ATTACHMENT 8
GEOTECHNICAL INFORMATION

EARTH ENGINEERING INCORPORATED

Geotechnical Engineers & Geologists

REPORT OF GEOTECHNICAL INVESTIGATION

PROPOSED AMBLER CROSSINGS RESIDENTIAL COMMUNITY

SOUTH CHESTNUT STREET

AMBLER BOROUGH

MONTGOMERY COUNTY, PENNSYLVANIA

Prepared For:

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I. INTRODUCTION AND BACKGROUND

A. PROJECT OBJECTIVE AND SCOPE OF WORK

Earth Engineering Incorporated (EEI) has completed a geotechnical investigation for the proposed Ambler Crossings Residential site located on South Chestnut Street in the Borough of Ambler, Montgomery County, Pennsylvania. A geotechnical investigation was conducted for the proposed development areas. Based on the encountered conditions and the results of the testing performed for the proposed site, EEI has developed geotechnical recommendations for the design and construction of a suitable foundation system. EEI also provides general construction guidelines for the development of the site.

The scope of work for this project included a test boring investigation, test pit investigation, geologic analysis of site conditions, laboratory testing of soil samples, a review of previous investigation, and a geotechnical engineering analysis of the data obtained. This investigation was performed in general accordance with EEI Proposal No. BB-12351. The following report sections present the results of the field and laboratory investigations and document recommendations regarding the geotechnical aspects of this project.

B. EXISTING FEATURES AND PROJECT DESCRIPTION

The proposed development area is located on South Chestnut Street in Ambler Borough, Montgomery County, Pennsylvania. The site is bordered to the north by a commercial property, to the east by a CONRAIL railroad easement, to the south by an industrial property, and to the west by South Chestnut Street. It is the understanding of EEI that the client plans to develop the site into a residential community including two, four-story residential buildings, Building 1 and Building 2, and a one-story community building adjacent to a patio/pool area. According to plans provided by Langan Engineering, the proposed residential buildings will be approximately 18,000 square feet and 16,500 square feet, respectively. The residential buildings are proposed to be constructed in a T-shape orientation with a green area to the south of Building 2. The community building will be approximately 5,000 square feet and is proposed to be located to the south of Building 1. Additionally an in-ground pool and patio is proposed to be constructed to the west of the community center. Based on conversations with the client, it is understood that the residential structures will be 4 stories in height and constructed with full basements.

It is the understanding of EEI that the proposed buildings will be built using conventional steel and masonry construction methods. Preliminary structural loads for these buildings were not available at the time of this report. However, for computation purposes, EEI has assumed that maximum column loads will be on the order of 250 kips and the maximum wall loads will be on the order of 5 kips per linear foot. Should the final loads vary appreciably from these loads, EEI should be notified promptly, so the impact on the recommendations provided within this report can be analyzed.

As depicted on the plan entitled “CONCEPTUAL GRADING PLAN” provided by Langan Engineering, dated 3-28-13; an existing culvert exists in an east-west orientation in the area south of proposed Buildings 1 & 2 and north of proposed community center and pool/patio. It is the understanding of EEI that this culvert is to remain in place during and following the development at the site.

The area of proposed construction was previously occupied by a T-shaped structure that has been partially demolished. In the area of proposed Building 1, the previous structure has been demolished and filled with a combination of structural fill and demolition debris to an approximate elevation of 187.0 feet. In the area of proposed Building 2, the first floor slab and first floor walls from the remnant structure remain in place. It is understood that the remnant structure was partially demolished and the debris was placed within the extent of the portion of the remnant structure that remains in place.

The property was historically investigated and found to have asbestos and asbestos containing soils present at the surface and at depths exceeding 10 feet below ground surface. Historic fill is present at the property which contains arsenic above the applicable residential statewide health standard. The Property is described as an inactive asbestos waste disposal site regulated by National Emissions Standard for Hazardous Air Pollutants (NESHAP) 40 CFR 61.151. These environmental conditions have been documented in the Cleanup Plan dated May 2013 prepared by RT Environmental Services. The PA DEP approved the Cleanup Plan in July 2013.

In general, the grades at the site slope from approximately 193.0 feet at the southern, central portion of the site to approximately 180.0 feet at the northwestern portion of the site. The elevation of the remaining portion of the floor slab from the remnant structure is approximately 177.0 feet.

A topographic map of the site, from the *Topographic Maps of Pennsylvania* series, Ambler Quadrangle, is shown in Plate 1 in the Appendix to this report.

Figure 1: Site Location (Microsoft Corporation 2013)

Based on the plan entitled "CONCEPTUAL GRADING PLAN" provided by Langan Engineering, dated 3-28-13, The proposed Finished Floor Elevation (FFE) of Building 1 and Building 2 is 191.0' and the proposed FFE of the community center is 191.5'. Based on conversations with the client, EEI understands that the residential buildings will be constructed with full-height basements with a basement FFE of approximately 178.0 feet.

II. FIELD INVESTIGATION, OBSERVATIONS, AND DATA

A. PREVIOUS INVESTIGATIONS

1. Previous EEI investigation

A total of thirty (30) test borings, including offsets, were conducted by EEI within the proposed development area for a previous investigation completed for the site. The borings were completed by F.M. & W. Drilling Company of Cinnaminson, New Jersey on January 11 and 12, 2005; by Corcoran Drilling Company of Wayne, Pennsylvania on January 20 and 21, 2005; and by Main Line Drilling Company of Wayne, Pennsylvania on January 27 and 28, 2005. Additional information regarding this investigation can be found in the report entitled "REPORT OF GEOTECHNICAL INVESTIGATION – NICOLET INDUSTRIES – PROPOSED

APARTMENT BUILDINGS" by EEI, dated March 8, 2005. The boring logs from this previous investigation are included as Attachment #2 to this report.

2. Langan Investigation

A total of thirty six (36) geo probes, including offsets, were conducted by Langan Engineering within the proposed development area for a previous investigation completed for the site. The details regarding this investigation were not made available to EEI at the time of this report. However, the borings logs from the investigation completed by Langan Engineering are included as Attachment #2 to this report.

B. FIELD ACTIVITIES AND PROCEDURES

1. Test Borings

A total of twelve (12) test borings, denoted in this report as B-1 through B-12, were conducted for this investigation to obtain geotechnical data within the investigation area of the proposed development at the site. These borings are shown on the *Testing Location Plan* included in the Figures and Drawings section of this report. The borings were completed on February 26 through March 1, 2013 by Uni-Tech Drilling Company, Inc. of Franklinville, New Jersey using a truck-mounted drill rig. Supervision and monitoring of the test boring program was performed by representatives of EEI. The test borings were field located by representatives of EEI using existing features and proposed building plans provided by Langan Engineering. The ground surface elevation at each boring location was estimated based on existing topographic information provided by Langan Engineering.

The borings were advanced using 2-inch outer-diameter, split-barrel (spoon) samplers and 4-¼ inch inner-diameter hollow-stem augers. Split-barrel sampling was conducted with an auto-trip safety hammer. The borings were conducted in accordance with ASTM Standard D1586. Standard Penetration Test (SPT) values were recorded for each sample. The SPT values, which are a measure of soil density and consistency, are the number of blows required to drive the 2-inch outer diameter split-barrel sampler 1 foot using a 140-pound weight dropped 30 inches. The number of blows required to advance the sampler over the 12-inch interval from 6 to 18 inches is considered the "N" value, or the SPT value.

2. Test Pits

A total of seven (7) test pits, denoted as TP-1 through TP-7, were conducted on July 9 through July 10, 2013. These test pits are shown on the *Testing Location Plan* included in the Figures and Drawings section of this report. The test pits were completed by Scott Contractors, Inc. (retained by the client) of Norristown, Pennsylvania, utilizing a Komatsu PC138US track-hoe.

The test pits were conducted under the direction and supervision of Scott Contractors, Inc. The test pit locations were selected and field located by representatives of Scott Contractors, Inc. and the ground surface elevations at the test pit locations were estimated bases on existing topographic information provided by Langan Engineering. Representatives of EEI were present on site and observed the excavation of the test pits.

3. Groundwater Observations

Groundwater measurements were taken in each boring advanced during the subsurface investigation. Groundwater was initially encountered in borings B-1, B-2, B-10, and B-11 at depths ranging from 4.0 to 19.0 feet below existing ground surface at the time of the investigation. Additionally, a groundwater reading was taken in borings B-1, B-2, and B-3 at 24 hours after completion of the borings. The steady-state, or 24-hour groundwater readings, indicated groundwater at depths raging from 10.0 feet to 11.0 feet below the existing ground surface.

Additionally, groundwater was encountered within test pits TP-1, TP-2, and TP-3 at depths ranging from 15.0 feet to 16.0 feet below the existing ground surface. The groundwater readings within the test pits were taken at 24 hours after completion. In general the groundwater readings correspond to an approximate elevation of 178.0 feet. It should be noted that groundwater elevations may fluctuate with daily, seasonal and climatic events.

C. GEOTECHNICAL LABORATORY TESTING

Three (3) sets of classification tests have been conducted on soil samples retrieved from the field investigation. The samples have been tested to confirm visual classifications and assist in determining engineering parameters required for analysis. The tests performed included Particle Size Analysis (ASTM D422), Natural Moisture Content (ASTM D2216), and Atterberg Limits Determination (ASTM D4318). A Unified Soil Classification System (USCS) Group Symbol and ASTM Group Name was assigned to the samples based on the laboratory

testing. The results of these tests can be found in Table I. In addition to the classification tests, one (1) isotropically consolidated undrained triaxial test (ASTM D-4767) and one (1) consolidation (ASTM D-2435) test were also performed on undisturbed samples from the site, the results of which can be found in Table II and Table III. Resultant curves, which graphically and numerically depict the results of the analyses, are included in the Appendix.

TABLE I
LABORATORY RESULTS - CLASSIFICATION

Sample Location	B-5 S-1, S-3	B-8 S-9, S-10	B-12 S-1, S-2
Sample Depth (feet)	0.0' – 6.0'	19.0' – 24.8'	2.0' – 6.0'
Stratum	Demolition FILL	Alluvial Soils	Residual Soils
Atterberg Limits			
Liquid Limit	NP	NP	31
Plastic Limit	NP	NP	20
Plasticity Index	NP	NP	11
Natural Moisture Content (%)	11.5	11.5	24.6
Percent Passing No. 200 Sieve (%)	18.8	19.5	93.6
Unified Soil Classification System (USCS) Group Symbol	SM	SM	CL
ASTM Group Name	Silty SAND with gravel	Silty SAND	Lean CLAY

TABLE II LABORATORY CONSOLIDATION TEST RESULTS	
Boring Identification	B-4
Sample	US-1
Sample Depth	12.0' – 13.5'
Stratum	Magnesia Waste
Atterberg Limits (LL/PL)	73/33
USCS Classification/Description	CH / Fat CLAY
Initial Void Ratio, e_0	2.998
Maximum Past Pressure, p_c (tsf)	0.4
Coefficient of Compression, C_c	1.027
Coefficient of Recompression, C_r	0.012
Average Coefficient of Consolidation, c_v (ft^2/day)	0.95

TABLE III LABORATORY TRIAXIAL TEST RESULTS	
Boring Identification	B-5
Sample	US-1
Sample Depth	18.0' – 20.0'
Stratum	Magnesia Waste
USCS Classification	MH / Elastic SILT with sand
Moisture Content (%)	100.6
Angle of Internal Friction, ϕ (deg)	35.8
Cohesion, c (psf)	0

D. PUBLISHED GEOLOGICAL INFORMATION

According to the Commonwealth of Pennsylvania Topographic and Geologic Survey, Atlas of Preliminary Geologic Maps of Pennsylvania, 1981, Germantown Quadrangle, the site is

situated within an area of the Triassic Period Stockton Formation (Geologic Symbol: Trs). Plate 2, included in the Appendix, shows the location of the site on a geologic map of the area.

As noted in the Commonwealth of Pennsylvania Topographic and Geologic Survey, Engineering Characteristics of The Rocks of Pennsylvania, Fourth (4th) Series, Revised 1982, the Stockton Formation (Trs) is composed of beds of red to purple sandstone, shale, and siltstone, along with light gray to buff-colored arkosic sandstone. The bedding within this formation is typically well developed and thin to flaggy. The fracturing and jointing within this rock type have a blocky pattern. This rock type is moderately resistant to weathering and the overlying soil mantle is typically thin. Moderate porosity and permeability are characteristic of this formation. Ease of excavation ranges from easy in the highly to completely weathered rock, to difficult in the moderately weathered to fresh bedrock. Localized groundwater springs are a common occurrence within the fractured bedrock of the Stockton Formation.

III. INTERPRETATION OF INFORMATION AND DATA

A. STRATIFICATION AND SUBSURFACE CONDITIONS

The samples of soil obtained during the field investigation were examined and visually classified by EEI, both in the field and in the laboratory. EEI has generalized the subsurface profile for the investigated area. EEI encountered two (2) strata consisting of previously placed Existing FILL and three (3) naturally occurring soil strata.

Subsurface profiles, which depict the strata, and other information obtained from the field investigations are presented on the *Boring Profiles,* which are included in the Appendix. Detailed descriptions and data regarding the subsurface conditions are shown on the *Boring Logs,* also in the Appendix. The following subsections provide general descriptions of the materials encountered.

1. Demolition Fill

The material designated as Demolition Fill was likely placed during previous clearing and demolition operations at the site. The Demolition Fill generally consists of sandy silt, silty sand and silty clay with varying amounts of gravel, brick, cinders and ash. As determined by the laboratory testing conducted, the USCS Group Symbol for a representative sample of this material is *SM*. The corresponding ASTM Group Name is *Silty Sand with Gravel*. The material designated as Demolition FILL was encountered from the ground surface within each of the

twelve (12) test pit locations and extends to depths ranging from 1.5 feet to 14.0 feet below existing ground surface.

The SPT (N) values recorded during the sampling of the Demolition Fill range from 2 to 50 blows for 2 inches of penetration. Based on these N values, the relative density of Stratum I ranges from very loose to very dense. Blow counts higher than 50 blows per foot of penetration are likely indicative of large debris situated within the Demolition Fill. Generally, the Demolition Fill exists in a loose to medium dense state. The Demolition Fill was generally encountered in a moist state. The in-situ moisture content for the selected sample of this stratum was from 13.4 percent.

2. Magnesia Fill

The material designated as Magnesia FILL is likely a byproduct of the industry that previously occupied the site. The material designated as Magnesia Fill was visually classified as white to gray sandy silt to silty clay with varying amounts of construction debris. As determined by laboratory testing conducted, the USCS Group Symbols for representative samples of this stratum are CH and MH. The corresponding ASTM Group Names are *Fat Clay,* and *Elastic Silt with Sand,* respectively. Magnesia Fill was encountered beneath the Demolition Fill in borings B-4, B-5, B-6, and B-8 and extended to depths ranging from 14.0 feet to 21.0 feet below the existing ground surface. Magnesia Fill was also encountered beneath the Demolition Fill in test pits TP-1, TP-2, TP-3, TP-4, and TP-5 to depths ranging from 14.0 feet to 19.0 feet below the existing ground surface.

The N values recorded during the sampling of Magnesia Fill range from weight of hammer over 24 inches of penetration to 27 blows per foot of penetration. Based on these N values the relative consistency of the Magnesia Waste ranges from very soft to very stiff. In general the relative consistency of the Magnesia Fill is soft to medium. Magnesia Fill was encountered in a moist to wet state during the field investigation. Laboratory tests indicate that the in-situ moisture content of the Magnesia FILL currently ranges from 64.8% to 111.3%.

3. Stratum I – Alluvial Soils

The soils designated as Stratum I are indicative of alluvial soils deposited by moving waters of a river or stream. Soils identified as Stratum I were encountered in borings B-1, B-2, B-3, B-5, and B-7 either beneath the Demolition Fill or Magnesia Fill and extended to depths ranging from 13.0 feet to 30.0 feet below the existing ground surface. The presence of alluvial

soils at the site is likely due to the site's proximity to the Wissahickon Creek. Organics were identified within this soil layer in the form of remnant topsoil. The stratum designated as Stratum I was visually classified as sandy silt, silty sand, silt, and clayey silt. As determined by the laboratory testing conducted, the USCS Group Symbol for a representative sample of this material is *SM*. The corresponding ASTM Group Name is *Silty Sand*.

The N values recorded during the sampling of this material range from 6 to 44 blows per foot of penetration. Fine-grained components of this soil layer exist in a soft to stiff state while coarser components exist in a medium dense state. Alluvial soils were encountered in a moist state during the field investigation. Laboratory tests indicate that the natural moisture content of the Alluvial Soils is currently 11.5%.

4. Stratum II – Residual Soils

The stratum designated as Residual soils are indicative of completely weathered Stockton formation (Trs) sandstone. The soils designated as Residual Soils were visually classified as silt, silty clay, clayey silt, and fine to coarse sand with varying amounts of gravel. Soils identified as Residual Soils were encountered either beneath Demolition Fill, Magnesia Fill, or Stratum I soils in each boring location with the exception of B-1, B-5, and B-7 and extended to depths ranging from 5.5 feet to 32.0 feet below the existing ground surface. As determined by the laboratory testing conducted, the USCS Group Symbol for a representative sample of this material is *CL*. The corresponding ASTM Group Name is *Lean Clay*.

The N values recorded during the sampling of this material range from 3 to 39 blows per foot of penetration. Based on these N values the relative consistency of the Residual soil ranges from soft to hard, but were generally stiff. Residual soils were encountered in a moist to wet state during the field investigation. Laboratory tests indicate that the natural moisture content of the Residual Soils is currently 24.6%.

5. Weathered Rock

The stratum designated as Weathered Rock is indicative of partially chemically weathered material of the underlying parent Stockton formation (Trs) sandstone. Weathered Rock was visually classified as silty sand and sandy silt with rock fragments. Weathered rock was encountered either beneath Stratum I soils or Stratum II soils in each of the boring locations with the exception of B-2, and extends to depths ranging from 14.3 feet to 38.5 feet below the existing ground surface.

The N values recorded during the sampling of this material range from 35 blows per foot of penetration to 50 blows for 0 inches of penetration. Based on these N values, the relative density of the Weathered rock ranges from dense to very dense. The Weathered Rock was encountered in a moist to wet state during the field investigation.

6. Bedrock

Bedrock was not cored at the site, however based on Pennsylvania Topographic and Geologic Survey, Atlas of Preliminary Geologic Maps of Pennsylvania, 1981, Germantown Quadrangle; the site is situated within an area of the Triassic Period Stockton Formation sandstone. Auger refusal was encountered at each of the twelve (12) boring locations at depths ranging from 14.3 feet to 38.5 feet below the existing ground surface. Auger refusal is defined herein as the drilling equipment encountering the moderately weathered to fresh bedrock surface. The depth to bedrock and the corresponding elevations can be found in Table IV.

TABLE IV
DEPTH TO BEDROCK

Boring Location	Depth to Bedrock[(1)](ft)	Elevation of Bedrock[(2)](ft)
B-1	22.0	166.0
B-2	23.0	166.0
B-3	19.5	169.5
B-4	34.6	159.4
B-5	38.5	155.5
B-6	29.5	163.5
B-7	29.5	160.5
B-8	30.4	158.6
B-9	19.4	168.6
B-10	14.3	165.7
B-11	18.5	161.5
B-12	16.0	164.0

1.) The depth is relative to existing grade at the time of the investigation. All depths indicate auger refusal.
2.) The ground surface elevations were estimated based on existing grade information provided by Langan Engineering.

IV. GEOTECHNICAL RECOMMENDATIONS

A. GEOTECHNICAL ANALYSES

EEI has completed a geotechnical analyses in order to provide foundation design recommendations. The analyses are based on the conditions encountered in the field and

laboratory analyses. EEI has evaluated the subsurface conditions and provides the following soil parameters utilized for foundation analyses in the Table V.

TABLE V
GEOTECHNICAL SOIL PROPERTIES

Stratum	Demolition Fill	Magnesia Fill	Stratum I	Stratum II	Weathered Rock
Moist Unit Weight - γ_m (pcf)	120	100	120	120	125
Effective Stress Angle of Internal Friction - ϕ' (deg)	28	24	32	30	34
Cohesion – c (psf)	0	0	0	0	0

As previously discussed, the lower level Finished Floor Elevation (FFE) is expected to be 178.0 feet for the residential buildings and the FFE for the community center and the patio/pool area is expected to be 191.5 feet. The resultant Bottom of Footing Elevation (BFE) should be a minimum 3 feet below adjacent, exterior finished grade.

B. DEMOLITION OF EXISTING FEATURES

As was previously mentioned, the buildings that previously occupied the site have since been demolished. However, site development will involve the demolition and removal of remaining foundation walls and slabs. This material generated from the demolition activities is expected to be available to be processed for reuse as structural fill material, as discussed in the FILL AND COMPACTION subsection of this report. As previously mentioned, EEI understands that an existing underground culvert exists immediately to the south of proposed Building 2 and will remain intact during and following site development. With the exception of this culvert, any additional relic structures or foundations encountered during site development should be removed. Any underground utilities encountered within bearing zones of structural elements should also be removed and/or relocated.

Where backfilling of the demolition areas are required, it should be performed in accordance with the FILL AND COMPACTION subsection of this report. Backfilling procedures should be inspected and tested by a qualified representative of the Geotechnical Engineer of Record.

C. FOUNDATION SUPPORT RECOMMENDATIONS

1. Proposed Building # 1

EEI has evaluated the bearing and settlement for the proposed Building 1 based upon the encountered subsurface conditions and estimated foundation loads. Generally, in the area of proposed Building 1, 7.5 feet to 14.0 feet of existing Demolition FILL material was encountered below existing ground surface. The Demolition FILL is underlain by Alluvial Soils (Stratum I) and Residual Soils (Stratum II), which are ultimately underlain by Sandstone bedrock of the Triassic Period Stockton Formation (Geologic Symbol: Trs). Groundwater has been identified at approximate elevation 178.0 feet.

It is understood that proposed Building 1 will be constructed with a first floor FFE of 191.0 feet, as depicted on the plan entitled "Conceptual Grading Plan", by Langan Engineering, dated 3-28-13. Based on conversations with the client, EEI understands that Building 1 will be constructed with a basement that has an FFE of 178.0 feet. Therefore, it is anticipated that the foundations will bear at an approximate elevation of 176.0 feet. As depicted on the *Boring Profiles*, shallow foundations in the area of Building 1 would bear within existing Demolition FILL or loose Stratum I soils. Due to the variable nature of this soil, EEI recommends that all existing Demolition FILL below proposed bottom of footing elevation be removed and replaced with structural fill in accordance with the FILL AND COMPACTION section of this report. In addition to the removal of the Demolition FILL, EEI also recommends that all loose Stratum I soils be removed and replaced in accordance with the FILL AND COMPACTION section of this report. Alternatively, foundation elements may be lowered to bear on suitably dense naturally occurring soils. Based on the borings completed for this investigation, it is anticipated that the Demolition FILL and loose Stratum I soils will extend as deep as 15.0 feet below the existing ground surface; corresponding to approximate elevation 174.0 feet. A proof-rolling program consisting of passing a smooth drum vibratory roller, with a minimum static weight of 10 tons, over the bearing soils to identify yielding or undulating soils should be implemented. Insufficient bearing soils should be identified by a qualified representative of the Geotechnical Engineer of Record and removed. Backfilling with structural fill should be consistent with the FILL AND COMPACTION section of this report.

Due to the close proximity of the southeast corner of proposed Building 1 to the existing culvert that runs in an east-west orientation between proposed Building 1 and the proposed community center, EEI recommends that foundation elements on the southern portion of

Building 1 be lowered to an elevation at or below the invert elevation of the culvert. According to the existing conditions drawing (unnamed and undated), by Langan, the culvert has an invert elevation of 173.72 feet. It should be anticipated that the proposed foundations along the southern portion of Building 1 should bear at an elevation at or below 173.0 feet. Alternatively, the culvert may be relocated to a minimum of 10 feet outside of the proposed building area. Once the culvert has been relocated out of the bearing zone of the proposed building foundation, the footings may be constructed at the proposed elevation of 176.0 feet.

Following the recommended removal of the existing Demolition FILL and loose Stratum I soils, EEI recommends that the proposed building be supported by shallow strip and spread foundations with slab on grade. Shallow foundations may be designed for an allowable bearing capacity of 4,000 psf. Structural loads were not available at the time of this report. However, EEI has assumed a maximum column load of 250 kips and a maximum wall load of 5 kips per linear foot. Based on these estimated loads and bearing on suitably dense naturally occurring soils or properly placed structural fill, EEI has estimated total and differential settlements to be less that ¾ inch and ½ inch, respectively. Should the final loads vary appreciably from these loads, EEI should be notified promptly, so the impact on the recommendations provided within this report can be analyzed.

EEI provides the following specifications to be used in the foundation and floor slab design. These specifications are based on the assumption that recognized, proper construction practices will be followed throughout construction and that a Professional Engineer qualified in Geotechnical Engineering will be retained to oversee the inspection of site preparation, proof-rolling, foundation construction, and other critical earthwork operations.

1. Foundations shall bear on suitably dense Stratum I soils, Stratum II soils, or structural fill at least 36 inches below exterior grade. Foundations shall not bear on loose/soft or wet soils. Bearing in the soils specified above, the foundations should be designed for an allowable bearing capacity of 4,000 pounds per square foot.
2. Soils that are loose/soft or wet and are encountered at the footing bottom elevation should be densified in place if their moisture content is suitable; otherwise, inadequate soils should be undercut to suitable bearing materials and replaced with structural fill or lean concrete. Alternatively, the foundation base can be lowered to a suitable soil-bearing elevation.
3. Strip and spread foundations shall be a minimum of 18 and 36 inches wide, respectively, for shear considerations.
4. All foundation and slab subgrades should be compacted with hand-operated compaction equipment (e.g., a rammer or “jumping jack”) or with a vibratory, walk-behind, trench

roller or a smooth roller (e.g., Rammax, Wacker, or Bomag equipment) in accordance with the EXCAVATIONS and FILL & COMPACTION sections of this report.

5. All footing bottoms should be dry and completely cleaned of loose material or debris immediately before the placement of concrete.
6. The actual bearing conditions of the soil at the footing bottom elevation should be confirmed in the field during excavation, by inspection under the supervision of a Professional Engineer qualified in Geotechnical Engineering.
7. A minimum 4-inch layer of clean aggregate (e.g., AASHTO #57) should be placed beneath the floor slabs.
8. The floor slab shall be designed with a modulus of subgrade reaction value of 150 psi/in.
9. A permanent drainage system consisting of footing drains and under-slab drains is recommended to be incorporated into the design in accordance with the BASEMENT WATERPROOFING, DAMPPROOFING, AND DRAINAGE section of this report.

2. Proposed Building # 2

EEI has evaluated the bearing and settlement for the proposed Building 2 based upon the encountered subsurface conditions and estimated foundation loads. Generally, in the area of proposed Building 2, an existing building foundation and portions of the associated building walls currently occupy the area. In three (3) of the four (4) borings, B-4, B-5, and B-8, completed in the area of proposed Building 2, 5.0 feet to 8.5 feet of existing Demolition FILL material was encountered below existing ground surface. In the same three (3) borings the Demolition FILL is underlain by Magnesia FILL to depths ranging from 14.0 feet to 21.0 feet below the existing ground surface. In the one (1) remaining boring, B-11, completed in the area of proposed Building 2, Alluvial Soil (Stratum I), visually classified as silty clay to clayey silt with fine sand, was encountered to a depth of 8.0 feet below an existing 5 inch thick concrete slab. The Alluvial soil (Stratum I) is underlain by Residual Soil (Stratum II) to a depth of 18.5 feet below existing ground surface, where auger refusal was encountered. Groundwater has been identified at approximate elevation 178.0 feet.

It is understood that proposed Building 2 will be constructed with a first floor FFE of 191.0 feet, as depicted on the plan entitled “Conceptual Grading Plan”, by Langan Engineering, dated 3-28-13. Based on conversations with the client, EEI understands that proposed Building 2 will be constructed with a basement that has an FFE of 178.0 feet. Therefore, it is anticipated that the foundations will bear at an elevation of 176.0 feet. As depicted on the *Boring Profiles*, shallow foundations in the area of proposed Building 2 would bear within existing Magnesia FILL or soft/loose Stratum I or Stratum II soils. It has been determined that bearing within the

Magnesia FILL or soft/loose Stratum I or Stratum II soils will result in excessive settlement. Therefore, EEI recommends that all existing Magnesia FILL below proposed bottom of footing elevation be removed and replaced with structural fill in accordance with the FILL AND COMPACTION section of this report. In addition to the removal of the Demolition FILL, EEI also recommends that all soft/loose Stratum I or Stratum II soils be removed and replaced in accordance with the FILL AND COMPACTION section of this report. Alternatively, foundation elements may be lowered to bear on suitably dense naturally occurring soils. Based on the borings completed for this investigation, it is anticipated that the existing Magnesia FILL and soft/loose Stratum I or Stratum II soils will extend as deep as 22.5 feet below the existing ground surface; corresponding to approximate elevation 171.5 feet. A proof-rolling program consisting of passing a smooth drum vibratory roller, with a minimum static weight of 10 tons, over the bearing soils to identify yielding or undulating soils should be implemented. Insufficient bearing soils should be identified by a qualified representative of the Geotechnical Engineer of Record and removed. Backfilling with structural fill should completed in accordance with the FILL AND COMPACTION section of this report.

Additionally, portions of the existing building walls are retaining Magnesia FILL, particularly on the southern portion. The Magnesia FILL on the southern portion of the existing foundation and associated walls was encountered to depths extending up to 21.0 feet below the existing ground surface, corresponding to an approximate elevation of 173.0 feet. In addition to the removal of the existing Magnesia FILL, it is understood that the southern wall and foundations of the existing structure will need to be removed. Therefore, it should be noted that the excavation on the south side of the existing structure will require proper shoring be installed to retain the Magnesia FILL during the construction activities. Alternatively, the excavation may be sloped or benched to prevent collapse during soil excavation and during construction. Sloping or benching of all construction excavation should be conducted in accordance with 29 CFR 1926, Subpart P. A competent person as defined by the aforementioned regulation is required to confirm the stability of all excavations during construction. The actual excavation wall slopes or benching should be determined in the field and should be based on the required depth of excavations and on the soil types encountered. It should be noted that installation of shoring will retain the existing Magnesia FILL and minimize the amount of excavated material required to achieve suitable subgrade elevations.

Following the recommended removal of the existing Magnesia FILL and loose/soft Stratum I or Stratum II soils, EEI recommends that the proposed building be supported by

shallow strip and spread foundations with slab on grade. Shallow foundations may be designed for an allowable bearing capacity of 4,000 psf. Structural loads were not available at the time of this report. However, EEI has assumed a maximum column load of 250 kips and a maximum wall load of 5 kips per linear foot. Based on these estimated loads and bearing on suitably dense naturally occurring soils or properly placed structural fill, EEI has estimated total and differential settlements to be less that ¾ inch and ½ inch, respectively. Should the final loads vary appreciably from these loads, EEI should be notified promptly, so the impact on the recommendations provided within this report can be analyzed.

EEI provides the following specifications to be used in the foundation and floor slab design. These specifications are based on the assumption that recognized, proper construction practices will be followed throughout construction and that a Professional Engineer qualified in Geotechnical Engineering will be retained to oversee the inspection of site preparation, proof-rolling, foundation construction, and other critical earthwork operations.

1. Foundations shall bear on suitably dense Stratum I soils, Stratum II soils, or structural fill at least 36 inches below exterior grade. Foundations shall not bear on loose/soft or wet soils. Bearing in the soils specified above, the foundations should be designed for an allowable bearing capacity of 4,000 pounds per square foot.
2. Soils that are loose/soft or wet and are encountered at the footing bottom elevation should be densified in place if their moisture content is suitable; otherwise, inadequate soils should be undercut to suitable bearing materials and replaced with structural fill or lean concrete. Alternatively, the foundation base can be lowered to a suitable soil-bearing elevation.
3. Strip and spread foundations shall be a minimum of 18 and 36 inches wide, respectively, for shear considerations.
4. All foundation and slab subgrades should be compacted with hand-operated compaction equipment (e.g., a rammer or “jumping jack”) or with a vibratory, walk-behind, trench roller or a smooth roller (e.g., Rammax, Wacker, or Bomag equipment) in accordance with the EXCAVATIONS and FILL AND COMPACTION sections of this report.
5. All footing bottoms should be dry and completely cleaned of loose material or debris immediately before the placement of concrete.
6. The actual bearing conditions of the soil at the footing bottom elevation should be confirmed in the field during excavation, by inspection under the supervision of a Professional Engineer qualified in Geotechnical Engineering.
7. A minimum 4-inch layer of clean aggregate (e.g., AASHTO #57) should be placed beneath the floor slabs.
8. The floor slab shall be designed with a modulus of subgrade reaction value of 150 psi/in.

9. A permanent drainage system consisting of footing drains and under-slab drains is recommended to be incorporated into the design in accordance with the BASEMENT WATERPROOFING, DAMPPROOFING, AND DRAINAGE section of this report.

3. Proposed Community Center; Patio; and Pool Area

EEI has evaluated the bearing and settlement for the proposed Community Center Building, proposed Patio, and proposed Pool area based upon the encountered subsurface conditions and estimated foundation loads. Generally, in the area of the proposed Community Center Building, proposed patio, and proposed Pool area, approximately 14.0 feet of existing Demolition FILL and existing Magnesia FILL material was encountered below existing ground surface. The existing Demolition FILL and existing Magnesia FILL materials are underlain by Alluvial Soils and Residual Soils, which are ultimately underlain by Sandstone bedrock of the Triassic Period Stockton Formation (Geologic Symbol: Trs). Groundwater has been identified at approximate elevation 178.0 feet.

It is understood that the proposed Community Center will be constructed with a first floor FFE of 191.5 feet, as depicted on the plan entitled “Conceptual Grading Plan”, by Langan Engineering, dated 3-28-13. The resultant Bottom of Footing Elevation (BFE) should be a minimum 3 feet below adjacent, exterior finished grade. As depicted on the *Boring Profiles*, shallow foundations in the area of the proposed Community Center would bear within existing Demolition FILL or existing Magnesia FILL. It has been determined that bearing within the existing Demolition FILL or Magnesia FILL would result in excessive settlement. Therefore, EEI recommends that a deep foundation system consisting of helical piers and grade beams be utilized to support the foundations for the Community Center and the swimming pool.

Helical piers are torque-driven anchors that are screwed into the ground down to suitable load-bearing soils. Each pier consists of a lead section, which has one or more load-bearing helical plates, and one or more extension shaft sections. The uppermost shaft section will have a bracket connected to it, and the foundation will be structurally connected to the bracket. This system would also require spanning grade beams, pier caps, and a structural slab for the proposed pool. Due to the unstable structural characteristics of the existing Demolition FILL and the existing Magnesia FILL, EEI recommends that the foundation designs incorporate a structural slab for the proposed pool to transfer the loads to the piers. The piers would be attached to one another with steel-reinforced concrete grade beams, which span the distances between the piers. The grade beams will support the pool slab and transfer the structural loads to the piers, which will, in turn, transfer the structural loads to stable load-bearing soils. The

helical pier system will limit structural settlements to acceptable tolerances and will provide adequate load-bearing performance.

Because the existing FILL materials are considered unsuitable for support of the foundations and slab, the lead sections of the piers must pass through the existing FILL materials such that they will be anchored into suitably dense, load-bearing natural soils. There exists some potential for obstructions to be within the existing fill FILL; consequently, predrilling may be necessary for some pier locations before installation of the pier, which is a process that would increase installation costs. Spoils from possible predrilling activities may require proper disposal or placement in other locations on the site. The spoils should be placed in nonstructural areas of the site or removed from the site in a proper manner. EEI expects the installation of helical piers to produce a manageable amount of drilling spoils.

EEI recommends that the installation of the piers be performed by a certified helical pier installer. The bearing capacity of each pier should be verified during construction through measurement of the torque applied to the pier during installation. The working loads of the piers should be correlated with an applied torque that is measured at the drive head of the installation equipment through shear pins and/or torque-monitoring instrumentation.

The load capacity for a pier is strongly dependant upon the method of installation and the type of helical pier configuration. Installation using conventional, backhoe-mounted equipment is preferable for areas where access by the backhoe is possible. EEI recommends that the helical pier manufacturer/installer be consulted on the diameter, shaft size, and configuration of the shaft and helical plates so that the required load-bearing capacities will be achieved. The manufacturer should provide product data that substantiate the use of the chosen helical pier configurations. Suitable bearing depths of the piers should be evaluated in the field during construction by an experienced installation contractor and by a qualified, on-site, representative of the Geotechnical Engineer of Record.

The following recommendations for a foundation system and bearing capacities are based on a geotechnical engineering analysis of the data obtained during the investigation and on the assumption that the recommendations presented herein will be followed.

1. A deep foundation system consisting of helical piers, pier caps, and spanning grade beams may be utilized for adequate support of the Community Center foundations and the pool foundations and slab.
2. EEI has anticipated that the helical piers will be designed for working (allowable) load capacities of 20 kips per pier. Should areas of higher load concentrations requiring higher pier capacities become evident, the pier capacities can be reviewed at that time.

3. For pricing purposes EEI has estimated the required lengths of the helical piers to be approximately 25 feet with a three-helix orientation with diameters of 8 inches, 10, inches, and 12 inches. The final size, orientation, and capacity should be designed by a specialty helical pier contractor.
4. Design of the helical pier caps and the slab should be in accordance with local building codes. The pier caps should be designed to uniformly transfer load to the piers.
5. The pier caps and/or grade beams should be placed at least 3 feet below the final exterior grade for protection from frost heave.
6. Due to the possibility for encountering obstructions within the existing FILL, contingency plans should be made for predrilling of the planned pier locations. Piers must extend through the FILL materials into competent load-bearing natural soils.
7. Installation of the helical piers should be observed and supervised by a Professional Engineer registered in the Commonwealth of Pennsylvania and qualified in geotechnical engineering.
8. The credentials of the installation contractor and the planned construction procedures should be reviewed and approved by the Geotechnical Engineer of Record before a notice to proceed is issued.

Alternatively, all existing Demolition FILL and existing Magnesia FILL below proposed bottom of footing elevation may be removed and replaced with structural fill in accordance with the FILL AND COMPACTION section of this report. EEI anticipates that the existing FILL materials extend to depths ranging from approximately 14.0 feet to 15.0 feet below the existing ground surface. The excavation would extend to an elevation of approximately 175.0 feet. The removal of weak existing FILL materials would extend to approximately 15.5 feet below the proposed FFE of the Community Center. By completing the removal of the existing FILL materials in these areas, a significant amount of unsuitable, potentially contaminated soil would be generated. Therefore, EEI does not believe that this will be the most economically efficient option.

4. Pavement Areas and Green Areas

As depicted on the plan entitled “CONCEPTUAL GRADING PLAN” by Langan Engineering, dated 3-28-13; portions of the proposed paved drive lanes and paved parking lots will be constructed in areas underlain by existing Demolition FILL and existing Magnesia FILL. Therefore, EEI recommends that two feet of structural fill be placed in accordance with the FILL AND COMPACTION section of this report beneath the subbase stone associated with the pavement profile. In areas that require a cut to achieve proposed subgrade elevation within the existing Magnesia FILL, an undercut should be completed to a depth of two feet below

proposed subgrade elevation and replaced with structural fill as previously mentioned. In areas where three feet of structural fill or more is required to reach proposed subgrade elevation, settlement in excess of 1 inch is possible. Therefore EEI recommends that, any portions of the proposed pavement areas requiring three feet or more of structural fill, settlement plates be installed and monitored for a period of time sufficient for determining that settlement is not ongoing. Monitoring areas that will require fills of three feet or larger will reduce the risk of cracking of the pavement due to settlement.

Additionally, it is anticipated that a fill up to 11 feet will be required to achieve proposed grades for the parking area to be constructed to the north of proposed Building 2. From conversations with the client EEI understands that a soil mixing program will be implemented with excavated Magnesia FILL and Portland Cement; to be implemented by others. It is understood that a test mixing program has been performed by others to determine the required amount of Portland Cement to create a structural fill with sufficient strength to support the proposed parking area and drive lanes. It should be noted that EEI has not provided any mixing parameters or additive quantities for the soil mixing to be completed for the proposed northern parking areas. Additionally, EEI has not performed any laboratory testing on the samples previously created to determine strength parameters. EEI can assist in determining the strength parameters of samples of the proposed mix design if requested by the client.

According to the aforementioned “CONCEPTUAL GRADING PLAN”, fills up to 4 feet may be required within the green areas proposed at the site. Consequently, settlement in excess of 1 inch is possible as a result of the increased weight to be placed above existing weak Magnesia FILL. Therefore, EEI recommends that settlement plates be installed in the green areas that require these larger fills and monitored for a time period sufficient for determining that settlement is not ongoing.

D. FLOOR SLAB SUPPORT

EEI recommends the floor slabs for the proposed structures, with the exception of the pool area (previously discussed), are designed as a slab-on-grade system, and the subgrade should be prepared in accordance with the procedures described in this report. EEI recommends the placement of a granular subbase beneath the floor slabs to provide uniform support distribution between the subgrade soils and the base of the concrete slab. It is recommended that a minimum of six (6) inches of crushed stone aggregate, such as AASHTO #57 or equivalent, be placed and compacted beneath all floor slab areas. The floor slabs

should be suitably reinforced to control shrinkage cracks. Proper joints should be provided at the junction of the slabs and foundation system so that a small amount of independent movement can occur without causing damage.

Floor slabs may be supported on suitably dense Stratum I soils, Stratum II soils, or structural fill placed and compacted over approved subgrade soils in accordance with the FILL AND COMPACTION section of this report. During SITE PREPARATION, localized areas may require removal of unsuitable soils and replacement with compacted structural fill or excavation, drying, aeration and replacement in a controlled manner. Following these procedures, the resultant product should be a uniform bearing surface for slab support that will provide adequate structural support and limit settlement. The earthwork procedures described herein should be monitored and inspected by a representative of the Geotechnical Engineer of Record.

E. SITE PREPARATION

Concrete, asphalt, subbase, and topsoil should be removed from the development area to expose the soils at the construction subgrade elevations. The subgrade should be proof-rolled and compacted in order to densify and verify the integrity of the subgrade bearing materials. EEI recommends that a smooth drum vibratory roller having a minimum static weight of 10 tons be utilized for this purpose. Areas that cannot be accessed by this sized equipment should be densified and compacted by use of walk-behind or hand operated equipment. The proof-rolling and compaction activities should be observed and evaluated during construction by the on-site representative of the Geotechnical Engineer of Record. Any soft zones of encountered during proof-rolling should be removed and replaced with structural fill as described in the FILL AND COMPACTION subsection of this report.

The site should be graded during construction to convey surface runoff away from active work areas. The work areas should be sealed by rolling on a daily basis to promote runoff. Careful grading and management of surface water runoff will help minimize disturbance of the subgrade. EEI recommends that all construction areas, including those that will be excavated to achieve the planned subgrade elevation, be proof-rolled immediately before the placement of any structural fill and/or the placement of subbase stone, and again before the installation of concrete or asphalt. Such preparations will allow soft and weak areas to be observed and remediated before construction.

F. LATERAL EARTH PRESSURES

The lateral earth pressures that may be used for designing below grade walls and for retaining walls, if necessary, are shown in Table VI. Retaining walls that are restrained from deflection should be designed for the at-rest (K_o) condition. Retaining walls that are free to deflect, such as landscaped walls, should be designed for the active (K_a) condition. Considered somewhat conservative, the earth pressure data for the on-site material was determined from the soil classification testing and visual classification of the soil samples and was compared to generally accepted and published values for the various properties. EEI recommends additional laboratory testing, namely a direct shear test (ASTM D3080), be conducted on representative soils if CMU retaining walls are proposed for the site. The results of this test may provide more aggressive soil parameters to be used in retaining wall design, which may effectively reduce retaining wall cost.

EEI recommends that a drainage system be installed for walls constructed below grade. The presence of a drainage system will serve to minimize hydrostatic pressures caused by water trapped against the walls. If adequate drainage is not provided, the walls should be designed to resist hydrostatic loads. Additionally, consideration should be given to any surcharge loads at the top of walls.

TABLE VI
SOIL PROPERTIES FOR COMPUTATION OF LATERAL LOADS

Stratum	Demolition FILL	Magnesia FILL	Stratum I	Stratum II	Weathered Rock
Effective Stress Angle of Internal Friction - ϕ'	28°	24°	32°	30°	34°
Moist Unit Weight - γ_m	120 pcf	100 pcf	120 pcf	120 pcf	125 pcf
Rankine Coefficient of Active Earth Pressure - K_a	0.36	0.42	0.31	0.33	0.28
Rankine Coefficient of Passive Earth Pressure - K_p	2.77	2.37	3.25	3.00	3.54
Rankine Coefficient of At-Rest Earth Pressure - K_o	0.53	0.59	0.47	0.50	0.44
Coefficient of Sliding	0.37	0.31	0.44	0.40	0.47

G. EXCAVATIONS

Based on the proposed grades provided by Langan Engineering and the subsurface profiles, EEI expects that foundation excavations will occur within the existing Demolition FILL, existing Magnesia FILL, Stratum I soils, and Stratum II soils at the site. EEI anticipates that the existing Demolition FILL, existing Magnesia FILL, Stratum I soils, and Stratum II soils should be capable of being excavated with conventional earth excavation equipment and techniques. It should be noted that large debris may be encountered within the existing FILL. Additionally, portions of Stratum I are very dense. Therefore, these strata may require the use of a late-model, high power trackhoe in lieu of a standard backhoe. It is not expected that bedrock will need to be excavated to reach the proposed construction subgrades.

Excavations must be sloped, benched, or shored to prevent collapse during soil excavation and during construction, as previously discussed. Sloping, benching, or shoring of all construction excavation should be conducted in accordance with 29 CFR 1926, Subpart P. A competent person as defined by the aforementioned regulation is required to confirm the stability of all excavations during construction. The actual excavation wall slopes, benching, or shoring should be determined in the field and should be based on the required depth of excavations and on the soil types encountered. Care should be taken during construction to protect existing adjacent structures and utilities from undermining.

H. FILL AND COMPACTION

1. Fill Criteria

Fill material used to support and backfill foundations as well as fill for retaining walls is considered structural fill. Based on field observations it appears that portions of the existing Demolition FILL is generally suitable for reuse as a structural fill material, provided that large debris and all deleterious is removed prior to placement. Based on field observations it appears that Stratum I soils and Stratum II soils are generally suitable for use as structural fill in their current conditions. As previously discussed, the existing Magnesia FILL does not appear to be suitable for reuse as structural fill in its current condition. If any structural fill is required to be **imported** to the site, it should meet the following criteria:

- it should be free of organic matter, ash, cinders, frozen materials, and demolition debris,
- the plasticity index should be less than 10,

- it should be less than 15 percent by weight rock fragments larger than 3 inches, less than 30 percent by weight larger than ¾ inches, and less than 30 percent by weight smaller than the No. 200 sieve.
- meets the definition of clean fill according to PADEP Management of Fill Policy, Document Number 258-2182-773.

The above criteria are provided as a general guideline for soil materials imported to the site. Soil materials that become available for use as a structural fill should be submitted to the Geotechnical Engineer of Record for evaluation before they are imported to the site.

2. Compaction Criteria

Structural fill should be placed in horizontal lifts not exceeding 8 inches in loose thickness and compacted with a smooth drum vibratory roller with a minimum static weight of 10 tons. Structural fill should be placed in horizontal lifts of 6 inches loose thickness where compaction by hand-operated equipment is necessary. The optimum lift thickness and number of repetitions necessary to achieve the required percentage compaction values should be determined in the field with test passes of the chosen compaction equipment. The fill material should be placed at, or deviate nominally from, the optimum moisture content as determined in accordance with ASTM D698 and compacted to a minimum percentage of the maximum dry density as indicated in Table VII.

TABLE VII
COMPACTION CRITERIA

Fill Area	Percent of Maximum Dry Density Per ASTM D698	Moisture Content Range from Optimum Moisture Per ASTM Standard D-698
Foundation Support, and Wall Backfill	98	+/- 2%
Utility Trenches and Walkways	95	+/- 2%
Nonstructural	92	+/- 3%

I. GROUNDWATER CONTROL

As previously mentioned, groundwater was encountered at an approximate elevation of 178.0 feet. Based upon the field observations and the proposed construction, the presence of groundwater should be anticipated during excavations, particularly during wetter months or periods of prolonged precipitation. Further, more focused and longer-term investigations may be completed at the site to evaluate the presence of groundwater across the site. Also, the

contractor should be advised that they may conduct their own investigations to verify the groundwater elevations prior to excavating at the site.

EEI anticipates that groundwater that is encountered during excavations should be controllable using diversion ditches, sump pits, and pumps. However, it should be anticipated that portions of the development area may require additional dewatering techniques, such as the installation of well points, to control groundwater during construction. Surface water and groundwater may enter open excavations. The dewatering process will be critical to the proper development of the site. Excavations expected to extend close to or below the groundwater table should not be advanced without the proper dewatering system in place. Failure to incorporate a proper dewatering program will likely result in deeper undercuts and larger scale soils exchanges. Dewatering should be based on standard practices and on the flows encountered at the time of construction. The final number and positioning of pumps required to de-water the excavation should be made by the contractor, subject to review by the Geotechnical Engineer of Record.

J. BASEMENT WATERPROOFING, DAMPPROOFING, AND DRAINAGE

Based on the findings of the geotechnical investigation, hydrostatic pressures, due to groundwater, may develop adjacent to subsurface walls and beneath slabs within proposed Building 1 and proposed Building 2. Consequently, subsurface walls should be waterproofed in accordance with the International Building Code (IBC 2009) Section 1805.3.

Construction of the proposed building should incorporate a permanent drainage system consisting of perimeter foundation drains and floor slab under-drains due to groundwater and site drainage issues. The perimeter drain should consist of a perforated pipe, surrounded by clean granular aggregate (such as PADOT #2B, AASHTO #57) and wrapped in a geotextile filter/drainage fabric. The under-slab drainage system should consist of a minimum of a layer of clean granular aggregate (such as PADOT #2B, AASHTO #57) with major collector pipes and perforated lateral pipes placed in the granular aggregate, wrapped in a geotextile filter/drainage fabric. The need to incorporate permanent drainage elements should be further evaluated after the site design has been finalized, and should also be carefully considered during initial earthwork operations on site. If future investigations at the site further define the groundwater surface, and subsequently hydrostatic pressures are not anticipated to affect basement walls or slabs, then below grade walls and floors should at a minimum be damp proofed in accordance with IBC 2009, Section 1805.

Based on the findings of the geotechnical investigation, hydrostatic pressures, due to groundwater, are not anticipated to develop adjacent to the subsurface walls or beneath slabs within the areas of the proposed Community Center or proposed Pool area. Consequently, in accordance with the International Building Code (IBC 2009) Section 1805, below grade walls and floors should at a minimum be damp-proofed. Damp-proofing for floors shall consist of not less than 6-mil (0.006 inch) polyethylene with joints lapped not less than 6 inches. Additionally, a base consisting of at least 4 inches of gravel or crushed stone containing not more than 10 percent of material that passes through a No. 4 (4.75mm) sieve should be placed under the lowest level floor. Damp-proofing materials for walls shall be installed on the exterior surface of the wall and shall extend from the top of the footing to above the ground level in accordance with IBC 2009 Section 1805.2.2.

K. SITE SEISMIC CLASSIFICATION

According to the 2009 International Building Code IBC Section 1613.5.5 Site Classification for Seismic Design and the information obtained from the geotechnical field investigation, the average properties in the top 100 feet correspond to Site Class D. Therefore, Site Class D conditions should be applied for the seismic design of the proposed structures.

L. CONSTRUCTION QUALITY CONTROL

As documented within this report, the proposed construction will include earthwork procedures and foundation placement activities. The quality of these activities is an integral part of the development of this site and directly affects the validity of the recommendations presented in this report. Based on EEI's past experience, the most effective and economical earthwork inspection is obtained through the presence of a qualified representative of the Geotechnical Engineer of Record during site preparation, excavation of on-site materials, site development, proof-rolling, placement of structural fill, and installation of foundation elements. EEI recommends that these activities be examined, tested, and confirmed by the Geotechnical Engineer of Record.

M. LIMITATIONS

The conclusions and recommendations presented in this report are based on the subsurface data collected, details stated in this report, and the assumption that the subsurface conditions do not deviate from those disclosed by the data acquisition activities performed. It is

recommended that the final foundation plans be made available to EEI for review. Any substantial change in the proposed plans should be brought to the attention of EEI so that the impact of the change on the recommendations presented herein may be evaluated.

The procedures followed during the subsurface exploration, and the analyses and conclusions contained herein, have followed generally accepted practices of geotechnical engineering. EEI provides no other warranties, either expressed or implied, as to the professional advice provided under the terms of EEI's agreement and included in this report. The conclusions and recommendations presented in this report are based on the assumption that recognized, proper construction practices will be followed throughout construction and that a Professional Engineer qualified in Geotechnical Engineering will be retained to oversee the inspection of site preparation, proof-rolling, foundation construction, and other critical earthwork operations. If subsurface conditions substantially deviate during construction from those described in this report, EEI should be contacted promptly.

EEI emphasizes that geotechnical analyses made in this report are for the proposed development at the Ambler Crossings Residential site located on South Chestnut Street in the Borough of Ambler, Montgomery County, Pennsylvania. EEI does not assume any responsibility for the use of this report in generating a foundation design for a site other than the one specifically addressed in this report.

Respectfully submitted,
EARTH ENGINEERING INCORPORATED

David P. McGuire
Project Manager

Patrick McNamara, P.E
Director, Geotechnical Investigations

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FIGURES AND DRAWINGS

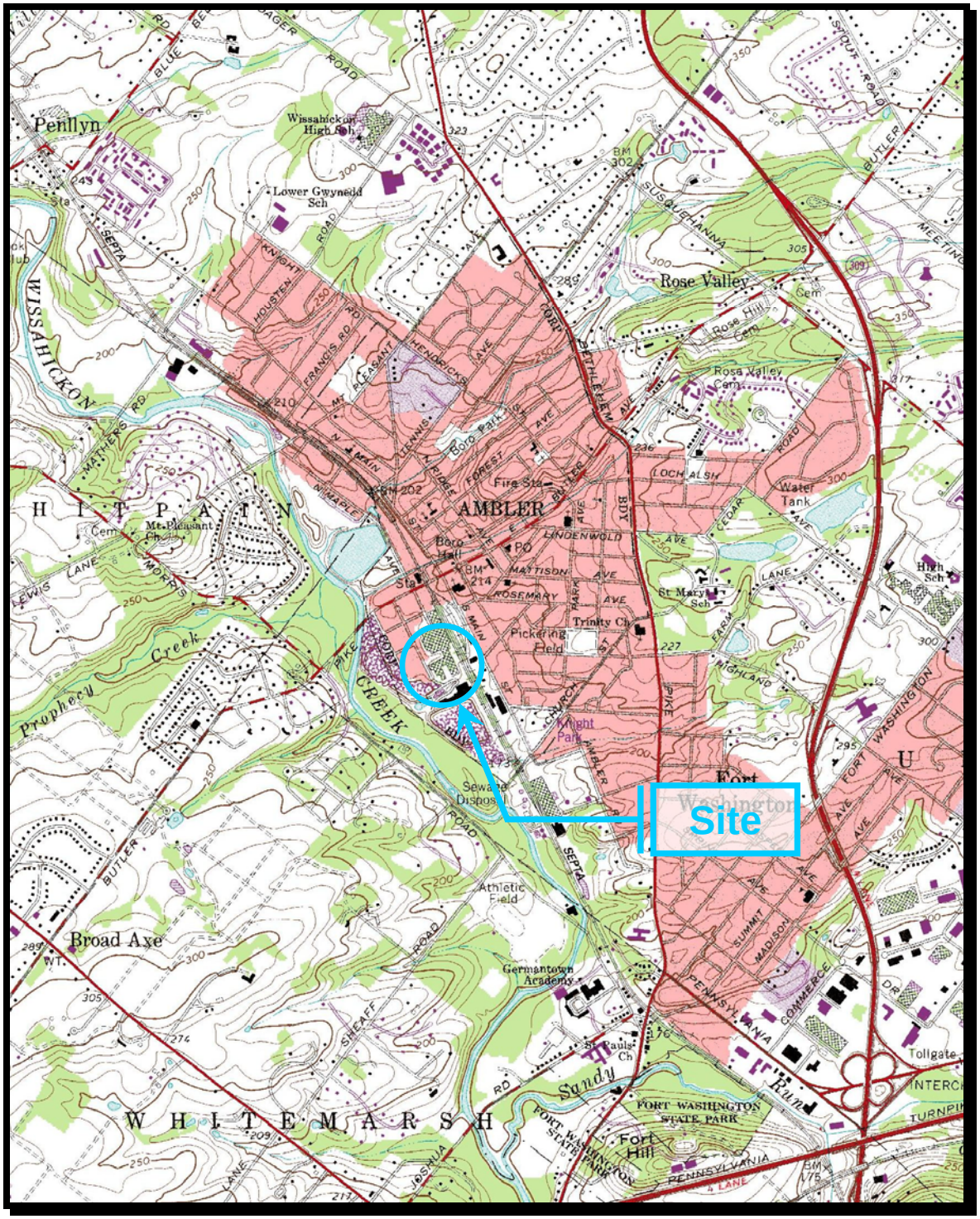


PLATE 1 – TOPOGRAPHIC MAP OF SITE

Reprinted from the United States Department of the Interior Geological Survey, Topographic Maps of Pennsylvania, Ambler, PA Quadrangle, Photorevised 1983.

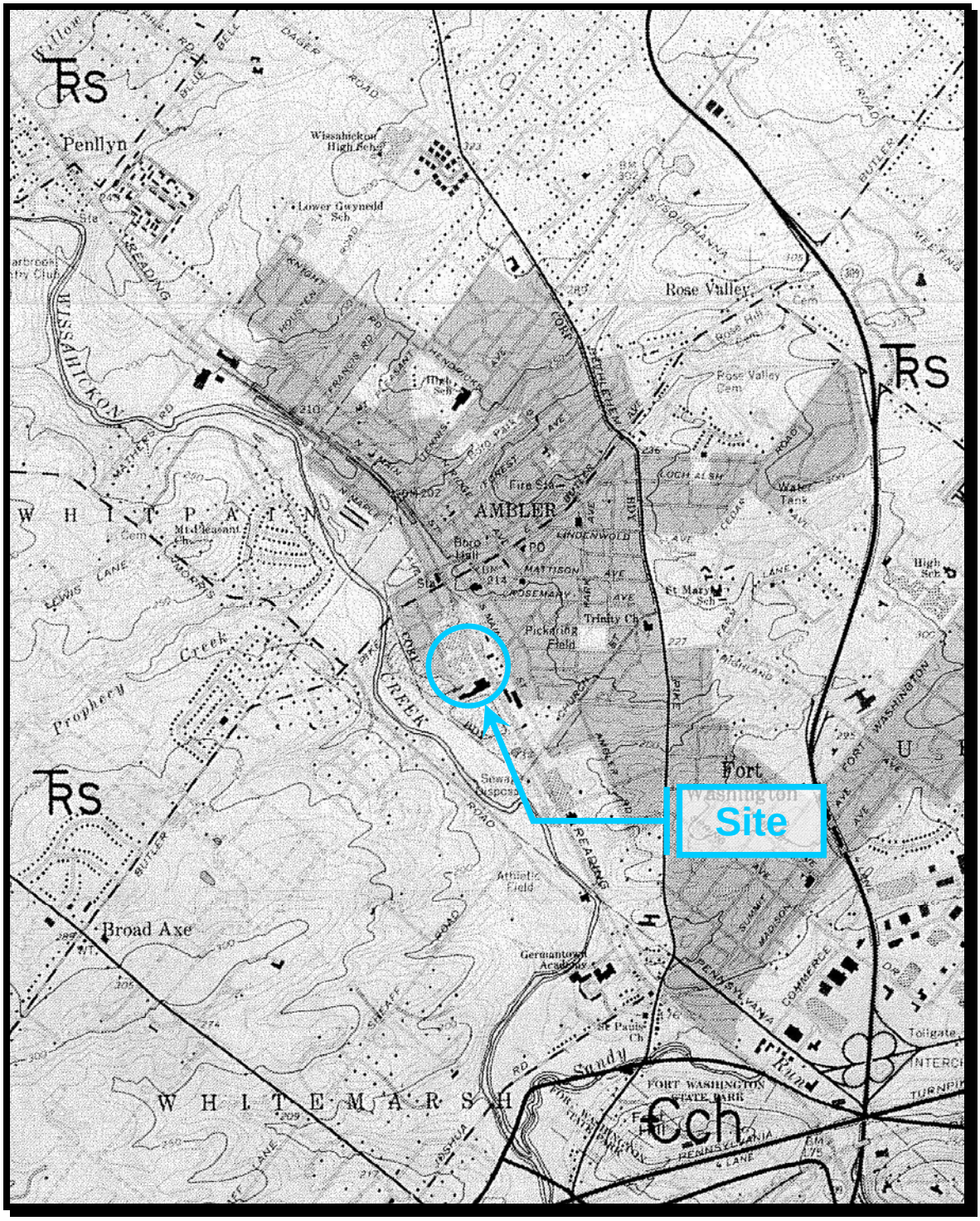
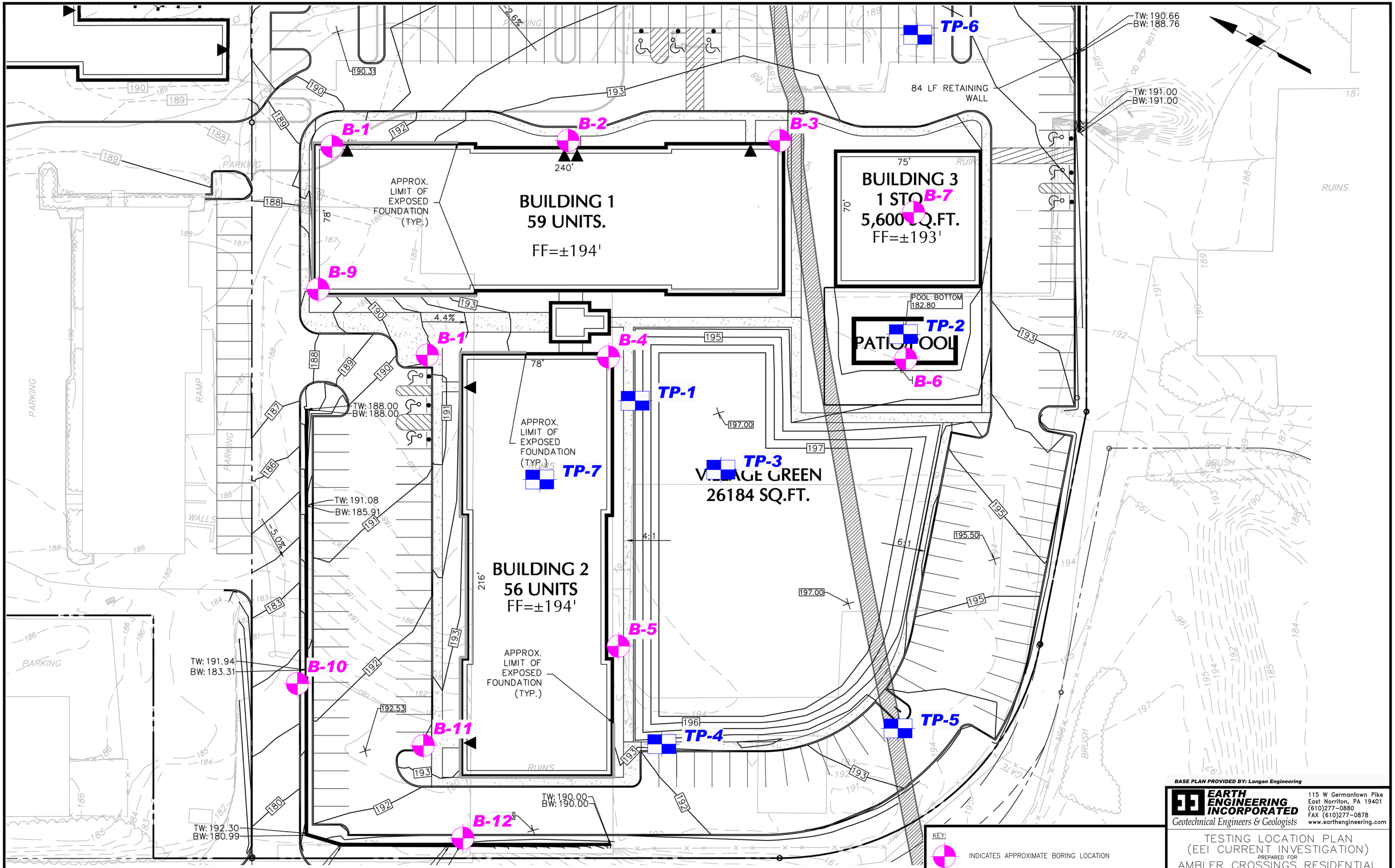


PLATE 2 - GEOLOGIC MAP OF SITE

Reprinted from the Pennsylvania Geological Survey, Atlas of Preliminary Geologic Quadrangle Maps of Pennsylvania, Ambler, PA Quadrangle, 1978.



