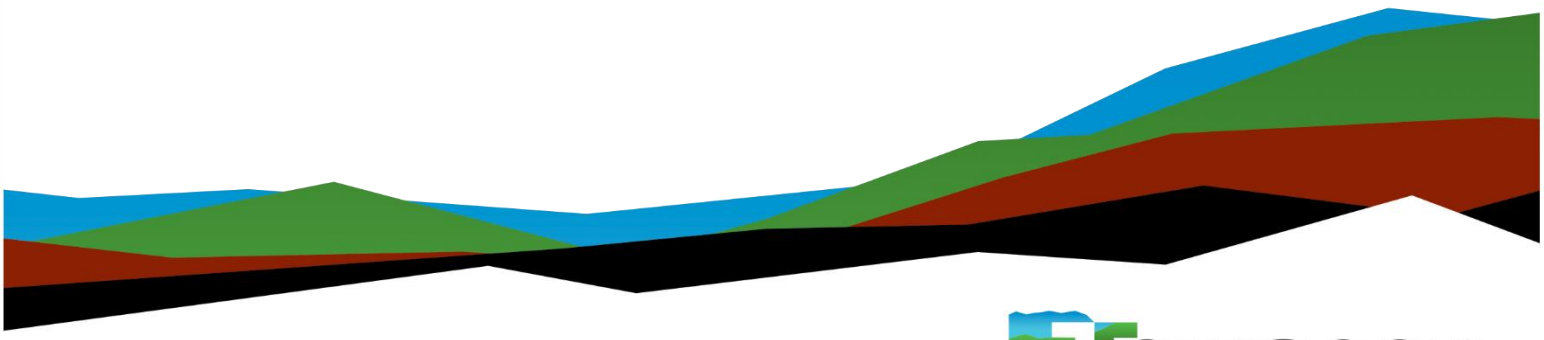
Coventry Self Storage – Infiltration Rate Testing

Stormwater Management Investigation Services Report

May 6, 2024 | Terracon Project No. J2245016

Prepared for:

Nooseneck Hill Coventry, LLC
75 Commerce Drive, PO Box 859
Grayslake, Illinois 60030



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May 6, 2024

Nooseneck Hill Coventry, LLC
75 Commerce Drive, PO Box 859
Grayslake, Illinois 60030

Attn: Ms. Morgan Bullen
P: (403) 828-5490
E: mbullen@macritchie.biz

Re: Stormwater Management Investigation Services Report
Coventry Self Storage – Infiltration Rate Testing
1920 Nooseneck Hill Road
Coventry, Rhode Island
Terracon Project No. J2245016

Dear Ms. Bullen:

We have completed the scope of Stormwater Management Investigation Services for the above referenced project in general accordance with Terracon Proposal No. PJ2245016 dated April 15, 2024. This report presents the findings of the subsurface exploration and infiltration testing data concerning the replacement of two existing drywells and the proposed infiltration basin for the proposed project.

We appreciate the opportunity to be of service to you on this project. If you have any questions concerning this data report or if we may be of further service, please contact us.

Sincerely,

Terracon

Jennifer S. Jurnack
Staff Geologist

5/6/2024
MAIA GRISWOLD HAYES
No. 14808
REGISTERED
PROFESSIONAL ENGINEER
CIVIL

for
Steven D. Thorne, P.E., D.GE, F.ASCE
Senior Principal

Maia Griswold Hayes, P.E. (CO, CT, RI)
Geotechnical Group Manager

Table of Contents

Figures

Attachments

Refer to each individual Attachment for a listing of contents.

Report Summary

Topic [1]	Overview Statement [2]
Project Description	A drilling and infiltration testing program has been performed for the proposed infiltration basin and drywell replacements to be constructed at 1920 Nooseneck Hill Road in Coventry, Rhode Island. Four soil borings were completed to depths of approximately 5 to 8 feet below existing site grades.
Geotechnical Characterization	▪ Subsurface conditions encountered in our exploratory borings generally consisted of surface material overlying native sand with varying amounts of gravel. Surface material consisted of either asphalt or topsoil underlain by subsoil. ▪ Groundwater was encountered at depths between about 2 to 3.5 feet below existing site grades at the time of field exploration. Groundwater conditions may change because of seasonal variations in rainfall, runoff, and other conditions not apparent at the time of drilling.
General Comments	This section contains important information about the limitations of this infiltration testing data report.

1. If the reader is reviewing this report as a pdf, the topics above can be used to access the appropriate section of the report by simply clicking on the topic itself.
2. This summary is for convenience only. It should be used in conjunction with the entire report for design purposes.

Introduction

This report presents the results of our subsurface exploration and Stormwater Management Investigation Services performed for the proposed infiltration basin and reconstruction of two existing drywells to be located at 1920 Nooseneck Hill Road in Coventry, Rhode Island. The purpose of these services was to provide information relative to:

- Subsurface soil conditions
- Groundwater conditions
- Subsurface exploration procedures
- Results of field infiltration rate tests

The Scope of Services for this project included the advancement of test borings, laboratory testing, infiltration rate data entry, and preparation of this data report.

Drawings showing the site and boring locations are shown on the **Site Location** and **Exploration Plan**, respectively. The results of the laboratory testing performed on soil samples obtained from the site during our field exploration are included on the boring logs and as separate graphs in the **Exploration Results** section.

Project Description

Our initial understanding of the project was provided in our proposal and was discussed during project planning. A period of collaboration has transpired since the project was initiated, and our final understanding of the project conditions is as follows:

Item	Description
Information Provided	The project understanding provided below is based on the following: ■ Email correspondence with Kimley-Horn ■ "Erosion and Sediment Control Plan" prepared by Kimley-Horn and dated November 1, 2023 ■ Project kickoff call with Nooseneck Hill, Kimley-Horn, and Terracon team members on April 17, 2024
Project Description	The project includes rebuilding two existing drywells located on the site and the installation of an infiltration basin located to the west of the existing drywells.

Item	Description
Grading/Slopes	Proposed finished grade elevation for the infiltration basin is expected to range between Elevations (El.) 248 feet and El. 253 feet. At the infiltration basin, approximately 4 to 6 feet of cut is currently proposed to develop final bottom of basin grades. At the existing drywells, grading is anticipated to remain at the current elevations.

Site Conditions

The following description of site conditions is derived from our site visit in association with the field exploration and our review of publicly available geologic and topographic maps.

Item	Description
Parcel Information	The project site is located at 1920 Nooseneck Hill Road in Coventry, Rhode Island. The approximate Latitude/Longitude of the center of the site is 41.6703°N/ 71.5981°W. See **Site Location**
Existing Improvements	The site is currently a self-storage facility with five rows of one-story metal storage buildings and associated drive aisles. A wooded area exists to the northwest of the storage buildings and partially covers the proposed infiltration basin location.
Current Ground Cover	Asphalt paved within the area of the existing storage units and grass covered with trees and bushes within the wooded area.
Existing Topography (from provided topography plan)	Elevations across the existing paved area are relatively consistent at El. 254 feet. Elevations across the wooded area range between El. 254 feet and El. 251 feet.

