

Tectonic		DAILY FIELD REPORT		W.O.NO.: 12319.01	PAGE 1 OF
				REPORT NO.:	DATE: 11/2/2023
				PUNCH LIST:	YES ☐ NO ☐

☐ 70 Pleasant Hill Road Mountainville, NY 10953 P: 845-534-5959 F: 845-534-5999	☒ 1279 Route 300 Newburgh, NY 12550 Phone- 845-567-6656 Fax- 845-567-8703 Structural Fax- 845-567-8705	☐ 36 British American Blvd., Suite 101 Latham, NY 12110 Phone: 518-783-1630 Fax: 518-783-1544
☐ 24-37 46th Street Astoria, NY 11103 Phone- 784-0550 Fax- 718-784-0558	☐ 118-35 Queens Boulevard 10th Floor Suite 1000 Forest Hills, NY 11101 Phone- 718-391-9200 Fax- 718-391-0607	☐ 280 Little Britain Road Newburgh, NY 12550 Phone: 845-563-9081 Fax: 845-563-9085
☐ Second Floor 830 Morris Turnpike Short Hills, NJ 07078 Phone: 973-467-5850 Fax: 973-379-5741	☐ 28855 Mitchell Drive, Suite 227 Walnut Creek, CA 94598 Phone 925-357-8236 Fax 925-357-8341	☐ 1344 Silas Deane Highway, Suite 500 Rocky Hill, CT 06067 Phone: 860-563-2341 Fax: 860-257-4882
☐ 1 North Lexington Ave. Suite 530 White Plains, N.Y. 10601 Phone- 914-358-9783 Fax- 914-358-9788	☐ 8607 Mayland Drive, Richmond, VA 23294 Phone- 804-217-8504 Fax- 804-270-0593	

CLIENT: B D R Group LLC.		PROJECT NAME: Chester Soil Group Study
TECTONIC PROJECT MANAGER: Chris Ferri	TECTONIC FIELD REPRESENTATIVE: Paul Gregory, PE	LOCATION: Chester, NY
ENGINEER: Pietrzak & Pfau Engineering & Surveying, PLLC	REPRESENTATIVE: Joseph Pfau	OWNER:

SPECIALTY CONTRACTOR: ☐ EARTH ☐ CONCRETE ☐ STEEL ☐ OTHER	PLANS AND SPECIFICATIONS BY _____ DATE _____ SHOP DRAWINGS TYPE _____ APP. BY _____
CONTRACTOR'S EQUIPMENT OBSERVED IN USE: Mini excavator	SAMPLES: ☐ TYPE: _____ QTY: _____ PHOTOS: ☒ TYPE: _____ QTY: _____

VISITORS:	REPRESENTING:	ARR.	DPT.	WEATHER: Clear TEMP. (°F) 40 to 50
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CONSTRUCTION ACTIVITIES: INDICATE ACTIVITIES MONITORED

Tectonic representative arrived on site at the request of the Client to perform a test pit inspection at various pre-determined locations across the site. The site is located at the intersection of Black Meadow Road and Bairds Cross Road in the Town of Chester, Orange County, New York. Upon arrival, Tectonic met with Joseph Pfau of Pietrzak & Pfau Engineering & Surveying, PLLC who determined the location of test pit excavations and directed the excavation subcontractor throughout the inspection. Four (4) test pits were excavated at various locations throughout the site. The approximate location of the test pits are shown on the attached Test Pit Location Plan. Test pits were approximately 10 feet by 4 feet, and were excavated to depths up to 7 feet. The total depth of excavation for each test pit was determined by Mr. Pfau. Excavated soils were classified using the Unified Soil Classification System and compared to those documented for the site as detailed by the Natural Resources Conservation Service (NRCS). NRCS soil maps were reviewed with areas of interest encompassing each test pit location. Based on observations made during the test pit inspection and review of the mapped soil data on NRCS, soils encountered within the test pits are representative of Pits, gravel (Pg) - Test Pit 1; Nassau complex, hilly (RSD) - Test Pits 2 and 3; and Mardin gravelly silt loam (MdC) - Test Pit 4. The Client provided Town of Chester Table of Soil Groups was also used to designate soils with an appropriate soil group based off of visual classification of the encountered soils within each test pit. The following soil groups were assigned: Test Pit 1 - Group I, Test Pits 2 and 3 - Group VI, and Test Pit 4 - Group IV. See attached Table of Soil Groups for a more detailed description of each soil group. See the attached test pit logs for more information regarding the soils encountered.

