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January 27, 2019

Mr. Brad Johnson  
BKJ Properties

via email - [bkjproperties@gmail.com](mailto:bkjproperties@gmail.com)

**Re: Geotechnical Exploration and  
Foundation Recommendations  
Conyers Outparcels A & B  
Georgia Highway 20, SE  
Conyers, Georgia  
Project No. 01-185032**

Dear Mr. Johnson:

In compliance with your instructions, we have conducted a geotechnical exploration and foundation evaluation for the referenced project. The results, together with our recommendations, are to be found in the accompanying report.

Often because of design and construction details that occur on a project, questions arise concerning subsurface conditions. AEI would be pleased to continue its role as Geotechnical Engineer during the project implementation.

Very truly yours,  
AHLBERG ENGINEERING, INC.

Ryan D. Woodcum, PE  
Principal Engineer

**GEOTECHNICAL EXPLORATION  
AND  
FOUNDATION RECOMMENDATIONS**

**FOR THE PROPOSED**

**Conyers Outparcels A & B  
Georgia Highway 20, SE  
Conyers, Georgia  
Project No. 01-185032**

**PREPARED FOR**

**BKJ Properties**

**BY**

**Ahlberg Engineering, Inc.  
525 Webb Industrial Drive  
Suite A  
Marietta, GA 30062  
770-919-9968**

January 27, 2019

**GEOTECHNICAL EXPLORATION**  
**AND**  
**FOUNDATION RECOMMENDATIONS**  
**INTRODUCTION**

**Authorization**

This report presents the results of a geotechnical exploration and foundation analysis for the proposed Conyers Outparcels A & B, conducted for BKJ Properties. The work for this project was performed in accordance with our Proposal No. P-18168 **REVISED** dated November 27, 2018. Verbal authorization was given to perform this exploration and analysis.

**Purpose**

The purpose of this exploration was to evaluate the soil and groundwater conditions at the site and to recommend a type and depth of foundation system suitable for the proposed structures as well as to provide criteria for the Architects and Design Engineers to use in preparing the foundation design.

**Scope**

The scope of the exploration and analysis included a reconnaissance of the immediate site, the subsurface exploration, field testing, and an engineering analysis and evaluation of the foundation materials.

The scope of services did not include any environmental assessment for the presence or absence of wetlands on or below or around this site. Any statement in this report or on the boring logs regarding odors, colors or unusual or suspicious items or conditions is strictly for the information of the client.

**General**

The general subsurface conditions used in the analysis were based upon interpolation of the subsurface data between the borings. There is a possibility that varying conditions may be encountered between boring locations. If deviations from the noted subsurface conditions are encountered during construction, they should be brought to the attention of the Geotechnical Engineer.

The recommendations submitted for the proposed structures are based on the available soil information and the preliminary design details. Any revision in the plans for the proposed structures, from those described in this report, should be brought to the attention of the Geotechnical Engineer to determine if changes in the foundation recommendations are required.

The Geotechnical Engineer warrants that the findings, recommendations, specifications, or professional advice contained herein, have been presented after being prepared in accordance with generally accepted professional engineering practice in the fields of foundation engineering, soil mechanics and engineering geology. No other warranties are implied or expressed.

After the plans and specifications are complete, it is recommended that the Geotechnical Engineer be provided the opportunity to review the final design and specifications, in order to verify that the earthwork and foundation recommendations are properly interpreted and implemented.

This report has been prepared for the exclusive use of BKJ Properties for the specific application to the Conyers Outparcels A & B project.

## **DESCRIPTION OF SITE**

### **Site Location**

The site is located on the west side of Georgia Highway 20, SE in Conyers, Rockdale County, Georgia just south of the intersection between Georgia Highway 20, AE and Georgia Highway 138, SE.

### **Topography**

The site slopes down from an elevation of 860 near the northeast property boundary down to an elevation of 821 near the southeast property corner.

## **GEOLOGY**

### **General Area Geology**

Conyers, Georgia is located in the Piedmont Physiographical Province which covers a broad strip extending from central Alabama across Georgia, the Carolinas and Virginia, and tapering out to an end in the vicinity of Baltimore and Philadelphia. Crystalline rocks that were formed under tremendous heat and pressure underlie the entire region. The oldest rocks consist of gneisses and schists that were formed by the metamorphism of ancient sediments and igneous rock in the Pre-Cambrian Era. These rocks have been intruded by large quantities of igneous rocks. The intrusive are of two classes, distinguished by structure and rock type. The older intrusive are massive in structure and few extend above ground level (except Stone Mountain). The younger intrusions are in the form of narrow dikes and sills of varied composition. Some are granitic in nature and include many varieties of granite and granite pegmatite. Others are basic or trap rock. These include diabase, amphibolite and their altered forms. The region is cut by many faults; however, the faults are classified as ancient and have been inactive during recent times.

A typical soil profile in the Piedmont Region consists of three zones. The upper zone is crust, three to ten feet in thickness, made up of deep red silty clay or clayey silt soils. These soils are generally quite stiff. The intermediate zone, which is comparatively softer than the overlying crust, consists of micaceous sandy silts or silty sand soils. Unlike the upper zone that has been subject to severe weathering and leaching, the soils in the intermediate zone still retain the remnants of structures from their parent rock as seen in the strong banding of these soils. This is characteristic of residual soils, formed by the in-situ weathering of the parent bedrock. The third zone is that area of partially weathered rock just above sound bedrock. Soils in this zone consist of gravelly micaceous silts to silty sands and may be seen in alternating hard and soft layer.

Natural processes, man-made processes, or a combination of both may alter this profile. Surface water movement or excavation, thus removing part or all of the upper components, often erodes landforms. Likewise, fill placement or alluvial deposition can add strata that would not be typical of in-situ weathering of the parent material.

## **FIELD EXPLORATION**

### **Scope**

The field exploration to evaluate the engineering characteristics of the foundation materials included a reconnaissance of the project site, drilling the test borings, performing standard penetration tests, and recovering split barrel samples. The depth to groundwater was recorded in each test boring during drilling.

Nineteen (19) test borings were drilled to depths ranging from fifteen (15) feet to sixty-two (62) feet below the existing ground surface. They were made in the locations determined by Robertson Loia Roof. The field tests were located in the field by the AEI Engineers utilizing a Trimble Geo 7 Series handheld GPS. They are presumed to be accurate to within a few feet. The locations are shown on the accompanying Boring Location Plan.

After completion of the field testing, the excavations were backfilled with excavated soil.

### **Drilling and Sampling Procedures**

A drilling rig equipped with a rotary head made the test borings. Hollow-stem augers were used to advance the holes. Representative samples were obtained employing split-barrel sampling procedures in general accordance with the procedures for "Penetration Test and Split-Barrel Sampling of Soils" (ASTM D 1586).

All of the samples recovered were identified and evaluated by the Geotechnical Engineer.

## **Field Tests and Measurements**

**Penetration Tests** - During the soil boring procedure, standard penetration tests (SPT) were performed at pre-determined intervals to obtain the standard penetration value of the soil. The standard penetration value (N) is defined as the number of blows of a 140-pound hammer, falling thirty (30) inches, required to advance the split-barrel sampler one (1) foot into the soil. The sampler is lowered to the bottom of the previously cleaned drill hole and advanced by blows from the hammer. The number of blows is recorded for each of three (3) successive increments of six (6) inches penetration.

The "N" value is obtained by adding the second and third incremental numbers. The results of the standard penetration test are shown on the Boring Logs and indicate the relative density of cohesionless soils and comparative consistency of cohesive soils, and thereby provide a basis for estimating the relative strength and compressibility of the soil profile components.

**Water Level Measurements** - Water level measurements were taken during the test boring operations. They are noted on the test boring logs presented in the Appendix.

**Ground Surface Elevations** - The elevation of the ground surface shown on each test boring log was estimated by interpolation from a two (2) foot interval topographic map furnished by Robertson Loia Roof and is presumably accurate to within  $\pm$  one (1) foot.

## **LABORATORY TESTING PROGRAM**

In addition to the field exploration, a supplemental laboratory testing program was conducted to evaluate additional engineering characteristics of the foundation materials necessary in analyzing the behavior of the foundation systems for the proposed structure.

The laboratory testing program included supplementary visual classification of all samples; water content tests and pH tests on select samples; and a moisture density relationship test, California bearing ratio test, and direct shear test on a bulk sample.

All phases of the laboratory testing program were conducted in general accordance with applicable ASTM specifications. The results of these tests are to be found on the Boring Logs and data sheets located in the Appendix.

