ECS Southeast, LLC

Geotechnical Engineering Report

NCCF Roadway

Hwy 24
Newport, Carteret County, North Carolina

ECS Project No. 22:37080

January 14, 2026

January 14, 2026

Mr. Chris Fay
Chambliss & Rabil Construction Co., Inc.
821 Country Club Road
Rocky Mount, NC 27804

ECS Project No. 22:37080

Reference: Geotechnical Engineering Report
NCCF Roadway
Hwy 24
Newport, Carteret County, North Carolina

Dear Mr. Fay:

ECS Southeast, LLC (ECS) has completed the subsurface exploration and geotechnical engineering evaluation for the above-referenced project. Our services were performed in general accordance with our agreed upon scope of work. This report presents our understanding of the geotechnical aspects of the project along with the results of the field exploration and our design and construction recommendations.

It has been our pleasure to be of service during the design phase of this project. We would appreciate the opportunity to remain involved during the continuation of the design phase, and also provide our services during construction phase operations to verify the subsurface conditions encountered in the exploration for this report. Should you have any questions concerning the information contained in this report, or if we may be of further assistance to you, please contact us.

Respectfully submitted,

ECS Southeast, LLC

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APPENDICES

EXECUTIVE SUMMARY

The following summarizes the main findings of the exploration, particularly those that may have a cost impact on the planned construction. Information gleaned from the executive summary should not be utilized in lieu of reading the entire geotechnical report.

- The geotechnical exploration performed for the site included eight (8) hand auger borings with Kessler Dynamic Cone Penetrometer (DCP) tests advanced to termination depths of 4 feet within the footprint of the proposed roadway.

- Due to the near surface loose soils encountered at the hand auger boring locations, in-place densification or undercutting should be anticipated to depths of up to 2 feet. Undercut areas should be backfilled with approved Structural Fill prior to the construction of pavements.

- Provided our subgrade preparation and in-place soil densification recommendations are followed, we recommend an estimated preliminary CBR value of 10 for the design of pavements.

- Groundwater was encountered in hand auger borings K-01 and K-02 at depths of approximately 2.5 and 3 feet.

1.0 INTRODUCTION

The purpose of this study was to provide geotechnical information for the design of the proposed roadway located off NC 24 in Newport, Carteret County, North Carolina. The recommendations developed for this report are based on project information supplied by Mr. Chris Fay and Ashely Bennett.

Our services were provided in accordance with our Proposal No. 22:30298, dated October 30, 2025.

This report contains the procedures and results of our subsurface exploration program, review of existing site conditions, engineering evaluation, and recommendations for the design and construction of the project.

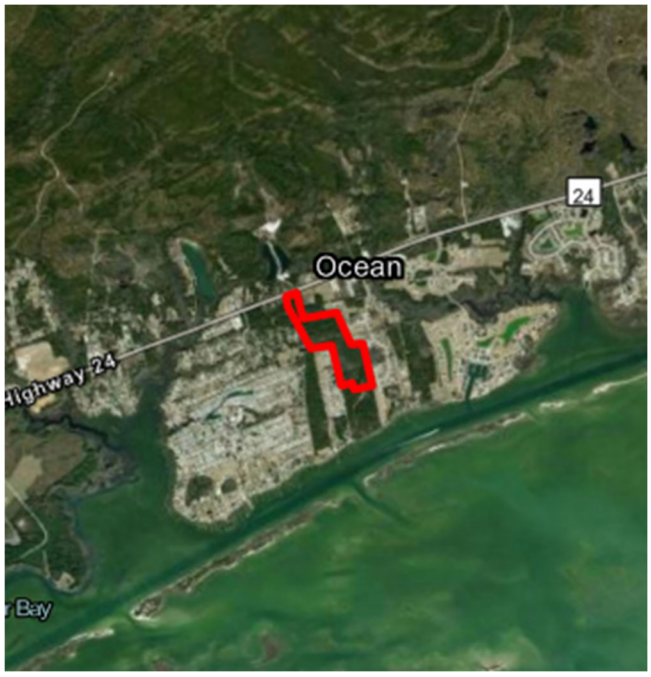
The report includes the following items.

- A brief review and description of our field test procedures and the results of testing conducted;
- A review of surface topographical features and site conditions;
- A review of subsurface soil stratigraphy with pertinent available physical properties;
- Site vicinity map;
- Exploration location plan;
- Hand auger boring logs;
- Kessler DCP logs;
- Site development recommendations;
- Pavement design recommendations;
- Reusability of soils for use as fill material;
- Discussion of groundwater impacts; and
- Compaction recommendations.

2.0 PROJECT INFORMATION

2.1 PROJECT LOCATION

The project site is located off NC 24 in Newport, Carteret County, North Carolina. The site is bounded on the north by NC 24, on the east and west by residential land, and on the south by undeveloped wooded land and the proposed NCCF facility. The figure below shows an aerial image of the site. A Site Location Diagram (Figure 1) is included in Appendix A.



Site Location

At the time of our exploration, the site consisted of undeveloped wooded land with access pathways. Based on our site visit and approximate elevations from Google Earth, the topography of the site varies with elevations ranging from approximately 15 to 28 feet.

2.2 PROPOSED CONSTRUCTION

ECS understands the project consists of the construction of a new 0.75 mile roadway from NC 24 to the NCCF boat ramp and facility.

3.0 FIELD EXPLORATION AND LABORATORY CLASSIFICATION

Our scope of work included performing eight (8) hand auger borings with Kessler Dynamic Cone Penetrometer (DCP) tests. Our approximate test locations are shown on the Exploration Location Diagram (Figure 2) in Appendix A. Our exploration procedures are explained in greater detail in Appendix B.

3.1 SUBSURFACE CHARACTERIZATION

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

The subsurface conditions encountered were generally consistent with the published geological mapping. The following table provides a generalized characterization of the soils encountered in the hand auger borings. Please refer to the hand auger boring logs in Appendix B.

Subsurface Stratigraphy

Approximate Depth Range (feet)	Stratum	Description
0 to (0 to 0.33) (Surface cover)	N/A	The hand auger boring encountered approximately 0 to 4 inches of topsoil on-site. Deeper topsoil or organic laden soils are likely present in wet, poorly drained areas and potentially unexplored areas of the site.
(0 to 0.33) to 4	I	Silty and Clean SAND (SM, SP), moist to saturated.

3.2 GROUNDWATER OBSERVATIONS

Groundwater was encountered in hand auger borings K-01 and K-02 at approximate depths of 2.5 and 3 feet. Groundwater was not evident in the remaining hand auger borings at the depths explored. Variations in the long-term water table may occur as a result of changes in precipitation, evaporation, surface water runoff, construction activities, and other factors.

3.3 LABORATORY CLASSIFICATION

The samples recovered from the hand auger borings were visually classified on the basis of texture and plasticity in accordance with ASTM D2488 Standard Practice for Description and Identification of Soils (Visual-Manual Procedures) and including USCS classification symbols, and ASTM D2487 Standard Practice for Classification for Engineering Purposes (Unified Soil Classification System [USCS]). After classification, the samples were grouped in the major zones noted on the boring logs in Appendix B. The group symbols for each soil type are indicated in parentheses along with the soil descriptions. The stratification lines between strata on the logs are approximate; in situ, the transitions may be gradual.

4.0 PAVEMENT RECOMMENDATIONS

Subgrade Characteristics: Based on the results of our hand auger borings, it appears that the pavement subgrades will likely consist mainly of Stratum I SAND (SP, SM) or Structural Fill. Due to the near surface loose soils encountered at the hand auger boring locations, in-place densification or undercutting should be anticipated to depths of up to 2 feet followed by backfilling with approved Structural Fill prior to the construction of pavements.

Based on the results of the Kessler DCP testing, and provided our subgrade preparation and in-place soil densification recommendations are followed, we recommend an estimated preliminary CBR value of 10 for the design of pavements.

Preliminary Pavement Sections: We were not provided traffic loading information. Therefore, we have estimated loadings typical of this type of project. Our recommended pavement sections are based on up to 25,000 ESALs over a 20-year design life for light duty and up to 75,000 ESALs over a 20 year design life for heavy duty.

The preliminary pavement sections below are guidelines that may or may not comply with local jurisdictional minimums.

PRELIMINARY PAVEMENT SECTIONS		
	FLEXIBLE PAVEMENT	
MATERIAL	**Light Duty**	**Heavy Duty**
Asphalt Surface Course	2.0 in	2.5 in
Aggregate Base Course (ABC)	6 in	8 in

When traffic loading information becomes available, either ECS or the Civil Engineer can design the pavements. In addition, prior to subbase placement and paving, CBR testing of the actual subgrade soils (both natural and fill soils) should be performed to evaluate the soil engineering properties for final pavement design

In general, heavy duty sections are areas that will likely be subjected to trucks, buses, or other similar vehicles. Light duty sections are appropriate for vehicular traffic and parking areas.

Large, front loading trash dumpsters frequently impose concentrated front wheel loads on pavements during loading. This type of loading typically results in rutting of asphalt pavement and ultimately pavement failures. For preliminary design purposes, we recommend that the pavement in trash pickup areas (if any) consist of a 6-inch-thick, 4,000 psi reinforced concrete slab underlain by 6 inches of graded aggregate base course (ABC).

The soil subgrade should be smooth-rolled and proofrolled prior to ABC placement. Areas that pump, rut, or are otherwise unstable should be re-compacted or undercut and replaced. The ABC should conform to the gradation, liquid limit, plasticity index, resistance to abrasion, and soundness per Section 1005 of the 2024 NCDOT Standard Specifications for Roads and Structures.

The ABC should be placed and be compacted in accordance with Section 520 of the 2024 NCDOT Standard Specifications for Roads and Structures. The ABC should be placed in a single lift. It should be spread after end-dumping on previously placed ABC to prevent rutting and degradation of the relatively clean sand subgrade soils by rubber-tired dump trucks. The ABC should be compacted to at least 98 percent of modified Proctor maximum dry density per ASTM D1557 or AASHTO T180 (as modified by NCDOT), provided nuclear density testing is performed. Otherwise, at least 100 percent compaction is recommended.

To confirm that the specified degree of compaction is being obtained, field compaction testing should be performed in each ABC lift by the ECS representative. We recommend that compaction tests be performed at a minimum frequency of one test per 5,000 square feet per lift in pavement areas.