FORMS ATTACHED: ☐ SOIL COMPACTION ☐ PRE-POUR INSPECTION ☐ STRUCTURAL STEEL	☐ NON-CONFORMANCE REPORT ☐ CONCRETE INSPECTION ☒ OTHER: Photos/Test Pit Location Plan/Test Pit Logs	
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FOLLOW-UP FROM PRIOR REPORT: ☐ YES ☒ NO	DATE OF PRIOR REPORT: _____	NOTICE The field representative is on the site solely to observe operations of the contractor identified, observe conformance with contract documents, and report those operations to the client. The presence and activities of the field representative do not relieve the contractor's obligation to meet contractual requirements. The contractor retains sole responsibility for site safety and the methods and sequences of construction.
NON-CONFORMANCE CORRECTED: _____		
WHAT, IN PARTICULAR, SHOULD BE OBSERVED, CHECKED, OR TESTED DURING THE NEXT VISIT? _____ _____		

☒ THIS DFR IS PRELIMINARY This preliminary report is provided solely as evidence that field observation was performed. Observation and/or conclusions and/or recommendations conveyed in the final report may vary from and shall take precedence over those indicated in a preliminary report.	FIELD REPRESENTATIVE: Paul Gregory, PE REVIEWED BY: _____
☐ THIS DFR IS FINAL A final report is the instrument of service. Any conclusions drawn from this report should be discussed with and evaluated by the owner's engineer.	DATE: 11/2/23 DATE: _____

CON 101 - 2/09

W.O. No. 12319.01 Date: 11/2/2023		TEST PIT TP- 1		
				Project: Chester Soil Group Study
(800) 829-6531		Location: Chester, NY		
Client: B D R Group LLC.		Depth to Seepage: 7 ft	Inspector: P. Gregory, PE	
Engineer: Pietrzak & Pfau Engineering & Surveying, PLLC		Depth to Groundwater: NE	Surface Elevation: +476	
Equipment: Kubota Mini Excavator		Depth to Bedrock: NE	Datum:	
SAMPLES		DESCRIPTION OF MATERIAL	Strata Change (ft.)	REMARKS
Sample No.	Moisture			
	M	ML	6" Topsoil Layer	Location: 41.3363508, 74.2909294 Seepage observed at 7 '
	M	SP-SM	Bwn Silt, and f Sand, trace f Gravel	
	M	SP-SM	Dk Bwn c-f Sand, some c-f Gravel, trace Silt, sparse Cobbles/Boulders	
			1' to 7'	Test Pit terminated at 7'
				
PARTICLE SIZE		PROPORTION (exclusive of boulders & cobbles)	PROPORTION (boulders & cobbles)	MOISTURE
Boulder: 10" (+) Cobble: 3-10" Gravel: 3/16" -3"		Sand: No.200 Sieve-3/16" Silt/Clay: No.200 Sieve (-)	trace: 0-10% little: 10-20% some: 20-35% and: 35-50%	sparse: 0-10% few: 10-35% many: 35-65%
				D: dry M: moist W: wet

		W.O. No.	12319.01	Date:	11/2/2023	TEST PIT TP- 1	
		Project: Chester Soil Group Study					
(800) 829-6531		Location: Chester, NY					
Client: B D R Group LLC.			Depth to Seepage:		7 ft	Inspector: P. Gregory, PE	
Engineer: Pietrzak & Pfau Engineering & Surveying, PLLC			Depth to Groundwater:		NE	Surface Elevation: +476	
Equipment: Kubota Mini Excavator			Depth to Bedrock:		NE	Datum:	
SAMPLES		Unified Soil Classification	DESCRIPTION OF MATERIAL			Strata Change (ft.)	REMARKS
Sample No.	Moisture						
							Location: 41.3363508, 74.2909294 Surface elevations based on a topographic survey provided by the Client, entitled "Existing Conditions", Project Numer 14118.01, Dated 8/2/23.
PARTICLE SIZE		PROPORTION (exclusive of boulders & cobbles)		PROPORTION (boulders & cobbles)		MOISTURE	
Boulder: 10"(+) Cobble: 3-10" Gravel: 3/16" -3"		Sand: No.200 Sieve-3/16" Silt/Clay: No.200 Sieve (-)		trace: 0-10% little: 10-20% some: 20-35% and: 35-50%		sparse: 0-10% few: 10-35% many: 35-65%	
						D: dry M: moist W: wet	

		W.O. No.	12319.01	Date:	11/2/2023	TEST PIT TP- 2		
		Project:	Chester Soil Group Study					
		(800) 829-6531	Location:	Chester, NY				
Client:		B D R Group LLC.		Depth to Seepage:	5 ft	Inspector:		P. Gregory, PE
Engineer:		Pietrzak & Pfau Engineering & Surveying, PLLC		Depth to Groundwater:	NE	Surface Elevation:		+572
Equipment:		Kubota Mini Excavator		Depth to Bedrock:	NE	Datum:		
SAMPLES		Unified Soil Classification	DESCRIPTION OF MATERIAL			Strata Change (ft.)	REMARKS	
Sample No.	Moisture							
	M	SM	6" Topsoil Layer Bwn c-f Sand, some Silt, little c-f Gravel, sparse Cobbles Refusal at 5' on apparent bedrock Test Pit terminated at 5'			0.5' to 5'	Location: 41.3339499, 74.2904061 Surface elevations based on a topographic survey provided by the Client, entitled "Existing Conditions", Project Numer 14118.01, Dated 8/2/23.	
								
