



Photo Station 1, view north



Photo Station 1, view east



Photo Station 1, view south



Photo Station 1, view west



Photo Station 2, view north



Photo Station 2, view east



Photo Station 2, view south



Photo Station 2, view west



Photo Station 3, view north



Photo Station 3, view east



Photo Station 3, view south



Photo Station 3, view west



Photo Station 4, view north



Photo Station 4, view east



Photo Station 4, view south



Photo Station 4, view west



Photo Station 5, view north



Photo Station 5, view east



Photo Station 5, view south



Photo Station 5, view west



**SUMMARY REPORT OF A
GEOTECHNICAL SITE EXPLORATION – REVISION 2**

**SAVANNAH STATION, PHASE 3
ALACHUA, ALACHUA COUNTY, FLORIDA**

GSE PROJECT NO. 13739A

Prepared For:
THE FLETCHER FAMILY COMPANIES
JULY 2022



Engineering & Consulting, Inc.

July 1, 2022

Blake Fletcher, CCIM
The Fletcher Family Companies
4510 NW 6th Place
Gainesville, FL 32607

Subject: Summary Report of a Geotechnical Site Exploration – Revision 2
Savannah Station, Phase 3
Alachua, Alachua County, Florida
GSE Project No. 13739A


GSE Engineering & Consulting, Inc. (GSE) is pleased to submit this geotechnical site exploration report for the above referenced project.

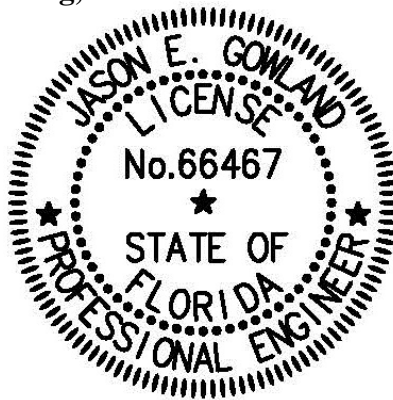
Presented herein are the findings and conclusions of our exploration, including the geotechnical parameters and recommendations to assist with clubhouse foundation, pavement, and stormwater management designs. This revision includes a karst evaluation of the subject site.

GSE appreciates this opportunity to have assisted you on this project. If you have any questions or comments concerning this report, please contact us.

Sincerely,

GSE Engineering & Consulting, Inc.


Cassandra R. Lindeman, E.I.
Staff Engineer



This item has been digitally signed and sealed by

on the date adjacent to the seal. Printed copies of this document are not considered signed and sealed and the signature must be verified on any electronic copies.

Jason E. Gowland, P.E.
Senior Engineer
Florida Registration No. 66467

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Figure

1. Project Site Location Map
2. Aerial Photograph Showing Approximate Locations of Field Tests

1.0 INTRODUCTION

1.1 General

GSE Engineering & Consulting, Inc. (GSE) has completed this geotechnical exploration for the proposed residential development located in Alachua, Alachua County, Florida. This exploration was performed in accordance with GSE Proposal No. 2021-380 dated July 12, 2021. You authorized our services on July 14, 2021.

1.2 Project Description

This project will consist of a residential development. The project will include a clubhouse, roadways, and stormwater management facilities. The site is located on the south side of C.R. 235 at the C.R. 235A intersection in Alachua, Alachua County, Florida (Figure 1).

Mr. Ryan Thompson with CHW Professional Consultants, Inc. (CHW) provided information about the project and site plans illustrating the locations of the proposed improvements. The project will consist of roadways, stormwater management facilities, and a clubhouse. We anticipate the clubhouse will be either concrete masonry unit or wood frame construction. Structural loads have not been provided but are expected to be on the order of 1 to 2 kips per foot for load bearing walls, and less than 50 kips for columns. The finished floor of the structure is anticipated to be constructed near the existing site grades.

Four stormwater management facilities are proposed that range in size from about 2.7 to 8.6 acres. Approximately 12,000 feet of roadways are proposed.

A recent aerial photograph of the site was obtained and reviewed. The preliminary site plan and aerial photograph were used in preparation of this exploration and report.

1.3 Purpose

The purpose of this geotechnical exploration was to determine the general subsurface conditions, evaluate these conditions with respect to the proposed construction, and prepare geotechnical parameters and recommendations to assist with clubhouse foundation, stormwater management, and pavement designs.

2.0 FIELD AND LABORATORY TESTS

2.1 General Description

The procedures used for field sampling and testing are in general accordance with industry standards of care and established geotechnical engineering practices for this geographic region. This exploration consisted of performing two (2) Standard Penetration Test (SPT) borings to a depth of 20 feet below land surface (bls) within the proposed clubhouse, two (2) auger borings to a depth of 10 feet bls within the proposed clubhouse, twenty-three (23) auger borings to a depth of 5 feet bls along the roadway alignments, twenty-four (24) auger borings to a depth of 15 feet within the proposed stormwater management facilities, and six (6) auger borings to a depth of 30 feet bls within the proposed stormwater management facilities.

The soil borings were performed at the approximate locations as shown on Figure 2. The borings were located at the site using the provided site plan, Global Positioning System (GPS) coordinates, and obvious site features as reference. The boring locations should be considered approximate. The soil borings were performed from August 23 to August 26, 2021.

2.2 Auger Borings

The auger borings were performed in accordance with ASTM D1452. The borings were performed with flight auger equipment that was rotated into the ground in a manner that reduces soil disturbance. After penetrating to the required depth, the auger was retracted, and the soils collected on the auger flights were field classified and placed in sealed containers. Representative samples of each stratum were retained from the auger boring. Results from the auger borings are provided in Section 5.1.

2.3 Standard Penetration Test Borings

The soil borings were performed with a drill rig employing flight auger drilling techniques and Standard Penetration Testing (SPT) in accordance with ASTM D1586. The SPTs were performed continuously to 10 feet and at 5-foot intervals thereafter. Soil samples were obtained at the depths where the SPTs were performed. The soil samples were classified in the field, placed in sealed containers, and returned to our laboratory for further evaluation.

After drilling to the sampling depth, the standard two-inch O.D. split-barrel sampler was seated by driving it 6 inches into the undisturbed soil. The sampler was then driven an additional 12 inches by blows of a 140-pound hammer falling 30 inches. The number of blows required to produce the next 12 inches of penetration were recorded as the penetration resistance (N-value). These values and the complete SPT boring logs are provided in Section 5.2.

Upon completion of the sampling, the boreholes were abandoned in accordance with Water Management District guidelines.

2.4 Soil Laboratory Tests

The soil samples recovered from the soil borings were returned to our laboratory and examined to confirm the field descriptions. Representative samples were then selected for laboratory testing. The laboratory tests consisted of twenty (20) percent soil fines passing the No. 200 sieve determinations, twenty (20) natural moisture content determinations, two (2) Atterberg Limits tests, twelve (12) constant head hydraulic conductivity tests, and three (3) Limerock Bearing Ratio (LBR). These tests were performed in order to aid in classifying the soils and to further evaluate their engineering properties. The laboratory tests are provided in Section 5.3.

3.0 FINDINGS

3.1 Surface Conditions

Ms. Cassandra R. Lindeman, E.I. with GSE initially visited the site on July 22, 2021, to observe the site conditions. Ms. Lindeman returned to the site on August 13, 2021, with Mr. Jason Kite with Jason Kite, LLC to clear lanes through the trees in the southwest corner of the site to allow the drilling equipment access to the boring locations. Representatives from GSE returned to the site on August 16, 2021, to collect soil samples for permeability testing.

The majority of the site is currently an existing crop field. The southwestern corner of the site contains planted pines, trees, and heavy brush. The entire site is outlined by trees. The site is bordered by CR 235 running southwest to northeast and by NW 110th Avenue on the south side.

The topography at the site is gently sloping. Regional topography can also be characterized as gently to moderately sloping. The Alachua County Growth Management website indicates the ground surface elevations at the site are near 86 to 102 feet.

The Alachua County Soil Survey maps a closed depression on the southern portion of the site.

3.2 Subsurface Conditions

The locations of the auger and SPT borings are provided on Figure 2. Complete logs for the borings are provided in Sections 5.1 and 5.2. Descriptions for the soils encountered are accompanied by the Unified Soil Classification System symbol (SM, SP-SM, etc.) and are based on visual examination of the recovered soil samples and the laboratory tests performed. Stratification boundaries between the soil types should be considered approximate, as the actual transition between soil types may be gradual.

The auger and SPT borings generally encountered relatively consistent soil conditions across the site.

The auger borings located in the areas of the proposed roadways typically encountered poorly graded sand (SP), sand with silt (SP-SM), and sand with clay (SP-SC) to the explored depth of 5 feet bls. Boring R-16 encountered very clayey sand (SC/CL) at 3 feet bls to the explored depth of 5 feet bls. Borings R-17, R-20, and R-23 encountered clayey sand (SC) at depths of 2, 2.5, and 4 feet bls, respectively, to the explored depth of 5 feet bls.

The auger borings located within the proposed stormwater management facilities initially encountered poorly graded sand (SP), sand with silt (SP-SM), and sand with clay (SP-SC). The sandy soils were generally underlain by clayey and very clayey sands (SC, SC/CL) with some interbedded layers of clay-rich soils consisting of sandy clay, clay with sand, and clay (CL/CH) to the explored depths of 15 and 30 feet bls. Borings P-8, P-24, and P-28 encountered limestone at 28 and 28.5 feet bls to the explored depth of 30 feet bls.

The auger and SPT borings located within the area of the proposed clubhouse encountered similar conditions to the rest of the site. Boring A-1 encountered sand with silt (SP-SM) to the explored depth of 10 feet bls. Boring A-2 encountered 2 feet of sand with silt (SP-SM) underlain by very clayey sand (SC/CL) to the explored depth of 10 feet bls. Boring B-1 initially penetrated 7 feet of sand with silt (SP-SM) underlain by 1.5 feet of very clayey sand (SC/CL), 5 feet of poorly graded sand (SP), and 6.5 feet of clayey and very clayey sands (SC, SC/CL) to the explored depth of 20 feet bls. Boring B-2 initially penetrated 7 feet of sand with silt (SP-SM) and poorly graded sand (SP) underlain by 6.5 feet of clayey sand (SC) and 6.5 feet of sand with clay (SP-SC) to the explored depth of 20 feet bls.

The sandy soils consisting of poorly graded sand (SP), sand with silt (SP-SM), and sand with clay (SP-SC) are generally in a very loose to medium dense condition with N-values ranging from 2 to 26 blows per foot. The clayey and very clayey sands (SC, SC/CL) encountered are generally in a loose to medium dense condition with N-values ranging from 5 to 21 blows per foot.

The groundwater table was not encountered in the auger and SPT borings at the time of our investigation.

3.3 Review of Published Data

The majority of the site is mapped as five soil series by the Soil Conservation Service (SCS) Soil Survey for Alachua County¹. The following soil descriptions are from the Soil Survey.

Arredondo fine sand, 0 to 5 percent slopes – This nearly level to gently sloping, well-drained soil is in both small and large areas of uplands. Slopes are smooth to convex. The areas are irregular in shape and range from about 10 to 160 acres in size.

Typically, the surface layer is dark grayish brown fine sand about 8 inches thick. The subsurface layer is fine sand to a depth of 49 inches. The upper 23 inches is yellowish brown, and the lower 18 inches is brownish yellow. The subsoil extends to a depth of 86 inches or more. The upper 5 inches is yellowish brown loamy sand; the next 10 inches is yellowish brown sandy clay loam, and the lower 22 inches is dark yellowish brown sandy clay and sandy clay loam.

Included with this soil in mapping are small depressional areas of soils that have a very dark gray or black surface layer 8 to 24 inches thick. This layer overlies gray sandy material. These areas are shown by wet spot symbols. Also included are small areas of Fort Meade, Gainesville, Kendrick, and Millhopper soils. A few areas of this soil include Arredondo soils that have 5 to 8 percent slopes. Some areas of this soil in the western part of the county have small spots of strongly acid to medium acid soil material 40 to 70 inches deep to calcareous limestone. Limestone boulders, fragments of limestone, and sinkholes are in some areas of this soil, mainly in the limestone plain sections of the western part of the county. Most of these boulders are siliceous. The sinkholes and the boulders are shown by appropriate map symbols. Total included areas are about 15 percent.

In this Arredondo soil, the available water capacity is low in the sandy surface and subsurface layers and low to medium in the loamy subsoil. Permeability is rapid in the surface and subsurface layers and moderately slow to moderate in the loamy subsoil. Natural fertility is low in the sandy surface and subsurface layers and medium in the finer textured subsoil. Organic matter content is low. The water table in this soil is at a depth of more than 72 inches. Surface runoff is slow.

¹ Soil Survey of Alachua County, Florida. Soil Conservation Service, U.S. Department of Agriculture.

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Millhopper sand, 0 to 5 percent soils – This nearly level to gently sloping, moderately well drained soil is in small and large irregularly shaped areas on uplands and on slightly rolling knolls in the broad flatwoods. Slopes are mostly nearly smooth or convex. The areas are variable in size. They range from about 10 to 250 acres.

Typically, the surface layer is dark grayish brown sand about 9 inches thick. The subsurface layer is sand or fine sand about 49 inches thick. The upper 17 inches is yellowish brown, the next 22 inches is light yellowish brown, and the lower 10 inches is very pale brown. The subsoil extends to a depth of 89 inches. The upper 6 inches is yellowish brown loamy sand that has grayish and brownish mottles; the next 22 inches is light gray, mottled sandy clay loam; and the lower 3 inches is light gray, mottled sandy loam.

Included with this soil in mapping are small areas of Arredondo, Bonneau, Fort Meade, Gainesville, Kanapaha, Lochloosa, and Sparr soils. Siliceous limestone boulders and small sinks are within some delineations. Small areas of Millhopper soils that have 5 to 8 percent slopes are also included. About 25 acres mapped as this Millhopper soil along the Santa Fe River is occasionally flooded. Total included areas are about 20 percent or less.

This Millhopper soil has a water table that is at a depth of 40 to 60 inches for 1 to 4 months and at a depth of 60 to 72 inches for 2 to 4 months during most years. The available water capacity is low in the surface and subsurface layers and is low to medium in the subsoil. Permeability is rapid in the surface and subsurface layers, moderately rapid in the upper 6 inches of the subsoil, and slow to moderately slow below this depth. Natural fertility is low. Organic matter content is low to moderately low.

Gainesville sand, 0 to 5 percent slopes – This nearly level to gently sloping, well-drained soil has sandy texture to a depth of 80 inches or more. It is in both small and large, irregularly shaped areas on the gently rolling uplands. Most areas range from about 10 to 250 acres.

Typically, the surface layer is dark grayish brown sand about 7 inches thick. The underlying layer extends to a depth of 82 inches or more. The upper 22 inches is yellowish brown sand, and the lower 53 inches is strong brown loamy sand.

Included with this soil in mapping are small areas of Arredondo, Fort Meade, Kendrick, and Lake soils. A few small areas of Gainesville soils that have 5 to 8 percent slopes are included. Total included areas are less than 15 percent.

In this Gainesville soil, the available water capacity is low, and the permeability is rapid. Organic matter content ranges from low to moderately low, and natural fertility is low. Surface runoff is slow. The water table is more than 72 inches below the surface.

Arredondo fine sand, 5 to 8 percent slopes – This is near level to sloping, well-drained soil forms in thick beds of sandy and loamy marine materials. These soils are in broad rolling areas of the upland. Slopes range from 0 to 8 percent. The water table is more than 72 inches below the surface. These soils are loamy siliceous, hyperthermic Grossarenic Paleudults.

Arredondo soils are geographically associated with Apopka, Bonneau, Candler, Fort Meade, Gainesville, Jonesville, Kanapaha, Kendrick, Lake Millhopper, and Norfolk soils. Apopka soils have less than 5 percent silt and clay in the A2 horizon, and many of the sand grains are uncoated. Bonneau soils are moderately well drained and have an A horizon 20 to 40 inches thick. Candler soils are sandy to a depth of 80 inches or more and have less than 5 percent silt and clay in their 10- to 40-inch control section.

Fort Meade and Gainesville soils are sandy to a depth of more than 80 inches. They have 10 to 15 percent silt and clay in their 10- to 40-inch control section. Fort Meade soils also have a thick, dark colored A1 horizon. Jonesville soils have underlying limestone at a depth of less than 60 inches. Lake soils are sandy to 80 inches or more. Kanapaha soils are poorly drained, and Millhopper soils are moderately well drained. Norfolk soils have an A horizon less than 20 inches thick.

Lochloosa fine sand, 5 to 8 percent slopes – This is near level to sloping, somewhat poorly drained soil that forms in thick beds of loamy marine deposits. These soils are in broad areas of the gently rolling uplands and in slightly convex areas of the flatwoods. Slopes range from 0 to 8 percent. The water table is about 30 to 40 inches below the surface for about 1 to 4 months during most years. It rises to 15 to 30 inches for about 1 to 4 weeks during most years. During most of the remainder of the year it is at a depth of more than 40 inches. These soils are loamy, siliceous, hyperthermic Aquic Arenic Paleudults.

Lochloosa soils are geographically associated with Blichton, Bivans, Boardman, Bonneau, Kanapaha, Kendrick, Micanopy, Millhopper, Sparr, and Wacahoota soils. Blichton, Bivans, Boardman, Kanapaha, and Wacahoota soils are all poorly drained. Blichton soils are more than 5 percent plinthite. In addition, the Bivans soils have a clayey Btg horizon within 20 inches of the surface and contain more than 5 percent nodules and fragments of limestone. Kanapaha soils have an A horizon 40 to 80 inches thick. Wacahoota soils are more than 5 percent nodules and fragments of limestone. Kendrick soils are well drained. Micanopy soils have a clayey Bt horizon within 20 inches of the surface. Millhopper soils are moderately well drained and have an A horizon 40 to 80 inches thick. Sparr soils have a sandy A horizon 40 to 80 inches thick.

