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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 Clinton County, New York, and Essex County, New York

July 1, 2016

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 (http://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.

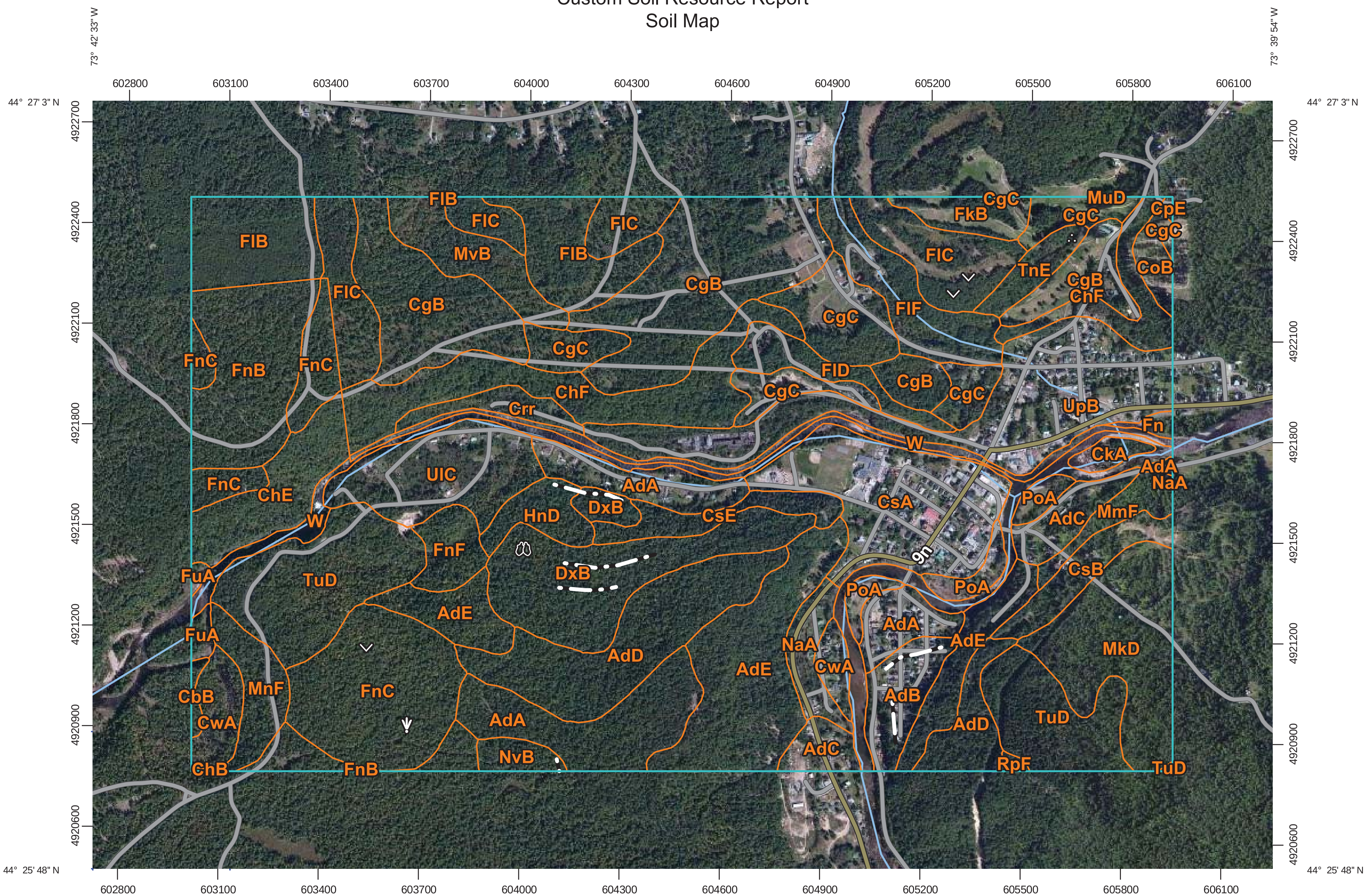
Predictions about soil behavior are based not only on soil properties but also on such variables as climate and biological activity. Soil conditions are predictable over long periods of time, but they are not predictable from year to year. For example, soil scientists can predict with a fairly high degree 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.

Soil Map



Map Scale: 1:16,100 if printed on A landscape (11" x 8.5") sheet.

Meters: 0, 200, 400, 800, 1200

Feet: 0, 500, 1000, 2000, 3000

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 1:24,000.

