

# **TRIP REPORT**

## **VALLEY FORGE ROAD EFRD SITE – INFILTRATION TESTING**

### **1.0 PURPOSE**

This Trip Report presents the field data and results of double-ring soil infiltration tests conducted to support the design of a stormwater management system at the Valley Forge Road EFRD site located in Juniata Township, Blair County, Pennsylvania, as part of the Pennsylvania Pipeline Project (PPP) for Sunoco Pipeline, LP. Two shallow tests (IT-A and IT-B) were performed at the site. The test locations are listed by coordinates (latitude and longitude) in Table 1 and shown on the attached figure.

### **2.0 FIELD ACTIVITIES**

The infiltration tests were conducted by Jim Goerdts and Matt Simcik of Tetra Tech, Inc., on September 28, 2016. The test locations were positioned in the field using a handheld, WAAS-enabled GPS unit. Table 1 provides the coordinates of the test locations. Both IT-A and IT-B were located in a slightly sloped field, approximately 30 feet west of Valley Forge Road.

The infiltration tests were performed in accordance with the procedure specified in the 2006 Pennsylvania Stormwater Best Management Practices (BMP) Manual. The test locations were prepared with hand tools, and care was taken to minimize disturbance of the soil surface to be tested. Double-ring infiltrometers were used for testing and consisted of 10-inch diameter and 6-inch diameter sections of steel casing, each 10 inches in height. After digging to the target depth, the test surface was leveled, and loose soil and debris were removed. The rings were driven a minimum of 2 inches into the soil. The infiltration test depths are presented in Table 1.

Test locations were pre-soaked for 1 hour. The tests were then conducted with measurements at 10-minute or 30-minute intervals, based on the observed water level drop during the last half of the pre-soak period. Pre-soak and test information were recorded on infiltration test data sheets; copies of the test data sheets are attached to this report.

During the testing, the weather was sunny, approximately 70 degrees Fahrenheit, and no precipitation was observed during the time of testing. Additionally, less than 0.5 inches of precipitation was observed 24 hours prior to testing.

A hand auger was utilized to characterize the soil, determine the depth to bedrock, if encountered, and inspect for evidence of the seasonal high water table near the test area. This was completed from the ground surface down to two feet below the target infiltration test depth (a maximum depth of 13 inches bgs was reached at IT-B due to presence of numerous rocks and multiple attempts). Descriptions of the soil were documented on field logs, which were based on the form example in the BMP manual. A copy of the soil log is attached to this report.

## **3.0 RESULTS**

### **3.1 Soil Description**

Soils encountered generally consisted of a thin (up to approximately 2 inches) brown (7.5YR 4/2) topsoil/surface soil consisting of organics and silts with grass roots and angular rocks underlain by a brown (7.5YR 4/2) loam with angular rocks prevalent. This layer was underlain by an illuvial layer composed of a sandy clay loam/gravel, brown (7.5YR 4/3) with angular rocks prevalent. Refusal of hand auger was reached at both locations, however with the amount of rock fragments, refusal was not believed to be caused by bedrock.

Seasonal high water was not observed at the testing location, nor was any mottling observed.

According to United States Department of Agriculture Natural Resources Conservation Service Web Soil Survey data, the soil type for the test locations is mapped as follows:

- Bedington Channery Silt Loam – (BeC soil symbol) 8-15 percent slopes; with medium runoff and well drained.

### **3.2 Infiltration Tests Results**

Table 1 summarizes the infiltration rate (inches per hour) calculated from the test data. Infiltration rates presented in Table 1 were calculated from the average water level drop of the last four stabilized readings measured in the inner ring.

The pre-soak test results for both IT-A and IT-B indicated moderate to high infiltration rates, requiring 10 minute test cycles.

