STORMWATER BASIN AREA INVESTIGATION REPORT

PROPOSED INDUSTRIAL PARK
Old Mill Road and Hemion Road (CR 93)
Section 55.22, Block 1, Lot 1; Village of Suffern
Rockland County, New York

Prepared for:

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Project No.: 2803-99-005E
January 7, 2022
Updated: December 9, 2022

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Proposed Industrial Park
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Rockland County, New York

APPENDICES

1.0 PROJECT DESCRIPTION

Dynamic Earth, LLC (Dynamic Earth) has completed a subsurface investigation for the proposed stormwater management facilities located at Old Mill Road and Hemion Road (CR93) in the Village of Suffern, Rockland County, New York. The subject site is further identified as Section 55.22, Block 1, Lot 1. The subject site is shown on the *Test Location Plan* included in the Appendix of this report.

At the time of our investigation, the site was developed with an existing industrial building (former Novartis Pharmaceuticals facility) with associated pavement, utilities, landscaped areas, and wooded areas. Based on a December 17, 2021 *Overall Site Plan* prepared by Dynamic Engineering Consultants, PC (Dynamic), the proposed overall site redevelopment will include demolition of the existing structures and construction of three warehouse buildings with associated new pavements, utilities, and landscaping. Conceptual site grading plans were not finalized at the time of this report; however, we preliminarily anticipate earth fills will be required to achieve proposed grades throughout the majority of the site; and earth cuts will likely be required within the eastern and southern portions of the site.

Topographic information was provided on an August 16, 2021 *ALTA/NSPS Land Title Survey* prepared by Dynamic Survey, LLC. Existing site elevations range between approximately 365 feet within the southern portion of the site and 300 feet within the northern portion of the site. Elevations provided in this report are referenced to the 1988 North American Vertical Datum (NAVD88), unless otherwise noted.

The subject site is bound to the north by Old Mill Road and New York State Thruway Route I-87; to the east by Hemion Road; to the south by a wooded area with Lafayette Avenue beyond; and to the west by a wooded area, with Union Hill Quarry beyond.

Dynamic Earth previously completed a subsurface investigation at the site and the results were provided in a September 1, 2020 *Report of Preliminary Geotechnical Investigation*.

2.0 SCOPE OF SERVICES

Dynamic Earth's scope of services pertaining to this report included evaluating the subsurface conditions at soil profile pit locations to estimate the apparent seasonal high groundwater level and performing in-situ infiltration testing at corresponding soil profile pit locations. Twenty-nine soil profile pits (identified as SPP-101 through SPP-129) were excavated at the site using a rubber-tire backhoe; and 29 infiltration tests (identified as IT-1 through IT-29) were performed at corresponding offset soil profile pit locations. Test locations were located within the area of

potential stormwater management facilities and were backfilled to the surface with excavated soils at completion. The test locations are shown on the attached *Test Location Plan* in the Appendix of this report.

The soils encountered within the area of the proposed/anticipated stormwater management areas were classified using the United States Department of Agriculture (USDA) Classification System. Observations were made for groundwater and/or soil mottling and mineral deposits potentially indicative of zones of saturation or seasonal high groundwater.

In-situ infiltration testing was performed at soil profile pit locations in general accordance with the January *New York State Stormwater Management Design Manual 2015 – Appendix D: Infiltration Testing*. Detailed results of the infiltration testing are included herein.

3.0 UNITED STATES DEPARTMENT OF AGRICULTURE (USDA) SOIL SURVEY

Based on a review of the United States Department of Agriculture – Natural Resources Conservation Services (USDA-NRCS) soil survey, the following soil resources are mapped within the area of the proposed site improvements and are described below:

Holyoke-Rock outcrop complex, hilly (HoD): This soil series is mapped underlying the northwestern portion of the subject site. The typical soil profile (as detailed in the survey) consists of slightly decomposed plant material to a depth of two inches; silt loam to a depth of 18 inches; underlain by unweathered bedrock to a depth of 28 inches below the ground surface. The depth to the water table is reported to be more than 80 inches below the natural ground surface (limit of report).

Wethersfield gravelly silt loam, 15 to 25 percent slopes (WeD): This soil series is mapped underlying a relatively small area within the southeastern portion of the site. The typical soil profile (as detailed in the survey) consists of gravelly silt loam to a depth of 13 inches; gravelly loam to a depth of 22 inches; underlain by gravelly fine sandy loam to a depth of 60 inches below the natural ground surface. The depth to the water table is reported to be about 18 to 30 inches below the natural ground surface.

Wethersfield gravelly silt loam, 3 to 8 percent slopes (WeB): This soil series is mapped underlying the southern portion of the site. The typical soil profile is generally similar to WeD, as detailed above.

Urban Land (Ux): This soil series is mapped underlying the northern/central portions of the site. The subsurface profile is not detailed in the survey.

Udorthents, Smoothed (Us): Urban Land is mapped underlying the central/southern portions of

the site. The typical soil profile (as detailed in the survey) consists of channery loam to a depth of 20 inches; underlain by very gravelly loam to a depth of 70 inches below the natural ground surface. The depth to the water table is reported to be about 36 to 72 inches below the natural ground surface (limit of report).

Pits, gravel (Pt): This soil series is mapped underlying a relatively small area within the western portion of the site. The typical soil profile (as detailed in the survey) consists of very gravelly sand to a depth of 6 inches; underlain by very gravelly coarse sand to a depth of 60 inches below the natural ground surface. The depth to the water table is not reported in the survey.

Water (W): Water is mapped underlying a relatively small area within the central/southeastern portion of the site (within the area of the existing wet pond).

4.0 RESULTS

4.1 Subsurface Soil Profile

The soil profile pits were performed within accessible areas of the site and encountered approximately eight to 16 inches of topsoil at the surface. Beneath the surface cover, existing fill material was occasionally encountered that consisted of loamy sand with variable amounts of debris (brick). The existing fill material was encountered to depths ranging between approximately 2.2 feet and 4.5 feet below the ground surface; corresponding to elevations ranging between 308.3 feet and 301.5 feet. Beneath the existing fill material (where encountered), natural glacial deposits were encountered that generally consisted of sand, loamy sand, sandy loam, loam, and silty clay loam with variable amounts of gravel and cobbles. The natural glacial deposits were encountered to termination/refusal depths typically ranging up to approximately three feet to 15 feet below the ground surface; corresponding to elevations ranging between 314.2 feet and 292.0 feet.

4.2 Seasonal High Groundwater and Infiltration

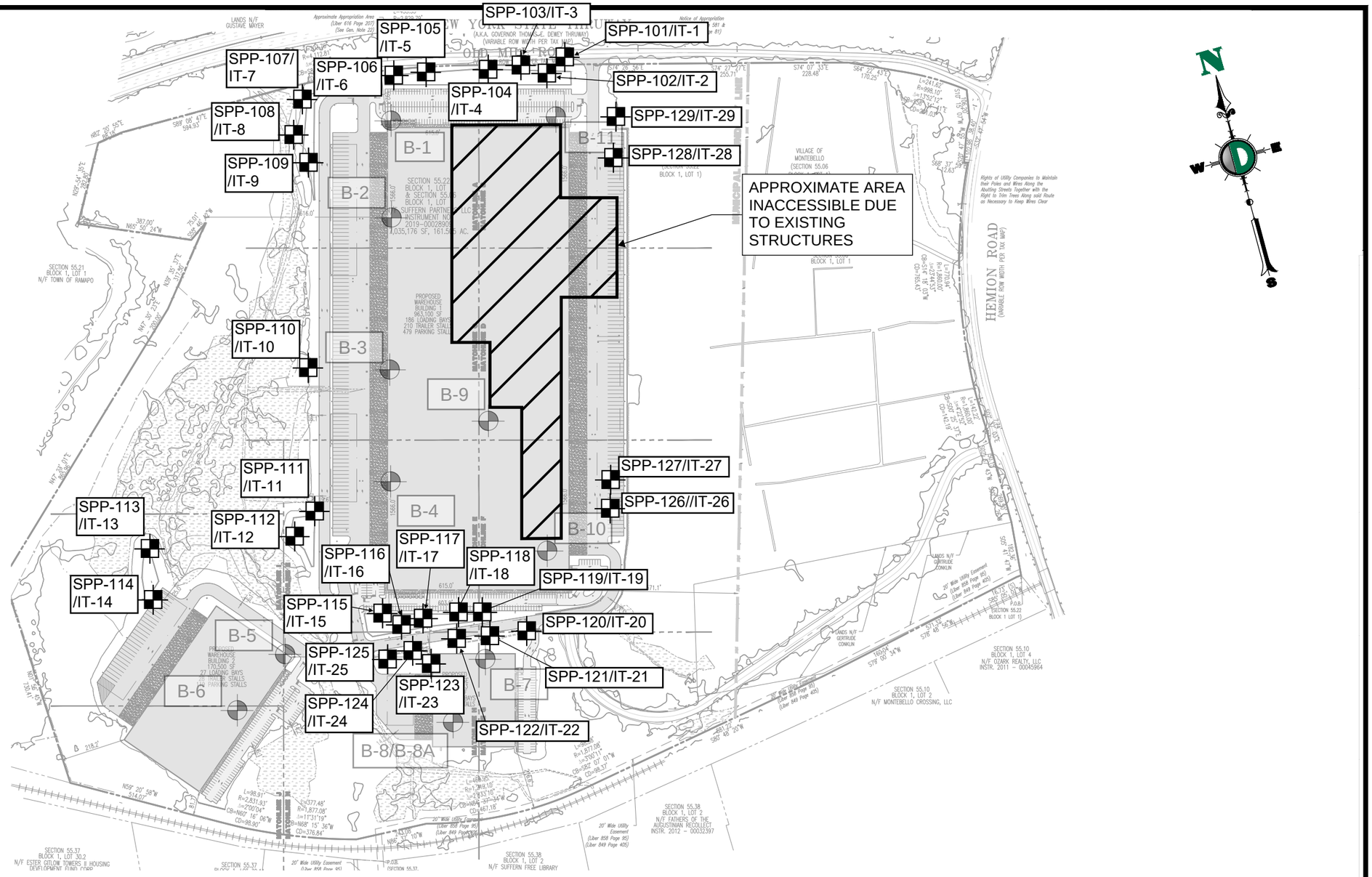
Indicators of seasonal high groundwater (i.e. soil mottling) were observed within the soil profile pit at depths ranging between approximately one foot and 5.4 feet below the ground surface; corresponding to elevations ranging between 309.0 feet and 299.7 feet. Groundwater was encountered within the soil profile pits at depths ranging between approximately 0.5 feet and 8.6 feet below the ground surface; corresponding to elevations ranging between 308.5 feet and 297.0 feet. Groundwater was encountered as part of our previous preliminary geotechnical investigation at depths ranging between approximately six feet and 20.0 feet below the ground surface.

A summary of the soil mottling, groundwater levels, and infiltration test results is presented in the table below. A summary of the seasonal high groundwater levels and infiltration test results is presented in the following table:

MOTTLING, GROUNDWATER AND INFILTRATION SUMMARY							
Location	Approximate Surface Elevation	Mottling		Groundwater		Infiltration Testing	
		Depth (Feet)	Elevation (Feet)	Depth (Feet)	Elevation (Feet)	Depth (inches)	Rate (inches/hour)
SPP-101	310.0	5.0	305.0	7.5	302.5	48	24.0
SPP-102	308.0	2.2	305.8	6.7	301.3	31	24.0
SPP-103	306.0	4.5	301.5	5.9	300.1	36	24.0
SPP-104	307.0	5.4	301.6	8.6	298.4	36	12.0
SPP-105	307.0	3.7	303.3	6.8	300.2	50	12.0
SPP-106	306.0	3.3	302.7	6.8	299.2	42	18.0
SPP-107	304.0	3.7	300.3	4.3	299.7	10	8.0
SPP-108	302.0	NE[1]	--	4.6	297.4	24	5.0
SPP-109	302.5	2.8	299.7	5.0	297.5	24	8.0
SPP-110	303.0	2.8	300.2	5.0	298.0	19	4.0
SPP-111	305.0	1.3	303.7	4.0	301.0	18	5.0
SPP-112	306.5	1.0	305.5	4.4	302.1	12	5.0
SPP-113	302.0	NE[1]	--	5.0	297.0	36	15.0
SPP-114	304.5	NE[1]	--	6.3	298.2	36	18.0
SPP-115	308.0	NE[1]	--	7.0	301.0	36	15.0
SPP-116	310.0	2.1	307.9	5.8	304.2	24	19.0
SPP-117	310.0	NE[1]	--	7.0	303.0	36	5.0
SPP-118	312.0	NE[1]	--	8.0	304.0	36	24.0
SPP-119	309.0	NE[1]	--	0.5	308.5	12	5.0
SPP-120	313.0	NE[1]	--	6.0	307.0	36	10.0
SPP-121	311.0	4.0	307.0	8.3	302.7	36	15.0
SPP-122	310.0	NE[1]	--	7.3	302.7	36	19.0
SPP-123	311.0	3.3	307.7	6.4	304.6	30	15.0
SPP-124	307.0	NE[1]	--	7.1	299.9	48	12.0
SPP-125	307.0	NE[1]	--	6.0	301.0	30	11.0
SPP-126	317.0	NE[1]	--	NE	--	36	24.0
SPP-127	315.0	NE[1]	--	NE	--	30	24.0
SPP-128	312.5	3.5	309.0	6.5	306.0	36	24.0
SPP-129	308.0	NE[1]	--	NE	--	36	24.0

[1] Since mottling was not encountered, the depth to the seasonal high groundwater can be estimated based on the published soil series and/or through direct readings during the wet season.

Test Location Plan



SCALE: N.T.S.	JOB No: 2803-99-005E
SHEET No: 1 OF 1	DRAWN BY: GS DESIGNED BY: - CHECKED BY: FVC DATE: 12/06/2022

TITLE:

TEST LOCATION PLAN

PROJECT: **TREETOP DEVELOPMENT, LLC**
Proposed Industrial Park
Old Mill Road and Hemion Road (CR 93)
Section 55.22 Block 1, Lot 1; Village of Suffern
Rockland County, New York

Rev. # 0 | DEC Client Code: 2803

LEGEND:

B-X — APPROXIMATE LOCATION OF SOIL BORING (AUGUST 2020)

SPP-X/IT-X — APPROXIMATE LOCATION OF SOIL PROFILE PIT AND INFILTRATION TEST

NOTES:
1. THIS PLAN IS NOT FOR CONSTRUCTION AND WAS PREPARED TO ILLUSTRATE TEST LOCATIONS ONLY AND MAY NOT REFLECT THE MOST CURRENT REVISION OF THE BASE PLAN.
2. THIS PLAN HAS BEEN PREPARED BASED ON A DECEMBER 17, 2021 OVERALL *SITE PLAN* PREPARED BY DYNAMIC ENGINEERING CONSULTANTS, PC.

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Records of Subsurface Exploration

DYNAMIC EARTH

SOIL PROFILE PIT LOG

Soil Profile Pit: SPP-101

Project: Proposed Industrial Park
Project No.: 2803-99-005E
Location: Old Mill Road and Hemion Road, Village of Suffern, Rockland County NY
Client: Treetop Development, LLC

Surface Elevation (ft):	310.0	**Date Started:**	10/19/21	**Groundwater Data**	**Depth (ft)** / **El. (ft)**
Termination Depth (ft):	10.0	**Date Completed:**	10/19/21	**Seepage**	NE / -
Proposed Location:	SWM	**Logged by:**	J. Scardigno	**Groundwater**	7.5 / 302.5
Excavation / Test Method:	Visual Observation	**Contractor:**	Neighbors Property Management	**Mottling**	5.0 / 305.0
		Rig Type:	JD 310 SG Backhoe	**Groundwater Comments**	Light gray (10 YR 7/1) mottling 60" - 90"

DEPTH (IN)	COLOR	SOIL TEXTURE	COARSE FRAGMENTS (%)				STRUCTURE			WATER CONTENT	CONSISTENCY			BOUNDARY		ROOTS		MOTTLING			SAMPLING			LAB RESULTS
							Shape	Grade	Size		Resistance to Rupture	Stickiness	Plasticity	Distinctness	Topography			Quantity	Size	Contrast	Type	Depth (in)	No.	
			GRAVEL	COBBLES	STONES	BOULDERS																		
0-12	Very Dark Brown (10YR 2/2)	LOAM	0	0	0	0	SUBANGULAR BLOCKY	WEAK	FINE	MOIST	FRIABLE	NONSTICKY	NONPLASTIC	CLEAR <2.5"	SMOOTH	FEW (5% MAX)	FINE	NONE			BAG	6	S-1	
12-60	Dark Yellowish Brown (10YR 3/4)	LOAMY SAND	0	0	0	0	SUBANGULAR BLOCKY	WEAK	FINE	MOIST	FRIABLE	NONSTICKY	NONPLASTIC	CLEAR <2.5"	SMOOTH	NONE		NONE			BAG	26	S-2	IT-1 = 24.0 IPH
60-90	Very Dark Grayish Brown (10YR 3/2)	GRAVELLY SAND	15	0	0	0	SINGLE GRAIN	STRUCTURELESS		MOIST	LOOSE	NONSTICKY	NONPLASTIC	CLEAR <2.5"	SMOOTH	NONE		FEW 2%	FINE <5MM	FAINT	BAG	48	S-3	
90-120	Dark Brown (10YR 3/3)	GRAVELLY SAND	15	0	0	0	SINGLE GRAIN	STRUCTURELESS		WET	LOOSE	NONSTICKY	NONPLASTIC			NONE		NONE			BAG	100	S-4	

Additional Remarks: Topsoil encountered between 0 and 12 inches. Fill encountered between 12 and 40 inches. Refusal due to wet cave-in at approximately 10 feet below the ground surface

DYNAMIC EARTH

SOIL PROFILE PIT LOG

Soil Profile Pit: SPP-102

Project: Proposed Industrial Park
Project No.: 2803-99-005E
Location: Old Mill Road and Hemion Road, Village of Suffern, Rockland County NY
Client: Treetop Development, LLC

Surface Elevation (ft):	308.0	**Date Started:**	10/19/21	**Groundwater Data**	**Depth (ft)** / **El. (ft)**
Termination Depth (ft):	9.2	**Date Completed:**	10/19/21	**Seepage**	6.7 / 301.3
Proposed Location:	SWM	**Logged by:**	J. Scardigno	**Groundwater**	6.7 / 301.3
Excavation / Test Method:	Visual Observation	**Contractor:**	Neighbors Property Management	**Mottling**	2.2 / 305.8
		Rig Type:	JD 310 SG Backhoe		

Groundwater Comments: Light gray (10 YR 7/1) mottling 26" - 80"

