Report of Geotechnical Exploration
Ford Blue Oval City
TVA Substation
Stanton, Tennessee
S&ME Project No. 218019

PREPARED FOR:

Walbridge Aldinger, LLC
777 Woodward Avenue, Suite 300
Detroit, Michigan 48226

PREPARED BY:

S&ME, Inc.
658 Grassmere Park Drive, Suite 100
Nashville, Tennessee 37211

April 1, 2022

April 1, 2022

Walbridge Aldinger, LLC
777 Woodward Avenue, Suite 300
Detroit, Michigan 48226

Attention: Mr. Joseph Parisi

Reference: **Report of Geotechnical Exploration**
Ford Blue Oval City
TVA Substation
Stanton, Tennessee
S&ME Project No. 218019

Dear Mr. Parisi:

S&ME, Inc. (S&ME) is pleased to submit the following *Report of Geotechnical Exploration* performed for the planned Ford Blue Oval City TVA 500 kV Substation project located on TN-222 in Stanton, Tennessee. Our services were provided in general accordance with our Change Order No. X through our contract for our Proposal No. 218019, dated November 29, 2021, as authorized by Mr. Joseph Parisi of Walbridge Aldinger, LLC on January 20, 2022.

This report describes our understanding of the project and the subsurface conditions encountered and presents our preliminary conclusions and recommendations for site preparation, foundation, and pavement support. We appreciate the opportunity to serve as the geotechnical engineering consultant during this phase of the project. Please contact us with questions regarding this report, or if we may be of further assistance.

Sincerely,

S&ME, Inc.

Simone Metzger, P.E.
Project Engineer / Manager
TN Reg. No. 116603
smetzger@smeinc.com

Jeffrey A. Doubrava, P.E.
Vice President / Principal Engineer
TN Reg. No. 114351
jdoubrava@smeinc.com

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Report at a Glance

Key geotechnical findings based on our current understanding of the proposed project are presented below. These findings are presented as an overview and should not be used in place of the more detailed recommendations presented in the remainder of this report.

Category	Key Geotechnical Finding
Site Development Challenges	The site is generally consistent with other sites in the area and amenable to the proposed development. Specific geotechnical issues identified on this site that should be considered include: • Moisture conditioning for proper compaction of site soils during mass grading and utility backfill operations. • Remediation of upper cultivated materials throughout the fields and possibility of localized uncontrolled fill materials. • Control and/or mitigation of perched groundwater during construction. • Remediation of soft/loose loess soil.
Subsurface Conditions	Generally, much of the site is comprised of up to 1 ½ feet of cultivated materials underlain by loess materials derived from wind deposits and marine sediments. The materials were predominately firm to stiff, sandy and clayey silt. Transitions between strata were noted to be less clayey and more sandy with depth. Ground water was encountered approximately 5 to 29 feet below existing grade.
Seismic Design	Site Class D
Foundation Types	• Embedded spread foundations for the tubular pull-off structures with an allowable bearing capacity of 2,000 psf. • Shallow spread foundations for lightly loaded structures such as the switch house and circuit breaker structures and with an allowable bearing capacity of 2,500 psf. • Shallow spread foundations with ground improvement (aggregate piers) where an allowable bearing capacity of 3,000 psf is required. • Shallow augered foundations for the bus support, switch support, and small equipment structures.
Slab Support	General: soil support on-grade.
Use of Site Soil as Fill	Site soils are suitable for use as structural fill; moisture conditioning should be expected
Excavation Conditions	Conventional earthmoving equipment should be able to excavate to the anticipated depths.
Construction Dewatering	Construction dewatering may be required for local perched water and surface water infiltration. Additionally, depending on the depth of the pits across the site, dewatering may be required within isolated areas.
Site Impacts	Multiple water ditches and/or creeks present across the site. Soils in these areas may require remediation.

Category	Key Geotechnical Finding
Remedial Grading	Clayey site soils are highly susceptible to loss of strength at elevated moisture contents. If site soils increase in moisture content during construction, remedial grading may be required.
Schedule/Cost Considerations	• *Soil Moisture Content* – Depending upon weather conditions preceding grading, drying of site soils may be required to achieve a compactable soil moisture content. Late fall and winter weather conditions are typically not conducive to drying soils and the risk of schedule delays and additional costs will be increased for construction during these times. • *Remedial Grading* – Cultivated materials may require removal and replacement if construction occurs during wet seasons. • *Deep Fill Settlements* – Fills in excess of 5 feet may cause settlements greater than an inch; each area should be evaluated relative to fill depths and structural loads relative to total and differential settlement tolerances. • *Site Impacts* – Water ditches may be encountered and require remediation during site grading.

1.0 Introduction

1.1 Purpose

The purpose of our work was to explore the subsurface soil conditions at the site, evaluate those conditions, and provide recommendations for site preparation, foundation, and pavement support. This report provides the following:

- A summary of the project and provided information.
- A summary of current site conditions, topography, and area geology.
- A summary of the field exploration methods.
- A summary of the subsurface conditions encountered in the soundings and test borings.
- A summary of the laboratory test methods and results.
- Site Assessment.
- Recommendations for site preparation, including subgrade preparation, excavation, structural fill placement, and groundwater control.
- Recommendations for design of shallow and deep soil foundation support (piles), including the allowable skin friction and lateral soil pressure, recommendations regarding the allowable soil bearing pressure.
- Recommendations for soil input values for FAD tools analysis including Modulus of Deformation (from pressuremeter test) and empirically correlated strength and unit weights based on N-values. Laboratory strength testing may be performed for an additional fee.
- Recommended seismic site classification in accordance with the 2018 International Building Code (IBC).
- Site-specific Seismic Response Analysis (SSRA).
- An Appendix with Site Location Plan, Test Location Plan, and individual records for each test boring, CPT sounding, MASW tests, Resistivity test, and laboratory test.

1.2 Project Information

Project information was provided in November 18, 2021 e-mails between Mr. Keith Johnson of Walbridge Aldinger, LLC (Walbridge) and Ms. Simone Metzger, P.E. of S&ME. Appended to an e-mail was the "Soil Boring RFP (Stanton)", prepared by the Tennessee Valley Authority (TVA), which presented the requested scope of work along with the boring coordinates and layouts in pdf and dwg formats. Additional plans and structural information were provided during February and March conversations and e-mails between various project team members. Included in a March 3, 2022 email from Mr. Rob Evans with TVA to Ms. Simone Metzger of, S&ME were two drawings titled *Preliminary Site Sketch,* prepared by TVA, one showing the initial arrangement and a second showing the final arrangement and four drawings showing details for the foundations for the transformer and radiator bank, support structures, three phase tubular pull-off structure, and power circuit breaker.

Based on the provided information, we understand a new 500 kV Substation will be constructed for TVA to serve the Ford Blue Oval plant. The substation will be located on a nearly 40-acre tract situated east of TN-222 across from the existing fire station in Stanton, Tennessee. Based upon our experience on similar TVA 500 kV Substations, we anticipate the structures include: Breaker Support, Transmission Pull-Off, Switch House, and Maintenance Building structures.

A grading plan was not provided; however, we have access to general topographic information for the project from the site survey for the Blue Oval Project provided by SSOE. Further, we understand the yard elevation is planned to be 318.6 feet. Based on this, maximum cuts and fills are on the order of 20 and 13 feet, respectively. Detailed information regarding structural loading and grading plans were not provided however, based on experience with other 500 kV Substations designed by TVA we expect maximum loads on isolated shallow spread footings and shallow augured foundations will not exceed about 100 kilo-pounds (kips). Earthquake loading was not provided.

Review of available aerial images on Google Earth and our site reconnaissance indicate the site is currently comprised of agricultural land generally sloping toward to the east. A tree line on the south and southwest side of the site is present. There are several ditches present throughout the site.

1.3 Scope of Study and Report Format

We have been requested to provide a geotechnical exploration for the subject project. The project information and assumptions detailed above should be reviewed and confirmed by the appropriate team members. Modifications to our proposed scope of services may be required if the actual conditions vary from the project information and assumptions described herein.

This geotechnical exploration included a site reconnaissance, field and laboratory testing, and engineering analysis. The following sections of this report present discussions of the field exploration, site conditions, laboratory test results, and conclusions and recommendations. Following the text of this report, figures, and sounding and boring logs are provided in the Appendix.

The scope of services did not include an environmental assessment for determining the presence or absence of wetlands, or hazardous or toxic materials in the soil, bedrock, surface water, or subsurface water. Any statements

in this report or on the boring logs regarding odors, colors, and unusual or suspicious items or conditions are strictly for informational purposes.

2.0 Field Exploration

2.1 General

Our field exploration was conducted between January 25 and March 1, 2022 and included a site reconnaissance by members of our engineering staff, 28 cone penetration test (CPT) soundings (which includes 5 offsets where shallow refusal was encountered, 59 soil penetration test (SPT) borings (which includes 6 offsets to obtain undisturbed samples), and 2 field resistivity profiles, and eight 2D MASW profiles. Test locations were provided by TVA. Due to limiting site features such as cultural areas, ditches, tree lines, etc., our final profile locations and lengths of some of the originally proposed 2D MASW profile locations were altered and boring B-60, located outside of the proposed construction area was not performed. Pressuremeter testing was performed in borings B-35 and B-38 at depths of 5, 15, 25, and 35 feet. Test Location Plans show the approximate sounding, boring, and geophysical testing locations and are provided in the Appendix.

The test locations were located and marked in the field by members of our engineering staff utilizing a commercial-grade, hand-held global positioning system (GPS) unit loaded with pre-established locations from provided plans overlaid into Google Earth. Ground surface elevations for the test locations were estimated by interpolating between contours on the provided topographic survey. Based on the methods used to establish the locations and elevations of the tests, this information should be considered approximate.

2.2 Cone Penetration Test (CPT) Soundings

The soundings were advanced as cone penetration rest (CPT) soundings using a 40-ton track-mounted vehicle to hydraulically advance the electronically instrumented cone penetrometer in general accordance with ASTM D5778, *the Standard Test Method for Electronic Friction Cone and Piezocone Penetration Testing of Soils*. During penetration, the tip resistance, pore water pressure and sleeve friction were measured and recorded during penetration. Using theoretical and empirical correlations, the CPT data is used to determine soil stratigraphy and estimate soil strength parameters. The method produces a nearly continuous record of soil data. For the CPT soundings, soil samples are not obtained. Soil classification is made on a basis of comparison of the tip resistance, sleeve resistance, and pore pressure values to values measured at other locations in known soil types, using experience with similar soils and exercising engineering judgement.

2.3 Soil Test Borings

The test borings were initially advanced by mechanically twisting 2 ¼-inch diameter hollow stem augers (HSA) into the ground with a tracked rig in general accordance with ASTM D6151, the *Standard Practice for Using Hollow-Stem Augers for Geotechnical Exploration and Soil Sampling*. After heaving sands were encountered, rotary drilling processes were used to advance the hole and a heavy drilling fluid was circulated in the bore holes to stabilize the sides and flush the cuttings.

Soil samples were obtained with a standard 1.4-inch inside diameter (ID), 2-inch outside diameter (OD) split-spoon sampler at selected intervals in general accordance with ASTM D1586, the *Standard Test Method for Standard Penetration Test (SPT) and Split-Barrel Sampling of* Soils. The sampler was first seated 6 inches and then driven an additional foot with blows of the 140-pound hammer falling 30 inches. The number of hammer blows required to drive the sampler the final foot was recorded and is designated the "standard penetration resistance" (N-value) with units of blows per foot (bpf). The N-value provides a general indication of in-situ soil conditions and has been correlated with certain engineering properties of soils. An automatic trip drop hammer was used for the standard penetration resistance testing. The automatic hammer generally has a higher efficiency than a manual hammer, and may yield lower N values. The hammer efficiency for the rig used to perform the soil test borings is 86.5%. The consistency and density descriptions for the soil are based on the field values without any adjustments or "corrections".

The soil samples obtained during our field activities were visually classified by members of our engineering staff in general accordance with ASTM D2488, the *Standard Practice for Description and Identification of Soils (Visual-Manual Procedure)*. Subsurface water level readings were taken in selected borings during drilling and upon completion of the soil drilling process. Upon completion of drilling and sampling, each borehole was backfilled with soil cuttings and a borehole closure device. Delayed subsurface water level measurements were obtained where we could safely leave borings open overnight. Upon completion of drilling or delayed water readings, each borehole was backfilled with soil cuttings and a borehole closure device. There were several areas where water was encountered near the surface. This is likely from the mud rotary process and in the case of delayed readings, from the mud sealing the hole during times of the rain events that occurred during our exploration. We do not think it is indicative of the water table and have removed these readings from the logs so that it will not be misinterpreted.

2.4 Pressuremeter Testing

Pressuremeter testing was performed in borings B-35 and B-38 at depths of 5, 15, 25, and 35 feet. We utilized Roctest's TEXAM^{e} pressuremeter equipment to perform strain-controlled tests at these locations.

2.5 2D Multi-Channel Analysis of Surface Waves (MASW) Survey

Between February 8 and 16, 2022, we conducted a two-dimensional (2D) Multi-Channel Analysis of Surface Waves (MASW) seismic survey along the accessible portions of the requested transects to assist the geotechnical exploration program by identifying shear wave velocity variations associated with soil stiffness within the underlying materials at the site.

We collected a total of eight (8) 2D MASW profiles ranging from about 700 to 1,270 feet in length (Lines MASW-1 through MASW-8). A Geometrics Geode seismograph with a "landstreamer" equipped with twenty-four (24) 4.5 Hz vertical geophones. The geophones were set at a spacing of 5 feet with a spacing of 10 feet between successive measurements. A PEG-40 truck mounted accelerated weight drop was used as the energy source. Data processing was conducted using the Geogiga Technology Corp. Seismic Pro™ software (SURFACE PLUS module) and Golden Software's Surfer® program was used to grid and plot the final 2D MASW models. Elevations used for our 2D MASW models were based on one meter Lidar Data obtained from USGS Digital Elevation Model (DEM) rather

than actual field survey measurements performed by S&ME, and as such, should be considered estimated. Approximate locations were located near the boring locations and are shown on the Test Location Plans in the Appendix.

2.6 Field Resistivity Testing

On February 1, 2022, we performed field resistivity measurements at the requested location in general accordance with ASTM G57 "*Standard Test Method for Field Measurement of Soil Resistivity using the Wenner Four-Electrode Method*" using an Advanced Geosciences Incorporated, Inc. (AGI) R8 SuperSting™ resistivity meter, which is calibrated annually by the manufacturer. The resistivity survey consisted of collecting two linear profiles (one in the north-south and one in the east-west orientation) at the requested site locations. Each profile used electrode ("a") spacings of 1, 2, 3, 5, 7, 10, 20, 30, 50, 70, 100, 200, and 300 feet with the east-west profile consisting of an additional measurement at 400 feet. The eighteen-inch stainless steel electrodes used for the surveys were inserted 6 to 12 inches into the ground, and soil conditions were noted at the survey location. The results of the soil resistivity survey are provided in the attached tabulated spreadsheet, "*Soil Resistivity Data Sheet – Wenner Four-Electrode Method,*" which presents the "a" spacing (feet and cm), electrode depth (inches), and associated calculated resistance (ohms), apparent resistivity (ohm/cm and ohm/ft), and injected current (mA). Approximate traverse locations were located near the boring locations and are shown on the Test Location Plans in the Appendix. Field data sheets are included in the Appendix as well.

3.0 Laboratory Testing

Laboratory tests were performed on representative soil samples obtained during the field exploration phase of this project. Natural moisture content, Atterberg limits, and grain size analyses tests were performed on selected SPT, bulk, and undisturbed Shelby tube soil samples. These tests were used to help confirm our visual-manual classifications and evaluate the soil's volume change potential.

Laboratory plasticity testing indicated that samples of the soil which were tested had liquid limits (LL) ranging from 22 and 42 percent and plasticity indices (PI) ranging from 8 to 16 percent. Grain size analysis indicated 33.8 to 98.3 percent passed the No. 200 sieve.

Six standard Proctor moisture-density relationship tests were performed in accordance with ASTM D698 on bulk samples of soil and six and unconfined compressive strength tests were performed on relatively undisturbed Shelby tube specimens. Samples these tests were obtained from offsets to Borings B-32, B-33, B-35, B-37, B-55, and B-57.

The resulting soil descriptions from the index testing are shown on the Test Boring Records in the Appendix.

4.0 Geology

4.1 Cultivated Materials

Cultivated materials are derived from farming or forestry activities where the upper few feet are plowed, harrowed, or turned over seasonally for planting. Cultivated materials are generally similar in composition to the residual materials beneath them, with the exception they typically contain more silt or sand and may contain significant organic content. They are typically moisture sensitive and can be difficult to properly compact during grading operations. The engineering properties of cultivated materials are usually poor and can vary significantly depending on their depth, organic content, and moisture content.

4.2 Alluvial Materials

Materials which have been eroded, transported, and deposited in and adjacent to water courses are termed "alluvium". Alluvial materials differ significantly from the residual material source and can vary from clays to gravel depending on the depositional environment. Alluvial materials frequently are soft or loose, and differing soil types and consistencies/relative densities can occur in relatively short horizontal and vertical distances. Although none of the borings performed to date have encountered alluvial materials, we expect some alluvium will be encountered in and/or around the creeks and/or ditches throughout the property.

4.3 Loess Deposits

The *USGS Geologic Map of Tennessee – West Sheet*, dated 1966 indicates this site is underlain by Pleistocene aged Loess deposits. Loess deposits are predominantly clayey and sandy silts, gray to brown. These deposits have maximum thicknesses of about 100 feet along bluffs of the Mississippi River but thin out eastward. The engineering properties of Loess materials can change rapidly in short horizontal and vertical distances.

4.4 Marine Sediments

Below the aforementioned Loess deposits, marine sediments are present. The marine sediments are generally comprised of clays and silts with interbedded sand layers that can be several hundred feet deep and generally increase in depth toward western Tennessee. Water high in calcite can act as a cementing agent to create post depositional features, such as layers of cemented sand.

5.0 Subsurface Conditions

The subsurface descriptions below are of a generalized nature to highlight the major subsurface stratification features and material characteristics. The sounding and boring logs included in the Appendix should be reviewed for specific information at individual test locations. The depth and thickness of the subsurface strata indicated on the sounding and boring logs were generalized from and interpolated between sounding and boring locations. The transition between materials may be more gradual than indicated on the sounding and logs.

Information on actual subsurface conditions exists only at the specific sounding and boring locations and is relevant to the time the exploration was performed. Variations may occur and should be expected between sounding and boring locations. The stratification lines were used for our analytical purposes and, unless specifically stated otherwise, should not be used as the basis for design or construction cost estimates.

The CPT soundings generally encountered firm to stiff clay underlain by loose to dense sands. Soundings refused between about 15 and 38 feet below the existing ground surface except for locations B-09, B-17, B-29, B-51A, B-67, and B-69, which were terminated at the planned depths of 40 feet below the existing grounds surface. The CPT refusals are due to isolated medium-dense to dense layers and not bedrock.

5.1.1 Surface

A surficial layer of topsoil with roots ranging in thickness from about 1 to 10 inches was encountered in borings B-10, B-16, B-18, B-20, B-26, B-28, B-30, B-34, B-35, B-37, B-40, B-42, B-44, B-45, B-46, B-47, B-49, B-50, B-52, B-54 through B-50, B-66, and B-68. Topsoil was not measured at our CPT sounding locations.

5.1.2 Cultivated Materials

Beneath the topsoil, where encountered, and from the surface in the remaining soil test borings, cultivated soil was encountered to depths of 1 to 3 feet below the existing ground surface. The cultivated soil generally consisted of brown lean clay with varying amounts of organics throughout. N values ranged from 3 to 9 blows per foot (bpf), indicating soft to stiff soil consistencies.

5.1.3 Loess Deposits

Underlying the cultivated materials, borings and soundings encountered loess deposits to depths ranging from 6 to 26 feet below the existing ground surface. The loess generally consisted of brown silty and sandy lean clays. N values ranged from weight of hammer (WOH) to 37 bpf, indicating very soft to hard soil consistencies. More typically, the loess consisted of firm to stiff soil consistencies. Weight of hammer (WOH) designations are recorded when the weight of the drill rods and 140 pound hammer cause the sampler to advance through the designated interval with no applied blows from the hammer.

5.1.4 Marine Sediments

Beneath loess, marine sediments were encountered to boring termination or auger refusal depths. The marine sediments encountered generally consisted of clays and silts overlying poorly graded sands, sands with silt, silty sands, and clayey sands. N values in the silts and clays ranged from 3 to 26 bpf, indicating soft to very stiff consistencies. N values in the sands ranged from 6 bpf to 50 blows per 3 inches indicating loose to very dense soil densities. The sands were typically more dense with depth.

5.1.5 Ground water

Ground water was measured in our soil test borings at depths ranging from about 4- to 40-feet below the existing ground surface at the time of drilling. Soil test boring holes generally caved between depths of 8 and 29 feet

below the existing ground surface. There were several areas where water was encountered near the surface. This is likely from the mud rotary process and in the case of delayed readings, from the mud sealing the hole during times of the rain events that occurred during our exploration. We do not think it is indicative of the water table and have removed these readings from the logs so that it will not be misinterpreted. Ground water in the CPT soundings was measured at depths ranging from 5 to 25 feet below the existing ground surface. Based on our exploration, we expected stabilized ground water levels to range between elevations 295 and 300 feet and perched water to be encountered between elevations 300 and 320 feet.

6.0 Test Results

6.1 Laboratory Test Results

The moisture contents of selected split-spoon samples ranged from approximately 6.5 to 31.0 percent. A summary of the index testing, maximum dry density and optimum moisture from the standard Proctor testing, and unconfined compressive strengths are show in the tables below. Laboratory test results are contained in our Appendix.

Table 6-1 - Test Summary

Boring ID	Sample Type	Bottom Depth (ft)	Moisture Content (%)	Moist Unit Weight (pcf)	Maximum Dry Density (pcf)	Optimum Moisture Content (%)	Liquid Limit (%)	Plastic Limit (%)	Plasticity Index (%)	Percent Passing #200 Sieve	Unconfined Compressive Strength (psf)	USCS Symbol
B-26	SS	18.5-20	23.6	--	--	--	29	18	11	--	--	CL*
B-32A	Bulk	2-10	24.0	--	108.7	16.3	32	20	12	98.1	--	CL
B-32A	UD	15-17	10.1	123.4	--	--	22	10	12	36.7	1364	GC
B-33A	Bulk	2-10	23.2	--	107.4	18.3	34	21	13	98.3	--	CL
B-33A	UD	15-17	13.9	128.5	--	--	24	10	14	33.8	1510	SC
B-35A	Bulk	2-10	28.0	--	108.7	15.6	30	20	10	90	--	CL
B-35A	UD	5-7	26.4	119.8	--	--	34	19	15	92.9	1433	CL
B-37A	Bulk	2-10	27.8	--	107.5	17.1	32	19	13	94.5	--	CL

Boring ID	Sample Type	Bottom Depth (ft)	Moisture Content (%)	Moist Unit Weight (pcf)	Maximum Dry Density (pcf)	Optimum Moisture Content (%)	Liquid Limit (%)	Plastic Limit (%)	Plasticity Index (%)	Percent Passing #200 Sieve	Unconfined Compressive Strength (psf)	USCS Symbol
B-37A	UD	5-7	26.4	118.4	--	--	42	18	24	89.6	3699	CL
B-55A	Bulk	2-10	26.7	--	108.7	16.3	28	18	10	94.5	--	CL
B-55A	UD	5-7	23.8	122.1	--	--	35	20	15	88.2	1446	CL
B-57A	Bulk	2-10	34.7	--	108.2	16.3	29	21	8	91.3	--	CL
B-57A	UD	5-7	27.8	117.8	--	--	33	17	16	97.5	829	CL

*Based on visual descriptions where index tests were not performed.

6.2 2D MASW Results

The following summarizes the results of the geophysical survey performed at the site:

- The 2D MASW profiles presented in Figures 2K, 2L and 3 in the Appendix indicate seismic velocity (Vs) variations across the surveyed areas that generally range from approximately 400 to 2,500 feet/second (ft/s).
- Seismic profile depths are determined during post-processing and extend to approximately 60 to 90 feet below ground surface (bgs).
- Based on the borings collected relatively adjacent to the 2D MASW profiles, the shallow cultivated zone/loess materials appear to generally range between about 400 ft/s and 1,100 ft/s and the underlying marine soils appear to generally range between about 600 and 2,500 ft/s with an apparent significant change in stiffness at about 1,300 ft/s (presented as yellow).
- The approximate location of the borings used for our interpretations are overlain on the geophysical profiles for reference.

6.2.1 Geophysical Methodology Limitations

Regardless of the thoroughness of a surface wave seismic survey, there is always a possibility that actual conditions may not match the interpretations. Accordingly, the possibility exists that not all features at a project site will be detected using the surface wave seismic method due to either a lack of contrast in material stiffness or the occurrence of features outside the lateral limits and below the depth of penetration. As with most surface geophysical methods, resolution decreases with depth. As such, the size and/or contrast of geologic layers and/or features compared to the imaged subsurface media must be significant enough to produce the anticipated response. Lithologic variations may also appear more gradual than actual conditions. Site activity such as drilling

activities, etc. can cause noise/interference in the seismic data sets. Depth limitations are also associated with the MASW method, source, and surface/subsurface conditions. In conclusion, the geophysical results should be considered accurate only to the degree implied by the method used and the method's limitations and data coverage.

6.3 Field Resistivity Test Results

The apparent resistivity ranged from approximately 179.20 ohm-ft. (5461.92 ohm-cm) to 747.76 ohm-ft (22791.84 ohm-cm) along the N-S line and approximately 185.61 ohm-ft. (5657.26 ohm-cm) to 1046.53 ohm-ft (31898.23 ohm-cm) along the E-W line. The full results of the soil resistivity survey are presented on the Soil Resistivity Data Sheets in the Appendix which presents the "a" spacing (feet and cm), electrode depth (inches), calculated resistance (ohms), apparent resistivity (ohm-cm and ohm-ft) and injected current (mA).

6.4 Pressuremeter Test Results

The Presiometer modulus, E, ranged from 167 to 1,415 psi in borings B-36 and B-38. The results of the pressuremeter testing and interpretation are presented on the TEXAM Pressuremeter Test Sheets in the Appendix.

7.0 Conclusions and Recommendations

The conclusions and recommendations presented in this report are based on the preceding project information, and the results of this exploration. Actual subsurface conditions may vary between the boring locations. If it becomes apparent during construction that encountered conditions vary substantially from those presented herein, this office should be notified at once. At that time, the conditions can be evaluated and the recommendations of this report modified, in written form, if necessary. Also, if the scope of the project should change significantly from that described herein, we should be notified and these recommendations should be re-evaluated.

These recommendations are based on the current plan, our understanding of the foundation types, dimensions, and loads, and where the equipment will be located.

7.1 Site Assessment

Based on the subsurface data collected during this geotechnical exploration and our experience with similar projects, it is our professional opinion that the site is adaptable for the proposed construction. However, the following items will likely affect construction costs and schedule:

- Deep fills can cause excessive settlements, particularly in areas where heavier loads are planned. For example, fills of 5 to 10 feet can induce settlements on the order of ¾ to 2 inches, depending on the subsurface conditions across the site. Based on the subsurface information we anticipate much of the settlements induced by the weight of the new fill will be relatively elastic and should primarily occur during the fill placement or shortly thereafter.

- Generally, we anticipate the planned structures can be supported by a combination of shallow foundations, mat foundations, embedded spread foundations, shallow augered foundations, and shallow foundations with ground improvements (i.e. aggregate piers), and/or deep foundations. Remediation (undercut / backfill) of soft to firm soils may be required for shallow foundations. A lower allowable bearing capacity and higher settlements are expected in the soft to firm soils encountered in the vicinity of borings B-25 through B-27.

- We recommend new fill be placed prior to the installation of the foundations to reduce the potential of negative skin friction on the piles (down drag) on the shallow augered foundations and excessive settlement in the shallow foundations.

- The near-surface conditions following the stripping of surface materials could potentially impact the development budget and/or schedule. The strength characteristics of fine-grained soils (i.e. silts and clays), especially the cultivated materials, are typically sensitive to moisture conditions. A loss of strength will occur in these type soils with an increase in moisture content. Higher compaction in the upper 2 feet of soils to 100 percent of the maximum dry density as determined by the standard Proctor or use of lime or cement stabilization should assist in limiting water infiltration and degradation of the surface materials. Additional discussion regarding lime stabilization and soil cementing are provided later.

  If grading is performed during wet, cool periods, significant remedial repair of the near-surface soils may be required prior to fill placement. Typically, the amount of remedial repair is not as extensive if grading occurs during hot, dry periods. However, even if grading occurs during summer months, remedial repair of soft subgrades should be expected, especially following inclement weather.

- Some remediation should be expected from high traffic areas following inclement weather or periods of high temperatures with wind as these materials have a tendency to degrade when their moisture contents deviate from their optimum moisture levels. We recommend qualified, experienced earthwork technicians working under the direction of our Geotechnical Engineers be present during the site grading to assist with assessing the materials.

- Perched water was encountered relatively shallow, typically within the upper 5- to 29-feet in our CPT soundings and test borings. Temporary and/or permanent dewatering efforts may be required depending on final grades along with planned pit configurations and depths.

Below are the recommendations for site preparation, structural fill criteria, fill placement guidelines, seismic site class, seismic site-specific response analyses, and foundation construction recommendations. Based on the subsurface conditions encountered during this exploration, the subject site is adaptable for the planned construction.

7.2 Site Preparation

Initially, surface materials including grass, roots, topsoil, or other organic materials should be stripped to prepare the site for construction. The stripping, clearing, and grubbing should extend at least 10 horizontal feet beyond the construction limits, or as practical. Any materials suitable for reuse as topsoil may be stockpiled and subsequently reused in landscaped areas, if suitable for that purpose. Otherwise, these materials should be wasted from the site.

After initial site preparation is complete, the stability of the exposed subgrade in areas to receive fill and/or at-grade areas should be thoroughly assessed by a member of our engineering staff. This evaluation can consist of, but not be limited to, random probing with a small diameter steel rod, observation of a proofroll, and/or shallow test pits/hand auger borings. A proofroll consists of repeated passes from a loaded tandem-axle dump truck, off-road haul truck, and/or similar piece of heavy, rubber-tired equipment through the subject area.

Firm, loose, or yielding areas should be anticipated. There is typically a stiffer upper crust underlain by firm or loose loess materials. Depending on final grades and weather conditions, some over-excavation of these materials should be anticipated. We recommend contract documents contain provisions for the compaction, removal, and/or replacement of lower consistency surficial soils should they be encountered. Areas noted to pump, rut, or deflect under the applied loading should generally be undercut to firm, suitable soils and replaced with properly compacted structural fill. Our personnel can assist with recommendations for remedial activities during site grading.

Additionally, alluvial materials encountered in the ditches and/or drainage features should be evaluated prior to fill placement. It is unlikely these materials will be stable or suitable for re-use as structural fill. Filter fabric and/or stone may be needed to stabilize these areas prior to fill placement under structures. In non-structural areas, bridging lifts may be used to facilitate fill placement above marginal materials without excessive undercutting/backfilling operations. Bridge lifts are typically 2- to 3-foot thick lifts of soil pushed out over soft or marginal materials. The upper surface of the lift is thoroughly compacted until minimal movement is observed. Subsequent fill lifts should follow the recommendations below. Bridge lifts should only be done at the recommendation of the Geotechnical Engineer.

7.3 Fill Placement and Compaction

7.3.1 Structural Soil Fill

We anticipate fills on the order of 11 feet will be required to establish final site grades. This fill should be placed prior to the construction of foundations. Fill operations should not begin until representative soil samples are collected and tested (allow 3 days for sampling and testing). The test results will be used to evaluate whether the proposed fill soils meet appropriate specifications and for quality control during grading.

We recommend structural soil fill be defined as inorganic, natural soil with maximum particle sizes of 4 inches, maximum gravel content of 20 percent, and plasticity index (PI) of less than 30. Structural soil fill should be placed in loose, horizontal lifts not exceeding 8 inches in thickness. Structural fill should have a maximum dry density of

at least 90 pcf as determined by the standard Proctor test (ASTM D 698). Each lift should be compacted to at least 95 percent of the maximum dry density as determined by the standard Proctor method. The moisture content should be controlled to within 2 percentage points of optimum moisture content.

We recommended the upper 2 feet of fills be compacted to 100 percent of the maximum dry density as determined by the standard Proctor to assist in limiting water infiltration and degradation of the surface materials. In addition to meeting the compaction requirement, fill material should be satisfactorily stable under movement of the loaded construction equipment (i.e. a proofroll). Moisture conditioning (drying or wetting) should be expected depending on the weather and temperature during grading activities

It is important that the fill be uniformly well compacted. Accordingly, fill placement should be observed by a qualified field technician working under the direction of our geotechnical engineer. In addition to this visual evaluation, the technician should perform in-place field density tests to confirm whether the contractor's means and methods are capable of achieving the recommended compaction. The frequency of tests should be determined by our geotechnical engineer at the time of construction.

7.4 Site Degradation during Construction

Subgrade surfaces that are stable at the time of grading can become unstable during wet weather and/or as heavy construction equipment traffic moves over the prepared surface. Subgrade damage can be reduced by maintaining positive surface drainage during grading operations and construction to prevent water from ponding on the surface. Additionally, the surface should be rolled smooth to enhance drainage if precipitation is expected. Subgrades damaged by construction equipment should be promptly repaired to avoid further degradation in adjacent areas and to prevent water ponding. Construction traffic should be limited to specific areas during grading to help avoid degrading subgrades throughout the site, particularly after precipitation events. The geotechnical engineer should be contacted to provide recommendations for treatment if the soils become excessively wet or dry, or frozen. Lime modification and soil cementing are two methods to provide some longer-term protection of the subgrades during construction. Geogrid can also be used as an alternate for subgrade stabilization where fills in excess of 5 feet are expected. Our field engineers can assist with subgrade stabilization options during construction.

7.4.1 Lime Modification

Typically, about 5 to 8 percent hydrated lime, by weight or volume, is spread and blended into the soil utilizing a mechanized rotary tiller. The amount of lime may need to be adjusted depending on the plasticity and moisture content of the soils. Depending on the plasticity and moisture content of the soils and the amount of lime added, substantial improvements in reducing the plasticity and moisture content and improving the stability of the materials are typically achieved within 4 to 24 hours. Lime modified soils should have new Proctor tests performed as the maximum dry density and optimum moisture content of the modified materials may change by several pounds or percent, respectively. Timing of the lime modification is critical as inclement weather can negate improvements if the area is not properly sealed or covered following the modification. Following lime modification, compact the soils to 100 percent of its maximum dry density and protect by placing a minimum of 4

inches of dense grade aggregate (DGA) compacted to 100 percent of its maximum dry density as determined by the standard Proctor test.

7.4.2 Soil Cementing

Typically, soil cementing is done by incorporating about 5 to 8 percent cement, by volume or weight, into the upper 12 to 16 inches of the soil subgrade utilizing a mechanized rotary tiller. Typically, the cement hydrates within about 12 to 24 hours creating a stable working platform and helps limit degradation of the surface during construction. Sometimes, higher plasticity or very wet materials may require additional cement. Our field staff can assist with assessing the soil conditions and providing additional guidance. Further, we can provide soil cement mix designs to help optimize the blended mixture for the intended use.

7.5 Excavation, Shoring, and Bracing

Based on the boring data obtained during the exploration, we expect conventional excavation techniques (self-loading scrapers or pusher assisted scrapers) can be used to excavate overburden soils during construction. Areas of excavation should meet the requirements of the most current Occupational Safety and Health Administration (OSHA) 29 CFR Part 1926. Site excavation safety shall be solely the responsibility of the contractor and his contractors. Cemented sands, if encountered, are typically thin and can be excavated as described above.

7.6 Settlement and Settlement Monitoring

7.6.1 Fill-Induced Settlement

Fills of up to about 13 feet will be placed during mass grading. Stress increase due to fill placement will result in settlement of the underlying soils. We have estimated the total settlement due to fill placement in addition to the time for settlement to complete for various fill heights. Different results were computed based on expected conditions. The results are summarized in Table 7-1 below.

Table 7-1 - Fill Induced Settlement

Fill Height (ft)	Location/Condition	Estimated Settlement (inches)	Estimated Time to Complete (days)
5	B-25 through B-27 – Soft to firm soils encountered near the ground surface overlying stiff soils	1	60
10		2	60
5	B-28, B-29, B-35 through B-39, B-45 through B-49, B-55 through B-59 – Firm soils overlying stiff soils	¾	60
10		1 ¼	60

Where deep fills are anticipated, we recommend the settlement be monitored by using settlement plates and steel rods. Settlement plates and steel rods can provide an estimate of the amount of vertical displacement that has

occurred, and can provide an indication of when movement has decreased or stopped by careful and regular monitoring of the devices over an extended period of time. Settlement plates can be used to monitor the settlement of the loess and marine soils due to the placement of fill.

7.6.2 Settlement Monitoring

Where fills in excess of 8 feet are anticipated, we recommend the settlement be monitored by using settlement plates and steel rods. Settlement plates and steel rods can provide a measurement of the amount of vertical displacement that has occurred, and can provide an indication of when movement has decreased or stopped by careful and regular monitoring of the devices over an extended period of time.

The plates should be placed directly on top of the existing ground surface after grubbing. The settlement plates, which are typically steel or plywood and no less than 3 feet square, are connected to a jointed vertical steel or cast iron pipe that is extended as the fill is placed. The pipe is isolated from the fill with a second outer pipe that is also brought up with fill placement. The inner pipe is typically steel, while the outer pipe is typically PVC. The inner pipes are monitored using conventional surveying techniques from a reference located outside the area influenced by the fill. The settlement plate locations can be determined prior to site grading.

Settlement of the upper fill interval can be monitored by driving steel rods flush with the ground surface in near proximity to the settlement plates once fill placement has been completed. As with the settlement plates and inner pipe, the steel rods are monitored using conventional surveying techniques from a reference located outside the area influenced by the fill. The elevation of the settlement plates and steel rods should be carefully measured by a surveyor licensed in the state of Tennessee.

We recommend the settlement plates be measured twice weekly during fill placement or as practical. The settlement plates need to be carefully read each time an extension is added. Upon completion of fill placement, we recommend the settlement plates and steel rods be monitored on twice weekly basis until five consecutive readings indicate measurable settlement has stopped. S&ME should be retained to evaluate the data collected from the settlement monitoring devices. We recommend construction of the building walls and slabs in deep fill areas not commence until the settlement data indicates primary settlement is complete.

For a surcharge, the settlement monitoring points should be established on a 100- to 200-foot grid, prior to pre-load fill placement. The monitoring points should be read daily during fill placement and the settlement monitoring data should be forwarded to us daily for review. The data should be referenced to a benchmark at least 100 feet away from the pre-load area and in a location that will not be disturbed by the ongoing construction Once the necessary surcharge-induced settlement is indicated to have occurred, as determined by the Geotechnical Engineer, then the surcharge can be removed.

Prior to fill placement, a baseline reading should be taken recording the elevation of the top of the plate, the ground surface elevation next to the plate, and the elevation of the top of the riser pipe. At each additional reading, the top of the riser pipe and the ground surface elevation next to the pipe should be recorded. Anytime an additional section of riser pipe will be added, the top of the riser pipe should be read twice, once before the

new section is added and again after the new section is added. Each reading should be surveyed to the nearest hundredth of a foot.

7.7 Foundations

Based on the provided project information and our experience with similar TVA projects, we expect two primary types of foundations will be utilized for this project; shallow spread foundations and shallow augered foundations. Foundation recommendations will be driven by upper soft and firm soils present on this site. Due to the potential for excessive settlements expected from deeper fills, firm soils encountered in the upper 30 feet throughout the central and east portions of the site, we recommend a localized approach to the foundation recommendations. In areas where fills are on the order of 10 feet on the east side of the site, we recommend settlement monitoring be performed to confirm primary settlements have occurred prior to foundation construction. Settlement monitoring should be considered as a part of the construction sequencing. Further detail on settlement monitoring is included in the Earthwork section.

7.7.1 Shallow Foundations

We anticipate shallow spread foundations will be used to support the switch house and circuit breaker structures (detail on sheet HC-126949). Embedded spread foundation support is anticipated for the pull-off structures (detail on sheet HC-126991). Based on the discussion and load scenarios provided for the planned structures within the Substation, we understand an allowable bearing capacity of 3,000 psf is desired. Based on the subsurface conditions encountered during our exploration, allowable bearing capacities of 2,000 to 2,500 psf are suitable for design and construction of shallow foundations across the site. If allowable bearing capacities of 2,000 to 2,500 psf are not sufficient, we recommend a ground improvement program using aggregate piers be implemented to increase the bearing capacity to 3,000 psf. Table 7-2 summarizes our foundation recommendations.

Table 7-2 – Shallow Foundation Recommendations

Allowable Bearing Capacity (psf)	Description	Need to Remediate Soft to Firm Soils at Foundation Locations
2,000	Embedded spread foundation for tubular pull-off structures	Some remediation may be required at isolated locations.
2,500	Shallow foundations for switch house, circuit break structures, smaller equipment.	Wide spread remediation should be planned and budgeted for.
3,000	Shallow foundations supported by ground improvements such as aggregate piers.	Remediation through ground improvement.

A mat foundation is planned for the transformer and radiators (detail on sheet LC-120316). Shallow augered foundations are usually used for the bus support (detail on MC-58190), switch support, and small equipment structures (detail on Sheet HC-68591).

7.7.1.1 Embedded Spread Foundations (2,000 psf)

We understand a spread foundation embedded 10 feet with dimensions of 14 feet by 14 feet is planned for the tubular pull-off structures. The following structural loads for the pull-off structure drilled shaft foundations were used in our analyses:

- Compression - 500 kips
- Shear - 29 kips
- Moment - 1045 kip-ft

The structural loading assumptions described previously will need to be reviewed and confirmed by TVA. Seismic loading was not provided and is not incorporated into our analysis. Modifications to our recommendations may be required if the actual conditions vary from the aforementioned information and/or estimates.

From the provided loads, we understand the maximum contact pressure to be on the order of 2,000 ksf. As noted above, if an allowable bearing capacity of 2,000 psf is not sufficient, we recommend a ground improvement program using aggregate piers be implemented to increase the bearing capacity to 3,000 psf. We estimate that properly designed and constructed footings bearing in compacted fill or firm or better loess or marine soils should experience total and differential settlements of less than about 1 inch and ½ inch, respectively.

Lateral capacity of footings includes a lateral bearing pressure and coefficient of friction as described in the 2018 IBC Section 1806. Where footings are cast neat against the sides of excavations in existing loess or marine soils, or newly placed, properly compacted fill soils, an allowable lateral bearing pressure of 100 psf per foot depth below natural grade may be used in computations. An allowable sliding resistance of 130 psf may be used for clays similar to those described as soil Class 5 in Table 1806.2. An increase of one-third in the allowable lateral capacity may be considered for transient load combinations, including wind or earthquake loading, unless otherwise restricted by design code provisions.

We estimate that properly designed and constructed footings supported on the recommended materials should experience total and differential settlements of less than about 1 inch and ½ inch, respectively. The ultimate uplift capacity for individual spread footings is dependent on their depth of embedment, dimensions, and the properties of the surrounding soil. We recommend an allowable uplift capacity of 180 kips. Uplift capacities were estimated based on the weight of the foundation element and soil above the foundation. The allowable uplift capacity of each proposed structure should consider the total number of spread footing(s) supporting the structure. A factor of safety of 3 was used to determine the allowable uplift and moment capacities.

7.7.1.2 Shallow Foundations (2,500 psf)

Shallow foundations bearing on stiff or better consistency loess or marine soils or well-compacted structural fill are recommended for support of the proposed substation structure(s). After the site is properly prepared in accordance with our previous recommendations, foundations bearing in compacted fill or stiff or better loess or marine soils may be sized for a maximum allowable soil bearing pressure of 2,500 pounds per square foot (psf). We expect stiff or better consistency soils will be encountered on the west side of the site and in the deeper new fills, depending on the depth of the shallow foundations. As noted above, if an allowable bearing capacity of 2,500

psf is not sufficient, we recommend a ground improvement program using aggregate piers be implemented to increase the bearing capacity to 3,000 psf.

Even if the design loads would allow smaller sizes, we recommend all isolated spread foundations be a minimum of 24 inches wide to reduce the possibility of a localized punching shear failure. Foundations for the substation structures should be designed to bear at least 18 inches below finished exterior grade to develop the design bearing pressure and to protect against frost heave and shrink/swell volume changes.

Lateral capacity of footings includes a lateral bearing pressure and coefficient of friction as described in the 2018 IBC Section 1806. Where footings are cast neat against the sides of excavations in existing loess or marine soils, or newly placed, properly compacted fill soils, an allowable lateral bearing pressure of 100 psf per foot depth below natural grade may be used in computations. An allowable sliding resistance of 130 psf may be used for clays similar to those described as soil Class 5 in Table 1806.2. An increase of one-third in the allowable lateral capacity may be considered for transient load combinations, including wind or earthquake loading, unless otherwise restricted by design code provisions.

Settlement of the foundation soils resulting from loads of the proposed structure were estimated based on the subsurface conditions, anticipated foundation loads, remedial activities, laboratory test results, our experience, and engineering judgment. We estimate that properly designed and constructed footings supported on the recommended materials should experience total and differential settlements of less than about 1 inch and ½ inch, respectively.

Some remediation such as over-excavation should be anticipated in areas where soft to firm soil was encountered near the foundation bearing elevation. Where lighter loads are expected, such as one of the storage building, it may be advantageous to design for a lower allowable bearing pressure of 2,000 psf so as to limit both the time and cost of remediation during construction. We recognize a lower allowable bearing pressure may not be practical for some of the larger loads and remediation may be preferred in those areas.

In areas where deep fills are planned, a higher allowable bearing pressure may be possible depending on the depth of fill and anticipated size of foundations. Once the primary settlement from the mass fill has occurred, the new fill layer may be thick enough to take on most of the load such that the deeper firm soils will be less influenced by the load than prior to the fill placement.

Uplift Loading of Shallow Spread Foundations Bearing in Cohesive Soil

The ultimate uplift capacity for individual spread footings is dependent on their depth of embedment, dimensions, and the properties of the surrounding soil. Table 7-3 provides allowable uplift capacities for the various spread footings proposed to support the substation structures. A factor of safety of 3 was used to determine the allowable uplift capacities.

Table 7-3 - Allowable Uplift Capacities of Spread Footings for Substation Structures

Proposed Structure	Approximate Foundation Dimensions	Approximate Foundation Thickness (ft)	Depth to Top of Foundation (ft)	Allowable Uplift Capacity (kips)
Circuit Breaker	10 ft by 10 ft	1.5	3	25
Alternate Foundation	6 ft by 6 ft	1.5	2	8
			3	11
			4	15

Note: Uplift capacities were estimated based on the weight of the foundation element and soil above the foundation. The allowable uplift capacity of each proposed structure should consider the total number of spread footing(s) supporting the structure.

7.7.2 Shallow Foundations with Ground Improvement using Aggregate Piers (3,000 psf)

To help improve the soil conditions at the foundations to use an allowable bearing capacity of 3,000 psf, we recommend utilizing aggregate piers. Aggregate piers, which have been in use since the late 1980's, are a series of very stiff compacted aggregate elements. The systems were developed as a practical alternative to deep foundations and the traditional over-excavation and replacement method of strengthening sub-soils for settlement control and bearing capacity improvement.

The aggregate pier system should be designed based on the loading and settlement criteria specified by the structural engineer. Proprietary design manufacturers / contractors must provide design support and installation criteria and should be held fully responsible for the design. An aggregate pier system will reinforce the existing soft and firm materials on this site to support the shallow footings construction. The aggregate piers should extend into sufficiently stiff to dense materials for support of the planned design. Often, aggregate piers can be used to provide a net allowable bearing pressure on the order of 3,000 psf to 5,000 psf, depending on the site conditions and the proprietary system being used. We expect aggregate piers to be between 15 to 20 feet long depending on final grading and site conditions.

We recommend that a licensed specialty contractor design and install the aggregate piers. S&ME should be retained to review the proposed design and to observe and document the installation of the aggregate piers as they are a critical foundation support mechanism. Further, we recommend representative subgrade modulus tests (i.e. load test) be conducted to confirm the design prior to the start of production piers. Also, each pier should be exposed at the bottom of the foundation excavation prior to concrete placement. If uplift is a concern, the aggregate pier system can be outfitted with a bottom plate and series of bars that connect into the foundation system for uplift resistance.

7.7.2.1 Mat Foundations

We expect a mat on the order of 35 feet by 35 feet will be used to support the transformer and radiator banks. From our conversations, we understand the maximum contact pressure to be on the order of 600 ksf. We recommend the site is properly prepared in accordance with our previous recommendations and foundations

bearing in compacted fill or stiff or better loess or marine soils. Settlement of the foundation soils resulting from loads of the proposed structure were estimated based on the subsurface conditions, anticipated foundation loads, remedial activities, laboratory test results, our experience, and engineering judgment.

We estimate that properly designed and constructed footings supported on the recommended materials should experience total and differential settlements of less than about 1 inch and ½ inch, respectively. Embedment of the mat foundation will be minimal and should be neglected for lateral capacity. Uplift capacities should be based on the weight of the foundation element. For floor slabs supported by in-situ soils or properly compacted structural fill, we recommend a wide area subgrade modulus, K_{ws} of up to 12 pci for sustained loadings. These subgrade modulus values only apply to slabs supported by unimproved soils.

7.7.2.2 Construction Considerations

Foundation subgrade observations should be performed by an S&ME geotechnical engineer, or their qualified representative, so that the recommendations provided in this report are consistent with the encountered site conditions.

Where unacceptable materials are encountered at the foundation bearing elevation, the material should be excavated (i.e., undercut) to the recommended, suitable design bearing material or remediated at the geotechnical engineer's direction. We recommend undercut excavations for foundations bearing in soil be replaced with new structural soil fill, flowable fill, or dense graded crushed stone aggregate. The actual undercut depths should be determined at the time of construction based on observations and testing by S&ME. Undercut excavations for foundations bearing in soil should extend laterally beyond the perimeter of the foundations of the proposed structures a minimum distance equal to the depth of the undercut below the structure's foundation bearing elevation.

Foundation excavations should be opened, evaluated, remedial work performed, and concrete placed in an expeditious manner. Exposure to weather often reduces foundation support capabilities, thus necessitating remedial measures prior to concrete placement. It is also important that proper surface drainage be maintained during construction (especially in terms of maintaining dry foundation excavations). Footings should be poured "neat" to the excavation so that water cannot collect behind forms before backfilling. A 2- to 3-inch thick mud-mat of lean concrete may be used to protect the exposed support materials if the opened excavations cannot be backfilled with concrete the same day they are opened. Soil or dense-graded aggregate backfill for foundations should be placed in accordance with the recommendations for structural soil fill and dense-graded aggregate placement previously discussed in this report.

7.7.3 Shallow Augered Foundation Recommendations

Based on the provided project information and our experience with previous TVA substation projects, we expect that augered foundations will be utilized for the bus support, switch support, and small equipment structures. Depending on the location at the site, foundations will bear mostly within the firm or better fine-grained loess or marine soils or newly placed, well-compacted structural soil fill. Foundations may bear in soft soils, particularly in the vicinity of borings B-25 through B-27. The foundations will develop their capacity from both end-bearing and skin resistance (i.e., adhesion along the pile wall) in the firm or better soils. Where we anticipate piles to terminate

in soft soils, the end bearing was neglected. The skin resistance to a depth of 1 pile diameter was neglected due to disturbance. Table 7-4 shows our generalized profile based on the boring logs, anticipated site development, and our recommended engineering design parameters for use in determining the ultimate load capacity of the augered foundations founded in the cohesive soils.

Table 7-4 - Generalized Subsurface Profile and Recommended Engineering Design Parameters

Depth Interval (ft)	Soil Origin	Soil Type	γ_m (pcf)	C_u (psf)	Φ′ (deg)
0 to 10	New Fill	Clay	115	1,500	0
0 to 20	Soft to Firm Loess (encountered in the vicinity of borings B-25 through B-27)	Clay	105	500	0
0 to 30	Firm Loess or Marine Soils (encountered from the surface and below the soft soils)	Clay	110	700	0
0 to 20 20 to 30	Stiff Loess or Marine Soils (from the surface on the west side of the site, more typically underlying the firm soil interval)	Clay	115	1,500	00

Note: γ_m – moist unit weight, C_u – undrained shear strength, Φ′ – effective friction angle

Tables 7-5 and 7-6 provides the allowable bearing capacities for various augered foundation diameters and embedment depths. A factor of safety of 3 was applied to the ultimate end bearing and for lateral analysis from the pushover load and a factor of safety of 2 was applied to the ultimate skin friction.

The actual net ultimate uplift capacity for individual augered foundations is dependent on their length of embedment and length of reinforcing. Tables 7-5 and 7-7 provides allowable uplift capacities for various augered foundation diameters and embedment lengths. A factor of safety of 2 was used to determine the allowable uplift capacities. The contribution of the upper depth equivalent to the diameter of the foundation should not be considered in computations of shaft uplift resistance. Augered foundation group capacity should be checked by the Geotechnical Engineer, based on the number of augered foundations per group and foundation spacing. Note, the provided allowable uplift capacities do not include the weight of the concrete in the foundation.

Table 7-5 – Allowable Compression Load and Uplift for Soft Areas*

Foundation Diameter (in)	Allowable Capacity (kips)					
	Embedment Depth, 5 ft	Embedment Depth, 6 ft	Embedment Depth, 7 ft	Embedment Depth, 8 ft	Embedment Depth, 10ft	Embedment Depth, 12 ft
30	6.5	8.5	10.5			
36				13.0	18.0	23.0
42				13.0	19.0	24.5
48				12.5	19.0	25.5
54				12.5	19.5	27.0

*vicinity of borings B-25 through B-27

Table 7-6 – Allowable Compression Load for Firm Areas

Foundation Diameter (in)	Allowable Capacity (kips)					
	Embedment Depth, 5 ft	Embedment Depth, 6 ft	Embedment Depth, 7 ft	Embedment Depth, 8 ft	Embedment Depth, 10ft	Embedment Depth, 12 ft
30	14.0	16.5	19.5			
36				26.5	33.0	38.5
42				31.5	39.0	46.0
48				36.0	44.5	53.5
54				40.5	50.5	60.5

Table 7-7 – Allowable Uplift for Firm Areas

Foundation Diameter (in)	Allowable Capacity (kips)					
	Embedment Depth, 5 ft	Embedment Depth, 6 ft	Embedment Depth, 7 ft	Embedment Depth, 8 ft	Embedment Depth, 10ft	Embedment Depth, 12 ft
30	5.5	8.0	10.5			
36				14.0	19.5	25.0
42				14.5	21.0	27.5
48				14.5	22.0	29.5
54				14.5	23.0	31.5

For our lateral load analysis, we used the computer program LPILE 2012, by Ensoft, Inc. LPILE can be used to analyze the response of single, laterally loaded shafts but does not analyze whether the shaft is structurally capable of handling the moments and shear stresses generated within the shaft. The software requires, as input, quantitative data related to strength and deformation behavior of the subsurface materials, the structural

properties of the shaft, and an understanding of shaft/soil interaction during lateral loading. Tables 7-8 and 7-9 summarizes the LPILE input parameters used in our analysis.

Table 7-8 - Lateral Design Parameters (Soft to Firm Profile)

Material	Depth Interval (ft)	LPile Parameters				
		LPile Soil Model	Total Unit Weight[A] (pcf)	Friction Angle (deg)	Cohesion (psf)	ε50
Newly placed fill	0 to 4	Stiff clay w/o free water	115	-	1,500	0.008
Soft to firm loess	4 to 20	Soft clay	105	-	500	0.02

[A]Effective unit weights in LPile analysis should reflect groundwater depth

Table 7-9 - Lateral Design Parameters (Firm Profile)

Material	Depth Interval (ft)	LPile Parameters				
		LPile Soil Model	Total Unit Weight[A] (pcf)	Friction Angle (deg)	Cohesion (psf)	ε50
Firm loess	0 to 20	Soft clay	110	-	700	0.01

[A]Effective unit weights in LPile analysis should reflect groundwater depth

We evaluated the geotechnical response of laterally loaded shafts for a variety of cases using LPILE. The shear load on the pile was increased until a failure deflection of 10% of the pile diameter was reached. A factor of safety of 3 was applied to get an allowable lateral load. A summary of the LPile computed allowable lateral loads are presented in Table 7-10 and 7-11 below. We assumed an elastic module corresponding to the drilled shafts being constructed using 4,000 psi concrete. The structural capacity of the piles has not been considered in our analyses, and the reported moment and shear distributions must be evaluated by the structural engineer.

Table 7-10 – Allowable Lateral Load for Soft to Firm Areas

Foundation Diameter (in)	Allowable Lateral Load (kips)					
	Embedment Depth, 5 ft	Embedment Depth, 6 ft	Embedment Depth, 7 ft	Embedment Depth, 8 ft	Embedment Depth, 10ft	Embedment Depth, 12 ft
30	5.0	6.0	7.0			
36				9.5	12.0	14.0
42				11.0	13.5	16.0
48				12.5	15.5	18.0
54				14.0	17.0	20.0

Table 7-11 – Allowable Lateral Load for Firm Areas

Foundation Diameter (in)	Allowable Lateral Load (kips)					
	Embedment Depth, 5 ft	Embedment Depth, 6 ft	Embedment Depth, 7 ft	Embedment Depth, 8 ft	Embedment Depth, 10ft	Embedment Depth, 12 ft
30	2.5	3.0	4.0			
36				5.5	7.0	9.0
42				6.5	8.5	10.5
48				7.0	9.5	12.0
54				8.0	10.5	13.0

7.7.3.1 Construction Considerations

The shallow augered foundations will be installed by augering and casing a hole to a predetermined depth, installing the structural reinforcing, and filling the hole to finished grade with concrete. We recommend soil cuttings from the augered foundation excavations be inspected for unsuitable materials. Where unsuitable conditions are encountered at the planned bearing elevation, the augered hole should be deepened so as to bear in suitable materials.

The bottom of the hole should be free of all mud, water, and loose debris prior to placement of concrete. Temporary steel casing may be required during construction of the augered foundations to prevent sidewall collapse when installed through zones of coarse-grained soil. If water is encountered in the hole, water should be removed to a depth of no more than 2 inches from bottom of the excavation prior to the placement of concrete.

S&ME should be retained to observe the installation of the foundations to make sure the recommendations provided in this report are implemented during construction.

7.8 Seismic Site Response Analysis

The following sections discuss the assumptions, methodologies, and results of our seismic site response analysis (SSRA). We performed the SSRA using the program DEEPSOIL v7.0[1] in general accordance with the IBC 2018 and ASCE 7-16.

7.8.1 Subsurface Conditions and Soil Model

Subsurface conditions were based on the results of geotechnical exploration as discussed in the section above.

7.8.1.1 Seismic Site Class and Soil Model

Shear-wave velocity (Vs) data were collected at the site via using the Multi-Channel Analysis of Surface Waves (MASW) method at array location SW-1. The measured Vs profile is shown in Figure 3 in the Appendix. The MASW-measured velocities were used to calculate an average shear-wave velocity to a depth of 100 ft below the ground surface (i.e., V_{S100}) of about 1,150 ft/second. Therefore, a Seismic Site Class D was assigned in accordance with Section 20.1 of ASCE 7-16.

A general summary of the subsurface information and shear-wave velocity profile used as our DEEPSOIL "base" model are presented in Table 7-12 below and Figure 3 of the Appendix. The input parameters for the shear modulus reduction and damping ratio relationships such as plasticity index (PI), unit weights, at-rest earth pressure coefficient (K_o), and shear strength values were based on published data and our experience. Groundwater was set at 20 feet deep. The input ground motions were applied at a depth, H (i.e., the assumed depth to the B/C boundary), of 400 feet.

Table 7-12 - Base Model Properties

Layer	Thickness (ft)	General Material Type	V_s (ft/sec)	Unit Weight (pcf)	Plasticity Index	Friction Angle (deg)	Undrained Shear Strength (psf)
1	8	Loess	1,050	110	8		2,000
2	11	Marine soils – silty sand	1,200	115	0	36	
3	16	Marine soils - clay	825	115	15		4,000
4	40	Dense sand	1,250	120	0	40	
5	25		1,500	125	0	40	

1 DEEPSOIL v7.0 is a one-dimensional site response analysis program that can perform nonlinear and equivalent linear site response analyses with and without pore water pressure control. Hashash, Y.M.A., Musgrove, M.I., Harmon, J.A., Groholski, D.R., Phillips,C.A., and Park, D. (2019). *DEEPSOIL 7.0, User Manual.* University of Illinois at Urbana-Champaign, Urbana, IL.

Layer	Thickness (ft)	General Material Type	V_s (ft/sec)	Unit Weight (pcf)	Plasticity Index	Friction Angle (deg)	Undrained Shear Strength (psf)
6	300		1,750	125	0	40	
3		B/C Boundary	2,500	155			

7.8.2 Ground Motions

7.8.2.1 Site Hazard

The earthquake hazard associated with the site was deaggregated using the 2014 update (version 4.2.0) of the USGS Unified Hazard Tool website to determine the modal magnitude and site-to-source distance of the earthquake contributing to the peak ground surface acceleration. Considering a 2 percent probability of exceedance (2% PE) in 50 years, the modal magnitude and site-to-source distance are approximately 7.8 and 75 km, respectively (corresponding to the New Madrid seismic zone). The deaggregation plot is presented in Figure 4 of the Appendix.

7.8.2.2 Target Spectrum (B/C Boundary)

The B/C boundary Risk-Targeted Maximum Considered Earthquake (MCE_R) response spectrum for a 1% risk of structural collapse in 50 years was defined as the target spectrum using spectral accelerations values at 5 Hz (S_{MS}) and 1 Hz (S_{M1}) assuming a Site Class B in accordance with IBC 2018 and ASCE 7-16. The S_{MS} and S_{M1} parameters are 0.759 g and 0.238 g, respectively. These values were used to generate a Site Class B MCE_R response spectrum consistent with Figure 11.4-1 of ASCE 7-16, which served as our target acceleration response spectrum (ARS). The target spectrum is presented in Figure 5 of the Appendix.

7.8.2.3 Ground Motions

A set of seven earthquake records were selected from the NGA-West2 database as seed motions for spectral matching. The selected motions generally possess a similar spectral shape as the B/C boundary target spectrum, correspond to events having a similar magnitude and distance as the design event, and were recorded on materials generally consistent with the B/C boundary (i.e., V_{S30} of 2,500 ft/s or 760 m/s). Table 7-13 presents the details of these selected earthquake records.

Table 7-13 - Selected NGA West2 Records

Record Sequence Number	Earthquake Name	Year	Station Name	Magnitude	Mechanism	R_{jb} (km)	R_{rup} (km)	V_{S30} (m/sec)
774	Loma Prieta	1989	Hayward City Hall - North	6.93	Reverse oblique	55.0	55.1	735
1256	Chi-Chi, Taiwan	1999	HWA002	7.62	Reverse oblique	53.3	56.9	789
1319	Chi-Chi, Taiwan	1999	ILA015	7.62	Reverse oblique	83.0	85.4	783
1763	Hector Mine	1999	Anza - Pinyon Flat	7.13	Strike slip	90.0	90.0	725
3895	Tottori, Japan	2000	HYG007	6.61	Strike slip	99.6	99.6	761
6031	El Mayor-Cucapah, Mexico	2010	Anza - Pinyon Flat	7.2	Strike slip	124.4	124.4	725
6744	Niigata, Japan	2004	SITH07	6.63	Reverse	145.9	145.9	705

SeismoMatch[2] was used to spectrally match the NGA-West2 records listed in Table 19 to the target ARS. SeismoMatch is a computer program developed by SeismoSoft, Inc. capable of adjusting earthquake accelerograms to match a specific target response spectrum. The program adds adjustment wavelets to the seed acceleration time history to generate a modified time history. The spectral matching focused on a period range of 0.01 to 5 seconds.

The mean of the spectrally matched motions is shown with the B/C boundary target spectrum on Figure 5 of the Appendix and the acceleration time histories, before and after spectral matching, are shown in Figures 6 and 7 of the Appendix. Each of the modified motions reasonably fit the target spectrum while generally maintaining the original record characteristics.

7.8.3 Methodology

The site-specific acceleration response spectrum (ARS) was developed using the one-dimensional site response analysis program DEEPSOIL v7.0. Both the nonlinear (NL) and equivalent linear (EL) analysis options available in DEEPSOIL were used to simulate the earthquake wave propagation from the assumed bedrock (B/C boundary) to the ground surface. The required inputs are the soil profile information, base rock acceleration time histories, and dynamic soil properties. The measured shear-wave velocity profiles were used to generate the "base" site

2 Seismosoft. (2018). SeismoMatch (2018 Version) - A computer program for spectral matching of earthquake records.

response model. The dynamic soil properties were modeled using the Darendeli (2001)3 shear modulus versus strain (i.e. modulus reduction) and damping versus strain relationships.

The spectrally matched time histories were applied as input rock-motions at the base of the model. To assess the sensitivity of ground surface response to uncertainty in the soil properties, we performed multiple analyses. Each of the variations was simulated with both EL and NL analyses options following the guidelines provided by Matasovic and Hashash[4]. A total of 98 analyses (i.e., 49 EL and 49 NL analyses) were performed using different shear-wave velocity profiles, modulus and damping reduction curves, and acceleration time histories. The sensitivity analyses consisted of:

- Seven spectrally matched acceleration time histories;
- Two variations for depth to the BC boundary (i.e., the "base" model of 400 ft and an alternate model of 500 ft);
- Two variations for depth to the CD boundary (the "base" model of 40 feet and an alternate model of 60 feet)
- Three shear wave velocity profiles (i.e., the "base" model and ±20% from the "base" model); and
- Three shear strength profiles (i.e., the "base" model, 20% higher strengths, and 20% lower strengths). Since the selected DEEPSOIL model (i.e., General Quadratic Model or GQ/H model) modifies the modulus reduction and damping curves to match the implied shear strength to the estimated shear strength of each soil layer, the ±20% strength variation results in a variation of the damping and shear modulus reduction curves, especially at the higher strain region.

Each time history was applied to each of the model profile variations. A site-specific MCE_R response spectrum for a 1% risk of structural collapse in 50 years (with an equivalent viscous damping ratio of 5%) was generated for each of the analytical iterations. The 5% damped site-specific design ARS at the ground surface for each iteration is equal to two-thirds of the MCE_R ARS as defined in Section 21.3 of ASCE 7-16.

Per ASCE 7-16, the site-specific spectral response acceleration for the short period (S_{DS}) is 90 percent of the maximum spectral acceleration (S_a) from the site-specific spectrum, at any period between 0.2 and 0.5 seconds, inclusive. The site-specific spectral response acceleration for the 1.0 second period (S_{D1}) is the maximum value of the product, T x S_a, where T is period and S_a is the site-specific acceleration, for periods from 1.0 to 5.0 seconds. The site-specific PGA_M is taken as the MCE_R (before two-thirds reduction) spectral acceleration at the 0.01 second period (0.01 second is the smallest period for which the output spectral acceleration is available from DEEPSOIL analysis).

3 Darendeli, Mehmet B. (2001). Development of a New Family of Normalized Modulus Reduction and Material Damping Curves. Ph.D. Dissertation. The University of Texas at Austin, August 2001.

4 Matasovic, N. and Hashash, Y. (2012). *Practices and Procedures for Site-specific Evaluations of Earthquake Ground Motions*. (No. Project 20-05 (Topic 42-03)).

7.8.4 Results

Figure 8 in the Appendix shows example EL and NL analysis results for our "base" profile as well as the average surface response spectrum for each analysis procedure. The EL results show a very "flat" response at small periods – which is a typical limitation of this model when high levels of strain occur. Therefore, only the NL results were included in the computing the site average response spectrum.

Figure 9 shows the average surface response spectrum based on the NL results for each model variation, as well as the calculated overall average response spectrum. Based on the results of our analyses and the observed sensitivity of the ground surface response to the soil parameter variations, the base profile appears to be a representative and appropriate average response spectrum.

Figure 10 shows the computed strain in the soil profile versus depth for each model variation. Our base model shear wave velocity profile is shown as well for reference. The maximum strains for the models ranged from about 0.1 to 0.15 percent. The maximum shear strain occurs a depth of about 35 feet for most of the models.

The base profile response spectrum was then modified in general accordance with Chapter 21 of ASCE 7-16 to develop the design ARS. The combined and code-limited site-specific design ARS is shown as the red line on Figure 11 of the Appendix. The light blue line on Figure 11 represents the 80 percent limited code-based spectra.

Section 11.4.8 of ASCE7-16 requires that an SSRA be performed for structures on Site Class D or E with a mapped spectral acceleration S_1 greater than 0.2 seconds (with some exceptions as noted in the code). Since the value of S_1 for this site is 0.303, the general procedure does not apply for this site; however, we still computed and show the general procedure results to determine the 80 percent limit for the site-specific design spectrum.

As illustrated in Figure 11, the short period spectral acceleration parameter, S_{DS}, and the long period spectral acceleration parameter, S_{D1}, have decreased compared to the general procedure results. The resulting site specific and code-limited, design response accelerations from the SSRA are presented in Table 7-14. The site-specific analysis indicates that Seismic Design Category D (IBC 2018 Section 1613.2.5) should be considered for Risk Categories I-IV.

Table 7-14 - Summary of Design Acceleration Parameters

IBC 2018 / ASCE 7-16 Design Response Accelerations									
Site-Specific Procedure					General Procedure (Site Class D)				
S_{DS} (g)	S_{D1} (g)	PGA_M (g)	Seismic Design Category		S_{DS} (g)	S_{D1} (g)	PGA_M (g)	Seismic Design Category	
			RC I-III	RC IV				RC I-III	RC IV
0.58	0.32	0.43	D	D	0.65	0.40	0.54	D	D

8.0 Follow-Up Services

Field observations, monitoring, and Quality Assurance testing during site grading, foundation, and paving activities are an important extension of the geotechnical design. We recommend that we be allowed to continue our involvement in the project through these phases of construction.

Competent personnel under the general administrative supervision of our geotechnical engineering team familiar with the design requirements and considerations of this project should perform Quality Assurance observations and testing related to earthwork. We recommend that qualified geotechnical personnel observe proofrolling and associated undercutting (as required), evaluate foundation excavation and subgrades, evaluate the materials to be used as fill, and test the compaction of fill and backfill. The monitoring of the earthwork activities should be performed on a full-time basis.

9.0 Limitations

This report has been prepared in accordance with generally accepted geotechnical engineering practice for specific application to this project. The conclusions and recommendations contained in this report are based upon applicable standards of our practice in this geographic area at the time this report was prepared. No other representation or warranty either expressed or implied, is made.

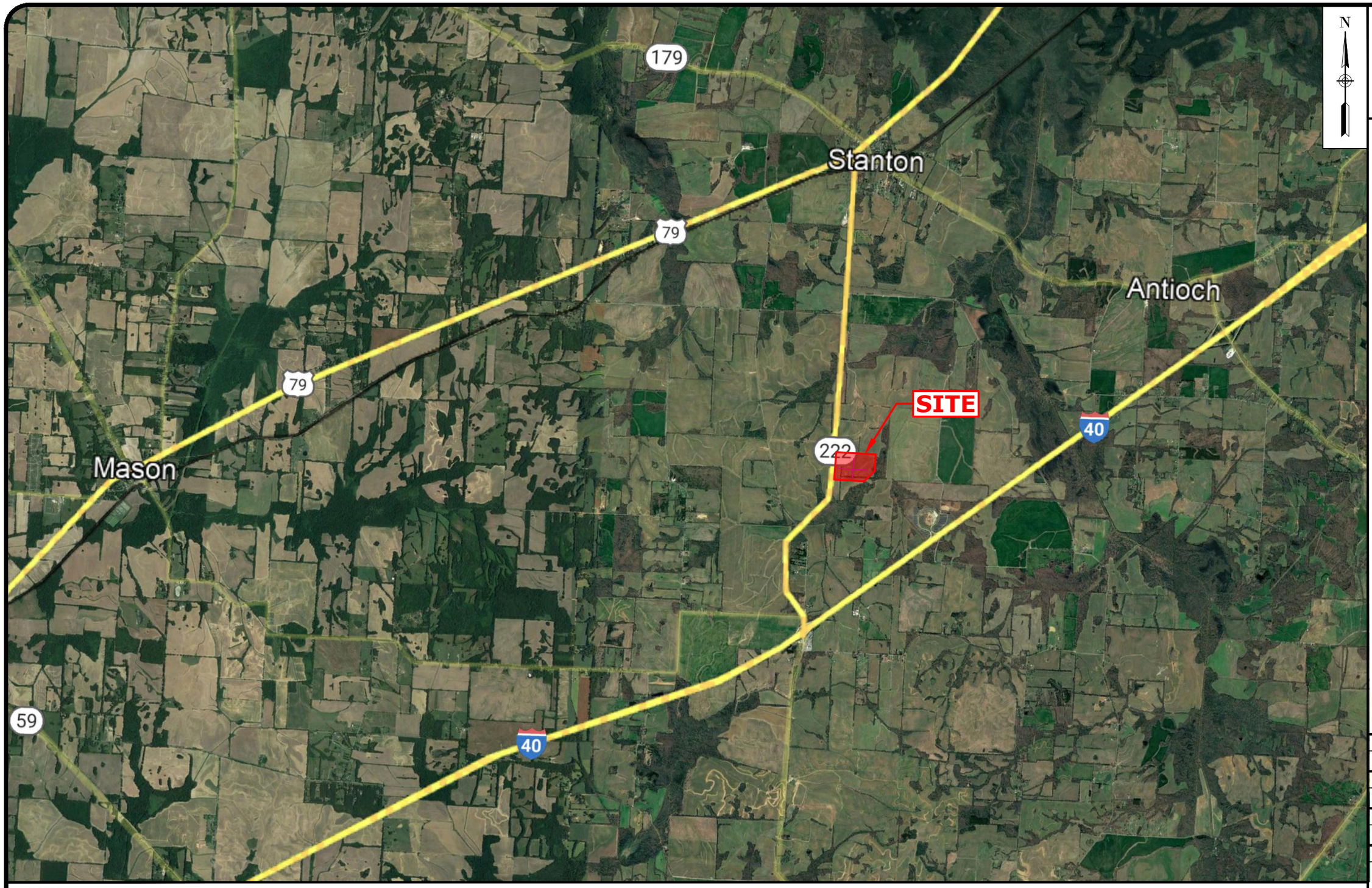
We relied on project information given to us to develop our conclusions and recommendations. If project information described in this report is not accurate, or if it changes during project development, we should be notified of the changes so that we can modify our recommendations based on this additional information, if necessary.

Our conclusions and recommendations are based on limited data from a field exploration program. Subsurface conditions can vary widely between explored areas. Some variations may not become evident until construction. If conditions are encountered which appear different than those described in our report, we should be notified. This report should not be construed to represent subsurface conditions for the entire site.

Unless specifically noted otherwise, our field exploration program did not include an assessment of regulatory compliance, environmental conditions or pollutants or presence of any biological materials (mold, fungi, and bacteria). If there is a concern about these items, other studies should be performed. S&ME can provide a proposal and perform these services if requested. S&ME should be provided the opportunity to review the final plans and specifications to confirm that earthwork, foundation, and other recommendations are properly interpreted and implemented. The recommendations in this report are contingent on S&ME's review of final plans and specifications followed by observation and monitoring of earthwork and foundation construction activities.

The recommendations in this report are only applicable to areas within the vicinity of our exploration and should not be used for other areas or for structures not specifically addressed in this report.

Appendix



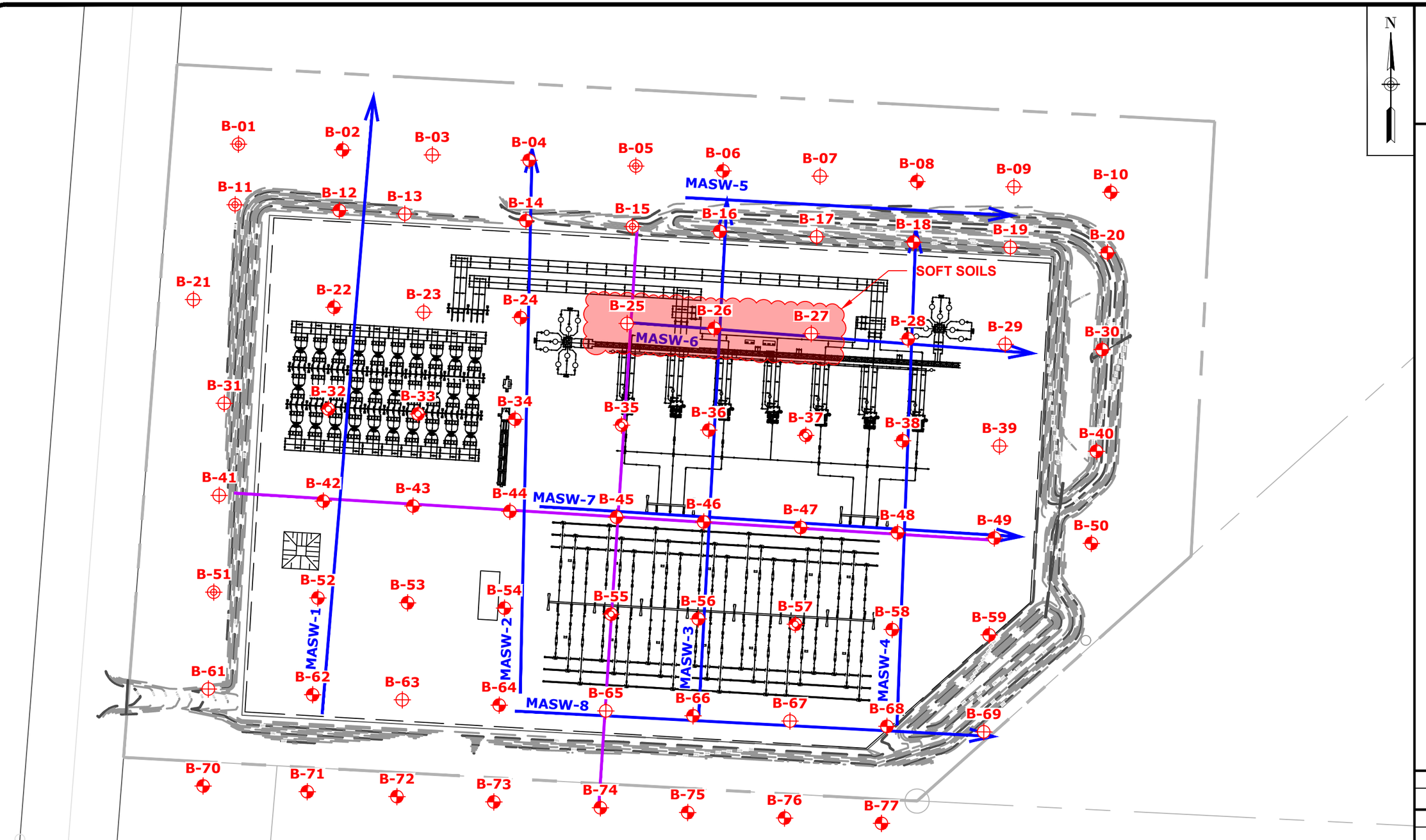
NOTES:

- DRAWING FOR ILLUSTRATIVE PURPOSES ONLY
- BASE IMAGE OBTAINED FROM GOOGLE EARTH

SITE LOCATION PLAN

BLUE OVAL CITY - TVA SUBSTATION
TN 222, STANTON, TENNESSEE

SCALE:	1" = 5000'
DATE:	3/31/2022
PROJECT NUMBER	218019
FIGURE NO.	1A



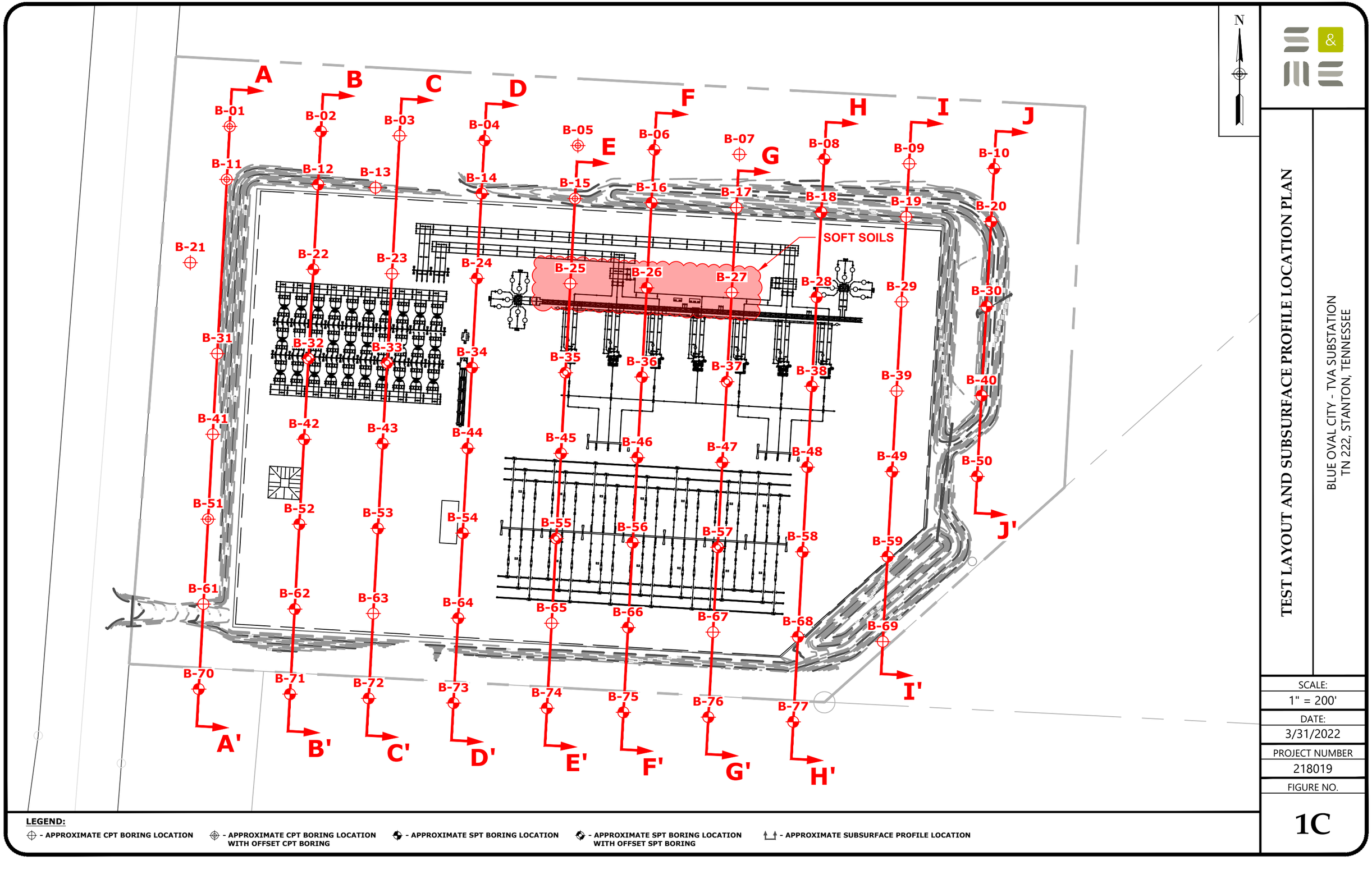
LEGEND:

- ⊕ - APPROXIMATE CPT BORING LOCATION
- ⊕ - APPROXIMATE CPT BORING LOCATION WITH OFFSET CPT BORING
- ◔ - APPROXIMATE SPT BORING LOCATION
- ◔ - APPROXIMATE SPT BORING LOCATION WITH OFFSET SPT BORING
- — - APPROXIMATE LOCATION OF 4-PT SOIL RESISTIVITY TESTING
- — - APPROXIMATE LOCATION OF 2-D MASW PROFILES

TEST LAYOUT PLAN

BLUE OVAL CITY - TVA SUBSTATION
TN 222, STANTON, TENNESSEE

SCALE:	1" = 200'
DATE:	4/01/2022
PROJECT NUMBER	218019
FIGURE NO.	1B



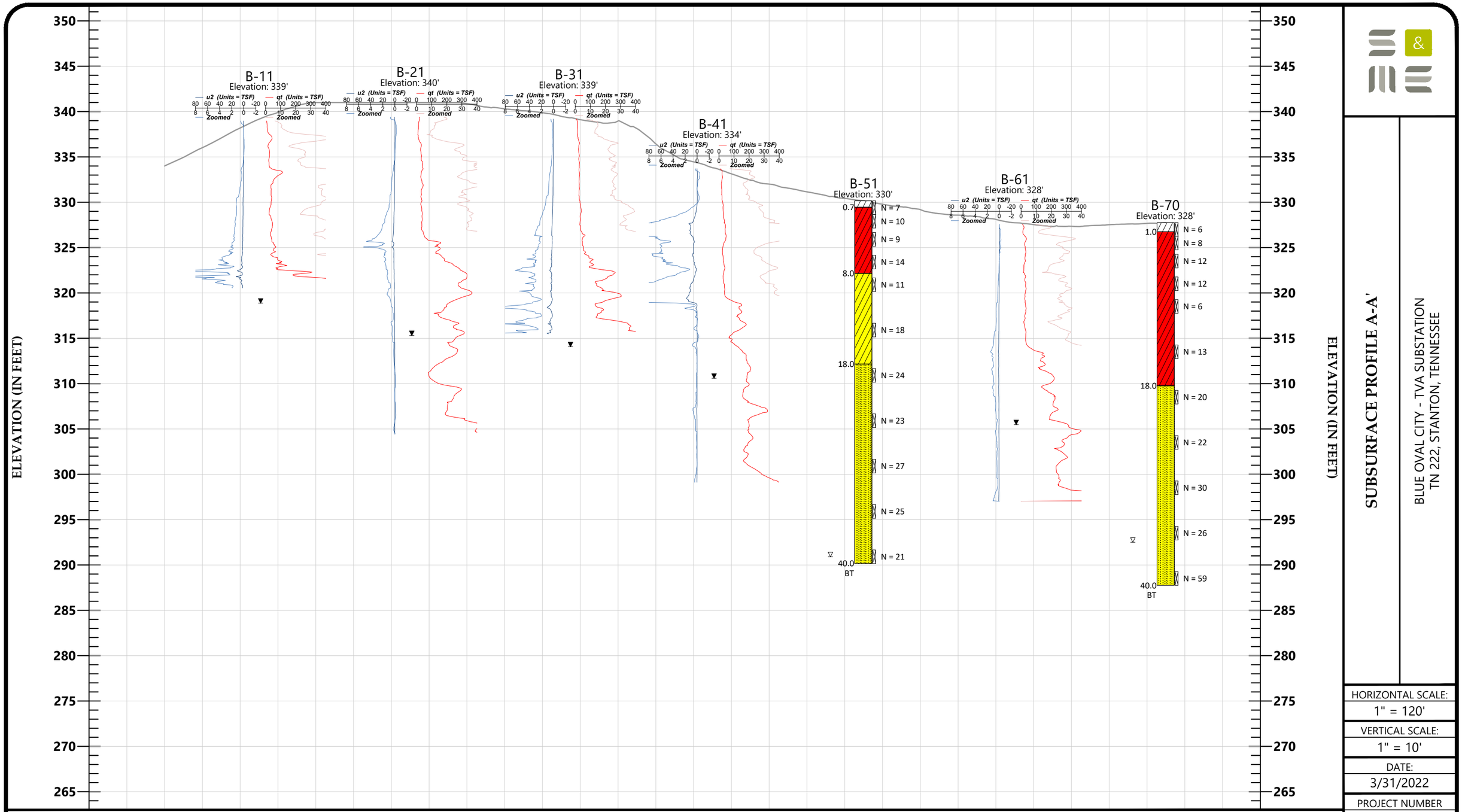
TEST LAYOUT AND SUBSURFACE PROFILE LOCATION PLAN

BLUE OVAL CITY - TVA SUBSTATION
TN 222, STANTON, TENNESSEE

SCALE:	1" = 200'
DATE:	3/31/2022
PROJECT NUMBER	218019
FIGURE NO.	1C

LEGEND:

- ⊕ - APPROXIMATE CPT BORING LOCATION
- ⊕ - APPROXIMATE CPT BORING LOCATION WITH OFFSET CPT BORING
- ◓ - APPROXIMATE SPT BORING LOCATION
- ◓ - APPROXIMATE SPT BORING LOCATION WITH OFFSET SPT BORING
- ⊥⊥ - APPROXIMATE SUBSURFACE PROFILE LOCATION



NOTES:

THE DEPICTED STRATIGRAPHY IS SHOWN FOR ILLUSTRATIVE PURPOSES ONLY. SEPARATIONS BETWEEN DIFFERENT STRATA MAY BE GRADUAL AND LIKELY VARY CONSIDERABLY FROM THOSE SHOWN. PROFILES BETWEEN NEARBY BORINGS AND CPT SOUNDINGS HAVE BEEN ESTIMATED USING REASONABLE ENGINEERING CARE AND JUDGEMENT. THE ACTUAL SUBSURFACE CONDITIONS WILL VARY BETWEEN BORING AND CPT SOUNDING LOCATIONS.

CPT:

- u2 TSF
- qt TSF
- u2 TSF (zoomed)
- qt TSF (zoomed)

LITHOLOGY:

- LEAN CLAY (CL)
- POORLY GRADED SAND (SP)

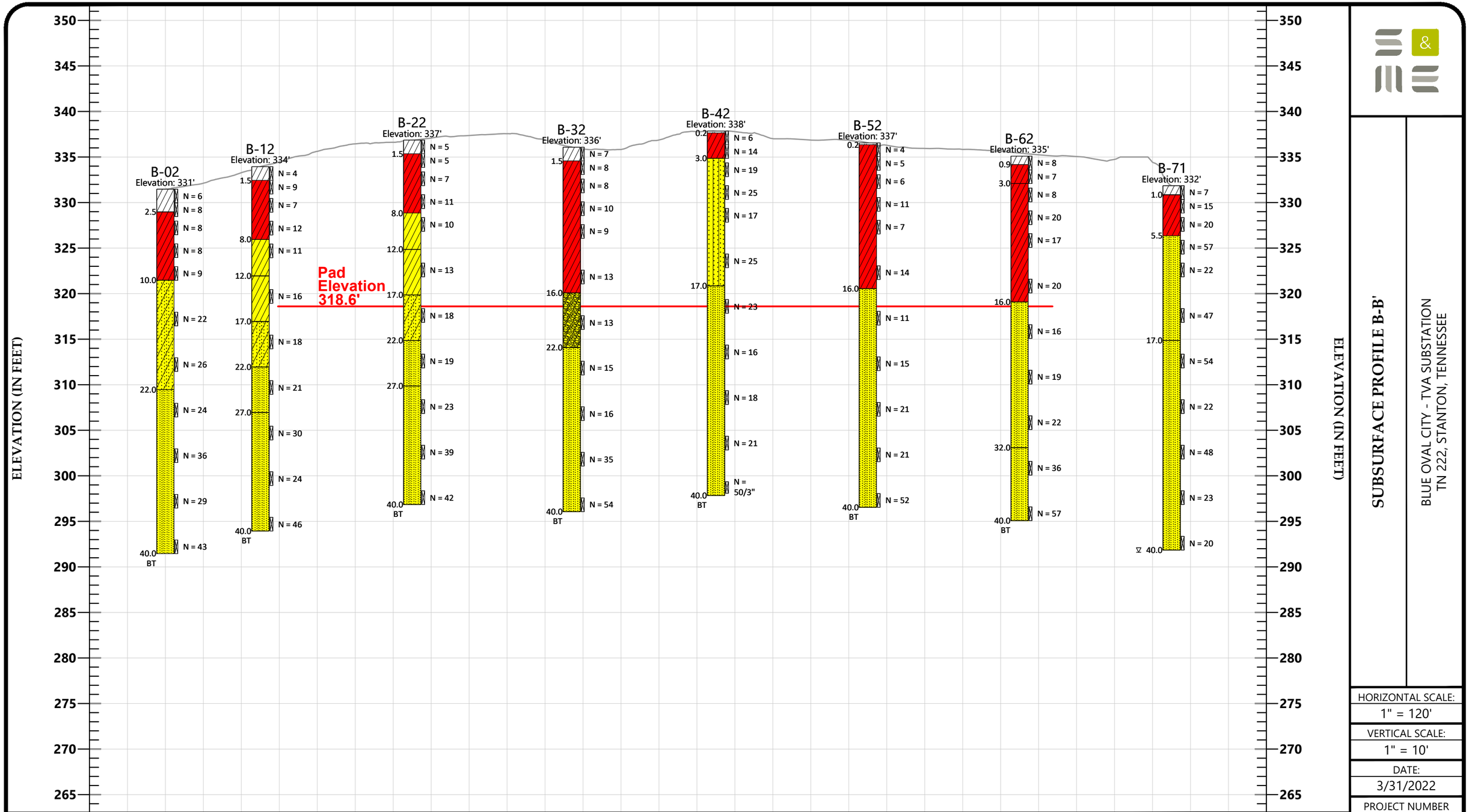
ORIGIN/IDENTIFIER:

- CULTIVATED SOIL
- LOESS
- MARINE SOILS

SUBSURFACE PROFILE A-A'

BLUE OVAL CITY - TVA SUBSTATION
TN 222, STANTON, TENNESSEE

HORIZONTAL SCALE:	1" = 120'
VERTICAL SCALE:	1" = 10'
DATE:	3/31/2022
PROJECT NUMBER	218019
FIGURE NO.	2A



NOTES:

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CPT:

- u2 TSF
- u2 TSF (zoomed)
- qt TSF
- qt TSF (zoomed)

LITHOLOGY:

- TOPSOIL
- LEAN CLAY (CL)
- CLAYEY SAND (SC)
- POORLY GRADED SAND (SP)
- SILTY SAND (SM)
- CLAYEY GRAVEL (GC)

ORIGIN/IDENTIFIER:

- CULTIVATED SOIL
- LOESS
- MARINE SOILS

SUBSURFACE PROFILE B-B'

BLUE OVAL CITY - TVA SUBSTATION
TN 222, STANTON, TENNESSEE

HORIZONTAL SCALE:	1" = 120'
VERTICAL SCALE:	1" = 10'
DATE:	3/31/2022
PROJECT NUMBER	218019
FIGURE NO.	**2B**

ELEVATION (IN FEET)

B-03
Elevation: 324'

B-13
Elevation: 329'

B-23
Elevation: 327'

B-33
Elevation: 329'
N = 7
N = 7
3.0
N = 10
6.0
N = 14
N = 9
13.0
N = 11
N = 25
22.0
N = 15
N = 16
N = 36
37.0
N = 33
40.0
BT

B-43
Elevation: 328'
N = 7
2.0
N = 7
N = 9
5.5
N = 20
N = 17
N = 22
17.0
N = 21
N = 30
N = 72
N = 50/4"
N = 50/5"
40.0
BT

B-53
Elevation: 329'
N = 6
1.5
N = 9
N = 10
5.0
N = 10
N = 10
12.0
N = 12
16.0
N = 50
N = 36
N = 50/4"
N = 13
N = 73
40.0
BT

B-63
Elevation: 329'

B-72
Elevation: 324'
N = 9
1.0
N = 32
N = 30
6.5
N = 35
N = 29
N = 22
18.5
N = 27
N = 36
N = 35
N = 48
N = 62
40.0
BT

Pad Elevation 318.6'

u2 (Units = TSF) — qt (Units = TSF) — Zoomed

350 345 340 335 330 325 320 315 310 305 300 295 290 285 280 275 270 265

ELEVATION (IN FEET)

NOTES:

THE DEPICTED STRATIGRAPHY IS SHOWN FOR ILLUSTRATIVE PURPOSES ONLY. SEPARATIONS BETWEEN DIFFERENT STRATA MAY BE GRADUAL AND LIKELY VARY CONSIDERABLY FROM THOSE SHOWN. PROFILES BETWEEN NEARBY BORINGS AND CPT SOUNDINGS HAVE BEEN ESTIMATED USING REASONABLE ENGINEERING CARE AND JUDGEMENT. THE ACTUAL SUBSURFACE CONDITIONS WILL VARY BETWEEN BORING AND CPT SOUNDING LOCATIONS.