We also collected photographs at the time of our field exploration program. Representative photos are provided in our **Photography Log**.

Geotechnical Characterization

We have developed a general characterization of the subsurface conditions based upon our review of the subsurface exploration, laboratory data, geologic setting and our understanding of the project. This characterization, termed GeoModel, forms the basis of

our evaluation of the site. Conditions observed at each exploration point are indicated on the individual logs. The individual logs can be found in the **Exploration Results** and the GeoModel can be found in the **Figures** attachment of this report.

As part of our analyses, we identified the following model layers within the subsurface profile. For a more detailed view of the model layer depths at each boring location, refer to the GeoModel.

Model Layer	Layer Name	General Description
1	**Surface Material**	Bituminous Concrete / Topsoil / Subsoil
2	**Native Material**	Poorly graded sand, trace to with gravel, brown to brown-gray, loose to dense

Groundwater Observations

Groundwater was encountered at depths ranging between about 2.0 to 3.5 feet below existing site grades during and after the time of our field exploration. Borings were advanced using solid-stem auger drilling techniques that allow short term groundwater observations to be made while drilling. Groundwater conditions may be different at the time of construction. Mapping by the Natural Resources Conservation Service (NRCS) indicates a seasonal high groundwater level within 27 inches of ground surface. Groundwater conditions may change due to seasonal variations in rainfall, runoff, and other conditions not apparent at the time of drilling. Long-term groundwater monitoring was outside the scope of services for this project.

Laboratory Testing

Laboratory testing was performed on soil samples collected in the field. Laboratory testing included in-situ moisture content and grain-size analysis. Results of our laboratory testing are included in the **Exploration Results** section of this report and summarized in the following Table:

Boring ID	Depth (feet)	Percent Gravel	GeoModel Layer	Percent Sand	Percent Fines	USCS Classification
SW-1	1.0-3.0	20.5	2	72.3	7.1	SP-SM
SW-2	1.0-3.0	18.3	2	73.5	8.2	SP-SM
SW-3	2.0-4.0	23.1	2	66.8	10.2	SP-SM
SW-4	4.0-6.0	4.8	2	93.0	2.2	SP

In-situ Infiltration Testing

Field infiltration tests were performed in one area of the proposed infiltration basin and adjacent to two existing drywells in the paved area. Two infiltration tests were proposed to be completed in the infiltration basin; however, one was not performed due to shallow groundwater. The three remaining tests were performed at shallower depths than the original proposed depths also due to shallow groundwater. These infiltration testing depths were adjusted during field exploration and were performed at approximately 2 feet above the encountered groundwater levels. Terracon discussed field conditions with Kimley-Horn during the field exploration. Kimley-Horn approved the adjusted testing depths as well as not performing the test at the second location within the infiltration basin. Field testing consisted of three falling head borehole infiltration tests in general accordance with the Rhode Island Stormwater Manual. Test results are as follows:

Test Location	Soil Strata	Approximate Depth of Test (Feet)[1]	Average Field Measured Infiltration Rate (in./hour)
SW-1	SP-SM	1.0	1.6
SW-2	SP-SM	1.0	1.0
SW-3	SP-SM	1.5	2.6

1. Below Existing Site Grades.

General Comments

Our presentation of the field data is based upon our understanding of the project, the geotechnical conditions in the area, and the data obtained from our site exploration. Variations in infiltration rates and soil gradation will occur between exploration point locations and depths, or due to the modifying effects of construction or weather. The nature and extent of such variations may not become evident until during or after construction.

Our Scope of Services does not include either specifically or by implication any environmental or biological (e.g., mold, fungi, bacteria) assessment of the site or identification or prevention of pollutants, hazardous materials or conditions. If the owner is concerned about the potential for such contamination or pollution, other studies should be undertaken.

Our services and any correspondence are intended for the sole benefit and exclusive use of our client for specific application to the project discussed and are accomplished in accordance with generally accepted stormwater management procedures with no third-

party beneficiaries intended. Any third-party access to services or correspondence is solely for information purposes to support the services provided by Terracon to our client. Reliance upon the services and any work product is limited to our client and is not intended for third parties. Any use or reliance of the provided information by third parties is done solely at their own risk. No warranties, either express or implied, are intended or made.

Site characteristics as provided are for design purposes and not to estimate excavation cost. Any use of our data report in that regard is done at the sole risk of the excavating cost estimator as there may be variations on the site that are not apparent in the data that could significantly affect excavation cost. Any parties charged with estimating excavation costs should seek their own site characterization for specific purposes to obtain the specific level of detail necessary for costing. Site safety and cost estimating including excavation support and dewatering requirements/design are the responsibility of others. Construction and site development have the potential to affect adjacent properties. Such impacts can include damages due to vibration, modification of groundwater/surface water flow during construction, foundation movement due to undermining or subsidence from excavation, as well as noise or air quality concerns. Evaluation of these items on nearby properties are commonly associated with contractor means and methods and are not addressed in this report. The owner and contractor should consider a preconstruction/precondition survey of surrounding development. If changes in the nature, design, or location of the project are planned, our conclusions and recommendations shall not be considered valid unless we review the changes and either verify or modify our conclusions in writing.

Figures

Contents:

Coventry Self Storage - Infiltration Rate Testing
1920 Nooseneck Hill Road | Coventry, Rhode Island
Terracon Project No. J2245016