PARTICLE SIZE			PROPORTION (exclusive of boulders & cobbles)		PROPORTION (boulders & cobbles)		MOISTURE	
Boulder: 10"(+) Sand: No.200 Sieve-3/16" Cobble: 3-10" Silt/Clay: No.200 Sieve (-) Gravel: 3/16"-3"			trace: 0-10% little: 10-20% some: 20-35% and: 35-50%		sparse: 0-10% few: 10-35% many: 35-65%		D: dry M: moist W: wet	

		W.O. No. 12319.01		Date: 11/2/2023		TEST PIT TP- 2	
		Project: Chester Soil Group Study					
		(800) 829-6531		Location: Chester, NY			
Client: B D R Group LLC.		Depth to Seepage: 5 ft		Inspector: P. Gregory, PE			
Engineer: Pietrzak & Pfau Engineering & Surveying, PLLC		Depth to Groundwater: NE		Surface Elevation: +572			
Equipment: Kubota Mini Excavator		Depth to Bedrock: NE		Datum:			
SAMPLES		Unified Soil Classification	DESCRIPTION OF MATERIAL		Strata Change (ft.)	REMARKS	
Sample No.	Moisture						
						Location: 41.3339499, 74.2904061 Surface elevations based on a topographic survey provided by the Client, entitled "Existing Conditions", Project Numer 14118.01, Dated 8/2/23.	
PARTICLE SIZE		PROPORTION (exclusive of boulders & cobbles)		PROPORTION (boulders & cobbles)		MOISTURE	
Boulder: 10"(+) Cobble: 3-10" Gravel: 3/16"-3"		Sand: No.200 Sieve-3/16" Silt/Clay: No.200 Sieve (-)		trace: 0-10% little: 10-20% some: 20-35% and: 35-50%		sparse: 0-10% few: 10-35% many: 35-65% D: dry M: moist W: wet	

		W.O. No. 12319.01		Date: 11/2/2023		TEST PIT TP- 3	
		Project: Chester Soil Group Study					
		Location: Chester, NY					
(800) 829-6531							
Client: B D R Group LLC.				Depth to Seepage: NE		Inspector: P. Gregory, PE	
Engineer: Pietrzak & Pfau Engineering & Surveying, PLLC				Depth to Groundwater: NE		Surface Elevation: +640	
Equipment: Kubota Mini Excavator				Depth to Bedrock: NE		Datum:	
SAMPLES							
Sample No.	Moisture	Unified Soil Classification	DESCRIPTION OF MATERIAL			Strata Change (ft.)	REMARKS
	M	ML	8" Topsoil Layer Lt Bwn Clayey Silt, some c-f Sand, some c-f Gravel, few Cobbles/Boulders (Glacial Till) Test Pit terminated at 5'			0.5' to 5'	Location: 41.3322924, 74.2914950 Surface elevations based on a topographic survey provided by the Client, entitled "Existing Conditions", Project Numer 14118.01, Dated 8/2/23.
							
PARTICLE SIZE		PROPORTION (exclusive of boulders & cobbles)		PROPORTION (boulders & cobbles)		MOISTURE	
Boulder: 10"(+) Cobble: 3-10" Gravel: 3/16"-3"		Sand: No.200 Sieve-3/16" Silt/Clay: No.200 Sieve (-)		trace: 0-10% little: 10-20% some: 20-35% and: 35-50%		sparse: 0-10% few: 10-35% many: 35-65%	
						D: dry M: moist W: wet	

		W.O. No.	12319.01	Date:	11/2/2023	TEST PIT TP- 3	
		Project: Chester Soil Group Study					
(800) 829-6531		Location: Chester, NY					
Client: B D R Group LLC.			Depth to Seepage:		NE		Inspector: P. Gregory, PE
Engineer: Pietrzak & Pfau Engineering & Surveying, PLLC			Depth to Groundwater:		NE		Surface Elevation: +640
Equipment: Kubota Mini Excavator			Depth to Bedrock:		NE		Datum: See Location Plan
SAMPLES							
Sample No.	Moisture	Unified Soil Classification	DESCRIPTION OF MATERIAL			Strata Change (ft.)	REMARKS
							Location: 41.3322924, 74.2914950 Surface elevations based on a topographic survey provided by the Client, entitled "Existing Conditions", Project Numer 14118.01, Dated 8/2/23.
PARTICLE SIZE		PROPORTION (exclusive of boulders & cobbles)		PROPORTION (boulders & cobbles)		MOISTURE	
Boulder: 10"(+) Cobble: 3-10" Gravel: 3/16"-3"		Sand: No.200 Sieve-3/16" Silt/Clay: No.200 Sieve (-)		trace: 0-10% little: 10-20% some: 20-35% and: 35-50%		sparse: 0-10% few: 10-35% many: 35-65%	
						D: dry M: moist W: wet	