3.4 Laboratory Soil Analysis

Selected soil samples recovered from the soil borings were analyzed for the percent soil fines passing the No. 200 sieve, natural moisture content, Atterberg Limits, hydraulic conductivity, and Limerock Bearing Ratio (LBR) tests. Samples selected for laboratory testing were collected at depths ranging from 0.5 to 10 feet bls. These tests were performed to confirm visual soil classification and evaluate their engineering properties. The complete laboratory report is provided in Section 5.3.

The laboratory tests indicate the tested soils consist of poorly graded sand (SP), sand with silt (SP-SM), clayey sand (SC), and very clayey sand (SC/CL). The tested poorly graded sand (SP) contains approximately 3.5 to 4.9 percent soil fines passing the No. 200 sieve with natural moisture contents of about 5.2 to 5.3 percent. The tested sand with silt (SP-SM) contains approximately 5 to 9.5 percent soil fines passing the No. 200 sieve with natural moisture contents of about 5.8 to 8.3 percent. The tested clayey sand (SC) contains approximately 12 to 29 percent soil fines passing the No. 200 sieve with natural moisture contents of about 11 to 18 percent. The tested very clayey sand (SC/CL) contains approximately 30 to 46 percent soil fines passing the No. 200 sieve with natural moisture contents of about 18 to 24 percent.

Atterberg Limits tests indicate the tested very clayey sands (SC/CL) have Liquid Limit (LL) values of 27 and 45, Plastic Limit (PL) values of 16 and 19, and Plasticity Index (PI) values of 11 and 26. These values correspond to a material with low potential ($LL < 50$ and $PI < 25$) for expansive behavior².

The constant head hydraulic conductivity test results indicate the near-surface poorly graded sand (SP) has a hydraulic conductivity value of 12 feet per day. The tested sand with silt (SP-SM) has hydraulic conductivity values of 4.7 to 22 feet per day.

² U.S. Department of the Army USA, 1983, Foundations in Expansive Soils, TM 5-818-7, p. 4-1.

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The tested clayey sands (SC) have hydraulic conductivity values of 0.6 to 11 feet per day. The tested very clayey sand (SC/CL) has a hydraulic conductivity value of 1.7 feet per day.

The Modified Proctor maximum dry density tests indicate the near surface grab samples have maximum dry densities ranging from 113.3 to 116.8 pounds per cubic foot and optimum moisture contents of 8.5 to 10.8 percent. The LBR tests indicate the soils have LBR values ranging from 34 to 67.

4.0 EVALUATION AND RECOMMENDATIONS

4.1 General

The following recommendations are made based upon our understanding of the proposed construction, a review of the attached soil borings and laboratory test data, and experience with similar projects and subsurface conditions. If plans or the location of proposed construction changes from those discussed previously, GSE requests the opportunity to review and possibly amend our recommendations with respect to those changes.

The final design of a foundation system is dependent upon adequate integration of geotechnical and structural engineering considerations. Consequently, GSE must review the final foundation design in order to evaluate the effectiveness and applicability of our initial analyses, and to determine if additional recommendations may be warranted. Without such a review, the recommendations presented herein could be misinterpreted or misapplied resulting in potentially unacceptable performance of the foundation system.

The performance of site improvements may be sensitive to their post-construction relationship to site groundwater levels, seepage zones, or soil/rock characteristics exposed at final site grades. GSE recommends that use of boring information for final design of all site improvements be predicated on proper horizontal and vertical control of borings.

In this section of the report, we present our geotechnical parameters and recommendations to assist with building foundation, stormwater management, and pavement designs as well as our general site preparation guidelines.

4.2 Groundwater

The groundwater table was not encountered in the borings at the time of our exploration. The lack of apparent groundwater table in the borings suggest the site is perforated; however, you should expect water to perch on top of the very clayey sands and clays after periods of heavy and seasonal rainfall. Estimates for the temporarily perched groundwater tables are shown on the individual boring logs.

4.3 Building Foundations

The borings located within the proposed building footprint generally encountered poorly graded sand and sand with silt underlain by interbedded layers of clayey and very clayey sand and sandy clay to the explored depths of 10 and 20 feet bls.

Based upon the soil conditions encountered and our limited understanding of the structural loads and site grading, we recommend the building be supported by conventional, shallow strip and/or spread foundations. We recommend the shallow foundations be designed for a maximum allowable gross bearing pressure of 2,000 psf. The gross bearing pressure is defined as the soil contact pressure that can be imposed from the maximum structural loads, weight of the concrete foundations, and weight of the soil above the foundations. The foundations should be designed based upon the maximum load that could be imposed by all loading conditions.

The foundations should be embedded a minimum of 18 inches below the lowest adjacent grade. Interior foundations or thickened sections should be embedded a minimum of 12 inches. The foundations should have minimum widths of 18 inches for strip footings, and 24 inches for columns, even though the maximum soil bearing pressure may not be fully developed.

Due to the mostly sandy nature of the majority of the near-surface soils, we expect settlement to be mostly elastic in nature. The majority of the settlement will occur on application of the loads, during and immediately following construction. Using the recommended maximum bearing pressure, the assumed maximum structural loads, and the field and laboratory test data which we have correlated into the strength and compressibility characteristics of the subsurface soils, we estimate the total settlements of the structure to be 1 inch or less, with approximately half of it occurring upon load application (during construction).

Differential settlement results from differences in applied bearing pressures and the variations in the compressibility characteristics of the subsurface soils. For the building pad prepared as recommended, we anticipate differential settlement of less than 1/2 inch.

Post-construction settlement of the structures will be influenced by several interrelated factors, such as (1) subsurface stratification and strength/compressibility characteristics of the bearing soils; (2) footing size, bearing level, applied loads, and resulting bearing pressures beneath the foundation; (3) site preparation and earthwork construction techniques used by the contractor, and (4) external factors, including but not limited to vibration from off-site sources and groundwater fluctuations beyond those normally anticipated for the naturally-occurring site and soil conditions which are present.

Our settlement estimates for the structure are based upon our limited understanding of the structural loads and site grading and the use of successful adherence to the site preparation recommendations presented later in this report. Any deviation from our project understanding and/or our site preparation recommendations could result in an increase in the estimated post-construction settlement of the structure.

4.4 Flexible Pavement

Overall soil conditions encountered by our borings at this site are suitable for supporting conventional limerock base and asphalt wearing surface pavements. We have not been provided the anticipated traffic loading conditions; therefore, the following pavement component recommendations should be used only as guidelines. The below recommendations are intended to be minimums. Increasing base course and asphalt thicknesses would increase the design life of the pavement.

We recommend a minimum separation of 24 inches be present between the bottom of the base course and the top of the clay-rich soils containing greater than about 25 percent soil fines. Review of the boring logs suggests this separation will likely be present along the majority of the alignment. Boring R-20 did encounter very clayey sand (SC/CL) at a depth of 2.5 feet bls and clay-rich soils approached within 24 inches of grade at boring location R-17. Clay-rich soils were encountered at borings R-16, R-20, and R-23 at depths of 3 feet bls, 2.5 feet bls, and 4 feet bls, respectively. A roadway grading plan is not available at this time. The presence of shallow clay-rich soils is expected to be sporadic and not easily predicted without a grading plan.

In areas where the minimum 24-inch separation is not able to be achieved through grading design, we recommend these soils be undercut. The undercut should extend a minimum of 24 inches beneath the bottom of the base course. The undercut should extend laterally until the clay-rich soils are no longer encountered and free-draining sandy soils have been penetrated. The undercut should be backfilled with either on-site or imported sandy free-draining soils containing less than 10 percent soil fines. The backfill should be placed in maximum 24-inch loose lifts that are compacted to a minimum 95 percent of the Modified Proctor maximum dry density (ASTM D1557). Underdrains should be considered where clay-rich soils are undercut.

4.4.1 Stabilized Subgrade

The stabilized subgrade should have a minimum Limerock Bearing Ratio (LBR) of 40, with a minimum thickness of 12 inches. The stabilized subgrade can be imported material or a mixture of imported and on-site material. If a mix is proposed, a mix design should be performed to determine the optimum mix proportions. The stabilized subgrade should be compacted to a minimum of 98 percent of the Modified Proctor maximum dry density (ASTM D1557) for soils with less than 15 percent fines content. Soils with 15 percent or greater fines content should be compacted to 100 percent of the Standard Proctor maximum dry density (ASTM D698).

4.4.2 Base Course

The base course should consist of crushed limerock having a LBR of at least 100. Limerock should be obtained from a FDOT approved source and should meet FDOT gradation requirements. The base course thickness should be a minimum of 6 inches in automobile parking areas and 8 inches in driveways. The base course should be compacted to at least 98 percent of the Modified Proctor maximum dry density (ASTM D1557).

The constructability of differing base course thicknesses may be difficult and having a uniform 8-inch-thick base course may be more practical.

4.4.3 Wearing Surface

The asphalt-wearing surface should consist of an FDOT Type SP Hot Mix Asphalt mixture. For automobile parking areas, the thickness should be a minimum of 1.5 inches. For driveway areas, the thickness should be a minimum of 2 inches. The asphalt-wearing surface should consist of an SP-12.5 mix. The asphalt should be compacted to at least 95 percent of the mix design density.

The constructability of differing asphalt thicknesses may be difficult and having a uniform 2-inch-thick asphalt wearing surface may be more practical.

4.5 Site Preparation

The soils at this site should be suitable for supporting the proposed construction using normal, good practice site preparation procedures. The following recommendations are our general guidelines for site preparation.

4.5.1 Stripping

Strip the construction limits and 10 feet beyond the perimeter of all grass, roots, topsoil, and other deleterious materials. You should expect to strip to depths of 12 or more inches. Deeper stripping will likely be necessary due to major root systems present at the site.

4.5.2 Dewatering

Temporary dewatering is not expected to be necessary for this project. However, if needed, we anticipate dewatering can be accomplished with sumps placed near the construction area, or with underdrains connected to a vacuum pump.

In any case, the site should always be graded to promote runoff and limit the amount of ponding. Localized ponding of stormwater is expected without proper grading during construction and could render previously acceptable surfaces unacceptable.

4.5.3 Proof-Rolling

Proof-roll the subgrade with heavy rubber-tired equipment, such as a loaded front-end loader or dump truck, to identify any loose or soft zones not found by the soil borings. The proof-rolling should be monitored by a geotechnical engineer or qualified technician. Undercut or otherwise treat these zones as recommended by the geotechnical engineer in this report.

4.5.4 Proof Compaction

Compact the subgrade to a density of at least 95 percent of the Modified Proctor maximum dry density (ASTM D1557). The specified compaction should be obtained to a depth of 1 foot below the foundation bottoms and the existing grade prior to placing fill. Vibratory roller equipment should not be used within approximately 100 feet of existing structures. Lighter “walk-behind” compaction equipment may be used to achieve the degree of compaction.

Should clayey sand be encountered at the bearing surface, this material should be probed and visually confirmed to be unyielding in the upper 12 inches in lieu of density testing. If the foundation excavations penetrate the clayey sand, the excavation should be performed in a manner that reduces soil disturbance. Clayey sand soils (with fines content in excess of 15 percent) that are removed and replaced or appreciably disturbed need to be re-compacted to 98 percent of the Standard Proctor maximum dry density (ASTM D698).

4.5.5 Fill Placement

Imported fill placed to raise the site grades should consist of clean sand having less than 10 percent passing the No. 200 sieve. On-site soils meeting the requirements of Section 4.9 may also be used as structural fill. The fill should be placed in maximum 12-inch loose lifts that are compacted to at least 95 percent of the Modified Proctor maximum dry density (ASTM D1557). If lighter “walk-behind” compaction equipment is used, this may require lifts of 4 inches or less to achieve the required degree of compaction.

4.6 Quality Control and Construction Materials Testing

It should be noted that the geotechnical engineering design does not end with the advertisement of the construction documents. As the geotechnical engineer of record, GSE is the most qualified to perform the construction materials testing that will be required for this project. The benefits of having the geotechnical engineer of record also perform the construction materials testing are numerous. If GSE continues to be involved with the project through construction, we will be able to constantly re-evaluate and possibly alter our geotechnical recommendations in a timely and cost-effective manner once final design and construction techniques are developed. This often results in cost savings for the project.

We recommend performing compaction testing beneath the concrete floor slab and the building foundations. We recommend one test be performed every 50 linear feet of continuous footing and every other column footing, per foot depth of fill or native material. We recommend a compaction test be performed for each 2,500 square feet of floor area or 10,000 square feet of pavement area per foot of fill or native material, or a minimum of three tests each, whichever is greater. Test all footing excavations to a depth of 12 inches at the frequencies stated above.

4.7 Stormwater Management

The soil conditions at the stormwater management facility are relatively consistent; initially penetrating poorly graded sand and sand with silt underlain by clayey to very clayey sand with interbedded layers of sandy clay, clay with sand, and clay. Limestone was encountered in borings P-8, P-24, and P-28 at depths of 28 and 28.5 feet bls.

The water table was not encountered in the auger borings at the time of our exploration. We anticipate the seasonal high groundwater table to be temporarily perched on the very clayey sands and sandy clays.

The laboratory permeability tests indicate the tested layers of poorly graded sand, sand with silt, clayey sand, and very clayey sand have hydraulic conductivity values of 0.6 to 22 feet per day. The underlying very clayey sand, sandy clay, clay with sand, and clay are expected to be confining soils.

Based upon our findings and test results, our recommended soil parameters for the stormwater management design in the explored areas are presented below. The recommended parameters consider the results of the permeability tests, wash 200 determinations, and our experience with these types of soils. The parameters below do not consider a factor of safety.

Proposed Stormwater Management Facility (P-22 to P-29)

1. Base elevation of effective or mobilized aquifer (average depth of confining layer) equal to greater than 30 feet bls.
2. Unsaturated vertical infiltration rate of 2.5 feet per day.
3. Horizontal hydraulic conductivity equal to 4 feet per day.
4. Specific yield (fillable porosity) of 20 percent.
5. Average seasonal high groundwater table depth equal to 35 feet NGVD (potentiometric surface).

Proposed Stormwater Management Facility (P-18 to P-21)

1. Base elevation of effective or mobilized aquifer (average depth of confining layer) equal to greater than 30 feet bls.
2. Unsaturated vertical infiltration rate of 8 feet per day.
3. Horizontal hydraulic conductivity equal to 12 feet per day.
4. Specific yield (fillable porosity) of 20 percent.
5. Average seasonal high groundwater table depth equal to 35 feet NGVD (potentiometric surface).

Proposed Stormwater Management Facility (P-12, P-13, A-2, B-2)

1. Base elevation of effective or mobilized aquifer (average depth of confining layer) equal to greater than 30 feet bls.
2. Unsaturated vertical infiltration rate of 3.5 feet per day.
3. Horizontal hydraulic conductivity equal to 5 feet per day.
4. Specific yield (fillable porosity) of 20 percent.
5. Average seasonal high groundwater table depth equal to 35 feet NGVD (potentiometric surface).

Proposed Stormwater Management Facility (P-14, P-15)

1. Base elevation of effective or mobilized aquifer (average depth of confining layer) equal to greater than 30 feet bls.
2. Unsaturated vertical infiltration rate of 5 feet per day.
3. Horizontal hydraulic conductivity equal to 7.5 feet per day.
4. Specific yield (fillable porosity) of 20 percent.
5. Average seasonal high groundwater table depth equal to 35 feet NGVD (potentiometric surface).

Proposed Stormwater Management Facility (P-1 to P-11)

1. Base elevation of effective or mobilized aquifer (average depth of confining layer) equal to greater than 30 feet bls.
2. Unsaturated vertical infiltration rate of 3.5 feet per day.
3. Horizontal hydraulic conductivity equal to 5 feet per day.
4. Specific yield (fillable porosity) of 20 percent.
5. Average seasonal high groundwater table depth equal to 35 feet NGVD (potentiometric surface).

In areas where clay-rich soils are present at the basin bottom, we recommend these soils be undercut a minimum of 2 feet and backfilled with the on-site sands and sands with silt (SP, SP-SM) having a maximum of 12 percent soil fines passing the No. 200 sieve. The intent of this undercutting and replacement is to provide a more uniform sand “blanket” at the basin bottom that allows the migration of water to the deeper deposits of sand. This sand blanket will also reduce the potential for clay-fines leaching out of the soils when water is present in the basin that can result in a thin layer of confining type material on the basin bottom that can reduce the effectiveness of the basin.

4.8 Karst Area Evaluation Summary

A site visit and driving tour of the immediate area surrounding the site (approximately 200-foot radius) was performed in order to confirm the absence or presence of visible potential depressional sinkhole features. In addition, readily available published information related to known and documented sinkhole features in the immediate area of the site was reviewed.

Depressional features were observed on the site. In addition, the soil survey indicates the presence of a sinkhole at the southern portion of the site. Multiple sinkholes are indicated with a diamond within a 2-mile radius of the site (See Graphic Below). In addition to the identified sinkhole, multiple closed depressions are present on the site and in the immediate vicinity. Closed depressions are not necessarily an indicator of sinkholes and could represent other landforms. However, there were no compelling indications of sinkhole activity within the depths explored by the borings.



Stormwater basins commonly have an increased risk for sinkhole development, due to the concentration of stormwater in these areas. The karst geologic conditions encountered at this site are typical for this area of Alachua County, and it is our opinion the risk for sinkhole development at this site is no greater or lower than what is expected for this immediate area.

