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Consulting Engineers

GEOSCIENCE GROUP

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Reference: Report Of Geotechnical Subsurface Exploration
Trackhouse Highway 73
Concord, North Carolina
Geoscience Project No. CH26.0021.GE

Geoscience Group, Inc. (Geoscience) is pleased to submit this Report Of Geotechnical Subsurface Exploration for the proposed development located in Concord, North Carolina. The purpose of this study was to explore the subsurface conditions at the site and evaluate those conditions relative to the proposed development. This report presents our findings along with our conclusions and recommendations for the project.

SCOPE OF EXPLORATION

Field Exploration: The subsurface exploration included the execution of twenty-four (24) soil test borings (B-1 through B-21, SW-1, SW-2 and SW-3) and one (1) offset boring (B-11A) at the approximate locations shown on the *Boring Location Diagrams*, Drawing Nos. CH26.0021.GE-1 (Site Plan) and CH26.0021.GE-1A (Grading Plan), included in the Appendix. The offset soil test boring was performed adjacent to the original test location to further explore the presence of shallow auger refusal encountered within residual materials. The boring locations were selected by Choate Construction Company and were established in the field by an engineer from Geoscience using a handheld GPS unit as reference.

The soil test borings were extended to depths ranging from approximately 5 feet (auger refusal at boring B-11) to 30 feet (boring terminated at borings SW-1, SW-2 and SW-3) below the ground surface using continuous-flight, hollow-stem augers; drilling fluid was not used in this process. Standard Penetration Tests were performed in the soil test borings using an automatic hammer at designated intervals in general accordance with ASTM D 1586-84. A correction factor has been used for our analysis of the Standard Penetration Tests with the automatic hammer assembly; however, the N-values reported on the Test Boring Records are the field recorded values. In conjunction with the penetration testing, split-spoon soil samples were recovered at each test depth and placed in plastic resealable bags. In addition, bulk samples of the auger cuttings were obtained from soil test borings B-14 and SW-1 between the approximate depths of 3 and 8 feet below the ground surface.

Upon the completion of drilling soil test borings SW-1, SW-2 and SW-3, temporary piezometers consisting of 1-inch diameter continuously slotted polyvinyl chloride (PVC) pipe were installed in the borings from the ground surface to the respective boring termination depth. The purpose of the piezometers was to aid in estimating the groundwater level in the area of the detention pond. Water level readings were taken in the piezometers 72 hours after they were installed. The piezometers were removed after the 72 hour water level readings and the auger holes were backfilled to the ground surface with the auger cuttings.

All soil samples were returned to our laboratory for soil classification and laboratory testing. A brief description of the field testing procedures and copies of the Test Boring Records are included in the Appendix. Elevations referenced in this report were interpolated from the undated *Trackhouse Hwy 73 Site & Grading Plan* prepared by Choate Construction Company and should be considered approximate.

Laboratory Classification: The laboratory services provided for this project included visual classification of the soil samples by the project engineer. Each sample was evaluated for the type of soil, soil plasticity, moisture condition, organic content, presence of lenses and seams, colors, redoximorphic features and apparent geologic origin in general accordance with the Unified Soil Classification System (USCS). The results of the visual classifications are presented on the Test Boring Records included in the Appendix.

Laboratory Testing: The laboratory testing performed on the bulk samples obtained from soil test borings B-14 and SW-1 consisted of Standard Proctor compaction tests and natural moisture content determinations. In addition, soaked California Bearing Ratio (CBR) tests were performed on the bulk sample obtained from boring B-14. The purpose of this laboratory testing was to determine the suitability of the onsite soils for use as structural fill and to evaluate the remolded soil properties with regard to pavement support. Also, natural moisture content determinations and Atterberg Limits tests were performed on select soil samples to further explore the moisture and plasticity characteristics of the near-surface soils. A brief description of the laboratory tests and the results obtained are included in the Appendix.

SITE

The project site (Cabarrus County Parcel ID Nos. 4691-68-1889-0000 and 4691-68-3851-0000) is located on the north side of Davidson Highway approximately 2,900 feet west of its intersection with Kannapolis Parkway in Concord, North Carolina. A single-family residence and associated outbuildings, cattle barns and equipment storage sheds are located in the central and northern portions of the site. Livestock pastures and field grass characterize the western and central portions of the site, and woods define the eastern portion. Also, small wet-weather drainage features are present in woods. The wet-weather drainage features were dry at the time our field services were performed.

The ground surface across the proposed development area slopes radially downward from the central portion of the property. A high elevation of approximately 703 feet (MSL) is present in the central portion of the site, and a low elevation of approximately 647 feet (MSL) is present in the eastern and southwestern corners of the site.

SUBSURFACE CONDITIONS

The subsurface conditions at the site, as indicated by the soil test borings, generally consist of a residual soil profile which has formed from the in-place weathering of the underlying parent bedrock. However, an isolated area of existing fill was encountered in soil test boring SW-1 to a depth of approximately 3 feet below the ground surface. The generalized subsurface conditions are described below and illustrated on the *Generalized Subsurface Profiles*, Drawing Nos. CH26.0021.GE-2 through CH26.0021.GE-4, included in the Appendix. For soil descriptions and general stratification at a particular boring location, the respective Test Boring Record should be reviewed. Please note that the stratification lines designating the interface between various layers represent approximate boundaries. The actual transition between different strata across the site will vary in both the horizontal and vertical directions.

Topsoil And Roots: An upper layer of topsoil and roots was encountered in all the soil test borings. The thickness of the topsoil and roots ranges from approximately ¼ to ½ foot. Deeper topsoil deposits are anticipated in the more heavily vegetated areas of the site. We suggest using a topsoil stripping depth on the order of 8 to 10 inches for site balance analyses. Also, it should be noted that the root mat of large trees can be quite extensive and normally extends a minimum of 2 to 3 feet below the ground surface.

Existing Fill: Subjacent to the topsoil in soil test boring SW-1, existing fill was encountered to a depth of approximately 3 feet below the ground surface. The existing fill consisted of a clayey SILT soil with rock fragments and trace organics. The existing fill exhibited a Standard Penetration Test result of 16 Blows Per Foot (BPF) and a natural moisture content of approximately 18½ percent. The existing fill is depicted in yellow on *Generalized Subsurface Profile* CH26.0021.GE-4.

Residual Soils: Immediately beneath the topsoil in soil test borings B-2, B-6, B-9, B-10, B-14, B-16, B-21 and SW-2, residual very silty CLAY and very clayey SILT soils are present to depths ranging between 3 and 5½ feet below the ground surface. The Standard Penetration Test results within these residual very clayey soils range from 6 to 18 BPF. In addition, the natural moisture contents of these residual very silty CLAY and very clayey SILT soils range from approximately 24½ to 39¾ percent, and the liquid limits and plasticity indices range from 62 to 76 percent and 24 to 42 percent, respectively. The residual very silty CLAY and very clayey SILT soils are depicted in orange on the *Generalized Subsurface Profiles*.

Residual sandy SILT and silty SAND soils, with varying amounts of clay, are present beneath the topsoil, existing fill and/or residual very silty CLAY and very clayey SILT soils in all the soil test borings, except B-7. Soil test B-7 encountered continuous partially weathered rock immediately beneath the topsoil. These residual SILT and SAND soils, where present, extend

to depths ranging from approximately 3 to 30 feet below the ground surface. The Standard Penetration Test results exhibited by these residual SILT and SAND soils range from 6 to 80 BPF. Also, the natural moisture contents of these residual SILT and SAND soils range from approximately 6½ to 45½ percent.

Partially Weathered Rock: Partially weathered rock was encountered in soil test borings B-1, B-2, B-5, B-7, B-8, B-11, B-13 and SW-2 at depths ranging from just below the topsoil to 12 feet below the ground surface. These depths to partially weathered rock correspond to elevations ranging from approximately 670 to 699¾ feet (MSL). For engineering purposes, partially weathered rock is considered any dense residual soil exhibiting a Standard Penetration Resistance value in excess of 100 BPF. When sampled, the partially weathered rock generally consists of sandy SILT and silty SAND soils. In addition, natural moisture contents ranging between 6 and 24½ percent were recorded in the partially weathered rock. The partially weathered rock is depicted in green on the *Generalized Subsurface Profiles*.

Auger Refusal: Auger refusal was encountered in soil test boring B-11 at a depth of approximately 5 feet below the ground surface. This depth to auger refusal corresponds to an elevation of approximately 695 feet (MSL). However, offset boring B-11A performed approximately 5 feet from boring B-11 was drilled to the scheduled depth of approximately 25 feet. Based on the subsurface conditions encountered at these test locations, it appears that auger refusal was due to the presence of very dense partially weathered rock, a pinnacle of crystalline rock or boulders within the soil overburden.

Groundwater Observations: Groundwater measurements were attempted at the completion of each soil test boring and again prior to leaving the site on the last day of drilling. In addition, water level readings were taken in the temporary piezometers installed in borings SW-1, SW-2 and SW-3 approximately 72 hours after they were installed.

Groundwater was encountered in soil test boring B-9 at a depth of approximately 12 feet below the ground surface. This depth to groundwater corresponds to an elevation of approximately 664 feet. No measurable groundwater was observed in any of the other soil test borings performed for this phase of the project. However, moist to very moist soil conditions were observed in soil test borings B-1, B-10, B-15, B-16 and B-21. The depths of the moist to very moist soil conditions are noted on the applicable Test Boring Records.

PROJECT DESCRIPTION

The proposed project will include the construction of a race shop with an initial build of 150,000 square feet and a full build out of 230,000 square feet. In addition, new pavements (access drives, parking areas, truck court, etc.) will be located on the north, east and south sides of the proposed building. Also, a large stormwater detention pond is planned for the northeastern portion of the site.

The anticipated building construction will likely consist of a steel frame structure with a brick/block façade and concrete slab-on-grade floor system. Structural loading information was not provided to us at the time this report was prepared. However, we anticipate that the maximum wall and column loads will be on the order of 5 to 10 kips per linear foot and 150 to 250 kips, respectively. In addition, the maximum floor slab loading is not anticipated to exceed 250 pounds per square foot.

The finished floor elevation for the building is currently set at 688.93 feet (MSL). In addition, the surrounding pavement grades will range from 675 to 693 feet (MSL), and the bottom of the stormwater pond will be located at elevation 666 feet (MSL). Based on the topographic information provided to us, it appears that a maximum excavation depth of approximately 27 feet and a maximum fill depth on the order of 24 feet will be required to reach the designated site grades. Also, site retaining walls are not anticipated for this project.

CONCLUSIONS AND RECOMMENDATIONS

The soil test borings performed at this site represent the subsurface conditions at the location of the borings only. Due to the prevailing geology and the presence of existing fill, there can be changes in the subsurface conditions over relatively short distances that have not been disclosed by the results of the borings performed. Consequently, there may be undisclosed subsurface conditions that require special treatment or additional preparation once these conditions are revealed during construction.

Our conclusions and recommendations are based on the project description outlined above and on the data obtained from our field testing program. Changes in the project or in the subsurface conditions may require modifications to our recommendations. Therefore, we will require the opportunity to review our recommendations in light of any new information and make the desired changes.

DISCUSSION

Based on our review of the site and subsurface information collected for this project, the following considerations with regard to site development are warranted. In addition, development of this site during the drier summer months will greatly reduce the number of difficulties encountered during site grading and building/pavement construction.

Existing fill was encountered in soil test boring SW-1 to a depth of approximately 3 feet below the ground surface. In addition, there is the possibility that existing fill materials are present between the boring locations, particularly in the area of the single-family residence, associated outbuildings, cattle barns, equipment storage sheds and any below-grade utilities. Due to the apparent limited extent and shallow depth of the existing fill, we recommend that these materials be removed and replaced, as required by the final site grades, with properly compacted structural fill. A geotechnical engineer from our office, or his authorized representative, should observe the undercutting operations to verify that the existing fill soils have been properly removed and that the exposed subgrades are suitable for placement of new fill.

Residual very silty CLAY and very clayey SILT soils were encountered immediately beneath the topsoil in soil test borings B-2, B-6, B-9, B-10, B-14, B-16, B-21 and SW-2. These very silty CLAY and very clayey SILT soils at the above test locations extend to depths ranging from approximately 3 to 5½ feet below the ground surface. These residual very clayey soils have formed through the advanced weathering of the near-surface soils and are likely present at other locations on the project site. Based on the Standard Penetration Test results, our visual classification of the soil samples and the laboratory test results, the preponderance of these soils have a stiff to very stiff consistency and generally appear suitable for direct foundation, floor slab and pavement support. However, these near-surface very clayey soils are susceptible to moisture intrusion and can easily become remolded (i.e., softened) under the weight of construction traffic. Consequently, some undercutting of these materials may be required to provide a suitable building, pavement and/or structural fill subgrade. The extent of the undercutting will be influenced by the weather conditions, the time of year during which site grading is performed and the amount of construction traffic that passes over these clayey soils. In addition, we anticipate that any unstable very clayey soils encountered in the deeper fill zones could be bridged through the planned grading activities. Also, the results of our laboratory testing indicate that using the residual very silty CLAY and very clayey SILT soils as structural fill could be difficult, particularly during inclement and cold weather conditions. Additional recommendations with regard to the use of these materials as structural fill are outlined in the *Fill Material And Placement* section of this report.

Partially weathered rock was encountered in soil test borings B-1, B-2, B-5, B-7, B-8, B-11, B-13 and SW-2 at depths ranging from just below the topsoil to 12 feet below the ground surface. In addition, auger refusal was encountered in soil test boring B-11 at a depth of approximately 5 feet below the ground surface. The depths to partially weathered rock at borings B-2, B-5, B-11 and SW-2 range from approximately 3 to 15½ feet above the planned finished grade at the respective boring location. In addition, the depth of auger refusal at boring B-11 is approximately 8 feet above the final site grade at this test location. Furthermore, it is important to point out that our experience indicates rock in a weathered, boulder and/or massive form varies in location and depth within this area of Concord. Due to this variability, there is the potential that these materials could be encountered at shallower depths between the boring locations. Recommendations pertaining to excavation of partially weathered rock, rock and rock boulders are outlined in a subsequent section of this report.

Although not encountered in any of the soil test borings, alluvial soils may be encountered in the wet-weather drainage features present in the woods. Alluvial soils are described as those soils that have been deposited by water. Alluvial soils are typically saturated and are generally loose, soft, and compressible because they have not been subjected to pressures greater than their own self-weight. Alluvial soils are generally considered unsuitable for direct support of buildings and exterior pavements. Therefore, where present, these alluvial materials should be undercut and replaced with properly compacted structural fill. In addition, any water present within the drainage features will have to be controlled and diverted to a suitable outlet area.

PROJECT DESIGN

Foundation Support: Provided the recommendations outlined in this report are implemented, the new building can be supported on a shallow foundation system consisting of spread footings bearing on suitable residual soils or on newly-placed structural fill. A net allowable bearing pressure of up to 3,000 pounds per square foot (PSF) can be used for design of the foundations. The net allowable bearing pressure is that pressure which may be transmitted to the soil in excess of the minimum surrounding overburden pressure. Minimum wall (strip) and column footing dimensions of 16 and 24 inches, respectively, should be maintained to reduce the possibility of a localized, "punching" type, shear failure. Exterior foundations and foundations in unheated areas should be designed to bear at least 18 inches below finished grades for frost protection.

Floor Slab Support: The slab-on-grade floor system can be adequately supported on suitable residual soils or on new, properly-compacted structural fill. A modulus of subgrade reaction (k) equal to 125 pounds per cubic inch (pci) can be used for this design. We recommend that the floor slab be structurally isolated from the internal column foundations to allow independent movement. Where the floor slab bears on the external wall foundations, the slab should be designed with suitable reinforcement and load transfer devices to preclude overstressing the slab. Also, due to the soil types encountered at the project site, we recommend that a minimum 4 inches of Aggregate Base Course (ABC) stone or similar graded stone material be placed immediately beneath the slab-on-grade floor system to provide a capillary barrier and to increase the load distribution capabilities of the slab-on-grade floor system. If site grading and project construction moves into the winter months, then consideration should be given to increasing the stone thickness to 8 inches or cement stabilizing the subgrade to help protect the soil subgrade from inclement weather. Furthermore, the use of a moisture barrier should be considered to reduce the potential for moisture transmission through the slab. Proper curing techniques must be employed when using a moisture barrier to prevent uneven curing.

Seismic Design Parameters: Based on review of the North Carolina Building Code (NCBC) and the subsurface conditions encountered in the borings, a Site Class C can be used for seismic design.

Exterior Pavements: Suitable residual soils or newly-placed structural fill can provide adequate support for a pavement system designed for the appropriate subgrade strength and traffic characteristics. The subgrade and the pavement surface should be sloped to a suitable outlet area to provide positive subsurface and surface drainage away from the pavement. Water within the base course layer and ponded water on the pavement surface can lead to softening of the subgrade and other problems that will result in accelerated deterioration of the pavement system.

For design of the project pavements, we have assumed loadings that may be typical of this type of project. In general, heavy duty sections are areas that will be subject to vehicle haul trucks, trash trucks or other similar vehicles including main drive lanes of the development. Light duty sections are appropriate for passenger vehicle traffic and automobile parking areas.

Additionally, the pavement sections below are capable of supporting an 85,000 pound firetruck on a periodic basis. The recommended pavement sections are presented below in Table CH26.0021.GE-1.

Table CH26.0021.GE-1

MATERIAL	FLEXIBLE PAVEMENT		CONCRETE PAVEMENT
	Light Duty	Heavy Duty	
4,000 psi Concrete	-	-	6 inches
Asphaltic Concrete Surface Course	3 inches	1½ inch	
Asphaltic Concrete Intermediate Course	-	2½ inches	
Graded Aggregate Base Course Stone	6 inches	8 inches	4 inches

Geoscience can provide a site specific pavement design if we are furnished detailed traffic volumes. Additional recommendations in this regard can be provided at your request.

Below-Grade Walls: Below-grade walls associated with loading docks or recessed pits should be designed to withstand lateral earth pressures from the backfill and supported soils. Additionally, the wall structures should be designed to resist the lateral components of surcharge loads occurring within a zone defined by a plane extending up at a 45 degree angle from the base of the walls. If the walls are not drained, they should be designed to withstand full hydrostatic pressures. Alternatively, the buildup of hydrostatic pressures could be precluded by specifying a free-draining fill material immediately adjacent to the wall systems, with a gravity-driven subdrainage system at the base of the walls.

As an alternative to the free-draining fill material adjacent to the wall systems, a suitable man-made drainage material may be used. Examples of suitable materials include Mira Drain or TerraDrain. All drainage board systems should be placed in accordance with the manufacturer's recommendations and connected to the perimeter drainage system.

The following soil parameters can be used to compute the lateral earth pressures associated with a level backfill that consists of the onsite clayey SILT, sandy SILT and silty SAND soils. Heavy CLAY soils should not be used as retaining wall backfill. In addition, it should be noted that the following lateral earth pressures only include the weight of the backfill, and do not account for any applied surcharge loads which may be present behind the walls.

1. $K_o = 0.50$ At-rest Earth Pressure Coefficient (Non-Yielding Walls)
2. $K_a = 0.33$ Active Earth Pressure Coefficient (Yielding Cantilevered Retaining Walls)
3. $\gamma = 120$ PCF Moist Soil Unit Weight (Pounds Per Cubic Foot)

Sliding resistance on the base of concrete footings for the wall systems can be calculated using the friction factor, Tan $\delta = 0.35$.

Cut And Fill Slopes: Permanent cut slopes within residual soils and properly compacted structural fill slopes should be no steeper than 2½(H):1(V) and should be properly seeded and/or protected to minimize erosion. For maintenance purposes, the permanent slopes may need to be flattened to allow access to mowing equipment. The cut and fill slopes must be properly vegetated to minimize erosion. Temporary slopes in confined or open excavations should perform satisfactorily at inclinations of 1(H):1(V); however, the surface of these slopes should be adequately protected from inclement weather. Also, if soft/saturated soils or groundwater are encountered within the excavations, then flatter slopes, dewatering and/or shoring will likely be required. All excavations should conform to applicable OSHA regulations.

For permanent slopes less than 5 feet in height, the future building and pavement limits should be offset a minimum five (5) horizontal feet from the crest of the slope. For permanent slopes that are 5 or more feet in height, the future building limits should be offset a minimum horizontal distance equal to the slope height, and the pavement limits should be offset a minimum five (5) horizontal feet. Appropriately sized ditches should run above and parallel to the crest of all permanent slopes to divert surface runoff away from the slope face. In addition, slopes greater than 15 feet in height should be constructed with a mid-height bench.

To aid in obtaining proper compaction on the slope face, all fill slopes must be overbuilt with properly compacted structural fill and then excavated back to the proposed grades. Traversing the slope face with a bull dozer does not constitute proper compaction of the slope face. Also, any fill placed in sloping areas must be properly benched into the adjacent soils.

Stormwater Pond: Based on our review of the current site layout, a stormwater pond is planned for the northeastern portion of the site. The soil samples recovered from borings SW-1, SW-2 and SW-3 were observed for redoximorphic features to assist in estimating the Seasonal High Groundwater Table (SHWT). Redoximorphic features (a grey or bluish-grey colored soil matrix) and mottles are formed by the process of reduction, translocation and/or oxidation of iron and manganese oxides as the water table fluctuates. A soil layer exhibiting redoximorphic features can be representative of the SHWT. Based on the absence of groundwater, our visual classification of the soil samples and the moisture conditions of the soil samples, the Seasonal High Groundwater Table (SHWT) in the vicinity of the proposed detention pond is estimated to be below 657 feet (MSL).

