# PRELIMINARY GEOTECHNICAL EXPLORATION /
# SEISMIC EVALUATION

# PRELIMINARY REPORT OF SUBSURFACE EXPLORATION AND GEOTECHNICAL ENGINEERING EVALUATION

## PROPOSED OWINGS INDUSTRIAL PARK
## LAURENS COUNTY, SC

*Prepared For*

LAURENS COUNTY ECONOMIC DEVELOPMENT CORPORATION

July 9, 2003

ENGINEERING CONSULTING SERVICES, LTD.
Geotechnical • Construction Materials • Environmental

July 9, 2003

Laurens County Economic Development Corporation
c/o Mr. Marvin Moss
Laurens County Chamber of Commerce
P.O. 248
Laurens, South Carolina

Reference: Preliminary Report of Subsurface Exploration and Geotechnical Engineering Analysis
Owings Industrial Park Site
Old Laurens Road
Laurens County, South Carolina
ECS Project No.: 14-2016

Gentlemen:

As authorized by your acceptance of our proposal number 14-1842-P, dated June 6, 2003, Engineering Consulting Services, Ltd. (ECS) has completed the preliminary subsurface exploration and geotechnical engineering analysis for the above referenced project. This report contains the results of our subsurface exploration, as well as our preliminary recommendations regarding the geotechnical aspects of the project.

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

Sincerely,

ENGINEERING CONSULTING SERVICES, LTD.

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

Stephen J. Geiger, P.E.
Principal Engineer

SOUTH CAROLINA REGISTERED PROFESSIONAL ENGINEER NO. 19008 STEPHEN JOHN GEIGER 7/9/03

SOUTH CAROLINA ENGINEERING CONSULTING SERVICES, LTD. No. C01647 CERTIFICATE OF AUTHORIZATION

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## 1.0 PROJECT INFORMATION

Our understanding of the proposed development is based our conversations with Mr. Marvin Moss of the Laurens County Chamber of Commerce, and the supplied topographic site plan entitled "Laurens County Master Plan - Hollingsworth Fund", dated October 15, 2002. The project site consists of approximately 310 acres located west of Old Laurens Road and north of Green Pond Road in Laurens County, South Carolina. We understand that the site will be developed as an industrial park with several individual tracts. No structural loading or grading information is currently available for the future developments. However, we would expect that the future development may include manufacturing and distribution type facilities similar to others located throughout the Upstate of South Carolina.

# 2.0 EXPLORATION PROCEDURES

## 2.1 Field Exploration

Sixteen soil test borings were drilled at the approximate locations shown on the attached Boring Location Diagram. The borings were drilled at locations that were assessable to the drilling rig without clearing access, and were positioned to provide coverage of the site. Borings B-6 and B-16 were advanced to a depth of 50 feet below the prevailing ground surface at the request of the client and the remaining borings were advanced to depths ranging from 10 to 15 feet. The boring locations were established in the field by ECS personnel by measuring distances and estimating angles from existing site features and from referencing the site topography. The boring locations on the Boring Location Diagram in the Appendix, as well as the ground surface elevations noted on the Boring Logs are approximate. Individual Boring Logs are also included in the Appendix of this report.

The soil borings were performed using an all-terrain mounted, CME-550 drill rig utilizing continuous-flight, hollow-stem augers to advance the boreholes. Drilling fluid was not used in this process. Representative soil samples were obtained by means of the split-barrel sampling procedure in general conformance 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) 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 (i.e., differences between drill crews, drill rigs, drilling procedures, and hammer-rod-sampler assemblies) and prevent a direct correlation between SPT resistance value, or N-Value, and the consistency or relative density of the tested soil. Spilt-spoon samples were obtained at approximately 2.5-foot intervals within the upper 10 feet of the borings and at 5-foot intervals thereafter.

The drilling crew maintained a field log of the soils encountered in the borings. After recovery, each sample was removed from the sampler and visually classified. Representative portions of each sample were then sealed in glass jars and brought to our laboratory in Greenville, South Carolina for visual examination by a geotechnical engineer and subsequent laboratory testing.

## 2.2 Soil Classification

An experienced geotechnical engineer classified each soil sample on the basis of texture and plasticity in accordance with the Unified Soil Classification System (USCS). The group symbol for each soil type is indicated in parentheses following the soil description on the Boring Logs. A brief explanation of the USCS is included in the Appendix of this report.

# 3.0 SITE AND SUBSURFACE CONDITIONS

## 3.1 Site Observations

The approximately 310-acre site, located in southern Laurens County, South Carolina, is bounded by Old Laurens Road to the east and by Green Pond Road to the south. The site is currently a combination of open fields with tall grasses and sparse to very thick brush, and woods. Wells Road, a high voltage electrical transmission line and smaller power lines traverse the northern portion of the site. The site terrain can typically be characterized gently rolling, although some steeper slopes are located along draws and drainage features near the periphery of the site. Based on the supplied topographic information, site elevations typically range from approximately Elevation 840 to Elevation 740 feet.

## 3.2 Area Geology

The project site is located in the Piedmont Physiographic Province of South Carolina. The soils in the Piedmont Province typically consist of residuum (weathered in-place soils) derived from the parent bedrock which typically consists of amphibolite-grade metamorphic rocks. The residuum can be found in both weathered and unweathered states. Although the surficial materials normally retain the structure of the underlying parent bedrock, they typically have a much lower density and exhibit strengths and engineering properties of soil. In a mature weathering profile of the Piedmont Province, the soils are generally found to be finer grained near the surface where more extensive weathering has occurred. With increased depth, the particle size becomes more granular and gradually changes to partially weathered rock and ultimately to unweathered bedrock. The mineral composition of the parent rock and the environment in which the weathering occurs is largely responsible for the residual soil's engineering properties.

## 3.3 Subsurface Conditions

The soil test borings typically encountered 3 to 8 inches of topsoil. Beneath the surficial topsoil, the test borings encountered natural residual soils which extended to the termination depth of each boring. The residual soils typically classified as firm to hard silty clay (CL), clayey and sandy silt (ML), and micaceous silt (ML); and loose to medium dense silty and clayey sand (SM, SC). The micaceous silts, and other soils denoted as "with mica" on the boring logs contained significant percentages of mica. The standard penetration resistances (N-values) recorded in the residual soils ranged from 5 to 67 bpf with typical values of 10 to 20 bpf.

With few exceptions, hard soils with N-values in excess of 30 bpf were only encountered below depths of 35 feet in the two 50-foot deep borings (B-6 and B-16). The natural residual soils extended to the termination depth of each boring. No rock or Partially Weathered Rock (PWR), which is very hard soil with N-values of 100 or greater, was encountered by the test borings.

Groundwater was observed in Borings B-6, B-13, B-14 and B-16 at depths ranging from of 8 to 13 feet below the prevailing ground surface at the time of drilling. However, some soils sampled from below a depth of 8 feet in Borings B-2, B-4, B-9 and B-10 were relatively wet suggesting the samples may have been retrieved from near or below the prevailing groundwater elevation. Some of the boreholes caved above their terminations depths and groundwater observations could not be made below the caved depths upon the completion of the field drilling activities.

Groundwater levels in the vicinity of perennial creeks, rivers or ponds are often near the elevation of the water surface. In addition, groundwater levels should be expected to fluctuate as a result of seasonal variations in precipitation, surface water run-off characteristics, and other factors. In general, the highest groundwater levels typically occur in late winter and spring, while the lowest levels typically occur in late summer and fall.

On sites where there is significant topographic relief and evidence of natural drainage features is evident, wet weather springs are often encountered. It would not be unusual to find such conditions in the immediate vicinity of the drainage features or in areas where the subsurface conditions would promote spring activity (more permeable soils overlying less permeable soils).

The above paragraphs provide a general summary of the subsurface conditions encountered at the site at the time of our exploration. The Boring Logs included in Appendix I contain detailed information regarding the subsurface conditions encountered at each boring location. These Boring Logs represent our visual classification of the samples retrieved during the field exploration. 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. Elevation data shown on the logs were interpolated from the supplied topographic information and are approximate.

# 4.0 CONCLUSIONS AND PRELIMINARY RECOMMENDATIONS

Based on the subsurface conditions encountered within the test borings and our past experience with similar subsurface conditions and construction, the natural residual soils encountered in the borings typically appear suitable for support of lightly to moderately loaded structures on conventional shallow foundations. Foundations may also be supported on properly placed and compacted engineered fill. Furthermore, properly prepared residual soils and properly placed and compacted engineered fill should typically be suitable for support of conventional slabs-on-grades and pavements. These items are discussed in more detail in the following sections of this report. Final subsurface explorations and engineering assessments should be performed for the individual facilities to be located in the proposed industrial park project.

## 4.1 Foundations and Slabs

Based on the preliminary information from borings, it appears that the residual soils at the site should typically be capable of supporting conventional shallow foundations designed for bearing pressures on the order of 3,000 to 4,000 pounds per square foot (psf). In areas where significant mass excavation The net allowable bearing pressure refers to that pressure which may be transmitted to the foundation bearing soils in excess of the final minimum surrounding overburden pressure.

Properly prepared residual soils and engineered fill should also be satisfactory for supporting concrete slabs-on-grade. Our preliminary findings indicate that a modulus of subgrade reaction ($k_s$) in the range of 100 pounds per cubic inch (pci) to 150 pci will likely be available provided the subgrades are properly prepared.