Minimum Material Lift Thickness: The minimum lift thickness for asphalt surface course mix S9.5B is 1.0 inch and the maximum lift thickness for S9.5B is 1.5 inches. For sections with more than 1.5 inches of S9.5B surface asphalt, it should be placed in two lifts. Asphalt pavement S9.5B should be compacted to least 90.0 percent of the material's specific gravity G_{mm}.

Drainage: An important consideration with the design and construction of pavements is surface and subsurface drainage. Where standing water develops, either on the pavement surface or within the aggregate base course layer, softening of the subgrades and other problems related to the deterioration of the pavement can be expected. Furthermore, good drainage should help reduce the possibility of the subgrade materials becoming saturated during the normal service period of the pavement. A minimum distance of 18 inches should be maintained between the bottom of the pavement section and the groundwater table.

5.0 SITE CONSTRUCTION RECOMMENDATIONS

5.1 SUBGRADE PREPARATION

5.1.1 Stripping and Grubbing

The subgrade preparation should consist of stripping vegetation, rootmat, topsoil, existing fill, and soft or loose materials from the 5-foot expanded pavement limits. The hand auger borings performed in "undisturbed" areas of the site observed approximately 0 to 4 inches of topsoil. Deeper topsoil or organic laden soils may be present in wet, low-lying, and poorly drained areas. ECS should be retained to verify that topsoil, and substandard surficial materials have been removed prior to the placement of Structural Fill or construction of pavements.

5.1.2 Proofrolling

Prior to fill placement or other construction on subgrades, the subgrades should be evaluated by an ECS field technician. The exposed subgrade should be proofrolled with construction equipment having a minimum axle load of 10 tons [e.g., tandem-axle dump truck loaded to capacity]. Proofrolling should be traversed in two perpendicular directions with overlapping passes of the vehicle under the observation of an ECS technician. This procedure is intended to assist in identifying localized yielding materials.

Where proofrolling identifies subgrades that are unsteady or "pumping," those areas should be repaired prior to the placement of subsequent Structural Fill or other construction materials. Methods of stabilization include undercutting and moisture conditioning. The situation should be discussed with ECS to evaluate the appropriate procedure. Test pits may be excavated to explore the shallow subsurface materials to help in evaluating the cause of the observed unsteady materials, and to assist in the evaluation of appropriate remedial actions to stabilize the subgrade.

5.1.3 Site Dewatering

Groundwater was encountered in hand auger borings K-01 and K-02 at approximate depths of 2.5 and 3 feet. Dewatering that may be necessary during construction can likely be accomplished by the use of conventional submersible pumps directly in temporary trenches.

If temporary sump pits are used, we recommend they be established at an elevation one to two feet below the bottom of the pavement subgrade. A perforated 55 gallon drum or other temporary structure could be used to house the pump. We recommend continuous dewatering of the excavations using electric pumps or manned gasoline pumps be used during construction.

If dewatering operations are performed at the site, ECS recommends that they be performed in accordance with Local, State, and Federal Government regulatory requirements for surface water discharges. ECS would be pleased to be consulted by the client on those requirements, if requested.

5.2 EARTHWORK OPERATIONS

5.2.1 Structural Fill

Prior to placement of Structural Fill, representative bulk samples (about 50 pounds) of on-site and/or off-site borrow should be submitted to ECS for laboratory testing, which will typically include natural moisture content, Atterberg limits, grain-size distribution, and moisture-density relationships (i.e., Proctors) for compaction. Import materials should be tested prior to being hauled to the site to evaluate if they meet project specifications. Alternatively, Proctor data from other accredited laboratories can be submitted if the test results are within the past 90 days.

Satisfactory Structural Fill Materials: Materials satisfactory for use as Structural Fill should consist of inorganic soils with the following engineering properties and compaction requirements.

STRUCTURAL FILL INDEX PROPERTIES	
Subject	**Property**
Building and Pavement Areas	LL < 40, PI<10
Maximum Particle Size	3 inches
Fines Content (% passing the No. 200 sieve)	Maximum 20 %
Maximum Organic Content	5% by dry weight

STRUCTURAL FILL COMPACTION REQUIREMENTS	
Subject	**Requirement**
Compaction Standard	Standard Proctor (ASTM D698)
Required Compaction	98% of Maximum Dry Density
Dry Unit Weight	>100 pcf
Moisture Content	-2 to +2 % points of the soil's optimum value
Loose Thickness	8 inches prior to compaction

On-Site Borrow Suitability: Natural deposits of fill material are present near surface in some areas of the site. The on-site near surface sands (SP, SM) found across the site with fines contents less than 20 percent should meet the recommendations for re-use as Structural Fill.

Fill Placement: Fill materials should not be placed on frozen soils, on frost-heaved soils, and/or on excessively wet soils. Borrow fill materials should not contain frozen materials at the time of placement, and frozen or frost-heaved soils should be removed prior to placement of Structural Fill or other fill soils and aggregates. Excessively wet soils or aggregates should be scarified, aerated, and moisture conditioned.

5.3 UTILITY INSTALLATIONS

Utility Subgrades: The soils encountered in our exploration are expected to be generally adequate for support of utility pipes. The pipe subgrades should be observed and probed for stability by ECS. Loose or

unsteady materials encountered should be removed and replaced with Structural Fill or pipe stone bedding material.

Utility Backfilling: The granular bedding material (AASHTO No. 57 stone) should be 4 inches thick, but not less than that specified by the civil engineer's project drawings and specifications. We recommend that the bedding materials be placed up to the springline of the pipe. Fill placed for support of the utilities, as well as backfill over the utilities, should meet the requirements for Structural Fill and fill placement.

Excavation Safety: Excavations and slopes should be constructed and maintained in accordance with OSHA excavation safety standards. The contractor is solely responsible for designing, constructing, and maintaining steady temporary excavations and slopes. The contractor's responsible person, as defined in 29 CFR Part 1926, should evaluate the soil exposed in the excavations as part of the contractor's safety procedures. The slope height, slope inclination, or excavation depth, including utility trench excavation depth, should not exceed those specified in local, state, and federal safety regulations. ECS is providing this information solely as a service to our client. ECS is not assuming responsibility for construction site safety or the contractor's activities; such responsibility is not being implied and should not be inferred.

6.0 CLOSING

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

The description of the proposed project is based on information provided to ECS by Mr. Chris Fay with Chambliss & Rabil Construction Co., Inc. If this information is not accurate or changes, either because of our interpretation of the documents provided or site or design changes that may occur later, ECS should be contacted so we can review our recommendations and provide additional or alternate recommendations that reflect the proposed construction.

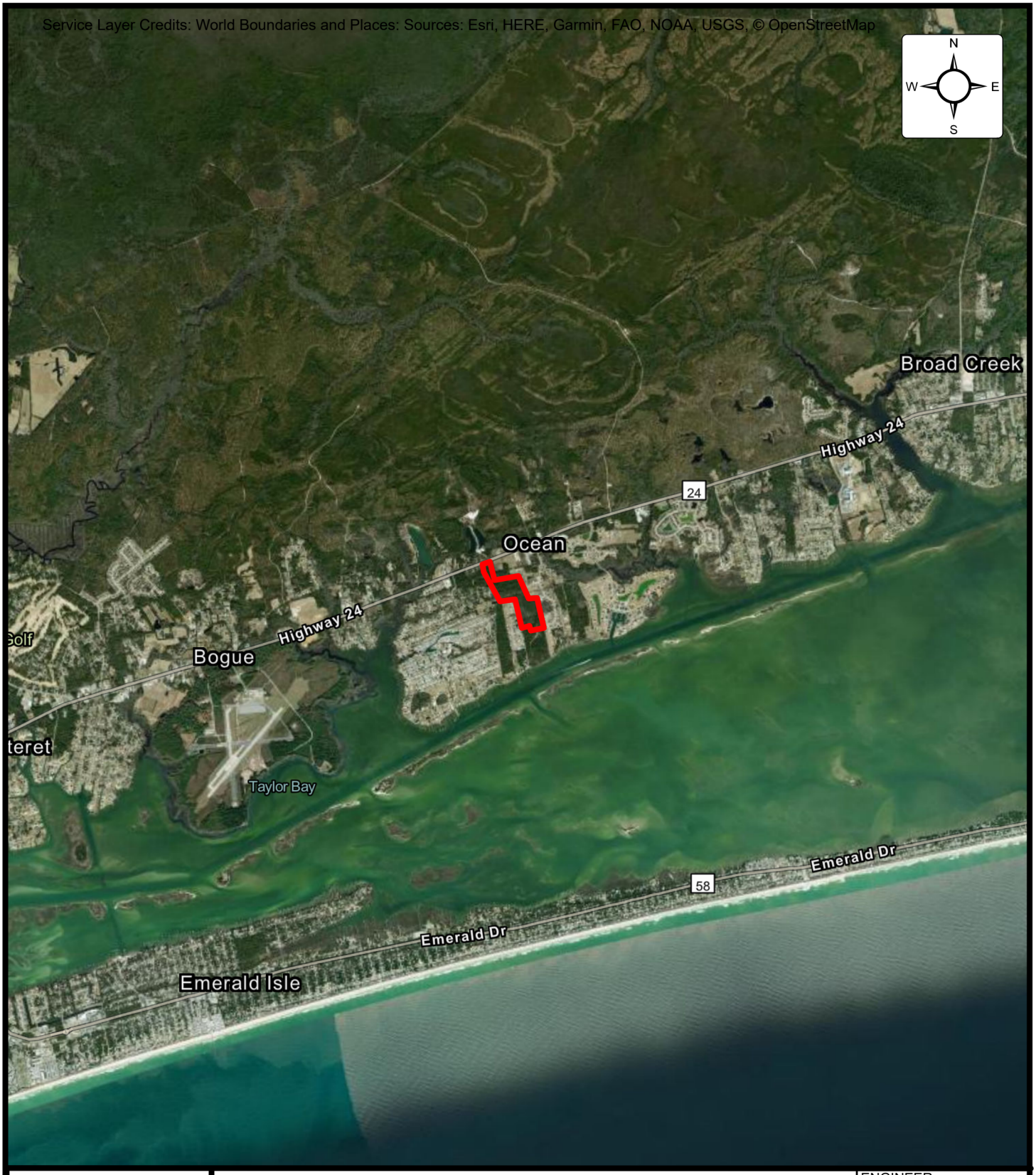
We recommend that ECS review the project plans and specifications so we can confirm that those plans/specifications are in accordance with the recommendations of this geotechnical report.