PROJECT CONSTRUCTION

Site Preparation: After removing the existing structures, the new structural areas of the site should be stripped/undercut of all topsoil and existing fill. In addition, any existing utilities encountered within the proposed construction limits should be properly relocated, as required, and the resulting excavations backfilled with suitable fill material. Due to the thickness of the topsoil layer, Geoscience can present several value engineering options to keep the topsoil onsite rather than hauling these materials offsite. These options include leaving the topsoil layer in-place in the deeper fill zones, blending the topsoil with onsite soils and using it as structural fill, and onsite borrow pits. Additional recommendations in this regard can be provided at your request.

Upon completion of the above preparatory operations, the exposed subgrade in areas to receive fill should be compacted with an adequately sized roller and proofrolled with a loaded dump truck or similar pneumatic-tired vehicle having a loaded weight of approximately 25 tons. After excavation, the exposed subgrade in cut areas should be similarly compacted and proofrolled. The proofrolling operations should be performed with a loaded dump truck or similar pneumatic-tired vehicle having a loaded weight of approximately 25 tons. All proofrolling operations should be performed under the observation of a geotechnical engineer or his authorized representative from Geoscience. The proofrolling should consist of two (2) complete passes of the exposed areas, with each pass being in a direction perpendicular to the preceding one. Any areas which deflect, rut or pump during the proofrolling, and fail to be remedied with successive passes, should be undercut to suitable soils and backfilled with properly compacted structural fill. However, within the deeper fill zones, any unstable residual materials could probably be compacted in-place and/or bridged through the planned grading operations. Bridging may include the use of surge stone, geogrid and/or geotextile. The decision to undercut or bridge any soft or unsuitable areas should be made in the field by an engineer from our office once the site conditions have been revealed during construction.

Areas of the project site that are pre-graded for construction should be positively sloped to facilitate surface drainage. In addition, these areas of the project site should be seeded as a precaution to protect the near-surface soils from inclement weather and erosion. The passage of time can adversely affect pre-graded areas, requiring them to be re-worked prior to construction.

Groundwater: Groundwater was encountered in soil test boring B-9 at a depth of approximately 12 feet below the ground surface. This depth to groundwater is at least 20 feet below the finished grade planned for this area of the site. No groundwater was observed in any of the other borings performed for this exploration. Therefore, it does not appear that permanent dewatering will be required for this project.

Perched water conditions are common and the contractor should be prepared to control any water that enters onsite excavations. Also, temporary groundwater control may be required while grading in the area of the well-defined drainage features. We anticipate that groundwater associated with these areas, if encountered during site grading and project construction, could be controlled through the use of sump areas, diversion trenches and/or filtered trench drains that discharge to suitable outlet areas. Additional groundwater problems, if encountered, should be addressed in the field by a qualified geotechnical engineer as they occur.

Difficult Excavation: Partially weathered rock was encountered in soil test borings B-1, B-2, B-5, B-7, B-8, B-11, B-13 and SW-2 at depths ranging from just below the topsoil to 12 feet below the ground surface. In addition, auger refusal was encountered in soil test boring B-11 at a depth of approximately 5 feet below the ground surface. The depths to partially weathered rock at borings B-2, B-5, B-11 and SW-2 range from approximately 3 to 15½ feet above the planned finished grade at the respective boring location. In addition, the depth of auger refusal at boring B-11 is approximately 8 feet above the final site grade at this test location.

In mass excavation, partially weathered rock can usually be removed by ripping with single-tooth rippers attached to large dozers or by breaking it out with large front end loaders. In confined footing and utility excavations, removal of partially weathered rock may require the use of heavy duty trackhoes, pneumatic hole punchers or blasting. Rock will require blasting to remove; blasting should be done by a qualified blasting contractor to prevent damage to nearby structures.

It is important to point out that our experience indicates rock in a weathered, boulder and/or massive form varies in location and depth within this area of Concord. Due to this variability, there is the potential that these materials could be encountered at shallower depths between the boring locations. We recommend that a detailed rock clause be included in the project specifications. As a general guide, the following can be used to define rock:

> Mass Grading Rock: Material which cannot be excavated with a single-tooth ripper mounted on a dozer having a minimum pull rate at not less than 56,000 pounds (Caterpillar D-8 or equivalent) or by a Caterpillar 977 front end loader or equivalent.
>
> Trench Rock: Material which cannot be excavated with a trackhoe having a bucket curling force rated at not less than 59,100 pounds (Caterpillar 235 or equivalent).

We recommend that in areas where rock is encountered at the bearing elevations, an additional 12 inches of rock should be removed and replaced with granular structural fill. This will provide a cushion that will reduce the effect of the point bearing and additional stress to the foundations. This separation will also limit the effects of differential settlement resulting from adjacent foundations bearing on different material.

During excavation, the weathered rock and rock materials will likely be removed in large fragments and/or boulders. The excavated rock materials that cannot be adequately broken down to pieces smaller than 4 inches in any dimension will need to be placed in non-structural areas or hauled offsite. Once detailed utility plans are developed, consideration should be given to further exploring the presence of very dense partially weathered rock and bedrock; the additional field services should include test pit excavations and/or auger probe borings.

Fill Material And Placement: All fill used for the project should be free of organic matter and debris with a low to moderate plasticity (Plasticity Index less than 30). The fill should exhibit a maximum dry density of at least 90 pounds per cubic foot, as determined by a Standard Proctor compaction test (ASTM D 698). We recommend that moisture control limits be established for optimum placement of the project fill. In addition, any fill soils placed wet of the optimum moisture content must remain stable under heavy pneumatic-tired construction traffic.

As mentioned in the *Discussion* section of this report, the site preparation will include undercutting existing fill soils from various areas of the project site. We recommend that an engineer from our office monitor the excavation of these soils to determine if they are suitable for reuse as structural fill.

Based on our visual classification of the soil samples and the results of the laboratory testing, the onsite residual soils and weathered rock materials generally appear suitable for use as structural fill, provided they are placed at the appropriate moisture content. However, due to the plasticity characteristics and zones of elevated moisture conditions within the near-surface soils, difficulties could be encountered while attempting to dry these materials to an acceptable moisture content prior to their placement as structural fill, particularly if site grading occurs during the late fall, winter or early spring months. Also, the residual soils removed from the area of soil test borings B-1, B-10, B-15, B-16 and B-21 will require drying prior to their reuse as structural fill. Project construction during the drier and hotter summer months will help reduce the difficulties and time associated with drying the onsite soils to an acceptable moisture content. Also, thinner fill lifts, scarification of each fill lift and lime treatment are methods to help reduce the drying time of these soils.

The fill soils within the upper twelve (12) inches of the proposed floor slab and pavement areas must be compacted to at least 98 percent of the maximum dry density obtained in general accordance with ASTM D 698, Standard Proctor method. All other fill should be compacted to at least 95 percent of its Standard Proctor maximum dry density. The maximum lift thickness should not exceed 4 inches when using hand operated compaction equipment (plate tamps, jumping jacks, etc.), 6 inches when using small, self-propelled or remote compaction equipment (Rammax, etc.) and 12 inches when using large, self-propelled compaction equipment (Caterpillar 815, etc.).

The limits of the proposed construction areas should be well defined, including the limits of the fill zones for the building, pavements and structural slopes at the time of fill placement. Grade controls should be maintained throughout the filling operations. Filling operations should be observed and tested on a full-time basis by qualified construction materials testing firm. Based on our area experience, the method of field density testing should be a combination of the drive-cylinder method (ASTM D2937) and the nuclear equipment method (ASTM D6938). The testing procedures and equipment should be in conformance with ASTM standards.

While compacting adjacent to the below-grade walls, heavy construction equipment must maintain a minimum horizontal distance of 1(H):1(V) from the base of the wall. If this minimum distance cannot be maintained, the lighter compaction equipment should run perpendicular, not parallel, to the long axis of the wall.

Footing Observations: We recommend that the footing excavations be observed by an experienced geotechnical engineer from Geoscience or his authorized representative to verify that suitable soils are present at the proposed bearing elevation. In addition, a footing observation program involving hand auger borings with Dynamic Cone Penetrometer testing should be performed within the footing excavations to confirm the suitability of the underlying soils. If soft or unsuitable materials are encountered, they should be undercut and replaced with select materials suitable for the design bearing pressure.

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Bearing surfaces for foundations should not be disturbed or left exposed during inclement weather; saturation of the onsite soils can cause a loss of strength and increased compressibility. If construction occurs during inclement weather, and concreting of the foundation is not possible at the time it is excavated, a layer of lean concrete should be placed on the bearing surface for protection. Also, concrete should not be placed on frozen subgrades.

CLOSURE

Geoscience appreciates having had the opportunity to assist you during this phase of the project. If you have any questions concerning this report, please contact us.

Respectfully,
GEOSCIENCE GROUP, INC.

William A. Ruff, P.E.
Senior Engineer
North Carolina License No. 46603

NORTH CAROLINA PROFESSIONAL SEAL 24977 ENGINEER DANIEL A. MICKNEY

Daniel A. Mickney, P.E.
Senior Consulting Engineer
North Carolina License No. 24977

Enclosures
P:/Work Files/Geotech/2026/0021 Trackhouse Highway 73/geotechnical report.doc

APPENDIX

Boring Location Diagrams

Generalized Subsurface Profiles

Investigative Procedures

Test Boring Records

Laboratory Test Results

50 YARD TURF FIELD

HALF-COURT BASKETBALL

B-16

B-13

B-14

158 CAR SPACES

B-10

B-15

B-1

COVERED PIT TRAINING

PIT TRAINING BLDG.

B-11

B-11A

72 SPACES

72 FUTURE SPACES

B-12

B-2

B-4

PROPOSED BUILDING

150,000 INITIAL SF

230,000 SF @ FULL BUILD OUT

319 INITIAL CAR SPACES

391 CAR SPACES @ FULL BUILD OUT

B-5

B-3

HAULER BAYS

FUTURE EXPANSION

SW-3

SW-1

DETENTION POND/BASIN

B-21

TRUCK COURT

B-6

B-7

SW-2

LANDSCAPED FEATURE / RACE CAR DISPLAY

ENTRY PLAZA

B-8

B-20

B-17

89 CAR SPACES

B-18

DROP-OFF

B-9

B-19

R/W

R/W

R/W

R/W

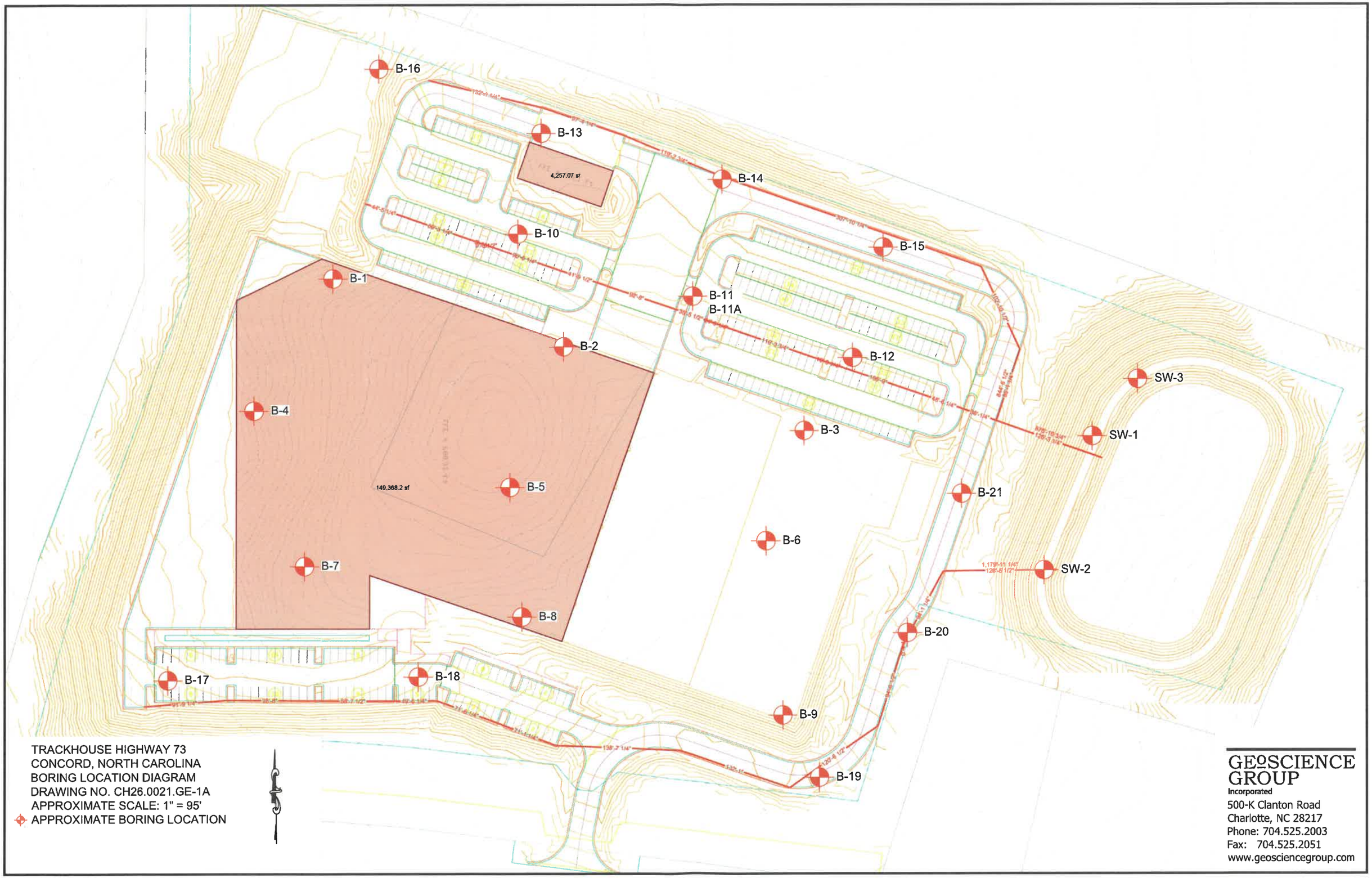
R/W

ATLAS B. BAUCOM JR & ELIZABETH B BAUCOM PARCEL# 4691687408 DB 6850 PG 195

ATLAS B. BAUCOM PARCEL# 469[illegible]8844 DB 447[illegible] 601

TRACKHOUSE HIGHWAY 73
CONCORD, NORTH CAROLINA
BORING LOCATION DIAGRAM
DRAWING NO. CH26.0021.GE-1
APPROXIMATE SCALE: 1" = 95'
APPROXIMATE BORING LOCATION

GEOSCIENCE GROUP
Incorporated
500-K Clanton Road
Charlotte, NC 28217
Phone: 704.525.2003
Fax: 704.525.2051
www.geosciencegroup.com



TRACKHOUSE HIGHWAY 73
CONCORD, NORTH CAROLINA
BORING LOCATION DIAGRAM
DRAWING NO. CH26.0021.GE-1A
APPROXIMATE SCALE: 1" = 95'
APPROXIMATE BORING LOCATION

GEOSCIENCE GROUP
Incorporated
500-K Clanton Road
Charlotte, NC 28217
Phone: 704.525.2003
Fax: 704.525.2051
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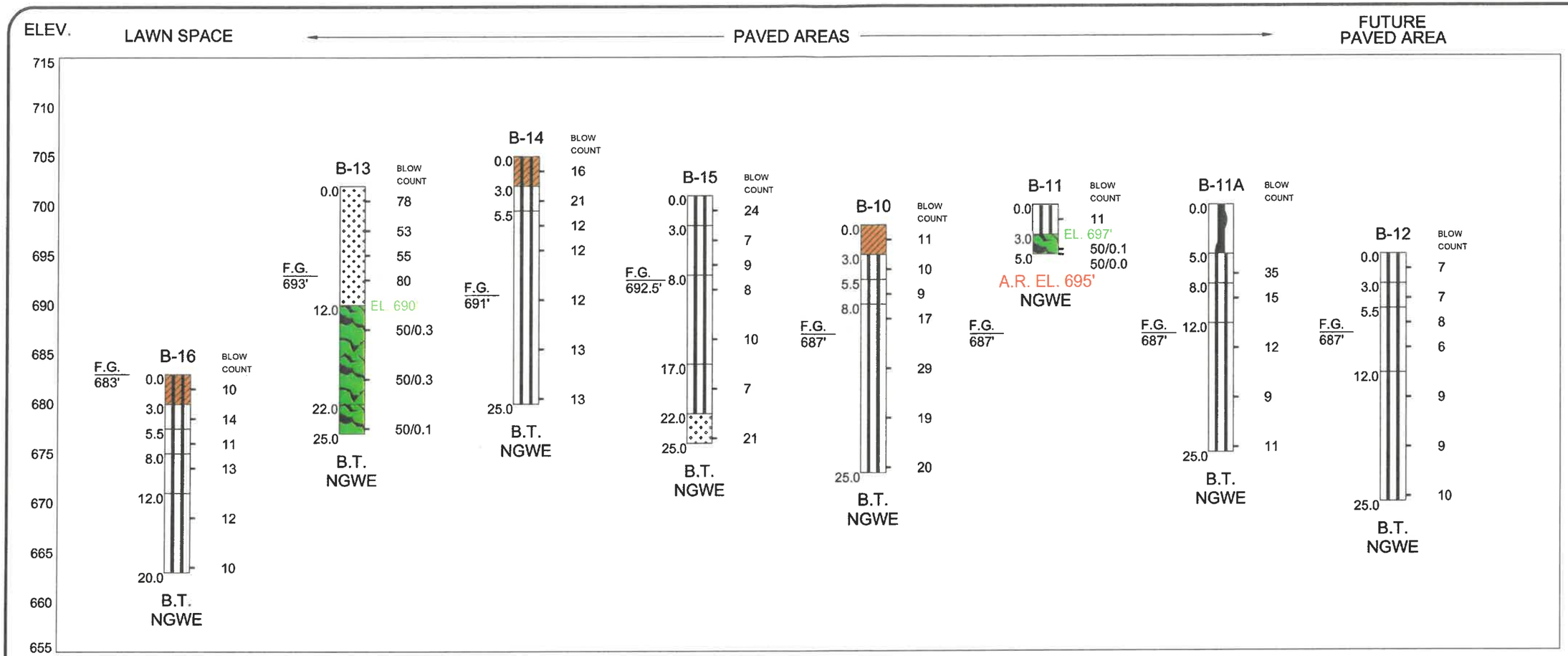


LEGEND

- Sandy CLAY/Very Silty CLAY
- Clayey SILT/Sandy SILT
- Weathered Rock
- Auger Probe Boring
- Silty SAND
- Very Clayey SILT

- Water Table - 1 HR.
- Water Table - 24 HR.
- ◄ - Loss of Drilling Water
- Cavein Depth

B.T. - Boring Terminated
A.R. - Auger Refusal
C.T. - Coring Terminated

NGWE - No Groundwater Encountered
WOH - Weight Of Hammer

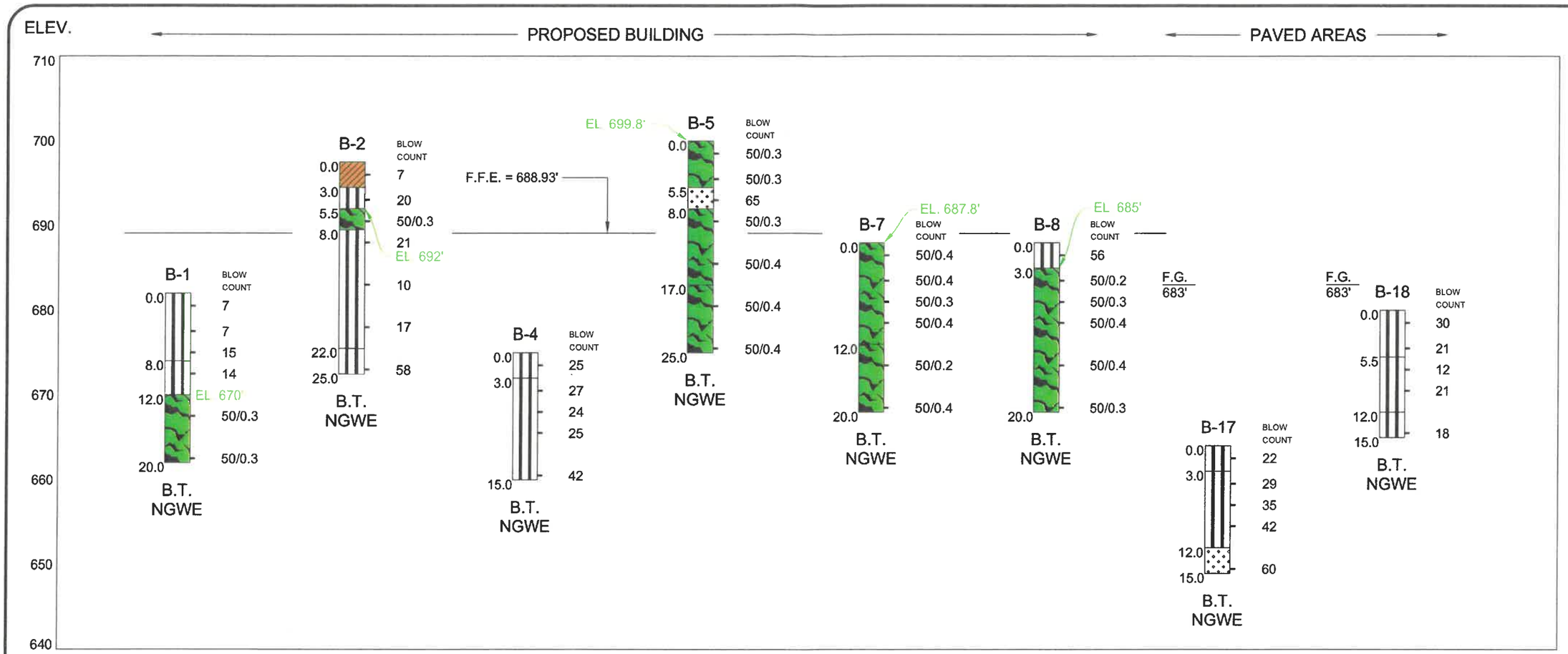
GEOSCIENCE GROUP, INC.