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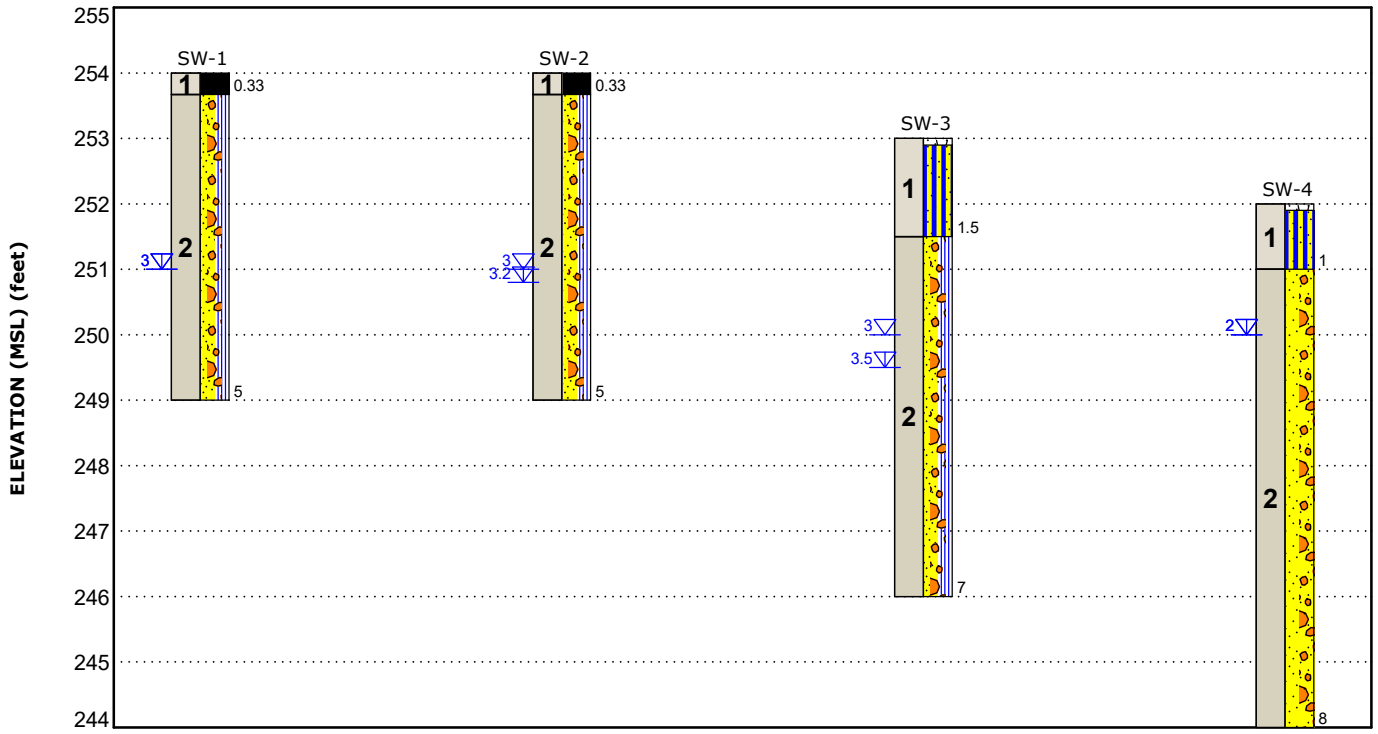
GeoModel



This is not a cross section. This is intended to display the Geotechnical Model only. See individual logs for more detailed conditions.

Model Layer	Layer Name	General Description
1	Surface Material	Bituminous Concrete / Topsoil / Subsoil
2	Native Material	Poorly Graded Sand to Poorly Graded Sand with silt, trace to with gravel, brown to brown-gray, loose to dense

Legend

- Asphalt
- Topsoil
- Poorly-graded Sand with Gravel
- Poorly-graded Sand with Silt and Gravel
- Sandy Silt

▽ First Water Observation
▽ Second Water Observation

Groundwater levels are temporal. The levels shown are representative of the date and time of our exploration. Significant changes are possible over time.
Water levels shown are as measured during and/or after drilling. In some cases, boring advancement methods mask the presence/absence of groundwater. See individual logs for details.

NOTES:
Layering shown on this figure has been developed by the geotechnical engineer for purposes of modeling the subsurface conditions as required for the subsequent geotechnical engineering for this project. Numbers adjacent to soil column indicate depth below ground surface.

Attachments

Exploration and Testing Procedures

Field Exploration

Number of Borings	Approximate Boring / Infiltration Test Depths (feet)	Location
2	5 / 1	Drywells
2	7 to 8 / 1.5	Infiltration Basin

Boring Layout and Elevations: Kimley-Horn personnel provided the boring layout, and Terracon personnel located the boring locations using handheld GPS equipment (estimated horizontal accuracy of about ±10 feet) and referencing existing site features. Approximate ground surface elevations were obtained by interpolation from the "Erosion and Sediment Control Plan."

Subsurface Exploration Procedures: We advanced the borings with a track-mounted rotary drill rig using continuous flight solid stem augers. Samples were continuously obtained to the appropriate depth of the borehole. In the split-barrel sampling procedure, a standard 2-inch outer diameter split-barrel sampling spoon was driven into the ground by a 140-pound automatic hammer falling a distance of 30 inches. The number of blows required to advance the sampling spoon the last 12 inches of a normal 18-inch penetration is recorded as the Standard Penetration Test (SPT) resistance value. The SPT resistance values, also referred to as N-values, are indicated on the boring logs at the test depths. One offset hole was completed at each testing location to install a 4-inch solid PVC pipe to the testing depth to perform the infiltration testing. We observed and recorded groundwater levels during drilling and sampling. For safety purposes, the PVC pipes were removed and all borings were backfilled with auger cuttings after their completion. Pavements were patched with cold-mix asphalt.

We also observed the boreholes while drilling and at the completion of drilling for the presence of groundwater. The groundwater levels are shown on the attached boring logs.

The sampling depths, penetration distances, and other sampling information were recorded on the field boring logs. The samples were placed in appropriate containers and taken to our soil laboratory for testing and classification by a Geotechnical Engineer. Our exploration team prepared field boring logs as part of the drilling operations. These field logs included visual classifications of the materials observed during drilling and our interpretation of the subsurface conditions between samples. Final boring logs were prepared from the field logs. The final boring logs represent the Geotechnical Engineer's

interpretation of the field logs and include modifications based on observations and tests of the samples in our laboratory.

Laboratory Testing

The project engineer reviewed the field data and assigned laboratory tests. The laboratory testing program included the following types of tests:

- Moisture Content
- Grain Size Analysis

The laboratory testing program often included examination of soil samples by an engineer. Based on the results of our field and laboratory programs, we described and classified the soil samples in accordance with the Unified Soil Classification System.

Photography Log

Figure 1: SW-3, 2’-4’ spoon sample

Figure 2: Wet soil while augering at SW-3

Figure 3: SW-4, 2’-4’ spoon sample

Figure 4: Example of backfilled/patched locations

Figure 5: Drill rig setup at SW-3

Figure 6: Example of infiltration test PVC setup

Site Location and Exploration Plans

Contents:

Site Location Plan
Exploration Plan

Note: All attachments are one page unless noted above.

