REPORT OF PRELIMINARY SUBSURFACE EXPLORATION
AND
GEOTECHNICAL ENGINEERING EVALUATION

WOODFIELD INDUSTRIAL PARK
LAURENS COUNTY, SOUTH CAROLINA
ECS PROJECT No. 14-7239

Prepared For

LAURENS COUNTY DEVELOPMENT CORPORATION

Prepared By

June 14, 2013

ECS CAROLINAS, LLP

"Setting the Standard for Service"

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NC Registered Engineering Firm F-1078

June 14, 2013

Mr. Marvin Moss
Executive Director
Laurens County Development Corporation
PO Box 427
Laurens, South Carolina 29360

Reference: Report of Preliminary Subsurface Exploration and Geotechnical Engineering Evaluation
Woodfield Industrial Park
Laurens County, South Carolina
ECS Project No. 14-7239

Dear Mr. Moss:

As authorized by your acceptance of our proposal number 14-9437-P dated May 30, 2013, ECS Carolinas, LLP (ECS) has completed the preliminary subsurface exploration and geotechnical engineering evaluation for the above referenced project. This report contains the results of our subsurface exploration, as well as our preliminary recommendations concerning the geotechnical design and construction aspects of the project.

We appreciate the opportunity to be of service to you during this phase project and look forward to our continued involvement. If you have any questions concerning the information and recommendations presented in this report, or if we can be of further assistance, please do not hesitate to contact us.

Sincerely,
ECS CAROLINAS, LLP represented by;

Stephen C. Wright, E.I.
Project Manager

Donald L. Anderson, P.E.
Senior Geotechnical Engineer

SOUTH CAROLINA LICENSED PROFESSIONAL ENGINEER No. 26004 6/14/13 DEREK L. CLYBURN

Derek L. Clyburn, P.E.
Principal Engineer

SOUTH CAROLINA ECS CAROLINAS LLP No. C3239 CERTIFICATE OF AUTHORIZATION

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1.0 EXECUTIVE SUMMARY

The proposed project includes a new development in the Woodfield Industrial Park. The site is a 50.57-acre, undeveloped parcel of land located south of South Nelson Drive, west of International Boulevard, and north of Color Resources International in Laurens County, South Carolina. The site is moderately wooded with a rolling terrain. Structural loading information was not available at the time of report preparation.

Six soil test borings were drilled and were typically spaced about 300 to 400 feet apart. Borings B-2 and B-6 encountered auger refusal at 17 and 15½, respectively. As requested, the remaining borings were drilled to a depth of 20 feet each.

Approximately 0 to 1 inch of topsoil was present at the test boring locations. Natural residual soils typical of the Piedmont region were present at the ground surface or beneath the topsoil, where present.

Partially weathered rock (PWR) was encountered in Borings B-2, B-5, and B-6 at depths of approximately 12 to 17 feet below the ground surface. Material hard enough to cause auger refusal to the 550 ATV drill rig was encountered in Borings B-2 and B-6 at depths of approximately 17 feet and 15½ feet, respectively.

Depending on the structure type, related subsurface profile and provided the subgrade preparation and earthwork operations are completed in strict accordance with the recommendations of this report, spread footings will likely be appropriate for proposed lightly to moderately loaded structures. At this time, a preliminary design bearing capacity of 3,000 psf for foundations bearing on firm residual soils appears feasible. Provided the site preparation and fill recommendations outlined herein are implemented, concrete slabs-on-grade can be designed using a modulus of subgrade reaction of 100 to 150 pounds per cubic inch (pci).

Specific information regarding the subsurface exploration procedures, the site and subsurface conditions at the time of our exploration, and our conclusions and recommendations concerning the geotechnical design and construction aspects of the project are discussed in detail in the subsequent sections of this report. Please note this Executive Summary is an important part of this report but should be considered a ***"summary"*** only and should not be relied upon exclusive of the entire report. The subsequent sections of this report constitute our findings, conclusions, and recommendations in their entirety.

2.0 PROJECT INFORMATION

Based on the May 30, 2013 proposal request from Laurens County Development Corporation, the proposed project includes a new development in the Woodfield Industrial Park. The site is a 50.57-acre, undeveloped parcel of land located south of South Nelson Drive, west of International Boulevard, and north of Color Resources International in Laurens County, South Carolina. The site is moderately wooded with a rolling terrain. The approximate site location is shown on the Site Vicinity Map in the Appendix of this report. Specific development plans are not available at this time.

The borings were located in the field in areas where drill rig access could be achieved without the use of mechanical clearing. As such, the subsurface exploration is preliminary in nature, and the recommendations in this report may have to be modified based on the results of a final exploration.

3.0 EXPLORATION PROCEDURES

3.1 Subsurface Exploration

Six (6) soil test borings were drilled at the approximate locations shown on the Boring Location Diagram in the Appendix of this report. The borings were located in the field by ECS in areas where mechanical clearing was not required.

Six soil test borings were drilled and were typically spaced about 300 to 400 feet apart. Borings B-2 and B-6 encountered auger refusal at depths of approximately 17 and 15½ feet, respectively. As requested, the remaining borings were drilled to a depth of 20 feet each.

The soil test borings were performed using an All Terrain Vehicle mounted (550 ATV) drill rig equipped with an auto-hammer spilt-spoon driving assembly. The auto-hammer generally delivers more energy downhole to the sampler than the standard cat-head driving assembly, therefore, the recorded standard penetration test (SPT) N-Values are lower than the N_{60}-Values recorded from using the cat-head assembly. Although the differences in energy will vary, it is common to assume the auto hammer delivers about 1.3 times the energy of the cat-head assembly. The N-values recorded in the field using the auto-hammer assembly are reported on the Boring Records in the Appendix.