## SUBSURFACE CONDITIONS

### General

The types of foundation bearing materials encountered in the test borings have been visually classified. They are described on the boring logs. The results of the field tests and water level observations are presented on the boring logs.

Representative samples of the soils were placed in sample jars. They are now stored in the laboratory for further analysis if desired. Unless notified to the contrary, all samples will be disposed of after sixty (60) days.

### Soil Conditions

Topsoil - Topsoil was encountered in all of the test borings. The topsoil ranged in thickness from six (6) to twelve (12) inches.

Residual Soil - Residual soil was encountered in all of the test borings below the topsoil. The residual soil consists of dark reddish brown micaceous silts; dark reddish brown sandy silts; reddish brown sandy silts; brown micaceous silts; brown and gray sandy silts; light reddish brown silty sands; brown and gray silty sands; brown sandy silts; brown micaceous sands; light brown micaceous silts; gray, brown, and white silty sands; brown and gray micaceous silts; brown and gray micaceous sands; dark reddish brown silty sands; gray silty sands; brownish red clayey silts; brownish red clayey sands; red and gray silty sands; light reddish brown sandy silts; brownish red silty sands; light reddish brown micaceous silts; reddish brown micaceous silts; brownish red sandy silts; and tan micaceous silts. Standard penetration test values measured in the fine grained residual soil ranged from two (2) to thirteen (13) and generally ranged from five (5) to thirteen indicating soils of firm and stiff consistency. Standard penetration test values measured in the coarse grained residual soils ranged from four (4) to sixty (60) and generally ranged from eleven (11) to twenty-four (24) indicating soils of medium dense relative density. In-situ moisture content test results measured in the residual soils ranged from 17.4% to 29.8%. In situ pH values measured in the residual soils ranged from 3.82 to 4.57 indicating very strongly acidic to extremely acidic soils. A Moisture density relationship test, a California bearing ration test, and a direct shear test was performed on a bulk sample obtained from the cuttings at Borings B-13. The result of the moisture density relationship test is a maximum dry density of 115.5 pcf and an optimum moisture content of 13.7%. The results of the California bearing ration test is a CBR value of 10.2. The direct shear test results are cohesion of 288 psf and an angle of internal friction of 46.1 degrees.

Partially Weathered Rock - Partially weathered rock lenses were encountered in Borings B-4 and B-13. The partially weathered rock consists of gray silty sands and light reddish brown silty sands. Standard penetration test values measured in the partially weathered rock were all greater than fifty (50+) indicating material of very dense relative density. Partially Weathered Rock (PWR) is locally defined as material that requires more than fifty (50) blows of the hammer to advance the sampler six (6) inches.

**Groundwater Conditions**

Groundwater was encountered in the borings at depths and elevations shown in Table 1.0 below:

<i>Boring Number</i>	<i>Groundwater Depth, Feet Below Existing Ground Surface</i>	<i>Groundwater Elevation</i>
B-1	12	829
B-3	17	828
B-5	6	824
B-6	12	826
B-7	5	825
B-8	5	827
B-9	4	828
B-10	8	827
B-11	13	832
B-15	11	826
B-16	6	828
B-17	8	824

Table 1.0 – Groundwater Depths and Elevations

**Refusal Materials**

Refusal materials were encountered in Boring B-3 at a depth of sixty-two (62) feet below the existing ground surface. Refusal materials were not encountered in any of the other test borings.

**FOUNDATION DISCUSSION AND RECOMMENDATIONS**

**Project Description**

The proposed project consists of a 6,390-sf restaurant building and a 2,087-sf Valvoline building with associated parking, drives, and utilities as shown on the Robertson Loia Roof Preliminary Site Plan, Sheet CPs-27, dated December 13, 2018. Anticipated finished floor elevation for the restaurant building is approximately 844, thus requiring up to three (3) feet of fill and up to thirteen (13) feet of cut. Light to moderate structural loads are anticipated for the restaurant building. Anticipated finished floor elevation for the Valvoline building is approximately 839, thus requiring approximately two (2) to nine (9) feet of fill. Light to moderate structural loads are anticipated for the Valvoline building.

### **Engineering Analysis**

The bearing capacity of the naturally occurring soil was evaluated from the results of the field tests. These test results indicate that the naturally occurring soil has a moderate bearing capacity.

The foundation types considered for the proposed structure include conventional spread and continuous wall footings, raft or mat, driven piles, drilled piers or caissons, and augured cast-in-place piles.

Considering the soil conditions on this site and the proposed loads of the structure, it appears that conventional spread and continuous wall footings will be a suitable foundation system.

In view of the loading conditions imposed by the proposed structure and the prevailing soil conditions at this site, a raft or mat, driven piles, caissons, or augured cast-in-place piers do not appear to be economically feasible.

The boring locations were limited to the building area; parking and drive areas; and proposed detention ponds. Exploration of the subsurface materials in the area of site retaining walls, utility trenches and paved areas was not included in the scope of work. Varying subsurface conditions may be encountered in those areas.

Groundwater was encountered in the borings at depths shown in Table 1.0 above; therefore dewatering is not anticipated for shallow foundation excavations and/or shallow utility excavations. However, if excavations are planned at or below depths shown in Table 1.0 above, then dewatering should be anticipated and allocations should be made in construction budgeting.

Refusal materials were encountered in Boring B-3 at a depth of sixty-two (62) feet below the existing ground surface and were not encountered in any of the borings, therefore rock excavation is not anticipated for shallow foundation excavations.

### **Engineering Analysis – Seismic**

#### **General Procedure**

The Seismic Site Class was determined by the General Procedure in accordance with Section 1613.3.2 of the 2012 International Building Code. The soil properties were evaluated for the top 100 feet of the profile. The typical profile at this site consists of soil to a depth of sixty-two (62) feet where refusal materials were encountered. The seismic properties of the soil were interpolated from the standard penetration test values. A Seismic Site Class “D” was determined for this site.

Higher soil shear wave velocities are sometimes obtained for typical subsurface materials in the Atlanta area when the shear wave velocities are determined by testing instead of by estimating from standard penetration test values. Seismic shear wave velocity testing was beyond the scope of this exploration, however AEI can provide this service if requested.

**Recommendations**

1. The topsoil should be stripped from all structural areas and be stockpiled for later use in landscape areas or be discarded.
2. Portions of the existing sanitary sewer are to be removed and re-routed. The trench resulting from the removed sanitary sewer line should be backfilled with structural fill material in accordance with the recommendations below.
3. The surface of the site should be proofcompacted to detect and compact any localized soft areas at the surface of the site.
4. Structural fill materials should be free of organic matter and be compacted to a minimum of 95 percent of the maximum dry density within  $\pm 3\%$  of the optimum moisture content as determined by Standard Proctor ASTM D 698.
5. Fill slopes should be compacted in horizontal lifts not to exceed six (6) inches in compacted thickness. Where there are existing slopes, benches should be excavated into the existing slope to “key” the new fill into the existing slope.
6. Fill should be placed in six (6) inch lifts (compacted thickness) in mass fill areas and as needed to obtain proper compaction in utility trenches and behind walls.
7. Ahlberg Engineering should monitor filling operations. A sufficient number of density tests should be taken to verify that the specified compaction is obtained.
8. The conventional spread footings and continuous wall footings should be designed as follows:

<u>Foundation Type</u>	<u>Net allowable Soil Bearing</u>	<u>Minimum Footing Width</u>	<u>Minimum Depth Below Grade</u>
Spread footings	2,000 psf	24 inches	12 inches
Continuous wall footings	2,000 psf	18 inches	12 inches

9. A Site Class “D” is recommended for seismic design.
10. Footings should be suitably reinforced to reduce the effects of differential movement that may occur to variations in the properties of the supporting soils.
11. A representative of the Ahlberg Engineering should test the soils in the footing excavations to verify the design soils bearing pressure.

12. Every effort should be made to keep the footing excavations dry as the soils will tend to soften when exposed to free water.
13. A 4" granular, free draining stone sub-base (GDOT #57 or equivalent) and vapor barrier (minimum of 10 mils thickness) is recommended for slab-on-grade construction.
14. The pavement recommendations are based on a CBR value of 10.2 measured from a bulk soil sample obtained from the cuttings of Boring B-13 and moderate traffic loads.

<u>Pavement Type</u>	<u>Pavement Materials</u>
Light Duty	3" asphaltic concrete 6" graded aggregate base
Heavy Duty	4" asphaltic concrete 8" graded aggregate base

15. The graded aggregate base material should be compacted to 100% of the maximum dry density as determined by Standard Proctor and meets the criteria of Georgia Department of Transportation, GDOT Specifications, Section 815.2.01, Graded Aggregate.
16. The asphaltic concrete should be compacted to 96% of the density obtained by the Marshall Test (50 blows) and meet the criteria of Georgia Department of Transportation, GDOT Specifications, Section 828, Hot Mix Asphaltic Concrete Mixtures.