## 4.2 Engineered Fill

Fill placed beneath foundations, slabs or pavements should consist of engineered fill. In general, engineered fill should consist of an approved material, free of organic matter and debris and cobbles greater than 4 inches, and have a Liquid Limit (LL) and Plasticity Index (PI) less than 35 and 20, respectively. We also recommend that all fills within structural areas have a standard Proctor maximum dry density (ASTM D 698) of at least 90 pounds per cubic foot (pcf). Unsuitable fill materials include topsoil, organic materials (OH, OL), and high plasticity clays and silts (CH, MH).

It appears that natural residual on-site soils similar to those sampled in the test borings will generally be suitable for re-use as engineered fill. Groundwater was observed in Borings B-6, B-13, B-14 and B-16 at depths of 8 to 13 feet at the time of drilling. In addition, some of the soils sampled below a depth of 8 feet in Borings B-2, B-4, B-9 and B-10 were relatively wet suggesting the samples may have been retrieved from near the prevailing groundwater elevation. It may not be practical to use soils obtained from below the level of groundwater as fill due to the work involved with drying these materials. It may be necessary to moisture condition the on-site soils during placement as fill to facilitate proper compaction.

Many of the soils sampled in the borings contained significant quantities of mica. These materials are often troublesome when used for engineered fill due to difficulties with properly adjusting their moisture content. Furthermore, miceoaus soil are very sensitive to disturbance when exposed at subgrade and often exhibit relatively poor pavement support characteristics especially under heavy loaded pavements.

Engineered fill within the building and pavement areas should typically be placed in lifts not exceeding 8 to 10 inches in loose lift thickness, be moisture conditioned to within approximately 3 percent of the optimum moisture content and be compacted to a minimum of 95 percent of their standard Proctor maximum dry density as determined in accordance with ASTM D 698. In general, the upper 12 inches of the fills should be compacted to at least 98 percent of their standard Proctor maximum dry density as determined in accordance with ASTM D 698 to enhance their support characteristics under slabs and pavements.

### 4.3 Pavement Considerations

Properly prepared residual soils and engineered fill should typically be satisfactory for supporting pavements. Based on our past experience, California Bearing Ratio (CBR) values of 4 to 6 can typically be developed by properly prepared subgrades. CBR tests should be performed during the final subsurface explorations to determine appropriate CBR values for use in pavement design.

### 4.4 Excavation

Auger refusal, which typically indicates the presence of rock or boulders, was not encountered in the test borings. Furthermore, partially weathered rock (PWR), which is a very hard soil with N-values greater than 100 blows per foot, was also not encountered in the test borings. However, the borings were spaced relatively widely and most were advanced to relatively shallow depths, and it is possible for shallow rock, boulders or PWR to be present intermediate of the test borings locations. The potential for encountering rock (or partially weathered rock which can be difficult to remove from confined excavations) will typically increase with increasing excavation depth.

There is a potential for encountering groundwater in excavations at the site, and the potential for encountering groundwater is likely the greatest in the vicinity of the creeks and draws. The potential or encountering groundwater and rock will also increased with increasing excavation depth, and should be further evaluated as the final subsurface explorations for the future developments are performed.

### 4.5 Other Geotechnical Considerations

Alluvial soils will likely be present adjacent to the existing creeks. Alluvial soils are water deposited materials that are often found in a soft or very loose condition and will tend to settle significantly under loads from structures or fill embankments. Therefore, developing areas adjacent to the creeks may be more difficult than other areas of the site and require improving subgrade conditions prior to construction.

Soils containing significant quantities of mica were occasional sampled in the test borings. These soils are relatively weak and easily disturbed, and provide relatively poor subgrade support for heavily loaded slabs and pavements.

South Carolina has adopted the 2000 Edition of the International Building Code (IBC), and the IBC 2000 requires that a seismic Site Class be assigned for new structures. To determine the site class, the soil profile has to be characterized to a depth of 100 feet. Two borings (B-6 and B-16) drilled at the site were advanced to a depth of 50 feet. Although these borings were not extended to a depth of 100 feet, it does appear that the soil profile in the area of B-16 may be characterized as a C and that the soil profile in the area of B-6 is a borderline C or D. Based on the available data from the remaining borings, it appears that most of industrial park will likely classify as a Site Class C or D.

Insufficient subsurface data is currently available to accurately determine the seismic Site Class for the individual tracts; however, the savings in construction costs between the C and D classifications can be significant. The Site Class can be determined by extending a conventional soil test boring to refusal or a depth of 100 feet and using the N-Value method presented the Section 1615 of the 2000 IBC. Although convenient, the N-value method is relatively conservative, especially in the Piedmont residual soils in South Carolina. An alternate method is also presented in Section 1615 of the 2000 IBC that uses in-situ measurements of shear wave velocities. Although this method requires specialized cone penetration test (CPT) equipment equipped to record in-situ shear wave velocity and is slightly more expensive, it often results in the determination of a more favorable site class and can significantly reduce construction costs.

It is suggested that soil test borings or CPT soundings with shear wave velocity testing are extended to refusal or a maximum depth of 100 feet during the final subsurface explorations for the future developments to determine appropriate site class.

## 5.0 CLOSING

Our preliminary evaluation of site subsurface conditions has been based on our understanding of the site and project information and from data obtained from the widely spaced test borings. The general subsurface conditions utilized in our preliminary evaluation of the site have been based on interpolation of subsurface data between the borings. 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. The assessment of site environmental conditions for the presence of pollutants in the soil, rock, and ground water of the site was beyond the scope of this exploration.

We strongly recommended that final subsurface explorations and geotechnical engineering assessments be performed prior to design of all planned developments. The final explorations should be based upon the establishment of final siting and grading requirements for each tract and should concentrate on better defining the potential for encountering rock and shallow groundwater in areas to be excavated. These explorations should include an evaluation of the seismic Site Class.