Site Location Plan

DIAGRAM IS FOR GENERAL LOCATION ONLY, AND IS NOT INTENDED FOR CONSTRUCTION PURPOSES MAP PROVIDED BY MICROSOFT BING MAPS

Exploration Plan

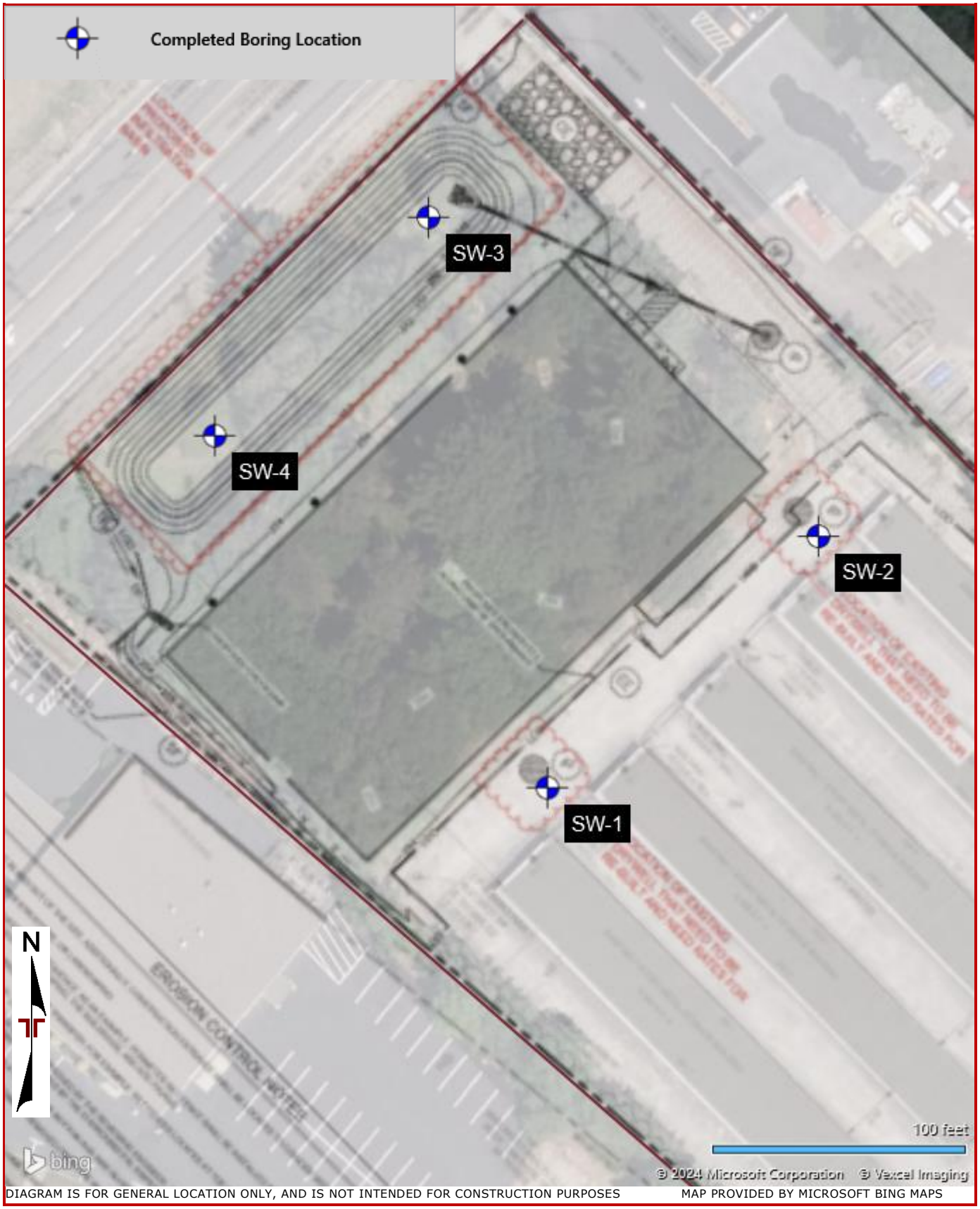


DIAGRAM IS FOR GENERAL LOCATION ONLY, AND IS NOT INTENDED FOR CONSTRUCTION PURPOSES

MAP PROVIDED BY MICROSOFT BING MAPS

Exploration and Laboratory Results

Contents:

Note: All attachments are one page unless noted above.

Coventry Self Storage - Infiltration Rate Testing
1920 Nooseneck Hill Road | Coventry, Rhode Island
Terracon Project No. J2245016

201 Hammer Mill Rd, Ste B
Rocky Hill, CT

Boring Log No. SW-1

Location: See Exploration Plan

Latitude: 41.6702° Longitude: -71.5986°

Depth (Ft.) Elevation: 254 (Ft.) +/-

Model Layer	Graphic Log	Depth (Ft.)	Water Level Observations	Sample Type	Recovery (In.)	Field Test Results	Water Content (%)
1		0.3 **4-INCH BITUMINOUS CONCRETE** 253.67					
2		**POORLY GRADED SAND WITH SILT AND GRAVEL (SP-SM)**, brown, loose					
		1					
		2			10	6-5-4-3 N=9	6.3
		3	▽				
		4			6	2-1-2-2 N=3	
		5.0 249					
		Boring Terminated at 5 Feet					

See Exploration and Testing Procedures for a description of field and laboratory procedures used and additional data (If any).

See Supporting Information for explanation of symbols and abbreviations.

Elevation Reference: Elevation was interpolated from a topographic site plan.

Samples obtained using a 2-in. O.D. split spoon sampler

Water Level Observations
▽ While drilling
▽ At completion of drilling

Drill Rig
Diedrich D-50

Hammer Type
Automatic

Driller
T. Tetrealt

Logged by
J. Jurnack

Boring Started
04-22-2024

Boring Completed
04-22-2024

Notes
Offset and install 4-inch solid PVC pipe to 3 feet for infiltration test.

Advancement Method
0-1 ft: 2 1/4-inch continuous flight solid stem auger
1-5 ft: 2-inch OD sampler spoon

Abandonment Method
Borings backfilled with soil cuttings upon completion. Sealed with bituminous cold patch at surface.

201 Hammer Mill Rd, Ste B
Rocky Hill, CT

Boring Log No. SW-2

Location: See Exploration Plan

Latitude: 41.6704° Longitude: -71.5982°

Depth (Ft.) | Elevation: 254 (Ft.) +/-

Model Layer	Graphic Log	Depth (Ft.)	Water Level Observations	Sample Type	Recovery (In.)	Field Test Results	Water Content (%)
1		0.3 **4-INCH BITUMINOUS CONCRETE** 253.67					
2		**POORLY GRADED SAND WITH SILT AND GRAVEL (SP-SM)**, brown, medium dense to dense					
		1					
		2			12	13-18-17-18 N=35	11.0
		3	▽				
		4	▽		12	4-12-11-11 N=23	
		5.0 249					
		Boring Terminated at 5 Feet					

See Exploration and Testing Procedures for a description of field and laboratory procedures used and additional data (If any).

See Supporting Information for explanation of symbols and abbreviations.

Elevation Reference: Elevation was interpolated from a topographic site plan.

Samples obtained using a 2-in. O.D. split spoon sampler

Water Level Observations
▽ While drilling
▽ At completion of drilling

Drill Rig
Diedrich D-50

Hammer Type
Automatic

Driller
T. Tetrealt

Logged by
J. Jurnack

Boring Started
04-22-2024

Boring Completed
04-22-2024

Notes
Offset and install 4-inch solid PVC pipe to 3 feet for infiltration test.

Advancement Method
0-1 ft: 2 1/4-inch continuous flight solid stem auger
1-5 ft: 2-inch OD sampler spoon

Abandonment Method
Borings backfilled with soil cuttings upon completion. Sealed with bituminous cold patch at surface.

201 Hammer Mill Rd, Ste B
Rocky Hill, CT

Boring Log No. SW-3

Location: See Exploration Plan

Latitude: 41.6708° Longitude: -71.5988°

Depth (Ft.) | Elevation: 253 (Ft.) +/-

Model Layer	Graphic Log	Depth (Ft.)	Water Level Observations	Sample Type	Recovery (In.)	Field Test Results	Water Content (%)
1		0.1 **1-INCH TOPSOIL** 252.9 **SANDY SILT (ML)**, with roots, dark brown, medium dense 1.5 251.5					
		1			10	3-4-6-6 N=10	
		2					
2		3	▽		10	5-6-10-17 N=16	12.6
		4	▽				
		5					
		6			12	8-13-12-10 N=25	
		7					
		7.0 246 ***Boring Terminated at 7 Feet***					

See Exploration and Testing Procedures for a description of field and laboratory procedures used and additional data (If any).

