N/A	N/A
C	Very dense soil and soft rock	$1,200 < V_s \leq 2,500$	N > 50	$S_u \geq 2000$
D	Stiff Soil Profile	$600 \leq V_s \leq 1,200$	$15 \leq N \leq 50$	$1000 \leq S_u \leq 2000$
E	Soft Soil Profile	$V_s < 600$	N < 15	$S_u < 1000$
		Any profile with more than 10 feet of soil having the following characteristics: • PI > 20 • w ≥ 40% • S_u < 500 psf		
F	Soils Requiring Site Specific Response Evaluation	Any profile containing soils having one or more of the following characteristics: 1. Soils vulnerable to potential failure or collapse under seismic loading such as liquefiable soils, quick and highly sensitive clays, collapsible weakly cemented soils. 2. Peats and/or highly organic clays (H > 10 ft or peat and/or highly organic clay where H = thickness of soil). 3. Very high plasticity clays (H> 25 ft with plasticity index PI > 75). Very thick soft/medium stiff clays (H > 120 ft)		

Based on our interpretation of the subsurface conditions encountered, we recommend a Seismic Site Classification of "D" be used for this site. The Site Class definition should not be confused with the Seismic Design Category designation which the Structural Engineer typically assesses.

6.5 PAVEMENTS

Provided the pavement subgrades are prepared in strict accordance with the Subgrade Preparation and Earthwork Operations sections of this report, new pavements may be supported on new engineered fill, tested existing fill, or tested natural soils. We have developed the pavement sections recommended below using AASHTO guidelines based on an estimated design CBR value of 6, assuming the subgrades are unyielding during proofrolling and repaired in accordance with ECS recommendations.

Light duty pavements are expected to receive passenger vehicle traffic with only occasional trucks. Heavy duty pavements are expected to receive light to moderate truck traffic, but our recommended section is not intended to be routinely trafficked by heavy trucks. Traffic loading conditions used in the analysis include equivalent single axle loadings (ESALs) of 100,000 and 10,000 for heavy duty and light duty pavements, respectively. It is important to understand the recommended sections do not take into account construction traffic. The pavement sections below are based on a service period of 15-years.

Table 6-3 Minimum Recommended Pavement Sections

Material Designation	Light Duty Asphalt Pavement	Heavy Duty Asphalt Pavement	Heavy Duty Portland Cement Concrete Pavement
Asphalt Surface Course (Type C)	2 inches	2½ inches	-
Portland Cement Concrete	-	-	6 inches
Graded Aggregate Base Course	6 inches	8 inches	4 inches

Base course materials beneath pavements should be compacted to at least 98% of their modified Proctor maximum dry density (ASTM D1557). The asphalt concrete and all crushed stone materials should conform to the SCDOT Standard Specifications.

Portland Cement Concrete (PCC) sections should consist of concrete having a minimum compressive strength of 4,000 psi. Appropriate steel reinforcing and jointing should be incorporated into the design of PCC pavements. Rigid pavements, a minimum of 6 inches thick, are recommended for trash dumpster and other areas where heavy wheel loads are expected.

An important consideration with the design, construction and performance of pavements is surface and subsurface drainage. Where standing water develops, either on the pavement surface or within the base course layer, softening of the subgrades and other problems related to the deterioration of the pavement can be expected. Furthermore, good drainage should help reduce the possibility of the subgrade materials becoming saturated during the normal service period of the pavement.

7.0 SITE CONSTRUCTION RECOMMENDATIONS

7.1 SUBGRADE PREPARATION

7.1.1 Stripping and Grubbing

The first step in preparing the site for the proposed construction should be to remove existing vegetation or topsoil, and other soft, unsuitable, or deleterious material from the existing ground surface. The hand auger borings generally encountered 4 to 6 inches of topsoil. Deeper topsoil or organic laden soils are likely present in wet, low-lying, and poorly drained areas. ECS should be retained to document that topsoil and other deleterious surficial materials have been removed prior to the placement of engineered fill or construction of structures.

7.1.2 Proofrolling

After removing unsuitable surface materials, cutting to the proposed grade, and prior to the placement of any structural fill or other construction materials, the exposed subgrade should be evaluated by ECS. The exposed subgrade should be thoroughly proofrolled with construction equipment having a minimum axle load of 10 tons (e.g. fully loaded tandem-axle dump truck). The areas subject to proofrolling should be traversed by the equipment in two perpendicular

(orthogonal) directions with overlapping passes of the vehicle under the observation of ECS. This procedure is intended to assist in identifying any localized yielding materials.

In the event that yielding subgrade is identified by the proofrolling, those areas should be marked for repair prior to the placement of any subsequent structural fill or other construction materials. As needed, test pits or hand augers with Dynamic Cone Penetrometer (DCP) testing can be used to further delineate the unsuitable material identified during proofrolling. Methods of subgrade repair such as undercutting, moisture conditioning, or installation of geosynthetic fabric or geogrid should be discussed with ECS to determine the appropriate procedure with regard to the existing conditions causing the instability.

7.1.3 Subgrade Stabilization

Very loose and very soft soils were encountered in WDCP W-01 performed within the existing wetland area. In addition, we anticipate that the soils within the wetland are saturated. Therefore, subgrade stabilization should be expected in this area to provide a working platform prior to placement of new structural fill. Based on the provided site plan, it appears that only the proposed pavements will extend into the existing wetlands. As such, undercutting of the very loose/soft soils prior to placement of new fill may not be necessary, provided a separation distance of at least 3 feet is maintained between the very loose/soft soils and the pavement subgrade. However, note that these soils could potentially settle excessively due to the weight of new fill and subsequent pavement distress could occur.

7.1.4 Construction Dewatering

Standing water was observed within the wetland area at the time of our field exploration. Therefore, temporary construction dewatering will be necessary in this area prior to placement of new structural fill.

The actual extent of the dewatering system will need to be determined once designs are finalized and at the time the excavation is performed. ECS recommends that a dewatering specialty contractor be consulted for this project to design, install, and monitor the dewatering system. Please note that the general contractor should be responsible for dewatering means and methods.

7.2 EARTHWORK OPERATIONS

7.2.1 Structural Fill Materials

Product Submittals: Prior to placement of structural fill, representative bulk samples (about 50 pounds) of on-site and off-site borrow should be submitted to ECS for laboratory testing, which will include Atterberg limits, natural moisture content, grain-size distribution, and moisture-density relationships (i.e., Proctors) for compaction. Import materials should be tested prior to being hauled to the site to determine if they meet project specifications.

Satisfactory Structural Fill Materials: Materials satisfactory for use as structural fill should consist of inorganic soils classified as SM, SC, SW, SP, GM, and GC, or a combination of these group symbols, per ASTM D2487. The materials should not contain organic matter, debris, and particle

sizes greater than 3 inches in the largest dimension. Open graded materials, such as Gravels (GW and GP), which contain void space in their mass should not be used in structural fills unless properly encapsulated with filter fabric. Structural fill material should have the properties shown in the table below.

Table 7-1 Structural Fill Properties

Location with Respect to Final Grade	LL	PI	% Fines
Building and Pavement Areas	40 max	20 max	40 max

Unsatisfactory Materials: Unsatisfactory fill materials include materials which do not satisfy the requirements for suitable materials, as well as topsoil and organic materials (OH, OL), elastic Silt (MH), and high plasticity Clay (CH).

On-Site Borrow Suitability: The encountered sandy (i.e. SC) existing fill and natural soils should typically be suitable for re-use as new fill in building and pavement areas provided they are not too wet or contain detrimental materials, and should be further evaluated for suitability at the time of construction.

7.2.2 Compaction

Structural Fill Compaction: Structural Fill should be placed in maximum 8-inch loose lifts, moisture conditioned as necessary to within -3 and +3% of the soil's optimum moisture content, and be compacted with suitable equipment to a dry density of at least 95% of the Standard Proctor maximum dry density (ASTM D698). Within 24 inches of the finished soil subgrade elevation beneath foundations, slabs on grade, and pavements, the approved structural fill should be compacted to at least 98% of its standard Proctor maximum dry density. ECS should be called on to document that the specified fill compaction has been achieved.

Fill Compaction Control: The expanded limits of the proposed construction areas should be well defined at the time of fill placement. Grade controls should be maintained throughout the filling operations. All filling operations should be observed on a full-time basis by a qualified representative of the construction testing laboratory to determine that the minimum compaction requirements are being achieved. Field density testing of fills should be performed at the frequencies shown in the table below, but not less than 1 test per lift.

Table 7-2 Frequency of Compaction Tests in Fill Areas

Location	Frequency of Tests
Expanded Building Limits	1 test per 2,500 sq. ft. per lift
Pavement Areas	1 test per 5,000 sq. ft. per lift
Utility Trenches	1 test per 100 linear ft. per lift
Outparcels/SWM Facilities	1 test per 5,000 sq. ft. per lift
All Other Non-Critical Areas	1 test per 10,000 sq. ft. per lift

Fill Placement Considerations: Fill materials should not be placed on frozen soils, on frost-heaved soils, and/or on excessively wet soils. Borrow fill materials should not contain frozen materials at the time of placement, and all frozen or frost-heaved soils should be removed prior to placement

of Structural Fill or other fill soils and aggregates. Excessively wet soils or aggregates should be scarified, aerated, and moisture conditioned, prior to compaction.

Where fill materials will be placed to widen existing embankment fills, or placed up against sloping ground, the soil subgrade should be scarified and the new fill benched or keyed into the existing material. Fill material should be placed in horizontal lifts.

7.3 FOUNDATION AND SLAB OBSERVATIONS

Protection of Foundation Excavations: Exposure to the environment may weaken the soils at the footing bearing level if the foundation excavations remain open for too long a time. Therefore, foundation concrete should be placed the same day that excavations are made. If the bearing soils are softened by surface water intrusion or exposure, the softened soils must be removed from the foundation excavation bottom immediately prior to placement of concrete. If the excavation must remain open overnight, or if rainfall becomes imminent while the bearing soils are exposed, a 2 to 3-inch thick "mud mat" of "lean" concrete should be placed on the bearing soils before the placement of reinforcing steel.

