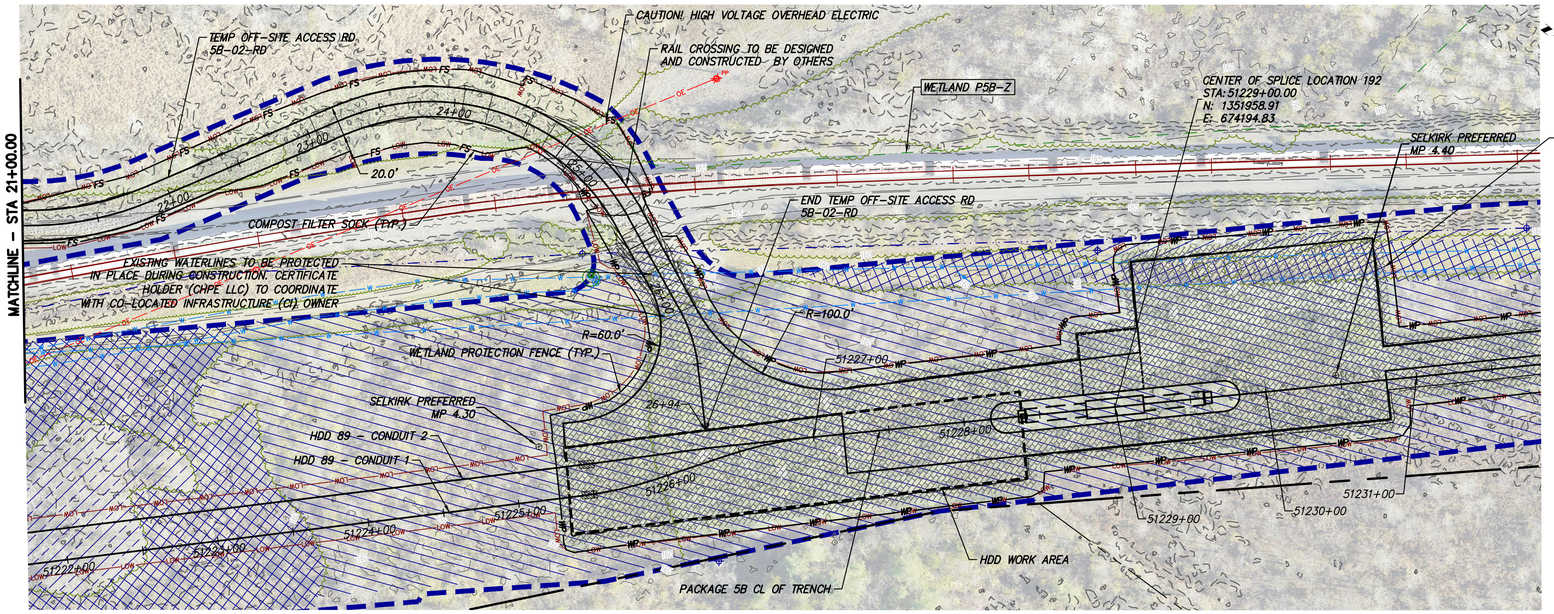
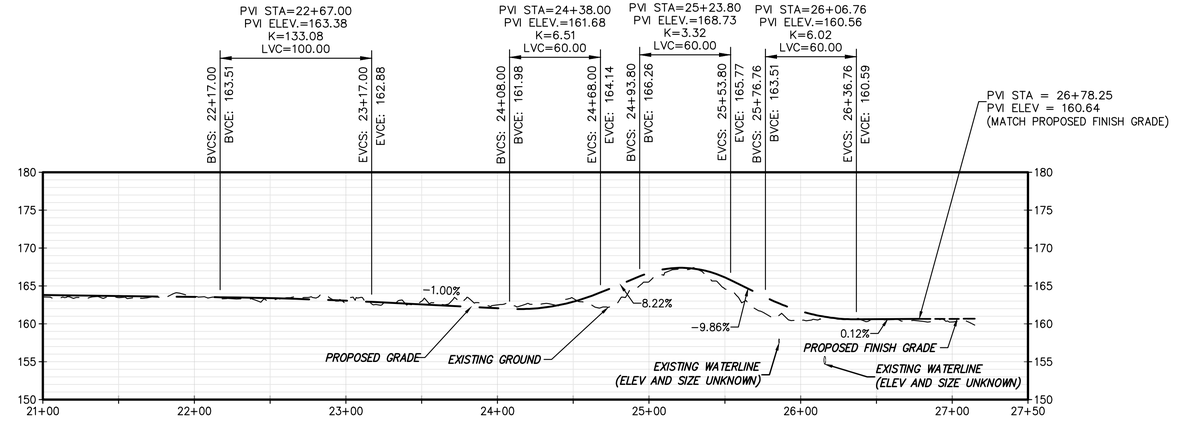


TEMP OFF-SITE ACCESS RD 5B-02-RD PLAN VIEW

STA. 21+00 TO STA. 26+94
SCALE: 1" = 50'

0 50 100
Scale in feet



TEMP OFF-SITE ACCESS RD 5B-02-RD PROFILE

STA. 21+00 TO STA. 26+79
SCALE: H: 1" = 50' V: 1" = 10'

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No.	DATE	SUBMITTAL / REVISION DESCRIPTION	BY	APP
0	06/09/2023	ISSUED FOR CONSTRUCTION SUBMISSION	BV	TK

CHAMPLAIN HUDSON POWER EXPRESS

SEGMENT 9 (PACKAGE 5B) - CSX: SELKIRK RAIL YARD BYPASS

TEMP OFF-SITE ACCESS ROADS (5B-02-RD)

KIEWIT PROJECT NO. 21162

DRAWING NO. C-205

DRAWN BY: AR | DESIGNED BY: BV | APPROVED BY: TK | SCALE AS SHOWN | REV. NO. 0 | DATE 06/09/2023 | SH.NO. 38 OF

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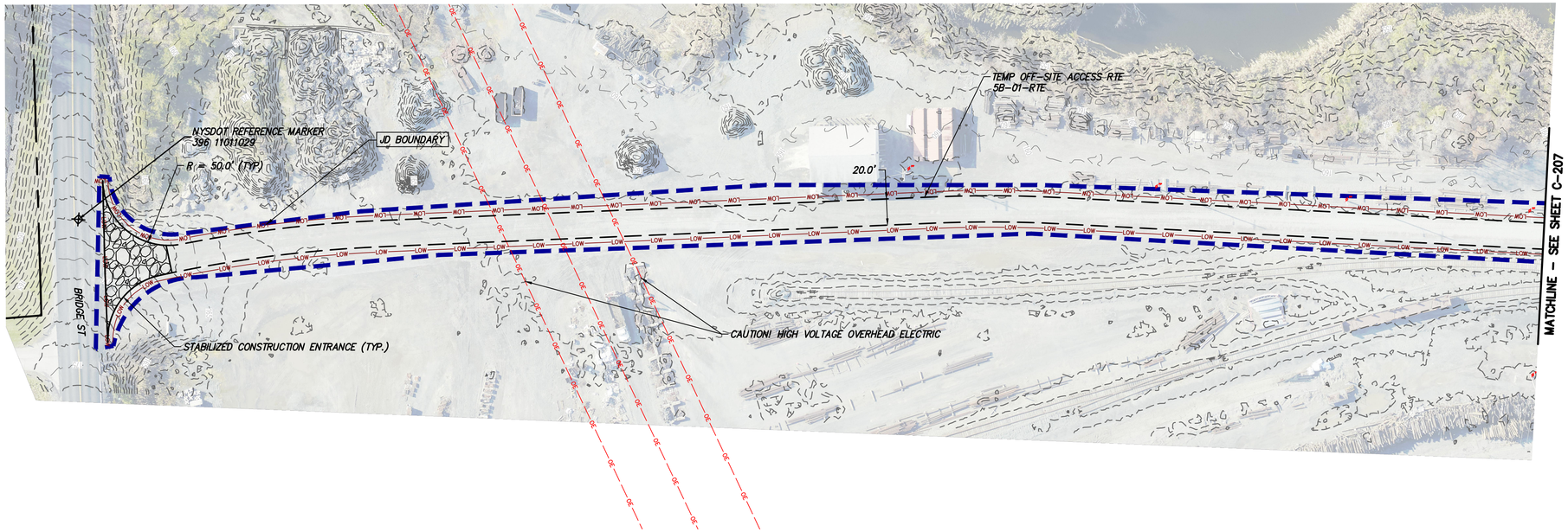

TEMP OFF-SITE ACCESS RTE 5B-01-RTE PLAN VIEW

SCALE: 1" = 50'

0 50 100
Scale in feet

A

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CHPE Champlain Hudson Power Express

Kiewit

STATE OF NEW YORK THOMAS A. KELLY 106559 LICENSED PROFESSIONAL ENGINEER

STATE OF NEW YORK NATHANIEL DALE HAVENER 103692 LICENSED PROFESSIONAL ENGINEER

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No.	DATE	SUBMITTAL / REVISION DESCRIPTION	DB	APP
0	06/09/2023	ISSUED FOR CONSTRUCTION SUBMISSION	BV	TK

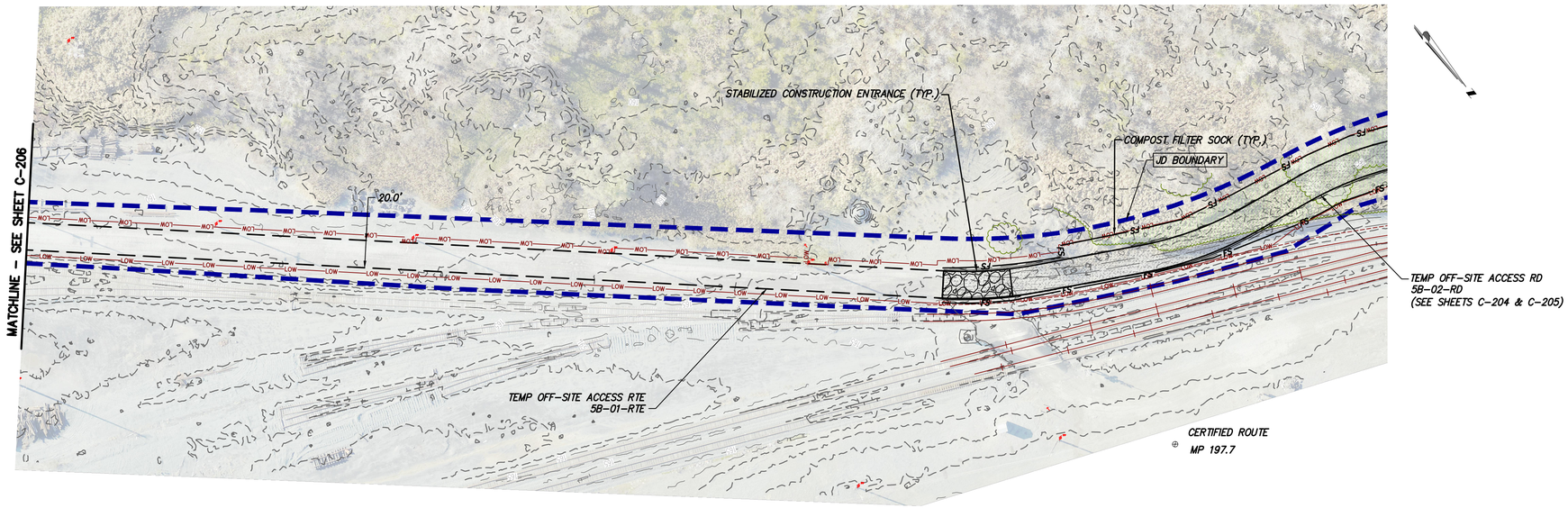
CHAMPLAIN HUDSON POWER EXPRESS

SEGMENT 9 (PACKAGE 5B) - CSX: SELKIRK RAIL YARD BYPASS

TEMP OFF-SITE ACCESS ROUTES (5B-01-RTE)

KIEWIT PROJECT NO.	21162
DRAWING NO.	C-206

DRAWN BY: AR | DESIGNED BY: BV | APPROVED BY: TK | SCALE AS SHOWN | REV. NO. 0 | DATE 06/09/2023 | SH.NO. 39 OF



TEMP OFF-SITE ACCESS RTE 5B-01-RTE PLAN VIEW

SCALE: 1" = 50'

0 50 100
Scale in feet

A

File: P:\KIE-CHPE\3-DES\02 RDW\SHTS\P-5B\21162_5B_C_AR_206-207.DWG Saved: 6/8/2023 8:49:11 AM Plotted: 6/8/2023 9:57:03 AM Current User: Fernando.Rivas1 LastSavedBy: Fernando.Rivas1

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STATE OF NEW YORK NATHANIEL DALE HAVENER 103692 LICENSED PROFESSIONAL ENGINEER

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No.	DATE	SUBMITTAL / REVISION DESCRIPTION	DB	APP
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CHAMPLAIN HUDSON POWER EXPRESS

SEGMENT 9 (PACKAGE 5B) - CSX: SELKIRK RAIL YARD BYPASS

TEMP OFF-SITE ACCESS ROUTES (5B-01-RTE)

KIEWIT PROJECT NO. 21162

DRAWING NO. **C-207**

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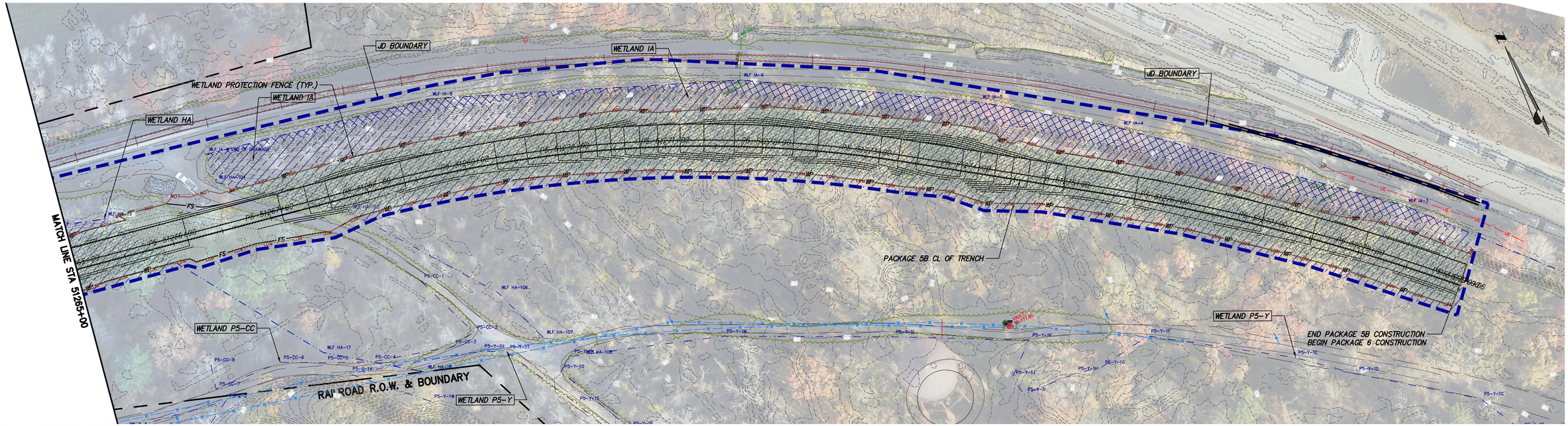

STA. 51265+00 TO STA. 51279+21 PLAN VIEW
SCALE: 1" = 50'

0 50 100
Scale in feet

CHPE Champlain Hudson Power Express

Kiewit

Engineering and Land Surveying, P.C.

STATE OF NEW YORK · NATHANIEL DALE TAYNEN · 103692 · LICENSED PROFESSIONAL ENGINEER

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No.	DATE	SUBMITTAL / REVISION DESCRIPTION	DB	APP
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0	06/09/2023	ISSUED FOR CONSTRUCTION SUBMISSION	MK/TH	NH

CHAMPLAIN HUDSON POWER EXPRESS

SEGMENT 9 (PACKAGE 5B) - CSX: SELKIRK RAIL YARD BYPASS

EROSION AND SEDIMENT CONTROL PLAN
STA. 51265+00 TO STA. 51279+21

KIEWIT PROJECT NO.	21162
KC PROJECT NO.	120174
DRAWING NO.	**C-410**

DRAWN BY: SC/TH | DESIGNED BY: MK | APPROVED BY: NH | SCALE AS SHOWN | REV. NO. 0 | DATE 6/7/2023 | SH.NO. | OF

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Appendix M Temporary Drainage Report

Champlain Hudson Power

Segment 8 & 9 (Packages 5A & 5B)

Temporary Drainage Analysis

Rotterdam/ Selkirk Rail Yard

KC Engineering Project Number: 120174

Prepared for:

Transmission
Developers Inc. 1301
Avenue of the Americas, 26th
Floor
New York, NY 10019

Prepared by:

KC Engineering and Land Surveying ,P.C.
7 Penn Plaza, Suite 1604
New York 10001

June 2023

Table of Contents:

Appendices:

- Appendix A – Project Location Map
- Appendix B – Drainage Feature Model Input Data and Analysis
- Appendix C – NRCS Soil Survey Map
- Appendix D – NYSDOT Highway Design Manual Exhibits

Project Description:

The proposed Champlain Hudson Power Express (CHPE) project involves the construction of ±339 miles of high voltage direct current underground and underwater transmission line from Montreal, Canada to Queens, New York. It will bring 1,250 megawatts of hydropower to replace the use of fossil fuel, reduce carbon emission, and to help achieve clean renewable energy by the year 2025.

The proposed +/- 22.30 miles of upland cable instillation for Segments 8 and 9 (Package 5A and 5B) begins in Rotterdam and ends at the Selkirk Rail Yard. Refer to Appendix A for the Project Location Map. Proposed work consists of installing two 8-inch-diameter PVC casings. All trenching activities and directional drilling work will be located within public roadway and railroad Right-Of-Ways (ROWs). All temporary construction storage and staging areas will also be accomplished within the grounds of the existing ROWs or agreement with private landowners.

Limits of proposed disturbances and restoration areas are identified on the plans and reference site specific details regarding the required restoration. Once the construction activity is completed, all disturbed grounds will be topsoiled, seeded, and stabilized. The proposed grading of the roads and side slopes on site will have minimal ground disturbance to the greatest extent practical while maintaining existing drainage patterns.

Background:

The following report details the temporary drainage and hydraulic analysis prepared for Champlain Hudson Power Express Segment 8 & 9 (Package 5A and 5B) located within Rotterdam/ Selkirk Rail Yard.

The purpose of this report is to identify the areas where temporary swales or temporary culverts will be required in order to maintain existing flow patterns and to avoid any additional runoff entering onto private properties and railroads along the project limit during construction. All procedures related to dewatering methods are described in Section 4.3.2 of the Environmental Management and Construction Plan (EM&CP) and Spill Prevention Control & Countermeasures Plan (SPCC) in Appendix K of the EM&CP.

Backup calculations have been prepared and are provided within Appendix B of this report that demonstrate the temporary swales and culverts have been sized appropriately during the duration of the project. All temporary drainage practices will be removed in final conditions and the site will be restored to pre-construction conditions.

Project Soils:

A variety of soil types are present within the project limits, See detail in Appendix C for the NRCS soils map within the project area.

Field Observations/ Research:

A combination of survey base mapping and google street view were utilized to confirm record plan information to the greatest extent possible. Location of the proposed temporary swales and culverts were delineated from base mapping based on existing & proposed temporary grading. The basis for temporary swales and culverts is to avoid additional flow from entering onto private properties and railroad as well as maintain existing flow patterns during construction.

Hydrology:

Drainage basins were delineated based on the existing ground survey provided. The hydrological analysis method used for peak flow analysis is Rational Method, because of the size of all contributing basins being smaller than 80 hectares (197 acres). The Rational Method predicts peak flows based on the rainfall intensity and the contributing drainage area. Runoff coefficients(C) used were consistent with New York State Department of Transportation (NYSDOT) Highway Design Manual (HDM) Exhibit 8-4. The times of concentration were based on NYSDOT guidelines, and a minimum time of concentration of 6 minutes was used. A 25-year design storm frequency was selected for the culverts and the ditches in accordance with HDM Exhibit 8-3.

The rainfall intensity (R) was calculated from the NOAA Atlas 14 precipitation frequency estimates.

Based on the Rational Method, total runoff from the system was calculated using Q = CRA (ft3/s). A combination of the U.S. Department of Transportation Federal Highway Administration's HY-8 Culvert Hydraulic Analysis Program and Hydraulic Toolbox were used to develop peak flows.

The storm event analysis output files for the Hydraulic Toolbox and HY-8 models are attached in Appendix B. The proposed temporary drainage was designed to meet NYSDOT Highway Design Manual Chapter 8 requirements.

Summary of Drainage:

A summary of the temporary swales and culverts that will be utilized in Package 5A and 5B are shown below. All temporary swales will be V-shaped with 3:1 or 2:1 side slopes. The minimum depth of the temporary swales is 1'. Temporary check dams will be installed within the temporary swales in accordance with New York State Standards and Specifications for Erosion and Sediment Control.

