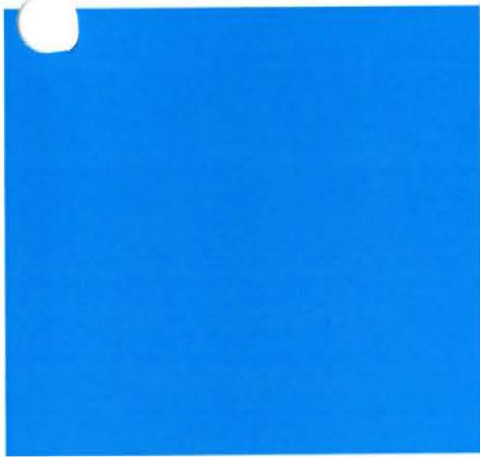




ECS Mid-Atlantic, LLC

Geotechnical Engineering Report for Stormwater Management

The Knoll at Iron Valley Additional – REV

Boyd Street
Cornwall, Lebanon County, Pennsylvania

ECS Project Number 18:6635-A

May 28, 2026





ECS MID-ATLANTIC, LLC

Geotechnical • Construction Materials • Environmental • Facilities

May 28, 2026

Mr. Michael Swank, P.E.
Cornwall Properties, LLC
118 Springwood Drive
Suite 300
Lebanon, PA 17042

ECS Project No. 18:6635-A

Reference: Revised Geotechnical Engineering Report for Stormwater Management
The Knoll at Iron Valley Additional -REV
Boyd Street
Cornwall, Lebanon, Pennsylvania

Dear Mr. Swank:

ECS Mid-Atlantic, LLC (ECS) has completed the subsurface exploration and geotechnical engineering analyses for the above-referenced project. Our services were performed in general accordance with our Proposal No. 18:10752-GP REV, dated May 5, 2025 and Proposal No. 18:11549-GP, dated February 26, 2026. This report presents our understanding of the geotechnical aspects of the project, results of the field exploration, laboratory testing, and our design and construction recommendations.

It has been our pleasure to be of service to Cornwall Properties, LLC during this phase of this project. We would appreciate the opportunity to remain involved during the continuation of the design phase and to provide our services during construction phase operations as well to verify the assumptions of subsurface conditions made for this report. Should you have any questions concerning the information contained in this report, or if we can be of further assistance to you, please contact us.

Respectfully submitted,

ECS Mid-Atlantic, LLC

Carl Parisi
Geotechnical Staff Project Manager II
cparisi@ecslimited.com



Steven J. Becca, P.E.
Group Manager, Associate Principal
sbecca@ecslimited.com

Digitally signed
by Steven Becca
Date: 2026.06.02
14:20:26-04'00'

52-6 GRUMBACHER ROAD, YORK, PA 17406 • T: 717-767-4788

ECS Florida, LLC • ECS Mid Atlantic, LLC • ECS Midwest, LLC • ECS Pacific, Inc. • ECS Southeast, LLC • ECS Southwest, LLP
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Appendix A – Diagrams & Reports

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- Exploration Location Diagram(s)
- Geologic Survey Map
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Appendix B – Field Operations

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- Test Pits Logs
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- Laboratory Testing Summary
- Grain Size Analysis/Analyses
- Plasticity Chart(s)
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- Supplemental Documents

EXECUTIVE SUMMARY

The following summarizes the main findings of the exploration, particularly those that may have a cost impact on the planned development. Further, our principal recommendations are summarized. Information gleaned from the Executive Summary should not be utilized in lieu of reading the entire geotechnical report.

- Perched water was encountered in historic fill at approximate elevations of 615.5 - 665.5. Perched conditions were identified at TP-14, 15, 16, 17, and 18. No apparent or visible signs of the seasonal high-water table were observed while probing below the infiltration testing depths.
- Infiltration rates ranged between 0.00 in/hr to 15.41 in/hr, including a factor of safety of 2.0. Due to the variability in our determined rates from the infiltration testing, our rate recommendations will vary based on locations. Please refer to **Section 4.1.1** for specific design rate recommendations.

Refer to the text of the report for site specific design and construction recommendations.

1.0 INTRODUCTION

The purpose of this study was to provide geotechnical information for design of the proposed stormwater management facility with the associated development at the project site. The recommendations developed for this report are based on project information supplied Cornwall Properties, LLC.

Our services were provided in accordance with our Proposal No. 18: 10752-GP REV, dated May 5, 2025, as authorized by Cornwall Properties LLC on May 16, 2025, and Proposal No. 18:11549-GP, dated February 26, 2026 as authorized on March 18, 2026.

This report contains the procedures and results of our subsurface exploration and laboratory testing programs, review of existing site conditions, engineering analyses, and recommendations for the design and construction of the project.

The report includes the following items:

- A brief review and description of our field procedures.
- A review of surface topographical features and site conditions.
- A review of area and site geologic conditions.
- A review of subsurface soil stratigraphy with pertinent available physical properties.
- Final copies of our test pit logs.
- Infiltration testing results and recommendations for stormwater management.
- Evaluation and recommendations relative to groundwater.

Elevations referenced in this report are taken from the *Infiltration testing Exhibit* provided by Steckbeck Engineering & Surveying, Inc., dated February 2, 2025. Elevations referenced in this report should be considered estimated rather than precise.

2.0 PROJECT INFORMATION

2.1 PROJECT LOCATION

The project site is located west of Boyd Street and south of Granite Street in Cornwall, Lebanon County, Pennsylvania. The property is situated within an undeveloped parcel of land which is predominantly comprised of wooded areas. There is a residential community to the north of the site and a lake to the west of the site location. Based on existing and proposed grades, there is approximately 110 feet of topographic relief across the proposed improvements

Refer to Figure 2.1.A and the Site Location Diagram in Appendix A for a detailed depiction of the project site location.



Figure 2.1.A – Site Location

2.2 PROPOSED CONSTRUCTION

The project will consist of constructing new townhomes. Based on plans provided by the Client, the new development will consist of 50 buildings, meaning 100 total units, eight (8) stormwater facilities, and drive lanes. This report addresses only the stormwater management structures of this development.

2.3 SITE GEOLOGY

According to the Geologic Map of Pennsylvania (1980)¹, the site is underlain by the Hamburg Sequence and Hammer Creek Formation.

Based on *Engineering Characteristics of the Rocks of Pennsylvania*², the Hamburg sequence consists of gray, greenish-gray, and maroon shale, which is silty and siliceous in many places with dark-gray impure sandstone and graywacke, and medium-to light-gray, finely crystalline limestone and shaly limestone. Bedding within the formation is moderately thin well bedded; the sandstone is well bedded; and the limestone is well bedded as well. Fracturing in the shale has a seamy to platy pattern, close spacing, open and steeply dipping. The sandstone has a blocky pattern, moderately spaced, open and vertically oriented. The bedrock is moderately resistant to a deep depth, resulting in loose rubble of pencil-like to rectangular plates. The formation exhibits good surface drainage with the joints and bedding planes providing secondary porosity of moderate magnitude.

The Hammer Creek Formation consists of reddish-brown to gray and pale-red, fine- to coarse-grained quartzose sandstone, siltstone, and shale that is well bedded in a thick to massive manner. Jointing in the formation exhibits a moderately developed and abundant, blocky, regularly occurring, open, and steeply dipping pattern. The formation is moderately resistant to weathering but is dependent upon the grain size of the section exposed. Shale portions of the formation weather more rapidly than the sandstone and conglomeratic sections. Natural slopes formed in areas underlain by the formation are of high relief and are stable. The formation is characterized by low primary porosity, moderate secondary porosity from joint- and bedding- plane openings, and moderate to low permeability.

2.4 SOIL SURVEY MAPPING

Based on our review of the Soil Survey (USDA - Natural Resources Conservation Service (websoilsurvey.nrcs.usda.gov), the site soils are mapped Ungers extremely Stony loam, 8 to 25 percent slopes and Quarries. These soil types are described as having the following properties:

SOIL MAPPING SUMMARY						
Mapped Soil Unit	Soil Unit Symbol	Origin/ Type	Depth to Restrictive Feature	Depth to Water Table	Hydrologic Soil Group	KSat (in/hr)
Quarries	Qu	Quarry Pits	N/A	N/A	No	N/A
Ungers extremely Stony loam, 8 to 25 percent slopes	UoC	Residuum weathered from sandstone and siltstone	48 to 80 inches to lithic bedrock	>80 inches	B	(0.60 – 2.00)

¹ Berg, T. M., Edmunds, W. E., Geyer, A. R., and others, compilers, 1980, Geologic map of Pennsylvania (2nd ed.): Pennsylvania Geological Survey, 4th ser., Map 1, 3 sheets, scale 1:250,000

² Geyer, A. R., and Wilshusen, J. P., (1982), *Engineering Characteristics of the Rocks of Pennsylvania*. Bureau of Topographic and Geologic Survey.

3.0 FIELD EXPLORATION AND LABORATORY TESTING

Our scope of work in July 2025 included excavating twenty-one (21) test pits and performing twenty-one (21) corresponding double ring infiltration tests. Due to site conditions, only nineteen (19) infiltration test were performed. In addition, four (4) test pit probes were also performed. In March 2026 an additional five (5) test pits and five (5) corresponding double rig infiltration test were performed. In addition, five cased borehole probes and infiltration test were performed. Our testing locations were located with a handheld GPS unit and their approximate locations are shown on the Exploration Location Diagram in Appendix A.

3.1 SUBSURFACE CHARACTERIZATION

The following sections provide generalized characterizations of the subsurface conditions. Please refer to the test pit / cased borehole logs in Appendix B for more detailed information.

SUBSURFACE SUMMARY	
Stratum	Description
n/a	Approximately 6 to 16 inches of Topsoil
I	FILL, GRAVEL (GP) with various amounts of sand and silt, SILT (ML) with various amounts of gravel and sand, light brown to dark brown and black, moist to wet
II	SILT (ML) with various amounts of sand and gravel, orange and red, moist to wet

Construction debris was identified in the fill layer at Test Pit locations P-03, TP-16 and TP-19.

3.1.1 Exploration Test Pit Results Summary

Four (4) Exploratory test pits were performed with a Kubota KX033-4/CAT 315 C across the anticipated structures as well as within some of the proposed site improvement areas which include parking areas, drive lanes, steepened slopes, and stormwater management facilities. At P-03, remanence of a concrete slab was encountered along the side of the excavation between 1 and 3 feet below existing grade. The summary of the exploration results is provided in the following table.

EXPLORATORY TEST PITS			
Location	Surface Elevation ¹ (ft)	Bucket Refusal Depth (ft)	Bucket Refusal Elevation (ft)
P-01	683.0	6.0	677.0
P-02	626.5	10.0	616.5
P-03	617.0	8.0	609.0
P-04	662.5	13.0	649.5

Note¹: The ground surface elevations were provided to ECS by Cornwall Properties, LLC

3.2 GROUNDWATER OBSERVATIONS

Water levels were measured during the on-site exploration and are included on our test pit logs in Appendix B. Water depths measured at the time of excavations ranged from 2 to 9 feet below the ground surface, corresponding to EL. 615.0 to EL 665.5 ft. The water encountered appeared to within the fill materials, indicating readings may be due to a perched condition.

“Perched water is typically of limited quantity, replenished or recharged very slowly. When encountered in an excavation, perched water will typically drain off very quickly, with limited continuous flow or bleeding, unless a source of recharge, such as a leaking utility is present.”

From: Construction Dewatering and Groundwater Control – New Methods and Applications, 3rd Addition

A historical review indicated that the site appears to be associated with mined lands and infrastructure associated with the Cornwall Iron Furnace. This area was part of a historic iron ore mine that was in operation from 1737 until closing in 1973. The perched water conditions present can likely be attributed to the close proximity of historic mining operations.

A water table aquifer is distinguished from a perched groundwater table based on the water table aquifer’s recharge ability, which may be limitless but can be lowered temporarily through adequate dewatering techniques such as deep wells and well points. Perched groundwater is often alleviated in excavations by pumping from sump pits and French drains.

Variations in both groundwater types (perched and groundwater table aquifer) can occur as a result of changes in precipitation, evaporation, surface water runoff, construction activities, and other factors.

GROUNDWATER READINGS			
Location	Existing Grade (Feet) ¹	Approximate Water Depth (Feet)	Approximate Water Elevation (Feet)
P-01	663.0	3.0 ²	660.0
P-03	617.0	2.0 ²	615.0
TP-02	668.5	3.0 ²	665.5
TP-14	633.5	5.0 ²	628.5
TP-15	635.5	9.0 ²	626.5
TP-16	618.0	2.0 ²	616.0
TP-17	617.5	2.0 ²	615.5
TP-18	619.0	2.0 ²	617.0

Note¹: The ground surface elevations were provided to ECS by Cornwall Properties, LLC

Note²: Water encountered in these locations is thought to be perched

3.2.1 Stormwater Infiltration Testing

The infiltration testing was completed using the double ring infiltration and percolation methods in general accordance with Appendix C of the 2006 Pennsylvania Stormwater Best Management Practices (PA BMP) Manual. Infiltration test results are provided in the following table. Of the 31 infiltration

locations, 29 infiltration tests were performed while 2 test were abandoned due to the presence of limiting zones.

INFILTRATION TESTING RESULTS						
Test Location	Surface Elevation (Feet) ⁽¹⁾	Depth to Limiting Zone (Feet)	Limiting Layer Elevation (Feet)	Infiltration Test Depth (Feet)	Test Elevation (Feet)	Infiltration Rate (inches / hour) (Includes FS)
SCM No. 2						
IT-22	671.5	>10.0	<661.5	7.5	664.0	0.00 ⁴
TP-23	669.0	>7.0	<662.0	5.0	664.0	0.49
IT-24	672.0	>10.0	<662.0	8.0	664.0	18.65 ⁴
SCM No. 1						
TP-25	663.0	>11.5	<651.5	7.0	656.0	0.53
IT-26	664.5	>12.0	<652.5	8.5	656.0	0.00 ⁴
IT-27	665.5	>12.0	<653.5	9.5	656.0	3.46 ⁴
SCM No. 4						
TP-06	658.0	>9.0	<649.0	7.0	651.0	0.11
TP-07	659.0	>10.0	<649.0	8.0	651.0	0.88
TP-08	660.0	>11.0	<649.0	8.0	652.0	0.80
SCM No. 5						
TP-09	665.5	>5.5	<660.0	3.5	662.0	5.28
TP-10	665.5	>5.5	<660.0	3.5	662.0	0.00
SCM No. 3						
TP-11	633.5	>6.0	<627.5	2.5	631.0	2.87
TP-12	635.0	>7.0	<628.0	4.0	631.0	3.21
TP-13	637.0	>9.0	<628.0	6.0	631.0	0.96
Additional Infiltration Testing						
TP-14	633.5	6.0 ²	627.5	4.0	629.5	0.00
TP-15	635.5	9.0 ²	626.5	7.0	628.5	0.62
IT-28	637.0	>12.0	<625.0	8.5	628.5	0.00 ⁴
TP-29	619.5	>3.5	<616.0	1.5	618.0	7.99
TP-30	622.0	>7.0	<615.0	4.0	618.0	5.59
TP-31	622.0	>7.0	<615.0	4.0	618.0	0.80
TP-20	617.0	>3.5	<613.5	2.5	614.5	0.00
TP-21	616.0	>4.5	<611.5	2.5	613.5	0.43
TP-01	669.5	>5.5	<664.0	3.5	666.0	0.00
TP-02	668.5	3.02	665.5	1.0	667.5	0.00
TP-03	665.0	>9.0	<656.0	7.0	658.0	0.10
TP-04	666.5	>7.0	<659.5	5.0	661.5	10.66
TP-05	668.5	>4.5	<664.0	2.5	666.0	0.03
TP-11	633.5	>6.0	<627.5	2.5	631.0	2.87
TP-12	635.0	>7.0	<628.0	4.0	631.0	3.21
TP-13	637.0	>9.0	<628.0	6.0	631.0	0.96
TP-14	633.5	6.0 ²	627.5	4.0	629.5	0.00

TP-15	635.5	9.0 ²	626.5	7.0	628.5	0.62
TP-16 ³	618.0	2.02	616.0	-	-	-
TP-17 ³	617.5	2.02	615.5	1.5	616.0	7.07
TP-18 ³	619.0	2.02	617.0	-	-	-
TP-19	618.5	>4.5	<614.0	2.5	616.0	15.41
TP-29	619.5	>3.5	<616.0	1.5	618.0	7.99
TP-30	622.0	>7.0	<615.0	4.0	618.0	5.59
TP-31	622.0	>7.0	<615.0	4.0	618.0	0.80
TP-20	617.0	>3.5	<613.5	2.5	614.5	0.00
TP-21	616.0	>4.5	<611.5	2.5	613.5	0.43

Note¹: The ground surface elevations were provided to ECS by Cornwall Properties, LLC

Note²: Groundwater limiting zone encountered

Note³: Infiltration test is invalid due to limiting zone proximity

Note⁴: Infiltration test completed as cased borehole test

Infiltration testing was completed within the two (2) foot requirement from a limiting zone at TP-17. Infiltration testing was started before water was identified in this location.

Test depths do vary slightly from the provided testing exhibit, this was due to site conditions and other fieldwork related obstacles. The Civil engineer was contacted, and these variations were discussed through email correspondence.

3.3 LABORATORY TESTING

Each sample was visually classified on the basis of texture and plasticity in accordance with ASTM D2488 Standard Practice for Description and Identification of Soils (Visual-Manual Procedures) including USCS classification symbols. After classification, the samples were grouped in the major zones noted on the test pit logs in Appendix B. The group symbols for each soil type are indicated in parentheses along with the soil descriptions. The stratification lines between strata on the logs are approximate; in situ, the transitions may be gradual.

The laboratory testing performed by ECS for this project consisted of selected tests performed on samples obtained during our field exploration operations. Moisture (ASTM D2216), Grain Size (ASTM D6913), Hydrometer (ASTM D7928), and Atterberg Limits (ASTM D4318) were performed on representative soil samples obtained from the test pits in order to aid in classifying soils according to the Unified Soil Classification System (USCS) and to quantify and correlate engineering properties. The laboratory results can be found in Appendix C.

Soil samples from this exploration program will be retained in our laboratory for a period of 60 calendar days from date of collection, corresponding to the date of completion indicated on the exploration logs. After this time, the samples will be discarded unless other instructions are received from you regarding their disposal in advance.

4.0 DESIGN RECOMMENDATIONS

4.1 STORMWATER MANAGEMENT AREAS

4.1.1 Stormwater Management Facilities

General: A plan set was provided to ECS with test pit locations within the proposed stormwater management facilities.

4.1.1.a Infiltration Characteristics

Undocumented fill was encountered at 35 test pit locations, extending to more than 11 feet below existing grades. Two test pits identified construction debris within this fill layer. Based on proposed testing elevations provided, infiltration testing was completed within existing fill materials. From visual observations and laboratory testing, this undocumented fill material beneath the proposed stormwater facilities is not homogeneous and could cause highly variable infiltration characteristics.

DESIGN RATES		
Basin Identification	Test Location	Design Infiltration Rate (inches / hour)
SCM No. 2	IT-22, TP-23 and IT-24	0.22
SCM No. 1	TP-25, IT-26 and IT-27	0.24
SCM No. 4	TP-06, TP-07 and TP-08	0.31
SCM No. 5	TP-09 and TP-10	1.51
SCM No. 3	TP-11, TP-12 and TP-13	1.66

Due to the variability in our determined rates from the infiltration testing, the infiltration rate recommendations vary based on BMP location. If volume reduction cannot be met with these infiltration rates, stormwater management may also need to incorporate water quality and rate control measures. Water quality can be enhanced with the use of amended soils in BMP facilities for filtering of the water, while volume control can be provided with adequate sizing of facilities combined with an appropriate underdrain system.

Alternatively, the fill material could be overexcavated to a minimum depth of 3 feet below the proposed invert and replaced with a suitable soil media backfill similar to that suggested in section 4.1.3. This material would have to be confirmed to be able to provide the required rates of infiltration.

ECS recommends that specific construction notes appear on the plans requiring full-time observation of the excavation of the basins by the authorized ECS representative to verify suitable conditions are present. ECS can assist in developing these notes once plans become more final.

4.1.1.b Embankment/Outlet Structures/Slopes

Embankment construction or cut slopes to facilitate basin construction should incorporate side slopes of 3(H):1(V) or flatter. If steeper slopes are necessary, ECS should be contacted to review the proposed slope geometry.

Fill materials should be placed to a minimum of 95% of the maximum dry density of the material, as determined by the Standard Proctor method (ASTM D698). The moisture content of the materials should be within $\pm 3\%$ of the optimum.

Storm water management facilities with embankments should include the construction of a clay core having a minimum thickness of 2 feet. Clay suitable for this use should consist of CL or CH materials, having a minimum of 70% fines (passing the No. 200 sieve), a minimum liquid limit (LL) of 40 and minimum plasticity index (PI) of 20. This fill material must be approved by the Geotechnical Engineer. Clay materials should be compacted to 95% of the standard Proctor maximum dry density at a moisture content that is at or up to 3% above the optimum. Lab testing performed indicates that the on-site material is **not** suitable for clay core.

4.1.1.c Temporary Sediment Basin Fill Embankments

Soils used in temporary sediment basin fill embankments should satisfy the requirements for fill discussed above and should be placed and compacted to the specification requirements for Structural Fill. Care should be taken not to track heavy equipment over the basin bottom during construction.

4.1.2 Stormwater Management Considerations

In keeping with the guidelines and recommendations of the PA BMP Manual, ECS recommends that the following design principles be incorporated:

- Use existing drainage patterns
- Keep stormwater away from known sinkholes or problematic subsidence areas
- Avoid concentrating stormwater
- Reduce runoff volume and velocity
- Use broad shallow basins
- Maintain the facilities post construction
- Provide underdrains or other means for dewatering in stormwater management facilities if needed

4.1.3 Stormwater Management Facilities - Design Notes

It has been our experience that construction of basins may encounter conditions that were not anticipated as a result of the subsurface exploration. As a result, we have developed the following sequence of items for addressing construction related difficulties or discrepancies with the design assumptions. We recommend that these recommendations be included in the stormwater management feature construction notes on the plans.