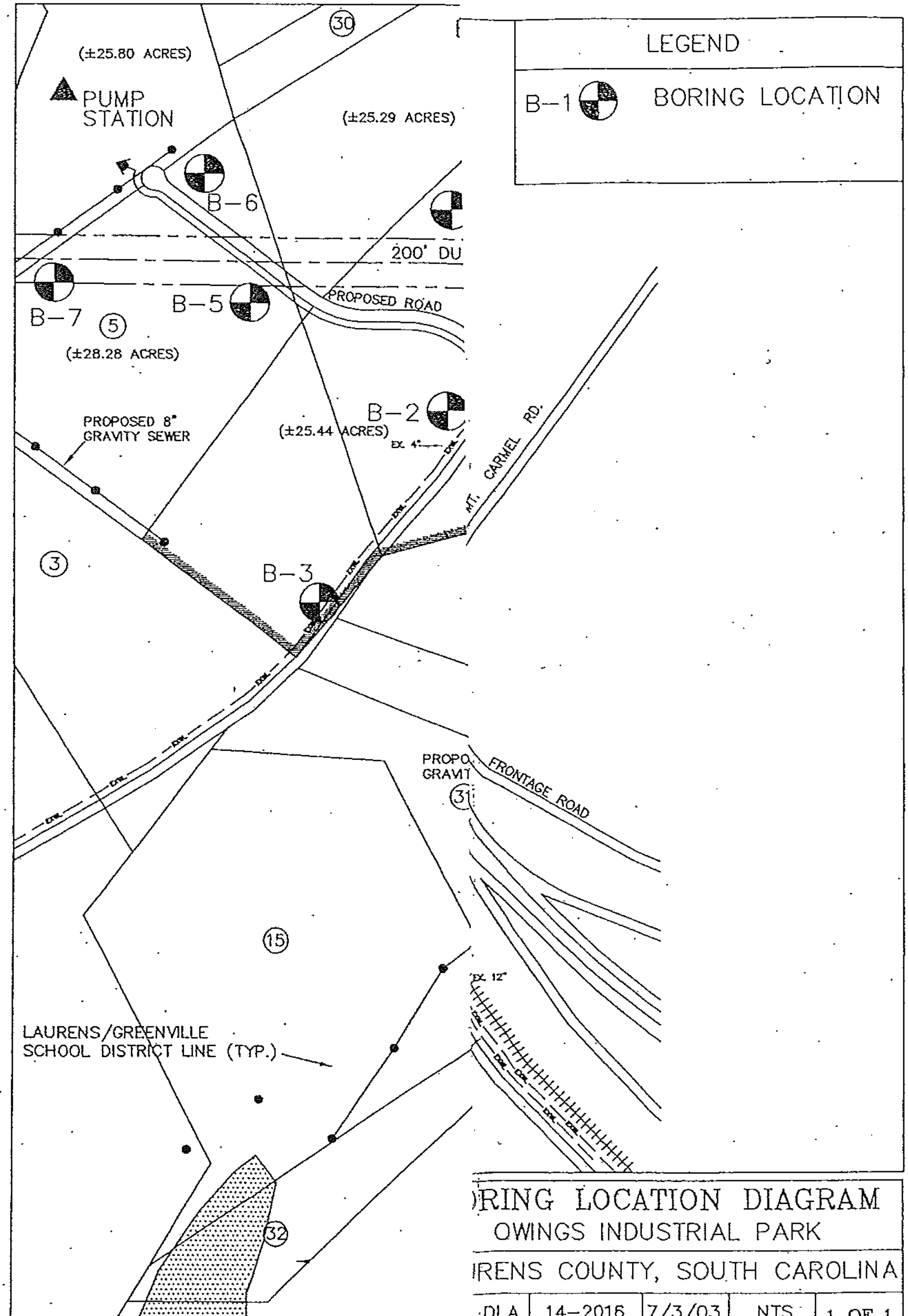
# APPENDIX

Boring Location Diagram

Unified Soil Classification System

Reference Notes For Boring Logs

Boring Logs B-1 through B-16



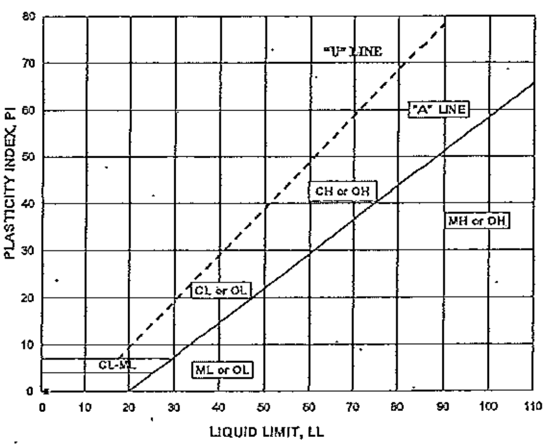
LEGEND
B-1 BORING LOCATION
(±25.80 ACRES)
PUMP STATION
(±25.29 ACRES)
B-6
200' DU
B-7
B-5
PROPOSED ROAD
(±28.28 ACRES)
PROPOSED 8" GRAVITY SEWER
B-2
(±25.44 ACRES)
EX. 4"
MT. CARMEL RD.
B-3
PROPO
GRAVIT
FRONTAGE ROAD
EX. 12"
LAURENS/GREENVILLE SCHOOL DISTRICT LINE (TYP.)
30
5
3
31
15
32
RING LOCATION DIAGRAM
OWINGS INDUSTRIAL PARK
RENS COUNTY, SOUTH CAROLINA
DLA
14-2016
7/3/03
NTS
1 OF 1

## Unified Soil Classification System
## (ASTM Designation D-2487)

| Major Division | | Group Symbol | Typical Names | 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 | $C_u = D_{60}/D_{10}$ Greater than 4<br>$C_z = (D_{30})^2/(D_{10}xD_{60})$ 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 | 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 | $C_u = D_{60}/D_{10}$ Greater than 6<br>$C_z = (D_{30})^2/(D_{10}xD_{60})$ 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 |

Classification on basis of percentage of fines
Less than 5% Pass No. 200 sieve — GW, GP, SW, SP
More than 12% Pass No. 200 sieve — GM, GC, SM, SC
5% to 12% Pass No. 200 sieve — Borderline classification requiring use of dual symbol

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




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

JULY 2003

ENGINEERING CONSULTING SERVICES, LTD.

# 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 Cty. Economic Devel. | 14-2016 | B-1 | 1 OF 1 |

ECS LTD

PROJECT NAME: Owings Industrial Park

ARCHITECT-ENGINEER:

SITE LOCATION: Laurens, South Carolina

DESCRIPTION OF MATERIAL

ENGLISH UNITS

SURFACE ELEVATION 790.0

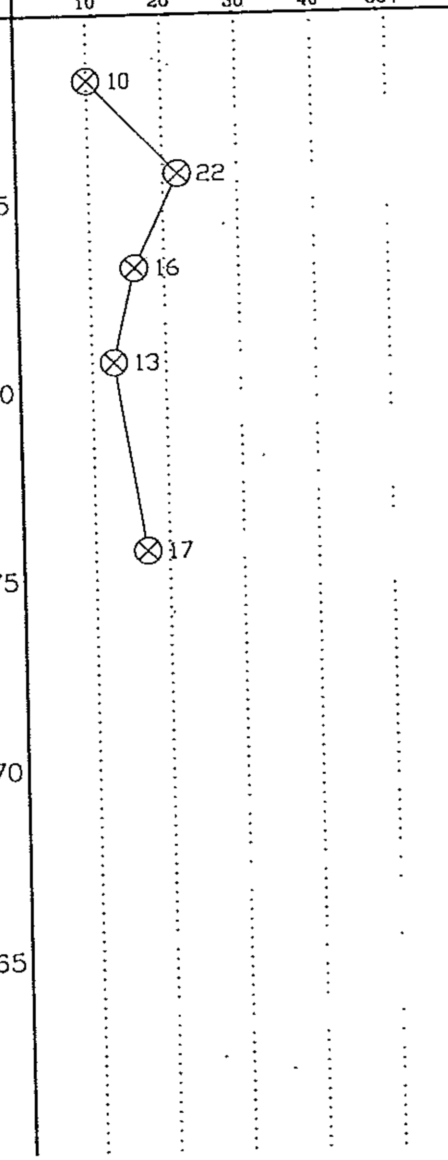
| DEPTH (FT) | SAMPLE NO. | SAMPLE TYPE | SAMPLE DISTANCE (IN) | RECOVERY (IN) | DESCRIPTION OF MATERIAL | ELEVATION (FT) |
|---|---|---|---|---|---|---|
| 0 | | | | | TOPSOIL DEPTH 6" | |
| | 1 | SS | 18 | 18 | Brown and Reddish Brown Silty CLAY, Moist, Stiff (CL) | |
| | 2 | SS | 18 | 18 | Reddish Brown Clayey SILT, Moist, Very Stiff (ML) | 785 |
| 5 | 3 | SS | 18 | 18 | Orangish Brown and Reddish Brown Fine Sandy SILT, Trace Clay, Moist, Very Stiff (CL) | |
| | 4 | SS | 18 | 18 | Red Silty Fine SAND, Trace Mica, Moist, Medium Dense (SM) | 780 |
| 10 | 5 | SS | 18 | 18 | Brown Micaceous SILT, Moist, Very Stiff (ML) | 775 |
| 15 | | | | | END OF BORING @ 15.0' | |
| 20 | | | | | | 770 |
| 25 | | | | | | 765 |
| 30 | | | | | | |

-O- CALIBRATED PENETROMETER TONS/FT.$^2$ 1 2 3 4 5+

PLASTIC LIMIT % X — WATER CONTENT % ● — LIQUID LIMIT % △

10 20 30 40 50+

⊗ STANDARD PENETRATION BLOWS/FT. 10 20 30 40 50+




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

| | | |
|---|---|---|
| ▽ WL     WS OR (WD) | BORING STARTED 6/25/03 | |
| ▽ WL(AB)     ▼ WL(AC) | BORING COMPLETED 6/25/03 | CAVE IN DEPTH @ 11.4 |
| ▽ WL | RIG CME550 FOREMAN CL | DRILLING METHOD HSA |

JC (07-01-03) JC (07-03-03) JC (07-08-03)

| CLIENT | JOB # | BORING # | SHEET |
|---|---|---|---|
| Laurens Cty. Economic Devel. | 14-2016 | B-2 | 1 OF 1 |

ECS LTD

PROJECT NAME: Owings Industrial Park

ARCHITECT-ENGINEER:

SITE LOCATION: Laurens, South Carolina

-O- CALIBRATED PENETROMETER TONS/FT.² (1, 2, 3, 4, 5+)

PLASTIC LIMIT % X — WATER CONTENT % ● — LIQUID LIMIT % △ (10, 20, 30, 40, 50+)

⊗ STANDARD PENETRATION BLOWS/FT. (10, 20, 30, 40, 50+)

DESCRIPTION OF MATERIAL — ENGLISH UNITS

SURFACE ELEVATION 783.0

| SAMPLE NO. | SAMPLE TYPE | SAMPLE DISTANCE (IN) | RECOVERY (IN) | STANDARD PENETRATION BLOWS/FT. |
|---|---|---|---|---|
| 1 | SS | 18 | 18 | 14 |
| 2 | SS | 18 | 18 | 20 |
| 3 | SS | 18 | 18 | 16 |
| 4 | SS | 18 | 18 | 7 |
| 5 | SS | 18 | 18 | 12 |

DESCRIPTION OF MATERIAL:

- TOPSOIL DEPTH 3"
- Reddish Brown and Orangish Brown Silty CLAY, Moist, Stiff (CL)
- Brown Silty CLAY With Sand, Trace Mica, Moist, Very Stiff (CL)
- Reddish Brown Clayey SILT With Mica, Moist, Very Stiff (ML)
- Brown Fine Sandy SILT, Trace Mica, Wet, Firm (ML)
- Grayish Brown and Black Micaceous SILT, Wet, Stiff (ML)

END OF BORING @ 15.0'

DEPTH (FT): 0, 5, 10, 15, 20, 25, 30

ELEVATION (FT): 780, 775, 770, 765, 760, 755

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

| | | |
|---|---|---|
| ▽ WL    WS OR WD | BORING STARTED 6/25/03 | |
| ▼ WL(AB)    ▼ WL(AC) | BORING COMPLETED 6/25/03 | CAVE IN DEPTH @ 15.0 |
| ▽ WL | RIG CME550 FOREMAN CL | DRILLING METHOD HSA |

JC (07-01-03) JC (07-03-03) JC (07-08-03)

| | | | | |
|---|---|---|---|---|
| CLIENT<br>Laurens Cty. Economic Devel. | JOB #<br>14-2016 | BORING #<br>B-3 | SHEET<br>1 OF 1 | ECS LTD |
| PROJECT NAME<br>Owings Industrial Park | ARCHITECT-ENGINEER | | | |
| SITE LOCATION<br>Laurens, South Carolina | | | | |

DESCRIPTION OF MATERIAL — ENGLISH UNITS

SURFACE ELEVATION 796.0

CALIBRATED PENETROMETER TONS/FT.$^2$ (1, 2, 3, 4, 5+)