Footing Subgrade Observations: It is important to have ECS observe the foundation subgrade prior to placing foundation concrete, to confirm the bearing soils are what was anticipated. If loose, soft, or unsuitable soils are observed at the footing bearing elevations, these soils should be removed and replaced prior to concrete placement.

Slab Subgrade Observation: A representative of ECS should be called on to observe slab subgrades prior to drainage layer placement to document that adequate subgrade preparation has been achieved. A proofroll using a loaded dump truck should be performed in their presence at that time.

7.4 GENERAL CONSTRUCTION CONSIDERATIONS

Moisture Conditioning: During the cooler and wetter periods of the year, delays and additional costs should be anticipated. At these times, reduction of soil moisture may need to be accomplished by a combination of mechanical manipulation and the use of chemical additives, such as lime or cement, in order to lower moisture contents to levels appropriate for compaction. Alternatively, during the drier times of the year, such as the summer months, moisture may need to be added to the soil to provide adequate moisture for successful compaction according to the project requirements.

Subgrade Protection: Measures should also be taken to limit site disturbance, especially from rubber-tired heavy construction equipment, and to control and remove surface water from development areas, including structure and pavement areas. It would be advisable to designate a haul road and construction staging area to limit the areas of disturbance and to prevent construction traffic from excessively degrading prepared subgrade.

Surface Drainage: Surface drainage conditions should be properly maintained. Surface water should be directed away from the construction area, and the work area should be sloped away from the construction area at a gradient of 1% or greater to reduce the potential of ponding water and the subsequent saturation of the surface soils. At the end of each work day, the

subgrade soils should be sealed by rolling the surface with a smooth drum roller to minimize infiltration of surface water.

Excavation Safety: Cuts or excavations may require forming or bracing, slope flattening, or other physical measures to control sloughing and/or prevent slope failures. Contractors should be familiar with applicable OSHA codes to ensure that adequate protection of the excavations and trench walls is provided.

8.0 CLOSING

ECS has prepared this report to guide the geotechnical-related design and construction aspects of the project. We performed these services in accordance with the standard of care expected of professionals in the industry performing similar services on projects of like size and complexity at this time in the region. No other representation, expressed or implied, and no warranty or guarantee is included or intended in this report.

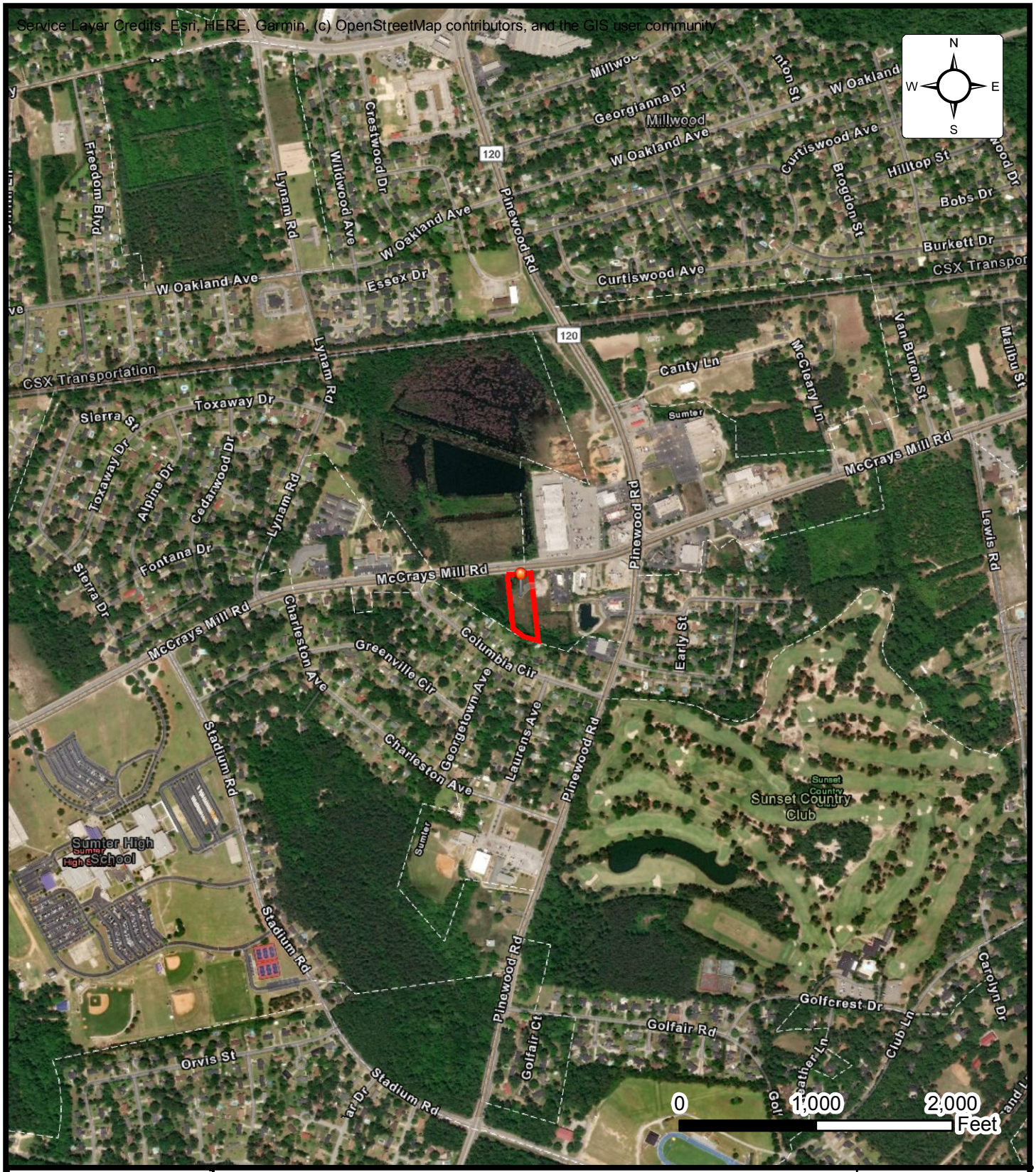
The description of the proposed project is based on information provided to ECS by you. If any of this information is inaccurate or changes, either because of our interpretation of the documents provided or site or design changes that may occur later, ECS should be contacted so we can review our recommendations and provide additional or alternate recommendations that reflect the proposed construction.

We recommend that ECS review the project plans and specifications so we can confirm that those plans/specifications are in accordance with the recommendations of this geotechnical report.

Field observations, monitoring, and quality assurance testing during earthwork and foundation installation are an extension of, and integral to, the geotechnical design recommendation. We recommend that the owner retain these quality assurance services and that ECS be allowed to continue our involvement throughout these critical phases of construction to provide general consultation as issues arise. ECS is not responsible for the conclusions, opinions, or recommendations of others based on the data in this report.

