UNITED
CONSULTING

REPORT

For Claret Communities

Geotechnical Exploration
Claret Augusta Multifamily
Claussen Road
Augusta, Richmond County,
Georgia

Project No.: CLARE-22-GA-06488-01

625 Holcomb Bridge Road, Norcross, GA 30071 • 770-209-0029 • unitedconsulting.com

Augusta 15, 2022

Mr. Mike Ruskin
Construction Manager
Claret Communities
5553 Peachtree Road
Suite 170
Chamblee, Georgia 30341

Via Email: mruskin@claretcommunities.com

RE: Report of Geotechnical Exploration
Claret Augusta Multifamily
Claussen Road
Augusta, Richmond County, Georgia
Project No.: CLARE-22-GA-06488-01

Dear Mr. Ruskin:

United Consulting is pleased to submit this report of our Geotechnical Exploration for the above-referenced project. We appreciate the opportunity to assist you with this project and look forward to our continued participation. Please contact us if you have any questions or if we can be of further assistance.

Sincerely,

UNITED CONSULTING

GEORGIA REGISTERED No. 20383 PROFESSIONAL ENGINEER MICHAEL A. KEMP

Michael A. Kemp, P.E.
Senior Geotechnical Engineer

Chris L. Roberds, P.G.
Senior Executive Vice President

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unc-sps: Geotechnical Documents/CLARE-22-GA-06488-01 - Geo.doc

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APPENDIX

1.0 EXECUTIVE SUMMARY

United Consulting has completed a Geotechnical Exploration on the Claret Augusta Multifamily site located at 1058 Claussen Road in Augusta, Richmond County, Georgia. Please refer to the text of the report for a more detailed discussion of the items summarized below.

1. Boring B-5 encountered approximately 8 feet of fill soils; and borings B-2 through B-4, B-7, B-9, P-2, P-4, and P-5 encountered approximately 3 feet of fill soils. The fill generally appeared to be debris-free but variable in consistency, with low consistency (N < 5) fill soils encountered from 0 to 8 feet in borings B-5. With any undocumented fill, it is possible that other areas of poor quality fill, debris or other deleterious materials could be present intermediate of the boring locations. We suggest that test pits be performed at the time of construction to better determine the composition of the existing fill. We also recommend that contingency funds be budgeted for remediation of soft or otherwise poor quality fill materials that may be encountered in proposed construction areas.

2. Based on the test boring results, it appears that the onsite soils should generally be suitable for reuse as engineered fill.

3. Partially Weathered Rock (PWR) was encountered in borings B-2, B-3, B-6, B-8, and B-10 starting at depths ranging from 9 feet to 19 feet. Auger refusal did not occur in the borings. Difficult excavation conditions (ripping and blasting in mass excavation and blasting for trench/utility excavations) associated with PWR or rock should be expected if excavations extend below the levels encountered in the borings for this exploration. Due to natural geologic variation, we note that shallower PWR or rock may be also present between or away from the areas explored

4. Groundwater was not encountered in the borings at the time of drilling. However, it is possible that shallow groundwater could be present in unexplored portions of the site. Groundwater levels should be anticipated to fluctuate with the change of seasons, during periods of very low or high precipitation, or due to changes in the floodplain or watershed upstream from the area.

5. If the site is prepared as recommended herein, the proposed lightly loaded apartment buildings can be supported on conventional shallow foundations designed for an allowable soil bearing pressure of up to 3,000 pounds per square foot (psf).

6. United Consulting utilized available geotechnical information (N-Values) and our experience with similar soil conditions to provide a seismic site classification of “Site Class D” for the site.

2.0 PROJECT INFORMATION

The Project Site was located at 1058 Claussen Road in Augusta, Richmond County, Georgia. The Project Site was an approximately 9.1-acre tract which was developed with an existing office complex containing two, single story office buildings as well as parking and driveways. The northern portion of the site was vacant and wooded.

A provided site plan was utilized to determine the boundaries of the Project Site. The site is bound to the north by wooded areas, to the northeast by commercial structures, to the northwest by residential structures, to the south-southwest by commercial structures, and to the west by Claussen Road. The general location of the project site is shown on the attached Boring Location Plan (Figure 1).

No topographic site grading plan was provided. Based on visual observations, the site was generally sloping down to the southern portion. Maximum cuts were not provided but are generally expected to be less than about 10 feet.

We understand that the project will consist of construction of a multifamily development consisting of five (5) four-story apartment buildings. The buildings will be wood framed. Parking and drives will be surface asphalt. Loads were not provided. However, past experience indicates that column and wall loads are not expected to exceed 50 kips and 4 kips per lineal foot, respectively.

If the actual plans and site grading information vary significantly from the above anticipated values, United Consulting must be contacted to determine if our recommendations should be re-evaluated and/or revised.

3.0 PURPOSE

The purpose of this Geotechnical Exploration was to assess the general type and condition of the subsurface materials at the Project Site and to provide recommendations regarding potential foundation types, site grading, earthwork, quality control and other geotechnical related issues, deemed pertinent to this project.

4.0 SCOPE

The scope of our geotechnical exploration included the following items:

1. A visual reconnaissance of the site from a geotechnical standpoint;
2. Drilling fifteen (15) Standard Penetration Test (SPT) borings;
3. Visual evaluation of the soil samples obtained during our field testing program for further identification and classification;
4. Analyzing the existing soil conditions with respect to the proposed construction; and
5. Preparing this report to document the results of our field-testing program, laboratory testing, engineering analysis, and to provide our findings and recommendations.

5.0 SUBSURFACE CONDITIONS

Initially, the borings encountered a surficial layer of topsoil or asphalt. Below the ground surface, boring B-5 encountered approximately 8 feet of fill soils; and borings B-2 through B-4, B-7, B-9, P-2, P-4, and P-5 encountered approximately 3 feet of fill soils. The fill generally appeared to be debris-free and moderately compacted. The fill soils encountered generally consisted of very loose to loose sand; firm clay; or stiff silt. Standard penetration test resistances (N-values) in the fill soils ranged from 3 blows per foot (bpf) to 15 bpf. Low consistency (N < 5 bpf) fill soils encountered from 0 to 8 feet in borings B-5.

Below the fill soils in the above borings and the ground surface in the remaining borings, typical residual soils of the Piedmont Physiographic Province of Georgia were encountered in the borings. The residual soils encountered generally consisted of firm to stiff clay; very stiff to hard silt; or loose to very dense sand. The N-values within the residual soils ranged from 5 bpf to 84 bpf.

Partially Weathered Rock (PWR) was encountered in borings B-2, B-3, B-6, B-8, and B-10 starting at depths ranging from 9 feet to 19 feet. PWR is a term for the residuum that can be penetrated by a soil drilling auger and has N-values in excess of 100 bpf. The PWR encountered was classified as very dense sand or hard silt.

Auger refusal did not occur in the borings. Auger refusal is the depth that the boring cannot be advanced with a soil drilling auger. Below residual soils, it may represent a seam of rock, a boulder or other hard obstruction, or the upper surface of relatively sound, massive rock.

Groundwater was not encountered in the borings at the time of drilling. Groundwater levels should be anticipated to fluctuate with the change of seasons, during periods of very low or high precipitation, or due change in floodplain or watershed upstream of the site.

For a more detailed description of the subsurface conditions encountered, please refer to the boring logs in The Appendix. A boring summary table is presented below:

Table 1: Summary of Subsurface Conditions

Boring No.	Bottom of Fill Depth (ft.)	Shallowest Groundwater Depth (ft.)	Top of Partially Weathered Rock (ft.)	Refusal Depth (ft.)	Termination Depth (ft.)
B-1	NE	NE	NE	NE	20
B-2	3	NE	9	NE	20
B-3	3	NE	19	NE	20
B-4	3	NE	NE	NE	20
B-5	8	NE	NE	NE	20
B-6	NE	NE	19	NE	20
B-7	3	NE	NE	NE	20
B-8	NE	NE	9	NE	20
B-9	3	NE	NE	NE	20
B-10	NE	NE	13	NE	20
P-1	NE	NE	NE	NE	10
P-2	3	NE	NE	NE	10
P-3	NE	NE	NE	NE	10
P-4	3	NE	NE	NE	10
P-5	3	NE	NE	NE	10
NE – Not Encountered					

6.0 DISCUSSION AND RECOMMENDATIONS

The following recommendations are based on our understanding of the proposed construction, the data obtained from the soil test borings, a site reconnaissance, and our experience with subsurface conditions similar to those encountered at the project site.

This exploration included 15 standard penetration test borings, and only limited structural information was available at this time of this study. Once site and structural design have been finalized, United Consulting should review such documents to determine the extent of any additional exploration, or modifications to the recommendations in this report, that may be required.

6.1 Existing Fill

Boring B-5 encountered approximately 8 feet of fill soils; and borings B-2 through B-4, B-7, B-9, P-2, P-4, and P-5 encountered approximately 3 feet of fill soils. The fill generally appeared to be debris-free but variable in consistency, with low consistency (N < 5) fill soils encountered from 0 to 8 feet in borings B-5. With any undocumented fill, it is possible that other areas of poor quality fill, debris or other deleterious materials could be present intermediate of the boring locations. As such, we suggest that test pits be performed at the time of construction to better determine the composition of the existing fill. We also recommend that contingency funds be budgeted for remediation of soft or otherwise poor quality fill materials that may be encountered in proposed construction areas.

The existing fill soils generally appear to be suitable for reuse as engineered fill. However, these soils will be sensitive to changes in moisture content. If grading takes place during a period of wet weather, it may not be feasible to dry them using conventional aeration. If that is the case, they will need to be removed and replaced with drier soils or dried using chemical additives such as lime or cement. As mentioned above, because of the presence of undocumented fill materials, it would not be unusual to encounter localized areas of buried trash, debris or other deleterious materials intermediate of the boring locations that would not be suitable for reuse.

Because this project is in a preliminary stage of development, it is possible that other methods for management of poor-quality existing fill may be available. Once test pits have been performed to better evaluate the fill and site development plans have been developed, we can offer more detailed discussions and recommendation regarding such remediation.