Representative soil samples were obtained by means of the split-barrel (split-spoon) sampling procedure in accordance with ASTM D 1586. 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. This indication is qualitative, since many factors can affect the standard penetration resistance value and prevent a direct correlation with drilling crews, equipment and procedures. Split-spoon samples were obtained at approximately 2½ foot intervals within the upper 10 feet of the borings and at approximately 5-foot intervals thereafter.

After recovery, each sample was removed from the sampler and visually classified. Representative portions of each sample were then sealed in air tight containers and brought to our laboratory in Greenville, South Carolina for visual classification.

4.0 SITE AND SUBSURFACE CONDITIONS

4.1 Site Observations

The project site is a 50.57-acre, undeveloped parcel of land located south of South Nelson Drive, west of International Boulevard, and north of Color Resources International in Laurens County, South Carolina. The site is moderately wooded with a rolling terrain that slopes from the east to the west.

4.2 Area Geology

The site is located in the Piedmont Physiographic Province of South Carolina. The soils in the Piedmont Province consist mainly of residuum with underlying saprolites weathered from the parent bedrock, which can be found in both weathered and unweathered states. Although the surficial materials normally retain the structure of the original parent bedrock, they typically have a much lower density and exhibit strengths and other engineering properties typical of soil. In a mature weathering profile of the Piedmont Province, the soils are generally found to be finer grained at the surface where more extensive weathering has occurred. The particle size of the soils generally becomes more granular with increasing depth and gradually changes first to weathered and finally to unweathered parent bedrock. The mineral composition of the parent rock and the environment in which weathering occurs largely control the resulting soil's engineering characteristics.

4.3 Subsurface Conditions

4.3.1 Soil Test Borings

The drillers reported that approximately 0 to 1 inch of topsoil was encountered in the soil test borings drilled on site. Natural residual soils typical of the Piedmont region were observed at the ground surface or beneath the topsoil, where present.

The residual soils were generally classified as sandy clay (CL), clayey sand (SC), sandy silt (ML), and silty sand (SM). N-values ranging from 7 to 27 blows per foot (bpf) were typically recorded in the residual soils, although a low N-Value of 4 was recorded in B-5 at a depth of 13½ feet.

Partially weathered rock (PWR) was encountered in Borings B-2, B-5, and B-6. Partially weathered rock is defined as residual material which exhibits a standard penetration resistance N-value in excess of 100 bpf. N-values recorded in the PWR ranged from 50 blows per zero inches of penetration to 50 blows per 4 inches of penetration. The PWR was encountered at depths of approximately 12 to 17 feet below the ground surface.

Material hard enough to cause auger refusal to the 550 ATV drill rig was encountered in Borings B-2 and B-6 at depths of approximately 17 feet and 15½ feet, respectively. Refusal is defined as negligible penetration under the weight and down pressure of the drill rig and generally indicates

the presence of rock in a boulder, ledge or massive form. Please be aware that the depth and presence of rock can vary significantly over relative short horizontal distance in the area of the site, and shallow rock in pinnacle form can be present between the boring locations.

The above paragraphs provide a general summary of subsurface conditions encountered at the site at the time of our exploration. The Boring Logs included in the Appendix contain detailed information regarding the subsurface conditions encountered at each boring location. The Boring Logs represent our visual classification of the samples retrieved during the field. The stratification lines on the Boring Logs designate approximate boundaries between various subsurface strata. The actual in-situ transitions are expected to be more gradual

4.3.2 Groundwater Observations

Groundwater was not encountered within the borings at the time of drilling. Groundwater elevations should be expected to vary depending on seasonal fluctuations in precipitation, surface water absorption characteristics, and other factors not readily apparent at the time of our exploration, and may be higher or lower at other times.

5.0 PRELIMINARY CONCLUSIONS AND RECOMMENDATIONS

Based on the subsurface conditions encountered within the test borings and our experience with similar soil conditions, spread footings will likely be appropriate for proposed lightly to moderately loaded structures and provided the foundations bear in approved natural residual soils and properly placed new engineered fill.

The site typically appears suited to the earthwork activities needed to develop the site. Based on the recent borings, and depending on the final grading plan, the PWR and rock will likely be below the level of typical mass excavation. However, this is based on the soils in the select boring locations and much of the site has not been evaluated. Be cautioned that the depth and presence of rock can vary significantly over relative short horizontal distance in the Piedmont region.

5.1 Site and Subgrade Preparation

Prior to the start of fill placement, existing vegetation, rootmat, topsoil, deleterious materials, and any other soft or unsuitable materials should be removed from the areas of proposed construction. The clearing and stripping operations should extend at least 5 to 10 feet beyond the planned limits of the new structures, pavements and fill embankments.

After removal of existing deleterious surface and subsurface materials, and prior to fill placement or other at-grade construction, the exposed subgrade soils should be evaluated by an experienced geotechnical engineer or his authorized representative. The evaluation should include proofrolling with an approved piece of equipment, such as a loaded dump truck, having an axle weight of at least 10 tons to identify soft, loose or yielding subgrade materials. Unsuitable subgrade materials may require in-place stabilization, or excavation and replacement with engineered fill. The most appropriate remedial activity to repair subgrades should be determined in the field by ECS at the time of proofrolling.

The preparation of fill and cut subgrades should be observed on a full-time basis by a representative of ECS. These observations should be performed by an experienced geotechnical engineer, or his representative, to ensure that all unsuitable materials have been removed and that the prepared subgrade is suitable for support of the proposed construction and/or new engineered fills.

5.2 Excavation Characteristics

We expect excavation will be needed to establish finish subgrade elevation in many areas, and for installation of footings and underground utilities. We expect that excavation to planned grades will typically penetrate moderate to high consistency residual soils. The residual soils encountered in the borings should generally be excavatable with conventional earth moving equipment such as pans/scrapers, loaders, bulldozers and backhoes.