Field observations and quality assurance testing during earthwork and pavement construction operations are an extension of, and integral to, the geotechnical design. We recommend that ECS be retained to apply our expertise throughout the geotechnical phases of construction, and to provide consultation and recommendation should issues arise.

ECS is not responsible for the conclusions, opinions, or recommendations of others based on the data in this report.

APPENDIX A – Diagrams & Reports

Site Location Diagram
Exploration Location Diagram

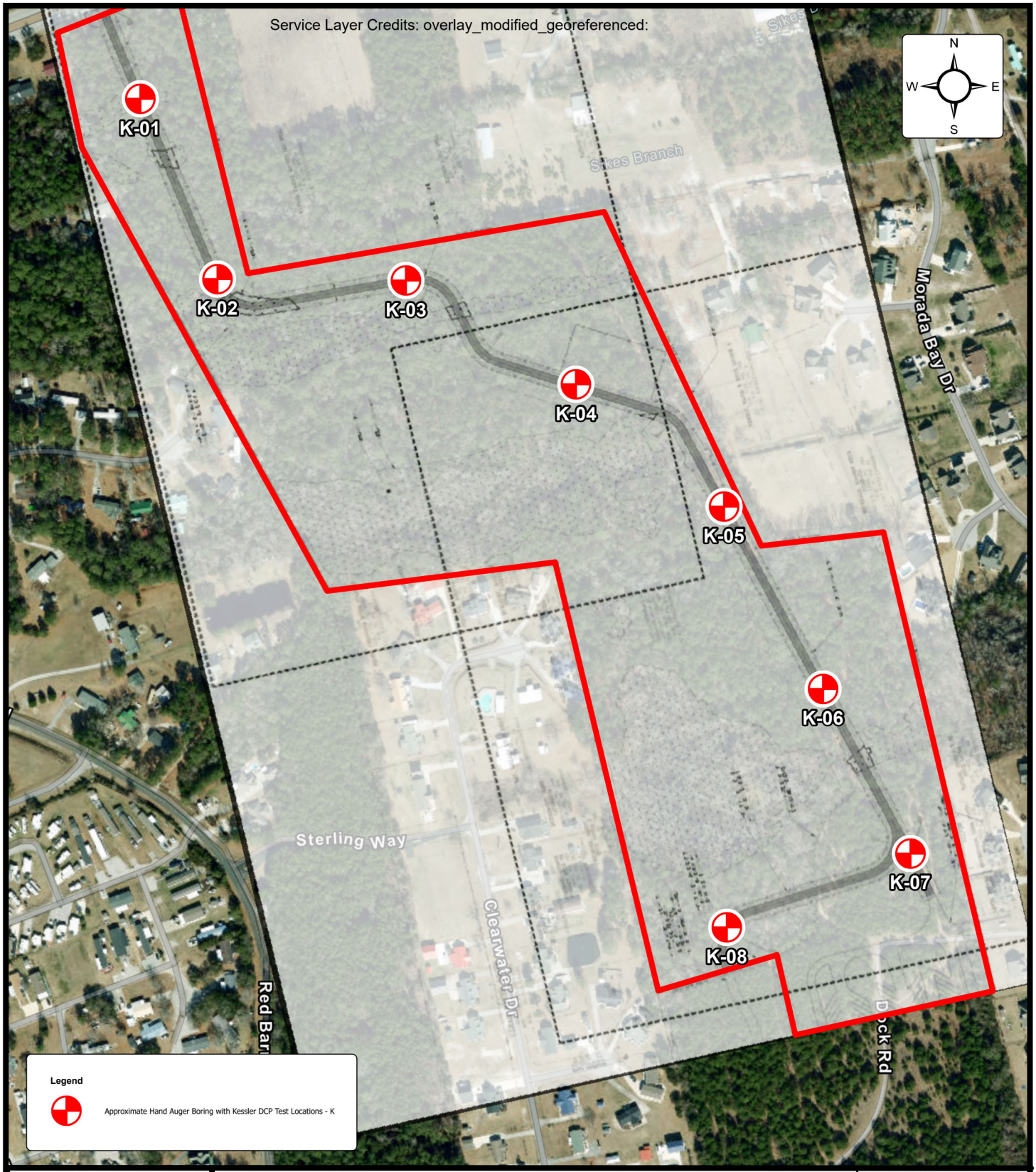


SITE LOCATION DIAGRAM
NCCF Roadway

morada Bay Dr, Newport, North Carolina

Chambliss & Rabil Construction Co Inc.

ENGINEER	JK01
SCALE	1" = 1mi
PROJECT NO.	22:37080
SHEET	1 of 2
DATE	1/13/2026



BORING LOCATION DIAGRAM
NCCF Roadway

morada Bay Dr, Newport, North Carolina

Chambliss & Rabil Construction Co Inc.

ENGINEER	JK01
SCALE	1" = 350'
PROJECT NO.	22:37080
SHEET	2 of 2
DATE	1/13/2026

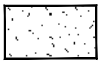
APPENDIX B – Field Operations

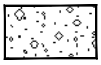
Reference Notes for Boring Logs
Hand Auger Boring Logs (K-1 through K-8)
Kessler DCP Test Logs (K-1 through K-8)

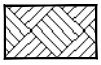
REFERENCE NOTES FOR BORING LOGS

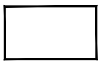
MATERIAL[1,2]

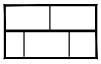

ASPHALT


CONCRETE


GRAVEL

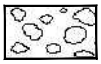

TOPSOIL

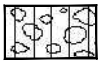

VOID


BRICK

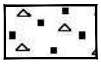

AGGREGATE BASE COURSE

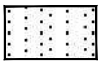

GW **WELL-GRADED GRAVEL**
gravel-sand mixtures, little or no fines

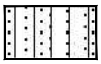

GP **POORLY-GRADED GRAVEL**
gravel-sand mixtures, little or no fines


GM **SILTY GRAVEL**
gravel-sand-silt mixtures

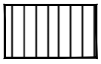

GC **CLAYEY GRAVEL**
gravel-sand-clay mixtures

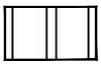

SW **WELL-GRADED SAND**
gravelly sand, little or no fines

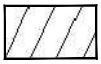

SP **POORLY-GRADED SAND**
gravelly sand, little or no fines


SM **SILTY SAND**
sand-silt mixtures

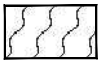

SC **CLAYEY SAND**
sand-clay mixtures

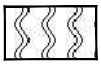

ML **SILT**
non-plastic to medium plasticity

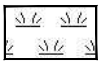

MH **ELASTIC SILT**
high plasticity


CL **LEAN CLAY**
low to medium plasticity


CH **FAT CLAY**
high plasticity


OL **ORGANIC SILT or CLAY**
non-plastic to low plasticity


OH **ORGANIC SILT or CLAY**
high plasticity


PT **PEAT**
highly organic soils

DRILLING SAMPLING SYMBOLS & ABBREVIATIONS

SS	Split Spoon Sampler	PM	Pressuremeter Test
ST	Shelby Tube Sampler	RD	Rock Bit Drilling
WS	Wash Sample	RC	Rock Core, NX, BX, AX
BS	Bulk Sample of Cuttings	REC	Rock Sample Recovery %
PA	Power Auger (no sample)	RQD	Rock Quality Designation %
HSA	Hollow Stem Auger		

PARTICLE SIZE IDENTIFICATION

DESIGNATION		PARTICLE SIZES
Boulders		12 inches (300 mm) or larger
Cobbles		3 inches to 12 inches (75 mm to 300 mm)
Gravel:	Coarse	¾ inch to 3 inches (19 mm to 75 mm)
	Fine	4.75 mm to 19 mm (No. 4 sieve to ¾ inch)
Sand:	Coarse	2.00 mm to 4.75 mm (No. 10 to No. 4 sieve)
	Medium	0.425 mm to 2.00 mm (No. 40 to No. 10 sieve)
	Fine	0.074 mm to 0.425 mm (No. 200 to No. 40 sieve)
Silt & Clay ("Fines")		<0.074 mm (smaller than a No. 200 sieve)

COHESIVE SILTS & CLAYS

UNCONFINED COMPRESSIVE STRENGTH, Q_P[4]	SPT[5] (BPF)	CONSISTENCY[7] (COHESIVE)
<0.25	<2	Very Soft
0.25 - <0.50	2 - 4	Soft
0.50 - <1.00	5 - 8	Firm
1.00 - <2.00	9 - 15	Stiff
2.00 - <4.00	16 - 30	Very Stiff
4.00 - 8.00	31 - 50	Hard
>8.00	>50	Very Hard

GRAVELS, SANDS & NON-COHESIVE SILTS

SPT[5]	DENSITY
<5	Very Loose
5 - 10	Loose
11 - 30	Medium Dense
31 - 50	Dense
>50	Very Dense

RELATIVE AMOUNT[7]	COARSE GRAINED (%)[8]	FINE GRAINED (%)[8]
Trace	≤5	≤5
With	10 - 20	10 - 25
Adjective *(ex: "Silty")*	25 - 45	30 - 45

WATER LEVELS[6]

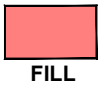

WL (First Encountered)


WL (Completion)


WL (Seasonal High Water)


WL (Stabilized)

FILL AND ROCK


FILL


POSSIBLE FILL


PROBABLE FILL


ROCK

[1]Classifications and symbols per ASTM D 2488-17 (Visual-Manual Procedure) unless noted otherwise.

[2]To be consistent with general practice, "POORLY GRADED" has been removed from GP, GP-GM, GP-GC, SP, SP-SM, SP-SC soil types on the boring logs.

[3]Non-ASTM designations are included in soil descriptions and symbols along with ASTM symbol [Ex: (SM-FILL)].

[4]Typically estimated via pocket penetrometer or Torvane shear test and expressed in tons per square foot (tsf).

[5]Standard Penetration Test (SPT) refers to the number of hammer blows (blow count) of a 140 lb. hammer falling 30 inches on a 2 inch OD split spoon sampler required to drive the sampler 12 inches (ASTM D 1586). "N-value" is another term for "blow count" and is expressed in blows per foot (bpf). SPT correlations per 7.4.2 Method B and need to be corrected if using an auto hammer.