DEPTH (IN)	COLOR	SOIL TEXTURE	COARSE FRAGMENTS (%)				STRUCTURE			WATER CONTENT	CONSISTENCY			BOUNDARY		ROOTS		MOTTLING			SAMPLING			LAB RESULTS
							Shape	Grade	Size		Resistance to Rupture	Stickiness	Plasticity	Distinctness	Topography			Quantity	Size	Contrast	Type	Depth (in)	No.	
			GRAVEL	COBBLES	STONES	BOULDERS																		
0-12	Very Dark Brown (10YR 2/2)	LOAM	0	0	0	0	SUBANGULAR BLOCKY	WEAK	FINE	MOIST	FRIABLE	NONSTICKY	NONPLASTIC	CLEAR <2.5"	SMOOTH	FEW (5% MAX)	FINE	NONE			BAG	6	S-1	
12-26	Dark Yellowish Brown (10YR 3/4)	LOAM	0	0	0	0	SUBANGULAR BLOCKY	WEAK	FINE	MOIST	FRIABLE	NONSTICKY	NONPLASTIC	CLEAR <2.5"	SMOOTH	NONE		NONE			BAG	20	S-2	
26-68	Dark Yellowish Brown (10YR 3/4)	GRAVELLY SAND	15	0	0	0	SINGLE GRAIN	STRUCTURELESS		MOIST	LOOSE	NONSTICKY	NONPLASTIC	CLEAR <2.5"	SMOOTH	NONE		FEW 2%	FINE <5MM	FAINT	BAG	40	S-3	IT-2 = 24.0 IPH
68-80	Dark Yellowish Brown (10YR 3/4)	GRAVELLY SAND	15	0	0	0	SINGLE GRAIN	STRUCTURELESS		MOIST	LOOSE	NONSTICKY	NONPLASTIC	CLEAR <2.5"	SMOOTH	NONE		FEW 2%	FINE <5MM	FAINT	BAG	70	S-4	
80-110	Dark Yellowish Brown (10YR 3/4)	GRAVELLY SAND	15	0	0	0	SINGLE GRAIN	STRUCTURELESS		WET	LOOSE	NONSTICKY	NONPLASTIC			NONE		NONE			BAG	100	S-5	

Additional Remarks: Topsoil encountered between 0 and 12 inches. Fill encountered between 12 and 26 inches. Refusal due to wet cave-in at approximately 9.2 feet below the ground surface

DYNAMIC EARTH

SOIL PROFILE PIT LOG

Soil Profile Pit: SPP-103

Project: Proposed Industrial Park
Project No.: 2803-99-005E
Location: Old Mill Road and Hemion Road, Village of Suffern, Rockland County NY
Client: Treetop Development, LLC

Surface Elevation (ft): 306.0
Termination Depth (ft): 9.2
Proposed Location: SWM
Excavation / Test Method: Visual Observation

Date Started: 10/19/21
Date Completed: 10/19/21
Logged by: J. Scardigno
Contractor: Neighbors Property Management
Rig Type: JD 310 SG Backhoe

Groundwater Data	Depth (ft)	El. (ft)	Groundwater Comments
Seepage	5.9	300.1	
Groundwater	5.9	300.1	Light gray (10 YR 7/1) mottling 54" - 71"
Mottling	4.5	301.5	

DEPTH (IN)	COLOR	SOIL TEXTURE	COARSE FRAGMENTS (%)				STRUCTURE			WATER CONTENT	CONSISTENCY			BOUNDARY		ROOTS		MOTTLING			SAMPLING			LAB RESULTS
							Shape	Grade	Size		Resistance to Rupture	Stickiness	Plasticity	Distinctness	Topography			Quantity	Size	Contrast	Type	Depth (in)	No.	
0-12	Very Dark Brown (10YR 2/2)	LOAM	GRAVEL 0	COBBLES 0	STONES 0	BOULDERS 0	SUBANGULAR BLOCKY	WEAK	FINE	MOIST	FRIABLE	NONSTICKY	NONPLASTIC	CLEAR <2.5"	SMOOTH	FEW (5% MAX)	FINE	NONE			BAG	6	S-1	
12-24	Dark Yellowish Brown (10YR 3/4)	LOAMY SAND	GRAVEL 0	COBBLES 0	STONES 0	BOULDERS 0	SUBANGULAR BLOCKY	MODERATE	FINE	MOIST	FRIABLE	NONSTICKY	NONPLASTIC	CLEAR <2.5"	SMOOTH	NONE		NONE			BAG	16	S-2	
24-54	Dark Brown (10YR 3/3)	GRAVELLY SAND	GRAVEL 15	COBBLES 0	STONES 0	BOULDERS 0	SINGLE GRAIN	STRUCTURELESS		MOIST	LOOSE	NONSTICKY	NONPLASTIC	CLEAR <2.5"	SMOOTH	NONE		NONE			BAG	42	S-3	IT-3 = 24.0 IPH
54-71	Dark Brown (10YR 3/3)	GRAVELLY SAND	GRAVEL 15	COBBLES 0	STONES 0	BOULDERS 0	SINGLE GRAIN	STRUCTURELESS		MOIST	LOOSE	NONSTICKY	NONPLASTIC	CLEAR <2.5"	SMOOTH	NONE		FEW 2%	FINE <5MM	FAINT	BAG	60	S-4	
71-110	Dark Brown (10YR 3/3)	GRAVELLY SAND	GRAVEL 15	COBBLES 0	STONES 0	BOULDERS 0	SINGLE GRAIN	STRUCTURELESS		WET	LOOSE	NONSTICKY	NONPLASTIC			NONE		NONE			BAG	85	S-5	

Additional Remarks: Topsoil encountered between 0 and 12 inches. Fill encountered between 12 and 54 inches consisted of debris (asphalt and brick). Refusal due to wet cave-in at approximately 9.2 feet below the ground surface

DYNAMIC EARTH

SOIL PROFILE PIT LOG

Soil Profile Pit: SPP-104

Project: Proposed Industrial Park
Project No.: 2803-99-005E
Location: Old Mill Road and Hemion Road, Village of Suffern, Rockland County NY
Client: Treetop Development, LLC

Surface Elevation (ft):	307.0	**Date Started:**	10/19/21	**Groundwater Data**	**Depth (ft)** / **El. (ft)**
Termination Depth (ft):	10.0	**Date Completed:**	10/19/21	**Seepage**	NE / -
Proposed Location:	SWM	**Logged by:**	J. Scardigno	**Groundwater**	8.6 / 298.4
Excavation / Test Method:	Visual Observation	**Contractor:**	Neighbors Property Management	**Mottling**	5.4 / 301.6
		Rig Type:	JD 310 SG Backhoe	**Groundwater Comments**	Light gray (10 YR 7/1) mottling 65" - 103"

DEPTH (IN)	COLOR	SOIL TEXTURE	COARSE FRAGMENTS (%)				STRUCTURE			WATER CONTENT	CONSISTENCY			BOUNDARY		ROOTS		MOTTLING			SAMPLING			LAB RESULTS
							Shape	Grade	Size		Resistance to Rupture	Stickiness	Plasticity	Distinctness	Topography			Quantity	Size	Contrast	Type	Depth (in)	No.	
			GRAVEL	COBBLES	STONES	BOULDERS																		
0-14	Dark Grayish Brown (10YR 4/2)	LOAM	0	0	0	0	SUBANGULAR BLOCKY	WEAK	FINE	MOIST	FRIABLE	NONSTICKY	NONPLASTIC	CLEAR <2.5"	SMOOTH	FEW (5% MAX)	FINE	NONE			BAG	7	S-1	
14-65	Dark Yellowish Brown (10YR 4/4)	GRAVELLY SAND	10	0	0	0	SINGLE GRAIN	STRUCTURELESS		MOIST	FRIABLE	NONSTICKY	NONPLASTIC	CLEAR <2.5"	SMOOTH	NONE		NONE			BAG	40	S-2	
65-103	Dark Yellowish Brown (10YR 4/4)	GRAVELLY SAND	10	0	0	0	SINGLE GRAIN	STRUCTURELESS		MOIST	LOOSE	NONSTICKY	NONPLASTIC	CLEAR <2.5"	SMOOTH	NONE		FEW 2%	FINE <5MM	FAINT	BAG	80	S-3	IT-4 = 12.0 IPH
103-120	Dark Yellowish Brown (10YR 4/4)	GRAVELLY SAND	10	0	0	0	SINGLE GRAIN	STRUCTURELESS		WET	LOOSE	NONSTICKY	NONPLASTIC			NONE		NONE			BAG	110	S-4	

Additional Remarks: Topsoil encountered between 0 and 14 inches. Refusal due to wet cave-in at approximately 10 feet below the ground surface.

DYNAMIC EARTH

SOIL PROFILE PIT LOG

Soil Profile Pit: SPP-105

Project: Proposed Industrial Park
Project No.: 2803-99-005E
Location: Old Mill Road and Hemion Road, Village of Suffern, Rockland County NY
Client: Treetop Development, LLC

Surface Elevation (ft):	307.0	**Date Started:**	10/19/21
Termination Depth (ft):	9.2	**Date Completed:**	10/19/21
Proposed Location:	SWM	**Logged by:**	J. Scardigno
Excavation / Test Method:	Visual Observation	**Contractor:**	Neighbors Property Management
		Rig Type:	JD 310 SG Backhoe

Groundwater Data	Depth (ft)	El. (ft)	Groundwater Comments
Seepage	NE	-	
Groundwater	6.8	300.2	Light gray (10 YR 7/1) mottling 44" - 82"
Mottling	3.7	303.3	

DEPTH (IN)	COLOR	SOIL TEXTURE	COARSE FRAGMENTS (%)				STRUCTURE			WATER CONTENT	CONSISTENCY			BOUNDARY		ROOTS		MOTTLING			SAMPLING			LAB RESULTS
							Shape	Grade	Size		Resistance to Rupture	Stickiness	Plasticity	Distinctness	Topography			Quantity	Size	Contrast	Type	Depth (in)	No.	
			GRAVEL	COBBLES	STONES	BOULDERS																		
0-13	Very Dark Brown (10YR 2/2)	LOAM	0	0	0	0	SUBANGULAR BLOCKY	WEAK	FINE	MOIST	FRIABLE	NONSTICKY	NONPLASTIC	CLEAR <2.5"	SMOOTH	FEW (5% MAX)	FINE	NONE			BAG	6	S-1	
13-24	Dark Yellowish Brown (10YR 3/4)	LOAMY SAND	0	0	0	0	SUBANGULAR BLOCKY	WEAK	FINE	MOIST	FRIABLE	NONSTICKY	NONPLASTIC	CLEAR <2.5"	SMOOTH	NONE		NONE			BAG	20	S-2	
24-44	Dark Yellowish Brown (10YR 3/6)	GRAVELLY SAND	15	0	0	0	SINGLE GRAIN	STRUCTURELESS		MOIST	FRIABLE	NONSTICKY	NONPLASTIC	CLEAR <2.5"	SMOOTH	NONE		NONE			BAG	36	S-3	
44-82	Gray (10YR 5/1)	LOAM	0	0	0	0	SUBANGULAR BLOCKY	MODERATE	FINE	MOIST	FRIABLE	NONSTICKY	SLIGHTLY PLASTIC	CLEAR <2.5"	SMOOTH	NONE		FEW 2%	FINE <5MM	FAINT	BAG	44	S-4	IT-S = 12.0 IPH
82-110	Dark Brown (10YR 3/3)	GRAVELLY SAND	15	5	0	0	SINGLE GRAIN	STRUCTURELESS		WET	LOOSE	NONSTICKY	NONPLASTIC			NONE		NONE			BAG	107	S-5	

Additional Remarks: Topsoil encountered between 0 and 13 inches. Refusal due to wet cave-in at approximately 9.2 feet below the ground surface.

DYNAMIC EARTH

SOIL PROFILE PIT LOG

Soil Profile Pit: SPP-106

Project: Proposed Industrial Park
Project No.: 2803-99-005E
Location: Old Mill Road and Hemion Road, Village of Suffern, Rockland County NY
Client: Treetop Development, LLC

Surface Elevation (ft):	306.0	**Date Started:**	10/19/21	**Groundwater Data**	**Depth (ft)** / **El. (ft)**
Termination Depth (ft):	9.2	**Date Completed:**	10/19/21	**Seepage**	NE / -
Proposed Location:	SWM	**Logged by:**	J. Scardigno	**Groundwater**	6.8 / 299.2
Excavation / Test Method:	Visual Observation	**Contractor:**	Neighbors Property Management	**Mottling**	3.3 / 302.7
		Rig Type:	JD 310 SG Backhoe	**Groundwater Comments**	Light gray (10 YR 7/1) mottling 40" - 80"

DEPTH (IN)	COLOR	SOIL TEXTURE	COARSE FRAGMENTS (%)				STRUCTURE			WATER CONTENT	CONSISTENCY			BOUNDARY		ROOTS		MOTTLING			SAMPLING			LAB RESULTS
							Shape	Grade	Size		Resistance to Rupture	Stickiness	Plasticity	Distinctness	Topography			Quantity	Size	Contrast	Type	Depth (in)	No.	
			GRAVEL	COBBLES	STONES	BOULDERS																		
0-12	Very Dark Brown (10YR 2/2)	LOAM	0	0	0	0	SUBANGULAR BLOCKY	WEAK	FINE	MOIST	FRIABLE	NONSTICKY	NONPLASTIC	CLEAR <2.5"	SMOOTH	FEW (5% MAX)	FINE	NONE			BAG	6	S-1	
			GRAVEL	COBBLES	STONES	BOULDERS	STRUCTURELESS																	
12-28	Dark Yellowish Brown (10YR 3/4)	GRAVELLY SAND	10	0	0	0	SINGLE GRAIN			MOIST	LOOSE	NONSTICKY	NONPLASTIC	CLEAR <2.5"	SMOOTH	NONE		NONE			BAG	20	S-2	
			GRAVEL	COBBLES	STONES	BOULDERS																		
28-32	Grayish Brown (10YR 5/2)	SANDY LOAM	0	0	0	0	SUBANGULAR BLOCKY	MODERATE	FINE	MOIST	FRIABLE	NONSTICKY	NONPLASTIC	CLEAR <2.5"	SMOOTH	NONE		NONE			BAG	30	S-3	
			GRAVEL	COBBLES	STONES	BOULDERS	STRUCTURELESS																	
32-40	Dark Yellowish Brown (10YR 3/6)	GRAVELLY SAND	15	0	0	0	SINGLE GRAIN			MOIST	LOOSE	NONSTICKY	NONPLASTIC	CLEAR <2.5"	SMOOTH	NONE		NONE			BAG	40	S-4	IT-6 = 18.0 IPH
			GRAVEL	COBBLES	STONES	BOULDERS																		
40-80	Gray (10YR 5/1)	LOAM	0	0	0	0	SUBANGULAR BLOCKY	MODERATE	FINE	MOIST	FRIABLE	NONSTICKY	SLIGHTLY PLASTIC	CLEAR <2.5"	SMOOTH	FEW (5% MAX)	FINE	FEW 2%	FINE <5MM	FAINT	BAG	50	S-5	
			GRAVEL	COBBLES	STONES	BOULDERS	STRUCTURELESS																	
80-110	Dark Yellowish Brown (10YR 3/6)	GRAVELLY SAND	15	0	0	0	SINGLE GRAIN			WET	LOOSE	NONSTICKY	NONPLASTIC			NONE		NONE			BAG	90	S-6	

Additional Remarks: Topsoil encountered between 0 and 12 inches. Refusal due to wet cave-in at approximately 9.2 feet below the ground surface.

DYNAMIC EARTH

SOIL PROFILE PIT LOG

Soil Profile Pit: SPP-107

Project: Proposed Industrial Park
Project No.: 2803-99-005E
Location: Old Mill Road and Hemion Road, Village of Suffern, Rockland County NY
Client: Treetop Development, LLC

Surface Elevation (ft):	304.0	**Date Started:**	10/19/21	**Groundwater Data**	**Depth (ft)** / **El. (ft)**
Termination Depth (ft):	10.0	**Date Completed:**	10/19/21	**Seepage**	NE / -
Proposed Location:	SWM	**Logged by:**	J. Scardigno	**Groundwater**	4.3 / 299.7
Excavation / Test Method:	Visual Observation	**Contractor:**	Neighbors Property Management	**Mottling**	3.7 / 300.3
		Rig Type:	JD 310 SG Backhoe	**Groundwater Comments**	Light gray (10 YR 7/1) mottling 44" - 52"

DEPTH (IN)	COLOR	SOIL TEXTURE	COARSE FRAGMENTS (%)				STRUCTURE			WATER CONTENT	CONSISTENCY			BOUNDARY		ROOTS		MOTTLING			SAMPLING				LAB RESULTS
							Shape	Grade	Size		Resistance to Rupture	Stickiness	Plasticity	Distinctness	Topography			Quantity	Size	Contrast	Type	Depth (in)	No.	
0-8	Very Dark Brown (10YR 2/2)	LOAM	GRAVEL 0	COBBLES 0	STONES 0	BOULDERS 0	SUBANGULAR BLOCKY	WEAK	FINE	MOIST	FRIABLE	NONSTICKY	NONPLASTIC	CLEAR <2.5"	SMOOTH	FEW (5% MAX)	FINE	NONE						
8-22	Very Dark Grayish Brown (10YR 3/2)	LOAMY SAND	GRAVEL 10	COBBLES 0	STONES 0	BOULDERS 0	SUBANGULAR BLOCKY	WEAK	FINE	MOIST	FRIABLE	NONSTICKY	NONPLASTIC	CLEAR <2.5"	SMOOTH	NONE		NONE			BAG	18	S-1	IT-7 = 8.0 IPH
22-44	Very Dark Gray (10YR 3/1)	SANDY LOAM	GRAVEL 0	COBBLES 0	STONES 0	BOULDERS 0	SUBANGULAR BLOCKY	MODERATE	FINE	MOIST	FRIABLE	NONSTICKY	NONPLASTIC	CLEAR <2.5"	SMOOTH	FEW (5% MAX)	MEDIUM	NONE			BAG	36	S-2	
44-52	Gray (10YR 5/1)	LOAM	GRAVEL 5	COBBLES 0	STONES 0	BOULDERS 0	SUBANGULAR BLOCKY	MODERATE	FINE	MOIST	FRIABLE	NONSTICKY	NONPLASTIC	CLEAR <2.5"	SMOOTH	NONE		MNY >20%	MEDIUM 5MM-15MM	DISTINCT	BAG	47	S-3	
52-120	Dark Yellowish Brown (10YR 3/6)	GRAVELLY SAND	GRAVEL 10	COBBLES 5	STONES 0	BOULDERS 0	SINGLE GRAIN	STRUCTURELESS		WET	FRIABLE	NONSTICKY	SLIGHTLY PLASTIC			NONE		NONE			BAG	80	S-4	

Additional Remarks: Topsoil encountered between 0 and 8 inches. Refusal due to wet cave-in at approximately 10 feet below the ground surface.