6.2 Site Preparation

The project site contains existing buildings with driveways and parking. As such, the existing structural remnants, foundations, pavement, walls, curbs, etc. should be demolished and removed from the areas of the proposed construction. Existing underground utilities should be relocated to at least 10 feet outside the perimeter of the proposed building footprint. The abandoned lines should then be excavated and removed from the area of the proposed construction. All excavations should be subsequently backfilled with properly compacted engineered fill. We do not recommend active or non-active utility lines located below the area of the proposed structures be left in place. Any abandoned utility pipes, if left in place and outside of the proposed building footprint, should be filled-in under pressure with cement grout having a minimum 28-day compressive strength of 500 pounds per square inch (psi). This would prevent localized

cave-in upon eventual deterioration and loss of structural integrity of the pipe. Also, septic tanks, septic fields, and associated underground structures if present, should be properly removed. The excavated trenches and pits associated with the removal of the buried structures should be backfilled with engineered fill.

Existing topsoil, vegetation and isolated trees including their root mat should also be removed from the area of the proposed construction. Removal of trees should include removal of their root ball, which may extend to several feet below grade.

After lowering the site grade where planned and prior to placement of engineered fill or commencement of construction, areas to receive fill, foundations, slabs, and pavements, including the area of the proposed structures, should be proofrolled with a fully loaded tandem-axle dump truck. Proofrolling should be performed under the observation of the Geotechnical Engineer or his representatives so that areas which exhibit “pumping” (wave type displacement) during proofrolling may be treated by a method recommended by the Geotechnical Engineer. This method may consist of undercutting, and backfilling with suitable engineered fill, or stabilization using crushed stone, geotextiles, or other methods.

Low consistency (N < 5) fill soils encountered from 0 to 8 feet in borings B-5. Where low consistency soils are present near planned subgrade elevations and in proposed fill areas, it may be possible to densify these materials in place during proofrolling. Where such soils cannot be densified in place, they will need to be remediated in a manner as prescribed by the Geotechnical Engineer. Remediation techniques would depend on conditions at the time of construction, but typically include removal and re-compaction or replacement of low consistency soils with new engineered fill or stabilization using geotextiles, a layer of crushed stone or other method. Greater than normal remediation of low consistency fill soils during site preparation should be expected, particularly if grading takes place during wet weather, and contingency funds included in the construction budget for such.

While no fill materials were encountered in the borings, we understand that that construction debris may be buried in the northwestern portion of the site where limited borings were conducted. If any such debris is encountered in the proposed construction areas, it will need to be removed and replaced with new engineered fill.

6.3 Difficult Excavation

Partially Weathered Rock (PWR) was encountered in borings B-2, B-3, B-6, B-8, and B-10 starting at depths ranging from 9 feet to 19 feet. Auger refusal did not occur in the borings.

In general, site grades should be kept as high as possible to limit the impact of difficult excavation on construction. Difficult excavation conditions (ripping and blasting in mass excavation and blasting for trench/utility excavations) should be expected where mass excavation or deeper trench excavations extend below the levels at which PWR or rock were encountered in the test borings.

However, it is also important to note that depths to PWR and rock can vary over short horizontal distances in the Piedmont Physiographic Province, and PWR and rock could be encountered during construction at shallower depths intermediate of the boring locations for this study.

Some of the residual soils encountered were hard to very dense, and heavy construction equipment and possibly some limited ripping may be required to excavate those soils during mass grading. Heavy equipment such as large backhoes should be able to excavate the very dense and hard soils in trench excavation, but some limited blasting, the use of jackhammers, ram hoes, etc. could also be required in confined excavations.

If PWR or rock is present near proposed building subgrade elevations, we recommend that the PWR or rock be over excavated and backfilled with new engineered fill to depth of at least 12 inches below foundation bearing elevations, or deeper as needed to allow for installation of utilities within the building area with conventional light equipment.

Excavation techniques will vary based on the weathering of the materials, fracturing and jointing in the rock, and the overall stratigraphy of the feature. Actual field conditions usually display a gradual weathering progression with poorly defined and uneven boundaries between layers of different materials. We recommend that the following definitions for rock in earthwork excavation be included in bid documents:

1. General Excavation: Any material occupying an original volume of more than 1 cubic yard which cannot be excavated with a single-tooth ripper drawn by a crawler tractor having a minimum draw bar pull rating of not less than 80,000 lbs. usable pull (Caterpillar D-8 or larger).

2. Trench Excavation: Any material occupying an original volume of more than 1/2 cubic yard which cannot be excavated with a backhoe having a bucket curling force rated at not less than 40,000 lbs., using a rock bucket and rock teeth.

6.4 Groundwater Considerations

Groundwater was not encountered in the borings at the time of drilling. However, it is possible that shallow groundwater could be present in unexplored portions of the site. Shallow perched water levels may also develop during periods of wet weather. The contractor should be prepared to remove perched water and/or groundwater as needed.

6.5 Foundation Design and Construction

Following site preparation as recommended, the proposed lightly loaded apartment buildings could be supported on shallow foundation systems. The shallow foundations may consist of shallow strip and/or isolated column footings supported within and underlain by suitable bearing soils. Based on the subsurface exploration data obtained, a maximum net allowable soil bearing pressure of 3,000 pounds per square foot (psf) is recommended for foundation design. Due to the presence of existing, undocumented fill, some localized excavation and replacement of soft or otherwise unsuitable fill from below the foundation bearing locations may be required in order for shallow foundations to be feasible.

We recommend minimum footing dimensions of 20 inches for strip footings and 24 inches for square footings. Footings should bear at least 12 inches below outside finished grades for frost protection. The Geotechnical Engineer must evaluate each footing excavation prior to steel reinforcement or concrete placement. Conditions that are observed should be compared to the test boring data and design

requirements. If unsuitable bearing material is encountered, it should be excavated and replaced or otherwise treated as recommended by the Geotechnical Engineer.

Surface water control should be maintained to prevent accumulation of water in footing excavations. Standing water in footing excavations should be removed promptly. Soil softened by the water should be removed, and the Geotechnical Engineer or his representative should reexamine the area.

As mentioned in report section 6.3 above, if PWR or rock is present near proposed building subgrade elevations, we recommend that the PWR or rock be over excavated and backfilled with new engineered fill to depth of at least 12 inches below foundation bearing elevations, or deeper as needed to allow for installation of foundations and utilities within the building area with conventional light equipment.

6.6 Ground Floor Slabs

A slab-on-grade may be utilized for proposed structures. We recommend a subgrade modulus of 120 pounds per cubic inch (pci) be used for slab design. It has been our experience that the floor slab subgrade is often disturbed by weather, foundation and utility line installation, and other construction activities between completion of grading and slab construction. For this reason, our geotechnical engineer should evaluate the subgrade immediately prior to placing the concrete. Areas judged by the geotechnical engineer to be unstable should be re-compacted or undercut and replaced with engineered fill compacted to at least 98 percent of its standard Proctor maximum dry density.

Subgrades for both floor slab and pavement should be evaluated by proofrolling with a fully loaded tandem axle dump truck at the direction of the Geotechnical Engineer. Areas judged to deflect excessively under the moving load should be remediated at the direction of the Geotechnical Engineer. Such remediation typically includes removal and replacement with new engineered fill, the use of geotextiles, crushed stone, or other methods. Where existing low consistency fill soil is present near planned grades, subgrade remediation should be anticipated, and contingency funds included for such.

6.7 Earth Slopes

We recommend that where fill is to be placed on existing slopes or gullies greater than 4(H):1(V), the slopes be benched to prevent sliding of the fill mass along the existing surface. This can be achieved by notching the slope face by at least about two feet horizontally with the compactor blade as each lift is compacted. A typical benching detail is provided in The Appendix.

Permanent slopes should be constructed no steeper than 2(H):1(V). Fill slopes of up to 20 feet in total height constructed to 2(H):1(V) should be acceptable for this project, assuming proper benching, and placement and compaction of engineered fill. Fill slopes greater than 20 feet must be evaluated for global stability and should be designed by a licensed Geotechnical Engineer. Slopes higher than 35 feet should contain a mid-slope bench/flat area for every 20 feet of slope height. If less than desirable soils, such as topsoil or wet soils are to be wasted on slopes, or if an appropriate level of quality control and compaction testing under the supervision of the geotechnical engineer is not planned during slope construction, 2(H):1(V) slopes will not likely be adequate, and flatter slopes should be considered.

All slopes should be protected from erosion during construction and provided with appropriate permanent vegetation or other cover after construction. Slopes should be protected from concentrated run-off flow by means of berms and drainage ditches to direct runoff around slopes or through concrete channels. Appropriate vegetative cover should consist of fast growing grasses that will rapidly create a dense root mat over the entire slope. Landscaping consisting of isolated shrubs and pine straw will not provide adequate slope protection.

A minimum building or retaining wall setback (from the nearest edge of foundations) of at least 10 feet from the crest of slopes is recommended. A minimum setback of 5 feet is recommended for pavement and curbs.

6.8 Earthwork

The onsite soils, if free of organics and other deleterious materials, should generally be suitable for reuse as engineered fill with proper moisture control. Due to the presence of relatively high silt contents, some of the onsite soil may be sensitive to moisture variation. If construction takes place during a period of wet weather and these materials become wet, the soils may become unstable under construction equipment, and conventional drying by aeration may not be feasible without the use of chemical additives such as lime or cement.

Soils should be placed within a narrow range of their optimum moisture content to achieve proper compaction. Typical restrictions on suitable fill are no organics, plasticity index less than 30, and maximum particle size of four inches, with not more than 30 percent greater than 3/4-inch. These restrictions should also be applied to imported borrow soils if needed.

Positive drainage should be maintained at all times to prevent saturation of exposed soils in case of sudden rains. Rolling the surface of disturbed soils will also improve runoff and reduce the soil moisture and construction delays. The degree of soil stability problems will also be dependent upon the precautions taken by the contractor to help protect the soils from saturation during construction.

6.9 Fill Placement

The onsite soils, if free of organics and other deleterious materials, should generally be suitable for reuse as engineered fill with proper moisture control. Due to the presence of relatively high silt contents, some of the onsite soil may be sensitive to moisture variation. If construction takes place during a period of wet weather and these materials become wet, the soils may become unstable under construction equipment, and conventional drying by aeration may not be feasible without the use of chemical additives such as lime or cement.

Soils should be placed within a narrow range of their optimum moisture content to achieve proper compaction. Typical restrictions on suitable fill are no organics, plasticity index less than 30, and maximum particle size of four inches, with not more than 30 percent greater than 3/4-inch. These restrictions should also be applied to imported borrow soils if needed.

Positive drainage should be maintained at all times to prevent saturation of exposed soils in case of sudden rains. Rolling the surface of disturbed soils will also improve runoff and reduce the soil moisture and construction delays. The degree of soil stability problems will also be dependent upon the precautions taken by the contractor to help protect the soils from saturation during construction.