Depending on final grades, it is possible that partially weathered rock (PWR) could be encountered in some areas. PWR can typically be removed with large excavation equipment. Pre-loosening of the PWR with bulldozer drawn rippers will ease excavation. Also, large boulders or rock ledges could be present in the PWR and rock, therefore excavation methods such as pneumatic equipment, rock saws or blasting should be anticipated in some areas. It should be noted that PWR is much easier to remove from areas of mass excavation and tends to be more difficult to remove from confined excavations such as trenches.

Rock was encountered at a depth of 12 to 17 feet in Borings B-2, B-5, and B-6, and shallow rock could be present between the boring locations. The potential for encountering rock, as well as PWR, will generally increase with increasing excavation depth. Also, please remember that the depths and presence of rock can vary quite significantly in the region of the site and it is possible that rock will be encountered at shallower depths than suggested by the boring data.

Areas of mass excavation, trenches and pits should meet the requirements of the most current Occupational Safety and Health Administration (OSHA) 29 CFR Part 1926, “Occupational Safety and Health Standards-Excavations”. Site safety shall be the sole responsibility of the contractor and his subcontractors.

5.3 Site and Subgrade Preparation

New fill placed for support of the new buildings, pavements and other structures, and for backfill of utility lines within expanded structures and pavement limits should consist of engineered fill. Engineered fill should be an approved material, free of organic matter and other deleterious materials, and have a Liquid Limit (LL) and a Plasticity Index (PI) less than approximately 50 and 30, respectively. We also recommend that fills within structural areas have a standard Proctor (ASTM D 698) maximum dry density of at least 90 pounds per cubic foot (pcf). The on-site residual soils generally appear suitable for reuse as engineered fill.

Mass engineered fill placed within the building and pavement areas should be placed in lifts not exceeding 8 inches in loose lift thickness and moisture conditioned to within their working range of optimum moisture content, and compacted to a minimum of 95 percent of their standard Proctor maximum dry density, as determined in accordance with ASTM D 698. Similarly, isolated areas of engineered fill, such as trench line backfill, should be placed in lifts not

exceeding 6 inches and moisture conditioned as mentioned above. The typical working range of optimum is typically within approximately 3 percent of the optimum moisture content.

The upper 18 inches of new fill supporting slabs-on-grade and pavements should typically be compacted to 98 percent of the standard Proctor maximum dry density.

Fill materials should not be placed on frozen, frost-heaved or wet soils. Such materials should be removed prior to fill placement. Borrow fill materials should not contain wet or frozen materials at the time of placement. Wet or frost-heaved soils should also be removed prior to placement of granular sub-base materials, foundation or slab concrete, and asphalt pavement materials.

If problems are encountered during the site grading operations, or if the actual site conditions differ from those encountered during our subsurface exploration, the geotechnical engineer should be notified immediately.

5.4 Preliminary Foundation and Slab on Grade Design

Based on the limited soil test boring data, it appears that lightly or moderately loaded structures can be supported by shallow foundations. At this time, a preliminary design bearing capacity of 3,000 psf for foundations bearing on firm residual soils appears feasible. Please note that the provided preliminary bearing capacities may vary once the structure type is finalized.

To reduce the possibility of foundation bearing failure and excessive settlement due to local shear or "punching" failures, we recommend that continuous footings have a minimum width of 24 inches and that isolated column footings have a minimum lateral dimension of 36 inches. We recommend the bearing elevation for foundations be a minimum depth of 18 inches below the finished exterior grade.

The net allowable soil bearing pressure refers to that pressure which may be transmitted to the foundation bearing soils in excess of the final minimum surrounding overburden pressure. The foundation subgrades should be evaluated by ECS personnel to document that the bearing soils are capable of supporting the recommended net allowable bearing pressure and are suitable for foundation construction. These evaluations should include visual observations, hand rod probing, and dynamic cone penetrometer (ASTM STP 399) testing, or other methods deemed appropriate by the geotechnical engineer at the time of construction. These evaluations should be performed within each column footing excavation and at intervals and not greater than 25 feet in continuous footing excavations.

For slab-on-grade design, a modulus of subgrade reaction value of 100 to 150 pci appears appropriate provided the subgrades are properly prepared. We recommend slabs-on-grade are underlain by a minimum of 4 inches of granular material having a maximum aggregate size of 1½ inches and no more than 2 percent fines. Prior to placing the granular material, the floor subgrade soil should be properly compacted, proofrolled, and free of standing water, mud and frozen soil.

More specific bearing pressure, settlement, and floor slab recommendations can be provided once loading information, finished grades, and bearing elevation of the proposed structures are known and additional field testing has been performed.

5.5 Site Drainage

Positive drainage should be provided around the perimeter of the structures to minimize the potential for moisture infiltration into the foundation and slab subgrade soils. We recommend that landscaped areas adjacent to these structures be sloped away from the construction and maintain a fall of at least 6 inches for the first 10 feet outward from the structures. The parking lots, sidewalks, and any other paved areas should also be sloped to divert surface water away from the proposed building.

The proper diversion of surface water during site grading and construction will help reduce the potential for delays associated with periods of inclement weather. Please note that the need for construction dewatering should be determined at the time of construction. If grading operations are performed during the wet seasons (i.e. fall and winter) the use of gravity flow ditches may be necessary to divert precipitation and surface water away from the construction areas. The proper diversion of surface water is especially critical since portions of the site soils are expected to be moisture sensitive. Based upon our past experience, the use of "crowning" large areas of exposed soils should be useful to help divert surface water from the prepared subgrades.

6.0 CLOSING

This report has been prepared in accordance with generally accepted geotechnical engineering practice. No other warranty is expressed or implied. Our evaluation of foundation support conditions has been based on our understanding of the site and project information and the data obtained in our exploration. The general subsurface conditions utilized in our foundation evaluation have been based on interpolation of subsurface data between the borings. In evaluating the boring data, we have reviewed previous correlations between penetration resistance values and foundation bearing pressures observed in soil conditions similar to those at your site. The discovery of any site or subsurface conditions during construction which deviate from the data outlined in this exploration should be reported to us for our evaluation. ECS shall be provided a copy of the final plans and specifications in advance of construction to document that our recommendations have been correctly interpreted. The assessment of site environmental conditions for the presence of pollutants in the soil, rock, and groundwater of the site was beyond the scope of this exploration.