APPENDIX A – Drawings & Reports

Site Location Diagram
Testing Location Diagram



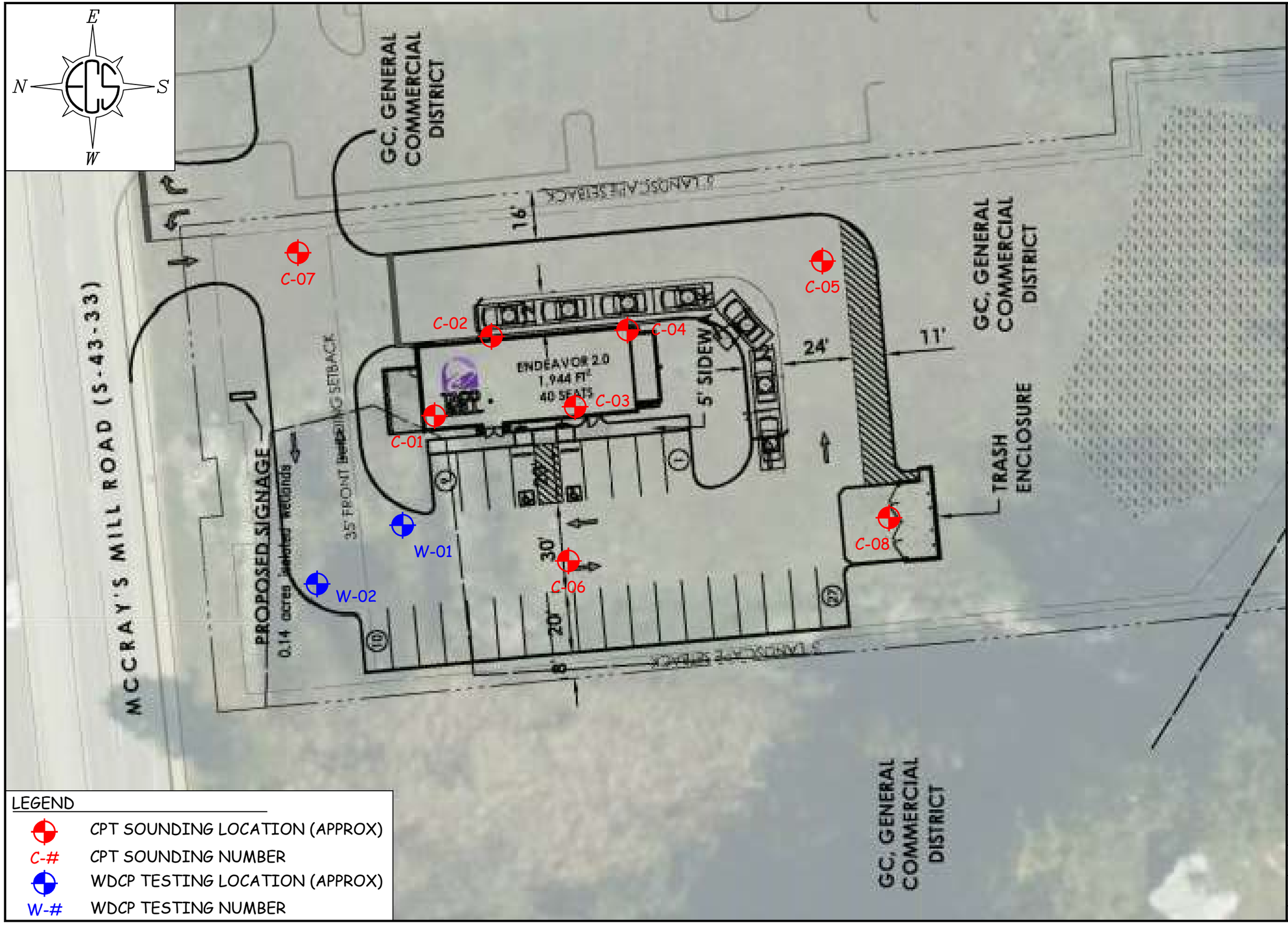
SITE LOCATION DIAGRAM

TACO BELL - SUMTER

MCCRAY'S MILL ROAD, SUMTER, SC

BELL CAROLINA LLC

ENGINEER	BB
SCALE	AS NOTED
PROJECT NO.	38:2571
SHEET	1 OF 2
DATE	4/6/2022



LEGEND

	CPT SOUNDING LOCATION (APPROX)
C-#	CPT SOUNDING NUMBER
	WDCP TESTING LOCATION (APPROX)
W-#	WDCP TESTING NUMBER

TACO BELL - SUMTER

SUMTER, SC

TESTING LOCATION DIAGRAM

BELL CAROLINA LLC

ECS REVISIONS

ENGINEER	DRAFTING
BB	CRM

SCALE: NTS

PROJECT NO.: 38:2571

SHEET: 2 OF 2

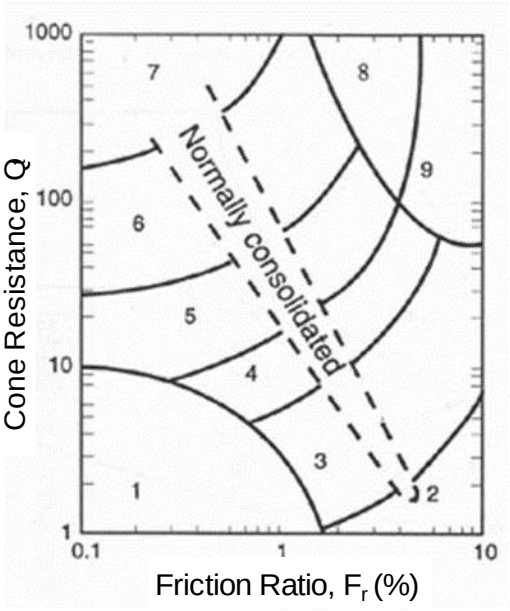
DATE: 4/29/22

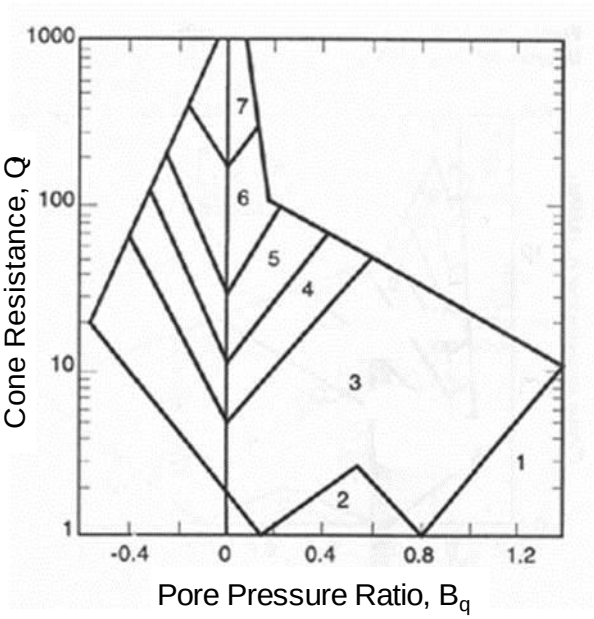
APPENDIX B – Field Operations

Reference Notes for Sounding Logs
Cone Penetration Testing Sounding Logs
Hand Auger Boring Logs
Wildcat Dynamic Cone Penetrometer Logs

REFERENCE NOTES FOR CONE PENETRATION TEST (CPT) SOUNDINGS

In the CPT sounding procedure (ASTM-D-5778), an electronically instrumented cone penetrometer is hydraulically advanced through soil to measure point resistance (q_c), pore water pressure (u_2), and sleeve friction (f_s). These values are recorded continuously as the cone is pushed to the desired depth. CPT data is corrected for depth and used to estimate soil classifications and intrinsic soil parameters such as angle of internal friction, preconsolidation pressure, and undrained shear strength. The graphs below represent one of the accepted methods of CPT soil behavior classification (Robertson, 1990).





1. Sensitive, Fine Grained
2. Organic Soils-Peats
3. Clays; Clay to Silty Clay
4. Clayey Silt to Silty Clay
5. Silty Sand to Sandy Silt
6. Clean Sands to Silty Sands
7. Gravelly Sand to Sand
8. Very Stiff Sand to Clayey Sand
9. Very Stiff Fine Grained

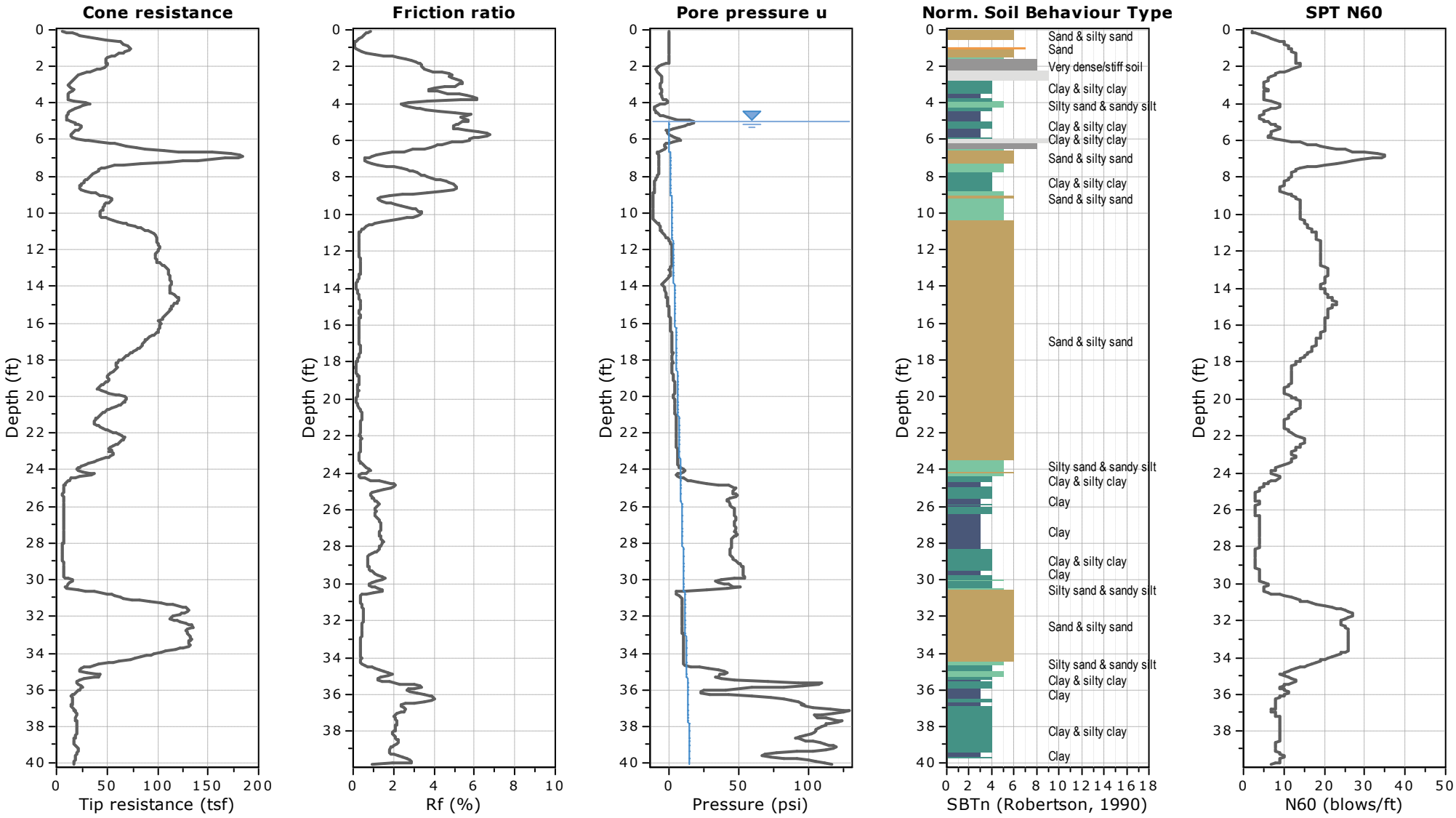
The following table presents a correlation of corrected cone tip resistance (q_t) to soil consistency or relative density:

SAND		**SILT/CLAY**	
Corrected Cone Tip Resistance (q_t) (tsf)	**Relative Density**	**Corrected Cone Tip Resistance (q_t) (tsf)**	**Relative Density**
<20	Very Loose	<5	Very Soft
20-40	Loose	5-10	Soft
40-120	Medium Dense	10-15	Medium Stiff
		15-30	Stiff
120-200	Dense	30-45	Very Stiff
>200	Very Dense	45-60	Hard
		>60	Very Hard