6.10 Retaining Walls

The following retaining wall recommendations pertain to cast-in-place building and site retaining walls within the areas explored and are not intended for modular block or MSE walls. If modular block or MSE walls are planned on the site, United Consulting should be notified because additional evaluation will be required to provide recommendations specific to the planned wall types and locations.

The design of retaining walls must include the determination of the lateral pressure that will act on the wall. The lateral earth pressure is a function of the soil properties, surcharge loads behind the wall, and amount of deformation that the wall can undergo. This deformation is basically dependent upon the relative rigidity of the wall system.

The active earth pressure condition develops when the wall moves away from the soil over a sufficient distance, such as for a freestanding cantilever wall. The at-rest condition exists when there is no lateral strain on the soil, such as walls, which are rigidly restrained like a basement or sub-foundation wall. The passive condition occurs when the wall moves into the soil.

The following equivalent fluid pressures are recommended for three earth pressure conditions.

Table 2 - Lateral Earth Pressures

Earth Pressure Condition	Earth Pressure Coefficient	Recommended Equivalent Fluid Pressure
Active	K_A = 0.36	43 psf/foot
At-Rest	K_O = 0.53	64 psf/foot
Passive	K_P = 2.77	332 psf/foot

We note that considerable horizontal deflections are required to mobilize the passive pressure; therefore, the designer should consider a safety factor of 2 to the stated ultimate passive earth pressure in design.

The recommended equivalent fluid pressures are based on an assumed soil density of 120 pcf, an internal friction angle of 28 degrees and cohesion of zero. A coefficient of friction of 0.34 for sliding may be used for the retaining wall design.

The parameters listed above are based on a level properly compacted backfill, no friction at the wall-soil interface, and no surcharge effects. For design of retaining walls, which could be inundated, the buoyant unit weight of the inundated soil should be used to determine the lateral earth pressure. The hydrostatic pressure based on the maximum ponding elevation should be utilized in the analysis.

Heavy compaction equipment should not be used to compact backfill within 5 feet laterally behind any retaining wall unless the wall is designed for the increased pressure or temporarily braced. Therefore, light compaction equipment may be required in this zone. Retaining wall backfill should be compacted to 95 percent of the Standard Proctor maximum dry density. A permanent drainage system such as a footing drain, or a fabric drain such as Enka drain, Mira drain, etc., is recommended for any retaining walls which are more than 5 feet in height.

The retaining walls should be designed by a professional engineer familiar with retaining wall design and registered in Georgia. The designer should consider sloping backfill, surcharges and other factors affecting wall loadings. The designer should also consider Global Stability.

6.11 Pavement Design Recommendations

An estimated CBR value of 4 has been used in flexible pavement thickness design for the proposed parking and driveway areas. This value corresponds to a vertical subgrade modulus (k) value of approximately 120 pci for rigid pavement design. This assumed CBR value is based on our experience with similar soil types; no CBR tests were performed.

For pavement areas subjected to an assumed average daily traffic volume of up to 400 cars per day, and up to five (5) semi-tractor trailer (maximum wheel load of 9,000 lbs.) trucks per week, we recommend a minimum pavement section consisting of 1.5 inch of asphalt (9.5 mm Superpave or type "E" or "F") underlain by 2.0 inches of binder (19 mm Superpave or type "B") over 8 inches of graded aggregate base (GAB). This is the minimum section recommended in any area where a truck may have access, whether truck traffic is planned or not. If more trucks including garbage trucks, etc. are anticipated, this section should be increased to reflect the heavier loading.

For light duty areas restricted to passenger cars traffic only with an average maximum daily traffic of approximately 400 cars and an occasional delivery truck per week, we recommend a minimum pavement section consisting of 1.0 inch of asphalt (9.5 mm Superpave or type "E" or "F") underlain by 1.5 inches of binder (19 mm Superpave or type "B") underlain by 6.0 inches of graded aggregate base (GAB).

We recommend that the subgrade beneath all pavement areas be compacted to at least 98% of the Standard Proctor density in the upper two feet below subgrade, and to at least 95% of the Standard Proctor maximum dry density elsewhere. We recommend that the graded aggregate base course for each of the preceding pavement sections be compacted to 100% of the materials modified proctor value (ASTM D-1557). Also, all subgrades, base and asphalt materials, concrete, and construction procedures conform to Georgia DOT "Standard Specifications Construction for Transportation Systems", 2013 Edition.

We recommend that a rigid (concrete) slab at least 6-inches thick using 4,000 psi concrete over 12 inches of prepared subgrade be used for dumpster pad areas, if any. These pads should be large enough to accommodate the front wheels of the dumpster truck when the dumpster is being emptied. Concrete pavement is also recommended in any loading areas where heavy trucks will maneuver, or trailer jacks will be supported.

The pavement sections selected will require adequate drainage to provide long-term serviceability. Pavement areas should be sloped to drain, and ditches or underdrains should be incorporated to promote drainage away from the pavement areas. The most critical factor in providing long-term serviceability for a pavement is a well-prepared, uniform, subgrade. Areas which are not adequately prepared by thorough proofrolling and treating of soft or wet areas can result in potholes or cracking. Even though the potholes will affect only a small percentage of the pavement, the overall pavement serviceability will be significantly reduced.

Pavement should be installed late in construction when most heavy construction traffic will no longer come on-site. If desired, a layer of crushed stone or graded aggregate base can be placed earlier to provide a working surface. However, this is a convenience, and some loss of usable stone should be expected. Prior to paving, the site should be proofrolled again, new soft areas treated, the base leveled and thickened as required, and the site paved at the end of construction. This helps reduce pavement damage due to construction traffic.

The recommended flexible pavement sections should also allow for placement of base and binder early in construction, repairs to be made as needed, and then for the top layer placed near the end of construction activities.

6.12 Seismic Site Class

United Consulting utilized available geotechnical information (N-values) and our experience with the similar soil conditions to provide a seismic site class for the Site. United Consulting recommends that a seismic site classification of “Site Class C” be utilized for the site.

A site class determination based on the average N values is necessarily conservative. It is possible that a site specific shear wave analysis at the site could provide a less conservative value. United Consulting’s Geophysical team can provide a proposal to perform a site-specific geophysical study to acquire soil shear wave velocity data to more precisely determine the seismic site classification, if desired.

7.0 LIMITATIONS

This report is for the exclusive use of **Claret Communities** and the designers of the project described herein and may only be applied to this specific project. Our conclusions and recommendations have been prepared using generally accepted standards of Geotechnical Engineering practice in the State of Georgia. No other warranty is expressed or implied. Our firm is not responsible for conclusions, opinions, or recommendations of others.

The right to rely upon this report and the data within may not be assigned without UNITED CONSULTING'S written permission.

The scope of this evaluation was limited to an evaluation of the load-carrying capabilities and stability of the subsoils. Oil, hazardous waste, radioactivity, irritants, pollutants, molds, or other dangerous substance and conditions were not the subject of this study. Their presence and/or absence are not implied or suggested by this report and should not be inferred.

Our conclusions and recommendations are based upon design information furnished to us, data obtained from the previously described exploration and testing program and our past experience. They do not reflect variations in subsurface conditions that may exist intermediate of our borings, and in unexplored areas of the site. Should such variations become apparent during construction, it will be necessary to re-evaluate our conclusions and recommendations based upon "on-site" observations of the conditions.

If the design or location of the project is changed, the recommendations contained herein must be considered invalid, unless our firm reviews the changes, and our recommendations are either verified or modified in writing. When design is complete, we should be given the opportunity to review the foundation plan, grading plan, and applicable portions of the specifications to confirm that they are consistent with the intent of our recommendations.

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APPENDIX

General Notes/Narrative of Drilling Operations
Figure 1 – Boring Location Plan
Exploration Procedures
SPT Boring Logs (15)
Typical Benching Detail
Typical Retaining Wall Drainage Detail

GENERAL NOTES

The soil classifications noted on the Boring Logs are visual classifications unless otherwise noted. Minor constituents of a soil sample are termed as follows:

Trace	0 - 10%
Some	11 - 35%
Suffix "y" or "ey"	36 - 49%

LEGEND

Split Spoon Sample obtained during Standard Penetration Testing

Relatively Undisturbed Shelby Tube Sample

Groundwater Level at Time of Boring Completion

Groundwater Level at 24 hours (or as noted) after Termination of Boring

w	Natural Moisture Content	
LL	Liquid Limit	
PL	Plastic Limit	Atterberg Limits
PI	Plasticity Index	
PF	Percent Fines (Percent Passing #200 Sieve)	
γ_d	Dry Unit Weight (Pounds per Cubic Foot or PCF	
γ_m	Moist or In-Situ Unit Weight (PCF)	
γ_{sat}	Saturated Unit Weight (PCF)	