BASE PLAN PROVIDED BY: Langan Engineering

KEY:

INDICATES APPROXIMATE BORING LOCATION

INDICATES APPROXIMATE TEST PIT LOCATION

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TESTING LOCATION PLAN
(EEI CURRENT INVESTIGATION)

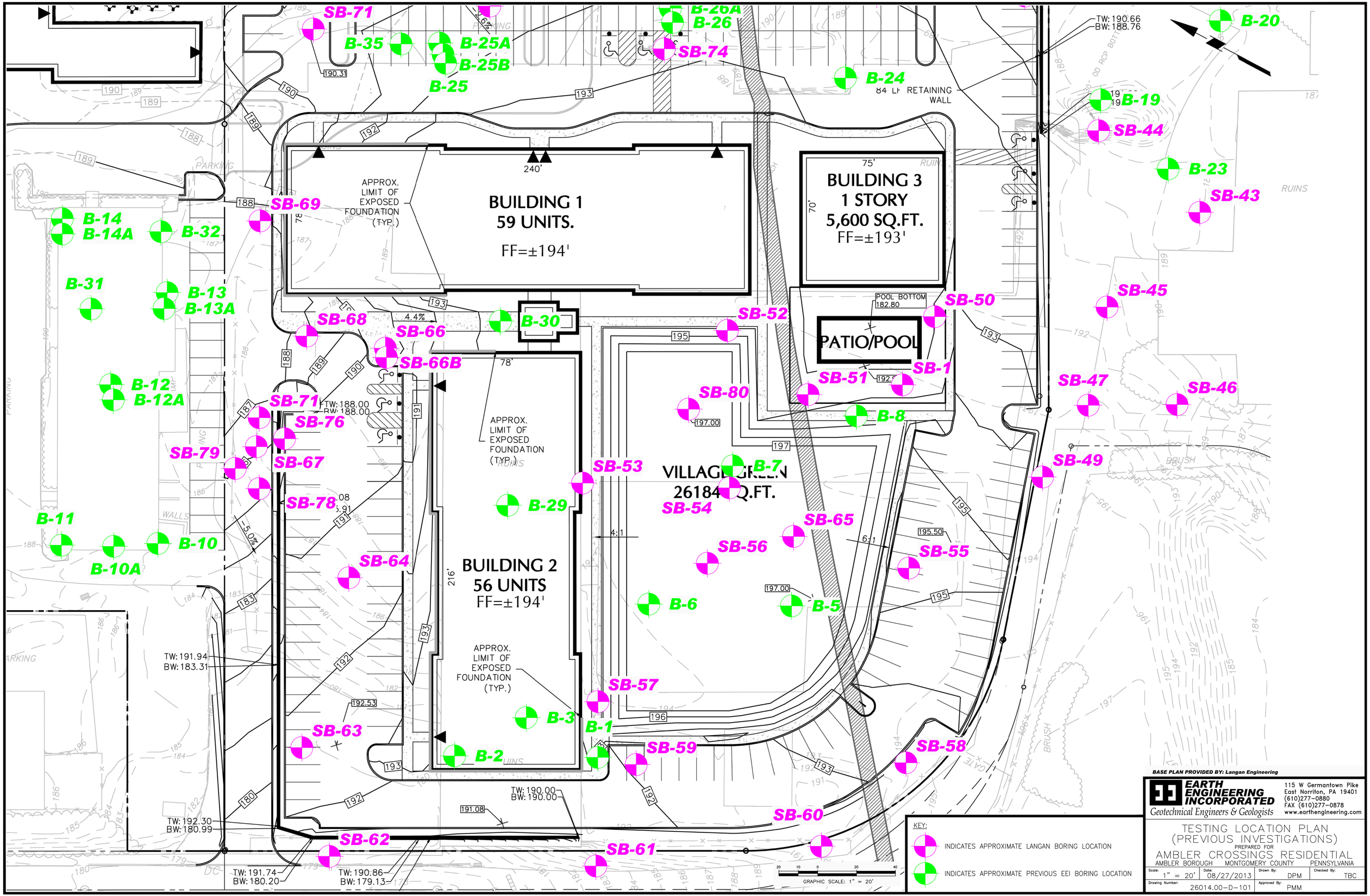
PREPARED FOR

AMBLER CROSSINGS RESIDENTIAL

AMBLER BOROUGH MONTGOMERY COUNTY PENNSYLVANIA

Scale:	Date:	Drawn By:	Checked By:
1" = 20'	08/27/2013	DPM	TBC

Drawing Number: 26014.00-D-101 Approved By: PMM



KEY:

INDICATES APPROXIMATE LANGAN BORING LOCATION

INDICATES APPROXIMATE PREVIOUS EEI BORING LOCATION

GRAPHIC SCALE: 1" = 20'

BASE PLAN PROVIDED BY: Langan Engineering

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TESTING LOCATION PLAN (PREVIOUS INVESTIGATIONS)

PREPARED FOR

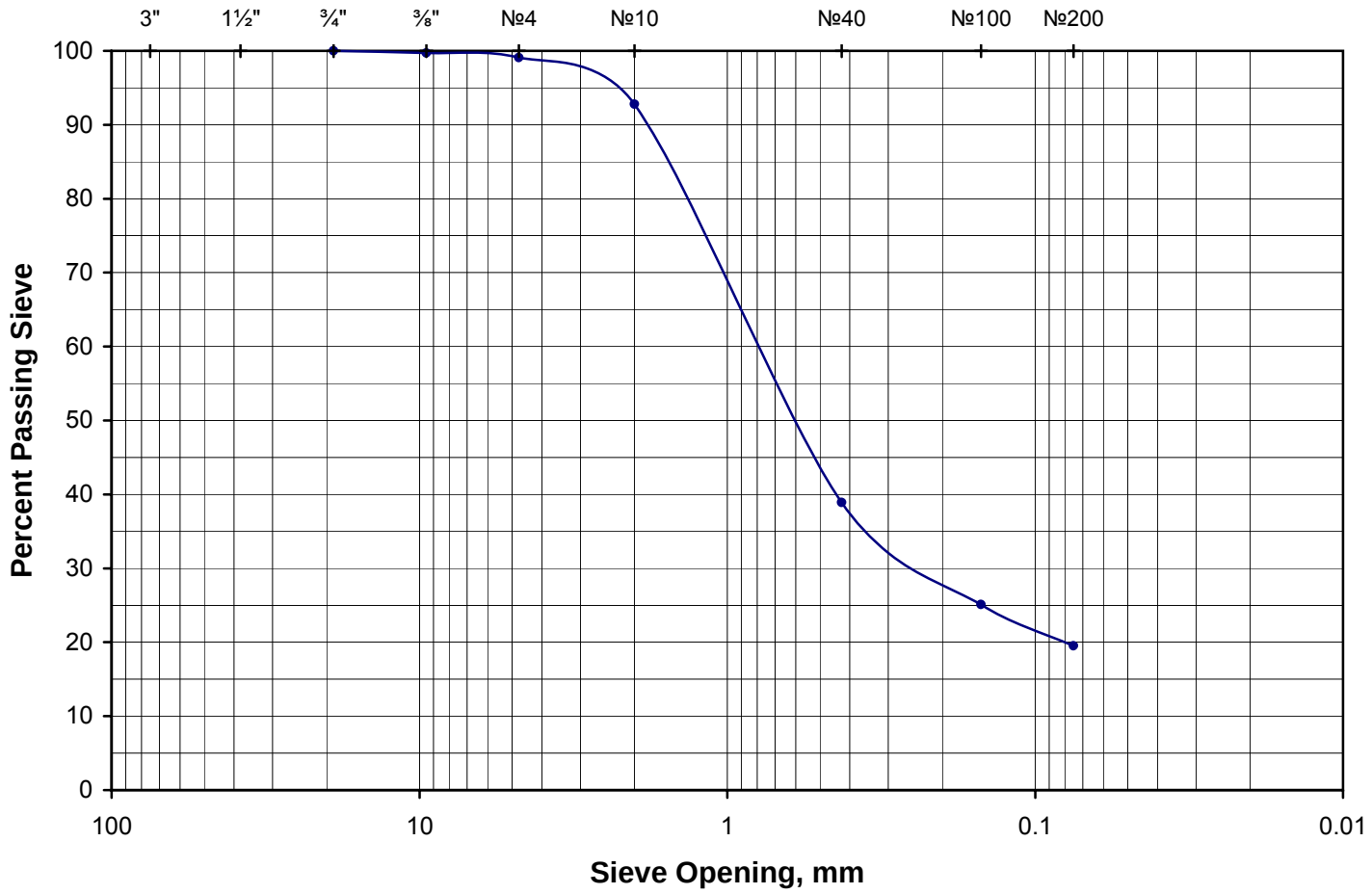
AMBLER CROSSINGS RESIDENTIAL

AMBLER BOROUGH MONTGOMERY COUNTY PENNSYLVANIA

Scale:	Date:	Drawn By:	Checked By:
1" = 20'	08/27/2013	DPM	TBC
Drawing Number: 26014.00-D-101		Approved By: PMM	

APPENDICES

Particle Size Analysis of Soils



As-rec'd water content: 11.5 moist **Odor:** NR

% Gravel: 0.9 **Coarse:** 0.0 **Fine:** 0.9

% Sand: 79.6 **Coarse:** 6.3 **Medium:** 53.9 **Fine:** 19.4

Gravel description: gray, subangular

Sand description: gray, subangular

Consistency: firm **Hardness:** NR

Cementation: NR **Dry Strength:** NR

Structure: homogeneous **Dilatency:** NR

Reaction to HCl: NR **Toughness:** NR

USCS Classification: SM, silty sand

AASHTO Classification: A-1-b

Particle Size				
US Standard Sieve Size			Diameter,	% Finer
GRAVEL	Coarse	3"	75	
		1½"	38.1	
		¾"	19.0	100.0
	Fine	⅜"	9.5	99.7
		№ 4	4.75	99.1
SAND	Coarse	№ 10	2.00	92.8
	Medium	№ 40	0.425	38.9
	Fine	№ 100	0.150	25.1
		№ 200	0.075	19.5
Hydrometer Analysis		Clay Size	0.005	NR
		Colloids	0.001	NR

G_s: NR **C_u:** N/A **C_c:** N/A

LL: NP **PL:** NP **PI:** NP

Project: 26014.00 - Ambler Crossings Residential Geotech

Client: Summit Realty Advisors, LLC

Sample: B-8, S-9 (18-30-27-35) & S-10 (24-50/3")

Depth: 19'- 21' & 24'- 24.8'

Description: Brown and gray silty sand

EARTH ENGINEERING INCORPORATED
Geotechnical Engineers & Geologists
115 W Germantown Pk · East Norriton, PA 19401
tel 610-277-0880 *fax* 610-277-0878

Southern NJ
856-768-1001

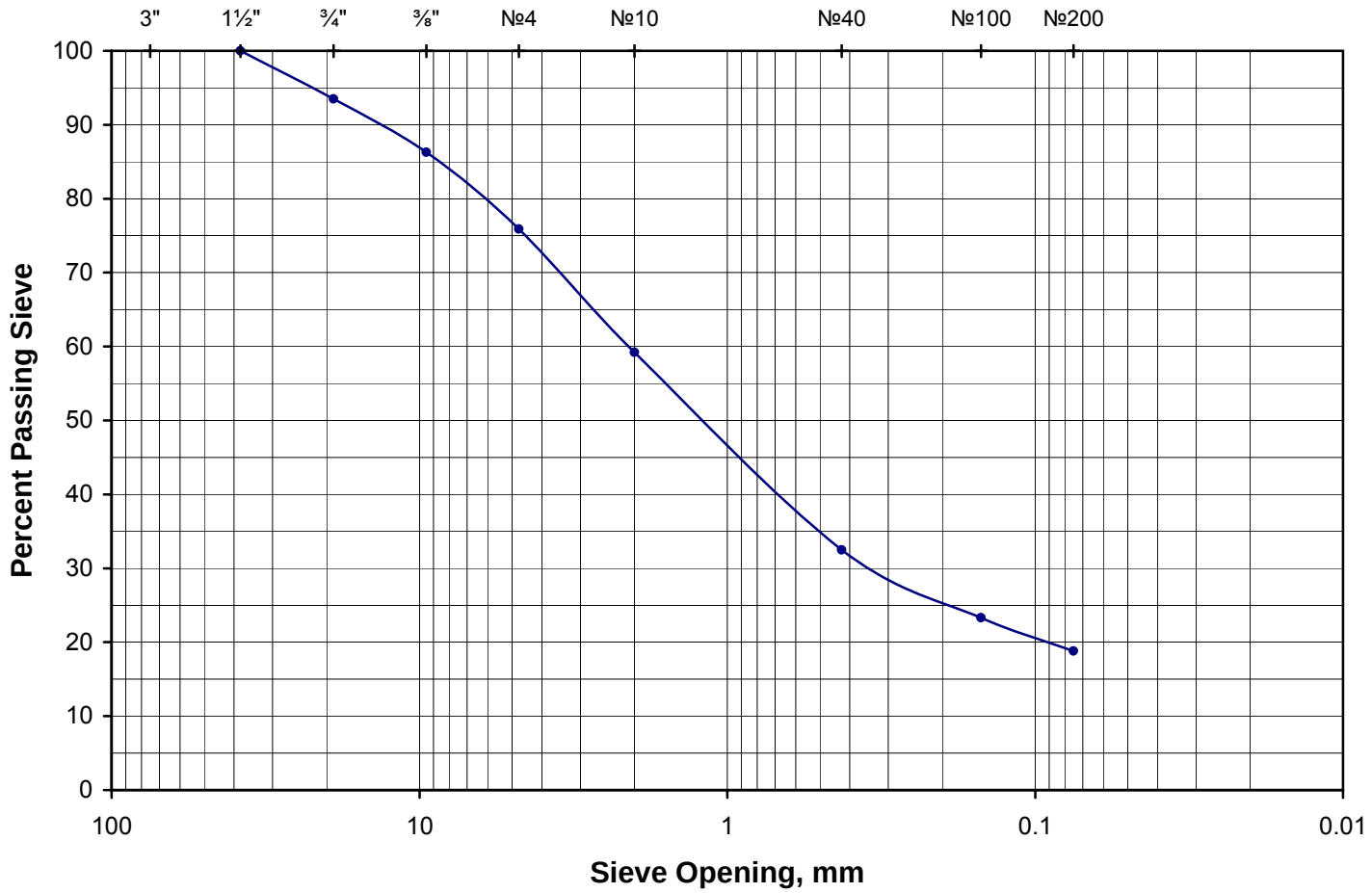
Central PA
717-697-5701

Lehigh Valley
610-967-4540

Remarks:

Classification of Soils, ASTM D 2487-00 / D 2488-00 ***March 21, 2013***

Particle Size Analysis of Soils



As-rec'd water content: 11.5 moist		**Odor:** NR		
% Gravel: 24.1	**Coarse:** 6.5	**Fine:** 17.6		
% Sand: 57.1	**Coarse:** 16.7	**Medium:** 26.7	**Fine:** 13.7	
Gravel description: gray, subangular				
Sand description: gray, subangular				
Consistency: firm		**Hardness:** NR		
Cementation: NR		**Dry Strength:** NR		
Structure: homogeneous		**Dilatency:** NR		
Reaction to HCl: NR		**Toughness:** NR		
USCS Classification: SM, silty sand with gravel				
AASHTO Classification: A-1-b				

Particle Size

US Standard Sieve Size			Diameter,	% Finer
GRAVEL	Coarse	3"	75	
		1½"	38.1	100.0
		¾"	19.0	93.5
	Fine	⅜"	9.5	86.3
		№ 4	4.75	75.9
SAND	Coarse	№ 10	2.00	59.2
	Medium	№ 40	0.425	32.5
	Fine	№ 100	0.150	23.3
		№ 200	0.075	18.8
Hydrometer Analysis		Clay Size	0.005	NR
		Colloids	0.001	NR

G_s: NR	**C_u:** N/A	**C_c:** N/A
LL: NP	**PL:** NP	**PI:** NP

Project: 26014.00 - Ambler Crossings Residential Geotech

Client: Summit Realty Advisors, LLC

Sample: B-5, S-1 (4-8-10-10) & S-3 (6-6-4-5)

Depth: 0- 2' & 4'- 6'

Description: Black silty sand with gravel - Ash (Fill)

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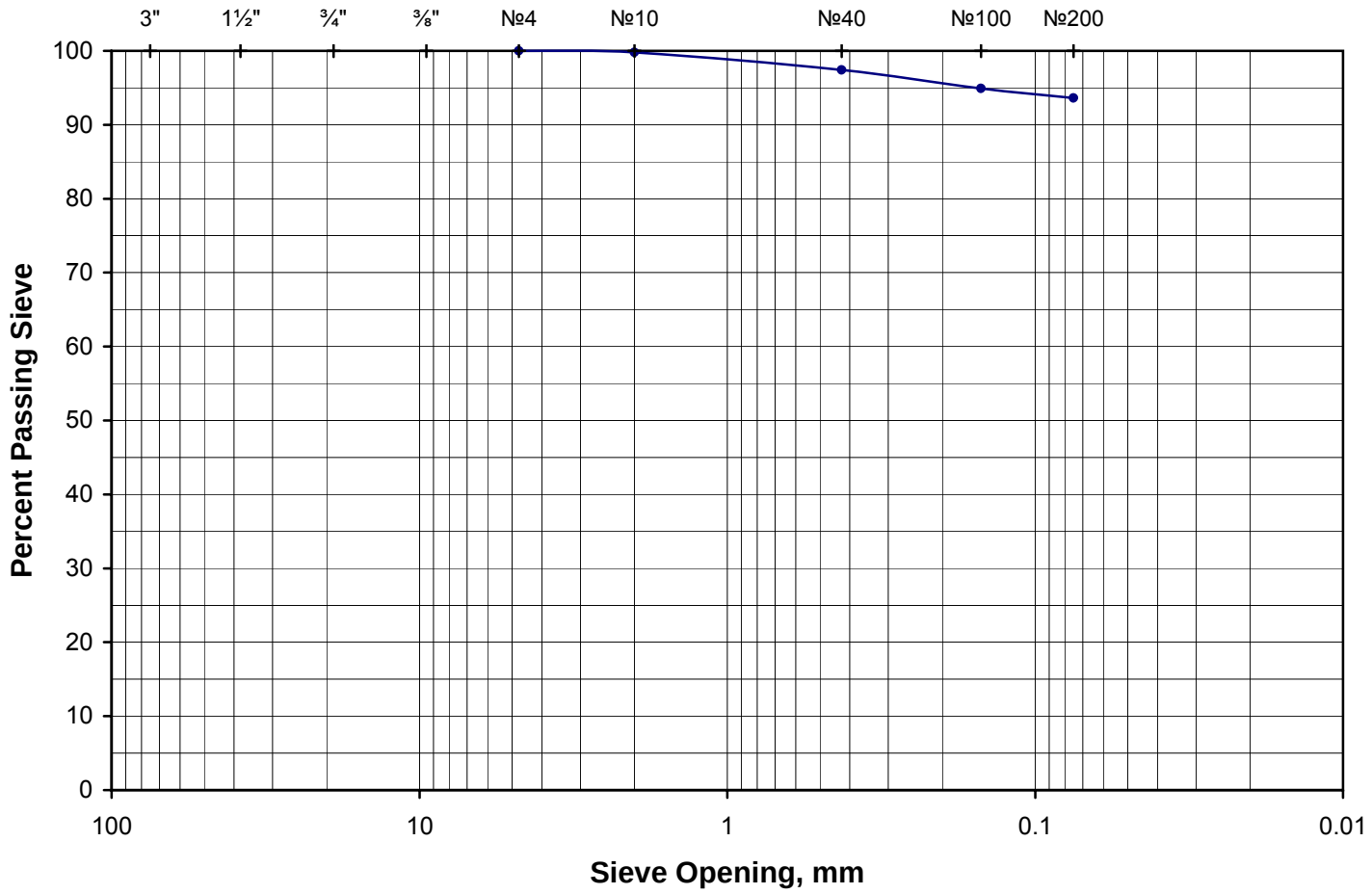
Lehigh Valley
610-967-4540

Remarks:

Particle Size Analysis of Soils



As-rec'd water content: 24.6 moist		**Odor:** NR		
% Gravel: 0.0	**Coarse:** 0.0	**Fine:** 0.0		
% Sand: 6.4	**Coarse:** 0.2	**Medium:** 2.4	**Fine:** 3.8	
Gravel description: gray, subangular				
Sand description: gray, subangular				
Consistency: soft		**Hardness:** NR		
Cementation: NR		**Dry Strength:** NR		
Structure: homogeneous		**Dilatency:** NR		
Reaction to HCl: NR		**Toughness:** NR		
USCS Classification: CL, lean clay				
AASHTO Classification: A-6				

Particle Size				
US Standard Sieve Size			Diameter,	% Finer
GRAVEL	Coarse	3"	75	
		1½"	38.1	
		¾"	19.0	
	Fine	⅜"	9.5	
		№ 4	4.75	100.0
SAND	Coarse	№ 10	2.00	99.8
	Medium	№ 40	0.425	97.4
	Fine	№ 100	0.150	94.9
		№ 200	0.075	93.6
Hydrometer Analysis		Clay Size	0.005	NR
		Colloids	0.001	NR

G_s: NR	**C_u:** N/A	**C_c:** N/A
LL: 31	**PL:** 20	**PI:** 11

Project: 26014.00 - Ambler Crossings Residential Geotech

Client: Summit Realty Advisors, LLC

Sample: B-12, S-1 (2-2-2-3) & S-2 (1-1-2-2)

Depth: 2'- 4' & 4'- 6'

Description: Brown lean clay

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Central PA
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Lehigh Valley
610-967-4540

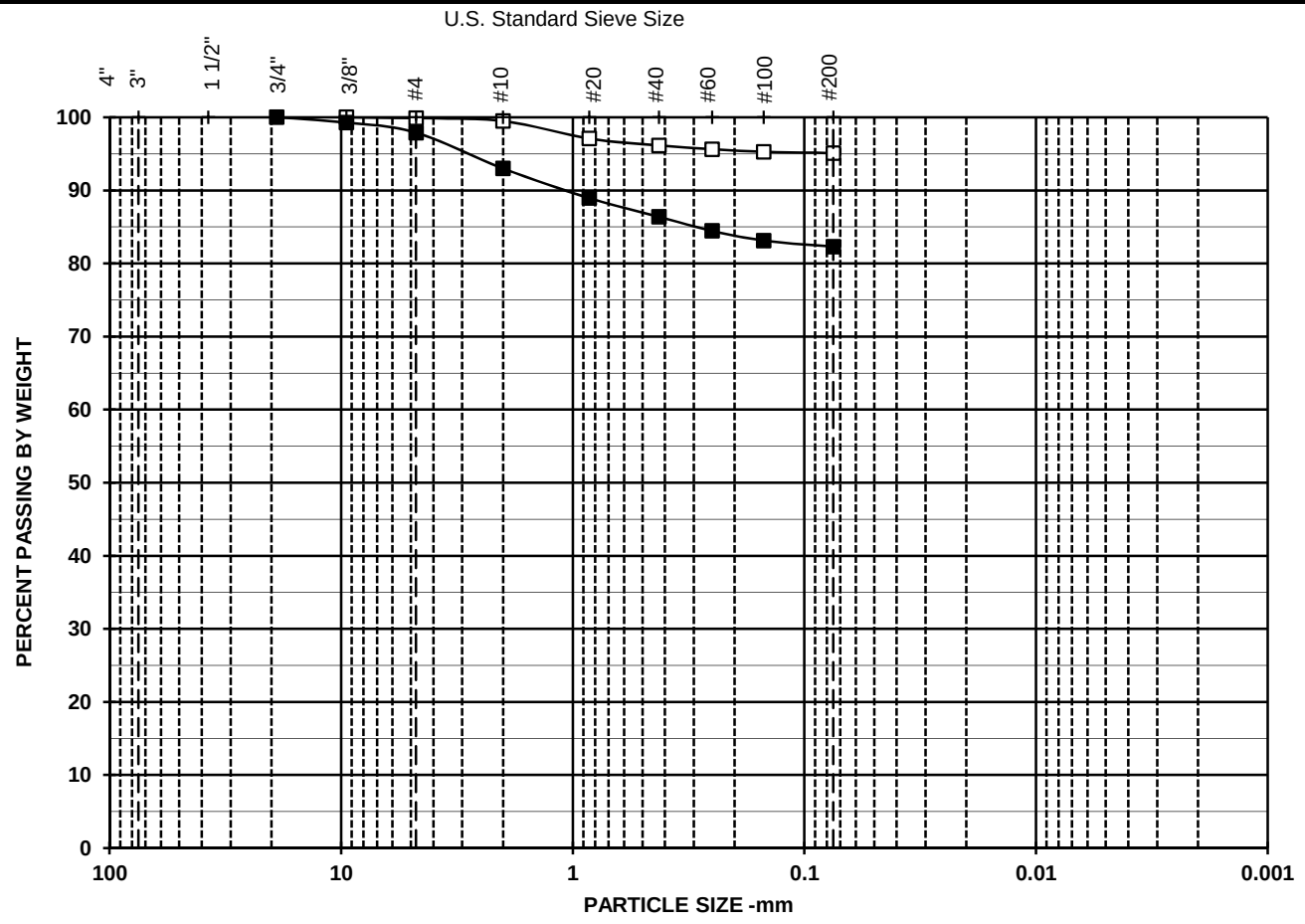
Remarks:

Earth Engineering #26014.00
Ambler Crossing Residential
LABORATORY TESTING DATA SUMMARY

BORING	SAMPLE	DEPTH	IDENTIFICATION TESTS								STRENGTH			CONSOLIDATION			REMARKS
			WATER	LIQUID	PLASTIC	PLAS.	USCS	SIEVE	TOTAL	DRY	Type Test	PEAK	AXIAL STRAIN	Method	INITIAL CONDITIONS		
NO.	NO.		CONTENT	LIMIT	LIMIT	INDEX	SYMB. (1)	MINUS NO. 200	UNIT WEIGHT	UNIT WEIGHT		DEVIATOR STRESS	@ PEAK STRESS		VOID RATIO	SATUR-ATION	
		(ft)	(%)	(-)	(-)	(-)		(%)	(pcf)	(pcf)		(tsf)	(%)		(-)	(%)	
B-4	US-1	12-13.5							89.5								
B-4	US-1	12.5	72.2														
B-4	US-1	13.05	111.3														
B-4	US-1C	13.3	107.3	73	33	40	CH	95.1	90.3	43.6				D2435	2.998	100	C13087
B-5	US-1	18-20	100.6	69	37	32	MH	82.3	86.8		See Triaxial Tests on Reconstituted specimens						
B-5	US-1	18.8	64.8														

Note: (1) USCS symbol based on visual observation and Sieve and Atterberg limits reported.

COBBLES	GRAVEL		SAND			SILT OR CLAY
	COARSE	FINE	COARSE	MEDIUM	FINE	



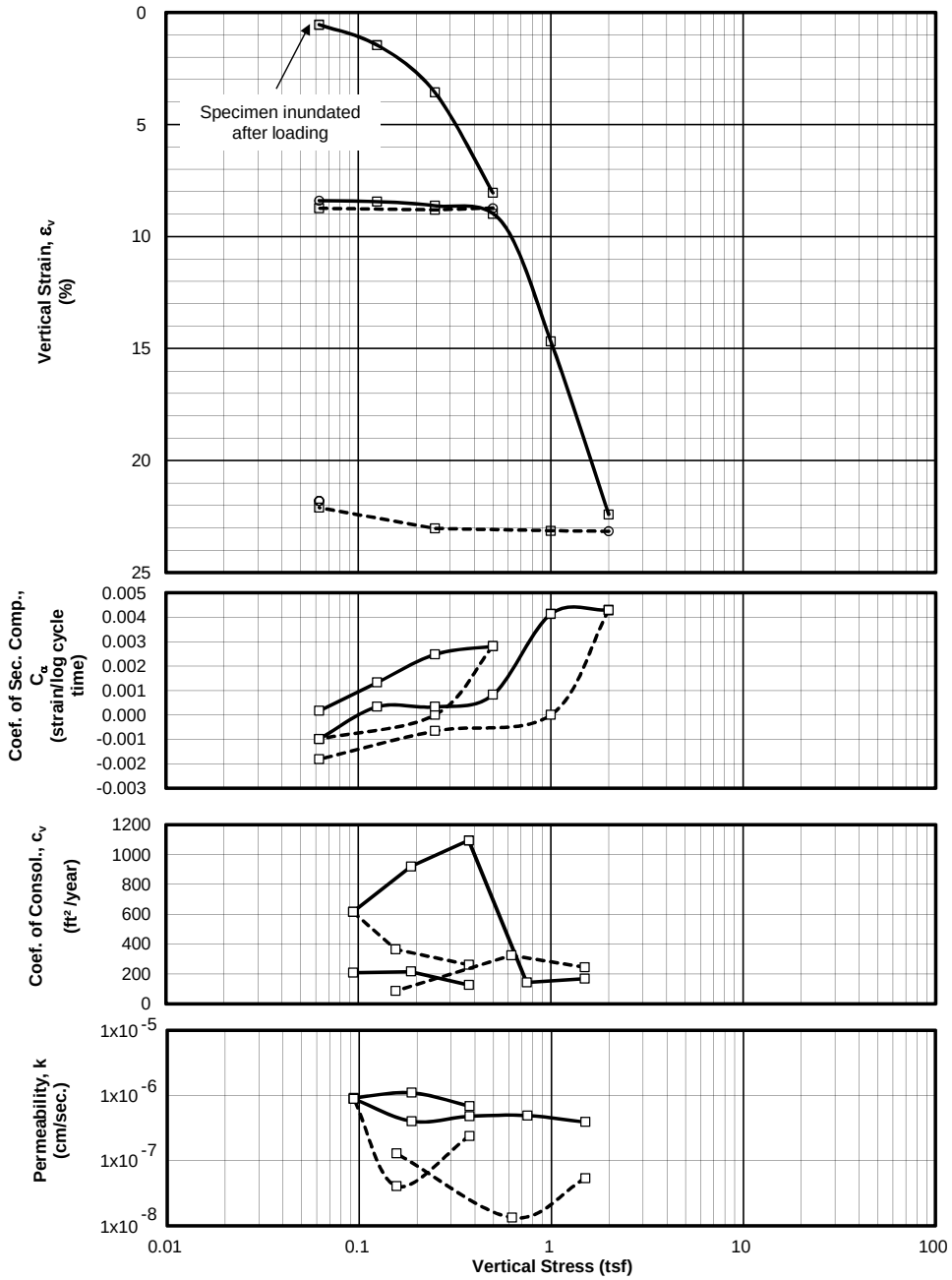
Symbol	□	■	○
Boring	B-4	B-5	
Sample	US-1C	US-1	
Depth	13.3	18-20	
% +3"	0.0	0.0	
% Gravel	0.1	2.1	
% SAND	4.8	15.6	
%C SAND	0.4	4.9	
%M SAND	3.3	6.6	
%F SAND	1.0	4.1	
% FINES	95.1	82.3	
% -2μ			
D_{100} (mm)	9.50	19.00	
D_{60} (mm)			
D_{30} (mm)			
D_{10} (mm)			
Cc			
Cu			

Particle Size	PERCENT FINER		
(Sieve #)	□	■	○
4"			
3"			
1 1/2"			
3/4"		100.0	
3/8"	100.0	99.3	
4	99.9	97.9	
10	99.5	93.0	
20	97.1	89.0	
40	96.1	86.4	
60	95.6	84.5	
100	95.3	83.1	
200	95.1	82.3	

SYMBOL	w (%)	LL	PL	PI	USCS	DESCRIPTION AND REMARKS	Date Tested
□		73	33	40	CH	White, Fat clay	3/22/2013
■		69	37	32	MH	White, Elastic silt with sand	3/22/2013
○							

TerraSense, LLC	Earth Engineering
8057-13001	26014.00

PARTICLE SIZE DISTRIBUTION
Ambler Crossing Residential



SAMPLE INFORMATION

Boring:	B-4
Sample:	US-1C
Depth:	13.30 feet
Elevation:	
Type:	3-inch thin wall tube
Description:	CH, white fat clay

LL = 73, PL = 33, PI = 40

SPECIMEN INFORMATION

(NOTE: Initial and final states refer to beginning and end of test)

Initial height:	0.61	inch
Diameter:	2.50	inch

Initial water content:	107.3	%
Initial total unit weight:	90.3	pcf
Initial dry unit weight:	43.6	pcf
Initial void ratio:	2.998	
Initial degree of saturation:	100	%
Final water content:	76.4	%
Final total unit weight:	98.1	pcf
Final dry unit weight:	55.6	pcf
Final void ratio:	2.132	
Final degree of saturation:	100	% (assumed specific gravity = 2.79)

TEST SUMMARY

Construction Method:	Casagrande (Log)
Estimated preconsolidation stress (tsf):	0.4 (Range: 0.3 to 0.5)
Estimated in situ effective overburden stress (tsf):	
Compression Ratio (strain per log cycle stress):	0.257
Compression Index (void ratio per log cycle stress):	1.027
Swell Ratio (strain per log cycle stress):	0.001
Swell Index (void ratio per log cycle stress):	0.004
Recompression Ratio (strain per log cycle stress):	0.003
Recompression Index (void ratio per log cycle stress):	0.012
Remarks:	

LEGEND: □ End of primary o End of Stage ——— Loading - - - - - - - Unloading

Test Date: 3/22/13 Tested By: TK/CMJ Checked By: GET

Earth Engineering Project No. 26014.00	Ambler Crossing Residential	ONE DIMENSIONAL CONSOLIDATION TEST Boring: B-4 Depth: 13.30 feet
TerraSense, LLC	Project No. 8057-13001	April 2013

PROJECT:	Ambler Crossing Residential					
PROJECT NO.:	8057-13001	Initial height:	0.605 inch	Final height:	0.474 inch	
BORING:	B-4	Initial water content:	107.3 %	Final water content:	76.4 %	
SAMPLE:	US-1C	Initial dry density:	43.6 pcf	Final dry density:	55.6 pcf	
TEST:	C13087	Initial total density:	90.3 pcf	Final total density:	98.1 pcf	
DEPTH, feet:	13.3	Initial saturation:	100 %	Final saturation:	100 %	
BY:	TK/CMJ	Initial void ratio:	2.998	Final void ratio:	2.132	
TEST DATE:	3/22/2013			Final strain:	21.7 %	

EQUIPMENT: SPECIMEN DESCRIPTION: CH, white fat clay

Load Frame No.: 3

Ring Diameter: 2.5 inch

G	LL	PL	PI
2.79	73	33	40

Load No.	Load (tsf)	d_{100} (inch)	t_{100} Strain (%)	t_{100} Void Ratio (-)	Final Strain (%)	Final Void Ratio (-)	c_v (ft^2/year)	C_α (strain/logt)	Constrained Modulus (tsf)	Permeability (cm/sec)
1	0.063	0.0033	0.545	2.976	0.578	2.975	94.98	0.0002	11.47	2.50E-07
2	0.125	0.0088	1.459	2.939	1.674	2.931	208.25	0.0013	6.84	9.19E-07
3	0.250	0.0216	3.573	2.855	4.085	2.834	215.24	0.0025	5.91	1.10E-06
4	0.500	0.0488	8.055	2.676	8.733	2.649	126.49	0.0028	5.58	6.84E-07
5	0.250	0.0534	8.814	2.645	8.847	2.644	260.78	0.0000	32.97	2.39E-07
6	0.063	0.0529	8.745	2.648	8.398	2.662	364.58	-0.0010	271.41	4.05E-08
7	0.125	0.0511	8.447	2.660	8.513	2.657	614.04	0.0003	21.02	8.81E-07
8	0.250	0.0522	8.629	2.653	8.745	2.648	917.74	0.0003	68.80	4.02E-07
9	0.500	0.0544	8.991	2.638	9.222	2.629	1093.78	0.0008	69.12	4.77E-07
10	1.00	0.0889	14.677	2.411	15.305	2.386	143.38	0.0041	8.79	4.92E-07
11	2.00	0.1356	22.405	2.102	23.149	2.072	167.33	0.0043	12.94	3.90E-07
12	1.00	0.1400	23.131	2.073	23.131	2.073	243.21	0.0000	137.88	5.32E-08
13	0.250	0.1394	23.029	2.077	22.897	2.082	324.31	-0.0007	734.43	1.33E-08
14	0.063	0.1338	22.101	2.114	21.803	2.126	85.85	-0.0018	20.20	1.28E-07

SUMMARY FOR STATIC CIU' TRIAXIAL TESTS SPECIMENS

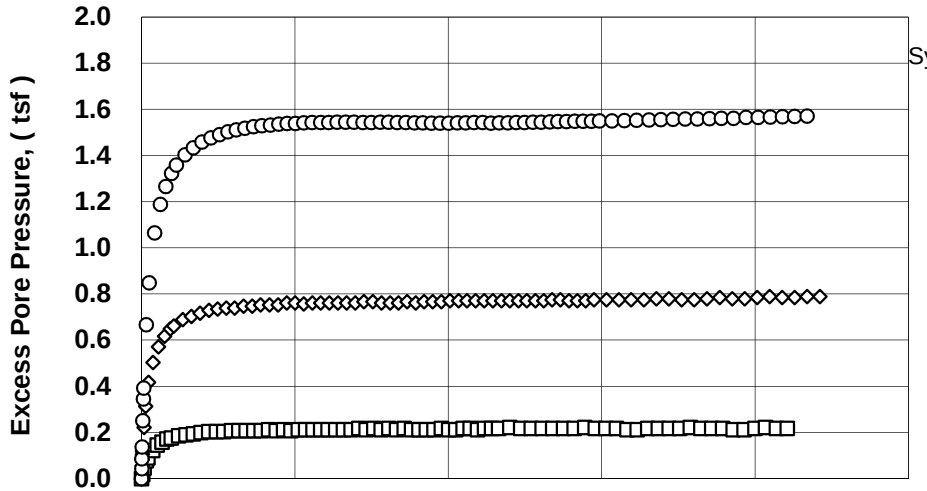
Test No	Boring No	Sample Section No	Depth	USCS Group Symbol	w_o	$\gamma_{t,o}$	$\gamma_{d,o}$	$\sigma'_{c,max}$	$\sigma'_{v,c}$	$\varepsilon_{a,c}$	B factor (%)	at Peak Deviator Stress					
												at Peak Obliquity					
			Elev	Gs	w_c	$\gamma_{t,c}$	$\gamma_{d,c}$	OCR	$K_c = \frac{\sigma'_{v,c}}{\sigma'_{h,c}}$	$\varepsilon_{v,c}$	ε_{rate}	ε_a	$\frac{\sigma_1 - \sigma_3}{2}$	$\frac{\sigma'_1 + \sigma'_3}{2}$	σ'_1 / σ'_3	A factor	ϕ' for c'=0
			(ft)		(%)	(pcf)	(pcf)		(tsf)	(%)	(%/hr)	(%)	(tsf)	(tsf)			
T3422	B-5	US-1	18-20	MH	102.2	91.5	45.2	0.50	0.50	0.4	98.9	10.9	0.15	0.44	2.04	0.706	20.1
				(2.80)	75.9	98.4	55.9	1.0	1.00	19.1	1.2	10.9	0.15	0.44	2.04	0.706	20.1
T3423	B-5	US-1	18-20	MH	104.3	83.1	40.7	1.00	1.00	3.6	99.4	6.4	0.36	0.60	4.04	1.046	37.1
				(2.80)	69.1	100.7	59.5	1.0	1.00	31.7	1.4	13.7	0.36	0.59	4.18	1.077	37.9
T3424	B-5	US-1	18-20	MH	102.3	93.3	46.1	2.00	2.00	2.3	98.4	9.2	0.73	1.19	4.17	1.056	37.8
				(2.80)	62.3	103.4	63.7	1.0	1.00	27.6	1.4	9.2	0.73	1.19	4.17	1.056	37.8

Test No	Description of Material Tested and Remarks
T3422	MH, white elastic silt with sand
T3423	MH, white elastic silt with sand
T3424	MH, white elastic silt with sand
	Specimens prepared by spooning sample at as-received water content into
	membrane in mold.

Strength Envelope Summary						
Test Series	Failure Criteria	ϕ' (deg)	c' (tsf)	α' (deg)	a' (tsf)	Correlation Coefficient
1	1	35.8	0.000	30.3	0.000	--
	2	35.9	0.000	30.4	0.000	--

Failure Criteria: 1 - Peak Deviator Stress; 2 - Peak Obliquity

Project No. 8057-13001	**Earth Engineering #26014.00** **Ambler Crossing Residential**	CONSOLIDATED UNDRAINED TRIAXIAL COMPRESSION with Pore Pressure Measurements	
TerraSense, LLC		B-5 US-1 SUMMARY	April 2013



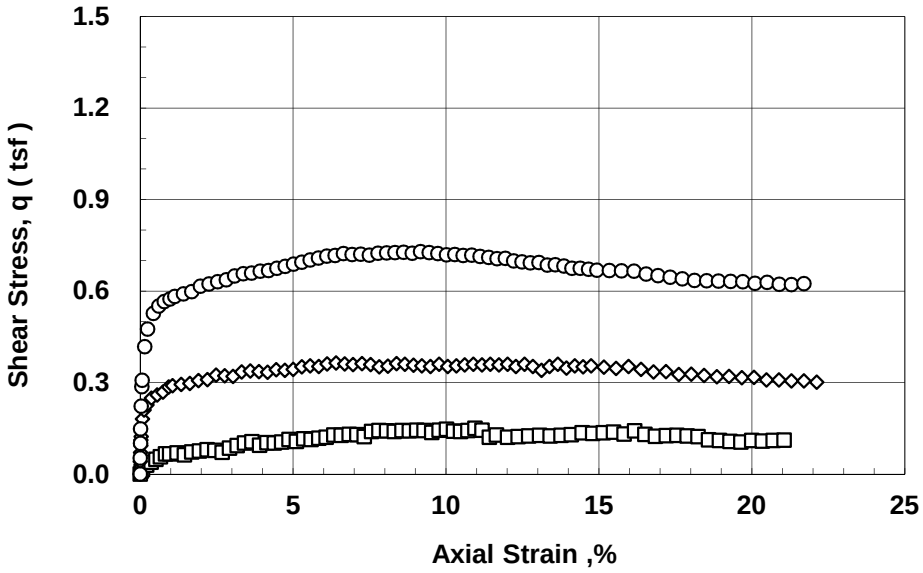
LEGEND AND SUMMARY INFORMATION

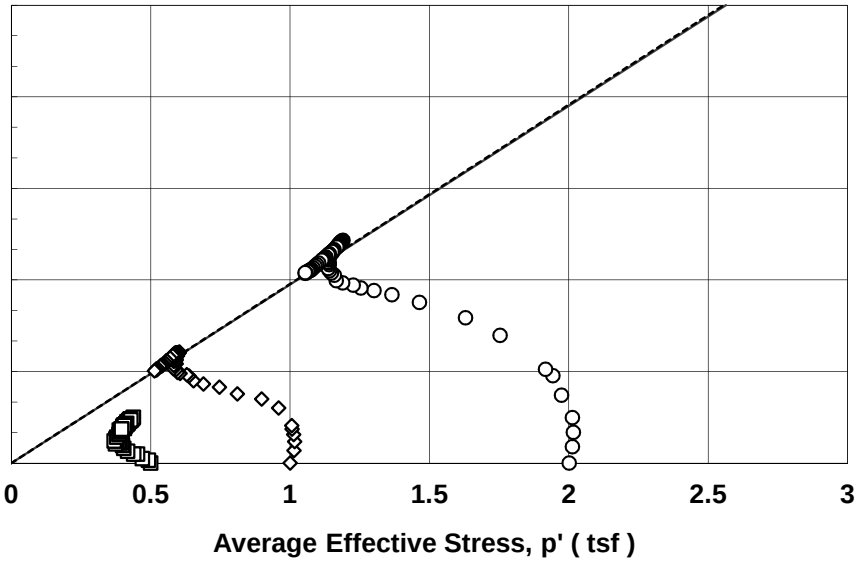
Symbol	Test	Boring	Sample	Depth (ft)	w_o (%)	γ_{to} (pcf)	σ'_c (tsf)
□	T3422	B-5	US-1	18-20	102.2	91.5	0.50
◊	T3423	B-5	US-1	18-20	104.3	83.1	1.00
○	T3424	B-5	US-1	18-20	102.3	93.3	2.00

RECONSTITIUTED SPECIMENS

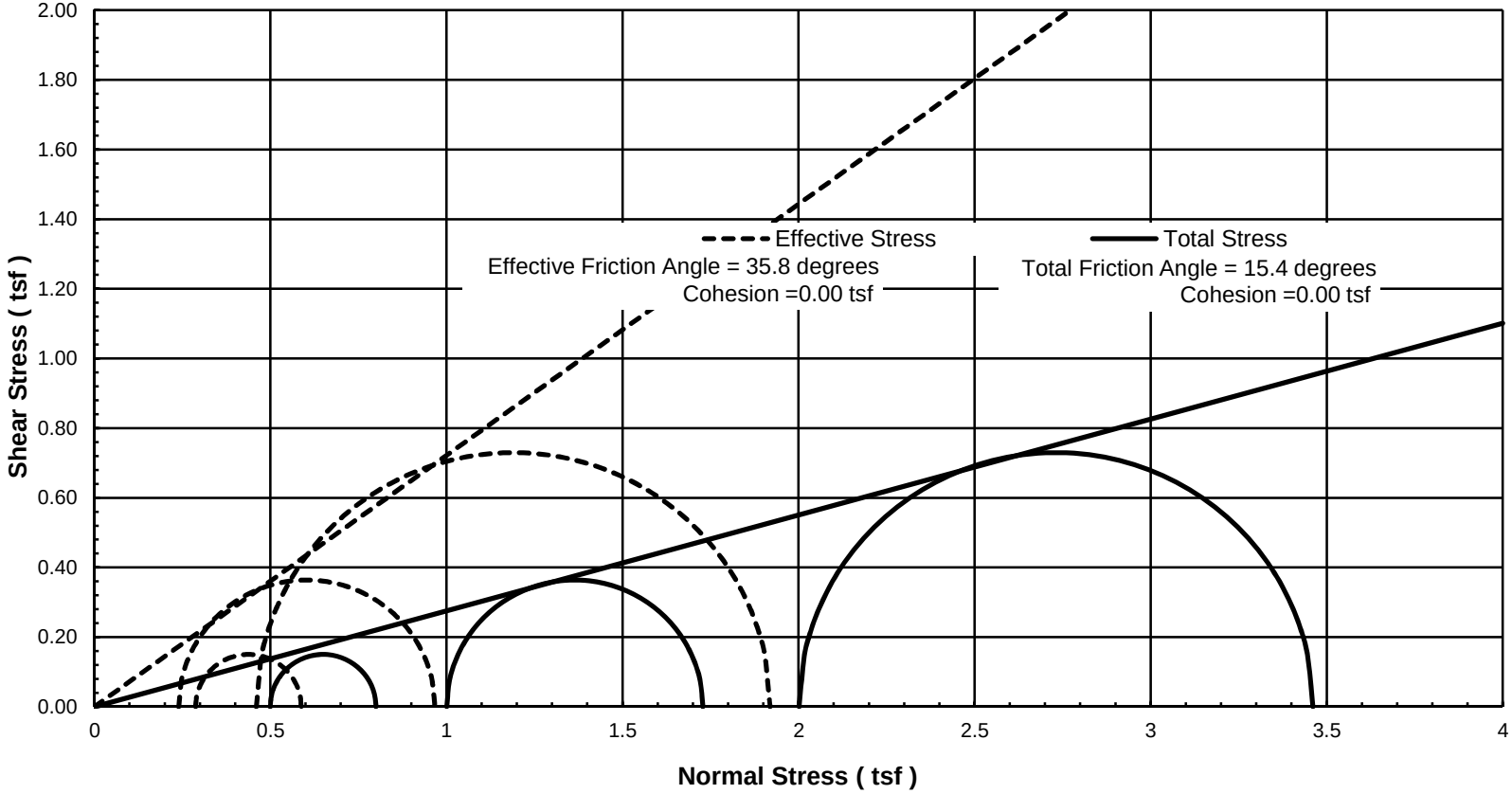
SERIES SUMMARY

Notation	Failure Criteria	c' (tsf)	Φ' (degrees)
———	Peak Deviator Stress	0.00	35.8
·····	Peak Obliquity	0.00	35.9



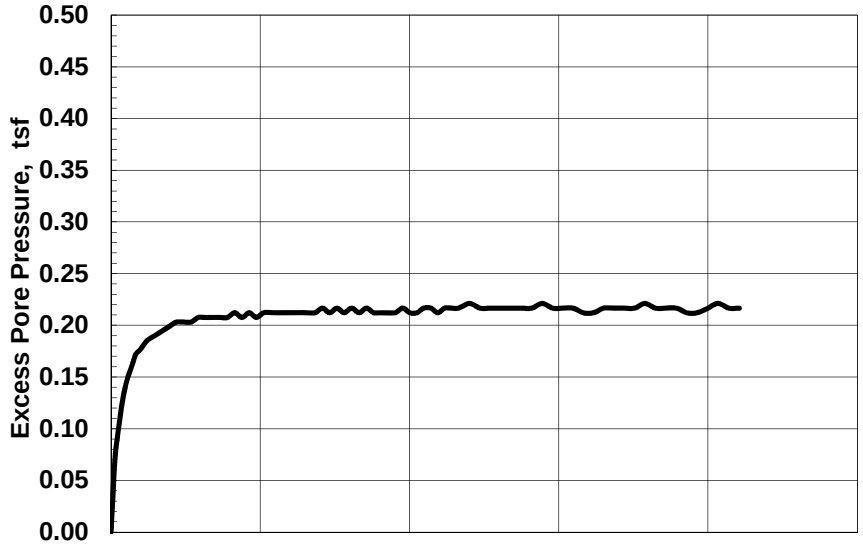


Project No. 8057-13001	**Earth Engineering #26014.00 Ambler Crossing Residential**	CONSOLIDATED UNDRAINED TRIAXIAL COMPRESSION with Pore Pressure Measurements	Figure 1
Prepared by: CMJ Checked by: G. Thomas	**TerraSense, LLC**	B-5 US-1 SUMMARY	April 2013



RECONSTITIUTED SPECIMENS

Project No. **8057-13001**	**Earth Engineering #26014.00** **Ambler Crossing Residential**	**Mohr Circles of Total and Effective Stresses at Peak** **CIU' Triaxial Test**	**Figure** **2**
TerraSense, LLC		**B-5 US-1 SUMMARY**	**April 2013**

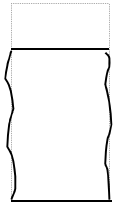


SAMPLE INFORMATION

Boring: B-5 Sample: US-1 Depth: 18-20ft
Type: Reconstituted
Description: MH, white elastic silt with sand

SPECIMEN INFORMATION (Initial)

Height: 3.76 inch Diameter: 1.90 inch Area: 2.85 in²
Water Content: 102.2 % Total Unit Weight: 91.5 pcf

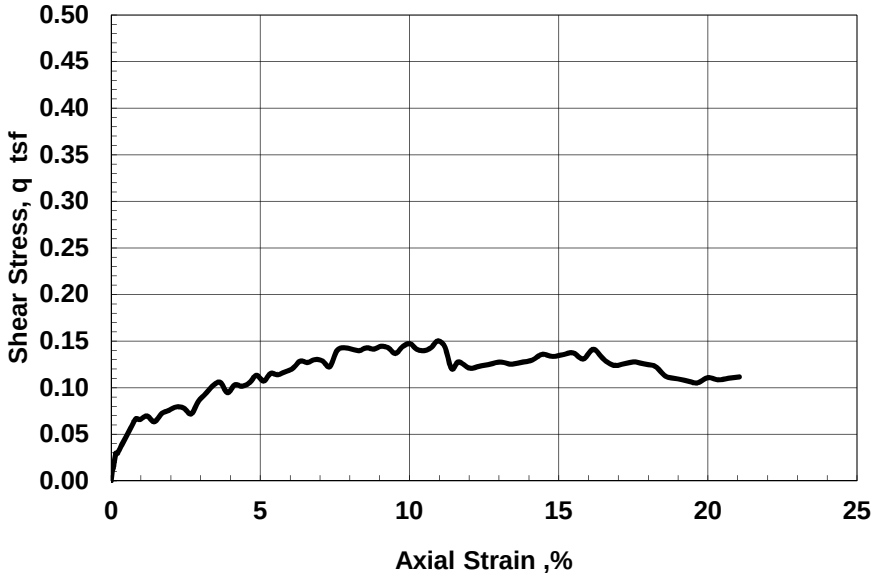


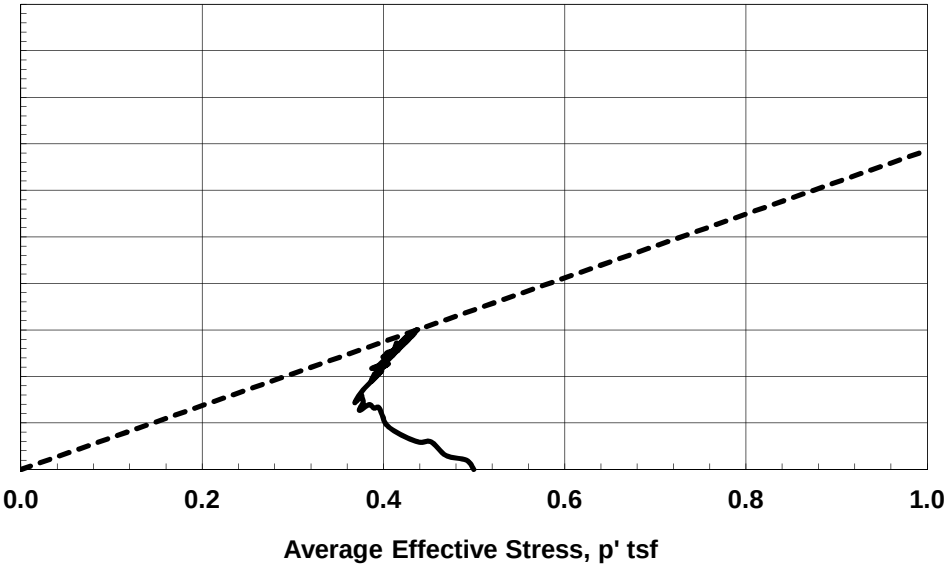
Failure Sketch

TEST SUMMARY

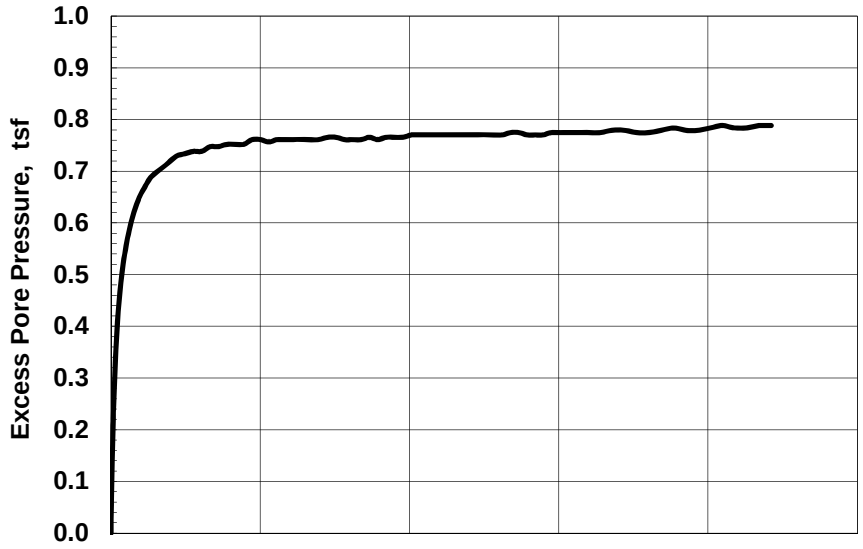
Consolidation Stresses: 0.50 tsf vertical, 0.50 tsf lateral
Water Content: 75.9 % Total Unit Weight: 98.4 pcf
B Coefficient: 98.9 Strain Rate: 0.020 %/min
Peak Shear Strength: 0.15 tsf @ 10.9 % Strain
Peak Effective Friction Angle: 20.1°

REMARKS:





Test by: DT	Project No. 8057-13001	Earth Engineering #26014.00 Ambler Crossing Residential	CONSOLIDATED UNDRAINED TRIAXIAL COMPRESSION with Pore Pressure Measurements
Checked by: GET	**TerraSense, LLC**		Boring: B-5 Sample: US-1
			April-13

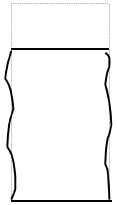


SAMPLE INFORMATION

Boring: B-5 Sample: US-1 Depth: 18-20ft
Type: Reconstituted
Description: MH, white elastic silt with sand

SPECIMEN INFORMATION (Initial)

Height: 3.78 inch Diameter: 1.90 inch Area: 2.84 in²
Water Content: 104.3 % Total Unit Weight: 83.1 pcf

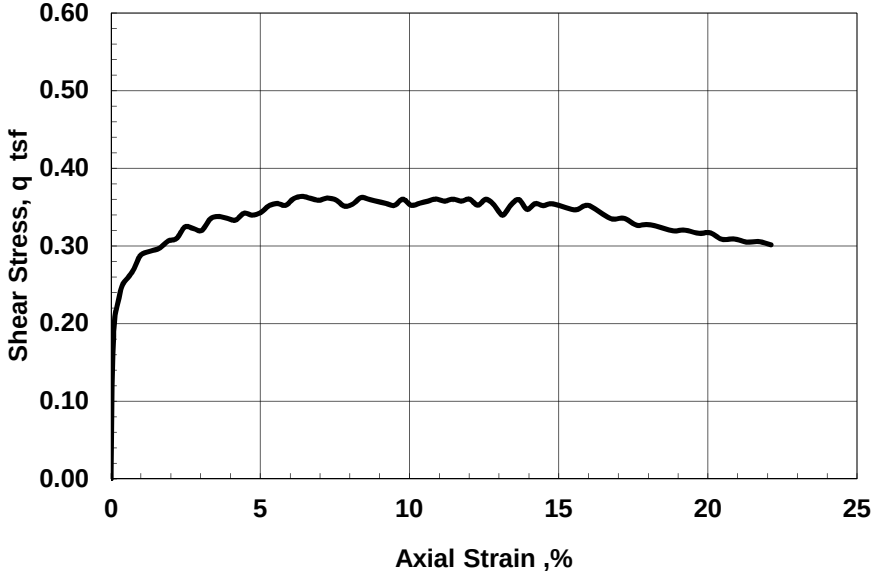


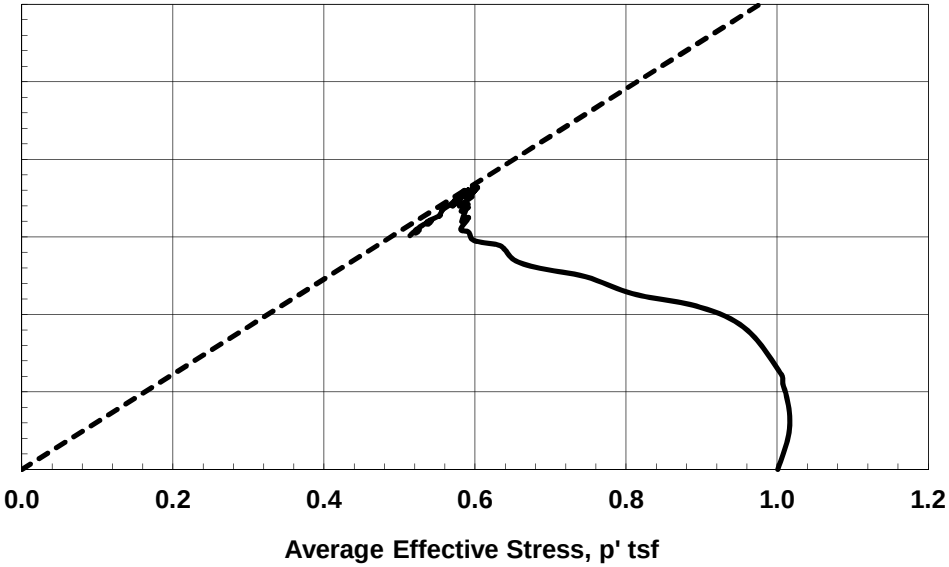
Failure Sketch

TEST SUMMARY

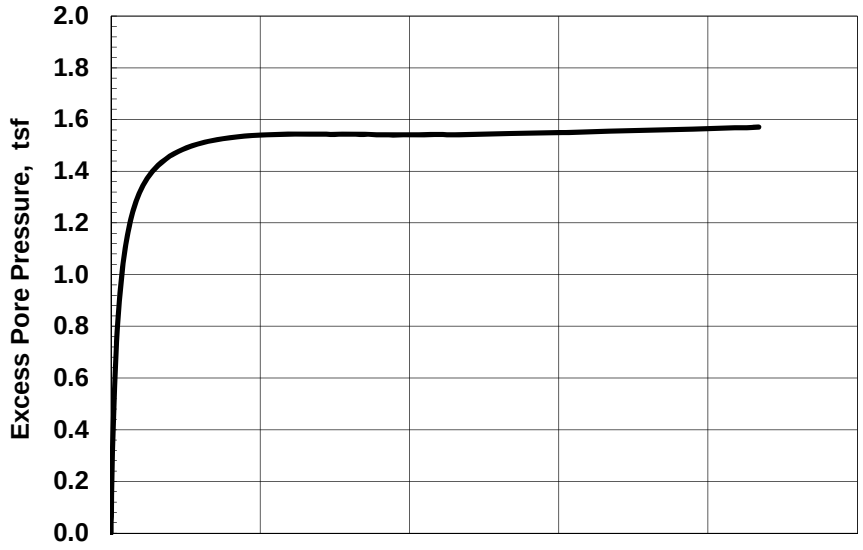
Consolidation Stresses: 1.00 tsf vertical, 1.00 tsf lateral
Water Content: 69.1 % Total Unit Weight: 100.7 pcf
B Coefficient: 99.4 Strain Rate: 0.023 %/min
Peak Shear Strength: 0.36 tsf @ 6.4 % Strain
Peak Effective Friction Angle: 37.9°

REMARKS:





Test by: DT	Project No. 8057-13001	Earth Engineering #26014.00 Ambler Crossing Residential	CONSOLIDATED UNDRAINED TRIAXIAL COMPRESSION with Pore Pressure Measurements
Checked by: GET	**TerraSense, LLC**		Boring: B-5 Sample: US-1
			April-13

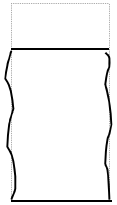


SAMPLE INFORMATION

Boring: B-5 Sample: US-1 Depth: 18-20ft
Type: Reconstituted
Description: MH, white elastic silt with sand

SPECIMEN INFORMATION (Initial)

Height: 3.78 inch Diameter: 1.90 inch Area: 2.85 in²
Water Content: 102.3 % Total Unit Weight: 93.3 pcf