ECS Southeast, LLP
2031 Industrial Blvd.
Lexington, SC

Project: Taco Bell - Sumter, SC
Location: Sumter, SC

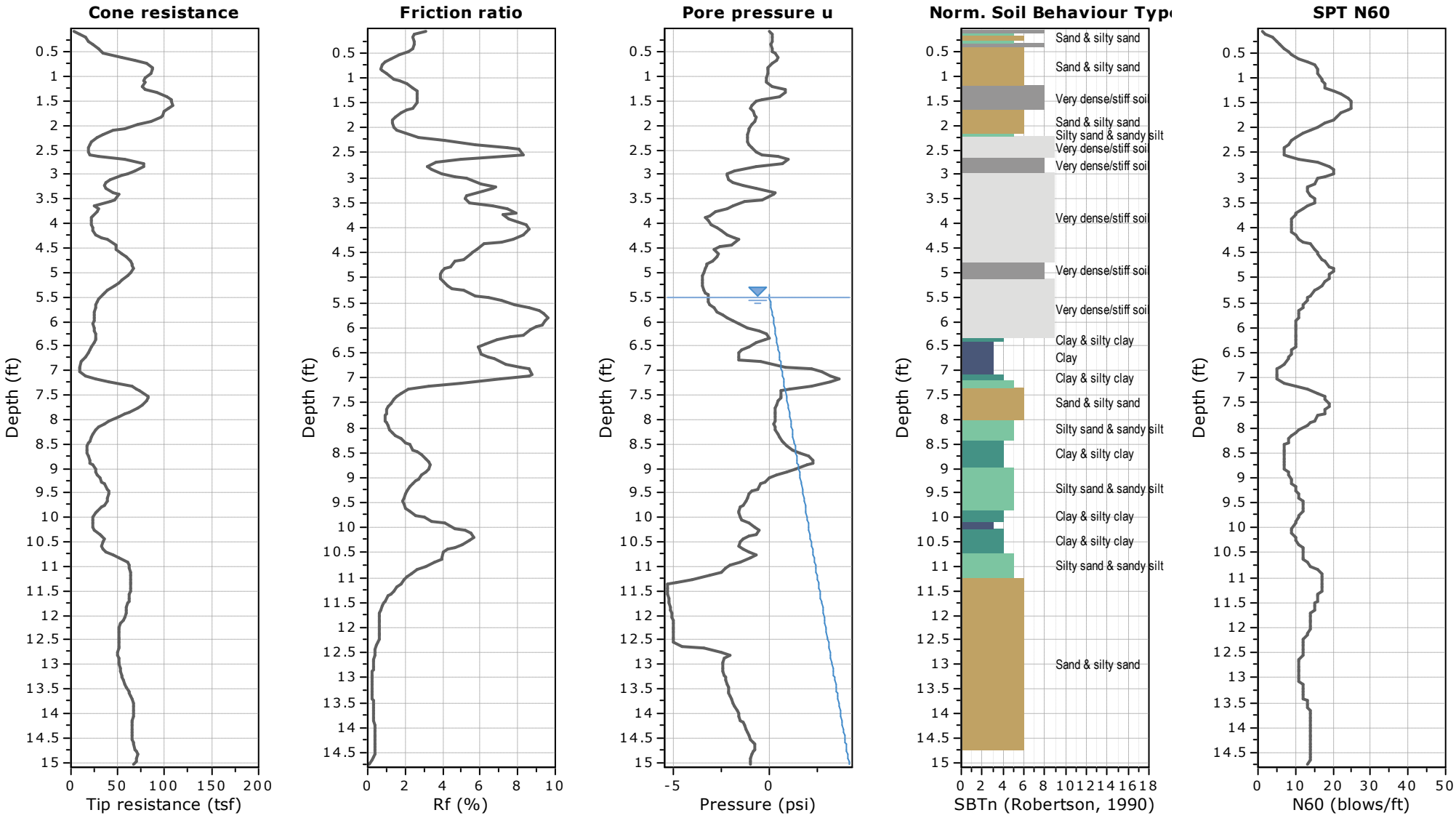
CPT: C-01
Total depth: 40.06 ft, Date: 4/20/2022
Cone Type: Vertek S4 15 cm2
Cone Operator: Longview Exploration



ECS Southeast, LLP
2031 Industrial Blvd.
Lexington, SC

Project: Taco Bell - Sumter, SC
Location: Sumter, SC

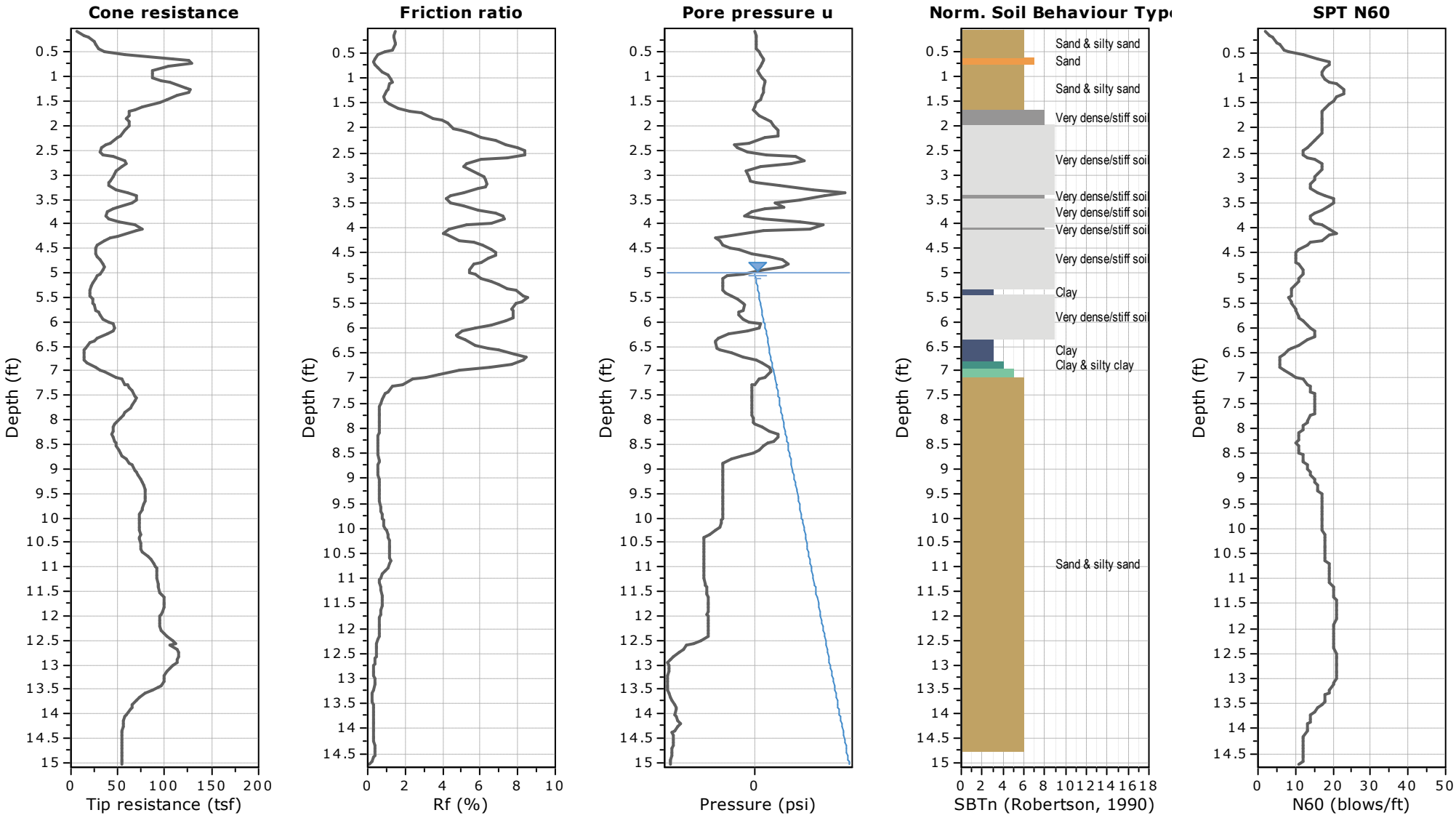
CPT: C-02
Total depth: 15.04 ft, Date: 4/20/2022
Cone Type: Vertek S4 15 cm2
Cone Operator: Longview Exploration