W.O. No.	12319.01	Date:	11/2/2023	TEST PIT TP- 4
Project:	Chester Soil Group Study			
Location:	Chester, NY			

(800) 829-6531

Client:	B D R Group LLC.	Depth to Seepage:	NE	Inspector:	P. Gregory, PE
Engineer:	Pietrzak & Pfau Engineering & Surveying, PLLC	Depth to Groundwater:	NE	Surface Elevation:	+508
Equipment:	Kubota Mini Excavator	Depth to Bedrock:	NE	Datum:	See Location Plan

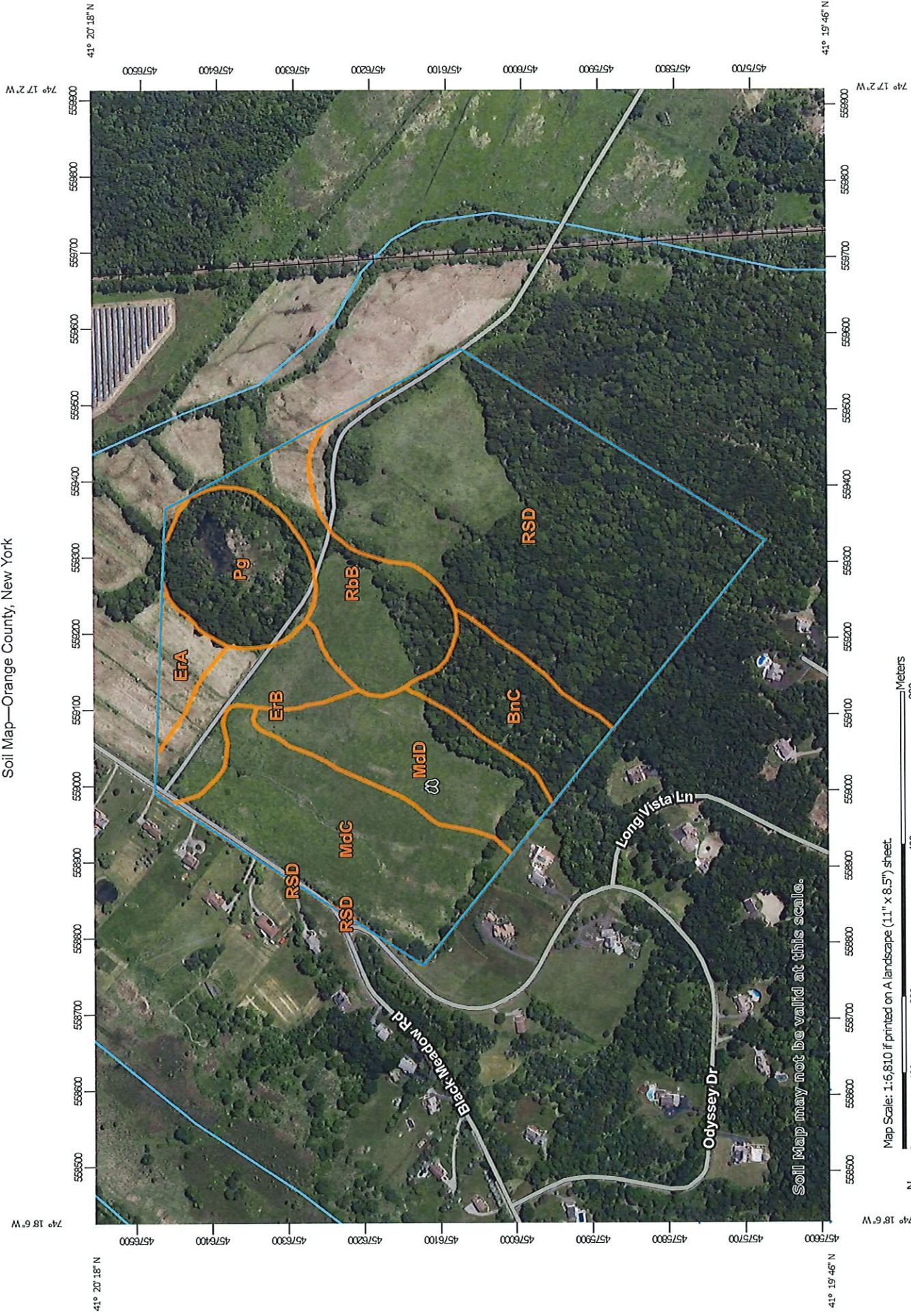
SAMPLES			DESCRIPTION OF MATERIAL	Strata Change (ft.)	REMARKS
Sample No.	Moisture	Unified Soil Classification			
	M	ML	6" Topsoil Layer Lt Bwn Clayey Silt, some c-f Sand, some c-f Gravel, sparse Cobbles/Boulders (Glacial Till)	0.5' to 3.5'	Location: 41.3356399, 74.2933723
	M	CL-ML	Bwn Clayey Silt, little m-f Sand, trace f Gravel Test Pit terminated at 5'	3.5 to 5'	Surface elevations based on a topographic survey provided by the Client, entitled "Existing Conditions", Project Numer 14118.01, Dated 8/2/23.