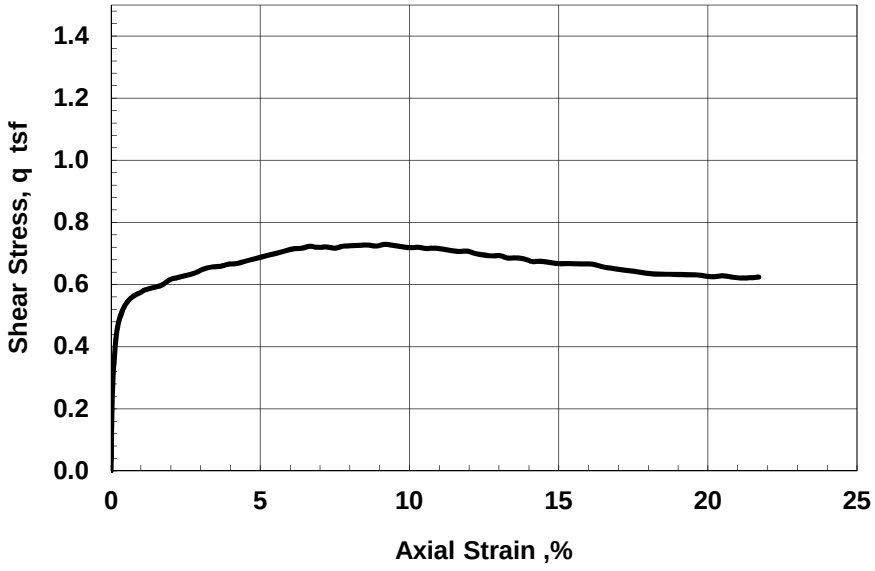


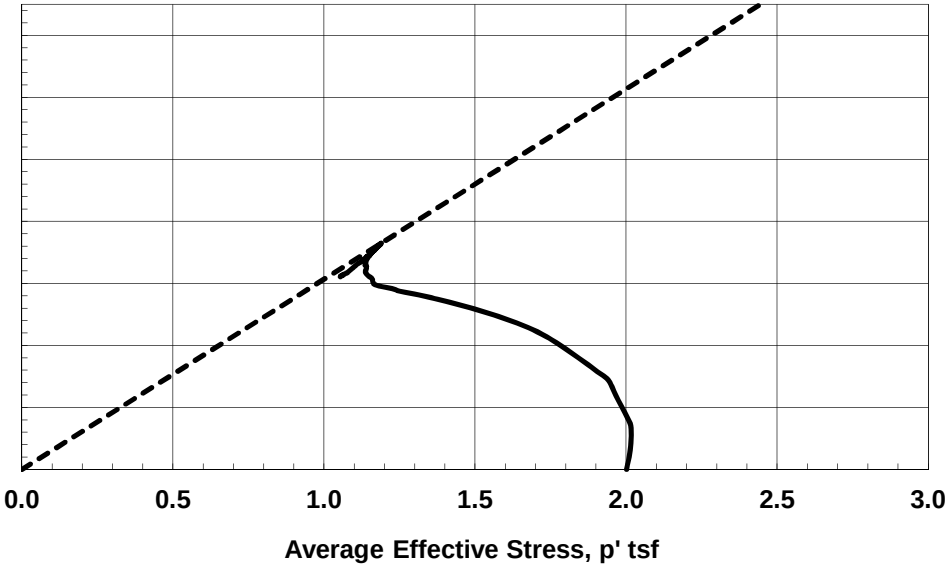
Failure Sketch

TEST SUMMARY

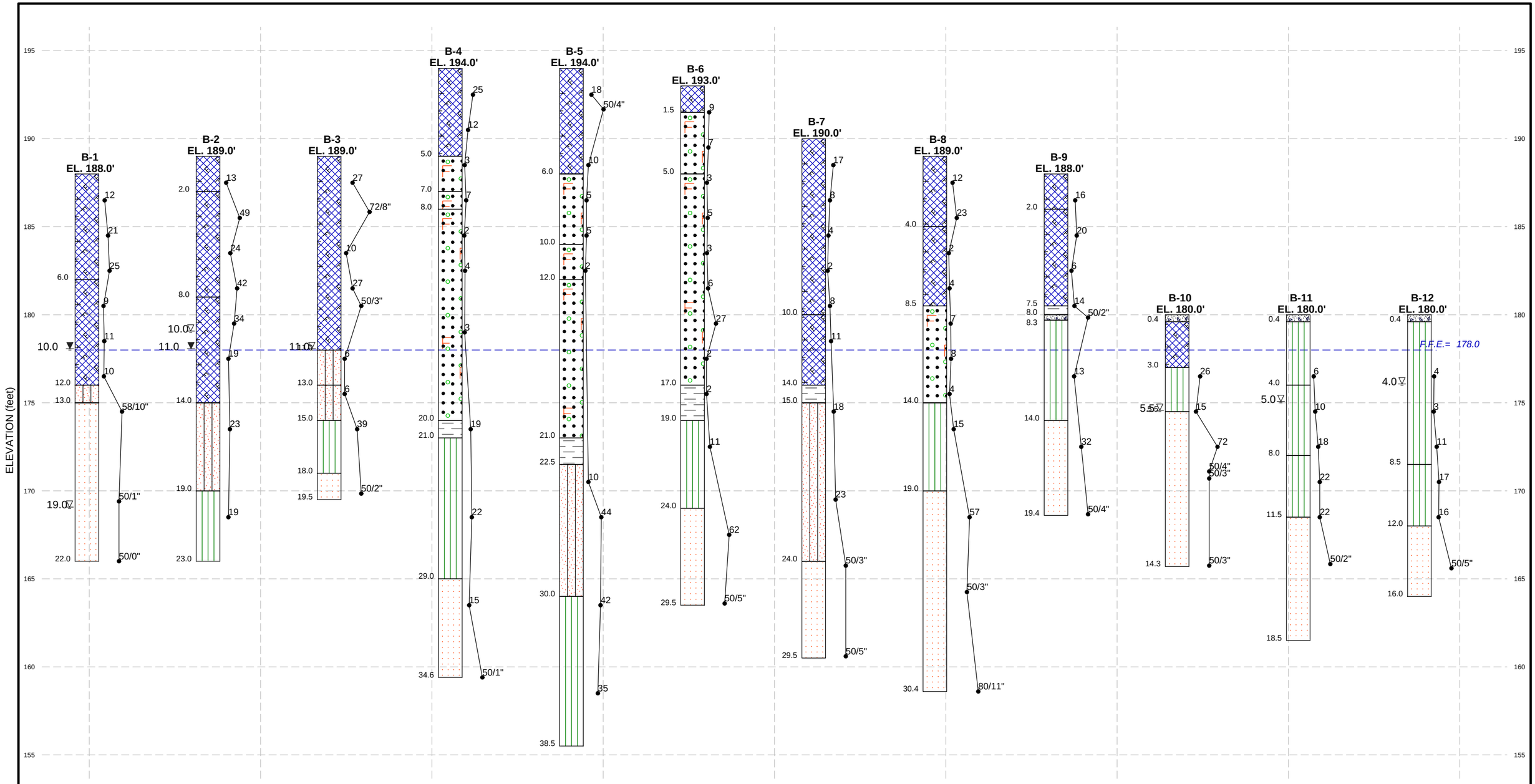
Consolidation Stresses: 2.00 tsf vertical, 2.00 tsf lateral
Water Content: 62.3 % Total Unit Weight: 103.4 pcf
B Coefficient: 98.4 Strain Rate: 0.023 %/min
Peak Shear Strength: 0.73 tsf @ 9.2 % Strain
Peak Effective Friction Angle: 37.8°

REMARKS:





Test by: DT	Project No. 8057-13001	Earth Engineering #26014.00 Ambler Crossing Residential	CONSOLIDATED UNDRAINED TRIAXIAL COMPRESSION with Pore Pressure Measurements
Checked by: GET	**TerraSense, LLC**		Boring: B-5 Sample: US-1
			April-13



Lithology Graphics

- Demolition FILL - Sandy silt, silty sand, and silty clay with varying amounts of gravel, brick, cinders, and ash.
- Stratum I - Alluvial Soils - Sandy silt, silty sand, silt, and clayey silt.
- Weathered Sandstone
- Concrete
- Stratum II - Residual Soils - Silt, silty clay, clayey silt, and fine to coarse sand with varying amounts of gravel.
- Magnesia FILL - Sandy silt to silty clay with varying amounts of construction debris.
- Remnant Topsoil - Organic Silt

Initial Groundwater Level

Subsequent Groundwater Level

F.F.E.= Finished Floor Elevation

EARTH ENGINEERING INCORPORATED

Geotechnical Engineers & Geologists

BORING PROFILES

PREPARED FOR

AMBLER CROSSINGS RESIDENTIAL

AMBLER, PA

Project Number: 26014.00	Date: 8/7/2013	SHEET: 1

EARTH ENGINEERING INCORPORATED
Geotechnical Engineers & Geologists

BORING LOG

BORING NO. B-1
SHEET 1 OF 2
DATE: START 2/26/13
END 2/26/13
SURFACE ELEV. (FT) 188.0

PROJECT NAME Ambler Crossings Residential
PROJECT LOCATION Ambler, PA
PROJECT NUMBER 26014.00
INSPECTOR NAME D. McGuire
EQUIPMENT USED CME 75 truck rig (Auto Hammer)
DRILLER NAME/COMPANY J. Blemings/UTD
DRILLING METHODS Continuous 2" SS to 13.4; 10' intervals thereafter
AUGER: SIZE: 4.25 ID HSA ; AUGER DEPTH: 22.0' ; WATER: DEPTH: 19.0' TIME: .25 HR DATE: 2/26/2013
CHECKED BY: T. Carlin ; DATE: 3/28/2013 DEPTH: 10.0' TIME: 24 HR DATE: 2/27/2013
NOT ENCOUNTERED ☐

DEPTH (FT)	SAMPLE NO./ TYPE/CORE RUN	BLOWS/0.5 FT. ON SAMPLER	RECOVERY (Ft.)	RECOVERY(%) / RQD (%)	USCS / AASHTO	H_2O CONTENT	GRAPHIC LOG	DESCRIPTION (DEPTH / ELEVATION)	REMARKS
0.0	S-1	3 5 7 7	1.6'	-	ML	M		Silt with sand and construction debris, dark brown (Demolition Fill)	Surface: building rubble and low shrubs
2.0	S-2	7 7 14 13	1.2'	-	ML	M			
4.0	S-3	11 11 14 19	1.1'	-	ML	M			Moderate auger deflection
6.0	S-4	3 7 2 2	0.1'	-	SM	M		Fine to medium sand, little fine gravel, dark brown (Demolition Fill) 6.0 / 182.0	
8.0	S-5	9 7 4 3	0.0'	-	SM	M			Stone in spoon from 8' - 10'
10.0	S-6	4 2 8 14	0.4'	-	SM	M			
12.0	S-7	5 8 50/4	1.1'	-	SM	M		Silty sand, trace fine gravel, rock fragments @13', dark brown (Alluvial) 12.0 / 176.0	Hard drilling @ 12'
13.5								13.0 / 175.0 Sandy silt to silty sand, trace gravel (Weathered Rock)	Easy drilling @ 14'
18.0									
18.6	S-8	49 50/1	0.4'	-	SM	W			Hard drilling @ 18'

** D = DRY, M = MOIST, W = WET

EARTH ENGINEERING INCORPORATED
Geotechnical Engineers & Geologists

BORING LOG

BORING NO. **B-1**
SHEET **2** OF **2**
DATE: START **2/26/13**
END **2/26/13**
SURFACE ELEV. (FT) **188.0**

PROJECT NAME **Ambler Crossings Residential**
PROJECT LOCATION **Ambler, PA**
PROJECT NUMBER **26014.00**
INSPECTOR NAME **D. McGuire**
EQUIPMENT USED **CME 75 truck rig (Auto Hammer)**
DRILLER NAME/COMPANY **J. Blemings/UTD**
DRILLING METHODS **Continuous 2" SS to 13.4; 10' intervals thereafter**
AUGER: SIZE: **4.25 ID HSA** ; AUGER DEPTH: **22.0'** ; WATER: DEPTH: **19.0'** TIME: **.25 HR** DATE: **2/26/2013**
CHECKED BY: **T. Carlin** ; DATE: **3/28/2013** DEPTH: **10.0'** TIME: **24 HR** DATE: **2/27/2013**
NOT ENCOUNTERED ☐

DEPTH (FT)	SAMPLE NO./ TYPE/CORE RUN	BLOWS/0.5 FT. ON SAMPLER	RECOVERY (Ft.)	RECOVERY(%) / RQD (%)	USCS / AASHTO	H_2O CONTENT	GRAPHIC LOG	DESCRIPTION	REMARKS
								DEPTH ELEVATION	
								Sandy silt to silty sand, trace gravel (Weathered Rock) *(continued)*	
22.0				-				22.0 166.0	
22.0	S-9	50/0				NA		End of Boring	Auger Refusal @ 22'

** D = DRY, M = MOIST, W = WET

EARTH ENGINEERING INCORPORATED
Geotechnical Engineers & Geologists

BORING LOG

BORING NO. B-2
SHEET 1 OF 2
DATE: START 2/26/13
END 2/26/13
SURFACE ELEV. (FT) 189.0

PROJECT NAME Ambler Crossings Residential
PROJECT LOCATION Ambler, PA
PROJECT NUMBER 26014.00
INSPECTOR NAME D. McGuire
EQUIPMENT USED CME 75 truck rig (Auto Hammer)
DRILLER NAME/COMPANY J. Blemings/UTD
DRILLING METHODS Continuous 2" SS to 12; 5' intervals thereafter
AUGER: SIZE: 4.25 ID HSA ; AUGER DEPTH: 23.0' ; WATER: DEPTH: 10.0' TIME: .25 HR DATE: 2/27/2013
CHECKED BY: T. Carlin ; DATE: 3/28/2013 DEPTH: 11.0' TIME: 24 HR DATE: 2/27/2013
NOT ENCOUNTERED ☐

DEPTH (FT)	SAMPLE NO./ TYPE/CORE RUN	BLOWS/0.5 FT. ON SAMPLER	RECOVERY (Ft.)	RECOVERY(%) / RQD (%)	USCS / AASHTO	H_2O CONTENT	GRAPHIC LOG	DESCRIPTION (DEPTH / ELEVATION)	REMARKS
0.0	S-1	2 4 9 11	1.3'	-	ML/CL	M		Silty clay, little sand, construction debris, dark brown (Demolition Fill)	Moderate drilling @ 0'
2.0	S-2	11 30 19 22	1.5'	-	ML	M		2.0 / 187.0 Sandy silt, little fine gravel, light gray to light brown (Demolition Fill)	
4.0	S-3	9 12 12 15	2.0'	-	ML	M			
6.0	S-4	20 12 30 17	1.8'	-	SM	M			
8.0	S-5	8 18 16 10	1.6'	-	SM	M		8.0 / 181.0 Construction debris, brick fragments (Demolition Fill)	
10.0	S-6	18 10 9 8	1.0'	-	SM	M			
12.0									
14.0	S-7	9 10 13 14	1.4'	-	SM	M		14.0 / 175.0 Silty sand, trace fine gravel, dark brown (Alluvial)	
16.0									
19.0		2 9		-	ML	M		19.0 / 170.0 Micaceous sandy silt, red-brown (Residual)	

** D = DRY, M = MOIST, W = WET

EARTH ENGINEERING INCORPORATED
Geotechnical Engineers & Geologists

BORING LOG

BORING NO. **B-2**
SHEET **2** OF **2**
DATE: START **2/26/13**
END **2/26/13**
SURFACE ELEV. (FT) **189.0**

PROJECT NAME **Ambler Crossings Residential**
PROJECT LOCATION **Ambler, PA**
PROJECT NUMBER **26014.00**
INSPECTOR NAME **D. McGuire**
EQUIPMENT USED **CME 75 truck rig (Auto Hammer)**
DRILLER NAME/COMPANY **J. Blemings/UTD**
DRILLING METHODS **Continuous 2" SS to 12; 5' intervals thereafter**
AUGER: SIZE: **4.25 ID HSA** ; AUGER DEPTH: **23.0'** ; WATER: DEPTH: **10.0'** TIME: **.25 HR** DATE: **2/27/2013**
CHECKED BY: **T. Carlin** ; DATE: **3/28/2013** DEPTH: **11.0'** TIME: **24 HR** DATE: **2/27/2013**
NOT ENCOUNTERED ☐

DEPTH (FT)	SAMPLE NO./ TYPE/CORE RUN	BLOWS/0.5 FT. ON SAMPLER	RECOVERY (Ft.)	RECOVERY(%) / RQD (%)	USCS / AASHTO	H_2O CONTENT	GRAPHIC LOG	DESCRIPTION	REMARKS
	S-8	10 12	2.0'		ML	M		Micaceous sandy silt, red-brown (Residual) *(continued)*	
21.0								DEPTH 23.0 ELEVATION 166.0	Hard drilling @ 21'
								End of Boring	Auger Refusal @ 21'

** D = DRY, M = MOIST, W = WET

EARTH ENGINEERING INCORPORATED
Geotechnical Engineers & Geologists

BORING LOG

BORING NO. B-3
SHEET 1 OF 1
DATE: START 2/26/13
END 2/26/13
SURFACE ELEV. (FT) 189.0

PROJECT NAME Ambler Crossings Residential
PROJECT LOCATION Ambler, PA
PROJECT NUMBER 26014.00
INSPECTOR NAME D. McGuire
EQUIPMENT USED CME 75 truck rig (Auto Hammer)
DRILLER NAME/COMPANY J. Blemings/UTD
DRILLING METHODS Continuous 2" SS to 16' ; 5' intervals thereafter
AUGER: SIZE: 4.25 ID HSA ; AUGER DEPTH: 19.5' ; WATER: DEPTH: 11.0' TIME: 24 HR DATE: 2/27/2013
CHECKED BY: T. Carlin ; DATE: 3/28/2013 DEPTH: TIME: DATE:
NOT ENCOUNTERED ☐

DEPTH (FT)	SAMPLE NO./ TYPE/CORE RUN	BLOWS/0.5 FT. ON SAMPLER	RECOVERY (Ft.)	RECOVERY(%) / RQD (%)	USCS / AASHTO	H_2O CONTENT	GRAPHIC LOG	DESCRIPTION (DEPTH / ELEVATION)	REMARKS
0.0	S-1	2 6 21 19	1.2'	-	SM	M		Silty sand little construction debris and cinders; dark brown (Demolition Fill)	Surface: scattered construction debris
2.0	S-2	10 22 50/2	0.6'	-	SM	M			
3.2									
4.0	S-3	10 5 5 7	1.5'	-	SM	M			Hard drilling @ 4' Easy drilling @ 5'
6.0	S-4	7 17 10 5	0.5'	-	SM	M			
8.0	S-5	50/3	0.1'	-	SM	D			
8.5									
10.0	S-6	20 4 2 1	1.6'	-	ML	M			
11.0 / 178.0								Silt, little fine sand, trace organics; dark brown (Alluvial)	
12.0	S-7	1 2 4 6	1.8'	-	ML	M			
13.0 / 176.0								Clayey silt little fine sand, gray to reddish brown (Alluvial)	
14.0	S-8	13 18 21 24	1.5'	-	SM	M			3.0 tsf unconfined
15.0 / 174.0								Fine to coarse sand trace silt, reddish brown (Residual)	
16.0									
18.0 / 171.0								Silty sand to sandy silt, trace gravel (Weathered Rock)	Hard drilling @ 18'
19.0				-					
19.2	S-9	50/2	0.2'		SM	NA			
19.5 / 169.5								End of Boring	Auger Refusal @ 19.5'

** D = DRY, M = MOIST, W = WET

EARTH ENGINEERING INCORPORATED
Geotechnical Engineers & Geologists

BORING LOG

BORING NO. B-4
SHEET 1 OF 2
DATE: START 2/26/13
END 2/26/13
SURFACE ELEV. (FT) 194.0

PROJECT NAME Ambler Crossings Residential
PROJECT LOCATION Ambler, PA
PROJECT NUMBER 26014.00
INSPECTOR NAME D. McGuire
EQUIPMENT USED CME 75 truck rig (Auto Hammer)
DRILLER NAME/COMPANY J. Blemings/UTD
DRILLING METHODS Continuous 2" SS to 13.5' ; 5' intervals thereafter
AUGER: SIZE: 4.25 ID HSA ; AUGER DEPTH: 34.6' ; WATER: DEPTH: TIME: DATE:
CHECKED BY: T. Carlin ; DATE: 3/28/2013 DEPTH: TIME: DATE:
NOT ENCOUNTERED [X]

DEPTH (FT)	SAMPLE NO./ TYPE/CORE RUN	BLOWS/0.5 FT. ON SAMPLER	RECOVERY (Ft.)	RECOVERY(%) / RQD (%)	USCS / AASHTO	H_2O CONTENT	GRAPHIC LOG	DESCRIPTION (DEPTH / ELEVATION)	REMARKS
0.0	S-1	6 7 18 14	1.6'	-		M		Sandy silt some fine gravel, black and dark brown (Demolition Fill)	
2.0	S-2	9 8 4 3	0.6'	-	ML	M			
4.0	S-3	3 2 1 1	1.0'	-	ML	M			
								5.0 / 189.0 clayey silt, white to grey (Magnesia Fill)	
6.0	S-4	3 4 3 2	0.5'	-	ML	M		7.0 / 187.0	
8.0								Fine to coarse sand little silt, gray-brown (Magnesia Fill) 8.0 / 186.0	
10.0	S-5	3 1 1 2	1.0'	-	ML	M		Clayey silt, white to gray (Magnesia Fill)	
12.0	S-6	2 3 1 1	2.0'	-	ML	M			
13.5	US-1	Push	1.5'	-		NA			Shelby tube 12' - 13.5' 0 tsf unconfined
15.5	S-7	1 2 1 1	1.6'	-	ML	M			
19.0									
		5 5		-	ML	M		20.0 / 174.0	

** D = DRY, M = MOIST, W = WET

EARTH ENGINEERING INCORPORATED
Geotechnical Engineers & Geologists

BORING LOG

BORING NO. **B-4**
SHEET **2** OF **2**
DATE: START **2/26/13**
END **2/26/13**
SURFACE ELEV. (FT) **194.0**

PROJECT NAME **Ambler Crossings Residential**
PROJECT LOCATION **Ambler, PA**
PROJECT NUMBER **26014.00**
INSPECTOR NAME **D. McGuire**
EQUIPMENT USED **CME 75 truck rig (Auto Hammer)**
DRILLER NAME/COMPANY **J. Blemings/UTD**
DRILLING METHODS **Continuous 2" SS to 13.5' ; 5' intervals thereafter**
AUGER: SIZE: **4.25 ID HSA** ; AUGER DEPTH: **34.6'** ; WATER: DEPTH: ____ TIME: ____ DATE: ____
CHECKED BY: **T. Carlin** ; DATE: **3/28/2013** DEPTH: ____ TIME: ____ DATE: ____
NOT ENCOUNTERED [X]

DEPTH (FT)	SAMPLE NO./ TYPE/CORE RUN	BLOWS/0.5 FT. ON SAMPLER	RECOVERY (Ft.)	RECOVERY(%) / RQD (%)	USCS / AASHTO	H_2O CONTENT	GRAPHIC LOG	DESCRIPTION	REMARKS
								DEPTH ELEVATION	
	S-8	14 16	2.0'		ML	M		Organic silt, trace fine sand, dark grey to brown (Remnant Topsoil)	2.0 tsf unconfined
21.0								21.0 173.0	
								Fine to coarse sand, trace silt, reddish brown (Residual)	
24.0									
	S-9	7 11 11 14	1.7'	-	SM	M			
26.0									
29.0								29.0 165.0	
	S-10	5 7 8 9	0.9'	-	ML	M		Sandy silt trace gravel, dark red (Weathered Rock)	
31.0									
34.0									
34.6	S-11	15 50/1	0.4'	-	ML	M		34.6 159.4	
								End of Boring	Auger Refusal @ 34.6'

** D = DRY, M = MOIST, W = WET

EARTH ENGINEERING INCORPORATED
Geotechnical Engineers & Geologists

BORING LOG

BORING NO. B-5
SHEET 1 OF 2
DATE: START 2/27/13
END 2/27/13
SURFACE ELEV. (FT) 194.0

PROJECT NAME Ambler Crossings Residential
PROJECT LOCATION Ambler, PA
PROJECT NUMBER 26014.00
INSPECTOR NAME D. McGuire
EQUIPMENT USED CME 75 truck rig (Auto Hammer)
DRILLER NAME/COMPANY J. Blemings/UTD
DRILLING METHODS Continuous 2" SS to 26' ; 5' intervals thereafter
AUGER: SIZE: 4.25 ID HSA ; AUGER DEPTH: 38.5' ; WATER: DEPTH: ____ TIME: ____ DATE: ____
CHECKED BY: T. Carlin ; DATE: 3/28/2013 DEPTH: ____ TIME: ____ DATE: ____
NOT ENCOUNTERED [X]

DEPTH (FT)	SAMPLE NO./ TYPE/CORE RUN	BLOWS/0.5 FT. ON SAMPLER	RECOVERY (Ft.)	RECOVERY(%) / RQD (%)	USCS / AASHTO	H_2O CONTENT	GRAPHIC LOG	DESCRIPTION	REMARKS
0.0								DEPTH ELEVATION	
	S-1	4 8 10 10	1.8'	-	SM	M		Sand with ash and cinders, dark gray to black (Demolition Fill)	
2.0									
2.3	S-2	50/4	0.1'		SM	M			
4.0									
	S-3	6 6 4 5	0.8'	-	SM	M			
6.0								6.0 188.0	
	S-4	7 3 2 2	0.5'	-	ML	M		Silt with cinders and fine gravel, light gray to light brown and white (Magnesia Fill)	
8.0									
	S-5	4 4 1 2	1.0'	-	ML	M			
10.0								10.0 184.0	
	S-6	1 1 1 1	1.6'	-	ML	M		Clayey silt, white (Magnesia Fill)	0 tsf unconfined
12.0								12.0 182.0	
	S-7	WOH/24"	1.0'	-	ML	M		Silt with cinders and fine gravel, light gray to light brown and white (Magnesia Fill)	0 tsf unconfined
14.0									
	S-8	WOH/12" 10 1	0.9'	-	ML	M			
16.0									
	S-9	WOH/24"	0.6'	-	ML	M			
18.0									
	US-1	Push	1.5'	-	ML	NA			
20.0									

** D = DRY, M = MOIST, W = WET

EARTH ENGINEERING INCORPORATED
Geotechnical Engineers & Geologists

BORING LOG

BORING NO. **B-5**
SHEET **2** OF **2**
DATE: START **2/27/13**
END **2/27/13**
SURFACE ELEV. (FT) **194.0**

PROJECT NAME **Ambler Crossings Residential**
PROJECT LOCATION **Ambler, PA**
PROJECT NUMBER **26014.00**
INSPECTOR NAME **D. McGuire**
EQUIPMENT USED **CME 75 truck rig (Auto Hammer)**
DRILLER NAME/COMPANY **J. Blemings/UTD**
DRILLING METHODS **Continuous 2" SS to 26' ; 5' intervals thereafter**
AUGER: SIZE: **4.25 ID HSA** ; AUGER DEPTH: **38.5'** ; WATER: DEPTH: ____ TIME: ____ DATE: ____
CHECKED BY: **T. Carlin** ; DATE: **3/28/2013** DEPTH: ____ TIME: ____ DATE: ____
NOT ENCOUNTERED [X]

DEPTH (FT)	SAMPLE NO./ TYPE/CORE RUN	BLOWS/0.5 FT. ON SAMPLER	RECOVERY (Ft.)	RECOVERY(%) / RQD (%)	USCS / AASHTO	H_2O CONTENT	GRAPHIC LOG	DESCRIPTION	REMARKS
								DEPTH ELEVATION	
	S-10	WOH/24"	1.6'	-	ML	M		Silt with cinders and fine gravel, light gray to light brown and white (Magnesia Fill) *(continued)* 21.0 173.0	
22.0								Organic silt, trace fine sand, black to dark grey (Remnant Topsoil)	
	S-11	2 6 4 3	0.4'	-	SM	M		22.5 171.5 Silty sand trace gravel, dark brown to red brown (Alluvial)	
24.0									
	S-12	10 17 27 50/4	1.0'	-	SM	M			
26.0									
29.0									
	S-13	38 32 10 10	2.0'	-	ML	M		30.0 164.0 Sandy silt, dark brown to red brown (Residual)	
31.0									
34.0									
	S-14	13 17 18 19	1.7'	-	ML	M			
36.0								38.5 155.5 End of Boring	Auger Refusal @ 38.5'

** D = DRY, M = MOIST, W = WET

EARTH ENGINEERING INCORPORATED
Geotechnical Engineers & Geologists

BORING LOG

BORING NO. B-6
SHEET 1 OF 2
DATE: START 2/27/13
END 2/27/13
SURFACE ELEV. (FT) 193.0

PROJECT NAME Ambler Crossings Residential
PROJECT LOCATION Ambler, PA
PROJECT NUMBER 26014.00
INSPECTOR NAME D. McGuire
EQUIPMENT USED CME 75 truck rig (Auto Hammer)
DRILLER NAME/COMPANY J. Blemings/UTD
DRILLING METHODS Continuous 2" SS to 18' ; 5' intervals thereafter
AUGER: SIZE: 4.25 ID HSA ; AUGER DEPTH: 29.5' ; WATER: DEPTH: ____ TIME: ____ DATE: ____
CHECKED BY: T. Carlin ; DATE: 3/28/2013 DEPTH: ____ TIME: ____ DATE: ____
NOT ENCOUNTERED [X]

DEPTH (FT)	SAMPLE NO./ TYPE/CORE RUN	BLOWS/0.5 FT. ON SAMPLER	RECOVERY (Ft.)	RECOVERY(%) / RQD (%)	USCS / AASHTO	H_2O CONTENT	GRAPHIC LOG	DESCRIPTION	REMARKS
								DEPTH ELEVATION	
0.0	S-1	4 4 5 5	1.5'	-	ML	M		Silt with cinders, black (Demolition Fill)	
								1.5 191.5	
2.0	S-2	4 4 3 3	1.5'	-	ML	M		Clayey silt, white, waste material (Magnesia Fill)	
4.0	S-3	3 1 2 2	1.2'	-	ML	M		5.0 188.0	
6.0	S-4	3 2 3 3	1.6'	-	ML	M		Clayey silt with cinders, white, (Magnesia Fill)	
8.0	S-5	4 2 1 1	1.2'	-	ML	M			
10.0	S-6	6 4 2 1	1.4'	-	ML	M			
12.0	S-7	7 20 7 9	1.8'	-	ML	M			
14.0	S-8	3 1 1 1	2.0'	-	ML	M			
16.0	S-9	2 1 1 3	1.9'	-	ML	M			
17.0								17.0 176.0	
18.0								Organic silt, dark gray (Remnant Topsoil)	
19.0								19.0 174.0	
		3 5		-	ML	M		Silt with fine sand, trace organics, gray (Residual)	

** D = DRY, M = MOIST, W = WET

EARTH ENGINEERING INCORPORATED
Geotechnical Engineers & Geologists

BORING LOG

BORING NO. **B-6**
SHEET **2** OF **2**
DATE: START **2/27/13**
END **2/27/13**
SURFACE ELEV. (FT) **193.0**

PROJECT NAME **Ambler Crossings Residential**
PROJECT LOCATION **Ambler, PA**
PROJECT NUMBER **26014.00**
INSPECTOR NAME **D. McGuire**
EQUIPMENT USED **CME 75 truck rig (Auto Hammer)**
DRILLER NAME/COMPANY **J. Blemings/UTD**
DRILLING METHODS **Continuous 2" SS to 18' ; 5' intervals thereafter**
AUGER: SIZE: **4.25 ID HSA** ; AUGER DEPTH: **29.5'** ; WATER: DEPTH: ____ TIME: ____ DATE: ____
CHECKED BY: **T. Carlin** ; DATE: **3/28/2013** DEPTH: ____ TIME: ____ DATE: ____
NOT ENCOUNTERED [X]

DEPTH (FT)	SAMPLE NO./ TYPE/CORE RUN	BLOWS/0.5 FT. ON SAMPLER	RECOVERY (Ft.)	RECOVERY(%) / RQD (%)	USCS / AASHTO	H_2O CONTENT	GRAPHIC LOG	DESCRIPTION	REMARKS
								DEPTH ELEVATION	
	S-10	6 9	2.0'		ML	M		Silt with fine sand, trace organics, gray (Residual) *(continued)*	
21.0									
24.0								24.0 169.0	
	S-11	17 27 35 40	2.0'	-	SM	M		Sandy silt trace gravel, gray (Weathered Rock)	
26.0									
29.0									
29.4	S-12	50/5	0.3'	-	SM	M		29.5 163.5	
								End of Boring	Spoon refusal @ 29.4' Auger Refusal @ 29.4'

** D = DRY, M = MOIST, W = WET

EARTH ENGINEERING INCORPORATED
Geotechnical Engineers & Geologists

BORING LOG

BORING NO. B-7
SHEET 1 OF 2
DATE: START 2/27/13
END 2/27/13
SURFACE ELEV. (FT) 190.0

PROJECT NAME Ambler Crossings Residential
PROJECT LOCATION Ambler, PA
PROJECT NUMBER 26014.00
INSPECTOR NAME D. McGuire
EQUIPMENT USED CME 75 truck rig (Auto Hammer)
DRILLER NAME/COMPANY J. Blemings/UTD
DRILLING METHODS Continuous 2" SS to 12' ; 5' intervals thereafter
AUGER: SIZE: 4.25 ID HSA ; AUGER DEPTH: 29.5' ; WATER: DEPTH: ____ TIME: ____ DATE: ____
CHECKED BY: T. Carlin ; DATE: 3/28/2013 DEPTH: ____ TIME: ____ DATE: ____
NOT ENCOUNTERED [X]

DEPTH (FT)	SAMPLE NO./ TYPE/CORE RUN	BLOWS/0.5 FT. ON SAMPLER	RECOVERY (Ft.)	RECOVERY(%) / RQD (%)	USCS / AASHTO	H_2O CONTENT	GRAPHIC LOG	DESCRIPTION	REMARKS
0.0								DEPTH ELEVATION	
	S-1	9 9 8 8	1.5'	-	ML	M		Silt and brick fragments, dark brown (Demolition Fill)	Surface: scattered construction debris
2.0									
	S-2	7 4 4 4	1.9'	-	ML	M			
4.0									
	S-3	3 2 2 2	1.0'	-	ML	M			
6.0									
	S-4	2 1 1 1	0.8'	-	ML	M			
8.0									
	S-5	2 2 6 10	0.6'	-	ML	M			
10.0								10.0 180.0	
	S-6	7 4 7 13	1.2'	-	SM	M		Sand with crushed concrete and rock fragments (Demolition Fill)	
12.0									
14.0								14.0 176.0	
	S-7	7 8 10 15	1.0'	-	ML	M		Organic silt little gravel, dark gray (Remnant Topsoil)	
								15.0 175.0	
16.0								Silty sand little fine to medium gravel, brown to reddish brown (Alluvial)	
19.0									
		8 9		-	SM	M			

** D = DRY, M = MOIST, W = WET

EARTH ENGINEERING INCORPORATED
Geotechnical Engineers & Geologists

BORING LOG

BORING NO. B-7
SHEET 2 OF 2
DATE: START 2/27/13
END 2/27/13
SURFACE ELEV. (FT) 190.0

PROJECT NAME Ambler Crossings Residential
PROJECT LOCATION Ambler, PA
PROJECT NUMBER 26014.00
INSPECTOR NAME D. McGuire
EQUIPMENT USED CME 75 truck rig (Auto Hammer)
DRILLER NAME/COMPANY J. Blemings/UTD
DRILLING METHODS Continuous 2" SS to 12' ; 5' intervals thereafter
AUGER: SIZE: 4.25 ID HSA ; AUGER DEPTH: 29.5' ; WATER: DEPTH: ____ TIME: ____ DATE: ____
CHECKED BY: T. Carlin ; DATE: 3/28/2013 DEPTH: ____ TIME: ____ DATE: ____
NOT ENCOUNTERED [X]

DEPTH (FT)	SAMPLE NO./ TYPE/CORE RUN	BLOWS/0.5 FT. ON SAMPLER	RECOVERY (Ft.)	RECOVERY(%) / RQD (%)	USCS / AASHTO	H_2O CONTENT	GRAPHIC LOG	DESCRIPTION	REMARKS
								DEPTH ELEVATION	
	S-8	14 15	0.6'		SM	M		Silty sand little fine to medium gravel, brown to reddish brown (Alluvial) *(continued)*	
21.0									
24.0				-				24.0 166.0	
24.3	S-9	50/3	0.1'		SM	M		Silty sand and gravel, reddish grey, (Weathered Rock)	Hard drilling @ 24'
29.0				-					
29.4	S-10	50/5	0.0'			NA		29.5 160.5	
								End of Boring	Auger Refusal 29.5'

** D = DRY, M = MOIST, W = WET

EARTH ENGINEERING INCORPORATED
Geotechnical Engineers & Geologists

BORING LOG

BORING NO. B-8
SHEET 1 OF 2
DATE: START 2/28/13
END 2/28/13
SURFACE ELEV. (FT) 189.0

PROJECT NAME Ambler Crossings Residential
PROJECT LOCATION Ambler, PA
PROJECT NUMBER 26014.00
INSPECTOR NAME D. McGuire
EQUIPMENT USED CME 75 truck rig (Auto Hammer)
DRILLER NAME/COMPANY J. Blemings/UTD
DRILLING METHODS Continuous 2" SS to 16' ; 5' intervals thereafter
AUGER: SIZE: 4.25 ID HSA ; AUGER DEPTH: 30.4' ; WATER: DEPTH: ____ TIME: ____ DATE: ____
CHECKED BY: T. Carlin ; DATE: 3/28/2013 DEPTH: ____ TIME: ____ DATE: ____
NOT ENCOUNTERED [X]

DEPTH (FT)	SAMPLE NO./ TYPE/CORE RUN	BLOWS/0.5 FT. ON SAMPLER	RECOVERY (Ft.)	RECOVERY(%) / RQD (%)	USCS / AASHTO	H_2O CONTENT	GRAPHIC LOG	DESCRIPTION (DEPTH / ELEVATION)	REMARKS
0.0	S-1	4 7 5 2	1.2'	-	ML	M		Sandy silt with construction debris and brick fragments, dark brown (Demolition Fill)	
2.0	S-2	5 18 5 4	0.2'	-	ML	M			
4.0	S-3	1 1 1 1	1.0'	-	ML	M		Clayey silt little fine sand trace gravel, brown, (Demolition Fill) 4.0 / 185.0	
6.0	S-4	2 2 2 4	1.2'	-	ML	M			1.5 tsf unconfined
8.0	S-5	2 3 4 2	1.4'	-	ML	M		8.5 / 180.5	
10.0	S-6	2 4 4 5	1.0'	-	ML	M		Silty clay and cinders, dark gray (Magnesia Fill)	
12.0	S-7	2 2 2 5	0.8'	-	ML	M			
14.0	S-8	5 7 8 8	1.1'	-	ML	M		14.0 / 175.0	
16.0								Silty sand trace gravel, brown (Residual)	
19.0		18 30		-	SM	M		19.0 / 170.0 Silty sand, trace gravel, reddish gray (Weathered Rock)	

** D = DRY, M = MOIST, W = WET

EARTH ENGINEERING INCORPORATED
Geotechnical Engineers & Geologists

BORING LOG

BORING NO. **B-8**
SHEET **2** OF **2**
DATE: START **2/28/13**
END **2/28/13**
SURFACE ELEV. (FT) **189.0**

PROJECT NAME **Ambler Crossings Residential**
PROJECT LOCATION **Ambler, PA**
PROJECT NUMBER **26014.00**
INSPECTOR NAME **D. McGuire**
EQUIPMENT USED **CME 75 truck rig (Auto Hammer)**
DRILLER NAME/COMPANY **J. Blemings/UTD**
DRILLING METHODS **Continuous 2" SS to 16' ; 5' intervals thereafter**
AUGER: SIZE: **4.25 ID HSA** ; AUGER DEPTH: **30.4'** ; WATER: DEPTH: ____ TIME: ____ DATE: ____
CHECKED BY: **T. Carlin** ; DATE: **3/28/2013** DEPTH: ____ TIME: ____ DATE: ____
NOT ENCOUNTERED [X]

DEPTH (FT)	SAMPLE NO./ TYPE/CORE RUN	BLOWS/0.5 FT. ON SAMPLER	RECOVERY (Ft.)	RECOVERY(%) / RQD (%)	USCS / AASHTO	H_2O CONTENT	GRAPHIC LOG	DESCRIPTION	REMARKS
								DEPTH ELEVATION	
	S-9	27 35	2.0'		SM	M		Silty sand, trace gravel, reddish gray (Weathered Rock) *(continued)*	
21.0									
24.0									
24.8	S-10	24 50/3	0.6'	-	SM	M			
29.0									
	S-11	20 30 50/5	0.4'	-	SM	M			
30.4								30.4 158.6 End of Boring	Spoon refusal @ 30.4'

** D = DRY, M = MOIST, W = WET

EARTH ENGINEERING INCORPORATED
Geotechnical Engineers & Geologists

BORING LOG

BORING NO. **B-9**
SHEET **1** OF **1**
DATE: START **2/28/13**
END **2/28/13**
SURFACE ELEV. (FT) **188.0**

PROJECT NAME **Ambler Crossings Residential**
PROJECT LOCATION **Ambler, PA**
PROJECT NUMBER **26014.00**
INSPECTOR NAME **D. McGuire**
EQUIPMENT USED **CME 75 truck rig (Auto Hammer)**
DRILLER NAME/COMPANY **J. Blemings/UTD**
DRILLING METHODS **Continuous 2" SS to 12' ; 5' intervals thereafter**
AUGER: SIZE: **4.25 ID HSA** ; AUGER DEPTH: **19.4'** ; WATER: DEPTH: ____ TIME: ____ DATE: ____
CHECKED BY: **T. Carlin** ; DATE: **3/28/2013** DEPTH: ____ TIME: ____ DATE: ____
NOT ENCOUNTERED [X]

DEPTH (FT)	SAMPLE NO./ TYPE/CORE RUN	BLOWS/0.5 FT. ON SAMPLER	RECOVERY (Ft.)	RECOVERY(%) / RQD (%)	USCS / AASHTO	H_2O CONTENT	GRAPHIC LOG	DESCRIPTION (DEPTH / ELEVATION)	REMARKS
0.0	S-1	4 8 8 6	1.4'	-	ML	M		Silt with ash, cinders, and construction debris, dark brown to black (Demolition Fill)	
2.0								2.0 / 186.0	
	S-2	10 12 8 7	1.7'	-	ML	M		Sandy silt, trace fine to medium gravel (Demolition Fill)	
4.0	S-3	4 3 3 3	0.1'	-	ML	M			
6.0	S-4	10 11 3 1	0.4'	-	ML	M			
				-				7.5 / 180.5	
8.0								Organic silt little gravel, dark brown (Remnant Topsoil)	
								8.0 / 180.0	
8.2	S-5	50/2	0.0'		ML	M		8.3 / 179.7 Concrete (4")	
								Sandy silt trace fine gravel, brown (Residual)	
10.0	S-6	6 6 7 9	1.6'	-	ML	M			
12.0									
14.0								14.0 / 174.0	
	S-7	8 12 20 18	1.4'	-	ML	M		Silty sand, trace fine gravel, gray brown (Weathered Rock)	
16.0									
19.0									
19.3	S-8	50/4	0.2'		SM	M		19.4 / 168.6	
								End of Boring	

** D = DRY, M = MOIST, W = WET

EARTH ENGINEERING INCORPORATED
Geotechnical Engineers & Geologists

BORING LOG

BORING NO. B-10
SHEET 1 OF 1
DATE: START 2/28/13
END 2/28/13
SURFACE ELEV. (FT) 180.0

PROJECT NAME Ambler Crossings Residential
PROJECT LOCATION Ambler, PA
PROJECT NUMBER 26014.00
INSPECTOR NAME D. McGuire
EQUIPMENT USED CME 75 truck rig (Auto Hammer)
DRILLER NAME/COMPANY J. Blemings/UTD
DRILLING METHODS Continuous 2" SS to 9.3' ; 5' intervals thereafter
AUGER: SIZE: 4.25 ID HSA ; AUGER DEPTH: 14.3' ; WATER: DEPTH: 5.5' TIME: .25 HR DATE: 2/28/2013
CHECKED BY: T. Carlin ; DATE: 3/28/2013 DEPTH: TIME: DATE:
NOT ENCOUNTERED ☐

DEPTH (FT)	SAMPLE NO./ TYPE/CORE RUN	BLOWS/0.5 FT. ON SAMPLER	RECOVERY (Ft.)	RECOVERY(%) / RQD (%)	USCS / AASHTO	H_2O CONTENT	GRAPHIC LOG	DESCRIPTION	REMARKS
								DEPTH ELEVATION	
								0.4 Concrete slab (5") 179.6	
								Silty sand, trace fine gravel, brown (Demolition Fill)	
2.0									
	S-1	10 14 12 10	1.6'	-	SM	M		3.0 177.0	
								Silt and fine sand, trace fine gravel, red-gray (Residual)	
4.0									
	S-2	7 7 8 31	2.0'	-	SM	M		5.5 174.5	
6.0								Silty Sand, red gray (Weathered Rock)	
	S-3	21 26 46	1.7'	-	SM	M			
7.7									
	S-4	50/2 37 50/4	0.5'	-	SM	M			
8.9									
9.0	S-5	50/3	0.3'	-	SM	M			
9.3									
14.0				-					
14.3	S-6	50/3	0.2'		SM	M		14.3 165.7	
								End of Boring	Spoon refusal @ 14.3'

** D = DRY, M = MOIST, W = WET

EARTH ENGINEERING INCORPORATED
Geotechnical Engineers & Geologists

BORING LOG

BORING NO. **B-11**
SHEET **1** OF **1**
DATE: START **2/28/13**
END **2/28/13**
SURFACE ELEV. (FT) **180.0**

PROJECT NAME **Ambler Crossings Residential**
PROJECT LOCATION **Ambler, PA**
PROJECT NUMBER **26014.00**
INSPECTOR NAME **D. McGuire**
EQUIPMENT USED **CME 75 truck rig (Auto Hammer)**
DRILLER NAME/COMPANY **J. Blemings/UTD**
DRILLING METHODS **Continuous 2" SS to 12' ; 5' intervals thereafter**
AUGER: SIZE: **4.25 ID HSA** ; AUGER DEPTH: **18.5'** ; WATER: DEPTH: **5.0'** TIME: **.25 HR** DATE: **2/28/2013**
CHECKED BY: **T. Carlin** ; DATE: **3/28/2013** DEPTH: _____ TIME: _____ DATE: _____
NOT ENCOUNTERED ☐

DEPTH (FT)	SAMPLE NO./ TYPE/CORE RUN	BLOWS/0.5 FT. ON SAMPLER	RECOVERY (Ft.)	RECOVERY(%) / RQD (%)	USCS / AASHTO	H_2O CONTENT	GRAPHIC LOG	DESCRIPTION (DEPTH / ELEVATION)	REMARKS
								0.4 / 179.6 Concrete slab (5")	
2.0								Silty clay, trace fine sand, gray (Residual)	
	S-1	4 3 3 3	2.0'	-	CL	M			2.0 tsf unconfined
4.0								4.0 / 176.0	
	S-2	3 4 6 7	2.0'	-	ML	M		Silt, little fine sand, light brown to gray (Residual)	
6.0									
	S-3	9 9 9 9	2.0'	-	ML	M			
8.0								8.0 / 172.0	
	S-4	6 9 13 12	2.0'	-	SM	M		Fine to coarse sand with silt and fine to medium gravel, red brown (Residual)	
10.0									
	S-5	6 8 14 21	2.0'	-	SM	W		11.5 / 168.5	
12.0								Silty sand trace fine gravel, gray (Weathered Rock)	
14.0				-					
14.2	S-6	50/2	0.1'		SM	W		18.5 / 161.5	
								End of Boring	Auger Refusal @18.5'

** D = DRY, M = MOIST, W = WET

EARTH ENGINEERING INCORPORATED
Geotechnical Engineers & Geologists

BORING LOG

BORING NO. **B-12**
SHEET **1** OF **1**
DATE: START **3/1/13**
END **3/1/13**
SURFACE ELEV. (FT) **180.0**

PROJECT NAME **Ambler Crossings Residential**
PROJECT LOCATION **Ambler, PA**
PROJECT NUMBER **26014.00**
INSPECTOR NAME **D. McGuire**
EQUIPMENT USED **CME 75 truck rig (Auto Hammer)**
DRILLER NAME/COMPANY **J. Blemings/UTD**
DRILLING METHODS **Continuous 2" SS to 12' ; 5' intervals thereafter**
AUGER: SIZE: **4.25 ID HSA** ; AUGER DEPTH: **16.0'** ; WATER: DEPTH: **4.0'** TIME: **.25 HR** DATE: **3/1/2013**
CHECKED BY: **T. Carlin** ; DATE: **3/28/2013** DEPTH: _____ TIME: _____ DATE: _____
NOT ENCOUNTERED ☐

DEPTH (FT)	SAMPLE NO./ TYPE/CORE RUN	BLOWS/0.5 FT. ON SAMPLER	RECOVERY (Ft.)	RECOVERY(%) / RQD (%)	USCS / AASHTO	H_2O CONTENT	GRAPHIC LOG	DESCRIPTION (DEPTH / ELEVATION)	REMARKS
								0.4 Concrete (5") 179.6	
2.0								Clayey silt, trace fine sand, light brown (Residual)	
	S-1	2 2 2 3	2.0'	-	ML	M			
4.0									Shelby tube 4' - 6' in offset boring
	S-2	1 1 2 2	2.0'	-	ML/CL	M			
6.0									
	S-3	5 5 6 7	2.0'	-	ML/CL	M			
8.0									
	S-4	2 7 10 12	1.7'	-	SM	M		8.5 171.5 Fine to coarse sand, little silt, little fine to medium gravel, red-brown (Residual)	
10.0									
	S-5	3 6 10 15	2.0'	-	SM	W			
12.0								12.0 168.0 Fine to coarse sand, trace silt, trace fine gravel (Weathered Rock)	
14.0									
14.4	S-6	50/5	0.4'	-	SM	W		16.0 164.0 End of Boring	Auger Refusal @16'

** D = DRY, M = MOIST, W = WET

EARTH ENGINEERING INCORPORATED
Geotechnical Engineers & Geologists

BORING LOG

BORING NO. TP-1
SHEET 1 OF 2
DATE: START 7/9/13
END 7/9/13
SURFACE ELEV. (FT) 193.5

PROJECT NAME Ambler Crossings
PROJECT LOCATION Ambler Borough, PA
PROJECT NUMBER 26014.00
INSPECTOR NAME D. McGuire
EQUIPMENT USED Komatsu PC138US
DRILLER NAME/COMPANY Scott Contractors
DRILLING METHODS
AUGER: SIZE: ; AUGER DEPTH: ; WATER: DEPTH: 15.5' TIME: 24 hrs DATE: 7/9/2013
CHECKED BY: ; DATE: DEPTH: TIME: DATE:
NOT ENCOUNTERED ☐

DEPTH (FT)	SAMPLE NO./ TYPE/CORE RUN	BLOWS/0.5 FT. ON SAMPLER	RECOVERY (Ft.)	RECOVERY(%) / RQD (%)	USCS / AASHTO	H_2O CONTENT	GRAPHIC LOG	DESCRIPTION (DEPTH / ELEVATION)	REMARKS
0.0	1			-	SM	M		Demolition fill: silty sand with construction debris 5.0 / 188.5	
5.0	2			-	ML/CL	M		Magnesia waste, with construction debris throughout (concrete, gypsum, plastic, wood); white, gray 19.0 / 174.5	Magnesia waste appears to be granular Easy digging Magnesia waste appears to be fine grained and is very soft
19.0	3			-	SW	W		Fine to coarse sand, little gravel, trace silt 20.0 / 173.5	
20.0									

** D = DRY, M = MOIST, W = WET

EARTH ENGINEERING INCORPORATED
Geotechnical Engineers & Geologists

BORING LOG

BORING NO. TP-1
SHEET 2 OF 2
DATE: START 7/9/13
END 7/9/13
SURFACE ELEV. (FT) 193.5

PROJECT NAME Ambler Crossings
PROJECT LOCATION Ambler Borough, PA
PROJECT NUMBER 26014.00
INSPECTOR NAME D. McGuire
EQUIPMENT USED Komatsu PC138US
DRILLER NAME/COMPANY Scott Contractors
DRILLING METHODS
AUGER: SIZE: ; AUGER DEPTH: ; WATER: DEPTH: 15.5' TIME: 24 hrs DATE: 7/9/2013
CHECKED BY: ; DATE: DEPTH: TIME: DATE:
NOT ENCOUNTERED ☐

DEPTH (FT)	SAMPLE NO./ TYPE/CORE RUN	BLOWS/0.5 FT. ON SAMPLER	RECOVERY (Ft.)	RECOVERY(%) / RQD (%)	USCS / AASHTO	H_2O CONTENT	GRAPHIC LOG	DESCRIPTION (DEPTH / ELEVATION)	REMARKS
									End of test pit at 20.0'

** D = DRY, M = MOIST, W = WET

EARTH ENGINEERING INCORPORATED
Geotechnical Engineers & Geologists

BORING LOG

BORING NO. TP-2
SHEET 1 OF 1
DATE: START 7/9/13
END 7/8/13
SURFACE ELEV. (FT) 192.5

PROJECT NAME Ambler Crossings
PROJECT LOCATION Ambler Borough, PA
PROJECT NUMBER 26014.00
INSPECTOR NAME D. McGuire
EQUIPMENT USED Komatsu PC138US
DRILLER NAME/COMPANY Scott Contractors
DRILLING METHODS
AUGER: SIZE: ; AUGER DEPTH: ; WATER: DEPTH: 15.0' TIME: 24 hrs DATE: 7/9/2013
CHECKED BY: ; DATE: DEPTH: TIME: DATE:
NOT ENCOUNTERED ☐

DEPTH (FT)	SAMPLE NO./ TYPE/CORE RUN	BLOWS/0.5 FT. ON SAMPLER	RECOVERY (Ft.)	RECOVERY(%) / RQD (%)	USCS / AASHTO	H_2O CONTENT	GRAPHIC LOG	DESCRIPTION (DEPTH / ELEVATION)	REMARKS
0.0	1			-	SM	M		Demolition fill: silty sand with construction debris 1.5 / 191.0	
1.5	2			-	ML/CL	D		Magnesia waste; little construction debris; white, gray	Magnesia waste is granular and side walls held up, no collapse
15.0	3			-	SW	W		Fine to coarse sand, little gravel, trace clay 15.0 / 177.5 16.0 / 176.5	End of test pit at 16.0'
16.0									

** D = DRY, M = MOIST, W = WET

EARTH ENGINEERING INCORPORATED
Geotechnical Engineers & Geologists

BORING LOG

BORING NO. TP-3
SHEET 1 OF 1
DATE: START 7/9/13
END 7/9/13
SURFACE ELEV. (FT) 194.0

PROJECT NAME Ambler Crossings
PROJECT LOCATION Ambler Borough, PA
PROJECT NUMBER 26014.00
INSPECTOR NAME D. McGuire
EQUIPMENT USED Komatsu PC138US
DRILLER NAME/COMPANY Scott Contractors
DRILLING METHODS
AUGER: SIZE: ; AUGER DEPTH: ; WATER: DEPTH: 16.0' TIME: 24 hrs DATE: 7/9/2013
CHECKED BY: ; DATE: DEPTH: TIME: DATE:
NOT ENCOUNTERED ☐

DEPTH (FT)	SAMPLE NO./ TYPE/CORE RUN	BLOWS/0.5 FT. ON SAMPLER	RECOVERY (Ft.)	RECOVERY(%) / RQD (%)	USCS / AASHTO	H_2O CONTENT	GRAPHIC LOG	DESCRIPTION (DEPTH / ELEVATION)	REMARKS
								Topsoil (12") 1.0 / 193.0	
2.0								Concrete slab with wire mesh (12") 2.0 / 192.0	
	1			-	ML/CL	M		Magnesia waste, little construction debris	Magnesia waste is mixed with sand
									Very soft and fine grained
18.0								18.0 / 176.0	
	2			-	SW	W		Fine to coarse sand, little gravel, trace silt	
19.0								19.0 / 175.0	
									End of test pit at 19.0'

** D = DRY, M = MOIST, W = WET

EARTH ENGINEERING INCORPORATED
Geotechnical Engineers & Geologists

BORING LOG

BORING NO. TP-4
SHEET 1 OF 1
DATE: START 7/9/13
END 7/9/13
SURFACE ELEV. (FT) 193.0

PROJECT NAME Ambler Crossings
PROJECT LOCATION Ambler Borough, PA
PROJECT NUMBER 26014.00
INSPECTOR NAME D. McGuire
EQUIPMENT USED Komatsu PC138US
DRILLER NAME/COMPANY Scott Contractors
DRILLING METHODS
AUGER: SIZE: ; AUGER DEPTH: ; WATER: DEPTH: TIME: DATE:
CHECKED BY: ; DATE: DEPTH: TIME: DATE:
NOT ENCOUNTERED [X]

DEPTH (FT)	SAMPLE NO./ TYPE/CORE RUN	BLOWS/0.5 FT. ON SAMPLER	RECOVERY (Ft.)	RECOVERY(%) / RQD (%)	USCS / AASHTO	H_2O CONTENT	GRAPHIC LOG	DESCRIPTION (DEPTH / ELEVATION)	REMARKS
									Surface: high weeds and low underbrush
1.5								1.5 / 191.5	
	1			-	ML	M		Construction debris with magnesia waste	
7.0								7.0 / 186.0	
	2			-	ML/CL	M		Magnesia waste; very soft; white to gray	White magnesia waste is fine grained and very soft
13.0								13.0 / 180.0	
								Magnesia waste mixed with sand and cinders	Hard digging: 13.0 - 14.0'
								14.0 / 179.0	

** D = DRY, M = MOIST, W = WET

EARTH ENGINEERING INCORPORATED
Geotechnical Engineers & Geologists

BORING LOG

BORING NO. TP-5
SHEET 1 OF 1
DATE: START 7/9/13
END 7/9/13
SURFACE ELEV. (FT) 193.5

PROJECT NAME **Ambler Crossings**
PROJECT LOCATION **Ambler Borough, PA**
PROJECT NUMBER **26014.00**
INSPECTOR NAME **D. McGuire**
EQUIPMENT USED **Komatsu PC138US**
DRILLER NAME/COMPANY **Scott Contractors**
DRILLING METHODS
AUGER: SIZE: ; AUGER DEPTH: ; WATER: DEPTH: TIME: DATE:
CHECKED BY: ; DATE: DEPTH: TIME: DATE:
NOT ENCOUNTERED [X]

DEPTH (FT)	SAMPLE NO./ TYPE/CORE RUN	BLOWS/0.5 FT. ON SAMPLER	RECOVERY (Ft.)	RECOVERY(%) / RQD (%)	USCS / AASHTO	H_2O CONTENT	GRAPHIC LOG	DESCRIPTION (DEPTH / ELEVATION)	REMARKS
0.0	1			-	SM	M		Construction debris and silty sand	
3.0								3.0 / 190.5	
	2			-	ML/CL	M		Magnesia waste; white	Magnesia waste is fine grained; very soft; very easy digging
17.5								17.5 / 176.0	
									End of test pit at 17.5' on top of culvert (visible stone & brick)

** D = DRY, M = MOIST, W = WET

EARTH ENGINEERING INCORPORATED
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BORING LOG

BORING NO. TP-6
SHEET 1 OF 1
DATE: START 7/10/13
END 7/10/13
SURFACE ELEV. (FT) 189.0

PROJECT NAME Ambler Crossings
PROJECT LOCATION Ambler Borough, PA
PROJECT NUMBER 26014.00
INSPECTOR NAME D. McGuire
EQUIPMENT USED Komatsu PC138US
DRILLER NAME/COMPANY Scott Contractors
DRILLING METHODS
AUGER: SIZE: ; AUGER DEPTH: ; WATER: DEPTH: TIME: DATE:
CHECKED BY: ; DATE: DEPTH: TIME: DATE:
NOT ENCOUNTERED [X]

DEPTH (FT)	SAMPLE NO./ TYPE/CORE RUN	BLOWS/0.5 FT. ON SAMPLER	RECOVERY (Ft.)	RECOVERY(%) / RQD (%)	USCS / AASHTO	H_2O CONTENT	GRAPHIC LOG	DESCRIPTION (DEPTH / ELEVATION)	REMARKS
0.0	1			-	SM	D		Large construction debris, rebar, remnant pipe 4.0 / 185.0	
4.0	2			-	SM	M		Silty sand, little construction debris 6.0 / 183.0	
6.0	3			-	SM	M		Silty sand to sandy silt; brown 7.0 / 182.0	
7.0									End of test pit at 7.0'

** D = DRY, M = MOIST, W = WET

EARTH ENGINEERING INCORPORATED
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BORING LOG

BORING NO. TP-7
SHEET 1 OF 1
DATE: START 7/10/13
END 7/10/13
SURFACE ELEV. (FT) 177.0

PROJECT NAME Ambler Crossings
PROJECT LOCATION Ambler Borough, PA
PROJECT NUMBER 26014.00
INSPECTOR NAME D. McGuire
EQUIPMENT USED Komatsu PC138US
DRILLER NAME/COMPANY Scott Contractors
DRILLING METHODS
AUGER: SIZE: ; AUGER DEPTH: ; WATER: DEPTH: TIME: DATE:
CHECKED BY: ; DATE: DEPTH: TIME: DATE:
NOT ENCOUNTERED [X]

DEPTH (FT)	SAMPLE NO./ TYPE/CORE RUN	BLOWS/0.5 FT. ON SAMPLER	RECOVERY (Ft.)	RECOVERY(%) / RQD (%)	USCS / AASHTO	H_2O CONTENT	GRAPHIC LOG	DESCRIPTION (DEPTH / ELEVATION)	REMARKS
0.0	1			-	SM	W		Demolition fill: I-beams, concrete	*Note: test pit filled with water, soils not visible
3.0								3.0 / 174.0	
								Concrete slab (12")	
4.0								4.0 / 173.0	
	2			-	ML/CL	W		Sandy silt to silty clay; gray	
5.0								5.0 / 172.0	
	3			-	SW	W		Fine to coarse sand, little gravel, trace silt; brown	
7.0								7.0 / 170.0	End of test pit at 7.0'

** D = DRY, M = MOIST, W = WET

ATTACHMENT #1

For: Westrum Development

Project No. 19244.00

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BORING LOG

Boring No. B-1

Sheet 1 of 1

Job Name and Location Nicolet Industries – Borough of Ambler, Montgomery County, Pennsylvania

Boring Location (See Boring Location Plan)

Date Began 1/12/2005
Date Completed 1/12/2005
Depth of Soil 27.0'
Depth of Rock N/A
Total Boring Depth 27.0'

Casing Size, O.D. 8-inch Augers
Hammer Weight N/A
Hammer Drop N/A
Core Bit Size N/A
Driller F.M. & W. Drilling Co.

Spoon Size, O.D. 2-inch
Hammer Wt. 140 pounds
Hammer Drop 30 inches
Rig Type & No. CME 55
Driller Joe Brophy

Progress & Groundwater Data

Date	Depth Reached	Depth to Water ▽	Time After Completion
1/12/2005	27.0'	Dry	1/4 Hrs

Ground Elev. 190.1'
Datum Elev.
Depth Surf. Water Not Applicable
Weather --

BORING LOG		SPOON SAMPLE & ROCK CORE DATA										REMARKS
Depth From To	Material Description	Sample No.	Sample Depth	Blows on Spoon 6" Intervals 0/6	6/12	12/18	18/24	Soil Rec. (ft)	Depth of Run	Run No.	Core Rec. (ft)	(water loss, cavities, etc.)
0.0' to 1.4'	FILL II: BLACK AND WHITE SILTY SAND WITH ROCK FRAGMENTS	S-1	0.0'-1.4'	3	6	50/5"						
		S-2	4.0'-6.0'	4	2	2	4					
1.4' to 5.8'	FILL I: WHITE SILT	S-3	6.0'-8.0'	1	1	23	10					
		S-4	8.0'-10.0'	1	1	2	1					
5.8' to 8.0'	FILL II: GRAY, BLACK AND WHITE SILTY SAND WITH ROCK FRAGMENTS	S-5	14.0'-16.0'	7	3	2	2					
		S-6	18.0'-20.0'	WOH	WOH	1	2					
8.0' to 19.5'	FILL I: WHITE SILT, VERY MOIST	S-7	23.0'-25.0'	12	12	5	10					
		S-8	25.0'-27.0'	10	15	18	26					
19.5' to 20.0'	REMNANT TOPSOIL: DARK BROWN AND BLACK SANDY SILT WITH ROOTS											
20.0' to 27.0'	STRATUM II: BROWN SANDY SILT WITH GRAVEL (ALLUVIAL DEPOSITS)											

EEI Representative: *Ryan Mawhinney*

CORCORAN DRILLING CO., INC.
Test Borings—Auger Probes
WEST CHESTER, PA 19380

Boring No. 2 Job No. 5060

Sheet No. 1 of 1

Project Nicollette Industries
Location Chestnut Street, Ambler
Ground Surface Elev. 179.7'

Client Earth Engineering, Inc.
Date Started 1/21/05 Completed 1/21/05
Driller Boh Corcoran
Helper

Ground Water Data			
Depth	Hour	Date	Hrs. After completion
5'10"			5 Min.
5'10"			15 Min.

A—Method of Advancing Boring		Depth
1	5" Solid Augers	0' to 13'10"
		to
		to
		to
		to

Depth	A	Sample No.	Sample Depth	Sample N	Soil Classification	Remarks
5		S-1	1'-3' *	7-8-14-17 13" Rec.	Blacktop 4"	* Moist.
		S-2	3'-3'8" *	45-50/2" 6" Rec.	Modified stone 12"	Rec.
		S-3	5'-7' *	31-7-3-6 8" Rec.	Slag, cinders, rock fragments (Fill) 2'5"	Offset B2 18 feet into middle of driveway due to overhead electric line
		S-4	7'-9'	12-12-14-14 18" Rec.	Orange brown fine to medium sand. (Fill) 3'1"	
		S-5	9'-11' *	9-10-16-45 12" Rec.	Black & gray fine sand, cinders, ash & slag. (Fill) 7'3"	
10					Gray & orange brown fine sand & silt. 8'5"	Hard augering from 13'6".
					Brown silt. 9'	
					Reddish brown fine sand with rock fragments & pebbles. 13'6"	
15					Reddish brown weathered sandstone. (Saprolite) 13'10"	
					Auger refusal	
20						
25						
30						
35						
40						

☐ S—2" O.D. Split Spoon Sample
■ U—Undisturbed Sample, 3" Diameter
▨ —Core Drilling
N —Standard Penetration Resistance per 6" (140 lb hammer, 30"drop)
N.R.—No Recovery

Where water levels are shown, they are those observed at the times noted & may not be indicative of daily or seasonal variations in the ground water level.

The boring results represent sub-surface conditions at the boring locations only & are not necessarily representative of conditions at other locations.

For: Westrum Development

Project No. 19244.00

EARTH ENGINEERING INCORPORATED

Geotechnical Engineers & Geologists

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Boring No. B-3

Sheet 1 of 1

BORING LOG

Job Name and Location Nicolet Industries – Borough of Ambler, Montgomery County, Pennsylvania

Boring Location (See Boring Location Plan)

Date Began 1/12/2005
Date Completed 1/12/2005
Depth of Soil 14.5'
Depth of Rock N/A
Total Boring Depth 14.5'

Casing Size, O.D. 8-inch Augers
Hammer Weight N/A
Hammer Drop N/A
Core Bit Size N/A
Driller F.M. & W. Drilling Co.