DRAWN BY: MWH	APPROVED BY	VERTICAL: AS SHOWN
DATE: 3/23/26		HORIZONTAL: N.T.S.

TRACKHOUSE HIGHWAY 73
CONCORD, NORTH CAROLINA

GENERALIZED SUBSURFACE PROFILE

DRAWING NUMBER
CH26.0021.GE-2



LEGEND

Sandy CLAY/Very Silty CLAY

Clayey SILT/Sandy SILT

Weathered Rock

Silty SAND

- Water Table - 1 HR.

- Water Table - 24 HR.

◄ - Loss of Drilling Water

- Cavein Depth

B.T. - Boring Terminated

A.R. - Auger Refusal

C.T. - Coring Terminated

NGWE - No Groundwater Encountered

WOH - Weight Of Hammer

GEOSCIENCE GROUP, INC.

DRAWN BY: MWH	APPROVED BY	VERTICAL: AS SHOWN
DATE: 3/23/26		HORIZONTAL: N.T.S.

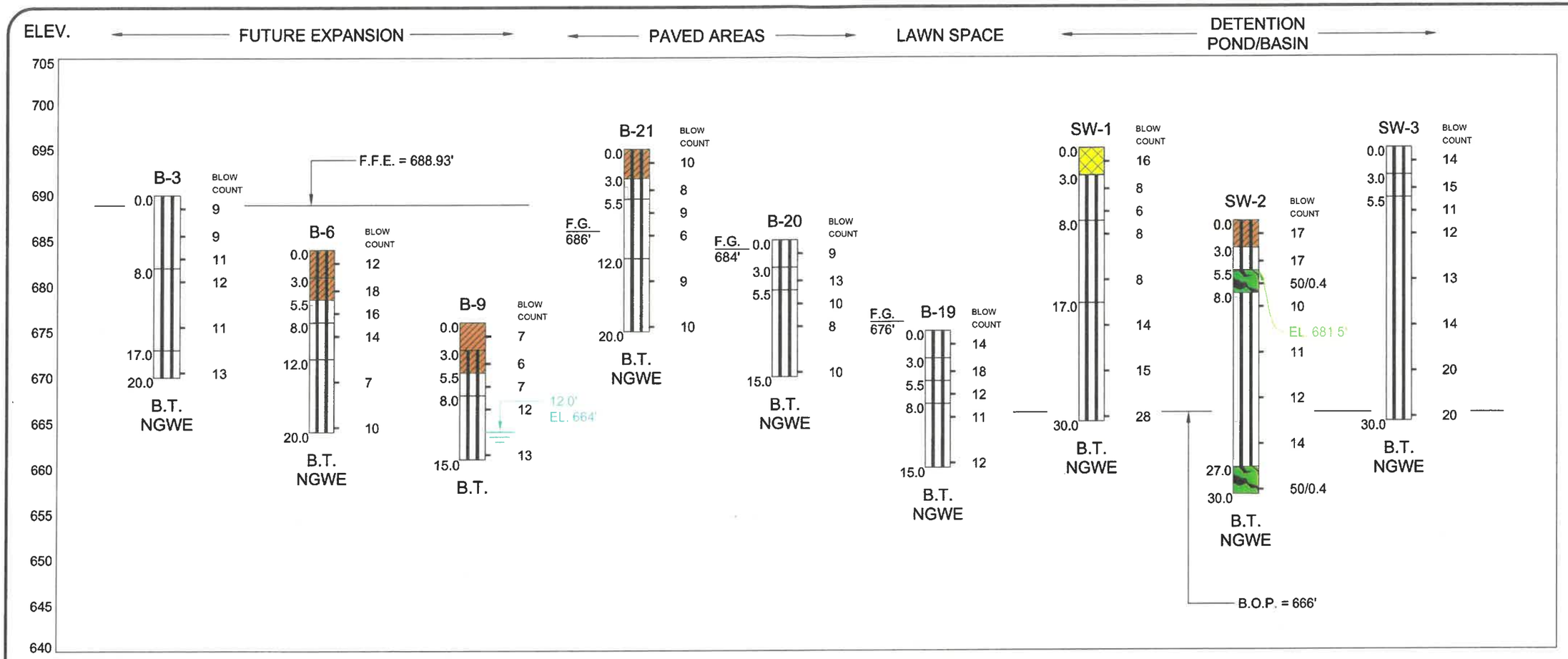
TRACKHOUSE HIGHWAY 73

CONCORD, NORTH CAROLINA

GENERALIZED SUBSURFACE PROFILE

DRAWING NUMBER

CH26.0021.GE-3



LEGEND

- Clayey SILT/Sandy SILT
- Weathered Rock
- Very Clayey SILT
- Existing Fill
- Sandy CLAY/Very Silty CLAY

- Water Table - 1 HR.
- Water Table - 24 HR.
- ◄ - Loss of Drilling Water
- Cavein Depth

B.T. - Boring Terminated
A.R. - Auger Refusal
C.T. - Coring Terminated

NGWE - No Groundwater Encountered
WOH - Weight Of Hammer

GEOSCIENCE GROUP, INC.

DRAWN BY: MWH	APPROVED BY	VERTICAL: AS SHOWN
DATE: 3/23/26		HORIZONTAL: N.T.S.

TRACKHOUSE HIGHWAY 73
CONCORD, NORTH CAROLINA

GENERALIZED SUBSURFACE PROFILE

DRAWING NUMBER
CH26.0021.GE-4

GEOSCIENCE GROUP, INC.
INVESTIGATIVE PROCEDURES
Trackhouse Highway 73
Geoscience Project No. CH26.0021.GE

FIELD

Soil Test Borings: Twenty-four (24) soil test borings (B-1 through B-21, SW-1, SW-2 and SW-3) and one (1) offset boring (B-11A) were drilled at the approximate locations shown on the attached *Boring Location Diagram*, Drawing No. CH26.0021.GE-1. Soil sampling and penetration testing were performed in accordance with ASTM D 1586-84.

The borings were advanced with hollow-stem, continuous-flight augers and, at standard intervals within the soil test borings, soil samples were obtained with a standard 1.4-inch (3.6cm) I.D., 2-inch (5.1cm) O.D., split-tube sampler. The sampler was first seated 6 inches (15.2cm) to penetrate any loose cuttings, then driven an additional 12 inches (30.5cm) with blows of a 140 pound (63.5kg) hammer falling 30 inches (76.2cm). The number of hammer blows required to drive the sampler the final 12 inches (30.5cm) was recorded and is designated the "Standard Penetration Resistance" (N-Value). The Standard Penetration Resistance, when properly evaluated, is an index to soil strength, density and ability to support foundations.

Representative portions of each soil sample were placed in sealed containers and taken to our laboratory. The samples were then examined by an engineer to verify the driller's field classifications. Test Boring Records are attached indicating the soil descriptions and Standard Penetration Resistances.

LABORATORY

Moisture Content: The moisture content is the ratio, expressed as a percentage, of the weight of the water in a given mass of soil to the weight of the solid particles. This test was conducted in accordance with ASTM Designation D 2216-66. The test results are presented on the attached sheets.

Soil Plasticity Test (Atterberg Limits Test): Representative samples of the near-surface soils were obtained to determine the soil's plasticity characteristics. The Plasticity Index (PI) is representative of this characteristic and is bracketed by the Liquid Limit (LL) and the Plastic Limit (PL). The Liquid Limit is the moisture content at which the soil will flow as a heavy viscous fluid and is determined in accordance with ASTM D 423. The Plastic Limit is the moisture content at which the soil begins to lose its plasticity and is determined in accordance with ASTM D 424. The data obtained is presented on the attached sheets.

Compaction Test: Representative samples of the onsite soils were obtained from auger cuttings to determine their suitability as fill material. Standard Proctor Compaction Tests (ASTM D 698) were performed on these soils to determine their compaction characteristics, including maximum dry density and optimum moisture content. The test results are presented on the attached sheets.

California Bearing Ratio (CBR): The results of the compaction test described above were utilized in compacting samples for laboratory CBR tests. The California Bearing Ratio is a punching shear test which provides a semi-empirical index of the strength and deflection characteristics of a soil which has been correlated with pavement performance. The test is performed on a six (6) inch diameter, 4.61 inch thick disc of compacted soil that is confined in a steel cylinder. Before testing, the sample is inundated under a

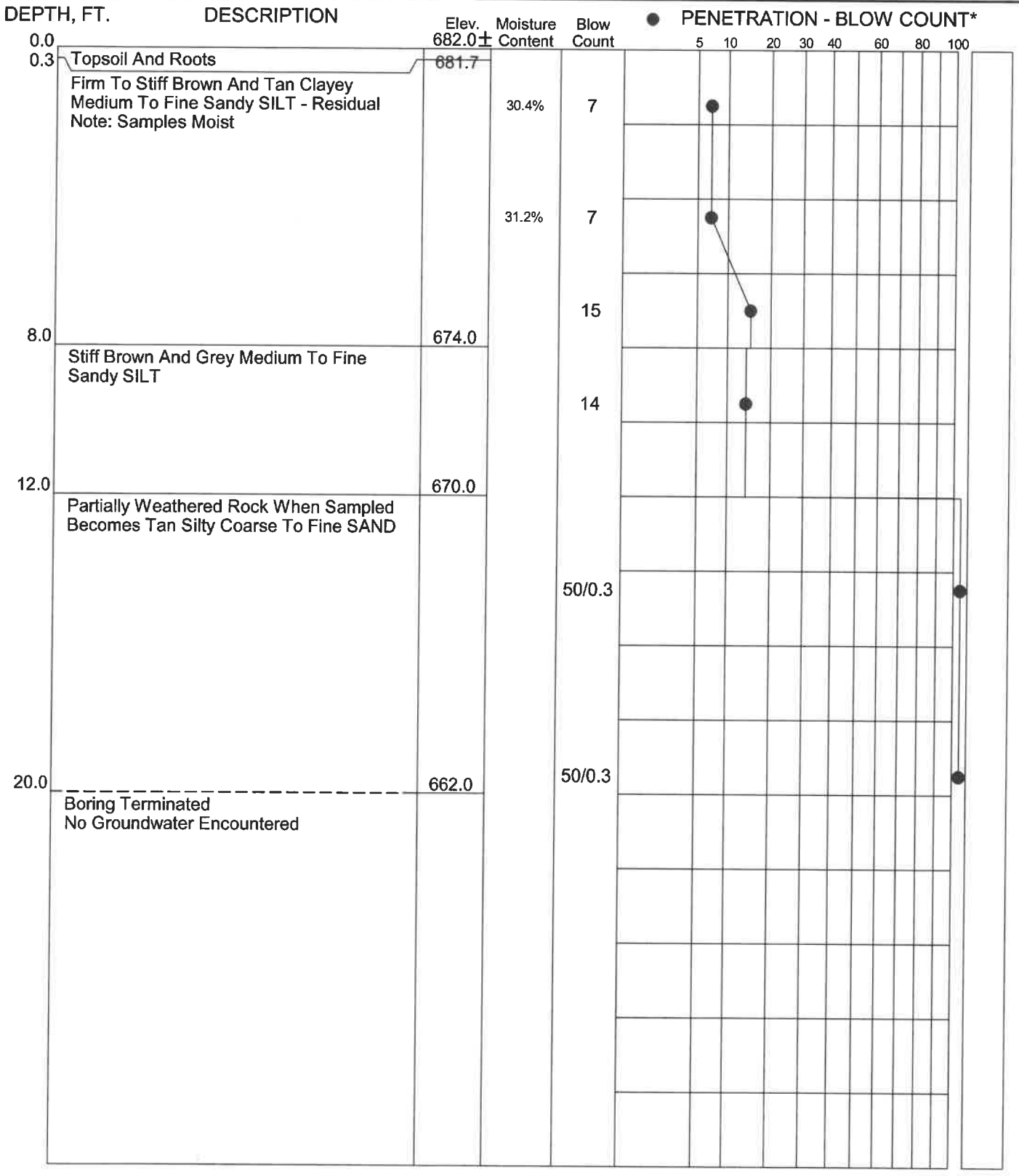
LABORATORY (Continued)

confining pressure approximately equal to the weight of the future pavement in order to determine the potential swelling, and to simulate the worst case conditions that can occur in the field. A piston approximately two (2) inches in diameter is then forced into the soil at a standard rate to determine the resistance to penetration. The CBR value is the ratio expressed as a percentage of the actual load required to produce a 0.1 inch deflection to that required to produce the same deflection in a standardized crushed stone. The results of the CBR tests are shown on the attached sheets.

BORING NO.: B-1
DATE DRILLED: 3/11/26
DRILLING CONTRACTOR: CG2
JOB NO.: CH26.0021.GE
PROJECT: TRACKHOUSE HIGHWAY 73

TEST BORING RECORD

GEOSCIENCE GROUP, INC.



BORING AND SAMPLING MEETS ASTM D-1586
CORE DRILLING MEETS ASTM D-2113

*PENETRATION IS THE NUMBER OF BLOWS OF A 140 LB. (63.5kg) HAMMER FALLING 30 IN. (76.2cm) REQUIRED TO DRIVE A 1.4 IN. (3.6cm) I.D. SAMPLER 1 FT. (30.5cm)

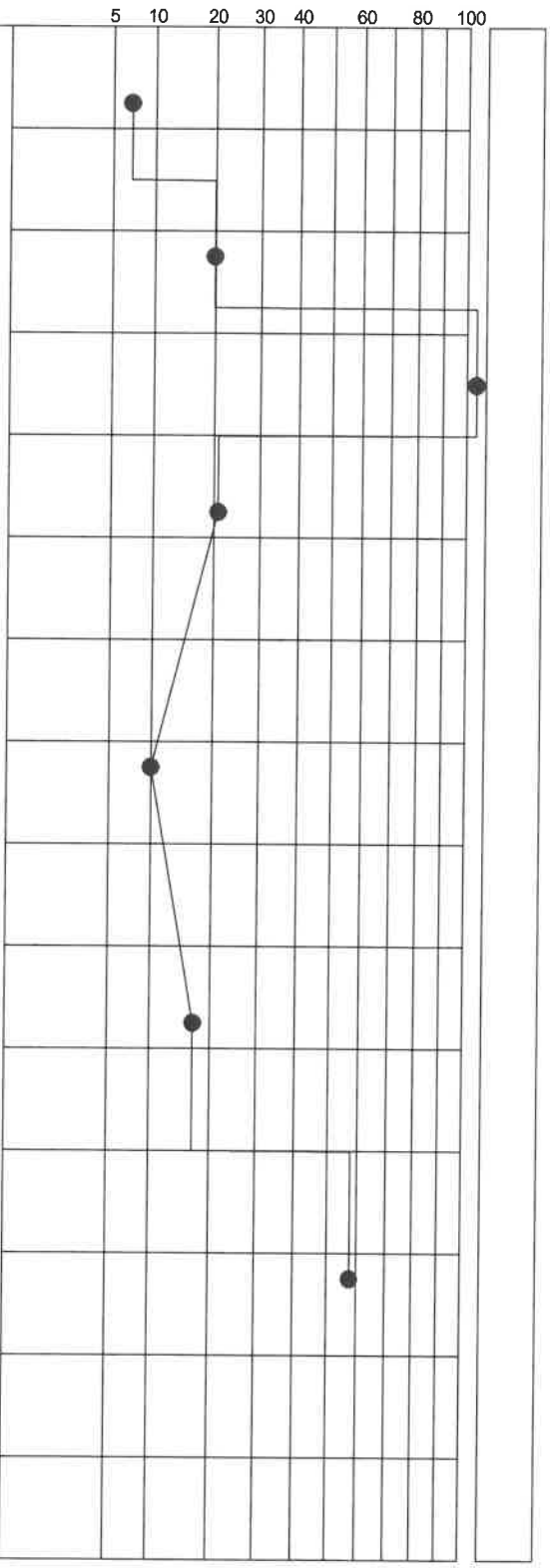
UNDISTURBED SAMPLE
50/% ROCK CORE RECOVERY
◄ LOSS OF DRILLING WATER
WOH WEIGHT OF HAMMER
WATER TABLE - 24 HR.
WATER TABLE - 1 HR.
CAVE-IN DEPTH

BORING NO.: B-2
DATE DRILLED: 3/11/26
DRILLING CONTRACTOR: CG2
JOB NO.: CH26.0021.GE
PROJECT: TRACKHOUSE HIGHWAY 73

TEST BORING RECORD

GEOSCIENCE GROUP, INC.

DEPTH, FT.	DESCRIPTION	Elev. 697.5±	Moisture Content	Blow Count
0.0				
0.3	Topsoil And Roots	697.2		
	Firm Brown And Tan Medium To Fine Sandy Very Silty CLAY - Residual Note: Sample Moist		32.1%	7
3.0		694.5		
	Very Stiff Brown And Tan Medium To Fine Sandy Clayey SILT		22.6%	20
5.5		692.0		
	Partially Weathered Rock When Sampled Becomes Brown, Tan And White Clayey Medium To Fine Very Sandy SILT With Rock Fragments		20.5%	50/0.3
8.0		689.5		
	Stiff And Very Stiff Brown And Tan Medium To Fine Sandy SILT		14.7%	21
				10
				17
22.0		675.5		
	Very Hard Brown And Grey Coarse To Fine Sandy SILT			58
25.0		672.5		
	Boring Terminated No Groundwater Encountered			



BORING AND SAMPLING MEETS ASTM D-1586
CORE DRILLING MEETS ASTM D-2113

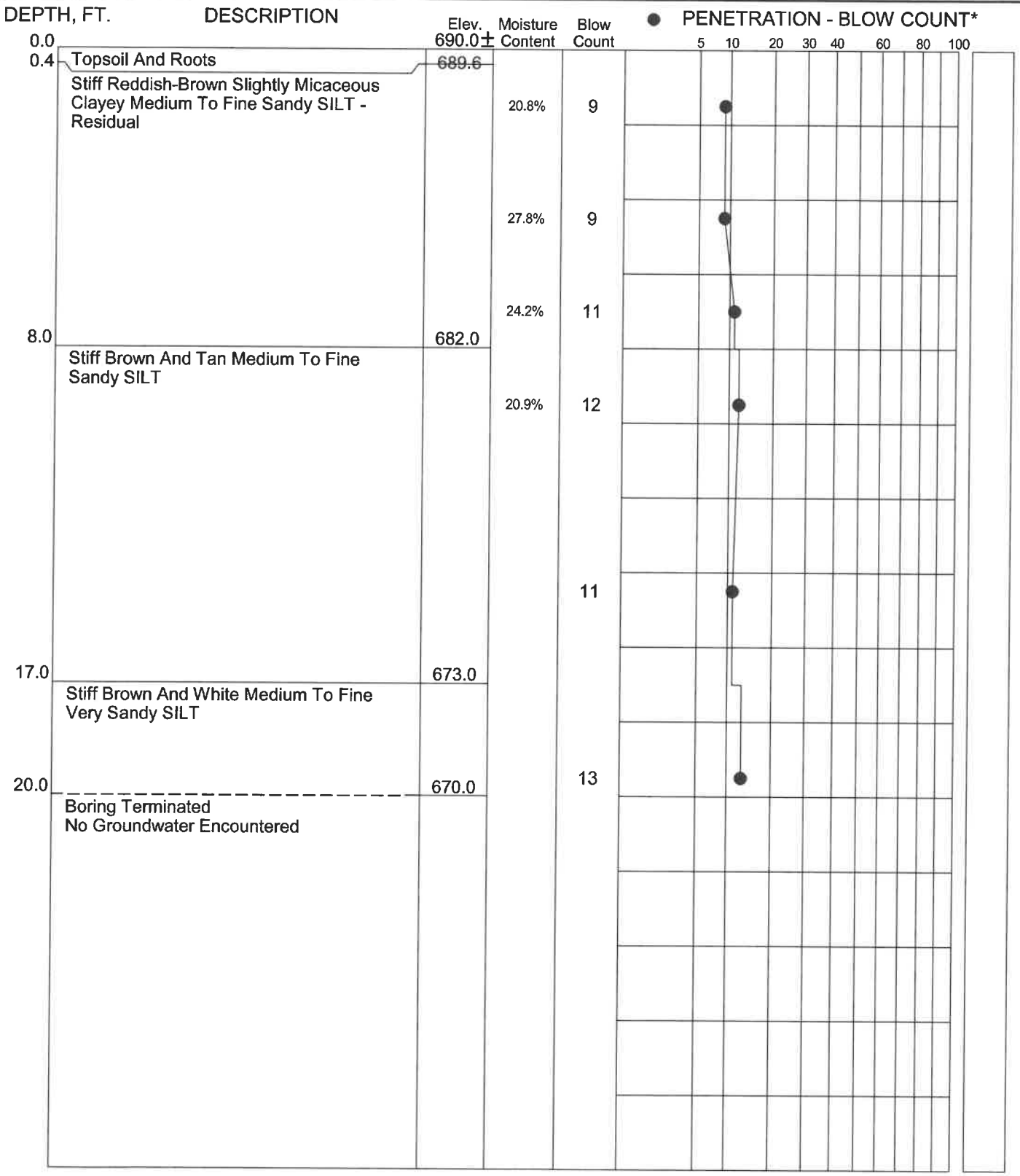
*PENETRATION IS THE NUMBER OF BLOWS OF A 140 LB. (63.5kg) HAMMER FALLING 30 IN. (76.2cm) REQUIRED TO DRIVE A 1.4 IN. (3.6cm) I.D. SAMPLER 1 FT. (30.5cm)

UNDISTURBED SAMPLE
50/% ROCK CORE RECOVERY
◄ LOSS OF DRILLING WATER
WOH WEIGHT OF HAMMER
WATER TABLE - 24 HR.
WATER TABLE - 1 HR.
CAVE-IN DEPTH

BORING NO.: B-3
DATE DRILLED: 3/10/26
DRILLING CONTRACTOR: CG2
JOB NO.: CH26.0021.GE
PROJECT: TRACKHOUSE HIGHWAY 73

TEST BORING RECORD

GEOSCIENCE GROUP, INC.