DYNAMIC EARTH

SOIL PROFILE PIT LOG

Soil Profile Pit: SPP-108

Project: Proposed Industrial Park
Project No.: 2803-99-005E
Location: Old Mill Road and Hemion Road, Village of Suffern, Rockland County NY
Client: Treetop Development, LLC

Surface Elevation (ft): 302.0
Termination Depth (ft): 10.0
Proposed Location: SWM
Excavation / Test Method: Visual Observation

Date Started: 10/20/21
Date Completed: 10/20/21
Logged by: J. Scardigno
Contractor: Neighbors Property Management
Rig Type: JD 310 SG Backhoe

Groundwater Data	Depth (ft)	El. (ft)	Groundwater Comments
Seepage	NE	-	
Groundwater	4.6	297.4	
Mottling	NE	-	

DEPTH (IN)	COLOR	SOIL TEXTURE	COARSE FRAGMENTS (%)				STRUCTURE			WATER CONTENT	CONSISTENCY			BOUNDARY		ROOTS		MOTTLING			SAMPLING			LAB RESULTS
							Shape	Grade	Size		Resistance to Rupture	Stickiness	Plasticity	Distinctness	Topography			Quantity	Size	Contrast	Type	Depth (in)	No.	
			GRAVEL	COBBLES	STONES	BOULDERS																		
0-8	Very Dark Brown (10YR 2/2)	LOAM	0	0	0	0	SUBANGULAR BLOCKY	WEAK	FINE	MOIST	FRIABLE	NONSTICKY	NONPLASTIC	CLEAR <2.5"	SMOOTH	CMN (20% MAX)	FINE	NONE						
8-20	Very Dark Grayish Brown (10YR 3/2)	LOAMY SAND	10	0	0	0	SUBANGULAR BLOCKY	WEAK	FINE	MOIST	FRIABLE	NONSTICKY	NONPLASTIC	CLEAR <2.5"	SMOOTH	NONE		NONE			BAG	20	S-1	
20-55	Very Dark Gray (10YR 3/1)	SANDY LOAM	5	0	0	0	SUBANGULAR BLOCKY	MODERATE	FINE	MOIST	FRIABLE	NONSTICKY	NONPLASTIC	CLEAR <2.5"	SMOOTH	NONE		NONE			BAG	40	S-2	IT-8 = 5.0 IPH
55-120	Dark Brown (10YR 3/3)	LOAM	10	5	0	0	SINGLE GRAIN	STRUCTURELESS		WET	LOOSE	NONSTICKY	NONPLASTIC			NONE		NONE			BAG	100	S-3	

Additional Remarks: Topsoil encountered between 0 and 8 inches. Refusal due to wet cave-in at approximately 10 feet below the ground surface.

DYNAMIC EARTH

SOIL PROFILE PIT LOG

Soil Profile Pit: SPP-109

Project: Proposed Industrial Park
Project No.: 2803-99-005E
Location: Old Mill Road and Hemion Road, Village of Suffern, Rockland County NY
Client: Treetop Development, LLC

Surface Elevation (ft): 302.5
Termination Depth (ft): 10.0
Proposed Location: SWM
Excavation / Test Method: Visual Observation

Date Started: 10/20/21
Date Completed: 10/20/21
Logged by: J. Scardigno
Contractor: Neighbors Property Management
Rig Type: JD 310 SG Backhoe

Groundwater Data	Depth (ft)	El. (ft)	Groundwater Comments
Seepage	NE	-	
Groundwater	5.0	297.5	Light gray (10 YR 7/1) mottling 34" - 60"
Mottling	2.8	299.7	

DEPTH (IN)	COLOR	SOIL TEXTURE	COARSE FRAGMENTS (%)				STRUCTURE			WATER CONTENT	CONSISTENCY			BOUNDARY		ROOTS		MOTTLING			SAMPLING			LAB RESULTS
							Shape	Grade	Size		Resistance to Rupture	Stickiness	Plasticity	Distinctness	Topography			Quantity	Size	Contrast	Type	Depth (in)	No.	
			GRAVEL	COBBLES	STONES	BOULDERS																		
0-10	Very Dark Brown (10YR 2/2)	LOAM	0	0	0	0	SUBANGULAR BLOCKY	WEAK	FINE	MOIST	FRIABLE	NONSTICKY	NONPLASTIC	CLEAR <2.5"	SMOOTH	MNY (>20% MAX)	MEDIUM	NONE						
10-34	Dark Grayish Brown (10YR 4/2)	LOAM	0	0	0	0	SUBANGULAR BLOCKY	WEAK	VERY FINE	MOIST	FRIABLE	NONSTICKY	NONPLASTIC	CLEAR <2.5"	SMOOTH	NONE		NONE			BAG	20	S-1	IT-9 = 8.0 IPH
34-60	Very Dark Grayish Brown (10YR 3/2)	LOAMY SAND	0	0	0	0	SUBANGULAR BLOCKY	WEAK	MEDIUM	MOIST	FRIABLE	NONSTICKY	NONPLASTIC	CLEAR <2.5"	SMOOTH	NONE		FEW (5% MAX)	FINE <5MM	FAINT	BAG	40	S-2	
60-120	Dark Brown (10YR 3/3)	GRAVELLY SAND	10	0	0	0	SINGLE GRAIN	STRUCTURELESS		WET	LOOSE	NONSTICKY	NONPLASTIC			NONE		NONE			BAG	80	S-3	

Additional Remarks: Topsoil encountered between 0 and 10 inches. Refusal due to wet cave-in at approximately 10 feet below the ground surface.

DYNAMIC EARTH

SOIL PROFILE PIT LOG

Soil Profile Pit: SPP-110

Project: Proposed Industrial Park
Project No.: 2803-99-005E
Location: Old Mill Road and Hemion Road, Village of Suffern, Rockland County NY
Client: Treetop Development, LLC

Surface Elevation (ft): 303.0
Termination Depth (ft): 10.0
Proposed Location: SWM
Excavation / Test Method: Visual Observation

Date Started: 10/20/21
Date Completed: 10/20/21
Logged by: J. Scardigno
Contractor: Neighbors Property Management
Rig Type: JD 310 SG Backhoe

Groundwater Data	Depth (ft)	El. (ft)	Groundwater Comments
Seepage	NE	-	
Groundwater	5.0	298.0	Light gray (10 YR 7/1) mottling 34" - 60"
Mottling	2.8	300.2	

DEPTH (IN)	COLOR	SOIL TEXTURE	COARSE FRAGMENTS (%)				STRUCTURE			WATER CONTENT	CONSISTENCY			BOUNDARY		ROOTS		MOTTLING			SAMPLING			LAB RESULTS
							Shape	Grade	Size		Resistance to Rupture	Stickiness	Plasticity	Distinctness	Topography			Quantity	Size	Contrast	Type	Depth (in)	No.	
			GRAVEL	COBBLES	STONES	BOULDERS																		
0-12	Very Dark Brown (10YR 2/2)	LOAM	0	0	0	0	SUBANGULAR BLOCKY	WEAK	FINE	MOIST	FRIABLE	NONSTICKY	NONPLASTIC	CLEAR <2.5"	SMOOTH	CMN (20% MAX)	VERY FINE	NONE						
12-20	Dark Grayish Brown (10YR 4/2)	SANDY LOAM	0	0	0	0	SUBANGULAR BLOCKY	WEAK	FINE	MOIST	FRIABLE	NONSTICKY	NONPLASTIC	CLEAR <2.5"	SMOOTH	NONE		NONE			BAG	16	S-1	IT-10 = 4.0 IPH
20-34	Dark Brown (10YR 3/3)	LOAMY SAND	10	0	0	0	SUBANGULAR BLOCKY	WEAK	FINE	MOIST	FRIABLE	NONSTICKY	NONPLASTIC	CLEAR <2.5"	SMOOTH	NONE		NONE			BAG	26	S-2	
34-60	Very Dark Grayish Brown (10YR 3/2)	LOAM	0	0	0	0	SUBANGULAR BLOCKY	WEAK	FINE	MOIST	FRIABLE	NONSTICKY	NONPLASTIC			NONE		CMN (20% MAX)	MEDIUM 5MM-15MM	DISTINCT	BAG	42	S-3	
60-120	Dark Brown (10YR 3/3)	GRAVELLY SAND	15	10	0	0	SINGLE GRAIN	STRUCTURELESS		WET	LOOSE	NONSTICKY	NONPLASTIC			NONE		NONE			BAG	80	S-4	

Additional Remarks: Topsoil encountered between 0 and 12 inches. Refusal due to wet cave-in at approximately 10 feet below the ground surface.

DYNAMIC EARTH

SOIL PROFILE PIT LOG

Soil Profile Pit: SPP-111

Project: Proposed Industrial Park
Project No.: 2803-99-005E
Location: Old Mill Road and Hemion Road, Village of Suffern, Rockland County NY
Client: Treetop Development, LLC

Surface Elevation (ft): 305.0
Termination Depth (ft): 9.2
Proposed Location: SWM
Excavation / Test Method: Visual Observation

Date Started: 10/21/21
Date Completed: 10/21/21
Logged by: J. Scardigno
Contractor: Neighbors Property Management
Rig Type: JD 310 SG Backhoe

Groundwater Data	Depth (ft)	El. (ft)	Groundwater Comments
Seepage	NE	-	
Groundwater	4.0	301.0	Light gray (10 YR 7/1) mottling 16" - 48"
Mottling	1.3	303.7	

DEPTH (IN)	COLOR	SOIL TEXTURE	COARSE FRAGMENTS (%)				STRUCTURE			WATER CONTENT	CONSISTENCY			BOUNDARY		ROOTS		MOTTLING			SAMPLING			LAB RESULTS
							Shape	Grade	Size		Resistance to Rupture	Stickiness	Plasticity	Distinctness	Topography			Quantity	Size	Contrast	Type	Depth (in)	No.	
			GRAVEL	COBBLES	STONES	BOULDERS																		
0-16	Very Dark Brown (10YR 2/2)	LOAM	0	0	0	0	SUBANGULAR BLOCKY	WEAK	FINE	MOIST	FRIABLE	NONSTICKY	NONPLASTIC	CLEAR <2.5"	SMOOTH	MNY (>20% MAX)	FINE	NONE						
			GRAVEL	COBBLES	STONES	BOULDERS																		
16-48	Very Dark Grayish Brown (10YR 3/2)	SANDY LOAM	5	0	0	0	SUBANGULAR BLOCKY	MODERATE	FINE	MOIST	FRIABLE	NONSTICKY	NONPLASTIC	CLEAR <2.5"	SMOOTH	NONE		CMN (20% MAX)	MEDIUM 5MM-15MM	DISTINCT	BAG	40	S-1	IT-11 = 5.0 IPH
			GRAVEL	COBBLES	STONES	BOULDERS	STRUCTURELESS																	
48-110	Dark Brown (10YR 3/3)	GRAVELLY SAND	10	0	0	0	SINGLE GRAIN			WET	LOOSE	NONSTICKY	NONPLASTIC			NONE		NONE			BAG	90	S-2	

Additional Remarks: Topsoil encountered between 0 and 10 inches. Refusal due to wet cave-in at approximately 9.2 feet below the ground surface.

DYNAMIC EARTH

SOIL PROFILE PIT LOG

Soil Profile Pit: SPP-112

Project: Proposed Industrial Park
Project No.: 2803-99-005E
Location: Old Mill Road and Hemion Road, Village of Suffern, Rockland County NY
Client: Treetop Development, LLC

Surface Elevation (ft): 306.5
Termination Depth (ft): 9.2
Proposed Location: SWM
Excavation / Test Method: Visual Observation

Date Started: 10/21/21
Date Completed: 10/21/21
Logged by: J. Scardigno
Contractor: Neighbors Property Management
Rig Type: JD 310 SG Backhoe

Groundwater Data	Depth (ft)	El. (ft)	Groundwater Comments
Seepage	NE	-	
Groundwater	4.4	302.1	Light gray (10 YR 7/1) mottling 12" - 53"
Mottling	1.0	305.5	

DEPTH (IN)	COLOR	SOIL TEXTURE	COARSE FRAGMENTS (%)				STRUCTURE			WATER CONTENT	CONSISTENCY			BOUNDARY		ROOTS		MOTTLING			SAMPLING			LAB RESULTS
							Shape	Grade	Size		Resistance to Rupture	Stickiness	Plasticity	Distinctness	Topography			Quantity	Size	Contrast	Type	Depth (in)	No.	
			GRAVEL	COBBLES	STONES	BOULDERS																		
0-12	Very Dark Brown (10YR 2/2)	LOAM	0	0	0	0	SUBANGULAR BLOCKY	WEAK	FINE	MOIST	FRIABLE	NONSTICKY	NONPLASTIC	CLEAR <2.5"	SMOOTH	MNY (>20% MAX)	FINE	NONE						
12-28	Very Dark Grayish Brown (10YR 3/2)	LOAMY SAND	0	0	0	0	SUBANGULAR BLOCKY	WEAK	FINE	MOIST	FRIABLE	NONSTICKY	NONPLASTIC	CLEAR <2.5"	SMOOTH	NONE		CMN (20% MAX)	MEDIUM 5MM-15MM	DISTINCT	BAG	20	S-1	IT-12 = 5.0 IPH
28-53	Dark Grayish Brown (10YR 4/2)	SANDY LOAM	10	0	0	0	SUBANGULAR BLOCKY	MODERATE	MEDIUM	MOIST	FRIABLE	NONSTICKY	NONPLASTIC	CLEAR <2.5"	SMOOTH	NONE		CMN (20% MAX)	FINE <5MM	FAINT	BAG	36	S-2	
53-110	Dark Brown (10YR 3/3)	GRAVELLY SAND	10	0	0	0	SINGLE GRAIN	STRUCTURELESS		WET	LOOSE	NONSTICKY	NONPLASTIC			NONE		NONE			BAG	70	S-3	

Additional Remarks: Refusal due to wet cave-in at approximately 9.2 feet below the ground surface.

DYNAMIC EARTH

SOIL PROFILE PIT LOG

Soil Profile Pit: SPP-113

Project: Proposed Industrial Park
Project No.: 2803-99-005E
Location: Old Mill Road and Hemion Road, Village of Suffern, Rockland County NY
Client: Treetop Development, LLC

Surface Elevation (ft): 302.0
Termination Depth (ft): 10.0
Proposed Location: SWM
Excavation / Test Method: Visual Observation

Date Started: 10/21/21
Date Completed: 10/21/21
Logged by: J. Scardigno
Contractor: Neighbors Property Management
Rig Type: JD 310 SG Backhoe

Groundwater Data	Depth (ft)	El. (ft)	Groundwater Comments
Seepage	NE	-	
Groundwater	5.0	297.0	
Mottling	NE	-	

DEPTH (IN)	COLOR	SOIL TEXTURE	COARSE FRAGMENTS (%)				STRUCTURE			WATER CONTENT	CONSISTENCY			BOUNDARY		ROOTS		MOTTLING			SAMPLING			LAB RESULTS
							Shape	Grade	Size		Resistance to Rupture	Stickiness	Plasticity	Distinctness	Topography			Quantity	Size	Contrast	Type	Depth (in)	No.	
			GRAVEL	COBBLES	STONES	BOULDERS																		
0-12	Very Dark Brown (10YR 2/2)	LOAM	0	0	0	0	SUBANGULAR BLOCKY	WEAK	FINE	MOIST	FRIABLE	NONSTICKY	NONPLASTIC	CLEAR <2.5"	SMOOTH	CMN (20% MAX)	FINE	NONE						
12-30	Dark Brown (10YR 3/3)	SANDY LOAM	0	0	0	0	SUBANGULAR BLOCKY	WEAK	MEDIUM	MOIST	FRIABLE	NONSTICKY	NONPLASTIC	CLEAR <2.5"	SMOOTH	NONE		NONE			BAG	20	S-1	
30-60	Very Dark Grayish Brown (10YR 3/2)	LOAM	0	0	0	0	SUBANGULAR BLOCKY	WEAK	FINE	MOIST	FRIABLE	NONSTICKY	NONPLASTIC	CLEAR <2.5"	SMOOTH	FEW (5% MAX)	FINE	NONE			BAG	40	S-2	IT-13 = 15.0 IPH
60-120	Black (10YR 2/1)	SILTY CLAY LOAM	0	0	0	0	SUBANGULAR BLOCKY	MODERATE	FINE	WET	FRIABLE	NONSTICKY	NONPLASTIC			NONE		NONE			BAG	80	S-3	

Additional Remarks: Refusal due to wet cave-in at approximately 10 feet below the ground surface.

DYNAMIC EARTH

SOIL PROFILE PIT LOG

Soil Profile Pit: SPP-114

Project: Proposed Industrial Park
Project No.: 2803-99-005E
Location: Old Mill Road and Hemion Road, Village of Suffern, Rockland County NY
Client: Treetop Development, LLC

Surface Elevation (ft): 304.5
Termination Depth (ft): 8.3
Proposed Location: SWM
Excavation / Test Method: Visual Observation

Date Started: 10/21/21
Date Completed: 10/21/21
Logged by: J. Scardigno
Contractor: Neighbors Property Management
Rig Type: JD 310 SG Backhoe

Groundwater Data	Depth (ft)	El. (ft)	Groundwater Comments
Seepage	NE	-	
Groundwater	6.3	298.2	
Mottling	NE	-	

DEPTH (IN)	COLOR	SOIL TEXTURE	COARSE FRAGMENTS (%)				STRUCTURE			WATER CONTENT	CONSISTENCY			BOUNDARY		ROOTS		MOTTLING			SAMPLING			LAB RESULTS
							Shape	Grade	Size		Resistance to Rupture	Stickiness	Plasticity	Distinctness	Topography			Quantity	Size	Contrast	Type	Depth (in)	No.	
			GRAVEL	COBBLES	STONES	BOULDERS																		
0-12	Very Dark Brown (10YR 2/2)	LOAM	0	0	0	0	SUBANGULAR BLOCKY	WEAK	FINE	MOIST	FRIABLE	NONSTICKY	NONPLASTIC	CLEAR <2.5"	SMOOTH	FEW (5% MAX)	MEDIUM	NONE						
12-24	Dark Yellowish Brown (10YR 3/4)	LOAM	0	0	0	0	SUBANGULAR BLOCKY	WEAK	FINE	MOIST	FRIABLE	NONSTICKY	NONPLASTIC	CLEAR <2.5"	SMOOTH	NONE		NONE			BAG	16	S-1	
24-60	Dark Brown (10YR 3/3)	SANDY LOAM	0	0	0	0	SUBANGULAR BLOCKY	MODERATE	MEDIUM	MOIST	FRIABLE	NONSTICKY	NONPLASTIC	CLEAR <2.5"	SMOOTH	NONE		NONE			BAG	30	S-2	IT-14 = 18.0 IPH
60-75	Very Dark Grayish Brown (10YR 3/2)	LOAM	0	0	0	0	SUBANGULAR BLOCKY	WEAK	FINE	MOIST	FRIABLE	NONSTICKY	NONPLASTIC	CLEAR <2.5"	SMOOTH	NONE		NONE			BAG	66	S-3	
75-100	Dark Brown (10YR 3/3)	SANDY LOAM	0	0	0	0	SUBANGULAR BLOCKY	WEAK	FINE	WET	FRIABLE	NONSTICKY	NONPLASTIC			NONE		NONE			BAG	90	S-4	

Additional Remarks: Refusal due to wet cave-in at approximately 8.3 feet below the ground surface.