Spoon Size, O.D. 2-inch
Hammer Wt. 140 pounds
Hammer Drop 30 inches
Rig Type & No. CME 55
Driller Joe Brophy

Progress & Groundwater Data

Date	Depth Reached	Depth to Water ▽	Time After Completion
1/12/2005	14.5'	Dry	1/4 Hrs

Ground Elev. 191.0'
Datum Elev.
Depth Surf. Water Not Applicable
Weather --

BORING LOG		SPOON SAMPLE & ROCK CORE DATA										REMARKS
Depth From To	Material Description	Sample No.	Sample Depth	Blows on Spoon 6" Intervals 0/6	6/12	12/18	18/24	Soil Rec. (ft)	Depth of Run	Run No.	Core Rec. (ft)	(water loss, cavities, etc.)
0.0' to 18.0'	FILL: BLACK TO DARK BROWN AND SOME WHITE SILTY SAND WITH CINDERS, ASH, CONCRETE FRAGMENTS, WHITE FIBER AND WOOD	S-1	0.0'-2.0'	5	5	2	7	0.3				
		S-2	2.0'-4.0'	4	6	6	4	0.6				
		S-3	4.0'-6.0'	3	2	1	WOH	0.3				
		S-4	6.0'-8.0'	WOH	WOH	WOH	WOH	0.0				
		S-5	8.0'-10.0'	1	1	1	1	0.2				
		S-6	10.0'-12.0'	3	1	1	2	0.2				
		S-7	12.0'-14.0'	2	2	2	2	0.4				Auger Refusal on Concrete @ 14.5'
		S-8	14.0'-16.0'	WOR	WOR	4	2	0.3				
		S-9	16.0'-18.0'	35	13	6	1	0.4				

EEI Representative: *Ryan Mawhinney*

For: Westrum Development

Project No. 19244.00

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BORING LOG

Boring No. B-5

Sheet 1 of 1

Job Name and Location Nicolet Industries – Borough of Ambler, Montgomery County, Pennsylvania

Boring Location (See Boring Location Plan)

Date Began 1/12/2005
Date Completed 1/12/2005
Depth of Soil 22.0'
Depth of Rock N/A
Total Boring Depth 22.0'

Casing Size, O.D. 8-inch Augers
Hammer Weight N/A
Hammer Drop N/A
Core Bit Size N/A
Driller F.M. & W. Drilling Co.

Spoon Size, O.D. 2-inch
Hammer Wt. 140 pounds
Hammer Drop 30 inches
Rig Type & No. CME 55
Driller Joe Brophy

Progress & Groundwater Data

Date	Depth Reached	Depth to Water ▽	Time After Completion
1/12/2005	22.0'	Dry	1/4 Hrs

Ground Elev. 192.7'
Datum Elev.
Depth Surf. Water Not Applicable
Weather --

BORING LOG		SPOON SAMPLE & ROCK CORE DATA										REMARKS
Depth From To	Material Description	Sample No.	Sample Depth	Blows on Spoon 6" Intervals 0/6	6/12	12/18	18/24	Soil Rec. (ft)	Depth of Run	Run No.	Core Rec. (ft)	(water loss, cavities, etc.)
0.0' to 3.8'	FILL II: LIGHT BROWN TO BLACK SILTY SAND WITH GRAVEL, ROCK FRAGMENTS, CINDERS AND ASH	S-1	0.0'-2.0'	2	4	5	4	0.6				
		S-2	2.0'-4.0'	7	9	5	3	0.4				
3.8' to 19.0'	FILL I: WHITE SILT AND CLAY, VERY MOIST TO WET	S-3	4.0'-6.0'	1	1	WOH	WOH	0.8				
		S-4	6.0'-8.0'	WOH	WOH	WOH	WOH	0.4				
19.0' to 21.0'	STRATUM I: TAN AND GRAY SILT WITH CLAY AND SOME GRAVEL	S-5	8.0'-10.0'	1	WOH	1	WOH	1.2				
		S-6	10.0'-12.0'	1	1	1	1	0.8				
21.0' to 22.0'	STRATUM II: REDDISH BROWN SILTY SAND WITH SOME GRAVEL (ALLUVIAL DEPOSITS)	S-7	12.0'-14.0'	WOH	WOH	WOH	WOH	0.6				
		S-8	14.0'-16.0'	WOH	WOH	WOH	WOH	0.8				
		S-9	16.0'-18.0'	WOH	WOH	WOH	WOH	0.4				
		S-10	18.0'-20.0'	WOH	WOH	8	17	0.8				
		S-11	20.0'-22.0'	8	13	15	20	0.9				

EEI Representative: *Ryan Mawhinney*

CORCORAN DRILLING CO., INC.
Test Borings—Auger Probes
WEST CHESTER, PA 19380

Boring No. 6 Job No. 5060

Sheet No. 1 of 1

Project Nicollette Industries
Location Chestnut Street, Ambler
Ground Surface Elev. 192.4'

Client Earth Engineering, Inc.
Date Started 1/21/05 Completed 1/21/05
Driller Boh Corcoran
Helper

Ground Water Data			
Depth	Hour	Date	Hrs. After completion
14'6"			5 Min.
14'2"			30 Min.

A—Method of Advancing Boring		Depth
1	5" Solid Augers	0' to 23'
2	Split Spoon	23' to 25'
		to
		to
		to

Depth	A	Sample No.	Sample Depth	Sample N	Soil Classification	Remarks
		S-1	2'-4'	4-16-6-9 14" Rec.	Concrete 5"	
					Crushed stone 18"	
		S-2	4'-8'	6-4-1/36" 16" Rec.	Brown & gray fine sand with white fibers. (Fill) (Asbestos ?) 3'9"	* Wet.
5		S-3	8'-13' *	1/36"-1/24" 16" Rec.	Dark brown fine sand, cinders, slag. (Fill) 5'3"	
					White silt. (Wet slurry fill)	
10		S-4	13'-15' *	1/12"-1-14 13" Rec.		
15		S-5	15'-17' *	1-1-1-2 10" Rec.	16'8"	
		S-6	17'-19' *	1-1-4-3 12" Rec.	Cinders, ash, slag. (Fill) 17'6"	
		S-7	19'-21' *	2-3-3-5 13" Rec.	Gray organic silt. 18'	
20					Orange brown & gray mottled fine sand silty clay. 22'6"	
					Reddish brown fine sand with rock fragments & pebbles.	
		S-8	23'-25' *	13-23-33-25 15" Rec.	25'	
25						
30						
35						
40						

☐ S—2" O.D. Split Spoon Sample
■ U—Undisturbed Sample, 3" Diameter
▨ —Core Drilling
N —Standard Penetration Resistance per 6" (140 lb hammer, 30"drop)
N.R.—No Recovery

Where water levels are shown, they are those observed at the times noted & may not be indicative of daily or seasonal variations in the ground water level.

The boring results represent sub-surface conditions at the boring locations only & are not necessarily representative of conditions at other locations.

For: Westrum Development

Project No. 19244.00

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BORING LOG

Boring No. B-7

Sheet 1 of 1

Job Name and Location Nicolet Industries – Borough of Ambler, Montgomery County, Pennsylvania

Boring Location (See Boring Location Plan)

Date Began 1/12/2005
Date Completed 1/12/2005
Depth of Soil 22.0'
Depth of Rock N/A
Total Boring Depth 22.0'

Casing Size, O.D. 8-inch Augers
Hammer Weight N/A
Hammer Drop N/A
Core Bit Size N/A
Driller F.M. & W. Drilling Co.

Spoon Size, O.D. 2-inch
Hammer Wt. 140 pounds
Hammer Drop 30 inches
Rig Type & No. CME 55
Driller Joe Brophy

Progress & Groundwater Data

Date	Depth Reached	Depth to Water ▽	Time After Completion
1/12/2005	22.0'	Dry	1/4 Hrs

Ground Elev. 192.2'
Datum Elev.
Depth Surf. Water Not Applicable
Weather --

BORING LOG		SPOON SAMPLE & ROCK CORE DATA										REMARKS
Depth From To	Material Description	Sample No.	Sample Depth	Blows on Spoon 6" Intervals 0/6	6/12	12/18	18/24	Soil Rec. (ft)	Depth of Run	Run No.	Core Rec. (ft)	(water loss, cavities, etc.)
0.0' to 4.5'	FILL II: BLACK, GREY & WHITE SILTY SAND WITH GRAVEL, ROCK FRAGMENTS & WOOD CHIPS	S-1	0.0'-2.0'	2	14	4	4	0.3				
		S-2	2.0'-4.0'	3	3	6	3	0.8				
4.5' to 18.7'	FILL I: WHITE SILT	S-3	4.0'-6.0'	3	WOH	WOH	WOH	1.2				
		S-4	6.0'-8.0'	WOH	WOH	WOH	WOH	0.0				
18.7' to 20.0'	STRATUM I: GRAY AND ORANGE BROWN SILT WITH CLAY	S-5	8.0'-10.0'	WOH	WOH	WOH	WOH	1.0				
		S-6	10.0'-12.0'	1	2	1	WOH	1.1				
20.0' to 22.0'	STRATUM II: ORANGE-BROWN SILTY SAND WITH GRAVEL	S-7	12.0'-14.0'	WOH	WOH	WOH	WOH	1.1				
		S-8	14.0'-16.0'	WOH	WOH	WOH	WOH	1.4				
		S-9	16.0'-18.0'	WOH	WOH	WOH	WOH	1.3				
		S-10	18.0'-20.0'	3	6	9	12	0.8				
		S-11	20.0'-22.0'	8	9	17	21	0.9				

EEI Representative: *Ryan Mawhinney*

For: Westrum Development

Project No. 19244.00

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BORING LOG

Boring No. B-8

Sheet 1 of 1

Job Name and Location: Nicolet Industries – Borough of Ambler, Montgomery County, Pennsylvania

Boring Location: (See Boring Location Plan)

Date Began: 1/11/2005
Date Completed: 1/11/2005
Depth of Soil: 23.3'
Depth of Rock: N/A
Total Boring Depth: 23.3'

Casing Size, O.D.: 8-inch Augers
Hammer Weight: N/A
Hammer Drop: N/A
Core Bit Size: N/A
Driller: F.M. & W. Drilling Co.

Spoon Size, O.D.: 2-inch
Hammer Wt.: 140 pounds
Hammer Drop: 30 inches
Rig Type & No.: CME 55
Driller: Kevin Ryan

Progress & Groundwater Data

Date	Depth Reached	Depth to Water ▽	Time After Completion
1/11/2005	23.3'	Dry	1/4 Hrs
1/11/2005	23.3'	6.0'	5 Hrs

Ground Elev.: 191.4'
Datum Elev.:
Depth Surf. Water: Not Applicable
Weather: --

BORING LOG		SPOON SAMPLE & ROCK CORE DATA										REMARKS
Depth From To	Material Description	Sample No.	Sample Depth	Blows on Spoon 6" Intervals 0/6	6/12	12/18	18/24	Soil Rec. (ft)	Depth of Run	Run No.	Core Rec. (ft)	(water loss, cavities, etc.)
0.0' to 0.3'	TOPSOIL	S-1	0.0'-2.0'	2	3	2	1	0.3				
		S-2	2.0'-4.0'	1	3	2	1	0.6				
0.3' to 8.0'	FILL II: SILTY SAND WITH COAL, SLAG AND ROCK FRAGMENTS WITH WOOD AND BRICK FRAGMENTS	S-3	4.0'-6.0'	1	1	2	4	0.3				
		S-4	6.0'-8.0'	3	2	1	1	0.0				
8.0' to 18.0'	FILL I: WHITE SILT	S-5	8.0'-10.0'	2	1	1	1	0.2				
		S-6	10.0'-12.0'	WOH	WOH	WOH	WOH	0.2				
18.0' to 23.3'	STRATUM II: BROWN SILTY SAND WITH GRAVEL (ALLUVIAL DEPOSITS)	S-7	12.0'-13.0'	WOH	WOH			0.4				Moderate Augering @ 17.0'
		S-8	13.0'-15.0'	WOH	WOH	1	1	0.3				
		S-9	18.0'-20.0'	12	13	17	20	0.2				
		S-10	23.0'-23.3'	50/3"								

EEI Representative: *Ryan Mawhinney*

For: Westrum Development

Project No. 19244.00

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BORING LOG

Boring No. B-10

Sheet 1 of 1

Job Name and Location: Nicolet Industries – Borough of Ambler, Montgomery County, Pennsylvania

Boring Location: (See Boring Location Plan)

Date Began: 1/12/2005
Date Completed: 1/12/2005
Depth of Soil: 21.1'
Depth of Rock: N/A
Total Boring Depth: 21.1'

Casing Size, O.D.: 8-inch Augers
Hammer Weight: N/A
Hammer Drop: N/A
Core Bit Size: N/A
Driller: F.M. & W. Drilling Co.

Spoon Size, O.D.: 2-inch
Hammer Wt.: 140 pounds
Hammer Drop: 30 inches
Rig Type & No.: CME 55
Driller: Joe Brophy

Progress & Groundwater Data

Date	Depth Reached	Depth to Water ▽	Time After Completion
1/12/2005	21.1'	Dry	1/4 Hrs

Ground Elev.: 186.4'
Datum Elev.:
Depth Surf. Water: Not Applicable
Weather: --

BORING LOG		SPOON SAMPLE & ROCK CORE DATA										REMARKS
Depth From To	Material Description	Sample No.	Sample Depth	Blows on Spoon 6" Intervals 0/6	6/12	12/18	18/24	Soil Rec. (ft)	Depth of Run	Run No.	Core Rec. (ft)	(water loss, cavities, etc.)
0.0' to 5.0'	FILL II: BROWN SILTY SAND WITH ROCK FRAGMENTS, ASH, WOOD, AND CONCRETE FRAGMENTS	S-1	0.0'-2.0'	4	5	4	3	1.2				
		S-2	2.0'-4.0'	2	2	2	1	0.5				
5.0' to 6.0'	FILL II: TAN SAND WITH ROCK FRAGMENTS	S-3	4.0'-6.0'	5	9	40	9	0.5				S-4: BLACK AND TAN FIBROUS MATERIAL
		S-4	6.0'-8.0'	2	9	5	2	0.7				
6.0' to 8.5'	FILL II: TAN SAND WITH FABRIC AND BLACK ASH	S-5	8.0'-10.0'	1	2	2	2	1.3				
		S-6	13.0'-14.5'	2	1	50/5"		0.3				
8.5' to 14.5'	FILL II: BROWN SILT WITH ROCK FRAGMENTS AND WOOD	S-7	16.0'-18.0'	17	6	2	1	0.7				
		S-8	18.0'-20.0'	2	1	18	2	0.7				
14.5' to 18.0'	FILL II: PINK CONCRETE FRAGMENTS	S-9	20.0'-21.1'	17	50	50/1"		0.8				
18.0' to 20.5'	STRATUM III: BROWN AND BLACK SANDY SILT											
20.5' to 21.1'	FILL OR STRATUM IV: BLACK SAND (WEATHERED SANDSTONE)											

EEI Representative: *Chris Schanbacher*

Main Line Drilling Company

101 Calvarese Lane - Wayne, PA 19087
Phone/Fax: (610) 341-9296 - Email: MLDrill@aol.com

Boring# 10A
Client: Earth Engineering Inc
Project: Nicolet Industries
Location: Ambler, Pa
Drill Rig: Mobile B-57

Job# 1833
Date Started: 1/27/2005
Completed: 1/27/2005
Driller: William Corcoran
Assistant: Stephen Luner

Ground Surface Elevation: 185.3'

Equipment Used for Boring Advancement

1	3 1/4" Hollow auger	0"	To	18'6"	16'	1/4 hr	1/27/2005
2	Split spoon	18'6"	To	18'11"	10'6"	24 hr	1/28/2005

Groundwater Information: Depth / Time / Date

Depth	S#	Sample Depth	Blow/Counts	Soil Description	Comments
	S1	0" - 2'	15-23-9-7	Sandy silt with rock fragments, cinders and ash, concrete, wood, some organics, brown, black and gray (Fill) 7'6"	S1 12"
--5'	S2	2' - 4'	4-5-5-6		S2 13"
	S3	4' - 6'	9-11-6-4		S3 12"
	S4	6' - 8'	2-1-2-3		S4 16"
--10'	S5	8' - 10'	3-5-7-8	Silt with clay, brown and gray 11'6"	S5 13"
				Silty sand with gravel, maroon and reddish brown 13'	S6 14"
--15'	S6	13'6"-15'	34-41-53	Weathered sandstone, maroon and reddish brown	S7 4"
--20'	S7	18'6"18'11"	100/5"	18'11"	
--25'					
--30'					
--35'					
--40'					
--45'					
--50'					

* TEST BORING RESULTS REPRESENT EACH BORING LOCATION ONLY *

* GROUNDWATER LEVELS SHOWN ARE RECORDED AT BORING COMPLETION UNLESS OTHERWISE NOTED *

For: Westrum Development

Project No. 19244.00

EARTH ENGINEERING INCORPORATED
Geotechnical Engineers & Geologists
115 West Germantown Pike, East Norriton, PA 19401
www.earthengineering.com

Boring No. B-11

Sheet 1 of 1

BORING LOG

Job Name and Location Nicolet Industries – Borough of Ambler, Montgomery County, Pennsylvania
Boring Location (See Boring Location Plan)

Date Began 1/12/2005
Date Completed 1/12/2005
Depth of Soil 16.0'
Depth of Rock N/A
Total Boring Depth 16.0'

Casing Size, O.D. 8-inch Augers
Hammer Weight N/A
Hammer Drop N/A
Core Bit Size N/A
Driller F.M. & W. Drilling Co.

Spoon Size, O.D. 2-inch
Hammer Wt. 140 pounds
Hammer Drop 30 inches
Rig Type & No. CME 55
Driller Joe Brophy

Progress & Groundwater Data

Date	Depth Reached	Depth to Water ▽	Time After Completion
1/12/2005	16.0'	12.8'	1/4 Hrs

Ground Elev. 182.0'
Datum Elev.
Depth Surf. Water Not Applicable
Weather --

BORING LOG		SPOON SAMPLE & ROCK CORE DATA										REMARKS
Depth From To	Material Description	Sample No.	Sample Depth	Blows on Spoon 6" Intervals 0/6	6/12	12/18	18/24	Soil Rec. (ft)	Depth of Run	Run No.	Core Rec. (ft)	(water loss, cavities, etc.)
0.0' to 2.0'	FILL II: DARK BROWN SANDY SILT WITH SOME ASH AND ROCK FRAGMENTS	S-1	0.0'-2.0'	2	4	3	2	1.5				
		S-2	2.0'-4.0'	2	3	4	5	1.3				
2.0' to 5.0'	STRATUM III: BROWN AND GRAY MOTTLED SANDY SILT	S-3	4.0'-6.0'	3	5	6	9	1.2				
		S-4	6.0'-8.0'	6	8	8	13	1.0				
5.0' to 6.5'	STRATUM III: DARK BROWN SILTY SAND	S-5	8.0'-10.0'	17	14	15	14	0.8				Hard Augering 11.0' – 16.0'
		S-6	13.0'-13.6'	50	50/1"			1.2				Auger Refusal @ 16.0'
6.5' to 8.0'	STRATUM III: RED SANDY SILT											
8.0' to 11.0'	STRATUM III: RED SILTY SAND WITH ROCK FRAGMENTS											
11.0' to 16.0'	STRATUM IV: REDDISH BROWN FINE TO MEDIUM SAND WITH ROCK FRAGMENTS (WEATHERED SANDSTONE)											

EEI Representative: *Chris Schanbacher*

For: Westrum Development

Project No. 19244.00

EARTH ENGINEERING INCORPORATED

Geotechnical Engineers & Geologists

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BORING LOG

Boring No. B-12

Sheet 1 of 1

Job Name and Location Nicolet Industries – Borough of Ambler, Montgomery County, Pennsylvania

Boring Location (See Boring Location Plan)

Date Began 1/12/2005
Date Completed 1/12/2005
Depth of Soil 1.2'
Depth of Rock N/A
Total Boring Depth 1.2'

Casing Size, O.D. 8-inch Augers
Hammer Weight N/A
Hammer Drop N/A
Core Bit Size N/A
Driller F.M. & W. Drilling Co.

Spoon Size, O.D. 2-inch
Hammer Wt. 140 pounds
Hammer Drop 30 inches
Rig Type & No. CME 55
Driller Joe Brophy

Progress & Groundwater Data

Date	Depth Reached	Depth to Water ▽	Time After Completion
1/12/2005	1.2'	Dry	1/4 Hrs

Ground Elev. 188.9'
Datum Elev.
Depth Surf. Water Not Applicable
Weather --

BORING LOG		SPOON SAMPLE & ROCK CORE DATA										REMARKS
Depth From To	Material Description	Sample No.	Sample Depth	Blows on Spoon 6" Intervals 0/6	6/12	12/18	18/24	Soil Rec. (ft)	Depth of Run	Run No.	Core Rec. (ft)	(water loss, cavities, etc.)
0.0' to 1.2'	FILL II: BROWN SILTY SAND WITH BRICK AND CONCRETE FRAGMENTS	S-1	0.0'-1.2'	2	11	50/2"		0.5				Auger Refusal on Concrete @ 1.2' Offset Boring 8' West to B-12A

EEI Representative: *Chris Schanbacher*

For: Westrum Development

Project No. 19244.00

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BORING LOG

Boring No. B-12A

Sheet 1 of 1

Job Name and Location: Nicolet Industries – Borough of Ambler, Montgomery County, Pennsylvania

Boring Location: (See Boring Location Plan)

Date Began: 1/12/2005
Date Completed: 1/12/2005
Depth of Soil: 9.5'
Depth of Rock: N/A
Total Boring Depth: 9.5'

Casing Size, O.D.: 8-inch Augers
Hammer Weight: N/A
Hammer Drop: N/A
Core Bit Size: N/A
Driller: F.M. & W. Drilling Co.

Spoon Size, O.D.: 2-inch
Hammer Wt.: 140 pounds
Hammer Drop: 30 inches
Rig Type & No.: CME 55
Driller: Joe Brophy

Progress & Groundwater Data

Date	Depth Reached	Depth to Water ▽	Time After Completion
1/12/2005	9.5'	Dry	1/4 Hrs

Ground Elev.: 188.9'
Datum Elev.:
Depth Surf. Water: Not Applicable
Weather: --

BORING LOG		SPOON SAMPLE & ROCK CORE DATA										REMARKS
Depth From To	Material Description	Sample No.	Sample Depth	Blows on Spoon 6" Intervals 0/6	6/12	12/18	18/24	Soil Rec. (ft)	Depth of Run	Run No.	Core Rec. (ft)	(water loss, cavities, etc.)
0.0' to 1.0'	TOPSOIL/FILL	S-1	2.0'-4.0'	6	6	7	8	1.0				
		S-2	4.0'-6.0'	4	3	3	3	1.3				
1.0' to 1.7'	CONCRETE	S-3	6.0'-8.0'	4	4	5	12	1.2				Auger Refusal on Concrete @ 9.5'
		S-4	8.0'-8.7'	7	50/2"			0.5				
1.7' to 4.0'	FILL II: BROWN SILTY SAND WITH ROCK FRAGMENTS											
4.0' to 8.5'	FILL II: REDDISH BROWN SILTY SAND WITH ROCK FRAGMENTS											
8.5' to 9.5'	CONCRETE											

EEI Representative: *Chris Schanbacher*

For: Westrum Development

Project No. 19244.00

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BORING LOG

Boring No. B-13

Sheet 1 of 1

Job Name and Location Nicolet Industries – Borough of Ambler, Montgomery County, Pennsylvania

Boring Location (See Boring Location Plan)

Date Began 1/11/2005
Date Completed 1/11/2005
Depth of Soil 8.5'
Depth of Rock N/A
Total Boring Depth 8.5'

Casing Size, O.D. 8-inch Augers
Hammer Weight N/A
Hammer Drop N/A
Core Bit Size N/A
Driller F.M. & W. Drilling Co.

Spoon Size, O.D. 2-inch
Hammer Wt. 140 pounds
Hammer Drop 30 inches
Rig Type & No. CME 55
Driller Joe Brophy

Progress & Groundwater Data

Date	Depth Reached	Depth to Water ▽	Time After Completion
1/11/2005	8.5'	Dry	1/4 Hrs

Ground Elev. 189.0'
Datum Elev.
Depth Surf. Water Not Applicable
Weather --

BORING LOG		SPOON SAMPLE & ROCK CORE DATA										REMARKS
Depth From To	Material Description	Sample No.	Sample Depth	Blows on Spoon 6" Intervals 0/6	6/12	12/18	18/24	Soil Rec. (ft)	Depth of Run	Run No.	Core Rec. (ft)	(water loss, cavities, etc.)
0.0' to 4.0'	FILL II: BROWN SILTY SAND WITH GRAVEL, ROCK FRAGMENTS AND COAL	S-1	0.0'-2.0'	1	2	2	4	1.2				
		S-2	2.0'-4.0'	4	3	2	4	0.0				
4.0' to 8.5'	FILL II: DARK BROWN TO BLACK SANDY SILT WITH ROOTS, ORGANICS AND SOME WOOD	S-3	4.0'-6.0'	3	3	1	1	1.0				
		S-4	6.0'-8.0'	1	1	2	2	0.8				
		S-5	8.0'-8.5'	55/6"				0.0				Auger Refusal on Concrete @ 8.5'
												Offset Boring 5' Northwest to B-13A

EEI Representative: *Chris Schanbacher*

For: Westrum Development

Project No. 19244.00

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BORING LOG

Boring No. B-13A

Sheet 1 of 1

Job Name and Location Nicolet Industries – Borough of Ambler, Montgomery County, Pennsylvania

Boring Location (See Boring Location Plan)

Date Began 1/11/2005
Date Completed 1/11/2005
Depth of Soil 9.0'
Depth of Rock N/A
Total Boring Depth 9.0'

Casing Size, O.D. 8-inch Augers
Hammer Weight N/A
Hammer Drop N/A
Core Bit Size N/A
Driller F.M. & W. Drilling Co.

Spoon Size, O.D. 2-inch
Hammer Wt. 140 pounds
Hammer Drop 30 inches
Rig Type & No. CME 55
Driller Joe Brophy

Progress & Groundwater Data

Date	Depth Reached	Depth to Water ▽	Time After Completion
1/11/2005	9.0'	Dry	1/4 Hrs

Ground Elev. 189.0'
Datum Elev.
Depth Surf. Water Not Applicable
Weather --

BORING LOG		SPOON SAMPLE & ROCK CORE DATA										REMARKS
Depth From To	Material Description	Sample No.	Sample Depth	Blows on Spoon 6" Intervals 0/6	6/12	12/18	18/24	Soil Rec. (ft)	Depth of Run	Run No.	Core Rec. (ft)	(water loss, cavities, etc.)
0.0' to 8.0'	FILL II: BROWN SILTY SAND WITH GRAVEL AND ROCK FRAGMENTS	S-1	8.0'-8.1'	50/1"				0.0				Auger Refusal on Concrete @ 9.0'
8.0' to 9.0'	CONCRETE											

EEI Representative: *Chris Schanbacher*

For: Westrum Development

Project No. 19244.00

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Boring No. B-14

Sheet 1 of 1

BORING LOG

Job Name and Location Nicolet Industries – Borough of Ambler, Montgomery County, Pennsylvania

Boring Location (See Boring Location Plan)

Date Began 1/12/2005
Date Completed 1/12/2005
Depth of Soil 7.5'
Depth of Rock N/A
Total Boring Depth 7.5'

Casing Size, O.D. 8-inch Augers
Hammer Weight N/A
Hammer Drop N/A
Core Bit Size N/A
Driller F.M. & W. Drilling Co.

Spoon Size, O.D. 2-inch
Hammer Wt. 140 pounds
Hammer Drop 30 inches
Rig Type & No. CME 55
Driller Joe Brophy

Progress & Groundwater Data

Date	Depth Reached	Depth to Water ▽	Time After Completion
1/12/2005	7.5'	Dry	1/4 Hrs

Ground Elev. 187.5'
Datum Elev.
Depth Surf. Water Not Applicable
Weather --

BORING LOG		SPOON SAMPLE & ROCK CORE DATA										REMARKS
Depth From To	Material Description	Sample No.	Sample Depth	Blows on Spoon 6" Intervals 0/6	6/12	12/18	18/24	Soil Rec. (ft)	Depth of Run	Run No.	Core Rec. (ft)	(water loss, cavities, etc.)
0.0' to 2.0'	FILL II: RED SILTY SAND WITH ROCK FRAGMENTS AND WOOD	S-1	0.0'-2.0'	2	4	3	2	1.0				
		S-2	2.0'-4.0'	3	8	4	4	0.7				
2.0' to 4.0'	FILL II: DARK BROWN SILTY SAND WITH ROCK FRAGMENTS, WOOD, AND CONCRETE FRAGMENTS	S-3	4.0'-6.0'	10	7	3	5	0.3				Auger Refusal on Possible Concrete @ 7.5'
		S-4	6.0'-7.4'	14	6	50/5"		0.5				Offset Boring 6' West to B-14A
4.0' to 6.0'	FILL II: ROCK FRAGMENTS, WOOD, BRICK, AND SOLID WHITE UNKNOWN MATERIAL											
6.0' to 7.5'	FILL II: BROWN SILT WITH ORGANICS, BRICK, AND ROCK FRAGMENTS											

EEI Representative: *Chris Schanbacher*

For: Westrum Development

Project No. 19244.00

EARTH ENGINEERING INCORPORATED

Geotechnical Engineers & Geologists

115 West Germantown Pike, East Norriton, PA 19401

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Boring No. B-14A

Sheet 1 of 1

BORING LOG

Job Name and Location Nicolet Industries – Borough of Ambler, Montgomery County, Pennsylvania

Boring Location (See Boring Location Plan)

Date Began 1/12/2005
Date Completed 1/12/2005
Depth of Soil 7.5'
Depth of Rock N/A
Total Boring Depth 7.5'

Casing Size, O.D. 8-inch Augers
Hammer Weight N/A
Hammer Drop N/A
Core Bit Size N/A
Driller F.M. & W. Drilling Co.

Spoon Size, O.D. 2-inch
Hammer Wt. 140 pounds
Hammer Drop 30 inches
Rig Type & No. CME 55
Driller Joe Brophy

Progress & Groundwater Data

Date	Depth Reached	Depth to Water ▽	Time After Completion
1/12/2005	7.5'	Dry	1/4 Hrs

Ground Elev. 187.5'
Datum Elev.
Depth Surf. Water Not Applicable
Weather --

BORING LOG		SPOON SAMPLE & ROCK CORE DATA										REMARKS
Depth From To	Material Description	Sample No.	Sample Depth	Blows on Spoon 6" Intervals 0/6	6/12	12/18	18/24	Soil Rec. (ft)	Depth of Run	Run No.	Core Rec. (ft)	(water loss, cavities, etc.)
0.0' to 7.5'	FILL II: DARK BROWN SILTY SAND WITH ROCK FRAGMENTS, WOOD, AND CONCRETE FRAGMENTS											Auger Refusal on Concrete @ 7.5'

EEI Representative: *Chris Schanbacher*

CORCORAN DRILLING CO., INC.
Test Borings—Auger Probes
WEST CHESTER, PA 19380

Boring No. 16 Job No. 5060

Sheet No. 1 of 1

Project Nicollette Industries
Location Chestnut Street, Ambler
Ground Surface Elev. 186.9'

Client Earth Engineering, Inc.
Date Started 1/21/05 Completed 1/21/05
Driller Boh Corcoran
Helper

Ground Water Data			
Depth	Hour	Date	Hrs. After completion
4'10"			5 Min.
3'5"			2 Hrs.

A—Method of Advancing Boring		Depth
1	5" Solid Augers	0' to 19'
2	Split Spoon	19' to 20'3"
		to
		to
		to

Depth	A	Sample No.	Sample Depth	Sample N	Soil Classification	Remarks
		S-1	1'-3'	7-12-8-4 6" Rec.	Modified stone 2'7"	
		S-2	3'-5' *	3-3-3-3 12" Rec.	Brown fine sand & silt, trace of clay. 5'6"	* Very moist.
5		S-3	5'-7'	3-8-12-16 14" Rec.	Reddish brown weathered sandstone. (Saprolite)	
		S-4	7'-9'	13-15-20-21 16" Rec.		
		S-5	9'-10'4" ***	7-24-50/4" 7" Rec.		*** Wet.
10					9'	
		S-6	14'-15'10"	25-30-44-50/4" 13" Rec.	Weathered red shale. (Saprolite)	
15						
		S-7	19'-20'3"	19-22-50/3" 8" Rec.	20'3"	
20						
25						
30						
35						
40						

□ S—2" O.D. Split Spoon Sample
■ U—Undisturbed Sample, 3" Diameter
▨ —Core Drilling
N —Standard Penetration Resistance per 6" (140 lb hammer, 30"drop)
N.R.—No Recovery

Where water levels are shown, they are those observed at the times noted & may not be indicative of daily or seasonal variations in the ground water level.

The boring results represent sub-surface conditions at the boring locations only & are not necessarily representative of conditions at other locations.

CORCORAN DRILLING CO., INC.
Test Borings—Auger Probes
WEST CHESTER, PA 19380

Boring No. 19 Job No. 5060

Sheet No. 1 of 1

Project Nicollette Industries
Location Chestnut Street, Ambler
Ground Surface Elev. 187.8'

Client Earth Engineering, Inc.
Date Started 1/21/05 Completed 1/21/05
Driller Bob Corcoran
Helper

Ground Water Data			
Depth	Hour	Date	Hrs. After completion
Dry			5 Min.
10'9"			4 Hrs.

A—Method of Advancing Boring		Depth
1	5" Solid Augers	0' to 16'3"
		to
		to
		to
		to

Depth	A	Sample No.	Sample Depth	N	Soil Classification	Remarks
		S-1	1'-3'	2-4-2-3 12" Rec.	Blacktop 4" Modified stone 12"	
		S-2	3'-5'	3-2-1-1 10" Rec.	Black cinders, slag, some brown fine sand. (Fill) 6'	
5		S-3	5'-7' *	1-1-1-1 14" Rec.		* Moist.
		S-4	7'-9' *	2-3-2-3 6" Rec.	Orange brown & gray mottled fine sand & silt. 13'6"	
		S-5	9'-11'	6-11-17-19 20" Rec.		Hard augering from 14'6".
10					Reddish brown fine sand with occasional sandstone fragments. 14'3"	
					Reddish brown weathered sandstone. (Saprolite) 16'3"	
15		S-6	14'-14'5"	50/5" 4" Rec.	Auger refusal	
20						
25						
30						
35						
40						

□ S—2" O.D. Split Spoon Sample
■ U—Undisturbed Sample, 3" Diameter
▨ —Core Drilling
N —Standard Penetration Resistance per 6" (140 lb hammer, 30"drop)
N.R.—No Recovery

Where water levels are shown, they are those observed at the times noted & may not be indicative of daily or seasonal variations in the ground water level.

The boring results represent sub-surface conditions at the boring locations only & are not necessarily representative of conditions at other locations.

Main Line Drilling Company

101 Calvarese Lane - Wayne, PA 19087
Phone/Fax: (610) 341-9296 - Email: MLDrill@aol.com

Boring# 20 | Job# 1833
Client: Earth Engineering Inc | Date Started: 1/28/2005
Project: Nicolet Industries | Completed: 1/28/2005
Location: Ambler, Pa | Driller: William Corcoran
Drill Rig: Mobile B-57 | Assistant: Stephen Luner

Ground Surface Elevation: 186.7'

Equipment Used for Boring Advancement

					Groundwater Information		
					Depth	Time	Date
1	3 1/4" Hollow auger	0"	To	18'6"	Dry	1/4 hr	1/28/2005
2	Split spoon	18'6"	To	18'7"			

Depth	S#	Sample Depth	Blow/Counts	Soil Description	Comments
--				Sandy silt with rock fragments, concrete, brown and gray (Fill) 1'	
--	S1	0" - 7"	30-50/1"		S1 6"
--	S2	3' - 5'	2-1-2-2	Cinders and ash, black (Fill) 4'6"	S2 12"
--5'				Silt with clay, brown and gray 5'	S3 19"
--	S3	5' - 7'	2-1-8-8	Silt with clay, orange brown 6'	S4 18"
--					S5 11"
--	S4	7' - 9'	16-18-16-17		S6 1"
--				Silty sand with gravel, brown to dark brown	
--10'					
--				12'	
--					
--	S5	13'6"-14'6"	46-71		
--15'					
--				Weathered sandstone, maroon and gray	
--					
--					Hard drilling
--	S6	18'6"-18'7"	50/1"	18'7"	15'- 18'6"
--20'					
--					
--					
--					
--25'					
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--					
--30'					
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--35'					
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--40'					
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--45'					
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--					
--					
--					
--50'					

* TEST BORING RESULTS REPRESENT EACH BORING LOCATION ONLY *

* GROUNDWATER LEVELS SHOWN ARE RECORDED AT BORING COMPLETION UNLESS OTHERWISE NOTED *

CORCORAN DRILLING CO., INC.
Test Borings—Auger Probes
WEST CHESTER, PA 19380

Boring No. 22 Job No. 5060

Sheet No. 1 of 1

Project Nicollette Industries
Location Chestnut Street, Ambler
Ground Surface Elev. 188.0'

Client Earth Engineering, Inc.
Date Started 1/20/05 Completed 1/20/05
Driller Bob Corcoran
Helper

Ground Water Data			
Depth	Hour	Date	Hrs. After completion
Dry			5 Min.
Dry			2 Hrs.

	A—Method of Advancing Boring	Depth
1	5" Solid Augers	0' to 2'2"
		to
		to
		to
		to

Depth	A	Sample No.	Sample Depth	Sample N	Soil Classification	Remarks
		S-1	1'-2'1" *	3-7-50/1" 11" Rec.	Gray fine sand & silt with small rock fragments. (Fill) 9"	* Moist.
					Black fine sand with tan silt, occasional rock fragments, some coal, concrete, wood. (Fill) 2'2"	
					Auger refusal	

5 10 15 20 25 30 35 40

☐ S—2" O.D. Split Spoon Sample
■ U—Undisturbed Sample, 3" Diameter
▨ —Core Drilling
N —Standard Penetration Resistance per 6" (140 lb hammer, 30"drop)
N.R.—No Recovery

Where water levels are shown, they are those observed at the times noted & may not be indicative of daily or seasonal variations in the ground water level.

The boring results represent sub-surface conditions at the boring locations only & are not necessarily representative of conditions at other locations.

CORCORAN DRILLING CO., INC.
Test Borings—Auger Probes
WEST CHESTER, PA 19380

Boring No. 22A Job No. 5060

Sheet No. 1 of 1

Project Nicollette Industries
Location Chestnut Street, Ambler
Ground Surface Elev. 1880'

Client Earth Engineering, Inc.
Date Started 1/20/05 Completed 1/20/05
Driller Boh Corcoran
Helper

Ground Water Data			
Depth	Hour	Date	Hrs. After completion
Cave at 1'	in of	soil	5 Min.

A—Method of Advancing Boring		Depth
1	5" Solid Augers	0' to 14'5"
		to
		to
		to
		to

Depth	A	Sample No.	Sample Depth	Sample N	Soil Classification	Remarks
					Gray fine sand & silt with small rock fragments. (Fill) 9"	
5		S-1	4'-6' *	1-30-8-2 3" Rec.	Black fine sand with tan silt, occasional rock fragments, some coal, concrete, wood, some metal. (Fill) 5'6"	* Wet.
		S-2	6'-8'	1-1-1-4 N.R.		
		S-3	9'-11'	1-6-12-13 13" Rec.		
10		S-4	11'-13'	11-12-15-16 11" Rec.	White silt (Wet slurry Fill) 9'6"	Very hard augering from 14'3".
		S-5	13'-14'3"	19-29-50/3" 9" Rec.	Orange brown & gray mottled fine sand & silt. 11'4"	
15					Brown & gray fine sand & silt with occasional sandstone fragments. 13'9"	
					Reddish brown weathered sandstone. (Saprolite) 14'5"	
20					Auger refusal	
25						
30						
35						
40						

□ S—2" O.D. Split Spoon Sample
■ U—Undisturbed Sample, 3" Diameter
▨ —Core Drilling
N —Standard Penetration Resistance per 6" (140 lb hammer, 30"drop)
N.R.—No Recovery

Where water levels are shown, they are those observed at the times noted & may not be indicative of daily or seasonal variations in the ground water level.

The boring results represent sub-surface conditions at the boring locations only & are not necessarily representative of conditions at other locations.

CORCORAN DRILLING CO., INC.
Test Borings—Auger Probes
WEST CHESTER, PA 19380

Boring No. 23 Job No. 5060

Sheet No. 1 of 1

Project Nicollette Industries
Location Chestnut Street, Ambler
Ground Surface Elev. 187.0'

Client Earth Engineering, Inc.
Date Started 1/21/05 Completed 1/21/05
Driller Bob Corcoran
Helper

Ground Water Data			
Depth	Hour	Date	Hrs. After completion
Dry			5 Min.
8'5"			9 Hrs.

A—Method of Advancing Boring		Depth
1	5" Solid Augers.	0' to 16'2"
		to
		to
		to
		to

Depth	A	Sample No.	Sample Depth	Sample N	Soil Classification	Remarks
		S-1	2'-4'	1-5-8-5 11" Rec.	Topsoil 4" Blacktop 8" Modified stone 19"	
5		S-2	4'-6' *	5-4-7-8 14" Rec.	Dark brown fine sand with ash, cinders, slag, some orange brown clay. (Fill) 6'2"	* Moist.
		S-3	6'-8'	3-3-2-18 13" Rec.		
		S-4	8'-8'3"	50/3" 2" Rec.	Orange brown fine sand & silt. 7'9"	
10		S-5	10'-10'5"	50/5" 4" Rec.	Reddish brown weathered sandstone. (Saprolite)	Very hard augering from 8'3".
15		S-6	15'-15'3"	50/3" 3" Rec.	16'2"	
					Auger refusal	
20						
25						
30						
35						
40						

☐ S—2" O.D. Split Spoon Sample
■ U—Undisturbed Sample, 3" Diameter
▨ —Core Drilling
N —Standard Penetration Resistance per 6" (140 lb hammer, 30"drop)
N.R.—No Recovery

Where water levels are shown, they are those observed at the times noted & may not be indicative of daily or seasonal variations in the ground water level.

The boring results represent sub-surface conditions at the boring locations only & are not necessarily representative of conditions at other locations.

For: Westrum Development

Project No. 19244.00

EARTH ENGINEERING INCORPORATED

Geotechnical Engineers & Geologists

115 West Germantown Pike, East Norriton, PA 19401

www.earthengineering.com

BORING LOG

Boring No. B-24

Sheet 1 of 1

Job Name and Location Nicolet Industries – Borough of Ambler, Montgomery County, Pennsylvania

Boring Location (See Boring Location Plan)

Date Began 1/11/2005
Date Completed 1/11/2005
Depth of Soil 15.0'
Depth of Rock N/A
Total Boring Depth 15.0'

Casing Size, O.D. 8-inch Augers
Hammer Weight N/A
Hammer Drop N/A
Core Bit Size N/A
Driller F.M. & W. Drilling Co.

Spoon Size, O.D. 2-inch
Hammer Wt. 140 pounds
Hammer Drop 30 inches
Rig Type & No. CME 55
Driller Joe Brophy

Progress & Groundwater Data

Date	Depth Reached	Depth to Water ▽	Time After Completion
1/11/2005	15.0'	Dry	1/4 Hrs

Ground Elev. 188.2'
Datum Elev.
Depth Surf. Water Not Applicable
Weather --

BORING LOG		SPOON SAMPLE & ROCK CORE DATA										REMARKS
Depth From To	Material Description	Sample No.	Sample Depth	Blows on Spoon 6" Intervals 0/6	6/12	12/18	18/24	Soil Rec. (ft)	Depth of Run	Run No.	Core Rec. (ft)	(water loss, cavities, etc.)
0.0' to 8.0'	FILL II: DARK GRAY TO BLACK SILTY SAND WITH WOOD, BRICK, AND ROCK FRAGMENTS	S-1	0.0'-2.0'	3	4	5	5	1.3				
		S-2	2.0'-4.0'	10	9	7	9	1.0				
8.0' to 13.0'	FILL II: TAN CLAY WITH WOOD FRAGMENTS	S-3	4.0'-6.0'	6	3	4	4	1.3				
		S-4	6.0'-8.0'	4	4	4	6	0.8				
13.0' to 14.0'	STRATUM IV: TAN AND GRAY SANDY SILT WITH ROCK FRAGMENTS (WEATHERED SHALE)	S-5	8.0'-10.0'	2	2	2	3	1.2				
		S-6	13.0'-14.0'	32	60			0.0				Auger Refusal 15.0'

EEI Representative: *Chris Schanbacher*

For: Westrum Development

Project No. 19244.00

EARTH ENGINEERING INCORPORATED
Geotechnical Engineers & Geologists
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www.earthengineering.com

Boring No. B-25

Sheet 1 of 1

BORING LOG

Job Name and Location Nicolet Industries – Borough of Ambler, Montgomery County, Pennsylvania
Boring Location (See Boring Location Plan)

Date Began 1/11/2005
Date Completed 1/11/2005
Depth of Soil 6.5'
Depth of Rock N/A
Total Boring Depth 6.5'

Casing Size, O.D. 8-inch Augers
Hammer Weight N/A
Hammer Drop N/A
Core Bit Size N/A
Driller F.M. & W. Drilling Co.

Spoon Size, O.D. 2-inch
Hammer Wt. 140 pounds
Hammer Drop 30 inches
Rig Type & No. CME 55
Driller Joe Brophy

Progress & Groundwater Data

Date	Depth Reached	Depth to Water ▽	Time After Completion
1/11/2005	6.5'	Dry	1/4 Hrs

Ground Elev. 187.3'
Datum Elev.
Depth Surf. Water Not Applicable
Weather --

BORING LOG		SPOON SAMPLE & ROCK CORE DATA										REMARKS
Depth From To	Material Description	Sample No.	Sample Depth	Blows on Spoon 6" Intervals 0/6	6/12	12/18	18/24	Soil Rec. (ft)	Depth of Run	Run No.	Core Rec. (ft)	(water loss, cavities, etc.)
0.0' to 6.5'	FILL II: BLACK SILTY SAND WITH ABUNDANT WOOD AND SOME GRAVEL, ROCK FRAGMENTS, AND CONCRETE	S-1	0.0'-2.0'	3	12	6	7	1.3				
		S-2	2.0'-4.0'	5	5	5	4	1.3				
		S-3	4.0'-6.0'	3	2	2	21	0.8				Auger Refusal on Concrete @ 6.5'
		S-4	6.0'-6.4'	50/5"				0.0				Offset Boring 4' North to B-25A

EEI Representative: *Chris Schanbacher*

For: Westrum Development

Project No. 19244.00

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Geotechnical Engineers & Geologists

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Boring No. B-25A

Sheet 1 of 1

BORING LOG

Job Name and Location Nicolet Industries – Borough of Ambler, Montgomery County, Pennsylvania

Boring Location (See Boring Location Plan)

Date Began 1/11/2005
Date Completed 1/11/2005
Depth of Soil 6.1'
Depth of Rock N/A
Total Boring Depth 6.1'

Casing Size, O.D. 8-inch Augers
Hammer Weight N/A
Hammer Drop N/A
Core Bit Size N/A
Driller F.M. & W. Drilling Co.

Spoon Size, O.D. 2-inch
Hammer Wt. 140 pounds
Hammer Drop 30 inches
Rig Type & No. CME 55
Driller Joe Brophy

Progress & Groundwater Data

Date	Depth Reached	Depth to Water ▽	Time After Completion
1/11/2005	6.1'	Dry	1/4 Hrs

Ground Elev. 187.3'
Datum Elev.
Depth Surf. Water Not Applicable
Weather --

BORING LOG		SPOON SAMPLE & ROCK CORE DATA										REMARKS
Depth From To	Material Description	Sample No.	Sample Depth	Blows on Spoon 6" Intervals 0/6	6/12	12/18	18/24	Soil Rec. (ft)	Depth of Run	Run No.	Core Rec. (ft)	(water loss, cavities, etc.)
0.0' to 4.0'	FILL II: BLACK SILTY SAND WITH WOOD, GRAVEL, ROCK FRAGMENTS, AND CONCRETE	S-1	4.0'-6.0'	1	1	1	3	0.5				
		S-2	6.0'-6.1'	50/1"								
4.0' to 6.0'	FILL I: WHITE SILT											
6.0' to 6.1'	CONCRETE											Auger Refusal on Concrete @ 6.1'
												Offset Boring 5' Southeast to B-25B

EEI Representative: *Chris Schanbacher*

For: Westrum Development

Project No. 19244.00

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BORING LOG

Boring No. B-25B

Sheet 1 of 1

Job Name and Location: Nicolet Industries – Borough of Ambler, Montgomery County, Pennsylvania

Boring Location: (See Boring Location Plan)

Date Began	1/11/2005	Casing Size, O.D.	8-inch Augers	Spoon Size, O.D.	2-inch
Date Completed	1/11/2005	Hammer Weight	N/A	Hammer Wt.	140 pounds
Depth of Soil	2.0'	Hammer Drop	N/A	Hammer Drop	30 inches
Depth of Rock	N/A	Core Bit Size	N/A	Rig Type & No.	CME 55
Total Boring Depth	2.0'	Driller	F.M. & W. Drilling Co.	Driller	Joe Brophy

Progress & Groundwater Data

Date	Depth Reached	Depth to Water ▽	Time After Completion
1/11/2005	2.0'	Dry	1/4 Hrs

Ground Elev. 187.3'

Datum Elev.

Depth Surf. Water Not Applicable

Weather --

BORING LOG		SPOON SAMPLE & ROCK CORE DATA										REMARKS
Depth From To	Material Description	Sample No.	Sample Depth	Blows on Spoon 6" Intervals 0/6	6/12	12/18	18/24	Soil Rec. (ft)	Depth of Run	Run No.	Core Rec. (ft)	(water loss, cavities, etc.)
0.0' to 2.0'	FILL II: BLACK SILTY SAND WITH WOOD, GRAVEL, ROCK FRAGMENTS, AND CONCRETE											Auger Refusal on Concrete @ 2.0'

EEI Representative: *Chris Schanbacher*

For: Westrum Development

Project No. 19244.00

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BORING LOG

Boring No. B-26

Sheet 1 of 1

Job Name and Location Nicolet Industries – Borough of Ambler, Montgomery County, Pennsylvania

Boring Location (See Boring Location Plan)

Date Began 1/12/2005
Date Completed 1/12/2005
Depth of Soil 2.0'
Depth of Rock N/A
Total Boring Depth 2.0'

Casing Size, O.D. 8-inch Augers
Hammer Weight N/A
Hammer Drop N/A
Core Bit Size N/A
Driller F.M. & W. Drilling Co.

Spoon Size, O.D. 2-inch
Hammer Wt. 140 pounds
Hammer Drop 30 inches
Rig Type & No. CME 55
Driller Joe Brophy

Progress & Groundwater Data

Date	Depth Reached	Depth to Water ▽	Time After Completion
1/12/2005	2.0'	Dry	1/4 Hr

Ground Elev. 188.5'
Datum Elev.
Depth Surf. Water Not Applicable
Weather --

BORING LOG		SPOON SAMPLE & ROCK CORE DATA										REMARKS
Depth From To	Material Description	Sample No.	Sample Depth	Blows on Spoon 6" Intervals 0/6	6/12	12/18	18/24	Soil Rec. (ft)	Depth of Run	Run No.	Core Rec. (ft)	(water loss, cavities, etc.)
0.0' to 0.7'	FILL II: TOPSOIL WITH WOOD AND BRICK FRAGMENTS	S-1	0.0'-1.8'	3	6	22	50/4"	1.0				Auger Refusal on Concrete @ 2.0' Offset Boring 5' North to B-26A
0.8' to 2.0'	FILL II: CONCRETE FRAGMENTS											

EEI Representative: *Ryan Mawhinney*

For: Westrum Development

Project No. 19244.00

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Geotechnical Engineers & Geologists

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BORING LOG

Boring No. B-26A

Sheet 1 of 1

Job Name and Location Nicolet Industries – Borough of Ambler, Montgomery County, Pennsylvania

Boring Location (See Boring Location Plan)

Date Began 1/12/2005
Date Completed 1/12/2005
Depth of Soil 18.7'
Depth of Rock N/A
Total Boring Depth 18.7'

Casing Size, O.D. 8-inch Augers
Hammer Weight N/A
Hammer Drop N/A
Core Bit Size N/A
Driller F.M. & W. Drilling Co.

Spoon Size, O.D. 2-inch
Hammer Wt. 140 pounds
Hammer Drop 30 inches
Rig Type & No. CME 55
Driller Joe Brophy

Progress & Groundwater Data

Date	Depth Reached	Depth to Water ▽	Time After Completion
1/12/2005	18.7'	2.0'	1 Hr

Ground Elev. 189.6'
Datum Elev.
Depth Surf. Water Not Applicable
Weather --

BORING LOG		SPOON SAMPLE & ROCK CORE DATA										REMARKS
Depth From To	Material Description	Sample No.	Sample Depth	Blows on Spoon 6" Intervals 0/6	6/12	12/18	18/24	Soil Rec. (ft)	Depth of Run	Run No.	Core Rec. (ft)	(water loss, cavities, etc.)
0.0' to 0.7'	FILL II: TOPSOIL WITH WOOD AND BRICK FRAGMENTS	S-1	2.0'-4.0'	24	21	30	24	1.0				
		S-2	4.0'-6.0'	8	8	5	2	0.8				
0.7' to 6.0'	FILL II: DARK BROWN SAND WITH ASH, BRICK AND METAL FRAGMENTS	S-3	6.0'-8.0'	1	1	WOH	1	1.0				
		S-4	8.0'-10.0'	WOH	3	2	2	1.8				
6.0' to 12.0'	FILL I: WHITE AND LIGHT GRAY SILT WITH CLAY AND SOME GRAVEL	S-5	10.0'-12.0'	2	WOH	1	1	1.8				
		S-6	12.0'-14.0'	2	2	2	2	1.0				
12.0' to 14.5'	REMNANT TOPSOIL	S-7	14.0'-16.0'	2	2	3	5	1.5				
		S-8	16.0'-18.0'	8	15	15	15	1.0				
14.5' to 18.0'	STRATUM III: GRAY TO REDDISH BROWN SILTY SAND WITH ROCK FRAGMENTS	S-9	18.0'-18.7'	42	50/2"			0.8				
18.0' to 18.7'	STRATUM IV: REDDISH BROWN SILTY SAND WITH ABUNDANT ROCK FRAGMENTS (WEATHERED SANDSTONE)											

EEI Representative: *CHRIS SCHANBACHER*

CORCORAN DRILLING CO., INC.
Test Borings—Auger Probes
WEST CHESTER, PA 19380

Boring No. 27 Job No. 5060

Sheet No. 1 of 1

Project Nicollette Industries
Location Chestnut Street, Ambler
Ground Surface Elev. 189.6'

Client Earth Engineering, Inc.
Date Started 1/20/05 Completed 1/20/05
Driller Bob Corcoran
Helper

Ground Water Data			
Depth	Hour	Date	Hrs. After completion
6'4"			5 Min.
6'3"			24 Hrs.

	A—Method of Advancing Boring	Depth
1	5" Solid Augers	0' to 20'
2	Split Spoon	20' to 21'4"
		to
		to
		to

Depth	A	Sample No.	Sample Depth	Sample N	Soil Classification	Remarks
		S-1	1'-3' *	2-3-2-3 16" Rec.	Black fine sand, cinders. (Fill) 1'	* Moist.
		S-2	3'-5' *	2-3-3-1 9" Rec.	Slag, cinders, ash, some orange brown fine sand & silt. (Fill) 7'	
5		S-3	5'-7' *	1/12"-1/12" 2" Rec.		
		S-4	7'-9' **	1-1-3-1 16" Rec.	Brown fine sand & silt. (Fill) Approximately 9'	** Wet.
		S-5	9'-11' **	1/12"-1-10 2" Rec.	White silt with some wood. (Slurry Fill)	
10		S-6	11'-13' **	6-7-4-5 15" Rec.		
		S-7	14'-16' *	10-15-14-24 13" Rec.	Approximately 14'	
15		S-8	16'-18' *	36-27-19-24 11" Rec.	Orange brown & gray mottled fine sand clayey silt. 15'9"	
					Brown fine sand with some pebbles & rock fragments. 19'	
20		S-9	20'-21'4"	26-52-50/4" 12" Rec.	Reddish brown & gray fine to medium sand. 20'8"	
					Orange brown & gray weathered sandstone. (Saprolite) 21'4"	
25						
30						
35						
40						

□ S—2" O.D. Split Spoon Sample
■ U—Undisturbed Sample, 3" Diameter
▨ —Core Drilling
N —Standard Penetration Resistance per 6" (140 lb hammer, 30"drop)
N.R.—No Recovery

Where water levels are shown, they are those observed at the times noted & may not be indicative of daily or seasonal variations in the ground water level.

The boring results represent sub-surface conditions at the boring locations only & are not necessarily representative of conditions at other locations.

CORCORAN DRILLING CO., INC.
Test Borings—Auger Probes
WEST CHESTER, PA 19380

Boring No. 28 Job No. 5060

Sheet No. 1 of 1

Project Nicollette Industries
Location Chestnut Street, Ambler
Ground Surface Elev. 186.9'

Client Earth Engineering, Inc.
Date Started 1/21/05 Completed 1/21/05
Driller Boh Corcoran
Helper

Ground Water Data			
Depth	Hour	Date	Hrs. After completion
10'8"			5 Min.
10'1"			6 Hrs.

	A—Method of Advancing Boring	Depth
1	5" Solid Augers	0' to 17'6"
		to
		to
		to
		to

Depth	A	Sample No.	Sample Depth	Sample N	Soil Classification	Remarks
		S-1	1'-3'	1-3-3-3 12" Rec.	Modified stone 15"	
		S-2	3'-5'	3-2-1-1 11" Rec.	Orange brown & tan fine sand & silt with some ash, coal. (Fill)	
5		S-3	5'-7'	11-9-12-8 9" Rec.		
		S-4	7'-9'	5-7-14-16 15" Rec.	9'	
		S-5	9'-11' *	5-5-6-6 14" Rec.	Gray organic silt. 9'5"	* Moist.
10					Orange brown clay with occasional rock fragments. 13'	
					Orange brown & brown fine sand with rock fragments & pebbles. 16'6"	
		S-6	14'-16' **	11-15-22-25 17" Rec.		** Wet.
15					Reddish brown weathered sandstone. (Saprolite) 17'6"	Very hard augering from 16'6".
					Auger refusal	
20						
25						
30						
35						
40						

□ S—2" O.D. Split Spoon Sample
■ U—Undisturbed Sample, 3" Diameter
▨ —Core Drilling
N —Standard Penetration Resistance per 6" (140 lb hammer, 30"drop)
N.R.—No Recovery

Where water levels are shown, they are those observed at the times noted & may not be indicative of daily or seasonal variations in the ground water level.

The boring results represent sub-surface conditions at the boring locations only & are not necessarily representative of conditions at other locations.

Main Line Drilling Company

101 Calvarese Lane - Wayne, PA 19087
Phone/Fax: (610) 341-9296 - Email: MLDrill@aol.com

Boring# 29 | Job# 1833
Client: Earth Engineering Inc | Date Started: 1/27/2005
Project: Nicolet Industries | Completed: 1/27/2005
Location: Ambler, Pa | Driller: William Corcoran
Drill Rig: Mobile B-57 | Assistant: Stephen Luner

Ground Surface Elevation: 192.5'

Equipment Used for Boring Advancement

					Groundwater Information		
					Depth	Time	Date
1	3 1/4" Hollow auger	0"	To	20'	17'	1/4 hr	1/27/2005
2	Split spoon	20'	To	22'	16'6"	24 hr	1/28/2005

Depth	S#	Sample Depth	Blow/Counts	Soil Description	Comments
--					
--	S1	0" - 2'	6-5-6-9	Silt and sand with concrete, wood, plastic, brown and black (Fill) 5'	S1 10"
--	S2	2' - 4'	43-5-4-3		S2 14"
--5'					S3 17"
--	S3	4' - 6'	24-22-5-2		S4 20"
--					S5 NR
--	S4	6' - 8'	1-1-1/1'		S6 NR
--				Silt with sand, white (Fill)	S7 24"
--10'	S5	8' - 10'	Shelby tube Rec=NR		S8 20"
--					S9 18"
--	S6	10'- 12'	WOH/2'		S10 13"
--					S11 17"
--	S7	12'- 14'	Shelby tube Rec=24"=100%	14'	
--15'				Silt with sand, cinders and ash, white and gray (Fill) 16'	
--	S8	14'- 16'	7-6-7-9		
--				Cinders and ash, gray and brown (Fill) 19'	
--	S9	16'- 18'	7-6-7-7		
--20'	S10	18'- 20'	6-5-6-8	Silt with clay, greenish gray 21'	
--				Silty sand with gravel, reddish brown 22'	
--	S11	20'- 22'	9-15-19-20		
--					
--25'					
--					
--					
--					
--30'					
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--35'					
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--40'					
--					
--					
--					
--					
--45'					
--					
--					
--					
--					
--50'					

* TEST BORING RESULTS REPRESENT EACH BORING LOCATION ONLY *

* GROUNDWATER LEVELS SHOWN ARE RECORDED AT BORING COMPLETION UNLESS OTHERWISE NOTED *

For: Westrum Development

Project No. 19244.00

EARTH ENGINEERING INCORPORATED

Geotechnical Engineers & Geologists

115 West Germantown Pike, East Norriton, PA 19401

www.earthengineering.com

BORING LOG

Boring No. B-30

Sheet 1 of 1

Job Name and Location Nicolet Industries – Borough of Ambler, Montgomery County, Pennsylvania

Boring Location (See Boring Location Plan)

Date Began 1/12/2005
Date Completed 1/12/2005
Depth of Soil 24.0'
Depth of Rock N/A
Total Boring Depth 24.0'

Casing Size, O.D. 8-inch Augers
Hammer Weight N/A
Hammer Drop N/A
Core Bit Size N/A
Driller F.M. & W. Drilling Co.