Site development should be performed in a manner that reduces the potential for sinkhole activity affecting structures. All roof runoffs should be discharged into impervious surfaces or directly into the stormwater management infiltration beneath the perimeter of the structure. The stormwater management basin should be located well away from structures because the basin will have the highest risk for sinkhole development. We wish to point out that these measures will not eliminate the risk for sinkhole activity at the site.

4.9 Fill Suitability

The soils encountered at this site within the explored depths range from sands (SP) to clays (CL/CH). A discussion of the suitability for reuse as structural fill for each soil classification according to the Unified Soil Classification System (USCS) designation is provided below.

SP, SP/SM – Sands (SP) and sand with silt (SP/SM) have less than 5 percent and 12 percent soil fines passing the No. 200 sieve, respectively, and are typically well draining soils that are suitable for reuse as structural fill. The sands with silt may require moisture conditioning (drying) to make the material more workable. These soils will require stockpiling and drying before they are reused if they are excavated from below the water table.

SM – Silty sands (SM) can have between 12 percent and 50 percent soil fines passing the No. 200 sieve. Silty sands are typically non-plastic or have low plasticity and can be reused as structural fill with precautions. Silty sands can be moisture sensitive and difficult to work and compact and can rut if the moisture content is near or above the optimum moisture content. We recommend these soils be moisture conditioned (dried) so that the moisture content during use is at or below the optimum moisture content. Aerating and exposure to the sun is typically the most effective methods of drying these soils. It may not be practical to reuse these materials during the wet season, as frequent rain showers may not allow these soils to dry to a workable moisture content. Suitable silty sands are limited to soil having less than 30 percent soil fines passing the No. 200 sieve. Silty sands with more than 30 percent soil fines are especially moisture sensitive and are not recommended for reuse as structural fill. These soils will behave more as sandy silt, and for this reason, very silty sands having more than 30 percent soil fines passing the No. 200 sieve have been assigned a dual classification of SM/ML. Silty sand soils that are excavated from below the water table are not recommended for reuse as structural fill due to the amount of time that will be required to dry these soils to a workable condition.

SC – Clayey sand (SC) soils can have between 12 percent and 50 percent soil fines passing the No. 200 sieve. Clayey sands can have a high range of plasticity, varying from a PI of 7 or greater and plotting above the A-line to highly plastic. Friable clayey sands are typically suitable for use as structural fill with precautions. Clayey sands will be moisture sensitive and difficult to work and compact and can rut during placement if the moisture content is near or above the natural moisture content. We recommend these soils be moisture conditioned (dried) so that the moisture content during use is at or below the optimum moisture content. Aerating and exposure to the sun is typically the most effective methods of drying these soils. It may not be practical to reuse these materials during the wet season, as frequent rain showers may not allow these soils to dry to a workable moisture content. Suitable clayey sands are limited to soil having less than 30 percent soil fines passing the No. 200 sieve. Clayey sands with more than 30 percent soil fines passing the No. 200 sieve are especially moisture sensitive and are typically highly plastic and are not recommended for reuse as structural fill.

These soils will behave more as sandy clay, and for this reason, very clayey sands having more than 30 percent soil fines passing the No. 200 sieve have been assigned a dual classification of SC/CH or SC/CL. Clayey sand soils that are excavated from below the water table are not recommended for reuse as structural fill due to the amount of time that will be required to dry these soils to a workable condition.

ML, MH, CL, CH – Silts and clays are not suitable materials for reuse as structural fill.

When using on-site soils as fill materials, we recommend the silty and clayey sand soils (SM, SC) be used in the lower depths of the fill. Sand and sand with silt (SP, SP-SM) should be used in the upper portions of the fill. We recommend a minimum of 2 feet of sand (SP, SP-SM) cover the silty and clayey sand fill materials to reduce the potential for soggy surface conditions due to the low permeability characteristics of the silty and clayey sand materials.

4.10 Surface Water Control and Landscaping

Roof gutters should be considered to divert runoff away from the building. The gutter downspouts should discharge a minimum of 10 feet from the structure to reduce the amount of water collecting around the foundations. Where possible, the gutter downspouts should discharge directly into the storm sewer system or onto the asphalt paved areas in order to reduce the amount of water collecting around the foundations. Grading of the site should be such that water is diverted away from the building on all sides to reduce the potential for erosion and water infiltration along the foundation.

With respect to landscaping, it is recommended that any trees and large “tree-like” shrubbery with potential for developing large root systems be planted a minimum distance of half their mature height, and preferably their expected final height, away from the structure. The purpose of this is to reduce the potential for foundation or slab movements from the growth of root systems as the landscaping matures. Consideration should also be given to using landscaping that has a low water demand, so that excessive irrigation is not conducted around the structures.

If excavations for underground utilities encounter the clay-rich soils, the excavations should be made such that they do not trap water (i.e., “swimming pool” or “bowl” effect). Sloping the excavations, installing underdrains, or extending the excavation to a more pervious area can achieve this. Allowing surface water to become trapped within utility trenches or other excavations (including footings) serves as a potential water source for the clay, which can result in shrink swell of these soils. Furthermore, during construction, surface water within the building areas must be controlled such that the water does not become trapped and represent a source of water for the underlying clay-rich soils. Mismanagement of the surface water during construction within the building footprint could result in subsequent post-construction slab movement.

The above recommendations are intended to maintain relatively consistent moisture contents within the clay-rich expansive soils encountered by the borings. The importance of proper surface water control and landscaping placement cannot be overemphasized in accomplishing this objective.

5.0 FIELD DATA

5.1 Auger Boring Logs

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CLIENT The Fletcher Family Companies

PROJECT NAME Savannah Station, Phase 3

PROJECT NUMBER 13739A

PROJECT LOCATION Alachua, Alachua County, Florida

DATE PERFORMED 8/25/2021 **BORING NUMBER A-1**

DRILLING CONTRACTOR Whitaker Drilling, Inc.

GROUND WATER LEVELS: LOGGED BY WDI

 AT TIME OF DRILLING NE CHECKED BY CRL

 ESTIMATED SEASONAL HIGH > 10 ft

NOTES

DATE PERFORMED 8/23/2021 **BORING NUMBER A-2**

DRILLING CONTRACTOR Whitaker Drilling, Inc.

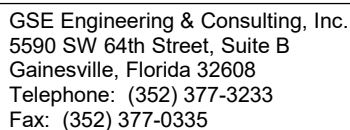
GROUND WATER LEVELS: LOGGED BY WDI

▼ AT TIME OF DRILLING NE CHECKED BY CRL

▽ ESTIMATED SEASONAL HIGH 1.5 ft. perched

NOTES

DEPTH (ft)	GRAPHIC LOG	SAMPLE TYPE NUMBER	MATERIAL DESCRIPTION	DEPTH (ft)	GRAPHIC LOG	SAMPLE TYPE NUMBER	MATERIAL DESCRIPTION
0.0				0.0			
		AU 1	(SP-SM) Gray and brown SAND with silt			AU 1	(SP-SM) Gray and brown SAND with silt
2.0				2.0			
		AU 2	(SP-SM) Brown SAND with silt			AU 2	(SC/CL) Brown and gray very clayey SAND
2.5				2.5			
5.0				5.0			
		AU 3				AU 3	(SC/CL) Pale gray very clayey SAND with trace of limestone
							%PASS-200 = 46 MC = 24 LL = 45 PL = 19 PI = 26
7.5				7.5			
10.0				10.0			
			Bottom of borehole at 10.0 feet.				Bottom of borehole at 10.0 feet.



PROJECT NAME Savannah Station, Phase 3

PROJECT LOCATION Alachua, Alachua County, Florida

DATE PERFORMED 8/26/2021 **BORING NUMBER R-2**

DRILLING CONTRACTOR Whitaker Drilling, Inc.

GROUND WATER LEVELS: LOGGED BY WDI

NE AT TIME OF DRILLING NE CHECKED BY CRL

▽ ESTIMATED SEASONAL HIGH > 5 ft

NOTES

DEPTH (ft)	GRAPHIC LOG	SAMPLE TYPE NUMBER	MATERIAL DESCRIPTION
0			
1		AU 1	(SP-SM) Dark gray SAND with silt
2		AU 2	(SP-SM) Brown and gray SAND with silt
3			
4			
5			Bottom of borehole at 5.0 feet.

(Continued Next Page)



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PROJECT NAME Savannah Station, Phase 3

PROJECT NUMBER 13739A

PROJECT LOCATION Alachua, Alachua County, Florida

DATE PERFORMED 8/26/2021 **BORING NUMBER R-3**

DRILLING CONTRACTOR Whitaker Drilling, Inc.

GROUND WATER LEVELS: LOGGED BY WDI

▼ AT TIME OF DRILLING NE CHECKED BY CRL

▽ ESTIMATED SEASONAL HIGH > 5 ft

NOTES _____

DATE PERFORMED 8/26/2021 **BORING NUMBER R-4**

DRILLING CONTRACTOR Whitaker Drilling, Inc.

GROUND WATER LEVELS: LOGGED BY WDI

▼ AT TIME OF DRILLING NE CHECKED BY CRL

▽ ESTIMATED SEASONAL HIGH > 5 ft

NOTES _____

AB 2 PORTRAIT - GINT STD US.GDT - 8/31/21 14:42 - Q:\PROJECTS\13739A SAVANNAH STATION, PHASE 3\13739A BORINGS\13739A BORINGS (A.B.R.)\GPJ

DEPTH (ft)	GRAPHIC LOG	SAMPLE TYPE NUMBER	MATERIAL DESCRIPTION	DEPTH (ft)	GRAPHIC LOG	SAMPLE TYPE NUMBER	MATERIAL DESCRIPTION
0				0			
		AU 1	(SP-SM) Dark gray and brown SAND with silt			AU 1	(SP-SM) Dark gray SAND with silt
1				1			
				1.5			
		AU 2	(SP-SM) Brown SAND with silt			AU 2	(SP-SM) Brown and gray SAND with silt
2				2			
3				3			
4				4			
5				5			
			Bottom of borehole at 5.0 feet.				Bottom of borehole at 5.0 feet.

(Continued Next Page)



PROJECT NAME Savannah Station, Phase 3

PROJECT LOCATION Alachua, Alachua County, Florida

DATE PERFORMED 8/26/2021 **BORING NUMBER R-6**DRILLING CONTRACTOR Whitaker Drilling, Inc.

GROUND WATER LEVELS: LOGGED BY WDI

NE AT TIME OF DRILLING NE CHECKED BY CRL

▽ ESTIMATED SEASONAL HIGH > 5 ft

NOTES

DEPTH (ft)	GRAPHIC LOG	SAMPLE TYPE NUMBER	MATERIAL DESCRIPTION	DEPTH (ft)	GRAPHIC LOG	SAMPLE TYPE NUMBER	MATERIAL DESCRIPTION
0				0			
		AU 1	(SP-SM) Gray and brown SAND with silt			AU 1	(SP-SM) Gray and brown SAND with silt
1				1			
		AU 2	(SP) Brown SAND				
2				2			
						AU 2	(SP) Brown SAND
3				3			
4				4			
5				5			
			Bottom of borehole at 5.0 feet.				Bottom of borehole at 5.0 feet.

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PROJECT NAME Savannah Station, Phase 3

PROJECT NUMBER 13739A

PROJECT LOCATION Alachua, Alachua County, Florida

DATE PERFORMED 8/26/2021 **BORING NUMBER R-7**

DRILLING CONTRACTOR Whitaker Drilling, Inc.

GROUND WATER LEVELS: LOGGED BY WDI

▼ AT TIME OF DRILLING NE CHECKED BY CRL

▽ ESTIMATED SEASONAL HIGH > 5 ft

NOTES

DATE PERFORMED 8/26/2021 **BORING NUMBER R-8**

DRILLING CONTRACTOR Whitaker Drilling, Inc.

GROUND WATER LEVELS: LOGGED BY WDI

▼ AT TIME OF DRILLING NE CHECKED BY CRL

▽ ESTIMATED SEASONAL HIGH > 5 ft

NOTES

AB 2 PORTRAIT - GINT STD US.GDT - 8/31/21 14:42 - Q:\PROJECTS\13739A SAVANNAH STATION, PHASE 3\13739A BORINGS\13739A BORINGS (A.B.R.)\GPJ

DEPTH (ft)	GRAPHIC LOG	SAMPLE TYPE NUMBER	MATERIAL DESCRIPTION	DEPTH (ft)	GRAPHIC LOG	SAMPLE TYPE NUMBER	MATERIAL DESCRIPTION
0				0			
		AU 1	(SP-SM) Dark gray and brown SAND with silt			AU 1	(SP-SM) Brown and gray SAND with silt
1				1			
2				2			
3				3			
4				4			
						AU 2	(SP-SM) Brown SAND with silt
		AU 2	(SP) Brown SAND				
5				5			
			Bottom of borehole at 5.0 feet.				Bottom of borehole at 5.0 feet.

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PROJECT NAME Savannah Station, Phase 3

PROJECT NUMBER 13739A

PROJECT LOCATION Alachua, Alachua County, Florida

DATE PERFORMED 8/26/2021 **BORING NUMBER R-9**

DRILLING CONTRACTOR Whitaker Drilling, Inc.

GROUND WATER LEVELS: LOGGED BY WDI

▼ AT TIME OF DRILLING NE CHECKED BY CRL

▽ ESTIMATED SEASONAL HIGH > 5 ft

NOTES

DATE PERFORMED 8/26/2021 **BORING NUMBER R-10**

DRILLING CONTRACTOR Whitaker Drilling, Inc.

GROUND WATER LEVELS: LOGGED BY WDI

▼ AT TIME OF DRILLING NE CHECKED BY CRL

▽ ESTIMATED SEASONAL HIGH > 5 ft

NOTES

AB 2 PORTRAIT - GINT STD US.GDT - 8/31/21 14:42 - Q:\PROJECTS\13739A SAVANNAH STATION, PHASE 3\13739A BORINGS\13739A BORINGS (A.B.R.)\GPJ

DEPTH (ft)	GRAPHIC LOG	SAMPLE TYPE NUMBER	MATERIAL DESCRIPTION	DEPTH (ft)	GRAPHIC LOG	SAMPLE TYPE NUMBER	MATERIAL DESCRIPTION
0				0			
		AU 1	(SP-SM) Brown and dark gray SAND with silt			AU 1	(SP-SM) Brown and gray SAND with silt
1				1			
2				2			
3				3			
						AU 2	(SP) Brown and orange SAND
3.5				3.5			
		AU 2	(SP) Brown and orange SAND				
4				4			
5				5			
			Bottom of borehole at 5.0 feet.				Bottom of borehole at 5.0 feet.

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PROJECT NUMBER 13739A

PROJECT LOCATION Alachua, Alachua County, Florida

DATE PERFORMED 8/26/2021 **BORING NUMBER R-11**

DRILLING CONTRACTOR Whitaker Drilling, Inc.

GROUND WATER LEVELS: LOGGED BY WDI

▼ AT TIME OF DRILLING NE CHECKED BY CRL

▽ ESTIMATED SEASONAL HIGH > 5 ft

NOTES _____

DATE PERFORMED 8/26/2021 **BORING NUMBER R-12**

DRILLING CONTRACTOR Whitaker Drilling, Inc.

GROUND WATER LEVELS: LOGGED BY WDI

▼ AT TIME OF DRILLING NE CHECKED BY CRL

▽ ESTIMATED SEASONAL HIGH > 5 ft

NOTES _____

AB 2 PORTRAIT - GINT STD US.GDT - 8/31/21 14:42 - Q:\PROJECTS\13739A SAVANNAH STATION, PHASE 3\13739A BORINGS\13739A BORINGS (A.B.R.)\GPJ

DEPTH (ft)	GRAPHIC LOG	SAMPLE TYPE NUMBER	MATERIAL DESCRIPTION	DEPTH (ft)	GRAPHIC LOG	SAMPLE TYPE NUMBER	MATERIAL DESCRIPTION
0				0			
		AU 1	(SP-SM) Brown and gray SAND with silt			AU 1	(SP-SM) Dark gray and brown SAND with silt
1				1			
				1.5			
		AU 2	(SP) Brown SAND			AU 2	(SP) Pale brown and orange SAND
2				2			
3				3			
4				4			
5				5			
			Bottom of borehole at 5.0 feet.				Bottom of borehole at 5.0 feet.

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PROJECT NAME Savannah Station, Phase 3

PROJECT NUMBER 13739A

PROJECT LOCATION Alachua, Alachua County, Florida

DATE PERFORMED 8/26/2021 **BORING NUMBER R-13**

DRILLING CONTRACTOR Whitaker Drilling, Inc.

GROUND WATER LEVELS: LOGGED BY WDI

▼ AT TIME OF DRILLING NE CHECKED BY CRL

▽ ESTIMATED SEASONAL HIGH > 5 ft

NOTES _____

DATE PERFORMED 8/26/2021 **BORING NUMBER R-14**

DRILLING CONTRACTOR Whitaker Drilling, Inc.

GROUND WATER LEVELS: LOGGED BY WDI

▼ AT TIME OF DRILLING NE CHECKED BY CRL

▽ ESTIMATED SEASONAL HIGH > 5 ft

NOTES _____

AB 2 PORTRAIT - GINT STD US.GDT - 8/31/21 14:42 - Q:\PROJECTS\13739A SAVANNAH STATION, PHASE 3\13739A BORINGS\13739A BORINGS (A.B.R.)\GPJ

DEPTH (ft)	GRAPHIC LOG	SAMPLE TYPE NUMBER	MATERIAL DESCRIPTION	DEPTH (ft)	GRAPHIC LOG	SAMPLE TYPE NUMBER	MATERIAL DESCRIPTION
0				0			
		AU 1	(SP-SM) Brown and gray SAND with silt			AU 1	(SP-SM) Gray and brown SAND with silt
1				1			
2				2			2.0
						AU 2	(SP) Brown SAND
3				3.0			
		AU 2	(SP) Brown and orange SAND				
4				4			
5				5			5.0
			Bottom of borehole at 5.0 feet.				Bottom of borehole at 5.0 feet.