[6]The water levels are those levels actually measured in the borehole at the times indicated by the symbol. The measurements are relatively reliable when augering, without adding fluids, in granular soils. In clay and cohesive silts, the determination of water levels may require several days for the water level to stabilize. In such cases, additional methods of measurement are generally employed.

[7]Minor deviation from ASTM D 2488-17 Note 14.

[8]Percentages are estimated to the nearest 5% per ASTM D 2488-17.

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SUBSURFACE EXPLORATION PROCEDURE:
Hand Auger Borings
ASTM D1452

In this procedure, a shallow depth boring is made by manually rotating and advancing an auger to the desired depths while periodically removing the auger from the hole to clear and examine the auger cuttings. The auger cuttings are visually classified in the field in accordance with ASTM D2488. Disturbed samples are collected in each soil stratum and sealed in an airtight container and labeled appropriately.

Hand Auger Procedure:

- Involves manually rotating a tube or barrel type auger to the desired sample depth
- Recording the depth of changes in strata
- Describing soil in each major stratum in accordance with ASTM D2488
- Recording groundwater depth and location of seepage zones, when/if found
- Describing condition of augered hole (i.e. whether the hole remains open or the sides cave)

SUBSURFACE EXPLORATION PROCEDURE:
Kessler Dynamic Cone Penetrometer (DCP)
ASTM D6951

In this procedure, the Kessler DCP is driven into the soil in order to provide penetration resistance values. The depth of cone penetration is measured at selected penetration or hammer drop intervals and the soil shear strength is reported in terms of DCP index. The DCP index is based on the average penetration depth resulting from one blow of the hammer. The index values are correlated to strength parameters, such as California Bearing Ratio (CBR), which can be used in pavement recommendations.

Kessler DCP Procedure:

- Involves driving a 0.79 inch (20 mm) disposable cone tip into the ground by dropping either a Single-Mass 10.1 lb (4.6 kg) Hammer or a Dual-Mass 17.6 lb (8 kg) Hammer from a height of 22.6 in (575mm)

- Recording the number of blows required to drive the DCP every 25 to 50 mm, continuously.

CLIENT: **Chambliss & Rabil Construction Co Inc.**	PROJECT NO.: **22:37080**	BORING NO.: **K-01**	SHEET: **1 OF 1**
PROJECT NAME: **NCCF Roadway**	DRILLER/CONTRACTOR: **ECS Southeast, LLC**		
SITE LOCATION: **morada Bay Dr, Newport, North Carolina, 28570**			LOSS OF CIRCULATION
LATITUDE:	LONGITUDE:	STRUCTURE:	SURFACE ELEVATION:	BOTTOM OF CASING

DEPTH (FT)	WATER LEVELS	ELEVATION (FT)	DESCRIPTION OF MATERIAL	GRAPHIC LOG	DCP	EXCAVATION EFFORT	SAMPLE NUMBER	FINES CONTENT (%)	MOISTURE CONTENT (%)
1.0 2.0 3.0	▼		(SM) SILTY SAND - fine sand, dark brown, moist to saturated.						
			END OF HAND AUGER at 4.0 FT						

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

WL (First Encountered):	**BORING STARTED:** 01/12/2026		**CAVE IN DEPTH:** Not Observed
WL (Completion): 2.5 FT	**BORING COMPLETED:** 01/12/2026		**HAMMER TYPE:**
WL (Seasonal High Water):	**EQUIPMENT:**	**LOGGED BY:**	**DRILLING METHOD:**
WL (Stabilized):	Hand Augers	LGQ/RSK	

GEOTECHNICAL BOREHOLE LOG

DCP TEST DATA

Project: *NCCF Roadway*
Location: K-1
Date: 12-Jan-26
Soil Type(s): SAND (SM)

Hammer
- ○ 10.1 lbs.
- ◉ 17.6 lbs.
- ○ Both hammers used

Soil Type
- ○ CH
- ○ CL
- ◉ All other soils

No. of Blows	Accumulative Penetration (mm)	Type of Hammer
0	0	1
1	297.18	1
5	632.46	1
5	914.4	1
		1
		1
		1
		1
		1
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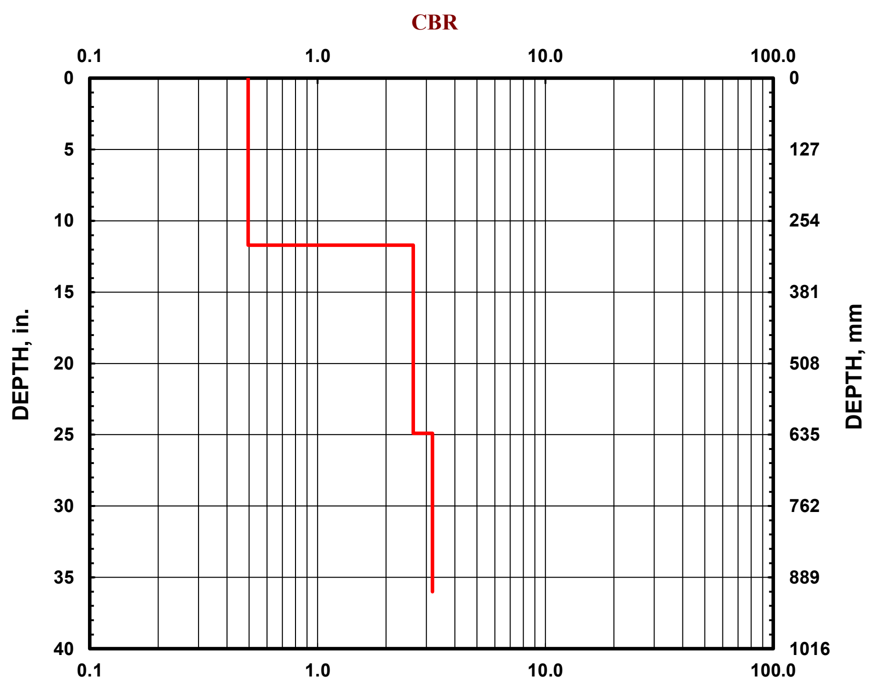

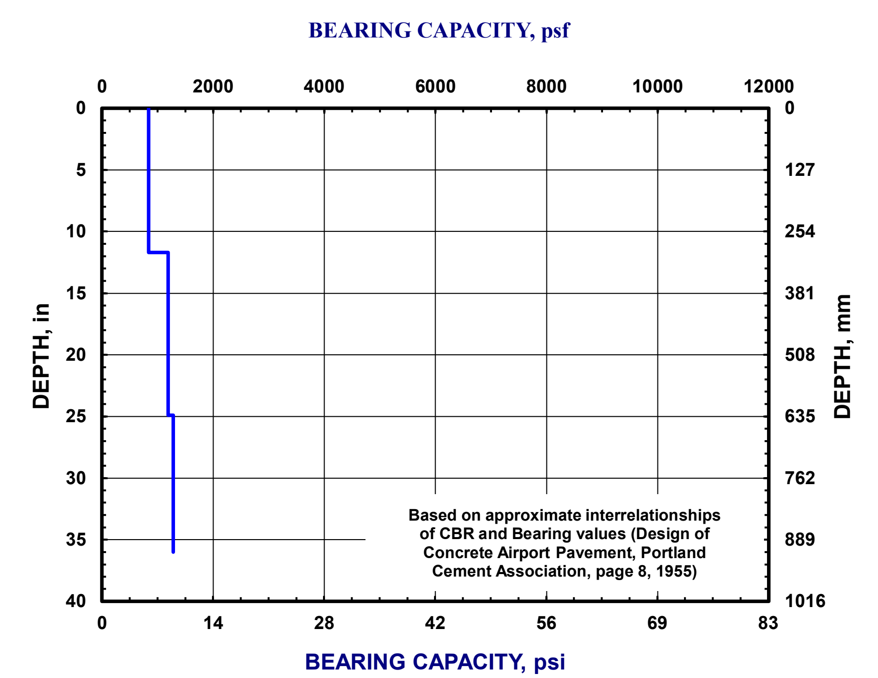

CLIENT: **Chambliss & Rabil Construction Co Inc.**	PROJECT NO.: **22:37080**	BORING NO.: **K-02**	SHEET: **1 OF 1**
PROJECT NAME: **NCCF Roadway**	DRILLER/CONTRACTOR: **ECS Southeast, LLC**		
SITE LOCATION: **morada Bay Dr, Newport, North Carolina, 28570**			LOSS OF CIRCULATION
LATITUDE:	LONGITUDE:	STRUCTURE:	SURFACE ELEVATION:	BOTTOM OF CASING

DEPTH (FT)	WATER LEVELS	ELEVATION (FT)	DESCRIPTION OF MATERIAL	GRAPHIC LOG	DCP	EXCAVATION EFFORT	SAMPLE NUMBER	FINES CONTENT (%)	MOISTURE CONTENT (%)
			ABC Stone [Thickness=3"].						
			(SM) SILTY SAND - fine sand, dark brown, moist to saturated.						
1.0									
2.0									
3.0	▼								
			END OF HAND AUGER at 4.0 FT						

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

WL (First Encountered):	**BORING STARTED:** 01/12/2026		**CAVE IN DEPTH:** Not Observed
WL (Completion): 3 FT	**BORING COMPLETED:** 01/12/2026		**HAMMER TYPE:**
WL (Seasonal High Water):	**EQUIPMENT:**	**LOGGED BY:**	**DRILLING METHOD:**
WL (Stabilized):	Hand Augers	LGQ/RSK	

GEOTECHNICAL BOREHOLE LOG

DCP TEST DATA

Project: *NCCF Roadway* Date: 12-Jan-26
Location: K-2 Soil Type(s): SAND (SM)