BORING AND SAMPLING MEETS ASTM D-1586
CORE DRILLING MEETS ASTM D-2113

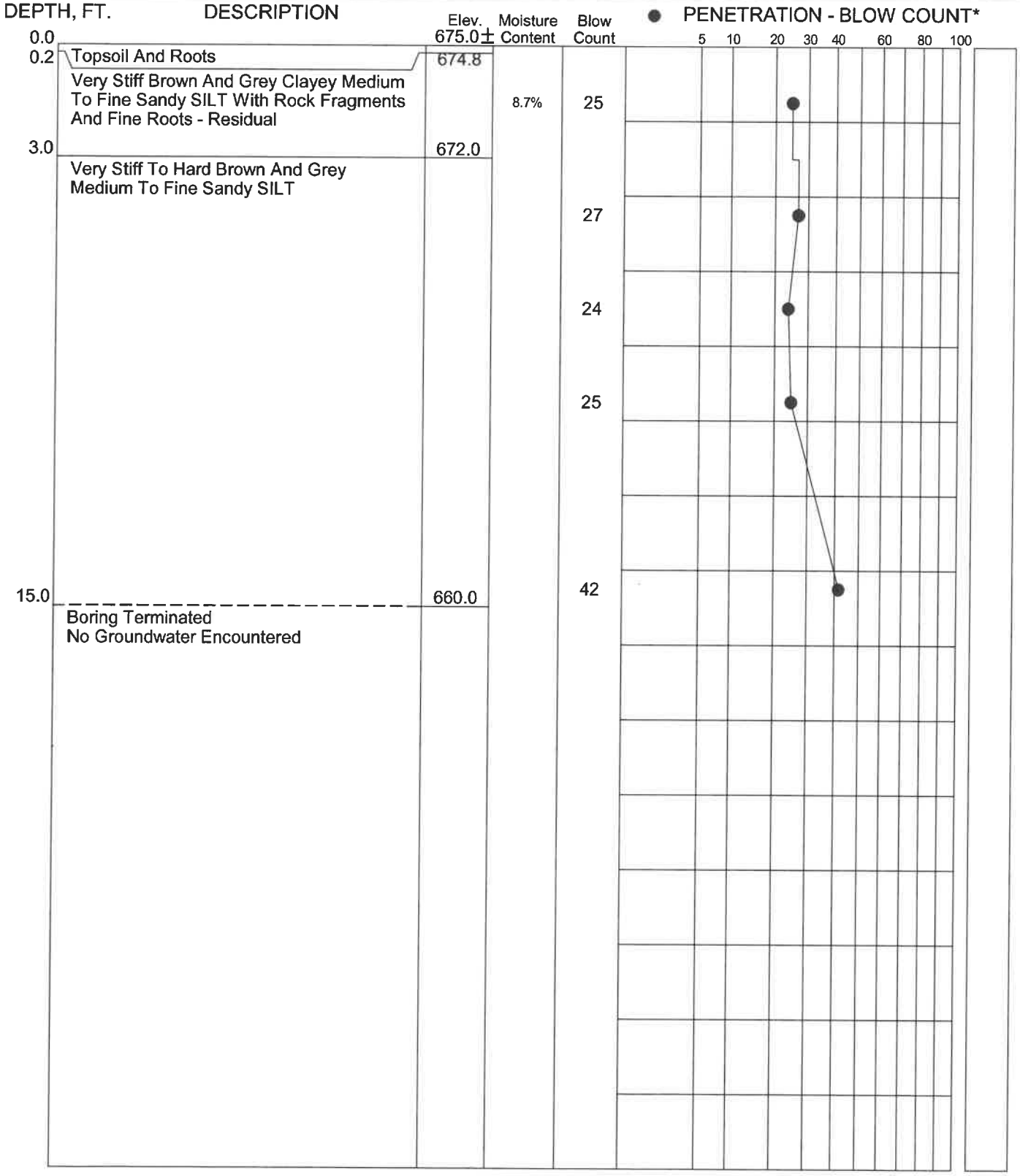
*PENETRATION IS THE NUMBER OF BLOWS OF A 140 LB. (63.5kg) HAMMER FALLING 30 IN. (76.2cm) REQUIRED TO DRIVE A 1.4 IN. (3.6cm) I.D. SAMPLER 1 FT. (30.5cm)

UNDISTURBED SAMPLE
50% ROCK CORE RECOVERY
◄ LOSS OF DRILLING WATER
WOH WEIGHT OF HAMMER
WATER TABLE - 24 HR.
WATER TABLE - 1 HR.
CAVE-IN DEPTH

BORING NO.: B-4
DATE DRILLED: 3/11/26
DRILLING CONTRACTOR: CG2
JOB NO.: CH26.0021.GE
PROJECT: TRACKHOUSE HIGHWAY 73

TEST BORING RECORD

GEOSCIENCE GROUP, INC.



BORING AND SAMPLING MEETS ASTM D-1586
CORE DRILLING MEETS ASTM D-2113

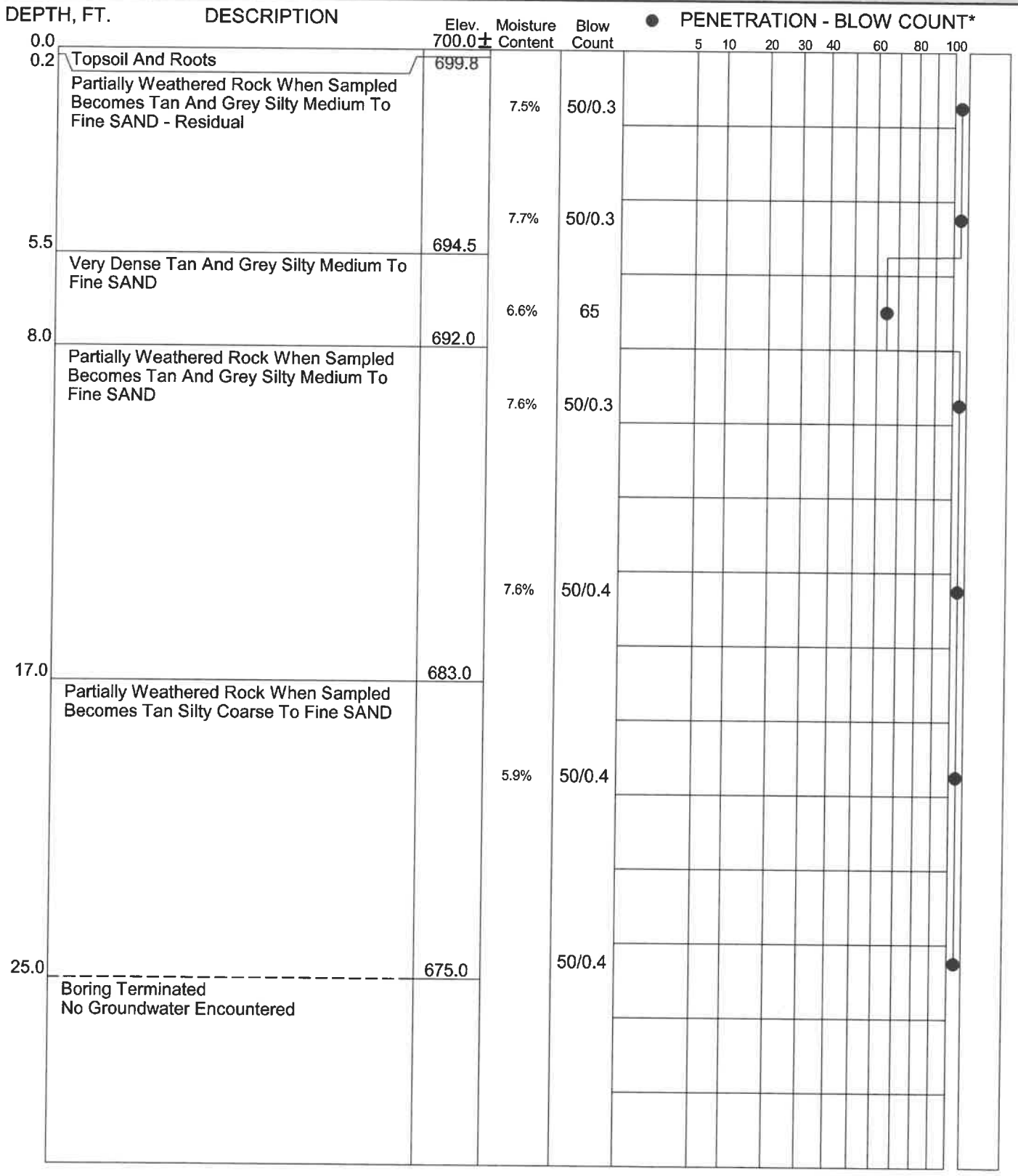
*PENETRATION IS THE NUMBER OF BLOWS OF A 140 LB. (63.5kg) HAMMER FALLING 30 IN. (76.2cm) REQUIRED TO DRIVE A 1.4 IN. (3.6cm) I.D. SAMPLER 1 FT. (30.5cm)

UNDISTURBED SAMPLE
50/% ROCK CORE RECOVERY
◄ LOSS OF DRILLING WATER
WOH WEIGHT OF HAMMER
WATER TABLE - 24 HR.
WATER TABLE - 1 HR.
CAVE-IN DEPTH

BORING NO.: B-5
DATE DRILLED: 3/11/26
DRILLING CONTRACTOR: CG2
JOB NO.: CH26.0021.GE
PROJECT: TRACKHOUSE HIGHWAY 73

TEST BORING RECORD

GEOSCIENCE GROUP, INC.



BORING AND SAMPLING MEETS ASTM D-1586
CORE DRILLING MEETS ASTM D-2113

***PENETRATION IS THE NUMBER OF BLOWS OF A 140 LB. (63.5kg) HAMMER FALLING 30 IN. (76.2cm) REQUIRED TO DRIVE A 1.4 IN. (3.6cm) I.D. SAMPLER 1 FT. (30.5cm)**

UNDISTURBED SAMPLE
50/% ROCK CORE RECOVERY
◀ LOSS OF DRILLING WATER
WOH WEIGHT OF HAMMER
WATER TABLE - 24 HR.
WATER TABLE - 1 HR.
CAVE-IN DEPTH

BORING NO.: B-6
DATE DRILLED: 3/13/26
DRILLING CONTRACTOR: CG2
JOB NO.: CH26.0021.GE
PROJECT: TRACKHOUSE HIGHWAY 73

TEST BORING RECORD

GEOSCIENCE GROUP, INC.

DEPTH, FT.	DESCRIPTION	Elev. 684.0±	Moisture Content	Blow Count
0.0				
0.3	Topsoil And Roots	683.7		
	Stiff Reddish-Brown Coarse To Fine Sandy Very Clayey SILT - Residual		26.0%	12
3.0		681.0		
	Very Stiff Reddish-Brown Coarse To Fine Sandy Very Clayey SILT		24.6%	18
5.5		678.5		
	Very Stiff Reddish-Brown Coarse To Fine Sandy Clayey SILT			16
8.0		676.0		
	Stiff Reddish-Brown Clayey Coarse To Fine Sandy SILT With Quartz Pieces			14
12.0		672.0		
	Firm To Stiff Brown And Tan Slightly Micaceous Medium To Fine Sandy SILT			7
				10
20.0		664.0		
	Boring Terminated No Groundwater Encountered			

● PENETRATION - BLOW COUNT*

5 10 20 30 40 60 80 100

BORING AND SAMPLING MEETS ASTM D-1586
CORE DRILLING MEETS ASTM D-2113

*PENETRATION IS THE NUMBER OF BLOWS OF A 140 LB. (63.5kg) HAMMER FALLING 30 IN. (76.2cm) REQUIRED TO DRIVE A 1.4 IN. (3.6cm) I.D. SAMPLER 1 FT. (30.5cm)

UNDISTURBED SAMPLE
50/% ROCK CORE RECOVERY
◀ LOSS OF DRILLING WATER
WOH WEIGHT OF HAMMER
WATER TABLE - 24 HR.
WATER TABLE - 1 HR.
CAVE-IN DEPTH

BORING NO.: B-7
DATE DRILLED: 3/11/26
DRILLING CONTRACTOR: CG2
JOB NO.: CH26.0021.GE
PROJECT: TRACKHOUSE HIGHWAY 73

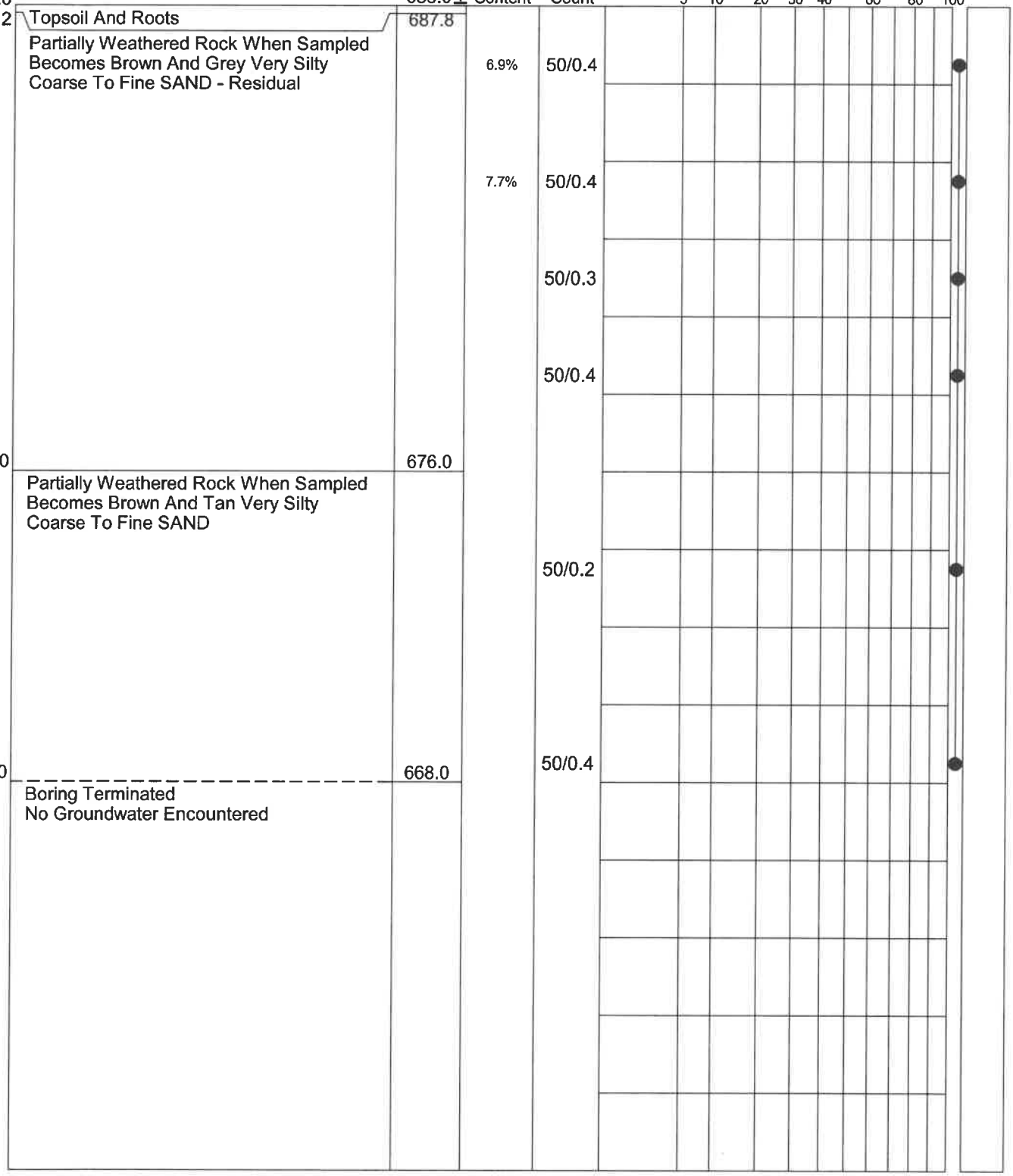
TEST BORING RECORD

GEOSCIENCE GROUP, INC.

DEPTH, FT.	DESCRIPTION	Elev. 688.0±	Moisture Content	Blow Count
0.0				
0.2	Topsoil And Roots	687.8		
	Partially Weathered Rock When Sampled Becomes Brown And Grey Very Silty Coarse To Fine SAND - Residual		6.9%	50/0.4
			7.7%	50/0.4
				50/0.3
				50/0.4
12.0		676.0		
	Partially Weathered Rock When Sampled Becomes Brown And Tan Very Silty Coarse To Fine SAND			50/0.2
20.0		668.0		50/0.4
	Boring Terminated No Groundwater Encountered			

● PENETRATION - BLOW COUNT*

5 10 20 30 40 60 80 100



BORING AND SAMPLING MEETS ASTM D-1586
CORE DRILLING MEETS ASTM D-2113

***PENETRATION IS THE NUMBER OF BLOWS OF A 140 LB. (63.5kg) HAMMER FALLING 30 IN. (76.2cm) REQUIRED TO DRIVE A 1.4 IN. (3.6cm) I.D. SAMPLER 1 FT. (30.5cm)**

UNDISTURBED SAMPLE
50/% ROCK CORE RECOVERY
◄ LOSS OF DRILLING WATER
WOH WEIGHT OF HAMMER
WATER TABLE - 24 HR.
WATER TABLE - 1 HR.
CAVE-IN DEPTH

BORING NO.: B-8
DATE DRILLED: 3/11/26
DRILLING CONTRACTOR: CG2
JOB NO.: CH26.0021.GE
PROJECT: TRACKHOUSE HIGHWAY 73

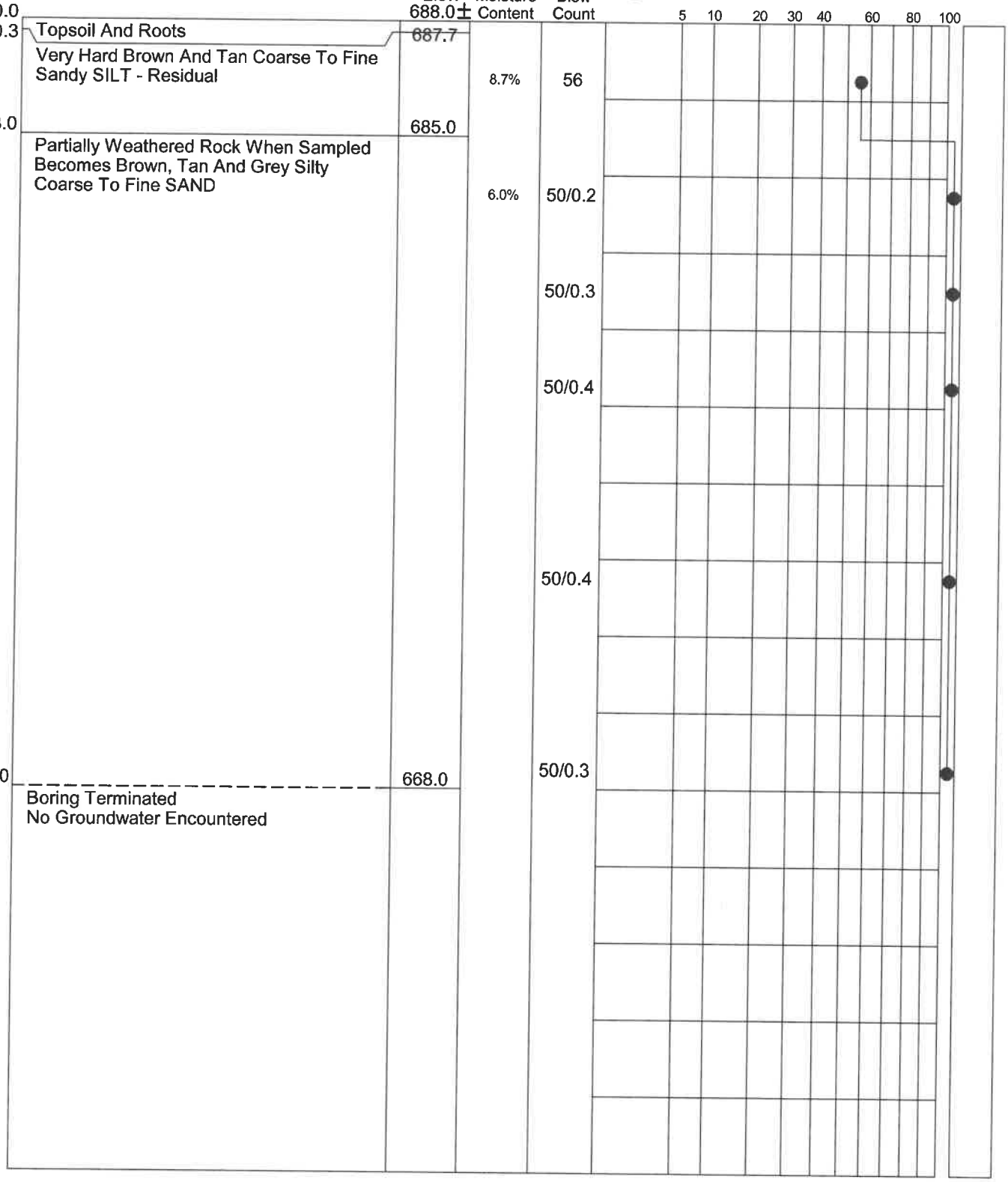
TEST BORING RECORD

GEOSCIENCE GROUP, INC.