### GENERAL COMMENTS

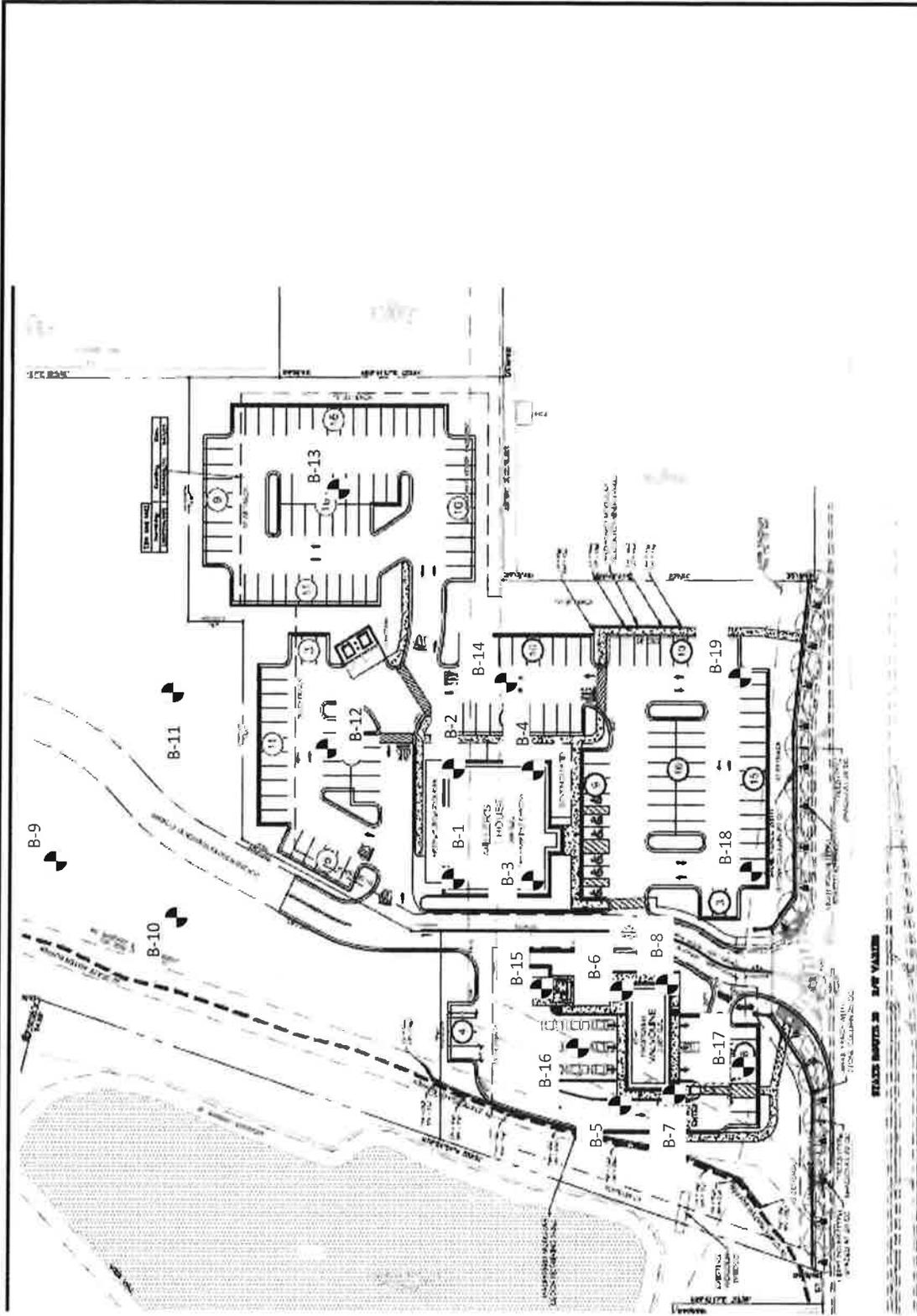
When the plans and specifications are complete, or if significant changes are made in the character or location of the proposed structure, a consultation should be arranged to review the changes with respect to the prevailing soil conditions. At that time it may be necessary to submit supplementary recommendations.

It is recommended that the services of Ahlberg Engineering, Inc. be engaged to test and evaluate the compaction of any additional fill materials and to test and evaluate the bearing value of the soils in the footing excavations.

Respectfully submitted,  
AHLBERG ENGINEERING, INC.



Ryan D. Woodcum, PE  
Project Engineer



## PRELIMINARY SITE PLAN

**PROJECT NAME**  
 Conyers Outparcels A & B  
 Georgia Highway 20, SE  
 Conyers, Rockdale County, Georgia

**BORING LOCATION PLAN**  
**AHLBERG ENGINEERING, INC.**

<b>PROJECT NO.</b> 01-185032	<b>DATE</b> 12/18/2018
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Boring Location

Project: **Conyers Outparcels A & B**  
 Project Location: **Georgia Highway 20, SE**  
**Conyers, Georgia**  
 Project Number: **01-185032**

**Log of Boring B-1**  
**Sheet 1 of 1**



Date(s) Drilled <b>12/18/18</b>	Logged By <b>AEI</b>	Checked By <b>R. Woodcum, PE</b>
Drilling Method <b>Hollow Stem Auger</b>	Drill Bit Size/Type <b>2.25" H.S.A.</b>	Total Depth of Borehole <b>20 feet bgs</b>
Drill Rig Type <b>Diedrich D50</b>	Drilling Contractor <b>Big Dog Geotech</b>	Approximate Surface Elevation <b>841</b>
Groundwater Level <b>14' - 12/18/18 &amp; 12' - and Date Measured 12/19/18</b>	Sampling Method(s) <b>ASTM D1586</b>	Hammer Data <b>Automatic</b>
Borehole Backfill <b>YES</b>	Location <b>Restaurant Building</b>	

Elevation (feet)	Depth (feet)	Sample Type	Sample Number	SPT, blows/ft, N value	MATERIAL DESCRIPTION	Water Content, %	pH	REMARKS AND OTHER TESTS
841	0				TOPSOIL = 8"			
		SS-1	9		RESIDUAL; Dark reddish brown with white micaceous SILT with some sand, moist	26.8	4.32	
		SS-2	12		Dark reddish brown sandy SILT with some mica, moist	22.7	4.07	
836	5	SS-3	8					
		SS-4	8		Reddish brown sandy SILT with some mica, moist			
831	10							
		SS-5	5		Brown micaceous SILT with some sand, wet at 24 hours ▾ during drilling ▾			
826	15							
		SS-6	7		Brown and gray sandy SILT with some mica, moist			
821	20				Boring terminated at -20 feet			
816	25							
811	30							
806	35							

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Project: **Conyers Outparcels A & B**  
 Project Location: Georgia Highway 20, SE  
 Conyers, Georgia  
 Project Number: 01-185032

Log of Boring B-2  
 Sheet 1 of 1



Date(s) Drilled <b>12/18/18</b>	Logged By <b>AEI</b>	Checked By <b>R. Woodcum, PE</b>
Drilling Method <b>Hollow Stem Auger</b>	Drill Bit Size/Type <b>2.25" H.S.A.</b>	Total Depth of Borehole <b>20 feet bgs</b>
Drill Rig Type <b>Diedrich D50</b>	Drilling Contractor <b>Big Dog Geotech</b>	Approximate Surface Elevation <b>851</b>
Groundwater Level and Date Measured <b>Not Encountered</b>	Sampling Method(s) <b>ASTM D1586</b>	Hammer Data <b>Automatic</b>
Borehole Backfill <b>YES</b>	Location <b>Restaurant Building</b>	

Elevation (feet)	Depth (feet)	Sample Type	Sample Number	SPT, blows/ft, N value	MATERIAL DESCRIPTION	Water Content, %	pH	REMARKS AND OTHER TESTS
851	0				TOPSOIL = 8"			
			SS-1	7	RESIDUAL; Dark reddish brown sandy SILT with some mica, moist	28.6	4.20	
			SS-2	16	Light reddish brown silty SAND with some mica, moist	19.5	4.07	
846	5		SS-3	12				
			SS-4	21				
841	10							
			SS-5	14	Brown and gray silty SAND with some mica, moist			
836	15							
			SS-6	27				
831	20				Boring terminated at -20 feet			
826	25							
821	30							
816	35							