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CLIENT The Fletcher Family Companies

PROJECT NAME Savannah Station, Phase 3

PROJECT NUMBER 13739A

PROJECT LOCATION Alachua, Alachua County, Florida

DATE PERFORMED 8/26/2021 **BORING NUMBER R-15**

DRILLING CONTRACTOR Whitaker Drilling, Inc.

GROUND WATER LEVELS: LOGGED BY WDI

▼ AT TIME OF DRILLING NE CHECKED BY CRL

▽ ESTIMATED SEASONAL HIGH > 5 ft

NOTES _____

DATE PERFORMED 8/26/2021 **BORING NUMBER R-16**

DRILLING CONTRACTOR Whitaker Drilling, Inc.

GROUND WATER LEVELS: LOGGED BY WDI

▼ AT TIME OF DRILLING NE CHECKED BY CRL

▽ ESTIMATED SEASONAL HIGH > 5 ft

NOTES _____

AB 2 PORTRAIT - GINT STD US.GDT - 8/31/21 14:42 - Q:\PROJECTS\13739A SAVANNAH STATION, PHASE 3\13739A BORINGS\13739A BORINGS (A.B.R.)\GPJ

DEPTH (ft)	GRAPHIC LOG	SAMPLE TYPE NUMBER	MATERIAL DESCRIPTION	DEPTH (ft)	GRAPHIC LOG	SAMPLE TYPE NUMBER	MATERIAL DESCRIPTION
0				0			
		AU 1	(SP-SM) Brown and gray SAND with silt			AU 1	(SP-SM) Dark gray and brown SAND with silt
1				1			
2		AU 2	(SP) Brown SAND	2.0			
3				3			
4				4		AU 2	(SC/CL) Gray and brown very clayey SAND with orange sandstone
5				5			
			Bottom of borehole at 5.0 feet.				Bottom of borehole at 5.0 feet.

%PASS-200 = 32
 MC = 20
 LL = 27
 PL = 16
 PI = 11

(Continued Next Page)



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CLIENT The Fletcher Family Companies

PROJECT NAME Savannah Station, Phase 3

PROJECT NUMBER 13739A

PROJECT LOCATION Alachua, Alachua County, Florida

DATE PERFORMED 8/26/2021 **BORING NUMBER R-17**

DRILLING CONTRACTOR Whitaker Drilling, Inc.

GROUND WATER LEVELS: LOGGED BY WDI

▼ AT TIME OF DRILLING NE CHECKED BY CRL

▽ ESTIMATED SEASONAL HIGH > 5 ft

NOTES

DATE PERFORMED 8/26/2021 **BORING NUMBER R-18**

DRILLING CONTRACTOR Whitaker Drilling, Inc.

GROUND WATER LEVELS: LOGGED BY WDI

▼ AT TIME OF DRILLING NE CHECKED BY CRL

▽ ESTIMATED SEASONAL HIGH > 5 ft

NOTES

AB 2 PORTRAIT - GINT STD US.GDT - 8/31/21 14:42 - Q:\PROJECTS\13739A SAVANNAH STATION, PHASE 3\13739A BORINGS\13739A BORINGS (A.B.R.)\GPJ

DEPTH (ft)	GRAPHIC LOG	SAMPLE TYPE NUMBER	MATERIAL DESCRIPTION	DEPTH (ft)	GRAPHIC LOG	SAMPLE TYPE NUMBER	MATERIAL DESCRIPTION
0				0			
1		AU 1	(SP-SM) Brown SAND with silt	1		AU 1	(SP-SM) Brown and gray SAND with silt
2				2			
3		AU 2	(SC) Brown clayey SAND	3		AU 2	(SP-SC) Brown and orange SAND with clay
4			%PASS-200 = 25 MC = 18	4			
5				5			
			Bottom of borehole at 5.0 feet.				Bottom of borehole at 5.0 feet.

(Continued Next Page)



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CLIENT The Fletcher Family Companies

PROJECT NAME Savannah Station, Phase 3

PROJECT NUMBER 13739A

PROJECT LOCATION Alachua, Alachua County, Florida

DATE PERFORMED 8/26/2021 **BORING NUMBER R-19**

DRILLING CONTRACTOR Whitaker Drilling, Inc.

GROUND WATER LEVELS: LOGGED BY WDI

▼ AT TIME OF DRILLING NE CHECKED BY CRL

▽ ESTIMATED SEASONAL HIGH > 5 ft

NOTES

DATE PERFORMED 8/26/2021 **BORING NUMBER R-20**

DRILLING CONTRACTOR Whitaker Drilling, Inc.

GROUND WATER LEVELS: LOGGED BY WDI

▼ AT TIME OF DRILLING NE CHECKED BY CRL

▽ ESTIMATED SEASONAL HIGH > 5 ft

NOTES

AB 2 PORTRAIT - GINT STD US.GDT - 8/31/21 14:43 - Q:\PROJECTS\13739A SAVANNAH STATION, PHASE 3\13739A BORINGS\13739A BORINGS (A.B.R.)\GPJ

DEPTH (ft)	GRAPHIC LOG	SAMPLE TYPE NUMBER	MATERIAL DESCRIPTION	DEPTH (ft)	GRAPHIC LOG	SAMPLE TYPE NUMBER	MATERIAL DESCRIPTION
0				0			
1		AU 1	(SP-SM) Gray and brown SAND with silt	1		AU 1	(SP-SM) Brown and gray SAND with silt
2				2			
3				3			
4		AU 2	(SP) Pale brown SAND	4		AU 2	(SC/CL) Brown and orange very clayey SAND
5				5			
			Bottom of borehole at 5.0 feet.				Bottom of borehole at 5.0 feet.

(Continued Next Page)



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CLIENT The Fletcher Family Companies

PROJECT NAME Savannah Station, Phase 3

PROJECT NUMBER 13739A

PROJECT LOCATION Alachua, Alachua County, Florida

DATE PERFORMED 8/26/2021 **BORING NUMBER R-21**

DRILLING CONTRACTOR Whitaker Drilling, Inc.

GROUND WATER LEVELS: LOGGED BY WDI

▼ AT TIME OF DRILLING NE CHECKED BY CRL

▽ ESTIMATED SEASONAL HIGH > 5 ft

NOTES _____

DATE PERFORMED 8/26/2021 **BORING NUMBER R-22**

DRILLING CONTRACTOR Whitaker Drilling, Inc.

GROUND WATER LEVELS: LOGGED BY WDI

▼ AT TIME OF DRILLING NE CHECKED BY CRL

▽ ESTIMATED SEASONAL HIGH > 5 ft

NOTES _____

AB 2 PORTRAIT - GINT STD US.GDT - 8/31/21 14:43 - Q:\PROJECTS\13739A SAVANNAH STATION, PHASE 3\13739A BORINGS\13739A BORINGS (A.B.R.)\GPJ

DEPTH (ft)	GRAPHIC LOG	SAMPLE TYPE NUMBER	MATERIAL DESCRIPTION	DEPTH (ft)	GRAPHIC LOG	SAMPLE TYPE NUMBER	MATERIAL DESCRIPTION
0			(SP-SM) Brown and orange SAND with silt	0			(SP-SM) Brown and gray SAND with silt
1		AU 1		1		AU 1	
2				2			
3				3			
4				4			
4.5				4.5			
5		AU 2	(SP-SC) Brown SAND with clay	5		AU 2	(SP) Pale brown and gray SAND
5.0			Bottom of borehole at 5.0 feet.	5.0			Bottom of borehole at 5.0 feet.

(Continued Next Page)



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CLIENT The Fletcher Family Companies

PROJECT NAME Savannah Station, Phase 3

PROJECT NUMBER 13739A

PROJECT LOCATION Alachua, Alachua County, Florida

DATE PERFORMED 8/26/2021 **BORING NUMBER R-23**

DRILLING CONTRACTOR Whitaker Drilling, Inc.

GROUND WATER LEVELS: LOGGED BY WDI

▼ AT TIME OF DRILLING NE CHECKED BY CRL

▽ ESTIMATED SEASONAL HIGH > 5 ft

NOTES

DEPTH (ft)	GRAPHIC LOG	SAMPLE TYPE NUMBER	MATERIAL DESCRIPTION
0			
1		AU 1	(SP-SM) Brown SAND with sand
2			
3			
4			4.0
5		AU 2	(SC) Brown clayey SAND
			%PASS-200 = 29 MC = 18
			5.0
			Bottom of borehole at 5.0 feet.

AB 2 PORTRAIT - GINT STD US.GDT - 8/31/21 14:43 - Q:\PROJECTS\13739A SAVANNAH STATION, PHASE 3\13739A BORINGS\13739A BORINGS (A.B.R.) GPJ

5.2 Standard Penetration Test Soil Boring Logs



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BORING NUMBER B-1

CLIENT The Fletcher Family Companies

PROJECT NAME Savannah Station, Phase 3

PROJECT NUMBER 13739A

PROJECT LOCATION Alachua, Alachua County, Florida

DATE STARTED 8/23/21 **COMPLETED** 8/23/21

GROUND ELEVATION **HOLE SIZE**

DRILLING CONTRACTOR Whitaker Drilling, Inc.

GROUND WATER LEVELS:

DRILLING METHOD Flight Auger

▼ **AT TIME OF DRILLING** NE

LOGGED BY WDI **CHECKED BY** CRL

▽ **ESTIMATED SEASONAL HIGH** 6.5 ft, perched

NOTES

DEPTH (ft)	GRAPHIC LOG	MATERIAL DESCRIPTION	CONTACT DEPTH (ft)	SAMPLE TYPE NUMBER	BLOW COUNTS (N VALUE)	LIQUID LIMIT, %	PLASTIC LIMIT, %	PLASTICITY INDEX	PERCENT PASS NO. 200 SIEVE	MOISTURE CONTENT, %	▲ SPT N VALUE ▲
0											20 40 60 80
		(SP-SM) Very loose gray and brown SAND with silt									
			1.5	SPT 1	1-1-2 (3)						
		(SP-SM) Very loose brown SAND with silt		SPT 2	1-1-1 (2)						
5				SPT 3	1-1-1 (2)						
	▽		7	SPT 4	1-1-1 (2)						
		(SC/CL) Loose brown and orange very clayey SAND		SPT 5	2-2-3 (5)						
			8.5	SPT 6	3-3-3 (6)						
10		(SP) Loose pale gray, brown, and orange SAND									
			13.5	SPT 7	5-6-7 (13)						
15		(SC/CL) Medium dense pale gray very clayey SAND									
			17								
		(SC) Medium dense pale gray clayey SAND		SPT 8	3-10-11 (21)						
20		Bottom of borehole at 20.0 feet.	20								

SPT BORINGS - GINT STD US.GDT - 8/31/21 14:41 - Q:\PROJECTS\13739A SAVANNAH STATION, PHASE 3\13739A BORINGS\13739A BORINGS (A.B.R.)\GPU



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BORING NUMBER B-2

CLIENT The Fletcher Family Companies

PROJECT NAME Savannah Station, Phase 3

PROJECT NUMBER 13739A

PROJECT LOCATION Alachua, Alachua County, Florida

DATE STARTED 8/23/21 **COMPLETED** 8/23/21

GROUND ELEVATION **HOLE SIZE**

DRILLING CONTRACTOR Whitaker Drilling, Inc.

GROUND WATER LEVELS:

DRILLING METHOD Flight Auger

▼ **AT TIME OF DRILLING** NE

LOGGED BY WDI **CHECKED BY** CRL

▽ **ESTIMATED SEASONAL HIGH** > 20 ft

NOTES

DEPTH (ft)	GRAPHIC LOG	MATERIAL DESCRIPTION	CONTACT DEPTH (ft)	SAMPLE TYPE NUMBER	BLOW COUNTS (N VALUE)	LIQUID LIMIT, %	PLASTIC LIMIT, %	PLASTICITY INDEX	PERCENT PASS NO. 200 SIEVE	MOISTURE CONTENT, %	▲ SPT N VALUE ▲
0											20 40 60 80
		(SP-SM) Very loose dark gray and brown SAND with silt									
			2	SPT 1	1-1-2 (3)						
		(SP) Very loose to loose brown SAND									
				SPT 2	1-1-1 (2)						
5				SPT 3	1-1-1 (2)						
			7	SPT 4	1-3-2 (5)						
		(SC) Loose to medium dense gray, brown, and orange clayey SAND									
				SPT 5	3-2-4 (6)						
10				SPT 6	6-8-8 (16)						
			13.5								
		(SP-SC) Medium dense gray SAND with clay									
15				SPT 7	10-10-11 (21)						
				SPT 8	11-12-14 (26)						
20		Bottom of borehole at 20.0 feet.	20								

SPT BORINGS - GINT STD US.GDT - 8/31/21 14:41 - Q:\PROJECTS\13739A SAVANNAH STATION, PHASE 3\13739A BORINGS\13739A BORINGS (A.B.R.)\GPU



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BORING NUMBER P-1

CLIENT The Fletcher Family Companies

PROJECT NAME Savannah Station, Phase 3

PROJECT NUMBER 13739A

PROJECT LOCATION Alachua, Alachua County, Florida

DATE STARTED 8/25/21 COMPLETED 8/25/21

GROUND ELEVATION HOLE SIZE

DRILLING CONTRACTOR Whitaker Drilling, Inc.

GROUND WATER LEVELS:

DRILLING METHOD Auger

▼ AT TIME OF DRILLING NE

LOGGED BY WDI CHECKED BY CRL

▽ ESTIMATED SEASONAL HIGH 11.0 ft, perched

NOTES

SPT BORINGS - GINT STD US.GDT - 8/31/21 14:36 - Q:\PROJECTS\13739A SAVANNAH STATION, PHASE 3\13739A BORINGS\13739A BORINGS (P).GPJ

DEPTH (ft)	GRAPHIC LOG	MATERIAL DESCRIPTION	CONTACT DEPTH (ft)	SAMPLE TYPE NUMBER	BLOW COUNTS (N VALUE)	LIQUID LIMIT, %	PLASTIC LIMIT, %	PLASTICITY INDEX	PERCENT PASS NO. 200 SIEVE	MOISTURE CONTENT, %	▲ SPT N VALUE ▲
0											20 40 60 80
		(SP) Gray and brown SAND									
		$k_h = 12 \text{ ft/day}$									
5			5.5	AP 1					4.9	5.2	
		(SC) Brown clayey SAND		AU 2							
10			11.5	AU 3							
		(SC/CL) Gray and brown very clayey SAND									
15		Bottom of borehole at 15.0 feet.	15								



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BORING NUMBER P-2

CLIENT The Fletcher Family Companies

PROJECT NAME Savannah Station, Phase 3

PROJECT NUMBER 13739A

PROJECT LOCATION Alachua, Alachua County, Florida

DATE STARTED 8/25/21 **COMPLETED** 8/25/21

GROUND ELEVATION **HOLE SIZE**

DRILLING CONTRACTOR Whitaker Drilling, Inc.

GROUND WATER LEVELS:

DRILLING METHOD Auger

▼ **AT TIME OF DRILLING** NE

LOGGED BY WDI **CHECKED BY** CRL

▼ **ESTIMATED SEASONAL HIGH** 1.5 ft, perched

NOTES

SPT BORINGS - GINT STD US.GDT - 8/31/21 14:36 - Q:\PROJECTS\13739A SAVANNAH STATION, PHASE 3\13739A BORINGS\13739A BORINGS (P).GPJ

DEPTH (ft)	GRAPHIC LOG	MATERIAL DESCRIPTION	CONTACT DEPTH (ft)	SAMPLE TYPE NUMBER	BLOW COUNTS (N VALUE)	LIQUID LIMIT, %	PLASTIC LIMIT, %	PLASTICITY INDEX	PERCENT PASS NO. 200 SIEVE	MOISTURE CONTENT, %	▲ SPT N VALUE ▲
0											20 40 60 80
		(SP-SM) Gray and brown SAND with silt		AU 1							
		(SC/CL) Brown and orange very clayey SAND	2	AU 2					40	23	
5											
		(SC) Gray and brown clayey SAND	6.5	AU 3							
10											
		(SP-SC) Pale brown and orange SAND with clay	10.5	AU 4							
15											
		Bottom of borehole at 15.0 feet.	15								



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BORING NUMBER P-3

CLIENT The Fletcher Family Companies

PROJECT NAME Savannah Station, Phase 3

PROJECT NUMBER 13739A

PROJECT LOCATION Alachua, Alachua County, Florida

DATE STARTED 8/25/21 COMPLETED 8/25/21

GROUND ELEVATION HOLE SIZE

DRILLING CONTRACTOR Whitaker Drilling, Inc.