APPENDIX

Site Vicinity Map

Boring Location Diagram

Unified Soil Classification System

Reference Notes for Boring Logs

Boring Logs B-1 through B-6

NOT TO SCALE

Reference: Drawing provided by BING Maps

SITE VICINITY MAP
WOODFIELD INDUSTRIAL PARK
LAURENS COUNTY, SOUTH CAROLINA
ECS PROJECT No. 14-7239

Drawing by BING Maps
Not to Scale

LEGEND

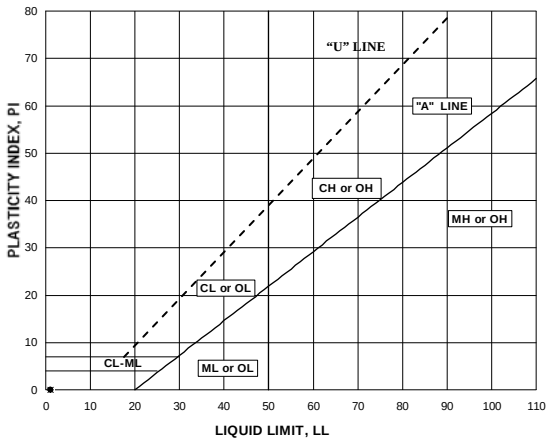
B-1 Boring Location

BORING LOCATION DIAGRAM
WOODFIELD INDUSTRIAL PARK
LAURENS COUNTY, SOUTH CAROLINA
ECS PROJECT No. 14-7239

Unified Soil Classification System
(ASTM Designation D-2487)

Major Division		Group Symbol	Typical Names	Classification on basis of percentage of fines		Classification Criteria
Coarse-grained soils: More than 50% retained on No. 200 sieve	Gravels: More than 50% of coarse fraction retained on No. 4 sieve	GW	Well-graded gravels and gravel-sand mixtures, little or no fines	Less than 5% Pass No. 200 sieve	GW, GP, SW, SP	$C_u = D_{60}/D_{10}$ Greater than 4 $C_z = (D_{30})^2/(D_{10}xD_{60})$ Between 1 and 3
		GP	Poorly graded gravels and gravel-sand mixtures, little or no fines			Not meeting both criteria for GW
		GM	Silty gravels, gravel-sand-silt mixtures	More than 12% Pass No. 200 sieve	GM, GC, SM, SC	Atterberg limits plot below "A" line or plasticity index less than 4
		GC	Clayey gravels, gravel-sand-clay mixtures			Atterberg limits plot above "A" line and plasticity index greater than 7
	Sands: More than 50% of coarse fraction passes No. 4 sieve	SW	Well-graded sands and gravelly sands, little or no fines	5% to 12% Pass No. 200 sieve	Borderline classification requiring use of dual symbol	$C_u = D_{60}/D_{10}$ Greater than 6 $C_z = (D_{30})^2/(D_{10}xD_{60})$ Between 1 and 3
		SP	Poorly graded sands and gravelly sands, little or no fines			Not meeting both criteria for SW
		SM	Silty sands, sand-silt mixtures			Atterberg limits plot below "A" line or plasticity index less than 4
		SC	Clayey sands, sand-clay mixtures			Atterberg limits plot above "A" line and plasticity index greater than 7
Fine-grained soils: 50% or more passing No. 200 sieve	Silts and Clays: Liquid limit 50% or less	ML	Inorganic silts, very fine sands, rock flour, silty or clayey fine sands			
		CL	Inorganic clays of low to medium plasticity, gravelly clays, sandy clays, silty clays, lean clays			
		OL	Organic silts and organic silty clays of low plasticity			
	Silts and Clays: Liquid limit greater than 50%	MH	Inorganic silts, micaceous or diatomaceous fine sands or silts, elastic silts			
		CH	Inorganic clays of high plasticitiy, fat clays			
		OH	Organic clays of medium to high plasticity			
Highly organic soils		Pt	Peat, muck and other highly organic soils			Fibrous organic matter; will char, burn, or glow

Note: U-line represents approximate upper limit of LL and PI combinations for natural soils (empircally determined). ASTM-D2487.



Plasticity chart for the classification of fine-grained soils.
Tests made on fraction finer than No. 40 sieve

UNIFIED SOIL CLASSIFICATION SYSTEM

REFERENCE NOTES FOR BORING LOGS

I. Drilling and Sampling Symbols:

SS:	Split Spoon Sampler	RB:	Rock Bit Drilling
ST:	Shelby Tube Sampler	BS:	Bulk Sample of Cuttings
RC:	Rock Core; NX, BX, AX	PA:	Power Auger (no sample)
PM:	Pressuremeter	HSA:	Hollow Stem Auger
DC:	Dutch Cone Penetrometer	WS:	Wash Sample

Standard Penetration (Blows/Ft) refers to the blows per foot of a 140 lb. hammer falling 30 inches on a 2 inch O.D. split spoon sample, as specified in ASTM D-1586. The blow count is commonly referred to as the N value.