- A) If redoximorphic features (soil mottling and coloration patterns formed by the reduction of iron and/or manganese from saturated conditions in the soil) are encountered:
- A qualified professional should determine if the features observed are associated with a historic condition (associated with fill, previous site condition, or natural coloration) or are associated with conditions that could presently occur (seasonal variations in the water table).
 - Evaluate the elevation of the features relative to the proposed design elevation of the SWM feature and determine if the size and elevation of the SWM feature can be adjusted to alleviate the conflict.
 - Retain ECS and Civil Engineer to evaluate alternate design concepts. Alternate designs proposed by the Professional should be sealed and submitted to the Township for approval.
- B) If the field verified infiltration rates are excessively high (greater than 6 inches per hour) and Cation Exchange Capacity is known:
- Determine the extent of the materials exhibiting the high infiltration rates through a combination of visual-manual classification, hand probing, density testing, or other suitable methods as determined by ECS.
 - Overexcavate the materials to the depth where the material type changes or a maximum depth of 2 feet, whichever is encountered first.
 - If excessive rates are associated with weathered or broken rock, the rock surface should be examined by ECS, prior to replacement of suitable material.
 - Replace the excavated material with finer grained materials approved by ECS. Suitable soil mixtures can consist of a blend of on-site and/or off-site materials available to the Contractor generally conforming to the table below, with field infiltration rates post placement determined and approved by ECS.

RECOMMENDED SOIL MEDIA BLEND								
Permissible Soil Types for Soil Media, based on USDA Classification	Ranges of USDA Particle Size Percentages						Typical Infiltration Rates for Permissible Soil Types (in/hr)*	
	Sand		Silt		Clay		Min	Max
	Min	Max	Min	Max	Min	Max		
Sand, Loamy Sand, Sandy Loam, Loam	50	90	0	50	0	20	0.5	6.0

- Materials should be lightly tracked into place in non-structural areas.
 - If material replacement is required in structural areas (Ex: below-grade SWM facilities in paved areas), material placement specifications, including materials type, mix ratio, compactive effort and required density should be determined by ECS. Technical recommendations should be sealed by ECS and submitted to the Township for approval.
- C) If the field verified infiltration rates are excessively low (less than 0.1 in/hr):
- Determine the extent of the materials exhibiting the low infiltration rates through a combination of visual-manual classification, hand probing, density testing, or other suitable methods as determined by the ECS.
 - Overexcavate the materials to the depth where the material type changes or a maximum depth of 2 feet, whichever is encountered first.

-
- If bedrock is encountered, the rock should be removed to a minimum depth of 2 feet below the bottom of basin and should be examined by ECS, prior to replacement of suitable material.
 - Replace the excavated material with more coarsely grained materials approved by ECS. Suitable soil mixtures can consist of a blend of on-site and/or off-site materials available to the Contractor, and subject to testing and approval of ECS.
 - Suitable soil mixtures may consist of materials blended by volume ratios as determined by ECS.
 - Materials should be lightly tracked into place in non-structural areas.

If material replacement is required in structural areas (Ex: below-grade SWM facilities in paved areas), material placement specifications, including materials type, mix ratio, compactive effort and required density should be determined by ECS. Suitable soil mixtures can consist of a blend of on-site and/or off-site materials available to the Contractor generally conforming the table above, with field infiltration rates post placement determined and approved by ECS.

5.0 SITE CONSTRUCTION RECOMMENDATIONS

5.1 CONSTRUCTION RECOMMENDATIONS

It is recommended that verification of the subgrade conditions at the time of construction be conducted by an authorized ECS representative.

During excavation of the basin, the materials at the bottom of basin should be verified to be consistent with those encountered in the exploration. Proper performance of infiltration facilities will be influenced by the variability in the subsurface. It will be important that construction equipment does not traffic on the materials at the infiltration bed elevation, and that hand probing on an approximately 25 foot grid or isolated test pits be provided to evaluate proper offset distances from limiting zones.

We recommend SWM facilities be located a minimum of 25 feet from adjacent buildings, taken from edge of SWM facility to outside of footing. The allowable buffer distance is highly dependent on site constraints including but not limited to, foundation type, subgrade soils, geology, structural loading, foundation bearing elevation, invert elevation, and groundwater. If site constraints prohibit this recommendation, the facility may be located closer to a building subject to the review and approval of ECS. It is important to note that the close proximity of buildings will generally not negatively impact the functionality of the stormwater facilities, but water infiltration and a reduced buffer may negatively affect the bearing capacity of adjacent buildings.

Significant existing fill deposits were encountered across the site. Generally, the fill appears to consist of granular materials associated with historic mining on and around the site. The fill materials generally had excessive infiltration rates and amended soils will be required to slow the design infiltration rate down to less than 6.0 in/hr. It is our understanding that the fills are predominately gravel, cobble, and boulder sized rock particles from the iron ore mining in the immediate area.

6.0 CLOSING

ECS has prepared this report to guide the geotechnical-related design and construction aspects of the project. We performed these services in accordance with the standard of care expected of professionals in the industry performing similar services on projects of like size and complexity at this time in the region. No other representation, expressed or implied, and no warranty or guarantee is included or intended in this report.

The description of the proposed project is based on information provided to ECS by Cornwall Properties, LLC. If any of this information is inaccurate or changes, either because of our interpretation of the documents provided or site or design changes that may occur later, ECS should be contacted so we can review our recommendations and provide additional or alternate recommendations that reflect the proposed construction.

We recommend that ECS review the project plans and specifications so we can confirm that those plans/specifications are in accordance with the recommendations of this geotechnical report.

Field observations, and quality assurance testing during earthwork and foundation installation are an extension of, and integral to, the geotechnical design. We recommend that ECS be retained to apply our expertise throughout the geotechnical phases of construction, and to provide consultation and recommendation should issues arise.

ECS is not responsible for the conclusions, opinions, or recommendations of others based on the data in this report.

Appendix A - Drawings and Reports

Site Location Diagram

Exploration Location Diagram(s)

Geologic Survey Map

Soil Survey Map

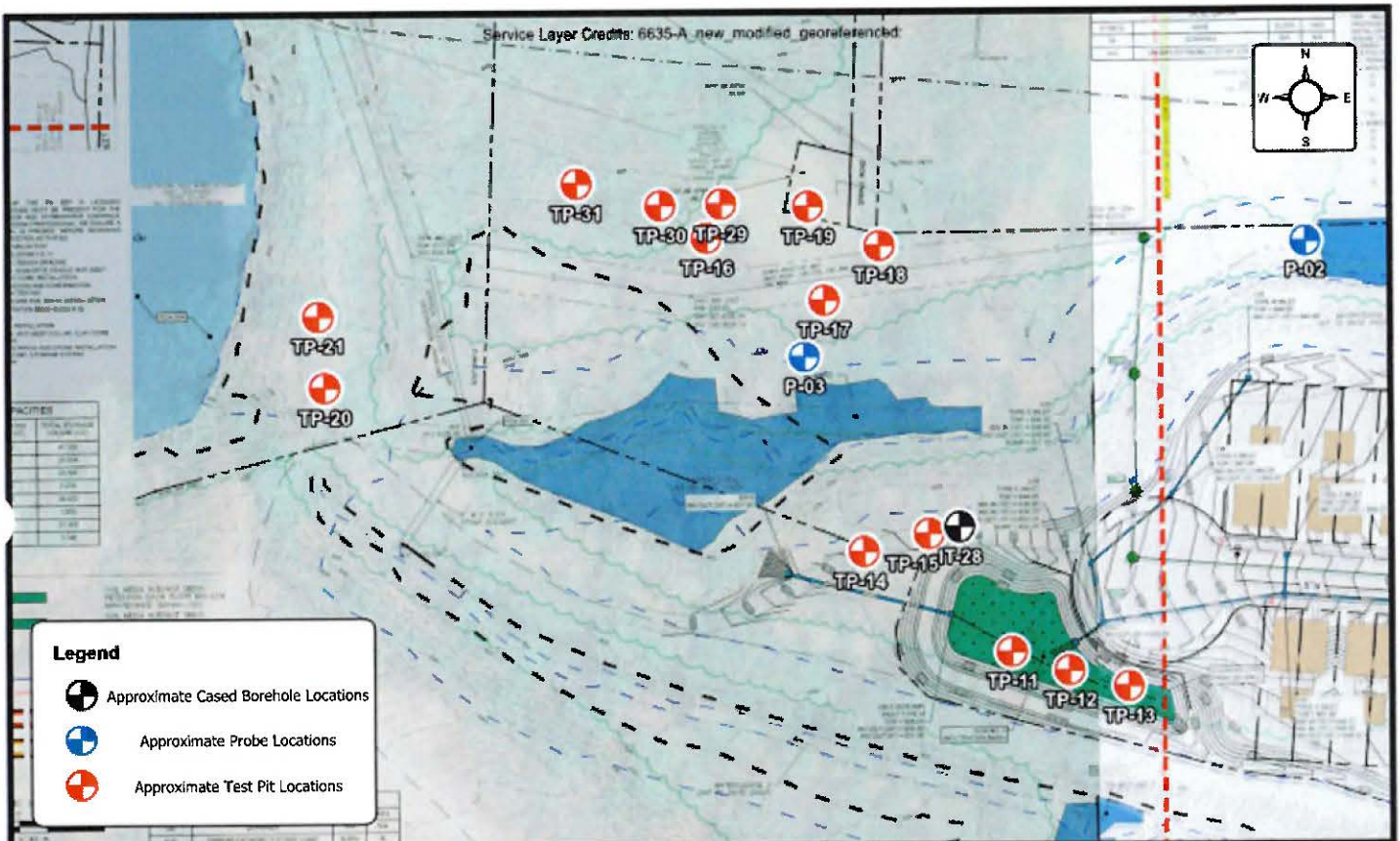


SITE LOCATION DIAGRAM

The Knoll at Iron Valley Additional SWM Testing

Boyd Street, Cornwall, Pennsylvania
Cornwall Properties, LLC

ENGINEER	JMC2
SCALE	1" = 1000'
PROJECT NO.	18.6635-A
SHEET	1 of 1
DATE	3/25/2026



Exploration Location Diagram

The Knoll at Iron Valley Additional SWM Testing

Boyd Street, Cornwall, Pennsylvania
Byler Real Estate Holdings, LLC

ENGINEER
SJB4
SCALE
1" = 100'
PROJECT NO.
18:6635-A
SHEET
2 of 2
DATE
5/28/2026

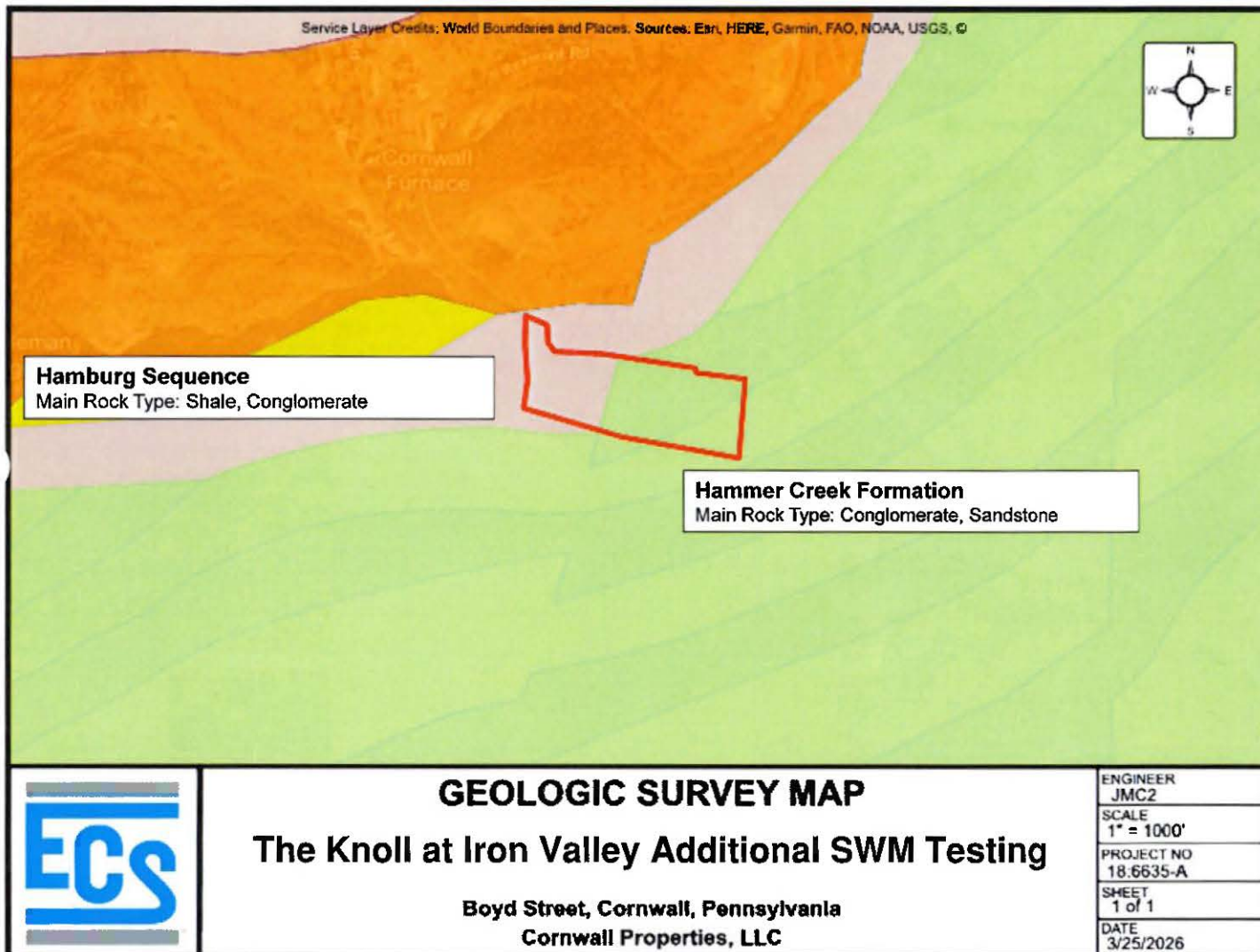


Exploration Location Diagram

The Knoll at Iron Valley Additional SWM Testing

Boyd Street, Cornwall, Pennsylvania
Byler Real Estate Holdings, LLC

ENGINEER
SJB4
SCALE
1" = 100'
PROJECT NO.
18-6635-A
SHEET
1 of 2
DATE
5/28/2026





SOIL SURVEY MAP **The Knoll at Iron Valley Additional** **SWM Testing**

Boyd Street, Cornwall, PA
 Cornwall Properties, LLC

DRAFTER	PAD1
SCALE	NTS
PROJECT NO.	18:6635-A
DATE	3/25/2026
SOURCE	Web Soil Survey https://websoilsurvey.nrcs.usda.gov

Appendix B - Field Operations

Exploration Procedures

Test Pit Logs

Photographs

Infiltration/Permeability/Hydraulic Test Results



SUBSURFACE EXPLORATION PROCEDURE: TEST PIT EXCAVATION

A test pit is an excavation of subsurface materials to characterize the composition and rippability/excavation efforts. Test pit exploration allows observation of the boundary relationships within a soil and rock profile and is useful to identify existing fill composition, disturbed material or the depth of soft sediments. Both track mounted excavators and backhoes are used in a variety of ground conditions allowing for difficult terrain to be accessed. The excavation process also provides access for in-situ and field testing and acquisition of samples for laboratory testing.

TEST PIT Procedure:

- Involves excavation subsurface material to observe composition and physical characteristics
- Recording the approximate depth of subsurface strata
- Excavation is continued as prescribed or to limits of equipment and subsurface conditions
- The exploration is typically carried out with an excavator or backhoe, with the depth dependent on machine size and ground





SUBSURFACE EXPLORATION PROCEDURE: STANDARD PENETRATION TESTING (SPT) ASTM D 1586 Split-Barrel Sampling

Standard Penetration Testing, or **SPT**, is the most frequently used subsurface exploration test performed worldwide. This test provides samples for identification purposes, as well as a measure of penetration resistance, or N-value. The N-Value, or blow counts, when corrected and correlated, can approximate engineering properties of soils used for geotechnical design and engineering purposes.

SPT Procedure:

- Involves driving a hollow tube (split-spoon) into the ground by dropping a 140-lb hammer a height of 30-inches at desired depth
- Recording the number of hammer blows required to drive split-spoon a distance of 18-24 inches (in 3 or 4 Increments of 6 inches each)
- Auger is advanced* and an additional SPT is performed
- One SPT typically performed for every two to five feet. An approximate 1.5 inch diameter soil sample is recovered.



**Drilling Methods May Vary—* The predominant drilling methods used for SPT are open hole fluid rotary drilling and hollow-stem auger drilling.

CLIENT: Cornwall Properties, LLC			PROJECT NO.: 18:6635		TEST PIT NO.: P-01		SHEET: 1 OF 1				
PROJECT NAME: The Knoll at Iron Valley SWM Testing			SITE LOCATION: Boyd Street, Cornwall, Pennsylvania, 17042								
LATITUDE: 40.265800			LONGITUDE: -76.397000		STATION:			SURFACE ELEVATION: 663			

DEPTH (FT)	WATER LEVELS	ELEVATION (FT)	DESCRIPTION OF MATERIAL	STRATIGRAPHY	DCP	EXCAVATION EFFORT	OPT(SF)	SAMPLE NUMBER	Moisture Content %	
5.0	▼	660.	Topsoil [Thickness=12"].			Easy				
			FILL - (GP-GC) POORLY GRADED GRAVEL WITH CLAY - light brown and tan, wet to moist, Coarse fragments roughly 70%, 5YR 6/4 - 10YR 6/1.			Medium				
655. 650. 645.			BUCKET REFUSAL AT 6 Ft							

REMARKS:				
THE STRATIFICATION LINES REPRESENT THE APPROXIMATE BOUNDARY LINES BETWEEN SOIL TYPES. IN-SITU THE TRANSITION MAY BE GRADUAL				
EXCAVATION EFFORT: E-EASY M-MEDIUM D-DIFFICULT VD-VERY DIFFICULT				
▼ WL (First Encountered): 3 FT ▼ WL (Completion): 3 FT		▼ WL (Seasonal High Water): 3 FT DATE COMPLETED: 07/28/2025		CONTRACTOR: Client Provided UNITS: English
		OPERATOR: Jack CAVE-IN-DEPTH: Not Observed		MAKE/MODEL: Kubota KX033

TEST PIT LOG

CLIENT: Cornwall Properties, LLC		PROJECT NO.: 18:6635		TEST PIT NO.: P-02		SHEET: 1 OF 1			
PROJECT NAME: The Knoll at Iron Valley SWM Testing		SITE LOCATION: Boyd Street, Cornwall, Pennsylvania, 17042							
LATITUDE: 40.266000		LONGITUDE: -76.400400		STATION:		SURFACE ELEVATION: 626.5			
DEPTH (FT)	WATER LEVELS	ELEVATION (FT)	DESCRIPTION OF MATERIAL	STRATIGRAPHY	DCP	EXCAVATION EFFORT	QP(TSF)	SAMPLE NUMBER	Moisture Content %
5.0		625.	Topsoil [Thickness=24"] heavy vegetation.			Easy			
			FILL - (SP) GRAVELLY SAND WITH SILT - orangish brown to dark brown, moist, coarse fragments 70-80%, 10YR 3/4 to 7.5YR 3/4.			Medium			
			FILL - (GP-GM) POORLY GRADED GRAVEL WITH SILT - black, wet to moist, Coarse fragments 50-60%, 10YR 2/1.						
			FILL - (GM) SILTY GRAVEL - grey to dark grey, wet, Contains cobbles, coarse fragments 50-60%, 7.5YR 2.5/1 to 10YR 2/1.						
		620.							
		615.	BUCKET REFUSAL AT 10 Ft						
		610.							
REMARKS:									
THE STRATIFICATION LINES REPRESENT THE APPROXIMATE BOUNDARY LINES BETWEEN SOIL TYPES. IN-SITU THE TRANSITION MAY BE GRADUAL									
EXCAVATION EFFORT: E-EASY M-MEDIUM D-DIFFICULT VD-VERY DIFFICULT									
▽ WL (First Encountered):		▽ WL (Seasonal High Water):		CONTRACTOR:		OPERATOR:		MAKE/MODEL:	
▽ WL (Completion):				Client Provided		Jack		CAT 315 C	
ECS REP.:		DATE COMPLETED:		UNITS:		CAVE-IN-DEPTH:			
FRV		07/16/2025		English		Not Observed			
TEST PIT LOG									

CLIENT: Cornwall Properties, LLC			PROJECT NO.: 18:6635		TEST PIT NO.: P-03		SHEET: 1 OF 1				
PROJECT NAME: The Knoll at Iron Valley SWM Testing			SITE LOCATION: Boyd Street, Cornwall, Pennsylvania, 17042								
LATITUDE: 40.265790			LONGITUDE: -76.401700		STATION:			SURFACE ELEVATION: 617			

DEPTH (FT)	WATER LEVELS	ELEVATION (FT)	DESCRIPTION OF MATERIAL	STRATIGRAPHY	DCP	EXCAVATION EFFORT	QP(TSF)	SAMPLE NUMBER	Moisture Content %	
5.0	▼	615.	Topsoil [Thickness=12"] heavy vegetation.	[Hatched Pattern]	[Red Pattern]	Easy				
	▽		FILL - (GP-GM) POORLY GRADED GRAVEL WITH SILT AND SAND - dark brown to brown, wet to moist, Coarse fragments 70-80%, contains cobbles, 10YR 2/1 to 10YR 3/4 (concrete slab encountered from 1-3ft to the right of the site location).							
			FILL - (GM) SILTY GRAVEL - grey to dark grey, wet, contains cobbles, coarse fragments 50-60%, 7.5YR 2.5/1 to 10YR 2/1.			Difficult				
		610.	BUCKET REFUSAL AT 8 Ft							
		605.								
		600.								