TABLE 1 - STORMWATER SUMMARY

Location	Type of Temporary Drainage	Length (Ft)	Pipe Diameter / Swale Side Slope	Flow Depth (Ft)	Material	Tributary Area (sf)	25-Yr Rainfall Intensity (in/hr)	Total Flow in 25 Yr Storm Event (cfs)
50527+50 - 50539+00	V-Shaped Swale	1,150	3:1	0.886	Earth	135,036	7.84	8.50
50539+00 - 50541+00	V-Shaped Swale	200	3:1	0.483	Earth	55,350	7.84	3.49
51077+75 - 51082+00	V-Shaped Swale	425	2:1	0.98	Earth	80,929	7.84	5.10
51167+00	Culvert Extension	32 (16' Each Side)	15"	0.907	CMP	34667	7.84	2.184
51168+50 - 51169+25	V-Shaped Swale	130	3:1	0.97	Earth	N/A*	7.84	10.00*

***Flow estimated based on expected discharge from 15" culvert immediately preceding the swale**

References:

Highway Design Manual, Chapter 8, NYSDOT, 50 Wolf Road, Albany, NY 12232.

https://www.dot.ny.gov/divisions/engineering/design/dqab/hdm/chapter-8

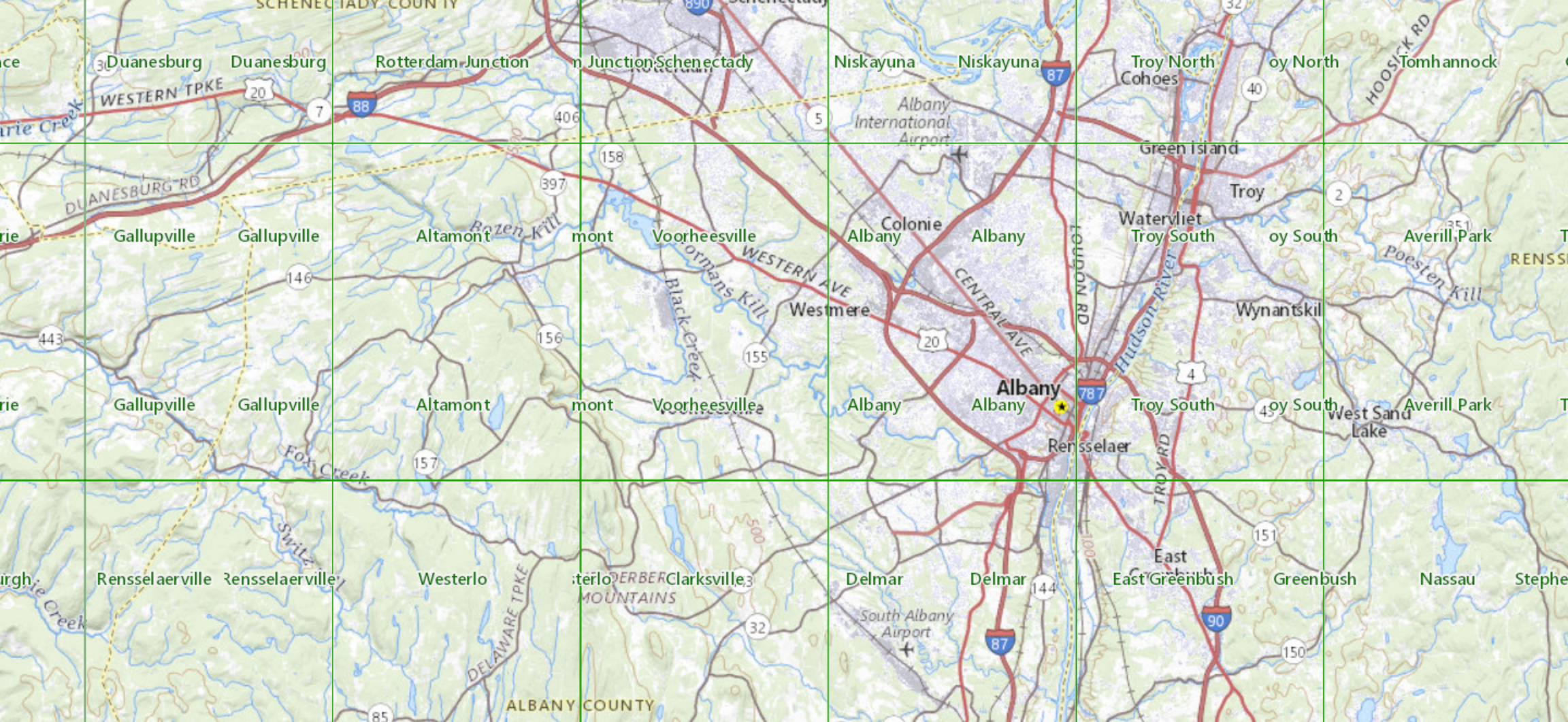
Standard Specifications, Construction and Materials, NYSDOT, 50 Wolf Road, Albany, NY 12232.

https://www.dot.ny.gov/main/business-center/engineering/specifications

Hydraulic Engineering Circular No. 22, 2nd Edition, Urban Drainage Design Manual, August 2001, FHWA

APPENDIX A

PROJECT LOCATION MAP


Duanesburg
Duanesburg
Rotterdam Junction
Junction Schenectady
Niskayuna
Niskayuna
Troy North
Cohoes
Tomhannock
WESTERN TPKE
DUANESBURG RD
Albany International Airport
Green Island
Troy
Watervliet
Troy South
Averill Park
Gallupville
Gallupville
Altamont
Voorheesville
Colonie
Albany
Albany
Westmere
Wynantskil
Hudson River
Poesten Kill
Black Creek
Normans Kill
WESTERN AVE
CENTRAL AVE
Albany
Albany
Albany
Troy South
West Sand Lake
Rensselaer
TROY RD
Fox Creek
Rensselaerville
Rensselaerville
Westerlo
Clarksville
Delmar
Delmar
East Greenbush
Greenbush
Nassau
DELAWARE TPKE
South Albany Airport
ALBANY COUNTY

APPENDIX B

DRAINAGE FEATURE MODEL INPUT DATA AND ANALYSIS

HY-8 Culvert Analysis Report

Crossing Discharge Data

Discharge Selection Method: Specify Minimum, Design, and Maximum Flow

Minimum Flow: 1.8 cfs

Design Flow: 2.184 cfs

Maximum Flow: 2.184 cfs

Table 1 - Summary of Culvert Flows at Crossing: 51167+00

Headwater Elevation (ft)	Total Discharge (cfs)	51167+00 Discharge (cfs)	Roadway Discharge (cfs)	Iterations
165.89	1.80	1.80	0.00	1
165.90	1.84	1.84	0.00	1
165.91	1.88	1.88	0.00	1
165.93	1.92	1.92	0.00	1
165.94	1.95	1.95	0.00	1
165.95	1.99	1.99	0.00	1
165.96	2.03	2.03	0.00	1
165.97	2.07	2.07	0.00	1
165.98	2.11	2.11	0.00	1
165.99	2.15	2.15	0.00	1
166.00	2.18	2.18	0.00	1
167.25	4.12	4.12	0.00	Overtopping

Rating Curve Plot for Crossing: 51167+00

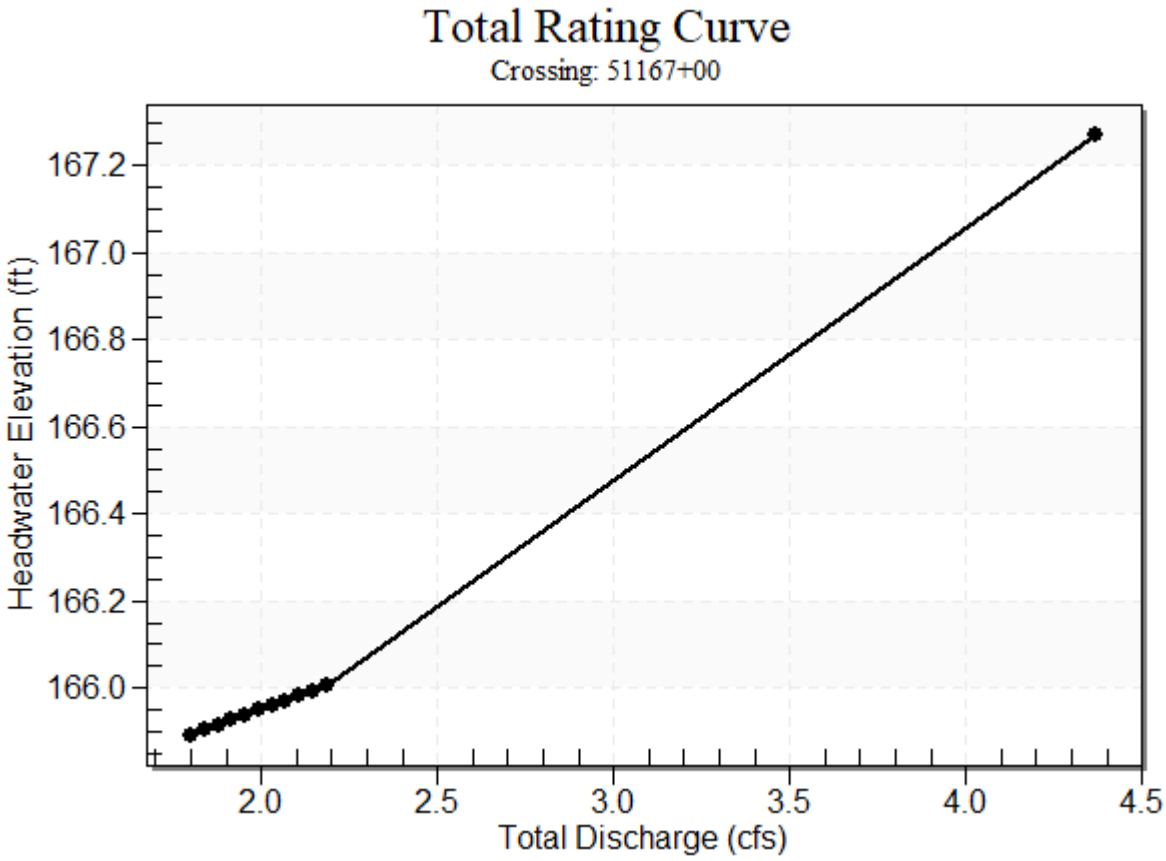


Table 2 - Culvert Summary Table: 51167+00

Total Discharge (cfs)	Culvert Discharge (cfs)	Headwater Elevation (ft)	Inlet Control Depth (ft)	Outlet Control Depth (ft)	Flow Type	Normal Depth (ft)	Critical Depth (ft)	Outlet Depth (ft)	Tailwater Depth (ft)	Outlet Velocity (ft/s)	Tailwater Velocity (ft/s)
1.80	1.80	165.89	0.807	0.893	2-M2c	0.703	0.533	0.533	0.210	3.606	5.241
1.84	1.84	165.90	0.817	0.904	2-M2c	0.713	0.539	0.539	0.213	3.630	5.274
1.88	1.88	165.91	0.827	0.915	2-M2c	0.722	0.545	0.545	0.215	3.653	5.306
1.92	1.92	165.93	0.837	0.926	2-M2c	0.732	0.551	0.551	0.217	3.677	5.336
1.95	1.95	165.94	0.847	0.937	2-M2c	0.741	0.556	0.556	0.220	3.700	5.365
1.99	1.99	165.95	0.857	0.948	2-M2c	0.751	0.562	0.562	0.222	3.723	5.392
2.03	2.03	165.96	0.867	0.960	2-M2c	0.760	0.568	0.568	0.224	3.745	5.424
2.07	2.07	165.97	0.877	0.971	2-M2c	0.770	0.573	0.573	0.226	3.767	5.449
2.11	2.11	165.98	0.887	0.982	2-M2c	0.779	0.579	0.579	0.228	3.789	5.479
2.15	2.15	165.99	0.897	0.992	2-M2c	0.789	0.584	0.584	0.230	3.812	5.507
2.18	2.18	166.00	0.907	1.003	2-M2c	0.798	0.590	0.590	0.232	3.834	5.534

****

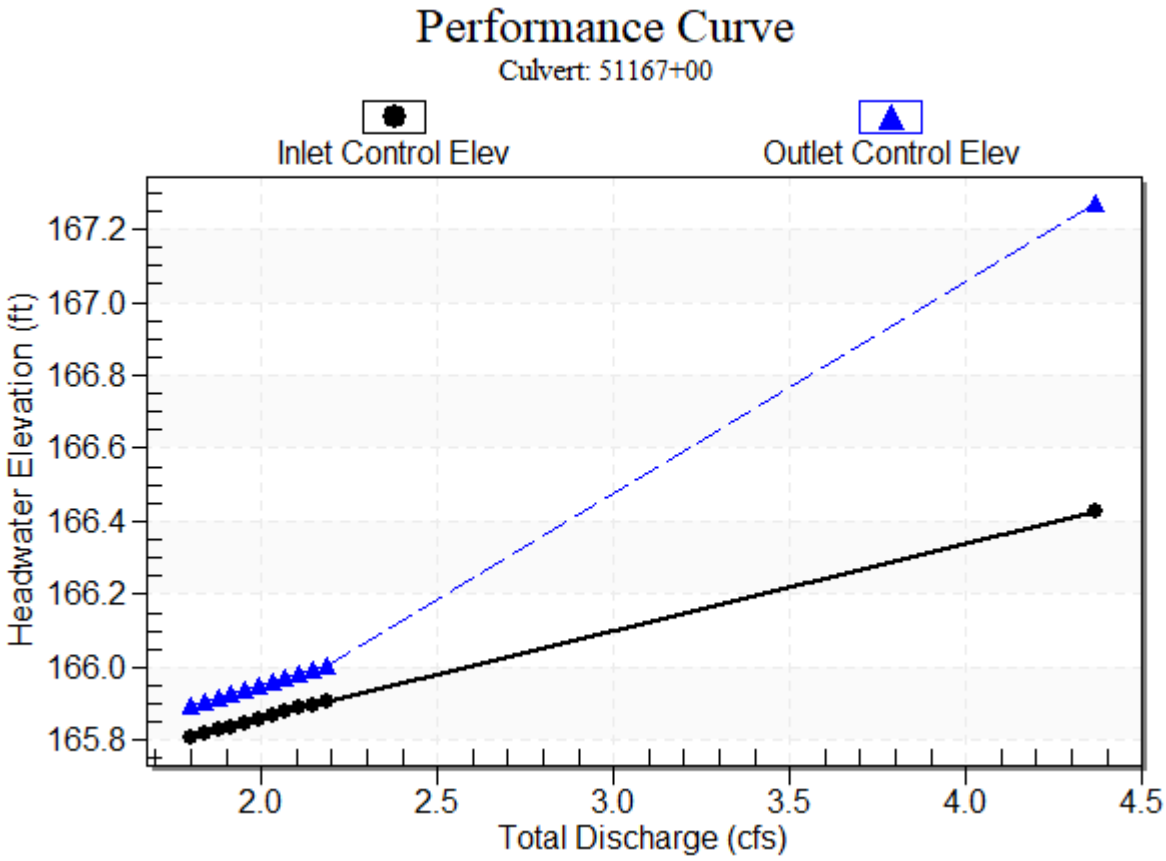
Straight Culvert

Inlet Elevation (invert): 165.00 ft, Outlet Elevation (invert): 164.00 ft

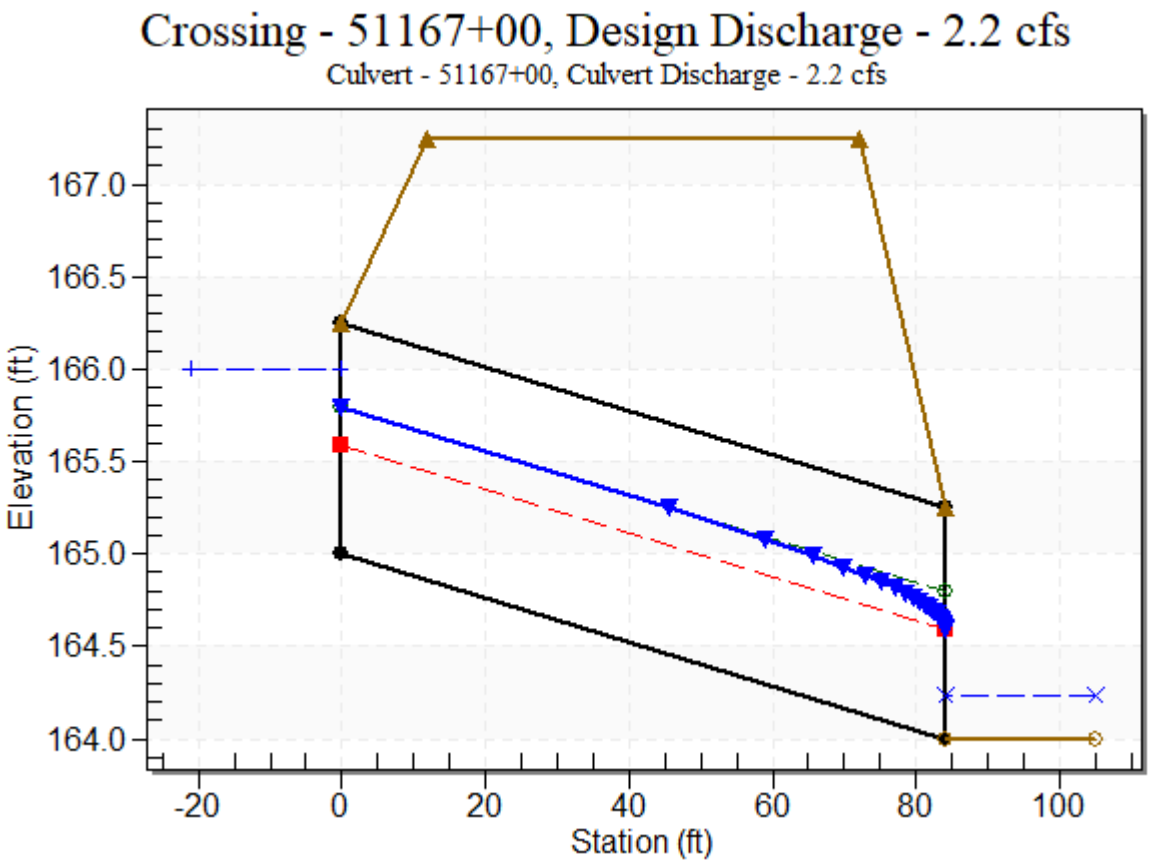
Culvert Length: 84.01 ft, Culvert Slope: 0.0119

****

Culvert Performance Curve Plot: 51167+00



Water Surface Profile Plot for Culvert: 51167+00



Site Data - 51167+00

Site Data Option: Culvert Invert Data

Inlet Station: 0.00 ft

Inlet Elevation: 165.00 ft

Outlet Station: 84.00 ft

Outlet Elevation: 164.00 ft

Number of Barrels: 1

Culvert Data Summary - 51167+00

Barrel Shape: Circular

Barrel Diameter: 1.25 ft

Barrel Material: Corrugated Aluminum

Embedment: 0.00 in

Barrel Manning's n: 0.0310

Culvert Type: Straight

Inlet Configuration: Thin Edge Projecting

Inlet Depression: None

Table 3 - Downstream Channel Rating Curve (Crossing: 51167+00)

Flow (cfs)	Water Surface Elev (ft)	Depth (ft)	Velocity (ft/s)	Shear (psf)	Froude Number
1.80	164.21	0.21	5.24	1.31	2.37
1.84	164.21	0.21	5.27	1.33	2.38
1.88	164.22	0.22	5.31	1.34	2.38
1.92	164.22	0.22	5.34	1.36	2.38
1.95	164.22	0.22	5.36	1.37	2.38
1.99	164.22	0.22	5.39	1.38	2.39
2.03	164.22	0.22	5.42	1.40	2.39
2.07	164.23	0.23	5.45	1.41	2.39
2.11	164.23	0.23	5.48	1.42	2.40
2.15	164.23	0.23	5.51	1.44	2.40
2.18	164.23	0.23	5.53	1.45	2.40

Tailwater Channel Data - 51167+00

Tailwater Channel Option: Trapezoidal Channel

Bottom Width: 1.00 ft

Side Slope (H:V): 3.00 (_:1)

Channel Slope: 0.1000

Channel Manning's n: 0.0250

Channel Invert Elevation: 164.00 ft

Roadway Data for Crossing: 51167+00

Roadway Profile Shape: Constant Roadway Elevation

Crest Length: 24.00 ft

Crest Elevation: 167.25 ft

Roadway Surface: Gravel

Roadway Top Width: 60.00 ft

Hydraulic Analysis Report

Project Data

Project Title:

Designer:

Project Date: Monday, January 9, 2023

Project Units: U.S. Customary Units

Notes:

Channel Analysis: 51077+75 TO 51082+00

Notes:

Input Parameters

Channel Type: Triangular

Side Slope 1 (Z1): 2.0000 ft/ft

Side Slope 2 (Z2): 2.0000 ft/ft

Longitudinal Slope: 0.0060 ft/ft

Manning's n: 0.0250

Flow: 5.1000 cfs

Result Parameters

Depth: 0.9798 ft

Area of Flow: 1.9200 ft^2

Wetted Perimeter: 4.3818 ft

Hydraulic Radius: 0.4382 ft

Average Velocity: 2.6562 ft/s

Top Width: 3.9192 ft

Froude Number: 0.6688

Critical Depth: 0.8342 ft

Critical Velocity: 3.6647 ft/s

Critical Slope: 0.0142 ft/ft

Critical Top Width: 3.34 ft

Calculated Max Shear Stress: 0.3668 lb/ft^2

Calculated Avg Shear Stress: 0.1641 lb/ft^2

Channel Analysis: 50527+50 TO 50539+00

Notes:

Input Parameters

Channel Type: Triangular

Side Slope 1 (Z1): 3.0000 ft/ft

Side Slope 2 (Z2): 3.0000 ft/ft

Longitudinal Slope: 0.0117 ft/ft

Manning's n: 0.0250

Flow: 8.5000 cfs

Result Parameters

Depth: 0.8862 ft

Area of Flow: 2.3560 ft^2

Wetted Perimeter: 5.6047 ft

Hydraulic Radius: 0.4204 ft

Average Velocity: 3.6079 ft/s

Top Width: 5.3171 ft

Froude Number: 0.9552

Critical Depth: 0.8701 ft

Critical Velocity: 3.7427 ft/s

Critical Slope: 0.0129 ft/ft

Critical Top Width: 5.22 ft

Calculated Max Shear Stress: 0.6470 lb/ft^2

Calculated Avg Shear Stress: 0.3069 lb/ft^2

Channel Analysis: 50539+00 TO 50541+00

Notes:

Input Parameters

Channel Type: Triangular

Side Slope 1 (Z1): 3.0000 ft/ft

Side Slope 2 (Z2): 3.0000 ft/ft

Longitudinal Slope: 0.0500 ft/ft

Manning's n: 0.0250

Flow: 3.4900 cfs

Result Parameters

Depth: 0.4834 ft

Area of Flow: 0.7009 ft^2

Wetted Perimeter: 3.0571 ft

Hydraulic Radius: 0.2293 ft

Average Velocity: 4.9790 ft/s

Top Width: 2.9002 ft

Froude Number: 1.7848

Critical Depth: 0.6094 ft

Critical Velocity: 3.1324 ft/s

Critical Slope: 0.0145 ft/ft

Critical Top Width: 3.66 ft

Calculated Max Shear Stress: 1.5081 lb/ft^2

Calculated Avg Shear Stress: 0.7154 lb/ft^2

Channel Analysis: 51168+50 TO 51169+25

Notes:

Input Parameters

Channel Type: Triangular

Side Slope 1 (Z1): 3.0000 ft/ft

Side Slope 2 (Z2): 3.0000 ft/ft

Longitudinal Slope: 0.0100 ft/ft

Manning's n: 0.0250

Flow: 10.0000 cfs

Result Parameters

Depth: 0.9700 ft

Area of Flow: 2.8228 ft^2

Wetted Perimeter: 6.1349 ft

Hydraulic Radius: 0.4601 ft

Average Velocity: 3.5426 ft/s

Top Width: 5.8201 ft

Froude Number: 0.8964

Critical Depth: 0.9285 ft

Critical Velocity: 3.8664 ft/s

Critical Slope: 0.0126 ft/ft

Critical Top Width: 5.57 ft

Calculated Max Shear Stress: 0.6053 lb/ft^2

Calculated Avg Shear Stress: 0.2871 lb/ft^2

NOAA Atlas 14, Volume 10, Version 3
Location name: Schenectady, New York, USA*
Latitude: 42.7537°, Longitude: -73.9756°
Elevation: 304.67 ft**
* source: ESRI Maps
** source: USGS

POINT PRECIPITATION FREQUENCY ESTIMATES

Sanja Perica, Sandra Pavlovic, Michael St. Laurent, Carl Trypaluk, Dale Unruh, Orlan Wilhite

NOAA, National Weather Service, Silver Spring, Maryland

PF_tabular | PF_graphical | Maps_&_aerials

PF tabular

PDS-based point precipitation frequency estimates with 90% confidence intervals (in inches/hour)[1]