DEPTH, FT.	DESCRIPTION	Elev.	Moisture Content	Blow Count
0.0		688.0±		
0.3	Topsoil And Roots	687.7		
	Very Hard Brown And Tan Coarse To Fine Sandy SILT - Residual		8.7%	56
3.0		685.0		
	Partially Weathered Rock When Sampled Becomes Brown, Tan And Grey Silty Coarse To Fine SAND		6.0%	50/0.2
				50/0.3
				50/0.4
				50/0.4
20.0		668.0		50/0.3
	Boring Terminated No Groundwater Encountered			

● PENETRATION - BLOW COUNT*

5 10 20 30 40 60 80 100



BORING AND SAMPLING MEETS ASTM D-1586
CORE DRILLING MEETS ASTM D-2113

*PENETRATION IS THE NUMBER OF BLOWS OF A 140 LB. (63.5kg) HAMMER FALLING 30 IN. (76.2cm) REQUIRED TO DRIVE A 1.4 IN. (3.6cm) I.D. SAMPLER 1 FT. (30.5cm)

UNDISTURBED SAMPLE
|50|% ROCK CORE RECOVERY
◄ LOSS OF DRILLING WATER
WOH WEIGHT OF HAMMER
WATER TABLE - 24 HR.
WATER TABLE - 1 HR.
CAVE-IN DEPTH

BORING NO.: B-9
DATE DRILLED: 3/13/26
DRILLING CONTRACTOR: CG2
JOB NO.: CH26.0021.GE
PROJECT: TRACKHOUSE HIGHWAY 73

TEST BORING RECORD

GEOSCIENCE GROUP, INC.

DEPTH, FT.	DESCRIPTION	Elev. 676.0±	Moisture Content	Blow Count
0.0				
0.3	Topsoil And Roots	675.7		
	Firm Reddish-Brown And Brown Medium To Fine Sandy Very Silty CLAY With Fine Roots - Residual		26.4%	7
3.0		673.0		
	Firm Reddish-Brown Medium To Fine Sandy Very Clayey SILT		30.1%	6
5.5		670.5		
	Firm Reddish-Brown Clayey Medium To Fine Sandy SILT			7
8.0		668.0		
	Stiff Brown And Tan Medium To Fine Sandy SILT			12
15.0		661.0		13
	Boring Terminated			

PENETRATION - BLOW COUNT*

5 10 20 30 40 60 80 100

12.0'

BORING AND SAMPLING MEETS ASTM D-1586
CORE DRILLING MEETS ASTM D-2113

*PENETRATION IS THE NUMBER OF BLOWS OF A 140 LB. (63.5kg) HAMMER FALLING 30 IN. (76.2cm) REQUIRED TO DRIVE A 1.4 IN. (3.6cm) I.D. SAMPLER 1 FT. (30.5cm)

UNDISTURBED SAMPLE
50/% ROCK CORE RECOVERY
◀ LOSS OF DRILLING WATER
WOH WEIGHT OF HAMMER
WATER TABLE - 24 HR.
WATER TABLE - 1 HR.
CAVE-IN DEPTH

BORING NO.: B-10
DATE DRILLED: 3/11/26
DRILLING CONTRACTOR: CG2
JOB NO.: CH26.0021.GE
PROJECT: TRACKHOUSE HIGHWAY 73

TEST BORING RECORD

GEOSCIENCE GROUP, INC.

DEPTH, FT.	DESCRIPTION	Elev. 698.0±	Moisture Content	Blow Count
0.0				
0.3	Topsoil And Roots	697.7		
	Stiff Brown And Tan Medium To Fine Sandy Very Silty CLAY - Residual Note: Sample Moist		37.1%	11
3.0		695.0		
	Stiff Brown Medium To Fine Sandy Clayey SILT Note: Sample Very Moist		38.3%	10
5.5		692.5		
	Stiff Brown And Tan Clayey Medium To Fine Sandy SILT Note: Sample Very Moist		45.4%	9
8.0		690.0		
	Very Stiff Brown And Tan Medium To Fine Sandy SILT Note: Samples Very Moist		42.9%	17
			37.1%	29
				19
				20
25.0		673.0		
	Boring Terminated No Groundwater Encountered			

PENETRATION - BLOW COUNT*

5 10 20 30 40 60 80 100

BORING AND SAMPLING MEETS ASTM D-1586
CORE DRILLING MEETS ASTM D-2113

***PENETRATION IS THE NUMBER OF BLOWS OF A 140 LB. (63.5kg) HAMMER FALLING 30 IN. (76.2cm) REQUIRED TO DRIVE A 1.4 IN. (3.6cm) I.D. SAMPLER 1 FT. (30.5cm)**

UNDISTURBED SAMPLE
50/% ROCK CORE RECOVERY
◄ LOSS OF DRILLING WATER
WOH WEIGHT OF HAMMER
WATER TABLE - 24 HR.
WATER TABLE - 1 HR.
CAVE-IN DEPTH

BORING NO.: **B-11**
DATE DRILLED: **3/10/26**
DRILLING CONTRACTOR: **CG2**
JOB NO.: **CH26.0021.GE**
PROJECT: **TRACKHOUSE HIGHWAY 73**

TEST BORING RECORD

GEOSCIENCE GROUP, INC.

DEPTH, FT.	DESCRIPTION	Elev. 700.0±	Moisture Content	Blow Count	● PENETRATION - BLOW COUNT* (5 10 20 30 40 60 80 100)
0.0					
0.4	Topsoil And Roots	~~699.6~~			
	Stiff Reddish-Brown And Tan Clayey Coarse To Fine Sandy SILT With Fine Roots - Residual		28.5%	11	●
3.0		697.0			
	Partially Weathered Rock When Sampled Becomes Brown, Tan And Grey Silty Coarse To Fine SAND With Quartz Pieces		24.4%	50/0.1 50/0.0	● ●
5.0		695.0			
	Auger Refusal No Groundwater Encountered				

BORING AND SAMPLING MEETS ASTM D-1586
CORE DRILLING MEETS ASTM D-2113

*PENETRATION IS THE NUMBER OF BLOWS OF A 140 LB. (63.5kg) HAMMER FALLING 30 IN. (76.2cm) REQUIRED TO DRIVE A 1.4 IN. (3.6cm) I.D. SAMPLER 1 FT. (30.5cm)

UNDISTURBED SAMPLE
50/% ROCK CORE RECOVERY
◄ LOSS OF DRILLING WATER
WOH WEIGHT OF HAMMER
WATER TABLE - 24 HR.
WATER TABLE - 1 HR.
CAVE-IN DEPTH

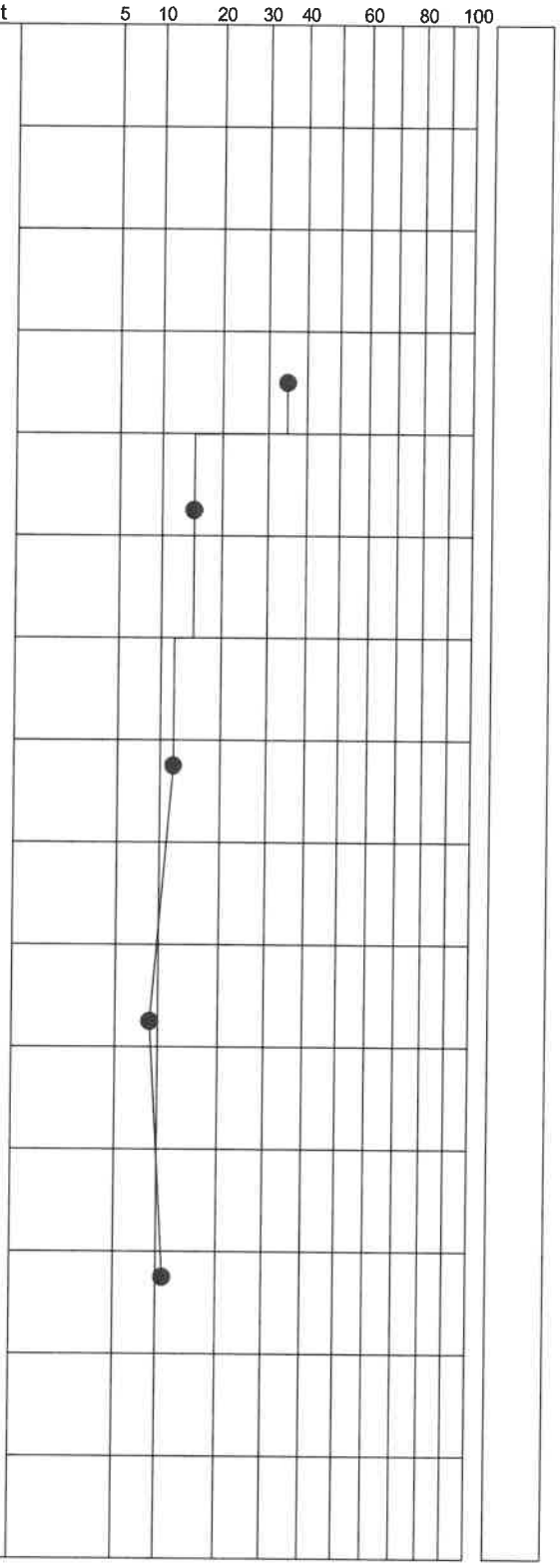
BORING NO.: B-11A
DATE DRILLED: 3/10/26
DRILLING CONTRACTOR: CG2
JOB NO.: CH26.0021.GE
PROJECT: TRACKHOUSE HIGHWAY 73

TEST BORING RECORD

GEOSCIENCE GROUP, INC.

DEPTH, FT.	DESCRIPTION	Elev. 700.0±	Moisture Content	Blow Count
0.0	Auger Advanced To 5 Feet Below The Ground Surface Standard Penetration Testing Not Performed			
5.0		695.0		
	Hard Tan, Grey And White Coarse To Fine Very Sandy SILT With Quartz Pieces - Residual		13.2%	35
8.0		692.0		
	Stiff Brown, Tan And Grey Medium To Fine Sandy SILT		16.8%	15
12.0		688.0		
	Stiff Brown And Tan Coarse To Fine Sandy SILT		20.4%	12
			22.6%	9
25.0		675.0	23.5%	11
	Boring Terminated No Groundwater Encountered			

● PENETRATION - BLOW COUNT*
5 10 20 30 40 60 80 100



BORING AND SAMPLING MEETS ASTM D-1586
CORE DRILLING MEETS ASTM D-2113

*PENETRATION IS THE NUMBER OF BLOWS OF A 140 LB. (63.5kg) HAMMER FALLING 30 IN. (76.2cm) REQUIRED TO DRIVE A 1.4 IN. (3.6cm) I.D. SAMPLER 1 FT. (30.5cm)

UNDISTURBED SAMPLE
50/% ROCK CORE RECOVERY
◄ LOSS OF DRILLING WATER
WOH WEIGHT OF HAMMER
WATER TABLE - 24 HR.
WATER TABLE - 1 HR.
CAVE-IN DEPTH

BORING NO.: B-12
DATE DRILLED: 3/10/26
DRILLING CONTRACTOR: CG2
JOB NO.: CH26.0021.GE
PROJECT: TRACKHOUSE HIGHWAY 73

TEST BORING RECORD

GEOSCIENCE GROUP, INC.

DEPTH, FT.	DESCRIPTION	Elev. 695.0±	Moisture Content	Blow Count
0.0				
0.3	Topsoil And Roots	694.7		
	Firm Reddish-Brown And Brown Medium To Fine Sandy Clayey SILT With Fine Roots - Residual		29.9%	7
3.0		692.0		
	Firm Reddish-Brown And Brown Clayey Medium To Fine Sandy SILT		26.6%	7
5.5		689.5		
	Firm Reddish-Brown Medium To Fine Sandy SILT		20.7%	8
			21.4%	6
12.0		683.0		
	Stiff Brown And Tan Slightly Micaceous Medium To Fine Very Sandy SILT		19.3%	9
				9
25.0		670.0		10
	Boring Terminated No Groundwater Encountered			

● PENETRATION - BLOW COUNT*

5 10 20 30 40 60 80 100

BORING AND SAMPLING MEETS ASTM D-1586
CORE DRILLING MEETS ASTM D-2113

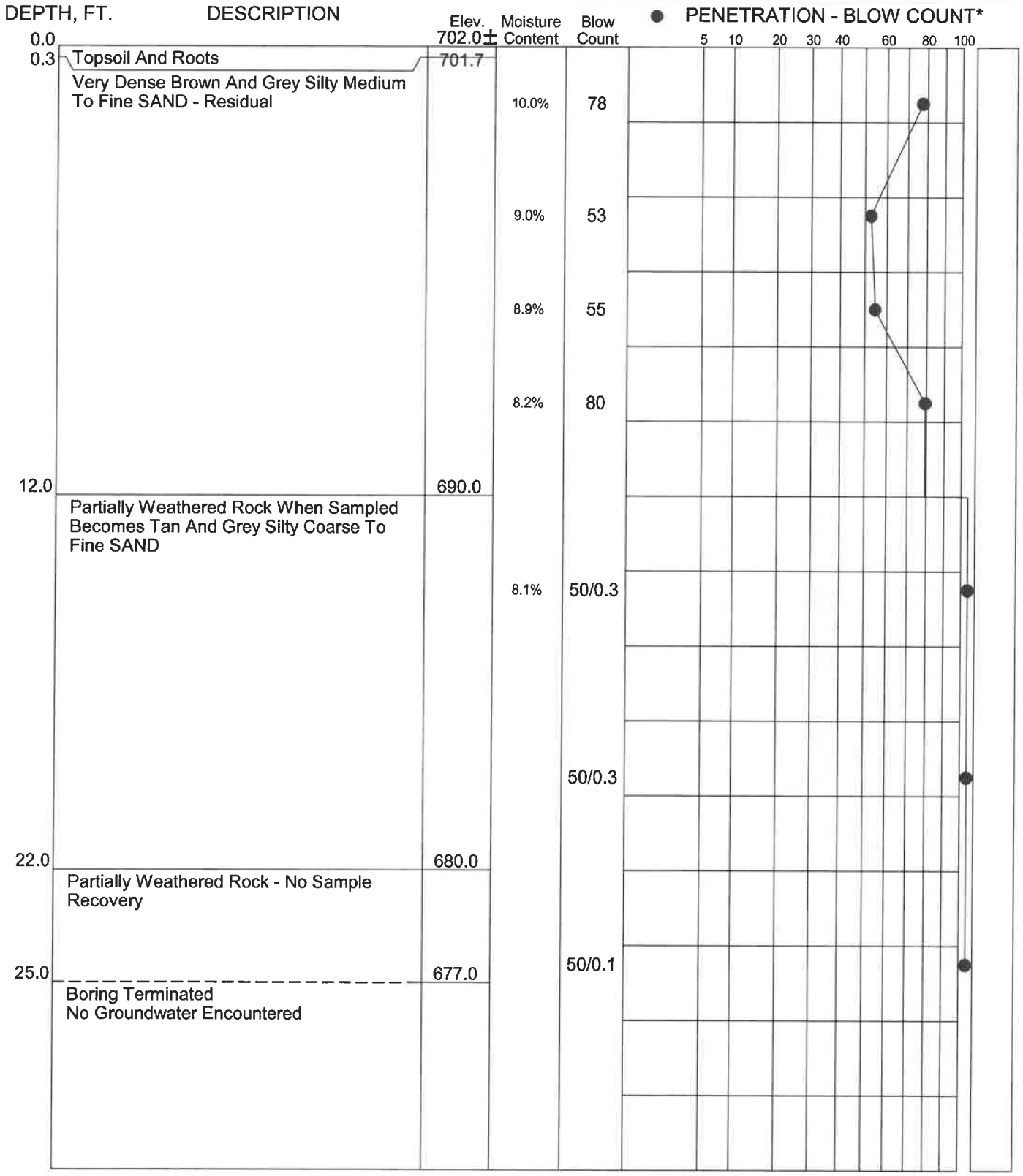
*PENETRATION IS THE NUMBER OF BLOWS OF A 140 LB. (63.5kg) HAMMER FALLING 30 IN. (76.2cm) REQUIRED TO DRIVE A 1.4 IN. (3.6cm) I.D. SAMPLER 1 FT. (30.5cm)

UNDISTURBED SAMPLE
50/% ROCK CORE RECOVERY
◄ LOSS OF DRILLING WATER
WOH WEIGHT OF HAMMER
WATER TABLE - 24 HR.
WATER TABLE - 1 HR.
CAVE-IN DEPTH

BORING NO.: B-13
DATE DRILLED: 3/10/26
DRILLING CONTRACTOR: CG2
JOB NO.: CH26.0021.GE
PROJECT: TRACKHOUSE HIGHWAY 73

TEST BORING RECORD

GEOSCIENCE GROUP, INC.



BORING AND SAMPLING MEETS ASTM D-1586
CORE DRILLING MEETS ASTM D-2113

*PENETRATION IS THE NUMBER OF BLOWS OF A 140 LB. (63.5kg) HAMMER FALLING 30 IN. (76.2cm) REQUIRED TO DRIVE A 1.4 IN. (3.6cm) I.D. SAMPLER 1 FT. (30.5cm)

UNDISTURBED SAMPLE
50/% ROCK CORE RECOVERY
◄ LOSS OF DRILLING WATER
WOH WEIGHT OF HAMMER
WATER TABLE - 24 HR.
WATER TABLE - 1 HR.
CAVE-IN DEPTH

BORING NO.: B-14
DATE DRILLED: 3/10/26
DRILLING CONTRACTOR: CG2
JOB NO.: CH26.0021.GE
PROJECT: TRACKHOUSE HIGHWAY 73

TEST BORING RECORD

GEOSCIENCE GROUP, INC.

DEPTH, FT.	DESCRIPTION	Elev.	Moisture Content	Blow Count
0.0		705.0±		
0.3	Topsoil And Roots	704.7		
	Very Stiff Reddish-Brown Slightly Micaceous Medium To Fine Sandy Very Clayey SILT With Fine Roots - Residual		28.4%	16
3.0		702.0		
	Very Stiff Reddish-Brown And Brown Medium To Fine Sandy Clayey SILT		21.5%	21
5.5		699.5		
	Stiff Brown And Tan Medium To Fine Sandy SILT		18.3%	12
			15.2%	12
			13.5%	12
			14.0%	13
25.0		680.0	14.8%	13
	Boring Terminated No Groundwater Encountered Bulk Sample Of Auger Cuttings Obtained From 3 To 8 Feet			

PENETRATION - BLOW COUNT*

5 10 20 30 40 60 80 100

BORING AND SAMPLING MEETS ASTM D-1586
CORE DRILLING MEETS ASTM D-2113

*PENETRATION IS THE NUMBER OF BLOWS OF A 140 LB. (63.5kg) HAMMER FALLING 30 IN. (76.2cm) REQUIRED TO DRIVE A 1.4 IN. (3.6cm) I.D. SAMPLER 1 FT. (30.5cm)

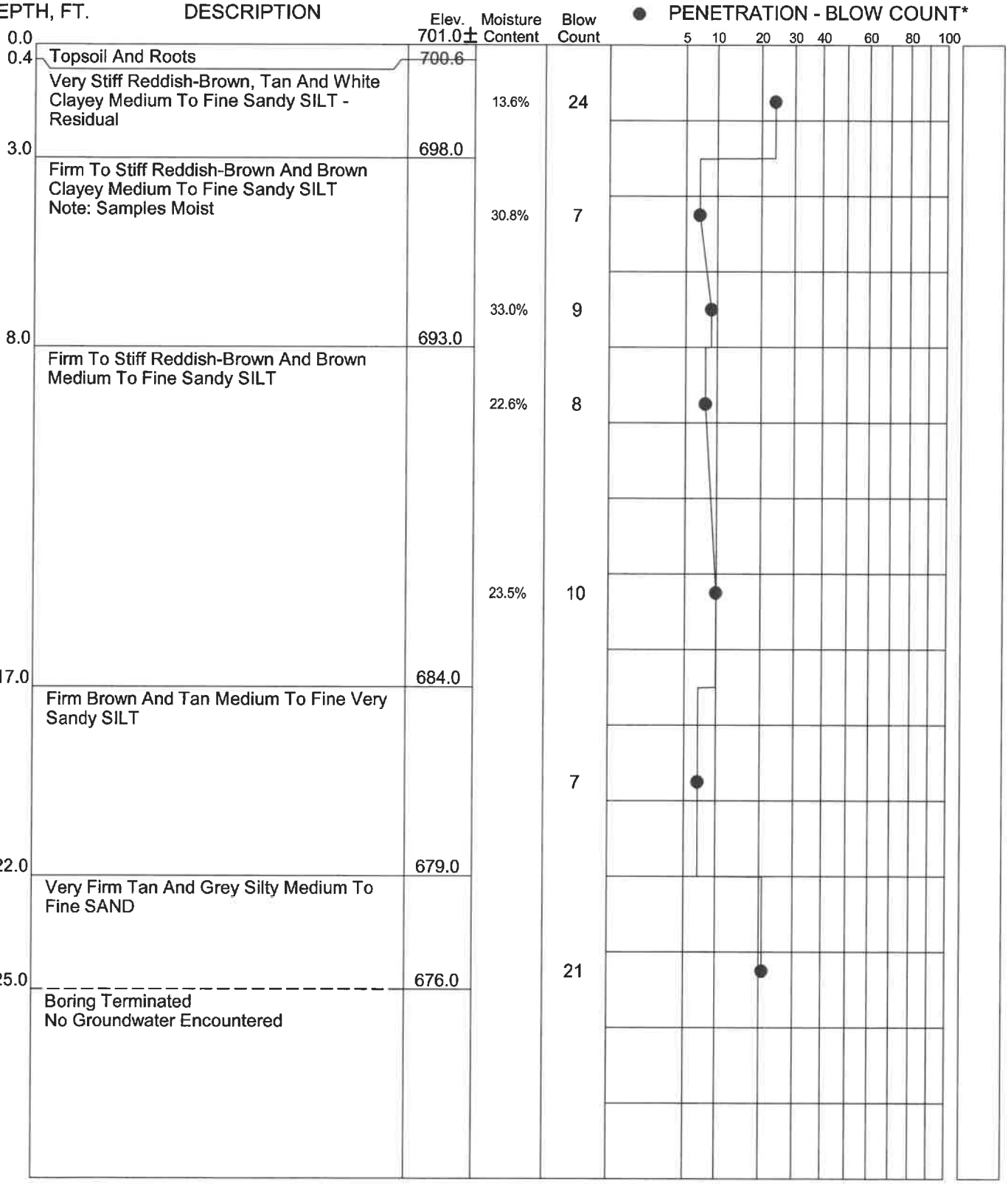
UNDISTURBED SAMPLE
50/% ROCK CORE RECOVERY
◄ LOSS OF DRILLING WATER
WOH WEIGHT OF HAMMER
WATER TABLE - 24 HR.
WATER TABLE - 1 HR.
CAVE-IN DEPTH

BORING NO.: B-15
DATE DRILLED: 3/10/26
DRILLING CONTRACTOR: CG2
JOB NO.: CH26.0021.GE
PROJECT: TRACKHOUSE HIGHWAY 73

TEST BORING RECORD

GEOSCIENCE GROUP, INC.