CPT:

- u2 TSF
- qt TSF
- u2 TSF (zoomed)
- qt TSF (zoomed)

LITHOLOGY:

- LEAN CLAY (CL)
- CLAYEY SAND (SC)
- SILTY SAND (SM)
- POORLY GRADED SAND (SP)

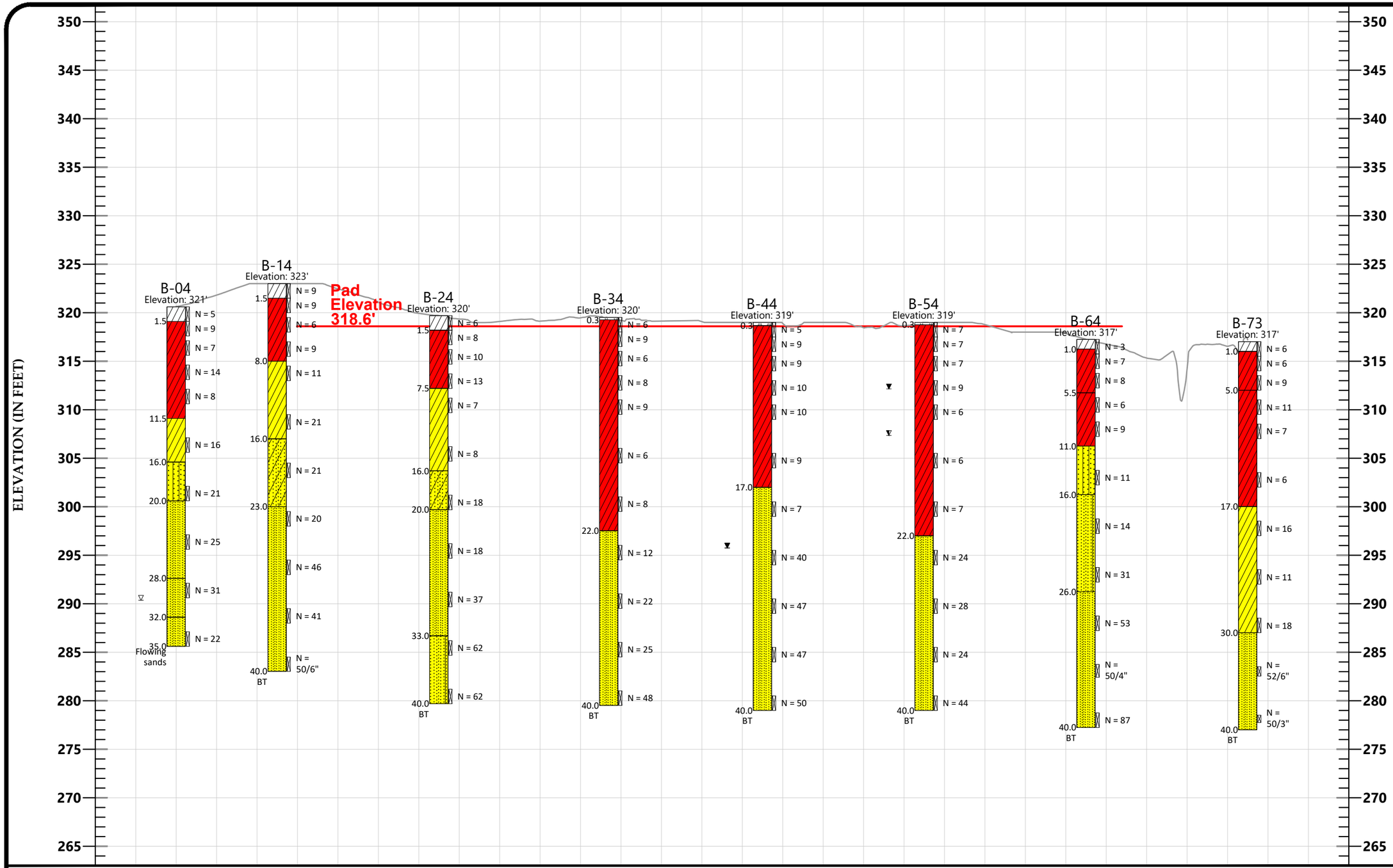
ORIGIN/IDENTIFIER:

- CULTIVATED SOIL
- LOESS
- MARINE SOILS

SUBSURFACE PROFILE C-C'

BLUE OVAL CITY - TVA SUBSTATION
TN 222, STANTON, TENNESSEE

HORIZONTAL SCALE:	1" = 120'
VERTICAL SCALE:	1" = 10'
DATE:	3/31/2022
PROJECT NUMBER	218019
FIGURE NO.	2C



NOTES:

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CPT:

- u2 TSF
- u2 TSF (zoomed)
- qt TSF
- qt TSF (zoomed)

LITHOLOGY:

- TOPSOIL
- LEAN CLAY (CL)
- CLAYEY SAND (SC)
- POORLY GRADED SAND (SP)
- SILTY SAND (SM)
- POORLY GRADED SAND WITH SILT (SP-SM)

ORIGIN/IDENTIFIER:

- CULTIVATED SOIL
- LOESS
- MARINE SOILS

SUBSURFACE PROFILE D-D'

BLUE OVAL CITY - TVA SUBSTATION
TN 222, STANTON, TENNESSEE

HORIZONTAL SCALE:	1" = 120'
VERTICAL SCALE:	1" = 10'
DATE:	3/31/2022
PROJECT NUMBER	218019
FIGURE NO.	2D

ELEVATION (IN FEET)

350 345 340 335 330 325 320 315 310 305 300 295 290 285 280 275 270 265

Pad Elevation 318.6'

B-15
Elevation: 316'

B-25
Elevation: 314'

B-35
Elevation: 312'
0.3
2.0
N = 6
N = 7
N = 6
N = 5
N = 5
16.0
N = 6
N = 7
N = 11
26.0
N = 18
30.0
N = 22
N = 6
45.0
BT
N = 48

B-45
Elevation: 311'
0.3
N = 4
N = 4
3.0
N = 5
N = 7
N = 6
20.0
N = 5
N = 11
N = 12
N = 23
32.0
35.0
N = 42
40.0
BT
N = 59

B-55
Elevation: 310'
0.4
1.5
N = 8
N = 6
N = 4
N = 9
N = 9
15.0
N = 7
N = 4
22.0
N = 8
N = 10
32.0
36.0
N = 24
40.0
BT
N = 42

B-65
Elevation: 309'

B-74
Elevation: 310'
1.0
N = 5
N = 7
N = 13
N = 9
N = 6
12.0
N = 6
N = 13
23.0
N = 10
N = 6
32.0
N = 9
40.0
BT
N = 19

ELEVATION (IN FEET)

NOTES:

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CPT:

- u2 TSF
- qt TSF
- u2 TSF (zoomed)
- qt TSF (zoomed)

LITHOLOGY:

- TOPSOIL
- LEAN CLAY (CL)
- FAT CLAY (CH)
- POORLY GRADED SAND (SP)
- SILT (ML)
- SILTY SAND (SM)
- POORLY GRADED SAND WITH SILT (SP-SM)

ORIGIN/IDENTIFIER:

- CULTIVATED SOIL
- LOESS
- MARINE SOILS

SUBSURFACE PROFILE E-E'

BLUE OVAL CITY - TVA SUBSTATION
TN 222, STANTON, TENNESSEE

HORIZONTAL SCALE:	1" = 120'
VERTICAL SCALE:	1" = 10'
DATE:	3/31/2022
PROJECT NUMBER	218019
FIGURE NO.	2E

ELEVATION (IN FEET)

Pad Elevation 318.6'

B-06
Elevation: 314'
1.5 N = 8, N = 6
6.0 N = 10, N = 6, N = 3
15.0 N = 4
16.0 N = 18
22.0 N = 35, N = 52
N = 50/-3"
40.0 BT N = 71

B-16
Elevation: 313'
0.8 N = 7
1.5 N = 6, N = 8, N = 5, N = 8
23.5 N = 7, N = 14, N = 9, N = 25, N = 55
40.0 BT N = 27

B-26
Elevation: 312'
0.7 N = 4, N = 4
3.5 N = 3, N = 4, N = 2
18.5 N = 5, N = 10, N = 11, N = 12
33.5 N = 25, N = 36
40.0 BT

B-36
Elevation: 310'
2.0 N = 6, N = 5, N = 9
10.0 N = 8
25.0 N = 26
36.5 BT

B-46
Elevation: 309'
0.2 N = 4, N = 9, N = 7, N = 9, N = 6
17.0 N = 5, N = 8, N = 7, N = 9
31.0 N = 43, N = 38
40.0 BT

B-56
Elevation: 308'
0.2 N = 7, N = 6, N = 6, N = 12, N = 6
16.0 N = 10, N = 22, N = 7, N = 15
31.0 N = 55, N = 88
40.0 BT

B-66
Elevation: 308'
0.3 N = 4, N = 7, N = 3, N = 4, N = 7
13.0 N = 13, N = 24, N = 10
27.0 N = 9, N = 20
32.0 N = 50/4"
36.0
40.0 BT

B-75
Elevation: 309'
1.0 N = 9, N = 13, N = 15, N = 9, N = 13
12.0 N = 14, N = 25, N = 7
28.0 N = 13
29.0 N = 14, N = 18
40.0 BT

ELEVATION (IN FEET)

NOTES:

THE DEPICTED STRATIGRAPHY IS SHOWN FOR ILLUSTRATIVE PURPOSES ONLY. SEPARATIONS BETWEEN DIFFERENT STRATA MAY BE GRADUAL AND LIKELY VARY CONSIDERABLY FROM THOSE SHOWN. PROFILES BETWEEN NEARBY BORINGS AND CPT SOUNDINGS HAVE BEEN ESTIMATED USING REASONABLE ENGINEERING CARE AND JUDGEMENT. THE ACTUAL SUBSURFACE CONDITIONS WILL VARY BETWEEN BORING AND CPT SOUNDING LOCATIONS.

CPT:

- u2 TSF
- u2 TSF (zoomed)
- qt TSF
- qt TSF (zoomed)

LITHOLOGY:

- TOPSOIL
- LEAN CLAY (CL)
- FAT CLAY (CH)
- POORLY GRADED SAND (SP)
- SILT (ML)
- SILTY SAND (SM)

ORIGIN/IDENTIFIER:

- CULTIVATED SOIL
- LOESS
- MARINE SOILS

SUBSURFACE PROFILE F-F'

BLUE OVAL CITY - TVA SUBSTATION
TN 222, STANTON, TENNESSEE

HORIZONTAL SCALE:	1" = 120'
VERTICAL SCALE:	1" = 10'
DATE:	3/31/2022
PROJECT NUMBER	218019
FIGURE NO.	2F

ELEVATION (IN FEET)

Pad Elevation 318.6'

B-17
Elevation: 311'
u2 (Units = TSF) qt (Units = TSF)
Zoomed Zoomed

B-27
Elevation: 309'
u2 (Units = TSF) qt (Units = TSF)
Zoomed Zoomed

B-37
Elevation: 309'
0.3
N = 4
N = 6
N = 5
N = 6
N = 6
N = 7
18.0
N = 26
22.0
N = 7
N = 17
N = 13
40.0
BT
N = 66

B-47
Elevation: 308'
0.3
N = 6
N = 6
N = 4
N = 7
N = 9
12.0
N = 11
N = 10
21.0
N = 19
N = 23
N = 36
40.0
BT
N = 74

B-57
Elevation: 307'
0.1
1.5
N = 7
N = 7
N = 8
N = 2
N = 8
11.0
N = 8
N = 10
N = 11
25.0
N = 17
N = 9
40.0
BT
N = 7

B-67
Elevation: 308'
u2 (Units = TSF) qt (Units = TSF)
Zoomed Zoomed

B-76
Elevation: 309'
0.7
N = 7
N = 8
N = 21
N = 14
N = 10
12.0
N = 10
N = 20
22.0
N = 20
N = 15
N = 3
40.0
BT
N = 11

ELEVATION (IN FEET)

SUBSURFACE PROFILE G-G'

BLUE OVAL CITY - TVA SUBSTATION
TN 222, STANTON, TENNESSEE

HORIZONTAL SCALE:	1" = 120'
VERTICAL SCALE:	1" = 10'
DATE:	3/31/2022
PROJECT NUMBER	218019
FIGURE NO.	2G

NOTES:

THE DEPICTED STRATIGRAPHY IS SHOWN FOR ILLUSTRATIVE PURPOSES ONLY. SEPARATIONS BETWEEN DIFFERENT STRATA MAY BE GRADUAL AND LIKELY VARY CONSIDERABLY FROM THOSE SHOWN. PROFILES BETWEEN NEARBY BORINGS AND CPT SOUNDINGS HAVE BEEN ESTIMATED USING REASONABLE ENGINEERING CARE AND JUDGEMENT. THE ACTUAL SUBSURFACE CONDITIONS WILL VARY BETWEEN BORING AND CPT SOUNDING LOCATIONS.

CPT:

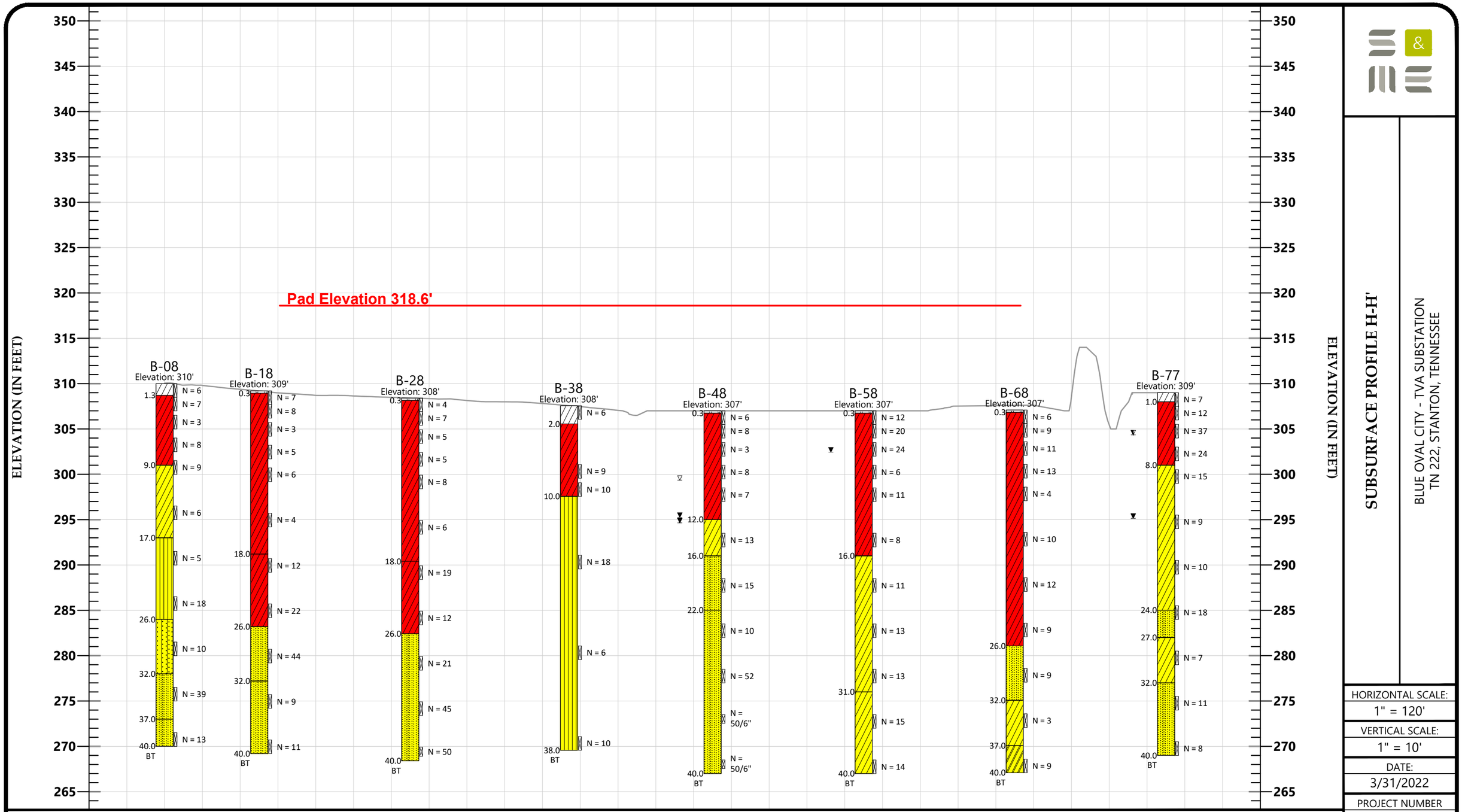
- u2 TSF
- qt TSF
- u2 TSF (zoomed)
- qt TSF (zoomed)

LITHOLOGY:

- TOPSOIL
- LEAN CLAY (CL)
- FAT CLAY (CH)
- POORLY GRADED SAND (SP)

ORIGIN/IDENTIFIER:

- CULTIVATED SOIL
- LOESS
- MARINE SOILS



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CPT:

- u2 TSF
- u2 TSF (zoomed)
- qt TSF
- qt TSF (zoomed)

LITHOLOGY:

- TOPSOIL
- LEAN CLAY (CL)
- FAT CLAY (CH)
- POORLY GRADED SAND (SP)
- SILT (ML)
- SILTY SAND (SM)

ORIGIN/IDENTIFIER:

- CULTIVATED SOIL
- LOESS
- MARINE SOILS

SUBSURFACE PROFILE H-H'

BLUE OVAL CITY - TVA SUBSTATION
TN 222, STANTON, TENNESSEE

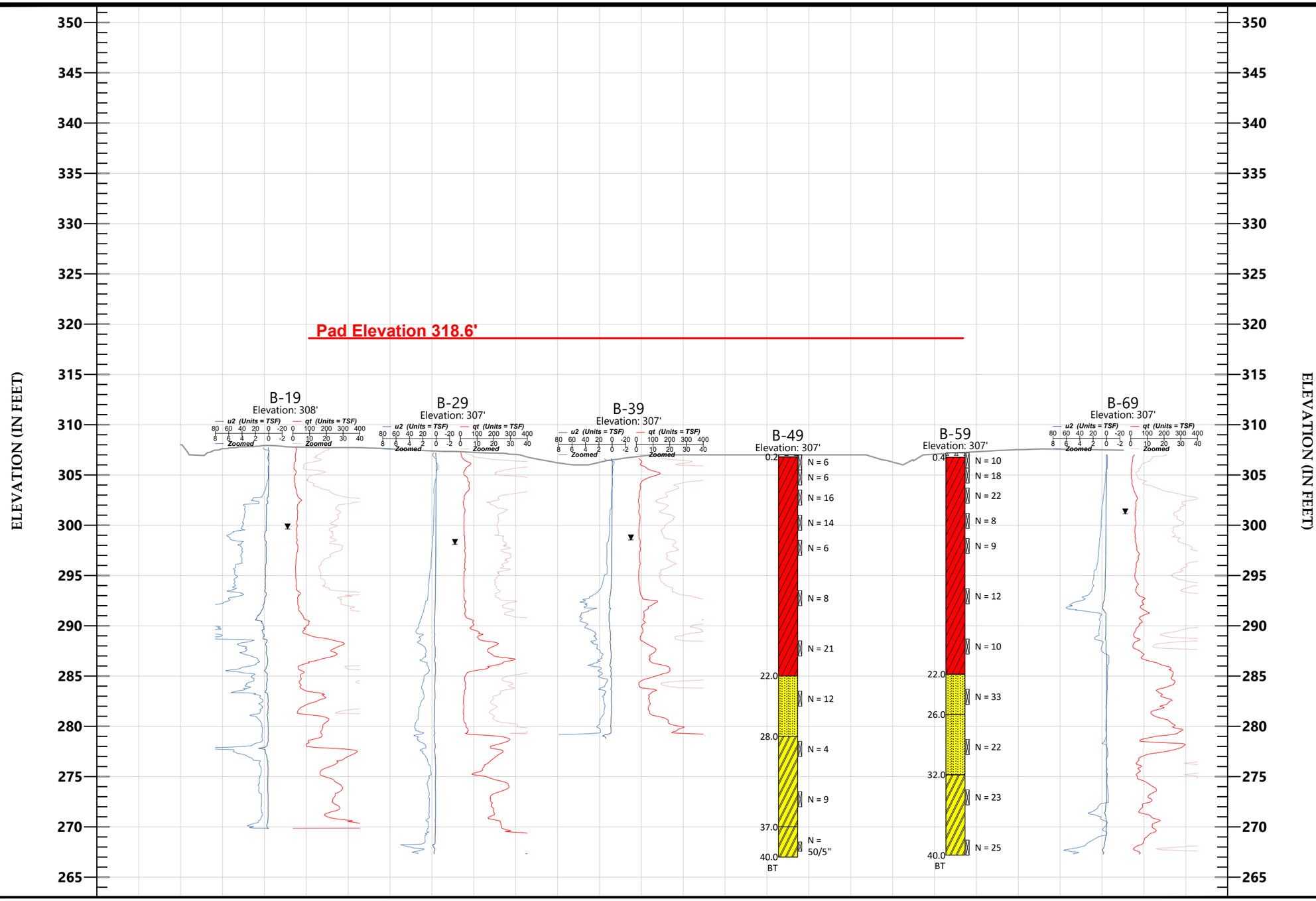
HORIZONTAL SCALE:
1" = 120'

VERTICAL SCALE:
1" = 10'

DATE:
3/31/2022

PROJECT NUMBER
218019

FIGURE NO.
2H



NOTES:

THE DEPICTED STRATIGRAPHY IS SHOWN FOR ILLUSTRATIVE PURPOSES ONLY. SEPARATIONS BETWEEN DIFFERENT STRATA MAY BE GRADUAL AND LIKELY VARY CONSIDERABLY FROM THOSE SHOWN. PROFILES BETWEEN NEARBY BORINGS AND CPT SOUNDINGS HAVE BEEN ESTIMATED USING REASONABLE ENGINEERING CARE AND JUDGEMENT. THE ACTUAL SUBSURFACE CONDITIONS WILL VARY BETWEEN BORING AND CPT SOUNDING LOCATIONS.

CPT:

- u2 TSF
- qt TSF
- u2 TSF (zoomed)
- qt TSF (zoomed)

LITHOLOGY:

- TOPSOIL
- LEAN CLAY (CL)
- FAT CLAY (CH)
- POORLY GRADED SAND (SP)

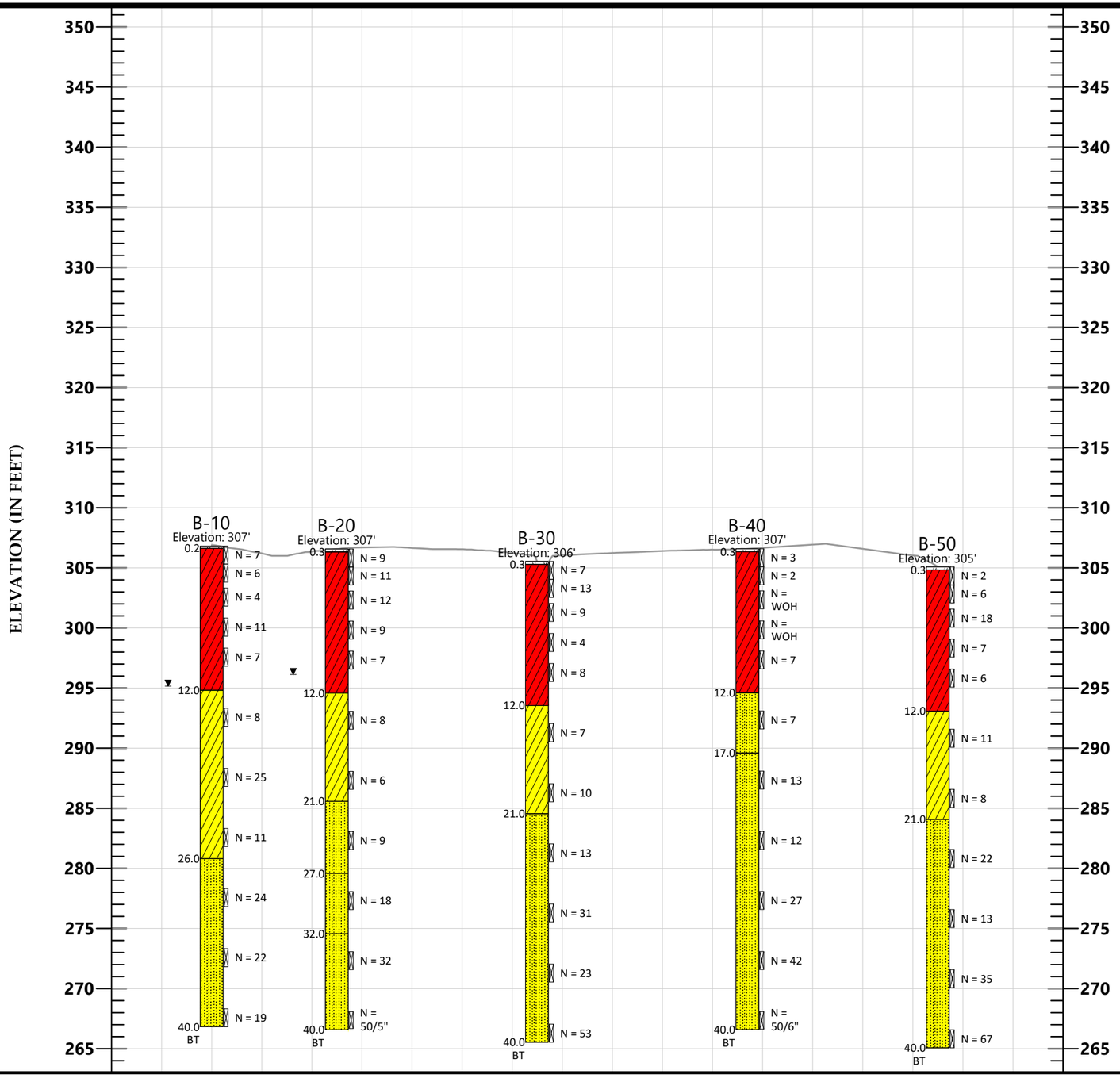
ORIGIN/IDENTIFIER:

- CULTIVATED SOIL
- LOESS
- MARINE SOILS

SUBSURFACE PROFILE
TVA SUBSTATION

BLUE OVAL CITY - TVA SUBSTATION
TN 222, STANTON, TENNESSEE

HORIZONTAL SCALE:	1" = 120'
VERTICAL SCALE:	1" = 10'
DATE:	3/31/2022
PROJECT NUMBER	218019
FIGURE NO.	2I



NOTES:

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CPT:

- u2 TSF
- u2 TSF (zoomed)
- qt TSF
- qt TSF (zoomed)

LITHOLOGY:

- TOPSOIL
- LEAN CLAY (CL)
- POORLY GRADED SAND (SP)

ORIGIN/IDENTIFIER:

- CULTIVATED SOIL
- LOESS
- MARINE SOILS

SUBSURFACE PROFILE
TVA SUBSTATION

BLUE OVAL CITY - TVA SUBSTATION
TN 222, STANTON, TENNESSEE

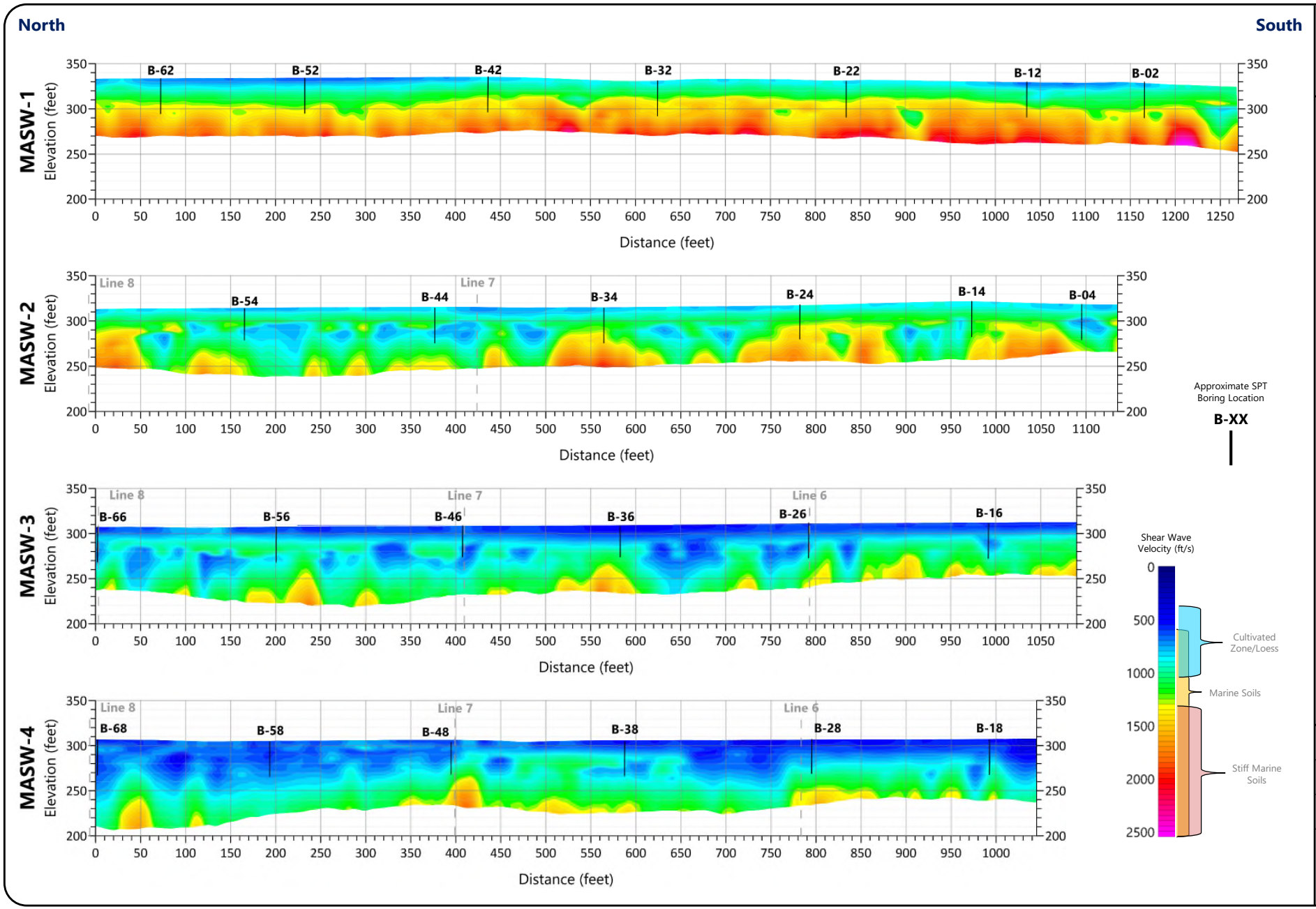
HORIZONTAL SCALE: 1" = 120'

VERTICAL SCALE: 1" = 10'

DATE: 3/31/2022

PROJECT NUMBER: 218019

FIGURE NO.: **2J**



2D MASW SEISMIC PROFILES

FORD BLUE OVAL CITY – TVA SUBSTATION
SR 222, STANTON, TENNESSEE

SCALE: AS SHOWN

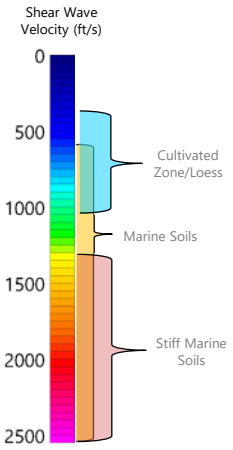
DATE: 3/30/2022

PROJECT NUMBER 218019

FIGURE NO. **2K**

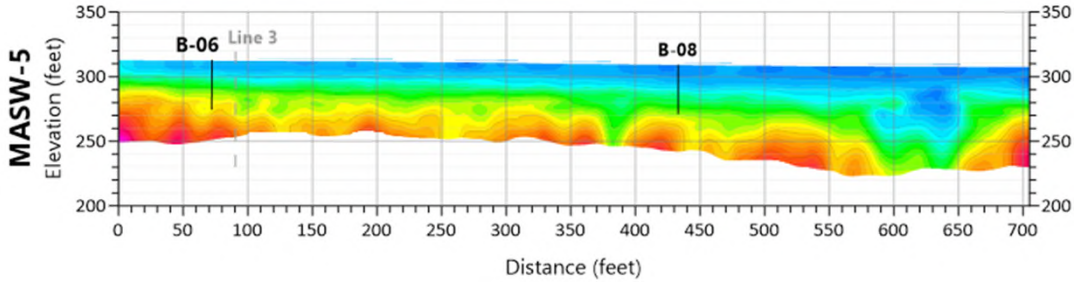
West

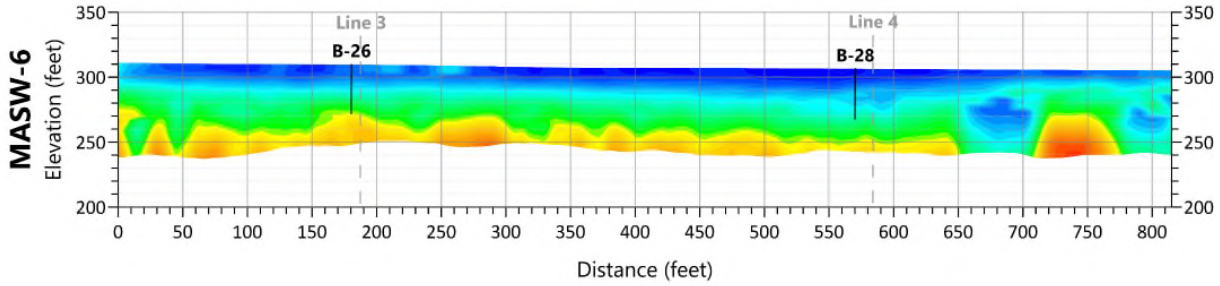
East

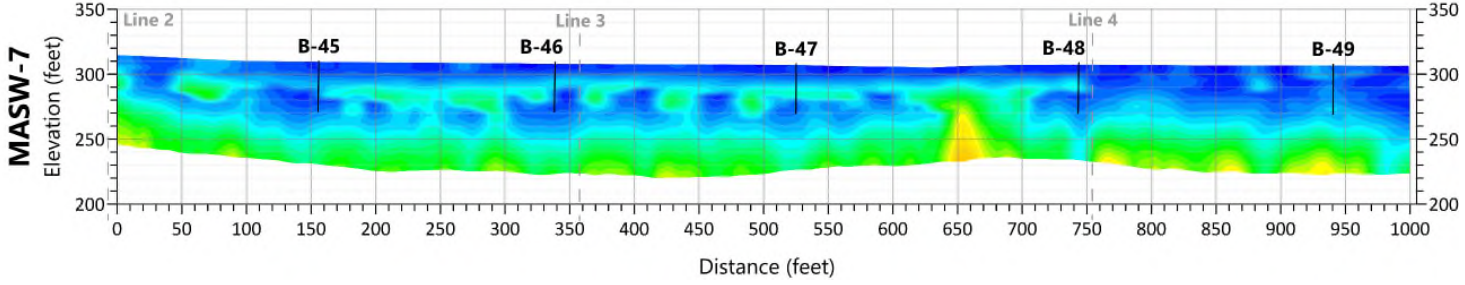


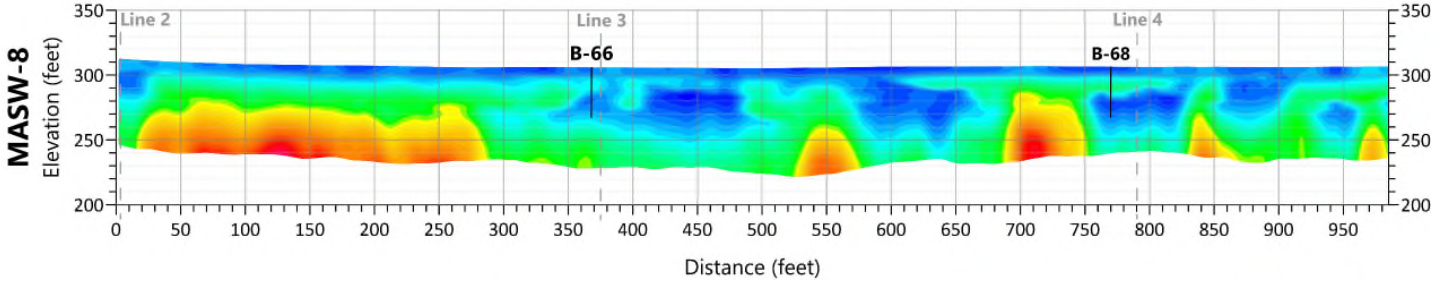
Approximate SPT Boring Location

B-XX









2D MASW SEISMIC PROFILE

FORD BLUE OVAL CITY – TVA SUBSTATION
SR 222, STANTON, TENNESSEE

SCALE: AS SHOWN

DATE: 3/30/2022

PROJECT NUMBER 218019

FIGURE NO. **2L**

FIELD TESTING PROCEDURES

Cone Penetrometer Test (CPT) Sounding

The cone penetrometer test soundings (ASTM D 5778) were performed by hydraulically pushing an electronically instrumented cone penetrometer through the soil at a constant rate. As the cone penetrometer tip was advanced through the soil, nearly continuous readings of point stress, sleeve friction and pore water pressure were recorded and stored in the on-site computers. Using theoretical and empirical relationships, CPT data can be used to determine soil stratigraphy and estimate soil properties and parameters such as effective stress, friction angle, Young's Modulus and undrained shear strength.

The consistency and relative density designations, which are based on the cone tip resistance, q_t for sands and cohesive soils (silts and clays) are as follows:

SANDS		**SILTS AND CLAYS**	
Cone Tip Resistance, q_t (tsf)	**Relative Density**	**Cone Tip Resistance, q_t (tsf)**	**Consistency**
<20	Very Loose	<5	Very Soft
20 – 40	Loose	5 – 10	Soft
40 – 120	Medium Dense	10 – 15	Firm
		15 – 30	Stiff
120 – 200	Dense	30 –60	Very Stiff
>200	Very Dense	>60	Hard

CPT Correlations

References are in parenthesis next to the appropriate equation.

General

p_a = atmospheric pressure (for unit normalization)
q_t = corrected cone tip resistance (tsf)
f_s = friction sleeve resistance (tsf)
$R_f = 100\% * (f_s/q_t)$
u_2 = pore pressure behind cone tip (tsf)
u_0 = hydrostatic pressure
$B_q = (u_2-u_0)/(q_t-\sigma_{v0})$
$Q_t = (q_t-\sigma_{v0})/ \sigma'_{v0}$
$F_r = 100\% * f_s/(q_t- \sigma_{v0})$
$I_c = ((3.47-\log Q_t)^2+(\log F_r+1.22)^2)^{0.5}$

N-Value

$N_{60} = (q_t/pa)/[8.5(1-I_c/4.6)]$ (6)

(6) Jefferies, M.G. and Davies, M.P., (1993), "Use of CPTu to estimate equivalent SPT N60", ASTM Geotechnical Testing Journal, Vol. 16, No. 4

CPT Soil Classification Legend

(SBT- Fr Normalized)

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

Robertson's Soil Behavior Type (SBT), 1990			
Group #	Description	Ic	
		Min	Max
1	Sensitive, fine grained	N/A	
2	Organic soils - peats	3.60	N/A
3	Clays - silty clay to clay	2.95	3.60
4	Silt mixtures - clayey silt to silty clay	2.60	2.95
5	Sand mixtures - silty sand to sandy silt	2.05	2.60
6	Sands - clean sand to silty sand	1.31	2.05
7	Gravelly sand to dense sand	N/A	1.31
8	Very stiff sand to clayey sand (High OCR or cemented)	N/A	
9	Very stiff, fine grained (High OCR or cemented)	N/A	

Soil behavior type is based on empirical data and may not be representative of soil classification based on plasticity and grain size distribution.

Relative Density and Consistency Table			
SANDS		SILTS and CLAYS	
Cone Tip Stress, qt (tsf)	Relative Density	Cone Tip Stress, qt (tsf)	Consistency
Less than 20	Very Loose	Less than 5	Very Soft
20 - 40	Loose	5 - 15	Soft to Firm
40 - 120	Medium Dense	15 - 30	Stiff
120 - 200	Dense	30 - 60	Very Stiff
Greater than 200	Very Dense	Greater than 60	Hard

TEST BORING LOG LEGEND

FINE AND COARSE GRAINED SOIL INFORMATION

COARSE GRAINED SOILS (SANDS AND GRAVELS)

N	Relative Density
0-4	Very Loose
5-10	Loose
11-30	Medium Dense
31-50	Dense
Over 50	Very Dense

FINE GRAINED SOILS (CLAYS AND SILTS)

N	Consistency
0-2	Very Soft
3-4	Soft
5-8	Firm
9-15	Stiff
16-30	Very Stiff
Over 30	Hard

PARTICLE SIZE

Boulders	Greater than 300 mm (12")
Cobbles	75 mm—300 mm (3-12")
Gravel	4.75 mm—75 mm (3/16-3")
Coarse Sand	2 mm—4.74 mm
Medium Sand	.425 mm—2 mm
Fine Sand	0.075 mm—0.425 mm
Silts and Clays	Less than 0.075 mm

The STANDARD PENETRATION TEST as defined by ASTM D 1586 is a method to obtain a disturbed soil sample for examination and testing and to obtain relative density and consistency information. A standard 1.4-inch I.D. / 2.0-inch O.D. split barrel sampler is driven three 6-inch increments with a 140 lb. hammer falling 30 inches. The hammer can either be of a trip, free-fall design, or actuated by a rope and cathead. The blow counts required to drive the sampler the final two 6-inch increments are added together and designated the N-value defined in the above tables.

ROCK PROPERTIES

RQD

Percent RQD	Quality
0-25	Very Poor
25-50	Poor
50-75	Fair
75-90	Good
90-100	Excellent

ROCK HARDNESS

Very Hard	Rock can be broken by heavy hammer blows.
Hard	Rock cannot be broken by thumb pressure, but can be broken by moderate hammer blows.
Moderately Hard	Small pieces can be broken off along sharp edges by considerable thumb pressure; can be broken with light hammer blows.
Soft	Rock is coherent but breaks very easily with thumb pressure at sharp edges and crumbles with firm hand pressure.
Very Soft	Rock disintegrates or easily compresses when touched; can be hard to very hard soil.

KEY

Undisturbed Sample

Standard Penetration Test Sample

Rock Core Sample

Core Diameter (I.D.)	Inches
BQ	1-7/16
NQ	1-7/8
HQ	2-1/2

$$\text{RQD} = \frac{\text{Sum of 4" and Longer Rock Pieces Recovered}}{\text{Length of Core Run}} \times 100$$

(Rock Quality Designation)

$$\text{REC} = \frac{\text{Length of Rock Core Recovered}}{\text{Length of Core Run}} \times 100$$

(Recovery)

SOIL PROPERTY SYMBOLS

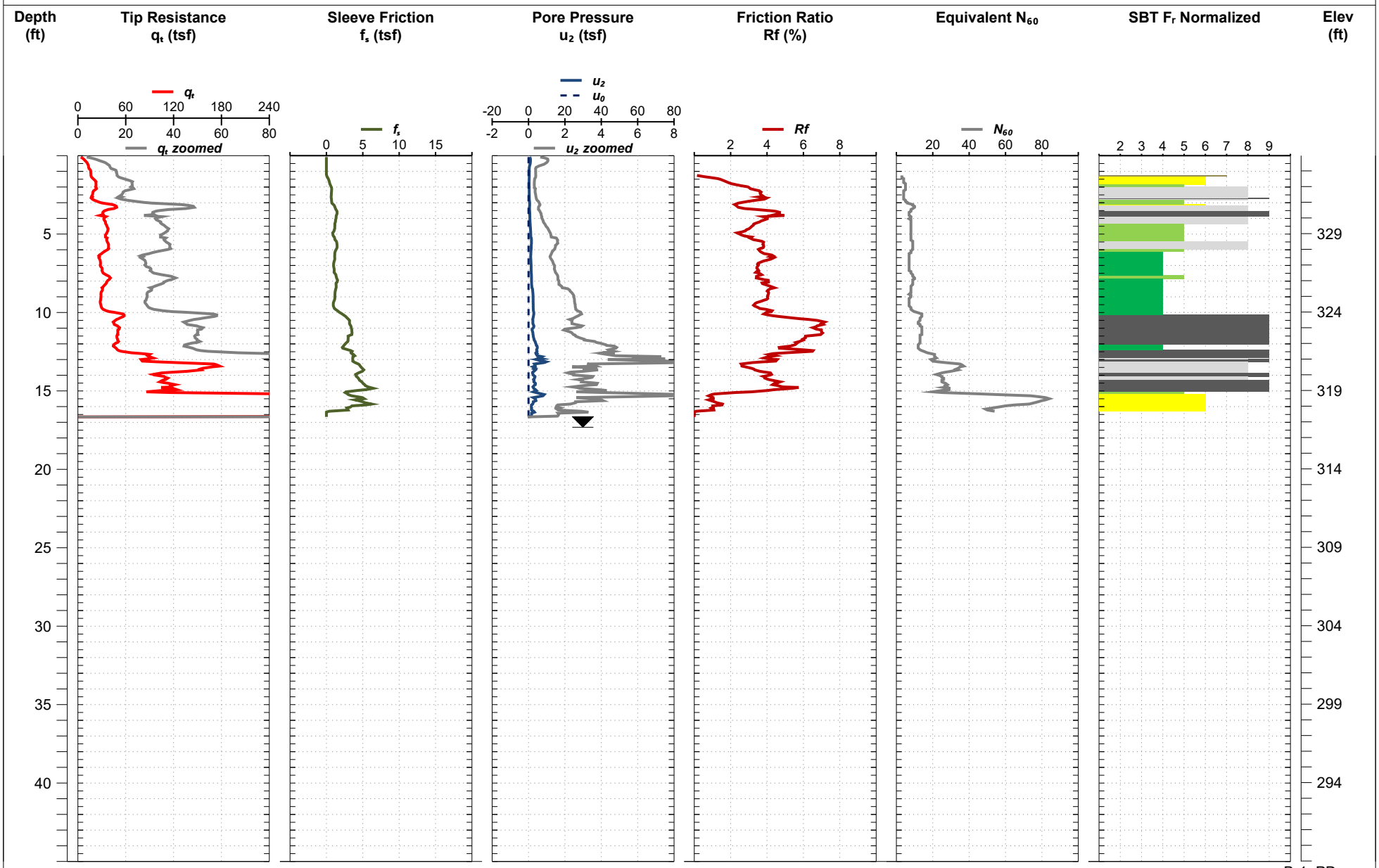
N	Standard Penetration, BPF
NMC	Natural Moisture Content, %
LL	Liquid Limit, %
PL	Plastic Limit, %
PI	Plasticity Index, %
PPV	Pocket Penetrometer Value, TSF
Qu	Unconfined Compressive Strength, TSF
Yd	Dry Unit Weight, PCF
F	Fines Content

Ford Blue Oval City - TVA Substation
SR 222, Stanton, Tennessee
S&ME Project No. 218019

Cone Penetration Test

B-01

Date:	25-Jan-2022	**Latitude:**	35.418959	**Total Depth:**	16.6 ft
Estimated Water Depth:	17.0 ft	**Longitude:**	-89.40620	**Termination Criteria:**	Maximum Reaction Force
Rig/Operator:	Gyrotrack/Eric Conway	**Elevation:**	333.97	**Cone Size:**	1.75



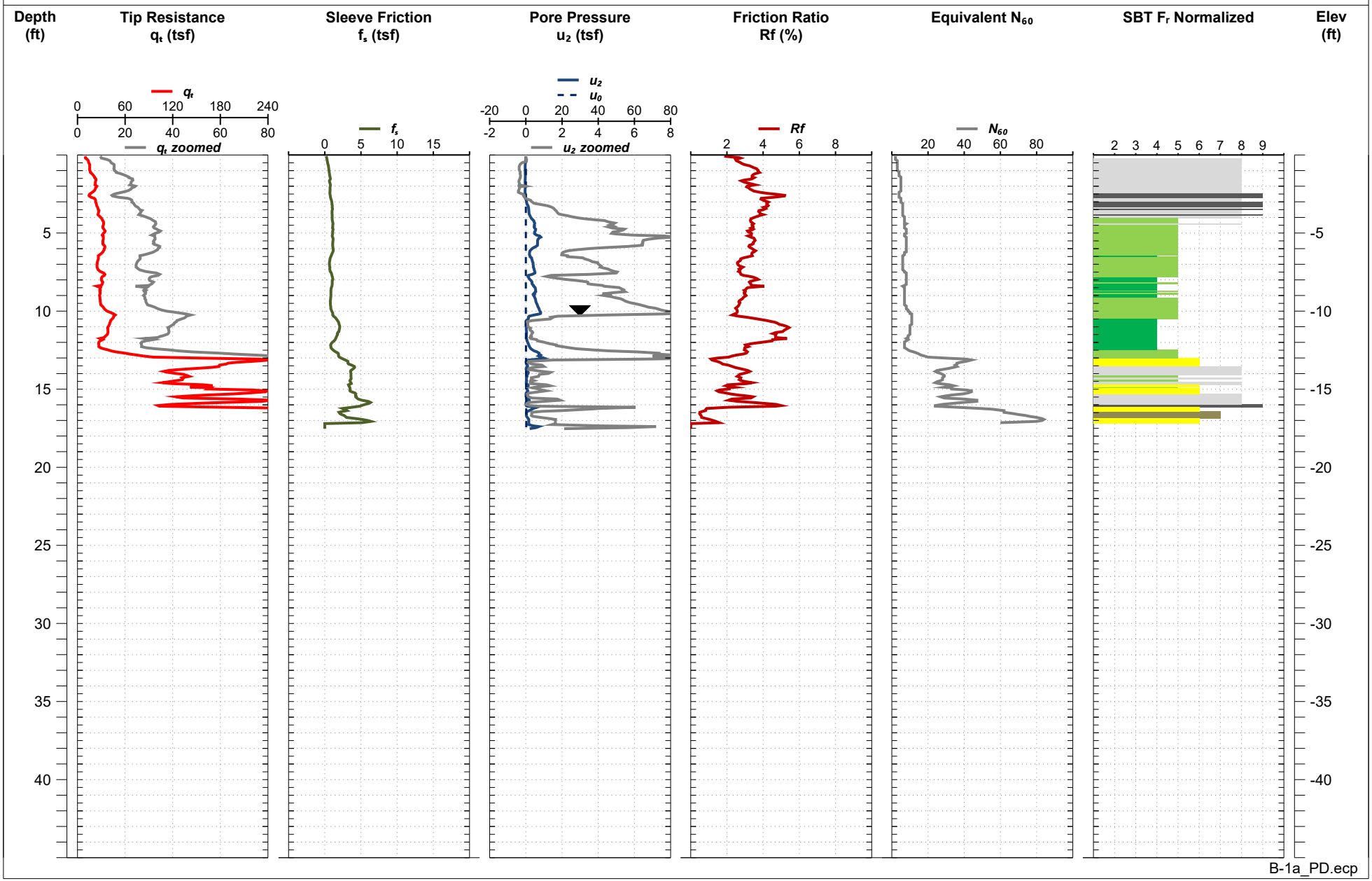
B-1_PD.ecp

Ford Blue Oval City - TVA Substation
SR 222, Stanton, Tennessee
S&ME Project No. 218019

Cone Penetration Test

B-01A

Date:	26-Jan-2022	**Latitude:**		**Total Depth:**	17.5 ft
Estimated Water Depth:	10.0 ft	**Longitude:**		**Termination Criteria:**	Maximum Reaction Force
Rig/Operator:	Gyrotrack/Eric Conway	**Elevation:**		**Cone Size:**	1.75



B-1a_PD.ecp

PROJECT:	Ford Blue Oval City - TVA Substation SR 222, Stanton, Tennessee S&ME Project No. 218019	BORING LOG: B-02 *Sheet 1 of 2*
DATE DRILLED: 01/28/2022	**ELEVATION:** 331 ft	**NOTES:**
DRILL RIG: Diedrich D-50 (track)	**DATUM:** NAVD88	
DRILLER: S&ME	**BORING DEPTH:** 40.0 ft	
HAMMER TYPE: Automatic hammer	**CLOSURE:** Cuttings	
DRILLING METHOD: HSA	**LOGGED BY:** Alf Futrell	**LATITUDE:** 35.418947 **LONGITUDE:** -89.40548
SAMPLING METHOD: SS	**PROJECT COORDINATE SYSTEM -** NAD 1983 StatePlane Tennessee FIPS 4100 Feet	

DEPTH (feet)	Origin/Identifier	SAMPLE NO. (RECOVERY)	MATERIAL DESCRIPTION	BLOW COUNT DATA (SPT N-value)	ELEVATION
0	Cultivated Zone	SS-1	LEAN CLAY (CL), some silt, few roots, firm, brown, slightly moist to moist	3-3-3 N = 6 PPV= 1.2	
2.5		SS-2		3-3-5 N = 8 PPV= 2.5	
	Loess	SS-3	LEAN CLAY (CL), trace sand, firm to stiff, brown with gray, moist	2-3-5 N = 8	327
5		SS-4		3-3-5 N = 8	
		SS-5		3-3-6 N = 9	
10.0	Marine Soils	SS-6	CLAYEY SAND (SC), medium dense, orange brown, slightly moist	7-9-13 N = 22	322 317
15		SS-7		6-11-15 N = 26	312
20					
22.0					

STANDARD PENETRATION TEST DATA

△ % Fines
○ NMC
⊢ PL---LL
20 40 60 80

GROUNDWATER		DATE/TIME	DEPTH (FT)	REMARKS
ATD	▽	01/27/2022		not encountered - hole cave at 28.2 feet
END OF DRILLING	▼	01/27/2022		1 hour reading - dry hole cave 28.2 ft
AFTER DRILLING	▼	01/28/2022		24 hour reading - dry cave at 28.2 feet
AFTER DRILLING	▼			

GROUNDWATER DEPTHS ARE NOT EXACT AND MAY VARY SUBSTANTIALLY FROM THOSE INDICATED. ATD = AT TIME OF DRILLING
LL=Liquid Limit, PL = Plastic Limit, NMC = Natural Moisture Content, PPV = Pocket Penetrometer (tsf), PTV = Pocket Torvane (tsf), HC = Hole Cave, AR = Auger Refusal

PROJECT:	Ford Blue Oval City - TVA Substation SR 222, Stanton, Tennessee S&ME Project No. 218019	BORING LOG: B-02 *Sheet 2 of 2*
DATE DRILLED: 01/28/2022	**ELEVATION:** 331 ft	**NOTES:**
DRILL RIG: Diedrich D-50 (track)	**DATUM:** NAVD88	
DRILLER: S&ME	**BORING DEPTH:** 40.0 ft	
HAMMER TYPE: Automatic hammer	**CLOSURE:** Cuttings	
DRILLING METHOD: HSA	**LOGGED BY:** Alf Futrell	**LATITUDE:** 35.418947 **LONGITUDE:** -89.40548
SAMPLING METHOD: SS	**PROJECT COORDINATE SYSTEM -** NAD 1983 StatePlane Tennessee FIPS 4100 Feet	

DEPTH (feet)	NOTES	Origin/Identifier	GRAPHIC	SAMPLE NO. (RECOVERY)	MATERIAL DESCRIPTION	BLOW COUNT DATA (SPT N-value)	STANDARD PENETRATION TEST DATA (△ % Fines, ○ NMC, ⊢ PL---LL; 20 40 60 80)	ELEVATION
25		Marine Soils		SS-8	POORLY GRADED SAND WITH CLAY (SP), medium dense to dense, tan orange and brown, moist	6-10-14 N = 24		307
	HC			SS-9		9-13-23 N = 36		
30								302
				SS-10		8-13-16 N = 29		
35					*wet below 35 feet*			297
				SS-11		10-19-24 N = 43		
40	40.0				Borehole terminated at 40.0 feet			292

GROUNDWATER		DATE/TIME	DEPTH (FT)	REMARKS
ATD	▽	01/27/2022		not encountered - hole cave at 28.2 feet
END OF DRILLING	▼	01/27/2022		1 hour reading - dry hole cave 28.2 ft
AFTER DRILLING	▼	01/28/2022		24 hour reading - dry cave at 28.2 feet
AFTER DRILLING	▼			

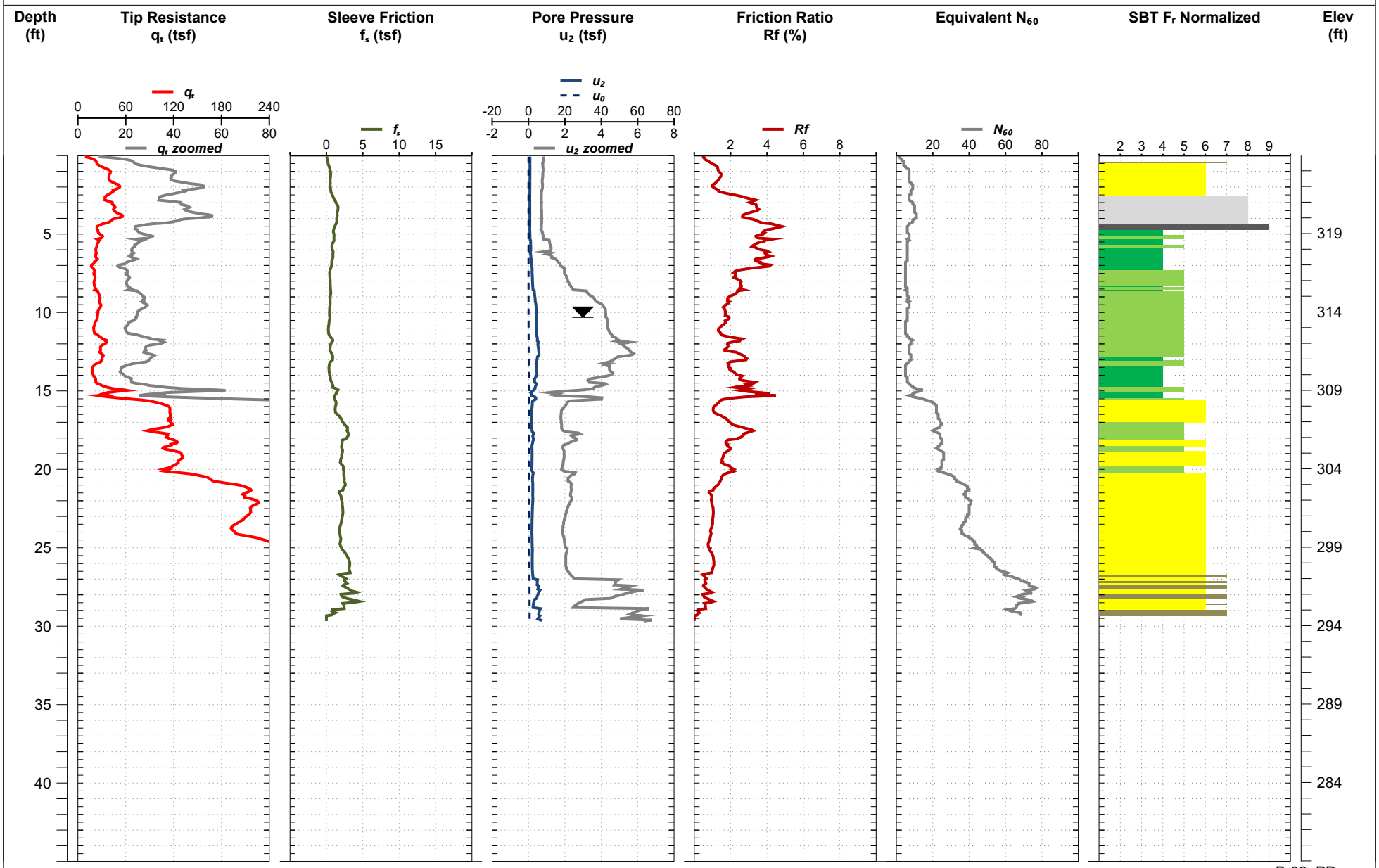
GROUNDWATER DEPTHS ARE NOT EXACT AND MAY VARY SUBSTANTIALLY FROM THOSE INDICATED. ATD = AT TIME OF DRILLING
LL=Liquid Limit, PL = Plastic Limit, NMC = Natural Moisture Content, PPV = Pocket Penetrometer (tsf), PTV = Pocket Torvane (tsf), HC = Hole Cave, AR = Auger Refusal

Ford Blue Oval City - TVA Substation
SR 222, Stanton, Tennessee
S&ME Project No. 218019

Cone Penetration Test

B-03

Date:	26-Jan-2022	**Latitude:**	35.418936	**Total Depth:**	29.7 ft
Estimated Water Depth:	10.0 ft	**Longitude:**	-89.40486	**Termination Criteria:**	Maximum Reaction Force
Rig/Operator:	Gyrotrack	**Elevation:**	323.97	**Cone Size:**	1.75



B-03_PD.ecp

PROJECT:	Ford Blue Oval City - TVA Substation SR 222, Stanton, Tennessee S&ME Project No. 218019	BORING LOG: B-04 *Sheet 1 of 2*
DATE DRILLED: 02/02/2022	**ELEVATION:** 321 ft	**NOTES:**
DRILL RIG: Diedrich D-50 (track)	**DATUM:** NAVD88	
DRILLER: S&ME	**BORING DEPTH:** 35.0 ft	
HAMMER TYPE: Automatic hammer	**CLOSURE:** Cuttings	
DRILLING METHOD: HSA	**LOGGED BY:** Talecia Dyson	**LATITUDE:** 35.418925 **LONGITUDE:** -89.40419
SAMPLING METHOD: SS	**PROJECT COORDINATE SYSTEM -** NAD 1983 StatePlane Tennessee FIPS 4100 Feet	

DEPTH (feet)	NOTES	Origin/Identifier	GRAPHIC	SAMPLE NO. (RECOVERY)	MATERIAL DESCRIPTION	BLOW COUNT DATA (SPT N-value)	STANDARD PENETRATION TEST DATA (△ % Fines, ○ NMC, ⊢ PL---LL; 20 40 60 80)	ELEVATION
0		Cultivated Zone		SS-1	LEAN CLAY (CL), some silt, firm, brown, moist	2-2-3 N = 5 PPV= 1.8		
1.5		Loess		SS-2	LEAN CLAY (CL), few silt, trace sand, firm to stiff, brown, mottled, moist to very moist	3-4-5 N = 9 PPV= 0.8		
				SS-3		3-3-4 N = 7 PPV= 2.0		316
5				SS-4		5-6-8 N = 14 PPV= 2.2		
				SS-5		2-3-5 N = 8 PPV= 2.0		311
10								
11.5		Marine Soils			LEAN CLAY WITH SAND (CL), very stiff, red orange, moist			
				SS-6		6-7-9 N = 16 PPV= 1.0		306
15								
16.0					SILTY SAND (SM), few clay, medium dense, orange, very moist			
				SS-7		9-11-10 N = 21		301
HC 20.0					POORLY GRADED SAND (SP), orange, moist			
20								

GROUNDWATER		DATE/TIME	DEPTH (FT)	REMARKS
ATD	▽	02/02/2022	30.0	
END OF DRILLING	▼	02/02/2022		hole cave 20.0 ft (1 hr)
AFTER DRILLING	▼			
AFTER DRILLING	▼			

GROUNDWATER DEPTHS ARE NOT EXACT AND MAY VARY SUBSTANTIALLY FROM THOSE INDICATED. ATD = AT TIME OF DRILLING
LL=Liquid Limit, PL = Plastic Limit, NMC = Natural Moisture Content, PPV = Pocket Penetrometer (tsf), PTV = Pocket Torvane (tsf), HC = Hole Cave, AR = Auger Refusal

PROJECT:	Ford Blue Oval City - TVA Substation SR 222, Stanton, Tennessee S&ME Project No. 218019	BORING LOG: B-04 *Sheet 2 of 2*
DATE DRILLED: 02/02/2022	**ELEVATION:** 321 ft	**NOTES:**
DRILL RIG: Diedrich D-50 (track)	**DATUM:** NAVD88	
DRILLER: S&ME	**BORING DEPTH:** 35.0 ft	
HAMMER TYPE: Automatic hammer	**CLOSURE:** Cuttings	
DRILLING METHOD: HSA	**LOGGED BY:** Talecia Dyson	**LATITUDE:** 35.418925 **LONGITUDE:** -89.40419
SAMPLING METHOD: SS	**PROJECT COORDINATE SYSTEM -** NAD 1983 StatePlane Tennessee FIPS 4100 Feet	

DEPTH (feet)	NOTES	Origin/Identifier	GRAPHIC	SAMPLE NO. (RECOVERY)	MATERIAL DESCRIPTION	BLOW COUNT DATA (SPT N-value)	STANDARD PENETRATION TEST DATA △ % Fines ○ NMC ⊢ PL---LL 20 40 60 80	ELEVATION
25				SS-8	POORLY GRADED SAND (SP), orange, moist	9-11-14 N = 25		296
28.0		Marine Soils						
30				SS-9	POORLY GRADED SAND (SP), orange, wet	9-13-18 N = 31		291
32.0					POORLY GRADED SAND (SP), medium dense to dense, orange and gray, very moist to wet			
35	Flowing sands at 35.0 feet			SS-10		6-8-14 N = 22		286
35.0					Borehole terminated at 35.0 feet			
40								281

GROUNDWATER		DATE/TIME	DEPTH (FT)	REMARKS
ATD	▽	02/02/2022	30.0	
END OF DRILLING	▼	02/02/2022		hole cave 20.0 ft (1 hr)
AFTER DRILLING	▼			
AFTER DRILLING	▼			

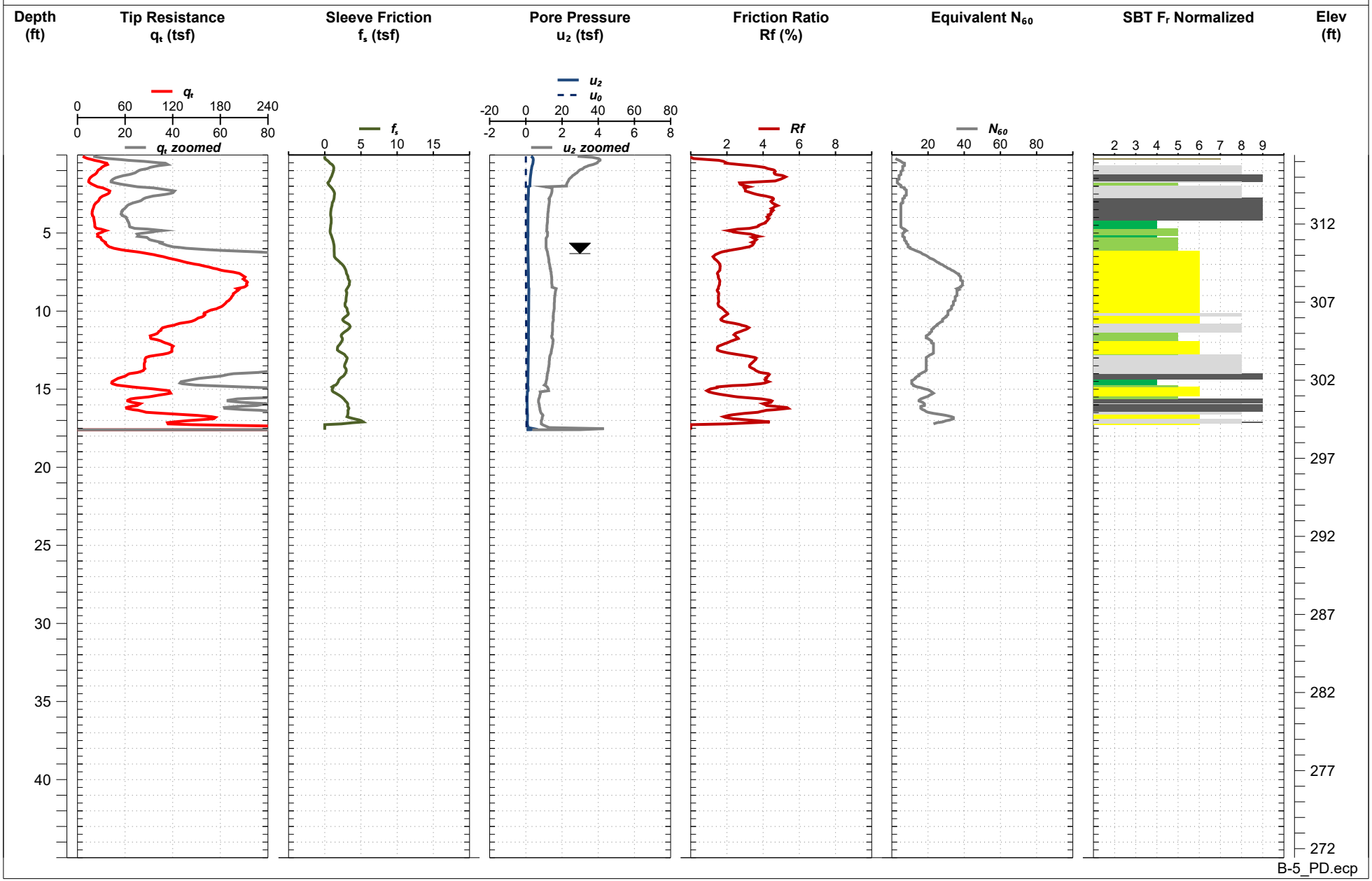
GROUNDWATER DEPTHS ARE NOT EXACT AND MAY VARY SUBSTANTIALLY FROM THOSE INDICATED. ATD = AT TIME OF DRILLING
LL=Liquid Limit, PL = Plastic Limit, NMC = Natural Moisture Content, PPV = Pocket Penetrometer (tsf), PTV = Pocket Torvane (tsf), HC = Hole Cave, AR = Auger Refusal

Ford Blue Oval City - TVA Substation
SR 222, Stanton, Tennessee
S&ME Project No. 218019

Cone Penetration Test

B-05

Date:	26-Jan-2022	**Latitude:**	35.418913	**Total Depth:**	17.6 ft
Estimated Water Depth:	6.0 ft	**Longitude:**	-89.40345	**Termination Criteria:**	Maximum Reaction Force
Rig/Operator:	Gyrotrack	**Elevation:**	316.42	**Cone Size:**	1.75



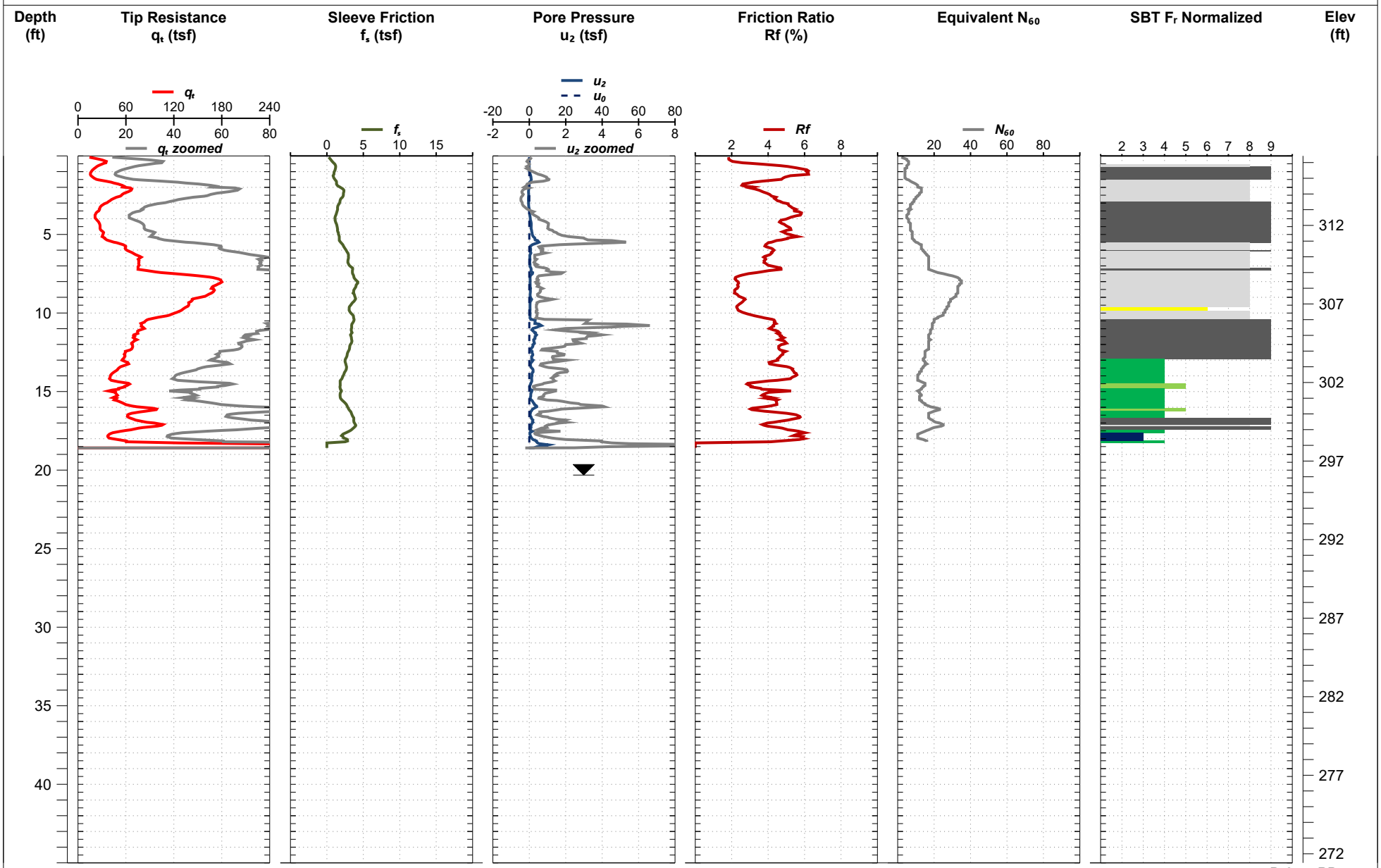
B-5_PD.ecp

Ford Blue Oval City - TVA Substation
SR 222, Stanton, Tennessee
S&ME Project No. 218019

Cone Penetration Test

B-05A

Date:	28-Jan-2022	**Latitude:**		**Total Depth:**	18.6 ft
Estimated Water Depth:	20.0 ft	**Longitude:**		**Termination Criteria:**	
Rig/Operator:		**Elevation:**	316.42	**Cone Size:**	1.75



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PROJECT:	Ford Blue Oval City - TVA Substation SR 222, Stanton, Tennessee S&ME Project No. 218019	BORING LOG: B-06 *Sheet 1 of 2*
DATE DRILLED: 02/06/2022	**ELEVATION:** 314 ft	**NOTES:**
DRILL RIG: Diedrich D-50 (track)	**DATUM:** NAVD88	
DRILLER: S&ME	**BORING DEPTH:** 40.0 ft	
HAMMER TYPE: Automatic hammer	**CLOSURE:** Cuttings	
DRILLING METHOD: Mud rotary	**LOGGED BY:** Talecia Dyson	**LATITUDE:** 35.418903 **LONGITUDE:** -89.40285
SAMPLING METHOD: SS	**PROJECT COORDINATE SYSTEM -** NAD 1983 StatePlane Tennessee FIPS 4100 Feet	

DEPTH (feet)	NOTES	Origin/Identifier	GRAPHIC	SAMPLE NO. (RECOVERY)	MATERIAL DESCRIPTION	BLOW COUNT DATA (SPT N-value)	STANDARD PENETRATION TEST DATA (△ % Fines, ○ NMC, ⊢ PL---LL; 20 40 60 80)	ELEVATION
0		Cultivated Zone		SS-1	LEAN CLAY (CL), some silt, firm, brown, very moist	3-3-5 N = 8		
	1.5				LEAN CLAY (CL), some silt, some sand, brown and gray, moist	5-3-3 N = 6		
		Loess		SS-2	LEAN CLAY (CL), some silt, some sand, firm to stiff, brown and gray, moist to very moist	PPV= 1.2		
				SS-3		6-5-5 N = 10		
5								309
	6.0							
				SS-4	LEAN CLAY (CL), some silt, trace sand, soft to firm, brown to gray, very moist	3-2-4 N = 6 PPV= 1.0		
				SS-5		1-1-2 N = 3		
10								304
				SS-6		2-1-3 N = 4 PPV= 0.8		
15	15.0							299
	16.0				SILTY SAND (SM), medium dense, tan to orange brown, very moist			
		Marine Soils			POORLY GRADED SAND (SP), orange, moist			
				SS-7		7-9-9 N = 18		
20								294
	22.0							

GROUNDWATER		DATE/TIME	DEPTH (FT)	REMARKS
ATD	▽	02/06/2022		not encountered
END OF DRILLING	▼	02/06/2022		not encountered (1 hr)
AFTER DRILLING	▼			
AFTER DRILLING	▼			

GROUNDWATER DEPTHS ARE NOT EXACT AND MAY VARY SUBSTANTIALLY FROM THOSE INDICATED. ATD = AT TIME OF DRILLING
LL=Liquid Limit, PL = Plastic Limit, NMC = Natural Moisture Content, PPV = Pocket Penetrometer (tsf), PTV = Pocket Torvane (tsf), HC = Hole Cave, AR = Auger Refusal

PROJECT:	Ford Blue Oval City - TVA Substation SR 222, Stanton, Tennessee S&ME Project No. 218019	BORING LOG: B-06 *Sheet 2 of 2*
DATE DRILLED: 02/06/2022	**ELEVATION:** 314 ft	**NOTES:**
DRILL RIG: Diedrich D-50 (track)	**DATUM:** NAVD88	
DRILLER: S&ME	**BORING DEPTH:** 40.0 ft	
HAMMER TYPE: Automatic hammer	**CLOSURE:** Cuttings	
DRILLING METHOD: Mud rotary	**LOGGED BY:** Talecia Dyson	**LATITUDE:** 35.418903 **LONGITUDE:** -89.40285
SAMPLING METHOD: SS	**PROJECT COORDINATE SYSTEM -** NAD 1983 StatePlane Tennessee FIPS 4100 Feet	

DEPTH (feet)	NOTES	Origin/Identifier	GRAPHIC	SAMPLE NO. (RECOVERY)	MATERIAL DESCRIPTION	BLOW COUNT DATA (SPT N-value)	STANDARD PENETRATION TEST DATA (△ % Fines, ○ NMC, ⊢ PL---LL; 20 40 60 80)	ELEVATION
25		Marine Soils		SS-8	POORLY GRADED SAND (SP), orange, moist POORLY GRADED SAND WITH SILT (SP-SM), medium dense to very dense, orange, very moist to wet	12-17-18 N = 35		289
30				SS-9		14-20-32 N = 52		284
35				SS-10		13-48-50/-3" N = 50/-3"		279
40				SS-11		18-28-43 N = 71		274
40.0					Borehole terminated at 40.0 feet			
40.0								

GROUNDWATER		DATE/TIME	DEPTH (FT)	REMARKS
ATD	▽	02/06/2022		not encountered
END OF DRILLING	▼	02/06/2022		not encountered (1 hr)
AFTER DRILLING	▼			
AFTER DRILLING	▼			

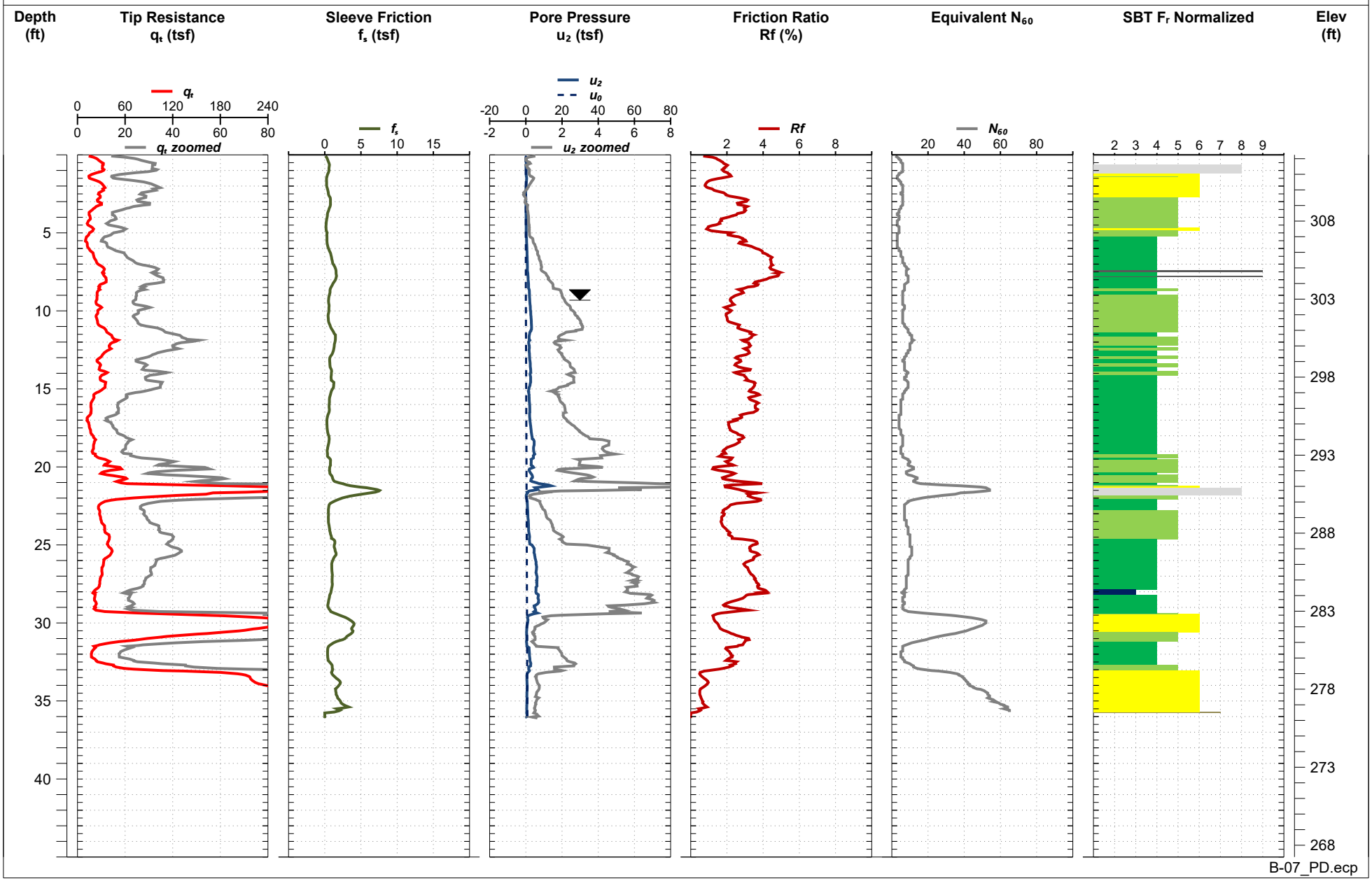
GROUNDWATER DEPTHS ARE NOT EXACT AND MAY VARY SUBSTANTIALLY FROM THOSE INDICATED. ATD = AT TIME OF DRILLING
LL=Liquid Limit, PL = Plastic Limit, NMC = Natural Moisture Content, PPV = Pocket Penetrometer (tsf), PTV = Pocket Torvane (tsf), HC = Hole Cave, AR = Auger Refusal

Ford Blue Oval City - TVA Substation
SR 222, Stanton, Tennessee
S&ME Project No. 218019

Cone Penetration Test

B-07

Date:	28-Jan-2022	**Latitude:**	35.418892	**Total Depth:**	36.1 ft
Estimated Water Depth:	9.0 ft	**Longitude:**	-89.40217	**Termination Criteria:**	
Rig/Operator:		**Elevation:**	312.25	**Cone Size:**	1.75



PROJECT:	Ford Blue Oval City - TVA Substation SR 222, Stanton, Tennessee S&ME Project No. 218019	BORING LOG: B-08 *Sheet 1 of 2*
DATE DRILLED: 02/07/2022	**ELEVATION:** 310 ft	**NOTES:**
DRILL RIG: Diedrich D-50 (track)	**DATUM:** NAVD88	
DRILLER: S&ME	**BORING DEPTH:** 40.0 ft	
HAMMER TYPE: Automatic hammer	**CLOSURE:** Cuttings	
DRILLING METHOD: Mud rotary	**LOGGED BY:** Eric Conway	**LATITUDE:** 35.418881 **LONGITUDE:** -89.40150
SAMPLING METHOD: SS	**PROJECT COORDINATE SYSTEM -** NAD 1983 StatePlane Tennessee FIPS 4100 Feet	

DEPTH (feet)	NOTES	Origin/Identifier	GRAPHIC	SAMPLE NO. (RECOVERY)	MATERIAL DESCRIPTION	BLOW COUNT DATA (SPT N-value)	STANDARD PENETRATION TEST DATA △ % Fines ○ NMC ⊢ PL---LL 20 40 60 80	ELEVATION
0		Cultivated Zone		SS-1	LEAN CLAY (CL), firm, brown, very moist	2-3-3 N = 6		
	1.3	Loess		SS-2	LEAN CLAY (CL), some silt, soft to firm, brown gray, moist	3-4-3 N = 7		
				SS-3		1-2-1 N = 3		306
5				SS-4		2-2-6 N = 8		
	9.0			SS-5		1-4-5 N = 9		301
10		Marine Soils			LEAN CLAY (CL), trace sand, firm to stiff, orange and brown, moist			
				SS-6		2-2-4 N = 6		296
15	17.0				SANDY SILT (ML), firm to stiff, brown and gray, very moist			
				SS-7		2-2-3 N = 5		291
20								

GROUNDWATER		DATE/TIME	DEPTH (FT)	REMARKS
ATD	▽			
END OF DRILLING	▼			
AFTER DRILLING	▼			
AFTER DRILLING	▼			

GROUNDWATER DEPTHS ARE NOT EXACT AND MAY VARY SUBSTANTIALLY FROM THOSE INDICATED. ATD = AT TIME OF DRILLING
LL=Liquid Limit, PL = Plastic Limit, NMC = Natural Moisture Content, PPV = Pocket Penetrometer (tsf), PTV = Pocket Torvane (tsf), HC = Hole Cave, AR = Auger Refusal

PROJECT:	Ford Blue Oval City - TVA Substation SR 222, Stanton, Tennessee S&ME Project No. 218019	BORING LOG: B-08 *Sheet 2 of 2*
DATE DRILLED: 02/07/2022	**ELEVATION:** 310 ft	**NOTES:**
DRILL RIG: Diedrich D-50 (track)	**DATUM:** NAVD88	
DRILLER: S&ME	**BORING DEPTH:** 40.0 ft	
HAMMER TYPE: Automatic hammer	**CLOSURE:** Cuttings	
DRILLING METHOD: Mud rotary	**LOGGED BY:** Eric Conway	**LATITUDE:** 35.418881 **LONGITUDE:** -89.40150
SAMPLING METHOD: SS	**PROJECT COORDINATE SYSTEM -** NAD 1983 StatePlane Tennessee FIPS 4100 Feet	

DEPTH (feet)	NOTES	Origin/Identifier	GRAPHIC	SAMPLE NO. (RECOVERY)	MATERIAL DESCRIPTION	BLOW COUNT DATA (SPT N-value)	STANDARD PENETRATION TEST DATA △ % Fines ○ NMC ⊢ PL---LL 20 40 60 80	ELEVATION
					SANDY SILT (ML), firm to stiff, brown and gray, very moist	5-7-11 N = 18		286
25				SS-8				
	26.0				SILTY SAND (SM), loose, gray and yellow brown, very moist			
		Marine Soils		SS-9		5-4-6 N = 10		281
30								
	32.0				POORLY GRADED SAND (SP), medium dense to dense, yellow brown and gray, medium grained, wet	11-17-22 N = 39		276
35				SS-10				
	37.0				POORLY GRADED SAND (SP), trace silt, white, very moist			
				SS-11		10-5-8 N = 13		271
40	40.0				Borehole terminated at 40.0 feet			

GROUNDWATER		DATE/TIME	DEPTH (FT)	REMARKS
ATD	▽			
END OF DRILLING	▼			
AFTER DRILLING	▼			
AFTER DRILLING	▼			

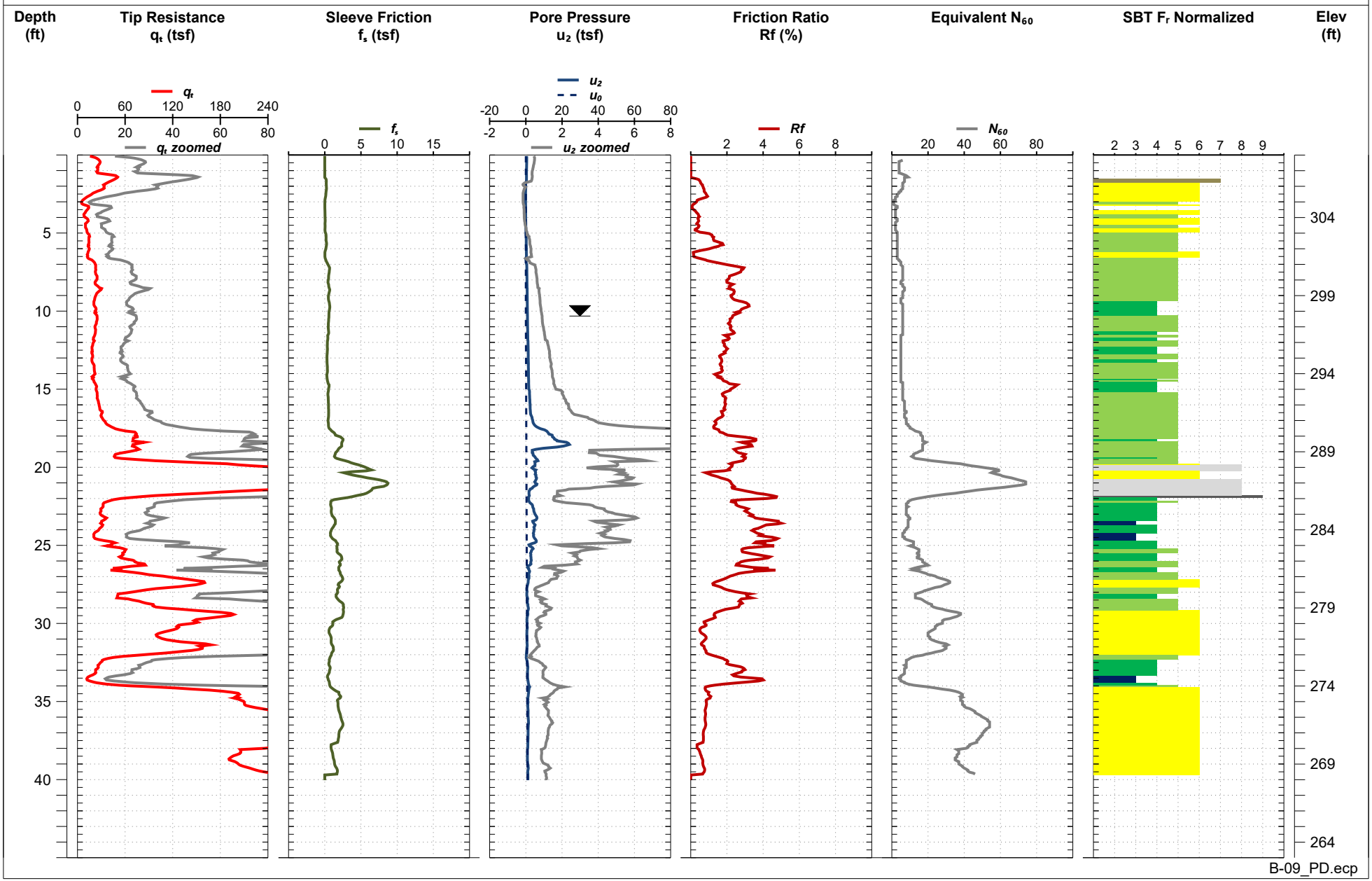
GROUNDWATER DEPTHS ARE NOT EXACT AND MAY VARY SUBSTANTIALLY FROM THOSE INDICATED. ATD = AT TIME OF DRILLING
LL=Liquid Limit, PL = Plastic Limit, NMC = Natural Moisture Content, PPV = Pocket Penetrometer (tsf), PTV = Pocket Torvane (tsf), HC = Hole Cave, AR = Auger Refusal