Duration	Average recurrence interval (years)									
	1	2	5	10	25	50	100	200	500	1000
5-min	**3.49** (2.71-4.45)	**4.24** (3.29-5.41)	**5.45** (4.21-6.97)	**6.46** (4.97-8.30)	**7.84** (5.84-10.5)	**8.88** (6.49-12.1)	**9.97** (7.10-14.0)	**11.2** (7.56-16.0)	**13.0** (8.45-19.1)	**14.6** (9.22-21.7)
10-min	**2.47** (1.92-3.16)	**3.00** (2.33-3.83)	**3.86** (2.99-4.94)	**4.57** (3.52-5.88)	**5.55** (4.14-7.42)	**6.29** (4.60-8.55)	**7.07** (5.03-9.92)	**7.96** (5.35-11.3)	**9.25** (5.99-13.5)	**10.3** (6.53-15.3)
15-min	**1.94** (1.51-2.48)	**2.35** (1.83-3.00)	**3.03** (2.34-3.87)	**3.59** (2.76-4.62)	**4.36** (3.25-5.82)	**4.93** (3.61-6.71)	**5.54** (3.94-7.78)	**6.24** (4.20-8.87)	**7.25** (4.70-10.6)	**8.09** (5.12-12.0)
30-min	**1.32** (1.02-1.68)	**1.60** (1.24-2.04)	**2.05** (1.59-2.63)	**2.44** (1.87-3.13)	**2.96** (2.21-3.95)	**3.35** (2.45-4.56)	**3.77** (2.68-5.29)	**4.24** (2.85-6.04)	**4.93** (3.19-7.22)	**5.50** (3.48-8.19)
60-min	**0.831** (0.646-1.06)	**1.01** (0.783-1.29)	**1.30** (1.00-1.66)	**1.54** (1.19-1.98)	**1.87** (1.40-2.50)	**2.12** (1.55-2.88)	**2.38** (1.70-3.35)	**2.68** (1.81-3.82)	**3.12** (2.02-4.57)	**3.48** (2.20-5.18)
2-hr	**0.524** (0.410-0.664)	**0.632** (0.494-0.802)	**0.808** (0.630-1.03)	**0.954** (0.739-1.22)	**1.16** (0.868-1.54)	**1.31** (0.962-1.77)	**1.47** (1.05-2.05)	**1.65** (1.12-2.34)	**1.93** (1.25-2.80)	**2.16** (1.37-3.19)
3-hr	**0.398** (0.312-0.502)	**0.478** (0.375-0.604)	**0.609** (0.476-0.772)	**0.718** (0.558-0.914)	**0.867** (0.654-1.15)	**0.979** (0.723-1.32)	**1.10** (0.790-1.53)	**1.24** (0.838-1.74)	**1.45** (0.942-2.10)	**1.62** (1.03-2.39)
6-hr	**0.248** (0.196-0.312)	**0.297** (0.234-0.373)	**0.376** (0.296-0.474)	**0.442** (0.346-0.559)	**0.533** (0.404-0.701)	**0.600** (0.446-0.804)	**0.672** (0.487-0.934)	**0.759** (0.516-1.06)	**0.889** (0.581-1.28)	**1.00** (0.638-1.46)
12-hr	**0.152** (0.121-0.190)	**0.181** (0.144-0.226)	**0.229** (0.181-0.286)	**0.268** (0.211-0.337)	**0.323** (0.246-0.422)	**0.363** (0.271-0.484)	**0.406** (0.296-0.561)	**0.459** (0.313-0.638)	**0.538** (0.353-0.770)	**0.606** (0.388-0.881)
24-hr	**0.091** (0.073-0.113)	**0.108** (0.087-0.134)	**0.136** (0.109-0.170)	**0.160** (0.127-0.199)	**0.192** (0.147-0.249)	**0.216** (0.162-0.286)	**0.242** (0.176-0.331)	**0.272** (0.186-0.376)	**0.318** (0.209-0.452)	**0.357** (0.229-0.515)
2-day	**0.053** (0.042-0.065)	**0.062** (0.050-0.077)	**0.078** (0.063-0.097)	**0.092** (0.073-0.114)	**0.110** (0.085-0.141)	**0.124** (0.093-0.162)	**0.138** (0.101-0.187)	**0.155** (0.107-0.212)	**0.179** (0.118-0.253)	**0.199** (0.128-0.286)
3-day	**0.039** (0.031-0.047)	**0.045** (0.037-0.056)	**0.057** (0.046-0.070)	**0.066** (0.053-0.081)	**0.079** (0.061-0.101)	**0.089** (0.067-0.115)	**0.099** (0.072-0.133)	**0.110** (0.076-0.150)	**0.127** (0.084-0.178)	**0.141** (0.091-0.201)
4-day	**0.031** (0.025-0.038)	**0.036** (0.029-0.045)	**0.045** (0.036-0.055)	**0.052** (0.042-0.064)	**0.062** (0.048-0.079)	**0.070** (0.053-0.091)	**0.078** (0.057-0.104)	**0.086** (0.060-0.118)	**0.099** (0.066-0.139)	**0.110** (0.071-0.156)
7-day	**0.021** (0.017-0.026)	**0.024** (0.020-0.029)	**0.030** (0.024-0.036)	**0.034** (0.027-0.041)	**0.040** (0.031-0.051)	**0.044** (0.034-0.057)	**0.049** (0.036-0.065)	**0.054** (0.038-0.074)	**0.062** (0.041-0.086)	**0.068** (0.044-0.096)
10-day	**0.017** (0.014-0.021)	**0.019** (0.016-0.023)	**0.023** (0.019-0.028)	**0.026** (0.021-0.032)	**0.031** (0.024-0.039)	**0.034** (0.026-0.044)	**0.038** (0.028-0.050)	**0.041** (0.029-0.056)	**0.046** (0.031-0.064)	**0.051** (0.033-0.071)
20-day	**0.012** (0.010-0.015)	**0.013** (0.011-0.016)	**0.016** (0.013-0.019)	**0.017** (0.014-0.021)	**0.020** (0.016-0.025)	**0.022** (0.017-0.028)	**0.024** (0.017-0.031)	**0.026** (0.018-0.034)	**0.028** (0.019-0.038)	**0.030** (0.019-0.042)
30-day	**0.010** (0.008-0.012)	**0.011** (0.009-0.013)	**0.013** (0.010-0.015)	**0.014** (0.011-0.017)	**0.016** (0.012-0.020)	**0.017** (0.013-0.022)	**0.019** (0.014-0.024)	**0.020** (0.014-0.026)	**0.021** (0.014-0.029)	**0.022** (0.015-0.031)
45-day	**0.008** (0.007-0.010)	**0.009** (0.008-0.011)	**0.010** (0.009-0.012)	**0.011** (0.009-0.014)	**0.013** (0.010-0.016)	**0.014** (0.010-0.017)	**0.015** (0.011-0.019)	**0.016** (0.011-0.021)	**0.017** (0.011-0.023)	**0.017** (0.011-0.024)
60-day	**0.007** (0.006-0.009)	**0.008** (0.007-0.010)	**0.009** (0.007-0.011)	**0.010** (0.008-0.012)	**0.011** (0.009-0.013)	**0.012** (0.009-0.014)	**0.012** (0.009-0.016)	**0.013** (0.009-0.017)	**0.014** (0.009-0.019)	**0.014** (0.009-0.020)

[1] Precipitation frequency (PF) estimates in this table are based on frequency analysis of partial duration series (PDS).

Numbers in parenthesis are PF estimates at lower and upper bounds of the 90% confidence interval. The probability that precipitation frequency estimates (for a given duration and average recurrence interval) will be greater than the upper bound (or less than the lower bound) is 5%. Estimates at upper bounds are not checked against probable maximum precipitation (PMP) estimates and may be higher than currently valid PMP values.

Please refer to NOAA Atlas 14 document for more information.

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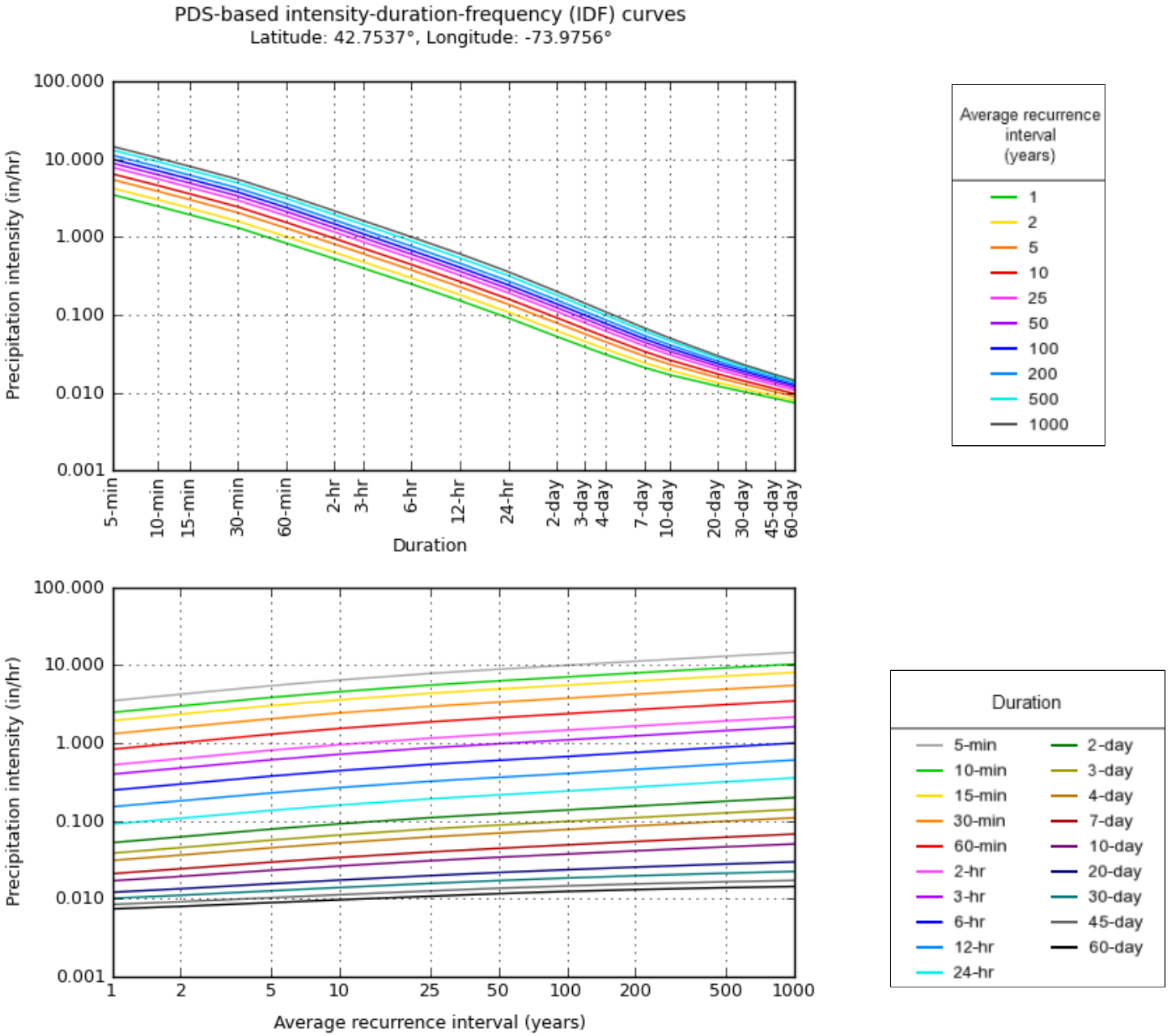
PF graphical



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Created (GMT): Mon Jan 9 16:20:00 2023

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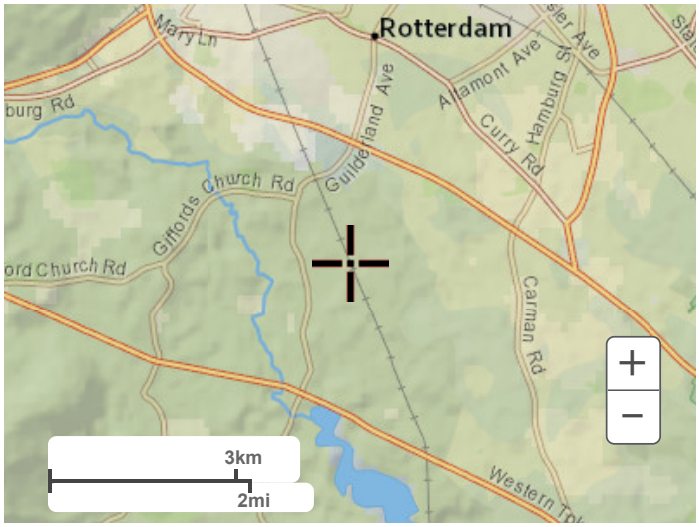
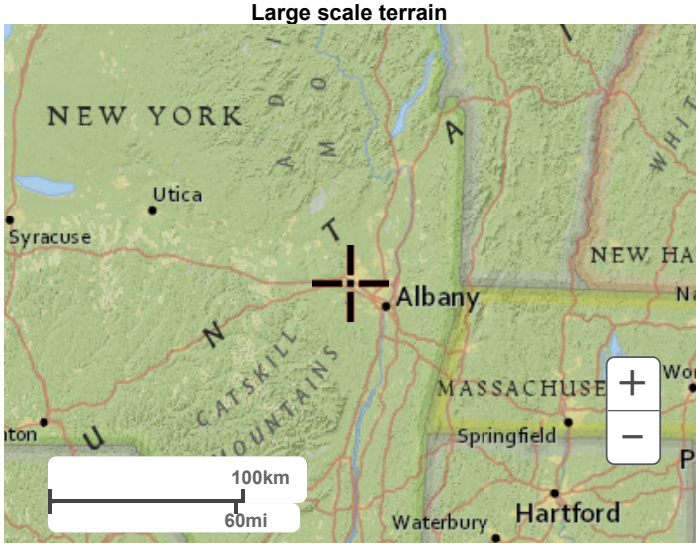
Maps & aerials

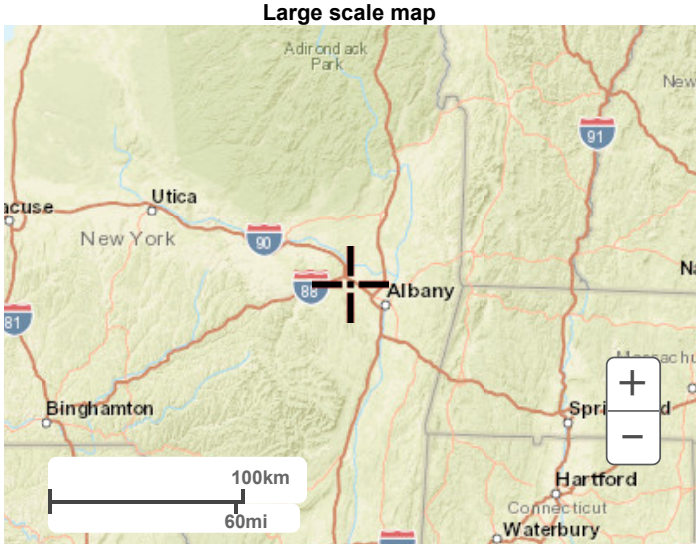
Small scale terrain



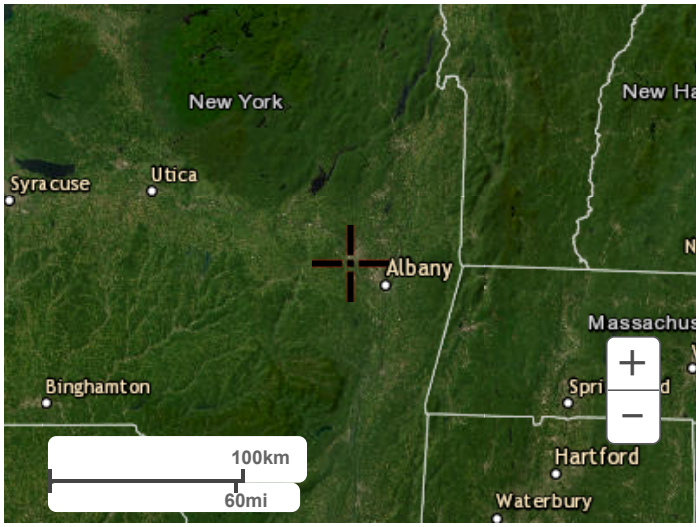
Large scale terrain



Large scale map



Large scale aerial



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US Department of Commerce
National Oceanic and Atmospheric Administration
National Weather Service
National Water Center
1325 East West Highway
Silver Spring, MD 20910
Questions?: HDSC.Questions@noaa.gov

Disclaimer

APPENDIX C

NRCS SOIL SURVEY MAP

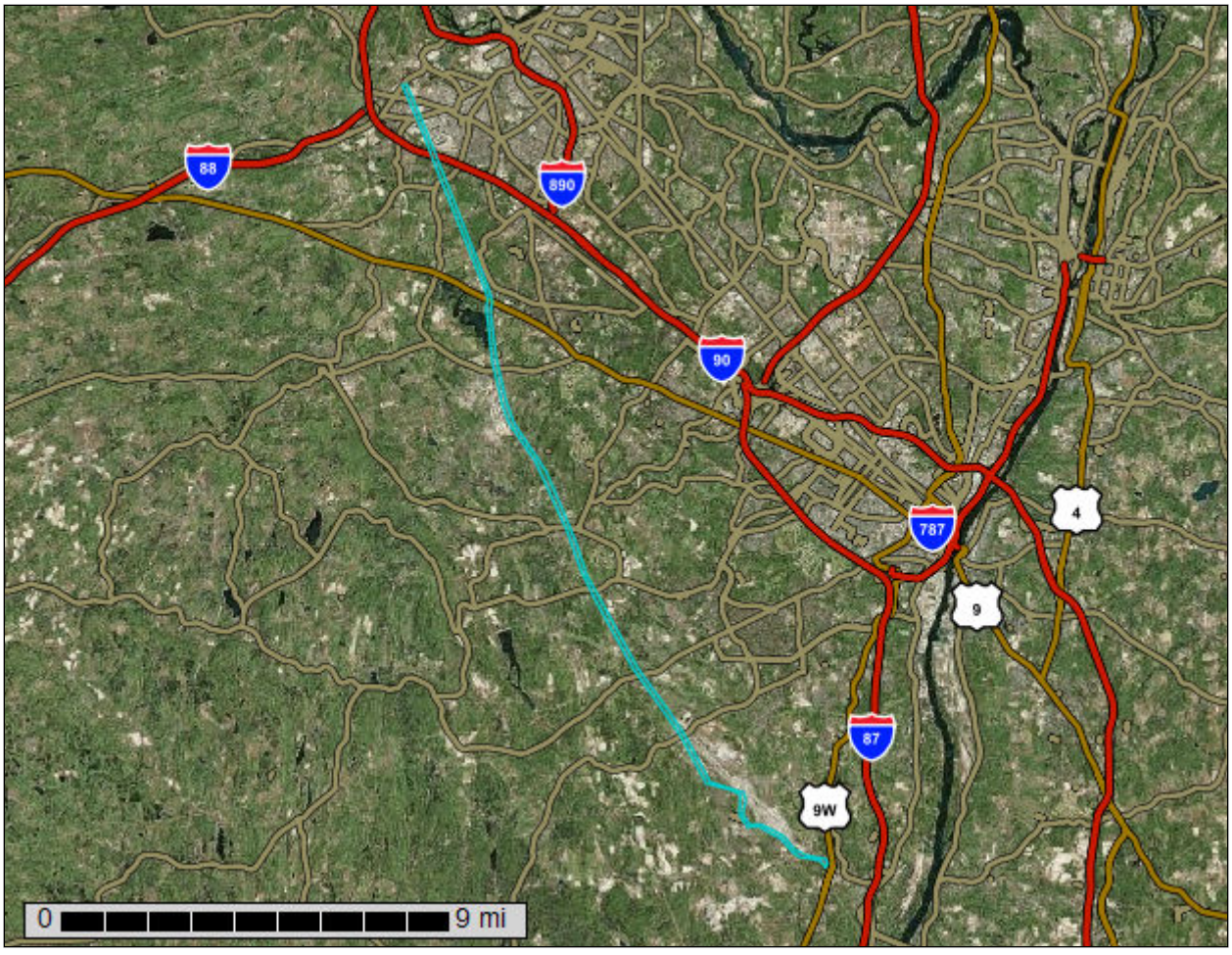
United States Department of Agriculture

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 Albany County, New York, and Schenectady County, New York



January 4, 2023

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.


74° 3' 56" W
73° 44' 34" W
42° 49' 29" N
42° 30' 34" N
578000
582000
586000
590000
594000
598000
602000
4740000
4736000
4732000
4728000
4724000
4720000
4716000
4712000
4708000
890
20
90
9
787
87
9W
Map Scale: 1:171,000 if printed on A portrait (8.5" x 11") sheet.
Meters
0
2500
5000
10000
15000
Feet
0
5000
10000
20000
30000
N
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 1:15,800.

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: Albany County, New York
Survey Area Data: Version 20, Sep 10, 2022

Soil Survey Area: Schenectady County, New York
Survey Area Data: Version 21, Sep 10, 2022

Your area of interest (AOI) includes more than one soil survey area. These survey areas may have been mapped at different scales, with a different land use in mind, at different times, or at different levels of detail. This may result in map unit symbols, soil properties, and interpretations that do not completely agree across soil survey area boundaries.