Spoon Size, O.D. 2-inch
Hammer Wt. 140 pounds
Hammer Drop 30 inches
Rig Type & No. CME 55
Driller Joe Brophy

Progress & Groundwater Data

Date	Depth Reached	Depth to Water ▽	Time After Completion
1/12/2005	24.0'	Dry	1/4 Hrs

Ground Elev. 192.7'
Datum Elev.
Depth Surf. Water Not Applicable
Weather --

BORING LOG		SPOON SAMPLE & ROCK CORE DATA										REMARKS
Depth From To	Material Description	Sample No.	Sample Depth	Blows on Spoon 6" Intervals 0/6	6/12	12/18	18/24	Soil Rec. (ft)	Depth of Run	Run No.	Core Rec. (ft)	(water loss, cavities, etc.)
0.0' to 0.3'	TOPSOIL	S-1	0.0'-2.0'	2	3	6	6	0.5				
		S-2	2.0'-4.0'	2	3	5	4	1.3				
0.3' to 9.0'	FILL II: BROWN TO BLACK/GREY SANDY SILT WITH ROCK FRAGMENTS, CINDERS, AND ASH	S-3	4.0'-6.0'	1	1	1	1	1.5				
		S-4	6.0'-8.0'	6	12	21	25	1.2				
9.0' to 19.0'	FILL I: WHITE SILT	S-5	8.0'-10.0'	9	8	4	3	1.8				
		S-6	10.0'-12.0'	1	1	WOH	1	0.9				
19.0' to 24.0'	STRATUM II: SILTY SAND WITH ROCK FRAGMENTS AND GRAVEL (ALLUVIAL DEPOSITS)	S-7	12.0'-14.0'	2	3	3	2	1.0				
		S-8	14.0'-16.0'	1	1	WOH	WOH	0.3				
		S-9	16.0'-18.0'	WOH	WOH	1	1	0.8				
		S-10	18.0'-20.0'	10	6	3	2	0.8				
		S-11	20.0'-22.0'	5	8	11	12	1.2				
		S-12	22.0'-24.0'	14	19	15	11	1.0				

EEI Representative: *Ryan Mawhinney*

Main Line Drilling Company

101 Calvarese Lane - Wayne, PA 19087
Phone/Fax: (610) 341-9296 - Email: MLDrill@aol.com

Boring# 31 | Job# 1833
Client: Earth Engineering Inc | Date Started: 1/27/2005
Project: Nicolet Industries | Completed: 1/27/2005
Location: Ambler, Pa | Driller: William Corcoran
Drill Rig: Mobile B-57 | Assistant: Stephen Luner

Ground Surface Elevation: 188.3'

Equipment Used for Boring Advancement

1	3 1/4" Hollow auger	0"	To	18'6"	15'	1/4 hr	1/27/2005
2	Split spoon	18'6"	To	19'6"	14'2"	24 hr	1/28/2005

Groundwater Information: Depth / Time / Date

Depth	S#	Sample Depth	Blow/Counts	Soil Description	Comments
	S1	0" - 2'	6-11-30-52		S1 17"
	S2	2' - 4'	30-28-31-33	Silty sand with rock fragments, cinders and ash, brown and gray to reddish brown	S2 15"
--5'					S3 6"
	S3	4' - 6'	7-5-4-4	(Fill)	S4 9"
					S5 6" Wet
	S4	6' - 8'	3-2-2-1		S6 12"
	S5	8'- 8'6"	6-25/0"	8'6"	S7 11"
--10'				Concrete slab 9'6"	S8 NR
	S6	9'6"-11'6"	8-9-10-12		S9 10"
				Sandy silt, brown and gray	
	S7	11'6"-13'6"	12-15-21-22	12'6"	
--15'	S8	13'6"-15'	16-14-13		
				Silty sand, maroon and gray	
				18'	
				Weathered sandstone, maroon and brown	
--20'	S9	18'6"-19'6"	31-54	19'6"	
--25'					
--30'					
--35'					
--40'					
--45'					
--50'					

* TEST BORING RESULTS REPRESENT EACH BORING LOCATION ONLY *

* GROUNDWATER LEVELS SHOWN ARE RECORDED AT BORING COMPLETION UNLESS OTHERWISE NOTED *

Main Line Drilling Company

101 Calvarese Lane - Wayne, PA 19087
Phone/Fax: (610) 341-9296 - Email: MLDrill@aol.com

Boring# 32 | Job# 1833
Client: Earth Engineering Inc | Date Started: 1/27/2005
Project: Nicolet Industries | Completed: 1/27/2005
Location: Ambler, Pa | Driller: William Corcoran
Drill Rig: Mobile B-57 | Assistant: Stephen Luner

Ground Surface Elevation: 188.1'

Equipment Used for Boring Advancement

					Groundwater Information		
					Depth	Time	Date
1	3 1/4" Hollow auger	0"	To	18'6"	14'6"	1/4 hr	1/27/2005
2	Split spoon	18'6"	To	18'9"	13'6"	24 hr	1/28/2005

Depth	S#	Sample Depth	Blow/Counts	Soil Description	Comments
--				Sandy silt with rock fragments, wood, brown (Fill) 1'6"	
--	S1	0" - 1'6"	6-7-9-25/0"	Concrete slab 2'6"	S1 13"
--	S2	3' - 5'	10-24-13-7		S2 17"
--5'				Silt with sand and rock fragments, cinders	S3 16"
--	S3	5' - 7'	21-12-4-2	and ash, brown, gray and white	S4 8"
--				(Fill)	S5 16"
--	S4	7' - 9'	1-1-1/1'		S6 15"
--				9'	S7 12"
--10'	S5	9' - 11'	3-4-4-5	Silt, greenish gray 10'	S8 3"
--				Clay, brown and gray	
--	S6	11'- 13'	7-14-17-18	12'	
--				Silty sand with some clay and gravel,	
--				greenish gray, maroon and brown 13'6"	
--15'	S7	13'6"-15'	14-16-15		
--				Silty sand/sandy silt with gravel, brown	
--				17'6"	
--				Weathered sandstone, maroon and brown	Hard drilling
--	S8	18'6"-18'9"	50/3"	18'9"	17'6"- 18'6'
--20'					
--					
--					
--					
--					
--25'					
--					
--					
--					
--					
--30'					
--					
--					
--					
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--35'					
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--					
--40'					
--					
--					
--					
--					
--45'					
--					
--					
--					
--					
--50'					

* TEST BORING RESULTS REPRESENT EACH BORING LOCATION ONLY *

* GROUNDWATER LEVELS SHOWN ARE RECORDED AT BORING COMPLETION UNLESS OTHERWISE NOTED *

Main Line Drilling Company

101 Calvarese Lane - Wayne, PA 19087
Phone/Fax: (610) 341-9296 - Email: MLDrill@aol.com

Boring# 33 | Job# 1833
Client: Earth Engineering Inc | Date Started: 1/28/2005
Project: Nicolet Industries | Completed: 1/28/2005
Location: Ambler, Pa | Driller: William Corcoran
Drill Rig: Mobile B-57 | Assistant: Stephen Luner

Ground Surface Elevation: 185.1'

Equipment Used for Boring Advancement

					Depth	Time	Date
1	3 1/4" Hollow auger	0"	To	17'6"	14'6"	1/4 hr	1/28/2005
			To		5'6"	10 days	2/7/2005

Groundwater Information

Depth	S#	Sample Depth	Blow/Counts	Soil Description	Comments
				Asphalt 6" concrete 9" 15"	
--	S1	1'6"-3'6"	4-5-6-2	Cinder and ash with rock fragments, black (Fill) 3'	S1 15"
--	S2	3'6"-5'6"	2-2-2-4	Silt with clay, greenish gray 5'6"	S2 22"
--5'					S3 17"
--	S3	5'6"-7'6"	6-7-8-9	Silt with clay, greenish gray 7'6"	S4 10"
--					S5 6"
--	S4	8'6"- 10'	7-8-9		
--10'				Silty sand with gravel, gray and maroon 12'6"	
--	S5	13'6"-14'1"	41-50/1"		
--15'				Weathered siltstone/shale, reddish brown 18'3"	Hard drilling 16'6"- 17'6"
--20'				Auger refusal	
--25'					
--30'					
--35'					
--40'					
--45'					
--50'					

* TEST BORING RESULTS REPRESENT EACH BORING LOCATION ONLY *

* GROUNDWATER LEVELS SHOWN ARE RECORDED AT BORING COMPLETION UNLESS OTHERWISE NOTED *

Main Line Drilling Company

101 Calvarese Lane - Wayne, PA 19087
Phone/Fax: (610) 341-9296 - Email: MLDrill@aol.com

Boring# 34 | Job# 1833
Client: Earth Engineering Inc | Date Started: 1/28/2005
Project: Nicolet Industries | Completed: 1/28/2005
Location: Ambler, Pa | Driller: William Corcoran
Drill Rig: Mobile B-57 | Assistant: Stephen Luner

Ground Surface Elevation: 184.5'

Equipment Used for Boring Advancement

					Groundwater Depth	Groundwater Time	Groundwater Date
1	3 1/4" Hollow auger	0"	To	22'6"	5'	1/4 hr	1/28/2005
			To		5'	10 days	2/7/2005

Depth	S#	Sample Depth	Blow/Counts	Soil Description	Comments
				Asphalt 8" concrete 6" 14"	
	S1	1'6"-3'6"	5-10-12-2	Silt and sand with some clay, cinders and ash, black and gray (Fill) 5'	S1 19"
	S2	3'6"-5'6"	5-2-8-36		S2 13"
--5'					S3 11"
					S4 10"
--10'	S3	8'6"- 10'	14-19-37	Weathered sandstone, gray and maroon 11'6"	Hard drilling and grinding 16'- 22'6"
--15'	S4	13'6"-14'6"	33-56	Weathered shale/siltstone/sandstone, reddish brown	
--20'				22'6"	
				Auger refusal	
--25'					
--30'					
--35'					
--40'					
--45'					
--50'					

* TEST BORING RESULTS REPRESENT EACH BORING LOCATION ONLY *

* GROUNDWATER LEVELS SHOWN ARE RECORDED AT BORING COMPLETION UNLESS OTHERWISE NOTED *

Main Line Drilling Company

101 Calvarese Lane - Wayne, PA 19087
Phone/Fax: (610) 341-9296 - Email: MLDrill@aol.com

Boring# 35 | Job# 1833
Client: Earth Engineering Inc | Date Started: 1/28/2005
Project: Nicolet Industries | Completed: 1/28/2005
Location: Ambler, Pa | Driller: William Corcoran
Drill Rig: Mobile B-57 | Assistant: Stephen Luner

Ground Surface Elevation: 187.1'

Equipment Used for Boring Advancement					Groundwater Information		
					Depth	Time	Date
1	3 1/4" Hollow auger	0"	To	18'3"	12'6"	1/4 hr	1/28/2005
			To				

Depth	S#	Sample Depth	Blow/Counts	Soil Description	Comments
	S1	0" - 2'	10-14-21-37		S1 15"
	S2	2' - 4'	12-6-9-7	Silty sand with rock fragments, cinders and ash, concrete, wood, brown, black and white	S2 10"
--5'					S3 11"
	S3	4' - 6'	7-2-2-2		S4 10"
	S4	6' - 8'	1-1-1-1	(Fill)	S5 4"
					S6 3"
--10'	S5	8' - 10'	2-2-2-1		S7 14"
	S6	10' - 12'	1-1-1-1	12'6"	
				Silt with clay, gray and brown 13'	
	S7	12' - 14'	1-2-11-12	Silty sand with gravel, reddish brown and marcon 15'	
--15'					
				Weathered sandstone, brown and orange brown 18'3"	Hard drilling 15'- 18'3"
--20'				Auger refusal	
--25'					
--30'					
--35'					
--40'					
--45'					
--50'					

* TEST BORING RESULTS REPRESENT EACH BORING LOCATION ONLY *

* GROUNDWATER LEVELS SHOWN ARE RECORDED AT BORING COMPLETION UNLESS OTHERWISE NOTED *

For: Westrum Development

Project No.: 19244.00

EARTH ENGINEERING INCORPORATED

Geotechnical Engineers & Geologists

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TEST PIT LOG

Test Pit No: TP-1

Sheet: 1 of 1

Job Name: Nicolet Industries

Job Location: Borough of Ambler, Montgomery County, Pennsylvania

Date Begin: 1/26/2005
Date Completed: 1/26/2005
Total Depth: 6.4'
Ground Elevation: 186.2'
Weather:

Excavator: Babyak Landscaping
Equipment: Case 580L Backhoe
EEI Representative: C. Schanbacher
Drawn/Compiled By: S. Brown
Date Compiled: 01/28/2005

Progress & Groundwater Data

Date	Depth Reached	Depth to Water	Hour
1/26/05	6.4'	Dry	5 min

DEPTH (Feet)	SOIL DESCRIPTION	REMARKS
	0.0' – 0.2' TOPSOIL	
	0.2' – 1.2' FILL II Black Cinders and Ash	*Loose*
	1.2' – 4.0' FILL II Dark Brown Silt with Clay and Wood Fragments	*Loose*
5	4.0' – 6.0' STRATUM III Tan Fine Sand and Silt	*Medium Dense*
	6.0' – 6.4' STRATUM IV Reddish Brown Silty Sand with Abundant Rock Fragments (Weathered Sandstone)	*Dense to Very Dense* *Hard Excavating*
	Bucket Refusal @ 6.4'	
10		
15		
20		

For: Westrum Development

Project No.: 19244.00

EARTH ENGINEERING INCORPORATED

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TEST PIT LOG

Test Pit No: TP-2

Sheet: 1 of 1

Job Name: Nicolet Industries

Job Location: Borough of Ambler, Montgomery County, Pennsylvania

Date Begin: 1/26/2005
Date Completed: 1/26/2005
Total Depth: 6.4'
Ground Elevation: 186.5'
Weather:

Excavator: Babyak Landscaping
Equipment: Case 580L Backhoe
EEI Representative: C. Schanbacher
Drawn/Compiled By: S. Brown
Date Compiled: 01/28/2005

Progress & Groundwater Data

Date	Depth Reached	Depth to Water	Hour
1/26/05	6.4'	Dry	5 min

DEPTH (Feet)	SOIL DESCRIPTION	REMARKS
	0.0' – 0.3' TOPSOIL	
	0.3' – 0.8' FILL II Black Cinders and Ash	*Loose*
	0.8' – 2.5' STRATUM III Tan Fine Sand and Silt	*Loose to Medium Dense*
5	2.5' – 5.2' STRATUM III Brown Sand with Rock Fragments	*Medium Dense*
	5.2' – 6.4' STRATUM IV Reddish Brown Silty Sand with Abundant Rock Fragments (Weathered Sandstone)	*Dense to Very Dense Hard Excavating*
10	*Bucket Refusal @ 6.4'*	
15		
20		

For: Westrum Development

Project No.: 19244.00

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TEST PIT LOG

Test Pit No: TP-3

Sheet: 1 of 1

Job Name: Nicolet Industries

Job Location: Borough of Ambler, Montgomery County, Pennsylvania

Date Begin: 1/26/2005
Date Completed: 1/26/2005
Total Depth: 5.4'
Ground Elevation: 186.6'
Weather:

Excavator: Babyak Landscaping
Equipment: Case 580L Backhoe
EEI Representative: C. Schanbacher
Drawn/Compiled By: S. Brown
Date Compiled: 01/28/2005

Progress & Groundwater Data

Date	Depth Reached	Depth to Water	Hour
1/26/05	5.4'	Dry	5 min

DEPTH (Feet)	SOIL DESCRIPTION	REMARKS
	0.0' – 0.3' TOPSOIL	
	0.3' – 0.8' FILL II Black Cinders and Ash	*Loose*
	0.8' – 3.2' STRATUM III Tan Fine Sand and Silt	*Medium Dense*
5	3.2' – 5.4' STRATUM IV Reddish Brown Silty Sand with Abundant Rock Fragments (Weathered Sandstone)	*Dense to Very Dense* *Hard Excavating*
	Bucket Refusal @ 5.4'	
10		
15		
20		

For: Westrum Development

Project No.: 19244.00

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TEST PIT LOG

Test Pit No: TP-4

Sheet: 1 of 1

Job Name: Nicolet Industries

Job Location: Borough of Ambler, Montgomery County, Pennsylvania

Date Begin: 1/26/2005
Date Completed: 1/26/2005
Total Depth: 5.0'
Ground Elevation: 184.4'
Weather:

Excavator: Babyak Landscaping
Equipment: Case 580L Backhoe
EEI Representative: C. Schanbacher
Drawn/Compiled By: S. Brown
Date Compiled: 01/28/2005

Progress & Groundwater Data

Date	Depth Reached	Depth to Water	Hour
1/26/05	5.0'	Dry	5 min

DEPTH (Feet)	SOIL DESCRIPTION	REMARKS
	0.0' – 0.4' TOPSOIL	
	0.4' – 2.5' STRATUM III Tan Fine Sand and Silt	*Loose to Medium Dense*
	2.5' – 5.0' STRATUM IV Brown Sand with Abundant Rock Fragments (Weathered Sandstone)	*Water Line @ 3.0'* *6.0' From Existing Building* *Dense to Very Dense* *Hard Excavating 4.0'-5.0'*
5	*Bucket Refusal @ 5.0'*	
10		
15		
20		

For: Westrum Development

Project No.: 19244.00

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TEST PIT LOG

Test Pit No: TP-5

Sheet: 1 of 1

Job Name: Nicolet Industries

Job Location: Borough of Ambler, Montgomery County, Pennsylvania

Date Begin: 1/26/2005
Date Completed: 1/26/2005
Total Depth: 5.1'
Ground Elevation: 185.6'
Weather:

Excavator: Babyak Landscaping
Equipment: Case 580L Backhoe
EEI Representative: C. Schanbacher
Drawn/Compiled By: S. Brown
Date Compiled: 01/28/2005

Progress & Groundwater Data

Date	Depth Reached	Depth to Water	Hour
1/26/05	5.1'	Dry	5 min

DEPTH (Feet)	SOIL DESCRIPTION	REMARKS
	0.0' – 0.3' TOPSOIL	
	0.3' – 1.5' STRATUM III Tan Fine Sand and Silt	*Loose to Medium Dense*
	1.5' – 3.0' STRATUM III Brown to Gray Medium to Coarse Sand with Rock Fragments	*Medium Dense*
5	3.0' – 5.1' STRATUM IV Reddish Brown Silty Sand with Abundant Rock Fragments (Weathered Sandstone)	*Dense to Very Dense* *Hard Excavating*
	Bucket Refusal @ 5.1'	
10		
15		
20		

For: Westrum Development

Project No.: 19244.00

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TEST PIT LOG

Test Pit No: TP-6

Sheet: 1 of 1

Job Name: Nicolet Industries

Job Location: Borough of Ambler, Montgomery County, Pennsylvania

Date Begin: 1/26/2005
Date Completed: 1/26/2005
Total Depth: 10.8'
Ground Elevation: 183.8'
Weather:

Excavator: Babyak Landscaping
Equipment: Case 580L Backhoe
EEI Representative: C. Schanbacher
Drawn/Compiled By: S. Brown
Date Compiled: 01/28/2005

Progress & Groundwater Data

Date	Depth Reached	Depth to Water	Hour
1/26/05	10.7'	8.0'	5 min

DEPTH (Feet)	SOIL DESCRIPTION	REMARKS
	0.0' – 0.5' TOPSOIL	
	0.5' – 3.5' STRATUM III Tan Fine Sand and Silt	*Loose to Medium Dense*
5	3.5' – 5.7' STRATUM III Brown Coarse Sand with Rock Fragments	*Medium Dense*
	5.7' – 10.8' STRATUM IV Reddish Brown Silty Sand with Abundant Rock Fragments (Weathered Sandstone)	*Dense to Very Dense* *Hard Excavating 8.0'-10.8'*
10	*Bucket Refusal @ 10.8'*	
15		
20		

For: Westrum Development

Project No.: 19244.00

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TEST PIT LOG

Test Pit No: TP-7

Sheet: 1 of 1

Job Name: Nicolet Industries

Job Location: Borough of Ambler, Montgomery County, Pennsylvania

Date Begin: 1/26/2005
Date Completed: 1/26/2005
Total Depth: 6.3'
Ground Elevation: 184.6'
Weather:

Excavator: Babyak Landscaping
Equipment: Case 580L Backhoe
EEI Representative: C. Schanbacher
Drawn/Compiled By: S. Brown
Date Compiled: 01/28/2005

Progress & Groundwater Data

Date	Depth Reached	Depth to Water	Hour
1/26/05	6.3'	6.0'	5 min

DEPTH (Feet)	SOIL DESCRIPTION	REMARKS
	0.0' – 0.5' TOPSOIL	
	0.5' – 2.0' STRATUM III Tan Fine Sand and Silt	*Loose to Medium Dense*
5	2.0' – 5.4' STRATUM III Brown Sand with Rock Fragments	*Medium Dense*
	5.4' – 6.3' STRATUM IV Reddish Brown Silty Sand with Abundant Rock Fragments (Weathered Sandstone)	*Very Dense* *Hard Excavating*
10	*Bucket Refusal @ 6.3'*	
15		
20		

For: Westrum Development

Project No.: 19244.00

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TEST PIT LOG

Test Pit No: TP-8

Sheet: 1 of 1

Job Name: Nicolet Industries

Job Location: Borough of Ambler, Montgomery County, Pennsylvania

Date Begin: 1/26/2005
Date Completed: 1/26/2005
Total Depth: 8.5'
Ground Elevation: 188.5'
Weather:

Excavator: Babyak Landscaping
Equipment: Case 580L Backhoe
EEI Representative: C. Schanbacher
Drawn/Compiled By: S. Brown
Date Compiled: 01/28/2005

Progress & Groundwater Data

Date	Depth Reached	Depth to Water	Hour
1/26/05	8.5'	Dry	5 min

DEPTH (Feet)	SOIL DESCRIPTION	REMARKS
	0.0' – 2.0' FILL II Brown Sandy Silt with Topsoil, Metal, Wood, Green Fibrous Tiles, Pipe and Concrete Fragments	*Loose*
5	2.0' – 8.5' FILL II Tan Fine Sand with Rock Fragments, Wood Fragments, and Concrete	*Loose*
10	*Bucket Refusal* *On Concrete Slab @ 8.5'*	
15		
20		

For: Westrum Development

Project No.: 19244.00

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TEST PIT LOG

Test Pit No: TP-9

Sheet: 1 of 1

Job Name: Nicolet Industries

Job Location: Borough of Ambler, Montgomery County, Pennsylvania

Date Begin: 1/26/2005
Date Completed: 1/26/2005
Total Depth: 8.0'
Ground Elevation: 187.7'
Weather:

Excavator: Babyak Landscaping
Equipment: Case 580L Backhoe
EEI Representative: C. Schanbacher
Drawn/Compiled By: S. Brown
Date Compiled: 01/28/2005

Progress & Groundwater Data

Date	Depth Reached	Depth to Water	Hour
1/26/05	8.0'	Dry	5 min

DEPTH (Feet)	SOIL DESCRIPTION	REMARKS
	0.0' – 3.0' FILL II Tan Silty Sand with Rock and Concrete Fragments	*Loose*
	3.0' – 3.5' FILL II Organics / Topsoil	*Loose*
5	3.5' – 6.0' FILL II Red Silty Sand with Gravel and Sand	*Loose*
	6.0' – 7.0' FILL II Black and Green Organic Soils	*Loose* *Very Moist*
	7.0' – 8.0' FILL II Black and Green Organic Soils	*Loose*
	Bucket Refusal On Concrete Slab @ 8.0'	
10		
15		
20		

ATTACHMENT #2

LANGAN
ENGINEERING & ENVIRONMENTAL SERVICES

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

Project: Westrum Development Company	Project No.: 3611302
Location: Former Nicolet Industries Site: Ambler, PA	Elevation and Datum: NA
Drilling Company: Terra Probe, Inc.	Date Started: 1/25/06 — Date Finished: 1/25/06
Drilling Equipment: Geoprobe (Track Mounted)	Completion Depth: 8 ft — Rock Depth: NE
Size and Type of Bit: NA	Number of Samples: Disturbed 2 — Undisturbed NA — Core NA
Casing Diameter (in): NA — Casing Depth (ft): NA	Water Level (ft.): First ▽ 2 — Completion ▼ NA — 24 HR. ▼ NA
Casing Hammer: NA — Weight (lbs): NA — Drop (in): NA	Drilling Foreman: George Demetriou
Sampler: 2-inch diameter / 4-foot macro core	Inspecting Engineer: Randy Copenhaver
Sampler Hammer: NA — Weight (lbs): NA — Drop (in): NA	

Material Symbol	Elev. (ft)	Sample Description	PID Reading (ppm)	Depth Scale	Sample Data: Number	Type	Recov. (in)	Penetr. resist BL/6in	Env ID	Remarks (Drilling Fluid, Depth of Casing, Fluid Loss, Drilling Resistance, etc.)
		Asphalt	0	0						Begin at 14:35
		Tan GRAVEL, trace sand (FILL) (dry)	0							
		Black fine to coarse SAND, some gravel, ash (FILL) (moist)	0	1						
		Brown CLAY (wet) ▽	0		1	PUSH	32			Groundwater encountered at 2 feet
			0	2						
			0							
			0.7	3						
			0							
		Brown CLAY (wet)	0	4						
		Brown and gray fine to coarse SAND, trace gravel (wet)	7.1							
			96.4	5						
			42.4		2	PUSH	40			
			28.0	6						
			144							
			109	7						
			135	8						Auger refusal at 8 feet and install PZ-4 well
				9						
				10						
				11						
				12						

LANGAN
ENGINEERING & ENVIRONMENTAL SERVICES

Log of Boring **SB-1** Sheet 1 of 2

Project: Westrum Development Company	Project No.: 3611302
Location: Former Nicolet Industries Site: Ambler, PA	Elevation and Datum: NA
Drilling Company: Terra Probe, Inc.	Date Started: 7/20/05 — Date Finished: 7/20/05
Drilling Equipment: Geoprobe (Truck Mount)	Completion Depth: 24 ft — Rock Depth: NE
Size and Type of Bit: NA	Number of Samples: Disturbed 6 — Undisturbed NA — Core NA
Casing Diameter (in): NA — Casing Depth (ft): NA	Water Level (ft.): First ▽ 8.5 — Completion ▼ NA — 24 HR. ▼ NA
Casing Hammer: NA — Weight (lbs): NA — Drop (in): NA	Drilling Foreman: Brian Moriarty
Sampler: 2-inch diameter / 4-foot macro core	Inspecting Engineer: Randy Copenhaver
Sampler Hammer: NA — Weight (lbs): NA — Drop (in): NA	

Material Symbol	Elev. (ft)	Sample Description	PID Reading (ppm)	Depth Scale	Sample Data: Number	Type	Recov. (in)	Penetr. resist BL/6in	Env ID	Remarks (Drilling Fluid, Depth of Casing, Fluid Loss, Drilling Resistance, etc.)
		Brown sandy CLAY, some gravel (FILL) (moist)	0	0					236	Start 14:40
		Black fine-to-coarse SAND, some gravel, slag, ash (FILL) (dry)	0	1						
		White clayey fine-to-coarse SAND, trace gravel, magnesia material (FILL)	0	2	1	PUSH	37			
		Brown fine-to-coarse SAND, some silt and clay, trace gravel (FILL) (dry)	0	3						
		Orange-brown CLAY, trace sand (FILL) (moist)	0	4					237	
		White CLAY, trace sand and gravel, magnesia material, slag (FILL) (wet)	0	5						
		White, brown and black fine-to-coarse SAND, some clay and gravel, magnesia material, ash, slag (FILL) (moist)	0	6	2	PUSH	29			
		White, brown and black fine-to-coarse SAND, some clay and gravel, magnesia material, fibrous material, ash, slag (FILL) (moist) ▽	0	7						
		White sandy CLAY, trace gravel, magnesia material (FILL) (wet)	0	8					238	
			0	9						
			0	10	3	PUSH	18			
			0	11						
			0	12						

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Log of Boring **SB-1** Sheet 2 of 2

Project	Project No.
Westrum Development Company	3611302
Location	**Elevation and Datum**
Former Nicolet Industries Site: Ambler, PA	NA

MATERIAL SYMBOL	Elev. (ft)	Sample Description	PID Reading (ppm)	Depth Scale	Sample Data: Number	Type	Recov. (in)	Penetr. resist BL/6in	Env ID	Remarks (Drilling Fluid, Depth of Casing, Fluid Loss, Drilling Resistance, etc.)
		White and light tan sandy CLAY, trace gravel, magnesia material (FILL) (wet)	0	12						
			0	13						
			0		4	PUSH	40			
			0	14						
			0							
			0	15						
		Brown gravelly fine-to-coarse SAND (FILL) (wet)	0							
			0	16						
		White and light tan sandy CLAY, magnesia material, trace gravel (FILL) (wet)	0							
		Gray fibrous material (FILL) (wet)	0						239	
		Dark greenish gray and black mottled CLAY (moist)	0	17						
			0							
			0	18	5	PUSH	22			
			0							
			0	19						
			0							
			0	20						
		Dark greenish gray and black mottled CLAY (wet)	0							
		Dark gray CLAY (wet)	0	21						
			0							
		Orange-brown fine-to-coarse SAND (wet)	0							
			0	22	6	PUSH	37			
			0							
		Red-brown fine-to-coarse SAND (wet)	0	23						
			0							End 15:20
			0	24						Terminate boring at 24 feet
				25						
				26						
				27						

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Log of Boring **SB-10** Sheet 1 of 1

Project: Westrum Development Company	Project No.: 3611302
Location: Former Nicolet Industries Site: Ambler, PA	Elevation and Datum: NA
Drilling Company: Terra Probe, Inc.	Date Started: 7/20/05 — Date Finished: 7/20/05
Drilling Equipment: Geoprobe (Track Mounted)	Completion Depth: 9 ft — Rock Depth: 9 ft
Size and Type of Bit: NA	Number of Samples: Disturbed 3 — Undisturbed NA — Core NA
Casing Diameter (in): NA — Casing Depth (ft): NA	Water Level (ft.): First ▽ NE — Completion ▼ NA — 24 HR. ▼ NA
Casing Hammer: NA — Weight (lbs): NA — Drop (in): NA	Drilling Foreman: Brian Moriarty
Sampler: 2-inch diameter / 4-foot macro core	Inspecting Engineer: Randy Copenhaver
Sampler Hammer: NA — Weight (lbs): NA — Drop (in): NA	

Material Symbol	Elev. (ft)	Sample Description	PID Reading (ppm)	Depth Scale	Sample Data: Number	Type	Recov. (in)	Penetr. resist BL/6in	Env ID	Remarks (Drilling Fluid, Depth of Casing, Fluid Loss, Drilling Resistance, etc.)
		Dark brown CLAY (TOPSOIL) (moist)	0	0					218	Start 11:45
		Orange-brown CLAY (moist)	0	1						
			0	2	1	PUSH	35			
			0	3						
		Orange-brown CLAY (moist)	0	4					219	
			0	5						
		Gray-brown fine-to-coarse SAND, trace silt and clay (dry)	0	6	2	PUSH	47			
			0	7						
		Gray-brown fine-to-coarse SAND, some gravel, trace silt and clay, sandstone fragments (dry)	0	8	3	PUSH	10			Stop 11:55 Refusal at 9 feet
			0	9						Terminate boring at 9 feet
				10						
				11						
				12						

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

Project: Westrum Development Company	Project No.: 3611302
Location: Former Nicolet Industries Site: Ambler, PA	Elevation and Datum: NA
Drilling Company: Terra Probe, Inc.	Date Started: 7/20/05 — Date Finished: 7/20/05
Drilling Equipment: Geoprobe (Track Mounted)	Completion Depth: 6.5 ft — Rock Depth: 6.5 ft
Size and Type of Bit: NA	Number of Samples: Disturbed 2 — Undisturbed NA — Core NA
Casing Diameter (in): NA — Casing Depth (ft): NA	Water Level (ft.): First ▽ NE — Completion ▼ NA — 24 HR. ▼ NA
Casing Hammer: NA — Weight (lbs): NA — Drop (in): NA	Drilling Foreman: Brian Moriarty
Sampler: 2-inch diameter / 4-foot macro core	Inspecting Engineer: Randy Copenhaver
Sampler Hammer: NA — Weight (lbs): NA — Drop (in): NA	

Material Symbol	Elev. (ft)	Sample Description	PID Reading (ppm)	Depth Scale	Sample Data: Number	Type	Recov. (in)	Penetr. resist BL/6in	Env ID	Remarks (Drilling Fluid, Depth of Casing, Fluid Loss, Drilling Resistance, etc.)
		Dark brown CLAY (TOPSOIL) (moist)	0	0					216	Start 11:30
		Orange-brown CLAY (dry to moist)	0	1	1	PUSH	48			
			0	2						
			0	3						
			0	4					217	
		Orange-brown CLAY (dry)	0							
		Orange-brown CLAY, trace sand (dry)	0	5	2	PUSH	30			
		Gray fine-to-coarse SAND, some gravel, sandstone fragments (dry)	0	6						End 11:35 Refusal at 6.5 feet
			0	7						Terminate boring at 6.5 feet
				8						
				9						
				10						
				11						
				12						

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

Project: Westrum Development Company	Project No.: 3611302
Location: Former Nicolet Industries Site: Ambler, PA	Elevation and Datum: NA
Drilling Company: Terra Probe, Inc.	Date Started: 7/20/05 — Date Finished: 7/20/05
Drilling Equipment: Geoprobe (Track Mounted)	Completion Depth: 7.5 ft — Rock Depth: 7.5 ft
Size and Type of Bit: NA	Number of Samples: Disturbed 2 — Undisturbed NA — Core NA
Casing Diameter (in): NA — Casing Depth (ft): NA	Water Level (ft.): First ▽ NE — Completion ▼ NA — 24 HR. ▼ NA
Casing Hammer: NA — Weight (lbs): NA — Drop (in): NA	Drilling Foreman: Brian Moriarty
Sampler: 2-inch diameter / 4-foot macro core	Inspecting Engineer: Randy Copenhaver
Sampler Hammer: NA — Weight (lbs): NA — Drop (in): NA	

Material Symbol	Elev. (ft)	Sample Description	PID Reading (ppm)	Depth Scale	Sample Data: Number	Type	Recov. (in)	Penetr. resist BL/6in	Env ID	Remarks (Drilling Fluid, Depth of Casing, Fluid Loss, Drilling Resistance, etc.)
		Dark brown CLAY (TOPSOIL) (moist)	0	0					213	Start 11:20
		Orange-brown CLAY (dry to moist)	0	1	1	PUSH	48			
			0	2						
			0	3						
			0	4					215	
		Brown CLAY (moist to dry)	0	5	2	PUSH	42			
			0	6						
		Brown CLAY, some sand (dry)	0	7						Stop 11:25 Refusal at 7.5 feet
		Gray fine-to-coarse SAND, trace gravel, sandstone fragments (dry)	0	8						Terminate boring at 7.5 feet
				9						
				10						
				11						
				12						

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Log of Boring **SB-13** Sheet 1 of 1

Project: Westrum Development Company	Project No.: 3611302
Location: Former Nicolet Industries Site: Ambler, PA	Elevation and Datum: NA
Drilling Company: Terra Probe, Inc.	Date Started: 7/20/05 — Date Finished: 7/20/05
Drilling Equipment: Geoprobe (Track Mounted)	Completion Depth: 8 ft — Rock Depth: 8 ft
Size and Type of Bit: NA	Number of Samples: Disturbed 2 — Undisturbed NA — Core NA
Casing Diameter (in): NA — Casing Depth (ft): NA	Water Level (ft.): First ▽ NE — Completion ▼ NA — 24 HR. ▼ NA
Casing Hammer: NA — Weight (lbs): NA — Drop (in): NA	Drilling Foreman: Brian Moriarty
Sampler: 2-inch diameter / 4-foot macro core	Inspecting Engineer: Randy Copenhaver
Sampler Hammer: NA — Weight (lbs): NA — Drop (in): NA	

Material Symbol	Elev. (ft)	Sample Description	PID Reading (ppm)	Depth Scale	Sample Data: Number	Type	Recov. (in)	Penetr. resist BL/6in	Env ID	Remarks (Drilling Fluid, Depth of Casing, Fluid Loss, Drilling Resistance, etc.)
		Dark brown CLAY (TOPSOIL) (moist)	0	0					212	Start 11:10
		Brown CLAY, trace sand (moist)	0	1						
		Brown sandy CLAY (moist)	0	2	1	PUSH	48			
		Brown fine-to-coarse SAND, trace clay and gravel (dry)	0	3						
			0	4					214	
		Red-brown CLAY, trace sand and gravel (moist)	0	5						
			0	6	2	PUSH	44			
			0	7						
		Red-brown clayey fine-to-coarse SAND, some gravel, sandstone fragments (dry)	0	8						Stop 11:15 Refusal at 8 feet
				9						Terminate boring at 8 feet
				10						
				11						
				12						

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Log of Boring **SB-14** Sheet 1 of 1

Project: Westrum Development Company	Project No.: 3611302
Location: Former Nicolet Industries Site: Ambler, PA	Elevation and Datum: NA
Drilling Company: Terra Probe, Inc.	Date Started: 7/18/05 — Date Finished: 7/18/05
Drilling Equipment: Geoprobe (Truck Mount)	Completion Depth: 3.5 ft — Rock Depth: 3.5 ft
Size and Type of Bit: NA	Number of Samples: Disturbed 1 — Undisturbed NA — Core NA
Casing Diameter (in): NA — Casing Depth (ft): NA	Water Level (ft.): First ▽ NE — Completion ▼ NA — 24 HR. ▼ NA
Casing Hammer: NA — Weight (lbs): NA — Drop (in): NA	Drilling Foreman: Frank Fendler
Sampler: 2-inch diameter / 4-foot macro core	Inspecting Engineer: Randy Copenhaver
Sampler Hammer: NA — Weight (lbs): NA — Drop (in): NA	

Material Symbol	Elev. (ft)	Sample Description	PID Reading (ppm)	Depth Scale	Sample Data: Number	Type	Recov. (in)	Penetr. resist BL/6in	Env ID	Remarks (Drilling Fluid, Depth of Casing, Fluid Loss, Drilling Resistance, etc.)
		Dark brown CLAY, trace sand (TOPSOIL) (moist)	0	0					176	Start 13:30
		Brown CLAY (moist)	0	1						
		Orange-brown CLAY, trace sand (moist)	0		1	PUSH			177	
		Brown-gray fine-to-coarse SAND, trace gravel, sandstone fragments (dry)	0	2						Stop 13:35 Refusal at 3.5 feet
			0	3						
			0	4						Terminate boring at 3.5 feet
				5						
				6						
				7						
				8						
				9						
				10						
				11						
				12						

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Log of Boring **SB-15** Sheet 1 of 1

Project: Westrum Development Company	Project No.: 3611302
Location: Former Nicolet Industries Site: Ambler, PA	Elevation and Datum: NA
Drilling Company: Terra Probe, Inc.	Date Started: 7/18/05 — Date Finished: 7/18/05
Drilling Equipment: Geoprobe (Truck Mount)	Completion Depth: 6.5 ft — Rock Depth: 6.5 ft
Size and Type of Bit: NA	Number of Samples: Disturbed 2 — Undisturbed NA — Core NA
Casing Diameter (in): NA — Casing Depth (ft): NA	Water Level (ft.): First ▽ NE — Completion ▼ NA — 24 HR. ▼ NA
Casing Hammer: NA — Weight (lbs): NA — Drop (in): NA	Drilling Foreman: Frank Fendler
Sampler: 2-inch diameter / 4-foot macro core	Inspecting Engineer: Randy Copenhaver
Sampler Hammer: NA — Weight (lbs): NA — Drop (in): NA	

Material Symbol	Elev. (ft)	Sample Description	PID Reading (ppm)	Depth Scale	Sample Data: Number	Type	Recov. (in)	Penetr. resist BL/6in	Env ID	Remarks (Drilling Fluid, Depth of Casing, Fluid Loss, Drilling Resistance, etc.)
		Brown CLAY, trace sand (FILL) (moist)	0	0					170	Start 12:30
		Black GRAVEL, slag (FILL) (dry)	0							
		Brown fine-to-coarse SAND, trace gravel (dry)		1						
		Brown CLAY (moist)	0							
		Red-brown CLAY (moist)							171	
		Brown CLAY, some fine sand (moist)	0	2	1	PUSH	37			
		Red-brown CLAY, some sand (moist)	0							
			0	3						
			0							
			0	4						
			0							
			0	5	2	PUSH	26			
			0							
		Red-gray fine-to-coarse SAND, trace gravel, sandstone fragments (dry)	0	6						Stop 12:40 Refusal at 6.5 feet
			0							
				7						Terminate boring at 6.5 feet
				8						
				9						
				10						
				11						
				12						

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

Project: Westrum Development Company	Project No.: 3611302
Location: Former Nicolet Industries Site: Ambler, PA	Elevation and Datum: NA
Drilling Company: Terra Probe, Inc.	Date Started: 7/18/05 — Date Finished: 7/18/05
Drilling Equipment: Geoprobe (Truck Mount)	Completion Depth: 7 ft — Rock Depth: 7 ft
Size and Type of Bit: NA	Number of Samples: Disturbed 2 — Undisturbed NA — Core NA
Casing Diameter (in): NA — Casing Depth (ft): NA	Water Level (ft.): First ▽ NE — Completion ▼ NA — 24 HR. ▼ NA
Casing Hammer: NA — Weight (lbs): NA — Drop (in): NA	Drilling Foreman: Frank Fendler
Sampler: 2-inch diameter / 4-foot macro core	Inspecting Engineer: Randy Copenhaver
Sampler Hammer: NA — Weight (lbs): NA — Drop (in): NA	

Material Symbol	Elev. (ft)	Sample Description	PID Reading (ppm)	Depth Scale	Sample Data: Number	Type	Recov. (in)	Penetr. resist BL/6in	Env ID	Remarks (Drilling Fluid, Depth of Casing, Fluid Loss, Drilling Resistance, etc.)
		Dark brown and black fine-to-coarse SAND, some clay and gravel, ash, slag (FILL) (dry)	0	0					172	Start 12:45
		Orange-brown CLAY (moist)	0	1						
		Orange-brown sandy CLAY (moist)	0	2	1	PUSH	47		173	
		Brown-gray fine-to-coarse SAND, trace clay and gravel (dry)	0	3						
			0	4						
		Red-brown CLAY, some sand (dry)	0	5	2	PUSH	36			
			0	6						Stop 12:50 Refusal at 7 feet
		Red-gray fine-to-coarse SAND, trace gravel, sandstone fragments (dry)	0	7						Terminate boring at 7 feet
				8						
				9						
				10						
				11						
				12						

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

Project: Westrum Development Company	Project No.: 3611302
Location: Former Nicolet Industries Site: Ambler, PA	Elevation and Datum: NA
Drilling Company: Terra Probe, Inc.	Date Started: 7/18/05 — Date Finished: 7/18/05
Drilling Equipment: Geoprobe (Truck Mount)	Completion Depth: 5 ft — Rock Depth: 5 ft
Size and Type of Bit: NA	Number of Samples: Disturbed 2 — Undisturbed NA — Core NA
Casing Diameter (in): NA — Casing Depth (ft): NA	Water Level (ft.): First ▽ NE — Completion ▼ NA — 24 HR. ▼ NA
Casing Hammer: NA — Weight (lbs): NA — Drop (in): NA	Drilling Foreman: Frank Fendler
Sampler: 2-inch diameter / 4-foot macro core	Inspecting Engineer: Randy Copenhaver
Sampler Hammer: NA — Weight (lbs): NA — Drop (in): NA	

MATERIAL SYMBOL	Elev. (ft)	Sample Description	PID Reading (ppm)	Depth Scale	Sample Data: Number	Type	Recov. (in)	Penetr. resist BL/6in	Env ID	Remarks (Drilling Fluid, Depth of Casing, Fluid Loss, Drilling Resistance, etc.)
		Brown CLAY, trace fine sand (dry)	0	0					174	Start 13:00
		Orange-brown CLAY (dry)	0	1						
			0						175	
			0	2	1	PUSH	45			
		Gray fine-to-coarse SAND (dry)	0							
			0	3						
		Gray fine-to-coarse SAND, trace gravel, sandstone fragments (dry)	0							
			0	4	2	PUSH	23			Stop 13:10 Refusal at 5 feet
			0	5						Terminate boring at 5 feet
				6						
				7						
				8						
				9						
				10						
				11						
				12						

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Log of Boring **SB-18** Sheet 1 of 1

Project: Westrum Development Company	Project No.: 3611302
Location: Former Nicolet Industries Site: Ambler, PA	Elevation and Datum: NA
Drilling Company: Terra Probe, Inc.	Date Started: 7/18/05 — Date Finished: 7/18/05
Drilling Equipment: Geoprobe (Truck Mount)	Completion Depth: 10.5 ft — Rock Depth: NE
Size and Type of Bit: NA	Number of Samples: Disturbed 3 — Undisturbed NA — Core NA
Casing Diameter (in): NA — Casing Depth (ft): NA	Water Level (ft.): First ▽ NE — Completion ▼ NA — 24 HR. ▼ NA
Casing Hammer: NA — Weight (lbs): NA — Drop (in): NA	Drilling Foreman: Frank Fendler
Sampler: 2-inch diameter / 4-foot macro core	Inspecting Engineer: Randy Copenhaver
Sampler Hammer: NA — Weight (lbs): NA — Drop (in): NA	

Material Symbol	Elev. (ft)	Sample Description	PID Reading (ppm)	Depth Scale	Sample Data: Number	Type	Recov. (in)	Penetr. resist BL/6in	Env ID	Remarks (Drilling Fluid, Depth of Casing, Fluid Loss, Drilling Resistance, etc.)
		Brown sandy CLAY, roots (FILL) (moist)	0	0					178	Start 13:50
		Gray GRAVEL (FILL) (dry)	0							
		Black fine-to-coarse SAND, some gravel, ash, slag (FILL) (dry)	0	1					179	
			0							
		Brown CLAY (dry)	0	2	1	PUSH	42			
		Orange-brown CLAY (dry)	0							
			0	3					180	
			0							
		Brown-gray fine-to-coarse SAND, trace silt and clay (dry)	0	4						
			0							
			0	5						
		Brown and dark brown CLAY, trace sand (dry)	0							
		Red-brown CLAY, some sand (dry)	0	6	2	PUSH	35			
			0							
			0	7						
			0							
			0	8						
			0							
			0	9	3	PUSH	30			
			0							
			0	10						Stop 14:00
			0							
				11						Terminate boring at 10.5 feet
				12						

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

Project: Westrum Development Company	Project No.: 3611302
Location: Former Nicolet Industries Site: Ambler, PA	Elevation and Datum: NA
Drilling Company: Terra Probe, Inc.	Date Started: 7/18/05 — Date Finished: 7/18/05
Drilling Equipment: Geoprobe (Truck Mount)	Completion Depth: 6 ft — Rock Depth: 6 ft
Size and Type of Bit: NA	Number of Samples: Disturbed 2 — Undisturbed NA — Core NA
Casing Diameter (in): NA — Casing Depth (ft): NA	Water Level (ft.): First ▽ NE — Completion ▼ NA — 24 HR. ▼ NA
Casing Hammer: NA — Weight (lbs): NA — Drop (in): NA	Drilling Foreman: Frank Fendler
Sampler: 2-inch diameter / 4-foot macro core	Inspecting Engineer: Randy Copenhaver
Sampler Hammer: NA — Weight (lbs): NA — Drop (in): NA	

Material Symbol	Elev. (ft)	Sample Description	PID Reading (ppm)	Depth Scale	Sample Data: Number	Type	Recov. (in)	Penetr. resist BL/6in	Env ID	Remarks (Drilling Fluid, Depth of Casing, Fluid Loss, Drilling Resistance, etc.)
		Brown CLAY, roots (FILL) (moist)	0	0					167	Start 12:10
		Black sandy GRAVEL, ash, slag (FILL) (dry)	0	1					168	
		Orange-brown CLAY (dry)	0	2	1	PUSH	33			
			0	3					169	
			0	4						
		Brown fine-to-coarse SAND, some clay (dry)	0	5	2	PUSH	24			Stop 12:20 Refusal at 6 feet
		Brown-gray fine-to-coarse SAND, trace gravel, sandstone fragments (dry)	0	6						Terminate boring at 6 feet
				7						
				8						
				9						
				10						
				11						
				12						

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Log of Boring **SB-2** Sheet 1 of 1

Project: Westrum Development Company	Project No.: 3611302
Location: Former Nicolet Industries Site: Ambler, PA	Elevation and Datum: NA
Drilling Company: Terra Probe, Inc.	Date Started: 7/20/05 — Date Finished: 7/20/05
Drilling Equipment: Geoprobe (Track Mounted)	Completion Depth: 6.5 ft — Rock Depth: 6.5 ft
Size and Type of Bit: NA	Number of Samples: Disturbed 2 — Undisturbed NA — Core NA
Casing Diameter (in): NA — Casing Depth (ft): NA	Water Level (ft.): First ▽ NE — Completion ▼ NA — 24 HR. ▼ NA
Casing Hammer: NA — Weight (lbs): NA — Drop (in): NA	Drilling Foreman: Brian Moriarty
Sampler: 2-inch diameter / 4-foot macro core	Inspecting Engineer: Randy Copenhaver
Sampler Hammer: NA — Weight (lbs): NA — Drop (in): NA	

Material Symbol	Elev. (ft)	Sample Description	PID Reading (ppm)	Depth Scale	Sample Data: Number	Type	Recov. (in)	Penetr. resist BL/6in	Env ID	Remarks (Drilling Fluid, Depth of Casing, Fluid Loss, Drilling Resistance, etc.)
		Dark brown CLAY (TOPSOIL) (moist)	0	0					234	Start 13:55
		Brown CLAY (dry)	0	1						
		Brown fine-to-coarse SAND, some clay (dry)	0							
			0	2	1	PUSH	48			
		Gray-brown fine-to-coarse SAND (dry)	0							
			0	3						
			0							
			0	4					235	
			0							
			0	5	2	PUSH	30			
			0							
		Gray and orange-brown fine-to-coarse SAND, trace gravel, sandstone fragments (dry)	0	6						Stop 14:00 Refusal at 6.5 feet
				7						Terminate boring at 6.5 feet
				8						
				9						
				10						
				11						
				12						

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Log of Boring **SB-20** Sheet 1 of 1

Project: Westrum Development Company	Project No.: 3611302
Location: Former Nicolet Industries Site: Ambler, PA	Elevation and Datum: NA
Drilling Company: Terra Probe, Inc.	Date Started: 7/18/05 — Date Finished: 7/18/05
Drilling Equipment: Geoprobe (Truck Mount)	Completion Depth: 6 ft — Rock Depth: NE
Size and Type of Bit: NA	Number of Samples: Disturbed 2 — Undisturbed NA — Core NA
Casing Diameter (in): NA — Casing Depth (ft): NA	Water Level (ft.): First ▽ NE — Completion ▼ NA — 24 HR. ▼ NA
Casing Hammer: NA — Weight (lbs): NA — Drop (in): NA	Drilling Foreman: Frank Fendler
Sampler: 2-inch diameter / 4-foot macro core	Inspecting Engineer: Randy Copenhaver
Sampler Hammer: NA — Weight (lbs): NA — Drop (in): NA	

Material Symbol	Elev. (ft)	Sample Description	PID Reading (ppm)	Depth Scale	Sample Data: Number	Type	Recov. (in)	Penetr. resist BL/6in	Env ID	Remarks (Drilling Fluid, Depth of Casing, Fluid Loss, Drilling Resistance, etc.)
		Brown SILT, some sand, trace gravel and clay, roots (FILL) (moist)	0	0					164	Start 11:45
		Concrete								
		Black fine-to-coarse SAND, some gravel, ash, slag (FILL) (dry)	0	1						
			0						165	
		Brown CLAY, trace sand and gravel (dry)	0	2	1	PUSH	39			
			0						166	
			0	3						
			0							
			0	4						
		Reddish gray fine-to-coarse SAND, (dry)	0							
			0	5	2	PUSH	20			Stop 12:00
			0							Refusal at 6 feet
			0	6						Terminate boring at 6 feet
				7						
				8						
				9						
				10						
				11						
				12						

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Log of Boring **SB-21** Sheet 1 of 1

Project: Westrum Development Company	Project No.: 3611302
Location: Former Nicolet Industries Site: Ambler, PA	Elevation and Datum: NA
Drilling Company: Terra Probe, Inc.	Date Started: 7/18/05 — Date Finished: 7/18/05
Drilling Equipment: Geoprobe (Truck Mount)	Completion Depth: 7 ft — Rock Depth: 7 ft
Size and Type of Bit: NA	Number of Samples: Disturbed 2 — Undisturbed NA — Core NA
Casing Diameter (in): NA — Casing Depth (ft): NA	Water Level (ft.): First ▽ NE — Completion ▼ NA — 24 HR. ▼ NA
Casing Hammer: NA — Weight (lbs): NA — Drop (in): NA	Drilling Foreman: Frank Fendler
Sampler: 2-inch diameter / 4-foot macro core	Inspecting Engineer: Randy Copenhaver
Sampler Hammer: NA — Weight (lbs): NA — Drop (in): NA	

Material Symbol	Elev. (ft)	Sample Description	PID Reading (ppm)	Depth Scale	Sample Data: Number	Type	Recov. (in)	Penetr. resist BL/6in	Env ID	Remarks (Drilling Fluid, Depth of Casing, Fluid Loss, Drilling Resistance, etc.)
		Broken concrete and brown clay (FILL) (dry)	0	0					161	Start 10:55
		Brown SILT, trace clay (FILL) (dry)	0	1						
		Black fine-to-coarse SAND, some gravel, ash, slag (FILL) (dry)	0	2	1	PUSH	39		162	
		Brown CLAY, some sand (dry)	0	3					163	
		Gray fine-to-coarse SAND, trace gravel, sandstone fragments (dry)	0	4	2	PUSH	24			Stop 11:05 Refusal at 7 feet
				5						
				6						
				7						Terminate boring at 7 feet
				8						
				9						
				10						
				11						
				12						

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Log of Boring **SB-22** Sheet 1 of 1

Project: Westrum Development Company	Project No.: 3611302
Location: Former Nicolet Industries Site: Ambler, PA	Elevation and Datum: NA
Drilling Company: Terra Probe, Inc.	Date Started: 7/18/05 — Date Finished: 7/20/05
Drilling Equipment: Geoprobe (Truck Mount)	Completion Depth: 12 ft — Rock Depth: NE
Size and Type of Bit: NA	Number of Samples: Disturbed 3 — Undisturbed NA — Core NA
Casing Diameter (in): NA — Casing Depth (ft): NA	Water Level (ft.): First ▽ 12 — Completion ▼ 7.2 — 24 HR. ▼ NA
Casing Hammer: NA — Weight (lbs): NA — Drop (in): NA	Drilling Foreman: Brian Moriarty
Sampler: 2-inch diameter / 4-foot macro core	Inspecting Engineer: Randy Copenhaver
Sampler Hammer: NA — Weight (lbs): NA — Drop (in): NA	

Material Symbol	Elev. (ft)	Sample Description	PID Reading (ppm)	Depth Scale	Sample Data: Number	Type	Recov. (in)	Penetr. resist BL/6in	Env ID	Remarks (Drilling Fluid, Depth of Casing, Fluid Loss, Drilling Resistance, etc.)
		Black fine-to-coarse SAND, some gravel, ash (FILL) (dry)	0	0					157	Start 10:10
		Light tan and gray gravelly fine-to-coarse SAND (FILL) (dry)	0	1						
		Black gravelly fine-to-coarse SAND, ash, slag (FILL) (dry)	0	2	1	PUSH	33		158	
			0	3						
		Orange-brown fine-to-coarse SAND, some gravel and clay (FILL) (dry)	0	4						
		Orange-brown CLAY (moist)	0	5					159	
			0	6	2	PUSH	19			
			0	7						
			0	8						
		Red-brown CLAY, trace fine sand and gravel (moist)	0	9					160	
			0	10	3	PUSH	41			
		Reddish gray fine-to-coarse SAND, some clay (moist)	0	11						
		▽	0	12						Stop 10:30 Terminate boring at 12 feet

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Log of Boring **SB-23** Sheet 1 of 2

Project: Westrum Development Company	Project No.: 3611302
Location: Former Nicolet Industries Site: Ambler, PA	Elevation and Datum: NA
Drilling Company: Terra Probe, Inc.	Date Started: 7/20/05 — Date Finished: 7/20/05
Drilling Equipment: Geoprobe (Track Mounted)	Completion Depth: 14.5 ft — Rock Depth: 14.5 ft
Size and Type of Bit: NA	Number of Samples: Disturbed 4 — Undisturbed NA — Core NA
Casing Diameter (in): NA — Casing Depth (ft): NA	Water Level (ft.): First ▽ 7.3 — Completion ▼ NA — 24 HR. ▼ NA
Casing Hammer: NA — Weight (lbs): NA — Drop (in): NA	Drilling Foreman: Brian Moriarty
Sampler: 2-inch diameter / 4-foot macro core	Inspecting Engineer: Randy Copenhaver
Sampler Hammer: NA — Weight (lbs): NA — Drop (in): NA	

Material Symbol	Elev. (ft)	Sample Description	PID Reading (ppm)	Depth Scale	Sample Data: Number	Type	Recov. (in)	Penetr. resist BL/6in	Env ID	Remarks (Drilling Fluid, Depth of Casing, Fluid Loss, Drilling Resistance, etc.)
		Asphalt	0	0						Start 8:55
		Tan GRAVEL, trace sand (FILL) (dry)	0	1					205	
			1781							
		Black fine-to-coarse SAND, some gravel, ash, slag (FILL) (dry)	2000	2	1	PUSH	40		206	
			1684							
		Brown CLAY (moist)	2000	3						
			2000							
		Brown mottled gray CLAY (moist)	2000	4						
			2000						003	
			1910	5						
			1113	6	2	PUSH	40			
			2000							
			2000	7						
		▽	1792							
			592	8						
		Red-brown CLAY, trace sand (moist)	91.2							
			2000	9						
			168							
			122	10	3	PUSH	46			
		Red-brown CLAY, some sand, trace gravel (moist)	484							
			249	11						
			262							
			48.2	12						

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Log of Boring **SB-23** Sheet 2 of 2

Project	Project No.
Westrum Development Company	3611302
Location	**Elevation and Datum**
Former Nicolet Industries Site: Ambler, PA	NA

MATERIAL SYMBOL	Elev. (ft)	Sample Description	PID Reading (ppm)	Depth Scale	Sample Data: Number	Type	Recov. (in)	Penetr. resist BL/6in	Env ID	Remarks (Drilling Fluid, Depth of Casing, Fluid Loss, Drilling Resistance, etc.)
		Red-brown CLAY, some sand, trace gravel (wet)	315	12						
			798	13	4	PUSH	28			
		Red-brown CLAY, some sand (wet)	2000							
			168	14					004	End 9:15 Refusal at 14.5 feet
			40.8							
				15						Terminate boring at 14.5 feet
				16						Set temporary PVC well point
				17						
				18						
				19						
				20						
				21						
				22						
				23						
				24						
				25						
				26						
				27						

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Log of Boring **SB-23A/PZ-3** Sheet 1 of 1

Project: Westrum Development Company	Project No.: 3611302
Location: Former Nicolet Industries Site: Ambler, PA	Elevation and Datum: NA
Drilling Company: Terra Probe, Inc.	Date Started: 1/25/06 — Date Finished: 1/25/06
Drilling Equipment: Geoprobe (Track Mounted)	Completion Depth: 12 ft — Rock Depth: NE
Size and Type of Bit: NA	Number of Samples: Disturbed 3 — Undisturbed NA — Core NA
Casing Diameter (in): NA — Casing Depth (ft): NA	Water Level (ft.): First ▽ 3 — Completion ▼ NA — 24 HR. ▼ NA
Casing Hammer: NA — Weight (lbs): NA — Drop (in): NA	Drilling Foreman: George Demetriou
Sampler: 2-inch diameter / 4-foot macro core	Inspecting Engineer: Randy Copenhaver
Sampler Hammer: NA — Weight (lbs): NA — Drop (in): NA	

Material Symbol	Elev. (ft)	Sample Description	PID Reading (ppm)	Depth Scale	Sample Data: Number	Type	Recov. (in)	Penetr. resist BL/6in	Env ID	Remarks (Drilling Fluid, Depth of Casing, Fluid Loss, Drilling Resistance, etc.)
		Asphalt	0	0						Begin at 13:40
		Tan GRAVEL, some sand (FILL) (dry)	0							
			0	1						
			0							
		Brown fine to coarse SAND, some gravel (FILL) (moist)	0	2	1	PUSH	36			
		Black fine to coarse SAND, some gravel ash (FILL) (moist)	17.7							Slight odor detected at 2 to 4 feet
		Brown CLAY (moist) ▽	59.2	3						Groundwater encountered at 3 feet
			110							
			0	4						
		Brown CLAY (moist)	0							
			340	5						
			2000							
			2000	6	2	PUSH	34			
		Gray and brown CLAY (wet)	1888							
			1088	7						
			2000							
			2000	8						
		Gray and brown CLAY (wet)	287							
			567	9						
		Red-brown CLAY, trace sand and gravel (wet)	1748							
			534	10	3	PUSH	33			
			105							
			164	11						
			410							
			14.0	12						End boring at 13:55

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Log of Boring **SB-24** Sheet 1 of 1

Project: Westrum Development Company	Project No.: 3611302
Location: Former Nicolet Industries Site: Ambler, PA	Elevation and Datum: NA
Drilling Company: Terra Probe, Inc.	Date Started: 7/20/05 — Date Finished: 7/20/05
Drilling Equipment: Geoprobe (Track Mounted)	Completion Depth: 11 ft — Rock Depth: 11 ft
Size and Type of Bit: NA	Number of Samples: Disturbed 3 — Undisturbed NA — Core NA
Casing Diameter (in): NA — Casing Depth (ft): NA	Water Level (ft.): First ▽ 7 — Completion ▼ NA — 24 HR. ▼ NA
Casing Hammer: NA — Weight (lbs): NA — Drop (in): NA	Drilling Foreman: Brian Moriarty
Sampler: 2-inch diameter / 4-foot macro core	Inspecting Engineer: Randy Copenhaver
Sampler Hammer: NA — Weight (lbs): NA — Drop (in): NA	

Material Symbol	Elev. (ft)	Sample Description	PID Reading (ppm)	Depth Scale	Sample Data: Number	Type	Recov. (in)	Penetr. resist BL/6in	Env ID	Remarks (Drilling Fluid, Depth of Casing, Fluid Loss, Drilling Resistance, etc.)
		Tan GRAVEL, some sand (FILL) (dry)	0	0					209	Start 10:00
			0	1						
		Black fine-to-coarse SAND, some gravel, ash, slag (FILL) (moist to wet)	0						210	
		Light tan GRAVEL, concrete pieces (FILL) (dry)	0	2	1	PUSH	37			
		Brown CLAY (moist)	0							
			0	3						
			23.8						211	
			0	4						
		Gray sandy CLAY (moist)	107							
		Gray fine-to-coarse SAND, trace gravel (moist)	2000	5					005	
			2000	6	2	PUSH	40			
			2000							
		Gray fine-to-coarse SAND, trace gravel (wet) ▽	2000	7						
			2000							
			2000	8						
		Red-brown CLAY, some sand, trace gravel (wet)	2000	9	3	PUSH	36			
			2000							
			798	10						
			1089							Stop 10:15 Refusal at 11 feet
			1065	11						Terminate boring at 11 feet
				12						

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Log of Boring **SB-24A** Sheet 1 of 1

Project: Westrum Development Company	Project No.: 3611302
Location: Former Nicolet Industries Site: Ambler, PA	Elevation and Datum: NA
Drilling Company: Terra Probe, Inc.	Date Started: 1/25/06 — Date Finished: 1/25/06
Drilling Equipment: Geoprobe (Track Mounted)	Completion Depth: 12 ft — Rock Depth: NE
Size and Type of Bit: NA	Number of Samples: Disturbed 3 — Undisturbed NA — Core NA
Casing Diameter (in): NA — Casing Depth (ft): NA	Water Level (ft.): First ▽ 2 — Completion ▼ NA — 24 HR. ▼ NA
Casing Hammer: NA — Weight (lbs): NA — Drop (in): NA	Drilling Foreman: George Demetriou
Sampler: 2-inch diameter / 4-foot macro core	Inspecting Engineer: Randy Copenhaver
Sampler Hammer: NA — Weight (lbs): NA — Drop (in): NA	

Material Symbol	Elev. (ft)	Sample Description	PID Reading (ppm)	Depth Scale	Sample Data: Number	Type	Recov. (in)	Penetr. resist BL/6in	Env ID	Remarks (Drilling Fluid, Depth of Casing, Fluid Loss, Drilling Resistance, etc.)
		Dark brown gravelly fine to coarse SAND (FILL) (dry)	0	0						
		Tan GRAVEL (dry)	0	1						Begin at 9:30
		Black fine to coarse SAND, some gravel (moist)	0							
		Black and gray CLAY (wet) ▽	0	2	1	PUSH	36			Groundwater encountered at 2 feet
		Brown to gray CLAY (wet)	0							
			0	3						
			13.2							
			42.8	4						
		Brown to gray CLAY (wet)	400							
		Gray fine to coarse SAND (wet)	925	5						
			507							Strong odor detected
			2000	6	2	PUSH	37			
			2000							
			2000	7						
			2000							
			2000	8						
		Gray fine to coarse SAND (wet)	2000							
			1479	9						
			175							
			565	10	3	PUSH	36			
		Red fine to coarse SAND, some silt, some clay, trace gravel (moist)	65.7							
			21.9	11						
			17.7						021	End boring at 12 feet at 9:50
			93.7	12						

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Log of Boring **SB-25** Sheet 1 of 1

Project: Westrum Development Company	Project No.: 3611302
Location: Former Nicolet Industries Site: Ambler, PA	Elevation and Datum: NA
Drilling Company: Terra Probe, Inc.	Date Started: 7/20/05 — Date Finished: 7/20/05
Drilling Equipment: Geoprobe (Track Mounted)	Completion Depth: 12 ft — Rock Depth: NE
Size and Type of Bit: NA	Number of Samples: Disturbed 3 — Undisturbed NA — Core NA
Casing Diameter (in): NA — Casing Depth (ft): NA	Water Level (ft.): First ▽ 8 — Completion ▼ NA — 24 HR. ▼ NA
Casing Hammer: NA — Weight (lbs): NA — Drop (in): NA	Drilling Foreman: Brian Moriarty
Sampler: 2-inch diameter / 4-foot macro core	Inspecting Engineer: Randy Copenhaver
Sampler Hammer: NA — Weight (lbs): NA — Drop (in): NA	

Material Symbol	Elev. (ft)	Sample Description	PID Reading (ppm)	Depth Scale	Sample Data: Number	Type	Recov. (in)	Penetr. resist BL/6in	Env ID	Remarks (Drilling Fluid, Depth of Casing, Fluid Loss, Drilling Resistance, etc.)
		Asphalt	0	0						Start 9:30
		Brown fine-to-coarse SAND, some gravel and clay (FILL) (dry)	0	1					207	
			0							
		Black fine-to-coarse SAND, some gravel, ash, slag, white fibrous material (FILL) (dry)	0	2	1	PUSH	35		208	
		Brown mottled black CLAY, trace gravel (moist)	0							
			0	3						
			0							
			0	4						
		Gray fine-to-coarse SAND, trace gravel (moist)	0							
			59.1	5						
			84.9							
			25.9	6	2	PUSH	45			
			28.7							
			2.7	7						
		▽	0							
			0	8						
			0							
		Red-brown mottled gray CLAY, trace sand and gravel (wet)	0	9						
			13.8							
			0	10	3	PUSH	35			
			0							
			0	11						
			0							
			0	12						End 9:45 Terminate boring at 12 feet

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Log of Boring **SB-26** Sheet 1 of 1

Project: Westrum Development Company	Project No.: 3611302
Location: Former Nicolet Industries Site: Ambler, PA	Elevation and Datum: NA
Drilling Company: Terra Probe, Inc.	Date Started: 7/18/05 — Date Finished: 7/18/05
Drilling Equipment: Geoprobe (Truck Mount)	Completion Depth: 12 ft — Rock Depth: NE
Size and Type of Bit: NA	Number of Samples: Disturbed 3 — Undisturbed NA — Core NA
Casing Diameter (in): NA — Casing Depth (ft): NA	Water Level (ft.): First ▽ NE — Completion ▼ NA — 24 HR. ▼ NA
Casing Hammer: NA — Weight (lbs): NA — Drop (in): NA	Drilling Foreman: Frank Fendler
Sampler: 2-inch diameter / 4-foot macro core	Inspecting Engineer: Randy Copenhaver
Sampler Hammer: NA — Weight (lbs): NA — Drop (in): NA	

Material Symbol	Elev. (ft)	Sample Description	PID Reading (ppm)	Depth Scale	Sample Data: Number	Type	Recov. (in)	Penetr. resist BL/6in	Env ID	Remarks (Drilling Fluid, Depth of Casing, Fluid Loss, Drilling Resistance, etc.)
		Black, gray, and brown fine-to-coarse SAND, some gravel and clay, ash, slag (FILL) (dry)	0	0					147	Start 8:30
			0	1	1	PUSH	38			
			0	2					148	
		Brown mottled orange-brown CLAY (moist)	0	3						
		Light brown mottled orange-brown CLAY (moist)	0	4					149	
			0	5						
			0	6	2	PUSH	42			
			0	7						
			0	8						
		White quartz GRAVEL (dry)	0	9						
		Red-brown CLAY, some sand, trace gravel (moist)	0	10	3	PUSH	30			
			0	11						
			0	12						End 8:50 Terminate boring at 12 feet

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Log of Boring **SB-27** Sheet 1 of 1

Project: Westrum Development Company	Project No.: 3611302
Location: Former Nicolet Industries Site: Ambler, PA	Elevation and Datum: NA
Drilling Company: Terra Probe, Inc.	Date Started: 7/18/05 — Date Finished: 7/18/05
Drilling Equipment: Geoprobe (Truck Mount)	Completion Depth: 12 ft — Rock Depth: NE
Size and Type of Bit: NA	Number of Samples: Disturbed 3 — Undisturbed NA — Core NA
Casing Diameter (in): NA — Casing Depth (ft): NA	Water Level (ft.): First ▽ NE — Completion ▼ NA — 24 HR. ▼ NA
Casing Hammer: NA — Weight (lbs): NA — Drop (in): NA	Drilling Foreman: Frank Fendler
Sampler: 2-inch diameter / 4-foot macro core	Inspecting Engineer: Randy Copenhaver
Sampler Hammer: NA — Weight (lbs): NA — Drop (in): NA	

