

# **REPORT OF GEOTECHNICAL EXPLORATION**

# PROPOSED WEST JACKSON HIGH-MIDDLE SCHOOL JEFFERSON, GEORGIA

FOR

JACKSON COUNTY SCHOOLS

AUGUST 28, 2018

ECS PROJECT NO. 10:9918

"Setting the Standard for Service"



August 28, 2018

Mr. Ted Gilbert Jackson County Schools 1660 Winder Highway Jefferson, Georgia 30549

Reference: Report of Geotechnical Exploration Proposed West Jackson High-Middle School 1630 Skelton Road Jefferson, Georgia

ECS Project No. 10:9918

Dear Mr. Gilbert:

ECS Southeast, LLP (ECS) is pleased to submit our report of geotechnical exploration for the above referenced project. The attached report presents an introduction to the proposed project, results of our exploration, subsurface conditions, and our recommendations. The work was completed in general accordance with ECS Proposal No. 10:13713 as authorized by you on July 16, 2018.

We appreciate the opportunity of working with you on this project and look forward to our continued association. Should you have questions regarding our findings or need additional consultations, please do not hesitate to contact our office at (770) 590-1971.

Respectfully,

#### ECS SOUTHEAST, LLP represented by:

No. 031774 Charles J. White, P.E. Geotechnical Senior Project GA Registration No. 3177

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# REPORT OF GEOTECHNICAL EXPLORATION PROPOSED WEST JACKSON HIGH-MIDDLE SCHOOL JEFFERSON, GEORGIA

#### TABLE OF CONTENTS

PAGE

INTRODUCTION	1
General Project Information Purposes of Exploration	1 1 2
FIELD EXPLORATION AND LABORATORY TESTING	2
Subsurface Exploration Laboratory Testing Program Shear Wave Velocity Testing	2 3 3
SUBSURFACE CONDITIONS	4
Regional Geology Soil Conditions Groundwater Conditions	4 5 6
ANALYSIS AND RECOMMENDATIONS	6
Waiting Period Foundation Settlement Design Implications of Shallow PWR and Auger Refusal Material Ground Floor Slab Design Seismic Site Class Below Grade Walls Wet Subgrade Preparation Slopes Pavement Design	6 7 8 8 9 10 11
CONSTRUCTION RECOMMENDATIONS	13
Subgrade Preparation Removal of Structures and Utilities Fill Placement Suitability of On-Site Soils for Reuse as Fill Difficult Excavation Additional Considerations	13 13 14 15 15 15
CLOSING	17

# APPENDIX

- Figure 1 Site Location Diagram
   Figure 2 Boring and Traverse Location Plan
   Figure 3 Boring and Traverse Location Plan
   Figure 4 Settlement Pin Detail
- II. Reference Notes for Boring Logs Summary of Subsurface Conditions Cutline A-A' - Middle School Building Cutline B-B' - High School Building Cutline C-C' - High School Building and Gym Boring Logs (66) Laboratory Testing Summary
- III. GBA Important Information About This Geotechnical-Engineering Report

#### INTRODUCTION

#### General

This report presents the results of a geotechnical exploration for the proposed West Jackson High-Middle School in Jefferson, Georgia. Work was performed in general accordance with ECS Proposal No. 10:13713 as authorized by you on July 9, 2018.

#### **Project Information**

This section is based on information provided and our site reconnaissance. The site is located on Skelton Road in Jefferson, Georgia. A Site Location Diagram is included in the Appendix as Figure 1.

The attached Boring and Traverse Location Plans (Figures 2 and 3) present the site development concept at the time of this report. We understand the project consists of the construction of a separate 2-story high and middle school buildings with associated play fields, parking and drives.

At the time of this study, no structural loading information was available. We assume the maximum column loads will not exceed 200 kips and the maximum strip loads will not exceed 4 kips per linear foot.

According to the provided information, the surface elevations range from 818 to 966 feet across the site. We understand the proposed finished floor elevation (FFE) for the proposed High School will be 926 feet and the attached gymnasium will be 912 feet. The FEE for the proposed Middle School will be 928 feet. Based on the provided information maximum cuts and fills on order of 53 and 21 feet, respectively, will be required across the site. Maximum cuts on the order of 37 feet will be required in the proposed High and Middle School buildings, and the deepest cuts of over 50 feet will be within the proposed football field.

At the time of drilling, the site consisted primarily of wooded undeveloped land. An existing abandoned residence was located in the central portion of the site just north of the proposed High School building followed by a small pond to the northeast in a proposed parking area (near Boring B-28 as shown on Figure 3). A larger pond was located just west of the proposed development area as shown on Figure 2. The site is bounded to the south by Skelton Road, to the west by Highway 332, and to the north and east by wooded land.

If any of the information presented is incorrect or has changed, please advise ECS so that we may reevaluate our recommendations in the light of changes in the present project concept.

### Purposes of Exploration

The purposes of this exploration were to explore the soil and groundwater conditions at the site and to develop engineering recommendations to guide design and construction of the proposed project.

We accomplished the purposes of the study by:

- 1. Reviewing the available publications concerning local geology of the site and performing a general site reconnaissance.
- 2. Drilling borings to explore the subsurface soil and groundwater conditions.
- 3. Performing laboratory tests on selected representative soil samples from the borings to evaluate pertinent engineering properties.
- 4. Evaluating the field and laboratory data to develop appropriate engineering recommendations.

#### FIELD EXPLORATION AND LABORATORY TESTING

#### Subsurface Exploration

To explore the subsurface conditions at this site, a total of 66 soil test borings were performed in the proposed development area to depths of 10 to 65 feet below existing grade.

Boring locations were determined in the field by our representative who used a handheld GPS device. As these methods are not precise, the boring locations shown on the attached Boring and Traverse Location Plans (Figures 2 and 3) should be considered approximate. Dozer clearing was used to access some boring locations.

The soil test borings were performed with an ATV mounted drill rig, which utilized hollow stem augers to advance the boreholes. No water or drilling fluid was introduced during the process. Representative soil samples were obtained by means of the split-barrel sampling procedure in general accordance with ASTM Specification D-1586 with an automatic drive hammer. In this procedure, a 2-inch O.D., split-barrel sampler is driven into the soil a distance of 18 inches by a 140-pound hammer falling 30 inches.

The number of blows required to drive the sampler through a 12-inch interval is termed the Standard Penetration Test (SPT) N-value and is indicated for each sample on the boring logs. This value can be used as a qualitative indication of the in-place relative density of cohesionless soils. In a less reliable way, it also indicates the consistency of cohesive soils.

The drill crew prepared a field log of the soils encountered in the borings. After recovery, each sample was removed from the sampler and visually classified by the field crew. Representative portions of each sample were then sealed and brought to our laboratory in Marietta, Georgia for further visual examination and laboratory testing by ECS.

### Laboratory Testing Program

Representative soil samples were selected and tested in our laboratory to check visual classifications and to determine pertinent engineering properties. The laboratory testing program included visual classifications of soil samples as well as gradation analysis, Atterberg limits, and natural moisture content testing on selected soil samples.

A geotechnical engineer classified each soil sample on the basis of texture and plasticity in accordance with the Unified Soil Classification System. The group symbols for each soil type are indicated in parentheses followed by the soil descriptions on the boring logs. The geotechnical engineer grouped the various soil types into the major zones noted on the boring logs. The stratification lines designating the interfaces between earth materials on the boring logs and profiles are approximate; in-situ, the transitions may be gradual.

The soil samples will be retained in our laboratory for a period of 60 days, after which, they will be discarded unless other instructions are received as to their disposition.

#### Shear Wave Velocity Testing

To assess the site specific shear wave velocity, 2 ReMi traverses were performed within the proposed high school building and 2 in the proposed middle school building footprint (total of 4 traverses, designated T-1 to T-4). The ReMi traverse location was determined in the field by our representatives who measured distances and estimated right angles from existing site features. As these methods are not precise, the location of the ReMi traverse shown on the attached Boring and Traverse Location Plans (Figures 2 and 3) should be considered approximate.

For the ReMi fieldwork, a cable (traverse) is laid out on the ground surface. Geophones are typically placed at evenly spaced intervals and connected to the cable that is connected to a Seistronix<sup>™</sup> 24-channel Exploration Seismograph. For this study, 24 channels were used. Ambient vibrations, or microtremors, were recorded at each traverse location. The field data recorded was processed using SeisOpt® ReMi<sup>™</sup> software to reveal a one-dimensional average shear-wave (S-wave) velocity image for each traverse. The average shear wave velocity of materials from the ground surface to a depth of 100 feet is used to determine the Seismic Site Class.

#### SUBSURFACE CONDITIONS

#### **Regional Geology**

The site is located in the Piedmont Region of Georgia. According to the Geology of Georgia (1976) the geology underlying the site consists of granitic gneiss undifferentiated. The natural soils at the site consist primarily of residual materials formed from the in-place physical and chemical weathering of the underlying parent bedrock. The relative density of the residual soils is primarily dependent upon the degree of weathering, surface disturbance, groundwater action, and residual mineral bonding. The shear strength of residual soils is anisotropic and exhibits great variations from point to point. Soils with the flaky minerals oriented parallel to the potential shear plane and the slickenside surfaces have lower shear strengths.

The boundary between soil and rock is not clearly defined. A transitional zone called partially weathered rock (PWR) is normally found above the parent rock. PWR is defined for engineering purposes, as residual material with standard penetration resistances in excess of 100 blows per foot. Weathering is facilitated by fractures, joints, and the presence of less resistant rock types. Consequently, PWR and hard rock profiles are irregular and zones of PWR or rock may occur within the soil mantle well above the general bedrock level. In some cases, boulders can be found in the upper soil matrix.

Groundwater levels are irregular in the Piedmont Region. The surface of the groundwater table is largely dependent on the topography and is generally parallel to the ground surface. It can exhibit some distortions due to differences in vertical and horizontal permeability. The groundwater table can fluctuate several feet with seasonal rainfall.

Based on the online Soil Survey of Jackson County, Georgia, as prepared by the US Department of Agriculture Soil Conservation Service, a summary of the predominant soil types (within the upper 5 feet below original grade) at the site and their characteristics is included in the following table:

Soil Type	Constituents	Parent Material	Internal Drainage	Seasonal High Water Table (inches)
Cecil sandy clay loam (CfC2)	Sands, Silts, Clays	Residuum	Well drained	80+
Pacolet Soils (PuD2)	Sands, Silts, Clays	Residuum	Well drained	80+

#### **Soil Conditions**

Data from the soil test borings is included in the Summary of Subsurface Conditions and Boring Logs in the Appendix. The subsurface conditions discussed in the following paragraphs and those shown on the boring logs represent an estimate of the subsurface conditions based on interpretation of the boring data using normally accepted geotechnical engineering judgments. We note that the transition between different soil strata is usually less distinct than those shown on the boring logs.

# Topsoil

Topsoil is a dark-colored surficial material with a high organic content and is generally unsuitable for structural support. Approximately 2 to 10 inches of topsoil was observed in the borings. Some variation in thicknesses should be expected across the site.

#### **Fill Materials**

Fill may be any material that has been transported and deposited by man. Undocumented fill is considered any man placed materials with no moisture-density records from the time it was originally placed. While not observed in the soil samples recovered, fill or unsuitable materials may be present in unexplored areas of the site, beyond the widely spaced borings performed for this study.

#### **Residual Soils**

Residual soil, formed by in-place weathering of the parent rock, was encountered in the borings below the ground surface. The residual soil was generally described as medium soft to very stiff sandy Silt (ML) and/or very loose to dense silty Sand (SM). Standard Penetration resistances (N-Values) ranged from 4 to 57 blows per foot (bpf).

#### **Partially Weathered Rock**

Partially weathered rock (PWR) is a transitional material between soil and rock, which retains the relic structure of the rock and exhibits Standard Penetration resistances greater than 100, but still can be penetrated by the power auger. PWR was first encountered beneath the residual soil in numerous borings at depths ranging from 5 to 32 feet below existing grade (corresponding elevations of 884 to 955 feet). The PWR was typically described as silty Sand.

#### Auger Refusal Materials

Refusal is a designation applied to any material which cannot be further penetrated by the power auger and is normally indicative of a very hard or very dense material, such as boulders, rock lenses, or the upper surface of bedrock. Auger refusal was reported in numerous borings at depths ranging from 28 to 47 feet below existing grade (corresponding elevations of 904 to 929 feet).

#### **Groundwater Conditions**

No groundwater seepage was observed in the open bore holes during our fieldwork activities. Observations for groundwater were made during sampling and upon completion of the drilling operations at each boring location. In auger drilling operations, the groundwater position can often be determined by observing water flowing into or out of the boreholes. Furthermore, visual observation of the soil samples retrieved during the auger drilling exploration can often be used in evaluating the groundwater conditions.

#### ANALYSIS AND RECOMMENDATIONS

#### Waiting Period

Deep fills (greater than 15 feet) are required near Borings B-22, B-26 and B-27 (proposed parking area north of high school) and Borings B-40 and B-41 (future playfield area). Due to the depth of the fill, excessive total and differential settlements could occur in response to new structural loads, the weight of the new fill, and the on-going process of volume change occurring in the fill. Due to the addition of deep structural fill (greater than 15 feet), we suggest the deeper fill areas be monitored with settlement monuments/pins placed as soon as possible after fill placement is completed. We recommend that at least 8 to 10 settlement pins be installed at select locations in the deepest fill portions of these areas. A Settlement Pin Detail (Figure 4) is provided in the Appendix.

The settlement pins should be placed in areas away from the construction traffic and clearly marked with stakes/flagging and barricades so that they are not disturbed. At a minimum, readings should be surveyed to the nearest 0.01 foot twice per week. Building, pavement, and utility construction in the deep fill areas should begin only after settlement has reached negligible levels as interpreted by an ECS geotechnical engineer.

For planning purposes, we suggest that a period of 30 to 60 days be allowed for the settlementmonitoring period. We note that this time is estimated, and more or less time may be needed depending on the actual settlement behavior. Since many factors can influence the accuracy of the settlement data, we recommend considering the following when obtaining the settlement pin survey data:

- Place the benchmark in an area where no previous filling operations have taken place to help assure the benchmark does not move.
- Protect the monuments from damage/disturbance due to construction activity. If possible, place manhole risers around/over the settlement pin locations to help reduce the chance of disturbance.

- A license surveyor using the same equipment and personnel should obtain the readings during each visit.
- Obtain the readings during the same time of day to help reduce thermal differentials

In an effort to reduce the wait period, you may elect to increase the compaction requirement from 95% to 98% of the Standard Proctor maximum dry density value as indicated in the Fill Placement section of this report.

#### Foundation Design

After the site has been prepared as described in the "Subgrade Preparation" section of this report, and the subsurface conditions are confirmed to be similar to those found in the borings (no significant inclusions of unsuitable material), shallow spread foundations on the natural soils or new structural fill soils may be designed for a net allowable soil bearing pressure of 3,000 psf.

To minimize difficulties during the foundation installation phase, it is critical that ECS be retained to observe the foundation bearing surfaces (confirm the recommended bearing pressures and lack of unsuitable material during construction). Foundation testing should be performed prior to the installation of steel reinforcement and the placement of concrete.

Any unsuitable materials will have to be over-excavated if found during construction. Any overexcavation should extend laterally down and away from the actual footing dimensions at a 1H:1V slope so that the suitable structural backfill is within the footing's zone-of-influence. Close quality assurance observation by ECS is required for this alternative.

To reduce the risk of foundation bearing failure and excessive settlement due to local shear or "punching" action, we recommend that continuous footings have a minimum width of 1.5 feet and that isolated column footings have a minimum lateral dimension of 3 feet. In addition, footings should be placed at a depth to provide adequate bearing capacity. For this site, we recommend footing bottoms be placed at a minimum depth of 1.5 feet below finished grade.

#### Foundation Settlement

Settlement of individual footings, designed in accordance with recommendations presented in this report, is expected to be within tolerable limits for new construction. For footings placed on engineered fill or residual soils constructed in accordance with the requirements outlined in this report, maximum total settlement is expected to be less than 1 inch. Maximum differential settlement between adjacent columns or load bearing walls is expected to be half the total settlement.

The above settlement values are based on our engineering experience with similar soil conditions and the anticipated structural loading, and are to guide the structural engineer with his design.

#### Design Implications of Shallow PWR and Auger Refusal Material

PWR and auger refusal materials were encountered above proposed grades in the proposed High and Middle School building footprints. Guidelines for difficult excavations are included in the next section of this report. We do not recommend supporting foundations on dissimilar materials like rock and soil. To that end, we recommend grades be established so a minimum "cushion" of 12 inches of soil or crushed stone is present beneath slabs on grade and footing bottoms. Some blasting may be needed to ensure this "cushion" is present.

#### Ground Floor Slab Design

Whenever practical we recommend that the floor slab be isolated from the foundation footings so differential settlement of the structure will not induce shear stresses on the floor slab. Also, to minimize the crack width of any shrinkage cracks that may develop near the surface of the slab, we recommend welded wire mesh reinforcement or fibermesh be included in the design of the floor slab. Alternatively, cracking and crack widths can be minimized by using a slightly thicker slab, tighter joint spacing, early saw cutting and/or other detailing to minimize restraints.

We also recommend the slabs-on-grade be underlain by a minimum of 6 inches of granular material such as GAB or crusher run having a maximum aggregate size of 1.5 inches and no more than 10 percent of fines. This granular layer will facilitate the fine grading of the subgrade and help minimize the rise of moisture vapor through the floor slab. Prior to placing the granular material, the floor subgrade soil should be properly compacted, proofrolled, and free of standing water, mud, and frozen soil.

Before the placement of concrete, a vapor barrier may be placed on top of the granular material to provide additional moisture protection. However, special attention should be given to the surface curing of the slab in order to minimize uneven drying of the slab and associated cracking. A modulus of subgrade reaction (K) of 130 pci may be used for slabs assuming the section meets the above requirements and the compaction requirements provided in the sections below are met.

The above should be considered general guidance to assist the Owner and design team. Project specific designs, plan details or other input from the Structural Engineer of Record should control.

#### Seismic Site Class

The IBC 2012 Seismic Site Class was determined from Table 20.3-1 of ASCE 7. The seismic site classification was based on the calculated average shear wave velocities of the overburden to a depth of 100 feet below proposed grade. Based on the data and the proposed site development plans, it is our opinion that the site should be classified as a Seismic Site Class "C". Based on the site specific information obtained, it is our opinion that the potential for liquefaction of the native soils at the site due to earthquake activity is relatively low.

As an additional service ECS can perform a Probabilistic Seismic Hazard Analysis (PSHA) to determine the effective peak acceleration and velocity related acceleration for your site. From our experience, this very specific information from our assessment can many times reduce code imposed default requirements and associated costs for seismic detailing. If this potential cost saving option is desirable, please contact us.

#### **Below Grade Walls**

The following paragraphs offer comments on retaining walls constructed on or retaining soil materials. Compound slopes or walls designed to bear on lower rock slopes or cut faces will require an evaluation of global stability. Wall stability, including global stability analysis, is the responsibility of the Wall Designer.

**<u>Cast In-Place Walls:</u>** Below grade walls or retaining walls should be designed to withstand the lateral earth pressures exerted upon them. We recommend that the "At Rest" soil condition be used in the designs if the top of the walls are restrained and not allowed to move. Retaining walls that are free to rotate at the top should be designed for an active earth pressure coefficient using a triangular load distribution.

The increased lateral pressures generated by surcharge loads (from building foundations or vehicles) should be considered in the design. Compacted moist unit weight for soil backfill of 120 pcf is considered compatible with on site or similar off site borrow soils. Please note a sloping backfill behind a wall <u>greatly</u> increases the lateral load on the wall. The appropriate design approach must be used if the backfill of the wall is sloping.

<u>Soil Design Parameters</u>: Advanced soil laboratory testing was not performed for this project. However, based on local experience and the site specific borings, the following soil parameters have been estimated for sandy or silty soils (SM, ML) for use in the design of footings and/or below grade walls:

- Coefficient of Earth Pressure "At Rest" (K<sub>o</sub>) = 0.53
- Coefficient of Active Earth Pressure (Ka) = 0.36
- Coefficient of Passive Earth Pressure (Kp) = 2.77
- Moist Unit Weight of Soil = 120 pcf
- Angle of Internal Friction ( $\phi$ ) = 28 degrees
- Sliding Resistance Friction Factor (concrete on soil), tan  $\delta$  = 0.36

<u>Wall Drainage</u>: Drainage behind below grade walls is considered essential to relieve hydrostatic pressures. Drainage can be established by providing a perimeter drainage system (foundation drain) located just above the below grade wall footings which discharges by gravity flow to a suitable outfall. This system should consist of perforated pipe or other geosynthetic drainage layer. Drain lines should be surrounded by a minimum 6 inches of free-draining, granular filter material (such as #57 stone) having a gradation compatible with the size of the

openings utilized in the perforated pipe and the surrounding soils to be drained, or be gravel wrapped in filter fabric. Above the foundation drain and tied into it, a wall drainage system (such as a stone "chimney" drain, geotextile drainage mat, etc.) will be needed if the wall is not designed to withstand hydrostatic forces.

Where retained soils are not covered by concrete or pavement and are exposed to weather, the top 18 inches of backfill should consist of less permeable silt or clay. This less permeable soil will help to minimize water infiltration behind the wall.

<u>Wall Foundation or Base Bearing Pressure</u>: Retaining wall footings supported on residual soil or documented structural fill may be designed for an allowable bearing capacity of 3,000 psf. Settlement of retaining wall footings will be dependent on the type of wall, depth of fill under the wall, and the height of the retained fill. Where design wall base or foundation pressures exceed 3,000 psf, ECS should be notified by the Wall Designer. Ground improvement (i.e. undercut with gravel fill or aggregate piers) may be required below the wall base or foundation to increase the bearing capacity of the supporting soils and to reduce wall settlements.

**MSE Walls**: We note that the above recommended cast in-place retaining wall design parameters may not be appropriate for mechanically stabilized earth (MSE) walls. The wall designer should independently estimate/determine the soil parameters incorporated in their design.

# Wet Subgrade Preparation

Construction of the new parking area will extend over the existing pond near Boring B-28 as shown on Figure 3 in the Appendix. As such, wet subgrade conditions should be anticipated, and stabilization of the subgrade soils may be required to properly support the proposed pavements. Conceptually, this involves removing the surface vegetation, topsoil, and soft soils to a firm subgrade. Standing water should be removed using pumps and ditches. Once the subgrade is de-watered and stripped, the bottom of the excavation should be stabilized with a filter fabric layer, covered with geogrid and #57 stone fill to provide a working platform to allow proper soil fill placement.

The geogrid should consist of Tensar TX 160 or equivalent. Suitable filter fabric should consist of non-woven fabric such as Contech C-60NW or equivalent. As necessary, approximately 12 to 18 inches of #57 stone will be needed on top of the geogrid/filter fabric layer to provide a firm working surface and minimize pumping in the excavation. If used, the stone should be spread across the geogrid and densified with lightweight tracked equipment. Care should be taken to avoid contact of the tracked equipment with the geogrid. An additional layer of geotextile filter fabric should be placed over the stone prior to filling with soil fill. The excavation can then be backfilled with engineered fill placed in maximum 8-inch thick lifts.

#### Slopes

Our exploration did not include an analysis of slope stability for any temporary or permanent condition. However, within construction areas, we recommend temporary cut slopes without seepage be constructed no steeper than 1.5H:1V.

Permanent fill or cut slopes in the existing site soils without seepage should be designed no steeper than 2H:1V for slopes heights of 20 feet or less. Slopes exceeding 20 feet in height or subject to seepage should be evaluated in more detail. In building and pavement areas, minimum top of slope setbacks of 10 feet and 5 feet are recommended, respectively.

During construction, slopes should be regularly evaluated for signs of movement, seepage, or an unsafe condition. Soil slopes should be covered for protection from rain, and surface runoff condition. Stormwater runoff should be diverted away from the slopes. For erosion protection, a protective cover of grass or other vegetation should be established on permanent soil slopes as soon as possible.

#### Pavement Design

Based on information provided, a typical minimum pavement section is shown below. We understand the following:

- 1. California Bearing Ratio (CBR) tests were not performed for the proposed subgrade soils at these sites. Our pavement design analyses are based on local experience and assumed CBR values.
- 2. Our pavement design analysis is based on assumed traffic information.
- 3. We assume that the top 12 inches of the proposed roadway subgrade will be firm and unyielding and be compacted to at least 98 percent of maximum dry density in accordance with ASTM-D-698, Standard Proctor Method, as needed.
- 4. We assume that criteria from our sections entitled "Subgrade Preparation" and "Fill Placement" will be followed.
- 5. We assume a minimum separation of 24 inches between the base course material and the groundwater table.

Material Type	Light Duty Parking Stalls and Driveways	Heavy Duty Truck Driveways
AC Surface Course HMA Superpave – 9.5mm or 12.5 mm	2.0 inches	1.5 inch
AC Base Course HMA Superpave – 19mm	-	2.0 inches
Graded Aggregate Base (GAB)	6.0 inches	8.0 inches

### Minimum Flexible Pavement Section

Aggregate material used as base course must comply with the gradation requirements established by the GDOT. Aggregate material should be compacted to at least 98 percent of the maximum dry density obtained in accordance with ASTM D-1557, Modified Proctor Method.

The flexible pavement specifications used in roadways and parking stalls may not be adequate for a trash compactor/dumpster pick-up area, truck dock, or heavily trafficked service related drop off and pickup lanes due to the heavy or repetitive loads and tire scuffing anticipated. We recommend that a rigid concrete pavement section be provided for those areas.

The concrete section should be at least 6 inches thick and should consist of concrete having a minimum 28-day compressive strength of 4,500 pounds per square inch (psi). A minimum of 6 inches of compacted graded aggregate base should be placed beneath rigid concrete pavements. For dumpster storage areas, the concrete slab area should be large enough to support both the dumpster and the truck used to unload the dumpster.

Subgrade soil materials defined as those complying with ASTM D2487 soil classification group lean clay (CL), lean silt (ML), or clayey sand (SC) may be require undercutting due to the natural moisture content, consistency, or fines content of the material. This will be determined at the time of construction.

An important consideration with the design and construction of pavements is surface and subsurface drainage. Where standing water develops, either on the pavement surface or within the base course layer, softening of the subgrade and other problems related to the deterioration of the pavement can be expected. Furthermore, good drainage should minimize the risk of the subgrade materials becoming saturated over a long period of time.

#### CONSTRUCTION RECOMMENDATIONS

#### Subgrade Preparation

The subgrade preparation should consist of stripping the surface materials, (i.e. vegetation, rootmat, topsoil, asphalt, demolition debris, and any other soft or unsuitable material) from the building area and any proposed pavement areas. We recommend the earthwork clearing be extended to a minimum of 10 feet beyond the building and pavement limits wherever practical. Stripping limits should be extended laterally an additional 1 foot for each foot of fill required at any location.

After stripping to the desired grade, and prior to fill placement, it is critical the stripped surface be evaluated by an engineer from ECS. Proofrolling using a loaded dump truck, having an axle weight of at least 20 tons should be performed at that time to aid in identifying localized soft or unsuitable material which must be removed.

As needed, supplemental backhoe test pits or hand augers with Dynamic Cone Penetrometer (DCP) testing can be used to delineate any unsuitable material found during proofrolling. Where unacceptable materials are encountered, they must be evaluated by ECS and may require remedial measures. Remedial options include: undercutting and replacement with soil/aggregate fill material; stabilization with geogrid and aggregate fill; and/or scarification, aeriation and recompaction.

Depending upon the soil and weather conditions prior to construction, subgrades in cuts or excavations may have areas of near surface wet soils. These areas may require remedial measures such as those mentioned above.

#### **Removal of Structures and Utilities**

At the time of our field work, an abandoned residence was located just north of the proposed high school building within the proposed parking area. As asphalt driveway leads from Highway 332 to the residence. The re-development of the project site will require the demolition and removal of the existing residence, pavements, and utilities. This should include the complete removal of all floor slabs, foundations, walls, under slab utilities, sidewalks, etc.