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

Date(s) aerial images were photographed: Jan 1, 1999—Dec 31, 2003

The orthophoto or other base map on which the soil lines were compiled and digitized probably differs from the background

MAP LEGEND

MAP INFORMATION

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
Br	Birdsall mucky silt loam	1.4	0.1%
BuA	Burdett silt loam, 0 to 3 percent slopes	30.8	2.4%
BuB	Burdett silt loam, 3 to 8 percent slopes	84.9	6.5%
CeA	Castile gravelly loam, 0 to 3 percent slopes	4.9	0.4%
CeB	Castile gravelly loam, 3 to 8 percent slopes	1.6	0.1%
ChB	Chenango gravelly silt loam, loamy substratum, 3 to 8 percent slopes	4.1	0.3%
ChC	Chenango gravelly silt loam, loamy substratum, rolling	3.5	0.3%
CkB	Chenango channery silt loam, fan, 3 to 8 percent slopes	18.3	1.4%
ClB	Claverack loamy fine sand, 3 to 8 percent slopes	2.6	0.2%
CoB	Colonie loamy fine sand, 3 to 8 percent slopes	7.2	0.6%
CoC	Colonie loamy fine sand, rolling	2.8	0.2%
CoD	Colonie loamy fine sand, hilly	5.4	0.4%
Cs	Cosad loamy fine sand	11.8	0.9%
Du	Dumps	1.5	0.1%
ElA	Elmridge fine sandy loam, 0 to 3 percent slopes	1.6	0.1%
ElB	Elmridge fine sandy loam, 3 to 8 percent slopes	13.8	1.1%
EnA	Elnora loamy fine sand, 0 to 3 percent slopes	5.4	0.4%
EnB	Elnora loamy fine sand, 3 to 8 percent slopes	4.5	0.3%
Fx	Fluvaquents-Udifluvents complex, frequently flooded	26.5	2.0%
Gr	Granby loamy fine sand	0.6	0.0%
HuB	Hudson silt loam, 3 to 8 percent slopes	42.4	3.2%
HuC	Hudson silt loam, 8 to 15 percent slopes	4.7	0.4%
HuD	Hudson silt loam, hilly	2.2	0.2%
HuE	Hudson silt loam, 25 to 45 percent slopes	40.4	3.1%
In	Ilion silt loam	25.8	2.0%

Map Unit Symbol	Map Unit Name	Acres in AOI	Percent of AOI
Ma	Madalin silt loam, 0 to 3 percent slopes	8.6	0.7%
NuB	Nunda silt loam, 3 to 8 percent slopes	13.1	1.0%
NuC	Nunda silt loam, 8 to 15 percent slopes	1.9	0.1%
NuD	Nunda silt loam, 15 to 25 percent slopes	0.4	0.0%
NuE	Nunda silt loam, 25 to 35 percent slopes	0.4	0.0%
Pm	Pits, gravel	2.2	0.2%
Ra	Raynham very fine sandy loam	36.0	2.8%
RhA	Rhinebeck silty clay loam, 0 to 3 percent slopes	134.8	10.3%
RhB	Rhinebeck silty clay loam, 3 to 8 percent slopes	17.6	1.3%
RkA	Riverhead fine sandy loam, 0 to 3 percent slopes	3.7	0.3%
RkB	Riverhead fine sandy loam, 3 to 8 percent slopes	19.1	1.5%
RkC	Riverhead fine sandy loam, 8 to 15 percent slopes	7.3	0.6%
ScA	Scio silt loam, 0 to 3 percent slopes	86.6	6.6%
ScB	Scio silt loam, 3 to 8 percent slopes	54.9	4.2%
Sh	Shaker fine sandy loam	20.9	1.6%
St	Stafford loamy fine sand	6.3	0.5%
SuA	Sudbury fine sandy loam, 0 to 3 percent slopes	14.7	1.1%
Te	Teel silt loam	1.3	0.1%
Uf	Udipsamments-Urban land complex	4.9	0.4%
Ug	Udorthents, loamy	110.3	8.4%
Uh	Udorthents, clayey-Urban land complex	87.6	6.7%
Uk	Udorthents, loamy-Urban land complex	79.9	6.1%
UnC	Unadilla silt loam, 8 to 15 percent slopes	1.0	0.1%
UnD	Unadilla silt loam, 15 to 25 percent slopes	2.1	0.2%
Ur	Urban land	7.7	0.6%
Ut	Urban land-Udorthents complex, 0 to 8 percent slopes	5.3	0.4%
VaB	Valois gravelly loam, 3 to 8 percent slopes	8.5	0.7%

Map Unit Symbol	Map Unit Name	Acres in AOI	Percent of AOI
VaC	Valois gravelly loam, 8 to 15 percent slopes	0.7	0.1%
W	Water	7.3	0.6%
Wa	Wakeland silt loam	8.3	0.6%
Wo	Wayland soils complex, non-calcareous substratum, 0 to 3 percent slopes, frequently flooded	2.8	0.2%
Subtotals for Soil Survey Area		**1,104.7**	**84.6%**
Totals for Area of Interest		**1,306.3**	**100.0%**

Map Unit Symbol	Map Unit Name	Acres in AOI	Percent of AOI
Ce	Cheektowaga fine sandy loam	29.8	2.3%
ClA	Claverack loamy fine sand, 0 to 3 percent slopes	3.8	0.3%
ClB	Claverack loamy fine sand, 3 to 8 percent slopes	10.3	0.8%
CoA	Colonie loamy fine sand, 0 to 3 percent slopes	1.9	0.1%
CoC	Colonie loamy fine sand, 3 to 15 percent slopes	1.7	0.1%
En	Elnora loamy fine sand	9.1	0.7%
Gr	Granby loamy fine sand	7.1	0.5%
HuB	Hudson silty clay loam, 3 to 8 percent slopes	1.5	0.1%
Ju	Junius loamy fine sand	23.6	1.8%
Ma	Madalin silty clay loam, 0 to 3 percent slopes	17.4	1.3%
MrB	Mardin gravelly silt loam, 3 to 8 percent slopes	2.2	0.2%
PsA	Plainfield loamy sand, 0 to 3 percent slopes	78.6	6.0%
PsB	Plainfield loamy sand, 3 to 10 percent slopes	0.6	0.0%
RhA	Rhinebeck silty clay loam, 0 to 3 percent slopes	8.9	0.7%
RhB	Rhinebeck silty clay loam, 3 to 8 percent slopes	2.1	0.2%
Wy	Wayland soils complex, 0 to 3 percent slopes, frequently flooded	2.6	0.2%
Subtotals for Soil Survey Area		**201.1**	**15.4%**
Totals for Area of Interest		**1,306.3**	**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.

Albany County, New York

Br—Birdsall mucky silt loam

Map Unit Setting

National map unit symbol: 9pdr
Elevation: 50 to 1,980 feet
Mean annual precipitation: 36 to 41 inches
Mean annual air temperature: 45 to 48 degrees F
Frost-free period: 100 to 170 days
Farmland classification: Not prime farmland

Map Unit Composition

Birdsall and similar soils: 85 percent
Minor components: 15 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Birdsall

Setting

Landform: Depressions
Landform position (two-dimensional): Toeslope
Landform position (three-dimensional): Tread
Down-slope shape: Concave
Across-slope shape: Concave
Parent material: Glaciolacustrine deposits comprised mainly of silt and very fine sand

Typical profile

H1 - 0 to 8 inches: mucky silt loam
H2 - 8 to 15 inches: silt loam
H3 - 15 to 64 inches: very fine sandy loam

Properties and qualities

Slope: 0 to 2 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Very poorly 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 0 inches
Frequency of flooding: None
Frequency of ponding: Frequent
Available water supply, 0 to 60 inches: Very high (about 12.8 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 5w
Hydrologic Soil Group: C/D
Ecological site: F144AY031MA - Very Wet Outwash
Hydric soil rating: Yes

Minor Components

Raynham

Percent of map unit: 10 percent
Landform: Depressions

Hydric soil rating: Yes

Shaker

Percent of map unit: 5 percent
Landform: Depressions
Hydric soil rating: Yes

BuA—Burdett silt loam, 0 to 3 percent slopes

Map Unit Setting

National map unit symbol: 9pds
Elevation: 400 to 1,600 feet
Mean annual precipitation: 36 to 41 inches
Mean annual air temperature: 45 to 48 degrees F
Frost-free period: 100 to 170 days
Farmland classification: Prime farmland if drained

Map Unit Composition

Burdett and similar soils: 85 percent
Minor components: 15 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Burdett

Setting

Landform: Till plains, hills, drumlinoid ridges
Landform position (two-dimensional): Footslope, summit
Landform position (three-dimensional): Base slope
Down-slope shape: Concave
Across-slope shape: Linear
Parent material: A thin silt mantle overlying till that is strongly influenced by shale

Typical profile

H1 - 0 to 8 inches: silt loam
H2 - 8 to 13 inches: silt loam
H3 - 13 to 43 inches: gravelly silty clay loam
H4 - 43 to 68 inches: gravelly silty clay loam

Properties and qualities

Slope: 0 to 3 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Somewhat poorly 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 6 to 18 inches
Frequency of flooding: None
Frequency of ponding: None
Calcium carbonate, maximum content: 15 percent
Available water supply, 0 to 60 inches: Moderate (about 7.4 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 3w
Hydrologic Soil Group: C/D
Ecological site: F101XY013NY - Moist Till
Hydric soil rating: No

Minor Components

Nunda

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

Madalin

Percent of map unit: 5 percent
Landform: Depressions
Hydric soil rating: Yes

Ilion

Percent of map unit: 5 percent
Landform: Depressions
Hydric soil rating: Yes

BuB—Burdett silt loam, 3 to 8 percent slopes

Map Unit Setting

National map unit symbol: 9pdt
Elevation: 400 to 1,600 feet
Mean annual precipitation: 36 to 41 inches
Mean annual air temperature: 45 to 48 degrees F
Frost-free period: 100 to 170 days
Farmland classification: Prime farmland if drained

Map Unit Composition

Burdett and similar soils: 85 percent
Minor components: 15 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Burdett

Setting

Landform: Till plains, hills, drumlinoid ridges
Landform position (two-dimensional): Footslope, summit
Landform position (three-dimensional): Base slope
Down-slope shape: Concave
Across-slope shape: Linear
Parent material: A thin silt mantle overlying till that is strongly influenced by shale

Typical profile

H1 - 0 to 8 inches: silt loam
H2 - 8 to 13 inches: silt loam

H3 - 13 to 43 inches: gravelly silty clay loam
H4 - 43 to 68 inches: gravelly silty clay loam

Properties and qualities

Slope: 3 to 8 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Somewhat poorly 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 6 to 18 inches
Frequency of flooding: None
Frequency of ponding: None
Calcium carbonate, maximum content: 15 percent
Available water supply, 0 to 60 inches: Moderate (about 7.4 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 3w
Hydrologic Soil Group: C/D
Ecological site: F101XY013NY - Moist Till
Hydric soil rating: No

Minor Components

Ilion

Percent of map unit: 5 percent
Landform: Depressions
Hydric soil rating: Yes

Nunda

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

Madalin

Percent of map unit: 5 percent
Landform: Depressions
Hydric soil rating: Yes

CeA—Castile gravelly loam, 0 to 3 percent slopes

Map Unit Setting

National map unit symbol: 9pf0
Elevation: 110 to 1,670 feet
Mean annual precipitation: 36 to 41 inches
Mean annual air temperature: 45 to 48 degrees F
Frost-free period: 100 to 170 days
Farmland classification: All areas are prime farmland

Map Unit Composition

Castile and similar soils: 85 percent
Minor components: 15 percent

Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Castile

Setting

Landform: Terraces, valley trains
Landform position (two-dimensional): Summit
Landform position (three-dimensional): Tread
Down-slope shape: Concave
Across-slope shape: Convex
Parent material: Gravelly loamy glaciofluvial deposits over sandy and gravelly glaciofluvial deposits, derived mainly from sandstone, shale, and siltstone

Typical profile

H1 - 0 to 5 inches: gravelly loam
H2 - 5 to 28 inches: gravelly loam
H3 - 28 to 60 inches: very gravelly sand

Properties and qualities

Slope: 0 to 3 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Moderately well drained
Capacity of the most limiting layer to transmit water (Ksat): Moderately high to high (0.57 to 5.95 in/hr)
Depth to water table: About 18 to 24 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): 2w
Hydrologic Soil Group: A/D
Ecological site: F140XY022NY - Moist Outwash
Hydric soil rating: No

Minor Components

Chenango

Percent of map unit: 8 percent
Hydric soil rating: No

Busti

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

Unnamed soils

Percent of map unit: 2 percent

CeB—Castile gravelly loam, 3 to 8 percent slopes

Map Unit Setting

National map unit symbol: 9pf1
Elevation: 130 to 1,330 feet
Mean annual precipitation: 36 to 41 inches
Mean annual air temperature: 45 to 48 degrees F
Frost-free period: 100 to 170 days
Farmland classification: All areas are prime farmland

Map Unit Composition

Castile and similar soils: 85 percent
Minor components: 15 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Castile

Setting

Landform: Terraces, valley trains
Landform position (two-dimensional): Summit
Landform position (three-dimensional): Tread
Down-slope shape: Concave
Across-slope shape: Convex
Parent material: Gravelly loamy glaciofluvial deposits over sandy and gravelly glaciofluvial deposits, derived mainly from sandstone, shale, and siltstone

Typical profile

H1 - 0 to 5 inches: gravelly loam
H2 - 5 to 28 inches: gravelly loam
H3 - 28 to 60 inches: very gravelly sand

Properties and qualities

Slope: 3 to 8 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Moderately well drained
Capacity of the most limiting layer to transmit water (Ksat): Moderately high to high (0.57 to 5.95 in/hr)
Depth to water table: About 18 to 24 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): 2w
Hydrologic Soil Group: A/D
Ecological site: F140XY022NY - Moist Outwash
Hydric soil rating: No

Minor Components

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

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

Unnamed soils
Percent of map unit: 2 percent

ChB—Chenango gravelly silt loam, loamy substratum, 3 to 8 percent slopes

Map Unit Setting
National map unit symbol: 9pf5
Elevation: 200 to 1,000 feet
Mean annual precipitation: 36 to 41 inches
Mean annual air temperature: 45 to 48 degrees F
Frost-free period: 100 to 170 days
Farmland classification: All areas are prime farmland

Map Unit Composition
Chenango, loamy substratum, and similar soils: 90 percent
Minor components: 10 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Chenango, Loamy Substratum

Setting
Landform: Terraces, valley trains
Landform position (two-dimensional): Summit
Landform position (three-dimensional): Tread
Down-slope shape: Convex
Across-slope shape: Convex
Parent material: Gravelly loamy glaciofluvial deposits over sandy and gravelly glaciofluvial deposits, derived mainly from sandstone, shale, and siltstone

Typical profile
H1 - 0 to 11 inches: gravelly silt loam
H2 - 11 to 57 inches: gravelly silt loam
H3 - 57 to 74 inches: very gravelly silt loam

Properties and qualities
Slope: 3 to 8 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Well drained
Capacity of the most limiting layer to transmit water (Ksat): Moderately high to high (0.57 to 5.95 in/hr)

Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Calcium carbonate, maximum content: 1 percent
Available water supply, 0 to 60 inches: Low (about 5.0 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 2s
Hydrologic Soil Group: A
Ecological site: F140XY021NY - Dry Outwash
Hydric soil rating: No

Minor Components

Castile

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

Unnamed soils

Percent of map unit: 2 percent

Palms

Percent of map unit: 1 percent
Landform: Marshes, swamps
Hydric soil rating: Yes

Carlisle

Percent of map unit: 1 percent
Landform: Marshes, swamps
Hydric soil rating: Yes

Rhinebeck

Percent of map unit: 1 percent
Hydric soil rating: No

ChC—Chenango gravelly silt loam, loamy substratum, rolling

Map Unit Setting

National map unit symbol: 9pf6
Elevation: 200 to 1,000 feet
Mean annual precipitation: 36 to 41 inches
Mean annual air temperature: 45 to 48 degrees F
Frost-free period: 100 to 170 days
Farmland classification: Farmland of statewide importance

Map Unit Composition

Chenango, loamy substratum, rolling, and similar soils: 90 percent
Minor components: 10 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Chenango, Loamy Substratum, Rolling

Setting

Landform: Terraces, valley trains
Landform position (two-dimensional): Shoulder
Landform position (three-dimensional): Tread
Down-slope shape: Convex
Across-slope shape: Convex
Parent material: Gravelly loamy glaciofluvial deposits over sandy and gravelly glaciofluvial deposits, derived mainly from sandstone, shale, and siltstone

Typical profile

H1 - 0 to 11 inches: gravelly silt loam
H2 - 11 to 57 inches: gravelly silt loam
H3 - 57 to 74 inches: very gravelly silt loam

Properties and qualities

Slope: 8 to 15 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Well drained
Capacity of the most limiting layer to transmit water (Ksat): Moderately high to high (0.57 to 5.95 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Calcium carbonate, maximum content: 1 percent
Available water supply, 0 to 60 inches: Low (about 5.0 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 3e
Hydrologic Soil Group: A
Ecological site: F140XY021NY - Dry Outwash
Hydric soil rating: No

Minor Components

Castile

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

Valois

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

Unnamed soils

Percent of map unit: 1 percent

Chautauqua

Percent of map unit: 1 percent
Hydric soil rating: No

CkB—Chenango channery silt loam, fan, 3 to 8 percent slopes

Map Unit Setting

National map unit symbol: 9pf8
Elevation: 110 to 1,900 feet
Mean annual precipitation: 36 to 41 inches
Mean annual air temperature: 45 to 48 degrees F
Frost-free period: 100 to 170 days
Farmland classification: All areas are prime farmland

Map Unit Composition

Chenango, fan, and similar soils: 85 percent
Minor components: 15 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Chenango, Fan

Setting

Landform: Alluvial fans
Landform position (two-dimensional): Summit
Landform position (three-dimensional): Tread
Down-slope shape: Convex
Across-slope shape: Convex
Parent material: Gravelly loamy glaciofluvial deposits over sandy and gravelly glaciofluvial deposits, derived mainly from sandstone, shale, and siltstone

Typical profile

H1 - 0 to 11 inches: channery silt loam
H2 - 11 to 57 inches: channery silt loam
H3 - 57 to 74 inches: very channery silt loam

Properties and qualities

Slope: 3 to 8 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Well drained
Capacity of the most limiting layer to transmit water (Ksat): Moderately high to high (0.57 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: 1 percent
Available water supply, 0 to 60 inches: Low (about 5.0 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 2s
Hydrologic Soil Group: A
Ecological site: F140XY021NY - Dry Outwash
Hydric soil rating: No

Minor Components

Castile
Percent of map unit: 8 percent
Hydric soil rating: No

Unnamed soils
Percent of map unit: 7 percent

ClB—Claverack loamy fine sand, 3 to 8 percent slopes

Map Unit Setting
National map unit symbol: 9pfb
Elevation: 600 to 1,800 feet
Mean annual precipitation: 36 to 41 inches
Mean annual air temperature: 45 to 48 degrees F
Frost-free period: 100 to 170 days
Farmland classification: All areas are prime farmland

Map Unit Composition
Claverack and similar soils: 85 percent
Minor components: 15 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Claverack

Setting
Landform: Lake plains
Landform position (two-dimensional): Summit
Landform position (three-dimensional): Tread
Down-slope shape: Concave
Across-slope shape: Convex
Parent material: Sandy glaciolacustrine deposits, derived primarily from non-calcareous sandstone or granite, that overlie clayey glaciolacustrine deposits

Typical profile
H1 - 0 to 9 inches: loamy fine sand
H2 - 9 to 26 inches: loamy fine sand
H3 - 26 to 60 inches: silty clay

Properties and qualities
Slope: 3 to 8 percent
Depth to restrictive feature: 20 to 40 inches to strongly contrasting textural stratification
Drainage class: Moderately 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 24 inches
Frequency of flooding: None
Frequency of ponding: None

Calcium carbonate, maximum content: 15 percent
Available water supply, 0 to 60 inches: Very low (about 1.8 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 2w
Hydrologic Soil Group: C/D
Ecological site: F101XY006NY - Moist Outwash
Hydric soil rating: No

Minor Components

Elnora

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

Colonie

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

Elmridge

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

Unnamed soils

Percent of map unit: 2 percent

Cosad

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

Stafford

Percent of map unit: 1 percent
Hydric soil rating: No

CoB—Colonie loamy fine sand, 3 to 8 percent slopes

Map Unit Setting

National map unit symbol: 9pfd
Elevation: 150 to 1,000 feet
Mean annual precipitation: 36 to 41 inches
Mean annual air temperature: 45 to 48 degrees F
Frost-free period: 100 to 170 days
Farmland classification: All areas are prime farmland

Map Unit Composition

Colonie and similar soils: 85 percent
Minor components: 15 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Colonie

Setting

Landform: Deltas, beach ridges
Landform position (two-dimensional): Summit
Landform position (three-dimensional): Tread
Down-slope shape: Convex
Across-slope shape: Convex
Parent material: Sandy glaciofluvial or eolian deposits

Typical profile

H1 - 0 to 7 inches: loamy fine sand
H2 - 7 to 68 inches: loamy fine sand
H3 - 68 to 74 inches: loamy fine sand

Properties and qualities

Slope: 3 to 8 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Well drained
Capacity of the most limiting layer to transmit water (Ksat): High to very high (1.98 to 19.98 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 4.4 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 2s
Hydrologic Soil Group: A
Ecological site: F101XY009NY - Moist Lake Plain
Hydric soil rating: No

Minor Components

Unnamed soils

Percent of map unit: 7 percent

Elnora

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

Claverack

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

CoC—Colonie loamy fine sand, rolling

Map Unit Setting

National map unit symbol: 9pff
Elevation: 150 to 1,000 feet

Mean annual precipitation: 36 to 41 inches
Mean annual air temperature: 45 to 48 degrees F
Frost-free period: 100 to 170 days
Farmland classification: Farmland of statewide importance

Map Unit Composition

Colonie, rolling, and similar soils: 85 percent
Minor components: 15 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Colonie, Rolling

Setting

Landform: Deltas, beach ridges
Landform position (two-dimensional): Shoulder
Landform position (three-dimensional): Tread
Down-slope shape: Convex
Across-slope shape: Convex
Parent material: Sandy glaciofluvial or eolian deposits

Typical profile

H1 - 0 to 7 inches: loamy fine sand
H2 - 7 to 68 inches: loamy fine sand
H3 - 68 to 74 inches: loamy fine sand

Properties and qualities

Slope: 8 to 15 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Somewhat excessively drained
Capacity of the most limiting layer to transmit water (Ksat): High to very high (1.98 to 19.98 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 4.4 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 3e
Hydrologic Soil Group: A
Ecological site: F101XY005NY - Dry Outwash
Hydric soil rating: No

Minor Components

Unnamed soils

Percent of map unit: 9 percent

Claverack

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

Granby

Percent of map unit: 1 percent
Landform: Depressions
Hydric soil rating: Yes

CoD—Colonie loamy fine sand, hilly

Map Unit Setting

National map unit symbol: 9pfg
Elevation: 150 to 1,000 feet
Mean annual precipitation: 36 to 41 inches
Mean annual air temperature: 45 to 48 degrees F
Frost-free period: 100 to 170 days
Farmland classification: Not prime farmland

Map Unit Composition

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

Description of Colonie, Hilly

Setting

Landform: Deltas, beach ridges
Landform position (two-dimensional): Backslope
Landform position (three-dimensional): Riser
Down-slope shape: Convex
Across-slope shape: Convex
Parent material: Sandy glaciofluvial or eolian deposits

Typical profile

H1 - 0 to 7 inches: loamy fine sand
H2 - 7 to 68 inches: loamy fine sand
H3 - 68 to 74 inches: loamy fine sand

Properties and qualities

Slope: 15 to 25 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Somewhat excessively drained
Capacity of the most limiting layer to transmit water (Ksat): High to very high (1.98 to 19.98 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 4.4 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 4e
Hydrologic Soil Group: A
Ecological site: F101XY005NY - Dry Outwash
Hydric soil rating: No

Minor Components

Unnamed soils
Percent of map unit: 5 percent

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

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

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

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

Cs—Cosad loamy fine sand

Map Unit Setting
National map unit symbol: 9pfj
Elevation: 200 to 800 feet
Mean annual precipitation: 36 to 41 inches
Mean annual air temperature: 45 to 48 degrees F
Frost-free period: 100 to 170 days
Farmland classification: Prime farmland if drained

Map Unit Composition
Cosad and similar soils: 85 percent
Minor components: 15 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Cosad

Setting
Landform: Lake plains
Landform position (two-dimensional): Footslope
Landform position (three-dimensional): Tread
Down-slope shape: Concave
Across-slope shape: Linear
Parent material: Sandy glaciofluvial or deltaic deposits over clayey glaciolacustrine deposits

Typical profile
H1 - 0 to 9 inches: loamy fine sand
H2 - 9 to 18 inches: loamy fine sand
H3 - 18 to 26 inches: loamy sand

H4 - 26 to 60 inches: silty clay

Properties and qualities

Slope: 0 to 3 percent
Depth to restrictive feature: 18 to 40 inches to strongly contrasting textural stratification
Drainage class: Somewhat poorly 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 6 to 18 inches
Frequency of flooding: None
Frequency of ponding: None
Calcium carbonate, maximum content: 15 percent
Available water supply, 0 to 60 inches: Very low (about 2.0 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 3w
Hydrologic Soil Group: C/D
Ecological site: F101XY006NY - Moist Outwash
Hydric soil rating: No

Minor Components

Claverack

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

Shaker

Percent of map unit: 3 percent
Landform: Depressions
Hydric soil rating: Yes

Stafford

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

Elmridge

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

Unnamed soils

Percent of map unit: 2 percent

Du—Dumps

Map Unit Setting

National map unit symbol: 9pfk
Mean annual precipitation: 36 to 41 inches
Mean annual air temperature: 45 to 48 degrees F
Frost-free period: 100 to 170 days
Farmland classification: Not prime farmland

Map Unit Composition
Dumps: 100 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Dumps

Typical profile
H1 - 0 to 60 inches: variable

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

ElA—Elmridge fine sandy loam, 0 to 3 percent slopes

Map Unit Setting
National map unit symbol: 9pfl
Elevation: 80 to 330 feet
Mean annual precipitation: 36 to 41 inches
Mean annual air temperature: 45 to 48 degrees F
Frost-free period: 100 to 170 days
Farmland classification: All areas are prime farmland