ECS Southeast, LLP
2031 Industrial Blvd.
Lexington, SC

Project: Taco Bell - Sumter, SC
Location: Sumter, SC

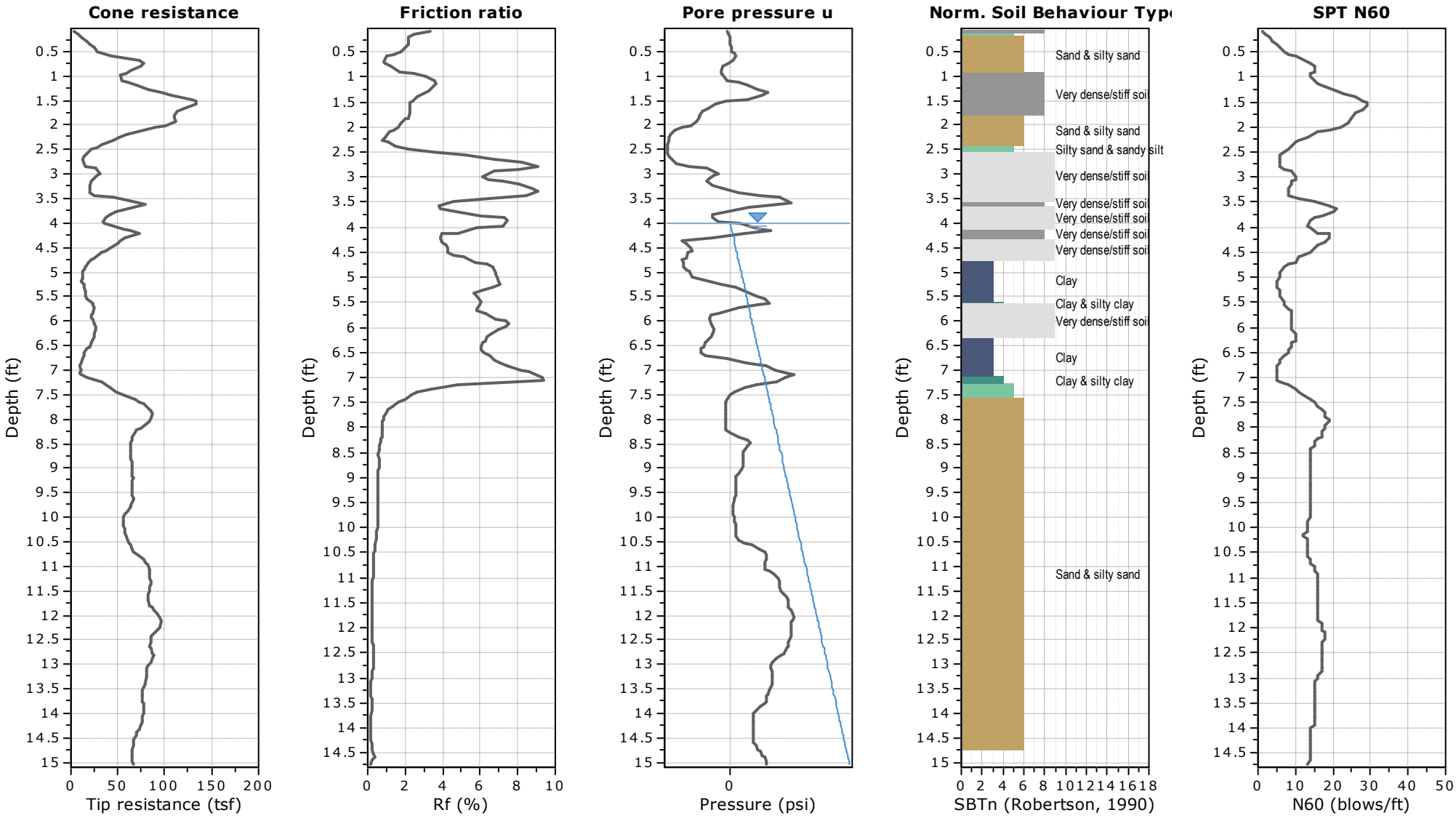
CPT: C-03
Total depth: 15.03 ft, Date: 4/20/2022
Cone Type: Vertek S4 15 cm2
Cone Operator: Longview Exploration



ECS Southeast, LLP
2031 Industrial Blvd.
Lexington, SC

Project: Taco Bell - Sumter, SC
Location: Sumter, SC

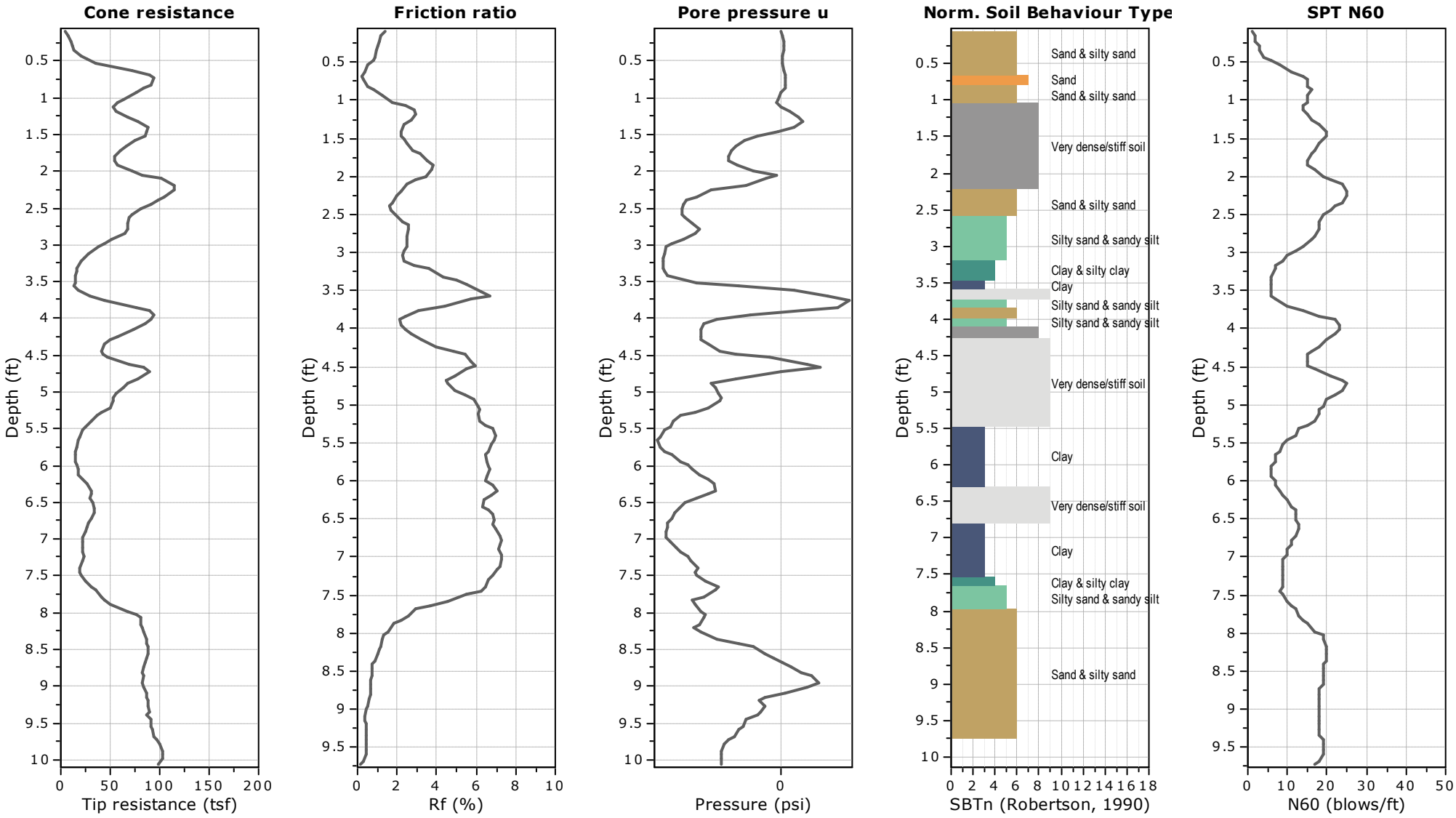
CPT: C-04
Total depth: 15.04 ft, Date: 4/20/2022
Cone Type: Vertek S4 15 cm2
Cone Operator: Longview Exploration



ECS Southeast, LLP
2031 Industrial Blvd.
Lexington, SC

Project: Taco Bell - Sumter, SC
Location: Sumter, SC

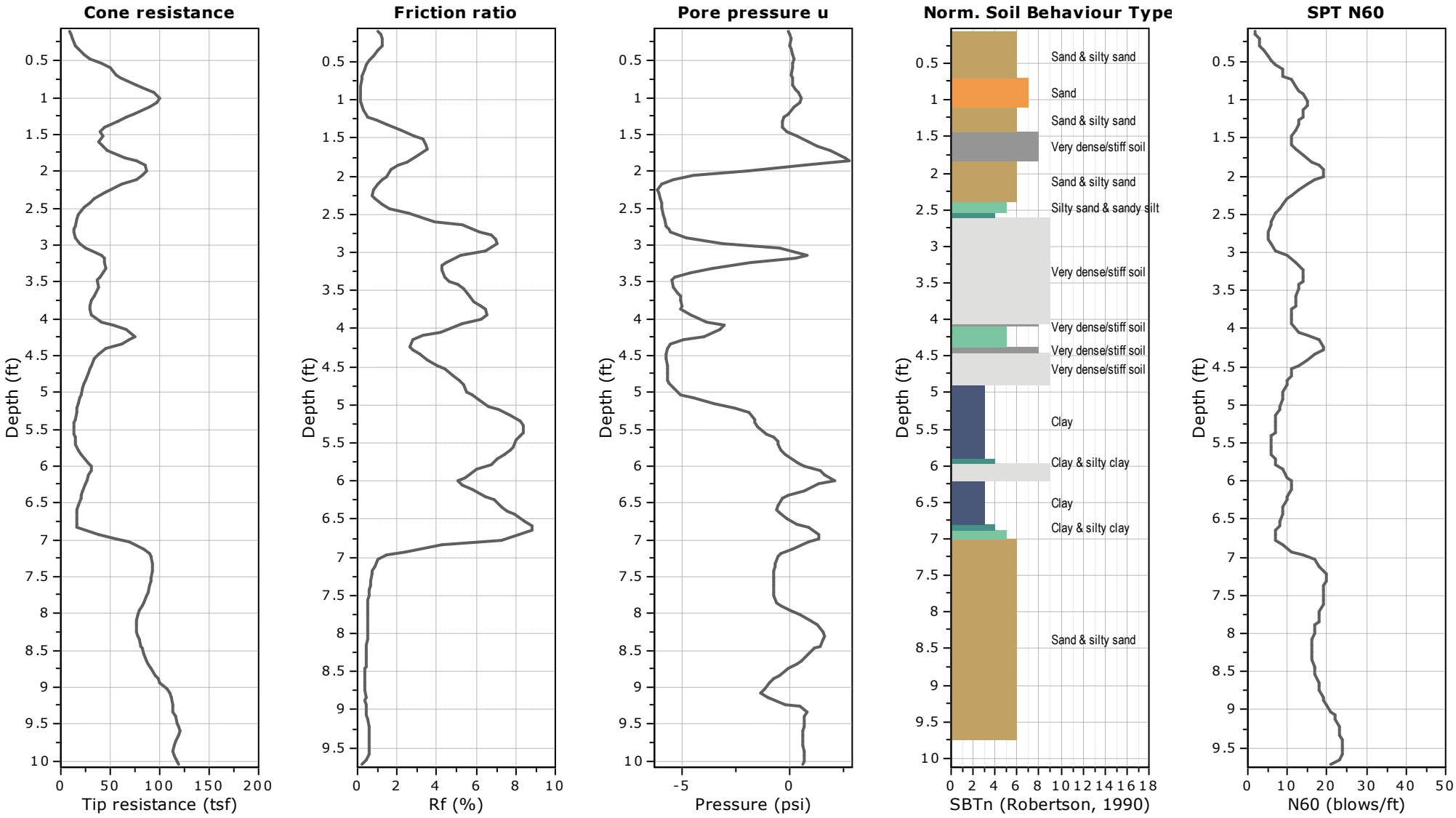
CPT: C-05
Total depth: 10.06 ft, Date: 4/20/2022
Cone Type: Vertek S4 15 cm2
Cone Operator: Longview Exploration