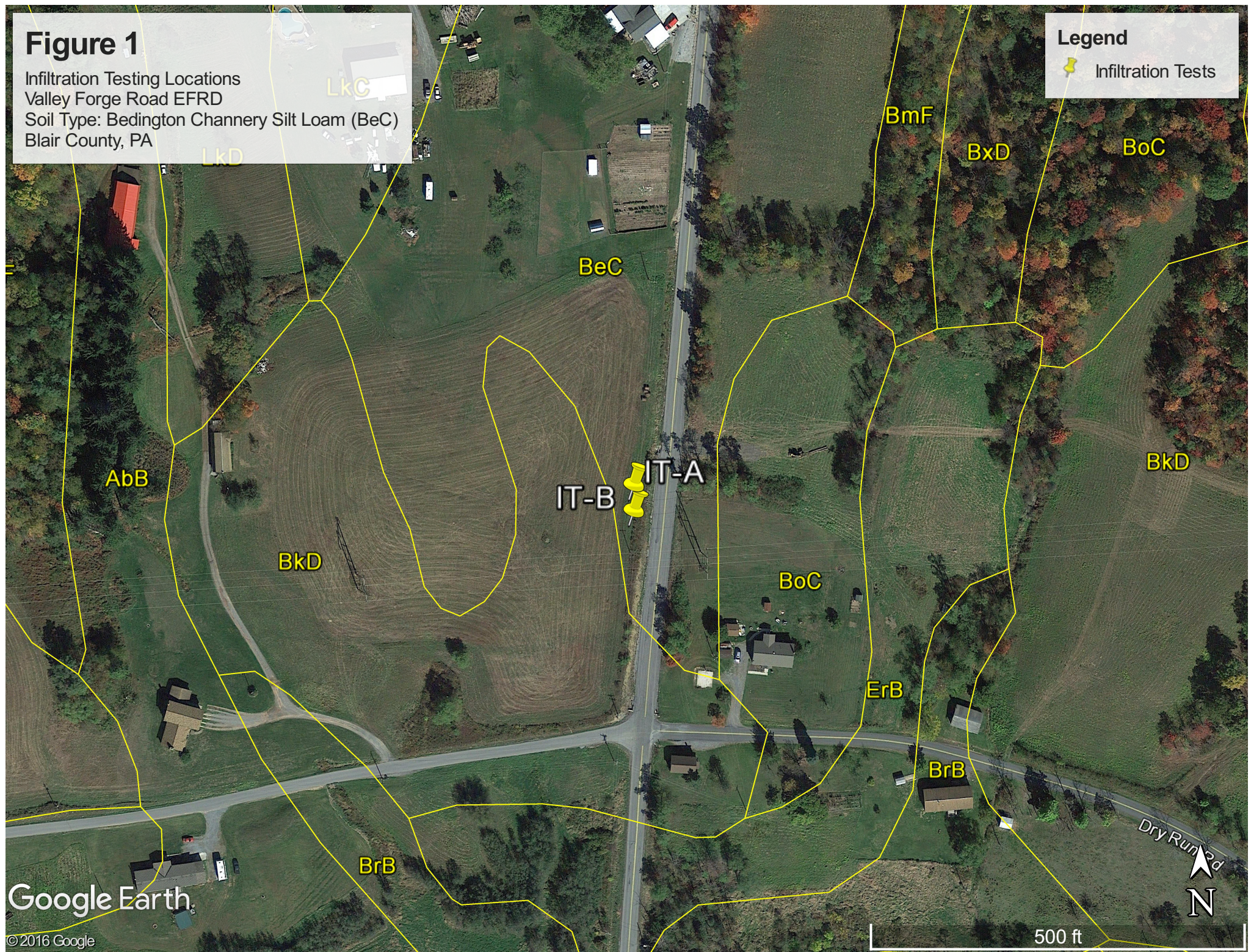
**Table 1**  
**Summary of Infiltration Test Results**  
**Valley Forge Road EFRD**  
**Juniata Township, Blair County, PA**  
**Sunoco PPP**

Test Location (IT-)	Location Data		Test Depth (inches)	Infiltration Test Result (inches/hour)
	LATITUDE	LONGITUDE		
IT-A	40.4046961 °	- 078.4934922 °	4	3.66
IT-B	40.4046064 °	- 078.4934941 °	4	11.34

# Figure 1

Infiltration Testing Locations  
Valley Forge Road EFRD  
Soil Type: Bedington Channery Silt Loam (BeC)  
Blair County, PA