Hammer
○ 10.1 lbs.
◉ 17.6 lbs.
○ Both hammers used

Soil Type
○ CH
○ CL
◉ All other soils

No. of Blows	Accumulative Penetration (mm)	Type of Hammer
0	0	1
5	251.46	1
5	350.52	1
5	480.06	1
5	762	1
3	906.78	1
		1
		1
		1
		1
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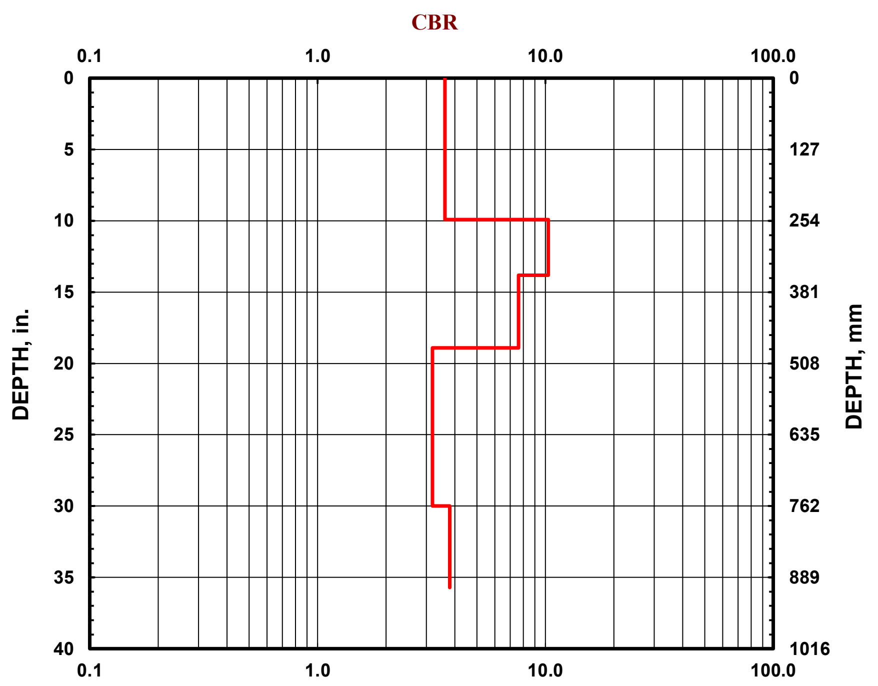

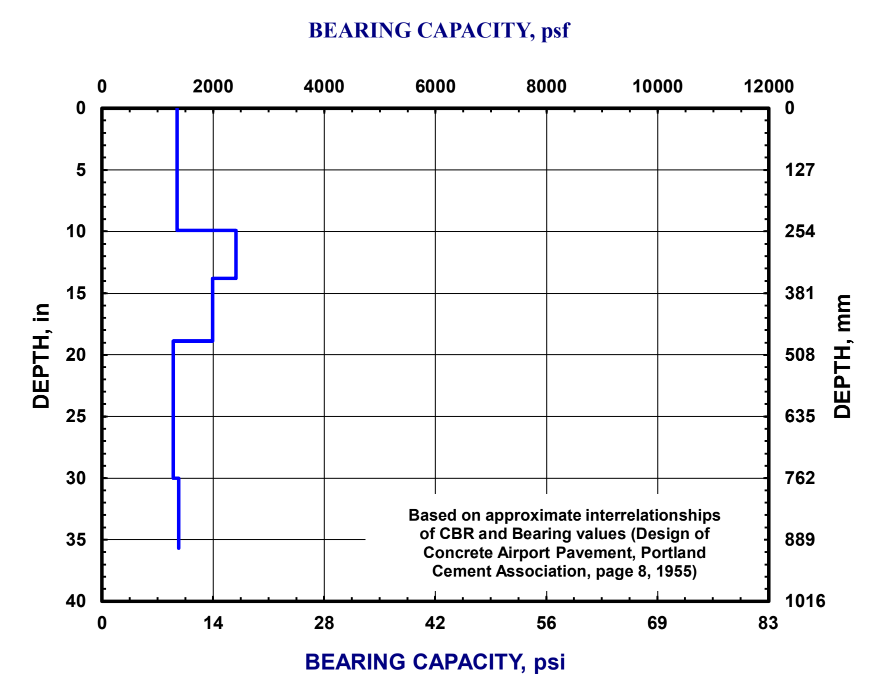

CLIENT: **Chambliss & Rabil Construction Co Inc.**	PROJECT NO.: **22:37080**	BORING NO.: **K-03**	SHEET: **1 OF 1**
PROJECT NAME: **NCCF Roadway**	DRILLER/CONTRACTOR: **ECS Southeast, LLC**		
SITE LOCATION: **morada Bay Dr, Newport, North Carolina, 28570**			LOSS OF CIRCULATION
LATITUDE:	LONGITUDE:	STRUCTURE:	SURFACE ELEVATION:	BOTTOM OF CASING

DEPTH (FT)	WATER LEVELS	ELEVATION (FT)	DESCRIPTION OF MATERIAL	GRAPHIC LOG	DCP	EXCAVATION EFFORT	SAMPLE NUMBER	FINES CONTENT (%)	MOISTURE CONTENT (%)
			ABC Stone [Thickness=3"].						
1.0			(SP) POORLY GRADED SAND - fine sand, tan, moist.						
2.0			(SM) SILTY SAND - fine sand, dark brown, moist.						
3.0									
			END OF HAND AUGER at 4.0 FT						

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

WL (First Encountered):	**BORING STARTED:** 01/12/2026		**CAVE IN DEPTH:** Not Observed
WL (Completion):	**BORING COMPLETED:** 01/12/2026		**HAMMER TYPE:**
WL (Seasonal High Water):	**EQUIPMENT:**	**LOGGED BY:**	**DRILLING METHOD:**
WL (Stabilized):	Hand Augers	LGQ/RSK	

GEOTECHNICAL BOREHOLE LOG

DCP TEST DATA

Project: *NCCF Roadway*
Location: K-3

Date: 12-Jan-26
Soil Type(s): SAND (SM, SP)

Hammer
- ○ 10.1 lbs.
- ◉ 17.6 lbs.
- ○ Both hammers used

Soil Type
- ○ CH
- ○ CL
- ◉ All other soils

No. of Blows	Accumulative Penetration (mm)	Type of Hammer
0	0	1
5	27.94	1
5	58.42	1
5	93.98	1
5	99.06	1
5	226.06	1
5	289.56	1
5	347.98	1
5	398.78	1
5	439.42	1
5	485.14	1
5	525.78	1
5	551.18	1
5	576.58	1
10	635	1
10	820.42	1
7	919.48	1
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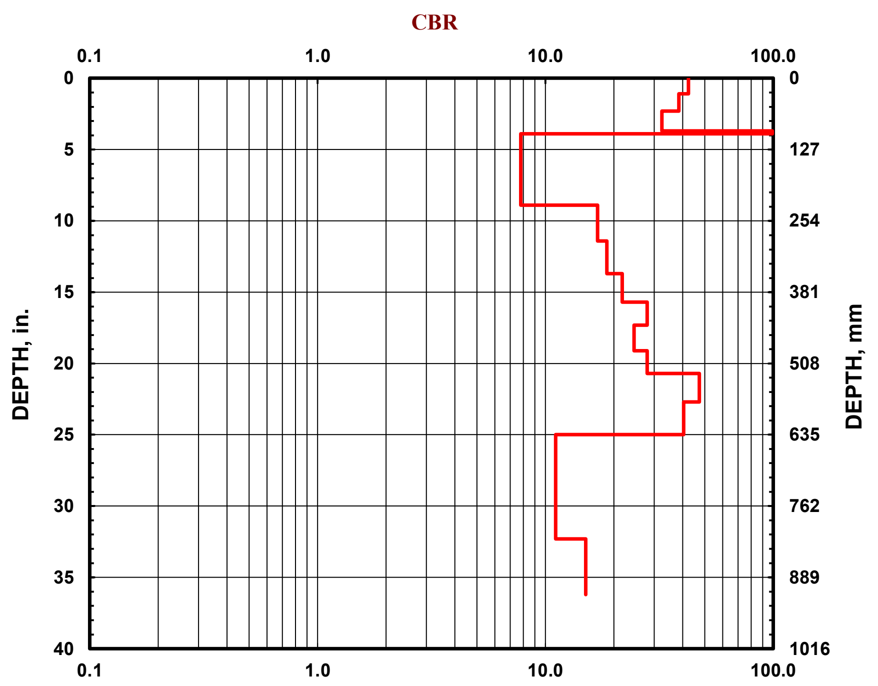

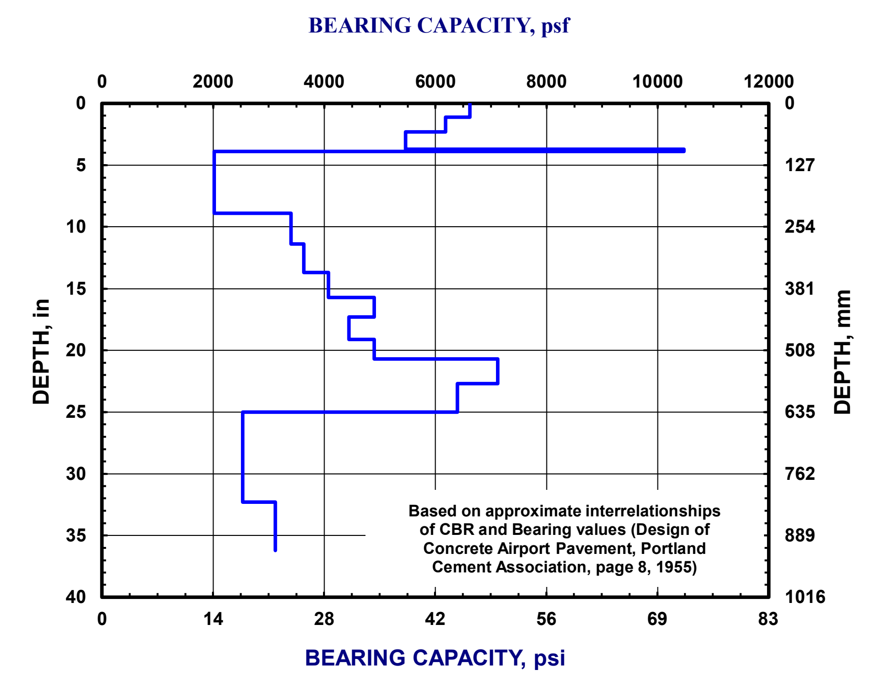

CLIENT: **Chambliss & Rabil Construction Co Inc.**	PROJECT NO.: **22:37080**	BORING NO.: **K-04**	SHEET: **1 OF 1**
PROJECT NAME: **NCCF Roadway**	DRILLER/CONTRACTOR: **ECS Southeast, LLC**		
SITE LOCATION: **morada Bay Dr, Newport, North Carolina, 28570**			LOSS OF CIRCULATION
LATITUDE:	LONGITUDE:	STRUCTURE:	SURFACE ELEVATION:	BOTTOM OF CASING