DYNAMIC EARTH

SOIL PROFILE PIT LOG

Soil Profile Pit: SPP-115

Project: Proposed Industrial Park
Project No.: 2803-99-005E
Location: Old Mill Road and Hemion Road, Village of Suffern, Rockland County NY
Client: Treetop Development, LLC

Surface Elevation (ft): 308.0
Termination Depth (ft): 10.0
Proposed Location: SWM
Excavation / Test Method: Visual Observation

Date Started: 10/21/21
Date Completed: 10/21/21
Logged by: J. Scardigno
Contractor: Neighbors Property Management
Rig Type: JD 310 SG Backhoe

Groundwater Data	Depth (ft)	El. (ft)	Groundwater Comments
Seepage	NE	-	
Groundwater	7.0	301.0	
Mottling	NE	-	

DEPTH (IN)	COLOR	SOIL TEXTURE	COARSE FRAGMENTS (%)				STRUCTURE			WATER CONTENT	CONSISTENCY			BOUNDARY		ROOTS		MOTTLING			SAMPLING			LAB RESULTS
							Shape	Grade	Size		Resistance to Rupture	Stickiness	Plasticity	Distinctness	Topography			Quantity	Size	Contrast	Type	Depth (in)	No.	
			GRAVEL	COBBLES	STONES	BOULDERS																		
0-14	Very Dark Brown (10YR 2/2)	LOAM	0	0	0	0	SUBANGULAR BLOCKY	WEAK	FINE	MOIST	FRIABLE	NONSTICKY	NONPLASTIC	CLEAR <2.5"	SMOOTH	MNY (>20% MAX)	MEDIUM	NONE						
14-48	Very Dark Grayish Brown (10YR 3/2)	SANDY LOAM	10	5	0	0	SUBANGULAR BLOCKY	MODERATE	MEDIUM	MOIST	FRIABLE	NONSTICKY	NONPLASTIC	CLEAR <2.5"	SMOOTH	NONE		NONE			BAG	36	S-1	IT-15 = 15.0 IPH
48-84	Dark Brown (10YR 3/3)	GRAVELLY SAND	10	5	0	0	SINGLE GRAIN	STRUCTURELESS		MOIST	LOOSE	NONSTICKY	NONPLASTIC	CLEAR <2.5"	SMOOTH	NONE		NONE			BAG	56	S-2	
84-120	Dark Brown (10YR 3/3)	GRAVELLY SAND	15	10	0	0	SINGLE GRAIN	STRUCTURELESS		WET	LOOSE	NONSTICKY	NONPLASTIC			NONE		NONE			BAG	90	S-3	

Additional Remarks: Topsoil encountered between 0 and 14 inches. Refusal due to wet cave-in at approximately 10 feet below the ground surface.

DYNAMIC EARTH

SOIL PROFILE PIT LOG

Soil Profile Pit: SPP-116

Project: Proposed Industrial Park
Project No.: 2803-99-005E
Location: Old Mill Road and Hemion Road, Village of Suffern, Rockland County NY
Client: Treetop Development, LLC

Surface Elevation (ft):	310.0	**Date Started:**	10/22/21	**Groundwater Data**	**Depth (ft)** / **El. (ft)**
Termination Depth (ft):	10.0	**Date Completed:**	10/22/21	**Seepage**	NE / -
Proposed Location:	SWM	**Logged by:**	J. Scardigno	**Groundwater**	5.8 / 304.2
Excavation / Test Method:	Visual Observation	**Contractor:**	Neighbors Property Management	**Mottling**	2.1 / 307.9
		Rig Type:	JD 310 SG Backhoe		

Groundwater Comments: Light gray (10 YR 7/1) mottling 25" - 43"

DEPTH (IN)	COLOR	SOIL TEXTURE	COARSE FRAGMENTS (%)				STRUCTURE			WATER CONTENT	CONSISTENCY			BOUNDARY		ROOTS		MOTTLING			SAMPLING			LAB RESULTS
							Shape	Grade	Size		Resistance to Rupture	Stickiness	Plasticity	Distinctness	Topography			Quantity	Size	Contrast	Type	Depth (in)	No.	
			GRAVEL	COBBLES	STONES	BOULDERS																		
0-16	Very Dark Brown (10YR 2/2)	LOAM	0	0	0	0	SUBANGULAR BLOCKY	WEAK	FINE	MOIST	FRIABLE	NONSTICKY	NONPLASTIC	CLEAR <2.5"	SMOOTH	CMN (20% MAX)	FINE	NONE						
16-25	Dark Grayish Brown (10YR 4/2)	LOAM	0	0	0	0	SUBANGULAR BLOCKY	WEAK	FINE	MOIST	FRIABLE	NONSTICKY	NONPLASTIC	CLEAR <2.5"	SMOOTH	NONE		NONE			BAG	22	S-1	IT-16 = 19.0 IPH
25-43	Very Dark Grayish Brown (10YR 3/2)	LOAM	0	0	0	0	SUBANGULAR BLOCKY	WEAK	FINE	MOIST	FRIABLE	NONSTICKY	NONPLASTIC	CLEAR <2.5"	SMOOTH	FEW (5% MAX)	FINE	FEW (5% MAX)	FINE <5MM	FAINT	BAG	32	S-2	
43-70	Dark Brown (10YR 3/3)	GRAVELLY SAND	15	10	0	0	SINGLE GRAIN	STRUCTURELESS		MOIST	LOOSE	NONSTICKY	NONPLASTIC	CLEAR <2.5"	SMOOTH	NONE		NONE			BAG	50	S-3	
70-120	Dark Brown (10YR 3/3)	GRAVELLY SAND	15	10	0	0	SINGLE GRAIN	STRUCTURELESS		WET	LOOSE	NONSTICKY	NONPLASTIC			NONE		NONE			BAG	80	S-4	

Additional Remarks: Topsoil encountered between 0 and 16 inches. SPP-16 was terminated at approximately 10 feet below the ground surface.

DYNAMIC EARTH

SOIL PROFILE PIT LOG

Soil Profile Pit: SPP-117

Project: Proposed Industrial Park
Project No.: 2803-99-005E
Location: Old Mill Road and Hemion Road, Village of Suffern, Rockland County NY
Client: Treetop Development, LLC

Surface Elevation (ft):	310.0	**Date Started:**	10/22/21	**Groundwater Data**	**Depth (ft)** / **El. (ft)**
Termination Depth (ft):	10.0	**Date Completed:**	10/22/21	**Seepage**	NE / -
Proposed Location:	SWM	**Logged by:**	J. Scardigno	**Groundwater**	7.0 / 303.0
Excavation / Test Method:	Visual Observation	**Contractor:**	Neighbors Property Management	**Mottling**	NE / -
		Rig Type:	JD 310 SG Backhoe		

Groundwater Comments

DEPTH (IN)	COLOR	SOIL TEXTURE	COARSE FRAGMENTS (%)				STRUCTURE			WATER CONTENT	CONSISTENCY			BOUNDARY		ROOTS		MOTTLING			SAMPLING			LAB RESULTS
							Shape	Grade	Size		Resistance to Rupture	Stickiness	Plasticity	Distinctness	Topography			Quantity	Size	Contrast	Type	Depth (in)	No.	
			GRAVEL	COBBLES	STONES	BOULDERS																		
0-10	Very Dark Brown (10YR 2/2)	LOAM	0	0	0	0	SUBANGULAR BLOCKY	WEAK	FINE	MOIST	FRIABLE	NONSTICKY	NONPLASTIC	CLEAR <2.5"	SMOOTH	CMN (20% MAX)	FINE	NONE						
10-16	Dark Grayish Brown (10YR 4/2)	LOAMY SAND	10	0	0	0	SUBANGULAR BLOCKY	WEAK	FINE	MOIST	FRIABLE	NONSTICKY	NONPLASTIC	CLEAR <2.5"	SMOOTH	NONE		NONE			BAG	12	S-1	
16-47	Very Dark Grayish Brown (10YR 3/2)	SAND	0	0	0	0	SUBANGULAR BLOCKY	WEAK	MEDIUM	MOIST	FRIABLE	NONSTICKY	NONPLASTIC	CLEAR <2.5"	SMOOTH	CMN (20% MAX)	MEDIUM	NONE			BAG	30	S-2	IT-17 = 5.0 IPH
47-84	Dark Brown (10YR 3/3)	SAND	10	5	0	0	SINGLE GRAIN	STRUCTURELESS		MOIST	LOOSE	NONSTICKY	NONPLASTIC	CLEAR <2.5"	SMOOTH	NONE		NONE			BAG	50	S-3	
84-120	Dark Brown (10YR 3/3)	GRAVELLY SAND	15	10	0	0	SINGLE GRAIN	STRUCTURELESS		WET	LOOSE	NONSTICKY	NONPLASTIC			NONE		NONE			BAG	90	S-4	

Additional Remarks: Topsoil encountered between 0 and 10 inches. Refusal due to wet cave-in at approximately 10 feet below the ground surface.

DYNAMIC EARTH

SOIL PROFILE PIT LOG

Soil Profile Pit: SPP-118

Project: Proposed Industrial Park
Project No.: 2803-99-005E
Location: Old Mill Road and Hemion Road, Village of Suffern, Rockland County NY
Client: Treetop Development, LLC

Surface Elevation (ft):	312.0	**Date Started:**	10/22/21	**Groundwater Data**	**Depth (ft)** / **El. (ft)**
Termination Depth (ft):	10.0	**Date Completed:**	10/22/21	**Seepage**	NE / -
Proposed Location:	SWM	**Logged by:**	J. Scardigno	**Groundwater**	8.0 / 304.0
Excavation / Test Method:	Visual Observation	**Contractor:**	Neighbors Property Management	**Mottling**	NE / -
		Rig Type:	JD 310 SG Backhoe		

Groundwater Comments

DEPTH (IN)	COLOR	SOIL TEXTURE	COARSE FRAGMENTS (%)				STRUCTURE			WATER CONTENT	CONSISTENCY			BOUNDARY		ROOTS		MOTTLING			SAMPLING			LAB RESULTS
							Shape	Grade	Size		Resistance to Rupture	Stickiness	Plasticity	Distinctness	Topography			Quantity	Size	Contrast	Type	Depth (in)	No.	
			GRAVEL	COBBLES	STONES	BOULDERS																		
0-12	Very Dark Brown (10YR 2/2)	LOAM	0	0	0	0	SUBANGULAR BLOCKY	WEAK	FINE	MOIST	FRIABLE	NONSTICKY	NONPLASTIC	CLEAR <2.5"	SMOOTH	CMN (20% MAX)	FINE	NONE						
12-20	Very Dark Grayish Brown (10YR 3/2)	SANDY LOAM	0	0	0	0	SUBANGULAR BLOCKY	WEAK	MEDIUM	MOIST	FRIABLE	NONSTICKY	NONPLASTIC	CLEAR <2.5"	SMOOTH	NONE		NONE			BAG	18	S-1	
20-96	Dark Brown (10YR 3/3)	GRAVELLY SAND	15	10	0	0	SINGLE GRAIN	STRUCTURELESS		MOIST	LOOSE	NONSTICKY	NONPLASTIC	CLEAR <2.5"	SMOOTH	NONE		NONE			BAG	35	S-2	IT-18 = 24.0 IPH
96-120	Dark Brown (10YR 3/3)	GRAVELLY SAND	15	10	0	0	SINGLE GRAIN	STRUCTURELESS		WET	LOOSE	NONSTICKY	NONPLASTIC			NONE		NONE			BAG	106	S-3	

Additional Remarks: Topsoil encountered between 0 and 12 inches. SPP-18 was terminated at approximately 10 feet below the ground surface.

DYNAMIC EARTH

SOIL PROFILE PIT LOG

Soil Profile Pit: SPP-119

Project: Proposed Industrial Park
Project No.: 2803-99-005E
Location: Old Mill Road and Hemion Road, Village of Suffern, Rockland County NY
Client: Treetop Development, LLC

Surface Elevation (ft): 309.0
Termination Depth (ft): 3.0
Proposed Location: SWM
Excavation / Test Method: Visual Observation

Date Started: 10/25/21
Date Completed: 10/25/21
Logged by: J. Scardigno
Contractor: Neighbors Property Management
Rig Type: JD 310 SG Backhoe

Groundwater Data	Depth (ft)	El. (ft)	Groundwater Comments
Seepage	NE	-	
Groundwater	0.5	308.5	
Mottling	NE	-	

DEPTH (IN)	COLOR	SOIL TEXTURE	COARSE FRAGMENTS (%)				STRUCTURE			WATER CONTENT	CONSISTENCY			BOUNDARY		ROOTS		MOTTLING			SAMPLING			LAB RESULTS
							Shape	Grade	Size		Resistance to Rupture	Stickiness	Plasticity	Distinctness	Topography			Quantity	Size	Contrast	Type	Depth (in)	No.	
			GRAVEL	COBBLES	STONES	BOULDERS																		
0-6	Very Dark Brown (10YR 2/2)	LOAM	0	0	0	0	SUBANGULAR BLOCKY	WEAK	FINE	MOIST	FRIABLE	NONSTICKY	NONPLASTIC	CLEAR <2.5"	SMOOTH	FEW (5% MAX)	FINE	NONE						
			GRAVEL	COBBLES	STONES	BOULDERS																		
6-36	Dark Yellowish Brown (10YR 3/4)	LOAM	10	0	0	0	SUBANGULAR BLOCKY	MODERATE	FINE	WET	FRIABLE	NONSTICKY	NONPLASTIC			NONE		NONE			BAG	18	S-1	IT-19 = 5.0 IPH

Additional Remarks: Refusal due to wet cave-in approximately three feet below the ground surface.

DYNAMIC EARTH

SOIL PROFILE PIT LOG

Soil Profile Pit: SPP-120

Project: Proposed Industrial Park
Project No.: 2803-99-005E
Location: Old Mill Road and Hemion Road, Village of Suffern, Rockland County NY
Client: Treetop Development, LLC

Surface Elevation (ft):	313.0	**Date Started:**	10/25/21	**Groundwater Data**	**Depth (ft)** / **El. (ft)**
Termination Depth (ft):	10.0	**Date Completed:**	10/25/21	**Seepage**	NE / -
Proposed Location:	SWM	**Logged by:**	J. Scardigno	**Groundwater**	6.0 / 307.0
Excavation / Test Method:	Visual Observation	**Contractor:**	Neighbors Property Management	**Mottling**	NE / -
		Rig Type:	JD 310 SG Backhoe		

Groundwater Comments

DEPTH (IN)	COLOR	SOIL TEXTURE	COARSE FRAGMENTS (%)				STRUCTURE			WATER CONTENT	CONSISTENCY			BOUNDARY		ROOTS		MOTTLING			SAMPLING			LAB RESULTS
							Shape	Grade	Size		Resistance to Rupture	Stickiness	Plasticity	Distinctness	Topography			Quantity	Size	Contrast	Type	Depth (in)	No.	
			GRAVEL	COBBLES	STONES	BOULDERS																		
0-12	Very Dark Brown (10YR 2/2)	LOAM	0	0	0	0	SUBANGULAR BLOCKY	WEAK	FINE	MOIST	FRIABLE	NONSTICKY	NONPLASTIC	CLEAR <2.5"	SMOOTH	MNY (>20% MAX)	FINE	NONE						
			GRAVEL	COBBLES	STONES	BOULDERS																		
12-32	Very Dark Grayish Brown (10YR 3/2)	SANDY LOAM	10	5	0	0	SUBANGULAR BLOCKY	MODERATE	MEDIUM	MOIST	FRIABLE	NONSTICKY	NONPLASTIC	CLEAR <2.5"	SMOOTH	FEW (5% MAX)	FINE	NONE			BAG	28	S-1	
			GRAVEL	COBBLES	STONES	BOULDERS																		
32-72	Dark Brown (10YR 3/3)	LOAMY SAND	10	5	0	0	SUBANGULAR BLOCKY	MODERATE	FINE	MOIST	FRIABLE	NONSTICKY	NONPLASTIC	CLEAR <2.5"	SMOOTH	NONE		NONE			BAG	36	S-2	IT-20 = 10.0 IPH
			GRAVEL	COBBLES	STONES	BOULDERS	STRUCTURELESS																	
72-120	Dark Brown (10YR 3/3)	GRAVELLY SAND	15	10	0	0	SINGLE GRAIN			WET	LOOSE	NONSTICKY	NONPLASTIC			NONE		NONE			BAG	80	S-3	

Additional Remarks: SPP-20 was terminated at approximately 10 feet below the ground surface.

DYNAMIC EARTH

SOIL PROFILE PIT LOG

Soil Profile Pit: SPP-121

Project: Proposed Industrial Park
Project No.: 2803-99-005E
Location: Old Mill Road and Hemion Road, Village of Suffern, Rockland County NY
Client: Treetop Development, LLC

Surface Elevation (ft): 311.0
Termination Depth (ft): 15.0
Proposed Location: SWM
Excavation / Test Method: Visual Observation

Date Started: 10/25/21
Date Completed: 10/25/21
Logged by: J. Scardigno
Contractor: Neighbors Property Management
Rig Type: JD 310 SG Backhoe

Groundwater Data	Depth (ft)	El. (ft)	Groundwater Comments
Seepage	NE	-	
Groundwater	8.3	302.7	Light gray (10 YR 7/1) mottling 48" - 100"
Mottling	4.0	307.0	

DEPTH (IN)	COLOR	SOIL TEXTURE	COARSE FRAGMENTS (%)				STRUCTURE			WATER CONTENT	CONSISTENCY			BOUNDARY		ROOTS		MOTTLING			SAMPLING			LAB RESULTS
							Shape	Grade	Size		Resistance to Rupture	Stickiness	Plasticity	Distinctness	Topography			Quantity	Size	Contrast	Type	Depth (in)	No.	
0-11	Very Dark Brown (10YR 2/2)	LOAM	GRAVEL 0	COBBLES 0	STONES 0	BOULDERS 0	SUBANGULAR BLOCKY	WEAK	FINE	MOIST	FRIABLE	NONSTICKY	NONPLASTIC	CLEAR <2.5"	SMOOTH	MNY (>20% MAX)	FINE	NONE						
11-32	Very Dark Grayish Brown (10YR 3/2)	SANDY LOAM	GRAVEL 10	COBBLES 5	STONES 0	BOULDERS 0	SUBANGULAR BLOCKY	MODERATE	MEDIUM	MOIST	FRIABLE	NONSTICKY	NONPLASTIC	CLEAR <2.5"	SMOOTH	FEW (5% MAX)	FINE	NONE			BAG	20	S-1	
32-48	Dark Grayish Brown (10YR 4/2)	LOAMY SAND	GRAVEL 10	COBBLES 5	STONES 0	BOULDERS 0	SUBANGULAR BLOCKY	MODERATE	FINE	MOIST	FRIABLE	NONSTICKY	NONPLASTIC	CLEAR <2.5"	SMOOTH	MNY (>20% MAX)	MEDIUM	NONE			BAG	40	S-2	IT-21 = 15.0 IPH
48-100	Dark Brown (10YR 3/3)	GRAVELLY SAND	GRAVEL 15	COBBLES 10	STONES 0	BOULDERS 0	SINGLE GRAIN	STRUCTURELESS		MOIST	LOOSE	NONSTICKY	NONPLASTIC	CLEAR <2.5"	SMOOTH	NONE		FEW (5% MAX)	FINE <5MM	FAINT	BAG	88	S-3	
100-180	Dark Brown (10YR 3/3)	GRAVELLY SAND	GRAVEL 15	COBBLES 10	STONES 0	BOULDERS 0	SINGLE GRAIN	STRUCTURELESS		WET	LOOSE	NONSTICKY	NONPLASTIC	CLEAR <2.5"	SMOOTH	NONE		NONE			BAG	110	S-4	

Additional Remarks: Topsoil encountered between 0 and 11 inches. Fill encountered between 11 and 32 inches. Buried root mat encountered 32" - 48". SPP-21 was terminated at approximately 15 feet below the ground surface.

