

TRIP REPORT HARES VALLEY ROAD SITE – INFILTRATION TESTING

1.0 PURPOSE

This Trip Report presents the field data and results of a double-ring soil infiltration test conducted to support the design of a stormwater management system at the Hares Valley Road site located in Union Township, Huntington County, Pennsylvania, as part of the Pennsylvania Pipeline Project (PPP) for Sunoco Pipeline, LP. One shallow test (IT-A) was performed at the site. The test location is listed by coordinates (latitude and longitude) in Table 1 and shown on the attached figure.

2.0 FIELD ACTIVITIES

The infiltration test was conducted by Mark Mengel and Kevin Schwab of Tetra Tech, Inc., on October 3, 2016. The test location was positioned in the field using a handheld, WAAS-enabled GPS unit. Table 1 provides the coordinates of the test location. The test was located in a brushy area along mildly sloped terrain on the east side of Hares Valley Road.

The infiltration test was performed in accordance with the procedure specified in the 2006 Pennsylvania Stormwater Best Management Practices (BMP) Manual. The test location was 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 depth is presented in Table 1.

The test location was pre-soaked for 1 hour. The test was 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 was recorded on an infiltration test data sheet; a copy of the test data sheet is attached to this report.

The weather at the time of testing was sunny and seasonal, approximately 60-65 degrees Fahrenheit. 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. Descriptions of the soil were documented on a field log, which was 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) very dark grayish brown (10YR 3/2) topsoil/surface soil layer composed of a loam with small to medium roots underlain by a dark grayish brown (10YR 4/2) silt loam with small to medium roots. Two illuvial layers were found which trended from a yellowish brown (10YR 5/4) silt clay to a yellowish brown (10YR 5/6) silt clay with depth. Rock content in these two illuvial layers ranged from 2-10% of small to medium siltstone and sandstone channers and increased with depth. Bedrock was not found within the test area.

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 types for the test location is mapped as follows:

- Ernest Silt Loam - (ErB soil symbol) with 3-8 percent slopes; with medium runoff and moderately well drained.

3.2 Infiltration Tests Results

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


The pre-soak test result indicated a high infiltration rate, requiring a 10 minute test cycle.

Table 1
Summary of Infiltration Test Results
Hares Valley Road
Union Township, Huntington County, PA
Sunoco PPP

Test Location (IT-)	Location Data		Test Depth (inches)	Infiltration Test Result (inches/hour)
	LATITUDE	LONGITUDE		
IT-A	40.3505586°	- 077.9699247°	2	8.2

Figure 1

Infiltration Testing Location
Hares Valley Road Valve
Soil Type: Ernest Silt Loam (ErB)
Huntington County, PA

Legend
 Infiltration Test



Google Earth

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300 ft

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ATTACHMENTS

SOIL LOGS



Soil Log

Tested By: has Kevin Schwab

Project: SUNOCO PPP
Horseshoe Valley Rd.

Project No.: 1121C05958

Test Pit: IT-A

Date: 10/3/16

Elevation: _____

Equipment Used: _____

Geology: slight side slope

Soil Type: _____

Land Use: _____

Weather: Cloudy

Additional Comments

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"	loam	fine granular	10YR 3/2	even	Some small to med roots			
A	2"	11 3/4"	silt loam	fine granular	10YR 2 1/2	↓	SAA			
B	11 3/4"	22 1/4"	silt clay	fine - med sub angular blocky	10YR 5/4		2% small siltstone channers			
B ₂	22 1/4"	29 1/2"	silt clay	fine - med sub angular sub rounded	10YR 5/6		10% small to med channers			small to med pebble sized siltstones

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	
A	Dark colored, mixed mineral organic matter		Classification as Follows:	
B	Maximum accumulation of silicate clay minerals		Abrupt	
C	Weathered parent material		Clear	
R	Layer of consolidated rock beneath the soil		Gradual	
			Diffuse	

Table based on: Sample soil log located on page 12 of the Pennsylvania Stormwater Best Management Practices Manual
 USDA Definitions located from: http://www.nrcs.usda.gov/wps/portal/nrcs/detail/soils/edu/?cid=nrcs142p2_054308

INFILTRATION TEST DATA SHEETS