GROUND WATER LEVELS:

DRILLING METHOD Auger

▼ AT TIME OF DRILLING NE

LOGGED BY WDI CHECKED BY CRL

▽ ESTIMATED SEASONAL HIGH > 15 ft

NOTES

SPT BORINGS - GINT STD US.GDT - 8/31/21 14:36 - Q:\PROJECTS\13739A SAVANNAH STATION, PHASE 3\13739A BORINGS\13739A BORINGS (P).GPJ

DEPTH (ft)	GRAPHIC LOG	MATERIAL DESCRIPTION	CONTACT DEPTH (ft)	SAMPLE TYPE NUMBER	BLOW COUNTS (N VALUE)	LIQUID LIMIT, %	PLASTIC LIMIT, %	PLASTICITY INDEX	PERCENT PASS NO. 200 SIEVE	MOISTURE CONTENT, %	▲ SPT N VALUE ▲
0											20 40 60 80
		(SP-SM) Brown and gray SAND with silt	1	AU 1							
		(SP-SM) Brown SAND with silt		AU 2							
5											
			8.5	AU 3							
10		(SP) Pale brown, gray, and orange SAND									
			12.5	AU 4							
15		(SP-SC) Brown and orange SAND with clay									
		Bottom of borehole at 15.0 feet.	15								



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BORING NUMBER P-4

CLIENT The Fletcher Family Companies

PROJECT NAME Savannah Station, Phase 3

PROJECT NUMBER 13739A

PROJECT LOCATION Alachua, Alachua County, Florida

DATE STARTED 8/23/21 **COMPLETED** 8/23/21

GROUND ELEVATION **HOLE SIZE**

DRILLING CONTRACTOR Whitaker Drilling, Inc.

GROUND WATER LEVELS:

DRILLING METHOD Auger

▼ **AT TIME OF DRILLING** NE

LOGGED BY WDI **CHECKED BY** CRL

▽ **ESTIMATED SEASONAL HIGH** 6.5 ft, perched

NOTES

SPT BORINGS - GINT STD US.GDT - 8/31/21 14:36 - Q:\PROJECTS\13739A SAVANNAH STATION, PHASE 3\13739A BORINGS\13739A BORINGS (P).GPJ

DEPTH (ft)	GRAPHIC LOG	MATERIAL DESCRIPTION	CONTACT DEPTH (ft)	SAMPLE TYPE NUMBER	BLOW COUNTS (N VALUE)	LIQUID LIMIT, %	PLASTIC LIMIT, %	PLASTICITY INDEX	PERCENT PASS NO. 200 SIEVE	MOISTURE CONTENT, %	▲ SPT N VALUE ▲
0											20 40 60 80
5		(SC) Brown and gray clayey SAND									
		$k_n = 0.6 \text{ ft/day}$									
		▽	7	AP 1 AU 2					12	12	
10		(SC/CL) Gray very clayey SAND with trace of limestone									
				AU 3							
15		Bottom of borehole at 15.0 feet.	15								



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BORING NUMBER P-5

CLIENT The Fletcher Family Companies

PROJECT NAME Savannah Station, Phase 3

PROJECT NUMBER 13739A

PROJECT LOCATION Alachua, Alachua County, Florida

DATE STARTED 8/23/21 **COMPLETED** 8/23/21

GROUND ELEVATION **HOLE SIZE**

DRILLING CONTRACTOR Whitaker Drilling, Inc.

GROUND WATER LEVELS:

DRILLING METHOD Auger

▼ **AT TIME OF DRILLING** NE

LOGGED BY WDI **CHECKED BY** CRL

▽ **ESTIMATED SEASONAL HIGH** 5.0 ft, perched

NOTES

DEPTH (ft)	GRAPHIC LOG	MATERIAL DESCRIPTION	CONTACT DEPTH (ft)	SAMPLE TYPE NUMBER	BLOW COUNTS (N VALUE)	LIQUID LIMIT, %	PLASTIC LIMIT, %	PLASTICITY INDEX	PERCENT PASS NO. 200 SIEVE	MOISTURE CONTENT, %	▲ SPT N VALUE ▲
0											20 40 60 80
		(SP-SM) Gray and brown SAND with silt		AU 1							
		(SC) Brown and gray clayey SAND	1.5	AU 2							
5	▽		5.5	AU 3							
		(SC/CL) Pale gray and brown very clayey SAND									
10			12	AU 4							
		(SC) Pale brown and gray clayey SAND									
15			18.5	SPT 5	5-7-9 (16)						
20		(SC) Medium dense pale gray clayey SAND with lenses of clay									
		(SC/CL) Loose brown, gray, and orange very clayey SAND with limestone	23.5	SPT 6	3-4-5 (9)						
25											
30			30	SPT 7	4-4-5 (9)						
		Bottom of borehole at 30.0 feet.									

SPT BORINGS - GINT STD US.GDT - 8/31/21 14:36 - Q:\PROJECTS\13739A SAVANNAH STATION, PHASE 3\13739A BORINGS\13739A BORINGS (P).GPJ



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BORING NUMBER P-6

CLIENT The Fletcher Family Companies

PROJECT NAME Savannah Station, Phase 3

PROJECT NUMBER 13739A

PROJECT LOCATION Alachua, Alachua County, Florida

DATE STARTED 8/25/21 **COMPLETED** 8/25/21

GROUND ELEVATION **HOLE SIZE**

DRILLING CONTRACTOR Whitaker Drilling, Inc.

GROUND WATER LEVELS:

DRILLING METHOD Auger

▼ **AT TIME OF DRILLING** NE

LOGGED BY WDI **CHECKED BY** CRL

▽ **ESTIMATED SEASONAL HIGH** 11.0 ft, perched

NOTES

SPT BORINGS - GINT STD US.GDT - 8/31/21 14:36 - Q:\PROJECTS\13739A SAVANNAH STATION, PHASE 3\13739A BORINGS\13739A BORINGS (P).GPJ

DEPTH (ft)	GRAPHIC LOG	MATERIAL DESCRIPTION	CONTACT DEPTH (ft)	SAMPLE TYPE NUMBER	BLOW COUNTS (N VALUE)	LIQUID LIMIT, %	PLASTIC LIMIT, %	PLASTICITY INDEX	PERCENT PASS NO. 200 SIEVE	MOISTURE CONTENT, %	▲ SPT N VALUE ▲
0											20 40 60 80
		(SP-SM) Gray and brown SAND with silt		AU 1							
5											
		(SC) Orange and gray clayey SAND	6	AU 2							
10											
		(CL/CH) Gray sandy CLAY	11.5	AU 3							
15											
		Bottom of borehole at 15.0 feet.	15								



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BORING NUMBER P-7

CLIENT The Fletcher Family Companies

PROJECT NAME Savannah Station, Phase 3

PROJECT NUMBER 13739A

PROJECT LOCATION Alachua, Alachua County, Florida

DATE STARTED 8/25/21 COMPLETED 8/25/21

GROUND ELEVATION HOLE SIZE

DRILLING CONTRACTOR Whitaker Drilling, Inc.

GROUND WATER LEVELS:

DRILLING METHOD Auger

▼ AT TIME OF DRILLING NE

LOGGED BY WDI CHECKED BY CRL

▽ ESTIMATED SEASONAL HIGH 5.5 ft, perched

NOTES

SPT BORINGS - GINT STD US.GDT - 8/31/21 14:36 - Q:\PROJECTS\13739A SAVANNAH STATION, PHASE 3\13739A BORINGS\13739A BORINGS (P).GPJ

DEPTH (ft)	GRAPHIC LOG	MATERIAL DESCRIPTION	CONTACT DEPTH (ft)	SAMPLE TYPE NUMBER	BLOW COUNTS (N VALUE)	LIQUID LIMIT, %	PLASTIC LIMIT, %	PLASTICITY INDEX	PERCENT PASS NO. 200 SIEVE	MOISTURE CONTENT, %	▲ SPT N VALUE ▲
0											20 40 60 80
5		(SP-SM) Brown and gray SAND with silt		AU 1							
6		(CL/CH) Gray, brown, and orange sandy CLAY trace of limestone	6	AU 2							
10		(SC/CL) Pale gray, brown, and orange very clayey SAND	11	AU 3							
15		Bottom of borehole at 15.0 feet.	15								



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BORING NUMBER P-8

CLIENT The Fletcher Family Companies

PROJECT NAME Savannah Station, Phase 3

PROJECT NUMBER 13739A

PROJECT LOCATION Alachua, Alachua County, Florida

DATE STARTED 8/25/21 **COMPLETED** 8/25/21

GROUND ELEVATION **HOLE SIZE**

DRILLING CONTRACTOR Whitaker Drilling, Inc.

GROUND WATER LEVELS:

DRILLING METHOD Auger

▼ **AT TIME OF DRILLING** NE

LOGGED BY WDI **CHECKED BY** CRL

▽ **ESTIMATED SEASONAL HIGH** 5.0 ft, perched

NOTES

DEPTH (ft)	GRAPHIC LOG	MATERIAL DESCRIPTION	CONTACT DEPTH (ft)	SAMPLE TYPE NUMBER	BLOW COUNTS (N VALUE)	LIQUID LIMIT, %	PLASTIC LIMIT, %	PLASTICITY INDEX	PERCENT PASS NO. 200 SIEVE	MOISTURE CONTENT, %	▲ SPT N VALUE ▲
0		(SP-SM) Brown and gray SAND with silt		AU 1							20 40 60 80
5	▽	(SC/CL) Gray, brown, and orange very clayey SAND	5.5	AU 2							
10		(SC/CL) Pale gray very clayey SAND	11	AU 3							
15											
20		(CL/CH) Stiff gray, green, brown, and orange sandy CLAY trace of limestone	18.5	SPT 4	6-7-8 (15)						
25		(CL/CH) Stiff gray, brown, and orange CLAY with lenses of sand and trace of limestone	23.5	SPT 5	4-4-5 (9)						
		Very hard LIMESTONE	28.5	SPT 6	33-50/3" 50/3"						
		Bottom of borehole at 29.3 feet.	29.3								>>

SPT BORINGS - GINT STD US GDT - 8/31/21 14:36 - Q:\PROJECTS\13739A SAVANNAH STATION, PHASE 3\13739A BORINGS\13739A BORINGS (P).GPJ



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BORING NUMBER P-9

CLIENT The Fletcher Family Companies

PROJECT NAME Savannah Station, Phase 3

PROJECT NUMBER 13739A

PROJECT LOCATION Alachua, Alachua County, Florida

DATE STARTED 8/25/21 **COMPLETED** 8/25/21

GROUND ELEVATION **HOLE SIZE**

DRILLING CONTRACTOR Whitaker Drilling, Inc.

GROUND WATER LEVELS:

DRILLING METHOD Auger

▼ **AT TIME OF DRILLING** NE

LOGGED BY WDI **CHECKED BY** CRL

▽ **ESTIMATED SEASONAL HIGH** 5.5 ft, perched

NOTES

DEPTH (ft)	GRAPHIC LOG	MATERIAL DESCRIPTION	CONTACT DEPTH (ft)	SAMPLE TYPE NUMBER	BLOW COUNTS (N VALUE)	LIQUID LIMIT, %	PLASTIC LIMIT, %	PLASTICITY INDEX	PERCENT PASS NO. 200 SIEVE	MOISTURE CONTENT, %	▲ SPT N VALUE ▲
0											20 40 60 80
		(SP-SM) Dark gray and brown SAND with silt		AU 1							
		(SP-SM) Brown SAND with silt	2	AU 2							
5		▽									
		(SC/CL) Gray, brown, and orange very clayey SAND trace of limestone	6	AU 3							
10		(CL/CH) Pale gray and green CLAY	11	AU 4							
15		Bottom of borehole at 15.0 feet.	15								

SPT BORINGS - GINT STD US.GDT - 8/31/21 14:36 - Q:\PROJECTS\13739A SAVANNAH STATION, PHASE 3\13739A BORINGS\13739A BORINGS (P).GPJ



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BORING NUMBER P-10

CLIENT The Fletcher Family Companies

PROJECT NAME Savannah Station, Phase 3

PROJECT NUMBER 13739A

PROJECT LOCATION Alachua, Alachua County, Florida

DATE STARTED 8/25/21 **COMPLETED** 8/25/21

GROUND ELEVATION **HOLE SIZE**

DRILLING CONTRACTOR Whitaker Drilling, Inc.

GROUND WATER LEVELS:

DRILLING METHOD Auger

▼ **AT TIME OF DRILLING** NE

LOGGED BY WDI **CHECKED BY** CRL

▽ **ESTIMATED SEASONAL HIGH** 6.5 ft, perched

NOTES

SPT BORINGS - GINT STD US.GDT - 8/31/21 14:36 - Q:\PROJECTS\13739A SAVANNAH STATION, PHASE 3\13739A BORINGS\13739A BORINGS (P).GPJ

DEPTH (ft)	GRAPHIC LOG	MATERIAL DESCRIPTION	CONTACT DEPTH (ft)	SAMPLE TYPE NUMBER	BLOW COUNTS (N VALUE)	LIQUID LIMIT, %	PLASTIC LIMIT, %	PLASTICITY INDEX	PERCENT PASS NO. 200 SIEVE	MOISTURE CONTENT, %	▲ SPT N VALUE ▲
0											20 40 60 80
		(SP-SM) Gray and brown SAND with silt									
		$k_h = 5 \text{ ft/day}$									
4			4	AP 1					8.5	5.9	
5		(SC) Gray, brown, and orange clayey SAND		AU 2							
7		(CL/CH) Gray sandy CLAY with trace of limestone	7	AU 3							
10				AU 4							
15		Bottom of borehole at 15.0 feet.	15								



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BORING NUMBER P-11

CLIENT The Fletcher Family Companies

PROJECT NAME Savannah Station, Phase 3

PROJECT NUMBER 13739A

PROJECT LOCATION Alachua, Alachua County, Florida

DATE STARTED 8/25/21 **COMPLETED** 8/25/21

GROUND ELEVATION **HOLE SIZE**

DRILLING CONTRACTOR Whitaker Drilling, Inc.

GROUND WATER LEVELS:

DRILLING METHOD Auger

▼ **AT TIME OF DRILLING** NE

LOGGED BY WDI **CHECKED BY** CRL

▽ **ESTIMATED SEASONAL HIGH** 1.5 ft, perched

NOTES

SPT BORINGS - GINT STD US.GDT - 8/31/21 14:36 - Q:\PROJECTS\13739A SAVANNAH STATION, PHASE 3\13739A BORINGS\13739A BORINGS (P).GPJ

DEPTH (ft)	GRAPHIC LOG	MATERIAL DESCRIPTION	CONTACT DEPTH (ft)	SAMPLE TYPE NUMBER	BLOW COUNTS (N VALUE)	LIQUID LIMIT, %	PLASTIC LIMIT, %	PLASTICITY INDEX	PERCENT PASS NO. 200 SIEVE	MOISTURE CONTENT, %	▲ SPT N VALUE ▲
0											20 40 60 80
		(SP-SM) Brown and dark gray SAND with silt		AU 1							
		(CL/CH) Brown and gray sandy CLAY	2	AU 2							
5			6	AU 3							
		(SC/CL) Gray and brown very clayey SAND									
10			10.5	AU 4							
		(SC) Gray, brown, and orange clayey SAND trace of limestone									
15		Bottom of borehole at 15.0 feet.	15								



NOTES

SPT BORINGS - GINT STD US.GDT - 8/31/21 14:36 - Q:\PROJECTS\13739A SAVANNAH STATION, PHASE 3\13739A BORINGS (P).GPJ



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BORING NUMBER P-13

CLIENT The Fletcher Family Companies

PROJECT NAME Savannah Station, Phase 3

PROJECT NUMBER 13739A

PROJECT LOCATION Alachua, Alachua County, Florida

DATE STARTED 8/23/21 **COMPLETED** 8/23/21

GROUND ELEVATION **HOLE SIZE**

DRILLING CONTRACTOR Whitaker Drilling, Inc.

GROUND WATER LEVELS:

DRILLING METHOD Auger

▼ **AT TIME OF DRILLING** NE

LOGGED BY WDI **CHECKED BY** CRL

▽ **ESTIMATED SEASONAL HIGH** 6.5 ft, perched

NOTES

SPT BORINGS - GINT STD US.GDT - 8/31/21 14:36 - Q:\PROJECTS\13739A SAVANNAH STATION, PHASE 3\13739A BORINGS\13739A BORINGS (P).GPJ

DEPTH (ft)	GRAPHIC LOG	MATERIAL DESCRIPTION	CONTACT DEPTH (ft)	SAMPLE TYPE NUMBER	BLOW COUNTS (N VALUE)	LIQUID LIMIT, %	PLASTIC LIMIT, %	PLASTICITY INDEX	PERCENT PASS NO. 200 SIEVE	MOISTURE CONTENT, %	▲ SPT N VALUE ▲
0											20 40 60 80
		(SP-SM) Gray SAND with silt		AU 1							
			2	AU 2							
5											
	▽		7	AU 3							
		(CL/CH) Gray, brown, and orange CLAY with sand and limestone									
10			11	AU 4							
		(CL/CH) Green, brown, and orange sandy CLAY with limestone									
15		Bottom of borehole at 15.0 feet.	15								



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BORING NUMBER P-15

CLIENT The Fletcher Family Companies

PROJECT NAME Savannah Station, Phase 3

PROJECT NUMBER 13739A

PROJECT LOCATION Alachua, Alachua County, Florida

DATE STARTED 8/23/21 **COMPLETED** 8/23/21

GROUND ELEVATION **HOLE SIZE**

DRILLING CONTRACTOR Whitaker Drilling, Inc.