See Supporting Information for explanation of symbols and abbreviations.

Elevation Reference: Elevation was interpolated from a topographic site plan.

Samples obtained using a 2-in. O.D. split spoon sampler

Water Level Observations
▽ While drilling
▽ At completion of drilling

Drill Rig
Diedrich D-50

Hammer Type
Automatic

Driller
T. Tetrealt

Logged by
J. Jurnack

Boring Started
04-22-2024

Boring Completed
04-22-2024

Notes
Offset and install 4-inch solid PVC pipe to 5 feet for infiltration test.

Advancement Method
0-5 ft: 2 1/4-inch continuous flight solid stem auger
5-7 ft: 2-inch OD sampler spoon

Abandonment Method
Boring backfilled with soil cuttings upon completion.

201 Hammer Mill Rd, Ste B
Rocky Hill, CT

Boring Log No. SW-4

Location: See Exploration Plan

Latitude: 41.6705° Longitude: -71.5991°

Model Layer	Depth (Ft.)	Elevation: 252 (Ft.) +/-	Depth (Ft.)	Water Level Observations	Sample Type	Recovery (In.)	Field Test Results	Water Content (%)
1	0.1	**1-INCH TOPSOIL** 251.9 **SANDY SILT (ML)**, with roots, dark brown, medium dense						
	1.0	251	1			14	3-7-7-10 N=14	
2		**POORLY GRADED SAND (SP)**, trace to with gravel, brown to brown-gray, loose to medium dense	2	▽				
			3			12	11-10-7-8 N=17	
			4					
			5			16	3-2-4-7 N=6	20.7
			6					
			7			16	4-5-7-5 N=12	
	8.0	244	8					
		Boring Terminated at 8 Feet						

See Exploration and Testing Procedures for a description of field and laboratory procedures used and additional data (If any).

See Supporting Information for explanation of symbols and abbreviations.

Elevation Reference: Elevation was interpolated from a topographic site plan.

Samples obtained using a 2-in. O.D. split spoon sampler

Water Level Observations
▽ While drilling
▽ At completion of drilling

Drill Rig
Diedrich D-50

Hammer Type
Automatic

Driller
T. Tetrealt

Logged by
J. Jurnack

Boring Started
04-22-2024

Boring Completed
04-22-2024

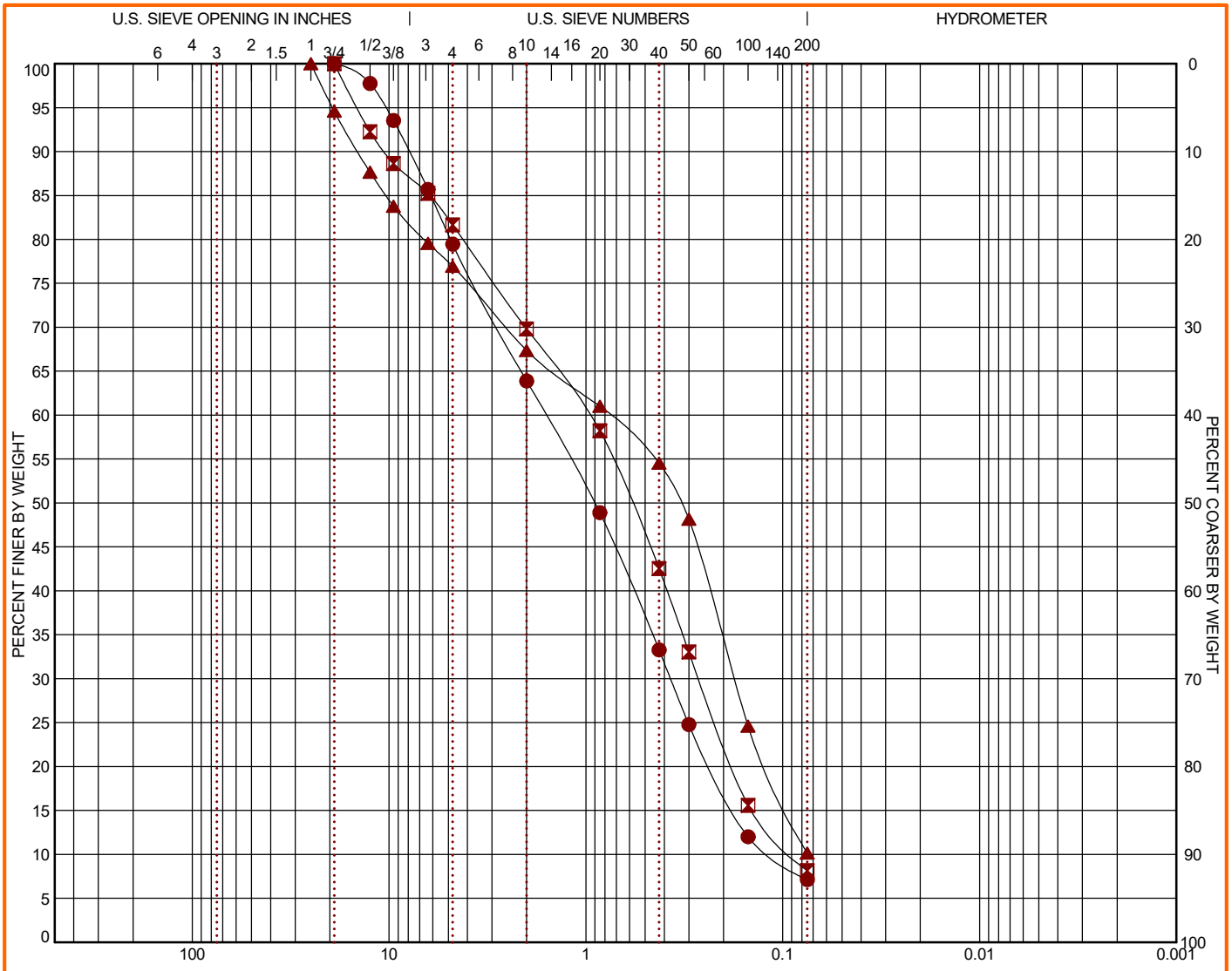
Notes
Infiltration test not completed due to shallow groundwater.

Advancement Method
0-4 ft: 2 1/4-inch solid stem continuous flight auger
4-8 ft: 2-inch OD sampler spoon

Abandonment Method
Boring backfilled with soil cuttings upon completion.