DYNAMIC EARTH

SOIL PROFILE PIT LOG

Soil Profile Pit: SPP-122

Project: Proposed Industrial Park
Project No.: 2803-99-005E
Location: Old Mill Road and Hemion Road, Village of Suffern, Rockland County NY
Client: Treetop Development, LLC

Surface Elevation (ft):	310.0	**Date Started:**	10/22/21	**Groundwater Data**	**Depth (ft)** / **El. (ft)**
Termination Depth (ft):	10.0	**Date Completed:**	10/22/21	**Seepage**	NE / -
Proposed Location:	SWM	**Logged by:**	J. Scardigno	**Groundwater**	7.3 / 302.7
Excavation / Test Method:	Visual Observation	**Contractor:**	Neighbors Property Management	**Mottling**	NE / -
		Rig Type:	JD 310 SG Backhoe		

Groundwater Comments

DEPTH (IN)	COLOR	SOIL TEXTURE	COARSE FRAGMENTS (%)				STRUCTURE			WATER CONTENT	CONSISTENCY			BOUNDARY		ROOTS		MOTTLING			SAMPLING			LAB RESULTS
							Shape	Grade	Size		Resistance to Rupture	Stickiness	Plasticity	Distinctness	Topography			Quantity	Size	Contrast	Type	Depth (in)	No.	
0-12	Very Dark Brown (10YR 2/2)	LOAM	GRAVEL 0	COBBLES 0	STONES 0	BOULDERS 0	SUBANGULAR BLOCKY	WEAK	FINE	MOIST	FRIABLE	NONSTICKY	NONPLASTIC	CLEAR <2.5"	SMOOTH	CMN (20% MAX)	FINE	NONE						
12-24	Dark Yellowish Brown (10YR 4/6)	LOAM	GRAVEL 0	COBBLES 0	STONES 0	BOULDERS 0	SUBANGULAR BLOCKY	MODERATE	VERY FINE	MOIST	FRIABLE	NONSTICKY	NONPLASTIC	CLEAR <2.5"	SMOOTH	NONE		NONE			BAG	18	S-1	
24-88	Brown (10YR 4/3)	GRAVELLY SAND	GRAVEL 10	COBBLES 5	STONES 0	BOULDERS 0	SINGLE GRAIN	STRUCTURELESS		MOIST	FRIABLE	NONSTICKY	NONPLASTIC	CLEAR <2.5"	SMOOTH	NONE		NONE			BAG	36	S-2	IT-22 = 19.0 IPH
88-120	Brown (10YR 4/3)	GRAVELLY SAND	GRAVEL 15	COBBLES 10	STONES 0	BOULDERS 0	SINGLE GRAIN	STRUCTURELESS		WET	LOOSE	NONSTICKY	NONPLASTIC			NONE		NONE			BAG	100	S-3	

Additional Remarks: Topsoil encountered between 0 and 12 inches. SPP-22 was terminated at approximately 10 feet below the ground surface.

DYNAMIC EARTH

SOIL PROFILE PIT LOG

Soil Profile Pit: SPP-123

Project: Proposed Industrial Park
Project No.: 2803-99-005E
Location: Old Mill Road and Hemion Road, Village of Suffern, Rockland County NY
Client: Treetop Development, LLC

Surface Elevation (ft): 311.0
Termination Depth (ft): 10.0
Proposed Location: SWM
Excavation / Test Method: Visual Observation

Date Started: 10/22/21
Date Completed: 10/22/21
Logged by: J. Scardigno
Contractor: Neighbors Property Management
Rig Type: JD 310 SG Backhoe

Groundwater Data	Depth (ft)	El. (ft)	Groundwater Comments
Seepage	NE	-	
Groundwater	6.4	304.6	Light gray (10 YR 7/1) mottling 40" - 77"
Mottling	3.3	307.7	

DEPTH (IN)	COLOR	SOIL TEXTURE	COARSE FRAGMENTS (%)				STRUCTURE			WATER CONTENT	CONSISTENCY			BOUNDARY		ROOTS		MOTTLING			SAMPLING			LAB RESULTS
							Shape	Grade	Size		Resistance to Rupture	Stickiness	Plasticity	Distinctness	Topography			Quantity	Size	Contrast	Type	Depth (in)	No.	
			GRAVEL	COBBLES	STONES	BOULDERS																		
0-16	Dark Grayish Brown (10YR 4/2)	LOAM	0	0	0	0	SUBANGULAR BLOCKY	WEAK	FINE	MOIST	FRIABLE	NONSTICKY	NONPLASTIC	CLEAR <2.5"	SMOOTH	CMN (20% MAX)	FINE	NONE						
			GRAVEL	COBBLES	STONES	BOULDERS																		
16-40	Very Dark Grayish Brown (10YR 3/2)	LOAM	0	0	0	0	SUBANGULAR BLOCKY	WEAK	FINE	MOIST	FRIABLE	NONSTICKY	NONPLASTIC	CLEAR <2.5"	SMOOTH	CMN (20% MAX)	MEDIUM	NONE			BAG	25	S-1	IT-23 = 15.0 IPH
			GRAVEL	COBBLES	STONES	BOULDERS																		
40-77	Gray (10YR 6/1)	SANDY CLAY LOAM	0	0	0	0	SUBANGULAR BLOCKY	WEAK	FINE	MOIST	FRIABLE	NONSTICKY	NONPLASTIC	CLEAR <2.5"	SMOOTH	NONE		CMN (20% MAX)	FINE <5MM	DISTINCT	BAG	50	S-2	
			GRAVEL	COBBLES	STONES	BOULDERS	STRUCTURELESS																	
77-120	Dark Brown (10YR 3/3)	GRAVELLY SAND	10	5	0	0	SINGLE GRAIN			WET	LOOSE	NONSTICKY	NONPLASTIC			NONE		NONE			BAG	90	S-3	

Additional Remarks: Topsoil encountered between 0 and 16 inches. Refusal due to wet cave-in at approximately 10 feet below the ground surface.

DYNAMIC EARTH

SOIL PROFILE PIT LOG

Soil Profile Pit: SPP-124

Project: Proposed Industrial Park
Project No.: 2803-99-005E
Location: Old Mill Road and Hemion Road, Village of Suffern, Rockland County NY
Client: Treetop Development, LLC

Surface Elevation (ft): 307.0
Termination Depth (ft): 10.0
Proposed Location: SWM
Excavation / Test Method: Visual Observation

Date Started: 10/21/21
Date Completed: 10/21/21
Logged by: J. Scardigno
Contractor: Neighbors Property Management
Rig Type: JD 310 SG Backhoe

Groundwater Data	Depth (ft)	El. (ft)	Groundwater Comments
Seepage	NE	-	
Groundwater	7.1	299.9	
Mottling	NE	-	

DEPTH (IN)	COLOR	SOIL TEXTURE	COARSE FRAGMENTS (%)				STRUCTURE			WATER CONTENT	CONSISTENCY			BOUNDARY		ROOTS		MOTTLING			SAMPLING			LAB RESULTS
							Shape	Grade	Size		Resistance to Rupture	Stickiness	Plasticity	Distinctness	Topography			Quantity	Size	Contrast	Type	Depth (in)	No.	
			GRAVEL	COBBLES	STONES	BOULDERS																		
0-13	Very Dark Brown (10YR 2/2)	LOAM	0	0	0	0	SUBANGULAR BLOCKY	WEAK	FINE	MOIST	FRIABLE	NONSTICKY	NONPLASTIC	CLEAR <2.5"	SMOOTH	CMN (20% MAX)	MEDIUM	NONE						
			GRAVEL	COBBLES	STONES	BOULDERS																		
13-85	Very Dark Grayish Brown (10YR 3/2)	SANDY LOAM	10	5	0	0	SUBANGULAR BLOCKY	WEAK	FINE	MOIST	FRIABLE	NONSTICKY	NONPLASTIC	CLEAR <2.5"	SMOOTH	NONE		NONE			BAG	30	S-1	IT-24 = 12.0 IPH
			GRAVEL	COBBLES	STONES	BOULDERS	STRUCTURELESS																	
85-120	Dark Brown (10YR 3/3)	GRAVELLY SAND	15	10	0	0	SINGLE GRAIN			WET	LOOSE	NONSTICKY	NONPLASTIC			NONE		NONE			BAG	100	S-2	

Additional Remarks: Topsoil encountered between 0 and 13 inches. Refusal due to wet cave-in at approximately 10 feet below the ground surface.

DYNAMIC EARTH

SOIL PROFILE PIT LOG

Soil Profile Pit: SPP-125

Project: Proposed Industrial Park
Project No.: 2803-99-005E
Location: Old Mill Road and Hemion Road, Village of Suffern, Rockland County NY
Client: Treetop Development, LLC

Surface Elevation (ft): 307.0
Termination Depth (ft): 3.3
Proposed Location: SWM
Excavation / Test Method: Visual Observation

Date Started: 10/21/21
Date Completed: 10/21/21
Logged by: J. Scardigno
Contractor: Neighbors Property Management
Rig Type: JD 310 SG Backhoe

Groundwater Data	Depth (ft)	El. (ft)
Seepage	NE	-
Groundwater	6.0	301.0
Mottling	NE	-

Groundwater Comments: -

DEPTH (IN)	COLOR	SOIL TEXTURE	COARSE FRAGMENTS (%)				STRUCTURE			WATER CONTENT	CONSISTENCY			BOUNDARY		ROOTS		MOTTLING			SAMPLING			LAB RESULTS
							Shape	Grade	Size		Resistance to Rupture	Stickiness	Plasticity	Distinctness	Topography			Quantity	Size	Contrast	Type	Depth (in)	No.	
			GRAVEL	COBBLES	STONES	BOULDERS																		
0-16	Dark Grayish Brown (10YR 4/2)	LOAM	0	0	0	0	SUBANGULAR BLOCKY	WEAK	FINE	MOIST	FRIABLE	NONSTICKY	NONPLASTIC	CLEAR <2.5"	SMOOTH	MNY (>20% MAX)	MEDIUM	NONE						
			GRAVEL	COBBLES	STONES	BOULDERS																		
16-34	Very Dark Grayish Brown (10YR 3/2)	SANDY LOAM	0	0	0	0	SUBANGULAR BLOCKY	MODERATE	FINE	MOIST	FRIABLE	NONSTICKY	NONPLASTIC	CLEAR <2.5"	SMOOTH	NONE		NONE			BAG	25	S-1	IT-25 = 11.0 IPH
			GRAVEL	COBBLES	STONES	BOULDERS																		
34-72	Gray (10YR 6/1)	LOAMY SAND	10	5	0	0	SUBANGULAR BLOCKY	WEAK	MEDIUM	MOIST	FRIABLE	NONSTICKY	NONPLASTIC	CLEAR <2.5"	SMOOTH	NONE		NONE			BAG	44	S-2	
			GRAVEL	COBBLES	STONES	BOULDERS	STRUCTURELESS																	
72-90	Dark Brown (10YR 3/3)	GRAVELLY SAND	15	10	0	0	SINGLE GRAIN			WET	LOOSE	NONSTICKY	NONPLASTIC			NONE		NONE			BAG	90	S-3	

Additional Remarks: Topsoil encountered between 0 and 16 inches. Refusal due to wet cave-in at approximately 7.5 feet below the ground surface.

DYNAMIC EARTH

SOIL PROFILE PIT LOG

Soil Profile Pit: SPP-126

Project: Proposed Industrial Park
Project No.: 2803-99-005E
Location: Old Mill Road and Hemion Road, Village of Suffern, Rockland County NY
Client: Treetop Development, LLC

Surface Elevation (ft): 317.0
Termination Depth (ft): 3.0
Proposed Location: SWM
Excavation / Test Method: Visual Observation

Date Started: 10/25/21
Date Completed: 10/25/21
Logged by: J. Scardigno
Contractor: Neighbors Property Management
Rig Type: JD 310 SG Backhoe

Groundwater Data	Depth (ft)	El. (ft)	Groundwater Comments
Seepage	NE	-	
Groundwater	NE	-	
Mottling	NE	-	

DEPTH (IN)	COLOR	SOIL TEXTURE	COARSE FRAGMENTS (%)				STRUCTURE			WATER CONTENT	CONSISTENCY			BOUNDARY		ROOTS		MOTTLING			SAMPLING			LAB RESULTS
							Shape	Grade	Size		Resistance to Rupture	Stickiness	Plasticity	Distinctness	Topography			Quantity	Size	Contrast	Type	Depth (in)	No.	
			GRAVEL	COBBLES	STONES	BOULDERS		STRUCTURELESS																
0-16	Very Dark Brown (10YR 2/2)	EXTREMELY GRAVELLY SAND	60	0	0	0	SINGLE GRAIN			MOIST	LOOSE	NONSTICKY	NONPLASTIC	CLEAR <2.5"	SMOOTH	NONE		NONE						
			GRAVEL	COBBLES	STONES	BOULDERS		STRUCTURELESS																
16-36	Yellowish Brown (10YR 5/4)	SAND	10	0	0	0	SINGLE GRAIN			MOIST	LOOSE	NONSTICKY	NONPLASTIC			NONE		NONE			BAG	20	S-1	IT-26 = 24.0 IPH

Additional Remarks: Terminated at approximately three feet below the ground surface.

DYNAMIC EARTH

SOIL PROFILE PIT LOG

Soil Profile Pit: SPP-127

Project: Proposed Industrial Park
Project No.: 2803-99-005E
Location: Old Mill Road and Hemion Road, Village of Suffern, Rockland County NY
Client: Treetop Development, LLC

Surface Elevation (ft):	315.0	**Date Started:**	10/25/21	**Groundwater Data**	**Depth (ft)** / **El. (ft)**
Termination Depth (ft):	4.0	**Date Completed:**	10/25/21	**Seepage**	NE / -
Proposed Location:	SWM	**Logged by:**	J. Scardigno	**Groundwater**	NE / -
Excavation / Test Method:	Visual Observation	**Contractor:**	Neighbors Property Management	**Mottling**	NE / -
		Rig Type:	JD 310 SG Backhoe		

Groundwater Comments:

DEPTH (IN)	COLOR	SOIL TEXTURE	COARSE FRAGMENTS (%)				STRUCTURE			WATER CONTENT	CONSISTENCY			BOUNDARY		ROOTS		MOTTLING			SAMPLING			LAB RESULTS
							Shape	Grade	Size		Resistance to Rupture	Stickiness	Plasticity	Distinctness	Topography			Quantity	Size	Contrast	Type	Depth (in)	No.	
0-12	Very Dark Brown (10YR 2/2)	EXTREMELY GRAVELLY SAND	GRAVEL: 60	COBBLES: 0	STONES: 0	BOULDERS: 0	SINGLE GRAIN	STRUCTURELESS		MOIST	LOOSE	NONSTICKY	NONPLASTIC	CLEAR <2.5"	SMOOTH	NONE		NONE						
12-48	Dark Yellowish Brown (10YR 4/4)	SAND	GRAVEL: 10	COBBLES: 0	STONES: 0	BOULDERS: 0	SINGLE GRAIN	STRUCTURELESS		MOIST	LOOSE	NONSTICKY	NONPLASTIC	CLEAR <2.5"	SMOOTH	NONE		NONE			BAG	30	S-1	IT-27 = 24.0 IPH

Additional Remarks: Fill encountered between 0 and 48 inches. Terminated at approximately four feet below the ground surface.

DYNAMIC EARTH

SOIL PROFILE PIT LOG

Soil Profile Pit: SPP-128

Project: Proposed Industrial Park
Project No.: 2803-99-005E
Location: Old Mill Road and Hemion Road, Village of Suffern, Rockland County NY
Client: Treetop Development, LLC

Surface Elevation (ft): 312.5
Termination Depth (ft): 10.0
Proposed Location: SWM
Excavation / Test Method: Visual Observation
Date Started: 10/20/21
Date Completed: 10/20/21
Logged by: J. Scardigno
Contractor: Neighbors Property Management
Rig Type: JD 310 SG Backhoe

Groundwater Data	Depth (ft)	El. (ft)	Groundwater Comments
Seepage	6.5	306.0	
Groundwater	6.5	306.0	Light gray (10 YR 7/1) mottling 42" - 78"
Mottling	3.5	309.0	

DEPTH (IN)	COLOR	SOIL TEXTURE	COARSE FRAGMENTS (%)				STRUCTURE			WATER CONTENT	CONSISTENCY			BOUNDARY		ROOTS		MOTTLING			SAMPLING				LAB RESULTS
							Shape	Grade	Size		Resistance to Rupture	Stickiness	Plasticity	Distinctness	Topography			Quantity	Size	Contrast	Type	Depth (in)	No.	
0-12	Very Dark Brown (10YR 2/2)	LOAM	GRAVEL 0	COBBLES 0	STONES 0	BOULDERS 0	SUBANGULAR BLOCKY	WEAK	FINE	MOIST	FRIABLE	NONSTICKY	NONPLASTIC	CLEAR <2.5"	SMOOTH	MNY (>20% MAX)	FINE	NONE						
12-42	Dark Brown (7.5YR 3/3)	GRAVELLY SAND	GRAVEL 15	COBBLES 5	STONES 0	BOULDERS 0	STRUCTURELESS SINGLE GRAIN			MOIST	LOOSE	NONSTICKY	NONPLASTIC	CLEAR <2.5"	SMOOTH	NONE		NONE			BAG	30	S-1	IT-28 = 24.0 IPH
42-54	Olive Brown (2.5Y 4/3)	LOAM	GRAVEL 0	COBBLES 0	STONES 0	BOULDERS 0	SUBANGULAR BLOCKY	MODERATE	VERY FINE	MOIST	FRIABLE	NONSTICKY	NONPLASTIC	CLEAR <2.5"	SMOOTH	NONE		FEW (5% MAX)	FINE <5MM	FAINT	BAG	50	S-2	
54-78	Dark Brown (10YR 3/3)	GRAVELLY SAND	GRAVEL 15	COBBLES 10	STONES 0	BOULDERS 0	STRUCTURELESS SINGLE GRAIN			MOIST	LOOSE	NONSTICKY	NONPLASTIC	CLEAR <2.5"	SMOOTH	NONE		FEW (5% MAX)	FINE <5MM	FAINT	BAG	60	S-3	
78-120	Dark Brown (10YR 3/3)	GRAVELLY SAND	GRAVEL 15	COBBLES 10	STONES 0	BOULDERS 0	STRUCTURELESS SINGLE GRAIN			WET	LOOSE	NONSTICKY	NONPLASTIC			NONE		NONE			BAG	90	S-4	

Additional Remarks: Refusal due to wet cave-in at approximately four feet below the ground surface.