Ford Blue Oval City - TVA Substation
SR 222, Stanton, Tennessee
S&ME Project No. 218019

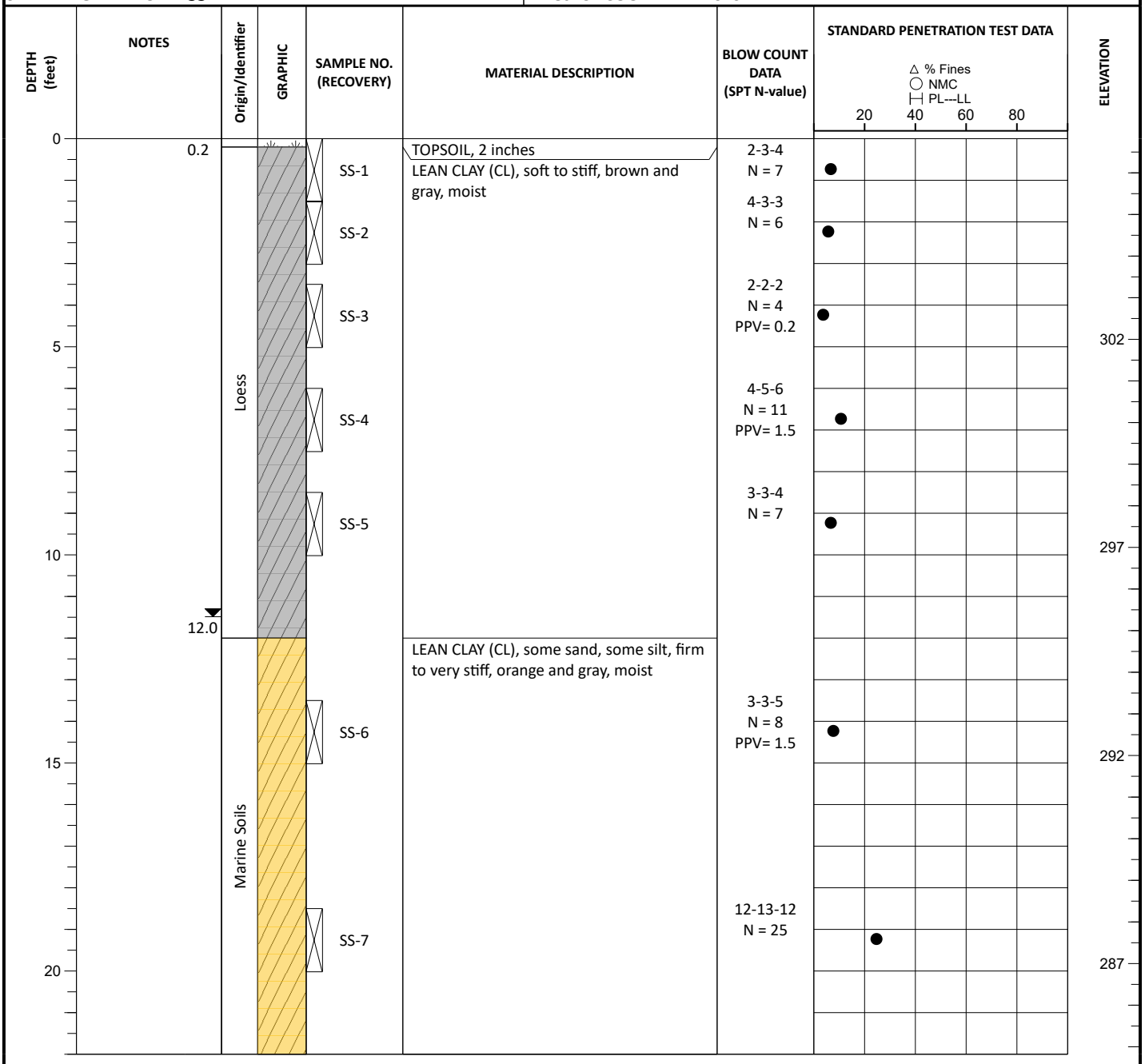
Cone Penetration Test

B-09

Date:	28-Jan-2022	**Latitude:**	35.418870	**Total Depth:**	40.0 ft
Estimated Water Depth:	10.0 ft	**Longitude:**	-89.40083	**Termination Criteria:**	
Rig/Operator:		**Elevation:**	308.01	**Cone Size:**	1.75



PROJECT:	Ford Blue Oval City - TVA Substation SR 222, Stanton, Tennessee S&ME Project No. 218019	BORING LOG: B-10 *Sheet 1 of 2*
DATE DRILLED: 02/19/2022	**ELEVATION:** 307 ft	**NOTES:**
DRILL RIG: Diedrich D-50 (track)	**DATUM:** NAVD88	
DRILLER: S&ME	**BORING DEPTH:** 40.0 ft	
HAMMER TYPE: Automatic hammer	**CLOSURE:** Cuttings	
DRILLING METHOD: Mud rotary	**LOGGED BY:** Talecia Dyson	**LATITUDE:** 35.418858 **LONGITUDE:** -89.40016
SAMPLING METHOD: SS	**PROJECT COORDINATE SYSTEM -** NAD 1983 StatePlane Tennessee FIPS 4100 Feet	



GROUNDWATER		DATE/TIME	DEPTH (FT)	REMARKS
ATD	▽			
END OF DRILLING	▼			
AFTER DRILLING	▼	02/20/2022	11.4	24 hour reading
AFTER DRILLING	▼			

GROUNDWATER DEPTHS ARE NOT EXACT AND MAY VARY SUBSTANTIALLY FROM THOSE INDICATED. ATD = AT TIME OF DRILLING
LL=Liquid Limit, PL = Plastic Limit, NMC = Natural Moisture Content, PPV = Pocket Penetrometer (tsf), PTV = Pocket Torvane (tsf), HC = Hole Cave, AR = Auger Refusal

PROJECT:	Ford Blue Oval City - TVA Substation SR 222, Stanton, Tennessee S&ME Project No. 218019	BORING LOG: B-10 *Sheet 2 of 2*
DATE DRILLED: 02/19/2022	**ELEVATION:** 307 ft	**NOTES:**
DRILL RIG: Diedrich D-50 (track)	**DATUM:** NAVD88	
DRILLER: S&ME	**BORING DEPTH:** 40.0 ft	
HAMMER TYPE: Automatic hammer	**CLOSURE:** Cuttings	
DRILLING METHOD: Mud rotary	**LOGGED BY:** Talecia Dyson	**LATITUDE:** 35.418858 **LONGITUDE:** -89.40016
SAMPLING METHOD: SS	**PROJECT COORDINATE SYSTEM -** NAD 1983 StatePlane Tennessee FIPS 4100 Feet	

DEPTH (feet)	NOTES	Origin/Identifier	GRAPHIC	SAMPLE NO. (RECOVERY)	MATERIAL DESCRIPTION	BLOW COUNT DATA (SPT N-value)	STANDARD PENETRATION TEST DATA (△ % Fines, ○ NMC, ⊢ PL---LL; 20 40 60 80)	ELEVATION
25		Marine Soils		SS-8	LEAN CLAY (CL), some sand, some silt, firm to very stiff, orange and gray, moist	6-5-6 N = 11 PPV= 1.8	●	282
	26.0				POORLY GRADED SAND (SP), some silt, medium dense, gray and orange, moist to very moist			
30				SS-9		10-11-13 N = 24	●	277
35				SS-10		14-9-13 N = 22	●	272
40	40.0			SS-11	Borehole terminated at 40.0 feet	14-10-9 N = 19	●	267

GROUNDWATER		DATE/TIME	DEPTH (FT)	REMARKS
ATD	▽			
END OF DRILLING	▼			
AFTER DRILLING	▼	02/20/2022	11.4	24 hour reading
AFTER DRILLING	▼			

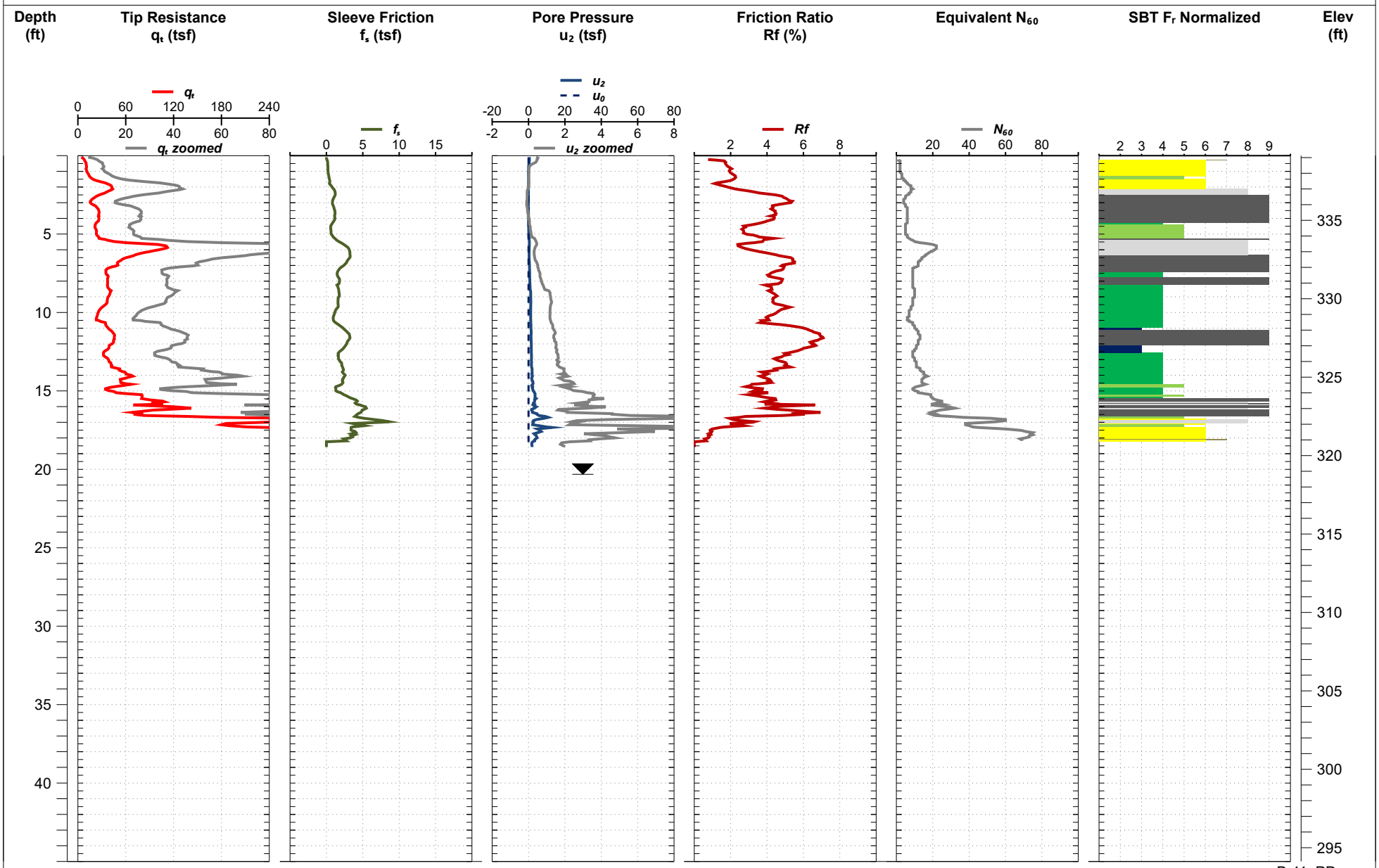
GROUNDWATER DEPTHS ARE NOT EXACT AND MAY VARY SUBSTANTIALLY FROM THOSE INDICATED. ATD = AT TIME OF DRILLING
LL=Liquid Limit, PL = Plastic Limit, NMC = Natural Moisture Content, PPV = Pocket Penetrometer (tsf), PTV = Pocket Torvane (tsf), HC = Hole Cave, AR = Auger Refusal

Ford Blue Oval City - TVA Substation
SR 222, Stanton, Tennessee
S&ME Project No. 218019

Cone Penetration Test

B-11

Date:	25-Jan-2022	**Latitude:**	35.418615	**Total Depth:**	18.6 ft
Estimated Water Depth:	20.0 ft	**Longitude:**	-89.40621	**Termination Criteria:**	Maximum Reaction Force
Rig/Operator:	Gyrotrack	**Elevation:**	339.12	**Cone Size:**	1.75



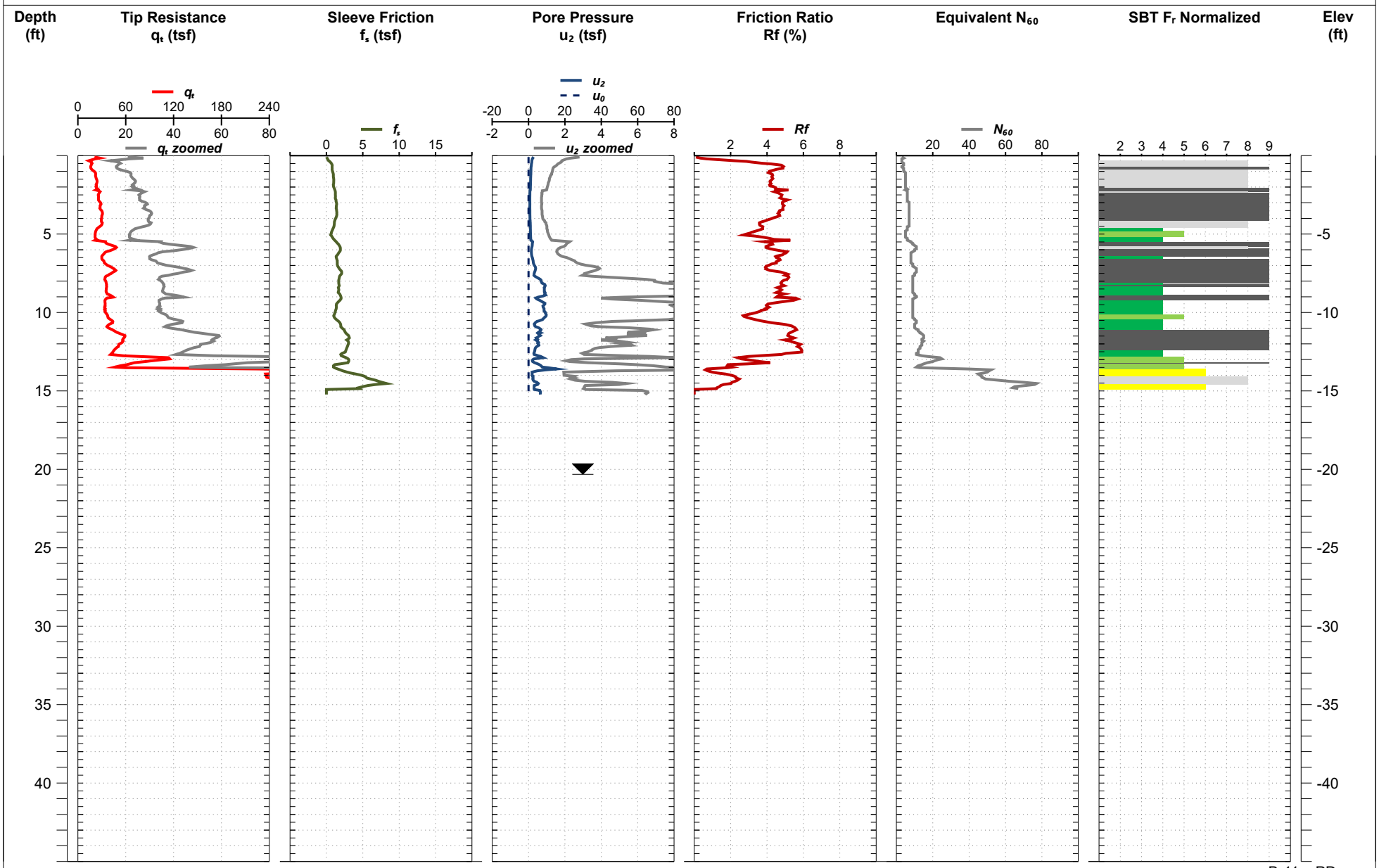
B-11_PD.ecp

Ford Blue Oval City - TVA Substation
SR 222, Stanton, Tennessee
S&ME Project No. 218019

Cone Penetration Test

B-11A

Date:	26-Jan-2022	**Latitude:**		**Total Depth:**	15.2 ft
Estimated Water Depth:	20.0 ft	**Longitude:**		**Termination Criteria:**	Maximum Reaction Force
Rig/Operator:	Gyrotrack	**Elevation:**		**Cone Size:**	1.75



B-11a_PD.ecp

PROJECT:	Ford Blue Oval City - TVA Substation SR 222, Stanton, Tennessee S&ME Project No. 218019	BORING LOG: B-12 *Sheet 1 of 2*
DATE DRILLED: 01/27/2022	**ELEVATION:** 334 ft	**NOTES:**
DRILL RIG: Diedrich D-50 (track)	**DATUM:** NAVD88	
DRILLER: S&ME	**BORING DEPTH:** 40.0 ft	
HAMMER TYPE: Automatic hammer	**CLOSURE:** Cuttings	
DRILLING METHOD: HSA	**LOGGED BY:** Alf Futrell	**LATITUDE:** 35.418603 **LONGITUDE:** -89.40549
SAMPLING METHOD: SS	**PROJECT COORDINATE SYSTEM -** NAD 1983 StatePlane Tennessee FIPS 4100 Feet	

DEPTH (feet)	NOTES	Origin/Identifier	GRAPHIC	SAMPLE NO. (RECOVERY)	MATERIAL DESCRIPTION	BLOW COUNT DATA (SPT N-value)	STANDARD PENETRATION TEST DATA △ % Fines ○ NMC ⊢ PL---LL 20 40 60 80	ELEVATION
0								
		Cultivated Zone		SS-1	LEAN CLAY (CL), some roots, soft, brown, moist to very moist	2-2-2 N = 4 PPV= 1.5		
1.5								
		Loess		SS-2	LEAN CLAY (CL), with silt, firm to stiff, brown, moist to very moist	3-4-5 N = 9 PPV= 1.2		
				SS-3		2-3-4 N = 7 PPV= 1.0		
5								329
				SS-4		5-5-7 N = 12 PPV= 1.5		
8.0								
		Marine Soils		SS-5	LEAN CLAY (CL), trace sand, stiff, orange brown, slightly moist	3-4-7 N = 11 PPV= 2.5		
10								324
12.0								
				SS-6	LEAN CLAY (CL), very stiff, orange brown, slightly moist	3-6-10 N = 16 PPV= 1.0		
15								319
17.0								
				SS-7	CLAYEY SAND (SC), medium dense, orange brown, moist	6-9-9 N = 18		
20								314
22.0								

GROUNDWATER		DATE/TIME	DEPTH (FT)	REMARKS
ATD	▽	01/28/2022		not encountered - hole cave at 28.7 feet
END OF DRILLING	▼	01/28/2022		1 hour reading - dry hole cave 28.7 ft
AFTER DRILLING	▼	03/01/2022		24 hour reading - dry hole cave at 28.7 feet
AFTER DRILLING	▼			

GROUNDWATER DEPTHS ARE NOT EXACT AND MAY VARY SUBSTANTIALLY FROM THOSE INDICATED. ATD = AT TIME OF DRILLING
LL=Liquid Limit, PL = Plastic Limit, NMC = Natural Moisture Content, PPV = Pocket Penetrometer (tsf), PTV = Pocket Torvane (tsf), HC = Hole Cave, AR = Auger Refusal

PROJECT:	Ford Blue Oval City - TVA Substation SR 222, Stanton, Tennessee S&ME Project No. 218019	BORING LOG: B-12 *Sheet 2 of 2*
DATE DRILLED: 01/27/2022	**ELEVATION:** 334 ft	**NOTES:**
DRILL RIG: Diedrich D-50 (track)	**DATUM:** NAVD88	
DRILLER: S&ME	**BORING DEPTH:** 40.0 ft	
HAMMER TYPE: Automatic hammer	**CLOSURE:** Cuttings	
DRILLING METHOD: HSA	**LOGGED BY:** Alf Futrell	**LATITUDE:** 35.418603 **LONGITUDE:** -89.40549
SAMPLING METHOD: SS	**PROJECT COORDINATE SYSTEM -** NAD 1983 StatePlane Tennessee FIPS 4100 Feet	

DEPTH (feet)	NOTES	Origin/Identifier	GRAPHIC	SAMPLE NO. (RECOVERY)	MATERIAL DESCRIPTION	BLOW COUNT DATA (SPT N-value)	STANDARD PENETRATION TEST DATA △ % Fines ○ NMC ⊢ PL---LL 20 40 60 80	ELEVATION
25		Marine Soils		SS-8	POORLY GRADED SAND (SP), medium dense, light orange tan, slightly moist	7-9-12 N = 21		309
	27.0				POORLY GRADED SAND (SP), medium dense to dense, light tan, moist			
30	HC			SS-9		7-14-16 N = 30		304
35				SS-10		6-10-14 N = 24		299
40	40.0			SS-11	Borehole terminated at 40.0 feet	10-18-28 N = 46		294

GROUNDWATER		DATE/TIME	DEPTH (FT)	REMARKS
ATD	▽	01/28/2022		not encountered - hole cave at 28.7 feet
END OF DRILLING	▼	01/28/2022		1 hour reading - dry hole cave 28.7 ft
AFTER DRILLING	▼	03/01/2022		24 hour reading - dry hole cave at 28.7 feet
AFTER DRILLING	▼			

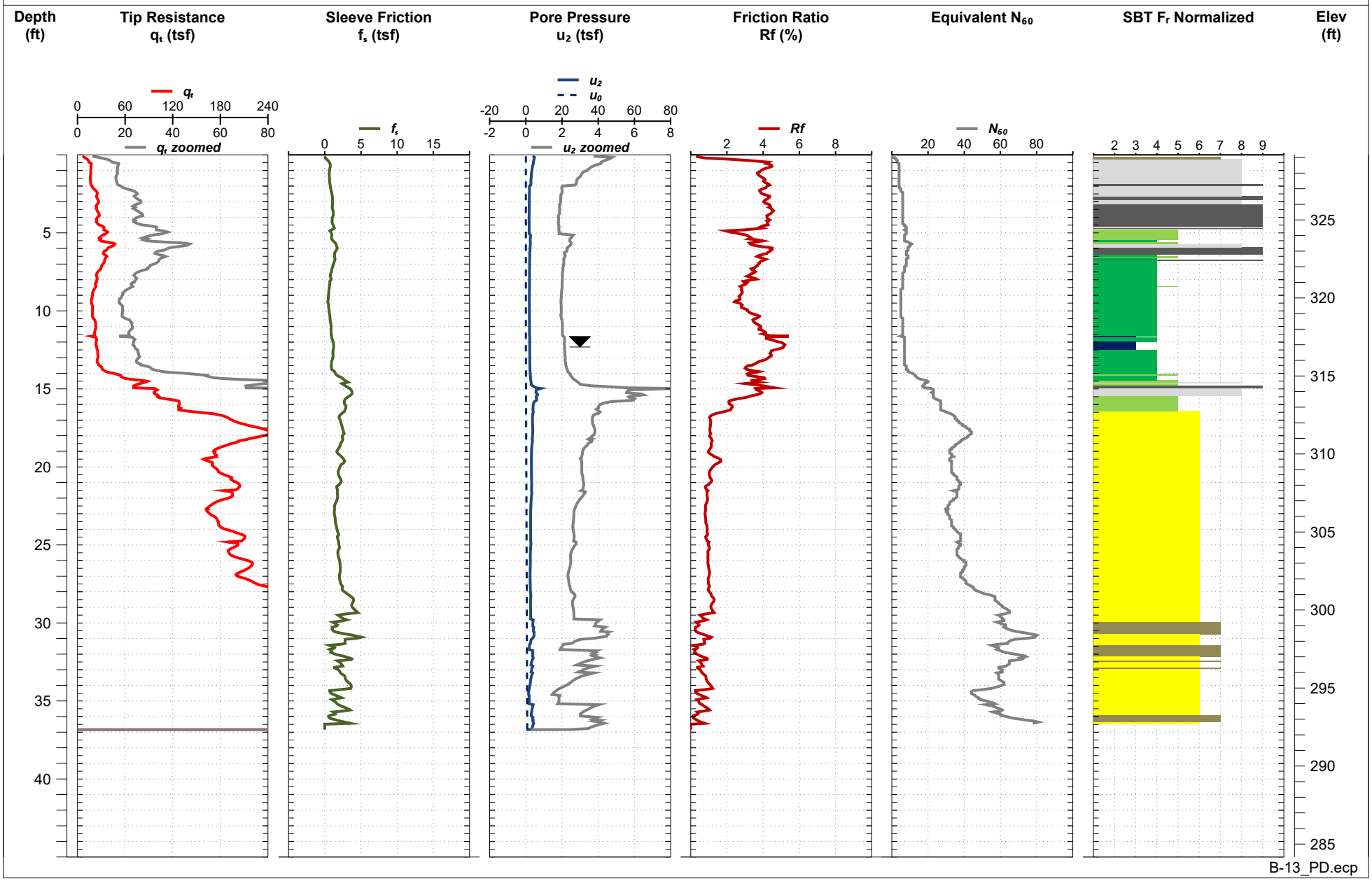
GROUNDWATER DEPTHS ARE NOT EXACT AND MAY VARY SUBSTANTIALLY FROM THOSE INDICATED. ATD = AT TIME OF DRILLING
LL=Liquid Limit, PL = Plastic Limit, NMC = Natural Moisture Content, PPV = Pocket Penetrometer (tsf), PTV = Pocket Torvane (tsf), HC = Hole Cave, AR = Auger Refusal

Ford Blue Oval City - TVA Substation
SR 222, Stanton, Tennessee
S&ME Project No. 218019

Cone Penetration Test

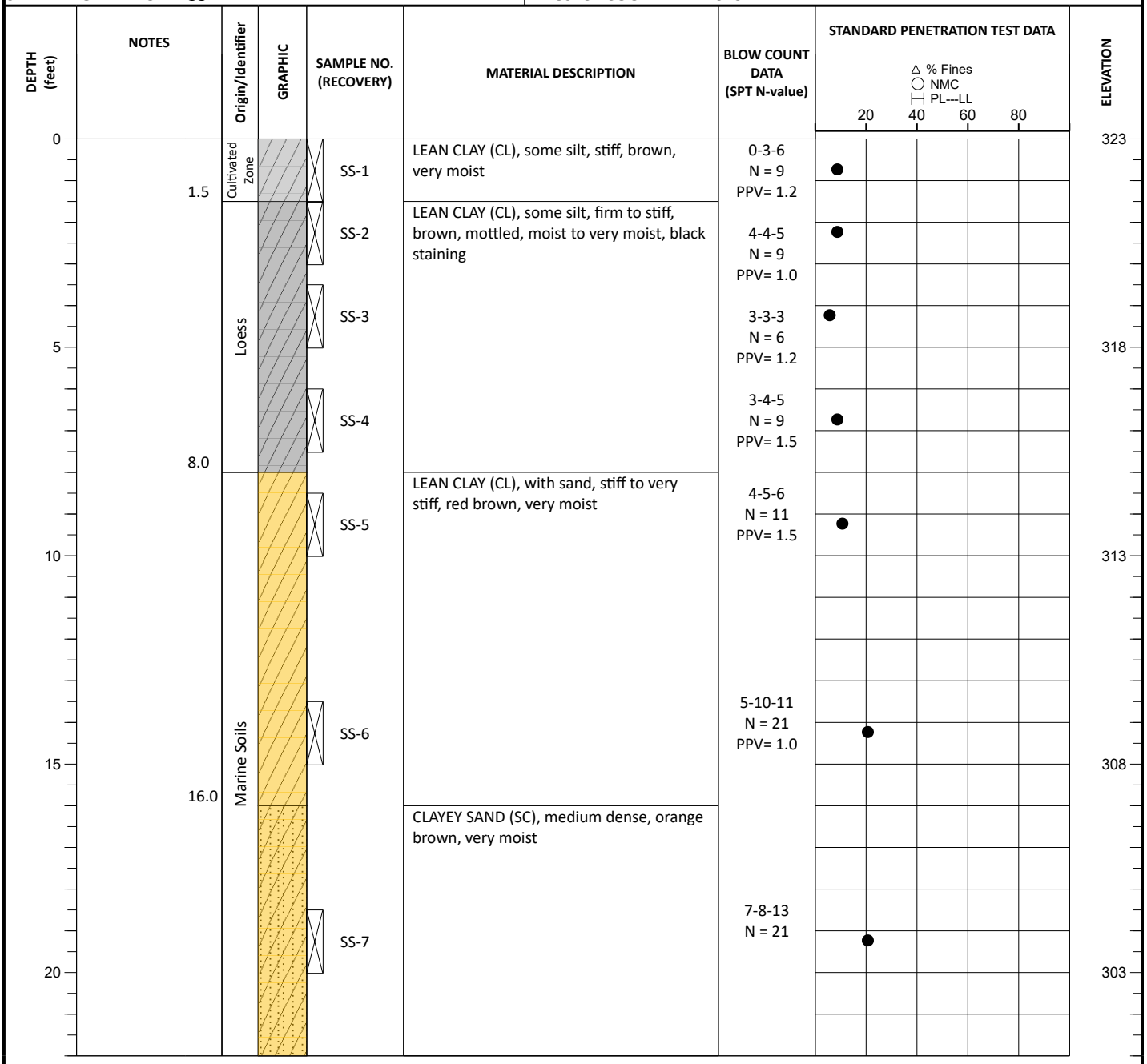
B-13

Date:	26-Jan-2022	**Latitude:**	35.418596	**Total Depth:**	36.8 ft
Estimated Water Depth:	12.0 ft	**Longitude:**	-89.40504	**Termination Criteria:**	Maximum Reaction Force
Rig/Operator:	Gyrotrack	**Elevation:**	329.17	**Cone Size:**	1.75



B-13_PD.ecp

PROJECT:	Ford Blue Oval City - TVA Substation SR 222, Stanton, Tennessee S&ME Project No. 218019	BORING LOG: B-14 *Sheet 1 of 2*
DATE DRILLED: 02/02/2022	**ELEVATION:** 323 ft	**NOTES:**
DRILL RIG: Diedrich D-50 (track)	**DATUM:** NAVD88	
DRILLER: S&ME	**BORING DEPTH:** 40.0 ft	
HAMMER TYPE: Automatic hammer	**CLOSURE:** Cuttings	
DRILLING METHOD: Mud rotary	**LOGGED BY:** Talecia Dyson	**LATITUDE:** 35.418582 **LONGITUDE:** -89.40420
SAMPLING METHOD: SS	**PROJECT COORDINATE SYSTEM -** NAD 1983 StatePlane Tennessee FIPS 4100 Feet	



GROUNDWATER		DATE/TIME	DEPTH (FT)	REMARKS
ATD	▽	02/02/2022		not encountered
END OF DRILLING	▼	02/02/2022		1 hour reading - not encountered
AFTER DRILLING	▼	02/20/2022		432 hour reading - wet cave at 22.5 feet
AFTER DRILLING	▼			

GROUNDWATER DEPTHS ARE NOT EXACT AND MAY VARY SUBSTANTIALLY FROM THOSE INDICATED. ATD = AT TIME OF DRILLING
LL=Liquid Limit, PL = Plastic Limit, NMC = Natural Moisture Content, PPV = Pocket Penetrometer (tsf), PTV = Pocket Torvane (tsf), HC = Hole Cave, AR = Auger Refusal

PROJECT:	Ford Blue Oval City - TVA Substation SR 222, Stanton, Tennessee S&ME Project No. 218019	BORING LOG: B-14 *Sheet 2 of 2*
DATE DRILLED: 02/02/2022	**ELEVATION:** 323 ft	**NOTES:**
DRILL RIG: Diedrich D-50 (track)	**DATUM:** NAVD88	
DRILLER: S&ME	**BORING DEPTH:** 40.0 ft	
HAMMER TYPE: Automatic hammer	**CLOSURE:** Cuttings	
DRILLING METHOD: Mud rotary	**LOGGED BY:** Talecia Dyson	**LATITUDE:** 35.418582 **LONGITUDE:** -89.40420
SAMPLING METHOD: SS	**PROJECT COORDINATE SYSTEM -** NAD 1983 StatePlane Tennessee FIPS 4100 Feet	

DEPTH (feet)	NOTES	Origin/Identifier	GRAPHIC	SAMPLE NO. (RECOVERY)	MATERIAL DESCRIPTION	BLOW COUNT DATA (SPT N-value)	STANDARD PENETRATION TEST DATA △ % Fines ○ NMC ⊢ PL---LL 20 40 60 80	ELEVATION
0					CLAYEY SAND (SC), medium dense, orange brown, very moist			
23.0					POORLY GRADED SAND (SP), medium dense to very dense, orange, very moist to wet			
25		Marine Soils		SS-8		4-8-12 N = 20		298
30				SS-9		12-18-28 N = 46		293
35				SS-10		10-18-23 N = 41		288
40.0				SS-11		7-30-50/6" N = 50/6"		283
40					Borehole terminated at 40.0 feet			

GROUNDWATER		DATE/TIME	DEPTH (FT)	REMARKS
ATD	▽	02/02/2022		not encountered
END OF DRILLING	▼	02/02/2022		1 hour reading - not encountered
AFTER DRILLING	▼	02/20/2022		432 hour reading - wet cave at 22.5 feet
AFTER DRILLING	▼			

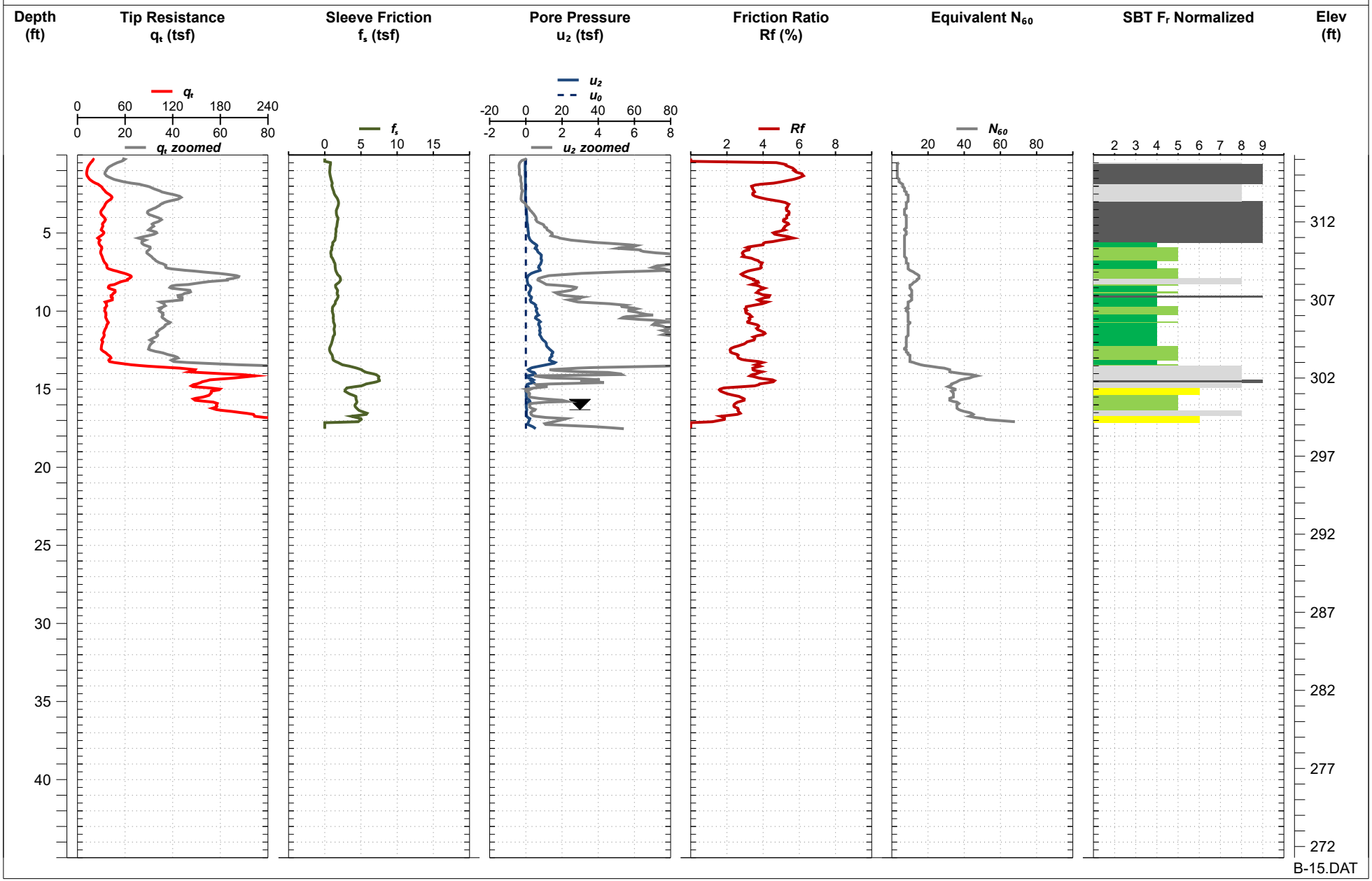
GROUNDWATER DEPTHS ARE NOT EXACT AND MAY VARY SUBSTANTIALLY FROM THOSE INDICATED. ATD = AT TIME OF DRILLING
LL=Liquid Limit, PL = Plastic Limit, NMC = Natural Moisture Content, PPV = Pocket Penetrometer (tsf), PTV = Pocket Torvane (tsf), HC = Hole Cave, AR = Auger Refusal

Ford Blue Oval City - TVA Substation
SR 222, Stanton, Tennessee
S&ME Project No. 218019

Cone Penetration Test

B-15

Date:	27-Jan-2022	**Latitude:**	35.418570	**Total Depth:**	17.5 ft
Estimated Water Depth:	16.0 ft	**Longitude:**	-89.40346	**Termination Criteria:**	Maximum Reaction Force
Rig/Operator:	Gyrotrack/TC | TW	**Elevation:**	316.29	**Cone Size:**	1.75

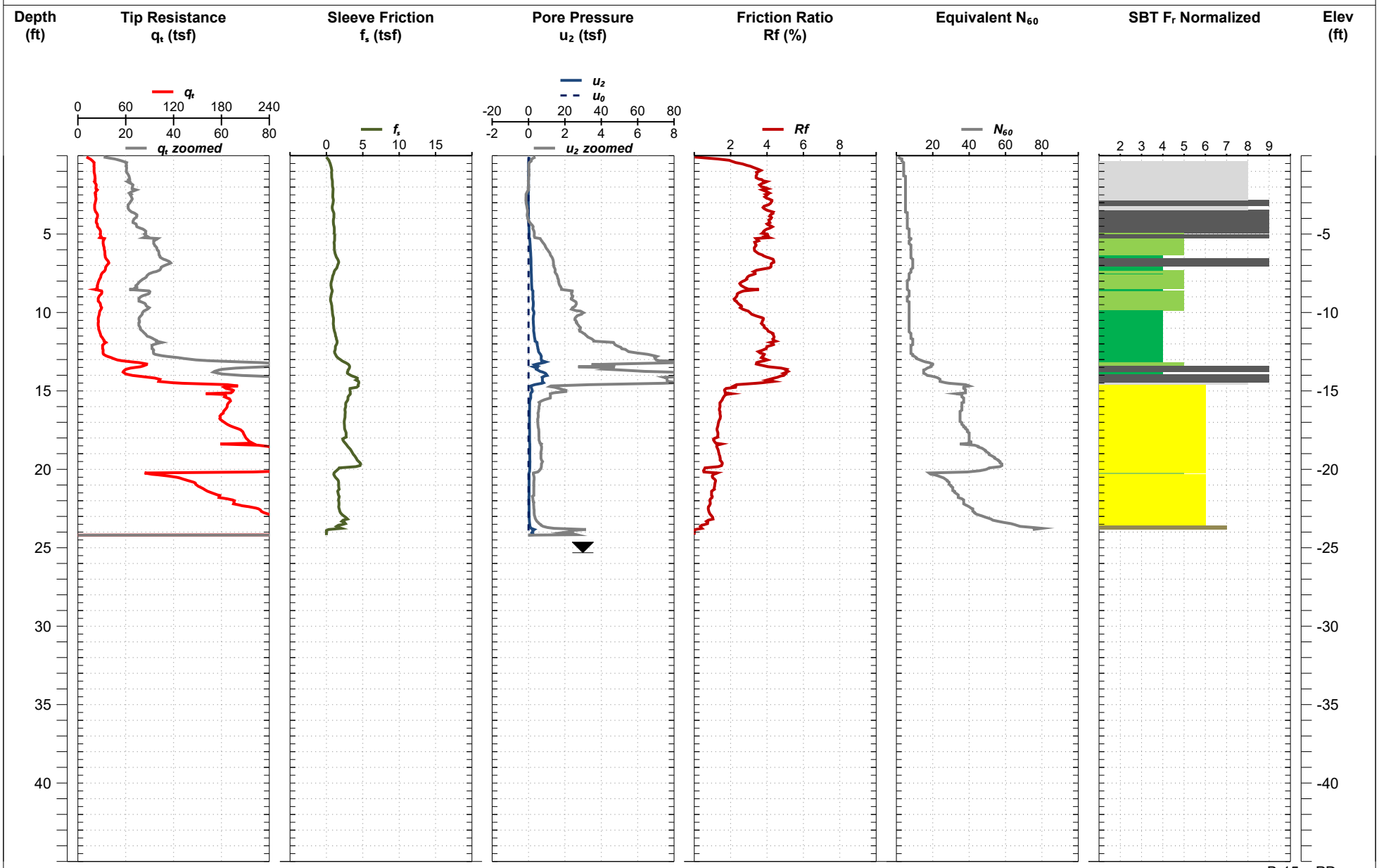


Ford Blue Oval City - TVA Substation
SR 222, Stanton, Tennessee
S&ME Project No. 218019

Cone Penetration Test

B-15A

Date:	28-Jan-2022	**Latitude:**		**Total Depth:**	24.2 ft
Estimated Water Depth:	25.0 ft	**Longitude:**		**Termination Criteria:**	
Rig/Operator:		**Elevation:**		**Cone Size:**	1.75



B-15a_PD.ecp

PROJECT:	Ford Blue Oval City - TVA Substation SR 222, Stanton, Tennessee S&ME Project No. 218019	BORING LOG: B-16 *Sheet 1 of 2*
DATE DRILLED: 02/07/2022	**ELEVATION:** 313 ft	**NOTES:**
DRILL RIG: Diedrich D-50 (track)	**DATUM:** NAVD88	
DRILLER: S&ME	**BORING DEPTH:** 40.0 ft	
HAMMER TYPE: Automatic hammer	**CLOSURE:** Cuttings	
DRILLING METHOD: Mud rotary	**LOGGED BY:** Eric Conway	**LATITUDE:** 35.418560 **LONGITUDE:** -89.40285
SAMPLING METHOD: SS	**PROJECT COORDINATE SYSTEM -** NAD 1983 StatePlane Tennessee FIPS 4100 Feet	

DEPTH (feet)	NOTES	Origin/Identifier	GRAPHIC	SAMPLE NO. (RECOVERY)	MATERIAL DESCRIPTION	BLOW COUNT DATA (SPT N-value)	STANDARD PENETRATION TEST DATA △ % Fines ○ NMC ⊢ PL---LL 20 40 60 80	ELEVATION
0	0.8			SS-1	TOPSOIL, 10 inches	2-4-3 N = 7	●	
	1.5	Loess			SANDY LEAN CLAY (CL), firm, brown, very moist	2-3-3 N = 6	●	
				SS-2	SANDY LEAN CLAY (CL), firm, gray and brown, moist			
				SS-3		4-4-4 N = 8 PPV= 1.8	●	308
5				SS-4		3-2-3 N = 5 PPV= 0.8	●	
				SS-5		2-3-5 N = 8 PPV= 2.0	●	303
10				SS-6		3-3-4 N = 7 PPV= 1.8	●	298
15				SS-7		5-6-8 N = 14 PPV= 3.0	●	293
20								

GROUNDWATER		DATE/TIME	DEPTH (FT)	REMARKS
ATD	▽			
END OF DRILLING	▼			
AFTER DRILLING	▼			
AFTER DRILLING	▼			

GROUNDWATER DEPTHS ARE NOT EXACT AND MAY VARY SUBSTANTIALLY FROM THOSE INDICATED. ATD = AT TIME OF DRILLING
LL=Liquid Limit, PL = Plastic Limit, NMC = Natural Moisture Content, PPV = Pocket Penetrometer (tsf), PTV = Pocket Torvane (tsf), HC = Hole Cave, AR = Auger Refusal

PROJECT:	Ford Blue Oval City - TVA Substation SR 222, Stanton, Tennessee S&ME Project No. 218019	BORING LOG: B-16 *Sheet 2 of 2*
DATE DRILLED: 02/07/2022	**ELEVATION:** 313 ft	**NOTES:**
DRILL RIG: Diedrich D-50 (track)	**DATUM:** NAVD88	
DRILLER: S&ME	**BORING DEPTH:** 40.0 ft	
HAMMER TYPE: Automatic hammer	**CLOSURE:** Cuttings	
DRILLING METHOD: Mud rotary	**LOGGED BY:** Eric Conway	**LATITUDE:** 35.418560 **LONGITUDE:** -89.40285
SAMPLING METHOD: SS	**PROJECT COORDINATE SYSTEM -** NAD 1983 StatePlane Tennessee FIPS 4100 Feet	

DEPTH (feet)	NOTES	Origin/Identifier	GRAPHIC	SAMPLE NO. (RECOVERY)	MATERIAL DESCRIPTION	BLOW COUNT DATA (SPT N-value)	STANDARD PENETRATION TEST DATA (△ % Fines, ○ NMC, ⊢ PL---LL; 20 40 60 80)	ELEVATION
		Loess			SANDY LEAN CLAY (CL), firm, gray and brown, moist			
23.5								
		Marine Soils		SS-8	POORLY GRADED SAND (SP), medium dense to very dense, tan gray to brown, medium to coarse grained, wet	3-4-5 N = 9 PPV= 0.8	●	
25								288
				SS-9		9-10-15 N = 25	●	
30								283
				SS-10		14-25-30 N = 55	●	
35								278
				SS-11		15-7-20 N = 27	●	
40								273
40.0					Borehole terminated at 40.0 feet			

GROUNDWATER		DATE/TIME	DEPTH (FT)	REMARKS
ATD	▽			
END OF DRILLING	▼			
AFTER DRILLING	▼			
AFTER DRILLING	▼			

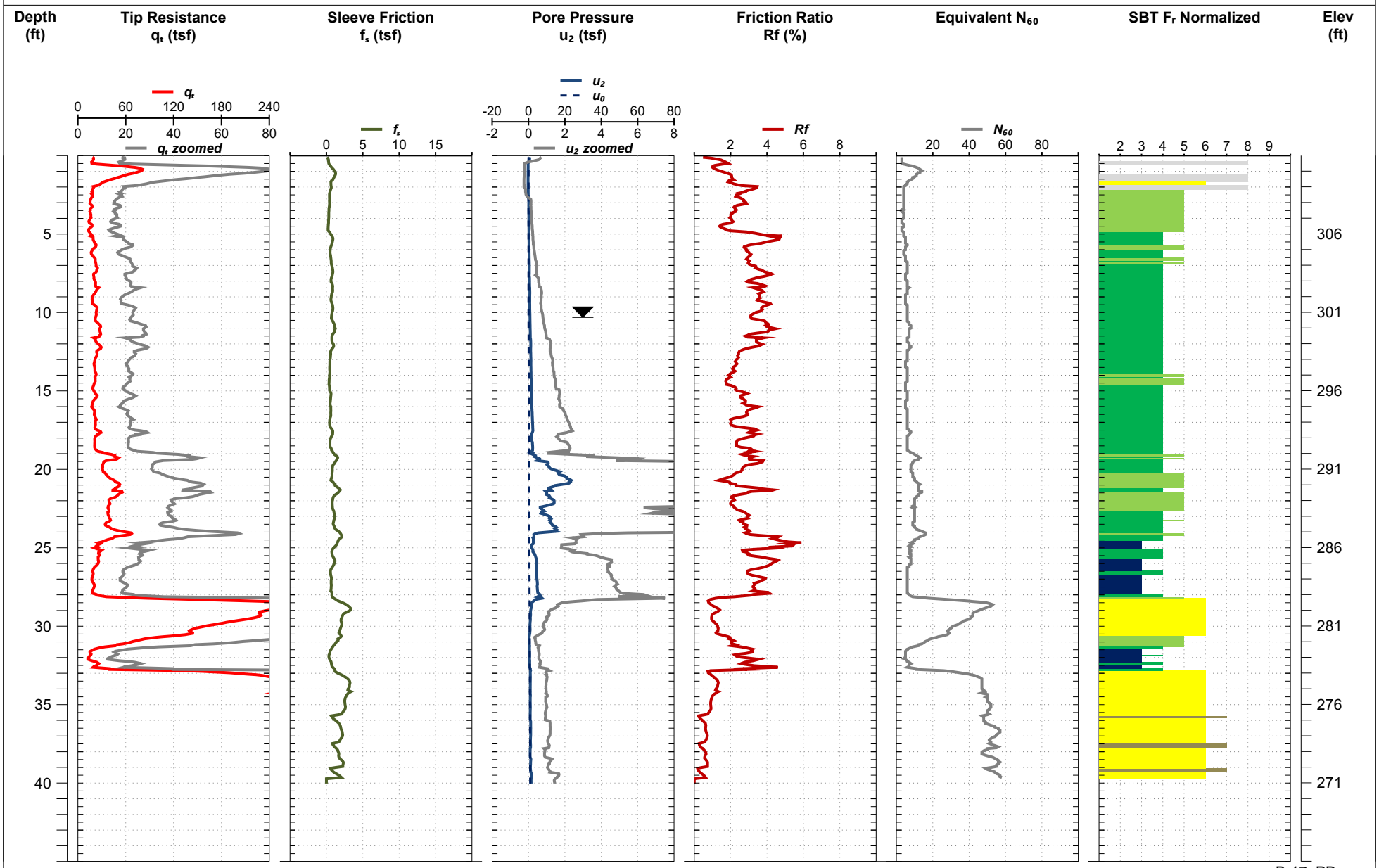
GROUNDWATER DEPTHS ARE NOT EXACT AND MAY VARY SUBSTANTIALLY FROM THOSE INDICATED. ATD = AT TIME OF DRILLING
LL=Liquid Limit, PL = Plastic Limit, NMC = Natural Moisture Content, PPV = Pocket Penetrometer (tsf), PTV = Pocket Torvane (tsf), HC = Hole Cave, AR = Auger Refusal

Ford Blue Oval City - TVA Substation
SR 222, Stanton, Tennessee
S&ME Project No. 218019

Cone Penetration Test

B-17

Date:	28-Jan-2022	**Latitude:**	35.418548	**Total Depth:**	40.0 ft
Estimated Water Depth:	10.0 ft	**Longitude:**	-89.40218	**Termination Criteria:**	
Rig/Operator:		**Elevation:**	310.99	**Cone Size:**	1.75



B-17_PD.ecp

PROJECT:	Ford Blue Oval City - TVA Substation SR 222, Stanton, Tennessee S&ME Project No. 218019	BORING LOG: B-18 *Sheet 1 of 2*
DATE DRILLED: 02/18/2022	**ELEVATION:** 309 ft	**NOTES:**
DRILL RIG: Diedrich D-50 (track)	**DATUM:** NAVD88	
DRILLER: S&ME	**BORING DEPTH:** 40.0 ft	
HAMMER TYPE: Automatic hammer	**CLOSURE:** Cuttings	
DRILLING METHOD: Mud rotary	**LOGGED BY:** Talecia Dyson	**LATITUDE:** 35.418537 **LONGITUDE:** -89.40151
SAMPLING METHOD: SS	**PROJECT COORDINATE SYSTEM -** NAD 1983 StatePlane Tennessee FIPS 4100 Feet	

DEPTH (feet)	NOTES	Origin/Identifier	GRAPHIC	SAMPLE NO. (RECOVERY)	MATERIAL DESCRIPTION	BLOW COUNT DATA (SPT N-value)	STANDARD PENETRATION TEST DATA (△ % Fines, ○ NMC, ⊢ PL---LL; 20 40 60 80)	ELEVATION
0	0.3	Loess		SS-1	TOPSOIL, 3 inches LEAN CLAY (CL), some silt, some sand, soft to firm, brown and gray, moist	2-2-5 N = 7 PPV= 1.0		
				SS-2		3-4-4 N = 8		
				SS-3		1-2-1 N = 3		305
5				SS-4		2-2-3 N = 5 PPV= 1.0		
				SS-5		2-3-3 N = 6 PPV= 0.2		300
10								
				SS-6		1-2-2 N = 4 PPV= 0.0		295
15								
	18.0			SS-7	LEAN CLAY (CL), some silt, some sand, stiff to very stiff, brown and gray, moist	3-6-6 N = 12 PPV= 2.5		290
20								

GROUNDWATER		DATE/TIME	DEPTH (FT)	REMARKS
ATD	▽			
END OF DRILLING	▼			
AFTER DRILLING	▼			
AFTER DRILLING	▼			

GROUNDWATER DEPTHS ARE NOT EXACT AND MAY VARY SUBSTANTIALLY FROM THOSE INDICATED. ATD = AT TIME OF DRILLING
LL=Liquid Limit, PL = Plastic Limit, NMC = Natural Moisture Content, PPV = Pocket Penetrometer (tsf), PTV = Pocket Torvane (tsf), HC = Hole Cave, AR = Auger Refusal

PROJECT:	Ford Blue Oval City - TVA Substation SR 222, Stanton, Tennessee S&ME Project No. 218019	BORING LOG: B-18 *Sheet 2 of 2*
DATE DRILLED: 02/18/2022	**ELEVATION:** 309 ft	**NOTES:**
DRILL RIG: Diedrich D-50 (track)	**DATUM:** NAVD88	
DRILLER: S&ME	**BORING DEPTH:** 40.0 ft	
HAMMER TYPE: Automatic hammer	**CLOSURE:** Cuttings	
DRILLING METHOD: Mud rotary	**LOGGED BY:** Talecia Dyson	**LATITUDE:** 35.418537 **LONGITUDE:** -89.40151
SAMPLING METHOD: SS	**PROJECT COORDINATE SYSTEM -** NAD 1983 StatePlane Tennessee FIPS 4100 Feet	

DEPTH (feet)	NOTES	Origin/Identifier	GRAPHIC	SAMPLE NO. (RECOVERY)	MATERIAL DESCRIPTION	BLOW COUNT DATA (SPT N-value)	STANDARD PENETRATION TEST DATA △ % Fines ○ NMC ⊢ PL---LL 20 40 60 80	ELEVATION
25		Loess		SS-8	LEAN CLAY (CL), some silt, some sand, stiff to very stiff, brown and gray, moist	7-9-13 N = 22 PPV= 3.5		285
	26.0				POORLY GRADED SAND (SP), dense, gray and orange, moist			
30		Marine Soils		SS-9		14-17-27 N = 44		280
	32.0				POORLY GRADED SAND (SP), loose, gray and orange, moist			
35				SS-10		2-4-5 N = 9		275
				SS-11		3-5-6 N = 11		270
40	40.0				Borehole terminated at 40.0 feet			

GROUNDWATER		DATE/TIME	DEPTH (FT)	REMARKS
ATD	▽			
END OF DRILLING	▼			
AFTER DRILLING	▼			
AFTER DRILLING	▼			

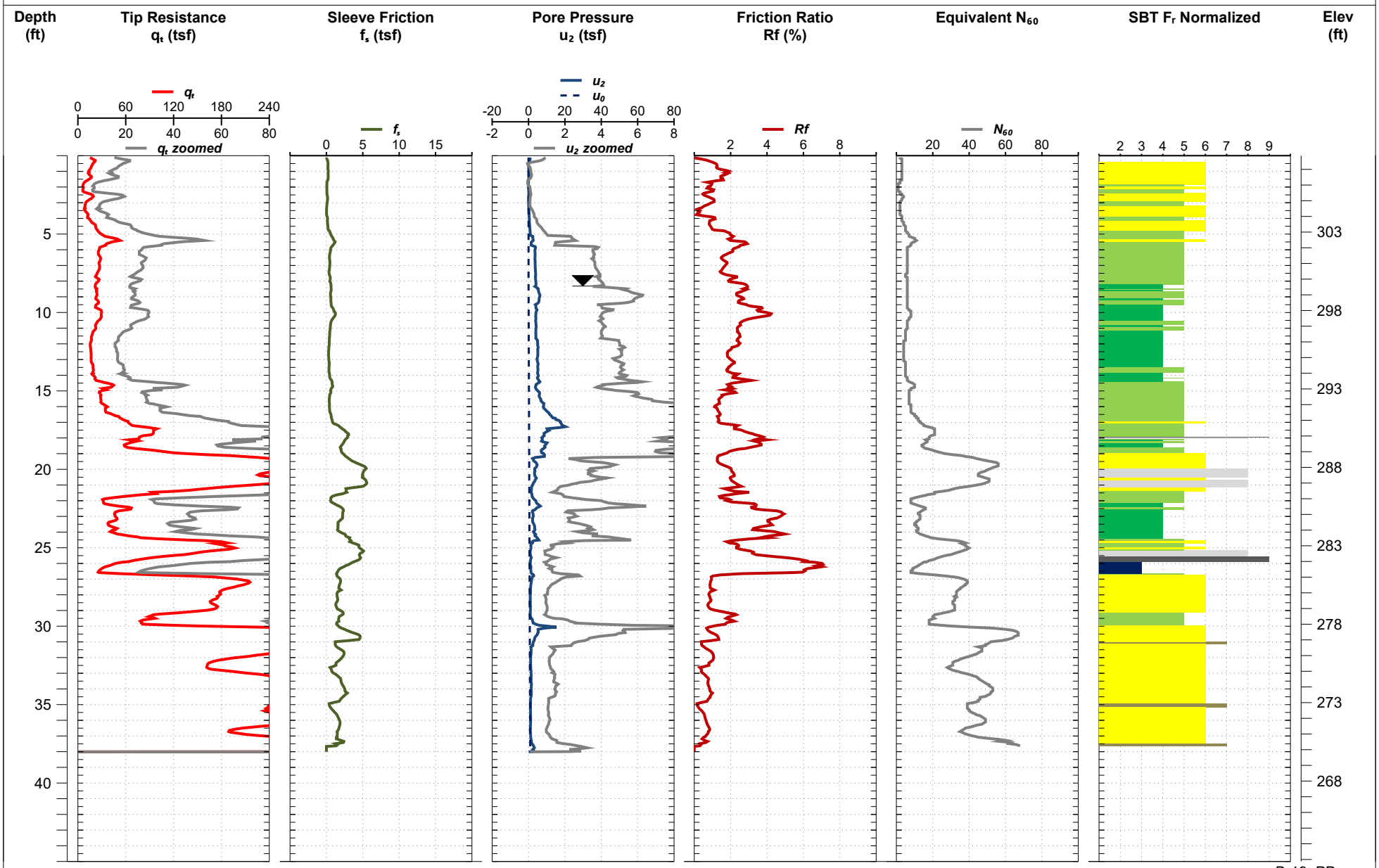
GROUNDWATER DEPTHS ARE NOT EXACT AND MAY VARY SUBSTANTIALLY FROM THOSE INDICATED. ATD = AT TIME OF DRILLING
LL=Liquid Limit, PL = Plastic Limit, NMC = Natural Moisture Content, PPV = Pocket Penetrometer (tsf), PTV = Pocket Torvane (tsf), HC = Hole Cave, AR = Auger Refusal

Ford Blue Oval City - TVA Substation
SR 222, Stanton, Tennessee
S&ME Project No. 218019

Cone Penetration Test

B-19

Date:	28-Jan-2022	**Latitude:**	35.418526	**Total Depth:**	38.0 ft
Estimated Water Depth:	8.0 ft	**Longitude:**	-89.40084	**Termination Criteria:**	
Rig/Operator:		**Elevation:**	307.87	**Cone Size:**	1.75



PROJECT:	Ford Blue Oval City - TVA Substation SR 222, Stanton, Tennessee S&ME Project No. 218019	BORING LOG: B-20 *Sheet 1 of 2*
DATE DRILLED: 02/19/2022	**ELEVATION:** 307 ft	**NOTES:**
DRILL RIG: Diedrich D-50 (track)	**DATUM:** NAVD88	
DRILLER: S&ME	**BORING DEPTH:** 40.0 ft	
HAMMER TYPE: Automatic hammer	**CLOSURE:** Cuttings	
DRILLING METHOD: Mud rotary	**LOGGED BY:** Talecia Dyson	**LATITUDE:** 35.418515 **LONGITUDE:** -89.40017
SAMPLING METHOD: SS	**PROJECT COORDINATE SYSTEM -** NAD 1983 StatePlane Tennessee FIPS 4100 Feet	

DEPTH (feet)	NOTES	Origin/Identifier	GRAPHIC	SAMPLE NO. (RECOVERY)	MATERIAL DESCRIPTION	BLOW COUNT DATA (SPT N-value)	STANDARD PENETRATION TEST DATA (△ % Fines, ○ NMC, ⊢ PL---LL; 20 40 60 80)	ELEVATION
0	0.3	Loess		SS-1	TOPSOIL, 3 inches LEAN CLAY (CL), some silt, few sand, firm to stiff, brown and gray, moist	2-3-6 N = 9 PPV= 1.0	●	
				SS-2		5-5-6 N = 11 PPV= 2.5	●	
				SS-3		3-5-7 N = 12 PPV= 2.8	●	302
5				SS-4		3-4-5 N = 9 PPV= 0.5	●	
				SS-5		3-3-4 N = 7 PPV= 1.2	●	297
10	▼							
	12.0	Marine Soils		SS-6	LEAN CLAY (CL), with silt, some sand, firm, orange and gray, moist	2-3-5 N = 8 PPV= 1.0	●	292
15								
						2-3-3 N = 6	●	287
20	21.0				POORLY GRADED SAND (SP), some silt, loose, orange and gray, moist			

GROUNDWATER		DATE/TIME	DEPTH (FT)	REMARKS
ATD	▽			
END OF DRILLING	▼			
AFTER DRILLING	▼	02/20/2022	10.2	24 hour reading
AFTER DRILLING	▼			

GROUNDWATER DEPTHS ARE NOT EXACT AND MAY VARY SUBSTANTIALLY FROM THOSE INDICATED. ATD = AT TIME OF DRILLING
LL=Liquid Limit, PL = Plastic Limit, NMC = Natural Moisture Content, PPV = Pocket Penetrometer (tsf), PTV = Pocket Torvane (tsf), HC = Hole Cave, AR = Auger Refusal

PROJECT:	Ford Blue Oval City - TVA Substation SR 222, Stanton, Tennessee S&ME Project No. 218019	BORING LOG: B-20 *Sheet 2 of 2*
DATE DRILLED: 02/19/2022	**ELEVATION:** 307 ft	**NOTES:**
DRILL RIG: Diedrich D-50 (track)	**DATUM:** NAVD88	
DRILLER: S&ME	**BORING DEPTH:** 40.0 ft	
HAMMER TYPE: Automatic hammer	**CLOSURE:** Cuttings	
DRILLING METHOD: Mud rotary	**LOGGED BY:** Talecia Dyson	**LATITUDE:** 35.418515 **LONGITUDE:** -89.40017
SAMPLING METHOD: SS	**PROJECT COORDINATE SYSTEM -** NAD 1983 StatePlane Tennessee FIPS 4100 Feet	

DEPTH (feet)	NOTES	Origin/Identifier	GRAPHIC	SAMPLE NO. (RECOVERY)	MATERIAL DESCRIPTION	BLOW COUNT DATA (SPT N-value)	STANDARD PENETRATION TEST DATA (△ % Fines, ○ NMC, ⊢ PL---LL; 20 40 60 80)	ELEVATION
25				SS-8	POORLY GRADED SAND (SP), some silt, loose, orange and gray, moist	4-4-5 N = 9		282
27.0								
30		Marine Soils		SS-9	POORLY GRADED SAND (SP), little silt, medium dense, gray, moist	10-10-8 N = 18		277
32.0								
35				SS-10	POORLY GRADED SAND (SP), dense, gray, very moist	7-13-19 N = 32		272
40				SS-11		20-28-50/5" N = 50/5"		267
40.0					Borehole terminated at 40.0 feet			

GROUNDWATER		DATE/TIME	DEPTH (FT)	REMARKS
ATD	▽			
END OF DRILLING	▼			
AFTER DRILLING	▼	02/20/2022	10.2	24 hour reading
AFTER DRILLING	▼			

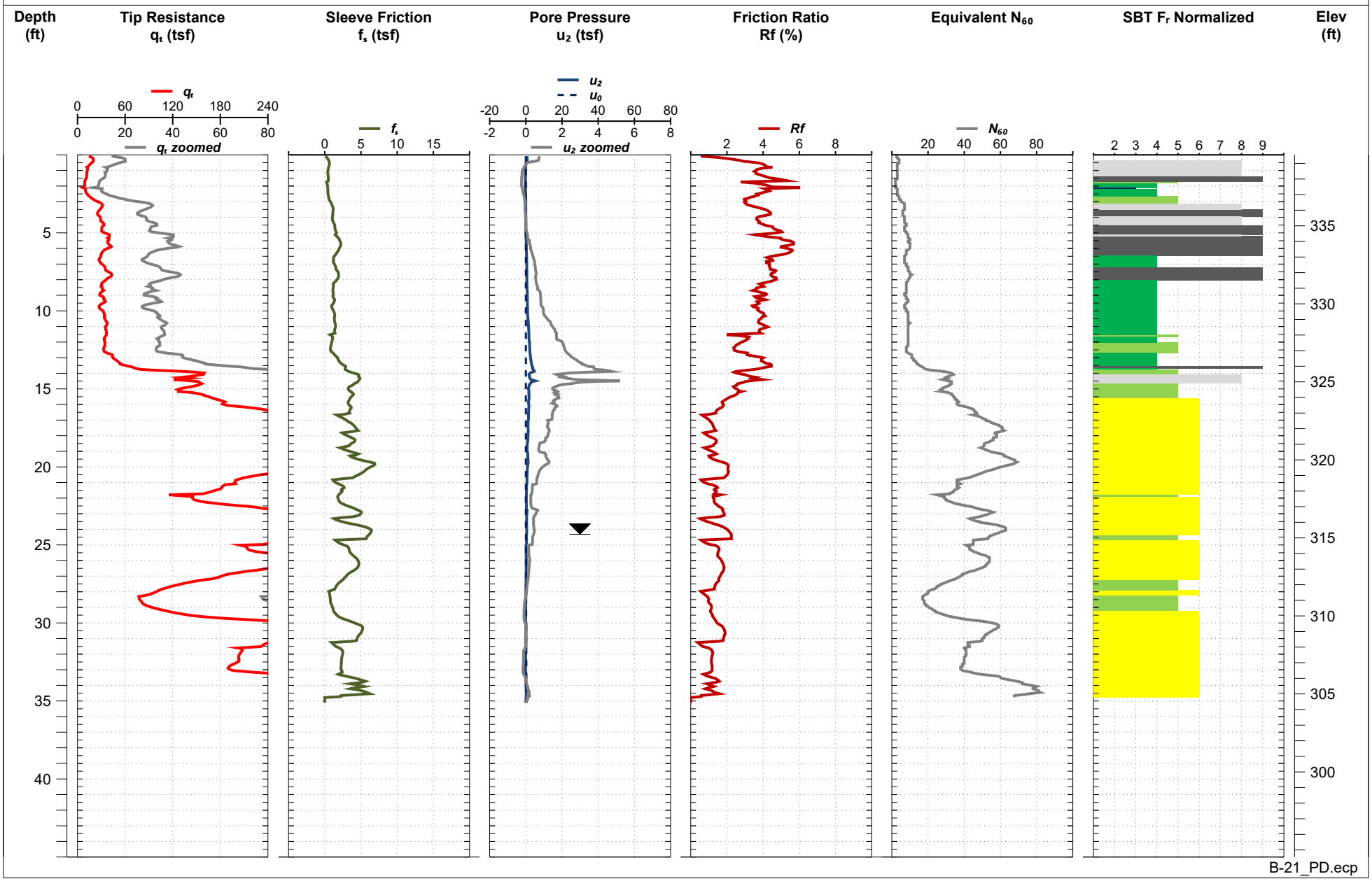
GROUNDWATER DEPTHS ARE NOT EXACT AND MAY VARY SUBSTANTIALLY FROM THOSE INDICATED. ATD = AT TIME OF DRILLING
LL=Liquid Limit, PL = Plastic Limit, NMC = Natural Moisture Content, PPV = Pocket Penetrometer (tsf), PTV = Pocket Torvane (tsf), HC = Hole Cave, AR = Auger Refusal

Ford Blue Oval City - TVA Substation
SR 222, Stanton, Tennessee
S&ME Project No. 218019

Cone Penetration Test

B-21

Date:	25-Jan-2022	**Latitude:**	35.418070	**Total Depth:**	35.1 ft
Estimated Water Depth:	24.0 ft	**Longitude:**	-89.40648	**Termination Criteria:**	Maximum Reaction Force
Rig/Operator:	Gyrotrack	**Elevation:**	339.55	**Cone Size:**	1.75



B-21_PD.ecp

PROJECT:	Ford Blue Oval City - TVA Substation SR 222, Stanton, Tennessee S&ME Project No. 218019	BORING LOG: B-22 *Sheet 1 of 2*
DATE DRILLED: 01/28/2022	**ELEVATION:** 337 ft	**NOTES:**
DRILL RIG: Diedrich D-50 (track)	**DATUM:** NAVD88	
DRILLER: S&ME	**BORING DEPTH:** 40.0 ft	
HAMMER TYPE: Automatic hammer	**CLOSURE:** Cuttings	
DRILLING METHOD: HSA	**LOGGED BY:** Alf Futrell	**LATITUDE:** 35.418054 **LONGITUDE:** -89.40550
SAMPLING METHOD: SS	**PROJECT COORDINATE SYSTEM -** NAD 1983 StatePlane Tennessee FIPS 4100 Feet	

DEPTH (feet)	NOTES	Origin/Identifier	GRAPHIC	SAMPLE NO. (RECOVERY)	MATERIAL DESCRIPTION	BLOW COUNT DATA (SPT N-value)	STANDARD PENETRATION TEST DATA △ % Fines ○ NMC ⊢ PL---LL 20 40 60 80	ELEVATION
0								
		Cultivated Zone		SS-1	LEAN CLAY (CL), some silt, trace roots, firm, brown, moist	2-2-3 N = 5 PPV= 1.8		
1.5								
		Loess		SS-2	LEAN CLAY (CL), with silt, firm to stiff, brown and gray, moist	2-2-3 N = 5 PPV= 1.0		
				SS-3		3-3-4 N = 7 PPV= 1.0		
5								332
				SS-4		4-5-6 N = 11 PPV= 2.2		
8.0								
		Marine Soils		SS-5	LEAN CLAY (CL), little sand, stiff, orange brown, moist	2-4-6 N = 10 PPV= 2.8		
10								327
12.0								
				SS-6	LEAN CLAY (CL), stiff, orange brown, moist	3-5-8 N = 13 PPV= 2.5		
15								322
17.0								
				SS-7	SILTY, CLAYEY SAND (SC), medium dense, orange brown, moist	8-8-10 N = 18		
20								317
22.0								

GROUNDWATER		DATE/TIME	DEPTH (FT)	REMARKS
ATD	▽	01/28/2022		not encountered - hole cave at 29.1 feet
END OF DRILLING	▼	01/28/2022		1 hour reading - dry hole cave 29.1 ft
AFTER DRILLING	▼	03/01/2022		24 hour reading - dry hole cave at 29.1 feet
AFTER DRILLING	▼			

GROUNDWATER DEPTHS ARE NOT EXACT AND MAY VARY SUBSTANTIALLY FROM THOSE INDICATED. ATD = AT TIME OF DRILLING
LL=Liquid Limit, PL = Plastic Limit, NMC = Natural Moisture Content, PPV = Pocket Penetrometer (tsf), PTV = Pocket Torvane (tsf), HC = Hole Cave, AR = Auger Refusal

PROJECT:	Ford Blue Oval City - TVA Substation SR 222, Stanton, Tennessee S&ME Project No. 218019	BORING LOG: B-22 *Sheet 2 of 2*
DATE DRILLED: 01/28/2022	**ELEVATION:** 337 ft	**NOTES:**
DRILL RIG: Diedrich D-50 (track)	**DATUM:** NAVD88	
DRILLER: S&ME	**BORING DEPTH:** 40.0 ft	
HAMMER TYPE: Automatic hammer	**CLOSURE:** Cuttings	
DRILLING METHOD: HSA	**LOGGED BY:** Alf Futrell	**LATITUDE:** 35.418054 **LONGITUDE:** -89.40550
SAMPLING METHOD: SS	**PROJECT COORDINATE SYSTEM -** NAD 1983 StatePlane Tennessee FIPS 4100 Feet	

DEPTH (feet)	NOTES	Origin/Identifier	GRAPHIC	SAMPLE NO. (RECOVERY)	MATERIAL DESCRIPTION	BLOW COUNT DATA (SPT N-value)	STANDARD PENETRATION TEST DATA (△ % Fines, ○ NMC, ⊢ PL---LL; 20 40 60 80)	ELEVATION
25		Marine Soils		SS-8	POORLY GRADED SAND (SP), medium dense, light tan orange and brown, medium grained, moist	7-9-10 N = 19		312
27.0								
	HC			SS-9	POORLY GRADED SAND (SP), medium dense to dense, light tan, fine to medium grained, very moist	6-10-13 N = 23		
30								307
				SS-10		10-15-24 N = 39		
35								302
				SS-11		11-17-25 N = 42		
40.0					Borehole terminated at 40.0 feet			297
40								

GROUNDWATER		DATE/TIME	DEPTH (FT)	REMARKS
ATD	▽	01/28/2022		not encountered - hole cave at 29.1 feet
END OF DRILLING	▼	01/28/2022		1 hour reading - dry hole cave 29.1 ft
AFTER DRILLING	▼	03/01/2022		24 hour reading - dry hole cave at 29.1 feet
AFTER DRILLING	▼			

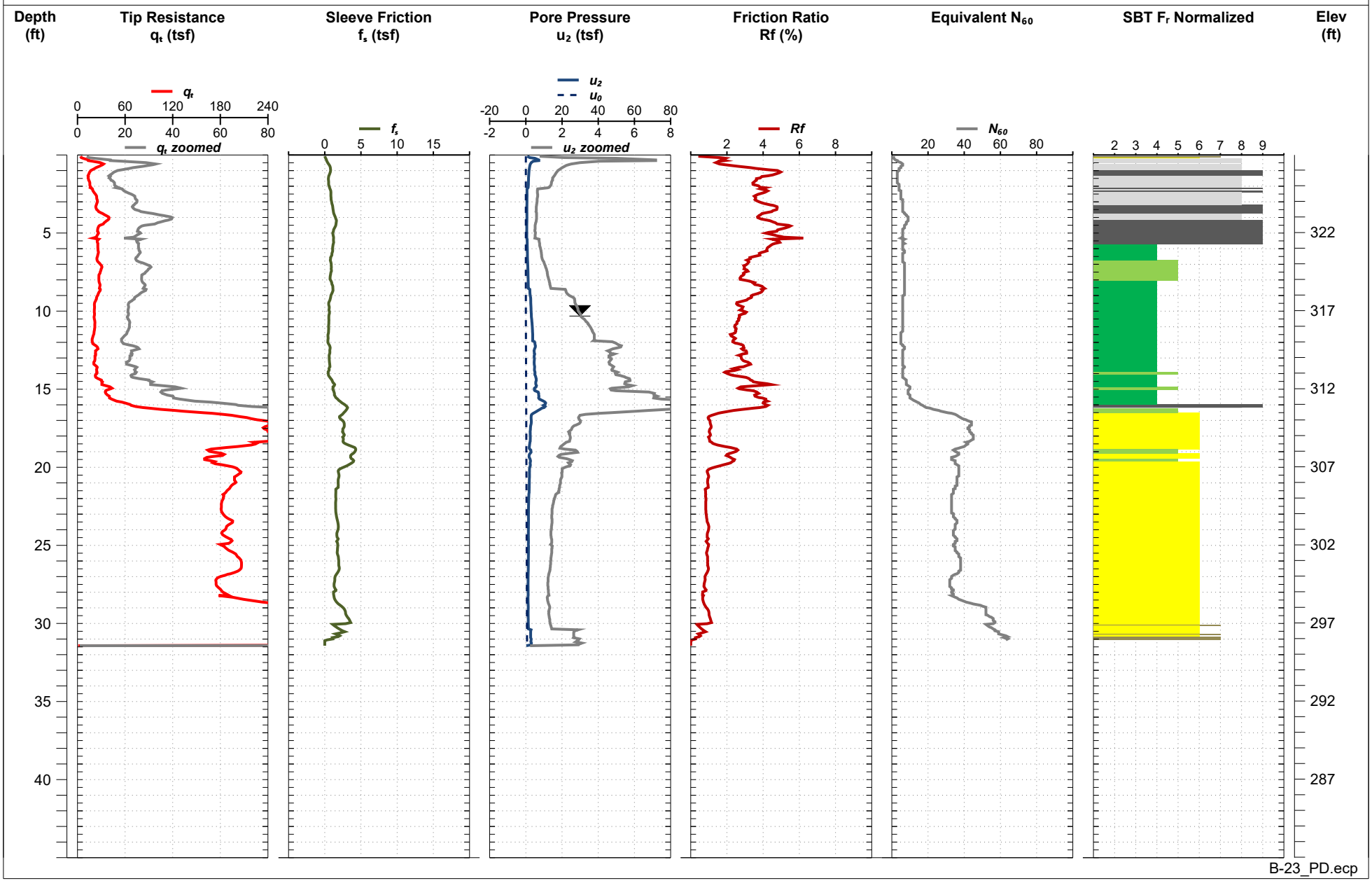
GROUNDWATER DEPTHS ARE NOT EXACT AND MAY VARY SUBSTANTIALLY FROM THOSE INDICATED. ATD = AT TIME OF DRILLING
LL=Liquid Limit, PL = Plastic Limit, NMC = Natural Moisture Content, PPV = Pocket Penetrometer (tsf), PTV = Pocket Torvane (tsf), HC = Hole Cave, AR = Auger Refusal

Ford Blue Oval City - TVA Substation
SR 222, Stanton, Tennessee
S&ME Project No. 218019

Cone Penetration Test

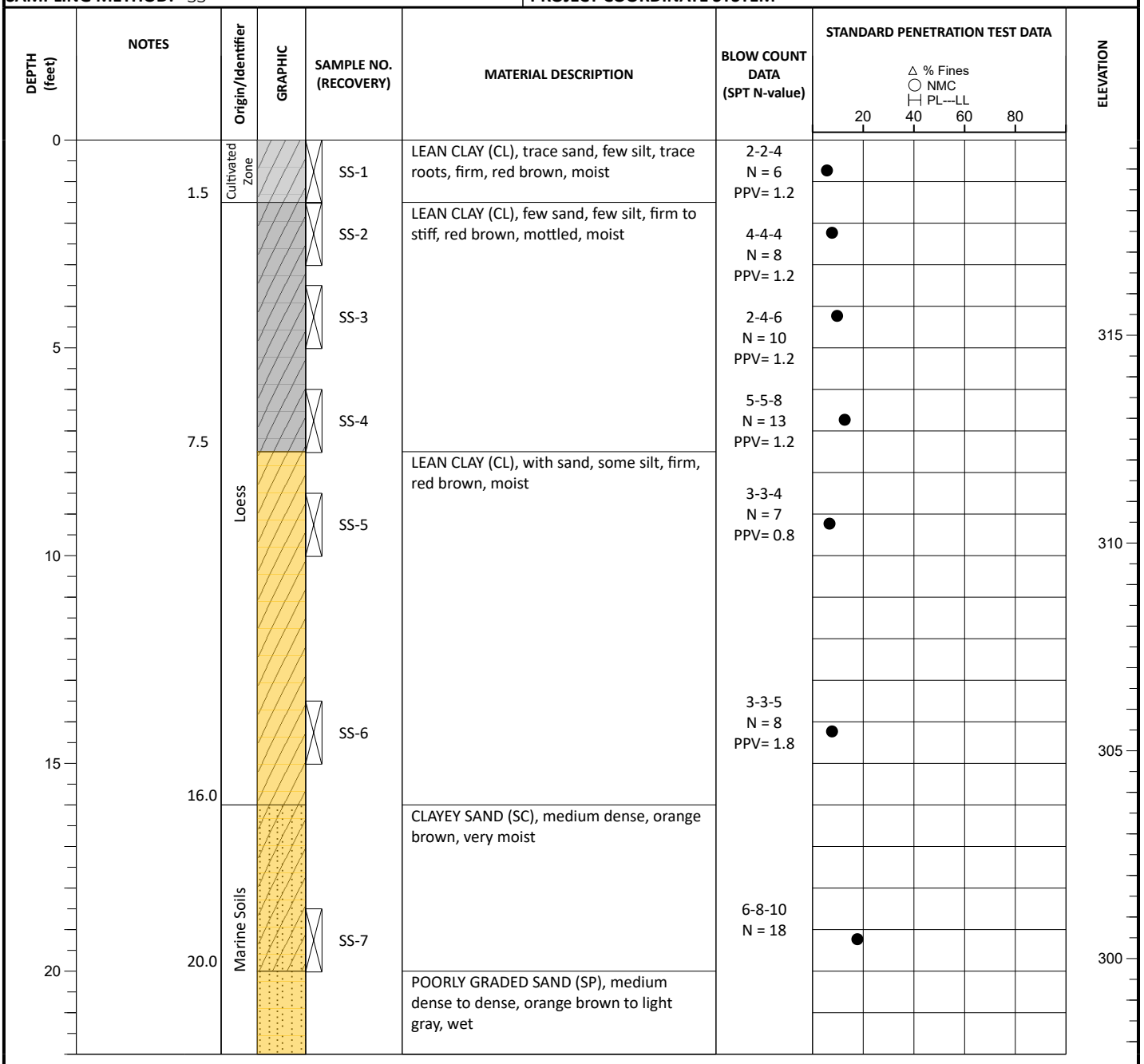
B-23

Date:	26-Jan-2022	**Latitude:**	35.418044	**Total Depth:**	31.4 ft
Estimated Water Depth:	10.0 ft	**Longitude:**	-89.40488	**Termination Criteria:**	Maximum Reaction Force
Rig/Operator:	Gyrotrack	**Elevation:**	326.97	**Cone Size:**	1.75



B-23_PD.ecp

PROJECT:	Ford Blue Oval City - TVA Substation SR 222, Stanton, Tennessee S&ME Project No. 218019	BORING LOG: B-24 *Sheet 1 of 2*
DATE DRILLED: 02/04/2022	**ELEVATION:** 320 ft	**NOTES:**
DRILL RIG: Diedrich D-50 (track)	**DATUM:** NAVD88	
DRILLER: S&ME	**BORING DEPTH:** 40.0 ft	
HAMMER TYPE: Automatic hammer	**CLOSURE:** Cuttings	
DRILLING METHOD: Mud rotary	**LOGGED BY:** Talecia Dyson	**LATITUDE:** 35.418033 **LONGITUDE:** -89.40421
SAMPLING METHOD: SS	**PROJECT COORDINATE SYSTEM -** NAD 1983 StatePlane Tennessee FIPS 4100 Feet	



GROUNDWATER		DATE/TIME	DEPTH (FT)	REMARKS
ATD	▽	02/05/2022		wet cave at 18 feet
END OF DRILLING	▼	02/05/2022		1 hour reading - wet cave at 18 feet
AFTER DRILLING	▼	02/18/2022		312 hour reading - wet cave at 18 feet
AFTER DRILLING	▼	02/20/2022		360 hour reading - dry cave at 18.5 feet

GROUNDWATER DEPTHS ARE NOT EXACT AND MAY VARY SUBSTANTIALLY FROM THOSE INDICATED. ATD = AT TIME OF DRILLING
LL=Liquid Limit, PL = Plastic Limit, NMC = Natural Moisture Content, PPV = Pocket Penetrometer (tsf), PTV = Pocket Torvane (tsf), HC = Hole Cave, AR = Auger Refusal

PROJECT:	Ford Blue Oval City - TVA Substation SR 222, Stanton, Tennessee S&ME Project No. 218019	BORING LOG: B-24 *Sheet 2 of 2*
DATE DRILLED: 02/04/2022	**ELEVATION:** 320 ft	**NOTES:**
DRILL RIG: Diedrich D-50 (track)	**DATUM:** NAVD88	
DRILLER: S&ME	**BORING DEPTH:** 40.0 ft	
HAMMER TYPE: Automatic hammer	**CLOSURE:** Cuttings	
DRILLING METHOD: Mud rotary	**LOGGED BY:** Talecia Dyson	**LATITUDE:** 35.418033 **LONGITUDE:** -89.40421
SAMPLING METHOD: SS	**PROJECT COORDINATE SYSTEM -** NAD 1983 StatePlane Tennessee FIPS 4100 Feet	

DEPTH (feet)	NOTES	Origin/Identifier	GRAPHIC	SAMPLE NO. (RECOVERY)	MATERIAL DESCRIPTION	BLOW COUNT DATA (SPT N-value)	STANDARD PENETRATION TEST DATA △ % Fines ○ NMC ⊢ PL---LL 20 40 60 80	ELEVATION
25		Marine Soils		SS-8	POORLY GRADED SAND (SP), medium dense to dense, orange brown to light gray, wet	6-8-10 N = 18		295
30				SS-9		11-16-21 N = 37		290
33.0				SS-10	POORLY GRADED SAND WITH SILT (SP-SM), very dense, orange, very moist	13-26-36 N = 62		285
40				SS-11		13-26-36 N = 62		280
40.0					Borehole terminated at 40.0 feet			

GROUNDWATER		DATE/TIME	DEPTH (FT)	REMARKS
ATD	▽	02/05/2022		wet cave at 18 feet
END OF DRILLING	▼	02/05/2022		1 hour reading - wet cave at 18 feet
AFTER DRILLING	▼	02/18/2022		312 hour reading - wet cave at 18 feet
AFTER DRILLING	▼	02/20/2022		360 hour reading - dry cave at 18.5 feet

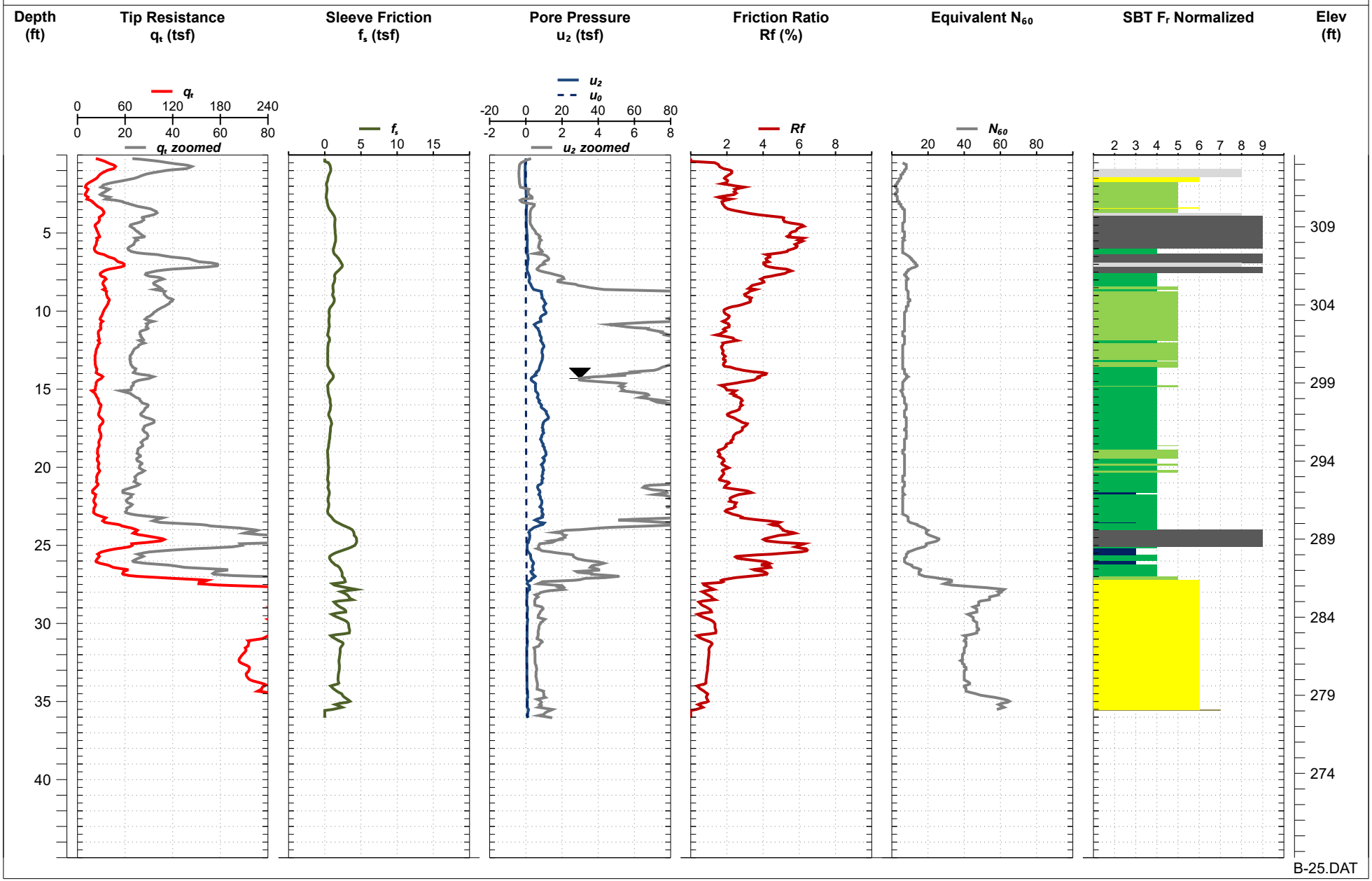
GROUNDWATER DEPTHS ARE NOT EXACT AND MAY VARY SUBSTANTIALLY FROM THOSE INDICATED. ATD = AT TIME OF DRILLING
LL=Liquid Limit, PL = Plastic Limit, NMC = Natural Moisture Content, PPV = Pocket Penetrometer (tsf), PTV = Pocket Torvane (tsf), HC = Hole Cave, AR = Auger Refusal

Ford Blue Oval City - TVA Substation
SR 222, Stanton, Tennessee
S&ME Project No. 218019

Cone Penetration Test

B-25

Date:	27-Jan-2022	**Latitude:**	35.418020	**Total Depth:**	36.0 ft
Estimated Water Depth:	14.0 ft	**Longitude:**	-89.40347	**Termination Criteria:**	Maximum Reaction Force
Rig/Operator:	Gyrotrack/TC | TW	**Elevation:**	313.60	**Cone Size:**	1.75



PROJECT:	Ford Blue Oval City - TVA Substation SR 222, Stanton, Tennessee S&ME Project No. 218019	BORING LOG: B-26 *Sheet 1 of 2*
DATE DRILLED: 02/07/2022	**ELEVATION:** 312 ft	**NOTES:**
DRILL RIG: Diedrich D-50 (track)	**DATUM:** NAVD88	
DRILLER: S&ME	**BORING DEPTH:** 40.0 ft	
HAMMER TYPE: Automatic hammer	**CLOSURE:** Cuttings	
DRILLING METHOD: Mud rotary	**LOGGED BY:** Eric Conway	**LATITUDE:** 35.418010 **LONGITUDE:** -89.40287
SAMPLING METHOD: SS	**PROJECT COORDINATE SYSTEM -** NAD 1983 StatePlane Tennessee FIPS 4100 Feet	

DEPTH (feet)	NOTES	Origin/Identifier	GRAPHIC	SAMPLE NO. (RECOVERY)	MATERIAL DESCRIPTION	BLOW COUNT DATA (SPT N-value)	STANDARD PENETRATION TEST DATA △ % Fines ○ NMC ⊢ PL---LL 20 40 60 80	ELEVATION
0								
	0.7			SS-1	TOPSOIL, 8 inches	2-2-2 N = 4	●	
		Cultivated Zone			LEAN CLAY (CL), soft, brown, moist			
				SS-2		2-3-1 N = 4	●	
	3.5							
				SS-3	LEAN CLAY (CL), very soft to firm, brown gray, moist	3-1-2 N = 3	● ○	
5								307
				SS-4		3-2-2 N = 4	●	
				SS-5		2-1-1 N = 2	● ○	
10		Loess						302
				SS-6		2-2-3 N = 5	●	
15								297
	18.5							
		Marine Sediment		SS-7	SANDY SILT (ML), stiff to very stiff, gray and brown, moist	4-4-6 N = 10 PPV= 1.5	● ⊢○⊣	
20								292