**Legend**  
📌 Infiltration Tests



Google Earth

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500 ft



## **ATTACHMENTS**

## SOIL LOGS

**Soil Log**

Tested By: M. Simek

Project: PPP SUNOCO

Project No.: 12IC05958

Test Pit: Valley Forge Rd IT-A Date: 09/28/16

Elevation: \_\_\_\_\_ Equipment Used Hand Auger

Geology: \_\_\_\_\_ Soil Type: Bedington & Honey Silt Loam 8 to 15 percent slopes (Bc)

Land Use: Open Field Weather: 60-70's clear

**Additional Comments**

Refusal @ 25" - Area was filled w/ Angular Rock, No evidence of Seasonally High water table

Horizon	Upper Boundary	Lower Boundary	Soil Textural Class	Type, Size, Coarse Fragments, etc.	Soil Color	Color Patterns	Pores, Roots, Rock Structure	Depth to Bedrock	Depth to Water	Comments
O	0"	2"	Topsoil	Organics Silt	7.5YR 4/2	Solid	Roots Angular Rocks	-	-	Dry
A	2"	12"	Loam	Silt and Sands	7.5YR 4/2	Solid	Angular Rock (Prevalent)	-	-	Dry
B/c	12"	25"	Sandy clay loam/gravel	Silt and Sands w/ some clay (gravelly Rock)	7.5YR 4/3	Gradual	Angular Rock (Prevalent)	-	-	Dry

Horizon:	USDA Definition	Soil Textural Class	Boundary	Notes:
O	Organic debris	Use ternary diagram from US Department of Agriculture Soil Conservation Service	Use depth and classification	- Hit Refusal @ 25" (1" Start of goal)
A	Dark colored, mixed mineral organic matter		Classification as Follows: Abrupt	
B	Maximum accumulation of silicate clay minerals		Clear	
C	Weathered parent material		<u>Gradual</u>	
R	Layer of consolidated rock beneath the soil		Diffuse	

**Soil Log**

Tested By: M. Simcik

Project: PPP Sunoco

Project No.: 12IC05958

Test Pit: Valley Forge Rd IT-B

Date: 09/28/16

Elevation: \_\_\_\_\_

Equipment Used Hand Auger

Geology: \_\_\_\_\_

Soil Type: Bedington channery silt loam 8 to 15 percent slopes (Bc)

Land Use: Open Field

Weather: 60-70'S Clear

**Additional Comments**

Hand Auger Refusal 3 locations at generally same depth not believed to be bed rock, no evidence of seasonally high water table.

Horizon	Upper Boundary	Lower Boundary	Soil Textural Class	Type, Size, Coarse Fragments, etc.	Soil Color	Color Patterns	Pores, Roots, Rock Structure	Depth to Bedrock	Depth to Water	Comments
O	0"	1"	TOP Soil	organics	7.5YR 4/2	Solid	Roots(gress) Rocks angular	-	-	Dry
A	1"	8"	Hit Refusal	Moved 3' North of hole (hole was 5' N of IT-TEST)						
O	0"	1"	TOP Soil	organics	7.5YR 4/2	Solid	Roots(gress) Rocks angular	-	-	Dry
A	1"	13"		Silts and Sand	7.5YR 4/2	Solid	Rock angular prominent	Hit Refusal	Moved	3' 5' west of IT-location
O	0"	1"	TOP Soil	organics	7.5YR 4/2	Solid	Roots(gress)	-	-	Dry
A	1"	10"	Hit Refusal	Soil was silts and sands w/ Rock, gravelly				-	-	Dry

Horizon:	USDA Definition	Soil Textural Class	Boundary	Notes:
O	Organic debris	Use ternary diagram from US Department of Agriculture Soil Conservation Service	Use depth and classification	- Area was full of rocks which refused the hand auger in 3 locations - Not believed to be bedrock
A	Dark colored, mixed mineral organic matter		Classification as Follows: Abrupt	
B	Maximum accumulation of silicate clay minerals		<u>Clear</u>	
C	Weathered parent material		Gradual	
R	Layer of consolidated rock beneath the soil		Diffuse	

**INFILTRATION TEST DATA SHEETS**