REMARKS:				
THE STRATIFICATION LINES REPRESENT THE APPROXIMATE BOUNDARY LINES BETWEEN SOIL TYPES. IN-SITU THE TRANSITION MAY BE GRADUAL				
EXCAVATION EFFORT: E-EASY M-MEDIUM D-DIFFICULT VD-VERY DIFFICULT				
▼ WL (First Encountered): 3 FT		▼ WL (Seasonal High Water):		CONTRACTOR:
▼ WL (Completion): 2 FT				Client Provided
ECS REP:		DATE COMPLETED:		UNITS:
FRV		07/16/2025		English
				OPERATOR:
				Jack
				MAKE/MODEL:
				CAT 315 C
				CAVE-IN-DEPTH:
				Not Observed

TEST PIT LOG

CLIENT: Cornwall Properties, LLC			PROJECT NO.: 18:6635		TEST PIT NO.: P-04		SHEET: 1 OF 1				
PROJECT NAME: The Knoll at Iron Valley SWM Testing			SITE LOCATION: Boyd Street, Cornwall, Pennsylvania, 17042								
LATITUDE: 40.264700			LONGITUDE: 76.398050		STATION:			SURFACE ELEVATION: 662			

DEPTH (FT)	WATER LEVELS	ELEVATION (FT)	DESCRIPTION OF MATERIAL	STRATIGRAPHY	DCP	EXCAVATION EFFORT	QP(TSF)	SAMPLE NUMBER	Moisture Content %
			Topsoil [Thickness=24"] heavy vegetation.			Easy			
		660	FILL - (ML) SANDY SILT - grayish black, moist, Coarse fragments 20-30%, 7.5YR 5/1 and 10YR 2/1 and 7.5YR 2.5/1.						
5.0									
		655				Medium			
			(ML) SILT WITH SAND - brownish red and red, moist, contains cobbles, coarse fragments 20-30%, 10R 3/6 and 10R 4/4.						
10.0									
		650							
			BUCKET REFUSAL AT 13 Ft						
		645							

REMARKS:
 THE STRATIFICATION LINES REPRESENT THE APPROXIMATE BOUNDARY LINES BETWEEN SOIL TYPES. IN-SITU THE TRANSITION MAY BE GRADUAL
 EXCAVATION EFFORT: E-EASY M-MEDIUM D-DIFFICULT VD-VERY DIFFICULT

▽ WL (First Encountered): ▽ WL (Completion):	▽ WL (Seasonal High Water):	CONTRACTOR: Client Provided	OPERATOR: Jack	MAKE/MODEL: CAT 315 C
ECS REP.: FRV	DATE COMPLETED: 07/14/2025	UNITS: English	CAVE-IN-DEPTH: Not Observed	

TEST PIT LOG

CLIENT: Cornwall Properties, LLC			PROJECT NO.: 18:6635		TEST PIT NO.: TP-01		SHEET: 1 OF 1			
PROJECT NAME: The Knoll at Iron Valley SWM Testing			SITE LOCATION: Boyd Street, Cornwall, Pennsylvania, 17042							
LATITUDE: 40.265939			LONGITUDE: -76.397041		STATION:			SURFACE ELEVATION: 669.5		

DEPTH (FT)	WATER LEVELS	ELEVATION (FT)	DESCRIPTION OF MATERIAL	STRATIGRAPHY	DCP	EXCAVATION EFFORT	QP(TSF)	SAMPLE NUMBER	Moisture Content %
5.0		665.	Topsoil [Thickness=12"].			Easy			
		665.	FILL - (CL) SANDY LEAN CLAY - dark red and tan, moist, Coarse fragments roughly 30%, 10R 3/6 - 10YR 8/1.					S-1	14.1
		660.	END OF TEST PIT AT 5.5 Ft						
		655.							
		650.							

REMARKS:
 THE STRATIFICATION LINES REPRESENT THE APPROXIMATE BOUNDARY LINES BETWEEN SOIL TYPES. IN-SITU THE TRANSITION MAY BE GRADUAL
 EXCAVATION EFFORT: E-EASY M-MEDIUM D-DIFFICULT VD-VERY DIFFICULT

∇ WL (First Encountered): N/E	∇ WL (Seasonal High Water): N/E	CONTRACTOR:	OPERATOR:	MAKE/MODEL:
▼ WL (Completion): N/E		Client Provided	Jack	Kubota KX033
ECS REP:	DATE COMPLETED:	UNITS:	CAVE-IN-DEPTH:	
JMB	07/28/2025	English	Not Observed	

TEST PIT LOG

CLIENT: Cornwall Properties, LLC			PROJECT NO.: 18:6635		TEST PIT NO.: TP-02		SHEET: 1 OF 1				
PROJECT NAME: The Knoll at Iron Valley SWM Testing			SITE LOCATION: Boyd Street, Cornwall, Pennsylvania, 17042								
LATITUDE: 40.265910			LONGITUDE: -76.396980		STATION:			SURFACE ELEVATION: 668.5			
DEPTH (FT)	WATER LEVELS	ELEVATION (FT)	DESCRIPTION OF MATERIAL	STRATIGRAPHY	DCP	EXCAVATION EFFORT	QP(TSF)	SAMPLE NUMBER	Moisture Content %		
			Topsoil [Thickness=9"].	[Hatched Pattern]							
	▼	665.	FILL - (ML) SANDY SILT WITH GRAVEL - dark red and tan, wet to moist, Coarse fragments roughly 30%, 10R 3/6 - 10YR - 8/1.	[Red Vertical Stripes]		Easy		S-1			
		660.	END OF TEST PIT AT 4 Ft								
		655.									
		650.									
REMARKS:											
THE STRATIFICATION LINES REPRESENT THE APPROXIMATE BOUNDARY LINES BETWEEN SOIL TYPES. IN-SITU THE TRANSITION MAY BE GRADUAL											
EXCAVATION EFFORT: E-EASY M-MEDIUM D-DIFFICULT VD-VERY DIFFICULT											
▽ WL (First Encountered): 3 FT			▽ WL (Seasonal High Water): N/E		CONTRACTOR:		OPERATOR:		MAKE/MODEL:		
▼ WL (Completion): 3 FT					Client Provided		Jack		Kubota KX033		
ECS REP.:			DATE COMPLETED:		UNITS:		CAVE-IN-DEPTH:				
JMB			07/28/2025		English		Not Observed				
TEST PIT LOG											

CLIENT: Cornwall Properties, LLC			PROJECT NO.: 18:6635		TEST PIT NO.: TP-03		SHEET: 1 OF 1		
PROJECT NAME: The Knoll at Iron Valley SWM Testing			SITE LOCATION: Boyd Street, Cornwall, Pennsylvania, 17042						
LATITUDE: 40.265800			LONGITUDE: -76.399070		STATION:		SURFACE ELEVATION: 665		

DEPTH (FT)	WATER LEVELS	ELEVATION (FT)	DESCRIPTION OF MATERIAL	STRATIGRAPHY	DCP	EXCAVATION EFFORT	QP(TSF)	SAMPLE NUMBER	Moisture Content %
5.0		660.	Topsoil [Thickness=6"].	[Pattern]		Easy			
			FILL - (GP) POORLY GRADED GRAVEL WITH SAND - black and gray, contains rock fragments, moist, coarse fragments roughly 70%, 5B 6/1 - N3.			Medium			
			FILL - (SP-SM) POORLY GRADED SAND WITH SILT AND GRAVEL - red, moist, Coarse fragments roughly 40%, 7.5YR 5/8 - 7.5 YR 4/8.			Difficult			
		655.	END OF TEST PIT AT 9 Ft						
		650.							

REMARKS:
 THE STRATIFICATION LINES REPRESENT THE APPROXIMATE BOUNDARY LINES BETWEEN SOIL TYPES. IN-SITU THE TRANSITION MAY BE GRADUAL
 EXCAVATION EFFORT: E-EASY M-MEDIUM D-DIFFICULT VD-VERY DIFFICULT

∇ WL (First Encountered): N/E	∇ WL (Seasonal High Water): N/E	CONTRACTOR:	OPERATOR:	MAKE/MODEL:
▼ WL (Completion): N/E		Client Provided	Jack	Kubota KX033
ECS REP.:	DATE COMPLETED:	UNITS:	CAVE-IN-DEPTH:	
JMB	07/28/2025	English	Not Observed	

TEST PIT LOG

CLIENT: Cornwall Properties, LLC			PROJECT NO.: 18:6635		TEST PIT NO.: TP-04		SHEET: 1 OF 1			
PROJECT NAME: The Knoll at Iron Valley SWM Testing			SITE LOCATION: Boyd Street, Cornwall, Pennsylvania, 17042							
LATITUDE: 40.265780			LONGITUDE: -76.398820		STATION:			SURFACE ELEVATION: 666.5		
DEPTH (FT)	WATER LEVELS	ELEVATION (FT)	DESCRIPTION OF MATERIAL	STRATIGRAPHY	DCP	EXCAVATION EFFORT	QP(TSF)	SAMPLE NUMBER	Moisture Content %	
5.0		665	Topsoil [Thickness=12"].			Easy				
			FILL - (GP) POORLY GRADED GRAVEL WITH SAND - black and gray, moist, coarse fragments roughly 60%, 5B 6/1 - N3.			Medium				
			FILL - (SP) POORLY GRADED SAND WITH GRAVEL - light brown, moist, coarse fragments roughly 30%, 7.5YR 6/4 - 7.5YR5/4.							
		660	END OF TEST PIT AT 7 FT							
		655								
		650								
REMARKS:										
THE STRATIFICATION LINES REPRESENT THE APPROXIMATE BOUNDARY LINES BETWEEN SOIL TYPES. IN-SITU THE TRANSITION MAY BE GRADUAL										
EXCAVATION EFFORT: E-EASY M-MEDIUM D-DIFFICULT VD-VERY DIFFICULT										
▽ WL (First Encountered): N/E			▽ WL (Seasonal High Water): N/E		CONTRACTOR:		OPERATOR:		MAKE/MODEL:	
▼ WL (Completion): N/E					Client Provided		Jack		Kuboata KX033	
ECS REP.:			DATE COMPLETED:		UNITS:		CAVE-IN-DEPTH:			
JMB			07/28/2025		English		Not Observed			
TEST PIT LOG										

CLIENT: Cornwall Properties, LLC			PROJECT NO.: 18:6635		TEST PIT NO.: TP-05		SHEET: 1 OF 1			
PROJECT NAME: The Knoll at Iron Valley SWM Testing			SITE LOCATION: Boyd Street, Cornwall, Pennsylvania, 17042							
LATITUDE: 40.265760			LONGITUDE: -76.398540		STATION:			SURFACE ELEVATION: 668.5		
DEPTH (FT)	WATER LEVELS	ELEVATION (FT)	DESCRIPTION OF MATERIAL	STRATIGRAPHY	DCP	EXCAVATION EFFORT	QP(TSF)	SAMPLE NUMBER	Moisture Content %	
			Topsoil [Thickness=12"]			Easy				
			FILL - (ML) SILT WITH GRAVEL - light brown, moist, coarse fragments roughly 20%, 7.5YR 6/4 and 7.5YR 5/4.			Medium				
			FILL - (SM) SILTY SAND WITH GRAVEL - black and gray, moist, coarse fragments roughly 40%, 5B 6/1 - N3.			Difficult		S-1	8.6	
		665.								
			END OF TEST PIT AT 4.5 Ft							
		660.								
		655.								
		650.								
REMARKS:										
THE STRATIFICATION LINES REPRESENT THE APPROXIMATE BOUNDARY LINES BETWEEN SOIL TYPES. IN-SITU THE TRANSITION MAY BE GRADUAL										
EXCAVATION EFFORT: E-EASY M-MEDIUM D-DIFFICULT VD-VERY DIFFICULT										
☒ WL (First Encountered): N/E			☒ WL (Seasonal High Water): N/E		CONTRACTOR:		OPERATOR:		MAKE/MODEL:	
☒ WL (Completion): N/E					Client Provided		Jack		Kubota KX033	
ECS REP.:			DATE COMPLETED:		UNITS:		CAVE-IN-DEPTH:			
JMB			07/28/2025		English		Not Observed			
TEST PIT LOG										

CLIENT: Cornwall Properties, LLC		PROJECT NO.: 18:6635	TEST PIT NO.: TP-06	SHEET: 1 OF 1		
PROJECT NAME: The Knoll at Iron Valley SWM Testing		SITE LOCATION: Boyd Street, Cornwall, Pennsylvania, 17042				
LATITUDE: 40.264790		LONGITUDE: -73.398900	STATION:		SURFACE ELEVATION: 658	

DEPTH (FT)	WATER LEVELS	ELEVATION (FT)	DESCRIPTION OF MATERIAL	STRATIGRAPHY	DCP	EXCAVATION EFFORT	QP(TSF)	SAMPLE NUMBER	Moisture Content %
5.0		655	Topsoil [Thickness=16"] heavy vegetation.			Easy			
			FILL - (GP-GM) POORLY GRADED GRAVEL WITH SILT AND SAND - gray and orangish brown, moist, Coarse fragments 60-70%, 7.5YR 5/6 and 7.5YR 5/1.			Medium			
		650	FILL - (SM) SILTY SAND - red, moist, Coarse fragments 15-25%, 10R 3/6 and 10R 4/4.					S-01	12.8
			END OF TEST PIT AT 9 Ft						
		645							
		640							

REMARKS:				
THE STRATIFICATION LINES REPRESENT THE APPROXIMATE BOUNDARY LINES BETWEEN SOIL TYPES. IN-SITU THE TRANSITION MAY BE GRADUAL				
EXCAVATION EFFORT: E-EASY M-MEDIUM D-DIFFICULT VD-VERY DIFFICULT				
∇ WL (First Encountered):	∇ WL (Seasonal High Water):	CONTRACTOR:	OPERATOR:	MAKE/MODEL:
▼ WL (Completion):		Client Provided	Jack	CAT 315 C
ECS REP.:	DATE COMPLETED:	UNITS:	CAVE-IN-DEPTH:	
FRV	07/14/2025	English	Not Observed	

TEST PIT LOG

CLIENT: Cornwall Properties, LLC			PROJECT NO.: 18:6635		TEST PIT NO.: TP-07		SHEET: 1 OF 1				
PROJECT NAME: The Knoll at Iron Valley SWM Testing			SITE LOCATION: Boyd Street, Cornwall, Pennsylvania, 17042								
LATITUDE: 40.264740			LONGITUDE: -76.398730		STATION:			SURFACE ELEVATION: 659			

DEPTH (FT)	WATER LEVELS	ELEVATION (FT)	DESCRIPTION OF MATERIAL	STRATIGRAPHY	DCP	EXCAVATION EFFORT	QP(TSF)	SAMPLE NUMBER	Moisture Content %
5.0			Topsoil [Thickness=12"].			Easy			
			FILL - (ML) GRAVELLY SILT WITH SAND - orangish brown and reddish brown, moist, Contains cobbles, coarse fragments 60-70%, 7.5YR 5/6 and 7.5YR 4/4 and 2.5YR 2.5/3.			Medium			
		655.	FILL - (GP) POORLY GRADED GRAVEL WITH SAND - grey to dark grey, moist, contains cobbles, coarse fragments 70-80%, 7.5YR 4/1 and 10YR 5/1.						
			FILL - (SP) POORLY GRADED SAND WITH GRAVEL - red and reddish brown, moist, Contains cobbles, coarse fragments 30-40%, 10R 3/6 and 10R 4/4.						
		650.						S-01	
			END OF TEST PIT AT 10 Ft						
		645.							
		640.							

REMARKS:
 THE STRATIFICATION LINES REPRESENT THE APPROXIMATE BOUNDARY LINES BETWEEN SOIL TYPES. IN-SITU THE TRANSITION MAY BE GRADUAL
 EXCAVATION EFFORT: E-EASY M-MEDIUM D-DIFFICULT VD-VERY DIFFICULT

▽ WL (First Encountered):	▽ WL (Seasonal High Water):	CONTRACTOR:	OPERATOR:	MAKE/MODEL:
▽ WL (Completion):		Client Provided	Jack	CAT 315 C
ECS REP.:	DATE COMPLETED:	UNITS:	CAVE-IN-DEPTH:	
FRV	07/14/2025	English	Not Observed	

TEST PIT LOG

CLIENT: Cornwall Properties, LLC			PROJECT NO.: 18:6635		TEST PIT NO.: TP-08		SHEET: 1 OF 1			
PROJECT NAME: The Knoll at Iron Valley SWM Testing			SITE LOCATION: Boyd Street, Cornwall, Pennsylvania, 17042							
LATITUDE: 40.264670			LONGITUDE: -76.398560		STATION:			SURFACE ELEVATION: 660		
DEPTH (FT)	WATER LEVELS	ELEVATION (FT)	DESCRIPTION OF MATERIAL	STRATIGRAPHY	DCP	EXCAVATION EFFORT	QP(TSF)	SAMPLE NUMBER	Moisture Content %	
5.0		655.	Topsoil [Thickness=12"] heavy vegetation.			Easy				
			FILL - (ML) SILT - grey, moist, Contains cobbles, coarse fragments 20-30%, 2.5Y 5/1.							
			FILL - (GP) POORLY GRADED SANDY GRAVEL - black to brown, moist, Contains cobbles, coarse fragments 70-80%, 10YR 2/1 and 7.5YR 5/6.							
			FILL - (ML) SILT WITH GRAVEL - orangish brown, moist, Coarse fragments 20-30%, 7.5YR 5/6.							
			FILL - (GP) POORLY GRADED SANDY GRAVEL - light grey to dark grey, moist, Coarse fragments 70-80%, 10YR 5/1, 7.5 YR 4/1.							
10.0		650	FILL - (SP) GRAVELLY SAND - red, moist, Coarse fragments 70-80%, 10R 3/6.			Medium		S-01		
		645.	END OF TEST PIT AT 11 Ft							
REMARKS:										
THE STRATIFICATION LINES REPRESENT THE APPROXIMATE BOUNDARY LINES BETWEEN SOIL TYPES. IN-SITU THE TRANSITION MAY BE GRADUAL										
EXCAVATION EFFORT: E-EASY M-MEDIUM D-DIFFICULT VD-VERY DIFFICULT										
▽ WL (First Encountered):			▽ WL (Seasonal High Water):		CONTRACTOR:		OPERATOR:		MAKE/MODEL:	
▽ WL (Completion):					Client Provided		Jack		CAT 315 C	
ECS REP.:			DATE COMPLETED:		UNITS:		CAVE-IN-DEPTH:			
FRV			07/14/2025		English		Not Observed			
TEST PIT LOG										

CLIENT: Cornwall Properties, LLC			PROJECT NO.: 18:6635		TEST PIT NO.: TP-09		SHEET: 1 OF 1			
PROJECT NAME: The Knoll at Iron Valley SWM Testing			SITE LOCATION: Boyd Street, Cornwall, Pennsylvania, 17042							
LATITUDE: 40.264560			LONGITUDE: -76.398130		STATION:			SURFACE ELEVATION: 665.5		
DEPTH (FT)	WATER LEVELS	ELEVATION (FT)	DESCRIPTION OF MATERIAL	STRATIGRAPHY	DCP	EXCAVATION EFFORT	QP(TSF)	SAMPLE NUMBER	Moisture Content %	
5.0		665.	Topsoil [Thickness=16"] heavy vegetation.			Easy				
			FILL - (SP-SM) POORLY GRADED SAND WITH SILT AND GRAVEL - black and reddish black, moist, Coarse fragments 70-80%, contains cobbles, 7YR 2.5/2 and 10R 2.5/2.			Medium				
			FILL - (GC) SANDY GRAVEL WITH SILT - black and orangish brown and grey, moist, coarse fragments 20-30%, 7.5YR 2.5/3 and 7.5YR 4/4 and 7.5YR 5/1.							
		660.	END OF TEST PIT AT 5.5 Ft							
		655.								
		650.								

REMARKS:

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

EXCAVATION EFFORT: E-EASY M-MEDIUM D-DIFFICULT VD-VERY DIFFICULT

WL (First Encountered):	WL (Seasonal High Water):	CONTRACTOR:	OPERATOR:	MAKE/MODEL:
WL (Completion):		Client Provided	Jack	CAT 315 C

ECS REP.:	DATE COMPLETED:	UNITS:	CAVE-IN-DEPTH:
FRV	07/14/2025	English	Not Observed

TEST PIT LOG

CLIENT: Cornwall Properties, LLC		PROJECT NO.: 18:6635	TEST PIT NO.: TP-10	SHEET: 1 OF 1	
PROJECT NAME: The Knoll at Iron Valley SWM Testing		SITE LOCATION: Boyd Street, Cornwall, Pennsylvania, 17042			
LATITUDE: 40.264550		LONGITUDE: -76.398010	STATION:		SURFACE ELEVATION: 665.5

DEPTH (FT)	WATER LEVELS	ELEVATION (FT)	DESCRIPTION OF MATERIAL	STRATIGRAPHY	DCP	EXCAVATION EFFORT	QP(TSF)	SAMPLE NUMBER	Moisture Content %	
		665	Topsoil [Thickness=16"] heavy vegetation.	▨		Easy				
			FILL - (SM) SILTY SAND WITH GRAVEL - black, Contains cobbles and boulders, coarse fragments 20-30%, 10YR 2/1 and 7.5YR 2.5/1.	▨		Medium		S-01	12.9	
5.0		660	FILL - (ML) SILT WITH GRAVEL - orangish brown, contains cobbles, coarse fragments 20-30%, 7.5YR 5/6.	▨						
			END OF TEST PIT AT 5.5 Ft							
		655								
		650								

REMARKS:
 THE STRATIFICATION LINES REPRESENT THE APPROXIMATE BOUNDARY LINES BETWEEN SOIL TYPES. IN-SITU THE TRANSITION MAY BE GRADUAL
 EXCAVATION EFFORT: E-EASY M-MEDIUM D-DIFFICULT VD-VERY DIFFICULT

▽ WL (First Encountered):	▽ WL (Seasonal High Water):	CONTRACTOR:	OPERATOR:	MAKE/MODEL:
▽ WL (Completion):		Client Provided	Jack	CAT 315 C
ECS REP:	DATE COMPLETED:	UNITS:	CAVE-IN-DEPTH:	
FRV	07/14/2025	English	Not Observed	

TEST PIT LOG

CLIENT: Cornwall Properties, LLC			PROJECT NO.: 18:6635		TEST PIT NO.: TP-11		SHEET: 1 OF 1			
PROJECT NAME: The Knoll at Iron Valley SWM Testing			SITE LOCATION: Boyd Street, Cornwall, Pennsylvania, 17042							
LATITUDE: 40.265200			LONGITUDE: -76.401220		STATION:			SURFACE ELEVATION: 633.5		
DEPTH (FT)	WATER LEVELS	ELEVATION (FT)	DESCRIPTION OF MATERIAL	STRATIGRAPHY	DCP	EXCAVATION EFFORT	QP(TSF)	SAMPLE NUMBER	Moisture Content %	
			Topsoil [Thickness=6"]. FILL - (SM) SILTY SAND WITH GRAVEL - grayish brown, moist, coarse fragments 20-30%, 7.5YR 2/5.			Medium		S-1		
5.0		630.								
			END OF TEST PIT AT 6 Ft							
		625.								
		620.								
		615.								
REMARKS:										
THE STRATIFICATION LINES REPRESENT THE APPROXIMATE BOUNDARY LINES BETWEEN SOIL TYPES. IN-SITU THE TRANSITION MAY BE GRADUAL										
EXCAVATION EFFORT: E-EASY M-MEDIUM D-DIFFICULT VD-VERY DIFFICULT										
▽ WL (First Encountered):			▽ WL (Seasonal High Water):		CONTRACTOR:		OPERATOR:		MAKE/MODEL:	
▽ WL (Completion):					Client Provided		Jack		CAT 315 C	
ECS REP.:			DATE COMPLETED:		UNITS:		CAVE-IN-DEPTH:			
CBP			07/17/2025		English		Not Observed			
TEST PIT LOG										