Existing utilities that will no longer be in service should be completely removed from the new development area. Active utilities should be re-routed around the building, wherever possible, and the abandoned section of utility completely removed from the proposed building area. In the event that active utilities are to remain within the building footprint, these utilities should be reviewed by the project structural engineer for conflicts and clearly identified on the construction plans. Special foundation construction procedures may be required to support the new building foundations over utilities.

Excavations resulting from the removal of the above items and associated loose fill should be backfilled with new structural fill as discussed in the following section of this report. This should be observed on a full-time basis by a representative of ECS to document that the unsuitable materials have been removed and that the subgrade is suitable for support of the proposed construction and/or fills.

Any below ground construction/utilities in the vicinity of the proposed building should be removed prior to the initiation of new construction. We suggest that available information regarding the existing utilities at the site be reviewed prior to construction.

#### Fill Placement

The preparation of fill subgrades as well as proposed building subgrades should be observed on a full-time basis by a representative of ECS to document that any unsuitable materials have been removed and that the subgrade is suitable for support of the proposed construction and/or fills.

Fill materials should consist of an approved material free of organic matter and debris, with rocks less than 6 inches and a Liquid Limit less than 40 and a Plasticity Index less than 20. Unacceptable fill materials include topsoil, organic materials, lightweight material with a maximum dry density less than 95 pcf, and highly plastic silts and clays. Unsuitable materials removed during grading operations should be either stockpiled for later use in landscaped areas, or placed in approved disposal areas either on site or off site.

The expanded footprint of the proposed building and/or pavement areas should be well defined including the limits of the fill zones at the time of fill placement. Grade control should be maintained throughout the fill placement operations. Fill operations should be observed on a full-time basis by a qualified soil technician from ECS to determine that minimum compaction requirements are being met. A minimum of one compaction test per 2,500 square foot area should be tested in every one foot compacted lift placed. In trenches, compaction testing should be performed on each lift installed at an interval of every 50 linear feet. The elevation and location of the tests should be clearly identified and recorded at the time of fill placement.

Fill materials should be placed in lifts not exceeding one (1) foot in loose thickness and moisture conditioned to within +/- 3 percent of the optimum moisture content to facilitate proper compaction. Controlled fill soils should be compacted to a minimum of 95 percent of the maximum dry density obtained in accordance with ASTM Specification D-698, Standard Proctor Method.

The upper one foot of soil supporting structures, pavements, slabs-on-grade, sidewalks, should be "firm and unyielding" and any new fill compacted to a minimum of 98 percent of the maximum dry density obtained in accordance with ASTM Specification D-698, Standard Proctor Method.

#### Suitability of On-Site Soils for Reuse as Fill

Soil types encountered in the borings/test pits performed for this project consisted of SM and ML. In general, the existing fill materials and residual soils appear generally suitable for re-use as structural fill if they are free from deleterious materials, such as organics and debris, and within the moisture range for proper compaction. The on-site soils should be tested by ECS prior to use as structural fill.

Laboratory testing on the selected soils indicates that the natural moisture content of the soils ranged from 13.5 to 38.2 percent. These soil moistures are at or above optimum for proper compaction and may require moisture adjustment at the time of re-use. The site soils contain moderate to moderately high percentages of fine-grained soils, ranging from 19.2 to 53.4 percent in the samples tested. These types of soils are moisture sensitive and may be difficult to use as structural fill if the material becomes too wet. Depending on the rainfall conditions at the time of construction, the fine grained soils at the site could become unworkable.

#### Temporary Excavation Support

All temporary excavations must be configured to conform to OSHA 29 CFR Part 1926, Occupational Safety and Health Standards – Excavations. Localized temporary excavations that cannot be safely configured in strict conformance with the unsupported slope or benching requirements of OSHA will require temporary earth retention systems (TERS). Depending upon the configuration of the excavation, systems such as trench boxes, shoring, sheeting, soil nails, or other suitable systems may be feasible. Regardless, the TERS shall consider site specific geotechnical conditions, the excavation configuration, and surrounding infrastructure. All TERS systems should be designed by a qualified professional engineer and installed by a specialty contractor having sufficient experience with the chosen system. Site safety shall be the sole responsibility of the Contractor and his Subcontractors.

#### **Difficult Excavation**

Depending on the finish grade, difficult excavation techniques may be needed in areas of deep cut or utility excavations. Some removal of PWR and possibly auger refusal material should be anticipated within the proposed High and Middle School building footprints, as well as isolated portions of the proposed parking areas and play fields. Isolated boulders in the soil matrix or erratic rock conditions can sometimes remain undetected during geotechnical exploration. Refer to the Summary of Subsurface Conditions and Boring Logs in the Appendix for further information.

In mass excavation for general site work, dense soils (soils with standard penetration resistances of 30 to 50 blows per foot) can usually be removed by ripping with a single-tooth ripper attached to a large crawler tractor or by breaking it out with a large front-end loader. In confined excavations such as foundations, utility trenches, elevator pits, etc., removal of PWR may require use of large backhoes, hydraulic hammers, or light blasting.

Rock materials will normally require blasting for removal in all types of excavations. Any blasting in foundation excavations must be done carefully to minimize damage to the bearing materials and nearby buildings or roadways/utilities. In addition, vibration monitoring and preblast condition surveys are prudent for any buildings within 100 to 200 feet of blasting activity. The gradation of the material removed by ripping or blasting will be erratic. As such, it's usability as fill may be limited without processing (i.e. crushing) to provide a suitable gradation for proper placement and compaction.

We recommend the following rock excavation definitions:

#### General Excavation

<u>Rip Rock:</u> Any material that cannot be removed by scrapers, loaders, pans, dozers, or graders; and requires the use of a single-tooth ripper mounted on a crawler tractor having a minimum draw bar pull rated at not less than 56,000 pounds.

<u>Blast Rock:</u> Any material which cannot be excavated with a single-tooth ripper mounted on a crawler tractor having a minimum draw bar pull rated at not less than 56,000 pounds (Caterpillar D-8K or equivalent) or by a Caterpillar 977 front-end loader or equivalent; and occupying an original volume of at least one cubic yard.

#### Trench Excavation

<u>Blast Rock:</u> Any material which cannot be excavated with a backhoe having a bucket curling force rated at not less than 25,700 pounds (Caterpillar Model 225 or equivalent), and occupying an original volume of at least one-half cubic yard.

Blasting should only be conducted where ripping cannot excavate materials. We recommend that excavatable soils be removed first with conventional grading equipment (scrapers and loaders). We do not recommend leaving soil overburden in place during blasting because determination of blast rock quantities becomes very difficult and costs are generally greater. In addition, residual soil overburden will increase the confining pressure of the rock and reduce the effectiveness of blast charges. Loose fill or blasting mats can be placed over the blast area to control fly-rock. Removal of rock by blasting is very expensive. Hence, control of quantities is important. If requested, ECS can provide assistance estimating or qualifying the blast rock quantities.

As noted in the Geology section of this report the weathering process in the Piedmont can be erratic and significant variations of the depths of the more dense materials can occur in relatively short distances. In some cases, isolated boulders or thin rock seams may be present in the soil matrix and remain undetected by the borings performed.

#### Additional Considerations

Exposure to the environment may weaken the soils at the footing bearing level if the foundation excavations remain open for too long a time. Therefore, foundation concrete should be placed the same day that excavations are dug. If surface water intrusion or exposure softens the bearing soils, the softened soils must be removed from the foundation excavation bottom immediately prior to placement of concrete. If the excavation must remain open overnight, or if rainfall becomes imminent while the bearing soils are exposed, we recommend that the foundations be covered or otherwise protected.

Positive site drainage should be maintained during earthwork operations, which should help maintain the integrity of the soil. Placement of fill on the near surface soils, which have become saturated, could be very difficult. When wet, these soils will degrade quickly with disturbance from contractor operations and will be extremely difficult to stabilize for fill placement.

The surface of the site should be kept properly graded in order to enhance drainage of the surface water away from the proposed structure areas during the construction phase. We recommend that an attempt be made to enhance the natural drainage without interrupting its pattern.

The surficial soils contain fines, which are considered moderately erodible. Erosion and sedimentation shall be controlled in accordance with Best Management Practices and current County and State NPDES requirements. At the appropriate time, we would be pleased to provide a proposal for conducting construction materials testing and NPDES services.

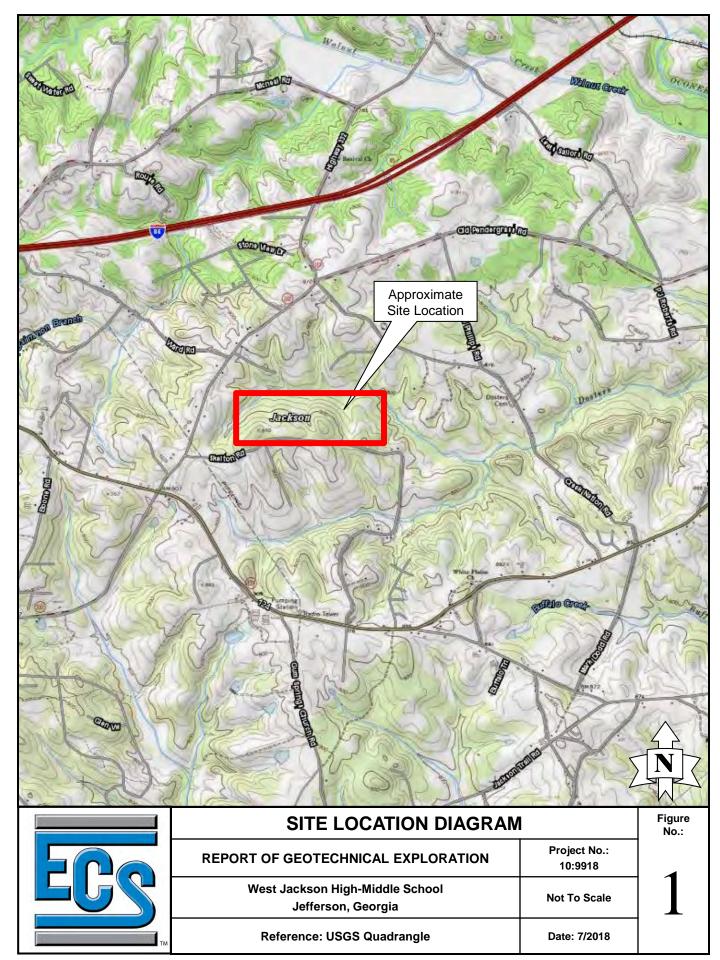
#### CLOSING

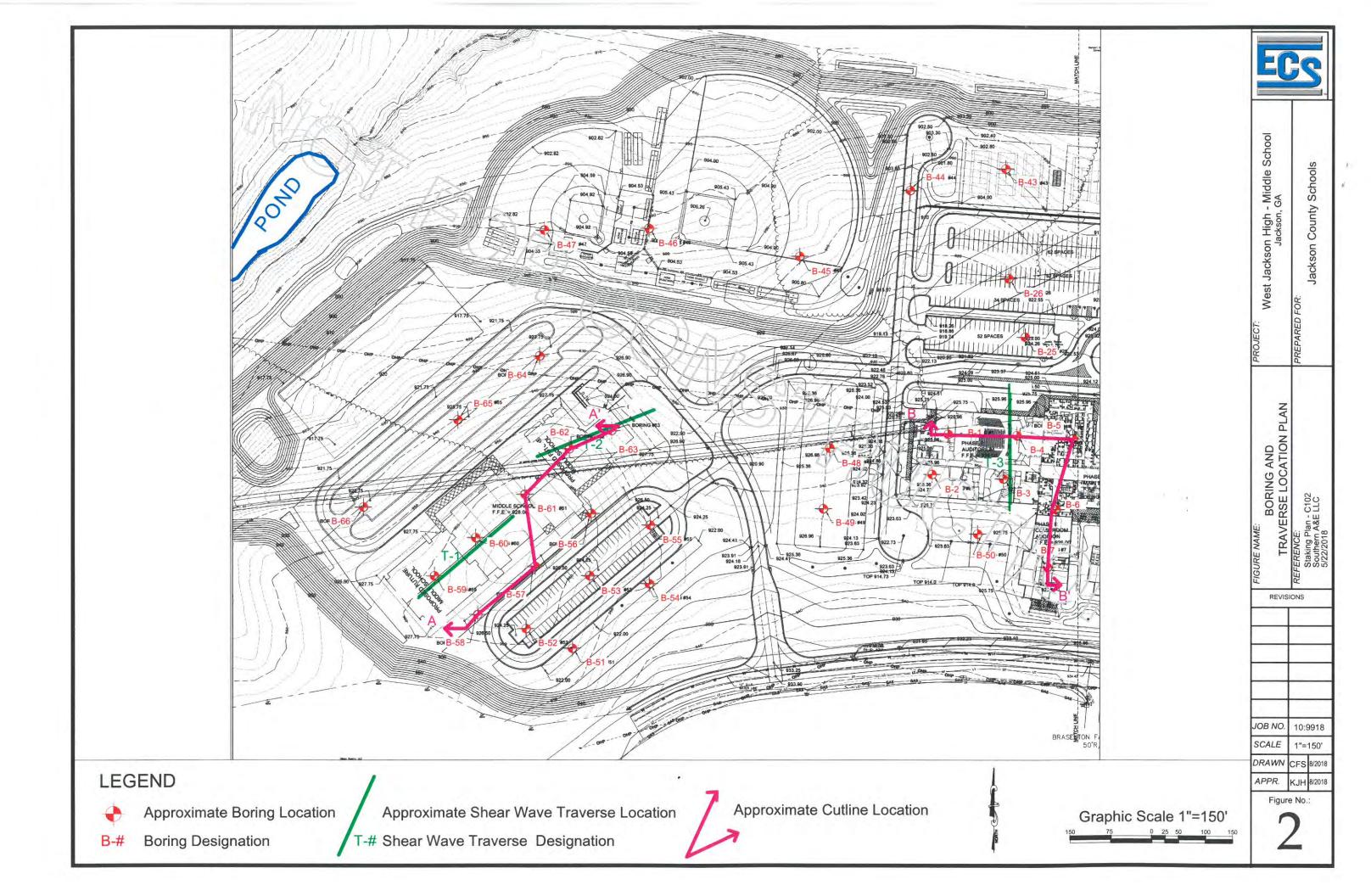
This report has been prepared in accordance with generally accepted geotechnical engineering practice. No warranty is expressed or implied. The evaluations and recommendations presented in this report are based on the available project information, as well as on the results of the exploration. ECS should be given the opportunity to review the final drawings and site plans for this project to determine if changes to the recommendations outlined in this report are needed.

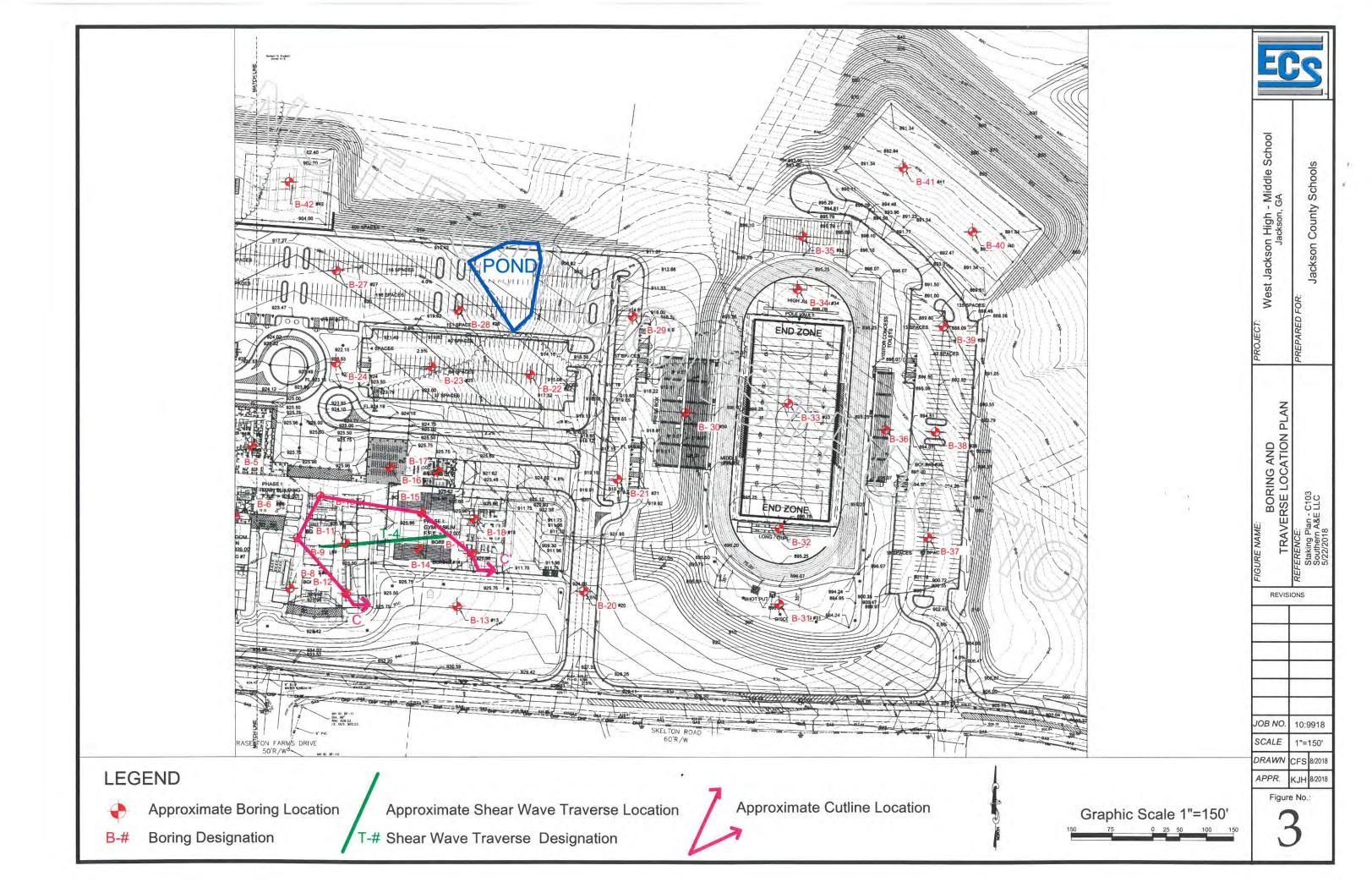
We recommend that the construction activities be monitored by ECS to provide the necessary overview and to check the suitability of the subgrade soils for supporting the footings. If ECS is not retained for this extension of the field exploration, we can not be responsible for the performance of the foundations or site improvements. We would be pleased to provide an estimated cost for these services at the appropriate time.

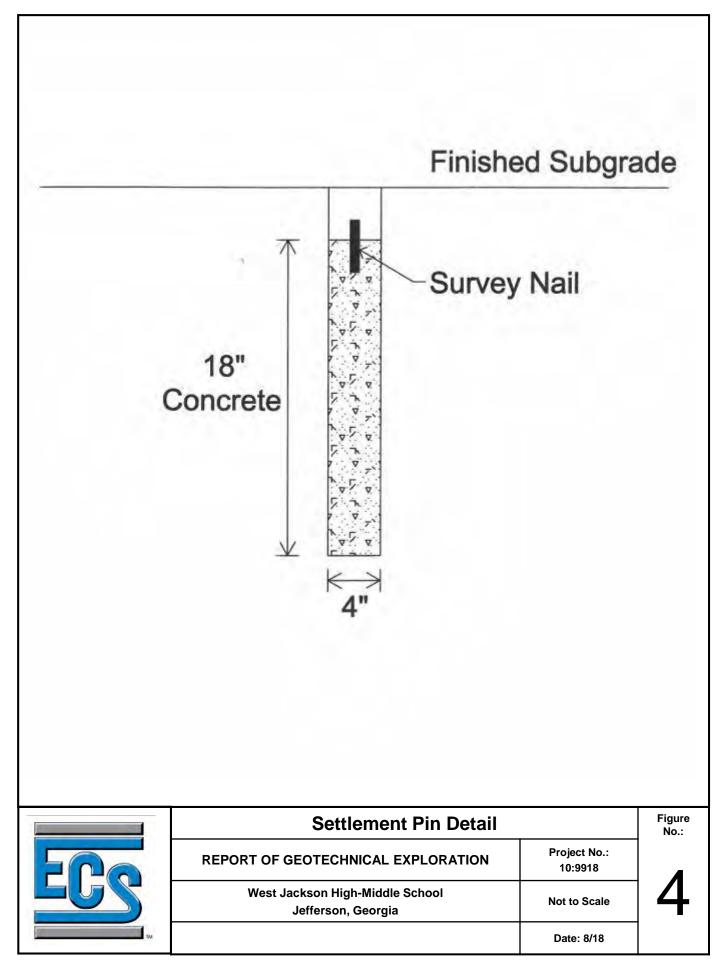
This report is provided for the exclusive use of Jackson County Schools and their project specific design team. This report is not intended to be used or relied upon in connection with other projects or by other third parties. ECS disclaims liability for any such third party use or reliance without express written permission.

Appendix I









Appendix II



# **REFERENCE NOTES FOR BORING LOGS**

MATERIAL <sup>1,2</sup>	2			D	RILLING	SAMPLING S	SYMBO	DLS &	ABBREVI	ATIONS	
	ASPH	лі т	SS	Split Spoon Sampler PM			PM	PM Pressuremeter Test			
	ASFIL		ST	ST Shelby Tube Sampler RD		RD	Rock Bit Drilling				
A	CONC	BETE	WS	Wash Sam	ple		RC	Rock C	ore, NX, I	BX, AX	
St. Same	00110		BS	Bulk Samp	le of Cutti	ings	REC	C Rock Sample Recovery %			
80 00	GRAV	EL	PA	Power Aug	er (no sar	mple)	RQD	Rock C	Juality De	signation %	
00001			HSA	Hollow Ste	m Auger						
3663	TOPS	DIL									
	VOID		DESIGNA	TION		PARTICLE SI			ATION		
·			Boulders		12 inc	hes (300 mm	) or lai	aer			
	BRICK		Cobbles			nes to 12 inch	,	0	300 mm)		
20 0			Gravel:	Coarse		h to 3 inches	`		,		
00001	AGGREGATE BASE COURSE			Fine	4.75 r	nm to 19 mm	(No. 4	sieve t	o ¾ inch)		
R Ball A	FILL <sup>3</sup>	MAN-PLACED SOILS	Sand:	Coarse	2.00 r	nm to 4.75 m	m (No.	10 to N	lo. 4 sieve	e)	
19. 11	FILL	MAN-PLACED SOILS		Medium	0.425	mm to 2.00 n	nm (No	o. 40 to	No. 10 sie	eve)	
2444	GW	WELL-GRADED GRAVEL gravel-sand mixtures, little or no fines	Fine 0.074 mm to 0.425 mm (		mm (N	lo. 200	to No. 40	sieve)			
	00	POORLY-GRADED GRAVEL	Silt & Cla	ay ("Fines")	< 0.07	4 mm (smalle	r than	a No. 2	00 sieve)		
	GP	gravel-sand mixtures, little or no fines									
PHAN	GM	SILTY GRAVEL		COHESIVE SILTS & CLAYS					COARSE	FINE	
1 MAR		gravel-sand-silt mixtures	UNCO	NFINED	_		_			GRAINED	GRAINEE
149	GC	CLAYEY GRAVEL		RESSIVE	SPT⁵	CONSISTEN	CY <sup>7</sup>	AN	IOUNT <sup>7</sup>	(%) <sup>8</sup>	(%) <sup>8</sup>
1.74		gravel-sand-clay mixtures		GTH, Q <sub>P</sub> <sup>4</sup>	(BPF)	(COHESIVE		Trac	e	<u>&lt;</u> 5	<u>&lt;</u> 5
	SW	WELL-GRADED SAND gravelly sand, little or no fines		.25	<3	Very Sof	t	Dua	l Symbol	10	10
	SP	POORLY-GRADED SAND		<0.50	3 - 4	Soft		(ex:	SW-SM)		
	JF	gravelly sand, little or no fines		<1.00	5-8	Firm Stiff		With	1	15 - 20	15 - 25
	SM	SILTY SAND		<2.00	9 - 15 16 - 30	Very Stif	f		ective <i>"Silty"</i> )	<u>&gt;</u> 25	<u>&gt;</u> 30
		sand-silt mixtures		<4.00	31 - 50	Hard	1	(ex.	Only )		
1.7.7.7	SC	CLAYEY SAND		- 8.00 .00	>50	Very Har	н				6
17.17.17		sand-clay mixtures	>0	.00	200	Very Har	u			ATER LEVELS	
	ML	SILT non-plastic to medium plasticity	GRAVEL			OHESIVE SII	те	Ā	WL	Water Level (	
	мн	ELASTIC SILT		-5, 5AND5 (			_13			(WS) While	
		high plasticity	5			DENSITY		যাচ	01.04	(WD) While	-
111	CL	LEAN CLAY		<5	,	Very Loose		Ā	SHW ACR	Seasonal Hig After Casing	
111		low to medium plasticity		- 10		Loose		₹ Ī	SWT	Stabilized Wa	
	СН	FAT CLAY		1 - 30	M	edium Dense		<u>v</u>	DCI	Dry Cave-In	alei Table
//		high plasticity		1 - 50	,	Dense			WCI	Wet Cave-In	
ברבו	OL	ORGANIC SILT or CLAY non-plastic to low plasticity		>50		Very Dense			W01	Wet Cave-III	
1125) 1255) 1255)	ОН	ORGANIC SILT or CLAY high plasticity									
	РТ	PEAT highly organic soils									

<sup>1</sup>Classifications and symbols per ASTM D 2488-09 (Visual-Manual Procedure) unless noted otherwise.

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

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

<sup>7</sup>Minor deviation from ASTM D 2488-09 Note 16.

<sup>8</sup>Percentages are estimated to the nearest 5% per ASTM D 2488-09.

Reference Notes for Boring Logs (03-22-2017)

FINE GRAINED (%)<sup>8</sup>

<sup>&</sup>lt;sup>2</sup>To be consistent with general practice, "POORLY GRADED" has been removed from GP, GP-GM, GP-GC, SP, SP-SM, SP-SC soil types on the boring logs.

<sup>&</sup>lt;sup>4</sup>Typically estimated via pocket penetrometer or Torvane shear test and expressed in tons per square foot (tsf).

<sup>&</sup>lt;sup>5</sup> Standard Penetration Test (SPT) refers to the number of hammer blows (blow count) of a 140 lb. hammer falling 30 inches on a 2 inch OD split spoon sampler required to drive the sampler 12 inches (ASTM D 1586). "N-value" is another term for "blow count" and is expressed in blows per foot (bpf).