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Project: <b>Conyers Outparcels A &amp; B</b>	<b>Log of Boring B-3</b> <b>Sheet 1 of 2</b>	 AHLBERG ENGINEERING INC
Project Location: <b>Georgia Highway 20, SE</b> <b>Conyers, Georgia</b>		
Project Number: <b>01-185032</b>		

Date(s) Drilled <b>12/18/18</b>	Logged By <b>AEI</b>	Checked By <b>R. Woodcum, PE</b>
Drilling Method <b>Hollow Stem Auger</b>	Drill Bit Size/Type <b>2.25" H.S.A.</b>	Total Depth of Borehole <b>62 feet bgs</b>
Drill Rig Type <b>Diedrich D50</b>	Drilling Contractor <b>Big Dog Geotech</b>	Approximate Surface Elevation <b>845</b>
Groundwater Level <b>19' - 12/18/18 &amp; 17' - and Date Measured 12/19/18</b>	Sampling Method(s) <b>ASTM D1586</b>	Hammer Data <b>Automatic</b>
Borehole Backfill <b>YES</b>	Location <b>Restaurant Building</b>	

Elevation (feet)	Depth (feet)	Sample Type	Sample Number	SPT, blows/ft, N value	MATERIAL DESCRIPTION	Water Content, %	pH	REMARKS AND OTHER TESTS
845	0				TOPSOIL = 8"			
			SS-1	10	RESIDUAL; Dark reddish brown sandy SILT with some clay and trace mica, moist	27.5	4.32	
			SS-2	12				
840	5		SS-3	8	Brown sandy SILT with some mica, moist	19.6	4.33	
			SS-4	24	Brown micaceous SAND with some silt, moist			
835	10		SS-5	9	Light brown micaceous SILT with some sand, moist			
830	15		SS-6	7	Gray, brown, and white silty SAND with some mica, wet at 24 hours during drilling			
825	20		SS-7	6				
820	25		SS-8	8	Brown and gray with black micaceous SILT with some sand, moist			
815	30		SS-9	9				
810	35							

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Project: **Conyers Outparcels A & B**  
 Project Location: Georgia Highway 20, SE  
 Conyers, Georgia  
 Project Number: 01-185032

Log of Boring B-3  
 Sheet 2 of 2



Elevation (feet)	Depth (feet)	Sample Type	Sample Number	SPT, blows/ft, N value	MATERIAL DESCRIPTION	Water Content, %	pH	REMARKS AND OTHER TESTS
810	35				Brown and gray with black micaceous SILT with some sand, moist			
	40		SS-10	9				
805					Brown and gray micaceous SAND with some silt, moist			
	45		SS-11	14				
800								
	50		SS-12	11				
795								
	55		SS-13	11				
790								
	60		SS-14	52				
785					Auger refusal at -62 feet			
780	65							
775	70							

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Project: **Conyers Outparcels A & B**  
 Project Location: **Georgia Highway 20, SE**  
**Conyers, Georgia**  
 Project Number: **01-185032**

**Log of Boring B-4**  
**Sheet 1 of 1**



Date(s) Drilled <b>12/18/18</b>	Logged By <b>AEI</b>	Checked By <b>R. Woodcum, PE</b>
Drilling Method <b>Hollow Stem Auger</b>	Drill Bit Size/Type <b>2.25" H.S.A.</b>	Total Depth of Borehole <b>20 feet bgs</b>
Drill Rig Type <b>Diedrich D50</b>	Drilling Contractor <b>Big Dog Geotech</b>	Approximate Surface Elevation <b>852</b>
Groundwater Level and Date Measured <b>Not Encountered</b>	Sampling Method(s) <b>ASTM D1586</b>	Hammer Data <b>Automatic</b>
Borehole Backfill <b>YES</b>	Location <b>Restaurant Building</b>	

Elevation (feet)	Depth (feet)	Sample Type	Sample Number	SPT, blows/ft, N value	MATERIAL DESCRIPTION	Water Content, %	pH	REMARKS AND OTHER TESTS
852	0				TOPSOIL = 8"			
			SS-1	12	RESIDUAL; Dark reddish brown silty SAND with some mica, moist	27.5	4.28	
			SS-2	13	Gray with white silty SAND with some mica, moist	23.8	4.40	
847	5		SS-3	33				
			SS-4	39				
842	10							
					PARTIALLY WEATHERED ROCK LENSE; Gray silty SAND, moist			
837	15		SS-5	50/4"	Gray with white silty SAND with some mica, moist			
832	20		SS-5	12	Boring terminated at -20 feet			
827	25							
822	30							
817	35							

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Project: **Conyers Outparcels A & B**

Project Location: **Georgia Highway 20, SE  
Conyers, Georgia**

Project Number: **01-185032**

# Log of Boring B-5

## Sheet 1 of 1



Date(s) Drilled: <b>12/18/18</b>	Logged By: <b>AEI</b>	Checked By: <b>R. Woodcum, PE</b>
Drilling Method: <b>Hollow Stem Auger</b>	Drill Bit Size/Type: <b>2.25" H.S.A.</b>	Total Depth of Borehole: <b>15 feet bgs</b>
Drill Rig Type: <b>Diedrich D50</b>	Drilling Contractor: <b>Big Dog Geotech</b>	Approximate Surface Elevation: <b>830</b>
Groundwater Level and Date Measured: <b>7' - 12/18/18 &amp; 6' - 12/19/18</b>	Sampling Method(s): <b>ASTM D1586</b>	Hammer Data: <b>Automatic</b>
Borehole Backfill: <b>YES</b>	Location: <b>Valvoline Building/Parking</b>	

Elevation (feet)	Depth (feet)	Sample Type	Sample Number	SPT, blows/ft, N value	MATERIAL DESCRIPTION	Water Content, %	pH	REMARKS AND OTHER TESTS
830	0				TOPSOIL = 6"			
			SS-1	7	RESIDUAL; Brownish red clayey SILT with some mica, moist	29.1	4.23	
			SS-2	16	Brownish red with gray and tan clayey SAND with some silt, moist	18.5	4.02	
825	5		SS-3	18	Red and gray silty SAND with some clay, wet during drilling			
			SS-4	12				
820	10							
			SS-5	6	Brown micaceous SILT with some sand, moist			
815	15				Boring terminated at -15 feet			
810	20							
805	25							
800	30							
795	35							

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Project: **Conyers Outparcels A & B**  
 Project Location: Georgia Highway 20, SE  
 Conyers, Georgia  
 Project Number: 01-185032

Log of Boring B-6  
 Sheet 1 of 1



Date(s) Drilled <b>12/18/18</b>	Logged By <b>AEI</b>	Checked By <b>R. Woodcum, PE</b>
Drilling Method <b>Hollow Stem Auger</b>	Drill Bit Size/Type <b>2.25" H.S.A.</b>	Total Depth of Borehole <b>15 feet bgs</b>
Drill Rig Type <b>Diedrich D50</b>	Drilling Contractor <b>Big Dog Geotech</b>	Approximate Surface Elevation <b>838</b>
Groundwater Level <b>13" - 12/18/18 &amp; 12" - and Date Measured 12/19/18</b>	Sampling Method(s) <b>ASTM D1586</b>	Hammer Data <b>Automatic</b>
Borehole Backfill <b>YES</b>	Location <b>Valvoline Building</b>	

Elevation (feet)	Depth (feet)	Sample Type	Sample Number	SPT, blows/ft, N value	MATERIAL DESCRIPTION	Water Content, %	pH	REMARKS AND OTHER TESTS
838	0				TOPSOIL = 8"			
		SS-1	8		RESIDUAL; Brownish red clayey SILT with some mica, moist	28.9	4.32	
		SS-2	8			22.7	3.86	
833	5				Light reddish brown with white and black sandy SILT with some mica, moist			
		SS-3	7					
		SS-4	7		Dark reddish brown with black sandy SILT with some mica, moist			
828	10							
		SS-5	5		Brown sandy SILT with some mica, wet at 24 hours during drilling			
823	15				Boring terminated at -15 feet			
818	20							
813	25							
808	30							
803	35							

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Project: **Conyers Outparcels A & B**

Project Location: **Georgia Highway 20, SE  
Conyers, Georgia**

Project Number: **01-185032**

**Log of Boring B-7  
Sheet 1 of 1**



Date(s) Drilled <b>12/18/18</b>	Logged By <b>AEI</b>	Checked By <b>R. Woodcum, PE</b>
Drilling Method <b>Hollow Stem Auger</b>	Drill Bit Size/Type <b>2.25" H.S.A.</b>	Total Depth of Borehole <b>15 feet bgs</b>
Drill Rig Type <b>Diedrich D50</b>	Drilling Contractor <b>Big Dog Geotech</b>	Approximate Surface Elevation <b>830</b>
Groundwater Level and Date Measured <b>6' - 12/18/18 &amp; 5' - 12/19/18</b>	Sampling Method(s) <b>ASTM D1586</b>	Hammer Data <b>Automatic</b>
Borehole Backfill <b>YES</b>	Location <b>Valvoline Building</b>	