II. Correlation of Penetration Resistances to Soil Properties:

Relative Density of Cohesionless Soils

SPT-N	Relative Density
0 - 4	Very Loose
5 - 10	Loose
11 - 30	Medium Dense
31 - 50	Dense
51 or more	Very Dense

Consistency of Cohesive Soils

SPT-N	Consistency
0 - 2	Very Soft
3 - 4	Soft
5 - 8	Firm
9 - 15	Stiff
16 - 30	Very Stiff
31 - 50	Hard
50 or more	Very Hard

III. Unified Soil Classification Symbols:

GP:	Poorly Graded Gravel	ML:	Low Plasticity Silts
GW:	Well Graded Gravel	MH:	High Plasticity Silts
GM:	Silty Gravel	CL:	Low Plasticity Clays
GC:	Clayey Gravel	CH:	High Plasticity Clays
SP:	Poorly Graded Sands	OL:	Low Plasticity Organics
SW:	Well Graded Sands	OH:	High Plasticity Organics
SM:	Silty Sands	CL - ML:	Dual Classification (Typical)
SC:	Clayey Sands		

IV. Water Level Measurement Symbols:

WL:	Water Level	BCR:	Before Casing Removal
WS:	While Sampling	ACR:	After Casing Removal
WD:	While Drilling	WCI:	Wet Cave In
		DCI:	Dry Cave In

The water levels are those water levels actually measured in the borehole at the times indicated by the symbol. The measurements are relatively reliable when auguring, without adding fluids, in a granular soil. In clays and plastic silts, the accurate determination of water levels may require several days for the water level to stabilize. In such cases, additional methods of measurement are generally applied.

The elevations indicated on the boring logs should be considered approximate and were not determined using accepted surveying techniques.

CLIENT	JOB #	BORING #	SHEET
Laurens County Development Corporation	14 - 7239	B-1	1 OF 1

PROJECT NAME	ARCHITECT-ENGINEER
Woodfield Industrial Park	

SITE LOCATION: Laurens County, South Carolina

NORTHING	EASTING	STATION

CALIBRATED PENETROMETER TONS/FT^2

ROCK QUALITY DESIGNATION & RECOVERY
RQD% – — – REC% ———

PLASTIC LIMIT% | WATER CONTENT% | LIQUID LIMIT%

STANDARD PENETRATION BLOWS/FT

DEPTH (FT)	SAMPLE NO.	SAMPLE TYPE	SAMPLE DIST. (IN)	RECOVERY (IN)	DESCRIPTION OF MATERIAL (ENGLISH UNITS)	WATER LEVELS	ELEVATION (FT)	BLOWS/6"	STANDARD PENETRATION BLOWS/FT
0					RESIDUUM - Fine Sandy CLAY, Brownish Red, Moist, Very Stiff (CL)			4 6 10	16
	S-1	SS	18	18					
					Fine to Medium Sandy CLAY, Brownish Red, Moist, Stiff (CL)			3 6 9	15
	S-2	SS	18	18					
5									
	S-3	SS	18	18				3 5 7	12
					Fine Sandy SILT, Orange and Light Brown, Moist, Stiff to Very Stiff (ML)				
	S-4	SS	18	18				5 8 6	14
10									
	S-5	SS	18	18				3 5 15	20
15									
					Fine Sandy SILT, Orange and Light Brown, Moist, Firm (ML)				
	S-6	SS	18	18				3 3 4	7
20					END OF BORING @ 20.00'				
25									
30									

THE STRATIFICATION LINES REPRESENT THE APPROXIMATE BOUNDARY LINES BETWEEN SOIL TYPES. IN-SITU THE TRANSITION MAY BE GRADUAL.

WL DRY WS ☐ WD ☐	BORING STARTED 06/06/13	
WL(BCR) WL(ACR)	BORING COMPLETED 06/06/13	CAVE IN DEPTH @ 14.00'
WL	RIG 550 ATV FOREMAN HW	DRILLING METHOD HSA

CLIENT	JOB #	BORING #	SHEET
Laurens County Development Corporation	14 - 7239	B-2	1 OF 1