ECS Southeast, LLP
2031 Industrial Blvd.
Lexington, SC

Project: Taco Bell - Sumter, SC
Location: Sumter, SC

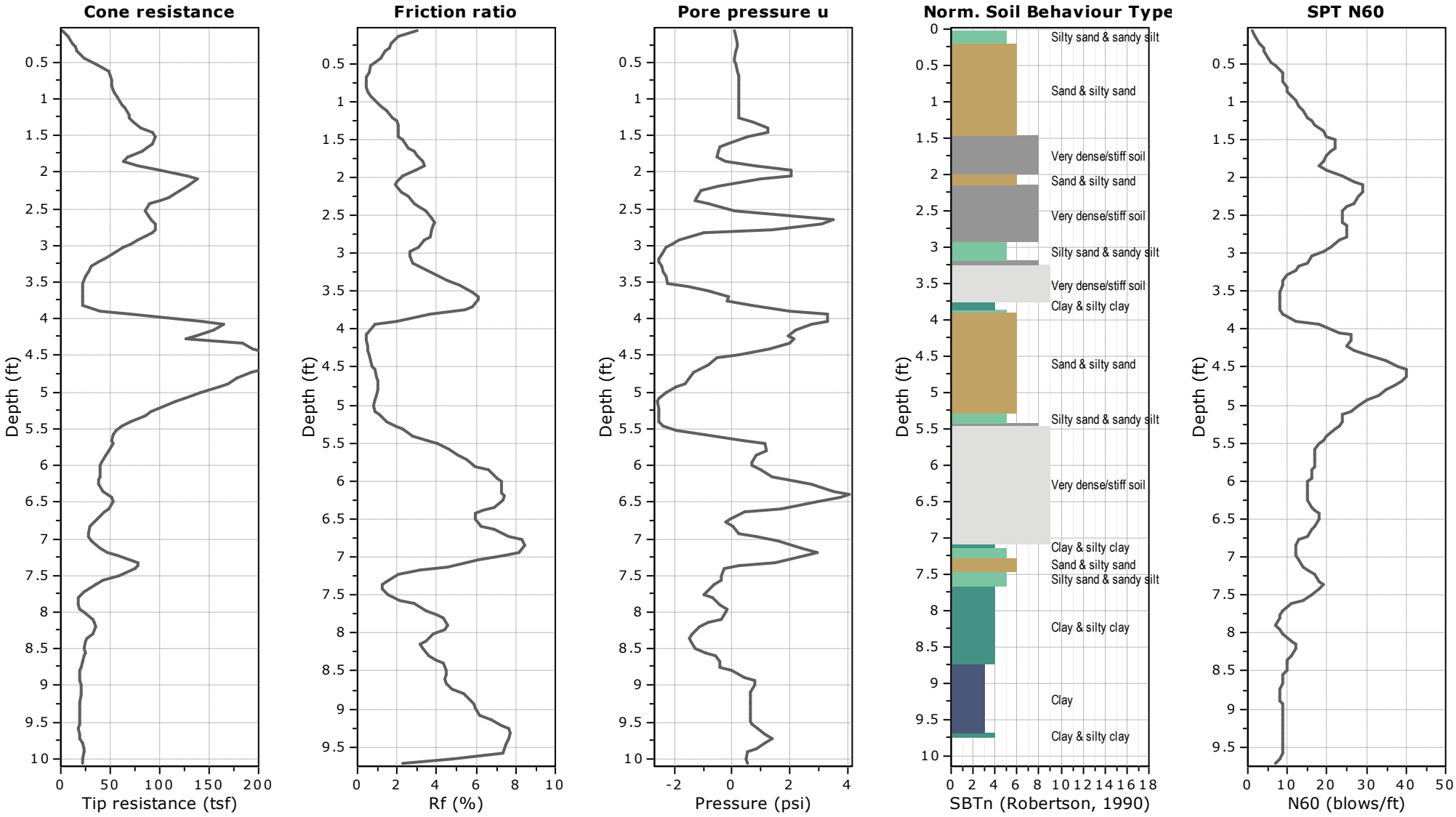
CPT: C-06
Total depth: 10.04 ft, Date: 4/20/2022
Cone Type: Vertek S4 15 cm2
Cone Operator: Longview Exploration



ECS Southeast, LLP
2031 Industrial Blvd.
Lexington, SC

Project: Taco Bell - Sumter, SC
Location: Sumter, SC

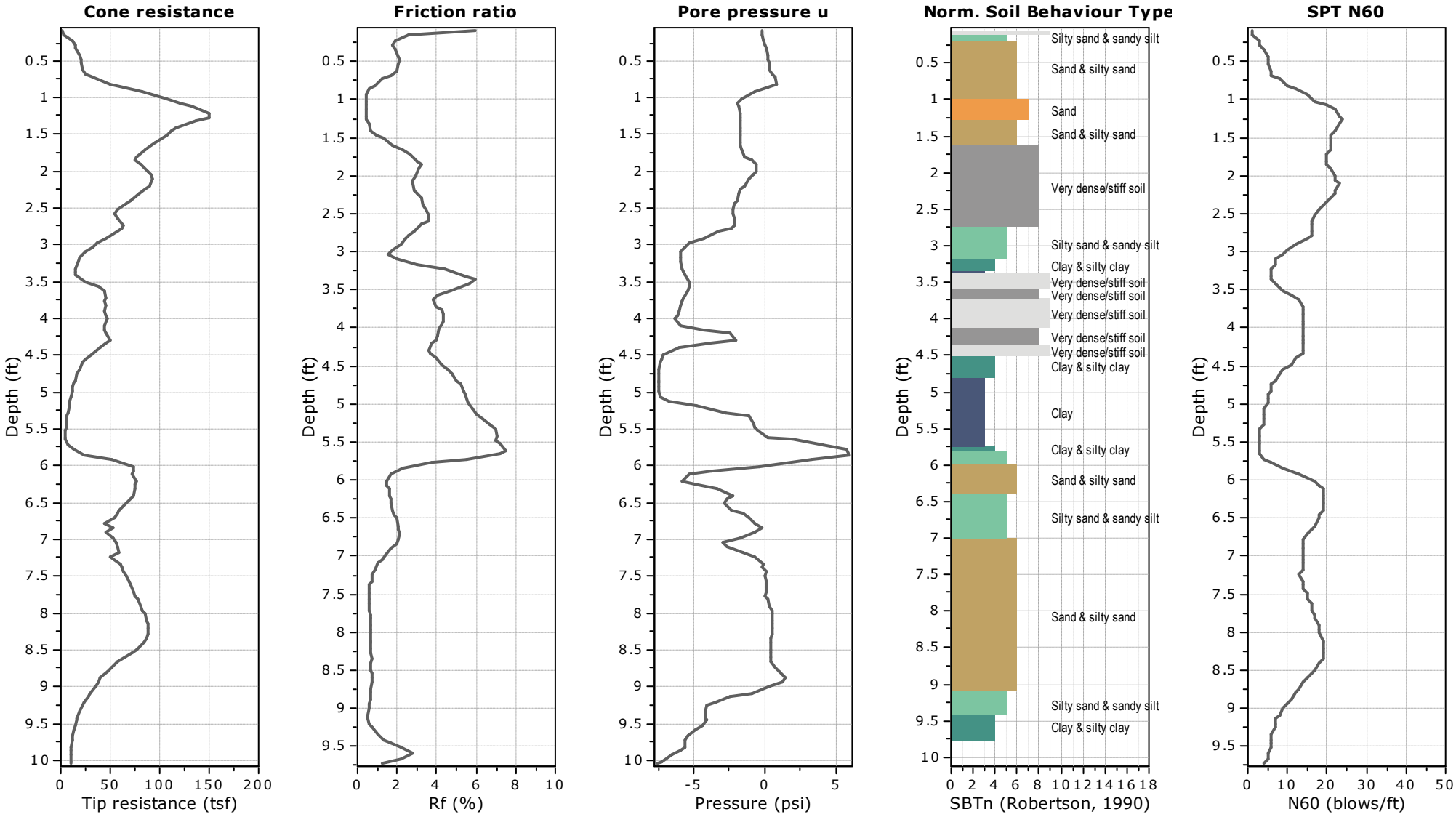
CPT: C-07
Total depth: 10.06 ft, Date: 4/20/2022
Cone Type: Vertek S4 15 cm2
Cone Operator: Longview Exploration



ECS Southeast, LLP
2031 Industrial Blvd.
Lexington, SC

Project: Taco Bell - Sumter, SC
Location: Sumter, SC

CPT: C-08
Total depth: 10.04 ft, Date: 4/20/2022
Cone Type: Vertek S4 15 cm2
Cone Operator: Longview Exploration