Map Unit Composition
Elmridge and similar soils: 85 percent
Minor components: 15 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Elmridge

Setting
Landform: Lake plains
Landform position (two-dimensional): Summit
Landform position (three-dimensional): Tread
Down-slope shape: Concave
Across-slope shape: Convex
Parent material: Loamy over clayey glaciolacustrine or marine deposits

Typical profile
H1 - 0 to 9 inches: fine sandy loam
H2 - 9 to 20 inches: fine sandy loam
H3 - 20 to 60 inches: clay

Properties and qualities
Slope: 0 to 3 percent
Depth to restrictive feature: 18 to 40 inches to strongly contrasting textural stratification
Drainage class: Moderately 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
Calcium carbonate, maximum content: 1 percent
Available water supply, 0 to 60 inches: Low (about 3.2 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 2w
Hydrologic Soil Group: B
Ecological site: F144AY018NY - Moist Lake Plain
Hydric soil rating: No

Minor Components

Shaker, somewhat poorly drained

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

Unnamed soils

Percent of map unit: 4 percent

Claverack

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

Shaker, poorly drained

Percent of map unit: 2 percent
Hydric soil rating: Yes

Cosad

Percent of map unit: 1 percent
Hydric soil rating: No

ElB—Elmridge fine sandy loam, 3 to 8 percent slopes

Map Unit Setting

National map unit symbol: 9pfm
Elevation: 20 to 390 feet
Mean annual precipitation: 36 to 41 inches
Mean annual air temperature: 45 to 48 degrees F
Frost-free period: 100 to 170 days
Farmland classification: All areas are prime farmland

Map Unit Composition

Elmridge and similar soils: 90 percent
Minor components: 10 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Elmridge

Setting

Landform: Lake plains
Landform position (two-dimensional): Summit
Landform position (three-dimensional): Tread
Down-slope shape: Concave
Across-slope shape: Convex
Parent material: Loamy over clayey glaciolacustrine or marine deposits

Typical profile

H1 - 0 to 9 inches: fine sandy loam
H2 - 9 to 20 inches: fine sandy loam
H3 - 20 to 60 inches: clay

Properties and qualities

Slope: 3 to 8 percent
Depth to restrictive feature: 18 to 40 inches to strongly contrasting textural stratification
Drainage class: Moderately 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
Calcium carbonate, maximum content: 1 percent
Available water supply, 0 to 60 inches: Low (about 3.2 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 2w
Hydrologic Soil Group: B
Ecological site: F144AY018NY - Moist Lake Plain
Hydric soil rating: No

Minor Components

Shaker

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

Claverack

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

Unnamed soils

Percent of map unit: 2 percent

EnA—Elnora loamy fine sand, 0 to 3 percent slopes

Map Unit Setting

National map unit symbol: 9pfn
Elevation: 50 to 430 feet
Mean annual precipitation: 36 to 41 inches
Mean annual air temperature: 45 to 48 degrees F
Frost-free period: 100 to 170 days
Farmland classification: All areas are prime farmland

Map Unit Composition

Elnora and similar soils: 85 percent
Minor components: 15 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Elnora

Setting

Landform: Deltas, beach ridges
Landform position (two-dimensional): Summit
Landform position (three-dimensional): Tread
Down-slope shape: Concave
Across-slope shape: Convex
Parent material: Sandy glaciofluvial, eolian, or deltaic deposits

Typical profile

H1 - 0 to 11 inches: loamy fine sand
H2 - 11 to 27 inches: fine sand
H3 - 27 to 65 inches: loamy fine sand

Properties and qualities

Slope: 0 to 3 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Moderately well drained
Capacity of the most limiting layer to transmit water (Ksat): High (1.98 to 5.95 in/hr)
Depth to water table: About 18 to 24 inches
Frequency of flooding: None
Frequency of ponding: None
Available water supply, 0 to 60 inches: Low (about 4.1 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 2w
Hydrologic Soil Group: A/D
Ecological site: F101XY006NY - Moist Outwash
Hydric soil rating: No

Minor Components

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

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

Unnamed soils
Percent of map unit: 4 percent

Granby
Percent of map unit: 1 percent
Landform: Depressions
Hydric soil rating: Yes

EnB—Elnora loamy fine sand, 3 to 8 percent slopes

Map Unit Setting
National map unit symbol: 9pfp
Elevation: 80 to 440 feet
Mean annual precipitation: 36 to 41 inches
Mean annual air temperature: 45 to 48 degrees F
Frost-free period: 100 to 170 days
Farmland classification: All areas are prime farmland

Map Unit Composition
Elnora and similar soils: 85 percent
Minor components: 15 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Elnora

Setting
Landform: Deltas, beach ridges
Landform position (two-dimensional): Summit
Landform position (three-dimensional): Tread
Down-slope shape: Concave
Across-slope shape: Convex
Parent material: Sandy glaciofluvial, eolian, or deltaic deposits

Typical profile
H1 - 0 to 11 inches: loamy fine sand
H2 - 11 to 27 inches: fine sand
H3 - 27 to 65 inches: loamy fine sand

Properties and qualities
Slope: 3 to 8 percent
Depth to restrictive feature: More than 80 inches

Drainage class: Moderately well drained
Capacity of the most limiting layer to transmit water (Ksat): High (1.98 to 5.95 in/hr)
Depth to water table: About 18 to 24 inches
Frequency of flooding: None
Frequency of ponding: None
Available water supply, 0 to 60 inches: Low (about 4.1 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 2w
Hydrologic Soil Group: A/D
Ecological site: F144AY027MA - Moist Sandy Outwash
Hydric soil rating: No

Minor Components

Stafford

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

Colonie

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

Unnamed soils

Percent of map unit: 4 percent

Granby

Percent of map unit: 1 percent
Landform: Depressions
Hydric soil rating: Yes

Fx—Fluvaquents-Udifluvents complex, frequently flooded

Map Unit Setting

National map unit symbol: 9pfw
Elevation: 100 to 3,000 feet
Mean annual precipitation: 36 to 41 inches
Mean annual air temperature: 45 to 48 degrees F
Frost-free period: 100 to 170 days
Farmland classification: Not prime farmland

Map Unit Composition

Fluvaquents, frequently flooded, and similar soils: 45 percent
Udifluvents, frequently flooded, and similar soils: 35 percent
Minor components: 20 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Fluvaquents, Frequently Flooded

Setting

Landform: Flood plains
Landform position (two-dimensional): Toeslope
Landform position (three-dimensional): Dip
Down-slope shape: Concave
Across-slope shape: Concave
Parent material: Alluvium with highly variable texture

Typical profile

H1 - 0 to 5 inches: gravelly silt loam
H2 - 5 to 70 inches: very gravelly sand

Properties and qualities

Slope: 0 to 3 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Poorly drained
Capacity of the most limiting layer to transmit water (Ksat): Moderately low to very high (0.06 to 19.98 in/hr)
Depth to water table: About 0 inches
Frequency of flooding: NoneFrequent
Frequency of ponding: Frequent
Calcium carbonate, maximum content: 15 percent
Available water supply, 0 to 60 inches: Moderate (about 6.1 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 5w
Hydrologic Soil Group: A/D
Ecological site: F101XY003NY - Low Floodplain Depression
Hydric soil rating: Yes

Description of Udifluvents, Frequently Flooded

Setting

Landform: Flood plains
Landform position (two-dimensional): Summit
Landform position (three-dimensional): Talf
Down-slope shape: Concave
Across-slope shape: Convex
Parent material: Alluvium with a wide range of texture

Typical profile

H1 - 0 to 4 inches: loam
H2 - 4 to 70 inches: gravelly loam

Properties and qualities

Slope: 0 to 3 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Moderately well 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 24 to 72 inches
Frequency of flooding: FrequentNone
Frequency of ponding: None
Calcium carbonate, maximum content: 15 percent

Available water supply, 0 to 60 inches: Moderate (about 6.0 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 5w
Hydrologic Soil Group: A
Ecological site: F101XY002NY - Low Floodplain
Hydric soil rating: No

Minor Components

Unnamed soils

Percent of map unit: 10 percent

Medihemists

Percent of map unit: 5 percent
Landform: Marshes, swamps
Hydric soil rating: Yes

Hydraquents

Percent of map unit: 4 percent
Landform: Marshes
Landform position (two-dimensional): Toeslope
Landform position (three-dimensional): Talf
Down-slope shape: Concave
Across-slope shape: Concave
Hydric soil rating: Yes

Unnamed soils, shallow

Percent of map unit: 1 percent

Gr—Granby loamy fine sand

Map Unit Setting

National map unit symbol: 9pfx
Elevation: 600 to 1,000 feet
Mean annual precipitation: 36 to 41 inches
Mean annual air temperature: 45 to 48 degrees F
Frost-free period: 100 to 170 days
Farmland classification: Not prime farmland

Map Unit Composition

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

Description of Granby

Setting

Landform: Depressions
Landform position (two-dimensional): Toeslope

Landform position (three-dimensional): Tread
Down-slope shape: Concave
Across-slope shape: Concave
Parent material: Sandy glaciofluvial deposits or sandy glaciolacustrine deposits

Typical profile

H1 - 0 to 11 inches: loamy fine sand
H2 - 11 to 25 inches: fine sand
H3 - 25 to 60 inches: sand

Properties and qualities

Slope: 0 to 2 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Very poorly drained
Capacity of the most limiting layer to transmit water (Ksat): High to very high (5.95 to 19.98 in/hr)
Depth to water table: About 0 inches
Frequency of flooding: None
Frequency of ponding: Frequent
Calcium carbonate, maximum content: 15 percent
Available water supply, 0 to 60 inches: Low (about 4.9 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 5w
Hydrologic Soil Group: A/D
Ecological site: F101XY010NY - Wet Lake Plain Depression
Hydric soil rating: Yes

Minor Components

Adrian

Percent of map unit: 5 percent
Landform: Marshes, swamps
Hydric soil rating: Yes

Unnamed soils

Percent of map unit: 3 percent

Stafford

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

Medihemists

Percent of map unit: 3 percent
Landform: Swamps, marshes
Hydric soil rating: Yes

Hydraquents

Percent of map unit: 2 percent
Landform: Marshes
Landform position (two-dimensional): Toeslope
Landform position (three-dimensional): Talf
Down-slope shape: Concave
Across-slope shape: Concave
Hydric soil rating: Yes

Fluvaquents

Percent of map unit: 2 percent

Landform: Flood plains
Hydric soil rating: Yes

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

HuB—Hudson silt loam, 3 to 8 percent slopes

Map Unit Setting
National map unit symbol: 9pg5
Elevation: 300 to 1,800 feet
Mean annual precipitation: 36 to 41 inches
Mean annual air temperature: 45 to 48 degrees F
Frost-free period: 100 to 170 days
Farmland classification: All areas are prime farmland

Map Unit Composition
Hudson and similar soils: 90 percent
Minor components: 10 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Hudson

Setting
Landform: Lake plains
Landform position (two-dimensional): Summit
Landform position (three-dimensional): Tread
Down-slope shape: Concave
Across-slope shape: Convex
Parent material: Clayey and silty glaciolacustrine deposits

Typical profile
H1 - 0 to 11 inches: silt loam
H2 - 11 to 16 inches: silty clay loam
H3 - 16 to 31 inches: silty clay
H4 - 31 to 60 inches: clay

Properties and qualities
Slope: 3 to 8 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Moderately 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 24 inches
Frequency of flooding: None
Frequency of ponding: None
Calcium carbonate, maximum content: 15 percent
Available water supply, 0 to 60 inches: High (about 9.7 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 2e
Hydrologic Soil Group: C/D
Ecological site: F144AY018NY - Moist Lake Plain
Hydric soil rating: No

Minor Components

Rhinebeck

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

Unnamed soils

Percent of map unit: 2 percent

Madalin

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

Claverack

Percent of map unit: 1 percent
Hydric soil rating: No

HuC—Hudson silt loam, 8 to 15 percent slopes

Map Unit Setting

National map unit symbol: 9pg6
Elevation: 300 to 1,800 feet
Mean annual precipitation: 36 to 41 inches
Mean annual air temperature: 45 to 48 degrees F
Frost-free period: 100 to 170 days
Farmland classification: Farmland of statewide importance

Map Unit Composition

Hudson and similar soils: 90 percent
Minor components: 10 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Hudson

Setting

Landform: Lake plains
Landform position (two-dimensional): Summit
Landform position (three-dimensional): Tread
Down-slope shape: Concave
Across-slope shape: Convex
Parent material: Clayey and silty glaciolacustrine deposits

Typical profile

H1 - 0 to 11 inches: silt loam
H2 - 11 to 16 inches: silty clay loam
H3 - 16 to 31 inches: silty clay
H4 - 31 to 60 inches: clay

Properties and qualities

Slope: 8 to 15 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Moderately 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 24 inches
Frequency of flooding: None
Frequency of ponding: None
Calcium carbonate, maximum content: 15 percent
Available water supply, 0 to 60 inches: High (about 9.7 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 3e
Hydrologic Soil Group: C/D
Ecological site: F144AY018NY - Moist Lake Plain
Hydric soil rating: No

Minor Components

Rhinebeck

Percent of map unit: 4 percent
Hydric soil rating: No

Unnamed soils

Percent of map unit: 4 percent

Madalin

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

HuD—Hudson silt loam, hilly

Map Unit Setting

National map unit symbol: 9pg7
Elevation: 300 to 1,800 feet
Mean annual precipitation: 36 to 41 inches
Mean annual air temperature: 45 to 48 degrees F
Frost-free period: 100 to 170 days
Farmland classification: Not prime farmland

Map Unit Composition

Hudson, hilly, and similar soils: 85 percent

Minor components: 15 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Hudson, Hilly

Setting

Landform: Lake plains
Landform position (two-dimensional): Summit
Landform position (three-dimensional): Riser
Down-slope shape: Concave
Across-slope shape: Convex
Parent material: Clayey and silty glaciolacustrine deposits

Typical profile

H1 - 0 to 11 inches: silt loam
H2 - 11 to 16 inches: silty clay loam
H3 - 16 to 31 inches: silty clay
H4 - 31 to 60 inches: clay

Properties and qualities

Slope: 15 to 25 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Moderately 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 24 inches
Frequency of flooding: None
Frequency of ponding: None
Calcium carbonate, maximum content: 15 percent
Available water supply, 0 to 60 inches: High (about 9.7 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 4e
Hydrologic Soil Group: C/D
Ecological site: F144AY018NY - Moist Lake Plain
Hydric soil rating: No

Minor Components

Unnamed soils

Percent of map unit: 6 percent

Rhinebeck

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

Unnamed soils, eroded

Percent of map unit: 4 percent

HuE—Hudson silt loam, 25 to 45 percent slopes

Map Unit Setting

National map unit symbol: 9pg8
Elevation: 300 to 1,800 feet
Mean annual precipitation: 36 to 41 inches
Mean annual air temperature: 45 to 48 degrees F
Frost-free period: 100 to 170 days
Farmland classification: Not prime farmland

Map Unit Composition

Hudson and similar soils: 85 percent
Minor components: 15 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Hudson

Setting

Landform: Lake plains
Landform position (two-dimensional): Summit
Landform position (three-dimensional): Riser
Down-slope shape: Concave
Across-slope shape: Convex
Parent material: Clayey and silty glaciolacustrine deposits

Typical profile

H1 - 0 to 11 inches: silt loam
H2 - 11 to 16 inches: silty clay loam
H3 - 16 to 31 inches: silty clay
H4 - 31 to 60 inches: clay

Properties and qualities

Slope: 25 to 45 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Moderately 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 24 inches
Frequency of flooding: None
Frequency of ponding: None
Calcium carbonate, maximum content: 15 percent
Available water supply, 0 to 60 inches: High (about 9.7 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 7e
Hydrologic Soil Group: C/D
Ecological site: F144AY018NY - Moist Lake Plain
Hydric soil rating: No

Minor Components

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

Unnamed soils
Percent of map unit: 5 percent

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

Udifluvents
Percent of map unit: 1 percent
Hydric soil rating: No

Fluvaquents
Percent of map unit: 1 percent
Landform: Flood plains
Hydric soil rating: Yes

In—Ilion silt loam

Map Unit Setting
National map unit symbol: 9pg9
Elevation: 600 to 1,800 feet
Mean annual precipitation: 36 to 41 inches
Mean annual air temperature: 45 to 48 degrees F
Frost-free period: 100 to 170 days
Farmland classification: Farmland of statewide importance

Map Unit Composition
Ilion and similar soils: 90 percent
Minor components: 10 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Ilion

Setting
Landform: Depressions
Landform position (two-dimensional): Toeslope
Landform position (three-dimensional): Base slope
Down-slope shape: Concave
Across-slope shape: Concave
Parent material: Loamy till derived from calcareous dark shale

Typical profile
H1 - 0 to 12 inches: silt loam
H2 - 12 to 32 inches: silty clay loam
H3 - 32 to 60 inches: gravelly silt loam

Properties and qualities

Slope: 0 to 3 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Poorly 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 0 inches
Frequency of flooding: None
Frequency of ponding: Frequent
Calcium carbonate, maximum content: 15 percent
Available water supply, 0 to 60 inches: Moderate (about 8.1 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 4w
Hydrologic Soil Group: C/D
Ecological site: F101XY014NY - Wet Till Depression
Hydric soil rating: Yes

Minor Components

Madalin

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

Unnamed soils

Percent of map unit: 4 percent

Burdett

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

Ma—Madalin silt loam, 0 to 3 percent slopes

Map Unit Setting

National map unit symbol: 2spk0
Elevation: 230 to 930 feet
Mean annual precipitation: 31 to 57 inches
Mean annual air temperature: 41 to 50 degrees F
Frost-free period: 100 to 190 days
Farmland classification: Farmland of statewide importance

Map Unit Composition

Madalin and similar soils: 85 percent
Minor components: 15 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Madalin

Setting

Landform: Depressions
Landform position (two-dimensional): Toeslope
Landform position (three-dimensional): Tread
Down-slope shape: Concave
Across-slope shape: Concave
Parent material: Brown clayey glaciolacustrine deposits derived from calcareous shale

Typical profile

Ap - 0 to 8 inches: silt loam
Btg1 - 8 to 16 inches: silty clay loam
Btg2 - 16 to 25 inches: silty clay
Btg3 - 25 to 33 inches: silty clay
C - 33 to 79 inches: stratified silt to clay

Properties and qualities

Slope: 0 to 3 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Poorly drained
Runoff class: Very low
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: About 0 to 8 inches
Frequency of flooding: None
Frequency of ponding: None
Calcium carbonate, maximum content: 25 percent
Available water supply, 0 to 60 inches: High (about 9.7 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 4w
Hydrologic Soil Group: C/D
Ecological site: F101XY010NY - Wet Lake Plain Depression
Hydric soil rating: Yes

Minor Components

Rhinebeck

Percent of map unit: 5 percent
Landform: Lake plains
Landform position (two-dimensional): Footslope
Landform position (three-dimensional): Tread
Down-slope shape: Concave
Across-slope shape: Linear
Hydric soil rating: No

Canandaigua

Percent of map unit: 4 percent
Landform: Depressions
Landform position (two-dimensional): Toeslope
Landform position (three-dimensional): Tread
Down-slope shape: Concave
Across-slope shape: Concave

Hydric soil rating: Yes

Fonda

Percent of map unit: 4 percent
Landform: Depressions
Landform position (two-dimensional): Toeslope
Landform position (three-dimensional): Tread
Down-slope shape: Concave
Across-slope shape: Concave
Hydric soil rating: Yes

Cosad

Percent of map unit: 2 percent
Landform: Lake plains
Landform position (two-dimensional): Summit, shoulder
Landform position (three-dimensional): Tread
Down-slope shape: Convex
Across-slope shape: Convex
Hydric soil rating: No

NuB—Nunda silt loam, 3 to 8 percent slopes

Map Unit Setting

National map unit symbol: 9ph2
Elevation: 400 to 1,600 feet
Mean annual precipitation: 36 to 41 inches
Mean annual air temperature: 45 to 48 degrees F
Frost-free period: 100 to 170 days
Farmland classification: All areas are prime farmland

Map Unit Composition

Nunda and similar soils: 85 percent
Minor components: 15 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Nunda

Setting

Landform: Till plains, hills, drumlinoid ridges
Landform position (two-dimensional): Summit
Landform position (three-dimensional): Crest
Down-slope shape: Concave
Across-slope shape: Convex
Parent material: A silty mantle over loamy till derived from calcareous shale and siltstone

Typical profile

H1 - 0 to 10 inches: silt loam
H2 - 10 to 20 inches: silt loam
2B/E - 20 to 28 inches: silt loam
2Bt - 28 to 44 inches: silty clay loam

2C - 44 to 64 inches: clay loam

Properties and qualities

Slope: 3 to 8 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Moderately well drained
Capacity of the most limiting layer to transmit water (Ksat): Moderately low to moderately high (0.03 to 0.20 in/hr)
Depth to water table: About 18 to 24 inches
Frequency of flooding: None
Frequency of ponding: None
Calcium carbonate, maximum content: 5 percent
Available water supply, 0 to 60 inches: Moderate (about 7.6 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 2e
Hydrologic Soil Group: C/D
Ecological site: F101XY013NY - Moist Till
Hydric soil rating: No

Minor Components

Unnamed soils

Percent of map unit: 5 percent

Burdett

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

Angola

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

Ilion

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

NuC—Nunda silt loam, 8 to 15 percent slopes

Map Unit Setting

National map unit symbol: 9ph3
Elevation: 400 to 1,600 feet
Mean annual precipitation: 36 to 41 inches
Mean annual air temperature: 45 to 48 degrees F
Frost-free period: 100 to 170 days
Farmland classification: Farmland of statewide importance

Map Unit Composition

Nunda and similar soils: 90 percent
Minor components: 10 percent

Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Nunda

Setting

Landform: Till plains, hills, drumlinoid ridges
Landform position (two-dimensional): Summit
Landform position (three-dimensional): Crest
Down-slope shape: Concave
Across-slope shape: Convex
Parent material: A silty mantle over loamy till derived from calcareous shale and siltstone

Typical profile

H1 - 0 to 10 inches: silt loam
H2 - 10 to 20 inches: silt loam
2B/E - 20 to 28 inches: silt loam
2Bt - 28 to 44 inches: silty clay loam
2C - 44 to 64 inches: clay loam

Properties and qualities

Slope: 8 to 15 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Moderately well drained
Capacity of the most limiting layer to transmit water (Ksat): Moderately low to moderately high (0.03 to 0.20 in/hr)
Depth to water table: About 18 to 24 inches
Frequency of flooding: None
Frequency of ponding: None
Calcium carbonate, maximum content: 5 percent
Available water supply, 0 to 60 inches: Moderate (about 7.6 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 3e
Hydrologic Soil Group: C/D
Ecological site: F101XY013NY - Moist Till
Hydric soil rating: No

Minor Components

Burdett

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

Angola

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

Unnamed soils

Percent of map unit: 1 percent

Ilion

Percent of map unit: 1 percent
Landform: Depressions
Hydric soil rating: Yes

NuD—Nunda silt loam, 15 to 25 percent slopes

Map Unit Setting

National map unit symbol: 9ph4
Elevation: 400 to 1,600 feet
Mean annual precipitation: 36 to 41 inches
Mean annual air temperature: 45 to 48 degrees F
Frost-free period: 100 to 170 days
Farmland classification: Not prime farmland

Map Unit Composition

Nunda and similar soils: 85 percent
Minor components: 15 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Nunda