DEPTH (FT)	WATER LEVELS	ELEVATION (FT)	DESCRIPTION OF MATERIAL	GRAPHIC LOG	DCP	EXCAVATION EFFORT	SAMPLE NUMBER	FINES CONTENT (%)	MOISTURE CONTENT (%)
			Topsoil [Thickness=4"].						
1.0			(SP) POORLY GRADED SAND - fine sand, gray, moist.						
2.0									
3.0			(SM) SILTY SAND - fine sand, dark brown, moist.						
			END OF HAND AUGER at 4.0 FT						

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

WL (First Encountered):	**BORING STARTED:** 01/12/2026		**CAVE IN DEPTH:** Not Observed
WL (Completion):	**BORING COMPLETED:** 01/12/2026		**HAMMER TYPE:**
WL (Seasonal High Water):	**EQUIPMENT:**	**LOGGED BY:**	**DRILLING METHOD:**
WL (Stabilized):	Hand Augers	LGQ/RSK	

GEOTECHNICAL BOREHOLE LOG

DCP TEST DATA

Project: *NCCF Roadway** **Date:** 12-Jan-26
Location: K-4 **Soil Type(s):** SAND (SM, SP)

Hammer
- ○ 10.1 lbs.
- ◉ 17.6 lbs.
- ○ Both hammers used

Soil Type
- ○ CH
- ○ CL
- ◉ All other soils

No. of Blows	Accumulative Penetration (mm)	Type of Hammer
0	0	1
5	312.42	1
5	431.8	1
5	518.16	1
5	619.76	1
5	746.76	1
5	845.82	1
2	871.22	1
		1
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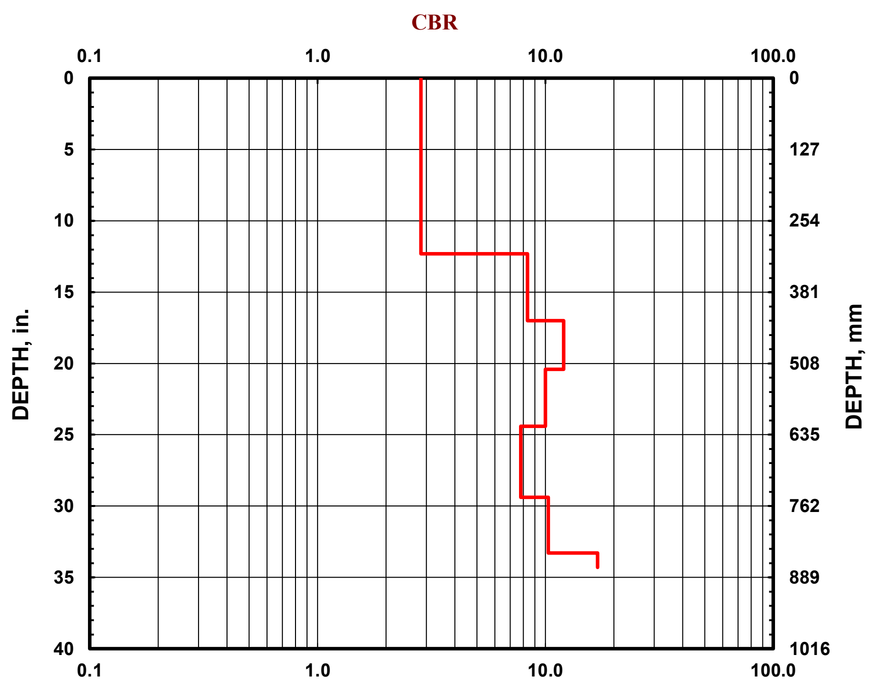

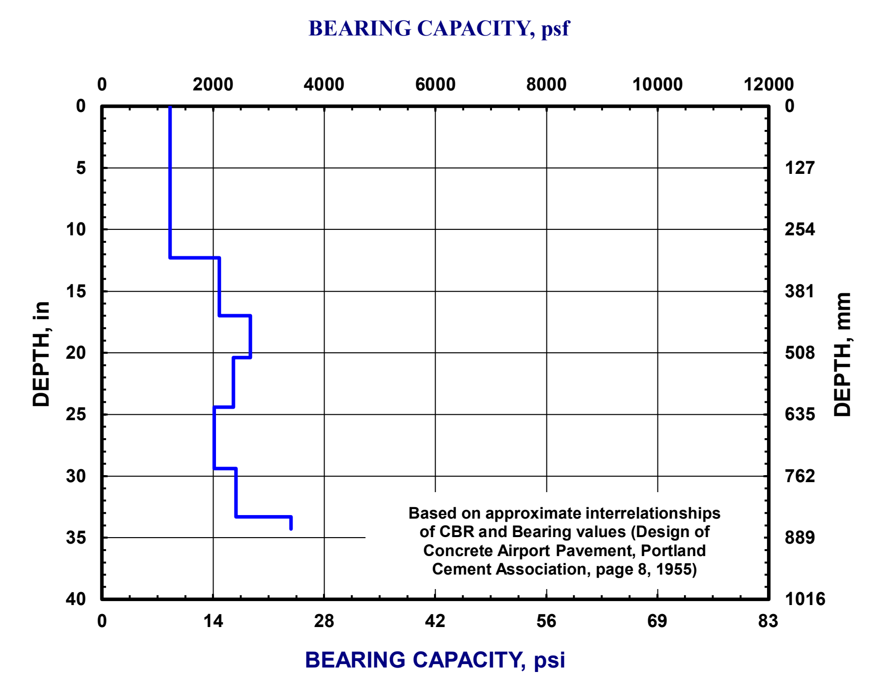

CLIENT: **Chambliss & Rabil Construction Co Inc.**	PROJECT NO.: **22:37080**	BORING NO.: **K-05**	SHEET: **1 OF 1**
PROJECT NAME: **NCCF Roadway**	DRILLER/CONTRACTOR: **ECS Southeast, LLC**		
SITE LOCATION: **morada Bay Dr, Newport, North Carolina, 28570**			LOSS OF CIRCULATION
LATITUDE:	LONGITUDE:	STRUCTURE:	SURFACE ELEVATION:	BOTTOM OF CASING

DEPTH (FT)	WATER LEVELS	ELEVATION (FT)	DESCRIPTION OF MATERIAL	GRAPHIC LOG	DCP	EXCAVATION EFFORT	SAMPLE NUMBER	FINES CONTENT (%)	MOISTURE CONTENT (%)
			ABC Stone [Thickness=4"].						
			(SM) SILTY SAND - fine sand, dark brown, moist.						
1.0			(SP) POORLY GRADED SAND - gray, moist.						
2.0			(SM) SILTY SAND - fine sand, dark brown, moist, with wood fragments.						
3.0									
			END OF HAND AUGER at 4.0 FT						

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

WL (First Encountered):	**BORING STARTED:** 01/12/2026		**CAVE IN DEPTH:** Not Observed
WL (Completion):	**BORING COMPLETED:** 01/12/2026		**HAMMER TYPE:**
WL (Seasonal High Water):	**EQUIPMENT:**	**LOGGED BY:**	**DRILLING METHOD:**
WL (Stabilized):	Hand Augers	LGQ/RSK	

GEOTECHNICAL BOREHOLE LOG

DCP TEST DATA

Project: *NCCF Roadway*
Location: K- 5
Date: 12-Jan-26
Soil Type(s): SAND (SP)

Hammer
- ○ 10.1 lbs.
- ◉ 17.6 lbs.
- ○ Both hammers used

Soil Type
- ○ CH
- ○ CL
- ◉ All other soils

No. of Blows	Accumulative Penetration (mm)	Type of Hammer
0	0	1
5	182.88	1
5	342.9	1
5	444.5	1
5	546.1	1
5	721.36	1
5	838.2	1
4	909.32	1
		1
		1
		1
		1
		1
		1
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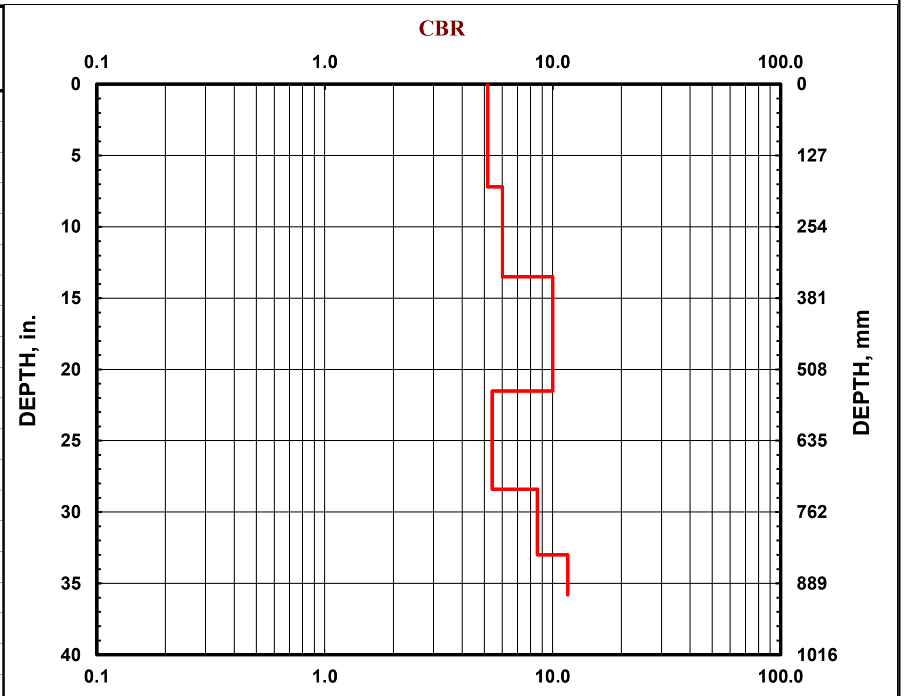