PROJECT NAME	ARCHITECT-ENGINEER
Woodfield Industrial Park	

SITE LOCATION: Laurens County, South Carolina

NORTHING	EASTING	STATION

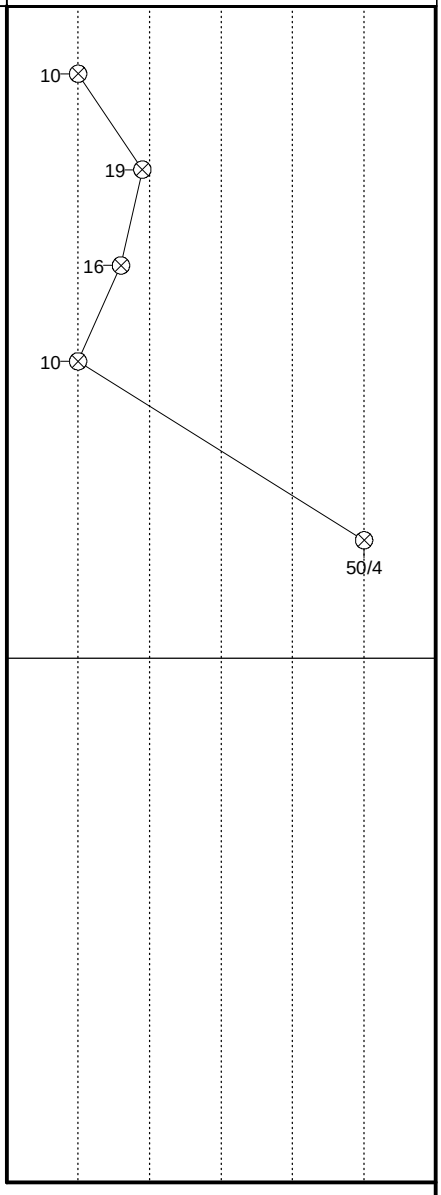
CALIBRATED PENETROMETER TONS/FT^2

ROCK QUALITY DESIGNATION & RECOVERY
RQD% – — – REC% ———

PLASTIC LIMIT% | WATER CONTENT% | LIQUID LIMIT%

STANDARD PENETRATION BLOWS/FT

DEPTH (FT)	SAMPLE NO.	SAMPLE TYPE	SAMPLE DIST. (IN)	RECOVERY (IN)	DESCRIPTION OF MATERIAL (ENGLISH UNITS; BOTTOM OF CASING; LOSS OF CIRCULATION; SURFACE ELEVATION)	WATER LEVELS	ELEVATION (FT)	BLOWS/6"
0					RESIDUUM - Fine Sandy CLAY, Trace Quartz, Brownish Red, Moist, Stiff to Very Stiff (CL)			
	S-1	SS	18	18				3 5 5
	S-2	SS	18	18				5 9 10
5					Fine Sandy Silty CLAY, Brownish Red, Moist, Very Stiff (CL)			
	S-3	SS	18	18				6 7 9
	S-4	SS	18	18	Fine Sandy SILT, Brownish Red, Moist, Stiff (ML)			6 6 4
10					PARTIALLY WEATHERED ROCK: Sampled As - Fine Sandy SILT, Brownish Red, Moist			
	S-5	SS	10	10				18 50/4
15					AUGER REFUSAL @ 17.00'			
20								
25								
30								



THE STRATIFICATION LINES REPRESENT THE APPROXIMATE BOUNDARY LINES BETWEEN SOIL TYPES. IN-SITU THE TRANSITION MAY BE GRADUAL.

WL DRY WS ☐ WD ☐	BORING STARTED 06/06/13	
WL(BCR) WL(ACR)	BORING COMPLETED 06/06/13	CAVE IN DEPTH @ 11.00'
WL	RIG 550 ATV FOREMAN HW	DRILLING METHOD HSA

CLIENT	JOB #	BORING #	SHEET
Laurens County Development Corporation	14 - 7239	B-3	1 OF 1

PROJECT NAME	ARCHITECT-ENGINEER
Woodfield Industrial Park	

SITE LOCATION: Laurens County, South Carolina

NORTHING | EASTING | STATION

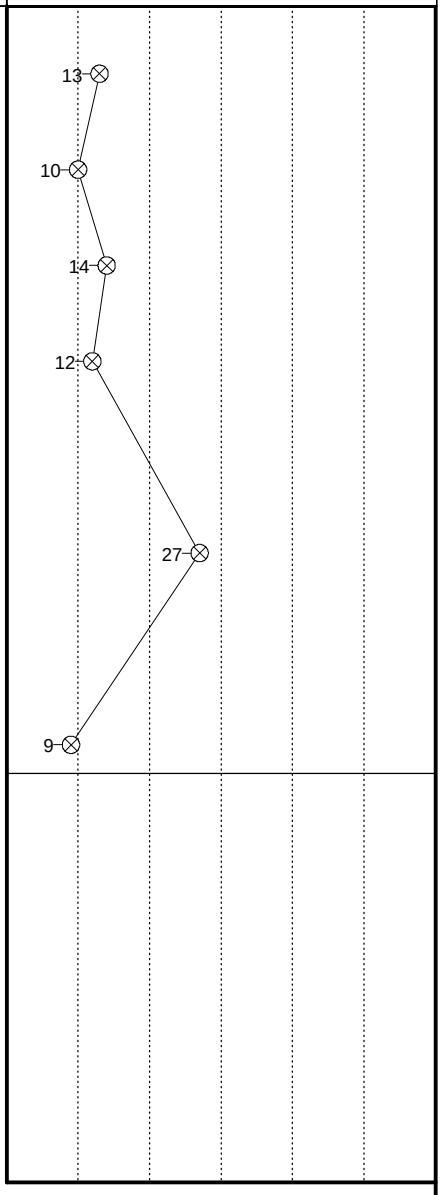
CALIBRATED PENETROMETER TONS/FT^2

ROCK QUALITY DESIGNATION & RECOVERY
RQD% – — – REC% ———

PLASTIC LIMIT% | WATER CONTENT% | LIQUID LIMIT%

STANDARD PENETRATION BLOWS/FT

DEPTH (FT)	SAMPLE NO.	SAMPLE TYPE	SAMPLE DIST. (IN)	RECOVERY (IN)	DESCRIPTION OF MATERIAL (ENGLISH UNITS; BOTTOM OF CASING; LOSS OF CIRCULATION; SURFACE ELEVATION)	WATER LEVELS	ELEVATION (FT)	BLOWS/6"
0					Topsoil Depth [1"]			
	S-1	SS	18	18	RESIDUUM - Fine Sandy CLAY, Trace Mica, Brownish Red, Moist, Stiff (CL)			3 6 7
	S-2	SS	18	18				3 4 6
5	S-3	SS	18	18				4 7 7
	S-4	SS	18	18	Fine Sandy SILT, Trace Mica and Quartz, Grayish Brown, Moist, Stiff and Very Stiff (ML)			3 5 7
10	S-5	SS	18	18				6 10 17
15	S-6	SS	18	18				3 4 5
20					END OF BORING @ 20.00'			
25								
30								



THE STRATIFICATION LINES REPRESENT THE APPROXIMATE BOUNDARY LINES BETWEEN SOIL TYPES. IN-SITU THE TRANSITION MAY BE GRADUAL.