Material Symbol	Elev. (ft)	Sample Description	PID Reading (ppm)	Depth Scale	Sample Data: Number	Type	Recov. (in)	Penetr. resist BL/6in	Env ID	Remarks (Drilling Fluid, Depth of Casing, Fluid Loss, Drilling Resistance, etc.)
		Black sandy GRAVEL, ash (FILL) (moist)	0	0					153	Start 9:35
		Tan sandy GRAVEL (FILL) (dry)	0	1						
		Brown fine-to-coarse SAND, some gravel (FILL) (dry)	0							
		Black fine-to-coarse gravelly SAND, ash, slag (FILL) (dry)	0	2	1	PUSH	33			
			0						154	
			0	3						
			0							
		Black fine-to-coarse gravelly SAND, trace clay, ash, slag, fibrous material (FILL) (dry)	0	4					155	
		Gray CLAY (moist)	0							
			0	5						
		Brown CLAY (moist)	0						156	
		Orange-brown mottled gray CLAY (moist)	0	6	2	PUSH	38			
			0							
			0	7						
			0							
			0	8						
			0							
		Red-brown CLAY (moist)	0	9						
			0							
		Dark gray and brown fine-to-coarse SAND (moist)	0	10	3	PUSH	38			
		Gray fine-to-coarse SAND (moist)	0							
			0	11						
			0							Stop 9:50
			0	12						Terminate boring at 12 feet

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Log of Boring **SB-28** Sheet 1 of 1

Project: Westrum Development Company	Project No.: 3611302
Location: Former Nicolet Industries Site: Ambler, PA	Elevation and Datum: NA
Drilling Company: Terra Probe, Inc.	Date Started: 7/18/05 — Date Finished: 7/18/05
Drilling Equipment: Geoprobe (Truck Mount)	Completion Depth: 12 ft — Rock Depth: NE
Size and Type of Bit: NA	Number of Samples: Disturbed 3 — Undisturbed NA — Core NA
Casing Diameter (in): NA — Casing Depth (ft): NA	Water Level (ft.): First ▽ NE — Completion ▼ NA — 24 HR. ▼ NA
Casing Hammer: NA — Weight (lbs): NA — Drop (in): NA	Drilling Foreman: Frank Fendler
Sampler: 2-inch diameter / 4-foot macro core	Inspecting Engineer: Randy Copenhaver
Sampler Hammer: NA — Weight (lbs): NA — Drop (in): NA	

Material Symbol	Elev. (ft)	Sample Description	PID Reading (ppm)	Depth Scale	Sample Data: Number	Type	Recov. (in)	Penetr. resist BL/6in	Env ID	Remarks (Drilling Fluid, Depth of Casing, Fluid Loss, Drilling Resistance, etc.)
		Black fine-to-coarse SAND, some gravel and silt, ash (FILL) (moist)	0	0					150	Start 9:05
		Tan sandy GRAVEL (FILL) (dry)	0	1						
		Black sandy GRAVEL, ash, slag (FILL) (moist)	0	2	1	PUSH	30			
			0	3					151	
			0	4						
		Brown, mottled orange-brown CLAY (moist)	0	5					152	
		Orange-brown CLAY (moist)	0	6	2	PUSH	42			
			0	7						
		Orange-brown CLAY (moist to wet)	0	8						
		Red-brown CLAY, some sand, trace gravel (moist)	0	9						
			0	10	3	PUSH	34			
			0	11						
			0	12						Stop 9:15 Terminate boring at 12 feet

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Log of Boring **SB-29** Sheet 1 of 2

Project: Westrum Development Company	Project No.: 3611302
Location: Former Nicolet Industries Site: Ambler, PA	Elevation and Datum: NA
Drilling Company: Terra Probe, Inc.	Date Started: 7/15/05 — Date Finished: 7/15/05
Drilling Equipment: Geoprobe (Truck Mount)	Completion Depth: 24 ft — Rock Depth: NE
Size and Type of Bit: NA	Number of Samples: Disturbed 6 — Undisturbed NA — Core NA
Casing Diameter (in): NA — Casing Depth (ft): NA	Water Level (ft.): First ▽ 8 — Completion ▼ NA — 24 HR. ▼ NA
Casing Hammer: NA — Weight (lbs): NA — Drop (in): NA	Drilling Foreman: Brian Moriarty
Sampler: 2-inch diameter / 4-foot macro core	Inspecting Engineer: Randy Copenhaver
Sampler Hammer: NA — Weight (lbs): NA — Drop (in): NA	

Material Symbol	Elev. (ft)	Sample Description	PID Reading (ppm)	Depth Scale	Sample Data: Number	Type	Recov. (in)	Penetr. resist BL/6in	Env ID	Remarks (Drilling Fluid, Depth of Casing, Fluid Loss, Drilling Resistance, etc.)
		Asphalt	0	0						Start 7:25
		Light brown fine-to-coarse SAND, some gravel (FILL) (dry)	0	1					501	
			0						098	
		Black fine-to-coarse SAND, some gravel, ash, slag (FILL) (dry)	0	2	1	PUSH	45			
			0							
			0	3					099	
			0							
			0	4						
		White CLAY, magnesia material (FILL) (wet)	0	5						Magnesia material is too soft to recover.
			0							
			0	6	2	PUSH	6			
			0							
			0	7						
		▽	0	8					100	
			0							
			0	9						
			0							
			0	10	3	PUSH	18			
			0							
			0	11						
			0							
			0	12						

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Log of Boring **SB-29** Sheet 2 of 2

Project	Project No.
Westrum Development Company	3611302
Location	**Elevation and Datum**
Former Nicolet Industries Site: Ambler, PA	NA

MATERIAL SYMBOL	Elev. (ft)	Sample Description	PID Reading (ppm)	Depth Scale	Sample Data: Number	Type	Recov. (in)	Penetr. resist BL/6in	Env ID	Remarks (Drilling Fluid, Depth of Casing, Fluid Loss, Drilling Resistance, etc.)
			0	12						
			0	13						
			0	14	4	PUSH	5			
			0	15						
			0	16						
			0	17						
			0	18	5	PUSH	2			
			0	19						
			0	20					101	
			0	21						
		Light gray, mottled brown CLAY (moist)	0	22	6	PUSH	42			
		Red-brown fine-to-coarse SAND, some clay, trace gravel (moist)	0	23						
			0	24						Stop 8:00 Terminate boring at 24 feet
				25						
				26						
				27						

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Log of Boring **SB-3** Sheet 1 of 1

Project: Westrum Development Company	Project No.: 3611302
Location: Former Nicolet Industries Site: Ambler, PA	Elevation and Datum: NA
Drilling Company: Terra Probe, Inc.	Date Started: 7/20/05 — Date Finished: 7/20/05
Drilling Equipment: Geoprobe (Track Mounted)	Completion Depth: 7 ft — Rock Depth: 7 ft
Size and Type of Bit: NA	Number of Samples: Disturbed 2 — Undisturbed NA — Core NA
Casing Diameter (in): NA — Casing Depth (ft): NA	Water Level (ft.): First ▽ NE — Completion ▼ NA — 24 HR. ▼ NA
Casing Hammer: NA — Weight (lbs): NA — Drop (in): NA	Drilling Foreman: Brian Moriarty
Sampler: 2-inch diameter / 4-foot macro core	Inspecting Engineer: Randy Copenhaver
Sampler Hammer: NA — Weight (lbs): NA — Drop (in): NA	

Material Symbol	Elev. (ft)	Sample Description	PID Reading (ppm)	Depth Scale	Sample Data: Number	Type	Recov. (in)	Penetr. resist BL/6in	Env ID	Remarks (Drilling Fluid, Depth of Casing, Fluid Loss, Drilling Resistance, etc.)
		Dark brown CLAY, trace gravel and sand, trace slag (TOPSOIL) (moist)	0	0					232	Start 13:45
		Brown CLAY (moist)	0	1						
			0		1	PUSH	46			
		Red-brown CLAY, trace sand (dry)	0	2						
			0							
			0	3						
			0							
			0	4					233	
		Red-gray fine-to-medium SAND, some silt and clay (dry)	0							
			0	5						
		Gray and brown SAND (dry)	0		2	PUSH	36			
			0	6						
		Gray and brown SAND, some gravel, sandstone fragments (dry)	0							Stop 13:50 Refusal at 7 feet
				7						Terminate boring at 7 feet
				8						
				9						
				10						
				11						
				12						

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Log of Boring **SB-30** Sheet 1 of 1

Project: Westrum Development Company	Project No.: 3611302
Location: Former Nicolet Industries Site: Ambler, PA	Elevation and Datum: NA
Drilling Company: Terra Probe, Inc.	Date Started: 7/15/05 — Date Finished: 7/15/05
Drilling Equipment: Geoprobe (Truck Mount)	Completion Depth: 11 ft — Rock Depth: 11 ft
Size and Type of Bit: NA	Number of Samples: Disturbed 3 — Undisturbed NA — Core NA
Casing Diameter (in): NA — Casing Depth (ft): NA	Water Level (ft.): First ▽ 8 — Completion ▼ NA — 24 HR. ▼ NA
Casing Hammer: NA — Weight (lbs): NA — Drop (in): NA	Drilling Foreman: Brian Moriarty
Sampler: 2-inch diameter / 4-foot macro core	Inspecting Engineer: Randy Copenhaver
Sampler Hammer: NA — Weight (lbs): NA — Drop (in): NA	

Material Symbol	Elev. (ft)	Sample Description	PID Reading (ppm)	Depth Scale	Sample Data: Number	Type	Recov. (in)	Penetr. resist BL/6in	Env ID	Remarks (Drilling Fluid, Depth of Casing, Fluid Loss, Drilling Resistance, etc.)
		Black fine-to-coarse SAND, some gravel, ash, slag (FILL) (dry)	0	0					129	Start 12:35
			0	1	1	PUSH	37		130	
		Black and gray fine-to-coarse SAND, some gravel, ash, slag (FILL) (dry)	0	2					131	
			0	3						
		Brown CLAY (moist to wet)	0	4					132	
			0	5						
		Orange-brown CLAY, trace sand and gravel (moist)	0	6	2	PUSH	42			
		Red-brown fine-to-coarse SAND, trace clay (moist)	0	7						
		▽	0	8						
		Red-brown fine-to-coarse SAND, sandstone fragments (wet)	0	9						
			0	10	3	PUSH	24			Stop 12:45 Refusal at 11 feet
			0	11						Terminate boring at 11 feet
				12						

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Log of Boring **SB-31** Sheet 1 of 1

Project: Westrum Development Company	Project No.: 3611302
Location: Former Nicolet Industries Site: Ambler, PA	Elevation and Datum: NA
Drilling Company: Terra Probe, Inc.	Date Started: 7/15/05 — Date Finished: 7/15/05
Drilling Equipment: Geoprobe (Truck Mount)	Completion Depth: 12 ft — Rock Depth: NE
Size and Type of Bit: NA	Number of Samples: Disturbed 3 — Undisturbed NA — Core NA
Casing Diameter (in): NA — Casing Depth (ft): NA	Water Level (ft.): First ▽ NE — Completion ▼ NA — 24 HR. ▼ NA
Casing Hammer: NA — Weight (lbs): NA — Drop (in): NA	Drilling Foreman: Brian Moriarty
Sampler: 2-inch diameter / 4-foot macro core	Inspecting Engineer: Randy Copenhaver
Sampler Hammer: NA — Weight (lbs): NA — Drop (in): NA	

Material Symbol	Elev. (ft)	Sample Description	PID Reading (ppm)	Depth Scale	Sample Data: Number	Type	Recov. (in)	Penetr. resist BL/6in	Env ID	Remarks (Drilling Fluid, Depth of Casing, Fluid Loss, Drilling Resistance, etc.)
		Black and gray fine-to-coarse SAND, some gravel, ash, slag (FILL) (dry)	0	0					122	Start 11:45
			0	1						
			0						123	
			0	2	1	PUSH	38			
			0							
			0	3					124	
		Brown CLAY (moist)	0							
			0	4					121	
		Orange-brown CLAY (moist)	0							
			0	5						
			0							
			0	6	2	PUSH	43			
			0							
		Red-brown fine-to-coarse SAND (moist to wet)	0	7						
			0							
			0	8						
			0							
			0	9						
			0							
			0	10	3	PUSH	36			
			0							
			0	11						
			0							
			0	12						Stop 12:00 Terminate boring at 12 feet

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Log of Boring **SB-32** Sheet 1 of 1

Project: Westrum Development Company	Project No.: 3611302
Location: Former Nicolet Industries Site: Ambler, PA	Elevation and Datum: NA
Drilling Company: Terra Probe, Inc.	Date Started: 7/15/05 — Date Finished: 7/15/05
Drilling Equipment: Geoprobe (Truck Mount)	Completion Depth: 12 ft — Rock Depth: NE
Size and Type of Bit: NA	Number of Samples: Disturbed 3 — Undisturbed NA — Core NA
Casing Diameter (in): NA — Casing Depth (ft): NA	Water Level (ft.): First ▽ NE — Completion ▼ NA — 24 HR. ▼ NA
Casing Hammer: NA — Weight (lbs): NA — Drop (in): NA	Drilling Foreman: Brian Moriarty
Sampler: 2-inch diameter / 4-foot macro core	Inspecting Engineer: Randy Copenhaver
Sampler Hammer: NA — Weight (lbs): NA — Drop (in): NA	

Material Symbol	Elev. (ft)	Sample Description	PID Reading (ppm)	Depth Scale	Sample Data: Number	Type	Recov. (in)	Penetr. resist BL/6in	Env ID	Remarks (Drilling Fluid, Depth of Casing, Fluid Loss, Drilling Resistance, etc.)
		Black fine-to-coarse SAND, trace gravel, ash, slag (FILL) (dry)	0	0					125	Start 12:10
			0	1					126	
			0	2	1	PUSH	27		127	
		Orange-brown CLAY (moist)	0	3						
			0	4					128	
		Red-brown CLAY, some sand, trace gravel (moist)	0	5						
		Red-brown fine-to-coarse SAND, some clay, trace gravel (moist)	0	6	2	PUSH	44			
		Red-brown CLAY, trace sand and gravel (moist)	0	7						
			0	8						
			0	9						
			0	10	3	PUSH	39			
			0	11						
			0	12						Stop 12:25 Terminate boring at 12 feet

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Log of Boring **SB-33** Sheet 1 of 2

Project: Westrum Development Company	Project No.: 3611302
Location: Former Nicolet Industries Site: Ambler, PA	Elevation and Datum: NA
Drilling Company: Terra Probe, Inc.	Date Started: 7/20/05 — Date Finished: 7/20/05
Drilling Equipment: Geoprobe (Track Mounted)	Completion Depth: 13.5 ft — Rock Depth: 13.5 ft
Size and Type of Bit: NA	Number of Samples: Disturbed 4 — Undisturbed NA — Core NA
Casing Diameter (in): NA — Casing Depth (ft): NA	Water Level (ft.): First ▽ 8 — Completion ▼ NA — 24 HR. ▼ NA
Casing Hammer: NA — Weight (lbs): NA — Drop (in): NA	Drilling Foreman: Brian Moriarty
Sampler: 2-inch diameter / 4-foot macro core	Inspecting Engineer: Randy Copenhaver
Sampler Hammer: NA — Weight (lbs): NA — Drop (in): NA	

Material Symbol	Elev. (ft)	Sample Description	PID Reading (ppm)	Depth Scale	Sample Data: Number	Type	Recov. (in)	Penetr. resist BL/6in	Env ID	Remarks (Drilling Fluid, Depth of Casing, Fluid Loss, Drilling Resistance, etc.)
		Dark brown fine-to-coarse SAND, some slag, trace gravel (FILL) (moist)	0	0						Start 7:15
		Gray GRAVEL (FILL) (dry)	0							
		Dark brown and black fine-to-coarse SAND, some gravel and clay (FILL) (moist)	0	1					193	
		Tan GRAVEL, trace sand (FILL) (dry)	0							
		Brown CLAY (FILL) (dry)	0	2	1	PUSH	37			
		Black fine-to-coarse SAND, some gravel, slag, ash (FILL) (dry)	0						196	
			0	3						
			0							
		Brown and black fine-to-coarse SAND, some clay and gravel, slag (FILL) (moist to wet)	0	4					194	
			0							
			0	5						
			0							
			0	6	2	PUSH	39			
			0							
			0	7						
			0							
		▽ Brown fine-to-coarse SAND, some gravel (FILL) (wet)	0	8					195	
			0							
		Dark gray fine-to-coarse SAND, some clay, trace gravel, wood (FILL) (wet)	0	9						
			30.1							
			33.5	10	3	PUSH	28		001	Wood material is giving PID reading. No odor.
			83.4							
		Reddish gray fine-to-coarse SAND (moist)	30.9	11						
			0							
			0	12						

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Log of Boring **SB-33** Sheet 2 of 2

Project	Project No.
Westrum Development Company	3611302
Location	**Elevation and Datum**
Former Nicolet Industries Site: Ambler, PA	NA

MATERIAL SYMBOL	Elev. (ft)	Sample Description	PID Reading (ppm)	Depth Scale	Sample Data: Number	Type	Recov. (in)	Penetr. resist BL/6in	Env ID	Remarks (Drilling Fluid, Depth of Casing, Fluid Loss, Drilling Resistance, etc.)
		Reddish gray fine-to-coarse SAND, trace gravel, sandstone fragments (dry)	0 10.1 0	12 13	4	PUSH	18			Stop 7:35 Refusal at 13.5 feet Terminate boring at 13.5 feet
				14 15 16 17 18 19 20 21 22 23 24 25 26 27						

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Log of Boring **SB-34** Sheet 1 of 1

Project: Westrum Development Company	Project No.: 3611302
Location: Former Nicolet Industries Site: Ambler, PA	Elevation and Datum: NA
Drilling Company: Terra Probe, Inc.	Date Started: 7/20/05 — Date Finished: 7/20/05
Drilling Equipment: Geoprobe (Track Mounted)	Completion Depth: 12 ft — Rock Depth: NE
Size and Type of Bit: NA	Number of Samples: Disturbed 3 — Undisturbed NA — Core NA
Casing Diameter (in): NA — Casing Depth (ft): NA	Water Level (ft.): First ▽ 8 — Completion ▼ NA — 24 HR. ▼ NA
Casing Hammer: NA — Weight (lbs): NA — Drop (in): NA	Drilling Foreman: Brian Moriarty
Sampler: 2-inch diameter / 4-foot macro core	Inspecting Engineer: Randy Copenhaver
Sampler Hammer: NA — Weight (lbs): NA — Drop (in): NA	

Material Symbol	Elev. (ft)	Sample Description	PID Reading (ppm)	Depth Scale	Sample Data: Number	Type	Recov. (in)	Penetr. resist BL/6in	Env ID	Remarks (Drilling Fluid, Depth of Casing, Fluid Loss, Drilling Resistance, etc.)
		Black fine-to-coarse SAND, some gravel, ash, slag (FILL) (dry)	0	0					197	Start 7:50
			0	1						
			0		1	PUSH	38			
			0	2					199	
			0							
			0	3						
			0						198	
			0	4					200	
		Gray mottled black CLAY (moist)	0							
		Orange-brown CLAY (moist to wet)	0	5						
			0							
			0	6	2	PUSH	44			
			0							
		Red-brown CLAY, some sand (moist)	0	7						
			0							
		▽	0	8						
		Red-gray sandy CLAY (wet)	0							
			0	9						
		Brown and gray fine-to-coarse SAND, some clay (wet)	0							
			0	10	3	PUSH	40			
			0							
			0	11						
			0							
			0	12						End 8:00 Terminate boring at 12 feet

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Log of Boring **SB-35** Sheet 1 of 1

Project: Westrum Development Company	Project No.: 3611302
Location: Former Nicolet Industries Site: Ambler, PA	Elevation and Datum: NA
Drilling Company: Terra Probe, Inc.	Date Started: 7/20/05 — Date Finished: 7/20/05
Drilling Equipment: Geoprobe (Track Mounted)	Completion Depth: 11 ft — Rock Depth: 11 ft
Size and Type of Bit: NA	Number of Samples: Disturbed 3 — Undisturbed NA — Core NA
Casing Diameter (in): NA — Casing Depth (ft): NA	Water Level (ft.): First ▽ 8 — Completion ▼ 6.5 — 24 HR. ▼ NA
Casing Hammer: NA — Weight (lbs): NA — Drop (in): NA	Drilling Foreman: Brian Moriarty
Sampler: 2-inch diameter / 4-foot macro core	Inspecting Engineer: Randy Copenhaver
Sampler Hammer: NA — Weight (lbs): NA — Drop (in): NA	

Material Symbol	Elev. (ft)	Sample Description	PID Reading (ppm)	Depth Scale	Sample Data: Number	Type	Recov. (in)	Penetr. resist BL/6in	Env ID	Remarks (Drilling Fluid, Depth of Casing, Fluid Loss, Drilling Resistance, etc.)
		Black fine-to-coarse SAND, some gravel, trace clay (FILL) (moist)	0	0					201	Start 8:20
		Gray GRAVEL (FILL) (dry)	0							
		Black fine-to-coarse SAND, some gravel, slag, ash (FILL) (dry)	0	1	1	PUSH	37			
			0							
			0	2						
		Black fine-to-coarse SAND, some gravel, slag, ash (FILL) (wet)	0							
		Tan GRAVEL, trace sand (FILL) (dry)	0	3					202	
			0							
		Orange, brown and black gravelly CLAY, slag, fibrous material (FILL) (moist)	0	4					203	
			0							
		Orange-brown CLAY, some sand and gravel (moist)	0	5						
			0							
		Reddish gray fine-to-coarse SAND, some gravel, sandstone fragments (dry) ▼	0	6	2	PUSH	26		204	
			0							
			0	7						
		Reddish gray fine-to-coarse SAND, clay, some gravel, sandstone fragments (wet) ▽	0							
			0	8						
			410							
			101	9	3	PUSH	36			
			52.9							
			1510	10					002	
			237							Stop 8:30 Refusal at 11 feet
				11						Terminate boring at 11 feet Set temporary PVC well point
				12						

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Log of Boring **SB-36** Sheet 1 of 1

Project: Westrum Development Company	Project No.: 3611302
Location: Former Nicolet Industries Site: Ambler, PA	Elevation and Datum: NA
Drilling Company: Terra Probe, Inc.	Date Started: 7/15/05 — Date Finished: 7/15/05
Drilling Equipment: Geoprobe (Truck Mount)	Completion Depth: 12 ft — Rock Depth: NE
Size and Type of Bit: NA	Number of Samples: Disturbed 3 — Undisturbed NA — Core NA
Casing Diameter (in): NA — Casing Depth (ft): NA	Water Level (ft.): First ▽ NE — Completion ▼ NA — 24 HR. ▼ NA
Casing Hammer: NA — Weight (lbs): NA — Drop (in): NA	Drilling Foreman: Brian Moriarty
Sampler: 2-inch diameter / 4-foot macro core	Inspecting Engineer: Randy Copenhaver
Sampler Hammer: NA — Weight (lbs): NA — Drop (in): NA	

Material Symbol	Elev. (ft)	Sample Description	PID Reading (ppm)	Depth Scale	Sample Data: Number	Type	Recov. (in)	Penetr. resist BL/6in	Env ID	Remarks (Drilling Fluid, Depth of Casing, Fluid Loss, Drilling Resistance, etc.)
		Asphalt	0	0						Start 9:10
		Black and light tan fine-to-coarse SAND, some gravel, ash (FILL) (dry)	0						502	
		Black, brown, and gray fine-to-coarse SAND, some gravel. ash, slag (FILL) (dry)	0	1					106	
			0							
			0	2	1	PUSH	38			
			0							
		Brown sandy SILT, trace clay and gravel (FILL)	0	3					107	
			0							
		Black and white fine-to-coarse SAND, some clay and gravel, ash, slag, magnesia material (FILL) (moist)	0	4					108	
			0							
		White CLAY, trace gravel, magnesia material (FILL) (wet)	0	5					109	
		Brown CLAY, some sand, trace gravel (moist)	0							
			0	6	2	PUSH	35			
			0							
			0	7						
			0							
		Gray, mottled brown CLAY, trace gravel (moist)	0	8						
			0							
			0	9						
			0							
		Red-brown fine-to-coarse SAND, some clay, trace gravel (moist)	0	10	3	PUSH	37			
			0							
			0	11						
			0							Stop 9:20
			0	12						Terminate boring at 12 feet

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Log of Boring **SB-37** Sheet 1 of 2

Project: Westrum Development Company	Project No.: 3611302
Location: Former Nicolet Industries Site: Ambler, PA	Elevation and Datum: NA
Drilling Company: Terra Probe, Inc.	Date Started: 7/15/05 — Date Finished: 7/15/05
Drilling Equipment: Geoprobe (Truck Mount)	Completion Depth: 16 ft — Rock Depth: NE
Size and Type of Bit: NA	Number of Samples: Disturbed 4 — Undisturbed NA — Core NA
Casing Diameter (in): NA — Casing Depth (ft): NA	Water Level (ft.): First ▽ NE — Completion ▼ NA — 24 HR. ▼ NA
Casing Hammer: NA — Weight (lbs): NA — Drop (in): NA	Drilling Foreman: Frank Fendler
Sampler: 2-inch diameter / 4-foot macro core	Inspecting Engineer: Randy Copenhaver
Sampler Hammer: NA — Weight (lbs): NA — Drop (in): NA	

Material Symbol	Elev. (ft)	Sample Description	PID Reading (ppm)	Depth Scale	Sample Data: Number	Type	Recov. (in)	Penetr. resist BL/6in	Env ID	Remarks (Drilling Fluid, Depth of Casing, Fluid Loss, Drilling Resistance, etc.)
		Black and gray fine-to-coarse SAND, some gravel, ash, slag (FILL) (dry)	0	0					113	Start 10:00
			0	1						
		Brown CLAY (FILL) (moist)	0							
		White CLAY, magnesia material (FILL) (wet)	0	2	1	PUSH	32			
		Brown and black fine-to-coarse SAND, some gravel, some clay, ash (FILL) (moist)	0							
		Light pink clayey fine-to-coarse SAND, trace gravel, magnesia material (FILL) (moist)	0	3					114	
			0							
		White clayey fine-to-coarse SAND, trace gravel, magnesia material (FILL) (moist)	0	4						
			0						115	
		Gray and black GRAVEL, some sand and clay, ash, magnesia material (FILL) (wet)	0	5						
		Light tan CLAY, magnesia material (FILL) (wet)	0							
			0	6	2	PUSH	32		116	
		Orange-brown CLAY, some sand and gravel (moist)	0							
			0	7						
			0							
		Gray, mottled brown CLAY, trace sand and gravel (moist)	0	8						
			0							
			0	9						
			0							
			0	10	3	PUSH	43			
			0							
		Red-brown fine-to-coarse SAND, trace gravel and clay (moist)	0	11						Slight odor from 11 to 13.5 feet
			0							
			0	12						

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Log of Boring **SB-37** Sheet 2 of 2

Project	Project No.
Westrum Development Company	3611302
Location	**Elevation and Datum**
Former Nicolet Industries Site: Ambler, PA	NA

MATERIAL SYMBOL	Elev. (ft)	Sample Description	PID Reading (ppm)	Depth Scale	Sample Data: Number	Type	Recov. (in)	Penetr. resist BL/6in	Env ID	Remarks (Drilling Fluid, Depth of Casing, Fluid Loss, Drilling Resistance, etc.)
		Red-brown fine-to-coarse SAND, trace gravel and clay (moist)	0	12	4	PUSH	36			Stop 10:30
			0	13						
			0							Terminate boring at 16 feet
			0	14						
			0							
			0	15						
			0							
			0	16						
				17						
				18						
				19						
				20						
				21						
				22						
				23						
				24						
				25						
				26						
				27						

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Log of Boring **SB-38** Sheet 1 of 1

Project: Westrum Development Company	Project No.: 3611302
Location: Former Nicolet Industries Site: Ambler, PA	Elevation and Datum: NA
Drilling Company: Terra Probe, Inc.	Date Started: 7/15/05 — Date Finished: 7/15/05
Drilling Equipment: Geoprobe (Truck Mount)	Completion Depth: 12 ft — Rock Depth: NE
Size and Type of Bit: NA	Number of Samples: Disturbed 3 — Undisturbed NA — Core NA
Casing Diameter (in): NA — Casing Depth (ft): NA	Water Level (ft.): First ▽ NE — Completion ▼ NA — 24 HR. ⧩ NA
Casing Hammer: NA — Weight (lbs): NA — Drop (in): NA	Drilling Foreman: Frank Fendler
Sampler: 2-inch diameter / 4-foot macro core	Inspecting Engineer: Randy Copenhaver
Sampler Hammer: NA — Weight (lbs): NA — Drop (in): NA	

Material Symbol	Elev. (ft)	Sample Description	PID Reading (ppm)	Depth Scale	Sample Data: Number	Type	Recov. (in)	Penetr. resist BL/6in	Env ID	Remarks (Drilling Fluid, Depth of Casing, Fluid Loss, Drilling Resistance, etc.)
		Black and gray fine-to-coarse SAND, some gravel, trace clay, ash, slag, magnesia material (FILL) (dry)	0	0					503	Start 9:35
			0	1	1	PUSH	24		110	
			0	2						
			0	3						
			0	4					111	
		Black and light tan sandy CLAY, trace gravel, ash, slag, magnesia material (FILL) (wet)	0	5						
			0	6	2	PUSH	10			
			0	7						
			0	8					112	
		Black and light tan sandy CLAY, trace gravel, ash, slag, magnesia material (FILL) (wet)	0	9						
		Gray mottled black CLAY, organic material (moist)	0	10	3	PUSH	44			
		Gray mottled brown CLAY (moist)	0	11						Stop 9:50
		Red-brown fine-to-coarse SAND, some clay, trace gravel (moist)	0	12						Terminate boring at 12 feet

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Log of Boring **SB-39** Sheet 1 of 2

Project: Westrum Development Company	Project No.: 3611302
Location: Former Nicolet Industries Site: Ambler, PA	Elevation and Datum: NA
Drilling Company: Terra Probe, Inc.	Date Started: 7/14/05 — Date Finished: 7/14/05
Drilling Equipment: Geoprobe (Truck Mount)	Completion Depth: 15 ft — Rock Depth: NE
Size and Type of Bit: NA	Number of Samples: Disturbed 4 — Undisturbed NA — Core NA
Casing Diameter (in): NA — Casing Depth (ft): NA	Water Level (ft.): First ▽ NE — Completion ▼ NA — 24 HR. ▼ NA
Casing Hammer: NA — Weight (lbs): NA — Drop (in): NA	Drilling Foreman: Matt Burk
Sampler: 2-inch diameter / 4-foot macro core	Inspecting Engineer: Randy Copenhaver
Sampler Hammer: NA — Weight (lbs): NA — Drop (in): NA	

Material Symbol	Elev. (ft)	Sample Description	PID Reading (ppm)	Depth Scale	Sample Data: Number	Type	Recov. (in)	Penetr. resist BL/6in	Env ID	Remarks (Drilling Fluid, Depth of Casing, Fluid Loss, Drilling Resistance, etc.)
		Black and dark brown fine-to-coarse SAND, trace gravel, ash (FILL) (dry)	0	0					048	Start 7:30
		Light tan CLAY, trace sand, magnesia material (FILL) (wet)	0	1						
		Black and dark brown fine-to-coarse SAND, trace gravel, ash (FILL) (dry)	0	2	1	PUSH	34			
			0	3						
			0	4						
		Light tan CLAY, magnesia material (FILL) (wet)	0	5					049	
			0	6	2	PUSH	36			
			0	7						
			0	8						
			0	9						
			0	10	3	PUSH	44			
		Dark gray CLAY (wet)	0						050	
		Gray and black mottled CLAY (moist)	0	11						
		Gray and brown mottled CLAY (moist)	0						051	
				12						

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Log of Boring **SB-39** Sheet 2 of 2

Project	Project No.
Westrum Development Company	3611302
Location	**Elevation and Datum**
Former Nicolet Industries Site: Ambler, PA	NA

MATERIAL SYMBOL	Elev. (ft)	Sample Description	PID Reading (ppm)	Depth Scale	Sample Data: Number	Type	Recov. (in)	Penetr. resist BL/6in	Env ID	Remarks (Drilling Fluid, Depth of Casing, Fluid Loss, Drilling Resistance, etc.)
			0	12						
			0	13						
			0		4	PUSH	33			
		Gray and brown fine-to-coarse SAND (moist)	0	14						Stop 8:00 Refusal at 15 feet
			0							
			0	15						Terminate boring at 15 feet
				16						
				17						
				18						
				19						
				20						
				21						
				22						
				23						
				24						
				25						
				26						
				27						

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

Project: Westrum Development Company	Project No.: 3611302
Location: Former Nicolet Industries Site: Ambler, PA	Elevation and Datum: NA
Drilling Company: Terra Probe, Inc.	Date Started: 7/20/05 — Date Finished: 7/20/05
Drilling Equipment: Geoprobe (Track Mounted)	Completion Depth: 7.5 ft — Rock Depth: 7.5 ft
Size and Type of Bit: NA	Number of Samples: Disturbed 2 — Undisturbed NA — Core NA
Casing Diameter (in): NA — Casing Depth (ft): NA	Water Level (ft.): First ▽ NE — Completion ▼ NA — 24 HR. ▼ NA
Casing Hammer: NA — Weight (lbs): NA — Drop (in): NA	Drilling Foreman: Brian Moriarty
Sampler: 2-inch diameter / 4-foot macro core	Inspecting Engineer: Randy Copenhaver
Sampler Hammer: NA — Weight (lbs): NA — Drop (in): NA	

Material Symbol	Elev. (ft)	Sample Description	PID Reading (ppm)	Depth Scale	Sample Data: Number	Type	Recov. (in)	Penetr. resist BL/6in	Env ID	Remarks (Drilling Fluid, Depth of Casing, Fluid Loss, Drilling Resistance, etc.)
		Dark brown CLAY, trace sand (TOPSOIL) (moist)	0	0					230	Start 13:35
		Brown CLAY, trace sand (dry)	0	1						
			0							
			0							
		Brown fine-to-coarse SAND, some clay (dry)	0	2	1	PUSH	43			
			0							
		Gray fine-to-coarse SAND, some gravel, sandstone fragments (dry)	0	3						
			0							
			0	4					231	
			0							
			0	5						
		Red, brown and gray fine-to-coarse SAND, some clay, trace gravel, sandstone fragments (dry)	0							
			0	6	2	PUSH	42			
			0							
			0	7						Stop 13:40 Refusal at 7.5 feet
				8						Terminate boring at 7.5 feet
				9						
				10						
				11						
				12						

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Log of Boring **SB-40** Sheet 1 of 2

Project: Westrum Development Company	Project No.: 3611302
Location: Former Nicolet Industries Site: Ambler, PA	Elevation and Datum: NA
Drilling Company: Terra Probe, Inc.	Date Started: 7/12/05 — Date Finished: 7/12/05
Drilling Equipment: Geoprobe (Truck Mount)	Completion Depth: 15 ft — Rock Depth: 15 ft
Size and Type of Bit: NA	Number of Samples: Disturbed 4 — Undisturbed NA — Core NA
Casing Diameter (in): NA — Casing Depth (ft): NA	Water Level (ft.): First ▽ NE — Completion ▼ NA — 24 HR. ▼ NA
Casing Hammer: NA — Weight (lbs): NA — Drop (in): NA	Drilling Foreman: Brian Moriarty
Sampler: 2-inch diameter / 4-foot macro core	Inspecting Engineer: Randy Copenhaver
Sampler Hammer: NA — Weight (lbs): NA — Drop (in): NA	

Material Symbol	Elev. (ft)	Sample Description	PID Reading (ppm)	Depth Scale	Sample Data: Number	Type	Recov. (in)	Penetr. resist BL/6in	Env ID	Remarks (Drilling Fluid, Depth of Casing, Fluid Loss, Drilling Resistance, etc.)
		Brown fine-to-coarse SAND, trace silt and gravel (TOP SOIL)	0	0					044	Start 15:40
		Black and dark gray ash, fine-to-coarse SAND, some gravel (FILL) (dry)	0	1						
		White and black clayey fine-to-coarse SAND, some gravel, magnesia material (FILL) (moist)	0	2	1	PUSH	33			
		Black and dark gray ash, fine-to-coarse SAND, some gravel, magnesia material (FILL) (dry)	0	3						
			0	4					045	
		Light tan CLAY, magnesia material (FILL) (wet)	0	5						
			0	6	2	PUSH	28			
			0	7						
			0	8						
			0	9					046	
		Gray and mottled brown CLAY (moist)	0	10	3	PUSH	48			
			0	11						
		Red-brown CLAY, trace fine sand (moist)	0	12						

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Log of Boring **SB-40** Sheet 2 of 2

Project	Project No.
Westrum Development Company	3611302
Location	**Elevation and Datum**
Former Nicolet Industries Site: Ambler, PA	NA

MATERIAL SYMBOL	Elev. (ft)	Sample Description	PID Reading (ppm)	Depth Scale	Sample Data: Number	Type	Recov. (in)	Penetr. resist BL/6in	Env ID	Remarks (Drilling Fluid, Depth of Casing, Fluid Loss, Drilling Resistance, etc.)
		Purple-brown fine-to-coarse SAND (moist)	0	12	4	PUSH	36		047	
		Brown fine-to-coarse SAND, trace gravel (moist)	0	13						
			0							
			0	14						
		Light orange-brown fine-to-coarse SAND (moist)	0							Stop 16:00 Refusal at 15 feet
			0	15						Terminate boring at 15 feet
				16						
				17						
				18						
				19						
				20						
				21						
				22						
				23						
				24						
				25						
				26						
				27						

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Log of Boring **SB-41** Sheet 1 of 2

Project: Westrum Development Company	Project No.: 3611302
Location: Former Nicolet Industries Site: Ambler, PA	Elevation and Datum: NA
Drilling Company: Terra Probe, Inc.	Date Started: 7/14/05 — Date Finished: 7/14/05
Drilling Equipment: Geoprobe (Truck Mount)	Completion Depth: 16 ft — Rock Depth: NE
Size and Type of Bit: NA	Number of Samples: Disturbed 4 — Undisturbed NA — Core NA
Casing Diameter (in): NA — Casing Depth (ft): NA	Water Level (ft.): First ▽ 8 — Completion ▼ NA — 24 HR. ▼ NA
Casing Hammer: NA — Weight (lbs): NA — Drop (in): NA	Drilling Foreman: Matt Burk
Sampler: 2-inch diameter / 4-foot macro core	Inspecting Engineer: Randy Copenhaver
Sampler Hammer: NA — Weight (lbs): NA — Drop (in): NA	

Material Symbol	Elev. (ft)	Sample Description	PID Reading (ppm)	Depth Scale	Sample Data: Number	Type	Recov. (in)	Penetr. resist BL/6in	Env ID	Remarks (Drilling Fluid, Depth of Casing, Fluid Loss, Drilling Resistance, etc.)
		Black, gray, and brown fine-to-coarse SAND, some gravel, ash and slag (FILL) (dry)	0	0					078	Start 11:55
			0	1	1	PUSH	33			
			0	2						
			0	3						
			0	4					079	
		Light tan CLAY, trace gravel, magnesia material (FILL) (wet)	0	5						
			0	6	2	PUSH	34			
			0	7						
		▽	0	8						
		Light tan CLAY, magnesia material (FILL) (wet)	0	9						
			0	10	3	PUSH	26		080	
		Light tan CLAY, some sand, magnesia material (FILL) (wet)	0	11						
			0	12						

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Log of Boring **SB-41** Sheet 2 of 2

Project	Project No.
Westrum Development Company	3611302
Location	**Elevation and Datum**
Former Nicolet Industries Site: Ambler, PA	NA

MATERIAL SYMBOL	Elev. (ft)	Sample Description	PID Reading (ppm)	Depth Scale	Sample Data: Number	Type	Recov. (in)	Penetr. resist BL/6in	Env ID	Remarks (Drilling Fluid, Depth of Casing, Fluid Loss, Drilling Resistance, etc.)
		Gray-brown CLAY (wet)	0	12					081	
			0	13						
			0							
		Gray fine-to-coarse SAND, some clay (wet)	0	14	4	PUSH	27			
		Red-brown fine-to-coarse SAND, trace gravel and silt (wet)	0							
			0	15						
			0							Stop 12:20
			0	16						Terminate boring at 16 feet
				17						
				18						
				19						
				20						
				21						
				22						
				23						
				24						
				25						
				26						
				27						

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Log of Boring **SB-43** Sheet 1 of 2

Project: Westrum Development Company	Project No.: 3611302
Location: Former Nicolet Industries Site: Ambler, PA	Elevation and Datum: NA
Drilling Company: Terra Probe, Inc.	Date Started: 7/12/05 — Date Finished: 7/12/05
Drilling Equipment: Geoprobe (Truck Mount)	Completion Depth: 14 ft — Rock Depth: 14 ft
Size and Type of Bit: NA	Number of Samples: Disturbed 4 — Undisturbed NA — Core NA
Casing Diameter (in): NA — Casing Depth (ft): NA	Water Level (ft.): First ▽ NE — Completion ▼ NA — 24 HR. ▼ NA
Casing Hammer: NA — Weight (lbs): NA — Drop (in): NA	Drilling Foreman: Brian Moriarty
Sampler: 2-inch diameter / 4-foot macro core	Inspecting Engineer: Randy Copenhaver
Sampler Hammer: NA — Weight (lbs): NA — Drop (in): NA	

Material Symbol	Elev. (ft)	Sample Description	PID Reading (ppm)	Depth Scale	Sample Data: Number	Type	Recov. (in)	Penetr. resist BL/6in	Env ID	Remarks (Drilling Fluid, Depth of Casing, Fluid Loss, Drilling Resistance, etc.)
		Asphalt	0	0						Start 15:15
		Gray GRAVEL, some sand (FILL) (dry)	0	0					040	
		Black and dark gray ash, fine-to-coarse SAND, some gravel (FILL) (dry)	0	1	1	PUSH	42			
			0	2						
			0	3						
			0	4					041	
		Brown CLAY, trace gravel and sand (moist)	0	5					042	
			0	6	2	PUSH	27			
			0	7						
			0	8						
		Orange-brown and gray-brown fine-to-coarse SAND (moist)	0	9						
		Gray-brown-purple fine-to-coarse SAND (moist)	0	10	3	PUSH	41		043	
			0	11						
			0	12						

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Log of Boring **SB-43** Sheet 2 of 2

Project	Project No.
Westrum Development Company	3611302
Location	**Elevation and Datum**
Former Nicolet Industries Site: Ambler, PA	NA

MATERIAL SYMBOL	Elev. (ft)	Sample Description	PID Reading (ppm)	Depth Scale	Sample Data: Number	Type	Recov. (in)	Penetr. resist BL/6in	Env ID	Remarks (Drilling Fluid, Depth of Casing, Fluid Loss, Drilling Resistance, etc.)
			0	12						
			0	13	4	PUSH	23			Stop 15:30 Refusal at 14 feet
			0	14						Terminate boring at 14 feet
			0	15						
				16						
				17						
				18						
				19						
				20						
				21						
				22						
				23						
				24						
				25						
				26						
				27						

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Log of Boring **SB-44** Sheet 1 of 1

Project: Westrum Development Company	Project No.: 3611302
Location: Former Nicolet Industries Site: Ambler, PA	Elevation and Datum: NA
Drilling Company: Terra Probe, Inc.	Date Started: 7/18/05 — Date Finished: 7/18/05
Drilling Equipment: Geoprobe (Truck Mount)	Completion Depth: 12 ft — Rock Depth: NE
Size and Type of Bit: NA	Number of Samples: Disturbed 3 — Undisturbed NA — Core NA
Casing Diameter (in): NA — Casing Depth (ft): NA	Water Level (ft.): First ▽ NE — Completion ▼ NA — 24 HR. ▼ NA
Casing Hammer: NA — Weight (lbs): NA — Drop (in): NA	Drilling Foreman: Frank Fendler
Sampler: 2-inch diameter / 4-foot macro core	Inspecting Engineer: Randy Copenhaver
Sampler Hammer: NA — Weight (lbs): NA — Drop (in): NA	

Material Symbol	Elev. (ft)	Sample Description	PID Reading (ppm)	Depth Scale	Sample Data: Number	Type	Recov. (in)	Penetr. resist BL/6in	Env ID	Remarks (Drilling Fluid, Depth of Casing, Fluid Loss, Drilling Resistance, etc.)
		Asphalt	0	0						Start 7:20
		Black and gray fine-to-coarse SAND, some gravel, ash, fibrous material (FILL) (dry)	0	1					139	
		Tan fine-to-coarse SAND, some gravel (FILL) (dry)	0	2	1	PUSH	33			
		Gray fine-to-coarse SAND, some gravel and clay, ash (FILL) (moist)	0	3						
			0	4						
		Black fine-to-coarse SAND, some gravel, trace silt and clay, ash, slag, (FILL) (moist)	0	5					140	
			0	6	2	PUSH	18			
			0	7						
			0	8						
		Black fine-to-coarse SAND, some gravel, trace silt and clay, ash, slag, (FILL) (moist)	0							
		Gray fine-to-coarse SAND, some gravel, fibrous material (FILL) (moist)	0	9					141	
			0						142	
		Brown mottled orange-brown CLAY (dry)	0	10	3	PUSH	36			
		Red-brown CLAY, some sand, trace gravel (moist)	0	11						
			0	12						End 7:30 Terminate boring at 12 feet

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Log of Boring **SB-45** Sheet 1 of 2

Project: Westrum Development Company	Project No.: 3611302
Location: Former Nicolet Industries Site: Ambler, PA	Elevation and Datum: NA
Drilling Company: Terra Probe, Inc.	Date Started: 7/12/05 — Date Finished: 7/12/05
Drilling Equipment: Geoprobe (Truck Mount)	Completion Depth: 16 ft — Rock Depth: NE
Size and Type of Bit: NA	Number of Samples: Disturbed 4 — Undisturbed NA — Core NA
Casing Diameter (in): NA — Casing Depth (ft): NA	Water Level (ft.): First ▽ NE — Completion ▼ NA — 24 HR. ▼ NA
Casing Hammer: NA — Weight (lbs): NA — Drop (in): NA	Drilling Foreman: Brian Moriarty
Sampler: 2-inch diameter / 4-foot macro core	Inspecting Engineer: Randy Copenhaver
Sampler Hammer: NA — Weight (lbs): NA — Drop (in): NA	

Material Symbol	Elev. (ft)	Sample Description	PID Reading (ppm)	Depth Scale	Sample Data: Number	Type	Recov. (in)	Penetr. resist BL/6in	Env ID	Remarks (Drilling Fluid, Depth of Casing, Fluid Loss, Drilling Resistance, etc.)
		Asphalt	0	0						Start 14:45
		Black ash, fine-to-coarse SAND, some gravel (FILL) (dry)	0	1						
		Gray and white CLAY, magnesia material, trace sand (FILL) (dry)	0							
		Black ash, fine-to-coarse SAND, some gravel (FILL) (dry)	0	2	1	PUSH	28		036	
		Light tan SILT, some sand, trace gravel (FILL) (moist)	0							
		Black ash, fine-to-coarse SAND, some gravel (FILL) (dry)	0	3						
			0	4						
			0							
			0	5					037	
			0							
			0	6	2	PUSH	18			
			0							
			0	7						
			0							
			0	8						
			0							
		Light tan CLAY, magnesia material (FILL) (wet)	0	9					038	
			0							
			0	10	3	PUSH	33			
			0							
			0	11						
		Brown CLAY, trace sand (moist)	0							
				12						

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Log of Boring **SB-45** Sheet 2 of 2

Project	Project No.
Westrum Development Company	3611302
Location	**Elevation and Datum**
Former Nicolet Industries Site: Ambler, PA	NA

MATERIAL SYMBOL	Elev. (ft)	Sample Description	PID Reading (ppm)	Depth Scale	Sample Data: Number	Type	Recov. (in)	Penetr. resist BL/6in	Env ID	Remarks (Drilling Fluid, Depth of Casing, Fluid Loss, Drilling Resistance, etc.)
		Orange-brown and gray mottled SILT (dry)	0	12	4	PUSH	36		039	
			0							
		Orange-brown and gray medium-to-coarse SAND, trace fine sand (dry)	0	13						
			0							
			0	14						
			0							
			0	15						
			0							Stop 14:55
			0	16						Terminate boring at 16 feet
				17						
				18						
				19						
				20						
				21						
				22						
				23						
				24						
				25						
				26						
				27						

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Log of Boring **SB-45A** Sheet 1 of 1

Project: Westrum Development Company	Project No.: 3611302
Location: Former Nicolet Industries Site: Ambler, PA	Elevation and Datum: NA
Drilling Company: Terra Probe, Inc.	Date Started: 1/24/06 — Date Finished: 1/24/06
Drilling Equipment: Geoprobe (Track Mounted)	Completion Depth: 12 ft — Rock Depth: NE
Size and Type of Bit: NA	Number of Samples: Disturbed 3, Undisturbed NA, Core NA
Casing Diameter (in): NA — Casing Depth (ft): NA	Water Level (ft.): First ▽ 6, Completion ▼ NA, 24 HR. ▼ NA
Casing Hammer: NA — Weight (lbs): NA — Drop (in): NA	Drilling Foreman: Brian Moriarty
Sampler: 2-inch diameter / 4-foot macro core	Inspecting Engineer: Randy Copenhaver
Sampler Hammer: NA — Weight (lbs): NA — Drop (in): NA	

Material Symbol	Elev. (ft)	Sample Description	PID Reading (ppm)	Depth Scale	Sample Data: Number	Type	Recov. (in)	Penetr. resist BL/6in	Env ID	Remarks (Drilling Fluid, Depth of Casing, Fluid Loss, Drilling Resistance, etc.)
		Asphalt	0	0						Start 8:20
		Black ash, fine-to-coarse SAND, some gravel (FILL) (dry)	0							
		Gray and white CLAY, magnesia material, trace sand (FILL) (dry)	0	1						
		Black ash, fine-to-coarse SAND, some gravel (FILL) (dry)	0							
		Light tan SILT, some sand, trace gravel (FILL) (moist)	0	2	1	PUSH	31			
		Black fine to coarse SAND, some gravel, ash, slag (FILL) (dry)	0							
			0	3						
			0							
		Black fine to coarse SAND, some gravel ash, slag (FILL) (dry)	0	4					003	
			0							
			0	5						
			0							
		Light tan CLAY, magnesia material (FILL) (wet) ▽	0	6	2	PUSH	28			Groundwater encountered at 6 feet
			0							
			0	7						
			0							
		Light tan CLAY magnesia material (FILL) (wet)	0	8						
				9						
				10	3	PUSH	35			
		Brown CLAY, trace sand (moist)		11					004	End boring at 12 feet at 8:40
				12						

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Log of Boring **SB-46** Sheet 1 of 1

Project: Westrum Development Company	Project No.: 3611302
Location: Former Nicolet Industries Site: Ambler, PA	Elevation and Datum: NA
Drilling Company: Terra Probe, Inc.	Date Started: 7/18/05 — Date Finished: 7/18/05
Drilling Equipment: Geoprobe (Truck Mount)	Completion Depth: 12 ft — Rock Depth: NE
Size and Type of Bit: NA	Number of Samples: Disturbed 3 — Undisturbed NA — Core NA
Casing Diameter (in): NA — Casing Depth (ft): NA	Water Level (ft.): First ▽ NE — Completion ▼ NA — 24 HR. ▼ NA
Casing Hammer: NA — Weight (lbs): NA — Drop (in): NA	Drilling Foreman: Frank Fendler
Sampler: 2-inch diameter / 4-foot macro core	Inspecting Engineer: Randy Copenhaver
Sampler Hammer: NA — Weight (lbs): NA — Drop (in): NA	

Material Symbol	Elev. (ft)	Sample Description	PID Reading (ppm)	Depth Scale	Sample Data: Number	Type	Recov. (in)	Penetr. resist BL/6in	Env ID	Remarks (Drilling Fluid, Depth of Casing, Fluid Loss, Drilling Resistance, etc.)
		Black and gray sandy GRAVEL (FILL) (dry)	0	0					143	Start 7:55
		Black fine-to-coarse SAND, some gravel, trace silt and clay, ash, slag (FILL) (moist)	0	1	1	PUSH	29			
			0	2						
			0	3						
			0	4						
		Tan and gray CLAY, some gravel and sand, ash, slag, magnesia material (FILL) (moist)	0	5					144	
		Gray fine-to-coarse SAND, trace gravel (FILL) (moist)	0							
		Black fine-to-coarse SAND, some gravel, ash, slag (FILL) (moist)	0	6	2	PUSH	24			
		Brown CLAY, some fine-to-coarse SAND, ash, fibrous material, trace gravel (FILL) (moist)	0							
		Black fine-to-coarse SAND, some gravel, ash, slag (FILL) (moist)	0	7						
		Light gray CLAY, magnesia material (FILL) (wet)	0	8					145	
			0	9						
		Brown fine-to-coarse SAND, some gravel and clay (moist)	0						146	
			0	10	3	PUSH	30			
			0	11						
			0	12						Stop 8:10 Terminate boring at 12 feet

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Log of Boring **SB-47** Sheet 1 of 2

Project: Westrum Development Company	Project No.: 3611302
Location: Former Nicolet Industries Site: Ambler, PA	Elevation and Datum: NA
Drilling Company: Terra Probe, Inc.	Date Started: 7/12/05 — Date Finished: 7/12/05
Drilling Equipment: Geoprobe (Truck Mount)	Completion Depth: 16 ft — Rock Depth: NE
Size and Type of Bit: NA	Number of Samples: Disturbed 4 — Undisturbed NA — Core NA
Casing Diameter (in): NA — Casing Depth (ft): NA	Water Level (ft.): First ▽ 8 — Completion ▼ NA — 24 HR. ▼ NA
Casing Hammer: NA — Weight (lbs): NA — Drop (in): NA	Drilling Foreman: Brian Moriarty
Sampler: 2-inch diameter / 4-foot macro core	Inspecting Engineer: Randy Copenhaver
Sampler Hammer: NA — Weight (lbs): NA — Drop (in): NA	

Material Symbol	Elev. (ft)	Sample Description	PID Reading (ppm)	Depth Scale	Sample Data: Number	Type	Recov. (in)	Penetr. resist BL/6in	Env ID	Remarks (Drilling Fluid, Depth of Casing, Fluid Loss, Drilling Resistance, etc.)
		Asphalt	0	0						Start 14:10
		Black ash, fine-to-coarse SAND, some gravel (FILL) (dry)	0	1						
		Black and light tan fine-to-coarse SAND, some clay and gravel (FILL) (moist)	0	2	1	PUSH	26		032	
			0	3						
		Light tan CLAY, magnesia material (FILL) (wet)	0	4						
			0	5					033	
			0	6	2	PUSH	41			
			0	7						
		▽	0	8						
			0	9						
			0	10	3	PUSH	31			
			0	11					034	
			0	12						

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Log of Boring **SB-47** Sheet 2 of 2

Project	Project No.
Westrum Development Company	3611302
Location	**Elevation and Datum**
Former Nicolet Industries Site: Ambler, PA	NA

MATERIAL SYMBOL	Elev. (ft)	Sample Description	PID Reading (ppm)	Depth Scale	Sample Data: Number	Type	Recov. (in)	Penetr. resist BL/6in	Env ID	Remarks (Drilling Fluid, Depth of Casing, Fluid Loss, Drilling Resistance, etc.)
			0	12						
			0	13						
			0							
			0	14	4	PUSH	48		035	
			0							
		Gray-brown CLAY (wet)	0	15						
			0							Stop 14:30
		Brown fine-to-coarse SAND, trace silt and gravel (moist)	0	16						Terminate boring at 16 feet
				17						
				18						
				19						
				20						
				21						
				22						
				23						
				24						
				25						
				26						
				27						

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Log of Boring **SB-47A** Sheet 1 of 2

Project: Westrum Development Company	Project No.: 3611302
Location: Former Nicolet Industries Site: Ambler, PA	Elevation and Datum: NA
Drilling Company: Terra Probe, Inc.	Date Started: 1/24/06 — Date Finished: 1/24/06
Drilling Equipment: Geoprobe (Track Mounted)	Completion Depth: 16 ft — Rock Depth: NE
Size and Type of Bit: NA	Number of Samples: Disturbed 4 — Undisturbed NA — Core NA
Casing Diameter (in): NA — Casing Depth (ft): NA	Water Level (ft.): First ▽ 3 — Completion ▼ NA — 24 HR. ▼ NA
Casing Hammer: NA — Weight (lbs): NA — Drop (in): NA	Drilling Foreman: Brian Moriarty
Sampler: 2-inch diameter / 4-foot macro core	Inspecting Engineer: Randy Copenhaver
Sampler Hammer: NA — Weight (lbs): NA — Drop (in): NA	

Material Symbol	Elev. (ft)	Sample Description	PID Reading (ppm)	Depth Scale	Sample Data: Number	Type	Recov. (in)	Penetr. resist BL/6in	Env ID	Remarks (Drilling Fluid, Depth of Casing, Fluid Loss, Drilling Resistance, etc.)
		Asphalt	0	0						Start 7:45
		Black fine to coarse SAND, some gravel, ash (FILL) (dry)	0	1						
		Black and light tan fine to coarse SAND, some clay and gravel ash, magnesia material (FILL) (wet)	0	2	1	PUSH	29			
		Gray-brown CLAY, magnesia material (wet) ▽	0	3						Groundwater encountered at 3 feet
		Gray-brown CLAY, magnesia material (wet)	0	4						
			0	5					001	
			0	6	2	PUSH	23			
			0	7						
		Gray-brown CLAY, magnesia material (wet)	0	8						
			0	9						Poor Recovery
			0	10	3	PUSH	3			
			0	11						
			0	12						

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Log of Boring **SB-47A** Sheet 2 of 2

Project	Project No.
Westrum Development Company	3611302
Location	**Elevation and Datum**
Former Nicolet Industries Site: Ambler, PA	NA

MATERIAL SYMBOL	Elev. (ft)	Sample Description	PID Reading (ppm)	Depth Scale	Sample Data: Number	Type	Recov. (in)	Penetr. resist BL/6in	Env ID	Remarks (Drilling Fluid, Depth of Casing, Fluid Loss, Drilling Resistance, etc.)
		Gray-brown CLAY, magnesia material (wet)	0 0 0 0	12 13 14	4	PUSH	48			
		Gray-brown CLAY, magnesia material (wet)	0 0	14 15					002	
		Brown fine to coarse SAND, trace silt and gravel (moist)	0 0	15 16						End boring at 16 feet at 8:10
				16 17 18 19 20 21 22 23 24 25 26 27						

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Log of Boring **SB-48** Sheet 1 of 2

Project: Westrum Development Company	Project No.: 3611302
Location: Former Nicolet Industries Site: Ambler, PA	Elevation and Datum: NA
Drilling Company: Terra Probe, Inc.	Date Started: 7/15/05 — Date Finished: 7/15/05
Drilling Equipment: Geoprobe (Truck Mount)	Completion Depth: 16 ft — Rock Depth: NE
Size and Type of Bit: NA	Number of Samples: Disturbed 4 — Undisturbed NA — Core NA
Casing Diameter (in): NA — Casing Depth (ft): NA	Water Level (ft.): First ▽ NE — Completion ▼ NA — 24 HR. ▼ NA
Casing Hammer: NA — Weight (lbs): NA — Drop (in): NA	Drilling Foreman: Brian Moriarty
Sampler: 2-inch diameter / 4-foot macro core	Inspecting Engineer: Randy Copenhaver
Sampler Hammer: NA — Weight (lbs): NA — Drop (in): NA	

Material Symbol	Elev. (ft)	Sample Description	PID Reading (ppm)	Depth Scale	Sample Data: Number	Type	Recov. (in)	Penetr. resist BL/6in	Env ID	Remarks (Drilling Fluid, Depth of Casing, Fluid Loss, Drilling Resistance, etc.)
		Black fine-to-coarse SAND, some gravel, ash, wood (FILL) (dry)	0	0					117	Start 10:50
			0	1					504	
			612							
		Gray fibrous material (FILL) (moist)	2.9	2	1	PUSH	35			
		Tan fine-to-coarse SAND, some gravel (FILL) (dry)	0							
		Black fine-to-coarse SAND, some gravel, ash, wood, gray fibrous material (FILL) (dry)	0	3					118	
			0							
			0	4						
		White CLAY, trace sand, magnesia material (FILL) (dry)	0							
		Brown and black fine-to-coarse SAND, some gravel, ash, slag (FILL) (dry)	0	5					119	
		Light tan CLAY, magnesia material (FILL) (wet)	0							
			0	6	2	PUSH	32			
			0							
			0	7						
			0							
			0	8						
			0							
			0	9						
			0							
			0	10	3	PUSH	31			
			0							
			0	11						
			0							
			0						120	
			0	12						

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Log of Boring **SB-48** Sheet 2 of 2

Project	Project No.
Westrum Development Company	3611302
Location	**Elevation and Datum**
Former Nicolet Industries Site: Ambler, PA	NA

MATERIAL SYMBOL	Elev. (ft)	Sample Description	PID Reading (ppm)	Depth Scale	Sample Data: Number	Type	Recov. (in)	Penetr. resist BL/6in	Env ID	Remarks (Drilling Fluid, Depth of Casing, Fluid Loss, Drilling Resistance, etc.)
		Gray CLAY (dry)	0	12						
		Gray mottled brown CLAY (dry)	0	13						
			0							
		Red-brown fine-to-coarse SAND, trace gravel (dry)	0	14	4	PUSH	34			
			0							
			0	15						
			0							Stop 11:15
				16						Terminate boring at 16 feet
				17						
				18						
				19						
				20						
				21						
				22						
				23						
				24						
				25						
				26						
				27						

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Log of Boring **SB-49** Sheet 1 of 2

Project: Westrum Development Company	Project No.: 3611302
Location: Former Nicolet Industries Site: Ambler, PA	Elevation and Datum: NA
Drilling Company: Terra Probe, Inc.	Date Started: 7/12/05 — Date Finished: 7/12/05
Drilling Equipment: Geoprobe (Truck Mount)	Completion Depth: 16 ft — Rock Depth: NE
Size and Type of Bit: NA	Number of Samples: Disturbed 4 — Undisturbed NA — Core NA
Casing Diameter (in): NA — Casing Depth (ft): NA	Water Level (ft.): First ▽ NE — Completion ▼ NA — 24 HR. ⧩ NA
Casing Hammer: NA — Weight (lbs): NA — Drop (in): NA	Drilling Foreman: Brian Moriarty
Sampler: 2-inch diameter / 4-foot macro core	Inspecting Engineer: Randy Copenhaver
Sampler Hammer: NA — Weight (lbs): NA — Drop (in): NA	

Material Symbol	Elev. (ft)	Sample Description	PID Reading (ppm)	Depth Scale	Sample Data: Number	Type	Recov. (in)	Penetr. resist BL/6in	Env ID	Remarks (Drilling Fluid, Depth of Casing, Fluid Loss, Drilling Resistance, etc.)
		Asphalt	0	0						Start 13:45
		Orange-brown fine-to-coarse SAND, trace gravel (FILL) (dry)	0							
		Gray GRAVEL, some sand (FILL) (dry)	0	1						
		Black ash, fine-to-coarse SAND, some gravel (FILL) (dry)	0		1	PUSH	33		030	
		Gray and white fine-to-coarse SAND, some silt and clay, trace gravel (FILL) (dry)	0	2						
			0	3						
			0	4						
		Light tan CLAY, magnesia material (FILL) (wet)	0							
			0	5						
			0	6	2	PUSH	45			
			0	7					031	
			0	8						No recovery. TPI stated magnesia material was encountered and lost recovery when extracting macro core.
			0	9						
			0	10	3	PUSH	0			
			0	11						
			0	12						

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Log of Boring **SB-49** Sheet 2 of 2

Project	Project No.
Westrum Development Company	3611302
Location	**Elevation and Datum**
Former Nicolet Industries Site: Ambler, PA	NA

MATERIAL SYMBOL	Elev. (ft)	Sample Description	PID Reading (ppm)	Depth Scale	Sample Data: Number	Type	Recov. (in)	Penetr. resist BL/6in	Env ID	Remarks (Drilling Fluid, Depth of Casing, Fluid Loss, Drilling Resistance, etc.)
			0	12						No recovery. TPI stated magnesia material was encountered and lost recovery when extracting macro core.
			0	13						
			0							
			0	14	4	PUSH	0			
			0							
			0	15						
			0							Stop 14:00
			0	16						Terminate boring at 16 feet
				17						
				18						
				19						
				20						
				21						
				22						
				23						
				24						
				25						
				26						
				27						

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Log of Boring **SB-5** Sheet 1 of 1

Project: Westrum Development Company	Project No.: 3611302
Location: Former Nicolet Industries Site: Ambler, PA	Elevation and Datum: NA
Drilling Company: Terra Probe, Inc.	Date Started: 7/20/05 — Date Finished: 7/20/05
Drilling Equipment: Geoprobe (Track Mounted)	Completion Depth: 4 ft — Rock Depth: 4 ft
Size and Type of Bit: NA	Number of Samples: Disturbed 1 — Undisturbed NA — Core NA
Casing Diameter (in): NA — Casing Depth (ft): NA	Water Level (ft.): First ▽ NE — Completion ▼ NA — 24 HR. ▼ NA
Casing Hammer: NA — Weight (lbs): NA — Drop (in): NA	Drilling Foreman: Brian Moriarty
Sampler: 2-inch diameter / 4-foot macro core	Inspecting Engineer: Randy Copenhaver
Sampler Hammer: NA — Weight (lbs): NA — Drop (in): NA	