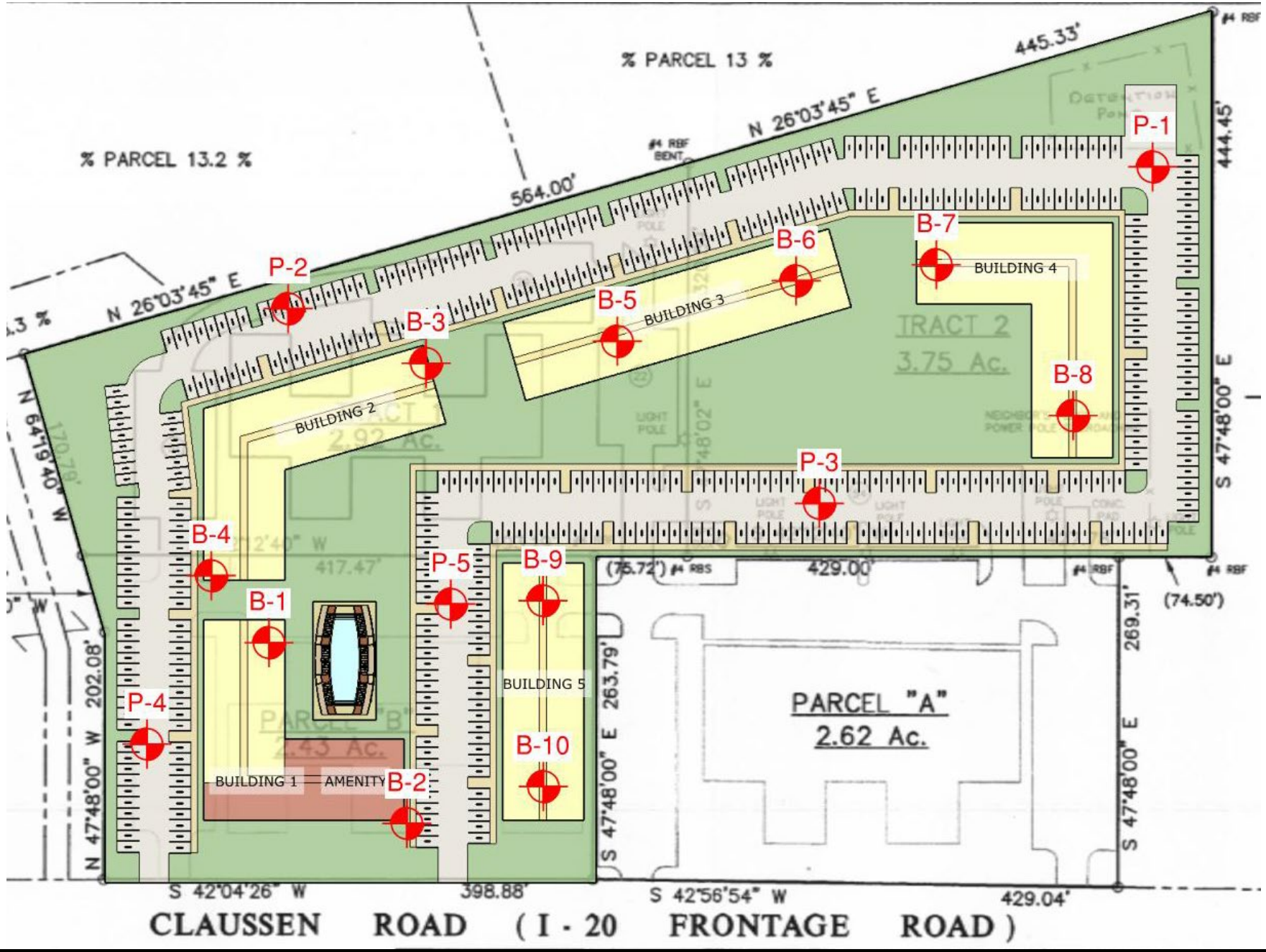
BORING LOG DATA NARRATIVE OF DRILLING OPERATION

The test borings were made by mechanically advancing helical hollow stem augers into the ground. Samples were collected at regular intervals in each of the borings following established procedures for performing the Standard Penetration Test in accordance with ASTM Specification D 1586. Soil samples were obtained with a standard 1.4" I.D. x 2.0" O.D. split barrel sampler. The sampler is first seated 6" to penetrate any loose cuttings and then driven an additional foot with the blows required of a 140-pound hammer freely falling a distance of 30 inches. The number of blows required to drive the sampler the final foot is designated the "standard penetration resistance." The driving resistance, known as the "N" value, can be correlated with the relative density of granular soils and the consistency of cohesive deposits.

The following table describes soil consistency and relative densities based on standard penetration resistance values (N) determined by the Standard Penetration Test (SPT).

	"N"	Consistency
Clay and Silt	0-2	Very Soft
	3-4	Soft
	5-8	Firm
	9-15	Stiff
	16-30	Very Stiff
	Over 31	Hard

	"N"	Relative Density
Sand	0-4	Very Loose
	5-10	Loose
	11-19	Firm
	20-29	Medium Dense
	30-49	Dense
	50+	Very Dense



We're here for you UNITED CONSULTING	N	Scale:	NTS	Notes	Client:	Claret Communities
		Prepared:	SRT		Site:	Claret Augusta Multifamily 1054 Claussen Road Augusta, Richmond County, Georgia
		Checked:	MAK			
		Project No.:	CLARE-22-GA-06488-01		Title:	Boring Location Plan

FIG. 1

EXPLORATION PROCEDURES

Fifteen (15) SPT borings (designated B-1 through B-10; and P-1 through P-5) were drilled at approximate locations indicated on the attached Boring Location Plan (Figure 1). The SPT borings were performed in general accordance with ASTM D 1586. Soil samples obtained during testing were visually evaluated by the Project Engineer and classified according to the visual-manual procedure described in ASTM D 2488. A narrative of field operations is included in The Appendix.

The test locations in the field were determined by the Project Engineer using a handheld GPS unit. The test locations shown on the Boring Location Plan should, therefore, be considered ***approximate***.

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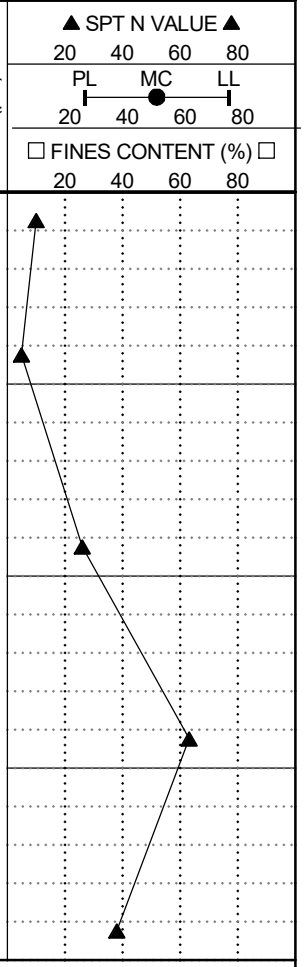
BORING NUMBER B- 1

CLIENT Claret Communities
PROJECT NAME Claret August Multifamily
PROJECT NUMBER CLARE-22-GA-06488-01
PROJECT LOCATION 1054 Claussen Road, Augusta, GA
DATE STARTED 07/28/2022 **COMPLETED** 07/28/2022
GROUND ELEVATION _____ **HOLE SIZE** _____
DRILLING CONTRACTOR ArcOne
GROUND WATER LEVELS:
DRILLING METHOD 2.25 HSA
AT TIME OF DRILLING --- Not Encountered
LOGGED BY Anthony Holmes **CHECKED BY** _____
AT END OF DRILLING ---
NOTES Automatic Hammer with Efficiency=90%
AFTER DRILLING ---

DEPTH (ft)	GRAPHIC LOG	MATERIAL DESCRIPTION	SAMPLE TYPE NUMBER	RECOVERY - inch (RQD - inch.)	BLOW COUNTS (N VALUE)	POCKET PEN. (tsf)	DRY UNIT WT. (pcf)
0		Asphalt					
		Clay; trace sand, trace silt, stiff; red brown (residuum)	SPT 1	18	3-2-8 (10)		
		Firm	SPT 2	18	3-2-3 (5)		
5							
		Silt; trace sand, trace clay, very stiff; brown gray	SPT 3	18	9-11-15 (26)		
10							
		Sandy; some rock fragments, hard; gray	SPT 4	18	13-23-40 (63)		
15							
		Trace mica	SPT 5	18	13-15-23 (38)		
20							

Boring terminated at 20.0 feet.



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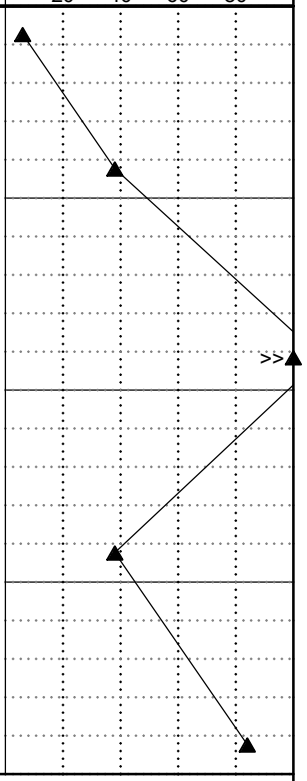
BORING NUMBER B- 2

CLIENT Claret Communities
PROJECT NAME Claret August Multifamily
PROJECT NUMBER CLARE-22-GA-06488-01
PROJECT LOCATION 1054 Claussen Road, Augusta, GA
DATE STARTED 07/28/2022 **COMPLETED** 07/28/2022
GROUND ELEVATION _____ **HOLE SIZE** _____
DRILLING CONTRACTOR ArcOne
GROUND WATER LEVELS:
DRILLING METHOD 2.25 HSA
AT TIME OF DRILLING --- Not Encountered
LOGGED BY Anthony Holmes **CHECKED BY** _____
AT END OF DRILLING ---
NOTES Automatic Hammer with Efficiency=90%
AFTER DRILLING ---

DEPTH (ft)	GRAPHIC LOG	MATERIAL DESCRIPTION	SAMPLE TYPE NUMBER	RECOVERY - inch (RQD - inch.)	BLOW COUNTS (N VALUE)	POCKET PEN. (tsf)	DRY UNIT WT. (pcf)
0		Topsoil	SPT 1	18	3-2-4 (6)		
		Sand; some silt, trace clay, loose; tan brown (fill)					
		Sand; trace silt, trace mica, trace rock fragments, dense; (residuum)	SPT 2	12	6-10-28 (38)		
5							
			SPT 3	16	16-20-50/4"		
10		Partially weathered rock: sampled as sand; some rock fragments, trace silt, very dense; tan brown					
		Sand; some silt, trace mica, trace rock fragments, dense; tan brown	SPT 4	18	20-16-22 (38)		
15							
		Trace silt, some rock fragments, very dense; brown	SPT 5	18	34-42-42 (84)		
20							

Boring terminated at 20.0 feet.

▲ SPT N VALUE ▲
20 40 60 80
PL MC LL
20 40 60 80
☐ FINES CONTENT (%) ☐
20 40 60 80



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BORING NUMBER B- 3

CLIENT Claret Communities
PROJECT NAME Claret August Multifamily
PROJECT NUMBER CLARE-22-GA-06488-01
PROJECT LOCATION 1054 Claussen Road, Augusta, GA
DATE STARTED 07/29/2022 **COMPLETED** 07/29/2022
GROUND ELEVATION _____ **HOLE SIZE** _____
DRILLING CONTRACTOR ArcOne
GROUND WATER LEVELS:
DRILLING METHOD 2.25 HSA
AT TIME OF DRILLING --- Not Encountered
LOGGED BY Anthony Holmes **CHECKED BY** _____
AT END OF DRILLING ---
NOTES Automatic Hammer with Efficiency=90%
AFTER DRILLING ---

DEPTH (ft)	GRAPHIC LOG	MATERIAL DESCRIPTION	SAMPLE TYPE NUMBER	RECOVERY - inch (RQD - inch.)	BLOW COUNTS (N VALUE)	POCKET PEN. (tsf)	DRY UNIT WT. (pcf)
0		Topsoil					
		Sand; some clay, some silt, loose; red brown (fill)	SPT 1	18	3-2-3 (5)		
		Clay; trace sand, trace silt, firm; red brown (residuum)	SPT 2	18	2-3-4 (7)		
5							
		Silt; trace sand, trace mica, some rock fragments, very stiff; brown gray	SPT 3	18	7-8-12 (20)		
10							
		Sandy; very stiff; orange brown	SPT 4	15	5-7-11 (18)		
15							
		Partially weathered rock: sampled as sand; some rock fragments, trace silt, very dense; gray	SPT 5	11	14-50/5"		
20		Boring terminated at 20.0 feet.					