Elevation (feet)	Depth (feet)	Sample Type	Sample Number	SPT, blows/ft, N value	MATERIAL DESCRIPTION	Water Content, %	pH	REMARKS AND OTHER TESTS
830	0				TOPSOIL = 6"			
		SS-1	16		RESIDUAL; Gray with red and tan silty SAND with trace clay, moist	24.5	4.15	
		SS-2	18		Brownish red with gray and tan silty SAND with trace clay, moist			
825	5	SS-3	9		Light reddish brown with tan micaceous SILT with some sand, wet	19.7	4.01	at 24 hours during drilling
		SS-4	8					
820	10				Brown micaceous SILT with some sand, moist			
		SS-5	5					
815	15				Boring terminated at -15 feet			
810	20							
805	25							
800	30							
795	35							

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Project: **Conyers Outparcels A & B**  
 Project Location: Georgia Highway 20, SE  
 Conyers, Georgia  
 Project Number: 01-185032

Log of Boring B-8  
 Sheet 1 of 1



Date(s) Drilled: <b>12/18/18</b>	Logged By: <b>AEI</b>	Checked By: <b>R. Woodcum, PE</b>
Drilling Method: <b>Hollow Stem Auger</b>	Drill Bit Size/Type: <b>2.25" H.S.A.</b>	Total Depth of Borehole: <b>15 feet bgs</b>
Drill Rig Type: <b>Diedrich D50</b>	Drilling Contractor: <b>Big Dog Geotech</b>	Approximate Surface Elevation: <b>832</b>
Groundwater Level and Date Measured: <b>6' - 12/18/18 &amp; 5' - 12/19/18</b>	Sampling Method(s): <b>ASTM D1586</b>	Hammer Data: <b>Automatic</b>
Borehole Backfill: <b>YES</b>	Location: <b>Valvoline Building</b>	

Elevation (feet)	Depth (feet)	Sample Type	Sample Number	SPT, blows/ft, N value	MATERIAL DESCRIPTION	Water Content, %	pH	REMARKS AND OTHER TESTS
832	0				TOPSOIL = 8"			
		SS-1	11		RESIDUAL; Brownish red micaceous SILT with some sand, moist	28.5	4.41	
		SS-2	10			25.3	4.44	
827	5				Tan with red micaceous SILT with some sand, wet during drilling			
		SS-3	12					
		SS-4	8		Reddish brown micaceous SILT with some sand, moist			
822	10							
		SS-5	6		Brown micaceous SILT with some sand, moist			
817	15				Boring terminated at -15 feet			
812	20							
807	25							
802	30							
797	35							

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Project: **Conyers Outparcels A & B**  
 Project Location: **Georgia Highway 20, SE Conyers, Georgia**  
 Project Number: **01-185032**

**Log of Boring B-9**  
**Sheet 1 of 1**



Date(s) Drilled <b>12/18/18</b>	Logged By <b>AEI</b>	Checked By <b>R. Woodcum, PE</b>
Drilling Method <b>Hollow Stem Auger</b>	Drill Bit Size/Type <b>2.25" H.S.A.</b>	Total Depth of Borehole <b>15 feet bgs</b>
Drill Rig Type <b>Diedrich D50</b>	Drilling Contractor <b>Big Dog Geotech</b>	Approximate Surface Elevation <b>832</b>
Groundwater Level and Date Measured <b>5' - 12/18/18 &amp; 4' - 12/19/18</b>	Sampling Method(s) <b>ASTM D1586</b>	Hammer Data <b>Automatic</b>
Borehole Backfill <b>YES</b>	Location <b>Detention Pond</b>	

Elevation (feet)	Depth (feet)	Sample Type	Sample Number	SPT, blows/ft, N value	MATERIAL DESCRIPTION	Water Content, %	pH	REMARKS AND OTHER TESTS
832	0				Topsoil = 12"			
		SS-1	2		RESIDUAL; Brownish red with gray sandy SILT with some mica, wet	28.0	3.87	
		SS-2	5		Light reddish brown with white and black sandy SILT with some mica, wet	23.4	4.00	
827	5				at 24 hours during drilling			
		SS-3	4		Brown and gray with black silty SAND, wet			
		SS-4	6					
822	10							
		SS-5	19		Brown and gray with white and black silty SAND, moist			
817	15				Boring terminated at -15 feet			
812	20							
807	25							
802	30							
797	35							

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Project: <b>Conyers Outparcels A &amp; B</b>	<b>Log of Boring B-10</b> <b>Sheet 1 of 1</b>	 AHLBERG ENGINEERING INC
Project Location: <b>Georgia Highway 20, SE</b> <b>Conyers, Georgia</b>		
Project Number: <b>01-185032</b>		

Date(s) Drilled: <b>12/18/18</b>	Logged By: <b>AEI</b>	Checked By: <b>R. Woodcum, PE</b>
Drilling Method: <b>Hollow Stem Auger</b>	Drill Bit Size/Type: <b>2.25" H.S.A.</b>	Total Depth of Borehole: <b>15 feet bgs</b>
Drill Rig Type: <b>Diedrich D50</b>	Drilling Contractor: <b>Big Dog Geotech</b>	Approximate Surface Elevation: <b>835</b>
Groundwater Level and Date Measured: <b>9' - 12/18/18 &amp; 8' - 12/19/18</b>	Sampling Method(s): <b>ASTM D1586</b>	Hammer Data: <b>Automatic</b>
Borehole Backfill: <b>YES</b>	Location: <b>Detention Pond</b>	

Elevation (feet)	Depth (feet)	Sample Type	Sample Number	SPT, blows/ft, N value	MATERIAL DESCRIPTION	Water Content, %	pH	REMARKS AND OTHER TESTS
835	0				TOPSOIL = 8"			
			SS-1	7	RESIDUAL; Dark reddish brown sandy SILT with some mica, moist	29.8	3.91	
			SS-2	7		21.3	4.03	
830	5		SS-3	6	Dark reddish brown sandy SILT with some mica, wet at 24 hours during drilling			
			SS-4	5				
825	10							
			SS-5	5	Tan with red and gray micaceous SILT with some sand, moist			
820	15				Boring terminated at -15 feet			
815	20							
810	25							
805	30							
800	35							

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Project: **Conyers Outparcels A & B**  
 Project Location: **Georgia Highway 20, SE**  
**Conyers, Georgia**  
 Project Number: **01-185032**

**Log of Boring B-11**  
**Sheet 1 of 1**



Date(s) Drilled <b>12/18/18</b>	Logged By <b>AEI</b>	Checked By <b>R. Woodcum, PE</b>
Drilling Method <b>Hollow Stem Auger</b>	Drill Bit Size/Type <b>2.25" H.S.A.</b>	Total Depth of Borehole <b>25 feet bgs</b>
Drill Rig Type <b>Diedrich D50</b>	Drilling Contractor <b>Big Dog Geotech</b>	Approximate Surface Elevation <b>845</b>
Groundwater Level <b>15' - 12/18/18 &amp; 13' - and Date Measured 12/19/18</b>	Sampling Method(s) <b>ASTM D1586</b>	Hammer Data <b>Automatic</b>
Borehole Backfill <b>YES</b>	Location <b>Detention Pond</b>	

Elevation (feet)	Depth (feet)	Sample Type	Sample Number	SPT, blows/ft, N value	MATERIAL DESCRIPTION	Water Content, %	pH	REMARKS AND OTHER TESTS
845	0				TOPSOIL = 8"			
		SS-1	8		RESIDUAL; Dark reddish brown sandy SILT with some mica, moist	28.8	4.09	
		SS-2	13			17.4	4.01	
840	5	SS-3	13					
		SS-4	9					
835	10				Brown with white and gray sandy SILT with some mica, wet			
					at 24 hours ▽			
830	15	SS-5	6		during drilling ▽			
		SS-6	7					
825	20				Brown and gray sandy SILT with some mica, moist			
		SS-7	8					
820	25				Boring terminated at -25 feet			
815	30							
810	35							

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Project: **Conyers Outparcels A & B**  
 Project Location: **Georgia Highway 20, SE**  
**Conyers, Georgia**  
 Project Number: **01-185032**