DYNAMIC EARTH

SOIL PROFILE PIT LOG

Soil Profile Pit: SPP-129

Project: Proposed Industrial Park
Project No.: 2803-99-005E
Location: Old Mill Road and Hemion Road, Village of Suffern, Rockland County NY
Client: Treetop Development, LLC

Surface Elevation (ft): 308.0
Termination Depth (ft): 7.5
Proposed Location: SWM
Excavation / Test Method: Visual Observation

Date Started: 10/20/21
Date Completed: 10/20/21
Logged by: J. Scardigno
Contractor: Neighbors Property Management
Rig Type: JD 310 SG Backhoe

Groundwater Data	Depth (ft)	El. (ft)	Groundwater Comments
Seepage	NE	-	
Groundwater	NE	-	
Mottling	NE	-	

DEPTH (IN)	COLOR	SOIL TEXTURE	COARSE FRAGMENTS (%)				STRUCTURE			WATER CONTENT	CONSISTENCY			BOUNDARY		ROOTS		MOTTLING			SAMPLING			LAB RESULTS
							Shape	Grade	Size		Resistance to Rupture	Stickiness	Plasticity	Distinctness	Topography			Quantity	Size	Contrast	Type	Depth (in)	No.	
			GRAVEL	COBBLES	STONES	BOULDERS																		
0-12	Very Dark Brown (10YR 2/2)	LOAM	0	0	0	0	SUBANGULAR BLOCKY	WEAK	FINE	MOIST	FRIABLE	NONSTICKY	NONPLASTIC	CLEAR <2.5"	SMOOTH	FEW (5% MAX)	FINE	NONE						
			GRAVEL	COBBLES	STONES	BOULDERS	STRUCTURELESS																	
12-90	Brown (10YR 4/3)	GRAVELLY SAND	20	10	5	0	SINGLE GRAIN			MOIST	LOOSE	NONSTICKY	NONPLASTIC			NONE		NONE			BAG	50	S-1	IT-29 = 24.0 IPH

Additional Remarks: Concrete pipe encountered at 48 inches. Refusal due to wet cave-in at approximately 7.5 feet below the ground surface.

NRCS - USDA Custom Soil Resource Report for Rockland County, New York

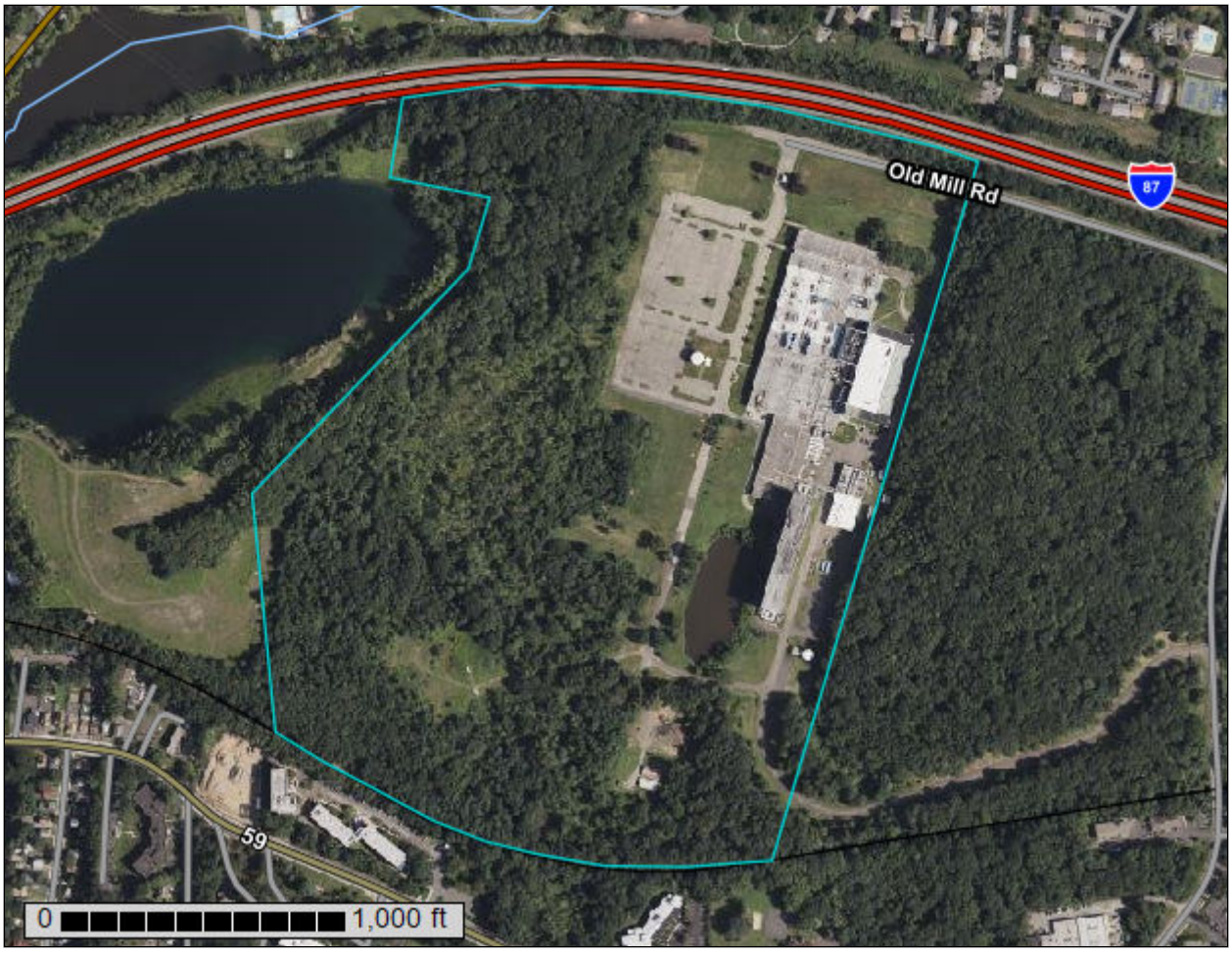
United States Department of Agriculture

NRCS

Natural Resources Conservation Service

A product of the National Cooperative Soil Survey, a joint effort of the United States Department of Agriculture and other Federal agencies, State agencies including the Agricultural Experiment Stations, and local participants

Custom Soil Resource Report for Rockland County, New York



January 6, 2022

Preface

Soil surveys contain information that affects land use planning in survey areas. They highlight soil limitations that affect various land uses and provide information about the properties of the soils in the survey areas. Soil surveys are designed for many different users, including farmers, ranchers, foresters, agronomists, urban planners, community officials, engineers, developers, builders, and home buyers. Also, conservationists, teachers, students, and specialists in recreation, waste disposal, and pollution control can use the surveys to help them understand, protect, or enhance the environment.

Various land use regulations of Federal, State, and local governments may impose special restrictions on land use or land treatment. Soil surveys identify soil properties that are used in making various land use or land treatment decisions. The information is intended to help the land users identify and reduce the effects of soil limitations on various land uses. The landowner or user is responsible for identifying and complying with existing laws and regulations.

Although soil survey information can be used for general farm, local, and wider area planning, onsite investigation is needed to supplement this information in some cases. Examples include soil quality assessments (http://www.nrcs.usda.gov/wps/portal/nrcs/main/soils/health/) and certain conservation and engineering applications. For more detailed information, contact your local USDA Service Center (https://offices.sc.egov.usda.gov/locator/app?agency=nrcs) or your NRCS State Soil Scientist (http://www.nrcs.usda.gov/wps/portal/nrcs/detail/soils/contactus/?cid=nrcs142p2_053951).

Great differences in soil properties can occur within short distances. Some soils are seasonally wet or subject to flooding. Some are too unstable to be used as a foundation for buildings or roads. Clayey or wet soils are poorly suited to use as septic tank absorption fields. A high water table makes a soil poorly suited to basements or underground installations.

The National Cooperative Soil Survey is a joint effort of the United States Department of Agriculture and other Federal agencies, State agencies including the Agricultural Experiment Stations, and local agencies. The Natural Resources Conservation Service (NRCS) has leadership for the Federal part of the National Cooperative Soil Survey.

Information about soils is updated periodically. Updated information is available through the NRCS Web Soil Survey, the site for official soil survey information.

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Contents

How Soil Surveys Are Made

Soil surveys are made to provide information about the soils and miscellaneous areas in a specific area. They include a description of the soils and miscellaneous areas and their location on the landscape and tables that show soil properties and limitations affecting various uses. Soil scientists observed the steepness, length, and shape of the slopes; the general pattern of drainage; the kinds of crops and native plants; and the kinds of bedrock. They observed and described many soil profiles. A soil profile is the sequence of natural layers, or horizons, in a soil. The profile extends from the surface down into the unconsolidated material in which the soil formed or from the surface down to bedrock. The unconsolidated material is devoid of roots and other living organisms and has not been changed by other biological activity.

Currently, soils are mapped according to the boundaries of major land resource areas (MLRAs). MLRAs are geographically associated land resource units that share common characteristics related to physiography, geology, climate, water resources, soils, biological resources, and land uses (USDA, 2006). Soil survey areas typically consist of parts of one or more MLRA.

The soils and miscellaneous areas in a survey area occur in an orderly pattern that is related to the geology, landforms, relief, climate, and natural vegetation of the area. Each kind of soil and miscellaneous area is associated with a particular kind of landform or with a segment of the landform. By observing the soils and miscellaneous areas in the survey area and relating their position to specific segments of the landform, a soil scientist develops a concept, or model, of how they were formed. Thus, during mapping, this model enables the soil scientist to predict with a considerable degree of accuracy the kind of soil or miscellaneous area at a specific location on the landscape.

Commonly, individual soils on the landscape merge into one another as their characteristics gradually change. To construct an accurate soil map, however, soil scientists must determine the boundaries between the soils. They can observe only a limited number of soil profiles. Nevertheless, these observations, supplemented by an understanding of the soil-vegetation-landscape relationship, are sufficient to verify predictions of the kinds of soil in an area and to determine the boundaries.

Soil scientists recorded the characteristics of the soil profiles that they studied. They noted soil color, texture, size and shape of soil aggregates, kind and amount of rock fragments, distribution of plant roots, reaction, and other features that enable them to identify soils. After describing the soils in the survey area and determining their properties, the soil scientists assigned the soils to taxonomic classes (units). Taxonomic classes are concepts. Each taxonomic class has a set of soil characteristics with precisely defined limits. The classes are used as a basis for comparison to classify soils systematically. Soil taxonomy, the system of taxonomic classification used in the United States, is based mainly on the kind and character of soil properties and the arrangement of horizons within the profile. After the soil

scientists classified and named the soils in the survey area, they compared the individual soils with similar soils in the same taxonomic class in other areas so that they could confirm data and assemble additional data based on experience and research.

The objective of soil mapping is not to delineate pure map unit components; the objective is to separate the landscape into landforms or landform segments that have similar use and management requirements. Each map unit is defined by a unique combination of soil components and/or miscellaneous areas in predictable proportions. Some components may be highly contrasting to the other components of the map unit. The presence of minor components in a map unit in no way diminishes the usefulness or accuracy of the data. The delineation of such landforms and landform segments on the map provides sufficient information for the development of resource plans. If intensive use of small areas is planned, onsite investigation is needed to define and locate the soils and miscellaneous areas.

Soil scientists make many field observations in the process of producing a soil map. The frequency of observation is dependent upon several factors, including scale of mapping, intensity of mapping, design of map units, complexity of the landscape, and experience of the soil scientist. Observations are made to test and refine the soil-landscape model and predictions and to verify the classification of the soils at specific locations. Once the soil-landscape model is refined, a significantly smaller number of measurements of individual soil properties are made and recorded. These measurements may include field measurements, such as those for color, depth to bedrock, and texture, and laboratory measurements, such as those for content of sand, silt, clay, salt, and other components. Properties of each soil typically vary from one point to another across the landscape.

Observations for map unit components are aggregated to develop ranges of characteristics for the components. The aggregated values are presented. Direct measurements do not exist for every property presented for every map unit component. Values for some properties are estimated from combinations of other properties.

While a soil survey is in progress, samples of some of the soils in the area generally are collected for laboratory analyses and for engineering tests. Soil scientists interpret the data from these analyses and tests as well as the field-observed characteristics and the soil properties to determine the expected behavior of the soils under different uses. Interpretations for all of the soils are field tested through observation of the soils in different uses and under different levels of management. Some interpretations are modified to fit local conditions, and some new interpretations are developed to meet local needs. Data are assembled from other sources, such as research information, production records, and field experience of specialists. For example, data on crop yields under defined levels of management are assembled from farm records and from field or plot experiments on the same kinds of soil.

Predictions about soil behavior are based not only on soil properties but also on such variables as climate and biological activity. Soil conditions are predictable over long periods of time, but they are not predictable from year to year. For example, soil scientists can predict with a fairly high degree of accuracy that a given soil will have a high water table within certain depths in most years, but they cannot predict that a high water table will always be at a specific level in the soil on a specific date.

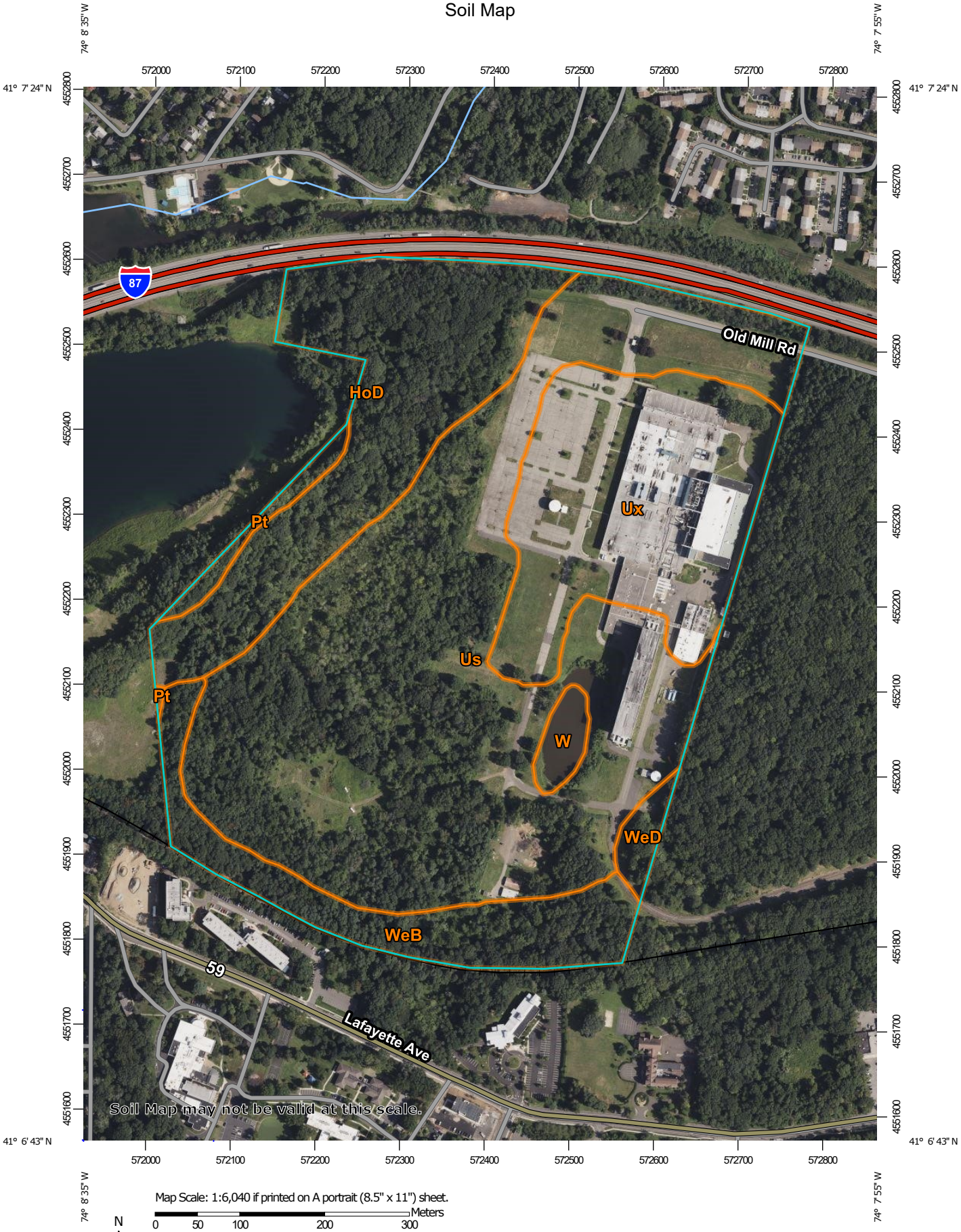
After soil scientists located and identified the significant natural bodies of soil in the survey area, they drew the boundaries of these bodies on aerial photographs and

identified each as a specific map unit. Aerial photographs show trees, buildings, fields, roads, and rivers, all of which help in locating boundaries accurately.

Soil Map

The soil map section includes the soil map for the defined area of interest, a list of soil map units on the map and extent of each map unit, and cartographic symbols displayed on the map. Also presented are various metadata about data used to produce the map, and a description of each soil map unit.

Custom Soil Resource Report
Soil Map



Map Scale: 1:6,040 if printed on A portrait (8.5" x 11") sheet.

N

Meters: 0 50 100 200 300

Feet: 0 250 500 1000 1500

Map projection: Web Mercator Corner coordinates: WGS84 Edge tics: UTM Zone 18N WGS84

MAP LEGEND

Area of Interest (AOI)
- Area of Interest (AOI)

Soils
- Soil Map Unit Polygons
- Soil Map Unit Lines
- Soil Map Unit Points

Special Point Features
- Blowout
- Borrow Pit
- Clay Spot
- Closed Depression
- Gravel Pit
- Gravelly Spot
- Landfill
- Lava Flow
- Marsh or swamp
- Mine or Quarry
- Miscellaneous Water
- Perennial Water
- Rock Outcrop
- Saline Spot
- Sandy Spot
- Severely Eroded Spot
- Sinkhole
- Slide or Slip
- Sodic Spot
- Spoil Area
- Stony Spot
- Very Stony Spot
- Wet Spot
- Other
- Special Line Features

Water Features
- Streams and Canals

Transportation
- Rails
- Interstate Highways
- US Routes
- Major Roads
- Local Roads

Background
- Aerial Photography

MAP INFORMATION

The soil surveys that comprise your AOI were mapped at 1:24,000.

Warning: Soil Map may not be valid at this scale.

Enlargement of maps beyond the scale of mapping can cause misunderstanding of the detail of mapping and accuracy of soil line placement. The maps do not show the small areas of contrasting soils that could have been shown at a more detailed scale.

Please rely on the bar scale on each map sheet for map measurements.

Source of Map: Natural Resources Conservation Service
Web Soil Survey URL:
Coordinate System: Web Mercator (EPSG:3857)

Maps from the Web Soil Survey are based on the Web Mercator projection, which preserves direction and shape but distorts distance and area. A projection that preserves area, such as the Albers equal-area conic projection, should be used if more accurate calculations of distance or area are required.

This product is generated from the USDA-NRCS certified data as of the version date(s) listed below.

Soil Survey Area: Rockland County, New York
Survey Area Data: Version 19, Sep 1, 2021

Soil map units are labeled (as space allows) for map scales 1:50,000 or larger.