▲ SPT N VALUE ▲
20 40 60 80
PL MC LL
20 40 60 80
☐ FINES CONTENT (%) ☐
20 40 60 80

United Consulting Group

BORING NUMBER B- 4

CLIENT Claret Communities
PROJECT NAME Claret August Multifamily
PROJECT NUMBER CLARE-22-GA-06488-01
PROJECT LOCATION 1054 Claussen Road, Augusta, GA
DATE STARTED 07/28/2022 **COMPLETED** 07/28/2022
GROUND ELEVATION _____ **HOLE SIZE** _____
DRILLING CONTRACTOR ArcOne
GROUND WATER LEVELS:
DRILLING METHOD 2.25 HSA
AT TIME OF DRILLING --- Not Encountered
LOGGED BY Anthony Holmes **CHECKED BY** _____
AT END OF DRILLING ---
NOTES Automatic Hammer with Efficiency=90%
AFTER DRILLING ---

DEPTH (ft)	GRAPHIC LOG	MATERIAL DESCRIPTION	SAMPLE TYPE NUMBER	RECOVERY - inch (RQD - inch.)	BLOW COUNTS (N VALUE)	POCKET PEN. (tsf)	DRY UNIT WT. (pcf)
0		Asphalt					
		Clay; trace sand, trace silt, firm; red brown (fill)	SPT 1	18	2-2-3 (5)		
		Sand; trace clay, trace silt, firm; brown gray (residuum)	SPT 2	18	4-5-10 (15)		
5							
		Silt; some sand, trace clay, trace rock fragments, very stiff; brown gray	SPT 3	18	4-7-11 (18)		
10							
		Sandy	SPT 4	18	8-11-15 (26)		
15							
		Some rock fragments, hard; gray	SPT 5	18	16-26-27 (53)		
20							

Boring terminated at 20.0 feet.

▲ SPT N VALUE ▲
20 40 60 80
PL MC LL
20 40 60 80
☐ FINES CONTENT (%) ☐
20 40 60 80

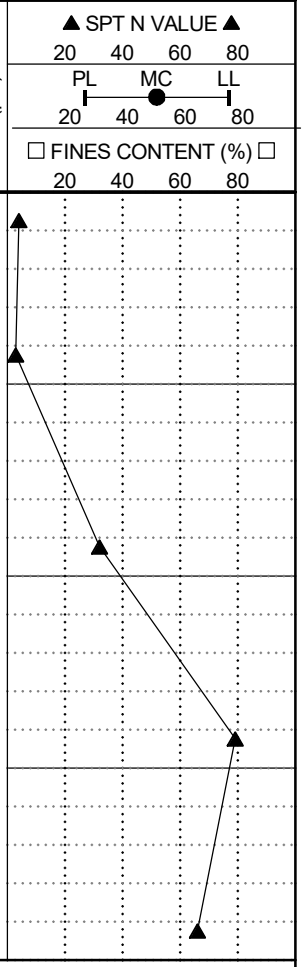
United Consulting Group

BORING NUMBER B- 5

CLIENT Claret Communities
PROJECT NAME Claret August Multifamily
PROJECT NUMBER CLARE-22-GA-06488-01
PROJECT LOCATION 1054 Claussen Road, Augusta, GA
DATE STARTED 07/29/2022 **COMPLETED** 07/29/2022
GROUND ELEVATION _____ **HOLE SIZE** _____
DRILLING CONTRACTOR ArcOne
GROUND WATER LEVELS:
DRILLING METHOD 2.25 HSA
AT TIME OF DRILLING --- Not Encountered
LOGGED BY Anthony Holmes **CHECKED BY** _____
AT END OF DRILLING ---
NOTES Automatic Hammer with Efficiency=90%
AFTER DRILLING ---

DEPTH (ft)	GRAPHIC LOG	MATERIAL DESCRIPTION	SAMPLE TYPE NUMBER	RECOVERY - inch (RQD - inch.)	BLOW COUNTS (N VALUE)	POCKET PEN. (tsf)	DRY UNIT WT. (pcf)
0		Asphalt					
		Sand; some clay, trace silt, very loose; orange brown (fill)	SPT 1	18	2-2-2 (4)		
		Trace clay, trace rock fragments; red brown	SPT 2	18	2-1-2 (3)		
5							
		Silt; trace clay, trace sand, some rock fragments, hard; brown gray (residuum)	SPT 3	18	8-13-19 (32)		
10							
		Sandy; gray white	SPT 4	18	16-34-45 (79)		
15							
		Sand; some rock fragments, trace silt, trace mica, very dense; tan brown	SPT 5	18	21-31-35 (66)		
20							

Boring terminated at 20.0 feet.



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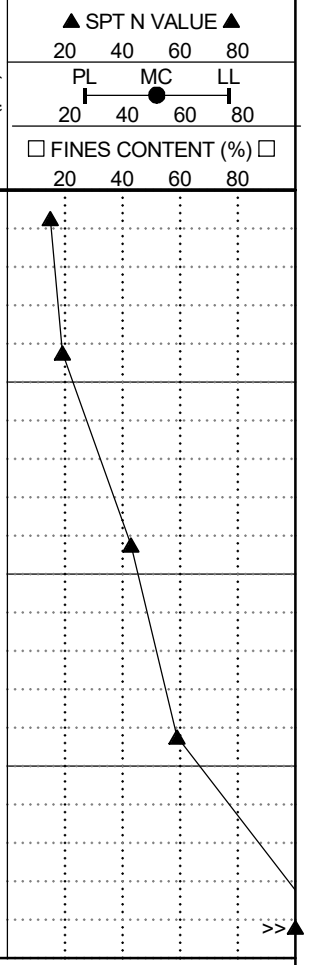
BORING NUMBER B- 6

CLIENT Claret Communities
PROJECT NAME Claret August Multifamily
PROJECT NUMBER CLARE-22-GA-06488-01
PROJECT LOCATION 1054 Claussen Road, Augusta, GA
DATE STARTED 07/28/2022 **COMPLETED** 07/28/2022
GROUND ELEVATION _____ **HOLE SIZE** _____
DRILLING CONTRACTOR ArcOne
GROUND WATER LEVELS:
DRILLING METHOD 2.25 HSA
AT TIME OF DRILLING --- Not Encountered
LOGGED BY Anthony Holmes **CHECKED BY** _____
AT END OF DRILLING ---
NOTES Automatic Hammer with Efficiency=90%
AFTER DRILLING ---

DEPTH (ft)	GRAPHIC LOG	MATERIAL DESCRIPTION	SAMPLE TYPE NUMBER	RECOVERY - inch (RQD - inch.)	BLOW COUNTS (N VALUE)	POCKET PEN. (tsf)	DRY UNIT WT. (pcf)
0		Topsoil	SPT 1	18	4-6-9 (15)		
		Sand; trace mica, trace silt, firm; orange brown (residuum)					
5		Some mica, trace rock fragments	SPT 2	18	18-12-7 (19)		
		Silt; some sand, trace clay, some rock fragments, hard; gray	SPT 3	18	9-15-28 (43)		
10							
15		Sandy; trace mica	SPT 4	18	9-24-35 (59)		
20		Partially weathered rock: sampled as silt-sandy; some rock fragments, trace mica, hard; tan gray	SPT 5	17	26-40-50/5"		

Boring terminated at 20.0 feet.



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BORING NUMBER B- 7

CLIENT Claret Communities
PROJECT NAME Claret August Multifamily
PROJECT NUMBER CLARE-22-GA-06488-01
PROJECT LOCATION 1054 Claussen Road, Augusta, GA
DATE STARTED 07/28/2022 **COMPLETED** 07/28/2022
GROUND ELEVATION _____ **HOLE SIZE** _____
DRILLING CONTRACTOR ArcOne
GROUND WATER LEVELS:
DRILLING METHOD 2.25 HSA
AT TIME OF DRILLING --- Not Encountered
LOGGED BY Anthony Holmes **CHECKED BY** _____
AT END OF DRILLING ---
NOTES Automatic Hammer with Efficiency=90%
AFTER DRILLING ---

DEPTH (ft)	GRAPHIC LOG	MATERIAL DESCRIPTION	SAMPLE TYPE NUMBER	RECOVERY - inch (RQD - inch.)	BLOW COUNTS (N VALUE)	POCKET PEN. (tsf)	DRY UNIT WT. (pcf)
0		Topsoil	SPT 1	18	3-5-5 (10)		
		Sand; trace clay, trace rock fragments, loose; orange brown (fill)					
		Sand; trace silt, trace mica, trace rock fragments, firm; orange brown (residuum)	SPT 2	12	13-11-6 (17)		
5							
		Silt; trace sand, trace mica, very stiff; gray	SPT 3	18	12-14-16 (30)		
10							
		Trace clay, trace rock fragments; brown gray	SPT 4	18	6-8-13 (21)		
15							
		Some rock fragments, hard; gray	SPT 5	18	12-15-22 (37)		
20							

Boring terminated at 20.0 feet.