**Log of Boring B-12**  
**Sheet 1 of 1**



Date(s) Drilled <b>12/18/18</b>	Logged By <b>AEI</b>	Checked By <b>R. Woodcum, PE</b>
Drilling Method <b>Hollow Stem Auger</b>	Drill Bit Size/Type <b>2.25" H.S.A.</b>	Total Depth of Borehole <b>20 feet bgs</b>
Drill Rig Type <b>Diedrich D50</b>	Drilling Contractor <b>Big Dog Geotech</b>	Approximate Surface Elevation <b>850</b>
Groundwater Level and Date Measured <b>Not Encountered</b>	Sampling Method(s) <b>ASTM D1586</b>	Hammer Data <b>Automatic</b>
Borehole Backfill <b>YES</b>	Location <b>Parking Lot</b>	

Elevation (feet)	Depth (feet)	Sample Type	Sample Number	SPT, blows/ft, N value	MATERIAL DESCRIPTION	Water Content, %	pH	REMARKS AND OTHER TESTS
850	0				TOPSOIL = 8"			
		SS-1	12		RESIDUAL; Dark reddish brown sandy SILT with some mica, moist	27.7	4.10	
		SS-2	8			19.9	4.40	
845	5	SS-3	9					
		SS-4	7		Brown sandy SILT with some mica, moist			
840	10							
		SS-5	9					
835	15							
		SS-6	8					
830	20				Boring terminated at -20 feet			
825	25							
820	30							
815	35							

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Project: **Conyers Outparcels A & B**  
 Project Location: Georgia Highway 20, SE  
 Conyers, Georgia  
 Project Number: 01-185032

Log of Boring B-13  
 Sheet 1 of 1



Date(s) Drilled <b>12/18/18</b>	Logged By <b>AEI</b>	Checked By <b>R. Woodcum, PE</b>
Drilling Method <b>Hollow Stem Auger</b>	Drill Bit Size/Type <b>2.25" H.S.A.</b>	Total Depth of Borehole <b>25 feet bgs</b>
Drill Rig Type <b>Diedrich D50</b>	Drilling Contractor <b>Big Dog Geotech</b>	Approximate Surface Elevation <b>852</b>
Groundwater Level and Date Measured <b>Not Encountered</b>	Sampling Method(s) <b>ASTM D1586</b>	Hammer Data <b>Automatic</b>
Borehole Backfill <b>YES</b>	Location <b>Parking Lot</b>	

Elevation (feet)	Depth (feet)	Sample Type	Sample Number	SPT, blows/ft, N value	MATERIAL DESCRIPTION	Water Content, %	pH	REMARKS AND OTHER TESTS
852	0				TOPSOIL = 8"			
			SS-1	8	RESIDUAL; Dark reddish brown sandy SILT with some mica, moist	27.4	4.33	
			SS-2	21	Brown silty SAND, moist	15.7	4.51	
847	5		SS-3	50/5"	PARTIALLY WEATHERED ROCK LENSE; Light reddish brown silty SAND, moist			
			SS-4	90/10"	Gray with white silty SAND, moist			
842	10				Gray with white silty SAND, moist			
			SS-5	60				
837	15							
			SS-6	9	Brown and gray silty SAND with some mica, moist			
832	20							
			SS-7	10				
827	25				Boring terminated at -25 feet			
822	30							
817	35							

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Project: **Conyers Outparcels A & B**

Project Location: **Georgia Highway 20, SE  
Conyers, Georgia**

Project Number: **01-185032**

# Log of Boring B-14

## Sheet 1 of 1



Date(s) Drilled <b>12/18/18</b>	Logged By <b>AEI</b>	Checked By <b>R. Woodcum, PE</b>
Drilling Method <b>Hollow Stem Auger</b>	Drill Bit Size/Type <b>2.25" H.S.A.</b>	Total Depth of Borehole <b>25 feet bgs</b>
Drill Rig Type <b>Diedrich D50</b>	Drilling Contractor <b>Big Dog Geotech</b>	Approximate Surface Elevation <b>859</b>
Groundwater Level and Date Measured <b>Not Encountered</b>	Sampling Method(s) <b>ASTM D1586</b>	Hammer Data <b>Automatic</b>
Borehole Backfill <b>YES</b>	Location <b>Parking Lot</b>	

Elevation (feet)	Depth (feet)	Sample Type	Sample Number	SPT, blows/ft, N value	MATERIAL DESCRIPTION	Water Content, %	pH	REMARKS AND OTHER TESTS
859	0				TOPSOIL = 8"			
			SS-1	8	RESIDUAL; Dark reddish brown sandy SILT with some mica, moist	28.7	4.22	
			SS-2	9	Gray with white silty SAND, moist	21.0	4.13	
854	5		SS-3	13				
			SS-4	42				
849	10				Brown and gray silty SAND with some mica, moist			
			SS-5	13				
844	15				Boring terminated at -25 feet			
			SS-6	12				
839	20							
			SS-7	16				
834	25							
829	30							
824	35							

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Project: **Conyers Outparcels A & B**  
 Project Location: Georgia Highway 20, SE  
 Conyers, Georgia  
 Project Number: 01-185032

Log of Boring B-15  
 Sheet 1 of 1



Date(s) Drilled: <b>12/18/18</b>	Logged By: <b>AEI</b>	Checked By: <b>R. Woodcum, PE</b>
Drilling Method: <b>Hollow Stem Auger</b>	Drill Bit Size/Type: <b>2.25" H.S.A.</b>	Total Depth of Borehole: <b>15 feet bgs</b>
Drill Rig Type: <b>Diedrich D50</b>	Drilling Contractor: <b>Big Dog Geotech</b>	Approximate Surface Elevation: <b>837</b>
Groundwater Level: <b>12' - 12/18/18 &amp; 11' - and Date Measured 12/19/18</b>	Sampling Method(s): <b>ASTM D1586</b>	Hammer Data: <b>Automatic</b>
Borehole Backfill: <b>YES</b>	Location: <b>Parking Lot</b>	

Elevation (feet)	Depth (feet)	Sample Type	Sample Number	SPT, blows/ft, N value	MATERIAL DESCRIPTION	Water Content, %	pH	REMARKS AND OTHER TESTS
837	0				TOPSOIL = 8"			
		SS-1	7		RESIDUAL; Brownish red clayey SILT with some mica, moist	28.1	3.98	
		SS-2	9			22.2	3.82	
832	5				Dark reddish brown with black sandy SILT with some mica, moist			
		SS-3	9					
		SS-4	8					
827	10				Brown sandy SILT with some mica, wet at 24 hours during drilling			
		SS-5	6					
822	15				Boring terminated at -15 feet			
817	20							
812	25							
807	30							
802	35							

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Prjct: **Conyers Outparcels A & B**  
 Project Location: **Georgia Highway 20, SE**  
**Conyers, Georgia**  
 Project Number: **01-185032**

**Log of Boring B-16**  
**Sheet 1 of 1**



Date(s) Drilled: <b>12/18/18</b>	Logged By: <b>AEI</b>	Checked By: <b>R. Woodcum, PE</b>
Drilling Method: <b>Hollow Stem Auger</b>	Drill Bit Size/Type: <b>2.25" H.S.A.</b>	Total Depth of Borehole: <b>15 feet bgs</b>
Drill Rig Type: <b>Diedrich D50</b>	Drilling Contractor: <b>Big Dog Geotech</b>	Approximate Surface Elevation: <b>834</b>
Groundwater Level and Date Measured: <b>7' - 12/18/18 &amp; 6' - 12/19/18</b>	Sampling Method(s): <b>ASTM D1586</b>	Hammer Data: <b>Automatic</b>
Borehole Backfill: <b>YES</b>	Location: <b>Parking Lot</b>	

Elevation (feet)	Depth (feet)	Sample Type	Sample Number	SPT, blows/ft, N value	MATERIAL DESCRIPTION	Water Content, %	pH	REMARKS AND OTHER TESTS
834	0				TOPSOIL = 8"			
			SS-1	13	RESIDUAL; Brownish red with gray and tan silty SAND with trace clay, moist	29.8	3.91	
			SS-2	19			22.3	4.16
829	5		SS-3	7	Brownish red sandy SILT with some mica, wet at 24 hours during drilling			
			SS-4	5				
824	10							
			SS-5	5	Brown sandy SILT with some mica, moist			
819	15				Boring terminated at -15 feet			
814	20							
809	25							
804	30							
799	35							

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Project: **Conyers Outparcels A & B**  
 Project Location: **Georgia Highway 20, SE Conyers, Georgia**  
 Project Number: **01-185032**