DEPTH, FT.	DESCRIPTION	Elev. 701.0±	Moisture Content	Blow Count
0.0				
0.4	Topsoil And Roots	700.6		
	Very Stiff Reddish-Brown, Tan And White Clayey Medium To Fine Sandy SILT - Residual		13.6%	24
3.0		698.0		
	Firm To Stiff Reddish-Brown And Brown Clayey Medium To Fine Sandy SILT Note: Samples Moist		30.8%	7
			33.0%	9
8.0		693.0		
	Firm To Stiff Reddish-Brown And Brown Medium To Fine Sandy SILT		22.6%	8
			23.5%	10
17.0		684.0		
	Firm Brown And Tan Medium To Fine Very Sandy SILT			7
22.0		679.0		
	Very Firm Tan And Grey Silty Medium To Fine SAND			21
25.0		676.0		
	Boring Terminated No Groundwater Encountered			



BORING AND SAMPLING MEETS ASTM D-1586
CORE DRILLING MEETS ASTM D-2113

*PENETRATION IS THE NUMBER OF BLOWS OF A 140 LB. (63.5kg) HAMMER FALLING 30 IN. (76.2cm) REQUIRED TO DRIVE A 1.4 IN. (3.6cm) I.D. SAMPLER 1 FT. (30.5cm)

UNDISTURBED SAMPLE
50/% ROCK CORE RECOVERY
◄ LOSS OF DRILLING WATER
WOH WEIGHT OF HAMMER
WATER TABLE - 24 HR.
WATER TABLE - 1 HR.
CAVE-IN DEPTH

BORING NO.: B-16
DATE DRILLED: 3/11/26
DRILLING CONTRACTOR: CG2
JOB NO.: CH26.0021.GE
PROJECT: TRACKHOUSE HIGHWAY 73

TEST BORING RECORD

GEOSCIENCE GROUP, INC.

DEPTH, FT.	DESCRIPTION	Elev. 683.0±	Moisture Content	Blow Count
0.0				
0.2	Topsoil And Roots	682.8		
	Stiff Reddish-Brown And Brown Medium To Fine Sandy Very Clayey SILT With Fine Roots - Residual Note: Sample Very Moist		37.0%	10
3.0		680.0		
	Stiff Brown And Tan Clayey Medium To Fine Sandy SILT Note: Sample Moist		31.1%	14
5.5		677.5		
	Stiff Brown And Tan Medium To Fine Sandy SILT		29.7%	11
8.0		675.0		
	Stiff Brown And Tan Medium To Fine Sandy SILT		29.8%	13
12.0		671.0		
	Stiff Brown And Tan Medium To Fine Very Sandy SILT		22.8%	12
20.0		663.0		10
	Boring Terminated No Groundwater Encountered			

● PENETRATION - BLOW COUNT*

5 10 20 30 40 60 80 100

BORING AND SAMPLING MEETS ASTM D-1586
CORE DRILLING MEETS ASTM D-2113

*PENETRATION IS THE NUMBER OF BLOWS OF A 140 LB. (63.5kg) HAMMER FALLING 30 IN. (76.2cm) REQUIRED TO DRIVE A 1.4 IN. (3.6cm) I.D. SAMPLER 1 FT. (30.5cm)

UNDISTURBED SAMPLE
50/% ROCK CORE RECOVERY
◄ LOSS OF DRILLING WATER
WOH WEIGHT OF HAMMER
WATER TABLE - 24 HR.
WATER TABLE - 1 HR.
CAVE-IN DEPTH

BORING NO.: B-17
DATE DRILLED: 3/11/26
DRILLING CONTRACTOR: CG2
JOB NO.: CH26.0021.GE
PROJECT: TRACKHOUSE HIGHWAY 73

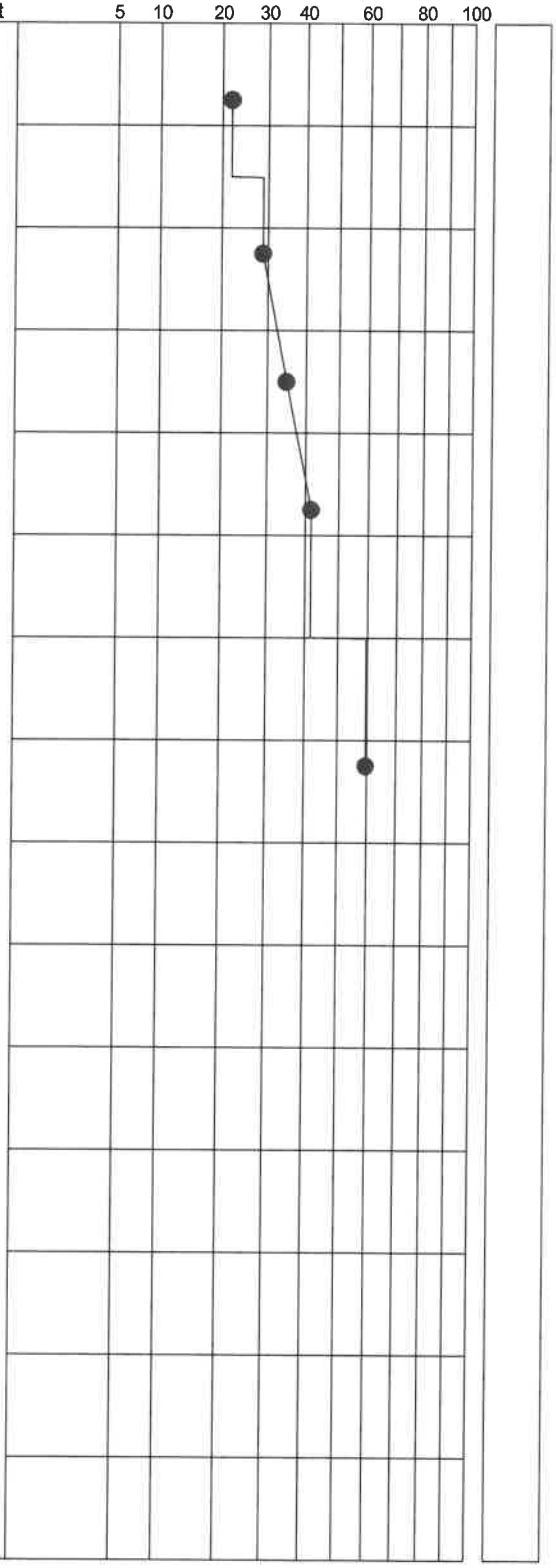
TEST BORING RECORD

GEOSCIENCE GROUP, INC.

DEPTH, FT.	DESCRIPTION	Elev. 664.0±	Moisture Content	Blow Count
0.0				
0.3	Topsoil And Roots	663.7		
	Very Stiff Brown And Tan Clayey Medium To Fine Sandy SILT - Residual		15.5%	22
3.0		661.0		
	Very Stiff To Hard Brown And Tan Coarse To Fine Very Sandy SILT			29
				35
				42
12.0		652.0		
	Very Dense Tan And Grey Silty Coarse To Fine SAND			60
15.0		649.0		
	Boring Terminated No Groundwater Encountered			

● PENETRATION - BLOW COUNT*

5 10 20 30 40 60 80 100



BORING AND SAMPLING MEETS ASTM D-1586
CORE DRILLING MEETS ASTM D-2113

*PENETRATION IS THE NUMBER OF BLOWS OF A 140 LB. (63.5kg) HAMMER FALLING 30 IN. (76.2cm) REQUIRED TO DRIVE A 1.4 IN. (3.6cm) I.D. SAMPLER 1 FT. (30.5cm)

UNDISTURBED SAMPLE
50/% ROCK CORE RECOVERY
◄ LOSS OF DRILLING WATER
WOH WEIGHT OF HAMMER

WATER TABLE - 24 HR.
WATER TABLE - 1 HR.
CAVE-IN DEPTH

BORING NO.: B-18
DATE DRILLED: 3/11/26
DRILLING CONTRACTOR: CG2
JOB NO.: CH26.0021.GE
PROJECT: TRACKHOUSE HIGHWAY 73

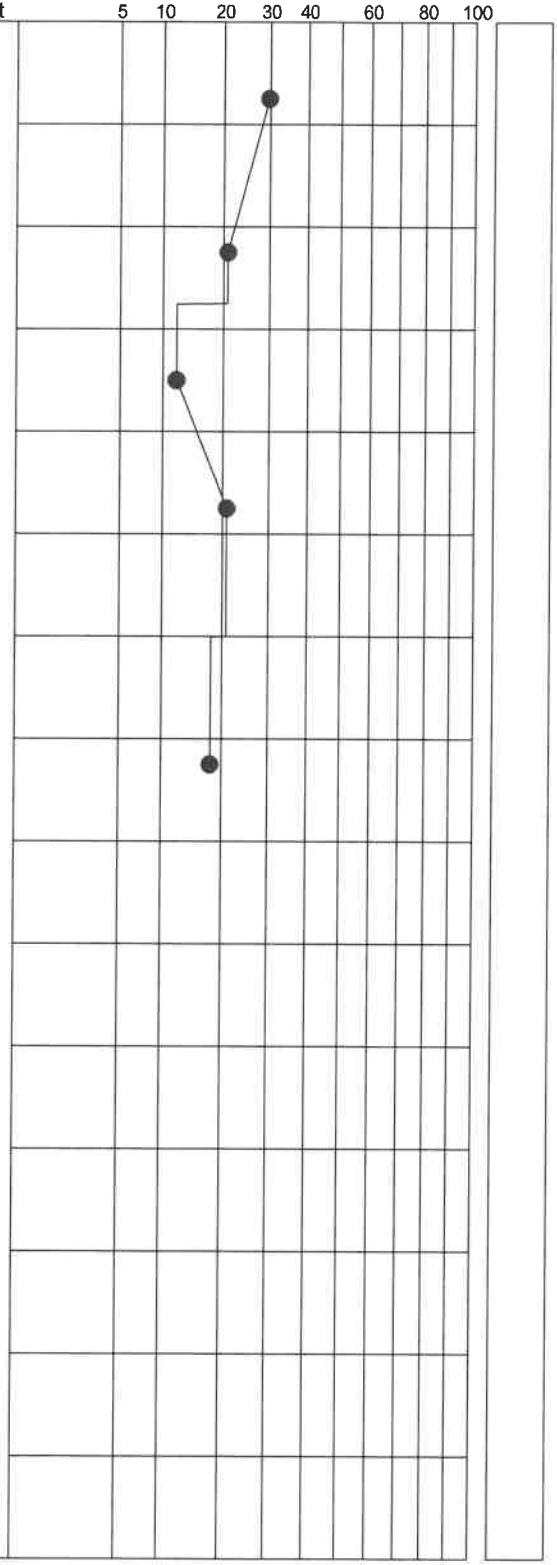
TEST BORING RECORD

GEOSCIENCE GROUP, INC.

DEPTH, FT.	DESCRIPTION	Elev.	Moisture Content	Blow Count
0.0		680.0±		
0.3	Topsoil And Roots	679.7		
	Very Stiff Brown And Black Medium To Fine Sandy Clayey SILT - Residual		19.1%	30
			13.3%	21
5.5		674.5		
	Stiff To Very Stiff Brown And Tan Medium To Fine Sandy SILT			12
				21
12.0		668.0		
	Very Stiff Brown, Grey And White Medium To Fine Very Sandy SILT			18
15.0		665.0		
	Boring Terminated No Groundwater Encountered			

● PENETRATION - BLOW COUNT*

5 10 20 30 40 60 80 100



BORING AND SAMPLING MEETS ASTM D-1586
CORE DRILLING MEETS ASTM D-2113

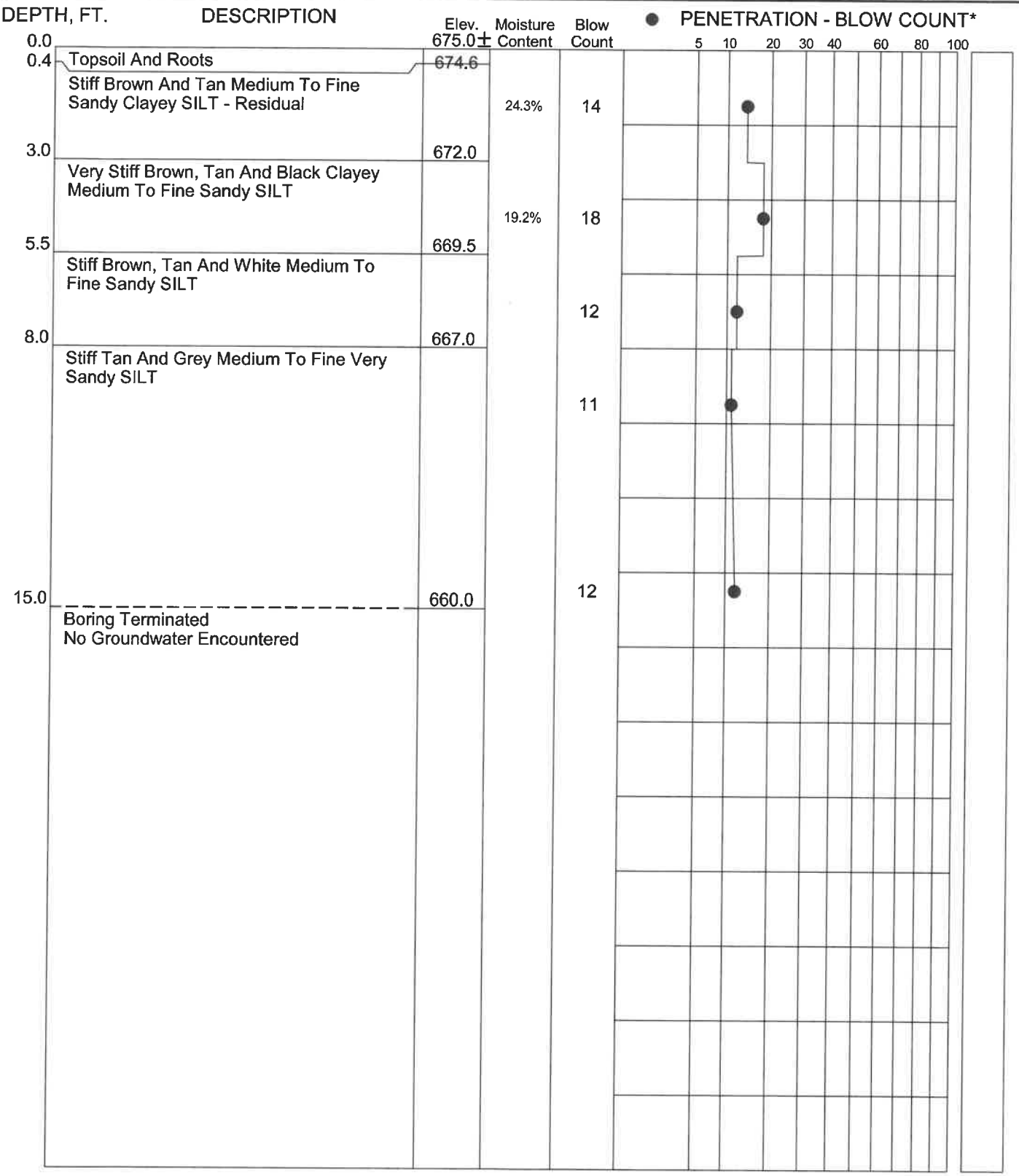
*PENETRATION IS THE NUMBER OF BLOWS OF A 140 LB. (63.5kg) HAMMER FALLING 30 IN. (76.2cm) REQUIRED TO DRIVE A 1.4 IN. (3.6cm) I.D. SAMPLER 1 FT. (30.5cm)

UNDISTURBED SAMPLE
50/% ROCK CORE RECOVERY
◄ LOSS OF DRILLING WATER
WOH WEIGHT OF HAMMER
WATER TABLE - 24 HR.
WATER TABLE - 1 HR.
CAVE-IN DEPTH

BORING NO.: B-19
DATE DRILLED: 3/13/26
DRILLING CONTRACTOR: CG2
JOB NO.: CH26.0021.GE
PROJECT: TRACKHOUSE HIGHWAY 73

TEST BORING RECORD

GEOSCIENCE GROUP, INC.



BORING AND SAMPLING MEETS ASTM D-1586
CORE DRILLING MEETS ASTM D-2113

*PENETRATION IS THE NUMBER OF BLOWS OF A 140 LB. (63.5kg) HAMMER FALLING 30 IN. (76.2cm) REQUIRED TO DRIVE A 1.4 IN. (3.6cm) I.D. SAMPLER 1 FT. (30.5cm)

UNDISTURBED SAMPLE
50/% ROCK CORE RECOVERY
◄ LOSS OF DRILLING WATER
WOH WEIGHT OF HAMMER
WATER TABLE - 24 HR.
WATER TABLE - 1 HR.
CAVE-IN DEPTH

BORING NO.: B-20
DATE DRILLED: 3/13/26
DRILLING CONTRACTOR: CG2
JOB NO.: CH26.0021.GE
PROJECT: TRACKHOUSE HIGHWAY 73

TEST BORING RECORD

GEOSCIENCE GROUP, INC.

DEPTH, FT.	DESCRIPTION	Elev. 684.0±	Moisture Content	Blow Count
0.0				
0.2	Topsoil And Roots	683.8		
	Stiff Reddish-Brown Slightly Micaceous Medium To Fine Sandy Clayey SILT - Residual		28.4%	9
3.0		681.0		
	Stiff Reddish-Brown Slightly Micaceous Clayey Medium To Fine Sandy SILT		21.5%	13
5.5		678.5		
	Firm And Stiff Brown And Tan Slightly Micaceous Medium To Fine Sandy SILT			10
				8
15.0		669.0		10
	Boring Terminated No Groundwater Encountered			

● PENETRATION - BLOW COUNT*

5 10 20 30 40 60 80 100

BORING AND SAMPLING MEETS ASTM D-1586
CORE DRILLING MEETS ASTM D-2113

*PENETRATION IS THE NUMBER OF BLOWS OF A 140 LB. (63.5kg) HAMMER FALLING 30 IN. (76.2cm) REQUIRED TO DRIVE A 1.4 IN. (3.6cm) I.D. SAMPLER 1 FT. (30.5cm)

UNDISTURBED SAMPLE
50/% ROCK CORE RECOVERY
◄ LOSS OF DRILLING WATER
WOH WEIGHT OF HAMMER
WATER TABLE - 24 HR.
WATER TABLE - 1 HR.
CAVE-IN DEPTH

BORING NO.: B-21
DATE DRILLED: 3/10/26
DRILLING CONTRACTOR: CG2
JOB NO.: CH26.0021.GE
PROJECT: TRACKHOUSE HIGHWAY 73

TEST BORING RECORD

GEOSCIENCE GROUP, INC.

DEPTH, FT.	DESCRIPTION	Elev.	Moisture Content	Blow Count
0.0		691.0±		
0.3	Topsoil And Roots	690.7		
	Stiff Reddish-Brown Medium To Fine Sandy Very Clayey SILT With Fine Roots - Residual Note: Sample Very Moist		39.7%	10
3.0		688.0		
	Firm Brown And Black Clayey Medium To Fine Sandy SILT Note: Sample Moist		33.4%	8
5.5		685.5		
	Firm And Stiff Brown Slightly Micaceous Medium To Fine Sandy SILT Note: Samples Moist		32.4%	9
				6
12.0		679.0		
	Stiff Brown, Tan And White Medium To Fine Very Sandy SILT Note: Samples Moist			9
				10
20.0		671.0		
	Boring Terminated No Groundwater Encountered			

● PENETRATION - BLOW COUNT*

5 10 20 30 40 60 80 100

BORING AND SAMPLING MEETS ASTM D-1586
CORE DRILLING MEETS ASTM D-2113

*PENETRATION IS THE NUMBER OF BLOWS OF A 140 LB. (63.5kg) HAMMER FALLING 30 IN. (76.2cm) REQUIRED TO DRIVE A 1.4 IN. (3.6cm) I.D. SAMPLER 1 FT. (30.5cm)

UNDISTURBED SAMPLE
50/% ROCK CORE RECOVERY
◄ LOSS OF DRILLING WATER
WOH WEIGHT OF HAMMER
WATER TABLE - 24 HR.
WATER TABLE - 1 HR.
CAVE-IN DEPTH

BORING NO.: SW-1
DATE DRILLED: 3/10/26
DRILLING CONTRACTOR: CG2
JOB NO.: CH26.0021.GE
PROJECT: TRACKHOUSE HIGHWAY 73

TEST BORING RECORD

GEOSCIENCE GROUP, INC.