CLIENT: Cornwall Properties, LLC			PROJECT NO.: 18:6635		TEST PIT NO.: TP-12		SHEET: 1 OF 1				
PROJECT NAME: The Knoll at Iron Valley SWM Testing			SITE LOCATION: Boyd Street, Cornwall, Pennsylvania, 17042								
LATITUDE: 40.265160			LONGITUDE: -76.401070		STATION:			SURFACE ELEVATION: 635			
DEPTH (FT)	WATER LEVELS	ELEVATION (FT)	DESCRIPTION OF MATERIAL			STRATIGRAPHY	DCP	EXCAVATION EFFORT	Q(TSF)	SAMPLE NUMBER	Moisture Content %
5.0		630	Topsoil [Thickness=8"].					Medium		S-1	
			FILL - (GP) POORLY GRADED SANDY GRAVEL - grayish brown, moist, coarse fragments 70-80%, 7.5YR 2/5.								
			END OF TEST PIT AT 7 Ft								
		625									
		620									
REMARKS:											
THE STRATIFICATION LINES REPRESENT THE APPROXIMATE BOUNDARY LINES BETWEEN SOIL TYPES. IN-SITU THE TRANSITION MAY BE GRADUAL											
EXCAVATION EFFORT: E-EASY M-MEDIUM D-DIFFICULT VD-VERY DIFFICULT											
 WL (First Encountered):			 WL (Seasonal High Water):			CONTRACTOR:		OPERATOR:		MAKE/MODEL:	
 WL (Completion):						Client Provided		Jack		CAT 315 C	
ECS REP.:			DATE COMPLETED:			UNITS:		CAVE-IN-DEPTH:			
CBP			07/17/2025			English		Not Observed			
TEST PIT LOG											

CLIENT: Cornwall Properties, LLC		PROJECT NO.: 18:6635	TEST PIT NO.: TP-13	SHEET: 1 OF 1		
PROJECT NAME: The Knoll at Iron Valley SWM Testing		SITE LOCATION: Boyd Street, Cornwall, Pennsylvania, 17042				
LATITUDE: 40.265130		LONGITUDE: -76.400920	STATION:		SURFACE ELEVATION: 634	

DEPTH (FT)	WATER LEVELS	ELEVATION (FT)	DESCRIPTION OF MATERIAL	STRATIGRAPHY	DCP	EXCAVATION EFFORT	QP(TSF)	SAMPLE NUMBER	Moisture Content %
5.0		630	Topsoil [Thickness=8"].			Medium		S-1	11.9
		625	FILL - (SM) SILTY SAND WITH GRAVEL - grayish brown, moist, contains cobbles, coarse fragments 30-40%, 7.5YR 2/5.						
		620	END OF TEST PIT AT 9 Ft						
		615							

REMARKS:				
THE STRATIFICATION LINES REPRESENT THE APPROXIMATE BOUNDARY LINES BETWEEN SOIL TYPES. IN-SITU THE TRANSITION MAY BE GRADUAL				
EXCAVATION EFFORT: E-EASY M-MEDIUM D-DIFFICULT VD-VERY DIFFICULT				
▽ WL (First Encountered):	▽ WL (Seasonal High Water):	CONTRACTOR:	OPERATOR:	MAKE/MODEL:
▼ WL (Completion):		Client Provided	Jack	CAT 315 C
ECS REP.:	DATE COMPLETED:	UNITS:	CAVE-IN-DEPTH:	
CBP	07/17/2025	English	Not Observed	

TEST PIT LOG

CLIENT: Cornwall Properties, LLC		PROJECT NO.: 18:6635	TEST PIT NO.: TP-14	SHEET: 1 OF 1		
PROJECT NAME: The Knoll at Iron Valley SWM Testing		SITE LOCATION: Boyd Street, Cornwall, Pennsylvania, 17042				
LATITUDE: 40.265400		LONGITUDE: -76.401600	STATION:		SURFACE ELEVATION: 633.5	

DEPTH (FT)	WATER LEVELS	ELEVATION (FT)	DESCRIPTION OF MATERIAL	STRATIGRAPHY	DCP	EXCAVATION EFFORT	OP(TSF)	SAMPLE NUMBER	Moisture Content %
			Topsoil [Thickness=11"]						
			FILL - (ML) SANDY SILT - dark brown, wet to moist, coarse fragments 10-20%, 7.5YR 3/2.			Medium			
5.0		630.							
		625.							
			END OF TEST PIT AT 10 Ft						
		620.							
		615.							

REMARKS:				
THE STRATIFICATION LINES REPRESENT THE APPROXIMATE BOUNDARY LINES BETWEEN SOIL TYPES. IN-SITU THE TRANSITION MAY BE GRADUAL				
EXCAVATION EFFORT: E-EASY M-MEDIUM D-DIFFICULT VD-VERY DIFFICULT				
 WL (First Encountered): 6 FT	 WL (Seasonal High Water):	CONTRACTOR:	OPERATOR:	MAKE/MODEL:
 WL (Completion): 6 FT		Client Provided	Jack	CAT 315 C
ECS REP.:	DATE COMPLETED:	UNITS:	CAVE-IN-DEPTH:	
CBP	07/17/2025	English	Not Observed	

TEST PIT LOG

CLIENT: Cornwall Properties, LLC			PROJECT NO.: 18:6635		TEST PIT NO.: TP-15		SHEET: 1 OF 1				
PROJECT NAME: The Knoll at Iron Valley SWM Testing			SITE LOCATION: Boyd Street, Cornwall, Pennsylvania, 17042								
LATITUDE: 40.265440			LONGITUDE: -76.401430		STATION:			SURFACE ELEVATION: 635.5			
DEPTH (FT)	WATER LEVELS	ELEVATION (FT)	DESCRIPTION OF MATERIAL			STRATIGRAPHY	DCP	EXCAVATION EFFORT	QP(TSF)	SAMPLE NUMBER	Moisture Content %
5.0		635	Topsoil [Thickness=11"].			  		Medium		S-1	
			FILL - (SM) SILTY SAND WITH GRAVEL - dark brown, moist, coarse fragments 20-30%, 7.5YR 3/1.								
			FILL - (ML) SANDY SILT - brown, wet to moist, coarse fragments 10-20%, 7.5YR 4/2.								
			END OF TEST PIT AT 9 Ft								
		625									
		620									
REMARKS:											
THE STRATIFICATION LINES REPRESENT THE APPROXIMATE BOUNDARY LINES BETWEEN SOIL TYPES. IN-SITU THE TRANSITION MAY BE GRADUAL											
EXCAVATION EFFORT: E-EASY M-MEDIUM D-DIFFICULT VD-VERY DIFFICULT											
 WL (First Encountered):			 WL (Seasonal High Water):			CONTRACTOR:		OPERATOR:		MAKE/MODEL:	
 WL (Completion): 9 FT						Client Provided		Jack		CAT 315 C	
ECS REP.:			DATE COMPLETED:			UNITS:		CAVE-IN-DEPTH:			
CBP			07/17/2025			English		Not Observed			
TEST PIT LOG											

CLIENT: Cornwall Properties, LLC			PROJECT NO.: 18:6635		TEST PIT NO.: TP-16		SHEET: 1 OF 1			
PROJECT NAME: The Knoll at Iron Valley SWM Testing			SITE LOCATION: Boyd Street, Cornwall, Pennsylvania, 17042							
LATITUDE: 40.266030			LONGITUDE: -76.402000		STATION:			SURFACE ELEVATION: 618		

DEPTH (FT)	WATER LEVELS	ELEVATION (FT)	DESCRIPTION OF MATERIAL	STRATIGRAPHY	DCP	EXCAVATION EFFORT	QP(TSF)	SAMPLE NUMBER	Moisture Content %
			Topsoil [Thickness=16"] heavy vegetation.			Easy			
	▽		FILL - (GP) POORLY GRADED GRAVEL WITH SAND - dark brown - orangish, wet to moist, Contains construction debris and cobbles, coarse fragments 70-80%, 7.5YR 4/4 and 7.5YR 3/4.					S-01	
		615.	FILL - (ML) SANDY SILT WITH GRAVEL - brown - orangish brown, wet to moist, Contains cobbles, coarse fragments 20-30%, 10YR 3/4 to 7.5YR 4/4.			Medium			
5.0	▽								
			END OF TEST PIT AT 6 FT						
		610.							
		605.							
		600.							

REMARKS:				
THE STRATIFICATION LINES REPRESENT THE APPROXIMATE BOUNDARY LINES BETWEEN SOIL TYPES. IN-SITU THE TRANSITION MAY BE GRADUAL				
EXCAVATION EFFORT: E-EASY M-MEDIUM D-DIFFICULT VD-VERY DIFFICULT				
▽ WL (First Encountered): 2 FT		▽ WL (Seasonal High Water):		CONTRACTOR:
▼ WL (Completion):				OPERATOR:
				MAKE/MODEL:
ECS REP.:		DATE COMPLETED:		UNITS:
FRV		07/16/2025		CAVE-IN-DEPTH:
		English		Not Observed

TEST PIT LOG

CLIENT: Cornwall Properties, LLC			PROJECT NO.: 18:6635		TEST PIT NO.: TP-17		SHEET: 1 OF 1			
PROJECT NAME: The Knoll at Iron Valley SWM Testing			SITE LOCATION: Boyd Street, Cornwall, Pennsylvania, 17042							
LATITUDE: 40.265900			LONGITUDE: -76.401700		STATION:			SURFACE ELEVATION: 617.5		
DEPTH (FT)	WATER LEVELS	ELEVATION (FT)	DESCRIPTION OF MATERIAL	STRATIGRAPHY	DCP	EXCAVATION EFFORT	QP(TSF)	SAMPLE NUMBER	Moisture Content %	
			Topsoil [Thickness=10"].			Easy				
	▽	615.	FILL - (GC) SANDY GRAVEL WITH SILT - dark grey to brown , moist to wet, coarse fragments 70-80%, 7.5YR 2.5/1 to 10YR 3/4.			Medium		S-01		
	▽		END OF TEST PIT AT 5 FT							
		610.								
		605.								
		600.								
REMARKS:										
THE STRATIFICATION LINES REPRESENT THE APPROXIMATE BOUNDARY LINES BETWEEN SOIL TYPES. IN-SITU THE TRANSITION MAY BE GRADUAL										
EXCAVATION EFFORT: E-EASY M-MEDIUM D-DIFFICULT VD-VERY DIFFICULT										
▽ WL (First Encountered): 2 FT			▽ WL (Seasonal High Water):		CONTRACTOR:		OPERATOR:		MAKE/MODEL:	
▽ WL (Completion):					Client Provided		Jack		CAT 315 C	
ECS REP.:			DATE COMPLETED:		UNITS:		CAVE-IN-DEPTH:			
FRV			07/16/2025		English		Not Observed			
TEST PIT LOG										

CLIENT: Cornwall Properties, LLC			PROJECT NO.: 18:6635		TEST PIT NO.: TP-18		SHEET: 1 OF 1			
PROJECT NAME: The Knoll at Iron Valley SWM Testing			SITE LOCATION: Boyd Street, Cornwall, Pennsylvania, 17042							
LATITUDE: 40.266010			LONGITUDE: -76.401500		STATION:			SURFACE ELEVATION: 619		

DEPTH (FT)	WATER LEVELS	ELEVATION (FT)	DESCRIPTION OF MATERIAL	STRATIGRAPHY	DCP	EXCAVATION EFFORT	QP(TSF)	SAMPLE NUMBER	Moisture Content %	
			Topsoil [Thickness=1.33"]			Easy				
			FILL - (GP) POORLY GRADED GRAVEL - grey to white, moist, Coarse fragments 70-80%, N8.			Medium				
			FILL - (ML) SANDY SILT - brown to orangish brown , wet to moist, Contains cobbles, coarse fragments 20-30%, 5YR 4/6 and 7.5YR 3/4.							
5.0		615	FILL - (ML) SILT WITH SAND - red, moist, Coarse fragments 10-20%, 10YR 4/6.							
			END OF TEST PIT AT 6 Ft							
		610								
		605								
		600								

REMARKS:

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

EXCAVATION EFFORT: E-EASY M-MEDIUM D-DIFFICULT VD-VERY DIFFICULT

▽ WL (First Encountered): 2 FT	▽ WL (Seasonal High Water):	CONTRACTOR:	OPERATOR:	MAKE/MODEL:
▼ WL (Completion): 5.91 FT		Client Provided	Jack	CAT 315 C

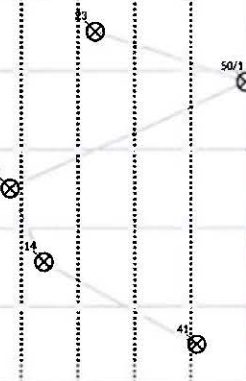
ECS REP:	DATE COMPLETED:	UNITS:	CAVE-IN-DEPTH:
FRV	07/16/2025	English	Not Observed

TEST PIT LOG

CLIENT: Cornwall Properties, LLC		PROJECT NO.: 18:6635		TEST PIT NO.: TP-19		SHEET: 1 OF 1			
PROJECT NAME: The Knoll at Iron Valley SWM Testing		SITE LOCATION: Boyd Street, Cornwall, Pennsylvania, 17042							
LATITUDE: 40.266110		LONGITUDE: -76.401700		STATION:		SURFACE ELEVATION: 618.5			
DEPTH (FT)	WATER LEVELS	ELEVATION (FT)	DESCRIPTION OF MATERIAL	STRATIGRAPHY	DCP	EXCAVATION EFFORT	OP(TSF)	SAMPLE NUMBER	Moisture Content %
		615	Topsoil [Thickness=10"]. FILL - (ML) SANDY SILT WITH GRAVEL - dark brown to black, moist, contains cobbles and construction debris, coarse fragments 30-40%, 10YR 2/1 to 10YR 2/2. FILL - (ML) SILT WITH SAND - brown to dark brown to orangish brown, moist, Contains cobbles, coarse fragments 10-20%, 10YR 3/4 to 7.5YR 4/4 and 3/4.	 		Easy			
						Difficult		S-01	
		610	END OF TEST PIT AT 4.5 Ft						
		605							
		600							
REMARKS:									
THE STRATIFICATION LINES REPRESENT THE APPROXIMATE BOUNDARY LINES BETWEEN SOIL TYPES. IN-SITU THE TRANSITION MAY BE GRADUAL									
EXCAVATION EFFORT: E-EASY M-MEDIUM D-DIFFICULT VD-VERY DIFFICULT									
▽ WL (First Encountered):			▽ WL (Seasonal High Water):		CONTRACTOR:		OPERATOR:		MAKE/MODEL:
▼ WL (Completion):					Client Provided		Jack		CAT 315 C
ECS REP.:			DATE COMPLETED:		UNITS:		CAVE-IN-DEPTH:		
FRV			07/16/2025		English		Not Observed		
TEST PIT LOG									

CLIENT: Cornwall Properties, LLC			PROJECT NO.: 18:6635		TEST PIT NO.: TP-20		SHEET: 1 OF 1			
PROJECT NAME: The Knoll at Iron Valley SWM Testing			SITE LOCATION: Boyd Street, Cornwall, Pennsylvania, 17042							
LATITUDE: 40.265750			LONGITUDE: -76.403000		STATION:			SURFACE ELEVATION: 617		
DEPTH (FT)	WATER LEVELS	ELEVATION (FT)	DESCRIPTION OF MATERIAL	STRATIGRAPHY	DCP	EXCAVATION EFFORT	QP(TSF)	SAMPLE NUMBER	Moisture Content %	
			Topsoil [Thickness=14"] heavy vegetation.			Easy				
		615	FILL - (GM) SILTY GRAVEL WITH SAND - grey to dark grey, moist, contains cobbles and boulders, coarse fragments 60-70%, 7.5YR 2.5/1 to 10YR 2/1.			Medium		S-01	7.0	
			END OF TEST PIT AT 3.5 Ft							
		610								
		605								
		600								
REMARKS:										
THE STRATIFICATION LINES REPRESENT THE APPROXIMATE BOUNDARY LINES BETWEEN SOIL TYPES. IN-SITU THE TRANSITION MAY BE GRADUAL										
EXCAVATION EFFORT: E-EASY M-MEDIUM D-DIFFICULT VD-VERY DIFFICULT										
▽ WL (First Encountered):			▽ WL (Seasonal High Water):		CONTRACTOR:		OPERATOR:		MAKE/MODEL:	
▼ WL (Completion):					Client Provided		Jack		CAT 315 C	
ECS REP.:			DATE COMPLETED:		UNITS:		CAVE-IN-DEPTH:			
FRV			07/16/2025		English		Not Observed			
TEST PIT LOG										

CLIENT: Cornwall Properties, LLC		PROJECT NO.: 18:6635		TEST PIT NO.: TP-21		SHEET: 1 OF 1			
PROJECT NAME: The Knoll at Iron Valley SWM Testing		SITE LOCATION: Boyd Street, Cornwall, Pennsylvania, 17042							
LATITUDE: 40.265890		LONGITUDE: -76.403000		STATION:		SURFACE ELEVATION: 616			
DEPTH (FT)	WATER LEVELS	ELEVATION (FT)	DESCRIPTION OF MATERIAL	STRATIGRAPHY	DCP	EXCAVATION EFFORT	OP(TSF)	SAMPLE NUMBER	Moisture Content %
		615	Topsoil [Thickness=6"] heavy vegetation. FILL - (GP) POORLY GRADED SANDY GRAVEL - grey to brown , moist, contains cobbles and boulders, coarse fragments 60-70%, 7.5YR 2.5/1 to 10YR 3/4.			Easy			
						Medium		S-01	
		610.	END OF TEST PIT AT 4.5 Ft						
		605.							
		600.							
REMARKS:									
THE STRATIFICATION LINES REPRESENT THE APPROXIMATE BOUNDARY LINES BETWEEN SOIL TYPES. IN-SITU THE TRANSITION MAY BE GRADUAL									
EXCAVATION EFFORT: E-EASY M-MEDIUM D-DIFFICULT VD-VERY DIFFICULT									
▽ WL (First Encountered):		▽ WL (Seasonal High Water):		CONTRACTOR:		OPERATOR:		MAKE/MODEL:	
▽ WL (Completion):				Client Provided		Jack		CAT 315 C	
ECS REP.:		DATE COMPLETED:		UNITS:		CAVE-IN-DEPTH:			
FRV		07/16/2025		English		Not Observed			
TEST PIT LOG									

CLIENT: Cornwall Properties, LLC				PROJECT NO.: 18:6635-A		BORING NO.: IT-22		SHEET: 1 OF 1						
PROJECT NAME: The Knoll at Iron Valley Additional SWM Testing				DRILLER/CONTRACTOR: Eichelbergers, Inc.										
SITE LOCATION: Boyd Street, Cornwall, Pennsylvania, 17042								LOSS OF CIRCULATION						
LATITUDE: 40.26558		LONGITUDE: -76.397587		STRUCTURE:		SURFACE ELEVATION: 671.5		BOTTOM OF CASING						
DEPTH (FT)	SAMPLE NUMBER	SAMPLE TYPE	SAMPLE DISTANCE (IN)	SAMPLE RECOVERY (IN)	DESCRIPTION OF MATERIAL	STRATIGRAPHY	WATER LEVELS	ELEVATION (FT)	BLOWS/6" (TCP/RS/MC/SPT-N VALUE)*	SPT	Recovery %	RQD %	Fines% F	MC% ●
5.0	S-1	SS	24	12	Topsoil [Thickness=4"].			670	7-9-14-13 (23)					
	S-2	SS	7	3	FILL - (GP) POORLY GRADED GRAVEL WITH SAND - gray, moist, medium dense to very dense, Coarse fragments >60%, N5.				29-50/1" (50/1)					
	S-3	SS	24	9	FILL - (GC) CLAYEY GRAVEL WITH SAND - brown to gray, moist, loose to dense, Coarse fragments >50%, 7.5YR4/3.				4-5-3-6 (8)					
	S-4	SS	21	18					7-7-7-50/3" (14)					
	S-5	SS	24	20					10-26-15-18 (41)					
					END OF BORING at 10.0 FT									
THE STRATIFICATION LINES REPRESENT THE APPROXIMATE BOUNDARY LINES BETWEEN SOIL TYPES. IN-SITU THE TRANSITION MAY BE GRADUAL														
WL (First Encountered):		N/E		BORING STARTED:		03/22/2026		CAVE IN DEPTH:		6 FT				
WL (Completion):		N/E		BORING COMPLETED:		03/22/2026		HAMMER TYPE:		Automatic				
WL (Seasonal High Water):		N/E		EQUIPMENT:		LOGGED BY:		DRILLING METHOD:		Hollow Stem Auger (0'-10')				
WL (Stabilized):				Diedrich D-50		PAD1								
GEOTECHNICAL BOREHOLE LOG														

CLIENT: Cornwall Properties, LLC			PROJECT NO.: 18:6635-A		TEST PIT NO.: TP-23		SHEET: 1 OF 1			
PROJECT NAME: The Knoll at Iron Valley Additional SWM Testing			SITE LOCATION: Boyd Street, Cornwall, Pennsylvania, 17042							
LATITUDE: 40.265374			LONGITUDE: -76.397654		STATION:			SURFACE ELEVATION: 669		
DEPTH (FT)	WATER LEVELS	ELEVATION (FT)	DESCRIPTION OF MATERIAL	STRATIGRAPHY	DCP	EXCAVATION EFFORT	QP(TSF)	SAMPLE NUMBER	Moisture Content %	
5.0		665.1	Topsoil [Thickness=0.5"]			Easy	0.75	S-1		
			FILL - (GC) CLAYEY GRAVEL WITH SAND - brown to gray, moist, coarse fragments 10-20%, contains gray stone dust, 7.5YR4/3 to N3.			Medium				
			FILL - (CL) SANDY LEAN CLAY WITH GRAVEL - red brown, moist, firm, coarse fragments 15-20%, 10R3/6.							
END OF TEST PIT at 7.0 FT										
REMARKS:										
THE STRATIFICATION LINES REPRESENT THE APPROXIMATE BOUNDARY LINES BETWEEN SOIL TYPES. IN-SITU THE TRANSITION MAY BE GRADUAL										
EXCAVATION EFFORT: E-EASY M-MEDIUM D-DIFFICULT VD-VERY DIFFICULT										
▽ WL (First Encountered): N/E			▽ WL (Seasonal High Water): N/E		CONTRACTOR:		OPERATOR:		MAKE/MODEL:	
▼ WL (Completion): N/E					Client Provided		Jack		CAT 315 C	
ECS REP.:			DATE COMPLETED:		UNITS:		CAVE-IN-DEPTH:			
PAD1			03/24/2026		English		Not Observed			
TEST PIT LOG										