Setting

Landform: Till plains, hills, drumlinoid ridges
Landform position (two-dimensional): Summit
Landform position (three-dimensional): Side slope
Down-slope shape: Concave
Across-slope shape: Convex
Parent material: A silty mantle over loamy till derived from calcareous shale and siltstone

Typical profile

H1 - 0 to 10 inches: silt loam
H2 - 10 to 20 inches: silt loam
2B/E - 20 to 28 inches: silt loam
2Bt - 28 to 44 inches: silty clay loam
2C - 44 to 64 inches: clay loam

Properties and qualities

Slope: 15 to 25 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Moderately well drained
Capacity of the most limiting layer to transmit water (Ksat): Moderately low to moderately high (0.03 to 0.20 in/hr)
Depth to water table: About 18 to 24 inches
Frequency of flooding: None
Frequency of ponding: None
Calcium carbonate, maximum content: 5 percent
Available water supply, 0 to 60 inches: Moderate (about 7.6 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 4e
Hydrologic Soil Group: C/D
Ecological site: F101XY013NY - Moist Till

Hydric soil rating: No

Minor Components

Unnamed soils

Percent of map unit: 8 percent

Arnot

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

Ilion

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

NuE—Nunda silt loam, 25 to 35 percent slopes

Map Unit Setting

National map unit symbol: 9ph5
Elevation: 400 to 1,600 feet
Mean annual precipitation: 36 to 41 inches
Mean annual air temperature: 45 to 48 degrees F
Frost-free period: 100 to 170 days
Farmland classification: Not prime farmland

Map Unit Composition

Nunda and similar soils: 75 percent
Minor components: 25 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Nunda

Setting

Landform: Till plains, hills, drumlinoid ridges
Landform position (two-dimensional): Summit
Landform position (three-dimensional): Side slope
Down-slope shape: Concave
Across-slope shape: Convex
Parent material: A silty mantle over loamy till derived from calcareous shale and siltstone

Typical profile

H1 - 0 to 10 inches: silt loam
H2 - 10 to 20 inches: silt loam
2B/E - 20 to 28 inches: silt loam
2Bt - 28 to 44 inches: silty clay loam
2C - 44 to 64 inches: clay loam

Properties and qualities

Slope: 25 to 35 percent
Depth to restrictive feature: More than 80 inches

Drainage class: Moderately well drained
Capacity of the most limiting layer to transmit water (Ksat): Moderately low to moderately high (0.03 to 0.20 in/hr)
Depth to water table: About 18 to 24 inches
Frequency of flooding: None
Frequency of ponding: None
Calcium carbonate, maximum content: 5 percent
Available water supply, 0 to 60 inches: Moderate (about 7.6 inches)

Interpretive groups
Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 6e
Hydrologic Soil Group: C/D
Ecological site: F101XY013NY - Moist Till
Hydric soil rating: No

Minor Components

Unnamed soils, eroded soils
Percent of map unit: 10 percent

Unnamed soils, moderately deep
Percent of map unit: 10 percent

Unnamed soils, shallow
Percent of map unit: 5 percent

Pm—Pits, gravel

Map Unit Setting
National map unit symbol: 9phd
Mean annual precipitation: 36 to 41 inches
Mean annual air temperature: 45 to 48 degrees F
Frost-free period: 100 to 170 days
Farmland classification: Not prime farmland

Map Unit Composition
Pits, gravel: 90 percent
Minor components: 10 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Pits, Gravel

Typical profile
H1 - 0 to 6 inches: extremely gravelly sand
H2 - 6 to 60 inches: extremely gravelly sand

Minor Components

Unnamed soils
Percent of map unit: 10 percent

Ra—Raynham very fine sandy loam

Map Unit Setting

National map unit symbol: 9phg
Elevation: 50 to 500 feet
Mean annual precipitation: 36 to 41 inches
Mean annual air temperature: 45 to 48 degrees F
Frost-free period: 100 to 170 days
Farmland classification: Prime farmland if drained

Map Unit Composition

Raynham, poorly drained, and similar soils: 50 percent
Raynham, somewhat poorly drained, and similar soils: 30 percent
Minor components: 20 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Raynham, Poorly Drained

Setting

Landform: Depressions
Landform position (two-dimensional): Toeslope
Landform position (three-dimensional): Tread
Down-slope shape: Concave
Across-slope shape: Concave
Parent material: Glaciolacustrine, eolian, or old alluvial deposits, comprised mainly of silt and very fine sand

Typical profile

H1 - 0 to 11 inches: very fine sandy loam
H2 - 11 to 24 inches: very fine sandy loam
H3 - 24 to 60 inches: very fine sandy loam

Properties and qualities

Slope: 0 to 3 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Poorly 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 0 to 12 inches
Frequency of flooding: None
Frequency of ponding: None
Calcium carbonate, maximum content: 5 percent
Available water supply, 0 to 60 inches: High (about 11.7 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 3w
Hydrologic Soil Group: C/D
Ecological site: F101XY010NY - Wet Lake Plain Depression
Hydric soil rating: Yes

Description of Raynham, Somewhat Poorly Drained

Setting

Landform: Depressions
Landform position (two-dimensional): Toeslope
Landform position (three-dimensional): Tread
Down-slope shape: Concave
Across-slope shape: Concave
Parent material: Glaciolacustrine, eolian, or old alluvial deposits, comprised mainly of silt and very fine sand

Typical profile

H1 - 0 to 11 inches: very fine sandy loam
H2 - 11 to 24 inches: very fine sandy loam
H3 - 24 to 60 inches: very fine sandy loam

Properties and qualities

Slope: 0 to 3 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Somewhat poorly 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 6 to 24 inches
Frequency of flooding: None
Frequency of ponding: None
Calcium carbonate, maximum content: 5 percent
Available water supply, 0 to 60 inches: High (about 11.7 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 3w
Hydrologic Soil Group: C/D
Ecological site: F101XY010NY - Wet Lake Plain Depression
Hydric soil rating: No

Minor Components

Unnamed soils, somewhat poorly drained

Percent of map unit: 8 percent

Scio

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

Birdsall

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

Unnamed soils

Percent of map unit: 2 percent

Shaker

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

Cosad

Percent of map unit: 1 percent
Hydric soil rating: No

RhA—Rhinebeck silty clay loam, 0 to 3 percent slopes

Map Unit Setting

National map unit symbol: 9phh
Elevation: 80 to 1,000 feet
Mean annual precipitation: 36 to 41 inches
Mean annual air temperature: 45 to 48 degrees F
Frost-free period: 100 to 170 days
Farmland classification: Prime farmland if drained

Map Unit Composition

Rhinebeck and similar soils: 90 percent
Minor components: 10 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Rhinebeck

Setting

Landform: Lake plains
Landform position (two-dimensional): Footslope
Landform position (three-dimensional): Tread
Down-slope shape: Concave
Across-slope shape: Linear
Parent material: Clayey and silty glaciolacustrine deposits

Typical profile

H1 - 0 to 7 inches: silty clay loam
H2 - 7 to 34 inches: silty clay
H3 - 34 to 64 inches: silty clay

Properties and qualities

Slope: 0 to 3 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Somewhat poorly 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 6 to 18 inches
Frequency of flooding: None
Frequency of ponding: None
Calcium carbonate, maximum content: 15 percent
Available water supply, 0 to 60 inches: Moderate (about 8.5 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 3w

Hydrologic Soil Group: C/D
Ecological site: F144AY018NY - Moist Lake Plain
Hydric soil rating: No

Minor Components

Madalin
Percent of map unit: 5 percent
Landform: Depressions
Hydric soil rating: Yes

Raynham
Percent of map unit: 5 percent
Landform: Depressions
Hydric soil rating: Yes

RhB—Rhinebeck silty clay loam, 3 to 8 percent slopes

Map Unit Setting
National map unit symbol: 9phj
Elevation: 80 to 1,000 feet
Mean annual precipitation: 36 to 41 inches
Mean annual air temperature: 45 to 48 degrees F
Frost-free period: 100 to 170 days
Farmland classification: Prime farmland if drained

Map Unit Composition
Rhinebeck and similar soils: 85 percent
Minor components: 15 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Rhinebeck

Setting
Landform: Lake plains
Landform position (two-dimensional): Footslope
Landform position (three-dimensional): Tread
Down-slope shape: Concave
Across-slope shape: Linear
Parent material: Clayey and silty glaciolacustrine deposits

Typical profile
H1 - 0 to 7 inches: silty clay loam
H2 - 7 to 34 inches: silty clay
H3 - 34 to 64 inches: silty clay

Properties and qualities
Slope: 3 to 8 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Somewhat poorly 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 6 to 18 inches
Frequency of flooding: None
Frequency of ponding: None
Calcium carbonate, maximum content: 15 percent
Available water supply, 0 to 60 inches: Moderate (about 8.5 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 3w
Hydrologic Soil Group: C/D
Ecological site: F144AY018NY - Moist Lake Plain
Hydric soil rating: No

Minor Components

Raynham

Percent of map unit: 5 percent
Landform: Depressions
Hydric soil rating: Yes

Madalin

Percent of map unit: 5 percent
Landform: Depressions
Hydric soil rating: Yes

Claverack

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

RkA—Riverhead fine sandy loam, 0 to 3 percent slopes

Map Unit Setting

National map unit symbol: 9phk
Elevation: 130 to 950 feet
Mean annual precipitation: 36 to 41 inches
Mean annual air temperature: 45 to 48 degrees F
Frost-free period: 100 to 170 days
Farmland classification: All areas are prime farmland

Map Unit Composition

Riverhead and similar soils: 85 percent
Minor components: 15 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Riverhead

Setting

Landform: Deltas, terraces
Landform position (two-dimensional): Summit

Landform position (three-dimensional): Tread
Down-slope shape: Convex
Across-slope shape: Convex
Parent material: Loamy glaciofluvial deposits overlying stratified sand and gravel

Typical profile

H1 - 0 to 11 inches: fine sandy loam
H2 - 11 to 25 inches: fine sandy loam
H3 - 25 to 31 inches: loamy fine sand
H4 - 31 to 65 inches: gravelly fine sand

Properties and qualities

Slope: 0 to 3 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Well drained
Capacity of the most limiting layer to transmit water (Ksat): High (1.98 to 5.95 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 4.8 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 2s
Hydrologic Soil Group: A
Ecological site: F101XY005NY - Dry Outwash
Hydric soil rating: No

Minor Components

Sudbury

Percent of map unit: 7 percent
Hydric soil rating: No

Colonie

Percent of map unit: 4 percent
Hydric soil rating: No

Unnamed soils

Percent of map unit: 4 percent

RkB—Riverhead fine sandy loam, 3 to 8 percent slopes

Map Unit Setting

National map unit symbol: 9phl
Elevation: 0 to 1,380 feet
Mean annual precipitation: 36 to 41 inches
Mean annual air temperature: 45 to 48 degrees F
Frost-free period: 100 to 170 days
Farmland classification: All areas are prime farmland

Map Unit Composition

Riverhead and similar soils: 85 percent
Minor components: 15 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Riverhead

Setting

Landform: Terraces, deltas
Landform position (two-dimensional): Summit
Landform position (three-dimensional): Tread
Down-slope shape: Convex
Across-slope shape: Convex
Parent material: Loamy glaciofluvial deposits overlying stratified sand and gravel

Typical profile

H1 - 0 to 11 inches: fine sandy loam
H2 - 11 to 25 inches: fine sandy loam
H3 - 25 to 31 inches: loamy fine sand
H4 - 31 to 65 inches: gravelly fine sand

Properties and qualities

Slope: 3 to 8 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Well drained
Capacity of the most limiting layer to transmit water (Ksat): High (1.98 to 5.95 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 4.8 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 2s
Hydrologic Soil Group: A
Ecological site: F101XY005NY - Dry Outwash
Hydric soil rating: No

Minor Components

Sudbury

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

Colonie

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

Unadilla

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

Scio

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

RkC—Riverhead fine sandy loam, 8 to 15 percent slopes

Map Unit Setting

National map unit symbol: 9phm
Elevation: 110 to 1,280 feet
Mean annual precipitation: 36 to 41 inches
Mean annual air temperature: 45 to 48 degrees F
Frost-free period: 100 to 170 days
Farmland classification: Farmland of statewide importance

Map Unit Composition

Riverhead and similar soils: 90 percent
Minor components: 10 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Riverhead

Setting

Landform: Terraces, deltas
Landform position (two-dimensional): Shoulder
Landform position (three-dimensional): Tread
Down-slope shape: Convex
Across-slope shape: Convex
Parent material: Loamy glaciofluvial deposits overlying stratified sand and gravel

Typical profile

H1 - 0 to 11 inches: fine sandy loam
H2 - 11 to 25 inches: fine sandy loam
H3 - 25 to 31 inches: loamy fine sand
H4 - 31 to 65 inches: gravelly fine sand

Properties and qualities

Slope: 8 to 15 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Well drained
Capacity of the most limiting layer to transmit water (Ksat): High (1.98 to 5.95 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 4.8 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 3e
Hydrologic Soil Group: A
Ecological site: F101XY005NY - Dry Outwash
Hydric soil rating: No

Minor Components

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

Unnamed soils
Percent of map unit: 3 percent

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

ScA—Scio silt loam, 0 to 3 percent slopes

Map Unit Setting
National map unit symbol: 9phn
Elevation: 100 to 1,000 feet
Mean annual precipitation: 36 to 41 inches
Mean annual air temperature: 45 to 48 degrees F
Frost-free period: 100 to 170 days
Farmland classification: All areas are prime farmland

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

Description of Scio

Setting
Landform: Lake plains
Landform position (two-dimensional): Summit
Landform position (three-dimensional): Tread
Down-slope shape: Concave
Across-slope shape: Convex
Parent material: Glaciolacustrine deposits, eolian deposits, or old alluvium, comprised mainly of silt and very fine sand

Typical profile
H1 - 0 to 8 inches: silt loam
H2 - 8 to 65 inches: silt loam

Properties and qualities
Slope: 0 to 3 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Moderately well drained
Capacity of the most limiting layer to transmit water (Ksat): Moderately high to high (0.57 to 1.98 in/hr)
Depth to water table: About 18 to 24 inches
Frequency of flooding: None

Frequency of ponding: None
Available water supply, 0 to 60 inches: High (about 11.4 inches)

Interpretive groups
Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 2w
Hydrologic Soil Group: B/D
Ecological site: F144AY026CT - Moist Silty Outwash
Hydric soil rating: No

Minor Components

Unnamed soils
Percent of map unit: 5 percent

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

Raynham
Percent of map unit: 5 percent
Hydric soil rating: Yes

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

ScB—Scio silt loam, 3 to 8 percent slopes

Map Unit Setting
National map unit symbol: 9php
Elevation: 100 to 1,000 feet
Mean annual precipitation: 36 to 41 inches
Mean annual air temperature: 45 to 48 degrees F
Frost-free period: 100 to 170 days
Farmland classification: All areas are prime farmland

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

Description of Scio

Setting
Landform: Lake plains
Landform position (two-dimensional): Summit
Landform position (three-dimensional): Tread
Down-slope shape: Concave
Across-slope shape: Convex
Parent material: Glaciolacustrine deposits, eolian deposits, or old alluvium, comprised mainly of silt and very fine sand

Typical profile

H1 - 0 to 8 inches: silt loam
H2 - 8 to 65 inches: silt loam

Properties and qualities

Slope: 3 to 8 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Moderately well drained
Capacity of the most limiting layer to transmit water (Ksat): Moderately high to high (0.57 to 1.98 in/hr)
Depth to water table: About 18 to 24 inches
Frequency of flooding: None
Frequency of ponding: None
Available water supply, 0 to 60 inches: High (about 11.4 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 2e
Hydrologic Soil Group: B/D
Ecological site: F144AY026CT - Moist Silty Outwash
Hydric soil rating: No

Minor Components

Raynham

Percent of map unit: 5 percent
Hydric soil rating: Yes

Elmridge

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

Unadilla

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

Unnamed soils

Percent of map unit: 5 percent

Sh—Shaker fine sandy loam

Map Unit Setting

National map unit symbol: 9phq
Elevation: 130 to 1,310 feet
Mean annual precipitation: 36 to 41 inches
Mean annual air temperature: 45 to 48 degrees F
Frost-free period: 100 to 170 days
Farmland classification: Prime farmland if drained

Map Unit Composition

Shaker, poorly drained, and similar soils: 50 percent

Shaker, somewhat poorly drained, and similar soils: 30 percent
Minor components: 20 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Shaker, Poorly Drained

Setting

Landform: Depressions
Landform position (two-dimensional): Toeslope
Landform position (three-dimensional): Tread
Down-slope shape: Concave
Across-slope shape: Concave
Parent material: Loamy over clayey glaciolacustrine or glaciomarine deposits

Typical profile

H1 - 0 to 11 inches: fine sandy loam
H2 - 11 to 31 inches: fine sandy loam
H3 - 31 to 62 inches: clay

Properties and qualities

Slope: 0 to 3 percent
Depth to restrictive feature: 18 to 40 inches to strongly contrasting textural stratification
Drainage class: Poorly 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 0 to 12 inches
Frequency of flooding: None
Frequency of ponding: None
Calcium carbonate, maximum content: 1 percent
Available water supply, 0 to 60 inches: Low (about 5.0 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 3w
Hydrologic Soil Group: C/D
Ecological site: F101XY010NY - Wet Lake Plain Depression
Hydric soil rating: Yes

Description of Shaker, Somewhat Poorly Drained

Setting

Landform: Depressions
Landform position (two-dimensional): Toeslope
Landform position (three-dimensional): Tread
Down-slope shape: Concave
Across-slope shape: Concave
Parent material: Loamy over clayey glaciolacustrine or glaciomarine deposits

Typical profile

H1 - 0 to 11 inches: fine sandy loam
H2 - 11 to 31 inches: fine sandy loam
H3 - 31 to 62 inches: clay

Properties and qualities

Slope: 0 to 3 percent
Depth to restrictive feature: 18 to 40 inches to strongly contrasting textural stratification

Drainage class: Somewhat poorly 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 6 to 18 inches
Frequency of flooding: None
Frequency of ponding: None
Calcium carbonate, maximum content: 1 percent
Available water supply, 0 to 60 inches: Low (about 5.0 inches)

Interpretive groups
Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 3w
Hydrologic Soil Group: C/D
Ecological site: F101XY010NY - Wet Lake Plain Depression
Hydric soil rating: No

Minor Components

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

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

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

Unnamed soils
Percent of map unit: 5 percent

St—Stafford loamy fine sand

Map Unit Setting
National map unit symbol: 9phr
Elevation: 130 to 430 feet
Mean annual precipitation: 36 to 41 inches
Mean annual air temperature: 45 to 48 degrees F
Frost-free period: 100 to 170 days
Farmland classification: Farmland of statewide importance

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

Description of Stafford

Setting

Landform: Beach ridges, deltas
Landform position (two-dimensional): Footslope
Landform position (three-dimensional): Tread
Down-slope shape: Concave
Across-slope shape: Linear
Parent material: Sandy glaciofluvial or glaciolacustrine deposits

Typical profile

H1 - 0 to 12 inches: loamy fine sand
H2 - 12 to 30 inches: loamy fine sand
H3 - 30 to 60 inches: fine sand

Properties and qualities

Slope: 0 to 3 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Somewhat poorly drained
Capacity of the most limiting layer to transmit water (Ksat): High to very high (1.98 to 19.98 in/hr)
Depth to water table: About 6 to 18 inches
Frequency of flooding: None
Frequency of ponding: None
Available water supply, 0 to 60 inches: Low (about 3.0 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 3w
Hydrologic Soil Group: A/D
Ecological site: F101XY006NY - Moist Outwash
Hydric soil rating: No

Minor Components

Elnora

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

Granby

Percent of map unit: 5 percent
Landform: Depressions
Hydric soil rating: Yes

Unnamed soils

Percent of map unit: 5 percent

Colonie

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

SuA—Sudbury fine sandy loam, 0 to 3 percent slopes

Map Unit Setting

National map unit symbol: 9phs
Elevation: 50 to 970 feet
Mean annual precipitation: 36 to 41 inches
Mean annual air temperature: 45 to 48 degrees F
Frost-free period: 100 to 170 days
Farmland classification: All areas are prime farmland

Map Unit Composition

Sudbury and similar soils: 85 percent
Minor components: 15 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Sudbury

Setting

Landform: Outwash plains
Landform position (two-dimensional): Summit
Landform position (three-dimensional): Tread
Down-slope shape: Concave
Across-slope shape: Convex
Parent material: Sandy and gravelly glaciofluvial deposits

Typical profile

H1 - 0 to 11 inches: fine sandy loam
H2 - 11 to 20 inches: fine sandy loam
H3 - 20 to 29 inches: loamy sand
H4 - 29 to 48 inches: loamy sand
H5 - 48 to 60 inches: silt loam

Properties and qualities

Slope: 0 to 3 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Moderately well drained
Capacity of the most limiting layer to transmit water (Ksat): Moderately high to high (0.57 to 1.98 in/hr)
Depth to water table: About 18 to 36 inches
Frequency of flooding: None
Frequency of ponding: None
Available water supply, 0 to 60 inches: Moderate (about 6.9 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 2w
Hydrologic Soil Group: B
Ecological site: F144AY027MA - Moist Sandy Outwash
Hydric soil rating: No

Minor Components

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

Elnora
Percent of map unit: 4 percent
Hydric soil rating: No

Unnamed soils
Percent of map unit: 2 percent

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

Unadilla
Percent of map unit: 1 percent
Hydric soil rating: No

Colonie
Percent of map unit: 1 percent
Hydric soil rating: No

Te—Teel silt loam

Map Unit Setting
National map unit symbol: 9phv
Elevation: 600 to 1,800 feet
Mean annual precipitation: 36 to 41 inches
Mean annual air temperature: 45 to 48 degrees F
Frost-free period: 100 to 170 days
Farmland classification: All areas are prime farmland

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

Description of Teel

Setting
Landform: Flood plains
Landform position (two-dimensional): Summit
Landform position (three-dimensional): Talf
Down-slope shape: Concave
Across-slope shape: Convex
Parent material: Silty alluvium

Typical profile
H1 - 0 to 8 inches: silt loam

H2 - 8 to 29 inches: silt loam
H3 - 29 to 60 inches: fine sandy loam

Properties and qualities

Slope: 0 to 3 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Moderately well drained
Capacity of the most limiting layer to transmit water (Ksat): Moderately high to high (0.57 to 1.98 in/hr)
Depth to water table: About 18 to 24 inches
Frequency of flooding: OccasionalNone
Frequency of ponding: None
Calcium carbonate, maximum content: 1 percent
Available water supply, 0 to 60 inches: High (about 9.1 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 2w
Hydrologic Soil Group: B/D
Ecological site: F101XY002NY - Low Floodplain
Hydric soil rating: No

Minor Components

Wakeland

Percent of map unit: 5 percent
Landform: Flood plains
Hydric soil rating: No

Hamlin

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

Raynham

Percent of map unit: 3 percent
Landform: Depressions
Hydric soil rating: Yes

Scio

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

Unnamed soils

Percent of map unit: 2 percent

Rhinebeck

Percent of map unit: 1 percent
Hydric soil rating: No

Wayland

Percent of map unit: 1 percent
Landform: Flood plains
Hydric soil rating: Yes

Uf—Udipsamments-Urban land complex

Map Unit Setting

National map unit symbol: 9pj0
Elevation: 70 to 440 feet
Mean annual precipitation: 36 to 41 inches
Mean annual air temperature: 45 to 48 degrees F
Frost-free period: 100 to 170 days
Farmland classification: Not prime farmland