PLASTIC LIMIT % (X) — WATER CONTENT % (●) — LIQUID LIMIT % (△) (10, 20, 30, 40, 50+)

STANDARD PENETRATION BLOWS/FT. (⊗) (10, 20, 30, 40, 50+)

| DEPTH (FT) | SAMPLE NO. | SAMPLE TYPE | SAMPLE DISTANCE (IN) | RECOVERY (IN) | DESCRIPTION OF MATERIAL | ELEVATION (FT) | STANDARD PENETRATION BLOWS/FT. |
|---|---|---|---|---|---|---|---|
| 0 | | | | | TOPSOIL DEPTH 8" | 795 | |
| | 1 | SS | 18 | 18 | Reddish Brown Silty CLAY, Trace Mica, Moist, Firm to Stiff (CL) | | 6 |
| | 2 | SS | 18 | 18 | | | 10 |
| 5 | 3 | SS | 18 | 18 | Orangish Brown Fine to Coarse Sandy SILT With Clay, Moist, Stiff (ML) | 790 | 11 |
| | 4 | SS | 18 | 18 | Purplish Brown Micaceous SILT, Moist, Stiff (ML) | | 11 |
| 10 | | | | | Orange SILT With Mica, Moist, Stiff (ML) | 785 | |
| | 5 | SS | 18 | 18 | | | 13 |
| 15 | | | | | END OF BORING @ 15.0' | 780 | |
| 20 | | | | | | 775 | |
| 25 | | | | | | 770 | |
| 30 | | | | | | | |

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

| | | |
|---|---|---|
| WL    WS OR WD | BORING STARTED 6/25/03 | |
| WL(AB)    WL(AC) | BORING COMPLETED 6/25/03 | CAVE IN DEPTH @ 11.5 |
| WL | RIG CME550 FOREMAN CL | DRILLING METHOD HSA |

JC (07-01-03) JC (07-03-03) JC (07-08-03)

| CLIENT | JOB # | BORING # | SHEET | ECS LTD |
|---|---|---|---|---|
| Laurens Cty. Economic Devel. | 14-2016 | B-4 | 1 OF 1 | |
| PROJECT NAME: Owings Industrial Park | ARCHITECT-ENGINEER | | | |
| SITE LOCATION: Laurens, South Carolina | | | | |

-O- CALIBRATED PENETROMETER TONS/FT.$^2$ (1, 2, 3, 4, 5+)

PLASTIC LIMIT % (X) — WATER CONTENT % (●) — LIQUID LIMIT % (Δ) (10, 20, 30, 40, 50+)

⊗ STANDARD PENETRATION BLOWS/FT. (10, 20, 30, 40, 50+)

ENGLISH UNITS

SURFACE ELEVATION 816.0

| DEPTH (FT) | SAMPLE NO. | SAMPLE TYPE | SAMPLE DISTANCE (IN) | RECOVERY (IN) | DESCRIPTION OF MATERIAL | ELEVATION (FT) | STANDARD PENETRATION BLOWS/FT. |
|---|---|---|---|---|---|---|---|
| 0 | | | | | TOPSOIL DEPTH 6" | 815 | |
| | 1 | SS | 18 | 18 | Reddish Brown Silty CLAY With Sand, Dry, Stiff (CL) | | 12 |
| | 2 | SS | 18 | 18 | Reddish Brown and Orangish Brown Clayey SILT With Sand, Trace Mica, Moist, Very Stiff (ML) | | 25 |
| 5 | | | | | | 810 | |
| | 3 | SS | 18 | 18 | | | 20 |
| | 4 | SS | 18 | 18 | Purplish Brown Micaceous SILT, Moist to Wet, Stiff (ML) | | 12 |
| 10 | | | | | | 805 | |
| | 5 | SS | 18 | 18 | | | 15 |
| 15 | | | | | END OF BORING @ 15.0' | 800 | |
| 20 | | | | | | 795 | |
| 25 | | | | | | 790 | |
| 30 | | | | | | | |

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

| | | | |
|---|---|---|---|
| ▽ WL | WS OR WD | BORING STARTED 6/25/03 | |
| ▽ WL(AB) | ▽ WL(AC) | BORING COMPLETED 6/25/03 | CAVE IN DEPTH @ 11.5 |
| ▽ WL | | RIG CME550 FOREMAN CL | DRILLING METHOD HSA |

JC (07-01-03) JC (07-03-03) JC (07-08-03)

| CLIENT | JOB # | BORING # | SHEET |
|---|---|---|---|
| Laurens Cty. Economic Devel. | 14-2016 | B-5 | 1 OF 1 |

ECS LTD

PROJECT NAME: Owings Industrial Park

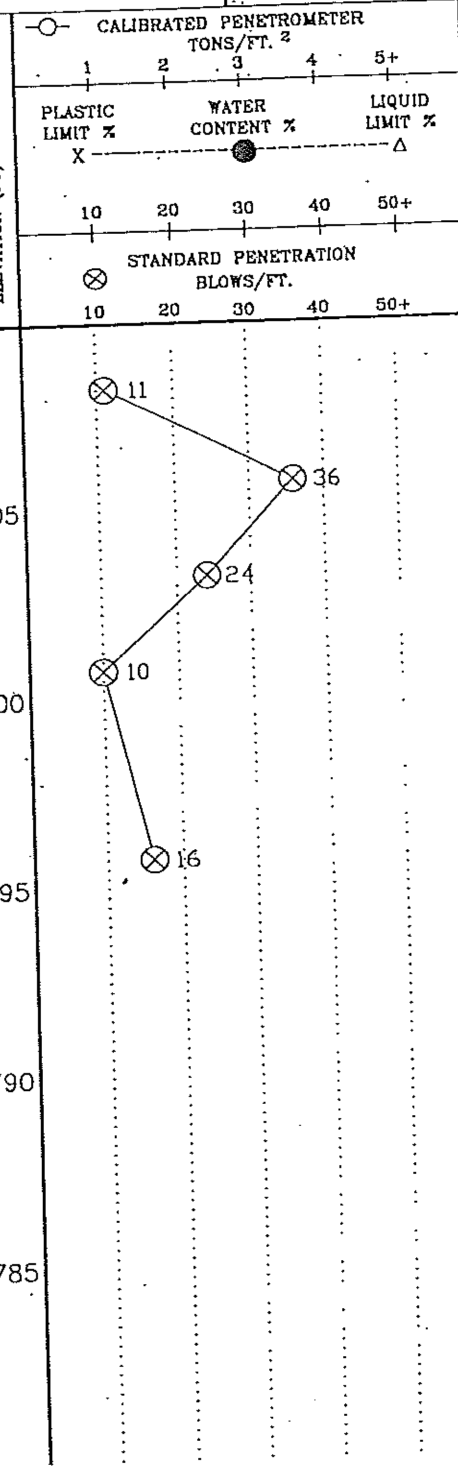
ARCHITECT-ENGINEER:

SITE LOCATION: Laurens, South Carolina

ENGLISH UNITS

SURFACE ELEVATION 810.0

| DEPTH (FT) | SAMPLE NO. | SAMPLE TYPE | SAMPLE DISTANCE (IN) | RECOVERY (IN) | DESCRIPTION OF MATERIAL | ELEVATION (FT) | STANDARD PENETRATION BLOWS/FT. |
|---|---|---|---|---|---|---|---|
| 0 | | | | | TOPSOIL DEPTH 4" | 810.0 | |
| | 1 | SS | 18 | 18 | Reddish Brown Silty CLAY With Sand, Moist, Stiff to Hard (CL) | | 11 |
| | 2 | SS | 18 | 18 | | | 36 |
| 5 | | | | | | 805 | |
| | 3 | SS | 18 | 18 | | | 24 |
| | 4 | SS | 18 | 18 | Light Orangish Brown Fine to Medium Sandy SILT, Moist, Stiff (ML) | | 10 |
| 10 | | | | | | 800 | |
| | 5 | SS | 18 | 18 | Light Orangish Brown and Reddish Brown SILT, Moist, Very Stiff (ML) | | 16 |
| 15 | | | | | END OF BORING @ 15.0' | 795 | |
| 20 | | | | | | 790 | |
| 25 | | | | | | 785 | |
| 30 | | | | | | | |




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

| | | |
|---|---|---|
| ▽ WL    WS OR WD | BORING STARTED 6/25/03 | |
| ▽ WL(AB)    ▼ WL(AC) | BORING COMPLETED 6/25/03 | CAVE IN DEPTH @ 11.6 |
| ▽ WL | RIG CME550   FOREMAN CL | DRILLING METHOD HSA |

JC (07-01-03) JC (07-03-03) JC (07-08-03)

| CLIENT | JOB # | BORING # | SHEET |
|---|---|---|---|
| Laurens Cty. Economic Devel. | 14-2016 | B-6 | 1 OF 2 |

ECS LTD

PROJECT NAME: Owings Industrial Park

ARCHITECT-ENGINEER:

SITE LOCATION: Laurens, South Carolina

-O- CALIBRATED PENETROMETER TONS/FT.² (1, 2, 3, 4, 5+)

PLASTIC LIMIT % X —— WATER CONTENT % ● —— LIQUID LIMIT % Δ (10, 20, 30, 40, 50+)

⊗ STANDARD PENETRATION BLOWS/FT. (10, 20, 30, 40, 50+)