▲ SPT N VALUE ▲
20 40 60 80
PL MC LL
20 40 60 80
☐ FINES CONTENT (%) ☐
20 40 60 80

United Consulting Group

BORING NUMBER B- 8

CLIENT Claret Communities
PROJECT NAME Claret August Multifamily
PROJECT NUMBER CLARE-22-GA-06488-01
PROJECT LOCATION 1054 Claussen Road, Augusta, GA
DATE STARTED 07/28/2022 **COMPLETED** 07/28/2022
GROUND ELEVATION _____ **HOLE SIZE** _____
DRILLING CONTRACTOR ArcOne
GROUND WATER LEVELS:
DRILLING METHOD 2.25 HSA
AT TIME OF DRILLING --- Not Encountered
LOGGED BY Anthony Holmes **CHECKED BY** _____
AT END OF DRILLING ---
NOTES Automatic Hammer with Efficiency=90%
AFTER DRILLING ---

DEPTH (ft)	GRAPHIC LOG	MATERIAL DESCRIPTION	SAMPLE TYPE NUMBER	RECOVERY - inch (RQD - inch.)	BLOW COUNTS (N VALUE)	POCKET PEN. (tsf)	DRY UNIT WT. (pcf)
0		Topsoil	SPT 1	18	4-7-7 (14)		
		Sand; trace silt, trace clay, trace rock fragments, firm; brown (residuum)					
5		Loose	SPT 2	18	5-4-4 (8)		
10		Partially weathered rock: sampled as silt; trace mica, some rock fragments, hard; gray	SPT 3	17	24-8-50/5"		
15			SPT 4	10	32-50/4"		
20		Sandy	SPT 5	11	26-50/5"		

▲ SPT N VALUE ▲
20 40 60 80
PL MC LL
20 40 60 80
☐ FINES CONTENT (%) ☐
20 40 60 80

Boring terminated at 20.0 feet.

United Consulting Group

BORING NUMBER B- 9

CLIENT Claret Communities
PROJECT NAME Claret August Multifamily
PROJECT NUMBER CLARE-22-GA-06488-01
PROJECT LOCATION 1054 Claussen Road, Augusta, GA
DATE STARTED 07/28/2022 **COMPLETED** 07/28/2022
GROUND ELEVATION _____ **HOLE SIZE** _____
DRILLING CONTRACTOR ArcOne
GROUND WATER LEVELS:
DRILLING METHOD 2.25 HSA
AT TIME OF DRILLING --- Not Encountered
LOGGED BY Anthony Holmes **CHECKED BY** _____
AT END OF DRILLING ---
NOTES Automatic Hammer with Efficiency=90%
AFTER DRILLING ---

DEPTH (ft)	GRAPHIC LOG	MATERIAL DESCRIPTION	SAMPLE TYPE NUMBER	RECOVERY - inch (RQD - inch.)	BLOW COUNTS (N VALUE)	POCKET PEN. (tsf)	DRY UNIT WT. (pcf)
0		Asphalt					
		Sand; trace rock fragments, trace clay, trace silt, loose; gray brown (fill)	SPT 1	12	4-2-5 (7)		
		Silt; trace sand, trace clay, trace rock fragments, very stiff; tan brown (residuum)	SPT 2	18	5-7-9 (16)		
5							
10		Trace mica, some rock fragments, hard; brown gray	SPT 3	18	17-23-29 (52)		
15		Sandy; gray	SPT 4	18	21-26-29 (55)		
20		Trace sand; non plastic	SPT 5	18	24-34-26 (60)		

Boring terminated at 20.0 feet.

▲ SPT N VALUE ▲
20 40 60 80
PL MC LL
20 40 60 80
☐ FINES CONTENT (%) ☐
20 40 60 80

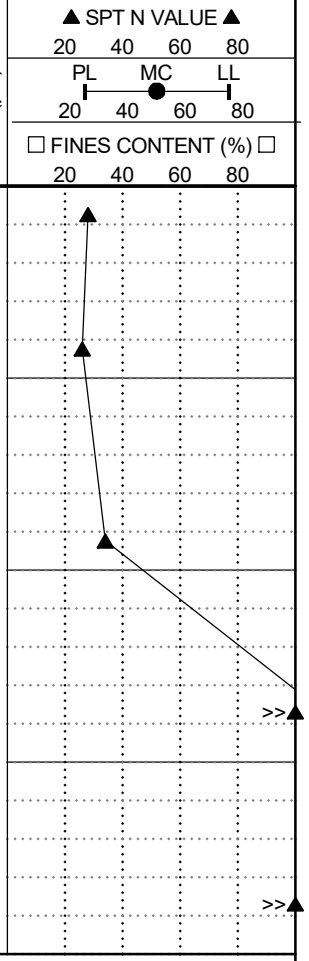
United Consulting Group

BORING NUMBER B-10

CLIENT Claret Communities
PROJECT NAME Claret August Multifamily
PROJECT NUMBER CLARE-22-GA-06488-01
PROJECT LOCATION 1054 Claussen Road, Augusta, GA
DATE STARTED 07/29/2022 **COMPLETED** 07/29/2022
GROUND ELEVATION _____ **HOLE SIZE** _____
DRILLING CONTRACTOR ArcOne
GROUND WATER LEVELS:
DRILLING METHOD 2.25 HSA
AT TIME OF DRILLING --- Not Encountered
LOGGED BY Anthony Holmes **CHECKED BY** _____
AT END OF DRILLING ---
NOTES Automatic Hammer with Efficiency=90%
AFTER DRILLING ---

DEPTH (ft)	GRAPHIC LOG	MATERIAL DESCRIPTION	SAMPLE TYPE NUMBER	RECOVERY - inch (RQD - inch.)	BLOW COUNTS (N VALUE)	POCKET PEN. (tsf)	DRY UNIT WT. (pcf)
0		Asphalt					
		Sand; trace silt, trace mica, trace rock fragments, medium dense; gray (residuum)	SPT 1	18	10-12-16 (28)		
		Trace clay	SPT 2	18	7-11-15 (26)		
5							
		Some silt, some rock fragments, dense	SPT 3	18	11-17-17 (34)		
10							
		Partially weathered rock: sampled as silt; some rock fragments, trace sand, trace clay, hard; gray	SPT 4	5	50/5"		
15							
		Partially weathered rock: sampled as sand-silty; some rock fragments, trace mica, very dense; gray	SPT 5	5	50/5"		
20							

Boring terminated at 20.0 feet.



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BORING NUMBER P-1

CLIENT Claret Communities
PROJECT NAME Claret August Multifamily
PROJECT NUMBER CLARE-22-GA-06488-01
PROJECT LOCATION 1054 Claussen Road, Augusta, GA
DATE STARTED 07/28/2022 **COMPLETED** 07/28/2022
GROUND ELEVATION _____ **HOLE SIZE** _____
DRILLING CONTRACTOR ArcOne
GROUND WATER LEVELS:
DRILLING METHOD 2.25 HSA
AT TIME OF DRILLING --- Not Encountered
LOGGED BY Anthony Holmes **CHECKED BY** _____
AT END OF DRILLING ---
NOTES Automatic Hammer with Efficiency=90%
AFTER DRILLING ---

DEPTH (ft)	GRAPHIC LOG	MATERIAL DESCRIPTION	SAMPLE TYPE NUMBER	RECOVERY - inch (RQD - inch.)	BLOW COUNTS (N VALUE)	POCKET PEN. (tsf)	DRY UNIT WT. (pcf)
0		Topsoil					
		Sand; trace silt, trace clay, trace mica, loose; tan brown (residuum)	SPT 1	18	3-3-7 (10)		
		Trace rock fragments, some silt, firm	SPT 2	12	28-7-7 (14)		
5							
		Trace silt, some rock fragments, very dense; gray brown	SPT 3	18	17-29-36 (65)		
10							

▲ SPT N VALUE ▲
20 40 60 80
PL MC LL
20 40 60 80
☐ FINES CONTENT (%) ☐
20 40 60 80

Boring terminated at 10.0 feet.

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BORING NUMBER P-2

CLIENT Claret Communities
PROJECT NAME Claret August Multifamily
PROJECT NUMBER CLARE-22-GA-06488-01
PROJECT LOCATION 1054 Claussen Road, Augusta, GA
DATE STARTED 07/29/2022 **COMPLETED** 07/29/2022
GROUND ELEVATION _____ **HOLE SIZE** _____
DRILLING CONTRACTOR ArcOne
GROUND WATER LEVELS:
DRILLING METHOD 2.25 HSA
AT TIME OF DRILLING --- Not Encountered
LOGGED BY Anthony Holmes **CHECKED BY** _____
AT END OF DRILLING ---
NOTES Automatic Hammer with Efficiency=90%
AFTER DRILLING ---

DEPTH (ft)	GRAPHIC LOG	MATERIAL DESCRIPTION	SAMPLE TYPE NUMBER	RECOVERY - inch (RQD - inch.)	BLOW COUNTS (N VALUE)	POCKET PEN. (tsf)	DRY UNIT WT. (pcf)
0		Topsoil	SPT 1	12	3-4-5 (9)		
		Silt-sandy; trace clay, stiff; orange brown (fill)					
		Sand; trace silt, trace mica, trace clay, firm; brown (residuum)	SPT 2	12	6-8-10 (18)		
5							
		Silt-sandy; trace mica, trace rock fragments, very stiff; orange gray	SPT 3	12	5-9-10 (19)		
10							

Boring terminated at 10.0 feet.

▲ SPT N VALUE ▲
20 40 60 80
PL MC LL
20 40 60 80
☐ FINES CONTENT (%) ☐
20 40 60 80

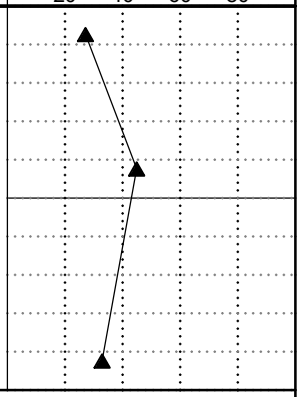
United Consulting Group

BORING NUMBER P-3

CLIENT Claret Communities
PROJECT NAME Claret August Multifamily
PROJECT NUMBER CLARE-22-GA-06488-01
PROJECT LOCATION 1054 Claussen Road, Augusta, GA
DATE STARTED 07/28/2022 **COMPLETED** 07/28/2022
GROUND ELEVATION _____ **HOLE SIZE** _____
DRILLING CONTRACTOR ArcOne
GROUND WATER LEVELS:
DRILLING METHOD 2.25 HSA
AT TIME OF DRILLING --- Not Encountered
LOGGED BY Anthony Holmes **CHECKED BY** _____
AT END OF DRILLING ---
NOTES Automatic Hammer with Efficiency=90%
AFTER DRILLING ---

DEPTH (ft)	GRAPHIC LOG	MATERIAL DESCRIPTION	SAMPLE TYPE NUMBER	RECOVERY - inch (RQD - inch.)	BLOW COUNTS (N VALUE)	POCKET PEN. (tsf)	DRY UNIT WT. (pcf)
0		Topsoil					
		Silt; trace sand, trace clay, trace rock fragments, very stiff; gray (residuum)	SPT 1	18	5-11-16 (27)		
		Sandy; some clay, some rock fragments, trace mica, hard; tan gray	SPT 2	18	20-21-24 (45)		
5							
		Trace clay	SPT 3	18	12-15-18 (33)		
10							

Boring terminated at 10.0 feet.