**Log of Boring B-17**  
**Sheet 1 of 1**



Date(s) Drilled <b>12/18/18</b>	Logged By <b>AEI</b>	Checked By <b>R. Woodcum, PE</b>
Drilling Method <b>Hollow Stem Auger</b>	Drill Bit Size/Type <b>2.25" H.S.A.</b>	Total Depth of Borehole <b>15 feet bgs</b>
Drill Rig Type <b>Diedrich D50</b>	Drilling Contractor <b>Big Dog Geotech</b>	Approximate Surface Elevation <b>832</b>
Groundwater Level and Date Measured <b>9' - 12/18/18 &amp; 8' - 12/19/18</b>	Sampling Method(s) <b>ASTM D1586</b>	Hammer Data <b>Automatic</b>
Borehole Backfill <b>YES</b>	Location <b>Parking Lot</b>	

Elevation (feet)	Depth (feet)	Sample Type	Sample Number	SPT, blows/ft, N value	MATERIAL DESCRIPTION	Water Content, %	pH	REMARKS AND OTHER TESTS
832	0				TOPSOIL = 8"			
			SS-1	11	RESIDUAL; Brownish red with gray and tan silty SAND with trace clay, moist	24.4	4.24	
			SS-2	22				
827	5				Brownish red sandy SILT with some mica, wet	19.4	4.02	
			SS-3	11				
			SS-4	11				at 24 hours during drilling
822	10							
			SS-5	5				
817	15				Boring terminated at -15 feet			
812	20							
807	25							
802	30							
797	35							

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Project: <b>Conyers Outparcels A &amp; B</b>	Log of Boring B-18 Sheet 1 of 1	 AHLBERG ENGINEERING INC
Project Location: <b>Georgia Highway 20, SE Conyers, Georgia</b>		
Project Number: <b>01-185032</b>		

Date(s) Drilled: <b>12/18/18</b>	Logged By: <b>AEI</b>	Checked By: <b>R. Woodcum, PE</b>
Drilling Method: <b>Hollow Stem Auger</b>	Drill Bit Size/Type: <b>2.25" H.S.A.</b>	Total Depth of Borehole: <b>15 feet bgs</b>
Drill Rig Type: <b>Diedrich D50</b>	Drilling Contractor: <b>Big Dog Geotech</b>	Approximate Surface Elevation: <b>840</b>
Groundwater Level and Date Measured: <b>Not Encountered</b>	Sampling Method(s): <b>ASTM D1586</b>	Hammer Data: <b>Automatic</b>
Borehole Backfill: <b>YES</b>	Location: <b>Parking Lot</b>	

Elevation (feet)	Depth (feet)	Sample Type	Sample Number	SPT, blows/ft, N value	MATERIAL DESCRIPTION	Water Content, %	pH	REMARKS AND OTHER TESTS
840	0				TOPSOIL = 8"			
			SS-1	6	RESIDUAL; Brownish red sandy SILT with some mica, moist	29.1	4.20	
			SS-2	7				
835	5				Light reddish brown with white and black sandy SILT with some mica, moist	22.4	3.98	
			SS-3	7				
			SS-4	6	Brown sandy SILT with some mica, moist			
830	10							
			SS-5	9				
825	15				Boring terminated at -15 feet			
820	20							
815	25							
810	30							
805	35							

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Project: **Conyers Outparcels A & B**  
 Project Location: **Georgia Highway 20, SE**  
**Conyers, Georgia**  
 Project Number: **01-185032**

**Log of Boring B-19**  
**Sheet 1 of 1**



Date(s) Drilled <b>12/18/18</b>	Logged By <b>AEI</b>	Checked By <b>R. Woodcum, PE</b>
Drilling Method <b>Hollow Stem Auger</b>	Drill Bit Size/Type <b>2.25" H.S.A.</b>	Total Depth of Borehole <b>15 feet bgs</b>
Drill Rig Type <b>Diedrich D50</b>	Drilling Contractor <b>Big Dog Geotech</b>	Approximate Surface Elevation <b>848</b>
Groundwater Level and Date Measured <b>Not Encountered</b>	Sampling Method(s) <b>ASTM D1586</b>	Hammer Data <b>Automatic</b>
Borehole Backfill <b>YES</b>	Location <b>Parking Lot</b>	

Elevation (feet)	Depth (feet)	Sample Type	Sample Number	SPT, blows/ft, N value	MATERIAL DESCRIPTION	Water Content, %	pH	REMARKS AND OTHER TESTS
848	0				TOPSOIL = 8"			
			SS-1	10	RESIDUAL; Brownish red sandy SILT with some mica, moist	27.5	4.08	
			SS-2	9	Reddish brown sandy SILT with some mica, moist	22.2	4.05	
843	5		SS-3	11				
			SS-4	11				
838	10				Brown sandy SILT with some mica, moist			
			SS-5	11				
833	15				Boring terminated at -15 feet			
828	20							
823	25							
818	30							
813	35							

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Project: **Conyers Outparcels A & B**  
 Project Location: Georgia Highway 20, SE  
 Conyers, Georgia  
 Project Number: 01-185032

Key to Log of Boring  
 Sheet 1 of 1



Elevation (feet)	Depth (feet)	Sample Type	Sample Number	SPT, blows/ft, N value	MATERIAL DESCRIPTION	Water Content, %	pH	REMARKS AND OTHER TESTS
1	2	3	4	5	6	7	8	9

**COLUMN DESCRIPTIONS**

- 1** Elevation (feet): Elevation (MSL, feet).
- 2** Depth (feet): Depth in feet below the ground surface.
- 3** Sample Type: Type of soil sample collected at the depth interval shown.
- 4** Sample Number: Sample identification number.
- 5** SPT, blows/ft, N value: Number of blows to advance driven sampler one foot (or distance shown) beyond seating interval using the hammer identified on the boring log.
- 6** MATERIAL DESCRIPTION: Description of material encountered. May include consistency, moisture, color, and other descriptive text.
- 7** Water Content, %: Water content of the soil sample, expressed as percentage of dry weight of sample.
- 8** pH: pH of soil sample
- 9** REMARKS AND OTHER TESTS: Comments and observations regarding drilling or sampling made by driller or field personnel.

**FIELD AND LABORATORY TEST ABBREVIATIONS**

- CHEM: Chemical tests to assess corrosivity
- COMP: Compaction test
- CONS: One-dimensional consolidation test
- LL: Liquid Limit, percent
- PI: Plasticity Index, percent
- SA: Sieve analysis (percent passing No. 200 Sieve)
- UC: Unconfined compressive strength test, Qu, in ksf
- WA: Wash sieve (percent passing No. 200 Sieve)

**MATERIAL GRAPHIC SYMBOLS**

**TYPICAL SAMPLER GRAPHIC SYMBOLS**

- Auger sampler
- Bulk Sample
- 3-inch-OD California w/ brass rings
- CME Sampler
- Grab Sample
- 2.5-inch-OD Modified California w/ brass liners
- 1.87-inch-NQ Core Barrel
- Pitcher Sample

**OTHER GRAPHIC SYMBOLS**

- Water level (at time of drilling, ATD)
- Water level (after waiting)
- Minor change in material properties within a stratum
- Inferred/gradational contact between strata
- Queried contact between strata

**GENERAL NOTES**

- 1: Soil classifications are based on the Unified Soil Classification System. Descriptions and stratum lines are interpretive, and actual lithologic changes may be gradual. Field descriptions may have been modified to reflect results of lab tests.
- 2: Descriptions on these logs apply only at the specific boring locations and at the time the borings were advanced. They are not warranted to be representative of subsurface conditions at other locations or times.