CLIENT: Cornwall Properties, LLC				PROJECT NO.: 18:6635-A		BORING NO.: IT-24		SHEET: 1 OF 1		
PROJECT NAME: The Knoll at Iron Valley Additional SWM Testing				DRILLER/CONTRACTOR: Eichelbergers, Inc.						
SITE LOCATION: Boyd Street, Cornwall, Pennsylvania, 17042								LOSS OF CIRCULATION		100
LATITUDE: 40.265272		LONGITUDE: -76.397615		STRUCTURE:		SURFACE ELEVATION: 672		BOTTOM OF CASING		100

DEPTH (FT)	SAMPLE NUMBER	SAMPLE TYPE	SAMPLE DISTANCE (IN)	SAMPLE RECOVERY (IN)	DESCRIPTION OF MATERIAL	STRATIGRAPHY	WATER LEVELS	ELEVATION (FT)	BLOWS/6" (TCP/RS/MC/SPT- N VALUE)	SPT				Recovery %				RQD %				Fines% F				MC%			
										0	10	20	30	40	50	0	20	40	60	80	100	0	20	40	60	80	100	0	20
5.0	S-1	SS	24	12	Topsoil [Thickness=3"] FILL - (GP) POORLY GRADED GRAVEL WITH SAND - red brown, moist, medium dense, Coarse fragments >60%, 10R3/6.			670	2-4-8-8 (12)	12																			
	S-2	SS	24	22				11-6-7-7 (13)	18																				
	S-3	SS	21	18				3-4-22-50/3" (26)																					
	S-4	SS	24	24				12-11-4-14 (15)	665																				
	S-5	SS	24	18				9-15-14-33 (29)																					
					END OF BORING at 10.0 FT																								

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

WL (First Encountered): N/E		BORING STARTED: 03/23/2026		CAVE IN DEPTH: 6 FT	
WL (Completion): N/E		BORING COMPLETED: 03/23/2026		HAMMER TYPE: Automatic	
WL (Seasonal High Water): N/E		EQUIPMENT:		LOGGED BY:	
WL (Stabilized):		Diedrich D-50		PAD1	
GEOTECHNICAL BOREHOLE LOG					

CLIENT: Cornwall Properties, LLC		PROJECT NO.: 18:6635-A	TEST PIT NO.: TP-25	SHEET: 1 OF 1		
PROJECT NAME: The Knoll at Iron Valley Additional SWM Testing		SITE LOCATION: Boyd Street, Cornwall, Pennsylvania, 17042				
LATITUDE: 40.265795		LONGITUDE: -76.399156	STATION:		SURFACE ELEVATION: 663	

DEPTH (FT)	WATER LEVELS	ELEVATION (FT)	DESCRIPTION OF MATERIAL	STRATIGRAPHY	DCP	EXCAVATION EFFORT	QPT(SF)	SAMPLE NUMBER	Moisture Content %
			Topsoil [Thickness=6"].			Easy			
			FILL - (SM) SILTY SAND WITH GRAVEL - red brown to gray, moist, coarse fragments 10-20%, 10R3/6 to N3.						
5.0		660							
			FILL - (GC) SANDY GRAVEL WITH SILT - gray, moist, coarse fragments 60-65%, contains boulders and cobbles N3.			Medium			
		655						S-1	
10.0									
		651							
			END OF TEST PIT at 11.5 FT						
REMARKS:									
THE STRATIFICATION LINES REPRESENT THE APPROXIMATE BOUNDARY LINES BETWEEN SOIL TYPES. IN-SITU THE TRANSITION MAY BE GRADUAL									
EXCAVATION EFFORT: E-EASY M-MEDIUM D-DIFFICULT VD-VERY DIFFICULT									
▽ WL (First Encountered): N/E		▽ WL (Seasonal High Water): N/E		CONTRACTOR:		OPERATOR:		MAKE/MODEL:	
▽ WL (Completion): N/E				Client Provided		Jack		CAT 315 C	
ECS REP.:		DATE COMPLETED:		UNITS:		CAVE-IN-DEPTH:			
PAD1		03/24/2026		English		Not Observed			

TEST PIT LOG

CLIENT: Cornwall Properties, LLC				PROJECT NO.: 18:6635-A		BORING NO.: IT-26		SHEET: 1 OF 1		
PROJECT NAME: The Knoll at Iron Valley Additional SWM Testing				DRILLER/CONTRACTOR: Eichelbergers, Inc.						
SITE LOCATION: Boyd Street, Cornwall, Pennsylvania, 17042								LOSS OF CIRCULATION		
LATITUDE: 40.265708		LONGITUDE: -76.399269		STRUCTURE:		SURFACE ELEVATION: 664.5		BOTTOM OF CASING		

DEPTH (FT)	SAMPLE NUMBER	SAMPLE TYPE	SAMPLE DISTANCE (IN)	SAMPLE RECOVERY (IN)	DESCRIPTION OF MATERIAL	STRATIGRAPHY	WATER LEVELS	ELEVATION (FT)	BLOWS/6" (TCP/RS/MC/SPT- N VALUE)	SPT				Recovery %				RQD %				Fines% F				MC%			
										0	10	20	30	0	20	40	60	0	20	40	60	0	20	40	60	0	20	40	60
5.0 10.0	S-1	SS	24	22	Topsoil [Thickness=3"].	[Stratigraphy Diagram]			Woh-2-1-2 (3)	3																			
	S-2	SS	24	16	FILL - (ML) SILT WITH GRAVEL - brown, moist, very loose, Coarse fragments 20-30%, 7.5YR4/3.				2-5-7-5 (12)	12																			
	S-3	SS	24	20	FILL - (GM) SILTY GRAVEL WITH SAND - gray to brown, moist, loose to medium dense, Coarse fragments >60%, 7.5YR4/3.				3-3-3-3 (6)	6																			
	S-4	SS	24	16					7-6-6-9 (12)	12																			
	S-5	SS	24	0					5-5-4-5 (9)	9																			
	S-6	SS	24	8					5-6-2-4 (8)	8																			
					END OF BORING at 12.0 FT																								

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

WL (First Encountered):	N/E	BORING STARTED:	03/23/2026	CAVE IN DEPTH:	8.5 FT
WL (Completion):	N/E	BORING COMPLETED:	03/23/2026	HAMMER TYPE:	Automatic
WL (Seasonal High Water):	N/E	EQUIPMENT:	Diedrich D-50	LOGGED BY:	PAD1
WL (Stabilized):		DRILLING METHOD: Hollow Stem Auger (0'-12')			

GEOTECHNICAL BOREHOLE LOG

CLIENT: Cornwall Properties, LLC				PROJECT NO.: 18:6635-A		BORING NO.: IT-27		SHEET: 1 OF 1		
PROJECT NAME: The Knoll at Iron Valley Additional SWM Testing				DRILLER/CONTRACTOR: Eichelbergers, Inc.						
SITE LOCATION: Boyd Street, Cornwall, Pennsylvania, 17042								LOSS OF CIRCULATION		
LATITUDE: 40.265704		LONGITUDE: -76.398898		STRUCTURE:		SURFACE ELEVATION: 665.5		BOTTOM OF CASING		

DEPTH (FT)	SAMPLE NUMBER	SAMPLE TYPE	SAMPLE DISTANCE (IN)	SAMPLE RECOVERY (IN)	DESCRIPTION OF MATERIAL	STRATIGRAPHY	WATER LEVELS	ELEVATION (FT)	BLOWS/6" (TCPIRS/MC/SPT- N VALUE)	SPT				Recovery %				RQD %				Fines% F				MC%			
										0	10	20	30	40	50	0	20	40	60	80	100	0	20	40	60	80	100	0	20
5.0	S-1	SS	24	24	Topsoil [Thickness=6"].			665	5-7-7-8 (14)	14																			
	S-2	SS	24	21	FILL - (GM) SILTY GRAVEL WITH SAND - brown to gray, moist, medium dense, Coarse fragments >60%, 7.5YR4/3.				5-7-8-13 (15)	15																			
	S-3	SS	24	22	FILL - (SM) SILTY SAND WITH GRAVEL - red brown, moist, medium dense, Coarse fragments 30-45%, 10R3/6.			660	4-5-10-8 (15)	15																			
	S-4	SS	24	12	(ML) SANDY SILT WITH GRAVEL - brown to gray, moist, very loose to medium dense.				6-8-9-4 (17)	17																			
	S-5	SS	24	0				X	2-WoH-2-2 (2)	2																			
10.0	S-6	SS	24	6				655	3-2-1-2 (3)	3																			
					END OF BORING at 12.0 FT			654																					

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

WL (First Encountered): N/E		BORING STARTED: 03/23/2026		CAVE IN DEPTH: 8.5 FT	
WL (Completion): N/E		BORING COMPLETED: 03/23/2026		HAMMER TYPE: Automatic	
WL (Seasonal High Water): N/E		EQUIPMENT: Diedrich D-50		LOGGED BY: PAD1	
WL (Stabilized):		DRILLING METHOD: Hollow Stem Auger (0'-12')			

GEOTECHNICAL BOREHOLE LOG

CLIENT: Cornwall Properties, LLC				PROJECT NO.: 18:6635-A		BORING NO.: IT-28		SHEET: 1 OF 1											
PROJECT NAME: The Knoll at Iron Valley Additional SWM Testing				DRILLER/CONTRACTOR: Eichelbergers, Inc.															
SITE LOCATION: Boyd Street, Cornwall, Pennsylvania, 17042								LOSS OF CIRCULATION											
LATITUDE: 40.265447		LONGITUDE: -76.401347		STRUCTURE:		SURFACE ELEVATION: 637		BOTTOM OF CASING											
DEPTH (FT)	SAMPLE NUMBER	SAMPLE TYPE	SAMPLE DISTANCE (IN)	SAMPLE RECOVERY (IN)	DESCRIPTION OF MATERIAL	STRATIGRAPHY	WATER LEVELS	ELEVATION (FT)	BLOWS/6" (TCP/RS/MC/SPT-N VALUE)	SPT	Recovery %	RQD %	QP	PL	MC	Fines%	MC%		
5.0	S-1	SS	24	24	Topsoil [Thickness=8"]			635	2-3-5-7 (8)	8									
	S-2	SS	24	13	FILL - (SM) SILTY SAND WITH GRAVEL - red brown, moist, Coarse fragments 20-40%, 10R3/6.				8-12-13-6 (25)	25									
	S-3	SS	24	6	FILL - (GM) SILTY GRAVEL WITH SAND - gray with red brown, moist, medium dense, Coarse fragments >60%, 10R3/6.				9-6-6-7 (12)	12									
	S-4	SS	24	5					3-3-3-4 (6)	6									
10.0	S-5	SS	24	10	(ML) SILT WITH SAND - brown, moist, very loose, Coarse fragments 20-35%, 7.5YR4/3.			630	2-2-2-2 (4)	4									
	S-6	SS	24	9				625	Woh-2-2-2 (4)	4									
					END OF BORING at 12.0 FT														
THE STRATIFICATION LINES REPRESENT THE APPROXIMATE BOUNDARY LINES BETWEEN SOIL TYPES. IN-SITU THE TRANSITION MAY BE GRADUAL																			
WL (First Encountered):				N/E		BORING STARTED:				03/23/2026		CAVE IN DEPTH:				6 FT			
WL (Completion):				N/E		BORING COMPLETED:				03/23/2026		HAMMER TYPE:				Automatic			
WL (Seasonal High Water):				N/E		EQUIPMENT:				Diedrich D-50		LOGGED BY:		PAD1		DRILLING METHOD:		Hollow Stem Auger (0'-12')	
WL (Stabilized):																			
GEOTECHNICAL BOREHOLE LOG																			

CLIENT: Cornwall Properties, LLC			PROJECT NO.: 18:6635-A		TEST PIT NO.: TP-29		SHEET: 1 OF 1				
PROJECT NAME: The Knoll at Iron Valley Additional SWM Testing			SITE LOCATION: Boyd Street, Cornwall, Pennsylvania, 17042								
LATITUDE: 40.266093			LONGITUDE: -76.401951		STATION:			SURFACE ELEVATION: 619.5			
DEPTH (FT)	WATER LEVELS	ELEVATION (FT)	DESCRIPTION OF MATERIAL			STRATIGRAPHY	DCP	EXCAVATION EFFORT	QP(TSF)	SAMPLE NUMBER	Moisture Content %
			Topsoil [Thickness=6"]					Easy			
			FILL - (GP) POORLY GRADED GRAVEL WITH SAND - brownish gray, contains brick and concrete, moist, coarse fragments 70-85%, 7.5YR4/3.					Medium		S-1	
			END OF TEST PIT at 3.5 FT								
REMARKS:											
THE STRATIFICATION LINES REPRESENT THE APPROXIMATE BOUNDARY LINES BETWEEN SOIL TYPES. IN-SITU THE TRANSITION MAY BE GRADUAL											
EXCAVATION EFFORT: E-EASY M-MEDIUM D-DIFFICULT VD-VERY DIFFICULT											
 WL (First Encountered): N/E			 WL (Seasonal High Water): N/E			CONTRACTOR:		OPERATOR:		MAKE/MODEL:	
 WL (Completion): N/E						Client Provided		Jack		CAT 315 C	
ECS REP.:			DATE COMPLETED:			UNITS:		CAVE-IN-DEPTH:			
PAD1			03/24/2026			English		Not Observed			
TEST PIT LOG											

CLIENT: Cornwall Properties, LLC			PROJECT NO.: 18:6635-A		TEST PIT NO.: TP-30		SHEET: 1 OF 1			
PROJECT NAME: The Knoll at Iron Valley Additional SWM Testing			SITE LOCATION: Boyd Street, Cornwall, Pennsylvania, 17042							
LATITUDE: 40.266090			LONGITUDE: -76.402108		STATION:		SURFACE ELEVATION: 622			

DEPTH (FT)	WATER LEVELS	ELEVATION (FT)	DESCRIPTION OF MATERIAL	STRATIGRAPHY	DCP	EXCAVATION EFFORT	QP(TSF)	SAMPLE NUMBER	Moisture Content %
			Topsoil [Thickness=6"].			Easy			
		620.	FILL - (ML) SANDY SILT - brown, moist, coarse fragments <10%, 7.5YR4/3.						
5.0			FILL - (GM) SILTY GRAVEL - brown, contains roots, brick and concrete, moist, coarse fragments 75-80%, 7.5YR4/3.			Medium			
		615.					2	S-1	
			END OF TEST PIT at 7.0 FT						

REMARKS:				
THE STRATIFICATION LINES REPRESENT THE APPROXIMATE BOUNDARY LINES BETWEEN SOIL TYPES. IN-SITU THE TRANSITION MAY BE GRADUAL				
EXCAVATION EFFORT: E-EASY M-MEDIUM D-DIFFICULT VD-VERY DIFFICULT				
 WL (First Encountered): N/E		 WL (Seasonal High Water): N/E		CONTRACTOR:
 WL (Completion): N/E				Client Provided
ECS REP.:		DATE COMPLETED:		UNITS:
PAD1		03/24/2026		English
				OPERATOR:
				Jack
				MAKE/MODEL:
				CAT 315 C
				CAVE-IN-DEPTH:
				Not Observed

TEST PIT LOG

CLIENT: Cornwall Properties, LLC			PROJECT NO.: 18:6635-A		TEST PIT NO.: TP-31		SHEET: 1 OF 1				
PROJECT NAME: The Knoll at Iron Valley Additional SWM Testing			SITE LOCATION: Boyd Street, Cornwall, Pennsylvania, 17042								
LATITUDE: 40.266139			LONGITUDE: -76.402325		STATION:			SURFACE ELEVATION: 622			
DEPTH (FT)	WATER LEVELS	ELEVATION (FT)	DESCRIPTION OF MATERIAL	STRATIGRAPHY	DCP	EXCAVATION EFFORT	QP(TSF)	SAMPLE NUMBER	Moisture Content %		
5.0		620	Topsoil [Thickness=6"]. FILL - (ML) SANDY SILT - brown, contains roots, moist, coarse fragments <10%, 7.5YR4/3.			Easy					
		615	FILL - (GM) SILTY GRAVEL - gray to brown, moist, coarse fragments 60-65%, contains concrete foundation at 6' 7.5YR4/3.			Medium					S-1
END OF TEST PIT at 7.0 FT											
REMARKS:											
THE STRATIFICATION LINES REPRESENT THE APPROXIMATE BOUNDARY LINES BETWEEN SOIL TYPES. IN-SITU THE TRANSITION MAY BE GRADUAL											
EXCAVATION EFFORT: E-EASY M-MEDIUM D-DIFFICULT VD-VERY DIFFICULT											
 WL (First Encountered): N/E			 WL (Seasonal High Water): N/E		CONTRACTOR:		OPERATOR:		MAKE/MODEL:		
 WL (Completion): N/E					Client Provided		Jack		CAT 315 C		
ECS REP.:			DATE COMPLETED:		UNITS:		CAVE-IN-DEPTH:				
PAD1			03/24/2026		English		Not Observed				
TEST PIT LOG											



TP-01



TP-02



TP-03



TP-04

THE KNOLL AT IRON VALLEY ADDITIONAL
 ECS PROJECT NO. 18:6635-A
 LEBANON COUNTY, PENNSYLVANIA

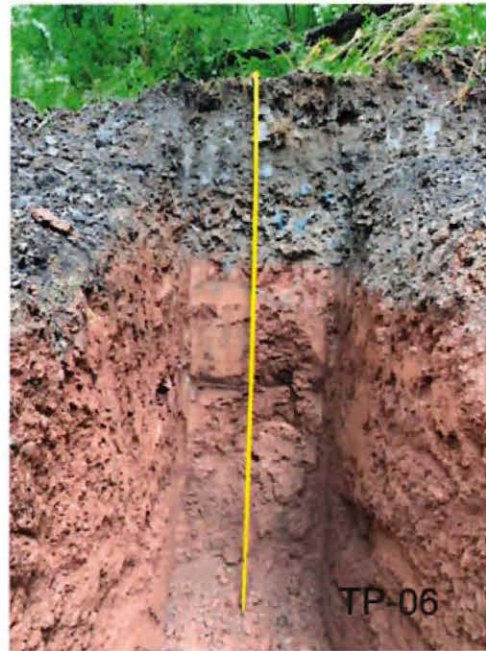


TEST PIT PHOTOGRAPHS

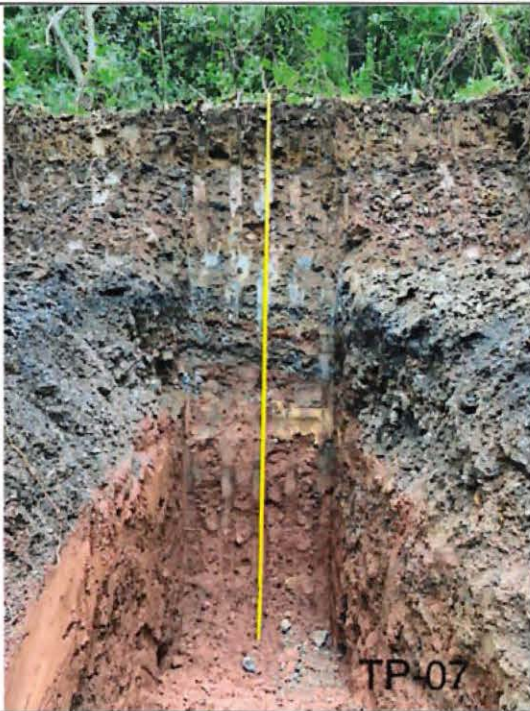
JULY 2025



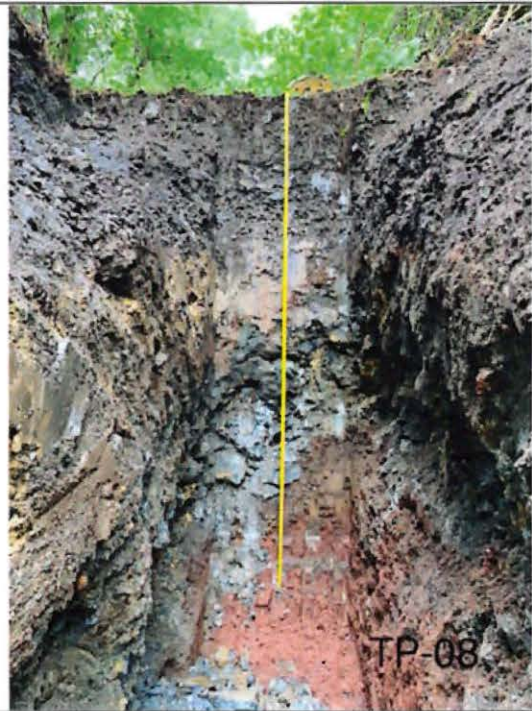
TP-05



TP-06



TP-07



TP-08

THE KNOLL AT IRON VALLEY ADDITIONAL
 ECS PROJECT NO. 18:6635-A
 LEBANON COUNTY, PENNSYLVANIA



TEST PIT PHOTOGRAPHS
 JULY 2025



TP-09



TP-10



TP-11



TP-12

THE KNOLL AT IRON VALLEY ADDITIONAL
ECS PROJECT NO. 18:6635-A
LEBANON COUNTY, PENNSYLVANIA



TEST PIT PHOTOGRAPHS

JULY 2025



TP-13



TP-14



TP-15



TP-16

THE KNOLL AT IRON VALLEY ADDITIONAL
 ECS PROJECT NO. 18:6635-A
 LEBANON COUNTY, PENNSYLVANIA



TEST PIT PHOTOGRAPHS

JULY 2025



TP-16

TP-16



TP-17

TP-17



TP-18

TP-18



TP-19

TP-19

THE KNOLL AT IRON VALLEY ADDITIONAL
ECS PROJECT NO. 18:6635-A
LEBANON COUNTY, PENNSYLVANIA



TEST PIT PHOTOGRAPHS

JULY 2025



TP-20



TP-21

TP-20

TP-21

THE KNOLL AT IRON VALLEY ADDITIONAL
 ECS PROJECT NO. 18:6635-A
 LEBANON COUNTY, PENNSYLVANIA



TEST PIT PHOTOGRAPHS

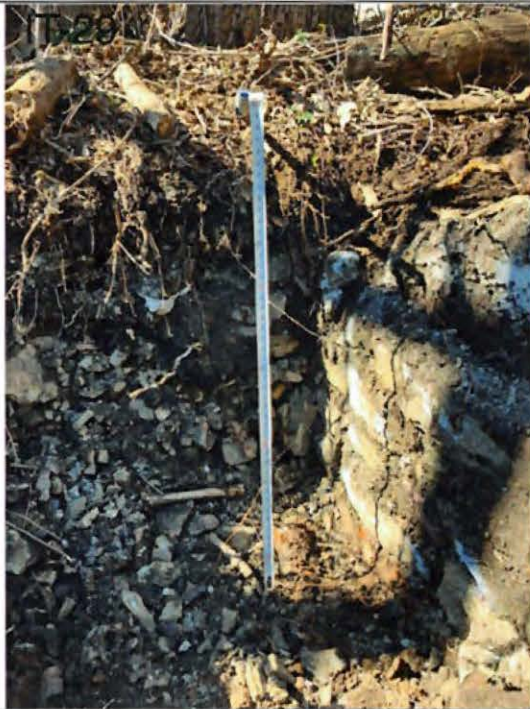
JULY 2025



TP-23



TP-25



TP-29



TP-30

THE KNOLL AT IRON VALLEY ADDITIONAL
 ECS PROJECT NO. 18:6635-A
 LEBANON COUNTY, PENNSYLVANIA



TEST PIT PHOTOGRAPHS
 MARCH 2026



TP-31

THE KNOLL AT IRON VALLEY ADDITIONAL
ECS PROJECT NO. 18:6635-A
LEBANON COUNTY, PENNSYLVANIA



TEST PIT PHOTOGRAPHS
MARCH 2026



P-01



P-02



P-03



P-04

THE KNOLL AT IRON VALLEY ADDITIONAL
ECS PROJECT NO. 18:6635-A
LEBANON COUNTY, PENNSYLVANIA



TEST PIT PHOTOGRAPHS

JULY 2025



Double Ring Infiltration Test Results
The Knoll at Iron Valley Additional
ECS Project No. 18:6635-A