DESCRIPTION OF MATERIAL — ENGLISH UNITS

SURFACE ELEVATION 788.0

| DEPTH (FT) | SAMPLE NO. | SAMPLE TYPE | SAMPLE DISTANCE (IN) | RECOVERY (IN) | DESCRIPTION OF MATERIAL | STANDARD PENETRATION BLOWS/FT. |
|---|---|---|---|---|---|---|
| 0 | | | | | TOPSOIL DEPTH 6" | |
| | 1 | SS | 18 | 18 | Reddish Brown Silty CLAY, Moist, Stiff (CL) | 13 |
| | 2 | SS | 18 | 18 | Yellowish Brown Clayey SILT With Sand, Moist, Very Stiff (ML) | 22 |
| 5 | 3 | SS | 18 | 18 | Yellowish Brown and Orangish Brown Fine to Medium Sandy SILT, Moist, Very Stiff (ML) | 20 |
| | 4 | SS | 18 | 18 | Light Brown SILT With Mica, Trace Sand, Moist to Wet, Stiff (ML) | 10 |
| 10 | | | | | | |
| | 5 | SS | 18 | 18 | | 10 |
| 15 | | | | | | |
| | 6 | SS | 18 | 18 | | 10 |
| 20 | | | | | Light Brown SILT, Trace Mica, Trace Sand, Moist to Wet, Stiff to Very Stiff (ML) | |
| | 7 | SS | 18 | 18 | | 11 |
| 25 | | | | | | |
| | 8 | SS | 18 | 18 | | 13 |
| 30 | | | | | | |

ELEVATION (FT): 785, 780, 775, 770, 765, 760

WATER LEVELS: ▽ at elevation 775

CONTINUED ON NEXT PAGE.

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

| | | |
|---|---|---|
| ▽ WL    WS OR (WD) | BORING STARTED 6/25/03 | |
| ▽ WL(AB) 13.0   ▼ WL(AC) | BORING COMPLETED 6/25/03 | CAVE IN DEPTH ● |
| ▽ WL | RIG CME550 FOREMAN CL | DRILLING METHOD HSA |

JC (07-01-03) JC (07-03-03) JC (07-08-03)

| CLIENT | JOB # | BORING # | SHEET |
|---|---|---|---|
| Laurens Cty. Economic Devel. | 14-2016 | B-6 | 2 OF 2 |

ECS LTD

PROJECT NAME: Owings Industrial Park

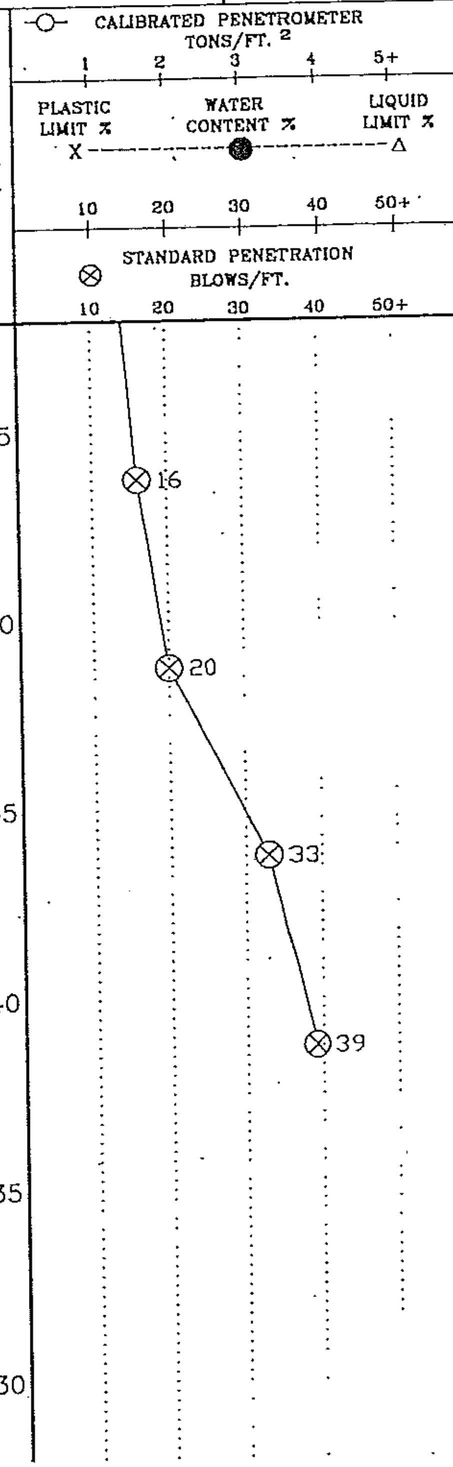
ARCHITECT-ENGINEER:

SITE LOCATION: Laurens, South Carolina

ENGLISH UNITS

SURFACE ELEVATION 788.0

| DEPTH (FT) | SAMPLE NO. | SAMPLE TYPE | SAMPLE DISTANCE (IN) | RECOVERY (IN) | DESCRIPTION OF MATERIAL | ELEVATION (FT) |
|---|---|---|---|---|---|---|
| 30 | | | | | Light Brown SILT, Trace Mica, Trace Sand, Moist to Wet, Stiff to Very Stiff (ML) | |
| | | | | | | 755 |
| | 9 | SS | 18 | 18 | | |
| 35 | | | | | | |
| | | | | | | 750 |
| | 10 | SS | 18 | 18 | | |
| 40 | | | | | | |
| | | | | | Brown Fine to Medium Sandy SILT, Moist, Hard (ML) | 745 |
| | 11 | SS | 18 | 18 | | |
| 45 | | | | | | |
| | | | | | | 740 |
| | 12 | SS | 18 | 18 | | |
| 50 | | | | | END OF BORING @ 50.0' | |
| | | | | | | 735 |
| 55 | | | | | | |
| | | | | | | 730 |
| 60 | | | | | | |




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

| | | |
|---|---|---|
| WL   WS OR WD | BORING STARTED 6/25/03 | |
| WL(AB) 13.0   WL(AC) | BORING COMPLETED 6/25/03 | CAVE IN DEPTH @ |
| WL | RIG CME550 FOREMAN CL | DRILLING METHOD HSA |

| CLIENT | JOB # | BORING # | SHEET |
|---|---|---|---|
| Laurens Cty. Economic Devel. | 14-2016 | B-7 | 1 OF 1 |

ECS LTD

PROJECT NAME: Owings Industrial Park

ARCHITECT-ENGINEER:

SITE LOCATION: Laurens, South Carolina

DESCRIPTION OF MATERIAL — ENGLISH UNITS

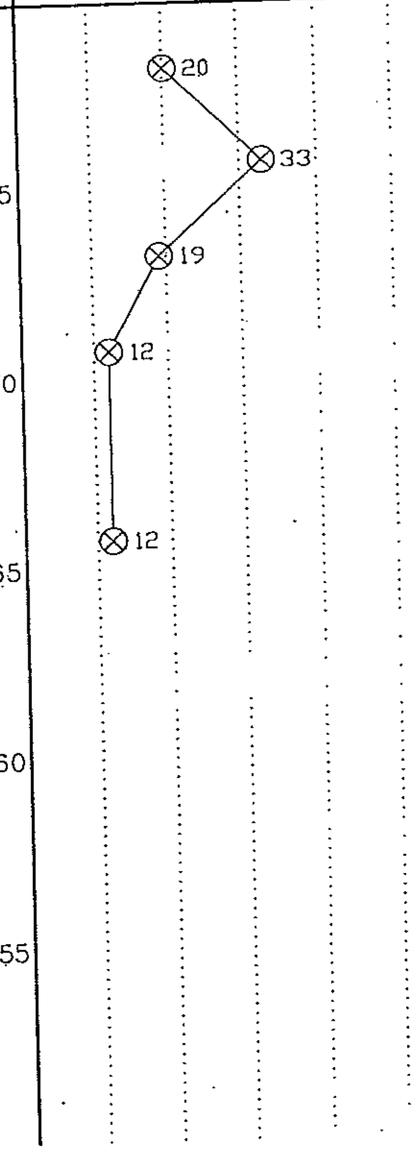
SURFACE ELEVATION 780.0

-○- CALIBRATED PENETROMETER TONS/FT.² (1, 2, 3, 4, 5+)

PLASTIC LIMIT % X — WATER CONTENT % ● — LIQUID LIMIT % △ (10, 20, 30, 40, 50+)

⊗ STANDARD PENETRATION BLOWS/FT. (10, 20, 30, 40, 50+)

| DEPTH (FT) | SAMPLE NO. | SAMPLE TYPE | SAMPLE DISTANCE (IN) | RECOVERY (IN) | DESCRIPTION OF MATERIAL | ELEVATION (FT) | STANDARD PENETRATION BLOWS/FT. |
|---|---|---|---|---|---|---|---|
| 0 | | | | | TOPSOIL DEPTH 6" | 780.0 | |
| | 1 | SS | 18 | 18 | Orangish Brown Silty CLAY, Moist, Very Stiff to Hard (CL) | | 20 |
| | 2 | SS | 18 | 18 | | 775 | 33 |
| 5 | 3 | SS | 18 | 18 | | | 19 |
| | 4 | SS | 18 | 18 | Orangish Brown Clayey SILT, Moist, Stiff (ML) | 770 | 12 |
| 10 | | | | | Orangish Brown Silty Fine SAND, Moist, Medium Dense (SM) | | |
| | 5 | SS | 18 | 18 | | 765 | 12 |
| 15 | | | | | END OF BORING @ 15.0' | | |
| 20 | | | | | | 760 | |
| 25 | | | | | | 755 | |
| 30 | | | | | | | |