PARTICLE SIZE		PROPORTION (exclusive of boulders & cobbles)	PROPORTION (boulders & cobbles)	MOISTURE
Boulder: 10"(+)	Sand: No.200 Sieve-3/16"	trace: 0-10%	sparse: 0-10%	D: dry
Cobble: 3-10"	Silt/Clay: No.200 Sieve (-)	little: 10-20%	few: 10-35%	M: moist
Gravel: 3/16"-3"		some: 20-35%	many: 35-65%	W: wet
		and: 35-50%		

		W.O. No.	12319.01	Date:	11/2/2023	TEST PIT TP- 4	
		Project: Chester Soil Group Study					
(800) 829-6531		Location: Chester, NY					
Client: B D R Group LLC.			Depth to Seepage:		NE	Inspector: P. Gregory, PE	
Engineer: Pietrzak & Pfau Engineering & Surveying, PLLC			Depth to Groundwater:		NE	Surface Elevation: +508	
Equipment: Kubota Mini Excavator			Depth to Bedrock:		NE	Datum: See Location Plan	
SAMPLES		Unified Soil Classification	DESCRIPTION OF MATERIAL			Strata Change (ft.)	REMARKS
Sample No.	Moisture						
							Location: 41.3356399, 74.2933723 Surface elevations based on a topographic survey provided by the Client, entitled "Existing Conditions", Project Numer 14118.01, Dated 8/2/23.
PARTICLE SIZE		PROPORTION (exclusive of boulders & cobbles)		PROPORTION (boulders & cobbles)		MOISTURE	
Boulder: 10"(+) Cobble: 3-10" Gravel: 3/16"-3"		Sand: No.200 Sieve-3/16" Silt/Clay: No.200 Sieve (-)		trace: 0-10% little: 10-20% some: 20-35% and: 35-50%		sparse: 0-10% few: 10-35% many: 35-65%	
						D: dry M: moist W: wet	

Soil Map—Orange County, New York



Map Scale: 1:6,810 if printed on A landscape (11" x 8.5") sheet

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

Soil Map may not be valid at this scale.

MAP LEGEND

 Area of Interest (AOI)	 Spoil Area
 Soils	 Stony Spot
 Soil Map Unit Polygons	 Very Stony Spot
 Soil Map Unit Lines	 Wet Spot
 Soil Map Unit Points	 Other
 Special Point Features	 Special Line Features
 Blowout	 Water Features
 Borrow Pit	 Streams and Canals
 Clay Spot	 Transportation
 Closed Depression	 Rails
 Gravel Pit	 Interstate Highways
 Gravelly Spot	 US Routes
 Landfill	 Major Roads
 Lava Flow	 Local Roads
 Marsh or swamp	 Background
 Mine or Quarry	 Aerial Photography
 Miscellaneous Water	
 Perennial Water	
 Rock Outcrop	
 Saline Spot	
 Sandy Spot	
 Severely Eroded Spot	
 Sinkhole	
 Slide or Slip	
 Sodic Spot	

MAP INFORMATION

The soil surveys that comprise your AOI were mapped at 1:15,800.

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: Orange County, New York
Survey Area Data: Version 24, Sep 6, 2023

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

Date(s) aerial images were photographed: May 31, 2022—Oct 27, 2022

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
BnC	Bath-Nassau channery silt loams, 8 to 15 percent slopes	6.8	7.0%
ErA	Erie gravelly silt loam, 0 to 3 percent slopes	2.2	2.3%
ErB	Erie gravelly silt loam, 3 to 8 percent slopes	5.9	6.1%
MdC	Mardin gravelly silt loam, 8 to 15 percent slopes	15.8	16.5%
MdD	Mardin gravelly silt loam, 15 to 25 percent slopes	9.9	10.3%
Pg	Pits, gravel	8.1	8.4%
RbB	Rhinebeck silt loam, 3 to 8 percent slopes	9.6	10.0%
RSD	Rock outcrop-Nassau complex, hilly	37.9	39.4%
Totals for Area of Interest		96.2	100.0%

Chapter 83. Subdivision of Land

Article IV. General Requirements and Design Standards

§ 83-26. Table of Soil Groups.