Date Tested: 7/29/2025 7/29/2025 7/29/2025 7/29/2025 7/29/2025 7/14/2025
Water Temperature: 81 °F 81 °F 81 °F 81 °F 81 °F 75 °F

Field Data	TP-01		TP-02		TP-03		TP-04		TP-05		TP-06	
Test Depth (ft)	3.5		1.0		7.0		5.0		2.5		7.0	
	Time	Reading	Time	Reading	Time	Reading	Time	Reading	Time	Reading	Time	Reading
Presoak Start/Water Depth (in)	9:55	6.00	9:56	6.00	9:51	6.00	9:52	6.00	9:53	6.00	11:00	6.00
Presoak 30 Min (in)	10:25	0.13	10:26	6.00	10:21	6.00	10:22	6.00	10:23	0.13	11:30	1.00
Presoak 60 Min (in)	10:55	0.13	10:56	0.13	10:51	0.13	10:52	6.00	10:53	0.13	12:00	0.50
START TEST (in)	10:55	6.00	10:56	6.00	10:51	6.00	10:52	6.00	10:53	6.00	12:00	6.00
Reading Interval	30 min		30 min		30 min		10 min		30 min		30 min	
Reading # 1 (in)	11:25	0.00	11:26	0.00	11:21	0.13	11:02	4.50	11:23	0.13	12:30	0.50
Reading # 2 (in)	11:55	0.00	11:56	0.00	11:51	0.13	11:12	4.50	11:53	0.00	13:00	0.00
Reading # 3 (in)	12:25	0.00	12:26	0.00	12:21	0.13	11:22	4.25	12:23	0.00	13:30	0.00
Reading # 4 (in)	12:55	0.00	12:56	0.00	12:51	0.13	11:32	4.25	12:53	0.00	14:00	0.00
Reading # 5 (in)												
Reading # 6 (in)												
Reading # 7 (in)												
Reading # 8 (in)												
Initial Water Depth (in)	6.00		6.00		6.00		6.00		6.00		6.00	
Average Reading (in)	0.00		0.00		0.13		4.38		0.03		0.13	
Infiltration Rate (in/hr)	0.00		0.00		0.25		26.25		0.06		0.25	
Safety Factor	2.00		2.00		2.00		2.00		2.00		2.00	
Field Adjusted Rate with Safety Factor (in/hr)	0.00		0.00		0.13		13.13		0.03		0.13	
Temperature Adjustment Factor	0.81		0.81		0.81		0.81		0.81		0.88	
Corrected Infiltration Rate (in/hr)	0.00		0.00		0.10		10.66		0.03		0.11	

possible blowout



Double Ring Infiltration Test Results
The Knoll at Iron Valley Additional
ECS Project No. 18:6635-A

Date Tested: 7/14/2025 7/14/2025 7/14/2025 7/14/2025 7/17/2025 7/17/2025
Water Temperature: 75 °F 75 °F 75 °F 75 °F 73 °F 73 °F

Field Data	TP-07		TP-08		TP-09		TP-10		TP-11		TP-12	
Test Depth (ft)	8.0		8.0		3.5		3.5		2.5		4.0	
	Time	Reading	Time	Reading	Time	Reading	Time	Reading	Time	Reading	Time	Reading
Presoak Start/Water Depth (in)	11:22	6.00	11:25	6.00	11:28	6.00	11:30	6.00	9:40	6.00	9:38	6.00
Presoak 30 Min (in)	11:52	1.00	11:55	1.50	11:58	6.00	12:00	0.13	10:10	4.00	10:08	2.25
Presoak 60 Min (in)	12:22	1.00	12:25	1.33	12:28	6.00	12:30	0.13	10:40	3.13	10:38	3.50
START TEST (in)	12:22	6.00	12:25	6.00	12:28	6.00	12:30	6.00	10:40	6.00	10:38	6.00
Reading Interval	30 min		30 min		30 min		30 min		10 min		10 min	
Reading # 1 (in)	12:52	1.00	12:55	0.88	12:58	6.00	13:00	0.00	10:50	1.25	10:48	1.50
Reading # 2 (in)	13:22	1.00	13:25	0.88	13:28	6.00	13:30	0.00	11:00	1.00	10:58	1.25
Reading # 3 (in)	13:52	1.00	13:55	1.00	13:58	6.00	14:00	0.00	11:10	1.00	11:08	1.00
Reading # 4 (in)	14:22	1.00	14:25	0.88	14:28	6.00	14:30	0.00	11:20	1.00	11:18	1.25
Reading # 5 (in)											11:28	1.25
Reading # 6 (in)												
Reading # 7 (in)												
Reading # 8 (in)												
Initial Water Depth (in)	6.00		6.00		6.00		6.00		6.00		6.00	
Average Reading (in)	1.00		0.91		6.00		0.00		1.06		1.19	
Infiltration Rate (in/hr)	2.00		1.82		12.00		0.00		6.38		7.13	
Safety Factor	2.00		2.00		2.00		2.00		2.00		2.00	
Field Adjusted Rate with Safety Factor (in/hr)	1.00		0.91		6.00		0.00		3.19		3.56	
Temperature Adjustment Factor	0.88		0.88		0.88		0.88		0.90		0.90	
Corrected Infiltration Rate (in/hr)	0.88		0.80		5.28		0.00		2.87		3.21	



Double Ring Infiltration Test Results
The Knoll at Iron Valley Additional
ECS Project No. 18:6635-A

Date Tested: 7/17/2025 7/17/2025 7/17/2025 7/16/2025 7/16/2025 7/14/2025
Water Temperature: 73 °F 73 °F 73 °F 77 °F 77 °F 77 °F

Field Data	TP-13		TP-14		TP-15		TP-17		TP-19		TP-20	
Test Depth (ft)	6.0		4.0		7.0		1.5		2.5		2.5	
	Time	Reading	Time	Reading	Time	Reading	Time	Reading	Time	Reading	Time	Reading
Presoak Start/Water Depth (in)	9:35	6.00	9:47	6.00	9:46	6.00	11:20	6.00	11:22	6.00	11:28	6.00
Presoak 30 Min (in)	10:05	1.75	10:17	0.00	10:16	0.75	11:50	6.00	11:52	6.00	11:58	0.25
Presoak 60 Min (in)	10:35	1.50	10:47	0.00	10:46	1.00	12:20	6.00	12:22	6.00	12:28	0.00
START TEST (in)	10:35	6.00	10:47	6.00	10:46	6.00	12:20	6.00	12:22	6.00	12:28	6.00
Reading Interval	30 min		30 min		30 min		10 min		10 min		30 min	
Reading # 1 (in)	11:05	1.00	11:17	0.00	11:16	0.50	12:30	3.00	12:32	6.00	12:58	0.00
Reading # 2 (in)	11:35	1.00	11:47	0.00	11:46	0.75	12:40	3.00	12:42	6.00	13:28	0.00
Reading # 3 (in)	12:05	1.00	12:17	0.00	12:16	0.75	12:50	2.88	12:52	6.00	13:58	0.00
Reading # 4 (in)	12:35	1.25	12:47	0.00	12:46	0.75	13:00	3.00	13:02	6.00	14:28	0.00
Reading # 5 (in)							13:10	3.13				
Reading # 6 (in)							13:20	2.88				
Reading # 7 (in)							13:30	2.50				
Reading # 8 (in)							13:40	2.50				
Initial Water Depth (in)	6.00		6.00		6.00		6.00		6.00		6.00	
Average Reading (in)	1.06		0.00		0.69		2.75		6.00		0.00	
Infiltration Rate (in/hr)	2.13		0.00		1.38		16.52		36.00		0.00	
Safety Factor	2.00		2.00		2.00		2.00		2.00		2.00	
Field Adjusted Rate with Safety Factor (in/hr)	1.06		0.00		0.69		8.26		18.00		0.00	
Temperature Adjustment Factor	0.90		0.90		0.90		0.86		0.86		0.86	
Corrected Infiltration Rate (in/hr)	0.96		0.00		0.62		7.07		15.41		0.00	

Double Ring Infiltration Test Results
The Knoll at Iron Valley Additional
ECS Project No. 18:6635-A



Double Ring Infiltration Test Results
The Knoll at Iron Valley Additional
ECS Project No. 18:6635-A

Date Tested: 3/24/2026 3/24/2026 3/24/2026 3/24/2026 3/24/2026
Water Temperature: 44 °F 44 °F 44 °F 44 °F 44 °F °F

Field Data	TP-23		TP-25		TP-29		TP-30		TP-31			
Test Depth (ft)	5.0		7.0		1.5		4.0		4.0			
	Time	Reading	Time	Reading	Time	Reading	Time	Reading	Time	Reading	Time	Reading
Presoak Start/Water Depth (in)	9:56	6.00	9:59	6.00	12:57	6.00	12:56	6.00	12:55	6.00		
Presoak 30 Min (in)	10:26	0.75	10:29	0.75	13:27	6.00	13:26	1.50	13:25	1.25		
Presoak 60 Min (in)	10:56	0.75	10:59	0.75	13:57	6.00	13:56	1.00	13:55	0.75		
START TEST (in)	10:56	6.00	10:59	6.00	13:57	6.00	13:56	6.00	13:55	6.00		
Reading Interval	30 min		30 min		10 min		30 min		30 min			
Reading # 1 (in)	11:26	0.50	11:29	0.50	14:07	1.75	14:26	0.75	14:25	0.50		
Reading # 2 (in)	11:56	0.38	11:59	0.50	14:17	1.75	14:56	5.00	14:55	0.63		
Reading # 3 (in)	12:26	0.25	12:29	0.25	14:27	2.00	15:26	5.00	15:25	0.50		
Reading # 4 (in)	12:56	0.25	12:59	0.25	14:37	2.00	15:56	5.00	15:55	0.63		
Reading # 5 (in)												
Reading # 6 (in)												
Reading # 7 (in)												
Reading # 8 (in)												
Initial Water Depth (in)	6.00		6.00		6.00		6.00		6.00			
Average Reading (in)	0.34		0.38		1.88		3.94		0.56			
Infiltration Rate (in/hr)	0.69		0.75		11.25		7.88		1.13			
Safety Factor	2.00		2.00		2.00		2.00		2.00			
Field Adjusted Rate with Safety Factor (in/hr)	0.34		0.38		5.63		3.94		0.56			
Temperature Adjustment Factor	1.42		1.42		1.42		1.42		1.42			
Corrected Infiltration Rate (in/hr)	0.49		0.53		7.99		5.59		0.80			

Cased Borehole Infiltration Testing Results
The Knoll at Iron Valley Additional
ECS Project No. 18:6635-A

Date Tested: 3/23/2026 3/23/2026 3/23/2026 3/23/2026 3/24/2026
Water Temperature: 41 °F 41 °F 41 °F 41 °F 44 °F °F

Field Data	IT-22		IT-24		IT-26		IT-27		IT-28			
Test Depth (ft)	7.5		8.0		8.5		9.5		8.5			
	Time	Drop	Time	Drop	Time	Drop	Time	Drop	Time	Drop	Time	Drop
Test Start	12:51	-	12:51	-	1:24	-	1:27	-	8:19	-		-
Presoak 30 Min (ft)	13:21	0.00	13:21	1.08	1:54	0.03	1:57	0.35	8:49	0.01		
Presoak 60 Min (ft)	13:51	0.00	13:51	1.07	2:24	0.01	2:27	0.20	9:19	0.00		
Reading Interval	30 min		10 min		30 min		10 min		30 min			
Reading # 1 (ft)	14:21	0.00	14:01	0.36	2:54	0.00	2:37	0.06	9:49	0.00		
Reading # 2 (ft)	14:51	0.00	14:11	0.34	3:24	0.00	2:47	0.06	10:19	0.00		
Reading # 3 (ft)	15:21	0.00	14:21	0.34	3:54	0.00	2:57	0.07	10:49	0.00		
Reading # 4 (ft)	15:51	0.00	14:31	0.36	4:24	0.00	3:07	0.07	11:19	0.00		
Reading # 5 (ft)												
Reading # 6 (ft)												
Reading # 7 (ft)												
Reading # 8 (ft)												
Final Water Level Drop (ft)	0.00		0.36		0.00		0.07		0.00			
Average Reading (ft)	0.00		0.35		0.00		0.07		0.00			
Average Reading (in)	0.00		4.20		0.00		0.78		0.00			
Average Reading (in/hr)	0.00		25.20		0.00		4.68		0.00			
Safety Factor	2.00		2.00		2.00		2.00		2.00			
Field Adjusted Rate with Safety Factor (in/hr)	0.00		12.60		0.00		2.34		0.00			
Temperature Adjustment Factor	1.48		1.48		1.48		1.48		1.42			
Infiltration Rate (in/hr)	0.00		18.65		0.00		3.46		0.00			

Notes:

Appendix C - Laboratory Testing

Laboratory Testing Summary

Grain Size Analysis/Analyses

Plasticity Chart(s)

Textural Triangle USDA Test(s)

Laboratory Testing Summary

Sample Location	Sample Number	Depth (ft)	^MC (%)	Soil Type	Atterberg Limits			**Percent Passing No. 200 Sieve	Moisture - Density		CBR (%)		#Organic Content (%)
					LL	PL	PI		<Maximum Density (pcf)	<Optimum Moisture (%)	0.1 in.	0.2 in.	
TP-01	S-1	3.0-4.0	14.1	CL	30	15	15	52.4					
TP-05	S-1	2.0-3.0	8.6	SC-SM	22	16	6	24.3					
TP-06	S-01	7.0-7.0	12.8	SM	NP	NP	NP	28.7					
TP-10	S-01	3.5-3.5	12.9	GM	NP	NP	NP	26.7					
TP-13	S-1	6.0-6.0	11.9	SM	NP	NP	NP	28.9					
TP-20	S-01	1.5-1.5	7.0	GM	NP	NP	NP	22.7					

Notes: See test reports for test method, ^ASTM D2216-19, *ASTM D2488, **ASTM D1140-17, #ASTM D2974-20e1 < See test report for D4718 corrected values

Definitions: MC: Moisture Content, Soil Type: USCS (Unified Soil Classification System), LL: Liquid Limit, PL: Plastic Limit, PI: Plasticity Index, CBR: California Bearing Ratio, OC: Organic Content

Project: The Knoll at Iron Valley Additional
Client: Cornwall Properties, LLC

Project No.: 18:6635
Date Reported: 8/11/2025



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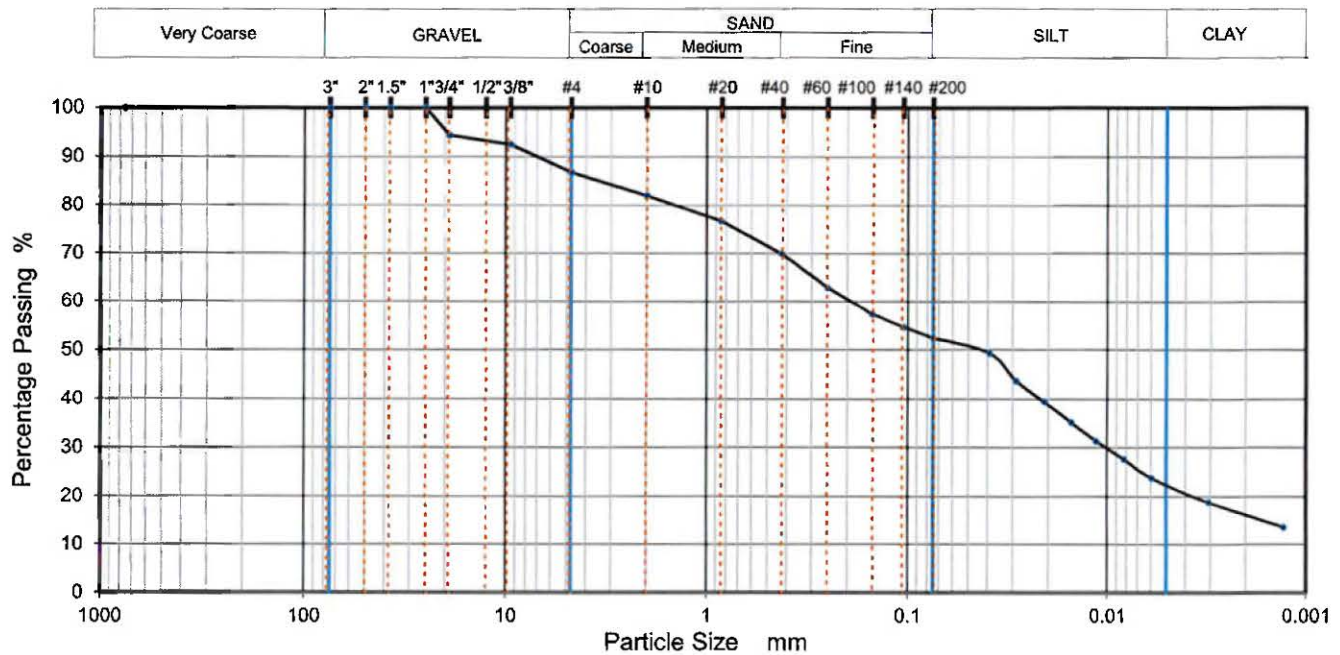
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(717)767-5658

Tested by	Checked by	Approved by	Date Received
JGates		agoliheh	8/1/2025

PARTICLE SIZE DISTRIBUTION



TEST RESULTS (ASTM D6913M-17-METHOD A)

Sieving		Hydrometer Sedimentation	
Particle Size	% Passing	Particle Size mm	% Passing
3"	100	0.0391	49
2"	100	0.0288	44
1 1/2"	100	0.0210	39
1"	100	0.0153	35
3/4"	94	0.0114	31
3/8"	93	0.0082	28
#4	87	0.0060	24
#10	82	0.0031	19
#20	77	0.0013	14
#40	70	Specific Gravity (Historical) 2.65	
#60	63		
#100	57		
#140	55		
#200	52		

Dry Mass of sample, g

143.2

Sample Proportions	% dry mass
Very coarse, >3" sieve	0
Gravel, 3" to # 4 sieve	13
Coarse Sand, #4 to #10 sieve	5
Medium Sand, #10 to #40	12
Fine Sand, #40 to #200	18
Silt, 75µm to 5 µm	29
Clay < 5µm	23

USCS	CL	Liquid Limit	30	D90	7.010	D50	0.045	D10	
AASHTO	A-6	Plastic Limit	15	D85	3.434	D30	0.010	Cu	
USCS Group Name	Sandy lean clay	Plasticity Index	15	D60	0.192	D15	0.002	Cc	