GRAIN SIZE DISTRIBUTION

ASTM D422 / ASTM C136



COBBLES	GRAVEL		SAND			SILT OR CLAY
	coarse	fine	coarse	medium	fine	

	BORING ID	LATITUDE/LONGITUDE	DEPTH	% COBBLES	% GRAVEL	% SAND	% SILT	% FINES	% CLAY
●	SW-1	41.67016 / -71.59858	1 - 3	0.0	20.5	72.3		7.1	
⊠	SW-2	41.67044 / -71.59819	1 - 3	0.0	18.3	73.5		8.2	
▲	SW-3	41.67078 / -71.59875	2 - 4	0.0	23.1	66.8		10.2	

GRAIN SIZE	●	⊠	▲
D_{60}	1.602	0.968	0.762
D_{30}	0.372	0.266	0.176
D_{10}	0.113	0.089	

COEFFICIENTS	●	⊠	▲
C_C	0.76	0.82	0.54
C_U	14.21	10.88	10.23

●		⊠		▲	
Sieve	% Finer	Sieve	% Finer	Sieve	% Finer
3/4"	100.0	3/4"	100.0	1"	100.0
1/2"	97.75	1/2"	92.26	3/4"	94.58
3/8"	93.53	3/8"	88.63	1/2"	87.65
1/4"	85.68	1/4"	85.23	3/8"	83.78
#4	79.46	#4	81.66	1/4"	79.56
#10	63.88	#10	69.8	#4	76.94
#20	48.9	#20	58.24	#10	67.35
#40	33.28	#40	42.53	#20	61.02
#50	24.78	#50	33.03	#40	54.54
#100	12.01	#100	15.6	#50	48.17
#200	7.13	#200	8.16	#100	24.61
				#200	10.15

SOIL DESCRIPTION

- ● Poorly graded sand with silt and gravel (SP-SM)
- ⊠ Poorly graded sand with silt and gravel (SP-SM)
- ▲ Poorly graded sand with silt and gravel (SP-SM)

REMARKS

- ● Location: N E Elevation: 254
- ⊠ Location: N E Elevation: 254
- ▲ Location: N E Elevation: 253

PROJECT: Coventry Self Storage - Infiltration Rate Testing

PROJECT NUMBER: J2245016

SITE: 1920 Nooseneck Hill Road Coventry, Rhode Island

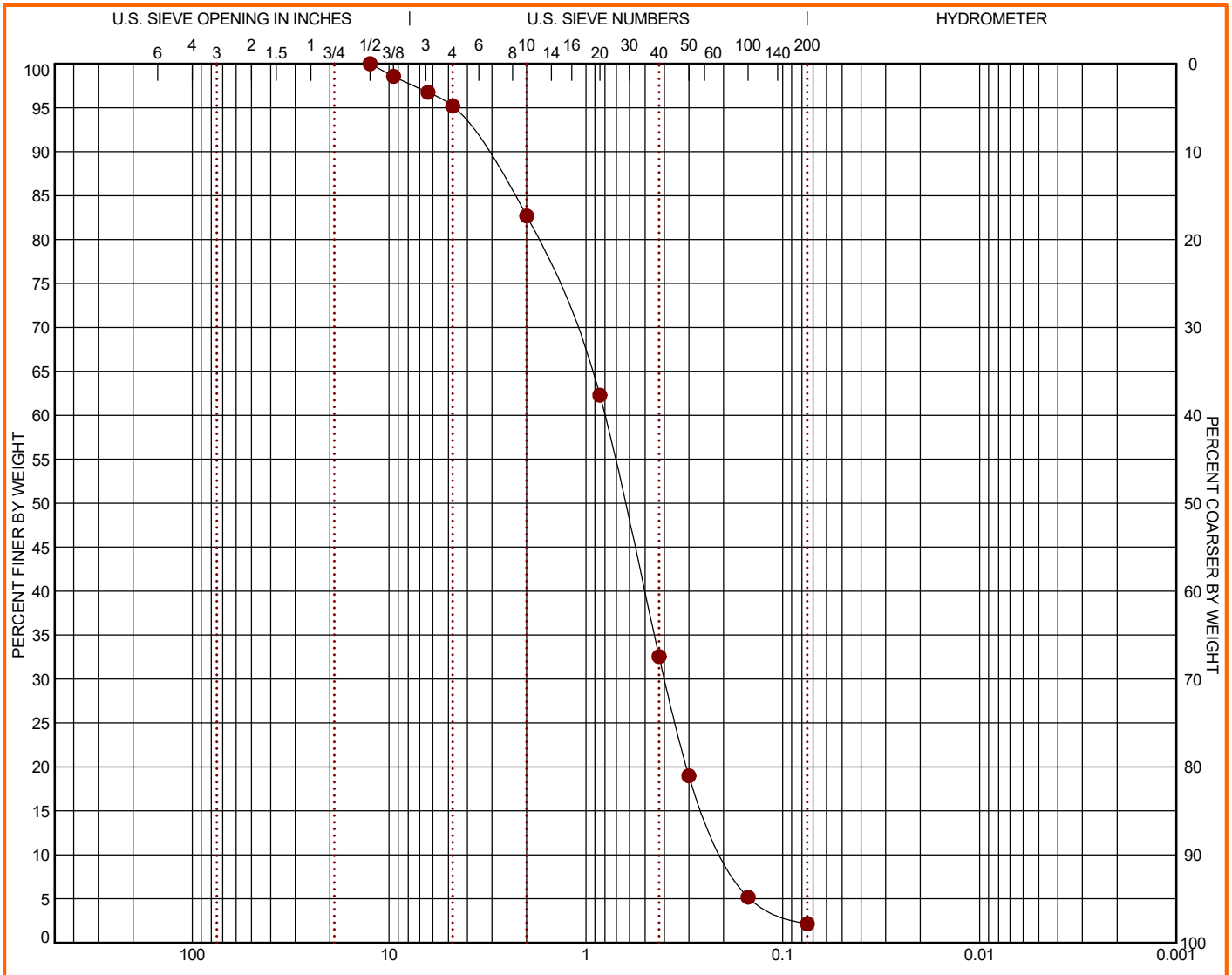
Terracon
201 Hammer Mill Rd, Ste B
Rocky Hill, CT

CLIENT: Nooseneck Hill Coventry, LLC Grayslake, Illinois

LABORATORY TESTS ARE NOT VALID IF SEPARATED FROM ORIGINAL REPORT. 73191029-GRAIN SIZE-USCS 1 J2245016 COVENTRY SELF STO.GPJ TERRACON_DATATEMPLATE.GDT 5/3/24

GRAIN SIZE DISTRIBUTION

ASTM D422 / ASTM C136



COBBLES	GRAVEL		SAND			SILT OR CLAY
	coarse	fine	coarse	medium	fine	

	BORING ID	LATITUDE/LONGITUDE	DEPTH	% COBBLES	% GRAVEL	% SAND	% SILT	% FINES	% CLAY
●	SW-4	41.67054 / -71.59906	4 - 6	0.0	4.8	93.0		2.2	