Map Unit Composition

Udipsamments and similar soils: 50 percent
Urban land: 30 percent
Minor components: 20 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Udipsamments

Typical profile

H1 - 0 to 70 inches: coarse sand

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): Very high (19.98 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 3.6 inches)

Description of Urban Land

Typical profile

H1 - 0 to 6 inches: variable

Minor Components

Unnamed soils

Percent of map unit: 10 percent

Psammaquents

Percent of map unit: 10 percent
Landform: Depressions
Hydric soil rating: Yes

Ug—Udorthents, loamy

Map Unit Setting

National map unit symbol: 9pj1
Elevation: 0 to 1,640 feet
Mean annual precipitation: 36 to 41 inches
Mean annual air temperature: 45 to 48 degrees F
Frost-free period: 100 to 170 days
Farmland classification: Not prime farmland

Map Unit Composition

Udorthents, loamy, and similar soils: 90 percent
Minor components: 10 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Udorthents, Loamy

Typical profile

H1 - 0 to 4 inches: loam
H2 - 4 to 70 inches: channery loam

Properties and qualities

Slope: 0 to 8 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Moderately well 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 5.5 inches)

Minor Components

Unnamed soils

Percent of map unit: 10 percent

Uh—Udorthents, clayey-Urban land complex

Map Unit Setting

National map unit symbol: 9pj2
Elevation: 20 to 310 feet

Mean annual precipitation: 36 to 41 inches
Mean annual air temperature: 45 to 48 degrees F
Frost-free period: 100 to 170 days
Farmland classification: Not prime farmland

Map Unit Composition

Udorthents, clayey, and similar soils: 40 percent
Urban land: 30 percent
Minor components: 30 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Udorthents, Clayey

Typical profile

H1 - 0 to 18 inches: silty clay
H2 - 18 to 72 inches: stratified silt loam to clay

Properties and qualities

Slope: 0 to 8 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Moderately 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 6 to 18 inches
Frequency of flooding: None
Frequency of ponding: None
Available water supply, 0 to 60 inches: Moderate (about 8.2 inches)

Description of Urban Land

Typical profile

H1 - 0 to 6 inches: variable

Minor Components

Scio

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

Hudson

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

Rhinebeck

Percent of map unit: 7 percent
Hydric soil rating: No

Madalin

Percent of map unit: 3 percent
Landform: Depressions
Hydric soil rating: Yes

Uk—Udorthents, loamy-Urban land complex

Map Unit Setting

National map unit symbol: 9pj3
Elevation: 0 to 1,440 feet
Mean annual precipitation: 36 to 41 inches
Mean annual air temperature: 45 to 48 degrees F
Frost-free period: 100 to 170 days
Farmland classification: Not prime farmland

Map Unit Composition

Udorthents, loamy, and similar soils: 40 percent
Urban land: 30 percent
Minor components: 30 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Udorthents, Loamy

Typical profile

H1 - 0 to 4 inches: loam
H2 - 4 to 70 inches: channery loam

Properties and qualities

Slope: 0 to 8 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Well 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 5.5 inches)

Minor Components

Nunda

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

Valois

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

Riverhead

Percent of map unit: 9 percent
Hydric soil rating: No

Ilion

Percent of map unit: 1 percent

Landform: Depressions
Hydric soil rating: Yes

UnC—Unadilla silt loam, 8 to 15 percent slopes

Map Unit Setting

National map unit symbol: 9pj6
Elevation: 600 to 1,800 feet
Mean annual precipitation: 36 to 41 inches
Mean annual air temperature: 45 to 48 degrees F
Frost-free period: 100 to 170 days
Farmland classification: Farmland of statewide importance

Map Unit Composition

Unadilla and similar soils: 85 percent
Minor components: 15 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Unadilla

Setting

Landform: Lake plains
Landform position (two-dimensional): Shoulder
Landform position (three-dimensional): Tread
Down-slope shape: Convex
Across-slope shape: Convex
Parent material: Glaciolacustrine deposits, eolian deposits, or old alluvium, comprised mainly of silt and very fine sand

Typical profile

H1 - 0 to 9 inches: silt loam
H2 - 9 to 64 inches: silt loam

Properties and qualities

Slope: 8 to 15 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Well drained
Capacity of the most limiting layer to transmit water (Ksat): Moderately high to high (0.57 to 1.98 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: High (about 11.5 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 3e
Hydrologic Soil Group: B
Ecological site: F144AY024NY - Well Drained Eolian Outwash
Hydric soil rating: No

Minor Components

Hudson
Percent of map unit: 7 percent
Hydric soil rating: No

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

Raynham
Percent of map unit: 3 percent
Hydric soil rating: Yes

UnD—Unadilla silt loam, 15 to 25 percent slopes

Map Unit Setting
National map unit symbol: 9pj7
Elevation: 600 to 1,800 feet
Mean annual precipitation: 36 to 41 inches
Mean annual air temperature: 45 to 48 degrees F
Frost-free period: 100 to 170 days
Farmland classification: Not prime farmland

Map Unit Composition
Unadilla and similar soils: 85 percent
Minor components: 15 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Unadilla

Setting
Landform: Lake plains
Landform position (two-dimensional): Backslope
Landform position (three-dimensional): Riser
Down-slope shape: Convex
Across-slope shape: Convex
Parent material: Glaciolacustrine deposits, eolian deposits, or old alluvium, comprised mainly of silt and very fine sand

Typical profile
H1 - 0 to 9 inches: silt loam
H2 - 9 to 64 inches: silt loam

Properties and qualities
Slope: 15 to 25 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Well drained
Capacity of the most limiting layer to transmit water (Ksat): Moderately high to high (0.57 to 1.98 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: High (about 11.5 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 4e
Hydrologic Soil Group: B
Ecological site: F144AY024NY - Well Drained Eolian Outwash
Hydric soil rating: No

Minor Components

Hudson

Percent of map unit: 8 percent
Hydric soil rating: No

Colonie

Percent of map unit: 4 percent
Hydric soil rating: No

Riverhead

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

Ur—Urban land

Map Unit Setting

National map unit symbol: 9pj8
Mean annual precipitation: 36 to 41 inches
Mean annual air temperature: 45 to 48 degrees F
Frost-free period: 100 to 170 days
Farmland classification: Not prime farmland

Map Unit Composition

Urban land: 85 percent
Minor components: 15 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Urban Land

Typical profile

H1 - 0 to 6 inches: variable

Minor Components

Unnamed soils

Percent of map unit: 10 percent

Udorthents

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

Ut—Urban land-Udorthents complex, 0 to 8 percent slopes

Map Unit Setting

National map unit symbol: 9pjb
Elevation: 0 to 460 feet
Mean annual precipitation: 36 to 41 inches
Mean annual air temperature: 45 to 48 degrees F
Frost-free period: 100 to 170 days
Farmland classification: Not prime farmland

Map Unit Composition

Urban land: 50 percent
Udorthents and similar soils: 30 percent
Minor components: 20 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Urban Land

Typical profile

H1 - 0 to 6 inches: variable

Description of Udorthents

Typical profile

H1 - 0 to 4 inches: channery loam
H2 - 4 to 70 inches: channery loam

Properties and qualities

Slope: 0 to 8 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Moderately well 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)

Minor Components

Unnamed soils, poorly

Percent of map unit: 10 percent

Unnamed soils, moderately well

Percent of map unit: 10 percent

VaB—Valois gravelly loam, 3 to 8 percent slopes

Map Unit Setting

National map unit symbol: 9pjc
Elevation: 600 to 1,750 feet
Mean annual precipitation: 36 to 41 inches
Mean annual air temperature: 45 to 48 degrees F
Frost-free period: 100 to 170 days
Farmland classification: All areas are prime farmland

Map Unit Composition

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

Description of Valois

Setting

Landform: Valley sides, lateral moraines, end moraines
Landform position (two-dimensional): Summit
Landform position (three-dimensional): Crest
Down-slope shape: Convex
Across-slope shape: Convex
Parent material: Loamy till derived mainly from sandstone, siltstone, and shale

Typical profile

H1 - 0 to 8 inches: gravelly loam
H2 - 8 to 30 inches: gravelly loam
H3 - 30 to 46 inches: gravelly loam
H4 - 46 to 60 inches: very gravelly loam

Properties and qualities

Slope: 3 to 8 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Well drained
Capacity of the most limiting layer to transmit water (Ksat): Moderately high to high (0.57 to 1.98 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Calcium carbonate, maximum content: 2 percent
Available water supply, 0 to 60 inches: Low (about 6.0 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 2e
Hydrologic Soil Group: B
Ecological site: F101XY012NY - Till Upland
Hydric soil rating: No

Minor Components

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

Unnamed soils
Percent of map unit: 5 percent

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

VaC—Valois gravelly loam, 8 to 15 percent slopes

Map Unit Setting
National map unit symbol: 9pjd
Elevation: 600 to 1,750 feet
Mean annual precipitation: 36 to 41 inches
Mean annual air temperature: 45 to 48 degrees F
Frost-free period: 100 to 170 days
Farmland classification: Farmland of statewide importance

Map Unit Composition
Valois and similar soils: 85 percent
Minor components: 15 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Valois

Setting
Landform: End moraines, lateral moraines, valley sides
Landform position (two-dimensional): Shoulder
Landform position (three-dimensional): Crest
Down-slope shape: Convex
Across-slope shape: Convex
Parent material: Loamy till derived mainly from sandstone, siltstone, and shale

Typical profile
H1 - 0 to 8 inches: gravelly loam
H2 - 8 to 30 inches: gravelly loam
H3 - 30 to 46 inches: gravelly loam
H4 - 46 to 60 inches: very gravelly loam

Properties and qualities
Slope: 8 to 15 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Well drained
Capacity of the most limiting layer to transmit water (Ksat): Moderately high to high (0.57 to 1.98 in/hr)
Depth to water table: More than 80 inches

Frequency of flooding: None
Frequency of ponding: None
Calcium carbonate, maximum content: 2 percent
Available water supply, 0 to 60 inches: Low (about 6.0 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 3e
Hydrologic Soil Group: B
Ecological site: F101XY012NY - Till Upland
Hydric soil rating: No

Minor Components

Unnamed soils

Percent of map unit: 10 percent

Nunda

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

Chenango

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

W—Water

Map Unit Composition

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

Wa—Wakeland silt loam

Map Unit Setting

National map unit symbol: 9pjh
Elevation: 340 to 950 feet
Mean annual precipitation: 36 to 41 inches
Mean annual air temperature: 45 to 48 degrees F
Frost-free period: 100 to 170 days
Farmland classification: Prime farmland if drained

Map Unit Composition

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

Description of Wakeland

Setting

Landform: Flood plains

Landform position (two-dimensional): Footslope
Landform position (three-dimensional): Talf
Down-slope shape: Concave
Across-slope shape: Linear
Parent material: Silty alluvium

Typical profile

H1 - 0 to 9 inches: silt loam
H2 - 9 to 62 inches: silt loam

Properties and qualities

Slope: 0 to 3 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Somewhat poorly drained
Capacity of the most limiting layer to transmit water (Ksat): Moderately high to high (0.57 to 1.98 in/hr)
Depth to water table: About 12 to 36 inches
Frequency of flooding: OccasionalNone
Frequency of ponding: None
Available water supply, 0 to 60 inches: Very high (about 12.7 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 3w
Hydrologic Soil Group: C
Ecological site: F144AY015NY - Wet Silty Low Floodplain
Hydric soil rating: No

Minor Components

Wayland

Percent of map unit: 5 percent
Landform: Flood plains
Hydric soil rating: Yes

Teel

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

Raynham

Percent of map unit: 5 percent
Landform: Depressions
Hydric soil rating: Yes

Unnamed soils

Percent of map unit: 3 percent

Rhinebeck

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

Wo—Wayland soils complex, non-calcareous substratum, 0 to 3 percent slopes, frequently flooded

Map Unit Setting

National map unit symbol: 2srgt
Elevation: 160 to 1,970 feet
Mean annual precipitation: 31 to 70 inches
Mean annual air temperature: 43 to 52 degrees F
Frost-free period: 105 to 180 days
Farmland classification: Not prime farmland

Map Unit Composition

Wayland and similar soils: 60 percent
Wayland, very poorly drained, and similar soils: 30 percent
Minor components: 10 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Wayland

Setting

Landform: Flood plains
Landform position (three-dimensional): Tread
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Silty and clayey alluvium derived from interbedded sedimentary rock

Typical profile

Ap - 0 to 9 inches: silt loam
Bg - 9 to 21 inches: silt loam
Cg1 - 21 to 28 inches: silt loam
Cg2 - 28 to 47 inches: silt loam
Cg3 - 47 to 54 inches: silt loam
Cg4 - 54 to 60 inches: silt loam

Properties and qualities

Slope: 0 to 3 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Poorly drained
Capacity of the most limiting layer to transmit water (Ksat): Moderately low to high (0.14 to 14.17 in/hr)
Depth to water table: About 0 to 6 inches
Frequency of flooding: FrequentNone
Frequency of ponding: None
Calcium carbonate, maximum content: 5 percent
Maximum salinity: Nonsaline (0.0 to 1.9 mmhos/cm)
Available water supply, 0 to 60 inches: Very high (about 13.0 inches)

Interpretive groups

Land capability classification (irrigated): None specified

Land capability classification (nonirrigated): 5w
Hydrologic Soil Group: B/D
Ecological site: F140XY015NY - Wet Low Floodplain
Hydric soil rating: Yes

Description of Wayland, Very Poorly Drained

Setting

Landform: Flood plains
Landform position (three-dimensional): Tread
Down-slope shape: Concave
Across-slope shape: Concave
Parent material: Silty and clayey alluvium derived from interbedded sedimentary rock

Typical profile

A - 0 to 9 inches: mucky silt loam
Bg - 9 to 21 inches: silt loam
Cg1 - 21 to 28 inches: silt loam
Cg2 - 28 to 47 inches: silt loam
Cg3 - 47 to 54 inches: silt loam
Cg4 - 54 to 60 inches: silt loam

Properties and qualities

Slope: 0 to 3 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Very poorly drained
Capacity of the most limiting layer to transmit water (Ksat): Moderately low to high (0.14 to 14.17 in/hr)
Depth to water table: About 0 inches
Frequency of flooding: NoneFrequent
Frequency of ponding: Frequent
Calcium carbonate, maximum content: 5 percent
Maximum salinity: Nonsaline (0.0 to 1.9 mmhos/cm)
Available water supply, 0 to 60 inches: Very high (about 13.3 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 5w
Hydrologic Soil Group: B/D
Ecological site: F140XY015NY - Wet Low Floodplain
Hydric soil rating: Yes

Minor Components

Holderton

Percent of map unit: 10 percent
Landform: Flood plains
Landform position (three-dimensional): Tread
Down-slope shape: Linear
Across-slope shape: Linear
Hydric soil rating: No

Schenectady County, New York

Ce—Cheektowaga fine sandy loam

Map Unit Setting

National map unit symbol: bd3p
Elevation: 200 to 800 feet
Mean annual precipitation: 38 to 44 inches
Mean annual air temperature: 45 to 48 degrees F
Frost-free period: 110 to 170 days
Farmland classification: Farmland of statewide importance

Map Unit Composition

Cheektowaga and similar soils: 75 percent
Minor components: 25 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Cheektowaga

Setting

Landform: Depressions
Landform position (two-dimensional): Toeslope
Landform position (three-dimensional): Tread
Down-slope shape: Concave
Across-slope shape: Concave
Parent material: Sandy deltaic deposits over clayey glaciolacustrine deposits

Typical profile

H1 - 0 to 9 inches: fine sandy loam
H2 - 9 to 18 inches: loamy fine sand
H3 - 18 to 26 inches: loamy fine sand
H4 - 26 to 60 inches: silty clay

Properties and qualities

Slope: 0 to 3 percent
Depth to restrictive feature: 20 to 40 inches to strongly contrasting textural stratification
Drainage class: Very poorly 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 0 to 6 inches
Frequency of flooding: None
Frequency of ponding: Frequent
Calcium carbonate, maximum content: 10 percent
Available water supply, 0 to 60 inches: Very low (about 2.1 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 4w
Hydrologic Soil Group: C/D
Ecological site: F101XY007NY - Wet Outwash
Hydric soil rating: Yes

Minor Components

Palms
Percent of map unit: 5 percent
Landform: Swamps, marshes
Hydric soil rating: Yes

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

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

Granby
Percent of map unit: 5 percent
Landform: Depressions
Hydric soil rating: Yes

Madalin
Percent of map unit: 5 percent
Landform: Depressions
Hydric soil rating: Yes

ClA—Claverack loamy fine sand, 0 to 3 percent slopes

Map Unit Setting
National map unit symbol: bd3s
Elevation: 600 to 1,800 feet
Mean annual precipitation: 38 to 44 inches
Mean annual air temperature: 45 to 48 degrees F
Frost-free period: 110 to 170 days
Farmland classification: All areas are prime farmland

Map Unit Composition
Claverack and similar soils: 75 percent
Minor components: 5 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Claverack

Setting
Landform: Lake plains
Landform position (two-dimensional): Summit
Landform position (three-dimensional): Tread
Down-slope shape: Concave
Across-slope shape: Convex
Parent material: Sandy glaciolacustrine deposits, derived primarily from non-calcareous sandstone or granite, that overlie clayey glaciolacustrine deposits

Typical profile

H1 - 0 to 11 inches: loamy fine sand
H2 - 11 to 30 inches: loamy fine sand
H3 - 30 to 60 inches: silty clay

Properties and qualities

Slope: 0 to 3 percent
Depth to restrictive feature: 20 to 40 inches to strongly contrasting textural stratification
Drainage class: Moderately 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 24 inches
Frequency of flooding: None
Frequency of ponding: None
Calcium carbonate, maximum content: 10 percent
Available water supply, 0 to 60 inches: Very low (about 2.1 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 2w
Hydrologic Soil Group: C/D
Ecological site: F101XY006NY - Moist Outwash
Hydric soil rating: No

Minor Components

Cheektowaga

Percent of map unit: 5 percent
Landform: Depressions
Hydric soil rating: Yes

CIB—Claverack loamy fine sand, 3 to 8 percent slopes

Map Unit Setting

National map unit symbol: bd3t
Elevation: 600 to 1,800 feet
Mean annual precipitation: 38 to 44 inches
Mean annual air temperature: 45 to 48 degrees F
Frost-free period: 110 to 170 days
Farmland classification: All areas are prime farmland

Map Unit Composition

Claverack and similar soils: 75 percent
Minor components: 25 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Claverack

Setting

Landform: Lake plains
Landform position (two-dimensional): Summit
Landform position (three-dimensional): Tread
Down-slope shape: Concave
Across-slope shape: Convex
Parent material: Sandy glaciolacustrine deposits, derived primarily from non-calcareous sandstone or granite, that overlie clayey glaciolacustrine deposits

Typical profile

H1 - 0 to 11 inches: loamy fine sand
H2 - 11 to 30 inches: loamy fine sand
H3 - 30 to 60 inches: silty clay

Properties and qualities

Slope: 3 to 8 percent
Depth to restrictive feature: 20 to 40 inches to strongly contrasting textural stratification
Drainage class: Moderately 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 24 inches
Frequency of flooding: None
Frequency of ponding: None
Calcium carbonate, maximum content: 10 percent
Available water supply, 0 to 60 inches: Very low (about 2.1 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 2w
Hydrologic Soil Group: C/D
Ecological site: F101XY006NY - Moist Outwash
Hydric soil rating: No

Minor Components

Colonie

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

Junius

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

Cheektowaga

Percent of map unit: 5 percent
Landform: Depressions
Hydric soil rating: Yes

Plainfield

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

Elnora

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

CoA—Colonie loamy fine sand, 0 to 3 percent slopes

Map Unit Setting

National map unit symbol: bd3v
Elevation: 150 to 1,000 feet
Mean annual precipitation: 38 to 44 inches
Mean annual air temperature: 45 to 48 degrees F
Frost-free period: 110 to 170 days
Farmland classification: All areas are prime farmland

Map Unit Composition

Colonie and similar soils: 75 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Colonie

Setting

Landform: Beach ridges, deltas
Landform position (two-dimensional): Summit
Landform position (three-dimensional): Tread
Down-slope shape: Convex
Across-slope shape: Convex
Parent material: Sandy glaciofluvial or eolian deposits

Typical profile

H1 - 0 to 6 inches: loamy fine sand
H2 - 6 to 70 inches: fine sand
H3 - 70 to 110 inches: fine sand

Properties and qualities

Slope: 0 to 3 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Well drained
Capacity of the most limiting layer to transmit water (Ksat): High to very high (1.98 to 19.98 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 4.9 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 2s
Hydrologic Soil Group: A
Ecological site: F101XY005NY - Dry Outwash
Hydric soil rating: No

CoC—Colonie loamy fine sand, 3 to 15 percent slopes

Map Unit Setting

National map unit symbol: 1qcvw
Elevation: 150 to 1,000 feet
Mean annual precipitation: 38 to 44 inches
Mean annual air temperature: 45 to 48 degrees F
Frost-free period: 110 to 170 days
Farmland classification: Farmland of statewide importance

Map Unit Composition

Colonie and similar soils: 75 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Colonie

Setting

Landform: Deltas, beach ridges
Landform position (two-dimensional): Shoulder
Landform position (three-dimensional): Tread
Down-slope shape: Convex
Across-slope shape: Convex
Parent material: Sandy glaciofluvial or eolian deposits

Typical profile

H1 - 0 to 6 inches: loamy fine sand
H2 - 6 to 70 inches: fine sand
H3 - 70 to 110 inches: fine sand

Properties and qualities

Slope: 3 to 15 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Well drained
Capacity of the most limiting layer to transmit water (Ksat): High to very high (1.98 to 19.98 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 4.9 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 3e
Hydrologic Soil Group: A
Ecological site: F101XY005NY - Dry Outwash
Hydric soil rating: No

En—Elnora loamy fine sand

Map Unit Setting

National map unit symbol: bd42
Elevation: 230 to 620 feet
Mean annual precipitation: 38 to 44 inches
Mean annual air temperature: 45 to 48 degrees F
Frost-free period: 110 to 170 days
Farmland classification: All areas are prime farmland

Map Unit Composition

Elnora and similar soils: 75 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Elnora

Setting

Landform: Deltas, beach ridges
Landform position (two-dimensional): Summit
Landform position (three-dimensional): Tread
Down-slope shape: Concave
Across-slope shape: Convex
Parent material: Sandy glaciofluvial, eolian, or deltaic deposits

Typical profile

H1 - 0 to 9 inches: loamy fine sand
H2 - 9 to 48 inches: loamy fine sand
H3 - 48 to 60 inches: loamy fine sand

Properties and qualities

Slope: 0 to 3 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Moderately well drained
Capacity of the most limiting layer to transmit water (Ksat): High (1.98 to 5.95 in/hr)
Depth to water table: About 14 to 24 inches
Frequency of flooding: None
Frequency of ponding: None
Available water supply, 0 to 60 inches: Low (about 4.4 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 2w
Hydrologic Soil Group: A/D
Ecological site: F101XY006NY - Moist Outwash
Hydric soil rating: No

Gr—Granby loamy fine sand

Map Unit Setting

National map unit symbol: bd49
Elevation: 600 to 1,000 feet
Mean annual precipitation: 38 to 44 inches
Mean annual air temperature: 45 to 48 degrees F
Frost-free period: 110 to 170 days
Farmland classification: Not prime farmland

Map Unit Composition

Granby and similar soils: 75 percent
Minor components: 25 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Granby