GROUNDWATER		DATE/TIME	DEPTH (FT)	REMARKS
ATD	▽			
END OF DRILLING	▼			
AFTER DRILLING	▼			
AFTER DRILLING	▼			

GROUNDWATER DEPTHS ARE NOT EXACT AND MAY VARY SUBSTANTIALLY FROM THOSE INDICATED. ATD = AT TIME OF DRILLING
LL=Liquid Limit, PL = Plastic Limit, NMC = Natural Moisture Content, PPV = Pocket Penetrometer (tsf), PTV = Pocket Torvane (tsf), HC = Hole Cave, AR = Auger Refusal

PROJECT:	Ford Blue Oval City - TVA Substation SR 222, Stanton, Tennessee S&ME Project No. 218019	BORING LOG: B-26 *Sheet 2 of 2*
DATE DRILLED: 02/07/2022	**ELEVATION:** 312 ft	**NOTES:**
DRILL RIG: Diedrich D-50 (track)	**DATUM:** NAVD88	
DRILLER: S&ME	**BORING DEPTH:** 40.0 ft	
HAMMER TYPE: Automatic hammer	**CLOSURE:** Cuttings	
DRILLING METHOD: Mud rotary	**LOGGED BY:** Eric Conway	**LATITUDE:** 35.418010 **LONGITUDE:** -89.40287
SAMPLING METHOD: SS	**PROJECT COORDINATE SYSTEM -** NAD 1983 StatePlane Tennessee FIPS 4100 Feet	

DEPTH (feet)	NOTES	Origin/Identifier	GRAPHIC	SAMPLE NO. (RECOVERY)	MATERIAL DESCRIPTION	BLOW COUNT DATA (SPT N-value)	STANDARD PENETRATION TEST DATA △ % Fines ○ NMC ⊢ PL---LL 20 40 60 80	ELEVATION
25		Marine Sediment		SS-8	SANDY SILT (ML), stiff to very stiff, gray and brown, moist	4-4-7 N = 11 PPV= 2.2	●	287
30				SS-9		5-6-6 N = 12 PPV= 2.5	● ○	282
33.5								
35		Marine Soils		SS-10	POORLY GRADED SAND (SP), medium dense to dense, gray, medium grained, wet	9-11-14 N = 25	●	277
40				SS-11		18-17-19 N = 36	○ ●	272
40.0					Borehole terminated at 40.0 feet			

GROUNDWATER		DATE/TIME	DEPTH (FT)	REMARKS
ATD	▽			
END OF DRILLING	▼			
AFTER DRILLING	▼			
AFTER DRILLING	▼			

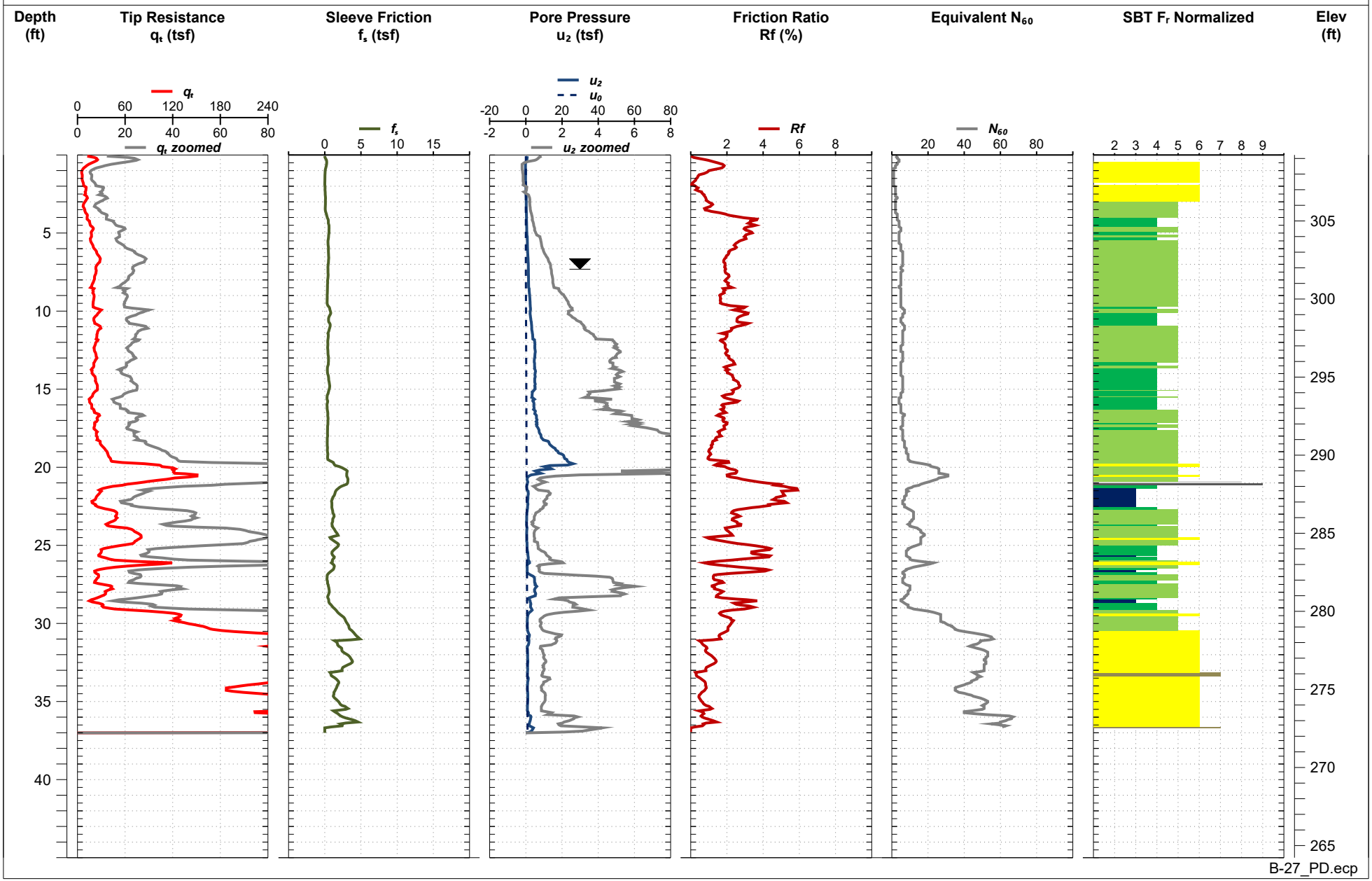
GROUNDWATER DEPTHS ARE NOT EXACT AND MAY VARY SUBSTANTIALLY FROM THOSE INDICATED. ATD = AT TIME OF DRILLING
LL=Liquid Limit, PL = Plastic Limit, NMC = Natural Moisture Content, PPV = Pocket Penetrometer (tsf), PTV = Pocket Torvane (tsf), HC = Hole Cave, AR = Auger Refusal

Ford Blue Oval City - TVA Substation
SR 222, Stanton, Tennessee
S&ME Project No. 218019

Cone Penetration Test

B-27

Date:	28-Jan-2022	**Latitude:**	35.417999	**Total Depth:**	37.0 ft
Estimated Water Depth:	7.0 ft	**Longitude:**	-89.40220	**Termination Criteria:**	
Rig/Operator:		**Elevation:**	309.23	**Cone Size:**	1.75



B-27_PD.ecp

PROJECT:	Ford Blue Oval City - TVA Substation SR 222, Stanton, Tennessee S&ME Project No. 218019	BORING LOG: B-28 *Sheet 1 of 2*
DATE DRILLED: 02/18/2022	**ELEVATION:** 308 ft	**NOTES:**
DRILL RIG: Diedrich D-50 (track)	**DATUM:** NAVD88	
DRILLER: S&ME	**BORING DEPTH:** 40.0 ft	
HAMMER TYPE: Automatic hammer	**CLOSURE:** Cuttings	
DRILLING METHOD: Mud rotary	**LOGGED BY:** Talecia Dyson	**LATITUDE:** 35.417988 **LONGITUDE:** -89.40153
SAMPLING METHOD: SS	**PROJECT COORDINATE SYSTEM -** NAD 1983 StatePlane Tennessee FIPS 4100 Feet	

DEPTH (feet)	NOTES	Origin/Identifier	GRAPHIC	SAMPLE NO. (RECOVERY)	MATERIAL DESCRIPTION	BLOW COUNT DATA (SPT N-value)	STANDARD PENETRATION TEST DATA (△ % Fines, ○ NMC, ⊢ PL---LL; 20 40 60 80)	ELEVATION
0	0.3	Loess		SS-1	TOPSOIL, 3 inches LEAN CLAY (CL), some silt, some sand, soft to firm, brown, moist	2-2-2 N = 4		
				SS-2		2-3-4 N = 7 PPV= 1.2		
				SS-3		3-3-2 N = 5		304
5				SS-4		1-3-2 N = 5		
				SS-5		2-3-5 N = 8 PPV= 1.2		299
10								
				SS-6		2-3-3 N = 6 PPV= 1.0		294
15	18.0				LEAN CLAY (CL), some silt, some sand, stiff to very stiff, brown, moist			
				SS-7		5-8-11 N = 19 PPV= 1.8		289
20								

GROUNDWATER		DATE/TIME	DEPTH (FT)	REMARKS
ATD	▽			
END OF DRILLING	▼			
AFTER DRILLING	▼			
AFTER DRILLING	▼			

GROUNDWATER DEPTHS ARE NOT EXACT AND MAY VARY SUBSTANTIALLY FROM THOSE INDICATED. ATD = AT TIME OF DRILLING
LL=Liquid Limit, PL = Plastic Limit, NMC = Natural Moisture Content, PPV = Pocket Penetrometer (tsf), PTV = Pocket Torvane (tsf), HC = Hole Cave, AR = Auger Refusal

PROJECT:	Ford Blue Oval City - TVA Substation SR 222, Stanton, Tennessee S&ME Project No. 218019	BORING LOG: B-28 *Sheet 2 of 2*
DATE DRILLED: 02/18/2022	**ELEVATION:** 308 ft	**NOTES:**
DRILL RIG: Diedrich D-50 (track)	**DATUM:** NAVD88	
DRILLER: S&ME	**BORING DEPTH:** 40.0 ft	
HAMMER TYPE: Automatic hammer	**CLOSURE:** Cuttings	
DRILLING METHOD: Mud rotary	**LOGGED BY:** Talecia Dyson	**LATITUDE:** 35.417988 **LONGITUDE:** -89.40153
SAMPLING METHOD: SS	**PROJECT COORDINATE SYSTEM -** NAD 1983 StatePlane Tennessee FIPS 4100 Feet	

DEPTH (feet)	NOTES	Origin/Identifier	GRAPHIC	SAMPLE NO. (RECOVERY)	MATERIAL DESCRIPTION	BLOW COUNT DATA (SPT N-value)	STANDARD PENETRATION TEST DATA (△ % Fines, ○ NMC, ⊢ PL---LL; 20 40 60 80)	ELEVATION
25		Loess		SS-8	LEAN CLAY (CL), some silt, some sand, stiff to very stiff, brown, moist	5-6-6 N = 12		284
26.0								
30		Marine Soils		SS-9	POORLY GRADED SAND (SP), medium dense to dense, brown and gray, moist	6-10-11 N = 21		279
35				SS-10		15-22-23 N = 45		274
40				SS-11		22-50 N = 50		269
40.0					Borehole terminated at 40.0 feet			

GROUNDWATER		DATE/TIME	DEPTH (FT)	REMARKS
ATD	▽			
END OF DRILLING	▼			
AFTER DRILLING	▼			
AFTER DRILLING	▼			

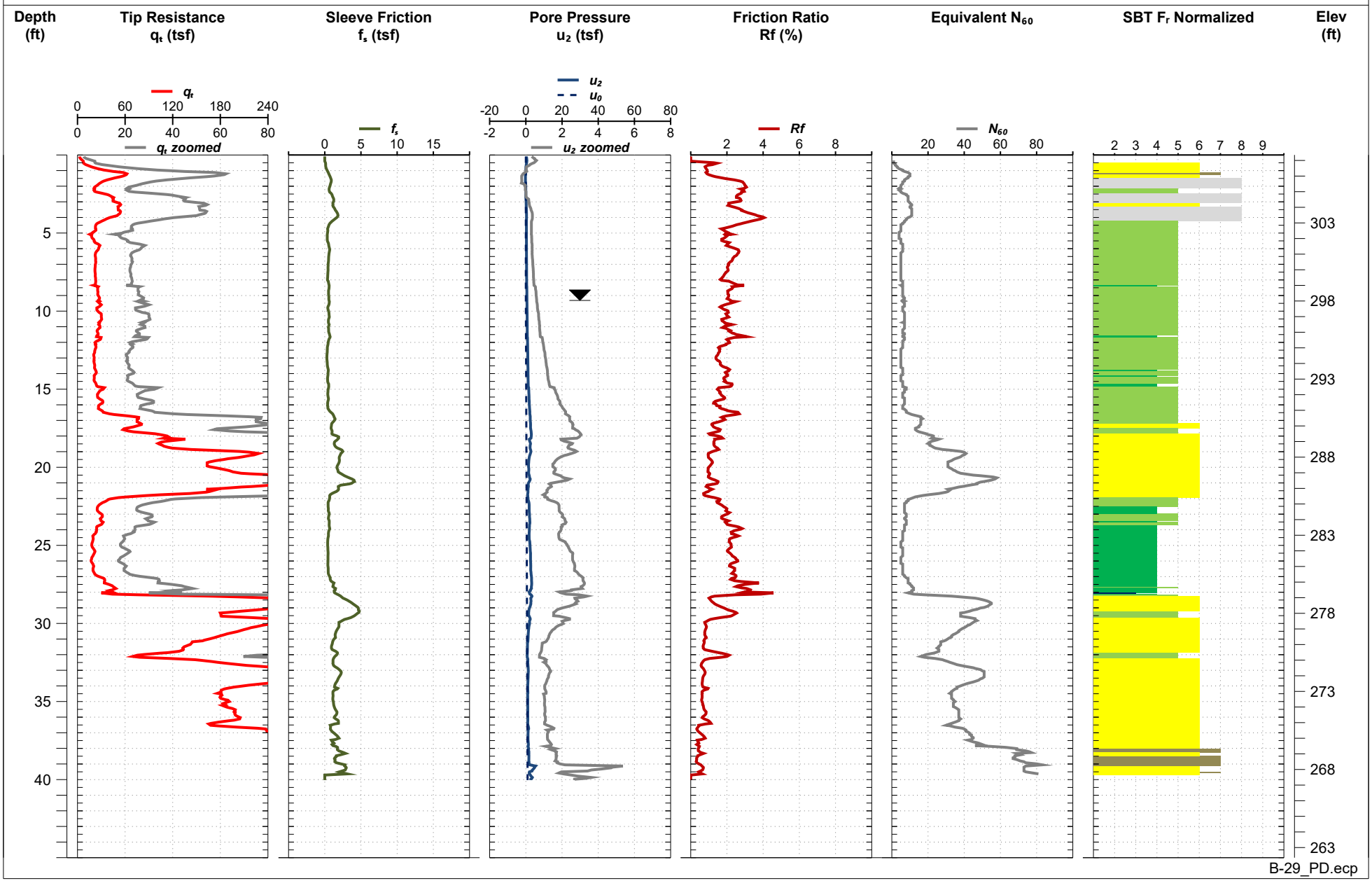
GROUNDWATER DEPTHS ARE NOT EXACT AND MAY VARY SUBSTANTIALLY FROM THOSE INDICATED. ATD = AT TIME OF DRILLING
LL=Liquid Limit, PL = Plastic Limit, NMC = Natural Moisture Content, PPV = Pocket Penetrometer (tsf), PTV = Pocket Torvane (tsf), HC = Hole Cave, AR = Auger Refusal

Ford Blue Oval City - TVA Substation
SR 222, Stanton, Tennessee
S&ME Project No. 218019

Cone Penetration Test

B-29

Date:	28-Jan-2022	**Latitude:**	35.417977	**Total Depth:**	40.0 ft
Estimated Water Depth:	9.0 ft	**Longitude:**	-89.40085	**Termination Criteria:**	
Rig/Operator:		**Elevation:**	307.35	**Cone Size:**	1.75



PROJECT:	Ford Blue Oval City - TVA Substation SR 222, Stanton, Tennessee S&ME Project No. 218019	BORING LOG: B-30 *Sheet 1 of 2*
DATE DRILLED: 02/19/2022	**ELEVATION:** 306 ft	**NOTES:**
DRILL RIG: Diedrich D-50 (track)	**DATUM:** NAVD88	
DRILLER: S&ME	**BORING DEPTH:** 40.0 ft	
HAMMER TYPE: Automatic hammer	**CLOSURE:** Cuttings	
DRILLING METHOD: Mud rotary	**LOGGED BY:** Talecia Dyson	**LATITUDE:** 35.417966 **LONGITUDE:** -89.40018
SAMPLING METHOD: SS	**PROJECT COORDINATE SYSTEM -** NAD 1983 StatePlane Tennessee FIPS 4100 Feet	

DEPTH (feet)	NOTES	Origin/Identifier	GRAPHIC	SAMPLE NO. (RECOVERY)	MATERIAL DESCRIPTION	BLOW COUNT DATA (SPT N-value)	STANDARD PENETRATION TEST DATA (△ % Fines, ○ NMC, ⊢ PL---LL; 20 40 60 80)	ELEVATION
0	0.3	Loess		SS-1	TOPSOIL, 3 inches LEAN CLAY (CL), some silt, few sand, soft to stiff, brown and gray, moist	2-2-5 N = 7 PPV= 0.5		
				SS-2		8-7-6 N = 13 PPV= 1.5		
				SS-3		3-4-5 N = 9 PPV= 1.2		301
5				SS-4		2-2-2 N = 4 PPV= 0.5		
				SS-5		3-3-5 N = 8 PPV= 0.8		296
10	12.0	Marine Soils		SS-6	LEAN CLAY (CL), some sand, some silt, firm to stiff, orange and gray, moist	2-3-4 N = 7 PPV= 0.8		291
15				SS-7		5-4-6 N = 10 PPV= 1.0		286
20	21.0				POORLY GRADED SAND (SP), little silt, medium dense to very dense, gray and orange, very moist			

GROUNDWATER		DATE/TIME	DEPTH (FT)	REMARKS
ATD	▽			
END OF DRILLING	▼			
AFTER DRILLING	▼			
AFTER DRILLING	▼			

GROUNDWATER DEPTHS ARE NOT EXACT AND MAY VARY SUBSTANTIALLY FROM THOSE INDICATED. ATD = AT TIME OF DRILLING
LL=Liquid Limit, PL = Plastic Limit, NMC = Natural Moisture Content, PPV = Pocket Penetrometer (tsf), PTV = Pocket Torvane (tsf), HC = Hole Cave, AR = Auger Refusal

PROJECT:	Ford Blue Oval City - TVA Substation SR 222, Stanton, Tennessee S&ME Project No. 218019	BORING LOG: B-30 *Sheet 2 of 2*
DATE DRILLED: 02/19/2022	**ELEVATION:** 306 ft	**NOTES:**
DRILL RIG: Diedrich D-50 (track)	**DATUM:** NAVD88	
DRILLER: S&ME	**BORING DEPTH:** 40.0 ft	
HAMMER TYPE: Automatic hammer	**CLOSURE:** Cuttings	
DRILLING METHOD: Mud rotary	**LOGGED BY:** Talecia Dyson	**LATITUDE:** 35.417966 **LONGITUDE:** -89.40018
SAMPLING METHOD: SS	**PROJECT COORDINATE SYSTEM -** NAD 1983 StatePlane Tennessee FIPS 4100 Feet	

DEPTH (feet)	NOTES	Origin/Identifier	GRAPHIC	SAMPLE NO. (RECOVERY)	MATERIAL DESCRIPTION	BLOW COUNT DATA (SPT N-value)	STANDARD PENETRATION TEST DATA (△ % Fines, ○ NMC, ⊢ PL---LL; 20 40 60 80)	ELEVATION
25		Marine Soils		SS-8	POORLY GRADED SAND (SP), little silt, medium dense to very dense, gray and orange, very moist	7-6-7 N = 13 PPV= 2.8	●	281
30				SS-9		9-9-22 N = 31	●	276
35				SS-10		10-12-11 N = 23	●	271
40	40.0			SS-11	Borehole terminated at 40.0 feet	20-25-28 N = 53	●	266

GROUNDWATER		DATE/TIME	DEPTH (FT)	REMARKS
ATD	▽			
END OF DRILLING	▼			
AFTER DRILLING	▼			
AFTER DRILLING	▼			

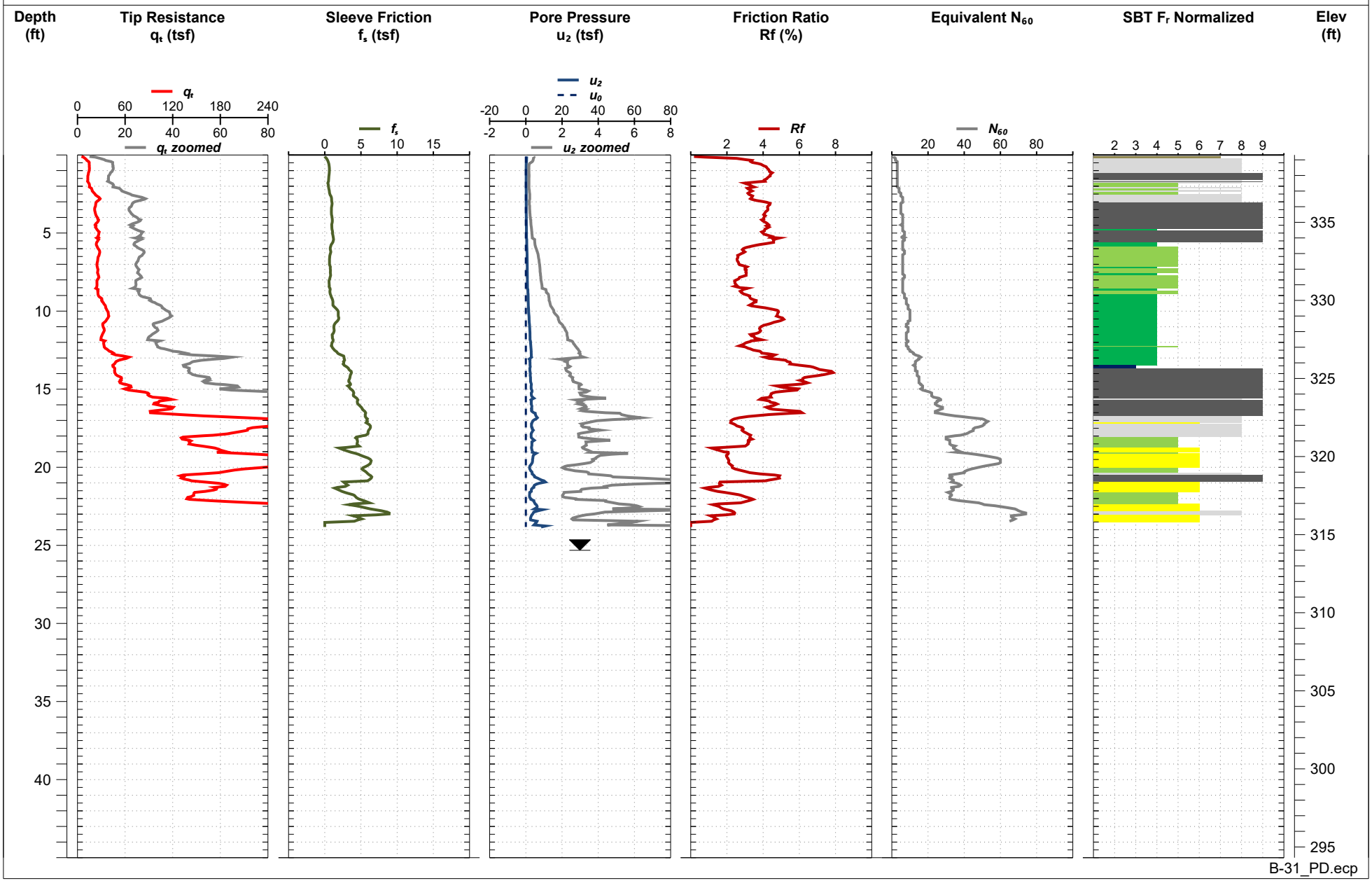
GROUNDWATER DEPTHS ARE NOT EXACT AND MAY VARY SUBSTANTIALLY FROM THOSE INDICATED. ATD = AT TIME OF DRILLING
LL=Liquid Limit, PL = Plastic Limit, NMC = Natural Moisture Content, PPV = Pocket Penetrometer (tsf), PTV = Pocket Torvane (tsf), HC = Hole Cave, AR = Auger Refusal

Ford Blue Oval City - TVA Substation
SR 222, Stanton, Tennessee
S&ME Project No. 218019

Cone Penetration Test

B-31

Date:	25-Jan-2022	**Latitude:**	35.417489	**Total Depth:**	23.8 ft
Estimated Water Depth:	25.0 ft	**Longitude:**	-89.40624	**Termination Criteria:**	Maximum Reaction Force
Rig/Operator:	Gyrotrack	**Elevation:**	339.31	**Cone Size:**	1.75



PROJECT:	Ford Blue Oval City - TVA Substation SR 222, Stanton, Tennessee S&ME Project No. 218019	BORING LOG: B-32 *Sheet 1 of 2*
DATE DRILLED: 01/28/2022	**ELEVATION:** 336 ft	**NOTES:**
DRILL RIG: Diedrich D-50 (track)	**DATUM:** NAVD88	
DRILLER: S&ME	**BORING DEPTH:** 40.0 ft	
HAMMER TYPE: Automatic hammer	**CLOSURE:** Cuttings	
DRILLING METHOD: Mud rotary	**LOGGED BY:** Talecia Dyson	**LATITUDE:** 35.417477 **LONGITUDE:** -89.40552
SAMPLING METHOD: SS	**PROJECT COORDINATE SYSTEM -** NAD 1983 StatePlane Tennessee FIPS 4100 Feet	

DEPTH (feet)	NOTES	Origin/Identifier	GRAPHIC	SAMPLE NO. (RECOVERY)	MATERIAL DESCRIPTION	BLOW COUNT DATA (SPT N-value)	STANDARD PENETRATION TEST DATA (△ % Fines, ○ NMC, ⊢ PL---LL; 20 40 60 80)	ELEVATION
0		Cultivated Zone		SS-1	LEAN CLAY (CL), some silt, trace sand, firm, brown, very moist	2-3-4 N = 7		
1.5		Loess		SS-2	LEAN CLAY (CL), some sand, firm to stiff, orange brown and gray, moist to very moist	3-4-4 N = 8		
				SS-3		2-3-5 N = 8		332
5				SS-4		4-4-6 N = 10		
				SS-5		3-4-5 N = 9		327
10				SS-6		3-5-8 N = 13		322
15								
16.0		Marine Soils		SS-7	CLAYEY GRAVEL WITH SAND (GC), medium dense, red brown, moist	6-6-7 N = 13		317
20								
22.0								

GROUNDWATER		DATE/TIME	DEPTH (FT)	REMARKS
ATD	▽	02/05/2022		not encountered -
END OF DRILLING	▼	02/05/2022		1 hour reading - not encountered
AFTER DRILLING	▼	02/06/2022		24 hour reading - dry cave at 29 feet
AFTER DRILLING	▼			

GROUNDWATER DEPTHS ARE NOT EXACT AND MAY VARY SUBSTANTIALLY FROM THOSE INDICATED. ATD = AT TIME OF DRILLING
LL=Liquid Limit, PL = Plastic Limit, NMC = Natural Moisture Content, PPV = Pocket Penetrometer (tsf), PTV = Pocket Torvane (tsf), HC = Hole Cave, AR = Auger Refusal

PROJECT:	Ford Blue Oval City - TVA Substation SR 222, Stanton, Tennessee S&ME Project No. 218019	BORING LOG: B-32 *Sheet 2 of 2*
DATE DRILLED: 01/28/2022	**ELEVATION:** 336 ft	**NOTES:**
DRILL RIG: Diedrich D-50 (track)	**DATUM:** NAVD88	
DRILLER: S&ME	**BORING DEPTH:** 40.0 ft	
HAMMER TYPE: Automatic hammer	**CLOSURE:** Cuttings	
DRILLING METHOD: Mud rotary	**LOGGED BY:** Talecia Dyson	**LATITUDE:** 35.417477 **LONGITUDE:** -89.40552
SAMPLING METHOD: SS	**PROJECT COORDINATE SYSTEM -** NAD 1983 StatePlane Tennessee FIPS 4100 Feet	

DEPTH (feet)	NOTES	Origin/Identifier	GRAPHIC	SAMPLE NO. (RECOVERY)	MATERIAL DESCRIPTION	BLOW COUNT DATA (SPT N-value)	STANDARD PENETRATION TEST DATA (△ % Fines, ○ NMC, ⊢ PL---LL; 20 40 60 80)	ELEVATION
25		Marine Soils		SS-8	POORLY GRADED SAND (SP), medium dense to very dense, gray and orange, moist	6-7-8 N = 15		312
30	HC			SS-9		5-7-9 N = 16		307
35				SS-10		7-14-21 N = 35		302
40	40.0			SS-11	Borehole terminated at 40.0 feet	9-20-34 N = 54		297

GROUNDWATER		DATE/TIME	DEPTH (FT)	REMARKS
ATD	▽	02/05/2022		not encountered -
END OF DRILLING	▼	02/05/2022		1 hour reading - not encountered
AFTER DRILLING	▼	02/06/2022		24 hour reading - dry cave at 29 feet
AFTER DRILLING	▼			

GROUNDWATER DEPTHS ARE NOT EXACT AND MAY VARY SUBSTANTIALLY FROM THOSE INDICATED. ATD = AT TIME OF DRILLING
LL=Liquid Limit, PL = Plastic Limit, NMC = Natural Moisture Content, PPV = Pocket Penetrometer (tsf), PTV = Pocket Torvane (tsf), HC = Hole Cave, AR = Auger Refusal

PROJECT:	Ford Blue Oval City - TVA Substation SR 222, Stanton, Tennessee S&ME Project No. 218019	BORING LOG: B-33 *Sheet 1 of 2*
DATE DRILLED: 02/01/2022	**ELEVATION:** 329 ft	**NOTES:**
DRILL RIG: Diedrich D-50 (track)	**DATUM:** NAVD88	
DRILLER: S&ME	**BORING DEPTH:** 40.0 ft	
HAMMER TYPE: Automatic hammer	**CLOSURE:** Cuttings	
DRILLING METHOD: HSA	**LOGGED BY:** Talecia Dyson	**LATITUDE:** 35.417467 **LONGITUDE:** -89.40490
SAMPLING METHOD: SS	**PROJECT COORDINATE SYSTEM -** NAD 1983 StatePlane Tennessee FIPS 4100 Feet	

DEPTH (feet)	NOTES	Origin/Identifier	GRAPHIC	SAMPLE NO. (RECOVERY)	MATERIAL DESCRIPTION	BLOW COUNT DATA (SPT N-value)	STANDARD PENETRATION TEST DATA (△ % Fines, ○ NMC, ⊢ PL---LL; 20 40 60 80)	ELEVATION
0		Cultivated Zone		SS-1	LEAN CLAY (CL), some sand, some silt, firm, brown, moist to very moist	3-3-4 N = 7	● ○	
				SS-2		3-3-4 N = 7	●	
3.0		Loess		SS-3	LEAN CLAY (CL), some silt, trace sand, stiff, brown, moist	2-4-6 N = 10	● ○	
5								324
6.0				SS-4	LEAN CLAY (CL), some silt, few sand, stiff, red brown, moist	5-6-8 N = 14 PPV= 2.0	●	
				SS-5		3-4-5 N = 9	● ○	
10								319
13.0		Marine Soils		SS-6	CLAYEY SAND (SC), some clay, medium dense, red brown, moist	6-5-6 N = 11	●	
15								314
				SS-7		5-9-16 N = 25	○ ●	
20								309
22.0								

GROUNDWATER		DATE/TIME	DEPTH (FT)	REMARKS
ATD	▽	02/01/2022		not encountered - hole cave at 24.3 ft
END OF DRILLING	▼	02/01/2022		1 hour reading - dry cave at 24.3 feet
AFTER DRILLING	▼	02/02/2022		24 hour reading - dry cave at 24.3 feet
AFTER DRILLING	▼			

GROUNDWATER DEPTHS ARE NOT EXACT AND MAY VARY SUBSTANTIALLY FROM THOSE INDICATED. ATD = AT TIME OF DRILLING
LL=Liquid Limit, PL = Plastic Limit, NMC = Natural Moisture Content, PPV = Pocket Penetrometer (tsf), PTV = Pocket Torvane (tsf), HC = Hole Cave, AR = Auger Refusal

PROJECT:	Ford Blue Oval City - TVA Substation SR 222, Stanton, Tennessee S&ME Project No. 218019	BORING LOG: B-33 *Sheet 2 of 2*
DATE DRILLED: 02/01/2022	**ELEVATION:** 329 ft	**NOTES:**
DRILL RIG: Diedrich D-50 (track)	**DATUM:** NAVD88	
DRILLER: S&ME	**BORING DEPTH:** 40.0 ft	
HAMMER TYPE: Automatic hammer	**CLOSURE:** Cuttings	
DRILLING METHOD: HSA	**LOGGED BY:** Talecia Dyson	**LATITUDE:** 35.417467 **LONGITUDE:** -89.40490
SAMPLING METHOD: SS	**PROJECT COORDINATE SYSTEM -** NAD 1983 StatePlane Tennessee FIPS 4100 Feet	

DEPTH (feet)	NOTES	Origin/Identifier	GRAPHIC	SAMPLE NO. (RECOVERY)	MATERIAL DESCRIPTION	BLOW COUNT DATA (SPT N-value)	STANDARD PENETRATION TEST DATA (△ % Fines, ○ NMC, ⊢ PL---LL; 20 40 60 80)	ELEVATION
25	HC	Marine Soils		SS-8	POORLY GRADED SAND (SP), medium dense to dense, orange and tan, moist to very moist	4-6-9 N = 15		304
30				SS-9		6-8-8 N = 16		299
35				SS-10		10-17-19 N = 36		294
	37.0				POORLY GRADED SAND (SP), dense, orange and tan, wet			
40	40.0			SS-11	Borehole terminated at 40.0 feet	7-13-20 N = 33		289

GROUNDWATER		DATE/TIME	DEPTH (FT)	REMARKS
ATD	▽	02/01/2022		not encountered - hole cave at 24.3 ft
END OF DRILLING	▼	02/01/2022		1 hour reading - dry cave at 24.3 feet
AFTER DRILLING	▼	02/02/2022		24 hour reading - dry cave at 24.3 feet
AFTER DRILLING	▼			

GROUNDWATER DEPTHS ARE NOT EXACT AND MAY VARY SUBSTANTIALLY FROM THOSE INDICATED. ATD = AT TIME OF DRILLING
LL=Liquid Limit, PL = Plastic Limit, NMC = Natural Moisture Content, PPV = Pocket Penetrometer (tsf), PTV = Pocket Torvane (tsf), HC = Hole Cave, AR = Auger Refusal

PROJECT:	Ford Blue Oval City - TVA Substation SR 222, Stanton, Tennessee S&ME Project No. 218019	BORING LOG: B-34 *Sheet 1 of 2*
DATE DRILLED: 02/22/2022	**ELEVATION:** 320 ft	**NOTES:**
DRILL RIG: Diedrich D-50 (track)	**DATUM:** NAVD88	
DRILLER: S&ME	**BORING DEPTH:** 40.0 ft	
HAMMER TYPE: Automatic hammer	**CLOSURE:** Cuttings	
DRILLING METHOD: Mud rotary	**LOGGED BY:** Talecia Dyson	**LATITUDE:** 35.417456 **LONGITUDE:** -89.40422
SAMPLING METHOD: SS	**PROJECT COORDINATE SYSTEM -** NAD 1983 StatePlane Tennessee FIPS 4100 Feet	

DEPTH (feet)	NOTES	Origin/Identifier	GRAPHIC	SAMPLE NO. (RECOVERY)	MATERIAL DESCRIPTION	BLOW COUNT DATA (SPT N-value)	STANDARD PENETRATION TEST DATA (△ % Fines, ○ NMC, ⊢ PL---LL; 20 40 60 80)	ELEVATION
0	0.3			SS-1	TOPSOIL, 3 inches LEAN CLAY (CL), some silt, firm to stiff, brown, moist	2-3-3 N = 6	●	
				SS-2		3-4-5 N = 9 PPV= 1.2	●	
				SS-3		2-3-3 N = 6 PPV= 1.2	●	315
5				SS-4		3-4-4 N = 8 PPV= 2.0	●	
				SS-5		2-4-5 N = 9	●	310
10		Loess						
				SS-6		2-3-3 N = 6	●	305
15								
				SS-7		4-3-5 N = 8	●	300
20	22.0							

GROUNDWATER		DATE/TIME	DEPTH (FT)	REMARKS
ATD	▽			
END OF DRILLING	▼			
AFTER DRILLING	▼			
AFTER DRILLING	▼			

GROUNDWATER DEPTHS ARE NOT EXACT AND MAY VARY SUBSTANTIALLY FROM THOSE INDICATED. ATD = AT TIME OF DRILLING
LL=Liquid Limit, PL = Plastic Limit, NMC = Natural Moisture Content, PPV = Pocket Penetrometer (tsf), PTV = Pocket Torvane (tsf), HC = Hole Cave, AR = Auger Refusal

PROJECT:	Ford Blue Oval City - TVA Substation SR 222, Stanton, Tennessee S&ME Project No. 218019	BORING LOG: B-34 *Sheet 2 of 2*
DATE DRILLED: 02/22/2022	**ELEVATION:** 320 ft	**NOTES:**
DRILL RIG: Diedrich D-50 (track)	**DATUM:** NAVD88	
DRILLER: S&ME	**BORING DEPTH:** 40.0 ft	
HAMMER TYPE: Automatic hammer	**CLOSURE:** Cuttings	
DRILLING METHOD: Mud rotary	**LOGGED BY:** Talecia Dyson	**LATITUDE:** 35.417456 **LONGITUDE:** -89.40422
SAMPLING METHOD: SS	**PROJECT COORDINATE SYSTEM -** NAD 1983 StatePlane Tennessee FIPS 4100 Feet	

DEPTH (feet)	NOTES	Origin/Identifier	GRAPHIC	SAMPLE NO. (RECOVERY)	MATERIAL DESCRIPTION	BLOW COUNT DATA (SPT N-value)	STANDARD PENETRATION TEST DATA △ % Fines ○ NMC ⊢ PL---LL 20 40 60 80	ELEVATION
25		Marine Soils		SS-8	POORLY GRADED SAND (SP), medium dense to dense, orange, moist to very moist	5-5-7 N = 12		295
30				SS-9		7-10-12 N = 22		290
35				SS-10		11-11-14 N = 25		285
40	40.0			SS-11	Borehole terminated at 40.0 feet	14-20-28 N = 48		280

GROUNDWATER		DATE/TIME	DEPTH (FT)	REMARKS
ATD	▽			
END OF DRILLING	▼			
AFTER DRILLING	▼			
AFTER DRILLING	▼			

GROUNDWATER DEPTHS ARE NOT EXACT AND MAY VARY SUBSTANTIALLY FROM THOSE INDICATED. ATD = AT TIME OF DRILLING
LL=Liquid Limit, PL = Plastic Limit, NMC = Natural Moisture Content, PPV = Pocket Penetrometer (tsf), PTV = Pocket Torvane (tsf), HC = Hole Cave, AR = Auger Refusal

PROJECT:	Ford Blue Oval City - TVA Substation SR 222, Stanton, Tennessee S&ME Project No. 218019	BORING LOG: B-35 *Sheet 1 of 3*
DATE DRILLED: 02/06/2022	**ELEVATION:** 312 ft	**NOTES:**
DRILL RIG: Diedrich D-50 (track)	**DATUM:** NAVD88	
DRILLER: S&ME	**BORING DEPTH:** 45.0 ft	
HAMMER TYPE: Automatic hammer	**CLOSURE:** Cuttings	
DRILLING METHOD: Mud rotary	**LOGGED BY:** Talecia Dyson	**LATITUDE:** 35.417444 **LONGITUDE:** -89.40349
SAMPLING METHOD: SS	**PROJECT COORDINATE SYSTEM -** NAD 1983 StatePlane Tennessee FIPS 4100 Feet	

DEPTH (feet)	NOTES	Origin/Identifier	GRAPHIC	SAMPLE NO. (RECOVERY)	MATERIAL DESCRIPTION	BLOW COUNT DATA (SPT N-value)	STANDARD PENETRATION TEST DATA △ % Fines ○ NMC ⊢ PL---LL 20 40 60 80	ELEVATION
0	0.3	Cultivated Zone		SS-1	TOPSOIL, 3 inches LEAN CLAY (CL), firm, brown and gray, moist	2-3-3 N = 6 PPV= 0.5	●	
	2.0			SS-2	LEAN CLAY (CL), with silt, some sand, firm, brown and gray, mottled, very moist to wet	2-4-3 N = 7 PPV= 1.0	●	
				SS-3		2-3-3 N = 6 PPV= 0.2	●	308
5		Loess		SS-4		2-2-3 N = 5 PPV= 0.2	●	
				SS-5		3-2-3 N = 5 PPV= 0.2	●	303
10								
				SS-6		2-3-3 N = 6	●	298
15	16.0				SILT (ML), some clay, firm to stiff, gray, mottled, very moist			
		Marine Soils		SS-7		3-3-4 N = 7 PPV= 1.5	●	293
20								

GROUNDWATER		DATE/TIME	DEPTH (FT)	REMARKS
ATD	▽	02/06/2022		not encountered
END OF DRILLING	▼	02/02/2022		1 hour reading - not encountered
AFTER DRILLING	▼			
AFTER DRILLING	▼			

GROUNDWATER DEPTHS ARE NOT EXACT AND MAY VARY SUBSTANTIALLY FROM THOSE INDICATED. ATD = AT TIME OF DRILLING
LL=Liquid Limit, PL = Plastic Limit, NMC = Natural Moisture Content, PPV = Pocket Penetrometer (tsf), PTV = Pocket Torvane (tsf), HC = Hole Cave, AR = Auger Refusal

PROJECT:	Ford Blue Oval City - TVA Substation SR 222, Stanton, Tennessee S&ME Project No. 218019	BORING LOG: B-35 *Sheet 2 of 3*
DATE DRILLED: 02/06/2022	**ELEVATION:** 312 ft	**NOTES:**
DRILL RIG: Diedrich D-50 (track)	**DATUM:** NAVD88	
DRILLER: S&ME	**BORING DEPTH:** 45.0 ft	
HAMMER TYPE: Automatic hammer	**CLOSURE:** Cuttings	
DRILLING METHOD: Mud rotary	**LOGGED BY:** Talecia Dyson	**LATITUDE:** 35.417444 **LONGITUDE:** -89.40349
SAMPLING METHOD: SS	**PROJECT COORDINATE SYSTEM -** NAD 1983 StatePlane Tennessee FIPS 4100 Feet	

DEPTH (feet)	NOTES	Origin/Identifier	GRAPHIC	SAMPLE NO. (RECOVERY)	MATERIAL DESCRIPTION	BLOW COUNT DATA (SPT N-value)	STANDARD PENETRATION TEST DATA △ % Fines ○ NMC ⊢ PL---LL 20 40 60 80	ELEVATION
25				SS-8	SILT (ML), some clay, firm to stiff, gray, mottled, very moist	4-5-6 N = 11 PPV= 3.0		288
	26.0				SILTY SAND (SM), medium dense, orange and gray, very moist			
30	30.0	Marine Soils		SS-9		5-5-13 N = 18 PPV= 2.5		283
				SS-10	POORLY GRADED SAND (SP), loose to dense, orange gray and red, very moist to wet	9-11-11 N = 22		278
35								
				SS-11		5-3-3 N = 6		273
40								
						13-23-25 N = 48		

GROUNDWATER		DATE/TIME	DEPTH (FT)	REMARKS
ATD	▽	02/06/2022		not encountered
END OF DRILLING	▼	02/02/2022		1 hour reading - not encountered
AFTER DRILLING	▼			
AFTER DRILLING	▼			

GROUNDWATER DEPTHS ARE NOT EXACT AND MAY VARY SUBSTANTIALLY FROM THOSE INDICATED. ATD = AT TIME OF DRILLING
LL=Liquid Limit, PL = Plastic Limit, NMC = Natural Moisture Content, PPV = Pocket Penetrometer (tsf), PTV = Pocket Torvane (tsf), HC = Hole Cave, AR = Auger Refusal

PROJECT:	Ford Blue Oval City - TVA Substation SR 222, Stanton, Tennessee S&ME Project No. 218019	BORING LOG: B-35 *Sheet 3 of 3*
DATE DRILLED: 02/06/2022	**ELEVATION:** 312 ft	**NOTES:**
DRILL RIG: Diedrich D-50 (track)	**DATUM:** NAVD88	
DRILLER: S&ME	**BORING DEPTH:** 45.0 ft	
HAMMER TYPE: Automatic hammer	**CLOSURE:** Cuttings	
DRILLING METHOD: Mud rotary	**LOGGED BY:** Talecia Dyson	**LATITUDE:** 35.417444 **LONGITUDE:** -89.40349
SAMPLING METHOD: SS	**PROJECT COORDINATE SYSTEM -** NAD 1983 StatePlane Tennessee FIPS 4100 Feet	

DEPTH (feet)	NOTES	Origin/Identifier	GRAPHIC	SAMPLE NO. (RECOVERY)	MATERIAL DESCRIPTION	BLOW COUNT DATA (SPT N-value)	STANDARD PENETRATION TEST DATA △ % Fines ○ NMC ⊢ PL---LL 20 40 60 80	ELEVATION
45	45.0	Marine Soils		SS-12	POORLY GRADED SAND (SP), loose to dense, orange gray and red, very moist to wet			268
					Borehole terminated at 45.0 feet			
50								263
55								258
60								253
65								248

GROUNDWATER		DATE/TIME	DEPTH (FT)	REMARKS
ATD	▽	02/06/2022		not encountered
END OF DRILLING	▼	02/02/2022		1 hour reading - not encountered
AFTER DRILLING	▼			
AFTER DRILLING	▼			

GROUNDWATER DEPTHS ARE NOT EXACT AND MAY VARY SUBSTANTIALLY FROM THOSE INDICATED. ATD = AT TIME OF DRILLING
LL=Liquid Limit, PL = Plastic Limit, NMC = Natural Moisture Content, PPV = Pocket Penetrometer (tsf), PTV = Pocket Torvane (tsf), HC = Hole Cave, AR = Auger Refusal

PROJECT:	Ford Blue Oval City - TVA Substation SR 222, Stanton, Tennessee S&ME Project No. 218019	BORING LOG: B-36 *Sheet 1 of 2*
DATE DRILLED: 02/08/2022	**ELEVATION:** 310 ft	**NOTES:**
DRILL RIG: Diedrich D-50 (track)	**DATUM:** NAVD88	
DRILLER: S&ME	**BORING DEPTH:** 36.5 ft	
HAMMER TYPE: Automatic hammer	**CLOSURE:** Cuttings	
DRILLING METHOD: HSA	**LOGGED BY:** Eric Conway	**LATITUDE:** 35.417433 **LONGITUDE:** -89.40288
SAMPLING METHOD: SS	**PROJECT COORDINATE SYSTEM -** NAD 1983 StatePlane Tennessee FIPS 4100 Feet	

DEPTH (feet)	NOTES	Origin/Identifier	GRAPHIC	SAMPLE NO. (RECOVERY)	MATERIAL DESCRIPTION	BLOW COUNT DATA (SPT N-value)	STANDARD PENETRATION TEST DATA (△ % Fines, ○ NMC, ⊢ PL---LL; 20 40 60 80)	ELEVATION
0		Cultivated Zone		SS-1	LEAN CLAY (CL), with silt, firm, brown, moist	3-4-2 N = 6		
2.0					LEAN CLAY (CL), with clay, trace sand, firm to stiff, gray and brown, moist to very moist			
5	pressuremeter test	Loess		SS-2		2-2-3 N = 5		305
				SS-3		2-4-5 N = 9		
10					SILT (ML), some sand, firm, orange brown, very moist			300
15	pressuremeter test	Marine Soils		SS-4		4-3-5 N = 8		295
20								290

GROUNDWATER		DATE/TIME	DEPTH (FT)	REMARKS
ATD	▽	02/08/2022		not encountered
END OF DRILLING	▼	02/08/2022		not encountered
AFTER DRILLING	▼			
AFTER DRILLING	▼			

GROUNDWATER DEPTHS ARE NOT EXACT AND MAY VARY SUBSTANTIALLY FROM THOSE INDICATED. ATD = AT TIME OF DRILLING
LL=Liquid Limit, PL = Plastic Limit, NMC = Natural Moisture Content, PPV = Pocket Penetrometer (tsf), PTV = Pocket Torvane (tsf), HC = Hole Cave, AR = Auger Refusal

PROJECT:	Ford Blue Oval City - TVA Substation SR 222, Stanton, Tennessee S&ME Project No. 218019	BORING LOG: B-36 *Sheet 2 of 2*
DATE DRILLED: 02/08/2022	**ELEVATION:** 310 ft	**NOTES:**
DRILL RIG: Diedrich D-50 (track)	**DATUM:** NAVD88	
DRILLER: S&ME	**BORING DEPTH:** 36.5 ft	
HAMMER TYPE: Automatic hammer	**CLOSURE:** Cuttings	
DRILLING METHOD: HSA	**LOGGED BY:** Eric Conway	**LATITUDE:** 35.417433 **LONGITUDE:** -89.40288
SAMPLING METHOD: SS	**PROJECT COORDINATE SYSTEM -** NAD 1983 StatePlane Tennessee FIPS 4100 Feet	

DEPTH (feet)	NOTES	Origin/Identifier	GRAPHIC	SAMPLE NO. (RECOVERY)	MATERIAL DESCRIPTION	BLOW COUNT DATA (SPT N-value)	STANDARD PENETRATION TEST DATA △ % Fines ○ NMC ⊢ PL---LL 20 40 60 80	ELEVATION
					SILT (ML), some sand, firm, orange brown, very moist			
25	pressuremeter test 25.0	Marine Soils			SILTY SAND (SM), medium dense, gray, very moist			285
				SS-5		7-12-14 N = 26	○ ●	
30								280
35	pressuremeter test							275
	36.5				Borehole terminated at 36.5 feet			
40								270

GROUNDWATER		DATE/TIME	DEPTH (FT)	REMARKS
ATD	▽	02/08/2022		not encountered
END OF DRILLING	▼	02/08/2022		not encountered
AFTER DRILLING	▼			
AFTER DRILLING	▼			

GROUNDWATER DEPTHS ARE NOT EXACT AND MAY VARY SUBSTANTIALLY FROM THOSE INDICATED. ATD = AT TIME OF DRILLING
LL=Liquid Limit, PL = Plastic Limit, NMC = Natural Moisture Content, PPV = Pocket Penetrometer (tsf), PTV = Pocket Torvane (tsf), HC = Hole Cave, AR = Auger Refusal

PROJECT:	Ford Blue Oval City - TVA Substation SR 222, Stanton, Tennessee S&ME Project No. 218019	BORING LOG: B-37 *Sheet 1 of 2*
DATE DRILLED: 02/16/2022	**ELEVATION:** 309 ft	**NOTES:**
DRILL RIG: Diedrich D-50 (track)	**DATUM:** NAVD88	
DRILLER: S&ME	**BORING DEPTH:** 40.0 ft	
HAMMER TYPE: Automatic hammer	**CLOSURE:** Cuttings	
DRILLING METHOD: Mud rotary	**LOGGED BY:** Talecia Dyson	**LATITUDE:** 35.417422 **LONGITUDE:** -89.40221
SAMPLING METHOD: SS	**PROJECT COORDINATE SYSTEM -** NAD 1983 StatePlane Tennessee FIPS 4100 Feet	

DEPTH (feet)	NOTES	Origin/Identifier	GRAPHIC	SAMPLE NO. (RECOVERY)	MATERIAL DESCRIPTION	BLOW COUNT DATA (SPT N-value)	STANDARD PENETRATION TEST DATA (△ % Fines, ○ NMC, ⊢ PL---LL; 20 40 60 80)	ELEVATION
0	0.3				TOPSOIL, 4 inches			
		Loess		SS-1	LEAN CLAY (CL), some silt, few sand, soft to firm, brown, moist	2-2-2 N = 4	●	
				SS-2		2-2-4 N = 6	●	
				SS-3		2-2-3 N = 5	●	304
5				SS-4		3-3-3 N = 6	●	
				SS-5		3-2-4 N = 6 PPV= 0.8	●	299
10				SS-6		3-3-4 N = 7 PPV= 1.2	●	294
15								
	18.0	Marine Soils		SS-7	LEAN CLAY WITH SAND (CL), very stiff, brown and gray, moist	20-17-9 N = 26 PPV= 2.8	●	289
20								
	22.0							

GROUNDWATER		DATE/TIME	DEPTH (FT)	REMARKS
ATD	▽			
END OF DRILLING	▼			
AFTER DRILLING	▼			
AFTER DRILLING	▼			

GROUNDWATER DEPTHS ARE NOT EXACT AND MAY VARY SUBSTANTIALLY FROM THOSE INDICATED. ATD = AT TIME OF DRILLING
LL=Liquid Limit, PL = Plastic Limit, NMC = Natural Moisture Content, PPV = Pocket Penetrometer (tsf), PTV = Pocket Torvane (tsf), HC = Hole Cave, AR = Auger Refusal

PROJECT:	Ford Blue Oval City - TVA Substation SR 222, Stanton, Tennessee S&ME Project No. 218019	BORING LOG: B-37 *Sheet 2 of 2*
DATE DRILLED: 02/16/2022	**ELEVATION:** 309 ft	**NOTES:**
DRILL RIG: Diedrich D-50 (track)	**DATUM:** NAVD88	
DRILLER: S&ME	**BORING DEPTH:** 40.0 ft	
HAMMER TYPE: Automatic hammer	**CLOSURE:** Cuttings	
DRILLING METHOD: Mud rotary	**LOGGED BY:** Talecia Dyson	**LATITUDE:** 35.417422 **LONGITUDE:** -89.40221
SAMPLING METHOD: SS	**PROJECT COORDINATE SYSTEM -** NAD 1983 StatePlane Tennessee FIPS 4100 Feet	

DEPTH (feet)	NOTES	Origin/Identifier	GRAPHIC	SAMPLE NO. (RECOVERY)	MATERIAL DESCRIPTION	BLOW COUNT DATA (SPT N-value)	STANDARD PENETRATION TEST DATA △ % Fines ○ NMC ⊢ PL---LL 20 40 60 80	ELEVATION
25		Marine Soils		SS-8	POORLY GRADED SAND (SP), loose to very dense, tan and orange, moist	3-3-4 N = 7	●	284
30				SS-9		10-10-7 N = 17	●	279
35				SS-10		5-6-7 N = 13	●	274
40	40.0			SS-11	Borehole terminated at 40.0 feet	23-28-38 N = 66	●	269

GROUNDWATER		DATE/TIME	DEPTH (FT)	REMARKS
ATD	▽			
END OF DRILLING	▼			
AFTER DRILLING	▼			
AFTER DRILLING	▼			

GROUNDWATER DEPTHS ARE NOT EXACT AND MAY VARY SUBSTANTIALLY FROM THOSE INDICATED. ATD = AT TIME OF DRILLING
LL=Liquid Limit, PL = Plastic Limit, NMC = Natural Moisture Content, PPV = Pocket Penetrometer (tsf), PTV = Pocket Torvane (tsf), HC = Hole Cave, AR = Auger Refusal

PROJECT:	Ford Blue Oval City - TVA Substation SR 222, Stanton, Tennessee S&ME Project No. 218019	BORING LOG: B-38 *Sheet 1 of 2*
DATE DRILLED: 02/07/2022	**ELEVATION:** 308 ft	**NOTES:**
DRILL RIG: Diedrich D-50 (track)	**DATUM:** NAVD88	
DRILLER: S&ME	**BORING DEPTH:** 38.0 ft	
HAMMER TYPE: Automatic hammer	**CLOSURE:** Cuttings	
DRILLING METHOD: HSA	**LOGGED BY:** Eric Conway	**LATITUDE:** 35.417411 **LONGITUDE:** -89.40154
SAMPLING METHOD: SS	**PROJECT COORDINATE SYSTEM -** NAD 1983 StatePlane Tennessee FIPS 4100 Feet	

DEPTH (feet)	NOTES	Origin/Identifier	GRAPHIC	SAMPLE NO. (RECOVERY)	MATERIAL DESCRIPTION	BLOW COUNT DATA (SPT N-value)	STANDARD PENETRATION TEST DATA (△ % Fines, ○ NMC, ⊢ PL---LL; 20 40 60 80)	ELEVATION
0		Cultivated Zone		SS-1	LEAN CLAY (CL), with silt, firm, brown, very moist	2-2-4 N = 6		
2.0		Loess			LEAN CLAY (CL), with silt, trace sand, stiff, brown and gray, very moist			303
5	pressuremeter test			SS-2		2-4-5 N = 9		
				SS-3		2-4-6 N = 10		298
10.0		Marine Soils			SILT WITH SAND (ML), firm to stiff, brown and gray, very moist			293
15	pressuremeter test			SS-4		7-8-10 N = 18		288
20								

GROUNDWATER		DATE/TIME	DEPTH (FT)	REMARKS
ATD	▽	02/08/2022		not encountered
END OF DRILLING	▼	02/08/2022		not encountered
AFTER DRILLING	▼			
AFTER DRILLING	▼			

GROUNDWATER DEPTHS ARE NOT EXACT AND MAY VARY SUBSTANTIALLY FROM THOSE INDICATED. ATD = AT TIME OF DRILLING
LL=Liquid Limit, PL = Plastic Limit, NMC = Natural Moisture Content, PPV = Pocket Penetrometer (tsf), PTV = Pocket Torvane (tsf), HC = Hole Cave, AR = Auger Refusal

PROJECT:	Ford Blue Oval City - TVA Substation SR 222, Stanton, Tennessee S&ME Project No. 218019	BORING LOG: B-38 *Sheet 2 of 2*
DATE DRILLED: 02/07/2022	**ELEVATION:** 308 ft	**NOTES:**
DRILL RIG: Diedrich D-50 (track)	**DATUM:** NAVD88	
DRILLER: S&ME	**BORING DEPTH:** 38.0 ft	
HAMMER TYPE: Automatic hammer	**CLOSURE:** Cuttings	
DRILLING METHOD: HSA	**LOGGED BY:** Eric Conway	**LATITUDE:** 35.417411 **LONGITUDE:** -89.40154
SAMPLING METHOD: SS	**PROJECT COORDINATE SYSTEM -** NAD 1983 StatePlane Tennessee FIPS 4100 Feet	

DEPTH (feet)	NOTES	Origin/Identifier	GRAPHIC	SAMPLE NO. (RECOVERY)	MATERIAL DESCRIPTION	BLOW COUNT DATA (SPT N-value)	STANDARD PENETRATION TEST DATA △ % Fines ○ NMC ⊢ PL---LL 20 40 60 80	ELEVATION
					SILT WITH SAND (ML), firm to stiff, brown and gray, very moist			
25	pressuremeter test	Marine Soils		SS-5		3-2-4 N = 6	●	283
30								278
35	pressuremeter test			SS-6		5-5-5 N = 10	●	273
38.0					Borehole terminated at 38.0 feet			268
40								

GROUNDWATER		DATE/TIME	DEPTH (FT)	REMARKS
ATD	▽	02/08/2022		not encountered
END OF DRILLING	▼	02/08/2022		not encountered
AFTER DRILLING	▼			
AFTER DRILLING	▼			

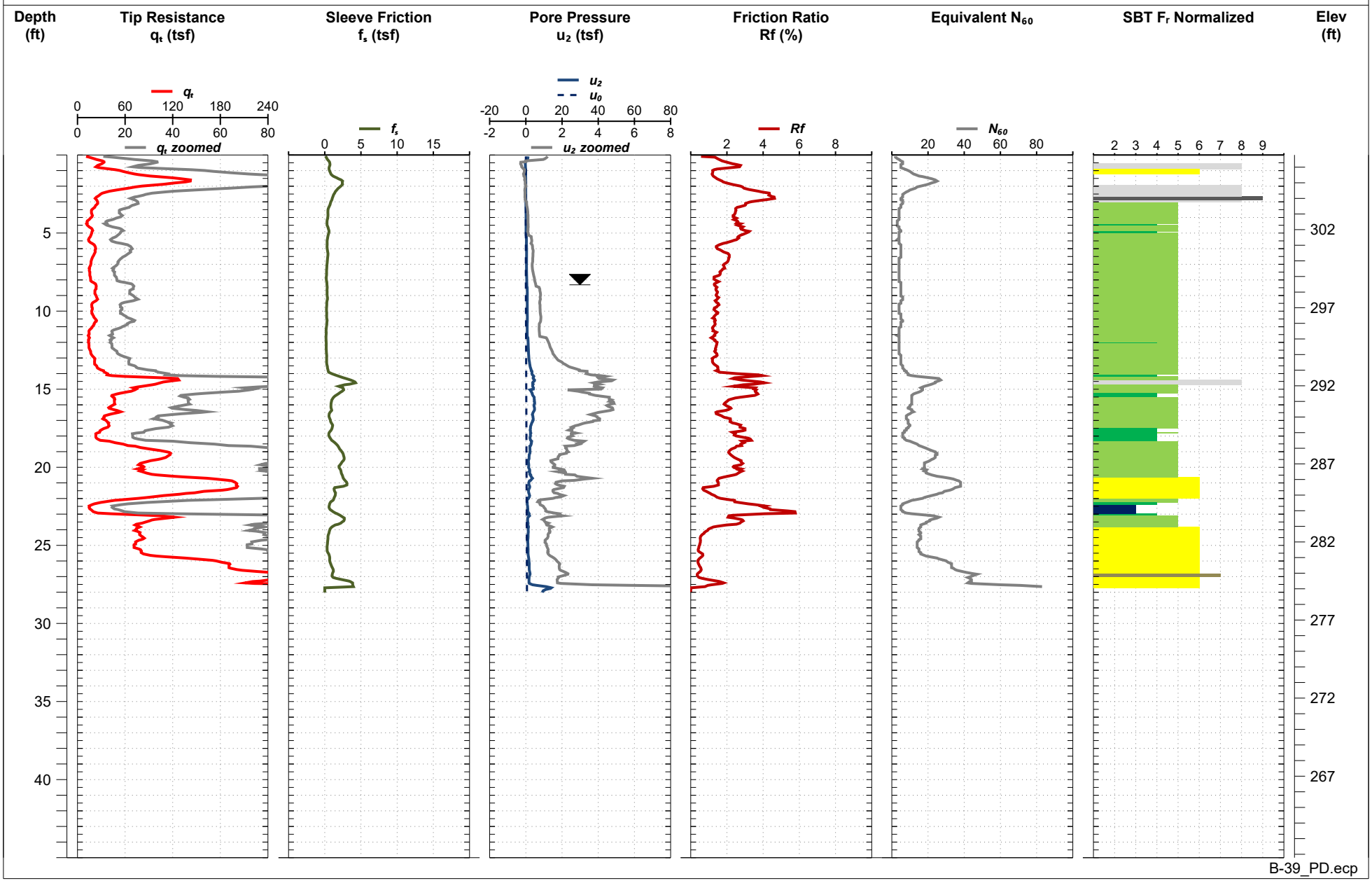
GROUNDWATER DEPTHS ARE NOT EXACT AND MAY VARY SUBSTANTIALLY FROM THOSE INDICATED. ATD = AT TIME OF DRILLING
LL=Liquid Limit, PL = Plastic Limit, NMC = Natural Moisture Content, PPV = Pocket Penetrometer (tsf), PTV = Pocket Torvane (tsf), HC = Hole Cave, AR = Auger Refusal

Ford Blue Oval City - TVA Substation
SR 222, Stanton, Tennessee
S&ME Project No. 218019

Cone Penetration Test

B-39

Date:	28-Jan-2022	**Latitude:**	35.417400	**Total Depth:**	28.0 ft
Estimated Water Depth:	8.0 ft	**Longitude:**	-89.40087	**Termination Criteria:**	
Rig/Operator:		**Elevation:**	306.78	**Cone Size:**	1.75



PROJECT:	Ford Blue Oval City - TVA Substation SR 222, Stanton, Tennessee S&ME Project No. 218019	BORING LOG: B-40 *Sheet 1 of 2*
DATE DRILLED: 03/01/2022	**ELEVATION:** 307 ft	**NOTES:**
DRILL RIG: Diedrich D-50 (track)	**DATUM:** NAVD88	
DRILLER: S&ME	**BORING DEPTH:** 40.0 ft	
HAMMER TYPE: Automatic hammer	**CLOSURE:** Cuttings	
DRILLING METHOD: Mud rotary	**LOGGED BY:** Talecia Dyson	**LATITUDE:** 35.417389 **LONGITUDE:** -89.40020
SAMPLING METHOD: SS	**PROJECT COORDINATE SYSTEM -** NAD 1983 StatePlane Tennessee FIPS 4100 Feet	

DEPTH (feet)	NOTES	Origin/Identifier	GRAPHIC	SAMPLE NO. (RECOVERY)	MATERIAL DESCRIPTION	BLOW COUNT DATA (SPT N-value)	STANDARD PENETRATION TEST DATA (△ % Fines, ○ NMC, ⊢ PL---LL; 20 40 60 80)	ELEVATION
0	0.3	Loess		SS-1	TOPSOIL, 3 inches LEAN CLAY (CL), few silt, few sand, very soft to firm, brown, very moist	2-1-2 N = 3		
				SS-2		2-1-1 N = 2		
				SS-3		0-0-0 N = 0		302
5				SS-4		0-0-0 N = 0		
				SS-5		2-3-4 N = 7 PPV= 0.2		297
10	12.0	Marine Soils		SS-6	POORLY GRADED SAND (SP), some clay, few silt, loose, gray, very moist	3-4-3 N = 7 PPV= 1.2		292
15	17.0			SS-7	POORLY GRADED SAND (SP), medium dense to very dense, gray, very moist	4-5-8 N = 13 PPV= 3.2		287
20								

GROUNDWATER		DATE/TIME	DEPTH (FT)	REMARKS
ATD	▽			
END OF DRILLING	▼			
AFTER DRILLING	▼			
AFTER DRILLING	▼			

GROUNDWATER DEPTHS ARE NOT EXACT AND MAY VARY SUBSTANTIALLY FROM THOSE INDICATED. ATD = AT TIME OF DRILLING
LL=Liquid Limit, PL = Plastic Limit, NMC = Natural Moisture Content, PPV = Pocket Penetrometer (tsf), PTV = Pocket Torvane (tsf), HC = Hole Cave, AR = Auger Refusal

PROJECT:	Ford Blue Oval City - TVA Substation SR 222, Stanton, Tennessee S&ME Project No. 218019	BORING LOG: B-40 *Sheet 2 of 2*
DATE DRILLED: 03/01/2022	**ELEVATION:** 307 ft	**NOTES:**
DRILL RIG: Diedrich D-50 (track)	**DATUM:** NAVD88	
DRILLER: S&ME	**BORING DEPTH:** 40.0 ft	
HAMMER TYPE: Automatic hammer	**CLOSURE:** Cuttings	
DRILLING METHOD: Mud rotary	**LOGGED BY:** Talecia Dyson	**LATITUDE:** 35.417389 **LONGITUDE:** -89.40020
SAMPLING METHOD: SS	**PROJECT COORDINATE SYSTEM -** NAD 1983 StatePlane Tennessee FIPS 4100 Feet	

DEPTH (feet)	NOTES	Origin/Identifier	GRAPHIC	SAMPLE NO. (RECOVERY)	MATERIAL DESCRIPTION	BLOW COUNT DATA (SPT N-value)	STANDARD PENETRATION TEST DATA (△ % Fines, ○ NMC, ⊢ PL---LL; 20 40 60 80)	ELEVATION
25		Marine Soils		SS-8	POORLY GRADED SAND (SP), medium dense to very dense, gray, very moist	4-6-6 N = 12		282
30				SS-9		10-12-15 N = 27		277
35				SS-10		14-17-25 N = 42		272
40	40.0			SS-11	Borehole terminated at 40.0 feet	21-31-50/6" N = 50/6"		267

GROUNDWATER		DATE/TIME	DEPTH (FT)	REMARKS
ATD	▽			
END OF DRILLING	▼			
AFTER DRILLING	▼			
AFTER DRILLING	▼			

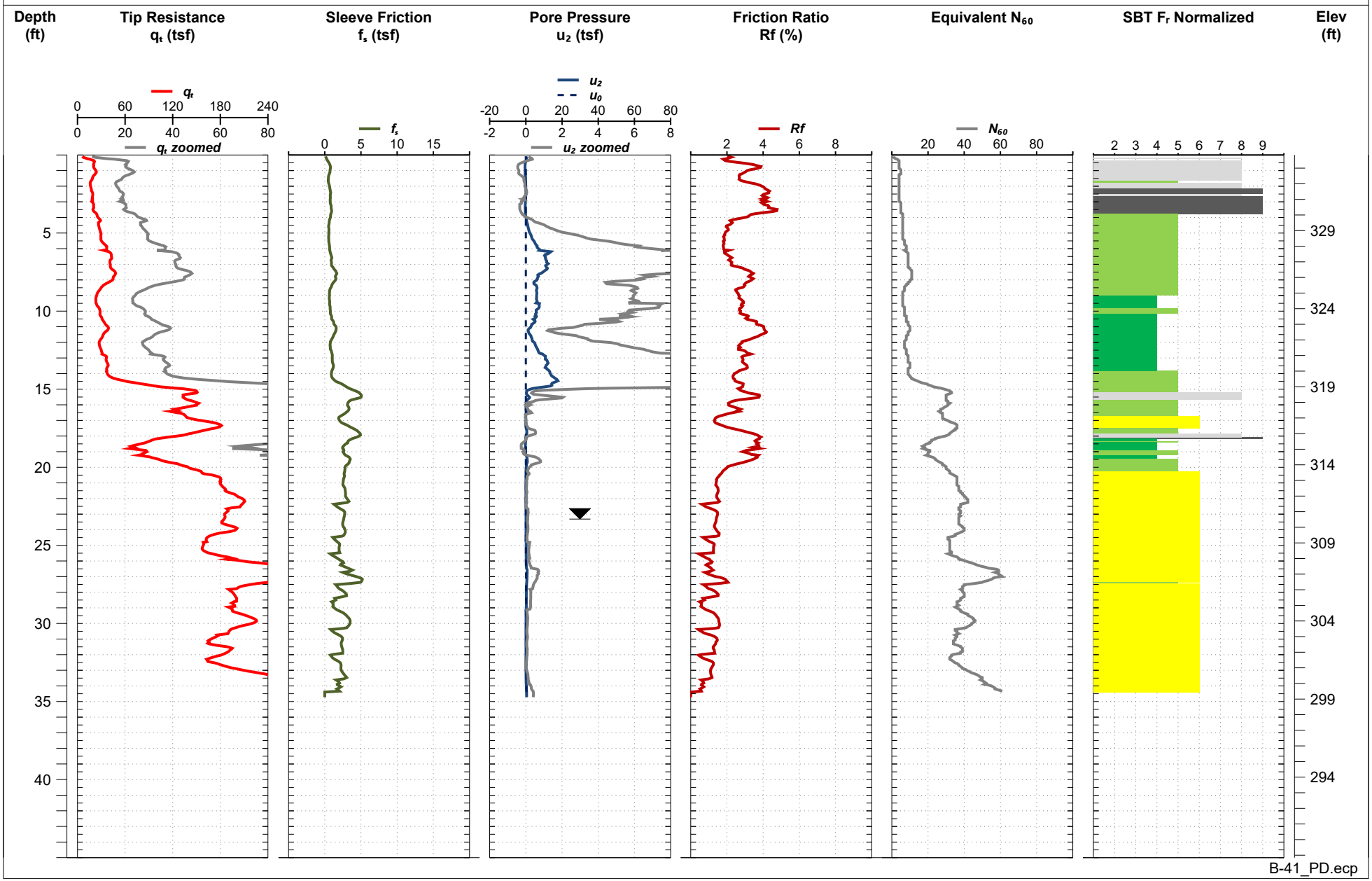
GROUNDWATER DEPTHS ARE NOT EXACT AND MAY VARY SUBSTANTIALLY FROM THOSE INDICATED. ATD = AT TIME OF DRILLING
LL=Liquid Limit, PL = Plastic Limit, NMC = Natural Moisture Content, PPV = Pocket Penetrometer (tsf), PTV = Pocket Torvane (tsf), HC = Hole Cave, AR = Auger Refusal

Ford Blue Oval City - TVA Substation
SR 222, Stanton, Tennessee
S&ME Project No. 218019

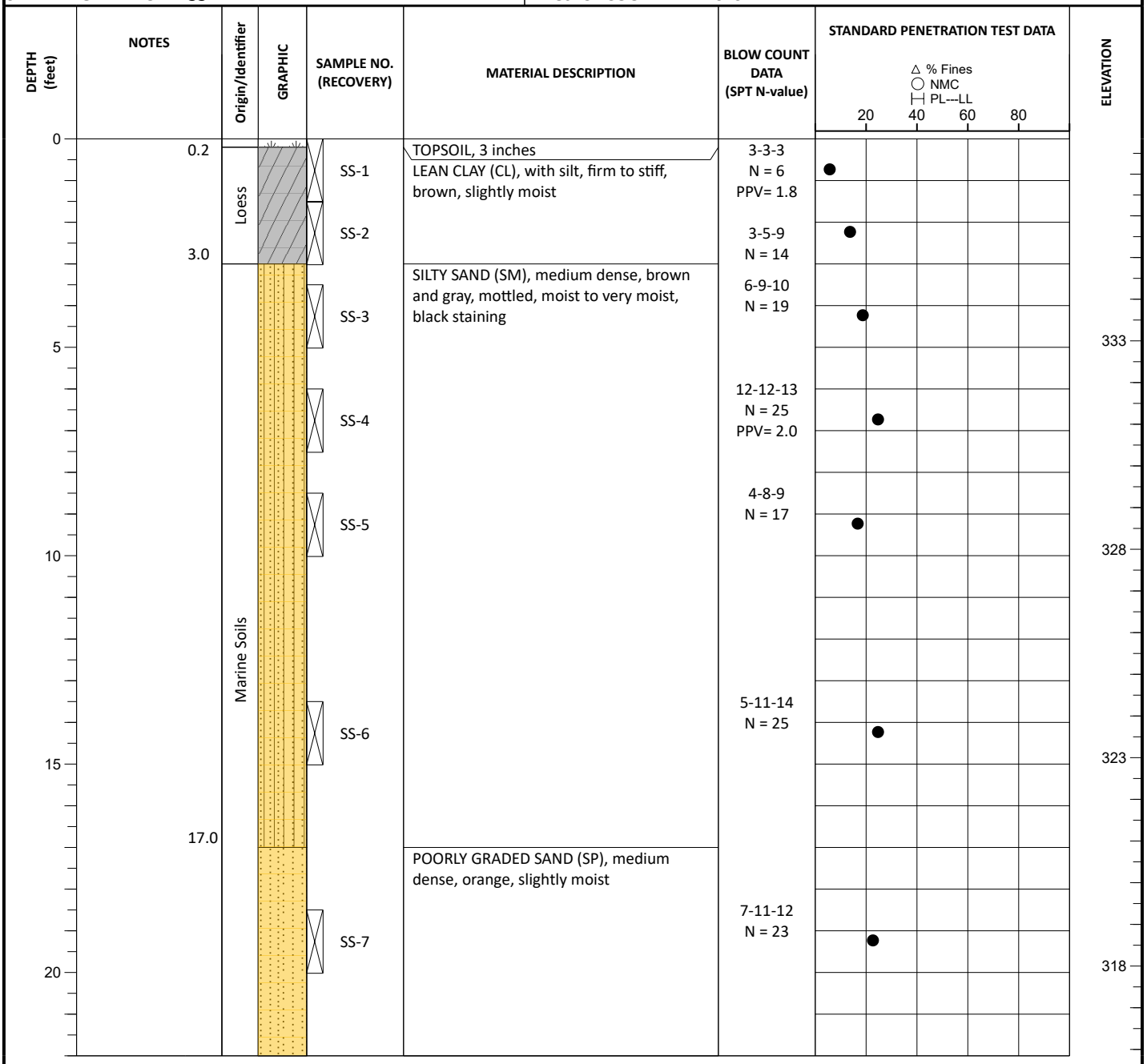
Cone Penetration Test

B-41

Date:	25-Jan-2022	**Latitude:**	35.416967	**Total Depth:**	34.7 ft
Estimated Water Depth:	23.0 ft	**Longitude:**	-89.40625	**Termination Criteria:**	Maximum Reaction Force
Rig/Operator:	Gyrotrack	**Elevation:**	333.84	**Cone Size:**	1.75



PROJECT:	Ford Blue Oval City - TVA Substation SR 222, Stanton, Tennessee S&ME Project No. 218019	BORING LOG: B-42 *Sheet 1 of 2*
DATE DRILLED: 01/31/2022	**ELEVATION:** 338 ft	**NOTES:**
DRILL RIG: Diedrich D-50 (track)	**DATUM:** NAVD88	
DRILLER: S&ME	**BORING DEPTH:** 40.0 ft	
HAMMER TYPE: Automatic hammer	**CLOSURE:** Cuttings	
DRILLING METHOD: HSA	**LOGGED BY:** Talecia Dyson	**LATITUDE:** 35.416955 **LONGITUDE:** -89.40553
SAMPLING METHOD: SS	**PROJECT COORDINATE SYSTEM -** NAD 1983 StatePlane Tennessee FIPS 4100 Feet	



GROUNDWATER		DATE/TIME	DEPTH (FT)	REMARKS
ATD	▽	01/31/2022		not encountered - hole cave at 22.2 feet
END OF DRILLING	▼	01/31/2022		1 hour reading - dry cave at 22.2 feet
AFTER DRILLING	▼	02/01/2022		24 hour reading - dry cave at 22.2 feet
AFTER DRILLING	▼			

GROUNDWATER DEPTHS ARE NOT EXACT AND MAY VARY SUBSTANTIALLY FROM THOSE INDICATED. ATD = AT TIME OF DRILLING
LL=Liquid Limit, PL = Plastic Limit, NMC = Natural Moisture Content, PPV = Pocket Penetrometer (tsf), PTV = Pocket Torvane (tsf), HC = Hole Cave, AR = Auger Refusal

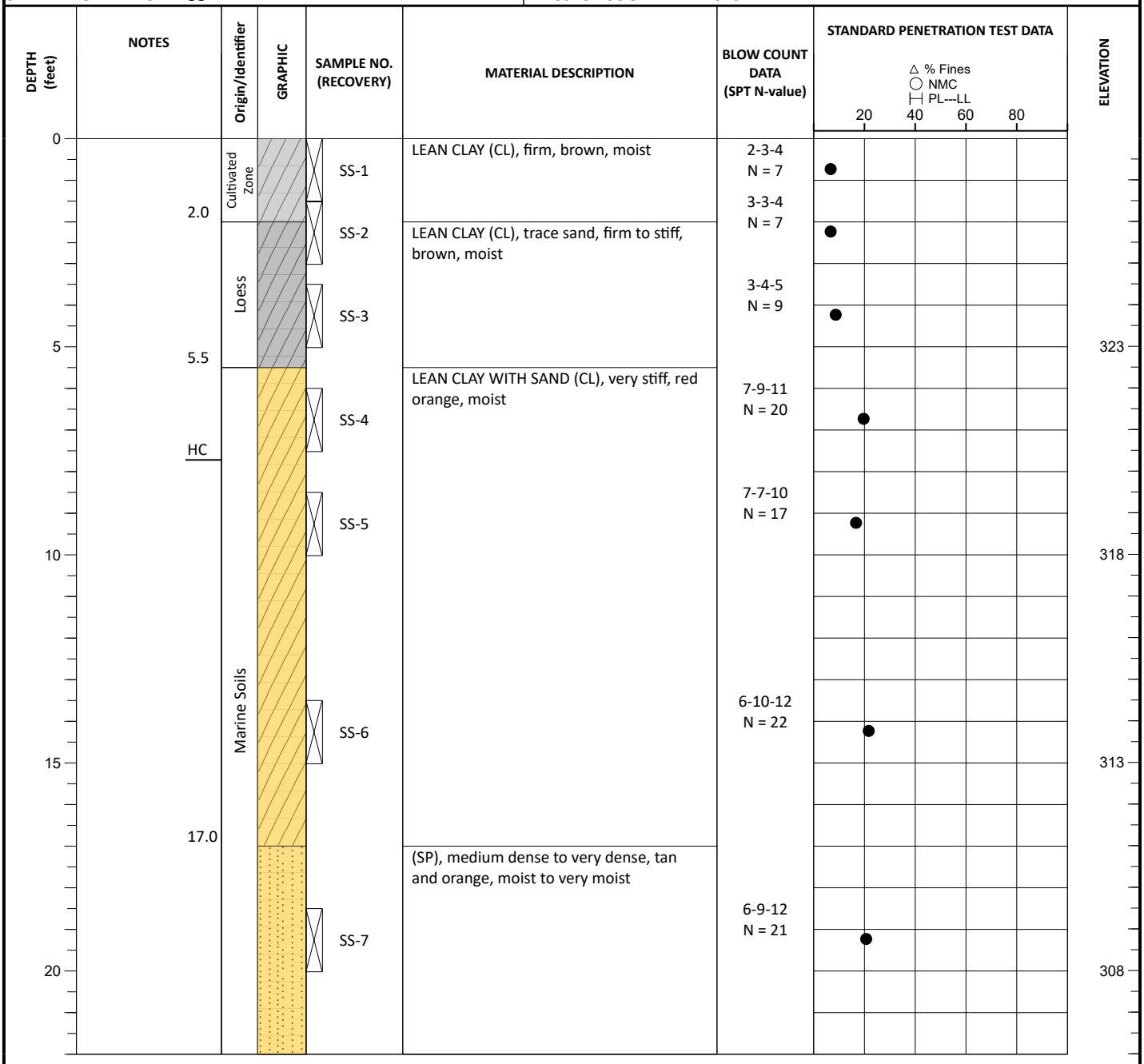
PROJECT:	Ford Blue Oval City - TVA Substation SR 222, Stanton, Tennessee S&ME Project No. 218019	BORING LOG: B-42 *Sheet 2 of 2*
DATE DRILLED: 01/31/2022	**ELEVATION:** 338 ft	**NOTES:**
DRILL RIG: Diedrich D-50 (track)	**DATUM:** NAVD88	
DRILLER: S&ME	**BORING DEPTH:** 40.0 ft	
HAMMER TYPE: Automatic hammer	**CLOSURE:** Cuttings	
DRILLING METHOD: HSA	**LOGGED BY:** Talecia Dyson	**LATITUDE:** 35.416955 **LONGITUDE:** -89.40553
SAMPLING METHOD: SS	**PROJECT COORDINATE SYSTEM -** NAD 1983 StatePlane Tennessee FIPS 4100 Feet	

DEPTH (feet)	NOTES	Origin/Identifier	GRAPHIC	SAMPLE NO. (RECOVERY)	MATERIAL DESCRIPTION	BLOW COUNT DATA (SPT N-value)	STANDARD PENETRATION TEST DATA (△ % Fines, ○ NMC, ⊢ PL---LL; 20 40 60 80)	ELEVATION
25		Marine Soils		SS-8	POORLY GRADED SAND (SP), medium dense, orange, slightly moist	5-6-10 N = 16		313
30				SS-9		5-7-11 N = 18		308
35				SS-10		7-10-11 N = 21		303
40	40.0			SS-11	Borehole terminated at 40.0 feet	11-33-50/3" N = 50/3"		298

GROUNDWATER		DATE/TIME	DEPTH (FT)	REMARKS
ATD	▽	01/31/2022		not encountered - hole cave at 22.2 feet
END OF DRILLING	▼	01/31/2022		1 hour reading - dry cave at 22.2 feet
AFTER DRILLING	▼	02/01/2022		24 hour reading - dry cave at 22.2 feet
AFTER DRILLING	▼			

GROUNDWATER DEPTHS ARE NOT EXACT AND MAY VARY SUBSTANTIALLY FROM THOSE INDICATED. ATD = AT TIME OF DRILLING
LL=Liquid Limit, PL = Plastic Limit, NMC = Natural Moisture Content, PPV = Pocket Penetrometer (tsf), PTV = Pocket Torvane (tsf), HC = Hole Cave, AR = Auger Refusal

PROJECT:	Ford Blue Oval City - TVA Substation SR 222, Stanton, Tennessee S&ME Project No. 218019	BORING LOG: B-43 *Sheet 1 of 2*
DATE DRILLED: 02/05/2022	**ELEVATION:** 328 ft	**NOTES:**
DRILL RIG: Diedrich D-50 (track)	**DATUM:** NAVD88	
DRILLER: S&ME	**BORING DEPTH:** 40.0 ft	
HAMMER TYPE: Automatic hammer	**CLOSURE:** Cuttings	
DRILLING METHOD: Mud rotary	**LOGGED BY:** Talecia Dyson	**LATITUDE:** 35.416945 **LONGITUDE:** -89.40491
SAMPLING METHOD: SS	**PROJECT COORDINATE SYSTEM -** NAD 1983 StatePlane Tennessee FIPS 4100 Feet	



GROUNDWATER		DATE/TIME	DEPTH (FT)	REMARKS
ATD	▽	02/01/2022		not encountered - hole cave at 7.7 ft
END OF DRILLING	▼	02/01/2022		1 hour reading - dry cave at 7.7 feet
AFTER DRILLING	▼	02/02/2022		24 hour reading - dry cave at 7.7 feet
AFTER DRILLING	▼			

GROUNDWATER DEPTHS ARE NOT EXACT AND MAY VARY SUBSTANTIALLY FROM THOSE INDICATED. ATD = AT TIME OF DRILLING
LL=Liquid Limit, PL = Plastic Limit, NMC = Natural Moisture Content, PPV = Pocket Penetrometer (tsf), PTV = Pocket Torvane (tsf), HC = Hole Cave, AR = Auger Refusal

PROJECT:	Ford Blue Oval City - TVA Substation SR 222, Stanton, Tennessee S&ME Project No. 218019	BORING LOG: B-43 *Sheet 2 of 2*
DATE DRILLED: 02/05/2022	**ELEVATION:** 328 ft	**NOTES:**
DRILL RIG: Diedrich D-50 (track)	**DATUM:** NAVD88	
DRILLER: S&ME	**BORING DEPTH:** 40.0 ft	
HAMMER TYPE: Automatic hammer	**CLOSURE:** Cuttings	
DRILLING METHOD: Mud rotary	**LOGGED BY:** Talecia Dyson	**LATITUDE:** 35.416945 **LONGITUDE:** -89.40491
SAMPLING METHOD: SS	**PROJECT COORDINATE SYSTEM -** NAD 1983 StatePlane Tennessee FIPS 4100 Feet	

DEPTH (feet)	NOTES	Origin/Identifier	GRAPHIC	SAMPLE NO. (RECOVERY)	MATERIAL DESCRIPTION	BLOW COUNT DATA (SPT N-value)	STANDARD PENETRATION TEST DATA (△ % Fines, ○ NMC, ⊢ PL---LL; 20 40 60 80)	ELEVATION
25		Marine Soils		SS-8	(SP), medium dense to very dense, tan and orange, moist to very moist	11-13-17 N = 30		303
30				SS-9		17-28-44 N = 72		298
35				SS-10		13-35-50/4" N = 50/4"		293
40	40.0			SS-11	Borehole terminated at 40.0 feet	20-34-50/5" N = 50/5"		288

GROUNDWATER		DATE/TIME	DEPTH (FT)	REMARKS
ATD	▽	02/01/2022		not encountered - hole cave at 7.7 ft
END OF DRILLING	▼	02/01/2022		1 hour reading - dry cave at 7.7 feet
AFTER DRILLING	▼	02/02/2022		24 hour reading - dry cave at 7.7 feet
AFTER DRILLING	▼			

GROUNDWATER DEPTHS ARE NOT EXACT AND MAY VARY SUBSTANTIALLY FROM THOSE INDICATED. ATD = AT TIME OF DRILLING
LL=Liquid Limit, PL = Plastic Limit, NMC = Natural Moisture Content, PPV = Pocket Penetrometer (tsf), PTV = Pocket Torvane (tsf), HC = Hole Cave, AR = Auger Refusal

PROJECT:	Ford Blue Oval City - TVA Substation SR 222, Stanton, Tennessee S&ME Project No. 218019	BORING LOG: B-44 *Sheet 1 of 2*
DATE DRILLED: 02/23/2022	**ELEVATION:** 319 ft	**NOTES:**
DRILL RIG: Diedrich D-50 (track)	**DATUM:** NAVD88	
DRILLER: S&ME	**BORING DEPTH:** 40.0 ft	
HAMMER TYPE: Automatic hammer	**CLOSURE:** Cuttings	
DRILLING METHOD: Mud rotary	**LOGGED BY:** Talecia Dyson	**LATITUDE:** 35.416934 **LONGITUDE:** -89.40424
SAMPLING METHOD: SS	**PROJECT COORDINATE SYSTEM -** NAD 1983 StatePlane Tennessee FIPS 4100 Feet	

DEPTH (feet)	NOTES	Origin/Identifier	GRAPHIC	SAMPLE NO. (RECOVERY)	MATERIAL DESCRIPTION	BLOW COUNT DATA (SPT N-value)	STANDARD PENETRATION TEST DATA (△ % Fines, ○ NMC, ⊢ PL---LL; 20 40 60 80)	ELEVATION
0	0.3				TOPSOIL, 4 inches			319
		Loess		SS-1	LEAN CLAY (CL), some silt, some sand, firm to stiff, brown, moist	3-2-3 N = 5 PPV= 0.8	● ○	
				SS-2		4-4-5 N = 9 PPV= 0.8	●	
				SS-3		3-4-5 N = 9 PPV= 2.0	● ○	
5				SS-4		3-4-6 N = 10 PPV= 1.8	●	314
				SS-5		3-5-5 N = 10 PPV= 1.2	● ○	
10								309
				SS-6		3-4-5 N = 9 PPV= 0.8	●	
15								304
	17.0	Marine Soils			POORLY GRADED SAND (SP), loose to dense, orange, moist to very moist			
				SS-7		2-3-4 N = 7	● ○	
20								299

GROUNDWATER		DATE/TIME	DEPTH (FT)	REMARKS
ATD	▽			
END OF DRILLING	▼			
AFTER DRILLING	▼	03/01/2022	23.0	144 hour reading
AFTER DRILLING	▼	03/03/2022	23.0	192 hour reading

GROUNDWATER DEPTHS ARE NOT EXACT AND MAY VARY SUBSTANTIALLY FROM THOSE INDICATED. ATD = AT TIME OF DRILLING
LL=Liquid Limit, PL = Plastic Limit, NMC = Natural Moisture Content, PPV = Pocket Penetrometer (tsf), PTV = Pocket Torvane (tsf), HC = Hole Cave, AR = Auger Refusal

PROJECT:	Ford Blue Oval City - TVA Substation SR 222, Stanton, Tennessee S&ME Project No. 218019	BORING LOG: B-44 *Sheet 2 of 2*
DATE DRILLED: 02/23/2022	**ELEVATION:** 319 ft	**NOTES:**
DRILL RIG: Diedrich D-50 (track)	**DATUM:** NAVD88	
DRILLER: S&ME	**BORING DEPTH:** 40.0 ft	
HAMMER TYPE: Automatic hammer	**CLOSURE:** Cuttings	
DRILLING METHOD: Mud rotary	**LOGGED BY:** Talecia Dyson	**LATITUDE:** 35.416934 **LONGITUDE:** -89.40424
SAMPLING METHOD: SS	**PROJECT COORDINATE SYSTEM -** NAD 1983 StatePlane Tennessee FIPS 4100 Feet	

DEPTH (feet)	NOTES	Origin/Identifier	GRAPHIC	SAMPLE NO. (RECOVERY)	MATERIAL DESCRIPTION	BLOW COUNT DATA (SPT N-value)	STANDARD PENETRATION TEST DATA (△ % Fines, ○ NMC, ⊢ PL---LL; 20 40 60 80)	ELEVATION
25		Marine Soils		SS-8	POORLY GRADED SAND (SP), loose to dense, orange, moist to very moist	11-18-22 N = 40		294
30				SS-9		15-23-24 N = 47		289
35				SS-10		12-22-25 N = 47		284
40	40.0			SS-11	Borehole terminated at 40.0 feet	11-25-25 N = 50		279

GROUNDWATER		DATE/TIME	DEPTH (FT)	REMARKS
ATD	▽			
END OF DRILLING	▼			
AFTER DRILLING	▼	03/01/2022	23.0	144 hour reading
AFTER DRILLING	▼	03/03/2022	23.0	192 hour reading

GROUNDWATER DEPTHS ARE NOT EXACT AND MAY VARY SUBSTANTIALLY FROM THOSE INDICATED. ATD = AT TIME OF DRILLING
LL=Liquid Limit, PL = Plastic Limit, NMC = Natural Moisture Content, PPV = Pocket Penetrometer (tsf), PTV = Pocket Torvane (tsf), HC = Hole Cave, AR = Auger Refusal