Date(s) aerial images were photographed: Apr 13, 2021—Sep 14, 2021

The orthophoto or other base map on which the soil lines were compiled and digitized probably differs from the background imagery displayed on these maps. As a result, some minor shifting of map unit boundaries may be evident.

Map Unit Legend

Map Unit Symbol	Map Unit Name	Acres in AOI	Percent of AOI
HoD	Holyoke-Rock outcrop complex, hilly	20.2	17.7%
Pt	Pits, gravel	1.4	1.2%
Us	Udorthents, smoothed	58.8	51.5%
Ux	Urban land	21.5	18.8%
W	Water	1.3	1.2%
WeB	Wethersfield gravelly silt loam, 3 to 8 percent slopes	9.8	8.6%
WeD	Wethersfield gravelly silt loam, 15 to 25 percent slope s	1.2	1.1%
Totals for Area of Interest		**114.2**	**100.0%**

Map Unit Descriptions

The map units delineated on the detailed soil maps in a soil survey represent the soils or miscellaneous areas in the survey area. The map unit descriptions, along with the maps, can be used to determine the composition and properties of a unit.

A map unit delineation on a soil map represents an area dominated by one or more major kinds of soil or miscellaneous areas. A map unit is identified and named according to the taxonomic classification of the dominant soils. Within a taxonomic class there are precisely defined limits for the properties of the soils. On the landscape, however, the soils are natural phenomena, and they have the characteristic variability of all natural phenomena. Thus, the range of some observed properties may extend beyond the limits defined for a taxonomic class. Areas of soils of a single taxonomic class rarely, if ever, can be mapped without including areas of other taxonomic classes. Consequently, every map unit is made up of the soils or miscellaneous areas for which it is named and some minor components that belong to taxonomic classes other than those of the major soils.

Most minor soils have properties similar to those of the dominant soil or soils in the map unit, and thus they do not affect use and management. These are called noncontrasting, or similar, components. They may or may not be mentioned in a particular map unit description. Other minor components, however, have properties and behavioral characteristics divergent enough to affect use or to require different management. These are called contrasting, or dissimilar, components. They generally are in small areas and could not be mapped separately because of the scale used. Some small areas of strongly contrasting soils or miscellaneous areas are identified by a special symbol on the maps. If included in the database for a given area, the contrasting minor components are identified in the map unit descriptions along with some characteristics of each. A few areas of minor components may not have been observed, and consequently they are not mentioned in the descriptions, especially where the pattern was so complex that it

was impractical to make enough observations to identify all the soils and miscellaneous areas on the landscape.

The presence of minor components in a map unit in no way diminishes the usefulness or accuracy of the data. The objective of mapping is not to delineate pure taxonomic classes but rather to separate the landscape into landforms or landform segments that have similar use and management requirements. The delineation of such segments on the map provides sufficient information for the development of resource plans. If intensive use of small areas is planned, however, onsite investigation is needed to define and locate the soils and miscellaneous areas.

An identifying symbol precedes the map unit name in the map unit descriptions. Each description includes general facts about the unit and gives important soil properties and qualities.

Soils that have profiles that are almost alike make up a *soil series*. Except for differences in texture of the surface layer, all the soils of a series have major horizons that are similar in composition, thickness, and arrangement.

Soils of one series can differ in texture of the surface layer, slope, stoniness, salinity, degree of erosion, and other characteristics that affect their use. On the basis of such differences, a soil series is divided into *soil phases*. Most of the areas shown on the detailed soil maps are phases of soil series. The name of a soil phase commonly indicates a feature that affects use or management. For example, Alpha silt loam, 0 to 2 percent slopes, is a phase of the Alpha series.

Some map units are made up of two or more major soils or miscellaneous areas. These map units are complexes, associations, or undifferentiated groups.

A *complex* consists of two or more soils or miscellaneous areas in such an intricate pattern or in such small areas that they cannot be shown separately on the maps. The pattern and proportion of the soils or miscellaneous areas are somewhat similar in all areas. Alpha-Beta complex, 0 to 6 percent slopes, is an example.

An *association* is made up of two or more geographically associated soils or miscellaneous areas that are shown as one unit on the maps. Because of present or anticipated uses of the map units in the survey area, it was not considered practical or necessary to map the soils or miscellaneous areas separately. The pattern and relative proportion of the soils or miscellaneous areas are somewhat similar. Alpha-Beta association, 0 to 2 percent slopes, is an example.

An *undifferentiated group* is made up of two or more soils or miscellaneous areas that could be mapped individually but are mapped as one unit because similar interpretations can be made for use and management. The pattern and proportion of the soils or miscellaneous areas in a mapped area are not uniform. An area can be made up of only one of the major soils or miscellaneous areas, or it can be made up of all of them. Alpha and Beta soils, 0 to 2 percent slopes, is an example.

Some surveys include *miscellaneous areas*. Such areas have little or no soil material and support little or no vegetation. Rock outcrop is an example.

Rockland County, New York

HoD—Holyoke-Rock outcrop complex, hilly

Map Unit Setting

National map unit symbol: 9v4q
Elevation: 0 to 740 feet
Mean annual precipitation: 47 to 50 inches
Mean annual air temperature: 48 to 52 degrees F
Frost-free period: 135 to 215 days
Farmland classification: Not prime farmland

Map Unit Composition

Holyoke and similar soils: 55 percent
Rock outcrop: 20 percent
Minor components: 25 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Holyoke

Setting

Landform: Ridges, hills
Landform position (two-dimensional): Backslope
Landform position (three-dimensional): Side slope
Down-slope shape: Convex
Across-slope shape: Convex
Parent material: Loamy till

Typical profile

Oi - 0 to 2 inches: slightly decomposed plant material
H1 - 2 to 6 inches: silt loam
H2 - 6 to 18 inches: silt loam
H3 - 18 to 28 inches: unweathered bedrock

Properties and qualities

Slope: 10 to 30 percent
Surface area covered with cobbles, stones or boulders: 1.6 percent
Depth to restrictive feature: 10 to 20 inches to lithic bedrock
Drainage class: Well drained
Capacity of the most limiting layer to transmit water (Ksat): Very low to moderately high (0.00 to 0.20 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Available water supply, 0 to 60 inches: Low (about 3.4 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 7s
Hydrologic Soil Group: D
Ecological site: F145XY011CT - Well Drained Shallow Till Uplands
Hydric soil rating: No

Description of Rock Outcrop

Typical profile

H1 - 0 to 60 inches: unweathered bedrock

Properties and qualities

Slope: 10 to 30 percent
Depth to restrictive feature: 0 inches to lithic bedrock
Capacity of the most limiting layer to transmit water (Ksat): Very low to moderately high (0.00 to 0.20 in/hr)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 7s
Hydric soil rating: Unranked

Minor Components

Charlton

Percent of map unit: 10 percent
Hydric soil rating: No

Chatfield

Percent of map unit: 10 percent
Hydric soil rating: No

Watchaug

Percent of map unit: 5 percent
Hydric soil rating: No

Pt—Pits, gravel

Map Unit Setting

National map unit symbol: 9v50
Mean annual precipitation: 47 to 50 inches
Mean annual air temperature: 48 to 52 degrees F
Frost-free period: 135 to 215 days
Farmland classification: Not prime farmland

Map Unit Composition

Pits, gravel: 80 percent
Minor components: 20 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Pits, Gravel

Typical profile

H1 - 0 to 6 inches: very gravelly sand
H2 - 6 to 60 inches: very gravelly coarse sand

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 8s
Hydric soil rating: Unranked

Minor Components

Riverhead

Percent of map unit: 5 percent
Hydric soil rating: No

Udorthents

Percent of map unit: 5 percent
Hydric soil rating: No

Hinckley

Percent of map unit: 5 percent
Hydric soil rating: No

Fredon

Percent of map unit: 4 percent
Landform: Depressions
Hydric soil rating: Yes

Water

Percent of map unit: 1 percent
Hydric soil rating: Unranked

Us—Udorthents, smoothed

Map Unit Setting

National map unit symbol: 9v5d
Elevation: 0 to 890 feet
Mean annual precipitation: 47 to 50 inches
Mean annual air temperature: 48 to 52 degrees F
Frost-free period: 135 to 215 days
Farmland classification: Not prime farmland

Map Unit Composition

Udorthents, smoothed, and similar soils: 80 percent
Minor components: 20 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Udorthents, Smoothed

Typical profile

H1 - 0 to 20 inches: channery loam
H2 - 20 to 70 inches: very gravelly loam

Properties and qualities

Slope: 0 to 8 percent
Depth to restrictive feature: More than 80 inches

Drainage class: Somewhat excessively drained
Capacity of the most limiting layer to transmit water (Ksat): Moderately low to high (0.06 to 5.95 in/hr)
Depth to water table: About 36 to 72 inches
Frequency of flooding: None
Frequency of ponding: None
Calcium carbonate, maximum content: 15 percent
Available water supply, 0 to 60 inches: Low (about 5.4 inches)

Interpretive groups
Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 6s
Hydrologic Soil Group: A
Hydric soil rating: No

Minor Components

Udorthents, wet substratum
Percent of map unit: 5 percent
Hydric soil rating: No

Urban land
Percent of map unit: 4 percent
Hydric soil rating: Unranked

Alden
Percent of map unit: 2 percent
Landform: Depressions
Hydric soil rating: Yes

Wallington
Percent of map unit: 2 percent
Hydric soil rating: No

Wethersfield
Percent of map unit: 2 percent
Hydric soil rating: No

Riverhead
Percent of map unit: 2 percent
Hydric soil rating: No

Hollis
Percent of map unit: 2 percent
Hydric soil rating: No

Rock outcrop
Percent of map unit: 1 percent
Hydric soil rating: Unranked

Ux—Urban land

Map Unit Setting

National map unit symbol: 9v5g
Mean annual precipitation: 47 to 50 inches
Mean annual air temperature: 48 to 52 degrees F
Frost-free period: 135 to 215 days
Farmland classification: Not prime farmland

Map Unit Composition

Urban land: 75 percent
Minor components: 25 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Urban Land

Typical profile

H1 - 0 to 6 inches: variable

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 8s
Hydric soil rating: Unranked

Minor Components

Riverhead

Percent of map unit: 5 percent
Hydric soil rating: No

Yalesville

Percent of map unit: 5 percent
Hydric soil rating: No

Holyoke

Percent of map unit: 5 percent
Hydric soil rating: No

Udorthents

Percent of map unit: 5 percent
Hydric soil rating: No

Udorthents, wet substratum

Percent of map unit: 5 percent
Hydric soil rating: No

W—Water

Map Unit Setting

National map unit symbol: 9v5s
Mean annual precipitation: 47 to 50 inches
Mean annual air temperature: 48 to 52 degrees F
Frost-free period: 135 to 215 days
Farmland classification: Not prime farmland

Map Unit Composition

Water: 100 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

WeB—Wethersfield gravelly silt loam, 3 to 8 percent slopes

Map Unit Setting

National map unit symbol: 9v5l
Elevation: 30 to 690 feet
Mean annual precipitation: 47 to 50 inches
Mean annual air temperature: 48 to 52 degrees F
Frost-free period: 135 to 215 days
Farmland classification: All areas are prime farmland

Map Unit Composition

Wethersfield and similar soils: 80 percent
Minor components: 20 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Wethersfield

Setting

Landform: Till plains, hills
Landform position (two-dimensional): Summit
Landform position (three-dimensional): Crest
Down-slope shape: Convex
Across-slope shape: Convex
Parent material: Loamy acid till derived mainly from reddish sandstone, shale, and conglomerate, with some basalt

Typical profile

H1 - 0 to 13 inches: gravelly silt loam
H2 - 13 to 22 inches: gravelly loam
H3 - 22 to 60 inches: gravelly fine sandy loam

Properties and qualities

Slope: 3 to 8 percent
Depth to restrictive feature: 20 to 38 inches to densic material

Drainage class: Well drained
Capacity of the most limiting layer to transmit water (Ksat): Moderately low to moderately high (0.06 to 0.20 in/hr)
Depth to water table: About 18 to 30 inches
Frequency of flooding: None
Frequency of ponding: None
Available water supply, 0 to 60 inches: Low (about 3.4 inches)

Interpretive groups
Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 2e
Hydrologic Soil Group: C
Ecological site: F145XY012CT - Well Drained Dense Till Uplands
Hydric soil rating: No

Minor Components

Cheshire
Percent of map unit: 5 percent
Hydric soil rating: No

Charlton
Percent of map unit: 5 percent
Hydric soil rating: No

Riverhead
Percent of map unit: 5 percent
Hydric soil rating: No

Wallington
Percent of map unit: 5 percent
Hydric soil rating: No

WeD—Wethersfield gravelly silt loam, 15 to 25 percent slope s

Map Unit Setting
National map unit symbol: 9v5n
Elevation: 0 to 640 feet
Mean annual precipitation: 47 to 50 inches
Mean annual air temperature: 48 to 52 degrees F
Frost-free period: 135 to 215 days
Farmland classification: Not prime farmland

Map Unit Composition
Wethersfield and similar soils: 80 percent
Minor components: 20 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Wethersfield

Setting
Landform: Till plains, hills

Landform position (two-dimensional): Backslope
Landform position (three-dimensional): Side slope
Down-slope shape: Convex
Across-slope shape: Convex
Parent material: Loamy acid till derived mainly from reddish sandstone, shale, and conglomerate, with some basalt

Typical profile

H1 - 0 to 13 inches: gravelly silt loam
H2 - 13 to 22 inches: gravelly loam
H3 - 22 to 60 inches: gravelly fine sandy loam

Properties and qualities

Slope: 15 to 25 percent
Depth to restrictive feature: 20 to 38 inches to densic material
Drainage class: Well drained
Capacity of the most limiting layer to transmit water (Ksat): Moderately low to moderately high (0.06 to 0.20 in/hr)
Depth to water table: About 18 to 30 inches
Frequency of flooding: None
Frequency of ponding: None
Available water supply, 0 to 60 inches: Low (about 3.4 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 4e
Hydrologic Soil Group: C
Ecological site: F145XY012CT - Well Drained Dense Till Uplands
Hydric soil rating: No

Minor Components

Riverhead

Percent of map unit: 5 percent
Hydric soil rating: No

Charlton

Percent of map unit: 5 percent
Hydric soil rating: No

Cheshire

Percent of map unit: 5 percent
Hydric soil rating: No

Wallington

Percent of map unit: 3 percent
Hydric soil rating: No

Yalesville

Percent of map unit: 2 percent
Hydric soil rating: No

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Infiltration Test Results

INFILTRATION TEST REPORT

Client: Treetop Development, LLC **Test Hole No.:** SPP-101/IT-1

Project: Proposed Warehouse **Date: 10/19/2021**

Location: Suffern, Rockland County, NY **Weather: Sunny, 72°F**

Project No.: 2803-99-005E **Project Manager: F. Van Cleve**

Surface Elevation: 310.0 feet **Test Depth: 48”**

Reading No.	Water Level (Inches)		Water Level Fall (Inches)	Time Interval (Hours)	Rate of Flow (Inches/ Hour)
	Start	Finish			
1	24	0	24	1	24
2	24	0	24	1	24
3	24	0	24	1	24
4	24	0	24	1	24

INFILTRATION TEST REPORT

Client: Treetop Development, LLC **Test Hole No.:** SPP-102/IT-2

Project: Proposed Warehouse **Date: 10/19/2021**

Location: Suffern, Rockland County NY **Weather: Sunny, 72ºF**

Project No.: 2803-99-005E **Project Manager: F. Van Cleve**

Surface Elevation: 308.0 feet **Test Depth: 31”**

Reading No.	Water Level (Inches)		Water Level Fall (Inches)	Time Interval (Hours)	Rate of Flow (Inches/ Hour)
	Start	Finish			
1	24	0	24	1	24
2	24	0	24	1	24
3	24	0	24	1	24
4	24	0	24	1	24

INFILTRATION TEST REPORT

Client: Treetop Development, LLC **Test Hole No.:** SPP-103/IT-3

Project: Proposed Warehouse **Date: 10/19/2021**

Location: Suffern, Rockland County NY **Weather: Sunny, 72ºF**

Project No.: 2803-99-005E **Project Manager: F. Van Cleve**

Surface Elevation: 306.0 feet **Test Depth: 36”**

Reading No.	Water Level (Inches)		Water Level Fall (Inches)	Time Interval (Hours)	Rate of Flow (Inches/ Hour)
	Start	Finish			
1	24	0	24	1	24
2	24	0	24	1	24
3	24	0	24	1	24
4	24	0	24	1	24

INFILTRATION TEST REPORT

Client: Treetop Development, LLC **Test Hole No.:** SPP-104/IT-4

Project: Proposed Warehouse **Date: 10/19/2021**

Location: Suffern, Rockland County NY **Weather: Sunny, 72ºF**

Project No.: 2803-99-005E **Project Manager: F. Van Cleve**

Surface Elevation: 307.0 feet **Test Depth: 36”**

Reading No.	Water Level (Inches)		Water Level Fall (Inches)	Time Interval (Hours)	Rate of Flow (Inches/ Hour)
	Start	Finish			
1	24	8	16	1	16
2	24	10	14	1	14
3	24	10	14	1	14
4	24	12	12	1	12

INFILTRATION TEST REPORT

Client: Treetop Development, LLC **Test Hole No.:** SPP-105/IT-5

Project: Proposed Warehouse **Date: 10/19/2021**

Location: Suffern, Rockland County NY **Weather: Sunny, 72ºF**

Project No.: 2803-99-005E **Project Manager: F. Van Cleve**

Surface Elevation: 307.0 feet **Test Depth: 50”**

Reading No.	Water Level (Inches)		Water Level Fall (Inches)	Time Interval (Hours)	Rate of Flow (Inches/ Hour)
	Start	Finish			
1	24	10	14	1	14
2	24	11	13	1	13
3	24	12	12	1	12
4	24	12	12	1	12

INFILTRATION TEST REPORT

Client: Treetop Development, LLC **Test Hole No.:** SPP-106/IT-6

Project: Proposed Warehouse **Date: 10/19/2021**

Location: Suffern, Rockland County NY **Weather: Sunny, 72ºF**

Project No.: 2803-99-005E **Project Manager: F. Van Cleve**

Surface Elevation: 306.0 feet **Test Depth: 42”**

Reading No.	Water Level (Inches)		Water Level Fall (Inches)	Time Interval (Hours)	Rate of Flow (Inches/ Hour)
	Start	Finish			
1	24	6	18	1	18
2	24	5	19	1	19
3	24	6	18	1	18
4	24	6	18	1	18

INFILTRATION TEST REPORT

Client: Treetop Development, LLC **Test Hole No.:** SPP-107/IT-7

Project: Proposed Warehouse **Date: 10/20/2021**

Location: Suffern, Rockland County NY **Weather: Sunny, 72ºF**

Project No.: 2803-99-005E **Project Manager: F. Van Cleve**

Surface Elevation: 304.0 feet **Test Depth: 10”**

Reading No.	Water Level (Inches)		Water Level Fall (Inches)	Time Interval (Hours)	Rate of Flow (Inches/ Hour)
	Start	Finish			
1	24	13	11	1	11
2	24	15	9	1	9
3	24	16	8	1	8
4	24	16	8	1	8