# Summary of Subsurface Conditions

# West Jackson High-Middle School ECS Project No. 10:9918

Boring	Proposed Structure Type	Approximate Existing Elevation (ft)	Proposed Final Grade (ft)	Approximate PWR Elevation (ft)	Approximate Auger Refusal Elevation (ft)	Approximate Groundwater Elevation (ft)
B-1	HS Building	945	926	NE	NE	NE
B-2	HS Building	947	926	NE	NE	NE
B-3	HS Building	951	926	NE	NE	NE
B-4	HS Building	948	926	NE	NE	NE
B-5	HS Building	942	926	NE	NE	NE
B-6	HS Building	952	926	NE	NE	NE
B-7	HS Building	949	926	NE	NE	NE
B-8	HS Building	947	926	NE	NE	NE
B-9	HS Building	946	926	919	NE	NE
B-10	HS Building	940	926	NE	NE	NE
B-11	HS Building	947	926	NE	NE	NE
B-12	HS Building	949	926	927	918	NE
B-13	HS Building	946	926	NE	NE	NE
B-14	HS Gym	948	912	NE	NE	NE
B-15	HS Gym	945	912	928 - 923*, 918	906	NE
B-16	HS Building	936	926	NE	NE	NE
B-17	HS Building	937	926	NE	NE	NE
B-18	HS Gym	940	912	908	906	NE
B-19	HS Gym	945	912	923 - 918*	NE	NE
B-20	Entrance	931	924	926 - 919*	NE	NE
B-21	Parking	920	919	NE	NE	NE
B-22	Parking	896	915	884	NE	NE
B-23	Parking	920	921	NE	NE	NE
B-24	Parking	916	923	NE	NE	NE
B-25	Parking	938	924	NE	NE	NE
B-26	Parking	920	918	NE	NE	NE
B-27	Parking	902	919	NE	NE	NE
B-28	Parking	902	917	NE	NE	NE
B-29	Parking	923	915	NE	NE	NE
B-30	Parking	940	918	908	904	NE

NE – Not Encountered AR – Auger Refusal \*Lens of PWR

# Summary of Subsurface Conditions

# West Jackson High-Middle School ECS Project No. 10:9918

Boring	Proposed Structure Type	Approximate Existing Elevation (ft)	Proposed Final Grade (ft)	Approximate PWR Elevation (ft)	Approximate Auger Refusal Elevation (ft)	Approximate Groundwater Elevation (ft)
B-31	Football Field	942	896	NE	NE	NE
B-32	Football Field	950	897	NE	NE	NE
B-33	Football Field	939	897	NE	NE	NE
B-34	Football Field	912	895	NE	NE	NE
B-35	Field	899	896	NE	NE	NE
B-36	Football Stands	926	895	NE	NE	NE
B-37	Parking	929	929	NE	NE	NE
B-38	Parking	918	918	910 - 906*	NE	NE
B-39	Parking	901	901	NE	NE	NE
B-40	Future Expansion	876	893	NE	NE	NE
B-41	Future Expansion	872	893	NE	NE	NE
B-42	Tennis Court	889	903	NE	NE	NE
B-43	Tennis Court	899	903	NE	NE	NE
B-44	Parking	906	904	NE	NE	NE
B-45	Baseball Field	909	903	NE	NE	NE
B-46	Baseball Field	892	905	NE	NE	NE
B-47	Baseball Field	902	904	NE	NE	NE
B-48	Band Field	944	927	NE	NE	NE
B-49	Band Field	947	927	NE	NE	NE
B-50	HS Building	951	926	NE	NE	NE
B-51	Parking	955	922	NE	917	NE
B-52	Parking	962	924	930	926	NE
B-53	Parking	958	924	NE	NE	NE
B-54	Parking	960	922	NE	NE	NE
B-55	Parking	950	924	923	918	NE
B-56	MS Building	960	928	<b>955 - 952</b> *, 918	913	NE
B-57	MS Building	965	928	933	929	NE
B-58	MS Building	963	928	931	927	NE
B-59	MS Building	961	928	NE	NE	NE
B-60	MS Building	964	928	NE	909	NE

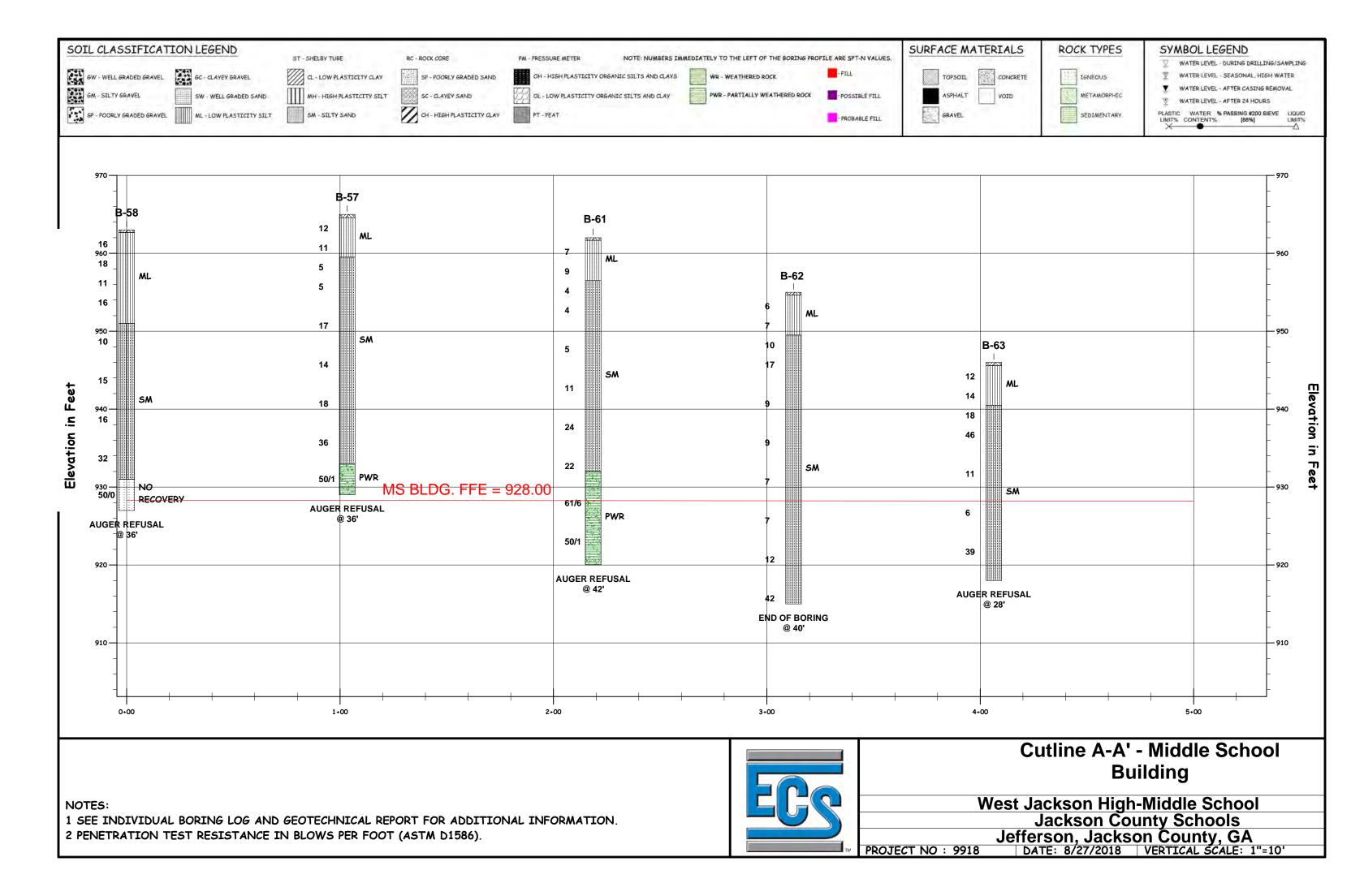
NE – Not Encountered AR – Auger Refusal \*Lens of PWR

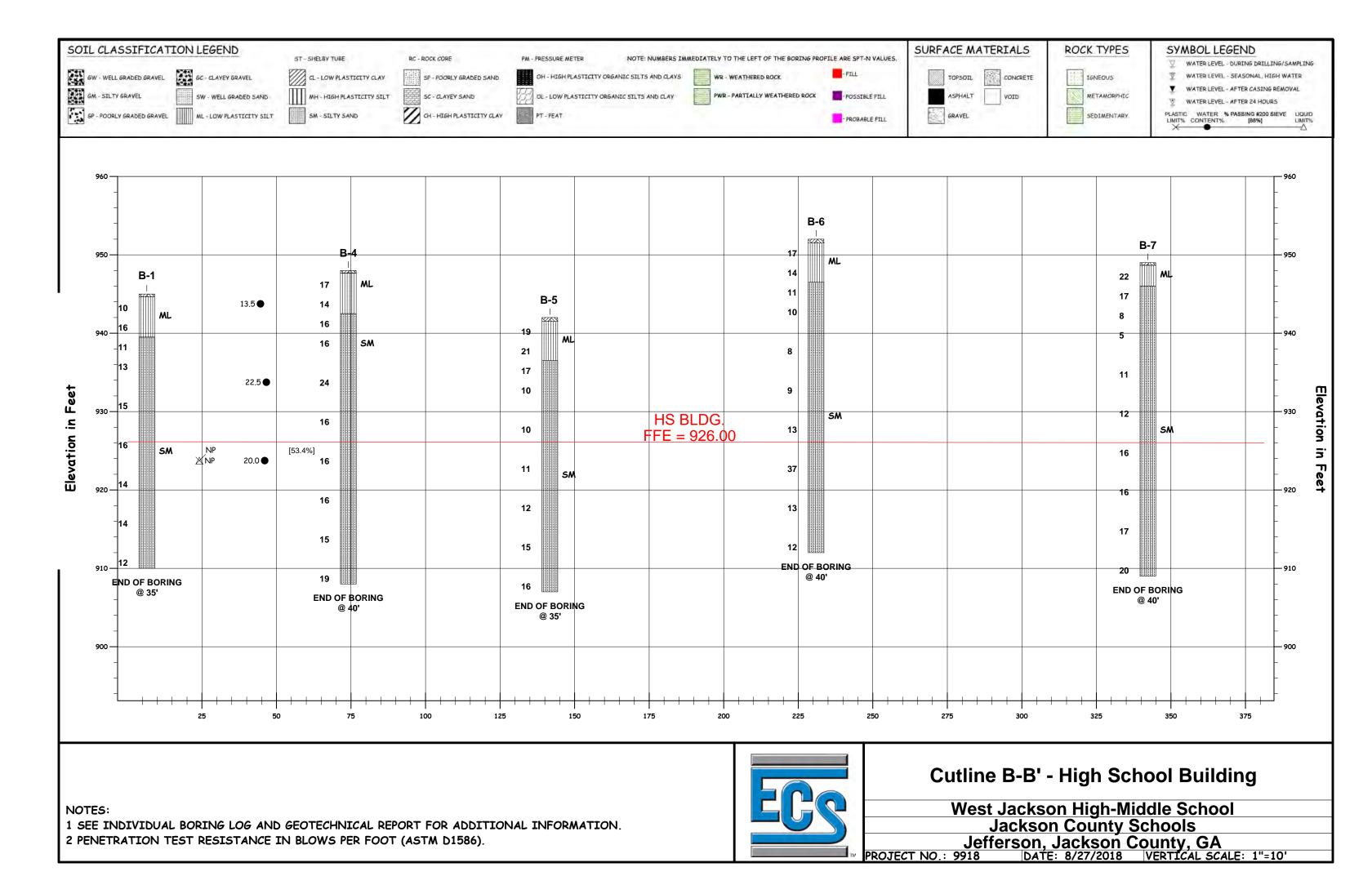
# Summary of Subsurface Conditions

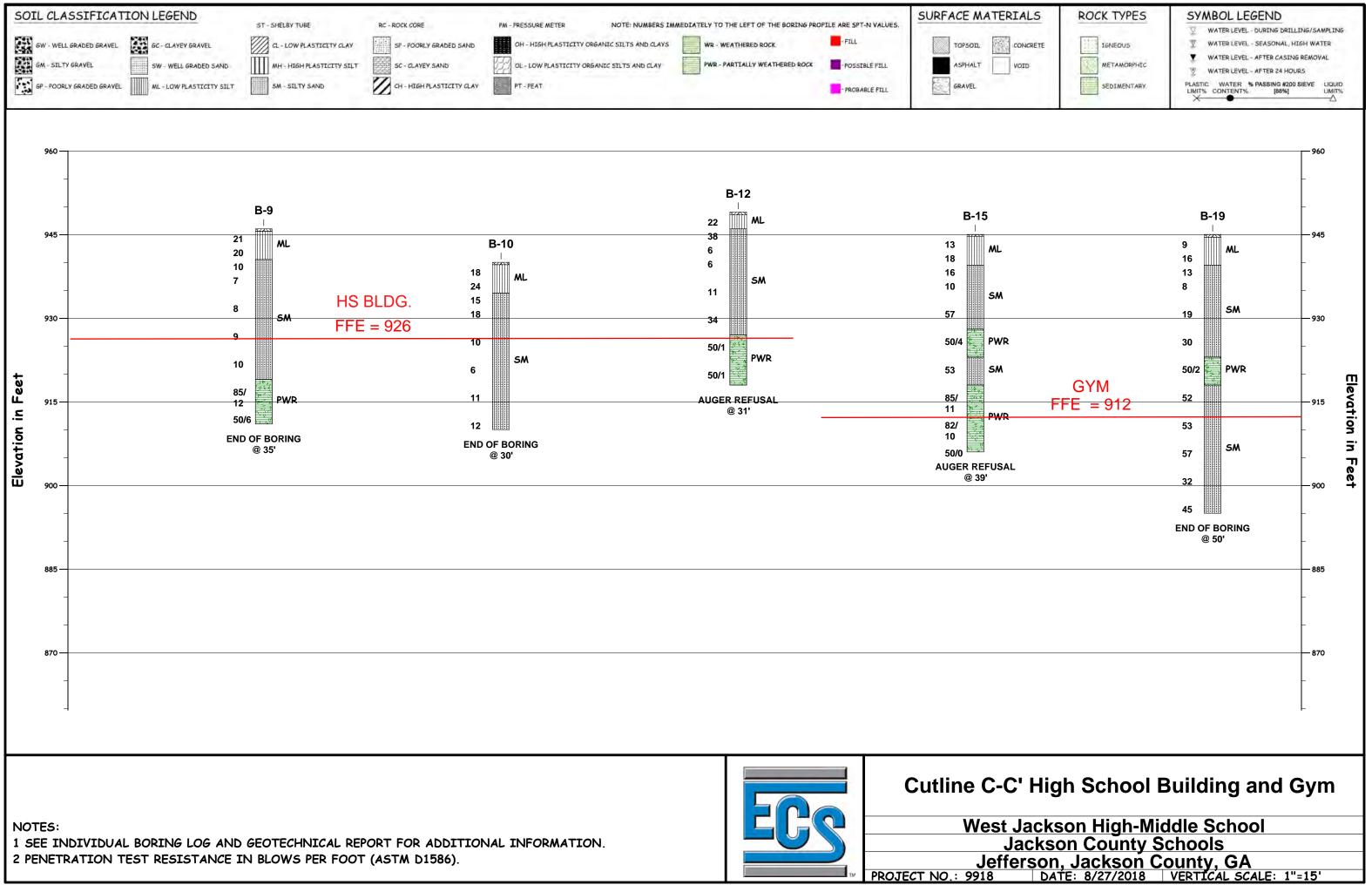
# West Jackson High-Middle School ECS Project No. 10:9918

Boring	Proposed Structure Type	Approxim ate Existing Elevation (ft)	Proposed Final Grade (ft)	Approximate PWR Elevation (ft)	Approximate Auger Refusal Elevation (ft)	Approximate Groundwater Elevation (ft)
B-61	MS Building	962	928	932	920	NE
B-62	MS Building	955	928	NE	NE	NE
B-63	MS Building	946	928	NE	918	NE
B-64	Parking	930	924	NE	NE	NE
B-65	Parking	940	924	NE	NE	NE
B-66	Parking	942	924	NE	NE	NE

NE – Not Encountered AR – Auger Refusal \*Lens of PWR







CLIENT	Job #:	BORING #		SHEET		
Jackson County Schools	10:9918	B-1 1		1 OF 1	FCO	
PROJECT NAME	ARCHITECT-ENGINEER					
West Jackson High-Middle School		0				
	CALIBR					
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					VATER LIQUID NTENT% LIMIT%	
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S-2 SS 18 18 S-3 SS 18 18 (ML) O'RUD FOILT, on think brown, moist, stiff to very sti (SM) SILTY SAND, contains	iff		5 6 8	11 🔗		
S-4 SS 18 18 brown to reddish brown, mc			8 5	13-📎		
			5 6 6	15-0		
		930	6 7 3	15		
<u></u>			3 6 9 6	16-🔗		
			6 8 8	14-⊗		
			10 8			
30 <u>S-8 SS 18 18</u>		915	6 4 6	14-8		
			8 5			
END OF BORING @ 35'			5 7	12		
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60		885				
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90		855				
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₩ WL RIG Dietrich	Image: WL         RIG Dietrich D-50         FOREMAN DD         DRILLING METHOD 2 1/4 HSA			LING METHOD 2 1/4 H	SA	

CLIENT	Job #:	BORING #		SHEET			
Jackson County Schools	10:9918	B-2		1 OF 1	-00		
PROJECT NAME	ARCHITECT-ENGIN	EER			LUS		
West Jackson High-Middle School							
				-O- CALIBRATED PENETROMETER TONS/FT <sup>2</sup>			
Jefferson, Jackson County, GA				ROCK QUALITY DESIGNATION & RECOVERY			
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		915	5 5				
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Jefferson, Jackso	n County, GA EASTING	STATION				ROCK QUALITY DESIGNATION & RECOVERY RQD% REC%		
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			iddle School		ARCHI	TECTENGINEER					
											NETROMETER TONS/FT <sup>2</sup>
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	PE ST. (IN)	(IN)	DESCRIPTION OF I		1000	ENGLISH OF CIRCULATIO		(FT)			ATER LIQUID TENT% LIMIT%
DEPTH (FT) SAMPLE NO.	SAMPLE TYPE SAMPLE DIST. (IN)	VEF	SURFACE ELEVAT		1055	OF CIRCULATIO		WATER LEVELS ELEVATION (FT)	BLOWS/6"		D PENETRATION WS/FT
$ \begin{array}{c} 0 & - & S-1 & S \\ - & S-2 & S \\ - & S-3 & S \\ - & S-4 & S \\ - & S-5 & S \\ - & - & - \\ - & - & - \\ - & - & - \\ - & - & - \\ - & - & - \\ - & - & - \\ - & - & - \\ - & - & - \\ - & - & - \\ - & - & - \\ - & - & - \\ - & - & - \\ - & - & - \\ - & - & - \\ - & - & - \\ - & - & - \\ - & - & - \\ - & - & - \\ - & - & - \\ - & - & - \\ - & - & - \\ - & - & - \\ - & - & - \\ - & - & - \\ - & - & - \\ - & - & - \\ - & - & - \\ - & - & - \\ - & - & - \\ - & - & - \\ - & - & - \\ - & - & - \\ - & - & - \\ - & - & - \\ - & - & - \\ - & - & - \\ - & - & - \\ - & - & - \\ - & - & - \\ - & - & - \\ - & - & - \\ - & - & - \\ - & - & - \\ - & - & - \\ - & - & - \\ - & - & - \\ - & - & - \\ - & - & - \\ - & - & - \\ - & - & - \\ - & - & - \\ - & - & - \\ - & - & - \\ - & - & - \\ - & - & - \\ - & - & - \\ - & - & - \\ - & - & - \\ - & - & - \\ - & - & - \\ - & - & - \\ - & - & - \\ - & - & - \\ - & - & - \\ - & - & - \\ - & - & - \\ - & - & - \\ - & - & - \\ - & - & - \\ - & - & - \\ - & - & - \\ - & - & - \\ - & - & - \\ - & - & - \\ - & - & - \\ - & - & - \\ - & - & - \\ - & - & - \\ - & - & - \\ - & - & - \\ - & - & - \\ - & - & - \\ - & - & - \\ - & - & - \\ - & - & - \\ - & - & - \\ - & - & - \\ - & - & - \\ - & - & - \\ - & - & - \\ - & - & - \\ - & - & - \\ - & - & - \\ - & - & - \\ - & - & - \\ - & - & - \\ - & - & - \\ - & - & - \\ - & - & - \\ - & - & - \\ - & - & - \\ - & - & - \\ - & - & - \\ - & - & - \\ - & - & - \\ - & - & - \\ - & - & - \\ - & - & - \\ - & - & - \\ - & - & - \\ - & - & - \\ - & - & - \\ - & - & - \\ - & - & - \\ - & - & - \\ - & - & - \\ - & - & - \\ - & - & - \\ - & - & - \\ - & - & - \\ - & - & - \\ - & - & - & - \\ - & - & - & - \\ - & - & - & - \\ - & - & - & - \\ - & - & - & - \\ - & - & - & - \\ - & - & - & - \\ - & - & - & - \\ - & - & - & - \\ - & - & - & - \\ - & - & - & - \\ - & - & - & - \\ - & - & - & - \\ - & - & - & - \\ - & - & - & - \\ - & - & - & - \\ - & - & - & - \\ - & - & - & - \\ - & - & - & - \\ - & - & - & - \\ - & - & - & - \\ - & - & - & - \\ - & - & - & - \\ - & - & - & - \\ - & - & - & - \\ - & - & - & - \\ - & - & - & - \\ - & - & - & - & - \\ - & - & - & - \\ - & - & - & - \\ - & - & - & - \\ - & - & - & $	3S         18           3S         18	18 18 18 18 18 18 18 18 18	to very stiff (SM) SILTY S	SILT, orangish b		_		<ul> <li><u>1</u></li> <li><u>945</u></li> <li><u>945</u></li> <li><u>930</u></li> <li< td=""><td>5 8 9 7 7 7 6 9 7 6 7 9 8 9 15 7</td><td>17-⊗ 14 ● 13.5 16-⊗ 22.5 ● -2 16-⊗ NP 16-⊗ 15-⊗ 19-⊗</td><td>4</td></li<></ul>	5 8 9 7 7 7 6 9 7 6 7 9 8 9 15 7	17-⊗ 14 ● 13.5 16-⊗ 22.5 ● -2 16-⊗ NP 16-⊗ 15-⊗ 19-⊗	4
	ı		1				· I				
THE STRATIFICATION LINES REPRESENT THE APPROXIMATE BO				E BOUN	DARY LINES BET	WEEN SO	DIL TYP	ES. IN-	SITU THE TRANSITION MA	Y BE GRADUAL.	
\[     \]     \[     \]     WL Dry     WS□ WD⊠     BORING STARTED     07/21/18     \[     \]     U     U     U     U     U     U     U     U     U     U     U     U     U     U     U     U     U     U     U     U     U     U     U     U     U     U     U     U     U     U     U     U     U     U     U     U     U     U     U     U     U     U     U     U     U     U     U     U     U     U     U     U     U     U     U     U     U     U     U     U     U     U     U     U     U     U     U     U     U     U     U     U     U     U     U     U     U     U     U     U     U     U     U     U     U     U     U     U     U     U     U     U     U     U     U     U     U     U     U     U     U     U     U     U     U     U     U     U     U     U     U     U     U     U     U     U     U     U     U     U     U     U     U     U     U     U     U     U     U     U     U     U     U     U     U     U     U     U     U     U     U     U     U     U     U     U     U     U     U     U     U     U     U     U     U     U     U     U     U     U     U     U     U     U     U     U     U     U     U     U     U     U     U     U     U     U     U     U     U     U     U     U     U     U     U     U     U     U     U     U     U     U     U     U     U     U     U     U     U     U     U     U     U     U     U     U     U     U     U     U     U     U     U     U     U     U     U     U     U     U     U     U     U     U     U     U     U     U     U     U     U     U     U     U     U     U     U     U     U     U     U     U     U     U     U     U     U     U     U     U     U     U     U     U     U     U     U     U     U     U     U     U     U     U     U     U     U     U     U     U     U     U     U     U     U     U     U     U     U     U     U     U     U     U     U     U     U     U     U     U     U     U     U     U     U     U     U     U     U     U     U     U     U     U     U     U     U     U     U     U     U     U     U     U     U     U     U     U     U     U     U     U						CAVE IN DEPTH					
₩ WL(SHW) 판 WL	Ţ	WL(AC	R)	BORING COMPLE		07/21/18	<u></u> ר	-+		MER TYPE Auto	Δ
÷ vv∟				RIG Dietrich D	-50	FOREMAN D			URILI	ING METHOD 2 1/4 HS	A

CLIENT	Job #:	BORING #		SHEET			
Jackson County Schools	10:9918	B-5		1 OF 1	-0-		
	ARCHITECT-ENGIN	EER			-65		
West Jackson High-Middle School SITE LOCATION					ENETROMETER TONS/FT <sup>2</sup>		
Jefferson, Jackson County, GA				0			
NORTHING EASTING STATION				ROCK QUALITY DESIGNATION & RECOVERY RQD% REC%			
$\widehat{z}$ DESCRIPTION OF MATERIAL	ENGL	ISH UNITS			VATER LIQUID		
	LOSS OF CIRCULA			LIMIT% CO	NTENT% LIMIT%		
L U U U U U U U U U U U U U U U U U U U		NATER LEVELS	BLOWS/6"		RD PENETRATION OWS/FT		
0 S.1 SS 18 18 \Topsoil Depth [6"]	/		6	19-⊗	: : :		
<u>S-2 SS 18 18</u> (ML) SANDY SILT, contains brown, moist, very stiff	-		8 11 7	21-⊗			
S-3 SS 18 18 S-4 SS 18 18 S-4 SS 18 18 S-4 SS 18 18			9 12	17-8			
dense		930	8 9 8	10			
15 S-5 SS 18 18			6 6	10-🛠			
			4 5 5	11-🛠			
S-7 SS 18 18			5 5 5	12-⊗			
		915	6 5 6				
30 <u>S-8 SS 18 18</u>			6 8 8	15-🛇			
			7 7 9	16			
			7	10			
		900					
		885					
		870					
75							
		- 055					
90		855					
				· ·	<u> </u>		
THE STRATIFICATION LINES REPRESENT THE APPROXIM	IATE BOUNDARY LINES	BETWEEN SOIL TYF	PES. IN-	SITU THE TRANSITION M	IAY BE GRADUAL.		
꽂         WL         Dry         WS         WD         BORING STAF					/E IN DEPTH		
₩ WL(SHW) ₩ WL(ACR) BORING COM	PLETED 07/23/18		HAMMER TYPE Auto				
₩ WL RIG Dietrich	D-50 FOREMAN	RH	DRILI	LING METHOD 2 1/4 H	SA		

CLIENT						Job #:		BORING #		SHEET		
Jackson PROJECT N	<u>n Cou</u>	inty	Scho	ols		10: ARCHITEC	9918 T-ENGINEER	B-6		1 OF 1	ERe	
		<u>n Hi</u>	gh-M	iddle School			-					
										-O- CALIBRATED F	PENETROMETER TONS/FT <sup>2</sup>	
Jettersc NORTHING	on, Ja	ICKS	EASTIN	ounty, GA	STATION					ROCK QUALITY DESIGNATION & RECOVERY RQD% REC%		
	. J	ST. (IN)	(NI)	DESCRIPTION OF			ENGLISH U				WATER LIQUID INTENT% LIMIT%	
DEPTH (FT)	SAMPLE NO.	SAMPLE DIST. (IN)	RECOVERY (IN)	SURFACE ELEVAT		2000 01		WATER LEVELS	BLOWS/6"		RD PENETRATION LOWS/FT	
S	-1 SS -2 SS -3 SS -4 SS	6 18 6 18 6 18	18 18	very stiff (SM) SILTY S	I [6"] SILT, contains si s, reddish brown AND, contains s n to grayish brov	i, moist, s light mica	tiff to	945	5 8 9 6 7 7 6 5 6	17-⊗ 14-⊗ 11-⊗ 10-⊗		
	5-5 SS 5-6 SS								4 5 3 4	8-⊗		
	6-7 SS		18					930	4 3 4 5 6	13		
30 <u>-</u> S	5-8 SS	3 18	18						7 6 15 17	13	37	
	5-9 SS							915	20 5 6 7 6	$\mathbb{A}$		
=	-10 SS	5 18	18	END OF BOR	RING @ 40'				5 7	12-⊗		
45 <u>-</u> 												
								900				
60												
								870				
90 —								Ē				
THE STRATIFICATION LINES REPRESENT THE APPROXIMATE BO								ES. IN-	SITU THE TRANSITION N	IAY BE GRADUAL.		
꽃 WL Dry WS□ WD⊠ BORING STARTED				ED 07/21/18 CAVE			CAVE	E IN DEPTH				
₩ WL(SHW	/)	Ţ	WL(AC	CR)	BORING COMPLE	TED 07	7/21/18		HAM	MER TYPE Auto		
₩ WL RIG Dietrich D-50 FOREMAN DD					DRILLING METHOD 2 1/4 HSA							