PROJECT:	Ford Blue Oval City - TVA Substation SR 222, Stanton, Tennessee S&ME Project No. 218019	BORING LOG: B-45 *Sheet 1 of 2*
DATE DRILLED: 02/06/2022	**ELEVATION:** 311 ft	**NOTES:**
DRILL RIG: Diedrich D-50 (track)	**DATUM:** NAVD88	
DRILLER: S&ME	**BORING DEPTH:** 40.0 ft	
HAMMER TYPE: Automatic hammer	**CLOSURE:** Cuttings	
DRILLING METHOD: Mud rotary	**LOGGED BY:** Talecia Dyson	**LATITUDE:** 35.416922 **LONGITUDE:** -89.40350
SAMPLING METHOD: SS	**PROJECT COORDINATE SYSTEM -** NAD 1983 StatePlane Tennessee FIPS 4100 Feet	

DEPTH (feet)	NOTES	Origin/Identifier	GRAPHIC	SAMPLE NO. (RECOVERY)	MATERIAL DESCRIPTION	BLOW COUNT DATA (SPT N-value)	STANDARD PENETRATION TEST DATA △ % Fines ○ NMC ⊢ PL---LL 20 40 60 80	ELEVATION
0	0.3	Cultivated Zone		SS-1	TOPSOIL, 3 inches LEAN CLAY (CL), some silt, soft, brown, very moist	2-2-2 N = 4	●	
				SS-2		2-2-2 N = 4	●	
	3.0	Loess		SS-3	LEAN CLAY (CL), few silt, little sand, firm to stiff, brown and gray, very moist to wet	2-2-3 N = 5	●	
5				SS-4		3-3-4 N = 7 PPV= 1.0	●	306
				SS-5		2-2-4 N = 6 PPV= 0.8	●	
10								301
				SS-6		2-2-3 N = 5 PPV= 1.0	●	
15								296
				SS-7		4-5-6 N = 11 PPV= 2.0	●	
20	20.0	Marine Soils			SILT WITH SAND (ML), stiff to very stiff, gray, very moist to wet			291

GROUNDWATER		DATE/TIME	DEPTH (FT)	REMARKS
ATD	▽	02/06/2022		not encountered
END OF DRILLING	▼	02/06/2022		1 hour reading - not encountered
AFTER DRILLING	▼			
AFTER DRILLING	▼			

GROUNDWATER DEPTHS ARE NOT EXACT AND MAY VARY SUBSTANTIALLY FROM THOSE INDICATED. ATD = AT TIME OF DRILLING
LL=Liquid Limit, PL = Plastic Limit, NMC = Natural Moisture Content, PPV = Pocket Penetrometer (tsf), PTV = Pocket Torvane (tsf), HC = Hole Cave, AR = Auger Refusal

PROJECT:	Ford Blue Oval City - TVA Substation SR 222, Stanton, Tennessee S&ME Project No. 218019	BORING LOG: B-45 *Sheet 2 of 2*
DATE DRILLED: 02/06/2022	**ELEVATION:** 311 ft	**NOTES:**
DRILL RIG: Diedrich D-50 (track)	**DATUM:** NAVD88	
DRILLER: S&ME	**BORING DEPTH:** 40.0 ft	
HAMMER TYPE: Automatic hammer	**CLOSURE:** Cuttings	
DRILLING METHOD: Mud rotary	**LOGGED BY:** Talecia Dyson	**LATITUDE:** 35.416922 **LONGITUDE:** -89.40350
SAMPLING METHOD: SS	**PROJECT COORDINATE SYSTEM -** NAD 1983 StatePlane Tennessee FIPS 4100 Feet	

DEPTH (feet)	NOTES	Origin/Identifier	GRAPHIC	SAMPLE NO. (RECOVERY)	MATERIAL DESCRIPTION	BLOW COUNT DATA (SPT N-value)	STANDARD PENETRATION TEST DATA △ % Fines ○ NMC ⊢ PL---LL 20 40 60 80	ELEVATION
25		Marine Soils		SS-8	SILT WITH SAND (ML), stiff to very stiff, gray, very moist to wet	4-5-7 N = 12 PPV= 4.2		286
30				SS-9		3-10-13 N = 23		281
					SILTY SAND (SM), dense, gray, very moist			
35	32.0 35.0			SS-10	POORLY GRADED SAND WITH SILT (SP-SM), very dense, orange and red, very moist	19-20-22 N = 42		276
40	40.0			SS-11	Borehole terminated at 40.0 feet	16-27-32 N = 59		271

GROUNDWATER		DATE/TIME	DEPTH (FT)	REMARKS
ATD	▽	02/06/2022		not encountered
END OF DRILLING	▼	02/06/2022		1 hour reading - not encountered
AFTER DRILLING	▼			
AFTER DRILLING	▼			

GROUNDWATER DEPTHS ARE NOT EXACT AND MAY VARY SUBSTANTIALLY FROM THOSE INDICATED. ATD = AT TIME OF DRILLING
LL=Liquid Limit, PL = Plastic Limit, NMC = Natural Moisture Content, PPV = Pocket Penetrometer (tsf), PTV = Pocket Torvane (tsf), HC = Hole Cave, AR = Auger Refusal

PROJECT:	Ford Blue Oval City - TVA Substation SR 222, Stanton, Tennessee S&ME Project No. 218019	BORING LOG: B-46 *Sheet 1 of 2*
DATE DRILLED: 02/28/2022	**ELEVATION:** 309 ft	**NOTES:**
DRILL RIG: Diedrich D-50 (track)	**DATUM:** NAVD88	
DRILLER: S&ME	**BORING DEPTH:** 40.0 ft	
HAMMER TYPE: Automatic hammer	**CLOSURE:** Cuttings	
DRILLING METHOD: Mud rotary	**LOGGED BY:** Talecia Dyson	**LATITUDE:** 35.416912 **LONGITUDE:** -89.40290
SAMPLING METHOD: SS	**PROJECT COORDINATE SYSTEM -** NAD 1983 StatePlane Tennessee FIPS 4100 Feet	

DEPTH (feet)	NOTES	Origin/Identifier	GRAPHIC	SAMPLE NO. (RECOVERY)	MATERIAL DESCRIPTION	BLOW COUNT DATA (SPT N-value)	STANDARD PENETRATION TEST DATA △ % Fines ○ NMC ⊢ PL---LL 20 40 60 80	ELEVATION
0	0.2	Loess		SS-1	TOPSOIL, 2 inches LEAN CLAY (CL), little sand, some silt, soft to stiff, brown and gray, slightly moist to moist	2-1-3 N = 4 PPV= 1.0	●	309
				SS-2		3-4-5 N = 9 PPV= 1.2	●	
				SS-3		3-3-4 N = 7 PPV= 1.0	●	
5				SS-4		2-4-5 N = 9 PPV= 1.2	●	304
				SS-5		2-3-3 N = 6 PPV= 1.0	●	
10								299
				SS-6		3-2-3 N = 5	●	
15								294
	17.0	Marine Soils		SS-7	LEAN CLAY WITH SAND (CL), firm to stiff, orange and gray, moist	4-4-4 N = 8	●	
20								289

GROUNDWATER		DATE/TIME	DEPTH (FT)	REMARKS
ATD	▽			
END OF DRILLING	▼			
AFTER DRILLING	▼	02/28/2022		
AFTER DRILLING	▼			

GROUNDWATER DEPTHS ARE NOT EXACT AND MAY VARY SUBSTANTIALLY FROM THOSE INDICATED. ATD = AT TIME OF DRILLING
LL=Liquid Limit, PL = Plastic Limit, NMC = Natural Moisture Content, PPV = Pocket Penetrometer (tsf), PTV = Pocket Torvane (tsf), HC = Hole Cave, AR = Auger Refusal

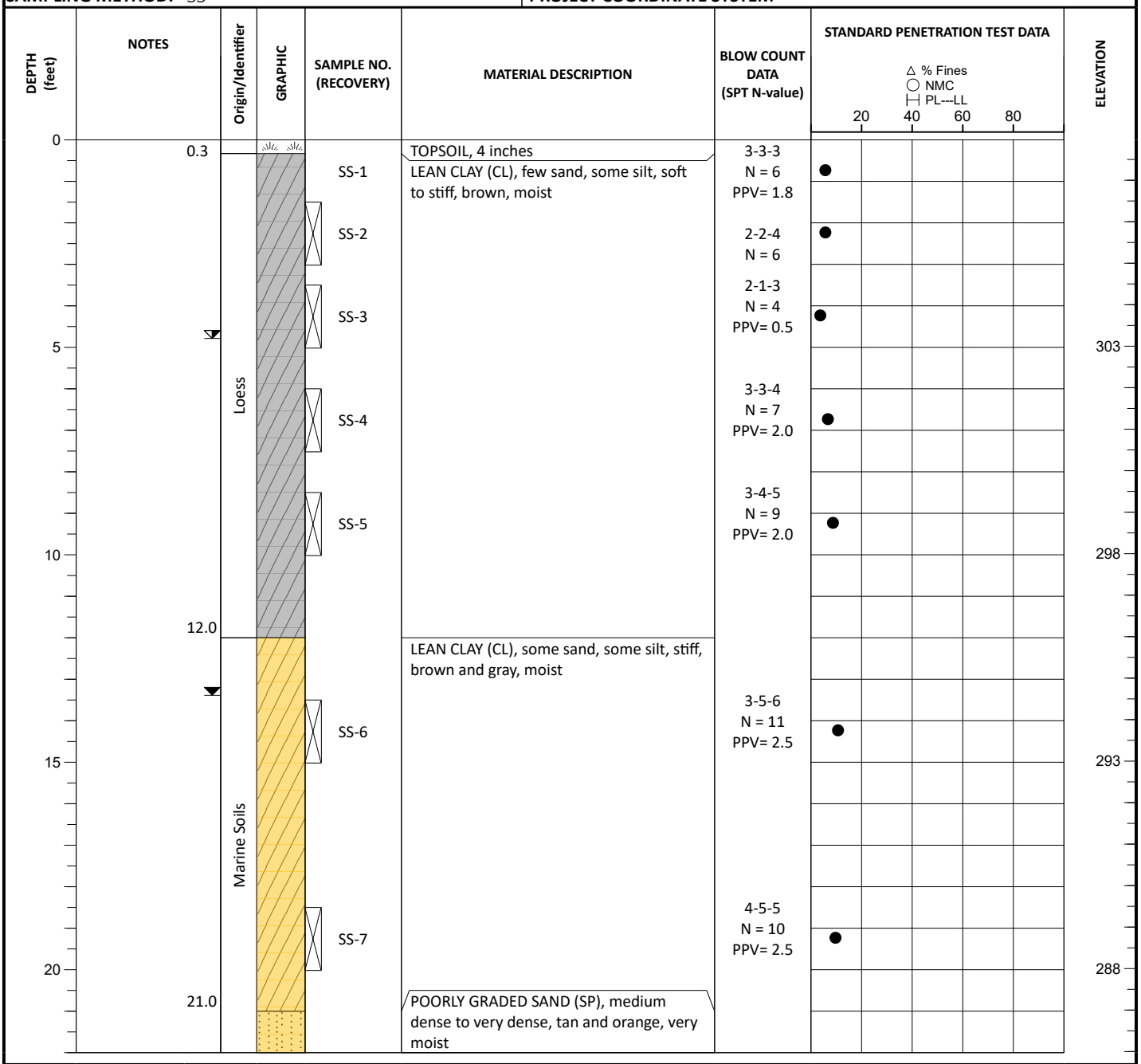
PROJECT:	Ford Blue Oval City - TVA Substation SR 222, Stanton, Tennessee S&ME Project No. 218019	BORING LOG: B-46 *Sheet 2 of 2*
DATE DRILLED: 02/28/2022	**ELEVATION:** 309 ft	**NOTES:**
DRILL RIG: Diedrich D-50 (track)	**DATUM:** NAVD88	
DRILLER: S&ME	**BORING DEPTH:** 40.0 ft	
HAMMER TYPE: Automatic hammer	**CLOSURE:** Cuttings	
DRILLING METHOD: Mud rotary	**LOGGED BY:** Talecia Dyson	**LATITUDE:** 35.416912 **LONGITUDE:** -89.40290
SAMPLING METHOD: SS	**PROJECT COORDINATE SYSTEM -** NAD 1983 StatePlane Tennessee FIPS 4100 Feet	

DEPTH (feet)	NOTES	Origin/Identifier	GRAPHIC	SAMPLE NO. (RECOVERY)	MATERIAL DESCRIPTION	BLOW COUNT DATA (SPT N-value)	STANDARD PENETRATION TEST DATA △ % Fines ○ NMC ⊢ PL---LL 20 40 60 80	ELEVATION
25	HC	Marine Soils		SS-8	LEAN CLAY WITH SAND (CL), firm to stiff, orange and gray, moist	4-3-4 N = 7	●	284
30				SS-9		4-4-5 N = 9 PPV= 4.5	●	279
	31.0				POORLY GRADED SAND (SP), dense, orange and gray, very moist			
35				SS-10		9-15-28 N = 43	●	274
				SS-11		22-20-18 N = 38	●	
40	40.0				Borehole terminated at 40.0 feet			269

GROUNDWATER		DATE/TIME	DEPTH (FT)	REMARKS
ATD	▽			
END OF DRILLING	▼			
AFTER DRILLING	▼	02/28/2022		
AFTER DRILLING	▼			

GROUNDWATER DEPTHS ARE NOT EXACT AND MAY VARY SUBSTANTIALLY FROM THOSE INDICATED. ATD = AT TIME OF DRILLING
LL=Liquid Limit, PL = Plastic Limit, NMC = Natural Moisture Content, PPV = Pocket Penetrometer (tsf), PTV = Pocket Torvane (tsf), HC = Hole Cave, AR = Auger Refusal

PROJECT:	Ford Blue Oval City - TVA Substation SR 222, Stanton, Tennessee S&ME Project No. 218019	BORING LOG: B-47 *Sheet 1 of 2*
DATE DRILLED: 02/16/2022	**ELEVATION:** 308 ft	**NOTES:**
DRILL RIG: Diedrich D-50 (track)	**DATUM:** NAVD88	
DRILLER: S&ME	**BORING DEPTH:** 40.0 ft	
HAMMER TYPE: Automatic hammer	**CLOSURE:** Cuttings	
DRILLING METHOD: Mud rotary	**LOGGED BY:** Talecia Dyson	**LATITUDE:** 35.416900 **LONGITUDE:** -89.40222
SAMPLING METHOD: SS	**PROJECT COORDINATE SYSTEM -** NAD 1983 StatePlane Tennessee FIPS 4100 Feet	



GROUNDWATER		DATE/TIME	DEPTH (FT)	REMARKS
ATD	▽			
END OF DRILLING	▼	02/16/2022	4.7	1 hour reading
AFTER DRILLING	▼	02/20/2022	13.3	96 hour reading
AFTER DRILLING	▼			

GROUNDWATER DEPTHS ARE NOT EXACT AND MAY VARY SUBSTANTIALLY FROM THOSE INDICATED. ATD = AT TIME OF DRILLING
LL=Liquid Limit, PL = Plastic Limit, NMC = Natural Moisture Content, PPV = Pocket Penetrometer (tsf), PTV = Pocket Torvane (tsf), HC = Hole Cave, AR = Auger Refusal

PROJECT:	Ford Blue Oval City - TVA Substation SR 222, Stanton, Tennessee S&ME Project No. 218019	BORING LOG: B-47 *Sheet 2 of 2*
DATE DRILLED: 02/16/2022	**ELEVATION:** 308 ft	**NOTES:**
DRILL RIG: Diedrich D-50 (track)	**DATUM:** NAVD88	
DRILLER: S&ME	**BORING DEPTH:** 40.0 ft	
HAMMER TYPE: Automatic hammer	**CLOSURE:** Cuttings	
DRILLING METHOD: Mud rotary	**LOGGED BY:** Talecia Dyson	**LATITUDE:** 35.416900 **LONGITUDE:** -89.40222
SAMPLING METHOD: SS	**PROJECT COORDINATE SYSTEM -** NAD 1983 StatePlane Tennessee FIPS 4100 Feet	

DEPTH (feet)	NOTES	Origin/Identifier	GRAPHIC	SAMPLE NO. (RECOVERY)	MATERIAL DESCRIPTION	BLOW COUNT DATA (SPT N-value)	STANDARD PENETRATION TEST DATA (△ % Fines, ○ NMC, ⊢ PL---LL; 20 40 60 80)	ELEVATION
25		Marine Soils		SS-8	POORLY GRADED SAND (SP), medium dense to very dense, tan and orange, very moist	7-9-10 N = 19		283
30				SS-9		12-11-12 N = 23		278
35				SS-10		12-17-19 N = 36		273
40				SS-11		13-36-38 N = 74		268
	40.0				Borehole terminated at 40.0 feet			

GROUNDWATER		DATE/TIME	DEPTH (FT)	REMARKS
ATD	▽			
END OF DRILLING	▼	02/16/2022	4.7	1 hour reading
AFTER DRILLING	▼	02/20/2022	13.3	96 hour reading
AFTER DRILLING	▼			

GROUNDWATER DEPTHS ARE NOT EXACT AND MAY VARY SUBSTANTIALLY FROM THOSE INDICATED. ATD = AT TIME OF DRILLING
LL=Liquid Limit, PL = Plastic Limit, NMC = Natural Moisture Content, PPV = Pocket Penetrometer (tsf), PTV = Pocket Torvane (tsf), HC = Hole Cave, AR = Auger Refusal

PROJECT:	Ford Blue Oval City - TVA Substation SR 222, Stanton, Tennessee S&ME Project No. 218019	BORING LOG: B-48 *Sheet 1 of 2*

DATE DRILLED:	**ELEVATION:** 307 ft	**NOTES:**
DRILL RIG: Diedrich D-50 (track)	**DATUM:** NAVD88	
DRILLER: S&ME	**BORING DEPTH:** 40.0 ft	
HAMMER TYPE: Automatic hammer	**CLOSURE:** Cuttings	
DRILLING METHOD: Mud rotary	**LOGGED BY:** Talecia Dyson	**LATITUDE:** 35.416889 **LONGITUDE:** -89.40155
SAMPLING METHOD: SS	**PROJECT COORDINATE SYSTEM -** NAD 1983 StatePlane Tennessee FIPS 4100 Feet	

DEPTH (feet)	NOTES	Origin/Identifier	GRAPHIC	SAMPLE NO. (RECOVERY)	MATERIAL DESCRIPTION	BLOW COUNT DATA (SPT N-value)	STANDARD PENETRATION TEST DATA (△ % Fines, ○ NMC, ⊢ PL---LL; 20 40 60 80)	ELEVATION
0	0.3	Loess		SS-1	TOPSOIL, 3 inches LEAN CLAY (CL), some silt, few sand, soft to firm, brown and gray, moist	4-3-3 N = 6 PPV= 1.0	●	307
				SS-2		2-3-5 N = 8	● ○	
				SS-3		2-1-2 N = 3 PPV= 0.5	●	
5								302
				SS-4		2-3-5 N = 8	● ○	
				SS-5		3-3-4 N = 7	●	
10								297
	12.0				LEAN CLAY WITH SAND (CL), little silt, stiff, orange and gray, moist			
				SS-6		5-5-8 N = 13	● ○	
15								292
	16.0	Marine Soils			POORLY GRADED SAND (SP), some clay, little silt, medium dense, orange and gray, very moist			
				SS-7		8-7-8 N = 15	●	
20								287
	22.0							

GROUNDWATER		DATE/TIME	DEPTH (FT)	REMARKS
ATD	▽	03/01/2022	7.4	
END OF DRILLING	▼			
AFTER DRILLING	▼	03/01/2022	11.5	5 hour reading
AFTER DRILLING	▼	03/03/2022	12.1	48 hour reading

GROUNDWATER DEPTHS ARE NOT EXACT AND MAY VARY SUBSTANTIALLY FROM THOSE INDICATED. ATD = AT TIME OF DRILLING
LL=Liquid Limit, PL = Plastic Limit, NMC = Natural Moisture Content, PPV = Pocket Penetrometer (tsf), PTV = Pocket Torvane (tsf), HC = Hole Cave, AR = Auger Refusal

PROJECT:	Ford Blue Oval City - TVA Substation SR 222, Stanton, Tennessee S&ME Project No. 218019	BORING LOG: B-48 *Sheet 2 of 2*

DATE DRILLED:	**ELEVATION:** 307 ft	**NOTES:**
DRILL RIG: Diedrich D-50 (track)	**DATUM:** NAVD88	
DRILLER: S&ME	**BORING DEPTH:** 40.0 ft	
HAMMER TYPE: Automatic hammer	**CLOSURE:** Cuttings	
DRILLING METHOD: Mud rotary	**LOGGED BY:** Talecia Dyson	**LATITUDE:** 35.416889 **LONGITUDE:** -89.40155
SAMPLING METHOD: SS	**PROJECT COORDINATE SYSTEM -** NAD 1983 StatePlane Tennessee FIPS 4100 Feet	

DEPTH (feet)	NOTES	Origin/Identifier	GRAPHIC	SAMPLE NO. (RECOVERY)	MATERIAL DESCRIPTION	BLOW COUNT DATA (SPT N-value)	STANDARD PENETRATION TEST DATA △ % Fines ○ NMC ⊢ PL---LL 20 40 60 80	ELEVATION
25		Marine Soils		SS-8	POORLY GRADED SAND (SP), loose to very dense, orange, very moist	2-5-5 N = 10		282
30				SS-9		10-18-34 N = 52		277
35				SS-10		30-50/6" N = 50/6"		272
40	40.0			SS-12	Borehole terminated at 40.0 feet	37-50/6" N = 50/6"		267

GROUNDWATER		DATE/TIME	DEPTH (FT)	REMARKS
ATD	▽	03/01/2022	7.4	
END OF DRILLING	▼			
AFTER DRILLING	▼	03/01/2022	11.5	5 hour reading
AFTER DRILLING	▼	03/03/2022	12.1	48 hour reading

GROUNDWATER DEPTHS ARE NOT EXACT AND MAY VARY SUBSTANTIALLY FROM THOSE INDICATED. ATD = AT TIME OF DRILLING
LL=Liquid Limit, PL = Plastic Limit, NMC = Natural Moisture Content, PPV = Pocket Penetrometer (tsf), PTV = Pocket Torvane (tsf), HC = Hole Cave, AR = Auger Refusal

PROJECT:	Ford Blue Oval City - TVA Substation SR 222, Stanton, Tennessee S&ME Project No. 218019	BORING LOG: B-49 *Sheet 1 of 2*
DATE DRILLED: 02/18/2022	**ELEVATION:** 307 ft	**NOTES:**
DRILL RIG: Diedrich D-50 (track)	**DATUM:** NAVD88	
DRILLER: S&ME	**BORING DEPTH:** 40.0 ft	
HAMMER TYPE: Automatic hammer	**CLOSURE:** Cuttings	
DRILLING METHOD: Mud rotary	**LOGGED BY:** Talecia Dyson	**LATITUDE:** 35.416878 **LONGITUDE:** -89.40088
SAMPLING METHOD: SS	**PROJECT COORDINATE SYSTEM -** NAD 1983 StatePlane Tennessee FIPS 4100 Feet	

DEPTH (feet)	NOTES	Origin/Identifier	GRAPHIC	SAMPLE NO. (RECOVERY)	MATERIAL DESCRIPTION	BLOW COUNT DATA (SPT N-value)	STANDARD PENETRATION TEST DATA (△ % Fines, ○ NMC, ⊢ PL---LL; 20 40 60 80)	ELEVATION
0	0.2				TOPSOIL, 2 inches			
				SS-1	LEAN CLAY (CL), little silt, some sand, firm to very stiff, brown and gray, moist	2-3-3 N = 6 PPV= 0.5	●	
				SS-2		3-3-3 N = 6 PPV= 0.5	●	
				SS-3		3-7-9 N = 16 PPV= 1.5	●	303
5				SS-4		4-7-7 N = 14 PPV= 2.5	●	
				SS-5		2-3-3 N = 6 PPV= 0.8	●	298
10		Loess						
				SS-6		4-4-4 N = 8	●	293
15								
				SS-7		8-10-11 N = 21	●	288
20	22.0							

GROUNDWATER		DATE/TIME	DEPTH (FT)	REMARKS
ATD	▽			
END OF DRILLING	▼			
AFTER DRILLING	▼	02/18/2022		
AFTER DRILLING	▼			

GROUNDWATER DEPTHS ARE NOT EXACT AND MAY VARY SUBSTANTIALLY FROM THOSE INDICATED. ATD = AT TIME OF DRILLING
LL=Liquid Limit, PL = Plastic Limit, NMC = Natural Moisture Content, PPV = Pocket Penetrometer (tsf), PTV = Pocket Torvane (tsf), HC = Hole Cave, AR = Auger Refusal

PROJECT:	Ford Blue Oval City - TVA Substation SR 222, Stanton, Tennessee S&ME Project No. 218019	BORING LOG: B-49 *Sheet 2 of 2*
DATE DRILLED: 02/18/2022	**ELEVATION:** 307 ft	**NOTES:**
DRILL RIG: Diedrich D-50 (track)	**DATUM:** NAVD88	
DRILLER: S&ME	**BORING DEPTH:** 40.0 ft	
HAMMER TYPE: Automatic hammer	**CLOSURE:** Cuttings	
DRILLING METHOD: Mud rotary	**LOGGED BY:** Talecia Dyson	**LATITUDE:** 35.416878 **LONGITUDE:** -89.40088
SAMPLING METHOD: SS	**PROJECT COORDINATE SYSTEM -** NAD 1983 StatePlane Tennessee FIPS 4100 Feet	

DEPTH (feet)	NOTES	Origin/Identifier	GRAPHIC	SAMPLE NO. (RECOVERY)	MATERIAL DESCRIPTION	BLOW COUNT DATA (SPT N-value)	STANDARD PENETRATION TEST DATA (△ % Fines, ○ NMC, ⊢ PL---LL; 20 40 60 80)	ELEVATION
					POORLY GRADED SAND (SP), some silt, medium dense, tan, moist			
	HC			SS-8		8-7-5 N = 12	●	283
25								
	28.0							
		Marine Soils		SS-9	FAT CLAY (CH), few sand, soft to stiff, gray, moist	4-3-1 N = 4 PPV= 0.8	●	278
30								
				SS-10		3-4-5 N = 9	●	273
35								
	37.0				FAT CLAY WITH SAND (CH), very hard, orange, moist			
				SS-11		9-50/5" N = 50/5"	●	268
40	40.0				Borehole terminated at 40.0 feet			

GROUNDWATER		DATE/TIME	DEPTH (FT)	REMARKS
ATD	▽			
END OF DRILLING	▼			
AFTER DRILLING	▼	02/18/2022		
AFTER DRILLING	▼			

GROUNDWATER DEPTHS ARE NOT EXACT AND MAY VARY SUBSTANTIALLY FROM THOSE INDICATED. ATD = AT TIME OF DRILLING
LL=Liquid Limit, PL = Plastic Limit, NMC = Natural Moisture Content, PPV = Pocket Penetrometer (tsf), PTV = Pocket Torvane (tsf), HC = Hole Cave, AR = Auger Refusal

PROJECT:	Ford Blue Oval City - TVA Substation SR 222, Stanton, Tennessee S&ME Project No. 218019	BORING LOG: B-50 *Sheet 1 of 2*
DATE DRILLED: 03/01/2022	**ELEVATION:** 305 ft	**NOTES:**
DRILL RIG: Diedrich D-50 (track)	**DATUM:** NAVD88	
DRILLER: S&ME	**BORING DEPTH:** 40.0 ft	
HAMMER TYPE: Automatic hammer	**CLOSURE:** Cuttings	
DRILLING METHOD: Mud rotary	**LOGGED BY:** Talecia Dyson	**LATITUDE:** 35.416867 **LONGITUDE:** -89.40021
SAMPLING METHOD: SS	**PROJECT COORDINATE SYSTEM -** NAD 1983 StatePlane Tennessee FIPS 4100 Feet	

DEPTH (feet)	NOTES	Origin/Identifier	GRAPHIC	SAMPLE NO. (RECOVERY)	MATERIAL DESCRIPTION	BLOW COUNT DATA (SPT N-value)	STANDARD PENETRATION TEST DATA (△ % Fines, ○ NMC, ⊢ PL---LL; 20 40 60 80)	ELEVATION
0	0.3	Loess		SS-1	TOPSOIL, 3 inches LEAN CLAY (CL), some silt, little sand, very soft to very stiff, brown and gray, moist	2-1-1 N = 2	●	
				SS-2		1-3-3 N = 6	●	
				SS-3		6-8-10 N = 18 PPV= 1.8	●	301
5				SS-4		2-3-4 N = 7	●	
				SS-5		3-3-3 N = 6	●	296
10	12.0	Marine Soils		SS-6	LEAN CLAY WITH SAND (CL), some silt, firm to stiff, orange and gray, moist	4-5-6 N = 11 PPV= 1.2	●	291
15				SS-7		3-4-4 N = 8	●	286
20	21.0				POORLY GRADED SAND (SP), medium dense to dense, orange and gray, very moist			

GROUNDWATER		DATE/TIME	DEPTH (FT)	REMARKS
ATD	▽			
END OF DRILLING	▼			
AFTER DRILLING	▼			
AFTER DRILLING	▼			

GROUNDWATER DEPTHS ARE NOT EXACT AND MAY VARY SUBSTANTIALLY FROM THOSE INDICATED. ATD = AT TIME OF DRILLING
LL=Liquid Limit, PL = Plastic Limit, NMC = Natural Moisture Content, PPV = Pocket Penetrometer (tsf), PTV = Pocket Torvane (tsf), HC = Hole Cave, AR = Auger Refusal

PROJECT:	Ford Blue Oval City - TVA Substation SR 222, Stanton, Tennessee S&ME Project No. 218019	BORING LOG: B-50 *Sheet 2 of 2*
DATE DRILLED: 03/01/2022	**ELEVATION:** 305 ft	**NOTES:**
DRILL RIG: Diedrich D-50 (track)	**DATUM:** NAVD88	
DRILLER: S&ME	**BORING DEPTH:** 40.0 ft	
HAMMER TYPE: Automatic hammer	**CLOSURE:** Cuttings	
DRILLING METHOD: Mud rotary	**LOGGED BY:** Talecia Dyson	**LATITUDE:** 35.416867 **LONGITUDE:** -89.40021
SAMPLING METHOD: SS	**PROJECT COORDINATE SYSTEM -** NAD 1983 StatePlane Tennessee FIPS 4100 Feet	

DEPTH (feet)	NOTES	Origin/Identifier	GRAPHIC	SAMPLE NO. (RECOVERY)	MATERIAL DESCRIPTION	BLOW COUNT DATA (SPT N-value)	STANDARD PENETRATION TEST DATA △ % Fines ○ NMC ⊢ PL---LL 20 40 60 80	ELEVATION
25		Marine Soils		SS-8	POORLY GRADED SAND (SP), medium dense to dense, orange and gray, very moist	5-7-15 N = 22		281
30				SS-9		6-7-6 N = 13		276
35				SS-10		18-18-17 N = 35		271
40	40.0			SS-11	Borehole terminated at 40.0 feet	25-33-34 N = 67		266

GROUNDWATER		DATE/TIME	DEPTH (FT)	REMARKS
ATD	▽			
END OF DRILLING	▼			
AFTER DRILLING	▼			
AFTER DRILLING	▼			

GROUNDWATER DEPTHS ARE NOT EXACT AND MAY VARY SUBSTANTIALLY FROM THOSE INDICATED. ATD = AT TIME OF DRILLING
LL=Liquid Limit, PL = Plastic Limit, NMC = Natural Moisture Content, PPV = Pocket Penetrometer (tsf), PTV = Pocket Torvane (tsf), HC = Hole Cave, AR = Auger Refusal

PROJECT:	Ford Blue Oval City - TVA Substation SR 222, Stanton, Tennessee S&ME Project No. 218019	BORING LOG: B-51 *Sheet 1 of 2*
DATE DRILLED: 02/20/2022	**ELEVATION:** 330 ft	**NOTES:**
DRILL RIG: Diedrich D-50 (track)	**DATUM:** NAVD88	
DRILLER: S&ME	**BORING DEPTH:** 40.0 ft	
HAMMER TYPE: Automatic hammer	**CLOSURE:** Cuttings	
DRILLING METHOD: HSA	**LOGGED BY:** Talecia Dyson	**LATITUDE:** 35.416418 **LONGITUDE:** -89.40626
SAMPLING METHOD: SS	**PROJECT COORDINATE SYSTEM -** NAD 1983 StatePlane Tennessee FIPS 4100 Feet	

DEPTH (feet)	NOTES	Origin/Identifier	GRAPHIC	SAMPLE NO. (RECOVERY)	MATERIAL DESCRIPTION	BLOW COUNT DATA (SPT N-value)	STANDARD PENETRATION TEST DATA (△ % Fines, ○ NMC, ⊢ PL---LL; 20 40 60 80)	ELEVATION
0		Cultivated Zone						
	0.7			SS-1	LEAN CLAY (CL), firm, brown, moist	2-3-4 N = 7 PPV= 1.0	●	
		Loess		SS-2	LEAN CLAY (CL), little sand, some silt, firm to stiff, brown and gray, slightly moist	3-4-6 N = 10 PPV= 1.2	●	
5				SS-3		3-3-6 N = 9 PPV= 1.5	●	326
				SS-4		5-7-7 N = 14 PPV= 1.5	●	
	8.0			SS-5	LEAN CLAY (CL), some sand, some silt, stiff to very stiff, red brown, slightly moist	3-5-6 N = 11 PPV= 3.0	●	321
10		Marine Soils						
				SS-6		8-8-10 N = 18	●	316
15								
	18.0			SS-7	POORLY GRADED SAND (SP), few silt, medium dense, red orange, moist	5-10-14 N = 24	●	311
20								

GROUNDWATER		DATE/TIME	DEPTH (FT)	REMARKS
ATD	▽	02/20/2022	39.0	
END OF DRILLING	▼	02/19/2022		1 hour reading - dry cave in at 28.3 feet
AFTER DRILLING	▼	02/20/2022		24 hour reading - dry cave at 28.3 feet
AFTER DRILLING	▼			

GROUNDWATER DEPTHS ARE NOT EXACT AND MAY VARY SUBSTANTIALLY FROM THOSE INDICATED. ATD = AT TIME OF DRILLING
LL=Liquid Limit, PL = Plastic Limit, NMC = Natural Moisture Content, PPV = Pocket Penetrometer (tsf), PTV = Pocket Torvane (tsf), HC = Hole Cave, AR = Auger Refusal

PROJECT:	Ford Blue Oval City - TVA Substation SR 222, Stanton, Tennessee S&ME Project No. 218019	BORING LOG: B-51 *Sheet 2 of 2*
DATE DRILLED: 02/20/2022	**ELEVATION:** 330 ft	**NOTES:**
DRILL RIG: Diedrich D-50 (track)	**DATUM:** NAVD88	
DRILLER: S&ME	**BORING DEPTH:** 40.0 ft	
HAMMER TYPE: Automatic hammer	**CLOSURE:** Cuttings	
DRILLING METHOD: HSA	**LOGGED BY:** Talecia Dyson	**LATITUDE:** 35.416418 **LONGITUDE:** -89.40626
SAMPLING METHOD: SS	**PROJECT COORDINATE SYSTEM -** NAD 1983 StatePlane Tennessee FIPS 4100 Feet	

DEPTH (feet)	NOTES	Origin/Identifier	GRAPHIC	SAMPLE NO. (RECOVERY)	MATERIAL DESCRIPTION	BLOW COUNT DATA (SPT N-value)	STANDARD PENETRATION TEST DATA (△ % Fines, ○ NMC, ⊢ PL---LL; 20 40 60 80)	ELEVATION
25		Marine Soils		SS-8	POORLY GRADED SAND (SP), few silt, medium dense, red orange, moist	9-11-12 N = 23		306
30	HC HC			SS-9		11-11-16 N = 27		301
35				SS-10		7-11-14 N = 25		296
40	▽ 40.0			SS-11	Borehole terminated at 40.0 feet	7-9-12 N = 21		291

GROUNDWATER		DATE/TIME	DEPTH (FT)	REMARKS
ATD	▽	02/20/2022	39.0	
END OF DRILLING	▼	02/19/2022		1 hour reading - dry cave in at 28.3 feet
AFTER DRILLING	▼	02/20/2022		24 hour reading - dry cave at 28.3 feet
AFTER DRILLING	▼			

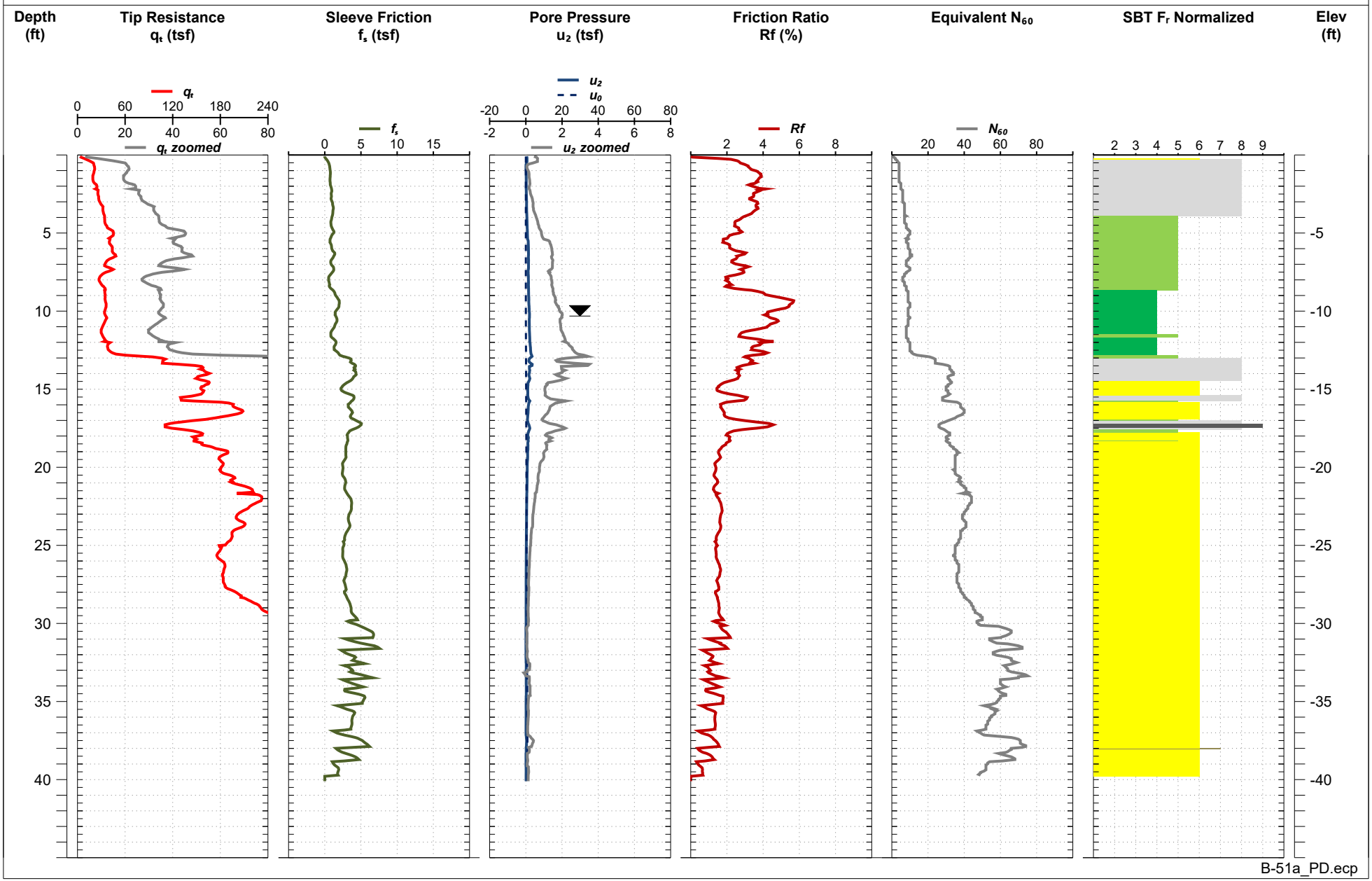
GROUNDWATER DEPTHS ARE NOT EXACT AND MAY VARY SUBSTANTIALLY FROM THOSE INDICATED. ATD = AT TIME OF DRILLING
LL=Liquid Limit, PL = Plastic Limit, NMC = Natural Moisture Content, PPV = Pocket Penetrometer (tsf), PTV = Pocket Torvane (tsf), HC = Hole Cave, AR = Auger Refusal

Ford Blue Oval City - TVA Substation
SR 222, Stanton, Tennessee
S&ME Project No. 218019

Cone Penetration Test

B-51A

Date:	25-Jan-2022	**Latitude:**		**Total Depth:**	40.1 ft
Estimated Water Depth:	10.0 ft	**Longitude:**		**Termination Criteria:**	Maximum Reaction Force
Rig/Operator:	Gyrotrack	**Elevation:**		**Cone Size:**	1.75



B-51a_PD.ecp

PROJECT:	Ford Blue Oval City - TVA Substation SR 222, Stanton, Tennessee S&ME Project No. 218019	BORING LOG: B-52 *Sheet 1 of 2*
DATE DRILLED: 03/01/2022	**ELEVATION:** 337 ft	**NOTES:**
DRILL RIG: Diedrich D-50 (track)	**DATUM:** NAVD88	
DRILLER: S&ME	**BORING DEPTH:** 40.0 ft	
HAMMER TYPE: Automatic hammer	**CLOSURE:** Cuttings	
DRILLING METHOD: HSA	**LOGGED BY:** Talecia Dyson	**LATITUDE:** 35.416406 **LONGITUDE:** -89.40554
SAMPLING METHOD: SS	**PROJECT COORDINATE SYSTEM -** NAD 1983 StatePlane Tennessee FIPS 4100 Feet	

DEPTH (feet)	NOTES	Origin/Identifier	GRAPHIC	SAMPLE NO. (RECOVERY)	MATERIAL DESCRIPTION	BLOW COUNT DATA (SPT N-value)	STANDARD PENETRATION TEST DATA (△ % Fines, ○ NMC, ⊢ PL---LL; 20 40 60 80)	ELEVATION
0	0.2	Loess		SS-1	TOPSOIL, 2 inches LEAN CLAY (CL), some silt, little sand, soft to stiff, brown, moist	2-2-2 N = 4 PPV= 0.5	●	
				SS-2		2-2-3 N = 5 PPV= 1.0	●, ○	
				SS-3		3-2-4 N = 6 PPV= 1.0	●	332
5				SS-4		4-5-6 N = 11	●, ○	
				SS-5		2-3-4 N = 7	●	327
10								
				SS-6		3-6-8 N = 14 PPV= 3.8	●, ○	322
15	16.0	Marine Soils			POORLY GRADED SAND (SP), medium dense to very dense, orange, moist			
				SS-7		5-5-6 N = 11	●	317
20								

GROUNDWATER		DATE/TIME	DEPTH (FT)	REMARKS
ATD	▽	03/01/2022		not encountered - dry cave in at 29 feet
END OF DRILLING	▼	03/01/2022		not encountered
AFTER DRILLING	▼	03/02/2022		not encountered
AFTER DRILLING	▼			

GROUNDWATER DEPTHS ARE NOT EXACT AND MAY VARY SUBSTANTIALLY FROM THOSE INDICATED. ATD = AT TIME OF DRILLING
LL=Liquid Limit, PL = Plastic Limit, NMC = Natural Moisture Content, PPV = Pocket Penetrometer (tsf), PTV = Pocket Torvane (tsf), HC = Hole Cave, AR = Auger Refusal

PROJECT:	Ford Blue Oval City - TVA Substation SR 222, Stanton, Tennessee S&ME Project No. 218019	BORING LOG: B-52 *Sheet 2 of 2*
DATE DRILLED: 03/01/2022	**ELEVATION:** 337 ft	**NOTES:**
DRILL RIG: Diedrich D-50 (track)	**DATUM:** NAVD88	
DRILLER: S&ME	**BORING DEPTH:** 40.0 ft	
HAMMER TYPE: Automatic hammer	**CLOSURE:** Cuttings	
DRILLING METHOD: HSA	**LOGGED BY:** Talecia Dyson	**LATITUDE:** 35.416406 **LONGITUDE:** -89.40554
SAMPLING METHOD: SS	**PROJECT COORDINATE SYSTEM -** NAD 1983 StatePlane Tennessee FIPS 4100 Feet	

DEPTH (feet)	NOTES	Origin/Identifier	GRAPHIC	SAMPLE NO. (RECOVERY)	MATERIAL DESCRIPTION	BLOW COUNT DATA (SPT N-value)	STANDARD PENETRATION TEST DATA (△ % Fines, ○ NMC, ⊢ PL---LL; 20 40 60 80)	ELEVATION
0					POORLY GRADED SAND (SP), medium dense to very dense, orange, moist			
				SS-8		5-6-9 N = 15		
25								312
				SS-9		7-10-11 N = 21		
	HC							
30		Marine Soils						307
				SS-10		5-9-12 N = 21		
35								302
				SS-11		9-21-31 N = 52		
	40.0							297
40					Borehole terminated at 40.0 feet			

GROUNDWATER		DATE/TIME	DEPTH (FT)	REMARKS
ATD	▽	03/01/2022		not encountered - dry cave in at 29 feet
END OF DRILLING	▼	03/01/2022		not encountered
AFTER DRILLING	▼	03/02/2022		not encountered
AFTER DRILLING	▼			

GROUNDWATER DEPTHS ARE NOT EXACT AND MAY VARY SUBSTANTIALLY FROM THOSE INDICATED. ATD = AT TIME OF DRILLING
LL=Liquid Limit, PL = Plastic Limit, NMC = Natural Moisture Content, PPV = Pocket Penetrometer (tsf), PTV = Pocket Torvane (tsf), HC = Hole Cave, AR = Auger Refusal

PROJECT:	Ford Blue Oval City - TVA Substation SR 222, Stanton, Tennessee S&ME Project No. 218019	BORING LOG: B-53 *Sheet 1 of 2*
DATE DRILLED: 02/01/2022	**ELEVATION:** 329 ft	**NOTES:**
DRILL RIG: Diedrich D-50 (track)	**DATUM:** NAVD88	
DRILLER: S&ME	**BORING DEPTH:** 40.0 ft	
HAMMER TYPE: Automatic hammer	**CLOSURE:** Cuttings	
DRILLING METHOD: HSA	**LOGGED BY:** Talecia Dyson	**LATITUDE:** 35.416396 **LONGITUDE:** -89.40492
SAMPLING METHOD: SS	**PROJECT COORDINATE SYSTEM -** NAD 1983 StatePlane Tennessee FIPS 4100 Feet	

DEPTH (feet)	Origin/Identifier	SAMPLE NO. (RECOVERY)	MATERIAL DESCRIPTION	BLOW COUNT DATA (SPT N-value)	ELEVATION
0	Cultivated Zone	SS-1	LEAN CLAY (CL), with silt, firm, brown, moist	3-2-4 N = 6	
1.5	Loess	SS-2	LEAN CLAY (CL), with silt, trace sand, firm to stiff, brown and gray, mottled, moist	3-4-5 N = 9	
		SS-3		4-4-6 N = 10	
5.0		SS-4	LEAN CLAY (CL), some sand, stiff, red brown, moist	5-4-6 N = 10	324
5					
		SS-5		3-4-6 N = 10	
10					319
12.0	Marine Soils	SS-6	SILTY SAND (SM), medium dense, orange and gray, moist	3-4-8 N = 12	
15					314
16.0		SS-7	POORLY GRADED SAND (SP), dense to very dense, orange and gray, moist to very moist	9-18-32 N = 50	
20					309

STANDARD PENETRATION TEST DATA

△ % Fines
○ NMC
⊢ PL---LL

20 40 60 80

GROUNDWATER		DATE/TIME	DEPTH (FT)	REMARKS
ATD	▽	02/01/2022		not encountered - hole cave 25.9 ft
END OF DRILLING	▼	02/01/2022		1 hour reading - cave in at 25.9 feet
AFTER DRILLING	▼	02/02/2022		24 hour reading - cave in at 25.9 feet
AFTER DRILLING	▼			

GROUNDWATER DEPTHS ARE NOT EXACT AND MAY VARY SUBSTANTIALLY FROM THOSE INDICATED. ATD = AT TIME OF DRILLING
LL=Liquid Limit, PL = Plastic Limit, NMC = Natural Moisture Content, PPV = Pocket Penetrometer (tsf), PTV = Pocket Torvane (tsf), HC = Hole Cave, AR = Auger Refusal

PROJECT:	Ford Blue Oval City - TVA Substation SR 222, Stanton, Tennessee S&ME Project No. 218019	BORING LOG: B-53 *Sheet 2 of 2*
DATE DRILLED: 02/01/2022	**ELEVATION:** 329 ft	**NOTES:**
DRILL RIG: Diedrich D-50 (track)	**DATUM:** NAVD88	
DRILLER: S&ME	**BORING DEPTH:** 40.0 ft	
HAMMER TYPE: Automatic hammer	**CLOSURE:** Cuttings	
DRILLING METHOD: HSA	**LOGGED BY:** Talecia Dyson	**LATITUDE:** 35.416396 **LONGITUDE:** -89.40492
SAMPLING METHOD: SS	**PROJECT COORDINATE SYSTEM -** NAD 1983 StatePlane Tennessee FIPS 4100 Feet	

DEPTH (feet)	NOTES	Origin/Identifier	GRAPHIC	SAMPLE NO. (RECOVERY)	MATERIAL DESCRIPTION	BLOW COUNT DATA (SPT N-value)	STANDARD PENETRATION TEST DATA (△ % Fines, ○ NMC, ⊢ PL---LL; 20 40 60 80)	ELEVATION
25	HC	Marine Soils		SS-8	POORLY GRADED SAND (SP), dense to very dense, orange and gray, moist to very moist	9-15-21 N = 36		304
30				SS-9		9-40-50/4" N = 50/4"		299
35				SS-10		4-6-7 N = 13		294
40	40.0			SS-11	Borehole terminated at 40.0 feet	16-27-46 N = 73		289

GROUNDWATER		DATE/TIME	DEPTH (FT)	REMARKS
ATD	▽	02/01/2022		not encountered - hole cave 25.9 ft
END OF DRILLING	▼	02/01/2022		1 hour reading - cave in at 25.9 feet
AFTER DRILLING	▼	02/02/2022		24 hour reading - cave in at 25.9 feet
AFTER DRILLING	▼			

GROUNDWATER DEPTHS ARE NOT EXACT AND MAY VARY SUBSTANTIALLY FROM THOSE INDICATED. ATD = AT TIME OF DRILLING
LL=Liquid Limit, PL = Plastic Limit, NMC = Natural Moisture Content, PPV = Pocket Penetrometer (tsf), PTV = Pocket Torvane (tsf), HC = Hole Cave, AR = Auger Refusal

PROJECT:	Ford Blue Oval City - TVA Substation SR 222, Stanton, Tennessee S&ME Project No. 218019	BORING LOG: B-54 *Sheet 1 of 2*
DATE DRILLED: 02/28/2022	**ELEVATION:** 319 ft	**NOTES:**
DRILL RIG: Diedrich D-50 (track)	**DATUM:** NAVD88	
DRILLER: S&ME	**BORING DEPTH:** 40.0 ft	
HAMMER TYPE: Automatic hammer	**CLOSURE:** Cuttings	
DRILLING METHOD: Mud rotary	**LOGGED BY:** Talecia Dyson	**LATITUDE:** 35.416385 **LONGITUDE:** -89.40425
SAMPLING METHOD: SS	**PROJECT COORDINATE SYSTEM -** NAD 1983 StatePlane Tennessee FIPS 4100 Feet	

DEPTH (feet)	NOTES	Origin/Identifier	GRAPHIC	SAMPLE NO. (RECOVERY)	MATERIAL DESCRIPTION	BLOW COUNT DATA (SPT N-value)	STANDARD PENETRATION TEST DATA (△ % Fines, ○ NMC, ⊢ PL---LL; 20 40 60 80)	ELEVATION
0	0.3			SS-1	TOPSOIL, 3 inches LEAN CLAY (CL), some silt, few sand, firm to stiff, red brown, slightly moist to moist	2-3-4 N = 7 PPV= 1.0	●	319
				SS-2		4-3-4 N = 7 PPV= 0.2	●	
				SS-3		2-3-4 N = 7	●	
5								314
	▼			SS-4		3-4-5 N = 9 PPV= 1.2	●	
				SS-5		2-2-4 N = 6 PPV= 1.5	●	
10	▽	Loess						309
				SS-6		3-3-3 N = 6 PPV= 0.5	●	
15								304
				SS-7		2-3-4 N = 7 PPV= 1.0	●	
20	22.0							299

GROUNDWATER		DATE/TIME	DEPTH (FT)	REMARKS
ATD	▽			
END OF DRILLING	▼	02/28/2022	11.4	2 hour reading
AFTER DRILLING	▼	03/01/2022	6.6	24 hour reading
AFTER DRILLING	▼			

GROUNDWATER DEPTHS ARE NOT EXACT AND MAY VARY SUBSTANTIALLY FROM THOSE INDICATED. ATD = AT TIME OF DRILLING
LL=Liquid Limit, PL = Plastic Limit, NMC = Natural Moisture Content, PPV = Pocket Penetrometer (tsf), PTV = Pocket Torvane (tsf), HC = Hole Cave, AR = Auger Refusal

PROJECT:	Ford Blue Oval City - TVA Substation SR 222, Stanton, Tennessee S&ME Project No. 218019	BORING LOG: B-54 *Sheet 2 of 2*
DATE DRILLED: 02/28/2022	**ELEVATION:** 319 ft	**NOTES:**
DRILL RIG: Diedrich D-50 (track)	**DATUM:** NAVD88	
DRILLER: S&ME	**BORING DEPTH:** 40.0 ft	
HAMMER TYPE: Automatic hammer	**CLOSURE:** Cuttings	
DRILLING METHOD: Mud rotary	**LOGGED BY:** Talecia Dyson	**LATITUDE:** 35.416385 **LONGITUDE:** -89.40425
SAMPLING METHOD: SS	**PROJECT COORDINATE SYSTEM -** NAD 1983 StatePlane Tennessee FIPS 4100 Feet	

DEPTH (feet)	NOTES	Origin/Identifier	GRAPHIC	SAMPLE NO. (RECOVERY)	MATERIAL DESCRIPTION	BLOW COUNT DATA (SPT N-value)	STANDARD PENETRATION TEST DATA (△ % Fines, ○ NMC, ⊢ PL---LL; 20 40 60 80)	ELEVATION
25		Marine Soils		SS-8	POORLY GRADED SAND (SP), medium dense to dense, yellow and orange, very moist	7-10-14 N = 24		294
30				SS-9		10-14-14 N = 28		289
35				SS-10		10-11-13 N = 24		284
40	40.0			SS-11	Borehole terminated at 40.0 feet	9-16-28 N = 44		279

GROUNDWATER		DATE/TIME	DEPTH (FT)	REMARKS
ATD	▽			
END OF DRILLING	▼	02/28/2022	11.4	2 hour reading
AFTER DRILLING	▼	03/01/2022	6.6	24 hour reading
AFTER DRILLING	▼			

GROUNDWATER DEPTHS ARE NOT EXACT AND MAY VARY SUBSTANTIALLY FROM THOSE INDICATED. ATD = AT TIME OF DRILLING
LL=Liquid Limit, PL = Plastic Limit, NMC = Natural Moisture Content, PPV = Pocket Penetrometer (tsf), PTV = Pocket Torvane (tsf), HC = Hole Cave, AR = Auger Refusal

PROJECT:	Ford Blue Oval City - TVA Substation SR 222, Stanton, Tennessee S&ME Project No. 218019	BORING LOG: B-55 *Sheet 1 of 2*
DATE DRILLED: 02/06/2022	**ELEVATION:** 310 ft	**NOTES:**
DRILL RIG: Diedrich D-50 (track)	**DATUM:** NAVD88	
DRILLER: S&ME	**BORING DEPTH:** 40.0 ft	
HAMMER TYPE: Automatic hammer	**CLOSURE:** Cuttings	
DRILLING METHOD: Mud rotary	**LOGGED BY:** Talecia Dyson	**LATITUDE:** 35.416372 **LONGITUDE:** -89.40351
SAMPLING METHOD: SS	**PROJECT COORDINATE SYSTEM -** NAD 1983 StatePlane Tennessee FIPS 4100 Feet	

DEPTH (feet)	NOTES	Origin/Identifier	GRAPHIC	SAMPLE NO. (RECOVERY)	MATERIAL DESCRIPTION	BLOW COUNT DATA (SPT N-value)	STANDARD PENETRATION TEST DATA (△ % Fines, ○ NMC, ⊢ PL---LL; 20 40 60 80)	ELEVATION
0	0.4	Cultivated Zone		SS-1	TOPSOIL, 5 inches	2-4-4 N = 8 PPV= 0.8	●	
	1.5	Loess		SS-2	LEAN CLAY (CL), some silt, firm, brown, moist LEAN CLAY (CL), few silt, little sand, soft to stiff, brown and gray, mottled	2-2-4 N = 6	●	
				SS-3		3-1-3 N = 4 PPV= 1.2	●	
5				SS-4		4-4-5 N = 9 PPV= 1.2	●	305
				SS-5		4-5-4 N = 9 PPV= 2.5	●	
10				SS-6		2-4-3 N = 7 PPV= 2.0	●	300
	15.0	Marine Soils		SS-7	SILT (ML), some sand, soft, orange and gray, very moist	2-2-2 N = 4 PPV= 0.5	●	
15								295
20								290
	22.0							

GROUNDWATER		DATE/TIME	DEPTH (FT)	REMARKS
ATD	▽	02/06/2022		not encountered
END OF DRILLING	▼	02/06/2022		not encountered (1 hr)
AFTER DRILLING	▼			
AFTER DRILLING	▼			

GROUNDWATER DEPTHS ARE NOT EXACT AND MAY VARY SUBSTANTIALLY FROM THOSE INDICATED. ATD = AT TIME OF DRILLING
LL=Liquid Limit, PL = Plastic Limit, NMC = Natural Moisture Content, PPV = Pocket Penetrometer (tsf), PTV = Pocket Torvane (tsf), HC = Hole Cave, AR = Auger Refusal

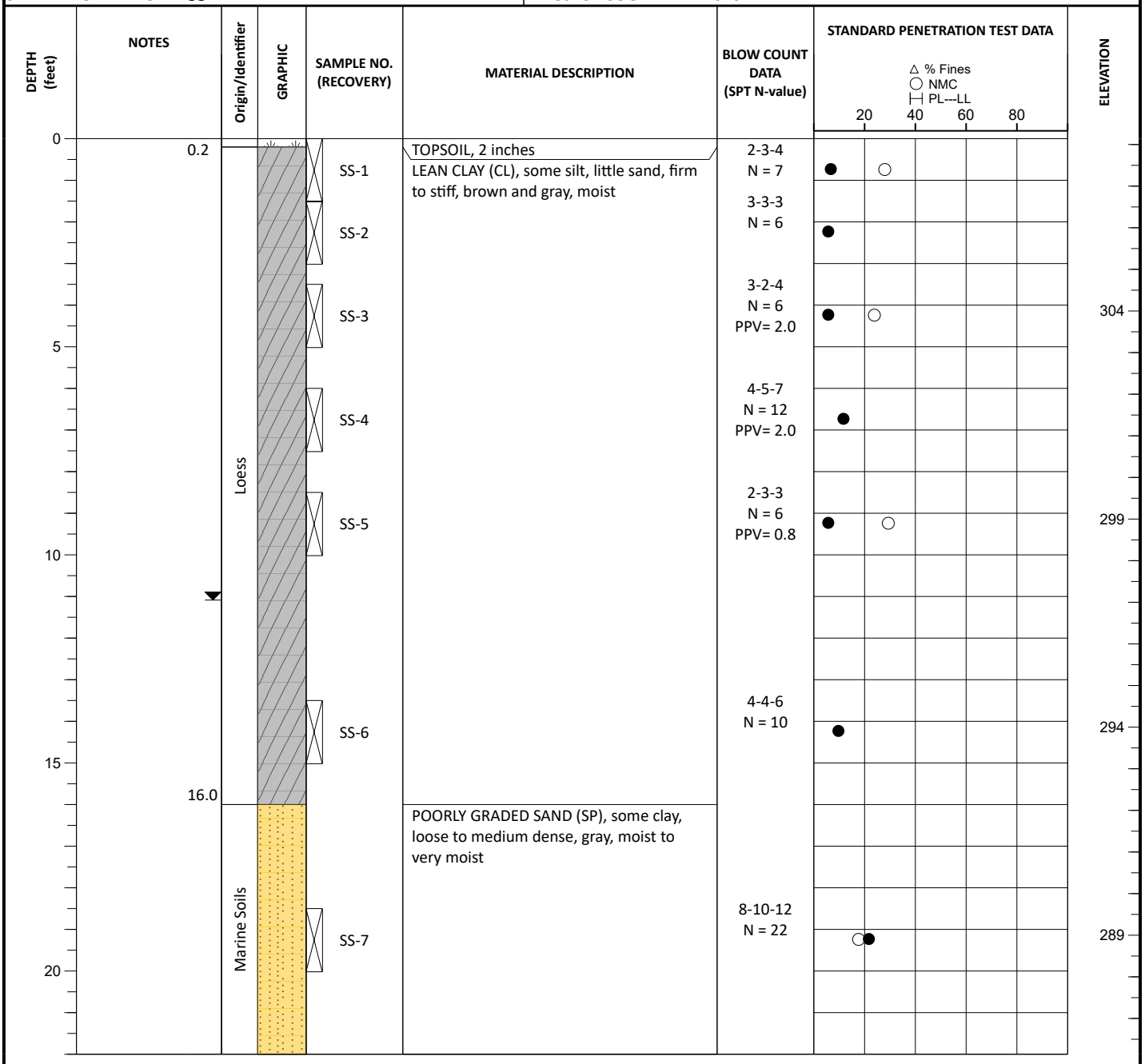
PROJECT:	Ford Blue Oval City - TVA Substation SR 222, Stanton, Tennessee S&ME Project No. 218019	BORING LOG: B-55 *Sheet 2 of 2*
DATE DRILLED: 02/06/2022	**ELEVATION:** 310 ft	**NOTES:**
DRILL RIG: Diedrich D-50 (track)	**DATUM:** NAVD88	
DRILLER: S&ME	**BORING DEPTH:** 40.0 ft	
HAMMER TYPE: Automatic hammer	**CLOSURE:** Cuttings	
DRILLING METHOD: Mud rotary	**LOGGED BY:** Talecia Dyson	**LATITUDE:** 35.416372 **LONGITUDE:** -89.40351
SAMPLING METHOD: SS	**PROJECT COORDINATE SYSTEM -** NAD 1983 StatePlane Tennessee FIPS 4100 Feet	

DEPTH (feet)	NOTES	Origin/Identifier	GRAPHIC	SAMPLE NO. (RECOVERY)	MATERIAL DESCRIPTION	BLOW COUNT DATA (SPT N-value)	STANDARD PENETRATION TEST DATA (△ % Fines, ○ NMC, ⊢ PL---LL; 20 40 60 80)	ELEVATION
25		Marine Soils		SS-8	SILT (ML), trace sand, firm to stiff, gray and yellow, moist	3-3-5 N = 8 PPV= 2.0	●	285
30				SS-9		2-2-8 N = 10 PPV= 2.0	●	280
	32.0				POORLY GRADED SAND WITH SILT (SP-SM), medium dense, yellow brown, wet			
35				SS-10		8-11-13 N = 24	●	275
	36.0				POORLY GRADED SAND (SP), dense, gray, very moist			
				SS-11		13-19-23 N = 42	●	
40	40.0				Borehole terminated at 40.0 feet			270

GROUNDWATER		DATE/TIME	DEPTH (FT)	REMARKS
ATD	▽	02/06/2022		not encountered
END OF DRILLING	▼	02/06/2022		not encountered (1 hr)
AFTER DRILLING	▼			
AFTER DRILLING	▼			

GROUNDWATER DEPTHS ARE NOT EXACT AND MAY VARY SUBSTANTIALLY FROM THOSE INDICATED. ATD = AT TIME OF DRILLING
LL=Liquid Limit, PL = Plastic Limit, NMC = Natural Moisture Content, PPV = Pocket Penetrometer (tsf), PTV = Pocket Torvane (tsf), HC = Hole Cave, AR = Auger Refusal

PROJECT:	Ford Blue Oval City - TVA Substation SR 222, Stanton, Tennessee S&ME Project No. 218019	BORING LOG: B-56 *Sheet 1 of 2*
DATE DRILLED: 02/28/2022	**ELEVATION:** 308 ft	**NOTES:**
DRILL RIG: Diedrich D-50 (track)	**DATUM:** NAVD88	
DRILLER: S&ME	**BORING DEPTH:** 40.0 ft	
HAMMER TYPE: Automatic hammer	**CLOSURE:** Cuttings	
DRILLING METHOD: Mud rotary	**LOGGED BY:** Talecia Dyson	**LATITUDE:** 35.416362 **LONGITUDE:** -89.40291
SAMPLING METHOD: SS	**PROJECT COORDINATE SYSTEM -** NAD 1983 StatePlane Tennessee FIPS 4100 Feet	



GROUNDWATER		DATE/TIME	DEPTH (FT)	REMARKS
ATD	▽			
END OF DRILLING	▼			
AFTER DRILLING	▼	03/01/2022	11.0	24 hour reading
AFTER DRILLING	▼			

GROUNDWATER DEPTHS ARE NOT EXACT AND MAY VARY SUBSTANTIALLY FROM THOSE INDICATED. ATD = AT TIME OF DRILLING
LL=Liquid Limit, PL = Plastic Limit, NMC = Natural Moisture Content, PPV = Pocket Penetrometer (tsf), PTV = Pocket Torvane (tsf), HC = Hole Cave, AR = Auger Refusal

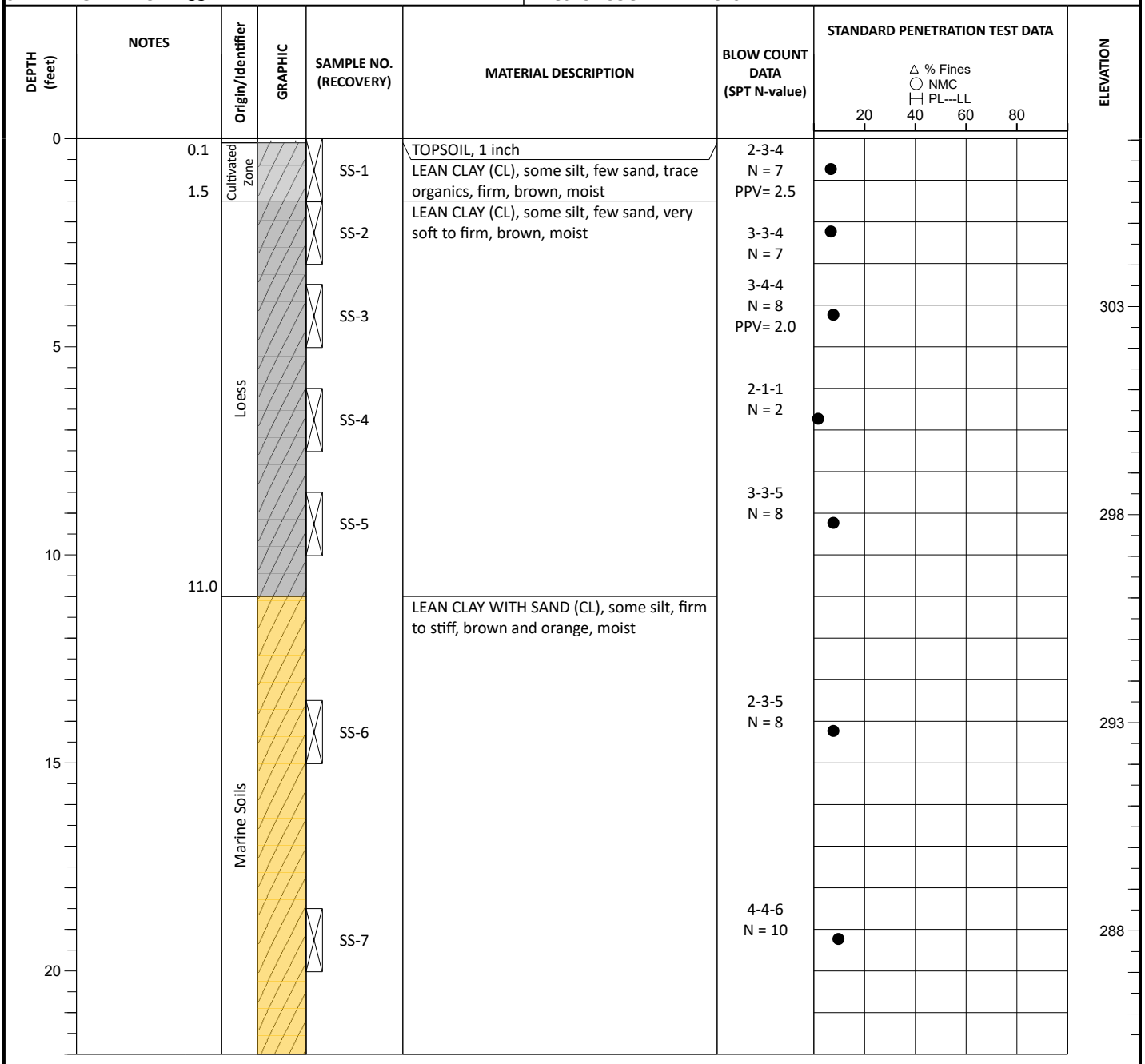
PROJECT:	Ford Blue Oval City - TVA Substation SR 222, Stanton, Tennessee S&ME Project No. 218019	BORING LOG: B-56 *Sheet 2 of 2*
DATE DRILLED: 02/28/2022	**ELEVATION:** 308 ft	**NOTES:**
DRILL RIG: Diedrich D-50 (track)	**DATUM:** NAVD88	
DRILLER: S&ME	**BORING DEPTH:** 40.0 ft	
HAMMER TYPE: Automatic hammer	**CLOSURE:** Cuttings	
DRILLING METHOD: Mud rotary	**LOGGED BY:** Talecia Dyson	**LATITUDE:** 35.416362 **LONGITUDE:** -89.40291
SAMPLING METHOD: SS	**PROJECT COORDINATE SYSTEM -** NAD 1983 StatePlane Tennessee FIPS 4100 Feet	

DEPTH (feet)	NOTES	Origin/Identifier	GRAPHIC	SAMPLE NO. (RECOVERY)	MATERIAL DESCRIPTION	BLOW COUNT DATA (SPT N-value)	STANDARD PENETRATION TEST DATA (△ % Fines, ○ NMC, ⊢ PL---LL; 20 40 60 80)	ELEVATION
25				SS-8	POORLY GRADED SAND (SP), some clay, loose to medium dense, gray, moist to very moist	4-4-3 N = 7		284
30				SS-9		4-8-7 N = 15		279
	31.0	Marine Soils			POORLY GRADED SAND (SP), very dense, orange, very moist			
35				SS-10		16-27-28 N = 55		274
				SS-11		22-38-50 N = 88		269
40	40.0				Borehole terminated at 40.0 feet			

GROUNDWATER		DATE/TIME	DEPTH (FT)	REMARKS
ATD	▽			
END OF DRILLING	▼			
AFTER DRILLING	▼	03/01/2022	11.0	24 hour reading
AFTER DRILLING	▼			

GROUNDWATER DEPTHS ARE NOT EXACT AND MAY VARY SUBSTANTIALLY FROM THOSE INDICATED. ATD = AT TIME OF DRILLING
LL=Liquid Limit, PL = Plastic Limit, NMC = Natural Moisture Content, PPV = Pocket Penetrometer (tsf), PTV = Pocket Torvane (tsf), HC = Hole Cave, AR = Auger Refusal

PROJECT:	Ford Blue Oval City - TVA Substation SR 222, Stanton, Tennessee S&ME Project No. 218019	BORING LOG: B-57 *Sheet 1 of 2*
DATE DRILLED: 02/16/2022	**ELEVATION:** 307 ft	**NOTES:**
DRILL RIG: Diedrich D-50 (track)	**DATUM:** NAVD88	
DRILLER: S&ME	**BORING DEPTH:** 40.0 ft	
HAMMER TYPE: Automatic hammer	**CLOSURE:** Cuttings	
DRILLING METHOD: Mud rotary	**LOGGED BY:** Talecia Dyson	**LATITUDE:** 35.416351 **LONGITUDE:** -89.40224
SAMPLING METHOD: SS	**PROJECT COORDINATE SYSTEM -** NAD 1983 StatePlane Tennessee FIPS 4100 Feet	



GROUNDWATER		DATE/TIME	DEPTH (FT)	REMARKS
ATD	▽			
END OF DRILLING	▼			
AFTER DRILLING	▼			
AFTER DRILLING	▼			

GROUNDWATER DEPTHS ARE NOT EXACT AND MAY VARY SUBSTANTIALLY FROM THOSE INDICATED. ATD = AT TIME OF DRILLING
LL=Liquid Limit, PL = Plastic Limit, NMC = Natural Moisture Content, PPV = Pocket Penetrometer (tsf), PTV = Pocket Torvane (tsf), HC = Hole Cave, AR = Auger Refusal

PROJECT:	Ford Blue Oval City - TVA Substation SR 222, Stanton, Tennessee S&ME Project No. 218019	BORING LOG: B-57 *Sheet 2 of 2*
DATE DRILLED: 02/16/2022	**ELEVATION:** 307 ft	**NOTES:**
DRILL RIG: Diedrich D-50 (track)	**DATUM:** NAVD88	
DRILLER: S&ME	**BORING DEPTH:** 40.0 ft	
HAMMER TYPE: Automatic hammer	**CLOSURE:** Cuttings	
DRILLING METHOD: Mud rotary	**LOGGED BY:** Talecia Dyson	**LATITUDE:** 35.416351 **LONGITUDE:** -89.40224
SAMPLING METHOD: SS	**PROJECT COORDINATE SYSTEM -** NAD 1983 StatePlane Tennessee FIPS 4100 Feet	

DEPTH (feet)	NOTES	Origin/Identifier	GRAPHIC	SAMPLE NO. (RECOVERY)	MATERIAL DESCRIPTION	BLOW COUNT DATA (SPT N-value)	STANDARD PENETRATION TEST DATA (△ % Fines, ○ NMC, ⊢ PL---LL; 20 40 60 80)	ELEVATION
0					LEAN CLAY WITH SAND (CL), some silt, firm to stiff, brown and orange, moist			
				SS-8		9-5-6 N = 11		283
25	25.0				POORLY GRADED SAND (SP), loose to medium dense, gray and orange, very moist			
		Marine Soils		SS-9		10-10-7 N = 17		278
30								
				SS-10		3-4-5 N = 9 PPV= 2.2		273
35								
				SS-11		3-3-4 N = 7 PPV= 1.2		268
40	40.0				Borehole terminated at 40.0 feet			

GROUNDWATER		DATE/TIME	DEPTH (FT)	REMARKS
ATD	▽			
END OF DRILLING	▼			
AFTER DRILLING	▼			
AFTER DRILLING	▼			

GROUNDWATER DEPTHS ARE NOT EXACT AND MAY VARY SUBSTANTIALLY FROM THOSE INDICATED. ATD = AT TIME OF DRILLING
LL=Liquid Limit, PL = Plastic Limit, NMC = Natural Moisture Content, PPV = Pocket Penetrometer (tsf), PTV = Pocket Torvane (tsf), HC = Hole Cave, AR = Auger Refusal

PROJECT:	Ford Blue Oval City - TVA Substation SR 222, Stanton, Tennessee S&ME Project No. 218019	BORING LOG: B-58 *Sheet 1 of 2*
DATE DRILLED: 03/01/2022	**ELEVATION:** 307 ft	**NOTES:**
DRILL RIG: Diedrich D-50 (track)	**DATUM:** NAVD88	
DRILLER: S&ME	**BORING DEPTH:** 40.0 ft	
HAMMER TYPE: Automatic hammer	**CLOSURE:** Cuttings	
DRILLING METHOD: Mud rotary	**LOGGED BY:** Talecia Dyson	**LATITUDE:** 35.416340 **LONGITUDE:** -89.40157
SAMPLING METHOD: SS	**PROJECT COORDINATE SYSTEM -** NAD 1983 StatePlane Tennessee FIPS 4100 Feet	

DEPTH (feet)	NOTES	Origin/Identifier	GRAPHIC	SAMPLE NO. (RECOVERY)	MATERIAL DESCRIPTION	BLOW COUNT DATA (SPT N-value)	STANDARD PENETRATION TEST DATA (△ % Fines, ○ NMC, ⊢ PL---LL; 20 40 60 80)	ELEVATION
0	0.3	Loess		SS-1	TOPSOIL, 3 inches LEAN CLAY (CL), little silt, little sand, firm to very stiff, brown and gray, slightly moist to moist	3-5-7 N = 12 PPV= 0.5		
				SS-2		4-8-12 N = 20		
				SS-3		11-12-12 N = 24 PPV= 2.5		303
5				SS-4		3-3-3 N = 6 PPV= 0.8		
				SS-5		4-5-6 N = 11 PPV= 2.0		298
10								
				SS-6		3-4-4 N = 8 PPV= 0.5		293
15	HC							
	16.0	Marine Soils			LEAN CLAY WITH SAND (CL), little silt, stiff, red and orange, moist			
				SS-7		2-4-7 N = 11 PPV= 1.0		288
20								

GROUNDWATER		DATE/TIME	DEPTH (FT)	REMARKS
ATD	▽			
END OF DRILLING	▼			
AFTER DRILLING	▼	03/03/2022	4.3	48 hour reading
AFTER DRILLING	▼			

GROUNDWATER DEPTHS ARE NOT EXACT AND MAY VARY SUBSTANTIALLY FROM THOSE INDICATED. ATD = AT TIME OF DRILLING
LL=Liquid Limit, PL = Plastic Limit, NMC = Natural Moisture Content, PPV = Pocket Penetrometer (tsf), PTV = Pocket Torvane (tsf), HC = Hole Cave, AR = Auger Refusal

PROJECT:	Ford Blue Oval City - TVA Substation SR 222, Stanton, Tennessee S&ME Project No. 218019	BORING LOG: B-58 *Sheet 2 of 2*
DATE DRILLED: 03/01/2022	**ELEVATION:** 307 ft	**NOTES:**
DRILL RIG: Diedrich D-50 (track)	**DATUM:** NAVD88	
DRILLER: S&ME	**BORING DEPTH:** 40.0 ft	
HAMMER TYPE: Automatic hammer	**CLOSURE:** Cuttings	
DRILLING METHOD: Mud rotary	**LOGGED BY:** Talecia Dyson	**LATITUDE:** 35.416340 **LONGITUDE:** -89.40157
SAMPLING METHOD: SS	**PROJECT COORDINATE SYSTEM -** NAD 1983 StatePlane Tennessee FIPS 4100 Feet	

DEPTH (feet)	NOTES	Origin/Identifier	GRAPHIC	SAMPLE NO. (RECOVERY)	MATERIAL DESCRIPTION	BLOW COUNT DATA (SPT N-value)	STANDARD PENETRATION TEST DATA (△ % Fines, ○ NMC, ⊢ PL---LL; 20 40 60 80)	ELEVATION
					LEAN CLAY WITH SAND (CL), little silt, stiff, red and orange, moist			
				SS-8		4-6-7 N = 13	●	283
25								
				SS-9		4-6-7 N = 13 PPV= 2.5	●	278
30								
	31.0	Marine Soils			LEAN CLAY (CL), little sand, stiff, gray, moist			
				SS-10		5-7-8 N = 15 PPV= 2.5	●	273
35								
				SS-11		5-6-8 N = 14	●	268
40	40.0				Borehole terminated at 40.0 feet			

GROUNDWATER		DATE/TIME	DEPTH (FT)	REMARKS
ATD	▽			
END OF DRILLING	▼			
AFTER DRILLING	▼	03/03/2022	4.3	48 hour reading
AFTER DRILLING	▼			

GROUNDWATER DEPTHS ARE NOT EXACT AND MAY VARY SUBSTANTIALLY FROM THOSE INDICATED. ATD = AT TIME OF DRILLING
LL=Liquid Limit, PL = Plastic Limit, NMC = Natural Moisture Content, PPV = Pocket Penetrometer (tsf), PTV = Pocket Torvane (tsf), HC = Hole Cave, AR = Auger Refusal

PROJECT:	Ford Blue Oval City - TVA Substation SR 222, Stanton, Tennessee S&ME Project No. 218019	BORING LOG: B-59 *Sheet 1 of 2*
DATE DRILLED: 02/18/2022	**ELEVATION:** 307 ft	**NOTES:**
DRILL RIG: Diedrich D-50 (track)	**DATUM:** NAVD88	
DRILLER: S&ME	**BORING DEPTH:** 40.0 ft	
HAMMER TYPE: Automatic hammer	**CLOSURE:** Cuttings	
DRILLING METHOD: Mud rotary	**LOGGED BY:** Talecia Dyson	**LATITUDE:** 35.416329 **LONGITUDE:** -89.40090
SAMPLING METHOD: SS	**PROJECT COORDINATE SYSTEM -** NAD 1983 StatePlane Tennessee FIPS 4100 Feet	

DEPTH (feet)	NOTES	Origin/Identifier	GRAPHIC	SAMPLE NO. (RECOVERY)	MATERIAL DESCRIPTION	BLOW COUNT DATA (SPT N-value)	STANDARD PENETRATION TEST DATA (△ % Fines, ○ NMC, ⊢ PL---LL; 20 40 60 80)	ELEVATION
0	0.4				TOPSOIL, 5 inches			
				SS-1	LEAN CLAY (CL), some silt, some sand, firm to very stiff, brown and gray, slightly moist to moist	2-3-7 N = 10 PPV= 1.2	●	
				SS-2		6-9-9 N = 18 PPV= 3.2	●	
				SS-3		6-9-13 N = 22 PPV= 3.0	●	303
5				SS-4		5-4-4 N = 8 PPV= 0.8	●	
				SS-5		2-3-6 N = 9 PPV= 2.0	●	298
10		Loess						
				SS-6		5-5-7 N = 12 PPV= 2.0	●	293
15								
				SS-7		4-5-5 N = 10	●	288
20	22.0							

GROUNDWATER		DATE/TIME	DEPTH (FT)	REMARKS
ATD	▽			
END OF DRILLING	▼			
AFTER DRILLING	▼			
AFTER DRILLING	▼			

GROUNDWATER DEPTHS ARE NOT EXACT AND MAY VARY SUBSTANTIALLY FROM THOSE INDICATED. ATD = AT TIME OF DRILLING
LL=Liquid Limit, PL = Plastic Limit, NMC = Natural Moisture Content, PPV = Pocket Penetrometer (tsf), PTV = Pocket Torvane (tsf), HC = Hole Cave, AR = Auger Refusal

PROJECT:	Ford Blue Oval City - TVA Substation SR 222, Stanton, Tennessee S&ME Project No. 218019	BORING LOG: B-59 *Sheet 2 of 2*
DATE DRILLED: 02/18/2022	**ELEVATION:** 307 ft	**NOTES:**
DRILL RIG: Diedrich D-50 (track)	**DATUM:** NAVD88	
DRILLER: S&ME	**BORING DEPTH:** 40.0 ft	
HAMMER TYPE: Automatic hammer	**CLOSURE:** Cuttings	
DRILLING METHOD: Mud rotary	**LOGGED BY:** Talecia Dyson	**LATITUDE:** 35.416329 **LONGITUDE:** -89.40090
SAMPLING METHOD: SS	**PROJECT COORDINATE SYSTEM -** NAD 1983 StatePlane Tennessee FIPS 4100 Feet	

DEPTH (feet)	NOTES	Origin/Identifier	GRAPHIC	SAMPLE NO. (RECOVERY)	MATERIAL DESCRIPTION	BLOW COUNT DATA (SPT N-value)	STANDARD PENETRATION TEST DATA △ % Fines ○ NMC ⊢ PL---LL 20 40 60 80	ELEVATION
25				SS-8	POORLY GRADED SAND (SP), very dense, tan and gray, moist	19-17-16 N = 33		283
	26.0				POORLY GRADED SAND (SP), some clay, medium dense, gray, very moist			
30		Marine Soils		SS-9		12-13-9 N = 22		278
	32.0				FAT CLAY (CH), little sand, very stiff, gray, moist			
35				SS-10		8-9-14 N = 23 PPV= 4.5		273
				SS-11		7-11-14 N = 25 PPV= 4.5		268
40	40.0				Borehole terminated at 40.0 feet			

GROUNDWATER		DATE/TIME	DEPTH (FT)	REMARKS
ATD	▽			
END OF DRILLING	▼			
AFTER DRILLING	▼			
AFTER DRILLING	▼			

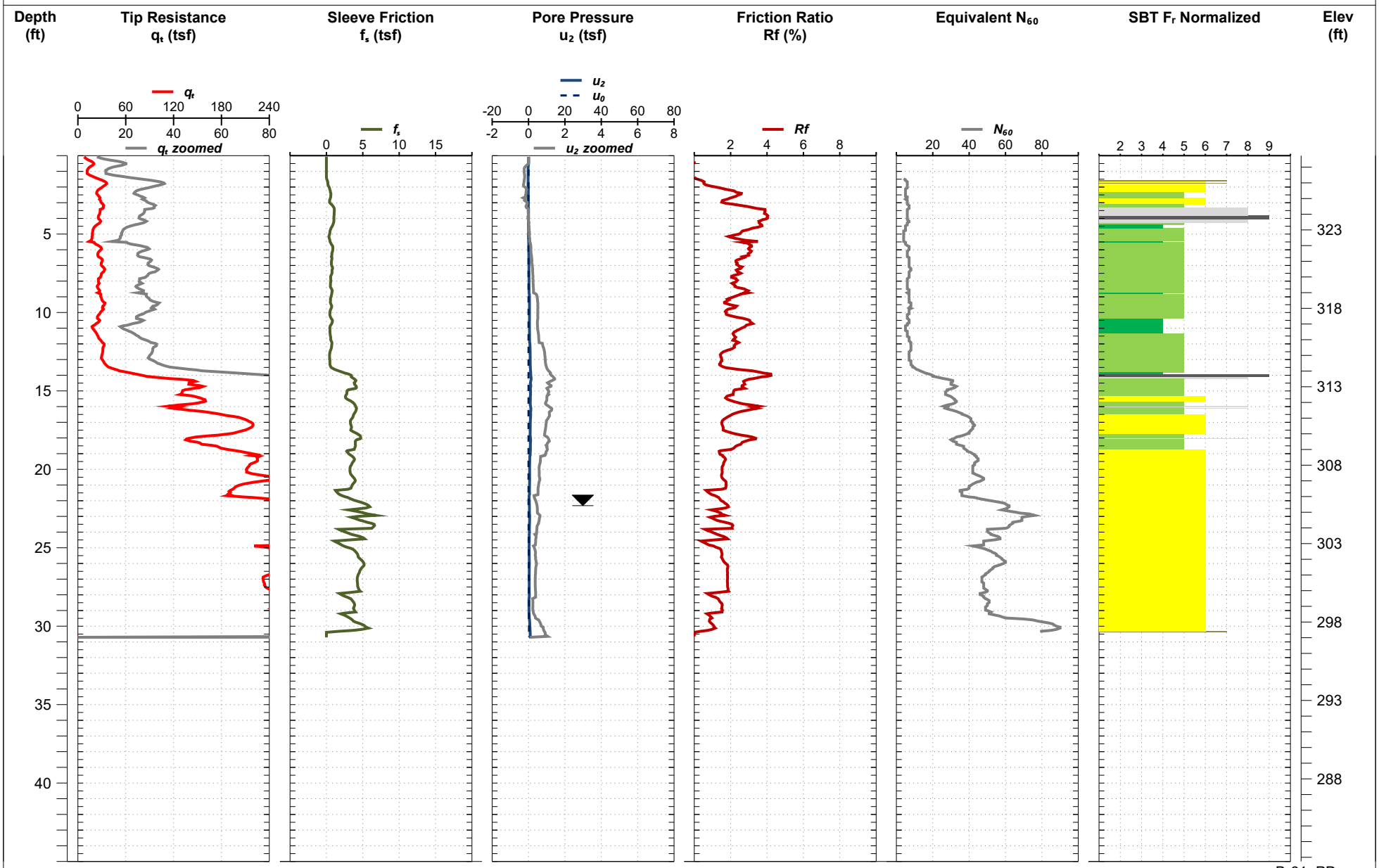
GROUNDWATER DEPTHS ARE NOT EXACT AND MAY VARY SUBSTANTIALLY FROM THOSE INDICATED. ATD = AT TIME OF DRILLING
LL=Liquid Limit, PL = Plastic Limit, NMC = Natural Moisture Content, PPV = Pocket Penetrometer (tsf), PTV = Pocket Torvane (tsf), HC = Hole Cave, AR = Auger Refusal

Ford Blue Oval City - TVA Substation
SR 222, Stanton, Tennessee
S&ME Project No. 218019

Cone Penetration Test

B-61

Date:	25-Jan-2022	**Latitude:**	35.415869	**Total Depth:**	30.7 ft
Estimated Water Depth:	22.0 ft	**Longitude:**	-89.40628	**Termination Criteria:**	Maximum Reaction Force
Rig/Operator:	Gyrotrack	**Elevation:**	327.74	**Cone Size:**	1.75



B-61_PD.ecp

PROJECT:	Ford Blue Oval City - TVA Substation SR 222, Stanton, Tennessee S&ME Project No. 218019	BORING LOG: B-62 *Sheet 1 of 2*
DATE DRILLED: 02/01/2022	**ELEVATION:** 335 ft	**NOTES:**
DRILL RIG: Diedrich D-50 (track)	**DATUM:** NAVD88	
DRILLER: S&ME	**BORING DEPTH:** 40.0 ft	
HAMMER TYPE: Automatic hammer	**CLOSURE:** Cuttings	
DRILLING METHOD: HSA	**LOGGED BY:** Talecia Dyson	**LATITUDE:** 35.415857 **LONGITUDE:** -89.40556
SAMPLING METHOD: SS	**PROJECT COORDINATE SYSTEM -** NAD 1983 StatePlane Tennessee FIPS 4100 Feet	

DEPTH (feet)	NOTES	Origin/Identifier	GRAPHIC	SAMPLE NO. (RECOVERY)	MATERIAL DESCRIPTION	BLOW COUNT DATA (SPT N-value)	STANDARD PENETRATION TEST DATA △ % Fines ○ NMC ⊢ PL---LL 20 40 60 80	ELEVATION
0		Cultivated Zone						
	0.9			SS-1	LEAN CLAY (CL), firm, brown, moist	1-6-2 N = 8		
				SS-2	LEAN CLAY (CL), few sand, few silt, firm, brown, moist	3-3-4 N = 7		
	3.0			SS-3	LEAN CLAY (CL), some sand, firm to very stiff, orange brown, slightly moist	2-3-5 N = 8		331
5				SS-4		9-10-10 N = 20		
		Loess		SS-5		6-8-9 N = 17		326
10				SS-6		4-8-12 N = 20		321
15	16.0				POORLY GRADED SAND (SP), few clay, medium dense, orange brown, moist			
		Marine Soils		SS-7		4-8-8 N = 16		316
20								

GROUNDWATER		DATE/TIME	DEPTH (FT)	REMARKS
ATD	▽	02/01/2022		not encountered - cave in at 22.5
END OF DRILLING	▼	02/01/2022		1 hour reaing - cave in at 22.5 feet
AFTER DRILLING	▼	02/02/2022		24 hour reading - cave in at 22.5 feet
AFTER DRILLING	▼			

GROUNDWATER DEPTHS ARE NOT EXACT AND MAY VARY SUBSTANTIALLY FROM THOSE INDICATED. ATD = AT TIME OF DRILLING
LL=Liquid Limit, PL = Plastic Limit, NMC = Natural Moisture Content, PPV = Pocket Penetrometer (tsf), PTV = Pocket Torvane (tsf), HC = Hole Cave, AR = Auger Refusal

PROJECT:	Ford Blue Oval City - TVA Substation SR 222, Stanton, Tennessee S&ME Project No. 218019	BORING LOG: B-62 *Sheet 2 of 2*
DATE DRILLED: 02/01/2022	**ELEVATION:** 335 ft	**NOTES:**
DRILL RIG: Diedrich D-50 (track)	**DATUM:** NAVD88	
DRILLER: S&ME	**BORING DEPTH:** 40.0 ft	
HAMMER TYPE: Automatic hammer	**CLOSURE:** Cuttings	
DRILLING METHOD: HSA	**LOGGED BY:** Talecia Dyson	**LATITUDE:** 35.415857 **LONGITUDE:** -89.40556
SAMPLING METHOD: SS	**PROJECT COORDINATE SYSTEM -** NAD 1983 StatePlane Tennessee FIPS 4100 Feet	

DEPTH (feet)	NOTES	Origin/Identifier	GRAPHIC	SAMPLE NO. (RECOVERY)	MATERIAL DESCRIPTION	BLOW COUNT DATA (SPT N-value)	STANDARD PENETRATION TEST DATA (△ % Fines, ○ NMC, ⊢ PL---LL; 20 40 60 80)	ELEVATION
0	HC	Marine Soils			POORLY GRADED SAND (SP), few clay, medium dense, orange brown, moist			
				SS-8		7-9-10 N = 19		311
25								
				SS-9		9-9-13 N = 22		306
30								
	32.0				POORLY GRADED SAND (SP), very dense, orange and tan, moist			
				SS-10		7-14-22 N = 36		301
35								
				SS-11		16-23-34 N = 57		296
	40.0				Borehole terminated at 40.0 feet			
40								

GROUNDWATER		DATE/TIME	DEPTH (FT)	REMARKS
ATD	▽	02/01/2022		not encountered - cave in at 22.5
END OF DRILLING	▼	02/01/2022		1 hour reaing - cave in at 22.5 feet
AFTER DRILLING	▼	02/02/2022		24 hour reading - cave in at 22.5 feet
AFTER DRILLING	▼			