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

| | | | |
|---|---|---|---|
| ▽ WL | WS OR WD | BORING STARTED 6/25/03 | |
| ▽ WL(AB) | ▼ WL(AC) | BORING COMPLETED 6/25/03 | CAVE IN DEPTH @ 11.0 |
| ▽ WL | | RIG CME550 FOREMAN CL | DRILLING METHOD HSA |

JC (07-01-03) JC (07-03-03) JC (07-08-03)

| CLIENT | JOB # | BORING # | SHEET |
|---|---|---|---|
| Laurens Cty. Economic Devel. | 14-2016 | B-8 | 1 OF 1 |

ECS LTD

PROJECT NAME: Owings Industrial Park

ARCHITECT-ENGINEER:

SITE LOCATION: Laurens, South Carolina

DESCRIPTION OF MATERIAL — ENGLISH UNITS

SURFACE ELEVATION 818.0

-O- CALIBRATED PENETROMETER TONS/FT.$^2$ (1, 2, 3, 4, 5+)

PLASTIC LIMIT % X — WATER CONTENT % ● — LIQUID LIMIT % △ (10, 20, 30, 40, 50+)

⊗ STANDARD PENETRATION BLOWS/FT. (10, 20, 30, 40, 50+)

| DEPTH (FT) | SAMPLE NO. | SAMPLE TYPE | SAMPLE DISTANCE (IN) | RECOVERY (IN) | DESCRIPTION OF MATERIAL | ELEVATION (FT) | SPT BLOWS/FT |
|---|---|---|---|---|---|---|---|
| 0 | | | | | TOPSOIL DEPTH 6" | | |
| | 1 | SS | 18 | 18 | Light Brown Silty CLAY, Moist, Stiff (CL) | 815 | 10 |
| 5 | 2 | SS | 18 | 18 | Reddish Brown Clayey SILT, Trace Mica, Moist, Stiff to Very Stiff (ML) | | 16 |
| | 3 | SS | 18 | 18 | | 810 | 15 |
| 10 | 4 | SS | 18 | 18 | Purplish Brown Micaceous SILT, Trace Sand, Moist, Stiff to Very Stiff (ML) | 805 | 14 |
| 15 | 5 | SS | 18 | 18 | | | 16 |
| | | | | | END OF BORING @ 15.0' | 800 | |
| 20 | | | | | | 795 | |
| 25 | | | | | | 790 | |
| 30 | | | | | | | |

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

| | | | |
|---|---|---|---|
| ▽ WL | WS OR WD | BORING STARTED 6/25/03 | |
| ▽ WL(AB) | ▽ WL(AC) | BORING COMPLETED 6/25/03 | CAVE IN DEPTH @ 11.2 |
| ▽ WL | | RIG CME550 FOREMAN CL | DRILLING METHOD HSA |

(07-01-03) (07-08-03)

| CLIENT | JOB # | BORING # | SHEET |
|---|---|---|---|
| Laurens Cty. Economic Devel. | 14-2016 | B-9 | 1 OF 1 |

ECS LTD

PROJECT NAME: Owings Industrial Park

ARCHITECT-ENGINEER:

SITE LOCATION: Laurens, South Carolina

CALIBRATED PENETROMETER TONS/FT.$^2$: 1, 2, 3, 4, 5+

PLASTIC LIMIT % (X) — WATER CONTENT % (●) — LIQUID LIMIT % (Δ): 10, 20, 30, 40, 50+

STANDARD PENETRATION BLOWS/FT. (⊗): 10, 20, 30, 40, 50+

ENGLISH UNITS

SURFACE ELEVATION 805.0

| DEPTH (FT) | SAMPLE NO. | SAMPLE TYPE | SAMPLE DISTANCE (IN) | RECOVERY (IN) | DESCRIPTION OF MATERIAL | ELEVATION (FT) | STANDARD PENETRATION BLOWS/FT. |
|---|---|---|---|---|---|---|---|
| 0 | | | | | TOPSOIL DEPTH 6" | 805 | |
| | 1 | SS | 18 | 18 | Orangish Brown Silty CLAY, Moist, Stiff to Very Stiff (CL) | | 13 |
| | 2 | SS | 18 | 18 | | 800 | 18 |
| 5 | 3 | SS | 18 | 18 | Orangish Brown Clayey SILT, Moist, Very Stiff (ML) | | 17 |
| | 4 | SS | 18 | 18 | Brown Fine Sandy SILT With Mica, Moist to Wet, Stiff (ML) | 795 | 14 |
| 10 | | | | | | | |
| | 5 | SS | 18 | 18 | | 790 | 14 |
| 15 | | | | | END OF BORING @ 15.0' | | |
| 20 | | | | | | 785 | |
| 25 | | | | | | 780 | |
| 30 | | | | | | | |

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

| | | | |
|---|---|---|---|
| ▽ WL     WS OR WD | BORING STARTED 6/25/03 | | |
| ▽ WL(AB)     ▼ WL(AC) | BORING COMPLETED 6/25/03 | CAVE IN DEPTH @ 11.0 | |
| ▽ WL | RIG CME550 FOREMAN CL | DRILLING METHOD HSA | |

JC (07-01-03) JC (07-03-03) JC (07-08-03)

| CLIENT | JOB # | BORING # | SHEET |
|---|---|---|---|
| Laurens Cty. Economic Devel. | 14-2016 | B-10 | 1 OF 1 |

ECS LTD

PROJECT NAME: Owings Industrial Park

ARCHITECT-ENGINEER:

SITE LOCATION: Laurens, South Carolina

DESCRIPTION OF MATERIAL — ENGLISH UNITS

SURFACE ELEVATION 801.0

CALIBRATED PENETROMETER TONS/FT.² (1, 2, 3, 4, 5+)

PLASTIC LIMIT % — WATER CONTENT % — LIQUID LIMIT % (10, 20, 30, 40, 50+)

STANDARD PENETRATION BLOWS/FT. (10, 20, 30, 40, 50+)

| DEPTH (FT) | SAMPLE NO. | SAMPLE TYPE | SAMPLE DISTANCE (IN) | RECOVERY (IN) | DESCRIPTION OF MATERIAL | ELEVATION (FT) | STANDARD PENETRATION BLOWS/FT. |
|---|---|---|---|---|---|---|---|
| 0 | | | | | TOPSOIL DEPTH 6" | 800 | |
| | 1 | SS | 18 | 18 | Reddish Brown Silty CLAY, Moist, Stiff (CL) | | 12 |
| | 2 | SS | 18 | 18 | Orangish Brown Clayey SILT, Moist, Very Stiff (ML) | | 18 |
| 5 | 3 | SS | 18 | 18 | Reddish Brown Fine to Medium Sandy SILT, Some Clay, Moist, Very Stiff (ML) | 795 | 16 |
| | 4 | SS | 18 | 18 | Purplish Brown Clayey SILT, Trace Mica, Moist to Wet, Firm to Stiff (ML) | | 7 |
| 10 | | | | | | 790 | |
| | 5 | SS | 18 | 18 | | | 11 |
| 15 | | | | | END OF BORING @ 15.0' | 785 | |
| 20 | | | | | | 780 | |
| 25 | | | | | | 775 | |
| 30 | | | | | | | |

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

| | | |
|---|---|---|
| ▽ WL    WS OR (WD) | BORING STARTED 6/25/03 | |
| ▽ WL(AB)    ▼ WL(AC) | BORING COMPLETED 6/25/03 | CAVE IN DEPTH @ 11.4 |
| ▽ WL | RIG CME550 FOREMAN CL | DRILLING METHOD HSA |

JC (07-01-03) JC (07-03-03) JC (07-08-03)

| CLIENT | JOB # | BORING # | SHEET |
|---|---|---|---|
| Laurens Cty. Economic Devel. | 14-2016 | B-11 | 1 OF 1 |

ECS LTD

PROJECT NAME: Owings Industrial Park

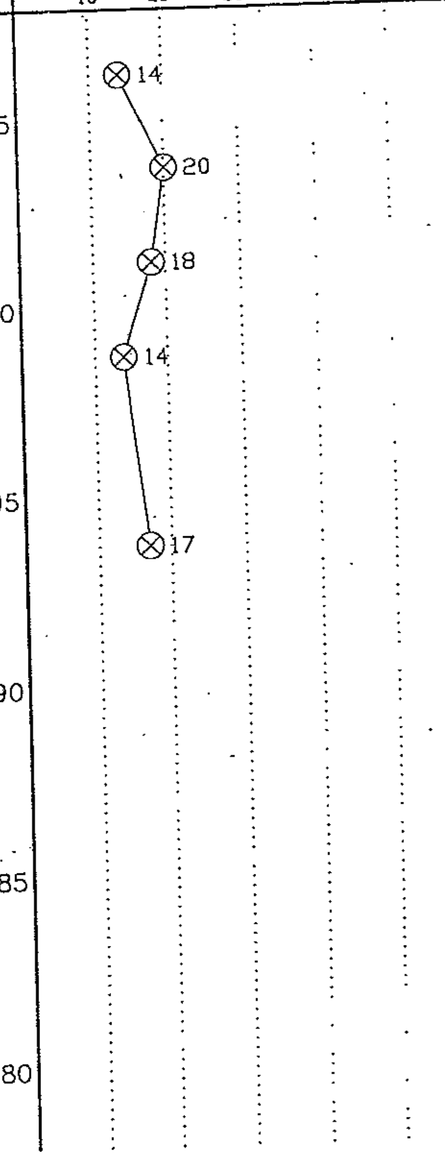
ARCHITECT-ENGINEER:

SITE LOCATION: Laurens, South Carolina

DESCRIPTION OF MATERIAL — ENGLISH UNITS

SURFACE ELEVATION 808.0

| DEPTH (FT) | SAMPLE NO. | SAMPLE TYPE | SAMPLE DISTANCE (IN) | RECOVERY (IN) | DESCRIPTION OF MATERIAL | ELEVATION (FT) | STANDARD PENETRATION BLOWS/FT. |
|---|---|---|---|---|---|---|---|
| 0 | | | | | TOPSOIL DEPTH 6" | | |
| | 1 | SS | 18 | 18 | Brown Fine Sandy CLAY, Moist, Stiff (CL) | 805 | 14 |
| | 2 | SS | 18 | 18 | Orangish Brown Fine Sandy SILT, Moist, Very Stiff (ML) | | 20 |
| 5 | 3 | SS | 18 | 18 | Reddish Brown Clayey SILT, Trace Mica, Moist, Very Stiff (ML) | 800 | 18 |
| | 4 | SS | 18 | 18 | Purplish Brown and Orangish Brown Fine Sandy SILT With Mica, Moist, Stiff to Very Stiff (ML) | | 14 |
| 10 | | | | | | 795 | |
| | 5 | SS | 18 | 18 | | | 17 |
| 15 | | | | | END OF BORING @ 15.0' | 790 | |
| 20 | | | | | | 785 | |
| 25 | | | | | | 780 | |
| 30 | | | | | | | |




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

| | | |
|---|---|---|
| WL — WS OR WD | BORING STARTED 6/25/03 | |
| WL(AB) — WL(AC) | BORING COMPLETED 6/25/03 | CAVE IN DEPTH @ 10.9 |
| WL | RIG CME550 FOREMAN CL | DRILLING METHOD HSA |

JC (07-01-03) JC (07-03-03) JC (07-08-03)

| CLIENT | JOB # | BORING # | SHEET |
|---|---|---|---|
| Laurens Cty. Economic Devel. | 14-2016 | B-12 | 1 OF 1 |
| PROJECT NAME: Owings Industrial Park | ARCHITECT-ENGINEER | | |
| SITE LOCATION: Laurens, South Carolina | | | |

ECS LTD

-○- CALIBRATED PENETROMETER TONS/FT.² 1 2 3 4 5+

PLASTIC LIMIT % X ---- WATER CONTENT % ● ---- LIQUID LIMIT % △ 10 20 30 40 50+

⊗ STANDARD PENETRATION BLOWS/FT. 10 20 30 40 50+

DESCRIPTION OF MATERIAL — ENGLISH UNITS

SURFACE ELEVATION 830.0

| DEPTH (FT) | SAMPLE NO. | SAMPLE TYPE | SAMPLE DISTANCE (IN) | RECOVERY (IN) | DESCRIPTION OF MATERIAL | ELEVATION (FT) | STANDARD PENETRATION BLOWS/FT. |
|---|---|---|---|---|---|---|---|
| 0 | | | | | TOPSOIL DEPTH 3" | 830.0 | |
| | 1 | SS | 18 | 18 | Brown Clayey Fine SAND, Dry, Medium Dense (SC) | | 13 |
| | 2 | SS | 18 | 18 | Purplish Brown Fine Sandy SILT With Mica, Moist, Stiff (ML) | 825 | 9 |
| 5 | 3 | SS | 18 | 18 | | | 12 |
| | 4 | SS | 18 | 18 | Purplish Brown SILT With Mica, Trace Sand, Moist, Stiff (ML) | 820 | 11 |
| 10 | | | | | | | |
| | 5 | SS | 18 | 18 | | 815 | 14 |
| 15 | | | | | END OF BORING @ 15.0' | | |
| 20 | | | | | | 810 | |
| 25 | | | | | | 805 | |
| 30 | | | | | | | |

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

| | | |
|---|---|---|
| ∇ WL   WS OR WD | BORING STARTED 6/25/03 | |
| ▼ WL(AB)   ▼ WL(AC) | BORING COMPLETED 6/25/03 | CAVE IN DEPTH @ 11.2 |
| ∇ WL | RIG CME550 FOREMAN CL | DRILLING METHOD HSA |

| CLIENT | JOB # | BORING # | SHEET |
|---|---|---|---|
| Laurens Cty. Economic Devel. | 14-2016 | B-13 | 1 OF 1 |

ECS LTD

PROJECT NAME: Owings Industrial Park

ARCHITECT-ENGINEER:

SITE LOCATION: Laurens, South Carolina

DESCRIPTION OF MATERIAL — ENGLISH UNITS

SURFACE ELEVATION 812.0

CALIBRATED PENETROMETER TONS/FT.$^2$ (1, 2, 3, 4, 5+)

PLASTIC LIMIT % — WATER CONTENT % — LIQUID LIMIT %

STANDARD PENETRATION BLOWS/FT. (10, 20, 30, 40, 50+)

| DEPTH (FT) | SAMPLE NO. | SAMPLE TYPE | SAMPLE DISTANCE (IN) | RECOVERY (IN) | DESCRIPTION OF MATERIAL | ELEVATION (FT) | STANDARD PENETRATION BLOWS/FT. |
|---|---|---|---|---|---|---|---|
| 0 | | | | | TOPSOIL DEPTH 6" | | |
| | 1 | SS | 18 | 18 | Light Brown Silty CLAY, Trace Sand, Moist, Stiff (CL) | 810 | 12 |
| | 2 | SS | 18 | 18 | Brown SILT, Trace Mica, Moist, Very Stiff (ML) | | 18 |
| 5 | | | | | | | |
| | 3 | SS | 18 | 18 | Yellowish Brown Silty Fine to Medium SAND, Moist, Medium Dense (SM) | 805 | 16 |
| | 4 | SS | 18 | 18 | | | 14 |
| 10 | | | | | Brown Fine Sandy SILT, Trace Mica, Moist to Wet, Stiff (ML) | | |
| | | | | | END OF BORING @ 10.0' | 800 | |
| 15 | | | | | | 795 | |
| 20 | | | | | | 790 | |
| 25 | | | | | | 785 | |
| 30 | | | | | | | |

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

| | | |
|---|---|---|
| WL — WS OR WD | BORING STARTED 6/25/03 | |
| WL(AB) 8.0 — WL(AC) | BORING COMPLETED 6/25/03 | CAVE IN DEPTH @ 8.0 |
| WL | RIG CME550 FOREMAN CL | DRILLING METHOD HSA |

JC (07-01-03) JC (07-03-03) JC (07-08-03)

| CLIENT | JOB # | BORING # | SHEET |
|---|---|---|---|
| Laurens Cty. Economic Devel. | 14-2016 | B-14 | 1 OF 1 |

PROJECT NAME: Owings Industrial Park

ARCHITECT-ENGINEER:

SITE LOCATION: Laurens, South Carolina

ECS LTD

CALIBRATED PENETROMETER TONS/FT.²: 1, 2, 3, 4, 5+

PLASTIC LIMIT % — WATER CONTENT % — LIQUID LIMIT %: 10, 20, 30, 40, 50+

STANDARD PENETRATION BLOWS/FT.: 10, 20, 30, 40, 50+

ENGLISH UNITS

SURFACE ELEVATION 814.0

| DEPTH (FT) | SAMPLE NO. | SAMPLE TYPE | SAMPLE DISTANCE (IN) | RECOVERY (IN) | DESCRIPTION OF MATERIAL | WATER LEVELS | ELEVATION (FT) | STANDARD PENETRATION BLOWS/FT. |
|---|---|---|---|---|---|---|---|---|
| 0 | | | | | TOPSOIL DEPTH 8" | | | |
| | 1 | SS | 18 | 18 | Light Brown Silty CLAY, Trace Sand, Moist, Stiff (CL) | | | 11 |
| | 2 | SS | 18 | 18 | Yellowish Brown Clayey Fine to Medium SAND, Moist, Loose (SC) | | 810 | 10 |
| 5 | 3 | SS | 18 | 18 | | | | 10 |
| | 4 | SS | 18 | 18 | White and Brown Silty Fine SAND, Wet, Loose (SM) | ▽ | 805 | 5 |
| 10 | 5 | SS | 18 | 18 | | | 800 | 8 |
| 15 | | | | | END OF BORING @ 15.0' | | | |
| 20 | | | | | | | 795 | |
| 25 | | | | | | | 790 | |
| 30 | | | | | | | 785 | |

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

| | | |
|---|---|---|
| ▽WL — WS OR WD | BORING STARTED 6/25/03 | |
| ▽WL(AB) 9.0 — ▼WL(AC) | BORING COMPLETED 6/25/03 | CAVE IN DEPTH @ 9.0 |
| ▽WL | RIG CME550 FOREMAN CL | DRILLING METHOD HSA |

ic (07-01-03) ic (07-03-03) ic (07-08-03)

| CLIENT | JOB # | BORING # | SHEET |
|---|---|---|---|
| Laurens Cty. Economic Devel. | 14-2016 | B-15 | 1 OF 1 |