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

Source of Map: Natural Resources Conservation Service
Web Soil Survey URL: http://websoilsurvey.nrcs.usda.gov
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: Clinton County, New York
Survey Area Data: Version 14, Sep 25, 2015

Soil Survey Area: Essex County, New York
Survey Area Data: Version 12, Sep 22, 2015

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: Aug 28, 2010—Oct 8, 2011

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

Map Unit Legend

Clinton County, New York (NY019)			
Map Unit Symbol	**Map Unit Name**	**Acres in AOI**	**Percent of AOI**
CgB	Champlain fine sand, 3 to 8 percent slopes	116.1	9.3%
CgC	Champlain fine sand, 8 to 15 percent slopes	49.9	4.0%
ChF	Champlain and Adams soils, very steep	57.1	4.6%
CoB	Colton gravelly loamy coarse sand, 3 to 8 percent slopes	4.9	0.4%
CpE	Colton gravelly loamy coarse sand, steep, very stony	0.5	0.0%
Crr	Cornish silt loam	7.9	0.6%
FkB	Fernlake cobbly loamy sand, 3 to 8 percent slopes	9.5	0.8%
FlB	Fernlake cobbly loamy sand, gently sloping, very bouldery	47.0	3.8%
FlC	Fernlake cobbly loamy sand, strongly sloping, very bouldery	51.9	4.2%
FlD	Fernlake cobbly loamy sand, moderately steep, very bouldery	11.9	1.0%
FlF	Fernlake cobbly loamy sand, very steep, very bouldery	23.6	1.9%
Fn	Fluvaquents-Udifluvents complex, frequently flooded	1.8	0.1%
MuD	Monadnock fine sandy loam, moderately steep, very bouldery	0.0	0.0%
MvB	Mooers loamy sand, 3 to 8 percent slopes	18.8	1.5%
TnE	Tunbridge-Lyman complex, steep, very rocky	7.9	0.6%
UpB	Urban land-Plainfield complex, gently sloping	67.4	5.4%
W	Water	10.6	0.9%
Subtotals for Soil Survey Area		**486.9**	**39.0%**
Totals for Area of Interest		**1,247.3**	**100.0%**

Essex County, New York (NY031)			
Map Unit Symbol	**Map Unit Name**	**Acres in AOI**	**Percent of AOI**
AdA	Adams loamy sand, 0 to 3 percent slopes	58.8	4.7%
AdB	Adams loamy sand, 3 to 8 percent slopes	15.0	1.2%

Essex County, New York (NY031)			
Map Unit Symbol	Map Unit Name	Acres in AOI	Percent of AOI
AdC	Adams loamy sand, 8 to 15 percent slopes	17.5	1.4%
AdD	Adams loamy sand, 15 to 25 percent slopes	56.7	4.5%
AdE	Adams loamy sand, 25 to 45 percent slopes	74.9	6.0%
CbB	Colton very gravelly loamy sand, 3 to 8 percent slopes, very bouldery	1.6	0.1%
ChB	Champlain loamy sand, 3 to 8 percent slopes	0.2	0.0%
ChE	Champlain loamy sand, 25 to 45 percent slopes	23.6	1.9%
CkA	Charles silt loam, 0 to 2 percent slopes, frequently flooded	3.9	0.3%
CsA	Colton very gravelly loamy sand, 0 to 3 percent slopes	51.3	4.1%
CsB	Colton very gravelly loamy sand, 3 to 8 percent slopes	13.4	1.1%
CsE	Colton very gravelly loamy sand, 25 to 45 percent slopes	12.1	1.0%
CwA	Croghan fine sand, 0 to 3 percent slopes	15.3	1.2%
DxB	Duxbury fine sandy loam, 3 to 8 percent slopes	48.6	3.9%
FnB	Fernlake loamy fine sand, 3 to 8 percent slopes, very bouldery	50.2	4.0%
FnC	Fernlake loamy fine sand, 8 to 15 percent slopes, very bouldery	65.0	5.2%
FnF	Fernlake loamy fine sand, 35 to 60 percent slopes, very bouldery	10.2	0.8%
FuA	Fluvaquents-Udifluvents complex, frequently flooded, nearly level	3.1	0.2%
HnD	Hermon gravelly loamy sand, 15 to 35 percent slopes, very bouldery	10.4	0.8%
MkD	Monadnock fine sandy loam, 15 to 35 percent slopes, very bouldery	43.7	3.5%
MmF	Monadnock-Adams complex, 25 to 60 percent slopes, bouldery	8.4	0.7%
MnF	Monadnock-Tunbridge complex, 35 to 60 percent slopes, rocky, very bouldery	13.8	1.1%
NaA	Naumburg loamy fine sand, 0 to 3 percent slopes	10.1	0.8%
NvB	Nicholville silt loam, 3 to 8 percent slopes	5.5	0.4%

Essex County, New York (NY031)			
Map Unit Symbol	**Map Unit Name**	**Acres in AOI**	**Percent of AOI**
PoA	Podunk very fine sandy loam, 0 to 3 percent slopes	11.8	0.9%
RpF	Rock outcrop-Knob Lock-Lyman complex, 35 to 60 percent slopes, very bouldery	0.8	0.1%
TuD	Tunbridge-Lyman complex, 15 to 35 percent slopes, very rocky, very bouldery	68.7	5.5%
UlC	Udorthents, nearly level through strongly sloping	33.2	2.7%
W	Water	32.8	2.6%
Subtotals for Soil Survey Area		**760.4**	**61.0%**
Totals for Area of Interest		**1,247.3**	**100.0%**

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