A. Group I: soils developed in sands and gravel, nearly level through sloping.

- (1) Characteristics. The soils in this group are excessively well through well drained, medium- and coarse-textured and are formed in glacial outwash plains, terraces and stream valleys. They are underlain by water-deposited beds of sand or sand and gravel. These soils have moderately rapid to very rapid permeability. The seasonal high-water table and bedrock are below six feet. Slope ranges from 0% through 15%. Soils included in this group are 1A, 1B, 1C, 2A, 2B, 2C, 9A, 9B, 9C, 10A, 10B, 10C, 13A, 13B and 13C.

(2) Use and requirements.

- (a) These soils may be used for on-site septic systems that are adequately designed. These soils have slight limitations for septic systems on A and B slopes and moderate limitations on C slopes.
- (b) Buildings with and without basements may be installed on these soils. These soils have slight limitations for homesites with and without basements on A and B slopes and moderate limitations on C slopes.
- (c) Erodibility of these soils is low to medium and may be a problem on the steeper C slopes.

B. Group II: soils developed in very fine sands and silts, nearly level to gently sloping.

- (1) Characteristics. The soils in this group are well drained and occur in areas where glacial lake sediments have accumulated. These sediments contain very fine sands and silts. These soils are moderately permeable and have a seasonal high-water table of six feet plus. Bedrock generally occurs at six feet plus. Slope ranges from 0% through 8%. Soils included in this group are 78A, 78B, 79A and 79B.

(2) Use and requirements.

- (a) These soils may be used for on-site septic systems that are adequately designed. These soils have slight limitations for septic systems.
- (b) Buildings with and without basements may be installed on these soils. These soils have slight limitations for homesites with and without basements.
- (c) Erodibility of these soils is high and may be a problem on all slopes.

C. Group III: soils developed in coarse silts and loam with a firm basal till layer, nearly level through sloping.

- (1) Characteristics. The soils in this group are well drained, medium- to moderately coarse-textured and are developed in thick glacial till deposit of the upland. These soils are moderately permeable in the upper 30 inches and slowly permeable below 30 inches. The water table and bedrock are generally six feet or deeper. Slope ranges from 0% to 15%. Soils included in this group are 38C, 39A, 39B, 63B and 63C.

(2) Use and requirements.

- (a) These soils may be used for on-site septic systems that are adequately designed. These soils have moderate limitations for septic systems.
- (b) Buildings with and without basements may be installed on these soils. These soils have slight to moderate limitations for home sites.
- (c) Erodibility of these soils is low to medium, and erosion may be a problem on the C slopes.