CLIENT					Job #:		BORIN	NG #		SHEET		
Jackson Coun	ty S	Scho	ols			10:9918 ITECT-ENGINEER		B-7		1 OF 1	ECO	
West Jackson					ARCH	ITECT-ENGINEER						
											ENETROMETER TONS/FT <sup>2</sup>	
Jefferson, Jac	kso	n Co Eastin	ounty, GA	STATION						ROCK QUALITY DESIGNATION & RECOVERY RQD% REC%		
	Î		DESCRIPTION OF I	MATERIAL		ENGLISH	UNITS				WATER LIQUID	
NO. TYPE	DIST. (II	RY (IN)	BOTTOM OF CASIN	NG	LOSS	OF CIRCULATIO	N 2002	LEVELS DN (FT)		LIMIT% CC	NTENT% LIMIT%	
DEPTH (FT) SAMPLE NO. SAMPLE TYPE	SAMPLE DIST. (IN)	RECOVERY (IN)	SURFACE ELEVAT	ION 949				WATER LEVELS ELEVATION (FT)	BLOWS/6"		RD PENETRATION OWS/FT	
0	18	18	Topsoil Depth					_	9 10	22 <del>.</del> ⊗	· · · ·	
	18	18	stiff	SILT, orangish b		]		945	12	8 17		
	18 18	18 18	(SM) SILTY S	AND, contains s	light n	nica, brown			5 7 10 3	5 <sup>17</sup>		
<u>S-4</u> SS	10	18	dense	own, moist, 1003		louium			4	×		
15 <u>S-5</u> SS	18	18							4 3 2 3	11-🔗		
<u>S-6SS</u>	18	18						930	3 3 4 7 5	12-8		
	18	18							6 6	16-🔗		
30 <u>S-8</u> SS	18	18							8 8 11	16-🛇		
	18	18						915	8 8 10	17-⊗		
	18	18							8 9 8	20		
	10	10	END OF BOR	RING @ 40'				_	9 11			
45 —												
								900				
								_				
60												
=								885				
=												
75—												
								870				
_												
=												
90 —												
								<b> </b>	1			
THE STRATIFICATION LINES REPRESENT THE APPROXIMATE BO				E BOUN	NDARY LINES BET	WEEN	SOIL TYP	ES. IN-	SITU THE TRANSITION N	IAY BE GRADUAL.		
꽂 WL Dry         WS □         WD ⊠         BORING STARTED         07/21/18					CAVE IN DEPTH							
₩ WL(SHW)	Ţ	WL(AC	R)	BORING COMPLE	TED	07/21/18				MER TYPE Auto		
꽃 WL RIG Dietrich D-50 FOREMAN DD					DRILI	LING METHOD 2 1/4 H	SA					

CLIENT	Job #:	BORING #		SHEET	
Jackson County Schools	10:9918	B-8		1 OF 1	5000
Jackson County Schools PROJECT NAME	ARCHITECT-ENGIN	EER			EUC
West Jackson High-Middle School					
					ENETROMETER TONS/FT <sup>2</sup>
Jefferson, Jackson County, GANORTHINGEASTINGSTATION				ROCK QUALITY DES	SIGNATION & RECOVERY
				RQD% - — -	REC%
	ENGI				VATER LIQUID NTENT% LIMIT%
L L L L L L L L L L L L L L	LOSS OF CIRCUL	WATER LEVELS		X CO	
LISING BOTTOM OF CASING BOTTOM OF CASING CLICK CONTRACT C		LI LI VATIO	BLOWS/6"	⊗ STANDAF	RD PENETRATION
			-	BL	OWS/FT
S-1 SS 18 18 (ML) SANDY SILT, orangis	sh brown, moist, firm	945	5 6 7	13-8	
$\frac{-5-2}{-5-3} \frac{5-3}{-5-3} \frac{5-3}{-5-3} \frac{5-3}{-5-3} \frac{5-3}{-5-3} \frac{5-3}{-5-3} to stiff$			7 5 7	8 15 10	
S-4 SS 18 18 (SM) SILTY SAND, contain orangish brown to grayish	ns slight mica,		8 3	9-🔗	
to medium dense	brown, moist, loose		3 5 3	8-×	
		930	4 5 3	• ~	
<u>S-6 SS 18 18</u>			4	14-8	
			4 7 7		
			7 3 3	7 20	
30 <u>S-8 SS 18 18</u>			4 6	X	
		915	9 11 8		$\otimes$
END OF BORING @ 35'			8 20		28
		900			
60		885			
		870			
90 -		F			<u>:</u> : :
THE STRATIFICATION LINES REPRESENT THE APPROXI			PES. IN-	SITU THE TRANSITION M	IAY BE GRADUAL.
및 WL Dry WS□ WD⊠ BORING STA	RTED 07/23/18	07/23/18 CAVE IN DEPTH			
₩ WL(SHW) ₩ WL(ACR) BORING COM	IPLETED 07/23/18		HAMMER TYPE Auto		
꽃 WL RIG Dietric	h D-50 FOREMAN	≀ DD	DRIL	LING METHOD 2 1/4 H	SA

CLIENT	Job #:	BORING #		SHEET		
Jackson County Schools	10:9918	B-9		1 OF 1	-00	
PROJECT NAME	ARCHITECT-ENGIN	ER			LUC	
West Jackson High-Middle School					12	
					ENETROMETER TONS/FT <sup>2</sup>	
Jefferson, Jackson County, GA				ROCK QUALITY DES	SIGNATION & RECOVERY	
				RQD%	REC%	
DESCRIPTION OF MATERIAL	ENGL	ISH UNITS		PLASTIC V	VATER LIQUID	
					NTENT% LIMIT%	
	LOSS OF CIRCULA		"9/S	~		
L UN OF MATERIAL UN LS OF MATERIAL UN LS OF MATERIAL BOTTOM OF CASING → UN LS OF MATERIAL BOTTOM OF CASING → SURFACE ELEVATION 946		MATER LEVELS	BLOWS/6"		RD PENETRATION .OWS/FT	
0 Topsoil Depth [5"]	/	945	7	21-⊗	: : :	
S-2 SS 18 18 (ML) SANDY SILT, contain (ML) SANDY SILT, contain rock fragments, orangish b	s slight mica and		11 10	10 🖉		
S-3 SS 18 18 (SM) SILTY SAND, contain	is mica, orangish		9 9 11	7 20 7		
<u>S-4 SS 18 18</u> brown to grayish brown, mo	oist, loose		5 5	$\bigotimes_{i=1}^{i}$		
			5 3	8-⊗		
		930	5 3 4 3	T:		
<u>S-6 SS 18 18</u>			3	9-🛇		
			5 4 4			
			5 4	8 10	~ ~ ~ ~ ~ ~ ~ ~ ~ ~ ~ ~ ~ ~ ~ ~ ~ ~ ~ ~	
30 S-8 SS 18 18 SAMPLED AS SILTY SAN			5 5 17		85/12	
dark brown, moist, very der		915	35 50/6			
			50/6		⊗ 50/6	
		900				
		F				
		885				
75		870				
90		855				
		1 1 000	1 1			
	MATE BOUNDARY LINES	BETWEEN SOIL TYP	PES. IN-	I-SITU THE TRANSITION MAY BE GRADUAL.		
및         WL         Dry         WS         WD         BORING STAF	TED 07/23/18 CAVE IN DEPTH					
₩ WL(SHW) ₩ WL(ACR) BORING COM	IPLETED 07/23/18	23/18 HAMMER TYPE Auto				
₩ WL RIG Dietrich	n D-50 FOREMAN	DD	DRILI	LING METHOD 2 1/4 H	SA	

CLIENT	Job :	#:	BORING #		SHEET			
Jackson County Schools	ARC	10:9918 CHITECT-ENGINEER	B-10	)	1 OF 1	Efe		
West Jackson High-Middle School	/							
					-O- CALIBRATED PENETROMETER TONS/FT <sup>2</sup>			
Jefferson, Jackson County, GA           NORTHING         EASTING	DN		ROCK QUALITY DESIGNATION & RECOVERY					
103-								
		ENGLISH U			LIMIT% CO	NTER LIQUID		
(L) U U U U U U U U U U U U U U U U U U U	LOS	SS OF CIRCULATION	WATER LEVELS	S/6"	X	Δ		
	940		WATE	BLOWS/6"	STANDAF BL	RD PENETRATION .OWS/FT		
0 <u>S-1 SS 18 18</u> Topsoil Depth [5"] (ML) SANDY SILT, 4 - S-2 SS 18 18 vort stiff	orangish browi	n, moist,		6 9 9	18-&			
S-3 SS 18 18 (SM) SILTY SAND,	contains slight	t mica,		7 10	15 24			
S-4 SS 18 18 reddish brown to gra			930	14 6 7	18-⊗			
15 <u>S-5 SS 18 18</u>				8 4 6	10-🔗			
				12 8 6	6-&			
S-7 SS 18 18			915	4 2 3	11-⊗			
				3 4 5				
30 <u>S-8 SS 18 18</u> - END OF BORING @	2 30'	FI		6 7 6	12			
				0				
			900					
			885					
60			Ē					
			870					
75								
			855					
90								
THE STRATIFICATION LINES REPRESENT THE A	E BOUNDARY LINES BETWEEN SOIL TYPES. IN-			-SITU THE TRANSITION MAY BE GRADUAL.				
\[     \]     \[     \]     WL Dry     WS□ WD⊠     BORING STARTED     07/23/18     \[     \]     \[     \]     \[     \]     \[     \]     \[     \]     \[     \]     \[     \]     \[     \]     \[     \]     \[     \]     \[     \]     \[     \]     \[     \]     \[     \]     \[     \]     \[     \]     \[     \]     \[     \]     \[     \]     \[     \]     \[     \]     \[     \]     \[     \]     \[     \]     \[     \]     \[     \]     \[     \]     \[     \]     \[     \]     \[     \]     \[     \]     \[     \]     \[     \]     \[     \]     \[     \]     \[     \]     \[     \]     \[     \]     \[     \]     \[     \]     \[     \]     \[     \]     \[     \]     \[     \]     \[     \]     \[     \]     \[     \]     \[     \]     \[     \]     \[     \]     \[     \]     \[     \]     \[     \]     \[     \]     \[     \]     \[     \]     \[     \]     \[     \]     \[     \]     \[     \]     \[     \]     \[     \]     \[     \]     \[     \]     \[     \]     \[     \]     \[     \]     \[     \]     \[     \]     \[     \]     \[     \]     \[     \]     \[     \]     \[     \]     \[     \]     \[     \]     \[     \]     \[     \]     \[     \]     \[     \]     \[     \[     \]     \[     \]     \[     \]     \[     \]     \[     \]     \[     \]     \[     \]     \[     \]     \[     \]     \[     \]     \[     \]     \[     \]     \[     \]     \[     \]     \[     \]     \[     \]     \[     \]     \[     \]     \[     \]     \[     \]     \[     \]     \[     \]     \[     \]     \[     \]     \[     \]     \[     \]     \[     \]     \[     \]     \[     \]     \[     \]     \[     \]     \[     \]     \[     \]     \[     \]     \[     \]     \[     \]     \[     \]     \[     \]     \[     \]     \[     \]     \[     \]     \[     \]     \[     \]     \[     \]     \[     \]     \[     \]     \[     \]     \[     \]     \[     \]     \[     \]     \[     \]     \[     \]     \[     \]     \[     \]     \[     \]     \[     \]     \[     \]     \[     \]     \[					CAVE IN DEPTH			
÷ · · · ÷ · · ·	NG COMPLETED				MER TYPE Auto			
꽃 WL RIG Dietrich D-50 FOREMAN RH				DRILI	ING METHOD 2 1/4 H	SA		

CLIENT		Job #:	BORING #		SHEET			
Jackson County Schools		10:9918	B-1 <sup>-</sup>	1	1 OF 1	500		
PROJECT NAME		10:9918 ARCHITECT-ENGINEE	R			LUC		
West Jackson High-Middle School								
						PENETROMETER TONS/FT <sup>2</sup>		
Jefferson, Jackson County, GA	STATION				ROCK QUALITY DESIGNATION & RECOVERY			
					RQD%	- REC%		
	ATERIAL	ENGLIS				NATER LIQUID NTENT% LIMIT%		
	G 📕	LOSS OF CIRCULATI	B E €		×	-ΦΔ		
(L) UESCRIPTION OF M UESCRIPTION OF CASING UESCRIPTION OF CASING UESCRIPTION OF CASING UESCRIPTION OF CASING UESCRIPTION OF M UESCRIPTION OF CASING UESCRIPTION OF CASING UESCRIPACINA UES	ON 947		A WATER LEVELS ELEVATION (FT)	BLOWS/6"		RD PENETRATION _OWS/FT		
	[5"]				10-⊗	LOWS/F1		
	ND, orangish b	prown to grayish	945	5	10-⊗ 11-⊗			
S-3 SS 18 18				5 5 6	10-8			
S-4 SS 18 18 * Contains rock	k fragments 1'-8	8' & 28.5'- 32'		5 4 5	7-8			
				5 5	7-⊗			
			930	5 5 3 4 5 4	, x			
<u>S-6 SS 18 18</u>				5 4 3	12			
				3 6 6		<u>39</u> ⊗		
	AND, contains s	light mice		6 13 17				
30 - S-8 SS 18 18 orangish brown	n to grayish brow	wn, moist, very		22 15		51		
	ND, contains s	light mica,	915	21 30 11		32 ⊗		
orangish brown	n to grayish brov	wn, moist, dense	E	14 18				
S-10 SS 18 18 END OF BORI	NG @ 40'			13 17		36-⊗		
				19				
			900					
60								
			885					
			870			· · · · ·		
90								
					<u> </u>	· · ·		
THE STRATIFICATION LINES REPRESENT	TE BOUNDARY LINES BETWEEN SOIL TYPES. IN- ED 07/23/18 CAVE			-SITU THE TRANSITION MAY BE GRADUAL.				
¥     WL     Dry     WS□     WD⊠     BORING STARTED     07/23/18     CAVE IN DEPTH       ¥     WL(SHW)     ¥     WL(ACR)     BORING COMPLETED     07/23/18     HAMMER TYPE Auto								
ײַ װג(פוווי) ײַ װג(פווי) ײַ w∟	RIG Dietrich D		RH		LING METHOD 2 1/4 H	SA		

CLIENT	Job #:	BORING #		SHEET			
Jackson County Schools	10:9918	B-12	2	1 OF 1	FCO		
PROJECT NAME	ARCHITECT-ENGINEE	R					
West Jackson High-Middle School					2		
				-O- CALIBRATED P	ENETROMETER TONS/FT <sup>2</sup>		
Jefferson, Jackson County, GA           NORTHING         EASTING           STATION	THING EASTING STATION						
100+00				RQD% – — –	REC%		
$\widehat{\underline{z}}$ DESCRIPTION OF MATERIAL	ENGLIS	HUNITS ଏନ୍			VATER LIQUID NTENT% LIMIT%		
	LOSS OF CIRCULATI			×	•		
(L) (V) (V) (V) (V) (V) (V) (V) (V) (V) (V		2 WATER LEVELS ELEVATION (FT)	BLOWS/6"	⊗ STANDAF BL	RD PENETRATION .OWS/FT		
0 S_1 SS 18 18 \Topsoil Depth [6"]			5	22-⊗_			
S-2 SS 18 18 orangish brown, moist, very	stiff	945	8 14 7	6			
S-3 SS 18 18 S-4 SS 18 18 SS 18 18 SSS	slight mica and		20 18	6-8	30		
loose to dense			4 3 3				
15 <u>S-5 SS 18 18</u>			3333	11-&			
		930	3 4 5		34 50/1		
			6 13 14 20		<sup>34</sup> 50/1		
SAMPLED AS SILTY SAND	, gray, moisi, very		50/1				
30 <u>\S-8 SS 1 1</u> AUGER REFUSAL @ 31'			50/1		50/1		
		915					
45							
		900					
60							
		885					
		870					
90							
		· ·					
THE STRATIFICATION LINES REPRESENT THE APPROXIM	ATE BOUNDARY LINES BI		ES. IN-	SITU THE TRANSITION M	IAY BE GRADUAL.		
및 WL Dry WS□ WD⊠ BORING START	red 07/23/18				E IN DEPTH		
₩ WL(SHW) ₩ WL(ACR) BORING COMP	LETED 07/23/18		HAM	MER TYPE Auto			
ङ्ख् wL RIG D-50 AT	V FOREMAN	FOREMAN RH DRILLING METHOD 2 1/4 HSA					

CLIENT	Job #:	BORING #		SHEET	
Jackson County Schools	10:9918	B-13	3	1 OF 1	5000
PROJECT NAME	ARCHITECT-ENGINE	ER	•		EUC
West Jackson High-Middle School					
SITE LOCATION				CALIBRATED P	ENETROMETER TONS/FT <sup>2</sup>
Jefferson, Jackson County, GA				ROCK QUALITY DES	SIGNATION & RECOVERY
				RQD%	
	ENGLI	SH UNITS		PLASTIC V	VATER LIQUID
				LIMIT% CO	NTENT% LIMIT%
	LOSS OF CIRCULA		"9/S		
L UNDER STREET OF THE STREET O		MATER LEVELS ELEVATION (FT)	BLOWS/6"	STANDAF BL	RD PENETRATION OWS/FT
0	/	945	4	13-⊗	
S-2 SS 18 18 brown, moist, firm to stiff	-		5 8 4	8	
S-3 SS 18 18 S-4 SS 18 18 S-4 SS 18 18 Srwwn to grayish brown, mo			4 4	3 ⊗-10	
S-4 SS 18 18 brown to grayish brown, mo			4 5	13-∞	
15 <u>S-5</u> SS 18 18			5 4 6	18-🗙	
		930	7 6		
<u>- S-6 SS 18 18</u>			8 10 7	23-&	
S-7 SS 18 18			8 15		32->
			7 11		
30 <u>S-8 SS 18 18</u>		915	21 11 13		33-8
			20 15		$\sim$
END OF BORING @ 35'			16 25		41
		900			
60					
		885			
		870			
		855		: :	: : :
THE STRATIFICATION LINES REPRESENT THE APPROXIM	IATE BOUNDARY LINES E	BETWEEN SOIL TYP	PES. IN-	SITU THE TRANSITION M	IAY BE GRADUAL.
꽃 WL Dry WS□ WD⊠ BORING STAR	TED 07/23/18	07/23/18 CAVE IN DEPTH			
₩ WL(SHW) ₩ WL(ACR) BORING COMP	PLETED 07/23/18		HAM	MER TYPE Auto	
₩ WL RIG Dietrich	JD	DRILI	LING METHOD 2 1/4 H	SA	

CLIENT	Job #:	BORING #		SHEET		
Jackson County Schools	10:9918	B-14	Ļ	1 OF 1	500	
Jackson County Schools	10:9918 ARCHITECT-ENGINE	ER			LCC	
West Jackson High-Middle School						
					ENETROMETER TONS/FT <sup>2</sup>	
Jefferson, Jackson County, GA				ROCK QUALITY DES	SIGNATION & RECOVERY	
INORTHING EASTING STATION				RQD%		
	ENGLIS			PLASTIC V	VATER LIQUID	
2					NTENT% LIMIT%	
	LOSS OF CIRCULAT			~		
Le v v v v v v v v v v v v v v v v v v v		MATER LEVELS	BLOWS/6"		RD PENETRATION OWS/FT	
0 S_ 18 18 \ Topsoil Depth [4"]	/		4 6	12 🛞 17	: : :	
S-2 SS 18 18 to very stiff	n brown, moist, stiff	945	6			
S-3 SS 18 18			3 6 11	18-⊗		
S-4 SS 18 18 (SM) SILTY SAND, contains orangish brown to tannish b			6	15-🔗		
15 S-5 SS 18 18			10 6	13-⊗		
		930	7 8 4			
<u>S-6 SS 18 18</u>			6 7	14-🛇		
			5 7	19-🛇		
			7 7 8	Ĭ		
30 <u>S-8 SS 18 18</u>			11 8	18-&		
		915	8 10 11	27-0	8	
			14 13			
S-10 SS 18 18			6 11	23-X		
			12 9	25-🛇		
			11 14	25-0		
- <u>S-12 SS 18 18</u>		900	7 10	26-&		
END OF BORING @ 50'			16			
60						
		885				
75						
		870				
					<u> </u>	
THE STRATIFICATION LINES REPRESENT THE APPROXIM	ATE BOUNDARY LINES E	ETWEEN SOIL TYP	ES. IN-	SITU THE TRANSITION M	AY BE GRADUAL.	
꽃 WL Dry WS□ WD⊠ BORING STAR			IN DEPTH			
₩ WL(SHW) ₩ WL(ACR) BORING COMP	OMPLETED 07/23/18 HAMMER TYPE Auto					
뿇 WL RIG Dietrich					SA	

CLIENT							Job #:	BOF	RING #		SHEET			
Jackso	n C	oun	tv C	Scho	ole		10:9918		B-15	5	1 OF 1		5	
PROJECT	NAME	oun			015		ARCHITECT-ENG	INEER	D-1.	<u> </u>				<u>Le</u>
West	lark	son	Hic	h-M	iddle School									
SITE LOCA	TION	3011	<u>, nç</u>	111 111	iddle School		I						NETRON	
Jeffers	on	Jac	kso	n Co	untv GA							EDPE		TER TONS/FT
NORTHING	3 3	ouo	Ĭ	EASTIN	ounty, GA	STATION					ROCK QUALIT RQD% -	Y DES	IGNATION REC%	& RECOVERY
						104+00								
			Î		DESCRIPTION OF		EN	GLISH UNIT			PLASTIC		ATER	LIQUID
	o'	F	IST. (	۲ (IN)	BOTTOM OF CASIN		LOSS OF CIRCL		VELS		LIMIT%	CON	TENT%	LIMIT%
H (F]	Й ЦШ	L L L	LED	VER					ATION ATION	"9/S/	0.071			171011
DEPTH (FT)	SAMPLE NO.	SAMPLE TYPE	SAMPLE DIST. (IN)	RECOVERY (IN)	SURFACE ELEVAT	ION 945			WATER LEVELS ELEVATION (FT)	BLOWS/6"	⊗ STA		D PENETR DWS/FT	ATION
0		SS	18	18	\Topsoil Depth			_/	945	4	13-& 18		÷	
		SS	18	18		SILT, contains ro vn, moist, stiff to				6 7			÷	
		SS	18	18	(SM) SILTY S	AND, contains m	nica, tannish			8 8 10	16-🛇		÷	
	S-4	SS	18	18	brown to white	e, moist, loose to	very dense			7 8	10		÷	
	S-5	SS	18	18	* Rock fragme	ents encountered	@ 12'-15'			8 7	10			57=8
15	3-5	33	10	10					930	6 4				57
	S-6	SS	10	10		IALLY WEATHE S SILTY SAND, c				14 19				50/4-⊗
					mica, white, n	noist, very dense	-			38 30			÷	
	S-7	SS	18	18	(SM) SILTY S to white, mois	SAND, contains s	light mica, bro	wn	E	50/4 15			÷	53-🛇
	S-8	~~	17	17	(PWR) PART	IALLY WEATHE				16 37			÷	95/11_
30	3-8	33	17	17	SAMPLED AS brown, moist	S SILTY SAND, o	contains mica,		915	17 35			÷	85/11−⊗
	S-9	SS	16	16	brown, moist					50/5 13			÷	82/10-⊗
										32 50/4			÷	
	S-10	SS	0	0	AUGER REF	USAL @ 39'			<u></u>	50/0			: :	<u>⊗</u> : 50/0
_									E					
45									900				÷	
									E					
									E				÷	
									E				÷	
									E				÷	
60									885				÷	
									<u> </u>				÷	
									F					
									F					
									F					
75 —									870					
									-				÷	
									-				:	
									_					
									F				:	
90 —									855				÷	
THE STRATIFICATION LINES REPRESENT THE APPROXIMAT														
및     WL     Dry     WS□     WD⊠     BORING STARTE								E IN DEPTH						
	÷ , , ÷				BORING COMPLE	LETED 07/22/18 HAMI				HAMMER TYPE Manual				
₩ WL RIG Dietrich				RIG Dietrich D	D-50 FOREMAN JD DRILLING METHOD 2 1/4 HSA									

CLIENT	Jo	bb #:	BORING #		SHEET		
Jackson County Schools		10:9918	B-16	6	1 OF 1	200	
Jackson County Schools PROJECT NAME	AF	10:9918 RCHITECT-ENGINEER	. 2 10	-		LUC	
West Jackson High-Middle School							
						ENETROMETER TONS/FT <sup>2</sup>	
Jefferson, Jackson County, GA           NORTHING         EASTING	1					SIGNATION & RECOVERY	
					RQD% – — –	REC%	
	-	ENGLISH				VATER LIQUID NTENT% LIMIT%	
	L	LOSS OF CIRCULATION			X	• <u> </u>	
LE UN ATTENDED OF MATERIAL DESCRIPTION OF MATERIAL BOTTOM OF CASING UN ATTENDED BOTTOM OF CASING SURFACE ELEVATION 9	36		WATER LEVELS	BLOWS/6"	STANDARD PENETRATION BLOWS/FT		
		/		BLG 3		.OWS/F1	
(ML) SANDY SILT, co	ontains slig	ht mica,		4	9-⊗ 12-⊗		
S-3 SS 18 18 (SM) SILTY SAND, C	ontains slig		930	5 5 6	11-🔗		
S-4 SS 18 18 medium dense	n to orangis	sh brown, moist,		6 5 5	11-🛇		
15 S-5 SS 18 18				6 4	12-⊗		
			E	6 5 6			
<u>- S-6 SS 18 18</u>			915	6 6 7	17-⊗		
				7 8 9			
END OF BORING @	25'		-	5 7	13		
30				6			
			900				
			_				
			=				
			885				
			-				
60			=				
			870				
75							
			-				
			855				
			=				
			F		: :	: : :	
THE STRATIFICATION LINES REPRESENT THE API	PROXIMATE B	BOUNDARY LINES BET	WEEN SOIL TYP	PES. IN-	N-SITU THE TRANSITION MAY BE GRADUAL.		
. ,	G STARTED	ARTED 07/23/18 CAVE IN DEPTH					
	G COMPLETE	OMPLETED 07/23/18 HAMMER TYPE Auto					
₩ WL RIG D	etrich D-50	0 FOREMAN JD		DRILI	LING METHOD 2 1/4 H	SA	

CLIENT	Job #:	BORING #		SHEET	
Jackson County Schools	10:9918	B-17	,	1 OF 1	-0-
PROJECT NAME	ARCHITECT-ENGINE	ER			<b>LUS</b>
West Jackson High-Middle School				Í	
					ENETROMETER TONS/FT <sup>2</sup>
Jefferson, Jackson County, GA           NORTHING         EASTING           STATION					SIGNATION & RECOVERY
				RQD%	REC%
	ENGLIS				VATER LIQUID NTENT% LIMIT%
F 9 2 2 S ≥ BOTTOM OF CASING	LOSS OF CIRCULAT			X	
LE UN OF MATERIAL UN UN U		MATER LEVELS	BLOWS/6"	⊗ STANDAF	RD PENETRATION
					.OWS/FT
SANDY SILT contains	/ slight mica,		5 5	13-8	
<u>S-2 SS 18 18</u> 	o very stiff	930	8 5 7	16-⊗ 14-⊗	
S-4 SS 18 18			9 5	.16-🔗	
(SM) SILTY SAND, contains	slight mica, brown		6 8		
$15 - \frac{5.5}{3} - \frac{5.5}{3} + \frac{18}{3} + \frac{18}{3}$ to orangish brown, moist, me			6 6 10	13-8	
			5 6	17-📎	
		915	7 4 6		
S-7 SS 18 18 END OF BORING @ 25'			11 7	15	
30			8 7		
		900			
		900			
45					
		- 885			
		870			
75					
		855			
90 -				i i	
THE STRATIFICATION LINES REPRESENT THE APPROXIMA	ATE BOUNDARY LINES E	ETWEEN SOIL TYP	ES. IN-	SITU THE TRANSITION M	IAY BE GRADUAL.
문 WL Dry WS□ WD⊠ BORING START					
₩ WL(SHW) ₩ WL(ACR) BORING COMP	OMPLETED 07/23/18 HAMMER TYPE Auto				
₩ WL RIG Dietrich	D-50 FOREMAN	JD	DRIL	LING METHOD 2 1/4 H	SA