DEPTH, FT.	DESCRIPTION	Elev. 695.0±	Moisture Content	Blow Count
0.0				
0.3	Topsoil And Roots	694.7		
	Very Stiff Brown Coarse To Fine Sandy Clayey SILT With Rock Fragments And Fine Roots - Fill		18.4%	16
3.0		692.0		
	Firm Reddish-Brown And Tan Medium To Fine Very Sandy SILT - Residual		12.7%	8
			18.3%	6
8.0		687.0		
	Firm Brown And Tan Medium To Fine Very Sandy SILT		11.1%	8
			12.5%	8
17.0		678.0		
	Stiff To Very Stiff Coarse To Fine Very Sandy SILT		13.4%	14
			15.0%	15
30.0		665.0	12.6%	28
	Boring Terminated No Groundwater Encountered Bulk Sample Of Auger Cuttings Obtained From 3 To 8 Feet Temporary Piezometer Installed From The Ground Surface To The Boring Termination Depth			

PENETRATION - BLOW COUNT*

5 10 20 30 40 60 80 100

BORING AND SAMPLING MEETS ASTM D-1586
CORE DRILLING MEETS ASTM D-2113

*PENETRATION IS THE NUMBER OF BLOWS OF A 140 LB. (63.5kg) HAMMER FALLING 30 IN. (76.2cm) REQUIRED TO DRIVE A 1.4 IN. (3.6cm) I.D. SAMPLER 1 FT. (30.5cm)

UNDISTURBED SAMPLE
50/% ROCK CORE RECOVERY
◄ LOSS OF DRILLING WATER
WOH WEIGHT OF HAMMER
WATER TABLE - 24 HR.
WATER TABLE - 1 HR.
CAVE-IN DEPTH

BORING NO.: SW-2
DATE DRILLED: 3/10/26
DRILLING CONTRACTOR: CG2
JOB NO.: CH26.0021.GE
PROJECT: TRACKHOUSE HIGHWAY 73

TEST BORING RECORD

GEOSCIENCE GROUP, INC.

DEPTH, FT.	DESCRIPTION	Elev. 687.0±	Moisture Content	Blow Count
0.0				
0.4	Topsoil And Roots	686.6		
	Very Stiff Reddish-Brown Coarse To Fine Sandy Very Clayey SILT - Residual Note: Sample Moist		32.5%	17
3.0		684.0		
	Very Stiff Reddish-Brown Clayey Coarse To Fine Sandy SILT		25.6%	17
5.5		681.5		
	Partially Weathered Rock When Sampled Becomes Brown Medium To Fine Sandy SILT		20.7%	50/0.4
8.0		679.0		
	Stiff Brown And Tan Medium To Fine Very Sandy SILT		12.4%	10
			13.7%	11
			18.8%	12
			18.7%	14
27.0		660.0		
	Partially Weathered Rock When Sampled Becomes Brown And Tan Medium To Fine Very Sandy SILT		12.3%	50/0.4
30.0		657.0		
	Boring Terminated No Groundwater Encountered Temporary Piezometer Installed From The Ground Surface To The Boring Termination Depth			

● PENETRATION - BLOW COUNT*

5 10 20 30 40 60 80 100

BORING AND SAMPLING MEETS ASTM D-1586
CORE DRILLING MEETS ASTM D-2113

*PENETRATION IS THE NUMBER OF BLOWS OF A 140 LB. (63.5kg) HAMMER FALLING 30 IN. (76.2cm) REQUIRED TO DRIVE A 1.4 IN. (3.6cm) I.D. SAMPLER 1 FT. (30.5cm)

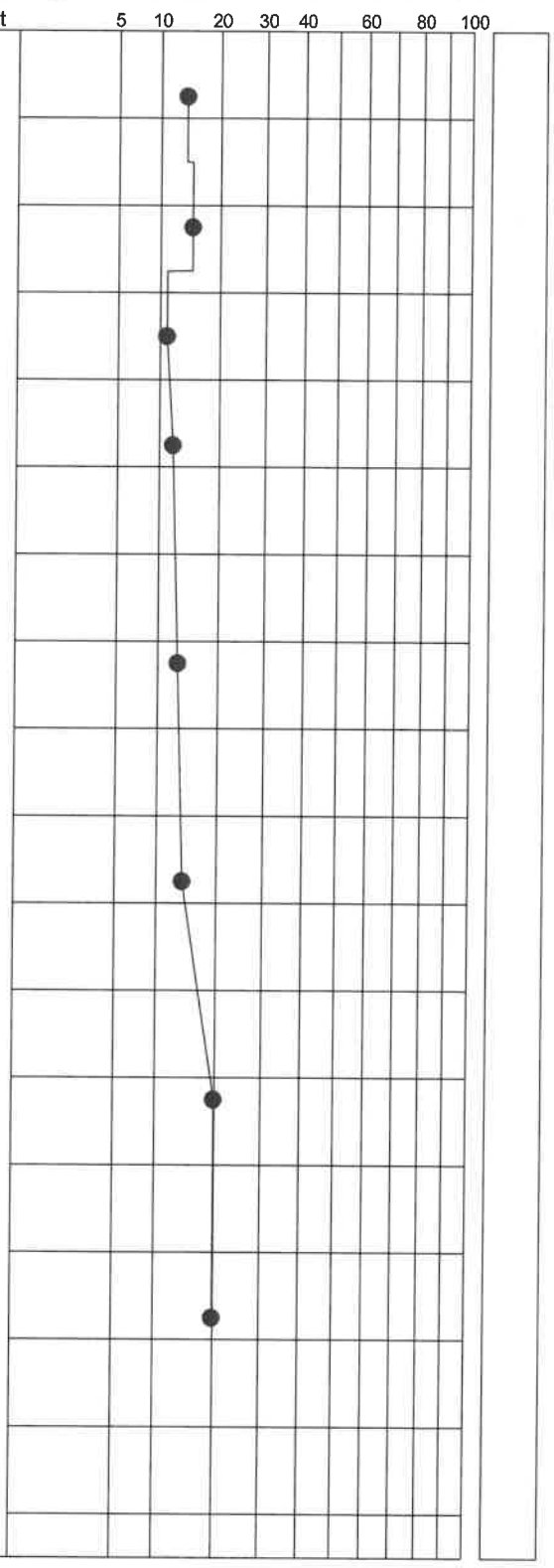
UNDISTURBED SAMPLE
50/% ROCK CORE RECOVERY
◄ LOSS OF DRILLING WATER
WOH WEIGHT OF HAMMER
WATER TABLE - 24 HR.
WATER TABLE - 1 HR.
CAVE-IN DEPTH

BORING NO.: SW-3
DATE DRILLED: 3/10/26
DRILLING CONTRACTOR: CG2
JOB NO.: CH26.0021.GE
PROJECT: TRACKHOUSE HIGHWAY 73

TEST BORING RECORD

GEOSCIENCE GROUP, INC.

DEPTH, FT.	DESCRIPTION	Elev. 695.0±	Moisture Content	Blow Count
0.0				
0.3	Topsoil And Roots	694.7		
	Stiff Reddish-Brown And Brown Slightly Micaceous Clayey Medium To Fine Sandy SILT - Residual		23.6%	14
3.0		692.0		
	Stiff Brown And Tan Medium To Fine Sandy SILT		19.8%	15
5.5		689.5		
	Stiff To Very Stiff Brown, Tan And Grey Medium To Fine Very Sandy SILT		12.3%	11
			7.0%	12
			10.5%	13
			14.2%	14
			13.1%	20
30.0		665.0	18.4%	20
	Boring Terminated No Groundwater Encountered Temporary Piezometer Installed From The Ground Surface To The Boring Termination Depth			



BORING AND SAMPLING MEETS ASTM D-1586
CORE DRILLING MEETS ASTM D-2113

*PENETRATION IS THE NUMBER OF BLOWS OF A 140 LB. (63.5kg) HAMMER FALLING 30 IN. (76.2cm) REQUIRED TO DRIVE A 1.4 IN. (3.6cm) I.D. SAMPLER 1 FT. (30.5cm)

UNDISTURBED SAMPLE
50/% ROCK CORE RECOVERY
◄ LOSS OF DRILLING WATER
WOH WEIGHT OF HAMMER
WATER TABLE - 24 HR.
WATER TABLE - 1 HR.
CAVE-IN DEPTH

SUMMARY OF LABORATORY TEST DATA
TRACKHOUSE HIGHWAY 73
CONCORD, NORTH CAROLINA
GEOSCIENCE PROJECT NO. CH26.0021.GE

TABLE 1 OF 4

Boring	Sample Depth (feet)	Sample Type	Moisture Content (%)	Atterberg Limits			Max. Dry Density (pcf)	Optimum Moisture Content (%)	Grain Size Distribution	
				L.L.	P.L.	P.I.			%SAND	%SILT & %CLAY
B-1	0.5-2.0	Split-Spoon	30.4							
B-1	3.5-5.0	Split-Spoon	31.2							
B-2	0.5-2.0	Split-Spoon	32.1	76	34	42				
B-2	3.5-5.0	Split-Spoon	22.6							
B-2	6.0-7.5	Split-Spoon	20.5							
B-2	8.5-10.0	Split-Spoon	14.7							
B-3	0.5-2.0	Split-Spoon	20.8							
B-3	3.5-5.0	Split-Spoon	27.8							
B-3	6.0-7.5	Split-Spoon	24.2							
B-3	8.5-10.0	Split-Spoon	20.9							
B-4	0.5-2.0	Split-Spoon	8.7							
B-5	0.5-2.0	Split-Spoon	7.5							
B-5	3.5-5.0	Split-Spoon	7.7							
B-5	6.0-7.5	Split-Spoon	6.6							
B-5	8.5-10.0	Split-Spoon	7.6							
B-5	13.5-15.0	Split-Spoon	7.6							
B-5	18.5-20.0	Split-Spoon	5.9							
B-6	0.5-2.0	Split-Spoon	26.0	70	34	36				
B-6	3.5-5.0	Split-Spoon	24.6							
B-7	0.5-2.0	Split-Spoon	6.9							
B-7	3.5-5.0	Split-Spoon	7.7							
B-8	0.5-2.0	Split-Spoon	8.7							
B-8	3.5-5.0	Split-Spoon	6.0							
B-9	0.5-2.0	Split-Spoon	26.4							
B-9	3.5-5.0	Split-Spoon	30.1							
B-10	0.5-2.0	Split-Spoon	37.1							
B-10	3.5-5.0	Split-Spoon	38.3							
B-10	6.0-7.5	Split-Spoon	45.4							
B-10	8.5-10.0	Split-Spoon	42.9							
B-10	13.5-15.0	Split-Spoon	37.1							

SUMMARY OF LABORATORY TEST DATA
TRACKHOUSE HIGHWAY 73
CONCORD, NORTH CAROLINA
GEOSCIENCE PROJECT NO. CH26.0021.GE

TABLE 2 OF 4

Boring	Sample Depth (feet)	Sample Type	Moisture Content (%)	Atterberg Limits			Max. Dry Density (pcf)	Optimum Moisture Content (%)	Grain Size Distribution	
				L.L.	P.L.	P.I.			%SAND	%SILT & %CLAY
B-11	0.5-2.0	Split-Spoon	28.5							
B-11	3.5-5.0	Split-Spoon	24.4							
B-11A	6.0-7.5	Split-Spoon	13.2							
B-11A	8.5-10.0	Split-Spoon	16.8							
B-11A	13.5-15.0	Split-Spoon	20.4							
B-11A	18.5-20.0	Split-Spoon	22.6							
B-11A	23.5-25.0	Split-Spoon	23.5							
B-12	0.5-2.0	Split-Spoon	29.9	46	28	18				
B-12	3.5-5.0	Split-Spoon	26.6							
B-12	6.0-7.5	Split-Spoon	20.7							
B-12	8.5-10.0	Split-Spoon	21.4							
B-12	13.5-15.0	Split-Spoon	19.3							
B-13	0.5-2.0	Split-Spoon	10.0							
B-13	3.5-5.0	Split-Spoon	9.0							
B-13	6.0-7.5	Split-Spoon	8.9							
B-13	8.5-10.0	Split-Spoon	8.2							
B-13	13.5-15.0	Split-Spoon	8.1							
B-14	0.5-2.0	Split-Spoon	28.4	64	37	27				
B-14	3.5-5.0	Split-Spoon	21.5							
B-14	6.0-7.5	Split-Spoon	18.3							
B-14	8.5-10.0	Split-Spoon	15.2							
B-14	13.5-15.0	Split-Spoon	13.5							
B-14	18.5-20.0	Split-Spoon	14.0							
B-14	23.5-25.0	Split-Spoon	14.8							
B-14*	3-8	Bulk	21.7				98.2	20.2		
B-15	0.5-2.0	Split-Spoon	13.6							
B-15	3.5-5.0	Split-Spoon	30.8							
B-15	6.0-7.5	Split-Spoon	33.0							
B-15	8.5-10.0	Split-Spoon	22.6							
B-15	13.5-15.0	Split-Spoon	23.5							

*Standard Proctor And CBR Test Plots Follow this Table

SUMMARY OF LABORATORY TEST DATA
TRACKHOUSE HIGHWAY 73
CONCORD, NORTH CAROLINA
GEOSCIENCE PROJECT NO. CH26.0021.GE

TABLE 3 OF 4

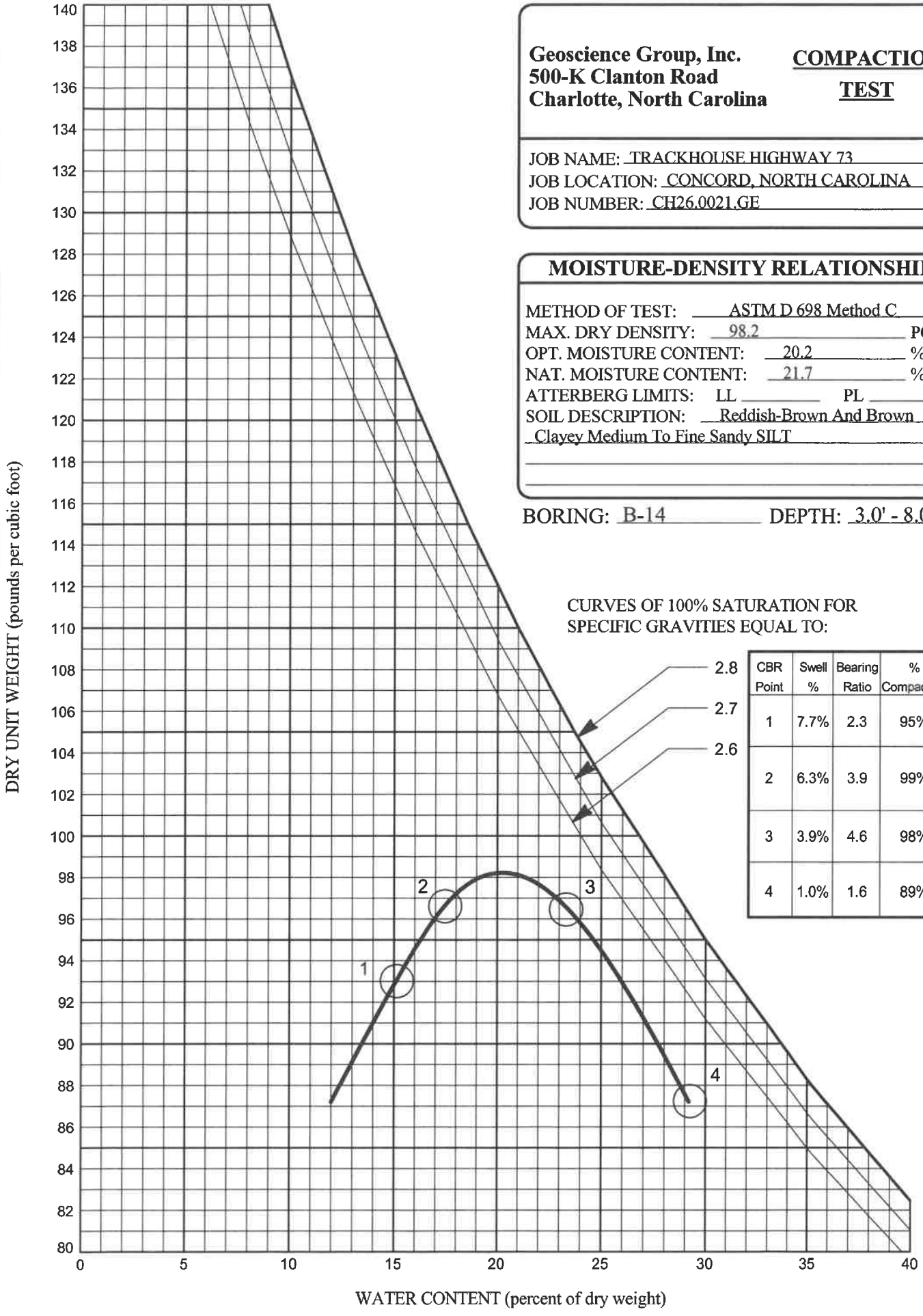
Boring	Sample Depth (feet)	Sample Type	Moisture Content (%)	Atterberg Limits			Max. Dry Density (pcf)	Optimum Moisture Content (%)	Grain Size Distribution	
				L.L.	P.L.	P.I.			%SAND	%SILT & %CLAY
B-16	0.5-2.0	Split-Spoon	37.0	66	34	32				
B-16	3.5-5.0	Split-Spoon	31.1							
B-16	6.0-7.5	Split-Spoon	29.7							
B-16	8.5-10.0	Split-Spoon	29.8							
B-16	13.5-15.0	Split-Spoon	22.8							
B-17	0.5-2.0	Split-Spoon	15.5							
B-18	0.5-2.0	Split-Spoon	19.1							
B-18	3.5-5.0	Split-Spoon	13.3							
B-19	0.5-2.0	Split-Spoon	24.3							
B-19	3.5-5.0	Split-Spoon	19.2							
B-20	0.5-2.0	Split-Spoon	28.4							
B-20	3.5-5.0	Split-Spoon	21.5							
B-21	0.5-2.0	Split-Spoon	39.7	62	38	24				
B-21	3.5-5.0	Split-Spoon	33.4							
B-21	6.0-7.5	Split-Spoon	32.4							
SW-1	0.5-2.0	Split-Spoon	18.4							
SW-1	3.5-5.0	Split-Spoon	12.7							
SW-1	6.0-7.5	Split-Spoon	18.3							
SW-1	8.5-10.0	Split-Spoon	11.1							
SW-1	13.5-15.0	Split-Spoon	12.5							
SW-1	18.5-20.0	Split-Spoon	13.4							
SW-1	23.5-25.0	Split-Spoon	15.0							
SW-1	28.5-30.0	Split-Spoon	12.6							
SW-1*	3-8	Bulk	12.7				110.0	14.9		
SW-2	0.5-2.0	Split-Spoon	32.5							
SW-2	3.5-5.0	Split-Spoon	25.6							
SW-2	6.0-7.5	Split-Spoon	20.7							
SW-2	8.5-10.0	Split-Spoon	12.4							
SW-2	13.5-15.0	Split-Spoon	13.7							
SW-2	18.5-20.0	Split-Spoon	18.8							
SW-2	23.5-25.0	Split-Spoon	18.7							
SW-2	28.5-30.0	Split-Spoon	12.3							

*Standard Proctor Test Plot Follows this Table

SUMMARY OF LABORATORY TEST DATA
TRACKHOUSE HIGHWAY 73
CONCORD, NORTH CAROLINA
GEOSCIENCE PROJECT NO. CH26.0021.GE

TABLE 4 OF 4

Boring	Sample Depth (feet)	Sample Type	Moisture Content (%)	Atterberg Limits			Max. Dry Density (pcf)	Optimum Moisture Content (%)	Grain Size Distribution	
				L.L.	P.L.	P.I.			%SAND	%SILT & %CLAY
SW-3	0.5-2.0	Split-Spoon	23.6							
SW-3	3.5-5.0	Split-Spoon	19.8							
SW-3	6.0-7.5	Split-Spoon	12.3							
SW-3	8.5-10.0	Split-Spoon	7.0							
SW-3	13.5-15.0	Split-Spoon	10.5							
SW-3	18.5-20.0	Split-Spoon	14.2							
SW-3	23.5-25.0	Split-Spoon	13.1							
SW-3	28.5-30.0	Split-Spoon	18.4							



Geoscience Group, Inc.
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Charlotte, North Carolina

COMPACTION TEST

JOB NAME: TRACKHOUSE HIGHWAY 73
JOB LOCATION: CONCORD, NORTH CAROLINA
JOB NUMBER: CH26.0021.GE

MOISTURE-DENSITY RELATIONSHIP

METHOD OF TEST: ASTM D 698 Method C
MAX. DRY DENSITY: 98.2 PCF
OPT. MOISTURE CONTENT: 20.2 %
NAT. MOISTURE CONTENT: 21.7 %
ATTERBERG LIMITS: LL _____ PL _____
SOIL DESCRIPTION: Reddish-Brown And Brown Clayey Medium To Fine Sandy SILT

BORING: B-14 DEPTH: 3.0' - 8.0'

CURVES OF 100% SATURATION FOR SPECIFIC GRAVITIES EQUAL TO:

CBR Point	Swell %	Bearing Ratio	% Compaction
1	7.7%	2.3	95%
2	6.3%	3.9	99%
3	3.9%	4.6	98%
4	1.0%	1.6	89%