WL DRY WS ☐ WD ☐	BORING STARTED 06/06/13	
WL(BCR) WL(ACR)	BORING COMPLETED 06/06/13	CAVE IN DEPTH @ 15.00'
WL	RIG 550 ATV FOREMAN HW	DRILLING METHOD HSA

CLIENT	JOB #	BORING #	SHEET
Laurens County Development Corporation	14 - 7239	B-4	1 OF 1

PROJECT NAME	ARCHITECT-ENGINEER
Woodfield Industrial Park	

SITE LOCATION: Laurens County, South Carolina

NORTHING | EASTING | STATION

CALIBRATED PENETROMETER TONS/FT^2

ROCK QUALITY DESIGNATION & RECOVERY
RQD% – — – REC% ———

PLASTIC LIMIT% | WATER CONTENT% | LIQUID LIMIT%

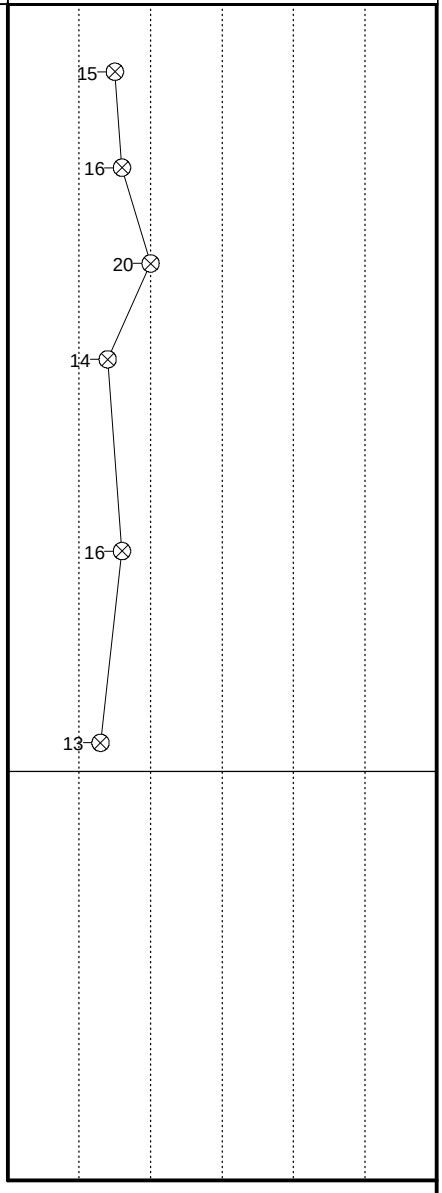
STANDARD PENETRATION BLOWS/FT

DESCRIPTION OF MATERIAL — ENGLISH UNITS

BOTTOM OF CASING | LOSS OF CIRCULATION

SURFACE ELEVATION

DEPTH (FT)	SAMPLE NO.	SAMPLE TYPE	SAMPLE DIST. (IN)	RECOVERY (IN)	DESCRIPTION OF MATERIAL	WATER LEVELS	ELEVATION (FT)	BLOWS/6"
0					RESIDUUM - Fine Sandy CLAY, Brownish Red, Moist, Stiff to Very Stiff (CL)			
	S-1	SS	18	18				5 7 8
	S-2	SS	18	18				6 8 8
5					Fine Sandy CLAY, Trace Mica and Quartz, Brownish Red, Moist, Very Stiff to Stiff (CL)			
	S-3	SS	18	18				7 9 11
	S-4	SS	18	18				4 6 8
10					Fine Sandy SILT, With Mica, Dark Brown, Moist, Very Stiff (ML)			
	S-5	SS	18	18				5 6 10
15					Silty Fine to Coarse SAND, With Mica, Pinkish Gray, Damp, Medium Dense (SM)			
	S-6	SS	18	18				11 5 8
20					END OF BORING @ 20.00'			
25								
30								



THE STRATIFICATION LINES REPRESENT THE APPROXIMATE BOUNDARY LINES BETWEEN SOIL TYPES. IN-SITU THE TRANSITION MAY BE GRADUAL.

WL WS ☐ WD ☐	BORING STARTED 06/06/13	
WL(BCR) WL(ACR)	BORING COMPLETED 06/06/13	CAVE IN DEPTH @ 17.00'
WL	RIG 550 ATV FOREMAN HW	DRILLING METHOD HSA

CLIENT	JOB #	BORING #	SHEET
Laurens County Development Corporation	14 - 7239	B-5	1 OF 1