D. Group IV: soils developed in coarse silts and loam with a firm fragipan, nearly level through sloping.

- (1) Characteristics. The soils in this group are well to moderately well drained and occur mostly on the tops and sides of drumlin hills. The soils are underlain by compact glacial till and have a fragipan 16 inches to 30 inches below the soil surface. These soils are moderately through very slowly permeable and have a seasonal high-water table at 1 1/2 feet through four feet. Bedrock is usually below six feet. Soils included in this group are 5A, 5B, 20B, 20C, 35A, 35B, 35C, 40B, 40C, 41B, 41C, 64B and 64C.
- (2) Use and requirements.
- (a) These soils may be used for on-site septic systems that are adequately designed to overcome the noted limitations. These soils have moderate to severe and severe limitations for on-site septic systems. The Bath (40) and Swartswood (20) soils have a slowly permeable layer at 24 inches to 30 inches, and the Troy (41), Wurtsboro (35) and Braceville (5) soils have a slowly permeable layer at 16 inches to 24 inches. If the well-drained layers are removed during grading or if systems are installed below the well-drained layers, problems can be expected. On-site investigation is necessary to determine site conditions, with special attention given to time of year and field conditions under which tests are taken. (See New York State Department of Health bulletins.)
- (b) Buildings with and without basements may be installed on these soils. In cases where buildings are installed deeper than four feet on the Bath and Swartswood and three feet on the Troy and Wurtsboro, a free-flowing outlet should be provided. These soils have slight to moderate limitations for buildings. The Castile (Braceville) soils are influenced by the seasonal high table and position in the landscape.
- (c) Erodibility is low to medium on these soils, and erosion may be a problem on the C slopes.
- E. Group V: soils developed in heavy silts and clays, nearly level to gently sloping.
- (1) Characteristics. The soils in this group are moderately well drained and occur in areas where glacial lake sediments have accumulated. These sediments contain clay and heavy silts. These soils are slowly permeable; very unstable and have a high shrink and swell potential. The water table is from 1 1/2 feet to three feet. Bedrock is generally below six feet. Slope ranges from 0% to 8%. Soils included in this group are 80A, 80B and 84B.
- (2) Use and requirements.
- (a) These soils may be used for septic systems if it is proven that the limitations as stated in the Soils Interpretation Report for Orange County have been or will be overcome. These soils have severe limitations for septic systems.
- (b) Buildings with and without basements may be installed on these soils. In cases where basements are constructed at depths greater than three feet, adequate foundation drainage to a free outlet should be provided. These soils have slight through severe limitations for homesites.
- (c) Erodibility of these soils is high, and erosion may be a problem on all slopes.
- F. Group VI: soils developed in medium sands and silts influenced by bedrock and surface stones, nearly level through sloping.
- (1) Characteristics. The soils in this group are well to moderately well drained and occur on the tops and sides of drumlin hills. The soils are underlain by compact glacial till and have a fragipan that ranges from 16 inches to 30 inches. The soils in this group have a surface stoniness condition and shallowness to bedrock problem. On-site investigation is a must on these soils. Slope ranges from 0% to 15%. Soils included in this group are 22AC, 65AC, 77B, 77C and 020BC.
- (2) Use and requirements.
- (a) In cases where deep pockets of Bath soils are found in the Bath-Nassau complex unit (77), these soils may be used for on-site septic systems if adequately designed. On-site septic systems may also be used in cases where the extreme stoniness of the Bath-Swartswood (020) soils is found to be only a surface condition. On-site investigation is necessary to determine the extent of stoniness or the bedrock condition of these soils. The soils have severe limitations for septic systems.
- (b) Buildings with and without basements may be installed on these soils if adequate foundation drainage is provided to a free-flowing outlet. These soils have moderate to severe limitations for homesites.
- (c) Erodibility of these soils is low to medium. Erosion may be a problem on the C slopes.
- G. Group VII: soils developed in silts, clays and very fine sands that are wet, nearly level to gently sloping.
- (1) Characteristics: The soils in this group are somewhat poorly drained and occur in concave areas in the glacial till upland. These soils are very fine sands through silty clay loam texture. Permeability is slow to very slow. The seasonal high-water table is 1/2 foot to 1 1/2 feet. Bedrock is generally six feet plus. These soils are subject to ponding. Soils in this group are 4A, 4B, 7, 25A, 42A, 42B, 81, 85A, 85B and 025B.
- (2) Use and requirements.
- (a) Septic systems shall not be installed on these soils. (See the Soils Interpretation Report for Orange County.) Exemption from this subsection may be granted by the Planning Board on one-lot subdivisions if the applicant can prove, to the satisfaction of the Board, that the septic system will function with no problems.