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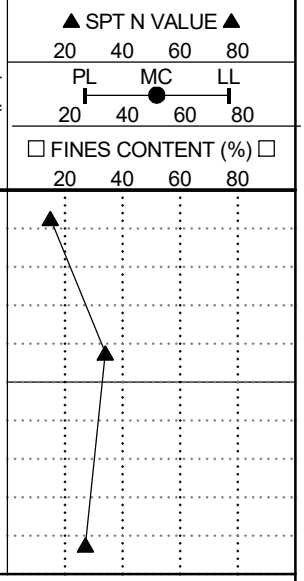
BORING NUMBER P-4

CLIENT Claret Communities
PROJECT NAME Claret August Multifamily
PROJECT NUMBER CLARE-22-GA-06488-01
PROJECT LOCATION 1054 Claussen Road, Augusta, GA
DATE STARTED 07/28/2022 **COMPLETED** 07/28/2022
GROUND ELEVATION _____ **HOLE SIZE** _____
DRILLING CONTRACTOR ArcOne
GROUND WATER LEVELS:
DRILLING METHOD 2.25 HSA
AT TIME OF DRILLING --- Not Encountered
LOGGED BY Anthony Holmes **CHECKED BY** _____
AT END OF DRILLING ---
NOTES Automatic Hammer with Efficiency=90%
AFTER DRILLING ---

DEPTH (ft)	GRAPHIC LOG	MATERIAL DESCRIPTION	SAMPLE TYPE NUMBER	RECOVERY - inch (RQD - inch.)	BLOW COUNTS (N VALUE)	POCKET PEN. (tsf)	DRY UNIT WT. (pcf)
0		Asphalt					
		Silt; trace sand, trace clay, trace mica, stiff; tan brown (fill)	SPT 1	12	4-6-9 (15)		
		Silt; trace sand, trace rock fragments, trace mica, hard; tan gray (residuum)	SPT 2	18	10-13-21 (34)		
5							
		Very stiff; brown gray	SPT 3	18	7-11-16 (27)		
10							

Boring terminated at 10.0 feet.



United Consulting Group

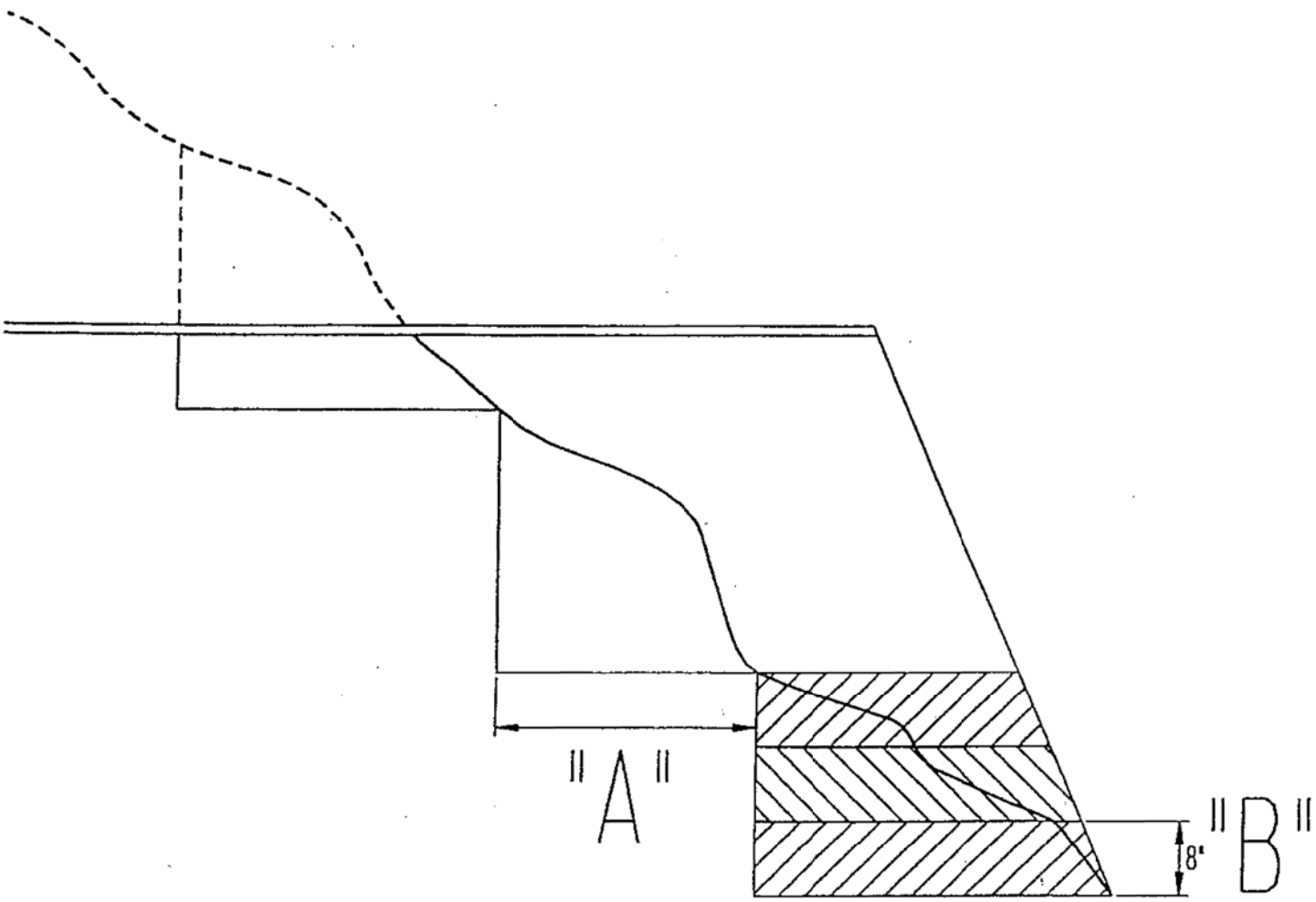
BORING NUMBER P-5

CLIENT Claret Communities
PROJECT NAME Claret August Multifamily
PROJECT NUMBER CLARE-22-GA-06488-01
PROJECT LOCATION 1054 Claussen Road, Augusta, GA
DATE STARTED 07/28/2022 **COMPLETED** 07/28/2022
GROUND ELEVATION _____ **HOLE SIZE** _____
DRILLING CONTRACTOR ArcOne
GROUND WATER LEVELS:
DRILLING METHOD 2.25 HSA
AT TIME OF DRILLING --- Not Encountered
LOGGED BY Anthony Holmes **CHECKED BY** _____
AT END OF DRILLING ---
NOTES Automatic Hammer with Efficiency=90%
AFTER DRILLING ---

DEPTH (ft)	GRAPHIC LOG	MATERIAL DESCRIPTION	SAMPLE TYPE NUMBER	RECOVERY - inch (RQD - inch.)	BLOW COUNTS (N VALUE)	POCKET PEN. (tsf)	DRY UNIT WT. (pcf)
0		Asphalt					
		Clay; trace rock fragments, trace sand, firm; brown (fill)	SPT 1	18	3-3-2 (5)		
		Clay; trace sand, trace silt, firm; tan brown (residuum)	SPT 2	18	3-2-4 (6)		
5							
		Silt; trace sand, trace rock fragments, trace clay, very stiff; brown gray	SPT 3	18	6-11-17 (28)		
10							

▲ SPT N VALUE ▲
20 40 60 80
PL MC LL
20 40 60 80
☐ FINES CONTENT (%) ☐
20 40 60 80

Boring terminated at 10.0 feet.



1. THE ABOVE DIAGRAM ILLUSTRATES A TYPICAL BENCHING FOR PLACEMENT OF FILL ON A SLOPING SURFACE.

2. THE DIAGRAM SHOWS THAT BEFORE FILL IS PLACED, THE FIRST STEP IS CUT INTO THE SLOPE A MAXIMUM DISTANCE OF ABOUT 8 FEET "A" (ABOUT 3/4 THE WIDTH OF USUAL D-8 BULLDOZER BLADE). SUCCESSIVE LAYERS OF FILL ARE THEN PLACED. BEFORE FINAL LAYER IS PLACED, THE SECOND STEP IS CUT 8 FEET INTO THE SLOPE AND SUCCESSIVE LAYERS ARE AGAIN PLACED.

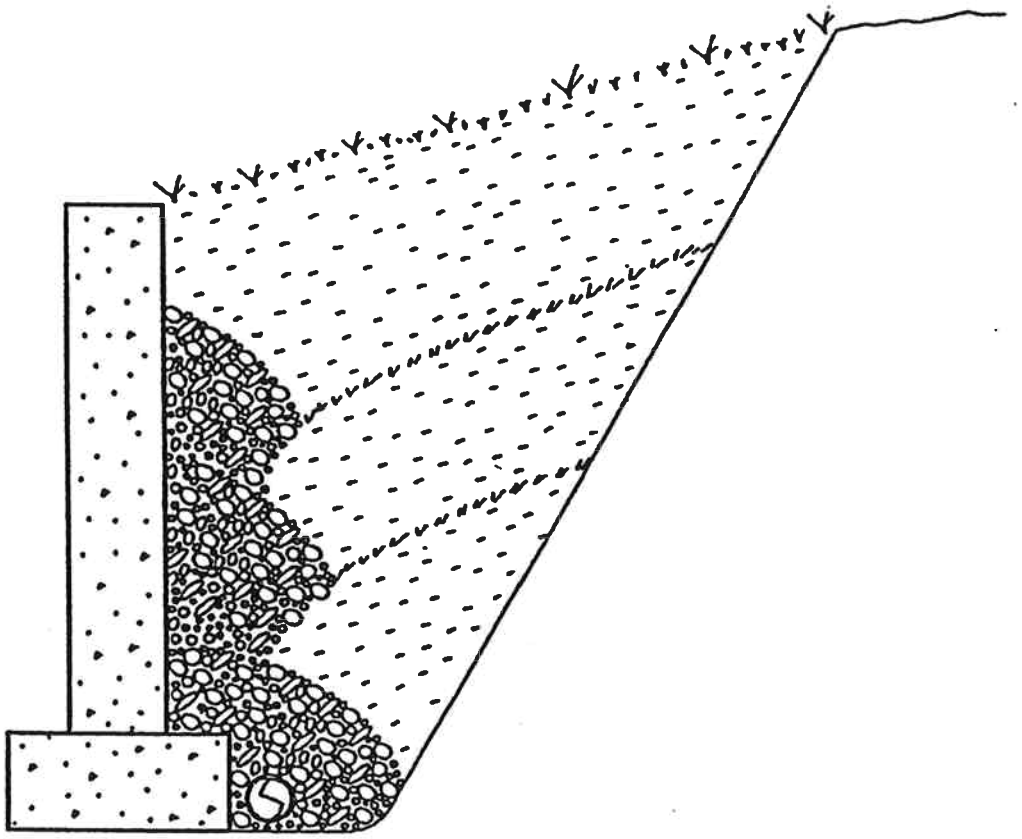
3. SELECT FILL MATERIAL SHOULD BE PLACED IN 8 INCH LIFTS AND COMPACTED TO THE SPECIFIED DENSITY ("B").