GRAIN SIZE	●
D_{60}	0.806
D_{30}	0.398
D_{10}	0.191

COEFFICIENTS	●
C_C	1.03
C_U	4.22

● Sieve	% Finer	Sieve	% Finer	Sieve	% Finer
1/2"	100.0				
3/8"	98.57				
1/4"	96.75				
#4	95.19				
#10	82.69				
#20	62.3				
#40	32.56				
#50	19.0				
#100	5.19				
#200	2.16				

SOIL DESCRIPTION

● Poorly graded sand (SP)

REMARKS

● Location: N E
Elevation: 252

PROJECT: Coventry Self Storage - Infiltration Rate Testing

SITE: 1920 Nooseneck Hill Road
Coventry, Rhode Island

Terracon
201 Hammer Mill Rd, Ste B
Rocky Hill, CT

PROJECT NUMBER: J2245016

CLIENT: Nooseneck Hill Coventry, LLC
Grayslake, Illinois

LABORATORY TESTS ARE NOT VALID IF SEPARATED FROM ORIGINAL REPORT. 73191029-GRAIN SIZE-USCS 1 J2245016 COVENTRY SELF STO.GPJ TERRACON_DATATEMPLATE.GDT 5/3/24

Cased Borehole Infiltration Testing Log (Modified ASTM D6391)

Project No.:	J2245016	**Date:**	4/22/2024
Location ID:	SW-1	**Weather:**	Sunny
Ground EL (ft):	254.0	**Temperature:**	60.0
Initial Water Depth[1] (ft):	N/A	**Inspector:**	J. Jurnack
Stick Up[1] (ft):	1.00	**Casing Diameter (in.):**	4
Testing Depth[1] (ft):	2.00	**[1] Referenced to top of casing**	
Groundwater[1] (ft):	None	**[2] Referenced to existing grade**	

Soil Characterization

Depth[2] (ft)	Soil Texture	Limiting Layers / Type and Thickness (ft)
0.0	Bituminous concrete	Surface Layer / 0.33
0.3	Poorly graded sand with silt & gravel	Native Material / 4.67

Presoak

Time	Time Interval	Measurement[1] (in.)	Drop in water level[1] (in.)
0	**0**	**10.80**	**0.00**
30	**30**	**16.08**	**5.28**
60	**30**	**21.36**	**10.56**

> 2", 10-min. increment
< 2", 30-min. increment

Infiltration Testing

Time	Time Interval (10 or 30 min.)	Measurement[1] (in.)	Drop in water level (in.)	Infiltration rate (in/hr):	Remarks:
0	**0**	**12.00**	**n/a**	**n/a**	
10	**10**	**14.40**	**2.40**	**1.71**	
20	**10**	**15.72**	**1.32**	**1.14**	
30	**10**	**16.80**	**1.08**	**1.07**	
40	**10**	**18.12**	**1.32**	**1.56**	
50	**10**	**18.84**	**0.72**	**1.00**	
60	**10**	**19.56**	**0.72**	**1.15**	
70	**10**	**20.40**	**0.84**	**1.61**	
80	**10**	**21.60**	**1.20**	**3.11**	

Stabilized Infiltration Testing Rate (inches per hour): **1.55**

Remarks:

Cased Borehole Infiltration Testing Log (Modified ASTM D6391)

Project No.:	J2245016	**Date:**	4/22/2024
Location ID:	SW-2	**Weather:**	Sunny
Ground EL (ft):	254.0	**Temperature:**	60.0
Initial Water Depth[1] (ft):	N/A	**Inspector:**	J. Jurnack
Stick Up[1] (ft):	1.20	**Casing Diameter (in.):**	4
Testing Depth[1] (ft):	2.20	**[1] Referenced to top of casing**	
Groundwater[1] (ft):	None	**[2] Referenced to existing grade**	

Soil Characterization

Depth[2] (ft)	Soil Texture	Limiting Layers / Type and Thickness (ft)
0.0	Bituminous concrete	Surface Layer / 0.33
0.3	Poorly graded sand with silt & gravel	Native Material / 4.67

Presoak

Time	Time Interval	Measurement[1] (in.)	Drop in water level[1] (in.)
0	**0**	**14.40**	**0.00**
30	**30**	**Dry**	**14.40**
60	**30**	**Dry**	**14.40**

> 2", 10-min. increment
< 2", 30-min. increment

Infiltration Testing

Time	Time Interval (10 or 30 min.)	Measurement[1] (in.)	Drop in water level (in.)	Infiltration rate (in/hr):	Remarks:
0	**0**	**14.40**	**n/a**	**n/a**	
10	**10**	**16.08**	**1.68**	**1.16**	
20	**10**	**16.80**	**0.72**	**0.56**	
30	**10**	**18.48**	**1.68**	**1.48**	
40	**10**	**18.96**	**0.48**	**0.48**	
50	**10**	**19.80**	**0.84**	**0.92**	
60	**10**	**20.52**	**0.72**	**0.89**	
70	**10**	**20.88**	**0.36**	**0.49**	
80	**10**	**22.08**	**1.20**	**1.88**	
			Stabilized Infiltration Testing Rate (inches per hour):	**0.98**	

Remarks:

Cased Borehole Infiltration Testing Log (Modified ASTM D6391)

Project No.:	J2245016	**Date:**	4/22/2024
Location ID:	SW-3	**Weather:**	Sunny
Ground EL (ft):	253.0	**Temperature:**	60.0
Initial Water Depth[1] (ft):	N/A	**Inspector:**	J. Jurnack
Stick Up[1] (ft):	0.50	**Casing Diameter (in.):**	4
Testing Depth[1] (ft):	2.00	**[1] Referenced to top of casing**	
Groundwater[1] (ft):	None	**[2] Referenced to existing grade**	

Soil Characterization

Depth[2] (ft)	Soil Texture	Limiting Layers / Type and Thickness (ft)
0.0	Topsoil	Surface Layer / 0.1
0.1	Sandy silt with roots	Subsoil / 1.4
1.5	Poorly graded sand with silt, trace to with gravel	Native Material / 6.5

Presoak

Time	Time Interval	Measurement[1] (in.)	Drop in water level[1] (in.)	> 2", 10-min. increment < 2", 30-min. increment
0	**0**	**12.00**	**0.00**	
30	**30**	**21.12**	**9.12**	
60	**30**	**21.60**	**9.60**	

Infiltration Testing

Time	Time Interval (10 or 30 min.)	Measurement[1] (in.)	Drop in water level (in.)	Infiltration rate (in/hr):	Remarks:
0	**0**	**10.92**	**n/a**	**n/a**	
10	**10**	**15.60**	**4.68**	**3.40**	
20	**10**	**17.28**	**1.68**	**1.71**	
30	**10**	**18.00**	**0.72**	**0.87**	
40	**10**	**19.20**	**1.20**	**1.71**	
50	**10**	**20.40**	**1.20**	**2.21**	
60	**10**	**21.48**	**1.08**	**2.74**	
70	**10**	**22.80**	**1.32**	**5.70**	
80	**10**	**N/A**	**N/A**	**N/A**	**Dry**
			Stabilized Infiltration Testing Rate (inches per hour):	**2.62**	

Remarks:

Supporting Information

Contents:

Note: All attachments are one page unless noted above.