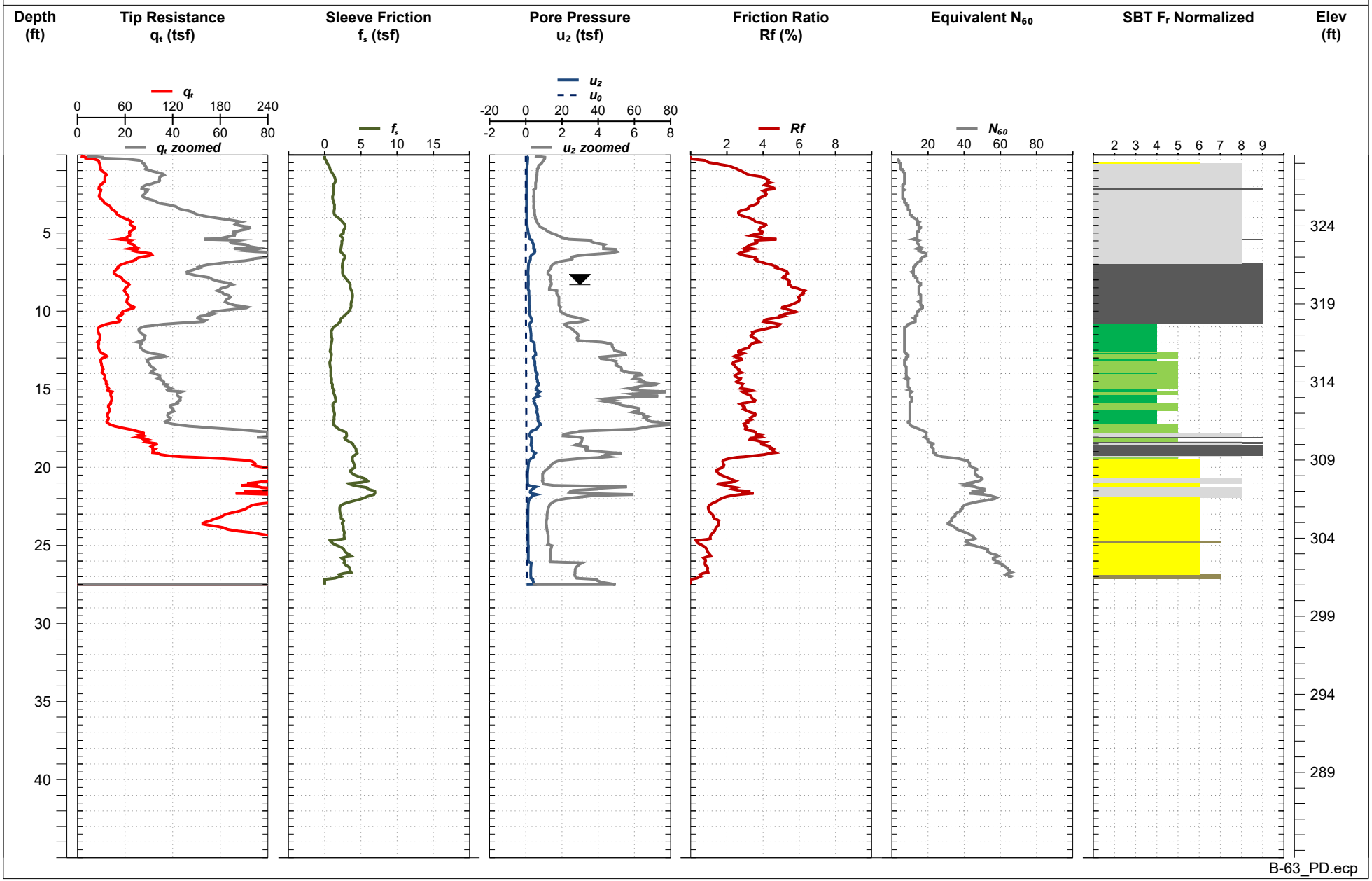
GROUNDWATER DEPTHS ARE NOT EXACT AND MAY VARY SUBSTANTIALLY FROM THOSE INDICATED. ATD = AT TIME OF DRILLING
LL=Liquid Limit, PL = Plastic Limit, NMC = Natural Moisture Content, PPV = Pocket Penetrometer (tsf), PTV = Pocket Torvane (tsf), HC = Hole Cave, AR = Auger Refusal

Ford Blue Oval City - TVA Substation
SR 222, Stanton, Tennessee
S&ME Project No. 218019

Cone Penetration Test

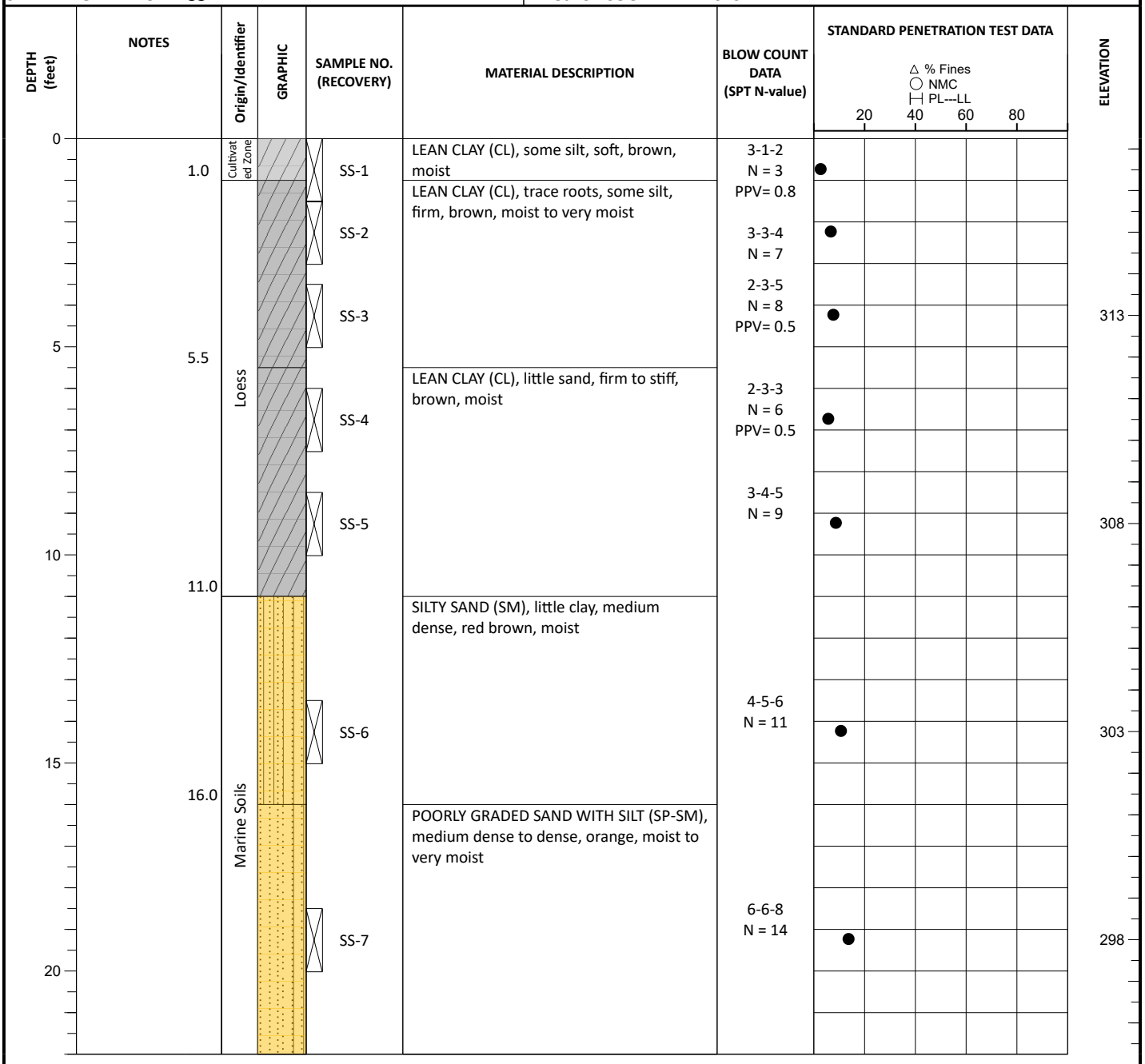
B-63

Date:	26-Jan-2022	**Latitude:**	35.415846	**Total Depth:**	27.5 ft
Estimated Water Depth:	8.0 ft	**Longitude:**	-89.40494	**Termination Criteria:**	Maximum Reaction Force
Rig/Operator:	Gyrotrack	**Elevation:**	328.54	**Cone Size:**	1.75



B-63_PD.ecp

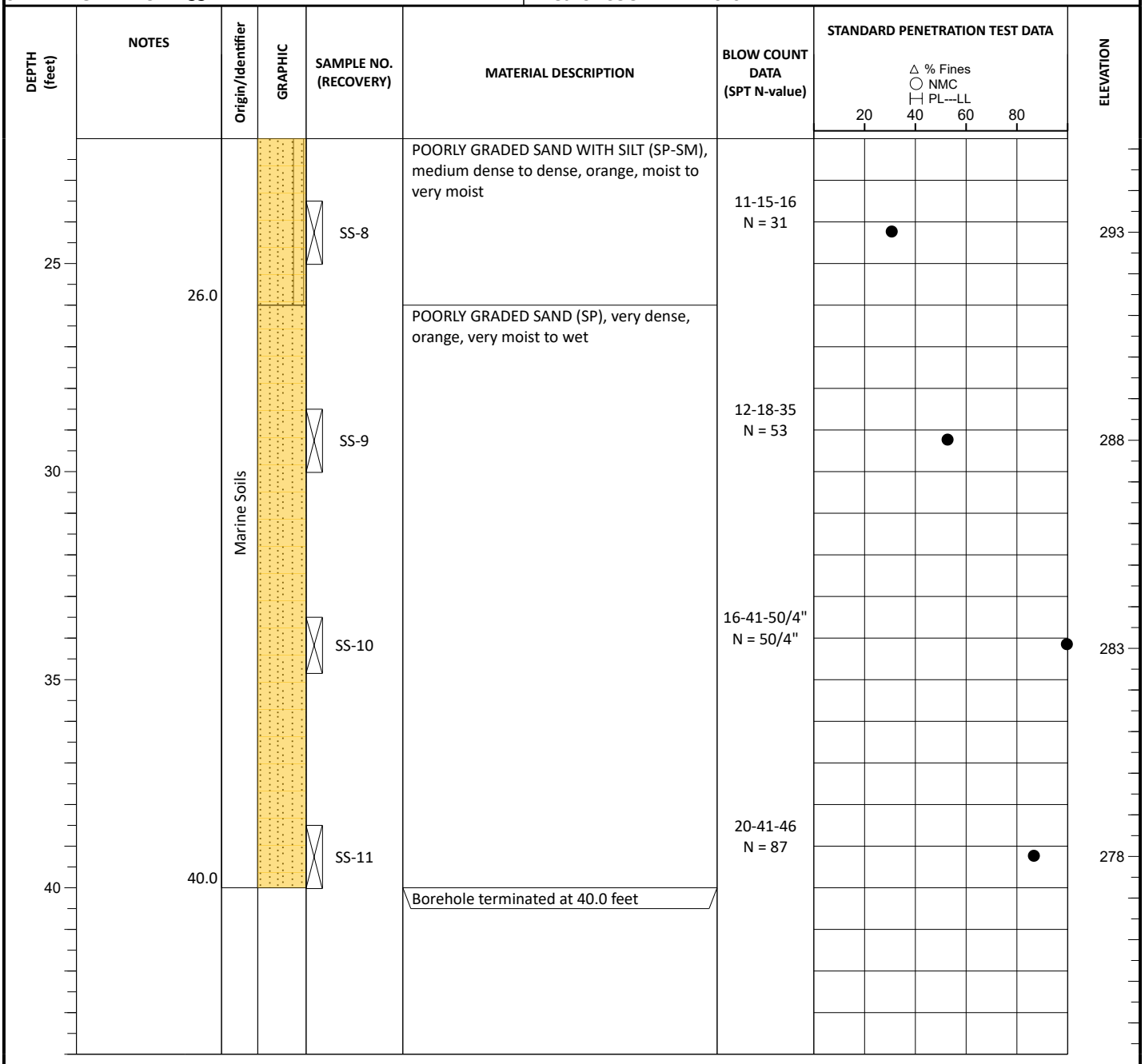
PROJECT:	Ford Blue Oval City - TVA Substation SR 222, Stanton, Tennessee S&ME Project No. 218019	BORING LOG: B-64 *Sheet 1 of 2*
DATE DRILLED: 02/05/2022	**ELEVATION:** 317 ft	**NOTES:**
DRILL RIG: Diedrich D-50 (track)	**DATUM:** NAVD88	
DRILLER: S&ME	**BORING DEPTH:** 40.0 ft	
HAMMER TYPE: Automatic hammer	**CLOSURE:** Cuttings	
DRILLING METHOD: Mud rotary	**LOGGED BY:** Talecia Dyson	**LATITUDE:** 35.415835 **LONGITUDE:** -89.40426
SAMPLING METHOD: SS	**PROJECT COORDINATE SYSTEM -** NAD 1983 StatePlane Tennessee FIPS 4100 Feet	



GROUNDWATER		DATE/TIME	DEPTH (FT)	REMARKS
ATD	▽	02/05/2022		not encountered - cave in at 22 feet
END OF DRILLING	▼	02/05/2022		1 hour reading - wet cave at 22 feet
AFTER DRILLING	▼	02/18/2022		312 hour reading - wet cave at 22 feet
AFTER DRILLING	▼	02/20/2022		360 hour reading - wet cave at 22 feet

GROUNDWATER DEPTHS ARE NOT EXACT AND MAY VARY SUBSTANTIALLY FROM THOSE INDICATED. ATD = AT TIME OF DRILLING
LL=Liquid Limit, PL = Plastic Limit, NMC = Natural Moisture Content, PPV = Pocket Penetrometer (tsf), PTV = Pocket Torvane (tsf), HC = Hole Cave, AR = Auger Refusal

PROJECT:	Ford Blue Oval City - TVA Substation SR 222, Stanton, Tennessee S&ME Project No. 218019	BORING LOG: B-64 *Sheet 2 of 2*
DATE DRILLED: 02/05/2022	**ELEVATION:** 317 ft	**NOTES:**
DRILL RIG: Diedrich D-50 (track)	**DATUM:** NAVD88	
DRILLER: S&ME	**BORING DEPTH:** 40.0 ft	
HAMMER TYPE: Automatic hammer	**CLOSURE:** Cuttings	
DRILLING METHOD: Mud rotary	**LOGGED BY:** Talecia Dyson	**LATITUDE:** 35.415835 **LONGITUDE:** -89.40426
SAMPLING METHOD: SS	**PROJECT COORDINATE SYSTEM -** NAD 1983 StatePlane Tennessee FIPS 4100 Feet	



GROUNDWATER		DATE/TIME	DEPTH (FT)	REMARKS
ATD	▽	02/05/2022		not encountered - cave in at 22 feet
END OF DRILLING	▼	02/05/2022		1 hour reading - wet cave at 22 feet
AFTER DRILLING	▼	02/18/2022		312 hour reading - wet cave at 22 feet
AFTER DRILLING	▼	02/20/2022		360 hour reading - wet cave at 22 feet

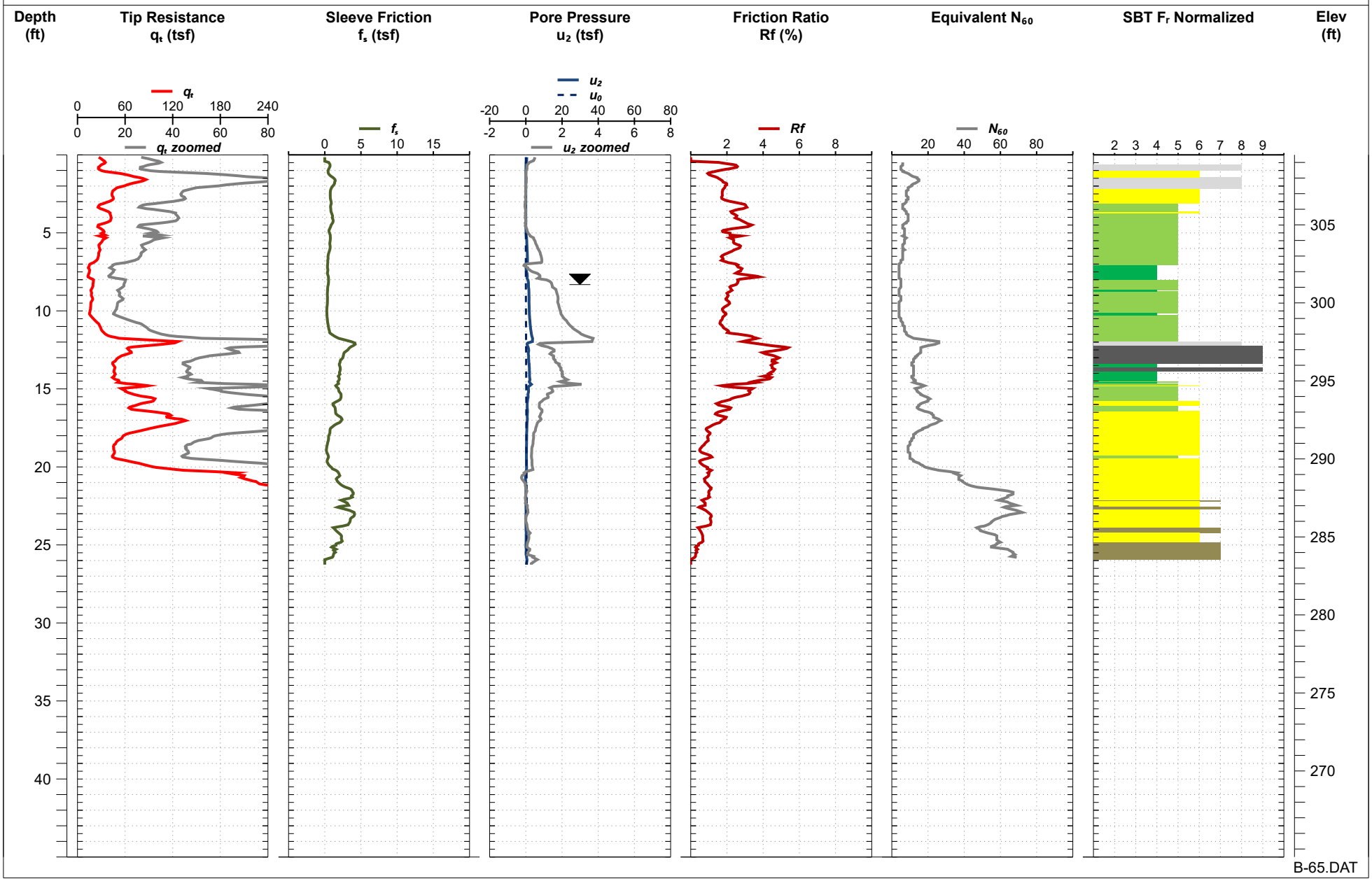
GROUNDWATER DEPTHS ARE NOT EXACT AND MAY VARY SUBSTANTIALLY FROM THOSE INDICATED. ATD = AT TIME OF DRILLING
LL=Liquid Limit, PL = Plastic Limit, NMC = Natural Moisture Content, PPV = Pocket Penetrometer (tsf), PTV = Pocket Torvane (tsf), HC = Hole Cave, AR = Auger Refusal

Ford Blue Oval City - TVA Substation
SR 222, Stanton, Tennessee
S&ME Project No. 218019

Cone Penetration Test

B-65

Date:	27-Jan-2022	**Latitude:**	35.415823	**Total Depth:**	26.3 ft
Estimated Water Depth:	8.0 ft	**Longitude:**	-89.40353	**Termination Criteria:**	Maximum Reaction Force
Rig/Operator:	Gyrotrack/TC | TW	**Elevation:**	309.49	**Cone Size:**	1.75



PROJECT:	Ford Blue Oval City - TVA Substation SR 222, Stanton, Tennessee S&ME Project No. 218019	BORING LOG: B-66 *Sheet 1 of 2*
DATE DRILLED: 02/16/2022	**ELEVATION:** 308 ft	**NOTES:**
DRILL RIG: Diedrich D-50 (track)	**DATUM:** NAVD88	
DRILLER: S&ME	**BORING DEPTH:** 40.0 ft	
HAMMER TYPE: Automatic hammer	**CLOSURE:** Cuttings	
DRILLING METHOD:	**LOGGED BY:** Talecia Dyson	**LATITUDE:** 35.415813 **LONGITUDE:** -89.40292
SAMPLING METHOD: SS	**PROJECT COORDINATE SYSTEM -** NAD 1983 StatePlane Tennessee FIPS 4100 Feet	

DEPTH (feet)	NOTES	Origin/Identifier	GRAPHIC	SAMPLE NO. (RECOVERY)	MATERIAL DESCRIPTION	BLOW COUNT DATA (SPT N-value)	STANDARD PENETRATION TEST DATA (△ % Fines, ○ NMC, ⊢ PL---LL; 20 40 60 80)	ELEVATION
0	0.3	Loess		SS-1	TOPSOIL, 3 inches LEAN CLAY (CL), some silt, few sand, very soft to firm, brown, moist	2-2-2 N = 4 PPV= 1.5		
				SS-2		4-3-4 N = 7 PPV= 0.2		
				SS-3		2-1-2 N = 3 PPV= 0.2		
5				SS-4		1-2-2 N = 4 PPV= 0.5		303
				SS-5		2-3-4 N = 7 PPV= 0.8		
10	13.0			SS-6	LEAN CLAY WITH SAND (CL), some silt, stiff, brown and gray, moist	6-6-7 N = 13 PPV= 2.2		298
15	16.0	Marine Soils			POORLY GRADED SAND (SP), loose to medium dense, gray and orange, moist			293
				SS-7		9-13-11 N = 24		
20								288

GROUNDWATER		DATE/TIME	DEPTH (FT)	REMARKS
ATD	▽			
END OF DRILLING	▼	02/16/2022	7.3	1 hour reading
AFTER DRILLING	▼			
AFTER DRILLING	▼			

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LL=Liquid Limit, PL = Plastic Limit, NMC = Natural Moisture Content, PPV = Pocket Penetrometer (tsf), PTV = Pocket Torvane (tsf), HC = Hole Cave, AR = Auger Refusal

PROJECT:	Ford Blue Oval City - TVA Substation SR 222, Stanton, Tennessee S&ME Project No. 218019	BORING LOG: B-66 *Sheet 2 of 2*
DATE DRILLED: 02/16/2022	**ELEVATION:** 308 ft	**NOTES:**
DRILL RIG: Diedrich D-50 (track)	**DATUM:** NAVD88	
DRILLER: S&ME	**BORING DEPTH:** 40.0 ft	
HAMMER TYPE: Automatic hammer	**CLOSURE:** Cuttings	
DRILLING METHOD:	**LOGGED BY:** Talecia Dyson	**LATITUDE:** 35.415813 **LONGITUDE:** -89.40292
SAMPLING METHOD: SS	**PROJECT COORDINATE SYSTEM -** NAD 1983 StatePlane Tennessee FIPS 4100 Feet	

DEPTH (feet)	NOTES	Origin/Identifier	GRAPHIC	SAMPLE NO. (RECOVERY)	MATERIAL DESCRIPTION	BLOW COUNT DATA (SPT N-value)	STANDARD PENETRATION TEST DATA △ % Fines ○ NMC ⊢ PL---LL 20 40 60 80	ELEVATION
25				SS-8	POORLY GRADED SAND (SP), loose to medium dense, gray and orange, moist	5-5-5 N = 10		283
27.0								
		Marine Soils		SS-9	FAT CLAY (CH), few sand, trace gravel, stiff, gray, moist	3-4-5 N = 9 PPV= 2.5		
30								278
32.0								
				SS-10	POORLY GRADED SAND (SP), some clay, trace gravel, medium dense, orange, moist	4-8-12 N = 20		
35								273
36.0								
				SS-11	POORLY GRADED SAND (SP), very dense, tan, very moist	36-50/4" N = 50/4"		
40								268
40.0					Borehole terminated at 40.0 feet			

GROUNDWATER		DATE/TIME	DEPTH (FT)	REMARKS
ATD	▽			
END OF DRILLING	▼	02/16/2022	7.3	1 hour reading
AFTER DRILLING	▼			
AFTER DRILLING	▼			

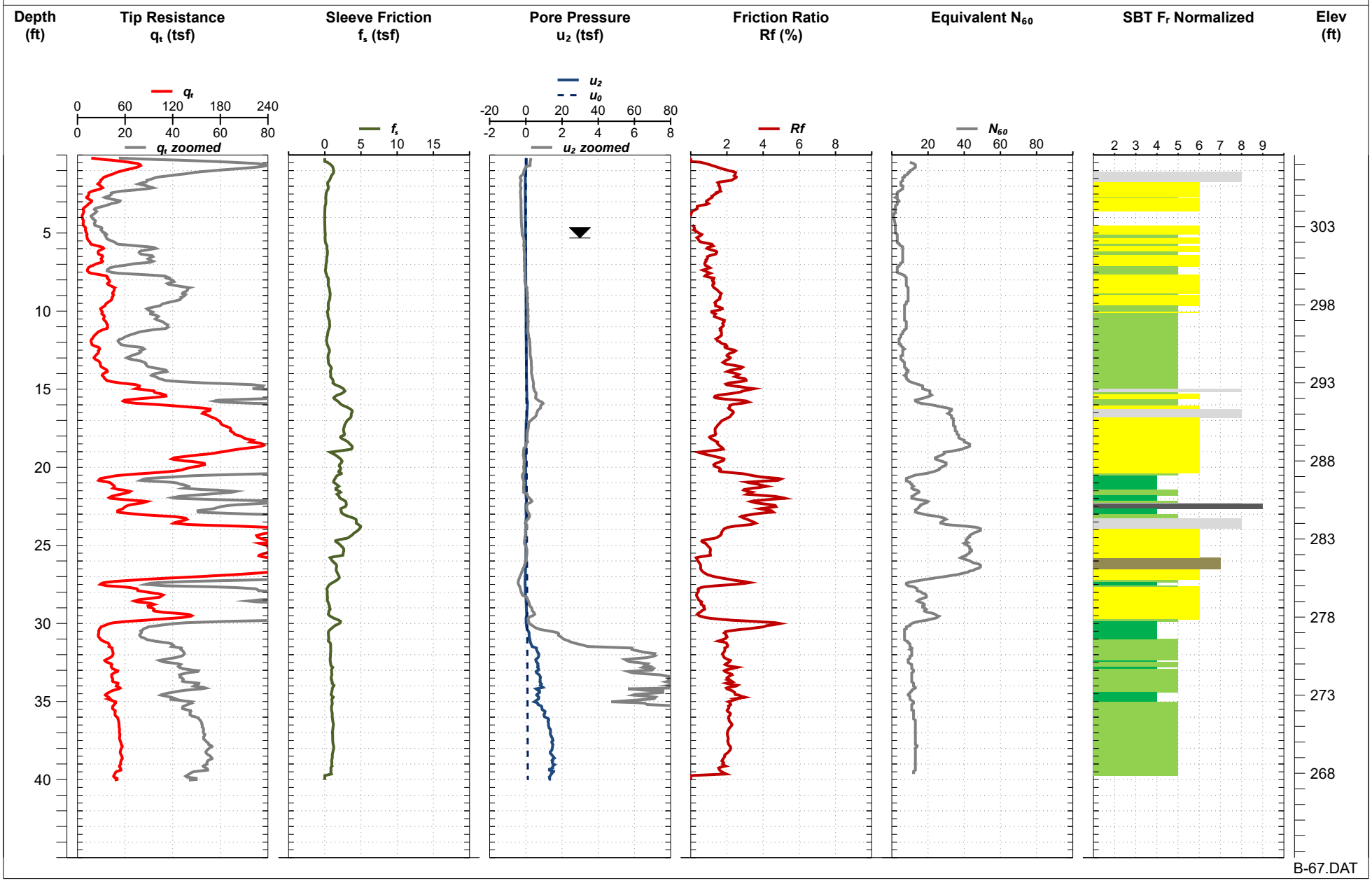
GROUNDWATER DEPTHS ARE NOT EXACT AND MAY VARY SUBSTANTIALLY FROM THOSE INDICATED. ATD = AT TIME OF DRILLING
LL=Liquid Limit, PL = Plastic Limit, NMC = Natural Moisture Content, PPV = Pocket Penetrometer (tsf), PTV = Pocket Torvane (tsf), HC = Hole Cave, AR = Auger Refusal

Ford Blue Oval City - TVA Substation
SR 222, Stanton, Tennessee
S&ME Project No. 218019

Cone Penetration Test

B-67

Date:	27-Jan-2022	**Latitude:**	35.415802	**Total Depth:**	40.0 ft
Estimated Water Depth:	5.0 ft	**Longitude:**	-89.40225	**Termination Criteria:**	Maximum Reaction Force
Rig/Operator:	Gyrotrack/TC | TW	**Elevation:**	307.59	**Cone Size:**	1.75



PROJECT:	Ford Blue Oval City - TVA Substation SR 222, Stanton, Tennessee S&ME Project No. 218019	BORING LOG: B-68 *Sheet 1 of 2*
DATE DRILLED: 02/18/2022	**ELEVATION:** 307 ft	**NOTES:**
DRILL RIG: D-50	**DATUM:** NAVD88	
DRILLER: S&ME	**BORING DEPTH:** 40.0 ft	
HAMMER TYPE: Automatic hammer	**CLOSURE:** Cuttings	
DRILLING METHOD:	**LOGGED BY:** Talecia Dyson	**LATITUDE:** 35.415791 **LONGITUDE:** -89.40158
SAMPLING METHOD: SS	**PROJECT COORDINATE SYSTEM -** NAD 1983 StatePlane Tennessee FIPS 4100 Feet	

DEPTH (feet)	NOTES	Origin/Identifier	GRAPHIC	SAMPLE NO. (RECOVERY)	MATERIAL DESCRIPTION	BLOW COUNT DATA (SPT N-value)	STANDARD PENETRATION TEST DATA (△ % Fines, ○ NMC, ⊢ PL---LL; 20 40 60 80)	ELEVATION
0	0.3	Loess		SS-1	TOPSOIL, 3 inches LEAN CLAY (CL), some silt, some sand, soft to stiff, brown and gray, moist	2-3-3 N = 6		
				SS-2		5-4-5 N = 9		
				SS-3		4-5-6 N = 11		303
5				SS-4		4-7-6 N = 13		
				SS-5		2-2-2 N = 4		298
10				SS-6		3-5-5 N = 10		293
15				SS-7		4-6-6 N = 12		288
20								

GROUNDWATER		DATE/TIME	DEPTH (FT)	REMARKS
ATD	▽			
END OF DRILLING	▼			
AFTER DRILLING	▼			
AFTER DRILLING	▼			

GROUNDWATER DEPTHS ARE NOT EXACT AND MAY VARY SUBSTANTIALLY FROM THOSE INDICATED. ATD = AT TIME OF DRILLING
LL=Liquid Limit, PL = Plastic Limit, NMC = Natural Moisture Content, PPV = Pocket Penetrometer (tsf), PTV = Pocket Torvane (tsf), HC = Hole Cave, AR = Auger Refusal

PROJECT:	Ford Blue Oval City - TVA Substation SR 222, Stanton, Tennessee S&ME Project No. 218019	BORING LOG: B-68 *Sheet 2 of 2*
DATE DRILLED: 02/18/2022	**ELEVATION:** 307 ft	**NOTES:**
DRILL RIG: D-50	**DATUM:** NAVD88	
DRILLER: S&ME	**BORING DEPTH:** 40.0 ft	
HAMMER TYPE: Automatic hammer	**CLOSURE:** Cuttings	
DRILLING METHOD:	**LOGGED BY:** Talecia Dyson	**LATITUDE:** 35.415791 **LONGITUDE:** -89.40158
SAMPLING METHOD: SS	**PROJECT COORDINATE SYSTEM -** NAD 1983 StatePlane Tennessee FIPS 4100 Feet	

DEPTH (feet)	NOTES	Origin/Identifier	GRAPHIC	SAMPLE NO. (RECOVERY)	MATERIAL DESCRIPTION	BLOW COUNT DATA (SPT N-value)	STANDARD PENETRATION TEST DATA △ % Fines ○ NMC ⊢ PL---LL 20 40 60 80	ELEVATION
25		Loess		SS-8	LEAN CLAY (CL), some silt, some sand, soft to stiff, brown and gray, moist	3-4-5 N = 9		283
	26.0							
		Marine Soils		SS-9	POORLY GRADED SAND (SP), trace clay, loose, orange and gray, very moist	4-4-5 N = 9		278
30								
	32.0			SS-10	LEAN CLAY (CL), some sand, soft, orange, very moist	2-2-1 N = 3		273
35								
	37.0			SS-11	FAT CLAY (CH), some sand, stiff, gray, moist	3-4-5 N = 9		268
40	40.0				Borehole terminated at 40.0 feet			

GROUNDWATER		DATE/TIME	DEPTH (FT)	REMARKS
ATD	▽			
END OF DRILLING	▼			
AFTER DRILLING	▼			
AFTER DRILLING	▼			

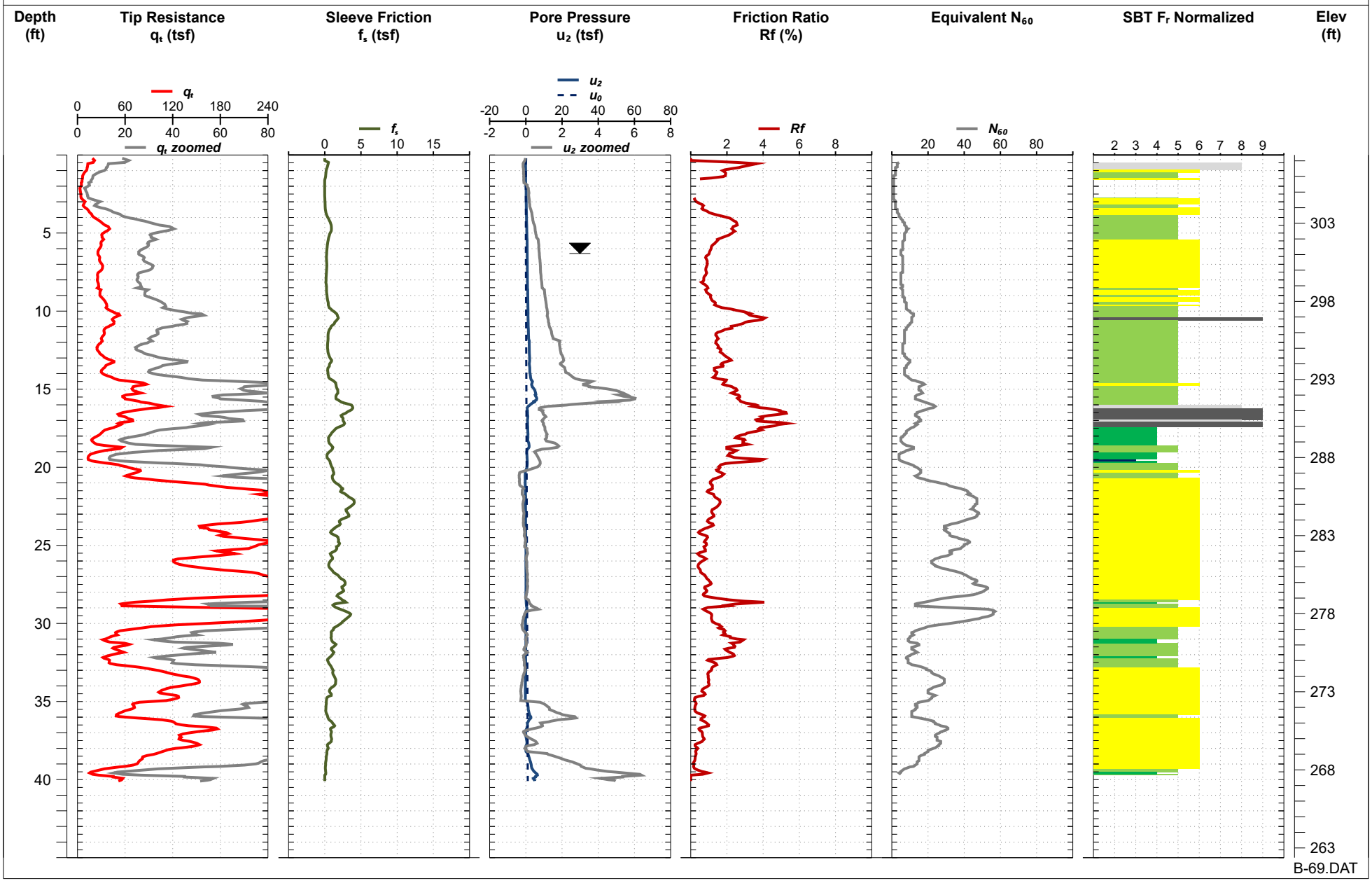
GROUNDWATER DEPTHS ARE NOT EXACT AND MAY VARY SUBSTANTIALLY FROM THOSE INDICATED. ATD = AT TIME OF DRILLING
LL=Liquid Limit, PL = Plastic Limit, NMC = Natural Moisture Content, PPV = Pocket Penetrometer (tsf), PTV = Pocket Torvane (tsf), HC = Hole Cave, AR = Auger Refusal

Ford Blue Oval City - TVA Substation
SR 222, Stanton, Tennessee
S&ME Project No. 218019

Cone Penetration Test

B-69

Date:	27-Jan-2022	**Latitude:**	35.415779	**Total Depth:**	40.1 ft
Estimated Water Depth:	6.0 ft	**Longitude:**	-89.40091	**Termination Criteria:**	Maximum Reaction Force
Rig/Operator:	Gyrotrack/TC | TW	**Elevation:**	307.38	**Cone Size:**	1.75



PROJECT:	Ford Blue Oval City - TVA Substation SR 222, Stanton, Tennessee S&ME Project No. 218019	BORING LOG: B-70 *Sheet 1 of 2*
DATE DRILLED: 02/20/2022	**ELEVATION:** 328 ft	**NOTES:**
DRILL RIG: Diedrich D-50 (track)	**DATUM:** NAVD88	
DRILLER: S&ME	**BORING DEPTH:** 40.0 ft	
HAMMER TYPE: Automatic hammer	**CLOSURE:** Cuttings	
DRILLING METHOD: HSA	**LOGGED BY:** Talecia Dyson	**LATITUDE:** 35.415319 **LONGITUDE:** -89.40629
SAMPLING METHOD: SS	**PROJECT COORDINATE SYSTEM -** NAD 1983 StatePlane Tennessee FIPS 4100 Feet	

DEPTH (feet)	NOTES	Origin/Identifier	GRAPHIC	SAMPLE NO. (RECOVERY)	MATERIAL DESCRIPTION	BLOW COUNT DATA (SPT N-value)	STANDARD PENETRATION TEST DATA (△ % Fines, ○ NMC, ⊢ PL---LL; 20 40 60 80)	ELEVATION
0								
	1.0	Cultivated Zone		SS-1	LEAN CLAY (CL), some silt, little sand, firm, brown, dry	3-3-3 N = 6 PPV= 2.5		
		Loess		SS-2	LEAN CLAY (CL), some silt, some sand, firm to stiff, brown red, slightly moist	3-3-5 N = 8 PPV= 1.5		
				SS-3		3-6-6 N = 12 PPV= 1.8		
5								323
				SS-4		4-5-7 N = 12 PPV= 2.0		
				SS-5		2-2-4 N = 6 PPV= 1.8		
10								318
				SS-6		2-4-9 N = 13 PPV= 1.2		
15								313
	18.0	Marine Soils		SS-7	POORLY GRADED SAND (SP), medium dense to very dense, red and orange, slightly moist to very moist	6-10-10 N = 20		
20								308

GROUNDWATER		DATE/TIME	DEPTH (FT)	REMARKS
ATD	▽	02/20/2022	35.0	
END OF DRILLING	▼	02/20/2022		1 hour reading - dry cave in at 24.3 feet
AFTER DRILLING	▼	02/21/2022		24 hour reading - dry cave at 24.3 feet
AFTER DRILLING	▼			

GROUNDWATER DEPTHS ARE NOT EXACT AND MAY VARY SUBSTANTIALLY FROM THOSE INDICATED. ATD = AT TIME OF DRILLING
LL=Liquid Limit, PL = Plastic Limit, NMC = Natural Moisture Content, PPV = Pocket Penetrometer (tsf), PTV = Pocket Torvane (tsf), HC = Hole Cave, AR = Auger Refusal

PROJECT:	Ford Blue Oval City - TVA Substation SR 222, Stanton, Tennessee S&ME Project No. 218019	BORING LOG: B-70 *Sheet 2 of 2*
DATE DRILLED: 02/20/2022	**ELEVATION:** 328 ft	**NOTES:**
DRILL RIG: Diedrich D-50 (track)	**DATUM:** NAVD88	
DRILLER: S&ME	**BORING DEPTH:** 40.0 ft	
HAMMER TYPE: Automatic hammer	**CLOSURE:** Cuttings	
DRILLING METHOD: HSA	**LOGGED BY:** Talecia Dyson	**LATITUDE:** 35.415319 **LONGITUDE:** -89.40629
SAMPLING METHOD: SS	**PROJECT COORDINATE SYSTEM -** NAD 1983 StatePlane Tennessee FIPS 4100 Feet	

DEPTH (feet)	NOTES	Origin/Identifier	GRAPHIC	SAMPLE NO. (RECOVERY)	MATERIAL DESCRIPTION	BLOW COUNT DATA (SPT N-value)	STANDARD PENETRATION TEST DATA (△ % Fines, ○ NMC, ⊢ PL---LL; 20 40 60 80)	ELEVATION
25	HC	Marine Soils		SS-8	POORLY GRADED SAND (SP), medium dense to very dense, red and orange, slightly moist to very moist	6-9-13 N = 22		303
30				SS-9		9-12-18 N = 30		298
35	▽			SS-10		6-8-18 N = 26		293
40	40.0			SS-11	Borehole terminated at 40.0 feet	13-21-38 N = 59		288

GROUNDWATER		DATE/TIME	DEPTH (FT)	REMARKS
ATD	▽	02/20/2022	35.0	
END OF DRILLING	▼	02/20/2022		1 hour reading - dry cave in at 24.3 feet
AFTER DRILLING	▼	02/21/2022		24 hour reading - dry cave at 24.3 feet
AFTER DRILLING	▼			

GROUNDWATER DEPTHS ARE NOT EXACT AND MAY VARY SUBSTANTIALLY FROM THOSE INDICATED. ATD = AT TIME OF DRILLING
LL=Liquid Limit, PL = Plastic Limit, NMC = Natural Moisture Content, PPV = Pocket Penetrometer (tsf), PTV = Pocket Torvane (tsf), HC = Hole Cave, AR = Auger Refusal

PROJECT:	Ford Blue Oval City - TVA Substation SR 222, Stanton, Tennessee S&ME Project No. 218019	BORING LOG: B-71 *Sheet 1 of 2*
DATE DRILLED: 02/20/2022	**ELEVATION:** 332 ft	**NOTES:**
DRILL RIG: Diedrich D-50 (track)	**DATUM:** NAVD88	
DRILLER: S&ME	**BORING DEPTH:**	
HAMMER TYPE: Automatic hammer	**CLOSURE:** Cuttings	
DRILLING METHOD: HSA	**LOGGED BY:** Talecia Dyson	**LATITUDE:** 35.415307 **LONGITUDE:** -89.40557
SAMPLING METHOD: SS	**PROJECT COORDINATE SYSTEM -** NAD 1983 StatePlane Tennessee FIPS 4100 Feet	

DEPTH (feet)	NOTES	Origin/Identifier	GRAPHIC	SAMPLE NO. (RECOVERY)	MATERIAL DESCRIPTION	BLOW COUNT DATA (SPT N-value)	STANDARD PENETRATION TEST DATA (△ % Fines, ○ NMC, ⊢ PL---LL; 20 40 60 80)	ELEVATION
0								
	1.0	Cultivated Zone		SS-1	LEAN CLAY (CL), firm, brown, slightly moist	3-3-4 N = 7		
		Loess		SS-2	LEAN CLAY (CL), some silt, little sand, firm to very stiff, red brown, dry	5-7-8 N = 15 PPV= 1.2		
				SS-3		7-9-11 N = 20 PPV= 1.2		
5	5.5							327
		Marine Soils		SS-4	POORLY GRADED SAND (SP), some silt, medium dense to very dense, red orange, dry	23-33-24 N = 57		
				SS-5		4-10-12 N = 22 PPV= 4.5		
10								322
				SS-6		4-13-34 N = 47		
15								317
	17.0				POORLY GRADED SAND (SP), medium dense to very dense, orange pink, slightly moist to very moist			
				SS-7		10-23-31 N = 54		
20								312
	HC							

GROUNDWATER		DATE/TIME	DEPTH (FT)	REMARKS
ATD	▽	02/20/2022	40.0	
END OF DRILLING	▼	02/20/2022		1 hour reading - dry cave in at 21.7 feet
AFTER DRILLING	▼			24 hour reading - dry cave at 21.7 feet
AFTER DRILLING	▼			

GROUNDWATER DEPTHS ARE NOT EXACT AND MAY VARY SUBSTANTIALLY FROM THOSE INDICATED. ATD = AT TIME OF DRILLING
LL=Liquid Limit, PL = Plastic Limit, NMC = Natural Moisture Content, PPV = Pocket Penetrometer (tsf), PTV = Pocket Torvane (tsf), HC = Hole Cave, AR = Auger Refusal

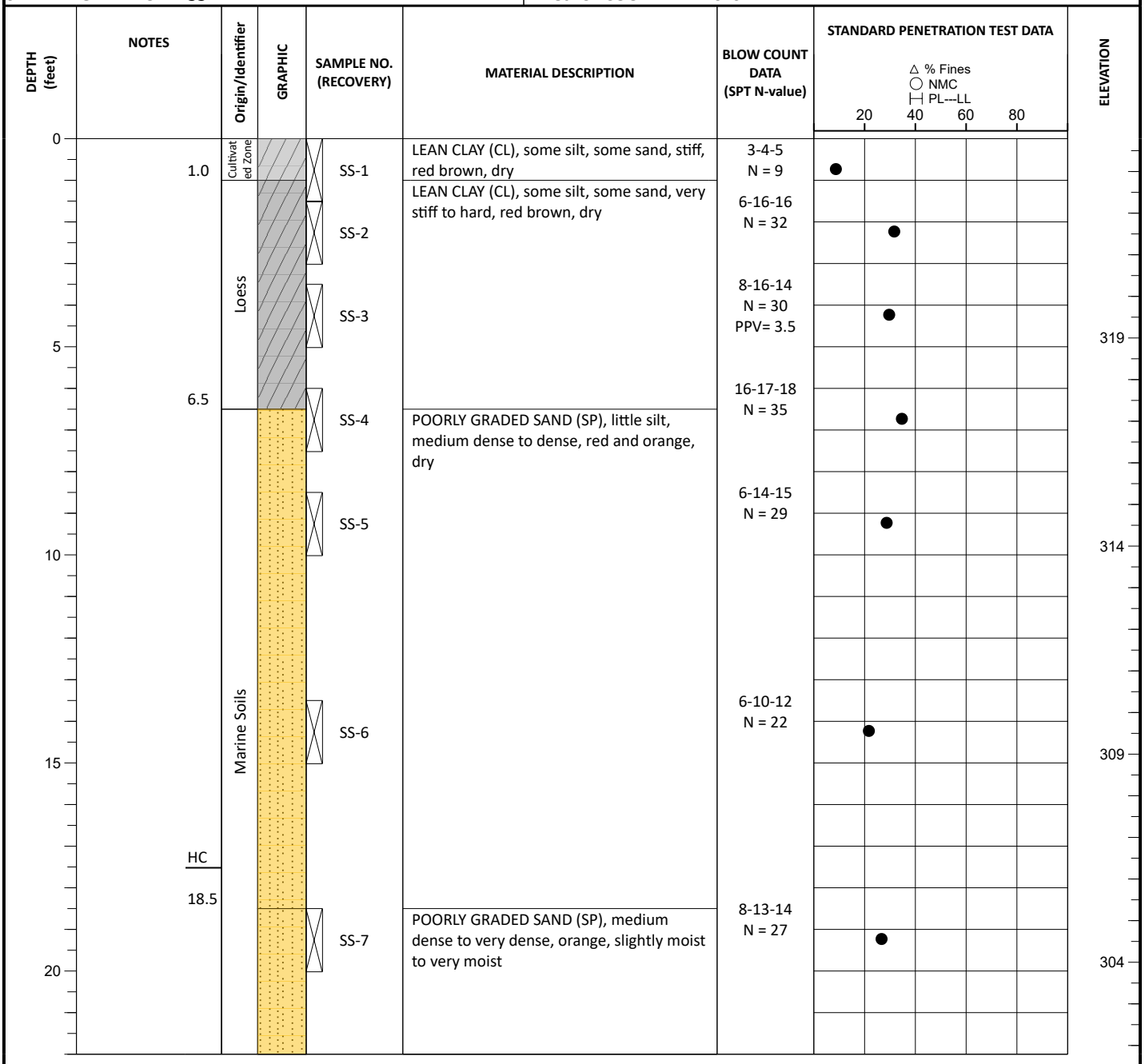
PROJECT:	Ford Blue Oval City - TVA Substation SR 222, Stanton, Tennessee S&ME Project No. 218019	BORING LOG: B-71 *Sheet 2 of 2*
DATE DRILLED: 02/20/2022	**ELEVATION:** 332 ft	**NOTES:**
DRILL RIG: Diedrich D-50 (track)	**DATUM:** NAVD88	
DRILLER: S&ME	**BORING DEPTH:**	
HAMMER TYPE: Automatic hammer	**CLOSURE:** Cuttings	
DRILLING METHOD: HSA	**LOGGED BY:** Talecia Dyson	**LATITUDE:** 35.415307 **LONGITUDE:** -89.40557
SAMPLING METHOD: SS	**PROJECT COORDINATE SYSTEM -** NAD 1983 StatePlane Tennessee FIPS 4100 Feet	

DEPTH (feet)	NOTES	Origin/Identifier	GRAPHIC	SAMPLE NO. (RECOVERY)	MATERIAL DESCRIPTION	BLOW COUNT DATA (SPT N-value)	STANDARD PENETRATION TEST DATA △ % Fines ○ NMC ⊢ PL---LL 20 40 60 80	ELEVATION
25		Marine Soils		SS-8	POORLY GRADED SAND (SP), medium dense to very dense, orange pink, slightly moist to very moist	7-10-12 N = 22		307
30				SS-9		10-21-27 N = 48		302
35				SS-10		7-11-12 N = 23		297
40				SS-11		3-8-12 N = 20		292
				40.0 ▽				

GROUNDWATER		DATE/TIME	DEPTH (FT)	REMARKS
ATD	▽	02/20/2022	40.0	
END OF DRILLING	▼	02/20/2022		1 hour reading - dry cave in at 21.7 feet
AFTER DRILLING	▼			24 hour reading - dry cave at 21.7 feet
AFTER DRILLING	▼			

GROUNDWATER DEPTHS ARE NOT EXACT AND MAY VARY SUBSTANTIALLY FROM THOSE INDICATED. ATD = AT TIME OF DRILLING
LL=Liquid Limit, PL = Plastic Limit, NMC = Natural Moisture Content, PPV = Pocket Penetrometer (tsf), PTV = Pocket Torvane (tsf), HC = Hole Cave, AR = Auger Refusal

PROJECT:	Ford Blue Oval City - TVA Substation SR 222, Stanton, Tennessee S&ME Project No. 218019	BORING LOG: B-72 *Sheet 1 of 2*
DATE DRILLED: 02/20/2022	**ELEVATION:** 324 ft	**NOTES:**
DRILL RIG: Diedrich D-50 (track)	**DATUM:** NAVD88	
DRILLER: S&ME	**BORING DEPTH:** 40.0 ft	
HAMMER TYPE: Automatic hammer	**CLOSURE:** Cuttings	
DRILLING METHOD: HSA	**LOGGED BY:** Talecia Dyson	**LATITUDE:** 35.415297 **LONGITUDE:** -89.40495
SAMPLING METHOD: SS	**PROJECT COORDINATE SYSTEM -** NAD 1983 StatePlane Tennessee FIPS 4100 Feet	



GROUNDWATER		DATE/TIME	DEPTH (FT)	REMARKS
ATD	▽	02/20/2022	35.0	
END OF DRILLING	▼	02/20/2022		1 hour reading - dry cave in at 17.5 feet
AFTER DRILLING	▼	02/21/2022		24 hour reading - dry cave at 17.5 feet
AFTER DRILLING	▼			

GROUNDWATER DEPTHS ARE NOT EXACT AND MAY VARY SUBSTANTIALLY FROM THOSE INDICATED. ATD = AT TIME OF DRILLING
LL=Liquid Limit, PL = Plastic Limit, NMC = Natural Moisture Content, PPV = Pocket Penetrometer (tsf), PTV = Pocket Torvane (tsf), HC = Hole Cave, AR = Auger Refusal

PROJECT:	Ford Blue Oval City - TVA Substation SR 222, Stanton, Tennessee S&ME Project No. 218019	BORING LOG: B-72 *Sheet 2 of 2*
DATE DRILLED: 02/20/2022	**ELEVATION:** 324 ft	**NOTES:**
DRILL RIG: Diedrich D-50 (track)	**DATUM:** NAVD88	
DRILLER: S&ME	**BORING DEPTH:** 40.0 ft	
HAMMER TYPE: Automatic hammer	**CLOSURE:** Cuttings	
DRILLING METHOD: HSA	**LOGGED BY:** Talecia Dyson	**LATITUDE:** 35.415297 **LONGITUDE:** -89.40495
SAMPLING METHOD: SS	**PROJECT COORDINATE SYSTEM -** NAD 1983 StatePlane Tennessee FIPS 4100 Feet	

DEPTH (feet)	NOTES	Origin/Identifier	GRAPHIC	SAMPLE NO. (RECOVERY)	MATERIAL DESCRIPTION	BLOW COUNT DATA (SPT N-value)	STANDARD PENETRATION TEST DATA △ % Fines ○ NMC ⊢ PL---LL 20 40 60 80	ELEVATION
25		Marine Soils		SS-8	POORLY GRADED SAND (SP), medium dense to very dense, orange, slightly moist to very moist	11-16-20 N = 36		299
30				SS-9		8-12-23 N = 35		294
35	▽			SS-10		11-21-27 N = 48		289
40	40.0			SS-11	Borehole terminated at 40.0 feet	14-28-34 N = 62		284

GROUNDWATER		DATE/TIME	DEPTH (FT)	REMARKS
ATD	▽	02/20/2022	35.0	
END OF DRILLING	▼	02/20/2022		1 hour reading - dry cave in at 17.5 feet
AFTER DRILLING	▼	02/21/2022		24 hour reading - dry cave at 17.5 feet
AFTER DRILLING	▼			

GROUNDWATER DEPTHS ARE NOT EXACT AND MAY VARY SUBSTANTIALLY FROM THOSE INDICATED. ATD = AT TIME OF DRILLING
LL=Liquid Limit, PL = Plastic Limit, NMC = Natural Moisture Content, PPV = Pocket Penetrometer (tsf), PTV = Pocket Torvane (tsf), HC = Hole Cave, AR = Auger Refusal

PROJECT:	Ford Blue Oval City - TVA Substation SR 222, Stanton, Tennessee S&ME Project No. 218019	BORING LOG: B-73 *Sheet 1 of 2*
DATE DRILLED: 02/20/2022	**ELEVATION:** 317 ft	**NOTES:**
DRILL RIG: Diedrich D-50 (track)	**DATUM:** NAVD88	
DRILLER: S&ME	**BORING DEPTH:** 40.0 ft	
HAMMER TYPE: Automatic hammer	**CLOSURE:** Cuttings	
DRILLING METHOD: Mud rotary	**LOGGED BY:** Talecia Dyson	**LATITUDE:** 35.415286 **LONGITUDE:** -89.40428
SAMPLING METHOD: SS	**PROJECT COORDINATE SYSTEM -** NAD 1983 StatePlane Tennessee FIPS 4100 Feet	

DEPTH (feet)	NOTES	Origin/Identifier	GRAPHIC	SAMPLE NO. (RECOVERY)	MATERIAL DESCRIPTION	BLOW COUNT DATA (SPT N-value)	STANDARD PENETRATION TEST DATA (△ % Fines, ○ NMC, ⊢ PL---LL; 20 40 60 80)	ELEVATION
0								
	1.0	Cultivated Zone		SS-1	LEAN CLAY (CL), some silt, little sand, firm, brown, slightly moist	2-3-3 N = 6 PPV= 1.2		
		Loess		SS-2	LEAN CLAY (CL), some sand, few silt, firm to stiff, red brown, moist	2-3-3 N = 6 PPV= 0.2		
				SS-3		2-4-5 N = 9 PPV= 1.2		313
5	5.0			SS-4	LEAN CLAY (CL), some sand, few silt, firm to stiff, red brown, moist	4-5-6 N = 11 PPV= 1.5		
				SS-5		3-4-3 N = 7 PPV= 2.0		308
10								
				SS-6		2-3-3 N = 6 PPV= 2.0		303
15								
	17.0	Marine Soils		SS-7	GRAVELLY LEAN CLAY WITH SAND (CL), stiff to very stiff, orange and gray, slightly moist	6-7-9 N = 16 PPV= 1.5		298
20								

GROUNDWATER		DATE/TIME	DEPTH (FT)	REMARKS
ATD	▽			
END OF DRILLING	▼			
AFTER DRILLING	▼			
AFTER DRILLING	▼			

GROUNDWATER DEPTHS ARE NOT EXACT AND MAY VARY SUBSTANTIALLY FROM THOSE INDICATED. ATD = AT TIME OF DRILLING
LL=Liquid Limit, PL = Plastic Limit, NMC = Natural Moisture Content, PPV = Pocket Penetrometer (tsf), PTV = Pocket Torvane (tsf), HC = Hole Cave, AR = Auger Refusal

PROJECT:	Ford Blue Oval City - TVA Substation SR 222, Stanton, Tennessee S&ME Project No. 218019	BORING LOG: B-73 *Sheet 2 of 2*
DATE DRILLED: 02/20/2022	**ELEVATION:** 317 ft	**NOTES:**
DRILL RIG: Diedrich D-50 (track)	**DATUM:** NAVD88	
DRILLER: S&ME	**BORING DEPTH:** 40.0 ft	
HAMMER TYPE: Automatic hammer	**CLOSURE:** Cuttings	
DRILLING METHOD: Mud rotary	**LOGGED BY:** Talecia Dyson	**LATITUDE:** 35.415286 **LONGITUDE:** -89.40428
SAMPLING METHOD: SS	**PROJECT COORDINATE SYSTEM -** NAD 1983 StatePlane Tennessee FIPS 4100 Feet	

DEPTH (feet)	NOTES	Origin/Identifier	GRAPHIC	SAMPLE NO. (RECOVERY)	MATERIAL DESCRIPTION	BLOW COUNT DATA (SPT N-value)	STANDARD PENETRATION TEST DATA △ % Fines ○ NMC ⊢ PL---LL 20 40 60 80	ELEVATION
25				SS-8	GRAVELLY LEAN CLAY WITH SAND (CL), stiff to very stiff, orange and gray, slightly moist	7-6-5 N = 11 PPV= 1.8		293
30	30.0	Marine Soils		SS-9		7-9-9 N = 18		288
				SS-10	POORLY GRADED SAND (SP), very dense, orange, moist	35-52/6" N = 52/6"		283
35				SS-11		46-50/3" N = 50/3"		278
40	40.0				Borehole terminated at 40.0 feet			

GROUNDWATER		DATE/TIME	DEPTH (FT)	REMARKS
ATD	▽			
END OF DRILLING	▼			
AFTER DRILLING	▼			
AFTER DRILLING	▼			

GROUNDWATER DEPTHS ARE NOT EXACT AND MAY VARY SUBSTANTIALLY FROM THOSE INDICATED. ATD = AT TIME OF DRILLING
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PROJECT:	Ford Blue Oval City - TVA Substation SR 222, Stanton, Tennessee S&ME Project No. 218019	BORING LOG: B-74 *Sheet 1 of 2*
DATE DRILLED: 02/20/2022	**ELEVATION:** 310 ft	**NOTES:**
DRILL RIG: Diedrich D-50 (track)	**DATUM:** NAVD88	
DRILLER: S&ME	**BORING DEPTH:** 40.0 ft	
HAMMER TYPE: Automatic hammer	**CLOSURE:** Cuttings	
DRILLING METHOD: Mud rotary	**LOGGED BY:** Talecia Dyson	**LATITUDE:** 35.415274 **LONGITUDE:** -89.40354
SAMPLING METHOD: SS	**PROJECT COORDINATE SYSTEM -** NAD 1983 StatePlane Tennessee FIPS 4100 Feet	

DEPTH (feet)	NOTES	Origin/Identifier	GRAPHIC	SAMPLE NO. (RECOVERY)	MATERIAL DESCRIPTION	BLOW COUNT DATA (SPT N-value)	STANDARD PENETRATION TEST DATA △ % Fines ○ NMC ⊢ PL---LL 20 40 60 80	ELEVATION
0								
	1.0	Cultivated Zone		SS-1	LEAN CLAY (CL), some silt, firm, brown and gray, slightly moist	2-3-2 N = 5 PPV= 0.5	●	
		Loess		SS-2	LEAN CLAY (CL), some silt, little sand, firm to stiff, brown and gray, slightly moist	3-4-3 N = 7 PPV= 0.5	●	
				SS-3		3-4-9 N = 13 PPV= 1.8	●	306
5				SS-4		6-3-6 N = 9 PPV= 1.2	●	
				SS-5		2-2-4 N = 6 PPV= 0.8	●	301
10								
	12.0	Marine Soils		SS-6	LEAN CLAY (CL), some sand, some silt, firm to stiff, orange and gray, moist	2-2-4 N = 6 PPV= 2.2	●	296
15				SS-7		5-7-6 N = 13 PPV= 2.0	●	291
20								

GROUNDWATER		DATE/TIME	DEPTH (FT)	REMARKS
ATD	▽			
END OF DRILLING	▼			
AFTER DRILLING	▼			
AFTER DRILLING	▼			

GROUNDWATER DEPTHS ARE NOT EXACT AND MAY VARY SUBSTANTIALLY FROM THOSE INDICATED. ATD = AT TIME OF DRILLING
LL=Liquid Limit, PL = Plastic Limit, NMC = Natural Moisture Content, PPV = Pocket Penetrometer (tsf), PTV = Pocket Torvane (tsf), HC = Hole Cave, AR = Auger Refusal

PROJECT:	Ford Blue Oval City - TVA Substation SR 222, Stanton, Tennessee S&ME Project No. 218019	BORING LOG: B-74 *Sheet 2 of 2*
DATE DRILLED: 02/20/2022	**ELEVATION:** 310 ft	**NOTES:**
DRILL RIG: Diedrich D-50 (track)	**DATUM:** NAVD88	
DRILLER: S&ME	**BORING DEPTH:** 40.0 ft	
HAMMER TYPE: Automatic hammer	**CLOSURE:** Cuttings	
DRILLING METHOD: Mud rotary	**LOGGED BY:** Talecia Dyson	**LATITUDE:** 35.415274 **LONGITUDE:** -89.40354
SAMPLING METHOD: SS	**PROJECT COORDINATE SYSTEM -** NAD 1983 StatePlane Tennessee FIPS 4100 Feet	

DEPTH (feet)	NOTES	Origin/Identifier	GRAPHIC	SAMPLE NO. (RECOVERY)	MATERIAL DESCRIPTION	BLOW COUNT DATA (SPT N-value)	STANDARD PENETRATION TEST DATA (△ % Fines, ○ NMC, ⊢ PL---LL; 20 40 60 80)	ELEVATION
					LEAN CLAY (CL), some sand, some silt, firm to stiff, orange and gray, moist			
23.0					LEAN CLAY WITH SAND (CL), some silt, firm to stiff, orange and gray, moist			
				SS-8		7-6-4 N = 10 PPV= 0.5	●	286
25								
				SS-9		2-3-3 N = 6	●	281
30		Marine Soils						
32.0					FAT CLAY (CH), some sand, stiff to very stiff, gray, moist			
				SS-10		2-3-6 N = 9 PPV= 0.8	●	276
35								
				SS-11		5-6-13 N = 19	●	271
40.0					Borehole terminated at 40.0 feet			
40								

GROUNDWATER		DATE/TIME	DEPTH (FT)	REMARKS
ATD	▽			
END OF DRILLING	▼			
AFTER DRILLING	▼			
AFTER DRILLING	▼			

GROUNDWATER DEPTHS ARE NOT EXACT AND MAY VARY SUBSTANTIALLY FROM THOSE INDICATED. ATD = AT TIME OF DRILLING
LL=Liquid Limit, PL = Plastic Limit, NMC = Natural Moisture Content, PPV = Pocket Penetrometer (tsf), PTV = Pocket Torvane (tsf), HC = Hole Cave, AR = Auger Refusal

PROJECT:	Ford Blue Oval City - TVA Substation SR 222, Stanton, Tennessee S&ME Project No. 218019	BORING LOG: B-75 *Sheet 1 of 2*
DATE DRILLED: 02/20/2022	**ELEVATION:** 309 ft	**NOTES:**
DRILL RIG: Diedrich D-50 (track)	**DATUM:** NAVD88	
DRILLER: S&ME	**BORING DEPTH:** 40.0 ft	
HAMMER TYPE: Automatic hammer	**CLOSURE:** Cuttings	
DRILLING METHOD: Mud rotary	**LOGGED BY:** Talecia Dyson	**LATITUDE:** 35.415264 **LONGITUDE:** -89.40294
SAMPLING METHOD: SS	**PROJECT COORDINATE SYSTEM -** NAD 1983 StatePlane Tennessee FIPS 4100 Feet	

DEPTH (feet)	NOTES	Origin/Identifier	GRAPHIC	SAMPLE NO. (RECOVERY)	MATERIAL DESCRIPTION	BLOW COUNT DATA (SPT N-value)	STANDARD PENETRATION TEST DATA △ % Fines ○ NMC ⊢ PL---LL 20 40 60 80	ELEVATION
0								
	1.0	Cultivated Zone		SS-1	LEAN CLAY (CL), little sand, some silt, stiff, brown, slightly moist	2-4-5 N = 9 PPV= 1.0		
		Loess		SS-2	LEAN CLAY (CL), some silt, little sand, stiff, brown and gray, slightly moist to moist	4-5-8 N = 13 PPV= 1.5		
5				SS-3		5-6-9 N = 15 PPV= 2.2		304
				SS-4		5-4-5 N = 9 PPV= 1.5		
				SS-5		4-5-8 N = 13 PPV= 2.5		
10								299
	12.0	Marine Soils		SS-6	LEAN CLAY (CL), some sand, with silt, firm to very stiff, orange brown and gray, slightly moist	5-5-9 N = 14 PPV= 2.0		
15								294
				SS-7		7-13-12 N = 25 PPV= 4.2		
20								289

GROUNDWATER		DATE/TIME	DEPTH (FT)	REMARKS
ATD	▽			
END OF DRILLING	▼			
AFTER DRILLING	▼			
AFTER DRILLING	▼			

GROUNDWATER DEPTHS ARE NOT EXACT AND MAY VARY SUBSTANTIALLY FROM THOSE INDICATED. ATD = AT TIME OF DRILLING
LL=Liquid Limit, PL = Plastic Limit, NMC = Natural Moisture Content, PPV = Pocket Penetrometer (tsf), PTV = Pocket Torvane (tsf), HC = Hole Cave, AR = Auger Refusal

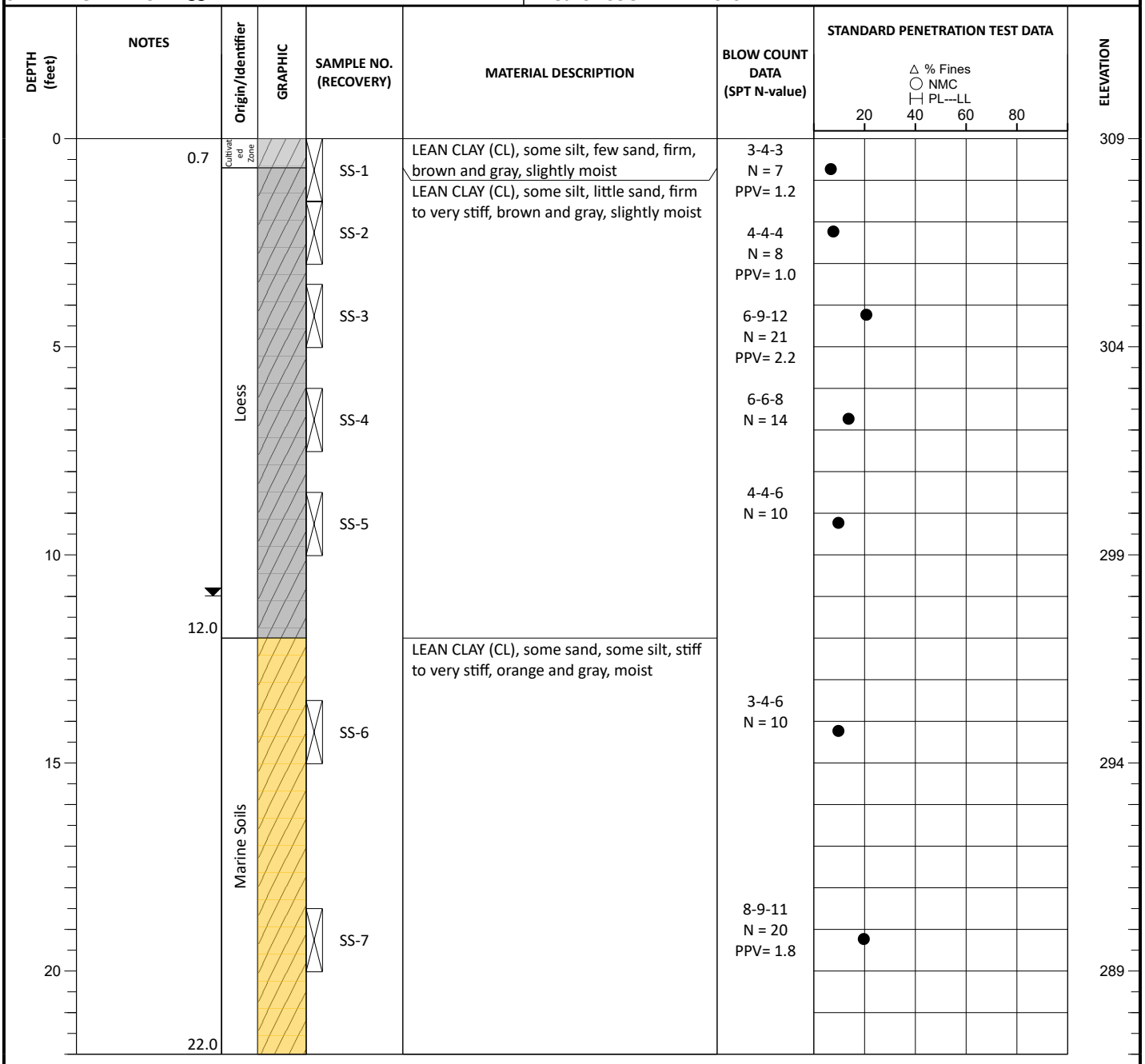
PROJECT:	Ford Blue Oval City - TVA Substation SR 222, Stanton, Tennessee S&ME Project No. 218019	BORING LOG: B-75 *Sheet 2 of 2*
DATE DRILLED: 02/20/2022	**ELEVATION:** 309 ft	**NOTES:**
DRILL RIG: Diedrich D-50 (track)	**DATUM:** NAVD88	
DRILLER: S&ME	**BORING DEPTH:** 40.0 ft	
HAMMER TYPE: Automatic hammer	**CLOSURE:** Cuttings	
DRILLING METHOD: Mud rotary	**LOGGED BY:** Talecia Dyson	**LATITUDE:** 35.415264 **LONGITUDE:** -89.40294
SAMPLING METHOD: SS	**PROJECT COORDINATE SYSTEM -** NAD 1983 StatePlane Tennessee FIPS 4100 Feet	

DEPTH (feet)	NOTES	Origin/Identifier	GRAPHIC	SAMPLE NO. (RECOVERY)	MATERIAL DESCRIPTION	BLOW COUNT DATA (SPT N-value)	STANDARD PENETRATION TEST DATA △ % Fines ○ NMC ⊢ PL---LL 20 40 60 80	ELEVATION
25				SS-8	LEAN CLAY (CL), some sand, with silt, firm to very stiff, orange brown and gray, slightly moist	2-3-4 N = 7		284
					28.0			
					POORLY GRADED SAND (SP), with silt, medium dense, gray and gray, moist			
					29.0			
30		Marine Soils		SS-9	POORLY GRADED SAND WITH SILT (SP-SM), medium dense, gray, moist	4-7-6 N = 13		279
				SS-10		4-5-9 N = 14 PPV= 2.5		
35								274
				SS-11		4-8-10 N = 18 PPV= 1.5		
40					40.0			269
					Borehole terminated at 40.0 feet			

GROUNDWATER		DATE/TIME	DEPTH (FT)	REMARKS
ATD	▽			
END OF DRILLING	▼			
AFTER DRILLING	▼			
AFTER DRILLING	▼			

GROUNDWATER DEPTHS ARE NOT EXACT AND MAY VARY SUBSTANTIALLY FROM THOSE INDICATED. ATD = AT TIME OF DRILLING
LL=Liquid Limit, PL = Plastic Limit, NMC = Natural Moisture Content, PPV = Pocket Penetrometer (tsf), PTV = Pocket Torvane (tsf), HC = Hole Cave, AR = Auger Refusal

PROJECT:	Ford Blue Oval City - TVA Substation SR 222, Stanton, Tennessee S&ME Project No. 218019	BORING LOG: B-76 *Sheet 1 of 2*
DATE DRILLED: 02/19/2022	**ELEVATION:** 309 ft	**NOTES:**
DRILL RIG: Diedrich D-50 (track)	**DATUM:** NAVD88	
DRILLER: S&ME	**BORING DEPTH:** 40.0 ft	
HAMMER TYPE: Automatic hammer	**CLOSURE:** Cuttings	
DRILLING METHOD: Mud rotary	**LOGGED BY:** Talecia Dyson	**LATITUDE:** 35.415252 **LONGITUDE:** -89.40226
SAMPLING METHOD: SS	**PROJECT COORDINATE SYSTEM -** NAD 1983 StatePlane Tennessee FIPS 4100 Feet	



GROUNDWATER		DATE/TIME	DEPTH (FT)	REMARKS
ATD	▽			
END OF DRILLING	▼			
AFTER DRILLING	▼	02/20/2022	10.9	24 hour reading
AFTER DRILLING	▼			

GROUNDWATER DEPTHS ARE NOT EXACT AND MAY VARY SUBSTANTIALLY FROM THOSE INDICATED. ATD = AT TIME OF DRILLING
LL=Liquid Limit, PL = Plastic Limit, NMC = Natural Moisture Content, PPV = Pocket Penetrometer (tsf), PTV = Pocket Torvane (tsf), HC = Hole Cave, AR = Auger Refusal

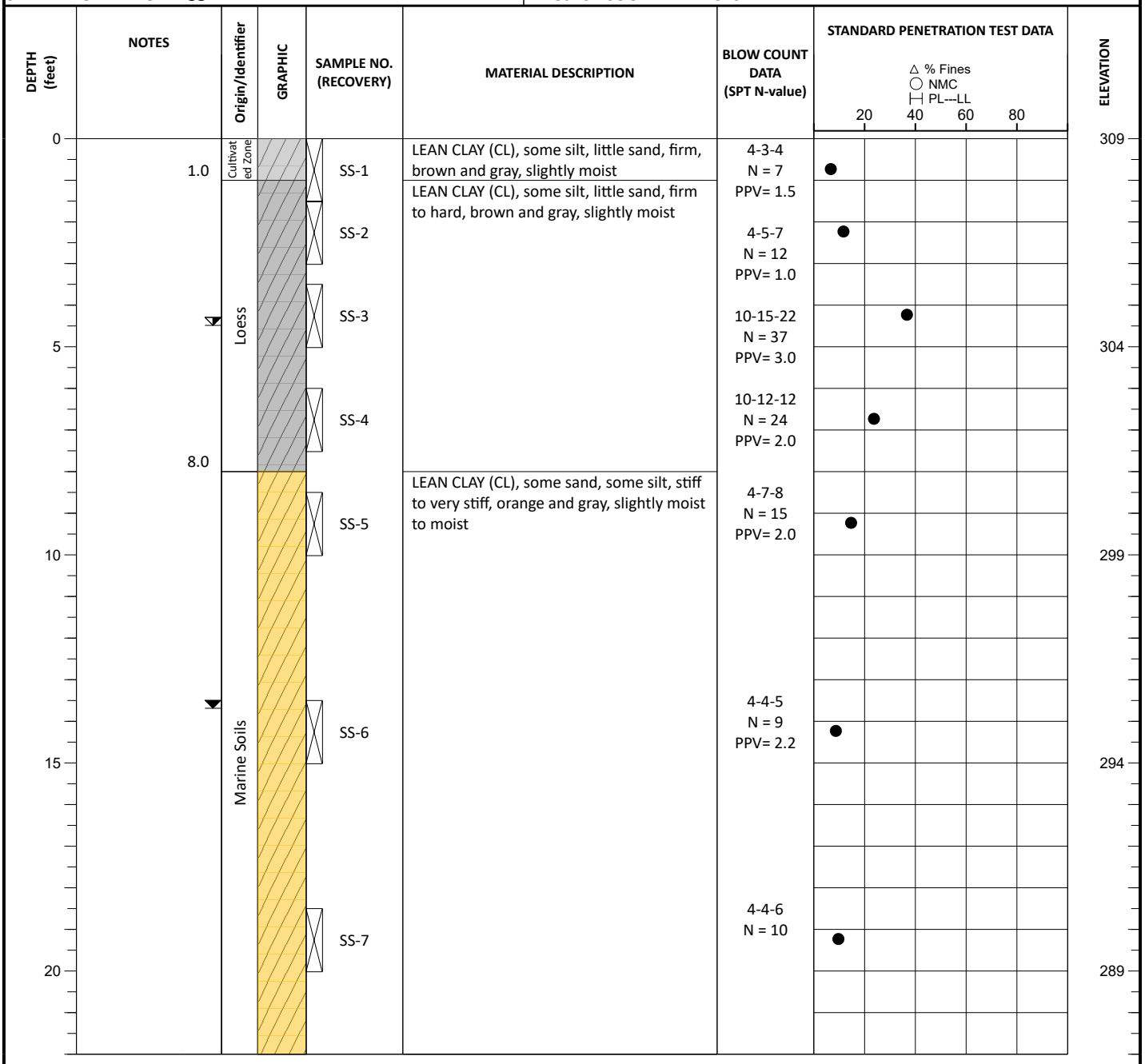
PROJECT:	Ford Blue Oval City - TVA Substation SR 222, Stanton, Tennessee S&ME Project No. 218019	BORING LOG: B-76 *Sheet 2 of 2*
DATE DRILLED: 02/19/2022	**ELEVATION:** 309 ft	**NOTES:**
DRILL RIG: Diedrich D-50 (track)	**DATUM:** NAVD88	
DRILLER: S&ME	**BORING DEPTH:** 40.0 ft	
HAMMER TYPE: Automatic hammer	**CLOSURE:** Cuttings	
DRILLING METHOD: Mud rotary	**LOGGED BY:** Talecia Dyson	**LATITUDE:** 35.415252 **LONGITUDE:** -89.40226
SAMPLING METHOD: SS	**PROJECT COORDINATE SYSTEM -** NAD 1983 StatePlane Tennessee FIPS 4100 Feet	

DEPTH (feet)	NOTES	Origin/Identifier	GRAPHIC	SAMPLE NO. (RECOVERY)	MATERIAL DESCRIPTION	BLOW COUNT DATA (SPT N-value)	STANDARD PENETRATION TEST DATA (△ % Fines, ○ NMC, ⊢ PL---LL; 20 40 60 80)	ELEVATION
25		Marine Soils		SS-8	FAT CLAY (CH), soft to very stiff, gray and brown, very moist	10-10-10 N = 20		284
30				SS-9		4-5-10 N = 15		279
35				SS-10		2-1-2 N = 3		274
40	40.0			SS-11	Borehole terminated at 40.0 feet	4-4-7 N = 11		269

GROUNDWATER		DATE/TIME	DEPTH (FT)	REMARKS
ATD	▽			
END OF DRILLING	▼			
AFTER DRILLING	▼	02/20/2022	10.9	24 hour reading
AFTER DRILLING	▼			

GROUNDWATER DEPTHS ARE NOT EXACT AND MAY VARY SUBSTANTIALLY FROM THOSE INDICATED. ATD = AT TIME OF DRILLING
LL=Liquid Limit, PL = Plastic Limit, NMC = Natural Moisture Content, PPV = Pocket Penetrometer (tsf), PTV = Pocket Torvane (tsf), HC = Hole Cave, AR = Auger Refusal

PROJECT:	Ford Blue Oval City - TVA Substation SR 222, Stanton, Tennessee S&ME Project No. 218019	BORING LOG: B-77 *Sheet 1 of 2*
DATE DRILLED: 02/19/2022	**ELEVATION:** 309 ft	**NOTES:**
DRILL RIG: Diedrich D-50 (track)	**DATUM:** NAVD88	
DRILLER: S&ME	**BORING DEPTH:** 40.0 ft	
HAMMER TYPE: Automatic hammer	**CLOSURE:** Cuttings	
DRILLING METHOD: Mud rotary	**LOGGED BY:** Talecia Dyson	**LATITUDE:** 35.415241 **LONGITUDE:** -89.40159
SAMPLING METHOD: SS	**PROJECT COORDINATE SYSTEM -** NAD 1983 StatePlane Tennessee FIPS 4100 Feet	



GROUNDWATER		DATE/TIME	DEPTH (FT)	REMARKS
ATD	▽			
END OF DRILLING	▼	02/19/2022	4.4	1 hour reading
AFTER DRILLING	▼	02/20/2022	13.6	24 hour reading
AFTER DRILLING	▼			

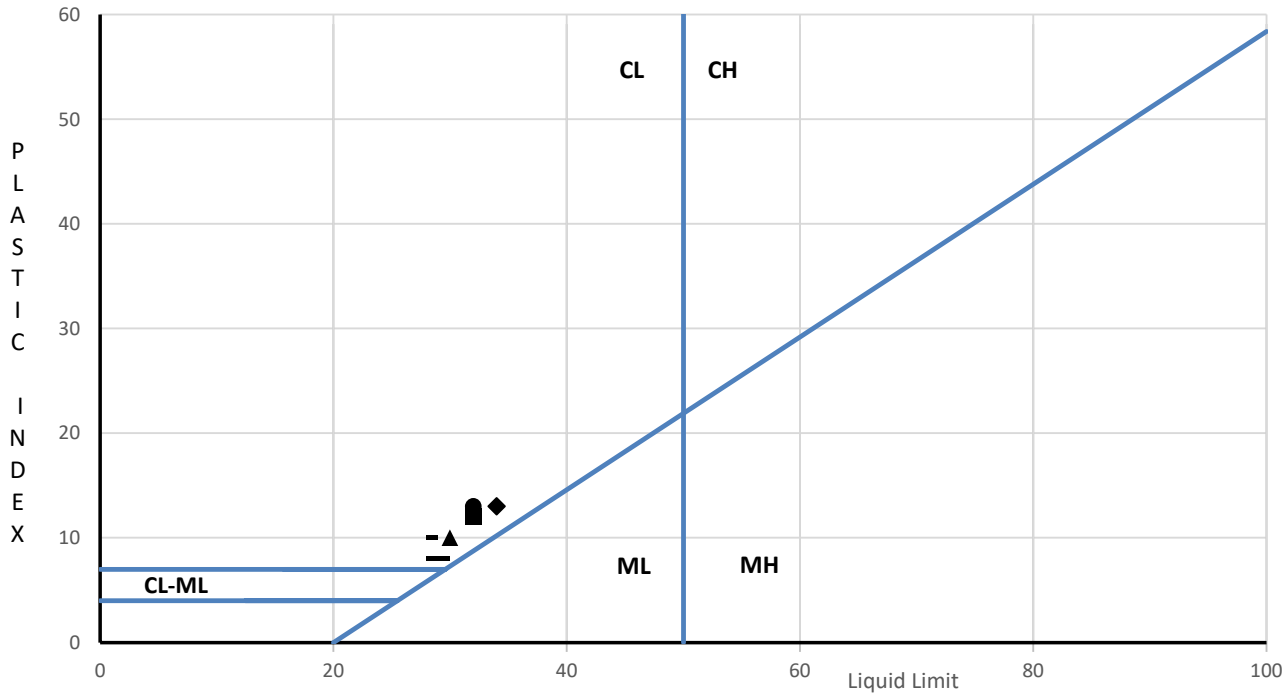
GROUNDWATER DEPTHS ARE NOT EXACT AND MAY VARY SUBSTANTIALLY FROM THOSE INDICATED. ATD = AT TIME OF DRILLING
LL=Liquid Limit, PL = Plastic Limit, NMC = Natural Moisture Content, PPV = Pocket Penetrometer (tsf), PTV = Pocket Torvane (tsf), HC = Hole Cave, AR = Auger Refusal

PROJECT:	Ford Blue Oval City - TVA Substation SR 222, Stanton, Tennessee S&ME Project No. 218019	BORING LOG: B-77 *Sheet 2 of 2*
DATE DRILLED: 02/19/2022	**ELEVATION:** 309 ft	**NOTES:**
DRILL RIG: Diedrich D-50 (track)	**DATUM:** NAVD88	
DRILLER: S&ME	**BORING DEPTH:** 40.0 ft	
HAMMER TYPE: Automatic hammer	**CLOSURE:** Cuttings	
DRILLING METHOD: Mud rotary	**LOGGED BY:** Talecia Dyson	**LATITUDE:** 35.415241 **LONGITUDE:** -89.40159
SAMPLING METHOD: SS	**PROJECT COORDINATE SYSTEM -** NAD 1983 StatePlane Tennessee FIPS 4100 Feet	

DEPTH (feet)	NOTES	Origin/Identifier	GRAPHIC	SAMPLE NO. (RECOVERY)	MATERIAL DESCRIPTION	BLOW COUNT DATA (SPT N-value)	STANDARD PENETRATION TEST DATA △ % Fines ○ NMC ⊢ PL---LL 20 40 60 80	ELEVATION
					LEAN CLAY (CL), some sand, some silt, stiff to very stiff, orange and gray, slightly moist to moist	10-12-6 N = 18		
24.0				SS-8	POORLY GRADED SAND (SP), little silt, medium dense, orange and gray, moist			
25								284
27.0					LEAN CLAY (CL), some sand, firm, gray, slightly moist	2-3-4 N = 7 PPV= 0.5		
		Marine Soils		SS-9				
30								279
32.0					POORLY GRADED SAND (SP), loose to medium dense, gray, very moist	5-4-7 N = 11		
				SS-10				
35								274
				SS-11		3-6-2 N = 8		
40.0								
40					Borehole terminated at 40.0 feet			269

GROUNDWATER		DATE/TIME	DEPTH (FT)	REMARKS
ATD	▽			
END OF DRILLING	▼	02/19/2022	4.4	1 hour reading
AFTER DRILLING	▼	02/20/2022	13.6	24 hour reading
AFTER DRILLING	▼			

GROUNDWATER DEPTHS ARE NOT EXACT AND MAY VARY SUBSTANTIALLY FROM THOSE INDICATED. ATD = AT TIME OF DRILLING
LL=Liquid Limit, PL = Plastic Limit, NMC = Natural Moisture Content, PPV = Pocket Penetrometer (tsf), PTV = Pocket Torvane (tsf), HC = Hole Cave, AR = Auger Refusal



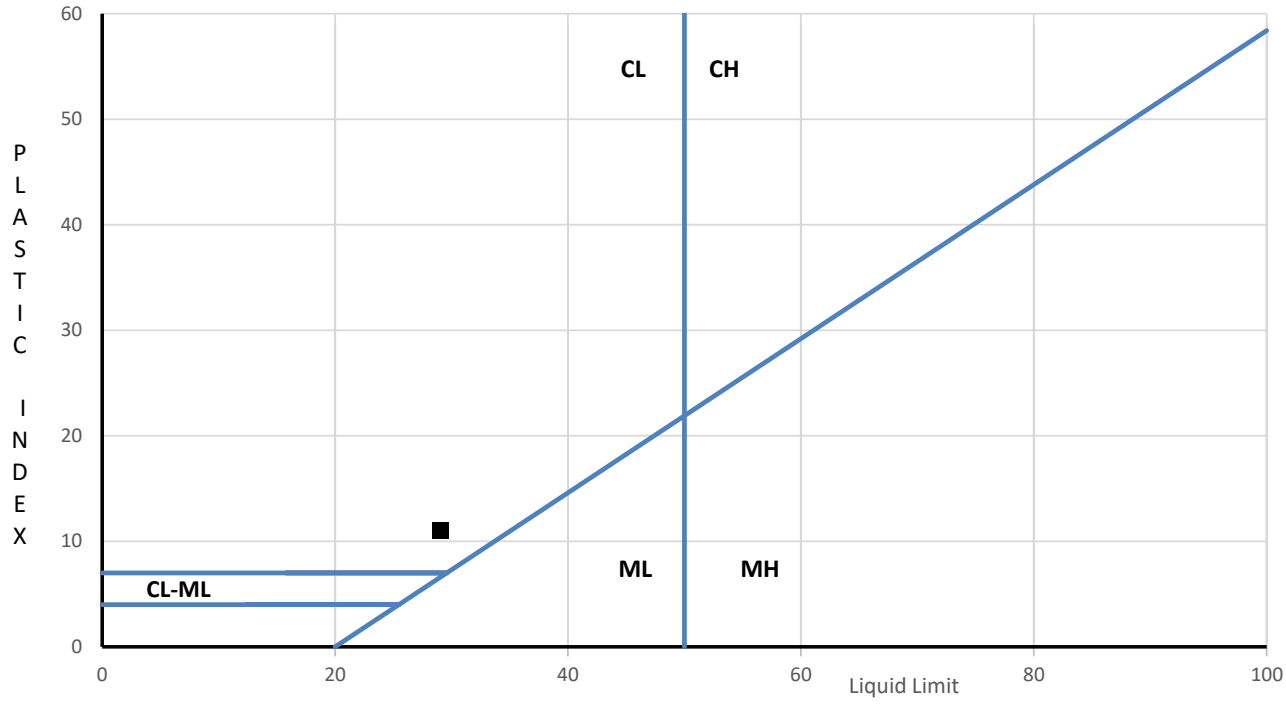
Specimen Identification				MC	LL	PL	PI	Fines	Classification (symbol is based on minus 40 material only when no grain size information is present.)	
	ID	No.	Top Depth						Symbol	Name
■	B-32A	Bulk-1	2	24.0	32	20	12	98.1	CL	LEAN CLAY
◆	B-33A	Bulk-1	2	23.2	34	21	13	98.3	CL	LEAN CLAY
▲	B-35A	Bulk-1	2	28.0	30	20	10	90.0	CL	LEAN CLAY
●	B-37A	Bulk-1	2	27.8	32	19	13	94.5	CL	LEAN CLAY
–	B-55A	Bulk-1	2	26.7	28	18	10	94.5	CL	LEAN CLAY
—	B-57A	Bulk-1	2	34.7	29	21	8	91.3	CL	LEAN CLAY

INDEX TEST RESULTS

Project Name	Ford Blue Oval City - TVA Substation
Project Number	218019

Approved by	Date
Ben Jeanie	3/3/2022 14:46

Report No.
Report Date



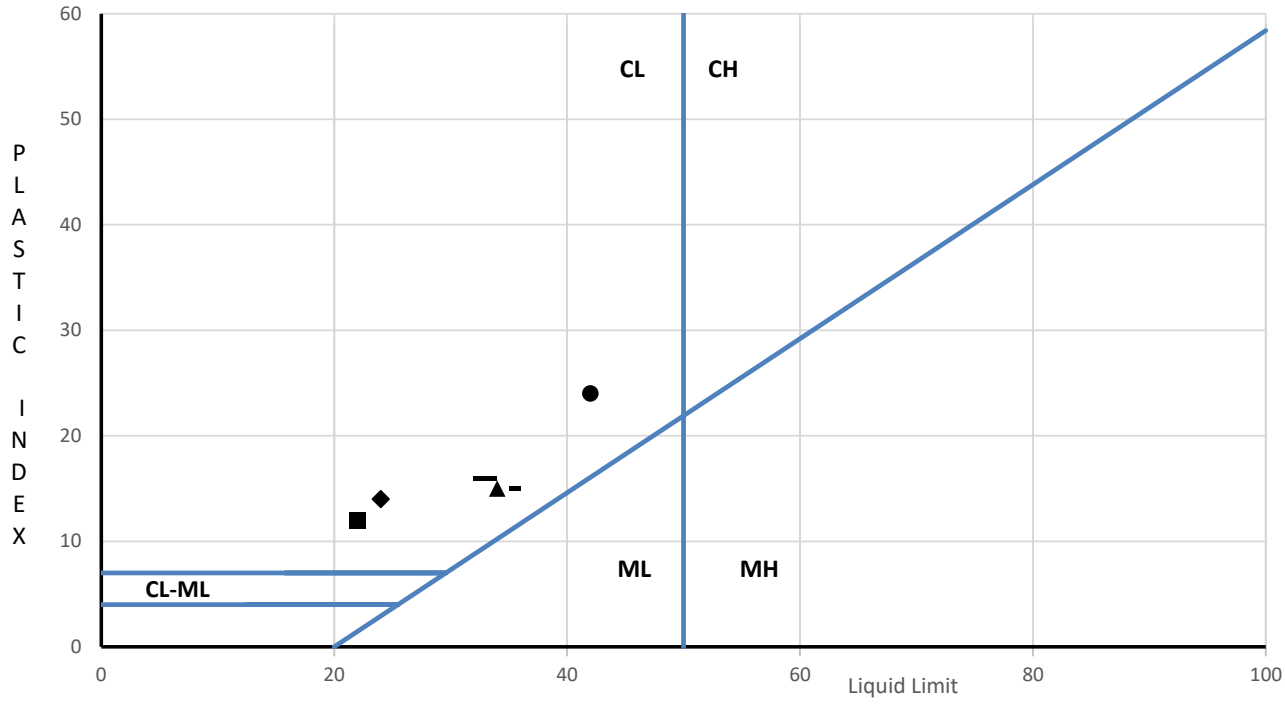
Specimen Identification				MC	LL	PL	PI	Fines	Classification (symbol is based on minus 40 material only when no grain size information is present.)	
	ID	No.	Top Depth						Symbol	Name
■	**B-26**	**SS-7**	**18.5**	**23.6**	**29**	**18**	**11**		**CL**	