Project: The Knoll at Iron Valley Additional

Client: Cornwall Properties, LLC

Sample Description: Sandy Lean Clay

Sample Source: TP-01

Project No.: 18:6635-A

Depth (ft): 3.0 - 4.0

Sample No.: S-1

Date Reported: 8/11/2025



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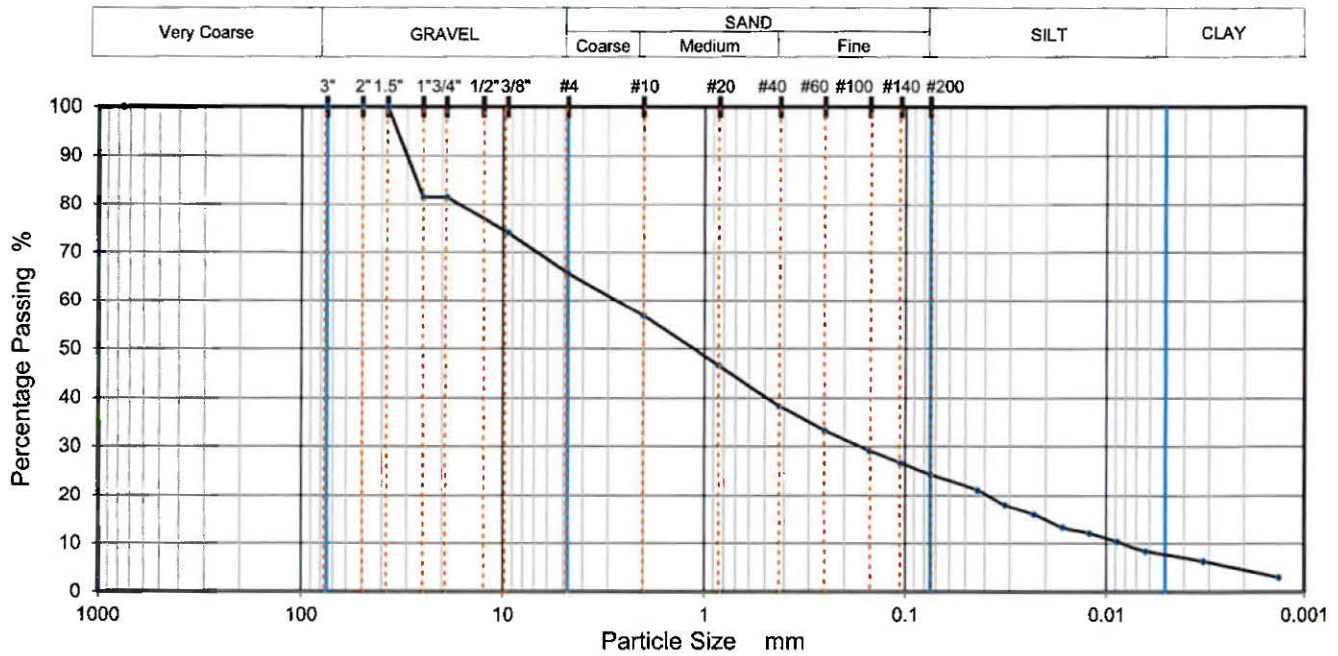
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PARTICLE SIZE DISTRIBUTION



TEST RESULTS (ASTM D6913M-17-METHOD A)

Sieving		Hydrometer Sedimentation	
Particle Size	% Passing	Particle Size mm	% Passing
3"	100	0.0436	21
2"	100	0.0318	18
1 1/2"	100	0.0229	16
1"	82	0.0166	13
3/4"	82	0.0122	12
3/8"	74	0.0088	10
#4	66	0.0063	8
#10	57	0.0032	6
#20	47	0.0013	3
#40	38	Specific Gravity (Historical) 2.65	
#60	33		
#100	29		
#140	27		
#200	24		

Dry Mass of sample, g

179.0

Sample Proportions	% dry mass
Very coarse, >3" sieve	0
Gravel, 3" to # 4 sieve	34
Coarse Sand, #4 to #10 sieve	9
Medium Sand, #10 to #40	19
Fine Sand, #40 to #200	14
Silt, 75µm to 5 µm	16
Clay < 5µm	8

USCS	SC-SM	Liquid Limit	22	D90	30.120	D50	1.131	D10	0.008
AASHTO	A-1-b	Plastic Limit	16	D85	26.990	D30	0.168	Cu	329.009
USCS Group Name	Silty, clayey sand with gravel	Plasticity Index	6	D60	2.739	D15	0.020	Cc	1.235

Project: The Knoll at Iron Valley Additional
 Client: Cornwall Properties, LLC
 Sample Description: Silty Sand with Gravel
 Sample Source: TP-05

Project No.: 18:6635-A
 Depth (ft): 2.0 - 3.0
 Sample No.: S-1
 Date Reported: 8/11/2025



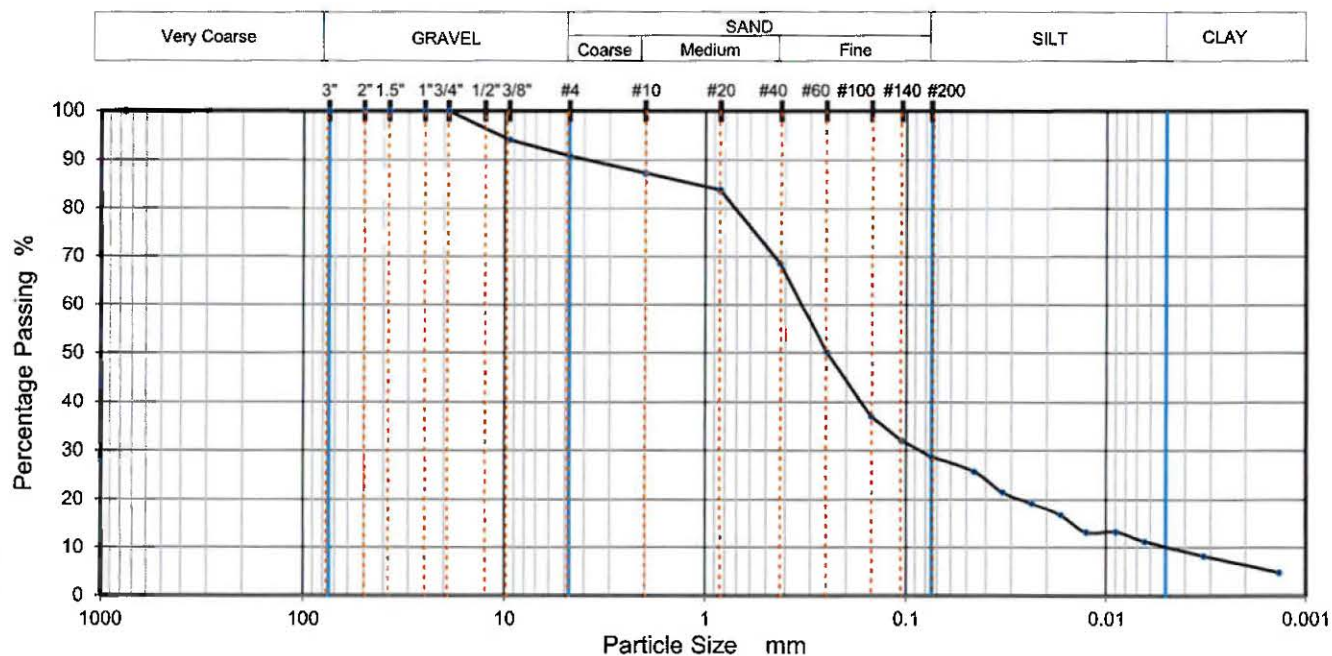
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Tested by	Checked by	Approved by	Date Received	Remarks
JGates		agolihe	8/1/2025	

PARTICLE SIZE DISTRIBUTION



TEST RESULTS (ASTM D6913M-17-METHOD A)

Sieving		Hydrometer Sedimentation	
Particle Size	% Passing	Particle Size mm	% Passing
3"	100	0.0459	26
2"	100	0.0332	22
1 1/2"	100	0.0238	19
1"	100	0.0170	17
3/4"	100	0.0127	13
3/8"	94	0.0090	13
#4	91	0.0064	11
#10	87	0.0032	8
#20	84	0.0014	5
#40	69	Specific Gravity (Historical) 2.65	
#60	50		
#100	37		
#140	32		
#200	29		

Dry Mass of sample, g

219.7

Sample Proportions	% dry mass
Very coarse, >3" sieve	0
Gravel, 3" to #4 sieve	9
Coarse Sand, #4 to #10 sieve	4
Medium Sand, #10 to #40	18
Fine Sand, #40 to #200	40
Silt, 75µm to 5 µm	19
Clay < 5µm	10

USCS	SM	Liquid Limit	NP	D90	3.898	D50	0.248	D10	0.005
AASHTO	A-2-4	Plastic Limit	NP	D85	1.121	D30	0.086	Cu	68.200
USCS Group Name	Silty sand	Plasticity Index	NP	D60	0.332	D15	0.015	Cc	4.531

Project: The Knoll at Iron Valley Additional
 Client: Cornwall Properties, LLC
 Sample Description: Silty Sand
 Sample Source: TP-06

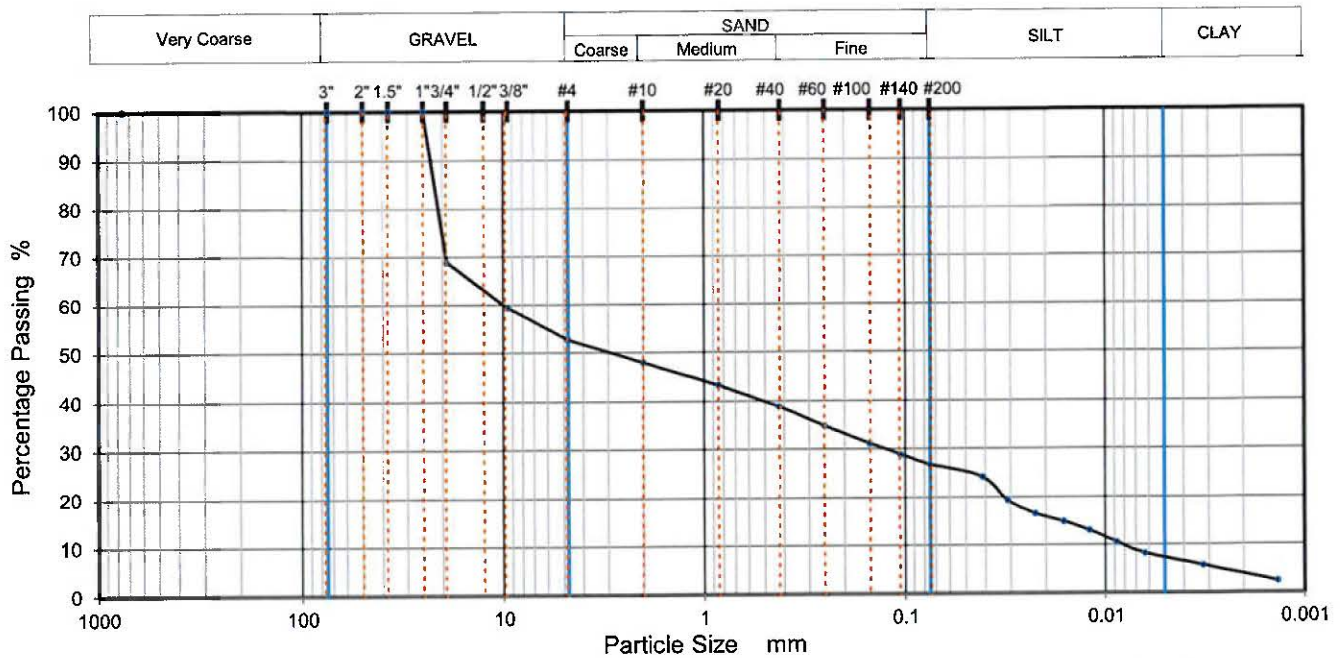
Project No.: 18:6635-A
 Depth (ft): 7.0 - 7.0
 Sample No.: S-01
 Date Reported: 8/11/2025



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Tested by	Checked by	Approved by	Date Received	Remarks
JGates		agolihe	8/1/2025	

PARTICLE SIZE DISTRIBUTION



TEST RESULTS (ASTM D6913M-17-METHOD A)

Sieving		Hydrometer Sedimentation	
Particle Size	% Passing	Particle Size mm	% Passing
3"	100	0.0415	24
2"	100	0.0311	19
1 1/2"	100	0.0226	17
1"	100	0.0163	15
3/4"	69	0.0121	13
3/8"	59	0.0088	11
#4	53	0.0063	8
#10	48	0.0032	6
#20	43	0.0014	2
#40	39	Specific Gravity (Historical) 2.65	
#60	35		
#100	31		
#140	29		
#200	27		

Dry Mass of sample, g

227.6

Sample Proportions	% dry mass
Very coarse, >3" sieve	0
Gravel, 3" to #4 sieve	47
Coarse Sand, #4 to #10 sieve	5
Medium Sand, #10 to #40	9
Fine Sand, #40 to #200	12
Silt, 75µm to 5 µm	20
Clay < 5µm	7

USCS	GM	Liquid Limit	NP	D90	22.890	D50	2.944	D10	0.008
AASHTO	A-2-4	Plastic Limit	NP	D85	21.910	D30	0.127	Cu	1224.945
USCS Group Name	Silty gravel with sand	Plasticity Index	NP	D60	9.998	D15	0.017	Cc	0.196

Project: The Knoll at Iron Valley Additional

Client: Cornwall Properties, LLC

Sample Description: Silty Gravel with Sand

Sample Source: TP-10

Project No.: 18:6635-A

Depth (ft): 3.5 - 3.5

Sample No.: S-01

Date Reported: 8/11/2025



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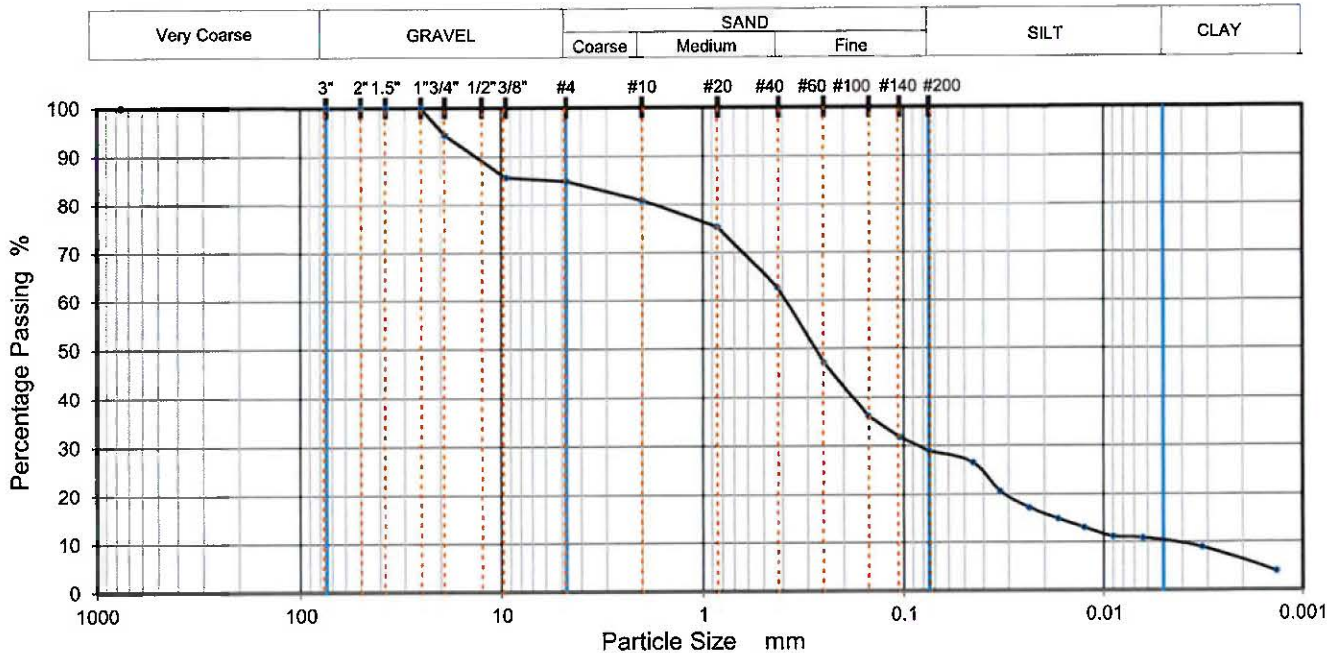
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Tested by	Checked by	Approved by	Date Received	Remarks
JGates		agolihew	8/1/2025	

PARTICLE SIZE DISTRIBUTION



TEST RESULTS (ASTM D6913M-17-METHOD A)

Sieving		Hydrometer Sedimentation	
Particle Size	% Passing	Particle Size mm	% Passing
3"	100	0.0453	27
2"	100	0.0331	21
1 1/2"	100	0.0239	17
1"	100	0.0171	15
3/4"	94	0.0126	13
3/8"	86	0.0090	11
#4	85	0.0064	11
#10	81	0.0032	9
#20	75	0.0014	4
#40	63	Specific Gravity (Historical) 2.65	
#60	47		
#100	36		
#140	32		
#200	29		

Dry Mass of sample, g

170.3

Sample Proportions	% dry mass
Very coarse, >3" sieve	0
Gravel, 3" to #4 sieve	15
Coarse Sand, #4 to #10 sieve	4
Medium Sand, #10 to #40	18
Fine Sand, #40 to #200	34
Silt, 75µm to 5 µm	19
Clay < 5µm	10

USCS	SM	Liquid Limit	NP	D90	13.380	D50	0.276	D10	0.005
AASHTO	A-2-4	Plastic Limit	NP	D85	5.180	D30	0.085	Cu	81.381
USCS Group Name	Silty sand with gravel	Plasticity Index	NP	D60	0.388	D15	0.018	Cc	3.931

Project: The Knoll at Iron Valley Additional
 Client: Cornwall Properties, LLC
 Sample Description: Silty Sand with Gravel
 Sample Source: TP-13

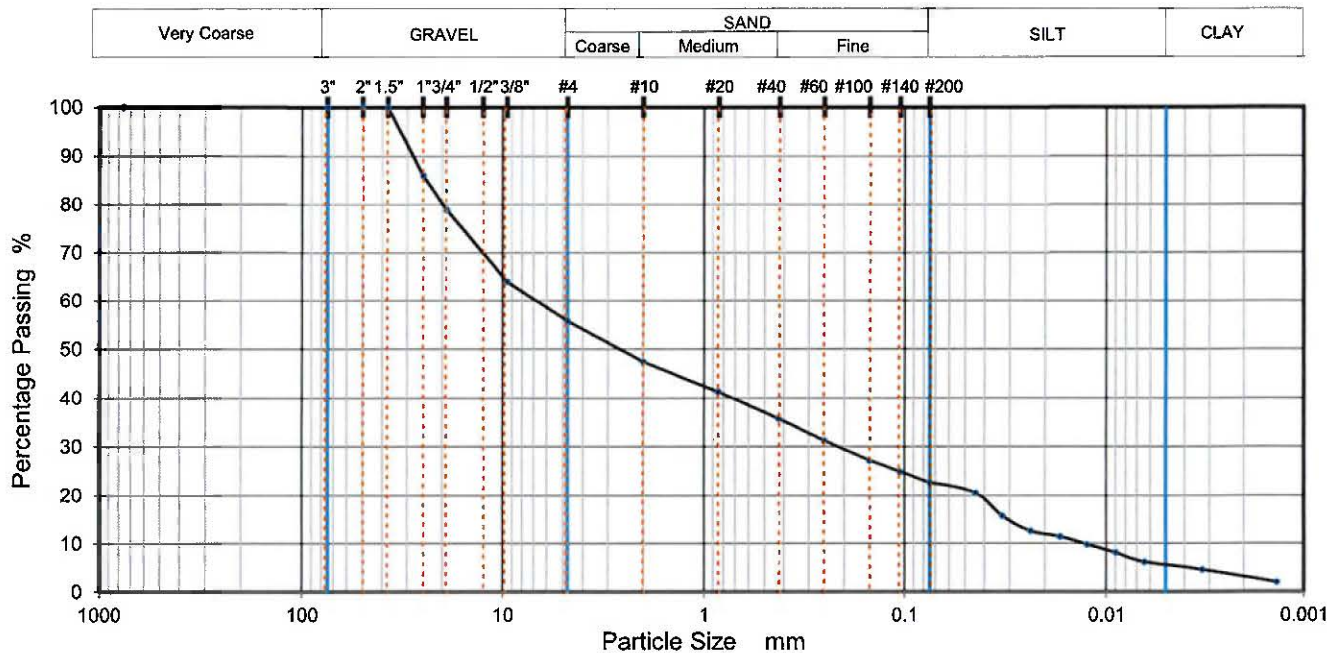
Project No.: 18:6635-A
 Depth (ft): 6.0 - 6.0
 Sample No.: S-1
 Date Reported: 8/11/2025



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Tested by	Checked by	Approved by	Date Received	Remarks
JGates		agolihew	8/1/2025	

PARTICLE SIZE DISTRIBUTION



TEST RESULTS (ASTM D6913M-17-METHOD A)

Sieving		Hydrometer Sedimentation	
Particle Size	% Passing	Particle Size mm	% Passing
3"	100	0.0444	21
2"	100	0.0327	16
1 1/2"	100	0.0238	13
1"	86	0.0170	11
3/4"	79	0.0125	10
3/8"	64	0.0090	8
#4	56	0.0065	6
#10	47	0.0033	5
#20	41	0.0014	2
#40	36	Specific Gravity (Historical) 2.65	
#60	31		
#100	27		
#140	25		
#200	23		

Dry Mass of sample, g

231.0

Sample Proportions	% dry mass
Very coarse, >3" sieve	0
Gravel, 3" to #4 sieve	44
Coarse Sand, #4 to #10 sieve	9
Medium Sand, #10 to #40	11
Fine Sand, #40 to #200	13
Silt, 75µm to 5 µm	17
Clay < 5µm	6

USCS	GM	Liquid Limit	NP	D90	28.010	D50	2.622	D10	0.013
AASHTO	A-1	Plastic Limit	NP	D85	23.970	D30	0.215	Cu	522.026
USCS Group Name	Silty gravel with sand	Plasticity Index	NP	D60	6.802	D15	0.030	Cc	0.519

Project: The Knoll at Iron Valley Additional
 Client: Cornwall Properties, LLC
 Sample Description: Silty Gravel with Sand
 Sample Source: TP-20