- (b) Homesites with basements shall not be installed on these soils. Homesites without basements may be installed if adequate drainage is provided to a free-flowing outlet.
 - (c) Erosion of these soils ranges from low to high.
 - (d) Red Hook (7) and Raynham (81) are placed in this group, but in some cases these soils are subject to ponding and flooding. On-site investigation is necessary to determine the location of these soils on the landscape.
- H. Group VIII: soils developed in silts that are influenced by bedrock, nearly level through sloping.
- (1) Characteristics. The soils in this group occur mostly in the rougher areas of the upland. The soils are underlain by hard bedrock, and some areas contain exposed rock outcrops. In most places, hardrock is found from 20 inches to 40 inches below the soil's surface. Permeability is moderate to slow above the bedrock. Where limestone bedrock occurs, severe cracks and voids in the rock must be considered. Slope ranges from 0% to 15%. Soils included in this group are 3A, 3B, 3C, 48B, 48C, 75AB, 75C, 070BC, 071BC, 073AC, 074AC, 077AC and 080AB.
 - (2) Use and requirements.
 - (a) Septic systems shall not be installed on these soils. Exemption from this subsection may be granted by the Planning Board on one-lot subdivisions if the applicant can prove to the satisfaction of the Board that the septic system will function with no problems.
 - (b) Homesites may be installed on these soils, but adequate foundation drainage should be provided to a free-flowing outlet.
 - (c) Erodibility of these soils is low to medium. Erosion may be a problem on the C slopes.
- I. Group IX: soils developed in silts, clay and very fine sands that pond, nearly level.
- (1) Characteristics. The soils in this group are poorly to very poorly drained, with a seasonal high-water table at zero foot to 1/2 foot. These soils are located in flat concave areas on the landscape. Permeability is very slow. A ponding condition will occur during most of the year. In some areas these soils are located along streams and are subject to infrequent flooding. Slope ranges from 0% to 3%. Soils included in this group are 8, 26, 43, 82, 86, 87, 97, 98 and 026.
 - (2) Use and requirements.
 - (a) Septic systems shall not be installed on these soils.
 - (b) Buildings should not be installed on these soils. These are ponding soils and give temporary storage during heavy rainfalls. In cases where buildings are installed on these soils, the storage eliminated by draining these areas must be replaced with holding ponds so as not to increase runoff to areas below.
- J. Group X: soils developed in very fine sands and silts that flood, nearly level.
- (1) Characteristics. The soils in this group are nearly level and are in the floodplains of stream valleys. All these soils are subject to flooding, with the lower-lying, poorly drained soils being flooded most frequently. The seasonal high-water table fluctuates with the stream level. Permeability is moderate through very slow. Slope ranges from 0% to 3%. Soils included in this group are 88, 89, 91, 92, 93, 99, 100, 101, 193 and 293.
 - (2) Use and requirements.
 - (a) These soils shall not have septic systems installed on them.
 - (b) Buildings with and without basements shall not be constructed on these soils.
- NOTE: Red Hook (7) and Raynham (81) soils are placed in Group VII, but in some cases these soils are located along small streams and are subject to ponding and flooding. On-site investigation is necessary to determine location of these soils on the landscape.
- K. Group XI: soils developed in very fine sands, heavy silts and clays, gently sloping.
- (1) Characteristics. The soils in this group are well to moderately well drained and occur in areas where glacial lake sediments have accumulated. These sediments are in layers composed of silts, very fine sands and clay. These soils are slowly permeable, very unstable and have a high shrink and swell potential. The water table ranges from 1 1/2 feet to six feet. Erosion and sluffing on these soils is severe. Bedrock is generally below six feet. Slope ranges from 8% to 15%. Soils included in this group are 78C, 79C, 79C and 84C.
 - (2) Use and requirements.
 - (a) These areas shall not be used for on-site septic systems except in cases where it can be proven that erosion and sluffing will not occur or necessary measures have been taken to prevent them.

- (b) Buildings with and without basements shall not be installed on these soils except in cases where it can be proven that erosion and sluffing will not occur or necessary measures have been taken to prevent them.
 - (c) Erodibility of these soils is high, and erosion and sluffing may be a severe problem.
- L. Group XII: soils developed in sands and silts that are influenced by steep slopes, moderately steep to steep.
- (1) Characteristics. The soils in this group are all soils that occur on slopes ranging from 15% through 25%. Slope percentages in some units are combined. The range of these soils is 15% through 35%. These soils are rated rapid for surface runoff. Soils included in this group are 1D, 9D, 13D, 20D, 22DE, 38D, 40D, 64D, 65DE, 77D, 020DE, 070DE, 071DE, 074DE, 075DE, 076DE and 077DE.
 - (2) Use and requirements.
 - (a) Septic systems shall not be installed on these soils.
 - (b) Buildings shall not be constructed on these soils except in cases where 50% of the area where the buildings are to be constructed is less than fifteen-percent slope for 4,000 square feet.
 - (c) Erodibility of these soils is low to medium, and erosion may be a problem on the C slopes.
- M. Group XIII: soils developed in sands, silts and clays that are dominated by very steep slopes.
- (1) Characteristics. The soils in this group are all soils that occur on slopes ranging from 25% through 45%. These soils are rated very rapid for surface runoff. Soils included in this group are 01E, 20E, 22F, 40E, 65F, 84D, 020F, 071F, 074F, 076F and 077F.
 - (2) Use and requirements.
 - (a) Septic systems shall not be installed on these soils.
 - (b) Buildings shall not be installed on these soils.
 - (c) Erosion is a problem on these steep slopes.
- N. Group XIV: soils developed in organic material, nearly level.
- (1) Characteristics. The soils in this group occur in depressional areas where surface organic materials are generally five feet or greater. These areas are subject to either flooding or ponding and are covered with water most of the year. Soils included in this group are 94, 96, 194, 197, 294 and 295.
 - (2) Use and requirements.
 - (a) These soils shall not have septic systems installed on them.
 - (b) Buildings, other than those that are agriculturally related, shall not be installed on these soils.
 - (c) These soils are best suited for agricultural use.
- O. Group XV: water bodies and marshland.^[1]
- (1) Characteristics. This group consists of marshland and water bodies within Orange County. The marshland has approximately one foot to two feet of water during most of the year. All ponds and lakes are also included in this group. The mapping unit in this group is 103.

[1] *Editor's Note: See also Ch. 54, Freshwater Wetlands.*