GROUND WATER LEVELS:

DRILLING METHOD Auger

▼ **AT TIME OF DRILLING** NE

LOGGED BY WDI **CHECKED BY** CRL

▽ **ESTIMATED SEASONAL HIGH** > 30 ft

NOTES

DEPTH (ft)	GRAPHIC LOG	MATERIAL DESCRIPTION	CONTACT DEPTH (ft)	SAMPLE TYPE NUMBER	BLOW COUNTS (N VALUE)	LIQUID LIMIT, %	PLASTIC LIMIT, %	PLASTICITY INDEX	PERCENT PASS NO. 200 SIEVE	MOISTURE CONTENT, %	▲ SPT N VALUE ▲
0											20 40 60 80
		(SP-SM) Gray and brown SAND with silt		AU 1							
5			5.5	AU 2							
		(SC) Pale gray, brown, and orange clayey SAND									
10				AU 3							
15											
			18.5	SPT 4	6-9-8 (17)						
20		(SP-SC) Medium dense gray and orange SAND with clay									
			23.5	SPT 5	5-7-6 (13)						
25		(SC) Loose to medium dense gray and orange clayey SAND									
				SPT 6	4-5-4 (9)						
30		Bottom of borehole at 30.0 feet.	30								

SPT BORINGS - GINT STD US.GDT - 8/31/21 14:36 - Q:\PROJECTS\13739A SAVANNAH STATION, PHASE 3\13739A BORINGS\13739A BORINGS (P).GPJ



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BORING NUMBER P-16

CLIENT The Fletcher Family Companies

PROJECT NAME Savannah Station, Phase 3

PROJECT NUMBER 13739A

PROJECT LOCATION Alachua, Alachua County, Florida

DATE STARTED 8/23/21 **COMPLETED** 8/23/21

GROUND ELEVATION **HOLE SIZE**

DRILLING CONTRACTOR Whitaker Drilling, Inc.

GROUND WATER LEVELS:

DRILLING METHOD Auger

▼ **AT TIME OF DRILLING** NE

LOGGED BY WDI **CHECKED BY** CRL

▽ **ESTIMATED SEASONAL HIGH** 5.5 ft, perched

NOTES

SPT BORINGS - GINT STD US.GDT - 8/31/21 14:36 - Q:\PROJECTS\13739A SAVANNAH STATION, PHASE 3\13739A BORINGS\13739A BORINGS (P).GPJ

DEPTH (ft)	GRAPHIC LOG	MATERIAL DESCRIPTION	CONTACT DEPTH (ft)	SAMPLE TYPE NUMBER	BLOW COUNTS (N VALUE)	LIQUID LIMIT, %	PLASTIC LIMIT, %	PLASTICITY INDEX	PERCENT PASS NO. 200 SIEVE	MOISTURE CONTENT, %	▲ SPT N VALUE ▲
0											20 40 60 80
		(SP-SM) Dark gray SAND with silt		AU 1							
		(SC) brown and gray clayey SAND	1.5								
		$k_p = 11 \text{ ft/day}$		AP 2					16	11	
5		▽									
		(CL/CH) Brown and orange CLAY with sand and trace of limestone	6	AU 3							
10			10.5	AU 4							
		(CL/CH) Gray sandy CLAY									
15		Bottom of borehole at 15.0 feet.	15								



NOTES

PT BORINGS - GINT STD US.GDT - 8/31/21 14:36 - Q:\PROJECTS\13739A SAVANNAH STATION, PHASE 3\13739A BORINGS\13739A BORINGS (P).GPJ



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BORING NUMBER P-18

CLIENT The Fletcher Family Companies

PROJECT NAME Savannah Station, Phase 3

PROJECT NUMBER 13739A

PROJECT LOCATION Alachua, Alachua County, Florida

DATE STARTED 8/23/21 **COMPLETED** 8/23/21

GROUND ELEVATION **HOLE SIZE**

DRILLING CONTRACTOR Whitaker Drilling, Inc.

GROUND WATER LEVELS:

DRILLING METHOD Auger

▼ **AT TIME OF DRILLING** NE

LOGGED BY WDI **CHECKED BY** CRL

▽ **ESTIMATED SEASONAL HIGH** 11.0 ft, perched

NOTES

SPT BORINGS - GINT STD US.GDT - 8/31/21 14:36 - Q:\PROJECTS\13739A SAVANNAH STATION, PHASE 3\13739A BORINGS\13739A BORINGS (P).GPJ

DEPTH (ft)	GRAPHIC LOG	MATERIAL DESCRIPTION	CONTACT DEPTH (ft)	SAMPLE TYPE NUMBER	BLOW COUNTS (N VALUE)	LIQUID LIMIT, %	PLASTIC LIMIT, %	PLASTICITY INDEX	PERCENT PASS NO. 200 SIEVE	MOISTURE CONTENT, %	▲ SPT N VALUE ▲
0											20 40 60 80
		(SP-SM) Dark gray SAND with silt		AU 1							
		(SP) Brown SAND	1.5								
5		$k_n = 12 \text{ ft/day}$		AP 2					3.5	5.3	
				AU 3							
10											
		▽	11.5	AU 4							
		(SC/CL) Gray, brown, and orange very clayey SAND									
15		Bottom of borehole at 15.0 feet.	15								



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BORING NUMBER P-19

CLIENT The Fletcher Family Companies

PROJECT NAME Savannah Station, Phase 3

PROJECT NUMBER 13739A

PROJECT LOCATION Alachua, Alachua County, Florida

DATE STARTED 8/23/21 **COMPLETED** 8/23/21

GROUND ELEVATION **HOLE SIZE**

DRILLING CONTRACTOR Whitaker Drilling, Inc.

GROUND WATER LEVELS:

DRILLING METHOD Auger

▼ **AT TIME OF DRILLING** NE

LOGGED BY WDI **CHECKED BY** CRL

▽ **ESTIMATED SEASONAL HIGH** 13.5 ft, perched

NOTES

SPT BORINGS - GINT STD US.GDT - 8/31/21 14:36 - Q:\PROJECTS\13739A SAVANNAH STATION, PHASE 3\13739A BORINGS\13739A BORINGS (P).GPJ

DEPTH (ft)	GRAPHIC LOG	MATERIAL DESCRIPTION	CONTACT DEPTH (ft)	SAMPLE TYPE NUMBER	BLOW COUNTS (N VALUE)	LIQUID LIMIT, %	PLASTIC LIMIT, %	PLASTICITY INDEX	PERCENT PASS NO. 200 SIEVE	MOISTURE CONTENT, %	▲ SPT N VALUE ▲
0											20 40 60 80
5		(SP-SM) Brown SAND with silt		AU 1							
7		(SC) Brown and gray clayey SAND $k_h = 3.3 \text{ ft/day}$	7	AP 2					19	14	
10											
14		(SC/CL) Gray very clayey SAND	14	AU 3							
15		Bottom of borehole at 15.0 feet.	15								



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BORING NUMBER P-20

CLIENT The Fletcher Family Companies

PROJECT NAME Savannah Station, Phase 3

PROJECT NUMBER 13739A

PROJECT LOCATION Alachua, Alachua County, Florida

DATE STARTED 8/23/21 **COMPLETED** 8/23/21

GROUND ELEVATION **HOLE SIZE**

DRILLING CONTRACTOR Whitaker Drilling, Inc.

GROUND WATER LEVELS:

DRILLING METHOD Auger

▼ **AT TIME OF DRILLING** NE

LOGGED BY WDI **CHECKED BY** CRL

▼ **ESTIMATED SEASONAL HIGH** > 30 ft

NOTES

DEPTH (ft)	GRAPHIC LOG	MATERIAL DESCRIPTION	CONTACT DEPTH (ft)	SAMPLE TYPE NUMBER	BLOW COUNTS (N VALUE)	LIQUID LIMIT, %	PLASTIC LIMIT, %	PLASTICITY INDEX	PERCENT PASS NO. 200 SIEVE	MOISTURE CONTENT, %	▲ SPT N VALUE ▲
0											20 40 60 80
		(SP-SM) Dark gray and brown SAND with silt		AU 1							
			2	AU 2							
5		(SP) Brown SAND									
			9	AU 3							
10		(SC) Gray and brown clayey SAND									
			12.5	AU 4							
15		(SC) Dark gray clayey SAND									
			18.5								
20		(SP) Medium dense pale gray SAND		SPT 5	10-12-17 (29)						
				SPT 6	9-8-9 (17)						
25											
				SPT 7	6-8-10 (18)						
30			30								
		Bottom of borehole at 30.0 feet.									

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BORING NUMBER P-21

CLIENT The Fletcher Family Companies

PROJECT NAME Savannah Station, Phase 3

PROJECT NUMBER 13739A

PROJECT LOCATION Alachua, Alachua County, Florida

DATE STARTED 8/23/21 COMPLETED 8/23/21

GROUND ELEVATION HOLE SIZE

DRILLING CONTRACTOR Whitaker Drilling, Inc.

GROUND WATER LEVELS:

DRILLING METHOD Auger

▼ AT TIME OF DRILLING NE

LOGGED BY WDI CHECKED BY CRL

▽ ESTIMATED SEASONAL HIGH > 15 ft

NOTES

DEPTH (ft)	GRAPHIC LOG	MATERIAL DESCRIPTION	CONTACT DEPTH (ft)	SAMPLE TYPE NUMBER	BLOW COUNTS (N VALUE)	LIQUID LIMIT, %	PLASTIC LIMIT, %	PLASTICITY INDEX	PERCENT PASS NO. 200 SIEVE	MOISTURE CONTENT, %	▲ SPT N VALUE ▲
0											20 40 60 80
		(SP-SM) Gray and brown SAND with silt		AU 1							
			2.5	AU 2							
5											
		$k_n = 22 \text{ ft/day}$		AP 3					7.6	8.3	
10			12	AU 4							
		(SC) Gray clayey SAND									
15		Bottom of borehole at 15.0 feet.	15								

SPT BORINGS - GINT STD US.GDT - 8/31/21 14:36 - Q:\PROJECTS\13739A SAVANNAH STATION, PHASE 3\13739A BORINGS\13739A BORINGS (P).GPJ



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BORING NUMBER P-22

CLIENT The Fletcher Family Companies

PROJECT NAME Savannah Station, Phase 3

PROJECT NUMBER 13739A

PROJECT LOCATION Alachua, Alachua County, Florida

DATE STARTED 8/23/21 **COMPLETED** 8/23/21

GROUND ELEVATION **HOLE SIZE**

DRILLING CONTRACTOR Whitaker Drilling, Inc.

GROUND WATER LEVELS:

DRILLING METHOD Auger

▼ **AT TIME OF DRILLING** NE

LOGGED BY WDI **CHECKED BY** CRL

▽ **ESTIMATED SEASONAL HIGH** 7.5 ft, perched

NOTES

SPT BORINGS - GINT STD US.GDT - 8/31/21 14:36 - Q:\PROJECTS\13739A SAVANNAH STATION, PHASE 3\13739A BORINGS\13739A BORINGS (P).GPJ

DEPTH (ft)	GRAPHIC LOG	MATERIAL DESCRIPTION	CONTACT DEPTH (ft)	SAMPLE TYPE NUMBER	BLOW COUNTS (N VALUE)	LIQUID LIMIT, %	PLASTIC LIMIT, %	PLASTICITY INDEX	PERCENT PASS NO. 200 SIEVE	MOISTURE CONTENT, %	▲ SPT N VALUE ▲
0											20 40 60 80
		(SP-SM) Dark gray and brown SAND with silt		AU 1							
			2.5								
		(SP-SM) Brown SAND with silt									
5											
		$k_h = 6.8 \text{ ft/day}$									
		▽									
		(SC/CL) Gray, brown, and orange very clayey SAND	8	AP 2 AU 3					7.5	5.8	
10											
		(SC/CL) Gray and brown very clayey SAND	11	AU 4							
15											
		Bottom of borehole at 15.0 feet.	15								



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BORING NUMBER P-23

CLIENT The Fletcher Family Companies

PROJECT NAME Savannah Station, Phase 3

PROJECT NUMBER 13739A

PROJECT LOCATION Alachua, Alachua County, Florida

DATE STARTED 8/23/21 **COMPLETED** 8/23/21

GROUND ELEVATION **HOLE SIZE**

DRILLING CONTRACTOR Whitaker Drilling, Inc.

GROUND WATER LEVELS:

DRILLING METHOD Auger

▼ **AT TIME OF DRILLING** NE

LOGGED BY WDI **CHECKED BY** CRL

▽ **ESTIMATED SEASONAL HIGH** 11.0 ft, perched

NOTES

SPT BORINGS - GINT STD US.GDT - 8/31/21 14:36 - Q:\PROJECTS\13739A SAVANNAH STATION, PHASE 3\13739A BORINGS\13739A BORINGS (P).GPJ

DEPTH (ft)	GRAPHIC LOG	MATERIAL DESCRIPTION	CONTACT DEPTH (ft)	SAMPLE TYPE NUMBER	BLOW COUNTS (N VALUE)	LIQUID LIMIT, %	PLASTIC LIMIT, %	PLASTICITY INDEX	PERCENT PASS NO. 200 SIEVE	MOISTURE CONTENT, %	▲ SPT N VALUE ▲
0											20 40 60 80
		(SP-SM) Gray and brown SAND with silt		AU 1							
5		$k_h = 4.7 \text{ ft/day}$	7	AP 2					5.0	6.2	
		(SC) Pale gray clayey SAND									
10		▽	11.5	AU 3							
		(SC/CL) Gray and brown very clayey SAND									
15		Bottom of borehole at 15.0 feet.	15								



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BORING NUMBER P-24

CLIENT The Fletcher Family Companies

PROJECT NAME Savannah Station, Phase 3

PROJECT NUMBER 13739A

PROJECT LOCATION Alachua, Alachua County, Florida

DATE STARTED 8/23/21

COMPLETED 8/23/21

GROUND ELEVATION

HOLE SIZE

DRILLING CONTRACTOR Whitaker Drilling, Inc.

GROUND WATER LEVELS:

DRILLING METHOD Auger

▼ AT TIME OF DRILLING NE

LOGGED BY WDI

CHECKED BY CRL

▽ ESTIMATED SEASONAL HIGH 3.0 ft, perched

NOTES

DEPTH (ft)	GRAPHIC LOG	MATERIAL DESCRIPTION	CONTACT DEPTH (ft)	SAMPLE TYPE NUMBER	BLOW COUNTS (N VALUE)	LIQUID LIMIT, %	PLASTIC LIMIT, %	PLASTICITY INDEX	PERCENT PASS NO. 200 SIEVE	MOISTURE CONTENT, %	▲ SPT N VALUE ▲
0											20 40 60 80
		(SP-SM) Gray and brown SAND with silt		AU 1							
	▽		3.5	AU 2							
5		(CL/CH) Brown sandy CLAY									
			7	AU 3							
		(CL/CH) Pale gray, brown, and orange CLAY with sand with trace of limestone									
10			11.5	AU 4							
		(SC) Pale gray clayey SAND									
15			18.5								
		(SP) Loose pale gray and orange SAND		SPT 5	4-3-3 (6)						
20			23.5	SPT 6	5-6-8 (14)						
		(CL/CH) Stiff pale gray and orange sandy CLAY with trace limestone									
25			28.5								
		Very hard LIMESTONE	28.9	SPT 7	50/5"						
		Bottom of borehole at 28.9 feet.									>>

SPT BORINGS - GINT STD US.GDT - 8/31/21 14:36 - Q:\PROJECTS\13739A SAVANNAH STATION, PHASE 3\13739A BORINGS\13739A BORINGS (P).GPJ



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BORING NUMBER P-25

CLIENT The Fletcher Family Companies

PROJECT NAME Savannah Station, Phase 3

PROJECT NUMBER 13739A

PROJECT LOCATION Alachua, Alachua County, Florida

DATE STARTED 8/23/21 **COMPLETED** 8/23/21

GROUND ELEVATION **HOLE SIZE**

DRILLING CONTRACTOR Whitaker Drilling, Inc.

GROUND WATER LEVELS:

DRILLING METHOD Auger

▼ **AT TIME OF DRILLING** NE

LOGGED BY WDI **CHECKED BY** CRL

▽ **ESTIMATED SEASONAL HIGH** 7.0 ft, perched

NOTES

SPT BORINGS - GINT STD US.GDT - 8/31/21 14:36 - Q:\PROJECTS\13739A SAVANNAH STATION, PHASE 3\13739A BORINGS\13739A BORINGS (P).GPJ

DEPTH (ft)	GRAPHIC LOG	MATERIAL DESCRIPTION	CONTACT DEPTH (ft)	SAMPLE TYPE NUMBER	BLOW COUNTS (N VALUE)	LIQUID LIMIT, %	PLASTIC LIMIT, %	PLASTICITY INDEX	PERCENT PASS NO. 200 SIEVE	MOISTURE CONTENT, %	▲ SPT N VALUE ▲
0											20 40 60 80
		(SP-SM) Dark gray and brown SAND with silt		AU 1							
			2.5	AU 2							
5		(SP) Brown SAND									
	▽		7.5	AU 3							
		(CL/CH) Gray, brown, and orange CLAY									
10			13	AU 4							
		(CL/CH) Green and orange CLAY with sand									
15		Bottom of borehole at 15.0 feet.	15								



NOTES

PT BORINGS - GINT STD US.GDT - 8/31/21 14:36 - Q:\PROJECTS\13739A SAVANNAH STATION, PHASE 3\13739A BORINGS\13739A BORINGS (P).GPJ



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BORING NUMBER P-27

CLIENT The Fletcher Family Companies

PROJECT NAME Savannah Station, Phase 3

PROJECT NUMBER 13739A

PROJECT LOCATION Alachua, Alachua County, Florida

DATE STARTED 8/23/21 COMPLETED 8/23/21

GROUND ELEVATION HOLE SIZE

DRILLING CONTRACTOR Whitaker Drilling, Inc.