INDEX TEST RESULTS

Project Name	Ford Blue Oval City - TVA Substation
Project Number	218019

Approved by	Date
Ben Jeanie	3/17/2022 11:14

Report No.
Report Date



Specimen Identification				MC	LL	PL	PI	Fines	Classification (symbol is based on minus 40 material only when no grain size information is present.)	
	ID	No.	Top Depth						Symbol	Name
■	B-32A	UD-1	15	10.1	22	10	12	36.7	GC	CLAYEY GRAVEL WITH SAND
◆	B-33A	UD-1	15	13.9	24	10	14	33.8	SM	CLAYEY SAND
▲	B-35A	UD-1	5	26.4	34	19	15	92.9	CL	LEAN CLAY
●	B-37A	UD-1	5	26.4	42	18	24	89.6	CL	LEAN CLAY
–	B-55A	UD-1	5	23.8	35	20	15	88.2	CL	LEAN CLAY
—	B-57A	UD-1	5	27.8	33	17	16	97.5	CL	LEAN CLAY

INDEX TEST RESULTS

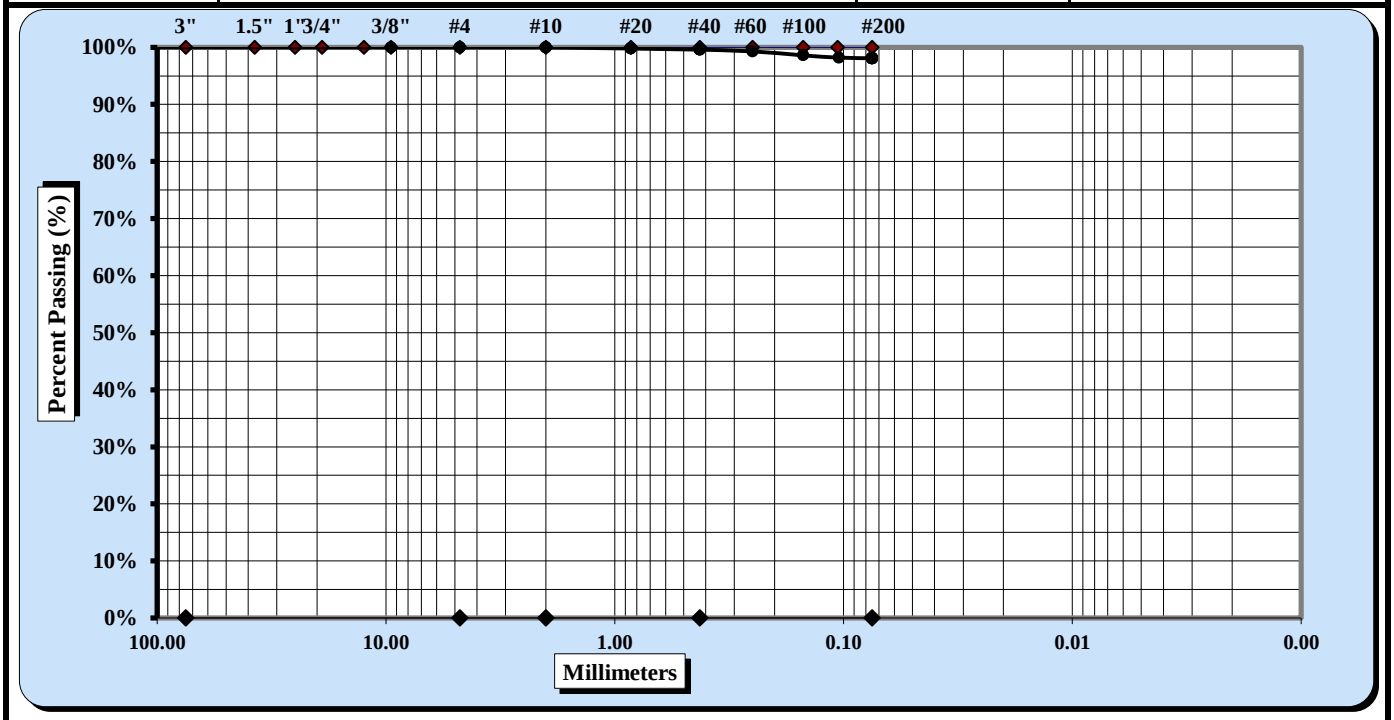
Project Name	Ford Blue Oval City - TVA Substation
Project Number	218019
Approved by	Date
Nathan E. Dorsett	3/4/2022 15:28

Report No.
Report Date

ASTM D6913: Standard Test Methods for Particle-Size Distribution (Gradation) of Soils Using Sieve Analysis

Report Number	NASH_22000286
Report Date	3/3/2022
Test Date	3/3/2022
Sample Date	

Project Number	218019		
Project Name	Ford Blue Oval City - TVA Substation		
Client Name	Walbridge Aldinger LLC		
Client Address	777 Woodward Ave. Suite 300, Detroit, MI		
KeyLAB ID	NASH202203020	Sample Type	AU
Location ID	B-32A	Sample Top Depth	2
Sample Reference	Bulk-1	Sample Base Depth	10
Description	Medium Brown and Light Brown, Sitly Clay	Method	ASTM D6913 Method B
Classification	LEAN CLAY		



ASTM PARTICLE SIZE DEFINITIONS

Cobbles	< 300 mm (12") and > 75 mm (3")	Medium Sand	< 2.00 mm and > 0.425 mm (#40)
Gravel	< 75 mm and > 4.75 mm (#4)	Fine Sand	< 0.425 mm and > 0.075 mm
Coarse Sand	< 4.75 mm and >2.00 mm (#10)	Silt & Clay	< 0.075

Maximum Particle Size	**0.25 mm**	Coarse Sand	0.0	Fine Sand	1.5
Gravel	0.0	Medium Sand	0.4	Silt & Clay	98.1
Liquid Limit	32	Plastic Limit	20	Plastic Index	12

Description of Sand & Gravel Particles: Rounded ☒ Angular ☐

Hard & Durable ☒ Soft ☐ Weathered & Friable ☐

References / Comments / Deviations:

BFesmire — *Tested by* — *Nashville*

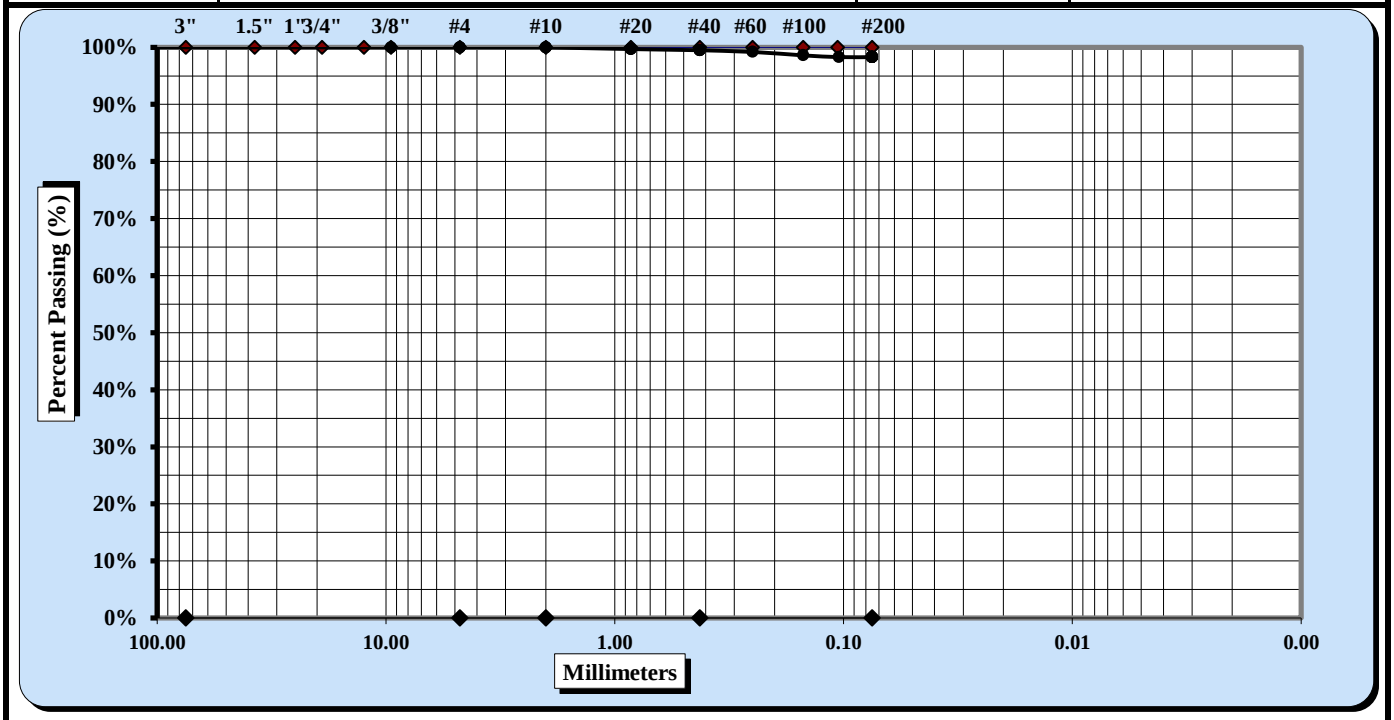
BFesmire — *Approved by* — *658 Grassmere Park Dr., Suite 100, Nashville, TN 37211*

Signature

ASTM D6913: Standard Test Methods for Particle-Size Distribution (Gradation) of Soils Using Sieve Analysis

Report Number	NASH_22000287
Report Date	3/3/2022
Test Date	3/3/2022
Sample Date	

Project Number	218019		
Project Name	Ford Blue Oval City - TVA Substation		
Client Name	Walbridge Aldinger LLC		
Client Address	777 Woodward Ave. Suite 300, Detroit, MI		
KeyLAB ID	NASH202203025	Sample Type	AU
Location ID	B-33A	Sample Top Depth	2
Sample Reference	Bulk-1	Sample Base Depth	
Description	Medium Brown Silty Clay	Method	ASTM D6913 Method B
Classification	LEAN CLAY		



ASTM PARTICLE SIZE DEFINITIONS			
Cobbles	< 300 mm (12") and > 75 mm (3")	Medium Sand	< 2.00 mm and > 0.425 mm (#40)
Gravel	< 75 mm and > 4.75 mm (#4)	Fine Sand	< 0.425 mm and > 0.075 mm
Coarse Sand	< 4.75 mm and >2.00 mm (#10)	Silt & Clay	< 0.075

Maximum Particle Size	**0.25 mm**	Coarse Sand	0.0	Fine Sand	1.2
Gravel	0.0	Medium Sand	0.5	Silt & Clay	98.3
Liquid Limit	34	Plastic Limit	21	Plastic Index	13

Description of Sand & Gravel Particles: Rounded ☒ Angular ☐

Hard & Durable ☒ Soft ☐ Weathered & Friable ☐

References / Comments / Deviations:

BFesmire — *Tested by* — *Nashville*

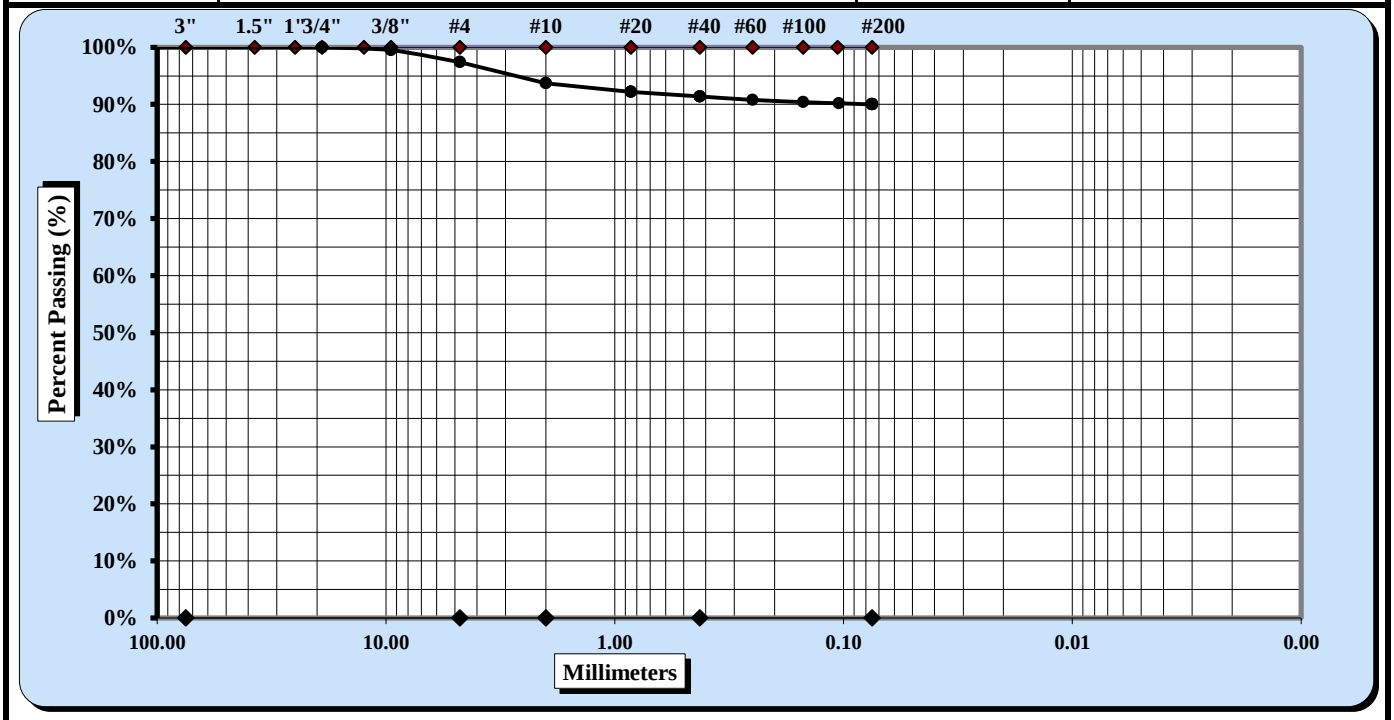
BFesmire — *Approved by* — *658 Grassmere Park Dr., Suite 100, Nashville, TN 37211*

Signature

ASTM D6913: Standard Test Methods for Particle-Size Distribution (Gradation) of Soils Using Sieve Analysis

Report Number	NASH_22000288
Report Date	3/3/2022
Test Date	3/3/2022
Sample Date	

Project Number	218019		
Project Name	Ford Blue Oval City - TVA Substation		
Client Name	Walbridge Aldinger LLC		
Client Address	777 Woodward Ave. Suite 300, Detroit, MI		
KeyLAB ID	NASH202203023	Sample Type	AU
Location ID	B-35A	Sample Top Depth	2
Sample Reference	Bulk-1	Sample Base Depth	
Description	Brown with Gray, Lean Clay	Method	ASTM D6913 Method B
Classification	LEAN CLAY		



ASTM PARTICLE SIZE DEFINITIONS

Cobbles	< 300 mm (12") and > 75 mm (3")	Medium Sand	< 2.00 mm and > 0.425 mm (#40)
Gravel	< 75 mm and > 4.75 mm (#4)	Fine Sand	< 0.425 mm and > 0.075 mm
Coarse Sand	< 4.75 mm and >2.00 mm (#10)	Silt & Clay	< 0.075

Maximum Particle Size	**9.5 mm**	Coarse Sand	3.7	Fine Sand	1.4
Gravel	2.6	Medium Sand	2.3	Silt & Clay	90.0
Liquid Limit	30	Plastic Limit	20	Plastic Index	10

Description of Sand & Gravel Particles: Rounded ☐ Angular ☒

Hard & Durable ☐ Soft ☒ Weathered & Friable ☐

References / Comments / Deviations:

BFesmire — *Tested by* — *Nashville*

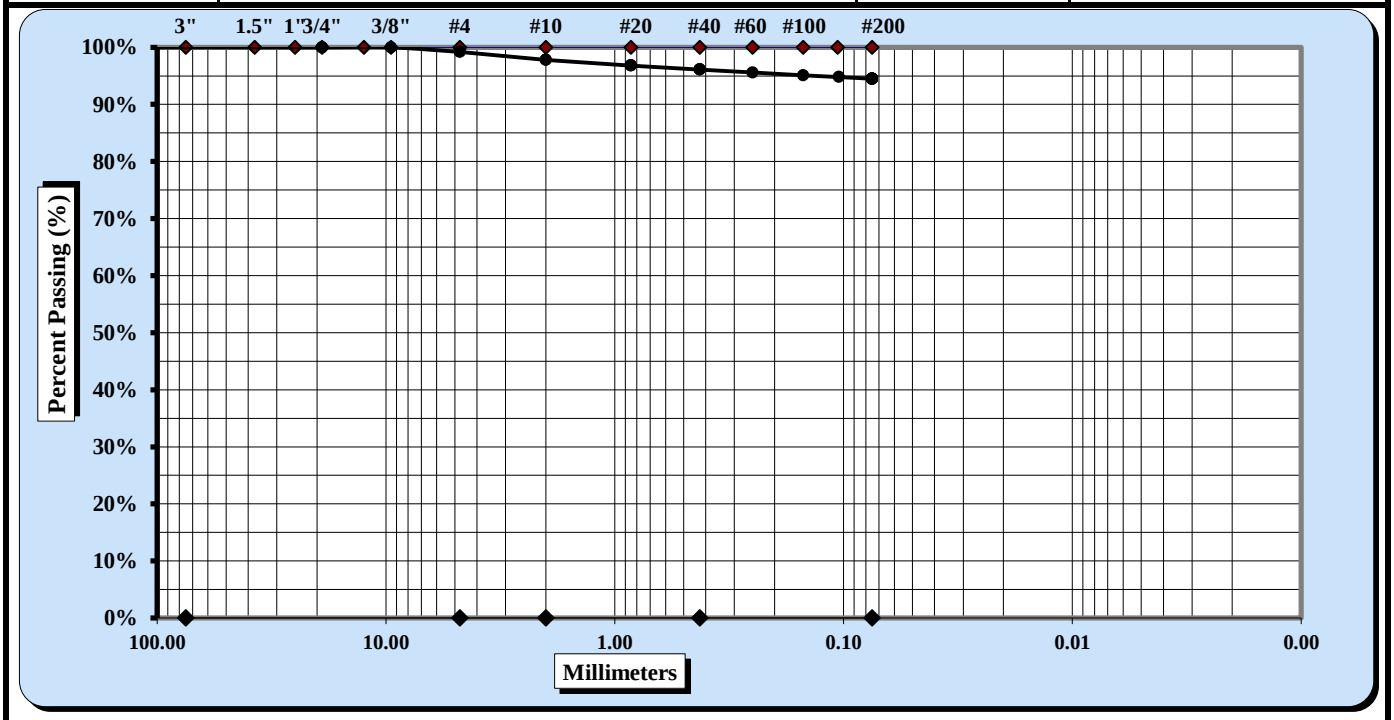
BFesmire — *Approved by* — *658 Grassmere Park Dr., Suite 100, Nashville, TN 37211*

Signature

ASTM D6913: Standard Test Methods for Particle-Size Distribution (Gradation) of Soils Using Sieve Analysis

Report Number	NASH_22000289
Report Date	3/3/2022
Test Date	3/3/2022
Sample Date	

Project Number	218019		
Project Name	Ford Blue Oval City - TVA Substation		
Client Name	Walbridge Aldinger LLC		
Client Address	777 Woodward Ave. Suite 300, Detroit, MI		
KeyLAB ID	NASH202203022	Sample Type	AU
Location ID	B-37A	Sample Top Depth	2
Sample Reference	Bulk-1	Sample Base Depth	
Description	Gray with Brown Lean Clay	Method	ASTM D6913 Method B
Classification	LEAN CLAY		



ASTM PARTICLE SIZE DEFINITIONS			
Cobbles	< 300 mm (12") and > 75 mm (3")	Medium Sand	< 2.00 mm and > 0.425 mm (#40)
Gravel	< 75 mm and > 4.75 mm (#4)	Fine Sand	< 0.425 mm and > 0.075 mm
Coarse Sand	< 4.75 mm and >2.00 mm (#10)	Silt & Clay	< 0.075

Maximum Particle Size	**4.75 mm**	Coarse Sand	1.4	Fine Sand	1.6
Gravel	0.8	Medium Sand	1.7	Silt & Clay	94.5
Liquid Limit	32	Plastic Limit	19	Plastic Index	13

Description of Sand & Gravel Particles: Rounded ☐ Angular ☒

Hard & Durable ☐ Soft ☒ Weathered & Friable ☐

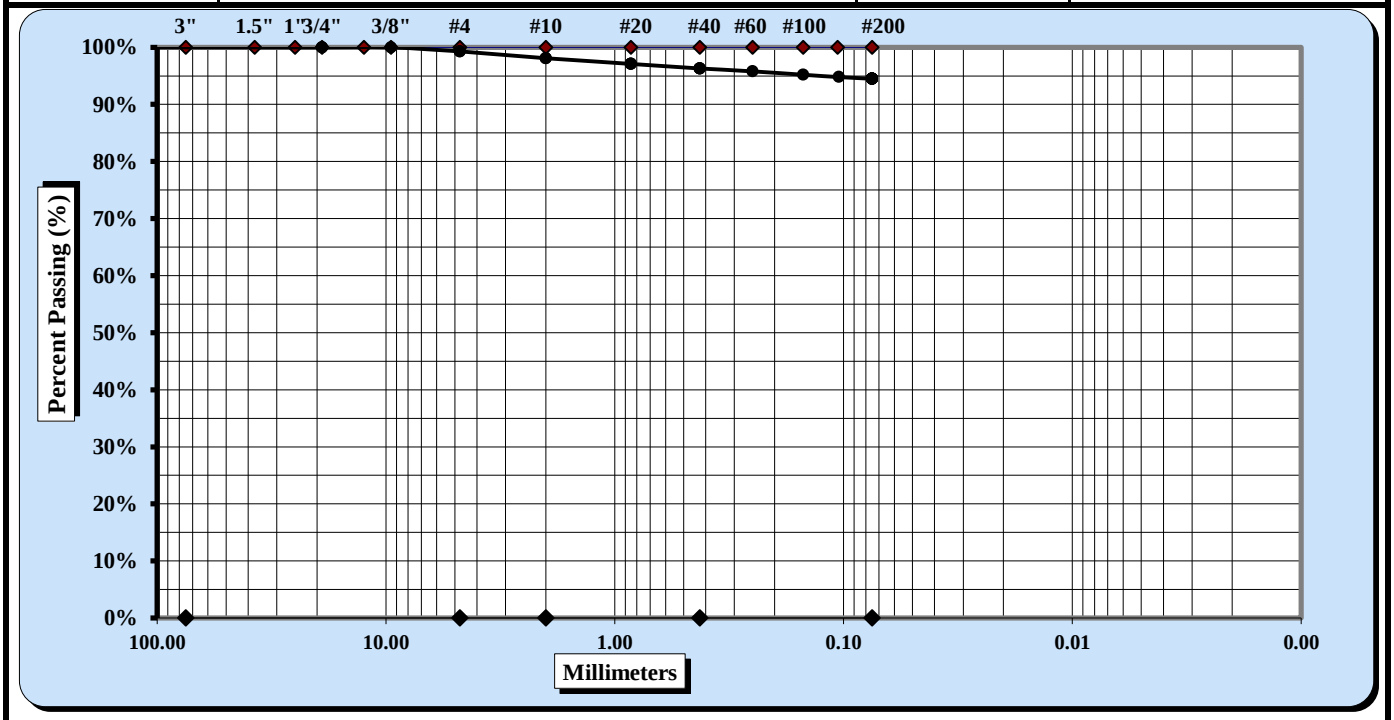
References / Comments / Deviations:

BFesmire	BFesmire	Ben Fesmire
Tested by	*Approved by*	*Signature*
Nashville	*658 Grassmere Park Dr., Suite 100, Nashville, TN 37211*	

ASTM D6913: Standard Test Methods for Particle-Size Distribution (Gradation) of Soils Using Sieve Analysis

Report Number	NASH_22000290
Report Date	3/3/2022
Test Date	3/3/2022
Sample Date	

Project Number	218019		
Project Name	Ford Blue Oval City - TVA Substation		
Client Name	Walbridge Aldinger LLC		
Client Address	777 Woodward Ave. Suite 300, Detroit, MI		
KeyLAB ID	NASH202203024	Sample Type	AU
Location ID	B-55A	Sample Top Depth	2
Sample Reference	Bulk-1	Sample Base Depth	
Description	Brown, Light Brown, and Gray Lean Clay	Method	ASTM D6913 Method B
Classification	LEAN CLAY		



ASTM PARTICLE SIZE DEFINITIONS			
Cobbles	< 300 mm (12") and > 75 mm (3")	Medium Sand	< 2.00 mm and > 0.425 mm (#40)
Gravel	< 75 mm and > 4.75 mm (#4)	Fine Sand	< 0.425 mm and > 0.075 mm
Coarse Sand	< 4.75 mm and >2.00 mm (#10)	Silt & Clay	< 0.075

Maximum Particle Size	**4.75 mm**	Coarse Sand	1.2	Fine Sand	1.8
Gravel	0.7	Medium Sand	1.8	Silt & Clay	94.5
Liquid Limit	28	Plastic Limit	18	Plastic Index	10

Description of Sand & Gravel Particles: Rounded ☒ Angular ☐

Hard & Durable ☒ Soft ☐ Weathered & Friable ☐

References / Comments / Deviations:

BFesmire — *Tested by* — *Nashville*

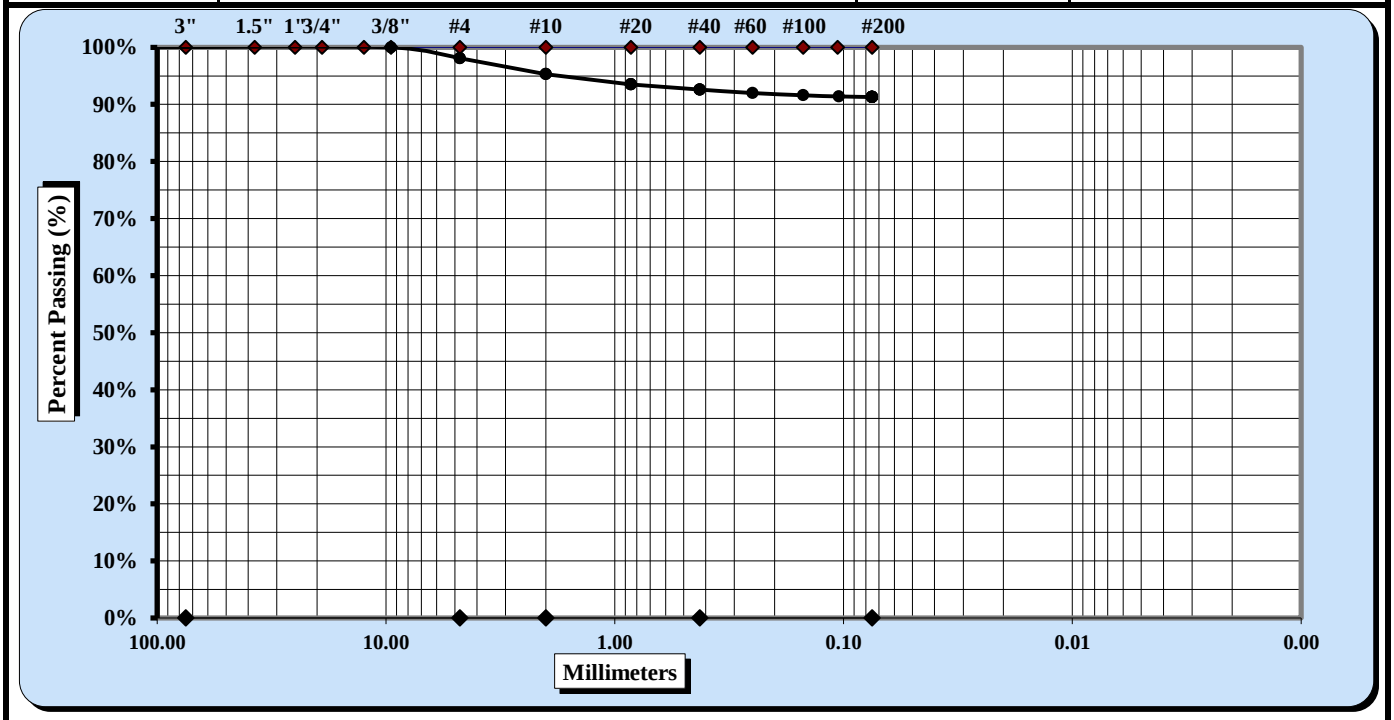
BFesmire — *Approved by* — *658 Grassmere Park Dr., Suite 100, Nashville, TN 37211*

Signature

ASTM D6913: Standard Test Methods for Particle-Size Distribution (Gradation) of Soils Using Sieve Analysis

Report Number	NASH_22000291
Report Date	3/3/2022
Test Date	3/3/2022
Sample Date	

Project Number	218019		
Project Name	Ford Blue Oval City - TVA Substation		
Client Name	Walbridge Aldinger LLC		
Client Address	777 Woodward Ave. Suite 300, Detroit, MI		
KeyLAB ID	NASH202203021	Sample Type	AU
Location ID	B-57A	Sample Top Depth	2
Sample Reference	Bulk-1	Sample Base Depth	
Description	Light Brown Lean Clay	Method	ASTM D6913 Method B
Classification	LEAN CLAY		



ASTM PARTICLE SIZE DEFINITIONS

Cobbles	< 300 mm (12") and > 75 mm (3")	Medium Sand	< 2.00 mm and > 0.425 mm (#40)
Gravel	< 75 mm and > 4.75 mm (#4)	Fine Sand	< 0.425 mm and > 0.075 mm
Coarse Sand	< 4.75 mm and >2.00 mm (#10)	Silt & Clay	< 0.075

Maximum Particle Size	**9.5 mm**	Coarse Sand	2.8	Fine Sand	1.3
Gravel	1.9	Medium Sand	2.7	Silt & Clay	91.3
Liquid Limit	29	Plastic Limit	21	Plastic Index	8

Description of Sand & Gravel Particles: Rounded ☒ Angular ☐

Hard & Durable ☒ Soft ☐ Weathered & Friable ☐

References / Comments / Deviations:

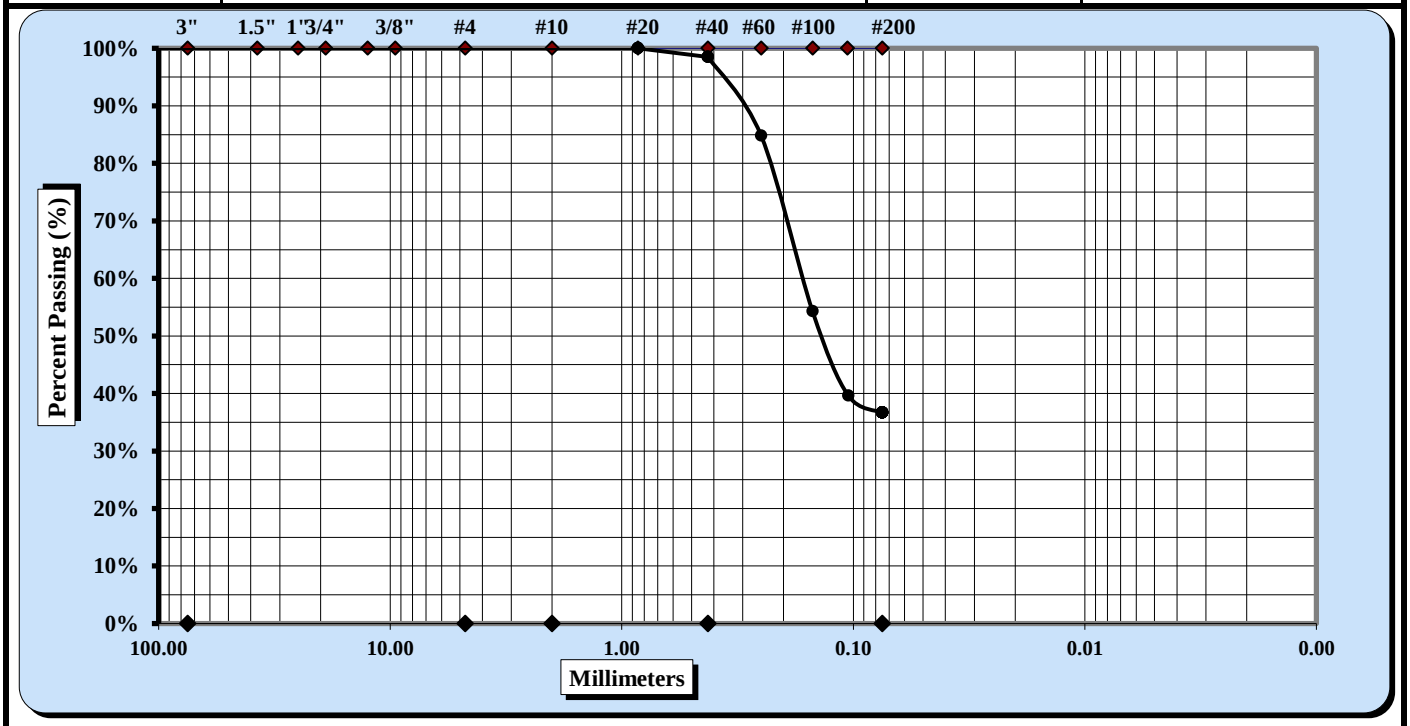
BFesmire — *Tested by* — *Nashville*

BFesmire — *Approved by* — *658 Grassmere Park Dr., Suite 100, Nashville, TN 37211*

Ben Fesmire — *Signature*

	ASTM D6913: Standard Test Methods for Particle-Size Distribution (Gradation) of Soils Using Sieve Analysis	Report Number	
		Report Date	
		Test Date	**3/4/2022**
		Sample Date	

Project Number	218019		
Project Name	Ford Blue Oval City - TVA Substation		
Client Name			
Client Address			
KeyLAB ID	KNOX202203020	Sample Type	UD
Location ID	B-32A	Sample Top Depth	15
Sample Reference	UD-1	Sample Base Depth	17
Description	GM (SILTY GRAVEL with SAND) red	Method	ASTM D6913 Method B
Classification	CLAYEY GRAVEL WITH SAND		



ASTM PARTICLE SIZE DEFINITIONS

Cobbles	< 300 mm (12") and > 75 mm (3")	Medium Sand	< 2.00 mm and > 0.425 mm (#40)
Gravel	< 75 mm and > 4.75 mm (#4)	Fine Sand	< 0.425 mm and > 0.075 mm
Coarse Sand	< 4.75 mm and >2.00 mm (#10)	Silt & Clay	< 0.075

Maximum Particle Size	**0.85 mm**	Coarse Sand		Fine Sand	61.8
Gravel	100.0	Medium Sand		Silt & Clay	36.7
Liquid Limit	22	Plastic Limit	10	Plastic Index	12

Description of Sand & Gravel Particles: Rounded ☐ Angular ☒

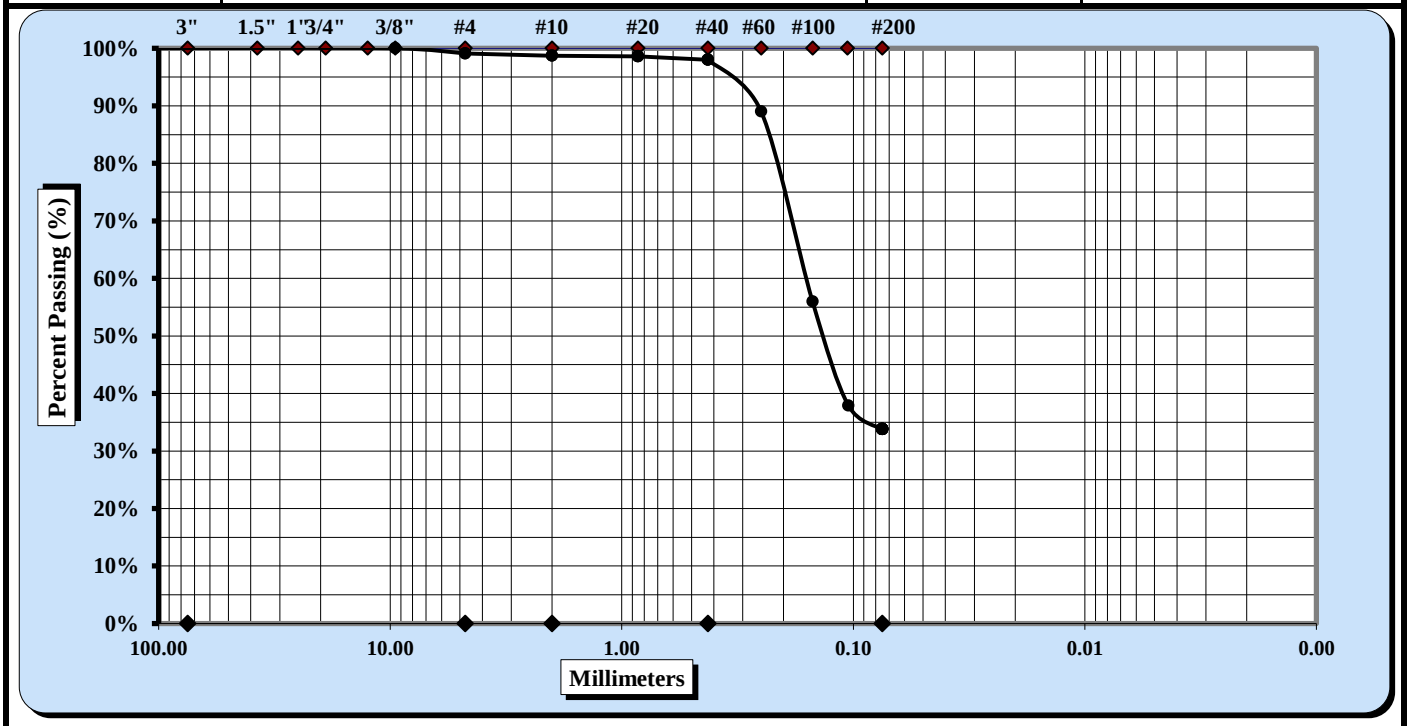
Hard & Durable ☒ Soft ☐ Weathered & Friable ☐

References / Comments / Deviations:

dbaker	NDewitt	Nathan E. Dewitt
Tested by	*Approved by*	*Signature*
Knoxville	*1413 Topside Road, Louisville, TN 37777*	

	ASTM D6913: Standard Test Methods for Particle-Size Distribution (Gradation) of Soils Using Sieve Analysis	Report Number	
		Report Date	
		Test Date	**3/4/2022**
		Sample Date	

Project Number	218019		
Project Name	Ford Blue Oval City - TVA Substation		
Client Name			
Client Address			
KeyLAB ID	KNOX202203021	Sample Type	UD
Location ID	B-33A	Sample Top Depth	15
Sample Reference	UD-1	Sample Base Depth	17
Description	SM (SILTY SAND) red	Method	ASTM D6913 Method B
Classification	CLAYEY SAND		



ASTM PARTICLE SIZE DEFINITIONS			
Cobbles	< 300 mm (12") and > 75 mm (3")	Medium Sand	< 2.00 mm and > 0.425 mm (#40)
Gravel	< 75 mm and > 4.75 mm (#4)	Fine Sand	< 0.425 mm and > 0.075 mm
Coarse Sand	< 4.75 mm and >2.00 mm (#10)	Silt & Clay	< 0.075

Maximum Particle Size	**4.75 mm**	Coarse Sand	0.4	Fine Sand	64.2
Gravel	0.9	Medium Sand	0.7	Silt & Clay	33.8
Liquid Limit	24	Plastic Limit	10	Plastic Index	14

Description of Sand & Gravel Particles: Rounded ☐ Angular ☒

Hard & Durable ☒ Soft ☐ Weathered & Friable ☐

References / Comments / Deviations:

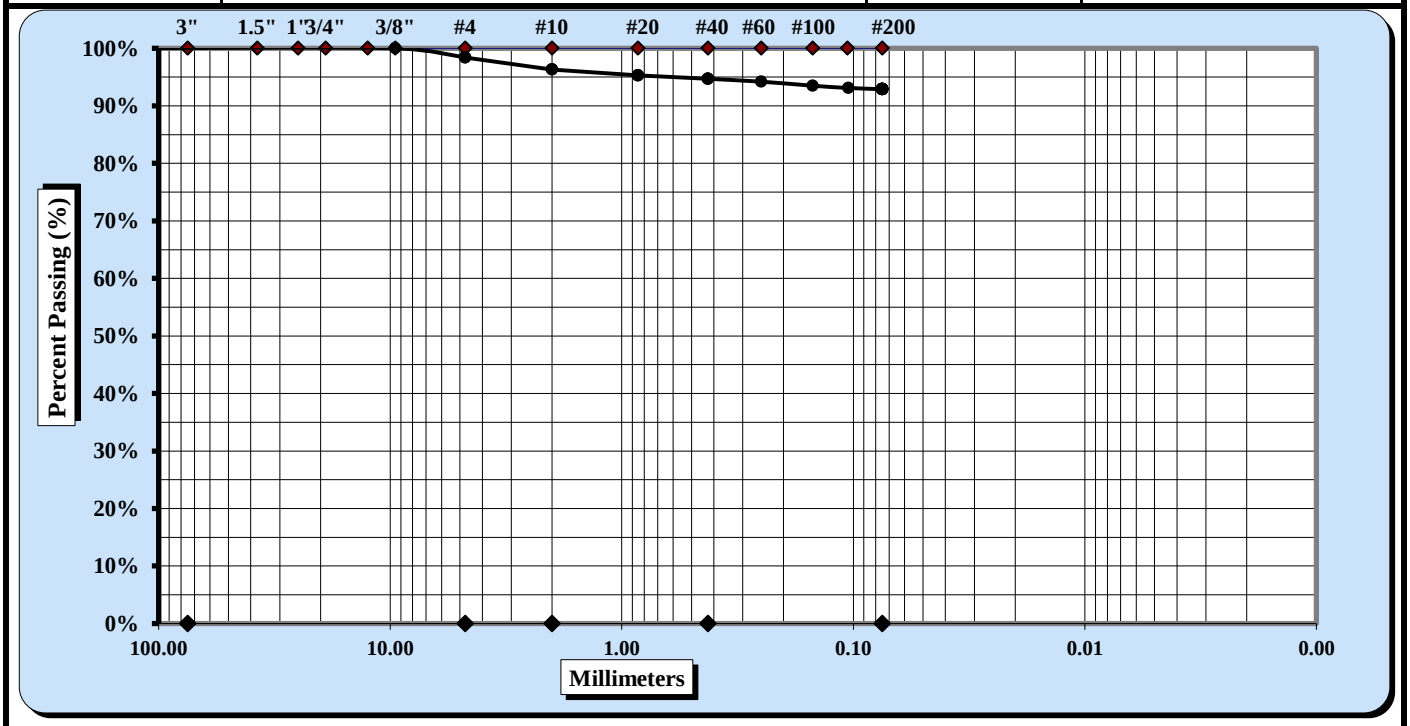
dbaker	NDewitt	
Tested by	*Approved by*	*Signature*
Knoxville	*1413 Topside Road, Louisville, TN 37777*	

ASTM D6913: Standard Test Methods for Particle-Size Distribution (Gradation) of Soils Using Sieve Analysis

Report Number	
Report Date	
Test Date	**3/4/2022**
Sample Date	

Project Number	218019
Project Name	Ford Blue Oval City - TVA Substation
Client Name	
Client Address	

KeyLAB ID	KNOX202203022	Sample Type	UD
Location ID	B-35A	Sample Top Depth	5
Sample Reference	UD-1	Sample Base Depth	7
Description	ML (SILT) brown	Method	ASTM D6913 Method B
Classification	LEAN CLAY		



ASTM PARTICLE SIZE DEFINITIONS

Cobbles	< 300 mm (12") and > 75 mm (3")	Medium Sand	< 2.00 mm and > 0.425 mm (#40)
Gravel	< 75 mm and > 4.75 mm (#4)	Fine Sand	< 0.425 mm and > 0.075 mm
Coarse Sand	< 4.75 mm and >2.00 mm (#10)	Silt & Clay	< 0.075

Maximum Particle Size	**9.5 mm**	Coarse Sand	2.1	Fine Sand	1.8
Gravel	1.6	Medium Sand	1.6	Silt & Clay	92.9
Liquid Limit	34	Plastic Limit	19	Plastic Index	15

Description of Sand & Gravel Particles: Rounded ☐ Angular ☒

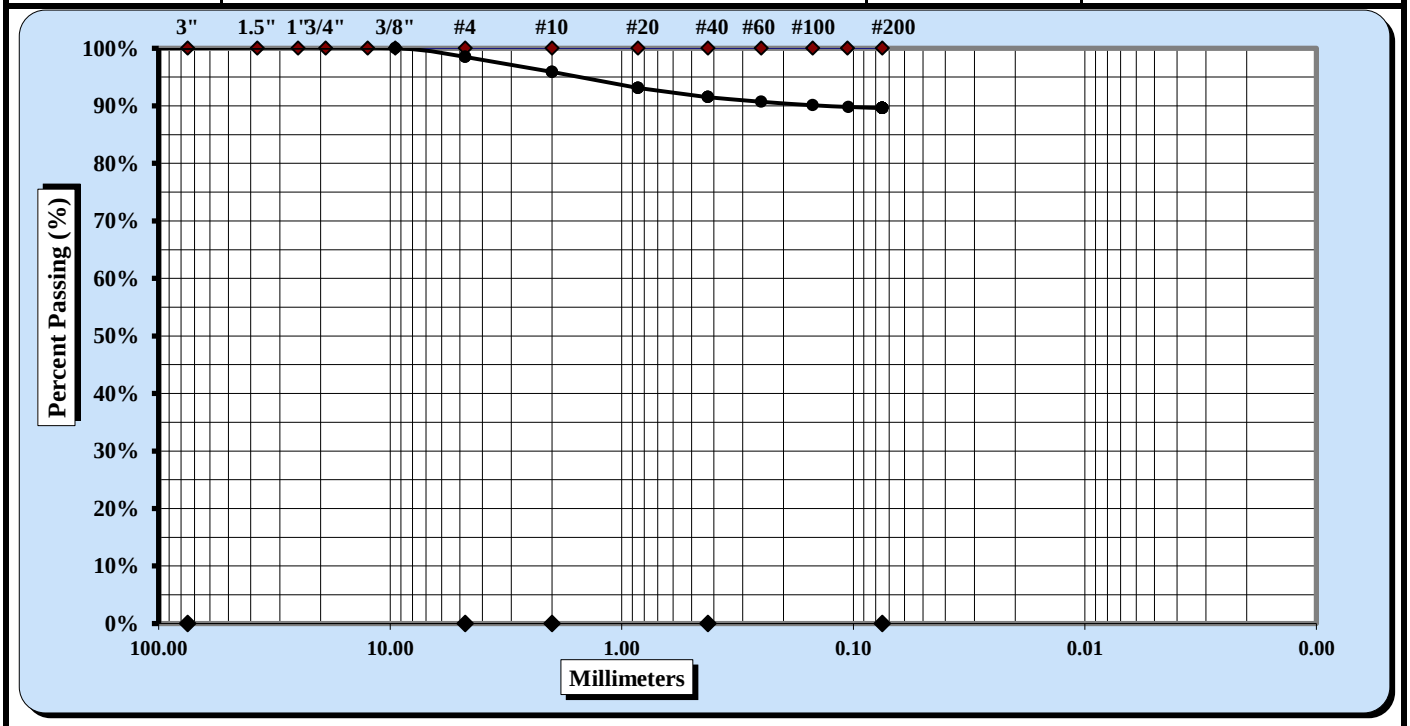
Hard & Durable ☒ Soft ☐ Weathered & Friable ☐

References / Comments / Deviations:

dbaker	NDewitt	Nathan E. Dewitt
Tested by	*Approved by*	*Signature*
Knoxville	*1413 Topside Road, Louisville, TN 37777*	

	ASTM D6913: Standard Test Methods for Particle-Size Distribution (Gradation) of Soils Using Sieve Analysis	Report Number	
		Report Date	
		Test Date	**3/4/2022**
		Sample Date	

Project Number	218019		
Project Name	Ford Blue Oval City - TVA Substation		
Client Name			
Client Address			
KeyLAB ID	KNOX202203023	Sample Type	UD
Location ID	B-37A	Sample Top Depth	5
Sample Reference	UD-1	Sample Base Depth	7
Description	ML (SILT) brown	Method	ASTM D6913 Method B
Classification	LEAN CLAY		



ASTM PARTICLE SIZE DEFINITIONS			
Cobbles	< 300 mm (12") and > 75 mm (3")	Medium Sand	< 2.00 mm and > 0.425 mm (#40)
Gravel	< 75 mm and > 4.75 mm (#4)	Fine Sand	< 0.425 mm and > 0.075 mm
Coarse Sand	< 4.75 mm and >2.00 mm (#10)	Silt & Clay	< 0.075

Maximum Particle Size	**9.5 mm**	Coarse Sand	2.6	Fine Sand	1.9
Gravel	1.5	Medium Sand	4.4	Silt & Clay	89.6
Liquid Limit	42	Plastic Limit	18	Plastic Index	24

Description of Sand & Gravel Particles: Rounded ☐ Angular ☒

Hard & Durable ☒ Soft ☐ Weathered & Friable ☐

References / Comments / Deviations:

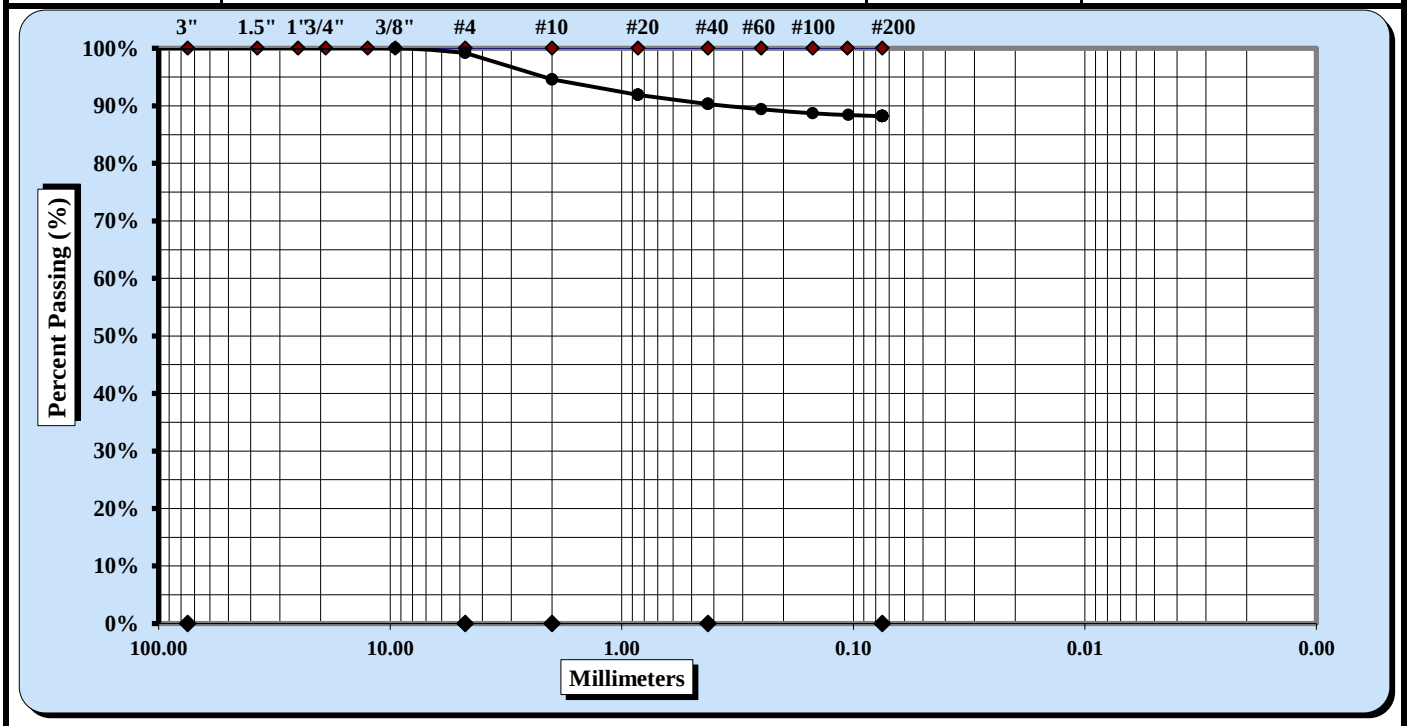
dbaker	NDewitt	Nathan E. Dewitt
Tested by	*Approved by*	*Signature*
Knoxville	*1413 Topside Road, Louisville, TN 37777*	

ASTM D6913: Standard Test Methods for Particle-Size Distribution (Gradation) of Soils Using Sieve Analysis

Report Number	
Report Date	
Test Date	**3/4/2022**
Sample Date	

Project Number	218019
Project Name	Ford Blue Oval City - TVA Substation
Client Name	
Client Address	

KeyLAB ID	KNOX202203024	Sample Type	UD
Location ID	B-55A	Sample Top Depth	5
Sample Reference	UD-1	Sample Base Depth	7
Description	CL (LEAN CLAY) gray with light brown	Method	ASTM D6913 Method B
Classification	LEAN CLAY		



ASTM PARTICLE SIZE DEFINITIONS

Cobbles	< 300 mm (12") and > 75 mm (3")	Medium Sand	< 2.00 mm and > 0.425 mm (#40)
Gravel	< 75 mm and > 4.75 mm (#4)	Fine Sand	< 0.425 mm and > 0.075 mm
Coarse Sand	< 4.75 mm and >2.00 mm (#10)	Silt & Clay	< 0.075

Maximum Particle Size	**4.75 mm**	Coarse Sand	4.6	Fine Sand	2.1
Gravel	0.8	Medium Sand	4.3	Silt & Clay	88.2
Liquid Limit	35	Plastic Limit	20	Plastic Index	15

Description of Sand & Gravel Particles: Rounded ☐ Angular ☒

Hard & Durable ☒ Soft ☐ Weathered & Friable ☐

References / Comments / Deviations:

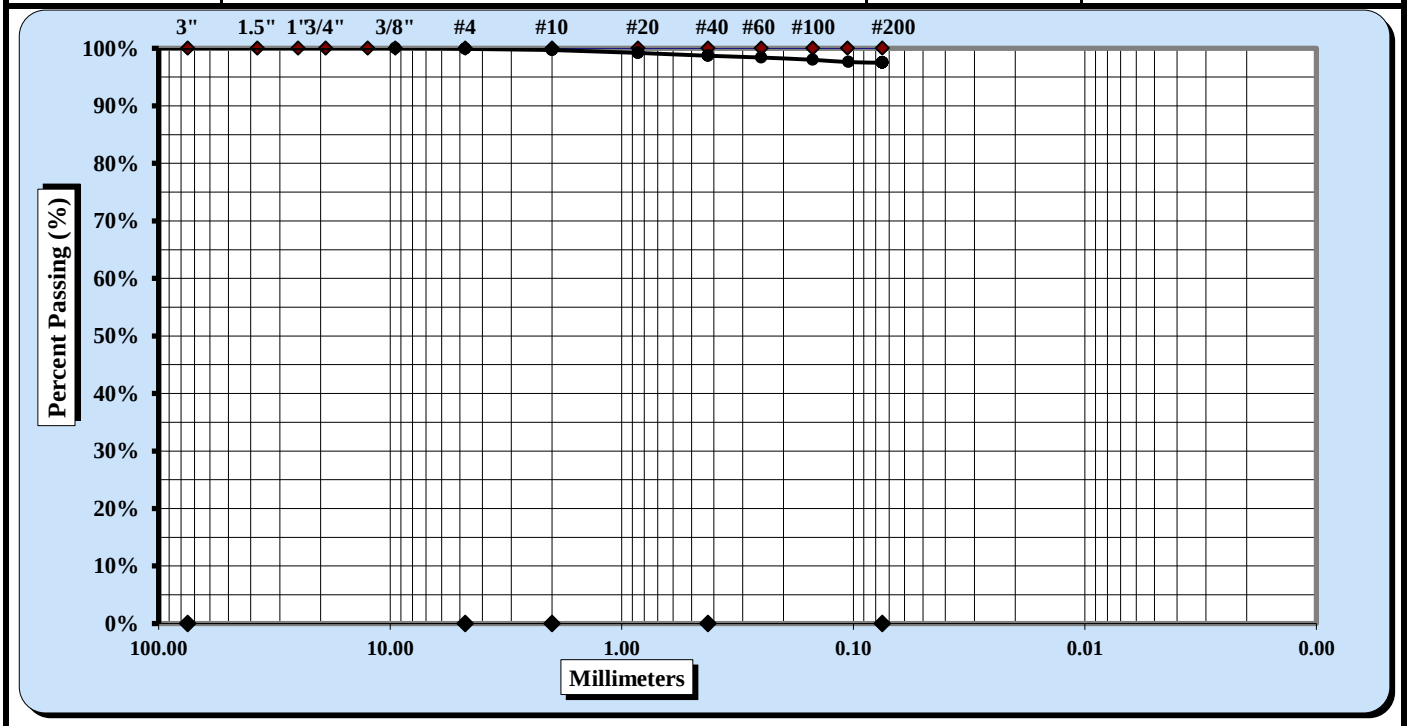
dbaker	NDewitt	Nathan E. Dewitt
Tested by	*Approved by*	*Signature*
Knoxville	*1413 Topside Road, Louisville, TN 37777*	

ASTM D6913: Standard Test Methods for Particle-Size Distribution (Gradation) of Soils Using Sieve Analysis

Report Number	
Report Date	
Test Date	3/4/2022
Sample Date	

Project Number	218019
Project Name	Ford Blue Oval City - TVA Substation
Client Name	
Client Address	

KeyLAB ID	KNOX202203025	Sample Type	UD
Location ID	B-57A	Sample Top Depth	5
Sample Reference	UD-1	Sample Base Depth	7
Description	CL (LEAN CLAY) brown	Method	ASTM D6913 Method B
Classification	LEAN CLAY		



ASTM PARTICLE SIZE DEFINITIONS

Cobbles	< 300 mm (12") and > 75 mm (3")	Medium Sand	< 2.00 mm and > 0.425 mm (#40)
Gravel	< 75 mm and > 4.75 mm (#4)	Fine Sand	< 0.425 mm and > 0.075 mm
Coarse Sand	< 4.75 mm and >2.00 mm (#10)	Silt & Clay	< 0.075

Maximum Particle Size	**0.85 mm**	Coarse Sand	0.2	Fine Sand	1.2
Gravel	0.1	Medium Sand	1.0	Silt & Clay	97.5
Liquid Limit	33	Plastic Limit	17	Plastic Index	16

Description of Sand & Gravel Particles: Rounded ☐ Angular ☒

Hard & Durable ☒ Soft ☐ Weathered & Friable ☐

References / Comments / Deviations:

dbaker	NDewitt	
Tested by	*Approved by*	*Signature*
Knoxville	*1413 Topside Road, Louisville, TN 37777*	

Form No. TR-D698-2
Revision No. : 1
Revision Date: 07/25/17

MOISTURE - DENSITY REPORT

Quality Assurance

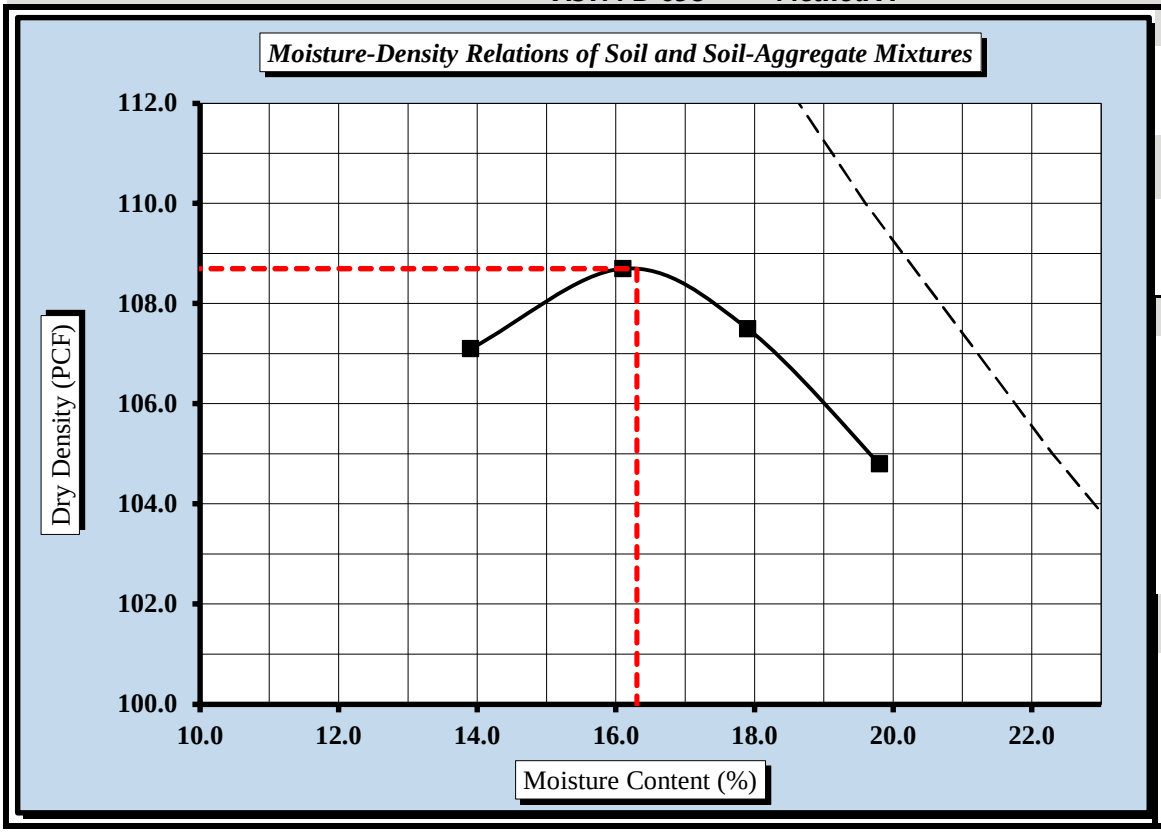
S&ME, Inc. - Nashville: 658 Grassmere Park Drive, Ste. 100, Nashville, TN 37211

S&ME Project #:	218019	Report Date:	3/7/2022
Project Name:	Ford Blue Oval City - TVA Substation	Test Date(s):	2/28/2022-3/7/2022
Client Name:	Walbridge Aldinger, LLC		
Client Address:	777 Woodward Avenue, Suite 300; Detroit, Michigan		

Boring #:	TP-32A	Sample #:	1	Sample Date:	2/23/2022
Location:	-	Type:	Bulk	Depth:	2-10'
Sample Description:	Medium Brown and Light Brown, Silty Clay				

Maximum Dry Density 108.7 PCF. Optimum Moisture Content 16.3%

ASTM D 698 - - Method A



Soil Properties

Natural Moisture Content	24.0%
Specific Gravity of Soil	TNP
Liquid Limit	32
Plastic Limit	20
Plastic Index	12

% Passing	
3/4"	100.0%
3/8"	100.0%
#4	100.0%
#10	100.0%
#40	99.6%
#60	99.3%
#200	98.1%

Oversize Fraction	
Bulk Gravity	2.650
% Moisture	TNP
% Oversize	0.0%
MDD	108.7
Opt. MC	16.3%

Moisture-Density Curve Displayed: Fine Fraction ☒ Corrected for Oversize Fraction (ASTM D 4718) ☐

Sieve Size used to separate the Oversize Fraction: #4 Sieve ☒ 3/8 inch Sieve ☐ 3/4 inch Sieve ☐

Mechanical Rammer ☐ Manual Rammer ☒ Moist Preparation ☐ Dry Preparation ☒

References / Comments / Deviations: Specific gravity and moisture content of oversize fraction are estimated values.

ASTM D 2216: Laboratory Determination of Water (Moisture) Content of Soil and Rock by Mass

ASTM D 698: Laboratory Compaction Characteristics of Soil Using Standard Effort

Ben Fesmire	Ben Fesmire	CS Project Manager	3/7/2022
Technical Responsibility	*Signature*	*Position*	*Date*

Form No. TR-D698-2
Revision No. : 1
Revision Date: 07/25/17

MOISTURE - DENSITY REPORT

Quality Assurance

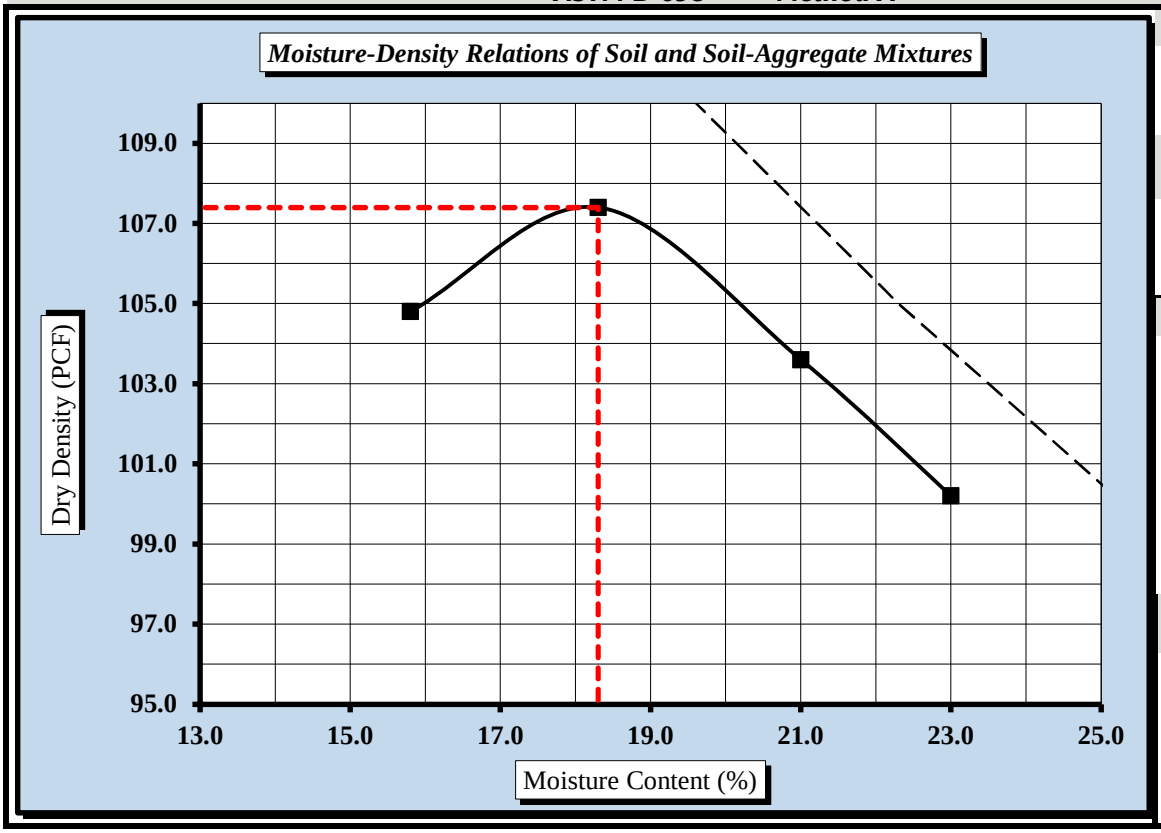
S&ME, Inc. - Nashville: 658 Grassmere Park Drive, Ste. 100, Nashville, TN 37211

S&ME Project #:	218019	Report Date:	3/7/2022
Project Name:	Ford Blue Oval City - TVA Substation	Test Date(s):	2/28/2022-3/7/2022
Client Name:	Walbridge Aldinger, LLC		
Client Address:	777 Woodward Avenue, Suite 300; Detroit, Michigan		

Boring #:	TP-33A	Sample #:	1	Sample Date:	2/23/2022
Location:	-	Type:	Bulk	Depth:	2-10'
Sample Description:	Medium Brown Silty Clay				

Maximum Dry Density 107.4 PCF. Optimum Moisture Content 18.3%

ASTM D 698 - - Method A



Soil Properties

Natural Moisture Content	23.2%
Specific Gravity of Soil	TNP
Liquid Limit	34
Plastic Limit	21
Plastic Index	13
% Passing	
3/4"	100.0%
3/8"	100.0%
#4	100.0%
#10	100.0%
#40	99.7%
#60	99.2%
#200	98.3%
Oversize Fraction	
Bulk Gravity	2.650
% Moisture	TNP
% Oversize	0.0%
MDD	107.4
Opt. MC	18.3%

Moisture-Density Curve Displayed: Fine Fraction ☒ Corrected for Oversize Fraction (ASTM D 4718) ☐

Sieve Size used to separate the Oversize Fraction: #4 Sieve ☒ 3/8 inch Sieve ☐ 3/4 inch Sieve ☐

Mechanical Rammer ☐ Manual Rammer ☒ Moist Preparation ☐ Dry Preparation ☒

References / Comments / Deviations: Specific gravity and moisture content of oversize fraction are estimated values.

ASTM D 2216: Laboratory Determination of Water (Moisture) Content of Soil and Rock by Mass

ASTM D 698: Laboratory Compaction Characteristics of Soil Using Standard Effort

Ben Fesmire		CS Project Manager	3/7/2022
Technical Responsibility	*Signature*	*Position*	*Date*

Form No. TR-D698-2
Revision No. : 1
Revision Date: 07/25/17

MOISTURE - DENSITY REPORT

Quality Assurance

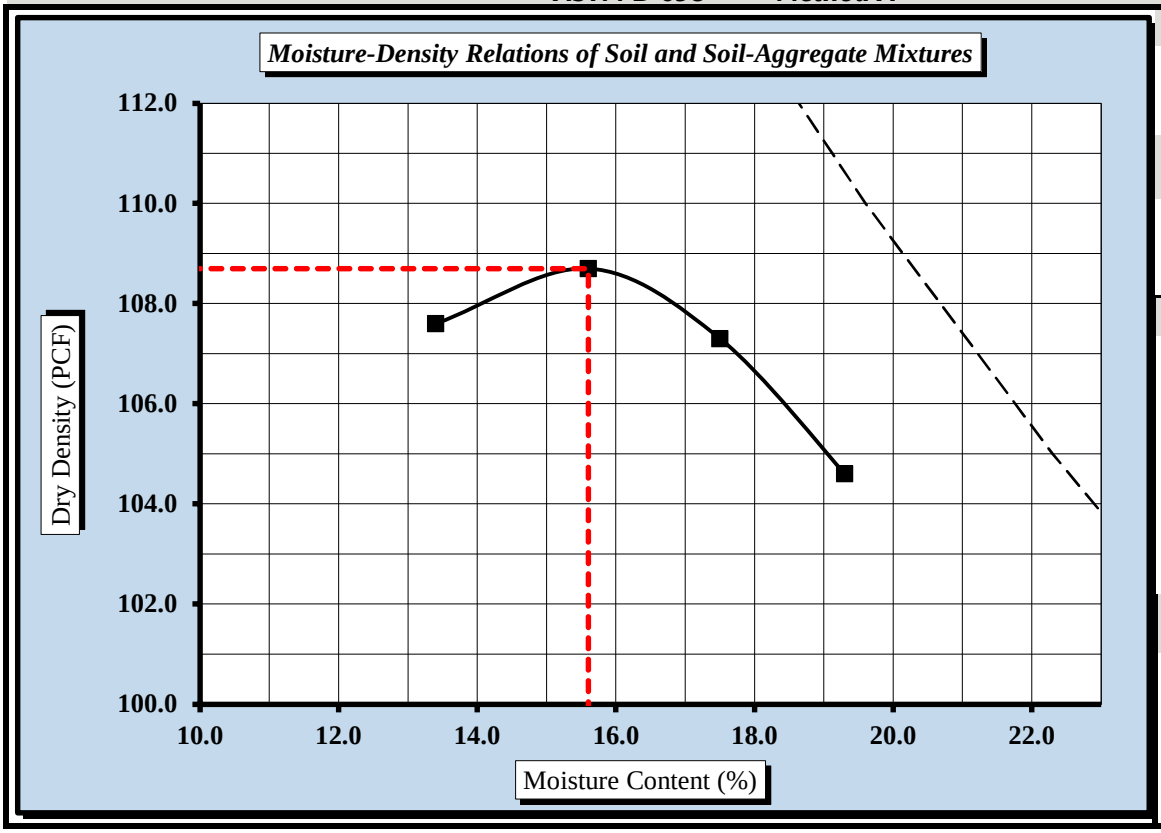
S&ME, Inc. - Nashville: 658 Grassmere Park Drive, Ste. 100, Nashville, TN 37211

S&ME Project #:	218019	Report Date:	3/7/2022
Project Name:	Ford Blue Oval City - TVA Substation	Test Date(s):	2/28/2022-3/7/2022
Client Name:	Walbridge Aldinger, LLC		
Client Address:	777 Woodward Avenue, Suite 300; Detroit, Michigan		

Boring #:	TP-35A	Sample #:	1	Sample Date:	2/23/2022
Location:	-	Type:	Bulk	Depth:	2-10'
Sample Description:	Brown with Gray, Lean Clay				

Maximum Dry Density 108.7 PCF. Optimum Moisture Content 15.6%

ASTM D 698 - - Method A



Soil Properties

Natural Moisture Content	28.0%
Specific Gravity of Soil	TNP
Liquid Limit	30
Plastic Limit	20
Plastic Index	10

% Passing	
3/4"	100.0%
3/8"	99.5%
#4	97.4%
#10	93.7%
#40	91.4%
#60	90.8%
#200	90.0%

Oversize Fraction	
Bulk Gravity	2.650
% Moisture	TNP
% Oversize	0.0%
MDD	108.7
Opt. MC	15.6%

Moisture-Density Curve Displayed: Fine Fraction ☒ Corrected for Oversize Fraction (ASTM D 4718) ☐

Sieve Size used to separate the Oversize Fraction: #4 Sieve ☒ 3/8 inch Sieve ☐ 3/4 inch Sieve ☐

Mechanical Rammer ☐ Manual Rammer ☒ Moist Preparation ☐ Dry Preparation ☒

References / Comments / Deviations: Specific gravity and moisture content of oversize fraction are estimated values.

ASTM D 2216: Laboratory Determination of Water (Moisture) Content of Soil and Rock by Mass

ASTM D 698: Laboratory Compaction Characteristics of Soil Using Standard Effort

Ben Fesmire	Ben Fesmire	CS Project Manager	3/7/2022
Technical Responsibility	*Signature*	*Position*	*Date*

Form No. TR-D698-2
Revision No. : 1
Revision Date: 07/25/17

MOISTURE - DENSITY REPORT

Quality Assurance

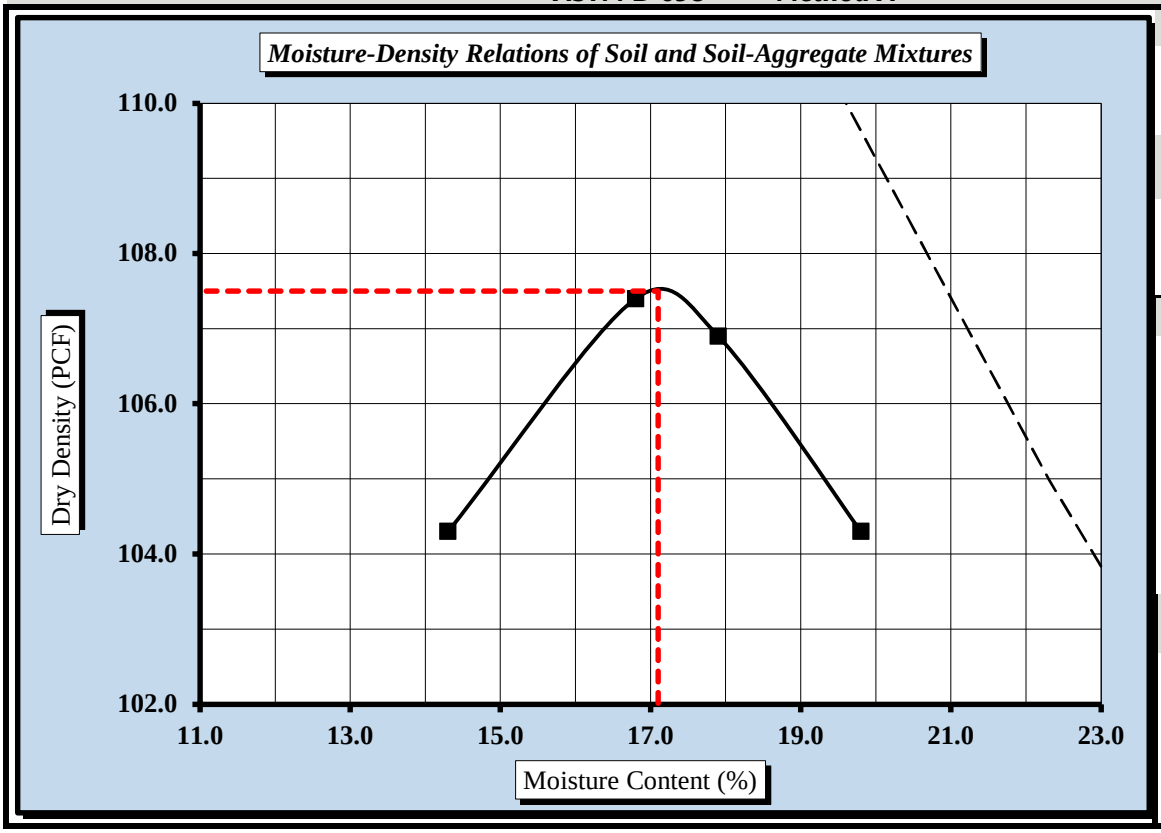
S&ME, Inc. - Nashville: 658 Grassmere Park Drive, Ste. 100, Nashville, TN 37211

S&ME Project #:	218019	Report Date:	3/8/2022
Project Name:	Ford Blue Oval City - TVA Substation	Test Date(s):	2/28/2022-3/8/2022
Client Name:	Walbridge Aldinger, LLC		
Client Address:	777 Woodward Avenue, Suite 300; Detroit, Michigan		

Boring #:	TP-37A	Sample #:	1	Sample Date:	2/23/2022
Location:	-	Type:	Bulk	Depth:	2-10'
Sample Description:	Gray with Brown Lean Clay				

Maximum Dry Density 107.5 PCF. Optimum Moisture Content 17.1%

ASTM D 698 - - Method A



Soil Properties

Natural Moisture Content	27.8%
Specific Gravity of Soil	TNP
Liquid Limit	32
Plastic Limit	19
Plastic Index	13

% Passing	
3/4"	100.0%
3/8"	100.0%
#4	99.2%
#10	97.8%
#40	96.1%
#60	95.6%
#200	94.5%

Oversize Fraction	
Bulk Gravity	2.650
% Moisture	TNP
% Oversize	0.0%
MDD	107.5
Opt. MC	17.1%

Moisture-Density Curve Displayed: Fine Fraction ☒ Corrected for Oversize Fraction (ASTM D 4718) ☐

Sieve Size used to separate the Oversize Fraction: #4 Sieve ☒ 3/8 inch Sieve ☐ 3/4 inch Sieve ☐

Mechanical Rammer ☐ Manual Rammer ☒ Moist Preparation ☐ Dry Preparation ☒

References / Comments / Deviations: Specific gravity and moisture content of oversize fraction are estimated values.

ASTM D 2216: Laboratory Determination of Water (Moisture) Content of Soil and Rock by Mass

ASTM D 698: Laboratory Compaction Characteristics of Soil Using Standard Effort

Ben Fesmire		CS Project Manager	3/8/2022
Technical Responsibility	*Signature*	*Position*	*Date*

Form No. TR-D698-2
Revision No. : 1
Revision Date: 07/25/17

MOISTURE - DENSITY REPORT

Quality Assurance

S&ME, Inc. - Nashville: 658 Grassmere Park Drive, Ste. 100, Nashville, TN 37211

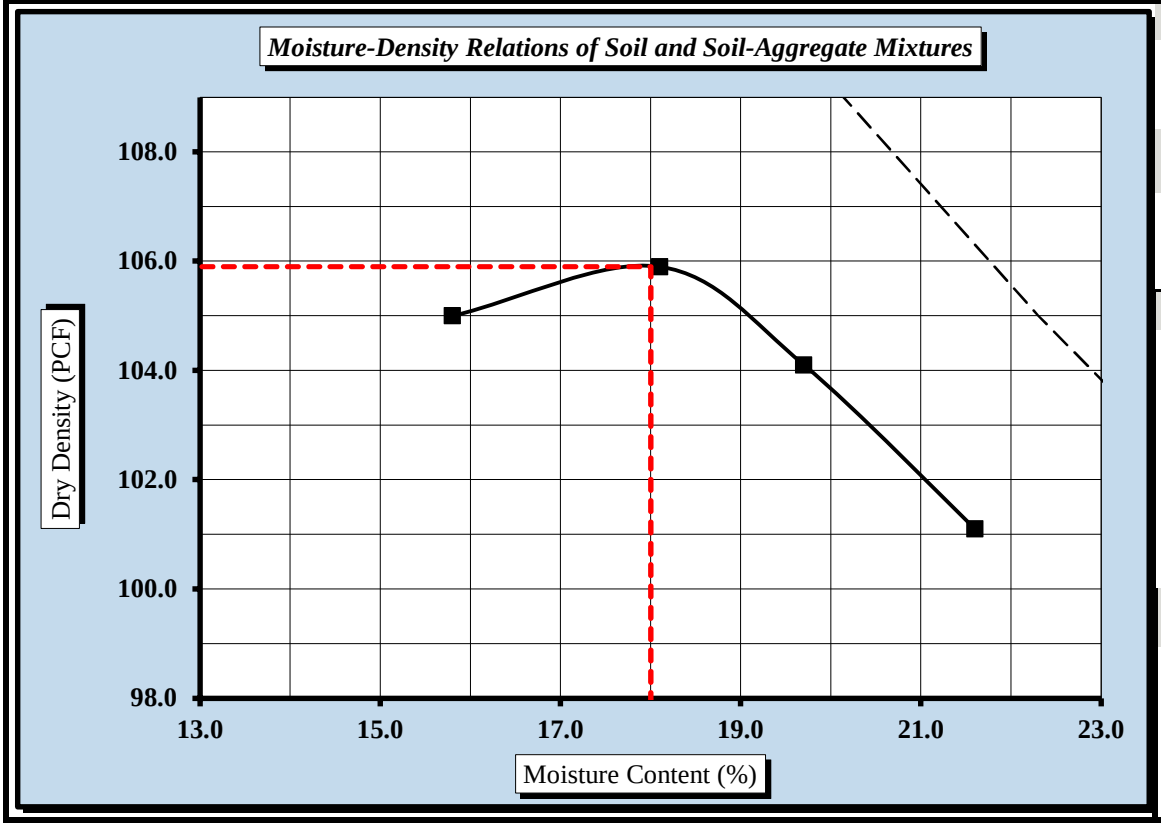
S&ME Project #:	218019	Report Date:	3/8/2022
Project Name:	Ford Blue Oval City - TVA Substation	Test Date(s):	2/28/2022-3/8/2022
Client Name:	Walbridge Aldinger, LLC		
Client Address:	777 Woodward Avenue, Suite 300; Detroit, Michigan		

Boring #:	TP-55A	Sample #:	1	Sample Date:	2/23/2022
Location:	-	Type:	Bulk	Depth:	2-10'

Sample Description: Brown, Light Brown, and Gray Lean Clay

Maximum Dry Density 108.7 PCF. Optimum Moisture Content 16.3%

ASTM D 698 - - Method A



Soil Properties

Natural Moisture Content	26.7%
Specific Gravity of Soil	TNP
Liquid Limit	28
Plastic Limit	18
Plastic Index	10

% Passing	
3/4"	100.0%
3/8"	100.0%
#4	99.3%
#10	98.1%
#40	96.3%
#60	95.8%
#200	94.5%

Oversize Fraction	
Bulk Gravity	2.650
% Moisture	TNP
% Oversize	0.0%
MDD	108.7
Opt. MC	16.3%

Moisture-Density Curve Displayed: Fine Fraction ☒ Corrected for Oversize Fraction (ASTM D 4718) ☐

Sieve Size used to separate the Oversize Fraction: #4 Sieve ☒ 3/8 inch Sieve ☐ 3/4 inch Sieve ☐

Mechanical Rammer ☐ Manual Rammer ☒ Moist Preparation ☐ Dry Preparation ☒

References / Comments / Deviations: Specific gravity and moisture content of oversize fraction are estimated values.

ASTM D 2216: Laboratory Determination of Water (Moisture) Content of Soil and Rock by Mass

ASTM D 698: Laboratory Compaction Characteristics of Soil Using Standard Effort

Ben Fesmire	Ben Fesmire	CS Project Manager	3/8/2022
Technical Responsibility	*Signature*	*Position*	*Date*

Form No. TR-D698-2
Revision No. : 1
Revision Date: 07/25/17

MOISTURE - DENSITY REPORT

Quality Assurance

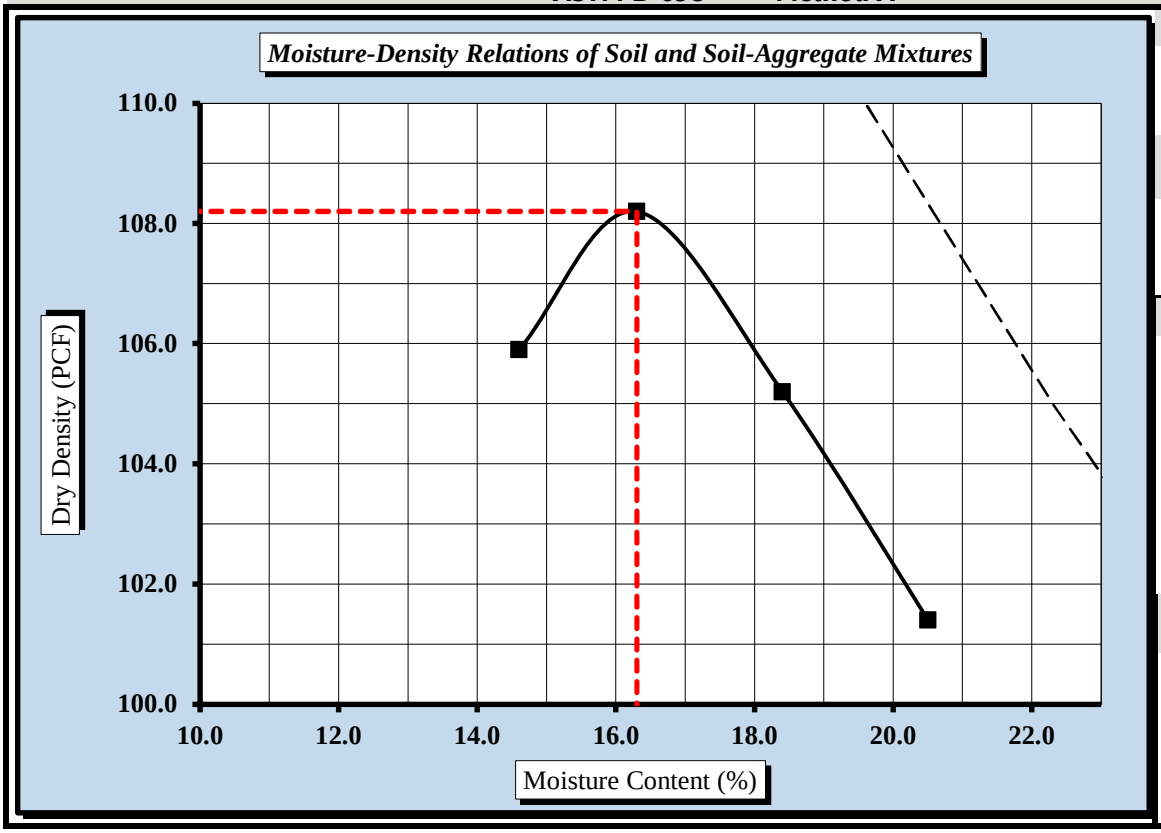
S&ME, Inc. - Nashville: 658 Grassmere Park Drive, Ste. 100, Nashville, TN 37211

S&ME Project #:	218019	Report Date:	3/8/2022
Project Name:	Ford Blue Oval City - TVA Substation	Test Date(s):	2/28/2022-3/8/2022
Client Name:	Walbridge Aldinger, LLC		
Client Address:	777 Woodward Avenue, Suite 300; Detroit, Michigan		

Boring #:	TP-57A	Sample #:	1	Sample Date:	2/23/2022
Location:	-	Type:	Bulk	Depth:	2-10'
Sample Description:	Light Brown Lean Clay				

Maximum Dry Density 108.2 PCF. Optimum Moisture Content 16.3%

ASTM D 698 - - Method A



Soil Properties	
Natural Moisture Content	34.7%
Specific Gravity of Soil	TNP
Liquid Limit	29
Plastic Limit	21
Plastic Index	8
% Passing	
3/4"	100.0%
3/8"	100.0%
#4	98.1%
#10	95.3%
#40	92.6%
#60	92.0%
#200	91.3%
Oversize Fraction	
Bulk Gravity	2.650
% Moisture	TNP
% Oversize	0.0%
MDD	108.2
Opt. MC	16.3%

Moisture-Density Curve Displayed: Fine Fraction ☒ Corrected for Oversize Fraction (ASTM D 4718) ☐

Sieve Size used to separate the Oversize Fraction: #4 Sieve ☒ 3/8 inch Sieve ☐ 3/4 inch Sieve ☐

Mechanical Rammer ☐ Manual Rammer ☒ Moist Preparation ☐ Dry Preparation ☒

References / Comments / Deviations: Specific gravity and moisture content of oversize fraction are estimated values.

ASTM D 2216: Laboratory Determination of Water (Moisture) Content of Soil and Rock by Mass

ASTM D 698: Laboratory Compaction Characteristics of Soil Using Standard Effort

Ben Fesmire	Ben Fesmire	CS Project Manager	3/8/2022
Technical Responsibility	*Signature*	*Position*	*Date*

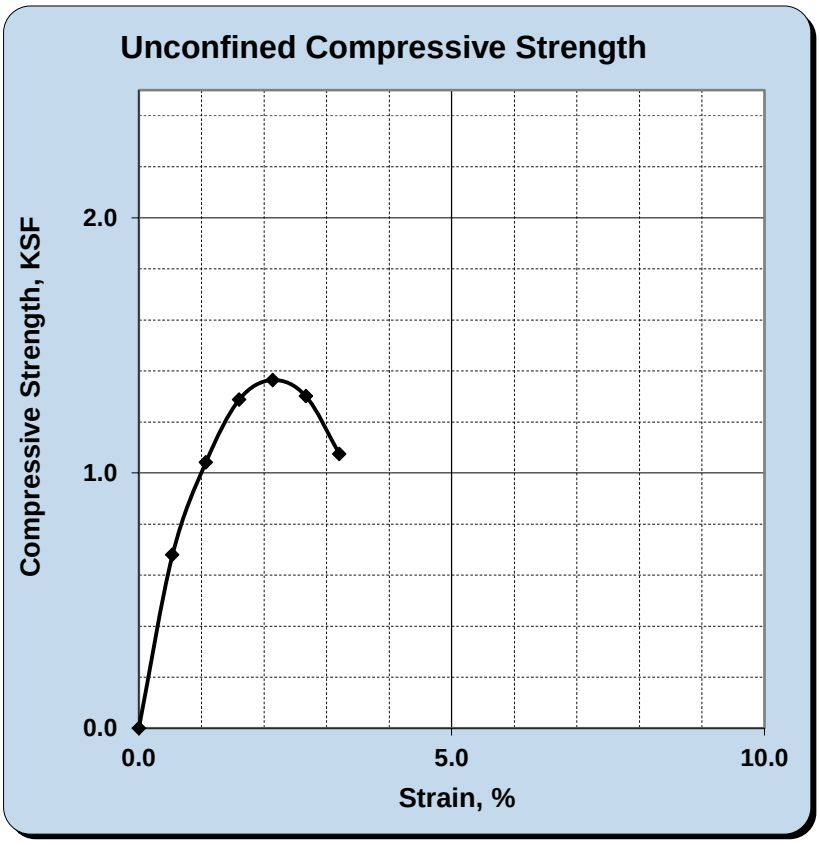
Form No. TR-D2166-01
Revision No. : 1
Revision Date: 08/16/17

UNCONFINED COMPRESSIVE STRENGTH OF COHESIVE SOILS

ASTM D2166

S&ME, Inc. - Knoxville: 1413 Topside Road, Louisville, TN 37777

Project No.:	218019	Report Date:	3/4/2022
Project Name:	Ford Blue Oval City - TVA Substation	Test Date(s):	3/1/2022
Client Name:	Walbridge Aldinger		
Client Address:	Detroit, MI		
Boring No.:	B-32A	Sample No. UD-1	Sample Date: 2/1/2022
		Depth:	15-17 feet
Sample Description:	GC (CLAYEY GRAVEL WITH SAND) Red		



Failed Specimen

Type of Sample: Intact
Source of Moisture Sample: Test Specimen

Initial Dry Unit Weight: 109.7 pcf
Initial Water Content: 12.5%
Unconfined Compressive Strength, q_u: **1.364** KSF
Undrained Shear Strength, s_u: **0.682** KSF

Liquid Limit: 22
Plasticity Index: 12
Height to Diameter Ratio: 1.6
Rate of Strain (%/min.): 0.50
Strain at Failure: 2.1

References / Comments / Deviations:

Specimen does not meet height to diameter ratio requirements of ASTM D2166.