Terracon
201 Hammer Mill Rd, Ste B
Rocky Hill, CT

General Notes

Sampling	Water Level	Field Tests
Standard Penetration Test	Water Initially Encountered Water Level After a Specified Period of Time Water Level After a Specified Period of Time Cave In Encountered Water levels indicated on the soil boring logs are the levels measured in the borehole at the times indicated. Groundwater level variations will occur over time. In low permeability soils, accurate determination of groundwater levels is not possible with short term water level observations.	N Standard Penetration Test Resistance (Blows/Ft.) (HP) Hand Penetrometer (T) Torvane (DCP) Dynamic Cone Penetrometer UC Unconfined Compressive Strength (PID) Photo-Ionization Detector (OVA) Organic Vapor Analyzer

Descriptive Soil Classification

Soil classification as noted on the soil boring logs is based Unified Soil Classification System. Where sufficient laboratory data exist to classify the soils consistent with ASTM D2487 "Classification of Soils for Engineering Purposes" this procedure is used. ASTM D2488 "Description and Identification of Soils (Visual-Manual Procedure)" is also used to classify the soils, particularly where insufficient laboratory data exist to classify the soils in accordance with ASTM D2487. In addition to USCS classification, coarse grained soils are classified on the basis of their in-place relative density, and fine-grained soils are classified on the basis of their consistency. See "Strength Terms" table below for details. The ASTM standards noted above are for reference to methodology in general. In some cases, variations to methods are applied as a result of local practice or professional judgment.

Location And Elevation Notes

Exploration point locations as shown on the Exploration Plan and as noted on the soil boring logs in the form of Latitude and Longitude are approximate. See Exploration and Testing Procedures in the report for the methods used to locate the exploration points for this project. Surface elevation data annotated with +/- indicates that no actual topographical survey was conducted to confirm the surface elevation. Instead, the surface elevation was approximately determined from topographic maps of the area.

Strength Terms

Relative Density of Coarse-Grained Soils (More than 50% retained on No. 200 sieve.) Density determined by Standard Penetration Resistance		Consistency of Fine-Grained Soils (50% or more passing the No. 200 sieve.) Consistency determined by laboratory shear strength testing, field visual-manual procedures or standard penetration resistance		
Relative Density	**Standard Penetration or N-Value (Blows/Ft.)**	**Consistency**	**Unconfined Compressive Strength Qu (tsf)**	**Standard Penetration or N-Value (Blows/Ft.)**
Very Loose	0 - 3	Very Soft	less than 0.25	0 - 1
Loose	4 - 9	Soft	0.25 to 0.50	2 - 4
Medium Dense	10 - 29	Medium Stiff	0.50 to 1.00	4 - 8
Dense	30 - 50	Stiff	1.00 to 2.00	8 - 15
Very Dense	> 50	Very Stiff	2.00 to 4.00	15 - 30
		Hard	> 4.00	> 30

Relevance of Exploration and Laboratory Test Results

Exploration/field results and/or laboratory test data contained within this document are intended for application to the project as described in this document. Use of such exploration/field results and/or laboratory test data should not be used independently of this document.

Unified Soil Classification System

Criteria for Assigning Group Symbols and Group Names Using Laboratory Tests [A]				Soil Classification	
				Group Symbol	Group Name [B]
Coarse-Grained Soils: More than 50% retained on No. 4 sieve	**Gravels:** More than 50% of coarse fraction retained on No. 4 sieve	**Clean Gravels:** Less than 5% fines [C]	Cu≥4 and 1≤Cc≤3 [E]	GW	Well-graded gravel [F]
			Cu<4 and/or [Cc<1 or Cc>3.0] [E]	GP	Poorly graded gravel [F]
		Gravels with Fines: More than 12% fines [C]	Fines classify as ML or MH	GM	Silty gravel [F, G, H]
			Fines classify as CL or CH	GC	Clayey gravel [F, G, H]
	Sands: 50% or more of coarse fraction passes No. 4 sieve	**Clean Sands:** Less than 5% fines [D]	Cu≥6 and 1≤Cc≤3 [E]	SW	Well-graded sand [I]
			Cu<6 and/or [Cc<1 or Cc>3.0] [E]	SP	Poorly graded sand [I]
		Sands with Fines: More than 12% fines [D]	Fines classify as ML or MH	SM	Silty sand [G, H, I]
			Fines classify as CL or CH	SC	Clayey sand [G, H, I]
Fine-Grained Soils: 50% or more passes the No. 200 sieve	**Silts and Clays:** Liquid limit less than 50	**Inorganic:**	PI > 7 and plots above "A" line [J]	CL	Lean clay [K, L, M]
			PI < 4 or plots below "A" line [J]	ML	Silt [K, L, M]
		Organic:	$\frac{LL\ oven\ dried}{LL\ not\ dried} < 0.75$	OL	Organic clay [K, L, M, N]
					Organic silt [K, L, M, O]
	Silts and Clays: Liquid limit 50 or more	**Inorganic:**	PI plots on or above "A" line	CH	Fat clay [K, L, M]
			PI plots below "A" line	MH	Elastic silt [K, L, M]
		Organic:	$\frac{LL\ oven\ dried}{LL\ not\ dried} < 0.75$	OH	Organic clay [K, L, M, P]
					Organic silt [K, L, M, Q]
Highly organic soils:	Primarily organic matter, dark in color, and organic odor			PT	Peat

[A] Based on the material passing the 3-inch (75-mm) sieve.
[B] If field sample contained cobbles or boulders, or both, add "with cobbles or boulders, or both" to group name.
[C] Gravels with 5 to 12% fines require dual symbols: GW-GM well-graded gravel with silt, GW-GC well-graded gravel with clay, GP-GM poorly graded gravel with silt, GP-GC poorly graded gravel with clay.
[D] Sands with 5 to 12% fines require dual symbols: SW-SM well-graded sand with silt, SW-SC well-graded sand with clay, SP-SM poorly graded sand with silt, SP-SC poorly graded sand with clay.
[E] $Cu = D_{60}/D_{10}$ $Cc = \frac{(D_{30})^2}{D_{10} \times D_{60}}$
[F] If soil contains ≥ 15% sand, add "with sand" to group name.
[G] If fines classify as CL-ML, use dual symbol GC-GM, or SC-SM.
[H] If fines are organic, add "with organic fines" to group name.
[I] If soil contains ≥ 15% gravel, add "with gravel" to group name.
[J] If Atterberg limits plot in shaded area, soil is a CL-ML, silty clay.
[K] If soil contains 15 to 29% plus No. 200, add "with sand" or "with gravel," whichever is predominant.
[L] If soil contains ≥ 30% plus No. 200 predominantly sand, add "sandy" to group name.
[M] If soil contains ≥ 30% plus No. 200, predominantly gravel, add "gravelly" to group name.
[N] PI ≥ 4 and plots on or above "A" line.
[O] PI < 4 or plots below "A" line.
[P] PI plots on or above "A" line.
[Q] PI plots below "A" line.