ECS LTD

**PROJECT NAME:** Owings Industrial Park

**ARCHITECT-ENGINEER:**

**SITE LOCATION:** Laurens, South Carolina

ENGLISH UNITS

SURFACE ELEVATION 777.0

—○— CALIBRATED PENETROMETER TONS/FT.[2]: 1, 2, 3, 4, 5+

PLASTIC LIMIT % (X) — WATER CONTENT % (●) — LIQUID LIMIT % (Δ): 10, 20, 30, 40, 50+

⊗ STANDARD PENETRATION BLOWS/FT.: 10, 20, 30, 40, 50+

| DEPTH (FT) | SAMPLE NO. | SAMPLE TYPE | SAMPLE DISTANCE (IN) | RECOVERY (IN) | DESCRIPTION OF MATERIAL | ELEVATION (FT) | STANDARD PENETRATION BLOWS/FT. |
|---|---|---|---|---|---|---|---|
| 0 | | | | | TOPSOIL DEPTH 6" | | |
| | 1 | SS | 18 | 18 | Reddish Brown Silty CLAY, Moist, Stiff (CL) | 775 | 15 |
| | 2 | SS | 18 | 18 | Orangish Brown Fine Sandy SILT With Mica, Moist, Very Stiff (ML) | | 20 |
| 5 | | | | | | | |
| | 3 | SS | 18 | 18 | | 770 | 16 |
| | 4 | SS | 18 | 18 | Brown Micaceous SILT, Moist, Very Stiff (ML) | | 18 |
| 10 | | | | | END OF BORING @ 10.0' | | |
| | | | | | | 765 | |
| 15 | | | | | | | |
| | | | | | | 760 | |
| 20 | | | | | | | |
| | | | | | | 755 | |
| 25 | | | | | | | |
| | | | | | | 750 | |
| 30 | | | | | | | |

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

| | | |
|---|---|---|
| ▽ WL     WS OR WD | BORING STARTED 6/25/03 | |
| ▽ WL(AB)    ▼ WL(AC) | BORING COMPLETED 6/25/03 | CAVE IN DEPTH @ 7.0 |
| ▽ WL | RIG CME550   FOREMAN CL | DRILLING METHOD HSA |

| CLIENT | JOB # | BORING # | SHEET |
|---|---|---|---|
| Laurens Cty. Economic Devel. | 14-2016 | B-16 | 1 OF 2 |

ECS LTD

PROJECT NAME: Owings Industrial Park

ARCHITECT-ENGINEER:

SITE LOCATION: Laurens, South Carolina

-O- CALIBRATED PENETROMETER TONS/FT.² (1, 2, 3, 4, 5+)

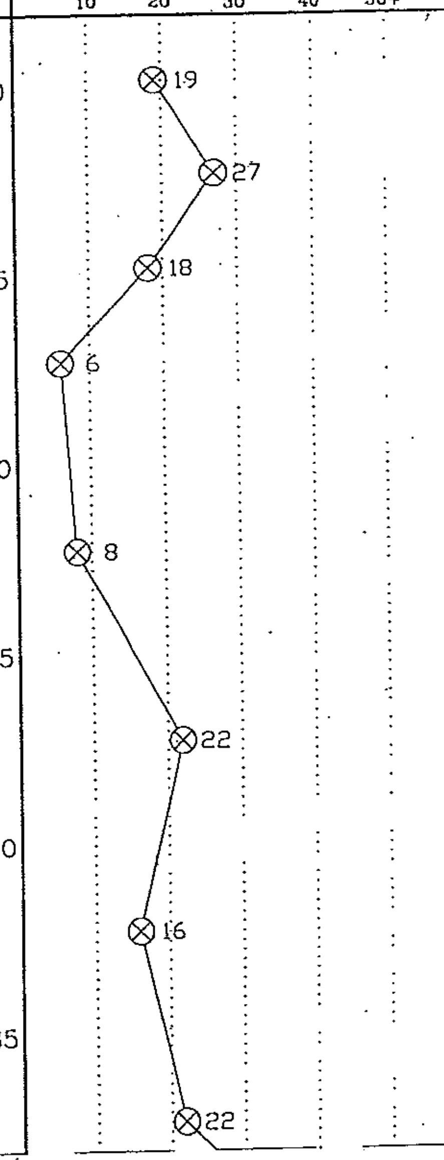
PLASTIC LIMIT % X ---- WATER CONTENT % ● ---- LIQUID LIMIT % △ (10, 20, 30, 40, 50+)

⊗ STANDARD PENETRATION BLOWS/FT. (10, 20, 30, 40, 50+)

ENGLISH UNITS

SURFACE ELEVATION 812.0

| DEPTH (FT) | SAMPLE NO. | SAMPLE TYPE | SAMPLE DISTANCE (IN) | RECOVERY (IN) | DESCRIPTION OF MATERIAL | WATER LEVELS | ELEVATION (FT) |
|---|---|---|---|---|---|---|---|
| 0 | | | | | TOPSOIL DEPTH 6" | | |
| | 1 | SS | 18 | 18 | Orangish Brown Silty CLAY, Moist, Very Stiff (CL) | | 810 |
| | 2 | SS | 18 | 18 | Orangish Brown and Reddish Brown Clayey SILT With Sand, Trace Mica, Moist, Very Stiff (ML) | | |
| 5 | | | | | | | |
| | 3 | SS | 18 | 18 | Orangish Brown Silty CLAY, Trace Sand, Trace Mica, Moist, Very Stiff (CL) | | 805 |
| | 4 | SS | 18 | 18 | White and Yellowish Brown Fine to Coarse Sandy SILT, Wet, Firm (ML) | ▼ | |
| 10 | | | | | | | 800 |
| | 5 | SS | 18 | 18 | | | |
| 15 | | | | | Brown Clayey SILT, Trace Sand, Moist, Very Stiff (ML) | | 795 |
| | 6 | SS | 18 | 18 | | | |
| 20 | | | | | | | 790 |
| | 7 | SS | 18 | 18 | | | |
| 25 | | | | | Brown and Dark Brown Fine Sandy SILT, Trace Mica, Moist to Wet, Very Stiff to Hard (ML) | | 785 |
| | 8 | SS | 18 | 18 | | | |
| 30 | | | | | | | |

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

| | | |
|---|---|---|
| ▽ WL    WS OR WD | BORING STARTED 6/25/03 | |
| ▽ WL(AB)    ▼ WL(AC) 10.0 | BORING COMPLETED 6/25/03 | CAVE IN DEPTH ● |
| ▽ WL | RIG CME550 FOREMAN CL | DRILLING METHOD HSA |

| CLIENT | JOB # | BORING # | SHEET |
|---|---|---|---|
| Laurens Cty. Economic Devel. | 14-2016 | B-16 | 2 OF 2 |

PROJECT NAME: Owings Industrial Park

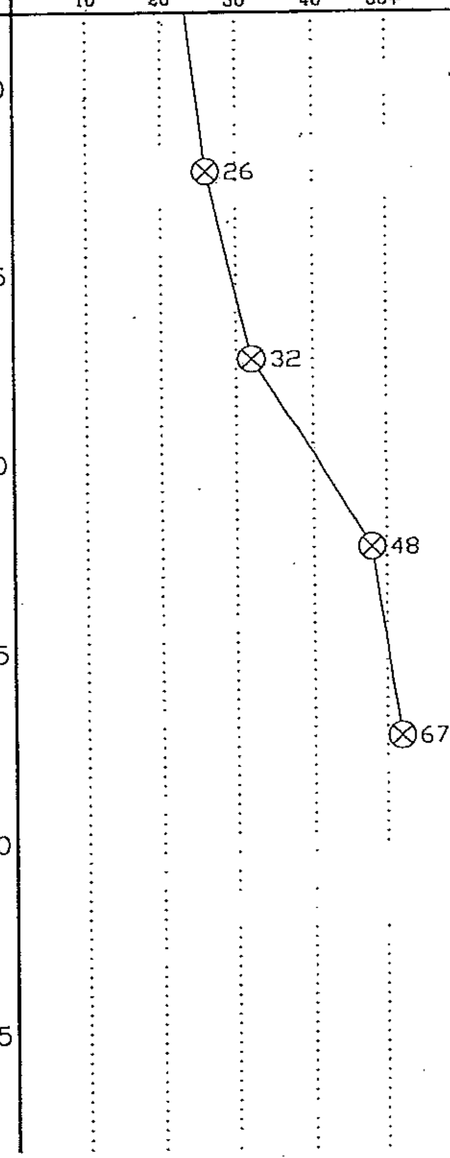
ARCHITECT-ENGINEER:

SITE LOCATION: Laurens, South Carolina

ENGLISH UNITS

SURFACE ELEVATION 812.0

| DEPTH (FT) | SAMPLE NO. | SAMPLE TYPE | SAMPLE DISTANCE (IN) | RECOVERY (IN) | DESCRIPTION OF MATERIAL | STANDARD PENETRATION BLOWS/FT. |
|---|---|---|---|---|---|---|
| 30 | | | | | Brown and Dark Brown Fine-Sandy SILT, Trace Mica, Moist to Wet, Very Stiff to Hard (ML) | |
| 33.5 | 9 | SS | 18 | 18 | | 26 |
| 38.5 | 10 | SS | 18 | 18 | | 32 |
| 41.5 | | | | | Micaceous SILT, Trace Sand, Hard to Very Hard (ML) | |
| 43.5 | 11 | SS | 18 | 18 | | 48 |
| 48.5 | 12 | SS | 18 | 18 | | 67 |
| 50 | | | | | END OF BORING @ 50.0' | |




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

| | | |
|---|---|---|
| WL WS OR WD | BORING STARTED 6/25/03 | |
| WL(AB) WL(AC) 10.0 | BORING COMPLETED 6/25/03 | CAVE IN DEPTH |
| WL | RIG CME550 FOREMAN CL | DRILLING METHOD HSA |