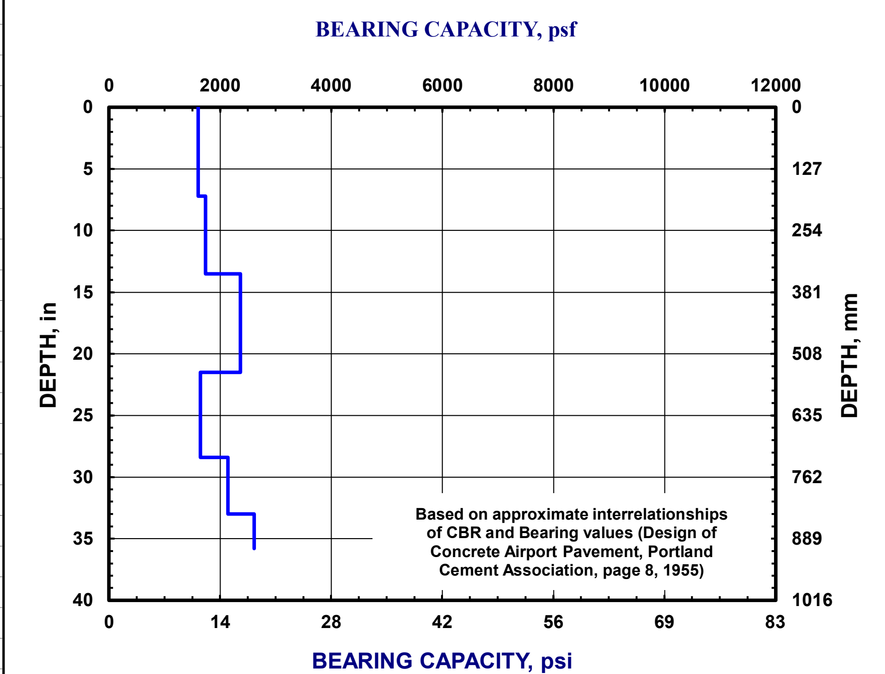

CLIENT: **Chambliss & Rabil Construction Co Inc.**	PROJECT NO.: **22:37080**	BORING NO.: **K-06**	SHEET: **1 OF 1**
PROJECT NAME: **NCCF Roadway**	DRILLER/CONTRACTOR: **ECS Southeast, LLC**		
SITE LOCATION: **morada Bay Dr, Newport, North Carolina, 28570**			LOSS OF CIRCULATION
LATITUDE:	LONGITUDE:	STRUCTURE:	SURFACE ELEVATION:	BOTTOM OF CASING

DEPTH (FT)	WATER LEVELS	ELEVATION (FT)	DESCRIPTION OF MATERIAL	GRAPHIC LOG	DCP	EXCAVATION EFFORT	SAMPLE NUMBER	FINES CONTENT (%)	MOISTURE CONTENT (%)
1.0			Topsoil [Thickness=3"].						
2.0			(SP) POORLY GRADED SAND - fine sand, tan.						
3.0									
			END OF HAND AUGER at 4.0 FT						

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

WL (First Encountered):	**BORING STARTED:** 01/12/2026		**CAVE IN DEPTH:** Not Observed
WL (Completion):	**BORING COMPLETED:** 01/12/2026		**HAMMER TYPE:**
WL (Seasonal High Water):	**EQUIPMENT:**	**LOGGED BY:**	**DRILLING METHOD:**
WL (Stabilized):	Hand Augers	LGQ/RSK	

GEOTECHNICAL BOREHOLE LOG

DCP TEST DATA

Project: *NCCF Roadway*
Location: K- 6

Date: 12-Jan-26
Soil Type(s): SAND (SP)

Hammer
- ○ 10.1 lbs.
- ◉ 17.6 lbs.
- ○ Both hammers used

Soil Type
- ○ CH
- ○ CL
- ◉ All other soils

No. of Blows	Accumulative Penetration (mm)	Type of Hammer
0	0	1
5	81.28	1
5	147.32	1
5	203.2	1
5	276.86	1
5	340.36	1
5	398.78	1
5	459.74	1
5	525.78	1
5	599.44	1
5	693.42	1
5	800.1	1
5	891.54	1
		1
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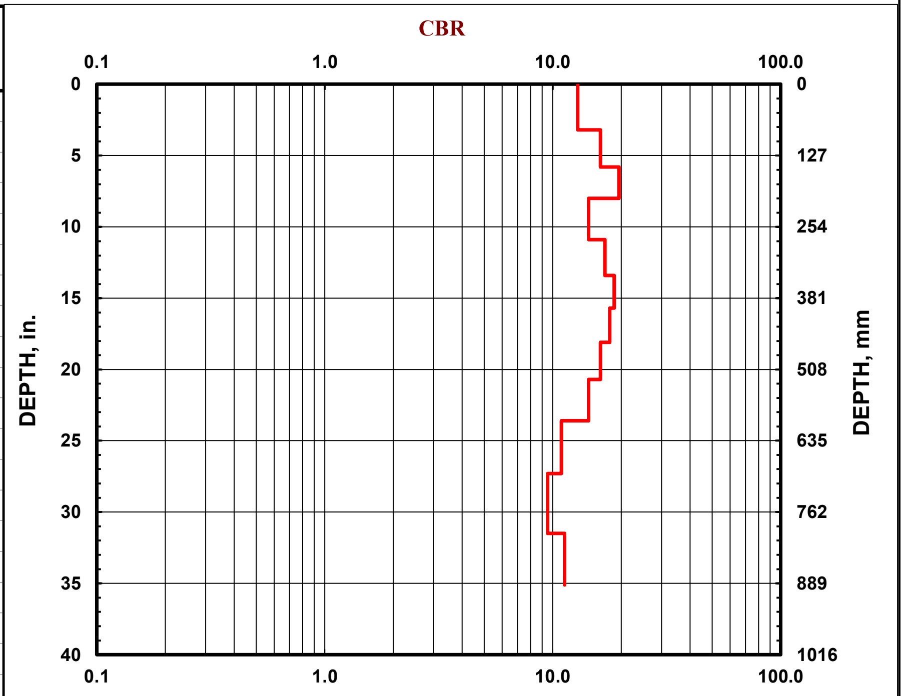

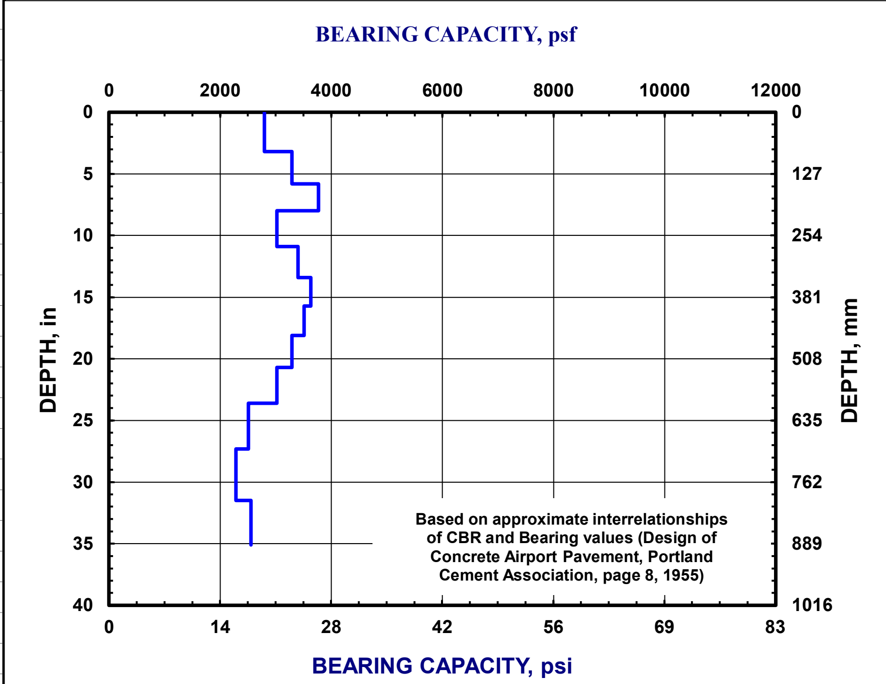

CLIENT: **Chambliss & Rabil Construction Co Inc.**	PROJECT NO.: **22:37080**	BORING NO.: **K-07**	SHEET: **1 OF 1**
PROJECT NAME: **NCCF Roadway**	DRILLER/CONTRACTOR: **ECS Southeast, LLC**		
SITE LOCATION: **morada Bay Dr, Newport, North Carolina, 28570**			LOSS OF CIRCULATION
LATITUDE:	LONGITUDE:	STRUCTURE:	SURFACE ELEVATION:	BOTTOM OF CASING

DEPTH (FT)	WATER LEVELS	ELEVATION (FT)	DESCRIPTION OF MATERIAL	GRAPHIC LOG	DCP	EXCAVATION EFFORT	SAMPLE NUMBER	FINES CONTENT (%)	MOISTURE CONTENT (%)
			Topsoil [Thickness=3"].						
1.0			(SP) POORLY GRADED SAND - fine sand, brown tan, moist.						
2.0									
3.0									
			END OF HAND AUGER at 4.0 FT						

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

WL (First Encountered):	**BORING STARTED:** 01/12/2026		**CAVE IN DEPTH:** Not Observed
WL (Completion):	**BORING COMPLETED:** 01/12/2026		**HAMMER TYPE:**
WL (Seasonal High Water):	**EQUIPMENT:**	**LOGGED BY:**	**DRILLING METHOD:**
WL (Stabilized):	Hand Augers	LGQ/RSK	

GEOTECHNICAL BOREHOLE LOG

DCP TEST DATA

Project: *NCCF Roadway* Date: 12-Jan-26
Location: K- 7 Soil Type(s): SAND (SP)