CLIENT:	PROJECT NO.:	SHEET:
Bell Carolina LLC	**38:2571**	**1 of 1**
PROJECT NAME:	HAND AUGER NO.:	SURFACE ELEVATION:
Taco Bell- Sumter, SC	**C-01**	
SITE LOCATION:		STATION:
McCray's Mill Road, Sumter, South Carolina 29154		
NORTHING:	EASTING:	

DEPTH (FT)	WATER LEVELS	ELEVATION (FT)	DESCRIPTION OF MATERIAL	EXCAVATION EFFORT	DCP	SAMPLE NUMBER	FINES CONTENT (%)	MOISTURE CONTENT (%)
			Topsoil Thickness[4.00"]					
			(SC FILL) FILL, CLAYEY SAND, dark red to tannish brown, moist	M		S-1		
				D		S-2		13.1
						S-3		
						S-4		
			END OF HAND AUGER AT 4 FT					
5								
10								
15								

REMARKS:

THE STRATIFICATION LINES REPRESENT THE APPROXIMATE BOUNDRY LINES BETWEEN SOIL TYPES. IN-SITU THE TRANSITION MAY BE GRADUAL

EXCAVATION EFFORT: E - EASY M - MEDIUM D - DIFFICULT VD - VERY DIFFICULT

▽ WL (First Encountered) **NE**	▼ WL (Seasonal High)	ECS REP:	DATE COMPLETED:	UNITS:	CAVE-IN-DEPTH:
▼ WL (Completion)		**TElder**	**Apr 15 2022**	**Ft**	

HAND AUGER LOG

CLIENT:	PROJECT NO.:	SHEET:
Bell Carolina LLC	**38:2571**	**1 of 1**
PROJECT NAME:	HAND AUGER NO.:	SURFACE ELEVATION:
Taco Bell- Sumter, SC	**C-02**	
SITE LOCATION:		STATION:
McCray's Mill Road, Sumter, South Carolina 29154		
NORTHING:	EASTING:	

DEPTH (FT)	WATER LEVELS	ELEVATION (FT)	DESCRIPTION OF MATERIAL	EXCAVATION EFFORT	DCP	SAMPLE NUMBER	FINES CONTENT (%)	MOISTURE CONTENT (%)
			Topsoil Thickness[4.00"]					
			(SC FILL) FILL, CLAYEY SAND, dark red to tannish brown, moist	M		S-1		
						S-2		
				D		S-3		
						S-4		
			END OF HAND AUGER AT 4 FT					
5								
10								
15								

REMARKS:

THE STRATIFICATION LINES REPRESENT THE APPROXIMATE BOUNDRY LINES BETWEEN SOIL TYPES. IN-SITU THE TRANSITION MAY BE GRADUAL

EXCAVATION EFFORT: E - EASY M - MEDIUM D - DIFFICULT VD - VERY DIFFICULT

▽ WL (First Encountered) **NE**	▼ WL (Seasonal High)	ECS REP:	DATE COMPLETED:	UNITS:	CAVE-IN-DEPTH:
▼ WL (Completion)		**TElder**	**Apr 15 2022**	**Ft**	

HAND AUGER LOG

CLIENT:	PROJECT NO.:	SHEET:
Bell Carolina LLC	**38:2571**	**1 of 1**
PROJECT NAME:	HAND AUGER NO.:	SURFACE ELEVATION:
Taco Bell- Sumter, SC	**C-03**	
SITE LOCATION:		STATION:
McCray's Mill Road, Sumter, South Carolina 29154		
NORTHING:	EASTING:	

DEPTH (FT)	WATER LEVELS	ELEVATION (FT)	DESCRIPTION OF MATERIAL	EXCAVATION EFFORT	DCP	SAMPLE NUMBER	FINES CONTENT (%)	MOISTURE CONTENT (%)
			Topsoil Thickness[5.00"]					
			(SC FILL) FILL, CLAYEY SAND, dark red to tannish brown, moist	M		S-1		
				D		S-2	30	12.8
						S-3		
			(SC) CLAYEY SAND, tannish orange to gray, moist			S-4		
			END OF HAND AUGER AT 4 FT					
5								
10								
15								

REMARKS:

THE STRATIFICATION LINES REPRESENT THE APPROXIMATE BOUNDRY LINES BETWEEN SOIL TYPES. IN-SITU THE TRANSITION MAY BE GRADUAL

EXCAVATION EFFORT: E - EASY M - MEDIUM D - DIFFICULT VD - VERY DIFFICULT

WL (First Encountered) **NE**	WL (Seasonal High)	ECS REP:	DATE COMPLETED:	UNITS:	CAVE-IN-DEPTH:
WL (Completion)		**TElder**	**Apr 15 2022**	**Ft**	

HAND AUGER LOG

CLIENT:	PROJECT NO.:	SHEET:
Bell Carolina LLC	**38:2571**	**1 of 1**
PROJECT NAME:	HAND AUGER NO.:	SURFACE ELEVATION:
Taco Bell- Sumter, SC	**C-04**	
SITE LOCATION:		STATION:
McCray's Mill Road, Sumter, South Carolina 29154		
NORTHING:	EASTING:	

DEPTH (FT)	WATER LEVELS	ELEVATION (FT)	DESCRIPTION OF MATERIAL	EXCAVATION EFFORT	DCP	SAMPLE NUMBER	FINES CONTENT (%)	MOISTURE CONTENT (%)
			Topsoil Thickness[4.00"]					
			(SC FILL) FILL, CLAYEY SAND, dark red to tannish brown, moist	D		S-1 S-2		
			(SC) CLAYEY SAND, tannish orange to gray, moist			S-3 S-4		
			END OF HAND AUGER AT 4 FT					
5								
10								
15								

REMARKS:

THE STRATIFICATION LINES REPRESENT THE APPROXIMATE BOUNDRY LINES BETWEEN SOIL TYPES. IN-SITU THE TRANSITION MAY BE GRADUAL

EXCAVATION EFFORT: E - EASY M - MEDIUM D - DIFFICULT VD - VERY DIFFICULT

▽ WL (First Encountered) **NE**	▼ WL (Seasonal High)	ECS REP:	DATE COMPLETED:	UNITS:	CAVE-IN-DEPTH:
▼ WL (Completion)		**TElder**	**Apr 15 2022**	**Ft**	

HAND AUGER LOG

CLIENT:	PROJECT NO.:	SHEET:
Bell Carolina LLC	**38:2571**	**1 of 1**
PROJECT NAME:	HAND AUGER NO.:	SURFACE ELEVATION:
Taco Bell- Sumter, SC	**C-05**	
SITE LOCATION:		STATION:
McCray's Mill Road, Sumter, South Carolina 29154		
NORTHING:	EASTING:	

DEPTH (FT)	WATER LEVELS	ELEVATION (FT)	DESCRIPTION OF MATERIAL	EXCAVATION EFFORT	DCP	SAMPLE NUMBER	FINES CONTENT (%)	MOISTURE CONTENT (%)
			Topsoil Thickness[4.00"]					
			(SC FILL) FILL, CLAYEY SAND, dark red to tannish brown, moist	D		S-1		14.3
						S-2		
						S-3		
						S-4		
			END OF HAND AUGER AT 4 FT					
5								
10								
15								

REMARKS:

THE STRATIFICATION LINES REPRESENT THE APPROXIMATE BOUNDRY LINES BETWEEN SOIL TYPES. IN-SITU THE TRANSITION MAY BE GRADUAL

EXCAVATION EFFORT: E - EASY M - MEDIUM D - DIFFICULT VD - VERY DIFFICULT

▽ WL (First Encountered) **NE**	▼ WL (Seasonal High)	ECS REP:	DATE COMPLETED:	UNITS:	CAVE-IN-DEPTH:
▼ WL (Completion)		**TElder**	**Apr 15 2022**	**Ft**	

HAND AUGER LOG

CLIENT:	PROJECT NO.:	SHEET:
Bell Carolina LLC	**38:2571**	**1 of 1**
PROJECT NAME:	HAND AUGER NO.:	SURFACE ELEVATION:
Taco Bell- Sumter, SC	**C-06**	
SITE LOCATION:		STATION:
McCray's Mill Road, Sumter, South Carolina 29154		
NORTHING:	EASTING:	

DEPTH (FT)	WATER LEVELS	ELEVATION (FT)	DESCRIPTION OF MATERIAL	EXCAVATION EFFORT	DCP	SAMPLE NUMBER	FINES CONTENT (%)	MOISTURE CONTENT (%)
			Topsoil Thickness[5.00"]					
			(SC FILL) FILL, CLAYEY SAND, dark red to tannish brown, moist	D		S-1 S-2		
			(SC) CLAYEY SAND, tannish orange to gray, moist			S-3 S-4		
			END OF HAND AUGER AT 4 FT					
5								
10								
15								

REMARKS:

THE STRATIFICATION LINES REPRESENT THE APPROXIMATE BOUNDRY LINES BETWEEN SOIL TYPES. IN-SITU THE TRANSITION MAY BE GRADUAL

EXCAVATION EFFORT: E - EASY M - MEDIUM D - DIFFICULT VD - VERY DIFFICULT

▽ WL (First Encountered) **NE**	▼ WL (Seasonal High)	ECS REP:	DATE COMPLETED:	UNITS:	CAVE-IN-DEPTH:
▼ WL (Completion)		**TElder**	**Apr 15 2022**	**Ft**	

HAND AUGER LOG

CLIENT:	PROJECT NO.:	SHEET:
Bell Carolina LLC	**38:2571**	**1 of 1**
PROJECT NAME:	HAND AUGER NO.:	SURFACE ELEVATION:
Taco Bell- Sumter, SC	**C-07**	
SITE LOCATION:		STATION:
McCray's Mill Road, Sumter, South Carolina 29154		
NORTHING:	EASTING:	