CLIENT							Job #:		BOR	ING #		SHEET		
Jackso PROJECT N	NAME	oun	ty S	Scho	ols		ARCH	10:9918 ITECT-ENGINEER		B-18	3	1 OF 1	2	Ce
					iddle School									
													PENETROME	TER TONS/FT <sup>2</sup>
NORTHING	on,	Jac	kso	EASTIN	ounty, GA	STATION						ROCK QUALITY DE RQD%		& RECOVERY
			(N)	(7	DESCRIPTION OF I	L MATERIAL		ENGLISH	UNITS				WATER DNTENT%	LIQUID LIMIT%
(FT)	E NO.	SAMPLE TYPE	SAMPLE DIST. (IN)	RECOVERY (IN)	BOTTOM OF CASIN	IG	R L				.9/8	Х	•	∆
	SAMPLE NO.	SAMPL	SAMPL	RECOV	SURFACE ELEVAT	ION 940				WATEF ELEVA <sup>-</sup>	BLOWS/6"	⊗ STANDA B	RD PENETR/ LOWS/FT	TION
0	S-1	SS	18	18	Topsoil Depth	[8"] AND, contains n			Ň		3 4	8-🛛		
		SS	18	18		ish brown, moist				E	4	10-📎		
		SS	18	18	dense					F	4	11-8		
	S-4	SS	18	18						930	4	13-⊗		
	S-5	SS	18	18							7 5	13-⊗		
15		00	10	10							6 7			
	S-6	SS	18	18							10 6	14-🚫		
										_	77		:	
	S-7	SS	18	18						915	7 7 9	17-⊗		
30	S-8	SS	18	18							9 9 8 6			
_					(PWR) PART	ALLY WEATHE	Y WEATHERED ROCK							~
	S-9	SS	6	6	SAMPLED AS	SILTY SAND, o	ILTY SAND, contains slight $\begin{bmatrix} 18\\50/0 \end{bmatrix}$ $50/0$ $50/0$							5 <u>0</u> /0
					Imica, white to AUGER REFI									
=					/ O O E I I I E I I					900		: :	: :	÷
45 —										E				
40 -										E				
=										-				
_										F				
=										885				
										=				
60 —										-				
										<u> </u>				
										<u> </u>				
										870				:
_										<u>–</u>				
75 —										E_				
										_				
										_				
										855				
													: :	:
90 —										E			: :	
	1	ļ		I	I				I	ļ	1	· · ·		· · · · · · · · · · · · · · · · · · ·
THE STRATIFICATION LINES REPRESENT THE APPROXIMA					E BOUN	IDARY LINES BE	IWEEN	I SOIL TYP	PES. IN-	SITU THE TRANSITION I	MAY BE GRAD	UAL.		
무 WL Dry WS U WD BORING START														
	₩ WL(SHW) ₩ WL(ACR) BORING COM				BORING COMPLE	COMPLETED 07/22/18 HAMMER TYPE Auto								
₩ WL RIG D-50 A					RIG D-50 ATV	/ FOREMAN JD DRILLING METHOD 2 1/4 HSA								

CLIENT					Job #:	BOR	ING #		SHEET	
Jackson Cou	intv S	Scho	ols		10.991	8	B-19	)	1 OF 1	500
PROJECT NAME		20110	010		10:991 ARCHITECT-ENC	GINEER		<u> </u>		EGQ
West Jackso	n Hig	gh-M	iddle School							
										PENETROMETER TONS/FT <sup>2</sup>
Jefferson, Ja	ickso		ounty, GA	STATION					ROCK QUALITY DE	SIGNATION & RECOVERY
Northinte		L/ (O I II)			RQD% - — - REC% — — —					
			DESCRIPTION OF I	105+00	FN	GLISH UNITS	3		PLASTIC \	WATER LIQUID
	Ц.(IN	(IN)								NTENT% LIMIT%
I (FT)	E DIS	/ERY	BOTTOM OF CASIN	ig 🖉	LOSS OF CIRCU	JLATION 2003				• ~
DEPTH (FT) SAMPLE NO. SAMPLE TYPE	SAMPLE DIST. (IN)	RECOVERY (IN)	SURFACE ELEVAT	ION 945			WATER LEVELS ELEVATION (FT)	BLOWS/6"		RD PENETRATION .OWS/FT
0		18	\Topsoil Depth			_/	945	4	9-& 16	
		18	(ML) SANDY	SILT, orangish b	rown, moist, s	tiff		4 5 4	$\searrow$	
	-	18	(SM) SILTY S	AND, contains r	rock fragments,		7	13-8		
S-4 SS	5 18	18	orangish brow	n, moist, loose	to medium dei	ise		9 5 7	×	
15 S-5 SS	S 18	18	* Rock fragme	ents encountered	@ 12'-22'			6 3	×	
							930	4 4 4	19	
<u></u>	5 18	18						6 13 8		⊗ 30 50/2
<u>S-7_SS</u>	5 8	8	SAMPLED AS	ALLY WEATHE S SILTY SAND, o				17 13		$\sim$
	S 18	18	<u>mica, brown te</u> (SM) SILTY S	o white, moist AND, contains n	nica, white to		- 045	9 50/2		52−⊗
			brown to tann dense	ish brown, moist	, dense to very	/	915	17 22 30		
<u>S-9</u> _SS	5 18	18						14 35		53-⊗
<u>S-10</u> SS	6 18	18						18 13 28		57-⊗
	5 18	18						29 14		
45		10					900	15 17		32
	5 18	18	END OF BOR	'ING @ 50'				18 19		45
							Ē	26		40
=							Ē			
60							885			
							E			
							E			
							È-			
							E			
75—							870		÷÷	÷ ÷ ÷
							E			
							<u> </u>			
							_			
							_			
90							855			
	1					,	•	•	-	
THE STRATIFICATION LINES REPRESENT THE APPROXIMA					E BOUNDARY LIN	ES BETWEEN	N SOIL TYF	PES. IN-	SITU THE TRANSITION N	IAY BE GRADUAL.
꽃 WL Dry WS□ WD⊠ BORING STARTE										
₩ WL(SHW) ¥ WL(ACR) BORING COMP					DMPLETED 07/23/18 HAMMER TYPE Auto					
₩ WL RIG Dietri					D-50 FOREMAN JD DRILLING METHOD 2 1/4 HSA				SA	

CLIENT	Job #:	BORING #		SHEET			
Jackson County Schools	10:9918	B-20	n	1 OF 1	5000		
PROJECT NAME	ARCHITECT-ENGIN	ER	<u>,                                     </u>		EGQ		
West Jackson High-Middle School							
SITE LOCATION				CALIBRATED P	ENETROMETER TONS/FT <sup>2</sup>		
Jefferson, Jackson County, GA					SIGNATION & RECOVERY		
NORTHING EASTING STATION				RQD% REC%			
	ENGL	SH UNITS	_	PLASTIC V	VATER LIQUID		
	LOSS OF CIRCULA		<u>)/6"</u>				
L L L L L L L L L L L L L L		NATER LEVELS	BLOWS/6"	STANDARD PENETRATION BLOWS/FT			
0	/	930	6	18-&			
SP-2 SS 18 18 brown, moist, medium der			8 10 9				
S-3 SS 12 12 (PWR) PARTIALLY WEAT	THERED ROCK		9 12 14	20	5⊗ 50/6−⊗		
SAMPLED AS SILTY SAN brown, moist	ID, contains mica,		23 50/6		50/6-8		
15 S-5 SS 18 18 rock fragments, orangish t	ns slight mica and		50/6		54-⊗		
	nown to write, moist	915	30				
END OF BORING @ 15'			22 32				
30 -							
		900					
		885					
60							
		870					
75 —		855					
90		840					
THE STRATIFICATION LINES REPRESENT THE APPROX	MATE BOUNDARY LINES	BETWEEN SOIL TY	PES. IN-	SITU THE TRANSITION M	AY BE GRADUAL.		
문 WL Dry WS□ WD⊠ BORING STA							
₩ WL(SHW) ₩ WL(ACR) BORING COL	MPLETED 07/23/18		HAMI	IAMMER TYPE Auto			
뿇 WL RIG Dietric	h D-50 FOREMAN	RH	DRILI	LING METHOD 2 1/4 H	SA		

CLIENT		Job #:	BORING #		SHEET		
Jackson County Schools		10:9918 ARCHITECT-ENGINEER	B-2	1	1 OF 1	ECO	
West Jackson High-Middle School		ARCHITECT-ENGINEER	X .				
						PENETROMETER TONS/FT <sup>2</sup>	
Jefferson, Jackson County, GA	STATION	ROCK QUA RQD%				DESIGNATION & RECOVERY REC%	
L L L L L L L L L L L L L L L L L L L					LIMIT% CO X STANDAR	NATER LIQUID INTENT% LIMIT%	
0 - <u>S-1 SS 18 18</u> - <u>S-2 SS 18 18</u> - <u>S-3 SS 18 18</u> - <u>S-4 SS 18 18</u> - <u>S-4 SS 18 18</u> - <u>S-4 SS 18 18</u> - <u>S-4 SS 18 18</u> - <u>Contains trace</u>	ILT, contains sl , reddish brown e roots @ 1' ND, contains s ish brown, mois	n, moist, stiff to	900 900 900 885 885 885 885	97778577584555 55 5			
THE STRATIFICATION LINES REPRESENT	THE APPROXIMAT	E BOUNDARY LINES BE	TWEEN SOIL TY	PES. IN-	SITU THE TRANSITION N	/AY BE GRADUAL.	
⊊w∟Dry ws⊡ wd⊠	BORING STARTE	D 07/22/18		CAVE	AVE IN DEPTH		
₩ WL(SHW) ¥ WL(ACR)	BORING COMPLE					IS A	
₩	RIG Dietrich D	-50 FOREMAN J	U		ING METHOD 2 1/4 H	SA	

CLIENT	Job #:	BORING #		SHEET			
Jackson County Schools	10:9918	B-22	2	1 OF 1	FCO		
PROJECT NAME	ARCHITECT-ENGINEE	R					
West Jackson High-Middle School				-			
					ENETROMETER TONS/FT <sup>2</sup>		
Jefferson, Jackson County, GA           NORTHING         EASTING				ROCK QUALITY DES RQD%	SIGNATION & RECOVERY REC% ———		
	ENGLISH				VATER LIQUID NTENT% LIMIT%		
L C C C C C C C C C C C C C C C C C C C	IR LL S/6"				STANDARD PENETRATION		
0 S_1 S_ 18 18 \Topsoil Depth [8"]	/_		3	9-⊗			
SANDY SILT, contains			5 4 4	10-&			
S-3 SS 18 18 S-4 SS 18 18 S-4 SS 18 18 S-4 SS 18 18 SR 18 SILTY SAND, brown to grayish brown, moist, mediu			5 5 5	× 15	31		
	sume to be	885	6 9		$\sim$		
15 SS 0 0 PARTIALLY WEATHERED END OF BORING @ 15'	ROCK /		5 13 18		50/0		
			50/0				
		870					
30							
		855					
		840					
		825					
		810					
		I F			: : :		
THE STRATIFICATION LINES REPRESENT THE APPROXIM.       꽃 WL Dry     WS □     WD ⊠     BORING STAR*	MATE BOUNDARY LINES BETWEEN SOIL TYPES. IN-SITU THE TRANSITION MAY BE GRADU, RTED 07/20/18 CAVE IN DEPTH				AY BE GRADUAL.		
Ψ WL(SHW)     Ψ WL(ACR)     BORING COMF							
꽃 WL RIG Dietrich					SA		

CLIENT	Job #	<i>‡</i> :	BORING #		SHEET		
Jackson County Schools		10:9918 HITECT-ENGINEER	B-23	3	1 OF 1	FCO	
	ARCH	HITECT-ENGINEER				<u>-62</u>	
West Jackson High-Middle School							
Jefferson, Jackson County, GA					0		
NORTHING EASTING STATION	N				ROCK QUALITY DES RQD%	SIGNATION & RECOVERY REC% ———	
		ENGLISH U				VATER LIQUID NTENT% LIMIT%	
LEU HANNERS SURFACE ELEVATION OF MATERIAL (LU HANNERS SURFACE ELEVATION 9		SS OF CIRCULATION	WATER LEVELS ELEVATION (FT)				
	20	/	WATE ELEV/	BLOWS/6"	BL	RD PENETRATION OWS/FT	
<u>S-1 SS 18 18</u> (SM) SILTY SAND, C				6 5 7	12-8	>8	
S-3 SS 18 18 dense		nedium	915	7 3 10	12 Ø	30	
S-4 SS 18 18 * Contains trace roots END OF BORING @				20 5 5 7			
15				5 6			
			900	4			
			_				
			=				
30							
			885				
			870				
			855				
			_				
75							
			840				
			_				
90							
		'	'				
THE STRATIFICATION LINES REPRESENT THE API	PROXIMATE BOU		VEEN SOIL TYP	PES. IN-S	SITU THE TRANSITION N	IAY BE GRADUAL.	
. ,	G STARTED						
÷ · · · ÷ · ·	G COMPLETED					SV	
₩ WL RIG A	A I V	FOREMAN RH		DRILL	ING METHOD 2 1/4 H	5A	

CLIENT	J	ob #:	BORING #		SHEET		
Jackson County Schools		10:9918	B-2	4	1 OF 1	200	
PROJECT NAME	A	ARCHITECT-ENGINEER	1				
West Jackson High-Middle School						n.	
					CALIBRATED	PENETROMETER TONS/FT <sup>2</sup>	
Jefferson, Jackson County, GA	STATION				ROCK QUALITY DE RQD%	ESIGNATION & RECOVERY - REC%	
		ENGLISH			LIMIT% C	WATER LIQUID DNTENT% LIMIT%	
	LOSS OF CIRCULATION WITH STATE				X		
Image: Construction of the co	- NYANY				STANDARD PENETRATION BLOWS/FT		
S-1 SS 18 18 (ML) SANDY S	SILT, contains slig	ght rock		2 2 2 4	≪-4		
S-3 SS 18 18 to very stiff	wn to reddish bro	own, moist, soft		4	9 <sub>Q-13</sub>		
S-4 SS 18 18 Contains trac	e roots @ 1'	Γ		5 4 6	17-&		
END OF BORI	NG @ 10'			7 7 7			
			900	10			
			885				
			870				
			855				
			840				
90			825				
			TWEEN SOIL TY		IN-SITU THE TRANSITION MAY BE GRADUAL.		
	BORING STARTED						
₩L(NW) = WL(NCK)	RIG Dietrich D-5					ISA	

CLIENT						Job #:		BORING #		SHEET		
Jackson PROJECT NAM	Coun	ity S	Scho	ols		ARCH	10:9918 ITECT-ENGINEEF	B-25	5	1 OF 1	2	Ce
	<u>kson</u>	Hig	<u>gh-M</u>	iddle School								
											PENETROMET	ER TONS/FT <sup>2</sup>
Jefferson NORTHING	, Jac	KSO	EASTIN	ig Ig	STATION					ROCK QUALITY DE RQD%		RECOVERY
		(N)	(X	DESCRIPTION OF I	MATERIAL		ENGLISH			LIMIT% CC	WATER INTENT%	LIQUID LIMIT%
E NO.	ЕТҮРЕ	E DIST	ERY (I	BOTTOM OF CASIN	IG 📕	LOSS	S OF CIRCULATIC			X	•	Δ
O DEPTH (FT) SAMPLE NO.	SAMPLE TYPE	SAMPLE DIST. (IN)	RECOVERY (IN)	SURFACE ELEVAT					⊗ STANDA BI	RD PENETRA LOWS/FT	TION	
<u> </u>		18 18	18 18		SILT, contains s	light n	nica, brown,		3 5	10-8 16		
<u></u>		18	18	moist, stiff to	very stiff				5 5 7	15-🔗		
<u>S-4</u>	SS	18	18					930	9 5 7	14-8		
15	SS	18	18		AND, contains n to pinkish brow				8 5 7	9-8		
<u>S-6</u>	SS	18	18	medium dens	e				7 3 4 5 6	13-&		
<u>S-7</u>	SS	18	18	END OF BOR				915	6 7 5	19	<u> </u>	
				END OF BOR	ING @ 25			E	5 9 10	19		
30											÷ :	:
_											: :	
								900				
												:
45 —												
											: :	
								885			: :	:
60												
								870				
75								=			: :	
								E			÷ :	:
								855				
=												
90												:
							· I	•				
THE STRATIFICATION LINES REPRESENT THE APPROXIMA					TE BOUNDARY LINES BETWEEN SOIL TYPES. IN				IN-SITU THE TRANSITION MAY BE GRADUAL.			
. ,				BORING STARTE								
						COMPLETED 07/20/18 HAMMER TYPE Auto						
₩ WL RIG				RIG Dietrich D	-50	FOREMAN R	н	DRIL	LING METHOD 2 1/4 H	ISA		

CLIENT	CLIENT						Job #:		BORI	NG #		SHEET			
Jacks	on C	oun	ty S	Scho	ols			10:9918		B-26	6	1 OF 1		Po	
PROJECT	NAME						ARCH	ITECT-ENGINEER						5	
SITE LOC	Jack	son	Hig	gh-M	iddle School							0 01100100			
Jeffers	<u>son,</u>	<u>Ja</u> c	<u>ks</u> o	<u>n C</u> c	ounty, GA										
NORTHIN	G			EASTIN	IG	STATION				ROCK QUALITY DESIGNATION & RECOVERY RQD% REC%					
		Ц	T. (IN)	(NI)	DESCRIPTION OF I			ENGLISH				PLASTIC LIMIT% C	WATER		
<b>DEPTH (FT)</b>	SAMPLE NO.	SAMPLE TYPE	SAMPLE DIST. (IN)	ΥEF	BOTTOM OF CASIN		LOSS	S OF CIRCULATIO	<u>N 2008</u> >	WATER LEVELS ELEVATION (FT)	/S/6"	STANDARD PENETRATION			
O DEP1	SAMF	SAMF	SAMF	RECO	SURFACE ELEVAT					WATI	BLOWS/6"	(A) STAND	BLOWS/FT	ATION	
	S-1 S-2	SS SS	18 18	18 18		AND, contains r					3 8 15	23-8	)		
	S-3	SS	18	18	tannish browr	i, moist, loose to	medi	um dense		915	333	6 12 6 8			
	<u>S-4</u>	SS	18	18	Π			Г			16 6		:	<u>:</u> : : :	
15 —					* Slight rook f	agments encou	ntorod	@ E E' 9'		<u> </u>	6 3 3				
					END OF BOR	ING @ 10'	niereu	@ 5.5-6		900	3				
30 —															
										885					
										-			:	· · · · · · · · · · · · · · · · · · ·	
45															
										870					
													:		
60 -															
60															
										855					
													:		
75 —										<u> </u>			:		
										840					
=															
90									<u> </u>			:			
							•	•	• •						
THE STRATIFICATION LINES REPRESENT THE APPROXIMAT				E BOUN		TWEEN	SOIL TYP	ES. IN-	SITU THE TRANSITION	I MAY BE GRA	DUAL				
¥ wL [	및 WL Dry WS□ WD⊠ BORING STAR				BORING STARTE					CAVE	IVE IN DEPTH				
₩_ WL(SH	HW)		Ţ	WL(AC	R)	BORING COMPLE	ETED	07/20/18			HAM	MER TYPE Auto			
₩ E WL						RIG Dietrich D									

CLIENT		Job #:	BORING #		SHEET		
Jackson County Schoo	ols	10:9918 ARCHITECT-ENGINEER	B-27	7	1 OF 1	Efe	
West Jackson High-Mig	iddle School						
					-O- CALIBRATED PENETROMETER TONS/FT <sup>2</sup>		
Jefferson, Jackson Cou NORTHING EASTING	G STATION			ROCK QUALITY DESIGNATION & RECOVERY RQD% REC%			
4 (FT) LE NO. LE TYPE LE DIST. (IN VERY (IN)	DESCRIPTION OF MATERIAL BOTTOM OF CASING - SURFACE ELEVATION 902	ENGLISH	SII (F	BLOWS/6"	LIMIT% CO × STANDAR	AD PENETRATION OWS/FT	
$ \begin{array}{c ccccccccccccccccccccccccccccccccccc$	Topsoil Depth [6"] (ML) SANDY SILT, contains n brown, moist, stiff * Slight Rock fragments encou (SM) SILTY SAND, contains n brown to black to grayish brow medium dense END OF BORING @ 15'	untered @ 3'-5.5/ nica, tannish	≥ ŭi 900 885 885 885 885 885 885 885 885 885 885 885 885 885 885 885 885 885 885 885 885 885 885 885 885 885 885 885 885 885 885 885 885 885 885 885 885 885 885 885 885 885 885 885 885 885 885 885 885 885 885 885 885 885 885 885 885 885 885 885 885 885 885 885 885 885 885 885 885 885 885 885 885 885 885 885 885 885 885 885 885 885 885 885 885 885 885 885 885 885 885 885 885 885 885 885 885 885 885 885 885 885 885 885 885 885 885 885 885 885 885 885 885 885 885 885 885 885 885 885 885 885 885 885 885 885 885 885 885 885 885 885 885 885 885 885 885 885 885 885 885 885 885 885 885 885 885 885 885 885 885 885 885 885 885 885 885 885 885 885 885 885 885 885 885 885 885 885 885 885 885 885 885 885 885 885 885 885 885 885 885 885 885 885 885 <td>IB 3554564554556</td> <td></td> <td></td>	IB 3554564554556			
	LINES REPRESENT THE APPROXIMAT	TE BOUNDARY LINES BETWEEN SOIL TYPES. IN-SITU THE TRANSITION				IAY BE GRADUAL.	
⊊ w∟ Dry ws⊡	WD 🛛 BORING STARTE				VE IN DEPTH		
₩ WL(SHW) ₩ WL(ACR	R) BORING COMPLE RIG Dietrich D		н		ING METHOD 2 1/4 H	SA	
				DIVICE		0, (	

CLIENT	CLIENT						Job #:		BORIN	NG #		SHEET			
Jackso		ount	y S	Scho	ols		ARCH	10:9918 ITECT-ENGINEER	3	B-28	}	1 OF 1		Ξ	Co
					iddle School										
													D PEN	NETROMET	ER TONS/FT <sup>2</sup>
NORTHING	<u>on, .</u>	Jack		n CC Eastin	o <mark>unty, GA</mark> <sup>IG</sup>	STATION					ROCK QUALITY DESIGNATION & RECOVERY RQD% REC%				
4 (FT)	E NO.	SAMPLE TYPE	SAMPLE DIST. (IN)	RECOVERY (IN)	DESCRIPTION OF		LOSS	ENGLISH		WATER LEVELS ELEVATION (FT)	S/6"	PLASTIC LIMIT%	CONT	TER TENT%	
<b>DEPTH (FT)</b>	SAMPLE NO.	SAMPI	SAMPI	RECO	SURFACE ELEVAT	ION 902				WATE	BLOWS/6"	⊗ STAN	DARD BLO\	PENETRA WS/FT	TION
	S-2 S-3 S-4		18 18 18 18	18 18 18 18	<u>     \Topsoil Depth</u> (SM) SILTY S     reddish browr	n [4"] AND, contains r n to orangish bro	nica, t wn, m	prown to hoist, loose		900	3453553343	9-8- 10-8 7-8 8-8			
$\begin{array}{c} 15 \\ 15 \\ 16 \\ 17 \\ 18 \\ 10 \\ 10 \\ 10 \\ 10 \\ 10 \\ 10 \\ 10$		SS	18	18	END OF BOR	UNG @ 15'				885 870 855 855 840	4 3 3 5 3 5 4	9-8			
90															
							. 1								
THE STRATIFICATION LINES REPRESENT THE APPROXIMA				TE BOUNDARY LINES BETWEEN SOIL TYPES. IN-SITU				SITU THE TRANSITION MAY BE GRADUAL.							
	. ,				BORING STARTE	ED 07/22/18 CAVE				VE IN DEPTH					
₩ WL(SH	W)		Ţ	WL(AC	R)	BORING COMPLE		07/22/18				MER TYPE Manual			
₩ WL						RIG Dietrich D	-50	FOREMAN R	H		DRILI	LING METHOD 2 1/	4 HSA	4	

CLIENT	Job #:	BORING #		SHEET			
Jackson County Schools	10:9918 ARCHITECT-ENG	B-29	9	1 OF 1	2	Ce	
West Jackson High-Middle School							
				CALIBRATED	PENETROMET	ER TONS/FT <sup>2</sup>	
Jefferson, Jackson County, GA	1			ROCK QUALITY DESIGNATION & RECOVERY RQD% REC%			
				PLASTIC LIMIT% C	WATER ONTENT%		
LL UN	LOSS OF CIRCL	WATER LEVELS	BLOWS/6"	⊗ STAND	ARD PENETRA	_	
0			3	12-⊗			
$=$ $\frac{5\cdot2}{5\cdot2}$ $\frac{5\cdot2}{18}$ $\frac{18}{18}$ tannish brown, moist,	ontains mica, brown to loose to medium dense		5 7 4	12-⊗			
<u>S-3 SS 18 18</u> <u>S-4 SS 18 18</u>		915	5 7 4 5	11-⊗ 12-⊗			
15 <u>S-5 SS 18 18</u>			6 5 5 7 5	6-8			
<u>- S-6 SS 18 18</u>			3		· · ·		
END OF BORING @	20'	900	3 5 5	12			
			7				
30							
		885					
		870					
		855					
						:	
		840					
90       00						:	
THE STRATIFICATION LINES REPRESENT THE AP	PROXIMATE BOUNDARY LINI	S BETWEEN SOIL TYP	SITU THE TRANSITION	TU THE TRANSITION MAY BE GRADUAL.			
. ,	G STARTED 07/20/1		CAVE	AVE IN DEPTH			
	G COMPLETED 07/20/1	8	HAM	MER TYPE Auto			
₩ WL RIG D	ietrich D-50 FOREM	D-50 FOREMAN RH DRILLING METHOD 2 1/4 HSA					

CLIENT	Job #:	BORING #		SHEET			
Jackson County Schools	10:9918	B-30	)	1 OF 1	-00		
PROJECT NAME	ARCHITECT-ENGINEE	R			<b>LUC</b>		
West Jackson High-Middle School							
				-O- CALIBRATED P	ENETROMETER TONS/FT <sup>2</sup>		
Jefferson, Jackson County, GANORTHINGEASTINGSTATION	TION				SIGNATION & RECOVERY		
					RQD% REC%		
	ENGLIS				VATER LIQUID		
	LOSS OF CIRCULATI			LIMIT% CO	NTENT% LIMIT%		
		WATER LEVELS	BLOWS/6"		RD PENETRATION		
		WAT	BLOV		OWS/FT		
0	mica, brown to		3 4	11-&			
<u>S-2 SS 18 18</u> S-3 SS 18 18 orangish brown to reddish bro			74	8 <sup>15-⊗</sup>			
<u>S-4</u> SS 18 18		930	6 9 7	7-&			
(SM) SILTY SAND, tannish b	rown to black to		4 4 2	22			
15 - S-5 SS 18 18 white, moist, medium dense	to dense		2 3 4	$\otimes$			
Contains slight mica @ 22'-     S-6 SS 18 18	21		10 11	20-🚫			
			11 7 10				
<u></u>		915	10 10 5	× 19			
30 S-8 SS 18 18			8 11 7		43		
	ERED ROCK		7 14 29	: :			
S-9 SS 11 11 SAMPLED AS SILTY SAND, AUGER REFUSAL @ 36'			24 50/5		 50/5		
		900					
		885					
		870					
75							
		855					
90							
THE STRATIFICATION LINES REPRESENT THE APPROXIMA		TWEEN SOIL TYP	ES IN-	SITU THE TRANSITION M			
Image: Strating conductives in the strategies in the strateg				/E IN DEPTH			
₩ WL(SHW) ¥ WL(ACR) BORING COMPL	eted 07/21/18		HAM	AMMER TYPE Auto			
꽃 WL RIG Dietrich I	D-50 FOREMAN J	D	DRILI	ING METHOD 2 1/4 H	SA		