Material Symbol	Elev. (ft)	Sample Description	PID Reading (ppm)	Depth Scale	Sample Data: Number	Type	Recov. (in)	Penetr. resist BL/6in	Env ID	Remarks (Drilling Fluid, Depth of Casing, Fluid Loss, Drilling Resistance, etc.)
		Dark brown CLAY, trace fine sand (TOPSOIL) (moist)	0	0	4	PUSH	44		228	Start 13:25
		Orange-brown CLAY, some sand (dry)	0	1						
			0							
			0	2						
			0							
		Gray fine-to-coarse SAND, some gravel, sandstone fragments (dry)	0	3						
			0							Stop 13:30
			0	4					229	Refusal at 4 feet
										Terminate boring at 4 feet
				5						
				6						
				7						
				8						
				9						
				10						
				11						
				12						

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Log of Boring **SB-50** Sheet 1 of 2

Project: Westrum Development Company	Project No.: 3611302
Location: Former Nicolet Industries Site: Ambler, PA	Elevation and Datum: NA
Drilling Company: Terra Probe, Inc.	Date Started: 7/12/05 — Date Finished: 7/12/05
Drilling Equipment: Geoprobe (Truck Mount)	Completion Depth: 16 ft — Rock Depth: NE
Size and Type of Bit: NA	Number of Samples: Disturbed 4 — Undisturbed NA — Core NA
Casing Diameter (in): NA — Casing Depth (ft): NA	Water Level (ft.): First ▽ 14.3 — Completion ▼ NA — 24 HR. ▼ NA
Casing Hammer: NA — Weight (lbs): NA — Drop (in): NA	Drilling Foreman: Brian Moriarty
Sampler: 2-inch diameter / 4-foot macro core	Inspecting Engineer: Randy Copenhaver
Sampler Hammer: NA — Weight (lbs): NA — Drop (in): NA	

MATERIAL SYMBOL	Elev. (ft)	Sample Description	PID Reading (ppm)	Depth Scale	Sample Data: Number	Type	Recov. (in)	Penetr. resist BL/6in	Env ID	Remarks (Drilling Fluid, Depth of Casing, Fluid Loss, Drilling Resistance, etc.)
		Brown fine-to-coarse SAND, some gravel (FILL) (dry)	0	0						Start 13:05
		Dark gray fine-to-coarse SAND, some gravel (FILL) (dry)	0	2	1	PUSH	34		026	
		Brown, black, and gray fine-to-coarse SAND, some gravel and fibrous material, trace ash and red brick (FILL) (dry)	0	4					027	
		Brown sandy SILT, trace gravel (FILL) (moist)	0	6	2	PUSH	24			
		Dark gray, brown and black fine-to-coarse SAND, some gravel, trace ash (FILL) (dry)	0	8					028	
		Light tan and black fine-to-coarse SAND, some gravel trace silt and clay, ash (FILL) (moist)	0	10	3	PUSH	31			
			0	12						

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Log of Boring **SB-50** Sheet 2 of 2

Project	Project No.
Westrum Development Company	3611302
Location	**Elevation and Datum**
Former Nicolet Industries Site: Ambler, PA	NA

MATERIAL SYMBOL	Elev. (ft)	Sample Description	PID Reading (ppm)	Depth Scale	Sample Data: Number	Type	Recov. (in)	Penetr. resist BL/6in	Env ID	Remarks (Drilling Fluid, Depth of Casing, Fluid Loss, Drilling Resistance, etc.)
		Red-brown fine-to-coarse SAND, trace silt (FILL) (dry)	0	12						
		Black ash (FILL) (dry)	0	13						
		Brown SILT, trace sand (FILL) (dry)	0	14	4	PUSH	35			
		White sandy CLAY, magnesia material, trace gravel (FILL) (wet)	0	15						
			0						029	Stop 13:20
			0	16						Terminate boring at 16 feet
				17						
				18						
				19						
				20						
				21						
				22						
				23						
				24						
				25						
				26						
				27						

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Log of Boring **SB-51** Sheet 1 of 2

Project: Westrum Development Company	Project No.: 3611302
Location: Former Nicolet Industries Site: Ambler, PA	Elevation and Datum: NA
Drilling Company: Terra Probe, Inc.	Date Started: 7/12/05 — Date Finished: 7/12/05
Drilling Equipment: Geoprobe (Truck Mount)	Completion Depth: 16 ft — Rock Depth: NE
Size and Type of Bit: NA	Number of Samples: Disturbed 4 — Undisturbed NA — Core NA
Casing Diameter (in): NA — Casing Depth (ft): NA	Water Level (ft.): First ▽ 12 — Completion ▼ NA — 24 HR. ▼ NA
Casing Hammer: NA — Weight (lbs): NA — Drop (in): NA	Drilling Foreman: Brian Moriarty
Sampler: 2-inch diameter / 4-foot macro core	Inspecting Engineer: Randy Copenhaver
Sampler Hammer: NA — Weight (lbs): NA — Drop (in): NA	

Material Symbol	Elev. (ft)	Sample Description	PID Reading (ppm)	Depth Scale	Sample Data: Number	Type	Recov. (in)	Penetr. resist BL/6in	Env ID	Remarks (Drilling Fluid, Depth of Casing, Fluid Loss, Drilling Resistance, etc.)
		Brown fine-to-coarse SAND, trace gravel (FILL) (dry)	0	0						Start 11:30
		Black ash, fine-to-coarse SAND (FILL) (dry)	0	1						
		Light tan silty fine-to-coarse SAND, magnesia material (FILL) (moist)	0	2	1	PUSH	40		021	
		Black ash, fine-to-coarse SAND, magnesia material (FILL) (dry)	0	3						
		Light tan silty fine-to-coarse SAND, magnesia material (FILL) (moist)	0	4						
		Brown to dark brown fine-to-coarse SAND, some silt, trace clay and ash (FILL) (moist)	0	5						
		Light tan and white silty SAND, magnesia material (FILL) (dry)	0	6	2	PUSH	33		022	
			0	7						
		Light tan and white silty SAND, magnesia material, trace black ash and brown fine-to-coarse SAND (FILL) (moist)	0	8						
		Black ash and slag (FILL) (dry)	0	9					023	
			0	10	3	PUSH	22			
		Red-brown CLAY, trace gravel (FILL) (moist)	0	11						
		▽	0	12						

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Log of Boring **SB-51** Sheet 2 of 2

Project	Project No.
Westrum Development Company	3611302
Location	**Elevation and Datum**
Former Nicolet Industries Site: Ambler, PA	NA

MATERIAL SYMBOL	Elev. (ft)	Sample Description	PID Reading (ppm)	Depth Scale	Sample Data: Number	Type	Recov. (in)	Penetr. resist BL/6in	Env ID	Remarks (Drilling Fluid, Depth of Casing, Fluid Loss, Drilling Resistance, etc.)
		White CLAY, magnesia material (FILL) (wet)	0	12	4	PUSH	34			
			0	13						
			0							
			0	14						
			0							
			0	15						
			0							Stop 11:50
			0						024	Terminate boring at 16 feet
				16						
				17						
				18						
				19						
				20						
				21						
				22						
				23						
				24						
				25						
				26						
				27						

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Log of Boring **SB-52** Sheet 1 of 2

Project: Westrum Development Company	Project No.: 3611302
Location: Former Nicolet Industries Site: Ambler, PA	Elevation and Datum: NA
Drilling Company: Terra Probe, Inc.	Date Started: 7/12/05 — Date Finished: 7/12/05
Drilling Equipment: Geoprobe (Truck Mount)	Completion Depth: 16 ft — Rock Depth: NE
Size and Type of Bit: NA	Number of Samples: Disturbed 4 — Undisturbed NA — Core NA
Casing Diameter (in): NA — Casing Depth (ft): NA	Water Level (ft.): First ▽ NE — Completion ▼ NA — 24 HR. ▼ NA
Casing Hammer: NA — Weight (lbs): NA — Drop (in): NA	Drilling Foreman: Brian Moriarty
Sampler: 2-inch diameter / 4-foot macro core	Inspecting Engineer: Randy Copenhaver
Sampler Hammer: NA — Weight (lbs): NA — Drop (in): NA	

Material Symbol	Elev. (ft)	Sample Description	PID Reading (ppm)	Depth Scale	Sample Data: Number	Type	Recov. (in)	Penetr. resist BL/6in	Env ID	Remarks (Drilling Fluid, Depth of Casing, Fluid Loss, Drilling Resistance, etc.)
		Brown fine-to-coarse SAND, some silt, trace gravel, trace slag and ash (FILL) (dry)	0	0						Start 10:45
		Gray GRAVEL, trace fine-to-coarse sand (FILL) (dry)	0	1						
		Light brown fine-to-coarse SAND, trace gravel, trace fibrous material (FILL) (dry)	0						017	
		Gray GRAVEL, trace sand (FILL) (dry)	0	2	1	PUSH	30			
		Brown fine-to-coarse SAND, trace silt, gravel, and ash (FILL) (dry)	0	3						
			0	4						
		Gray fibrous material (FILL) (moist)	0	5					018	
		Light tan CLAY, magnesia material (FILL) (moist)	0	6	2	PUSH	26			
			0	7						
		Light tan sandy CLAY, trace gravel, magnesia material (FILL) (moist)	0	8					019	
			0	9						
			0	10	3	PUSH	11			
			0	11						
			0	12						

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Log of Boring **SB-52** Sheet 2 of 2

Project	Project No.
Westrum Development Company	3611302
Location	**Elevation and Datum**
Former Nicolet Industries Site: Ambler, PA	NA

MATERIAL SYMBOL	Elev. (ft)	Sample Description	PID Reading (ppm)	Depth Scale	Sample Data: Number	Type	Recov. (in)	Penetr. resist BL/6in	Env ID	Remarks (Drilling Fluid, Depth of Casing, Fluid Loss, Drilling Resistance, etc.)
		Brown and black fine-to-coarse SAND, some gravel, ash and concrete (FILL) (moist)	0	12	4	PUSH	17			
		Light tan sandy CLAY, trace gravel, magnesia material (FILL) (moist)	0	13						
		Black and white fine-to-coarse SAND, some ash, gravel and white clay, magnesia material (FILL) (moist)	0	14						
			0	15						
			0	16					020	Stop 11:05 Terminate boring at 16 feet
			0	17						
				18						
				19						
				20						
				21						
				22						
				23						
				24						
				25						
				26						
				27						

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Log of Boring **SB-53** Sheet 1 of 2

Project: Westrum Development Company	Project No.: 3611302
Location: Former Nicolet Industries Site: Ambler, PA	Elevation and Datum: NA
Drilling Company: Terra Probe, Inc.	Date Started: 7/12/05 — Date Finished: 7/12/05
Drilling Equipment: Geoprobe (Truck Mount)	Completion Depth: 16 ft — Rock Depth: NE
Size and Type of Bit: NA	Number of Samples: Disturbed 4 — Undisturbed NA — Core NA
Casing Diameter (in): NA — Casing Depth (ft): NA	Water Level (ft.): First ▽ NE — Completion ▼ NA — 24 HR. ▼ NA
Casing Hammer: NA — Weight (lbs): NA — Drop (in): NA	Drilling Foreman: Brian Moriarty
Sampler: 2-inch diameter / 4-foot macro core	Inspecting Engineer: Randy Copenhaver
Sampler Hammer: NA — Weight (lbs): NA — Drop (in): NA	

Material Symbol	Elev. (ft)	Sample Description	PID Reading (ppm)	Depth Scale	Sample Data: Number	Type	Recov. (in)	Penetr. resist BL/6in	Env ID	Remarks (Drilling Fluid, Depth of Casing, Fluid Loss, Drilling Resistance, etc.)
		Concrete	0	0						Start 9:55
		Gray GRAVEL, trace sand (FILL) (dry)	0	1						
		Gray sandy SILT, fibrous material (FILL) (moist)	0	2	1	PUSH	25		013	
			0	3						
		Brown fine-to-coarse SAND, some silt, trace gravel (FILL) (moist)	0	4						
		Light tan fine-to-coarse SAND, some silt, magnesia material (FILL) (moist)	0	5					014	
		Brown fine-to-coarse SAND, some gravel (FILL) (dry)	0	6	2	PUSH	17			
		Light tan fine-to-coarse SAND, some silt, magnesia material (FILL) (moist)	0	7						
		Brown fine-to-coarse SAND, some gravel (FILL) (dry)	0	8						
		White, tan, and black fine-to-coarse SAND, some silt and clay, ash, slag, magnesia material (FILL) (moist)	0	9					015	
			0	10	3	PUSH	24			
			0	11						
			0	12						

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Log of Boring **SB-53** Sheet 2 of 2

Project	Project No.
Westrum Development Company	3611302
Location	**Elevation and Datum**
Former Nicolet Industries Site: Ambler, PA	NA

MATERIAL SYMBOL	Elev. (ft)	Sample Description	PID Reading (ppm)	Depth Scale	Sample Data: Number	Type	Recov. (in)	Penetr. resist BL/6in	Env ID	Remarks (Drilling Fluid, Depth of Casing, Fluid Loss, Drilling Resistance, etc.)
		Black and brown fine-to-coarse SAND, some gravel (FILL) (moist)	0	12						
			0							
		Light tan CLAY, magnesia material (FILL) (wet)	0	13						
			0							
			0	14	4	PUSH	38		016	
			0							
		Black ash, fine-to-coarse SAND, some gravel (FILL) (moist)	0	15						
			0							Stop 10:15
			0	16						Terminate boring at 16 feet
				17						
				18						
				19						
				20						
				21						
				22						
				23						
				24						
				25						
				26						
				27						

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Log of Boring **SB-54** Sheet 1 of 2

Project: Westrum Development Company	Project No.: 3611302
Location: Former Nicolet Industries Site: Ambler, PA	Elevation and Datum: NA
Drilling Company: Terra Probe, Inc.	Date Started: 7/12/05 — Date Finished: 7/12/05
Drilling Equipment: Geoprobe (Truck Mount)	Completion Depth: 16 ft — Rock Depth: NE
Size and Type of Bit: NA	Number of Samples: Disturbed 4 — Undisturbed NA — Core NA
Casing Diameter (in): NA — Casing Depth (ft): NA	Water Level (ft.): First ▽ NE — Completion ▼ NA — 24 HR. ▼ NA
Casing Hammer: NA — Weight (lbs): NA — Drop (in): NA	Drilling Foreman: Brian Moriarty
Sampler: 2-inch diameter / 4-foot macro core	Inspecting Engineer: Randy Copenhaver
Sampler Hammer: NA — Weight (lbs): NA — Drop (in): NA	

Material Symbol	Elev. (ft)	Sample Description	PID Reading (ppm)	Depth Scale	Sample Data: Number	Type	Recov. (in)	Penetr. resist BL/6in	Env ID	Remarks (Drilling Fluid, Depth of Casing, Fluid Loss, Drilling Resistance, etc.)
		Concrete	0	0						Start 9:20
		Gray GRAVEL, trace sand (FILL) (dry)	0							
		Black sandy GRAVEL, ash (FILL) (dry)	0	1						
		Gray SILT, fibrous material (FILL) (moist)	0						009	
		Black sandy GRAVEL, ash (FILL) (dry)	0	2	1	PUSH	24			
			0							
			0	3						
			0							
		Light tan CLAY, magnesia material (FILL) (wet)	0	4						
			0							
			0	5						
			0							
			0	6	2	PUSH	29		010	
			0							
			0	7						
			0							
		Black sandy GRAVEL, ash (FILL) (dry)	0	8						
			0							
		Light tan CLAY, magnesia material, some sand, gravel, and gray fibrous material (FILL) (wet)	0	9						
			0						011	
			0	10	3	PUSH	20			
			0							
			0	11						
			0							
			0	12						

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Log of Boring **SB-54** Sheet 2 of 2

Project	Project No.
Westrum Development Company	3611302
Location	**Elevation and Datum**
Former Nicolet Industries Site: Ambler, PA	NA

MATERIAL SYMBOL	Elev. (ft)	Sample Description	PID Reading (ppm)	Depth Scale	Sample Data: Number	Type	Recov. (in)	Penetr. resist BL/6in	Env ID	Remarks (Drilling Fluid, Depth of Casing, Fluid Loss, Drilling Resistance, etc.)
		Light tan CLAY, magnesia material (FILL) (wet)	0	12						
			0						012	
			0	13						
		Black ash, sandy GRAVEL (FILL) (dry)	0							
			0	14	4	PUSH	24			
			0							
			0	15						
			0							Stop 9:35
			0	16						Terminate boring at 16 feet
				17						
				18						
				19						
				20						
				21						
				22						
				23						
				24						
				25						
				26						
				27						

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Log of Boring **SB-54A** Sheet 1 of 2

Project: Westrum Development Company	Project No.: 3611302
Location: Former Nicolet Industries Site: Ambler, PA	Elevation and Datum: NA
Drilling Company: Terra Probe, Inc.	Date Started: 1/24/06 — Date Finished: 1/24/06
Drilling Equipment: Geoprobe (Track Mounted)	Completion Depth: 20 ft — Rock Depth: NE
Size and Type of Bit: NA	Number of Samples: Disturbed 4 — Undisturbed NA — Core NA
Casing Diameter (in): NA — Casing Depth (ft): NA	Water Level (ft.): First ▽ 4 — Completion ▼ NA — 24 HR. ▼ NA
Casing Hammer: NA — Weight (lbs): NA — Drop (in): NA	Drilling Foreman: Brian Moriarty
Sampler: 2-inch diameter / 4-foot macro core	Inspecting Engineer: Randy Copenhaver
Sampler Hammer: NA — Weight (lbs): NA — Drop (in): NA	

Material Symbol	Elev. (ft)	Sample Description	PID Reading (ppm)	Depth Scale	Sample Data: Number	Type	Recov. (in)	Penetr. resist BL/6in	Env ID	Remarks (Drilling Fluid, Depth of Casing, Fluid Loss, Drilling Resistance, etc.)
		Concrete	0	0						Begin at 10:45
		GRAVEL, trace sand (FILL) (dry)	0							
		Brown fine to coarse SAND, some gravel (FILL) (dry)	0	1						
		Black fine to caorse SAND, some gravel, ash (FILL) (dry)	0		1	PUSH	30			
		Gray SILT, fibrous material (FILL) (moist)	0	2						
		Black, gray and brown sandy GRAVEL, ash (FILL) (dry)	0							
			0	3					010	
		▽	0							
		Light tan CLAY, magnesia material (FILL) (wet)	0	4						Groundwater encountered at 4 feet
			0							
			0	5						
			0		2	PUSH	17			
			0	6						
			0							
			0	7						
			0							
		Light tan CLAY, magnesia material (FILL) (wet)	0	8						
		Black, gray and brown sandy GRAVEL, ash (FILL) (wet)	0							
			0	9						
		Light tan CLAY, trace gravel, magnesia material (FILL) (wet)	0							
			0	10	3	PUSH	19			
			0							
			0	11						
			0							
			0	12						

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Log of Boring **SB-54A** Sheet 2 of 2

Project	Project No.
Westrum Development Company	3611302
Location	**Elevation and Datum**
Former Nicolet Industries Site: Ambler, PA	NA

Material Symbol	Elev. (ft)	Sample Description	PID Reading (ppm)	Depth Scale	Sample Data: Number	Type	Recov. (in)	Penetr. resist BL/6in	Env ID	Remarks (Drilling Fluid, Depth of Casing, Fluid Loss, Drilling Resistance, etc.)
		Light tan CLAY, magnesia material (FILL) (wet)	0	12						
			0	13						
			0							
		Gray and brown clayey gravel, trace sand, ash, magnesia material (FILL) (wet)	0	14	4	PUSH	25			
			0							
			0	15						
			0							
			0	16						
		Gray GRAVEL, some fine to coarse sand, trace clay (FILL) (wet)	0							
		Black fine to coarse SAND, ash (FILL) (wet)	0	17						
		Dark gray and black GRAVEL, trace fine to coarse sand and clay (FILL) (wet)	0							
			0	18	5	PUSH	30			
		Gray CLAY, trace fine sand (wet)	0							
			0	19					011	
			0							End boring at 20 feet at 11:05
			0	20						
				21						
				22						
				23						
				24						
				25						
				26						
				27						

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Log of Boring **SB-55** Sheet 1 of 2

Project: Westrum Development Company	Project No.: 3611302
Location: Former Nicolet Industries Site: Ambler, PA	Elevation and Datum: NA
Drilling Company: Terra Probe, Inc.	Date Started: 7/12/05 — Date Finished: 7/12/05
Drilling Equipment: Geoprobe (Truck Mount)	Completion Depth: 16 ft — Rock Depth: NE
Size and Type of Bit: NA	Number of Samples: Disturbed 4 — Undisturbed NA — Core NA
Casing Diameter (in): NA — Casing Depth (ft): NA	Water Level (ft.): First ▽ NE — Completion ▼ NA — 24 HR. ▼ NA
Casing Hammer: NA — Weight (lbs): NA — Drop (in): NA	Drilling Foreman: Brian Moriarty
Sampler: 2-inch diameter / 4-foot macro core	Inspecting Engineer: Randy Copenhaver
Sampler Hammer: NA — Weight (lbs): NA — Drop (in): NA	

Material Symbol	Elev. (ft)	Sample Description	PID Reading (ppm)	Depth Scale	Sample Data: Number	Type	Recov. (in)	Penetr. resist BL/6in	Env ID	Remarks (Drilling Fluid, Depth of Casing, Fluid Loss, Drilling Resistance, etc.)
		Concrete	0	0						Start 7:55
		Gray gravel (FILL) (dry)	0							
		Asphalt and brick (FILL) (dry)	0	1						
			0						001	
		Light gray and white silty SAND, trace gravel, magnesia material (FILL) (moist)	0	2	1	PUSH	30			
			0							
			0	3						
			0							
			0	4						
			0						002	
		Light tan CLAY, trace sand and gravel, magnesia material (FILL) (wet)	0	5						Poor recovery due to very soft material
			0							
			0	6	2	PUSH	12			
			0							
			0	7						
			0							
			0	8						
		Light tan and white CLAY, trace sand and gravel, magnesia material (FILL) (wet)	0							
			0	9						
			0							
			0	10	3	PUSH	26			
			0						003	
			0	11						
			0							
			0	12						

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Log of Boring **SB-55** Sheet 2 of 2

Project	Project No.
Westrum Development Company	3611302
Location	**Elevation and Datum**
Former Nicolet Industries Site: Ambler, PA	NA

MATERIAL SYMBOL	Elev. (ft)	Sample Description	PID Reading (ppm)	Depth Scale	Sample Data: Number	Type	Recov. (in)	Penetr. resist BL/6in	Env ID	Remarks (Drilling Fluid, Depth of Casing, Fluid Loss, Drilling Resistance, etc.)
			0	12						
			0	13						
			0							
			0	14	4	PUSH	40			
			0							
			0	15						
			0						004	Stop 8:15 Terminate boring at 16 feet
			0	16						
				17						
				18						
				19						
				20						
				21						
				22						
				23						
				24						
				25						
				26						
				27						

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Log of Boring **SB-56** Sheet 1 of 2

Project: Westrum Development Company	Project No.: 3611302
Location: Former Nicolet Industries Site: Ambler, PA	Elevation and Datum: NA
Drilling Company: Terra Probe, Inc.	Date Started: 7/12/05 — Date Finished: 7/12/05
Drilling Equipment: Geoprobe (Truck Mount)	Completion Depth: 16 ft — Rock Depth: NE
Size and Type of Bit: NA	Number of Samples: Disturbed 4 — Undisturbed NA — Core NA
Casing Diameter (in): NA — Casing Depth (ft): NA	Water Level (ft.): First ▽ NE — Completion ▼ NA — 24 HR. ▼ NA
Casing Hammer: NA — Weight (lbs): NA — Drop (in): NA	Drilling Foreman: Brian Moriarty
Sampler: 2-inch diameter / 4-foot macro core	Inspecting Engineer: Randy Copenhaver
Sampler Hammer: NA — Weight (lbs): NA — Drop (in): NA	

Material Symbol	Elev. (ft)	Sample Description	PID Reading (ppm)	Depth Scale	Sample Data: Number	Type	Recov. (in)	Penetr. resist BL/6in	Env ID	Remarks (Drilling Fluid, Depth of Casing, Fluid Loss, Drilling Resistance, etc.)
		Concrete	0	0						Start 8:35
		Gray GRAVEL, trace sand (FILL) (dry)	0							
		Gray SILT, fibrous material (FILL) (moist)	0	1					005	
		Black ash (FILL) (dry)	0							
		Brown sandy SILT, some gravel (FILL) (moist)	0	2	1	PUSH	24			
			0							
			0	3						
			0							
		Black ash, GRAVEL, some sand (FILL) (moist)	0	4						
		Brown and white GRAVEL, trace sand and silt, magnesia material (FILL) (moist)	0							
		White and tan gravelly SILT, some sand, magnesia material (FILL) (moist)	0	5						
			0						006	
			0	6	2	PUSH	36			
			0							
			0	7						
			0							
		Black GRAVEL, some sand, ash (FILL) (moist)	0	8						
		Gray GRAVEL, trace sand (FILL) (moist)	0							
		White and tan SAND, some silt, trace gravel, magnesia material (FILL) (moist)	0	9						
		Black GRAVEL, some sand, ash (FILL) (moist)	0							
			0	10	3	PUSH	28			
			0							
			0	11						
			0							
			0	12						

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Log of Boring **SB-56** Sheet 2 of 2

Project	Project No.
Westrum Development Company	3611302
Location	**Elevation and Datum**
Former Nicolet Industries Site: Ambler, PA	NA

MATERIAL SYMBOL	Elev. (ft)	Sample Description	PID Reading (ppm)	Depth Scale	Sample Data: Number	Type	Recov. (in)	Penetr. resist BL/6in	Env ID	Remarks (Drilling Fluid, Depth of Casing, Fluid Loss, Drilling Resistance, etc.)
		White CLAY, trace sand, magnesia material (FILL) (wet)	0	12	4	PUSH	20		007	
		Light tan silty SAND, magnesia material (FILL) (moist)	0	13						
		Black GRAVEL, some sand, ash (FILL) (moist)	0	14						
			0							
			0	15						
			0							
			0	16					008	Stop 8:55 Terminate boring at 16 feet
				17						
				18						
				19						
				20						
				21						
				22						
				23						
				24						
				25						
				26						
				27						

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Log of Boring **SB-57** Sheet 1 of 2

Project: Westrum Development Company	Project No.: 3611302
Location: Former Nicolet Industries Site: Ambler, PA	Elevation and Datum: NA
Drilling Company: Terra Probe, Inc.	Date Started: 7/18/05 — Date Finished: 7/18/05
Drilling Equipment: Geoprobe (Truck Mount)	Completion Depth: 15.5 ft — Rock Depth: NE
Size and Type of Bit: NA	Number of Samples: Disturbed 4 — Undisturbed NA — Core NA
Casing Diameter (in): NA — Casing Depth (ft): NA	Water Level (ft.): First ▽ NE — Completion ▼ NA — 24 HR. ▼ NA
Casing Hammer: NA — Weight (lbs): NA — Drop (in): NA	Drilling Foreman: Frank Fendler
Sampler: 2-inch diameter / 4-foot macro core	Inspecting Engineer: Randy Copenhaver
Sampler Hammer: NA — Weight (lbs): NA — Drop (in): NA	

Material Symbol	Elev. (ft)	Sample Description	PID Reading (ppm)	Depth Scale	Sample Data: Number	Type	Recov. (in)	Penetr. resist BL/6in	Env ID	Remarks (Drilling Fluid, Depth of Casing, Fluid Loss, Drilling Resistance, etc.)
		Black fine-to-coarse SAND, some gravel, trace silt and clay (FILL) (dry)	0	0					181	Start 14:15
		Black fine-to-coarse SAND, some gravel, ash, slag (FILL) (dry)	0	1	1	PUSH	35			
			0	2						
			0	3						
			0	4						
		White and light tan fine-to-coarse SAND, some gravel and clay, magnesia material (FILL) (moist)	0	5						
		Gray SILT, some sand (FILL) (moist)	0	6	2	PUSH	30		182	
		Orange-brown fine-to-coarse SAND, trace gravel (FILL) (dry)	0	7						
		White CLAY, magnesia material (FILL) (wet)	0	8						
			0	9					183	
			0	10	3	PUSH	31			
			0	11						
			0	12						

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Log of Boring **SB-57** Sheet 2 of 2

Project	Project No.
Westrum Development Company	3611302
Location	**Elevation and Datum**
Former Nicolet Industries Site: Ambler, PA	NA

MATERIAL SYMBOL	Elev. (ft)	Sample Description	PID Reading (ppm)	Depth Scale	Sample Data: Number	Type	Recov. (in)	Penetr. resist BL/6in	Env ID	Remarks (Drilling Fluid, Depth of Casing, Fluid Loss, Drilling Resistance, etc.)
		Black fine-to-coarse SAND, some gravel, trace white clay, ash, slag, magnesia material (FILL) (moist)	0 0 0 0 0 0 0	12 13 14 15	4	PUSH	14		184	Stop 14:35 Refusal at 15.5 feet
				16						Terminate boring at 15.5 feet
				17 18 19 20 21 22 23 24 25 26 27						

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Log of Boring **SB-58** Sheet 1 of 2

Project: Westrum Development Company	Project No.: 3611302
Location: Former Nicolet Industries Site: Ambler, PA	Elevation and Datum: NA
Drilling Company: Terra Probe, Inc.	Date Started: 7/15/05 — Date Finished: 7/15/05
Drilling Equipment: Geoprobe (Truck Mount)	Completion Depth: 23.5 ft — Rock Depth: NE
Size and Type of Bit: NA	Number of Samples: Disturbed 6 — Undisturbed NA — Core NA
Casing Diameter (in): NA — Casing Depth (ft): NA	Water Level (ft.): First ▽ 12 — Completion ▼ NA — 24 HR. ▼ NA
Casing Hammer: NA — Weight (lbs): NA — Drop (in): NA	Drilling Foreman: Brian Moriarty
Sampler: 2-inch diameter / 4-foot macro core	Inspecting Engineer: Randy Copenhaver
Sampler Hammer: NA — Weight (lbs): NA — Drop (in): NA	

Material Symbol	Elev. (ft)	Sample Description	PID Reading (ppm)	Depth Scale	Sample Data: Number	Type	Recov. (in)	Penetr. resist BL/6in	Env ID	Remarks (Drilling Fluid, Depth of Casing, Fluid Loss, Drilling Resistance, etc.)
		Brown fine-to-coarse SAND, some gravel and silt (TOPSOIL) (dry)	0	0					102	Start 8:15
		Gray GRAVEL, some sand, slag (FILL) (dry)	0	1						
		Black fine-to-coarse SAND, some gravel, ash (FILL) (dry)	0	2	1	PUSH	33			
		Light brown fine-to-coarse SAND, some gravel (FILL) (dry)	0	3						
		Black and gray fine-to-coarse SAND, some gravel, ash, slag (FILL) (dry)	0	4					103	
		Light tan CLAY, magnesia material, trace sand (FILL) (wet)	0	5						
			0	6	2	PUSH	12			
			0	7						
		Light tan CLAY, magnesia material (FILL) (wet)	0	8						
			0	9						
			0	10	3	PUSH	30		104	
			0	11						
		▽	0	12						

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Log of Boring **SB-58** Sheet 2 of 2

Project	Project No.
Westrum Development Company	3611302
Location	**Elevation and Datum**
Former Nicolet Industries Site: Ambler, PA	NA

MATERIAL SYMBOL	Elev. (ft)	Sample Description	PID Reading (ppm)	Depth Scale	Sample Data: Number	Type	Recov. (in)	Penetr. resist BL/6in	Env ID	Remarks (Drilling Fluid, Depth of Casing, Fluid Loss, Drilling Resistance, etc.)
		Light tan CLAY, magnesia material (FILL) (wet)	0	12						
			0	13						
			0							
			0	14	4	PUSH	32			
			0							
			0	15						
			0							
			0	16						
		Light tan CLAY, magnesia material (FILL) (wet)	0							
			0	17						
			0							
			0	18	5	PUSH	30			
			0							
			0	19						
			0							
			0	20						
		Light tan CLAY, magnesia material (FILL) (wet)	0							
			0						105	
			0	21						
		Gray mottled black CLAY (moist)	0							
			0	22	6	PUSH	42			
		Red-brown fine-to-coarse SAND, some clay (moist)	0							
			0	23						Stop 8:40 Refusal at 23.5 feet
			0							
										Terminate boring at 23.5 feet
				24						
				25						
				26						
				27						

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Log of Boring **SB-59** Sheet 1 of 2

Project: Westrum Development Company	Project No.: 3611302
Location: Former Nicolet Industries Site: Ambler, PA	Elevation and Datum: NA
Drilling Company: Terra Probe, Inc.	Date Started: 7/18/05 — Date Finished: 7/18/05
Drilling Equipment: Geoprobe (Truck Mount)	Completion Depth: 23 ft — Rock Depth: NE
Size and Type of Bit: NA	Number of Samples: Disturbed 6 — Undisturbed NA — Core NA
Casing Diameter (in): NA — Casing Depth (ft): NA	Water Level (ft.): First ▽ 12 — Completion ▼ NA — 24 HR. ▼ NA
Casing Hammer: NA — Weight (lbs): NA — Drop (in): NA	Drilling Foreman: Frank Fendler
Sampler: 2-inch diameter / 4-foot macro core	Inspecting Engineer: Randy Copenhaver
Sampler Hammer: NA — Weight (lbs): NA — Drop (in): NA	

Material Symbol	Elev. (ft)	Sample Description	PID Reading (ppm)	Depth Scale	Sample Data: Number	Type	Recov. (in)	Penetr. resist BL/6in	Env ID	Remarks (Drilling Fluid, Depth of Casing, Fluid Loss, Drilling Resistance, etc.)
		Black fine-to-coarse gravelly SAND, trace silt and clay (FILL) (moist)	0	0						Start 14:40
			0	1					185	
		Gray fibrous material (FILL) (moist)	0							
		Red brick (FILL) (dry)	0	2	1	PUSH	35			
		Black fine-to-coarse SAND, some gravel, ash, slag (FILL) (dry)	0							
			0	3						
			0							
			0	4						
		Gray fibrous material, trace sand and gravel, fibrous material (FILL) (moist)	0	5					186	
			0							
			0	6	2	PUSH	36			
		Black fine-to-coarse SAND, some gravel, ash, slag (FILL) (dry)	0							
		White fine-to-coarse SAND, some clay and gravel, magnesia material (FILL) (moist)	0	7						
			0							
		White fine-to-coarse SAND, some clay and gravel, magnesia material (FILL) (moist)	0	8					187	
		Light tan CLAY, magnesia material (FILL) (wet)	0	9						
			0							
			0	10	3	PUSH	38			
			0							
		White and tan fine-to-coarse SAND, some clay and gravel, magnesia material (FILL) (moist)	0	11						
		▽	0							
				12						

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Log of Boring **SB-59** Sheet 2 of 2

Project	Project No.
Westrum Development Company	3611302
Location	**Elevation and Datum**
Former Nicolet Industries Site: Ambler, PA	NA

Material Symbol	Elev. (ft)	Sample Description	PID Reading (ppm)	Depth Scale	Sample Data: Number	Type	Recov. (in)	Penetr. resist BL/6in	Env ID	Remarks (Drilling Fluid, Depth of Casing, Fluid Loss, Drilling Resistance, etc.)
		Light tan CLAY, magnesia material (FILL) (wet)	0	12						
			0	13						
			0							
		Light tan and black clayey fine-to-coarse SAND, magnesia material, slag, trace gravel (FILL) (moist)	0	14	4	PUSH	NA			
			0							
			0	15						
			0							
			0	16						
		Light tan CLAY, magnesia material (FILL) (wet)	0							
			0	17						
			0							
			0	18	5	PUSH	36			
			0							
			0	19						
			0							
			0	20						
		Light tan fine-to-coarse SAND, magnesia material, fibrous material, some clay, trace gravel (FILL) (wet)	0							
		Gray CLAY, magnesia material (FILL) (wet)	0						188	
			0	21						
			0		6	PUSH	36			
		White clayey fine-to-coarse SAND, magnesia material, trace gravel (FILL) (wet)	0	22						
		Dark gray CLAY (moist)	0							End 16:20
		Red-brown fine-to-coarse SAND, some gravel and clay (wet)	0							Refusal at 23 feet
				23						Terminate boring at 23 feet
				24						
				25						
				26						
				27						

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Log of Boring **SB-6** Sheet 1 of 1

Project: Westrum Development Company	Project No.: 3611302
Location: Former Nicolet Industries Site: Ambler, PA	Elevation and Datum: NA
Drilling Company: Terra Probe, Inc.	Date Started: 7/20/05 — Date Finished: 7/20/05
Drilling Equipment: Geoprobe (Track Mounted)	Completion Depth: 3.5 ft — Rock Depth: 3.5 ft
Size and Type of Bit: NA	Number of Samples: Disturbed 1 — Undisturbed NA — Core NA
Casing Diameter (in): NA — Casing Depth (ft): NA	Water Level (ft.): First ▽ NE — Completion ▼ NA — 24 HR. ▼ NA
Casing Hammer: NA — Weight (lbs): NA — Drop (in): NA	Drilling Foreman: Brian Moriarty
Sampler: 2-inch diameter / 4-foot macro core	Inspecting Engineer: Randy Copenhaver
Sampler Hammer: NA — Weight (lbs): NA — Drop (in): NA	

Material Symbol	Elev. (ft)	Sample Description	PID Reading (ppm)	Depth Scale	Sample Data: Number	Type	Recov. (in)	Penetr. resist BL/6in	Env ID	Remarks (Drilling Fluid, Depth of Casing, Fluid Loss, Drilling Resistance, etc.)
		Dark brown CLAY, trace sand (TOPSOIL) (moist)	0	0					226	Start 13:20
		Brown CLAY (dry)	0							
		Brown CLAY, some sand (dry)	0	1						
		Gray fine-to-coarse SAND, trace gravel, sandstone fragments (dry)	0	2	1	PUSH	40			
			0							
			0	3					227	Stop 13:23 Refusal at 3.5 feet
			0							
				4						Terminate boring at 3.5 feet
				5						
				6						
				7						
				8						
				9						
				10						
				11						
				12						

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Log of Boring **SB-60** Sheet 1 of 2

Project: Westrum Development Company	Project No.: 3611302
Location: Former Nicolet Industries Site: Ambler, PA	Elevation and Datum: NA
Drilling Company: Terra Probe, Inc.	Date Started: 7/15/05 — Date Finished: 7/15/05
Drilling Equipment: Geoprobe (Truck Mount)	Completion Depth: 16 ft — Rock Depth: NE
Size and Type of Bit: NA	Number of Samples: Disturbed 4 — Undisturbed NA — Core NA
Casing Diameter (in): NA — Casing Depth (ft): NA	Water Level (ft.): First ▽ 12 — Completion ▼ NA — 24 HR. ▼ NA
Casing Hammer: NA — Weight (lbs): NA — Drop (in): NA	Drilling Foreman: Brian Moriarty
Sampler: 2-inch diameter / 4-foot macro core	Inspecting Engineer: Randy Copenhaver
Sampler Hammer: NA — Weight (lbs): NA — Drop (in): NA	

Material Symbol	Elev. (ft)	Sample Description	PID Reading (ppm)	Depth Scale	Sample Data: Number	Type	Recov. (in)	Penetr. resist BL/6in	Env ID	Remarks (Drilling Fluid, Depth of Casing, Fluid Loss, Drilling Resistance, etc.)
		Light brown fine-to-coarse SAND, some gravel (TOPSOIL) (dry)	0	0					133	Start 13:40
		Tan GRAVEL, some sand (FILL) (dry)	0							
		Black and gray fine-to-coarse SAND, some gravel, ash, fibrous material (FILL) (dry)	0	1						
			0							
			0							
		Light tan sandy CLAY, some gravel, magnesia material (FILL) (moist)	0	2	1	PUSH	30			
			0							
			0							
			0	3						
			0							
			0							
		White CLAY, magnesia material (FILL) (wet)	0	4					134	
			0							
		Black and gray fine-to-coarse SAND, some gravel, ash (FILL) (dry)	0	5						
			0							
			0							
			0	6	2	PUSH	28			
			0							
			0							
			0	7						
			0						135	
			0							
		Light tan CLAY, magnesia material (FILL) (wet)	0	8						
			0							
			0							
			0	9						
			0							
			0						136	
			0	10	3	PUSH	13			
			0							
			0							
			0	11						
			0							
		▽	0	12						

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Log of Boring **SB-60** Sheet 2 of 2

Project	Project No.
Westrum Development Company	3611302
Location	**Elevation and Datum**
Former Nicolet Industries Site: Ambler, PA	NA

MATERIAL SYMBOL	Elev. (ft)	Sample Description	PID Reading (ppm)	Depth Scale	Sample Data: Number	Type	Recov. (in)	Penetr. resist BL/6in	Env ID	Remarks (Drilling Fluid, Depth of Casing, Fluid Loss, Drilling Resistance, etc.)
			0	12						No recovery due to very soft magnesia material slidingout of macro core
			0	13						
			0							
			0	14	4	PUSH	0			
			0							
			0	15						
			0							Stop 13:55
			0	16						Terminate boring at 16 feet
				17						
				18						
				19						
				20						
				21						
				22						
				23						
				24						
				25						
				26						
				27						

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Log of Boring **SB-60A** Sheet 1 of 2

Project: Westrum Development Company	Project No.: 3611302
Location: Former Nicolet Industries Site: Ambler, PA	Elevation and Datum: NA
Drilling Company: Terra Probe, Inc.	Date Started: 1/24/06 — Date Finished: 1/24/06
Drilling Equipment: Geoprobe (Track Mounted)	Completion Depth: 21.5 ft — Rock Depth: NE
Size and Type of Bit: NA	Number of Samples: Disturbed 4 — Undisturbed NA — Core NA
Casing Diameter (in): NA — Casing Depth (ft): NA	Water Level (ft.): First ▽ 3.5 — Completion ▼ NA — 24 HR. ▼ NA
Casing Hammer: NA — Weight (lbs): NA — Drop (in): NA	Drilling Foreman: Brian Moriarty
Sampler: 2-inch diameter / 4-foot macro core	Inspecting Engineer: Randy Copenhaver
Sampler Hammer: NA — Weight (lbs): NA — Drop (in): NA	

Material Symbol	Elev. (ft)	Sample Description	PID Reading (ppm)	Depth Scale	Sample Data: Number	Type	Recov. (in)	Penetr. resist BL/6in	Env ID	Remarks (Drilling Fluid, Depth of Casing, Fluid Loss, Drilling Resistance, etc.)
		Light brown fine to coarse SAND, some gravel (TOPSOIL) (dry)	0	0						Begin at 11:30
		Light tan GRAVEL, some sand (FILL) (dry)	0							
		Brown fine to coarse SAND, some gravel, fibrous material (FILL) (dry)	0	1						
		Light tan sandy CLAY, some gravel, magnesia material (FILL) (moist)	0							
		Black, gray and brown fine to coarse SAND, some gravel (ash) (FILL) (moist)	0	2	1	PUSH	28			
			0							
			0	3						
		▽	0							Groundwater encountered at 3.5 feet
			0	4						
		Light tan sandy CLAY, some gravel, magnesia material (FILL) (moist)	0							
			0	5						
			0							
			0	6	2	PUSH	26			
			0							
			0	7						
			0							
			0	8						
		Light tan CLAY, magnesia material (FILL) (wet)	0							
			0	9						
			0							
			0	10	3	PUSH	20			
			0							
			0	11						
			0							
			0	12						

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Log of Boring **SB-60A** Sheet 2 of 2

Project	Project No.
Westrum Development Company	3611302
Location	**Elevation and Datum**
Former Nicolet Industries Site: Ambler, PA	NA

MATERIAL SYMBOL	Elev. (ft)	Sample Description	PID Reading (ppm)	Depth Scale	Sample Data: Number	Type	Recov. (in)	Penetr. resist BL/6in	Env ID	Remarks (Drilling Fluid, Depth of Casing, Fluid Loss, Drilling Resistance, etc.)
		Light tan CLAY (magnesia) (FILL) (wet)	0	12					012	
			0	13						
			0	14	4	PUSH	24			
			0	15						
			0	15						
			0	16						
		No recovery		17						
				18	5	PUSH	0			
				19						
				20						
		Light tan CLAY, magnesia material (FILL) (wet)		21	6	PUSH	18			
		Brown fine to coarse SAND, some gravel (wet)							013	
				22						Refusal at 21.5 feet at 12:05
				23						
				24						
				25						
				26						
				27						

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Log of Boring **SB-61** Sheet 1 of 2

Project: Westrum Development Company	Project No.: 3611302
Location: Former Nicolet Industries Site: Ambler, PA	Elevation and Datum: NA
Drilling Company: Terra Probe, Inc.	Date Started: 7/18/05 — Date Finished: 7/18/05
Drilling Equipment: Geoprobe (Truck Mount)	Completion Depth: 16 ft — Rock Depth: NE
Size and Type of Bit: NA	Number of Samples: Disturbed 4 — Undisturbed NA — Core NA
Casing Diameter (in): NA — Casing Depth (ft): NA	Water Level (ft.): First ▽ 6 — Completion ▼ NA — 24 HR. ▼ NA
Casing Hammer: NA — Weight (lbs): NA — Drop (in): NA	Drilling Foreman: Frank Fendler
Sampler: 2-inch diameter / 4-foot macro core	Inspecting Engineer: Randy Copenhaver
Sampler Hammer: NA — Weight (lbs): NA — Drop (in): NA	

Material Symbol	Elev. (ft)	Sample Description	PID Reading (ppm)	Depth Scale	Sample Data: Number	Type	Recov. (in)	Penetr. resist BL/6in	Env ID	Remarks (Drilling Fluid, Depth of Casing, Fluid Loss, Drilling Resistance, etc.)
		Black gravelly fine-to-coarse SAND, trace silt and clay (FILL) (moist)	0	0					189	Start 15:50
		Gray GRAVEL (FILL) (dry)	0	1						
		Gray fine-to-coarse SAND, some clay, trace gravel (FILL) (wet)	0							
		Tan CLAY, magnesia material (FILL) (moist)	0	2	1	PUSH	24			
			0	3						
			0	4						
			0	5					190	
		Black and gray GRAVEL, ash, slag, trace fine-to-coarse SAND (FILL) (wet) ▽	0	6	2	PUSH	25			
			0	7						
		Light gray CLAY, magnesia material, trace sand (FILL) (wet)	0	8						
		Orange-brown fine-to-coarse SAND, some gravel, trace white clay, magnesia material (FILL) (dry)	0	9						
		Dark gray GRAVEL, some sand and clay, slag (FILL) (wet)	0	10	3	PUSH	39			
			0	11					191	
			0	12						

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Log of Boring **SB-61** Sheet 2 of 2

Project	Project No.
Westrum Development Company	3611302
Location	**Elevation and Datum**
Former Nicolet Industries Site: Ambler, PA	NA

MATERIAL SYMBOL	Elev. (ft)	Sample Description	PID Reading (ppm)	Depth Scale	Sample Data: Number	Type	Recov. (in)	Penetr. resist BL/6in	Env ID	Remarks (Drilling Fluid, Depth of Casing, Fluid Loss, Drilling Resistance, etc.)
		Light gray CLAY, trace sand, magnesia material (FILL) (wet)	0	12						
			0							
			0	13					192	
			0							
		Dark gray CLAY (moist)	0	14	4	PUSH	42			
			0							
			0	15						
		Red-brown fine-to-coarse SAND, some clay and gravel (moist)	0							Stop 16:05 Terminate boring at 16 feet
				16						
				17						
				18						
				19						
				20						
				21						
				22						
				23						
				24						
				25						
				26						
				27						

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Log of Boring **SB-61A** Sheet 1 of 2

Project: Westrum Development Company	Project No.: 3611302
Location: Former Nicolet Industries Site: Ambler, PA	Elevation and Datum: NA
Drilling Company: Terra Probe, Inc.	Date Started: 1/24/06 — Date Finished: 1/24/06
Drilling Equipment: Geoprobe (Track Mounted)	Completion Depth: 16 ft — Rock Depth: NE
Size and Type of Bit: NA	Number of Samples: Disturbed 4 — Undisturbed NA — Core NA
Casing Diameter (in): NA — Casing Depth (ft): NA	Water Level (ft.): First ▽ 4 — Completion ▼ NA — 24 HR. ▼ NA
Casing Hammer: NA — Weight (lbs): NA — Drop (in): NA	Drilling Foreman: Brian Moriarty
Sampler: 2-inch diameter / 4-foot macro core	Inspecting Engineer: Randy Copenhaver
Sampler Hammer: NA — Weight (lbs): NA — Drop (in): NA	

Material Symbol	Elev. (ft)	Sample Description	PID Reading (ppm)	Depth Scale	Sample Data: Number	Type	Recov. (in)	Penetr. resist BL/6in	Env ID	Remarks (Drilling Fluid, Depth of Casing, Fluid Loss, Drilling Resistance, etc.)
		Asphalt	0	0						Begin at 13:00
		Brown GRAVEL (FILL) (moist)	0							
		Gray SILT, fibrous material (FILL) (moist)	0	1						
		Black and gray fine to coarse SAND, some gravel, fibrous material, ash (FILL) (moist)	0							
		Light tan CLAY, magnesia material (FILL) (moist)	0	2	1	PUSH	20			
			0							
			0	3						
			0							
		▽	0	4						
		Light tan CLAY, magnesia material (FILL) (moist)	0							Groundwater encountered at 4 feet
			0	5						
			0							
		Gray and white clayey GRAVEL (FILL) (moist)	0	6	2	PUSH	36			
			0						014	
		Brown and black sandy GRAVEL, ash, slag (FILL) (wet)	0	7						
			0							
		Light tan CLAY, magnesia material (FILL) (moist)	0	8						
			0							
			0	9						
			0							
			0	10	3	PUSH	40			
			0							
			0	11						
			0							
			0	12						

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Log of Boring **SB-61A** Sheet 2 of 2

Project	Project No.
Westrum Development Company	3611302
Location	**Elevation and Datum**
Former Nicolet Industries Site: Ambler, PA	NA

MATERIAL SYMBOL	Elev. (ft)	Sample Description	PID Reading (ppm)	Depth Scale	Sample Data: Number	Type	Recov. (in)	Penetr. resist BL/6in	Env ID	Remarks (Drilling Fluid, Depth of Casing, Fluid Loss, Drilling Resistance, etc.)
		Light tan CLAY, magnesia material (FILL) (moist)	0	12						
		Gray fine to coarse SAND, trace silt (moist)	0	13					015	
			0							
			0	14	4	PUSH	34			
		Red-brown fine to coarse SAND, some gravel, trace silt and clay (moist)	0							
			0	15						
			0							
			0	16						End boring at 16 feet at 13:35
				17						
				18						
				19						
				20						
				21						
				22						
				23						
				24						
				25						
				26						
				27						

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Log of Boring **SB-62** Sheet 1 of 1

Project: Westrum Development Company	Project No.: 3611302
Location: Former Nicolet Industries Site: Ambler, PA	Elevation and Datum: NA
Drilling Company: Terra Probe, Inc.	Date Started: 5/15/05 — Date Finished: 5/15/05
Drilling Equipment: Geoprobe (Truck Mount)	Completion Depth: 10 ft — Rock Depth: 10 ft
Size and Type of Bit: AN	Number of Samples: Disturbed 3 — Undisturbed NA — Core NA
Casing Diameter (in): NA — Casing Depth (ft): NA	Water Level (ft.): First ▽ NE — Completion ▼ NA — 24 HR. ▼ NA
Casing Hammer: NA — Weight (lbs): NA — Drop (in): NA	Drilling Foreman: Brian Moriarty
Sampler: 2-inch diameter / 4-foot macro core	Inspecting Engineer: Randy Copenhaver
Sampler Hammer: NA — Weight (lbs): NA — Drop (in): NA	

Material Symbol	Elev. (ft)	Sample Description	PID Reading (ppm)	Depth Scale	Sample Data: Number	Type	Recov. (in)	Penetr. resist BL/6in	Env ID	Remarks (Drilling Fluid, Depth of Casing, Fluid Loss, Drilling Resistance, etc.)
		Concrete	0	0					137	Start 14:30
		Gray GRAVEL, some sand (FILL) (dry)	0							
		Brown and black CLAY, some sand and gravel, ash (FILL) (dry)	0	1					138	
		Light brown mottled orange-brown CLAY (moist)	0							
			0	2	1	PUSH	46			
			0							
			0	3						
			0							
			0	4						
			0							
			0	5						
			0							
			0	6	2	PUSH	48			
			0							
		Red-brown fine-to-coarse SAND, some clay (moist)	0	7						
			0							
			0	8						
			0							
		Gray fine-to-coarse SAND, some gravel, sandstone fragments (moist)	0							
			0	9	3	PUSH	18			Stop 14:50
			0							Refusal at 10 feet
			0	10						Terminate boring at 10 feet
				11						
				12						

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Log of Boring **SB-63** Sheet 1 of 1

Project: Westrum Development Company	Project No.: 3611302
Location: Former Nicolet Industries Site: Ambler, PA	Elevation and Datum: NA
Drilling Company: Terra Probe, Inc.	Date Started: 7/21/05 — Date Finished: 7/21/05
Drilling Equipment: Geoprobe (Truck Mount)	Completion Depth: 6 ft — Rock Depth: 6 ft
Size and Type of Bit: NA	Number of Samples: Disturbed 2 — Undisturbed NA — Core NA
Casing Diameter (in): NA — Casing Depth (ft): NA	Water Level (ft.): First ▽ NE — Completion ▼ NA — 24 HR. ▼ NA
Casing Hammer: NA — Weight (lbs): NA — Drop (in): NA	Drilling Foreman: Brian Moriarty
Sampler: 2-inch diameter / 4-foot macro core	Inspecting Engineer: Randy Copenhaver
Sampler Hammer: NA — Weight (lbs): NA — Drop (in): NA	

Material Symbol	Elev. (ft)	Sample Description	PID Reading (ppm)	Depth Scale	Sample Data: Number	Type	Recov. (in)	Penetr. resist BL/6in	Env ID	Remarks (Drilling Fluid, Depth of Casing, Fluid Loss, Drilling Resistance, etc.)
		Concrete	0	0						Start 8:20
		Orange-brown mottled brown CLAY (moist)	0	1					244	
			0							
			0	2	1	PUSH	38			
			0							
			0	3						
			0							
			0	4					245	
			0							
		Brown fine-to-coarse SAND, trace gravel (dry)	0	5	2	PUSH	24			Stop 8:30
			0							Refusal at 6 feet
		Gray fine-to-coarse SAND, trace gravel, sandstone fragments (dry)	0	6						Terminate boring at 6 feet
				7						
				8						
				9						
				10						
				11						
				12						

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Log of Boring **SB-64** Sheet 1 of 1

Project: Westrum Development Company	Project No.: 3611302
Location: Former Nicolet Industries Site: Ambler, PA	Elevation and Datum: NA
Drilling Company: Terra Probe, Inc.	Date Started: 7/21/05 — Date Finished: 7/21/05
Drilling Equipment: Geoprobe (Truck Mount)	Completion Depth: 12 ft — Rock Depth: NE
Size and Type of Bit: NA	Number of Samples: Disturbed 3 — Undisturbed NA — Core NA
Casing Diameter (in): NA — Casing Depth (ft): NA	Water Level (ft.): First ▽ NE — Completion ▼ NA — 24 HR. ▼ NA
Casing Hammer: NA — Weight (lbs): NA — Drop (in): NA	Drilling Foreman: Brian Moriarty
Sampler: 2-inch diameter / 4-foot macro core	Inspecting Engineer: Randy Copenhaver
Sampler Hammer: NA — Weight (lbs): NA — Drop (in): NA	

Material Symbol	Elev. (ft)	Sample Description	PID Reading (ppm)	Depth Scale	Sample Data: Number	Type	Recov. (in)	Penetr. resist BL/6in	Env ID	Remarks (Drilling Fluid, Depth of Casing, Fluid Loss, Drilling Resistance, etc.)
		Gray GRAVEL, concrete fragments (FILL) (dry)	0	0						Start 9:05
		Brown and gray gravelly fine-to-coarse SAND, trace silt, concrete fragments (FILL) (dry)	0	1					248	
		Black ASPHALT fragments (FILL) (dry)	0	2	1	PUSH	42		249	
		Brown fine-to-coarse SAND, some gravel, trace clay, slag, fibrous material (FILL) (dry)	0	3						
		Concrete fragments (FILL) (dry)	0	4					250	
		Brown and black fine-to-coarse SAND, some clay and gravel, slag, concrete fragments (FILL) (moist)	0	5						
		Brown mottled orange-brown CLAY (moist)	0	6	2	PUSH	38			
			0	7					251	
			0	8						
			0	9						
		Brown sandy CLAY, trace gravel (moist)	0	10	3	PUSH	41			
		Red-brown fine-to-coarse SAND, some clay and gravel (moist)	0	11						
			0	12						Stop 9:20 Terminate boring at 12 feet

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Log of Boring **SB-65** Sheet 1 of 2

Project: Westrum Development Company	Project No.: 3611302
Location: Former Nicolet Industries Site: Ambler, PA	Elevation and Datum: NA
Drilling Company: Terra Probe, Inc.	Date Started: 7/21/05 — Date Finished: 7/21/05
Drilling Equipment: Geoprobe (Truck Mount)	Completion Depth: 24 ft — Rock Depth: NE
Size and Type of Bit: NA	Number of Samples: Disturbed 6 — Undisturbed NA — Core NA
Casing Diameter (in): NA — Casing Depth (ft): NA	Water Level (ft.): First ▽ 12 — Completion ▼ NA — 24 HR. ▼ NA
Casing Hammer: NA — Weight (lbs): NA — Drop (in): NA	Drilling Foreman: Brian Moriarty
Sampler: 2-inch diameter / 4-foot macro core	Inspecting Engineer: Randy Copenhaver
Sampler Hammer: NA — Weight (lbs): NA — Drop (in): NA	

Material Symbol	Elev. (ft)	Sample Description	PID Reading (ppm)	Depth Scale	Sample Data: Number	Type	Recov. (in)	Penetr. resist BL/6in	Env ID	Remarks (Drilling Fluid, Depth of Casing, Fluid Loss, Drilling Resistance, etc.)
		CONCRETE	0	0						Start 7:05
		Gray GRAVEL, trace sand (FILL) (dry)	0						240	
		Gray fine-to-coarse SAND, trace gravel and silt, fibrous material (FILL) (dry)	0	1						
		Black fine-to-coarse SAND, some gravel, ash, slag (FILL) (dry)	0							
		White gravelly CLAY, some sand, magnesia material (FILL) (moist)	0	2	1	PUSH	35			
		Brown fine-to-coarse SAND, trace silt and gravel (FILL) (dry)	0							
		Black and gray fine-to-coarse SAND, some gravel, ash, slag (FILL) (dry)	0	3						
		White CLAY, magnesia material (FILL) (wet)	0	4					241	
			0	5						
			0	6	2	PUSH	36			
		Black fine-to-coarse SAND, some gravel, ash, slag (FILL) (dry)	0	7						
		Orange-brown fine-to-coarse SAND, some clay and gravel (FILL) (moist)	0	8					242	
		White clayey fine-to-coarse SAND, some gravel, magnesia material (FILL) (moist)	0	9						
			0	10	3	PUSH	19			
			0	11						
		▽	0	12						

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Log of Boring **SB-65** Sheet 2 of 2

Project	Project No.
Westrum Development Company	3611302
Location	**Elevation and Datum**
Former Nicolet Industries Site: Ambler, PA	NA

Material Symbol	Elev. (ft)	Sample Description	PID Reading (ppm)	Depth Scale	Sample Data: Number	Type	Recov. (in)	Penetr. resist BL/6in	Env ID	Remarks (Drilling Fluid, Depth of Casing, Fluid Loss, Drilling Resistance, etc.)
		White CLAY, magnesia material (FILL) (wet)	0	12						
			0	13						
			0							
			0	14	4	PUSH	32			
		White, brown and gray GRAVEL, some clay and sand, magnesia material (FILL) (wet)	0	15						
			0							
			0	16					243	
		White, brown and gray GRAVEL, some clay and sand, magnesia material (FILL) (wet)	0							
		White CLAY, magnesia material (FILL) (wet)	0	17						
			0							
			0	18	5	PUSH	36			
			0							
			0	19						
		Dark gray CLAY (wet)	0							
			0	20						
		Gray mottled brown CLAY (wet)	0							
			0	21						
			0							
		Gray fine-to-coarse SAND, some clay (wet)	0	22	6	PUSH	37			
		Red-brown fine-to-coarse SAND, some gravel, trace clay (wet)	0							
			0	23						
			0							
			0	24						Stop 7:35
										Terminate boring at 24 feet
				25						
				26						
				27						

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Log of Boring **SB-66** Sheet 1 of 1

Project: Westrum Development Company	Project No.: 3611302
Location: Former Nicolet Industries Site: Ambler, PA	Elevation and Datum: NA
Drilling Company: Terra Probe, Inc.	Date Started: 7/14/05 — Date Finished: 7/14/05
Drilling Equipment: Geoprobe (Truck Mount)	Completion Depth: 9.5 ft — Rock Depth: 9.5 ft
Size and Type of Bit: NA	Number of Samples: Disturbed 3 — Undisturbed NA — Core NA
Casing Diameter (in): NA — Casing Depth (ft): NA	Water Level (ft.): First ▽ NE — Completion ▼ NA — 24 HR. ▼ NA
Casing Hammer: NA — Weight (lbs): NA — Drop (in): NA	Drilling Foreman: Matt Burk
Sampler: 2-inch diameter / 4-foot macro core	Inspecting Engineer: Randy Copenhaver
Sampler Hammer: NA — Weight (lbs): NA — Drop (in): NA	

Material Symbol	Elev. (ft)	Sample Description	PID Reading (ppm)	Depth Scale	Sample Data: Number	Type	Recov. (in)	Penetr. resist BL/6in	Env ID	Remarks (Drilling Fluid, Depth of Casing, Fluid Loss, Drilling Resistance, etc.)
		Gray, brown, and black fine-to-coarse SAND, some gravel, trace silt and clay, metal pieces, slag and concrete (FILL) (dry)	0	0					090	Start 15:10
			0	1						
			0							
		Light brown fine-to-coarse SAND, some gravel (FILL) (dry)	0	2	1	PUSH	32		091	
			0							
		Red-brown fine-to-coarse SAND, some clay, trace gravel (FILL) (dry)	0	3						
			0							
			0	4					092	
		Brown CLAY, some fine-to-coarse sand and gravel (FILL) (moist)	0	5						
			0							
			0	6	2	PUSH	13			
			0							
			0	7						
			0							
			0	8					093	Possible petroleum odor or strong organic odor
			0							
		Black and gray plastic or rubber-like material, some clay (FILL) (moist)	73	9	3	PUSH	12			Stop 15:25 Refusal at 9.5 feet
				10						Terminate boring at 9.5 feet
				11						
				12						

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Log of Boring **SB-66B** Sheet 1 of 1

Project: Westrum Development Company	Project No.: 3611302
Location: Former Nicolet Industries Site: Ambler, PA	Elevation and Datum: NA
Drilling Company: Terra Probe, Inc.	Date Started: 7/21/05 — Date Finished: 7/21/05
Drilling Equipment: Geoprobe (Truck Mount)	Completion Depth: 9 ft — Rock Depth: 9 ft
Size and Type of Bit: NA	Number of Samples: Disturbed 3 — Undisturbed NA — Core NA
Casing Diameter (in): NA — Casing Depth (ft): NA	Water Level (ft.): First ▽ 8 — Completion ▼ NA — 24 HR. ▼ NA
Casing Hammer: NA — Weight (lbs): NA — Drop (in): NA	Drilling Foreman: Brian Moriarty
Sampler: 2-inch diameter / 4-foot macro core	Inspecting Engineer: Randy Copenhaver
Sampler Hammer: NA — Weight (lbs): NA — Drop (in): NA	

Material Symbol	Elev. (ft)	Sample Description	PID Reading (ppm)	Depth Scale	Sample Data: Number	Type	Recov. (in)	Penetr. resist BL/6in	Env ID	Remarks (Drilling Fluid, Depth of Casing, Fluid Loss, Drilling Resistance, etc.)
		Brown fine-to-coarse SAND, some gravel, concrete fragments, red brick fragments, trace clay (FILL) (dry)	0	0						Start 9:40
		Gray and red-brown gravelly fine-to-coarse SAND, trace clay, slag, concrete fragments (FILL) (dry)	0	1	1	PUSH				
		Light brown fine-to-coarse SAND, some gravel (FILL) (dry)	0	2						
		Red-brown clayey fine-to-coarse SAND, some gravel, sandstone fragments (FILL) (moist)	0	3						
			0	4	2	PUSH				
			0	5						
			0	6						
			0	7						
			0	8						
		Red-brown clayey fine-to-coarse SAND, some gravel, concrete fragments (FILL) (wet)	0	8	3	PUSH				Stop 9:50 Refusal at 9 feet
			0	9						Terminate boring at 9 feet
				10						
				11						
				12						

▽ Water Level

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Log of Boring **SB-67** Sheet 1 of 1

Project: Westrum Development Company	Project No.: 3611302
Location: Former Nicolet Industries Site: Ambler, PA	Elevation and Datum: NA
Drilling Company: Terra Probe, Inc.	Date Started: 7/14/05 — Date Finished: 7/14/05
Drilling Equipment: Geoprobe (Truck Mount)	Completion Depth: 7 ft — Rock Depth: 7 ft
Size and Type of Bit: NA	Number of Samples: Disturbed 2 — Undisturbed NA — Core NA
Casing Diameter (in): NA — Casing Depth (ft): NA	Water Level (ft.): First ▽ 4.9 — Completion ▼ NA — 24 HR. ▼ NA
Casing Hammer: NA — Weight (lbs): NA — Drop (in): NA	Drilling Foreman: Matt Burk
Sampler: 2-inch diameter / 4-foot macro core	Inspecting Engineer: Randy Copenhaver
Sampler Hammer: NA — Weight (lbs): NA — Drop (in): NA	