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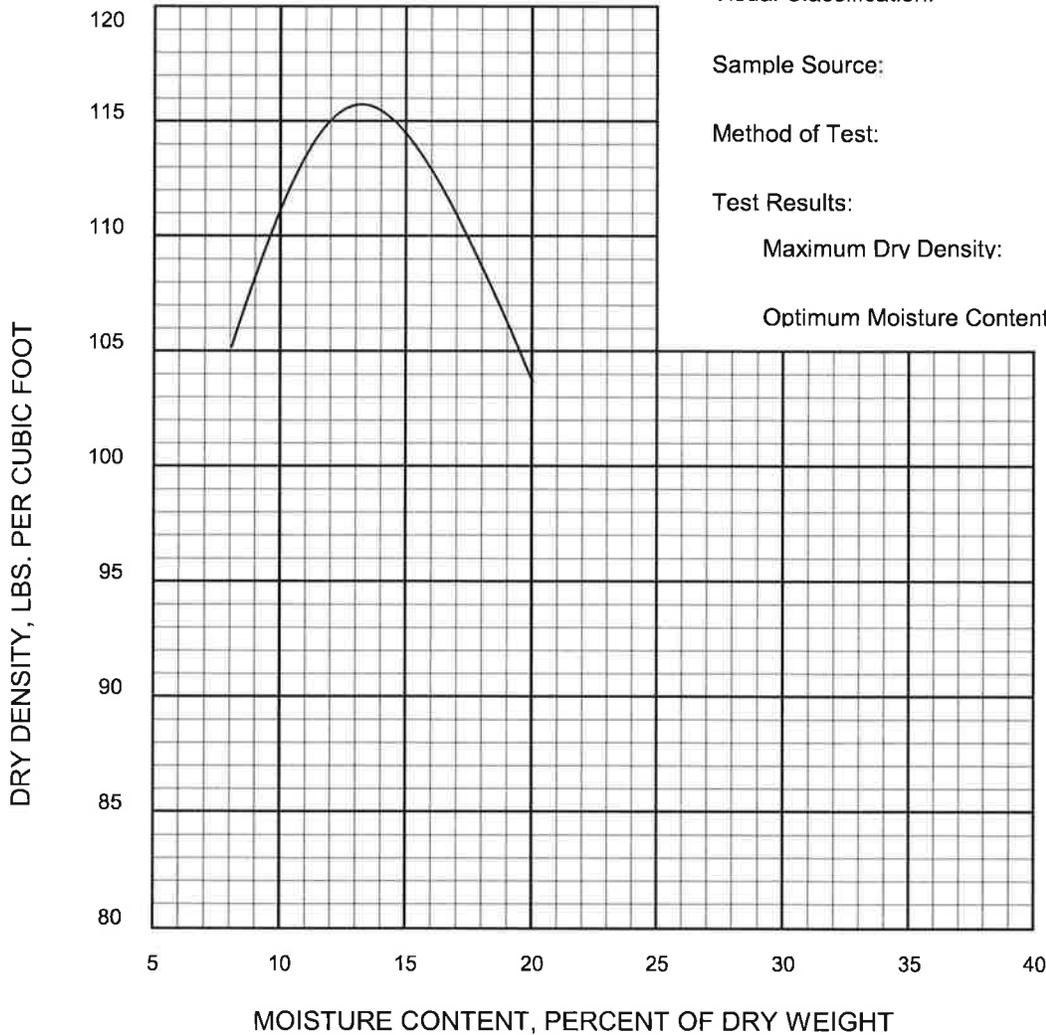
Figure B-1

## REPORT OF MOISTURE DENSITY RELATIONSHIP OF SOIL AND CALIFORNIA BEARING RATIO (CBR)

### CBR

Condition of Sample:	Soaked	Swell, %	0.10
Surcharge, lbs.	15	Dry Density, pcf	
		Before soaking	111.3
Moisture content, %		After soaking	111.2
Before compaction	13.7	CBR Value	10.2
After compaction	13.3		
Top 1" after soaking	13.8		

### MOISTURE DENSITY RELATIONSHIP



Visual Classification: Brown silty SAND

Sample Source: Boring B-13

Method of Test: ASTM D 698

**Test Results:**

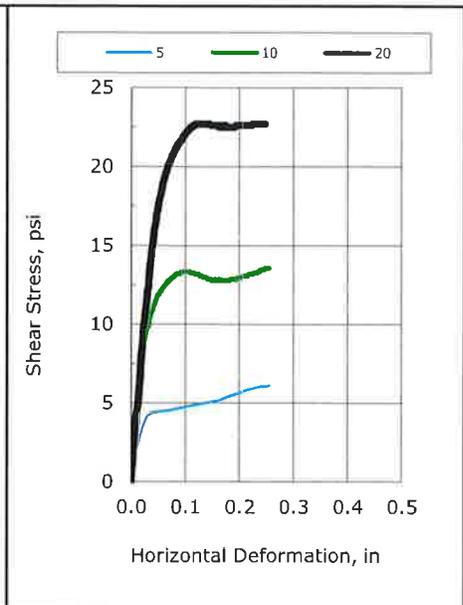
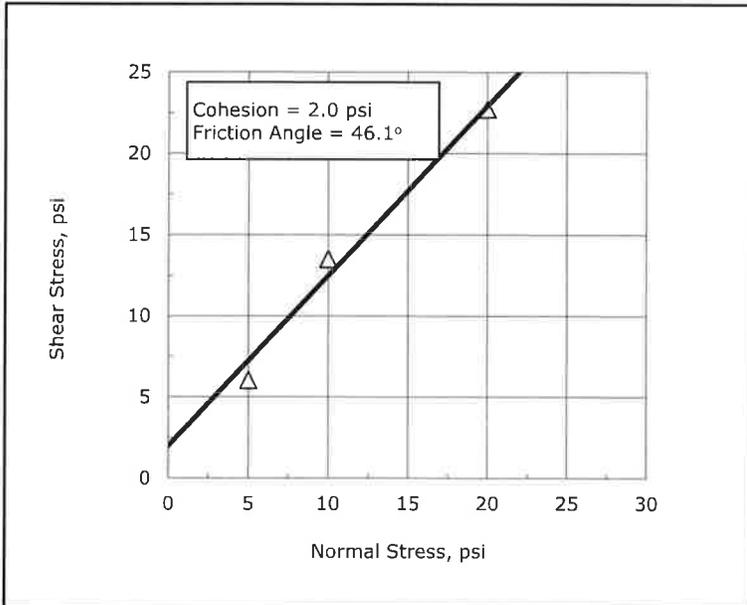
Maximum Dry Density: 115.5 lbs/ft<sup>3</sup>

Optimum Moisture Content: 13.7 %

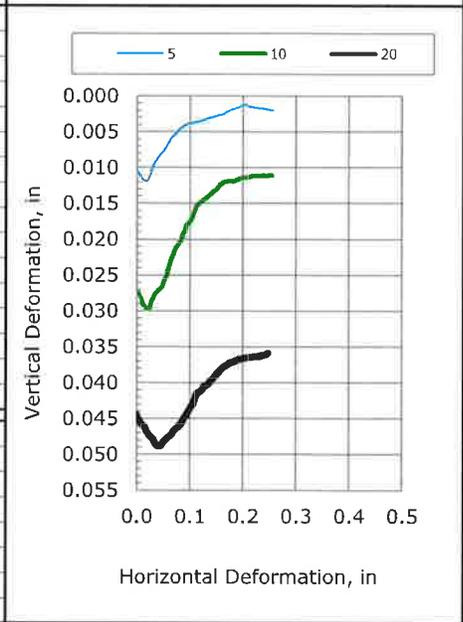


Client:	Ahlberg Engineering, Inc.
Project Name:	Conyers Outparcels A&B
Project Location:	---
GTX #:	309367
Test Date:	01/10/19
Tested By:	md
Checked By:	mcm
Boring ID:	---
Sample ID:	Bulk Sample
Depth, ft:	---
Visual Description:	Moist, brown silty sand

## Direct Shear Test of Soils Under Consolidated Drained Conditions by ASTM D3080



Test No.:	DS-1	DS-2	DS-3
Initial Diameter, in:	2.5	2.5	2.5
Initial Height, in:	1.0	1.0	1.0
Initial Mass, grams:	160.76	160.76	160.76
Initial Dry Density, pcf:	108.9	108.9	108.9
Initial Moisture Content, %:	14.6	14.6	14.6
Initial Bulk Density, pcf:	124.8	124.8	124.8
Initial Degree of Saturation:	74.3	74.3	74.3
Initial Void Ratio:	0.52	0.52	0.52
Final Dry Density, pcf:	109.1	110.1	113.0
Final Moisture Content, %:	21.8	20.4	20.9
Final Bulk Density, pcf:	132.9	132.6	136.6
Normal Stress, psf:	5	10	20
Maximum Shear Stress, psf:	6	14	23
Shear Rate, in/min:	0.004	0.004	0.004



Sample Type:	reconstituted
Estimated Specific Gravity:	2.65
Liquid Limit:	---
Plastic Limit:	---
Plasticity Index:	---
% Passing #200 sieve:	---
Soil Classification:	---
Group Symbol:	---

**Notes:** Material greater than #5 sieve screened out of sample prior to testing  
 Moisture content obtained before shear from sample trimmings  
 Moisture Content determined by ASTM D2216  
 Target Compaction: 95% of (115.5 pcf) at 13.7% moisture content +/-2%, values provided by client.

Values for cohesion and friction angle determined from best-fit straight line to the data for the specific test conditions. Actual strength parameters may vary and should be determined by an engineer for site-specific conditions.

"---" indicates testing required to determine these values was not requested.