CALIFORNIA BEARING RATIO TEST

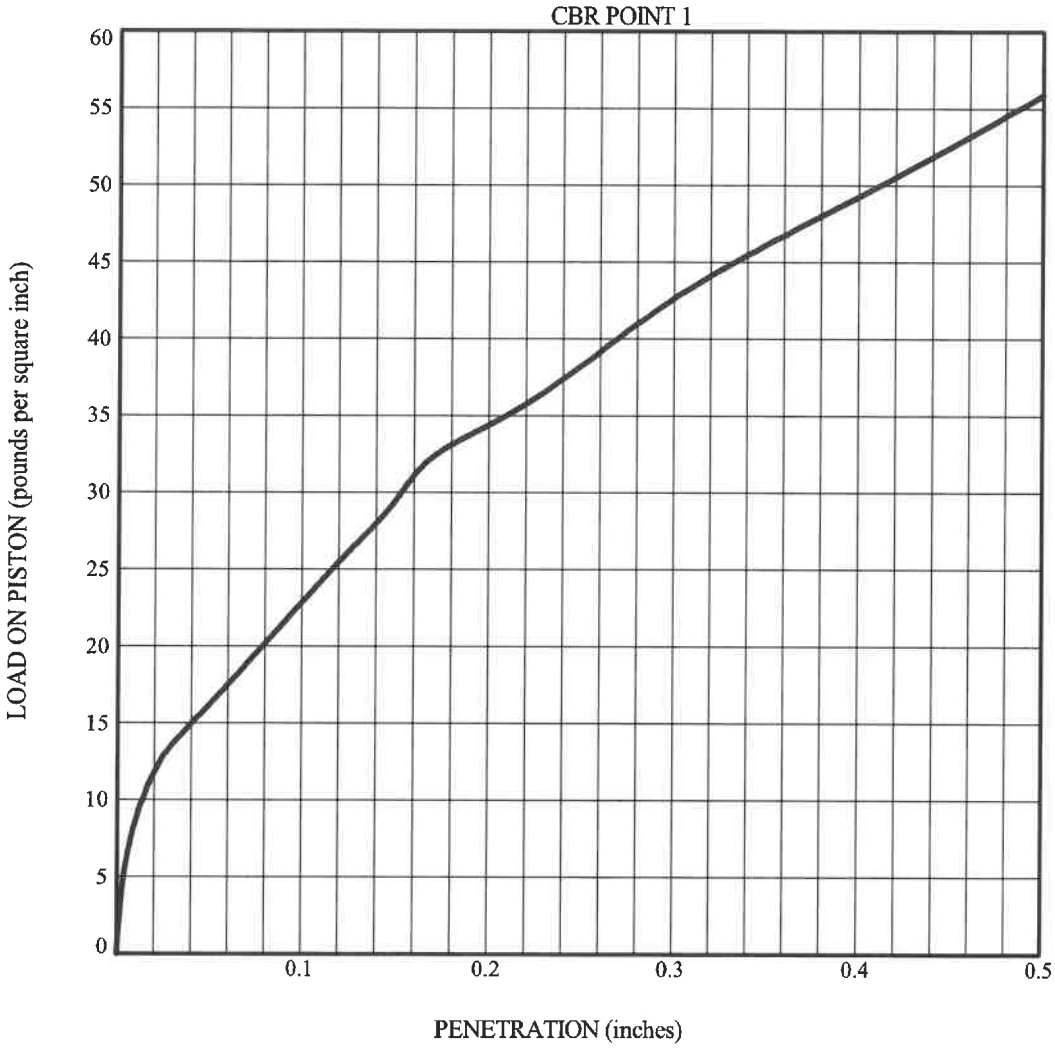
JOB NAME: TRACKHOUSE HIGHWAY 73

JOB NUMBER: CH26.0021.GE

JOB LOCATION: CONCORD, NORTH CAROLINA

BORING NUMBER: B-14

SAMPLE DEPTH: 3.0' - 8.0'



1. Method of Preparation: ASTM D 698 Method C
2. Description of Sample: Reddish-Brown And Brown Clayey Medium To Fine Sandy SILT
3. Dry Density Before Soaking: 93 PCF
4. Swell: 7.7%
5. Percent of Maximum Dry Density: 95 %
6. Moisture Content: 15.1%
7. Bearing Ratio @ 0.1 Inch: 2.3
8. Surcharge: 64 PSF

Geoscience Group, Inc.
500-K Clanton Road
Charlotte, North Carolina

CALIFORNIA BEARING RATIO TEST

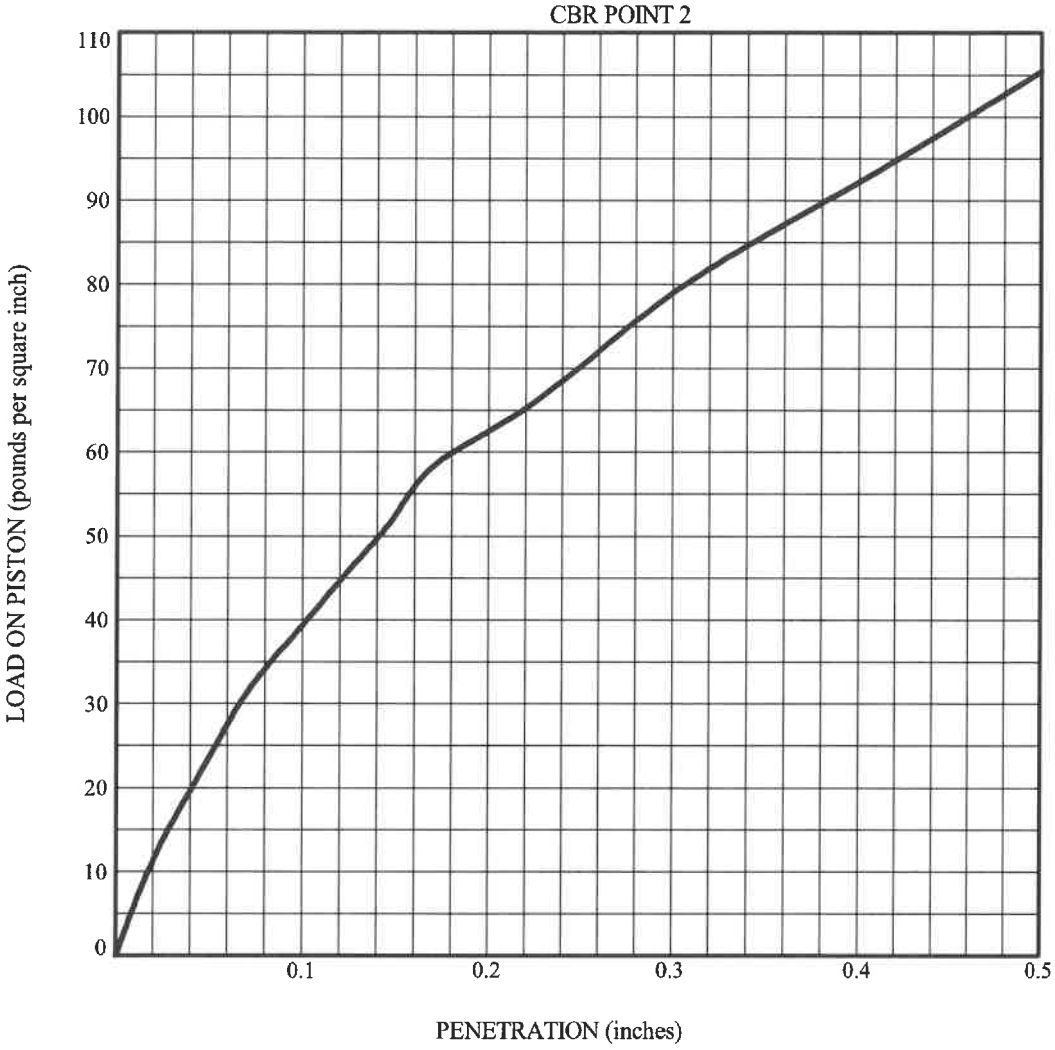
JOB NAME: TRACKHOUSE HIGHWAY 73

JOB NUMBER: CH26.0021.GE

JOB LOCATION: CONCORD, NORTH CAROLINA

BORING NUMBER: B-14

SAMPLE DEPTH: 3.0' - 8.0'



1. Method of Preparation: ASTM D 698 Method C
2. Description of Sample: Reddish-Brown And Brown Clayey Medium To Fine Sandy SILT
3. Dry Density Before Soaking: 96.8 PCF
4. Swell: 6.3%
5. Percent of Maximum Dry Density: 99 %
6. Moisture Content: 17.6%
7. Bearing Ratio @ 0.1 Inch: 3.9
8. Surcharge: 65 PSF

Geoscience Group, Inc.
500-K Clanton Road
Charlotte, North Carolina

CALIFORNIA BEARING RATIO TEST

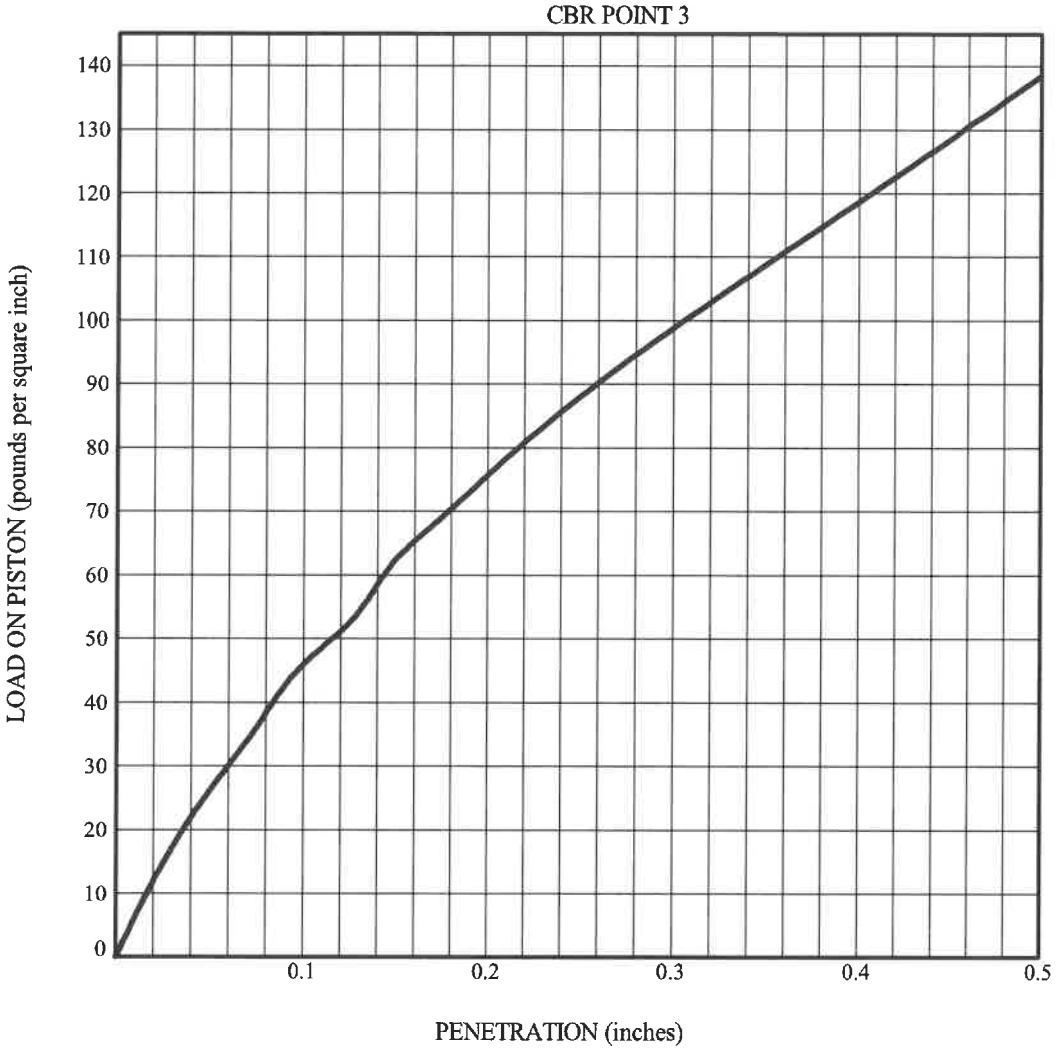
JOB NAME: TRACKHOUSE HIGHWAY 73

JOB NUMBER: CH26.0021.GE

JOB LOCATION: CONCORD, NORTH CAROLINA

BORING NUMBER: B-14

SAMPLE DEPTH: 3.0' - 8.0'



1. Method of Preparation: ASTM D 698 Method C
2. Description of Sample: Reddish-Brown And Brown Clayey Medium To Fine Sandy SILT
3. Dry Density Before Soaking: 96.6 PCF
4. Swell: 3.9%
5. Percent of Maximum Dry Density: 98 %
6. Moisture Content: 23.3%
7. Bearing Ratio @ 0.1 Inch: 4.6
8. Surcharge: 65 PSF

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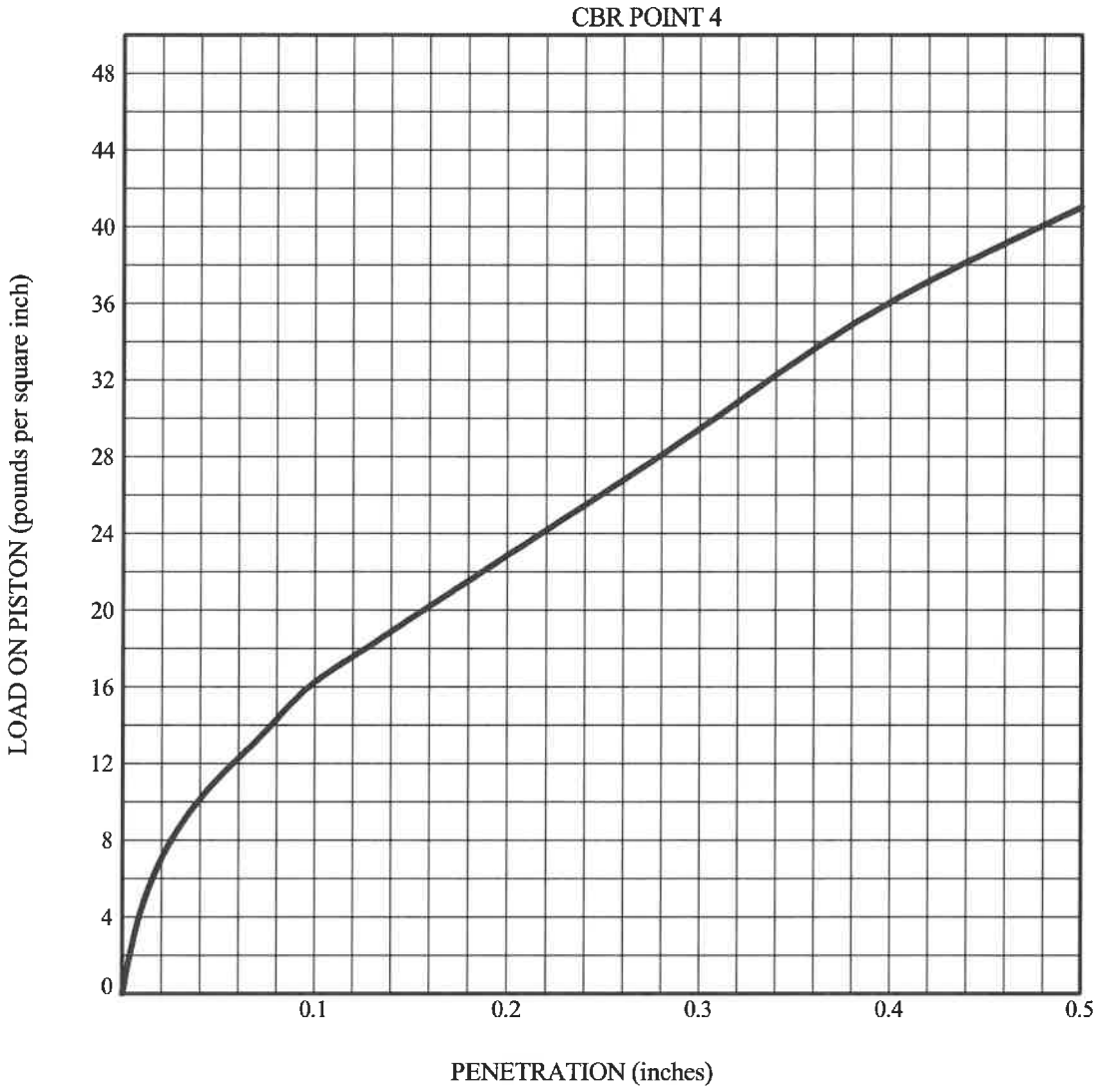
CALIFORNIA BEARING RATIO TEST

JOB NAME: TRACKHOUSE HIGHWAY 73 JOB NUMBER: CH26.0021.GE

JOB LOCATION: CONCORD, NORTH CAROLINA BORING NUMBER: B-14

SAMPLE DEPTH: 3.0' - 8.0'



1. Method of Preparation ASTM D 698 Method C
2. Description of Sample Reddish-Brown And Brown Clayey Medium To Fine Sandy SILT
3. Dry Density Before Soaking 87.2 PCF
4. Swell 1.0%
5. Percent of Maximum Dry Density 89 %
6. Moisture Content 29.2%
7. Bearing Ratio @ 0.1 Inch 1.6
8. Surcharge 64 PSF

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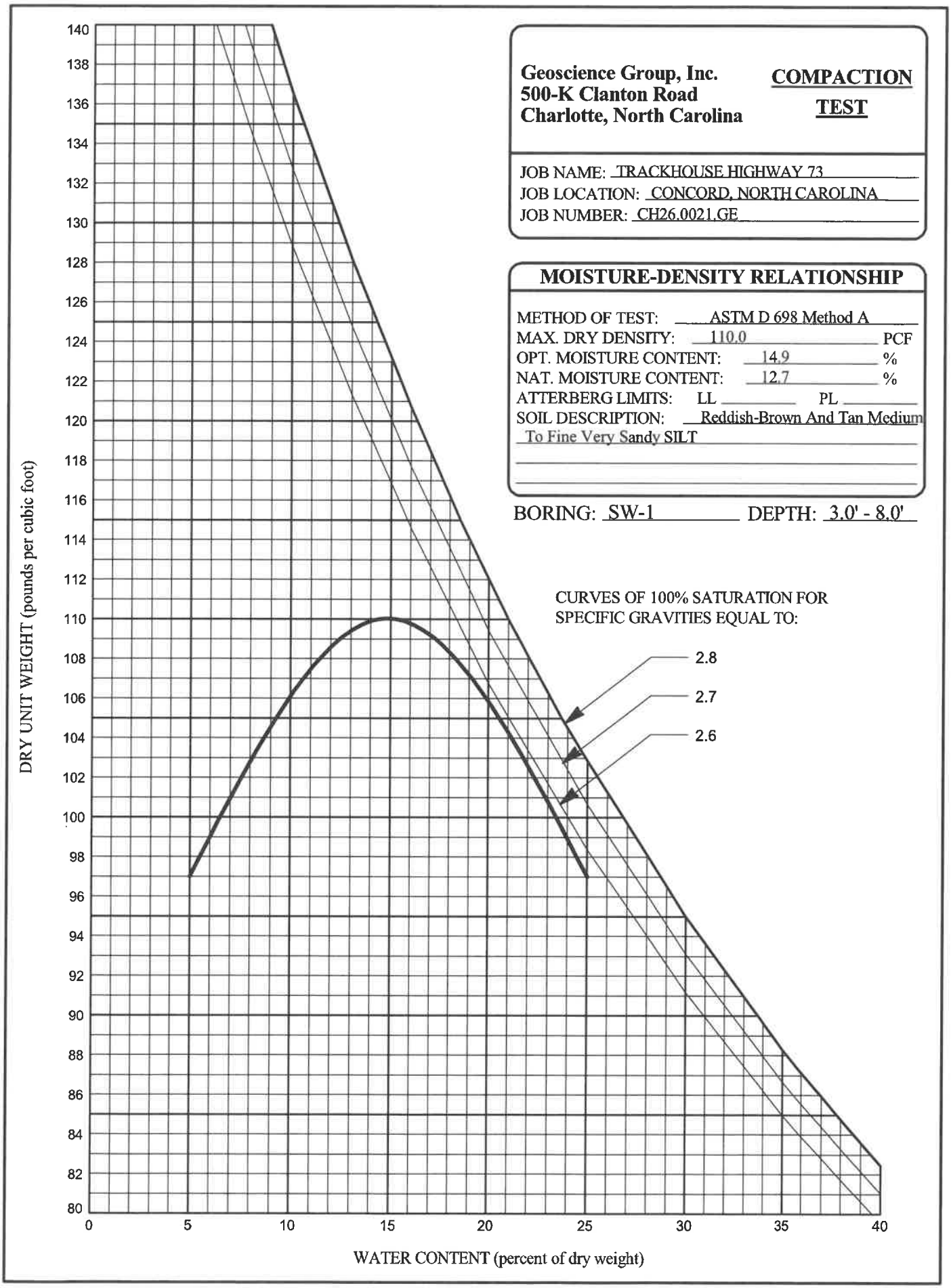

Geoscience Group, Inc.
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COMPACTION TEST

JOB NAME: TRACKHOUSE HIGHWAY 73
JOB LOCATION: CONCORD, NORTH CAROLINA
JOB NUMBER: CH26.0021.GE

MOISTURE-DENSITY RELATIONSHIP

METHOD OF TEST: ASTM D 698 Method A
MAX. DRY DENSITY: 110.0 PCF
OPT. MOISTURE CONTENT: 14.9 %
NAT. MOISTURE CONTENT: 12.7 %
ATTERBERG LIMITS: LL _____ PL _____
SOIL DESCRIPTION: Reddish-Brown And Tan Medium To Fine Very Sandy SILT

BORING: SW-1 DEPTH: 3.0' - 8.0'