GROUND WATER LEVELS:

DRILLING METHOD Auger

▼ AT TIME OF DRILLING NE

LOGGED BY WDI CHECKED BY CRL

▽ ESTIMATED SEASONAL HIGH > 15 ft

NOTES

DEPTH (ft)	GRAPHIC LOG	MATERIAL DESCRIPTION	CONTACT DEPTH (ft)	SAMPLE TYPE NUMBER	BLOW COUNTS (N VALUE)	LIQUID LIMIT, %	PLASTIC LIMIT, %	PLASTICITY INDEX	PERCENT PASS NO. 200 SIEVE	MOISTURE CONTENT, %	▲ SPT N VALUE ▲
0											20 40 60 80
		(SP-SM) Dark gray SAND with silt		AU 1							
		(SP-SM) Gray and brown SAND with silt	1.5	AU 2							
5											
		(SC) Gray, brown, and orange clayey SAND	8	AU 3							
10				AU 4							
15		Bottom of borehole at 15.0 feet.	15								

SPT BORINGS - GINT STD US.GDT - 8/31/21 14:36 - Q:\PROJECTS\13739A SAVANNAH STATION, PHASE 3\13739A BORINGS\13739A BORINGS (P).GPJ



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BORING NUMBER P-28

CLIENT The Fletcher Family Companies

PROJECT NAME Savannah Station, Phase 3

PROJECT NUMBER 13739A

PROJECT LOCATION Alachua, Alachua County, Florida

DATE STARTED 8/23/21 **COMPLETED** 8/23/21

GROUND ELEVATION **HOLE SIZE**

DRILLING CONTRACTOR Whitaker Drilling, Inc.

GROUND WATER LEVELS:

DRILLING METHOD Auger

▼ **AT TIME OF DRILLING** NE

LOGGED BY WDI **CHECKED BY** CRL

▽ **ESTIMATED SEASONAL HIGH** 5.0 ft, perched

NOTES

DEPTH (ft)	GRAPHIC LOG	MATERIAL DESCRIPTION	CONTACT DEPTH (ft)	SAMPLE TYPE NUMBER	BLOW COUNTS (N VALUE)	LIQUID LIMIT, %	PLASTIC LIMIT, %	PLASTICITY INDEX	PERCENT PASS NO. 200 SIEVE	MOISTURE CONTENT, %	▲ SPT N VALUE ▲
0											20 40 60 80
		(SP-SM) Gray and brown SAND with silt		AU 1							
			3	AU 2							
5	▽	(SP-SM) Brown SAND with silt									
			5.5	AU 3							
		(SC/CL) Brown and gray very clayey SAND with limestone									
			8	AU 4							
10		(CL/CH) Brown, gray, green, and orange CLAY with sand									
			11	AU 5							
		(SC) Medium dense gray, brown, and orange clayey SAND									
15											
20				SPT 6	10-11-13 (24)						
			23.5	SPT 7	6-7-11 (18)						
25		(CL/CH) Medium dense gray, brown, and orange CLAY with sand and limestone									
			28.5	SPT 8	41-31-27 (58)						
30		Very hard LIMESTONE									
			30								
		Bottom of borehole at 30.0 feet.									

SPT BORINGS - GINT STD US.GDT - 8/31/21 14:36 - Q:\PROJECTS\13739A SAVANNAH STATION, PHASE 3\13739A BORINGS\13739A BORINGS (P).GPJ



GSE Engineering & Consulting, Inc.
5590 SW 64th Street, Suite B
Gainesville, Florida 32608
Telephone: (352) 377-3233
Fax: (352) 377-0335

BORING NUMBER P-30

CLIENT The Fletcher Family Companies

PROJECT NAME Savannah Station, Phase 3

PROJECT NUMBER 13739A

PROJECT LOCATION Alachua, Alachua County, Florida

DATE STARTED 8/23/21 **COMPLETED** 8/23/21

GROUND ELEVATION **HOLE SIZE**

DRILLING CONTRACTOR Whitaker Drilling, Inc.

GROUND WATER LEVELS:

DRILLING METHOD Auger

▼ **AT TIME OF DRILLING** NE

LOGGED BY WDI **CHECKED BY** CRL

▽ **ESTIMATED SEASONAL HIGH** 11.0 ft, perched

NOTES

SPT BORINGS - GINT STD US.GDT - 8/31/21 14:36 - Q:\PROJECTS\13739A SAVANNAH STATION, PHASE 3\13739A BORINGS\13739A BORINGS (P).GPJ

DEPTH (ft)	GRAPHIC LOG	MATERIAL DESCRIPTION	CONTACT DEPTH (ft)	SAMPLE TYPE NUMBER	BLOW COUNTS (N VALUE)	LIQUID LIMIT, %	PLASTIC LIMIT, %	PLASTICITY INDEX	PERCENT PASS NO. 200 SIEVE	MOISTURE CONTENT, %	▲ SPT N VALUE ▲
0											20 40 60 80
		(SP-SM) Dark gray brown SAND with silt		AU 1							
		(SP-SM) Brown SAND with silt	1.5	AU 2							
5											
10		(SC) Pale gray, brown, and orange clayey SAND	9.5	AU 3							
		(CL/CH) Gray CLAY with sand	11.5	AU 4							
15		Bottom of borehole at 15.0 feet.	15								

5.3 Laboratory Results



Engineering & Consulting, Inc.

SUMMARY REPORT OF LABORATORY TEST RESULTS

Project Number: 13739A

Project Name: Savannah Station, Phase 3

Boring Number	Depth (ft)	Soil Description	Natural Moisture Content (%)	Liquid Limit	Plastic Limit	Plasticity Index	Percent Passing No. 200 Sieve	Organic Content (%)	Hydraulic Conductivity (ft/day)	Unified Soil Classification
P-1	4-5.5	Gray and brown SAND	5.2				4.9		12	SP
P-4	5-7	Brown and gray clayey SAND	12				12		0.6	SC
P-10	2-4	Gray and brown SAND with silt	5.9				8.5		5.0	SP-SM
P-12	5-6	Gray, brown, and orange very clayey SAND	18				31		1.7	SC/CL
P-14	3-5	Brown SAND with silt	7.6				9.5		11	SP-SM
P-16	2-4	Brown and gray clayey SAND	11				16		11	SC
P-18	6-7	Brown SAND	5.3				3.5		12	SP
P-19	8-9.5	Brown and gray clayey SAND	14				19		3.3	SC
P-21	8-10	Brown SAND with silt	8.3				7.6		22	SP-SM
P-22	6-8	Brown SAND with silt	5.8				7.5		6.8	SP-SM
P-23	6-7	Brown and gray SAND with silt	6.2				5.0		4.7	SP-SM
P-29	0.5-2	Dark gray clayey SAND with silt	13				15		7.6	SC



Engineering & Consulting, Inc.

SUMMARY REPORT OF LABORATORY TEST RESULTS

Project Number: 13739A

Project Name: Savannah Station, Phase 3

Boring Number	Depth (ft)	Soil Description	Natural Moisture Content (%)	Liquid Limit	Plastic Limit	Plasticity Index	Percent Passing No. 200 Sieve	Organic Content (%)	Hydraulic Conductivity (ft/day)	Unified Soil Classification
A-2	6.5-7	Pale gray very clayey SAND	24	45	19	26	46			SC/CL
R-16	3-3.5	Gray and brown very clayey SAND	20	27	16	11	32			SC/CL
P-2	2.5-3	Brown and orange very clayey SAND	23				40			SC/CL
P-17	2.5-3	Gray, brown, and orange very clayey SAND with traces of limerock	23				34			SC/CL
P-29	2-2.5	Pale gray, brown, and orange very clayey SAND with traces of limerock	24				40			SC/CL
R-17	2-2.5	Brown clayey SAND	18				25			SC
R-20	2.5-3	Brown and orange very clayey SAND	20				30			SC/CL
R-23	4-4.5	Brown clayey SAND	18				29			SC

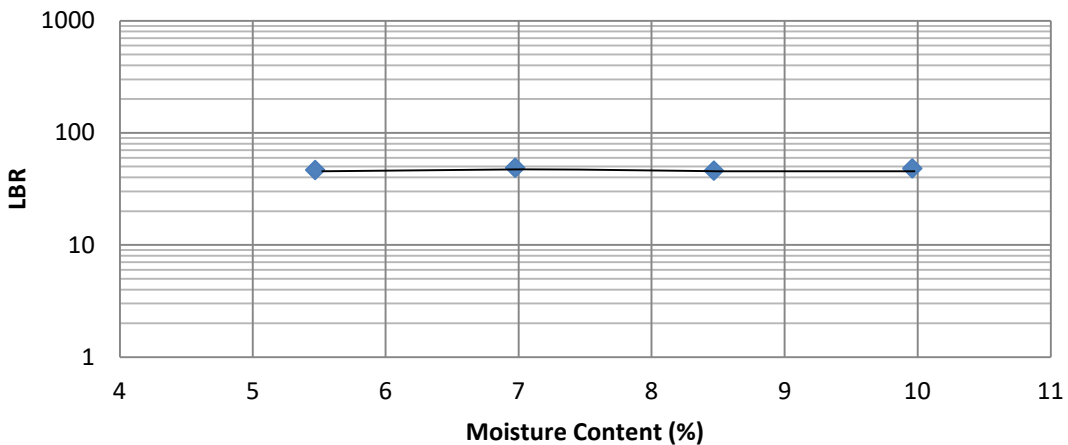
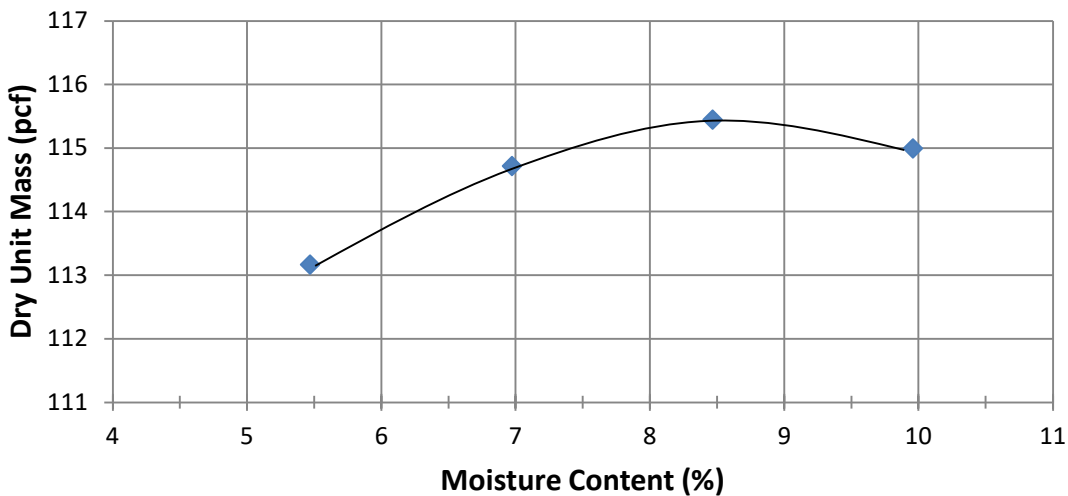


Engineering & Consulting, Inc.

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Phone: (352) 377 - 3233
Fax: (352) 377 - 0335

Project Name: Savannah Station Phase 3
GSE Project No. 13739A
Project Location: Alachua, Alachua County, Florida
Contractor: The Fletcher Family Companies
Date: 8/23/2021

PROCTOR No. 1 / LBR No. 1



PROCTOR DATA

Modified Proctor

(ASTM D1557/AASHTO T180)

X

Standard Proctor

(ASTM D698/AASHTO T99)

Maximum Dry
Density (pcf)

115.4

Optimum Moisture
Content (%)

8.5

LBR (FM 5-515)

49

Sieve Analysis (Percent Passing)

2" Sieve (%)

100

3/4" Sieve (%)

100

No. 4 Sieve (%)

100

No. 200 Sieve (%)

8

Liquid Limit:

NT

Plastic Limit:

NT

Plasticity Index:

NT

Hammer Type:

Mech.

*NT: Not Tested

*NP: Non-Plastic

Sample Description: Brown sand with silt
Sample Location: LBR-1
Proposed Use: Not provided
Sampled By: J. Gowland
Sample Date: 8/16/2021
Tested By: ET/MG
Test Date: 8/16-8/20/2021

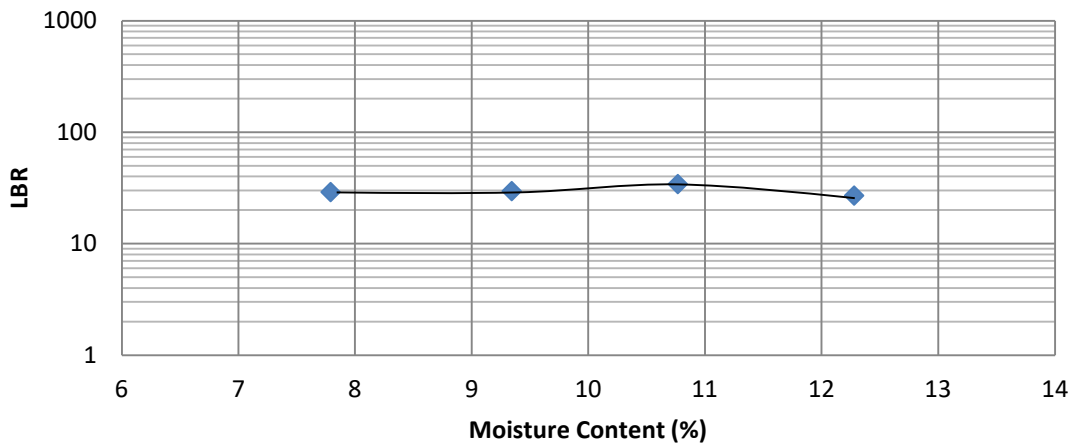
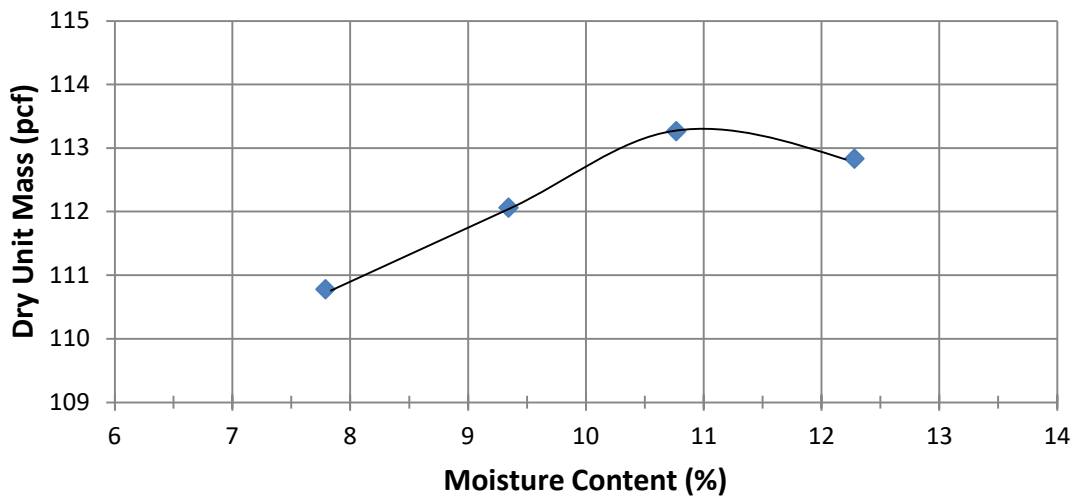


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Project Name: Savannah Station Phase 3
GSE Project No. 13739A
Project Location: Alachua, Alachua County, Florida
Contractor: The Fletcher Family Companies
Date: 8/23/2021

PROCTOR No. 2/ LBR No. 2



PROCTOR DATA

Modified Proctor (ASTM D1557/AASHTO T180)	X
Standard Proctor (ASTM D698/AASHTO T99)	
Maximum Dry Density (pcf)	113.3
Optimum Moisture Content (%)	10.8
LBR (FM 5-515)	34
Sieve Analysis (Percent Passing)	
2" Sieve (%)	100
3/4" Sieve (%)	100
No. 4 Sieve (%)	100
No. 200 Sieve (%)	5
Liquid Limit:	NT
Plastic Limit:	NT
Plasticity Index:	NT
Hammer Type:	Mech.