Material Symbol	Elev. (ft)	Sample Description	PID Reading (ppm)	Depth Scale	Sample Data: Number	Type	Recov. (in)	Penetr. resist BL/6in	Env ID	Remarks (Drilling Fluid, Depth of Casing, Fluid Loss, Drilling Resistance, etc.)
		Light brown fine-to-coarse SAND, some gravel, concrete fragments (FILL) (dry)	0	0					094	Start 15:30
		Red-brown fine-to-coarse SAND, some silt and gravel (FILL) (dry)	0	1						
			0						095	
			0	2	1	PUSH	36			
		Red-brown sandy CLAY, trace gravel, (FILL) (dry)	0							
			0	3						
			0							
			0	4					096	
		Brown fine-to-coarse SAND, some gravel (FILL) (dry)	0							
		Red-brown silty CLAY, some gravel, fibrous material, concrete (FILL) (moist)	0	5						
		▽								
		Light tan CLAY, magnesia material (FILL) (wet)	20		2	PUSH	14			
		Black clay (FILL) (wet)	0	6						Very light sheen observed. Organic odor Stop 15:50 Refusal at 7 feet
			0						097	
				7						Terminate at 7 feet
				8						
				9						
				10						
				11						
				12						

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Log of Boring **SB-67A** Sheet 1 of 1

Project: Westrum Development Company	Project No.: 3611302
Location: Former Nicolet Industries Site: Ambler, PA	Elevation and Datum: NA
Drilling Company: Terra Probe, Inc.	Date Started: 1/24/06 — Date Finished: 1/24/06
Drilling Equipment: Geoprobe (Track Mounted)	Completion Depth: 7 ft — Rock Depth: NE
Size and Type of Bit: NA	Number of Samples: Disturbed 2 — Undisturbed NA — Core NA
Casing Diameter (in): NA — Casing Depth (ft): NA	Water Level (ft.): First ▽ NE — Completion ▼ NA — 24 HR. ▼ NA
Casing Hammer: NA — Weight (lbs): NA — Drop (in): NA	Drilling Foreman: Brian Moriarty
Sampler: 2-inch diameter / 4-foot macro core	Inspecting Engineer: Randy Copenhaver
Sampler Hammer: NA — Weight (lbs): NA — Drop (in): NA	

Material Symbol	Elev. (ft)	Sample Description	PID Reading (ppm)	Depth Scale	Sample Data: Number	Type	Recov. (in)	Penetr. resist BL/6in	Env ID	Remarks (Drilling Fluid, Depth of Casing, Fluid Loss, Drilling Resistance, etc.)
		Brown fine to coarse SAND, some gravel, concrete (FILL) (dry)	0	0						Begin at 14:00
		Red-brown sandy CLAY, some gravel (FILL) (dry)	0	1					016	
			0							
			0	2	1	PUSH	34			
			0							
			0	3						
			0							
			0	4						
		Brown fine-to-coarse SAND, some gravel (FILL) (dry)	0							
		Red-brown silty CLAY, some gravel, fibrous material, concrete (FILL) (moist)	0	5						
		Light tan CLAY, magnesia material (FILL) (wet)	0							
		Black clay (FILL) (wet)	0	6	2	PUSH	15			
			0							
			0	7						Auger refusal at 7 feet at 14:15
				8						
				9						
				10						
				11						
				12						

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Log of Boring **SB-68** Sheet 1 of 1

Project: Westrum Development Company	Project No.: 3611302
Location: Former Nicolet Industries Site: Ambler, PA	Elevation and Datum: NA
Drilling Company: Terra Probe, Inc.	Date Started: 7/14/05 — Date Finished: 7/14/05
Drilling Equipment: Geoprobe (Truck Mount)	Completion Depth: 8.5 ft — Rock Depth: 8.5 ft
Size and Type of Bit: NA	Number of Samples: Disturbed 3 — Undisturbed NA — Core NA
Casing Diameter (in): NA — Casing Depth (ft): NA	Water Level (ft.): First ▽ 8 — Completion ▼ NA — 24 HR. ▼ NA
Casing Hammer: NA — Weight (lbs): NA — Drop (in): NA	Drilling Foreman: Matt Burk
Sampler: 2-inch diameter / 4-foot macro core	Inspecting Engineer: Randy Copenhaver
Sampler Hammer: NA — Weight (lbs): NA — Drop (in): NA	

Material Symbol	Elev. (ft)	Sample Description	PID Reading (ppm)	Depth Scale	Sample Data: Number	Type	Recov. (in)	Penetr. resist BL/6in	Env ID	Remarks (Drilling Fluid, Depth of Casing, Fluid Loss, Drilling Resistance, etc.)
		Dark gray and brown fine-to-coarse sand, some gravel, trace silt, ash, slag, metal pieces (FILL) (dry)	0	0					086	Start 14:20
			0	1					087	
		Brown and white SILT, some clay and sand, trace gravel, magnesia material (FILL) (dry)	0	2	1	PUSH	42		088	
		Red-brown fine-to-coarse SAND, some silt and gravel (dry)	0	3						
			0	4					089	
		Orange-brown mottled red-brown CLAY (moist)	0	5						
			0	6	2	PUSH	26			
			0	7						Stop 14:50 Refusal at 8.5 feet
		▽ Brown and black CLAY, organic material, fragments of sandstone bedrock in tip (wet)	0	8	3	PUSH	3	NA		
				9						Terminate at 8.5 feet
				10						
				11						
				12						

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Log of Boring **SB-69** Sheet 1 of 1

Project: Westrum Development Company	Project No.: 3611302
Location: Former Nicolet Industries Site: Ambler, PA	Elevation and Datum: NA
Drilling Company: Terra Probe, Inc.	Date Started: 7/14/05 — Date Finished: 7/14/05
Drilling Equipment: Geoprobe (Truck Mount)	Completion Depth: 12 ft — Rock Depth: NE
Size and Type of Bit: NA	Number of Samples: Disturbed 3 — Undisturbed NA — Core NA
Casing Diameter (in): NA — Casing Depth (ft): NA	Water Level (ft.): First ▽ NE — Completion ▼ NA — 24 HR. ▼ NA
Casing Hammer: NA — Weight (lbs): NA — Drop (in): NA	Drilling Foreman: Matt Burk
Sampler: 2-inch diameter / 4-foot macro core	Inspecting Engineer: Randy Copenhaver
Sampler Hammer: NA — Weight (lbs): NA — Drop (in): NA	

Material Symbol	Elev. (ft)	Sample Description	PID Reading (ppm)	Depth Scale	Sample Data: Number	Type	Recov. (in)	Penetr. resist BL/6in	Env ID	Remarks (Drilling Fluid, Depth of Casing, Fluid Loss, Drilling Resistance, etc.)
		Concrete	0	0						Start 13:40
		Black and gray fine-to-coarse SAND, some gravel, ash, slag (FILL) (dry)	0	1					082	
			0		1	PUSH	36			
		Black and white gravelly fine-to-coarse SAND, trace clay and silt, ash, magnesia material (FILL) (dry)	0	2						
			0						083	
			0	3						
		Black and gray fine-to-coarse SAND, some gravel, ash, slag (FILL) (dry)	0	4						
			0						084	
		Gray-mottled black CLAY (moist)	0	5						
		Orange-brown CLAY (moist)	0		2	PUSH	42			
			0	6					085	
			0							
			0	7						
			0							
			0	8						
		Gray, mottled orange-brown CLAY, trace gravel (moist)	0							
			0	9						
			0							
			0	10	3	PUSH	39			
		Brown to red-brown fine-to-coarse SAND, some clay (moist)	0							
			0	11						
			0							
			0	12						Stop 14:05 Terminate at 12 feet

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

Project: Westrum Development Company	Project No.: 3611302
Location: Former Nicolet Industries Site: Ambler, PA	Elevation and Datum: NA
Drilling Company: Terra Probe, Inc.	Date Started: 7/20/05 — Date Finished: 7/20/05
Drilling Equipment: Geoprobe (Track Mounted)	Completion Depth: 3.5 ft — Rock Depth: 3.5 ft
Size and Type of Bit: NA	Number of Samples: Disturbed 1 — Undisturbed NA — Core NA
Casing Diameter (in): NA — Casing Depth (ft): NA	Water Level (ft.): First ▽ NE — Completion ▼ NA — 24 HR. ▼ NA
Casing Hammer: NA — Weight (lbs): NA — Drop (in): NA	Drilling Foreman: Brian Moriarty
Sampler: 2-inch diameter / 4-foot macro core	Inspecting Engineer: Randy Copenhaver
Sampler Hammer: NA — Weight (lbs): NA — Drop (in): NA	

Material Symbol	Elev. (ft)	Sample Description	PID Reading (ppm)	Depth Scale	Sample Data: Number	Type	Recov. (in)	Penetr. resist BL/6in	Env ID	Remarks (Drilling Fluid, Depth of Casing, Fluid Loss, Drilling Resistance, etc.)
		Dark brown CLAY (TOPSOIL) (moist)	0	0					224	Start 13:00
		Brown CLAY, trace sand (dry)	0	1						
			0							
			0	2	1	PUSH	31			
		Gray fine-to-coarse SAND, trace gravel, sandstone fragments (dry)	0							
			0	3					225	Stop 13:05 Refusal at 3.5 feet
			0							
				4						Terminate boring at 3.5 feet
				5						
				6						
				7						
				8						
				9						
				10						
				11						
				12						

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Log of Boring **SB-70** Sheet 1 of 1

Project: Westrum Development Company	Project No.: 3611302
Location: Former Nicolet Industries Site: Ambler, PA	Elevation and Datum: NA
Drilling Company: Terra Probe, Inc.	Date Started: 7/14/05 — Date Finished: 7/14/05
Drilling Equipment: Geoprobe (Truck Mount)	Completion Depth: 12 ft — Rock Depth: NE
Size and Type of Bit: NA	Number of Samples: Disturbed 3 — Undisturbed NA — Core NA
Casing Diameter (in): NA — Casing Depth (ft): NA	Water Level (ft.): First ▽ NE — Completion ▼ NA — 24 HR. ▼ NA
Casing Hammer: NA — Weight (lbs): NA — Drop (in): NA	Drilling Foreman: Matt Burk
Sampler: 2-inch diameter / 4-foot macro core	Inspecting Engineer: Randy Copenhaver
Sampler Hammer: NA — Weight (lbs): NA — Drop (in): NA	

Material Symbol	Elev. (ft)	Sample Description	PID Reading (ppm)	Depth Scale	Sample Data: Number	Type	Recov. (in)	Penetr. resist BL/6in	Env ID	Remarks (Drilling Fluid, Depth of Casing, Fluid Loss, Drilling Resistance, etc.)
		Dark gray GRAVEL, some sand (FILL) (dry)	0	0					074	Start 11:15
		Orange-brown SILT, trace sand and gravel, ash (FILL) (dry)	0	1	1	PUSH	37		075	
		Light tan CLAY, magnesia material (FILL) (wet)	0	3						
		Light tan CLAY, trace gravel, magnesia material, slag (FILL) (wet)	0	4					076	
		Orange-brown fine-to-coarse SAND, some silt and gravel, ash, slag (FILL) (wet)	0	5	2	PUSH	15			
		Gray, mottled brown CLAY (moist)	0	8					077	
		Red-brown fine-to-coarse SAND, some silt, trace gravel (moist)	0	10	3	PUSH	44			
		Gray, mottled red-brown CLAY (moist)	0							
		Red-brown fine-to-coarse SAND, some silt, trace gravel (moist)	0	11						Stop 11:25
			0	12						Terminate boring at 12 feet

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Log of Boring **SB-71** Sheet 1 of 1

Project: Westrum Development Company	Project No.: 3611302
Location: Former Nicolet Industries Site: Ambler, PA	Elevation and Datum: NA
Drilling Company: Terra Probe, Inc.	Date Started: 7/14/05 — Date Finished: 7/14/05
Drilling Equipment: Geoprobe (Truck Mount)	Completion Depth: 12 ft — Rock Depth: NE
Size and Type of Bit: NA	Number of Samples: Disturbed 3 — Undisturbed NA — Core NA
Casing Diameter (in): NA — Casing Depth (ft): NA	Water Level (ft.): First ▽ NE — Completion ▼ NA — 24 HR. ⧩ NA
Casing Hammer: NA — Weight (lbs): NA — Drop (in): NA	Drilling Foreman: Matt Burk
Sampler: 2-inch diameter / 4-foot macro core	Inspecting Engineer: Randy Copenhaver
Sampler Hammer: NA — Weight (lbs): NA — Drop (in): NA	

Material Symbol	Elev. (ft)	Sample Description	PID Reading (ppm)	Depth Scale	Sample Data: Number	Type	Recov. (in)	Penetr. resist BL/6in	Env ID	Remarks (Drilling Fluid, Depth of Casing, Fluid Loss, Drilling Resistance, etc.)
		Asphalt	0	0						Start 10:45
		Gray GRAVEL, trace sand (FILL) (dry)	0						070	
		Orange, brown and black fine-to-coarse SAND, some gravel, trace clay, ash, slag (FILL) (dry)	0	1						
			0		1	PUSH	33			
			0	2						
			0							
			0	3						
			0							
			0	4						
		Gray and black gravelly CLAY, some sand, ash, magnesia material (FILL) (wet)	0							
		Orange, brown and black fine-to-coarse SAND, some gravel, trace clay, ash, slag (FILL) (dry)	0	5						
			0							
			0	6	2	PUSH	34		071	
			0							
		Light tan CLAY, some gravel, magnesia material (FILL) (wet)	0	7						
			0							
		Gray GRAVEL, some sand, trace silt (FILL) (wet)	0	8					072	
		Light tan CLAY, some gravel, magnesia material (FILL) (wet)	0							
		Gray, mottled-black CLAY, trace gravel (wet)	0	9					073	
		Gray, mottled brown CLAY (moist)	0							
			0	10	3	PUSH	36			
			0							
		Red-brown fine-to-coarse SAND, trace gravel, silt, and clay (moist)	0	11						
			0							Stop 11:00
			0	12						Terminate boring at 12 feet

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Log of Boring **SB-72** Sheet 1 of 2

Project: Westrum Development Company	Project No.: 3611302
Location: Former Nicolet Industries Site: Ambler, PA	Elevation and Datum: NA
Drilling Company: Terra Probe, Inc.	Date Started: 7/14/05 — Date Finished: 7/14/05
Drilling Equipment: Geoprobe (Truck Mount)	Completion Depth: 16 ft — Rock Depth: NE
Size and Type of Bit: NA	Number of Samples: Disturbed 4 — Undisturbed NA — Core NA
Casing Diameter (in): NA — Casing Depth (ft): NA	Water Level (ft.): First ▽ NE — Completion ▼ NA — 24 HR. ▼ NA
Casing Hammer: NA — Weight (lbs): NA — Drop (in): NA	Drilling Foreman: Matt Burk
Sampler: 2-inch diameter / 4-foot macro core	Inspecting Engineer: Randy Copenhaver
Sampler Hammer: NA — Weight (lbs): NA — Drop (in): NA	

Material Symbol	Elev. (ft)	Sample Description	PID Reading (ppm)	Depth Scale	Sample Data: Number	Type	Recov. (in)	Penetr. resist BL/6in	Env ID	Remarks (Drilling Fluid, Depth of Casing, Fluid Loss, Drilling Resistance, etc.)
		Black and gray fine-to-coarse SAND, some gravel, ash, slag (FILL) (dry)	0	0					066	Start 10:10
		Orange-brown fine-to-coarse SAND, trace gravel, silt, and clay, ash, slag (FILL) (dry)	0	1						
			0	2	1	PUSH	32		067	
			0	3						
		Brown CLAY (FILL) (moist)	0	4						
		Orange-brown fine-to-coarse SAND, trace gravel, silt, and clay, ash, slag (FILL) (dry)	0	5						
		Brown CLAY (FILL) (moist)	0							
		Orange-brown SILT, some sand, trace gravel, ash (FILL) (dry)	0	6	2	PUSH	30			
			0	7					068	
		Orange-brown and brown CLAY, trace gravel (FILL) (moist)	0	8						
			0	9						
		Gray, mottled black CLAY, trace gravel (moist)	0	10	3	PUSH	36		069	
		Red-brown CLAY, some sand, trace gravel (moist)	0	11						
			0	12						

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Log of Boring **SB-72** Sheet 2 of 2

Project	Project No.
Westrum Development Company	3611302
Location	**Elevation and Datum**
Former Nicolet Industries Site: Ambler, PA	NA

MATERIAL SYMBOL	Elev. (ft)	Sample Description	PID Reading (ppm)	Depth Scale	Sample Data: Number	Type	Recov. (in)	Penetr. resist BL/6in	Env ID	Remarks (Drilling Fluid, Depth of Casing, Fluid Loss, Drilling Resistance, etc.)
		Red-brown fine-to-coarse SAND, some clay and gravel (moist)	0	12	4	PUSH	NA			Stop 10:30
			0	13						Terminate boring at 16 feet
			0							
			0	14						
			0							
			0	15						
			0							
			0	16						
				17						
				18						
				19						
				20						
				21						
				22						
				23						
				24						
				25						
				26						
				27						

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Log of Boring **SB-73** Sheet 1 of 2

Project: Westrum Development Company	Project No.: 3611302
Location: Former Nicolet Industries Site: Ambler, PA	Elevation and Datum: NA
Drilling Company: Terra Probe, Inc.	Date Started: 7/14/05 — Date Finished: 7/14/05
Drilling Equipment: Geoprobe (Truck Mount)	Completion Depth: 16 ft — Rock Depth: NE
Size and Type of Bit: NA	Number of Samples: Disturbed 4 — Undisturbed NA — Core NA
Casing Diameter (in): NA — Casing Depth (ft): NA	Water Level (ft.): First ▽ 9.5 — Completion ▼ NA — 24 HR. ▼ NA
Casing Hammer: NA — Weight (lbs): NA — Drop (in): NA	Drilling Foreman: Matt Burk
Sampler: 2-inch diameter / 4-foot macro core	Inspecting Engineer: Randy Copenhaver
Sampler Hammer: NA — Weight (lbs): NA — Drop (in): NA	

Material Symbol	Elev. (ft)	Sample Description	PID Reading (ppm)	Depth Scale	Sample Data: Number	Type	Recov. (in)	Penetr. resist BL/6in	Env ID	Remarks (Drilling Fluid, Depth of Casing, Fluid Loss, Drilling Resistance, etc.)
		Asphalt	0	0						Start 9:40
		Gray GRAVEL, some fine-to-coarse sand (FILL) (dry)	0							
		Brown and black fine-to-coarse SAND, trace red brick, gravel, ash (FILL) (dry)	0	1					062	
		Orange-brown fine-to-medium SAND (FILL) (dry)	0							
		Brown and black fine-to-coarse SAND, gravel, ash (FILL) (dry)	0	2	1	PUSH	38			
		Light tan CLAY, some fine-to-coarse sand, magnesia material (FILL) (wet)	0	3						
		Light tan CLAY (FILL) (magnesial material) (wet)	0	4						
			0	5					063	
			0	6	2	PUSH	41			
		Orange-brown and black fine-to-coarse SAND, some gravel (FILL) (moist)	0	7						
		Orange-brown and black fine-to-coarse SAND, some gravel, trace clay (FILL) (moist)	0	8					064	
		▽	0	9						
		White and black sandy CLAY, trace gravel, magnesia material (FILL) (wet)	0	10	3	PUSH	36		065	
		Dark gray, mottled black CLAY, trace gravel (moist)	0	11						
			0	12						

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Log of Boring **SB-73** Sheet 2 of 2

Project	Project No.
Westrum Development Company	3611302
Location	**Elevation and Datum**
Former Nicolet Industries Site: Ambler, PA	NA

MATERIAL SYMBOL	Elev. (ft)	Sample Description	PID Reading (ppm)	Depth Scale	Sample Data: Number	Type	Recov. (in)	Penetr. resist BL/6in	Env ID	Remarks (Drilling Fluid, Depth of Casing, Fluid Loss, Drilling Resistance, etc.)
		Brown sandy CLAY (wet)	0	12						
			0	13						
			0							
			0	14	4	PUSH	39			
		Red-brown fine-to-coarse SAND, some gravel and clay (wet)	0							
			0	15						
			0							Stop 9:55
			0	16						Terminate boring at 16 feet
				17						
				18						
				19						
				20						
				21						
				22						
				23						
				24						
				25						
				26						
				27						

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Log of Boring **SB-74** Sheet 1 of 2

Project: Westrum Development Company	Project No.: 3611302
Location: Former Nicolet Industries Site: Ambler, PA	Elevation and Datum: NA
Drilling Company: Terra Probe, Inc.	Date Started: 7/14/05 — Date Finished: 7/14/05
Drilling Equipment: Geoprobe (Truck Mount)	Completion Depth: 16 ft — Rock Depth: NE
Size and Type of Bit: NA	Number of Samples: Disturbed 4 — Undisturbed NA — Core NA
Casing Diameter (in): NA — Casing Depth (ft): NA	Water Level (ft.): First ▽ 8 — Completion ▼ NA — 24 HR. ▼ NA
Casing Hammer: NA — Weight (lbs): NA — Drop (in): NA	Drilling Foreman: Matt Burk
Sampler: 2-inch diameter / 4-foot macro core	Inspecting Engineer: Randy Copenhaver
Sampler Hammer: NA — Weight (lbs): NA — Drop (in): NA	

Material Symbol	Elev. (ft)	Sample Description	PID Reading (ppm)	Depth Scale	Sample Data: Number	Type	Recov. (in)	Penetr. resist BL/6in	Env ID	Remarks (Drilling Fluid, Depth of Casing, Fluid Loss, Drilling Resistance, etc.)
		Black, gray, and brown fine-to-coarse SAND, some gravel, trace silt, ash (FILL) (dry)	0	0						Start 9:10
			0	1						
		Black, gray, and brown fine-to-coarse SAND, some gravel, trace silt, ash, fibrous material (FILL) (dry)	0	2	1	PUSH	32		058	
			0	3						
		Black, gray, and brown fine-to-coarse SAND, some gravel, trace silt, ash (FILL) (dry)	0	4					059	
			0	5						
		Light tan CLAY, trace gravel, magnesia material (FILL) (wet)	0	6	2	PUSH	34			
		Black, gray, and brown fine-to-coarse SAND, some gravel, trace silt, ash (FILL) (dry)	0	7						
		Light tan CLAY, magnesia material (FILL) (wet)	▽ 0	8					060	
			0	9						
			0	10	3	PUSH	21			
			0	11						
			0	12						

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Log of Boring **SB-74** Sheet 2 of 2

Project	Project No.
Westrum Development Company	3611302
Location	**Elevation and Datum**
Former Nicolet Industries Site: Ambler, PA	NA

Material Symbol	Elev. (ft)	Sample Description	PID Reading (ppm)	Depth Scale	Sample Data: Number	Type	Recov. (in)	Penetr. resist BL/6in	Env ID	Remarks (Drilling Fluid, Depth of Casing, Fluid Loss, Drilling Resistance, etc.)
			0	12						
		Gray fine-to-coarse SAND, some clay, trace gravel, magnesia material (FILL) (wet)	0						061	
		Gray, mottled black CLAY, trace gravel (wet)	0	13						
			0		4	PUSH	29			
			0	14						
		Gray-brown fine-to-coarse SAND (wet)	0							
			0	15						
			0							Stop 9:27
			0	16						Terminate boring at 16 feet
				17						
				18						
				19						
				20						
				21						
				22						
				23						
				24						
				25						
				26						
				27						

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Log of Boring **SB74A** Sheet 1 of 2

Project: Westrum Development Company	Project No.: 3611302
Location: Former Nicolet Industries Site: Ambler, PA	Elevation and Datum: NA
Drilling Company: Terra Probe, Inc.	Date Started: 1/24/06 — Date Finished: 1/24/06
Drilling Equipment: Geoprobe (Track Mounted)	Completion Depth: 20 ft — Rock Depth: NE
Size and Type of Bit: NA	Number of Samples: Disturbed 4 — Undisturbed NA — Core NA
Casing Diameter (in): NA — Casing Depth (ft): NA	Water Level (ft.): First ▽ 4 — Completion ▼ NA — 24 HR. ▼ NA
Casing Hammer: NA — Weight (lbs): NA — Drop (in): NA	Drilling Foreman: Brian Moriarty
Sampler: 2-inch diameter / 4-foot macro core	Inspecting Engineer: Randy Copenhaver
Sampler Hammer: NA — Weight (lbs): NA — Drop (in): NA	

Material Symbol	Elev. (ft)	Sample Description	PID Reading (ppm)	Depth Scale	Sample Data: Number	Type	Recov. (in)	Penetr. resist BL/6in	Env ID	Remarks (Drilling Fluid, Depth of Casing, Fluid Loss, Drilling Resistance, etc.)
		Black gray and brown fine to coarse SAND, some gravel, trace silt, ash (FILL)	0	0						Begin at 9:05
			0	1	1	PUSH	31			
			0	2						
			0	3						
		▽	0	4						
		Black gray and brown fine to coarse SAND, some gravel, trace silt, ash (FILL)	0	4						Groundwater encountered at 4 feet
			0	5					005	
		Light tan CLAY, magnesia material (FILL) (wet)	0	5						
			0	6	2	PUSH	38			
			0	7						
			0	8						
		Light tan CLAY, magnesia material (FILL) (wet)	0	8						
			0	9						
			0	10	3	PUSH	45			
			0	11						
		Light tan sandy CLAY, trace gravel, magnesia material, fiberous material, wood (FILL) (wet)	0	11						
			0	12						

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Log of Boring **SB74A** Sheet 2 of 2

Project	Project No.
Westrum Development Company	3611302
Location	**Elevation and Datum**
Former Nicolet Industries Site: Ambler, PA	NA

MATERIAL SYMBOL	Elev. (ft)	Sample Description	PID Reading (ppm)	Depth Scale	Sample Data: Number	Type	Recov. (in)	Penetr. resist BL/6in	Env ID	Remarks (Drilling Fluid, Depth of Casing, Fluid Loss, Drilling Resistance, etc.)
		No recovery	0	12	4	PUSH	2			Poor Recovery
			0	13						Dark gray CLAY (wet) in tip of probe
			0	14						
			0	15						
			0	16					006	
		Brown fine to coarse SAND, some gravel (wet)	0	17	5	PUSH	32			
			0	18						
			0	19						
			0	20						End boring at 20 feet at 9:35
				21						
				22						
				23						
				24						
				25						
				26						
				27						

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Log of Boring **SB-75** Sheet 1 of 2

Project: Westrum Development Company	Project No.: 3611302
Location: Former Nicolet Industries Site: Ambler, PA	Elevation and Datum: NA
Drilling Company: Terra Probe, Inc.	Date Started: 7/14/05 — Date Finished: 7/14/05
Drilling Equipment: Geoprobe (Truck Mount)	Completion Depth: 16 ft — Rock Depth: NE
Size and Type of Bit: NA	Number of Samples: Disturbed 4 — Undisturbed NA — Core NA
Casing Diameter (in): NA — Casing Depth (ft): NA	Water Level (ft.): First ▽ 9.7 — Completion ▼ NA — 24 HR. ▼ NA
Casing Hammer: NA — Weight (lbs): NA — Drop (in): NA	Drilling Foreman: Matt Burk
Sampler: 2-inch diameter / 4-foot macro core	Inspecting Engineer: Randy Copenhaver
Sampler Hammer: NA — Weight (lbs): NA — Drop (in): NA	

Material Symbol	Elev. (ft)	Sample Description	PID Reading (ppm)	Depth Scale	Sample Data: Number	Type	Recov. (in)	Penetr. resist BL/6in	Env ID	Remarks (Drilling Fluid, Depth of Casing, Fluid Loss, Drilling Resistance, etc.)
		Brown, black, and gray fine-to-coarse SAND, some gravel, ash, slag (FILL) (dry)	0	0					054	Start 8:40
			0	1	1	PUSH	42			
			0	2						
			0	3						
			0	4						
		White CLAY, some silt and sand, trace gravel, magnesia material (FILL) (dry)	0	5					055	
			0	6	2	PUSH	18			
			0	7						
			0	8						
		Black and gray fine-to-coarse SAND, some gravel, ash, fibrous material (FILL) (moist)	0	9					056	
		▽ White and black fine-to-coarse SAND, trace gravel and clay, ash, magnesia material (FILL) (wet)	0	10	3	PUSH	26			
			0	11						
			0	12						

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Log of Boring **SB-75** Sheet 2 of 2

Project	Project No.
Westrum Development Company	3611302
Location	**Elevation and Datum**
Former Nicolet Industries Site: Ambler, PA	NA

MATERIAL SYMBOL	Elev. (ft)	Sample Description	PID Reading (ppm)	Depth Scale	Sample Data: Number	Type	Recov. (in)	Penetr. resist BL/6in	Env ID	Remarks (Drilling Fluid, Depth of Casing, Fluid Loss, Drilling Resistance, etc.)
			0	12						
		Black fine-to-coarse SAND, trace gravel (FILL) (wet)	0	13					057	
		Brown fine-to-coarse SAND (FILL) (wet)	0							
		Gray, mottled black CLAY (moist)	0	14	4	PUSH	42			
			0							
		Red-brown silty fine-to-coarse SAND, trace gravel and clay (wet)	0	15						
			0							Stop 9:00
			0	16						Terminate boring at 16 feet
				17						
				18						
				19						
				20						
				21						
				22						
				23						
				24						
				25						
				26						
				27						

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Log of Boring **SB-75A** Sheet 1 of 2

Project: Westrum Development Company	Project No.: 3611302
Location: Former Nicolet Industries Site: Ambler, PA	Elevation and Datum: NA
Drilling Company: Terra Probe, Inc.	Date Started: 1/24/06 — Date Finished: 1/24/06
Drilling Equipment: Geoprobe (Track Mounted)	Completion Depth: 16 ft — Rock Depth: NE
Size and Type of Bit: NA	Number of Samples: Disturbed 4 — Undisturbed NA — Core NA
Casing Diameter (in): NA — Casing Depth (ft): NA	Water Level (ft.): First ▽ 4 — Completion ▼ NA — 24 HR. ▼ NA
Casing Hammer: NA — Weight (lbs): NA — Drop (in): NA	Drilling Foreman: Brian Moriarty
Sampler: 2-inch diameter / 4-foot macro core	Inspecting Engineer: Randy Copenhaver
Sampler Hammer: NA — Weight (lbs): NA — Drop (in): NA	

Material Symbol	Elev. (ft)	Sample Description	PID Reading (ppm)	Depth Scale	Sample Data: Number	Type	Recov. (in)	Penetr. resist BL/6in	Env ID	Remarks (Drilling Fluid, Depth of Casing, Fluid Loss, Drilling Resistance, etc.)
		Concrete	0	0						Begin at 9:45
		Black, gray and brown fine to coarse SAND, some gravel, ash, slag (FILL) (moist)	0	1						
			0	2	1	PUSH	42		007	
			0	3						
			0	4						
		Black, gray and brown fine to coarse SAND, some gravel, ash, slag (FILL) (moist)	0							Groundwater encountered at 4 feet
		Light tan gravely CLAY, some sand, magnesia material (FILL) (wet)	0	5						
			116	6	2	PUSH	24			
		Wood (FILL)	0							PID hit in wood
		Black, gray and brown fine to coarse SAND, some gravel, ash, slag (FILL) (wet)	0	7						
			0	8						
		Black, gray and brown GRAVEL, some sand, ash, slag (FILL) (wet)	0							
			0	9						
		White CLAY, trace gravel, magnesia material (FILL) (wet)	0	10	3	PUSH	30			
			0							
			0	11						
			0							
			0	12						

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Log of Boring **SB-75A** Sheet 2 of 2

Project	Project No.
Westrum Development Company	3611302
Location	**Elevation and Datum**
Former Nicolet Industries Site: Ambler, PA	NA

MATERIAL SYMBOL	Elev. (ft)	Sample Description	PID Reading (ppm)	Depth Scale	Sample Data: Number	Type	Recov. (in)	Penetr. resist BL/6in	Env ID	Remarks (Drilling Fluid, Depth of Casing, Fluid Loss, Drilling Resistance, etc.)
		White CLAY, trace gravel, magnesia material (FILL) (wet)	0	12						
			0							
		Dark gray and black mottled CLAY (wet)		13					008	
			0							
			0	14	4	PUSH	38			
			0							
		Red brown fine to coarse SAND, trace gravel and clay (wet)	0	15						
			0							
			0	16						End boring at 16 feet at 10:05
				17						
				18						
				19						
				20						
				21						
				22						
				23						
				24						
				25						
				26						
				27						

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Log of Boring **SB-76** Sheet 1 of 1

Project: Westrum Development Company	Project No.: 3611302
Location: Former Nicolet Industries Site: Ambler, PA	Elevation and Datum: NA
Drilling Company: Terra Probe, Inc.	Date Started: 7/21/05 — Date Finished: 7/21/05
Drilling Equipment: Geoprobe (Truck Mount)	Completion Depth: 8 ft — Rock Depth: NE
Size and Type of Bit: NA	Number of Samples: Disturbed 2 — Undisturbed NA — Core NA
Casing Diameter (in): NA — Casing Depth (ft): NA	Water Level (ft.): First ▽ NE — Completion ▼ NA — 24 HR. ▼ NA
Casing Hammer: NA — Weight (lbs): NA — Drop (in): NA	Drilling Foreman: Brian Moriarty
Sampler: 2-inch diameter / 4-foot macro core	Inspecting Engineer: Randy Copenhaver
Sampler Hammer: NA — Weight (lbs): NA — Drop (in): NA	

Material Symbol	Elev. (ft)	Sample Description	PID Reading (ppm)	Depth Scale	Sample Data: Number	Type	Recov. (in)	Penetr. resist BL/6in	Env ID	Remarks (Drilling Fluid, Depth of Casing, Fluid Loss, Drilling Resistance, etc.)
		Brown fine-to-coarse SAND, some gravel, asphalt fragments, trace clay (FILL) (dry)	0	0						Start 10:10
		Tan GRAVEL, some sand (FILL) (dry)	0	1						
		Red-brown fine-to-coarse SAND, some gravel, trace clay, sandstone fragments (FILL) (dry)	0	2	1	PUSH	44			
		Red-brown fine-to-coarse SAND, some gravel and clay, sandstone fragments (FILL) (moist)	0	3						
		Black asphalt	0	4						
		Red-brown fine-to-coarse SAND, some gravel and clay, sandstone fragments (FILL) (moist)	0	5						
		Brown fine-to-coarse SAND, some gravel and clay, slag (FILL) (moist)	0	6	2	PUSH	30			
		Gray CLAY (moist)	0	7						Stop 10:20 Refusal at 8 feet
			0	8						Terminate boring at 8 feet
				9						
				10						
				11						
				12						

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Log of Boring **SB-77** Sheet 1 of 1

Project: Westrum Development Company	Project No.: 3611302
Location: Former Nicolet Industries Site: Ambler, PA	Elevation and Datum: NA
Drilling Company: Terra Probe, Inc.	Date Started: 7/21/05 — Date Finished: 7/21/05
Drilling Equipment: Geoprobe (Truck Mount)	Completion Depth: 7 ft — Rock Depth: NE
Size and Type of Bit: NA	Number of Samples: Disturbed 2 — Undisturbed NA — Core NA
Casing Diameter (in): NA — Casing Depth (ft): NA	Water Level (ft.): First ▽ 5 — Completion ▼ NA — 24 HR. ▼ NA
Casing Hammer: NA — Weight (lbs): NA — Drop (in): NA	Drilling Foreman: Brian Moriarty
Sampler: 2-inch diameter / 4-foot macro core	Inspecting Engineer: Randy Copenhaver
Sampler Hammer: NA — Weight (lbs): NA — Drop (in): NA	

Material Symbol	Elev. (ft)	Sample Description	PID Reading (ppm)	Depth Scale	Sample Data: Number	Type	Recov. (in)	Penetr. resist BL/6in	Env ID	Remarks (Drilling Fluid, Depth of Casing, Fluid Loss, Drilling Resistance, etc.)
		Brown and gray gravelly fine-to-coarse SAND, some clay (FILL) (dry)	0	0						Start 10:25
		Tan GRAVEL (FILL) (dry)	0							
		Brown fine-to-coarse SAND, some clay and gravel (FILL) (dry)	0	1						
			0							
			0	2	1	PUSH	38			
			0							
			0	3						
			0							
			0	4						
		Gray fine-to-coarse SAND, some gravel, fibrous material (FILL) (dry)	0							
		Red brick (FILL) (dry)	0	5						
		Black GRAVEL, slag (FILL) (wet) ▽	0							
			0	6	2	PUSH	26			
			0							
			0	7						Stop 10:35 Refusal at 7 feet
										Terminate boring at 7 feet
				8						
				9						
				10						
				11						
				12						

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Log of Boring **SB-78** Sheet 1 of 1

Project: Westrum Development Company	Project No.: 3611302
Location: Former Nicolet Industries Site: Ambler, PA	Elevation and Datum: NA
Drilling Company: Terra Probe, Inc.	Date Started: 7/21/05 — Date Finished: 7/21/05
Drilling Equipment: Geoprobe (Truck Mount)	Completion Depth: 7 ft — Rock Depth: NE
Size and Type of Bit: NA	Number of Samples: Disturbed 2 — Undisturbed NA — Core NA
Casing Diameter (in): NA — Casing Depth (ft): NA	Water Level (ft.): First ▽ 5.8 — Completion ▼ NA — 24 HR. ▼ NA
Casing Hammer: NA — Weight (lbs): NA — Drop (in): NA	Drilling Foreman: Brian Moriarty
Sampler: 2-inch diameter / 4-foot macro core	Inspecting Engineer: Randy Copenhaver
Sampler Hammer: NA — Weight (lbs): NA — Drop (in): NA	

Material Symbol	Elev. (ft)	Sample Description	PID Reading (ppm)	Depth Scale	Sample Data: Number	Type	Recov. (in)	Penetr. resist BL/6in	Env ID	Remarks (Drilling Fluid, Depth of Casing, Fluid Loss, Drilling Resistance, etc.)
		Brown fine-to-coarse SAND, trace gravel (FILL) (dry)	0	0						Start 10:45
		Red-brown clayey fine-to-coarse SAND, trace gravel (FILL) (dry)	0	1	1	PUSH	44			
			0	2						
			0	3						
			0	4						
		Red-brown clayey fine-to-coarse SAND, asphalt, trace gravel (FILL) (moist)	0	5	2	PUSH	30			
		Brown sandy CLAY, trace gravel (FILL) (moist)	0	6						Organic odor 6 to 7 feet
		▽ Gray gravelly fine-to-coarse SAND, some clay (FILL) (wet)	0	7						Stop 10:50
		Gray to black CLAY, concrete fragments (FILL) (wet)	0	8					009	Refusal at 7 feet
				9						Terminate boring at 7 feet
				10						
				11						
				12						

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Log of Boring **SB-79** Sheet 1 of 1

Project: Westrum Development Company	Project No.: 3611302
Location: Former Nicolet Industries Site: Ambler, PA	Elevation and Datum: NA
Drilling Company: Terra Probe, Inc.	Date Started: 7/21/05 — Date Finished: 7/21/05
Drilling Equipment: Geoprobe (Truck Mount)	Completion Depth: 7 ft — Rock Depth: NE
Size and Type of Bit: NA	Number of Samples: Disturbed 2 — Undisturbed NA — Core NA
Casing Diameter (in): NA — Casing Depth (ft): NA	Water Level (ft.): First ▽ 4.8 — Completion ▼ NA — 24 HR. ▼ NA
Casing Hammer: NA — Weight (lbs): NA — Drop (in): NA	Drilling Foreman: Brian Moriarty
Sampler: 2-inch diameter / 4-foot macro core	Inspecting Engineer: Randy Copenhaver
Sampler Hammer: NA — Weight (lbs): NA — Drop (in): NA	

Material Symbol	Elev. (ft)	Sample Description	PID Reading (ppm)	Depth Scale	Sample Data: Number	Type	Recov. (in)	Penetr. resist BL/6in	Env ID	Remarks (Drilling Fluid, Depth of Casing, Fluid Loss, Drilling Resistance, etc.)
		Brown fine-to-coarse SAND, some clay, trace gravel (FILL) (dry)	0	0						Start 11:00
		Red-brown fine-to-coarse SAND, some clay, trace gravel (FILL) (dry)	0	1	1	PUSH	43			
			0	2						
			0	3						
		Gray GRAVEL, concrete fragments (FILL) (dry)	0	4						
		Gray GRAVEL, concrete fragments (FILL) (dry)	0							
		Red BRICK (FILL) (dry)	0							
		Gray GRAVEL, concrete fragments (FILL) (wet) ▽	0	5						
		Black GRAVEL, concrete fragments (FILL) (wet)	0		2	PUSH	18			Slight organic odor
			0	6						
			0							Stop 11:10 Refusal at 7 feet
			0	7						Terminate boring at 7 feet
				8						
				9						
				10						
				11						
				12						

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Log of Boring **SB-8** Sheet 1 of 1

Project: Westrum Development Company	Project No.: 3611302
Location: Former Nicolet Industries Site: Ambler, PA	Elevation and Datum: NA
Drilling Company: Terra Probe, Inc.	Date Started: 7/20/05 — Date Finished: 7/20/05
Drilling Equipment: Geoprobe (Track Mounted)	Completion Depth: 3 ft — Rock Depth: 3 ft
Size and Type of Bit: NA	Number of Samples: Disturbed 1 — Undisturbed NA — Core NA
Casing Diameter (in): NA — Casing Depth (ft): NA	Water Level (ft.): First ▽ NE — Completion ▼ NA — 24 HR. ▼ NA
Casing Hammer: NA — Weight (lbs): NA — Drop (in): NA	Drilling Foreman: Brian Moriarty
Sampler: 2-inch diameter / 4-foot macro core	Inspecting Engineer: Randy Copenhaver
Sampler Hammer: NA — Weight (lbs): NA — Drop (in): NA	

Material Symbol	Elev. (ft)	Sample Description	PID Reading (ppm)	Depth Scale	Sample Data: Number	Type	Recov. (in)	Penetr. resist BL/6in	Env ID	Remarks (Drilling Fluid, Depth of Casing, Fluid Loss, Drilling Resistance, etc.)
		Dark brown CLAY (TOPSOIL) (moist)	12.2	0	1	PUSH	36		222	Start 12:15
									006	
		Orange-brown CLAY, some sand (dry)	12.5 24.5 18.5	1						
		Gray fine-to-coarse SAND, some gravel, sandstone fragments (dry)	36.6 20.2	2					223	Stop 12:20 Refusal at 3 feet
				3						Terminate boring at 3 feet
				4						
				5						
				6						
				7						
				8						
				9						
				10						
				11						
				12						

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Log of Boring **SB-80** Sheet 1 of 2

Project: Westrum Development Company	Project No.: 3611302
Location: Former Nicolet Industries Site: Ambler, PA	Elevation and Datum: NA
Drilling Company: Terra Probe, Inc.	Date Started: 7/21/05 — Date Finished: 7/21/05
Drilling Equipment: Geoprobe (Truck Mount)	Completion Depth: 24 ft — Rock Depth: NE
Size and Type of Bit: NA	Number of Samples: Disturbed 6 — Undisturbed NA — Core NA
Casing Diameter (in): NA — Casing Depth (ft): NA	Water Level (ft.): First ▽ 13.8 — Completion ▼ NA — 24 HR. ▼ NA
Casing Hammer: NA — Weight (lbs): NA — Drop (in): NA	Drilling Foreman: Brian Moriarty
Sampler: 2-inch diameter / 4-foot macro core	Inspecting Engineer: Randy Copenhaver
Sampler Hammer: NA — Weight (lbs): NA — Drop (in): NA	

Material Symbol	Elev. (ft)	Sample Description	PID Reading (ppm)	Depth Scale	Sample Data: Number	Type	Recov. (in)	Penetr. resist BL/6in	Env ID	Remarks (Drilling Fluid, Depth of Casing, Fluid Loss, Drilling Resistance, etc.)
		Brown fine-to-coarse SAND, some gravel (FILL) (dry)	0	0						Start 12:15
		Gray GRAVEL, trace sand (FILL) (dry)	0	1						
		Brown and black fine-to-coarse SAND, some gravel, ash, slag (FILL) (dry)	0	2	1	PUSH	35			
		Black and white CLAY, some gravel and sand, ash, slag, magnesia material (FILL) (wet)	0	3						
		Black fine-to-coarse SAND, some gravel, ash, slag (FILL) (dry)	0	4						
		Light tan CLAY, trace sand and gravel, magnesia material (FILL) (wet)	0	5						
		Black and brown fine-to-coarse SAND, some gravel, ash, slag (FILL) (dry)	0	6	2	PUSH	26			
		Red-brown fine-to-coarse SAND (FILL) (dry)	0	7						
		White clayey fine-to-coarse SAND, magnesia material, trace gravel (FILL) (moist)	0	8						
		Black and brown fine-to-coarse SAND, some gravel, ash, slag (FILL) (dry)	0	9						
		Light tan CLAY, some fine-to-coarse SAND, magnesia material (FILL) (wet)	0	10	3	PUSH	24			
		Light tan clayey fine-to-coarse SAND, magnesia material, trace gravel (FILL) (moist)	0	11						
			0	12						

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Log of Boring **SB-80** Sheet 2 of 2

Project	Project No.
Westrum Development Company	3611302
Location	**Elevation and Datum**
Former Nicolet Industries Site: Ambler, PA	NA

MATERIAL SYMBOL	Elev. (ft)	Sample Description	PID Reading (ppm)	Depth Scale	Sample Data: Number	Type	Recov. (in)	Penetr. resist BL/6in	Env ID	Remarks (Drilling Fluid, Depth of Casing, Fluid Loss, Drilling Resistance, etc.)
			0	12						
			0							
		Gray and red GRAVEL, some fine-to-coarse sand, brick fragments (FILL) (dry)	0	13						
		Gray GRAVEL, some fine-to-coarse SAND, ash, slag (FILL) (wet)	0	14	4	PUSH	24			
			0							
			0	15						
			0							
			0	16						
		Gray GRAVEL, some fine-to-coarse SAND, ash, slag (FILL) (wet)								
		White and black gravelly CLAY, ash, slag, magnesia material (FILL) (wet)	0	17						
		Dark gray CLAY (wet)	0							
		Gray CLAY (wet)	0	18	5	PUSH	18			
			0							
			0	19						
			0							
			0	20						
		Gray fine-to-coarse SAND, some gravel and clay (wet)	0							
		Red-brown fine-to-coarse SAND, some gravel, trace clay (wet)	0	21						
			0							
		Dark red-brown gravelly fine-to-coarse SAND (wet)	0	22	6	PUSH	28			
			0							
			0	23						
			0							Stop 12:40
			0	24						Terminate boring at 24 feet
				25						
				26						
				27						

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Log of Boring **SB-81** Sheet 1 of 1

Project: Westrum Development Company	Project No.: 3611302
Location: Former Nicolet Industries Site: Ambler, PA	Elevation and Datum: NA
Drilling Company: Terra Probe, Inc.	Date Started: 1/24/06 — Date Finished: 1/24/06
Drilling Equipment: Geoprobe (Track Mounted)	Completion Depth: 4 ft — Rock Depth: NE
Size and Type of Bit: NA	Number of Samples: Disturbed 1 — Undisturbed NA — Core NA
Casing Diameter (in): NA — Casing Depth (ft): NA	Water Level (ft.): First ▽ 3 — Completion ▼ NA — 24 HR. ▼ NA
Casing Hammer: NA — Weight (lbs): NA — Drop (in): NA	Drilling Foreman: Brian Moriarty
Sampler: 2-inch diameter / 4-foot macro core	Inspecting Engineer: Randy Copenhaver
Sampler Hammer: NA — Weight (lbs): NA — Drop (in): NA	

MATERIAL SYMBOL	Elev. (ft)	Sample Description	PID Reading (ppm)	Depth Scale	Sample Data: Number	Type	Recov. (in)	Penetr. resist BL/6in	Env ID	Remarks (Drilling Fluid, Depth of Casing, Fluid Loss, Drilling Resistance, etc.)
		Asphalt		0						Begin at 10;25
		Brown and gray gravelly SAND, some gravel (FILL)								
		Black, gray and brown fine to coarse SAND, ash (FILL) (moist)	0	1					009	
			0							
			0	2	1	PUSH	42			
			0							
		▽	0	3						Groundwater encountered at 3 feet
			0							
			0	4						End boring at 4 feet at 10:28
				5						
				6						
				7						
				8						
				9						
				10						
				11						
				12						

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Log of Boring **SB-82** Sheet 1 of 1

Project: Westrum Development Company	Project No.: 3611302
Location: Former Nicolet Industries Site: Ambler, PA	Elevation and Datum: NA
Drilling Company: Terra Probe, Inc.	Date Started: 1/24/06 — Date Finished: 1/24/06
Drilling Equipment: Geoprobe (Track Mounted)	Completion Depth: 10.5 ft — Rock Depth: NE
Size and Type of Bit: NA	Number of Samples: Disturbed 3 — Undisturbed NA — Core NA
Casing Diameter (in): NA — Casing Depth (ft): NA	Water Level (ft.): First ▽ 3.5 — Completion ▼ NA — 24 HR. ▼ NA
Casing Hammer: NA — Weight (lbs): NA — Drop (in): NA	Drilling Foreman: George Demetriou
Sampler: 2-inch diameter / 4-foot macro core	Inspecting Engineer: Randy Copenhaver
Sampler Hammer: NA — Weight (lbs): NA — Drop (in): NA	

Material Symbol	Elev. (ft)	Sample Description	PID Reading (ppm)	Depth Scale	Sample Data: Number	Type	Recov. (in)	Penetr. resist BL/6in	Env ID	Remarks (Drilling Fluid, Depth of Casing, Fluid Loss, Drilling Resistance, etc.)
		Black fine to coarse SAND, some gravel, ash (FILL) (dry)	0	0						Begin at 14:50
		Black fine to coarse SAND, some gravel, ash (FILL) (dry)	0							
		Light brown sandy GRAVEL (FILL) (dry)	0	1						
		Black fine to coarse SAND, some gravel, ash (FILL) (dry)	0							
		Light brown sandy GRAVEL (FILL) (dry)	0	2	1	PUSH	40			
			0							
		Gray and brown CLAY (moist)	0	3						
		Red-brown fine to coarse SAND (moist) ▽	0							Groundwater encountered at 3.5 feet
			0	4						
		Red-brown fine to coarse SAND (wet)	0							Slight odor at 4 to 10 feet
			19.9	5						
			23.1							
		Gray CLAY, trace sand (wet)	13.5	6	2	PUSH	39			
		Gray and red-brown fine to coarse SAND, trace gravel (wet)	32.0							
			69.1	7						
			56.6							
			20.2	8						
		Gray and red-brown fine to coarse SAND, trace gravel (moist)	64.2							
			65.5	9					017	
			228							
			10.9	10	3	PUSH	26			
			9.9							Auger refusal at 10.5 feet at 15:00
				11						
				12						

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Log of Boring **SB-83** Sheet 1 of 1

Project: Westrum Development Company	Project No.: 3611302
Location: Former Nicolet Industries Site: Ambler, PA	Elevation and Datum: NA
Drilling Company: Terra Probe, Inc.	Date Started: 1/24/06 — Date Finished: 1/24/06
Drilling Equipment: Geoprobe (Track Mounted)	Completion Depth: 12 ft — Rock Depth: NE
Size and Type of Bit: NA	Number of Samples: Disturbed 2 — Undisturbed NA — Core NA
Casing Diameter (in): NA — Casing Depth (ft): NA	Water Level (ft.): First ▽ 2.5 — Completion ▼ NA — 24 HR. ▼ NA
Casing Hammer: NA — Weight (lbs): NA — Drop (in): NA	Drilling Foreman: Brian Moriarty
Sampler: 2-inch diameter / 4-foot macro core	Inspecting Engineer: Randy Copenhaver
Sampler Hammer: NA — Weight (lbs): NA — Drop (in): NA	

Material Symbol	Elev. (ft)	Sample Description	PID Reading (ppm)	Depth Scale	Sample Data: Number	Type	Recov. (in)	Penetr. resist BL/6in	Env ID	Remarks (Drilling Fluid, Depth of Casing, Fluid Loss, Drilling Resistance, etc.)
		Dark brown fine to coarse SAND, some gravel (FILL) (dry)	0	0						Begin at 15:20
		Tan GRAVEL, some sand (FILL) (dry)	0	1						
		Black fine to coarse SAND, some gravel (FILL) (moist)	0							
		Red brick (FILL) (dry)	0	2	1	PUSH	39			
		Tan GRAVEL, some sand (FILL) (dry) ▽	0							Groundwater encountered at 2.5 feet
		Gray and brown CLAY (moist)	0	3						
			2.1	4						
		Gray and red-brown fine to coarse SAND, trace silt and clay (moist)	0							
			50.3	5						
			27.7							
			16.0	6	2	PUSH	40			
			20.9							
			580	7						
			2000							
			2000	8						End boring at 8 feet at 15:25 and move to different location due to escalated PID readings
				9						
				10						
				11						
				12						

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Log of Boring **SB-83A** Sheet 1 of 1

Project: Westrum Development Company	Project No.: 3611302
Location: Former Nicolet Industries Site: Ambler, PA	Elevation and Datum: NA
Drilling Company: Terra Probe, Inc.	Date Started: 1/24/06 — Date Finished: 1/24/06
Drilling Equipment: Geoprobe (Track Mounted)	Completion Depth: 11 ft — Rock Depth: NE
Size and Type of Bit: NA	Number of Samples: Disturbed 3 — Undisturbed NA — Core NA
Casing Diameter (in): NA — Casing Depth (ft): NA	Water Level (ft.): First ▽ 3 — Completion ▼ NA — 24 HR. ▼ NA
Casing Hammer: NA — Weight (lbs): NA — Drop (in): NA	Drilling Foreman: Brian Moriarty
Sampler: 2-inch diameter / 4-foot macro core	Inspecting Engineer: Randy Copenhaver
Sampler Hammer: NA — Weight (lbs): NA — Drop (in): NA	

Material Symbol	Elev. (ft)	Sample Description	PID Reading (ppm)	Depth Scale	Sample Data: Number	Type	Recov. (in)	Penetr. resist BL/6in	Env ID	Remarks (Drilling Fluid, Depth of Casing, Fluid Loss, Drilling Resistance, etc.)
		Asphalt	0	0						Begin at 15:30
		Brown and gray GRAVEL, some fine to coarse sand (FILL) (dry)	0							
		Black fine to coarse SAND, some gravel, ash (FILL)	0	1						
		Brown and gray CLAY, trace sand (wet)	0		1	PUSH	35			
			0	2						
			0							
		▽	0	3						Groundwater encountered at 3 feet
			0							
			0	4					018	
		Red-brown and gray fine to coarse SAND, trace silt and clay (wet)	612							
			152	5						
			70.8							
			49.9	6	2	PUSH	40			
			44.6							
			329	7						
			69.3							
			39.6	8						
		Red-brown and gray fine to coarse SAND, trace silt and clay (wet)	6.0							
		Brown and gray fine to coarse SAND, some gravel (moist)	315	9						
			142							
			49.8	10	3	PUSH	36			
			10.2							
		Brown fine to coarse SAND, some gravel (moist)	2.4	11						Auger refusal at 11 feet at 15:45
				12						

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Log of Boring **SB-84** Sheet 1 of 1

Project: Westrum Development Company	Project No.: 3611302
Location: Former Nicolet Industries Site: Ambler, PA	Elevation and Datum: NA
Drilling Company: Terra Probe, Inc.	Date Started: 1/25/06 — Date Finished: 1/25/06
Drilling Equipment: Geoprobe (Track Mounted)	Completion Depth: 12 ft — Rock Depth: NE
Size and Type of Bit: NA	Number of Samples: Disturbed 3 — Undisturbed NA — Core NA
Casing Diameter (in): NA — Casing Depth (ft): NA	Water Level (ft.): First ▽ 2.1 — Completion ▼ NA — 24 HR. ▼ NA
Casing Hammer: NA — Weight (lbs): NA — Drop (in): NA	Drilling Foreman: George Demetriou
Sampler: 2-inch diameter / 4-foot macro core	Inspecting Engineer: Randy Copenhaver
Sampler Hammer: NA — Weight (lbs): NA — Drop (in): NA	

Material Symbol	Elev. (ft)	Sample Description	PID Reading (ppm)	Depth Scale	Sample Data: Number	Type	Recov. (in)	Penetr. resist BL/6in	Env ID	Remarks (Drilling Fluid, Depth of Casing, Fluid Loss, Drilling Resistance, etc.)
		Black and gray fine to coarse SAND, some gravel (FILL) (dry)	0	0						Begin at 8:10
		Tan GRAVEL, some sand (FILL) (dry)	0	1						
		Black GRAVEL, some sand, ash (FILL) (moist to wet)	0	2	1	PUSH	34			Groundwater encountered at 2.1 feet
		Gray and brown CLAY (wet)	0	3						
		Gray and brown CLAY (wet)	0	4						
		Brown fine to coarse SAND, trace clay and silt (wet)	0	5						
		Brown and gray fine to coarse SAND (wet)	24.4	6	2	PUSH	38			
			13.8							
			3.6							
			4.8	7					019	
			36.6							
			4.8	8						
		Brown and gray fine to coarse SAND (wet)	0	9						
		Red CLAY, some sand, trace gravel (wet)	0	10	3	PUSH	21			End boring at 12 feet at 8:25
			0	11						
			0	12						

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Log of Boring **SB-85** Sheet 1 of 1

Project: Westrum Development Company	Project No.: 3611302
Location: Former Nicolet Industries Site: Ambler, PA	Elevation and Datum: NA
Drilling Company: Terra Probe, Inc.	Date Started: 1/25/06 — Date Finished: 1/25/06
Drilling Equipment: Geoprobe (Track Mounted)	Completion Depth: 12 ft — Rock Depth: 12 ft
Size and Type of Bit: NA	Number of Samples: Disturbed 3 — Undisturbed NA — Core NA
Casing Diameter (in): NA — Casing Depth (ft): NA	Water Level (ft.): First ▽ 2.5 — Completion ▼ NA — 24 HR. ▼ NA
Casing Hammer: NA — Weight (lbs): NA — Drop (in): NA	Drilling Foreman: George Demetriou
Sampler: 2-inch diameter / 4-foot macro core	Inspecting Engineer: Randy Copenhaver
Sampler Hammer: NA — Weight (lbs): NA — Drop (in): NA	

Material Symbol	Elev. (ft)	Sample Description	PID Reading (ppm)	Depth Scale	Sample Data: Number	Type	Recov. (in)	Penetr. resist BL/6in	Env ID	Remarks (Drilling Fluid, Depth of Casing, Fluid Loss, Drilling Resistance, etc.)
		Asphalt	0	0						Begin at 8:45
		Black and gray fine to coarse SAND, some gravel (FILL) (dry)	0							
		Tan GRAVEL, some sand (FILL) (dry)	0	1						
		Brown CLAY (FILL) (moist)	0							
		Black fine to coarse SAND, some gravel, ash (FILL) (moist)	0	2	1	PUSH	33			
		Brown CLAY (moist to wet)	0							Groundwater encountered at 2.5 feet
			0	3						
			0							
			0	4						
		Brown and gray CLAY (wet)	0							
			50.9	5						
			28.2							
			39.1	6	2	PUSH	41			
			4.2							
			0.3	7						
			0.5							
			1.9	8						
		Red CLAY (wet)	34.1						020	
		Red CLAY, some fine to coarse sand, some silt, trace fine gravel (moist)	1006	9						
			26.2							
		Red CLAY, trace fine sand, trace silt, weathered bedrock (wet)	6.0	10	3	PUSH	41			
			0							
			0	11						
			0							
			0	12						End boring at 12 feet at 9:15

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Log of Boring **SB-8A** Sheet 1 of 1

Project: Westrum Development Company	Project No.: 3611302
Location: Former Nicolet Industries Site: Ambler, PA	Elevation and Datum: NA
Drilling Company: Terra Probe, Inc.	Date Started: 7/20/05 — Date Finished: 7/20/05
Drilling Equipment: Geoprobe (Truck Mount)	Completion Depth: 4.5 ft — Rock Depth: 4.5 ft
Size and Type of Bit: NA	Number of Samples: Disturbed 2 — Undisturbed NA — Core NA
Casing Diameter (in): NA — Casing Depth (ft): NA	Water Level (ft.): First ▽ NE — Completion ▼ NA — 24 HR. ▼ NA
Casing Hammer: NA — Weight (lbs): NA — Drop (in): NA	Drilling Foreman: Brian Moriarty
Sampler: 2-inch diameter / 4-foot macro core	Inspecting Engineer: Randy Copenhaver
Sampler Hammer: NA — Weight (lbs): NA — Drop (in): NA	

Material Symbol	Elev. (ft)	Sample Description	PID Reading (ppm)	Depth Scale	Sample Data: Number	Type	Recov. (in)	Penetr. resist BL/6in	Env ID	Remarks (Drilling Fluid, Depth of Casing, Fluid Loss, Drilling Resistance, etc.)
		Dark brown CLAY (TOPSOIL) (moist)	0	0						Start 12:45
		Brown CLAY (dry)	0	1						No odors
			0							
			0	2	1	PUSH	45			
		Brown CLAY, trace sand (dry)	0							
		Gray fine-to-coarse SAND, some gravel, sandstone fragments (dry)	0	3						
			0							
			0	4						Stop 12:50
		Gray fine-to-coarse SAND, some gravel, sandstone fragments (dry)	0		2	PUSH	5	NA		Refusal at 4.5 feet
				5						Terminate boring at 4.5 feet
				6						
				7						
				8						
				9						
				10						
				11						
				12						

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Log of Boring **SB-8B** Sheet 1 of 1

Project: Westrum Development Company	Project No.: 3611302
Location: Former Nicolet Industries Site: Ambler, PA	Elevation and Datum: NA
Drilling Company: Terra Probe, Inc.	Date Started: 7/20/05 — Date Finished: 7/20/05
Drilling Equipment: Geoprobe (Truck Mount)	Completion Depth: 7.5 ft — Rock Depth: 7.5 ft
Size and Type of Bit: NA	Number of Samples: Disturbed 2 — Undisturbed NA — Core NA
Casing Diameter (in): NA — Casing Depth (ft): NA	Water Level (ft.): First ▽ NE — Completion ▼ NA — 24 HR. ▼ NA
Casing Hammer: NA — Weight (lbs): NA — Drop (in): NA	Drilling Foreman: Brian Moriarty
Sampler: 2-inch diameter / 4-foot macro core	Inspecting Engineer: Randy Copenhaver
Sampler Hammer: NA — Weight (lbs): NA — Drop (in): NA	

Material Symbol	Elev. (ft)	Sample Description	PID Reading (ppm)	Depth Scale	Sample Data: Number	Type	Recov. (in)	Penetr. resist BL/6in	Env ID	Remarks (Drilling Fluid, Depth of Casing, Fluid Loss, Drilling Resistance, etc.)
		Orange, brown and dark brown CLAY (TOPSOIL) (moist)	0	0						Start 12:52
		Orange-brown CLAY (dry)	0	1						
		Orange-brown CLAY, trace sand (dry)	0	2	1	PUSH	44			
		Gray fine-to-coarse SAND, trace gravel and clay, sandstone fragments (dry)	0	3						
		Gray fine-to-coarse SAND, trace gravel and clay, sandstone fragments (dry)	0	4						
			0	5						
			0	6	2	PUSH				
			0	7						Stop 12:57 Refusal at 7.5 feet
				8						Terminate boring at 7.5 feet
				9						
				10						
				11						
				12						

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

Project: Westrum Development Company	Project No.: 3611302
Location: Former Nicolet Industries Site: Ambler, PA	Elevation and Datum: NA
Drilling Company: Terra Probe, Inc.	Date Started: 7/20/05 — Date Finished: 7/20/05
Drilling Equipment: Geoprobe (Track Mounted)	Completion Depth: 7.5 ft — Rock Depth: 7.5 ft
Size and Type of Bit: NA	Number of Samples: Disturbed 2 — Undisturbed NA — Core NA
Casing Diameter (in): NA — Casing Depth (ft): NA	Water Level (ft.): First ▽ NE — Completion ▼ NA — 24 HR. ▼ NA
Casing Hammer: NA — Weight (lbs): NA — Drop (in): NA	Drilling Foreman: Brian Moriarty
Sampler: 2-inch diameter / 4-foot macro core	Inspecting Engineer: Randy Copenhaver
Sampler Hammer: NA — Weight (lbs): NA — Drop (in): NA	

Material Symbol	Elev. (ft)	Sample Description	PID Reading (ppm)	Depth Scale	Sample Data: Number	Type	Recov. (in)	Penetr. resist BL/6in	Env ID	Remarks (Drilling Fluid, Depth of Casing, Fluid Loss, Drilling Resistance, etc.)
		Dark brown CLAY (TOPSOIL) (moist)	0	0					220	Start 12:00
		Brown CLAY (moist)	0	1						
			0	2	1	PUSH	48			
		Orange-brown CLAY (moist)	0	3						
			0	4					221	
		Orange-brown mottled gray CLAY (dry)	0	5						
		Brown fine-to-coarse SAND, trace gravel and silt (dry)	0	6	2	PUSH	42			
		White quartz GRAVEL (dry)	0	7						Stop 12:05 Refusal at 7.5 feet
		Red-brown fine-to-coarse SAND, some clay and gravel (dry)	0	8						Terminate boring at 7.5 feet
				9						
				10						
				11						
				12						

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