Hammer
- ○ 10.1 lbs.
- ◉ 17.6 lbs.
- ○ Both hammers used

Soil Type
- ○ CH
- ○ CL
- ◉ All other soils

No. of Blows	Accumulative Penetration (mm)	Type of Hammer
0	0	1
5	353.06	1
5	553.72	1
5	787.4	1
2	871.22	1
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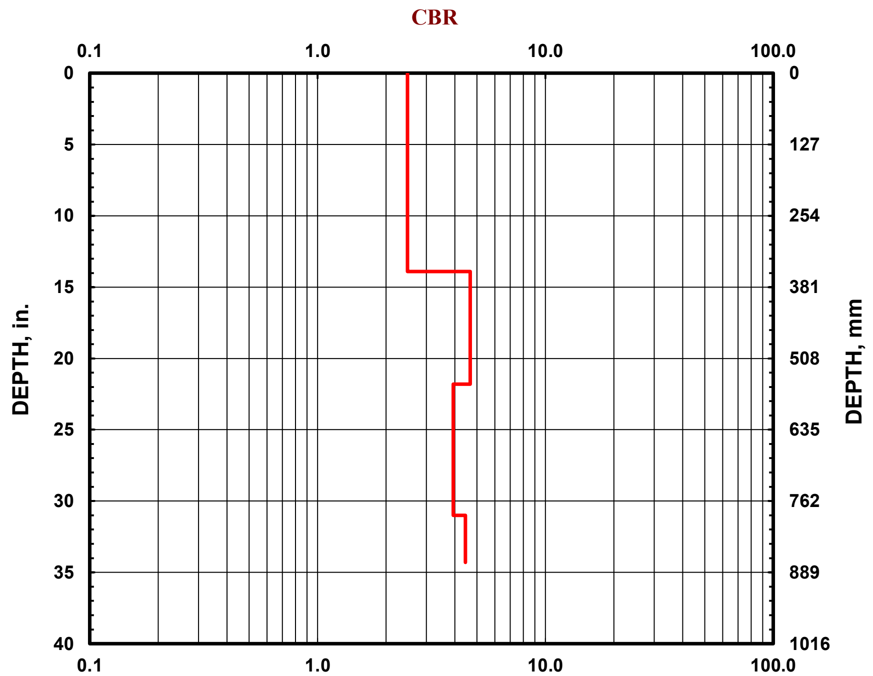

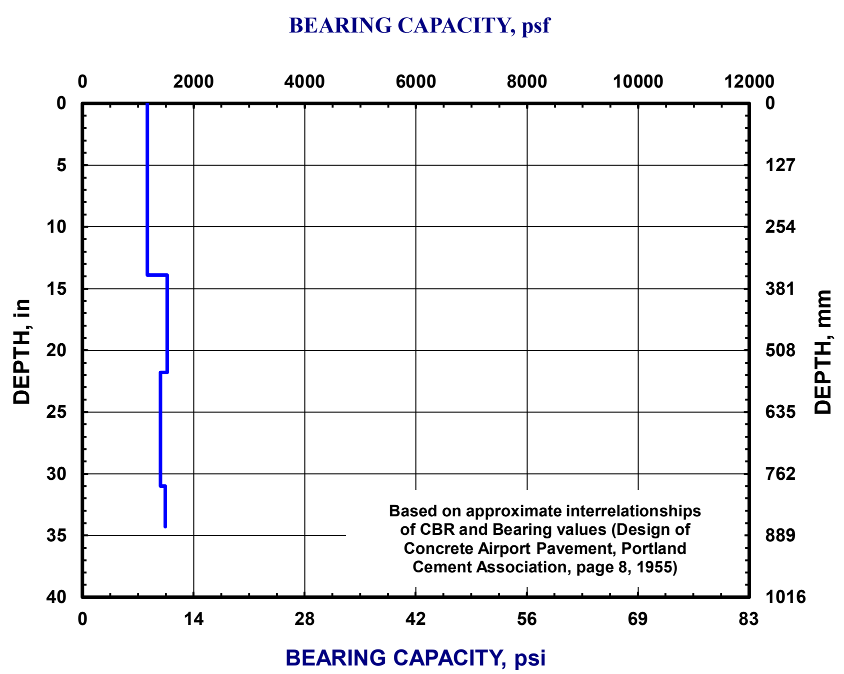

CLIENT: **Chambliss & Rabil Construction Co Inc.**	PROJECT NO.: **22:37080**	BORING NO.: **K-08**	SHEET: **1 OF 1**
PROJECT NAME: **NCCF Roadway**	DRILLER/CONTRACTOR: **ECS Southeast, LLC**		
SITE LOCATION: **morada Bay Dr, Newport, North Carolina, 28570**			LOSS OF CIRCULATION
LATITUDE:	LONGITUDE:	STRUCTURE:	SURFACE ELEVATION:	BOTTOM OF CASING

DEPTH (FT)	WATER LEVELS	ELEVATION (FT)	DESCRIPTION OF MATERIAL	GRAPHIC LOG	DCP	EXCAVATION EFFORT	SAMPLE NUMBER	FINES CONTENT (%)	MOISTURE CONTENT (%)
			Topsoil [Thickness=3"].						
1.0			(SP) POORLY GRADED SAND - fine sand, tan to orange, moist.						
2.0									
3.0									
			END OF HAND AUGER at 4.0 FT						

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

WL (First Encountered):	**BORING STARTED:** 01/12/2026		**CAVE IN DEPTH:** Not Observed
WL (Completion):	**BORING COMPLETED:** 01/12/2026		**HAMMER TYPE:**
WL (Seasonal High Water):	**EQUIPMENT:**	**LOGGED BY:**	**DRILLING METHOD:**
WL (Stabilized):	Hand Augers	LGQ/RSK	

GEOTECHNICAL BOREHOLE LOG

DCP TEST DATA

Project: *NCCF Roadway*
Location: K- 8
Date: 12-Jan-26
Soil Type(s): SAND (SP)

Hammer
- ○ 10.1 lbs.
- ◉ 17.6 lbs.
- ○ Both hammers used

Soil Type
- ○ CH
- ○ CL
- ◉ All other soils

No. of Blows	Accumulative Penetration (mm)	Type of Hammer
0	0	1
5	228.6	1
5	414.02	1
5	647.7	1
5	894.08	1
		1
		1
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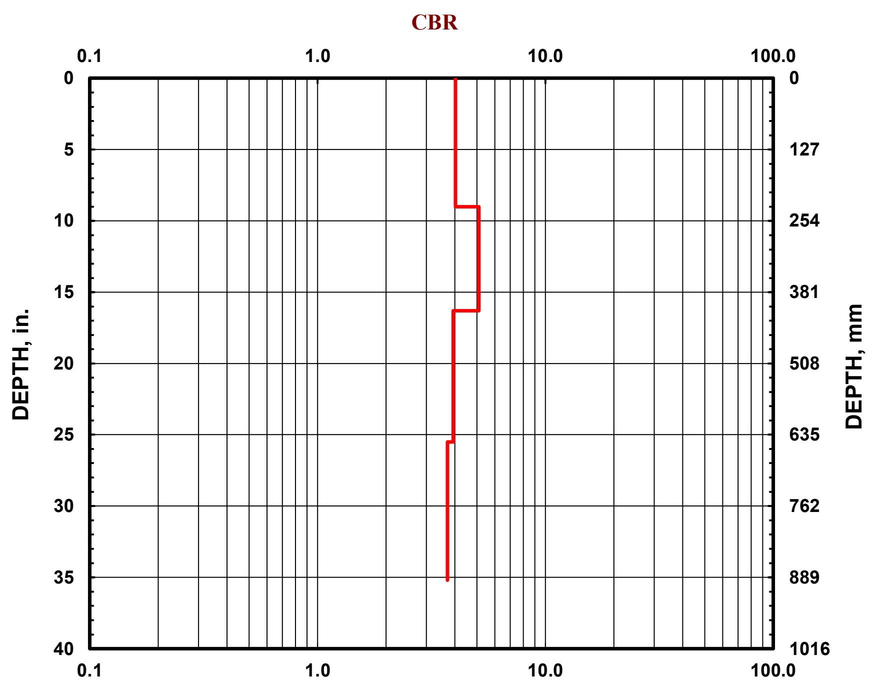

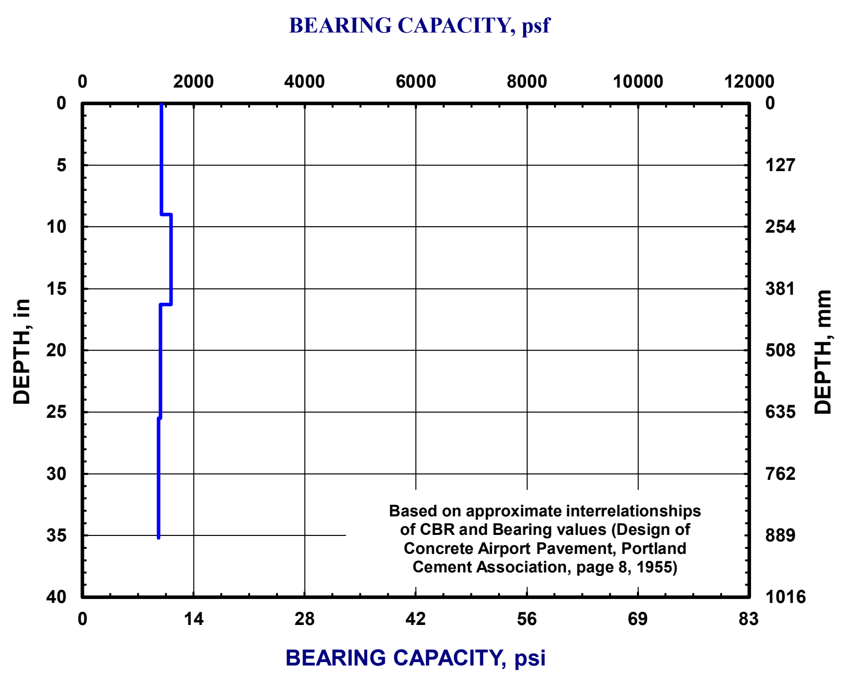

APPENDIX D – Supplementary Report Documents

GBA Document

Important Information about This

Geotechnical-Engineering Report

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

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

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

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

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

Read this Report in Full

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

You Need to Inform Your Geotechnical Engineer about Change

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

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

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

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

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

This Report May Not Be Reliable

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

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

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

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

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

This Report's Recommendations Are Confirmation-Dependent

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

This Report Could Be Misinterpreted

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

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

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

Give Constructors a Complete Report and Guidance

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

Read Responsibility Provisions Closely

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

Geoenvironmental Concerns Are Not Covered

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

Obtain Professional Assistance to Deal with Moisture Infiltration and Mold

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

GEOPROFESSIONAL BUSINESS ASSOCIATION

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