DEPTH (FT)	WATER LEVELS	ELEVATION (FT)	DESCRIPTION OF MATERIAL	EXCAVATION EFFORT	DCP	SAMPLE NUMBER	FINES CONTENT (%)	MOISTURE CONTENT (%)
			Topsoil Thickness[5.00"]					
			(SC FILL) FILL, CLAYEY SAND, dark red to tannish brown, moist	M		S-1		10.5
				D		S-2		
						S-3		
			(SC) CLAYEY SAND, tannish orange to gray, moist			S-4		
			END OF HAND AUGER AT 4 FT					
5								
10								
15								

REMARKS:

THE STRATIFICATION LINES REPRESENT THE APPROXIMATE BOUNDRY LINES BETWEEN SOIL TYPES. IN-SITU THE TRANSITION MAY BE GRADUAL

EXCAVATION EFFORT: E - EASY M - MEDIUM D - DIFFICULT VD - VERY DIFFICULT

WL (First Encountered) **NE**	WL (Seasonal High)	ECS REP:	DATE COMPLETED:	UNITS:	CAVE-IN-DEPTH:
WL (Completion)		**TElder**	**Apr 15 2022**	**Ft**	

HAND AUGER LOG

CLIENT:	PROJECT NO.:	SHEET:
Bell Carolina LLC	**38:2571**	**1 of 1**
PROJECT NAME:	HAND AUGER NO.:	SURFACE ELEVATION:
Taco Bell- Sumter, SC	**C-08**	
SITE LOCATION:		STATION:
McCray's Mill Road, Sumter, South Carolina 29154		
NORTHING:	EASTING:	

DEPTH (FT)	WATER LEVELS	ELEVATION (FT)	DESCRIPTION OF MATERIAL	EXCAVATION EFFORT	DCP	SAMPLE NUMBER	FINES CONTENT (%)	MOISTURE CONTENT (%)
			Topsoil Thickness[6.00"]					
			(SC FILL) FILL, CLAYEY SAND, dark red to tannish brown, moist	M		S-1		11.2
				D		S-2		
						S-3		
			(SC) CLAYEY SAND, tannish orange to gray, moist			S-4		
			END OF HAND AUGER AT 4 FT					
5								
10								
15								

REMARKS:

THE STRATIFICATION LINES REPRESENT THE APPROXIMATE BOUNDRY LINES BETWEEN SOIL TYPES. IN-SITU THE TRANSITION MAY BE GRADUAL

EXCAVATION EFFORT: E - EASY M - MEDIUM D - DIFFICULT VD - VERY DIFFICULT

▽ WL (First Encountered) **NE**	▼ WL (Seasonal High)	ECS REP:	DATE COMPLETED:	UNITS:	CAVE-IN-DEPTH:
▼ WL (Completion)		**TElder**	**Apr 15 2022**	**Ft**	

HAND AUGER LOG

WILDCAT DYNAMIC CONE LOG

ECS Southeast, LLP
2031 Industrial Boulevard
Lexington, SC 29072

PROJECT NUMBER: 38:2571
DATE STARTED: 04-18-2022
DATE COMPLETED: 04-18-2022

HOLE #: W-01
CREW: TE
PROJECT: Taco Bell - Sumter, SC
ADDRESS: McCray's Mill Road
LOCATION: Sumter, SC

SURFACE ELEVATION:
WATER ON COMPLETION:
HAMMER WEIGHT: 35 lbs.
CONE AREA: 10 sq. cm

DEPTH	BLOWS PER 10 cm	RESISTANCE Kg/cm²	GRAPH OF CONE RESISTANCE 0 50 100 150	N'	TESTED CONSISTENCY NON-COHESIVE	COHESIVE
-	4	17.8	•••••	5	LOOSE	MEDIUM STIFF
-	7	31.1	•••••••••	8	LOOSE	MEDIUM STIFF
- 1 ft	4	17.8	•••••	5	LOOSE	MEDIUM STIFF
-	5	22.2	••••••	6	LOOSE	MEDIUM STIFF
-	3	13.3	•••	3	VERY LOOSE	SOFT
- 2 ft	1	4.4	•	1	VERY LOOSE	VERY SOFT
-	3	13.3	•••	3	VERY LOOSE	SOFT
-	2	8.9	••	2	VERY LOOSE	SOFT
- 3 ft	1	4.4	•	1	VERY LOOSE	VERY SOFT
- 1 m	2	8.9	••	2	VERY LOOSE	SOFT
-	1	3.9	•	1	VERY LOOSE	VERY SOFT
- 4 ft	3	11.6	•••	3	VERY LOOSE	SOFT
-	3	11.6	•••	3	VERY LOOSE	SOFT
-	6	23.2	••••••	6	LOOSE	MEDIUM STIFF
- 5 ft	6	23.2	••••••	6	LOOSE	MEDIUM STIFF
-	6	23.2	••••••	6	LOOSE	MEDIUM STIFF
-	5	19.3	•••••	5	LOOSE	MEDIUM STIFF
- 6 ft	6	23.2	••••••	6	LOOSE	MEDIUM STIFF
-	8	30.9	••••••••	8	LOOSE	MEDIUM STIFF
- 2 m	10	38.6	••••••••••	11	MEDIUM DENSE	STIFF
- 7 ft	13	44.5	••••••••••••	12	MEDIUM DENSE	STIFF
-	15	51.3	••••••••••••••	14	MEDIUM DENSE	STIFF
-	15	51.3	••••••••••••••	14	MEDIUM DENSE	STIFF
- 8 ft	16	54.7	•••••••••••••••	15	MEDIUM DENSE	STIFF
-						
-						
- 9 ft						
-						
-						
- 3 m 10 ft						
-						
-						
-						
- 11 ft						
-						
-						
- 12 ft						
-						
-						
- 4 m 13 ft						

WILDCAT DYNAMIC CONE LOG

ECS Southeast, LLP
2031 Industrial Boulevard
Lexington, SC 29072

PROJECT NUMBER: 38:2571
DATE STARTED: 04-18-2022
DATE COMPLETED: 04-18-2022

HOLE #: W-02
CREW: TE
PROJECT: Taco Bell - Sumter, SC
ADDRESS: McCray's Mill Road
LOCATION: Sumter, SC

SURFACE ELEVATION:
WATER ON COMPLETION:
HAMMER WEIGHT: 35 lbs.
CONE AREA: 10 sq. cm

DEPTH	BLOWS PER 10 cm	RESISTANCE Kg/cm²	GRAPH OF CONE RESISTANCE 0 50 100 150	N'	TESTED CONSISTENCY NON-COHESIVE	COHESIVE
-	6	26.6	•••••••	7	LOOSE	MEDIUM STIFF
-	4	17.8	•••••	5	LOOSE	MEDIUM STIFF
- 1 ft	5	22.2	••••••	6	LOOSE	MEDIUM STIFF
-	7	31.1	•••••••••	8	LOOSE	MEDIUM STIFF
-	11	48.8	••••••••••••••	13	MEDIUM DENSE	STIFF
- 2 ft	19	84.4	•••••••••••••••••••••••	24	MEDIUM DENSE	VERY STIFF
-	16	71.0	••••••••••••••••••	20	MEDIUM DENSE	VERY STIFF
-	18	79.9	•••••••••••••••••••••••	22	MEDIUM DENSE	VERY STIFF
- 3 ft	8	35.5	•••••••••	10	LOOSE	STIFF
- 1 m	21	93.2	••••••••••••••••••••••••••	25+	MEDIUM DENSE	VERY STIFF
-	16	61.8	•••••••••••••••••	17	MEDIUM DENSE	VERY STIFF
- 4 ft	18	69.5	••••••••••••••••••	19	MEDIUM DENSE	VERY STIFF
-	15	57.9	••••••••••••••••	16	MEDIUM DENSE	VERY STIFF
-	22	84.9	•••••••••••••••••••••••	24	MEDIUM DENSE	VERY STIFF
- 5 ft	21	81.1	•••••••••••••••••••••	23	MEDIUM DENSE	VERY STIFF
-	21	81.1	•••••••••••••••••••••	23	MEDIUM DENSE	VERY STIFF
-						
- 6 ft						
-						
- 2 m						
- 7 ft						
-						
-						
- 8 ft						
-						
-						
- 9 ft						
-						
-						
- 3 m 10 ft						
-						
-						
-						
- 11 ft						
-						
-						
- 12 ft						
-						
-						
- 4 m 13 ft						

APPENDIX C – Laboratory Testing

Laboratory Testing Summary

Laboratory Testing Summary

Sample Location	Sample Number	Depth (feet)	^MC (%)	Soil Type	Atterberg Limits			**Percent Passing No. 200 Sieve	Moisture - Density		CBR (%)		#Organic Content (%)
					LL	PL	PI		<Maximum Density (pcf)	<Optimum Moisture (%)	0.1 in.	0.2 in.	
C-01	S-2	1-2	13.1	SC									
C-03	S-2	1-2	12.8	SC	32	15	17	30.1					
C-05	S-1	0-1	14.3	SC									
C-07	S-1	0-1	10.5	SC									
C-08	S-1	0-1	11.2	SC									

Notes: See test reports for test method, ^ASTM D2216-19, *ASTM D2488, **ASTM D1140-17, #ASTM D2974-20e1 < See test report for D4718 corrected values

Definitions: MC: Moisture Content, Soil Type: USCS (Unified Soil Classification System), LL: Liquid Limit, PL: Plastic Limit, PI: Plasticity Index, CBR: California Bearing Ratio, OC: Organic Content

Project: Taco Bell- Sumter, SC
Client: Bell Carolina LLC

Project No.: 38:2571
Date Reported:

Office / Lab	Address	Office Number / Fax
ECS Southeast LLP - Columbia	2031 Industrial Blvd. Lexington, SC 29072	(803)250-3377 (803)750-3174

Tested by	Checked by	Approved by	Date Received
BCook1	CMcDaniel	CMcDaniel	