ASTM D4318, 6913, 2487

N. DeWitt		Laboratory Services Manager	3/4/2022
Technical Responsibility	*Signature*	*Position*	*Date*

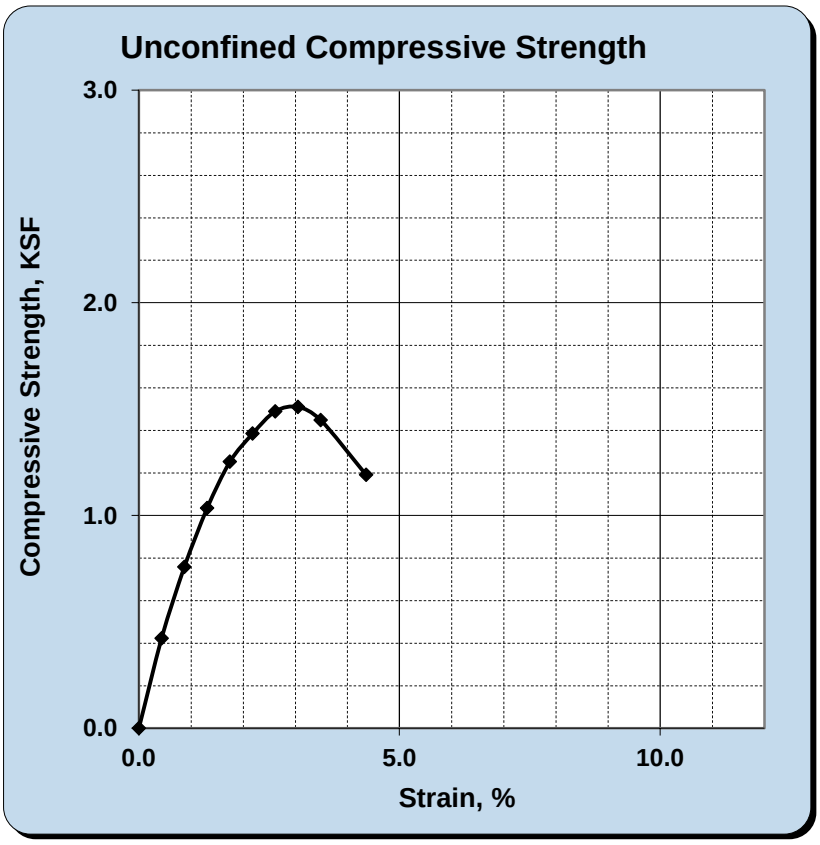
Form No. TR-D2166-01
Revision No. : 1
Revision Date: 08/16/17

UNCONFINED COMPRESSIVE STRENGTH OF COHESIVE SOILS

ASTM D2166

S&ME, Inc. - Knoxville: 1413 Topside Road, Louisville, TN 37777

Project No.:	218019	Report Date:	3/4/2022
Project Name:	Ford Blue Oval City - TVA Substation	Test Date(s):	2/28/2022
Client Name:	Walbridge Aldinger		
Client Address:	Detroit, MI		
Boring No.:	B-33A	Sample No. UD-1	Sample Date: 2/1/2022
		Depth:	15-17 feet
Sample Description:	SC (CLAYEY SAND) Red		



Failed Specimen

Type of Sample: Intact
Source of Moisture Sample: Test Specimen

Initial Dry Unit Weight: 112.6 pcf
Initial Water Content: 14.1%
Unconfined Compressive Strength, q_u: **1.510** KSF
Undrained Shear Strength, s_u: **0.755** KSF

Liquid Limit: 24
Plasticity Index: 14
Height to Diameter Ratio: 2.0
Rate of Strain (%/min.): 0.50
Strain at Failure: 3.1

References / Comments / Deviations:

ASTM D4318, 6913, 2487

N. Dewitt		Laboratory Services Manager	3/4/2022
Technical Responsibility	*Signature*	*Position*	*Date*

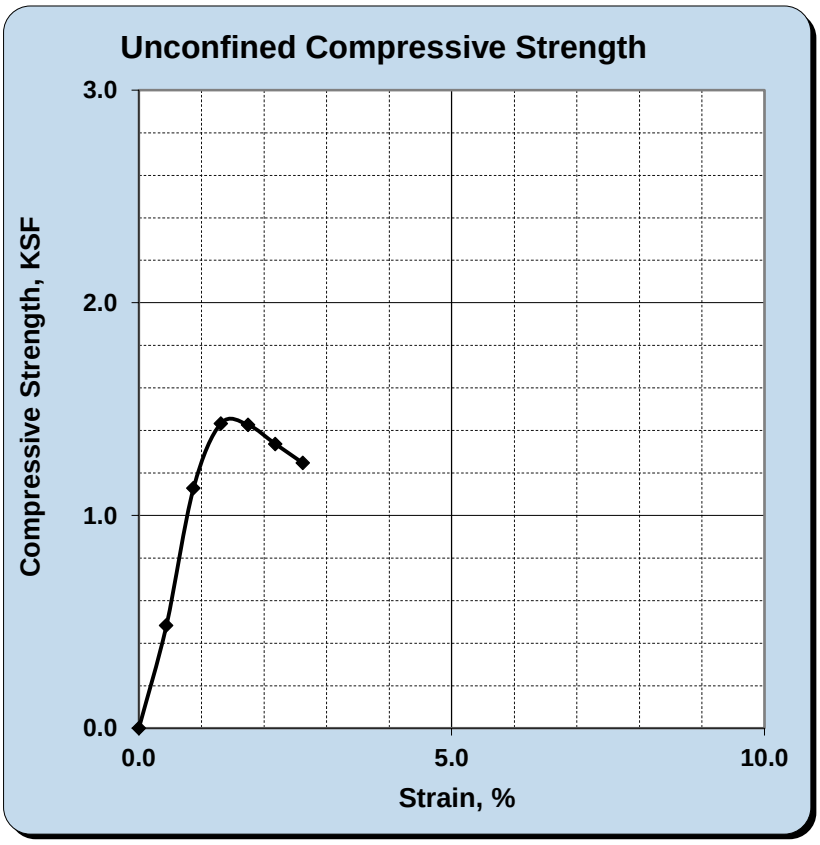
Form No. TR-D2166-01
Revision No. : 1
Revision Date: 08/16/17

UNCONFINED COMPRESSIVE STRENGTH OF COHESIVE SOILS

ASTM D2166

S&ME, Inc. - Knoxville: 1413 Topside Road, Louisville, TN 37777

Project No.:	218019	Report Date:	3/4/2022
Project Name:	Ford Blue Oval City - TVA Substation	Test Date(s):	3/1/2022
Client Name:	Walbridge Aldinger		
Client Address:	Detroit, MI		
Boring No.:	B-35A Sample No. UD-1	Sample Date:	2/15/2022
		Depth:	5-7 feet
Sample Description:	CL (LEAN CLAY) Brown		



Failed Specimen

Type of Sample: Intact
Source of Moisture Sample: Test Specimen

Initial Dry Unit Weight: 94.4 pcf
Initial Water Content: 26.9%
Unconfined Compressive Strength, q_u: **1.433** KSF
Undrained Shear Strength, s_u: **0.716** KSF

Liquid Limit: 34
Plasticity Index: 15
Height to Diameter Ratio: 2.0
Rate of Strain (%/min.): 0.88
Strain at Failure: 1.7

References / Comments / Deviations:

ASTM D4318, 6913, 2487

N. DeWitt		Laboratory Services Manager	3/4/2022
Technical Responsibility	*Signature*	*Position*	*Date*

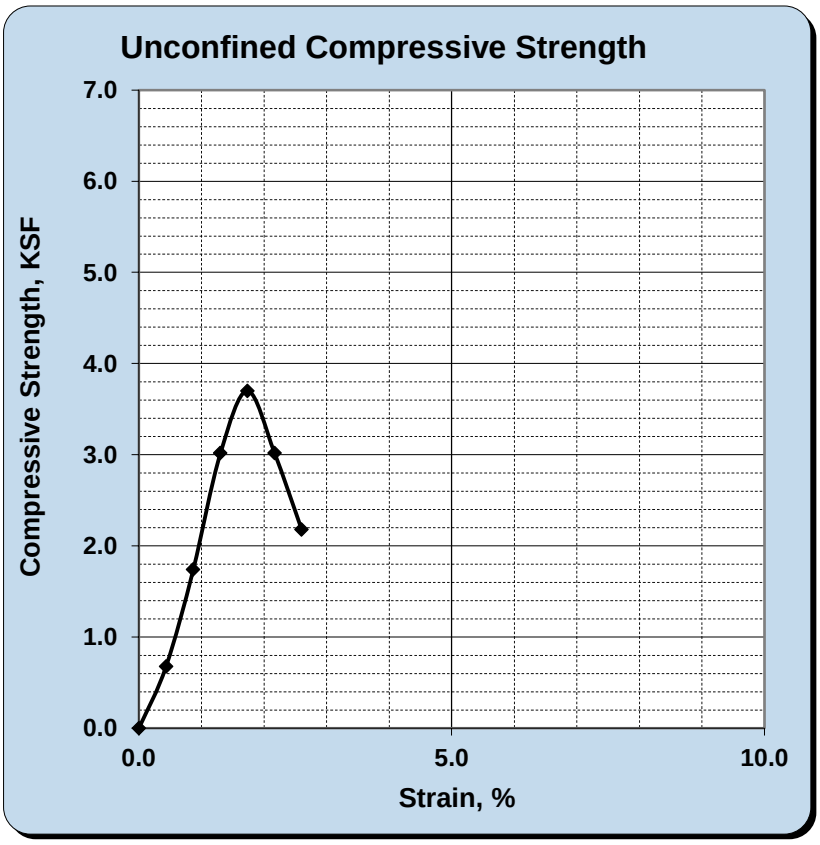
Form No. TR-D2166-01
Revision No. : 1
Revision Date: 08/16/17

UNCONFINED COMPRESSIVE STRENGTH OF COHESIVE SOILS

ASTM D2166

S&ME, Inc. - Knoxville: 1413 Topside Road, Louisville, TN 37777

Project No.:	218019	Report Date:	3/4/2022
Project Name:	Ford Blue Oval City - TVA Substation	Test Date(s):	3/1/2022
Client Name:	Walbridge Aldinger		
Client Address:	Detroit, MI		
Boring No.:	B-37A Sample No. UD-1	Sample Date:	2/2022
		Depth:	5-7 feet
Sample Description:	CL (LEAN CLAY) Brown		



Failed Specimen

Type of Sample: Intact
Source of Moisture Sample: Test Specimen

Initial Dry Unit Weight: 92.7 pcf
Initial Water Content: 27.7%
Unconfined Compressive Strength, q_u: **3.699** KSF
Undrained Shear Strength, s_u: **1.850** KSF

Liquid Limit: 42
Plasticity Index: 24
Height to Diameter Ratio: 2.0
Rate of Strain (%/min.): 0.50
Strain at Failure: 1.7

References / Comments / Deviations:

ASTM D4318, 6913, 2487

N. DeWitt		Laboratory Services Manager	3/4/2022
Technical Responsibility	*Signature*	*Position*	*Date*

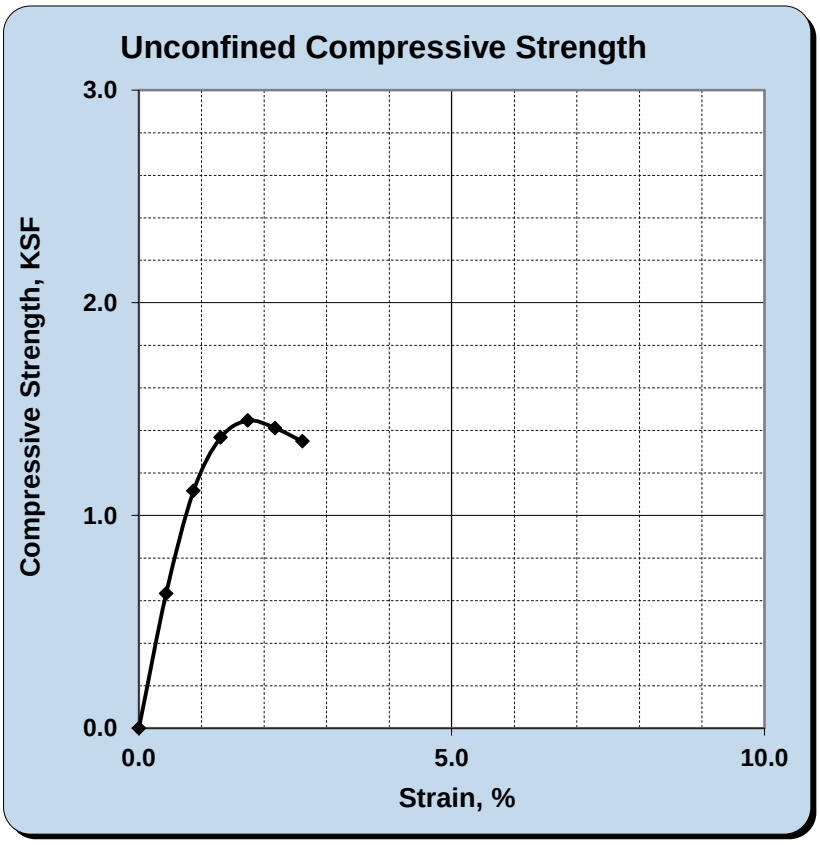
Form No. TR-D2166-01
Revision No. : 1
Revision Date: 08/16/17

UNCONFINED COMPRESSIVE STRENGTH OF COHESIVE SOILS

ASTM D2166

S&ME, Inc. - Knoxville: 1413 Topside Road, Louisville, TN 37777

Project No.:	218019	Report Date:	3/4/2022
Project Name:	Ford Blue Oval City - TVA Substation	Test Date(s):	3/1/2022
Client Name:	Walbridge Aldinger		
Client Address:	Detroit, MI		
Boring No.:	B-55A Sample No. UD-1	Sample Date:	2/2022
		Depth:	5-7 feet
Sample Description:	CL (LEAN CLAY) gray with light brown		



Failed Specimen

Type of Sample: Intact
Source of Moisture Sample: Test Specimen

Initial Dry Unit Weight: 98.7 pcf
Initial Water Content: 23.7%
Unconfined Compressive Strength, q_u: **1.446** KSF
Undrained Shear Strength, s_u: **0.723** KSF

Liquid Limit: 35
Plasticity Index: 15
Height to Diameter Ratio: 2.0
Rate of Strain (%/min.): 0.50
Strain at Failure: 1.7

References / Comments / Deviations:

ASTM D4318, D6913, D2487

N. DeWitt		Laboratory Services Manager	3/4/2022
Technical Responsibility	*Signature*	*Position*	*Date*

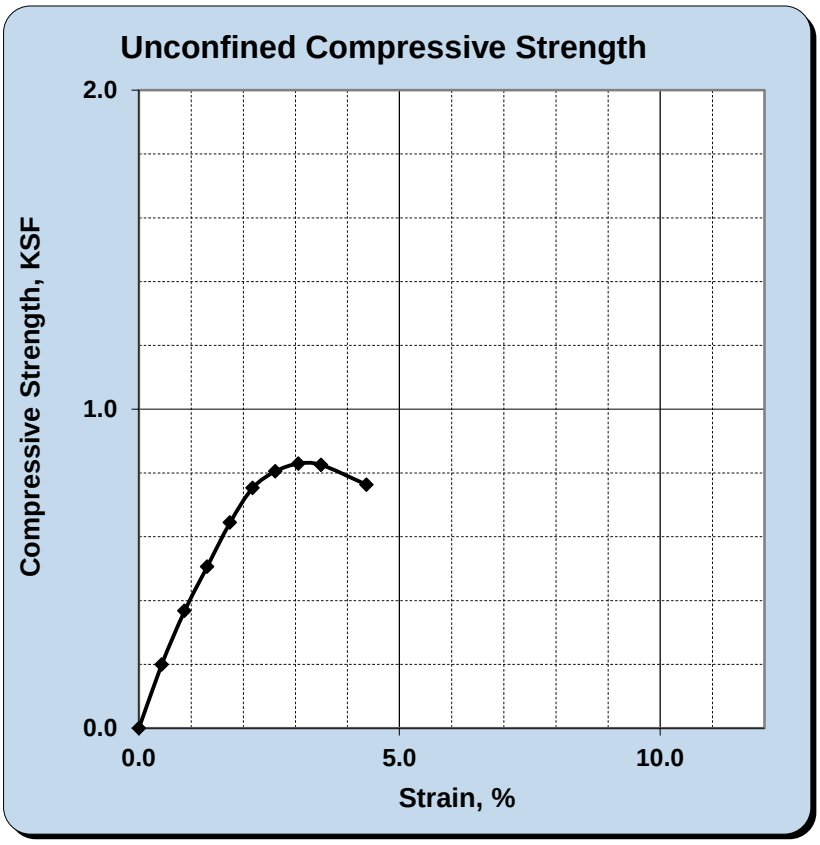
Form No. TR-D2166-01
Revision No. : 1
Revision Date: 08/16/17

UNCONFINED COMPRESSIVE STRENGTH OF COHESIVE SOILS

ASTM D2166

S&ME, Inc. - Knoxville: 1413 Topside Road, Louisville, TN 37777

Project No.:	218019	Report Date:	3/4/2022
Project Name:	Ford Blue Oval City - TVA Substation	Test Date(s):	2/28/2022
Client Name:	Walbridge Aldinger		
Client Address:	Stanton, Tennessee		
Boring No.:	B-57A Sample No. UD-1	Sample Date:	2/2022
		Depth:	5-7 feet
Sample Description:	CL (LEAN CLAY) brown		



Failed Specimen

Type of Sample: Intact
Source of Moisture Sample: Test Specimen

Initial Dry Unit Weight: 92.0 pcf
Initial Water Content: 28.0%
Unconfined Compressive Strength, q_u: **0.829** KSF
Undrained Shear Strength, s_u: **0.415** KSF

Liquid Limit: 33
Plasticity Index: 16
Height to Diameter Ratio: 2.0
Rate of Strain (%/min.): 0.88
Strain at Failure: 3.1

References / Comments / Deviations:

ASTM D4318, 6913, 2487

N. DeWitt		Laboratory Services Manager	3/4/2022
Technical Responsibility	*Signature*	*Position*	*Date*

Soil Resistivity Data Sheet
Wenner Four-Electrode Method

Project: Ford Blue Oval City - TVA Substation **Project #:** 218019

Project Location: Stanton, TN **Station/Orientation:** Test A (N-S)

Date: 2/1/2022 **Time:** 8:00 AM

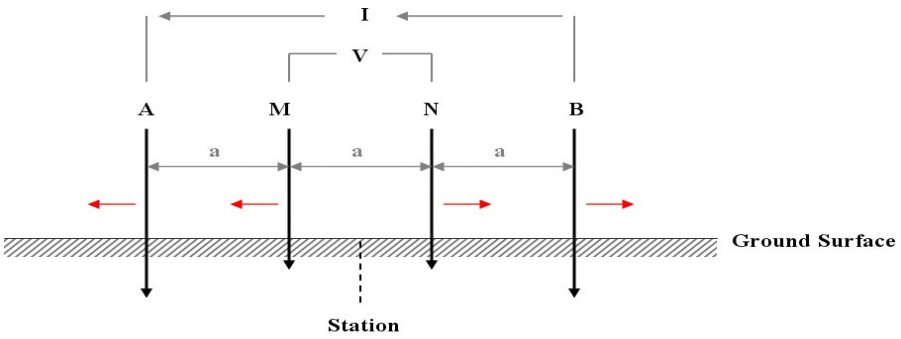
Weather & Temperature: Sunny, 40s

Soil Conditions: Moist

On-Site Personnel: Jill Guthrie, Adam Gostic

Additional Notes: Site contraints limited spacing to a 300 ft a-spacing

$\rho = 2\pi \cdot a \cdot R$



"a" Spacing (feet)	"a" Spacing (centimeters)	Electrode Depth (inches)	Resistance (Ω)	ρ Apparent Resistivity (Ω·cm)	ρ Apparent Resistivity (Ω·ft)	Injected Current (mA)	Comments
1	30.48	4	48.52	9292.16	304.86	100.00	
2	60.96	4	28.38	10870.22	356.63	50.00	
3	91.44	6	18.73	10761.06	353.05	50.00	
5	152.40	6	11.07	10600.19	347.78	50.00	
7	213.36	8	7.31	9796.98	321.42	50.00	
10	304.80	12	4.25	8139.26	267.04	100.00	
20	609.60	12	1.43	5461.92	179.20	100.00	
30	914.40	12	0.97	5561.51	182.46	100.00	
50	1524.00	12	0.74	7114.67	233.42	100.00	
70	2133.60	12	0.69	9213.83	302.29	100.00	
100	3048.00	12	0.61	11663.08	382.65	100.00	
200	6096.00	12	0.47	17829.76	584.97	100.00	
300	9144.00	12	0.40	22791.84	747.76	100.00	

Soil Resistivity Data Sheet
Wenner Four-Electrode Method

Project: Ford Blue Oval City - TVA Substation **Project #:** 218019

Project Location: Stanton, TN **Station/Orientation:** Test B (E-W)

Date: 2/1/2022 **Time:** 1:00 PM

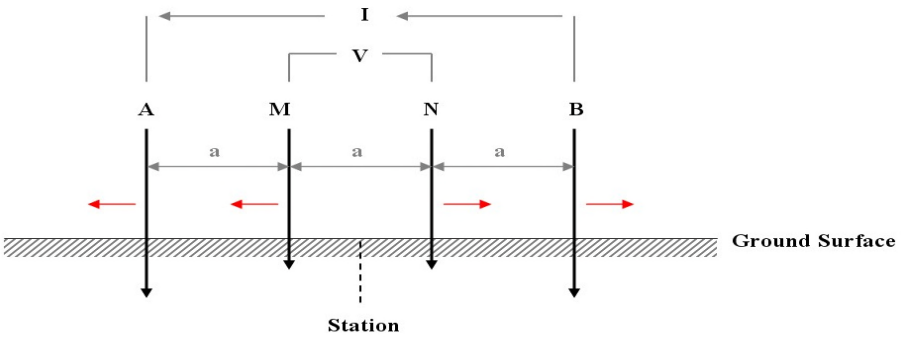
Weather & Temperature: Sunny, 40s

Soil Conditions: Moist

On-Site Personnel: Jill Guthrie, Adam Gostic

Additional Notes: Site contraints limited spacing to a 300 ft a-spacing

$\rho = 2\pi \cdot a \cdot R$

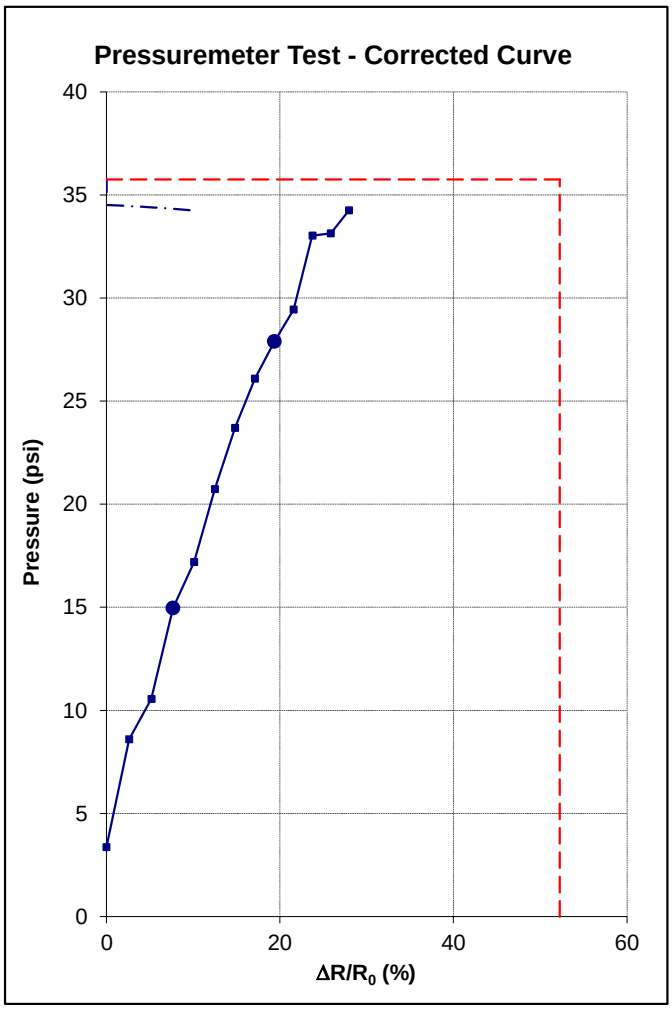


"a" Spacing (feet)	"a" Spacing (centimeters)	Electrode Depth (inches)	Resistance (Ω)	ρ Apparent Resistivity (Ω·cm)	ρ Apparent Resistivity (Ω·ft)	Injected Current (mA)	Comments
1	30.48	4	45.02	8621.87	282.87	50.00	
2	60.96	4	26.65	10207.59	334.89	50.00	
3	91.44	6	19.02	10927.67	358.52	50.00	
5	152.40	6	11.24	10762.97	353.12	50.00	
7	213.36	8	7.58	10157.60	333.25	100.00	
10	304.80	12	4.30	8227.35	269.93	100.00	
20	609.60	12	1.48	5657.26	185.61	100.00	
30	914.40	12	0.99	5662.62	185.78	100.00	
50	1524.00	12	0.78	7478.54	245.36	100.00	
70	2133.60	12	0.69	9307.67	305.37	100.00	
100	3048.00	12	0.62	11938.85	391.69	100.00	
200	6096.00	12	0.47	18189.80	596.78	100.00	
300	9144.00	12	0.43	24538.42	805.07	100.00	
400	12192.00	12	0.42	31898.23	1046.53	100.00	

TEXAM Pressuremeter Test

Project name:	218019 P110S - TVA Substation	Use of a slotted casing:	No
Borehole name:	B-36	Test depth:	5.00 ft
Test date: (mm/dd/yyyy)	02/08/2022	Manometer height above ground:	2.00 ft
Test number:	B-36: 5'	Poisson's coefficient:	0.33
Probe size:	N	Fluid density:	1.110

Raw Readings		Corrected Readings			
Pressure psi	Volume in³	Pressure psi	Volume in³	$\Delta R/R_0$ %	
0	0.0	3	0.0	0.00	
7	6.1	9	6.1	2.61	
9	12.2	11	12.2	5.17	
15	18.3	15	18.2	7.66	◄
17	24.4	17	24.3	10.10	
22	30.5	21	30.4	12.49	
25	36.6	24	36.5	14.82	
28	42.7	26	42.6	17.11	
31	48.8	28	48.7	19.36	◄
32	54.9	29	54.8	21.57	
36	61.0	33	60.9	23.73	
37	67.1	33	67.0	25.86	
38	73.2	34	73.1	27.96	



Remarks

Calibrations References: Low Cal Membrane
Soil Description: (CL) Lean Clay
Drilling method: Mud Rotary
Notes:

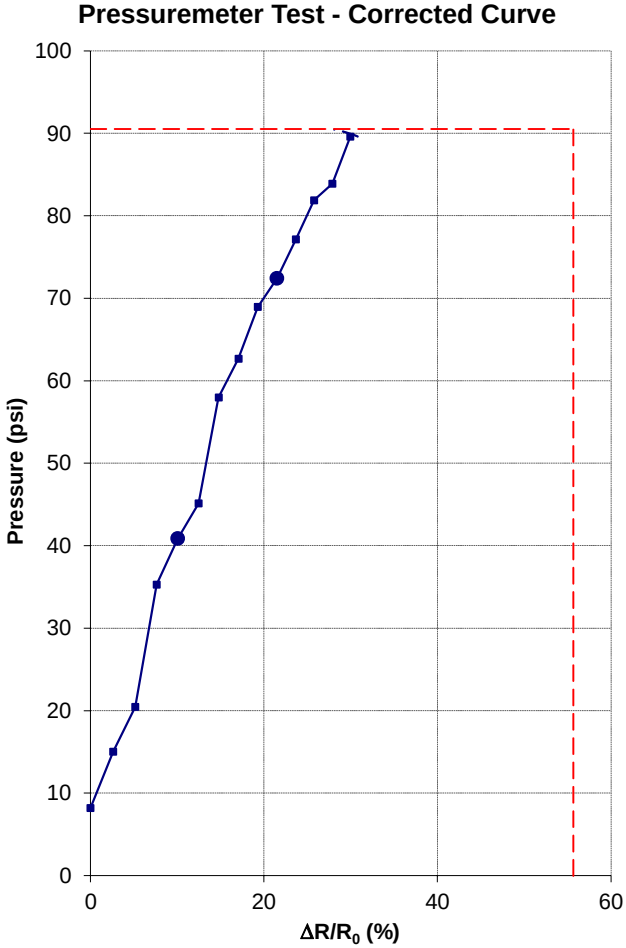
Test Results

Pressiometer modulus E:	**167 psi**
Ultimate pressure P_L:	**36 psi**
Ratio E / P_L:	4.68
Yield pressure P_F:	28 psi
Ratio P_L / P_F:	1.28

TEXAM Pressuremeter Test

Project name:	218019 P110S - TVA Substation	Use of a slotted casing:	No
Borehole name:	B-36	Test depth:	15.00 ft
Test date: (mm/dd/yyyy)	02/09/2022	Manometer height above ground:	2.00 ft
Test number:	B-36: 15'	Poisson's coefficient:	0.33
Probe size:	N	Fluid density:	1.110

Raw Readings		Corrected Readings			
Pressure psi	Volume in³	Pressure psi	Volume in³	$\Delta R/R_0$ %	
0	0.0	8	0.0	0.00	
8	6.1	15	6.1	2.61	
15	12.2	20	12.1	5.16	
30	18.3	35	18.2	7.63	
36	24.4	41	24.2	10.07	◄
41	30.5	45	30.3	12.45	
55	36.6	58	36.4	14.77	
60	42.7	63	42.4	17.06	
67	48.8	69	48.5	19.30	
71	54.9	72	54.6	21.50	◄
76	61.0	77	60.7	23.67	
80	67.1	82	66.7	25.79	
83	73.2	84	72.8	27.89	
88	79.3	90	78.9	29.94	



Remarks

Calibrations References: Low Cal Membrane
Soil Description: (ML) Silt
Drilling method: Mud Rotary
Notes:

Test Results

Pressiometer modulus E:	**426 psi**
Ultimate pressure P_L:	**91 psi**
Ratio E / P_L:	4.70
Yield pressure P_F:	72 psi
Ratio P_L / P_F:	1.25

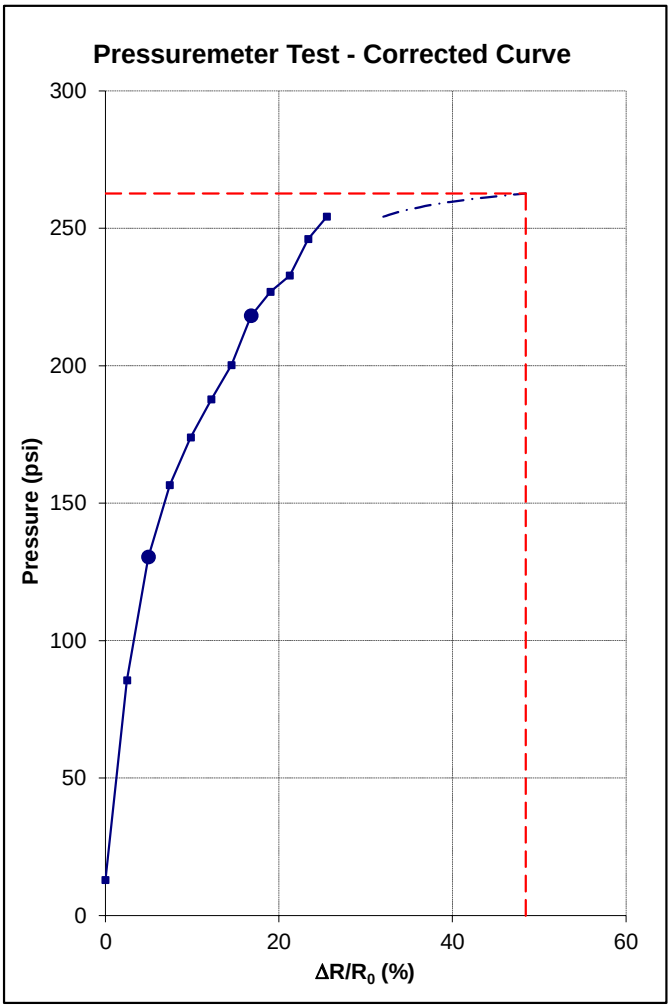
TEXAM Pressuremeter Test

Project name:	218019 P110S - TVA Substation	Use of a slotted casing:	No
Borehole name:	B-36	Test depth:	25.00 ft
Test date: (mm/dd/yyyy)	02/09/2022	Manometer height above ground:	2.00 ft
Test number:	B-36: 25'	Poisson's coefficient:	0.33
Probe size:	N	Fluid density:	1.110

Raw Readings		Corrected Readings			
Pressure psi	Volume in³	Pressure psi	Volume in³	$\Delta R/R_0$ %	
0	0.0	13	0.0	0.00	
74	6.1	86	5.8	2.48	
120	12.2	130	11.6	4.96	◄
146	18.3	157	17.6	7.41	
164	24.4	174	23.6	9.83	
179	30.5	188	29.7	12.20	
192	36.6	200	35.7	14.52	
211	42.7	218	41.7	16.79	◄
220	48.8	227	47.8	19.03	
226	54.9	233	53.9	21.24	
240	61.0	246	59.9	23.39	
248	67.1	254	66.0	25.52	

Remarks

Calibrations References: Low Cal Membrane
Soil Description: (ML) Silt, some Sand
Drilling method: Mud Rotary
Notes:



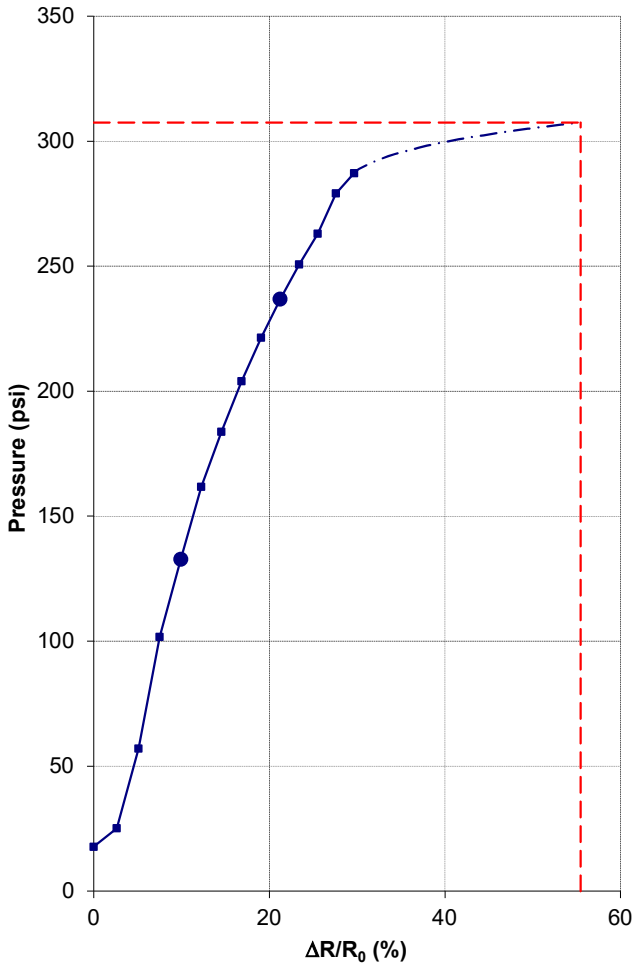
Test Results

Pressiometer modulus E:	**1,097 psi**
Ultimate pressure P_L:	**263 psi**
Ratio E / P_L:	4.17
Yield pressure P_F:	218 psi
Ratio P_L / P_F:	1.20

TEXAM Pressuremeter Test

Project name:	218019 P110S - TVA Substation	Use of a slotted casing:	No
Borehole name:	B-36	Test depth:	35.00 ft
Test date: (mm/dd/yyyy)	02/09/2022	Manometer height above ground:	2.00 ft
Test number:	B-36: 35'	Poisson's coefficient:	0.33
Probe size:	N	Fluid density:	1.110

Raw Readings		Corrected Readings			
Pressure psi	Volume in³	Pressure psi	Volume in³	$\Delta R/R_0$ %	
0	0.0	18	0.0	0.00	
9	6.1	25	6.1	2.61	
41	12.2	57	12.0	5.11	
87	18.3	102	17.9	7.52	
119	24.4	133	23.9	9.91	◄
148	30.5	162	29.8	12.25	
171	36.6	184	35.8	14.56	
192	42.7	204	41.8	16.82	
210	48.8	221	47.8	19.05	
226	54.9	237	53.9	21.24	◄
239	61.0	251	59.9	23.39	
252	67.1	263	65.9	25.51	
268	73.2	279	72.0	27.59	
276	79.3	287	78.0	29.64	



Remarks

Calibrations References: Low Cal Membrane
Soil Description: (SM) Silty Sand
Drilling method: Mud Rotary
Notes: Ballon on test cylinder torn on removal from ground

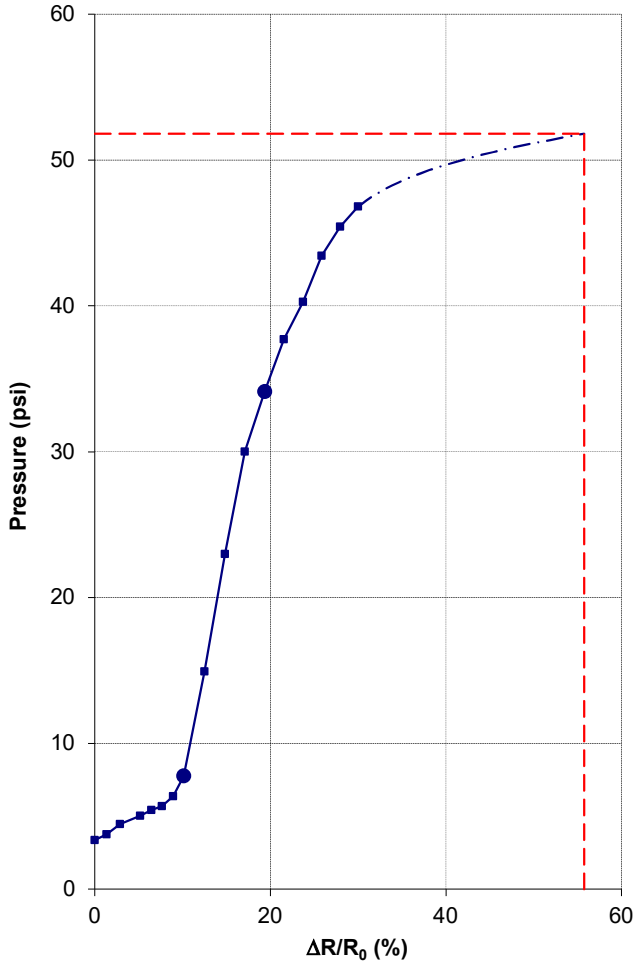
Test Results

Pressiometer modulus E:	**1,415 psi**
Ultimate pressure P_L:	**308 psi**
Ratio E / P_L:	4.60
Yield pressure P_F:	237 psi
Ratio P_L / P_F:	1.30

TEXAM Pressuremeter Test

Project name:	218019 P110S - TVA Substation	Use of a slotted casing:	No
Borehole name:	B-38	Test depth:	5.00 ft
Test date: (mm/dd/yyyy)	02/07/2022	Manometer height above ground:	2.00 ft
Test number:	B-38: 5'	Poisson's coefficient:	0.33
Probe size:	N	Fluid density:	1.110

Raw Readings		Corrected Readings		
Pressure psi	Volume in³	Pressure psi	Volume in³	$\Delta R/R_0$ %
0	0.0	3	0.0	0.00
1	3.1	4	3.0	1.32
3	6.7	4	6.7	2.88
4	12.2	5	12.2	5.18
5	15.3	5	15.2	6.44
5	18.3	6	18.3	7.68
6	21.4	6	21.3	8.91
8	24.4	8	24.4	10.12 ◄
16	30.5	15	30.4	12.50
25	36.6	23	36.5	14.82
32	42.7	30	42.6	17.11
37	48.8	34	48.6	19.35 ◄
41	54.9	38	54.7	21.55
44	61.0	40	60.8	23.72
47	67.1	43	66.9	25.85
49	73.2	45	73.0	27.94
50	79.3	47	79.1	30.00



Remarks

Calibrations References: Low Cal Membrane
Soil Description: (CL) Lean Clay, with Silt
Drilling method: Mud Rotary
Notes:

Test Results

Pressiometer modulus E:	**436 psi**
Ultimate pressure P_L:	**52 psi**
Ratio E / P_L:	8.43
Yield pressure P_F:	34 psi
Ratio P_L / P_F:	1.52

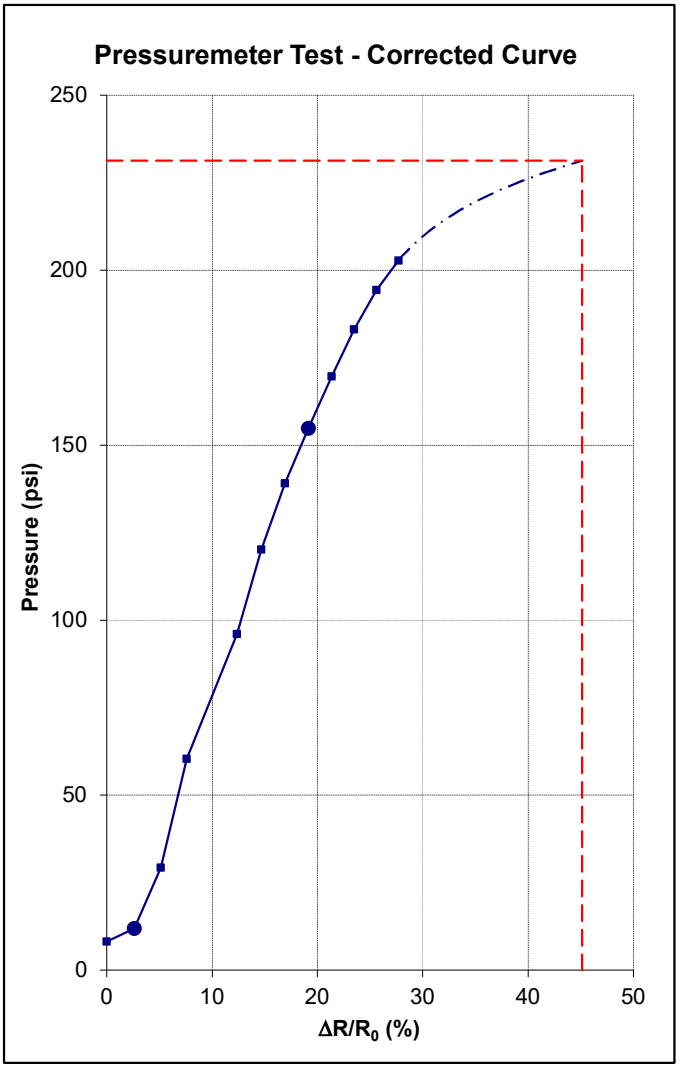
TEXAM Pressuremeter Test

Project name:	218019 P110S - TVA Substation	Use of a slotted casing:	No
Borehole name:	B-38	Test depth:	15.00 ft
Test date: (mm/dd/yyyy)	02/07/2022	Manometer height above ground:	2.00 ft
Test number:	B38: 15'	Poisson's coefficient:	0.33
Probe size:	N	Fluid density:	1.110

Raw Readings		Corrected Readings			
Pressure psi	Volume in³	Pressure psi	Volume in³	$\Delta R/R_0$ %	
0	0.0	8	0.0	0.00	
5	6.1	12	6.1	2.62	◄
23	12.2	29	12.1	5.14	
55	18.3	60	18.0	7.59	
92	30.5	96	30.1	12.36	
117	36.6	120	36.1	14.66	
136	42.7	139	42.1	16.92	
153	48.8	155	48.1	19.15	◄
168	54.9	170	54.1	21.34	
181	61.0	183	60.2	23.49	
193	67.1	194	66.2	25.61	
202	73.2	203	72.3	27.70	

Remarks

Calibrations References: Low Cal Membrane
Soil Description: (ML) Silt, with Sand
Drilling method: Mud Rotary
Notes:



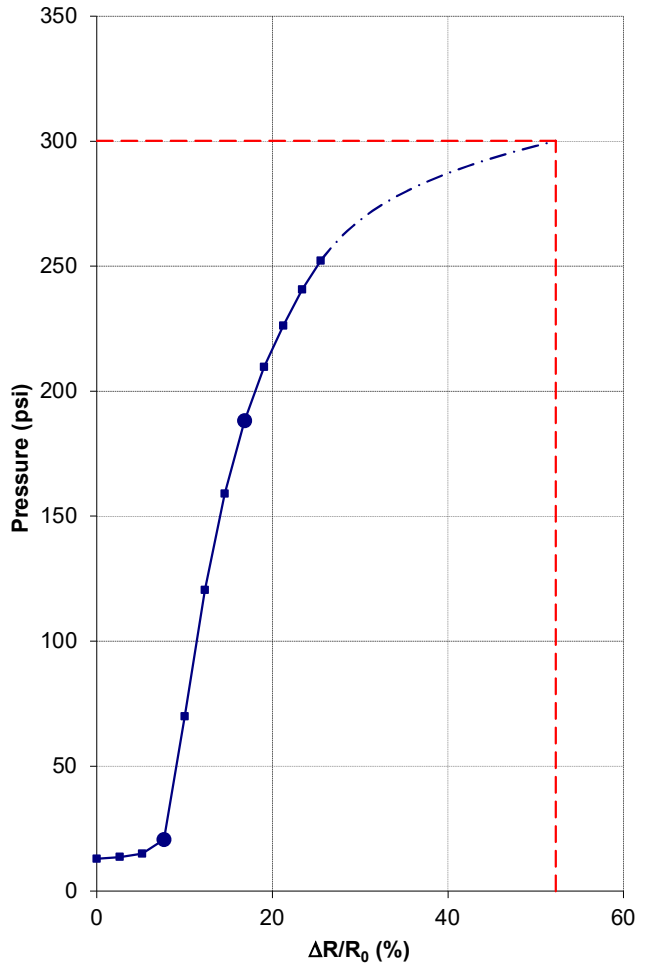
Test Results

Pressiometer modulus E:	**1,281 psi**
Ultimate pressure P_L:	**231 psi**
Ratio E / P_L:	5.54
Yield pressure P_F:	155 psi
Ratio P_L / P_F:	1.49

TEXAM Pressuremeter Test

Project name:	218019 P110S - TVA Substation	Use of a slotted casing:	No
Borehole name:	B-38	Test depth:	25.00 ft
Test date: (mm/dd/yyyy)	02/08/2022	Manometer height above ground:	2.00 ft
Test number:	B-38: 25'	Poisson's coefficient:	0.33
Probe size:	N	Fluid density:	1.110

Raw Readings		Corrected Readings			
Pressure psi	Volume in³	Pressure psi	Volume in³	$\Delta R/R_0$ %	
0	0.0	13	0.0	0.00	
2	6.1	14	6.1	2.62	
4	12.2	15	12.2	5.18	
11	18.3	21	18.3	7.67	◄
60	24.4	70	24.1	10.02	
112	30.5	121	30.0	12.32	
151	36.6	159	35.9	14.60	
181	42.7	188	41.9	16.84	◄
203	48.8	210	47.9	19.06	
220	54.9	226	53.9	21.25	
234	61.0	241	59.9	23.40	
246	67.1	252	66.0	25.52	



Remarks

Calibrations References: Low Cal Membrane
Soil Description: (ML) Silt, with Sand
Drilling method: Mud Rotary
Notes:

Test Results

Pressiometer modulus E:	**2,730 psi**
Ultimate pressure P_L:	**300 psi**
Ratio E / P_L:	9.10
Yield pressure P_F:	188 psi
Ratio P_L / P_F:	1.60

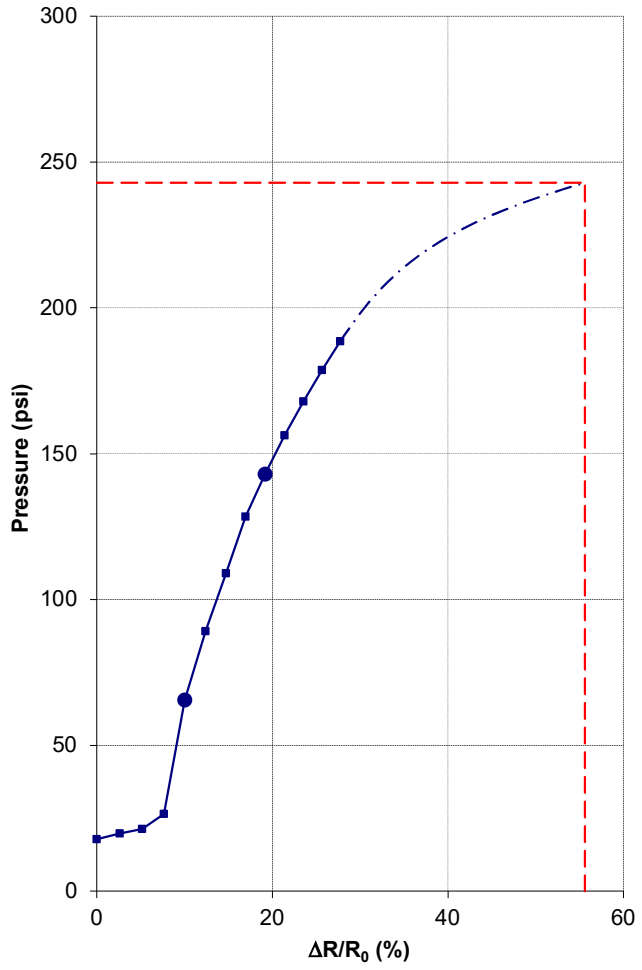
TEXAM Pressuremeter Test

Project name:	218019 P110S - TVA Substation	Use of a slotted casing:	No
Borehole name:	B-38	Test depth:	35.00 ft
Test date: (mm/dd/yyyy)	02/08/2022	Manometer height above ground:	2.00 ft
Test number:	B-38: 35'	Poisson's coefficient:	0.33
Probe size:	N	Fluid density:	1.110

Raw Readings		Corrected Readings			
Pressure psi	Volume in³	Pressure psi	Volume in³	$\Delta R/R_0$ %	
0	0.0	18	0.0	0.00	
4	6.1	20	6.1	2.62	
6	12.2	21	12.2	5.18	
12	18.3	26	18.3	7.67	
51	24.4	66	24.2	10.04	◄
76	30.5	89	30.2	12.39	
96	36.6	109	36.2	14.70	
116	42.7	128	42.2	16.96	
131	48.8	143	48.2	19.19	◄
145	54.9	156	54.2	21.38	
157	61.0	168	60.3	23.53	
168	67.1	179	66.3	25.65	
178	73.2	189	72.4	27.73	

Remarks

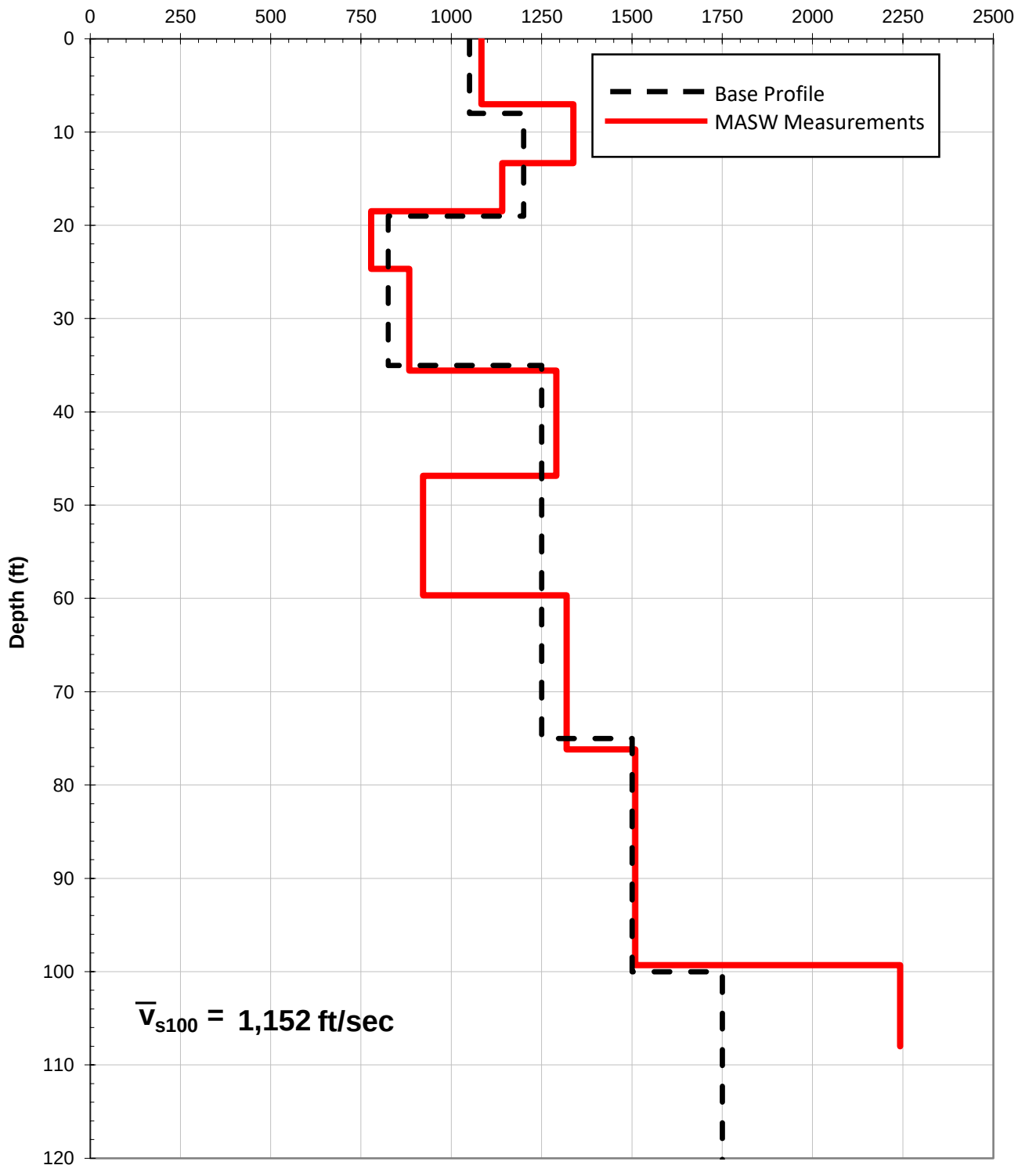
Calibrations References: Low Cal Membrane
Soil Description: (ML) Silt, with Sand
Drilling method: Mud Rotary
Notes:



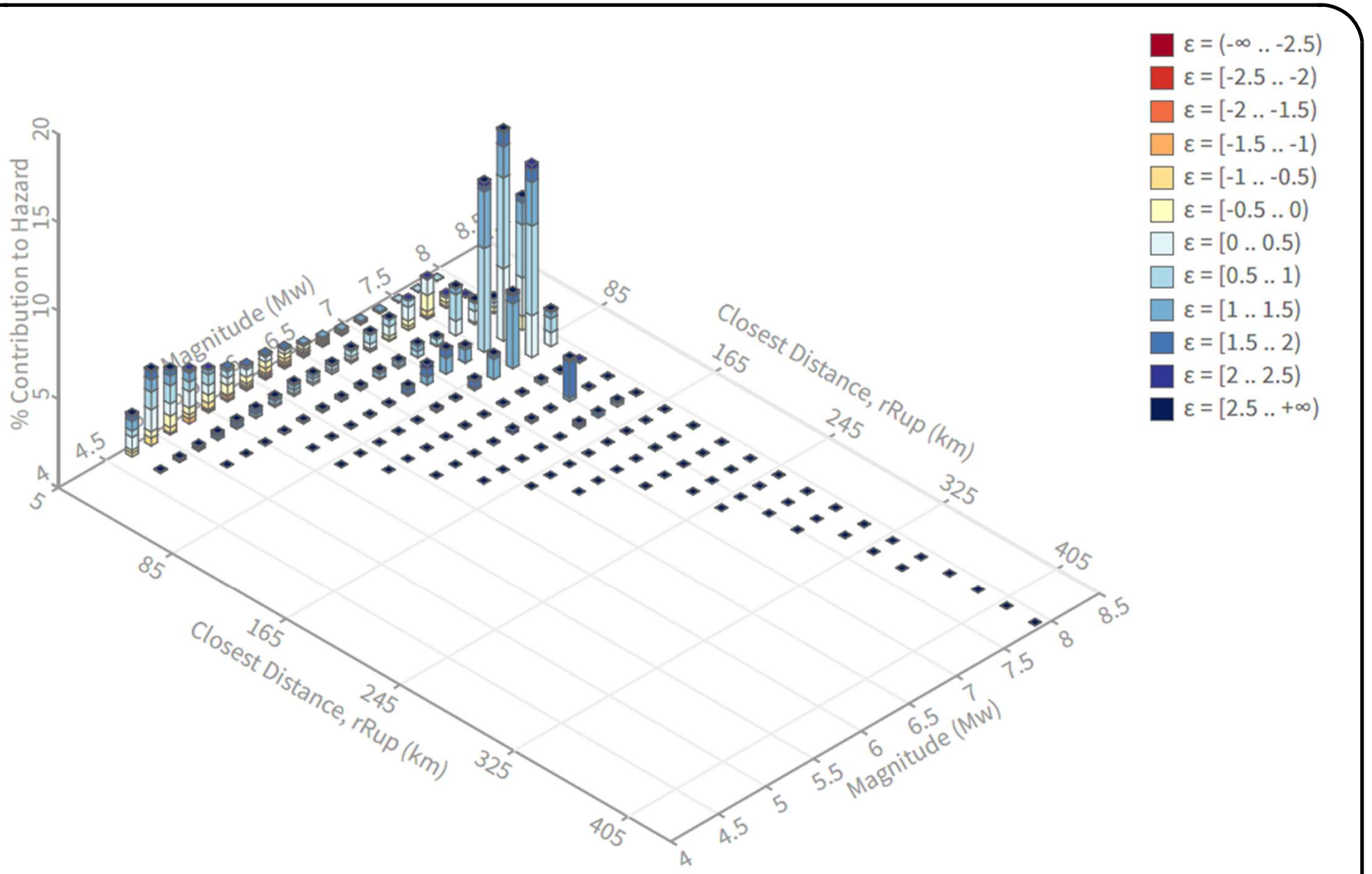
Test Results

Pressiometer modulus E:	**1,292 psi**
Ultimate pressure P_L:	**243 psi**
Ratio E / P_L:	5.32
Yield pressure P_F:	143 psi
Ratio P_L / P_F:	1.70

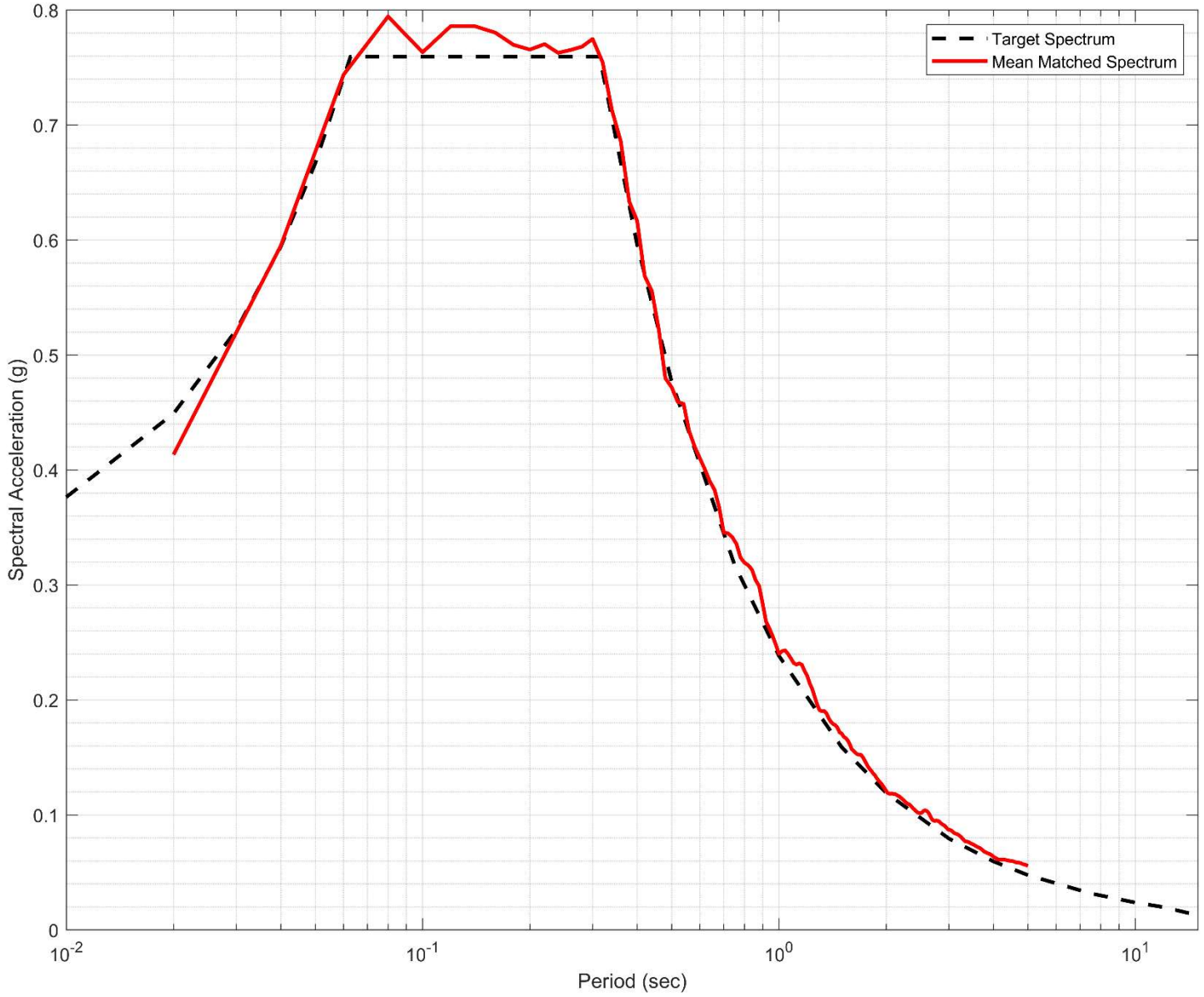
Shear Wave Velocity Profile SW-1
Ford Blue Oval City - TVA Substation
SR 222, Stanton, Tennessee
S&ME Project: 218019



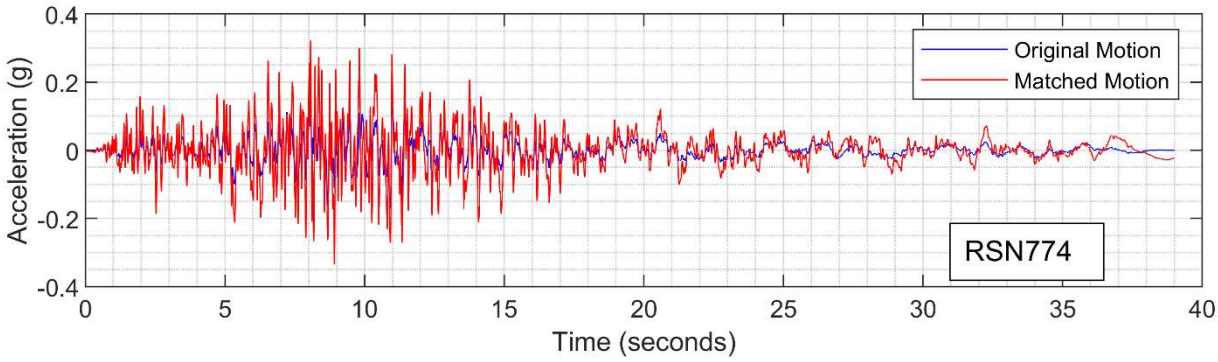
SHEAR WAVE VELOCITY PROFILES		DATE: 3-21-2022	FIGURE NO. 3
FORD BLUE OVAL CITY – TVA SUBSTATION STANTON, TENNESSEE		PROJECT NUMBER 218019	

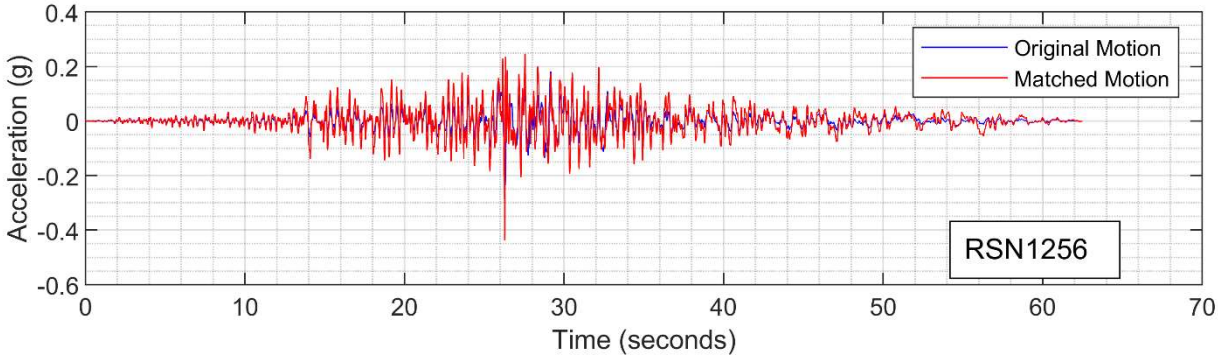


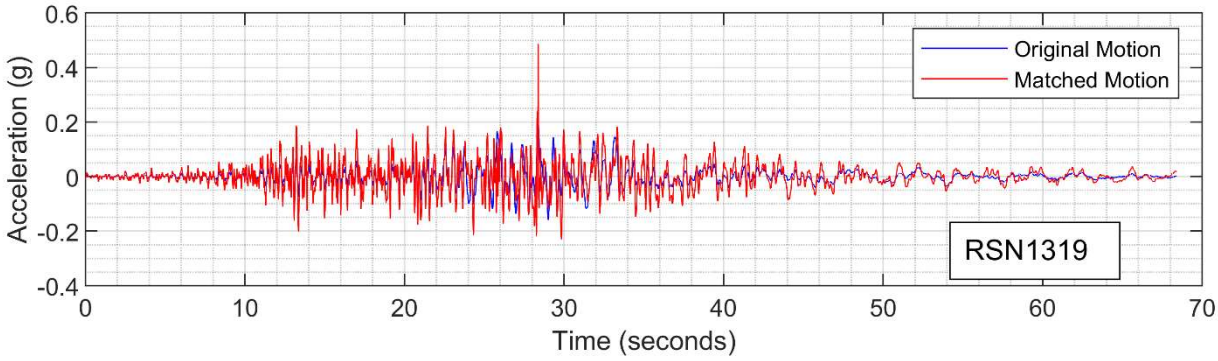
	SEISMIC HAZARD DEAGGREGATION, PEAK GROUND ACCELERATION	DATE: 3-21-2022	FIGURE NO. 4
	FORD BLUE OVAL CITY – TVA SUBSTATION STANTON, TENNESSEE	PROJECT NUMBER 218019	

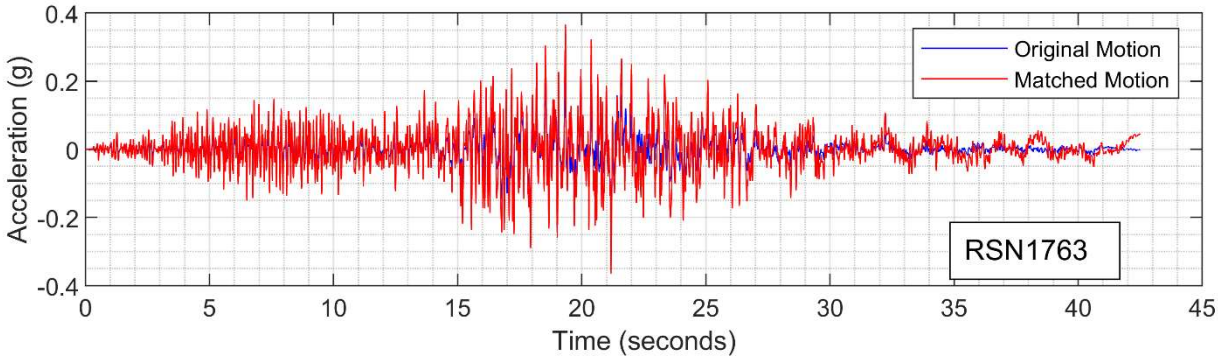


	SPECTRALLY MATCHED RECORDED MOTIONS B/C BOUNDARY	DATE: 3-21-2022	FIGURE NO. 5
	FORD BLUE OVAL CITY – TVA SUBSTATION STANTON, TENNESSEE	PROJECT NUMBER 218019	

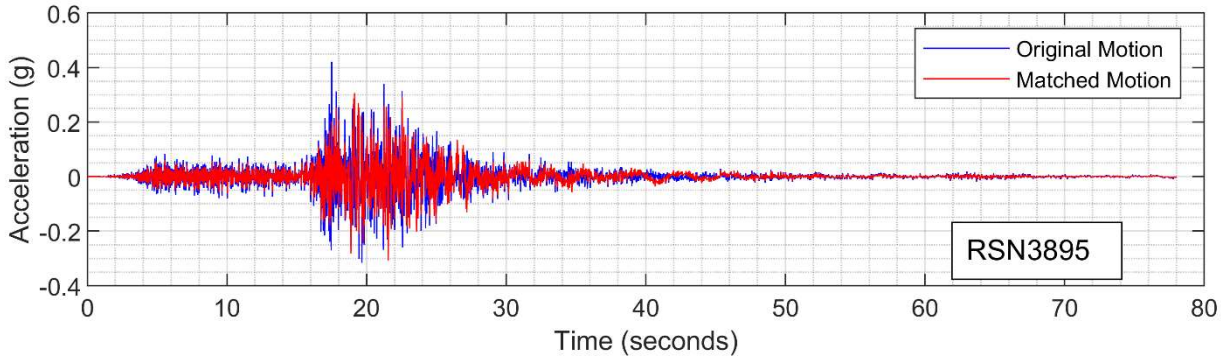


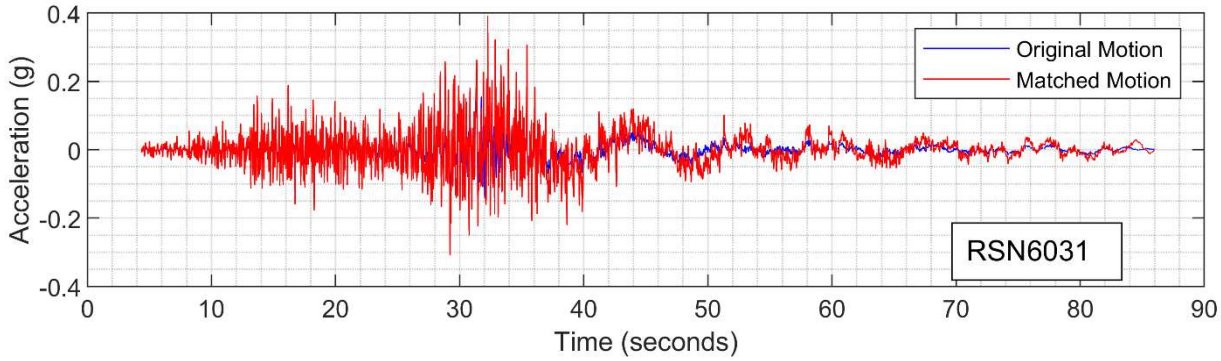


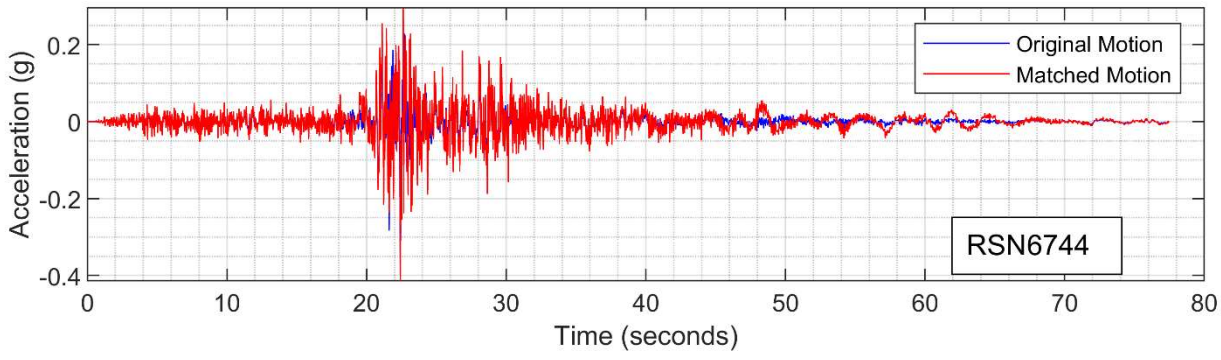




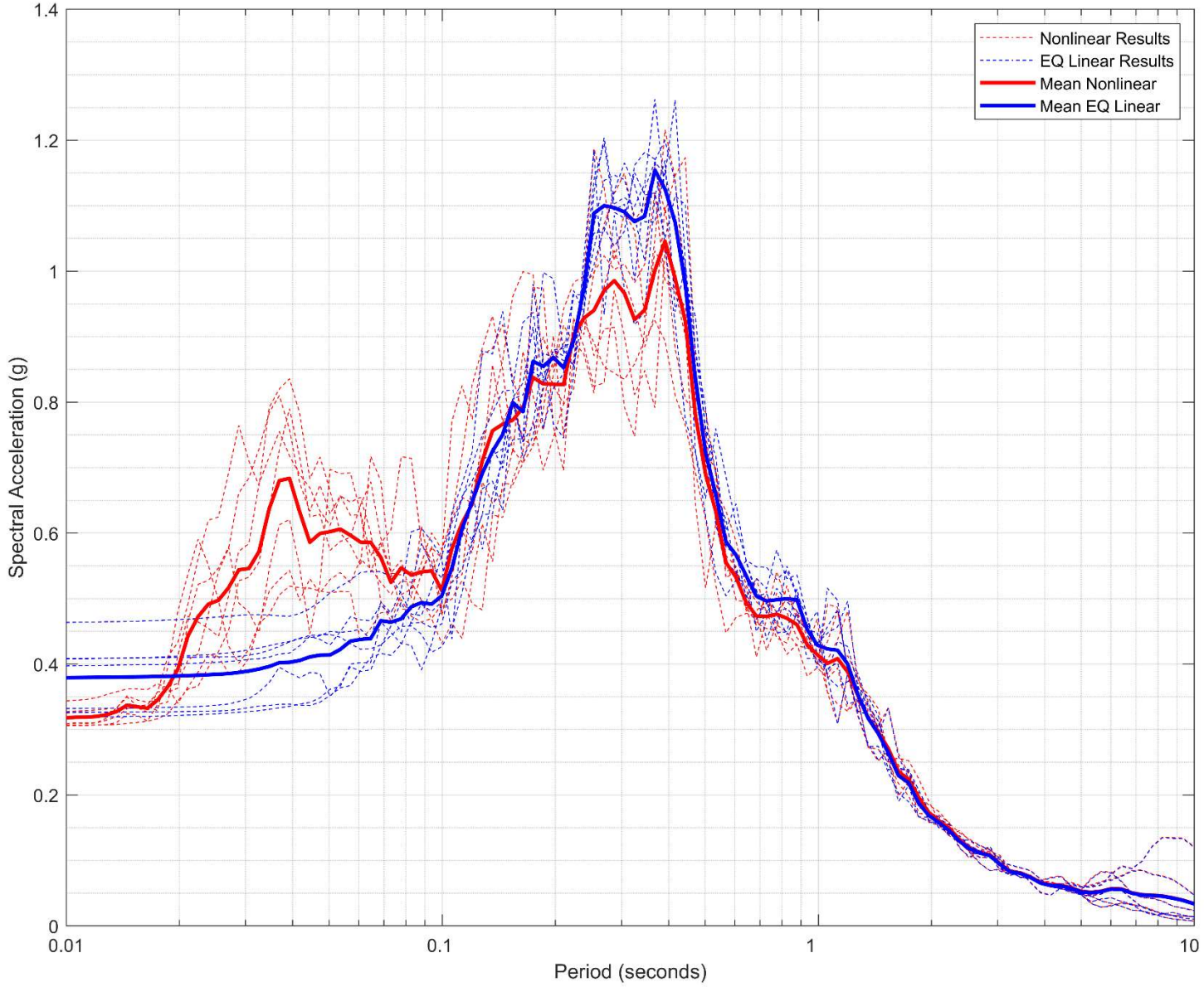
	SPECTRALLY MATCHED ACCELERATION TIME HISTORIES	DATE: 3-21-2022	FIGURE NO. 6
	FORD BLUE OVAL CITY – TVA SUBSTATION STANTON, TENNESSEE	PROJECT NUMBER 218019	







	SPECTRALLY MATCHED ACCELERATION TIME HISTORIES	DATE: 3-21-2022	FIGURE NO. 7
	FORD BLUE OVAL CITY – TVA SUBSTATION STANTON, TENNESSEE	PROJECT NUMBER 218019	



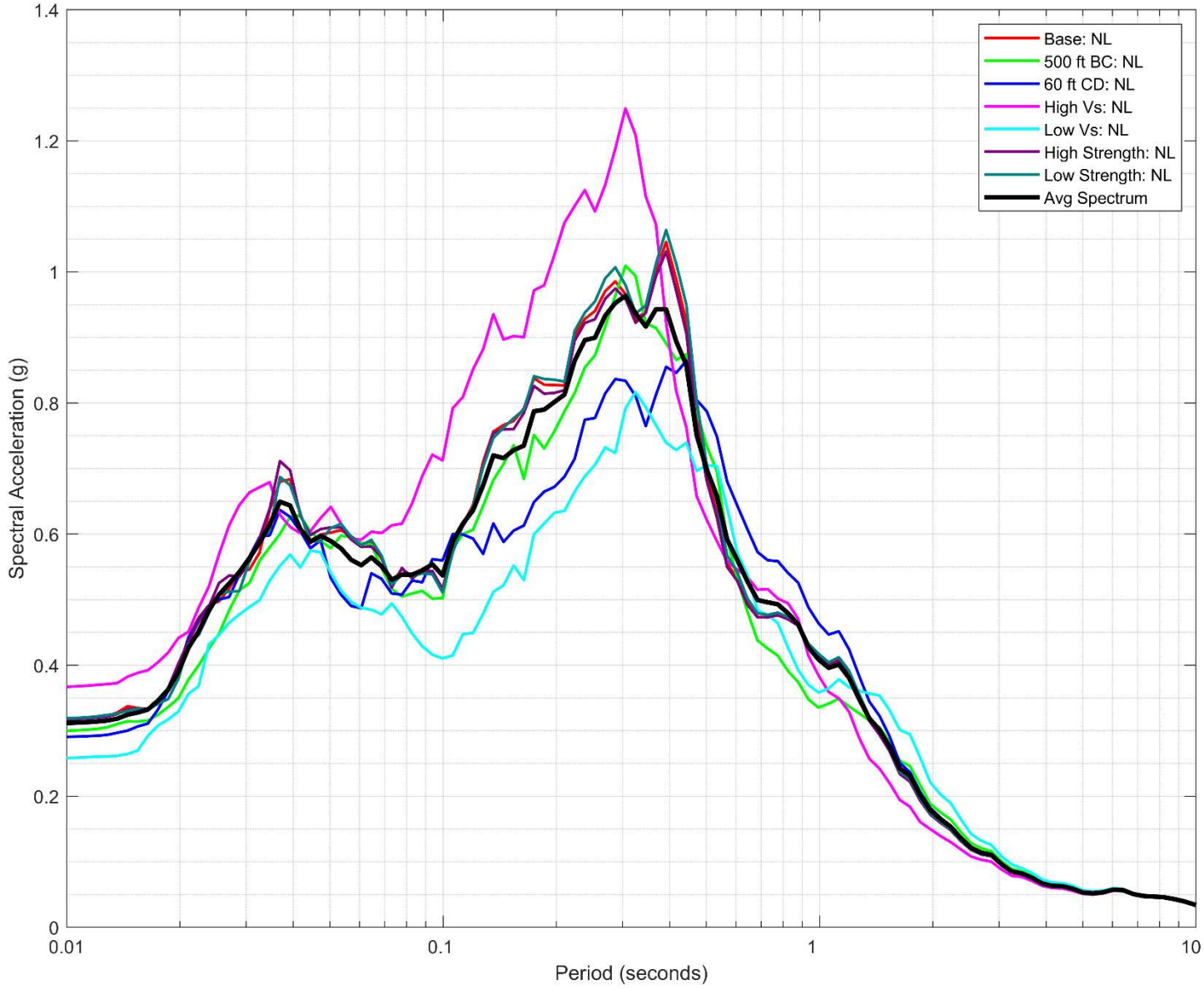
GROUND SURFACE REPSONSE SPECTRA FOR BASE PROFILE
1% PROBABILTY OF STRUCTURAL COLLAPSE IN 50 YEARS, 5% DAMPING

FORD BLUE OVAL CITY – TVA SUBSTATION
STANTON, TENNESSEE

DATE: 3-21-2022

PROJECT NUMBER 218019

FIGURE NO. 8



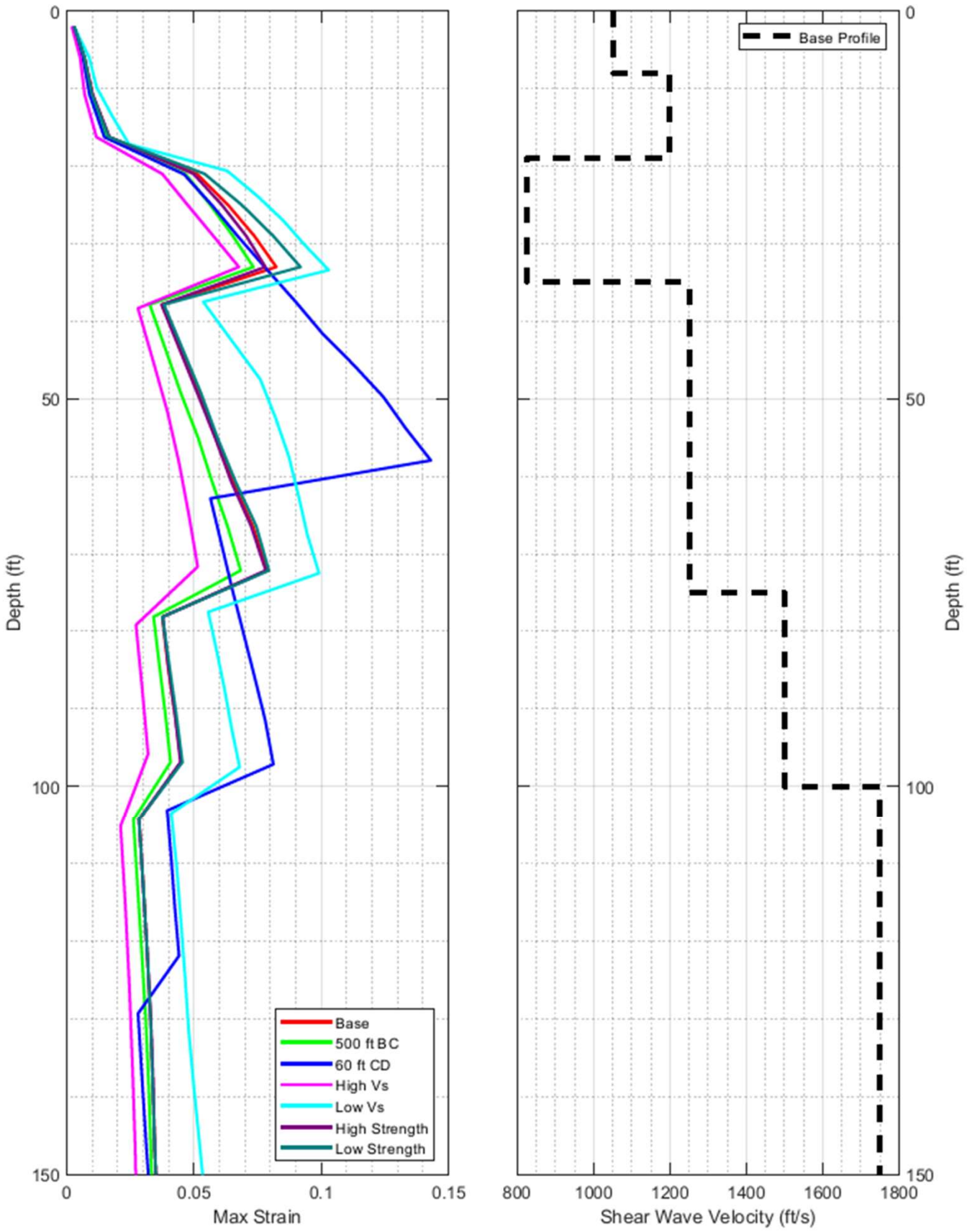
SURFACE AVERAGE RESPONSE SPECTRA
1% PROBABILTY OF STRUCTURAL COLLAPSE IN 50 YEARS, 5% DAMPING

FORD BLUE OVAL CITY – TVA SUBSTATION
STANTON, TENNESSEE

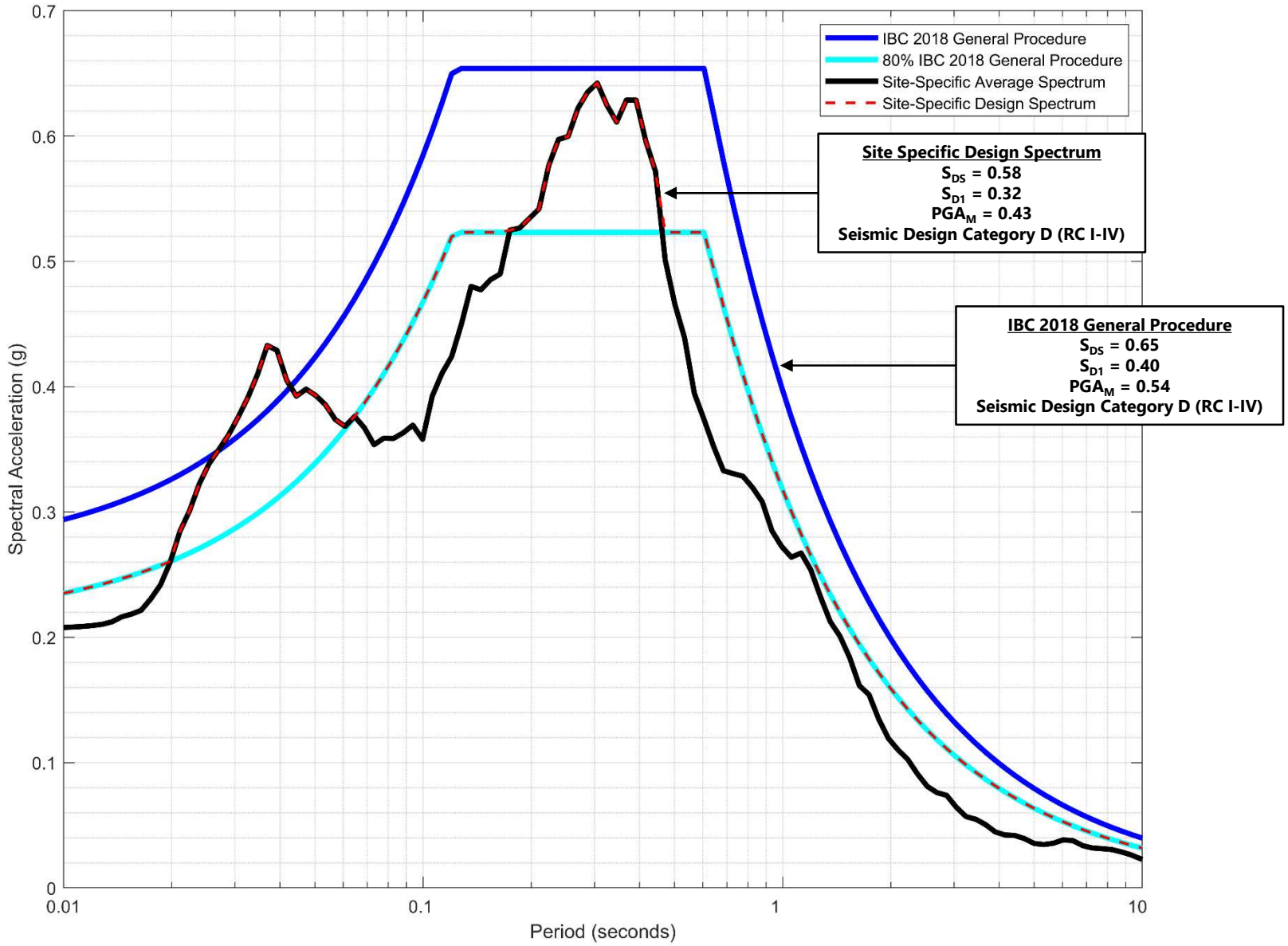
DATE: 3-21-2022

PROJECT NUMBER 218019

FIGURE NO. 9



	MAXIMUM STRAIN VERSUS DEPTH	DATE: 3-21-2022	FIGURE NO. 10
	FORD BLUE OVAL CITY – TVA SUBSTATION STANTON, TENNESSEE	PROJECT NUMBER 218019	



DESIGN ACCLERATION RESPONSE SPECTRA AT GROUND SURFACE
1% PROBABILTY OF STRUCTURAL COLLAPSE IN 50 YEARS, 5% DAMPING

FORD BLUE OVAL CITY – TVA SUBSTATION
STANTON, TENNESSEE

DATE: 3-21-2022

PROJECT NUMBER 218019

FIGURE NO. 11

Important Information About Your Geotechnical Engineering Report

Variations in subsurface conditions can be a principal cause of construction delays, cost overruns and claims. The following information is provided to assist you in understanding and managing the risk of these variations.

Geotechnical Findings Are Professional Opinions

Geotechnical engineers cannot specify material properties as other design engineers do. Geotechnical material properties have a far broader range on a given site than any manufactured construction material, and some geotechnical material properties may change over time because of exposure to air and water, or human activity.

Site exploration identifies subsurface conditions at the time of exploration and only at the points where subsurface tests are performed or samples obtained. Geotechnical engineers review field and laboratory data and then apply their judgment to render professional opinions about site subsurface conditions. Their recommendations rely upon these professional opinions. Variations in the vertical and lateral extent of subsurface materials may be encountered during construction that significantly impact construction schedules, methods and material volumes. While higher levels of subsurface exploration can mitigate the risk of encountering unanticipated subsurface conditions, no level of subsurface exploration can eliminate this risk.

Scope of Geotechnical Services

Professional geotechnical engineering judgment is required to develop a geotechnical exploration scope to obtain information necessary to support design and construction. A number of unique project factors are considered in developing the scope of geotechnical services, such as the exploration objective; the location, type, size and weight of the proposed structure; proposed site grades and improvements; the construction schedule and sequence; and the site geology.

Geotechnical engineers apply their experience with construction methods, subsurface conditions and exploration methods to develop the exploration scope. The scope of each exploration is unique based on available project and site information. Incomplete project information or constraints on the scope of exploration increases the risk of variations in subsurface conditions not being identified and addressed in the geotechnical report.

Services Are Performed for Specific Projects

Because the scope of each geotechnical exploration is unique, each geotechnical report is unique. Subsurface conditions are explored and recommendations are made for a specific project. Subsurface information and recommendations may not be adequate for other uses. Changes in a proposed structure location, foundation loads, grades, schedule, etc. may require additional geotechnical exploration, analyses, and consultation. The geotechnical engineer should be consulted to determine if additional services are required in response to changes in proposed construction, location, loads, grades, schedule, etc.

Geo-Environmental Issues

The equipment, techniques, and personnel used to perform a geo-environmental study differ significantly from those used for a geotechnical exploration. Indications of environmental contamination may be encountered incidental to performance of a geotechnical exploration but go unrecognized. Determination of the presence, type or extent of environmental contamination is beyond the scope of a geotechnical exploration.

Geotechnical Recommendations Are Not Final

Recommendations are developed based on the geotechnical engineer's understanding of the proposed construction and professional opinion of site subsurface conditions. Observations and tests must be performed during construction to confirm subsurface conditions exposed by construction excavations are consistent with those assumed in development of recommendations. It is advisable to retain the geotechnical engineer that performed the exploration and developed the geotechnical recommendations to conduct tests and observations during construction. This may reduce the risk that variations in subsurface conditions will not be addressed as recommended in the geotechnical report.