CLIENT						Job #:		BORING #		SHEET		
Jackson PROJECT NA	<u>n Cou</u>	nty	Scho	ols		10:9 ARCHITECT	918	B-31		1 OF 1	20	0
		οЦi	ah M	iddla Sabaal		ARCHITECT	-ENGINEER					25
SITE LOCATI	ION		gri-ivi	iddle School							PENETROMETER	R TONS/FT <sup>2</sup>
	on, Ja	ckso		ounty, GA	STATION	STATION				ROCK QUALITY DESIGNATION & RECOVERY		
			2,1011							RQD% REC%		
		<u> </u>	Î	DESCRIPTION OF	MATERIAL		ENGLISH				WATER DNTENT%	LIQUID LIMIT%
(FT)	NO.	DIST.	ERY (II	BOTTOM OF CASIN	NG 📕	LOSS OF C	IRCULATIO		.9	Х	•	∆
DEPTH (FT)	SAMPLE NO. SAMPLE TYPE	SAMPLE DIST. (IN)	RECOVERY (IN)	SURFACE ELEVAT	ION 942			WATER LEVELS	BLOWS/6"		RD PENETRATIO	NC
0	-1 SS	18	18		1 [2"] SILT, orangish b	rown moi	ot ctiff		3 5	10-兴	: :	
	-2 SS			to very stiff		nown, mois	51, 5111		5 4	× 18	÷ ÷	:
	-3 SS -4 SS								4 6 8	14 ×		
				(SM) SILTY S	AND, contains s	light mica.		930	9 9			
15 <u>S</u>	-5 SS	18	18		vn to reddish bro				14 7 7	8-⊗		
	-6 SS	18	18						4 4 4	8-&		
	-7 SS	18	18						4 3 4	12-⊗	÷÷	:
								915	4 4 5			
30S	-8 SS	18	18						7 4 4	9-⊗		
	-9 SS	18	18						5 4	13-📎		
	-10 SS	18	18	(ML) SANDY	SILT, orangish b	orown, mois	st, stiff		5 8 4	11-⊗	: :	
<u>&gt;</u>	10 55	18	18					900	5 6	11-8	: :	
45 <u>S</u> -	-11 SS	18	18						5 6	14-🔗		
	-12 SS	18	18		AND, contains n medium dense	nica, orang	lish		8 5	15-⊗		
				brown, moist,					7 8			
	-13 SS	18	18	END OF BOR	RING @ 55'			885	5 8 11	19-⊗		
60 —											÷÷	
=								<b>—</b>				
75								870			: :	:
75 —												
											÷ ÷	:
								-				
								855				:
90											: :	:
				MATE BOUNDARY LINES BETWEEN SOIL TYPES. IN-SITU THE TRANSITION MAY BE GRA			MAY BE GRADUA	L.				
꽃 WL Dry WS□ WD⊠ BORING START				RTED 07/21/18 CAVE IN DEPTH								
÷ , , ÷ ,				BORING COMPLE	OMPLETED 07/21/18 HAMMER TYPE Auto							
₩ WL					RIG Dietrich D	D-50 FOREMAN JD DRILLING METHOD 2 1/4 HSA						

CLIENT	Job #:	BORING #		SHEET	
Jackson County Schools	10.0018	B-32	>	1 OF 1	5000
Jackson County Schools PROJECT NAME	ARCHITECT-ENGIN	EER	-		EGQ
West Jackson High-Middle School					
SITE LOCATION	•				ENETROMETER TONS/FT <sup>2</sup>
Jefferson, Jackson County, GA				-	
NORTHING EASTING STATION				ROCK QUALITY DES RQD%	SIGNATION & RECOVERY REC% ———
	ENGL	ISH UNITS ගු ළ			VATER LIQUID NTENT% LIMIT%
	LOSS OF CIRCULA		-	×	-●∆
LE UN OF WATERIAL UN UN UNATERIAL DESCRIPTION OF WATERIAL BOTTOM OF CASING UN UNATERIAL BOTTOM OF CASING SURFACE ELEVATION 950		MATER LEVELS ELEVATION (FT)	BLOWS/6"		RD PENETRATION
			BLC	BL	OWS/FT
- S-1 SS 18 18 (SM) SILTY SAND contained	/ ins mica, orangish		3 4	11-⊗_ <u>17</u>	
S-2 SS 18 18 brown to tannish brown, n		n 945	7 5	14-00	
S-3 SS 18 18 dense S-4 SS 18 18			6 11 5	14-⊗ 13-⊗	
			5 6 8		
15 <u>S-5</u> SS 18 18			4	10-&	
			7 6		
<u>S-6 SS 18 18</u>		930	5 5 5	18-00	
			5 7 11	15-⊗	
			5		
30 <u>S-8 SS 18 18</u>			8 5	11-🛇	
			5 6	13-⊗	
		915	17 8 5		
S-10 SS 18 18			7 6	12-🔗	
			6		
45 <u>S-11 SS 18 18</u>			6 5	11-8	
		E	6 4	14-8	
		900	7 7	Ĭ	
<u></u>			5 6	13-🛇	
			7		
60 <u>S-14 SS 18 18</u>			7 6	13-⊗	
			5	13-🛇	
END OF BORING @ 65'			5 8		
		870			
		I F		: :	: : :
THE STRATIFICATION LINES REPRESENT THE APPROX	IMATE BOUNDARY LINES	BETWEEN SOIL TYF	PES. IN-	SITU THE TRANSITION M	IAY BE GRADUAL.
꽃 WL Dry WS□ WD⊠ BORING ST/					
Image: Will be will					
					64
₩ WL RIG Dietrie	ch D-50 FOREMAN	JD	DRIL	LING METHOD 2 1/4 H	SA

CLIENT	Job #:	BORING #		SHEET			
Jackson County Schools	10:9918 ARCHITECT-ENGINEE	B-33	5	1 OF 1	ECo		
West Jackson High-Middle School							
SITE LOCATION				-O- CALIBRATED P	ENETROMETER TONS/FT <sup>2</sup>		
Jefferson, Jackson County, GA           NORTHING         EASTING           STATION				ROCK QUALITY DESIGNATION & RECOVERY RQD% REC%			
					VATER LIQUID NTENT% LIMIT%		
L UNDER CRIPTION OF MATERIAL DESCRIPTION OF MATERIAL BOTTOM OF CASING → UNDER CRIPTION OF MATERIAL	LOSS OF CIRCULATI	Q WATER LEVELS ELEVATION (FT)	BLOWS/6"		RD PENETRATION OWS/FT		
0 S-1 S_ 18 Topsoil Depth [2"]	/		7	10-⊗	· · · · · · · · · · · · · · · · · · ·		
SILTY SAND, contains S-2 SS 18 18 brown to grayish brown, moi			5 5 8	7 15			
S-3 SS 18 18 dense S-4 SS 18 18		930	7	6-⊗ 13 27.8-			
			8 4 3 4				
15 <u>S-5 SS 18 18</u>			3 3	7-🔆			
			3 3 3	9-🛇			
			4 5 4				
<u>S-7 SS 18 18</u>		915	5 6	13-⊗ 25.9-€			
30 S-8 SS 18 18			6 7 5	15-& 31	.3-●		
			7 8	20-⊗			
		<u> </u>	7 8 12	20 8			
S-10 SS 18 18		900	8 10	21-🚫			
45 <u>S-11 SS 18 18</u>			11 7	23-⊗			
			11 12				
			12 12 12	24-⊗			
		- 885		÷			
		870					
75							
		855					
90							
			1		<u>· · · ·</u>		
THE STRATIFICATION LINES REPRESENT THE APPROXIM	ATE BOUNDARY LINES BI	ETWEEN SOIL TYP	ES. IN-	SITU THE TRANSITION M	AY BE GRADUAL.		
및 WL Dry WS□ WD⊠ BORING STAR	red 07/22/18				VE IN DEPTH		
₩ WL(SHW) ₩ WL(ACR) BORING COMP	IPLETED 07/22/18 HAMMER TYPE Auto						
꽃 WL RIG Dietrich	D-50 FOREMAN JD DRILLING METHOD 2 1/4 HSA			SA			

CLIENT	Job #:	BORING #		SHEET			
Jackson County Schools	10:9918 ARCHITECT-ENGINEE	B-34	1	1 OF 1	200		
	ARCHITECT-ENGINEE	ĸ					
West Jackson High-Middle School					ENETROMETER TONS/FT <sup>2</sup>		
Jefferson, Jackson County, GA           NORTHING         EASTING           STATION	STATION				ROCK QUALITY DESIGNATION & RECOVERY RQD% REC%		
	ENGLIS		Γ		VATER LIQUID NTENT% LIMIT%		
LE UN	LOSS OF CIRCULATI	Z WATER LEVELS ELEVATION (FT)	.9/8	X	•		
		WATER	BLOWS/6"	STANDAF	RD PENETRATION OWS/FT		
0 <u>S-1 SS 18 18</u> Topsoil Depth [6"] (SM) SILTY SAND, contains	slight mica, brown		4 4 9	13-8			
S-3 SS 18 18 dense			4 8 12	11 20 8			
S-4 SS 18 18 	eu @ 1-5	900	2 5 6	$\mathbb{N}$			
15 <u>S-5 SS 18 18</u>			4 4 4	11-⊗			
<u>S-6 SS 18 18</u>			4 3 5 4	7-8			
S-7 SS 18 18 END OF BORING @ 25'			3 4 4	8			
30		885	4 4				
		870					
		855					
60							
 		840					
		825					
90							
THE STRATIFICATION LINES REPRESENT THE APPROXIMA		TWEEN SOIL TYP		N-SITU THE TRANSITION MAY BE GRADUAL.			
₩     WL(SHW)     ₩     WL(ACR)     BORING COMPI				IMER TYPE Auto			
꽃 WL RIG Dietrich					SA		

CLIENT	Job #:	BORING #		SHEET			
Jackson County Schools	10:9918	B-35	5	1 OF 1	FCO		
PROJECT NAME	ARCHITECT-ENGINE	ER			-62		
West Jackson High-Middle School				0	1 m		
				-()- CALIBRATED P	ENETROMETER TONS/FT <sup>2</sup>		
Jefferson, Jackson County, GA			ROCK QUALITY DES RQD%	SIGNATION & RECOVERY REC% ———			
	ENGLI				VATER LIQUID NTENT% LIMIT%		
	LOSS OF CIRCULA			X			
LEUN HE WEYS STREET ON OF MATERIAL BOTTOM OF CASING SURFACE ELEVATION 899		MATER LEVELS ELEVATION (FT)	BLOWS/6"	⊗ STANDAF BL	RD PENETRATION OWS/FT		
0	slight mice		6 7	16-⊗			
S-2 SS 18 18 \orangish brown, moist, very	stiff		9 7	19-⊗ 16-⊗			
S-3         SS         18         18         (SM) SILTY SAND, contains           S-4         SS         18         18         brown, moist, medium dens	s mica, orangisn e		8 11 5	21			
			8 8 4				
15 END OF BORING @ 15'			6 15	11			
			3 4 7				
30		870					
		855					
60		840					
		825					
90		810					
THE STRATIFICATION LINES REPRESENT THE APPROXIM	IATE BOUNDARY LINES	BETWEEN SOIL TYP	PES. IN-	IN-SITU THE TRANSITION MAY BE GRADUAL.			
₩L  Dry  WS  WD ⊠  BORING STAR			CAVE	AVE IN DEPTH			
₩ WL(SHW) ₩ WL(ACR) BORING COM	PLETED 07/21/18			MER TYPE Auto			
₩ WL RIG Dietrich	D-50 FOREMAN	JD	DRIL	LING METHOD 2 1/4 H	SA		

CLIENT	Job #:	BORING #		SHEET		
Jackson County Schools	10:9 ARCHITECT	918 B-36		1 OF 1	ECe	
West Jackson High-Middle School				-		
		CALIBRATED PENET			ENETROMETER TONS/FT <sup>2</sup>	
Jefferson, Jackson County, GA           NORTHING         EASTING	ATION			ROCK QUALITY DESIGNATION & RECOVERY RQD% REC%		
		ENGLISH UNITS		LIMIT% CO	VATER LIQUID NTENT% LIMIT%	
	LOSS OF C		s/6"	Х	Δ	
RE SA DE	926		BLOWS/6"	STANDAR BL	D PENETRATION OWS/FT	
$\frac{-1}{5} \frac{S-1}{S} \frac{S}{18} \frac{18}{18} \frac{10}{(SM)} \frac{S}{S} \frac{11}{S} \frac{18}{S} \frac{18}{$	contains mica, orang	sh	3 4	11-🔗		
S-2 SS 18 18 S-3 SS 18 18 Ioose to medium de	own to grayish brown,	moist,	7 4 4	10-× 14		
<u>S-4 SS 18 18</u>			6 5	15-&		
		915	6 8			
15 <u>S-5 SS 18 18</u>			7 7 8 5	22-⊗ 11		
<u>S-6 SS 18 18</u>			9 13 3 5	×		
S-7 SS 18 18		900	5 6 4	9-&		
30 S-8 SS 18 18			4 5 5	11-8		
			5 6 4	13-⊗		
			6 7 5	12-⊗		
		885	5 5 7			
45 <u>S-11 SS 18 18</u> END OF BORING (	@ 45'		4 3	9-&		
			6			
		870				
60						
		855				
		840				
90						
		1 1	· <b>–</b>			
THE STRATIFICATION LINES REPRESENT THE A	PPROXIMATE BOUNDARY	LINES BETWEEN SOIL TYP	ES. IN-SIT	U THE TRANSITION M	AY BE GRADUAL.	
. ,	ING STARTED 07/2	RTED 07/21/18 CAVE IN DEPTH				
	ING COMPLETED 07/2	21/18		r type Manual		
₩ WL RIG	Dietrich D-50 FO	D-50 FOREMAN JD DRILLING METHOD 2 1/4 HSA				

CLIENT	Job #:	BORING #		SHEET	
Jackson County Schools	10:9918 ARCHITECT-ENGINE	B-37	,	1 OF 1	FPA
	ARCHITECT-ENGINE	ER			
West Jackson High-Middle School SITE LOCATION					ENETROMETER TONS/FT <sup>2</sup>
Jefferson, Jackson County, GA			0	SIGNATION & RECOVERY	
NORTHING EASTING STATION			RQD% REC%		
	ENGLI				VATER LIQUID NTENT% LIMIT%
	LOSS OF CIRCULA		50	× 00	
Level and the second state of the second state		MATER LEVELS	BLOWS/6"		RD PENETRATION OWS/FT
0 S-1 SS1818 Topsoil Depth [5.5"]	/		4 4	11-⊗	: : :
S-2 SS 18 18 S-2 SS 18 18 brown to grayish brown to re		,	7 4	14-8	
S-3 SS 18 18 S-4 SS 18 18 S-4 SS 18 18			5 9 10	13-⊗ 14-⊗	
* Rock fragments encounter	red @ 1'-3'		6 7		
15 <u>S-5 SS 18 18</u>		915	5 7 7	17-⊗	
			10 7 10	12-8	
S-7 SS 18 18			4 6	15-&	
			6 7 7	: \	27
30 <u>S-8 SS 18 18</u>		900	8 8 11		8
			16 6 9	19-8	
			10 8		
END OF BORING @ 40'			8 10		
		885			
		870			
75		- 855			
		840			
		I F			: : :
THE STRATIFICATION LINES REPRESENT THE APPROXIM		BETWEEN SOIL TYP			IAY BE GRADUAL.
Image: wide wide wide wide wide wide wide wide					
₩     WL     RIG Dietrich					SA

CLIENT	CLIENT						Job #:		BORING #		SHEET			
Jackso	on C	<u>o</u> un	ty S	Scho	ols		1(	0:9918	B-38	3	1 OF 1	-00		
PROJECT	NAME						ARCHIT	ECT-ENGINEEF						
West		son	Hig	gh-M	iddle School									
		10-	40-	n 0-							-O- CALIBRATED PENETROMETER TONS/FT <sup>2</sup>			
NORTHIN	son, <sup>G</sup>	Jac			ounty, GA	STATION						SIGNATION & RECOVERY		
											RQD% – – – REC% –			
			Ű.	4)	DESCRIPTION OF	MATERIAL		ENGLISH				WATER LIQUID INTENT% LIMIT%		
(L	ġ	TYPE	DIST.	RY (IN	BOTTOM OF CASIN	NG 📕	LOSS	OF CIRCULATIC			×	-ΦΔ		
DЕРТН (FT)	SAMPLE NO.	SAMPLE TYPE	SAMPLE DIST. (IN)	RECOVERY (IN)	SURFACE ELEVAT	ION 918	LOSS OF CIRCULATION (L) 100 818 100 918					STANDARD PENETRATION BLOWS/FT		
					\Topsoil Depth	[3"]				3 B		LOWS/FT		
	S-1 S-2	SS SS	18 18	18 18	(ML) SANDY	SILT, contains s		ca,	915	3	7-⊗ 10-⊗			
	S-3	SS	18	18	orangish brov	n, moist, firm to	SUIT			4 3 4	&			
	<u>\</u> S-4	SS	10	10		IALLY WEATHE S SILTY SAND, o				6 5 5	12	× 50/4		
	S-5	SS	18	18	∖mica, orangis	h brown to white AND, contains n	, moist			7 11	19			
15						ish brown, moist			<u> </u>	50/4 8				
	S-6	SS	18	18						8 11	14-8			
	S-7	SS	18	18						4 7 7	15-⊗			
										7 8				
30	<u>S-8</u>	SS	18	18						7 5 7	17-⊗			
	S-9	SS	18	18					885	10 4 7				
					END OF BOR	RING @ 35'				15				
=											: :			
45 —														
									870		: :	: : :		
=														
											: :			
60														
									855					
75 —														
									840					
												<u> </u>		
	THE STRATIFICATION LINES REPRESENT THE APPROXIM						ATE BOUNDARY LINES BETWEEN SOIL TYPES. IN-			PES. IN-	. IN-SITU THE TRANSITION MAY BE GRADUAL.			
¥ wL [	Dry			WS□	WD	BORING STARTE				CAVE	CAVE IN DEPTH			
₩_ WL(SH	₩ WL(SHW) ₩ WL(ACR) BORING					BORING COMPLE	MPLETED 07/21/18 HAMMER TYPE				MER TYPE Manual	TYPE Manual		
₩ WL	₩ ₩L				RIG Dietrich D-50 FOREMAN JD			DRILLING METHOD 2 1/4 HSA						

CLIENT	Job #:	BORING #		SHEET			
Jackson County Schools	10:9918	B-39		1 OF 1	FCO		
PROJECT NAME	ARCHITECT-ENGINEE	R					
West Jackson High-Middle School							
Jefferson, Jackson County, GA							
NORTHING EASTING STATION			ROCK QUALITY DESIGNATION & RECOVERY RQD% REC%				
$ \begin{array}{c c} \vdots \\ \vdots \\ \vdots \\ \vdots \\ \widehat{z} \end{array} $ DESCRIPTION OF MATERIAL	ENGLIS	H UNITS			WATER LIQUID DNTENT% LIMIT%		
	LOSS OF CIRCULATI		.9/	Х	-ΦΔ		
(I) LESCRIPTION OF MATERIAL BESCRIPTION OF MATERIAL BOTTOM OF CASING BOTTOM OF CASING SURFACE ELEVATION 901		A WATER LEVELS	BLOWS/6"	⊗ STANDA B	RD PENETRATION LOWS/FT		
0 <u>S-1 SS 18 18</u> Topsoil Depth [2"] S-2 SS 18 18 (ML) SANDY SILT, orangish		900	3 4	9-8			
S-2 SS 18 18 S-3 SS 18 18 SS 18 18 18 SS 18 18 18 18 18 18 18 18 18 18 18 18 18			5 3 6	11 × 17			
S-4 SS 18 18 * Rock fragments encounter	ed @ 12'-22'	—	11 4 4	9-8			
15 S-5 SS 18 18			7 3 4	11-🔗			
			4 5 4 5	$\otimes$			
END OF BORING @ 20'			6 3 5	10			
			5				
30		870					
		855					
60		840					
75—		825					
90		810		: :	<u> </u>		
THE STRATIFICATION LINES REPRESENT THE APPROXIM         꽃       WL       Dry       WS □       WD ⊠       BORING STAR*		ETWEEN SOIL TYP		. IN-SITU THE TRANSITION MAY BE GRADUAL.			
Image: weight of the second secon			IMER TYPE Auto				
₩ RIG Dietrich					ISA		

CLIENT	Job #:	BORING #		SHEET			
Jackson County Schools	10:9918 ARCHITECT-ENGINE	B-40	)	1 OF 1	Eße		
West Jackson High-Middle School							
				CALIBRATED P	ENETROMETER TONS/FT <sup>2</sup>		
Jefferson, Jackson County, GA				ROCK QUALITY DESIGNATION & RECOVERY RQD% REC%			
$ \begin{array}{c c} \hline \\ \hline \\ \hline \\ \hline \\ \\ \hline \\ \\ \\ \\ \\ \\ \\ \\ \\ \\$	ENGLI	SH UNITS			VATER LIQUID NTENT% LIMIT%		
					-ΦΔ		
Image: Construction of the co		A MATER LEVELS	BLOWS/6"	STANDAF BL	RD PENETRATION OWS/FT		
S-1 SS 18 18 (SM) SILTY SAND, contains			3 5	11-⊗ 10-⊗			
<u></u> S-3 SS 18 18		870	6 4 4	13-8			
S-4 SS 18 18 trace roots encountered @ 7	l rock fragments an 1'-3'	d	6 3 5 8	14-8			
15 S-5 SS 18 18 END OF BORING @ 15'			6 6 8	12-⊗			
		855	4 6 6				
		840					
		825					
60							
		810					
		795					
90		=		: :	: : :		
THE STRATIFICATION LINES REPRESENT THE APPROXIM         꽃       WL       Dry       WS □       WD ⊠       BORING STAR*		BETWEEN SOIL TYP		S. IN-SITU THE TRANSITION MAY BE GRADUAL.			
Image: Weight of the second							
₩ RIG Dietrich				SA			

CLIENT	Job #:	BORING #		SHEET			
Jackson County Schools	10:9918	B-41	1	1 OF 1	FCO		
PROJECT NAME	ARCHITECT-ENGINE	ER					
West Jackson High-Middle School				The second se			
				-O- CALIBRATED PENETROMETER TONS/FT <sup>2</sup>			
Jefferson, Jackson County, GA           NORTHING         EASTING           STATION	ATION				ROCK QUALITY DESIGNATION & RECOVERY RQD% REC%		
DESCRIPTION OF MATERIAL	ENGLIS		1	PLASTIC V	VATER LIQUID		
L ON OF MATERIAL U U U U U U U U U U U U U U U U U U U	LOSS OF CIRCULAT			LIMIT% CO	NTENT% LIMIT%		
U U U U U U U U U U U U U U U U U U U		MATER LEVELS	STANDARD PENETRATION				
		MAT ELEV	BLOWS/6"	BL	OWS/FT		
S-1 SS 18 18 (ML) SANDY SILT, contain	/ ns mica and contains	870	3	8-8			
S-3 SS 18 18 (SM) SILTY SAND, contain			3 5 3 4	10-⊗ 8-⊗			
S-4 SS 18 18 orangish brown, moist, loo			6 3 3	7-&			
S-5 SS 18 18 * Slight rock fragment enco	ountered @ 8'- 15'		5 3	13-⊗			
15 END OF BORING @ 15'		855	3 4 3				
			6 7				
30		840					
		825					
60		-					
		810					
75							
		795					
90 -					: : :		
THE STRATIFICATION LINES REPRESENT THE APPROXI	MATE BOUNDARY LINES E	ETWEEN SOIL TYP	PES. IN-	IN-SITU THE TRANSITION MAY BE GRADUAL.			
₩L   Dry   WS   WD   BORING STA	RTED 07/21/18		CAVE	AVE IN DEPTH			
	COMPLETED 07/21/18 HAMMER TYPE Auto						
₩ WL RIG Dietric	h D-50 FOREMAN	JD	DRIL	LING METHOD 2 1/4 H	SA		

CLIENT	Job #:	:	BORING #		SHEET				
Jackson County Schools		10.9918	B-4	2	1 OF 1	500			
Jackson County Schools PROJECT NAME	ARCH	10:9918 IITECT-ENGINEER	D-4.	<u> </u>			59		
West Jackson High-Middle School									
Jefferson, Jackson County, GA					ROCK QUALITY DE	SIGNATION &	RECOVERY		
NORTHING EASTING STATION						ROCK QUALITY DESIGNATION & RECOVERY RQD% REC%			
	ATERIAL ENGLISH UNITS PLASTIC			WATER	LIQUID				
	LOS	S OF CIRCULATION		"9/S		•			
(L) (V) (V) (V) (V) (V) (V) (V) (V) (V) (V	LOSS OF CIRCULATION W 889					STANDARD PENETRATION BLOWS/FT			
0 - S-1 SS 18 18 Topsoil Depth [4"]				3	10-⊗	: :			
S-2 SS 18 18 brown, moist, stiff	ins mica, r	reddish	885	5 5 5	11-🔗				
S-3 SS 18 18 (SM) SILTY SAND, conta	ins mica, l	brown,		5 6	9-⊗				
S-4 SS 18 18 moist, loose END OF BORING @ 10'				4 5	9-⊗				
				4 3 4		: :			
			<b>—</b>	5		: :			
			870						
			Ē						
			Ē						
30			E			÷			
			855						
			- 000						
							:		
			840						
			040						
			_						
60							•		
			825						
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75 —						÷ ÷			
			810						
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90			Ē			i			
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THE STRATIFICATION LINES REPRESENT THE APPRO>					IN-SITU THE TRANSITION MAY BE GRADUAL				
Image         Image <t< td=""><td></td><td>07/20/18</td><td></td><td></td><td colspan="3">VE IN DEPTH</td></t<>		07/20/18			VE IN DEPTH				
	G COMPLETED 07/20/18 HAM				HAMMER TYPE Auto				
	RIG Dietrich D-50 FOREMAN JD DRILLING METHOD 2 1/4 HSA								

CLIENT	Job #:	BORING #		SHEET		1		
Jackson County Schools	10:9918	B-43	3	1 OF 1	200			
PROJECT NAME	ARCHITECT-ENGINEE	R			<b>L</b> 68			
West Jackson High-Middle School								
					ENETROMETER TONS	S/FT <sup>2</sup>		
Jefferson, Jackson County, GA				ROCK QUALITY DESIGNATION & RECOVERY RQD% REC%				
$\widehat{\mathcal{L}}$ $\widehat{\mathcal{L}}$ $\widehat{\mathcal{L}}$ DESCRIPTION OF MATERIAL	ENGLIS			LIMIT% CO	NTENT% LIN			
	LOSS OF CIRCULATI		Х		$\bigtriangleup$			
L ON HEREIAL A DESCRIPTION OF MATERIAL BOTTOM OF CASING BOTTOM OF CASING SURFACE ELEVATION 899		NATER LEVELS		STANDAF BL	D PENETRATION OWS/FT			
S-1 SS 18 18 (ML) SANDY SILT, contain	s mica, brown to		3 6 7	13-⊗ 15-⊗				
S-3 SS 18 18 (SM) SILTY SAND, contain	s mica, orangish		5 7	×				
S-4 SS 18 18 brown to reddish brown to r			8 5 5	9´ <u>&amp;</u> -9	<u> </u>			
END OF BORING @ 10'		885	4 3					
			4 5					
		870						
		855						
60		840						
75		825						
		E						
90		810						
					<u> </u>			
THE STRATIFICATION LINES REPRESENT THE APPROXIN	IATE BOUNDARY LINES BE	TWEEN SOIL TYP	PES. IN-	S. IN-SITILITHE TRANSITION MAY BE GRADUAL				
및         WL         Dry         WS□         WD ⊠         BORING STAF				CAVE IN DEPTH				
₩ WL(SHW) ₩ WL(ACR) BORING COM	PLETED 07/20/18		HAMMER TYPE Auto					
₩ WL RIG Dietrich	D-50 FOREMAN J	D-50 FOREMAN JD			DRILLING METHOD 2 1/4 HSA			