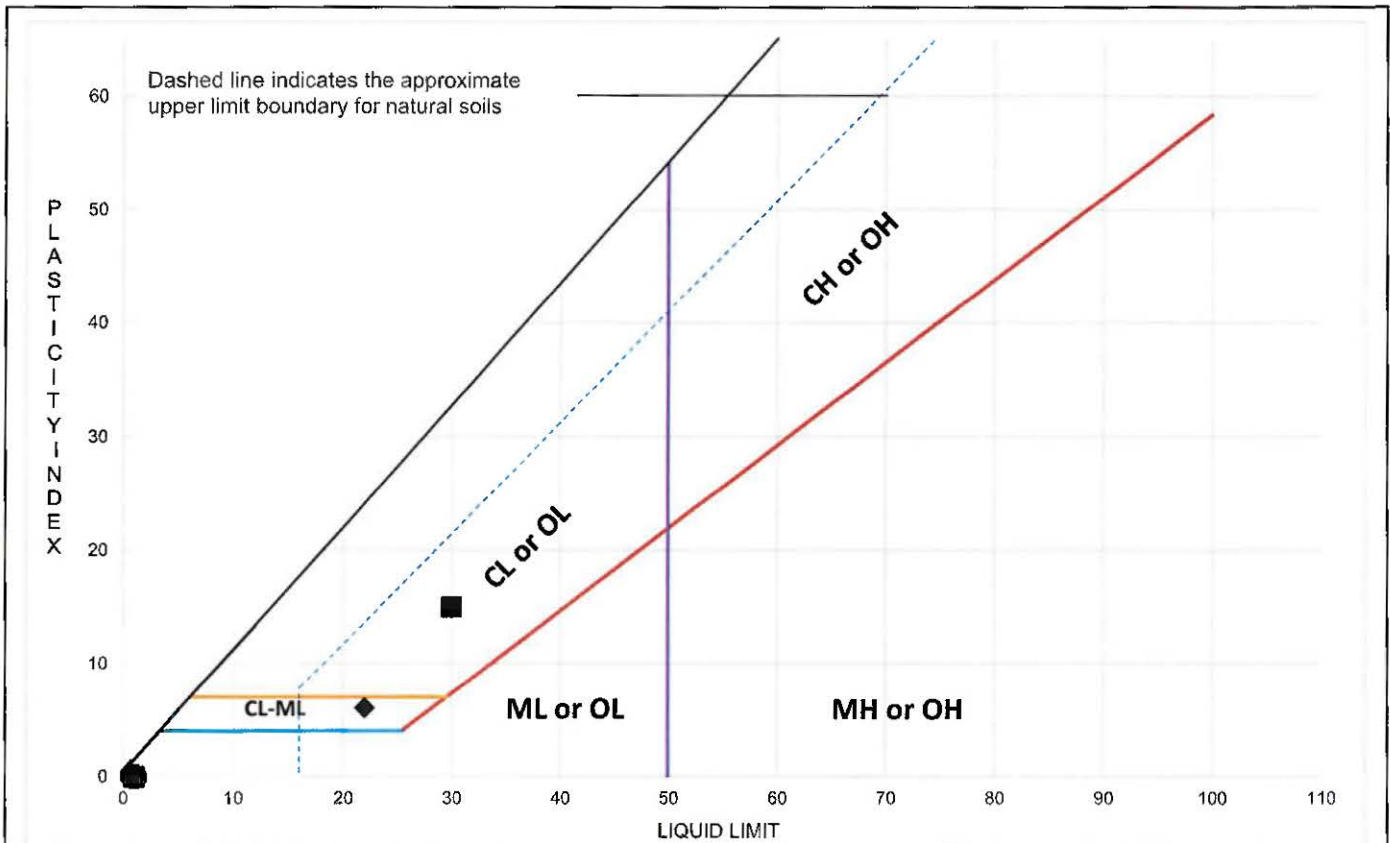
Project No.: 18:6635-A
 Depth (ft): 1.5 - 1.5
 Sample No.: S-01
 Date Reported: 8/11/2025



Office / Lab	Address	Office Number / Fax
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Tested by	Checked by	Approved by	Date Received	Remarks
JGates		agolihew	8/1/2025	

LIQUID AND PLASTIC LIMITS TEST REPORT



TEST RESULTS (ASTM D4318-10 (MULTIPOINT TEST))

	Sample Location	Sample Number	Sample Depth (ft)	LL	PL	PI	%<#40	%<#200	AASHTO	USCS	Material Description
■	TP-01	S-1	3.00-4.00	30	15	15	69.9	52.4	A-6	CL	Sandy Lean Clay
◆	TP-05	S-1	2.00-3.00	22	16	6	38.3	24.3	A-1-b	SC-SM	Silty Sand with Gravel
▲	TP-06	S-01	7.00-7.00	NP	NP	NP	68.5	28.7	A-2-4	SM	Silty Sand
●	TP-10	S-01	3.50-3.50	NP	NP	NP	38.8	26.7	A-2-4	GM	Silty Gravel with Sand
*	TP-13	S-1	6.00-6.00	NP	NP	NP	62.7	28.9	A-2-4	SM	Silty Sand with Gravel
⊗	TP-20	S-01	1.50-1.50	NP	NP	NP	35.7	22.7	A-1	GM	Silty Gravel with Sand

The Knoll at Iron Valley Additional
Cornwall Properties, LLC

Project No.: 18-6635
Date Reported: 8/11/2025



Office / Lab
ECS Mid-Atlantic LLC - York

Address
52-6 Grumbacher Road
York, PA 17406

Office Number / Fax
(717)767-4788
(717)767-5658

Tested by	Checked by	Approved by	Date Received
JGates		agolihew	8/1/2025

USDA Classification

TEST RESULTS (ASTM D6913M-17-METHOD A)

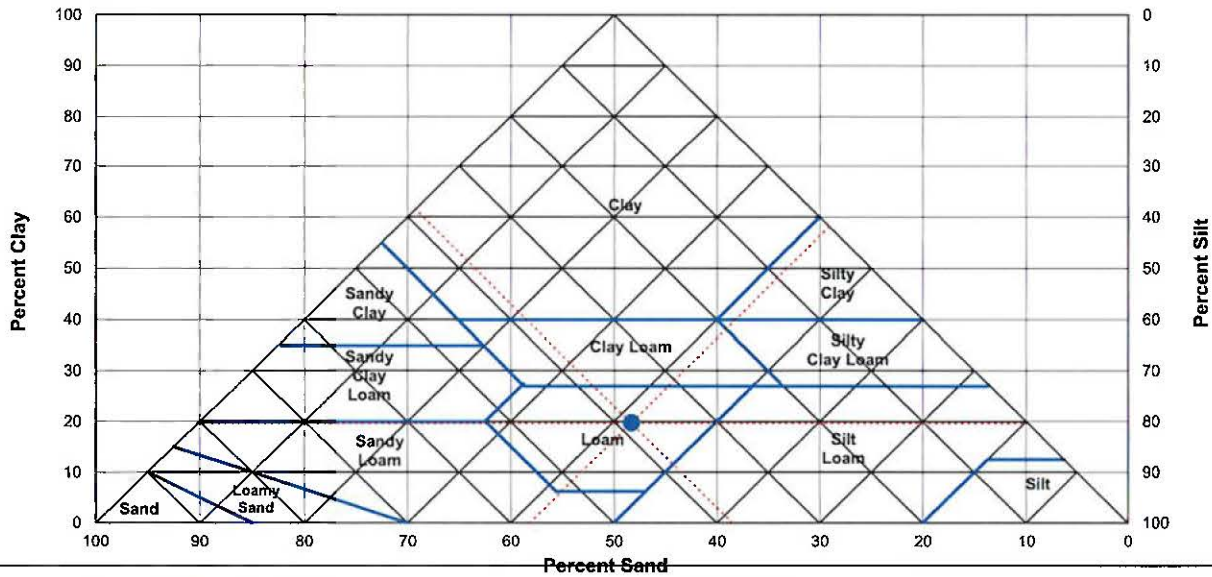
USDA Classification:

Loam

USDA Soil Percentages
(Corrected for Gravel):

%Sand	%Silt	%Clay
38.5	41.9	19.7

Textural Triangle USDA



Project: The Knoll at Iron Valley Additional
Client: Cornwall Properties, LLC
Sample Description: Sandy Lean Clay
Sample Source: TP-01

Project No.: 18.8635-A
Depth (ft): 3 - 4
Sample No.: S-1
Date Reported: 8/11/2025



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Address

52-6 Grumbacher Road
York, PA 17406

Office Number / Fax

(717)767-4788
(717)767-5658

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JGates		agolihew	8/1/2025

USDA Classification

TEST RESULTS (ASTM D6913M-17-METHOD A)

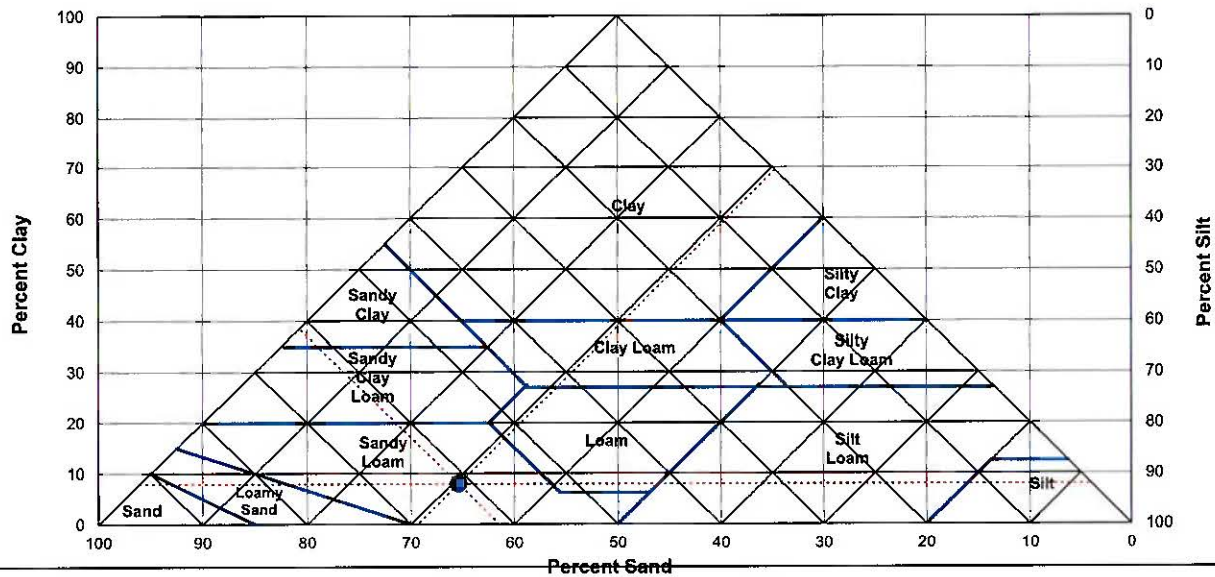
USDA Classification:

Sandy Loam

USDA Soil Percentages
(Corrected for Gravel):

%Sand	%Silt	%Clay
61.4	30.6	7.9

Textural Triangle USDA



Project: The Knoll at Iron Valley Additional
Client: Cornwall Properties, LLC
Sample Description: Silty Sand with Gravel
Sample Source: TP-05

Project No.: 18-8835-A
Depth (ft): 2 - 3
Sample No.: S-1
Date Reported: 8/11/2025



Office / Lab

ECS Mid-Atlantic LLC - York

Address

52-6 Grumbacher Road
York, PA 17406

Office Number / Fax

(717)767-4788

(717)767-5858

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JGates		agolhew	8/11/2025

USDA Classification

TEST RESULTS (ASTM D6913M-17-METHOD A)

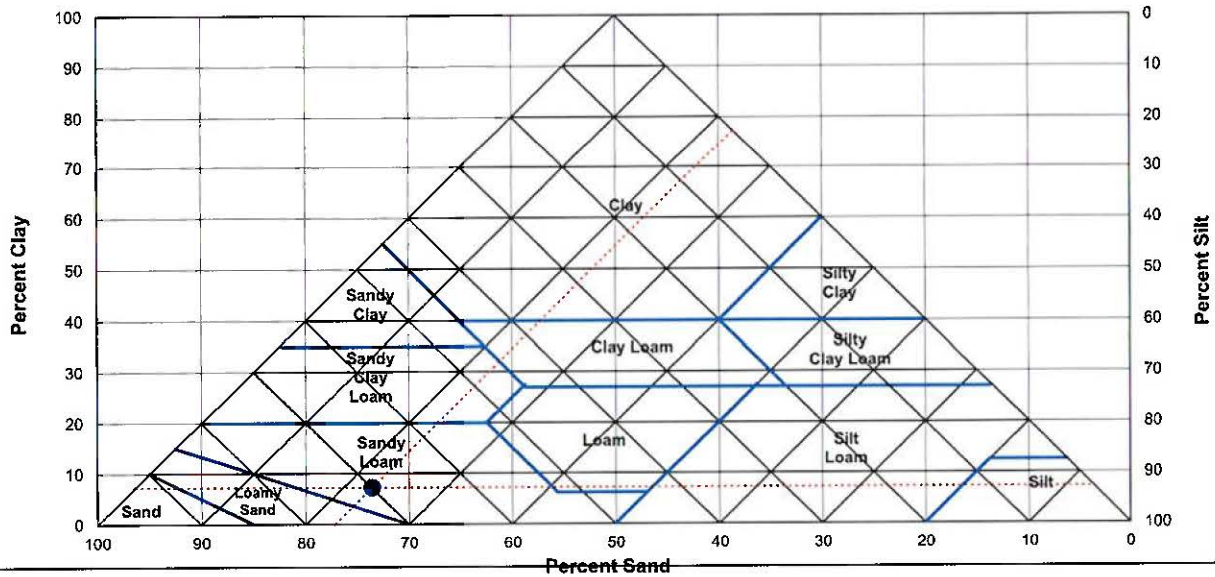
USDA Classification:

Sandy Loam

USDA Soil Percentages
(Corrected for Gravel):

%Sand	%Silt	%Clay
70.0	22.8	7.2

Textural Triangle USDA



Project: The Knoll at Iron Valley Additional
Client: Cornwall Properties, LLC
Sample Description: Silty Sand
Sample Source: TP-06

Project No.: 18-6835-A
Depth (ft): 7 - 7
Sample No.: S-01
Date Reported: 8/11/2025



Office / Lab

Address

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ECS Mid-Atlantic LLC - York

52-6 Grumbacher Road
York, PA 17406

(717)767-4788

(717)767-5658

Tested by	Checked by	Approved by	Date Received
JGates		agolihew	8/1/2025

USDA Classification

TEST RESULTS (ASTM D6913M-17-METHOD A)

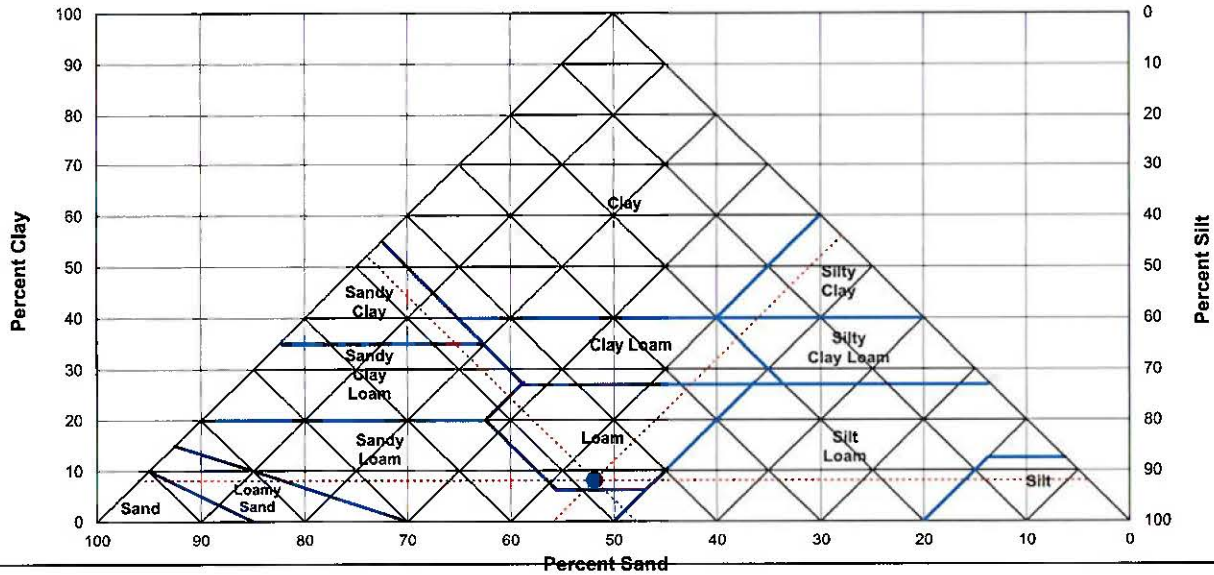
USDA Classification:

Loam

USDA Soil Percentages
(Corrected for Gravel):

%Sand	%Silt	%Clay
47.8	44.1	8.1

Textural Triangle USDA



Project: The Knoll at Iron Valley Additional
Client: Cornwall Properties, LLC
Sample Description: Silty Gravel with Sand
Sample Source: TP-10

Project No.: 18.6635-A
Depth (ft): 3.5 - 3.5
Sample No.: S-01
Date Reported: 8/11/2025



Office / Lab

Address

Office Number / Fax

ECS Mid-Atlantic LLC - York

52-6 Grumbacher Road
York, PA 17406

(717)767-4788

(717)767-5658

Tested by	Checked by	Approved by	Date Received
JGates		agolihew	8/11/2025

USDA Classification

TEST RESULTS (ASTM D6913M-17-METHOD A)

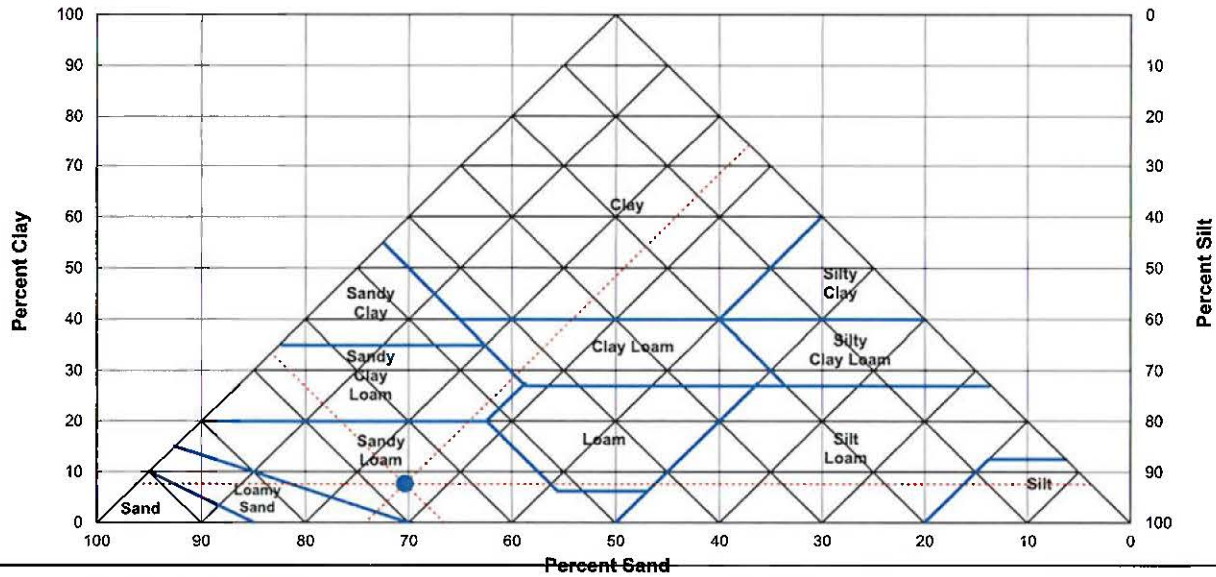
USDA Classification:

Sandy Loam

USDA Soil Percentages
(Corrected for Gravel):

%Sand	%Silt	%Clay
66.6	25.8	7.6

Textural Triangle USDA



Project: The Knoll at Iron Valley Additional
Client: Cornwall Properties, LLC
Sample Description: Silty Sand with Gravel
Sample Source: TP-13

Project No.: 18.6635-A
Depth (ft): 6 - 6
Sample No.: S-1
Date Reported: 8/11/2025



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Address

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York, PA 17406

Office Number / Fax

(717)767-4788

(717)767-5658

Tested by	Checked by	Approved by	Date Received
JGates		agolthew	8/1/2025

USDA Classification

TEST RESULTS (ASTM D6913M-17-METHOD A)

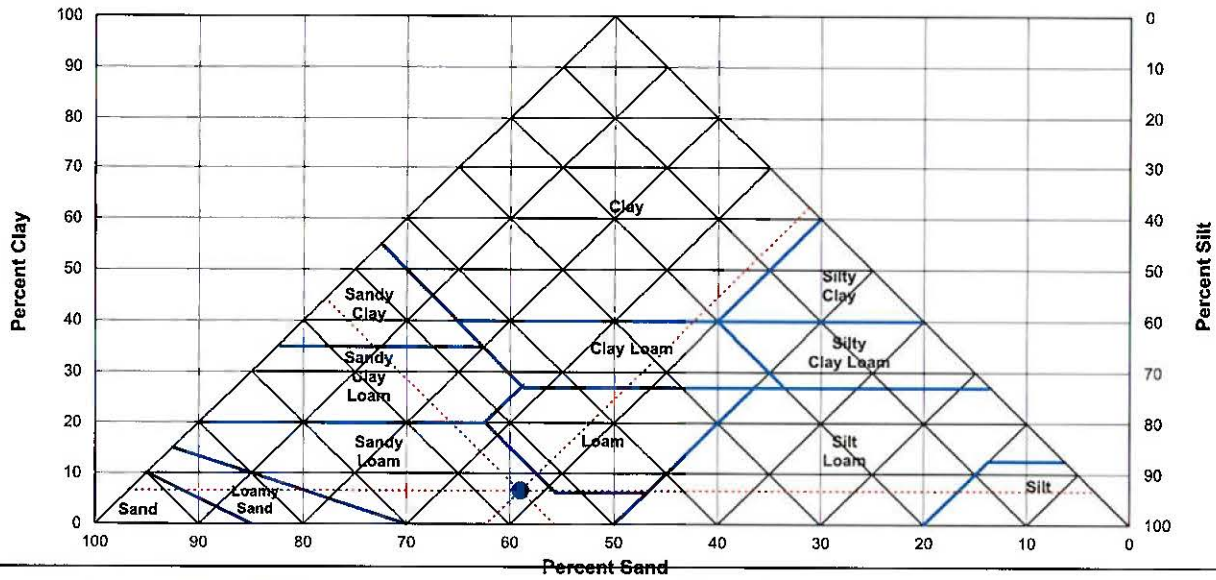
USDA Classification:

Sandy Loam

USDA Soil Percentages
(Corrected for Gravel):

%Sand	%Silt	%Clay
55.7	37.7	6.6

Textural Triangle USDA



Project: The Knoll at Iron Valley Additional
Client: Cornwall Properties, LLC
Sample Description: Silty Gravel with Sand
Sample Source: TP-20

Project No.: 18.6635-A
Depth (ft): 1.5 - 1.5
Sample No.: S-01
Date Reported: 8/11/2025



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Address

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Office Number / Fax

(717)767-4788

(717)767-5658

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JGates		agolihew	8/1/2025

Appendix D - Supplemental Documents

Other Supplemental Documents