INFILTRATION TEST REPORT

Client: Treetop Development, LLC **Test Hole No.:** SPP-108/IT-8

Project: Proposed Warehouse **Date: 10/20/2021**

Location: Suffern, Rockland County NY **Weather: Sunny, 72ºF**

Project No.: 2803-99-005E **Project Manager: F. Van Cleve**

Surface Elevation: 302.0 feet **Test Depth: 24”**

Reading No.	Water Level (Inches)		Water Level Fall (Inches)	Time Interval (Hours)	Rate of Flow (Inches/ Hour)
	Start	Finish			
1	24	19	5	1	5
2	24	19	5	1	5
3	24	19	5	1	5
4	24	19	5	1	5

INFILTRATION TEST REPORT

Client: Treetop Development, LLC **Test Hole No.:** SPP-109/IT-9

Project: Proposed Warehouse **Date: 10/20/2021**

Location: Suffern, Rockland County NY **Weather: Sunny, 72ºF**

Project No.: 2803-99-005E **Project Manager: F. Van Cleve**

Surface Elevation: 302.5 feet **Test Depth: 24”**

Reading No.	Water Level (Inches)		Water Level Fall (Inches)	Time Interval (Hours)	Rate of Flow (Inches/ Hour)
	Start	Finish			
1	24	16	8	1	8
2	24	16	8	1	8
3	24	16	8	1	8
4	24	16	8	1	8

INFILTRATION TEST REPORT

Client: Treetop Development, LLC **Test Hole No.:** SPP-110/IT-10

Project: Proposed Warehouse **Date: 10/20/2021**

Location: Suffern, Rockland County NY **Weather: Sunny, 72ºF**

Project No.: 2803-99-005E **Project Manager: F. Van Cleve**

Surface Elevation: 303.0 feet **Test Depth: 19”**

Reading No.	Water Level (Inches)		Water Level Fall (Inches)	Time Interval (Hours)	Rate of Flow (Inches/ Hour)
	Start	Finish			
1	24	3	21	1	3
2	24	3	21	1	3
3	24	4	20	1	4
4	24	4	20	1	4

INFILTRATION TEST REPORT

Client: Treetop Development, LLC **Test Hole No.:** SPP-111/IT-11

Project: Proposed Warehouse **Date: 10/21/2021**

Location: Suffern, Rockland County NY **Weather: Sunny, 72ºF**

Project No.: 2803-99-005E **Project Manager: F. Van Cleve**

Surface Elevation: 305.0 feet **Test Depth: 18”**

Reading No.	Water Level (Inches)		Water Level Fall (Inches)	Time Interval (Hours)	Rate of Flow (Inches/ Hour)
	Start	Finish			
1	24	17	7	1	7
2	24	19	5	1	5
3	24	19	5	1	5
4	24	19	5	1	5

INFILTRATION TEST REPORT

Client: Treetop Development, LLC **Test Hole No.:** SPP-112/IT-12

Project: Proposed Warehouse **Date: 10/21/2021**

Location: Suffern, Rockland County NY **Weather: Sunny, 72ºF**

Project No.: 2803-99-005E **Project Manager: F. Van Cleve**

Surface Elevation: 306.5 feet **Test Depth: 12”**

Reading No.	Water Level (Inches)		Water Level Fall (Inches)	Time Interval (Hours)	Rate of Flow (Inches/ Hour)
	Start	Finish			
1	24	18	6	1	6
2	24	18	6	1	6
3	24	19	5	1	5
4	24	19	5	1	5

INFILTRATION TEST REPORT

Client: Treetop Development, LLC **Test Hole No.:** SPP-113/IT-13

Project: Proposed Warehouse **Date: 10/21/2021**

Location: Suffern, Rockland County NY **Weather: Sunny, 72ºF**

Project No.: 2803-99-005E **Project Manager: F. Van Cleve**

Surface Elevation: 302.0 feet **Test Depth: 36”**

Reading No.	Water Level (Inches)		Water Level Fall (Inches)	Time Interval (Hours)	Rate of Flow (Inches/ Hour)
	Start	Finish			
1	24	7	17	1	17
2	24	8	16	1	16
3	24	9	15	1	15
4	24	9	15	1	15

INFILTRATION TEST REPORT

Client: Treetop Development, LLC **Test Hole No.:** SPP-114/IT-14

Project: Proposed Warehouse **Date: 10/21/2021**

Location: Suffern, Rockland County NY **Weather: Sunny, 72ºF**

Project No.: 2803-99-005E **Project Manager: F. Van Cleve**

Surface Elevation: 304.5 feet **Test Depth: 36”**

Reading No.	Water Level (Inches)		Water Level Fall (Inches)	Time Interval (Hours)	Rate of Flow (Inches/ Hour)
	Start	Finish			
1	24	5	19	1	19
2	24	6	18	1	18
3	24	6	18	1	18
4	24	6	18	1	18

INFILTRATION TEST REPORT

Client: Treetop Development, LLC **Test Hole No.:** SPP-115/IT-15

Project: Proposed Warehouse **Date: 10/22/2021**

Location: Suffern, Rockland County NY **Weather: Sunny, 72ºF**

Project No.: 2803-99-005E **Project Manager: F. Van Cleve**

Surface Elevation: 308.0 feet **Test Depth: 36”**

Reading No.	Water Level (Inches)		Water Level Fall (Inches)	Time Interval (Hours)	Rate of Flow (Inches/ Hour)
	Start	Finish			
1	24	9	15	1	15
2	24	9	15	1	15
3	24	9	15	1	15
4	24	9	15	1	15

INFILTRATION TEST REPORT

Client: Treetop Development, LLC **Test Hole No.:** SPP-116/IT-16

Project: Proposed Warehouse **Date: 10/22/2021**

Location: Suffern, Rockland County NY **Weather: Sunny, 72ºF**

Project No.: 2803-99-005E **Project Manager: F. Van Cleve**

Surface Elevation: 310.0 feet **Test Depth: 24”**

Reading No.	Water Level (Inches)		Water Level Fall (Inches)	Time Interval (Hours)	Rate of Flow (Inches/ Hour)
	Start	Finish			
1	24	6	18	1	18
2	24	5	19	1	19
3	24	5	19	1	19
4	24	5	19	1	19

INFILTRATION TEST REPORT

Client: Treetop Development, LLC **Test Hole No.:** SPP-117/IT-17

Project: Proposed Warehouse **Date: 10/22/2021**

Location: Suffern, Rockland County NY **Weather: Sunny, 72ºF**

Project No.: 2803-99-005E **Project Manager: F. Van Cleve**

Surface Elevation: 310.0 feet **Test Depth: 36”**

Reading No.	Water Level (Inches)		Water Level Fall (Inches)	Time Interval (Hours)	Rate of Flow (Inches/ Hour)
	Start	Finish			
1	24	18	6	1	6
2	24	18	6	1	6
3	24	19	5	1	5
4	24	19	5	1	5

INFILTRATION TEST REPORT

Client: Treetop Development, LLC **Test Hole No.:** SPP-118/IT-18

Project: Proposed Warehouse **Date: 10/22/2021**

Location: Suffern, Rockland County NY **Weather: Sunny, 72ºF**

Project No.: 2803-99-005E **Project Manager: F. Van Cleve**

Surface Elevation: 312.0 feet **Test Depth: 36”**

Reading No.	Water Level (Inches)		Water Level Fall (Inches)	Time Interval (Hours)	Rate of Flow (Inches/ Hour)
	Start	Finish			
1	24	0	24	1	24
2	24	0	24	1	24
3	24	0	24	1	24
4	24	0	24	1	24

INFILTRATION TEST REPORT

Client: Treetop Development, LLC **Test Hole No.:** SPP-119/IT-19

Project: Proposed Warehouse **Date: 10/25/2021**

Location: Suffern, Rockland County NY **Weather: Sunny, 72°F**

Project No.: 2803-99-005E **Project Manager: F. Van Cleve**

Surface Elevation: 309.0 feet **Test Depth: 12”**

Reading No.	Water Level (Inches)		Water Level Fall (Inches)	Time Interval (Hours)	Rate of Flow (Inches/ Hour)
	Start	Finish			
1	24	19	5	1	5
2	24	19	5	1	5
3	24	19	5	1	5
4	24	19	5	1	5

INFILTRATION TEST REPORT

Client: Treetop Development, LLC **Test Hole No.:** SPP-120/IT-20

Project: Proposed Warehouse **Date: 10/25/2021**

Location: Suffern, Rockland County NY **Weather: Sunny, 72°F**

Project No.: 2803-99-005E **Project Manager: F. Van Cleve**

Surface Elevation: 313.0 feet **Test Depth: 36”**

Reading No.	Water Level (Inches)		Water Level Fall (Inches)	Time Interval (Hours)	Rate of Flow (Inches/ Hour)
	Start	Finish			
1	24	12	12	1	12
2	24	13	11	1	11
3	24	14	10	1	10
4	24	14	10	1	10

INFILTRATION TEST REPORT

Client: Treetop Development, LLC **Test Hole No.:** SPP-121/IT-21

Project: Proposed Warehouse **Date: 10/25/2021**

Location: Suffern, Rockland County NY **Weather: Sunny, 72°F**

Project No.: 2803-99-005E **Project Manager: F. Van Cleve**

Surface Elevation: 311.0 feet **Test Depth/Elevation: 36”**

Reading No.	Water Level (Inches)		Water Level Fall (Inches)	Time Interval (Hours)	Rate of Flow (Inches/ Hour)
	Start	Finish			
1	24	15	9	1	15
2	24	15	9	1	15
3	24	15	9	1	15
4	24	15	9	1	15

INFILTRATION TEST REPORT

Client: Treetop Development, LLC **Test Hole No.:** SPP-122/IT-22

Project: Proposed Warehouse **Date: 10/22/2021**

Location: Suffern, Rockland County NY **Weather: Sunny, 72ºF**

Project No.: 2803-99-005E **Project Manager: F. Van Cleve**

Surface Elevation: 310.0 feet **Test Depth: 36”**

Reading No.	Water Level (Inches)		Water Level Fall (Inches)	Time Interval (Hours)	Rate of Flow (Inches/ Hour)
	Start	Finish			
1	24	4	20	1	20
2	24	5	19	1	19
3	24	5	19	1	19
4	24	5	19	1	19

INFILTRATION TEST REPORT

Client: Treetop Development, LLC **Test Hole No.:** SPP-123/IT-23

Project: Proposed Warehouse **Date: 10/22/2021**

Location: Suffern, Rockland County NY **Weather: Sunny, 72ºF**

Project No.: 2803-99-005E **Project Manager: F. Van Cleve**

Surface Elevation: 311.0 feet **Test Depth:** 30”

Reading No.	Water Level (Inches)		Water Level Fall (Inches)	Time Interval (Hours)	Rate of Flow (Inches/ Hour)
	Start	Finish			
1	24	9	15	1	15
2	24	9	15	1	15
3	24	9	15	1	15
4	24	9	15	1	15

INFILTRATION TEST REPORT

Client: Treetop Development, LLC **Test Hole No.:** SPP-124/IT-24

Project: Proposed Warehouse **Date: 10/21/2021**

Location: Suffern, Rockland County NY **Weather: Sunny, 72°F**

Project No.: 2803-99-005E **Project Manager: F. Van Cleve**

Surface Elevation: 307.0 feet **Test Depth: 48”**

Reading No.	Water Level (Inches)		Water Level Fall (Inches)	Time Interval (Hours)	Rate of Flow (Inches/ Hour)
	Start	Finish			
1	24	12	12	1	12
2	24	12	12	1	12
3	24	12	12	1	12
4	24	12	12	1	12

INFILTRATION TEST REPORT

Client: Treetop Development, LLC **Test Hole No.:** SPP-125/IT-25

Project: Proposed Warehouse **Date: 10/21/2021**

Location: Suffern, Rockland County NY **Weather: Sunny, 72°F**

Project No.: 2803-99-005E **Project Manager: F. Van Cleve**

Surface Elevation: 307.0 feet **Test Depth: 30”**

Reading No.	Water Level (Inches)		Water Level Fall (Inches)	Time Interval (Hours)	Rate of Flow (Inches/ Hour)
	Start	Finish			
1	24	12	12	1	12
2	24	12	12	1	12
3	24	13	11	1	11
4	24	13	11	1	11

INFILTRATION TEST REPORT

Client: Treetop Development, LLC **Test Hole No.:** SPP-126/IT-26

Project: Proposed Warehouse **Date: 10/25/2021**

Location: Suffern, Rockland County NY **Weather: Sunny, 72°F**

Project No.: 2803-99-005E **Project Manager: F. Van Cleve**

Surface Elevation: 317.0 feet **Test Depth: 36”**

Reading No.	Water Level (Inches)		Water Level Fall (Inches)	Time Interval (Hours)	Rate of Flow (Inches/ Hour)
	Start	Finish			
1	24	0	24	1	24
2	24	0	24	1	24
3	24	0	24	1	24
4	24	0	24	1	24

INFILTRATION TEST REPORT

Client: Treetop Development, LLC **Test Hole No.:** SPP-127/IT-27

Project: Proposed Warehouse **Date: 10/25/2021**

Location: Suffern, Rockland County NY **Weather: Sunny, 72°F**

Project No.: 2803-99-005E **Project Manager: F. Van Cleve**

Surface Elevation: 315.0 feet **Test Depth: 48”**

Reading No.	Water Level (Inches)		Water Level Fall (Inches)	Time Interval (Hours)	Rate of Flow (Inches/ Hour)
	Start	Finish			
1	24	0	24	1	24
2	24	0	24	1	24
3	24	0	24	1	24
4	24	0	24	1	24

INFILTRATION TEST REPORT

Client: Treetop Development, LLC **Test Hole No.:** SPP-128/IT-28

Project: Proposed Warehouse **Date: 10/20/2021**

Location: Suffern, Rockland County NY **Weather: Sunny, 72ºF**

Project No.: 2803-99-005E **Project Manager: F. Van Cleve**

Surface Elevation: 312.5 feet **Test Depth: 36”**

Reading No.	Water Level (Inches)		Water Level Fall (Inches)	Time Interval (Hours)	Rate of Flow (Inches/ Hour)
	Start	Finish			
1	24	0	24	1	24
2	24	0	24	1	24
3	24	0	24	1	24
4	24	0	24	1	24

INFILTRATION TEST REPORT

Client: Treetop Development, LLC **Test Hole No.:** SPP-129/IT-29

Project: Proposed Warehouse **Date: 10/20/2021**

Location: Suffern, Rockland County NY **Weather: Sunny, 72ºF**

Project No.: 2803-99-005E **Project Manager: F. Van Cleve**

Surface Elevation: 308.0 feet **Test Depth: 36”**

Reading No.	Water Level (Inches)		Water Level Fall (Inches)	Time Interval (Hours)	Rate of Flow (Inches/ Hour)
	Start	Finish			
1	24	0	24	1	24
2	24	0	24	1	24
3	24	0	24	1	24
4	24	0	24	1	24

Geotechnical Terms and Symbols

DYNAMIC EARTH

245 Main Street; Suite 110
Chester, NJ 07930
908-879-9229: Fax 908-879-0222

GEOTECHNICAL TERMS AND SYMBOLS

SAMPLE IDENTIFICATION

The Unified Soil Classification System is used to identify the soil unless otherwise noted.

SOIL PROPERTY SYMBOLS

N:	Standard Penetration Value: Blows per ft. or a 140 lb. hammer falling 30" on a 2" O.D. split-spoon.
Qu:	Unconfined compressive strength, TSF.
Qp:	Penetrometer value, unconfined compressive strength, TSF.
Mc:	Moisture content, %
LL:	Liquid limit, %
PI:	Plasiticity index, %
δd:	Natural dry density, PCF.
▼:	Apparent groundwater level at time noted after completion of boring.
=	

DRILLING AND SAMPLING SYMBOLS

NE:	Not Encountered (Groundwater was not encountered)
SS:	Split-Spoon – 1⅜" I.D., 2" O.D., except where noted
ST:	Shelby Tube – 3" O.D., except where noted
AU:	Auger Sample
OB:	Diamond Bit
CB:	Carbide Bit
WS:	Washed Sample

RELATIVE DENSITY AND CONSISTENCY CLASSIFICATION

Term (Non-Cohesive Soils)	Standard Penetration Resistance
Very Loose	0-4
Loose	4-10
Medium Dense	10-30
Dense	30-50
Very Dense	Over 50

Term (Cohesive Soils)	Qu (TSF)
Very Soft	0-0.25
Soft	0.25-0.50
Firm (Medium)	0.50-1.00
Stiff	1.00-2.00
Very Stiff	2.00-4.00
Hard	4.00 +

PARTICLE SIZE

Boulders	8 in. +	Coarse Sand	5mm-0.6mm	Silt	0.074mm-0.005mm
Cobbles	8 in. – 3 in.	Medium Sand	0.6mm-0.2mm	Clay	- 0.005mm
Gravel	3 in. – 5mm	Fine Sand	0.2mm – 0.074mm		

USCS Standard Classification System

UNIFIED SOIL CLASSIFICATION SYSTEM - ASTM D2488

MAJOR DIVISION			GROUP SYMBOL	LETTER SYMBOL	GROUP NAME
COARSE GRAINED SOILS CONTAINS MORE THAN 50% FINES	**GRAVEL AND GRAVELLY SOILS** MORE THAN 50% OF COARSE FRACTION RETAINED ON NO. 4 SIEVE	GRAVEL WITH * 5% FINES		GW	Well-graded GRAVEL
				GP	Poorly graded GRAVEL
		GRAVEL WITH BETWEEN 5% AND 15% FINES		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
		GRAVEL WITH ≥ 15% FINES		GM	Silty GRAVEL
				GC	Clayey GRAVEL
	SAND AND SANDY SOILS MORE THAN 50% OF COARSE FRACTION PASSING ON NO. 4 SIEVE	SAND WITH * 5% FINES		SW	Well-graded SAND
				SP	Poorly graded SAND
		SAND WITH BETWEEN 5% AND 15% FINES		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
		SAND WITH ≥ 15% FINES		SM	Silty SAND
				SC	Clayey SAND
FINE GRAINED SOILS CONTAINS MORE THAN 50% FINES	SILT AND CLAY	LIQUID LIMIT LESS THAN 50		ML	Inorganic SILT with low plasticity
				CL	Lean inorganic CLAY with low plasticity
				OL	Organic SILT with low plasticity
		LIQUID LIMIT GREATER THAN 50		MH	Elastic inorganic SILT with moderate to high plasticity
				CH	Fat inorganic CLAY with moderate to high plasticity
				OH	Organic SILT or CLAY with moderate to high plasticity
HIGHLY ORGANIC SOILS				PT	PEAT soils with high organic contents

NOTES:

1) Sample descriptions are based on visual field and laboratory observations using classification methods of ASTM D2488. Where laboratory data are available, classifications are in accordance with ASTM D2487.

2) Solid lines between soil descriptions indicate change in interpreted geologic unit. Dashed lines indicate stratigraphic change within the unit.

3) Fines are material passing the U.S. Std. #200 Sieve.