PROJECT NAME	ARCHITECT-ENGINEER
Woodfield Industrial Park	

SITE LOCATION: Laurens County, South Carolina

NORTHING	EASTING	STATION

CALIBRATED PENETROMETER TONS/FT^2

ROCK QUALITY DESIGNATION & RECOVERY
RQD% – — – REC% ———

PLASTIC LIMIT% | WATER CONTENT% | LIQUID LIMIT%

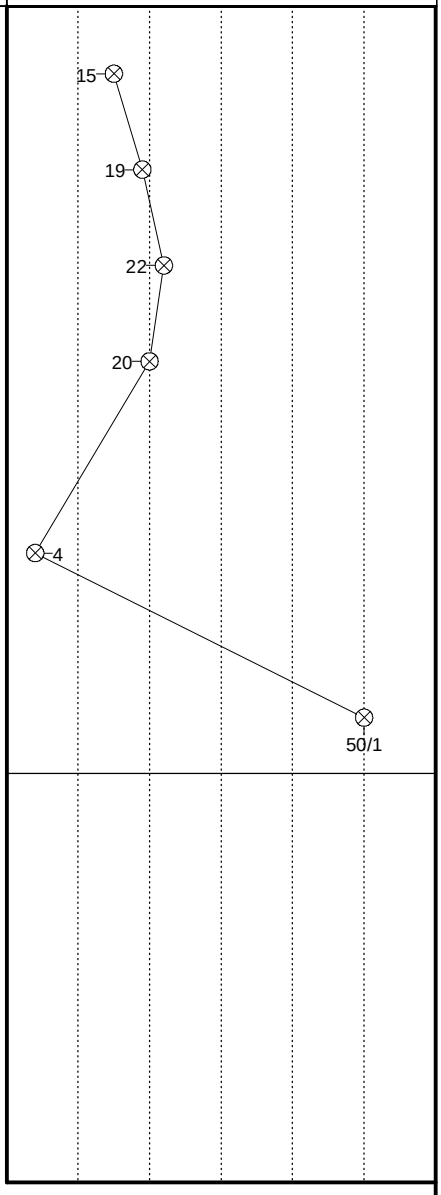
STANDARD PENETRATION BLOWS/FT

DESCRIPTION OF MATERIAL — ENGLISH UNITS

BOTTOM OF CASING | LOSS OF CIRCULATION

SURFACE ELEVATION

DEPTH (FT)	SAMPLE NO.	SAMPLE TYPE	SAMPLE DIST. (IN)	RECOVERY (IN)	DESCRIPTION OF MATERIAL	WATER LEVELS	ELEVATION (FT)	BLOWS/6"
0					RESIDUUM - Fine Sandy CLAY, Brownish Red, Moist, Stiff (CL)			3 6 9
	S-1	SS	18	18				
					Fine Sandy CLAY, Brownish Green to Brownish Orange, Moist, Very Stiff (CL)			4 8 11
	S-2	SS	18	18				
5								7 10 12
	S-3	SS	18	18				
					Clayey Fine to Coarse SAND, Brownish Orange, Moist, Medium Dense (SC)			8 10 10
	S-4	SS	18	18				
10								
					Silty Micaceous Fine SAND, Dark Brown and Gray, Wet, Very Loose (SM)			2 2 2
	S-5	SS	18	18				
15								
					PARTIALLY WEATHERED ROCK - NO RECOVERY			50/1
	S-6	SS	1	1				
20					END OF BORING @ 20.00'			
25								
30								



THE STRATIFICATION LINES REPRESENT THE APPROXIMATE BOUNDARY LINES BETWEEN SOIL TYPES. IN-SITU THE TRANSITION MAY BE GRADUAL.

WL WS ☐ WD ☐	BORING STARTED 06/06/13	
WL(BCR) WL(ACR)	BORING COMPLETED 06/06/13	CAVE IN DEPTH @ 15.50'
WL	RIG 550 ATV FOREMAN HW	DRILLING METHOD HSA

CLIENT	JOB #	BORING #	SHEET
Laurens County Development Corporation	14 - 7239	B-6	1 OF 1

PROJECT NAME	ARCHITECT-ENGINEER
Woodfield Industrial Park	

SITE LOCATION: Laurens County, South Carolina

NORTHING | EASTING | STATION

CALIBRATED PENETROMETER TONS/FT^2

ROCK QUALITY DESIGNATION & RECOVERY
RQD% – — – REC% ———

PLASTIC LIMIT% | WATER CONTENT% | LIQUID LIMIT%

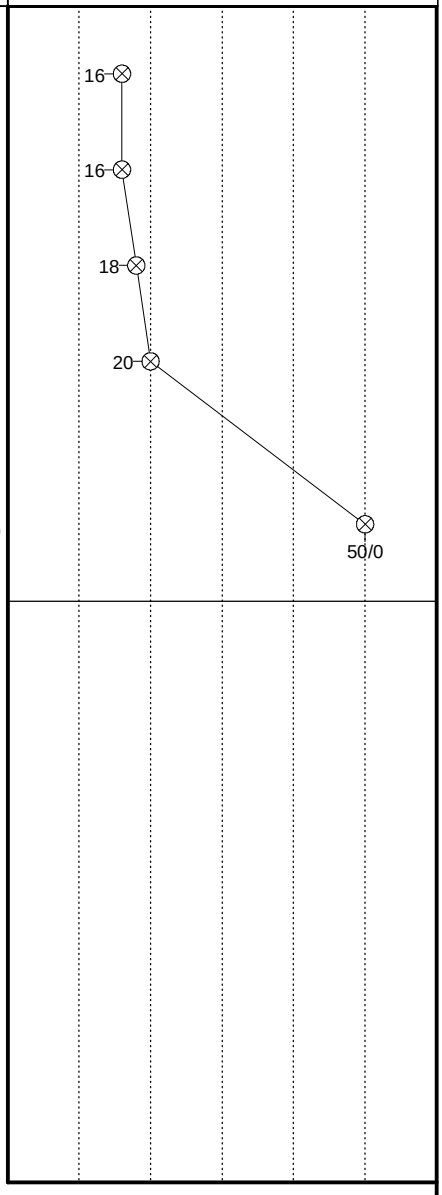
STANDARD PENETRATION BLOWS/FT

DESCRIPTION OF MATERIAL — ENGLISH UNITS

BOTTOM OF CASING | LOSS OF CIRCULATION

SURFACE ELEVATION

DEPTH (FT)	SAMPLE NO.	SAMPLE TYPE	SAMPLE DIST. (IN)	RECOVERY (IN)	DESCRIPTION OF MATERIAL	WATER LEVELS	ELEVATION (FT)	BLOWS/6"
0					RESIDUUM - Fine Sandy CLAY, Trace Quartz, Brownish Red, Moist, Very Stiff (CL)			
	S-1	SS	18	18				3 6 10
					Silty Fine to Medium SAND, Dark Brown and Orange, Moist, Medium Dense (SM)			
	S-2	SS	18	18				8 8 8
5					Fine Sandy SILT, Brownish Red, Moist, Very Stiff (CL)			
	S-3	SS	18	18				7 8 10
					Silty Fine to Medium SAND, Trace Gravel and Clay, Dark Brown and Gray, Damp, Medium Dense (SM)			
	S-4	SS	18	18				4 11 9
10					PARTIALLY WEATHERED ROCK - NO RECOVERY			
	S-5	SS	0	0				50/0
15					AUGER REFUSAL @ 15.50'			
20								
25								
30								



THE STRATIFICATION LINES REPRESENT THE APPROXIMATE BOUNDARY LINES BETWEEN SOIL TYPES. IN-SITU THE TRANSITION MAY BE GRADUAL.

WL DRY WS ☐ WD ☐	BORING STARTED 06/06/13	
WL(BCR) WL(ACR)	BORING COMPLETED 06/06/13	CAVE IN DEPTH @ 9.00'
WL	RIG 550 ATV FOREMAN HW	DRILLING METHOD HSA