CLIENT						Job #:		BORI	NG #		SHEET				
Jackson	<u>Cou</u> n	ty S	<u>Scho</u>	ols			10:9918		B-44	1	1 OF 1		5	Po	
PROJECT NAM	IE	-				ARCH	ITECT-ENGINEER	2						5	
West Jac SITE LOCATIO	kson	Hig	<u>gh-M</u>	iddle School											
Jefferson											-O- CALIBRATED PENETROMETER TONS/FT <sup>2</sup>				
NORTHING	<u>,</u>		EASTIN	IG	STATION	STATION				ROCK QUALITY DESIGNATION & RECOVERY RQD% REC%					
	Ĕ	T. (IN)	(IN)	DESCRIPTION OF I			ENGLISH				PLASTIC LIMIT%		TER TENT%		
DEPTH (FT) SAMPLE NO.	SAMPLE TYPE	SAMPLE DIST. (IN)	VEF	BOTTOM OF CASING LOSS OF CIRCULATION W 2 10 1 10 10 10 10 10 10 10 10 10 10 10 1				LOSS OF CIRCULATION MR LOSS OF CIRCULATION MR UN 906				_			
O DEPTH (FT)		SAMPI		SURFACE ELEVAT				NYANY	WATE	BLOWS/6"	⊗ stan	IDARD BLO	PENETRA WS/FT	TION	
$\begin{array}{r} 0 \\ -\underline{S-1} \\ \underline{S-2} \end{array}$		18 18	18 18	∖Topsoil Depth (ML) SANDY	SILT, contains n	nica, b	orown to			5 5 7	12 <del>.</del> ⊗				
<u></u> <u>S-3</u>		18	18	-	n, moist, firm to				900	11	×				
<u>S-4</u>	SS	18	18	(SM) SILTY S ∏moist, loose	AND, contains n	nica, t	orown, Γ			7 6 3 4	7-🔗 8		<u>:</u> : :	<u> </u>	
15 —				END OF BOR	ING @ 10'					4 3 3				÷	
_										4					
									885				: :		
30															
-													: :	:	
									870					÷	
														:	
														:	
									855						
_													: :	:	
60													: :	:	
_									840						
75 —															
									825						
													: :	:	
													: :	:	
90													:		
	HE STR	ATIFIC	CATION	LINES REPRESEN	THE APPROXIMAT	TE BOUNDARY LINES BETWEEN SOIL TYPES. IN-				IN-SITU THE TRANSITION MAY BE GRADUAL.					
₩ WL Dry			WS	WD	BORING STARTE										
₩ WL(SHW)						G COMPLETED 07/20/18 HAMMER TYPE Auto									
¥ WL	₩ wL				RIG Dietrich D	-50	FOREMAN R	Н		DRILI	LING METHOD 2 1/	4 HS/	4		

CLIENT	Job #:	B	ORING #		SHEET			
Jackson County Schools	10.0	9918	B-45	5	1 OF 1	5		
PROJECT NAME	ARCHITEC	T-ENGINEER					59	
West Jackson High-Middle School						1		
						PENETROMET	ER TONS/FT <sup>2</sup>	
Jefferson, Jackson County, GANORTHINGEASTINGSTATION					ROCK QUALITY DE	SIGNATION &	RECOVERY	
				RQD% REC%				
		ENGLISH UNITS				WATER DNTENT%	LIQUID LIMIT%	
Image: Constraint of the sector of the se	LOSS OF		N (FT		X			
LISING BOTTOM OF CASING DIFERENCE PLANTING PLANT	LOSS OF CIRCULATION WITH LOSS OF CIRCULATION (F1)					⊗ STANDARD PENETRATION		
		/			В	LOWS/FT	<u> </u>	
S 2 2 40 40 (ML) SANDY SILT, contair	is mica, reddi	sh		2 4 5	9-⊗ 12-⊗	: :		
S-3 SS 18 0 (NO RECOVERY)				5 4 6	5 2 8			
S-4 SS 18 18 (SM) SILTY SAND, contair	ns mica, orang	gish	900	6 3 2	5-&	<u> </u>	:	
END OF BORING @ 10'			=	2 3 2				
				2 3				
			Ē			÷ ÷	:	
			885					
			000			: :	:	
30			<u> </u>			÷ ÷		
			<b>—</b>					
			870			: :	:	
						: :		
45			<u> </u>					
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						÷	:	
			855			: :		
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			E			÷ ÷	:	
			840					
			<b>E</b>			÷	:	
						: :		
			825			÷		
			F			: :		
90			F			<u> </u>		
THE STRATIFICATION LINES REPRESENT THE APPROXI	ROXIMATE BOUNDARY LINES BETWEEN SOIL TYPES. IN-				3. IN-SITU THE TRANSITION MAY BE GRADUAL.			
및 WL Dry WS□ WD⊠ BORING STA					AVE IN DEPTH			
₩ WL(SHW) ¥ WL(ACR) BORING COM	MPLETED 07/20/18 HAM			HAMMER TYPE Auto				
₩ WL RIG Dietric	h D-50 F	OREMAN RH		DRIL	LING METHOD 2 1/4 H	ISA		

CLIENT	CLIENT						Job #:		BORI	ING #			SHEET			
Jackso PROJECT N	on C	oun	ty S	Scho	ols			10:9918		B-46	6	1	I OF 1	5	Po	
							ARCH	ITECT-ENGINEEI	R							
SITE LOCA	Iack	son	Hig	<u>gh-M</u>	iddle School									PENETRON	ETER TONS/FT <sup>2</sup>	
<u>Jeffer</u> s	on,	<u>Jac</u> l	<u>kso</u>	<u>n C</u> c	ounty, GA							_				
NORTHING	6		1	EASTIN	IG	STATION					ROCK QUALITY DESIGNATION & RECOVERY RQD% REC%					
		ц	T. (IN)	(IN)	DESCRIPTION OF I			ENGLISH					°% C	WATER ONTENT%	LIQUID LIMIT%	
H (FT)	SAMPLE NO.	SAMPLE TYPE	SAMPLE DIST. (IN)	VEF	BOTTOM OF CASIN	LOSS OF CIRCULATION REAL REAL RATION (F1) 100 (F				×		•	∆			
O DEPTH (FT)					SURFACE ELEVAT								STANDARD PENETRATION BLOWS/FT			
		SS SS	18 18	18 18		SILT, brown to g	grayish	n brown to		E	333	6-8	11 ☆			
	S-3	SS	18	18	orangish brow * Slight rock fi	n, moist, firm to ragment encount	stiff tered	@ 1'- 5'		885	3 3 4 5 6 3	$\bigotimes^{7}$				
	S-4	SS	18	18	END OF BOR	NG @ 10'					4	6-🛇	<u>:</u>	<u> </u>	<u>: :</u>	
15 —										=	3 2 2			÷		
											4			:		
										870						
30 —																
										_						
										855						
													÷			
45 —													÷			
_										_						
										840						
60 —										Ē						
										E						
										825				÷		
										<u> </u>						
75													:			
										810						
_																
90										$\vdash$		:	:	:	: :	
													TRANOTON		DUAL	
¥ w∟ D		STRA				BORING STARTE	TED 07/21/18 CAVE				IN-SITU THE TRANSITION MAY BE GRADUAL.					
	₩ WL(SHW) ¥ WL(ACR) BORING					BORING COMPLE	PLETED 07/21/18 HAMMER			MMER TYPE Auto						
₩ WL	₩ ₩L				RIG Dietrich D	-50	FOREMAN J	D		DRIL	LING MET	HOD 2 1/4	ISA			

CLIENT	Job	b #:	BORING #		SHEET		
Jackson County Schools		10:9918	B-4 <sup>-</sup>	7	1 OF 1	57	
Jackson County Schools	AR	10:9918 RCHITECT-ENGINEER	. 04	•			59
West Jackson High-Middle School						1	
				-O- CALIBRATED PENETROMETER TONS/FT <sup>2</sup>			
Jefferson, Jackson County, GA	1				ROCK QUALITY DE	SIGNATION 8	RECOVERY
					RQD% REC%		
		ENGLISH				WATER	LIQUID
(L) U DESCRIPTION OF MATERIAL BOTTOM OF CASING D U DESCRIPTION OF MATERIAL BOTTOM OF CASING D U DESCRIPTION OF MATERIAL BOTTOM OF CASING D SURFACE ELEVATION 9	LC	OSS OF CIRCULATION			LIMIT% CC	ONTENT%	LIMIT%
L L SIG AND A CONTRACT OF CASING U L SIG A CONTRACT OF CASIN	IS I				⊗ STANDARD PENETRATION		
	02		MAJ ELE		В	LOWS/FT	
- S-1 SS 18 18 (MI) SANDY SILT re	ddish browr	n, moist, stiff	900	5	9-8		
<u>S-2 SS 18 18</u> <u>S-3 SS 18 18</u> (ML) SHUT SLIT	rown, moist,	, loose		4 4 7	9 6 15		
S-4 SS 18 18 END OF BORING @	10'			8 5	8	<u> </u>	:
	10		E	4 5 10			
			885	3			
			E			: :	:
							:
			E				
30			<u> </u>			: :	
			870				
			E				
			E			: :	:
			E			: :	:
45			E				
			855				
			E				:
			E			: :	:
			840			: :	
						: :	:
			E				:
			<u> </u>			: :	:
			825			: :	:
						: :	:
			E				
90			Ē			: :	:
		I					
							101
THE STRATIFICATION LINES REPRESENT THE APP         꽂 WL Dry       WS □       WD ⊠       BORIN	G STARTED	07/21/18	WEEN SUL IY		IN-SITU THE TRANSITION MAY BE GRADUAL.		
	G COMPLETED			HAMMER TYPE Auto			
	RIG Dietrich D-50 FOREMAN RH DRILLING METHOD 2 1/4 HSA				ISA		

CLIENT	Job #:	BORING #		SHEET			
Jackson County Schools	10:9918 ARCHITECT-ENGINEER	B-48	8	1 OF 1	ECe		
West Jackson High-Middle School							
		-O- CALIBRATED P	ENETROMETER TONS/FT <sup>2</sup>				
Jefferson, Jackson County, GA           NORTHING         EASTING           STATION		ROCK QUALITY DESIGNATION & RECOVERY RQD% REC%					
F 9 2 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5	ENGLISH						
L L L L L L L L L L L L L L	LUSS OF CIRCULATIO	WATER LEVELS	STANDARD PENETRATION BLOWS/FT				
0         S-1         SS         18         18	mica, brown to		"9/SMOTE 6 & 10 10 10 14	18-× 12 × 17			
S-4         SS         18         18           15         S-5         SS         18         18	, medium dense	930	6 6 5 6 11	15-8			
			6 6 9 7	17-⊗			
S-7 SS 18 18 END OF BORING @ 25'			7 10 7	17			
30		915	8 9				
		900					
		885					
		870					
90		855					
THE STRATIFICATION LINES REPRESENT THE APPROXIMA       꽃 WL Dry     WS U     WD X     BORING START		TWEEN SOIL TYP		. IN-SITU THE TRANSITION MAY BE GRADUAL.			
Image: Specific state     Image: Specific state       Image: Specific state     Image: Specific state    <			HAM	HAMMER TYPE Auto			
꽃 WL RIG Dietrich I	0-50 FOREMAN RH DR			DRILLING METHOD 2 1/4 HSA			

CLIENT	Job #:	BORING #		SHEET				
Jackson County Schools	10:9918 ARCHITECT-ENGIN	B-49	)	1 OF 1	ECo			
West Jackson High-Middle School								
				-O- CALIBRATED PENETROMETER TONS/FT <sup>2</sup>				
Jefferson, Jackson County, GA	STATION				ROCK QUALITY DESIGNATION & RECOVERY RQD% REC%			
(I) IS OF THE ACTION OF MATERIAL (I) IS OF THE ACTION OF MATERIAL (I) IS OF THE ACTION OF CASING → IS OF THE ACTION OF CASING → SURFACE ELEVATION 947				NTENT% LIMIT%				
D         Ø         Ø         Ø         Ø         Ø         Ø         Ø         Ø         Ø         Ø         Ø         Ø         Ø         Ø         Ø         Ø         Ø         Ø         Ø         Ø         Ø         Ø         Ø         Ø         Ø         Ø         Ø         Ø         Ø         Ø         Ø         Ø         Ø         Ø         Ø         Ø         Ø         Ø         Ø         Ø         Ø         Ø         Ø         Ø         Ø         Ø         Ø         Ø         Ø         Ø         Ø         Ø         Ø         Ø         Ø         Ø         Ø         Ø         Ø         Ø         Ø         Ø         Ø         Ø         Ø         Ø         Ø         Ø         Ø         Ø         Ø         Ø         Ø         Ø         Ø         Ø         Ø         Ø         Ø         Ø         Ø         Ø         Ø         Ø         Ø         Ø         Ø         Ø         Ø         Ø         Ø         Ø         Ø         Ø         Ø         Ø         Ø         Ø         Ø         Ø         Ø         Ø         Ø         Ø         Ø         Ø	tiff ns mica, brown to e	930 945 930 930 930 915 915 900 900 900 885 885 885	<u>n</u> 4 6 8 6 9 10 5 5 7 5 7 8 6 8 9 9 5 5 7 7 5 7 8 6 8 9 9 5 7 7 4 6 8	14- 12 19 15- 17- 18- 14- 14- 14- 14- 14- 14- 14- 14				
THE STRATIFICATION LINES REPRESENT THE APPROXI	MATE BOUNDARY LINES	ATE BOUNDARY LINES BETWEEN SOIL TYPES. IN-			IN-SITU THE TRANSITION MAY BE GRADUAL.			
및 WL Dry WS□ WD⊠ BORING STA	STARTED 07/23/18 CAVE IN DEPTH							
	COMPLETED 07/23/18 HAMMER TYPE Auto							
₩ WL RIG Dietric	D-50 FOREMAN RH DRILLING METHOD 2 1/4 HSA				SA			

CLIENT	Job #:	BORING #		SHEET	
Jackson County Schools	10.0018	B-50	r	1 OF 1	5000
Jackson County Schools PROJECT NAME	10:9918 ARCHITECT-ENGINE	ER	<u> </u>		<b>L</b> GQ
West Jackson High-Middle School					
West Jackson High-Middle School SITE LOCATION					ENETROMETER TONS/FT <sup>2</sup>
Jefferson, Jackson County, GA				OREBRATED	
Jefferson, Jackson County, GA           NORTHING         EASTING           STATION				ROCK QUALITY DES RQD%	SIGNATION & RECOVERY REC% ———
					REC //
	ENGL	SH UNITS			VATER LIQUID NTENT% LIMIT%
(Î) LESCRIPTION OF MATERIAL U LESCRIPTION OF MATERIAL BOTTOM OF CASING → LESCRIPTION OF MATERIAL BOTTOM OF CASING → U LESCRIPTION OF MATERIAL BOTTOM OF CASING → SURFACE ELEVATION 951	LOSS OF CIRCULA	MATER LEVELS ELEVATION (FT)		×	
U U U U U U U U U U U U U U U U U U U		ER LE		RD PENETRATION	
L     O     V     Image: Signature     BOTTOM OF CASING       H     H     H     H     Image: Signature       H     H     H     H       H     H     H     H       H     H     H     H       H     H     H     H       H     H     H     H       H     H     H     H       H     H     H     H       H     H     H     H       H     H     H     H       H     H     H     H       H     H     H     H       H     H     H     H       H     H     H     H       H     H     H     H       H     H     H     H       H     H     H     H       H     H     H     H       H     H     H     H       H     H     H     H       H     H     H     H       H     H     H     H       H     H     H     H       H     H     H     H       H     H     H       H     H </td <td></td> <td>WATI</td> <td>BLOWS/6"</td> <td></td> <td>OWS/FT</td>		WATI	BLOWS/6"		OWS/FT
0 <u>S-1 SS 18 18</u> Topsoil Depth [6"]	/		6 9	18-🚫	
S-2 SS 18 18 (ML) SANDY SILT, contain brown, moist, very stiff	s mica, reddish		9	18-🛇	
S-3 SS 18 18 (SM) SILTY SAND, contain		945	9	×	
S-4 SS 18 18 orangish brown to reddish to medium dense	orown, moist, loose		9 6 6	10-& ''	
			5 4	13-⊗	
			5 5 5		
<u>S-6</u>			7	17-📎	
		930	6 7 9		
<u></u>			8 7	15	
30 S-8 SS 18 18			7 8	13-⊗	
30 - 35 33 10 10			6 6		
			74	&	
END OF BORING @ 35'		915	5 9	14	
		F			
		900			
		885			
75					
		870			
		$ $ $\vdash$		: :	: : :
THE STRATIFICATION LINES REPRESENT THE APPROXIMATE BOUNDARY LINES BETWEEN SOIL TYPES. IN-SITU THE TRANSITION MAY BE GRADUAL.				IAY BE GRADUAL.	
문 WL Dry WS□ WD⊠ BORING STAF	RTED 07/21/18		CAVE	E IN DEPTH	
₩ WL(SHW) ₩ WL(ACR) BORING COM	PLETED 07/21/18		HAMMER TYPE Auto		
꽃 WL RIG Dietrich	D-50 FOREMAN	OREMAN DD DRILLING METHOD 2 1/4 HSA			SA

CLIENT			Job #:		BORING #		SHEET			
Jackson County Schools	6		10:9 ARCHITECT	918 ENGINEER	B-51		1 OF 1	Ξ	Co	
West Jackson High-Mido	dle School		ARGHITEOT							
Jefferson, Jackson Coun NORTHING	nty, GA	STATION	FATION					ROCK QUALITY DESIGNATION & RECOVERY RQD% REC%		
	SCRIPTION OF N		LOSS OF C	ENGLISH U			PLASTIC LIMIT% C	WATER ONTENT%	LIQUID LIMIT%	
	RFACE ELEVATI				WATER LEVELS	BLOWS/6"		RD PENETRA	TION	
0	opsoil Depth		· · · · · · · ·			3	13-🛇	: :	:	
<u>- 5-2 55 18 18</u> \n	noist, medium	AND, contains m dense				5 8 6	15-🔗			
S-3 SS 18 18 (I S-4 SS 18 18 0	ML) SANDY :	SILT, contains m n, moist, stiff	nica, brown	to		6 9 6	15-⊗ 16-⊗	: :		
	SM) SILTY S	AND, contains m		n to	945	6 6 9		: :		
	nedium dense	n to white, moist e	t, loose to			6 7 9	9-8			
<u>S-6 SS 18 18</u>						3 4 5 3	7-&			
S-7 SS 18 18						3 4	11-🔗			
30 <u>S-8</u> SS 18 18						4 5 6 5	13-🛇			
						6 7 6				
						8 9	17			
	UGER REFL	JSAL @ 38			915			: :	:	
45					E					
					E			: :		
					E					
					900					
								: :		
60					Ē			: :		
					E			: :		
					885			: :	:	
					<u> </u>					
					E			: :	:	
								· · ·	:	
					870					
90					E				:	
				I	I					
THE STRATIFICATION LINES REPRESENT THE APPROXIMATE BOUNDARY LINES BETWEEN SOIL TYPI				ES. IN-	SITU THE TRANSITION	MAY BE GRAD	UAL.			
및 WL Dry WS□ WD⊠ BORING STARTED 07/22/18				CAVE	IN DEPTH					
₩ WL(SHW) ₩ WL(ACR)		BORING COMPLE	TED 07/	22/18		HAM	HAMMER TYPE Auto			
₩ RIG Dietrich D-50 FC			REMAN RH	l	DRILLING METHOD 2 1/4 HSA					

CLIENT	Job #:	BORING #		SHEET	
Jackson County Schools	10:9918	B-52	2	1 OF 1	-00
PROJECT NAME	ARCHITECT-ENGIN	EER			<b>L</b> 68
West Jackson High-Middle School					
					PENETROMETER TONS/FT <sup>2</sup>
Jefferson, Jackson County, GA           NORTHING         EASTING         STATION					SIGNATION & RECOVERY
				RQD% – — –	REC%
	ENGL	ISH UNITS ගුළ			NATER LIQUID INTENT% LIMIT%
	LOSS OF CIRCUL/	×	-●△		
LEURAL DESCRIPTION OF MATERIAL BUTTOM OF CASING ULU ULU ULU ULU ULU ULU ULU ULU ULU ULU		MATER LEVELS ELEVATION (FT)	BLOWS/6"		
			-		_OWS/FT
(ML) SANDY SILT, cont		960	4 5 8	13-8	
<u>S-3 SS 18 18</u> (SM) SILTY SAND, cont	ains mica, brown to		8 6 7	6 × 16	
S-4 SS 18 18 medium dense	, moist, loose to		9 2 3	6-🛠	
				7-&	
		945	3 2 4 3		
<u>- S-6 SS 18 18</u>			3 4	15->>	
			4 6	13-⊗	
			9 4 6		
30 <u>S-8 SS 18 18</u>			7 6 8	8 17	
=\S-9 SS 1 1 SAMPLED AS SILTY SA		930	9 50/1		50/1
white to grayish brown, i	moist, very dense				50/1
─────────────────────────────────────	6'	J E			
		915			
60					
		900			
		E			
		885			
		$ $ $\vdash$			: : :
	XIMATE BOUNDARY LINES	LINES BETWEEN SOIL TYPES. IN-SITU THE TRANSITION MAY BE GRADUAL.			IAY BE GRADUAL.
문 WL Dry WS□ WD⊠ BORING S	TARTED 07/22/18	D 07/22/18 CAVE IN DEPTH			
÷ , , ÷ , · ,	COMPLETED 07/22/18		HAM	MER TYPE Auto	
<u>₩</u> WL RIG Diet	rich D-50 FOREMAN	D FOREMAN RH DRILLING METHOD 2 1/4 HSA			SA

CLIENT			Job #:		BORIN	NG #		SHEET		
Jackson County Schools			1	0:9918		B-53	}	1 OF 1	5	
PROJECT NAME			ARCHI	TECT-ENGINEER						55
West Jackson High-Middle	School							-	1	~
									PENETROMET	ER TONS/FT <sup>2</sup>
Jefferson, Jackson County NORTHING EASTING	, GA	STATION						ROCK QUALITY DE	SIGNATION &	RECOVERY
								RQD%	- REC% ·	
	RIPTION OF N	IATERIAL		ENGLISH	UNITS		Γ		WATER	LIQUID
	OM OF CASIN	G 🗩	LOSS	OF CIRCULATIO	N 2003	EVELS		LIMIT% CC	ONTENT%	LIMIT%
	ACE ELEVATI					WATER LEVELS ELEVATION (FT)	BLOWS/6"	⊗ standa	RD PENETRA	ΓΙΟΝ
						WAT ELE <sup>V</sup>	BLO		LOWS/FT	
<u>S-1 SS 18 18</u> (MI	soil Depth	[3"] SILT, contains m	nica, re			_	4 5	11-⊗		
<u>S-2 SS 18 18</u> brow	wn, moist,	stiff		_			6 4	11-⊗ 12-⊗		
	ck, moist, l	AND, brown to c	orangis dense	n drown to			5 6 4	12 0	: :	:
*S	light rock f	ragments encou	ntered	@ 5' - 32'		945	6 6			
15 S-5 SS 18 18							3 4	18-⊗	: :	
							7 6 9	10-8		
							9 6		: :	:
<u>S-7 SS 18 18</u>							5 5 5 5	10-🛞		
30 <u>S-8 SS 18 18</u>						930	5 5 5 5	11-⊗	: :	:
							5 3 8			
<u>S-9_SS_18_18</u>							5 6	11-⊗	: :	:
							5 5	11-🛇		
						915	5 6			
45 <u>S-11 SS 18 18</u> FNI	D OF BOR	ING @ 45'					5 6	17-&	<u>:</u> ::	<u> </u>
	2 01 2011					_	11			
										•
						900				
60										
										:
						885			: :	:
										•
									: :	
90 —						870				
						<b> </b>			. :	:
THE STRATIFICATION LINES REPRESENT THE APPROXIMATE BOUNDARY LINES BETWEEN SOIL			SOIL TYP			MAY BE GRADU	JAL.			
. ,	ND 🛛	BORING STARTE		07/22/18				E IN DEPTH		
₩ WL(SHW) ₩ WL(ACR)		BORING COMPLE	TED	07/22/18				MER TYPE Auto		
₩ WL RIG Dietrich D			-50	FOREMAN R	IAN RH DRILLING METHOD 2 1/4 HSA					

CLIENT	Job #:	BORING #		SHEET	
Jackson County Schools	10:9918	B-54	Ļ	1 OF 1	5000
PROJECT NAME	ARCHITECT-ENGINE	ER			EGQ
West Jackson High-Middle School					
					ENETROMETER TONS/FT <sup>2</sup>
Jefferson, Jackson County, GA           NORTHING         EASTING           STATION					SIGNATION & RECOVERY
				RQD%	REC%
	ENGLI	SH UNITS			VATER LIQUID NTENT% LIMIT%
	LOSS OF CIRCULA			×	- Δ
L L L L L L L L L L L L L L		MATER LEVELS ELEVATION (FT)	BLOWS/6"		RD PENETRATION
	/		5		OWS/FT
(ML) SANDY SILT, contai	ns significant mica,		5 12 10	22-⊗	
S-3 SS 18 18 (SM) SILTY SAND, contai	ins mica, brown to	945	6 11	9 <u>∞</u> 22	
S-4 SS 18 18 * Slight rock fragments en	ose to medium dense countered @ 37'		11 3 4	8-🔗	
			5 4	7-&	
			4 4 4		
<u>- S-6 SS 18 18</u>		930	3 4 4	9-🔍	
			4 4 5	13-⊗	
			5 6		
30 <u>S-8 SS 18 18</u>			7 6 6	× 14	
S-9 SS 18 18		915	8 11		31 X
			15 16		
S-10 SS 18 18 END OF BORING @ 40'			14 17 21		38-⊗:
			21		
		900			
		885			
		870			
90		F			: : :
THE STRATIFICATION LINES REPRESENT THE APPROX	IMATE BOUNDARY LINES I	BETWEEN SOIL TYP	ES. IN-	SITU THE TRANSITION M	IAY BE GRADUAL.
및 WL Dry WS□ WD⊠ BORING ST/	ARTED 07/22/18		CAVE	IN DEPTH	
₩ WL(SHW) ¥ WL(ACR) BORING CO	MPLETED 07/22/18		HAM	MER TYPE Auto	
₩ WL RIG Dietrie	ch D-50 FOREMAN	RH	H DRILLING METHOD 2 1/4 HSA		