TYPICAL BENCHING DETAIL
NOT TO SCALE

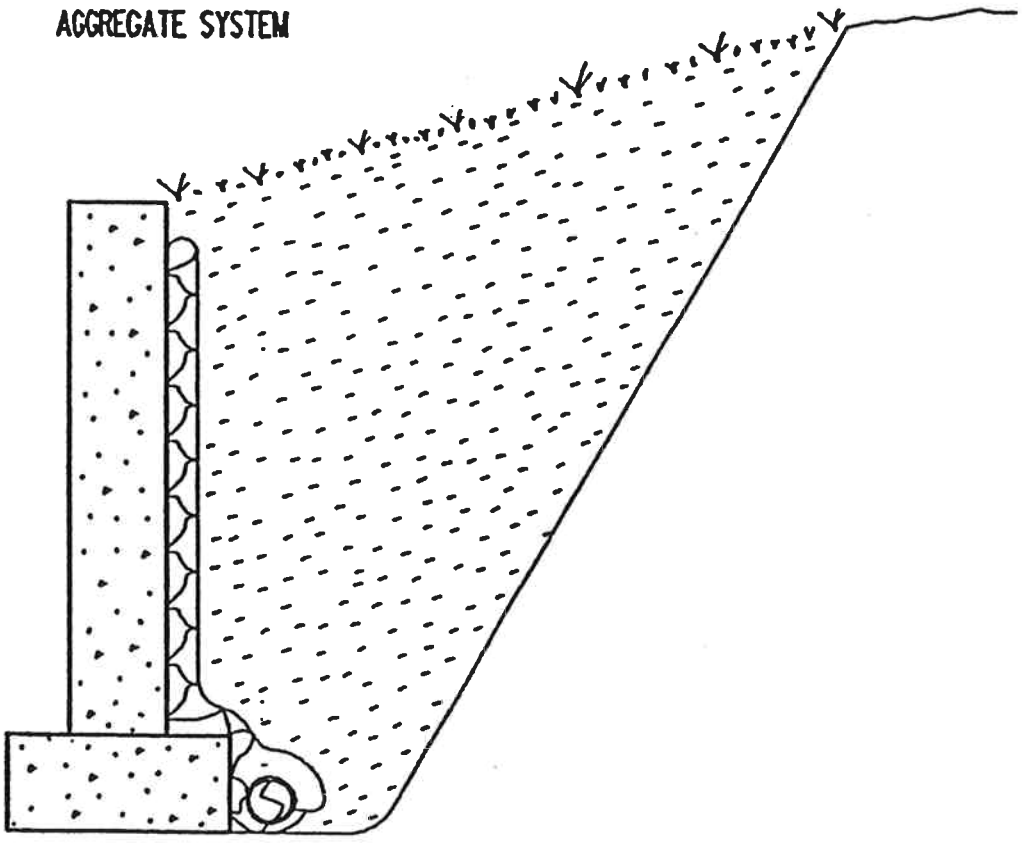
2015/DETAILS/TYPBENCH.DGN

We're here for you
UNITED CONSULTING

625 Holcomb Bridge Road
Norcross, Georgia 30071
770-209-0029 Fax 582-2900
www.unitedconsulting.com



AGGREGATE SYSTEM



MIRADRAIN SYSTEM

RETAINING WALL DRAIN DETAIL

UNITED CONSULTING
625 HOLCOMB BRIDGE ROAD, NORCROSS, GEORGIA 30071
OFFICE (770)-209-0029 FAX (770)-582-2900

UCOI BENCH

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.

Geotechnical 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 civil engineer may not fulfill the needs of a constructor — a construction contractor — or even another civil engineer. Because each geotechnical- engineering study is unique, each geotechnical-engineering report is unique, prepared *solely* for the client. No one except you 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 the Full Report

Serious problems have occurred because those relying on a geotechnical-engineering report did not read it all. Do not rely on an executive summary. Do not read selected elements only.

Geotechnical Engineers Base Each Report on a Unique Set of Project-Specific Factors

Geotechnical engineers consider many unique, project-specific factors when establishing the scope of a study. Typical factors include: the client's goals, objectives, and risk-management preferences; the general nature of the structure involved, its size, and configuration; the location of the structure on the site; and other planned or existing site improvements, such as access roads, parking lots, and underground utilities. Unless the geotechnical engineer who conducted the study specifically indicates otherwise, do not rely on a geotechnical-engineering report that was:

- not prepared for you;
- not prepared for your project;
- not prepared for the specific site explored; or
- completed before important project changes were made.

Typical changes that can erode the reliability of an existing geotechnical-engineering report include those that affect:

- 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. *Geotechnical engineers cannot accept responsibility or liability for problems that occur because their reports do not consider developments of which they were not informed.*

Subsurface Conditions Can Change

A geotechnical-engineering report is based on conditions that existed at the time the geotechnical engineer performed the study. *Do not rely on a geotechnical-engineering report whose adequacy may have been affected by*: the passage of time; man-made events, such as construction on or adjacent to the site; or natural events, such as floods, droughts, earthquakes, or groundwater fluctuations. *Contact the geotechnical engineer before applying this report to determine if it is still reliable.* A minor amount of additional testing or analysis could prevent major problems.

Most Geotechnical Findings Are Professional Opinions

Site exploration identifies subsurface conditions only at those points where subsurface tests are conducted or samples are taken. Geotechnical engineers review field and laboratory data and then apply their professional judgment to render an opinion about subsurface conditions throughout the site. Actual subsurface conditions may differ — sometimes significantly — from those indicated in your report. Retaining the geotechnical engineer who developed your report to provide geotechnical-construction observation is the most effective method of managing the risks associated with unanticipated conditions.

A Report's Recommendations Are Not Final

Do not overrely on the confirmation-dependent recommendations included in your report. *Confirmation-dependent recommendations are not final,* because geotechnical engineers develop them principally from judgment and opinion. Geotechnical engineers can finalize their recommendations *only* by observing actual subsurface conditions revealed during construction. *The geotechnical engineer who developed your report cannot assume responsibility or liability for the report's confirmation-dependent recommendations if that engineer does not perform the geotechnical-construction observation required to confirm the recommendations' applicability.*

A Geotechnical-Engineering Report Is Subject to Misinterpretation

Other design-team members' misinterpretation of geotechnical-engineering reports has resulted in costly

problems. Confront that risk by having your geotechnical engineer confer with appropriate members of the design team after submitting the report. Also retain your geotechnical engineer to review pertinent elements of the design team's plans and specifications. Constructors can also misinterpret a geotechnical-engineering report. Confront that risk by having your geotechnical engineer participate in prebid and preconstruction conferences, and by providing geotechnical construction observation.

Do Not Redraw the Engineer's Logs

Geotechnical engineers prepare final boring and testing logs based upon their interpretation of field logs and laboratory data. To prevent errors or omissions, the logs included in a geotechnical-engineering report should *never* be redrawn for inclusion in architectural or other design drawings. Only photographic or electronic reproduction is acceptable, *but recognize that separating logs from the report can elevate risk.*

Give Constructors a Complete Report and Guidance

Some owners and design professionals mistakenly believe they can make constructors liable for unanticipated subsurface conditions by limiting what they provide for bid preparation. To help prevent costly problems, give constructors the complete geotechnical-engineering report, *but* preface it with a clearly written letter of transmittal. In that letter, advise constructors that the report was not prepared for purposes of bid development and that the report's accuracy is limited; encourage them to confer with the geotechnical engineer who prepared the report (a modest fee may be required) and/or to conduct additional study to obtain the specific types of information they need or prefer. A prebid conference can also be valuable. *Be sure constructors have sufficient time* to perform additional study. Only then might you be in a position to give constructors the best information available to you, while requiring them to at least share some of the financial responsibilities stemming from unanticipated conditions.

Read Responsibility Provisions Closely

Some clients, design professionals, and constructors fail to recognize that geotechnical engineering is far less exact than other engineering disciplines. This lack of understanding has created unrealistic expectations that have led to disappointments, claims, and disputes. To help reduce the risk of such outcomes, geotechnical engineers commonly include a variety of 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.

Environmental Concerns Are Not Covered

The equipment, techniques, and personnel used to perform an *environmental* study differ significantly from those used to perform a *geotechnical* 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 environmental problems have led to numerous project failures.* If you have not yet obtained your own environmental information, ask your geotechnical consultant for risk-management guidance. *Do not rely on an environmental report prepared for someone else.*

Obtain Professional Assistance To Deal with Mold

Diverse strategies can be applied during building design, construction, operation, and maintenance to prevent significant amounts of mold from growing on indoor surfaces. To be effective, all such strategies should be devised for the *express purpose* of mold prevention, integrated into a comprehensive plan, and executed with diligent oversight by a professional mold-prevention consultant. Because just a small amount of water or moisture can lead to the development of severe mold infestations, many mold- prevention strategies focus on keeping building surfaces dry. While groundwater, water infiltration, and similar issues may have been addressed as part of the geotechnical- engineering study whose findings are conveyed in this report, the geotechnical engineer in charge of this project is not a mold prevention consultant; *none of the services performed in connection with the geotechnical engineer's study were designed or conducted for the purpose of mold prevention. Proper implementation of the recommendations conveyed in this report will not of itself be sufficient to prevent mold from growing in or on the structure involved.*

Rely, on Your GBC-Member Geotechnical Engineer for Additional Assistance

Membership in the Geotechnical Business Council of 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. Confer with you GBC-Member geotechnical engineer for more information.

GEOTECHNICAL BUSINESS COUNCIL
of the Geoprofessional Business Association

8811 Colesville Road/Suite G106, Silver Spring, MD 20910
Telephone: 301/565-2733 Facsimile: 301/589-2017
e-mail: info@geoprofessional.org www.geoprofessional.org