*NT: Not Tested
*NP: Non-Plastic

Sample Description: Brown sand with silt
Sample Location: LBR-2
Proposed Use: Not provided
Sampled By: J. Gowland
Sample Date: 8/16/2021
Tested By: ET/MG
Test Date: 8/16-8/20/2021

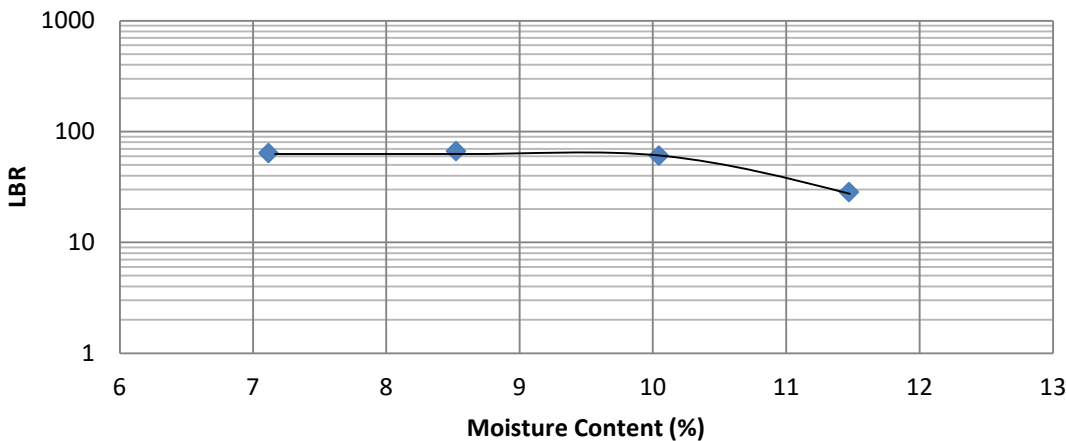
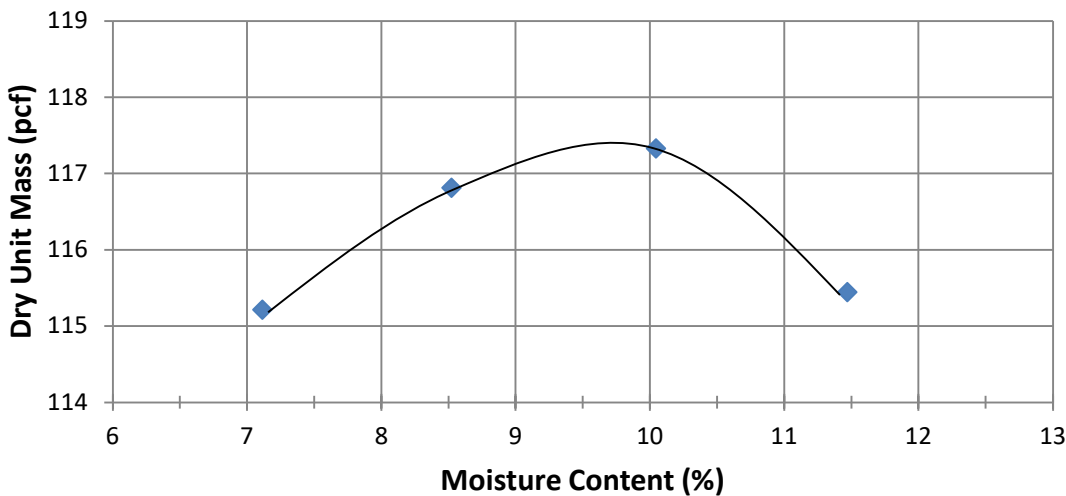


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Phone: (352) 377 - 3233
Fax: (352) 377 - 0335

Project Name: Savannah Station Phase 3
GSE Project No. 13739A
Project Location: Alachua, Alachua County, Florida
Contractor: The Fletcher Family Companies
Date: 8/23/2021

PROCTOR No. 3 / LBR No. 3



PROCTOR DATA

Modified Proctor

(ASTM D1557/AASHTO T180)

X

Standard Proctor

(ASTM D698/AASHTO T99)

Maximum Dry
Density (pcf)

116.8

Optimum Moisture
Content (%)

8.5

LBR (FM 5-515)

67

Sieve Analysis (Percent Passing)

2" Sieve (%)

100

3/4" Sieve (%)

100

No. 4 Sieve (%)

100

No. 200 Sieve (%)

6

Liquid Limit:

NT

Plastic Limit:

NT

Plasticity Index:

NT

Hammer Type:

Mech.

*NT: Not Tested

*NP: Non-Plastic

Sample Description: Brown sand with silt
Sample Location: LBR-3
Proposed Use: Not provided
Sampled By: J. Gowland
Sample Date: 8/16/2021
Tested By: ET/MG
Test Date: 8/16-8/20/2021

5.4 Key to Soil Classification

KEY TO SOIL CLASSIFICATION CHART

Criteria for Assigning Group Symbols and Group Names Using Laboratory Tests				SYMBOLS		GROUP NAME	
				GRAPHIC	LETTER		
COARSE-GRAINED SOILS	Gravels	Clean Gravels	$Cu \geq 4$ and $1 \leq Cc \leq 3$		GW	Well graded GRAVEL	
	More than 50% retained on No. 200 sieve	More than 50% of coarse fraction retained on No. 4 sieve	Less than 5% fines	$Cu < 4$ and/or $1 > Cc > 3$		GP	Poorly graded GRAVEL
			Gravels with fines	Fines classify as ML or MH		GM	Silty GRAVEL
			More than 12% fines	Fines classify as CL or CH		GC	Clayey GRAVEL
			Sands	Clean Sands	$Cu \geq 6$ and $1 \leq Cc \leq 3$		SW
	50% or more of coarse fraction passes No. 4 sieve		Less than 5% fines	$Cu < 6$ and/or $1 > Cc > 3$		SP	Poorly graded SAND
			Sand with fines	Fines classify as ML or MH		SP-SM	SAND with silt
			$5\% \leq \text{fines} < 12\%$	Fines classify as CL or CH		SP-SC	SAND with clay
			Sand with fines	Fines classify as ML or MH		SM	Silty SAND
			$12\% \leq \text{fines} < 30\%$	Fines classify as CL or CH		SC	Clayey SAND
			Sand with fines	Fines classify as ML or MH		SM	Very silty SAND
			30% fines or more	Fines classify as CL or CH		SC	Very clayey SAND
	FINE-GRAINED SOILS	Clays	inorganic	$50\% \leq \text{fines} < 70\%$		CL/CH	Sandy CLAY
$70\% \leq \text{fines} < 85\%$					CL/CH	CLAY with sand	
$\text{fines} \geq 85\%$					CL/CH	CLAY	
Silts and Clays		inorganic	PI > 7 and plots on/above "A" line		CL	Lean CLAY	
			PI < 4 or plots below "A" line		ML	SILT	
Liquid Limit less than 50		organic	Liquid Limit - oven dried	< 0.75		OL	Organic clay
			Liquid Limit - not dried			OL	Organic silt
Silts and Clays		inorganic	PI plots on or above "A" line		CH	Fat CLAY	
			PI plots below "A" line		MH	Elastic SILT	
Liquid Limit 50 or more		organic	Liquid Limit - oven dried	< 0.75		OH	Organic clay
	Liquid Limit - not dried				OH	Organic silt	
HIGHLY ORGANIC SOILS	Primarily organic matter, dark in color, and organic odor				PT	PEAT	

CORRELATION OF PENETRATION RESISTANCE WITH RELATIVE DENSITY AND CONSISTENCY

No. OF BLOWS, N	RELATIVE DENSITY		No. OF BLOWS, N	CONSISTENCY
0 - 4	Very Loose		0 - 2	Very Soft
5 - 10	Loose		3 - 4	Soft
SANDS: 11 - 30	Medium dense	SILTS &	5 - 8	Firm
31 - 50	Dense	CLAYS:	9 - 15	Stiff
OVER 50	Very Dense		16 - 30	Very Stiff
			31 - 50	Hard
			OVER 50	Very Hard

No. OF BLOWS, N	RELATIVE DENSITY
0 - 8	Very Soft
9 - 18	Soft
LIMESTONE: 19 - 32	Moderately Hard
33 - 50	Hard
OVER 50	Very Hard

SAMPLE GRAPHIC TYPE LEGEND



Location
of SPT
Sample



Location
of Auger
Sample

PARTICLE SIZE IDENTIFICATION

BOULDERS:	Greater than 300 mm
COBBLES:	75 mm to 300 mm
GRAVEL:	Coarse - 19.0 mm to 75 mm
	Fine - 4.75 mm to 19.0 mm
SANDS:	Coarse - 2.00 mm to 4.75 mm
	Medium - 0.425 mm to 2.00 mm
	Fine - 0.075 mm to 0.425 mm
SILTS & CLAYS:	Less than 0.075 mm

LABORATORY TEST LEGEND

LL	=	Liquid Limit, %
PL	=	Plastic Limit, %
PI	=	Plasticity Index, %
% PASS - 200	=	Percent Passing the No. 200 Sieve
MC	=	Moisture Content, %
ORG	=	Organic Content, %
k_h	=	Horizontal Hydraulic Conductivity, ft/day

6.0 LIMITATIONS

6.1 Warranty

This report has been prepared for our client for his exclusive use, in accordance with generally accepted soil and foundation engineering practices and makes no other warranty either expressed or implied as to the professional advice provided in the report.

6.2 Auger and SPT Borings

The determination of soil type and conditions was performed from the ground surface to the maximum depth of the borings, only. Any changes in subsurface conditions that occur between or below the borings would not have been detected or reflected in this report.

Soil classifications that were made in the field are based upon identifiable textural changes, color changes, changes in composition or changes in resistance to penetration in the intervals from which the samples were collected. Abrupt changes in soil type, as reflected in boring logs and/or cross sections may not actually occur, but instead, be transitional.

Depth to the water table is based upon observations made during the performance of the auger and SPT borings. This depth is an estimate and does not reflect the annual variations that would be expected in this area due to fluctuations in rainfall and rates of evapotranspiration.

6.3 Site Figures

The measurements used for the preparation of the figures in this report were made using the provided site plan and by estimating distances from existing structures and site features. Figures in this report were not prepared by a licensed land surveyor and should not be interpreted as such.

6.4 Unanticipated Soil Conditions

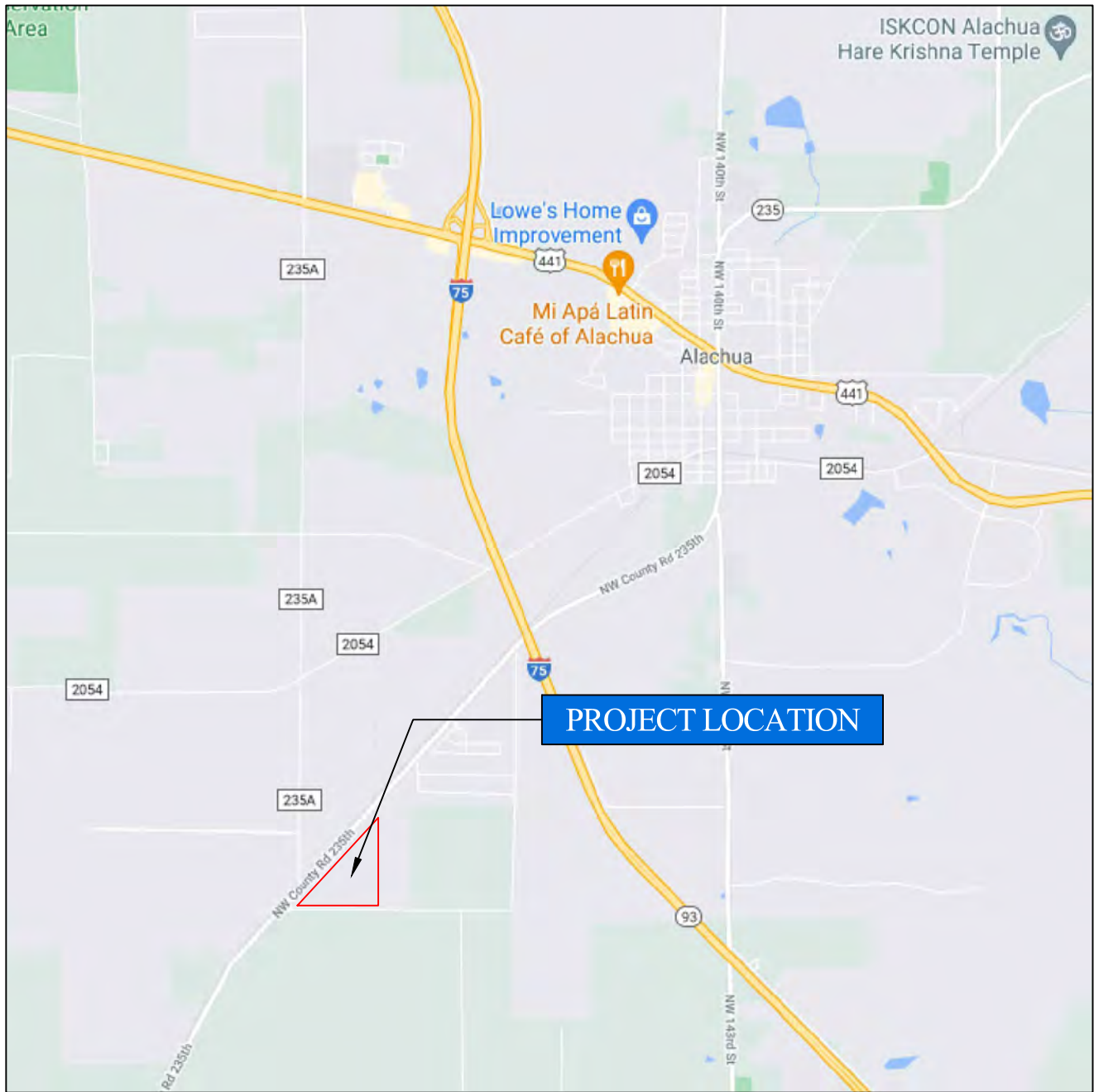
The analysis and recommendations submitted in this report are based upon the data obtained from soil borings performed at the locations indicated on Figure 2. This report does not reflect any variations that may occur between these borings.

The nature and extent of variations between borings may not become known until excavation begins. If variations appear, we may have to re-evaluate our recommendations after performing on-site observations and noting the characteristics of any variations.

6.5 Misinterpretation of Soil Engineering Report

GSE Engineering & Consulting, Inc. is responsible for the conclusions and opinions contained within this report based upon the data relating only to the specific project and location discussed herein. If others make the conclusions or recommendations based upon the data presented, those conclusions or recommendations are not the responsibility of GSE.

FIGURES



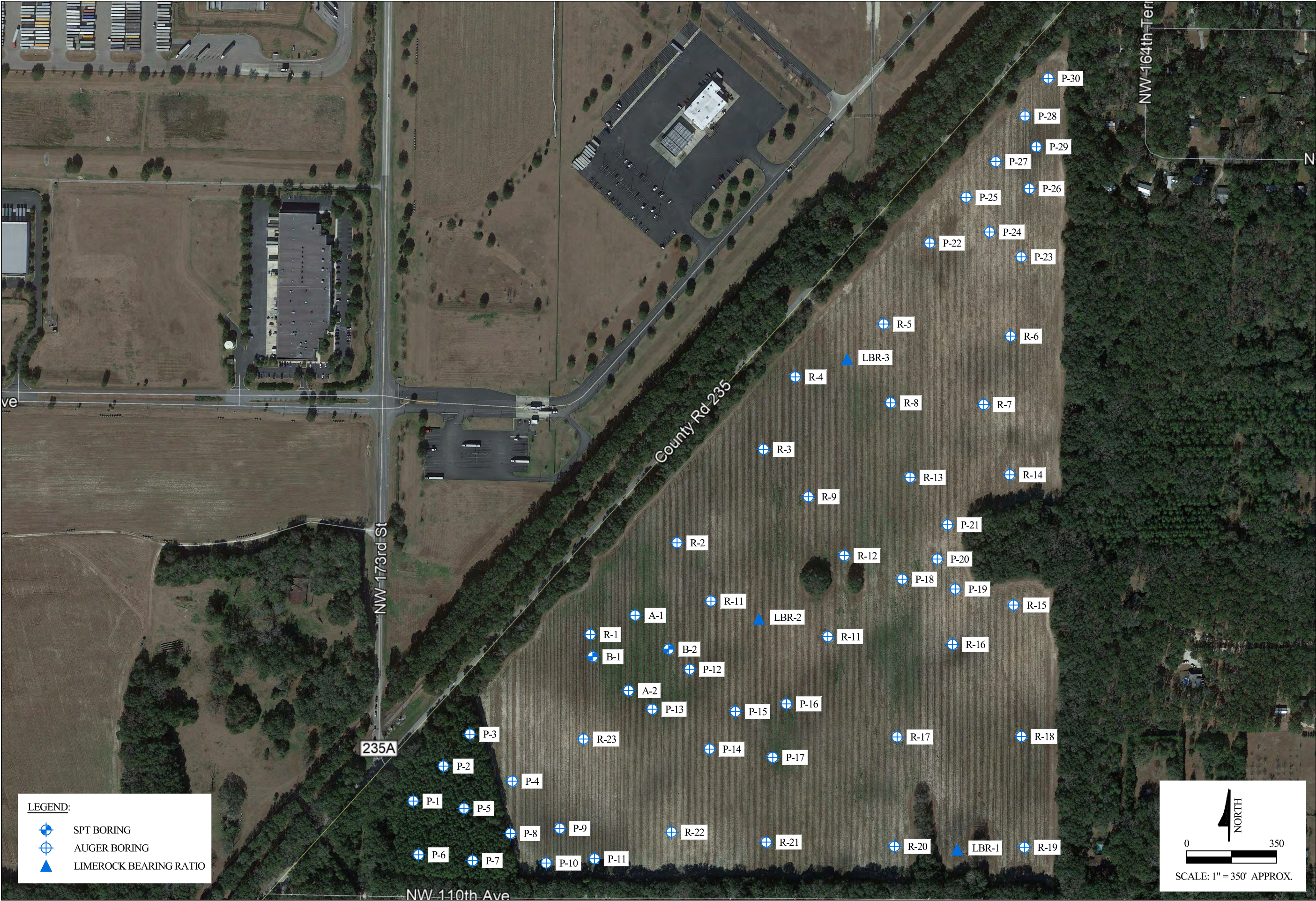
SAVANNAH STATION, PHASE 3
ALACHUA, ALACHUA COUNTY, FLORIDA
GSE PROJECT NO. 13739A

PROJECT SITE LOCATION MAP




DESIGNED BY : CRL
CHECKED BY : JEG
DRAWN BY : AXL




FIGURE
1



LEGEND:

-  SPT BORING
-  AUGER BORING
-  LIMEROCK BEARING RATIO


NORTH

0 350

SCALE: 1" = 350' APPROX.

SAVANNAH STATION, PHASE 3 ALACHUA, ALACHUA COUNTY, FLORIDA GSE PROJECT NO. 13739A	AERIAL PHOTOGRAPH SHOWING APPROXIMATE LOCATIONS OF FIELD TESTS			FIGURE 2
	DESIGNED BY : CRL CHECKED BY : JEG DRAWN BY : AXL	