CLIENT	Job #:	BORING #		SHEET		
Jackson County Schools	10.001	8 8	-55	1 OF 1	5000	
Jackson County Schools PROJECT NAME	10:991 ARCHITECT-EN	GINEER	00			
West Jackson High-Middle School						
SITE LOCATION	<b>i</b>					
Jefferson, Jackson County, GA				-		
NORTHING EASTING STATION				RQD%	SIGNATION & RECOVERY REC%	
		NGLISH UNITS		PLASTIC \	WATER LIQUID	
	E		Ē	LIMIT% CO	NTENT% LIMIT%	
	LOSS OF CIRC		10N (	×	-ΦΔ	
U LL HLA BOTTOM OF CASING →			ELEVATION (FT) BLOWS/6"		RD PENETRATION _OWS/FT	
ā         ờ         ờ         ữ           0         -         S-1         SS         18         18         Topsoil Depth [3"]			<u> 표</u> 점 4	13-⊗		
(ML) SANDY SILT, contai	ns mica, reddish		6			
S-3 SS 18 18 (SM) SILTY SAND, contai	ns mica, brown to		5	× 10		
S-4 SS 18 18 to medium dense	brown, moist, loo	se	8 3 2	5 8		
			3	10-⊗		
15 <u>SS 18 18</u> * Slight rock fragments en	countered @ 22		5			
<u>- S-6 SS 18 18</u>			930 5 5 4 6 3	6-&		
			3			
S-7 SS 18 18			3	× 14		
30 S-8 SS 0 0 (NO RECOVERY)			9 5 50/0		⊗ 50/0	
AUGER REFUSAL @ 32'						
			915			
45						
			900			
			300			
			885			
			870			
90					<u> </u>	
THE STRATIFICATION LINES REPRESENT THE APPROXIMATE BOUNDARY LINES BETWEEN SOIL TYPES. IN-SITU THE TRANSITION MAY BE GRADUAL.						
Image: strating of the strategy of the						
Image: Weight of the second secon	MPLETED 07/22/	18	HAMMER TYPE Auto			
꽃 WL RIG Dietrie	ch D-50 FOREI	-50 FOREMAN RH DRILLING METHOD 2 1/4 HSA			SA	

CLIENT	Job #:	BORING #	SHEET			
Jackson County Schools	10:9918	B-56	1 OF 1	500		
PROJECT NAME	ARCHITECT-ENGINEEI			EGQ		
West Jackson High-Middle School						
				ENETROMETER TONS/FT <sup>2</sup>		
Jefferson, Jackson County, GA	ATION		ROCK QUALITY DES	SIGNATION & RECOVERY		
	RQD%	REC%				
	TERIAL ENGLISH			VATER LIQUID		
	LOSS OF CIRCULATIO		×	NTENT% LIMIT%		
(L) USE SCRIPTION OF MA USE SCRIPTION OF MA (I) SUBSCRIPTION OF MA (I) SUBSCRIPTION OF CASING (I) SURFACE ELEVATION SURFACE ELEVATION		WATER LEVELS ELEVATION (FT)		RD PENETRATION		
			BL	OWS/FT		
0	]/ _T, contains mica, reddish	960 4				
$\frac{52}{52}$ $\frac{53}{55}$ $\frac{18}{18}$ brown to orangis	h brown, moist, stiff to very stiff Y / PWR) Assume to be	7 6 10	25			
S-4 SS 18 18 PARTIALLY WE	ATHERÉD ROCK	15	5 4	50/0		
aravish brown n	ID, contains mica, brown to noist, loose to medium dense					
15 <u>S-5 SS 18 18</u> * Slight rock frac	ments @ 27' & 37'	945 2	2 4 4 - : :	● 38.2		
<u>- S-6 SS 18 18</u>			2 8-⊗			
<u>S-7 SS 18 18</u>		5	$12 \otimes -20$	.6		
30 S-8 SS 18 18		930 5	13-🛇			
			NP			
<u>- S-9 SS 18 18</u>		5	$5 \times -\text{NP}$ 14- $\otimes \oplus -17.3$			
			15-&			
	Y / PWR) Assume to be	96	3	50/0=⊗		
	ATHERED ROCK	915	//0	30/0 🛇		
AUGER REFUS	AL @ 47'					
		900				
75		885				
90		870				
THE STRATIFICATION LINES REPRESENT TI	HE APPROXIMATE BOUNDARY LINES BE	TWEEN SOIL TYPES. I	IN-SITU THE TRANSITION M	IAY BE GRADUAL.		
₽ WL Dry WS□ WD⊠	BORING STARTED 07/22/18	CA	AVE IN DEPTH			
$\underline{\underline{\mathbb{W}}}_{\underline{\underline{+}}}$ WL(SHW) $\underline{\underline{\mathbb{W}}}_{\underline{\underline{+}}}$ WL(ACR)	BORING COMPLETED 07/22/18	HA	HAMMER TYPE Auto			
₩ WL RIG Dietrich D-50 FOREMAN RH DRILLING METHOD 2 1/4 HSA				SA		

CLIENT	Job #:	BORING #		SHEET	
Jackson County Schools	10:991	B B-57	7	1 OF 1	5000
PROJECT NAME	ARCHITECT-ENG	INEER			EGQ
West Jackson High-Middle School					
SITE LOCATION					ENETROMETER TONS/FT <sup>2</sup>
Jefferson, Jackson County, GA					SIGNATION & RECOVERY
NORTHING EASTING STATION				RQD%	
		GLISH UNITS	_	PLASTIC V	VATER LIQUID
				LIMIT% CO	
	LOSS OF CIRCU		.9/	Χ	
U U U U U U U U U U U U U U U U U U U	5	WATER LEVELS	BLOWS/6"		RD PENETRATION OWS/FT
0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0			3	12-8	
(ML) SANDY SILT, cont	ains mica, reddish		6 6	11-8	
<u>S-3</u> SS 18 18 brown, moist, stiff (SM) SILTY SAND, con	tains mica, brown to	960	4 5	×	
S-4 SS 18 18 * Slight rock fragments	ose to medium dens	e	5 6 3 2	5 0 5	
15 S-5 SS 18 18	G 12 11		2 3 2	17	
			2		
- <u>S-6 SS 18 18</u>		945	3 3 7 10	14-&	
			10 5 7		
<u>S-7 SS 18 18</u>			7 5	8	
30 S-8 SS 18 18 grayish brown, moist, de			8 10 4		×
			11 25		36
$= \frac{5-9}{5} \frac{55}{1} \frac{1}{1} \frac{1}{1}$ SAMPLED AS SILTY S	AND, contains mica,	930	50/1		50/1
		915			
60					
		900			
		885			
		F			<u> </u>
THE STRATIFICATION LINES REPRESENT THE APPROXIMATE BOUNDARY LINES BETWEEN SOIL TYPES. IN-SITU THE TRANSITION MAY BE GRADUAL.					
	STARTED 07/22/1	8	CAVE IN DEPTH		
₩ WL(SHW) ₩ WL(ACR) BORING	COMPLETED 07/22/1	07/22/18 HAMMER TYPE Auto			
₩ WL RIG Die	trich D-50 FOREM	AN RH	DRILLING METHOD 2 1/4 HSA		

CLIENT		Job #:	BORING #		SHEET	
Jackson County Schools		10:9918 ARCHITECT-ENGINEE	B-58	3	1 OF 1	FCO
		ARCHITECT-ENGINEE	R			-65
West Jackson High-Middle School SITE LOCATION					0.000	
Jefferson, Jackson County, GA					-	PENETROMETER TONS/FT <sup>2</sup>
NORTHING EASTING S	STATION				ROCK QUALITY DE RQD%	SIGNATION & RECOVERY - REC% ———
DESCRIPTION OF M/	ATERIAL	ENGLIS	H UNITS		PLASTIC	WATER LIQUID
Le de la construction de la cons		LOSS OF CIRCULAT			LIMIT% CC	IIMIT%
ON USE SURFACE ELEVATIO		S/6"				RD PENETRATION
						_OWS/FT
(ML) SANDY S	ILT, contains m	nica, reddish	960	5 7 9	.16-⊗ 18-⊗	
<u>S-3 SS 18 18</u>	tiff to very stiff			6 7 11	× 16	
S-4 SS 18 18				6 5	11 🚿	
15 S-5 SS 18 18 tannish brown t	o white, moist,	loose to dense		6 4 5	10-🗙	
* Slight rock fra	igments @ 17'-:	30'	945	11 9 6	15-⊗	
				4 3 5		
S-7 SS 18 18				10 4 6	× 16	
30 <u>S-8</u> SS 18 18				10 4 7		8 32
S-9 SS 0 0 PARTIALLY W			930	25 50/0		× 50/0
AUGER REFU						
45						
			915			
60						
			900			
75						
			885			
			I F			: : :
			ETWEEN SOIL TYP			
	BORING STARTEI				E IN DEPTH	
<pre></pre>	RIG Dietrich D				SA	

CLIENT	Job #:	BORING #		SHEET		
Jackson County Schools	10:9918 ARCHITECT-ENGINE	B-59	)	1 OF 1	Eße	
West Jackson High-Middle School						
				-O- CALIBRATED P	PENETROMETER TONS/FT <sup>2</sup>	
Jefferson, Jackson County, GA			ROCK QUALITY DE RQD%	SIGNATION & RECOVERY REC% ———		
Line S-2 SS 18 18 18 britton of casing stress of the second stress of th	LOSS OF CIRCULA	SH UNITS MATER LEVELS 666 ELEVATION (FT)	"9/SMOT8 5 7 11	LIMIT% CO	NATER LIQUID INTENT% LIMIT% RD PENETRATION .OWS/FT	
S-3     SS     18     18       S-4     SS     18     18       S-4     SS     18     18       S-4     SS     18     18       S-4     SS     18     18       S-5     SS     18     18       IS     S-5     SS     18     18       S-6     SS     18     18       S-7     SS     18     18       30     S-8     SS     18			679457334445346455555	12-8 7 9-8 10-8 10-8		
S-9 SS 18 18 S-10 SS 18 18 45 S-11 SS 18 18 		915	5588460 10455345	16-8 16-8 10-8 9-8		
		900 	5			
THE STRATIFICATION LINES REPRESENT THE APPROXIMATE BOUNDARY LINES BETWEEN SOIL TYPES. IN-SITU THE TRANSITION MAY BE GRADUAL.					/AY BE GRADUAL.	
및 WL Dry WS□ WD⊠ BORING S			CAVE IN DEPTH			
₩ WL(SHW) ₩ WL(ACR) BORING C	OMPLETED 07/21/18		HAM	MER TYPE Auto		
₩ WL RIG Dietrich D-50 FOREMAN RH			DRILLING METHOD 2 1/4 HSA			

CLIENT	Job #:	BORING #		SHEET	
Jackson County Schools	10:9918 ARCHITECT-ENGIN	B-60	)	1 OF 1	Efe
West Jackson High-Middle School					
				-O- CALIBRATED PI	ENETROMETER TONS/FT <sup>2</sup>
Jefferson, Jackson County, GA           NORTHING         EASTING           STATION				ROCK QUALITY DES RQD%	GIGNATION & RECOVERY REC% ———
CL UNDERSTRICT OF CASING → DESCRIPTION OF MATERIAL DESCRIPTION OF MATERIAL BOTTOM OF CASING → DESCRIPTION OF MATERIAL DESCRIPTION OF MA	LOSS OF CIRCUL		و و م م BLOWS/6"	LIMIT% COI	ATER LIQUID NTENT% LIMIT% COPENETRATION OWS/FT
S-3         SS         18         18           S-4         SS         18         18         orangish brown, moist, low orangi	ose to medium dense	9	10 14 5 9 13 10 11 11 2 7 11 9	22-⊗ 222-⊗ 9 9 222 9 222 ⊗	
30 <u>S-8</u> SS 18 18 		930	13 6 8 6 8 14 4 5	22-8 11	
45 <u>S-11 SS 18 18</u> 45 <u>S-11 SS 18 18</u>			6 12 7 6 10 11 9	13-× 20-×	
S-13 SS 18 18		915	10 8 10 10 10	18-X	
END OF BORING @ 55'			11		
		F		: :	: : :
THE STRATIFICATION LINES REPRESENT THE APPRO>		BETWEEN SOIL TYP	ES. IN-S	SITU THE TRANSITION M	AY BE GRADUAL.
문 WL Dry WS□ WD⊠ BORING ST	ARTED 07/22/18		CAVE	IN DEPTH	
₩ WL(SHW) ₩ WL(ACR) BORING CC	MPLETED 07/22/18		HAMN	MER TYPE Auto	
₩ WL RIG Dietri	ch D-50 FOREMAN	RH	H DRILLING METHOD 2 1/4 HSA		

CLIENT	Job #:	BORING #		SHEET	
Jackson County Schools	10:9918	B-61	1	1 OF 1	-00
PROJECT NAME	10:9918 ARCHITECT-ENGINE	ER			LUC
West Jackson High-Middle School					
					ENETROMETER TONS/FT <sup>2</sup>
Jefferson, Jackson County, GANORTHINGEASTINGSTATION					SIGNATION & RECOVERY
				RQD%	REC%
	ENGLI	SH UNITS			VATER LIQUID NTENT% LIMIT%
	LOSS OF CIRCULA		-	×	• <u> </u>
L UN OF MATERIAL UN UN U		MATER LEVELS	BLOWS/6"		RD PENETRATION
	,		-	BL	.OWS/FT
(ML) SANDY SILT, contair	ns mica, reddish	960	4	7-8	
S-3 SS 18 18 brown, moist, firm to stiff	ns slight mica, brown		3 3 3	$\overset{4}{\otimes}$ 9	
<u>S-4 SS 18 18</u> to white, moist, very loose		E	3 6 2 2	⊗-4	
			2 2 2	5-⊗	
		945	2 2 2 2 2 2 2		
<u>S-6 SS 18 18</u>			2	11-&	
			3 8 6	24	
			5 9 11	Ĭ	
30 <u>S-8 SS 18 18</u> (PWR) PARTIALLY WEAT			13 10	22	
SAMPLED AS SILITY SAMPLED AS SILITY SAMPLED		930	12 10 7		61/6 ×
			, 11 50/0		
<u>5-10 SS 1 1</u>			50/1		: ⊗ 50/1
AUGER REFUSAL @ 42'					
		915			
60					
		900			
		E			
		885			
90					
		( I			
THE STRATIFICATION LINES REPRESENT THE APPROXI		DE I WEEN SUIL TYP			IAT DE GRADUAL.
¥     WL     Dry     WS□     WD⊠     BORING STARTED     07/22/18       ¥     WL(SHW)     ¥     WL(ACR)     BORING COMPLETED     07/22/18				MER TYPE Auto	
₩ RIG Dietric		REMAN RH DRILLING METHOD 2 1/4 HSA			SA

CLIENT	Job #:	BORING #		SHEET	
Jackson County Schools	10:9918 ARCHITECT-ENGINEE	B-62	2	1 OF 1	Efe
West Jackson High-Middle School					
				CALIBRATED P	PENETROMETER TONS/FT <sup>2</sup>
Jefferson, Jackson County, GA           NORTHING         EASTING           STATION				ROCK QUALITY DE RQD%	SIGNATION & RECOVERY REC% ———
$\begin{array}{c c} \hline \\ \hline \\ \hline \\ \hline \\ \\ \hline \\ \\ \\ \\ \\ \\ \\ \\ \\ $	ENGLIS	HUNITS		LIMIT% CO	NATER LIQUID NTENT% LIMIT%
	LOSS OF CIRCULATI		s/6"	X	-●△
L ON UNATERIAL UNATERIAL DESCRIPTION OF MATERIAL BOTTOM OF CASING → BOTTOM OF CASING → SURFACE ELEVATION 955		WATER LEVELS	BLOWS/6"		RD PENETRATION OWS/FT
(ML) SANDY SILT, contains	mica, reddish		3	6-⊗ 7 ⊗	
S-3 SS 18 18 (SM) SILTY SAND, brown to	oist, firm		3 3 3	7-⊗ 10-⊗ 47	
S-4 SS 18 18 brown, moist, loose to dense		945	4 4		
			5 5 6		
15 <u>S-5 SS 18 18</u>			8 9 4	9-8	
<u>- S-6 SS 18 18</u>			5 4 3	9-⊗	
S-7 SS 18 18		930	4 5 3	7-&	
30 <u>S-8</u> SS 18 18			3 4 3	7-&	
			3 4 4	×	
			5 7 12	12	42
S-10 SS 18 18 END OF BORING @ 40'		915	12 15 27		<u>``</u> ⊗
		900			
					· · · · ·
		885			
75					
		870			
90					
		1 <b>I</b>	1	<u> </u>	<u> </u>
THE STRATIFICATION LINES REPRESENT THE APPROXIM	ATE BOUNDARY LINES B	TWEEN SOIL TYP	ES. IN-	SITU THE TRANSITION N	IAY BE GRADUAL.
및 WL Dry WS□ WD⊠ BORING STAR	red 07/21/18		CAVE	E IN DEPTH	
₩ WL(SHW) ₩ WL(ACR) BORING COMP	LETED 07/21/18		HAM	MER TYPE Auto	
ष्ट्र WL RIG Dietrich	D-50 FOREMAN	RH	DRIL	LING METHOD 2 1/4 H	SA

CLIENT	Job #:	BORING #		SHEET			
Jackson County Schools	10:9918 ARCHITECT-ENGINE	B-63		1 OF 1	ERQ		
West Jackson High-Middle School							
				-O- CALIBRATED P	ENETROMETER TONS/FT <sup>2</sup>		
Jefferson, Jackson County, GA				ROCK QUALITY DES RQD%	SIGNATION & RECOVERY REC% ———		
$\begin{array}{c c c c c c c c c c c c c c c c c c c $		SH UNITS		LIMIT% CO	VATER LIQUID NTENT% LIMIT%		
	LOSS OF CIRCULA			Х	-ΦΔ		
Le v v v v v v v v v v v v v v v v v v v		WATER LEVELS	BLOWS/6"		RD PENETRATION OWS/FT		
<u>S-1 SS 18 18</u> (ML) SANDY SILT, contains		945	4 6 6	12-⊗ 14-⊗			
S-3 SS 18 18 (SM) SILTY SAND, orangis	h brown to black to		5 6		46		
S-4 SS 18 18 * Slight rock fragments end	e ountered @ 22'- 25'		8 5 8				
15 <u>S-5 SS 18 18</u>		930	10 7 14 32	11-8			
<u>- S-6 SS 18 18</u>			32 5 5	6			
			6 6 3 3				
			14 17		39		
30 AUGER REFUSAL @ 28'		915	22				
		900					
		885					
		870					
		855			: : :		
THE STRATIFICATION LINES REPRESENT THE APPROXIM         꽂 wl Dry       WS □       WD ⊠       BORING STAR		BETWEEN SOIL TYP		SITU THE TRANSITION M	IAY BE GRADUAL.		
₩     ₩     ₩     ₩     ₩     ₩     ₩     ₩     ₩     ₩     ₩     ₩     ₩     ₩     ₩     ₩     ₩     ₩     ₩     ₩     ₩     ₩     ₩     ₩     ₩     ₩     ₩     ₩     ₩     ₩     ₩     ₩     ₩     ₩     ₩     ₩     ₩     ₩     ₩     ₩     ₩     ₩     ₩     ₩     ₩     ₩     ₩     ₩     ₩     ₩     ₩     ₩     ₩     ₩     ₩     ₩     ₩     ₩     ₩     ₩     ₩     ₩     ₩     ₩     ₩     ₩     ₩     ₩     ₩     ₩     ₩     ₩     ₩     ₩     ₩     ₩     ₩     ₩     ₩     ₩     ₩     ₩     ₩     ₩     ₩     ₩     ₩     ₩     ₩     ₩     ₩     ₩     ₩     ₩     ₩     ₩     ₩     ₩     ₩     ₩     ₩     ₩     ₩     ₩     ₩     ₩     ₩     ₩     ₩     ₩     ₩     ₩     ₩     ₩     ₩     ₩     ₩     ₩     ₩     ₩     ₩     ₩     ₩     ₩     ₩     ₩     ₩     ₩     ₩     ₩     ₩     ₩     ₩     ₩     ₩     ₩ </td <td></td> <td></td> <td></td> <td>MER TYPE Auto</td> <td></td>				MER TYPE Auto			
₩ WL RIG Dietrich	D-50 FOREMAN	RH	DRILI	LING METHOD 2 1/4 H	SA		

CLIENT	Job #:	BORING #		SHEET			
Jackson County Schools	10:9918 ARCHITECT-ENGI	B-64	1	1 OF 1	ECe		
West Jackson High-Middle School							
				CALIBRATED F	PENETROMETER TONS/FT <sup>2</sup>		
Jefferson, Jackson County, GA				ROCK QUALITY DE RQD%	SIGNATION & RECOVERY REC% ———		
F 9 2 2 2 2 BOTTOM OF CASING	ENG LOSS OF CIRCUL				NATER LIQUID NTENT% LIMIT%		
L ON OF MATERIAL BOTTOM OF CASING U L S ON OF U L S ON OF U L S ON OF U L S ON OF BOTTOM OF CASING SURFACE ELEVATION 930		NATER LEVELS	BLOWS/6"	STANDARD PENETRATION BLOWS/FT			
0 <u>- S-1 SS 18 18</u> <u>- S-2 SS 18 18</u> (ML) SANDY SILT, contain brown, moist, stiff	s slight mica, reddi	/ <u>1111 930</u>	4 5 5 6	10-⊗ 13-⊗			
S-3         SS         18         18           S-4         SS         18         18         (SM) SILTY SAND, contain moist, loose	ns mica, brown,		6 7 4 4	10-⊗ 9-⊗			
15 S-5 SS 18 18 END OF BORING @ 15'		915	6 3 4 5 4	8-&			
			4				
		900					
45		885					
		870					
90		840					
THE STRATIFICATION LINES REPRESENT THE APPROXI		S BETWEEN SOIL TYP	PES. IN-	SITU THE TRANSITION N	IAY BE GRADUAL.		
및 WL Dry WS WD WD BORING STAI				E IN DEPTH			
₩ WL(SHW) ₩ WL(ACR) BORING COM	IPLETED 07/21/18	3	HAM	MER TYPE Auto			
<u>₩</u> WL RIG D-50 A	TV FOREMA	N RH	DRIL	LING METHOD 2 1/4 H	SA		

CLIENT	Job #:	BORING #		SHEET	
Jackson County Schools	10:9918 ARCHITECT-ENGINEE	B-65		1 OF 1	EGe
West Jackson High-Middle School					
				-O- CALIBRATED P	ENETROMETER TONS/FT <sup>2</sup>
Jefferson, Jackson County, GA					
		H UNITS		LIMIT% CO	NTENT% LIMIT%
(L) UESCRIPTION OF MATERIAL DESCRIPTION OF MATERIAL BOTTOM OF CASING → UESCRIPTION OF MATERIAL BOTTOM OF CASING → SURFACE ELEVATION 940	LOSS OF CIRCULATI	Q WATER LEVELS ELEVATION (FT)		Х	
		WATER ELEVA	BLOWS/6"	STANDAR BL	D PENETRATION OWS/FT
$\frac{-5.1}{-1} \frac{\text{SS}}{\text{SS}} \frac{18}{18} \frac{18}{\text{(ML)}} \frac{1}{\text{SANDY}} \frac{1}{\text{SILT}}, \text{ contains}$			4 5 5	10-8	
<u>S-3 SS 18 18</u>	oist, firm to very stiff		6 7	×	
<u>S-4</u> SS 18 18		930	7 5 3	8-8.9	
15 <u>S-5 SS 18 18</u>			6 3 4 4 2	7-&	
<u>S-6 SS 18 18</u>			3 4	16-&	
		915	4 6 10		8
END OF BORING @ 25'			8 12 16		28.
		900			
45					
		885			
60					
					STIC WATER LIQUID LIMIT% © STANDARD PENETRATION BLOWS/FT
		870			
75					
		- 055			
		855			
90		<b>F</b>			
THE STRATIFICATION LINES REPRESENT THE APPROXIMA		ETWEEN SOIL TYP		SITU THE TRANSITION M	IAY BE GRADUAL.
Image: wide wide wide wide wide wide wide wide				MER TYPE Auto	
₩ RIG Dietrich		RH		LING METHOD 2 1/4 H	SA

CLIENT	Job #:	BORING #		SHEET	
Jackson County Schools	10:9918 ARCHITECT-ENGINEE	B-66		1 OF 1	Efe
West Jackson High-Middle School					
				-O- CALIBRATED P	ENETROMETER TONS/FT <sup>2</sup>
Jefferson, Jackson County, GA           NORTHING         EASTING           STATION				ROCK QUALITY DES RQD%	SIGNATION & RECOVERY REC% ———
	ENGLIS	HUNITS		LIMIT% CO	VATER LIQUID NTENT% LIMIT%
	LOSS OF CIRCULATI	Q WATER LEVELS	<u>}/6"</u>	Χ	•
Image: Construction of the second		WATER LEVELS	BLOWS/6"	STANDAR BL	RD PENETRATION OWS/FT
S-1 SS 18 18 (ML) SANDY SILT, contains			5 6 6	12 × 17	
<u>S-3 SS 18 18</u>	i		6 8	15-8	
<u>S-4</u> SS 18 18		930	9 7 8	16−⊗	
15 S-5 SS 18 18 18 medium dense to dense			7 6 7	16-8	
Sight rock fragments encou      S-6     SS     18	untered @ 12-30'		9 5 9	×	
			7 4 5	11	32 ⊗
		915	6 14 16		
30 S-8 SS 18 18 END OF BORING @ 30'			16 10 13	23	
			10		
45		900			
		885			
60					
		870			
75					
		855			
90					<u>: : :</u>
THE STRATIFICATION LINES REPRESENT THE APPROXIMA         꽃 WL Dry       WS □       WD ⊠       BORING START		TWEEN SUL TYP			AT DE GRADUAL.
Image: State			HAM	MER TYPE Auto	
꽃 WL RIG Dietrich I	D-50 FOREMAN	кн	DRILI	ING METHOD 2 1/4 H	SA

Sample Source	1 100		2.01		Atter	berg Li	mits <sup>3</sup>	Percent	Moisture - De	nsity (Corr.)5	CPD	Page 1
	Sample Number	Depth (feet)	MC1 (%)	Soil Type <sup>2</sup>	LL	PL	PI	Passing No. 200 Sieve4		Optimum Moisture (%)		Other
B-4	1					1		100				
	S-2	3.50 - 5.00	13.5					1		i	2	
	S-5	13.50 - 15.00	22.5			1.0	é.					
	S-7	23.50 - 25.00	20.0		NP	NP	NP	53.4				
3-33		전 영상 영상 영상	1.000									
	S-4	8.50 - 10.00	27.8								· · · · · ·	
	S-7	23.50 - 25.00	25.9				1	1			-	
	S-8	28.50 - 30.00	31.3				1	23.8			-	
3-48	-						-			1	-	
	S-4	8.50 - 10.00	17.2		-		-	46.3				
3-56	0.5	12 50 45 00	20.2		_	-	1	-				
	S-5 S-7	13.50 - 15.00 23.50 - 25.00	38.2			-	-			1		
	S-9	33.50 - 35.00	17.3		NP	NP	NP	19.2				
				TM D 1140, 5. See test re								
Project No.	10:9918			ification System), LL: Liqu	uid Limit, PL: Pla	stic Limit, I	PI: Plastic	ity Index, CBR:	California Bearing		nic Content (AS	
Project Name: Printed On:		son High-Middle Sc August 16, 2018	hool						E	1281 Ke Marietta Phone: (	nnestone Circle , GA 30066 770) 590-1971 0) 590-1975	, NE, Suite 200

Appendix III

# Important Information about This Geotechnical-Engineering Report

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

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

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

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

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

#### **Read this Report in Full**

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

## You Need to Inform Your Geotechnical Engineer about Change

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

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

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

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

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

#### This Report May Not Be Reliable

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

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

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

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

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

#### This Report's Recommendations Are Confirmation-Dependent

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

### This Report Could Be Misinterpreted

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

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

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

#### **Give Constructors a Complete Report and Guidance**

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

#### **Read Responsibility Provisions Closely**

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

#### **Geoenvironmental Concerns Are Not Covered**

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

## Obtain Professional Assistance to Deal with Moisture Infiltration and Mold

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



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