Setting

Landform: Depressions
Landform position (two-dimensional): Toeslope
Landform position (three-dimensional): Tread
Down-slope shape: Concave
Across-slope shape: Concave
Parent material: Sandy glaciofluvial deposits or sandy glaciolacustrine deposits

Typical profile

H1 - 0 to 11 inches: loamy fine sand
H2 - 11 to 26 inches: loamy fine sand
H3 - 26 to 60 inches: sand

Properties and qualities

Slope: 0 to 3 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Poorly drained
Capacity of the most limiting layer to transmit water (Ksat): High to very high (5.95 to 19.98 in/hr)
Depth to water table: About 0 inches
Frequency of flooding: None
Frequency of ponding: Frequent
Calcium carbonate, maximum content: 15 percent
Available water supply, 0 to 60 inches: Low (about 4.9 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 5w
Hydrologic Soil Group: A/D
Ecological site: F101XY010NY - Wet Lake Plain Depression
Hydric soil rating: Yes

Minor Components

Palms
Percent of map unit: 5 percent
Landform: Swamps, marshes
Hydric soil rating: Yes

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

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

Cheektowaga
Percent of map unit: 5 percent
Landform: Depressions
Hydric soil rating: Yes

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

HuB—Hudson silty clay loam, 3 to 8 percent slopes

Map Unit Setting
National map unit symbol: bd4q
Elevation: 300 to 1,800 feet
Mean annual precipitation: 38 to 44 inches
Mean annual air temperature: 45 to 48 degrees F
Frost-free period: 110 to 170 days
Farmland classification: All areas are prime farmland

Map Unit Composition
Hudson and similar soils: 75 percent
Minor components: 25 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Hudson

Setting
Landform: Lake plains
Landform position (two-dimensional): Summit
Landform position (three-dimensional): Tread
Down-slope shape: Concave
Across-slope shape: Convex
Parent material: Clayey and silty glaciolacustrine deposits

Typical profile
H1 - 0 to 6 inches: silty clay loam

H2 - 6 to 12 inches: silty clay loam
H3 - 12 to 26 inches: silty clay
H4 - 26 to 60 inches: stratified clay to silt loam

Properties and qualities

Slope: 3 to 8 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Moderately 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 24 inches
Frequency of flooding: None
Frequency of ponding: None
Calcium carbonate, maximum content: 20 percent
Available water supply, 0 to 60 inches: High (about 9.6 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 2e
Hydrologic Soil Group: C/D
Ecological site: F101XY009NY - Moist Lake Plain
Hydric soil rating: No

Minor Components

Rhinebeck

Percent of map unit: 8 percent
Hydric soil rating: No

Odessa

Percent of map unit: 7 percent
Hydric soil rating: No

Unnamed soils

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

Churchville

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

Ju—Junius loamy fine sand

Map Unit Setting

National map unit symbol: bd4y
Elevation: 100 to 650 feet
Mean annual precipitation: 38 to 44 inches
Mean annual air temperature: 45 to 48 degrees F
Frost-free period: 110 to 170 days
Farmland classification: Farmland of statewide importance

Map Unit Composition

Junius, poorly drained, and similar soils: 50 percent
Junius, somewhat poorly drained, and similar soils: 25 percent
Minor components: 25 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Junius, Poorly Drained

Setting

Landform: Deltas on lake plains
Landform position (two-dimensional): Footslope
Landform position (three-dimensional): Tread
Down-slope shape: Concave
Across-slope shape: Linear
Parent material: Calcareous sandy glaciolacustrine or deltaic deposits

Typical profile

H1 - 0 to 10 inches: loamy fine sand
H2 - 10 to 48 inches: loamy fine sand
H3 - 48 to 60 inches: very fine sandy loam

Properties and qualities

Slope: 0 to 3 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Poorly drained
Capacity of the most limiting layer to transmit water (Ksat): High (1.98 to 5.95 in/hr)
Depth to water table: About 0 to 12 inches
Frequency of flooding: None
Frequency of ponding: None
Calcium carbonate, maximum content: 15 percent
Available water supply, 0 to 60 inches: Low (about 4.6 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 4w
Hydrologic Soil Group: A/D
Ecological site: F101XY006NY - Moist Outwash
Hydric soil rating: Yes

Description of Junius, Somewhat Poorly Drained

Setting

Landform: Deltas on lake plains
Landform position (two-dimensional): Footslope
Landform position (three-dimensional): Tread
Down-slope shape: Concave
Across-slope shape: Linear
Parent material: Calcareous sandy glaciolacustrine or deltaic deposits

Typical profile

H1 - 0 to 10 inches: loamy fine sand
H2 - 10 to 48 inches: loamy fine sand
H3 - 48 to 60 inches: very fine sandy loam

Properties and qualities

Slope: 0 to 3 percent

Depth to restrictive feature: More than 80 inches
Drainage class: Somewhat poorly drained
Capacity of the most limiting layer to transmit water (Ksat): High (1.98 to 5.95 in/hr)
Depth to water table: About 6 to 18 inches
Frequency of flooding: None
Frequency of ponding: None
Calcium carbonate, maximum content: 15 percent
Available water supply, 0 to 60 inches: Low (about 4.6 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 4w
Hydrologic Soil Group: A/D
Ecological site: F101XY006NY - Moist Outwash
Hydric soil rating: No

Minor Components

Granby

Percent of map unit: 7 percent
Landform: Depressions
Hydric soil rating: Yes

Cheektowaga

Percent of map unit: 7 percent
Landform: Depressions
Hydric soil rating: Yes

Claverack

Percent of map unit: 6 percent
Hydric soil rating: No

Elnora

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

Ma—Madalin silty clay loam, 0 to 3 percent slopes

Map Unit Setting

National map unit symbol: 2spjz
Elevation: 330 to 1,200 feet
Mean annual precipitation: 31 to 57 inches
Mean annual air temperature: 41 to 50 degrees F
Frost-free period: 100 to 190 days
Farmland classification: Farmland of statewide importance

Map Unit Composition

Madalin and similar soils: 85 percent
Minor components: 15 percent

Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Madalin

Setting

Landform: Depressions
Landform position (two-dimensional): Toeslope
Landform position (three-dimensional): Tread
Down-slope shape: Concave
Across-slope shape: Concave
Parent material: Brown clayey glaciolacustrine deposits derived from calcareous shale

Typical profile

Ap - 0 to 7 inches: silty clay loam
Bg - 7 to 9 inches: silty clay loam
Btg1 - 9 to 21 inches: clay
Btg2 - 21 to 30 inches: silty clay
Cg - 30 to 79 inches: stratified silt to clay

Properties and qualities

Slope: 0 to 3 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Poorly drained
Runoff class: Very low
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: About 0 to 7 inches
Frequency of flooding: None
Frequency of ponding: None
Calcium carbonate, maximum content: 25 percent
Available water supply, 0 to 60 inches: High (about 9.2 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 4w
Hydrologic Soil Group: C/D
Ecological site: F101XY010NY - Wet Lake Plain Depression
Hydric soil rating: Yes

Minor Components

Rhinebeck

Percent of map unit: 5 percent
Landform: Lake plains
Landform position (two-dimensional): Footslope
Landform position (three-dimensional): Tread
Down-slope shape: Concave
Across-slope shape: Linear
Hydric soil rating: No

Canandaigua

Percent of map unit: 4 percent
Landform: Depressions
Landform position (two-dimensional): Toeslope
Landform position (three-dimensional): Tread
Down-slope shape: Concave

Across-slope shape: Concave
Hydric soil rating: Yes

Fonda

Percent of map unit: 4 percent
Landform: Depressions
Landform position (two-dimensional): Toeslope
Landform position (three-dimensional): Tread
Down-slope shape: Concave
Across-slope shape: Concave
Hydric soil rating: Yes

Barre

Percent of map unit: 2 percent
Landform: Depressions
Landform position (two-dimensional): Toeslope
Landform position (three-dimensional): Base slope, tread
Down-slope shape: Concave
Across-slope shape: Concave
Hydric soil rating: Yes

MrB—Mardin gravelly silt loam, 3 to 8 percent slopes

Map Unit Setting

National map unit symbol: bd5k
Elevation: 800 to 1,800 feet
Mean annual precipitation: 38 to 44 inches
Mean annual air temperature: 45 to 48 degrees F
Frost-free period: 110 to 170 days
Farmland classification: Farmland of statewide importance

Map Unit Composition

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

Description of Mardin

Setting

Landform: Drumlinoid ridges, till plains, hills
Landform position (two-dimensional): Summit
Landform position (three-dimensional): Crest
Down-slope shape: Concave
Across-slope shape: Convex
Parent material: Loamy till derived mainly from acid sedimentary rock

Typical profile

H1 - 0 to 2 inches: gravelly silt loam
H2 - 2 to 27 inches: gravelly loam
H3 - 27 to 47 inches: gravelly silt loam
H4 - 47 to 60 inches: gravelly silt loam

Properties and qualities

Slope: 3 to 8 percent
Depth to restrictive feature: 14 to 27 inches to fragipan
Drainage class: Moderately 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 24 inches
Frequency of flooding: None
Frequency of ponding: None
Calcium carbonate, maximum content: 15 percent
Available water supply, 0 to 60 inches: Low (about 3.5 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 2w
Hydrologic Soil Group: C
Ecological site: F140XY024NY - Moist Dense Till
Hydric soil rating: No

Minor Components

Burdett

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

Mosherville

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

Nunda

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

Nassau

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

PsA—Plainfield loamy sand, 0 to 3 percent slopes

Map Unit Setting

National map unit symbol: bd6j
Elevation: 720 to 1,150 feet
Mean annual precipitation: 38 to 44 inches
Mean annual air temperature: 45 to 48 degrees F
Frost-free period: 110 to 170 days
Farmland classification: Not prime farmland

Map Unit Composition

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

Description of Plainfield

Setting

Landform: Terraces, outwash plains, deltas
Landform position (two-dimensional): Summit
Landform position (three-dimensional): Tread
Down-slope shape: Convex
Across-slope shape: Convex
Parent material: Sandy glaciofluvial or deltaic deposits

Typical profile

H1 - 0 to 8 inches: loamy sand
H2 - 8 to 32 inches: coarse sand
H3 - 32 to 78 inches: coarse sand

Properties and qualities

Slope: 0 to 3 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Excessively drained
Capacity of the most limiting layer to transmit water (Ksat): High to very high (5.95 to 19.98 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 3.7 inches)

Interpretive groups

Land capability classification (irrigated): 3e
Land capability classification (nonirrigated): 3s
Hydrologic Soil Group: A
Ecological site: F101XY005NY - Dry Outwash
Hydric soil rating: No

Minor Components

Otisville

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

Alton

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

Colonie

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

Elnora

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

PsB—Plainfield loamy sand, 3 to 10 percent slopes

Map Unit Setting

National map unit symbol: bd6k
Elevation: 720 to 1,150 feet
Mean annual precipitation: 38 to 44 inches
Mean annual air temperature: 45 to 48 degrees F
Frost-free period: 110 to 170 days
Farmland classification: Not prime farmland

Map Unit Composition

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

Description of Plainfield

Setting

Landform: Terraces, outwash plains, deltas
Landform position (two-dimensional): Summit
Landform position (three-dimensional): Tread
Down-slope shape: Convex
Across-slope shape: Convex
Parent material: Sandy glaciofluvial or deltaic deposits

Typical profile

H1 - 0 to 8 inches: loamy sand
H2 - 8 to 32 inches: coarse sand
H3 - 32 to 78 inches: coarse sand

Properties and qualities

Slope: 3 to 10 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Excessively drained
Capacity of the most limiting layer to transmit water (Ksat): High to very high (5.95 to 19.98 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 3.7 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 3s
Hydrologic Soil Group: A
Ecological site: F144AY022MA - Dry Outwash
Hydric soil rating: No

Minor Components

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

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

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

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

RhA—Rhinebeck silty clay loam, 0 to 3 percent slopes

Map Unit Setting
National map unit symbol: bd6p
Elevation: 80 to 1,000 feet
Mean annual precipitation: 38 to 44 inches
Mean annual air temperature: 45 to 48 degrees F
Frost-free period: 110 to 170 days
Farmland classification: Prime farmland if drained

Map Unit Composition
Rhinebeck and similar soils: 75 percent
Minor components: 25 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Rhinebeck

Setting
Landform: Lake plains
Landform position (two-dimensional): Footslope
Landform position (three-dimensional): Tread
Down-slope shape: Concave
Across-slope shape: Linear
Parent material: Clayey and silty glaciolacustrine deposits

Typical profile
H1 - 0 to 13 inches: silty clay loam
H2 - 13 to 28 inches: silty clay
H3 - 28 to 70 inches: stratified silt loam to clay

Properties and qualities
Slope: 0 to 3 percent
Depth to restrictive feature: More than 80 inches

Drainage class: Somewhat poorly 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 6 to 18 inches
Frequency of flooding: None
Frequency of ponding: None
Calcium carbonate, maximum content: 10 percent
Available water supply, 0 to 60 inches: Moderate (about 8.6 inches)

Interpretive groups
Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 3w
Hydrologic Soil Group: C/D
Ecological site: F101XY009NY - Moist Lake Plain
Hydric soil rating: No

Minor Components

Madalin
Percent of map unit: 5 percent
Landform: Depressions
Hydric soil rating: Yes

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

Fonda
Percent of map unit: 5 percent
Landform: Depressions
Hydric soil rating: Yes

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

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

RhB—Rhinebeck silty clay loam, 3 to 8 percent slopes

Map Unit Setting
National map unit symbol: bd6q
Elevation: 80 to 1,000 feet
Mean annual precipitation: 38 to 44 inches
Mean annual air temperature: 45 to 48 degrees F
Frost-free period: 110 to 170 days
Farmland classification: Prime farmland if drained

Map Unit Composition
Rhinebeck and similar soils: 75 percent

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

Description of Rhinebeck

Setting

Landform: Lake plains
Landform position (two-dimensional): Footslope
Landform position (three-dimensional): Tread
Down-slope shape: Concave
Across-slope shape: Linear
Parent material: Clayey and silty glaciolacustrine deposits

Typical profile

H1 - 0 to 13 inches: silty clay loam
H2 - 13 to 28 inches: silty clay
H3 - 28 to 70 inches: stratified silt loam to clay

Properties and qualities

Slope: 3 to 8 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Somewhat poorly 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 6 to 18 inches
Frequency of flooding: None
Frequency of ponding: None
Calcium carbonate, maximum content: 10 percent
Available water supply, 0 to 60 inches: Moderate (about 8.6 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 3w
Hydrologic Soil Group: C/D
Ecological site: F101XY009NY - Moist Lake Plain
Hydric soil rating: No

Minor Components

Fonda

Percent of map unit: 5 percent
Landform: Depressions
Hydric soil rating: Yes

Churchville

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

Hudson

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

Madalin

Percent of map unit: 5 percent
Landform: Depressions
Hydric soil rating: Yes

Odessa

Percent of map unit: 5 percent

Hydric soil rating: No

Wy—Wayland soils complex, 0 to 3 percent slopes, frequently flooded

Map Unit Setting

National map unit symbol: 2srgv
Elevation: 160 to 1,970 feet
Mean annual precipitation: 31 to 68 inches
Mean annual air temperature: 43 to 52 degrees F
Frost-free period: 105 to 180 days
Farmland classification: Not prime farmland

Map Unit Composition

Wayland and similar soils: 60 percent
Wayland, very poorly drained, and similar soils: 30 percent
Minor components: 10 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Wayland

Setting

Landform: Flood plains
Landform position (three-dimensional): Tread
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Silty and clayey alluvium derived from interbedded sedimentary rock

Typical profile

A - 0 to 6 inches: silt loam
Bg1 - 6 to 12 inches: silt loam
Bg2 - 12 to 18 inches: silt loam
C1 - 18 to 46 inches: silt loam
C2 - 46 to 72 inches: silty clay loam

Properties and qualities

Slope: 0 to 3 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Poorly drained
Capacity of the most limiting layer to transmit water (Ksat): Moderately low to high (0.14 to 14.17 in/hr)
Depth to water table: About 0 to 6 inches
Frequency of flooding: FrequentNone
Frequency of ponding: None
Calcium carbonate, maximum content: 15 percent
Maximum salinity: Nonsaline (0.0 to 1.9 mmhos/cm)
Available water supply, 0 to 60 inches: Very high (about 12.6 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 5w

Hydrologic Soil Group: B/D
Ecological site: F139XY009OH - Wet Floodplain
Hydric soil rating: Yes

Description of Wayland, Very Poorly Drained

Setting

Landform: Flood plains
Landform position (three-dimensional): Tread
Down-slope shape: Concave
Across-slope shape: Concave
Parent material: Silty and clayey alluvium derived from interbedded sedimentary rock

Typical profile

A - 0 to 6 inches: mucky silt loam
Bg1 - 6 to 12 inches: silt loam
Bg2 - 12 to 18 inches: silt loam
C1 - 18 to 46 inches: silt loam
C2 - 46 to 72 inches: silty clay loam

Properties and qualities

Slope: 0 to 3 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Very poorly drained
Capacity of the most limiting layer to transmit water (Ksat): Moderately low to high (0.14 to 14.17 in/hr)
Depth to water table: About 0 inches
Frequency of flooding: NoneFrequent
Frequency of ponding: Frequent
Calcium carbonate, maximum content: 15 percent
Maximum salinity: Nonsaline (0.0 to 1.9 mmhos/cm)
Available water supply, 0 to 60 inches: Very high (about 12.8 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 5w
Hydrologic Soil Group: B/D
Ecological site: F139XY009OH - Wet Floodplain
Hydric soil rating: Yes

Minor Components

Wakeville

Percent of map unit: 10 percent
Landform: Flood plains
Landform position (two-dimensional): Footslope
Landform position (three-dimensional): Talf
Down-slope shape: Concave
Across-slope shape: Linear
Hydric soil rating: No

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APPENDIX D

NYSDOT Highway Design Manual Exhibits

Exhibit 8-3 Design Flood Frequencies (in years) For Drainage Structures and Channels[1]

Road type or Functional Class	Culvert[2]	Storm Drainage Systems	Driveway Culverts	Ditches [4]
Interstates and Other Freeways	50	10[5]	n/a	25
Principal Arterials	50	10[5]	25	25
Minor Arterials	50[6]	5[7]	10	10
Major Collectors	50[6]	5[7]	10	10
Minor Collectors	50[6]	5[7]	10	10
Local Roads & Streets w/ AADT>400	50[6]	5[7]	10	10
A or B type highways (AADT < 400) [8, 10]	50[6]	5[7]	10	10
C [8,9,10]				

NOTES

1. The values in this table are typical. The selected value for a project should be based upon an assessment of the likely damage to the highway and adjacent landowners from a given flow and the costs of the drainage facility. Note: 100-year requirements must be checked if the proposed highway is in an established regulatory floodway or floodplain.
2. The check flow, used to assess the performance of the facility, should be the 100 year storm event.
3. Relocated natural channels should have the same flow characteristics (geometrics and slope) as the existing channel and should be provided with a lining having roughness characteristics similar to the existing channel.
4. Including lining material (All ditches should have a lining material and not be left untreated).
5. As per 23CFR650A, and Table 1-1 of HDS 2, a 50-year frequency shall be used for stormwater design at the following locations where no overflow relief is available:
   a. sag vertical curves connecting negative and positive grades.
   b. other locations such as underpasses, depressed roadways, etc.
6. A design flood frequency of 10 or 25 years is acceptable if documented in the Design Approval Document, and when identified after design approval, in the drainage report. A design flood frequency of 10 or 25 years should be used in the design of driveway culverts and similar structures.
7. Use a 25-year frequency at the following locations where no overflow relief is available:
   a. sag vertical curves connecting negative and positive grades.
   b. other locations such as underpasses, depressed roadways, etc.
8. Dead end highways should use the Local Road Standard as a minimum for sizing, but the roadway and structure should be armored to handle a larger event without washing out.
9. Existing structures are considered acceptable unless there are known flooding issues which require a more detailed design. In such a case, the A/B standard should be followed.
10. See HDM Chapter 4, Table 4-1 for the definition of Type A, B and C Low Volume Highways.

A. Rational Method

This method is recommended to determine the peak discharge, or runoff rate, from drainage areas up to 200 acres. If a hydrograph is required to consider the effects of storage, use the Modified Soil Cover Complex method, or a similar method.

The Rational Method assumes the following:

1. Peak discharge occurs when all of the drainage area is contributing,
2. A storm that has a duration equal to the time of concentration (T_c) produces the highest peak discharge for the selected frequency,
3. Intensity is uniform over a duration of time equal to or greater than the T_c, and
4. The frequency of the peak flow is equal to the frequency of the intensity.

The rational method formula is:

$Q = CiA$, where:

Q = peak discharge or rate of runoff (cfs)
C = runoff coefficient
i = intensity (in/hr)
A = drainage area (acres)

1. Runoff coefficient. The runoff coefficient selected shall represent the characteristics of the drainage area being analyzed. A weighted runoff coefficient (C_w) should be used in the Rational formula for drainage areas having different runoff characteristics. C_w should be calculated as follows:

$C_w = \sum C_i A_i / A$, where

C_i = runoff coefficient for subarea "i"
A_i = subarea

Refer to Exhibit 8-4 for recommended runoff coefficients.

Exhibit 8-4 Values of Runoff Coefficient (C) for Use in the Rational Method

Type of Surface	Runoff Coefficient (C)[1]
Rural Areas	
Concrete, or Hot Mix Asphalt pavement	0.95 - 0.98
Gravel roadways or shoulders	0.4 - 0.6
Steep grassed areas (1:2, vert.:horiz.)	0.6 - 0.7
Turf meadows	0.1 - 0.4
Forested areas	0.1 - 0.3
Cultivated fields	0.2 - 0.4
Urban/Suburban Areas	
Flat residential, @ 30% of area impervious	0.40
Flat residential, @ 60% of area impervious	0.55
Moderately steep residential, @ 50% of area impervious	0.65
Moderately steep built up area, @ 70% of area impervious	0.80
Flat commercial, @ 90% of area impervious	0.80

NOTE

1. For flat slopes and/or permeable soil, use lower values. For steep slopes and/or impermeable soil, use the higher values.

2. Intensity. Determine intensity i.e., the rate of rainfall upon the drainage area, using intensity-duration-frequency (IDF) curves developed for the area being analyzed, a duration equal to the time of concentration (T_c), and a frequency equal to the design flood frequency.

   IDF relationships are based upon statistical analysis of rainfall data. They describe, for a given flood frequency, the average intensity of rainfall for a storm of a given duration (equal to the time of concentration). The statistical data for New York State is based upon "Technical Paper No. 40" (TP-40) and the "NOAA Technical Memorandum NWS HYDRO-35". The methodology for developing IDF curves is presented in "Drainage of Highway Pavements", Highway Engineering Circular (HEC) No. 12. To construct a set of IDF curves for a given location, HEC-12 uses six data points from HYDRO-35: the 2-year 5, 15 and 60 minute rainfalls and the 100-year 5, 15 and 60 minute rainfalls. the 60 minute rainfall for each intermediate return period is calculated from these points, and then the rainfall intensities for other durations are calculated. IDF curves for some locations are available from the Regional Design Group or should be constructed from known rainfall data.

   To obtain the intensity, the T_c must first be estimated. The T_c is defined as the time required for water to travel from the most remote point in the watershed to the point of interest. The time of concentration path is the longest in time, and is not necessarily the longest in distance. Various methods can be used to determine the T_c of a drainage area. The method used to determine the T_c should be appropriate for the flow path (sheet flow, concentrated flow, or channelized flow). The minimum T_c used shall be 5 minutes.